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Acronyms/Abbreviations

Acronyms/Abbreviations	Definition
AA	Appropriate Assessment
AFBI	Agri-Food and Biosciences Institute
AoHSV	Areas of High Scenic Value
AONB	Areas of Outstanding Natural Beauty
APIS	Air Pollution Information System
AQMA	Air Quality Management System
AQS	Air Quality Strategy
ASSAP	Agricultural Sustainability Support and Advice Programme
ASSI	Area of Special Scientific Interest
CAMSAR	Condition and Management Survey of the Archaeological Resource
CAP	Common Agricultural Policy
CEH	Centre for Ecology and Hydrology
CH_4	Methane
CJEU	Court of Justice of the European Union
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COGAP	Code of Good Agricultural Practice
CORINE	Co-ordinated Information on the Environment
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and Marine
DECC	Department of the Environment, Climate and Communications
DfC	Department for Communities
DfI	Department for Infrastructure
DHLGH	Department of Housing, Local Government and Heritage
DIN	Dissolved Inorganic Nitrogen
DTM	Digital Terrain Model

Acronyms/Abbreviations	Definition
DWI	Drinking Water Inspectorate
DWPA	Drinking Water Protected Area
EFS	Environmental Farming Scheme
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPOs	Environmental Protection Objectives
EQS	Environmental Quality Standards
FCS	Favourable Conservation Status
FSA	Food Standards Agency
GAEC	Good Agricultural and Environmental Condition
GBF	Global Biodiversity Framework
GES	Good Environmental Status
GHG	Greenhouse Gas
GSNI	Geological Survey Northern Ireland
GVA	Gross Value Added
GWDTE	Groundwater-dependent Terrestrial Ecosystem
HARNI	Heritage At Risk Register NI
HED	Historic Environment Division
HERoNI	Historic Environment Record of Northern Ireland
HOST	Hydrology of Soil Types
HRA	Habitats Regulation Assessment
JNCC	Joint Nature Conservation Committee
LAQM	Local Air Quality Management
LBAP	Local Biodiversity Action Plans
LCA	Landscape Character Areas
LDP	Local Development Plan
LESSE	Low Emission Slurry Spreading Equipment
LiDAR	Light Detection and Ranging

Acronyms/Abbreviations	Definition
LULUCF	Land Use, Land Use Change and Forestry
MCZ	Marine Conservation Zones
MPA	Marine Protected Area
MSFD	Marine Strategy Framework Directive
NAEI	National Atmosphere Emission Inventory
NALCO	Nature Conservation and Amenity Lands Order
NAP	Nutrients Action Programme
NBRBD	Neagh Bann River Basin District
NBPT	N-(n-Butyl) thiophosphoric triamide
NEC	National Emission Ceilings
NERBD	North-Eastern River Basin District
NH_3	Ammonia
NHA	Natural Heritage Area
NI	Northern Ireland
NIEA	Northern Ireland Environment Agency
NILCA	Northern Ireland Landscape Character Assessment
NIRLCA	Northern Ireland Regional Landscape Character Assessment
NISRA	Northern Ireland Statistics and Research Agency
NMVOCs	Non-Methane Volatile Organic Compounds
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_3	Nitrate
NVZs	Nitrate Vulnerable Zones
NWRBD	North-Western River Basin District
O_3	Ozone
PAHs	Polycyclic Aromatic Hydrocarbons
PfG	Programme for Government
PM	Particulate Matter

Acronyms/Abbreviations	Definition
PMF	Priority Marine Feature
pNHA	Proposed Natural Heritage Area
POPs	Persistent Organic Pollutants
PPP	Public Private Partnership
pSPA	Proposed Special Protection Area
RBD	River Basin District
RBMP	River Basin Management Plan
RCA	Regional Character Area
RDP	Rural Development Programme
RIAA	Report to Inform Appropriate Assessment
RSCA	Regional Seascape Character Area
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SALMS	Sustainable Agricultural Land Management Strategy
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SLNCI	Sites of Local Nature Conservation Importance
SMR	Statutory Management Requirements
SO_2	Sulphur Dioxide
SOER	State of the Environment Report
SPA	Special Protection Area
SRP	Soluble Reactive Phosphorous
SWPA	Shellfish Water Protected Area
TFP	Total Factor Productivity
TOMPS	Toxic Organic Micro Pollutants
UNCLOS	UN Convention on the Law of the Sea
uPBT	ubiquitous Persistent Bioaccumulative Toxic
UWWTD	Urban Waste-Water Treatment Directive

Acronyms/Abbreviations	Definition
WFD	Water Framework Directive
WHO	World Health Organisation
WHS	World Heritage Site
WTW	Water Treatment Works
WWTWs	Wastewater Treatment Works

Non-Technical Summary

Introduction

The Nitrates Directive (91/676EEC), introduced in 1991, aims to protect the water quality of Member States from the pollution of nitrates from agricultural sources, and to promote the use of good agricultural practice, applicable to all farmers. The Directive requires the preparation and implementation of Action Programmes and their subsequent review, and revision where necessary, every four years. This process has been given legal status in Northern Ireland through the Nitrates Action Programme Regulations (Northern Ireland) 2014.

Prior to the preparation of the current Nutrients Action Programme (NAP) operating in Northern Ireland, a review of the Action Programme occurred, with this, the requirements of the Nitrates Action Programme Regulations (Northern Ireland) 2014 and the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014 were combined into the Nutrient Action Programme Regulations (Northern Ireland) 2019.

The current NAP operating in Northern Ireland is for the period 2019-2022, which came into operation in April 2019, referred to as the NAP Regulations (Northern Ireland) 2019. As required the Department of Agriculture, Environment and Rural Affairs (DAERA) are now undertaking a review of the current NAP, the proposed upcoming draft NAP 2027-2030 covers the period from 2026 to 2029, referred to as the draft NAP 2027-2030.

The Strategic Environmental Assessment (SEA) Directive (2001/42/EC) requires that the environment is considered during the preparation of Plans and Programmes. This includes ensuring that the environment is fully considered during the development of the draft NAP 2027-2030.

The purpose of this Environmental Report is to assess and describe the potential significant effects on the wider environment that could arise from implementing the draft NAP 2027-2030.

A Report to Inform Appropriate Assessment (RIAA) was prepared alongside this Environmental Report, and its findings have been incorporated into this Environmental Report. The RIAA focusses on the potential for impacts on any European protected sites from implementation of the draft NAP 2027-2030 and also helps to guide the sustainable development of the draft NAP 2027-2030.

Description of the NAP

The current NAP Regulations are implemented through the Nutrient Action Programme Regulations (Northern Ireland) 2019. The draft NAP 2027-2030 for the period 2027-2030 proposes to carry forward all existing measures, however, based on new scientific evidence and/or technical, regulatory and policy developments, it also proposes the introduction of new measures and amendments to the NAP Regulations (Northern Ireland) 2019. The reviewed draft NAP 2027-2030 aims to improve the implementation and enforcement of existing measures, address legacy soil phosphorus build-up, and further strengthen enforcement and compliance with the NAP measures.

The existing legislative framework of the NAP Regulations (Northern Ireland) 2019 includes the following sections, each of which include one or more measures:

- Part 1 – Preliminary
- Part 2 – General
- Part 3 – Prevention of water pollution from the application of fertilisers
- Part 4 – Storage requirements
- Part 5 – Measures relating to land management
- Part 6 – Record keeping and compliance monitoring
- Part 7 – Enforcement
- Part 8 – Powers, duties, and functions of the Department
- Part 9 – Miscellaneous
- Part 10 – Derogation from measures governing the limits on land application of livestock manure

The new measures and amendments proposed for the draft NAP 2027-2030 include the following:

- ***Increased mandatory use of Low Emission Slurry Spreading Equipment*** (LESSE) moving to increased mandatory use of LESSE through a tiered approach based on livestock units;
- ***Changes in nitrogen fertiliser use***, including a ban on urea fertiliser that does not include an inhibitor within a certain seasonal window, and whole farm limits on chemical nitrogen fertiliser based on grass production;
- ***Additional phosphorus controls***, including further advisory restrictions on the use of chemical phosphorus fertiliser, with the need for valid soil analysis and nutrient management plans to demonstrate the need for phosphorus before application. This will help to ***decrease the national average phosphorus surplus***;
- An enhanced online IT system for recording ***imports and exports of slurry and manure*** movements, as well as processed/separated slurry solids from farms and digestate to farms;
- Amendments to ***storage requirements*** with pre-notification of new slurry and silage storage facilities required before construction, and details of requirements for covering of new above ground stores;
- Proposed changes to the ***NAP derogation to a Nutrient Stewardship Programme***, including a tiered system; and
- Additional requirements relating to the use of ***anaerobic digestate***, including recording of movements and nutrient content.

The draft NAP 2027-2030 will be in force for four years and will cover the period from 2027 to 2030.

As it is a national level programme, the assessment primarily focuses on activities occurring at a national to regional scale, while also considering any likely significant environmental effects across the border in the Republic of Ireland, including in the marine area.

Baseline and Environmental Issues

An environmental baseline was produced by SEA environmental topic. The full environmental baseline can be found in **Section 3.0** of this report. The purpose of this section is to demonstrate the level of baseline environmental information to be used in the assessment of potential effects of the proposed policies.

Biodiversity, Flora and Fauna

The NAP area contains a variety of habitats and species which are of conservation concern and are protected under a number of European and national designations. Special Protection Areas (SPAs) are designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), “The Birds Directive”, as areas that are important for breeding, feeding, wintering or migration of rare and vulnerable bird species. There are 16 SPAs designated in Northern Ireland to date. Special Areas of Conservation (SACs) are designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species. There are 58 SACs designated in Northern Ireland to date. Northern Ireland has 49 habitats listed in Annex I of the Habitats Directive, of which 13 are considered to be priority habitats at a European level, and 18 species listed in Annex II of the Directive. There are 20 Ramsar sites in Northern Ireland, which are designated under the “Ramsar Convention”, which is an international treaty for the conservation and sustainable use of wetlands.

Areas of Special Scientific Interest (ASSIs) are protected under the Environment (Northern Ireland) Order 2002. There are 394 ASSIs designated in Northern Ireland for the presence of flora or fauna of special scientific interest or for the geological features present. In addition, each council area in Northern Ireland reports on locally important sensitive or valued habitats through the production of Local Biodiversity Action Plans (LBAPs). There are 940 Sites of Local Nature Conservation Importance (SLNCI) and 50 National Nature Reserves.

The most recent reporting for European designated habitats and species in Northern Ireland is the 4th UK Habitats Directive Report[1] . This report indicated that for European designated habitats indicates that 44 out of 48 have at least one pressure that relates to agricultural activities such as water pollution and degradation, air pollution, and land use including grazing practices, fertiliser application or land drainage. For designated species, 24 out of 26 were identified as having these pressures, including land management practices, pollution of surface, ground or marine waters, and air pollution arising from mixed sources. For ASSIs, the latest reporting from the Northern Ireland Environmental Statistics Report (DAERA, 2026[2]) indicates that only 52% of all features are in a favourable condition, for biological features comprising 36% of habitats and 53% of species. For water-dependent European sites, 71% are currently in unfavourable conservation condition (i.e., failing to meet their conservation objectives), with these failures relating to pressures from the water environment in 23% of sites. Following the UK's exit from the EU, reporting to the European Commission will no longer be required, however DAERA will report periodically every 6 years following exit from the EU. The first of these reports was published in 2026 as Habitats Regulations Reporting, covering the period for 2019-2024[3]. The report indicated that the overall trend from the previous reporting cycle is continuing with habitats and species in poor condition.

The deposition of nitrogen, arising principally from ammonia emissions is a key environmental challenge for the agriculture sector. Nitrogen can be deposited through either dry deposition, which is usually close to the source of the emission, or through wet deposition in rainfall, which can be transported much further. Exposure to ammonia and to the deposition of nitrogen compounds can negatively affect sensitive habitats, including bogs and woodlands, and deposition can contribute to the nutrient enrichment of surface waters.

Population and Human Health

According to NISRA (Northern Ireland Statistics and Research Agency) in 2024, the total population in Northern Ireland was 1.93 million people and is predicted to increase to approximately 1.95 million individuals by 2033 and is then projected to fall to 1.93 million by 2047[4]. The population density of Northern Ireland in 2024 was 142.4 people per km^2, varying across the Local Government Districts, with a more dispersed population in rural areas. In 2021-2023, life expectancy at birth was 78.8 years for men and 82.5 years for women living in Northern Ireland.

Good air quality is essential for human health and wellbeing. Agriculture is a significant source of the greenhouse gas methane, as well as air pollutant emissions of particulate matter (PM) and reduced nitrogen, such as ammonia. Ammonia can also react with fumes from traffic and industry to produce particulates.

The availability of a clean water supply is also essential for the general health of the population. In 2025, 24% of reported water pollution incidences investigated by the Northern Ireland Environment Agency (NIEA) were categorised as arising from farms. There are 26 surface water and 65 groundwater protected areas for drinking water in Northern Ireland. The status of waterbodies described in the 3rd cycle RBMP (River Basin Management Plan) indicates that 57.7% of surface water sites (15 out of 26) had at least one parameter that exceeded drinking water standards prior to treatment by NI Water, and that 92% of groundwater sites are currently at good status, with 8% at poor status.

Designated shellfish waters are required to meet ecological and chemical objectives under the Water Framework Directive (WFD) as well as food standards to ensure that the quality of shellfish harvested are sufficient to protect public health. Three out of nine sites monitored complied with food standard guidelines in 2025. The assessment of WFD status indicates that the status of surface waterbodies associated with these sites is moderate i.e., less than good status at all 10 sites. The 3rd cycle RBMP for 2021-2027 indicates the

[1] Article 17 Habitats Directive Report 2019

[2] Northern Ireland Environmental Statistics Report 2026

[3] Northern Ireland Habitats Regulations Reporting

[4] 2022-based Population Projections for Northern Ireland

status of surface waterbodies associated with these sites; according to the surface water classification for 2021, all 10 surface waterbodies were at 'moderate' surface water status.

There are 33 designated bathing waters in Northern Ireland, with the most recent assessment of quality compliance in 2025 classifying 24 as 'excellent' quality, five as 'good' quality, three as 'sufficient' quality and one as 'poor' quality for bathing.

Geology, Soils and Land Use

The geological landscape of Northern Ireland is remarkably varied considering it is a relatively small area of approximately 14,000km^2 and is a reflection of the diverse geology on which it has been shaped. Soil formation is equally varied, with nine main soil types identified across Northern Ireland, as recognised by The World Reference Base map.

Land use in Northern Ireland is primarily composed of 'Pastures' (8,889km^2), followed by 'Natural grassland' (1,024km^2), 'Moors and heathland' (640km^2) and 'Peat bogs' (550km^2). Pastures, which comprise approximately 63% of land cover across Northern Ireland, are located across the country, with the exception of upland areas, such as the Mourne Mountains in the south-east, the Antrim Hills in the north-east, the Sperrins in the west and raised bog peatland areas in mid-Ulster. Around 77% of the total Northern Ireland land area (1.35 million hectares) is used for agriculture. Most farmland in Northern Ireland is under grass, with cattle and sheep present on 20,653 farms in 2024.

The likelihood for contaminants to reach the water table from the ground surface is termed groundwater vulnerability and is a combination of land use and aquifer (rock that contains or transmits groundwater) classification. Nitrates generally pass through high permeability, well-drained soils and can reach groundwater through locally and regionally important aquifers where the nutrient can be transported long distances. Phosphates are generally easily bound to minerals in well drained soils, however, where soils are poorly draining or waterlogged, phosphates can be lost through runoff and erosion, with waterbodies close to the source at highest risk of increased phosphorus concentrations. This is important as Stagnosols (named due to stagnating surface water) are the most abundant soil type across Northern Ireland, particularly in low lying areas, with the potential for widespread phosphorus mobilisation in these lowland areas.

Nutrient balances are based on the difference in inputs of nutrients to farms (via chemical fertilisers and imported feed) minus the outputs, which are the agricultural products exported off the farm. Since 2007, the nitrate balance has fluctuated, with a generally increasing overall trend that is mainly due to increased nitrate in imported feed. The trend for phosphorus is similar, with fluctuations and an overall increasing trend since 2008, with a gradual increase in the contribution from fertiliser and feed, however, the contribution from feed has now increased to around three times greater than that from fertilisers.

Water

The WFD is implemented in Northern Ireland through RBMP and inter alia aims to protect and restore water sources from pollution. There are 496 WFD surface waterbodies in Northern Ireland comprising 450 rivers, 21 lakes and 25 transitional and coastal waters, and 75 ground waterbodies.

The status of waterbodies described in the 3rd cycle RBMP for Northern Ireland (for the period 2021-2027) indicates that Northern Ireland will not achieve the objective to have 70% of its waterbodies at 'good or better' status by 2027. There has been little improvement in status since 2015, with around 29% of waterbodies at 'good or better' status according to the latest assessments in 2024, a decline from 31% of river waterbodies achieving good or high ecological status in 2021. 24% of lakes achieved good ecological status in 2024, in comparison to 14% achieving good or high status in 2021. 40% of transitional and coastal waterbodies achieved good ecological status in 2024, which has remained consistent from 2021. The main pressures on the water environment in Northern Ireland have been identified as nutrient pressures, which are mostly linked to agricultural activities and sewage-related problems.

Protected Areas under the WFD include those protected for drinking water (of which there are 26 surface waters and 65 groundwaters), protection of economically significant aquatic species (of which there are 10

sites designated as Protected Areas for shellfish, protecting quality for human consumption), bathing (of which there are 26 designated bathing waters), nutrient sensitive areas (of which there are 23 Urban Waste Water Treatment Directive sensitive areas), and water-dependent areas (of which there are 66 water-dependent European sites and nine groundwater-dependent terrestrial ecosystems).

The Marine Strategy Framework Directive (MSFD) aims to achieve or maintain Good Environmental Status (GES) of marine waters. The first UK assessment of Northern Ireland seas was published in 2012, and set objectives, targets and indicators for achieving GES; this was updated in 2019 and 2025. The status of the elements assessed under the Marine Strategy Directive was mixed, and the impacts identified included the "Input of nutrients – diffuse sources, point sources, atmospheric deposition", listed as a relevant pressure for pelagic (open-water) habitats, and "input of nutrients and input of organic matter", listed as a relevant pressure for benthic habitats and eutrophication, including from activities associated with agriculture.

DAERA has responsibility for monitoring water quality of surface waters (rivers, lakes, transitional and coastal marine waters) and groundwaters across Northern Ireland, with the surface freshwater monitoring network aiming to fulfil all monitoring requirements under various EU Directives including the WFD and Nitrates Directive. Monitoring of nitrates indicates that 100% of waterbodies were below 25mg/L of nitrates in the period 2020-2023, but that the proportion of sites with annual average nitrate concentration below 10mg/L has been declining since 2012, with less sites (77.6%) showing declining monthly average nitrate concentrations than was reported for the previous monitoring period, and an increasing long-term trend for 9.8% of sites in 2020, which rose to 23.6% in 2023; generally, these monitoring sites were in the south and east of Northern Ireland. For phosphorus, 91.4% of monitoring sites showed a stable or decreasing concentration compared to the previous reporting period, however, with 41.5% at less than good status with a potential risk of eutrophication and a marginal increase in levels seen in recent years.

Owing to the large number of rivers within Northern Ireland, there is a significant degree of fluvial flood risk (when river channel capacity is exceeded), particularly in relation to large rivers, and a significant risk of surface water (pluvial) and coastal flooding. The risk of flooding following heavy rainfall events can lead to increased runoff of sediments and pollutants from agricultural lands, with consequences for receiving water quality, while land management practices can have a significant influence on flood risk in downstream areas.

Air Quality

On the whole, air quality in Northern Ireland has improved significantly over the past few decades; in particular, concentrations of sulphur dioxide, originating from the combustion of coal and oil, has reduced. However, some pollutants are continuing to exceed air quality objectives. This has consequences on both human health and on some of our most important habitats that are sensitive to the effects of atmospheric pollutant deposition. Of particular relevance to the agriculture sector are the concentrations of ammonia gas, with agriculture recognised as the dominant source of ammonia emissions in Northern Ireland and worldwide.

The latest reporting of UK air emissions indicates that most pollutant emission levels were lower in 2025 than they were in 2005, however, ammonia emissions have increased since 2010 as a result of greater numbers of dairy cattle and associated manure management and spreading, as well as an increase in other nitrogen-based (primarily urea-based and digestate) fertiliser use. It was estimated that, in 2023, 12% of all UK ammonia emissions came from Northern Ireland, with 97% of this from the agriculture sector. Agriculture was also an important sector in the contribution of Non-Methane Volatile Organic Compounds (NMVOCs), primarily from manure spreading, and Particulate Matter with a diameter ≤10µm (PM_{10}). The UK has international obligations for ammonia reduction.

Nitrogen can be lost to the air in gaseous forms such as ammonia or nitrous oxide from livestock, their manures and from the application of fertiliser. The transport of ammonia can vary greatly, and emissions can lead to impacts at a local level, as well as contributing to the effects of long-range pollutant transport. Ammonia emissions can lead to the dry or wet deposition of nitrogen compounds on land. Atmospheric pollutants, especially nitrogen and ammonia, can have adverse impacts on terrestrial and aquatic ecosystems, causing eutrophication and acidification.

Climatic Factors

Climate change represents one of the most important threats to the environment, and to the economy. UK Climate Change Projections anticipate a greater chance of hotter, drier summers and warmer, wetter, winters with more extreme weather and rising sea levels. These effects of climate change are likely to increase pluvial, fluvial and coastal flooding, and there is potential for increased drought which may impact on agricultural activities, such as through implications for fertilisation regimes with alterations in soil conditions and the incorporation of nutrients within soil layers for uptake by plants.

Northern Ireland has a legally binding target for the reduction of greenhouse gas (GHG) emissions by 100% by 2050 from 1990 baseline levels. According to the most recent reporting through the Northern Ireland GHG Inventory, Northern Ireland accounted for 4.9% of the UK total GHG emissions in 2024, which is in disproportion to its population share. Compared to the base reporting year (1990), Northern Ireland's total GHG emissions have decreased by 29.4%.

Agriculture was the sector responsible for the greatest amount of GHG emissions in 2024 (31.4%). For the agriculture sector, methane from livestock and nitrous oxide from soils represented the most significant emissions, with the sector accountable for 4.3 of the 5.4 $MTCO_2e$ of methane and 1.2 of the 1.5 nitrous oxide emitted within Northern Ireland in 2024.

Material Assets

The term ‘Material Assets’ can be considered very broadly within the SEA process, encompassing for example infrastructure, settlements, transport, and utilities. In the context of this SEA, ‘Material Assets’ predominantly focusses on the number and types of agricultural assets found in Northern Ireland, as it is considered that the most potential for positive or negative effects on material assets from implementation of the draft NAP 2027-2030 relates to these.

There was a total of 26,190 farms in Northern Ireland in 2024, covering an area of 1,042,392 hectares. The number of farms has shown a continuous downward trend from a total of 40,724 in 1981, decreasing by 10% in the 15-year period between 2004 and 2019. The area of land farmed, however, has remained relatively stable since 1981. Over 75% of Northern Ireland farms were classed as very small in 2024. Cattle and sheep represent the predominant farm type, with 77.3% of farms keeping some cattle, and 38.3% keeping some sheep.

There was a total of 51,213 farm workers in Northern Ireland in 2024, 79.3% of which were farmers, partners, directors or spouses, and the remaining 20.7% other farm workers. This represents a decrease of approximately 24.5% in the total farm workforce between 1981 and 2024, however the breakdown of total farm workers between farmers, directors, partners or spouses and all other farm workers has remained relatively stable since 2004. The gross output from farming in 2024 was estimated at £3.19 billion, a decrease of 7.5% from 2023. The gross input to farming in 2024 was estimated at £2.09 billion, a decrease of 2.6% from the previous year.

In addition, consideration has been given to water-related infrastructure in Northern Ireland, owing to the possibility of their operations being affected by implementation of the draft NAP 2027-2030. There were 25 water treatment works in service with NI Water during 2024, serving 55 water supply zones (designated areas with a population of no more than 100,000). Population growth and development are placing increasing pressure on water treatment and supply and wastewater treatment, particularly in urban areas. There are currently c. 863,000 domestic, agricultural, commercial and business properties connected to the public water supply in Northern Ireland (around 99.9% of the total population). Annual population growth has been positive for the past 25 years in Northern Ireland, and the total population is predicted to increase from approximately 1.93 million in 2024 to approximately 1.93 million by 2047.

Cultural, Architectural and Archaeological Heritage

Northern Ireland is rich in cultural, architectural, and archaeological heritage, with many important archaeological sites, monuments and heritage buildings which are afforded varying levels of protection under national legislation such as the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995 and the Planning Act (Northern Ireland) 2011. There are 56,344 recorded heritage assets included in the Historic Environment Record of Northern Ireland (HERoNI) and over 12,000 designated heritage assets including Monuments in State Care, Scheduled Historic Monuments, protected wrecks, Listed Buildings, and Conservation Areas.

Historic Parks, Gardens and Demesnes are protected in the Local Development Plan (LDP) process; there are 300 of these sites included in the HERoNI. There are 547 Local Landscape Policy Areas, 11 Areas of Significant Archaeological Interest (representing distinctive areas of the historic landscape), and 177 Areas of Townscape / Village Character designated in Local Development Plans (LDPs). There are also two United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Sites (WHS) in Northern Ireland: the Giant's Causeway is designated for its unique geological heritage; and Gracehill, a Moravian Church Settlement, is Northern Ireland's first cultural heritage WHS, designated in 2024.

Considering the high proportion of land in Northern Ireland that is in agricultural use, many archaeological and heritage features are found on farmland. While archaeology and built heritage in urban areas tends to be most susceptible to impacts associated with development, resources in rural areas are vulnerable to impacts associated with agriculture, particularly through cultivation, but also through stock density and machinery use. The erection of large structures and associated infrastructure on farmlands that are exempt from planning requirements can have both direct and indirect impacts on archaeological sites and other heritage assets.

Landscape and Visual Amenity

The current landscape of Northern Ireland is a product of land use changes and human interventions that have taken place in the *c*.9,000 years since the area was first settled. Although population growth in the late 20th and early 21st centuries expanded the extent of built-up areas, the Northern Ireland landscape remains predominantly rural, with agriculture the most prevailing land use.

There are eight Areas of Outstanding Natural Beauty (AONBs) in Northern Ireland, designated for their distinctive landscape character and high scenic value, covering 20% of the total land area. There are also eight NIEA Country Parks, and 56 National Trust Sites within Northern Ireland. Areas of High Scenic Value (AHSV) and scenic views are designated in LDPs to protect the setting of the urban area and other areas of particular landscape merit. Planning permission may not be granted for development proposals within AHSV that would be likely to have a significant negative effect on the quality, character, and features of interest.

The Nature Conservation and Amenity Lands Order (Northern Ireland) 1985 is the current legislative basis for the protection of landscapes. The Northern Ireland Landscape Character Assessment (2000) subdivided the countryside into 130 Landscape Character Areas, based upon local patterns of geology, landform, land use, cultural and ecological features, while the Northern Ireland Regional Landscape Character Assessment (2016) aimed to provide a regional framework upon which more detailed local studies could be based, subdividing the countryside into 26 Regional Character Areas based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness.

Pressures on the landscape in Northern Ireland include developments (including housing, industrial and recreational), infrastructure, extraction industries, agriculture and forestry, and tourism. Land cover and habitats have changed in the past few decades as a result of population increases, changes in household structure and employment patterns and agricultural restructuring.

Evolution of the Environment in the Absence of the Draft NAP 2027-2030

The evolution of the environment in the absence of the draft NAP 2027-2030 was discussed in this Environmental Report as required under the SEA Directive (2001/42/EC) to indicate likely future environmental changes regardless of the implementation of the draft NAP 2027-2030. There is a legislative requirement for

a NAP to be in place. However, if there were no NAP in place, there would likely be impacts on water quality through continued emissions from agricultural sources with potential downturns in nutrient management methods and approaches. There is potential for some improvements necessitated by other policies and legislation. The likely future impacts of this are discussed by environmental topic in **Section 3.3**.

Review of Relevant Plans and Programmes

All International, European, national, and regional plans, programmes, policies and legislation considered to be relevant to the draft NAP 2027-2030 were reviewed. This review took into account where the draft NAP 2027-2030 lies in relation to higher and lower tiered plans and programmes and considered how these could affect the draft NAP 2027-2030 as well as how the draft NAP 2027-2030 could interact with the aims of these plans and programmes.

Assessment Methodology

This Environmental Report has been produced to assess the effects of implementing the various measures outlined in the draft NAP 2027-2030. In parallel to this, an RIAA has been prepared to inform the decision-making process, in terms of the potential measures to impact upon the integrity of any European sites in view of site conservation objectives.

The approach used for assessing the draft NAP 2027-2030 was an objective-led assessment. This was at a strategic level based on a system of *objectives*, *targets* and *indicators* to rationalise information for assessment purposes, as it is not possible or practicable for the baseline environment to be described and assessed in as much detail as could be done for a project-level Environmental Impact Assessment.

The proposed measures of the draft NAP 2027-2030 have been assessed for their potential to positively or negatively affect the following broad environmental topics:

- Biodiversity, Flora and Fauna (BFF)
- Population and Human Health (PHH)
- Geology, Soils and Land Use (GSL)
- Water (W)
- Air (A)
- Climatic Factors (CF)
- Material Assets (MA)
- Cultural, Architectural and Archaeological Heritage (CH)
- Landscape and Visual Amenity (L)

The proposed measures of the draft NAP 2027-2030 have been assessed against a set of strategic environmental objectives (SEOs). These SEOs were developed in the context of broader environmental protection objectives set at both international and national level and also took into account the context of potential for impacts associated with the draft NAP 2027-2030. Each high-level SEO has been paired with a specific indicator(s) as well as target(s) that can be used to measure the progress towards achievement of these targets. The SEOs, Indicators and Targets used are given in **Table 0-1**. The assessment examined the likely significant positive and negative effects of the proposed measures of the draft NAP 2027-2030, and how their implementation could contribute to achieving these SEOs.

Table 0-1 Strategic Environmental Objectives for the NAP 2027-2030

SEA Topic	Objective	Objective Description	Indicators	Targets
Biodiversity, Flora & Fauna	Avoid damage to, and where possible enhance, biodiversity, flora and fauna.	Preserve, protect, maintain and, where possible, enhance biodiversity and ecosystems within NI, including internationally, nationally, and locally protected sites, habitats and species, and other known species of conservation concern.	• Conservation status of designated habitats and species within International/ European and national designated sites (SACs, SPAs, Ramsar sites, MCZs, ASSIs). • Status of protected and priority habitats and species (Annex I habitats, Annex II species and Annex IV species, NI Priority Habitats and Species, OSPAR Threatened or Declining Habitats and Species).	• No negative change, or a positive change, in the conservation status of designated habitats and species within International, European and National designated sites. • No negative change, or a positive change, in the status of protected or priority species and habitats outside designated sites, or to areas of known importance.
Population & Human Health	Support the provision of clean and safe water and food.	Provision of a safe water supply for drinking, recreation, and food supply.	• Water quality status of Drinking, Bathing, and Shellfish Water Protected Areas. • Quality of animal products available for consumption.	• No negative change, or a positive change, in the status of Drinking, Bathing, and Shellfish Water Protected Areas. • No negative change, or a positive change, in the quality of animal products.
Geology, Soils & Land use	Protect soils from pollution and prevent degradation or loss of the soil resource and protect and	Protect against physical damage to, or loss, of the agricultural or soil resource. Protect and enhance the function and quality of	• Soil health and nutrient levels, and quality of agricultural land. • Soil resource within the agriculture sector.	• No loss of the agricultural or natural soil resource. • No negative change, or a positive change, in soil health and land quality.

SEA Topic	Objective	Objective Description	Indicators	Targets
	enhance soil quality.	agricultural soils.		
Water	Avoid impacts on, and where possible enhance, the status or quality of waterbodies.	Protect and restore water sources from pollution by agricultural activities and support the objectives of the WFD Regulations, Marine Strategy Regulations, and Floods Directive.	• WFD status of surface and groundwater bodies, including Protected Areas. • Water quality reporting for the Nitrates Directive. • Status of NI seas, as reported for the Marine Strategy. • Flood risk status.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, including Protected Areas, and potential to contribute to the achievement of waterbody objectives under the WFD Regulations. • No negative change, or a positive change, in the condition of waterbodies monitored under the Nitrates Directive. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the Marine Strategy. • No increase in flood risk or contribution to flood risk management.
Air	Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	Reduce impacts to air quality from agricultural emissions.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.
Climatic Factors	Reduce GHG emissions	Reduce GHG emissions from	• Quantity and trends of GHG	• Reduction in the quantity of GHG

SEA Topic	Objective	Objective Description	Indicators	Targets
	from the agricultural sector in line with national commitments.	agricultural activities.	emissions attributable to the agricultural sector and land use change sector. • Contributing towards emission reduction targets of the Climate Change (NI) Act and Climate Action and Low Carbon Development (Amendment) Act 2021 in the Republic of Ireland.	emissions arising from the agricultural sector. • Meeting of emission reduction targets under the Climate Change (NI) Act and Climate Action and Low Carbon Development (Amendment) Act 2021 in the Republic of Ireland.
Material Assets	Support economic agricultural activities.	Support sustainable agricultural land use and improved land management practices.	• Agricultural outputs and productivity. • Agricultural sector employment, income, costs and revenues.	• Sustainable increase in agricultural productivity, i.e., a more efficient use of resources. • No negative effects on sector employment or farm incomes.
Cultural, Architectural & Archaeological Heritage	Protect, conserve, and enhance designated and non-designated heritage assets and their settings.	Protect, conserve, and enhance designated and non-designated heritage assets and their settings.	• Number, condition and setting of international, national and local heritage designations	• No loss or negative change to the condition or setting of international, national and local heritage designations and protection of historic landscape character.
Landscape & Visual Amenity	Protect, and where possible enhance, the character and quality of landscapes,	Protect and enhance the character and quality of landscapes, riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments. • Local Development Plan scenic views and Areas of High Scenic Value.	• No negative change, or a positive change, in visual amenity or landscape / seascape character and local views.

SEA Topic	Objective	Objective Description	Indicators	Targets
	riverscapes, lakescapes, and seascapes.			

Each of the proposed measures for the draft NAP 2027-2030 have been assessed in the short, medium, and long-term for likely effects, the significance of the effects, and whether they are positive or negative effects against SEA objectives. For the purposes of this assessment:

- Plus (+) indicates a potential positive environmental effect;
- Minus (-) indicates a potential negative environmental effect;
- Plus/minus (+/-) indicates that both positive and negative environmental effects are likely or that, in the absence of further detail, the potential effects are unclear or uncertain. If a situation arose whereby positive effects outweighed negative effects, or *vice versa*, an additional + or – was used (++/- or +/--);
- Zero (0) indicates neutral or no effect;
- Short-term – 0 – 2 years (immediate);
- Medium-term – 2 – 4 years (within the draft NAP 2027-2030 cycle); and
- Long-term – beyond 4 years (beyond the draft NAP 2027-2030 cycle).

Other impacts that have been assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects.

All potential positive and negative effects will be presented individually, with a text description, and a summary table. Under each measure, a discussion is presented to support the assessment outcomes.

The draft NAP 2027-2030 proposes to carry forward all existing measures included within the NAP Regulations (Northern Ireland) 2019 and, on the basis of scientific evidence and/or technical, regulatory and policy developments, to introduce a number of new measures and/or amendments. The NAP Regulations (Northern Ireland) 2019 were not previously assessed through the SEA process and, therefore, the assessment methodology also includes the assessment of existing measures against SEOs to set the existing scene, examine how measures that are currently in place are working and any potential shortfalls.

Consideration of Alternatives

In recognition of the significant issue of surface water eutrophication within Northern Ireland, the whole territory of Northern Ireland is subject to the NAP, with the first Nitrates Action Programme having been introduced in 2007. Under the Nitrates Directive, it is required that Member States review and as required, revise their action programmes at least every four years. Within Northern Ireland, reviews, updates, and amendments have taken place for the Nitrates Action Programme in 2010, 2014 and 2018.

A joint DAERA / AFBI (Agri Food and Biosciences Institute) Scientific Working Group reviewed the effectiveness of the 2014-2018 Nitrates Action Programme, engagement was also undertaken with the EU Commission and the EU Nitrates Committee (comprising representatives of EU Member States). This review led to a revised Nutrients Action Programme 2019-2022 (NAP Regulations (Northern Ireland) 2019) with stakeholder consultation on the proposed Programme and further revisions made based on the issues raised.

The Nutrients Action Programme 2019-2022 was implemented by means of the NAP Regulations (Northern Ireland) 2019, which revoked the previous 2014-2018 Nitrates Action Programme and incorporated the Phosphorus (Use in Agriculture) Regulations (NI) 2014 within the 2019 NAP Regulations on the basis of scientific evidence and / or technical, regulatory and policy developments with a number of amendments

introduced. Presently, no other measures are in place to replace the NAP or being considered by DAERA with the preferred alternative being the preparation and adherence to the draft measures established in the draft NAP 2027-2030, which includes the carrying forward of the existing measures as set out in the NAP Regulations (Northern Ireland) 2019, alongside new measures and amendments. This alternative will provide greater potential for positive effects on the identified SEOs compared to the continuation of the current NAP Regulations (Northern Ireland) 2019, however it should be noted that due to ongoing issues surrounding water quality within Northern Ireland it is recommended that a Pathway to Compliance approach is adopted, with a risk-based assessment implemented to target contributing areas and sources of agriculture pressure with strong inspection and enforcement of the NAP Regulations to support this.

Environmental Assessment of Proposed Measures

The proposed measures of the draft NAP 2027-2030 have been assessed in terms of their potential positive and negative effects, and the significance of these effects on the environment against the SEOs. The purpose of this is to predict and evaluate, as far as possible, the environmental effects of the draft NAP 2027-2030, highlighting any significant environmental problems and/or benefits that are likely to arise from its implementation.

Environment Assessment of Existing NAP Regulations (Northern Ireland) 2019 Measures

The full text of the existing NAP Regulations (Northern Ireland) 2019 is provided in **Appendix B**. As legislative language is used, for clarity these measures have been described in less technical language within the assessments. The assessment of the existing NAP measures is provided in **Section 7.1** and is summarised in **Table 0-2**.

Table 0-2 Summary of the assessment of existing NAP Measures against SEOs

Regulation	BFF	PHH	GSL	W	A	CF	MA	CH	L
Part 2 - General									
4	+	+	+	+	0	0	+	0	0
5	++/-	++/-	++/-	++/-	++/-	++/-	++/-	0	0
6	+/-	+/-	+/-	+/-	+/-	+/-	+	0	0
Part 3 – Prevention of water pollution from the application of fertilisers									
7	+	+	+	+	0	0	+/-	0	0
8	++/-	++/-	++/-	++/-	++/-	++/-	+/-	0	0
9	+/-	+/-	+/-	+/-	-	-	+/-	0	0
10	+	+	+	+	+	+	+/-	0	0
11	+	+	+	+	+	+	+/-	0	0
12	++/-	++/-	++/-	++/-	0	0	0	0	0
13	++/-	++/-	++/-	++/-	0	0	0	0	0
14	++/-	++/-	++/-	++/-	0	0	0	0	0
15	++/-	++/-	+	++/-	0	0	-	-	0
16	0	0	0	0	0	0	0	0	0

Regulation	BFF	PHH	GSL	W	A	CF	MA	CH	L
Part 4 – Storage requirements									
17	++/-	++/-	++/-	++/-	0	0	+/-	0	0
18	++/-	++/-	++/-	++/-	0	0	+/-	0	0
19	+/-	+/-	+/-	+/-	+/-	+/-	0	+/-	+/-
20	+	+	+	+	0	0	0	0	0
21	+	+	+	+	0	0	0	0	0
22	++/-	++/-	++/-	++/-	++/-	++/-	+/-	0	0
23	0	0	0	0	0	0	0	0	0
24	++/-	++/-	++/-	++/-	++/-	++/-	0	+/-	+/-
25	+	+	+	+	0	+	0	0	0
Part 5 – Measures relating to land management									
26	++/-	++/-	++/-	++/-	0	++/-	0	0	0
Part 6 – Record keeping and compliance monitoring									
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
Part 7 – Enforcement									
29	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0
Part 8 – Powers, duties and Functions of the Department									
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
Part 9 – Miscellaneous									
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
Part 10 – Derogation from measures governing the limits on land application of livestock manure									
39	-	-	-	-	-	-	++/-	0	0

Regulation	BFF	PHH	GSL	W	A	CF	MA	CH	L
40	0	0	0	0	0	0	0	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Land use; W – Water; A – Air; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

For the most part, the effective implementation of the existing measures included in the NAP Regulations (Northern Ireland) 2019 have the potential for positive effects on SEOs for GSL, W, BFF, PHH, A, and CF. An exception is where there is an identification of the potential for negative effects that is associated with the underlying agricultural activities such as land application of slurry and fertiliser; measures relating to derogation to permit the application of up to 250kg nitrogen/ha/year from grazing livestock manure; and the identification of some uncertainties and minor negative effects. Some measures are administrative in nature; while these will support the active measures, by themselves they are expected to have neutral effects on SEOs.

Mitigation has been recommended where the potential for negative or uncertain effects on SEOs from implementation of measures has been identified in the assessment. Across the measures, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported to improve the implementation and efficacy of measures.

Environment Assessment of Proposed draft NAP 2027-2030 Measures

The proposed new measures and amendments for the draft NAP 2027-2030 have been assessed regarding the potential for their implementation to have positive or negative effects on SEOs. This assessment is provided in **Section 7.2** and is summarised in **Table 0-3.**

Table 0-3 Summary of the assessment of proposed NAP Measures against SEOs

Proposed Measure	BFF	PHH	GSL	W	A	CF	MA	CH	L
Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls									
Limit chemical phosphorus fertiliser availability through an advisory approach	+	+	+	+	0	0	0	0	0
Reducing the Northern Ireland average phosphorus surplus	+	+	+	+	0	0	-	0	0
Dairy cow nutrient excretion values – based on milk yield	+	+	+	+	0	0	+/-	0	0
Updated poultry nutrient excretion figures	+	+	+	+	+	+	+	0	0
Standard values for separated manures and slurries	0	0	0	0	0	0	0	0	0
Updated chemical nitrogen fertiliser limits for grassland	+	+	+	+	+	+	0	0	0
Allowance for processed organic fertilisers	+	+	+	+	+	+	+	0	0
Manure Storage and Application Requirements – Ammonia Implications									
Reduced slurry application volumes in February and early October	+	+	+	+	+	+	+/-	0	0

Proposed Measure	BFF	PHH	GSL	W	A	CF	MA	CH	L
Clearer definition of Low Emission Slurry Spreading Equipment	+	+	+	+	+	+	0	0	0
Tiered move to increased use of LESSE	+	+	+	+	+	+	+/-	0	0
Pre-Notification of new slurry and silage storage	0	0	0	0	0	0	0	0	0
Clarify cover requirements for new above-ground stores	+	+	0	+	+	+	+/-	0	0
Limit the use of unprotected granular urea fertilisers	+	+/-	+/-	+	+	+	+	0	0
Anaerobic Digestate Measures	+	+	+	+	0	0	+	0	0
Farming Approaches to Improve Nutrient Use and Water Quality									
Nutrient Stewardship Programme – a revised approach to Derogation	+/-	+/-	+/-	+/-	0	0	+/-	0	0
Mitigation measures for late harvested arable crops	+	+	+	+	0	0	+/-	0	0
A focused approach to improving water quality	+	+	+	+	+	+	0	0	0
Nutrient Efficiency Roadmap for NI farming	0	0	0	0	0	0	0	0	0
Utilising Technology									
Enhanced online system for recording slurry and manure exports and imports	0	0	0	0	0	0	-	0	0
Extending the system to processed slurry solids and digestate movements	0	0	0	0	0	0	-	0	0
Additional measures to support environmentally sustainable farming									
Voluntary buffer strip on arable land	+	+	+	+	0	0	-	0	+
Awareness of existing storage requirements and how dirty water storage, rainwater and parlour washings can impact this	0	0	0	0	0	0	+	0	0
Voluntary liming programme on farms with high stocking rates	+/-	+/-	+/-	+/-	+	+/-	+/-	0	0
Revised silage bale storage requirements	+	+	+	+	0	0	0	0	0
Technical Amendments									

Proposed Measure	BFF	PHH	GSL	W	A	CF	MA	CH	L
Definition of Appropriate Person	0	0	0	0	0	0	0	0	0
Definition of Farmyard manure	0	0	0	0	0	0	0	0	0
Updating terminology	0	0	0	0	0	0	0	0	0
Covering of Lagoons	-	-	0	-	-	-	+/-	0	0
Definition of heavy rain	+	+	+	+	0	0	+	0	0
Phosphorus content of livestock diets	0	0	0	0	0	0	0	0	0
Implementation – including Inspections/Enforcements									
False or misleading information provisions	0	0	0	0	0	0	0	0	0
Increased inspections based on risk	+	0	+	+	0	0	0	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Land use; W – Water; A – Air; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

The effective implementation of the proposed new measures for the draft NAP 2027-2030 were largely assessed as having the potential for positive effects on SEOs, particularly for GSL, W, BFF, PHH, A, and CF. Some negative and/or uncertain effects have been identified; which primarily relate to uncertainty as to the specific details of how the measure(s) will be applied and ensuring that there are sufficient safeguards in place and that there are no unintended consequences. For some measures there is potential for short-term negative effects on the SEO for MA owing to increased costs.

In determining the potential for positive or negative outcomes for the environment, the ethos of the measure was considered i.e., what it is trying to achieve, with the presumption taken that measures will be applied according to best practice guidance. Some proposed measures were considered ‘active’ measures which, by themselves, have the potential to be positive or negative for SEA environmental topics such as W, A, and BFF either directly or indirectly. Other proposals were considered ‘advisory’ measures which, by themselves, are not expected to be directly positive or negative for environmental topics. However, they have the potential to support active measures and improve their implementation in the long-term. In this way they have the potential to be positive for environmental topics in the long-term in-combination with active measures. Administrative and enforcement measures increase the effectiveness of active measures, and therefore the scale and magnitude of the effects.

Mitigation has been recommended where the potential for negative and/or uncertain effects on SEOs from implementation of proposed measures has been identified in the assessment. As for the existing measures it is recommended, across the NAP measures, that inspection rates are significantly increased to improve the implementation and efficacy of measures and that the Pathway to Compliance approach is adopted to address the ongoing issues of poor water quality contributed to by agricultural activities.

Mitigation and Monitoring

Mitigation

The iterative development of the draft NAP 2027-2030 and SEA involved the consideration of earlier versions of the proposed changes to the NAP and an assessment of the potential for effects on the wider environment from their implementation. The SEA and HRA team provided feedback to DAERA where the potential for

adverse environmental effects was identified, and recommended omissions, changes to strengthen measures, and additional measures for inclusion in the draft NAP 2027-2030.

Environmental mitigation measures have been recommended where potential negative or uncertain effects on environmental topic areas have been identified from implementation of measures in the draft NAP 2027-2030; these measures aim to prevent, reduce and as fully as possible offset any significant negative effects on the environment due to the implementation of the measures within the draft NAP 2027-2030. This mitigation is broken down into SEA mitigation for improved implementation and enforcement of NAP measures; Pathway to Compliance approach; recommended amendments to existing measures in the NAP Regulations (Northern Ireland) 2019; and recommended amendments to proposed new measures and amendments in the draft NAP 2027-2030.

Review of NAP implementation to date shows that, despite initial improvements in water quality in the five years following the introduction of the first iteration of the NAP, this has not been sustained and there is no evidence of clear and consistent recovery of water quality to meet the objectives of the WFD Regulations, or to the levels necessary to restore and maintain European Sites and their qualifying interests to favourable conservation status under the Habitats Directive. There is insufficient evidence to demonstrate that the existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019, are sufficiently effective and/or sufficient to provide improvements and protection against further deterioration in water quality. The proposed changes to the draft NAP 2027-2030 for the most part could largely be viewed as beneficial to water quality, reflected by the positive scoring against the SEO for Water. However, without effective implementation and enforcement of measures as well as the development and implementation of the Pathway to Compliance approach (as recommended by Tetra Tech), there are areas that are at risk of not meeting their objectives under the WFD Regulations and Habitats Directive, there is insufficient evidence that the implementation of the suite of other proposed measures together with existing measures in the NAP Regulations (Northern Ireland) 2019 will be sufficient to halt and reverse the continued declines in water quality. The principal SEA mitigation recommendations are twofold:

1. To better implement and enforce NAP measures.
2. Pathway to Compliance approach

A principal potential for negative effects associated with implementation of the draft NAP 2027-2030 relates to the risk of failure to implement and enforce the existing and proposed measures in a manner that is appropriate for fully achieving the NAP requirements to protect water from nutrient pollution by agricultural sources. DAERA have included in the consultation document for the draft NAP 2027-2030 a proposal to increase the volume of inspections in focused areas. It is recommended that DAERA should review the implementation and effectiveness of these measures during the draft NAP 2027-2030 cycle with forward planning to increase inspection and enforcement significantly or otherwise provide sufficient incentive for compliance with the NAP measures.

Several measures are noted as being either advisory or voluntary in nature rather than mandatory within the proposed measures of the draft NAP 2027-2030, therefore the degree of potential environmental benefits gained from these measures is not guaranteed and will depend on the levels of uptake and compliance. To ensure that the maximum environmental benefits can be delivered by the proposed measures of the draft NAP 2027-2030, it is Tetra Tech's recommendation that these measures are mandatory with details on enforcement provided to ensure compliance with the suite of measures. Should these measures remain as voluntary within the draft NAP 2027-2030, it is recommended that DAERA review the efficacy of these measures as part of the mid-cycle review (noted as every two years within the consultation document for specific measures) and consider that these measures should become mandatory at this stage if these are not achieving the required aim.

Following an initial assessment of earlier versions of the proposed changes to the draft NAP 2027-2030, and consideration of the status and trends in water quality and biodiversity and pressures from agricultural activities in Northern Ireland, the SEA team provided feedback to DAERA that a one size fits all national approach to the implementation of NAP measures does not appear to be providing sufficient environmental protection in

some areas. The status and trends of water quality in Northern Ireland are declining, with pressure assessments highlighting agricultural activities as a significant contributor to nutrient enrichment. The draft NAP 2027-2030 is therefore at risk of contravening the objectives of the WFD Regulations. A significant proportion of habitats and species within European sites are not at favourable conservation status, and pressures from agricultural activities are a contributing factor including through water pollution and nutrient deposition. The draft NAP 2027-2030 is therefore also at risk of contravening the objectives of the Habitats Directive.

The SEA and HRA teams recommended a Pathway to Compliance approach for DAERA to include within the draft NAP 2027-2030, which should be developed and implemented through the draft NAP 2027-2030 and subsequent NAP cycles, including an initial outline of what this should comprise. The SEA team further considered and developed this approach as outlined in the following steps and illustrated in **Figure 0-1**. In areas where no problems are identified, farms should be subject to the standard measures in the NAP Regulations and to undergo monitoring and review. Where the Pathway to Compliance approach identifies that farms are in at-risk areas it will be necessary to introduce focused measures to contend with the risks from agricultural activities. Where subsequent monitoring and assessment shows that the focused measures are achieving the desired objectives (e.g., good status of catchment/waterbody water quality, favourable conservation status of designated sites), no further action will be needed, with maintenance of focused measures, as required. However, where subsequent monitoring and assessment shows that the focused measures are not achieving the desired objectives, strengthened and/or additional focused measures will be required, subject to an assessment of the wider catchment/waterbody contributing sources/pressures. Focused measures have the potential to take many forms and could include incentives so that farmers do not lose out financially. Where subsequent monitoring and assessment shows that the additional focused measures are still not effective in achieving the desired outcomes, the farming activity(s) causing this risk may need to be curtailed until this can be rectified.

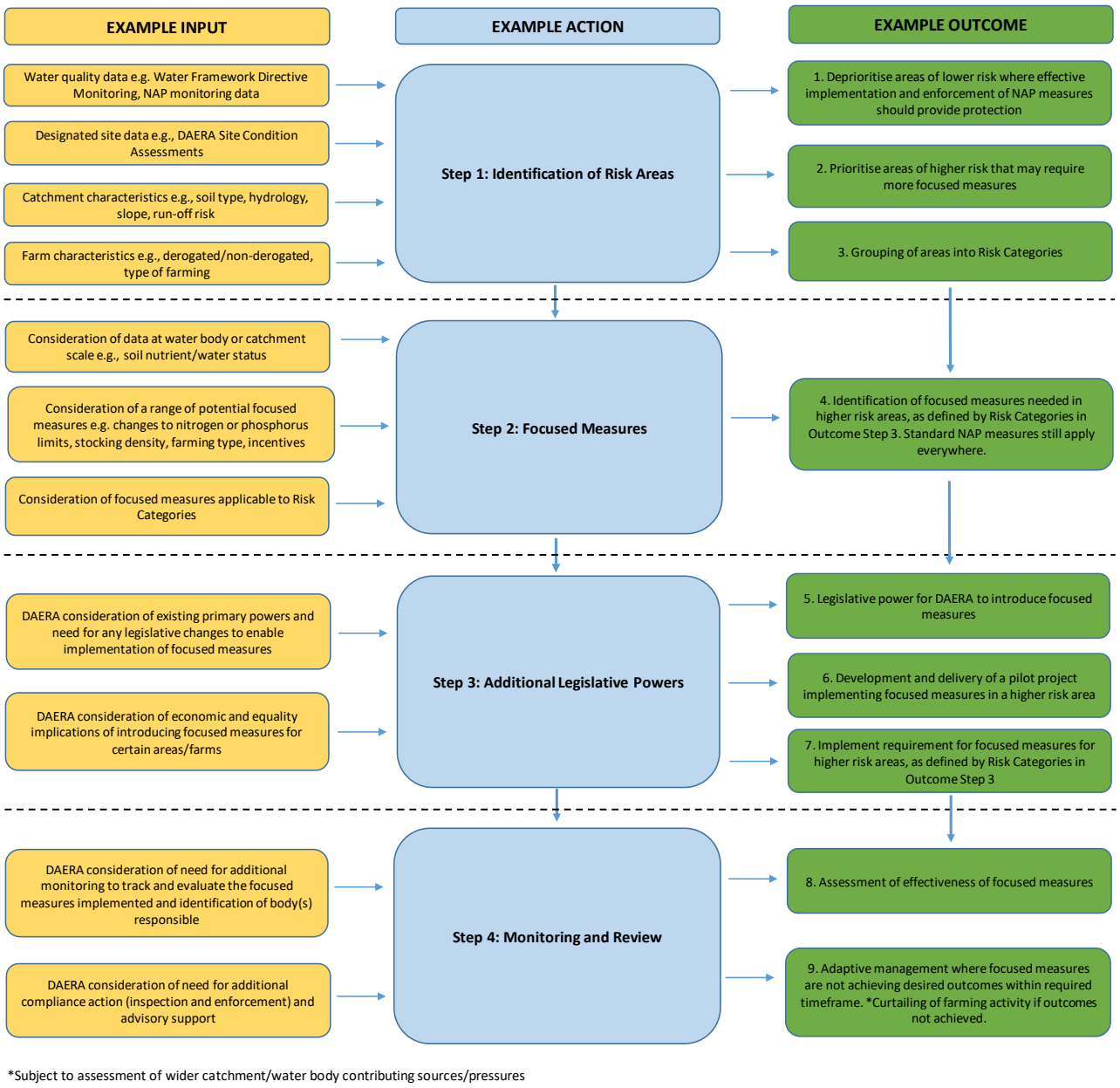


Figure 0-1 Recommended Pathway to Compliance approach

Monitoring

An SEA environmental monitoring programme is also provided. SEA monitoring should be undertaken in conjunction with the proposed two year review of certain NAP measures and the next statutory review of the NAP, in advance of an update, to enable monitoring outcomes to influence the NAP development (i.e., every four years). The proposed monitoring programme for the draft NAP 2027-2030 is based on the Indicators and Targets established in the SEA Objectives. Existing monitoring networks are used where possible to ensure that the SEA monitoring programme is realistic.

In addition, the Nitrates Directive requires that, at the end of each four-year programme, and for each water monitoring/evaluation of measures associated with this programme, a report describing the situation, and its development, shall be submitted to the Commission by each Member State. This reporting requirement is also set out in the Nutrient Regulations (NI) 2019 and remains a necessity following the UK exit from the EU. DAERA will continue to report on the implementation of the Action Programme at four-year intervals, including a consideration of the water quality monitoring data for the latest programme period, evaluating the how well

the suite of measures in that programme are being implemented and forecasting the likely water quality for Northern Ireland. This monitoring and reporting will help to inform the scientific review of that programme by DAERA, and the proposals for amendments or additions to the suite of measures in the NAP for the next programme period.

Summary and Conclusions

The draft NAP 2027-2030 plans to carry forward all existing measures included in the current NAP Regulations (Northern Ireland) 2019, and proposes new measures and amendments to existing measures, which aim to provide increased environmental protection from agricultural activities. These measures were assessed in terms of their potential for positive and negative effects on the environment, to highlight any significant environmental problems or benefits that are likely to arise from their implementation.

In general, the draft NAP 2027-2030 seeks to support an agricultural industry that is more sustainable in terms of its impact on water quality. The draft NAP 2027-2030 proposes to carry forward all existing measures included within the previous iteration of the Programme for the period 2019-2022 as set out in the implementing NAP Regulations (Northern Ireland) 2019, which comprise a suite of measures within ten Parts. The draft NAP 2027-2030 also proposes new measures and amendments to existing measures, which aim to provide increased environmental protection from agricultural activities. These measures were assessed in terms of their potential for positive and negative effects, and the significance of these effects on the environment against a set of SEOs covering the breadth of environmental topics considered by the SEA; these were developed in the context of broader environmental protection objectives set at both international and national level. The purpose of this was to predict and evaluate, as far as possible, the environmental effects of the draft NAP 2027-2030, highlighting any significant environmental problems and/or benefits that are likely to arise from its implementation.

For the most part, the existing measures included in the NAP Regulations (Northern Ireland) 2019 were assessed as having the potential for positive effects on the SEOs for Geology, Soils and Land Use; Water; Biodiversity, Flora, and Fauna; Population and Human Health; Air; and Climatic Factors, provided they were effectively implemented and enforced. An exception to this is the identification of the potential for negative effects from the implementation of measures where these may be associated with the underlying agricultural activities such as land application of slurry and fertiliser; measures relating to derogation to permit the application of up to 250kg nitrogen/ha/year from grazing livestock manure; and the identification of some uncertainties and minor negative effects from the implementation of measures. Some measures are administrative in nature; while these will support the measures that are associated with a direct action, by themselves they are expected to have neutral effects on SEOs.

The effective implementation of the proposed new measures and amendments for the draft NAP 2027-2030 were largely assessed as having the potential for positive effects on SEOs, particularly for Geology, Soils and Land Use; Water; Biodiversity, Flora, and Fauna; Population and Human Health; Air; and Climatic Factors. Some negative and/or uncertain effects have been identified; these primarily relate to uncertainty as to the specific details of how the measure(s) will be applied and in ensuring that there are sufficient safeguards in place and that there are no unintended consequences. For some measures the potential for short-term negative effects on the SEO for Material Assets was identified, owing to increased cost implications e.g., potential for a requirement for additional storage infrastructure or equipment. In determining the potential for positive or negative outcomes for the environment, the ethos of the measure was considered i.e., what it is trying to achieve, with the presumption taken that measures will be applied according to best practice guidance. Some proposed measures were considered ‘active’ measures which, by themselves, have the potential for positive or negative effects on SEOs such as Water, Air, and Biodiversity, Flora and Fauna either directly or indirectly through secondary effects. Other proposals were considered ‘supportive’ or ‘advisory’ measures which, by themselves, are not expected to be directly positive or negative for environmental topics. However, they have the potential to support active measures, and improve their implementation in the long-term (e.g., increased inspection rates to achieve improvements in compliance rates). In this way they have the potential for cumulative positive effects for environmental topics in the long-term in-combination with active measures.

Administrative and enforcement measures increase the effectiveness of active measures, and therefore the scale and magnitude of the effects.

Consideration of the environmental baseline conditions indicates a decline in the status and trends in water quality, biodiversity and designated site condition in Northern Ireland; the initial improvements in water quality following the introduction of the first iteration of the NAP Regulations have not been sustained and there is no evidence of a clear and consistent recovery of water quality to meet the objectives of the WFD Regulations, or to the levels necessary to restore and maintain European Sites and their qualifying interests to favourable conservation status. Nutrient pressures, relating primarily to agricultural activities and sewage-related problems, have been identified as key pressures acting on the water environment in Northern Ireland. Although measures within the draft NAP 2027-2030, including the existing measures to be carried forward, aim to provide protection of water from pollution due to agricultural activities, they also effectively prescribe agricultural activities, such as the application of organic manures and chemical fertilisers. It is not clear from the evidence available, to what degree the lack of effective protection of water quality by the NAP is due to a lack of effective implementation and enforcement of measures, or to what degree the existing measures are technically effective enough to improve the situation.

The proposed new measures and amendments to existing measures, including the advisory limit on chemical phosphorus use, reducing the average phosphorus balance of Northern Ireland, and the increased mandatory use of LESSE, are expected to contribute towards a positive direction of change regarding the risk contribution of agricultural activities to water quality and designated site conditions. However, the scientific evidence base to quantify the contribution of existing and proposed measures (not considering the proposed development and implementation of a focused approach), and the underlying thresholds and limits set, to the conditions required by the WFD Regulations and Habitats Regulations and whether they are technically effective enough to improve conditions remains uncertain. It is considered key to improve the effectiveness of implementation and enforcement of NAP measures, and it is the recommendation of Tetra Tech that a Pathway to Compliance approach is implemented with geographic specificity, whereby focused measures are applied in areas of higher risk, in recognition of the differing water quality and catchment conditions, as well as agricultural activities, across Northern Ireland. The SEA and HRA teams recommended to DAERA that this Pathway to Compliance should be included within the draft NAP 2027-2030 to signify the commitment to this and to ensure that the NAP be in line with the objectives and requirements of the Habitats Regulations and WFD Regulations. As outlined in **Section 8.0**, a step by step approach is provided to establish methodology and for application of a focused approach throughout Northern Ireland to identify higher risk areas thus target measures for improvements in water quality.

Specific mitigation has also been recommended for both the retained existing measures of the NAP Regulations (Northern Ireland) 2019 and the proposed new measures and amendments included in the draft NAP 2027-2030, where the potential for negative and/or uncertain effects on SEOs from the implementation of measures has been identified in the assessments. Across the measures, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported in order to improve the implementation and efficacy of existing and proposed measures.

A Stage 2 appraisal for HRA was undertaken in the RIAA which considered the potential of the NAP to give rise to adverse effects on the integrity of European Sites, within both Northern Ireland (in the UK National Network of Sites) and in applicable areas of the Republic of Ireland (within the Natura 2000 network of sites), with regard to their qualifying interests, associated conservation status and the overall site integrity, alone and in combination with other relevant plans and programmes. In considering the potential for adverse effects, it was noted that the NAP is a strategic and high-level plan, which may inform the preparation of other strategies. It does not determine the precise location of any measures or designate or allocate specific land uses, nor does it preclude the consideration of alternatives. In light of this and where necessary, a precautionary approach was adopted in the Stage 2 appraisal to ensure that the measures proposed by the NAP are adequately assessed. Where actual or potential for adverse effects on integrity were identified, mitigation to address these effects was also identified, as laid out in the RIAA and in this SEA in **Section 8.0**. Given the significant deterioration of water quality and freshwater systems that has occurred in Northern Ireland, the principles and objectives of the Habitats Directive and the fact that the NAP is inherently at face value a good

thing, deliberately constructed to strengthen compliance, improve accountability and target the key agricultural pressures contributing to nutrient loss, measures have additionally been proposed in the context of Article 6(2) of the Habitats Regulations to avoid habitat deterioration from past pressures and nutrient enrichment in addition to measures to be adopted as part of this NAP. To do otherwise would be to set in motion an approach which maintains the status quo in terms of water quality, and which will either deliver some improvement and contribute to avoiding further deterioration but will ultimately maintain Northern Ireland's habitats within its European sites in a deteriorated state.

The conservation status of habitats and species vulnerable to agricultural emissions are unlikely to stabilise or improve and may well become more unfavourable as time goes on in the absence of measures or initiatives being taken or proposed to be initiated by Government as Article 6(2) proactive measures (of the Habitats Regulations) which are preventative in nature and which involve the taking of appropriate steps to avoid habitat deterioration. The mitigation and monitoring measures set out in the RIAA (and within this Environmental Report) propose both mitigation measures and a Pathway to Compliance to set a course towards a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration. This is consistent with OEP (2026) who note that NAP Regulations form part of a wider suite of measures to address nutrient pollution in Northern Ireland, but that it is currently difficult to see which different measures are intended to combine together to deliver Northern Ireland's overall objectives for nutrient pollution and water quality. Unless these mitigation measures are implemented, adverse effects on the integrity of European sites will occur for the reasons set out in the RIAA; and this would be contrary to the obligations of the Habitats Regulations.

Next Steps

Consultations on the draft NAP 2027-2030, SEA Environmental Report and RIAA will commence in June 2026 and will run for 8 weeks. Following completion of the consultation period, all comments will be collated, and the draft NAP 2027-2030, SEA Environmental Report and RIAA will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the draft NAP 2027-2030, the final version of the NAP 2027-2030 can be drafted and adopted. This is anticipated to be in Q4 2026. Following release of the adopted NAP, an SEA Statement will be drafted to summarise the process undertaken and identify the manner by which environmental considerations and consultations were integrated into the final NAP 2027-2030.

1.0 Introduction

1.1 Background

This Strategic Environmental Assessment (SEA) Environmental Report has been prepared in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004, which implements European Union Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment.

The purpose of this Environmental Report is to provide a formal and transparent assessment of the likely significant effects on the environment arising from implementation of the Nutrients Action Programme (NAP) for Northern Ireland, including consideration of reasonable alternatives.

The SEA of the draft NAP 2027-2030 is being prepared on behalf of the Department of Agriculture, Environment and Rural Affairs (DAERA, “the Department”), who is the competent authority for the preparation and adoption of the NAP.

1.2 Strategic Environmental Assessment

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, are subject to the SEA process. The SEA process is broadly comprised of the steps summarised in **Table 1-1** and shown in **Figure 1-1**.

Table 1-1 Summary Descriptions of Main Stages in SEA Process

Stage	Description	Status
Screening	Determines whether SEA is required for a Plan or Programme, in consultation with the designated statutory consultees.	No formal screening as DAERA determined it best practice to undertake an SEA of the draft NAP 2027-2030.
Scoping	Determines the scope and level of detail of the assessment for the SEA, in consultation with the designated statutory consultees.	Completed July 2024
Environmental Assessment	Formal and transparent assessment of the likely significant effects on the environment arising from the implementation of the NAP for Northern Ireland, including all reasonable alternatives. The output from this is an Environmental Report which must go on public display along with the draft NAP 2027-2030.	Current Stage
SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final NAP.	Anticipated Q4 2026

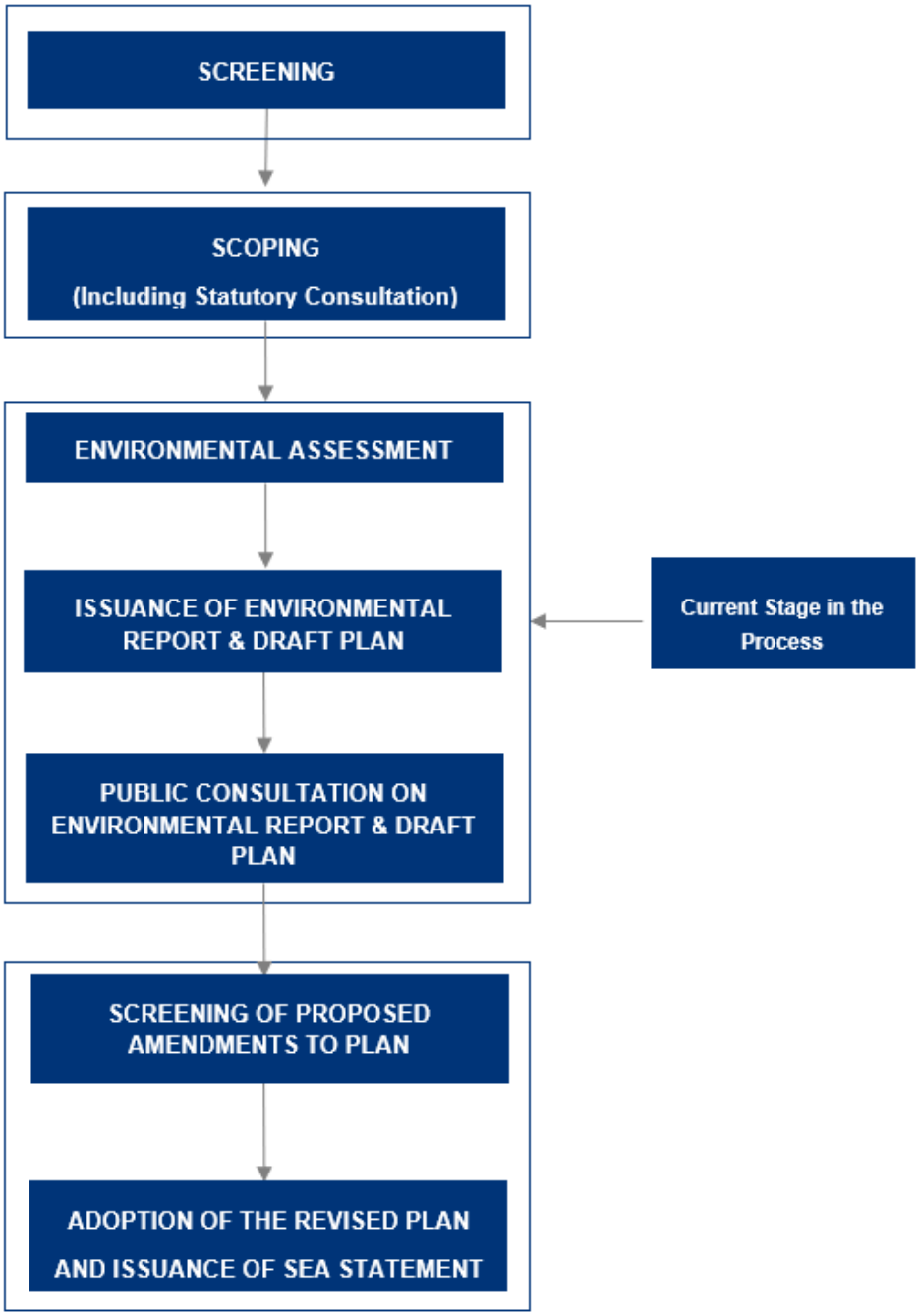


Figure 1-1 Overview of the SEA process.

1.3 Screening for SEA

The draft NAP 2027-2030 applies to all Northern Ireland. The requirements of the Nitrates Directive (91/676/EC) are enshrined in domestic legislation (transposed into domestic law on 19 December 1993) and remain in place following the UK and Northern Ireland's EU exit via the Nutrient Action Programme Regulations (Northern Ireland) 2019.

DAERA intends to ensure that the strategic planning process includes full and proper consideration of the potential effects of the implementation of the draft NAP 2027-2030 upon the environment. DAERA acknowledges the potential for significant positive and/or negative effects of implementing the NAP and believes that it is best environmental practice for the Department to undertake an SEA.

1.4 Scoping for SEA

The SEA Scoping for the draft NAP 2027-2030 took place from March-July 2024, followed by statutory consultation from July-August 2024. A Scoping Report was produced, the purpose of which was to provide sufficient information on the draft NAP 2027-2030 to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the Environmental Report.

The issuing of a draft Scoping Report to consultees is recommended as good practice and can inform stakeholders about the key environmental issues and the key elements of the Plan or Programme. In addition, the Scoping Report can be used as a tool to generate comments from stakeholders on the scope and approach of the SEA. **Table 1-2** was created to generate discussion during the scoping process and consultation in relation to the SEA receptors and was subsequently amended following scoping responses. The proposed measures of the draft NAP 2027-2030 have subsequently been further developed following a consideration and agreement of proposals by the NAP Stakeholder Task and Finish Group, which included membership from organisations across farming, agri-food, the environment and DAERA officials.

Table 1-2 Potential Environmental Issues by SEA Topic

SEA Topic	Scoped In / Out	Potential Environmental Issues
Biodiversity, Flora & Fauna	**In**	• Potential for effects on protected areas, including those of international (Special Areas of Conservations (SACs), Special Protection Areas (SPAs), Ramsar Sites)), national (Areas of Special Scientific Interest (ASSIs), National Nature Reserves (NNRs), Marine Conservation Zones (MCZs)) and local (Sites of Local Nature Conservation Importance (SLNCIs)) importance; • Potential for protection and enhancement of biodiversity at a national, regional and local level; • Potential for effects on protected and priority habitats and species; • Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands); • Potential for habitat loss, fragmentation, or deterioration (temporary or permanent); and • Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).
Population & Human Health	**In**	• Potential for direct and indirect effects on water quality (drinking and recreational activities); • Requirement to protect waterbodies identified for current / future drinking water abstractions; • Potential effects on food quality (commercial aquatic species); • Potential effects on air quality; and • Potential risks from biohazards.
Geology, Soils & Landuse	**In**	• Potential for effects on soil fertility and efficiency of nutrient use; • Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility); • Potential for effects on the vulnerability of land to erosion; • Potential for effects on soil compaction and poaching;

SEA Topic	Scoped In / Out	Potential Environmental Issues
		• Potential influence of soil type on land use practices (e.g. fertiliser application); and • Potential for effects on discharges to receiving aquatic sediments / groundwater sources.
Water	**In**	• Potential for effects on the ecological status of Water Framework Directive (WFD) surface waterbodies via changes in the levels of nutrient pollution and sedimentation; • Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation, and nutrient sensitive areas; • Potential for effects on nutrient concentrations within freshwater and marine waterbodies; • Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies; and • Potential effects of topography and land use practices to risk of nutrient and sediment loss and subsequent water pollution.
Air	**In**	• Potential for effects on air pollutant emissions arising from agricultural and land use activities; • Potential for effects on transboundary emissions (e.g., ammonia) arising from agricultural activities; • Potential for effects of air pollutants on sensitive habitats; • Potential for effects of air pollutants on human health; and • Potential for improvement of efficiencies leading to a reduction in emissions
Climatic Factors	**In**	• Potential for effects on GHG emissions, including Methane (CH_4), nitrous oxide (N_2O), and carbon dioxide (CO_2) arising from agricultural and land use activities; • Potential for effects on climate resilience; and • Potential for improvement of efficiencies leading to a reduction in emissions.
Material Assets	**In**	• Potential for effects on the productivity of agricultural land holdings; • Potential for effects on water-related assets; • Potential for increased agricultural output and farm incomes per hectare with adherence to NAP measures and Cross-Compliance measures; and • Potential for effects on the status of waterbodies used for drinking water, recreation, and production of food.
Cultural, Architectural & Archaeological Heritage	**In**	• Potential for direct or indirect impacts on archaeological and architectural features and their settings from implementation of measures within the NAP such as manure/fertiliser application and storage; and

SEA Topic	Scoped In / Out	Potential Environmental Issues
		• Potential for indirect impacts on water-based features and their settings resulting from water quality deterioration.
Landscape & Visual Amenity	**In**	• Potential for effects on areas of designated landscape quality and scenic views (i.e., in Local Area Plans); and • Potential for effects on the general landscape (including riverscapes, lakescapes and seascapes).

1.5 SEA Guidance

Key guidance documents that have been used in the SEA for the draft NAP 2027-2030 are listed in Appendix A of this SEA Environmental Report.

1.6 Statutory Consultees for SEA

Under Article 6 of the SEA Directive, the competent authority (in this case DAERA) preparing the plan or programme is required to consult with specific "environmental authorities" (statutory consultees) within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme. As some of the measures outlined in the draft NAP 2027-2030 may be implemented close to the border with the Republic of Ireland and having regard to the potential cross-border nature of some measures, there is potential for transboundary impacts from implementation of the NAP. For this reason, there is a requirement to undertake transboundary consultations as part of this SEA process.

The statutory consultee established within the SEA legislation for Northern Ireland is:

- DAERA

As DAERA is responsible for preparation of the draft NAP 2027-2030, consultees include all relevant units within the Department such as the Natural Environment Division, Drinking Water Inspectorate (DWI), Climate Change Unit, Marine and Fisheries Division, Marine Plan Team and Marine Conservation and Reporting Section. The Historic Environment Division of the Department for Communities (DfC), as the government authority on heritage, will also be consulted.

For the Republic of Ireland, the statutory consultees are established within Irish national legislation: the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 [S.I. 435/2004], which was subsequently amended as the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 [S.I. 200/2011]; and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 [S.I. 436/2004], which was subsequently amended as the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 [S.I. 201/2011]. Statutory consultees listed include:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of Climate, Energy and the Environment (DCEE).

1.7 Appropriate Assessment

The Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats and of wild fauna and flora obliges Member States to designate, protect and conserve habitats and species of importance in a European Union context. Article 6(3) of the Habitats Directive requires that "*Any plan or project not directly*

connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.". The Directive was transposed into Northern Ireland legislation through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. These regulations transpose *inter alia* Articles 6(3) and 6(4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and remain relevant following the UK's departure from the EU. This approach is in line with the Conservation (Natural Habitats, etc.) Regulations (Amendment) (Northern Ireland) (EU Exit) Regulations 2019. Any proposed plan or project that has potential to result in a likely significant effect on a designated European site will require an Appropriate Assessment (AA).

The output of this is a Report to Inform Appropriate Assessment (RIAA), which has been prepared to influence the draft NAP 2027-2030 and to establish whether or not the NAP is likely to have a significant negative effect upon the integrity of any European site. The findings of the RIAA have been integrated into this Environmental Report. The RIAA will be used to inform the conclusions of the Habitats Regulations Assessment (HRA) undertaken by the competent authority.

2.0 Description of the Nutrients Action Programme 2027-2030

2.1 The Nitrates Directive and Nitrates Action Programme

The Nitrates Directive (91/676EEC), introduced in 1991, aims to protect the water quality of Member States from pollution by agricultural sources, and to promote the use of good agricultural practice, applicable to all farmers. The Nitrates Directive requires Member States to either designate discrete areas of land as 'Nitrate Vulnerable Zones (NVZs)' to which they must apply action programmes or, alternatively, to establish an action programme that must be applied to the whole territory. The whole territory of Northern Ireland has been established as the area to which an action programme must be applied, in recognition of the significant issue of surface water eutrophication in Northern Ireland, much of which has been attributed to agriculture.

The first Nitrates Action Programme for Northern Ireland was introduced in 2007 and was given legal effect through the Nitrates Action Programme Regulations (Northern Ireland) 2006. As required by the Nitrates Directive, the Nitrates Action Programme included:

- A limit on the quantity of livestock manure to be applied to agricultural land annually;
- Set periods during which land spreading was prohibited owing to pollution risk; and
- Set capacity levels for livestock manure storage.

The Programme was applicable to all agricultural land (as defined in the Agriculture Act (Northern Ireland) 1949) and as such, affected all farms in Northern Ireland that produced livestock manure, or stored or applied organic manure and/or chemical nitrogen fertiliser to their land.

2.2 The Nutrients Action Programme

The Nitrates Directive requires that Member States review and, where necessary, revise their action programmes at least every four years. The Nitrates Action Programme for Northern Ireland was reviewed in 2010, 2014 and 2018. A joint DAERA/Agri-Food and Biosciences Institute (AFBI) Scientific Working Group reviewed the effectiveness of the 2014-2018 Nitrates Action Programme. This included engagement on the review process with the EU Commission and the EU Nitrates Committee (comprising representatives of EU Member States). The outcome of the review was a revised *Nutrient* Action Programme (NAP) for the period 2019-2022. The recommended actions of the revised NAP for 2019-2022 were implemented by means of the Nutrient Action Programme Regulations (Northern Ireland) 2019 (the NAP Regulations (Northern Ireland) 2019), which came into operation in April 2019. The NAP Regulations (Northern Ireland) 2019 revoked the Nitrates Action Programme Regulations (Northern Ireland) 2014, and the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014, incorporating these provisions into the NAP Regulations 2019. The NAP Regulations (Northern Ireland) 2019 will remain in place until new Regulations arising from the draft NAP 2027-2030 are implemented.

The draft NAP 2027-2030 proposes to carry forward all existing measures included within the NAP Regulations (Northern Ireland) 2019 and, on the basis of scientific evidence and/or technical, regulatory and policy developments, to introduce a number of new measures and amendments. The existing measures included within the current NAP Regulations (Northern Ireland) 2019 are described in **Table 2-1** of **Section 2.5**. New measures and amendments proposed for the draft NAP 2027-2030 aim to improve the implementation and enforcement of existing measures and to target legacy soil phosphorus accumulations. These measures are detailed in **Table 2-2** of **Section 2.5** and, in summary**,** include the following:

- ***Increased mandatory use of Low Emission Slurry Spreading Equipment*** (LESSE) moving to increased mandatory use of LESSE through a tiered approach based on livestock units;

- ***Changes in nitrogen fertiliser use***, including a ban on urea fertiliser that does not include an inhibitor within a certain seasonal window, and whole farm limits on chemical nitrogen fertiliser based on grass production;
- ***Additional phosphorus controls***, including further advisory restrictions on the use of chemical phosphorus fertiliser, with the need for valid soil analysis and nutrient management plans to demonstrate the need for phosphorus before application. This aims to ***decrease the national average phosphorus surplus***;
- An enhanced online IT system for recording ***imports and exports of slurry and manure*** movements, as well as processed/separated slurry solids from farms and digestate to farms;
- Amendments to ***storage requirements*** with pre-notification of new slurry and silage storage facilities required before construction, and details of requirements for covering of new above ground stores;
- Proposed changes to the ***NAP derogation to a Nutrient Stewardship Programme***, including a tiered system; and
- Additional requirements relating to the use of ***anaerobic digestate***, including recording of movements and nutrient content.

2.3 Nitrates Derogation

The Nitrates Directive, and implementing Regulations, set a limit on the quantity of grazing livestock manure to be applied to land annually as 170kg nitrogen/ha/year. However, Member States can apply for a derogation from this limit, and Northern Ireland has operated under the terms of an EU approved Commission Decision to permit a higher nitrogen application limit since 2007. The derogation impacts on grassland farms that have higher stocking rates, enabling them to better utilise the nutrients within grazing livestock manures, with the aim of operating more efficiently with reduced requirements for chemical fertiliser additions. In 2019, Northern Ireland was successful in applying to the European Commission to renew the derogation from the Nitrates Directive, permitting the land application of up to 250kg nitrogen/ha/year from grazing livestock manure under certain conditions. The NAP Regulations (Northern Ireland) 2019, which came into operation in April 2019, were subsequently amended to incorporate the Derogation Decision, as the Nutrient Action Programme (Amendment) Regulations (Northern Ireland) 2019 (hereafter referred to as the NAP Regulations (Northern Ireland) 2019), which came into operation in October 2019. From 2019 to 2024, between 418 to 441 farms were approved for Nitrates Derogation; these consisted of holdings within which at least 80% of the agricultural acreage for manure application was grass. An annual application to DAERA for a derogation is necessary, who are responsible for ensuring that landholders agree with, and comply with, the derogation terms.

Following the UK's exit from the EU, Northern Ireland is no longer required to apply to the European Commission for a decision on granting derogation beyond the limit of 170kg nitrogen/ha/year, and the decision now falls under control of DAERA. An increased limit of 250kg nitrogen/ha/year is still in force for derogated grassland farms that meet certain management and environmental criteria. The NAP Regulations (Northern Ireland) 2019 require derogated farms to meet conditions that aim to minimise the environmental impact of increased slurry application rates. These existing measures included within the NAP Regulations (Northern Ireland) 2019 and the proposed amendments for the draft NAP 2027-2030 regarding derogation (which is now referred to as a Nutrient Stewardship Programme) are detailed in **Section 2.5**.

2.4 Scope of the draft NAP 2027-2030 for Northern Ireland

2.4.1 Geographic Extent of the draft NAP 2027-2030

The draft NAP 2027-2030 is a national level programme for the protection of Northern Ireland's water resources from nutrient pollution by agricultural sources. As such, the assessment will primarily focus on activities occurring at a national to regional scale, while having careful regard to any likely significant environmental effects of a transboundary nature to receptors in the Republic of Ireland, including in the marine area.

Impacts will be dependent on the source-pathway-receptor and will cross boundaries (air emissions and water), and this is likely to include any pathways to receptors in the Republic of Ireland e.g., river waterbodies.

2.4.2 Temporal Extent of the draft NAP 2027-2030

The draft NAP 2027-2030 will be in force for four years and will cover the period from 2026 to 2029. This SEA of the draft NAP 2027-2030 will consider the potential for short, medium, and long-term effects (including reference to secondary, cumulative, synergistic, permanent, and temporary, direct and indirect, positive and negative effects), in line with the requirements of the SEA Directive.

The review period for the NAP is at least every four years. On this basis, the timelines proposed for assessment of impacts have been identified as short-term 0-2 years (immediate), medium-term 2-4 years (within the draft NAP 2027-2030 cycle) and long-term beyond 4 years (beyond draft NAP 2027-2030 cycle).

2.5 Description of the draft NAP 2027-2030 Measures

2.5.1 Existing measures in the NAP Regulations (Northern Ireland) 2019

The draft NAP 2027-2030 proposes to carry forward all existing measures included within the previous iteration of the NAP Regulations (Northern Ireland) 2019. These measures are summarised in **Table 2-1** and are fully detailed in Appendix B and comprise a suite of measures within 10 Parts.

Table 2-1 Summary description of existing measures in the NAP Regulations (Northern Ireland) 2019

NAP Measure	Description of Action for Assessment
Part 2 - General	
Duty of the controller to prevent water pollution	Farmers, land holders, or those otherwise involved in the management of land shall not cause or allow, either directly or indirectly, the entry of fertiliser into waterways or into any underground water sources
Part 3 – Prevention of water pollution from the application of fertilisers	
Closed spreading periods	Closed spreading periods prevent the application of chemical nitrogen and phosphorus fertiliser on grassland from 15 September to 31 January. All forms of chemical fertiliser must not be applied to arable land within these dates unless there is a demonstrable crop requirement. Farmyard manure and other organic manures e.g., slurry, digestate, poultry litter, sewage sludge and abattoir waste must not be applied from 15 October to 31 January.
Land application restrictions	Any chemical or organic fertilisers or dirty water must not be applied to; waterlogged soils, flooded or liable to flood land, on frozen or snow-covered ground, on steep slopes (average incline of 20% for grasslands and 15% for other land), or areas of land where an elevated risk of water pollution exists and when heavy rain is occurring or forecasted within the next 48 hours. Chemical fertiliser must not be applied within 2m of any waterway and organic manures must not be spread within certain distances of specific waterway features. Restrictions apply on the volume, amounts and timing of applications for organic manures and dirty water at any one time. From 30 September to 15 October and during February, buffer zones for slurry spreading near waterways are increased from 10m to 15m and from 20m to

NAP Measure	Description of Action for Assessment
	30m for lakes, with a reduction in the maximum slurry application rate from 50m^3 to 30m^3. Slurry applications must occur via the following methods only; inverted splashplate, bandspreaders, trailing shoe, trailing hose or soil injection. Dirty water application must follow the same methods as slurry or by irrigation and sludgigators must be used. LESSE (Low Emission Slurry Spreading Equipment) (including bandspreading, dribble bar, trailing shoe, soil incorporation or injection methods) must be used from 1 February 2020 for anaerobic digestate application, from 1 February 2021 by slurry contractors and from 1 February 2022 on cattle farms of over 200 livestock units and on pig farms with total annual livestock manure production of 20,000kg or more.
Livestock manure nitrogen limits and excretion rates for nitrogen and phosphorus	Loading limited to 170kg nitrogen/ha/year, calculated in accordance with defined animal excretion rates and nitrogen and phosphorus contents of fertilisers. Note that an exception to this limit is farms with at least 80% grassland that may apply annually for a derogation to permit application of up to 250kg nitrogen/ha/year from grazing livestock manure subject to specific additional criteria and conditions. From 11 April 2019, revised nitrogen and phosphorus excretion rates for poultry production systems must be used, and from 1 January 2020 revised nitrogen and phosphorus excretion rates for cattle must be used.
Overall nitrogen fertiliser limits	The total amount of nitrogen should be in proportion to the crop requirement for nitrogen. For dairy farms there is a maximum of 272kg nitrogen/ha/year on grassland and for other farms 222kg nitrogen/ha/year on grassland (apart from nitrogen in livestock manure). For non-grassland crops the maximum nitrogen applied (for all fertiliser types including livestock manure) must not exceed the crop requirement and for certain arable crops a maximum nitrogen limit will apply to the total crop area.
Application of anaerobic digestate	Where anaerobic digestate is being applied to land, a nutrient content analysis is required from 1 January 2020, and a fertilisation plan is also required. Application should not exceed fertilisation standards for crop phosphorus requirements.
High phosphorus manures	From 1 January 2020, a fertilisation plan must be prepared and available on the holding. Organic manure of more than 0.25kg of total phosphorus per 1kg of total nitrogen can only be applied where soil analysis has indicated a crop requirement.
Phosphate fertiliser application limits	From 1 January 2020, there are maximum phosphate fertiliser application rates for extensively managed grassland, which are dependent on the soil phosphorus index status.
Supplementary feeding and drinking points	From 1 January 2020 supplementary feeding sites must be a minimum of 20m, and supplementary livestock drinking points must be a minimum of 10m from any waterway where there could be a significant risk of pollution occurring from their use.
Part 4 – Storage Requirements	

NAP Measure	Description of Action for Assessment
Storage requirements for manure, slurry, silage and dirty water	Livestock manure storage capacity must be 26 weeks for pig and poultry farms and 22 weeks for other farms; allowances can be considered for out-wintering, bedded animals, separated cattle slurry, renting additional tanks, poultry litter and anaerobic digestate fibre stored in a midden or field heap and exporting manure to approved outlets. Livestock manure and silage effluent storage must be properly maintained and managed to prevent runoff or seepage. Silage and slurry stores constructed or substantially modified after 1 December 2003 must comply with certain construction standards, with notification to NIEA at least 28 days prior to being brought into use. Silage bales must be stored at least 10m away from a waterway and stored and managed to prevent seepage into waterways. Farmyard manure, poultry litter and anaerobic digestate fibre heaps must not be stored in the same location annually in fields, within certain distances from specific features or on land that is liable to flood, flooded or waterlogged. Farmyard manure field heaps must not be stored within 20m of any waterway or 50m of any lakes. Poultry litter and anaerobic digestate fibre field heaps must not be stored within 100m of any lakes and 40m of any waterways and must be covered with an impermeable membrane within 24 hours of placement within the field. Storage must be provided for dirty water during periods of unsuitable conditions for land application. From 1 January 2020, new above ground slurry stores must be sited at least 50m from any waterway and fitted with a cover.
Part 5 – Measures relating to land management	
Land management	Where grass leys are grown in rotation with arable crops the first crop shall be sown as soon as possible after the grass has been ploughed.
Part 6 – Record keeping and compliance monitoring	
Record keeping	The following records must be kept: Agricultural area, field size and location. Cropping regimes and areas, Soil Nitrogen Supply (SNS) index for crops other than grassland. Livestock numbers, type, species and time kept. Organic and chemical fertiliser details including imports and exports. Evidence of a crop phosphate requirement from soil analysis if chemical phosphate fertiliser is applied. From 1 January 2017, evidence of crop phosphorus requirement from soil analysis if organic manure with over 0.25kg total phosphorus per 1kg total nitrogen is applied. From 1 January 2020 a fertilisation plan must be prepared and kept up to date by all grassland farms using chemical phosphorus fertiliser, and all farms using phosphorus rich manure e.g., some poultry manures, pig farmyard manures and anaerobic digestate. A soil analysis is required. From 1 January 2020 farms importing anaerobic digestate will require a nutrient content analysis.

NAP Measure	Description of Action for Assessment
	Storage capacity and, where applicable, details of rental agreements, authorisation to store poultry litter and/or anaerobic digestate in field heaps and associated evidence to support allowances to reduce capacity. Records relating to export of organic manure to be submitted annually by 31 January of the following year and by 1 March for derogated holdings. Records must be available for inspection by 30 June of the following calendar year and must be retained for a period of five years. NAP Records must not be false or misleading, nor should any NAP information in a notice or document provided to DAERA.
Part 7 – Enforcement	
Compliance with a notice	DAERA, or those authorised by DAERA are responsible for implementing the NAP Regulations. They may use any of their functions to ensure compliance with these Regulations and may consider the COGAP as well as guidance on these Regulations. Enforcement Notices issued under the NAP Regulations must be complied with, subject to the right to appeal. It is considered an offence not to comply with the NAP Regulations.
Part 8 – Powers, duties and functions of the Department	
Implementation report	DAERA must prepare an implementation report on the NAP at four-yearly intervals detailing the steps taken to promote good agricultural practice, a summary of the monitoring results, and a summary of the most recent review of the NAP.
Reviewing the Action Programme	DAERA must review the NAP at four-yearly intervals in consultation with the public and if required published a revised action programme with suitable consultation periods provided for the proposed action programme.
Part 9 – Miscellaneous	
Transitioning legislation and required amendments to other legislation	Notices and records required under the previous Nitrates Action Programme Regulations or Phosphorus Regulations are also required under the NAP Regulations. Previous legislation is revoked, and other relevant legislation is amended to make reference to the updated NAP Regulations.
Part 10 – Derogation from measures governing the limits on land application of livestock manure	
Livestock manure nitrogen loading	Farms with at least 80% grassland may apply annually to NIEA for a derogation allowing land application to increase the limit of 170kg nitrogen/ha/year farm to up to 250kg nitrogen/ha/year from grazing livestock manure, subject to additional conditions and Cross-Compliance verifiable standards.

2.5.2 Proposed new measures and amendments to the draft NAP 2027-2030

The draft NAP 2027-2030 also proposes new measures and/or amendments to existing measures. The draft new measures and/or amendments are provided in **Table 2-2**. The proposed wording for the measure is provided, followed by additional rationale and further detail taken from the consultation document to inform the

assessment. The existing and draft new and/or amended measures are all considered in the assessment in **Section 7.2**.

Table 2-2 Proposed new measures and amendments to the draft NAP 2027-2030

NAP Measure	Description of Action for Assessment
Nutrient Management - Balanced Nutrient Use, Fertiliser and Manure Controls	
Limit chemical phosphorus fertiliser availability through an advisory approach	**Proposed measure** It is proposed to introduce new additional approach to managing the use of chemical phosphorus (P) fertiliser on grassland. This approach builds on the existing NAP requirement and combines limits on the availability of phosphorus fertiliser products with strengthened advice and support. The aim is to ensure that phosphorus fertiliser is only used where there is a clear need based on soil nutrient levels and crop requirements.
	Rationale and/or additional detail The proposed measure introduces a set of linked measures to manage how chemical fertiliser containing phosphorus is supplied and used on grassland. The existing NAP requirements for the use of chemical fertiliser containing phosphorus on arable land remain unchanged. **Limiting chemical phosphorus fertiliser use on grassland** The use of chemical phosphorus fertiliser will be linked to recent soil test results and based on crop requirement, as already in place through the 2019 NAP Regulations. In addition, the availability of chemical phosphorus fertiliser products with a lower phosphorus content will be limited to a small number of products: • Where there is no crop requirement for phosphorus, only fertiliser products with no phosphorus content can be used. • Where there is a crop requirement for phosphorus a limited number of low phosphorus fertiliser products can be used if required. • Higher phosphorus fertilisers will still be available and can be used where there is a clear crop requirement. • Chemical phosphorus fertilisers can only be applied where the crop need cannot reasonably be met through the use of organic manures. The updated NAP Regulations will specify which chemical phosphorus fertiliser products can be used on grassland. These will be a limited number of low Phosphorus fertiliser products (P content 4% or lower) and higher Phosphorus fertiliser products (P content 15% or higher). **Soil testing and nutrient management planning** As is currently the requirement, farmers will be required to: • Have a valid soil analysis obtained within the last 4 years; and • Prepare a Nutrient Management Plan showing the need for phosphorus This will ensure that fertiliser is applied only where it is required. **Controls at the point of sale**

NAP Measure	Description of Action for Assessment
	Fertiliser merchants will play an important role in implementing the measures. At the point of sale: • Farmers will be asked to confirm that they have a soil test and a Nutrient Management Plan; and • Chemical fertiliser products containing phosphorus will include clear labelling such as - "Apply phosphate only as needed to meet crop requirements in accordance with the NAP Regulations. Excess phosphate may be lost to waterways and could cause damage to aquatic environments." **Training and industry responsibilities** Fertiliser merchants will be required to complete basic training on nutrient management and water quality. Furthermore, detailed technical training will be introduced over time for those selling chemical phosphorus fertiliser products, who wish to enhance their knowledge and expertise. This training will be based on recognised industry standards. Manufacturers, suppliers and merchants will be expected to take shared responsibility for supporting improved phosphorus management at both industry and farm level. The uptake of the more detailed technical training will be an indicator of industry support that will be reviewed. **Responsible Phosphorus Management campaign** The Responsible Phosphorus Management (RPM) campaign will be developed to support the proposed changes and encourage more responsible use of phosphorus. This will include: • Guidance materials for farmers • Information available through fertiliser merchants • Support from farming organisations, agri-food businesses and environmental groups/ **Review of the measure** This measure is of critical importance to reducing the overall phosphorus surplus and its effectiveness will be reviewed after two years, and again as part of the wider NAP review as set out in the governance section. This will assess whether the approach is reducing the use of chemical phosphorus fertiliser and contributing to improved water quality. If the review concludes that the approach is not effective, then a more restrictive regulatory system will be required.
Reducing the Northern Ireland	**Proposed measure** It is proposed to reduce the national average phosphorus surplus by 30%, from the 2024 level of 8729 tonnes over the 4 year duration of the next NAP.

NAP Measure	Description of Action for Assessment
average phosphorus surplus	**Rationale and/or additional detail** This 30% reduction was carefully evaluated and collectively agreed upon as a realistic target that aligns with national objectives whilst being feasible for farms that need to implement change. It is recognised that delivering the 30% reduction target is dependent on the further development of manure processing facilities/end of pipe solutions to process and manage nutrients off farm and export them from the NI agricultural system. This reduction would be achieved through a combination of measures, including: All farms with livestock manure nitrogen (N) production levels at or above 170 kg N/ha per year must comply with proposals relevant to their sector, and must do one of the following • Ruminant livestock farms above the 170 kg N/ha threshold may join the Nutrient Stewardship Programme (NSP) and maintain a limit of no more than 10 kg P per hectare per year (Tier 1), or if that is not possible, reduce it by at least 10% over four years or demonstrate sustainable P management under the Soil P Protocol. (Tier 2) (see proposal 4.3.1 Nutrient Stewardship Programme) • Stay out of NSP and reduce both their N loading below 170 kg N/ha and their P balance by 15%. • Stay out of NSP and reduce their N loading below 170 kg N/ha and work under the Soil P Protocol relevant to their farm type. • Under the Soil P Protocol farms must demonstrate that weighted average soil phosphorus levels are stable or decreasing by the end of the 4 year period. • Protocols for Pig and Poultry farms to demonstrate sustainable management of P have also been developed. Reductions in P balance can be achieved by a range of actions, depending on individual farm circumstances. Key actions may include • Improvements in animal feed phosphorus efficiency. • Increased use of slurry and manure processing technologies to better manage and redistribute phosphorus. • Limit or eliminate chemical phosphorus fertiliser use. • Exporting slurry. • Farming additional land. The Soil P Protocol is for instances where a farm cannot demonstrate compliance with the applicable P Balance requirement, but, may use the Protocol as a complimentary means of demonstrating effective soil P management. Protocols for pig and poultry farms to demonstrate sustainable management of P as a complementary means to a farmgate P Balance have also been developed.

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>Pig and Poultry farms which operate under IPPC licence will not be subject to the P Balance requirements as they already are required to demonstrate sustainable management of manure through Nutrient Management Plans.

This approach focuses on overall national reduction, rather than relying on a single measure, recognising that different farms will contribute in different ways.

It is important to note that improvements in water quality will not be immediate. Because phosphorus stored in soils is released slowly, meaningful changes are likely to occur over many years. However, this measure sets a clear and achievable direction of travel towards improved environmental outcomes.

Progress of this measure will be reviewed after two years and again as part of the wider NAP review, as outlined in the governance section. If progress towards the 30% reduction is not on track, further measures will be considered.</td></tr>
<tr><td>Dairy cow nutrient excretion values – based on milk yield</td><td>Proposed Measure

Proposed to reform the standard nutrient excretion values for dairy cows under the NAP by replacing the single values for Nitrogen and Phosphorus by values determined by milk yield.

Rationale and/or additional detail

Milk yield values proposed are set out in the table below:

<table>
<tr><th>Milk yield bands (litres)</th><th>N excretion per cow (kg/year)</th><th>P excretion per cow (kg/year)</th></tr>
<tr><td>< 5,000</td><td>77</td><td>11</td></tr>
<tr><td>5,000 – 7,000</td><td>90</td><td>13</td></tr>
<tr><td>7,001 – 8,000</td><td>103</td><td>15</td></tr>
<tr><td>8,001 – 9,000</td><td>112</td><td>17</td></tr>
<tr><td>9,001 – 10,000</td><td>121</td><td>18</td></tr>
<tr><td>10,001 – 12,000</td><td>135</td><td>20</td></tr>
<tr><td>>12,000</td><td>149</td><td>22</td></tr>
</table>
The aim is to make these values more accurate and fairer by better reflecting actual excretion rates, milk yield and dietary management, while avoiding disproportionate impacts on farms close to regulatory thresholds.

This will also be replicated for Phosphorus (P) excretion values for dairy cows, and those values are also set out in the above table. Values will be determined using a DAERA online system and calculators, with farmers entering the relevant milk yield or dietary data for their herd.

There will be four different ways to determine the nutrient excretion values for a herd. Farmers should select one of these options:

• Milk yield banding: This involves applying the standard nitrogen value specified for each milk yield band, with supporting records of farm milk yield.

• Farm-specific calculation (milk yield based): Farms may use their own milk yield data to calculate a tailored nitrogen value, rather than the standard values provided for in the fixed band average.

• Farm-specific calculations (diet based): Farms may choose this option where they are using specific feeding practices (such as lower protein diets). Nitrogen excretion can be calculated by using diet</td></tr>
</table>

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>information. This option must be supported by independent verification. It is only relevant for herds with higher milk yields and concentrate feed inputs Improving N efficiency in diets will reduce N excretion rates.
• Default value: Farms who do not submit any data, the higher default excretion values will apply.
Data relating to milk yield should be taken from either the most recent year's average or a rolling average of the most recent three-years. This data is to be submitted to DAERA annually via an online system.</td></tr>
<tr><td rowspan="2">Updated poultry nutrient excretion figures</td><td>Proposed Measure
It is proposed that the standard values for poultry figures are amended as outlined in the tables below.</td></tr>
<tr><td>Rationale and/or additional detail
As part of this review, the following amendments are recommended to the existing poultry production systems. These amendments will also improve the ease of use and read-across between regulations, guidance documents and online calculators. Changes are also proposed to the lay-out of the table in the regulations.
The amendments to the standard values for poultry figures are outlined in the following tables:
Nitrogen (N) and Phosphorus (P) excretion rates for poultry (NAP Regulations 2019 Sch 2 Table 1c)
<table>
<tr><th>Livestock type</th><th>Dry matter (%)*</th><th>Nitrogen (N) produced per 1,000 birds per crop (kg/N)</th><th>Phosphorus (P) produced per 1,000 birds per crop (kg/P)</th><th>Crop length (weeks)</th><th>Litter output per 1,000 birds per crop (t)</th><th>Litter output per 1,000 birds per week (t)</th></tr>
<tr><td>Broilers – indirect heating systems</td><td>72</td><td>30.3</td><td>5.0*</td><td>6</td><td>1.0</td><td>0.170</td></tr>
<tr><td>Free range broilers (0d – finish)</td><td>57</td><td>44.9</td><td>11.4</td><td>8</td><td>1.7</td><td>0.213</td></tr>
<tr><td>Free range broilers (0 – 28d)</td><td>65</td><td>18.6</td><td>4.4</td><td>4</td><td>0.53</td><td>0.133</td></tr>
<tr><td>Free range broilers (28d - finish</td><td>56</td><td>44.9</td><td>11.4</td><td>4</td><td>1.6</td><td>0.395</td></tr>
<tr><td>Turkeys 0 – 6 weeks</td><td>62</td><td>103.9</td><td>30.3</td><td>6</td><td>3.9</td><td>0.650</td></tr>
<tr><td>Turkeys 6 weeks – kill</td><td>59</td><td>305</td><td>73.8</td><td>8</td><td>12.3</td><td>1.538</td></tr>
<tr><td>Turkeys 0 – kill</td><td>61</td><td>408.9</td><td>104.4</td><td>14</td><td>16.2</td><td>1.157</td></tr>
<tr><td>Fattening Ducks</td><td>25</td><td>139</td><td>65</td><td>5</td><td>21.4</td><td>3.567</td></tr>
</table></td></tr>
</table>

NAP Measure	Description of Action for Assessment

Livestock type	Dry matter (%)*	Nitrogen (N) produced per 1,000 birds per week (kg/N)	Phosphorus (P) produced per 1,000 birds per week (kg/P)	Crop length (weeks)	Litter output per 1,000 birds per crop (t)	Litter output per 1,000 birds per week (t)
Broiler breeders 0 – 18 weeks	55	2.9	2.0	18	3.0	0.167
Broiler breeders 18 – 60 weeks	60	7.2	3.9	42	14.7	0.350
Broiler breeders 0 – 60 weeks	58	5.9	3.3	60	17.7	0.295
Pullets	72	4.7	1.7	16	2.3	0.144
Free range laying hens – single tier	46	5.8	2.2	60	17.3	0.288
Free range laying hens – multi tier	32	6.6	2.1	60	25.3	0.422
Housed hen	31	7.4	2.3	60	29.0	0.483

**Dry matter may vary depending on litter/manure drying systems. Adjust litter/manure output and nutrient profile accordingly. As DM increases, total weight of litter manure will decrease, and nutrient content / kg will increase.*

Total Nitrogen (N) and Phosphorus (P) content of fertilisers and proportion of total phosphorus to total nitrogen (all on a fresh weight basis) (Update to NAP Regulations 2019 Sch 2, Table 2, in so far as is relevant to poultry only)

Solid manure type	Dry matter content (%)*	Total nitrogen content by weight (kg N/t)	Total phosphorus content by weight (kg P/t)	Proportion of total phosphorus to total nitrogen
Poultry manures				
Broiler – indirect heating systems	72	30.3	5.0	0.16
Free range broilers 0d-finish	57	26.4	6.7	0.25
Free range broilers 0-28d	65	34.5	8.2	0.24
Free range broilers 28d-finish	56	28.5	7.0	0.25
Broiler breeders 0 – 18 weeks	55	17.5	11.8	0.67
Broiler breeders 18 – 60 weeks	60	20.7	11.0	0.53
Broiler breeders 0 – 60 weeks	58	19.1	11.4	0.60
Turkeys 0 – 6 weeks	62	26.6	7.7	0.29
Turkeys 6 – kill	59	24.8	6.0	0.24
Turkeys 0 – kill	61	25.7	6.9	0.27
Pullets	72	32.7	12.0	0.37
Free range laying hens – single tier	46	18.8	7.5	0.40

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>
<table>
<tr><td>Free range laying hens – multi tier</td><td>32</td><td>15.6</td><td>5.0</td><td>0.32</td></tr>
<tr><td>Housed hens</td><td>31</td><td>15.4</td><td>4.7</td><td>0.31</td></tr>
</table>
*Dry matter may vary depending on litter/manure drying systems. Adjust litter/manure output and nutrient profile accordingly. As DM increases, total weight of litter manure will decrease, and nutrient content/kg will increase
</td></tr>
<tr><td>Standard values for separated manures and slurries</td><td>
Proposed Measure
It is proposed to update the regulations to include a standard value for screw press separated slurry fractions as outlined in the tables below (Tables 6 and 7 of the consultation document).
Rationale and/or additional detail
AFBI have provided the following data on separated liquid and solids respectively. DAERA proposes to include in the Regulations the mean as a standard value for screw press separated slurry fractions.
Separated liquid from screw press separation of cattle slurry
<table>
<tr><th>Separated liquid source</th><th>Dry matter content</th><th>Total Nitrogen (N) (kg N/m^3)</th><th>Total Phosphorus (P) (kg P/m^3)</th><th>P:N ratio</th><th>Source</th></tr>
<tr><td>Separated liquid from 8% DM dairy slurry</td><td>6</td><td>3.5</td><td>0.6</td><td>0.17</td><td>AFBI data</td></tr>
<tr><td>Separated liquid from 7.8% DM dairy slurry</td><td>5.2</td><td>3.8</td><td>0.6</td><td>0.16</td><td>Fournel et al. 2019</td></tr>
<tr><td>Separated liquid from 6.3% DM dairy slurry</td><td>5</td><td>3.5</td><td>0.58</td><td>0.17</td><td>Fournel et al. 2019</td></tr>
<tr><td>Separated liquid from 8.6% DM cattle slurry</td><td>4.3</td><td>3.75</td><td>0.34</td><td>0.09</td><td>Fangueiro et al. 2008</td></tr>
<tr><td>Mean values</td><td>5.1</td><td>3.64</td><td>0.53</td><td>0.15</td><td>Calculation</td></tr>
</table>
Separated solids from screw press separation of cattle slurry
<table>
<tr><th>Separated solid source</th><th>Dry matter content</th><th>Total Nitrogen (N) (kg N/m^3)</th><th>Total Phosphorus (P) (kg P/m^3)</th><th>P:N ratio</th><th>Source</th></tr>
<tr><td>Separated liquid from 8% DM dairy slurry</td><td>23.7</td><td>4.8</td><td>1.21</td><td>0.25</td><td>AFBI data</td></tr>
<tr><td>Separated liquid from 7.8% DM dairy slurry</td><td>24.3</td><td>4.85</td><td>1.27</td><td>0.26</td><td>Fournel et al. 2019</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>
<table>
<tr><td>Separated liquid from 6.3% DM dairy slurry</td><td>26.2</td><td>4.81</td><td>1.36</td><td>0.28</td><td>Fournel et al. 2019</td></tr>
<tr><td>Mean values</td><td>24.7</td><td>4.82</td><td>1.28</td><td>0.27</td><td>Calculation</td></tr>
</table>
DAERA intends to retain the values for strainer box and weeping wall standard values as these may still be in use on some farms.

Due to the variety of feedstocks for Anaerobic Digestate (AD) and consequent variability of digestate, no standard values are proposed. A specific nutrient content analysis should be used and provided as required by the existing regulations.
</td></tr>
<tr><td>Updated chemical nitrogen fertiliser limits for grassland</td><td>
Proposed Measure

It is proposed to introduce whole-farm limits on chemical nitrogen fertiliser use, based on how much grass a farm produces. As detailed in the table below (Table 8 of the consultation document).

Rationale and/or additional detail
<table>
<tr><td>Nitrogen application limits for Grassland Crops Grass Production Level</td><td>Balance of grassland nitrogen requirement (from chemical fertiliser or organic nitrogen supply other than livestock manure)

Whole farm limits – kg/N/ha/year</td></tr>
<tr><td>Maximum – Target yield

12-15 (t DM/ha)</td><td>243 - 272</td></tr>
<tr><td>Moderate to High – Target yield

10-12 (t DM/ha)</td><td>223 - 242</td></tr>
<tr><td>Low to Moderate – Target yield

5-10 (t DM/ha)</td><td>0 - 222</td></tr>
</table>
DAERA has reviewed the existing values in the regulations for effective nutrient management to ensure the correct amount of nitrogen is applied at the correct time.

The revised values seek to introduce whole-farm limits on chemical nitrogen fertiliser use, based on how much grass a farm produces. The table in the existing regulations will be replaced with the values above, based on grassland production. Values are based on the latest available data, including local research and the UK Fertiliser standards (RB209, 2026)[1].

• Each production level would have a maximum allowable amount of nitrogen from chemical fertiliser (and from organic nitrogen sources other than livestock manure), expressed as kilograms of nitrogen per hectare per year.
</td></tr>
</table>

NAP Measure	Description of Action for Assessment

	• Higher fertiliser limits would only be available to farms that can demonstrate higher grass production.
	
	These proposed limits are intended to better match nitrogen use with what crops can realistically use and need.
	
	High yields of grass forage
	
	Many farms in NI are generally able to produce multiple crops of grass forage. With efficient grassland management, precision nutrient application and optimal soil pH, very high yields can be produced if sufficient nitrogen fertiliser is applied.
	
	Increased forage production reduces the need for concentrate feeds that contribute to phosphorus surplus both at individual farm and national level.
	
	Nitrogen Requirements
	
	To support higher levels of forage production and use, these farms typically need sufficient nitrogen inputs. Comprehensive local growth trials have demonstrated the proposed limits in Table 8 will enable grass production to the agronomic optimum.
	
	Additional Requirement for High-Production Farms
	
	Farms in the maximum grass production category will have an additional requirement to support the higher nitrogen allowances.
	
	These farms would be required to:
	
	• Carry out soil sampling and analysis at least every four years;
	• Sample each homogeneous grassland area (areas with similar soil type and management);
	• Test, as a minimum, for:
	  ○ Phosphorus (P),
	  ○ Potassium (K), and
	  ○ Soil pH.
	
	This soil testing must follow the procedures already set out in Schedule 5 of the 2019 NAP Regulations.

Allowance for processed organic fertilisers	**Proposed Measure** It is proposed to introduce a specific allowance and limit of 100 kg nitrogen per hectare per year for “Processed Organic Fertilisers” derived from agricultural sources.
	Rationale and/or additional detail Under this proposal: • These fertilisers would be classified separately from livestock manure; • They will count towards the limit for chemical fertiliser or organic nitrogen supply other than livestock manure;

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>The current total N Fertiliser application limit will not be increased, and must continue to be applied to crop need;
Processed is defined as chemical and/or heat treatment and excludes simple mechanical processing such as pelleting or composting;
Only processed organic fertilisers derived from agricultural sources would be allowed within the definition of “Processed Organic Fertilisers”.</td></tr>
<tr><td colspan="2">Manure Storage and Application Requirements – Ammonia Implications</td></tr>
<tr><td>Reduced slurry application volumes in February and early October</td><td>Proposed Measure
It is proposed that the maximum volume of slurry which can be applied during the month of February and the period of 30th September to 15th October is reduced from the current limit of 30m^3 per hectare per single application to 25m^3 per hectare per single application.</td></tr>
<tr><td rowspan="2">Clearer definition of Low Emission Slurry Spreading Equipment</td><td>Proposed Measure
It is proposed to update and clarify the definition of LESSE in the regulations.
Under the proposed definition, LESSE will be expanded to include:
Any method that reduces ammonia emissions by 30% or more compared with the inverted splash plate method.</td></tr>
<tr><td>Rationale and/or additional detail
What slurry spreading methods would be covered? The best known examples of LESSE currently include:
Trailing hose (also known as dribble bar).
Trailing shoe.
Injection systems.
Under the proposed definition, these methods would continue to be recognised. In addition, new or alternative technologies may also qualify if they meet the emissions reduction criteria (of reducing ammonia emissions by 30% or more) and are supported by scientific evidence.
This approach avoids limiting LESSE to a fixed list of equipment types and instead focuses on environmental performance.</td></tr>
<tr><td rowspan="2">Tiered move to increased use of LESSE</td><td>Proposed Measure
It is proposed to extend the mandatory use of LESSE to more farms over time, using a tiered approach based on farm size, measured in livestock units.
Under the proposal, LESSE would become mandatory as set out in the below table (Table 9 of the consultation document).</td></tr>
<tr><td>Rationale and/or additional detail
<table><tr><td></td><td>Livestock Unit per farm</td><td>Proposed date of Mandatory LESSE</td></tr></table></td></tr>
</table>

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td></td><td>
<table>
<tr><td>Tier 1</td><td>All farm businesses over 100 LU</td><td>by February 2028</td></tr>
<tr><td>Tier 2</td><td>All farm businesses over 75 LU</td><td>by February 2029</td></tr>
<tr><td></td><td>All pig farms over 10,000kg N production from livestock manure per year</td><td>by February 2029</td></tr>
<tr><td>Tier 3</td><td>All farm businesses over 50 LU</td><td>by February 2030</td></tr>
</table>
This will mean a gradual increase in LESSE use across NI, with the largest farms required to change first. The tiered approach is intended to balance environmental benefits with practical considerations for farmers.
DAERA recognises that moving to LESSE is not without challenges. Cost, field access, ground conditions, equipment availability, and reliance on contractors all affect what is practical on different farms. Farming systems and land types vary across NI, and these proposed changes take this into account. It is intended that this measure will be introduced alongside financial support for LESSE under Sustainable Farming Investment Scheme.
Where it is not practical to spread on a field using LESSE due to slope existing exemptions will apply as specified in the 2019 NAP Regulations.
Subject to the outcome of this consultation this measure will be incorporated into the Ammonia Strategy.
</td></tr>
<tr><td rowspan="2">Pre-Notification of new slurry and silage storage</td><td>Proposed Measure

It is proposed to strengthen the regulatory requirement for pre-notification of slurry or silage stores prior to construction. Controllers must notify DAERA 28 days before construction (including substantial enlargement or substantial reconstruction) begins and provide the registration number of the Chartered Structural or Civil Engineer supervising and certifying the building works. If no acknowledgement is provided by DAERA within 28 days following notification, construction can proceed.</td></tr>
<tr><td>Rationale and/or additional detail

This amendment aligns NI with England and Wales, where notification is required 14 days before construction begins. However, we propose to retain the 28 days pre-notification period.

Construction, substantial enlargement or substantial reconstruction of slurry or silage storage systems must be pre-notified 28 days prior to construction work beginning. Where such a system must comply with British Standard 5502, this must be signed off by a Chartered Structural or Civil Engineer. Welsh and Scottish guidance require certification by an Engineer, so this amendment enhances regulatory assurance as set out in current regulations.

Controllers will no longer be required to notify DAERA prior to use.</td></tr>
<tr><td>Clarify cover requirement for new</td><td>Proposed Measure</td></tr>
</table>

NAP Measure	Description of Action for Assessment
above-ground slurry stores	It is proposed to clarify through guidance and awareness raising that for new above ground slurry storage facilities, the cover must be: • A tensioned fitted cover (for example, a properly fitted membrane designed to remain in place), or • A fixed structure (such as a roof or lid). Other cover types that are loose-fitting or not fixed in place are not considered to meet the existing requirement.
Limit the use of unprotected granular urea fertilisers	**Proposed Measure** It is proposed that the use of urea fertiliser in Northern Ireland would be managed through a seasonal approach, with a requirement to only use protected urea for applications from 01 April each year. **Rationale and/or additional detail** **Protected urea**: urea fertiliser treated with a urease inhibitor (or equivalent treatment) to reduce ammonia emissions following application. **Unprotected urea**: urea fertiliser without such treatment. Across Great Britain (GB), an industry-led stewardship approach has been introduced to reduce ammonia emissions from urea fertilisers. This approach is delivered through farm assurance standards and advisory support, and combines: • Seasonal restrictions on the use of untreated (unprotected) urea; and • A requirement to use protected (inhibited) urea during the main growing season. It is proposed that NI adopt a similar approach to the GB stewardship model. **Restricted use of unprotected granular urea** Under this proposal, unprotected (uninhibited) granular urea fertiliser can only be applied during a limited application window: • 1 February to 31 March (inclusive) Outside of this period, the use of unprotected granular urea is prohibited. **Requirement to use protected granular urea** For the remainder of the year: • 1 April to 15 September, all granular urea-containing fertilisers would be required to be: • Protected (i.e. treated with a urease inhibitor, or equivalent treatment); and • Applied in accordance with good nutrient management practice. **Record-keeping and compliance** Farmers would be required to maintain records to demonstrate compliance, including:

NAP Measure	Description of Action for Assessment
	• The type of granular Urea fertiliser used (protected or unprotected); • Date of application; • Application rates and fields where applied. The effectiveness of this measure, including assessment of compliance, will be reviewed after two years and again as part of the wider NAP review, as set out in the governance section, and if necessary further action will be considered. Subject to the outcome of this consultation, this measure will be incorporated into the Ammonia Strategy
Anaerobic Digestate Measures	**Proposed Measure** It is proposed that the NAP rules are updated as follows: Separation of Digestate to reduce Phosphorus content • Where the separated liquid portion of digestate has a low phosphorus to nitrogen ratio (1:10 or lower), it can be spread under the existing rules for cattle slurry. • If the digestate is produced using feedstock sourced from outside NI, it must be applied strictly in line with crop nutrient needs and will require a nutrient management plan completed and retained on farm. Targeted application of Digestate to Land • Where the separated liquid portion has a higher phosphorus to nitrogen ratio than 1:10, then it must be applied strictly in line with crop nutrient needs and a nutrient management plan must be completed and retained on farm, as required by the 2019 NAP Regulations. Record keeping and reporting of nutrient movements • The movements of AD must be recorded in the same way that slurry and manure imports and exports are recorded. This includes recording slurry and separated slurry from farms to AD plants, as well as processed digestate returning to farms. All movements must be notified to DAERA to allow oversight just as with manure imports and exports. (Reference is given to further details available in section 4.4.1 and 4.4.2 of the consultation document. These sections relate to the proposed measures of 'Enhanced online system for recording slurry and manure exports and imports' and 'Extending the system to processed slurry solids and digestate movements', respectively).
Farming Practices to Improve Nutrient Use and Water Quality	
Nutrient Stewardship Programme – a revised approach to Derogation	**Proposed Measure** To replace the current Derogation with a revised approach called the Nutrient Stewardship Programme (NSP). While many of the existing environmental safeguards would remain, several important changes are proposed and set out below.
	Rationale and/or additional detail

NAP Measure	Description of Action for Assessment
	a) Change of Name • The term "Derogation" would be replaced by "Nutrient Stewardship Programme". • This is intended to better reflect the higher standards of nutrient management required and the environmental benefits delivered as more farms are utilising nutrients more efficiently. **b) Two-Tier Structure** • Tier 1: Farms that already meet all requirements (current and new) would enter Tier 1, recognising their high level of nutrient management. • Tier 2: Farms that do not yet fully meet all Tier 1 Phosphorus Balance requirements could enter Tier 2 and work towards Tier 1 over time, with advisory support. **c) Grassland Requirement** • The minimum grassland requirement would be reduced from 80% to 70%. • This would allow some farms to grow more arable crops, such as cereals. • Additional safeguards (such as buffer strips near watercourses) on some arable fields would be required to manage any risks to water quality. **d) Phosphorus Balance Rules** • Existing participants will enter Tier 1 and maintain the current limit of no more than 10 kg P per hectare per year surplus. • New Tier 2 entrants will be permitted to join with a higher P surplus, provided they commit to reducing it by at least 10% over four years, or to 10 kg P per hectare per year. • Compliance with the Phosphorus balance, will be assessed using a three-year rolling average, allowing for normal year-to-year variation in farming conditions. • Compliance may also be demonstrated through soil testing showing stable or declining soil phosphorus under the Soil P Protocol. • All farms must prepare and submit annual nutrient/fertilisation accounts, as per the existing requirements which will be checked and verified by NIEA. **e) Clover and Leguminous Crops** Current limits on clover and leguminous crops are designed to reduce risk of elevated nitrate levels in groundwaters. This is a measure historically applied by the EU due to widespread issues in some European countries. However, as most soils in NI are less vulnerable to nutrient losses than those in European countries, the following changes are proposed:

NAP Measure	Description of Action for Assessment
	• To permit more clover and legumes which has the potential to reduce the need for chemical fertiliser and imported feed. • Targeted safeguards will be introduced in higher-risk areas if necessary. **f) Application to the Programme** • Tier 1 farms will apply for a maximum four years, aligning with the NAP cycle, rather than applying annually. This means that those applying for entry into the scheme part way through the NAP four-year review cycle will only be approved up to the end of that review period. • Tier 2 farms will be required to apply for entry into the programme each year, to allow progress to be reviewed and monitored. • Annual nutrient planning and reporting will be required for all participants, which will be checked and verified by NIEA. **g) Inspections, Training and Review** • Tier 1 farms, will be considered as a lower risk and will therefore have a 1% inspection rate, reflecting their higher compliance. • Tier 2 farms will receive targeted training and advisory support on nutrient management. • Farms in Tier 2 (considered as in-conversion) will be considered as a higher risk than those in Tier 1, and therefore will have a 5% rate of inspection. • Nutrient management accounts will continue for farms operating under the programme and will continue to be subject to monitoring and review by NIEA annually. • Farms which are not part of the Nutrient Stewardship Programme but which are operating over 170kg Nitrogen per hectare per year, will be considered High Risk and will be subject to the highest 10% rate of inspection. The proposed Nutrient Stewardship Programme (NSP) will bring a greater proportion of grassland farms within a structured and monitored framework than the current derogation model. By widening participation, more farms will be operating to defined nutrient management requirements, to optimise nutrient efficiency, with detailed record keeping, and increased oversight. Ensuring enhanced nutrient management across a larger cohort of farms contributes to the protection and recovery of sensitive habitats in line with DAERA's obligations under the Habitats Regulations. **Review of the measure** The level of uptake and impact of the NSP will be reviewed after two years, and again as part of the wider NAP review, as set out in the governance section of the consultation document. If the review concludes that the approach is not effective, then a more restrictive regulatory system will be required.
	Proposed Measure

NAP Measure	Description of Action for Assessment
Mitigation measures for late harvested arable crops	To introduce specific provision on implementation of mitigation measures at planting stage supported by additional guidance. Mitigation will be required on fields planted with late harvested crops, where there is a risk to a watercourse e.g. slope of the field, runoff pathways and proximity to a watercourse. Such mitigation will be laid out in guidance.
	Rationale and/or additional detail Examples of actions to be considered at crop establishment include: • Ploughing an upturned outside furrow parallel with the waterway • Inclusion of an appropriate grass filtration buffer between the crop and the watercourse
A focused approach to improving water quality	**Proposed Measure** To introduce a “focused approach” to support the NAP. In focused areas, it is proposed to provide additional advisory support, education and recommendations for voluntary measures to mitigate against the risk of nutrient losses to water. In doing so it will provide additional targeted support in specific high-risk catchments, alongside the existing NAP rules that continue to apply to all farms.
	Rationale and/or additional detail The focused approach is intended to ensure that: • The right measures are used in the right places, and • Action is concentrated where the risk to water quality is greatest. **How focused areas would be identified** Focused areas will be selected using existing monitoring and assessment data, including: • Water quality trends in rivers and lakes, • Information on protected sites and habitats • Evidence of rising nutrient levels, • Assessments carried out under previous NAP implementation reports, and • Data on land and runoff risk. This process will identify catchments where agricultural nutrient losses pose the greatest risk to water quality. Upon being selected participants will be signposted to advisory support available to them. **What support would be offered in focused areas** The focused approach will rely on advice, education, and voluntary action, rather than additional regulatory controls.

NAP Measure	Description of Action for Assessment
	Support will include: • Advice and training on nutrient management and water protection; • Non-regulatory advisory farm visits; • Support to access funding or grants for practical measures such as buffer strips, tree and hedge planting, and yard improvements; • Advice on techniques to manage or export excess nutrients, such as slurry separation; • Coordination between advisers to ensure consistent messages. Advice will be delivered through organisations such as CAFRE, environmental advisors and existing catchment-based programmes. **Working with farmers** In focused areas, farmers will be invited to take part in themed peer learning groups. These groups will: • Meet at key times of the year, • Often be hosted on participating farms, • Discuss and demonstrate practical actions that improve water quality, • Allow farmers to learn from advisers and each other, • Receive one-to-one advice as part of this support. More general information, including water quality monitoring results, will be published on DAERA's website. Ongoing monitoring under the Water Framework Regulations and future NAP implementation reports will track progress over time. DAERA is proposing that uptake of the focused approach measure will be voluntary. This is an opportunity to show improvement through voluntary uptake and action as an alternative to implementation by Regulation. **Review of the measure** The level of uptake and impact of this measure will be reviewed after two years, and again as part of the wider NAP review after 4 years, as set out in the governance section. If the review concludes that the approach is not effective, then a more restrictive regulatory system will be required.
Nutrient Efficiency Roadmap	**Proposed Measure** To develop a Nutrient Efficiency Roadmap for Northern Ireland farming, built around an overarching mission: To enhance food security, farm profitability, and environmental outcomes by increasing nutrient security through the efficient use of nitrogen and phosphorus on NI farms.
	Rationale and/or additional detail

NAP Measure	Description of Action for Assessment
	Work on the Roadmap will begin ahead of next NAP cycle coming into effect. Its development and implementation will run in parallel, and it will be a key advisory support over the period of the next NAP. **Key features of the proposal include**: • A co-designed and co-owned roadmap, involving farmers, government, industry, environmental groups and other relevant organisations. • A focus on practical actions that can be adopted on farms now, alongside a pathway to increase uptake over time. • Use of task-and-finish groups to support delivery of specific actions. • Governance and coordination supported by DAERA, building on existing stakeholder structures. **Scope of the Roadmap** The roadmap will: • Prioritise nitrogen and phosphorus, while recognising the importance of other factors such as soil pH and nutrients like potassium and sulphur. • Focus mainly on-farm ("pre-farm gate") actions but may include post-farm gate measures where these clearly improve nutrient efficiency. • Avoid actions that would have unjustified negative impacts on greenhouse gas emissions or carbon capture. • Place soil health at the centre of improved nutrient management. Without a coordinated roadmap, opportunities to improve efficiency, reduce pollution and support farm profitability may be missed.
Utilising Technology	
Enhanced online system for recording slurry and manure exports and imports	**Proposed Measure** The existing online system will be enhanced to ensure more up to date and accurate reporting of exports and imports of slurry and manures. Organic manure movements must be notified to DAERA as follows. • All organic manure movements must be notified to DAERA by the exporter three times annually as a minimum. Movements up to the end of February, June and October must be notified by the exporter and verified by the importer no later than the end of the subsequent month. • Additionally, all exports of 15 miles or greater in a straight-line distance must be notified to DAERA within five days of the transfer. Verification by the receiving farm or operator, is required within two weeks of the receiving farm or operator being notified. • This notification will be by the online system which will be enhanced. An App will also be developed so that farmers can notify and verify movements using a mobile phone, providing an alternative to logging into the online system directly. A phone line alternative to the online system and App will also be available.

NAP Measure	Description of Action for Assessment
	• The five day notification period for transfers of 15 miles or greater does not apply to transfers of separated slurry solids and poultry litter to licensed manure processing facilities. • The 15 mile straight line distance is measured from the location of the holding where the slurry is stored/produced, if this is different from the location of the registered Farm Business ID. • Under the 2019 NAP Regulations, Reg 27 (1) farmers are already required to … "keep sufficient records to allow the following information to be ascertained for any calendar year - …" Therefore, farmers should keep records of slurry movements on an ongoing basis and these records should be available for inspection in the current year. These records could be a log kept in a notebook or documentation from a contractor or haulier. This will be highlighted in guidance for the updated NAP.
	Rationale and/or additional detail Additional measures • Where farms are found to have submitted false or misleading information, or where there is found to be insufficient evidence to verify transfer, farms will be required to notify DAERA at least a day in advance of transfer and submit geotagged photographs as evidence of movements, on the day of transfer. These photographs must show departure from the exporting farm and spreading or unloading at the importing farm/destination. • Where, on assessment, DAERA finds that an export has been declared to land which is unsuitable for spreading slurry or manure, such as bog or upland rough grazing, then the export will be invalid.
Extending the system to processed slurry solids and digestate movements	**Proposed Measure** The existing online system will be extended to include additional materials, such as digestate and processed slurry products, to give a more complete picture of how nutrients are managed across the region. Therefore, exports and imports of processed slurry solids and digestates must be notified to DAERA as follows: - • All processed slurry solids and digestate movements must be notified to DAERA by the exporter three times annually as a minimum. Movements up to the end of February, June and October must be notified by the exporter and verified by the importer by the end of the subsequent month • Additionally, all exports of 15 miles or greater in a straight-line distance must be notified to DAERA within five days of the transfer. Verification by the receiving AD plant, manure processing facility or farm, is required within two weeks of the receiver being notified.

NAP Measure	Description of Action for Assessment
	• The five day notification period for transfers of 15 miles or greater does not apply to transfers of separated slurry solids and poultry litter to licenced manure processing facilities • The additional measures for slurry and manure listed at 'Enhanced online system for recording slurry and manure exports and imports' also apply.
Additional Measures to Support Environmentally Sustainable Farming	
Awareness of existing storage requirements and how dirty water storage, rainwater and parlour washings can impact this	**Proposed Measure** To raise awareness of the existing storage requirements and share best practices for making the most of on-farm storage facilities.
	Rationale and/or additional detail This will be done through advisory support, guidance and training by DAERA and other trusted advisors to raise awareness of regulatory requirements for storage requirements. This includes advice about how dirty water storage, rainwater and parlour washings can impact overall farm storage. Advice and information will be provided on how to make the most of existing storage facilities to ease pressures on storage needs, especially during extended periods of wet weather. Guidance will cover best practices for handling and reducing the impact of dirty water, rainwater and parlour washings.
Revised silage bale storage requirements	**Proposed Measure** To strengthen the regulatory framework to ensure best practices are followed and to mitigate against the risk of pollution when silage bales are stored in fields.
	Rationale and/or additional detail It is proposed to include an amendment so that: • Silage bales should not be stored in areas where there is increased risk of runoff into the waterway. • They should be stored in a manner to reduce the risk of effluent seepage and runoff to the waterway. How silage bales are wrapped for storage, and that they should not be stored within 10 metres of a waterway will remain unchanged as a minimum requirement.
Voluntary buffer strips on arable land	**Proposed Measure** Voluntary, uncultivated buffer strip alongside waterways in arable fields.
	Rationale and/or additional detail Key features of the proposal include: • The buffer would be an area of land left uncultivated and covered with vegetation, such as grass • The width of the buffer strip would vary, depending on local site conditions and risk factors

NAP Measure	Description of Action for Assessment
	• The buffer area would not be treated with fertilisers or plant protection products • The buffer would apply along waterways and waterbodies. Participation would be voluntary, supporting farmers to take informed decisions.
Voluntary Liming Programme	**Proposed Measure** Continue to raise awareness of benefits of liming on suitable land.
	Rationale and/or additional detail Key features of the proposal include: • Liming would apply mainly to intensively managed grassland farms on mineral soils • Certain land types would be excluded, including peat soils, species rich grassland and other priority habitats, and protected sites • Farms would be encouraged to have up-to-date soil analysis, with lime requirements identified through soil testing and a farm nutrient management plan. Participation would be voluntary, supporting farmers to take informed decisions about soil management.
Technical Amendments	
Definition of Appropriate Person	**Proposed Measure / Amendment** DAERA is proposing to amend the definition of appropriate person to align the wording so that it is consistent with the wording used for storage requirements already used within the Regulations. It is proposed that in paragraphs (c) and (d) of the definition that 'livestock manure' will be replaced with 'Organic Manure'. Thereby, reference to the appropriate person will be extended to include those who have control of all organic manures and not just livestock manure.
Definition of Farmyard manure	**Proposed Measure / Amendment** The definition of farmyard manure will be amended to include stackable organic matter that can be used as a fertiliser.
Updating terminology	**Proposed Measure / Amendment** The NAP regulations currently refer to 'Fertilisation Account' and 'Fertilisation Plans'. It is proposed to amend these to 'Nutrient Management Account' and 'Nutrient Management Plans' which are more reflective of the terminology used across the industry.
Covering of Lagoons	**Proposed Measure / Amendment** Following the consultation in 2019, it was agreed that the provisions within Schedule 6, paragraph 12 reference to 'Any slurry storage tank' should not include lagoons. The 2019 NAP Regulations do not accurately reflect this, and it is proposed that this should be corrected as part of the regulatory review.

<table>
<tr><th>NAP Measure</th><th>Description of Action for Assessment</th></tr>
<tr><td>Definition of heavy rain</td><td>Proposed Measure / Amendment

Currently the definition of heavy rain simply states “more than 4mm of rain per hour” this may be difficult for some to interpret. To improve clarity, it is proposed to include “when a Met Office weather warning for rain is in operation”.

This amendment makes clear to operators, especially when considering the restriction on applying fertiliser when heavy rain is falling or forecast within 48 hours. Heavy rain will now be defined as either more than 4mm of rain per hour or when a Met Office weather warning for rain is in operation.</td></tr>
<tr><td>Changes to the Phosphorus content of livestock feed</td><td>Proposed Measure / Amendment

The analysis of the P content of ruminant concentrate feed has recently been completed and has confirmed reductions in P content.

The phosphorus (P) content of livestock diets is a key factor within the overall P inputs of NI and hence a key driver of the overall NI P balance. Over a number of years AFBI have undertaken an extensive programme of work, mainly funded by DAERA, which investigated nutritional strategies to reduce P levels in dairy, pig and poultry diets. This work demonstrated that P levels in diets could be lowered from historical levels, while maintaining productivity. This work was conducted in collaboration and discussed with the feed industry.

The analysis of the P content of ruminant concentrate feed has recently been completed and has confirmed reductions in P content. Based on the research the table in the NAP Regulations 2019 will be updated from four values to two, reflecting the most up to date data. The below table shows the proposed changes (Table 11 of the consultation document):

NAP Regulations 2019 Sch 2 Table 7 and Proposed Change
<table>
<tr><th colspan="2">Existing NAP 2019 Regulations</th><th colspan="2">Proposed Change</th></tr>
<tr><th>Agricultural Product</th><th>Phosphorus Content (% fresh weight)</th><th>Agricultural Product</th><th>Phosphorus Content (% fresh weight)</th></tr>
<tr><td>Poultry Concentrate</td><td>0.5 (or actual declared content)</td><td rowspan="3">Ruminant Concentrates</td><td rowspan="3">0.47 (or actual declared content)</td></tr>
<tr><td>Pig Concentrate</td><td>0.48 (or actual declared content)</td></tr>
<tr><td>Ruminant Concentrate</td><td>0.55 (or actual declared content)</td></tr>
<tr><td>All other concentrates</td><td>0.58 (or actual declared content)</td><td>All other concentrates</td><td>0.43 (or actual declared content)</td></tr>
</table>

Labelling of Feed</td></tr>
</table>

NAP Measure	Description of Action for Assessment
	It is also proposed that all manufacturers of Animal feed will be required to clearly label the product to show the % P content.
Implementation – Including Inspections/Enforcement	
False or misleading information provisions	**Proposed Measure** To extend the existing duty not to provide false or misleading information so that it applies not only to the controller, but also to the appropriate person.
	Rationale and/or additional detail This will mean that individuals who undertake work or supply information on behalf of a controller could be held responsible if they deliberately provide false or misleading information for the purposes of the Regulations. This proposal builds on changes made during the last review of the NAP, where certain offences relating to slurry spreading were extended to apply to the appropriate person. It recognises that contractors often carry out this work and may commit offences independently of the controller's direct knowledge or instruction.
Increased inspections based on risk	**Proposed Measure** This proposal introduces a revised approach to inspections which aims to make them more targeted, efficient and fair, so that effort is focused on the farms and activities that present the greatest risk to the environment.
	Rationale and additional detail **A stronger focus on advice and support** The proposed approach recognises that most farmers want to comply with the NAP requirements and protect water quality. Under this proposal there will be a focus on: • Clear guidance and information • Raising awareness of requirements • Access to advisory support Where issues are identified, the first step will normally be to work with the farmer to correct them. This will help farmers understand what is required and how to meet the standards. **A more targeted approach to inspections** Inspections will be more focused on farms and activities where the risk to the environment is higher. This means that: • Farms that produce higher levels of livestock manure will be more likely to be inspected • Inspection rates will vary depending on the level of risk and participation in support programmes

NAP Measure	Description of Action for Assessment
	For example: • Farms which are not part of the NSP but which are operating over 170kg Nitrogen per hectare per year, will be considered High Risk and will be subject to the highest 10% rate of inspection. • Farms in Tier 1 of the NSP, will be considered as a lower risk and will therefore have a 1% inspection rate, reflecting their higher compliance • Farms in Tier 2 of the NSP (considered as in-conversion) will be considered as a higher risk than those in Tier 1 and therefore will have a 5% rate of inspection. This approach is designed to target resources where they can have the greatest impact. **More visible inspection activity** The proposal includes a greater presence of inspectors on the ground. Inspections will focus on key activities that can lead to pollution if not managed properly, such as: • Spreading slurry during unsuitable conditions (for example, before or during heavy rain). • Verifying records of slurry or manure being transferred between farms. • Checking use of Low Emission Slurry Spreading Equipment (LESSE) on farms which are required to use it. This will help ensure that the most important rules are being followed in practice. **Simpler and more focused inspections** The current inspection system covers a wide range of checks. Under this proposal, inspections would be streamlined. This means inspections will focus on the most important areas, including: • Limits on nitrogen from livestock manure • Use of phosphorus fertiliser • Adequacy of slurry storage • Management of farmyards • Risks of pollution reaching waterways • Record keeping Simplifying inspections should make them quicker to carry out and allow more farms to be inspected overall. **Reasons for the Change** This aims to ensure that the system is fair and proportionate, with appropriate higher penalties for serious or repeated breaches.

2.5.3 Related measure being progressed through separate legislation

An additional measure has been proposed through separate legislation to help support the implementation and enforcement of the NAP. As this is not directly implemented through the NAP, this has not been assessed within this Environmental Report, however, the successful introduction and appropriate implementation of this measure may help achieve improvements in environmental management with respect to agriculture and nutrient management.

2.5.3.1 Fertiliser Database

As part of the Lough Neagh Action Plan, a Northern Ireland Fertiliser Database is in development, which will provide better information on how fertilisers are sold, moved and used to support improved nutrient management and help reduce pollution.

The database will not be introduced through the NAP Regulations and will be progressed through separate legislation with a public consultation taking place before any new legislation is introduced.

2.5.4 Governance, Monitoring and Review

DAERA has outlined a series of governance and monitoring measures to ensure that the draft NAP 2027-2030 is delivered clearly, consistently and accountably and to ensure that it contributes to positive environmental outcomes. Regular monitoring, reviewing and adaptation of the draft NAP 2027-2030 aim to ensure that the measures remain appropriate, effective and proportionate in line with new scientific evidence, environmental progress and pressures and through evolving policy. DAERA has recognised that the revised NAP is not a fixed end point but forms part of a multi-cycle Plan, which is part of an ongoing process of improvement, and where required it will be amended to ensure the necessary environmental improvements will occur through the iterative and cyclic nature of the Plan.

Governance aims to provide the structure for oversight of the draft NAP 2027-2030, allowing for progress to be tracked, risk to be identified and decisions to be made based on the best available evidence and to ensure transparency within changes to policy and/or implementation. Governance of the draft NAP 2027-2030 will include coordination across government, farmers, the agri-food industry and environmental organisations. This approach aims to ensure that actions across the sectors are aligned, roles and responsibilities are clear and that the draft NAP 2027-2030 operates in a coherent way across policy areas. This includes the continued involvement of stakeholders in the oversight of the draft NAP 2027-2030, monitoring programme and shaping future policy development.

2.5.4.1 Scientific Evidence, Robust Data and Modelling

Effective regulation requires the use of reliable monitoring data, scientific evidence and appropriate analytical tools and assessments to identify environmental pressures, the causality of relationships, and to evaluate the impact of introduced measures. Assessment of the progress of the draft NAP 2027-2030 will include the use of scientific evidence, data and modelling such as:

- Water Quality monitoring;
- Assessing nutrient balances;
- Tracking emissions data; and
- Reviewing wider environmental indicators.

This aims to help support informed decision-making and determine the progress of the measures with respect to the NAP achieving its aims.

2.5.4.2 NAP Steering Group – Role and Functions

A NAP Steering Group will be established to oversee the implementation and review of the effectiveness of the measures of the draft NAP 2027-2030. The Steering Group will include representatives from the farming sector, the agri-food industry, environmental organisations and DAERA, with the exact structure and reporting

arrangements of the Steering Group under development. The work of the Steering Group will help inform future NAP reviews, identify if further escalation in measures is required, contribute to future public consultations and support wider policy development. The Steering Group will focus on:

- Monitoring progress against agreed indicators;
- Reviewing new evidence and analysis;
- Assessing if the measures of the NAP are achieving sufficient take up and/or intended outcomes;
- Identifying risks, gaps or unintended impacts;
- Providing recommendations to DAERA on possible changes;
- Providing a route for ongoing stakeholder input; and
- Supporting alignment with related policy areas such as water quality, climate change and ammonia.

2.5.4.3 Monitoring and Review Framework

The governance of the NAP will be supported by a structured monitoring and review framework, which will include:

- Ongoing review of progress with some specific measures reviewed after two years, in addition to the full statutory review every four years;
- Evaluation of uptake of programmes and measures at farm, catchment and national levels;
- Assessment of environmental indicators such as water quality and nutrient balances;
- Review of compliance data, including inspection outcomes and trends;
- Alignment with wider reporting cycles, such as River Basin Management Plans; and
- An approach which allows changes to be made where progress is limited.

DAERA has indicated that a specific set of key metrics and indicators will be developed for supporting the two-year review to assess progress against environmental outcomes. These metrics and indicators will be based on best available evidence and include appropriate measures of behavioural change, changes in agricultural practices, trends in chemical phosphorus use, and progress in the uptake and effectiveness of measures such as the NSP and the Focused Approach.

2.5.4.4 Review of Measures

The progress of all measures introduced under the draft NAP 2027-2030 will be reviewed within two years of implementation. This review will:

- Assess how well the measures are being put into practice;
- Consider whether the measures are improving water quality as intended, to the extent that is possible within the timeframe of two years;
- Identify any issues or barriers affecting delivery; and
- Consider the measures which are a key focus (as noted below) of the 2 year review and may be subject to further action if necessary.

This review will be based on available evidence and monitoring data. It will help to determine whether the NAP measures remain effective and appropriate, or whether amendments and adjustments are required. A key focus of the review will be on measures such as Chemical Phosphorus Fertilisers, Nutrient Stewardship Programme and Focused Approach, with an assessment on the level of uptake and considering if these are delivering on the expected environmental outcomes, to the extent that is possible within the timeframe of two years.

Where monitoring indicates that expected outcomes are not being achieved, or sufficient take up of voluntary measures has not been secured, a staged and proportionate response of escalation will be applied, to ensure that there is a pathway to compliance. This may include the introduction of increased advisory support and awareness raising, additional requirements, more targeted measures, or amendments to relevant voluntary or advisory measures to become mandatory. This approach ensures that the Programme can respond to new evidence and changing circumstances, while remaining focused on achieving improvements in water quality.

2.5.4.5 Compliance, Enforcement and Targeted Intervention

Compliance and enforcement will form a core part of delivery of the draft NAP 2027-2030. Monitoring data and inspection outcomes will be used to assess compliance and identify where action may be needed. A risk-based approach will be applied. This means focusing effort on areas where environmental risks are highest. This may include:

- Increased inspections;
- Closer monitoring of high-risk farms; and
- Targeting priority catchments.

Where progress is not being achieved, a staged and proportionate response will be used. This may include:

- Increased advice and support;
- Targeted regulatory action; and
- Stronger enforcement where needed.

2.5.4.6 Transparency and Reporting

The Department is committed to transparency in how the NAP is implemented. This will include:

- Regular reporting on progress;
- Publication of relevant data where appropriate; and
- Clear explanations of how decisions are made.

It will also include clear communication of:

- How monitoring data is used;
- How recommendations are assessed;
- Where challenges or gaps remain; and
- Where further action may be required.

Governance arrangements will ensure that the NAP is implemented in line with legal and environmental obligations. Monitoring and review will be based on defined indicators and targets to assess environmental outcomes and compliance with statutory obligations, including Water Framework Directive objectives and the protection of European sites. Where monitoring identifies that outcomes are not being achieved or sufficient take up of voluntary measures has not been secured, governance will support adaptive management, including targeted additional intervention in high-risk areas and the strengthening of measures where required. This approach will ensure that mitigation measures are implemented effectively, and that the Programme is able to prevent environmental deterioration and respond to emerging risks.

The measures set out in the draft NAP 2027-2030 consultation document should be understood in the context of a broader set of interdependencies, such as wider ammonia policy. To give effect to this, the ongoing governance mechanism will include a formal function for assessing progress on wider ammonia policy as an interdependency to the implementation of the NAP measures.

2.5.5 Support through Advice and Funding

DAERA has recognised that farmers and land owners will require guidance on how the proposed measures of the draft NAP 2027-2030 will affect their businesses and how these will be implemented. Therefore, DAERA has developed support in the form of advice and guidance to explain the requirements of the draft NAP 2027-2030 and assistance through funding to aid in the implementation of the measures where appropriate.

This support includes the following;

- Advice and Guidance: a range of sources can provide support to help farmers understand and implement the proposed measures of the draft NAP 2027-2030 such as DAERA guidance, CAFRE (College of Agriculture, Food and Rural Enterprise) advisory service, industry organisations, support from the wider agri-food supply chain and through environmental and catchment-based initiatives. These sources offer a range of support such as official documents, online tools, one-to-one advisory sessions, training events/knowledge transfer programmes and targeted advice in priority areas.
- Funding: A series of funding and grant sources are available which can be accessed such as;
    - The Sustainable Farming Investment Scheme;
    - Sustainable Agriculture Programme;
    - Sustainable Catchment Programme;
    - Farming with Nature Package; and
    - Just Transition.

Whilst this Environmental Report does not assess the financial support outlined by DAERA within the draft NAP 2027-2030 consultation document, the inclusion of support through both guidance and finances will aid in the implementation, uptake and adherence to the measures of the draft NAP 2027-2030 and achieving its intended outcomes.

3.0 Baseline and Environmental Issues

In line with the SEA Directive, this section describes the environmental baseline for the draft NAP 2027-2030 area. This includes: a description of the state of the environment at present; a discussion of the key problems/issues currently being faced in the area; and a description of the expected evolution of the environment should the NAP not be implemented, i.e., in the absence of the Programme.

The baseline description focuses in the first instance on Northern Ireland, however given the shared land boundary with the Republic of Ireland, there is potential for environmental effects on water quality, air quality, biodiversity etc. in the Republic of Ireland. As such, the baseline description also includes reference, where relevant, to conditions in the Republic of Ireland.

3.1 Current State of the Environment

This section provides a general overview for Northern Ireland and the Republic of Ireland. For Northern Ireland, this is based on the From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013)[5], updating this, where possible, by taking into account the most recent Northern Ireland Environmental Statistics Report (DAERA, 2026)[6]. For the Republic of Ireland, this is based on the most recent State of the Environment report, Ireland's Environment 2024 – An Integrated Assessment (EPA, 2024)[7]. Further relevant and up to date information has been used to inform the baseline for SEA topic areas described in **Section 3.2**.

3.1.1 Current State of the Environment in Northern Ireland

Northern Ireland's most recent full state of the environment review (NIEA, 2013) found the situation to be variable. Air quality showed continuing improvement, while water quality had benefitted from improved control of effluents, and rates of municipal waste recycling had been steadily increasing. Significant challenges remained, however, in reversing biodiversity declines and meeting EU objectives for waterbodies, landscapes, habitats and heritage.

The main threats of climate change, land use, and socio-economic growth, continued to create pressures on the environment in Northern Ireland. These key challenges identified in the state of the environment review (NIEA, 2013) are outlined below, and their relevance to the NAP described below in **Table 3-1**.

Economic downturn – The most significant change since 2008 identified in the 2013 review with regards to socio-economic growth was the economic downturn, which had impacts on housing, development, energy, and resource use and on waste production. This intensified the need to stimulate growth and to use resources, such as agricultural lands, more efficiently whilst protecting and enhancing the natural environment.

Living within our limits – Living within our limits relates to the impact of ever-increasing populations on the environment in terms of food production, imports, energy use, and water security. The 2013 review reported an increasing realisation that living within our limits, both economically and environmentally, locally, and globally, is now a major challenge.

Sustainable rural land use – The 2013 review identified that the marine environment, from biodiversity indicators and the status of waters are under threat. The 2013 review noted the relationship between rural land practices and the water environment and identified that a fully integrated approach to management of the land and water environment was needed.

[5] From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment

[6] NI Environmental Statistics Report

[7] Ireland's Environment 2020 - An Assessment

Climate change – The 2013 review identified that climate change remains an important issue for Northern Ireland, and indeed globally. However, recent legislation such as the UK Climate Change Act along with renewable energy policies and increasing energy costs are likely to contribute to already positive advancements.

Table 3-1 State of the Environment Review (NIEA, 2013) Key Challenges and Relevance to the NAP

Challenge	Relevance to the NAP
Economic downturn	The agri-food sector includes agriculture, horticulture and food and drinks processing and is Northern Ireland's largest indigenous industry. The economic downturn in 2008 has intensified the need to stimulate growth and to use our resources, such as agricultural lands, more efficiently. As a result, the agri-food sector has continued to report increases in output during the economic downturn and has emerged as a sector with substantial potential for growth, as set out in the Executive Programme for Government 2011-2015. However, managing this growth in a sustainable way continues to be a key challenge for the environment. Improved efficiencies in the agri-food sector adds increasing pressure to the environment from GHG (greenhouse gas) emissions, loss of natural habitats, the use of pesticides and, notably, increased emissions of nutrients into the surrounding environment. The proposed measures of the draft NAP 2027-2030 have potential to significantly influence these factors.
Living within our limits	Ever increasing populations and demand for resources such as land, energy and food are putting pressure on the environment in a global context. The most recent 7th EU Environmental Action Programme 'Living well, within the limits of our planet' sets out the framework for environmental policy making in the EU. This highlights the realisation that the environment has limits, and that to manage and maintain ecosystem services and natural capital, there needs to be greater resource efficiency. Agricultural production efficiencies in Northern Ireland must continue to be made but in a sustainable way, with regard to finite resources and to more sustainable emissions. The proposed measures of the draft NAP 2027-2030 aim to make improvements in the efficiency of resource use, and in emissions attributable to the sector.
Sustainable rural land use	Increasing agricultural targets across Northern Ireland has potential to impact on rural landscapes, as changing agricultural practices puts increasing pressure on soils through increased risk of erosion, accumulation or leaching of nutrients and changing levels of soil organic matter. Unsustainable rural land practices can also result in negative impacts to the water environment. The proposed measures of the draft NAP 2027-2030 aim to better manage agricultural land use practices, improve soil health and positively affect water quality in receiving environments.
Climate change	Climate change and GHG remain an important global issue. Agricultural practices release large quantities of GHGs. In Northern Ireland, although GHG emissions have been decreasing in the period from 1990-2011, intensification of agricultural practices and changes

Challenge	Relevance to the NAP
	in land use could see increases in emissions if not managed in a sustainable manner. Indeed, climate change is a global issue, and records since the start of the 20th century show that the climate of Northern Ireland is changing. Preparing and adapting to the effects of climate change is therefore a key priority for Northern Ireland. The proposed measures of the draft NAP 2027-2030 seek to implement more sustainable and efficient land and farming practices, and to reduce the contribution of emissions from the sector.

Following on from the key challenges identified, three key principles underpinning the way forward were also listed in the state of the environment review (NIEA, 2013), and comprise the following:

- Working to achieve **resilient, diverse ecosystems** capable of providing vital services while absorbing pressures and responding to change;
- Valuing and **managing natural resources** to support economic and social prosperity; and
- Protecting the quality of life by **reducing pollution, protecting heritage** and promoting **sustainable land use**.

A summary of the relevant aspects of the current state of the environment in Northern Ireland, as presented in the most recent state of the environment review (NIEA, 2013) and updated, where possible, by taking into account the most recent Northern Ireland Environmental Statistics Report (DAERA, 2026) has been provided in **Table 3-2**.

Table 3-2 Summary of From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013) and Northern Ireland Environmental Statistics Report (DAERA, 2026), of relevance to the draft NAP 2027-2030

Theme	Key Findings
Air Quality	There are 23 air quality monitoring stations in Northern Ireland. Air quality in Northern Ireland has shown substantial improvement in recent years. The average annual mean concentration of NO_2 across Northern Ireland's urban background sites remained relatively stable between 2011 and 2015, varying between 20.0 and 22.8µg/m^3. However, since 2015 the average annual mean concentration of NO_2 has fallen below this level and was 11.7µg/m^3 across Northern Ireland's urban background sites in 2025. In 2025, there was no breach of the UK Strategy Objective or EU Limit Values of 40µg/m^3 for the annual mean concentration of particle matter (PM_{10}). The annual mean PM_{10} concentration across Northern Ireland's urban monitoring sites reached a maximum of 22µg/m^3 (in 2010) but has shown a gradual decline since that time, with an annual mean value of 13.1µg/m^3 in 2025. The agriculture sector accounted for the majority of ammonia emissions in Northern Ireland in 2023. Other sources included transport, commercial and domestic combustion, and industrial processes. Overall, ammonia emissions have increased, by 7%, from 28.8kt in 2005 to 30.8kt in 2023. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture.
Climate	In 2023, Northern Ireland's greenhouse gas (GHG) emissions were estimated to be 18.2MtCO_2e, a reduction of 31.5% since baseline levels in 1990. Agriculture (30.8%), transport (21.5%), and building and product uses (13.8%) were the largest contributing sectors to GHG emissions in Northern Ireland in 2023. The

Theme	Key Findings
	UK Climate Change Act commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels. The same 100% emission reduction target is now true of Northern Ireland, due to the introduction of the Climate Change Act (Northern Ireland) 2022. In 2023, Northern Ireland's total GHG emissions accounted for 4.7% of the UK total, higher than its population share of 2.8%. For the period January to December 2025, 47% of the total electricity consumption in Northern Ireland was generated from renewable sources based in Northern Ireland. Climate change and GHG emissions remain an important global issue. In Northern Ireland, although GHG emissions have been decreasing in the period from 1990-2011, intensification of agricultural practices and changes in land use could see increases in emissions, if not managed in a sustainable manner. Indeed, climate change is a global issue, and records since the start of the 20th century show that the climate of Northern Ireland is changing. Preparing and adapting to the effects of climate change is therefore a key priority for Northern Ireland. The NAP promotes more sustainable and efficient land and farming practices which will be important under a changing climate.
Water	Eutrophication, or the enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus is recognised in From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013) as a widespread major threat to water quality in the freshwater environment. The report stated that the overall status of waterbodies in Northern Ireland had not significantly changed from that recorded in 2012, but improvements had been identified in water utility discharges and drinking water quality. Long-term seasonal trend analysis showed that the monthly trends in average nitrate concentrations in rivers in Northern Ireland were predominantly decreasing or stable over the 28-year period, 1992-2019, which may be attributed to the measures implemented through the Nitrates Action Programme. This was confirmed by the recent Nutrients Action Programme Implementation Report for 2020-2023[8] which indicated that 77.6% of rivers from 1992-2023 had stable or decreasing average monthly nitrate concentrations. However, 9.8% of monitoring sites showed an increasing long-term trend in 2020, and this has risen to 23.6% in 2024 and is concentrated in the south and east of Northern Ireland. The rivers inflowing to Lough Neagh's, comprising the Upper Bann, the Glenavy and the Crumlin, have shown increasing trends from 2009 to 2023 for average nitrate concentrations and the outflowing rivers have also indicated an increase in average nitrate concentrations. DAERA issued a consultation document on Significant Water Management Issues[9] to inform the development of the third cycle River Basin Management Plan (RBMP) (2021-2027). This showed that the most significant pressure on water quality in Northern Ireland is from the release of nutrients, including nitrogen and phosphorus, from agricultural and other sources. Between 2015 and 2018, Soluble Reactive Phosphorus (SRP) was the cause of decline in status for 100 river waterbodies across Northern Ireland. It should also be noted that The Programme for Government (PfG) Outcome 2 indicator includes SRP concentrations in rivers. The recent Nutrients Action Programme Implementation Report for 2020-2023

[8] Nutrients Action Programme Implementation Report for 2020 – 2023

[9] Significant Water Management Issues in Ireland

Theme	Key Findings
	(DAERA, 2024) indicated that 91.4% of monitoring sites showed a stable or decreasing trend in SRP for 2020-2023 compared to the previous reporting period of 2016-2019; of these 58.5% were at high or good status, 41.5% at less than good status with a risk of eutrophication occurrence, and with 9.2% of these at poor status. Seasonal trend analysis indicated that monthly average SRP concentrations were mainly stable or decreasing in 87.5% of rivers from 1998-2023, there was an increase in SRP during the 2014-2016 period coinciding with the industry-led Going for Growth strategy. In 2025, there were 1,780 water incidents reported to NIEA or discovered by NIEA during inspections. Of these incidents, 46% were confirmed as having an impact on the water quality of the receiving waterway, 84 of these incidents considered as high or medium severity.
Marine	The majority of Northern Ireland's 650km of coastline is protected for its special interest, and several of Northern Ireland's coastal species and habitats are recognised as internationally important. Of the 25 inshore coastal waterbodies in Northern Ireland, 10 were reported as good or better ecological condition[10]. High nutrient levels, particularly in inshore estuarine waters and sea loughs, are identified as a key element responsible for coastal waterbodies not attaining good ecological condition. In January 2014, the Shellfish Waters Directive was subsumed into the Water Framework Directive, resulting in more stringent E. coli standards. Three out of nine (33%) designated shellfish water protected areas (SWPAs) complied with the Water Framework Directive Guideline E. Coli standard in Shellfish Flesh in 2025, a decrease in compliance from 2024. The Nutrients Action Programme Implementation Report for 2020-2023 (DAERA, 2024) reported on transitional and coastal waterbodies and indicated that average and maximum nitrate levels in 25 waterbodies did not exceed 25mg/L. Relatively high values >10mg/L occurred in transitional or inshore coastal sea loughs, due to catchment-based inputs of nitrates. However, the absolute values indicate an increase in nitrate levels compared to previous reporting periods with a steady increase since 2017. Eutrophication was worse in transitional/inshore loughs, with declines in eutrophication response variables e.g., phytoplankton, macroalgae and dissolved organic, alongside rises in nutrient concentrations (including winter dissolved inorganic nitrogen and dissolved inorganic phosphorus in over 90% of waterbodies), pesticides and herbicides.
Land and Landscape	Agri-environment schemes encourage farmers and landowners to manage their land to benefit the environment. At the end of 2025, 61,000 hectares of land in Northern Ireland were under an agri-environment scheme agreement. In Northern Ireland, over 52% of forests and woodlands are state-owned or managed. The NI Environmental Statistics Report 2026, reported that in 2025/26, 304 hectares of new woodland were planted by NI Forest Service and private landowners supported by grant aid.

[10] NI Environmental Statistics Report

Theme	Key Findings
Biodiversity	The NI Environmental Statistics Report 2026 reported that in 2025/26, 52% of features within marine and terrestrial protected sites were in Favourable condition, whilst 37% were in Unfavourable condition. Approximately 2% were in Unfavourable-Recovering condition with less than 1% Destroyed. The wild bird population indicator using 56 bird species showed similar levels in 2025 compared to the mid-1990s. Bird populations peaked in 2005 and have been in decline since, driven principally by declines in bird species found in farmland habitats.
Built Heritage	The key risks identified to archaeological resources come from agricultural land use and urban activities. In 2024/25, there were a total of 2,082 scheduled historic monuments protected under Article 3 of the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995. Overall, there has been a 38% increase in the number of scheduled monuments since 2001/02, reflecting ongoing survey, designation, and assessment. In addition, there has been a modest increase in the number of buildings listed in recent years with a total of 9,157 statutory listings in 2024/25, compared with 8,191 in 2003/04. The figures provide an indication of this aspect of the rich cultural and built heritage of Northern Ireland, an increasingly important source of "soft power" and an important contributor to the Northern Ireland economy, through attracting tourism and filming. In 2024/25, 1,148 historic buildings and structures were recorded on the Heritage At Risk Register Northern Ireland (HARNI) as 'at risk'.
Waste and Resources	Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact or by emissions to the air, groundwater, and surface water as well as the contamination of land. The Northern Ireland Environmental Statistics Report 2026 notes that The Local Authority Municipal Waste Management Statistics show that the amount of waste sent for energy recovery via incineration has grown exponentially since 2006-07, whilst the proportion of waste sent to landfill has more than halved in the same timescale. Recycling of waste is becoming much more common in Northern Ireland. Delivering Resource Efficiency - Northern Ireland Waste Management Strategy (DAERA, 2013)[11] proposed to achieve a 50% recycling rate by 2020 for local authority collected municipal waste. For municipal waste in 2024/2025 the recycling rate was 50.4%, similar to the rate in 2023/2024. The recycling rate for all household waste was 51% in 2024/25, which was similar to the household recycling rate recorded in 2023/24.

3.1.2 Current State of the Environment in the Republic of Ireland

A summary of the current assessment and outlook for the Republic of Ireland across key relevant environmental policy areas, as presented in the most recent State of the Environment report, Ireland's Environment 2024 – An Integrated Assessment (EPA, 2024), has been provided in **Table 3-3.** Further relevant and up to date information has been used to inform the baseline for SEA topic areas described in **Section 3.2**.

[11] DAERA, 2013. Delivering Resource Efficiency - Northern Ireland Waste Management Strategy

Table 3-3 Summary of State of the Environment report, Ireland's Environment 2024 – An Integrated Assessment (EPA, 2024)

Theme	Key Findings
Climate	While there was some progress on renewable energy and ambitious climate action and adaptation plans, the Republic of Ireland's failure to significantly reduce GHG emissions resulted in a 'poor' assessment as these remain some of the highest in Europe with agriculture contributing to over 34.3% of national emissions, a slight decrease from the previous SOER2020 report, however these remain high compared to other sectors. GHG emissions in Ireland decreased by 1.2% by 2023 from 1990. The latest projections showed that full implementation of additional policies and measures, outlined in the 2024 Climate Action Plan, would result in a reduction in Ireland's total GHG emissions by up to 11% by 2030 compared with 2020 levels. Meeting 2030 targets and the 2050 transition objective would require the full implementation of current policies and measures, and significant national investments. Chapter 4 of the report highlighted that both the scale and pace of GHG emissions reductions need to accelerate, and that this would necessitate far-reaching and transformative change across the whole economy, including agriculture. This was likely to be particularly challenging for the agriculture sector, with the GHG national emissions profile indicating that over one-third of emissions come from this sector, and that emissions in 2023 were 8.5% above 1990 levels, mainly driven by a 4.9% increase in methane emissions from enteric fermentation and a 4.5% increase in emissions from manure management. The Climate Action Plan states that Ireland cannot achieve its climate targets without the necessary reductions from the agriculture sector, and that policies and measures underpinning these reductions should be prioritised to ensure full delivery of the necessary reductions. In addition, Chapter 4 stated that Ireland must also maximise the use of land as carbon stores, for example through grasslands, wetlands, and forestry, to meet emission reduction targets and better land management such as cover cropping and increased afforestation.
Air	While overall air quality in the Republic of Ireland was good, there were localised issues with some pollutants (such as particulates) that have serious potential health impacts, resulting in an overall current assessment of 'moderate'. The latest estimates indicated that over 1600 premature deaths occur in Ireland annually as a result of poor air quality. The Republic of Ireland was generally meeting EU air quality limits but not some World Health Organisation (WHO) guideline values in places, particularly with these becoming stricter and this is considered a warning about not being complacent in tackling air pollution. Chapter 2 stated that the Republic of Ireland was not on track to meet National Emission Ceilings (NEC) Directive targets for ammonia, owing to emissions from agriculture. This sector accounts for practically all (99%) of ammonia emissions in Ireland, with emissions increasing each year. Ammonia emissions can lead to the formation of secondary particulate matter, acidification and eutrophication, and can have major issues for sensitive habitats through atmospheric deposition. There was mixed progress in reducing overall emissions from transport and energy. Overall, the Republic of Ireland's prospect of meeting targets and policy

Theme	Key Findings
	objectives is heavily dependent on the implementation of agreed national measures.
Nature	Overall current assessment was 'very poor'. Deteriorating trends dominated, especially for protected habitats. Chapter 7 of the report stated that the main pressures on protected habitats in Ireland were agriculture, and other land uses such as resource extraction (including minerals and peat), pollution, forestry, urbanisation, recreation and invasive species and that, unless action was taken now, it is likely that pressures relating to agriculture, climate change and invasive species would remain the same or increase. Changes in the intensification of agricultural practices (including land drainage, fertiliser application, clear-felling, under grazing and land abandonment) had impacted on biodiversity, including a decline in pollinators and other insects. In the absence of far-reaching measures, the outlook was largely not on track for meeting policy objectives. Transformative change would be required to alter the current biodiversity loss trends. A key policy driver for biodiversity protection for the next decade would be the new EU Biodiversity Strategy for 2030. The SOER2024 recognised a need to encourage farming practices that restore and enhance biodiversity through agricultural policies and schemes.
Water	As outlined in Chapter 8 of the report, nearly half of the surface waters in Ireland (46%) were failing to meet legally binding water quality objectives, as set by the EU WFD because of pollution and other human disturbance. Overall, current assessment was 'poor'. Trends were mixed, with serious declines in pristine river sites from 500 in 1990 to just 20 in 2020. Agriculture was identified as the most significant pressure on waterbodies in Ireland, through nutrient runoff and sediment and point pressures such as farmyards and it was identified that a significant response was required from this sector to reduce its impact. In terms of outlook, significant challenges remained to achieving full compliance and meeting policy objectives. There is a need for tighter measures to be covered in the next RBMP and the Nitrates Action Programme to mitigate the impacts from fertiliser spreading, slurry spreading and other nutrient losses as it includes a Code of Good Agricultural Practice (COGAP) which is mandatory for all farms. The EPA Republic of Ireland Water Quality Indicators Report in 2019[12] showed that just over 50% of lakes and rivers were in satisfactory ecological health and overall water quality had declined since the previous assessment. 42% had unsatisfactory nitrate concentrations with particular issues in the south and south-east of the country with trends in nitrate concentrations showing repeated increases, particularly for rivers, estuaries and coastal sites. Reactive P (phosphate) levels had also been increasing, with similar trends of increased nitrogen and phosphorus in marine waters. Upwards trends in nitrogen and phosphorus were also evident in groundwater, with consequences for drinking water and, potentially, for population health and wellbeing.

[12] Water Quality in 2019 - An Indicators Report

Theme	Key Findings
Environmental Noise	The main sources of environmental noise were from roads, railways, airports and industrial activities. Terrestrial sources of noise are regulated under the Environmental Noise Directive (2002/49/EC). There has been an increase in the number of noise complaints being made to local authorities and to the EPA. The National Planning Framework's National Policy Objective 65 will be a significant driver for the proactive management of noise within Ireland.
Land and Soil	In terms of pressures, Chapters 5 and 6 of the report stated that urbanisation and building account for some of the biggest losses of soil areas in Ireland, while soil compaction is also a recognised key threat to the quality of Irish soils. There is a lack of specific legislation protecting soils in Ireland, with the exception of legislation regarding key habitats and ecosystems that are associated with peat soils, site-specific regulation that is associated with industrial and waste facilities and the National Planning Framework targets. The EU Eighth Environment Action Programme committed Member States to increase efforts to reduce soil erosion, increase organic matter content and remediate contaminated sites by 2030. The EU Soil Strategy for 2030 sets out a vision to achieve healthy soils by 2050 aiming to address the lack of specific legislation to protect soils. The latest CORINE land cover mapping of Ireland indicated recent changes in land use patterns, including a long-term downward trend in wetland areas (down to 14.8% area coverage). Agriculture was the dominant national land cover type, representing almost 67% of the national area in 2023. Many peatlands were in an unfavourable state, including those protected under European and national legislation; if restored, these could play a key role as carbon sinks and provide space for nature. Forestry was expanding, and forests are expected to play a larger role in carbon storage in the future with a national forestry land cover target of 18%; however, environmental assessments are key to ensuring that the right development and management of these areas is implemented. Ireland's National Landscape Strategy sets out the principles for protecting and enhancing the landscape while positively managing changes. It recognises the need to establish a landscape policy framework approach to inform planning authorities' decision-making and includes an action for 'State of the Landscape' reports to be prepared. The National Planning Framework also committed to preparation of a national landscape character map, however this has not been completed, to date. A Seascape Character Assessment was prepared by the Marine Institute in 2020, defining key characteristics and helping to inform planning decisions. In Ireland, land use, land use change and forestry (LULUCF) are currently a net source of CO_2, which must be reversed so that land is used to store carbon to meet GHG reduction and carbon neutrality targets. Ireland's Greenhouse Gas Emissions Projections 2023-2050 report, published in 2024, states that forests are projected to move from a net sink to a net emitter of greenhouse gases[13].
Waste and Circular Economy	Overall current assessment was 'poor'. While the Republic of Ireland was meeting current targets, recycling rates for municipal waste and packaging had levelled off and, in some cases, declined. Waste generation remained high (domestic material consumption was high at 24.35 tonnes compared to an EU

[13] Ireland's Greenhouse Gas Emissions Projections 2023-2050

Theme	Key Findings
	average of 13.14 tonnes) with 17.6 million tonnes of waste generated in Ireland in 2021 and was linked to economic activity and household waste generation levels (currently only 36% of materials placed in Black Bins cannot be recycled indicating a significant knowledge issue), while circular use of material remained very low. Publication of new national waste policy such as The National Waste Prevention Programme aims to address waste management and aid the transition to a circular economy. Achieving future EU targets and circular economy goals would be dependent on rigorous implementation of waste legislation, policy initiatives and measures.
Environment and Agriculture	Chapter 10 of the report specifically covered the relationship between the environment and agriculture in Ireland. The agri-food sector plays a significant role in Ireland's economy, as well as its landscape and environment. Farms in Ireland cover 67% of the country's land area, and varied in both size and type of production, with most farmers involved in livestock farming. The agriculture sector in Ireland contributes to a wide variety of pressures. Significant pressures on the environment have occurred as a result of agricultural expansion arising from FoodWise 2020, a 10-year overarching strategy for the agri-food sector and the latest sector strategy of Food Vision 2030. These increased pressures need to be mitigated urgently, and resolved, to meet EU legislative requirements. This includes air pollutant emissions (particularly ammonia), GHG emissions, water quality, and biodiversity decline, with Food Vision 2030 bringing into focus the need for environmental sustainability. Agricultural on-farm practices were accountable for almost 38% of national GHG emissions in 2023, primarily consisting of methane and nitrous oxide, with the increasing trend in emissions largely determined by the size of the national cattle herd and application rates of nitrogen fertilisers. In the absence of abatement measures, projections for the sector suggested that GHG emissions would continue to grow, mainly as a result of increases in the size of the dairy herd. Implemented and planned policies and measures were not considered likely to alter the status of the sector as a significant contributor to national GHG emissions. Ammonia emissions in Ireland were almost exclusively attributable to the agriculture sector, accounting for 99% of the national total in 2022. There is a need for significant implementation of on-farm abatement measures to bring Ireland into compliance with the current national emission ceiling, and to meet the 2030 emission ceiling for this pollutant. The sector was also the second largest source of nitrogen oxide emissions in Ireland (contributing >36.4% of the 2022 total), with emissions mainly associated with synthetic fertiliser application, urine and dung deposited by grazing animals and the application of manures to soils, and also the largest source of non-methane volatile organic compounds emissions (>39.1% of the 2022 total), associated with manure management and fertiliser application, and was also responsible for 7.9% of national emissions of particulate matter. As outlined above for 'Nature' and 'Water', changes in agricultural practices, and their intensification, have led to impacts on biodiversity and water quality. Reducing agricultural impacts on water quality requires interventions that are urgent, coordinated and evidence based. Under the current (2022-2027) RBMP,

Theme	Key Findings
	actions are being targeted within 190 'Areas for Action'; where agricultural activities are impacting water quality within these areas, farm sustainability advisors under the Agricultural Sustainability Support and Advice Programme (ASSAP), are working with farmers to identify the problems and implement the right measures in the right places.

The report identified the following key challenges for the next decade:

- Urgent need to deliver key policy on the environment to handle complex trade-offs and interactions with a need to implement existing environmental plans and policies.
- Transform energy, transport, food and industrial sectors to achieve a sustainable future.
- Scaling up of investments into water, energy, transport, and waste management in infrastructure to protect the environment.
- Improve population health by protecting the environment and reduce exposures to health problems.

3.2 Environmental Characteristics

This section describes the environmental baseline for Northern Ireland, of relevance to the draft NAP 2027-2030. The baseline has been divided by topic into the issues requiring assessment under SEA legislation. The purpose of this section is to demonstrate the level of baseline environmental information used when assessing the potential impacts of implementing the draft NAP 2027-2030. This baseline information forms the indicators which the measures of the draft NAP 2027-2030 will have the potential to impact upon. Future variation in these indicators owing to implementation of the draft NAP 2027-2030 will be monitored as part of the NAP and SEA review.

3.2.1 Biodiversity, Flora and Fauna

Biodiversity is the variety of all plants and animals, and the communities that they form. The conservation of biodiversity is important. Humans are also dependent on biodiversity for the provision of ecosystem services such as clean air and water, food, and shelter, as well as for the health and amenity value that the natural environment can provide.

The importance of preserving biodiversity has increasingly been recognised from an international to a local level, and Northern Ireland has legal obligations under International and EU commitments and legislation. The UN Convention on Biological Diversity (1992) is an international legally binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources. It requires the development of national strategies for the conservation and sustainable use of biological diversity. The most recent Biodiversity Strategy for Northern Ireland, "Valuing Nature A Biodiversity Strategy for Northern Ireland to 2020", was published by DAERA in 2015[14], and covered the period up to 2020. This set out how Northern Ireland planned to meet its international obligations and local targets to protect biodiversity, and to ensure that the environment can continue to support the population and economy of Northern Ireland. Its overall mission was "to make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society in general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland". Following the UN Biodiversity Conference in December 2022 (COP15), a Global Biodiversity Framework (GBF) was agreed

[14] A Biodiversity Strategy for Northern Ireland to 2020

that aims to see 30% of land protected globally by 2030. A new Biodiversity Strategy for Northern Ireland is currently in production, that will reflect the targets set out by the GBF.

The draft NAP 2027-2030 must also have regard for the Habitats Directive and the Birds Directive, as transposed through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, which require that any plan or project not directly connected with or necessary to the management of a European site but likely to have a significant effect on such a site, must undergo an appropriate assessment in view of best scientific knowledge and in view of the conservation objectives of the site. The draft NAP 2027-2030 falls under this remit, and a RIAA is being undertaken in parallel to the SEA process, to assess the potential implications of the draft NAP 2027-2030 for European Sites.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Biodiversity, Flora and Fauna comprise:

- Potential for effects on protected areas, including those of international (SACs, SPAs, Ramsar Sites), national (ASSIs, NNRs) and local (SLNCI) importance;
- Potential for protection and enhancement of biodiversity at a national, regional and local level;
- Potential for effects on protected and priority habitats and species;
- Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands);
- Potential for habitat loss, fragmentation or deterioration (temporary or permanent); and
- Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).

3.2.1.1 Designated Sites

Overview of Designated Sites

There are a wide variety of natural habitats and species within Northern Ireland. NIEA has compiled a list of those habitats and species considered to be priority, based on their listing as a UK Priority Habitat[15] / Species[16] or importance in an all-Ireland context, and current downward trends; the most recent lists comprise 51 Northern Ireland Priority Habitats, and 594 Priority Species. Priority Habitats include coastal saltmarsh, hedgerows, lowland raised bog and rivers, while Priority Species include river and sea lamprey, small and large heath butterflies, shoveler and wigeon, and several saxifrage species.

Sites have been designated to provide protection to those habitats and species considered to be of a particular conservation value. These include features whose conservation is of importance at a European level, for which 58 SACs, 16 SPAs and two additional proposed Special Protection Areas (pSPAs), and 20 Ramsar sites have been designated, to date. SPAs and SACs are designated under the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended). Northern Ireland has 49 habitats listed in Annex I of the Habitats Directive, of which 13 are Priority Habitats at a European level, and 18 species listed in Annex II of the Directive[17].

At a national level, 394 ASSIs and 50 statutory Nature Reserves have been designated to provide protection to features considered to be of national importance, while 1823 Local Wildlife Sites have been identified by DAERA for priority habitats, many of which are also protected for their importance at a more local level, known as Sites of Local Nature Conservation Importance (SLNCIs).

[15] Northern Ireland Priority Habitats

[16] Northern Ireland Priority Species

[17] Northern Ireland Habitats Directive Annexes of Habitats and Species

The location of these designated sites is shown in **Figure 3-1** and are detailed in **Table 3-4**. In addition, there are 10 sites in Northern Ireland protected as Royal Society for the Protection of Birds (RSPB) Nature Reserves, and 18 sites protected as Ulster Wildlife Nature Reserves. There is over 110km^2 of ancient woodland (land continuously wooded since at least 1600) within Northern Ireland. There are also five MCZs designated under the Marine Act (Northern Ireland) 2013 to safeguard vulnerable or unique marine species and habitats of national importance in the inshore region of Northern Ireland.

Sites have also been designated for nature conservation within the Republic of Ireland. Some sites within the Republic of Ireland extend into Northern Ireland, and others are in close proximity; there may therefore be potential for transboundary effects on these sites from implementation of the draft NAP 2027-2030, which will be dependent on the source-pathway-receptors, as shown in **Figure 3-1**. Within 15km of the boundary with Northern Ireland there 27 SACs, 10 SPAs, 13 Natural Heritage Areas (NHAs; designated under the Wildlife (Amendment) Act 2000) and 100 proposed Natural Heritage Areas (pNHAs) in the Republic of Ireland.

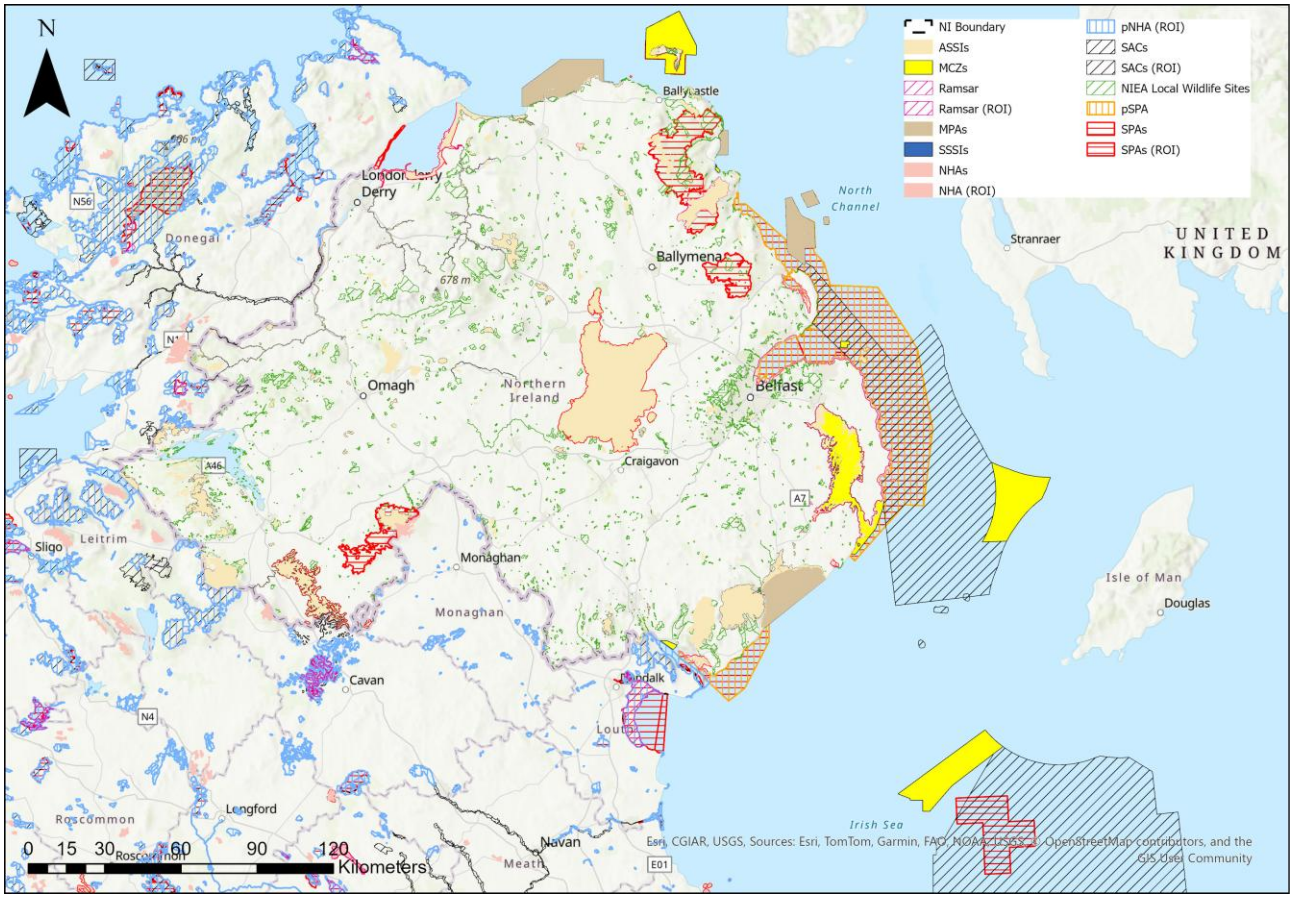


Figure 3-1 Designated sites across Northern Ireland and the Republic of Ireland

Table 3-4 Number and type of sites designated for conservation of Biodiversity, Flora and Fauna in Northern Ireland

Site Designation	Description	Number
SAC	Existing SACs in Northern Ireland were designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species while SPAs were designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), "The Birds Directive", as areas that are important for breeding, feeding, wintering or migration of rare and vulnerable bird species. Together these formed part of the Natura 2000 network of protected sites. Following the UK's exit from the EU, there is now a UK National Site Network of European sites, comprising existing designated sites and any further sites designated under the Habitats Regulations. SACs and SPAs in the Republic of Ireland remain part of the Natura 2000 site network. There are two pSPAs, Carlingford Marine and East Coast Marine.	58
SPA		16
Ramsar Sites	Ramsar sites are designated under the "Ramsar Convention" (Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, Iran 1971), an international treaty for the conservation and sustainable use of wetlands.	20
ASSI	ASSIs are protected under the Environment (Northern Ireland) Order 2002. This requires NIEA to designate land as an ASSI that it considers to be of special scientific interest, owing to the flora or fauna present, or the presence of geological features.	394
National Nature Reserves	Statutory Nature Reserves are areas of importance for flora, fauna, geological or other special features for conservation purposes and to provide the opportunity for research. They are designated under the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.	50
SLNCI	Each council area in Northern Ireland reports on locally important sensitive or valued habitats through the production of Local Biodiversity Action Plans (LBAPs). These Plans outline the areas of importance for natural heritage reasons within the council area, guiding development policy and potential enhancement of local biodiversity. These are known as SLNCIs.	Many of the 1,823 Local Wildlife Sites identified by DAERA are provided protection as SLNCIs
MCZ	MCZs protect nationally important marine species, habitats and features of geological or geomorphological interest. Priority Marine Feature (PMF) is a collective term for the features considered to be of conservation importance in the Northern Ireland inshore region and form the basis of MCZ designation under the Marine Act (Northern Ireland) 2013	5

Site Designation	Description	Number
	and offshore regions, respectively. These sites should complement the marine components of sites designated under the Birds and Habitats Directives, coastal ASSIs and Ramsar sites, together forming a network of Marine Protected Areas (MPAs).	

Status and Trends for European Designated Sites

Article 17 of the Habitats Directive requires that, every six years, all EU Member States report on the implementation of the Directive, including on the conservation status of habitats and species (informally known as the Article 17 report). The 4th UK Habitats Directive Report was submitted to the European Commission in August 2019, and included a General Implementation Report, Habitat Reports and Species Reports. These outlined any changes in designated habitats and species, for the UK as a whole, in the period 2013-2018[18].

For the UK, only six habitats were given an overall conservation status of 'favourable', with eight habitats classified as 'inadequate', 62 as 'bad' and one classified as 'unknown' conservation status. Of these, 22 habitats showed improvement in overall conservation status, 29 habitats showed no change, 22 habitats showed a decline, and 4 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland's supporting documentation for the conservation status assessment of each habitat was examined to gain insight into which of these included pressures or threats that related to agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 44 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to water pollution and degradation, air pollution, and land use including grazing practices, fertiliser application or land drainage.

For the UK, of the designated species reported, 33 were given an overall conservation status of 'favourable', 24 a status of 'inadequate', 16 a status of 'bad' and 20 a status of 'unknown'. Of these, 9 species showed improvement in overall conservation status, 47 showed no change, 12 showed decline and 25 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland's supporting documentation for the conservation status assessment of each species was examined; of the 26 species for which specific supporting documentation for Northern Ireland was available, 24 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to agricultural land management practices (including grazing practices, removal of small structures used by bat species, and pest control methods), pollution of surface, ground or marine waters, and air pollution arising from mixed sources.

Article 12 of the Birds Directive requires that, every six years, all EU Member States report on the implementation of the Directive. The 11th UK Report for Article 12 of the EU Birds Directive was submitted to the European Commission in October 2019. The report format includes both a General Report on the implementation of the Directive (Annex A), and a Bird Species Status and Trends Report containing individual assessments for all relevant bird species (Annex B). Of the 319 birds included in this assessment (including in some cases both breeding and wintering populations separately), 131 showed a short-term decreasing population trend, while 108 showed a long-term decreasing population trend.

Following the UK's exit from the EU, reporting to the European Commission will no longer be required, however DAERA will report periodically every 6 years following exit from the EU. The first of these reports was published in 2026 as Habitats Regulations Reporting, covering the period for 2019-2024[19]. The report indicated that the overall trend from the previous reporting cycle is continuing with habitats and species in poor condition. The report indicated that whilst improvements has occurred across some marine habitats, the majority of terrestrial

[18] Article 17 Habitats Directive Report 2019

[19] Northern Ireland Habitats Regulations Reporting

(including freshwater) habitats and species have remained at “unfavourable” conservation status, with no change in Conservation Status since the previous reporting cycle, with only one terrestrial habitat in Favourable Conservation Status of H1210 Annual vegetation of drift lines. There is continued deterioriations in the quality of freshwater habitats impacting species such as S1106 Atlantic salmon *(Salmo salar),* S5076 Pollan *(Coregonus pollan)* and S1355 Otter *(Lutra lutra)* due to pollution predominantly from agricultural sources[20]. Several bird populations showed long-term declining trends across Northern Ireland, however some increased trends for certain bird species are occurring in the long-term. Agriculture related pressures, particularly from Critical Load exceedances of atmospheric Nitrogen, remained a key pressure source on habitats and species.

Revised Freshwater SAC Conservation Objectives

Conservation objectives are set for SACs and SPAs to maintain or restore the qualifying interest features of each site to a favourable conservation status. DAERA has released updated conservation objectives and supplementary advice for the six river SAC sites in Northern Ireland; Cladagh (Swanlinbar) River; Owenkillew River; River Faughan and Tributaries; River Foyle and Tributaries; River Roe and Tributaries; and Upper Ballinderry River[21]; these are in line with UK JNCC Common Standards Monitoring guidance for river and freshwater fauna. This includes additional ecological guidance and information on water quality standards (including biological oxygen demand and nutrients) required for the protection of vulnerable freshwater species. The updated information for these SACs lists information on the status of any designated species within these rivers and specific measures which should be introduced in order improve habitats based on the specific issues in each SAC river catchment area, such as contributing point and diffuse pollution sources. This also includes the identification of other key stakeholders in these areas who should be approached for discussions on management such as forestry users, wastewater treatment works, fisheries, and local landowners / farmers. This should enhance the protection for these important freshwater sites and ensure greater compliance with the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 and amendments.

Conservation Management Plans (CMPs) for SACs

Conservation Management Plans (CMPs)[22] have been established for 40 of Northern Ireland’s SACs to date. These outline a framework for the achievement of favourable site and feature conditions. These plans run for ten years and are considered as ‘live’ documents with updates based on new scientific evidence or new management approaches.

The CMPs were created based on information on the special or qualifying habitats, species, or other features for which the site is designated, with mapping and management priorities set for these, along with engagement with stakeholders having an interest in the site whilst considering the site’s social, economic, and cultural heritage. Each site’s conservation objective was considered with the most recent condition/health assessment of the qualifying features assessed against this with the identification of any known or potential current or future threats to achieving favourable site condition of features. Following this, conservation measures to protect and enhance the condition of the qualifying features were recommended with the establishment of monitoring and reporting on the implementation of these measures to ensure long-term conservation success. Each CMP provides a description of the SAC site, any main plant or animal communities / assemblages present as well as information provided during the stakeholder engagement sessions and habitat mapping information of the special features of each site. Information on the site-specific pressures and threats at either a whole site, individual units or within a group of units of the site are presented, these may also be on-site or off-site pressures. Specific conservation measures are also described as either recommendations or those actively occurring and the current outcome of any measures in terms of success and ongoing actions.

[20] Northern Ireland Habitats Regulations Species Reporting

[21] Northern Ireland Protected Areas

[22] Conservation Management Plans (CMPs)

Status and Trends for National Designated Sites (ASSIs)

Northern Ireland launched its first State of the Environment Report in 2008 as Our Environment, Our Heritage, Our Future: State of the Environment Report for Northern Ireland (EHS, 2008). This described 30 indicators that were designed to assist future comparison and measurement of the changing environment. From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013) is the most recent full State of the Environment Report for Northern Ireland published in 2013 and, in the interim period, the NIEA has published annually a Northern Ireland Environmental Statistics Report, providing annual reports on a range of environmental indicators. The most recent report is for 2026[23], and provides key information regarding the current status of biodiversity indicators in Northern Ireland.

For the first time in 2022, and continued in 2026, a combined feature condition standard for all network features on land and sea in Northern Ireland was produced. This is a new metric collated for the country which helps align with UK reporting.

The 2026 report indicated that:

- 52% of all features were in a favourable condition.
- 37% of all features were in an unfavourable condition.
- 2% of all features were in an unfavourable recovering condition.
- Less than 1% of all features were destroyed.
- 8% of all features had an undetermined condition due to a lack of formal assessment.

When this is partitioned into the biological and earth science features assessed, 36% of habitats and 53% of species features were in favourable condition, compared to 92% of earth science features in favourable condition, reflecting the greater pressures on the natural environment.

These results remain very similar to the previous 10 years of reporting. NIEA is aiming to achieve favourable condition for a much higher proportion of the ASSI network, and there is now a focus on improving the overall condition of sites towards Favourable Conservation Status (FCS) through effective land management to support recovery of the special features within the site. The Northern Ireland Environmental Statistics Report states that, in 2025/2026, the area of terrestrial protected sites under management in Northern Ireland was recorded as at least 26,476 hectares, a significant increase since the baseline year for reporting (2015/2016).

The area of marine protected sites under management in 2025/26 was recorded as 38% of Northern Irish waters, which has increased since the baseline year for PfG reporting (2015/16). The focus between 2018 and 2026 was on bringing the protected area network into favourable management, through identification and introduction of necessary management measures for marine protected areas.

The 2024/25 Summary Feature Condition Assessment Status for Terrestrial ASSI and Marine Features in Northern Ireland was recently released[24], with the assessment of interest features split into four condition categories of common standards determined by JNCC guidance[25]; 'favourable'; 'unfavourable'; 'partially destroyed'; and 'destroyed' with optional trend qualifiers of 'favourable-maintained'; 'favourable-recovered'; 'favourable-declining'; 'unfavourable-recovering'; 'unfavourable-no change'; and 'unfavourable-declining', which may be used as required to describe the condition assessment.

There are 1,358 terrestrial ASSI features which have been assessed for 394 sites to date; these cover a wide range of features including specific habitats and species. It should be noted that of these 1,358 terrestrial ASSI features, 63 features have never been assessed and for the 2024/25 Summary Feature Condition Assessment

[23] NI Environmental Statistics Report 2026

[24] 2024/25 Summary Feature Condition Status of Protected Areas

[25] JNCC Common Standards Monitoring

Status, some site assessments have taken place from 2002 onwards with only 372 features having recent condition assessment undertaken inclusive of 2024/2025. Of these 372 features, 146 features are reported to be in unfavourable condition (with two features at the Garron Plateau of blanket bog and marsh saxifrage listed as being in recovering condition and a fungi assemblage at Upper Lough Erne-Crom as recovering condition). 276 features are listed as being in favourable condition. Considering all 1,258 terrestrial ASSI features which have had an assessment since 2002, 711 features are listed in favourable condition (of these, ten features are listed as declining, four features as recovered, 181 features as maintained/no change, and 527 do not have a reported trend), 569 features are listed in unfavourable condition (of these, 34 features are listed as declining, 33 features as recovering, 29 features listed as maintained/no change, and 473 do not have a reported trend), and five features are listed as destroyed (at Carlingford Lough, Carrickastickan, and Summerhill Lough sites, comprising predominantly fen, marsh, and swamp features).

Of the marine features assessed under the 2024/25 Summary Feature Condition Assessment Status there are 32 ASSI features across 19 sites, seven MCZ features across four sites and 17 SAC features across seven sites. For the 32 marine ASSI features, only five features have been recently assessed all of which were assessed as being in favourable condition (of these, four features were listed as maintained and one feature did not have a reported trend). Considering all assessments for the 32 marine ASSI features (with some having taken place in 2005), 31 of these are reported to be in favourable condition (of these, one feature is reported as recovered, 26 features as maintained, and four features do not have a reported trend; one feature is unfavourable and declining at The Maidens for the common seal).

For the seven MCZ features, none had been recently assessed for 2024/25; five features were listed as favourable (of these, two features were reported as maintained, one feature as recovered, and two features did not have a reported trend); two features were reported as in unfavourable condition in the Outer Belfast Lough site for ocean quahog and subtidal sand, however, there were no reported trends. For the 17 SAC features, only one feature of sublittoral sediment at Red Bay has been recently monitored for the 2024/25 assessment which is listed as being in favourable condition and maintained. Considering all assessments for the 17 SAC features (with some having taken place in 2005), 12 features are in favourable condition (of these, ten features are reported as maintained and two did not have a reported trend); five features are in unfavourable condition, of which three features are recovering, one feature does not have a reported trend and one feature has no change.

3.2.1.2 Water-Dependent Habitats and Species at Risk of Water Pollution

Water-dependent European Sites

The Water Framework Directive (WFD) (200/60/EC), transposed in Northern Ireland through The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, required Member States to develop a Register of Protected Areas comprising lands that have been designated as requiring special protection under specific legislation for protection of surface water or groundwater, or for conservation of habitats and/or species that depend upon water. These components, which had to be established for each River Basin District (RBD), are outlined in Annex IV of the WFD, and include sites that are used for water abstraction, those designated for salmonids, those designated for bathing, those designated for shellfish production, nutrient sensitive areas, and those designated “for the conservation of habitats and species directly depending on water”. The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the various supporting pieces of water legislation continue to operate in Northern Ireland after 1 January 2021. Where a European site (SAC or SPA) lies within a waterbody, the WFD status objectives apply in addition to the requirement to maintain the site at FCS or restore it to that status.

Table 3-5 details the surface water-dependent European sites within the North Eastern RBD (NERBD), North Western RBD (NWRBD) and the Neagh Bann RBD (NBRBD). For the third cycle RBMP 2021-2027[26], a total of 27 water-dependent European sites have been identified for the NWRBD. Of these, 81% are currently in

[26] Third Cycle River Basin Management Plan

unfavourable condition, and for 30% of sites this is due, at least in part, to pressures from the water environment. In the NBRBD there are 24 water-dependent European sites; of these 75% are currently in unfavourable condition, and for 25% this relates to water pressures. A total of 25 water-dependent European sites have been identified for the NERBD, of which 56% are currently in unfavourable condition, with 12% of sites due to water pressures. For Northern Ireland as a whole, 71% of water-dependent European sites are currently in unfavourable conservation condition (i.e., failing to meet their conservation objectives), with these failures relating to pressures from the water environment in 23% of sites.

Table 3-5 Surface water-dependent European Sites in unfavourable condition owing to pressures from the water environment*

	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Number of sites	27	100	24	100	25	100	66**	100
Number of sites in unfavourable condition	22	81	18	75	14	56	47	71
Number of sites in unfavourable condition due to pressures from the water environment	8	30	6	25	3	12	15	23

*(Reproduced from Table 29, third Cycle RBMP)

**Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs.

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites not meeting conservation objectives was examined to elucidate any pressures or threats specified as relating to water pollution from agricultural activities. In many cases, agricultural or mixed source pollution, as well as drainage and abstraction for agricultural purposes, were listed as pressures or threats of high importance for these habitats or species as shown in **Table 3-6**.

Table 3-6 Article 17 Assessment of water-related pressures or threats from agriculture

Feature(s) not meeting Conservation Objectives	Northern Ireland Article 17 Assessment of Water-Related Pressures or Threats
Transition Mires and quaking bogs	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Alkaline fens	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Active raised bogs	Drainage for use as agricultural land**
Degraded raised bogs	
Blanket bogs	

Feature(s) not meeting Conservation Objectives	Northern Ireland Article 17 Assessment of Water-Related Pressures or Threats
Humid dune slacks;	Agricultural activities generating diffuse pollution to surface or ground waters**; Active abstractions from groundwater, surface water or mixed water for agriculture**.
Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water for agriculture**; Drainage for use as agricultural land**.
Turloughs	Agricultural activities generating point source pollution and diffuse source pollution to surface or groundwaters*.
Water course *Ranunculion fluitantis* and *Callitricho-Batrachion*	Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
White-clawed crayfish	
Mesotrophic lough	Mixed source pollution to surface and ground waters (limnic and terrestrial)*.
Marl lakes	
Alluvial forests	
Eutrophic standing waters	
Freshwater Pearl Mussel	Agricultural activities generating diffuse pollution to surface or ground waters**; Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
Fixed dunes with herbaceous vegetation	None listed.
Marsh fritillary butterfly	
Petalwort	

*High ranking pressure
**Medium ranking pressure

Freshwater Pearl Mussel

The freshwater pearl mussel, *Margaritifera margaritifera*, is a large bivalve mollusc that lives in the bed of rivers and streams. It is highly sensitive to changes in water quality, particularly concerning nutrient pollution and sediment loading. In Northern Ireland, the species formerly occurred widely in several catchments, with the species extant in six rivers in Counties Tyrone and Fermanagh (**Figure 3-2**). There are currently three SACs designated for populations of freshwater pearl mussel: the Owenkillew River SAC; the Upper Ballinderry River SAC; and the Cladagh (Swanlinbar) River SAC, and two ASSIs: the Owenreagh River (tributary of Owenkillew River) ASSI; and the Tempo River ASSI. There are also populations present on the Waterfoot River which is a proposed ASSI. Populations of freshwater pearl mussel are considered extinct in nine rivers; Blackwater; Bush; Colebrooke; Derg; Finn; Glenelly; Moyola; Mourne/Strule; and Upper Bann[27].

[27] Protocol for ex-situ conservation and reintroduction of the freshwater pearl mussel in Northern Ireland

A Species Action Plan for freshwater pearl mussel in Northern Ireland was published in 2005[28], which outlined the status of populations at that time, factors contributing to loss or decline of the species, and both current and proposed actions to protect the species. The Species Action Plan indicated that the species had undergone a large decline in absolute numbers and range but, in at least three rivers, over one million individuals remained. However, populations were characterised by an ageing cohort, with little or no recent recruitment. Article 17 reporting for the UK, for the period 2013-2018 indicated that freshwater pearl mussel is at 'unfavourable-bad' conservation status[29]. Northern Ireland's supporting documentation for the conservation status assessment of the species[30] states that the area and quality of occupied/unoccupied habitat is not sufficient to maintain the species at FCS, and that the lack of juvenile recruitment and an ageing population is expected to lead to the future extinction of the species from Northern Ireland, unless a significant improvement of their habitat conditions occurs. Owing to the sensitivity of the species, pressures and threats relating to water quality are of great importance. The following are listed as pressures/threats of high-ranking importance for the species in Northern Ireland:

- Agricultural activities generating diffuse pollution to surface or ground waters;
- Forestry activities generating pollution to surface or ground waters;
- Mixed source pollution to surface and ground waters (limnic and terrestrial);
- Modification of hydrological flow; and
- Physical alternation of waterbodies.

Areas Designated to Protect Economically Significant Aquatic Species

Shellfish water protected areas (**Figure 3-2**) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high-quality shellfish. Both the Shellfish Directive (79/923/EEC) and Freshwater Fish Directive (78/659/EEC) were revoked in 2013 and subsumed into the WFD. Areas previously designated under these Directives are now areas designated for the protection of economically significant aquatic species under the WFD and listed on the Protected Areas register. Further information on the current status of shellfish water protected areas is given in **Section 3.2.2** Population and Human Health.

Within the NERBD, 662km of rivers, 5.5km^2 of canals and 2km^2 of lakes are designated for fish[31], while in the NWRBD there are 1681km of rivers and 149km^2 of lakes designated[32] and in the NBRBD there are 1936km of rivers, 43km of canals and 292km^2 of lakes designated[33]. In Northern Ireland as a whole, 20 lakes and 413 rivers have been designated as salmonid waters (**Figure 3-2**). In addition to designated species, fish species in general can be significantly affected by changes in water quality and sedimentation, particularly in spawning and nursery areas, as well as by changes in the hydrology of surface waterbodies, including those that may affect the passage of migratory species.

[28] Northern Ireland Species Action Plan Freshwater Pearl Mussel

[29] Article 17 Habitats Directive Report 2019

[30] Article 17 Habitats Directive Freshwater Pearl Mussel Documentation

[31] North Eastern River Basin Management Plan 2015 to 2021

[32] North Western River Basin Management Plan 2015 to 2021

[33] Neagh Bann River Basin Management Plan 2015 to 2021

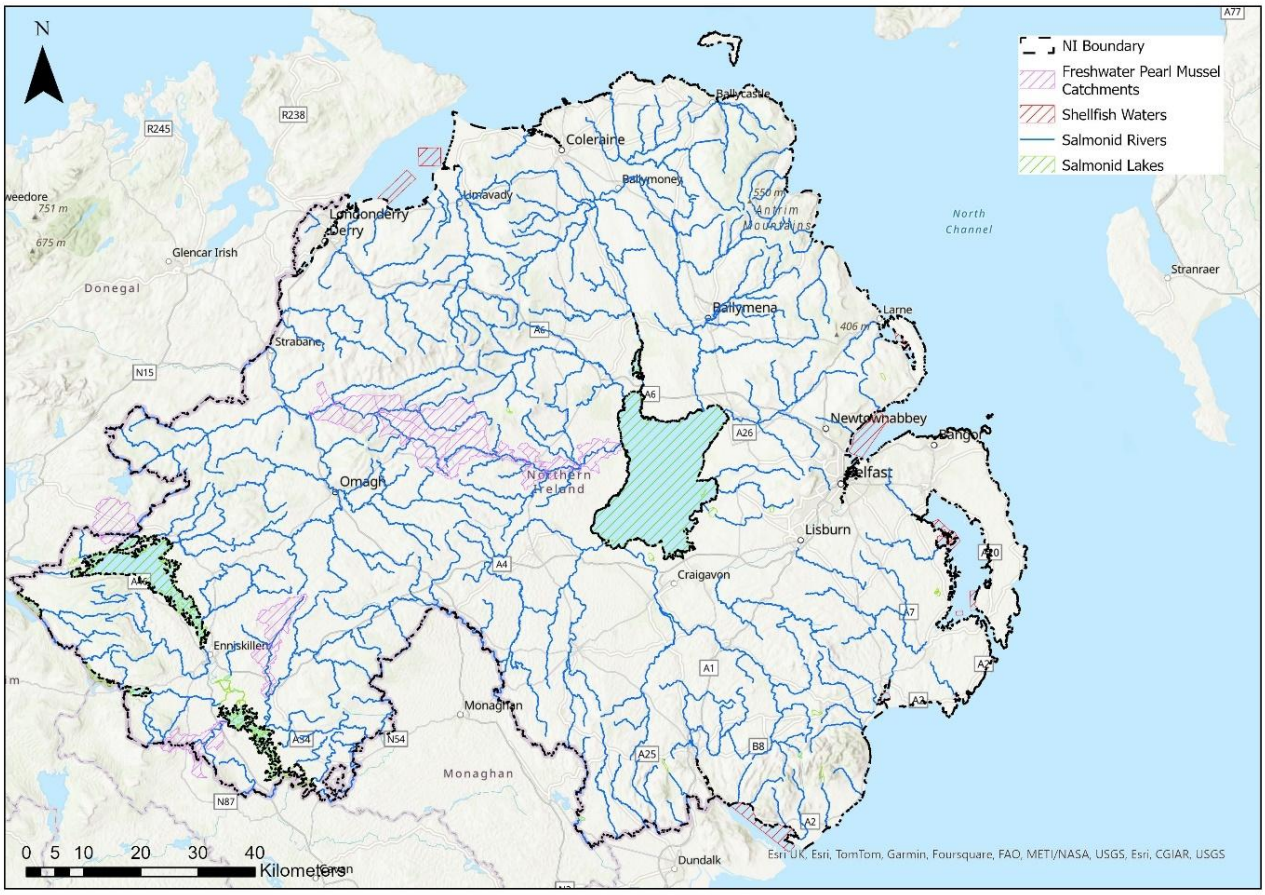


Figure 3-2 Designated Freshwater Pearl Mussel sites, Shellfish Waters and Salmonid waters across Northern Ireland

3.2.1.3 Habitats Sensitive to Atmospheric Pollution

According to the Expert Working Group on Sustainable Land Management, nitrogen deposition, particularly on Priority Habitats, arising primarily from ammonia emissions, is one of the key environmental challenges that faces the agriculture sector in Northern Ireland[34]. Emissions of ammonia lead to the deposition of nitrogen compounds on land, through either dry deposition close to the emission source, or wet deposition in rainfall that can be transported much further afield. Habitats close to the sources of ammonia emissions are at particular risk, as atmospheric concentrations are highest close to the source, with a significant amount deposited within a 1km radius of the source area. Nitrogen deposition on these areas (which have typically evolved under low nitrogen inputs with species and ecosystems adapted to these low conditions) can cause direct damage to sensitive species as well as impacts on species diversity and habitat degradation. The degree of ammonia and associated nitrogen deposition is dependent on the number of livestock; manure management; housing conditions, such as ventilation systems; and the dispersion of nitrogen, which is dependent on the prevailing weather conditions such as wind direction and wind speed. The effects of exposure to ammonia are particularly important for sensitive habitats such as bogs and woodlands. In bogs, sensitive plants are subject to stress from ammonia exposure much faster than they are through wet nitrogen deposition (i.e., at lower nitrogen loads), and exposure can lead to direct damage to sensitive species, changes in community composition, plant water stress, and changes in plant morphology. Owing to their acidic nature, ombrotrophic bogs provide a significant sink for ammonia. In woodlands, ammonia can result in direct damage to foliage; increased sensitivity to drought, frost, and pest attack; loss of mycorrhiza and fruit bodies; and

[34] Making Ammonia Visible

changes in community composition. Water quality and aquatic species and habitats can also be adversely affected by ammonia, as the oxidation of air-borne ammonia can result in the deposition of nitrogen compounds to waterbodies in rainfall.

The Air Pollution Information System (APIS)[35] provides a searchable database with information on pollutants and their impacts on habitats and species. The database includes indicative values of critical levels of ammonia concentrations for sensitive habitats. This enables a search of designated European sites, and features within, that are receiving ammonia concentrations that are above their critical level. Critical levels of 1µg NH_3 m^{-3} and 3µg NH_3 m^{-3} (annual mean concentrations) can be used for the protection of lichens-bryophytes and other vegetation (higher plants), respectively. Of the 58 SACs in Northern Ireland, 50 sites are recorded as having ammonia concentrations that are above the critical level for the habitats present. This relates to the following broad habitat types:

- Acidophilous Quercus forest (25 sites)
- Alluvial forest (6 sites)
- Arctic, alpine and subalpine scrub habitats (5 sites)
- Arctic-alpine calcareous grassland (5 sites)
- Arctic-alpine rich fens (1 site)
- Atlantic Pioneer salt marshes (2 sites)
- Atlantic Pioneer salt marshes (4 sites)
- Carpinus and Quercus mesic deciduous forest (2 sites)
- Coastal dune grasslands (grey dunes) (5 sites)
- Coastal dune heaths (1 site)
- Dry heaths (10 sites)
- Dunes with Hippophae rhamnoides (2 sites)
- Hard oligo-mesotrophic waters (1 site)
- Moist and wet dune slacks (2 sites)
- Moist and wet dune slacks – acid type (3 sites)
- Moist and wet dune slacks - calcareous type (3 sites)
- Moist or wet mesotrophic to eutrophic hay meadow (5 sites)
- Mudflats and sandflats not covered by seawater at low tide (2 sites)
- Natural eutrophic lakes with Magnopotamion or hydrochariton type vegetation (2 sites)
- Non-mediterranean dry acid and neutral closed grassland (2 sites)
- Northern wet heath: Erica tetralix dominated wet heath (13 sites)
- Permanent dystrophic lakes, ponds and pools (6 sites)
- Permanent oligotrophic lakes, ponds and pools (including softwater lakes) (3 sites)
- Raised and blanket bogs (28 sites)
- Rich fens (7 sites)
- Semi-dry Perennial calcareous grassland (basic meadow steppe) (3 sites)
- Shifting coastal dunes (3 sites)
- Turloughs (1 site)
- Valley mires, poor fens and transition mires (14 sites)
- Vegetated sea cliffs of the Atlantic and Baltic Coasts (1 site)
- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation (4 sites)

Each of these habitats have a critical level of 1µg NH_3/m^3 (annual mean); at 22 European sites, ammonia levels are over twice this value, and at 4 sites they are over three times this concentration. For all designated

[35] Air Pollution Information System

sites in Northern Ireland (SACs, SPAs, and ASSIs), 99% had ammonia concentrations above the critical level of 1µg NH_3/m^3 (annual mean concentration).

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites was examined for any pressures or threats relating to air pollution, and those specified as arising from agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 10 habitat assessments specified 'mixed-source air pollution, air-borne pollutants' as a pressure or threat (seven as a high-ranking pressure/threat and three as medium-ranking), while 22 habitat assessments specified 'agricultural activities generating air pollution' as a pressure or threat to the habitat (nine at a high-ranking level and 13 at a medium-ranking level). Of the 26 species for which specific supporting documentation for Northern Ireland was available, one species' assessment (marsh fritillary butterfly) specified 'agricultural activities generating air pollution' as a pressure or threat to the species (medium-ranking), while four other species (petalwort, large white-moss, marsh saxifrage and pollan) specified 'mixed-source air pollution, air-borne pollutants' as a pressure or threat (all high-ranking).

The deposition of nitrogen compounds aids the growth of some plant species but can lead to significant negative effects on plant species that are adapted to low nitrogen concentrations. In designated sites, which protect sensitive and environmentally important habitats and species, the availability of excess nitrogen through deposition can lead to out-competition of sensitive species by those that are more nitrogen-tolerant, and subsequent changes in community composition, biodiversity loss and changes in the structure and function of the ecosystem. Nitrogen deposition from ammonia emissions can therefore potentially lead to loss of conservation value for designated conservation sites. The APIS provides indicative values within nutrient nitrogen critical load ranges for habitats, for use in air pollution impact assessments. This enables a search of European sites, and features within, that are receiving a level of nitrogen deposition that is above their critical load.

Table 3-7 shows the European sites in Northern Ireland with one or more features receiving above their critical nitrogen load and indicates the total % of nitrogen deposition at these sites attributable to agricultural activities occurring within Northern Ireland, and the proportional contribution of livestock and fertiliser to this. Of the 58 SACs in Northern Ireland, 50 are receiving nitrogen deposition that is above the critical load for the designated habitat or species present. In addition to the total nitrogen deposition at the site, the APIS provides an indication of the source attribution (how the deposition at the site is apportioned between different emission sources), and the relative extent to which these are local or long range in nature. The data indicates that, of the nitrogen deposited at these sites, between 16% and 63.5% is attributable to agricultural activities taking place within Northern Ireland (a combination of livestock and fertiliser sources).

Table 3-7 European Sites with N Deposition above Critical Loads and Proportion Attributable to Northern Ireland Agriculture

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
Aughnadarragh Lough	Marsh fritillary butterfly	46	4.7	50.7
Ballykilbeg	Marsh fritillary butterfly	39.2	3.2	42.2
Ballynahone Bog	Raised and blanket bogs; Valley mires, poor fens and transition mires	46.1	3.3	49.4
Banagher Glen	Acidophilous Quercus forest; Northern wet heath: Erica tetralix dominated wetland; Carpinus and Quercus mesic deciduous forest	47.5	3.6	51.1

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
Bann Estuary	Atlantic upper-mid & mid-low salt marshes; Shifting coastal dunes; Coastal dune grasslands (grey dunes); Moist and wet dune slacks – acid type; Moist and wet dune slacks -calcareous type	43.3	3.2	46.5
Binevenagh	Arctic-alpine calcareous grassland; Arctic, alpine and subalpine scrub habitats; Non-mediterranean dry acid and neutral closed grassland	49.1	5.7	54.8
Black Bog	Raised and blanket bogs	53.9	3.4	57.3
Breen Wood	Raised and blanket bogs; Northern wet heath: Erica tetralix dominated wetland; Acidophilous Quercus forest	56.2	4.5	60.7
Carn-Glenshane Pass	Raised and blanket bogs; Northern wet heath: Erica tetralix dominated wetland	48.2	3.8	52
Cranny Bogs	Raised and blanket bogs	43.6	2.6	46.2
Cuilcagh Mountain	Arctic, alpine and subalpine scrub habitats; Raised and blanket bogs; Dry heath; Arctic-alpine calcareous grassland; Permanent dystrophic lakes, ponds and pools; Northern wet heath: Erica tetralix dominated wet heath; Semi-dry Perennial calcareous grassland (basic meadow steppe);	24.9	2	26.9
Curran Bog	Raised and blanket bogs	43.9	2.8	46.7
Dead Island Bog	Raised and blanket bogs	54.1	3.3	57.4
Deroran Bog	Raised and blanket bogs	49.9	3	52.9
Derryleckagh	Acidophilous Quercus forest; Valley mires, poor fens and transition mires; Marsh fritillary butterfly	41.8	2.6	44.4
Eastern Mournes	Raised and blanket bogs; Arctic-alpine calcareous grassland; Arctic, alpine and subalpine scrub habitats; Northern wet heath: Erica tetralix dominated wet heath; Dry heaths; Permanent oligotrophic lakes, ponds and pools (including softwater lakes)	30.1	3	33.1
Fairy Water Bogs	Raised and blanket bogs; Valley mires, poor fens and transition mires	49.7	3.5	53.2
Garron Plateau	Rich fens; Raised and blanket bogs; Dry heaths; Permanent dystrophic lakes, ponds	56.4	3	59.4

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
	and pools; Northern wet heath: Erica tetralix dominated wet heath; Permanent oligotrophic lakes, ponds and pools (including softwater lakes); Arctic-alpine calcareous grassland; Valley mires, poor fens and transition mires			
Garry Bog	Raised and blanket bogs; Valley mires, poor fens and transition mires	54.3	3.4	57.7
Hollymount	Acidophilous Quercus forest	40.4	3.4	33.8
Largalinny	Raised and blanket bog; Dry heath; Northern wet heath: Erica tetralix dominated wet heath; Acidophilous Quercus forest; Arctic, alpine and subalpine scrub habitats	30.2	2.6	32.8
Lough Melvin	Northern wet heath: Erica tetralix dominated wet heath; Acidophilous Quercus forest; Permanent oligotrophic lakes, ponds and pools (including softwater lakes)	15.1	0.9	16
Magheraveely Marl Loughs	Rich fens	24.1	2	25.1
Magilligan	Moist and wet dune slacks; Marsh fritillary butterfly; Coastal dune grasslands (grey dunes); Moist and wet dune slacks - acid type;	39.3	3.6	42.9
Main Valley Bogs	Raised and blanket bogs; Valley mires, poor fens and transition mires	57.2	3.5	60.5
Monawilkin	Dry heath; Northern wet heath: Erica tetralix dominated wet heath; Acidophilous Quercus forest	30	2.5	32.5
Moneygal Bog	Raised and blanket bogs; Valley mires, poor fens and transition mires	36.9	1.9	38.8
Moninea Bog	Raised and blanket bogs; Valley mires, poor fens and transition mires	19.3	1.2	20.5
Montiaghs Moss	Marsh fritillary butterfly; Moist or wet mesotrophic to eutrophic hay meadow; Northern wet heath: Erica tetralix dominated wet heath; Valley mires, poor fens and transition mires	44.7	2.9	47.6
Murlough	Coastal dune heaths; Atlantic upper-mid & mid-low salt marshes; Moist and wet dune slacks; Shifting coastal dunes; Non-mediterranean dry acid and neutral closed grassland; Coastal dune grasslands (grey dunes)	38.9	2.5	41.4

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
North Antrim Coast	Atlantic upper-mid & mid-low salt marshes; Dry heaths; Coastal dune grasslands (grey dunes); Moist and wet dune slacks - acid type; Shifting coastal dunes; Non-mediterranean dry acid and neutral closed grassland; Vertigo angustior – Narrow mouthed whorl snail (Low and medium altitude hay meadows)	52.6	3.7	56.3
Owenkillew River	Raised and blanket bogs; Acidophilous Quercus forest	52.4	3.4	55.8
Peatlands Park	Raised and blanket bogs; Acidophilous Quercus forest	60.6	2.9	63.5
Pettigoe Plateau	Permanent oligotrophic lakes, ponds and pools (including softwater lakes); Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Valley mires, poor fens and transition mires; Dry heaths; Northern wet heath: Erica tetralix dominated wet heath	25.7	3.2	28.9
River Faughan and Tributaries	Acidophilous Quercus forest	45.7	3.9	49.6
River Roe and Tributaries	Acidophilous Quercus forest	46.9	4.1	51
Rostrevor Wood	Acidophilous Quercus forest	37.5	2.5	40
Slieve Beagh	Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Dry heaths	51	3	54
Slieve Gullion	Raised and blanket bogs; Dry heaths; Northern wet heath: Erica tetralix dominated wet heath; Valley mires, poor fens and transition mires	42	2.7	44.7
Strangford Lough	Atlantic upper-mid & mid-low salt marshes; Coastal dune grasslands (grey dunes);	41	3.6	44.6
Teal Lough	Raised and blanket bogs; Valley mires, poor fens and transition mires; Dry heaths; Permanent dystrophic lakes, ponds and pools; Northern wet heath: Erica tetralix dominated wet heath	53.9	2.9	56.8
Tonnagh Beg Bog	Raised and blanket bogs	49.3	3.1	52.4
Tully Bog	Raised and blanket bogs	42.1	2.5	44.6
Turmennan	Valley mires, poor fens and transition mires	43.7	2.9	46.6

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
Upper Ballinderry River	Raised and blanket bogs; Acidophilous Quercus forest	52	3.4	55.4
Upper Lough Erne	Rich fens; Raised and blanker bogs; Moist or wet mesotrophic to eutrophic hay meadow; Acidophilous Quercus forest	37.3	3.1	40.4
West Fermanagh Scarplands	Raised and blanket bogs; Arctic, alpine and subalpine scrub habitats; Arctic-alpine calcareous grassland; Dry heaths; Permanent dystrophic lakes, ponds and pools; Northern wet heath: Erica tetralix dominated wet heath; Acidophilous Quercus forest; Permanent oligotrophic lakes, ponds and pools (including softwater lakes); Semi-dry Perennial calcareous grassland (basic meadow steppe); Carpinus and Quercus mesic deciduous forest; Valley mires, poor fens and transition mires	29.4	2.2	31.6
Wolf Island Bog	Raised and blanket bogs; Valley mires, poor fens and transition mires	52.5	3.2	55.7

Critical loads and critical level exceedances across the UK are reported by the Department for Environment, Food and Rural Affairs (DEFRA) in the Air Pollution Trends Reports, the latest of which was published in 2024[36]. For UK habitats at risk of acidification, the area of acid-sensitive habitats where acidity critical loads were exceeded reduced from 65.6% in 2003 to 44.1% in 2021, which was mainly due to decreases in nitrogen oxides and sulphur deposition.

For UK habitats that are at risk from excess nitrogen, the area of nitrogen-sensitive habitats where nutrient-nitrogen critical loads were exceeded reduced from 93.8% in 2003 to 83.9% in 2021. However, this decline was largely driven by changes in Scotland, and there was little change in Northern Ireland over this period (less than 1%). For the nitrogen-sensitive habitats: calcareous grassland; montane habitats; beech woodland; acidophilous oak woodland; other broadleaved woodland; Scots pine woodland; and mixed woodland, the critical load was exceeded for more than 90% of area in all years.

In 2021, for UK habitats at risk of exceeding the critical levels for gaseous ammonia, 1.7% of the UK land area was exposed to ammonia concentrations above the critical level set to protect higher plants (3µg m^{-3}) stabilising to 2003 levels, while 55% of the areas was above the critical level set to protect lichens and bryophytes (1µg m^{-3}), representing a decrease of 1.9%. For Northern Ireland, 92.6% of the area was exposed to ammonia concentrations of greater than 1µg m^{-3}, and 12.2% exposed to concentrations of greater than 3µg m^{-3}. This represented 84.4% of the mapped area of nitrogen-sensitive habitats in Northern Ireland that were exposed to ammonia concentrations above the critical level of 1µg m^{-3}, and 3.8% that were exposed to concentrations above the critical level of 3µg m^{-3}. For designated sites, 91.1-96.5% in Northern Ireland were exposed to levels above 1µg m^{-3} in 2021, while 5.3% of SACs, 6.2% of SPAs, and 9.2% of ASSIs were exposed to ammonia concentrations above the critical level of 3µg m^{-3} on at least part of the site.

[36] Air Pollution Trend Report 2024: Critical Load and Critical Level exceedances in the UK

The UK Centre for Ecology and Hydrology (UKCEH), Ulster Wildlife, Monaghan County Council, National Trust and NIEA have prioritised designated sites for the evaluation and mitigation of elevated ammonia concentration and nitrogen deposition on sensitive ecosystems[37]. Eight SACs were investigated for ongoing monitoring and assessment for threats from atmospheric nitrogen inputs, in particular ammonia; these sites are Curran Bog SAC, Garry Bog SAC, Moneygal Bog SAC, Peatlands Park SAC, Cuilcagh Mountain SAC, Slieve Beagh SAC, Ballynahone Bog, and Turmennan SAC. These sites contain peatland habitats with an annual critical level for ammonia concentrations of 1µg m^{-3} beyond which ecological damage may occur. The dominant ammonia emission sources were modelled for each site, monitoring was proposed, and a plan drafted for each site, vegetation analysis also took place to investigate nitrogen levels in sensitive plant species as this can indicate ecological damage. The monitoring indicated that for six sites, the annual critical level of 1µg m^{-3} was exceeded with only Cuilcagh Mountain SAC and Slieve Beagh SAC having a mean annual ammonia concentration just below 1µg m^{-3}. However, vegetation analysis at this site indicated that levels of nitrogen present was elevated, suggesting that additional nitrogen deposition has occurred at this site possibly from wet deposition (of rainfall, fog and snow) with nitrogen accumulation over time.

The modelled mean ammonia concentration for these sites was between 1.7 and 3.6µg NH_3/m^3, while the Average Annual Exceedance (AAE) of critical loads indicator was estimated at between 11.4 and 31.1kg N ha^{-1} yr^{-1} [38]. As part of the monitoring strategy for these designated sites, ammonia concentrations were measured monthly, to enable an estimation of the annual average concentrations for the assessment of critical levels exceedance (annual thresholds), and to inform seasonal profiles across these sites that can help in the identification of peak emission periods and likely source type. Reporting from the first year of monitoring 2020-2021 indicated that for Slieve Beagh and Cuilcagh Mountain sites [39] annual mean concentrations at all monitoring points was just below the 1µg m^{-3} critical level for protection of lichens and bryophytes, while annual mean concentrations at all other sites exceeded this threshold and this exceedance was sizable for Curran Bog, Garry Bog, Peatlands Park, and the most exposed parts of Turmennan. The 3µg NH3 m^{-3} critical level for the protection of all other sensitive vegetation (higher plants) was only exceeded at two monitoring points, both of which were in close proximity to livestock housing and related emitting activities at the Curran Bog Site and Peatlands Park Site.

Generally, the modelled site concentration values showed alignment with the measured annual average ammonia concentrations, and high-resolution temporal and spatial pattern analysis can reveal key contributing sources. The monitoring showed seasonality in concentrations, with the lowest concentrations in winter and the highest in spring and autumn, coinciding with the typical periods of livestock slurry and/or manure land application in relation to the closed spreading period. Typically, a peak in measured concentrations was observed during March and April across all measured sites, however the magnitude of this was dependent on the proximity of the site to nearby agricultural areas and the dominant agricultural practices taking place e.g., higher loading rates could be observed near to intensive grassland sites with higher application rates of slurry and manures. Local meteorological conditions can also influence measured ammonia concentrations, with ongoing monitoring from a weather station at Ballynahone Bog[40] indicating how prevailing weather patterns of wind speed and direction influence atmospheric nitrogen input from local, regional, and transboundary sources with increases in ammonia concentrations recorded coinciding with the land application of slurry and manure.

Modelling for the total Northern Ireland land area has also aimed to describe national estimates of nitrogen deposition and the import/export of atmospheric nitrogen deposition across the UK[41]. In 2017, Northern Ireland agricultural ammonia emissions were estimated at 27.9kt nitrogen/year (33.9kt ammonia/year) with a 15% increase in emissions recorded since 2013; 63% of this figure is associated with livestock, with only 4% of total

[37] Effects of air pollution on natural ecosystems: science and evidence publications

[38] Atmospheric ammonia assessments on six designated sites in Northern Ireland. Year 1: June 2020 – May 2021

[39] Cuilcagh ammonia monitoring and foliar ammonium in vegetation

[40] Ballynahone Bog SAC Wind Data Analysis October 2021 to March 2022

[41] 2018 Estimates of nitrogen deposition in Northern Ireland and import/export of N deposition across the UK

Northern Ireland ammonia emissions associated with non-agricultural sources[42]. Northern Ireland's total atmospheric nitrogen deposition is estimated at 16.6kt nitrogen/year, of which 6.3kt originates from within Northern Ireland, with the remaining 5.4kt from UK and EU sources (of which 1.8kt is from the Republic of Ireland). Northern Ireland exports more nitrogen deposition to the UK than it receives, at 7.7kt nitrogen/year, given the high use of intensive livestock areas for farming; this includes a contribution of 0.5kt nitrogen deposition in Wales, 1.8kt nitrogen deposition in England, and 5.4kt nitrogen deposition in Scotland. This typically occurs as wet deposition (accounting for 68% of total nitrogen deposition occurring to England, Scotland and Wales).

In the Republic of Ireland, the National Ecosystems Monitoring Network (NEMN) was established under the National Emissions reductions Commitments Directive (2016/2284/EU), which requires national networks to be established to measure impacts from the atmospheric deposition of air pollutants on natural and semi-natural habitats. Both freshwater and terrestrial ecosystems were included, with impacts including acidification and eutrophication. The NEMN Design Report proposed air quality monitoring and ecosystem surveys, as well as sites for inclusion in the network to provide representative coverage across sensitive habitat types and major air pollution gradients. The NEMN was initially developed in 2018 and is being expanded by the EPA.

3.2.1.4 Summary of Existing Pressures and Issues for Biodiversity, Flora and Fauna

Despite an increase in actions to halt biodiversity loss, many elements of biodiversity in Northern Ireland are continuing to show declines. The latest State of Nature report for Northern Ireland has estimated that 12% of species are threatened with extinction (based on species assessed using the International Union for Conservation of Nature Regional Red List criteria)[43]. Impacts of human activities, particularly land use change associated with agriculture and development, pollution, and fisheries (particularly in the marine environment), are key pressures affecting biodiversity in Northern Ireland. Invasive non-native species are also a significant threat to native biodiversity. Development such as housing and infrastructure associated with population growth has contributed to a loss of terrestrial and freshwater habitats, with over 40,000 hectares of countryside lost through urban development since the 1950s. Land use change to support agricultural practices has included land reclamation, drainage, increased production and stocking rates, and subsequent impacts on water and air quality.

Priority habitats, and particularly grassland habitats, in Northern Ireland have shown an overall decline since 2000, while a significant number of priority species such as breeding waders are also showing declines[14]. The latest UK Article 17 reporting for habitats and species protected at a European level found that only 6% of habitats and 35% of species are currently in a favourable conservation condition, and that 22 habitats and 12 species showed a decline in condition since the previous reporting period. Of the habitats and species for which condition assessments specific to Northern Ireland were available, 92% of both included at least one pressure/threat that related to agriculture, including land management practices, water pollution and air pollution. Monitoring of features within nationally protected sites has shown that just 35% of habitats and 58% of species features are currently in a favourable condition.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on biodiversity in Northern Ireland and transboundary areas alone, or in combination with, these existing pressures. There is potential for positive or negative effects on habitats and species at a local, regional, or national level, through both direct and indirect pathways. This includes the potential for positive or negative effects on the condition of habitats and species protected at a national and international level. Owing to the recognised importance of the contribution of the agriculture sector to nutrient pollution of waterbodies and emissions to air, there is significant potential for positive or negative effects of measures within the draft NAP 2027-2030 on biodiversity that may be affected via these pathways, i.e., water-dependent habitats and species and habitats or species sensitive to atmospheric pollutants.

[42] Nitrogen deposition in Northern Ireland and import/export of N deposition across the UK

[43] State of Nature Northern Ireland Summary Report

3.2.2 Population and Human Health

The population and human health topic considers the presence and wellbeing of people, and their activities and use of receiving environments. Population size, growth predictions and distribution within an area can indicate both the potential pressures that people may exert on resources and infrastructure, and the potential to which they may be exposed to pollution, disturbance, or other risks. Health of a population can be adversely affected through several direct and indirect pathways, including through emissions to water and air, health and safety risks, noise, and other disturbance.

It is considered that the key issues associated with implementation of the draft NAP 2026 2029 and Population and Human Health comprise:

- Potential for direct and indirect effects on water quality (drinking and recreational activities);
- Requirement to protect waterbodies identified for current / future drinking water abstractions;
- Potential effects on food quality (commercial aquatic species);
- Potential effects on air quality; and
- Potential risks from biohazards.

3.2.2.1 Population Demographics for Northern Ireland

The total population of Northern Ireland in 2024 was approximately 1.93 million people[44], and it is predicted to increase to approximately 1.95 million individuals by 2033 and is then projected to fall to 1.93 million by 2047[45]. Population growth has been positive for the past 25 years, and over the decade from mid-2010 to mid-2020 increased at an annual growth rate of 0.5%. The period from mid-2019 to mid-2020 showed the lowest level of population growth in over 20 years, at 0.1%, influenced by the Covid-19 pandemic and the UK's exit from the EU, and their effects on the death rate and net migration, respectively[46].

The population density of Northern Ireland in 2024 was 142.4 people per km^2, varying across the Local Government Districts, and with a more dispersed population in rural areas. Rural populations in Northern Ireland are defined by their distance to Belfast, as the largest urban centre, as this tends to govern the type of rural land use that occurs as well as access to urban employment and to various services. The population of Northern Ireland estimated to be living in urban and rural areas in 2019 is shown in **Table 3-8**.

Table 3-8 Northern Ireland population in Urban and Rural Areas, 2019

Urban / Rural	No.	%
Urban	1,128,725	60%
Rural <= 60 mins from Belfast	432,334	23%
Rural > 60 mins from Belfast	244,687	13%
Mixed urban / rural	87,945	5%

[44] 2024 Mid-Year Population Estimates for Northern Ireland

[45] 2022-based Population Projections for Northern Ireland

[46] Long-term International Migration Statistics for Northern Ireland 2020

Over two-thirds of all residents in Northern Ireland aged 16 to 64 years were economically active in the 2021 census (70.2%); these were primarily composed of full-time and part-time employees. In 2021, most district council areas in Northern Ireland saw an increase in employee jobs[47].

3.2.2.2 Population Health

In 2021-2023, life expectancy at birth was 78.8 years for men and 82.5 years for women living in Northern Ireland[48], an increase from 69 and 76, respectively, since the base reporting period of 1980-1982, however over the last 10 years life expectancy growth has stalled for both males and females. Northern Ireland has an ageing population, with 18.1% aged over 65 years, and it is projected that the over 65-year population will be larger than the number of children (0-15 years) from mid-2027 onwards[49]. The primary causes of death for people in Northern Ireland in 2024 were cancer (25.6%, most commonly bronchus or lung) and circulatory (22.7%), and respiratory (12.8%) illnesses. Other causes accounted for 32.2% of all deaths in Northern Ireland.

In the Northern Ireland census in 2021, just under four-fifths (78.7%) of Northern Ireland residents reported themselves to be of good or very good general health. Over one in five of the resident population (24.3%) had a long-term health problem or disability, which limited their day-to-day activities. The most common long-term conditions among the resident population were long-term pain or discomfort (11.6%) and a mobility or dexterity problem (10.9%)[50].

3.2.2.3 Air Pollution and Health Risk

Good air quality is essential for human health and wellbeing. Air pollution generally, and particularly that arising from the transport sector, is recognised as a significant health burden in terms of illness and premature death. Nitrogen dioxide (NO_2) belongs to a group of gaseous air pollutants that are produced by road traffic and other forms of domestic and industrial combustion. This can be a lung irritant and can lower resistance to respiratory infections such as influenza; frequent or continuous exposure to high concentrations can result in increased incidence of acute respiratory illness in children[51]. The annual mean concentration of NO_2 in 2025 for urban background sites was 11.7µg/m^3 and for urban roadside sites was 27.2µg/m^3, generally these values have declined since monitoring has taken place since 2011. Particulate matter (PM) in the atmosphere that has a diameter of ≤10 microns (PM_{10}) originate from both natural and man-made sources. PM is formed as a by-product of burning fuels, particularly solid fuels; in Northern Ireland, the biggest sources of PM are road transport and fossil fuel combustion[52]. Fine particles can cause lung inflammation, and can exacerbate symptoms of heart and lung disease, as well as potentially transmitting carcinogenic compounds. The annual mean concentration of PM_{10} in 2025 for urban sites was 13.1µg/m^3 and for rural sites was 7.3µg/m^3.

Agriculture is a significant source of the greenhouse gas methane, as well as air pollutant emissions of PM and reduced nitrogen such as ammonia. The contribution of the agricultural sector to air pollution in Northern Ireland is detailed further in **Section 3.2.5**. Ammonia can react with fumes from traffic and industry to produce particulates. A recent study in the journal Nature[53], that singled out the various outdoor pollution sources and estimated the number of premature deaths caused by each, found that agricultural emissions of ammonia were responsible for a fifth of all global premature deaths related to air pollution and were the largest cause of air pollution deaths in the eastern US, Japan, and Europe.

[47] Business Register and Employment Survey

[48] Life Expectancy in Northern Ireland 2021-23

[49] 2022-based Population Projections for Northern Ireland

[50] Northern Ireland Census 2021 Phase 2 Report

[51] Northern Ireland Environmental Statistics Report 2026

[52] Northern Ireland Clean Air Strategy

[53] The contribution of outdoor air pollution sources to premature mortality on a global scale

3.2.2.4 Water Pollution and Health Risk

Quality of Drinking Water

The availability of a clean water supply is essential for the general health of the population of Northern Ireland. Contaminants that can have a negative effect on human health arise from biological sources (e.g., *Cryptosporidium*, verotoxigenic *E. coli* (VTEC)) and from chemical sources (e.g., from pesticides, herbicides, fertiliser, heavy metals, total trihalomethanes (THMs) and pharmaceuticals).

Incidents of water pollution are investigated by NIEA. In 2025, there were 1,780 water pollution incidents reported of which 825 (46%) were substantiated as having an impact on the water quality of the receiving waterbody, with 10% being High or Medium Severity, a decrease of 29% compared to 2024 incidents. Of these incidents, Other (30%) accounted for the greatest proportion of incidences in 2025, followed by Farm (24%), Domestic (17%), Industry (16%), Northern Ireland Water Limited (NI Water) (12%) and Transport (2%) (DAERA, 2026).

In Northern Ireland, over 99% of the population receive their drinking water from NI Water, with the remainder served by private water supplies. Quality compliance of drinking water is assessed against the EU Directive on Drinking Water Quality 98/83/EC, as enacted nationally through the Water Supply (Water Quality) Regulations (Northern Ireland) 2017 and the Private Water Supplies Regulations (Northern Ireland) 2017.

Drinking Water Protected Areas

Drinking Water Protected Areas (DWPAs) are designated under Regulation 8 of The Water Environment (WFD) Regulations (Northern Ireland) 2017, with the aim of protecting the safety of drinking water supplies and reducing the need for additional treatments. There are 26 surface water DWPAs and 65 groundwater DWPAs in Northern Ireland. Surface water DWPAs are related to the surface water catchments that provide a supply of freshwater to the intakes of the public drinking water supplier NI Water. The third cycle RBMP for Northern Ireland provides information on the status of DWPAs, as summarised in **Table 3-9**. 92% of groundwater DWPAs are currently at good status, and 8% at poor status. For surface water DWPAs, 57.7% of sites (15 out of 26) had at least one parameter that exceeded the drinking water standard in the raw (i.e., pre-treatment by NI Water) water intake during the previous 2nd cycle RBMP.

Table 3-9 Summary of the status of DWPAs in Northern Ireland

DWPA	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	%	No.	%	No.	%	No.	%
Total groundwater DWPA	42	100	13	100	10	100	65	100
Groundwater DWPA at good status	41	98	11	85	8	80	60	92
Groundwater DWPA at poor status	1	2	2	15	2	20	5	8
Total Surface water DWPA	10	100	8	100	8	100	26	100
Surface water DWPA passing	4	40	1	12.5	6	75	11	42.3
Surface water DWPA failing for at least one parameter	6	60	7	875	2	25	15	57.7

Quality of Public Water Supplies

Approximately 863,000 domestic, agricultural, commercial, and business properties in Northern Ireland are currently connected to the public water supply, equating to *c*.99.9% of the total population. The DWI reported that the overall drinking water compliance of public water supplies in 2024 was consistently high at 99.88%[54], a slight decrease from that reported in 2023 (99.92%). There were 118 tests that failed to meet the required standard. Surrogate compliance level at consumer's taps (measured through either direct or surrogate zonal sampling in 2022) was also high at 99.87%, however ten of the 43 regulatory parameters did not achieve full compliance; aluminium, bromate, Coliform bacteria, Enterococci, iron, manganese, odour, other pesticides (MCPA), taste and Total Trihalomethanes.

Microbiological contaminants are the most important parameters in terms of their implications for human health. A breach of compliance with microbiological standards can indicate a failure in the water treatment process, or breach in integrity of the water supply. Microbiological compliance at consumer's taps was 99.78% in 2024; *Coliform* bacteria were detected in 26 samples, and Enterococci was detected in one sample. NI Water reported 48 water quality events in 2024, with two as serious, 19 as significant, three as minor and 24 as not significant. When a water quality event occurs, NI Water must implement mitigations, which should reduce the likelihood of significant future events.

Quality of Private Water Supplies

Less than 1% of the Northern Ireland population receive water from a private supply for domestic purposes, however, many people are exposed to these sources through their use in commercial activities and public buildings[15]. The DWI monitored 176 sites during their private water supply sampling programme in 2024. Overall compliance of samples with water quality standards was 99.12% in 2024, a slight increase from 2023 (99.11%); regulatory requirements were not achieved on 112 occasions for 15 water quality parameters: Coliform bacteria, *E. coli*, Enterococci, *Clostridium perfringens*, manganese, sulphate, hydrogen ion (pH), iron,

[54] Drinking Water Quality in Northern Ireland 2024

ammonium, trihalomethanes, turbidity, individual pesticides (Clopyralid), sodium, bromate and radon. . Full compliance was achieved for only 64% of the private water supplies tested in 2024; of the 64 sites that did not comply with the regulatory standards, 44% (28 sites) did not comply with microbiological standards, 50% (32 sites) with chemical standards, and 6% (4 sites) with both microbiological and chemical standards.

The presence of micro-organisms in a private water supply is indicative of contamination of the water at source or within the distribution system. The presence of *E.coli* or *enterococci* bacteria indicates faecal contamination of the water supply, which can be a public health risk; faecal contaminants were found in 15 private water supplies in 2024. The DWI investigates all contraventions at private water supplies, with subsequent actions dependent on the severity of the failure and level of risk.

Quality of Shellfish Waters

Shellfish water protected areas (SWPAs) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high-quality shellfish. The Shellfish Directive (79/923/EEC) was revoked in 2013 and subsumed into the WFD and under Regulation 9 of the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. Areas previously designated under the Shellfish Directive are now areas designated for the protection of economically significant aquatic species under the WFD and listed on the Protected Areas register. All SWPAs must be managed to ensure that they meet ecological and chemical objectives under the WFD. They must also meet at least Class B status classification by the Food Standards Agency (FSA) under the Food Hygiene Regulations of Annex III of the assimilated Regulation (EC) 853/2004, Articles 53, 54, and 55 of the assimilated Regulation (EU) 2019/167 and assimilated Regulation (EC) 2073/2005, to ensure that the quality of shellfish harvested are sufficient to protect public health. SWPAs must also make progress to meet a WFD microbiological guideline standard of ≥75% of samples containing ≤230 *E.coli* in the shellfish flesh and intervalvular liquid[55].

There are currently 10 SWPAs in Northern Ireland (**Figure 3-3**), as detailed in **Table 3-10.** Shellfish Action Plans have been established for these sites and are currently being reviewed on a priority basis since 2021. SWPAs are managed by DAERA's Marine and Fisheries Division to ensure that there is no deterioration in water quality, and that progress is made towards compliance with guideline standards.

[55] The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015

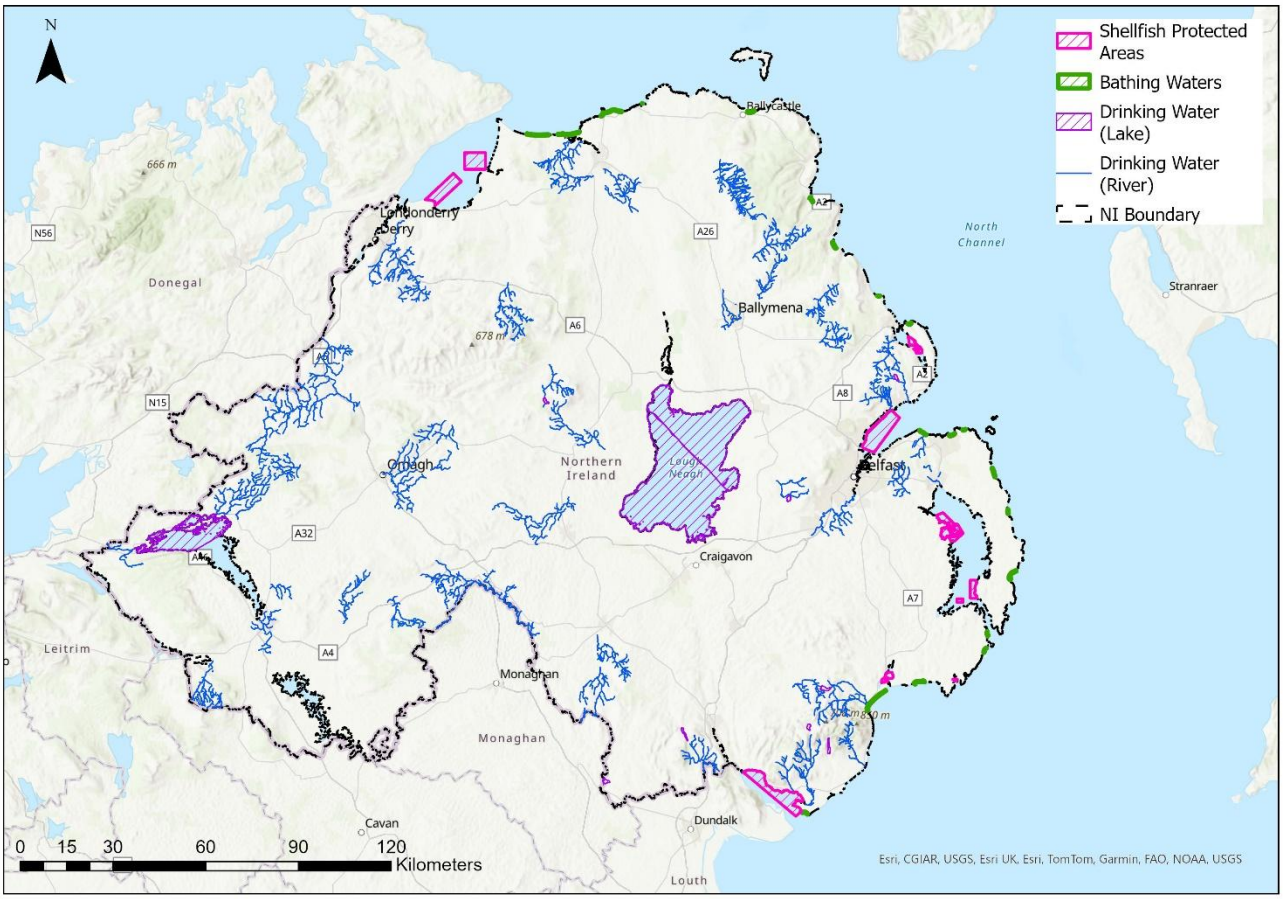


Figure 3-3 WFD Protected waterbodies across Northern Ireland

Table 3-10 outlines the most recent status of these sites, as given in the Northern Ireland Environmental Statistics Report 2026. A total of three out of nine (33%) designated shellfish waters complied with the guideline E.coli standard in 2025, a decrease from 2024 when four out of the nine sites complied. (No data was available for Marlfield SWPA in Strangford Lough for several years as shellfish harvesting has not recently occurred here).The third cycle RBMP for 2021-2027 indicates the status of surface waterbodies associated with these sites; according to the surface water classification for 2021, all 10 surface waterbodies were at 'moderate' surface water status. There has been a continued significant statistical deterioration observed at some Belfast Lough shellfish beds (B2, B4, and B5) and both Dundrum Inner South Mussels and Inner North Oysters. The observed deterioration in Dundrum has been linked to a number of agricultural practices within the catchment, and a pilot scheme is being developed to help identify and resolve agricultural issues in the area.

Table 3-10 Location and Status of Shellfish Water Protected Areas in Northern Ireland

Site Name	WFD Status 2021	WFD Target 2027	FSA Classification 2021	WFD *E.Coli* Guideline 2025
Larne Lough	Moderate	Good	B	Met guideline
Belfast Lough	Moderate	Good	B/C*	Did not meet guideline
Strangford Lough – Paddy's Point and Reagh Bay	Moderate	Good	A	Did not meet guideline
Strangford Lough – Skate Rock	Moderate	Good	B	Met guideline
Strangford Lough – Marlfield Bay	Moderate	Good	N/P	Not Designated or Not in Production
Killough Harbour	Moderate	Good	B	Did not meet guideline
Dundrum Bay	Moderate	Good	B/C**	Did not meet guideline
Lough Foyle, Longfield Bank	Moderate	Good	B	Did not meet guideline
Lough Foyle, Balls Point	Moderate	Good	B	Did not meet guideline
Carlingford Lough	Moderate	Good	B***	Met guideline

*B status for all sites in Belfast Lough apart from a B/C status for Dougold and Henning sites (seasonal classification)
**B Status for Inner North Mussels & C Status for Inner South Mussels
***B Status for all sites in Carlingford Lough apart from a B/C Status at Narrow Water Wild Fishery (seasonal classification)

Quality of Bathing Waters

The Bathing Water Directive (Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC) required each member state to identify its most popular bathing waters for regular testing to ensure that a minimum quality standard is reached and is implemented in Northern Ireland by The Quality of Bathing Water (Amendment) Regulations (Northern Ireland) 2013. There are 33 designated bathing waters in Northern Ireland (**Figure 3-3**), as detailed in **Table 3-11**. These are monitored weekly from May to September, and classified into one of four categories:

- Excellent;
- Good;
- Sufficient; or
- Poor with temporary advice issued against bathing.

Classifications are based on the presence of *E.coli* in water samples. Individual sample results below 250 *E.coli* (EC)/100ml and 100 Intestinal Enterococci (IE)/100ml are typical of an 'excellent' classification. Results below these values, and up to 500 EC/100 ml and 200 IE/100ml are typical of a 'good' or 'sufficient' classification. When *E.coli* levels exceed 1250 EC/100ml, temporary advice against bathing is issued. Temporary advice against bathing is also provided with respect to the levels of blue-green algae present, based on the WHO's guidelines on the safe thresholds for blue-green algae. The most recent assessment of bathing water quality compliance at these sites from 2025 classified 24 as 'Excellent' quality, five as 'Good' quality, three as 'Sufficient' quality, and one as 'Poor' quality for bathing. According to the 3rd cycle RBMP, over the assessment period of 2015-2020, 25 of the 26 bathing water sites monitored consistently met the minimum standard (sufficient). Of these, 11 sites consistently met the 'excellent' standard, eight sites consistently met 'excellent' or 'good' standard, and five sites consistently met 'good' or 'sufficient' standard. Only one site, Ballyholme, failed to meet the 'sufficient' standard over this period (in two of the six years monitored). Investigations by DAERA have shown that this site is situated in a complex catchment, vulnerable to pressures from agricultural runoff and overflows from the WTW network. Management measures that should be considered to prevent pollution and physical disturbance to these sites are included in DAERA's Bathing Water Profiles. **Table 3-11** details the most recent 2025 Bathing Water compliance levels.

Table 3-11 Location and Status of Bathing Water Sites in Northern Ireland

Bathing Water	2025 Compliance Level
Ballycastle	Excellent
Ballygally	Excellent
Ballyhornan	Excellent
Brown's Bay	Excellent
Carnlough	Excellent
Castlerock	Excellent
Cloughey	Excellent
Cranfield	Excellent
Crawfordsburn	Excellent
Cushendall	Excellent
Groomsport	Excellent
Helen's Bay	Excellent
Kilclief	Excellent
Magilligan (Benone)	Excellent
Magilligan (Downhill)	Excellent
Millisle	Excellent
Murlough (Co Down)	Excellent
Portballintrae Salmon Rock	Excellent
Portmuck	Excellent

Bathing Water	2025 Compliance Level
Portrush Curran (East Strand)	Excellent
Portrush Mill (West Strand)	Excellent
Portrush Whiterocks	Excellent
Portstewart	Excellent
Tyrella	Excellent
Ballyholme	Good
Ballywalter	Good
Brompton	Good
Drain's Bay	Good
Waterfoot	Good
Donaghadee	Sufficient
Newcastle	Sufficient
Warrenpoint	Sufficient
Rea's Wood (Inland)	Poor

3.2.2.5 Summary of Existing Pressures and Issues for Population and Human Health

According to the most recent full State of the Environment Report for Northern Ireland From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013), air and water quality pose little overall risk to public health in Northern Ireland. However, recent research has indicated that the effects of air pollution on human health are more extensive and complex than previously thought[56], and a report by Public Health England in 2014 estimated that, in 2010, 553 deaths in the over-25s in Northern Ireland were attributable to exposure to anthropogenic air pollution[57]. A subsequent cross-border assessment regarding air pollution and premature deaths on the Island of Ireland in 2023 estimated that 2,600 premature deaths occur annually due to air pollution (1,700 in the Republic of Ireland and 900 in Northern Ireland)[58]. Risks from radioactivity exposure are also considered very low and, while the health impacts of hazardous chemicals are not fully known, recent legislation regulating chemical supply and use ensures increased safeguarding of the population from health risks. From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013) considers noise to be an emerging environment and health issue (according to some World Health Organisation (WHO) findings, noise is the second largest environmental cause of health problems, just after the impact of air pollution (particulate matter))[59], as well as the effects of climate change, depletion of stratospheric ozone, biodiversity loss and land degradation.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on air and water quality alone, or in combination with, these existing pressures. While air and

[56] DAERA Clean Air Strategy

[57] Estimating Local Mortality Burdens associated with Particulate Air Pollution

[58] Air Pollution and Mortality on the Island of Ireland

[59] European Commission Noise

water quality are not implicated as serious public health risks in Northern Ireland as a whole, on a more local level there may be implications on health through effects on drinking water or food quality, or to recreational water-based resources such as bathing waters. Measures within the draft NAP 2027-2030 also have the potential to contribute to positive or negative consequences of climate change, through GHG production, and to biodiversity loss, with implications for human health and wellbeing.

3.2.3 Geology, Soils and Land Use

Geology and soils, and their associated land use, provide potentially important pathways for the movement of nutrients. This is particularly important for underlying geology of higher vulnerabilities, such as karstic limestone formations, which may be particularly sensitive to emissions of nutrients or may be more susceptible to transporting nutrients in base flow to downstream areas. This susceptibility of groundwater to nitrate and phosphate is dependent on the type of soil, the depth and permeability of the subsoil, as well as the nature of the underlying bedrock aquifer i.e., regionally important productive aquifers versus poorly productive aquifers.

Soils are a non-renewable resource, which provide vital ecosystem services such as: filtration and transformation of nutrients; storage of carbon; regulation of flows and storage of surface water; provision of habitats; and support of biodiversity and food production. Depending on their condition and land use, soils may be degraded, disturbed, or lost through activities that result in compaction, poaching, erosion, sediment loss or changes in fertility. Nitrates generally pass through well-drained soils such as brown-earth soils and can reach groundwater through locally and regionally important aquifers where the nutrient can be transported long distances, whereas in these well-drained soils, phosphate typically becomes bound up in soil minerals. Poorly draining and waterlogged soils, such as organic soils or gley-type soils, cause increased surface runoff and elevated soil surface phosphorus concentrations and siltation issues.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Geology, Soils and Land use comprise:

- Potential for effects on soil fertility and efficiency of nutrient use;
- Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility);
- Potential for effects on the vulnerability of land to erosion;
- Potential for effects on soil compaction and poaching;
- Potential influence of soil type on land use practices (e.g. fertiliser application); and
- Potential for effects on discharges to receiving aquatic sediments / groundwater sources

3.2.3.1 Geology of Northern Ireland

Bedrock Geology

Northern Ireland has a varied geological landscape for its size (14,000 km^2). Many of the superficial deposits present in Northern Ireland formed during Ice Ages and interglacial periods over the last 2-3 million years. The most abundant of these are glacial sediments, composed of clay, silt, sand and gravel, which were deposited by the successive growth and decay of former ice sheets. Other types of sediments formed across Northern Ireland, associated with lakes, rivers, estuaries and coastlines. Additionally, in areas with suitable conditions peat has accumulated.

Below the superficial deposits or soil cover, older rocks are present. These may be sedimentary, igneous or metamorphic rock and range in age from a few 10s of millions of years old (e.g. the Tertiary aged igneous basalt of the Antrim Plateau) to hundreds of millions of years (e.g. the Carboniferous aged sedimentary rocks in Fermanagh). The rocks in the north-west area are dominated by metamorphosed sedimentary rock formed by geological processes approximately 600 million years ago.

The geological history of Northern Ireland has been varied, with periods of erosion and landmass formation that did not occur in a homogenous manner across the region. In some instances, unconformities are present due to uplift and erosion. Similarly, geological faults (e.g., the Omagh Fault) are present.

At a high level, the bedrock geology of Northern Ireland (**Figure 3-4**) can be separated into four contrasting areas from oldest to youngest:

- The oldest rocks in Northern Ireland occur as two small inliers called the Lough Derg Inlier in western Fermanagh and the Central Inlier in Co. Tyrone. The precise age of these rocks in not known but radiometric dating has given an age of 895±60Ma. The Sperrin Mountains in Derry/Londonderry and Tyrone contain the next oldest sequence of rocks of mid- to late Neoproterozoic age. The Sperrin Mountains were formed from the alteration of sedimentary and volcanic rocks. Initially, the sedimentary sequences were composed of sandstone, mudstone and limestone, which accumulated in an ancient ocean. Underwater lava eruptions resulted in the development of volcanic rock layers on the ocean floor. When continental drift resulted in the ocean closing, these oceanic rocks underwent deep burial and deformation. The high temperatures and pressure produced metamorphic rocks (e.g., schist) which were pushed up and over younger rocks forming a faulted contact in the south-east (i.e., the Omagh Fault).

- The Down-Longford area to the south-east is composed of basement rocks of Ordovician - Silurian age. The Down-Longford area is mainly composed of greywacke sandstone, siltstone, with mudstones also present, which have been weakly metamorphosed. To the south of this area, magma intrusions forming igneous rocks are present, such as in Newry (~400 Mya) and the younger Mourne Mountains (56 Mya).

- The Lakelands (County Fermanagh) in the south-west are predominantly a combination of early Devonian to mid Carboniferous aged sedimentary bedrock composed of limestone, sandstone and mudstone (approximately 400 – 337 Mya). Specifically, an upper sandstone unit overlays carboniferous limestone. The sandstone and mudstone predominantly formed due to large amounts of sediment transported by large river deltas, whereas the limestones formed in shallow tropical seas. An extensive karst landscape exists within the Lakelands (i.e., the Cuilcagh Mountain area) due to the soluble nature of the limestone rock, which is readily subject to chemically weathering. The limestones in this region represent an important aquifer that forms part of the drinking water supply in the area.

- The Antrim Plateau in the north east is composed of flood basalts which erupted during the formation of the North Atlantic Igneous Province between approximately 62 and 55 Mya. Beneath the basalt, layers of sedimentary rock including Cretaceous aged chalk (90 - 65 Mya), Jurassic aged mudstones and limestones (200 - 145 Mya), and Triassic aged red mudstones and sandstones (250 – 195 Mya) are present. The early Triassic Sherwood Sandstone Group is an important aquifer, due to the porous nature of sandstone.

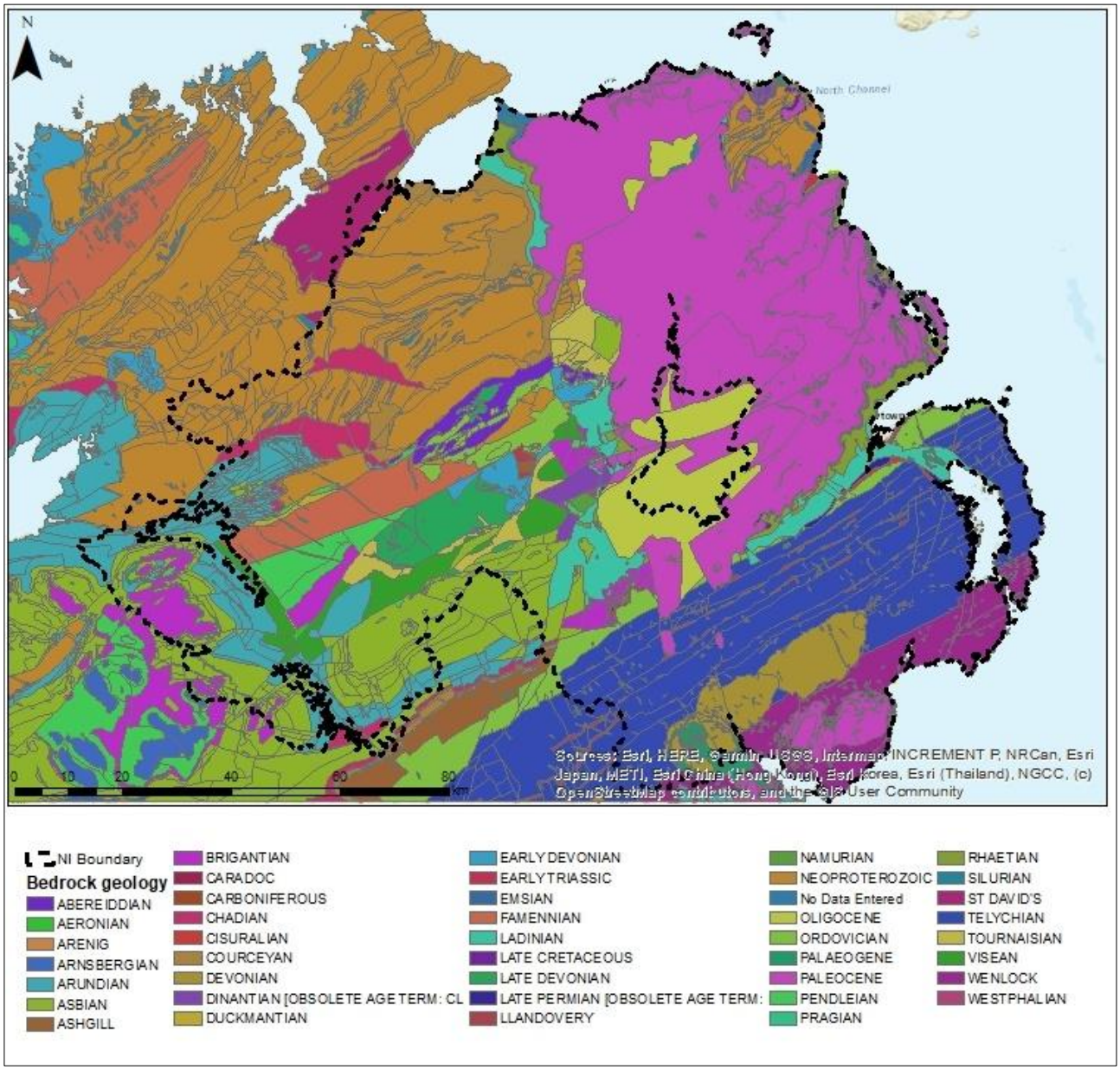


Figure 3-4 Bedrock geology of Northern Ireland by age.

Hydrogeology and Groundwater Vulnerability

The major aquifers in Northern Ireland are associated with the younger sedimentary rocks of the Antrim Plateau, and the older sedimentary rocks in the south-west. Basement rocks, such as those found in The Sperrin Mountains and in the Down-Longford terrane, do not usually provide a water source except where intensely fractured and weathered near the surface, and so the nature of the rock types most commonly found is such that they generally represent only poorly to moderately productive aquifers. There are eleven distinct aquifers that have been classified within Northern Ireland. This includes 10 separate bedrock aquifers and unconsolidated superficial deposits. There are three primary types of aquifers in Northern Ireland: fracture, intergranular and karst (Wilson et al., 2023). The fracture aquifers include: (1) basalts; (2) Cretaceous (Chalk);

(3) Permo-Triassic Sandstones; (4) Upper Carboniferous Sandstones; (5) Carboniferous Limestones; (6) 'Old Red Sandstones'; (7) Greywackes; (8) Dalradian; (9) Intrusive igneous dykes and sills; and (10) Intrusive igneous plutonic. Intergranular aquifers include: (1) Permo-Triassic Sandstones; (2) Cretaceous (Chalk); and

(3) superficial deposits, including glaciofluvial, alluvial and raised beach deposits. The only karst aquifers present in Northern Ireland are Carboniferous limestones.

A classification system was developed for Northern Ireland's aquifers to delineate groundwater bodies for the purses of WFD assessment, which was based on aquifer productivity potential and the groundwater flow mechanism (intergranular, fracture or karst). This includes eight classes of aquifer, comprising six bedrock aquifer types and two superficial aquifer types. In the Republic of Ireland, the aquifers are classed into three main groups based on their resource potential (Regionally or Locally Important, or Poor) and are further subdivided based on the type of openings in which the groundwater flows (through fissures, karst conduits or intergranular). The bedrock aquifer classes across Northern Ireland (at a scale of 1:250,000) and the twelve classes of bedrock aquifer for the Republic of Ireland (at a scale of 1:100,000) are described are described in **Table 3-12** and mapped in **Figure 3-5**.

Table 3-12 Aquifer classification of bedrock in Northern Ireland and the Republic of Ireland

Aquifer Category	Symbol	Typical Rock Units/ Formations
Northern Ireland		
High productivity Fracture Flow	Bh (f)	Certain Carboniferous basal formations
High Productivity Fracture/Intergranular Flow	Bh (I-f)	Permo-Triassic Sandstones
High Productivity Fracture flow with karstic element	Bh (f-k)	Carboniferous Darty Limestone with Knockmore Limestone Member (in places) Carboniferous Ballyshannon Limestone Formation Ulster White Limestone Formation (Chalk)
Moderate Productivity Fracture Flow	Bm (f)	Palaeogene Basalts Certain Carboniferous Dinatian Sandstones
Limited Productivity Fracture Flow	Bl (f)	Ordovician/Silurian strata Dalradian strata Devonian strata Granites and Intrusives
Poor Productivity Fracture Flow	Bp (f)	Lough Neagh Clay Group Mercia Mudstone Group Waterloo Mudstone Formation
Republic of Ireland		
Regionally Important Aquifer	Rkc	Karstified (conduit)
Regionally Important Aquifer	Rkd	Karstified (diffuse)
Regionally Important Aquifer	Rk	Karstified
Regionally Important Aquifer	Rf	Fissured bedrock
Regionally Important Aquifer	Rg	Sand/gravel
Regionally Important Aquifer	Rf/Rk	Fissured bedrock/Karstified

Aquifer Category	Symbol	Typical Rock Units/ Formations
Locally Important Aquifer	Lm	Bedrock
Locally Important Aquifer	Lk	Karstified bedrock
Locally Important Aquifer	Ll	Bedrock which is Moderately Productive only in Local Zones
Locally Important Aquifer	Lg	Sand/gravel
Poor Aquifer	Pl	Bedrock which is Generally Unproductive only in Local Zones
Poor Aquifer	Pu	Bedrock which is Generally Unproductive

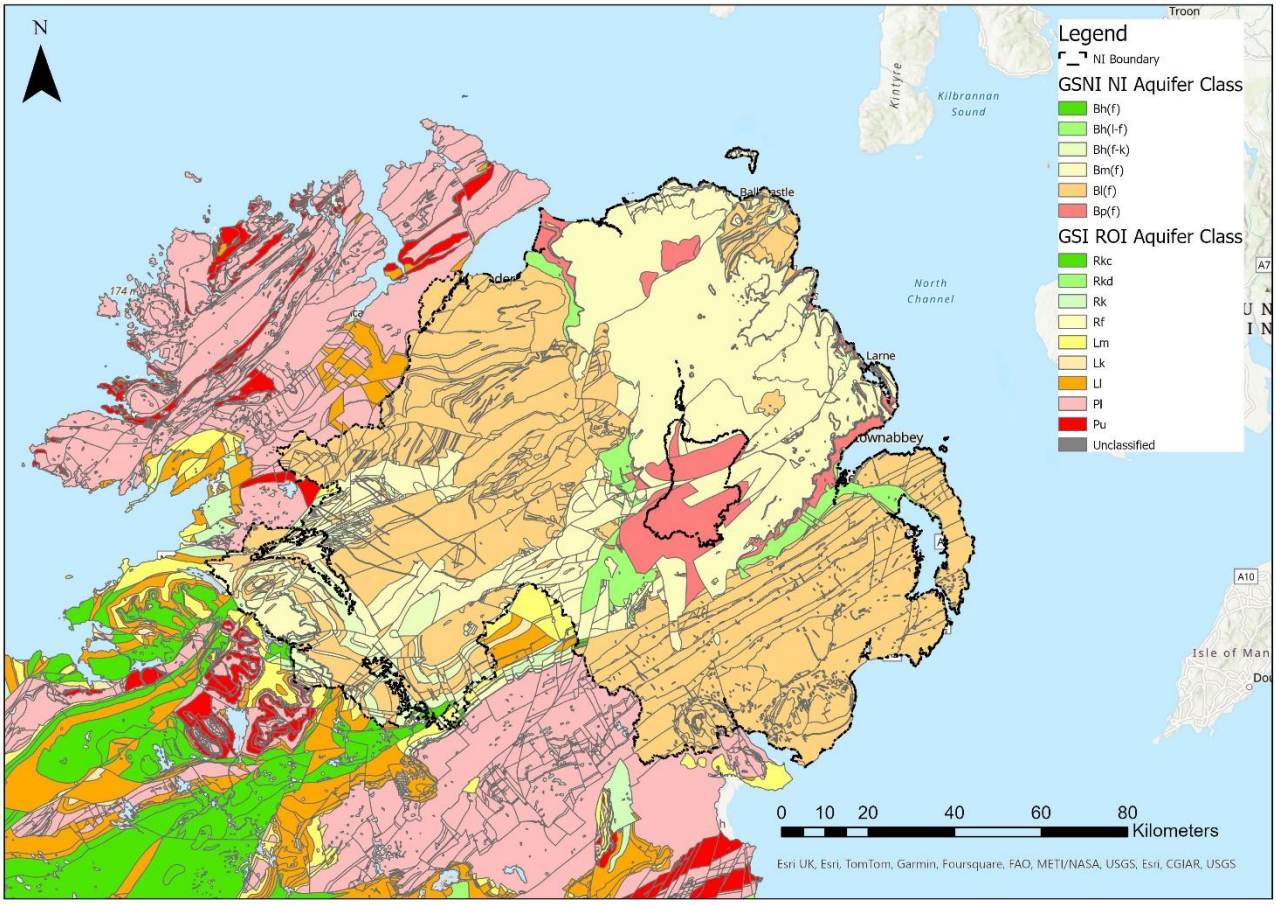


Figure 3-5 Aquifer classification across Northern Ireland and border regions of the Republic of Ireland

The tendency and likelihood for general contaminants to reach the water table after introduction at the ground surface is termed groundwater vulnerability. This vulnerability is therefore a combination of land use and aquifer classification. Where the soil and unsaturated zone are highly permeable, water can readily flow from the surface to the water-table and the aquifer is vulnerable. However, if the unsaturated zone and soil is clay rich, recharge is reduced, and the aquifer is less vulnerable.

Figure 3-6 indicates the groundwater vulnerability across Northern Ireland (at a dataset resolution of 1:250,000), and in border regions of the Republic of Ireland (at a dataset resolution of 1:40,000). For the

Republic of Ireland, the groundwater vulnerability mapping is based on the type and thickness of subsoils and the presence of karst features. Karst landform features are also indicated, which include boreholes, caves, dry valleys, enclosed depressions, estavelles, springs, superficial solution features, swallow holes and turloughs. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sands and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains. The areas of lowest vulnerability are generally those located at a lower elevation, which contain low permeability deposits such as till (diamicton).

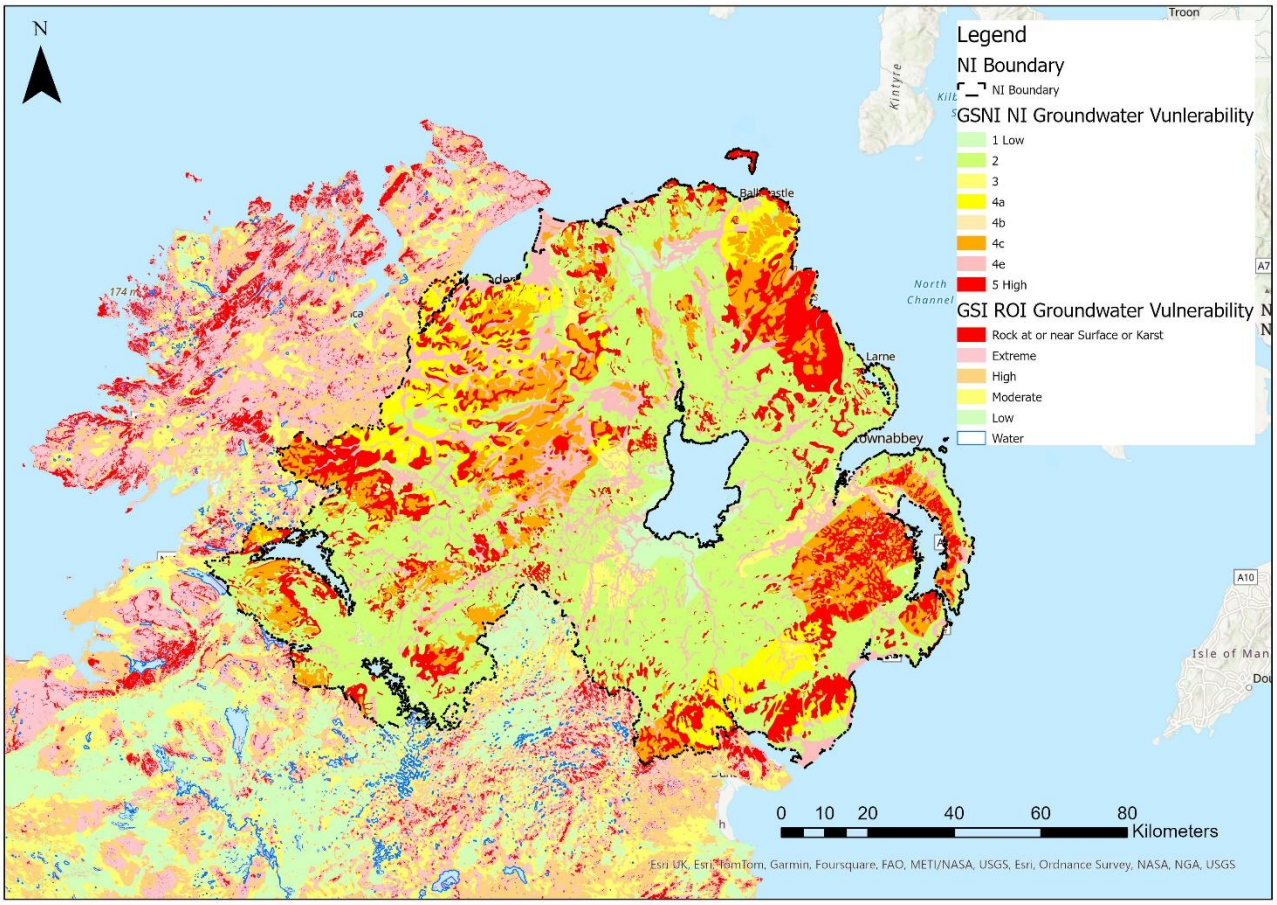


Figure 3-6 Groundwater Vulnerability mapping across Northern Ireland and border regions of the Republic of Ireland

3.2.3.2 Soils in Northern Ireland

Main soil types in Northern Ireland

Throughout Northern Ireland, superficial deposits are made up largely of peat, alluvium (clay, silt, and sandstone) and till. Northern Ireland is dominated by relatively poorly draining soils and low permeability glacial deposits, which combine to reduce infiltration and offer opportunities for denitrification. A General Soil Map of Northern Ireland has been produced by AFBI[60]. This map identifies nine main soil types across Northern

[60] UKSO: Soils of Northern Ireland

Ireland, as recognised by The World Reference Base map. These soils and their general occurrence are identified in **Table 3-13**.

Table 3-13 AFBI World Reference Base soil types across Northern Ireland

AFBI World Reference Base	General occurrence across Northern Ireland
Arenosols (sandy-textured soils that lack any significant soil profile development)	Located in coastal areas such as Murlough in County Down and Portrush in County Antrim
Cambisols (soil in the beginning of soil formation)	Most prevalent in the southeast, around County Down
Fluvisols (genetically young soil in alluvial deposits)	Generally, widely dispersed across Northern Ireland in small pockets
Gleysols (wetland soils, which in the natural state are continuously water-saturated within 50 cm of the surface, for long periods of time)	Generally, occur in small, isolated pockets across Northern Ireland
Histosols (soil consisting primarily of organic materials)	Generally present in the northwest, around the Sperrin Mountains and in the Antrim Hills
Leptosols (shallow soils with minimal development, formed typically on hard rock or highly calcareous materials)	Generally, most prevalent in the southeast, around the Mourne Mountains and surrounding Strangford Lough
Podzols (soils with an ash-grey subsurface horizon, bleached by organic acids, on top of a dark accumulation horizon with brown or black illuviated humus and/or reddish iron compounds)	Most prevalent in the southeast and west
Stagnosols (soil with strong mottling of the soil profile due to redox processes caused by stagnating surface water)	Most abundant soil type, which is present across Northern Ireland but most dominant in the south and southwest
Urban (soil material having a non-agricultural, man-made surface layer more than 50 cm thick)	Mostly present around the Greater Belfast, Bangor and Lisburn urban areas.

Nitrates generally pass through high permeability, well-drained soils, such as Leptosols, Cambisols, and Fluvisols, and can reach groundwater through locally and regionally important aquifers where the nutrient can be transported long distances. On the other hand, in similar soils, phosphate typically becomes bound up in soil minerals and is therefore immobile. Poorly draining and waterlogged soils, such as organic soils (peats), Stagnosols or Gleysols, cause increased surface runoff and phosphorus concentrations and siltation issues. Phosphorus is therefore mobilised during runoff and erosion and, as such, streams, lakes, and other waterbodies in the vicinity of the source area are at highest risk of increased phosphorus concentrations. Within an agricultural context, field drains and ditches that are hydrologically connected to waterbodies can also pose a risk for transferring high quantities of nutrients from surface and sub-surface flows. Stagnosols are the most abundant soil type across Northern Ireland in areas of lower elevation. As a result, there is potential for widespread phosphorus mobilisation. When soil types in Northern Ireland are classified based on the UK Hydrology of Soil Type (HOST) classification, 57% of Northern Ireland's soils can be classified as high risk for runoff, with a further 31% classed as medium risk and just 12% categorised as low risk.

Nutrient balance of farms

Nutrient balances are based on the difference in inputs of nutrients to farms via chemical fertilisers and imported feedstuffs less agricultural product outputs exported off the farm. A review of trends in nutrient balances can indicate the degree to which the nitrogen and phosphorus surplus on farms is declining, lowering the potential for nutrient accumulation in soils, and can inform nutrient efficiency on farms. Historical nutrient balance trends for Northern Ireland from 1970-2022, are shown in **Figure 3-7** and **Figure 3-8**[61]. Total inputs are the sum of those inputs from both fertilisers and feedstuff, outputs are animal production outputs such as beef, eggs, milk, sheep meat, poultry etc., and the balance data indicate the difference between the inputs and outputs.

In general, **Figure 3-7** indicates that the nitrate input data, and therefore balance data, follow a similar trend to fertiliser input figures, rather than feedstuffs. From 1972 to 2008, fertilisers contributed to much higher concentrations of nitrates than feedstuffs, however, from 2008-2022, the contributions from both have remained similar. This coincides with the first Nitrates Action Programme Regulations, which came into operation in 2007. **Figure 3-7** indicates that the total nitrates input generally increased from 1970, with a peak of 200kg nitrogen/ha in 1995. After 1995, this began to decrease; however, since 2008 it has remained at similar levels, with peaks of 175kg nitrogen/ha in 2010, 182kg nitrogen/ha in 2013, 191kg nitrogen/ha in 2017 and 188kg nitrogen/ha in 2018. From 2018 onwards, this began to decrease once again due to the reduction of fertiliser inputs from 100kg nitrogen/ha to 77kg nitrogen/ha. This trend follows the input from fertilisers, while nitrates from feedstuffs have generally increased slowly from their lowest level of 37kg nitrogen/ha in 1989 to a peak of 95kg nitrogen/ha in 2018, which has been maintained up to 2022, and had a direct impact on nitrate output. In general, nitrate outputs, which are from animal production, have been increasing slowly every year (with some exceptions, such as a small decrease between 1993–1994). The nitrogen balance in 2022 was 123kg nitrogen/ha.

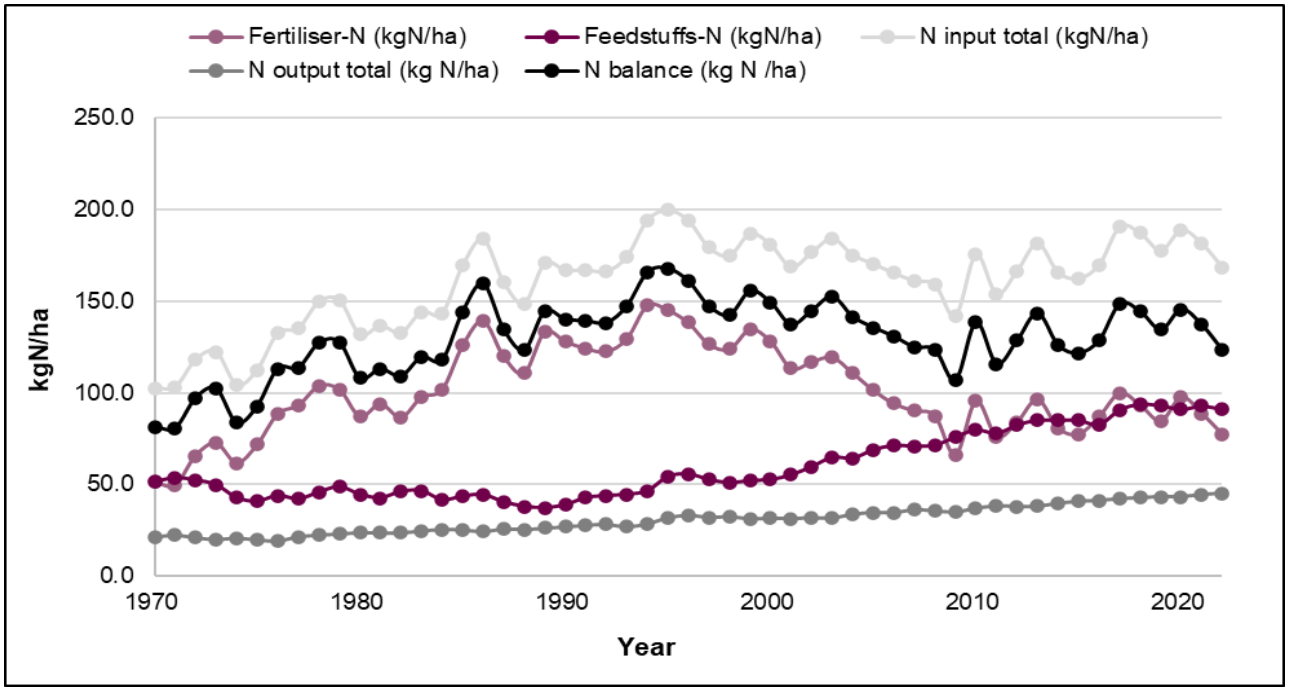


Figure 3-7 Annual nitrate concentration balances from 1970-2022 (at 17% protein)

Figure 3-8 indicates that phosphate contributions from fertilisers and feedstuffs were generally similar from 1970 to 1975; however, from 1975 to 1997, inputs from fertilisers had become higher than from feedstuffs.

[61] Statistical Review of Northern Ireland Agriculture 2024

Since 2003, phosphate contributions from fertilisers have decreased, while contributions from feedstuffs have increased to approximately three times greater than fertilisers. A comparison of total phosphate inputs shown in **Figure 3-8**, which is the sum of inputs from fertilisers and feedstuffs, indicates that they decreased from their peak of 26kg phosphorus/ha in 1971 for four years then began to increase after 1975. From 1975, phosphate inputs generally remained around 23kg phosphorus/ha, with multiple peaks and troughs. In 2002, there was a large total input decline from 25kg phosphorus/ha to 17kg phosphorus/ha, largely influenced by fertiliser phosphate reduction, which reduced from 11kg phosphorus/ha to a minimum of 2.5kg phosphorus/ha in 2010. From 2010 onwards, it increased again to around 4kg phosphorus/ha as phosphate input also increased. Phosphate outputs, which are from animal production outputs, have generally increased from 4kg phosphorus/ha to 5.5kg phosphorus/ha since 1970, but from 1990 to 2022 the output phosphate concentration doubled from 5kg phosphorus/ha to 10 kg phosphorus/ha. The phosphorus balance in 2022 was 10.8kg phosphorus/ha.

The RePhoKUs Project – Re-Focusing Phosphorous with the UK Food System, undertaken by AFBI[62], indicated that, while there have been improvements in the phosphorus surplus in Northern Ireland and a decrease in soluble reactive phosphorus in many waterbodies in the past 20 years, recent trends have shown an increase in both, and the food system in Northern Ireland has high phosphorus inputs relative to outputs, with ruminant livestock dominance leading to low phosphorus efficiency (38%). It is estimated that approximately 40% of agricultural land currently has excess soil phosphorus (Cassidy et al., 2019[63]).

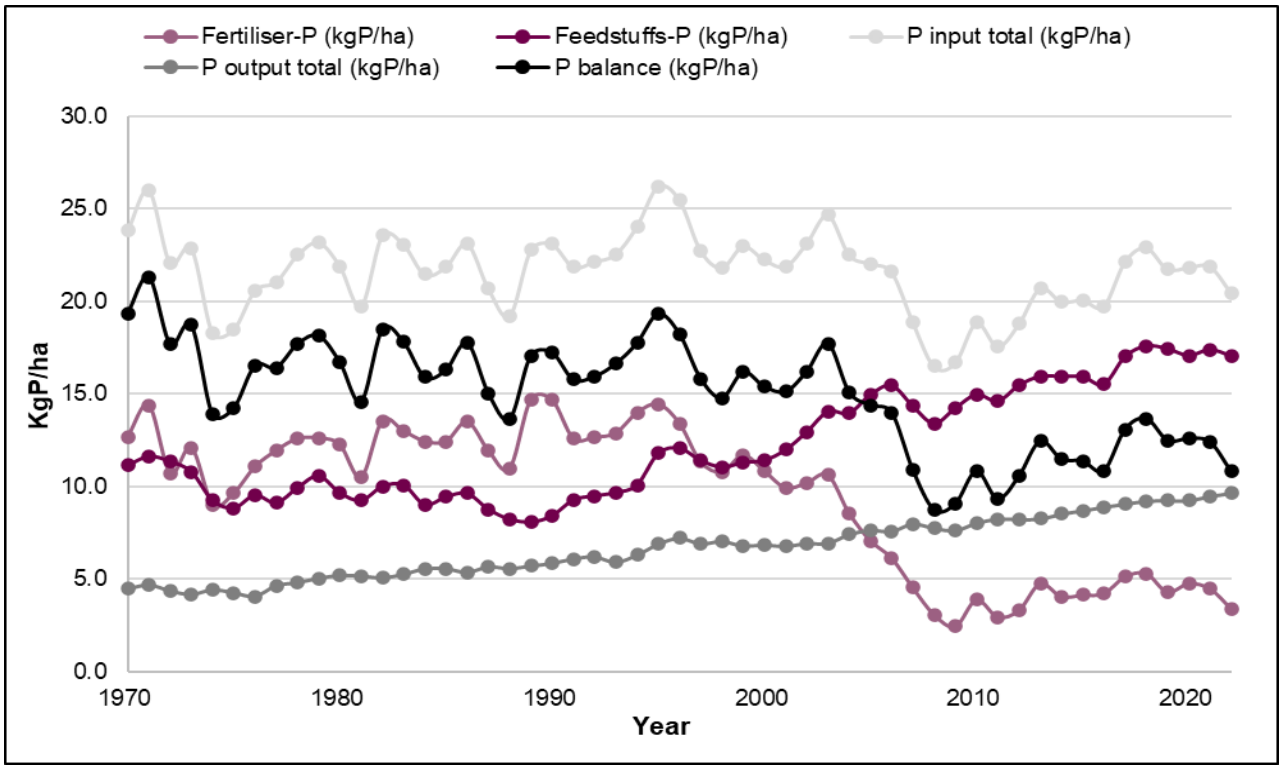


Figure 3-8 Annual phosphate concentration balances from 1970-2022

In terms of nutrient efficiency, the NAP Implementation Report (DAERA, 2024) presents information on the nitrogen and phosphorus efficiency based on the ratio between nutrient inputs and outputs to and from agriculture. There was a decrease in the total inputs of nitrogen in the 2021-2023 period with an increase of 3.8% in the outputs of nitrogen in agricultural products leading to an 11% net decrease in the average annual

[62] RePhoKUs Report 2020

[63] Cassidy et al. (2019). A carrying capacity framework for soil phosphorus and hydrological sensitivity from farm to catchment scales. Science of The Total Environment.

nitrogen surplus in the 2021-2023 period compared to the 2018-2020 period, with the average gross efficiency of nitrogen usage increasing to 26.3% in the 2021-2023 period. There was a decrease in the total inputs of phosphorus in the 2021-2023 period with an increase of 4.3% in the outputs of phosphorus in agricultural products leading to an 11.6% net decrease in the average annual phosphorus surplus in the 2021-2023 period compared to the 2018-2020 period, with the average gross efficiency of phosphorus usage increasing to 45.7% in the 2021-2023 period.

Soil Nutrient Health Scheme

The Soil Nutrient Health Scheme (SNHS) is the largest baseline soil sampling programme undertaken globally. It is being coordinated by AFBI and running for four years (2022-2026) and consider up to 700,000 fields within Northern Ireland[64]. It will provide comprehensive regional soil nutrient baseline information and provide farmers with detailed information on the nutrient status of their soils. The collection of high-resolution Light Detection and Ranging (LiDAR) data will provide information via hydrological modelling on the areas of highest risk for runoff from fields and subsequent nutrient losses to waterbodies. This information should help to optimise nutrient management for the application of slurry and fertilisers, whilst improving farm profitability, as well as reducing nutrient loss to waterbodies, therefore contributing to achieving the aims of the NAP. The SNHS will also estimate the carbon stored both within soils and as above ground biomass for each farm in Northern Ireland, with the aim of contributing to the transition to Net Zero farming in Northern Ireland. In the scheme, uptake by farm businesses was over 92%, with participation required to be eligible for the incoming Farm Sustainability Payment by DAERA.

3.2.3.3 Topography and Land use

Land use classification

The topography of Northern Ireland is such that areas of lower elevation are predominantly located within the centre, where the largest lake in the British Isles, Lough Neagh, is situated. In all directions from this point, the land generally becomes steeper, culminating in highland regions on all sides. The Antrim Hills, which reach a height of over 550m at Trostan, are to the north and east. To the south-east, the rounded landscape of drumlin hills is punctuated by Slieve Croob in County Down and culminates in the Mourne Mountain range which rises to its highest point at Slieve Donard at over 850m in elevation.

Land use in Northern Ireland, as identified within the most recent Corine dataset (2018), is summarised in **Table 3-14** and shown in **Figure 3-9**. The predominant land use is 'Pastures' (8,889km^2), followed by 'Natural grassland' (1024km^2), 'Moors and heathland' (640km^2) and 'Peat bogs' (550km^2). Pastures, which comprise approximately 63% of land cover across Northern Ireland, are located across the country, with the exception of upland areas such as the Mourne Mountains in the south-east, the Antrim Hills in the north-east, the Sperrins in the west and raised bog peatland areas in mid-Ulster.

Approximately 77% of the total Northern Ireland land area (1.35 million hectares) is used for agriculture, including common rough grazing, and around 9% of the land area is used for forestry. Most farmland in Northern Ireland is under grass, in fact only 1,767 farms (6.7%) have arable or horticultural crops. In 2024[65], cattle and sheep were present on 20,652 farms indicating the dominance of cattle within farming livestock in Northern Ireland. In addition, pigs and/or poultry (for commercial purposes) were present on 743 farms.

[64] Soil Nutrient Health Scheme

[65] Statistical Review of Northern Ireland Agriculture 2024

Table 3-14 Dominant Land Cover Types within Northern Ireland

Land Cover Class	Total Land Cover (km^2)	% of Total
Pastures	8,889	63
Complex Cultivation Patterns	227	2
Peat Bogs	550	4
Land Principally Occupied by Agriculture	243	2
Natural Grassland	1024	7
Coniferous Forest	463	3
Moors and Heathland	640	5
Non-Irrigated Arable Land	405	3
Urban (Continuous urban fabric)	30	0
Sub-urban (Discontinuous urban fabric)	249	2

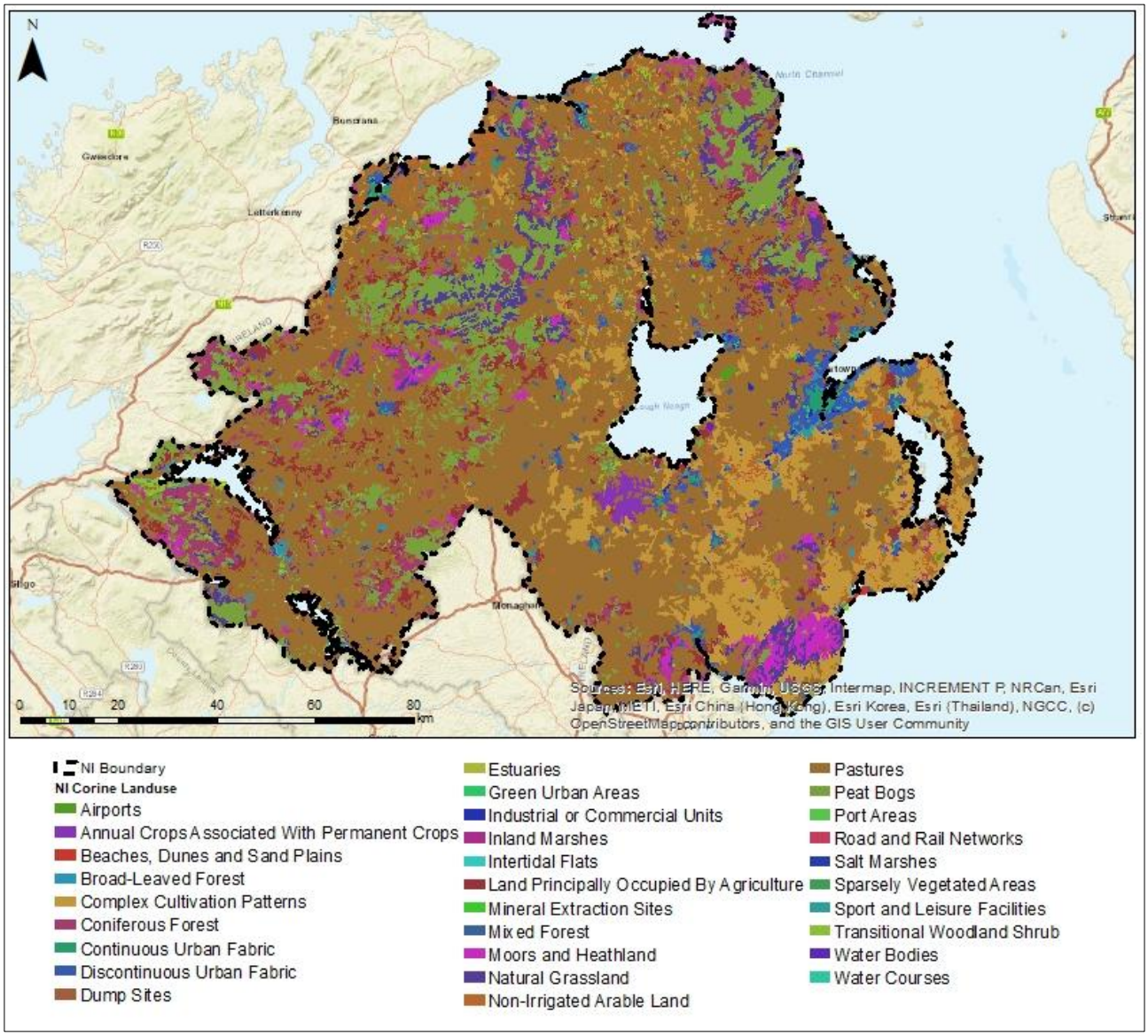


Figure 3-9 Corine land use mapping across Northern Ireland

In the Republic of Ireland, a Land Use Review is being undertaken to ensure that optimal land use options inform all relevant Government decisions, including climate action. Phase 1 was an evidential review, aiming to provide an evidence base to determine the environmental, ecological, and economic characteristics of land types across the Republic of Ireland and determine information on the ownership of public and private land areas[66]. Phase 2 aims to build on this evidence base and identify appropriate policies, measures and actions in the context of the government's wider economic, social and climate objectives, including socioeconomic, climate, biodiversity, water, and air quality outcomes. The outcomes of Phase 2 will inform future Climate Action Plans for the Republic of Ireland, including targets for Land Use, Land Use Change and Forestry (LULUCF) targets and the identification of policies and measures to achieve emissions reductions for the LULUCF sector.

[66] Land Use Evidence Review Phase 1 Synthesis Report

Critical Risk Areas for agriculture

Agricultural Critical Risk Areas were identified, based on activities that have been classed as arable horticulture or improved grassland by the CEH land cover map 2007[67], which is carried out on land parcels scored against a matrix of risk factors (e.g., slope, Hydrology of Soil Types (HOST) and discharge data) and the 2015 status of WFD enrichment indicators. The agricultural land was modelled (using Met Office rainfall data) to indicate the risk of runoff entering rivers classified into high, medium, or low risk categories. These risk factors have the potential to contribute to in-stream biological, chemical, and physiochemical impact. To calculate these Agricultural Critical Risk Areas, a modelling application SCIMAP was applied with a 5m Digital Terrain Model (DTM) to produce sediment source and deposition areas, as well as identifying significant hydrological links to the river network. Each risk factor was assigned a relative weighting from 0–1, dependant on its contribution to the overall risk, and weightings were used as multipliers for a three-category risk index, 1-3 relating to banding of risk factor variables into increasing risk. The scores were then totalled to provide an overall risk for each land parcel.

These scores for Critical Risk Areas across Northern Ireland, are shown in **Figure 3-10**, where 1 (yellow) indicates the lowest risk and 3 (red) indicates the highest risk. A total of 6,937 highest risk areas were identified covering an area of 7,744ha, 24,578 moderate risk areas covering an area of 24,814ha, and 6,874 lower risk areas covering an area of 8,667ha. Agricultural Critical Risk Areas were generally found to be more prevalent within the west of Northern Ireland, and along the east of Strangford Lough. The identified Agricultural Critical Risk Areas can also be further assessed to determine if the areas are hydrologically connected to any waterbodies, which could therefore impact on downstream water quality. Of the 38,389 Agricultural Critical Risk Areas identified, 26,600 have a hydrological connection, 6,483 (7,471ha) of which are highest risk areas, 17,840 (19,857ha) are moderate risk and 5,273 (7,385ha) are lower risk areas. This mapping information of Agricultural Critical Risk Areas can inform areas of highest risk.

[67] UKCEH Land Cover Maps

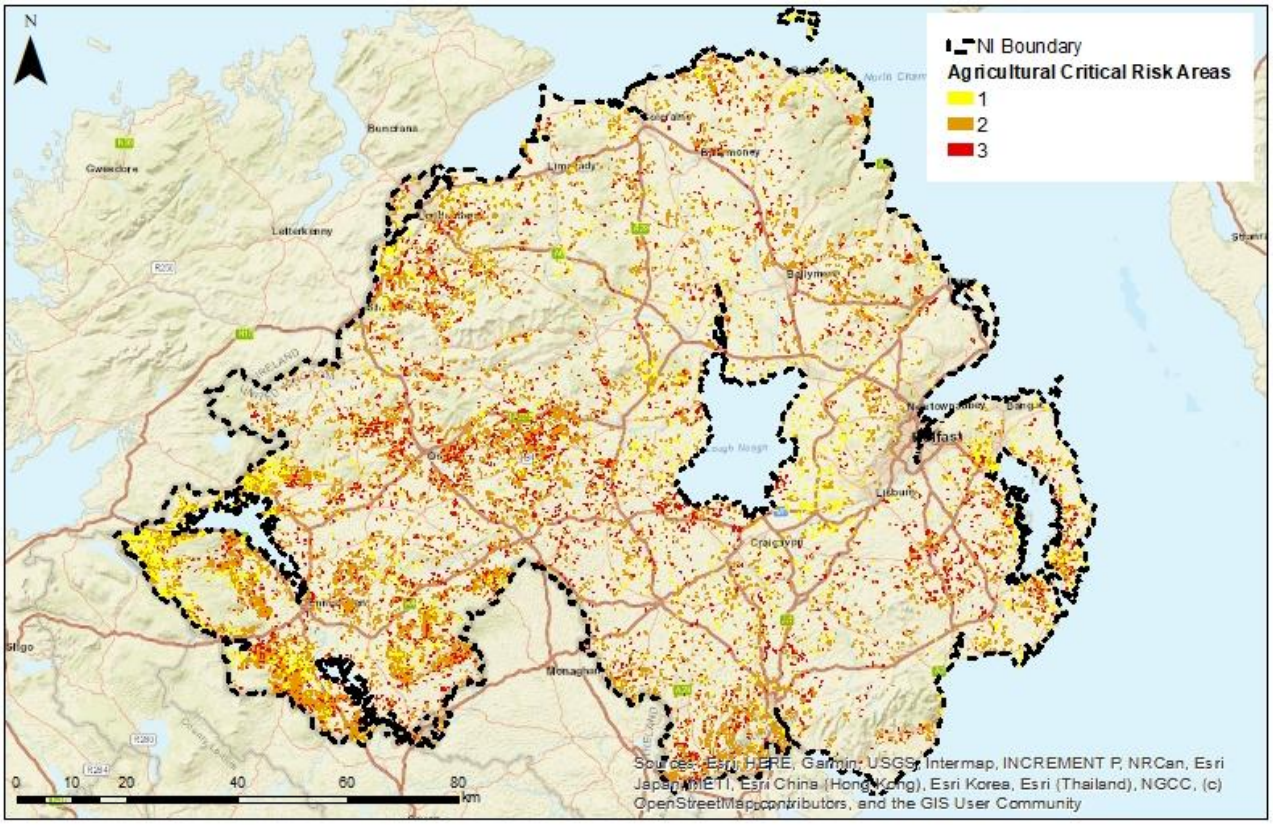


Figure 3-10 Agricultural Critical Risk Areas across Northern Ireland

Agricultural land management

The Sustainable Agricultural Land Management Strategy (SALMS) for Northern Ireland was established in 2014 with the aim of outlining how the Agri-Food Strategy Boards' targets for agricultural growth could be achieved in a way which improved farm incomes and environmental performance simultaneously. The SALMS report was published in 2016, within which improving the health of Northern Ireland's agricultural soils was the central focus. The report sets out a series of key features for sustainable land management:

- Achieving sustainable profits per hectare;
- Good nutrient management leading to greater utilisation of higher quality grass and silage;
- Production of more diverse swards with greater proportions of legumes to help extend the grazing season while improving soil structure, carbon and biology;
- Properly located woody riparian strips in overland flow pathways to reduce nutrient and sediment loss to waterways to improve biological water quality;
- Woody biofiltration blocks, placed downhill of farmyards and at discharges to septic tanks to capture "grey water" and reduce the risk of nutrient leakage;
- Appropriate agri forestry planting on grassland farms to extend the grazing season while improving biodiversity and carbon sequestration and providing renewable fuel;
- Woodland barriers between farms to improve biosecurity and herd health while increasing biodiversity and carbon sequestration; and
- Strategic planting of trees around intensive livestock units to reduce ammonia drift resulting in nitrogen deposition on sensitive environmental sites.

Adherence to these features of sustainable land management should contribute to improved nutrient management.

Agri-environmental schemes are managed in Northern Ireland under the Rural Development Programme (RDP). In 2015, 305,000ha (approximately 29% of Northern Ireland farmland) had been managed under agri-environment scheme agreements. In 2016, the area of agricultural land managed through these schemes decreased by 85% to 46,000 ha (approximately 4-5% of Northern Ireland farmland), however this was due to the expiration in 2016 of those remaining 10-year agreements from the older agri-environment schemes such as the Countryside Management Scheme and Environmentally Sensitive Areas Scheme. In 2017, DAERA subsequently launched a new agri-environment scheme, known as the Environmental Farming Scheme (EFS). This is a voluntary, 5-year scheme under the Northern Ireland RDP 2014-2020, which is part financed by the EU. Following this, the first four tranches of agreements completed their five years in December 2022, 2023, 2024, and 2025 respectively. By the end of 2025, there were five active tranches of the scheme with over 1,980 agreements covering 61,000ha of land under the EFS[68]. Under the EFS Wider level agreements for 2025, there has been support for the completion of 2,500km of water quality measures. A successor agri-environment programme, the Farming with Nature package is currently under development by DAERA.

Compliance with the NAP is one of the Cross-Compliance Statutory Management Requirements. Therefore, farmers claiming Basic Payment Scheme and other direct payments are required to comply with the NAP Regulations (Northern Ireland) 2019. There are approximately 25,000 active farm businesses in Northern Ireland, with a nitrate derogation agreement in place for approximately 420 farms (note proposed to be revised as a Nutrient Stewardship Programme under the Draft NAP 2027-2030). This derogation relates to farms who apply to DAERA for an authorisation to increase the application limit of 170kg nitrogen/ha/year of livestock manure to 250kg nitrogen/ha/year. In the EU, the European Court of Auditors have recommended that the use of derogations is limited and conflicting objectives in other policy areas reviewed, stating that "the Commission should ensure that they [derogations] only apply to those areas already achieving the Nitrates Directive objective"[69].

3.2.3.4 Summary of Existing Pressures and Issues for Geology, Soils and Land use

Existing pressures and issues for geology across Northern Ireland relate to the presence of permeable sedimentary bedrock or where the occurrence of fracture flows results in highly productive aquifers, such as those in the north-east Antrim Hills and south-west Fermanagh Lakelands. Where these areas are overlain by freely draining soils, nitrates may be leached into groundwater or into nearby waterbodies and therefore may be transported considerable distances from source. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sand and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains.

Phosphates on the other hand, are generally easily bound to minerals in well drained soils, but in poorly draining or waterlogged soils, can be mobilised during runoff and erosion, and as such, streams, lakes, and other waterbodies in the vicinity of the source are at highest risk of increased phosphorus concentrations. This is particularly important, given that Stagnosols (which are given their name due to stagnating surface water) are the most abundant soil type across Northern Ireland, particularly in areas of lower elevation. As a result, there is potential for widespread phosphorus mobilisation in these lowland areas.

Since the first Nitrates Action Programme Regulations, which became effective in 2007, nitrates in fertilisers and feedstuffs have contributed similar levels to inputs. In general, nitrate outputs, which are those outputs from animal production, have been steadily increasing annually, which is as expected, given improvements in technology and efficiencies in farming. However, since 2007, the nitrate balance has had multiple peaks and troughs with an overall increasing trend, primarily due to increased nitrate in imported feedstuffs[70]. Phosphorus

[68] NI Environmental Statistics Report 2026

[69] Special report 19/2023: EU efforts for sustainable soil management

[70] Agricultural Nutrients and Water Quality 2021

follows a similar trend, with contributions from fertilisers and feedstuffs gradually increasing, however contributions from feedstuffs have increased to approximately three times higher than fertilisers. Since 2008, the phosphate balance has again had multiple peaks and troughs, with an overall increasing trend, particularly since 2015. These peaks and troughs may coincide with entry, exit and contribution to various agri-environment schemes. At present, only 61,000ha of agricultural land is being managed under agri-environment scheme agreements.

3.2.4 Water

Water is essential for the maintenance of biodiversity, supports the population through the provision of drinking water and rivers, lakes, estuaries, seas, and groundwater sustain many core activities. Although there have been improvements in drinking water quality and water utility discharge quality, and a decrease in incidents of water pollution, the most recent status of WFD surface waterbodies in Northern Ireland (2021) highlights that none have achieved a good or high overall status[71]. While the overall failure for any waterbodies to achieve a good or high status relates to an update in the monitoring of persistent chemicals, as discussed below, pressure assessments have identified that two significant pressure sources related to nutrients are continuing to prevent the achievement of good status for waterbodies: agricultural activities and sewage-related problems[72].

An excessive supply of nutrients to waterbodies, particularly nitrogen and phosphorus, can lead to eutrophication, whereby these elevated concentrations result in accelerated growth of plants and algae. This reduces oxygen levels in the system, which can cause a loss of sensitive species and impact upon the ecological status of the waterbody. Elevated nutrient concentrations, arising from both point (e.g., sewage discharges) and diffuse (e.g., agricultural runoff) anthropogenic sources, represent the most significant threat to water quality in Northern Ireland. In freshwaters, phosphorus is usually the limiting nutrient for plant and algal growth, whereas in marine waters nitrogen is generally the limiting nutrient. Water quality can also be adversely affected through the addition of hazardous substances such as pesticides and heavy metals, specific pollutants and microbial contamination.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Water comprise:

- Potential for effects on the ecological status of WFD surface waterbodies via changes in the levels of nutrient pollution and sedimentation;
- Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation and nutrient sensitive areas;
- Potential for effects on nutrient concentrations within freshwater and marine waterbodies;
- Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies; and
- Potential effects of topography and land use practices to risk of nutrient and sediment loss and subsequent water pollution.

[71] Water Framework Directive Statistics Report 2021

[72] Third cycle River Basin Management Plan

3.2.4.1 Water Framework Directive Surface Waterbodies and Protected Areas

WFD Status in Northern Ireland

The EU Water Framework Directive (WFD) (2000/60/EC), transposed in Northern Ireland through 'The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017' the "WFD Regulations", established a new legal framework for the protection, improvement and sustainable use of rivers, lakes, transitional waters, coastal waters, and groundwater across Europe. This was undertaken to prevent deterioration and to enhance the status of aquatic ecosystems, promote sustainable water use and reduce pollution. The WFD is implemented through RBMPs. Northern Ireland has three River Basin Districts (RBDs), the NWRBD, NBRBD and NERBD. The Water (Amendment) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the supporting pieces of water legislation continue to operate in Northern Ireland following the UK's exit from the EU; as the preparation and implementation of a RBMP is a key part of the implementation of the WFD Regulations, this process will continue within Northern Ireland.

The WFD Regulations require the production and implementation of a RBMP for Northern Ireland in six yearly cycles. The most recent is the third cycle RBMP (2021), which runs from 2021-2027. This classifies the status of all WFD surface waterbodies according to chemical, biological and hydromorphological parameters, providing an overall status of either 'high', 'good', 'moderate', 'poor' or 'bad' for each surface waterbody (if the surface waterbodies have been designated as artificial or heavily modified, they are classified using ecological 'potential' rather than ecological 'status'). 'Waterbodies' are the basic management units for reporting and assessing compliance with the environmental objectives of the WFD Regulations.

The third cycle RBMP for Northern Ireland 2021-2027 will identify those waterbodies which can be classified as being at 'good or better' status and set objectives and a programme of measures for the next six-year cycle to help improve those waterbodies which are classified as below 'good' status. An updated classification for waterbodies was published in December 2021 in the WFD Statistics Report prior to the production of the third cycle RBMP 2021-2027[73]. This report highlights that there have been significant changes in the monitoring and overall classification for rivers, lakes, and transitional and coastal waterbodies. New priority substances were introduced into the monitoring programme in 2018, and the 'chemical status assessment' now includes the presence of ubiquitous, persistent, bioaccumulative, toxic (uPBT) substances. Although a number of these substances are now banned or have restricted use, their widespread past use has resulted in accumulation in the aquatic environment and breaching of Environmental Quality Standards (EQS). These substances were found at all monitoring stations, and uPBT failures were extrapolated to all surface waterbodies across Northern Ireland; as the 'Overall Surface Water Status' from 2021 incorporates the chemical classification including uPBT substances, as well as cypermethrin failures, this has resulted in no waterbodies meeting a good or high 'Overall Surface Water Status'.

WFD waterbodies are monitored on a rolling programme within each river basin management planning cycle. 'Waterbodies' are the basic management units for reporting and assessing compliance with the environmental objectives of the WFD Regulations. There are 496 WFD surface waterbodies in Northern Ireland, comprising 450 rivers, 21 lakes and 25 transitional and coastal waters. The latest classification results for surface waterbodies are presented in the Water Classification Statistics for Northern Ireland 2024 Report[74] including ecological and chemical status.

River status – In 2018, 31% (141 rivers) of the 450 river waterbodies monitored in Northern Ireland were classified as good or high ecological status. In 2021, 31% (140 rivers) achieved good of high ecological status, and in 2024 29% (131 rivers) achieved good or high ecological status. In 2024, 17% of monitored rivers in the North East RBD, 22% in the Neagh Bann RBD and 44% in the North West RBD achieved good or high ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, 91% of river waterbodies were classified as good status in 2018, 93% in 2021 and 92% in 2024. In 2024, 94% of

[73] Water Framework Directive Statistics Report 2021

[74] Water Classification Statistics for Northern Ireland 2024

monitored rivers in the North East RBD, 90% in the Neagh Bann RBD and 93% in the North West RBD achieved good or high chemical status.

- Transitional and Coastal status – In 2018, 2021 and 2024, 40% (10) of the 25 transitional and coastal waterbodies monitored in Northern Ireland were classified as good ecological status. In 2024, 47% of monitored transitional and coastal waterbodies in the North East RBD, 40% in the Neagh Bann RBD and none in the North West RBD achieved good ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, 44% of transitional and coastal waterbodies were classified as good status in 2018, 88% in 2021 and 32% in 2024. In 2024, 35% of monitored transitional and coastal waterbodies in the North East RBD, 40% in the Neagh Bann RBD and 0% in the North West RBD achieved good chemical status.
- Lake status – In 2018, 24% (5) of the 21 lake waterbodies monitored in Northern Ireland were classified as good ecological status. In 2021, 14% (3 lakes) achieved good ecological status, and in 2024 24% (5 lakes) achieved good ecological status. In 2024, 33% (1) of monitored lakes in the North East RBD, 20% (2) in the Neagh Bann RBD and 25% (2) in the North West RBD achieved good or high ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, all lakes were classified as good chemical status in 2018, 2021 and 2024.

Comparison of ecological status shows little to no change in status from the previous reporting, and a decline in status for lake waterbodies. Pressure assessments have identified that two significant pressure sources related to nutrients are continuing to prevent the achievement of good status for waterbodies: agricultural activities and sewage-related problems.

Table 3-15 compares the number and percentage of waterbodies within the NERBD, NBRBD and NWRBD at good or high status in 2018, 2021 and 2024. This indicates the following:

- River status – In 2018, 31% (141 rivers) of the 450 river waterbodies monitored in Northern Ireland were classified as good or high ecological status. In 2021, 31% (140 rivers) achieved good of high ecological status, and in 2024 29% (131 rivers) achieved good or high ecological status. In 2024, 17% of monitored rivers in the North East RBD, 22% in the Neagh Bann RBD and 44% in the North West RBD achieved good or high ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, 91% of river waterbodies were classified as good status in 2018, 93% in 2021 and 92% in 2024. In 2024, 94% of monitored rivers in the North East RBD, 90% in the Neagh Bann RBD and 93% in the North West RBD achieved good or high chemical status.
- Transitional and Coastal status – In 2018, 2021 and 2024, 40% (10) of the 25 transitional and coastal waterbodies monitored in Northern Ireland were classified as good ecological status. In 2024, 47% of monitored transitional and coastal waterbodies in the North East RBD, 40% in the Neagh Bann RBD and none in the North West RBD achieved good ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, 44% of transitional and coastal waterbodies were classified as good status in 2018, 88% in 2021 and 32% in 2024. In 2024, 35% of monitored transitional and coastal waterbodies in the North East RBD, 40% in the Neagh Bann RBD and 0% in the North West RBD achieved good chemical status.
- Lake status – In 2018, 24% (5) of the 21 lake waterbodies monitored in Northern Ireland were classified as good ecological status. In 2021, 14% (3 lakes) achieved good ecological status, and in 2024 24% (5 lakes) achieved good ecological status. In 2024, 33% (1) of monitored lakes in the North East RBD, 20% (2) in the Neagh Bann RBD and 25% (2) in the North West RBD achieved good or high ecological status. Considering chemical status with the exclusion of uPBT and cypermethrin, all lakes were classified as good chemical status in 2018, 2021 and 2024.

Comparison of ecological status shows little to no change in status from the previous reporting, and a decline in status for lake waterbodies. Pressure assessments have identified that two significant pressure sources related to nutrients are continuing to prevent the achievement of good status for waterbodies: agricultural activities and sewage-related problems.

Table 3-15 Comparison of WFD waterbodies at good or better ecological and chemical status (excluding uPBT and cypermethrin) for 2018, 2021 and 2024

Status	No. & % in NWRBD	No. & % in NBRBD	No. & % in NERBD	Total No. & % in NI
Rivers				
Ecological 2018	68 (42%)	56 (28%)	17 (19%)	141 (31%)
Ecological 2021	65 (40%)	55 (28%)	20 (22%)	140 (31%)
Ecological 2024	72 (44%)	44 (22%)	15 (17%)	131 (29%)
Chemical 2018	148 (91%)	178 (89%)	84 (94%)	410 (91%)
Chemical 2021	153 (94%)	180 (90%)	85 (96%)	418 (93%)
Chemical 2024	150 (93%)	179 (90%)	84 (94%)	413 (92%)
Lakes				
Ecological 2018	2 (25%)	2 (20%)	1 (33%)	5 (24%)
Ecological 2021	1 (13%)	1 (10%)	1 (33%)	3 (14%)
Ecological 2024	2 (25%)	2 (20%)	1 (33%)	5 (24%)
Chemical 2018	8 (100%)	10 (100%)	3 (100%)	21 (100%)
Chemical 2021	8 (100%)	10 (100%)	3 (100%)	21 (100%)
Chemical 2024	8 (100%)	10 (100%)	3 (100%)	21 (100%)
Transitional and Coastal				
Ecological 2018	1 (33%)	2 (40%)	7 (41%)	10 (40%)
Ecological 2021	0	2 (40%)	8 (47%)	10 (40%)
Ecological 2024	0	2 (40%)	8 (47%)	10 (40%)
Chemical 2018	2 (67%)	2 (40%)	7 (41%)	11 (44%)
Chemical 2021	2 (67%)	5 (100%)	15 (88%)	22 (88%)
Chemical 2024	0	2 (40%)	6 (35%)	8 (32%)

There are 75 WFD groundwater bodies in Northern Ireland, comprised of 45 in the NWRBD, 14 in the NERBD and 16 in the NBRBD. Under the WFD, groundwater bodies are classified as ‘good’ or ‘poor’ status for

quantitative and chemical status, and overall good status requires that both the quantitative and chemical status are good.

The status of groundwater bodies has not been updated mid-cycle, and the latest available groundwater body status is presented in the Northern Ireland Water Framework Directive Statistics Report (DAERA, 2021). **Table 3-16** compares the number and percentage of waterbodies within the NERBD, NBRBD and NWRBD at good status in 2015 and 2021. This indicates the following:

- Groundwater body status - In 2015, 65% of the 75 groundwater bodies monitored achieved good overall status, while in 2021 68% achieved good overall status. This comprised 43% of groundwater bodies in the NERBD, 38% in the NBRBD and 82% in the NWRBD achieving good overall status. In 2021, 95% of groundwater bodies achieved good quantitative status and 71% achieved good chemical status.

Table 3-16 Status of WFD groundwater bodies

Period	No. & % in NWRBD	No. & % in NBRBD	No. & % in NERBD	Total No. & % in NI
Quantitative Status				
2015	42 (93%)	13 (81%)	12 (86%)	67 (89%)
2021	43 (96%)	16 (100%)	12 (86%)	71 (95%)
Chemical Status				
2015	38 (84%)	7 (44%)	6 (43%)	51 (68%)
2021	38 (84%)	10 (63%)	5 (36%)	53 (71%)
Overall Status				
2015	37 (82%)	6 (38%)	6 (43%)	49 (65%)
2021	36 (80%)	10 (63%)	5 (36%)	51 (51%)

Figure 3-11 illustrates the most recent digitally available (2021) status of WFD surface waterbodies (i.e., river, lake, transitional and coastal waterbodies), and Figure 3-12 the most recent digitally available (2021) status of groundwater bodies within Northern Ireland.

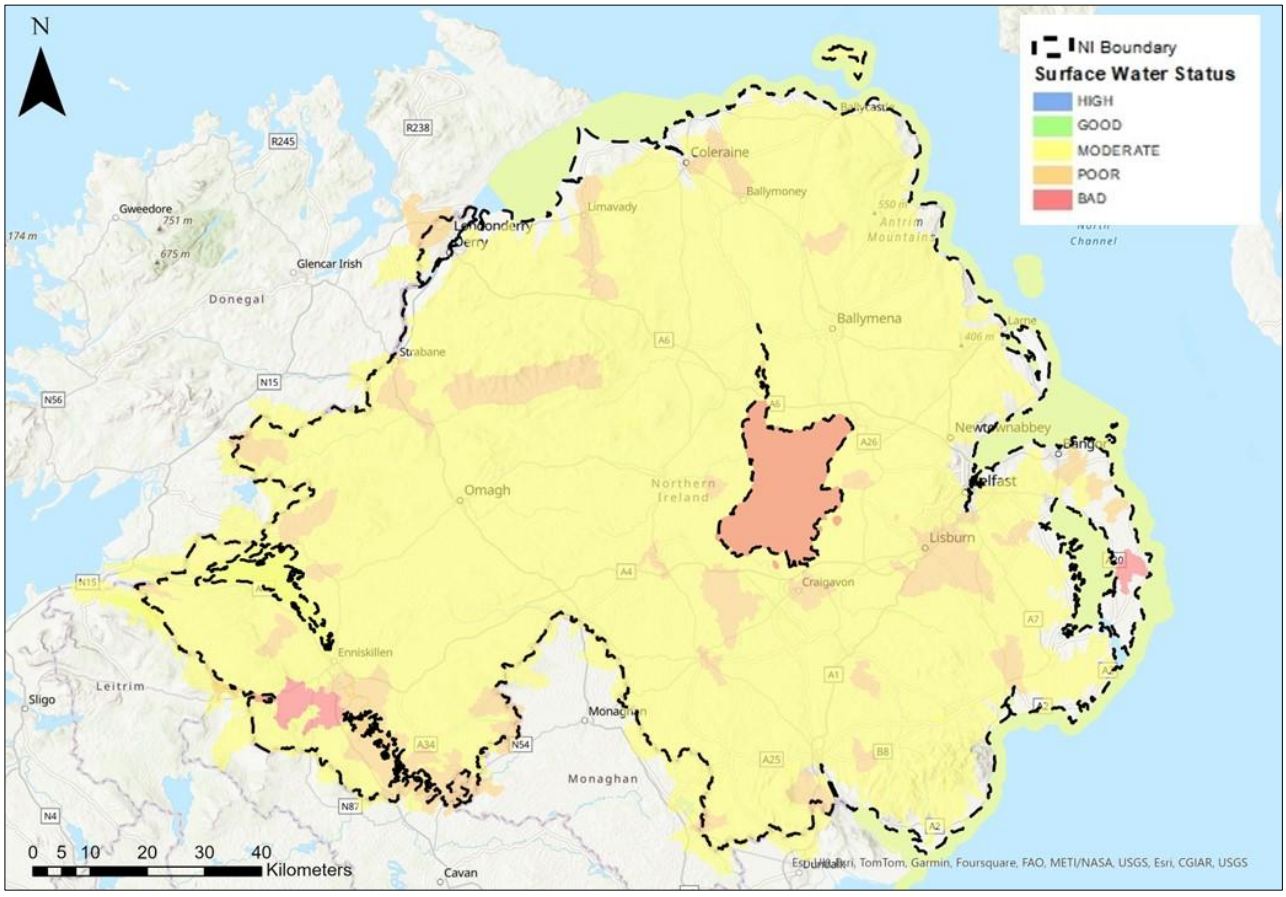


Figure 3-11 WFD Surface Water Status 2021

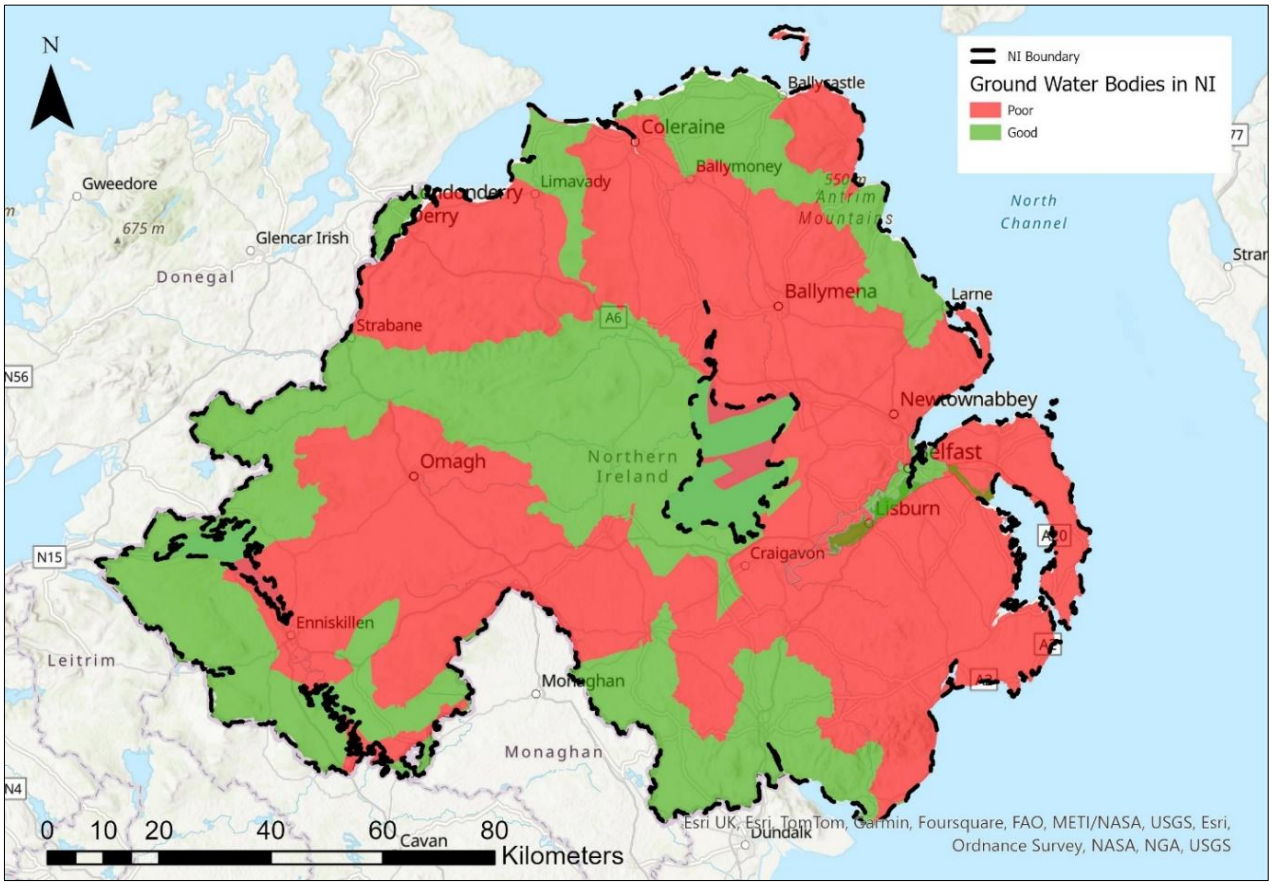


Figure 3-12 WFD status of groundwater bodies in Northern Ireland 2021

The results of the third cycle RBMP classification mean that Northern Ireland will not achieve the objective to have 70% of its waterbodies at 'good or better' status. Little improvement has occurred since 2015; at that time 37% of all waterbodies were at good or high status. While the failure of all surface waterbodies to achieve good or high status in 2021 primarily relates to the changes in monitoring and inclusion of additional priority substances, comparison of ecological status shows little to no change in status from the previous cycle, and a decline in status for lake waterbodies. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems[75]. The RBMP has identified that SRP was the cause of decline in status for 100 river waterbodies in Northern Ireland between 2015 and 2018, accounting for 20% of cases where waterbodies failed due to one test element in 2015 and increasing to 40% of cases in 2018.

The NAP Implementation Report (DAERA, 2024) reviewed the implementation of the existing NAP for the reporting period of 2020-2023, NIEA monitored nitrate concentrations at 487 surface freshwater monitoring stations and groundwater monitoring occurred at 70 sites, 25 transitional and coastal waterbodies were monitored through a network of 60 sites covering all locations, further water quality monitoring also includes that occurring as an investigative response.

WFD Register of Protected Areas

The WFD Regulations (Regulation 10) required the establishment of a register of protected areas for Northern Ireland, for waterbodies, or parts thereof, that require additional water quality protection owing to their importance to people or wildlife. The register comprises the following protected areas:

[75] Third Cycle River Basin Management Plan

a) A drinking water protected area (surface water and groundwater).

b) An area or body of water requiring special protection in accordance with any EU instrument protecting surface water, groundwater or conservation of habitats and species, including:

   (i) Areas designated for the protection of economically significant aquatic species (including shellfish water protected areas).

   (ii) Bodies of water designated as recreational waters (Bathing waters).

   (iii) Nutrient-sensitive areas.

   (iv) Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection.

The WFD protected areas in Northern Ireland are summarised in Table 3-17.

Table 3-17 WFD Register of Protected Areas

WFD Protected Area Type		North Eastern RBD	North Western IRBD	Neagh Bann IRBD	Total Number
Drinking Water Protected Areas	Surface water	8	10	8	26
	Groundwater	10	42	13	65
Shellfish Water Protected Areas		7	2	1	10
Bathing Waters		27	3	3	33
Urban Waste Water Sensitive Areas		16	4	3	23
Water Dependent Protected Areas		28	26	24	74*
Groundwater-dependent terrestrial ecosystems		2	5	2	9

*Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs. IRBD refers to an International RBD with a cross-border element with the Republic of Ireland.

Drinking water protected areas are waters used for the abstraction of drinking water intended for human consumption (or intended for future abstraction of water intended for human consumption), including surface waters and groundwaters. Within the three RBDs of Northern Ireland, there are a total of 26 surface waters and 65 groundwaters included as WFD Protected Areas. The programme of measures for each RBD must aim to avoid the deterioration in water quality with an overall goal of reducing the level of purification required for the production of abstracted drinking water.

Economically significant aquatic species protected areas are designed to protect aquatic species that are of economic importance, including designated shellfish waters; within the three RBDs of Northern Ireland, there are 10 sites designated as WFD Protected Areas for shellfish.

Bathing water protected areas are those identified under the Bathing Waters Directive (2006/7/EC); within the three RBDs of Northern Ireland, there are a total of 33 bathing waters included as WFD Protected Areas.

Nutrient sensitive areas in Northern Ireland are those designated as sensitive under the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) and the Nitrates Directive (91/676/EEC); within the three RBDs

of Northern Ireland, there are a total of 23 Urban Waste Water Treatment Directive sensitive areas. These are areas where more stringent treatment is required to prevent surface water becoming eutrophic, to prevent exceedance of the nitrates drinking water standard, and to meet the requirements of other regulations, such as those for bathing waters. The UWWTD Sensitive Area Review (DAERA, 2023) occurs every four years, with the review in 2023 using WFD 2021 classification data indicating that the total area of land draining to waterbodies that are sensitive to eutrophication is approximately 86% of the Northern Ireland land area, based on the trophic status parameters of chemical and biological status. The existing Sensitive Area designations remained in place and no new Sensitive Area designations were recommended. The next review will take place in 2027 with recommendations that further biological monitoring of waterbodies occurs to assess trends in eutrophic water quality.

Water-dependent protected areas in Northern Ireland are designated for the protection of habitats or species, where the maintenance or improvement of the status of water is an important factor in their protection. Northern Ireland has a total of 66 water-dependent European sites, which are designated under the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

There are also nine groundwater-dependent terrestrial ecosystems (GWDTEs) in Northern Ireland. Under the WFD these are assessed as part of the groundwater chemical and quantitative status. In the third cycle RBMP 2021-2027, all nine sites have been classified as at ‘good status’ in terms of the impact of groundwater quality or quantity on their conditions.

3.2.4.2 The Marine Strategy

The Marine Strategy Regulations 2010, implementing the EU Marine Strategy Framework Directive (MSFD) 2008/56/EC in the UK, required action to be taken to achieve or maintain Good Environmental Status (GES) in marine waters within the marine strategy area by 2020. GES is defined in the Regulations as “the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations”.

These Regulations require the production of a Marine Strategy for UK waters, coordinated across the four UK Administrations. The Marine Strategy aims to help in the delivery of international obligations and commitments such as those under the UN Convention on the Law of the SEA (UNCLOS), UN Sustainable Development Goal 14, OSPAR Strategy and Convention on Biological Diversity, and the OSPAR North-East Atlantic Environment Strategy 2030. The UK Marine Strategy applies an ecosystem–based approach to the management of human activities, and considers the following 11 quality descriptors:

- D1 – Biological diversity (cetaceans, seals, birds, fish, pelagic habitats and benthic habitats)
- D2 – Non-indigenous species
- D3 – Commercially-exploited fish and shellfish
- D4 - Food webs (cetaceans seals, birds, fish and pelagic habitats)
- D5 – Eutrophication
- D6 – Sea-floor integrity (benthic habitats)
- D7 – Hydrographical conditions
- D8 – Contaminants
- D9 – Contaminants in fish and other seafood
- D10 – Marine litter
- D11 – Underwater noise

The UK Marine Strategy comprises three parts, to be updated every six years: assessment, monitoring programmes and a programme of measures. The first assessment of UK seas was published in 2012[76], and set objectives, targets, and indicators for achieving GES; this was updated in 2019[77] and further updated in 2025[78], and the status of descriptors for the UK is summarised in **Table 3-18**.

Table 3-18 UK Marine Strategy assessment of environmental status

Descriptor	GES Achieved	Trend	Description
D1 & D4 Cetaceans	Partially	Stable/mixed	Achievement of GES uncertain. Status of coastal bottlenose dolphin & minke whale consistent with GES in the Greater North Sea, but unknown/uncertain elsewhere. Unknown if GES achieved for other species. Fisheries bycatch is an ongoing pressure; the target for cetacean bycatch (indicated by harbour porpoise bycatch) has been met in the North Sea, but in the Celtic Seas it is likely to have exceeded the precautionary threshold.
D1 & D4 Seals	Partially	Improving	GES achieved for grey seals in the Greater North Sea and Celtic Seas. Harbour seals have not achieved GES in the Greater North Sea; in the Celtic Sea, significant increase in West Scotland but status uncertain in other areas.
D1 & D4 Birds	No	Declining	GES achieved for non-breeding waterbirds in the Greater North Sea but not the Celtic Sea. Breeding seabirds have not achieved GES.
D1 & D4 Fish	No	Improving	Demersal fish communities recovering from past over-exploitation, but GES not yet achieved in the Greater North Sea or Celtic Seas. Partial assessment of pelagic shelf fish did not provide a clear result.
D1 & D4 Pelagic Habitats	Partially	Stable/mixed	Achievement of GES uncertain; prevailing environmental conditions likely driving changes in plankton communities but influence of human activities not certain.
D1 & D6 Benthic habitats	No	Stable/mixed	GES achievement uncertain for intertidal & soft sediment habitats; for soft sediments, the level of physical damage is considered consistent with GES in UK waters to the west of the Celtic Seas but not in the Celtic

[76] Marine Strategy: UK Initial Assessment and Good Environmental Status

[77] Marine Strategy: UK Updated Assessment and Good Environmental Status 2019

[78] Marine Strategy: UK Updated Assessment and Good Environmental Status 2025

Descriptor	GES Achieved	Trend	Description
			Seas or the Greater North Sea. GES not achieved for sublittoral rock and biogenic habitats.
D2 Non-indigenous species (NIS)	No	Stable/mixed	GES not achieved. Ability to detect new NIS has improved but no significant change in the number of new records of NIS between 2003 and 2014.
D3 Commercial fish	No	Improving	GES achieved for some commercially exploited fish. In 2015, 53% of marine fish (quota) stocks fished below maximum sustainable yield and has increased significantly since 1990. Most national shellfish stocks have not achieved GES, or their status is uncertain.
D4 Food webs	Partially	Improving	Extent to which GES has been achieved is uncertain, components of the marine food web are changing but it is not clear how they are affecting each other.
D5 Eutrophication	Yes	Stable/mixed	GES largely achieved. A small number of problems remain in coastal and estuarine waters, representing 0.03% of the UK Exclusive Economic Zone and 0.41% of estuarine and coastal waters.
D7 Hydrographical conditions	Yes	Stable/mixed	GES continuing to be achieved.
D8 Contaminants	Yes	Improving	GES largely achieved. Concentration of hazardous substances and their biological effects generally meeting agreed target thresholds. Highly persistent legacy chemicals cause of new failures, mainly in coastal waters close to polluted sources.
D9 Contaminants in seafood	Yes	Improving	GES achieved, high level of compliance with agreed safety levels.
D10 Marine litter	No	Stable/mixed	GES not achieved. Beach litter levels in the Celtic Seas largely stable since assessment in 2012, whilst levels in the Greater North Sea have slightly increased.
D11 Underwater noise	Partially	Stable/mixed	Achievement of GES is uncertain, but research and monitoring programmes are improving understanding.

In addition to the status of descriptors, the UK updated assessment outlined the predominant pressures affecting the marine environment; “input of nutrients – diffuse sources point sources, atmospheric deposition”

was listed as a relevant pressure for pelagic habitats, and “input of nutrients and input of organic matter” as a relevant pressure for benthic habitats and eutrophication, including from activities associated with agriculture. In addition, “input of other substances (e.g., synthetic substances, non-synthetic substances, radionuclides) was listed as a relevant pressure for marine mammals and contaminants, including from activities associated with agriculture.

In the Republic of Ireland, eutrophication in the marine environment is addressed in the EU Marine Strategy Framework Directive (MSFD) under Descriptor 5: Eutrophication, through the implementing national legislation European Communities (Marine Strategy Framework) Regulations 2011. Following an initial assessment describing the status of Ireland’s marine environment in 2012, the Department of Housing, Planning, and Local Government (DHPLG) published an updated assessment and determination of GES and environmental targets in 2020, with further updates due every six years[79]. Regarding eutrophication, the status of the marine environment was assessed against the three primary criteria set out in the Commission Decision: nutrients; chlorophyll a, and physio-chemical parameters such as dissolved oxygen, with the threshold values for these criteria based on WFD parameters for inshore waters and estuaries, and OSPAR parameters for the wider MSFD area. The assessment indicated that the Republic of Ireland achieved GES for eutrophication within its maritime area for these three primary criteria, and that “the areas considered at risk of eutrophication are located inshore, predominantly along the eastern, south-eastern and southern coasts.”

3.2.4.3 DAERA National Water Quality Monitoring

Water quality monitoring network in Northern Ireland

DAERA has responsibility for monitoring water quality of surface waters (rivers, lakes, transitional and coastal waters) and groundwaters across Northern Ireland. The Northern Ireland Environmental Statistics Reports provides annual reporting on a range of environmental indicators, updating From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland’s Environment (NIEA, 2013). Section 4 of the most recent environmental statistics report provides key information regarding the current status of water in Northern Ireland. Information on the status and trends of waterbodies in Northern Ireland is also provided in the ‘Agricultural Nutrients and Water Quality’ 2021 Report (DAERA & AFBI, 2021)[80], the ‘Report on the State of Implementation of the Nitrates Directive in the United Kingdom (Northern Ireland) 2016-2019[81]’, produced in accordance with the requirements of Article 10 of the Nitrates Directive (DAERA in prep. July 2020) and the NAP Implementation Report 2020-2023 (DAERA, 2024)[82] produced under Regulation 34 of the NAP Regulations (Northern Ireland) 2019.

Coverage of the surface freshwater monitoring network in Northern Ireland aims to fulfil all monitoring requirements under various EU Directives including the WFD and Nitrates Directive. The number of sites monitored differs between reporting periods; changes were implemented in 2015 through better targeting and adoption of a risk-based monitoring approach. Monitoring results indicate that water quality has been mixed across rivers, lakes, transitional and coastal (TRAC), and groundwater bodies, with evidence of declines in water quality status for several parameters.

For the 2020-2023 period, there were changes in the previous reporting periods referenced, as well as changes in some monitoring locations, which can lead to some difficulty in making accurate comparisons and understanding trends; this is particularly an issue for groundwater monitoring, which relies on access to boreholes, some of which are privately owned, and for which access can be lost between monitoring periods. There were also sampling issues during 2020 due to the impacts of the COVID-19 pandemic and restrictions on undertaking fieldwork, therefore affecting sampling resolution and impacting on sampling coverage and

[79] The Marine Strategy Framework Directive

[80] Agricultural Nutrients and Water Quality

[81] Nitrates Directive 2016 Derogation Report for Northern Ireland

[82] Nutrients Action Programme Implementation Report for 2020 – 2023

trend analysis. DAERA has indicated that further biological monitoring of surface waterbodies and TRAC waterbodies is required for a full understanding of the evolving trends in water quality for potential eutrophication occurrence. Nitrate concentrations were measured at surface freshwater monitoring stations across Northern Ireland for the periods 2008-2011 (622 stations), 2012-2015 (337 stations), 2016-2019 (534 stations) and 2019-2021 (during the COVID-19 pandemic, no river monitoring for nitrate concentrations took place in April and May 2020 with a limited number of samples taken in March and December 2020). SRP concentrations were measured by NIEA at surface freshwater monitoring stations across Northern Ireland for the periods 2008-2011 (568 stations), 2012-2015 (391 stations) and 2016-2019 (534 stations).

Trends in nitrate concentrations

The latest Environmental Statistics report outlines trends in nitrate for surface waters in Northern Ireland, based on monitoring requirements of the Nitrates Directive. The mandatory standard for nitrate (NO_3) is 50mg/l, while there is a guide standard for surface waters whereby 90% of samples should be <25mg/l. Almost all monitored river sites (>99%) had an annual mean concentration <25mg NO_3/l between 2000-2011, and all were less than this threshold between 2012-2016. For the 2022-2025 monitoring period, 100% of waterbodies monitored were below 25mg/l of nitrates, however, the proportion of sites with annual average nitrate concentration below 10mg/l has been declining since 2012. Looking at long-term seasonal trends in nitrate concentrations in rivers, the previous report (for the 2016-2019 period) indicated that the majority of sites (98.1%) showed stable or declining monthly average nitrate concentrations from 1992-2019; the most recent report (for the 2020-2023 period), indicates that less sites (77.6%) exhibited these trends from 1992-2023. The NAP Implementation Report (DAERA, 2024) states that for the current 2020-2023 reporting period, 85.2% of surface water sites had average nitrate concentration below 10mg/l NO_3, however the annual average nitrate concentration has steadily increased to 5.9mg/l NO_3 compared to 5.2mg/l NO_3 in 2012-2015 and 5.6mg/l NO_3 in 2016-2019. Analysis of the maximum nitrate concentrations in rivers and lakes between 2016-2019 and 2020-2023 reporting periods indicate that 30.9% of sites showed a weak increase in concentrations and 15% showed a strong increase in concentrations suggesting an upward trend in NO_3 concentrations.

The general long-term decreasing trend may be attributable to measures that have been implemented since the introduction of the Nitrates Action Programme, however, it has also been recognised that a strong contributing factor to the decreasing long-term trend is the initial high nitrate levels in the early 1990s, from which there has been a gradual decrease. The percentage of waterbodies showing an increasing long-term trend changed from 4.6% in 2016 to 9.8% in 2020, which is masked when looking at data over the longer term. An increasing long-term trend was seen for 9.8% of sites in 2020, which rose to 23.6% in 2023; generally, these monitoring sites were in the south and east of Northern Ireland. An increasing trend in nitrate concentrations from 2009 to 2023 was also indicated for rivers entering Lough Neagh (the Upper Bann, the Glenavy and the Crumlin), as well as for outflowing rivers. It should be noted that there can be strong seasonality within nitrate concentrations in waterways, with summer drought periods elevating nutrient concentrations, as detailed in the Agricultural Nutrients and Water Quality report (DAERA & AFBI, 2021) or in response to seasonal agricultural practices. Climatic factors have significant impacts on trends in Northern Ireland rivers; since the 1970s approximately every six years, peak nitrate concentrations occur following dry summer periods from a climatic signal of low summer rainfall first detected in 1840 from the Armagh Observatory

Trends in phosphorus concentrations

SRP was monitored at 93 surveillance rivers across Northern Ireland in 2025, showing an average concentration of 0.07mg/l and an increase of 0.023mg/l in comparison to a low of 0.047mg/l in 2012. For the period 2020-2023, 91.4% of monitoring sites showed a stable or decreasing SRP concentration compared to the previous reporting period (2016-2019); 58.5% of the monitored sites were classed as high or good status, with 41.5% at less than good status with a potential risk of eutrophication. Of these, 9.2% were classed as poor status with eutrophication occurrence; secondary impacts can include reduced dissolved oxygen levels caused by the overnight respiration of higher aquatic plants or macrophytes, which can have a negative impact on fish. Looking at long-term seasonal trends, monthly average SRP concentrations were mainly stable or

decreasing in 87.5% of rivers from 1998-2023. According to the Environmental Statistics Reportthere has been a reduction in phosphorus originating from agricultural activities since the introduction of the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2006, in combination with improvements in the treatment of domestic wastewater, however recent years have seen a marginal increase in SRP levels in surveillance rivers, which consistently remain above the low of 0.047mg/l reported in 2012. Similar to nitrate, the high baseline levels since 1998 mask recent increases in SRP, particularly in 2014-2016 during the industry-led Going for Growth[83] period, however, further research is needed to review geospatial differences and causation factors for this recent increase. There was no evidence of a trend for SRP loading into Lough Neagh from 2009-2023.

WFD Reporting

For individual river site level water quality, the WFD statistics from the 2021 data showed that 51% of sites were of high/good status, a decrease from two previous classification periods with 49% classed as moderate/poor status with risk of eutrophication or being eutrophic. At the river waterbody level, the WFD statistics using 2021 data showed that 44.4% were classed as high/good status, again as a decrease from the two previous classification periods, with 52.2% classed as moderate/poor (at risk of eutrophication occurrence/eutrophic) and 0.2% as bad status (hyper-eutrophic for the Lough Neagh peripheral waterbodies, which have a long-term deteriorating/poor trend from 2015 trophic classifications). Considering the trophic status classes for river waterbodies, 44.4% of river waterbodies were considered as non-eutrophic, 43.8% as eutrophic and 8% of waterbodies as potentially becoming eutrophic. For lakes, 18 out of 21 lakes were classed as less than moderate status in the 2021 WFD statistics, a decline of 10% compared to the WFD 2015 and 2018 reporting periods. Considering the trophic status classes, only three lakes were considered as being non-eutrophic, 16 lakes as eutrophic and two lakes may become eutrophic. Between the WFD monitoring periods, 14 lakes remained stable, and six lakes deteriorated by one class. There was a 10% decline for high/good status lakes compared to the previous reporting period, with no lakes at high status in the 2021 WFD classification. For the average annual Total Phosphorus (TP) concentrations for 2020-2023 compared to the previous reporting period of 2016-2019, there were no improvements, and concentrations increased in seven lakes. Using chlorophyll-a concentration as an indicator of lake trophic status and potential eutrophication through algal blooms, the majority were stable, while three lakes showed a deterioration, and four lakes an improvement, in chlorophyll-a concentrations.

OSPAR Reporting

Eutrophication in transitional and coastal (TRAC) and marine waters is assessed following the Common Procedure for the Identification of the Eutrophication Status of the Maritime Area of the OSPAR Convention (OSPAR 97/15/1, Annex 24) and selected quality elements monitored under the WFD. The OSPAR Comprehensive Procedure includes a set of assessment parameters relating to nutrient enrichment (e.g., dissolved inorganic nitrogen (DIN), as nitrogen is the primary limiting nutrient for plant growth, and the uptake for this nutrient by phytoplankton, macroalgae and macrophytes are highest during the spring and summer period). Nutrient levels in marine waters are typically highest during the winter in periods of minimal plant growth, and nutrient levels for TRAC waterbodies are monitored and assessed based on winter values from November to February for each reporting period. Although the WFD does not specifically define eutrophication, many of the parameters under the OSPAR Comprehensive Procedure are included as quality elements within the WFD. The trophic status of TRAC waters was assessed using the results of the 2021 WFD classification results; this indicated that 52% of waterbodies were high or good status, 16% were moderate status, and 32% were either poor or bad status. For the 25 monitored TRAC waterbodies, the mean and maximum winter nitrate levels did not exceed 25mg/l in the 2020-2023 period. Relatively high values >10mg/l of nitrate occurred within transitional or inshore coastal sea loughs, due to catchment-based inputs of nitrates. Absolute values indicated an increase in nitrate levels (63-88%) for 2020-2023 compared to the previous reporting periods, with a steady increase since 2017 reaching a peak in 2021.

[83] Going for Growth - a strategic action plan in support of the NI agri-food industry

Excessive nutrient (DIN) was the most frequent failing element, reported in 10 of the 12 waterbodies failing to achieve good condition, with increases observed in 92% of waterbodies. The NAP Implementation Report (DAERA, 2024) review for the 2020-2023 period showed a long-term trend analysis for nitrate concentrations for TRAC, with nine waterbodies indicating a significant increase in nitrate concentrations and with two showing a significant decrease. Nitrate levels had decreased in TRAC waterbodies from 2008 to 2017, however since 2017 there has been an increase in nitrate concentrations. The assessment suggested that high nutrient levels, particularly in inshore estuarine (transitional) or sea loughs from agricultural and urban sources, will influence ecological conditions and associated water quality status. Declines in eutrophication response variables in over 50% of waterbodies such as phytoplankton, macroalgae and Dissolved Oxygen (DO) were recorded, alongside rises in nutrient concentrations, pesticides, and herbicides due to catchment-based runoff and inputs. Similar trends have been observed for winter dissolved inorganic phosphorus, with steady increases occurring over the last 3-5 years.

Groundwater Monitoring

Groundwater quality in Northern Ireland is assessed in accordance with NIEA's groundwater monitoring programme through the collection of groundwater samples from boreholes, wells, and springs that are mostly owned and operated by third parties. Hence, NIEA rely mostly on third party-owned groundwater boreholes and the co-operation of land/property owners to continue sampling from their groundwater sources for chemical monitoring and analysis. This means that the groundwater monitoring network can change due to businesses closing or changing their groundwater usage and that datasets available for trend assessments can be limited. Monitored average nitrate concentrations for the most recent reporting period 2016–2022 in groundwater in Northern Ireland were generally low. Results showed that of the 60 sites monitored, 56 had an annual average of <25mg/l NO_3 for the last three reporting periods, with relatively stable concentrations and only some local increases and decreases. Four sites had an annual average value >50mg/l NO_3. Previously one site had high nitrate levels of greater than 50mg/l NO_3 for several years, however as NIEA rely on third parties to provide monitoring point access, access to this site was lost.

Nitrate concentrations can be influenced by several factors within groundwater bodies (e.g., land use type, history and intensity; rainfall rates; soil types and the presence of glacial deposits, which can alter underlying water table interactions for aquifers due to their compartmentalised nature). In areas with poorly draining soils and high rainfall rates in Northern Ireland, nitrate concentrations can be reduced, while there can be local elevations in concentration when superficial and bedrock aquifers have primary porosity, which can cause a delayed release of nitrates to the local water table.

Phosphate in groundwaters is transferred via baseflow from surface waterbodies. Over 96% of groundwater bodies were classified as good status in 2021 compared to 75% in 2015, however this difference was likely due to changes in the sampling methodology. Phosphate levels are typically not a pollution issue within groundwater owing to adsorption to clay/iron particles, reducing the likelihood of phosphate release. Phosphate sources from groundwater may be released to surface water sources if the particle sorption capacity within the groundwater system is low.

Nitrates Derogation Monitoring

The Draft Annual Nitrates Derogation Report (DAERA, 2020)[84] focuses water quality analysis on sub-catchments with the highest concentration of derogated farms (High Derogation Catchments) through comparisons of mean average annual data for the period of 2016-2019 and the most recent annual average data for the current reporting year (2020 within this report); due to constraints resulting from the COVID-19 pandemic, sampling undertaken in 2020 operated at 30-50% of the normal sampling schedule, and DAERA note that these results should be treated with caution. Nitrate concentrations within the comparison periods for surface freshwater stations were stable or decreasing at 88.1% of monitored locations (including the High Derogation Catchments), whilst increasing nitrate concentrations were recorded in 11.9% of monitored stations

[84] Draft Derogation Report 2019

(of these, 23.3% coincided with High Derogation Catchments). Increased phosphorus levels were recorded at 19.7% of monitored sites within Northern Ireland, 13% of which occurred within High Derogation Catchments. Continued deterioration in water quality status indicates that agricultural activities remain a significant pressure on water quality and that continued measures to reduce nutrient losses are required including through the draft NAP 2027-2030.

Further derogation monitoring is reported in the NAP Implementation Report (DAERA, 2024), with high resolution monitoring at the outlets of derogated and non-derogated sub-catchments in the Upper Bann. High resolution monitoring includes flow gauging, autosamplers and multiparameter probes since October 2018 with nutrient sampling occurring on a seven-hourly time step, with estimates produced for flow-weighted concentrations, along with soil sampling for 70% of land every three to four years and nutrient balance data ongoing since 2016. Annual monitoring loads from 2018 to 2024 comparing the derogated and non-derogated catchments indicate that for five of the six monitoring years, the Total Oxidised Nitrogen loads per hectare are higher in the derogated catchment compared to the non-derogated catchment, with the year of higher non-derogated catchment loading likely associated with a significant point source pollution event. The annual phosphorus load was consistently higher in the non-derogated catchment ranging between 0.6-1.5kg/ha compared to 0.3-1.2kg/ha in the derogated catchment, however, this may be attributable to specific catchment factors of steep sloping topography and increased runoff risk. Using SNHS data from Zone 1 in 2022/23, indicates that both catchment types have soil phosphorus above the agronomic optimum, however the proportion of the catchment area above optimum for soil phosphorus is 53.5% for the derogated catchment with 41% above optimum in the non-derogated catchment.

A further farm derogation level analysis took place using SNHS data from Zone 1 and Zone 2 for 112 sampled farms in the inflowing Lough Neagh catchment area to determine if higher organic nitrogen inputs under derogation with proportionally higher phosphorus has an impact on soil phosphorus levels through an area-weighted soil phosphorus calculation for each farm produced. The results indicated that there was no significant difference in soil phosphorus between derogated and non-derogated farms. 91 of the farms analysed were dairy farms which allowed comparison between derogated and non-derogated farms; however the remaining farm type numbers of beef and mixed livestock were too low to allow for statistical comparison. The lack of difference in soil phosphorus status between a derogated and non-derogated farm suggests that the additional restrictions on farm phosphorus balance and requirement for soil testing under derogation is having a positive impact on phosphorus management, as a dairy cow phosphorus amount under 250kg nitrogen equates to 47.5kg phosphorus, compared to 32.3kg phosphorus under 170kg nitrogen. Area-weighted soil pH calculations also indicated a higher pH on derogated dairy farms with over 90% above pH 6 at a median of pH 6.19 compared to 6.07 in non-derogated dairy farms, as an indicator of active soil nutrient management through regular liming to improve nutrient uptake on grassland farms.

Lough Neagh

Lough Neagh is the largest freshwater lake in the UK. It is an important natural resource with a high economic value to Northern Ireland through its provision of over 40% of Northern Ireland's drinking water, support of commercial fisheries and businesses, use for recreational activities, and status as an environmentally protected area. In recent years cyanobacteria (blue green algae) blooms have occurred in Lough Neagh. In response, DAERA published the Lough Neagh Report and Action Plan for the lake in 2024[85]. This states that the algal blooms, including those observed recently, originated from nutrient pollution over several decades from agricultural, wastewater, septic tanks, and industrial sources. A Source Load Apportionment Model (SLAM) was undertaken for the Lough Neagh catchment to estimate total phosphorus loads from direct and diffuse pollution sources (excluding atmospheric/rainfall deposition). This estimated that agriculture contributes 56%, wastewater treatment works 31%, septic tanks 1%, and other diffuse pollution sources such as urban areas and forestry activities 12% of total phosphorus.

[85] Lough Neagh Action Plan 2024

Climate change trends have contributed, with higher summer water temperatures in recent years. The presence of the invasive Zebra Mussel has also contributed; this species has spread throughout the lake in high numbers and, by selectively feeding on phytoplankton species not cyanobacteria, reduces resource competition and increases water clarity, allowing deeper light penetration and enabling further cyanobacteria blooms. It is likely that there will be a need for in-lake management options (e.g., ultrasound, hydrogen peroxide, modified soil flocculation, oxygenation, addition of barley straw bales) to target cyanobacteria blooms in the lake, owing to the legacy nutrient accumulation and persistence of nutrients in the water column from a release of nutrients stored in sediments. Although it is unlikely that this invasive species can be fully removed from the lake, owing to its size and complexity, removal of invasive western waterweed that is used as a habitat by the zebra mussel, may provide a means of indirect control.

The Lough Neagh Report and Action Plan (DAERA, 2024)[80] sets out actions that aim to reduce incidences of water pollution through education, investment of sustainable practices to promote behavioural change, regulation for environmental protection and enforcement to ensure compliance. It sets out nine main actions, as well as specific measures. These actions, detailed in Appendix C, include a general commitment for DAERA policies, both existing and emerging, to contribute to good water quality; a review of the NAP Regulations (Northern Ireland) 2019; further regulation of livestock slurries and chemical fertilisers to manage phosphorus loads; business and research regarding sustainable slurry use and management of livestock diets to reduce ammonia and GHG emissions and phosphorus loss; delivering on Lough Neagh wastewater schemes; targeted education and training in compliance and environmental performance; increased activity focused in areas of highest risk; and establishment of a Lough Neagh science platform to improve knowledge and understanding and provide evidence to inform policy, decision making and assist in both setting baseline data and measuring outcomes. The specific measures set out in the Action Plan revolves around these nine main actions. The Action Plan for Lough Neagh will also be considered within the upcoming Environmental Improvement Plan (EIP) for Northern Ireland[86].

Environmental Improvement Plan

The first Environmental Improvement Plan was published for Northern Ireland by DAERA on 27th September 2024 with six Strategic Environmental Outcomes (SEOs) set out within it. The “excellent air, water and land quality” SEO within this is directly linked to the NAP with the requirement for an SEA for the upcoming NAP 2025-2027 with the introduction of phosphorus and nitrogen balance targets for the Northern Ireland agricultural sector with a phased reduction to 2033 targets and objectives for Northern Ireland agriculture. The SEO also aims to develop more sustainable nutrient management on farms, supported by schemes such as the SNHS and have nutrient applications occurring on a soil nutrient status and crop requirement basis to reduce accidental losses.

3.2.4.4 Water quality in the Republic of Ireland

WFD Status

Two RBDs are shared between Northern Ireland and the Republic of Ireland. The Neagh Bann International RBD has 35 shared waterbodies, while the North Western International RBD has 85 shared waterbodies. In the Republic of Ireland, the status of waterbodies has continued to decline, with a decreasing number of high-status waterbodies, and an increasing number of moderate and poor status waterbodies. Just over half of surface waters (rivers, lakes, estuaries, and coastal waters) are currently achieving good or better ecological status, while 34% of waterbodies are currently At Risk of not meeting their environmental objectives and need to be prioritised for action to restore water quality, the majority of which are rivers. A recent EPA report[87], which provides an update on the pressures impacting on water quality in the Republic of Ireland, indicates that the main issues are nutrient pollution (nitrogen and phosphorus) from agriculture and urban wastewater,

[86] Northern Ireland Environmental Improvement Plan.

[87] EPA Update on pressures impacting on water quality

morphological changes to waterbodies and organic pollution (ammonia and high biological oxygen demand), typically associated with insufficient wastewater treatment and/or farmyard effluents. Agriculture was found to be the most significant pressure, impacting over 1000 waterbodies, and the number of At-Risk waterbodies where agriculture was a significant pressure increased by over 200 from 2015-2018, and by a further 23 in the period up to 2021. **Figure 3-13** shows the ecological status of WFD surface waterbodies (rivers and lakes) in the Republic of Ireland for the 2016-2021 reporting period, with 46% in unsatisfactory condition, significant areas of moderate and poor water quality, and overall declining trends in water quality[88].

The draft Water Action Plan 2024 – A River Basin Management Plan for Ireland[89] is the third cycle RBMP for the Republic of Ireland, which aims to accelerate the identification and implementation of the right measures in the right places to both restore and protect all waterbodies. The integrated catchment management approach will be supported by development and use of 46 Catchment Management Work Plans, which will be used to locate measures within each catchment, and by supporting Sectoral Action Work Plans, developed by each of the sectors who are responsible for a specific pressure, e.g., Agriculture, Forestry, and Urban Wastewater. The Republic of Ireland's National Water Quality Monitoring Programme for the period 2022-2027[90] aims to provide a national overview of the ecological and chemical status of surface waters (rivers, lakes, transitional and coastal waters) and the quantitative and chemical status of groundwaters. It describes the types of monitoring included (i.e., surveillance, operational or investigative), the number of waterbodies and quality elements (biological, physico-chemical, chemical and hydromorphological) to be monitored, and the frequency of this monitoring; this includes 2,899 surface and groundwater bodies (60% of waterbodies nationally). Monitoring is undertaken by the EPA, Marine Institute, Inland Fisheries Ireland, Waterways Ireland, National Parks and Wildlife Service and Local Authorities, and is used to assess progress in achieving WFD objectives and assess changes in the quality of waterbodies in the Republic of Ireland over time.

[88] Summary Report: Water Quality in Ireland 2016-2021

[89] The Water Action Plan 2024: A River Basin Management Plan for Ireland

[90] Ireland's National Water Quality Monitoring Programme 2022-2027

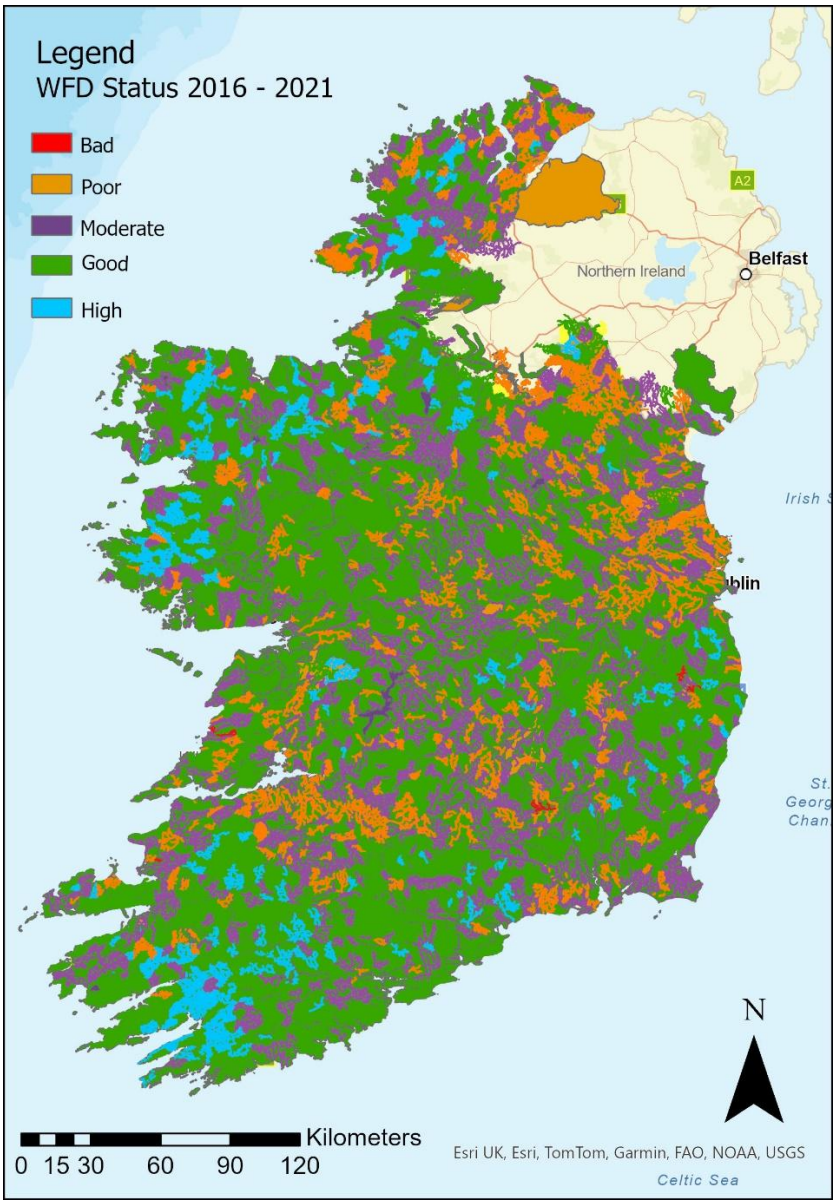


Figure 3-13 ROI WFD water quality status for 2016-2021.

Nitrates Action Programme

In the Republic of Ireland, the Nitrates Action Programme aims to prevent pollution of surface waters and ground waters from agricultural sources as well as to protect and improve water quality. The fifth Nitrates Action Programme is for the period 2022-2025 and is given effect by the Good Agricultural Practice Regulations (also known as the 'GAP Regulations' or the 'Nitrates Regulations') – S.I. No. 113 of 2022 (as amended). This was updated against a baseline whereby nearly half of rivers, and a third of lakes, were failing to meet their EQS' for nutrients. The main changes under the 5th Programme related to: changes to closed periods for nutrient application; requirements for soiled water storage; additional livestock excretion rate bands for dairy cows; additional chemical fertiliser control; updates to technical tables; amendments to grazing land management; requirement for green cover on tillage ground; amendments to buffer strips; amendments to silage bale storage; requirements for organic matter determination; requirements based on grassland stocking rate; requirements for the percentage of crude protein in concentrate feeds; requirements for soil tests; and phased in requirements for the use of LESSE.

The Republic of Ireland currently has a nitrates derogation granted by the European Commission Implementing Decision 2022/696, allowing farmers to farm at higher stocking rates, above 170kg livestock manure nitrogen/ha up to 250kg nitrogen/ha, subject to additional conditions. An interim review of water quality was specified by the Commission as a condition of this derogation approval and was published by the EPA in 2023[91]. This indicated that nitrate concentrations remained elevated in rivers, groundwaters and estuaries located in the south-east, south-west, midlands, and eastern areas of the country. High phosphorus concentrations were present in a quarter of all rivers above the Environmental Quality Standards (EQS) for good status, with the highest concentrations occurring in areas of poorly draining soils, and with nutrient concentrations increasing since 2012/2013 and nitrate concentrations in 2022 showing an increase from 2021 levels. Derogated farms are found in the highest densities in the south-east, south-west and somewhat to the north-east. The outcome of an assessment required by the Commission based on the specified water quality criteria set out in Article 12 of the Commission Implementing Decision was that over 44,000km^2 of land was identified as requiring additional measures to protect water quality. Areas of land which were found not to be achieving specified water quality criteria (where waterbodies were identified as polluted or at risk of pollution) required additional measures to be applied under the Nitrates Action Programme and, for farms in these areas failing the review, a move to a reduced derogation limit of 220kg nitrogen/ha/year. These areas are shown in **Figure 3-14**.

[91] EPA Water Quality Monitoring Report 2022

Figure 3-14 Catchment areas in ROI failing assessment from Article 12 and determined to need a lower derogation limit.

3.2.4.5 Flood Risk

The Floods Directive (2007/60/EC), implemented in Northern Ireland through 'The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009' requires the establishment of a framework for the assessment and management of flood risk, with the aim of reducing the negative consequences of flooding on human health, the environment, cultural heritage, and economic activity. Assessments are required on a six-year cycle to include flood risk assessment, prioritisation, updated flood mapping and planning for flooding. As part of the second cycle of flood risk management planning, the Northern Ireland Flood Risk Assessment (NIFRA) (DfI, 2018)[92] reviewed the flood risk within Northern Ireland. The NIFRA (DfI, 2018) identified that the main sources of flooding within Northern Ireland are rivers (fluvial flooding), the sea (coastal flooding), and overland surface water flows (pluvial flooding). In total, the NIFRA (DfI, 2018) identified that approximately 45,000 properties, comprising 5% of the total properties in Northern Ireland, are at risk from flooding from these sources. Owing to the large number of rivers within Northern Ireland, there is a significant degree of fluvial flood risk, particularly

[92] Northern Ireland Flood Risk Assessment 2019

in relation to large rivers. Fluvial flooding occurs when the channel capacity of rivers is exceeded, and water overtops the river banks and flows across the natural floodplain of the river. The impact of fluvial flooding is significantly greater within urban and suburban areas, in part due to the density of receptors and the impact of land use upon drainage patterns. Significant risk of surface water (pluvial) and coastal flooding also exists throughout Northern Ireland. Significant coastal flooding is relatively rare in Northern Ireland but can potentially cause major damage in low lying areas, with effects of saltwater inundation causing long term economic and environmental damage. Pluvial flooding results from rainfall that has not reached, or has overwhelmed, man-made drainage systems, and leads to overland flows and ponding within low-lying areas. It can be exacerbated by the extensive areas of hard, impermeable surfaces that are frequently present within urban areas.

The manner by which agricultural land is managed can influence the potential for flooding, both within those areas, and also in downstream catchments. Climate change is likely to result in more frequent and extensive fluvial and coastal flooding of agricultural land; with saltwater inundation of farmland in coastal areas affecting its usage.

The NIFRA (DfI, 2018) identified twelve Areas of Potential Significant Flood Risk (APSFR). The names of these areas, along with the RBD in which they are located are listed in **Table 3-19**, and they are shown in **Figure 3-15.** The Northern Ireland Flood Risk Management Plan 2021-2027 is the second cycle Plan for Northern Ireland. It focuses on planning for measures to manage flood risk in these twelve APSFR.

Table 3-19 Areas of Potential Significant Flood Risk in Northern Ireland

APSFR Name	River Basin District
Belfast	North Eastern RBD
Londonderry	North Western IRBD
Newry	Neagh Bann IRBD
Lurgan	Neagh Bann IRBD
Glengormley and Mallusk	Neagh Bann IRBD
Larne	North Eastern RBD
Bangor	North Eastern RBD
Portadown and Craigavon	Neagh Bann IRBD
Omagh	North Western IRBD
Newtownabbey	North Eastern RBD
Carrickfergus	North Eastern RBD
Ballymena	Neagh Bann IRBD

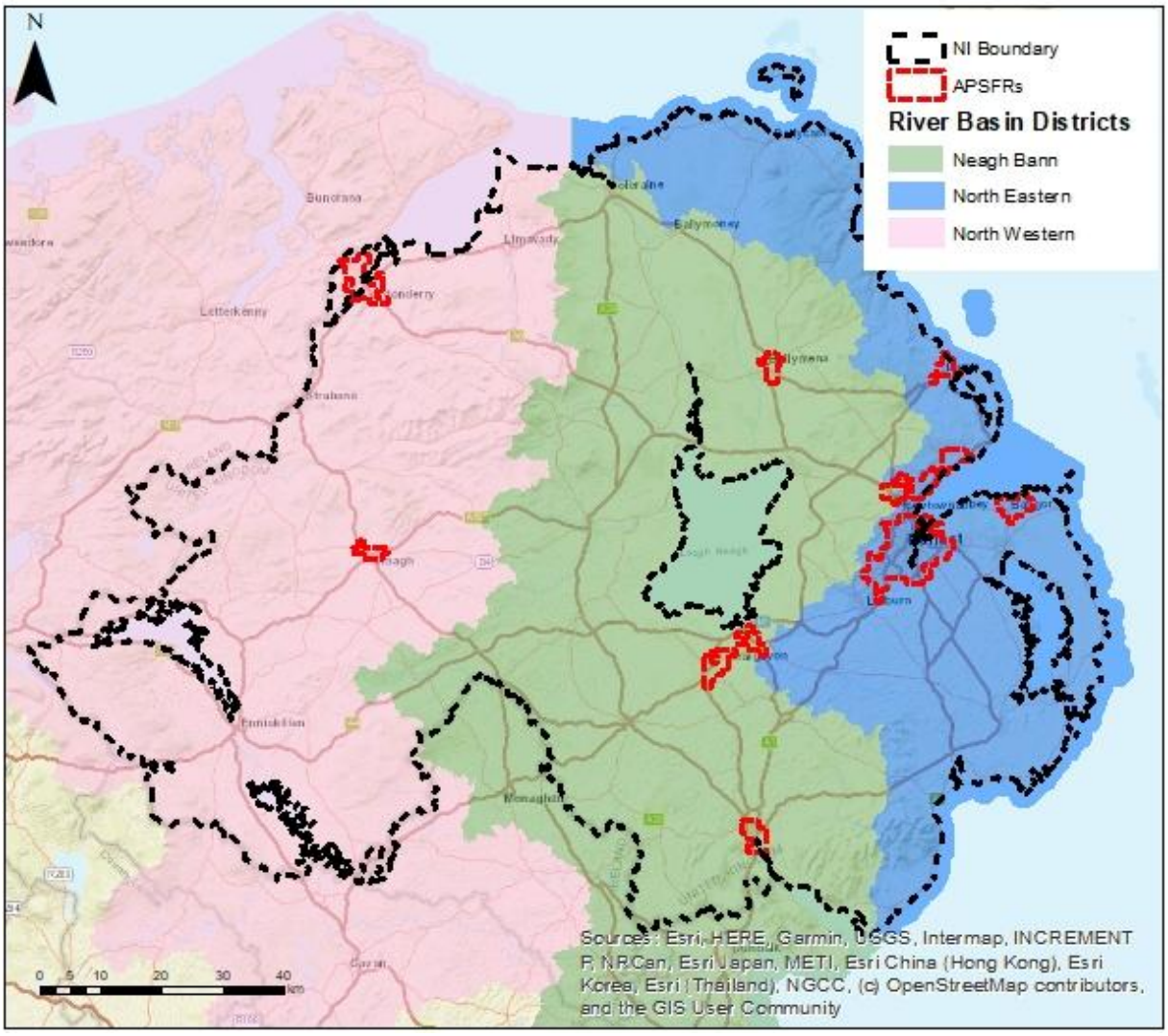


Figure 3-15 Location of Areas of Potential Significant Flood Risk in Northern Ireland

3.2.4.6 Summary of Existing Pressures and Issues for Water in Northern Ireland

The most recent State of the environment report for Northern Ireland From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013) states that industry, power generation, agriculture and forestry, development, transport, and infrastructure pressures all potentially impact on Northern Ireland's water environment. Under the WFD Regulations, pressures on the quality of the water environment have been assessed according to two types, as follows:

- Point source pollution pressures on water quality – e.g., effluent discharges arising from industry and WWTWs; sewer overflows during heavy rainfall events; agricultural point sources from farm ditches and drains; and
- Diffuse source pollution pressures on water quality – e.g., contaminated surface runoff from roads, construction sites, fuel storage areas; septic tank discharges; acid and nutrient deposition from the air; runoff of pesticides, soils and nutrients from agriculture and forestry, and migration of these to groundwaters and surface waters.

Abstractions and impoundments of water for drinking water supply, industry, agriculture, recreation, and hydropower can lead to pressures on water quantity and flow and can exacerbate existing water quality issues. The introduction and spread of invasive non-native species, including aquatic plants such as floating pennywort

and curly waterweed, can impact upon native aquatic biodiversity, and can adversely affect water-based recreational activities. The risk of flooding following heavy rainfall events can be increased by land management practices that influence water storage potential and runoff, such as in urban areas where impermeable surfaces are common. Flood events can also lead to increased runoff of sediments and pollutants from agricultural lands, with consequences for receiving water quality, while land management practices can have a significant influence on flood risk in downstream areas.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on the quality of waterbodies in Northern Ireland alone, or in combination with, these existing pressures. There is potential for positive or negative effects on the ecological status and chemical status of surface waterbodies, including rivers, lakes, coastal and marine bodies, from nutrient and sediment pollution, including areas protected under the WFD Regulations for water-dependent habitats and species, food supply of aquatic species, drinking water supply and use for recreation. There is also potential for positive or negative effects on the chemical status of groundwater bodies.

3.2.5 Air

Good air quality is vital for human health and wellbeing, for the climate, habitats, and the built environment. Air pollution is the result of a range of substances that are introduced into the atmosphere from a variety of different sources. On the whole, air quality in Northern Ireland has improved significantly over the past few decades; in particular, concentrations of sulphur dioxide, originating from the combustion of coal and oil, have reduced. However, some pollutants are continuing to exceed air quality objectives. This has consequences on both human health and on some of our most important habitats that are sensitive to the effects of atmospheric pollutant deposition. Of particular relevance to the agriculture sector are the concentrations of ammonia, with agriculture recognised as the dominant source of ammonia emissions in Northern Ireland and worldwide.

The UK has international obligations for ammonia reduction, as a signatory to the UN Gothenburg Protocol, which set a target of 8% ammonia reduction for the UK by 2020, from 2005 levels. This 8% target for the UK was also contained within the EU National Emissions reduction Commitments (NEC) Directive 2016. This has been updated by the UK National Emission Ceilings Regulations 2018, which require the UK to reduce ammonia emissions by 16% compared to emissions in 2005 by 2030. The SALMS 2016 is a strategic land management policy document with the aim of outlining how ambitions for agricultural growth could be achieved in such a way as to improve farm incomes and environmental performance simultaneously. The significance of ammonia for the agriculture sector was recognised in 2017 with the addition of an Annex to the SALMS 'Making Ammonia Visible'[93], outlining policy for agriculture in Northern Ireland in relation to ammonia. The overarching aim is to satisfy the joint need of bringing ammonia emissions from agriculture down, while allowing priority habitats and designated sites to recover. A draft ammonia strategy for Northern Ireland is also currently in development by DAERA (DAERA, 2023)[94].

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Air comprise:

- Potential for effects on air pollutant emissions arising from agricultural and land use activities;
- Potential for effects on transboundary emissions (e.g. ammonia) arising from agricultural activities;
- Potential for effects of air pollutants on sensitive habitats;
- Potential for effects of air pollutants on human health; and
- Potential for improvement of efficiencies leading to a reduction in emissions.

[93] Making Ammonia Visible 2017

[94] Draft Ammonia Strategy for Northern Ireland

3.2.5.1 Air Quality in Northern Ireland

Air pollutant status and trends

Air quality is monitored regularly at 23 stations within Northern Ireland. At each of these locations, levels of pollutants including Nitrogen dioxide (NO_2), Nitric oxide (NO), Nitrogen oxides as nitrogen dioxide (NO_X as NO_2), Ozone (O_3), PM_{10} particulate matter, $PM_{2.5}$ particulate matter, benzene, Sulphur dioxide (SO_2), polycyclic aromatic hydrocarbons (PAHs) and Carbon monoxide (CO) are monitored, and measured with regard to EU Air Quality Directives, the Air Quality Standards Regulations (Northern Ireland) 2010, the 2007 UK Air Quality Strategy (AQS) objectives, the Environment Order (Northern Ireland) 2002 and the Air Quality Regulations (Northern Ireland) 2003. Data is available regarding the pollutants monitored at 19 of these sites, and the latest measured air quality is shown in **Table 3-20**[95].

Table 3-20 Air pollution monitoring sites and pollutants measured in Northern Ireland

Monitoring Site	Pollutants monitored	Latest pollution level*
Derry Dale's Corner	NO_2, NO, NOX as NO_2	Low (NO_2)
Derry Rosemount	O_3, PM_{10}, $PM_{2.5}$, SO_2, NO_2, NO, NOX as NO_2	Low (NO_2, SO_2, O_3, PM_{10}, $PM_{2.5}$)
Ballymena Ballykeel	$PM_{2.5}$, PM_{10}, NO_2, SO_2, NOX as NO_2, NO	Low ($PM_{2.5}$, SO_2, $PM_{2.5}$, PM_{10})
Armagh Lonsdale Road	PM_{10}, NO_2, NOX as NO_2, NO	Low (NO_2, PM_{10})
Newry Canal Street	PM_{10}, NO_2, NOX as NO_2, NO	Low (NO_2, PM_{10})
Downpatrick Roadside	NO_2, NO, NOX as NO_2	Low (NO_2)
Lisburn Dunmurry Seymour Hill	$PM_{2.5}$, PM_{10}, SO_2	Low (All)
Belfast Stockman's Lane	PM_{10}, NO_2, NOX as NO_2, NO	Low (NO_2, PM_{10})
Belfast Westlink Roden Street	NO_2, NOX as NO_2, NO	Low (NO_2)
Enniskillen Bowling Green	$PM_{2.5}$, PM_{10}	Low (All)
Castlederg	$PM_{2.5}$, PM_{10}	Low (All)
Belfast Centre	$PM_{2.5}$, PM_{10}, SO_2, NO_2, O_3, CO, NOX as NO_2, NO	Low ($PM_{2.5}$, PM_{10}, SO_2)
Belfast Newtownards Road	NO_2, NOX as NO_2, NO	Low (NO_2)
Castlereagh Dundonald	NO_2, NOX as NO_2, NO	Low (NO_2)
North Down Holywood A2	$PM_{2.5}$, PM_{10}, NO_2, NOX as NO_2, NO	Low (NO_2, PM_{10}, $PM_{2.5}$)

[95] Air Quality Northern Ireland

Monitoring Site	Pollutants monitored	Latest pollution level*
Newtownabbey Antrim Road	NO_2, NOX as NO_2, NO	Low (NO_2)
Ballymena Antrim Road	NO_2, NO, NOX as NO_2	Low (NO_2)
Strathfoyle Bawnmore Place	$PM_{2.5}$, PM_{10}	Low (All)
Newtownstewart	$PM_{2.5}$, PM_{10}	Low (All)
Lough Navar	$PM_{2.5}$, PM_{10}, O_3	Low (All)
Strabane Springhill Park	$PM_{2.5}$, PM_{10}, SO_2	No Data
Limavady Dungiven	$PM_{2.5}$, PM_{10}, NO_2, NO, NOX as NO_2,	Low ($PM_{2.5}$, PM_{10}, NO_2)

* https://www.airqualityni.co.uk/ Accessed 9 June 2026.

Air quality in Northern Ireland is reported annually by DAERA, the most recent report in 2024[96], and is compiled from data supplied by the monitoring stations. This highlights any exceedances of air quality objectives and highlights any emerging air quality trends. The most significant air pollutants for Northern Ireland and their sources are the following:

- Nitrogen oxides (NO_x, including nitric monoxide NO and nitrogen dioxide NO_2), arising from fuel combustion in transport and energy generation. Emissions of NO_x contribute to acidification of soils and surface waters, tropospheric ozone formation and nitrogen saturation in terrestrial ecosystems.
- Sulphur dioxide (SO_2), arising from combustion of fuels that contain sulphur, from power generation, industry, and domestic solid fuel combustion.
- Particulate matter (PM_{10} and $PM_{2.5}$), arising from road transport and domestic solid fuel combustion, and as a secondary pollutant from ammonia.
- Ground-level ozone (O_3), arising from the interaction of various air pollutants with sunlight.
- Ammonia (NH_3), arising from agricultural activities and handling, storage and spreading of manure. NH_3 reacts with other pollutants (NO_x, S), producing fine particles of ammonium nitrate and ammonium sulphate.
- Polycyclic aromatic hydrocarbons (PAHs), arising from incomplete combustion primarily from domestic sources.

The following pollutants were monitored in Northern Ireland during 2024: carbon monoxide (CO), oxides of nitrogen (NO_x), comprising nitric oxide (NO) and nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particles (as PM_{10}, $PM_{2.5}$ and black carbon), ozone (O_3), benzene, polluting elements (including lead, arsenic, cadmium, nickel, and mercury), polycyclic aromatic hydrocarbons (PAHs) and toxic organic micro pollutants (TOMPs). The Regulations limit values, target values and AQS objectives were met for the following pollutants in Northern Ireland in 2023: PM_{10} and $PM_{2.5}$ particulate matter, NO_2, O_3, CO, benzene, SO_2 and polluting elements. The four sites are monitored for PAHs, of which three sites exceeded AQS objectives; these are likely due to solid fuel burning. The exceedance of PAHs standards has potential to decrease, however, as Northern Ireland's Energy Strategy - Path to Net Zero Energy[97], published in 2021, details restrictions on burning fossil fuels for home heating.

[96] Air Pollution in Northern Ireland 2024

[97] Energy Strategy Path to Net Zero Energy

Local Air Quality Management (LAQM) provides the framework under the Environment Order (Northern Ireland) 2002 within which air quality is managed by Northern Ireland's local authorities (District Councils). LAQM requires the District Councils to review and assess a range of air pollutants against the objectives set by the AQS, using a range of monitoring, modelling, and other methods. For locations where objectives are not expected to be met by the relevant target date, District Councils are required to declare an Air Quality Management Area (AQMA), and to develop an Action Plan to address the problem. There are 18 active AQMAs in Northern Ireland, set for one or more of the pollutants PM_{10}, NO_2, or SO_2; the locations of these AQMAs are shown in **Figure 3-16**.

Figure 3-16 Air Quality Management Areas in Northern Ireland

Air pollutants and agriculture

The UK National Atmospheric Emission Inventory (NAEI) is the standard reference air emissions inventory for the UK, and includes emission estimates for England, Scotland, Wales and Northern Ireland for a wide range of important pollutants including GHGs, regional pollutants leading to acid deposition and photochemical pollution, persistent organic pollutants (POPs) and other toxic pollutants such as heavy metals. The NAEI is compiled annually, when the latest set of data are added, and the full time series updated and reported internationally. The latest report was published in 2025 and covers the period 2005-2023[98]. This summarises emissions in Northern Ireland for the eight priority air pollutants: NH3, CO, NOx, non-methane volatile organic

[98] Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 2005-2023

compounds (NMVOCs), PM10, PM2.5, SO2 and lead (Pb). The report also details information on PCDD/Fs, B[a]P, and Hg emissions. The report details that most pollutant emission levels were lower in 2023 (aside from NH3) than they were in 2005. Ammonia emissions have increased since 2010 as a result of greater numbers of dairy cattle and associated manure management and spreading, as well as an increase in other nitrogen-based fertiliser use (primarily urea-based and digestate). Ammonia emissions were estimated to be 32kt in 2022, an overall increase of 6% since 2005, typically due to the increase in dairy cow numbers in Northern Ireland. Inventory figures show that, in 2023, 12% of the total UK ammonia emissions came from Northern Ireland. This is disproportionate when compared to Northern Ireland's population (3% of the UK total) and land area (6% of the UK total), reflecting the importance of agriculture to Northern Ireland's economy. The NAEI Inventory of Ammonia Emissions from UK Agriculture 2023[99], estimated that the emissions from UK agriculture in 2023 was 230.7kt nitrogen/year, with cattle representing the largest contribution to this at 113.2kt. From the NAP Implementation Report (DAERA, 2024), in 2022 it was estimated that 97% of all ammonia emissions in Northern Ireland came from the agriculture sector, with 40% arising from cattle manure management and a further 25% from cattle manure land application, on a combined basis, the management and application of manure from livestock housing was responsible for 84% of all emissions. Agriculture was also an important sector in the contribution of NMVOCs (52% of the Northern Ireland total), primarily from manure spreading, and PM_{10} (16.8% of the Northern Ireland total).

The NAEI agricultural ammonia emissions (2020) have been compared to the UKCEH Land Cover Classification codes for agriculture (including arable, improved grassland and neutral grassland) in **Figure 3-17**. This illustrates the high contribution of agriculture to ammonia emissions, with higher ammonia emissions generally recorded in the predominantly agricultural land areas.

[99] NAEI Inventory of Ammonia Emissions from UK Agriculture 2023

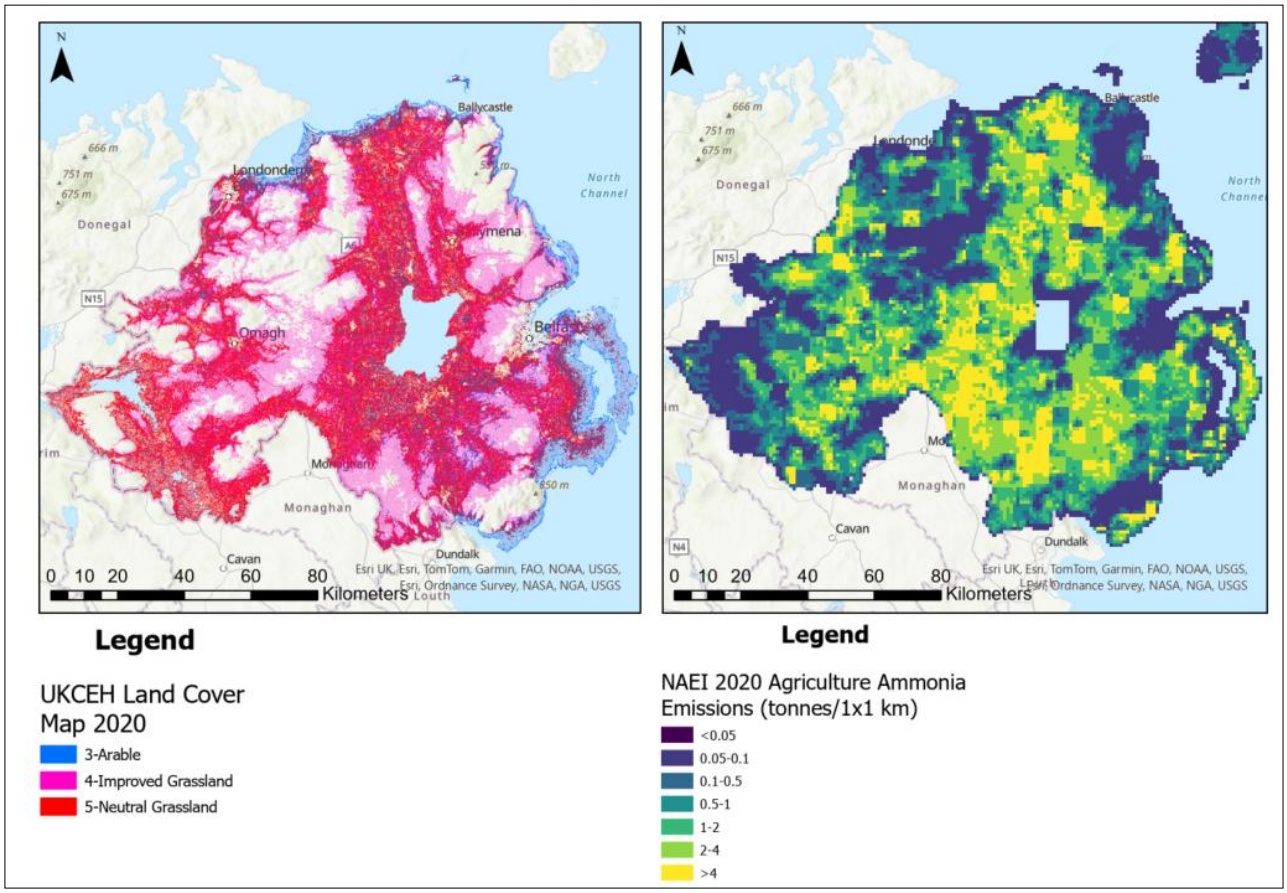


Figure 3-17 Northern Ireland agricultural lands (UKCEH, 2020) in comparison to agricultural ammonia emissions (NAEI, 2020)

Nitrogen can be lost to the air in gaseous forms such as ammonia or nitrous oxide from livestock, their manures and from the application of fertiliser. The transport of ammonia can vary greatly, and emissions can lead to impacts at a localised level, as well as contributing to the effects of long-range pollutant transport. Ammonia emissions can lead to the deposition of nitrogen compounds on land, which can occur in two ways:

- Dry deposition of nitrogen compounds close to the ammonia source; and
- Wet deposition of nitrogen compounds in rainfall, which can be transported much further than the source. Deposition of nitrogen compounds can also occur to waterbodies in rainfall.

Atmospheric pollutants, especially nitrogen and ammonia, can have adverse impacts on terrestrial and aquatic ecosystems, causing eutrophication and acidification.

The Making Ammonia Visible report (DAERA, 2017) highlighted that ammonia emissions from agriculture in Northern Ireland are not predominantly caused by the intensive sector, with only 20% of emissions emanating from the pig and poultry sectors. Cattle production was responsible for by far the greatest proportion of ammonia originating from the agriculture sector at over 70%. Fertiliser was estimated to contribute 7% of the total ammonia emissions. The source of agricultural ammonia emissions in 2015 was estimated as follows:

- Manure spreading 34%;
- Housing 28%;
- Hardstanding 11%;
- Grazing/outdoor 10%;
- Manure storage 10%; and

- Nitrogen fertilisers 7%.

The Inventory of Ammonia Emissions from UK Agriculture 1990-2023 was published in 2025[100], and provides a breakdown of ammonia emission quantities and sources for the UK as a whole for 2023. The inventory submission report estimated that 49% of UK ammonia emissions came from cattle (24.6% from dairy cows and 24.4% from other cattle), 12.2% from poultry, 6.4% from pigs, 5.1% from sheep, 1% from horses, goats and deer, and 26.7% from fertilisers, sludge and digestates. In terms of emission sources, housing (25%), manure application (24%) and storage (8.5%) and the application of fertilisers (17.8%) contributed the majority of ammonia emissions.

In Northern Ireland, the COGAP for the Prevention of Pollution of Water, Air and Soil was developed prior to the first designation of Nitrate Vulnerable Zones in 1999. In addition to the COGAP for the Prevention of Pollution of Water, Air and Soil, the COGAP for Reducing Ammonia Emissions was published by DAERA in May 2019[101]. This was produced in collaboration with the farming industry and provides farmers with a range of practical steps that they can take to minimise ammonia emissions. It outlines legislative requirements of the NAP in relation to the storage of organic manures, and how to apply organic manures effectively and efficiently using LESSE. As a consequence of the total territory approach in Northern Ireland, the sections of the COGAP for the Prevention of Pollution of Water, Air and Soil relevant to livestock manure storage and nitrogen fertiliser application will be incorporated into the draft NAP 2027-2030 and compliance will be a legal requirement for all farm businesses in Northern Ireland. In addition, the COGAP for the Reducing Ammonia Emissions section on spreading organic manure using LESSE is compulsory for farms which meet certain criteria.

Reducing ammonia emissions and nitrogen deposition across Northern Ireland has been identified by DAERA as a key priority; the draft ammonia strategy currently in development[102] proposes a strategic approach to addressing ammonia to include an ammonia reduction programme for implementation on farms. A programme to restore and manage habitats to alleviate the symptoms of ammonia and nitrogen exceedances is being delivered through SAC Conservation Management Plans (CMPs), with the first phase now completed[103]. A draft revised operational protocol for assessing impacts from atmospheric nitrogen pollution is also in development and will contribute towards a combined approach to tackling ammonia reduction.

3.2.5.2 Air Quality in the Republic of Ireland

In the Republic of Ireland, the revised NEC Directive (2016/2284/EU) requires a limit in annual national emissions of the transboundary pollutants SO_2, NO_x, volatile organic compounds (VOC), NH_3 and particulate matter. The EPA report, Ireland's Air Pollutant Emissions 1990-2030 (EPA, 2024)[104] outlines the current levels. The Republic of Ireland is currently compliant with current and future emission reduction commitments for sulphur dioxide (SO_2), nitrogen oxides (NO_x) and fine particulate matter ($PM_{2.5}$). The principal sources of NO_x are agriculture (resulting from organic and synthetic nitrogen use) and fossil fuel combustion in power generation and transport, with overall emissions reducing by 55.9% in the period 2005-2022; it should be noted that agriculture emissions from manure management and agricultural soils are not accounted for the purpose of the NEC Directive compliance assessment.

Ammonia emissions in 2022 were slightly below 2021 levels owing to the implementation of abatement measures such as an increased uptake of LESSE techniques and decreased use of nitrogen fertilisers in combination with increased use of inhibited urea. However, the levels exceeded emission reduction commitments for a third year running, with increased cow numbers and increased fertiliser use following the removal of milk quotas in 2015 highlighted as the main drivers of non-compliance for ammonia emissions for

[100] UK Agriculture Ammonia Emissions Report 1990-2023

[101] Code of Good Agricultural Practice for the Reduction of Ammonia Emissions

[102] DAERA 2023. Draft Ammonia Strategy for Northern Ireland

[103] Conservation Management Plans

[104] EPA Air Pollutant Report 2024

these years. The agriculture sector accounted for virtually all ammonia emissions in the Republic of Ireland in 2022 (99.4%). The National Air Pollution Control Programme (NAPCP) and Clean Air Strategy include mitigation measures that aim to achieve compliance with the emission reduction commitments up to 2030.

3.2.5.3 Effects of Air Pollution on Sensitive Habitats

The deposition of air pollutants can lead to impacts on sensitive habitats. Habitats that are sensitive to atmospheric pollution, and their current status are discussed in **Section 3.2.1** Biodiversity, Flora, and Fauna.

3.2.5.4 Effects of air pollutants on Human Health

Air pollution can pose a serious risk to human health, from lung irritation and inflammation to acute respiratory illness and exacerbation of heart and lung disease. The agriculture sector is a significant contributor of atmospheric pollutants, such as methane, ammonia, and nitrogen oxides, which are secondary particulate matter precursors (NO_x and NH_3), as discussed in previous sections. The consequences for human health are expanded upon in **Section 3.2.2** Population and Human Health.

3.2.5.5 Summary of Existing Pressures and Issues for Air in Northern Ireland

According to From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013), air pollution from domestic combustion and from road transport remain as challenges in the improvement of air quality for the protection of human health, while pollutants can also lead to secondary effects on sensitive habitats. However, air quality has improved significantly over the past few decades, and the most recent air quality monitoring report shows that all pollutants, except for PAHs, met EU limit and target values and AQS objectives.

The Clean Air Strategy for Northern Ireland - Public Discussion Document (DAERA, 2020)[105] is the first step in the development of a Clean Air Strategy for Northern Ireland. It presents evidence and research on a range of ambient air pollutants and outlines policy and legislation currently in place to control air pollution. The first Clean Air Strategy[106] for the Republic of Ireland was published in 2023. It aims to set appropriate targets and limits to ensure continuous improvements in air quality; ensure that clean air considerations are integrated into policy developments across Government; increase the evidence base regarding pollution sources and health impacts and increase awareness of the importance of clean air for health; enhance regulation and enforcement systems; and develop any additional targeted or specific policy measures in response to national or local air quality issues. The strategy for Northern Ireland, when published, should provide a similar high-level strategic framework to identify and promote integrated measures across government to reduce air pollution.

Northern Ireland's new Energy Strategy - Path to Net Zero Energy [107] is expected to support further improvements in air quality. While most pollutant emission levels are lower than they were in 2005, ammonia emissions have increased since 2010, as result of increased numbers of dairy cattle and associated manure management, and an increase in nitrogen-based fertiliser use. They contribute a disproportionate amount to the total UK emissions owing to the importance of agriculture to Northern Ireland's economy. Over 97% of ammonia emissions in Northern Ireland have been attributed to the agriculture sector. These emissions pose a risk to sensitive habitats and ecosystems, through direct exposure that can cause physical damage, to their contribution to deposition of nitrogen compounds that can result in biodiversity loss and changes in ecosystem structure and function. Ammonia has especially detrimental effects on species and habitats that are sensitive to elevated levels of nitrogen input. Border areas in the Republic of Ireland (particularly Cavan and Monaghan) have intensive agricultural holdings including a large number of EPA licensed installations for pigs and poultry, and there may be potential for cumulative impacts with other farming activities (e.g. dairy and beef) from ammonia and exceedance of critical levels and loads, including on nearby European sites and sensitive

[105] Clean Air Strategy for Northern Ireland 2020

[106] Clean Air Strategy for Ireland 2023

[107] Northern Ireland Energy Strategy Path to Net Zero Energy

habitats. The UK has obligations for a 16% target for ammonia reduction by 2030, through the UK National Emission Ceilings Regulations 2018, while the draft Ammonia Strategy for Northern Ireland (DAERA 2023) has set targets to reduce total Northern Ireland agricultural ammonia emissions by at least 30% from 2020 levels, and to reduce ammonia at internationally designated sites by 40% or <Cle (the critical level for ammonia concentration at a site) from 2020 levels.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on air quality in Northern Ireland and further afield alone, or in combination with, these existing pressures. There is potential for positive or negative effects on emissions of ammonia and other air pollutants from agricultural activities. There is potential for direct and indirect positive or negative effects on sensitive habitats and ecosystems from exposure to air pollutants and deposition of nitrogen compounds.

3.2.6 Climatic Factors

Climate change represents one of the most important threats to the environment, and to the economy, and projections indicate that hotter, drier summers and warmer, wetter, winters will occur over the next century as a result of climate change. The Paris Agreement, signed in 2015, committed to strengthening the global response to the threats of climate change, by holding the global temperature rise to no more than 2°C and preferably below 1.5°C. Key to this agreement is the reduction of GHG emissions fast enough to achieve this temperature goal.

The European Green Deal 2020[108] aims to make significant advances in climate action, providing a more sustainable low-carbon economy for the EU. It plans to boost the efficient use of resources by moving to a clean circular economy, and to restore biodiversity and cut pollution. The Deal has set a goal of net zero carbon emissions by 2050, and a 50-55% reduction in emissions by 2030. The UK Climate Change Act 2008 introduced a legally binding target for the reduction of GHG emissions in the UK by at least 80% below 1990 baseline levels by 2050. The target for the 2018-2022 period was a reduction in emissions by 37% by 2020 and, for the next period 2022-2025 to reduce emissions by 51%. The Act was amended in 2019 and now commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels (in line with the EU's 'net zero 2050 target'). The first climate change legislation was passed by the Northern Ireland Assembly in 2022; the Climate Change Act (Northern Ireland) 2022 sets out the legal framework for tackling climate change by reducing GHG emissions in Northern Ireland, with a net zero target by 2050 from baseline levels.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Climatic Factors comprise:

- Potential for effects on GHG emissions, including Methane (CH_4), nitrous oxide (N_2O), and carbon dioxide (CO_2) arising from agricultural and land use activities;
- Potential for effects on climate resilience; and
- Potential for improvement of efficiencies leading to a reduction in emissions.

3.2.6.1 Northern Ireland's Climate

Northern Ireland has a moderate climate, due to the effects of the Atlantic Ocean, with relatively mild winters and cool summers. There are localised differences in temperature, cloud and precipitation across the region, introduced by the indented shape of the coastline and the presence of high ground. The mean annual temperature at low altitudes in Northern Ireland varies from about 8.5°C to 10.0°C, with the higher values occurring at, or in proximity to, the coasts. January and February are usually the coldest months, and July the warmest. Rainfall varies widely across Northern Ireland, with the wettest places being in the Sperrin Mountains, Antrim Hills and Mourne Mountains, and the highest areas having average annual totals of about 1600mm.

[108] The European Green Deal 2020

Higher averages occur in the more western counties of Fermanagh, Derry/Londonderry and Tyrone, while the driest places occur further east around Strangford Lough and close to the east coast, and near to the southern and eastern shores of Lough Neagh - where the annual totals are less than 800mm[109].

3.2.6.2 Climate Change

According to the UK Climate Change Risk Assessment 2022,[110] infrastructure in Northern Ireland is exposed to a range of climate hazards; flooding poses the greatest long-term risk to infrastructure from climate change, however there are growing risks from heat, water scarcity and slope instability caused by severe weather[111].

The UK Climate Change Projections (UKCP18)[112] anticipate a greater chance of hotter, drier summers and warmer, wetter, winters with more extreme weather and rising sea levels. The high emission scenario for Northern Ireland shows that by:

- 2070 winters could be up to 3.4°C warmer and summers could be up to 5.1°C hotter.
- 2070 winters could be 40% wetter and summers 44% drier.
- 2100 sea levels in Belfast could rise by up to 0.94m.

These effects of climate change are likely to increase pluvial, fluvial and coastal flooding and will require future development to be adaptable or resilient to future climatic changes and associated impacts. Climate change could have considerable impacts on riparian and coastal developments from increases in flood risk, with sea level rise already being observed and wetter winters anticipated. These potential impacts could have serious consequences in Northern Ireland, where many of the main cities and towns are on the coast or on large rivers.

Under a changing climate there is potential for increased occurrence of drought events which may impact on agricultural activities. There are possible implications for fertilisation regimes with alterations in soil conditions and the incorporation of nutrients within soil layers for uptake by plants. Research has suggested that drought can increase nitrogen loss due to a disruption in the timing of nitrogen release through mineralisation and plant nitrogen uptake occurring. There have also been indications that the form of nitrogen fertiliser used during drought conditions can alter the amount of nitrogen lost, with manure-based nitrogen showing lower losses compared to chemical fertiliser nitrogen use[113]. The potential for nitrogen loss following drought occurrence may also be influenced by the soil hydrology and conditions, with the formation of surface crusting layers altering the amount of nitrogen available for loss during rainfall events following drought occurrence. This suggests that, under a changing climate, consideration should be made regarding the forms of nitrogen fertilisation, the amounts used to minimise potential losses, and that forecasting of potential drought conditions should be considered during land management decisions for nitrogen application.

3.2.6.3 GHG Emissions

The Northern Ireland GHG Inventory includes data on GHG emissions in Northern Ireland, forming part of the UK GHG Inventory reported at an international level in line with UK commitments under the Kyoto Protocol. The Inventory is updated annually, the latest available covers the period 1990-2024[114]. In 2024, Northern Ireland accounted for 4.9% of the UK total GHG emissions, which is higher than its population share of 2.8%. Since the base year (1990), Northern Ireland's total GHG emissions have decreased by 29.4% from 29.2 to

[109] Met Office Regional Climates Northern Ireland

[110] UK Climate Change Risk Assessment 2022

[111] Northern Ireland CCRA 2017 Summary

[112] UK Climate Change Projections

[113] Inter-seasonal Nitrogen Loss with Drought Depends on Fertiliser Management in a Seminatural Grassland

[114] Northern Ireland Greenhouse Gas Emissions 1990 - 2024

18.4 million tonnes of carbon dioxide equivalent ($MtCO_2e$). Between 2023 and 2024, three sectors showed a decrease in emissions of Electricity Supply, Industry Sectors.

Agriculture was the sector responsible for the greatest amount of GHG emissions in 2024 (31.4%), followed by domestic transport (21.3%), buildings and product uses (15.5%), land use (11.7%), electricity supply (10.8%), industry (5.5%) and waste (3.8%). The composition of GHG emissions for Northern Ireland in 2024 was as follows:

61.5% Carbon dioxide (UK 79%)

29.5% Methane (UK 15%)

8% Nitrous oxide (UK 5%)

0.9% Fluorinated and other gases (UK 2%)

The total quantity of Northern Ireland's emissions attributed to the agriculture sector in 2024 was 5.8 of the total 18.4$MtCO_2e$. This represents a 0.5% increase from the base year. Across all sectors other than agriculture and waste management, carbon dioxide was the most commonly emitted GHG. For the agriculture sector, methane arising from livestock and nitrous oxide from soils represented more significant emissions than carbon dioxide. The agriculture sector was accountable for 4.3 of the 5.4$MtCO_2e$ of methane (CH_4), and 1.2 of the 1.5 nitrous oxide (N_2O) emitted within Northern Ireland in 2024, but a much lower proportion of CO_2 (0.3 of the 11.3$MtCO_2e$ emitted).

GHG emissions are an indicator in the PfG Framework 2024-2027, based on a criteria for change set at ±1.0 percentage points annually since the baseline of 23.3 $MtCO_2e$ in 2014. The decrease to 18.4$MtCO_2e$ fin 2024 is considered as 'improving' for PfG reporting. On the whole, the UK has reduced emissions by nearly 50% since the base year, however the different parts of the UK vary in their reduction, with Northern Ireland achieving the lowest reduction of 29.4% in emissions to date (Scotland 52.2%; England 53%; Wales 44.5%).

3.2.6.4 Summary of Existing Pressures and Issues for Climatic Factors in Northern Ireland

Climate change represents a significant challenge internationally and in Northern Ireland, is likely to result in more frequent and extensive fluvial and coastal flooding of agricultural land; with saltwater inundation of farmland in coastal areas affecting its usage. There is also potential for a loss of agricultural land in coastal areas where erosional processes are predominant, which is likely to be exacerbated by climatic change and predicted sea level rise.

GHG emissions in Northern Ireland have decreased by 31% since 1990, owing to improvements in energy efficiency, switching from coal to natural gas as a fuel source, and improvements in the management of landfills. The agriculture, transport and other change sectors have higher emissions of GHGs currently than they had in 1990. The UK committed to a target of a 37% reduction in GHGs by 2020 and, through the Climate Change Act (Northern Ireland) 2022, Northern Ireland has committed to a target of 100% reduction by 2050; although in 2020 the UK as a whole had a 49.9% reduction, in Northern Ireland GHG reduction stood at only 29.4%. This has implications for successfully contributing to the UK and Northern Ireland targets for 'net zero emissions' by 2050. The agriculture sector is responsible for the greatest amount of GHG emissions in Northern Ireland (31.4% in 2024), accounting for a significantly higher proportion of emissions in Northern Ireland than in the rest of the UK. The deposition of nitrogen compounds from these emissions can also indirectly lead to increased emissions of nitrous oxide from wet soils; this is a very potent GHG with a global warming potential 298 times greater than carbon dioxide.

The Climate Change Committee's sixth Carbon Budget publication[115] sets out in Chapter 3, Part 6 the pathways to reach net zero emissions that can be taken by agriculture and land use, land-use change and forestry (such as low-carbon farming measures), and measures included in the draft NAP 2027-2030 should

[115] The Sixth Carbon Budget

be advancing these. In relation to the potential for transboundary effects in the Republic of Ireland, the Climate Action Plan 2024 (CAP24) sets out the actions that are needed to meet the national climate objective to halve Ireland's emissions by 2030 and reach net zero by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021. The required reduction in emissions (from 2018) for the agriculture sector is 25% by 2030, as set out in the emissions ceiling for agriculture presented in the Sectoral Emissions Ceilings Plan to 2030, published in 2022. The GHG Emissions Report, published in 2026[116], estimates that Ireland will fall short of national and EU reduction targets. The overall agricultural emissions decreased by 1.2%, with a large 14% decrease due to fertiliser nitrogen use partly offset by increased livestock numbers. The agriculture sector contributed 39% of Ireland's total emissions in 2022. According to Ireland's GHG Emissions Projections report 2023-2050[117], for the agriculture sector under the scenario 'with existing measures in place (including actions under Ireland's Nitrates Action Programme)' total emissions are projected to decrease by only 1% from 2025-2030 (this includes fuel used in agriculture, forestry, and fishing), while under the scenario 'with additional measures' emissions are projected to decrease by 18%. The National Dialogue on Climate Action aims to facilitate the engagement of citizens in climate action and increase the awareness of climate change. A recent survey study by the EPA and Yale, Climate Change in the Irish Mind (2021)[118] found citizens to be largely in support of Government climate change policy, with 90% believing that Ireland has a responsibility to act on climate change, and 79% that it should be either a 'very high' or 'high' priority for Government.

Implementation of the draft NAP 2027-2030 and measures therein has the potential to lead to positive or negative effects on GHG emissions and climate change in Northern Ireland and further afield alone, or in combination with, these existing pressures. There is potential for positive or negative effects on emissions of GHGs from agricultural activities, with implications for climate resilience. There is potential for direct and indirect positive or negative effects on sensitive habitats and ecosystems from exposure to air pollutants and deposition of nitrogen compounds.

3.2.7 Material Assets

The term 'Material Assets' can be considered very broadly within the SEA process, encompassing for example infrastructure, settlements, transport, and utilities. In recognition of the importance of agricultural land and farm outputs to the economy of Northern Ireland, consideration of material assets in the following section predominantly focusses on the number and types of agricultural assets found in Northern Ireland, as it is considered that the most potential for positive or negative effects on material assets from implementation of the draft NAP 2027-2030 relates to these. In addition, consideration has been given to water-related infrastructure in Northern Ireland, owing to the possibility of their operations being affected by implementation of the draft NAP 2027-2030.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and material assets comprise:

- Potential for effects on the productivity of agricultural land holdings;
- Potential for effects on water-related assets;
- Potential for increased agricultural output and farm incomes per hectare with adherence to NAP measures and Cross-Compliance measures; and
- Potential for effects on the status of waterbodies used for drinking water, recreation, and production of food.

[116] EPA Greenhouse Gas Report

[117] EPA Greenhouse Gas Projections 2025-2050

[118] Climate Change in the Irish Mind

3.2.7.1 Water-related Material Assets in Northern Ireland

Water Treatment and Supply

There were 25 water treatment works (WTWs) in service by NI Water during 2024, with 25 supply points and 287 service reservoirs, serving 55 water supply zones (designated areas with a population of no more than 100,000). Water supplies in Northern Ireland were obtained from three types of sources[119]:

- Rivers and loughs – 57.3%;
- Impounding reservoirs – 42.6%; and
- Boreholes – 0.1%

Microbiological, physical and chemical tests on water samples taken from WTWs, service reservoirs and customer taps indicated that the overall drinking water compliance of public water supplies in 2024 was consistently high at 99.88%[78], as detailed further in **Section 3.2.2** Population and Human Health.

Waste Water Treatment Works

Since 2007, waste water treatment works (WWTWs) must be compliant with numeric conditions of Water Order consents, and NI Water has been responsible for regulating discharges from WWTWs under the Water (Northern Ireland) Order 1999. Water Order permissions or 'consents' specify the quality and quantity for discharges into the water environment, taking into account the requirements of EU Directives and implementing national legislation. NI Water assess compliance against these standards for discharges that serve a population equivalent (PE) of greater than 249. The number of WWTWs assessed in Northern Ireland was 239 in 2025, a decrease of five since 2007[120]; of these 224 (94%) were found to be compliant with the conditions of Water Order consents. There are also five WWTWs that operate under a Public Private Partnership (PPP); each of these continued to achieve 100% compliance with conditions of their Water Order consents.

The Urban Waste Water Treatment Directive (UWWTD) protects the environment from the negative effects of sewage discharges, setting treatment levels on the basis of the size of sewage discharges and the sensitivity of waters receiving the discharges. There were 78 WWTWs in Northern Ireland assessed for compliance with the implementing national legislation, the Urban Waste Water Treatment (UWWT) Regulations (Northern Ireland) 2007, in 2023. The level of compliance has improved since 2007, with a compliance rate of 99% in 2025.

Waterbodies used for Drinking Water, Food Supply and Recreation

Waterbodies support the population of Northern Ireland, through the provision of drinking water and aquatic food resources, supply for industry, and recreational amenity. The current status and trends of waters utilised for these purposes is expanded upon in **Section 3.2.2** Population and Human Health and **Section 3.2.4** Water.

3.2.7.2 Agricultural Land Holdings in Northern Ireland

Number and types of Farms in Northern Ireland

Agriculture is very important to Northern Ireland's economy, accounting for approximately 1.9% of Gross Value Added (GVA) and supporting 1.4% of civil employment in 2024[121]; making the sector proportionally around three times as important to the local economy than it was for the UK as a whole. When food processing is included the shares of GVA rise to 3.8% and for employment to 4.7%.

[119] Drinking Water Quality in Northern Ireland 2024

[120] Northern Ireland Environmental Statistics Report 2026

[121] Statistical Review of Northern Ireland Agriculture 2024

There was a total of 26,190 farms in Northern Ireland in 2024, covering an area of 1,040,392 hectares (this refers to all active farm businesses having at least 1ha of farmed land [122]), approximately 77% of Northern Ireland. Although this was an increase of 59 in the total number of farms from the previous year, the number of farms has shown a continuous downward trend from a total of 40,724 in 1981, decreasing by 10% in the 15-year period between 2004 and 2019. The area of land farmed, however, has remained relatively stable since 1981. Over three quarters of Northern Ireland farms were classed as very small in 2024 (20,603). The average size of farms in Northern Ireland was 40ha in 2024, which is 2.3 times large than the average size of farms in EU-27 countries of 17.1ha.

The proportion of the various farm types in Northern Ireland is outlined in

Table 3-21. Cattle and sheep represent the predominant farm type, with 77.3% of farms keeping some cattle, and 38.3% keeping some sheep in 2024. This is similar to figures reported for 2023; total numbers of sheep and cattle were consistent, however the number of beef cows decreased by 1%. There were also 3.7% of farms keeping some poultry and 1.5% having some pigs.

Table 3-21 Farm Business Types in Northern Ireland, 2024

Farm Type	% Farms
Cattle and sheep	78.9
Dairy	9.6
Cereals / General Cropping / Horticulture	6.7
Pigs / Poultry	2.8
Mixed / Other	2.0

Productivity of Northern Ireland Farms

Productivity is a measure of the efficiency with which businesses turn inputs into outputs, indicating the economic competitiveness of a sector. The two main ways of measuring this are total factor productivity and labour productivity.

There was a total of 51,213 farm workers in Northern Ireland in 2024, 79.3% of which were farmers, partners, directors, or spouses, and the remaining 20.7% other farm workers. This compares to a total workforce of 67,786 in 1981, comprising 76% famers or spouses and 24% other farm workers. This represents a decrease of approximately 24.5% in the total farm workforce between 1981 and 2024, however the breakdown of total farm workers between farmers, directors, partners or spouses and all other farm workers (approximately 77% to 23%) has remained relatively stable since 2004.

The total income attained from farming includes the return to farmers, partners, directors, spouses, etc. for labour, management input and personal capital invested; this increased by 62.5% (56.2% in real terms) from £341 million in 2023 to £766 million in 2024 and is now 71.7% above the average of the last 20 years, after counting for inflation [123]. This increase has been attributed to higher product prices for most sectors in 2024.

The gross output from farming in 2024 was estimated at £3.19 billion, a decrease of 7.5% from 2023. The proportional contribution of sectors to outputs in 2024 are shown in **Table 3-21**. Animal products dominate nutrient outputs (>80%) as the arable sector is small in comparison. There were increases in the output of the

[122] The Agricultural Census in Northern Ireland

[123] Statistical Review of Northern Ireland Agriculture 2024

milk, cattle and calves, sheep and lamb, potato and horticultural sectors, but these were partially offset by decreases in output from the pig, poultry and cereal sectors. Milk was the highest valued output, at approximately £1.08 billion with an increase of 21.3% compared to 2023. The annual average dairy cow population in 2024 was 2.8% higher than 2023, at 329,428 head, and the average gross milk yield per cow increased by 0.9%. There was a 16.9% increase in the average gross milk price for 2024. The overall value of output of cattle and calves increased by 14.1% from 2023 to £658 million.

Table 3-22 Gross output of Northern Ireland agriculture, 2024

Output Type	% of Total
Dairy	17.1
Cattle	15.9
Sheep and wool	7.0
Poultry and eggs	13.2
Pigs	16.0
Cereals and other crops	1.0
Potatoes	2.3
Horticulture	1.9
Others	4.7

The gross input to farming in 2024 was estimated at £2.09 billion, a decrease of 2.6% from the previous year. The proportional contribution of inputs in 2024 are shown in **Table 3-23**. The total value of feed consumed in 2024 was £1.18 billion, accounting for 57% of the total expenses. This was an overall 4.4% decrease in cost from the previous year; the average price of feedstuffs increased by 11.6%, while the total purchased volume decreased by 7.5%. Total machinery expenses decreased by 1.2% to £199 million in 2024. This decrease was mainly due to a 7.8% decrease in the cost of fuel and& oils. Agricultural contracting costs remained unchanged at £118 million in 2024, whereas total fertiliser and lime costs decreased by 9.7% to £101 million in 2024. Fertiliser purchases have significantly declined in recent years over the period from 1995 to 2023 with a 54% reduction in nitrogen fertiliser and an 80% reduction in chemical phosphate fertiliser purchases. The six-year average (2018-2023) purchase of chemical nitrogen fertiliser was 73.2kt which was applied to 869,700ha of grassland and crops which equates to an average chemical nitrogen application rate of 84kg/ha, the average application rate of phosphorus pentoxide (P_2O_5) was 9kg/ha and for potash was 17kg/ha.

Changes in the volumes of inputs and outputs combined to give a 1.2% improvement in the total factor productivity (TFP), a measure of the productivity of all resources within the sector. The single factorial terms of trade, a measure of the economic welfare of farmers, also increased by 23.4% from 2023. For Northern Irish agriculture, the difference between the inputs and outputs of nutrients from production is positive (due to import of chemical fertilisers and animal feedstuffs) creating a nutrient surplus at risk for wider environmental losses. The current nutrient use efficiency can be calculated based on the rates of fertiliser and nutrient inputs compared to nutrient outputs and indicates that there has been a decline in the average application rate of chemical nitrogen fertiliser use from 91.9kg nitrogen/ha in 2018-2020 to 77.9kg nitrogen/ha in 2021-2023. The average application rate of chemical phosphorus fertiliser use has decreased from 4.8kg phosphorus/ha in 2018-2020 to 3.6kg phosphorus/ha in 2021-2023 which is a 51% decline compared to the average application rate recorded in 2004-2006.

Table 3-23 Total expenses of Northern Ireland agriculture, 2024

Input Type	% of Total
Feedstuffs	43.2
Capital consumption	15.0
Machinery	7.3
Labour	3.2
Fertilisers and lime	3.7
Net rent	2.2
Interest	3.0
Other expenses	22.4

Through Pillar 1 of the EU Common Agricultural Policy (CAP), approximately €327 million of direct financial support has been provided annually to farmers in Northern Ireland. This has significantly influenced how economically viable the sector has been, and its competitive trading position relative to other regions. Over the past five years, direct CAP support payments (£1.3 billion) have represented 87% of the total cumulative income of the sector in Northern Ireland[124], and have prevented the sector from being in a loss-making position.

3.2.7.3 Summary of Existing Pressures and Issues for Material Assets in Northern Ireland

Population growth and development are placing increasing pressure on many infrastructure assets, such as water treatment and supply and wastewater treatment, particularly in urban areas. There are currently approximately 863,000 domestic, agricultural, commercial, and business properties connected to the public water supply in Northern Ireland (around 99.9% of the total population). NI Water, the utility provider for Northern Ireland supplies 562 million litres of water daily and treats 134 million m^3 of wastewater annually. Annual population growth has been positive for the past 25 years in Northern Ireland, and the total population is predicted to increase from approximately 1.9 million in 2021 to approximately 1.99 million by 2043. There is a growing demand for water resources, owing to a lower average house occupancy, increased use of appliances, economic development and changing land uses. This is likely to put increasing pressure on the provision of water and wastewater treatment services.

The value of inputs and outputs to farming in Northern Ireland is dependent on economic fluctuations at a national and international level. The value of increased outputs can be offset by lower market prices, likewise, a decrease in the volume of inputs required, such as feedstuff, can be offset by price increases in these products.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on water-related material assets and productivity of Northern Ireland farm holdings alone, or in combination with, these existing pressures. There is potential for positive or negative direct effects, or in-combination effects on clean water supply and wastewater treatment from the application of measures outlined in the NAP. There is also potential for direct or indirect effects on the productivity of farm holdings in Northern Ireland from application of these measures, with implications for farm incomes and value of the sector.

[124] Statistical Review of Northern Ireland Agriculture 2024

3.2.8 Cultural, Architectural and Archaeological Heritage

Cultural heritage, including archaeological heritage and architectural heritage, are places and objects of beauty, cultural, historic, scientific, social, or spiritual value. They include archaeological monuments, world heritage sites, protected structures, designed landscapes, place names, language, and inherited traditions. Northern Ireland is rich in cultural, archaeological, and architectural heritage, with many important archaeological sites, monuments, and heritage buildings.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Cultural, Architectural and Archaeological Heritage comprise:

- Potential for direct or indirect impacts on archaeological and architectural features and their settings from implementation of measures within the NAP such as manure/fertiliser application and storage; and
- Potential for indirect impacts on water-based features and their settings resulting from water quality deterioration.

3.2.8.1 Heritage Assets

There are 56,344 recorded heritage assets within Northern Ireland that have been included in the Historic Environment Record of Northern Ireland (HERoNI). This includes:

- 18,450 entries on the Sites and Monuments Record.
- 15,763 recorded historic buildings.
- 15,765 Industrial Heritage Record sites.
- 4,595 Defence Heritage Record sites.
- 324 Battlefield sites.
- 663 Historic Parks and Gardens Record sites.
- 384 identified aircraft wrecks and shipwrecks.
- 400 Historic Nucleated Urban Settlements (including those with identified areas of archaeological potential).

There are also over 12,000 designated heritage assets in Northern Ireland. This includes:

- 190 Monuments in State Care.
- 2,053 Scheduled Historic Monuments.
- 12 protected wrecks (three shipwrecks which are scheduled under the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995 (HMS Drake, Lochgarry and Devereux), 1 Shipwreck (La Girona) which is protected under the Protection of Wrecks Act 1973 and 8 military aircraft protected under the Protection of Military Remains Act 1986).
- 9,124 Listed Buildings (Listed Buildings are those designated through listing as being of ‘special architectural or historic interest’ under Section 80 of the Planning Act (NI) 2011).
- 60 Conservation Areas.

Historic Parks, Gardens and Demesnes form part of the HERoNI, and are identified on the basis of these records for protection in the Local Development Plan (LDP) process; there are 383 of these sites included in the HERoNI. Local Landscape Policy Areas (547 no.), Areas of Significant Archaeological Interest (12 no., representing distinctive areas of the historic landscape in Northern Ireland), and Areas of Townscape / Village Character (177 no.) are LDP designations which may include assets recorded by HERoNI.

There are also two UNESCO World Heritage Sites (WHS) in Northern Ireland. The Giant's Causeway is designated for its unique geological heritage. Gracehill, a Moravian Church Settlement, is Northern Ireland's first cultural heritage WHS. It is important to note that the HERoNI archive is still growing, with new assets added as new information is provided.

Other aspects of the historic environment include historic hedgerows and boundaries, including townland boundaries, and fishponds and historic routeways. Vernacular buildings, including homesteads and agricultural buildings, are particular and unique across Northern Ireland's landscapes. Some heritage assets, such as historic railways, canals, bridges, and ancient earthworks are shared across the border with the Republic of Ireland, while others have shared landscape character.

3.2.8.2 Summary of Existing Pressures and Issues for Cultural Heritage in Northern Ireland

Built heritage in Northern Ireland has been adversely affected by population growth and expansion of the agricultural sector since the 18th century, with major landscape changes such as marginal land reclamation and removal of peatland occurring since the UK joined the EU in the 1970s. According to From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013), the archaeological resource is at risk from agricultural land use practices, and from urban development. While archaeology and built heritage in urban areas tends to be most susceptible to impacts associated with development, resources in rural areas are susceptible to impacts associated with agriculture, particularly through cultivation, but also through stock density and machinery use. The erection of large structures and associated infrastructure on farmlands that are exempt from planning requirements can have both direct and indirect impacts on archaeological sites and other heritage assets. Heritage assets have specific vulnerabilities to climatic changes, which are dependent on their nature and location.

At present, 1,148 heritage assets, including 9% of listed buildings[125], are on the Heritage at Risk register, while 3% of Scheduled Historic Monuments are considered to be in poor condition[126]. Environmental protection policies since the 1980s have brought protection to known archaeological sites and have incentivised good management practices; however, protected and unprotected sites are considered to remain at risk from arable practices and urban development. Considering the high proportion of land in Northern Ireland that is in agricultural use, many archaeological and heritage features are found on farmland. The Condition and Management Survey of the Archaeological Resource (CAMSAR) Report[127], published in 2009, recognised prehistoric monuments present within arable and improved grassland as being the most vulnerable. Post medieval vernacular heritage is also considered to be at risk from some practices and development. DAERA has provided technical guidance regarding the protection of historic monuments on farmland[128]. Landowners in receipt of direct payments are obligated to maintain their land in Good Agricultural and Environmental Condition (GAEC), including protection of archaeological sites, which must be retained and cannot be damaged, and this is a condition of Cross-Compliance. Conditions regarding the sensitive management of heritage features have also been attached to agri-environmental schemes.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on the condition or setting of heritage assets alone, or in combination with, these existing pressures. There is potential for direct or indirect effects on archaeological and architectural features within farm holdings, and for indirect effects on water-related heritage features via changes in water quality, from the application of measures within the draft NAP 2027-2030.

[125] Heritage at Risk Northern Ireland

[126] Northern Ireland Heritage Statistics

[127] CAMSAR Report 2009

[128] Protecting Historic Monuments on Farmland

3.2.9 Landscape and Visual Amenity

'Landscape' is defined by the European Landscape Convention as ''an area as perceived by people whose character is the result of the action and interaction of natural and/or human factors' and 'it concerns landscapes that might be considered outstanding as well as every day or degraded landscapes'. It aims to promote landscape protection, management, and planning, and to organise European co-operation on landscape issues. The UK ratified the Convention in 2006, and it came into effect in 2007. Signatories to the Convention are required to draw up specific and/or sectoral landscape strategies, linked by landscape quality objectives.

The current landscape of Northern Ireland is a product of land use changes and human interventions that have taken place in the *c*.9,000 years since the area was first settled. Although population growth in the late 20th and early 21st centuries expanded the extent of built-up areas, the Northern Ireland landscape remains predominantly rural, with agriculture the most prevailing land use.

It is considered that the key issues associated with implementation of the draft NAP 2027-2030 and Landscape and Visual Amenity comprise:

- Potential for effects on areas of designated landscape quality and scenic views (i.e., in Local Area Plans).
- Potential for effects on the general landscape (including riverscapes, lakescapes and seascapes).

3.2.9.1 Designated Landscapes

The value of the landscape in Northern Ireland is recognised through the designation of eight Areas of Outstanding Natural Beauty (AONB), designated for their distinctive landscape character and high scenic value, as follows:

- Strangford and Lecale AONB
- Antrim Coast and Glens AONB
- Causeway Coast AONB
- Ring of Gullion AONB
- Lagan Valley AONB
- Mourne AONB
- Binevenagh AONB
- Sperrin AONB

These areas cover approximately 325,000 hectares, or *c*.20% of the total land area of Northern Ireland.

As described in **Section 3.2.8** Cultural, Architectural, and Archaeological Heritage, the Giant's Causeway UNESCO WHS is designated for its unique geological heritage and the Gracehill WHS designated as a cultural site. The Cuilcagh Lakelands UNESCO Global Geopark, formerly Marble Arch Caves UNESCO Global Geopark, is a transnational geopark that straddles the border between Fermanagh in Northern Ireland and Cavan in the Republic of Ireland, while the Mourne, Gullion, Strangford UNESCO Global Geopark is situated along the south-east border of Northern Ireland; these Geoparks are areas of internationally important rocks and landscapes, all of which must be managed responsibly for conservation, education, and sustainable development. The location of AONBs, WHS and Global Geoparks within the study area are shown in **Figure 3-18.**

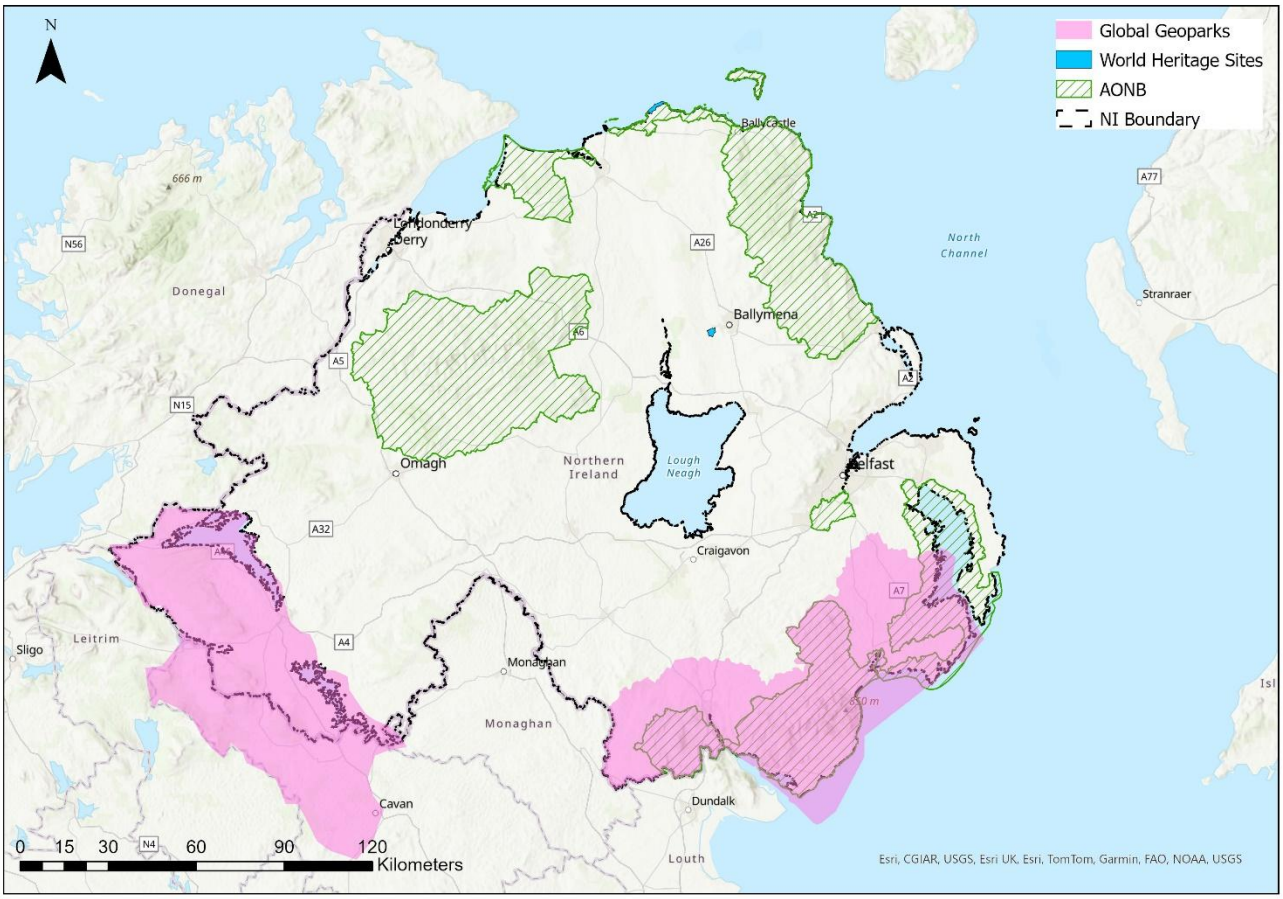


Figure 3-18 Location of AONBs, WHS and Global Geoparks within Northern Ireland

There are also eight NIEA Country Parks, as well as 56 National Trust Sites within Northern Ireland, the latter of which include Rathlin Island, Slieve Donard and Castle Coole. In addition, the Northern Ireland Landscape Character Assessment 2000, described below, identified special landscapes that it termed Areas of Scenic Quality; some of these areas have been included in Local Area Plans, where they may be designated as Areas of High Scenic Value (AoHSV).

'Shared Horizons'[129] is DAERA's Statement of Policy on Protected Landscapes. This Statement sets out the issues associated with the protection and sustainable use of Northern Ireland's finest landscapes, usually recognised by some form of designation that sets them apart from the wider countryside and indicates the way in which DAERA plans to address them.

3.2.9.2 Landscape and Seascape Character Assessment

Landscape character assessments are used as a tool to identify the landscape features that give a locality its 'sense of place'. The use of landscape character assessments for this purpose arose in response to the European Landscape Convention of 2000. The Nature Conservation and Amenity Lands Order (Northern Ireland) 1985 (NALCO) is the current legislative basis for the protection of landscapes. A Landscape Character Assessment of the whole territory of Northern Ireland was carried out in 1999, before the European Landscape Convention was published and became binding. The Northern Ireland Landscape Character Assessment (NILCA) 2000[130] subdivided the countryside into 130 Landscape Character Areas (LCAs), each based upon local patterns of geology, landform, land use, cultural and ecological features. For each LCA, the key

[129] Shared Horizons

[130] Landscape Character of Northern Ireland

characteristics were described and an analysis of landscape condition and its sensitivity to change was made. The land use planning system will generally refer to the NILCA where development might affect the landscape character[131].

The Northern Ireland Regional Landscape Character Assessment (NIRLCA), developed in 2016, aimed to complement the NILCA by providing a regional framework upon which more detailed local studies could be based. This subdivided the countryside into 26 Regional Character Areas (RCAs), based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness. These aim to provide information on which to base plans at a more local level that might affect landscape character. In addition, the Northern Ireland Regional Seascape Character Assessment[132] identified 24 Regional Seascape Character Areas (RSCAs) along the Northern Ireland coast, describing the key features and characteristics of each area, and relating these to neighbouring terrestrial LCAs. These RSCAs were identified as distinct areas with a unique sense of place, with boundaries tending to represent indicative lines of gentle transition rather than an abrupt change in seascape character.

The NIEA also published Northern Ireland's Landscape Charter in 2014 in response to the European Landscape Convention, with the following affirmations and guiding principles for decision making: landscape is essential; landscape contributes to wellbeing; landscape is part of identity; landscape reflects culture; landscapes matter and each of us has a right to landscape benefit; landscapes are shared and each of us is responsible; landscape is a networked asset whose whole is more than the sum of its parts; landscape change is inevitable but can be managed to enhance value; and transparency engenders awareness and confidence. Those interested in the value of Northern Ireland's landscape can sign the charter, thereby committing to these affirmations and guiding principles through their actions.

3.2.9.3 Summary of Existing Pressures and Issues for Landscape and Visual Amenity in Northern Ireland

The main pressures on Landscape in Northern Ireland, according From Evidence to Opportunity, A Second Assessment of the State of Northern Ireland's Environment (NIEA, 2013), are development (including housing, industrial and recreational), infrastructure, extraction industries, agriculture and forestry, and tourism. Land cover and habitats have changed in the past few decades as a result of population increases, changes in household structure and employment patterns and agricultural restructuring. While the economic recession slowed the rate of developments for a period post-2008, actions to stimulate economic growth put continued pressure on urban and rural landscapes.

Implementation of the draft NAP 2027-2030, and measures therein, has the potential to lead to positive or negative effects on the local landscape character or visual quality alone, or in combination with, these existing pressures. There is potential for direct or indirect effects on the general landscape, as well as on areas designated for landscape quality and scenic views, from the application of measures within the draft NAP 2027-2030.

3.3 Evolution of the Environment in the Absence of the draft NAP 2027-2030

SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the draft NAP 2027-2030 does not take place. In the absence of the draft NAP 2027-2030, there are likely to be impacts on water quality through continued emissions from agricultural sources with potential downturns in nutrient management methods and approaches.

[131] Landscape Planning for Sustainable Development

[132] Northern Ireland Regional Seascape Character Assessment

If the draft NAP 2027-2030 is not implemented, biodiversity, flora and fauna, including protected sites, habitats and species, in Northern Ireland and transboundary areas of the Republic of Ireland, would continue to exist in much the same pattern, abundance and density as today and subject to the current regulatory regime and the protections offered by same. Many elements of biodiversity in Northern Ireland are likely to continue to show declines, through the impact of human activities such as land use change associated with agriculture (land reclamation, drainage, increased production and stocking rates, and subsequent impacts on water and air quality) and development for housing and infrastructure, pollution and fisheries. Priority and protected habitats and species are likely to continue to show an overall decline in status from pressures such as land management practices, water pollution and air pollution. In the absence of any NAP, the current pressures on biodiversity, flora and fauna in Northern Ireland attributable to the agriculture sector are likely to continue, particularly those related to nitrogen deposition through ammonia emissions associated with livestock and fertiliser and water pollution and eutrophication through poor slurry spreading techniques and management. There is potential for some improvements necessitated by other policies and legislation, such as through the requirements of the WFD Regulations and Northern Ireland RBMP, Marine Strategy Regulations and Biodiversity Action Plans.

In the absence of the draft NAP 2027-2030, the population of Northern Ireland is expected to continue to increase, and the trend of an ageing population is likely to continue. Human health and wellbeing in Northern Ireland are likely to be affected more in the future by the effects of climate change, biodiversity loss and land degradation, and continue to be affected at a more local level through air quality, water quality effects on drinking water or food quality, or on recreational water-based resources such as bathing waters. Stocking rates, closed periods, and fertiliser application would not be regulated or controlled, allowing unrestricted farmyard management and potentially uncontrolled nitrogen and phosphorus losses to the environment. Without the draft NAP 2027-2030, current effects on air quality and water quality resulting from agricultural activities, with associated implications for the quality of waters used for drinking supply, bathing and food supply are likely to continue, albeit with some potential for improvement through measures implemented as part of RBMPs under the requirements of the WFD Regulations. The health and wellbeing of the population is also likely to continue to be indirectly negatively affected via the effects of agricultural activities on biodiversity loss and climatic change.

Without the draft NAP 2027-2030, groundwater will continue to be most vulnerable to contamination in areas where bedrock outcrops are present or where glacial sand and gravels are present, particularly in areas of higher elevation. Poorly draining or waterlogged soils, which are abundant in Northern Ireland, particularly in areas of lower elevation, will continue to pose a risk to erosion and contaminant runoff, proving the greatest risk to downstream surface waterbodies. There is currently little or no legislation relating directly to soils and soil protection. In the absence of the draft NAP 2027-2030, farm soil health is likely to continue to degrade, or be managed in an ad hoc manner. Some agricultural land will continue to be managed under agri-environmental scheme agreements, and some farmers will continue to test soils and manage land under Nutrient Management Plans with potential for protection and improvement of soil health. Without the NAP requiring controls on nutrient and fertiliser use and application techniques there is potential for increased nutrient enrichment of groundwater sources through nutrient runoff through the absence of relevant knowledge on fertilisation rates and appropriate spreading conditions.

In the absence of the draft NAP 2027-2030, the other existing EU Directives that are listed as Basic Measures under Article 11 of the WFD (Annex VI Part A) would continue to be implemented and enforced. These include the Bathing Water Directive, Birds Directive, Drinking Water Directive, Seveso Directive, Environmental Impact Assessment Directive, Sewage Sludge Directive, Urban Waste-water Treatment Directive, Plant Protection Products Directive, Habitats Directive, and Integrated Pollution Prevention Control Directive. Northern Ireland would continue to have a legal obligation to give effect to the Nitrates Directive and implement measures to protect water quality. The existing potential point and diffuse source pollution pressures on water quality, including from industry, construction, septic tanks, and agricultural and forestry practices are likely to remain, although there is potential for improvement in the status of some waterbodies through actions required by the WFD Regulations and Marine Strategy Regulations, including through measures outlined in Northern Ireland's

RBMP. However, in the absence of the draft NAP 2027-2030, there is potential for further degradation in water quality from the runoff of nutrients applied via fertilisers and slurry from agricultural land and through a lack of management on the application techniques, timing and storage methods required for these, with a potential for downstream pollution of groundwaters and surface waters to occur. It may be a significant challenge for RBMP and Marine Strategy objectives for water quality to be met for many waterbodies within Northern Ireland given the high contribution of nutrient loading occurring from agricultural activities. Inappropriate soil and land management may also lead to the continuation of flood risk within and downstream of agricultural land, with potential for risks to increase in response to climatic change.

For air quality, the levels of many pollutant emissions are likely to continue to improve, while nitrogen dioxide emissions from traffic and ammonia emissions from the agriculture sector are expected to continue to pose a challenge, including in transboundary regions. Ammonia emissions may also act as a secondary particulate matter precursor, thereby also having a continued impact on particulate matter levels. Without the draft NAP 2027-2030, the agriculture sector in Northern Ireland will still face obligations to reduce emissions to air, particularly those of ammonia, with Northern Ireland expected to contribute to the 16% reduction in emissions for the UK (in comparison to 2005 levels) set out in the UN Gothenburg Protocol. The draft Ammonia Strategy for Northern Ireland should provide a positive impetus for achieving this target, however the proposed ammonia reduction programme for implementation on farms may be hampered should the suite of measures in the draft NAP 2027-2030 that are expected to reduce the risk of ammonia loss, not be implemented. The draft Ammonia Strategy includes targets and a coherent approach to deliver on these, including through an ammonia reduction programme, and a strategic programme of conservation, restoration, and management of valuable habitats in order to alleviate symptoms of ammonia and nitrogen exceedance, however, without the draft NAP 2027-2030, ammonia emissions are likely to continue to impact upon these habitats.

In the absence of the draft NAP 2027-2030, GHG emissions in Northern Ireland are predicted to continue to decrease overall, owing to further improvements in energy efficiency and transport improvements and necessitated by Northern Ireland's commitment to contribute fairly to the legally binding 'net zero' GHG emissions reduction targets set out in the UK Climate Change Act 2008, as amended in 2019. However, the agriculture sector is currently responsible for the greatest amount of GHG emissions in Northern Ireland and, in order for Northern Ireland to achieve net zero CO_2 emissions, and at least an 82% net reduction in all GHGs by 2050, the agriculture sector is required to reduce its GHG emissions by 34%. The suite of measures in the draft NAP 2027-2030 are expected to reduce GHG emissions; in the absence of the programme there would be fewer controls on these emissions, with potential to hamper emission reduction targets for the sector.

Without the draft NAP 2027-2030, the overall number of farms in Northern Ireland is likely to continue to decrease, but the overall land area covered by agriculture to remain stable, as has been the trend for the past 30 years. The proportion of farm types is likely to vary somewhat depending on market changes, however the predominant farm type is expected to remain as cattle and sheep. The total farm workforce in Northern Ireland may continue to show a decline. The total value of inputs and outputs to the agricultural sector in Northern Ireland will continue to be influenced by economic market fluctuations at a national and international level. The total income achieved will remain dependent on both product value and subsidy payments. In the absence of the NAP, agricultural assets such as dairy may benefit through increased productivity from greater grass growth. Water treatment and supply, and wastewater treatment are likely to continue to come under increasing pressure from population growth and development.

There are unlikely to be any significant changes to cultural, architectural, and archaeological heritage features in the absence of the draft NAP 2027-2030. Cultural heritage concerns would continue to be dealt with as part of the planning processes and related environmental assessments at lower planning tiers and at the project level. Some historic or heritage features will continue to be afforded protection under the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995, and the Planning Act (Northern Ireland) 2011. Archaeology and built heritage will continue to be at risk from impacts associated with development, particularly in urban areas, and those associated with agricultural practices. Obligations of landowners in receipt of direct payments will continue to include protection of archaeological sites, which must be retained and cannot be damaged as a condition of Cross-Compliance (and DAERA's Farm Sustainability Standards), while conditions

regarding the sensitive management of heritage features are likely to continue to be attached to agri-environmental schemes.

In absence of the draft NAP 2027-2030, the landscape of Northern Ireland will likely continue to be affected by developments, infrastructure, agricultural and forestry practices, mineral extraction, and tourism, with changes exacerbated by the predicted population increase. Landscape concerns would continue to be dealt with as part of the planning process and related environmental assessments at lower planning tiers and at the project level. Habitats such as hedgerows and scrub, and traditional features may continue to be lost convert land into productive ‘actively farmed’ land, with repercussions for the character of the rural landscape, which may be occurring in the long term, through cumulative, gradual changes.

4.0 Review of Relevant Plans, Programmes and Policies

4.1 Interaction with other relevant Plans and Programmes

As part of the SEA process, the context of the draft NAP 2027-2030 must be established with regard to other Plans and Programmes that have been adopted at International, National and Regional levels. In particular, the environmental protection objectives (EPO's) and standards included within these Plans and Programmes that will directly influence, or be influenced by, the draft NAP 2027-2030 requires consideration. These EPOs have been used to create the SEOs that have been used for assessment of the draft NAP 2027-2030.

Table 4-1 identifies the main environmental plans, programmes, and legislation, adopted at International, European Community or Member State level, National level, and regional level, which would be expected to influence, or be influenced by, the draft NAP 2027-2030. While it is recognised that there are many Plans, Programmes and legislation that could relate to the NAP it is considered appropriate to only deal with those significant texts in order to keep the assessment at a strategic level. More information on these Plans, Programmes, and legislation, along with their potential interaction with the draft NAP 2027-2030 is given in **Appendix C**.

There is potential for key topic areas such as sustainable development, water quality, air quality and climate change, waste and resources, land and soils, landscape and heritage, biodiversity conservation, population and human health, land use planning and the Agri-food sector and associated local, regional, national, and international plans, programmes, and legislation to influence or be influenced by the draft NAP 2027-2030.

Table 4-1 Summary of Key Plans, Programmes and Legislation Relevant to the draft NAP 2027-2030 for Northern Ireland

Level	Plan / Programme / Policy / Legislation
International / EU Level	*Biodiversity* • UN Convention on Biological Diversity (1992) • Ramsar Convention on Wetlands of International Importance (1971 and amendments) • Bern Convention (Convention on European Wildlife and Natural Habitats) (1982) • The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992) • North East Atlantic Environment Strategy 2030 • Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals) (1983) • EU Biodiversity Strategy to 2030 • EU Birds Directive [2009/147/EC] • EU Habitats Directive [92/43/EEC] • EU Nature Restoration Law 2024 *Soils* • EU Soil Strategy to 2030 • Proposed Soil Monitoring Law *Climate Change*

Level	Plan / Programme / Policy / Legislation
	• Paris Agreement (UNFCCC, 2015) • UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997) • The European Green Deal 2019 • EU Methane Strategy 2020 • EU Farm to Fork Strategy 2020 • Renewable Energy Directive [2009/28/EC] • EU Strategy on Adaptation to Climate Change 2013 • Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021[COM(2021)82] • Second European Climate Change Programme (ECCP II) 2005 • EU Green Infrastructure Strategy (COM(2013) 249 final) *Air quality* • Stockholm Convention (2004) • WHO Air Quality Guidelines – global update (2005) • The Gothenburg Protocol (1999) • Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality Framework Directive [2004/107/EC] • Industrial Emissions Directive [2010/75/EU] • National Emissions reduction Commitments (NEC) Directive [2016/2284/EU] • The Convention on Long-Range Transboundary Air Pollution (1979) *Sustainable Development* • Common Agricultural Policy (CAP) (1962) • Seventh Environmental Action Programme to 2020 of the European Community • UN Convention on Environmental Impact Assessment (ESPOO Convention) 1997 and Kyiv (SEA) Protocol • SEA Directive [2001/42/EC] • EIA Directive [85/337/EEC] [2014/52/EU] • EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046] • Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC • UN Sustainable Development Goals (2015) *Water* • Water Framework Directive [2000/60/EC] and amendments • Marine Strategy Framework Directive [2008/56/EC] • Floods Directive [2007/60/EC] • Bathing Water Directive [2006/7/EC] • Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC] • Drinking Water Directive [98/83/EC] • Urban Waste Water Treatment Directive [91/271/EEC]

Level	Plan / Programme / Policy / Legislation
	• Sewage Sludge Directive [86/78/EEC] • Nitrates Directive [91/676/EEC] • Priority Substances Directive [2013/39/EU] • Environmental Liability Directive [2004/35/EC] • Environmental Quality Standards Directive [2008/105/EC] • A Blueprint to Safeguard Europe's Water Resource (COM(2012)73) *Waste* • Waste Framework Directive [2008/98/EC] • Use and Disposal of Animal By-products (Commission Regulation 2011/EU142) *Cultural Heritage* • Valetta Treaty (1992) • Granada Treaty (1985) • World Heritage Convention [WHC-2005/WS/02] *Landscape* • European Landscape Convention [ETS No. 176]
National / Regional Level	*Biodiversity* • Biodiversity Strategy for Northern Ireland to 2020 • UK Post-2020 Biodiversity Framework • Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 • The Wildlife (Northern Ireland) Order 1985 (as amended) • Wildlife and Natural Environment Act (NI) 2011 • The Environment (Northern Ireland) Order 2002 • DAERA Conservation Management Plans for SACs (in prep.) • Northern Ireland Species and Habitat Action Plans • Draft Nature Recovery Strategy for Northern Ireland to 2032 • Fisheries Act 2020 • Fisheries Act (NI) 1966 • Convention for the Conservation of Salmon in the Northern Atlantic *Soils* • Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016 • Soil Nutrient Health Scheme for Northern Ireland *Climate Change / Air Quality* • Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024 • Northern Ireland Strategic Energy Framework (SEF) (2010) • (Northern Ireland) Sustainable Energy Action Plan 2012-2015 and beyond (2012) • UK Climate Change Act 2008 • The Climate Change Act 2008 (2050 Target Amendment) Order 2019 • Climate Change Act (Northern Ireland) 2022

Level	Plan / Programme / Policy / Legislation
	• Draft Climate Action Plan 2023-2027 • UK Climate Change Risk Assessment 2017 • The National Emissions Ceiling Regulations 2018 • UK National Air Pollution Control Programme (NAPCP) 2019 • Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 • Air Quality Standards Regulations (Northern Ireland) 2010 and amendments (2017) • The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 • Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020 • Making Ammonia Visible (Annex to the SALMS for NI) 2017 • Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 • Northern Ireland Greenhouse Gas Inventory 1990-2019 statistical bulletin • Proposed Ammonia Strategy for Northern Ireland 2025-2030 • Northern Ireland Peatland Strategy to 2040 • DAERA Science Strategy Framework 2020-2035 • Climate Change (No.1) Bill • Climate Change (No.2) Bill *Sustainable Development* • Northern Ireland State of the Environment Report 2013 • Environment Strategy for Northern Ireland 2019 • Rural Development Programme for Northern Ireland 2014-2020 & Annual Implementation Report 2019 • Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 • Future Agricultural Policy Decisions for Northern Ireland • Food Wise 2025 (Republic of Ireland strategy) • Northern Ireland Executive Programme for Government 2024-2029 • Strategic Planning Policy Statement for Northern Ireland 2015 • Planning Policy Statements 1 – 23 • The Regional Development Strategy 2035 – Shaping Our Future • UK Sustainable Development Strategy, Agenda 21 • 10X Economy – An Economic Vision • Sustainability for the Future –"DAERA's Plan to 2050" • Draft Green Growth Strategy for Northern Ireland • Draft Northern Ireland Food Strategy Framework • Draft Environment Strategy for Northern Ireland (in development) • Draft Rural Policy Framework • Northern Ireland Energy Strategy 2050 • The Marine Strategy Regulations 2010

Level	Plan / Programme / Policy / Legislation
	• Marine and Coastal Access Act 2009 • Marine Act (Northern Ireland) 2013 • UK Marine Policy Statement 2011 • Draft Marine Plan for Northern Ireland 2018 • Integrated Coastal Zone Management Strategy for NI 2006-2026 *Water* • Water Environment (Floods Directive) (Amendment) Regulations (Northern Ireland) 2018 • The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 • Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 • The Quality of Bathing Water Regulations (Northern Ireland) 2008 • Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 • Water Resources (Environmental Impact Assessment) Regulations 2017 • Private Water Supplies Regulations (Northern Ireland) 2017 • Water Supply (Water Quality) Regulations (Northern Ireland) 2017 • Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (NI) 2003 • Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment • Groundwater Regulations (Northern Ireland) 2009 and amendments • Pollution Control and Local Government (Northern Ireland) Order 1978 • Protection of Water Against Agricultural Nitrate Pollution (Northern Ireland) Regulations 2004 • Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990 • Urban Waste Water Treatment Regulations (Northern Ireland) 2007 • Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates) • Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007 • Water (Northern Ireland) Order 1999 (including amendments up to 2004) • Water and Sewerage Services (Northern Ireland) Order 2006 • Water and Sewerage Services (Miscellaneous Provisions) (Northern Ireland) Order 2006 • NI Water Our Strategy 2021-2046 • NI Flood Risk Management Plan, 2021-2027 • Third cycle River Basin Management Plan (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027 • Lough Neagh Action Plan 2024 *Waste*

Level	Plan / Programme / Policy / Legislation
	• Northern Ireland Waste Management Strategy, 2012 • Waste Management Plan 2013 – 2020 *Cultural Heritage* • Archaeology 2030 – A Strategic Approach for Northern Ireland • Historic Monuments and Archaeological Objects (NI) Order 1995 • Protection of Wrecks Act 1983 • Protection of Military Remains Act 1986 • Planning Act (NI) 2011 • The Regional Development Strategy 2035- RG 11 *Landscape* • Nature conservation and Amenity Lands Order (NI) 1985 • Northern Ireland Regional Landscape Character Assessment 2016 • Northern Ireland Regional Seascape Character Assessment 2014
National Level - Republic of Ireland	• National Planning Framework (2018) • National Implementation Plan for the Sustainable Development Goals 2022-2024 • National Adaptation Framework 2024 • Sectoral Adaptation Plans 2019 • Climate Action Plan 2024 • National Dialogue on Climate Action • Draft National Energy and Climate Plan 2021-2030 • Sectoral Emissions Ceilings Plan to 2030 • Clean Air Strategy for Ireland 2023 • National Hazardous Waste Management Plan (2021) • Fifth Nitrates Action Programme 2022-2025 • Food Vision 2030 • CAP Strategic Plan 203-2027 • National Biodiversity Action Plan 2023-2030 • Draft Water Action Plan 2024 – A River Basin Management Plan for Ireland • Bioeconomy Action Plan 2023-2025
Sub-Regional Level	• Local Biodiversity Action Plans (LBAPs) • County Development Plans and Local Development Plans • Living With Water in Belfast 2020

5.0 Assessment Methodology

This Environmental Report has been produced to assess the potential environmental effects of implementing the draft NAP 2027-2030 and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects on the environment.

In conjunction with this, a Programme level RIAA has also been prepared to inform the decision-making process, in terms of the potential for the draft NAP 2027-2030 to impact upon the integrity of any European sites in view of their Conservation Objectives.

5.1 Methodology and SEOs

The proposed measures assessed as part of the NAP 2027-2030 are outlined in **Section 2.5**. They include existing measures of the previous iteration of the NAP Regulations (Northern Ireland) 2019, which the draft NAP 2027-2030 proposes to carry forward. These existing measures have been categorised under the following Parts of the NAP Regulations (Northern Ireland) 2019:

- Part 2 – General;
- Part 3 – Prevention of water pollution from the application of fertilisers;
- Part 4 – Storage requirements;
- Part 5 – Measures relating to land management;
- Part 6 – Record keeping and compliance monitoring;
- Part 7 – Enforcement;
- Part 8 – Powers, duties and functions of the Department;
- Part 9 – Miscellaneous; and
- Part 10 – Derogation from measures governing the limits on land application of livestock manure.

The new measures and amendments to existing measures set out in the draft NAP 2027-2030 have also been assessed.

Assessment of the draft NAP 2027-2030 is relatively strategic, with the aim of reporting likely effects at the national and regional level to reflect the scale at which the measures are applied. Assessment of the draft NAP 2027-2030 comprised an assessment of the baseline environmental information available against the high-level objectives and potential issues. This method involved an assessment of each measure of the draft NAP 2027-2030 against the following SEA topics:

- Biodiversity, Flora & Fauna (BFF);
- Population & Human Health (PHH);
- Geology, Soils & Land Use (GSL);
- Water (W);
- Air Quality (A);
- Climatic Factors (CF);
- Material Assets (MA);
- Cultural, Architectural and Archaeological Heritage (CH); and
- Landscape & Visual Amenity (L).

The purpose of this was to predict and evaluate, as far as possible, the environmental effects of the draft NAP 2027-2030, highlighting any significant environmental problems and/or benefits that are likely to arise from its implementation.

The proposed measures of the draft NAP 2027-2030 were assessed in terms of their potential effects, and the significance of these effects, on the environment against a set of SEOs. These SEOs were developed in the context of broader environmental protection objectives set at both international and national levels (outlined in **Section 4.0** and detailed in **Appendix C**) and also took into account the context of potential for effects associated with the draft NAP 2027-2030. Each of the environmental topics described in **Section 3.0** was assigned at least one high-level SEO, specifying a desired outcome, against which the measures comprising the draft NAP 2027-2030 were assessed. Each high-level SEO was paired with a specific target(s), as well as indicator(s) that can be used to measure the progress towards achievement of these targets. These SEOs, Indicators and Targets are given in **Table 5-1**. The assessment examined the likely significant effects of the measures comprising the draft NAP 2027-2030, and how their implementation could contribute to achieving these SEOs.

The draft NAP covers the period from 2026 up to 2029. In line with the SEA Directive, measures were assessed in the short, medium, and long-term for likely effects (both direct and indirect effects), the significance of the effects, and whether they are positive or negative effects. For the purposes of this assessment:

- Plus (+) indicates a potential positive environmental effect;
- Minus (-) indicates a potential negative environmental effect;
- Plus/minus (+/-) indicates that both positive and negative environmental effects are likely or that, in the absence of further detail, the potential impacts are unclear. If a situation arises whereby positive effects out way negative effects, or *vice versa*, an additional + or – is used (++/- or +/--); and
- Zero (0) indicates neutral or no environmental effect.
- Short-term – 0 – 2 years (immediate);
- Medium-term – 2 – 4 years (within the draft NAP 2027-2030 cycle period); and
- Long-term – beyond 4 years (beyond the draft NAP 2027-2030 cycle period).

Other effects that were assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects.

All potential positive and negative effects were presented individually, with a text description, and a summary table. Under each measure, a discussion was presented to support the assessment outcomes. Some actions were not suitable for detailed assessment, such as those relating to administration issues, coordination or data gathering; in these cases, a qualitative statement was made to describe how the action might support the overall approach.

There have been earlier iterations of the Nitrates Regulations and Phosphorus Regulations, and the current Regulations covering both nutrients are the NAP Regulations (Northern Ireland) 2019, as described in Section 2. The NAP 2027-2030 proposes to carry forward all existing measures included within the NAP Regulations (Northern Ireland) 2019 and, based on scientific evidence and/or technical, regulatory and policy developments, to introduce a number of new measures and/or amendments. The NAP Regulations (Northern Ireland) 2019 were not previously assessed through the SEA process and, therefore, the assessment methodology included the assessment of existing measures against SEOs to set the existing scene, examine how measures that are currently in place are working and any potential shortfalls. The new/amended measures proposed by DAERA for the draft NAP 2027-2030 were then assessed for likely positive or negative effects against SEOs. This is illustrated by **Figure 5-1**.

Table 5-1 Strategic Environmental Objectives, Indicators and Targets

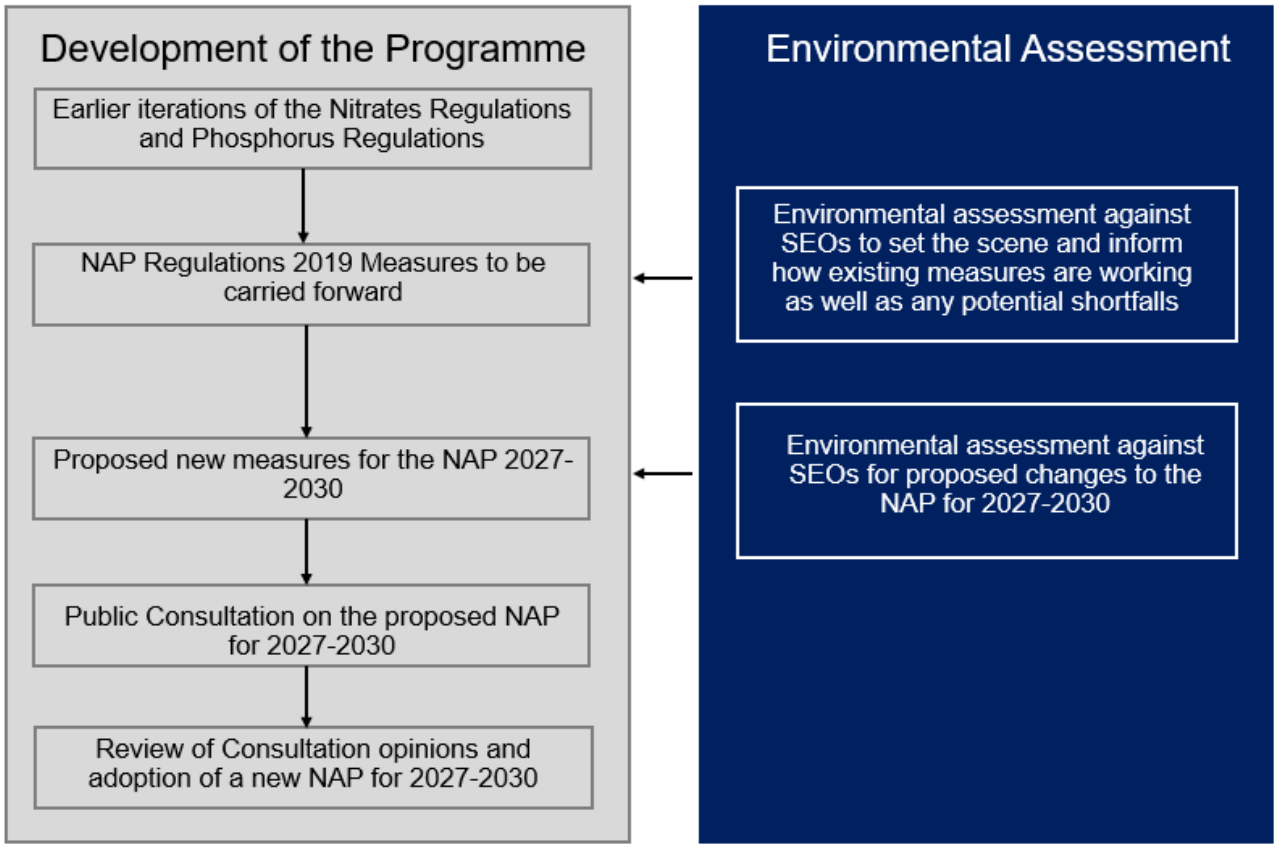
SEA Topic	Objective	Objective Description	Indicators	Targets
Biodiversity, Flora & Fauna	Avoid damage to, and where possible enhance, biodiversity, flora and fauna.	Preserve, protect, maintain and, where possible, enhance biodiversity and ecosystems within Northern Ireland, including internationally, nationally, and locally protected sites, habitats and species, and other known species of conservation concern.	• Conservation status of designated habitats and species within International/ European and national designated sites (SACs, SPAs, Ramsar sites, MCZs, ASSIs). • Status of protected and priority habitats and species (Annex I habitats, Annex II species and Annex IV species, NI Priority Habitats and Species, OSPAR Threatened or Declining Habitats and Species).	• No negative change, or a positive change, in the conservation status of designated habitats and species within International, European and National designated sites. • No negative change, or a positive change, in the status of protected or priority species and habitats outside designated sites, or to areas of known importance.
Population & Human Health	Support the provision of clean and safe water and food.	Provision of a safe water supply for drinking, recreation, and food supply.	• Water quality status of Drinking, Bathing, and Shellfish Water Protected Areas. • Quality of animal products available for consumption.	• No negative change, or a positive change, in the status of Drinking, Bathing, and Shellfish Water Protected Areas. • No negative change, or a positive change, in the quality of animal products.
Geology, Soils & Land Use	Protect soils from pollution and prevent degradation or loss of the	Protect against physical damage to, or loss, of the agricultural or	• Soil health and nutrient levels, and quality of agricultural land.	• No loss of the agricultural or natural soil resource.

SEA Topic	Objective	Objective Description	Indicators	Targets
	soil resource and protect and enhance soil quality.	soil resource. Protect and enhance the function and quality of agricultural soils.	• Soil resource within the agriculture sector.	• No negative change, or a positive change, in soil health and land quality.
Water	Avoid impacts on, and where possible enhance, the status or quality of waterbodies.	Protect and restore water sources from pollution by agricultural activities and support the objectives of the WFD Regulations, Marine Strategy Regulations, and Floods Directive.	• WFD status of surface and groundwater bodies, including Protected Areas. • Water quality reporting for the Nitrates Directive. • Status of Northern Ireland's seas, as reported for the Marine Strategy. • Flood risk status.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, including Protected Areas, and potential to contribute to the achievement of waterbody objectives under the WFD Regulations. • No negative change, or a positive change, in the condition of waterbodies monitored under the Nitrates Directive. • No deterioration in the status of Northern Ireland's seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the Marine Strategy. • No increase in flood risk or contribution to flood risk management.
Air	Avoid, prevent or reduce	Reduce impacts to air quality from	• Quantity and trends of air emissions	• Reductions in the quantity of emissions to air

SEA Topic	Objective	Objective Description	Indicators	Targets
	harmful effects on human health and the environment resulting from emissions to air.	agricultural emissions.	attributable to the agricultural sector.	arising from the agricultural sector.
Climatic Factors	Reduce GHG emissions from the agricultural sector in line with national commitments.	Reduce GHG emissions from agricultural activities.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use change sector. • Contributing towards emission reduction targets of the Climate Change (NI) Act and Climate Action and Low Carbon Development (Amendment) Act 2021 in the Republic of Ireland.	• Reduction in the quantity of GHG emissions arising from the agricultural sector. • Meeting of emission reduction targets under the Climate Change (NI) Act and Climate Action and Low Carbon Development (Amendment) Act 2021 in the Republic of Ireland.
Material Assets	Support economic agricultural activities.	Support sustainable agricultural land use and improved land management practices.	• Agricultural outputs and productivity. • Agricultural sector employment, income, costs and revenues.	• Sustainable agricultural productivity, i.e., a more efficient use of resources. • No negative effects on sector employment or farm incomes.
Cultural, Architectural & Archaeological Heritage	Protect, conserve, and enhance designated and non-designated heritage	Protect, conserve, and enhance designated and non-designated heritage assets	• Number, condition and setting of international, national and local heritage designations.	• No loss or negative change to the condition or setting of international, national and local heritage designations and

SEA Topic	Objective	Objective Description	Indicators	Targets
	assets and their settings.	and their settings.		protection of historic landscape character.
Landscape & Visual Amenity	Protect, and where possible enhance, the character and quality of landscapes, riverscapes, lakescapes and seascapes.	Protect and enhance the character and quality of landscape sand riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments. • Local Development Plan scenic views and Areas of High Scenic Value.	• No negative change, or a positive change, in visual amenity or landscape / seascape character and local views.

Figure 5-1 Environmental assessment of existing and proposed measures in the draft NAP 2027-2030



5.2 Difficulties and Data Gaps

The measures proposed for the draft NAP 2027-2030 consist of both pre-existing measures to be taken forward from the NAP Regulations (Northern Ireland) 2019 and proposed new and/or amended measures to be introduced for the draft NAP 2027-2030. The proposed new measures are at different stages of planning and development; some proposed measures consist of a general statement; others provide more specific details such as limits or targets and some are intended to be developed during the lifecycle of the draft NAP 2027-2030. Measures can only be assessed at the level they are set. Those measures for which a greater level of detail has been provided in the draft NAP 2027-2030 are easier to assess than those with less, making it difficult to give an assessment that is level across all measures.

The majority of the proposed measures will be applicable over a large geographic scale, covering farms across Northern Ireland, owing to the whole territory approach of the NAP implementation in Northern Ireland. Some measures will support a narrower set of lands, such as those focused on Nutrient Stewardship Farms or farms applying specific forms or types of manure or fertiliser. At a strategic level of assessment, there is some difficulty and uncertainty in assessing the implications of the implementation of the NAP measures at these differing levels.

Some of the proposed measures aim to enhance pre-existing measures, which have been modified based on the latest scientific, technical and/or regulatory evidence to better fulfil the requirements of the NAP (i.e., affording greater environmental benefits through a reduced risk of water pollution); e.g. include extending requirement for the use of LESSE. Other proposals are based on new science or technologies, and the potential effects of their implementation have been assessed on the basis of current understanding and taking the objectives as outlined in the draft NAP 2027-2030 at face value; owing to their novel nature, however, there will be a level of uncertainty regarding the long-term effects of implementing these measures, which may require further research and monitoring to assess any potential implications (e.g., limits for processed livestock manures).

These differences present some difficulties in the level at which the measures can be assessed; assessments have been made at a high level across all measures taking the assumption that all measures will be subject to appropriate implementation while also highlighting where uncertainty exists. Where difficulties or uncertainties such as described above have been identified during assessment, recommendations and mitigation have been proposed.

6.0 Consideration of Alternatives

6.1 Consideration of Alternatives

The purpose of this section is to outline the reasons for choosing the draft NAP 2027-2030 as the preferred alternative in light of other reasonable alternatives considered. The consideration of alternatives is a requirement of the SEA Directive (2001/42/EC). Article 5(1) [133] states that: '*where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated*'. The Directive does not state at what stage consideration of alternatives should occur, however, to present a useful input into the policy/plan making process, all guidance points to considering alternatives as early as possible.

The consideration of alternatives has been guided by the following guidance documents:

- A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister (ODPM). Appendix 6 Developing and Assessing Alternatives[134]; and
- Developing and Assessing Alternatives in Strategic Environmental Assessment, EPA 2015[135].

ODPM (2005) recommends that only reasonable, realistic, and relevant alternatives need to be put forward, and that these should be sufficiently distinct to enable meaningful comparisons between them. These may be discrete broad options, that involve a choice between one alternative and another and alternatives that can be combined in various ways. There may be a hierarchy of alternatives for key plan/programme issues such as exploring the mode/type, location, and implementation/timing. EPA (2015) also recommends that alternatives should be realistic, reasonable, viable, and implementable, and sets out the types of alternatives that may be appropriate to consider as follows:

- *Strategic*: high-level options that achieve a given objective
- *Value-oriented*: alternatives that address policy priorities, cultural values or safety issues.
- *Effects oriented*: alternatives that address issues identified during scoping. Such alternatives are effective at mitigating potential significant effects.
- *Sectoral prioritisation*: alternatives that look at sectoral feasibility and needs, e.g., to promote one sector versus another.
- *Spatial*: alternative locations for the implementation of planning objectives, particularly relevant at the local level.
- *Modal*: different technical/mode alternatives to achieve the same objective.
- *Temporal*: alternatives for the timing of implementation of plan/programme measures, most suitable at the local level for addressing infrastructure development.

The SEA team discussed the potential alternatives under consideration during the development of the draft NAP 2027-2030 with the DAERA programme development team and suggested the potential types of alternatives that could be considered. Following this consideration, the following strategic-level alternatives were considered:

[133] Directive 2001/42/EC On the assessment of effects of certain plans and programmes on the environment, EC 2001

[134] Strategic Environmental Assessment Directive: guidance

[135] EPA Research Report No. 157 Developing and Assessing Alternatives in Strategic Environmental Assessment

- Strategic Alternative 1 – Do nothing scenario.
- Strategic Alternative 2 – No new measures or amendments to the NAP for the period 2027-2030 but reference to provisions of the existing NAP (NAP Regulations (Northern Ireland) 2019).
- Strategic Alternative 3 – Preparation and adherence to the draft measures as set out in the draft NAP 2027-2030.

The following sections provide a comparative evaluation of the likely environmental effects of implementing these strategic-level alternatives and determine the likely positive or negative effects against the SEOs.

6.1.1 Strategic Alternative 1

This strategic-level alternative considers the option of no programme, or the do-nothing scenario.

EPA (2015) considers that a "do-nothing" alternative should be included for sectoral plans/programmes or their components, to assess the future baseline without implementation of the plan/programme, and to test whether the plan/programme is needed at all, however, an exception applies for land use plans in which a periodic statutory review is mandatory. Article 5 of the Nitrates Directive (91/676/EEC), as amended, requires Member States to establish action programmes in respect of designated vulnerable zones. Furthermore, following the UK exit from the EU, it remains a legislative requirement for a NAP to be in place. Therefore, Strategic Alternative 1 is not a viable option and is not considered further in this assessment.

6.1.2 Strategic Alternative 2

Article 5(7) of the SEA Directive requires Member States to review and revise (if necessary) action programmes, including any additional measures, at least every four years. This is implemented by Regulation 35 of the NAP Regulations (Northern Ireland) 2019, which commits to a review of the Regulations at four-year intervals. Therefore, the continued implementation of the existing NAP Regulations (Northern Ireland) 2019 does not constitute a potential alternative. This strategic-level alternative considers a retention of the suite of measures included in the NAP for 2019-2022 as implemented by means of the NAP Regulations (Northern Ireland) 2019, with no additions or amendments for the period 2027-2030.

The NAP Regulations (Northern Ireland) 2019 set out a range of measures which aim to protect water from pollution by nutrients from agricultural sources; these aim to reduce nitrogen and phosphorus losses through improved farm efficiency and better environmental management through targeting a variety of agricultural activities and sources of potential nutrient losses. The assessment of the effectiveness of the existing suite of measures in the NAP Regulations (Northern Ireland) 2019 on the environment has been informed by the information set out in the NAP Implementation Report for 2020-2023 (DAERA, 2024)[136], along with additional water quality monitoring data. The NAP Implementation Report (DAERA, 2024) is produced by DAERA every four years in accordance with Regulation 34 of the NAP Regulations (Northern Ireland) 2019; the most recent Implementation Report for the NAP 2020-2023 was published in July 2024 and has informed the following sections.

Trends in livestock manure nitrogen

The NAP Implementation Report (DAERA, 2024) reported monitoring estimates of livestock manure nitrogen over several time periods which uses livestock numbers and nitrogen excretion rates for cattle, sheep, pigs, and poultry (to estimate total nitrogen production per livestock category). It was estimated that the total amount of manure nitrogen produced reduced by 4.8% in 2020-2023 from 2016-2019 owing to changes in livestock numbers and an improved efficiency in agricultural processes (e.g., animal housing, breeding, and feed),

[136] Nutrients Action Programme Implementation Report for 2020 – 2023

alongside changes to excretion coefficients in Schedule 2 of the NAP Regulations (Northern Ireland) 2019 and changes in cycles/years for some pig classes.

Currently, manure production in Northern Ireland is dominated by cattle, which account for 74-77% of total manure nitrogen production, nitrogen from sheep is stable, however, excretion from pigs and poultry is variable. Poultry contribution to manure nitrogen decreased due to improvements in housing/heating, reducing poultry emissions by 37.2% from the 2016-2019 reporting period. Estimates of manure nitrogen production from pigs increased for the 2020-2023 period by 45.2% owing to increased animal numbers, and because previous estimates did not consider multiple cycles per year for growers/finishers. Cattle and sheep are housed for part of year (cattle-5 months, sheep-1 month), and it was assumed that produced manure nitrogen is used for slurry or manure applications. There were variations in production levels where winter weather conditions potentially prolong housing periods, and there had been an increase in fully housed cattle systems of significantly higher stored volumes emerging in recent years as agricultural businesses evolve.

Trends in land use

In terms of land use trends, the NAP Implementation Report (DAERA, 2024) estimated that the total agricultural area was 1.8% higher in the 2020-2023 period, compared to the 2016-2019 period and was dominated by managed grassland (79%). There was a decrease (4.2%) in young grass areas (possibly due to drought conditions in 2022 and a wetter 2023, leading to issues undertaking grassland reseeding) and an increase in older grassland (3.1%) and rough grazing (0.2%), with a 3.9% increase in the total grass and arable cropping areas available for manure/fertiliser application. There was an 11% increase in other land areas in the 2020-2023 period compared to the previous reporting period in 2016-2019, indicating a positive trend in areas being used for biodiversity protection/conservation and carbon storage/sequestration.

Trends in water quality

The NAP Implementation Report (DAERA, 2024) reported on the most recently available WFD monitoring data which indicated that there had been little to no change in ecological status from the previous cycle, and a decline in status for lake waterbodies; only 30% of river waterbodies, 36% of transitional and coastal waterbodies, 14% of lake waterbodies, and 68% of groundwater bodies monitored for the WFD were at good or better ecological status in 2021. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems.

The NAP Implementation Report (DAERA, 2024) reported evidence of declines in water quality status for several parameters. Whilst over the long-term, since 1992, nitrate levels have continued to decline, in recent years there has been an increase in the number of sites showing increasing levels of nitrate in freshwaters, particularly in the south and east of Northern Ireland, which is a cause for concern. This includes an increasing trend in nitrate concentrations from 2009 to 2023 for rivers flowing into, and out of, Lough Neagh. Although 91.4% of river sites show a stable or decreasing SRP concentration and seasonal trends show monthly average concentrations are mainly stable or decreasing in 87.5% of rivers from 1998-2023, high baseline phosphorus levels masked a recent increase in phosphorus.

Nitrogen and phosphorus balance

The NAP aims to improve efficiency of nutrient use from manures through substituting nitrogen in chemical fertilisers with manure nitrogen, aiding a reduction of the surplus of nitrogen on farm and lowering the potential for nutrient accumulation in soils. The degree by which the nitrogen and phosphorus surplus on farms is being lowered, as well as the change in nitrogen efficiency on farms, was used as an indicator for evaluating the effectiveness of the NAP Regulations (Northern Ireland) 2019 in the NAP Implementation Report (DAERA, 2024). Nutrient balances were based on the difference in inputs of nutrients to farms via chemical fertilisers and imported feedstuffs less agricultural product outputs exported off the farm.

For nitrogen, there were fluctuations in nitrogen fertiliser inputs in the 2020-2023 period, while the amount of nitrogen imported in feedstuffs remained stable, and there was a 6% decline in total nitrogen entering the system from 178kg nitrogen/ha/year in 2019 to 168kg nitrogen/ha/year in 2022. The outputs of nitrogen in agricultural products (primarily meat and milk) increased from 43kg nitrogen/ha/year in 2019 to 45kg nitrogen/ha/year in 2022, with nitrogen efficiency increasing to 27%. Overall, there was a 1.1% reduction in the nitrogen balance, and an increased nitrogen efficiency to 25% in the 2020-2023 reporting period. The nitrogen balance was much lower than peak nitrogen balances in the mid-1990s (>165kg nitrogen/ha/year) with the current nitrogen efficiency of 24.7% representing the highest level since 2015.

In terms of phosphorus, for environmental and economic purposes, the dairy and beef sectors are encouraged to increase the amounts of meat and milk produced from grass and forage and reduce phosphorus input from concentrate feeds. There is a need to reduce phosphorus inputs due to recent trends of elevated SRP in rivers from feedstuff and fertiliser phosphorus. The chemical phosphorus fertiliser levels have declined from 2003 and stabilised (at 4-5kg phosphorus/ha/year), while feedstuff phosphorus has increased since 2008 (17.2kg phosphorus/ha/year in 2020-2022), and total inputs are at 21kg phosphorus/ha/year. The phosphorus efficiency of 47% in 2022, represents an improvement on previous trends. The phosphorus balance in 2022 was 10.8kg phosphorus/ha, which is a reduction from 14kg phosphorus/ha since the introduction of the first Nitrates Action Programme Regulations (Northern Ireland) 2006 and the Phosphorus (Use in Agriculture) Regulations 2006, however, there is a general increasing trend from a low of 8.7kg phosphorus/ha in 2008. The phosphorus surplus objective given in the government's roadmap for improving farm nutrient efficiency and profitability is 5kg phosphorus/ha/year (DAERA, 2016[137]), which has not been achieved, and it is recognised that significant reductions in the agricultural phosphorus surplus are still needed to improve water quality.

Compliance with the current measures in the NAP Regulations (Northern Ireland) 2019

A review of enforcement and compliance levels at farm holdings and assessment of NAP measures on field and farm practices in the NAP Implementation Report (DAERA, 2024) gives some indication of the effectiveness of the existing NAP measures as included in the NAP Regulations (Northern Ireland) 2019, at source. Inspection and enforcement of the NAP Regulations (Northern Ireland) 2019 is carried out by NIEA; NIEA since 2005 is also the Competent Control Authority for Cross-Compliance inspections for Statutory Management Requirements (SMRs) under the Birds Directive, Habitats Directive, Groundwater Directive, UWWTD and Nitrates Directive. Data on compliance with the NAP Regulations (Northern Ireland) 2019 comes from scheduled inspections as well as reactive inspections (e.g., due to complaints). Under each SMR, 1% of farm businesses claiming direct aid are selected for inspection on a risk-based approach, and 5% of farm businesses operating under NAP derogation are inspected, comprising around 250 farms in total. The risk-based assessment is determined by NIEA based on derogation status, groundwater authorisations, slope, proximity to watercourses, crop type and locations that are in proximity to ASSIs; the selection of 75% of inspected farms is random, with 25% based on this risk-based approach. Inspections take place of the land, farmyard and farm records. The land is inspected for evidence of water pollution, inappropriate fertiliser application, lack of adherence to waterway spreading distances, poaching conditions due to livestock trampling, illegal dumping, and the presence of poultry litter or farmyard manure heaps in fields. Farmyard inspections typically focus on slurry storage facilities and their condition, to ensure that leakages and risks of watercourse pollution are minimised. Records are inspected for manure exports, soil testing (where required) and for fertiliser information.

During the current NAP period, inspection rates were much lower at 0.5% inspection rate in 2020 and 2021 during the Covid-19 pandemic, resulting in an annual average number of inspections for the 2020-2023 reporting period of 313 equating to 1.28% of farms. The average number of referral inspections in the 2020-2023 reporting period was 78; referrals may come from public reporting due to evidence of water pollution,

[137] DAERA 2016. Roadmap for improving Farm Efficiency and Profitability-Nutrient Management on High Soil Phosphorus Farms. Unpublished report by the Northern Ireland Nitrates Action Program Scientific Working Group.

with reports typically substantiated and DAERA responsible for any reductions in direct aid claims under Cross-Compliance. For the 2020-2023 period there was a decrease in compliance in comparison to previous reporting periods for closed spreading periods for organic manures, land application restrictions, nitrogen fertiliser entering waterway/water contained in underground strata, and livestock manure storage requirements (**Table 6-1**). For those farms inspected, there was 100% compliance for closed spreading periods for chemical fertiliser and land management, influenced by the enforceability of these measures, while compliance with fertiliser crop requirement limits was also high. Inspections indicate higher levels of non-compliance for the 2020-2023 reporting period relating to the following measures of the NAP Regulations (Northern Ireland) 2019: livestock manure storage requirements, nitrogen fertiliser entering a waterway, and land application restrictions (high non-compliance in 2020 may have been influenced by lower maintenance activities taking place during the Covid-19 pandemic). There was also an increase in non-compliance for record keeping in 2022 and 2023, following the introduction of a new requirement for fertilisation plans in 2020, and an increase in the non-submission of manure export records. This may suggest that further training and guidance is required.

The draft Derogation Report for Northern Ireland (DAERA, 2021[138]) states that derogation compliance is assessed in three key ways:

1. Administrative checks of all derogation applications for the current calendar year.
2. Administrative checks of all fertilisation accounts for the previous calendar year.
3. On farm inspections of records from previous years, current fertilisation plans, farm facilities and fields.

Under the derogation decision at least 5% of derogated farms must be inspected annually. The NAP Implementation Report (DAERA, 2024) reports that there has been a decrease in the exceedance of the phosphorus balance and nitrogen loading on derogated farms with exceedance of phosphorus balance incidents reducing from 11 breaches in 2019 to three breaches in 2023, and exceedance of the nitrogen limit of 250kg nitrogen/ha/year loading reducing from four breaches in 2019 to one breach in 2020. However, the NAP Implementation Report (DAERA, 2024) also highlighted that an increase in incomplete, false, or misleading records from zero in 2019 to eight in 2023 has occurred.

[138] DAERA 2021. Nitrates Directive 2020 Derogation Report for Northern Ireland. Unpublished report by DAERA, NIEA, CAFRE and AFBI.

Table 6-1 Compliance rates of inspected farm businesses with the NAP Regulations

Reporting Period	Compliance from all inspections: 2016-2019	Compliance from scheduled inspections: 2020-2023	Compliance from all inspections: 2020-2023
Closed spreading periods for chemical fertiliser	2016 - 100% 2017 - 100% 2018 - 100% 2019 - 100%	2020 - 100% 2021 - 100% 2022 - 100% 2023 - 100%	2020 - 100% 2021 - 100% 2022 - 100% 2023 - 100%
Closed spreading periods for organic manures	2016 - 100% 2017 - 99.4% 2018 - 96.4% 2019 - 99.1%	2020 - 92.3% 2021 - 100% 2022 - 100% 2023 - 100%	2020 - 93.7% 2021 - 95.5% 2022 - 99.0% 2023 - 98.7%
Land Application Restrictions	2016 - 91% 2017 - 95.2% 2018 - 84.8% 2019 - 96.6%	2020 - 95.4% 2021 - 100% 2022 - 100% 2023 - 98.8%	2020 - 82.1% 2021 - 86.4% 2022 - 89.5% 2023 - 91.1%
Nitrogen fertiliser entering a waterway or water contained in underground strata	2016 - 78.6% 2017 - 83.9% 2018 - 79.7% 2019 - 77.8%	2020 - 90.8% 2021 - 94.7% 2022 - 97.6% 2023 - 91.1%	2020 - 61.9% 2021 - 70.0% 2022 - 83.7% 2023 - 77.7%
Nitrogen and Phosphate fertiliser crop requirement limits	2016 - 99.5% 2017 - 99.4% 2018 - 99.4% 2019 - 100%	2020 - N/A 2021 - N/A 2022 - 100% 2023 - 98.0%	2020 - N/A 2021 - N/A 2022 - 100% 2023 - 98.4%
Livestock manure nitrogen limits	2016 - 95.1% 2017 - 96.4% 2018 - 91.8% 2019 - 92%	2020 - 96.2% 2021 - 93.9% 2022 - 95.2% 2023 - 91.1%	2020 - 97.8% 2021 - 96.4% 2022 - 96.2% 2023 - 93.0%
Livestock manure storage requirements	2016 - 78.4% 2017 - 81% 2018 - 80% 2019 - 77%	2020 - 90.0% 2021 - 94.7% 2022 - 96.0% 2023 - 89.1%	2020 - 62.8% 2021 - 74.1% 2022 - 84.7% 2023 - 79.0%
Land management	2016 - 100% 2017 - 100% 2018 - 100% 2019 - 100%	2020 - 100% 2021 - 100% 2022 - 100% 2023 - 100%	2020 - 100% 2021 - 100% 2022 - 100% 2023 - 100%
Record keeping	2016 - 98.1% 2017 - 92.6%	2029 - 95.4% 2021 - 94.7%	2020 - 97.3% 2021 - 95.5%

Reporting Period	Compliance from all inspections: 2016-2019	Compliance from scheduled inspections: 2020-2023	Compliance from all inspections: 2020-2023
	2018 - 94.8% 2019 - 96.6%	2022 - 93.9% 2023 - 73.7%	2022 - 87.2% 2023 - 79.3%

Estimating future water quality

The Nitrates Directive requires the forecasting of future water quality, and an estimation of recovery times based on economic modelling for future livestock/cropping production levels, forecasting diffuse nitrogen loss from agricultural land, and forecasting water quality using statistical trend analysis. The NAP Implementation Report (DAERA, 2024) reported on future water quality trends forecast using concentrations obtained from monitoring stations from 1992-2023. For nitrate, trend analysis suggests that in 2027, 96.3% and by 2031, 96.9% of average nitrate concentrations will be below 25mg/l. There is evidence of short-term variations in nitrate concentrations in Northern Ireland resulting from climatic influences on nitrogen leaching e.g., high leaching following dry summers on an approximate six-yearly cycle. For SRP, trend analysis suggests that 57.7% of rivers will be high or good status, and 42.3% of rivers will be less than good status for SRP in 2027 and 2031.

In general, it is predicted that there will be a decrease and stabilisation in water quality trends, however, 3.8% of sites are predicted to deteriorate by one WFD class e.g., from good to moderate. Future water quality trends for groundwater are difficult to predict owing to the dominance of locally discharging, shallow groundwater flows with limited residence times and the variable nature of glacial deposits which alter interactions of nitrates from surface to groundwater bodies. Monitoring of groundwater indicates that levels are below concentrations of significance, while an analysis for future trends suggests only that one site has a statistically significant trend predicted to be 28.8mg/l in 2027 and 35.4mg/l in 2031.

Recent estimates are based on projected land use and nitrogen excretion (estimates of livestock numbers) for 2027. The Going for Growth Strategy in 2015/2016[139] led to an increase in agricultural area (c. 0.6% per year) over the last decade, however, with the more recent Green Growth Strategy[140] shifting focus to climate and environment areas alongside a shift in Basic Payment subsidy to focus on biodiversity, carbon, and environmental benefits, this may lead to a shift in land use areas.

Assessment of Strategic Alternative 2

The existing suite of measures that were included in the current NAP, as implemented by the NAP Regulations (Northern Ireland) 2019 are assessed in terms of their potential effects, and the significance of these effects, on the environment against SEOs in **Section 7.1**.

In general, the potential for many positive effects on SEOs was identified with this suite of measures in place, as they provide increased environmental protection in comparison to no protection in place, particularly against the risk of water pollution. However, some uncertain and negative effects were also identified; the land spreading of organic and artificial fertilisers has the potential for negative effects on the SEOs for W, A and CF, and for secondary effects on the SEOs for BFF and PHH, even within the limits specified, while additional requirements for equipment and record keeping have the potential for negative short-term effects on the SEO for MA. In addition, the significance of positive effects identified for SEOs will be dependent on the level of compliance and effective enforcement of the NAP Regulations, as indicated by the summary of implementation

[139] Going for Growth Strategic Action Plan

[140] Green Growth Strategy

reporting for the current programme and its suite of measures in the NAP Implementation Report (DAERA, 2024).

There was little to no change in WFD ecological status in the most recent reporting in comparison to the previous cycle, and a decline in status for lake waterbodies, and just 30% of river waterbodies, 36% of transitional and coastal waterbodies, 14% of lake waterbodies, and 68% of groundwater bodies monitored for the WFD are at good or better ecological status. Monitoring data indicates an increase in sites showing increased levels of nitrate and SRP against a longer-term decline. This reporting indicates that, despite initial improvements in water quality following the introduction of the first iteration of the NAP, this has not been sustained with a clear and consistent recovery of water quality to meet WFD Regulations objectives. The nitrogen balance of farms has shown a reduction, with an increase in nitrogen efficiency, however, the current nitrogen balance of c.25%, although the highest since 2015, has room for improvement. Likewise, the current phosphorus efficiency of c.47% is an improvement, however phosphorus inputs remain high and further reductions of the phosphorus surplus are needed to lessen the risk to water quality. Compliance reporting indicates that the inspection rate is very low for farms in general, as well as for those operating under derogation. While compliance with some measures appears to be good, for other measures the inspection data indicates issues with how these measures are being implemented, thereby reducing their potential positive effects.

There is insufficient evidence to demonstrate that the existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019, are sufficiently effective and/or sufficient to provide improvements and protection against further deterioration in water quality.

6.1.3 Strategic Alternative 3

Regulation 35 of the NAP Regulations (Northern Ireland) 2019, commits to a review of the NAP Regulations at four-year intervals. In this regard, DAERA can seek to include additional measures and reinforced actions to further improve the NAP measures and the associated environmental protections. This strategic alternative relates to a further enhancement of the NAP measures over and above those listed in the existing NAP Regulations (Northern Ireland) 2019.

The iterative development of the draft NAP 2027-2030, with proposed measures developed following consideration and agreement by the NAP Stakeholder Task and Finish Group, and SEA involved the consideration of earlier alternative versions of the proposed changes to the NAP by the SEA team and an assessment of the potential for effects on the wider environment from their implementation. Where the potential for negative effects on the environment was identified, the SEA team provided feedback to DAERA on recommended omissions, changes to strengthen measures, and additional measures for inclusion in the draft NAP 2027-2030. These recommendations are reflected in **Section 8.0** of this environmental report as proposed mitigation measures recommended that DAERA adopt as part of the draft NAP 2027-2030.

An assessment of implementing recommended amendments included in the draft NAP 2027-2030 i.e., Strategic Alternative 3, has been undertaken in detail in **Section 7.2**. In this scenario, the existing measures as set out in the NAP Regulations (Northern Ireland) 2019 will be carried forward, along with a suite of measures and amendments as set out in the draft NAP 2027-2030. **Section 7.2** provides an assessment of each proposed new measure or amendment that is included in the draft NAP 2027-2030 individually.

The overall potential for positive and negative effects on SEOs from implementing the combined measures proposed in the draft NAP 2027-2030 have been assessed comparatively with Strategic Alternative 2, as illustrated below. There is greater potential for positive effects in the medium to long-term across most SEOs from implementing the proposed new measures and amendments included in the draft NAP 2027-2030 alongside those to be carried forward from the NAP Regulations (Northern Ireland) 2019.

The proposed measures involving an increase in situations in which low emission slurry spreading must be used would have greater potential for positive environmental effects, particularly on the SEOs for A and CF, as well as for GSL, W, BFF and PHH than the requirements currently in place through the NAP Regulations

(Northern Ireland) 2019. A requirement for inhibitors associated with urea fertiliser for seasonal use is also expected to have positive effects for CF. These measures should help to reduce GHG emissions from the sector in comparison to the measures currently in place through the NAP Regulations (Northern Ireland) 2019.

The introduction of additional advisory phosphorus controls, including reducing the Northern Ireland average phosphorus surplus and limiting the availability of chemical phosphorus fertiliser if effectively implemented, has the potential for positive effects, particularly for GSL and W, aiding in reducing the phosphorus surplus of soils in Northern Ireland and input into waterbodies in comparison to measures currently in place in the NAP Regulations (Northern Ireland) 2019. The use of an online system for recording slurry and manure imports and exports and movements of processed/separated slurry solids from farms and digestate to farms has the potential to support existing NAP measures through greater knowledge and regulation of movements.

Greater regulation of anaerobic digestate and ensuring that the nutrient ratios are applied in accordance with crop requirements, if effectively implemented by ensuring that appropriate safeguards are in place has the potential to improve soil nutrient management and the SEO for GSL, as well as the SEOs for W, BFF and PHH.

Increased and focused inspection rates, albeit still relatively low in light of the pressures posed by agricultural activities on water quality, have the potential to improve compliance with NAP measures in comparison to the existing inspection regime in the NAP Regulations (Northern Ireland) 2019.

Implementation of proposed new measures and amendments included in the draft NAP 2027-2030 has the potential for both positive and negative effects on the farming population and on the SEO for MA; there is potential for some short-term negative effects on farm businesses owing to equipment, infrastructure, and reporting requirements. In the long-term, there is potential for positive effects on the SEO for MA, by supporting more sustainable agricultural land use and improved land management practices.

6.2 Preferred Alternative

The preferred strategic alternative considered is Strategic Alternative 3: Preparation and adherence to the draft measures as set out in the draft NAP 2027-2030, which includes the carrying forward of existing measures as set out in the NAP Regulations (Northern Ireland) 2019 as well as new measures and amendments. Strategic Alternative 3 is expected to provide a greater potential for positive effects across SEOs than continuing with the current suite of measures as set out in the NAP Regulations (Northern Ireland) 2019, with no amendments or additions.

However, the assessment of the proposed measures of the draft NAP 2027-2030 detailed in **Section 7.2** indicates the potential for some negative and uncertain effects on SEOs. In light of the declining status and trends of water quality in Northern Ireland, with pressure assessments highlighting agricultural activities as a significant contributor to nutrient enrichment, it is therefore strongly recommended that a focused risk-based approach (the Pathway to Compliance as detailed in **Section 8.0**) is taken forward by the NAP to provide the required protection, along with strong inspection and enforcement of implementation of NAP measures. The preferred alternative is to move forward with Strategic Alternative 3.

The SEA and HRA teams have provided a Pathway to Compliance Approach which is recommended for inclusion within the draft programme to signify the commitment to ensure that the NAP be in line with the objectives and requirements of the Habitats Regulations and WFD Regulations. Therefore, the mitigation outlined in **Section 8.0** recommends the inclusion of this focused approach to address areas where agricultural activities, as permitted by the NAP Regulations, are found to contravene the Habitats Regulations and WFD Regulations. This includes information on a time-bound, step by step approach to establishing the methodology and applying a focused approach throughout Northern Ireland.

7.0 Environmental Assessment of the Draft NAP 2027-2030

The purpose of this section of the Environmental Report is to evaluate as far as possible the environmental effects of implementing the draft NAP 2027-2030.

7.1 Assessment of existing measures in the NAP Regulations (Northern Ireland) 2019

The full text of the existing NAP Regulations (Northern Ireland) 2019 is provided in **Appendix B**. As legislative language is used, for clarity these measures have been described in less technical language within the assessments.

The NAP Regulations (Northern Ireland) 2019 are sub-divided into 10 parts, with reference to eight Schedules.

Part 1 comprises background information and the definition of terms used in the NAP Regulations and is not assessed. Parts 2 – 10 include the suite of measures which aim to improve nutrient management and reduce water pollution from agricultural activities. These Parts are as follows:

- Part 2 – General
- Part 3 – Prevention of water pollution from the application of fertilisers
- Part 4 – Storage requirements
- Part 5 – Measures relating to land management
- Part 6 – Record keeping and compliance monitoring
- Part 7 – Enforcement
- Part 8 – Powers, duties and functions of the Department
- Part 9 – Miscellaneous
- Part 10 – Derogation from measures governing the limits on land application of livestock manure

The measures of the draft NAP 2027-2030 are supported by eight Schedules, as follows:

- Schedule 1 – Livestock units of cattle
- Schedule 2 – Criteria for nutrient management
- Schedule 3 – Criteria as to nutrient management for phosphorus
- Schedule 4 – Risk assessment for fertiliser application to steeply sloping land
- Schedule 5 – Soil test of phosphorus
- Schedule 6 – Requirement for slurry storage systems
- Schedule 7 – Requirement for silos
- Schedule 8 – Conditions applying in relation to a Derogation

Each of the measures in the NAP Regulations (Northern Ireland) 2019 is assessed individually below.

Regulation	Summary of Measure	Potential Outcomes for SEA Topics								
Part 2 – General										
4	**Duty to prevent water pollution** The NAP Regulations place a general, overarching, duty on controllers, and those working for them, to prevent water pollution by ensuring that fertiliser (both chemical and organic) does not enter waterways or water in underground waterbodies (groundwater).	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+	+	+	+	0	0	+	0	0
5	**Duty to comply with the NAP Regulations** The controller must have regard for any NAP guidance issued by DAERA as well as the COGAP.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	++/-	++/-	++/-	0	0
6	**Exemptions granted by DAERA** DAERA may exempt research activities and other activities of the DAERA or other agencies that they authorize, where these may benefit water quality and agricultural nutrient use efficiency, or protect human, animal, or environmental health.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+/-	+/-	+/-	+/-	+/-	+/-	+	0	0

Regulation 4

Regulation 4 places an overall duty on the controller of a holding to prevent water pollution through the entry of fertiliser into any surface water or groundwater bodies. If properly implemented, this measure is expected to contribute to a reduction in nutrient concentrations within waterbodies. This has the potential for medium to long-term positive effects on the SEO for W and medium to long-term secondary positive effects on the SEOs for BFF, PHH, GSL, and MA.

Effective implementation of this measure has the potential for medium to long-term secondary positive effects on the SEO for W, as a reduction of nutrient loading to waterbodies from agricultural land holdings is expected to avoid impacts on the quality and status of associated waterbodies, including WFD and Marine Strategy status. It has the potential for medium to long-term secondary positive effects on the SEO for BFF, as improvements in water quality associated with a reduced nutrient loading from agricultural land holdings is expected to reduce the risk of damage to aquatic biodiversity and benefit overall ecosystem functioning and environmental conditions for flora and fauna, including protected and priority habitats and species. It has the potential for medium to long-term positive secondary effects on the SEO for PHH, as improvements in water quality associated with reduced nutrient loading from agricultural land holdings is expected to support the provision of clean and safe water for the population for drinking, food supply and recreational use, through a reduced

risk of pollution, eutrophication and blue-green algal bloom incidents. There is also potential for positive effects on these SEOs for associated transboundary waterbodies in the Republic of Ireland.

It also has the potential for medium to long-term positive effects on the SEO for GSL, through a reduced loss of excess nutrients from farm soils and potential for long-term improvements in soil health, and the potential for medium to long-term secondary positive effects on the SEO for MA, as a reduction in the loss of excess fertilisers from farm soils can reduce the expenditure on fertilisers and more efficiently use resources.

Regulation 5

Regulation 5 places a duty on the controller of a land holding to comply with guidance produced by DAERA in support of the NAP Regulations as well as the COGAP and any subsequent amendments. The NAP Regulations aim to protect water quality from pollution by agricultural sources and promote the use of good agricultural practice. The COGAP is a practical guide that aims to help farmers and land managers in protecting the environment in which they farm, by setting out key actions that they can use to enhance overall water, soil and air quality whilst also achieving cost saving measures and fulfilling legal obligations for Cross-Compliance.

Like Regulation 4, the effective implementation of Regulation 5 has the potential for medium to long-term positive secondary effects on the SEO for W, as a reduction of nutrient loading to waterbodies from agricultural land holdings is expected to avoid impacts on the quality and status of associated waterbodies, including WFD and Marine Strategy status. It has the potential for medium to long-term positive secondary effects on the SEO for BFF, as improvements in water quality, and reductions in atmospheric depositions associated with a reduced nutrient loading from agricultural land holdings, is expected to reduce the risk of damage to biodiversity and benefit overall ecosystem functioning and environmental conditions for flora and fauna, including protected and priority habitats and species. It has the potential for medium to long-term positive secondary effects on the SEO for PHH, as improvements in water quality associated with a reduced nutrient loading from agricultural land holdings is expected to support the provision of clean and safe water for the population for drinking, food supply and recreational use, through a reduced risk of pollution, eutrophication, and blue-green algal bloom incidents.

There is potential for positive effects on the SEOs for A and CF through controls on the appropriate management and storage of manure, slurry and silage (Part 4 of the Regulations), as well as on land application measures such as the use of LESSE set out in Regulation 8. There is also potential for positive transboundary effects on these SEOs in the Republic of Ireland.

There is potential for both positive and negative effects on the SEO for MA from the implementation of this Regulation. The recovery and use of nutrients from organic sources is an efficient and economical use of resources and can contribute to a reduction in the use of chemical fertilisers and their potential over-application, with potential for positive effects on the SEO for GSL and positive secondary effects on the SEO for MA in the medium to long-term.

The significance of positive effects on these SEOs will be dependent on the level of compliance and effective enforcement of the NAP Regulations, as well as timely updates on NAP guidance and the COGAP.

While largely positive, the implementation of Regulation 5 also has potential for negative effects on the SEOs for GSL, W, BFF, PHH, A, CF and MA. While the limits to the quantity of organic fertiliser set out in Regulation 9 will provide some protection from nutrient loss from land holdings to waters, the land spreading of these fertilisers may still pose a risk at this limit, influenced by the soils and risk pathways, with potential for negative effects on the SEO for GSL and negative secondary effects on the SEOs for W, BFF and PHH in the medium to long-term. There is also potential for negative secondary effects on the SEOs for A and CF owing to the risk of ammonia and nitrous oxide emissions during land spreading, and the potential for negative effects on the SEO for MA relating to the potential for additional costs and resourcing demands associated with measures such as organic fertiliser export, and storage capacity requirements. Furthermore, the NAP Implementation Report for 2020-2023 (DAERA, 2024) indicates that there are some issues with compliance regarding livestock manure limits; the most frequent areas of non-compliance related to water pollution and were often associated with exceeding livestock manure limits. In addition, the allowance for land holders to apply for a derogation under Regulation 9 to permit application of up to 250kg nitrogen/ha/year from grazing livestock manure subject to specific additional criteria and conditions under Regulation 39 has the potential for negative effects on these SEOs.

Regulation 6

Regulation 6 relates to an exemption to the requirements of the NAP Regulations for research purposes or to protect human, animal, or environmental health.

There is potential for short to medium-term negative effects on the SEO for GSL, and secondary negative effects on the SEOs for W, BFF, PHH, A and CF where the measures of the NAP Regulations are not applied to agricultural landholdings. However, research that qualifies for an exemption to the NAP Regulations, by aiming to improve nutrient efficiency in agricultural systems, may have potential for medium to long-term positive effects on these SEOs, and on the SEO for MA. Similarly, short-term exemptions from the requirements of the NAP Regulations to address emergency situations where human/animal or environmental health could be at risk, have the potential for short-term positive effects on the SEOs for W, BFF and PHH.

Cumulative and Synergistic Effects

Regulation 4 – As an overarching measure setting out a duty to prevent water pollution from fertilisers, Regulation 4 has the potential for cumulative positive effects on the SEOs for W, BFF and PHH in-combination with many of the existing Regulations of the NAP Regulations (Northern Ireland) 2019, including those in Parts 2, 3, 4 and 10.

Regulation 5 – As a measure requiring land holders to take account of NAP guidance issued by DAERA as well as COGAP, Regulation 5 has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF in conjunction with many of the existing Regulations of the NAP Regulations (Northern Ireland) 2019, including those in Parts 2, 3, 4 and 10.

Regulation 6 – There are no cumulative or synergistic effects identified for this Regulation.

RIAA Summary and Requirement for Mitigation

Regulation 4

It is considered that this measure has potential to give rise to a range of positive effects upon European Sites, subject to appropriate implementation. In particular for freshwater European Sites which have Conservation Objectives relating to water quality. There are no positive or negative effects expected from this measure to air quality across European Sites.

Regulation 5

The effects of this measure are considered to be largely positive for water quality, air quality and climatic factors and will benefit European Sites in a number of ways. Positive effects will also relate to European Sites within the 15km ZoI. The scale of positive effects is subject to appropriate implementation and enforcement. There remains potential for certain measures with the NAP Regulations to have negative effects to European Sites, particularly in regard to water and air quality. Mitigation through continued monitoring and appropriate implementation of safeguards within the NAP Regulations is required.

Regulation 6

This measure has the potential for both positive and negative effects on European Sites. Appropriate consideration and mitigation measures should be implemented when authorising and conducting exempt activities.

SEA Mitigation Measures

Regulation 5 – It is recommended that DAERA update the NAP Guidance in line with the draft NAP 2027-2030.

Regulations 4 & 5 – It is recommended that DAERA strengthen the NAP Regulations through the SEA mitigation measures proposed in the assessment of individual Regulations. In particular, it is recommended that inspection and enforcement measures are strengthened, and that a risk-based approach is introduced, including for derogated land holdings.

Regulation 6 – There is no mitigation proposed for this Regulation.

Part 3 – Prevention of water pollution from the application of fertilisers										
	Closed spreading periods	BFF	PHH	GSL	W	A	CF	MA	CH	L
7	• Chemical nitrogen and phosphorus fertiliser must not be applied to grassland from midnight 15 September to midnight 31 January.	+	+	+	+	0	0	+/-	0	0

	• All types of chemical fertiliser must not be applied to arable land from midnight 15 September to midnight 31 January unless there is a demonstrable crop requirement. • Organic manures, including slurry, poultry litter, digestate, sewage sludge and abattoir waste, must not be applied from midnight 15 October to midnight 31 January. • Farmyard manure (FYM) must not be applied from midnight 31 October to midnight 31 January. There is no closed spreading period for dirty water. However, it must only be spread when weather and soil conditions are suitable.									
8	**Land application restrictions** Land application restrictions listed below apply to spreading of all fertilisers, including dirty water. • All fertilisers, chemical and organic and including dirty water, must not be applied: - On waterlogged soils, flooded land or land liable to flood. - On frozen ground or snow-covered ground. - If heavy rain is falling or forecast in the next 48 hours. - On steep slopes (with an average incline of 20% or more on grasslands, for all other land with an average incline of 15% or more) where other significant risks of water pollution exist. The risk factors to be considered include the proximity to waterways/lakes, type and amount of fertiliser to be applied, soil conditions, weather forecast and time to incorporation within the soil if applied to arable land. - On all other land (with an incline of less than 20% for grasslands, or less than 15% for all other land) where	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	++/-	++/-	+/-	0	0

	significant risks of water pollution exist. The risk factors to be considered include the proximity to waterways/lakes, amount to be applied, soil conditions, weather forecast and time to incorporation within the soil if applied to arable land. • Prevent entry of fertilisers to waters and ensure application is accurate, uniform and not in a location or manner likely to cause entry to waters. • All types of chemical fertiliser must not be applied within 2m of any waterway. • Organic manures including dirty water must not be applied within: - 20m of lakes. - 50m of a borehole, spring or well. - 250m of a borehole used for a public water supply. - 15m of exposed cavernous or karstified limestone features. - 10m of a waterway other than lakes; this distance may be reduced to 3m where slope is less than 10% towards the waterway and where organic manures are spread by bandspreaders, trailing shoe, trailing hose or soil injection OR where the adjoining area is less than 1 ha in size OR not more than 50m in width and less than 15m^3 in a single application. • Application rates: - no more than 50 m^3 /ha (4,500 gal/ac) or 50 tonnes/ha (20 t/ac) of organic manures to be applied at any one										

	time, with a minimum of three weeks between applications; or - no more than 50 m^3 /ha (4,500 gal/ac) of dirty water to be applied at any one time, with a minimum of two weeks between applications. • From midnight 30 September - 15 October and during February: - The buffer zones for spreading slurry are increased: from 10m to 15m of any waterway; and from 20m to 30m for lakes. - The maximum slurry application rate is reduced from 50m^3 per ha (4500gal per ac) to 30m^3 per ha (2700gal per ac). • Slurry can only be spread by inverted splashplate, bandspreaders, trailing shoe, trailing hose or soil injection. • Dirty water to be spread by the same methods as slurry and by irrigation. • Sludgigators and upward facing splash plates must not be used. • LESSE includes bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods. LESSE must be used: from 1 February 2020 for spreading anaerobic digestate, from 1 February 2021 by slurry spreading contractors and from 1 February 2022 on cattle farms with 200 or more cattle livestock units and pig farms with a total annual livestock manure nitrogen production of 20,000kg or more from pigs. Where it is not practical to spread on a field using LESSE due to slope, slurry can be spread using an inverted splash plate on that										

	field. A record of the field number and the reason for spreading using a splash plate must be kept for inspection.									
9	**Livestock manure nitrogen limits** • Loading limited to 170kg nitrogen/ha/year livestock, calculated in accordance with defined animal excretion rates and nitrogen and phosphorus contents of fertilisers. Note that an exception to this limit is farms with at least 80% grassland that may apply annually for a derogation to permit application of up to 250kg nitrogen/ha/year from grazing livestock manure subject to specific additional criteria and conditions under Regulation 39. **Nitrogen and Phosphorus excretion rates** • From 11 April 2019 revised nitrogen and phosphorus excretion rates for poultry production systems must be used. From 1 January 2020 revised nitrogen and phosphorus excretion rates for cattle must be used.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+/-	+/-	+/-	+/-	-	-	+/-	0	0
10	**Nitrogen fertiliser application limits** • Total amount of nitrogen should be in proportion to the crop requirement for nitrogen. Maximum kg nitrogen/ha/year on grassland (apart from nitrogen in livestock manure): - Dairy farms* 272 (8 ¼ bags/ac)** - Other farms 222 (6 ¾ bags/ac)** - *More than 50 % of nitrogen in livestock manure comes from dairy cattle. - ** Approximate number of 50 kg bags of a 27 % nitrogen type fertiliser	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+	+	+	+	+	+	+/-	0	0

	When applying chemical nitrogen fertiliser, nitrogen from organic manures other than livestock manure and anaerobic digestate containing digested livestock manure must be subtracted.									
11	**Nitrogen fertiliser application limits** • For non-grassland crops, maximum nitrogen applied (from all types of fertilisers, including livestock manure) must not exceed crop requirement, and for certain arable crops an NMax limit applies to the total crop area.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+	+	+	+	+	+	+/-	0	0
12	**Application of anaerobic digestate** • Where anaerobic digestate is being applied to land, a nutrient content analysis is required from 1 January 2020, showing the percentages of: - Dry matter. - Total nitrogen. - Total P_2O_5 (phosphate). - Total K_2O (potash). - Ammonia nitrogen or NH_4+ (ammonium). • A fertilisation plan is required. • Application should not exceed fertilisation standards for crop phosphorus requirements and include consideration of: - The soil phosphorus index. - Recommended soil phosphorus index for the crop. - Phosphorus available from application of livestock manure and other fertilisers. Requirements do not apply to the lands on which the anaerobic digestate is produced.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	0	0	0	0	0

13	**Limits on the land application of chemical phosphorus fertiliser** • Total available phosphorus in chemical phosphorus fertiliser to grassland and other lands should not exceed fertilisation standards for crop phosphorus requirements and include consideration of: - The soil phosphorus index; - Recommended soil phosphorus index for the crop; - Phosphorus available from application of organic manures; The above should be established with reference to figures detailed in the Schedules of the Regulations. From 1 January 2020, a fertilisation plan is required where chemical phosphorus fertiliser is applied to grassland.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	0	0	0	0	0
14	**Limits on land application of high phosphorus organic manures** • Organic manure with a high phosphorus content (>0.25kg total phosphorus per 1kg total nitrogen) should not be applied to land unless shown that total phosphorus does not exceed fertilisation standards for crop phosphorus requirements and includes consideration of: - The soil phosphorus index. - Recommended soil phosphorus index for the crop. - Phosphorus available from application of other fertilisers. The above should be established with reference to figures detailed in the Schedules of the Regulations.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	0	0	0	0	0

	• This requirement does not apply where: - organic manure is applied in accordance with the Sludge Regulations or under licence / exemption under the Waste Regulations; or - organic manure comes from a holding with no more than 7kg nitrogen/ha/year to its lands through the grazing animals and land application. From 1 January 2020, a fertilisation plan is required where chemical phosphorus fertiliser is applied to grassland.									
15	**Land management** • From 1 January 2020 supplementary feeding sites must be a minimum of 20m from any waterway where there could be a significant risk of pollution occurring from their use. From 1 January 2022 supplementary livestock drinking points must be a minimum of 10m from any waterway where there could be a significant risk of pollution occurring from their use.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	+	++/-	0	0	-	-	0
16	**Fertilisation Plans** • Where fertilisation plans are required, they should be made available every year on farm. • Fertilisation plans should include information on: - Number of livestock. - Nitrogen and phosphorus from livestock manure, using excretion rates. - Crop rotation, area, and location. - Future crop requirements for nitrogen and phosphorus. - Quantity of organic manures imported and exported.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0

	- Soil analysis showing status of nitrogen and phosphorus, where available. - Fertiliser nitrogen applied to each area of the farm holding under the same soil type and cropping regime. - Nitrogen from organic manures other than livestock applied to each area of the farm holding under the same soil type and cropping regime. - Phosphorus from chemical fertilisers and organic manure applied to each area of the farm holding under the same soil type and soil phosphorus index. - For derogated farms, details of housing and manure storage. • Fertilisation plans can be prepared busing DAERA's crop nutrient calculator. Where fertilisation plans need to be changed due to a change in farm practices, the plan must be revised within seven days.										

Part 3 of the NAP Regulations (Northern Ireland) 2019 includes specific measures to protect water pollution from agricultural activities that relate to fertiliser use. If effectively implemented, these should have positive implications for the environment over the baseline scenario where no such protections exist.

Regulation 7

Regulation 7 relates to closed periods during the winter for the application of chemical and organic fertilisers to farmlands. During these periods plant growth rates, and thus nutrient requirements, are low, while rainfall is higher, and the water table is usually high. In these conditions, there is a greater risk of nutrient losses to downstream waterbodies through runoff and subsequent nutrient enrichment when chemical or organic fertilisers are applied to land. Parts 1, 2, 3, and 4 of Regulation 7 prohibit the application of chemical nitrogen and phosphorus, organic manures and FYM during specified dates to avoid those periods considered to be of higher risk for nutrient losses to water.

There is potential for short to medium-term positive effects on the SEO for GSL, and positive secondary effects on the SEOs for W, BFF and PHH with effective implementation of these measures through a reduction in nutrient loss from soils and pollution risk to waters. Under Regulation 7(2), chemical fertiliser cannot be applied to land within the specified closed period unless there is a demonstratable crop requirement. If adhered to correctly, this is not

expected to have any significant effects, however, it is recommended that the Regulations specify the manner in which crop requirements are assessed and verified.

There is potential for both direct positive effects on the SEO for MA, through a reduction in unnecessary loss and expenditure on fertilisers during periods of low plant growth and more effective use of resources, and indirect negative effects, through reducing the plant growth period and requiring the storage of manure at a cost to the land holder.

Regulation 8

Regulation 8 sets out the manner by which all fertilisers and soiled water should be spread to land, including appropriate machinery, ground conditions, location relative to waterbody risk, and application rates. The main approaches to reduce risk during land application are by spreading at the right time under the right conditions (as established by (1), (2)), distancing land spreading from waterbodies (as established by (3), (4), (5), (6), (9)), and by specifying the use of application methods that can reduce environmental risk (as established by (7), (8), (10), (11), (13)).

The measures associated with Paragraphs (2) to (13) prohibit application under certain conditions which can elevate the risk of nutrient losses to waterways and have the potential for positive effects in the short to long-term on the SEOs for W, GSL, A and CF, and for positive secondary effects on the SEOs for BFF and PHH, by minimising pollution risk. A reduction in the loss of nutrients through runoff or emissions will ensure that more are retained within the soil, leading to greater nutrient use efficiency, and help to reduce chemical nutrient requirements, with medium to long-term positive effects on the SEOs for GSL and MA.

Prevention of applications during inappropriate conditions (Paragraph 2), where there is a risk of direct entry to a waterway or water in underground strata (Paragraph 3), as well as controls on the application of chemical fertilisers in proximity to waterbodies (Paragraph 4), organic manures within set proximities to waterway features (Paragraph 5), and application of fertilisers on inclined lands within set proximities to waterways or risk pathways (Paragraph 6) has the potential for short to long-term positive effects on the SEO for W, and positive secondary effects on the SEOs for BFF and PHH with these measures reducing the potential for incidental nutrient losses to surrounding waterways and hydrologically connected features during the nutrient application process, including for transboundary waterbodies.

The setting of application limits and timing for solid organic manure (Paragraph 7), slurry (Paragraph 8), and dirty water (Paragraph 10) has the potential for short to long-term positive effects on the SEO for GSL, and positive secondary effects on the SEOs for W, BFF and PHH with these measures reducing the potential for incidental nutrient losses to associated waterways, as well as the potential for positive effects on the SEOs for A and CF through a reduction of emissions from land application, including ammonia volatilisation and nitrous oxide losses.

The prescription of application methods for the spreading of slurry on intensive holdings or by slurry contractors (Paragraph 11), dirty water (Paragraph 12) and anaerobic digestate (Paragraph 13) has the potential for both positive and negative effects on the SEOs for GSL, A and CF, and secondary effects on the SEOs for W, BFF and PHH. Regardless of the accuracy by which fertilisers are applied, there will be a degree of loss to the atmosphere, including through ammonia volatilisation and nitrous oxide losses. Digestate from AD plants can be more susceptible to ammonia loss, as the nitrogen is more freely

available. Methods that are more accurate in terms of land application, such as LESSE, should ensure that more nutrients are incorporated into the soil, and reduce the risk of nutrient loss to water and through emissions to air, with positive implications for GSL, W, BFF, PHH, A and CF.

The measures associated with Regulation 8 have the potential for both positive and negative effects on the SEO for MA. A reduction in the loss of nutrients through runoff or volatilisation during land application through appropriate timing of application and more accuracy of application will mean that more are incorporated into the soil, leading to greater nutrient use efficiency and less expenditure on chemical fertilisers, with medium to long-term positive effects on the SEO for MA. Limits to the amount of organic manure (Paragraph 7), slurry (Paragraph 8) and dirty water (Paragraph 10) may have short-term direct negative effects on the SEO for MA, as land holders may be unable to accommodate the volumes required to be kept in storage to meet application criteria. This may result in increased expenditure for land holders to expand facilities (or build new facilities) for the storage of these or require export from the land holding. The requirement for the use of LESSE also has the potential for short-term negative effects for MA due to the associated costs of purchasing LESSE, albeit with the potential for medium to long-term positive secondary effects owing to improved nutrient uptake.

Note that the draft NAP 2027-2030 proposes to introduce an amended definition regarding heavy rain with respect to yellow (or higher) weather warnings from the Met Office occur to prevent the application of nutrients for a short period of time, failure to comply with this from February 2026 will be a breach under the NAP regulations. This is discussed and assessed in Section 7.2.

Note that the draft NAP 2027-2030 also proposes that to increase the mandatory use of LESSE on a tiered approach based on farm livestock units and that the maximum slurry application rate for October and February will be reduced from 30m^3/ha to 25 m^3/ha. This is discussed and assessed in Section 7.2.

Regulation 9

Regulation 9 prescribes the limits of livestock manure and anaerobic digestate containing digested livestock manure that may be applied to the land holding, either by spreading, or deposited by the animals themselves. Paragraph (1) prevents the amount of total nitrogen in livestock manure and anaerobic digestate (of digested livestock manure) via land application and by animal excretion from exceeding 170 kg nitrogen/ha/year calculated based on Paragraphs (2) and (3) which set out calculations based on Schedule 2 for animal excretion rates and nutrient content of fertilisers, respectively. Excretion rates were updated in the NAP Regulations (Northern Ireland) 2019. Paragraph (4) dictates the percentage of nitrogen applied from organic manure or chemical fertiliser, which is specified under Schedule 2. Under Paragraph (5) any controller wishing to deviate from the values in Schedule 2 under Paragraphs (2) and (3) must present a scientific case to DAERA and seek approval. Under Paragraph (6) a controller may appeal the decision made by DAERA via the procedure set out in Regulation 31.

The Nitrates Directive sets an application limit of 170kg nitrogen/hectare/year of livestock manure that may be applied to land and this will remain unchanged in the draft NAP 2027-2030. Management of livestock manures and other fertilisers provides a protection to waterbodies from pollution by nitrogen and phosphorus from agricultural lands. It is proposed that an allowance / limit for fertilisers derived from processed livestock manures will be introduced for the draft NAP 2027-2030, as discussed and assessed in Section 7.2.

There is potential for both positive and negative effects on the SEOs for W, BFF, PHH, GSL and MA from the implementation of Regulation 9. The recovery and use of nutrients from organic sources is an efficient and economical use of resources and can contribute to a reduction in the use of chemical fertilisers and their potential over-application, with potential for positive effects on the SEO for GSL and positive secondary effects on the SEOs for W, BFF, PHH and MA in the medium to long-term, as this is expected to reduce the potential for incidental nutrient losses that may impact on water quality. However, although the introduction of a limit to the quantity of organic fertiliser will provide some protection from nutrient loss from land holdings to waters, the land spreading of these fertilisers may still pose a risk at this limit depending on the specific land holding conditions, with potential for negative effects on the SEO for GSL and negative secondary effects on the SEOs for W, BFF and PHH in the medium to long-term. There will also be potential for negative effects on the SEOs for A and CF owing to the risk of ammonia and nitrous oxide emissions during land spreading, and the potential for negative secondary effects on the SEO for MA as, should livestock manure on farm exceed the allowed spreading limits, there may a requirement to export the excess, with additional costs and resourcing demands associated with this.

The potential significance of negative effects will be influenced by the farm and catchment characteristics, including soil type, topography, runoff risk, hydrology and the water quality status of receiving waterbodies. Furthermore, the NAP Implementation Report for 2020-2023 indicates that there were compliance issues regarding livestock manure limits; the most frequent areas of non-compliance related to water pollution and were often associated with exceeding livestock manure limits.

Note that it is proposed that the excretion rates for dairy cows for nitrogen and phosphorus, as well as revised poultry figures to reflect current systems and the standard values for separated manures and digestate will be updated for the draft NAP 2027-2030 as discussed and assessed in Section 7.2.

Regulation 10

Regulation 10 prescribes limits on the land application of total available nitrogen in organic manure and chemical fertiliser (excluding livestock manure and anaerobic digestate) to grassland; chemical fertiliser and organic manures cannot be applied above the grassland requirement for nitrogen and must be within the limits as set out in Schedule 2 of the NAP Regulations (Northern Ireland) 2019. The NAP Regulations (Northern Ireland) 2019 Guidance booklet provides links to aid land holders in the calculation of their nitrogen fertiliser limits for grassland (Section 6.1.2).

The overuse of fertilisers on grasslands has the potential to lead to runoff and negative effects on water quality and to aquatic biodiversity and population use of waterbodies. Implementation of this Regulation has the potential for positive short to medium-term effects on the SEOs for GSL, A and CF, and secondary effects on the SEOs for W, BFF and PHH, by ensuring that the application rates of fertilisers to grasslands are in line with their requirements, thereby minimising the risk of excessive nitrogen loading of soils and the risk of nitrogen loss to associated waterbodies and ammonia and nitrous oxide emissions during land spreading. There is potential for both positive and negative short to medium-term effects on the SEO for MA; the application of fertilisers within specified limits and based on grassland nitrogen requirements will ensure that nutrient resources are used efficiently with positive secondary effects for MA, while potential negative direct effects are possible from additional costs or resources associated with the export of livestock manure for land holdings that exceed the prescribed limits.

Note that it is proposed that the current chemical nitrogen fertiliser limits for grasslands will be updated for draft NAP 2027-2030 and that the use of urea fertilisers will be prohibited unless they contain inhibitors on a seasonal basis, as discussed and assessed in Section 7.2.

Regulation 11

Regulation 11 prescribes limits on the land application of total available nitrogen in organic manure and chemical fertiliser to lands other than grassland; chemical fertiliser and organic manures cannot be applied above the crop requirements for nitrogen and must be within the limits as set out in Schedule 2 of the NAP Regulations (Northern Ireland) 2019. The nitrogen requirement of crops is partly related to the available nitrogen in the soil, influenced by the previous crop grown in that area and its management, as well as the amount of rainfall and the soil type. The NAP Regulations (Northern Ireland) 2019 Guidance booklet provides guidance for land holders to assess their crop nitrogen requirements with reference to the latest edition of the AHDB Nutrient Management Guide (RB 209), as well as guidance based on the most common soil types in Northern Ireland for situations where the soil type is uncertain. A maximum nitrogen (NMax) value is specified in the NAP Regulations (Northern Ireland) 2019 for certain high-yield crops (winter and spring wheat; winter and spring barley; and winter and spring oats), which takes account of the soil type, Soil Nitrogen Supply (SNS) index and the standard yield expected for each cereal type in Northern Ireland growing conditions.

As described for grasslands, the overuse of fertilisers has implications for soil health and water quality. The implementation of this Regulation has the potential for positive short to medium-term effects on the SEOs for GSL, A and CF, and secondary effects on the SEOs for W, BFF and PHH, by ensuring that application rates of fertilisers to lands are in line with the crop requirements, thereby minimising the risk of excessive nitrogen loading of soils and the risk of nitrogen loss to associated waterbodies and ammonia and nitrous oxide emissions during land spreading. There is potential for both positive and negative short to medium-term effects on the SEO for MA; the application of fertilisers within specified limits and based on crop nitrogen requirements will ensure that nutrient resources are used efficiently with positive secondary effects for MA, while potential direct negative effects are possible from additional costs or resources associated with the export of livestock manure for land holdings that exceed the prescribed limits.

Regulation 12

Regulation 12 sets out measures relating to the application of anaerobic digestate to agricultural lands. Paragraph (1) prevents the application of anaerobic digestate unless there is a nutrient content analysis available for the digestate and, under Paragraph (2), when application takes place this must not exceed the recommendations contained in the fertiliser technical standards for crop requirements for phosphorus, while the soil phosphorus index, the recommended soil phosphorus index for the crop, and the supply of phosphorus available from the application of livestock manure and other fertilisers must also be considered. The soil phosphorus index should be determined in accordance with Schedule 5 of the Regulations, while fertiliser and the available phosphorus content of livestock manures and fertilisers should be based on Schedule 3 (Paragraph 3). A fertilisation plan must be prepared where anaerobic digestate will be applied, unless it is to be used on the holding on which it was produced, or from livestock manure or non-waste feedstocks generated on the holding (Paragraph 4).

Implementation of Regulation 12 has the potential for both positive and negative effects on the SEOs for GSL, W, BFF and PHH. As described for the assessment of Regulations 10 and 11 describing nitrogen contents of fertilisers, over application of phosphorus in fertiliser above that required by crops has the potential to lead to phosphorus runoff from soils and negative effects on water quality as well as aquatic biodiversity and population use of waterbodies. The implementation of this Regulation has the potential for positive short to medium-term effects on the SEO for GSL, and secondary effects on the SEOs for W, BFF and PHH, by endeavouring to ensure that application rates of fertilisers to lands are in line with the crop requirements for phosphorus, thereby minimising the risk of excessive phosphorus loading of soils and the risk of phosphorus loss to associated waterbodies. There is potential for negative effects on these SEOs, where an exception is made through Paragraph 4A that crop phosphorus requirements and available soil phosphorus do not need to be considered in situations where the digestate itself, or materials used for digestate, are from the same holding that will be applying the digestate; in these circumstances, there is potential for short to medium-term negative effects on these SEOs as phosphorus in fertilisers may be overapplied with implications for soil health and phosphorus loss to waterbodies. There is also some uncertainty as to the use of the Olsen extractable soil phosphorus index as the standard agronomic soil phosphorus test in the UK; this is dependent on effective sampling methodologies, can provide variable results, and may not be accurate for soils of lower pH or those with a higher organic content (Bell et al., 2006)[141]. Basaltic soils cover almost one third of Northern Ireland and, for these soils, the Olsen phosphorus test may under-estimate the plant-available phosphorus (Bell et al., 2006). In addition, for cross-border catchments with the Republic of Ireland, the use of different soil phosphorus indices (Morgan's phosphorus index is used in the Republic of Ireland)[142] may lead to differences in fertiliser application recommendations and perceived aquatic risks, while both are based on crop yield rather than mobilisation and environmental risk.

Note that it is proposed that further measures relating to anaerobic digestate will be introduced for the draft NAP 2027-2030; from 2027 all digestate must be separated to reduce phosphorus content before land spreading to a phosphorus:nitrogen ratio of 1:10; if digestate is not separated it must be applied according to crop requirement for phosphorus and nitrogen in accordance with a Nutrient Management Plan; if digestate is produced from feedstocks outside of Northern Ireland it must be applied according to crop requirements for phosphorus and nitrogen in accordance with a Nutrient Management Plan regardless of digestate separation or processing technology; AD plants must record movements of separated slurry solids and slurry from farms and nutrients moved to farms as processed digestate from AD plants; and these movements must be recorded and notified on an updated online system, as discussed and assessed in Section 7.2.

Regulation 13

Regulation 13 sets out measures governing the limits on land application of chemical phosphorus fertiliser. Under Paragraph (1), chemical fertiliser cannot be applied above the fertiliser technical standards for crop requirements for phosphorus, and must consider the soil phosphorus index, the recommended soil phosphorus index for the crop, and the supply of phosphorus available from the application of organic manures. The soil phosphorus index should be determined in accordance with Schedule 5 of the Regulations. The fertiliser recommendations for grassland should be determined in accordance with

[141] Bell et al. (2006). An evaluation of the Olsen test as a measure of plant-available phosphorus in grassland soils derived from basalt parent material

[142] Vero et al. (2022). Comparison of soil phosphorus index systems for grassland.

Schedule 3 and the available phosphorus content of livestock manures and other fertilisers should be based on Table 3 of Schedule 3 (Paragraph 2). Fertilisation plans are required when chemical phosphorus fertiliser is applied to grassland (Paragraph 3).

Implementation of Regulation 13 has the potential for both positive and uncertain effects on the SEOs for GSL, W, BFF and PHH. There is potential for positive short to medium-term effects on the SEO for GSL, and secondary effects on the SEOs for W, BFF and PHH, by endeavouring to ensure that application rates of chemical phosphorus fertilisers to lands are in line with the crop requirements for phosphorus, thereby minimising the risk of excessive phosphorus loading of soils and the risk of phosphorus loss to associated waterbodies. The requirement for a fertilisation plan where chemical phosphorus fertiliser is applied to grassland should help to ensure that chemical phosphorus is being used more efficiently in these systems and only when it is needed

Note that it is proposed that further advisory restrictions on the use of chemical phosphorus fertiliser on grassland will be introduced for the draft NAP 2027-2030 to limit its use to the specific criteria and to reduce Northern Ireland's average phosphorus surplus, as discussed and assessed in Section 7.2.

Regulation 14

Regulation 14 sets out measures governing the limits on land application of organic manures with a high proportion of phosphorus. Organic manures that contain more than 0.25kg of total phosphorus per 1kg of total nitrogen are considered to be phosphorus-rich manures for the purposes of the NAP Regulations (Northern Ireland) 2019. Under Paragraph (1) organic manure containing more than 0.25kg of total phosphorus per 1kg of total nitrogen cannot be applied to the land above the fertiliser technical standards for crop requirements for phosphorus, and must consider the soil phosphorus index, the recommended soil phosphorus index for the crop, and the supply of phosphorus available from the application of other fertilisers. The soil phosphorus index should be determined in accordance with Schedule 5 of the Regulations, while fertiliser recommendations for grassland should be determined in accordance with Schedule 3 and the available phosphorus content of livestock manures and other fertilisers should be based on Table 3 of Schedule 3 (Paragraph 2). Fertilisation plans are required when chemical phosphorus fertiliser is applied to grassland (Paragraph 5). There is an exemption to these requirements where phosphorus-rich manures represent only a small proportion of manures applied in an enterprise, or where they are applied in accordance with other Regulations (Paragraph 3).

The NAP Regulations (Northern Ireland) 2019 Guidance booklet indicates the proportion of phosphorus to nitrogen for some common organic manures. When manures contain a high proportion of phosphorus to nitrogen, there is a risk that phosphorus will be overapplied when nitrogen is applied in line with crop requirements. Implementation of Regulation 14 has the potential for both positive and negative effects on the SEOs for GSL, W, BFF and PHH. There is potential for positive short to medium-term effects on the SEO for GSL, and secondary effects on the SEOs for W, BFF and PHH, by endeavouring to ensure that application rates of high-phosphorus manures to lands are in line with the crop requirements for phosphorus, thereby minimising the risk of excessive phosphorus loading of soils and the risk of phosphorus loss to associated waterbodies. The requirement for soil testing and use of a fertilisation plan will also contribute to these positive effects by reducing the likelihood of over-application of phosphorus. There is potential for negative effects on these SEOs, where an exception is made through Paragraph 3 that crop phosphorus requirements and available soil phosphorus do not need to be considered in certain situations; in these circumstances, there is potential for short to medium-term negative effects on these SEOs as phosphorus in manures may be overapplied with implications for soil health and phosphorus loss to waterbodies. There is also some uncertainty as to the use of the Olsen extractable soil

phosphorus index; this is dependent on effective sampling, can provide variable results, and may not be accurate for soils of lower pH or those with a higher organic content. Basaltic soils cover almost one third of Northern Ireland and, for these soils, the Olsen phosphorus test may under-estimate the plant-available phosphorus. In addition, for cross-border catchments with the Republic of Ireland, the use of different soil phosphorus indices (Morgan's phosphorus index is used in the Republic of Ireland)[143] may lead to differences in fertiliser application recommendations and perceived aquatic risks, while both are based on crop yield rather than mobilisation and environmental risk.

Regulation 15

Regulation 15 refers to the location of supplementary feeding sites and drinking points in relation to waters where there could be a significant risk of pollution from their use. Under Paragraph (1) supplementary feeding sites may not be located within 20m of any waterway where there is significant risk of pollution, while under Paragraph (2) supplementary livestock drinking points may not be located within 10m of any waterway where there is significant risk of pollution.

Poaching and soil compaction can occur where supplementary feeding and drinking points are located, with a risk of soil and associated nutrient loss; where there is a risk of runoff to waterbodies, this can result in water quality impacts. Implementation of Regulation 15 generally has the potential for positive effects on the SEO for GSL, and secondary effects on the SEOs for W, BFF and PHH, through lessening the risk of pollution to connected waterbodies. However, there is no stipulation as to what entails a 'significant risk', therefore there is potential for issues with implementation. It is recommended that risk assessment guidance is provided in a Schedule, as is the case where 'significant risk' is set out for other Regulations. Furthermore, the scientific rationale for a lower distance of 10m from any waterway stipulated for drinking points than is given for supplementary feeding sites is not clarified. As there is no stipulation as to the location of these points with regard to CH features, there is potential for negative effects on the SEO for CH from these measures. There is potential for direct short-term negative effects on the SEO for MA as compliance with these measures may require the installation of new water piping, drinking or feeding equipment with the associated financial expenditure.

Regulation 16

Under Regulation 16, when there is a requirement for a controller to prepare and retain a fertilisation plan, this must describe crop rotation and the planned application of nitrogen and phosphorus fertilisers to the area, and the plan must be made available on the holding every year. Paragraph (2) stipulates the details required regarding the numbers of livestock, amount of nitrogen and phosphorus manure produced, soil analysis results, information on the volume of manure storage available. Paragraph (3) stipulates that the preparation (and retention) of a fertilisation plan in accordance with DAERA's crop nutrient calculator will satisfy the requirements of Paragraph (2). Under Paragraph (4), if there is change in agricultural practices there is a period of 7 days for revising the fertilisation plan, if required.

[143] Vero et al. (2022). Comparison of soil phosphorus index systems for grassland.

By itself this Regulation does not constitute an action that would affect SEOs and therefore it is scored as neutral.

Cumulative and Synergistic Effects

Regulation 16 - This Regulation has the potential to facilitate the application of active measures in Part 3 of the Regulations in the long-term (Regulation 12 requires a fertilisation plan for application of anaerobic digestate, Regulation 13 for chemical phosphorus fertiliser, Regulation 14 for high-P organic manures), and in Part 10 as a requirement of derogation. Synergistically, these have potential to be indirectly positive short to long-term for W, through greater knowledge and control of fertiliser application to land, which could help to reduce the potential for over application and adverse effects on downstream water quality, with potential for indirect positive effects on the SEOs for BFF and PHH from a reduction in the risks to water quality. There is also potential for indirect positive effects on the SEOs for GSL and MA through a reduced risk of over-application of fertilisers, which has positive implications for long-term soil health and sustainability of resources.

All Regulations – All Regulations listed in Part 3 have the potential for cumulative positive effects with enforcement measures as set out in Part 7. The significance of cumulative positive effects will be dependent on the strength and effectiveness of inspection and enforcement measures.

RIAA Summary and Requirement for Mitigation

Regulation 7

This measure has potential to give rise to a number of positive effects for European sites through reduced nutrient loadings to waterbodies. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations. OEP (2026) has recommended that DAERA should consider options to strengthen the existing NAP Regulations related to ‘closed periods’ and the timing and location of organic manure applications to land. This should include reassessing farmyard dirty water management controls where current measures appear impractical, and winter applications are increasing the risk of nutrient losses to water.

Regulation 8

This measure has potential to give rise to a number of positive effects for European Sites through increased nutrient use efficiency and by avoiding activities which pose a risk for nutrient mobilisation to water or air. Potential negative effects are limited to agricultural lands where digestate from anaerobic digestors are applied or where NAP Regulations relating to LESSE and application rates are not applicable. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 9

This measure has potential to give rise to a number of positive effects for European Sites through increased nutrient use efficiency. There is potential for negative effects on water quality in areas of greater nutrient mobilisation risk or where non-compliance is an issue. Mitigation comprises of existing legislative

requirements, namely compliance with the NAP Regulations. OEPPE (2026) has recommended that in relation to the organic nitrogen limits set out in the NAP Regulations, DAERA should:

a) ensure that only land which is suitable for grazing or the application of manure is included in farm nitrogen loading calculations;

b) where it has information that indicates farmers are or may be working above the 170 kg N/ha/year limit without a derogation, take appropriate steps to ensure those farmers understand and are complying with the regulations.

Regulation 10

This measure has potential to give rise to a number of positive effects for European Sites through increased nutrient use efficiency and reduced nutrient loadings to water and emissions of ammonia and nitrous oxide, improving air quality.

Regulation 11

This measure has potential to give rise to a number of positive effects for European Sites through increased nutrient use efficiency and reduced nutrient loadings to water and emissions of ammonia and nitrous oxide, improving air quality.

Regulation 12

This measure has potential to give rise to both positive and negative effects for European Sites through increased nutrient use efficiency and reduced nutrient loadings to water. However, an exemption for certain holdings exists under specific conditions, which may exacerbate water quality issues for European Sites. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 13

This measure has potential to give rise to both positive and negative effects for European Sites through increased phosphorus use efficiency and reduced phosphorus loadings to water. However, positive effects depend on appropriate implementation and negative effects may continue for Republic of Ireland European Sites due to the use of different soil phosphorus tests within the two jurisdictions. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 14

This measure has potential to give rise to both positive and negative effects for European Sites through increased phosphorus use efficiency and reduced phosphorus loadings to water. However, positive effects depend on appropriate implementation and negative effects may continue due to an exemption which applies in certain situations and for hydrologically linked Republic of Ireland European Sites combined with the use of different soil phosphorus tests within the two jurisdictions. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations. OEP (2026) has recommended that DAERA should consider proposing additional mandatory requirements for soil analysis, and that all applications to land of both organic manure and chemical fertilisers are based on crop needs.

Regulation 15

This measure has potential to give rise to both positive and negative effects for European Sites through reduced nutrient and sediment pollution to waterbodies. However, positive effects depend on appropriate implementation and negative effects may continue due to a difference in the distance required from waterbodies for supplementary feeding sites versus supplementary drinking water points. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 16

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

SEA Mitigation Measures

Regulation 7 – It is recommended that the Regulations specify the manner in which crop requirements are assessed and verified, similar to Regulations 9, 10, and 11, which refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and the Schedules to these Regulations. It is recommended that a closed spreading period is introduced for the application of 'dirty water' to land, given the potential for this to be contaminated with nutrients arising from sources such as manure, urine, effluent, milk and cleaning products which have the potential for negative impacts on soils and waterbodies through nutrient accumulation and/or surface runoff.

Regulation 9 – As discussed under Part 10, which relates to derogations, it is recommended that DAERA review the process by which derogation applications are granted or refused. This should be a risk-based approach, with derogation granted only for situations where it is determined that this decision will not adversely affect water quality status. This may be affected by the baseline water quality and current trends within the catchment, soil types, etc. It is recommended that the limit of 170 kg of nitrogen per hectare per year is reviewed by DAERA as presently evidence and assessment on the sustainability and appropriateness of this limit and its subsequent environmental implications are unknown. The granting of a rate of 250kg should also be reviewed, with the maximum permitted loading based on a risk assessment. If required, adjustments should be made to lower the maximum limit of nutrients permitted for application on soils

Regulation 11 – It is recommended that a timeline is established to integrate SNHS data; as understanding of soil type helps land holders to ascertain the N requirements for crops, it is recommended that SNHS results are used to define this where it is currently uncertain.

Regulations 9, 10 and 11 - Regulations 9, 10, and 11, which refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and the Schedules to these Regulations. The draft NAP 2027-2030 should refer to the most up to date version of the AHDB Nutrient Management Guide (RB209), which is currently 2026.

Regulations 12, 13 and 14 – It is recommended that soil analysis and crop specific nutrient requirements, including for phosphorus, are phased in with the SNHS, which can provide an overall indication of phosphorus. For Regulations 12, 13, 14, the Olsen extractable phosphorus for soil phosphorus index can

be variable and may not give accuracy for lower pH soils or where there is a higher organic content of soils. Basaltic soils cover nearly a third of the landscape of Northern Ireland and are characterised by high levels of Fe, Al, Ca, Mg, Cu, Cr and Ni. Research indicates that the Olsen phosphorus soil test, when applied to these soils, may be underestimating plant-available phosphorus. It is recommended that DAERA consider that any soil test developed through research as part of the SNHS for basaltic soils in Northern Ireland, is considered for the NAP Regulations. It is recommended that there is cross-border communication regarding the use of phosphorus indices, as an alternative system is currently used in the Republic of Ireland.

Regulation 15 - the scientific rationale for a lower distance of 10m from any waterway stipulated for drinking points than is given for supplementary feeding sites is not clarified in the Regulation. It is recommended that this is clarified by DAERA, or that both are set at 20m where a risk is identified.

All Regulations – As discussed under Part 7, which relates to enforcement, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.

Part 4 – Storage Requirements

17	**Storage for livestock manure and silage effluent** • The capacity of storage facilities should be sufficient for all livestock manure and silage on the holding to ensure compliance with these Regulations and the prevention of water pollution. • This should account for needs during adverse weather conditions, when land application cannot take place. • Storage should be sufficient for at least 22 weeks. • Storage facilities should be well maintained so as not to cause runoff or seepage.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	0	0	+/-	0	0
18	**Storage capacity of pig and poultry manure** • Manure storage should be sufficient for at least 26 weeks. • Where certain criteria are met this may be at least 22 weeks.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	0	0	+/-	0	0
19		BFF	PHH	GSL	W	A	CF	MA	CH	L

	Storage of slurry • Slurry must be stored in a storage system subject to certain standards, unless exempt where completed before 1st December 2003. • This does not apply where a tanker is used for temporary transportation of slurry, and the capacity should not exceed 18,000L. • Slurry stores constructed or substantially modified after 1 December 2003 must comply with certain construction standards and be notified at least 28 days before they are brought into use.	+/-	+/-	+/-	+/-	+/-	+/-	0	+/-	+/-
20	**Storage of farmyard manure (FYM)** • FYM may be stored: - in middens with adequate effluent collection facilities. - in a field heap where they are to be applied, for a maximum of 120 days. • FYM must not be stored: - In the same location of the field year after year. - Within 50m of a borehole, spring or well. - Within 250m of a borehole used for a public water supply. - Within 50m of exposed cavernous or karstified limestone features. - On land that is waterlogged, flooded or likely to flood.	BFF +	PHH +	GSL +	W +	A 0	CF 0	MA 0	CH 0	L 0

	• FYM field heaps must not be stored within 20m of any waterway and 50m of lake.									
21	**Storage of poultry litter and anaerobic digestate fibre** • Poultry litter and anaerobic digestate fibre: - May be stored in middens with adequate effluent collection facilities. - May be stored in a field heap where they are to be applied, for a maximum of 120 days. - Field storage of poultry litter and anaerobic digestate fibre must be notified to NIEA prior to placement in the field. • Poultry litter and anaerobic digestate fibre field heaps must not be stored: - In the same location of the field year after year. - Within 50m of a borehole, spring or well. - Within 250m of a borehole used for a public water supply. - Within 50m of exposed cavernous or karstified limestone features. - On land that is waterlogged, flooded or likely to flood. • Poultry litter and anaerobic digestate fibre field heaps must not be stored within 100m of lakes and 40m of any waterway. • Poultry litter and anaerobic digestate fibre field heaps must be covered with an impermeable membrane as soon as possible and within 24 hours of placement in the field.	BFF +	PHH +	GSL +	W +	A 0	CF 0	MA 0	CH 0	L 0

22	**Storage of dirty water** • Storage must be provided for dirty water during periods when conditions for land application are unsuitable.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	++/-	++/-	+/-	0	0
23	**Calculations of livestock manure storage capacity** • Certain farm practices may be considered when calculating storage capacity, such as separated cattle slurry, renting additional tanks, poultry litter and anaerobic digestate fibre stored in a midden or field heap and exporting manure to approved outlets. • Under certain conditions, the storage capacity may be less where there are allowances for the out-wintering of animals. • Storage capacity should be calculated using manure production figures given in the Regulations, and subject to any further guidance issued by DAERA.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
24	**Making and storage of silage** • Silage must be: - Kept in a silo, subject to conditions (unless an exempt structure). - In bales with impermeable membranes. - As bulk bagged silage in bags, subject to conditions. - Stored at least 10m from any waterway. • Bales and bulk bags should not be unwrapped/opened within 10m of waterways.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		++/-	++/-	++/-	++/-	++/-	++/-	0	+/-	+/-

	Silage stores constructed or substantially modified after 1 December 2003 must comply with certain construction standards and be notified at least 28 days before they are brought into use.									
25	**Cover in winter** • From harvest of a crop other than grass until 15 January of the following year, the controller must manage the land to ensure soil cover and to minimise soil erosion and nutrient runoff. Residues of crops harvested late must be left undisturbed until just before sowing the following spring, or the land should be sown with a crop that takes up N from the soil.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		+	+	+	+	0	+	0	0	0

Part 4 sets out measures for the effective storage of manure, silage, and dirty water, including capacity requirements and the condition and location of storage facilities. If effectively implemented and enforced, these should have positive implications for the environment over the baseline scenario where no such protections exist.

Regulation 17

Regulation 17 sets out storage capacity requirements for livestock manure and silage effluent. Paragraph (1) establishes that the capacity of storage facilities must be adequate for the volume that is likely to be generated on that holding to ensure compliance with the NAP Regulations (Northern Ireland) 2019 and to avoid water pollution, with reference to the specific requirements given in Regulations 18 to 24. This must include consideration of the storage capacity that is likely to be required during poor weather conditions when land spreading is not permitted (Paragraph 2) and must be sufficient for at least 22 weeks of storage (Paragraph 3), and free from structural defects or poor management that could result in impacts to water quality (Paragraph 4).

Implementation of Regulation 17 has the potential for medium to long-term positive effects on the SEO for GSL and W, and secondary effects on the SEOs for BFF and PHH, if fully implemented and enforced. Ensuring that storage facilities are of an adequate standard and of a correct volume to accommodate livestock manure and silage effluent should minimise the risk of nutrient runoff or seepage and reduce the potential for impacts on water quality. However, the NAP Implementation Report for 2020-2023 (DAERA, 2024) indicates that there are some compliance issues regarding livestock manure storage; the most frequent areas of non-compliance related to water pollution and were often associated with poorly managed or inadequate manure storage facilities. Inappropriate management of excess manures has the potential for negative long-term effects on the SEO for W and negative long-term secondary effects on the SEOs for BFF, PHH, and GSL.

There is potential for both positive and negative effects on the SEO for MA from the implementation of this measure. There is potential for short-term negative direct effects on the SEO for MA, owing to the need to ensure that storage facilities are adequate both for accommodating the anticipated volume required for livestock manure and silage effluent and maintaining them to avoid seepage or runoff, which may incur additional financial costs for the controller of a holding. There may be a requirement to expand storage facilities under Paragraphs (2) and (3) to comply with the NAP Regulations (Northern Ireland) 2019, which may incur additional financial costs to the controller to build these facilities, with short and medium-term negative effects on the SEO for MA. However, there is also potential for long-term positive indirect effects on the SEO for MA, as improvements in storage infrastructure will improve the value of farm assets and has the potential to reduce the requirement for expenditure on chemical fertilisers due to efficient retention and use of organic manures on-farm.

Note that it is proposed to include a requirement for tensioned fitted / fixed covers to be used for new above ground stores constructed under Schedule 6 in the draft NAP 2027-2030 and to raise awareness of existing storage requirements, as discussed and assessed in Section 7.2.

Regulation 18

Regulation 18 specifies the required livestock manure storage capacities for pig and poultry enterprises. The total storage capacity must be sufficient for at least 26 weeks (Paragraph 1), except for small-scale enterprises where is must be a minimum of 22 weeks (Paragraphs 2 and 3). Where there is another livestock enterprise on the same holding, the livestock manure storage capacity should be sufficient for at least 26 weeks storage for the pig or poultry enterprise and at least 22 weeks for the other livestock enterprise.

As for Regulation 17, the provision and maintenance of sufficient livestock manure storage should reduce the risk of inappropriate storage or land spreading of manures and the associated risk of runoff and water quality impacts. If effectively implemented this has potential for medium to long-term positive effects on the SEOs for GSL and W, and secondary effects on the SEOs for BFF and PHH. However, poor management or inadequate storage facilities for livestock manure leading to water pollution has been identified as a compliance issue in the NAP Implementation Report for 2020-2023, and the inappropriate management of excess manures has the potential to negatively impact on the SEOs for W, BFF, PHH and GSL.

As for Regulation 17, there is potential for both positive and negative effects on the SEO for MA from the implementation of this measure. There is potential for short-term direct negative effects on the SEO for MA, owing to the need to ensure that storage facilities are adequate for accommodating the anticipated volume required for pig and/or poultry manures (and other livestock manures, where relevant), which may incur additional financial costs for the controller of a holding. There may be a requirement to expand storage facilities to comply with the capacity requirements, which may incur additional financial costs to build these facilities, with short and medium-term negative effects on the SEO for MA. However, there is also potential for long-term indirect positive effects on the SEO for MA, as improvements in storage infrastructure will improve the value of farm assets and has the potential to reduce the requirement for expenditure on chemical fertilisers due to efficient retention and use of organic manures on-farm.

Regulation 19

Regulation 19 specifies the requirement for slurry storage facilities to be subject to certain standards, and that new facilities should be notified to DAERA. Exemptions apply where slurry is being temporarily transported, as well as for older facilities (those constructed and not substantially modified prior to 1 December 2003). It is proposed to introduce a requirement for pre-notification of new slurry storage to prior to construction but will retain that it must be verified to comply with standards 28 days prior to use and will be introduced in the NAP 2027-2030 from 1 January 2026, as discussed and assessed in Section 7.2.

Implementation of Regulation 19, where fully implemented and enforced, generally has the potential for positive effects on the SEO for GSL and secondary effects on the SEOs for W, BFF and PHH, through a reduced risk of leakage and associated impacts on associated waterbodies, and for positive effects on the SEOs for A and CF through a reduced risk of emissions including ammonia and methane to the atmosphere, where storage facilities are constructed subject to defined standards. However, there is potential for negative effects on these SEOs owing to the exemption of older structures from these standards. While notice may be served on these structures under Regulation 30 where it is considered that there is a risk of water pollution, requiring work to be taken to reduce risks, this will be affected by the level of inspection of these facilities. The potential for effects on the SEOs for CH and L are uncertain, as the potential for impacts on the landscape and on heritage features that are located on farmlands from new storage infrastructure will be influenced by its siting, size and any planning requirements. Note that under the proposed measures of the draft NAP 2027-2030, it is proposed to strengthen the regulatory requirement regarding the pre-notification of slurry or silage stores to DAERA prior to their construction.

Regulation 20

Regulation 20 specifies the appropriate storage of FYM, whereby middens should have adequate effluent collection facilities and field heaps should not be kept for extended periods (maximum period of 120 days) and must be stored in the field under appropriate ground conditions, avoiding risks to waterbodies including groundwaters.

Controls on the storage of FYM have the potential for positive effects on the SEO for W owing to a reduced risk of nutrient loss from FYM from middens or field heaps and impacts on downstream waterbodies, and positive secondary effects on the SEOs for BFF and PHH owing to a reduced risk of impacts on aquatic flora and fauna and on water used by the population. There is potential for positive effects on the SEO for GSL in the short to medium-term, as restrictions on the length of time and annual location of FYM field heaps are expected to reduce soil compaction in the field, with positive implications for soil quality. There is also potential for positive effects on this SEO through reduced leaching or loss of nutrients from FYM stored in the field, reducing the development of nutrient accumulation zones in storage areas.

Regulation 21

Regulation 21 specifies the appropriate storage of poultry manure and anaerobic digestate, middens should have adequate effluent collection facilities and field heaps should not be kept for extended periods (maximum period of 120 days) and should be notified prior to placement. These must be stored in the field under appropriate ground conditions, avoiding risks to waterbodies including groundwaters, and must be covered with an impermeable membrane.

Poultry manure and anaerobic digestate fibre have a high amount of readily available nutrients and therefore must take additional steps to protect the environment. Similar to Regulation 20, controls on the storage of poultry manure and anaerobic digestate have the potential for positive effects on the SEO for W owing to a reduced risk of nutrient loss from middens or field heaps and impacts on downstream waterbodies, and positive secondary effects on the SEOs for BFF and PHH owing to a reduced risk of impacts on aquatic flora and fauna and water used by the population. There is potential for positive effects on the SEO for GSL in the short to medium-term, as restrictions on the length of time and annual location of field heaps are expected to reduce soil compaction in the field, with positive implications for soil quality. There is also potential for positive effects on this SEO through reduced leaching or loss of nutrients from storage in the field, reducing the development of nutrient accumulation zones in storage areas.

Regulation 22

Regulation 22 sets out requirements for the storage of dirty water, insofar as storage must be available for this waste during periods when land application is not permitted (as specified by Regulation 8). Dirty water may be contaminated by contact with material such as livestock faeces and urine, chemical fertilisers, silage effluent, washings including of holding areas or farm equipment, and can therefore contain nutrients, contaminants and sediment.

Implementation of Regulation 22 generally has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF. There is potential for positive short to medium-term effects on the SEO for GSL, as adequate storage will support the avoidance of land spreading of dirty water during periods when the ground conditions are less conducive to nutrient uptake, with benefits for soil health. This will have the potential for positive secondary effects on the SEOs for W, BFF, PHH, A and CF, as it will reduce the risk to waters and emissions such as ammonia and nitrous oxide to air from spreading in poor conditions. However, there is no minimum capacity set out for storage of dirty water and, should the storage be inadequate to hold the dirty water generated by a holding, there is a risk that it will be spread in sub-optimal conditions, with potential for negative effects on these SEOs.

There is potential for both positive and negative effects on the SEO for MA; in the short-term, there may be initial capital costs associated with storage requirements for dirty water, however, in the medium to long-term, improvements in storage infrastructure will improve the value of farm assets, and the use of dirty water during periods of appropriate soil and weather conditions can reduce the need for additional chemical fertilisers, with indirect positive effects for MA.

Regulation 23

Regulation 23 sets out provisions that can be considered when calculating the storage capacity required for livestock manure. These allow for deviation from the storage requirements set out in other Regulations of the NAP Regulations (Northern Ireland) 2019 where the farmer can demonstrate adequate alternatives (storage elsewhere, treatment or permitted transport off site), and outwintering of animals.

When implemented correctly, these provisions are anticipated to have neutral effects on the environment and may aid the overall storage capacity within the land holding.

Regulation 24

Regulation 24 specifies the requirement for silage storage facilities to be subject to certain standards and must be managed appropriately to avoid risks to waterbodies, and that new facilities should be notified to the Department. Exemptions apply for older facilities (those constructed and not substantially modified prior to 1 December 2003). It is proposed to increase the distance for the storage of silage bales from 10m to 20m and prevent the stacking of these more than two bales high will be introduced for the NAP 2027-2030, as discussed and assessed in Section 7.2.

Silage effluent has a very high biological oxygen demand (BOD) and consequently any amount of this pollutant entering waters can have severe impacts on water quality. Implementation of Regulation 24 generally has the potential for medium to long-term positive effects on the SEOs for GSL and W, and secondary effects on the SEOs for BFF and PHH, as ensuring that storage facilities are of an adequate standard and that bales and bulk bags are managed appropriately with regard to aquatic risk should reduce the risk of silage effluent entering waterways, and reduce the risk of impacts on water quality, aquatic flora and fauna and use by the population as well as reducing the risk of development of nutrient accumulation zones in storage areas. Ensuring that storage facilities are of good standard also has the potential for positive effects on the SEOs for A and CF, by reducing the risk of emissions such as nitrogen dioxide. However, there is potential for negative effects on these SEOs owing to the exemption of older structures from these standards. While notice may be served on these structures under Regulation 30 where it is considered that there is a risk of water pollution, requiring work to be taken to reduce risks, this will be affected by the level of inspection of these facilities. The potential for effects on the SEOs for CH and L are uncertain, as the potential for impacts on the landscape and on heritage features that are located on farmlands from new storage infrastructure will be influenced by its siting, size and any planning requirements.

Regulation 25

Regulation 25 refers to the management of land to minimise soil erosion and nutrient loss over winter following the harvesting of a crop. When crops are harvested late, residues must be left in place, or a crop should be sown to uptake nitrogen.

Implementation of this Regulation has the potential for positive effects on the SEOs for GSL, W, BFF, PHH and CF. Good management of the land to enable nitrogen uptake and reduce the risk of erosion has the potential for short to long-term positive effects on GSL by reducing the risk of soil loss and long-term

positive effects on CF by minimising soil organic carbon loss. This also reduces the risk of sedimentation and associated nutrient contributions to waterbodies, with the potential for short to long-term positive secondary effects on the SEOs for W, BFF and PHH.

Cumulative and Synergistic Effects

All Regulations - All Regulations in Part 4 of the Regulations have the potential for cumulative positive effects with enforcement measures, as set out in Part 7. The significance of these cumulative positive effects will be dependent on the strength and effectiveness of inspection and enforcement measures.

RIAA Summary and Requirement for Mitigation

Regulation 17

This measure has potential to give rise to both positive and negative effects for European Sites by preventing manure seepage and silage effluent from entering waterbodies. However, positive effects depend on appropriate implementation and negative effects may continue due to non-compliance. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 18

This measure has potential to give rise to both positive and negative effects for European Sites by preventing manure seepage from entering waterbodies. However, positive effects depend on appropriate implementation and negative effects may continue due to non-compliance. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 19

This measure has potential to give rise to both positive and negative effects for European Sites by preventing slurry seepage from entering waterbodies and emissions to the atmosphere. However, positive effects depend on appropriate implementation and negative effects may continue in cases where exemptions apply and where non-compliance is an issue. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 20

This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to waterbodies through inappropriately stored FYM.

Regulation 21

This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to waterbodies through inappropriately stored poultry litter and anaerobic digestate fibre.

Regulation 22

This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to waterbodies through inappropriately stored dirty water.

Regulation 23

This is considered to be neutral, subject to correct implementation and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 24

This measure has potential to give rise to both positive and negative effects for European Sites by preventing water pollution from inappropriately produced and stored silage. However, the risks for negative effects may continue in cases where exemptions apply and where non-compliance is an issue. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations.

Regulation 25

This measure has potential to give rise to positive effects for European Sites by reducing nutrient and sediment pollution to waterbodies from exposed soil following crop harvesting.

SEA Mitigation Measures

Regulation 17 – It is recommended that DAERA consider whether storage capacity requirements vary with differing climatic conditions across Northern Ireland.

Regulation 22 – It is recommended that DAERA consider specifying minimum storage requirements for dirty water, and/or a closed period under Regulation 8.

Regulation 23 – It is recommended that manure production figures are reviewed on a regular basis to ensure that storage capacity is accurately determined.

Regulation 19 and 24 – It is recommended that DAERA reconsider the exemptions for older slurry and silage facilities, these should be brought to current standards or inspected to ensure that they are compliant.

All Regulations – As discussed under Part 7, which relates to enforcement, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.

Part 5 – Measures relating to land management										
26		BFF	PHH	GSL	W	A	CF	MA	CH	L

	Crop management • Where grass leys are grown in rotation with arable crops the first crop shall be sown as soon as possible after the grass has been ploughed.	++/-	++/-	++/-	++/-	0	++/-	0	0	0

Regulation 26

Regulation 26 sets out crop management requirements where grass leys and arable crops are sown in rotation.

Implementation of this Regulation has the potential for positive effects on the SEOs for GSL, W, BFF, PHH and CF. Good management of the land to establish cover, enable nitrogen uptake, and reduce the risk of erosion has the potential for short to long-term positive effects on GSL by reducing the risk of soil loss and long-term positive effects on CF by minimising soil organic carbon loss. This also reduces the risk of sedimentation and associated nutrient contributions to waterbodies, with the potential for short-term positive secondary effects on the SEOs for W, BFF and PHH.

However, this Regulation is dependent on the interpretation by the land holder of the phrase ‘as soon as possible’ which places some uncertainty on the requirement to sow crops following ploughing.

Note that it is proposed to introduce a voluntary scheme for the inclusion of an uncultivated buffer in arable fields alongside waterways and as a requirement under the new NSP for arable fields, as discussed and assessed under Section 7.2.

Cumulative and Synergistic Effects

Regulation 26 should act synergistically with Regulation 25 (regarding ensuring the minimisation of soil erosion following harvesting of crops) to reduce the risk of soil erosion, with potential for short to long-term positive effects on GSL through reduced soil loss and long-term positive effects on CF by reducing soil organic carbon loss. The significance of these positive effects will be dependent on the strength and effectiveness of enforcement and inspection measures under Part 7.

RIAA Summary and Requirement for Mitigation

Regulation 26

This measure has potential to give rise to positive effects for European Sites by reducing nutrient and sediment pollution to waterbodies from exposed soil following crop harvesting.

SEA Mitigation Measures

Regulation 26 – It is recommended that DAERA consider defining a time window instead of the subjective 'as soon as possible' phrasing, subject to appropriate conditions e.g., meteorological or soil conditions, and/or provide clear specification through updated NAP guidance.

Part 6 – Record keeping and compliance monitoring

		BFF	PHH	GSL	W	A	CF	MA	CH	L
27	**Records required** Following records must be kept: • Agricultural area, field size and location. • Cropping regimes and areas, Soil Nitrogen Supply (SNS) index for crops other than grassland. • Livestock numbers, type, species and time kept. • Organic and chemical fertiliser details including imports and exports. • Evidence of a crop phosphate requirement from soil analysis if chemical phosphate fertiliser is applied. • From 1 January 2017, evidence of crop phosphorus requirement from soil analysis if organic manure with over 0.25 kg total phosphorus per 1 kg total nitrogen is applied. • From 1 January 2020 a fertilisation plan must be prepared and kept up to date by all grassland farms using chemical phosphorus fertiliser, and all farms using phosphorus-rich manure e.g., some poultry manures, pig farmyard manures and anaerobic digestate. A soil analysis is required. • From 1 January 2020 farms importing anaerobic digestate will require a nutrient content analysis. • Storage capacity and, where applicable, details of rental agreements, authorisation to store poultry litter and or		0	0	0	0	0	0	0	0	0

	anaerobic digestate in field heaps and associated evidence to support allowances to reduce capacity. • Records relating to export of organic manure to be submitted annually by 31 January of the following year and by 1 March for derogated holdings. • Records must be available for inspection by 30 June of the following calendar year and must be retained for a period of five years.									
28	**True records** • NAP Records must not be false or misleading, nor should any NAP information in a notice or document provided to DAERA.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0

Regulation 27

Regulation 27 specifies the records that must be kept by the land holder within, and for, prescribed periods. By itself, compliance with this Regulation has the potential for neutral effects across SEOs. However, the Implementation Report for the NAP 2020-2023 indicates an increase in non-compliance for record keeping in 2022 and 2023 with the new requirement for fertilisation plans in 2020 and an increase in non-submission of manure export records. It is proposed to introduce a new updated IT system for the recording of manure exports and to require the recording of manure exports and imports within 4 days where the export distance is greater than 15 miles or more in a straight line distance in the draft NAP 2027-2030, as discussed and assessed in Section 7.2.

Regulation 28

Regulation 28 stipulates that the records required by Regulation 27, as well as other NAP information presented by the landholder to DAERA, must not be false or misleading. By itself, compliance with this Regulation has the potential for neutral effects across SEOs.

Cumulative and Synergistic Effects

Regulation 27 and 28 – the keeping of records has the potential for synergistic indirect positive effects on the SEOs for GSL, W, BFF, PHH, A and CF by supporting Regulations of the NAP such as those relating to fertiliser use, storage requirements and enforcement, with potential for greater compliance and transparency in regulation.

RIAA Summary and Requirement for Mitigation

Regulation 27

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. OEP (2026) has recommended that DAERA should materially increase the current inspection rates and the number of random inspections. It should ensure inspection rates are sufficient to provide a credible picture of compliance, and assess whether such compliance means the NAP Regulations will deliver the intended outcomes.

Regulation 28

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

SEA Mitigation Measures

All Regulations – As discussed under Part 7, which relates to enforcement, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.

Part 7 – Enforcement										
29	**Responsibility for enforcement** • DAERA or those authorised by DAERA are responsible for enforcement of these Regulations. • Those authorised may consider the COGAP as well as guidance on these Regulations in ensuring compliance. • Those authorised may use any of their functions to ensure compliance with these Regulations.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
30		BFF	PHH	GSL	W	A	CF	MA	CH	L

	Serving of notices • Where necessary under the Regulations, or where it is considered that the controller is in breach of the Regulations, DAERA may serve notice to minimise any significant pollution risk to waterways or underground strata from slurry, silage, or crops being made into silage. • Where a notice is served: - DAERA require that any necessary works are undertaken to remedy the situation. - State the period of compliance, which should be reasonable and at least 28 days. - Provide information on the right to appeal which, if taken, suspends the notice until an appeal decision or withdrawal occurs. DAERA may withdraw the notice, extend the period of compliance, or modify the requirements of the notice, as necessary.	0	0	0	0	0	0	0	0	0
31	**Appeals** • Those served notice by DAERA have the right to appeal by wiring to the Appeals Commission within 28 days. • The Appeals Commission will make determinations in accordance with the procedure given in Article 293 of the Water and Sewerage Services (NI) Order 2006.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
32	**Offences** • This Regulation details which Regulations it is considered an offence not to comply with, without reasonable excuse.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
33		BFF	PHH	GSL	W	A	CF	MA	CH	L

	Penalties • Those found guilty of an offence as detailed in Regulation 32 will be liable: - To an amount that does not exceed the statutory maximum amount, plus an additional fine of one tenth of this amount for each day that the offence continues following conviction; or - On conviction on indictment to a fine or to imprisonment for a term of not more than two years or both.	0	0	0	0	0	0	0	0	0

Regulation 29

Regulation 29 defines 'authorised persons' and their powers in exercising compliance with the NAP Regulations. Implementation of Regulation 29 has no potential for direct environmental impacts and effects on SEOs. Supporting and ensuring that NAP Regulations are effectively and consistently implemented will have the potential for positive effects on SEOs, including for GSL, W, BFF, PHH, A and CF. However, should enforcement by authorised persons be ineffectual or inconsistent, there is potential for measures such as those relating to fertiliser application and storage to be inappropriately implemented.

Regulation 30

Regulation 30 stipulates the rights of DAERA to serve notice to land holders whom they consider to be in breach of NAP Regulations, and the requirements for compliance with this notice. Implementation of Regulation 29 has no potential for direct environmental impacts and effects on SEOs. As for Regulation 29, supporting and ensuring that NAP measures are effectively and consistently implemented will have the potential for positive effects on SEOs, including for GSL, W, BFF, PHH, A and CF. However, should enforcement by authorised persons be ineffectual or inconsistent there is potential for measures such as those relating to fertiliser application and storage to be inappropriately implemented.

Regulation 31

Regulation 31 sets out the rights for land holders to appeal any notices that require works to be undertaken. By itself, this Regulation has the potential for neutral effects across SEOs.

Regulation 32

Regulation 32 deals with contraventions under the NAP Regulations and states that any person who fails to comply with certain Regulations will be guilty of an offence. Implementation of Regulation 32 has no potential for direct environmental impacts and effects on SEOs. If effectively and consistently implemented this will support and ensure that NAP measures are effectively implemented and will have the potential for positive effects on SEOs, including for GSL, W, BFF, PHH, A and CF. However, it is not clear to what extent land holders have been convicted of offences under the NAP Regulation and thus how effectively this measure acts as an enforcement mechanism. Furthermore, for Paragraphs (1), (2), (3Ab), (6), (7), (9), and (10) the phrase 'without reasonable excuse' is included, which places some uncertainty on the strength of the measure.

Regulation 33

Regulation 33 deals with penalties for those found guilty of an offence under the NAP Regulations, as set out in Regulation 32. Implementation of Regulation 33 has no potential for direct environmental impacts and effects on SEOs. If effectively and consistently implemented this will support and ensure that NAP measures are effectively implemented and will have the potential for positive effects on SEOs, including for GSL, W, BFF, PHH, A and CF. However, as for Regulation 32, it is not clear to what extent land holders have been convicted of offences under the NAP Regulations to date and thus how effectively this measure acts as an enforcement mechanism.

Note that it is proposed to introduce additional inspections through the draft NAP 2027-2030, as discussed and assessed under Section 7.2.

Cumulative and Synergistic Effects

All Regulations - All Regulations in Part 7 of the Regulations have the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF combined with active measures of the NAP Regulations, including those set out in Parts 2, 3, 4, 5, 6, and 10. The significance of positive cumulative effects will be dependent on the strength and effectiveness of inspection and enforcement measures.

RIAA Summary and Requirement for Mitigation

Regulation 29

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. OEP (2026) has recommended that DAERA should review how it monitors and enforces compliance with laws relating to water pollution from agriculture under the NAP Regulations, the Water Order (Northern Ireland) 1999 and the cross-compliance framework governing area-based agricultural payments. This should include:

a) setting out its intended approach to ensure there is clarity for the agricultural sector regarding which compliance and enforcement tools may be used when breaches and incidents occur;

b) ensuring that the combination of the frequency of inspections and the financial or other penalties that may be imposed following detection of breaches is sufficient to incentivise compliance.

Regulation 30

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 31

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 32

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 33

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

SEA Mitigation Measures

Regulations 30-33 – The most recent Implementation Report for the NAP 2020-2023, published in July 2024, indicates that there were breaches in compliance with NAP Regulations upon inspection. However, the level of inspection is very low, and expanding the percentage of non-compliance nationally could signify areas of greater risk. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.

Regulation 33 – It is recommended that the statutory maximum fine amount is specified in this Regulation, or that the legislation that specifies this amount is referenced.

Part 8 – Powers, duties and Functions of the Department										
34	**NAP reporting** • DAERA are required to report on the NAP implementation at four-yearly intervals.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
35	**NAP review**	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0

	• DAERA are required to review the NAP at four-yearly intervals and must revise the programme where necessary. This must include: - Appropriate public consultation. - A review of derogations against the effectiveness of water quality objectives.									

Regulation 34

Regulation 34 prescribes the requirement for DAERA to report on the implementation of the NAP Regulations every four years, which should include details of the steps taken to promote good agricultural practice, summarise monitoring results indicating the effectiveness of these measures and the outcomes of a review of the Programme (as stipulated in Regulation 35).

Implementation of Regulation 34 is administrative with no potential for direct environmental impacts and effects on SEOs. If monitoring and assessment of NAP implementation is effective, it can provide insight into the effectiveness of measures, and aid in the identification of any changes that should be applied to improve the Programme. In this manner it can contribute to positive effects on the environment where trends are identified, and remedial measures applied to the NAP. However, there may be negative effects on the environment if there is a lack of reliable monitoring information, or if corrective actions are not taken to mitigate against negative impacts.

The most recent WFD monitoring data indicates that there has been little to no change in ecological status from the previous cycle, and a decline in status for lake waterbodies; only 30% of river waterbodies, 36% of transitional and coastal waterbodies, 14% of lake waterbodies, and 68% of groundwater bodies monitored for the WFD were at good or better ecological status in 2021. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems.

The most recent Implementation Report for the NAP 2020-2023 was published in July 2024. This shows evidence of declines in water quality status for a number of parameters. Whilst over the long term, since 1992, nitrate levels continue to decline, in recent years there has been an increase in the number of sites showing increasing levels of nitrate in freshwaters, particularly in the south and east of the region, which is a cause for concern. This includes an increasing trend in nitrate concentrations from 2009 to 2023 for rivers flowing into, and out of, Lough Neagh. Although 91.4% river sites show a stable or decreasing soluble reactive phosphorus concentration and seasonal trends show monthly average concentrations are mainly stable or decreasing in 87.5% of rivers from 1998-2023, high baseline phosphorus levels mask a recent increase in phosphorus. A review of enforcement and compliance levels at farm holdings and assessment of NAP measures on field practices gives some indication of the effectiveness of the current NAP measures at source. Data on compliance with the NAP Regulations comes from scheduled inspections as well as reactive inspections (e.g., due to complaints) by NIEA; this includes inspection of 1% of farm businesses inspected on a risk-based approach, plus 5% of derogation farms (inspection rates were much lower at 0.5% inspection rate in 2020 and 2021 during the Covid-19 pandemic, resulting in an annual average number of inspections for the 2020-2023 reporting period of 313 equating to 1.28%). Inspections indicate higher levels of non-compliance for the 2020-2023 reporting period relating to the following NAP measures: livestock

manure storage requirements, nitrogen fertiliser entering a waterway, and land application restrictions. There is no reporting of enforcement measures, however, included in the Implementation Report. The degree by which the nitrogen and phosphorus surplus on farms is being lowered was used as an indicator for evaluating the effectiveness of the NAP Regulations (Northern Ireland) 2019, as well as the change in nitrogen efficiency on farms, with balances based on differences in inputs of nutrients to farms via chemical fertilisers and imported feedstuffs less agricultural product outputs exported off farm. For nitrogen, there was a 1.1% reduction in the nitrogen balance, and an increased nitrogen efficiency to 25% in the 2020-2023 reporting period. For phosphorus, the chemical phosphorus fertiliser levels have declined from 2003 and stabilised, while feedstuff phosphorus has increased since 2008, with phosphorus efficiency at 47% in 2022 representing an improvement on previous trends but a recognition that significant reductions in the agricultural phosphorus surplus are still needed to improve water quality.

Regulation 35

Regulation 35 prescribes the requirement for DAERA to review the NAP Regulations every four years, and revise the Programme where necessary, which should include appropriate public consultation and should contain a review of the most recent Action Programme and, as part of the review, the overall position of derogations granted under regulation 39(3) against the effectiveness in meeting objectives of reducing water pollution from nutrients and preventing further pollution. There is minimal specific information relating to derogated land holdings within the most recent Implementation Report for the NAP 2020-2023 (e.g., water quality trends specific to derogated holdings, no indication of compliance rates for derogated versus non-derogated holdings); while the most recent Annual Nitrates Derogation Report is for 2020 and is currently at draft stage.

Regulation 35 is linked to Regulation 34, and allows for monitoring results, and review of existing measures to inform changes and improve the NAP. It also includes measures relating to public awareness and engagement on decision-making for the revised NAP which, while having neutral direct impacts on SEOs, have the potential for wider indirect positive effects through greater engagement and transparency in the regulation of the sector.

Note in the consultation document of the draft NAP 2027-2030, DAERA have proposed a two-year review of all implemented NAP measures proposed under the draft NAP 2027-2030 as well as the four-year statutory review.

Cumulative and Synergistic Effects

Regulation 34 – Regulation 34 generally has the potential for positive effects on the SEOs for W, GSL, BFF, PHH, A and CF, and for both positive and negative effects on the SEO for MA cumulatively with proposed new measures for the draft 2027-2030 NAP.

RIAA Summary and Requirement for Mitigation

Regulation 34

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 35

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

SEA Mitigation Measures

Regulations 34 & 35 – It is recommended that DAERA include regular and transparent reporting of derogated land holdings within the NAP Implementation Reports with regard to the achievement of water quality objectives.

Part 9 – Miscellaneous

36	**Transitioning from previous Regulations** • Notices that are served under the previous Nitrates Action Programme Regulations or Phosphorus Regulations are to be taken as served under these NAP Regulations. • Records required under the previous Nitrates Action Programme Regulations or Phosphorus Regulations are to be taken as served under these NAP Regulations.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
37	**Necessary amendments to other legislation** • Amendments are needed to the Waste Management Licensing Regulations to refer to the NAP Regulations instead of the Nitrates Action Programme Regulations. • An amendment is needed to the Common Agricultural Policy Direct Payments and Support Schemes (Cross-Compliance) Regulations to refer to the NAP Regulations instead of the Nitrates Action Programme Regulations.	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0
38	**Revoking other Regulations and saving provisions** • The Nitrates Action Programme Regulations, Phosphorus Regulations, Nitrates Action Programme (Amendment)	BFF	PHH	GSL	W	A	CF	MA	CH	L
		0	0	0	0	0	0	0	0	0

	Regulations (Northern Ireland) 2015 and associated regulations of the Pesticides, Genetically Modified Organisms and Fertilisers (Miscellaneous Amendments) Regulations (Northern Ireland) 2018 are revoked. • Excretion rates as set out in the Nitrates Action Programme Regulations (Northern Ireland) 2014 will be used until 31st December 2019.										

Regulation 36

Regulation 36 stipulates that notices which were served, as well as records that were required under the previous versions of legislation will remain as requirements within the period of the NAP Regulations. This is an administrative measure that will have no direct impacts on environmental indicators but will support the implementation of the NAP Regulations.

Regulation 37

Regulation 37 prescribes necessary changes to the Waste Management Licensing Regulations (Northern Ireland) 2003 and the Common Agricultural Policy Basic Payments and Support Schemes Regulations (Northern Ireland) 2015 to make reference to the NAP Regulations rather than the Nitrates Action Programme Regulations.

Implementation of Regulation 37 will ensure that these Regulations are updated so that the NAP Regulations are correctly referenced in associated legislation, to ensure clarity and legal compliance. This Regulation is purely administrative and will have a neutral effect on all SEOs.

Regulation 38

Regulation 38 revokes the previous versions of legislation that is now subsumed into the NAP Regulations. This measure is purely administrative and will have a neutral effect on all SEOs. It also stipulates that, until 31 December 2019, livestock excretion rates as set out in the Nitrates Action Programme Regulations 2014 could be used by land holders. This represented a timeline for changeover to updated excretion rates set out within the NAP Regulations (Northern Ireland) 2019. As this date has now passed, and the livestock excretion rates set out in the NAP Regulations 2019 post-December 2019 will be updated in place in the draft NAP 2027-2030.

Cumulative and Synergistic Effects

There are no cumulative or synergistic effects identified for these Regulations.

RIAA Summary and Requirement for Mitigation

Regulation 36

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 37

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

Regulation 38

This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site.

SEA Mitigation Measures

There are no mitigation measures recommended for these Regulations.

Part 10 – Derogation from measures governing the limits on land application of livestock manure

		BFF	PHH	GSL	W	A	CF	MA	CH	L
39	**Additional measures relating to derogated farms** • Farms with at least 80% grassland may apply annually to NIEA for a derogation allowing land application to increase the limit of 170kg nitrogen/ha/year to up to 250kg nitrogen/ha/year from grazing livestock manure, subject to additional conditions and Cross-Compliance verifiable standards. - Annual application is required to the controlling authority for derogation. - Annual fertilisation plan must be completed by 1 March and kept on farm for inspection. - Where the fertilisation plan indicates a proposal to disturb soil as part of grass cultivation, for example ploughing, there must be no application to that parcel of land of any organic manures, including farmyard manure	-	-	-	-	-	-	++/-	0	0

	and dirty water, from midnight 15 October in any year to midnight 31 January of the following year. - At least every four years, soil testing over every four hectares must be carried out across the agricultural area of the holding under the same cropping regime and soil type. - When available, soil analysis results must be produced during inspection. - Annual fertilisation account must be completed and submitted to controlling authority. - 250kg nitrogen/ha/year limit from grazing livestock manure, 170kg nitrogen/ha/year limit from all other livestock. - At least 80% of the controlled agricultural area must be grassland. - Temporary grassland is only permitted to be ploughed in spring. - Ploughed grass is followed immediately by a crop with a high N demand. - Crop rotation must not include leguminous or other plants fixing N except for grassland with less than 50% clover and to areas with cereals and peas undersown with grass. - There must not be an exceedance of a surplus of 10 kg phosphorus/ha/year on a derogated holding. - At least 50% of slurry produced on the holding must be applied by 15 June. After 15 June, slurry must be applied using Low Emission Slurry Spreading Equipment (LESSE).										

<table>
<tr><td rowspan="2">40</td><td rowspan="2">DAERA will check that all applications meet the required conditions for derogation.
DAERA have 28 days to refuse a derogation application and provide a reason for this, however derogation is granted if this is not done within the correct timeframe.
Where a derogated farm is found to not meet the required conditions, this is considered an offence and derogation will not be permitted the following year.
There is a right to appeal the decisions of DAERA regarding derogation.There is a requirement for a fertilisation plan for derogated farms.</td><td>BFF</td><td>PHH</td><td>GSL</td><td>W</td><td>A</td><td>CF</td><td>MA</td><td>CH</td><td>L</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="11">Part 10 of the NAP Regulations (Northern Ireland) 2019 relates to the right to apply for a derogation permitting the land application of grazing livestock manure above the limit of 170kg nitrogen/ha/year as set out in these Regulations, the conditions that must be complied with by those seeking a derogation, and the administrative process by which DAERA will grant or refuse applications.

Regulation 39

Regulation 39 relates to the right to apply for a derogation permitting the land application of grazing livestock manure above the limit of 170kg nitrogen/ha/year as set out in these Regulations, and the conditions that must be complied with by those seeking a derogation.

During the previous revision of the NAP Regulations (and previous revisions of the Nitrates Action Programme Regulations) derogation decisions were approved by the EU Nitrates Regulatory Committee under procedure in the Nitrates Directive. A Nitrates Derogation for Northern Ireland for the period 2019-2022 was approved in Commission Decision EU 2019/1325 and was the fourth derogation decision approved for Northern Ireland. However, since the UK's exit from the EU, the EU approval process no longer applies and the position with respect to derogations is assessed as part of the NAP review process.

As previously discussed, Regulation 35 prescribes that review of the NAP Regulations every four years, and any subsequent necessary revision of the Programme, should include a review of the overall position of derogations granted under Regulation 39(3) against the effectiveness in meeting objectives of reducing water pollution from nutrients and preventing further pollution. However, there is limited specific information relating to derogated land holdings within the most recent Implementation Report for the NAP 2020-2023 (e.g., water quality trends specific to derogated holdings, no indication of compliance rates for derogated versus non-derogated holdings); and the most recent Annual Nitrates Derogation Report is the draft report for 2020. This report focused water quality analysis on sub-catchments with the highest concentration of derogated farms (High Derogation Catchments) through comparisons of mean</td></tr>
</table>

average annual data for the period of 2016-2019 and the most recent annual average data for the current reporting year (2020 within this report, with sampling at 30-50% of the normal sampling schedule owing to constraints resulting from the Covid-19 pandemic). It found nitrate concentrations within the comparison periods for surface freshwater stations to be stable or decreasing at 88.1% of monitored locations (including the High Derogation Catchments), whilst increasing nitrate concentrations were recorded in 11.9% of monitored stations (of these, 23.3% coincided with High Derogation Catchments). Increased phosphorus levels were recorded at 19.7% of monitored sites within Northern Ireland, 13% of which occurred within High Derogation Catchments. Continued deterioration in water quality status indicates that agricultural activities remain a significant pressure on water quality, including in high derogated catchments. The draft Annual Nitrates Derogation Report also reported on a project assessing the soil phosphorus status of derogated and non-derogated farm land compared at catchment scale in the Upper Bann. The study found that the majority of fields within the derogated catchment boundary were at index 3 or above (76%), compared to fields in the non-derogated catchment (46%), but that the proportion of fields with very high soil phosphorus (> Index 4) was greater in the non-derogated (5%) than the derogated (1.2%) sub-catchment.

Reporting on compliance in 2020, 24 derogated farms (5%) were selected for on-farm inspection and assessed against all NAP and derogation requirements; of these, five farms were non-compliant, with four having water pollution incidents, three having poor management of their silage storage, one having FYM storage collection problems and oil spillage, and one having undertaken closed season spreading. Administrative checks on fertilisation accounts for 2019 showed 15 non-compliances across 13 businesses, mainly relating to phosphorus balance, and nitrogen loading.

Implementation of Regulation 39 has the potential for negative effects on the SEOs for W, GSL, BFF, PHH, A and CF. Permitting higher nitrogen loading and stocking rates at derogated land holdings (currently 250kg nitrogen/ha/year), with the resultant risk of discharges to associated waterbodies, has the potential for negative effects on the SEO for W in the short to long-term, and negative secondary effects on the SEOs for GSL, BFF and PHH. The derogation currently impacts on approximately 420 farms; although this relates to a small percentage of farms (less than 2%), these generally represent larger, more intensive farms and, against a baseline of deteriorating water quality, this has the potential to make it more difficult for water quality targets to be achieved or exacerbate these deteriorating trends. There are additional controls that land holders of derogated farms must adhere to (listed in Schedule 8); full compliance with these conditions should reduce the potential for impacts on water quality, however, these potential negative impacts remain. There is also potential for negative effects on the SEOs for A and CF from an increased stocking rate and fertiliser use on derogated farms, as emissions such as ammonia and nitrous oxide are likely to be higher on these intensive farms. However, research by a sub-group of the DAERA Ammonia Science Workstream on the effects of derogation on ammonia emissions from Northern Ireland farms indicates that ammonia emissions are lower for a derogated farm that apply required measures including the use of LESSE than an equivalent high intensity farm operating at an organic nitrogen loading of 170kg nitrogen/ha/year with no conditions concerning the method of slurry application. Granting of a derogation has the potential for indirect positive effects on the SEO for MA, as it aids intensive grassland farms in maximising their outputs and increasing incomes.

Note that regarding derogation the draft NAP 2027-2030 proposes an amendment to this as the NSP, as discussed and assessed in Section 7.2.

Regulation 40

Regulation 40 relates to the administrative process by which DAERA will grant or refuse applications for derogation. By itself this measure is administrative with neutral effects on SEOs, by checking that applicants meet the required conditions as set out in Schedule 8 of the Regulations. It is proposed to amend

the application process and amend the circumstance for when an application is deemed to be granted after 28 days from the closing date of applications; include a requirement for a copy of a valid soli analysis; and include a cross reference to The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 in the draft NAP 2027-2030, as discussed and assessed in Section 7.2. Note that regarding derogation the draft NAP 2027-2030 proposes an amendment to this as the NSP, as discussed and assessed in Section 7.2.
Cumulative and Synergistic Effects **All Regulations –** Under Part 10 all Regulations have the potential for negative effects on the SEOs for W, GSL, BFF, PHH, A and CF. However, when considered cumulatively with Part 7, if appropriate enforcement and inspection take place, then these effects have the potential to be reduced in their overall severity.
RIAA Summary and Requirement for Mitigation **Regulation 39** This measure has potential to give rise to negative effects for European Sites due to the increased risk of nutrient loadings to waterbodies from the derogation permitting higher application rates of nutrients which may impact on European Sites and n hydrologically linked Republic of Ireland European Sites. Mitigation comprises of existing legislative requirement, namely compliance with the NAP Regulations with derogation conditions placing additional requirements on land holdings operating under this. **Regulation 40** This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. OEP (2026) has recommended that DAERA should ensure that the derogation process under the NAP Regulations meets its legal obligations and supports intended outcomes for protected sites under the Habitats Regulations, including: a) providing clarity on how it ensures there is sufficient scrutiny of applications within the 28-day window for refusal, and considering whether an active approval process should be implemented; b) considering and clarifying how its legal duties under the Habitats Regulations interrelate with the NAP Regulations.
SEA Mitigation Measures **Regulations 39 and 40 –** Currently the evidence is limited but suggests that derogated holdings are contributing to deteriorating water quality trends. It is recommended that DAERA review the process by which derogation applications are granted or refused. It is recommended that a risk-based approach is taken, with derogation granted only for situations where it is determined that this decision will not adversely affect water quality status. This may be affected

by the baseline water quality and current trends within the catchment, soil types, etc. The granting of a rate of 250kg nitrogen/ha/year should also be reviewed, with the maximum permitted loading based on a risk assessment as discussed in **Section 8.0** regarding the Pathway to Compliance approach.

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Land use; W – Water; A – Air; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

7.2 Assessment of recommended amendments to the draft NAP 2027-2030

The proposed new measures and amendments to the draft NAP 2027-2030 are detailed in **Section 2.5.2**.

The draft NAP 2027-2030 sets out these measures and amendments under seven topic areas, as follows:

- Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls
- Manure Storage and Application Requirements – Ammonia Implications
- Farming Approaches to Improve Nutrient Use and Water Quality
- Utilising Technology
- Additional measures to support environmentally sustainable farming
- Technical Amendments
- Implementation – including inspections/enforcements.

Each of the proposed measures in the draft NAP 2027-2030 is assessed individually below.

<table>
<tr><th colspan="2">Summary of Proposed Measure</th><th colspan="9">Potential Outcomes for SEA Topics</th></tr>
<tr><td colspan="11">Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls</td></tr>
<tr><td colspan="2" rowspan="2">Limit chemical phosphorus fertiliser availability through an advisory approach - It is proposed to introduce a new additional approach to managing the use of chemical phosphorus (P) fertiliser on grassland. This approach builds on the existing NAP requirement and combines limits on the availability of phosphorus fertiliser products with strengthened advice and support. The aim is to ensure that phosphorus fertiliser is only used where there is a clear need based on soil nutrient levels and crop requirements.</td><td>BFF</td><td>PHH</td><td>GSL</td><td>W</td><td>A</td><td>CF</td><td>MA</td><td>CH</td><td>L</td></tr>
<tr><td>+</td><td>+</td><td>+</td><td>+</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="11">Discussion

The current limits on the land application of chemical phosphorus fertiliser are set out in Regulation 13 of Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of Water Pollution from the Application of Fertilisers). Under Regulation 13, the total available phosphorus in chemical phosphorus fertiliser to grassland and other lands should not exceed the fertilisation standards for crop phosphorus requirements and must include consideration of the soil phosphorus index, the recommended soil phosphorus index for the crop, and the amount of phosphorus available from application of organic manures, and these conditions should be established with reference to figures detailed in the Schedules of the NAP Regulations (Northern Ireland) 2019. Since 1 January 2020, a fertilisation plan is also required where chemical phosphorus fertiliser is applied to grassland to help ensure that chemical phosphorus is being used more efficiently in these systems and only when it is needed.

This measure proposes an advisory limit on the availability of chemical phosphorus fertiliser for its use on grassland, such that it should only be utilised where there is a clear need based on soil nutrient levels and crop requirements. The measure also proposes that the availability of phosphorus fertiliser products with lower phosphorus content will be limited to a small number of products, where there is no crop requirement for phosphorus, and only products with no phosphorus can be used. Where there is a crop requirement for phosphorus, a limited number of specified low phosphorus fertiliser products can be used if required. Higher phosphorus fertilisers can be used where there is a clear crop requirement, and chemical phosphorus fertiliser can only be applied where the crop need cannot be reasonably met through the use of organic manures. Excess phosphorus is one of the main drivers of poor water quality in Northern Ireland, with the main sources of excess phosphorus identified as imported phosphorus in fertiliser and feed concentrates. The RePhoKUs Project[144], undertaken by AFBI, indicated that, while there have been improvements in the phosphorus surplus in Northern Ireland and a decrease in soluble reactive phosphorus in many waterbodies in the past 20 years, recent trends have shown an increase in both, and the food system in Northern Ireland has high phosphorus inputs relative to outputs, with ruminant livestock dominance leading to low phosphorus use efficiency (38%). If effectively implemented, this measure has the potential for positive effects on the SEO for W and GSL by reducing unnecessary applications of chemical phosphorus to land and nutrient accumulation. This also has the potential for positive secondary effects on the SEOs for BFF and PHH through reduced phosphorus loading and lower risk to water quality. However, as this proposed measure is advisory, its overall effectiveness will depend on its uptake and adherence.</td></tr>
</table>

[144] RePhoKUs Project

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for W, GSL, and positive secondary effects on the SEOs for BFF and PHH through a reduction in the build-up of excess soil phosphorus and risk of runoff to waters from the implementation of this measure together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation and uptake of this advisory measure. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with lack of uptake and enforcement of the measure to ensure that chemical phosphorus fertiliser is applied appropriately. Mitigation may include increased inspection rates, effective education, or where the measure does not show suitable uptake, a movement to a mandatory measure.

This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be ‘dialled up’ in high-risk areas or ‘dialled down’ in lower risk areas.

SEA Mitigation Measures

It is recommended that further information is provided regarding the role of fertiliser merchants as it states “farmers will be asked to confirm that they have a soil test and a Nutrient Management Plan” it is unclear from the proposed measure if a verbal confirmation or if evidence of the soil text and nutrient management plan must be shown to allow the fertiliser to be purchased and how any recording of this information may occur to facilitate inspection and enforcement on farms purchasing chemical phosphorus fertiliser.

It is recommended that DAERA clarify whether the labelling requirements noted in the information on the proposed measure can be implemented through the NAP Regulations, or whether separate legislation would be required.

The proposed measure notes that it will be reviewed within two years and again as part of the overall governance of the NAP. If the approach is found not to be effective, DAERA has indicated that further measures, including a more restrictive regulatory system, will be considered.

	BFF	PHH	GSL	W	A	CF	MA	CH	L

Reducing the Northern Ireland average phosphorus surplus – It is proposed to reduce the national average phosphorus surplus by 30%, from the 2024 level of 8729 tonnes over the 4 year duration of the next NAP.	+	+	+	+	0	0	-	0	0

Discussion

As discussed for the proposed advisory measure relating to limits on the use of chemical fertiliser containing phosphorus, excess phosphorus is one of the main challenges to the achievement of good water quality in Northern Ireland and, although the phosphorus surplus has reduced overall in the past 20 years, there is a more recent trend of an increase in the phosphorus surplus and soluble reactive phosphorus in waterbodies. Currently, a farm phosphorus balance limit is only required under the NAP Regulations (Northern Ireland) 2019 for those farms that operate under a derogation (which is due to be replaced by the NSP). These intensively stocked farms have at least 80% grassland and may increase the land application limit of 170kg nitrogen/ha/year to up to 250kg nitrogen/ha/year from grazing livestock manure. This is subject to additional conditions and Cross-Compliance verifiable standards, one of which is that there must not be an exceedance of a surplus of 10kg phosphorus/ha/year on a derogated holding. Under the proposed NSP, farms will be subject to a tiered process under the NSP whereby those farms joining the scheme as Tier 2 may initially continue to operate at either the 10 kg P per hectare per year limit, or if this is not achievable to reduce their phosphorus balance by at least 10% over four years or demonstrate sustainable phosphorus management under the Soil P (phosphorus) Protocol.

Research by Jordan et al. (2024)[145] has indicated through meta-analysis of long-term (18 year) soluble reactive phosphorus water quality data from 93 river sites within Northern Ireland, that reducing the national farmgate (the difference between imported and exported nutrients on-farm) phosphorus balance to 5.5kg phosphorus/ha/year would lead to a 100% improvement in mean annual soluble reactive phosphorus concentrations of rivers, as well as improving total phosphorus loading within lake waterbodies. Jordan et al. (2024) indicated that a reduction in the farmgate phosphorus balance to 8.2kg phosphorus/ha/year would improve water quality within rivers to the moderate/good boundary for soluble reactive phosphorus but would not be effective within lakes. A farmgate phosphorus balance which considers other contributing sources of phosphorus from urban sewerage and domestic septic tank systems within the Lough Neagh catchment as an equitable farmgate phosphorus balance is 6.9kg phosphorus/ha/year. This research only considered the Lough Neagh catchment as it was assumed to be representative of the Northern Ireland farmgate phosphorus balance as work is currently ongoing to determine the actual Northern Ireland farmgate phosphorus balance. As the objective is an overall target for the Northern Ireland agricultural sector of no more than 7kg phosphorus/ha/year, to achieve this, significant investments in additional contributing sources and technology transfer will be required to support this.

[145] Jordan et al. (2024). The farmgate phosphorus balance as a measure to achieve river and lake water quality targets

There is potential for short to long-term negative effects on the SEO for MA, as meeting these limits may require actions to be taken at an individual farm level, such as the need to process and separate slurry to export additional phosphorus; reducing livestock numbers, production levels or feed inputs; altering feedstuffs to minimise phosphorus outputs from excretion; and altering current management practices, such as the advisory limits on the use of chemical phosphorus fertiliser proposed as a measure. Successful achievement of this will require support and technology transfer to ensure an environmentally and economically sustainable outcome.

There is potential for medium to long-term positive effects on the SEOs for GSL and W through the implementation of this measure as it will require farms to either join the NSP and to reduce their phosphorus use within this programme, or to reduce their phosphorus use and work under the Soil P Protocol of demonstrating sustainable phosphorus management, which should help to reduce nutrient accumulation within soils and the potential for nutrient losses to waterways. There is potential for secondary indirect positive effects on the SEOs of BFF and PHH through improvements in water quality that should be achieved by reducing the nutrient surplus of soils Northern Ireland and nutrient loss to waterbodies.

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for W and GSL, and for secondary effects on the SEOs for BFF and PHH through a reduction in the build-up of excess soil phosphorus and risk of runoff to waters from the implementation of this measure together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures, as well as the proposed advisory measure to limit the use of chemical phosphorus fertiliser.

The implementation of this proposed measure has the potential to conflict with the proposed NSP measure through allowing farms to operate on a tiered approach and reduce the overall effectiveness of the NSP, as under the NSP, farms will continue to operate above the 7 kg P per hectare per year limit, this may affect the overall effectiveness and achievement of a reduction in the national average phosphorus balance (particularly with regard to the 10% reduction figure should a Tier 2 farm join the programme with an elevated initial phosphorus balance) with potential for negative effects on the SEOs of GSL, W, BFF and PHH through continued nutrient accumulation and poor water quality.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation and enforcement. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects may arise from the stated limits not being strict enough and a lack of a robust checking and monitoring protocol to assess this. Robust monitoring is required to inform whether the lower limits will need to be set in the subsequent NAP (2031-2034).

Potential adverse effects may also arise from a lack of clarity regarding whether there are additional requirements on land holders to support the implementation, including the requirements for high phosphorus and low phosphorus holdings, as well as a lack of advice to landholder on how this measure may impact other management plans. This may be appropriately addressed through the finalised measure.

Mitigation may include an appropriate level of monitoring, increased inspection rates and effective enforcement.

This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

OEP (2026) has recommended that DAERA should consider proposing mandatory phosphorus and nitrogen balance targets at both the individual farm and national levels, to require better nutrient management and drive improvements throughout the agri-food sector. This could include the introduction of limits on both the phosphorus and crude protein content of concentrated animal feeds to help control farm-level nutrient surpluses.

SEA Mitigation Measures

DAERA should ensure that monitoring during the draft NAP 2027-2030 cycle is robust to inform whether further mitigation measures and actions are required for introduction in the subsequent NAP cycle (2031-2034) to achieve the objective of an overall phosphorus surplus for the Northern Ireland agricultural sector of no more than 7kg phosphorus/ha/year. Furthermore, the most appropriate P surplus for supporting required improvements in / maintenance of good water quality should be kept under review and based on emerging scientific evidence.

Information should be provided by DAERA regarding monitoring and enforcement of this measure regarding how farms will be tracked for joining the NSP, or for those choosing not to join the NSP, how it will be monitored that these are adhering to the required reductions in phosphorus balance such as the Soil P Protocol for the overall successful implementation of this measure.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Dairy cow nutrient excretion values – based on milk yield - Proposed to reform the standard nutrient excretion values for dairy cows under the NAP by replacing the single values for Nitrogen and Phosphorus by values determined by milk yield as set out by the revised table in the consultation document.	+	+	+	+	0	0	+/-	0	0

Discussion

Currently in the NAP Regulations (Northern Ireland) 2019, Regulation 9 prescribes the limits of livestock manure and anaerobic digestate containing digested livestock manure that may be applied to the land holding, either by spreading, or deposited by the animals themselves. Paragraph (1) prevents the amount of total nitrogen in livestock manure and anaerobic digestate (of digested livestock manure) via land application and by animal excretion from exceeding 170kg nitrogen/ha/year calculated based on Paragraphs (2) and (3), which sets out calculations based on Schedule 2 for animal excretion rates and nutrient content of fertilisers, respectively.

There is currently a single excretion rate for dairy cows set at 100kg nitrogen/year in Table 1a of Schedule 2 of the NAP Regulations (Northern Ireland) 2019 for consideration in farm nutrient management. This measure proposes to introduce banded excretion rates for dairy cows that are related to milk yield. excretion rates were re-examined in 2019 owing to the increasing spread of milk yields across herds in Northern Ireland and the strong relationship between milk yield and manure nitrogen excretion. The use of banding was considered; however, a single value of 100kg manure nitrogen output/cow/year was adopted, based on a mean annual output of 7,220 litres. There is currently a single excretion rate for dairy cows set at 19kg phosphorus/year in Table 1a of Schedule 2 of the NAP Regulations (Northern Ireland) 2019 for consideration in farm nutrient management. This value was derived by applying the N:P ratio

of dairy cow slurry to the nitrogen excretion value for dairy cows. Excretion of phosphorus is associated with the total feed intake which has increased, however, in the draft NAP 2026-2029 DAERA state that the phosphorus content of dairy cow feed has reduced since 2017. Therefore, the proposed measure aims to reform the single values for nitrogen and phosphorus based on milk yield.

There has been a continued increase in the milk output per dairy cow in Northern Ireland, with an average output of 8,038 litres over 2024 reported in the Statistical Reviews of Northern Ireland Agriculture. Revised nitrogen excretion rates have been calculated across a wide range of milk production levels to align with those used in the Northern Ireland Ammonia Inventory. In summary, dairy cow energy requirements over a 12-month period, have been converted into a DM (dry matter) intake value, and portioned into intakes of concentrates, grass silage, maize/whole crop silage and fresh grass. The typical protein concentration of these feeds has been applied to calculate a total nitrogen intake value. An efficiency value of 0.665 has been used to define the proportion of consumed nitrogen that was subsequently excreted and applied to the nitrogen intake value to determine the total quantity of nitrogen excreted in manure.

There are seven nitrogen excretion bands and associated excretion values proposed, including for phosphorus. The band that a farm falls into can be determined in four ways; either through milk yield banding, farm-specific calculations (milk-yield based), farm specific calculations (diet based) or default values of the higher excretion value with submission of information to DAERA via an online system. Values will be determined using a DAERA online system and calculators, with farmers entering the relevant milk yield or dietary data for their herd.

The effective implementation of this measure has the potential for short to long-term positive effects on the SEO for GSL, and positive secondary effects on the SEOs for W, BFF and PHH, through reducing the potential for incidental nutrient losses to associated waterways, as well as the potential for positive effects on the SEOs for A and CF through a reduction of emissions from land application, including ammonia volatilisation and nitrous oxide losses by enabling a more accurate calculation of manure nitrogen loading on dairy farms to be applied in nutrient management. There is potential for negative effects in the short-term on the SEO for MA, owing to an increased complexity of banded rates over the current single excretion rate for implementation and the potential for farms to ‘jump’ in manure nitrogen excretion rates when moving between bands, however, the division of rates into seven bands should aid in minimising this as an issue and the option of four different approaches to calculations to minimise administrative burdens on farmers. In the long-term, the use of more accurate nitrogen excretion rates should benefit farm nutrient management and sustainable production.

Cumulative and Synergistic Effects

This measure has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A, CF and MA together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019 that relate to limits/allowances for organic and inorganic fertilisers.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with lack of guidance to farmers.

Mitigation can be delivered through the delivery of clear guidance to farmers prior to the introduction of the new banded rates.

Improved nutrient management advice, guidance and support is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

It is recommended that clear guidance is provided by DAERA to dairy farmers in advance of the introduction of new banded rates. It is recommended that the values are kept under review based on emerging scientific evidence to ensure accuracy.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Updated poultry nutrient excretion figures - Proposed to amend the standard values for poultry figures as noted within the tables in the consultation document.	+	+	+	+	+	+	+	0	0

Discussion

Currently in the NAP Regulations (Northern Ireland) 2019, criteria for nutrient management are set out in Schedule 2. This includes figures relating to poultry manures across a range of poultry production and management systems, such as nitrogen and phosphorus livestock excretion rates. DAERA state in the draft NAP 2027-2030 that, since the introduction of the NAP Regulations (Northern Ireland) 2019, some values within the tables of Schedule 2 have been highlighted by stakeholders, advisors and regulators as potentially being incorrect or likely to lead to nitrogen loading being under or overestimated.

The NAP Implementation Report (DAERA, 2024) referred to the research discussed in "The nutrient content of litter and manure from different poultry systems – updating and establishing the nutrient profile", which was funded by DAERA E&I 15/04/07 and AFQCC 27-05-001 (Ball et al., 2024). This research analysed the litter and manure produced from a variety of poultry systems to produce an accurate nutrient profile reflective of current poultry housing, litter and feed conditions. This aimed to ensure that nutrient planning in Northern Ireland is up-to-date, allowing poultry producers to calculate accurate nutrient management plans, and enabling the generation of more appropriate system categories to reflect current poultry enterprises. The effective implementation of this measure has the potential for short to long-term positive effects on the SEO for GSL and positive secondary effects on the SEOs for W, BFF and PHH, through reducing the potential for incidental nutrient losses to associated waterways from lower overall loading based on the revised figures, as well as the potential for positive effects on the SEOs for A and CF through a reduction of emissions from land application, including ammonia volatilisation and nitrous oxide losses by enabling a more accurate calculation of manure nitrogen loading on poultry farms to be applied in nutrient management.

Cumulative and Synergistic Effects

In combination with Part 3 and existing regulations, the updated figures for poultry systems, have the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, and MA by ensuring that the most up-to-date information on nutrients is being used in any calculations for application rates and nutrient allowances to ensure accurate nutrient management planning and through lower overall loading based on the revised figures.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with the new poultry figures not reflecting the best scientific knowledge.

Mitigation can be delivered through considering all best available scientific evidence and transparently reporting this evidence base.

SEA Mitigation Measures

It is recommended that continual review and updates to these figures occur as scientific knowledge and awareness increases to ensure the most up-to-date information is included.

Standard values for separated manures and slurries - Proposed to update the regulations to include a standard value for screw press separated slurry fractions as outlined in the tables of the consultation document.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	0	0	0

Discussion

Measures governing the application of anaerobic digestate to land are currently stipulated under Regulation 12 of Part 3 (Prevention of water pollution from the application of fertilisers) of the NAP Regulations (Northern Ireland) 2019. Under Regulation 12, a nutrient content analysis is required showing the percentages of dry matter, total nitrogen, total phosphate, total potash and ammonia nitrogen or ammonium; a fertilisation plan is required; and application of anaerobic digestate must not exceed the fertilisation standards for crop phosphorus requirements. There are no standard values currently included in the NAP Regulations (Northern Ireland) 2019.

No standard values for nitrogen and phosphorus in digestate are proposed in the draft NAP 2027-2030 through the proposed measure owing to the variety of feedstocks used for anaerobic digestate and the resultant variability of digestate nutrient content; it is proposed to retain the current requirement for a nutrient content analysis of digestate. As there is no change proposed for anaerobic digestate, there is not considered to be any potential for effects on SEOs.

Currently in the NAP Regulations (Northern Ireland) 2019 the available nitrogen and phosphorus contents of livestock manures and other fertilisers are set out in Table 2 of Schedule 3. This includes values for separated cattle slurries (liquid portion) based on strainer box, weeping wall, and mechanical separator methods of separation. The main method of mechanical separation for animal slurries and digestates is through forced filtration, of which there are many options however, screw press separation is now the main method of forced filtration used. This measure proposes to include standard average nutrient content values for separated liquid and solids from screw press separation of cattle slurry (whilst retaining the values for strainer box and weeping wall standard values as these are in use on some farms), which has been generated from AFBI research to aid the accuracy of nutrient planning. There is not considered to be any potential for effects on the SEOs from the inclusion of these values for separated slurries.

Cumulative and Synergistic Effects

The inclusion of standard figures for the nitrogen and phosphorus contents of liquid and solid components of separated cattle slurries has the potential to support existing measures included in Part 3 (Prevention of water pollution from the application of fertilisers) of the NAP Regulations (Northern Ireland) 2019 that relate to limits/allowances for nutrient application, and to support proposed measures that introduce controls on separated slurry and digestate and aim to reduce the phosphorus supply and existing surplus in Northern Ireland's soils, including the proposed measure on the limiting chemical phosphorus fertiliser availability through an advisory approach and reducing Northern Ireland's average phosphorus surplus.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any positive or negative effects upon any European Site.

Potential effects are limited to those associated with standard values not reflecting the methods utilised or best scientific knowledge.

Notwithstanding the fact that these effects are considered to be insignificant, the previously proposed mitigation of considering all best available scientific evidence and transparently reporting this evidence base can be applied to this NAP measure also.

SEA Mitigation Measures

It is recommended that DAERA keep these standard values under review as the methods become more developed and more widespread in use, based on the best available scientific evidence.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Updated chemical nitrogen fertiliser limits for grassland - Introduction of whole-farm limits on chemical nitrogen fertiliser use, based on how much grass a farm produces. As detailed in the table of the consultation document.	+	+	+	+	+	+	0	0	0

Discussion

The current nitrogen fertiliser application limits for grassland are set by Regulation 10 of the NAP Regulations (Northern Ireland) 2019. This stipulates that the total amount of nitrogen should not be applied above the grassland requirement for nitrogen. The maximum amounts of available nitrogen from chemical fertiliser and organic manures (other than livestock manures) that can be applied on the grassland area are 272kg nitrogen/ha/year for dairy farms and a maximum of 222kg nitrogen/ha/year for other farms (apart from nitrogen in livestock manure). These maximum nitrogen fertiliser limits for grassland already take into consideration the application of available nitrogen from livestock manures, regardless of type. These rates are for the whole area of grassland, not individual fields, with no specific nitrogen limit for silage, grazing or reseeding areas.

The proposed measure is for an introduction of a whole farm limit on chemical nitrogen fertiliser or organic nitrogen supply use based on actual grass growth and soil requirements to reduce the potential for excess nitrogen losses. Grass growth is based upon the number of silage cuts taken on farm. Farms operating at the maximum grass production level will have additional requirements to obtain the maximum allowable rate of nitrogen, through regular soil testing and analysis every four years.

The implementation of this measure has the potential to increase grass crop production, providing an alternative forage source and reducing reliance on and costs associated with imported feedstocks with positive effects on the SEO for MA. There is also potential for indirect positive effects on the SEOs of GSL,

W, BFF and PHH through a reduced reliance on imported feedstocks of elevated nutrient content, with reduced nutrient accumulation within soils and by association improvements in water quality. Limiting the application of nitrogen to the grassland crop production level should help ensure that nutrients are applied in accordance with the crop requirements and help prevent the accumulation of excessive nutrients in soils, with the potential for positive effects on the SEO for GSL and for positive secondary effects on the SEOs for W, BFF, PHH, CF and A owing to a reduced risk of nitrogen loss following land application (through either runoff or air emissions).
Cumulative and Synergistic Effects There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure, particularly with regard to the soil testing requirements for farms operating under the maximum production category, together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers). There is potential for synergistic and cumulative positive effects on the SEO for MA through an increase in production of grass forage crops and through the proposed NSP measure whereby the growth of clover and leguminous crops as a forage source is encouraged, reducing reliance on, and costs associated with, imported feedstocks. This also has potential for positive indirect effects on the SEOs for W, GSL, BFF and PHH through reducing chemical phosphorus accumulation within soils and, by association, improvements in water quality through reduced use and reliance on imported feedstocks, typically of higher nutrient content.
RIAA Summary and Requirement for Mitigation Currently under the NAP Regulations (Northern Ireland) 2019, farms have a maximum amount of available nitrogen from chemical fertiliser and organic manures (other than livestock manures) that can be applied on the grassland area. These are 272kg nitrogen/ha/year for dairy farms and 222kg nitrogen/ha/year for other farms (apart from nitrogen in livestock manure). This proposed measure is for an update of the current chemical nitrogen fertiliser limits for grassland, with use based on actual grass growth and soil requirements to reduce the potential for excess nitrogen losses. Effective implementation of this proposed measure has the potential for positive effects on European Sites, due to a reduced risk of nitrogen loss into water bodies following land application for less productive holdings. This reduced risk of pollution has the potential for associated positive effects on water dependent habitats and species within these European Sites. The review should allow for any updates to account for current advances in understanding of soil nutrient management. It is recommended that the requirement for soil sampling and analysis is extended to all categories of grassland production to ensure that nitrogen and other nutrients are applied in accordance with crop and soil requirements and prevent nutrient accumulation or nutrient losses from occurring. Furthermore, clarification should be provided as to whether the regular soil testing will also include nitrogen, as presently this focuses on testing as a minimum for phosphorus, potassium and soil pH. The inclusion of nitrogen would ensure that excessive nitrogen accumulation subject to the level of grass crop production is prevented.
SEA Mitigation Measures

It is recommended that the requirement for soil sampling and analysis is extended to all categories of grassland production to ensure that nitrogen and other nutrients are applied in accordance with crop and soil requirements and prevent nutrient accumulation or nutrient losses from occurring. Furthermore, clarification should be provided as to whether the regular soil testing will also include nitrogen, as presently this focuses on testing as a minimum for phosphorus, potassium and soil pH. The inclusion of nitrogen would ensure that excessive nitrogen accumulation subject to the level of grass crop production is prevented.

Allowance for processed organic fertilisers - It is proposed to introduce a specific allowance and limit of 100 kg nitrogen per hectare per year for "Processed Organic Fertilisers" derived from agricultural sources	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	+	+	+	+	+	0	0

Discussion

The processing of slurry and manures assists in matching nutrients to grass growth requirements and helps prevent excessive nutrient accumulations. The existing NAP Regulations (Northern Ireland) 2019 does not include a specific allowance or limit for the use of processed organic manures.

The proposed measure aims to introduce a specific allowance for the use of processed organic fertilisers, which are intended to help replace chemical fertilisers and improve nutrient use efficiency. These sources will be subject to application based on crop need and will include those which have been processed either through chemical or heat-based treatments; there will be no overall increase in fertiliser use as a result of this measure. There is potential for positive effects on the SEO of GSL and MA through the use of processed organic manure sources reducing potential chemical nutrient accumulation within soils and reducing the reliance on, and costs associated with, chemical fertiliser use. There is also potential for indirect positive effects on the SEOs for A and CF, as the use of processed organic fertilisers should reduce the potential emissions to air associated with application of chemical fertilisers. There is also potential for indirect positive effects on the SEOs for BFF, PHH and W through reduced over-application of chemical nutrients, addressing the nutrient surpluses and reducing potential water quality impacts from excess nutrient levels.

Cumulative and Synergistic Effects

There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF and PHH associated with improvements in nutrient use efficiency through this measure in combination with the proposed measure of the Nutrient Efficiency Roadmap for Northern Ireland and through reduced reliance on chemical nutrient sources.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with a lack of uncertainty regarding RENURE materials and their use under specific circumstances.

Mitigation can be delivered through considering all best available scientific evidence and transparently reporting this evidence base.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

Manure Storage and Application Requirements –Ammonia Implications

Reduced slurry application volumes in February and early October - Reduce the maximum volume of slurry which can be applied during the month of February and the period of 30th September to 15th October and throughout the month of February from the current limit of 30m^3 per hectare per single application to 25m^3 per hectare per single application.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	+	+	+	+	+/-	0	0

Discussion

Currently under Part 3 of the NAP Regulations (Northern Ireland) 2019, Regulation 9(9c), during the month of February and the period of 30 September to 15 October the maximum land application of slurry is 30m^3/ha at any one time provided this does not exceed the limits set out in Regulation 9(1) and a period of at least 3 weeks must be left between such land applications. The closed period for slurry application is from midnight on 15 October until midnight on 31 January.

The proposed measure is to reduce the maximum volume of slurry that can be applied to 25m^3/ha during these periods, which occur directly before and after the closed period for slurry spreading. The rationale for this measure discussed in the draft NAP 2027-2030 is that there is reduced grass growth during these periods owing to lower soil temperatures and wetter soil conditions and hence a greater risk that the nutrients from slurry applications will not be retained within soils and will be lost through runoff. In addition to adhering to the permitted maximum slurry application rates, farmers must also pay heed to ground conditions, with application not permitted on waterlogged soils, flooded land, or land likely to flood, on frozen or snow-covered ground, or if heavy rain is forecast in the next 48 hours.

The implementation of this proposed measure has the potential for positive effects on the SEO for GSL as the better matching of nutrient application to grass growth requirements should ensure that more nutrients are retained in the soil and not lost through runoff, and for positive secondary effects on the SEOs for W, BFF and PHH by reducing the risk of nutrient pollution of waterbodies and associated effects on human health and biodiversity. A reduced rate of slurry application within these periods also has the potential for positive effects on the SEOs for A and CF through reducing the potential quantity of ammonia emissions to air. There is potential for short-term negative effects on the SEO for MA owing to the requirement for storage of a greater volume of slurry during these periods when a reduced volume may be spread, however, there is also potential for medium to long-term indirect positive effects through ensuring that nutrient resources are used more efficiently in line with growth requirements.

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the

application of fertilisers), in particular the existing requirements for the use of LESSE, and together with proposed measures regarding the further use of LESSE.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with slurry application and a lack evidence that the new maximum volume of slurry which can be applied during these periods will not oversupply nutrients beyond the expected crop uptake.

Such gaps in evidence may be appropriately addressed through the finalised measure.

OEP (2026) has recommended that DAERA should consider extending the NAP Regulations to reflect a broader, more integrated approach that addresses nutrient losses to air alongside water pollution.

SEA Mitigation Measures

It is recommended that DAERA provide the evidence base that indicates that the amended figure of 25m^3 per hectare per single application of slurry during February and between 1 to 15 October will not oversupply nutrients beyond the expected crop uptake for this period of growth.

Clearer definition of Low Emission Slurry Spreading Equipment - Proposed to update and clarify the definition of LESSE in the regulations.

Under the proposed definition, LESSE will include:

- Any method that reduces ammonia emissions by 30% or more compared with the inverted splash plate method.

BFF	PHH	GSL	W	A	CF	MA	CH	L
+	+	+	+	+	+	0	0	0

Discussion

Currently methods of LESSE are defined under Part 3 of the NAP Regulations (Northern Ireland) 2019, Regulation 8(11). This proposed measure is to update the definitions for LESSE to allow equipment to be selected based upon environmental performance rather than a specific fixed equipment type and account for new or alternative technologies becoming available which meet the criteria as LESSE.

Improving the accuracy of slurry application though the effective use of LESSE should ensure that more nutrients are retained in the soil and reduce the risk of nutrient loss to water and through emissions to air, with the potential for positive effects on the SEOs for GSL, A and CF, and positive secondary effects on the SEOs for W, BFF and PHH through reduced nutrient losses.

Cumulative and Synergistic Effects

There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers), in particular the existing requirements for the use of LESSE, and together with proposed measure on the tiered use of LESSE.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

Tiered move to increased use of LESSE - Extend the mandatory use of LESSE to more farms over time, using a tiered approach based on farm size, measured in livestock units, based on the table in the consultation document.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	+	+	+	+	+/-	0	0

Discussion

Currently in the NAP Regulations (Northern Ireland) 2019, Regulation 8 requires that LESSE (including bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods) be used from 1 February 2022 on cattle farms with 200 or more cattle livestock units.

This measure proposes to extend the situations in which the use of LESSE is mandatory in a gradual approach using tiers, based on farm size with livestock units as a measurement value. It is proposed that by February 2030, all farm businesses over 50 livestock units must spread by LESSE.

The land application of slurry generally has the potential for negative effects on the SEOs for GSL, W, BFF, PHH, A and CF. Regardless of the accuracy by which fertilisers are applied, there will be a degree of loss to the atmosphere, including through ammonia volatilisation and nitrous oxide losses. However, methods that are more accurate in terms of land application, such as LESSE, should ensure that more nutrients are retained in the soil, and reduce the risk of nutrient loss to water and through emissions to air, with positive implications for the SEOs for GSL, W, BFF, PHH, A and CF. This measure associated with an increased mandatory use of LESSE has the potential for short to long-term positive effects on air quality and the SEO for air, including consideration of transboundary emissions. Table 1 of The COGAP for the Reduction of Ammonia Emissions[146] estimates the relative ammonia reduction for slurry distribution systems, considering inverted splash plate along with several types of LESSE methods (trailing hose, trailing shoe, shallow injector, and deep injector). This indicates that the inverted splash plate method of slurry application is the least effective to reduce ammonia emissions (nitrogen loss), with no reduction in emissions. LESSE methods are much more effective in reducing ammonia emissions, with a reduction for all types of LESSE considered (estimated at 30-35% reduction for trailing hose, 30-60% for trailing shoe, 70-80% for shallow injector, and 90% for deep injector). The use of LESSE also

[146] Code of Good Agricultural Practice for Reducing Ammonia Emissions

reduces the odour associated with slurry application, with positive implications for air quality. It also reduces nitrous oxide losses to the atmosphere, with positive effects on the SEO for CF.

By reducing the loss of nitrogen through emissions, the use of LESSE can thereby increase the available nitrogen content of slurries applied to soils, improving nutrient use, with positive effects on the SEO for GSL. The use of LESSE can also decrease the risk of surface runoff into water, with potential for positive secondary effects on the SEO for W, including consideration of transboundary catchments. The potential positive effects of increased LESSE use on emissions to air also has the potential for positive secondary effects on the SEOs for both PHH and BFF; ammonia is an air pollutant that has implications for human health, while deposition of nitrogenous compounds can lead to adverse effects on terrestrial and aquatic habitats. The potential for increased use of LESSE methods to reduce the risk of runoff of excess nutrients to waters also has the potential for positive secondary effects on the SEOs for PHH and BFF; excess nutrient supply to waters can reduce water quality with implications for human use and aquatic biodiversity.

The implementation of this measure has the potential for negative effects in the short-term on the SEO for MA owing to the costs involved with purchasing of LESSE equipment (the significance of this effect will be influenced by the availability of grant aid, and DAERA has stated in the consultation document that it intends to introduce this proposed measure alongside financial support for LESSE under the Sustainable Farming Investment Scheme) or the costs associated with the use of contractors. In the medium to long-term, the implementation of this measure has the potential for indirect positive effects on MA by facilitating improved nutrient recovery from slurries through a reduced loss of nutrients during slurry application and increased nutrient use efficiency, which should help to reduce dependency on chemical fertiliser. Where it is not practical to spread on a field using LESSE due to slope, the current exemptions will apply, as specified in the existing NAP Regulations (Northern Ireland) 2019.

Cumulative and Synergistic Effects

There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers), in particular the existing requirements for the use of LESSE.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Potential adverse effects are limited to those associated with the introduction of this measure not occurring until 2027.

Mitigation should include an earlier introduction of this measure and consider the extension of the use of mandatory LESSE for all slurry spreading, or a ban on the use of splash plates on slurry tankers.

SEA Mitigation Measures

It is recommended that DAERA consider an earlier phasing in of mandatory LESSE for farms with over 50 livestock units and consider the extension of the use of mandatory LESSE for all slurry spreading, or a ban on the use of splash plates on slurry tankers.

It is also recommended that DAERA encourage the use of LESSE methods which achieve the greatest potential reduction in emissions where the land conditions are suitable for this.

Pre-Notification of new slurry and silage storage – It is proposed to strengthen the regulatory requirement for pre-notification of slurry or silage stores prior to construction. Controllers must notify the Department 28 days before construction (including substantial enlargement or substantial reconstruction) begins and provide the registration number of the Chartered Structural or Civil Engineer supervising and certifying the building works. If no acknowledgement is provided by DAERA within 28 days following notification, construction can proceed.

BFF	PHH	GSL	W	A	CF	MA	CH	L
0	0	0	0	0	0	0	0	0

Discussion

Currently, in the NAP Regulations (Northern Ireland) 2019, requirements regarding the notification of slurry storage facilities are set out in Regulation 19 of Part 4 (Storage Requirements). This Regulation requires that slurry stores constructed or substantially modified after 1 December 2003 must comply with certain construction standards and be notified at least 28 days before they are brought into use.

This proposed measure has the potential for neutral effects on SEOs across all SEA topics, as it will not directly result in any action. However, it has the potential to strengthen the current Regulations through pre-emptive checks and improved controls on storage facilities, particularly those that are exempt from planning permission as exempted agricultural development. The proposed measure notes that the registration number of the Chartered Structural or Civil Engineer supervising and certifying the building works must be provided, this will enhance the regulatory assurances associated with the construction of these facilities to ensure compliance. Current advice on siting (the Code of Practice on Building and Structures for Agriculture is referenced in Schedule 6 of the NAP Regulations (Northern Ireland) 2019) refers to the avoidance of risks to water. Should DAERA include additional advice on siting to avoid impacts on cultural heritage features and the landscape at the pre-notification stage, this would have the potential for positive effects on the SEOs for CH and L.

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for W, GSL, BFF and PHH through improved controls on sub-standard storage facilities reducing the risk of leaching or losses of nutrients/contaminants to soils and downstream waterbodies, and for cumulative positive effects on the SEOs for A and CF through a reduced risk of air emissions, from the implementation of this measure together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019, in particular Regulation 19.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

The potential for impacts on the landscape and on heritage features that are located on farmlands from new storage infrastructure will be influenced by its siting, size and any planning requirements. It is recommended that DAERA provide additional advice on siting to avoid impacts on cultural heritage features and the landscape at the pre-notification stage for new slurry or silage storage facilities.

Clarify cover requirement for new above-ground stores - Clarify through guidance and awareness raising that for new above-ground slurry storage facilities, the cover must be: • A tensioned fitted cover (for example, a properly fitted membrane designed to remain in place), or • A fixed structure (such as a roof or lid). Other cover types that are loose-fitting or not fixed in place are not considered to meet the existing requirement.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	0	+	+	+	+/-	0	0

Discussion

Currently, in the NAP Regulations (Northern Ireland) 2019, requirements regarding storage facilities are set out in Part 4 (Storage Requirements), while Schedule 6 currently stipulates that 'Any slurry storage tank constructed, substantially enlarged or substantially reconstructed after 31 December 2019, which is not contained within or underneath a roofed building, shall be covered in a manner which minimises emissions of odour and ammonia'. This Regulation requires that any new above ground stores when constructed must include a tensioned fitted / fixed cover.

This proposed measure has the potential for positive effects on the SEOs for A and CF by reducing the risk of ammonia emissions from above ground stores as covers can reduce ammonia emissions by up to 80%[147]. There is also potential for short to long-term positive secondary effects on the SEOs for W, BFF and PHH by reducing the potential for overflowing of exposed above ground stores by rainfall leading to a risk of nutrient runoff impacting on downstream water quality. There is potential for short-term negative effects on the SEO for MA with the requirement for tensioned fitted / fixed covers adding to the cost of construction of any new above ground stores. However, there is potential for positive long-term effects on MA as the fitting of covers on above ground stores should increase the capacity available for storage by reducing the potential for rainfall to fill the above ground store and loss of nitrogen as ammonia through volatilisation, supporting farm nutrient efficiency.

Cumulative and Synergistic Effects

Together with other measures set out in Part 4 (Storage Requirements) and proposed measure regarding the pre-notification of new slurry and silage storage, there is potential for cumulative positive effects on the SEOs for W and GSL, and positive secondary effects on the SEOs for BFF and PHH through improved controls on sub-standard storage facilities reducing the risk of leaching or losses of nutrients/contaminants to soils and downstream waterbodies and loss of nitrogen as ammonia through volatilisation, and for cumulative positive effects on the SEOs for A and CF through a reduced risk of air emissions.

[147] Cover on Manure Stores

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Adverse effects are limited to those related to nutrient losses from above ground stores modified before December 2019. Mitigation may include an appropriate level of monitoring, increased inspection rates and effective enforcement.

SEA Mitigation Measures

It is recommended that all above ground stores are covered, including those modified before 31 December 2019 to reduce ammonia emissions, potential nutrient losses through runoff and increase the storage capacity available for slurry. Research by AFBI has demonstrated that retrofitting of storage tanks will incur a cost of £55 per m^2 of tank area (Samuel et al., 2019)[148].

Limit the use of unprotected granular urea fertilisers - Proposed that the use of urea fertiliser in Northern Ireland would be managed through a seasonal approach, with a requirement to only use protected urea for applications from 01 April each year.

BFF	PHH	GSL	W	A	CF	MA	CH	L
+	+/-	+/-	+	+	+	+	0	0

Discussion

This proposed measure relates to the use of urease inhibitor treated fertilisers to reduce ammonia and nitrous oxide emissions. Under this proposal, the use of protected urea would be required between 1 April to 15 September, with the application of unprotected granular urea permitted from 1 February until 31 March. Farmers will be required to keep records detailing the type of granular urea fertiliser used, with date of application and the application rates.

Urea is a concentrated chemical nitrogen fertiliser with the nitrogen-phosphorus-potassium (NPK) ratio of 46-0-0. Research has shown that up to 45% of urea's nitrogen content can be lost when applied during sub-optimal weather conditions. Urease is an enzyme that increases the speed by which urea is converted to ammonium, making the nitrogen available for plant uptake. During this conversion, nitrogen can be lost as ammonia from untreated urea; urease inhibitors block the active site of the enzyme, slowing this conversion, allowing better nutrient uptake. Protected urea, containing an inhibitor such as N-(n-Butyl) thiophosphoric triamide (NBPT), has been shown to reduce ammonia losses significantly, compared to urea. Research that has been undertaken by AFBI has indicated that urea fertiliser treated with a urease inhibitor significantly reduces nitrous oxide emissions compared to the fertiliser most commonly used in Northern Ireland, calcium ammonium nitrate (CAN), which is vulnerable to nitrous oxide loss.

Carswell et al. (2024)[149] assessed the reduction efficiencies for ammonia mitigation methods to inform the Inventory of Ammonia Emissions from UK Agriculture 2022, finding that the use of urease inhibitors with urea-based fertilisers reduces ammonia emissions by 70% for urea. Research by AFBI estimating the costs of ammonia mitigation measures for Northern Ireland agriculture (Samuel et al. 2019) calculated the emission reduction potential of

[148] Samuel et al., (2019). A review of results of economic models on ammonia abatement/mitigation strategies. AFBI Report

[149] Inventory of Ammonia Emissions from UK Agriculture

switching to 100% use of stabilised urea fertiliser as 0.79kt ammonia; taken as a percentage of the total fertiliser emissions for Northern Ireland as reported in the National Atmospheric Emissions Inventory, with an estimate that a switch to 100% use of stabilised urea has the potential to reduce ammonia fertiliser emissions in Northern Ireland by approximately 32%.

Urease inhibitor treated fertilisers are already commercially available in Northern Ireland and are therefore readily available with proven effectiveness. The effective implementation of proposed measure has the potential for reducing ammonia and nitrous oxide emissions from farms and therefore for medium to long-term positive effects on the SEOs for A and CF. In addition, it is anticipated that this measure may have long-term (with continued use) indirect positive effects on the SEO for MA by supporting sustainable agricultural land use and improved land management practices. Although protected urea can be slightly more expensive, it is more cost effective than both urea and CAN per kg of nitrogen, owing to the reduction in nitrogen loss as ammonia and nitrous oxide.

Although research has highlighted the success of urease inhibitor fertilisers in reducing ammonia and nitrous oxide emissions, there is limited information available on the potential for these inhibitors to enter the food chain. Previous studies have found residual contaminants in dairy products[150] which could have negative effects on the SEO for PHH as well as soil nutrient levels and soil heath and the SEO for GSL. However, research undertaken by Teagasc[151] has found that the risk of NBPT residues occurring in milk are low, while NBPT exposure assessment analysis has indicated low risk to human health[152]. There remains some uncertainty regarding the potential long-term effects of this measure on the SEOs for PHH and GSL, depending on the inhibitor used. Similarly, reducing nitrous oxide emissions and subsequent nitrogen deposition are anticipated to have positive effects on the SEOs for BFF, GSL, and W; however, further research is required to understand the long-term effects on BFF, GSL and W with regards to contamination and bioaccumulation, which also remain uncertain.

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for A and CF through reduced air emissions, and positive secondary effects on the SEOs for W, BFF, PHH, GSL and MA together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019.

RIAA Summary and Requirement for Mitigation

It is considered that this measure has potential to give rise to both positive and negative effects on European Sites. Positive effects may arise from the reduction of ammonia and N2O emissions. Negative effects may arise from long-term use and potential accumulation of urease inhibitors in soils.

[150] Bryne et al. (2020). Urease and Nitrification Inhibitors.

[151] Nkwonta et al. (2021). Development of One-Step Non-Solvent Extraction and Sensitive UHPLC-MS/MS Method for Assessment of N-(n-Butyl) Thiophosphoric Triamide (NBPT) and N-(n-Butyl) Phosphoric Triamide (NBPTo) in Milk.

[152] Modelling potential human exposure to the urease inhibitor NBPT through the environment-food pathway

Mitigation may include increased inspection rates and effective enforcement, and it is recommended that the use of protected urea fertiliser is implemented on a year-round basis to reduce emissions of ammonia and nitrous oxide to deliver the maximum possible benefits.

It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

It is recommended that DAERA stipulate that, for fertilisers containing urease inhibitors, there is a requirement that these have passed safety checks and will not pose any food safety-related issues in future. It is recommended that the use of protected urea fertiliser is implemented on a year-round basis to reduce emissions of ammonia and nitrous oxide to deliver the maximum possible benefits to the SEOs of A and CF. It is also recommended that further information is provided regarding record keeping for this proposed measure and how this will be monitored and recorded and that overall fertilisation application rates are reviewed to account for the reduction in nitrogen loss associated with the use of protected urea and that further nitrogen will be retained within soils, as failure to account for this change may lead to an oversupply of nitrogen through subsequent fertiliser use. It is also recommended that DAERA further consider and investigate the use of double inhibitors (urease and nitrification) in further reducing the risk of nitrogen-based losses.

Anaerobic Digestate Measures - Update the NAP rules as follows:	BFF	PHH	GSL	W	A	CF	MA	CH	L
Separation of Digestate to reduce Phosphorus content • Where the separated liquid portion of digestate has a low phosphorus to nitrogen ratio (1:10 or lower), it can be spread under the existing NAP rules for cattle slurry. • If the digestate is produced using feedstock sourced from outside Northern Ireland, it must be applied strictly in line with crop nutrient needs and will require a nutrient management plan completed and retained on farm. Targeted application of Digestate to Land • Where the separated liquid portion has a higher phosphorus to nitrogen ratio than 1:10, then it must be applied strictly in line with crop nutrient needs, with a nutrient management plan must be completed and retained on farm, as required by the 2019 NAP Regulations. Record keeping and reporting of nutrient movements • The movements of AD must be recorded in the same way that slurry and manure imports and exports are recorded. This includes recording slurry and separated slurry from farms to AD plants, as well as processed digestate returning to farms. All movements must be notified to the Department to allow oversight just as with manure imports and exports. Further details available in section 4.4.1 and 4.4.2 of the consultation document-this refers to the proposed measures of 'Enhanced online	+	+	+	+	0	0	+	0	0

system for recording slurry and manure exports and imports' and 'Extending the system to processed slurry solids and digestate movements').									

Discussion

The NAP Regulations (Northern Ireland) 2019 include controls on the regulation of anaerobic digestate (AD) through several Regulations. These include closed periods for land spreading (Regulation 7); a requirement to use LESSE for land spreading (Regulation 8); a requirement for a nutrient content analysis of digestate and that it does not exceed crop phosphorus requirements, unless the digestate is to be applied to the lands where it was produced (Regulations 12 and 27); that limits on the land application of livestock manures at 170kg nitrogen/ha/year include consideration of anaerobic digestate containing livestock manures (Regulation 9); and storage requirements (Regulation 21).

AD is a renewable energy technology that can use several feedstocks including livestock manures, food waste, and food processing waste to produce biogas, with the resulting digestate having potential for use as an organic fertiliser in place of inorganic fertilisers. The proposed components of this measure aim to better control the use of AD, to facilitate the movement of nutrients to and from farms and AD plants and to encourage the processing and exporting of nutrients from Northern Ireland. In general, these proposals have the potential for positive effects on several SEOs, assuming that they are further developed, implemented and enforced appropriately. The encouraged use of digestate as a form of recycled organic fertiliser in place of imported inorganic fertiliser has the potential for long-term positive effects on the SEOs for MA and GSL, lessening the reliance on inorganic fertiliser imports and promoting more sustainable soil and land management, while increased use of slurries to produce biogas through AD may contribute to GHG reduction targets for Northern Ireland.

Separation of Digestate to reduce Phosphorus Content

Currently digestate is categorised as waste by Northern Ireland's legislation and is subject to waste regulatory controls, with an exemption required under Waste Management Licensing Regulations (Northern Ireland) 2003 for land application, which demonstrates that the use of this material will provide either ecological or agricultural benefit. A Quality Protocol was developed through a joint NIEA/DEFRA/EA/Welsh Government/WRAP Waste Protocols Project[153] to define the point at which AD can be considered as a non-waste; NIEA do not currently regulate AD as waste when the feedstock used in the process is livestock manure and/or non-waste feedstocks such as specifically grown forage crops when the digestate is land spread as fertiliser.

AD is currently considered as livestock manure within the 170kg nitrogen/ha/year land application limit, however the nutrient proportions within this material can differ from those of livestock manures depending on the feedstock types and proportions used in the process, and this can over or under-estimate the nitrogen and phosphorus content assumed. The introduction of this aspect of the proposed measure would allow digestate which has been separated and has a low phosphorus to nitrogen ration (1:10 or lower) to be spread under the existing rules for cattle slurry.

[153] WRAP Quality Protocol Anaerobic Digestate

This has the potential for long-term positive effects on the SEO for GSL by resulting in a more balanced nitrogen and phosphorus content of digestate that is in line with crop requirements and lessens the risk of phosphorus accumulation in soils. There is also the potential for long-term positive secondary effects on the SEOs for W, BFF and PHH by reducing the risk of runoff of excess phosphorus to associated waterbodies.

This aspect of the measure also proposes that any digestate which is produced from feedstocks outside of Northern Ireland, must be applied according to crop nutrient requirements with a nutrient management plan completed and retained on farm. This measure will help to regulate external digestate sources which may have originated from farm systems of differing nutrient input levels e.g., animal feedstocks elevated in nutrient content relative to the animal feed sources used in Northern Ireland. This requirement may also help to encourage the use of digestate internally from farms in Northern Ireland and aid in reducing the farmgate phosphorus balance.

The effective implementation of this measure has the potential for positive effects on the SEO for GSL by reducing soil nutrient accumulation rates and medium to long-term positive secondary effects on the SEOs for W, BFF, and PHH through reducing the risk of nutrient runoff to waterbodies. There is also potential for indirect positive effects on the SEO for MA with the use of external digestate potentially discouraged, as this may help to encourage the processing of internal slurry and digestate sources within Northern Ireland, and help to address the need for nutrient redistribution within agricultural areas.

Targeted application of Digestate to Land

This aspect of the measure proposes that any digestate which has a higher phosphorus to nitrogen ratio than 1:10 must be applied in line with crop nutrient requirements, with a nutrient management plan completed and retained on farm. This measure should help to prevent the over-application of phosphorus and also help to address the accumulation of nutrients within soils.

The effective implementation of this measure has the potential for positive effects on the SEO for GSL through reducing soil nutrient accumulation rates and medium to long-term positive secondary effects on the SEOs for W, BFF, and PHH through reducing the risk of nutrient runoff to waterbodies.

Record Keeping and Reporting of Nutrient Movements

This measure also proposes that the movement of AD nutrients must be recorded in the same manner as slurry and manure exports and imports (through an enhanced online system and a mobile app (or phone line). This is outlined in the proposed measures of an ‘Enhanced online system for recording slurry and manure exports and imports’ and ‘Extending the system to processed slurry solids and digestate movements’. This includes the movements of separated slurry solids and slurry from farms to AD plants and the movement of nutrients to farms as processed digestate from AD plants. All movements must be notified to DAERA to facilitate oversight. This aspect of the proposed measure has the potential for neutral effects on SEOs across all topics, as it will not result in any direct action. However, this will formally provide a legitimate route for the movement of processed digestate nutrients to farms. This could help to support a whole system approach to AD plants and processed digestate through the focusing and targeting of nutrients to farms and areas where there is a need for nutrient applications and may provide information on the overall nutrient balance of Northern Ireland.

Cumulative and Synergistic Effects

Separation of Digestate to reduce Phosphorus Content and Targeted Application of Digestate to Land

Cumulatively, the various aspects of these measures can help contribute to the reduction in the Northern Ireland farmgate phosphorus balance and reduce soluble reactive phosphorus levels in lakes and rivers, with a potential for cumulative positive medium to long-term effects on the SEOs for W and GSL and secondary positive medium to long-term effects on the SEOs for BFF and PHH through reducing the risk of runoff of excess phosphorus. There is potential for synergistic effects on the SEO for GSL by reducing the accumulation of excess soil phosphorus and soil nitrogen sources through a requirement to only apply externally sourced digestate sources in accordance with crop requirements for phosphorus and nitrogen and positive secondary effects on the SEOs for W, BFF and PHH by reducing the risk of runoff to waterbodies.

Record Keeping and Reporting of Nutrient Movements

The aspect of the proposed measure which includes record keeping and reporting will synergistically provide further information on the overall nutrient balance of Northern Ireland in combination with the proposed measures of an 'Enhanced online system for recording slurry and manure exports and imports' and 'Extending the system to processed slurry solids and digestate movements'. If effectively implemented, this aspect of the measure has the potential to support strategic and targeted nutrient applications and to reduce the reliance on chemical fertiliser applications, aiding in reducing the farmgate phosphorus balance and for positive secondary effects on the SEOs for GSL, W, BFF and PHH.

RIAA Summary and Requirement for Mitigation

Separation of Digestate to reduce Phosphorus Content

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of clarity regarding how the proposed measure will be implemented and regulated. Such gaps in clarification may be appropriately addressed through the finalised measure.

It is considered that this proposed measure regarding feedstocks sources from outside Northern Ireland has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Targeted application of Digestate to Land

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Record keeping and reporting of nutrient movements

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of clarity regarding whether the appropriate primary powers are available for this measure to be implemented. Such gaps in clarity may be appropriately addressed through the finalised measure to allow recording and reporting to form the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

Separation of Digestate to reduce Phosphorus Content

It is recommended that all digestate is separated before it is spread on land in order to reduce the phosphorus content to a phosphorus to nitrogen ratio of 1:10 or lower to support a reduction in nutrient accumulation.

Targeted application of Digestate to Land

There is no mitigation recommended for this aspect of the proposed measure.

Record Keeping and Reporting of Nutrient Movements

There is no mitigation recommended for this aspect of the proposed measure.

Farming Approaches to Improve Nutrient Use and Water Quality

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Nutrient Stewardship Programme - a revised approach to Derogation - Replace the current Derogation with a revised approach called the Nutrient Stewardship Programme (NSP). While many of the existing environmental safeguards would remain, several important changes are proposed and set out below: **a)** Change of name: the term "Derogation" would be replaced by "Nutrient Stewardship Programme". This will reflect the higher standards of nutrient management required and the environmental benefits delivered as more farms are utilising nutrients more efficiently. **b)** Two-Tier Structure: Tier 1: Farms that already meet all requirements (current and new) would enter Tier 1, recognizing their high level of nutrient management. Tier 2: Farms that do not yet fully meet all Tier 1 Phosphorus Balance requirements could enter Tier 2 and work towards Tier 1 over time, with advisory support.	+/-	+/-	+/-	+/-	0	0	+/-	0	0

c) Grassland Requirement: The minimum grassland requirement would be reduced from 80% to 70%. This would allow some farms to grow more arable crops, such as cereals. Additional safeguards (such as buffer strips near watercourses) on some arable fields would be required to manage any risks to water quality. **d)** Phosphorus Balance Rules: Existing participants will enter Tier 1 and maintain the current limit of no more than 10 kg P per hectare per year surplus. New Tier 2 entrants will be permitted to join with a higher P surplus, provided they commit to reducing it by at least 10% over four years, or to 10 kg P per hectare per year. Compliance with the Phosphorus balance, will be assessed using a three-year rolling average, allowing for normal year-to-year variation in farming conditions. Compliance may also be demonstrated through soil testing showing stable or declining soil phosphorus under the Soil P Protocol. All farms must prepare and submit annual nutrient/fertilization accounts, as per the existing requirements, which will be checked and verified by NIEA. **e)** Clover and Leguminous Crops: Current limits on clover and leguminous crops are designed to reduce risk of elevated nitrate levels in groundwaters. This is a measure historically applied by the EU due to widespread issues in some European countries. However as most soils in Northern Ireland are less vulnerable to nutrient losses than those in European countries, the following changes are proposed: - To permit more clover and legumes which has the potential to reduce the need for chemical fertiliser and imported feed. - Targeted safeguards will be introduced in higher-risk areas if necessary. **f)** Application to the Programme: Tier 1 farms will apply for a maximum four years, aligning with the NAP cycle, rather than applying annually. This means that those applying for entry into the scheme part way through the NAP four year revie cycle will be approved up to the end of that review period. Tier 2 farms will be required to apply for entry into the programme each year, to allow progress to be reviewed and monitored. Annual nutrient planning and reporting will be required for all participants, which will be checked and verified by NIEA. **g)** Inspections, Training and Review: Tier 1 farms, will be considered as a lower risk and will therefore have a 1% inspection rate, reflecting their higher compliance. Tier 2 farms will receive targeted training and advisory support on nutrient management.									

Farms in Tier 2 (considered as in-conversion) will be considered as a higher risk than those in Tier 1, and therefore will have a 5% rate of inspection. Nutrient management accounts will continue for farms operating under the programme and will continue to be subject to monitoring and review by NIEA annually. Farms which are not part of the Nutrient Stewardship Programme but which are operating over 170kg Nitrogen per hectare per year, will be considered High Risk and will be subject to the highest 10% rate of inspection. The proposed Nutrient Stewardship Programme (NSP) will bring a greater proportion of grassland farms within a structured and monitored framework than the current derogation model. By widening participation, more farms will be operating to defined nutrient management requirements, to optimise nutrient efficiency, with detailed record keeping, and increased oversight. Ensuring enhanced nutrient management across a larger cohort of farms contributes to the protection and recovery of sensitive habitats in line with DAERA's obligations under the Habitats Regulations. The level of uptake and impact of the NSP will be reviewed after two years, and as part of the wider NAP review. **Review of the measure** The level of uptake and impact of the NSP will be reviewed after two years, and again as part of the wider NAP review, as set out in the governance section. If the review concludes that the approach is not effective, then a more restrictive regulatory system will be required.									
Discussion This proposed measure aims to rename the existing derogation to a Nutrient Stewardship Programme (NSP) with a number of changes proposed to encourage greater participation within the programme with the aim of gaining environmental benefits. The number of farms from 2019-2024 operating under a derogation remained relatively consistent at between 418-441 farms. Therefore, a higher proportion of farms are continuing to operate above the 170kg N per ha per year limit but are not presently subject to the additional environmental controls that are required by those operating under a derogation agreement, which DAERA have outlined within the consultation document as 1,990 farms in 2024. The NSP aims to improve participation for high-productivity farms so that these will be subject to additional environmental protections. The proposal is to introduce a two-tier structure. Farms which meet current derogation requirements and the new proposed requirements will enter as Tier 1 farms if they join the NSP, reflecting their high level of nutrient management. Farms which cannot presently meet the Tier 1 Phosphorus Balance Requirements would enter as Tier 2 and progress towards achieving Tier 1 with advisory support. The proposed NSP will encourage the growth of further arable crops and require compliance with new phosphorus balance rules under the NSP. Thus Tier 2 farms will be permitted to join the NSP with a higher phosphorus surplus, with a commitment to reduce this by at least 10% over four years or to 10 kg P per hectare per year. However, as a 10% reduction is allowed under the NSP,									

there is potential for no upper limit of phosphorus allowable. Tier 1 participants will be obliged to maintain the current limit of a maximum of 10 kg P per hectare per year. Compliance will be demonstrated through soil testing and the submission of annual nutrient and fertilisation accounts as required under the existing derogation, considering a three-year rolling average to allow for normal year-to-year variation in farming conditions.

The NSP also proposes an amendment to the current limits on the growth of clover and leguminous crops, which were intended to reduce the risk of elevated nitrate levels in groundwaters, which has been a measure historically applied by the EU for specific issues within certain European countries. Typically, soils within Northern Ireland are less vulnerable to nutrient losses to groundwater. Therefore, this measure proposes to permit an increase in the growth of clover and legumes, which can reduce the requirement for chemical fertiliser use and reliance upon imported feed sources, as the growth of these crops provides a feed source and these can be grown using organic fertilisers.

The introduction of the NSP has the potential for both positive and negative direct effects on the SEOs for GSL and W. Through allowing farms to continue operating at a higher rate of surplus phosphorus and nitrogen, there is potential for continued accumulation of nutrients within soils and increased potential for nutrient losses which can impact on water quality. This has potential for indirect negative effects on the SEOs of BFF and PHH through sustained impacts on water quality. However, the introduction of the NSP includes a requirement for Tier 1 farms to adhere to the 10 kg P per hectare per year limit and for Tier 2 farms to commit to a reduction in phosphorus, with compliance demonstrated through soil testing and nutrient/fertilisation accounts. There is potential for positive direct effects on the SEOs for GSL and W through reducing nutrient surpluses of phosphorus and reduced risk of nutrient transfer and enrichment to waterways in the medium to long-term, however nitrogen remains sustained under the NSP and potentially increased under the allowance of up to 250kg of nitrogen per hectare per year. This has potential for indirect positive effects on the SEOs of BFF and PHH through improvements in water quality in the medium to long-term, however consideration should be given to the overall catchment status and if sustained levels of high productivity through elevated nitrogen levels under the NSP is appropriate on a risk-basis for the overall achievement of good water quality.

The amendments to the limits on the growth of clover and leguminous crops has potential for positive direct effects on the SEO for MA by providing a source of feed for livestock and reducing reliance and expenditure on imported feedstocks and the costs associated with the use of chemical fertiliser through utilising organic fertiliser sources.

The introduction of buffer strips near watercourses on some arable land has the potential for positive effects on the SEOs for GSL and W through reduced nutrient and sediment losses to waterways from soil erosion and runoff from arable land, depending on the soil type and saturation, with potential for secondary positive effects on the SEOs for BFF and PHH through improvements in water quality. There is potential for both positive and negative indirect effects on the SEO for MA, through the requirement for buffer strips on some arable land removing an area of land from crop productivity. However, the reduced potential for nutrient and sediment transfer to waterways and retention of these in-field should reduce the inputs required for fertilisers and associated costs.

The proposed measure and the aspects of this regarding the application to the programme will ensure that Tier 1 Farm entry into the NSP aligns with the NAP four year review cycles and that Tier 2 farms are subject to annual applications to allow monitoring. It is considered that this aspect of the measure is administrative in nature and is not considered to have potential for effects on SEOs from its implementation.

The targeted approach to inspections through the tiered structure of the NSP as well as for farms which do not operate under the NSP but remain at over 170kg nitrogen per hectare per year will allow the focusing of resources to the potential areas of greatest risk of nutrient and sediment losses, whereby these

farms are not operating under the higher nutrient management levels; this has the potential for positive indirect effects on the SEOs for BFF, PHH and W through the identification and remediation of pollutant sources.

Cumulative and Synergistic Effects

The implementation of this proposed measure with the allowance for farms under Tier 2 to operate at a higher P surplus above the 10 kg P per hectare per year has the potential to conflict with the proposed measure of 'Reducing the Northern Ireland average phosphorus surplus', by allowing continued use of higher phosphorus amounts. Whilst it is proposed that Tier 2 farms must commit to a reduction of 10% over four years or to the 10 kg P per hectare per year amount, this aspect of the proposed measure may affect the overall effectiveness and achievement of a reduction in the national average phosphorus balance (particularly with regard to the 10% reduction figure should a Tier 2 farm join the programme with an elevated initial phosphorus balance as no upper limit is stated for the NSP) with potential for negative effects on the SEOs for GSL, W, BFF and PHH through continued nutrient accumulation and poor water quality.

The implementation of this proposed measure with the requirement for the use of a buffer strip on arable land has the potential for positive effects on the SEOs for GSL, W, BFF and PHH synergistically with other measures included within the Regulations under Part 4 Regulation 25, Part 5 and the proposed measure of 'Mitigation measures for late harvested arable crops', through reducing the potential for nutrient and sediment losses and where the voluntary proposed measure of 'Buffer strips within arable fields' is also implemented.

RIAA Summary and Requirement for Mitigation

This measure has potential to give rise to negative effects for European Sites due to the increased risk of nutrient loadings to water bodies from the derogation permitting higher application rates of nutrients which may impact on European Sites and in hydrologically linked Republic of Ireland European Sites. Mitigation comprises of existing legislative requirement, namely compliance with the NAP Regulations with derogation conditions (proposed to be revised to the NSP) placing additional requirements on land holdings operating under this.

Previously the NAP Regulations meant that an application for derogation is deemed to have been granted unless it is explicitly refused. This 'deemed granted' aspect of the former derogation process can be problematic as a 'deemed grant' of permission (rather than an active approval process) can lead to situations whereby competent authorities allow activity to occur by default, without adequate scrutiny of applications. This can be clarified and appropriately addressed through the finalised measure to allow NSP administration and management to inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

OEP (2026) has recommended that in relation to the organic nitrogen limits set out in the NAP Regulations, DAERA should:

a) ensure that only land which is suitable for grazing or the application of manure is included in farm nitrogen loading calculations;

b) where it has information that indicates farmers are or may be working above the 170 kg N/ha/year limit without a derogation, take appropriate steps to ensure those farmers understand and are complying with the regulations.

In relation to nutrient management, advice, guidance and support, OEP has recommended that DAERA should consider further investment in the development of targeted approaches to the delivery of on-farm advice and support to help farmers comply with the NAP Regulations.

SEA Mitigation Measures

It is recommended that it is specified explicitly that the existing conditions of the derogation programme remain, bar where these have been updated based on the proposed amendments, to ensure clarity regarding the new NSP.

It is recommended that Tier 2 farms are required to adhere to the 10 kg P per hectare per year phosphorus balance limit rather than a 10% reduction figure as the overall effectiveness of this measure is reduced should a Tier 2 farm start at a higher initial phosphorus balance figure for achieving improvements in soil nutrient accumulation rates and potential water quality implications, or a specific maximum phosphorus balance limit for inclusion within the programme should be given.

It is recommended that information is supplied regarding any fines or penalties which may be opposed upon farms which are either found not to comply with the required phosphorus balance or reductions in phosphorus surplus under the tiered system, to ensure compliance with the measures outlined.

It is recommended that further details are provided regarding the requirements for the buffer strips on arable land, as these are noted for “some” arable fields within the measure. The criteria on the determination of these fields, how these may be cultivated and the required widths of these should be given.

It is recommended that consideration is given to overall catchment status and if sustained levels of high productivity through elevated nitrogen levels under the NSP is appropriate on a risk-basis for the overall achievement of good water quality, if required, adjustments should be made to lower the maximum limit of nutrients permitted for application on soils.

Mitigation measures for late harvested arable crops – To introduce specific provision on implementation of mitigation measures at planting stage supported by additional guidance. Mitigation will be required on fields planted with late harvested crops, where there is a risk to a watercourse e.g. slope of the field, runoff pathways and proximity to watercourse. Such mitigation will be laid out in guidance.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	+	+	0	0	+/-	0	0

Discussion

The existing NAP Regulations (Northern Ireland) 2019 include requirements for post-harvest measures under Part 4 Regulation 25 (Cover in Winter) and under Part 5 (Measures relating to land management). However, the Regulations presently do not have any requirements regarding the planting stage. Where late-harvested crops are cultivated, these can create a risk of nutrient and sediment losses from runoff and soil erosion. As these are late-harvested crops, there are limited options available to establish cover cropping and this coincides with the seasonal period of autumn/winter with elevated rainfall and an increased risk of runoff occurrence.

This proposed measure aims to introduce mitigation requirements such as a grass filtration buffer strip on fields planted with late harvested crops where there is a risk to the watercourse from nutrient or sediment losses such as due to slope, runoff pathways and proximity to waterways. There is potential for positive effects on the SEOs for GSL and W through reducing soil erosion and nutrient losses with secondary positive indirect effects on the SEOs for BFF and W through reduced sediment and nutrient losses to waterways. There is potential for both positive and negative effects on the SEO for MA through the potential loss of some areas of agricultural land from crop productivity to provide the mitigation measures required. However, the retention of nutrients and sediment within the soil structure should reduce requirements associated with fertilisers for crop growth.

Cumulative and Synergistic Effects

The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF and PHH synergistically with other measures included within the Regulations under Part 4 Regulation 25, Part 5 and the proposed requirement under the NSP for the use of buffer strips on some arable fields through reducing the potential for nutrient and sediment losses and where the voluntary proposed measure of buffer strips within arable fields is also implemented.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. It is recommended that the specific information regarding the mitigation measures to be included under this measure are provided as these are presently outstanding. It is also recommended that information is provided on how arable fields at risk will be determined if this will be based on guidance provided by DAERA or subject to the appropriate person of the landholding making this determination. Such gaps in evidence may be appropriately addressed through the finalised measure. This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be ‘dialled up’ in high-risk areas or ‘dialled down’ in lower risk areas.

SEA Mitigation Measures

It is recommended that information is provided on how arable fields at risk will be determined if this will be based on guidance provided by DAERA or subject to the appropriate person of the landholding making this determination.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
A focused approach to improving water quality - Introduce a “focused approach” to support the NAP. In focused areas, it is proposed to provide additional advisory support, education and recommendations for voluntary measures to mitigate against the risk of nutrient losses to water. In doing so it will provide additional targeted support in specific high-risk catchments, alongside the existing NAP rules that continue to apply to all farms.	+	+	+	+	+	+	0	0	0

Discussion

DAERA have included in the draft NAP 2027-2030 a proposal to develop and implement a voluntary focused approach for NAP. This includes voluntary measures such as advisory support, education and voluntary measures to reduce the risk of nutrient losses to waterways in high-risk catchment areas to

address nutrient related issues. The implementation of this proposed measure has the potential for positive effects on the SEO for GSL, by helping to reduce surplus nutrients in soils in high-risk areas; for positive effects on the SEOs for A and CF, by helping to reduce emissions to air in high-risk areas; for positive secondary effects on the SEOs for W, PHH and BFF, by helping to reduce emissions to water and air (and subsequent nutrient deposition) in high-risk areas, including the potential to reduce risks to WFD status and designated habitats and species through these pathways. The significance of positive effects will depend on how this proposed measure is further developed, the focused measures that are introduced and how they are implemented.

It should be noted that, as the proposed measure is voluntary, the degree of potential effects on the SEOs will be dependent upon the level of uptake of, and engagement with, the focused approach.

Cumulative and Synergistic Effects

The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included within the Regulations through addressing nutrient management and water protection with the targeting of measures (albeit on a voluntary basis) to the areas of highest risk.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of information regarding this risk-based and geographically focused approach and that the scheme is voluntary, or where the measure does not show suitable uptake, a movement to a mandatory measure. Such gaps in information provided may be appropriately addressed through the finalised measure. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.

OEP (2026) has recommended that DAERA should determine how best the NAP Regulations can be 'future-proofed' in the face of ongoing and accelerating climate change. This will require an adaptive management approach, including interim reviews, that take account of new evidence and data concerning the impacts of climate change on nutrient management and the environment.

SEA Mitigation Measures

Following an initial assessment of this proposed measure, the SEA and HRA team recommended to DAERA that additional amendments should be included in the draft NAP 2027-2030 to ensure that the NAP is aligned with the objectives and requirements of the Habitats Regulations and WFD Regulations. It is recommended that the measure should be mandatory, rather than voluntary, so that there is a mechanism to require action where agricultural activities permitted under the NAP Regulations would otherwise contravene the Habitats Regulations and/or the WFD Regulations, and to allow such activities to be addressed and, where necessary, prohibited. **Section 8.2** includes further detail on the proposed format of this approach, including timebound and step-by-step measures to establish the methodology and apply a focused approach throughout Northern Ireland through the proposed Pathway to Compliance. It also describes the types of regulatory and non-regulatory focused measures that may be used, depending on the specific needs of each site. It is noted within the

consultation document that where monitoring indicates that the initial focused measures are not sufficient to achieve the required environmental outcomes, a more restrictive regulatory system will be required.

Nutrient Efficiency Roadmap for NI farming - Develop a Nutrient Efficiency Roadmap for Northern Ireland farming, built around an overarching mission: To enhance food security, farm profitability, and environmental outcomes by increasing nutrient security through the efficient use of nitrogen and phosphorus on NI farms.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	0	0	0

Discussion

Phosphorus use efficiency on farms in Northern Ireland has been estimated at about 51%, which is average compared with other intensively farmed regions in Europe [154]. Improving phosphorus and nitrogen use efficiency should benefit farms through reduced costs, while also delivering environmental benefits through the proposed Nutrient Efficiency Roadmap measure.

The proposed measure aims to develop a Nutrient Efficiency Roadmap for Northern Ireland, which involves a variety of groups including farmers, government, industry and environmental groups, with a focus on introducing practical actions to be adopted on farms with a pathway to increase uptake. As the proposed measure is currently in development with no detail provided, this scores as neutral across the SEO topics. However, if further developed and effectively implemented, this has potential to help strengthen the current Regulations through improved nutrient use efficiency.

Cumulative and Synergistic Effects

The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and with the proposed measure on limiting the use of chemical phosphorus fertiliser through improvements in nutrient use efficiency, if further developed and effectively implemented.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration.

OEP (2026) has recommended that DAERA should establish the scale of reductions in nutrient pollution necessary to improve water quality in Northern Ireland and to comply with the law. This will entail reductions from agriculture and from wastewater, among other sectors. DAERA should then ensure that measures in the NAP Regulations and their implementation are sufficient to deliver the necessary reductions from agriculture.

SEA Mitigation Measures

[154] Unpublished DAERA 2026 Report on Nutrient Efficiency Roadmap for NI Farming – Overview and key principles

It is recommended that DAERA provides further information on the specific actions which may be introduced as part of the Nutrient Efficiency Roadmap as presently this information is outstanding. However, it is noted that the consultation document indicates that this will be developed before the next NAP cycle.									
Utilising Technology									
Enhanced online system for recording slurry and manure exports and imports - The existing online system will be enhanced to ensure more up to date and accurate reporting of exports and imports of slurry and manures. Organic manure movements must be notified to DAERA as follows. All organic manure movements must be notified to DAERA by the exporter three times annually as a minimum. Movements up to the end of February, June and October must be notified by the exporter and verified by the importer no later than the end of the subsequent month. Additionally, all exports of 15 miles or greater in a straight-line distance must be notified to DAERA within five days of the transfer. Verification by the receiving farm or operator, is required within two weeks of the receiving farm or operator being notified. This notification will be by the online system which will be enhanced. An App will also be developed so that farmers can notify and verify movements using a mobile phone, providing an alternative to logging into the online system directly. A phone line alternative to the online system and App will also be available. The five-day notification period for transfers of 15 miles or greater does not apply to transfers of separated slurry solids and poultry litter to licenced manure processing facilities. The 15 mile straight line distance is measured from the location of the holding where the slurry is stored/produced, if this is different from the location of the registered Farm Business ID. Under the 2019 NAP Regulations, Reg 27 (1) farmers are already required to … "keep sufficient records to allow the following information to be ascertained for any calendar year - …" Therefore, farmers should keep records of slurry movements on an ongoing basis and these records should be available for inspection in the current year. These records could be a log kept in a notebook or documentation from a contractor or haulier. This will be highlighted in guidance for the updated NAP.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	-	0	0
Discussion									

Currently under Regulation 27 of Part 6 (Record Keeping and Compliance Monitoring) of the NAP Regulations (Northern Ireland) 2019, annual records must be kept regarding the exports and imports of livestock manure. Records can be submitted online annually using DAERA online services at www.daera-ni.gov.uk/onlineservices by 31 January of the following year and by 1 March for derogated holdings (note to be replaced by the NSP).

This measure proposes the introduction of an enhanced online system and the development of a mobile phone app, as well as a phone line alternative, to record the movement of slurries and manures between farms. All organic manures must be notified by the exporter three times annually at a minimum, with a verification by the importer at the end of the subsequent month. Furthermore, all exports of slurry/manure to a receiving location more than 15 miles away in a straight-line distance (based on the location of the holding where the slurry/manure has been produced at as being different from the location of the registered receiving location regarding the registered Farm Business ID) from the holding where it was produced must be notified to DAERA within five days of the transfer, with verification then required by the importer within two weeks. The proposed measure also notes that additional measures will be used for farms where there are concerns that false or misleading information may have been submitted. This will include advance notice of transfer (at least one day beforehand) with the use of geotagged photos to show the movement from the exporting to the importing farms. Should an export be declared to land which DAERA deems as unsuitable for spreading slurry or manure e.g. bog or upland areas, the export will be invalid. This proposed measure has the potential for neutral effects on SEOs across most SEA topics, and for short-term negative effects on the SEO for MA owing to the increased reporting requirements. However, it has the potential to strengthen the current Regulations, particularly those relating to limits on the storage and spreading of slurry and manures and assessing the overall nutrient balance of agricultural holdings in Northern Ireland.

Cumulative and Synergistic Effects

The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers), Part 4 (Storage Requirements), and Part 7 (Enforcement) of the NAP Regulations (Northern Ireland) 2019. If used to inform farm inspections, this measure has the potential to improve controls on slurry and manure movements and reduce the risk of inadequate storage and land spreading above the allowable limits; this is particularly applicable to intensive livestock farms that are operating at high stocking rates, who may rely on slurry/manure export to stay within the limit of 170kg nitrogen/ha/year. The application of organic manure to meet crop need reduces reliance on chemical fertilisers as well as reducing the environmental impact of manure to land that is already nutrient enriched, therefore well-regulated export and import of slurry and manures between farms should help to ensure that manure nutrients are being distributed and applied to lands where they are needed.

Better control of slurry/manure, storage and land spreading could help to reduce the potential for over application and adverse effects on downstream water quality, with positive effects on the SEO for W; and air emissions, with positive effects on the SEOs for A and CF. There is potential for positive secondary effects on the SEOs for BFF and PHH through reducing the risks to water quality and deposition of air pollutants. There is also potential for indirect positive effects for GSL as improved compliance with the NAP Regulations (Northern Ireland) 2019 has positive implications for long-term soil health.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site.

A more capable online system can inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

It is recommended that movements are also recorded for farms under the 15-mile straight line distance within four days under the measure to ensure accurate and up to date slurry and manure movement information is available.

It is recommended that further information is provided by DAERA regarding any potential penalties which may be used in cases where slurries or manures are exported to land areas deemed to be unsuitable, and what actions may be taken if spreading has occurred on these unsuitable areas.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Extending the system to processed slurry solids and digestate movements - The existing online system will be extended to include additional materials, such as digestate and processed slurry products, to give a more complete picture of how nutrients are managed across the region. Therefore, exports and imports of processed slurry solids and digestates must be notified to DAERA as follows: - All processed slurry solids and digestate movements must be notified to DAERA by the exporter three times annually as a minimum. Movements up to the end of February, June and October must be notified by the exporter and verified by the importer by the end of the subsequent month Additionally, all exports of 15 miles or greater in a straight line distance must be notified to DAERA within five days of the transfer. Verification by the receiving AD plant, manure processing facility or farm, is required within two weeks of the receiver being notified. The five day notification period for transfers of 15 miles or greater does not apply to transfers of separated slurry solids and poultry litter to licenced manure processing facilities The additional measures for slurry and manure listed at Enhanced online system for recording slurry and manure exports and imports also apply.	0	0	0	0	0	0	-	0	0

Discussion

This measure proposes that the introduction of an enhanced online IT system and mobile app (and alternative phone line) to record the movement of slurry and manures between farms should be extended to include movements of processed or separated slurry solids and digestate. This proposed measure has the potential for neutral effects on SEOs across most SEA topics, and for short-term negative effects on the SEO for MA owing to the increased reporting requirements. However, it has the potential to strengthen the current Regulations, through the inclusion of the movement of manures from farms to anaerobic

digestate plants and digestate from anaerobic digestion plants to farms, supporting the regulation of slurry separation and use of digestate, and assessing the overall nutrient balance of agricultural holdings in Northern Ireland.

Cumulative and Synergistic Effects

As described for the proposed measure for an enhanced online system for recording slurry and manure exports and imports, the implementation of this measure has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers), Part 4 (Storage Requirements), and Part 7 (Enforcement) of the NAP Regulations (Northern Ireland) 2019.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site.

A more capable online system can inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

Additional measures to support environmentally sustainable farming

Voluntary buffer strips on arable land - Introduction of a voluntary, uncultivated buffer strip alongside waterways in arable fields	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+	+	+	+	0	0	-	0	+

Discussion

Currently in the NAP Regulations (Northern Ireland) 2019 there is no requirement for an uncultivated buffer strip along waterbodies in arable fields. The rationale for this proposed measure is to reduce the risk of sediment loss to waterbodies and the loss of nutrients such as phosphate as particulates (bound up with sediment) and in solution. The risk of sediment loss from arable fields is higher where there is bare ground.

Collins et al. (2009)[155] define a riparian buffer strip as a 'vegetated strip lying between agricultural land and a neighbouring watercourse'. The use of buffer strips can help to control nutrient loss via the surface water pathway by slowing overland flow and intercepting sediment and particulate phosphorus; when surface runoff reaches a riparian buffer, the vegetation provides greater flow resistance and thus the transport capacity of particulates is reduced. Collins et al. (2009) reviewed ranges in riparian buffer performance for sediment based on buffer strip width. They reported that this efficacy is uncertain, however, the efficacy of sediment removal of a 1m buffer appeared to range between 30-90%, that for a 3m buffer appeared to range between 55-90%, and that for a 6m

[155] Collins et al. 2009. Mitigating diffuse water pollution from agriculture. Riparian buffer strip performance with width

buffer appeared to range between 58-95%. They noted that the first 5m of riparian buffer feature typically retains 53–86% of the sediment input loading, and that the degree of consolidation of deposited sediment is a critical aspect of buffer performance for sediment, with unconsolidated deposited sediment at risk of remobilisation during storm events. Overall, the data reviewed by Collins et al. (2009) suggested a generally positive effect of buffer strips for pollutant reduction, at least in the short-term.

The implementation of proposed measure has the potential for positive effects on the SEO for GSL by reducing the risk of soil loss, and the potential for positive secondary effects on the SEOs for W, BFF and PHH by reducing the risk of nutrient pollution of waterbodies and associated effects on human health and biodiversity. There is also potential for positive effects on the SEO for L through increased naturalisation of riparian areas within arable lands. The efficacy of buffer strips is influenced by factors such as climate, soil properties, vegetation cover and the presence or absence of artificial drainage (Collins et al. 2009). The potential for positive effects on SEOs may be influenced by the nature of the buffer e.g., the presence of a dense root system in vegetated buffer strips can increase the likelihood of infiltration. Dunn et al. (2022)[156] reviewed the use of different vegetation types in buffer strips to runoff and sediment loss, examining three vegetation types: a deep rooting grass, a short rotation coppice willow, and native broadleaved woodland trees. Each of these vegetation types reduced the total runoff (33% for grass, 46% for woodland and 49% for willow); the corresponding reductions in sediment loss were greatest for willow (44%) followed by woodland (30%) and grass (29%). The proposed measure notes that the buffer will be an area of uncultivated land, covered with vegetation such as grass, with the width of the buffer dependent on the local site conditions and risk factors. It is also specified that the buffer strip must not be treated with fertilisers or plant protection products.

There is potential for negative effects on the SEO for MA owing to the loss of productive land within these buffer areas.

It should be noted as the proposed measure is voluntary the degree of potential effects on the SEOs will be dependent upon its level of uptake.

Cumulative and Synergistic Effects

There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF and PHH through a reduction in the risk of runoff of nutrients to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers). It should be noted that, as the proposed measure is voluntary, the degree of potential cumulative and synergistic effects on the SEOs will be dependent upon its level of uptake.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of uptake as this is a voluntary measure and the need for clarification on the cultivation and/or width of these buffer strips. Mitigation may include effective education, or where the measure does not show suitable uptake, a movement to a mandatory measure.

[156] Dunn et al. 2022. Impacts of different vegetation in riparian buffer strips on runoff and sediment loss

It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

It is recommended that DAERA provide information on how the composition and width of the buffer strip should be determined as the proposed measure currently states that this would be based on the local site conditions and risk factors. Information on how these will be determined should be included.

It is recommended that the measure is extended to be mandatory rather than voluntary, where required, to reduce the risk of nutrient and sediment losses from arable land.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Awareness of existing storage requirements and how dirty water storage, rainwater and parlour washings can impact this - Raise awareness of the existing storage requirements and share best practices for making the most of on-farm storage facilities.	0	0	0	0	0	0	+	0	0

Discussion

Currently, in the NAP Regulations (Northern Ireland) 2019, requirements regarding the notification of slurry storage facilities are set out in Regulation 19 of Part 4 (Storage Requirements). Farms are required to have a minimum of 22 weeks slurry storage, unless they are a pig and poultry enterprises where they are required to have a minimum of 26 weeks slurry storage. This proposed measure aims to raise awareness to farmers on these existing storage requirements and best practice on how to maximise the existing facilities on farm. It also aims to raise awareness on the impacts of dirty water storage, rainwater and parlour washings and their impacts on storage facilities.

There is potential for positive effects on MA through increasing awareness and understanding regarding the requirements and suitable use of storage facilities, which should support efficiency. There is expected to be neutral effects on the SEOs for BFF, PHH, GSL, W, A, CF, CH and L as this is a supporting measure and does not directly result in any action.

Cumulative and Synergistic Effects

This measure has the potential for cumulative indirect positive effects on the SEO for W together with other measures set out in Part 4 (Storage Requirements) by helping to ensure that farms have adequate storage and reducing the risk of point source pollution from farmyards.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site.

Improved nutrient management advice, guidance and support is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

Voluntary Liming Programme on farms with high stocking rates – Continue to raise awareness of benefits of liming on suitable land.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	+/-	+/-	+/-	+/-	+	+/-	+/-	0	0

Discussion

Currently, the NAP Regulations (Northern Ireland) 2019, do not include any requirements on the use of liming. This measure proposes to introduce a voluntary liming programme for intensive grassland farms on mineral soils, with no applications of lime occurring to peat soils, species rich grassland, other priority habitats, and protected sites. The programme would be applicable to intensively managed grassland farms located on mineral soils. The rationale for this measure is to raise pH levels to effectively maximise nutrient uptake. Participation within the scheme is voluntary, with farms encouraged to have an up-to-date soil analysis and with any lime requirements identified based on soil testing and a farm nutrient management plan.

The implementation of this proposed measure has the potential for positive secondary effects on the SEOs for W, BFF and PHH, as the application of lime is a rapid and cost-effective means of increasing nutrient use efficiency, with Higgins et al. (2012)[157] indicating that soils at optimum pH levels will stimulate phosphorus mineralisation, and with increased phosphorus content in the herbage taken from limed areas. This should aid in improving the uptake of legacy soil phosphorus within the soil as well as enhanced nitrogen use efficiency, lowering emissions to the environment and improving water quality. There is potential for positive effects on the SEO for GSL through improved soil structure from lime application and the neutralisation of acids generated from the mineralisation of nitrogen fertiliser. There is potential for positive secondary effects on the SEO for MA through improved grass and crop productivity and increased phosphorus and nitrogen use efficiency from existing soil sources, reducing the requirement for, and expenditure on, additional fertilisation sources.

There is potential for short to medium-term negative effects on the SEO for MA through the expenditure associated with purchasing the required amounts of lime for application and associated equipment involved in the application process and the requirement to have a valid soil analysis for the area being farmed. There is potential for negative effects on the SEO for W, as the proposed measure does not include specified guidance on appropriate conditions for the application of lime; in particular, inappropriate timing of lime application with slurry application can lead to nitrogen loss, with potential impacts on water quality. There is potential for negative secondary effects on the SEO for BFF, GSL and CF as, whilst the proposed measure prevents the application of lime on peat soils, species rich grassland and protected sites, there is no guidance surrounding the requirement for any buffer or exclusion area for agricultural areas surrounding these sensitive areas; given the various forms of lime available, which can include both pellets (granular lime) and dust-like (ground lime) lime, there is potential for wind-blown deposition to transport the applied lime off-site onto these sensitive soils, which could lead to an increase in carbon lost and a reduction in the species diversity of a sensitive area. There is potential for short-term negative effects from the implementation of this measure on the SEO for PHH due to a risk of dust inhalation and irritation from the application of lime outside of the immediate farmland area.

It should be noted as the proposed measure is voluntary the degree of potential effects on the SEOs will be dependent upon its level of uptake.

[157] Higgins et al. (2012). Effect of annual applications of pelletized dolomitic lime on soil chemical properties and grass productivity. Soil Use and Management. 28(1), 6-69.

Cumulative and Synergistic Effects

Together with the proposed measures on the increased requirement for mandatory spreading of slurry using LESSE, the requirement to purchase lime and suitable machinery for the application of this measure for farms choosing to participate in the voluntary scheme has the potential for cumulative short to medium-term implications on MA due to the associated costs.

There is potential for synergistic positive secondary effects on the SEOs for W, PHH and BFF through reduced requirements for phosphorus and nitrogen applications, alongside increased mineralisation and uptake from existing soil sources. This could result from the implementation of this measure, together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures, as well as the proposed measure to limit the use of chemical phosphorus fertiliser on grassland.

It should be noted that, as the proposed measure is voluntary, the degree of potential cumulative and synergistic effects on the SEOs will be dependent upon its level of uptake.

RIAA Summary and Requirement for Mitigation

This measure is considered to potentially give rise to positive effects upon European Sites, subject to appropriate implementation. Potential adverse effects are limited to those associated with a lack of guidance regarding buffer zones and suitable use of lime.

This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be ‘dialled up’ in high-risk areas or ‘dialled down’ in lower risk areas.

SEA Mitigation Measures

It is recommended that further specific guidance is given surrounding the suitable use, maximum amounts, and timing of liming in agricultural areas as, whilst it can be applied all-year, the application of slurry following liming can lead to a loss of nitrogen. Application of lime following reseeding or cultivation could help incorporate it into the seedbed or onto the surface of the existing grass swards. It is also recommended that guidance is provided by DAERA regarding what is categorised as an intensively managed grassland for the proposed use of liming.

It is recommended that further specific guidance is given surrounding the potential buffer zones or separation distances that should be considered for the application of lime near sensitive sites or residential areas considering potential wind-blown deposition.

It is recommended that the measure is extended to be mandatory rather than voluntary for farms of high stocking rates producing 150 kg or more manure nitrogen per hectare per year.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Revised silage bale storage requirements - Strengthen the regulatory framework to ensure best practices are followed and to mitigate against the risk of pollution when silage bales are stored in fields.	+	+	+	+	0	0	0	0	0

Discussion

Following crop cutting, effluent is produced as the crop wilts. Silage effluent represents a very potent source of pollution, and therefore the collection and storage of silage should aim to avoid this effluent from entering waterbodies, including groundwater. There is generally lower risk of effluent when silage is stored in bales than when it is stored in pits, owing to a higher dry matter percentage. The current requirements regarding the making and storage of silage are set out in Regulation 24, Part 4 Storage Requirements of the NAP Regulations (Northern Ireland) 2019. For silage bales, this stipulates that these must have impermeable membranes, must be stored at least 10m from any waterway, and that bales should not be unwrapped/opened within 10m of any waterway that effluent escaping from the bales could enter.

The proposed measure seeks to include an amendment that silage bales should not be stored in areas where there is an increased risk of runoff into waterways and should be stored in a manner to reduce the risk of effluent seepage and runoff to waterways. The manner in which silage bales are wrapped, and that they must not be located within 10 metres of a waterway remains unchanged. Successful implementation and enforcement of the proposed measure has the potential for positive effects on the SEO for GSL, as locational restrictions to avoid areas of increased runoff risk for storage should reduce the risk of effluent loss to waterbodies and the development of nutrient accumulation zones in storage areas. This has the potential for positive effects on the SEO for W, through a reduced risk of effluent loss that could impact on the water quality of downstream waterbodies, and for positive secondary effects on the SEOs for BFF and PHH, through improved controls on nutrient loss to waterbodies and a lessened risk of secondary effects on associated aquatic flora and fauna and risk to the population.

Cumulative and Synergistic Effects

There is potential for cumulative positive effects on the SEOs for GSL, W, BFF and PHH through improved controls on silage bale storage reducing the risk of effluent loss to soils and downstream waterbodies, from the implementation of this measure together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019, in particular Regulation 24.

RIAA Summary and Requirement for Mitigation

It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are associated with a lack of clarification regarding the enforcement of this. As the stacking of silage bales can increase the risk of effluent seepage, it is recommended that DAERA consider controls on the number of bales which can be stacked. Such gaps in clarification may be appropriately addressed through the finalised measure.

SEA Mitigation Measures

The rationale for this measure discussed in the draft NAP 2027-2030 states silage bales must not be located where there is a pollution risk to a waterway. Participation in the SNHS will aid in informing farmers where there are areas at high risk of nutrient loss during rainfall events. It is recommended that DAERA include this requirement within the wording of the measure to help provide information to farmers regarding these high-risk areas.

It is recommended that DAERA clarify the manner of inspection/enforcement of this measure regarding the storage locations chosen.

The stacking of silage bales can increase the risk of effluent seepage, and it is recommended that DAERA considers controls on the number of bales which can be stacked.

Technical Amendments

Definition of Appropriate Person - Amend the definition of appropriate person to align the wording so that it is consistent with the wording used for storage requirements already used within the Regulations. It is proposed that in paragraphs (c) and (d) of the definition that 'livestock manure' will be replaced with 'Organic Manure'. Thereby, reference to the appropriate person will be extended to include those who have control of all organic manures and not just livestock manure.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	0	0	0

Discussion

The proposed measure is a technical amendment to update wording within the NAP Regulations (Northern Ireland) 2019 to align this definition to be consistent with wording regarding storage regulations. There is not considered to be any potential for effects on the SEOs from the implementation of this measure.

Cumulative and Synergistic Effects

There are no synergistic or cumulative effects identified for this proposed measure.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

Definition of Farmyard manure - The definition of farmyard manure will be amended to include any stackable organic matter that can be used as a fertiliser.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	0	0	0

Discussion

The proposed measure is a technical amendment regarding the definition of farmyard manure. There is not considered to be any potential for effects on the SEOs from the implementation of this measure.

Cumulative and Synergistic Effects

There are no synergistic or cumulative effects identified for this proposed measure.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Updating terminology - The NAP regulations currently refer to 'Fertilisation Account' and 'Fertilisation Plans', it is proposed to amend these to 'Nutrient Management Account' and 'Nutrient Management Plans' which are more reflective of the terminology used across the industry.	0	0	0	0	0	0	0	0	0

Discussion

The proposed measure aims to update the existing terminology used in the NAP Regulations (Northern Ireland) 2019 to reflect the wider terminology used across the industry. There is not considered to be any potential for effects on the SEOs from the implementation of this measure.

Cumulative and Synergistic Effects

There are no synergistic or cumulative effects identified for this proposed measure.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Covering of Lagoons - Following the consultation in 2019, it was agreed that the provisions within Schedule 6, paragraph 12 the reference to 'Any slurry storage tank' should not include lagoons. The 2019 NAP Regulations do not accurately reflect this, and it is proposed that this should be corrected as part of the regulatory review.	-	-	0	-	-	-	+/-	0	0

Discussion

The proposed measure clarifies that the covering of lagoons is not included in Schedule 6 of the existing NAP Regulations (Northern Ireland) 2019. There is potential for direct negative effects on the SEOs for A and CF through the potential for increased emissions of nitrogenous gases from lagoons as the covering of lagoons reduces these emissions. There is potential for negative secondary short to medium-term effects on the SEOs for PHH and A from the emission of odours from uncovered lagoons if these are located close to areas of population. There is potential for positive effects on the SEO for MA through no requirement for the covering of lagoons which could reduce the expenses associated with their construction. There is potential for medium to long-term negative secondary effects on the SEOs for BFF and W through the potential for rainfall directly entering lagoons to lead to overfilling and / or seepage with potential impacts on downstream habitats, species, and water quality.

Cumulative and Synergistic Effects

There is potential for short to long-term cumulative negative secondary effects on the SEO for MA with lagoons being uncovered, this exposes the lagoons to rainfall which can reduce the capacity available to store slurry and thus in order to meet the requirements under Regulations 17 and 18 for storage capacities, additional facilities or exporting of slurry may be required incurring additional financial expenses.

RIAA Summary and Requirement for Mitigation

This measure is considered to give rise to a range of negative effects on European Sites due to the proposed removal of lagoon coverings. Mitigation proposed includes requiring lagoons coverings to be retained.

SEA Mitigation Measures

It is recommended that lagoons are required to be covered, where this is feasible, to reduce nitrogenous gas emissions and the potential issues surrounding rainfall directly entering these storage areas and either reducing storage volumes available or leading to potential overfilling / seepage issues.

Definition of heavy rain - Currently the definition of heavy rain simply states “more than 4mm of rain per hour”, this may be difficult for some to interpret. To improve clarity, it is proposed to include “when a Met Office weather warning for rain is in operation”.

This amendment makes clear to operators, especially when considering the restriction on applying fertiliser when heavy rain is falling or forecast within 48 hours. Heavy rain will now be defined as either more than 4mm of rain per hour or when a Met Office weather warning for rain is in operation.

BFF	PHH	GSL	W	A	CF	MA	CH	L
+	+	+	+	0	0	+	0	0

Discussion

When slurry is land spread prior to heavy rain falling, there is an increased risk that nutrients will be lost through runoff, with negative implications for nutrient uptake by soils and for water quality of downstream waterbodies. In the NAP Regulations (Northern Ireland) 2019, Regulation 8 of Part 3 (Prevention of water pollution from the application of fertilisers) stipulates conditions in which the land application of fertiliser is not permitted. This includes when ‘heavy rain is falling or is forecast within 48 hours.’ Heavy rain is defined in the existing NAP Regulations (Northern Ireland) 2019 as “more than 4mm of rain per hour”; the

NAP Guidance Booklet states that, in practical terms, continuous rainfall any heavier than a drizzle will meet this definition, as will brief, intense showers, and recommends that The Met Office forecasts (up to a five day forecasts, at both a regional and local level) are used to assess this risk.

This measure is seeking to clarify the definition of heavy rain provided in the existing NAP Regulations (Northern Ireland) 2019 to provide greater clarity to operators regarding the restrictions on applying fertiliser when heavy rain is falling or forecast within 48 hours. Heavy rain will be defined as either more than 4mm of rain per hour or when a Met Office weather warning for rain is in operation.

The implementation of this proposed measure is expected to have the potential for positive effects on the SEOs for BFF, PHH, GSL, and W. The rationale for this proposed measure in the draft NAP 2027-2030 clarifies that the existing restriction preventing the land application of fertiliser during periods of heavy rainfall will be retained in the updated NAP regulations.

The effectiveness of this measure will depend on the level of adherence to these requirements. The effective implementation of this measure is expected to improve the timing of slurry application with regard to heavy rainfall conditions, and there is potential for positive effects on the SEOs for GSL and W owing to a reduced risk of nutrient loss following slurry application associated with rainfall and runoff events, improving soil nutrient levels in the medium to long-term and lessening the risk to downstream water quality. This would also have potential for positive secondary effects on the SEOs for BFF and PHH from a reduction in the risks to water quality. It would also have potential for positive secondary effects on the SEO for MA, by clarifying temporary closed periods and reducing the risk of poorly timed fertiliser application and subsequent runoff and poor uptake by soils, with positive implications for overall soil nutrient levels and potential to contribute to reduced requirements and associated cost for additional nutrients to be applied to lands.

Cumulative and Synergistic Effects

If effectively adhered to and enforced, the introduction of this measure has the potential for cumulative positive effects on the SEOs for GSL and W, and for positive secondary effects on the SEOs for BFF and PHH together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers).

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

It is recommended that DAERA provide information on how adherence to these guidelines will be monitored and enforced.

Phosphorus content of livestock diets – The existing table within the NAP Regulations will be updated from four values to two reflecting the most up to date data. It is proposed that all manufactures of animal feed will be required to label the product to show % Phosphorus content. The changes will be as follows:

BFF	PHH	GSL	W	A	CF	MA	CH	L
0	0	0	0	0	0	0	0	0

Agricultural Product	Phosphorus Content (% fresh weight)
Ruminate Concentrates	0.47 (or actual declared content)
All other concentrates	0.43 (or actual declared content)

Discussion

The proposed measure aims to amend the existing information supplied in the NAP Regulations (Northern Ireland) 2019 regarding the Phosphorus content of animal diets based on recent research which has demonstrated that there has been a reduction in dietary Phosphorus content[158], whilst ensuring that productivity remains. The NAP Regulations will be amended from four values to two values to reflect this work. The measure also proposes that manufacturers of animal feed will be required to include labelling to show the % Phosphorus content, however DAERA has indicated that this cannot be regulated under the NAP and is subject to wider EU Regulations.

The measure scores as neutral across the SEOs, as it will not directly result in any action, but will update the NAP Regulations in line with the latest scientific evidence.

Cumulative and Synergistic Effects

There are no synergistic or cumulative effects identified for this proposed measure.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

It is recommended that the wording of the proposed measure is updated to indicate that the intention for feed manufacturers to label feed products regarding phosphorus content cannot be regulated under the NAP and is subject to separate legislation.

Implementation – including Inspections/Enforcement

False or misleading information provisions - Extend the existing duty not to provide false or misleading information so that it applies not only to the controller, but also to the appropriate person.	BFF	PHH	GSL	W	A	CF	MA	CH	L
	0	0	0	0	0	0	0	0	0

Discussion

[158] AFBI. (2025). Phosphorus Content of Livestock Diets.

Currently, in the NAP Regulations (Northern Ireland) 2019, there are several Regulations that specify that the Controller has responsibility for compliance, with overall responsibility for the management of their holding including the provision of information to DAERA as requested. Regulation 28 of Part 6 (Record Keeping and Compliance Monitoring) of the NAP Regulations (Northern Ireland) 2019 currently stipulates that 'The controller shall not compile records which are false or misleading or furnish any false or misleading information in any notice or other document for the purposes of these Regulations'.

This measure proposes an amendment whereby the 'Appropriate Person' is named in this capacity rather than the Controller only. This is an administrative amendment that aims to strengthen the burden of proof regarding the supply of information to DAERA given that contractors may often carry out work and may commit offences independently of the controller's direct knowledge or instruction. There is not considered to be any potential for effects on SEOs from the implementation of this measure.

Cumulative and Synergistic Effects

There are no synergistic or cumulative effects identified for this proposed measure.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.

SEA Mitigation Measures

There is no mitigation recommended for this proposed measure.

	BFF	PHH	GSL	W	A	CF	MA	CH	L
Increased inspections based on risk - This proposal introduces a revised approach to inspections which aims to make them more targeted, efficient and fair, so that effort is focused on the farms and activities that present the greatest risk to the environment.	+	0	+	+	0	0	0	0	0

Discussion

The iterative development of the draft NAP 2027-2030 and SEA involved the consideration of earlier versions of the proposed amendments and an assessment of the potential for effects on the wider environment from their implementation. Following consideration of the earlier versions of the proposed amendments to the draft NAP 2027-2030 and existing measures to be carried forward in the NAP Regulations (Northern Ireland) 2019, the SEA team provided feedback to DAERA that the evidence (including DAERA reporting of compliance with NAP measures and the lack of continued improvements in water quality) indicates that the existing NAP measures set out in the NAP Regulations (Northern Ireland) 2019 should, generally, lead to positive effects on SEOs, in light of their protective intention, however are not being fully implemented or are not being implemented correctly. It was recommended that a greater number of annual inspections is needed to support better implementation of the measures.

The proposed measure aims to target inspections to farms and activities where the risk to the environment is higher, such as farms with higher levels of livestock manure loading and with the inspection rates dependent upon the risk level and the participation in support programmes under the NAP.

The measure also proposes to increase the presence of on-the-ground inspectors, with streamlined inspections focused on the key activities which can contribute to pollution, such as the adequacy of slurry storage, farmyard management and the risk of pollution entering waterways.

The measure proposes to focus on farms which are not part of the NSP but that operate at over 170 kg Nitrogen per hectare per year; these farms will be considered as 'High Risk' and subject to a 10% inspection rate. Farms in Tier 1 of the NSP are considered to be a lower risk and will be subject to a 1% inspection due to higher levels of nutrient management. Farms in Tier 2 of the NSP are considered as higher risk compared to Tier 1 farms and will be subject to a 5% rate of inspection.

The proposed measure has the potential for indirect positive effects on the SEOs for BFF, W, and GSL through increased inspections and the targeting of inspections to areas of greater risk to help reduce nutrient pollution to waterways and excessive nutrient enrichment of soils. The remaining SEOs are scored as neutral. This measure should help to strengthen the implementation of the existing Regulations to be carried forward from the NAP Regulations (Northern Ireland) 2019, particularly those in Part 7 (Enforcement).

Cumulative and Synergistic Effects

If effectively implemented, the introduction of this measure has the potential for synergistic positive effects on the SEOs for GSL, W, BFF, PHH, A, and CF together with existing measures of the NAP Regulations (Northern Ireland) 2019, including those set out in Parts 2 (General), 3 (Prevention of water pollution from the application of fertilisers**)**, 4 (Storage Requirements), 5 (Measures Relating to Land Management), 6 (Record Keeping and Compliance Monitoring), and 10 (Derogation from measures governing the limits on land application of livestock manure), and with the implementation of the NSP, through enforcement of the measures to ensure that farmers comply with protective measures. The significance of positive synergistic effects will be influenced by the strength and effectiveness of inspection and enforcement measures.

RIAA Summary and Requirement for Mitigation

This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. Potential adverse effects are limited to those associated with time and resource constraints limiting the ability of DAERA to increase inspection rates. The implementation and effectiveness of this increase in the inspection rate should be reviewed by DAERA during this NAP cycle.

The Department shall consider making amendments to Regulation 65 of the Habitats Regulations to align 'Duties of DAERA with respect to European sites' with Part 7 of the NAP Regulations to provide a statutory basis for imposing restrictions on activities which have or will deteriorate a European site and entering into a management agreement as part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration.

OEP (2026) has recommended that DAERA should materially increase the current inspection rates and the number of random inspections. It should ensure inspection rates are sufficient to provide a credible picture of compliance, and assess whether such compliance means the NAP Regulations will deliver the intended outcomes.

SEA Mitigation Measures

It is acknowledged that the ability to increase inspection rates may subject to additional resourcing and that this can take time to put into place. As there are currently over 26,000 farms in Northern Ireland, this increased inspection rate still represents a small proportion of farms that will be inspected annually. It is recommended that DAERA review the implementation and effectiveness of this increase in the inspection rate during this NAP cycle and plan towards increasing it further.

7.3 Cumulative, Synergistic and Inter-relationships of Effects

At the Programme level, the potential for cumulative or synergistic effects on the environment may arise in the following instances:

- Interaction of existing measures of the NAP
- Interaction of proposed measures with each other, or with existing measures
- Interaction of measures with policies or proposals in related plans or programmes

7.3.1 Interaction of measures within the draft NAP 2027-2030

Measures that are currently in place for the NAP Regulations (Northern Ireland) 2019 are predominantly focussed on controlling agricultural practices to provide protection to water quality, and the proposed additional measures and/or amendments by the draft NAP 2027-2030 to existing measures are centred around strengthening the protection afforded by this suite of measures. As the focus is on protection, many of these measures have the potential for positive cumulative and synergistic effects for the environment, with limited capacity for conflicts. The cumulative and synergistic effects on SEOs that are anticipated between the existing suite of measures and between the proposed and existing measures are detailed in **Table 7-1** and **Table 7-2**, respectively.

Table 7-1 Cumulative / synergistic interactions between existing NAP Measures in the NAP Regulations (Northern Ireland) 2019.

Regulation	Cumulative / Synergistic Effects
4	As an overarching measure setting out a duty to prevent water pollution from fertilisers, Regulation 4 has the potential for cumulative positive effects on the SEOs for W, BFF and PHH in-combination with many of the existing Regulations of the NAP Regulations (Northern Ireland) 2019, including those in Parts 2, 3, 4 and 10.
5	As a measure requiring land holders to take account of NAP guidance issued by DAERA as well as COGAP, Regulation 5 has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF in conjunction with many of the existing Regulations of the NAP Regulations (Northern Ireland) 2019, including those in Parts 2, 3, 4 and 10.
16	This Regulation has the potential to facilitate the application of active measures in Part 3 of the Regulations in the long-term (Regulation 12 requires a fertilisation plan for application of anaerobic digestate, Regulation 13 for chemical phosphorus fertiliser, Regulation 14 for high-P organic manures), and in Part 10 as a requirement of derogation. Synergistically, these have potential to be indirectly positive short to long-term for W, through greater knowledge and control of fertiliser application to land, which could help to reduce the potential for over-application and adverse effects on downstream water quality, with potential indirect positives for BFF and PHH from a reduction in the risks to water quality. There is also potential for indirect positives for GSL and MA through a reduced risk of over-application of fertilisers, which has positive implications for long-term soil health and sustainability of resources.
All in Part 3	All Regulations listed in Part 3 have the potential for cumulative positive effects with enforcement measures, as set out in Part 7. The significance of cumulative positive

Regulation	Cumulative / Synergistic Effects
	effects will be dependent on the strength and effectiveness of inspection and enforcement measures.
All in Part 4	All Regulations in Part 4 of the Regulations have the potential for cumulative positive effects with enforcement measures, as set out in Part 7. The significance of these cumulative positive effects will be dependent on the strength and effectiveness of inspection and enforcement measures.
25	Regulation 26 should act synergistically with Regulation 25 (regarding ensuring the minimisation of soil erosion following harvesting of crops) to reduce the risk of soil erosion, with potential for short to long-term positive effects on GSL through reduced soil loss and long-term positive effects on CF by reducing soil organic carbon loss. The significance of these positive effects will be dependent on the strength and effectiveness of enforcement and inspection measures under Part 7.
All in Part 6	The keeping of records has the potential for synergistic indirect positive effects on the SEOs for GSL, W, BFF, PHH, A and CF by supporting Regulations of the NAP such as those relating to fertiliser use, storage requirements and enforcement, with potential for greater compliance and transparency in regulation.
All in Part 7	All Regulations in Part 7 of the Regulations have the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF combined with active measures of the NAP Regulations, including those set out in Parts 2, 3, 4, 5, 6, and 10. The significance of positive cumulative effects will be dependent on the strength and effectiveness of inspection and enforcement measures.
34	Regulation 34 generally has the potential for positive effects on the SEOs for W, GSL, BFF, PHH, A and CF, and for both positive and negative effects on the SEO for MA cumulatively with proposed new measures for the draft 2027-2030 NAP.
All in Part 10	Under Part 10, all Regulations have the potential for negative effects on the SEOs for W, GSL, BFF, PHH, A and CF. However, when considered cumulatively with Part 7, if appropriate enforcement and inspection take place, then these effects may be considered to be potentially reduced in their overall severity.

Table 7-2 Cumulative / Synergistic interactions between recommended amendments to the draft NAP 2027-2030 and existing NAP Measures in the NAP Regulations (Northern Ireland) 2019.

Proposed Measure	Cumulative / Synergistic Effects
Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls	
Limit chemical phosphorus fertiliser availability through an advisory approach	There is potential for cumulative positive effects on the SEOs for W, GSL, and positive secondary effects on the SEOs for BFF and PHH through a reduction in the build-up of excess soil phosphorus and risk of runoff to waters from the implementation of this measure together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures.

Proposed Measure	Cumulative / Synergistic Effects
Reducing the Northern Ireland average phosphorus surplus	There is potential for cumulative positive effects on the SEOs for W and GSL, and for secondary effects on the SEOs for BFF and PHH through a reduction in the build-up of excess soil phosphorus and risk of runoff to waters from the implementation of this measure together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures, as well as the proposed advisory measure to limit the use of chemical phosphorus fertiliser. The implementation of this proposed measure has the potential to conflict with the proposed NSP measure through allowing farms to operate on a tiered approach and reduce the overall effectiveness of the NSP, as under the NSP, farms will continue to operate above the 7 kg P per hectare per year limit, this may affect the overall effectiveness and achievement of a reduction in the national average phosphorus balance (particularly with regard to the 10% reduction figure should a Tier 2 farm join the programme with an elevated initial phosphorus balance) with potential for negative effects on the SEOs of GSL, W, BFF and PHH through continued nutrient accumulation and poor water quality.
Dairy cow nutrient excretion values – based on milk yield	This measure has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A, CF and MA together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019 that relate to limits/allowances for organic and inorganic fertilisers.
Updated poultry nutrient excretion figures	In combination with Part 3 and existing regulations, the updated figures for poultry systems, have the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, and MA by ensuring that the most up-to-date information on nutrients is being used in any calculations for application rates and nutrient allowances to ensure accurate nutrient management planning and through lower overall loading based on the revised figures.
Standard values for separated manures and slurries	The inclusion of standard figures for the nitrogen and phosphorus contents of liquid and solid components of separated cattle slurries has the potential to support existing measures included in Part 3 (Prevention of water pollution from the application of fertilisers) of the NAP Regulations (Northern Ireland) 2019 that relate to limits/allowances for nutrient application, and to support proposed measures that introduce controls on separated slurry and digestate and aim to reduce the phosphorus supply and existing surplus in Northern Ireland's soils, including the proposed measure on the limiting chemical phosphorus fertiliser availability through an advisory approach and reducing Northern Ireland's average phosphorus surplus.

Proposed Measure	Cumulative / Synergistic Effects
Updated chemical nitrogen fertiliser limits for grassland	There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure, particularly with regard to the soil testing requirements for farms operating under the maximum production category, together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers). There is potential for synergistic and cumulative positive effects on the SEO for MA through an increase in production of grass forage crops and through the proposed NSP measure whereby the growth of clover and leguminous crops as a forage source is encouraged, reducing reliance on, and costs associated with, imported feedstocks. This also has potential for positive indirect effects on the SEOs for W, GSL, BFF and PHH through reducing chemical phosphorus accumulation within soils and, by association, improvements in water quality through reduced use and reliance on imported feedstocks, typically of higher nutrient content.
Allowance for processed organic fertilisers	There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF and PHH associated with improvements in nutrient use efficiency through this measure in combination with the proposed measure of the Nutrient Efficiency Roadmap for Northern Ireland and through reduced reliance on chemical nutrient sources.
Storage Requirements – Application of Manures and Ammonia Implications	
Reduced slurry application volumes in February and early October	There is potential for cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers), in particular the existing requirements for the use of LESSE, and together with proposed measures regarding the further use of LESSE.
Clearer definition of Low Emission Slurry Spreading Equipment	There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers), in particular the existing requirements for the use of LESSE, and together with proposed measure on the tiered use of LESSE.
Tiered move to increased use of LESSE	There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF, PHH, A and CF through a reduction in the risk of emissions to air and runoff to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers), in particular the existing requirements for the use of LESSE.
Pre-Notification of new slurry and silage storage	There is potential for cumulative positive effects on the SEOs for W, GSL, BFF and PHH through improved controls on sub-standard storage facilities

Proposed Measure	Cumulative / Synergistic Effects
	reducing the risk of leaching or losses of nutrients/contaminants to soils and downstream waterbodies, and for cumulative positive effects on the SEOs for A and CF through a reduced risk of air emissions, from the implementation of this measure together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019, in particular Regulation 19.
Clarify cover requirements for new above-ground stores	Together with other measures set out in Part 4 (Storage Requirements) and proposed measure regarding the pre-notification of new slurry and silage storage, there is potential for cumulative positive effects on the SEOs for W and GSL, and positive secondary effects on the SEOs for BFF and PHH through improved controls on sub-standard storage facilities reducing the risk of leaching or losses of nutrients/contaminants to soils and downstream waterbodies and loss of nitrogen as ammonia through volatilisation, and for cumulative positive effects on the SEOs for A and CF through a reduced risk of air emissions.
Limit the use of unprotected granular urea fertilisers	There is potential for cumulative positive effects on the SEOs for A and CF through reduced air emissions, and positive secondary effects on the SEOs for W, BFF, PHH, GSL and MA together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019.
Anaerobic Digestate Measures	**Separation of Digestate to reduce Phosphorus Content and Targeted Application of Digestate to Land** Cumulatively, the various aspects of these measures can help contribute to the reduction in the Northern Ireland farmgate phosphorus balance and reduce soluble reactive phosphorus levels in lakes and rivers, with a potential for cumulative positive medium to long-term effects on the SEOs for W and GSL and secondary positive medium to long-term effects on the SEOs for BFF and PHH through reducing the risk of runoff of excess phosphorus. There is potential for synergistic effects on the SEO for GSL by reducing the accumulation of excess soil phosphorus and soil nitrogen sources through a requirement to only apply externally sourced digestate sources in accordance with crop requirements for phosphorus and nitrogen and positive secondary effects on the SEOs for W, BFF and PHH by reducing the risk of runoff to waterbodies. **Record Keeping and Reporting of Nutrient Movements** The aspect of the proposed measure which includes record keeping and reporting will synergistically provide further information on the overall nutrient balance of Northern Ireland in combination with the proposed measures of an 'Enhanced online system for recording slurry and manure exports and imports' and 'Extending the system to processed slurry solids and digestate movements'. If effectively implemented, this aspect of the measure has the potential to support strategic and targeted nutrient applications and to reduce the reliance on chemical fertiliser applications,

Proposed Measure	Cumulative / Synergistic Effects
	aiding in reducing the farmgate phosphorus balance and for positive secondary effects on the SEOs for GSL, W, BFF and PHH.
Farming Approaches to Improve Nutrient Use and Water Quality	
Nutrient Stewardship Programme – a revised approach to Derogation	The implementation of this proposed measure with the allowance for farms under Tier 2 to operate at a higher P surplus above the 10 kg P per hectare per year has the potential to conflict with the proposed measure of 'Reducing the Northern Ireland average phosphorus surplus', by allowing continued use of higher phosphorus amounts. Whilst it is proposed that Tier 2 farms must commit to a reduction of 10% over four years or to the 10 kg P per hectare per year amount, this aspect of the proposed measure may affect the overall effectiveness and achievement of a reduction in the national average phosphorus balance (particularly with regard to the 10% reduction figure should a Tier 2 farm join the programme with an elevated initial phosphorus balance as no upper limit is stated for the NSP) with potential for negative effects on the SEOs for GSL, W, BFF and PHH through continued nutrient accumulation and poor water quality. The implementation of this proposed measure with the requirement for the use of a buffer strip on arable land has the potential for positive effects on the SEOs for GSL, W, BFF and PHH synergistically with other measures included within the Regulations under Part 4 Regulation 25, Part 5 and the proposed measure of 'Mitigation measures for late harvested arable crops', through reducing the potential for nutrient and sediment losses and where the voluntary proposed measure of 'Buffer strips within arable fields' is also implemented.
Mitigation measures for late harvested arable crops	The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF and PHH synergistically with other measures included within the Regulations under Part 4 Regulation 25, Part 5 and the proposed requirement under the NSP for the use of buffer strips on some arable fields through reducing the potential for nutrient and sediment losses and where the voluntary proposed measure of buffer strips within arable fields is also implemented.
A focused approach to improving water quality	The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included within the Regulations through addressing nutrient management and water protection with the targeting of measures (albeit on a voluntary basis) to the areas of highest risk.
Nutrient Efficiency Roadmap for NI farming	The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and with the proposed measure on limiting the use of chemical phosphorus fertiliser through improvements in nutrient use efficiency, if further developed and effectively implemented.
Utilising Technology	

Proposed Measure	Cumulative / Synergistic Effects
Enhanced online system for recording slurry and manure exports and imports	The implementation of this measure has the potential for positive effects on the SEOs for GSL, W, BFF, PHH, A and CF synergistically with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers), Part 4 (Storage Requirements), and Part 7 (Enforcement) of the NAP Regulations (Northern Ireland) 2019. If used to inform farm inspections, this measure has the potential to improve controls on slurry and manure movements and reduce the risk of inadequate storage and land spreading above the allowable limits; this is particularly applicable to intensive livestock farms that are operating at high stocking rates, who may rely on slurry/manure export to stay within the limit of 170kg nitrogen/ha/year. The application of organic manure to meet crop need reduces reliance on chemical fertilisers as well as reducing the environmental impact of manure to land that is already nutrient enriched, therefore well-regulated export and import of slurry and manures between farms should help to ensure that manure nutrients are being distributed and applied to lands where they are needed. Better control of slurry/manure, storage and land spreading could help to reduce the potential for over application and adverse effects on downstream water quality, with positive effects on the SEO for W; and air emissions, with positive effects on the SEOs for A and CF. There is potential for positive secondary effects on the SEOs for BFF and PHH through reducing the risks to water quality and deposition of air pollutants. There is also potential for indirect positive effects for GSL as improved compliance with the NAP Regulations (Northern Ireland) 2019 has positive implications for long-term soil health.
Extending the system to processed slurry solids and digestate movements	As described for the proposed measure for an enhanced online system for recording slurry and manure exports and imports, the implementation of this measure has the potential for cumulative positive effects on the SEOs for GSL, W, BFF, PHH, A and CF together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers), Part 4 (Storage Requirements), and Part 7 (Enforcement) of the NAP Regulations (Northern Ireland) 2019.
Additional measures to support environmentally sustainable farming	
Voluntary buffer strips on arable land	There is potential for synergistic and cumulative positive effects on the SEOs for W, GSL, BFF and PHH through a reduction in the risk of runoff of nutrients to waters from the implementation of this measure together with other measures included in Part 3 of the Regulations (Prevention of water pollution from the application of fertilisers). It should be noted that, as the proposed measure is voluntary, the degree of potential cumulative and synergistic effects on the SEOs will be dependent upon its level of uptake.
Awareness of existing storage requirements and how dirty water storage,	This measure has the potential for cumulative indirect positive effects on the SEO for W together with other measures set out in Part 4 (Storage Requirements) by helping to ensure that farms have adequate storage and reducing the risk of point source pollution from farmyards.

Proposed Measure	Cumulative / Synergistic Effects
rainwater and parlour washings can impact this	
Voluntary liming programme on farms with high stocking rates	Together with the proposed measures on the increased requirement for mandatory spreading of slurry using LESSE, the requirement to purchase lime and suitable machinery for the application of this measure for farms choosing to participate in the voluntary scheme has the potential for cumulative short to medium-term implications on MA due to the associated costs. There is potential for synergistic positive secondary effects on the SEOs for W, PHH and BFF through reduced requirements for phosphorus and nitrogen applications, alongside increased mineralisation and uptake from existing soil sources. This could result from the implementation of this measure, together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers), in particular Regulation 13 Limits on the application of chemical phosphorus fertilisers, and Regulation 14 Limits on land application of high-phosphorus organic manures, as well as the proposed measure to limit the use of chemical phosphorus fertiliser on grassland. It should be noted that, as the proposed measure is voluntary, the degree of potential cumulative and synergistic effects on the SEOs will be dependent upon its level of uptake.
Revised silage bale storage requirements	There is potential for cumulative positive effects on the SEOs for GSL, W, BFF and PHH through improved controls on silage bale storage reducing the risk of effluent loss to soils and downstream waterbodies, from the implementation of this measure together with other measures included in Part 3 (Prevention of water pollution from the application of fertilisers) and Part 4 (Storage Requirements) of the NAP Regulations (Northern Ireland) 2019, in particular Regulation 24.
Technical Amendments	
Definition of Appropriate Person	There are no synergistic or cumulative effects identified for this proposed measure.
Definition of Farmyard manure	There are no synergistic or cumulative effects identified for this proposed measure.
Updating terminology	There are no synergistic or cumulative effects identified for this proposed measure.
Covering of Lagoons	There is potential for short to long-term cumulative negative secondary effects on the SEO of MA with lagoons being uncovered, this exposes the lagoons to rainfall which can reduce the capacity available to store slurry and thus in order to meet the requirements under Regulations 17 and 18 for storage capacities, additional facilities or exporting of slurry may be required incurring additional financial expenses.

Proposed Measure	Cumulative / Synergistic Effects
Definition of heavy rain	If effectively adhered to and enforced, the introduction of this measure has the potential for cumulative positive effects on the SEOs for GSL and W, and for positive secondary effects on the SEOs for BFF and PHH together with other measures included in Part 3 of the NAP Regulations (Northern Ireland) 2019 (Prevention of water pollution from the application of fertilisers).
Phosphorus content of livestock diets	There are no synergistic or cumulative effects identified for this proposed measure.
Implementation – including Inspections/Enforcements	
False or misleading information provisions	There are no synergistic or cumulative effects identified for this proposed measure.
Increased inspections based on risk	If effectively implemented, the introduction of this measure has the potential for synergistic positive effects on the SEOs for GSL, W, BFF, PHH, A, and CF together with existing measures of the NAP Regulations (Northern Ireland) 2019, including those set out in Parts 2 (General), 3 (Prevention of water pollution from the application of fertilisers), 4 (Storage Requirements), 5 (Measures Relating to Land Management), 6 (Record Keeping and Compliance Monitoring), and 10 (Derogation from measures governing the limits on land application of livestock manure), and with the implementation of the NSP, through enforcement of the measures to ensure that farmers comply with protective measures. The significance of positive synergistic effects will be influenced by the strength and effectiveness of inspection and enforcement measures.

7.3.2 Interaction of measures with policies or proposals in related plans or programmes

There are several key national policies which have the potential to result in cumulative effects (both positive and negative) on the receiving environment together with the draft NAP 2027-2030.

In the Republic of Ireland, the current Nitrates Action Programme is the fifth iteration of the programme, covering the period from 2021 up to 2025 and given effect by the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2022 (S.I. No.113 of 2022). As is the case for Northern Ireland, the Republic of Ireland's Nitrates Action Programme takes a whole territory approach. In April 2022, the European Commission published its Implementing Decision granting a derogation to Ireland allowing some farmers to farm to a higher stocking rate of 250 kg organic manure nitrogen per hectare subject to stricter environmental conditions. This was subject to a water quality review in 2023, the outcome of which was a move to a reduced derogation limit of 220 kg nitrogen/ha/year for some areas. As part of the draft Review of the NAP 2019-2022 by DAERA, it determined that, as the Northern Ireland agricultural sector comprises mostly grassland, there remains a need for the upper 250kg nitrogen per hectare limit, but that this must be subject to the appropriate SEA and HRA assessment. The programmes in Northern Ireland and the Republic of Ireland are largely similar in the measures applied (e.g. the use of LESSE on higher intensity farms) given the similarities in farming practices, geology and climate. There is potential for cumulative effects within border catchments from measures implemented within the catchment on both sides of the border. It is recommended that there is cross-border communication regarding the use of P indices and their comparability, and agreement for a consistent approach regarding decision-making on derogation approvals and fertiliser management across the border.

The third cycle River Basin Management Plan RBMP 2021-2027 implements the WFD in Northern Ireland and sets out a programme of measures that aims to achieve the WFD objectives. As the objective of the WFD Regulations and RBMP is to improve water quality, there is no risk of adverse in-combination effects with NAP measures, however there is potential for cumulative effects with other measures included in the RBMP programme of measures, the significance of which will be influenced by the strength of measures and their successful implementation.

The forestry strategy in 'Northern Ireland Forestry – A strategy for sustainability and Growth (Forest Service, 2006) sets out a vision for an expansion of forestry as well as sustainable forest management. The Forests for Our Future programme, launched in 2020, has pledged to plant 18 million trees by 2030 and create 9,000 hectares of new woodland to help the environment and economy. There are some nutrient input requirements for the establishment and maintenance of commercial forests, and there may be potential for cumulative effects with impacts from agricultural activities. Some nutrient inputs are required to maintain commercial forests, which may have potential for cumulative adverse impact with the agri-food strategies in achieving NAP compliance.

NI Water's strategy (Our Strategy 2021-2046) sets out the overarching strategy for the management of water services in Northern Ireland and includes a goal to 'Restore our natural resources – to improve the water catchments, rivers and lakes which are sources of our drinking water'. The phosphorus system flow analysis undertaken through AFBI's RePhokUs project determined that over one third of phosphorus inputs to water were attributable to sewage related impacts, with 24% of the overall phosphorus load lost to the water environment linked to wastewater treatment facilities, and a further 12% linked to septic tanks. Compliance with discharges from WWTWs under Water Order permissions indicates an overall high compliance (94%) against standards, and a high overall compliance with Urban Waste Water Treatment Regulations (96%), however some plants require upgrades to be up to standard. There is limited capacity in the wastewater network. Furthermore, Combined Sewer Overflows (CSOs) and Emergency Overflows (EOs) are part of Northern Ireland's sewerage system, intended to act as overflows in the event of heavy rainfall to reduce sewage backing up and prevent flooding. Loss of nutrients from WWTWs requiring upgrades as well as CSOs/Eos, have the potential for cumulative adverse effects on water quality in-combination with agricultural impacts.

Section 4.0 and **Appendix C** outline other relevant plans, programmes, and legislation that could have cumulative effects with the programme of measures proposed for the draft NAP 2027-2030.

8.0 Mitigation and Monitoring

8.1 Iterative Development of the Draft NAP 2027-2030 and the SEA

The iterative development of the draft NAP 2027-2030 and SEA involved the consideration of earlier versions of the proposed changes to the NAP and an assessment of the potential for effects on the wider environment from their implementation. The SEA and HRA team provided feedback to DAERA where the potential for adverse environmental effects was identified, and recommended omissions, changes to strengthen measures, and additional measures for inclusion in the draft NAP 2027-2030.

8.2 SEA Mitigation

The outcomes of the assessment of existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019, and the assessment of the proposed changes to the draft NAP 2027-2030 are provided in **Section 7.1** and **Section 7.2**, respectively.

It is an overarching aim of the draft NAP 2027-2030 to protect water from pollution by nutrients from agricultural sources. In general, the assessment of these measures indicates that the potential for effects on the environment from their implementation are largely positive, reflecting their nature as protective measures. However, measures within the draft NAP 2027-2030 also effectively prescribe agricultural activities, such as the application of organic manures and chemical fertilisers. Consideration of the baseline environment shows that the status and trends in water quality, biodiversity and designated site condition are declining, and there is evidence that agricultural activities in Northern Ireland are a significant driver of these declines.

Review of NAP implementation by DAERA in the NAP Implementation Report (DAERA, 2024) indicates that, despite initial improvements in water quality in the five years following the introduction of the first iteration of the NAP, this has not been sustained and there is no evidence of clear and consistent recovery of water quality to meet the objectives of the WFD Regulations, or to the levels necessary to restore and maintain European Sites and their qualifying interests to favourable conservation status. There is insufficient evidence to demonstrate that the existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019, are sufficiently effective and/or sufficient to provide improvements and protection against further deterioration in water quality. The proposed changes to the draft NAP 2027-2030 could largely be viewed as beneficial to water quality, reflected by the positive scoring against the SEO for Water. However, without effective implementation and enforcement of measures, there is insufficient evidence that the implementation of the suite of other proposed measures together with existing measures in the NAP Regulations (Northern Ireland) 2019 will be sufficient to halt and reverse the continued declines in water quality.

Therefore, the NAP is at risk of contravening the Water Framework Directive (WFD). The status and trends of water quality in NI are declining, with pressure assessments highlighting agricultural activities as a significant contributor to nutrient enrichment, and the NAP is at risk of contravening the Habitats Directive (HD). A significant proportion of habitats and species within European sites are not at Favourable conservation status, and pressures from agricultural activities are a contributing factor including through water pollution and nutrient deposition.

At face value, the existing NAP measures as well as those proposed in this cycle should, for the most part, have minor positive effects and lead to improvements as noted above. However, as the NAP is what effectively licenses agricultural activities, such as the land spreading of slurry, there are also potentially significant negative effects identified. Therefore, Tetra Tech has proposed the Pathway to Compliance approach, a mechanism to address the activities that have the potential to contravene the objectives of the Habitats and Water Framework Directive Regulations. It is recommended for inclusion in the NAP to ensure compliance throughout this and subsequent NAP cycles. The principal SEA mitigation recommendations are twofold:

1. To better implement and enforce NAP measures.
2. Pathway to Compliance approach

The Pathway to Compliance Approach is recommended for inclusion within the draft NAP 2027-2030 to ensure that the NAP is in line with the objectives and requirements of the Habitats Regulations and WFD Regulations. This Pathway should be developed and implemented by DAERA within the timeline specified in the draft NAP, to ensure a certainty of protection for water quality and the wider environment where agricultural activities are found to be the cause. This recommendation also includes ensuring that the necessary powers are available to alter, restrict, or prevent certain agricultural activities from occurring in some temporal or spatial situations, to ensure that the NAP does not contravene the objectives of the WFD Regulations or the Habitats Regulations.

These mitigation measures are detailed in the following **Section 8.2.1** and **Section 8.2.2**. Recommended mitigation for negative or uncertain effects identified from the assessment of the existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019, and the assessment of the proposed changes to the draft NAP 2027-2030, is detailed in **Section 8.2.3** and **Section 8.2.4**, respectively.

8.2.1 Improved implementation and enforcement of NAP measures

A principal potential for negative effects associated with implementation of the draft NAP 2027-2030 relates to the risk of failure to implement and enforce the existing and proposed measures in a manner that is appropriate for fully achieving the NAP requirements to protect water from nutrient pollution by agricultural sources and to ensure greater sustainability of the agriculture sector in Northern Ireland.

Following consideration of the earlier versions of the proposed changes to the NAP and existing measures to be carried forward from the NAP Regulations (Northern Ireland) 2019, the SEA team provided feedback to DAERA that the evidence (including DAERA reporting on compliance with NAP measures and the lack of continued improvements in water quality) indicates that NAP measures are not being fully implemented or are not being implemented correctly to date. Low inspection rates contribute to uncertainty as to the technical effectiveness of existing measures in the NAP Regulations (Northern Ireland) 2019 when considered both individually or together, and to what degree these measures are not sufficient or to what degree they are not being effectively implemented. The SEA team recommended that a greater number of annual inspections is needed to ensure better implementation of the measures required by the draft NAP 2027-2030 and that the inspection rate, and enforcement, should reflect the risk to water quality from agriculture in Northern Ireland. Sufficient inspection and effective enforcement, in combination with support and advice to farmers, will be required to improve the implementation of NAP measures in the draft NAP 2027-2030.

DAERA have included in the consultation document for the draft NAP 2027-2030 a proposal to increase the number of inspections in focused areas. The current inspection rate is 1% of farm businesses inspected, in part, on a risk-based approach, plus 5% of derogation farms. In the draft NAP 2027-2030 it is proposed to increase the inspection rate to 10% of farms deemed as high risk through non-involvement with the voluntary NSP. It is acknowledged that the ability to increase inspection rates may be subject to additional resourcing and that this can take time to put into place. As there are currently over 26,000 farms in Northern Ireland, an increased inspection rate may still represent only a small proportion of farms that will be inspected annually. Although the increase in the inspection rate is a move in the right direction, owing to the current issues with compliance with existing measures, the level of enforcement achieved by this proposed measure may remain insufficient to ensure comprehensive compliance and deliver the required environmental improvements. DAERA should review the implementation and effectiveness of this measure during the lifetime of the draft NAP 2027-2030 cycle, and forward-plan increased recruitment of inspection, enforcement and advisor/education staff to increase inspection rates, compliance with NAP measures and enforcement of NAP measure breaches significantly over future NAP cycles, or otherwise provide sufficient incentive for compliance with NAP measures.

Several measures are noted as being either advisory or voluntary in nature rather than mandatory within the proposed measures of the draft NAP 2027-2030, therefore the degree of potential environmental benefits

gained from these measures is not guaranteed and will depend on the levels of uptake and compliance. To ensure that the maximum environmental benefits can be delivered by the proposed measures of the draft NAP 2027-2030, it is Tetra Tech's recommendation that these measures are mandatory, where required, with details on enforcement provided to ensure compliance with the suite of measures. Should these measures remain as voluntary within the draft NAP 2027-2030, it is recommended that DAERA review the efficacy of these measures as part of the mid-cycle review (noted as every two years within the consultation document for specific measures) and consider making these measures mandatory at this stage if the required aims are not being achieved.

8.2.2 Pathway to Compliance

Following an initial assessment of earlier versions of the proposed changes to the draft NAP 2027-2030, and consideration of the status and trends in water quality and biodiversity and pressures from agricultural activities in Northern Ireland, the SEA team provided feedback to DAERA that a one size fits all national approach to the implementation of NAP measures does not appear to be providing sufficient environmental protection in some areas. The status and trends of water quality in Northern Ireland are declining, with pressure assessments highlighting agricultural activities as a significant contributor to nutrient enrichment. The draft NAP 2027-2030 is therefore at risk of contravening the objectives of the WFD Regulations. A significant proportion of habitats and species within European sites are not at favourable conservation status, and pressures from agricultural activities are a contributing factor including through water pollution and nutrient deposition. The draft NAP 2027-2030 is therefore also at risk of contravening the objectives of the Habitats Directive.

The SEA and HRA teams recommended a Pathway to Compliance approach for DAERA to include within the draft NAP 2027-2030, which should be developed and implemented through the draft NAP 2027-2030, including an initial outline of what this should comprise. The SEA team further considered and developed this approach as outlined in the following steps and illustrated in **Figure 8-1**.

STEP 1: IDENTIFICATION OF RISK AREAS

Actions:

- Undertake a scientific and geographic-based exercise to identify the problem areas across Northern Ireland catchments.
- Identify (Quantify and Qualify) the areas that are not a problem from a WFD Regulations or Habitats Regulations perspective.
- Identify (Quantify and Qualify) where there are problems from a WFD Regulations or Habitats Regulations perspective and areas upstream that may be contributing to these issues e.g., identifying sensitive catchments where a river is failing in status due to nutrients, and assessing towards the catchment level (characteristics, slopes, soils, hydrology, runoff risk, etc.), incorporating farm-level evidence (type, derogated (proposed to be replaced by the NSP), etc.).
- Undertake a data gap exercise between the WFD River Basin Management Plan / monitoring data and NAP evidence base and requirements. Identify further requirements and responsibilities.
- Carry out a prioritisation exercise to inform a ranking of areas based on risk. Highest risk would be where WFD waterbodies or European sites are failing in quality due to nutrients. This risk characterisation could split the risk areas into groups. An example approach could be similar to the mitigation proposed for the RoI 5th Cycle NAP Interim Review. This categorised four risk groups that were informed by data available from the EPA's Water Monitoring Programmes: Maintenance; Consistent and Sustained Recovery; Stable but not Recovering; and Declining due to Nutrient Pollution from Agricultural Activities.

Example Inputs for Step 1:

- Water quality data e.g., WFD monitoring.
- Designated site data e.g., DAERA Site Condition Assessment monitoring.
- Catchment characteristics e.g., data on soil types, hydrology, slopes, runoff risk.
- Farm-level characteristics e.g., whether farm operates under a derogation agreement.

Outcomes:

- Deprioritise areas of lower risk where the effective implementation and enforcement of NAP measures should provide enough protection.
- Prioritise areas of higher risk that require focused measures, which may need to be regional or localised in their approach to address water quality related issues.
- Grouping of areas into Risk Categories.

STEP 2: FOCUSED MEASURES

Actions:

- For high-risk areas identified in Step 1, investigation may be needed on more focused, or stringent measures at a regional / local level. This may include measures such as different manure nitrogen limits, stocking densities or farming types, influenced by detailed farm-level data (e.g., farm soil nutrient status). Identify the needs of a deeper toolbox of measures for the NAP, based on farm / field-level data.

Example Inputs for Step 2:

- Waterbody / catchment scale data e.g., soil nutrient / water status.
- Consideration of a range of focused measures, depending on the risks identified in Step 1 and applicability to Risk Categories identified. These could include changes to farming practices such as to nutrient limits, stocking density or farming type, or could incentivise the use of land to alternative forms to reduce risk e.g. willow crop growing.

Outcomes:

- Identification of more focused or stringent measures that are needed to mitigate the risk in higher risk areas.

STEP 3: ADDITIONAL LEGISLATIVE POWERS

Actions:

- Determine if any changes are needed to legislation to implement more focused or stringent measures for high-risk areas. DAERA will need to ensure that they have the legislative powers required to make these changes.
- Determine the economic and equality implications of introducing focused measures for certain areas / farms, and any resources necessary to deal with this (e.g. grant aid or sustainability payments).

Example Inputs for Step 3:

- DAERA will need to consider the existing primary powers and any requirement for legislative change to enable the implementation of focused measures within identified high risk areas.
- DAERA will need to consider any economic or equality issues associated with the introduction of focused measures.

Outcomes:

- Legislative power for DAERA to bring in any additional measures that are needed for high-risk areas. This strengthens the effectiveness of the focused measures on the ground in these areas.
- Implementation of a requirement for focused measures for high-risk areas. Potential for initial development and delivery of a project implementing focused measures in high-risk areas across Northern Ireland, this may include an initial pilot project phase before it is rolled out across the province.

STEP 4: MONITORING AND REVIEW

Actions:

- High-risk areas where more focussed or stringent measures are applied are likely to require additional monitoring that is beyond the current NAP permissions.
- Identify responsibilities for the monitoring.
- Remedial action where monitored results are not achieving the desired outcomes within the required timeframes. The appropriate measures and their strength should be reviewed on a regular and frequent basis, aligning with monitoring periods.
- Should the monitoring results indicate that the measures put in place are not achieving the desired outcomes despite remedial action, the prohibition of the damaging activity is introduced.

Example Inputs for Step 4:

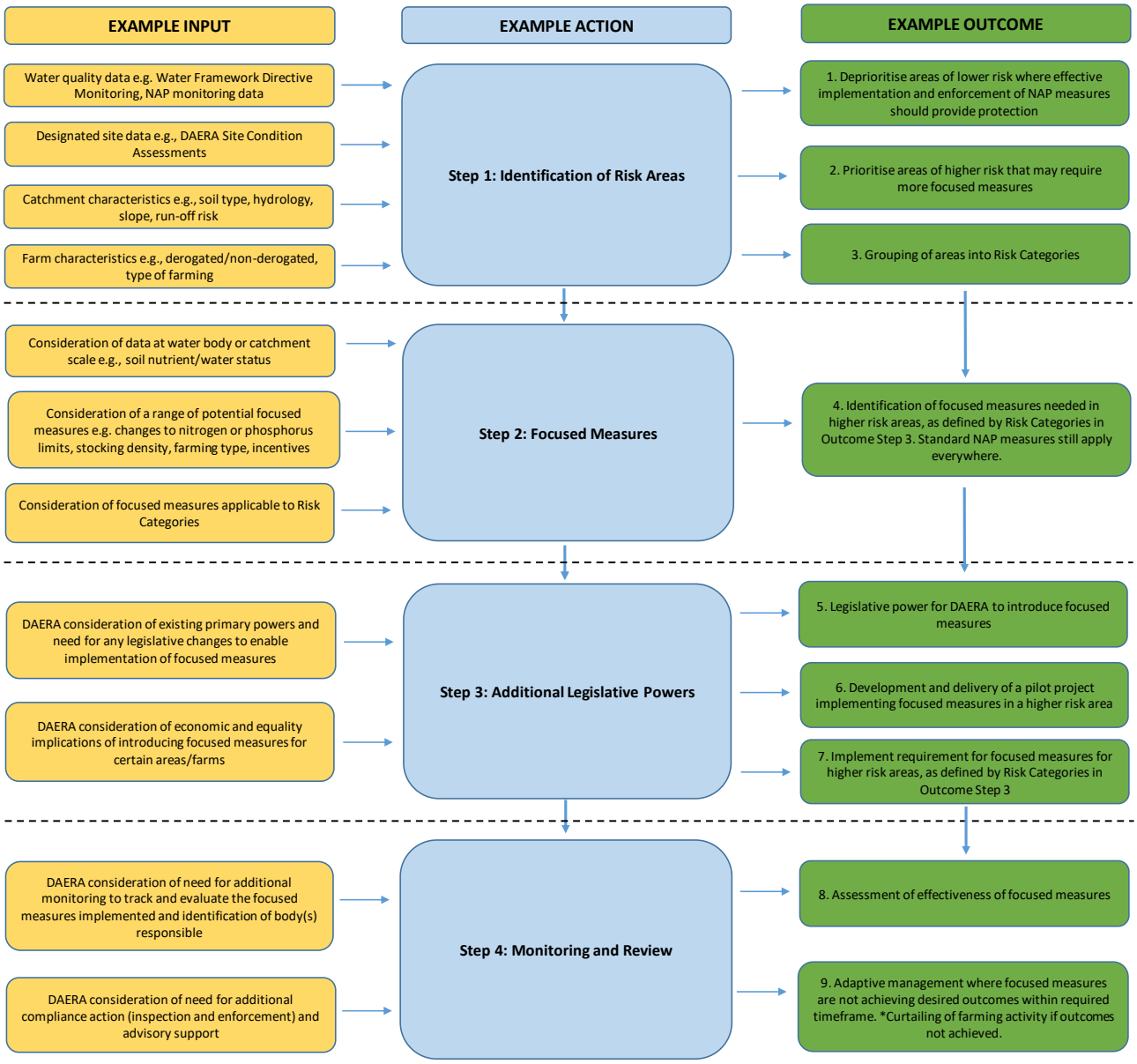
- DAERA will need to consider the need for additional monitoring to track and evaluate the focused measures implemented within identified high-risk areas and identify the body(s) responsible.
- DAERA will need to consider the need for additional compliance action (inspection and enforcement) and advisory support.

Outcomes:

- Assessing and informing the effectiveness of the focused measures. Building the evidence base to show that implementation is working sufficiently effective to halt and reverse the consistent and persistent decline in water quality including within European site catchments.
- Ability to adaptively manage the Pathway to Compliance approach where focused measures applied are not achieving the required outcomes. Curtailing of farming activities if outcomes are not achieved regarding the WFD Regulations and Habitats Directive, subject to an assessment of the wider waterbody / catchment contributing sources.

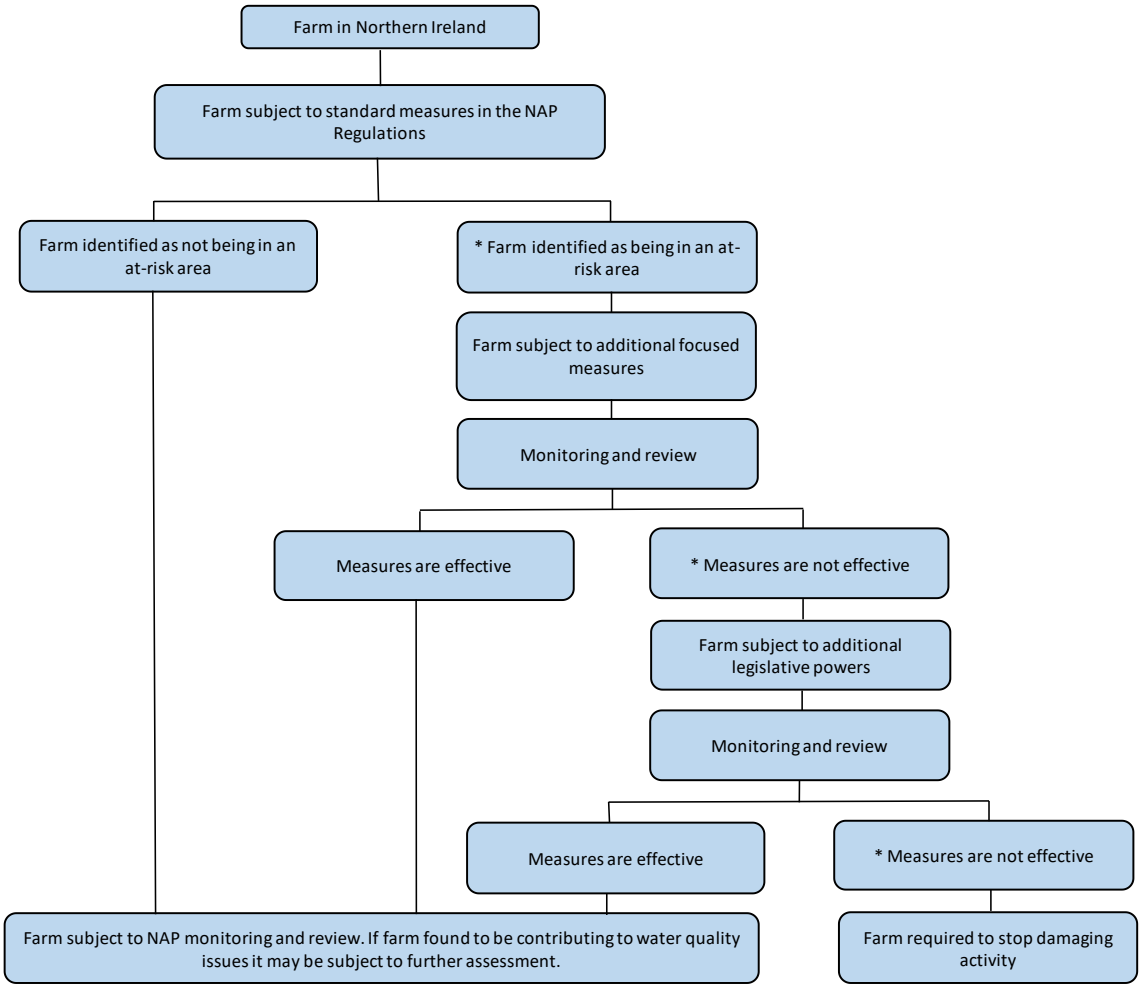
In some areas, no problems may be identified, and farms in these areas will be subject to the standard measures in the NAP Regulations and to undergo monitoring and review. Where farms are identified as being located in at-risk areas through this Pathway to Compliance approach, it will be necessary to introduce focused measures to contend with the risks posed from agricultural activities. Where subsequent monitoring and

assessment shows that the focused measures are achieving the desired objectives (e.g., reversal in deterioration trends, good status of catchment/waterbody water quality, favourable conservation status of designated sites), no further action will be needed, with maintenance of focused measures, as required. However, where subsequent monitoring and assessment shows that the focused measures are not achieving the desired objectives, strengthened and/or additional focused measures will be required. This will be subject to an assessment of the wider catchment/waterbody contributing sources/pressures (depending on the geographical scale at which the Risk Categories have been defined). Additional focused measures have the potential to take many forms, with some examples provided in **Figure 8-1**; these could include incentives so that farmers do not lose out financially (e.g., through Farm Sustainability payments) and could include measures that have associated benefits for biodiversity and flood risk management. Where subsequent monitoring and assessment shows that the additional focused measures are still not effective in achieving the desired outcomes, the farming activity(s) causing this risk may need to be curtailed until this can be rectified. The Decision Tree in **Figure 8-2** illustrates how the recommended Pathway to Compliance approach would play out for individual farms.



*Subject to assessment of wider catchment/water body contributing sources/pressures

Figure 8-1 Recommended focused risk-based approach



* In at risk area and contributing to breaches of other Directives
**Subject to assessment of wider catchment/water body contributing sources/pressures

Figure 8-2 Decision Tree illustrating the recommended focused risk approach

The SEA team has recommended to DAERA that the Pathway to Compliance approach as outlined above is included within the draft NAP 2027-2030 to signify the commitment to this strengthened protection and to ensure that the NAP is in line with the objectives and requirements of the Habitats Regulations and WFD Regulations.

8.2.3 Recommended amendments to existing measures in the NAP Regulations (Northern Ireland) 2019

The assessment of existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019 is provided in **Section 7.1**. Mitigation measures have been recommended where the potential for negative or uncertain effects on SEOs from the implementation of measures has been identified. These mitigation measures aim to prevent, reduce, and as fully as possible offset negative or uncertain effects on the environment that have been identified due to continued implementation of the existing measures to be carried forward, as set out in the NAP Regulations (Northern Ireland) 2019. These are summarised in **Table 8-1**.

Table 8-1 Recommended amendments to existing measures in the NAP Regulations (Northern Ireland) 2019

Part of the Regulations	Recommended Mitigation
Part 2 General	**General Mitigation:** It is recommended that DAERA strengthen the NAP through the SEA mitigation measures proposed in the assessment of individual Regulations. In particular, it is recommended that inspection and enforcement measures are strengthened, and that further controls are placed on derogated land holdings, including through a risk-based assessment at application stage. **Regulations 4 & 5:** It is recommended that DAERA strengthen the NAP Regulations through the SEA mitigation measures proposed in the assessment of individual Regulations. In particular, it is recommended that inspection and enforcement measures are strengthened, and that a risk-based approach is introduced, including for derogated land holdings. **Regulation 5:** The significance of positive effects on SEOs will be influenced by timely updates on NAP guidance and the COGAP. It is recommended that DAERA update the NAP Guidance in line with the updated NAP for 2027-2030.
Part 3 – Prevention of water pollution from the application of fertilisers	**Regulation 7:** It is recommended that the Regulations specify the manner in which crop requirements are assessed and verified, similar to Regulations 9, 10, and 11, which refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and the Schedules to these Regulations. It is recommended that a closed spreading period is introduced for the application of 'dirty water' to land, given the potential for this to be contaminated with nutrients arising from sources such as manure, urine, effluent, milk and cleaning products which have the potential for negative impacts on soils and waterbodies through nutrient accumulation and/or surface runoff. **Regulation 9:** It is recommended that DAERA review the process by which derogation applications are granted or refused under Regulations 39 and 40. This should be a risk-based approach, with derogation granted only for situations where it is determined that this decision will not adversely affect water quality status. This may be affected by the baseline water quality and current trends within the catchment, soil types, etc. It is recommended that the limit of 170kg of nitrogen per hectare per year is reviewed by DAERA as presently evidence and assessment on the sustainability and appropriateness of this limit and its subsequent environmental implications are unknown. The granting of a rate of 250kg should also be reviewed, with the maximum permitted loading based on a risk assessment. If required, adjustments should be made to lower the maximum limit of nutrients permitted for application on soils. **Regulation 11:** It is recommended that a timeline is established to integrate SNHS data; as understanding of soil type helps land holders to ascertain the N requirements for crops, it is recommended that SNHS results are used to define this where it is currently uncertain. **Regulations 9, 10, 11:** Regulations 9, 10, and 11 refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and

Part of the Regulations	Recommended Mitigation
	the Schedules to these Regulations. The updated Regulations should refer to the most up to date version of the AHDB Nutrient Management Guide (RB209), which is currently 2023. **Regulations 12, 13, 14:** It is recommended that soil analysis and crop specific nutrient requirements, including for phosphorus, are phased in with the SNHS, which can provide an overall indication of phosphorus. For Regulations 12, 13, 14, the Olsen extractable phosphorus for soil phosphorus index can be variable and may not give accuracy for lower pH soils or where there is a higher organic content of soils. Basaltic soils cover nearly a third of the landscape of Northern Ireland and are characterised by high levels of Fe, Al, Ca, Mg, Cu, Cr and Ni. Research indicates that the Olsen phosphorus soil test, when applied to these soils, may be underestimating plant-available phosphorus. It is recommended that DAERA consider that any soil test developed through research as part of the SNHS for basaltic soils in Northern Ireland, is considered for the NAP Regulations. It is recommended that there is cross-border communication regarding the use of phosphorus indices, as an alternative system is currently used in the Republic of Ireland. **Regulation 15:** It is recommended that the scientific rationale for a lower distance of 10m from any waterway stipulated for drinking points than is given for supplementary feeding sites is not clarified in the Regulation. It is recommended that this is clarified by DAERA, or that both are set at 20m where a risk is identified. **General Mitigation:** It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.
Part 4 – Storage requirements	**Regulation 17:** It is recommended that DAERA consider whether storage capacity requirements vary with differing climatic conditions across Northern Ireland. **Regulation 22:** It is recommended that DAERA consider specifying minimum storage requirements for dirty water, and/or a closed period under Regulation 8. **Regulation 23:** It is recommended that manure production figures are reviewed on a regular basis to ensure that storage capacity is accurately determined. **Regulations 19 and 24:** Older slurry and silage facilities are exempt from required standards under these Regulations. It is recommended that DAERA reconsider the exemptions for older slurry and silage facilities, these should be brought to current standards or inspected to ensure that they are compliant. **General Mitigation:** It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.
Part 5 – Measures relating to land management	**Regulation 26:** It is recommended that DAERA consider defining a time window instead of the subjective ‘as soon as possible’ phrasing, subject to appropriate conditions e.g., meteorological or soil conditions, and/or provide clear specification through updated NAP guidance.

Part of the Regulations	Recommended Mitigation
Part 6 – Record keeping and compliance monitoring	**General Mitigation:** It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported.
Part 7 - Enforcement	**General Mitigation:** It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. **Regulations 30-33:** The most recent Implementation Report for the NAP 2020-2023, published in July 2024, indicates that there were breaches in compliance with NAP Regulations upon inspection. However, the level of inspection is very low, and expanding the percentage of non-compliance nationally could signify areas of greater risk. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. **Regulation 33:** It is recommended that the statutory maximum fine amount is specified in this Regulation, or that the legislation that specifies this amount is referenced.
Part 8 – Powers, duties and functions of the Department	**Regulations 34 and 35:** It is recommended that DAERA include regular and transparent reporting of derogated land holdings within the NAP Implementation Reports with regard to the achievement of water quality objectives.
Part 9 - Miscellaneous	No mitigation proposed.
Part 10 – Derogation from measures governing the limits on land application of livestock manure	**General Mitigation:** It is recommended that DAERA review the process by which derogation applications are granted or refused. It is recommended that a risk-based approach is taken, with derogation granted only for situations where it is determined that this decision will not adversely affect water quality status. This may be affected by the baseline water quality and current trends within the catchment, soil types, etc. The granting of a limit of 250kg nitrogen/hectare/year should also be reviewed, with the maximum permitted loading based on a risk assessment.

8.2.4 Recommended amendments to the draft NAP 2027-2030

The assessment of proposed changes to the draft NAP 2027-2030 is provided in **Section 7.2**. Mitigation measures have been recommended where the potential for negative or uncertain effects on SEOs from the implementation of proposed measures has been identified. These mitigation measures aim to prevent, reduce, and as fully as possible offset negative or uncertain effects on the environment that have been identified due to the implementation of these additions and amendments. These are summarised in **Table 8-2**.

Table 8-2 Recommended amendments to the draft NAP 2027-2030

Proposed Measure	Mitigation Measures
Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls	
Limit chemical phosphorus fertiliser availability through an advisory approach	It is recommended that further information is provided regarding the role of fertiliser merchants as it states "farmers will be asked to confirm that they have a soil test and a Nutrient Management Plan" it is unclear from the proposed measure if a verbal confirmation or if evidence of the soil text and nutrient management plan must be shown to allow the fertiliser to be purchased and how any recording of this information may occur to facilitate inspection and enforcement on farms purchasing chemical phosphorus fertiliser. It is recommended that DAERA clarify whether the labelling requirements noted in the information on the proposed measure can be implemented through the NAP Regulations, or whether separate legislation would be required. The proposed measure notes that it will be reviewed within two years and again as part of the overall governance of the NAP. If the approach is found not to be effective, DAERA has indicated that further measures, including a more restrictive regulatory system, will be considered.
Reducing the Northern Ireland average phosphorus surplus	DAERA should ensure that monitoring during the draft NAP 2027-2030 cycle is robust to inform whether further mitigation measures and actions are required for introduction in the subsequent NAP cycle (2031-2034) to achieve the objective of an overall phosphorus surplus for the Northern Ireland agricultural sector of no more than 7kg phosphorus/ha/year. Furthermore, the most appropriate P surplus for supporting required improvements in / maintenance of good water quality should be kept under review and based on emerging scientific evidence. Information should be provided by DAERA regarding monitoring and enforcement of this measure regarding how farms will be tracked for joining the NSP, or for those choosing not to join the NSP, how it will be monitored that these are adhering to the required reductions in phosphorus balance such as the Soil P Protocol for the overall successful implementation of this measure.
Dairy cow nutrient excretion values – based on milk yield	It is recommended that clear guidance is provided by DAERA to dairy farmers in advance of the introduction of new banded rates. It is recommended that the values are kept under review based on emerging scientific evidence to ensure accuracy.
Updated poultry nutrient excretion figures	It is recommended that continual review and updates to these figures occur as scientific knowledge and awareness increases to ensure the most up-to-date information is included.
Standard values for separated manures and slurries	It is recommended that DAERA keep these standard values under review as the methods become more developed and more widespread in use, based on the best available scientific evidence.

Proposed Measure	Mitigation Measures
Updated chemical nitrogen fertiliser limits for grassland	It is recommended that the requirement for soil sampling and analysis is extended to all categories of grassland production to ensure that nitrogen and other nutrients are applied in accordance with crop and soil requirements and prevent nutrient accumulation or nutrient losses from occurring. Furthermore, clarification should be provided as to whether the regular soil testing will also include nitrogen, as presently this focuses on testing as a minimum for phosphorus, potassium and soil pH. The inclusion of nitrogen would ensure that excessive nitrogen accumulation subject to the level of grass crop production is prevented.
Allowance for processed organic fertilisers	There is no mitigation recommended for this proposed measure.
Manure Storage and Application Requirements – Ammonia Implications	
Reduced slurry application volumes in February and early October	It is recommended that DAERA provide the evidence base that indicates that the amended figure of 25m3 per hectare per single application of slurry during February and between 1 to 15 October will not oversupply nutrients beyond the expected crop uptake for this period of growth.
Clearer definition of Low Emission Slurry Spreading Equipment	There is no mitigation recommended for this proposed measure.
Tiered move to increased use of LESSE	It is recommended that DAERA consider an earlier phasing in of mandatory LESSE for farms with over 50 livestock units and consider the extension of the use of mandatory LESSE for all slurry spreading, or a ban on the use of splash plates on slurry tankers. It is also recommended that DAERA encourage the use of LESSE methods which achieve the greatest potential reduction in emissions where the land conditions are suitable for this.
Pre-Notification of new slurry and silage storage	The potential for impacts on the landscape and on heritage features that are located on farmlands from new storage infrastructure will be influenced by its siting, size and any planning requirements. It is recommended that DAERA provide additional advice on siting to avoid impacts on cultural heritage features and the landscape at the pre-notification stage for new slurry or silage storage facilities.
Clarify cover requirements for new above-ground stores	It is recommended that all above ground stores are covered, including those modified before 31 December 2019 to reduce ammonia emissions, potential nutrient losses through runoff and increase the storage capacity available for slurry. Research by AFBI has demonstrated that retrofitting of storage tanks will incur a cost of £55 per m^2 of tank area (Samuel et al., 2019).
Limit the use of unprotected granular urea fertilisers	It is recommended that DAERA stipulate that, for fertilisers containing urease inhibitors, there is a requirement that these have passed safety checks and will not pose any food safety-related issues in future. It is recommended that the use of protected urea fertiliser is implemented on a year-round basis to reduce emissions of ammonia and nitrous oxide to

Proposed Measure	Mitigation Measures
	deliver the maximum possible benefits to the SEOs of A and CF. It is also recommended that further information is provided regarding record keeping for this proposed measure and how this will be monitored and recorded and that overall fertilisation application rates are reviewed to account for the reduction in nitrogen loss associated with the use of protected urea and that further nitrogen will be retained within soils, as failure to account for this change may lead to an oversupply of nitrogen through subsequent fertiliser use. It is also recommended that DAERA further consider and investigate the use of double inhibitors (urease and nitrification) in further reducing the risk of nitrogen-based losses.
Anaerobic Digestate Measures	**Separation of Digestate to reduce Phosphorus Content** It is recommended that all digestate is separated before it is spread on land in order to reduce the phosphorus content to a phosphorus to nitrogen ratio of 1:10 or lower to support a reduction in nutrient accumulation. **Targeted application of Digestate to Land** There is no mitigation recommended for this aspect of the proposed measure. **Record Keeping and Reporting of Nutrient Movements** There is no mitigation recommended for this aspect of the proposed measure.
Farming Approaches to Improve Nutrient Use and Water Quality	
Nutrient Stewardship Programme – a revised approach to Derogation	It is recommended that it is specified explicitly that the existing conditions of the derogation programme remain, bar where these have been updated based on the proposed amendments, to ensure clarity regarding the new NSP. It is recommended that Tier 2 farms are required to adhere to the 10 kg P per hectare per year phosphorus balance limit rather than a 10% reduction figure as the overall effectiveness of this measure is reduced should a Tier 2 farm start at a higher initial phosphorus balance figure for achieving improvements in soil nutrient accumulation rates and potential water quality implications, or a specific maximum phosphorus balance limit for inclusion within the programme should be given. It is recommended that information is supplied regarding any fines or penalties which may be opposed upon farms which are either found not to comply with the required phosphorus balance or reductions in phosphorus surplus under the tiered system, to ensure compliance with the measures outlined. It is recommended that further details are provided regarding the requirements for the buffer strips on arable land, as these are noted for “some” arable fields within the measure. The criteria on the determination of these fields, how these may be cultivated and the required widths of these should be given.

Proposed Measure	Mitigation Measures
	It is recommended that consideration is given to overall catchment status and if sustained levels of high productivity through elevated nitrogen levels under the NSP is appropriate on a risk-basis for the overall achievement of good water quality, if required, adjustments should be made to lower the maximum limit of nutrients permitted for application on soils.
Mitigation measures for late harvested arable crops	It is recommended that information is provided on how arable fields at risk will be determined if this will be based on guidance provided by DAERA or subject to the appropriate person of the landholding making this determination.
A focused approach to improving water quality	Following an initial assessment of this proposed measure, the SEA and HRA team recommended to DAERA that additional amendments should be included in the draft NAP 2027-2030 to ensure that the NAP is aligned with the objectives and requirements of the Habitats Regulations and WFD Regulations. It is recommended that the measure should be mandatory, rather than voluntary, so that there is a mechanism to require action where agricultural activities permitted under the NAP Regulations would otherwise contravene the Habitats Regulations and/or the WFD Regulations, and to allow such activities to be addressed and, where necessary, prohibited. Section 8.2 includes further detail on the proposed format of this approach, including timebound and step-by-step measures to establish the methodology and apply a focused approach throughout Northern Ireland through the proposed Pathway to Compliance. It also describes the types of regulatory and non-regulatory focused measures that may be used, depending on the specific needs of each site. It is noted within the consultation document that where monitoring indicates that the initial focused measures are not sufficient to achieve the required environmental outcomes, a more restrictive regulatory system will be required.
Nutrient Efficiency Roadmap for NI farming	It is recommended that DAERA provides further information on the specific actions which may be introduced as part of the Nutrient Efficiency Roadmap as presently this information is outstanding. However, it is noted that the consultation document indicates that this will be developed before the next NAP cycle.
Utilising Technology	
Enhanced online system for recording slurry and manure exports and imports	It is recommended that movements are also recorded for farms under the 15-mile straight line distance within four days under the measure to ensure accurate and up to date slurry and manure movement information is available. It is recommended that further information is provided by DAERA regarding any potential penalties which may be used in cases where slurries or manures are exported to land areas deemed to be unsuitable, and what actions may be taken if spreading has occurred on these unsuitable areas.

Proposed Measure	Mitigation Measures
Extending the system to processed slurry solids and digestate movements	There is no mitigation recommended for this proposed measure.
Additional measures to support environmentally sustainable farming	
Voluntary buffer strip on arable land	It is recommended that DAERA provide information on how the composition and width of the buffer strip should be determined as the proposed measure currently states that this would be based on the local site conditions and risk factors. Information on how these will be determined should be included. It is recommended that the measure is extended to be mandatory rather than voluntary, where required, to reduce the risk of nutrient and sediment losses from arable land.
Awareness of existing storage requirements and how dirty water storage, rainwater and parlour washings can impact this	There is no mitigation recommended for this proposed measure.
Voluntary liming programme on farms with high stocking rates	It is recommended that further specific guidance is given surrounding the suitable use, maximum amounts, and timing of liming in agricultural areas as, whilst it can be applied all-year, the application of slurry following liming can lead to a loss of nitrogen. Application of lime following reseeding or cultivation could help incorporate it into the seedbed or onto the surface of the existing grass swards. It is also recommended that guidance is provided by DAERA regarding what is categorised as an intensively managed grassland for the proposed use of liming. It is recommended that further specific guidance is given surrounding the potential buffer zones or separation distances that should be considered for the application of lime near sensitive sites or residential areas considering potential wind-blown deposition. It is recommended that the measure is extended to be mandatory rather than voluntary for farms of high stocking rates producing 150 kg or more manure nitrogen per hectare per year.
Revised silage bale storage requirements	The rationale for this measure discussed in the draft NAP 2027-2030 states silage bales must not be located where there is a pollution risk to a waterway. Participation in the SNHS will aid in informing farmers where there are areas at high risk of nutrient loss during rainfall events. It is recommended that DAERA include this requirement within the wording of the measure to help provide information to farmers regarding these high-risk areas. It is recommended that DAERA clarify the manner of inspection/enforcement of this measure regarding the storage locations chosen.

Proposed Measure	Mitigation Measures
	The stacking of silage bales can increase the risk of effluent seepage, and it is recommended that DAERA considers controls on the number of bales which can be stacked.
Technical Amendments	
Definition of Appropriate Person	There is no mitigation recommended for this proposed measure.
Definition of Farmyard manure	There is no mitigation recommended for this proposed measure.
Updating terminology	There is no mitigation recommended for this proposed measure.
Covering of Lagoons	It is recommended that lagoons are required to be covered, where this is feasible, to reduce nitrogenous gas emissions and the potential issues surrounding rainfall directly entering these storage areas and either reducing storage volumes available or leading to potential overfilling / seepage issues.
Definition of heavy rain	It is recommended that DAERA provide information on how adherence to these guidelines will be monitored and enforced.
Phosphorus content of livestock diets	It is recommended that the wording of the proposed measure is updated to indicate that the intention for feed manufacturers to label feed products regarding phosphorus content cannot be regulated under the NAP and is subject to separate legislation.
Implementation – including Inspections/Enforcements	
False or misleading information provisions	There is no mitigation recommended for this proposed measure.
Increased inspections based on risk	It is acknowledged that the ability to increase inspection rates may subject to additional resourcing and that this can take time to put into place. As there are currently over 26,000 farms in Northern Ireland, this increased inspection rate still represents a small proportion of farms that will be inspected annually. It is recommended that DAERA review the implementation and effectiveness of this increase in the inspection rate during this NAP cycle and plan towards increasing it further.

8.3 HRA Mitigation

To further improve actions contained within the NAP Regulations and to address potential negative effects, mitigation measures have been identified in the RIAA for inclusion in the NAP. For the NAP Regulations (Northern Ireland) 2019 these are set out in **Table 8-3**. For the draft NAP (2027-2030), these are set out in **Table 8-4**.

Table 8-3 Proposed NAP-level HRA Mitigation for existing measures in the NAP Regulations (Northern Ireland) 2019

NAP Regulation	Mitigation Measures
Part 2 - General	
4 - Duty to prevent water pollution	DAERA should strengthen the NAP Regulations through mitigation measures proposed within the SEA assessment of individual Regulations. In particular, it is recommended that inspection and enforcement measures are strengthened, and that further controls are placed on derogated land holdings, including through a risk-based assessment at application stage, which should consider a landholding's proximity and hydrological connectivity to any European Site to ensure there are no adverse impacts to Conservation Objectives.
5 - Duty to comply with NAP Regulations	The significance of positive effects on European Sites will be influenced by timely updates on NAP guidance and the COGAP. Mitigation through continued monitoring and appropriate implementation of safeguards within the NAP Regulations is required. It is recommended that DAERA strengthen the NAP Regulations through mitigation measures proposed within the SEA assessment of individual Regulations. Inspection and enforcement measures should be strengthened, and further controls placed on derogated land holdings, including through a risk-based assessment at application stage, which should consider a derogated landholding's proximity and hydrological connectivity to any European Site to ensure there are no adverse impacts to Conservation Objectives.
6 - Exemptions Granted by DAERA	This measure has the potential for both positive and negative impacts on European Sites. Appropriate consideration and mitigation measures should be implemented when authorising and conducting exempt activities. It is recommended that DAERA strengthen the NAP through mitigation measures proposed within the SEA assessment of individual Regulations. Inspection and enforcement measures should be strengthened, and further controls placed on derogated land holdings, including through a risk-based assessment at application stage, which should consider a derogated landholding's proximity and hydrological connectivity to any European Site to ensure there are no adverse impacts to Conservation Objectives.
Part 3 – Prevention of water pollution from the application of fertilisers	
7 - Closed spreading periods	This measure has potential to give rise to a number of positive effects for European Sites through reduced nutrient loadings to water bodies. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that the Regulations specify how crop requirements are assessed and verified, similar to Regulations 9, 10, and 11. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported, particularly in areas of close proximity and which are hydrologically connected to any European Site. The significance of positive effects on European Sites will be

NAP Regulation	Mitigation Measures
	influenced by appropriate compliance and enforcement, particularly in areas of close proximity and which are hydrologically connected to any European Sites to ensure there are no adverse impacts to Conservation Objectives.
8 - Land application restrictions	Potential negative effects are limited to agricultural lands where digestate from anaerobic digestors are applied or where NAP Regulations relating to LESSE and application rates are not applicable. Mitigation comprises of existing legislative requirements, namely compliance with the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported, particularly in areas of close proximity and which are hydrologically connected to any European Site.
9 - Livestock manure nitrogen limits and excretion rates for nitrogen and phosphorus	This measure has potential to give rise to a number of positive effects for European Sites through increased nutrient use efficiency. There is potential for negative impacts in areas of greater nutrient mobilisation risk or where non-compliance is an issue. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site to ensure there are no adverse impacts to Conservation Objectives. It is recommended that DAERA review the process by which derogation applications are granted or refused under Regulations 39 and 40 which should consider a prospective derogated landholding's proximity and hydrological connectivity to any European Sites. This should be a risk-based approach, with derogation granted only for situations where it is determined that this decision will not adversely affect the Conservation Objectives of any European Sites. This may be affected by the baseline water quality and current trends within the catchment, soil types and a European Site's conservation status. The granting of a rate of 250kg nitrogen/hectare/year should also be reviewed, with the maximum permitted loading based on a risk assessment.
10 - Nitrogen fertiliser application limits to grassland	Regulations 9, 10, and 11 refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and the Schedules to these Regulations. The updated Regulations should refer to the most up to date version of the AHDB Nutrient Management Guide (RB209), which is currently 2023. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically

NAP Regulation	Mitigation Measures
	connected to any European Site to ensure there are no adverse impacts to Conservation Objectives.
11 - Nitrogen fertiliser application limits to areas other than grassland	Regulations 9, 10, and 11 refer to the current calculation of limits for chemical fertiliser and organic manures that may be applied in relation to crop requirement for nitrogen for grass and other crops by using values set out in AHDB Nutrient Management Guide (RB209) January 2019 and the Schedules to these Regulations. The updated Regulations should refer to the most up to date version of the AHDB Nutrient Management Guide (RB209), which is currently 2023. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site to ensure there are no adverse impacts to Conservation Objectives.
12 - Application of anaerobic digestate	This measure has potential to give rise to both positive and negative effects for European Sites through increased nutrient use efficiency and reduced nutrient loadings to water. However, an exemption for certain holdings exists which may exacerbate water quality issues for European Sites. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. Furthermore, it is recommended that there is cross-border communication regarding the use of phosphorus indices, as an alternative system is currently used in RoI and so without this mitigation, there may be negative impacts to the Conservation Objectives of European Sites in RoI.
13 - Limits on the land application of chemical phosphorus fertiliser	This measure has potential to give rise to both positive and negative effects for European Sites through increased phosphorus use efficiency and reduced phosphorus loading to water. However, the significance of these positive effects depends on appropriate implementation and negative effects may continue in certain situations for hydrologically linked RoI European Sites. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. Furthermore, it is recommended that there is cross-border communication regarding the use of phosphorus indices, as an alternative system is currently used in RoI and so without this mitigation, there may be negative impacts to the Conservation Objectives of European Sites in RoI.

NAP Regulation	Mitigation Measures
14 - Limits on land application of high phosphorus organic manures	This measure has potential to give rise to both positive and negative effects for European Sites through increased phosphorus use efficiency and reduced phosphorus loading to water. However, the significance of positive effects depend on appropriate implementation and negative effects may continue due to an exemption which applies in certain situations and for hydrologically linked RoI European Sites. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. Furthermore, it is recommended that there is cross-border communication regarding the use of phosphorus indices, as an alternative system is currently used in RoI and so without this mitigation, there may be negative impacts to the Conservation Objectives of European Sites in RoI.
15 - Land management	This measure has potential to give rise to both positive and negative effects for European Sites through reduced nutrient and sediment pollution to water bodies. However, the significance of these positive effects depends on appropriate implementation, and negative effects may continue due to a difference in the distance required from water bodies for supplementary feeding sites versus supplementary drinking water points. A scientific rationale for a lower distance of 10m from any waterway stipulated for drinking points than is given for supplementary feeding sites should be provided as this is not clarified in the Regulation. It is recommended that this is clarified by DAERA, or that both are set at 20m where a risk is identified. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
16 - Fertilisation Plans	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is therefore envisaged that mitigation is not required.
Part 4 – Storage requirements	
17 - Storage for livestock manure and silage effluent	This measure has potential to give rise to both positive and negative effects for European Sites by preventing manure seepage and silage effluent from entering water bodies. However, the significance of these positive effects depends on appropriate implementation and negative effects may continue due to non-compliance. Mitigation comprises of existing legislative requirements within the NAP Regulations. Particularly in areas of close proximity and which are hydrologically connected to any European Site. It is also recommended that

NAP Regulation	Mitigation Measures
	inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. DAERA should consider whether storage capacity requirements vary with differing climatic conditions across Northern Ireland.
18 - Storage capacity of pig and poultry manure	This measure has potential to give rise to both positive and negative effects for European Sites by preventing manure seepage from entering water bodies. However, the significance of these positive effects depend on appropriate implementation and negative effects may continue due to non-compliance issues. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
19 - Storage of slurry	This measure has potential to give rise to both positive and negative effects for European Sites by preventing slurry seepage from entering water bodies and nitrogenous gas emissions to the atmosphere. However, the significance of these positive effects depend on appropriate implementation and negative effects may continue in cases where exemptions apply and where non-compliance is an issue. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. Older slurry and silage facilities are exempt from required standards under these Regulations. It is recommended that DAERA reconsider the exemptions for older slurry and silage facilities, these should either be brought to current standards or inspected to ensure that they are compliant.
20 - Storage of farmyard manure (FYM)	This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to water bodies through inappropriately stored FYM. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
21 - Storage of poultry litter and anaerobic digestate fibre	This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to water bodies through inappropriately stored poultry litter and anaerobic digestate fibre. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and

NAP Regulation	Mitigation Measures
	enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
22 - Storage of dirty water	This measure has potential to give rise to positive effects for European Sites by reducing nutrient pollution to water bodies through inappropriately stored dirty water. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. It is also recommended that DAERA consider specifying minimum storage requirements for dirty water, and/or a closed period under Regulation 8.
23 - Calculations of livestock manure storage capacity	This is considered to be neutral, subject to correct implementation and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is therefore envisaged that mitigation is not required.
24 - Making and storage of silage	This measure has potential to give rise to both positive and negative effects for European Sites by preventing water pollution from inappropriately produced and stored silage. However, the risks for negative effects may continue in cases where exemptions apply and where non-compliance is an issue. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. Older silage facilities are exempt from required standards under these Regulations, DAERA should reconsider the exemptions for older silage facilities, these should either be brought to current standards or inspected to ensure that they are compliant.
25 - Cover in winter	This measure has potential to give rise to positive effects for European Sites by reducing nutrient and sediment pollution to water bodies from exposed soil following crop harvesting. Mitigation comprises of existing legislative requirements within the NAP Regulations. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
Part 5 - Measures relating to land management	

NAP Regulation	Mitigation Measures
26 - Crop management	This measure has potential to give rise to positive effects for European Sites by reducing nutrient and sediment pollution to water bodies from exposed soil following crop harvesting. DAERA should consider defining a time window instead of the subjective 'as soon as possible' phrasing, subject to appropriate conditions e.g., meteorological or soil conditions, and/or provide clear specification through updated NAP guidance. Misunderstandings or misinterpretations of the current Regulation may result in adverse impacts to the Conservation Objectives of European Sites.
Part 6 – Record keeping and compliance monitoring	
27 - Records required	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
28 – True Records	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
Part 7 – Enforcement	
29 - Responsibility for enforcement	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
30 - Serving notices	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
31 - Appeals	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in

NAP Regulation	Mitigation Measures
	areas of close proximity and which are hydrologically connected to any European Site.
32 - Offences	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site.
33 - Penalties	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is recommended that inspection rates are increased, and enforcement measures consistently applied and transparently reported. Particularly in areas of close proximity and which are hydrologically connected to any European Site. It is recommended that the statutory maximum fine amount is specified in this Regulation, or that the legislation that specifies this amount is referenced. to encourage compliance.
Part 8 - Powers, duties and Functions of the Department	
34 – NAP Reporting	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is recommended that DAERA include regular and transparent reporting of derogated land holdings within the NAP Implementation Reports with regard to their impacts to any European Site.
35 – NAP Review	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is recommended that DAERA include regular and transparent reporting of derogated land holdings within the NAP Implementation Reports with regard to their impacts to any European Site.
Part 9 - Miscellaneous	
36 - Transitioning from previous Regulations	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is therefore envisaged that mitigation is not required.
37 - Necessary amendments to other legislation	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is therefore envisaged that mitigation is not required.
38 - Revoking other Regulations and saving provisions	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. It is therefore envisaged that mitigation is not required.
Part 10 - Derogation from measures governing the limits on land application of livestock manure	

NAP Regulation	Mitigation Measures
39 - Additional measures relating to derogated farms	This measure has potential to give rise to negative effects for European Sites due to the increased risk of nutrient loadings to water bodies from the derogation permitting higher application rates of nutrients which may impact on European Sites and n hydrologically linked Republic of Ireland European Sites. Mitigation comprises of existing legislative requirement, namely compliance with the NAP Regulations with derogation conditions placing additional requirements on land holdings operating under this.
40 - Administrative process by which DAERA will grant or refuse applications for derogation.	This is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects for any European Site. However, it is recommended that DAERA review the process by which derogation applications are granted or refused. It is recommended that a risk-based approach is taken, with derogation granted only for situations where it is determined that this decision will not adversely affect water quality status, attainment of the Conservation Objectives, or the integrity of any European Site. This may be affected by the baseline water quality, current trends within the catchment, soil types, and the European Site's conservation status. The granting of a limit of 250kg nitrogen/hectare/year should also be reviewed, with the maximum permitted loading based on a risk assessment which should consider potential impacts to European Sites.

Table 8-4 Proposed NAP-level HRA Mitigation for proposed measures in the draft NAP (2027-2030)

Proposed Measure	Mitigation Measures
Nutrient Management – Balanced Nutrient Use, Fertiliser and Manure Controls	
Limit chemical phosphorus fertilizer availability through an advisory approach	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation and uptake of this advisory measure. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of uptake and enforcement of the measure to ensure that chemical phosphorus fertiliser is applied appropriately. Mitigation may include increased inspection rates, effective education, or where the measure does not show suitable uptake, a movement to a mandatory measure. This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.

Proposed Measure	Mitigation Measures
Reducing the Northern Ireland average phosphorus surplus	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation and enforcement. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects may arise from the stated limits not being strict enough and a lack of a robust checking and monitoring protocol to assess this. Robust monitoring is required to inform whether the lower limits will need to be set in the subsequent NAP (2031-2034). Potential adverse effects may also arise from a lack of clarity regarding whether there are additional requirements on land holders to support the implementation, including the requirements for high phosphorus and low phosphorus holdings, as well as a lack of advice to landholder on how this measure may impact other management plans. This may be appropriately addressed through the finalised measure. Mitigation may include an appropriate level of monitoring, increased inspection rates and effective enforcement. This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.
Dairy cow nutrient excretion values – based on milk yield	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of guidance to farmers. Mitigation can be delivered through the delivery of clear guidance to farmers prior to the introduction of the new banded rates. Improved nutrient management advice, guidance and support is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.
Updated poultry nutrient excretion figures	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with the new poultry figures not reflecting the best scientific knowledge. Mitigation can be delivered through considering all best available scientific evidence and transparently reporting this evidence base.

Proposed Measure	Mitigation Measures
Standard values for separated manures and slurries	This measure is considered to be neutral and unlikely to give rise to any positive or negative effects upon any European Site. Potential effects are limited to those associated with standard values not reflecting the methods utilised or best scientific knowledge. Notwithstanding the fact that these effects are considered to be insignificant, the previously proposed mitigation of considering all best available scientific evidence and transparently reporting this evidence base can be applied to this NAP measure also.
Updated chemical nitrogen fertiliser limits for grassland	Currently under the NAP Regulations (Northern Ireland) 2019, farms have a maximum amount of available nitrogen from chemical fertiliser and organic manures (other than livestock manures) that can be applied on the grassland area. These are 272kg nitrogen/ha/year for dairy farms and 222kg nitrogen/ha/year for other farms (apart from nitrogen in livestock manure). This proposed measure is for an update of the current chemical nitrogen fertiliser limits for grassland, with use based on actual grass growth and soil requirements to reduce the potential for excess nitrogen losses. Effective implementation of this proposed measure has the potential for positive effects on European Sites, due to a reduced risk of nitrogen loss into water bodies following land application for less productive holdings. This reduced risk of pollution has the potential for associated positive effects on water dependent habitats and species within these European Sites. The review should allow for any updates to account for current advances in understanding of soil nutrient management. It is recommended that the requirement for soil sampling and analysis is extended to all categories of grassland production to ensure that nitrogen and other nutrients are applied in accordance with crop and soil requirements and prevent nutrient accumulation or nutrient losses from occurring. Furthermore, clarification should be provided as to whether the regular soil testing will also include nitrogen, as presently this focuses on testing as a minimum for phosphorus, potassium and soil pH. The inclusion of nitrogen would ensure that excessive nitrogen accumulation subject to the level of grass crop production is prevented.
Allowance for processed organic fertilisers	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with a lack of uncertainty regarding RENURE materials and their use under specific circumstances. Mitigation can be delivered through considering all best available scientific evidence and transparently reporting this evidence base.

Proposed Measure	Mitigation Measures
Storage Requirements – Application of Manures and Ammonia Implications	
Reduced slurry application volumes in February and early October	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with slurry application and a lack evidence that the new maximum volume of slurry which can be applied during these periods will not oversupply nutrients beyond the expected crop uptake. Such gaps in evidence may be appropriately addressed through the finalised measure.
Clearer definition of Low Emission Slurry Spreading Equipment	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.
Tiered move to increased use of LESSE	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with the introduction of this measure not occurring until 2027. Mitigation should include an earlier introduction of this measure and consider the extension of the use of mandatory LESSE for all slurry spreading, or a ban on the use of splash plates on slurry tankers.
Pre-Notification of new slurry and silage storage	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Clarify cover requirements for new above-ground stores	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Adverse effects are limited to those related to nutrient losses from above ground stores modified before December 2019. Mitigation may include an appropriate level of monitoring, increased inspection rates and effective enforcement.

Proposed Measure	Mitigation Measures
Limit the use of unprotected granular urea fertilisers	It is considered that this measure has potential to give rise to both positive and negative effects on European Sites. Positive effects may arise from the reduction of ammonia and N_2O emissions. Negative effects may arise from long-term use and potential accumulation of urease inhibitors in soils. Mitigation may include increased inspection rates and effective enforcement, and it is recommended that the use of protected urea fertiliser is implemented on a year-round basis to reduce emissions of ammonia and nitrous oxide to deliver the maximum possible benefits. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.
Anaerobic Digestate Measures	**Separation of Digestate to reduce Phosphorus Content** It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of clarity regarding how the proposed measure will be implemented and regulated. Such gaps in clarification may be appropriately addressed through the finalised measure. It is considered that this proposed measure regarding feedstocks sources from outside Northern Ireland has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. **Targeted application of Digestate to Land** It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. **Record keeping and reporting of nutrient movements** It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Proposed Measure	Mitigation Measures
	Potential adverse effects are limited to those associated with lack of clarity regarding whether the appropriate primary powers are available for this measure to be implemented. Such gaps in clarity may be appropriately addressed through the finalised measure to allow recording and reporting to form the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high risk areas or 'dialled down' in lower risk areas.
Farming Approaches to Improve Nutrient Use and Water Quality	
Nutrient Stewardship Programme – a revised approach to Derogation	This measure has potential to give rise to negative effects for European Sites due to the increased risk of nutrient loadings to water bodies from the derogation permitting higher application rates of nutrients which may impact on European Sites and in hydrologically linked Republic of Ireland European Sites. Mitigation comprises of existing legislative requirement, namely compliance with the NAP Regulations with derogation conditions (proposed to be revised to the NSP) placing additional requirements on land holdings operating under this. Previously the NAP Regulations meant that an application for derogation is deemed to have been granted unless it is explicitly refused. This 'deemed granted' aspect of the former derogation process can be problematic as a 'deemed grant' of permission (rather than an active approval process) can lead to situations whereby competent authorities allow activity to occur by default, without adequate scrutiny of applications. This can be clarified and appropriately addressed through the finalised measure to allow NSP administration and management to inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Mitigation measures for late harvested arable crops	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. It is recommended that the specific information regarding the mitigation measures to be included under this measure are provided as these are presently outstanding. It is also recommended that information is provided on how arable fields at risk will be determined if this will be based on guidance provided by DAERA or subject to the appropriate person of the landholding making this determination. Such gaps in evidence may be appropriately addressed through the finalised measure. This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite

Proposed Measure	Mitigation Measures
	of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
A focused approach to improving water quality	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are limited to those associated with lack of information regarding this risk-based and geographically focused approach and that the scheme is voluntary, or where the measure does not show suitable uptake, a movement to a mandatory measure Such gaps in information provided may be appropriately addressed through the finalised measure. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Nutrient Efficiency Roadmap for NI farming	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration.
Utilising Technology	
Enhanced online system for recording slurry and manure exports and imports	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. A more capable online system can inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Extending the system to processed slurry solids and digestate movements	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. A more capable online system can inform the evidence base to correctly target a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Additional measures to support environmentally sustainable farming	
Voluntary buffer strip on arable land	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality.

Proposed Measure	Mitigation Measures
	Potential adverse effects are limited to those associated with lack of uptake as this is a voluntary measure and the need for clarification on the cultivation and/or width of these buffer strips. Mitigation may include effective education, or where the measure does not show suitable uptake, a movement to a mandatory measure. It is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Awareness of existing storage requirements and how dirty water storage, rainwater and parlour washings can impact this	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. Improved nutrient management advice, guidance and support is considered to be part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Voluntary liming programme on farms with high stocking rates	This measure is considered to potentially give rise to positive effects upon European Sites, subject to appropriate implementation. Potential adverse effects are limited to those associated with a lack of guidance regarding buffer zones and suitable use of lime. This can be clarified and appropriately addressed through the finalised NAP to allow the measure to form part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration and as such can be 'dialled up' in high-risk areas or 'dialled down' in lower risk areas.
Revised silage bale storage requirements	It is considered that this proposed measure has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. In particular for freshwater and estuarine European Sites which have Conservation Objectives relating to water quality. Potential adverse effects are associated with a lack of clarification regarding the enforcement of this. As the stacking of silage bales can increase the risk of effluent seepage, it is recommended that DAERA consider controls on the number of bales which can be stacked. Such gaps in clarification may be appropriately addressed through the finalised measure.
Technical Amendments	
Definition of Appropriate Person	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Definition of Farmyard manure	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site.

Proposed Measure	Mitigation Measures
	It is therefore envisaged that mitigation is not required.
Updating terminology	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Covering of Lagoons	This measure is considered to give rise to a range of negative effects on European Sites due to the proposed removal of lagoon coverings. Mitigation proposed includes requiring lagoons coverings to be retained.
Definition of heavy rain	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Phosphorus content of livestock diets	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Implementation – including Inspections/Enforcements	
False or misleading information provisions	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. It is therefore envisaged that mitigation is not required.
Increased inspections based on risk	This measure is considered to be neutral and unlikely to give rise to any significant positive or negative adverse effects upon any European Site. Potential adverse effects are limited to those associated with time and resource constraints limiting the ability of DAERA to increase inspection rates. The implementation and effectiveness of this increase in the inspection rate should be reviewed by DAERA during this NAP cycle. The Department shall consider making amendments to Regulation 65 of the Habitats Regulations to align 'Duties of DAERA with respect to European sites' with Part 7 of the NAP Regulations to provide a statutory basis for imposing restrictions on activities which have or will deteriorate a European site and entering into a management agreement as part of a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration.

8.4 Monitoring

8.4.1 DAERA Programme Monitoring

The Nitrates Directive requires that, at the end of each four-year programme, and for each water monitoring/evaluation of measures associated with this programme, a report describing the situation, and its

development, shall be submitted to the European Commission by each Member State. This reporting requirement is also set out in the Nutrient Action Programme Regulations (Northern Ireland) 2019 and internal reporting remains a necessity following the UK exit from the EU.

Northern Ireland reporting follows the recommendations for content and format as set out in the 'Nitrates Directive (91/676/EEC) Status and trends of aquatic environment and agricultural practice. Development guide for Member States' reports, 2000'[159]. This includes the following sections:

- Water quality: monitoring, assessment, and maps
- Action Programmes
- Development, promotion and implementation of the code of good practice
- Principal measures applied in the Action Programmes
- Evaluation of the implementation of the action programme measures
- Forecasting future water quality

DAERA will continue to report on the implementation of the Action Programme at four-year intervals, including a consideration of the water quality monitoring data for the latest programme period, evaluating how well the suite of measures in that programme are being implemented and forecasting the likely water quality changes for Northern Ireland. This monitoring and reporting will help to inform the scientific review of that programme by DAERA, and the proposals for amendments or additions to the suite of measures in the NAP for the next programme period.

8.4.2 SEA Monitoring

Separate to the monitoring and reporting to be undertaken by DAERA as a requirement of the Nitrates Directive and NAP Regulations (Northern Ireland) 2019, where a plan or programme has been subject to SEA, the SEA Directive requires that significant environmental effects arising from its implementation are monitored in order to identify, at an early stage, any unforeseen adverse effects and in order to undertake appropriate remedial action.

SEA monitoring should be undertaken in conjunction with the next review of the NAP, in advance of an update, to enable monitoring outcomes to influence the NAP development (i.e., every four years). The draft NAP 2027-2030 consultation document has outlined that the governance of the NAP will be supported by a structured monitoring and review framework, this includes a review every two years alongside the full four-year statutory review of all proposed measures introduced under the draft NAP 2027-2030. The consultation document has stated that this review will use the assessment of environmental indicators and compliance data, as appropriate. The proposed SEA monitoring programme in **Table 8-5** is based on the Indicators and Targets established in the SEOs (given in **Section 5.0**). Much of the environmental monitoring proposed can be collated from ongoing environmental monitoring and reviews undertaken by bodies such as DAERA, AFBI, DfC, NISRA DfI, and NI Water. The indicators and data proposed for the monitoring of NAP implementation are at a strategic level, to match the SEOs. The suggested data sources for monitoring of effects are mostly at a strategic level, are nationally consistent and all are freely available, as is typical for SEA monitoring. Where monitoring indicates a significant adverse trend, unanticipated effect, or deterioration in the condition or status of a listed indicator, DAERA should consider whether further investigation, mitigation, or additional safeguards are needed.

[159] Nitrates Directive 91/676/EEC

Table 8-5 Proposed SEA Monitoring of the NAP

SEO	Indicator	Target	Proposed Data Source(s) and Frequency
Biodiversity, Flora and Fauna Avoid damage to, and where possible enhance, biodiversity, flora and fauna.	• Conservation condition of designated habitats and species within European (SACs, SPAs, Ramsar sites, MCZs) and national (ASSIs) designated sites. • Status of protected and priority habitats and species (Annex I habitats, Annex II species and Annex IV species, Northern Ireland Priority Habitats and Species, OSPAR Threatened or Declining Habitats and Species).	• No negative change, or a positive change, in the conservation status of designated habitats and species within European and national designated sites. • No negative change, or a positive change, in the status of protected or priority species and habitats outside of designated sites, or to areas of known importance.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • DAERA National Site Network reporting (every 6 years) for European sites / Article 17 Habitats Directive reporting and Article 12 Birds Directive (every 6 years) reporting for the Republic of Ireland. • DAERA Condition Assessment reporting for ASSIs (every 6 years / as updated). • NPWS and National Biodiversity Data Centre information with routine monitoring programmes in place for specific species/habitats in the Republic of Ireland (every 6 years).
Population and Human Health Support the provision of clean and safe water and food.	• Water quality status of Drinking, Bathing and Shellfish Water Protected Areas. • Quality of animal products available for consumption.	• No negative change, or a positive change, in the status of areas protected for drinking water, bathing water or shellfish production. • No negative change, or a positive change, in the quality of animal products.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • DAERA reporting of waterbody status for Protected Areas (every six years / annually). • EPA audits and monitoring of public drinking water systems operated by Irish Water under the Drinking Water Regulations in the Republic of Ireland (every six years / annually). • Food Quality Assurance schemes of products from the agri-food industry (annually / as updated).

SEO	Indicator	Target	Proposed Data Source(s) and Frequency
Geology, Soils and Land Use Protect soils from pollution and prevent degradation or loss of the soil resource and protect and enhance soil quality.	• Soil health and nutrient levels, and quality of agricultural land. • Soil resource within the agriculture sector.	• No negative change, or a positive change in soil health and land quality. • No loss of the agricultural or natural soil resource.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • DAERA data from the SNHS (for duration of scheme). • Agricultural Census in Northern Ireland (DAERA) (annual). • AFBI farm databases (annual / as updated). • National Agricultural Inspection Programme, National Fertiliser Database and compliance with EPA licences for the intensive agriculture sector in the Republic of Ireland (annual).
Water Avoid impacts on, and where possible enhance, the status or quality of waterbodies.	• Status of surface and groundwater bodies under the WFD Regulations and Marine Strategy. • Status of NI seas, as reported for the MSFD. • Flood risk status.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, and potential to contribute to the achievement of waterbody objectives under the WFD Regulations. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the Marine Strategy. • No increase in flood risk or contribution to flood risk management.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • WFD reporting of waterbody status in RBMPs by DAERA / EPA reporting in the Republic of Ireland (every six years / annual updates where available). • Monitoring undertaken by DAERA Marine and Fisheries Division under the Marine Strategy / by the EPA under the MSFD in the Republic of Ireland (every six years). • DWI Drinking Water Quality in Northern Ireland annual reports (annual). • Drinking Water Directive reports in the Republic of Ireland (annual).

SEO	Indicator	Target	Proposed Data Source(s) and Frequency
			• DfI data for the NIFRA and FRMP (every six years / as updated).
Air Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • National Atmospheric Emissions Inventory (NAEI) reporting (annual). • Air Pollution in Northern Ireland reporting by DAERA (annual). • Air Pollution Information System (APIS) pollutant monitoring (annual). • EPA annual reporting on compliance with the EU NEC Directive for key pollutants including ammonia in the Republic of Ireland (annual).
Climatic Factors Reduce GHG emissions from the agricultural sector in line with national commitments.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use change sector.	• Reduction in the quantity of GHG emissions arising from the agricultural sector and land use change sector.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • Northern Ireland GHG inventory reporting (annual). • Air Pollution Information System (APIS) pollutant monitoring (annual). • Meeting of EU GHG emission reduction targets under the Climate Change (NI) Act and Climate Action and Low Carbon Development (Amendment) Act 2021 in the Republic of Ireland, as monitored by the EPA, Office of Public Works, National Roads Authority and DECC

SEO	Indicator	Target	Proposed Data Source(s) and Frequency
			(reporting required by 2030).
Material Assets Support economic agricultural activities.	• Agricultural outputs and productivity. • Agricultural sector employment, income, costs and revenues.	• Sustainable agricultural productivity, i.e. a more efficient use of resources. • No negative effects on sector employment or farm incomes.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • NISRA statistics (annual) • Statistical review of NI agriculture (DAERA) (annual). • Agricultural Census in Northern Ireland (DAERA) (annual).
Cultural Heritage Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	• Number, condition and setting of international, national and local heritage designations.	• No loss or negative change to the condition or setting of international, national and local heritage designations and protection of historic landscape character.	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review). • Number of heritage assets recorded on the HERoNI (as updated / annual where available). • Update to the CAMSAR survey of the Archaeological resource for Northern Ireland (when updated). • Statistics on recorded breaches in relation to historic sites (as updated / annual where available). • Heritage at Risk Northern Ireland (HARNI) Register, with regard to holdings in the rural landscape (as updated / annual where available).
Landscape and Visual Amenity Protect, and where possible enhance, the character and	• Landscape/ Seascape Character Assessments. • Local Development Plan scenic views	• No negative change, or a positive change, in visual amenity or landscape / seascape	• DAERA NAP Programme-level monitoring (proposed two-year monitoring and four-year statutory review).

SEO	Indicator	Target	Proposed Data Source(s) and Frequency
quality of landscapes, riverscapes, lakescapes and seascapes.	and Areas of High Scenic Value	character and local views.	• Landscape / Seascape Character Assessments, or update to the NI Countryside Survey (periodic / when updated). • Local Development Plans (periodic / when updated).

9.0 Summary and Conclusions

An SEA was undertaken of the draft NAP 2027-2030 for Northern Ireland. The SEA Environmental Report has identified the potential positive and negative effects on the wider environment from implementing the measures proposed for inclusion in the draft NAP for the period 2027-2030, including the existing measures to be carried forward from the NAP Regulations (Northern Ireland) 2019, along with highlighting the potential cumulative or synergistic effects of measures. This report is designed to help support the further consideration of these measures and the implementation of the NAP by DAERA.

In general, the draft NAP 2027-2030 seeks to support an agricultural industry that is more sustainable in terms of its impact on water quality. The draft NAP 2027-2030 proposes to carry forward all existing measures included within the previous iteration of the Programme for the period 2019-2022 as set out in the implementing NAP Regulations (Northern Ireland) 2019, which comprise a suite of measures within ten Parts. The draft NAP 2027-2030 also proposes new measures and amendments to existing measures, which aim to provide increased environmental protection from agricultural activities. These measures were assessed in terms of their potential for positive and negative effects, and the significance of these effects on the environment against a set of SEOs covering the breadth of environmental topics considered by the SEA; these were developed in the context of broader environmental protection objectives set at both international and national level. The purpose of this was to predict and evaluate, as far as possible, the environmental effects of the draft NAP 2027-2030, highlighting any significant environmental problems and/or benefits that are likely to arise from its implementation.

For the most part, the existing measures included in the NAP Regulations (Northern Ireland) 2019 were assessed as having the potential for positive effects on the SEOs for Geology, Soils and Land Use; Water; Biodiversity, Flora, and Fauna; Population and Human Health; Air; and Climatic Factors, provided they were effectively implemented and enforced. An exception to this is the identification of the potential for negative effects from the implementation of measures where these may be associated with the underlying agricultural activities such as land application of slurry and fertiliser; measures relating to derogation to permit the application of up to 250kg nitrogen/ha/year from grazing livestock manure (proposed to be renamed as the Nutrient Stewardship Programme); and the identification of some uncertainties and minor negative effects from the implementation of measures. Some measures are administrative in nature; while these will support the measures that are associated with a direct action, by themselves they are expected to have neutral effects on SEOs.

The effective implementation of the proposed new measures and amendments for the draft NAP 2027-2030 were largely assessed as having the potential for positive effects on SEOs, particularly for Geology, Soils and Land Use; Water; Biodiversity, Flora, and Fauna; Population and Human Health; Air; and Climatic Factors. Some negative and/or uncertain effects have been identified; these primarily relate to uncertainty as to the specific details of how the measure(s) will be applied and in ensuring that there are sufficient safeguards in place and that there are no unintended consequences. For some measures the potential for short-term negative effects on the SEO for Material Assets was identified, owing to increased cost implications e.g., potential for a requirement for additional storage infrastructure or equipment, and how this may impact on a farm's productivity. In determining the potential for positive or negative outcomes for the environment, the ethos of the measure was considered i.e., what it is trying to achieve, with the presumption taken that measures will be applied according to best practice guidance. Some proposed measures were considered 'active' measures which, by themselves, have the potential for positive or negative effects on SEOs such as Water, Air, and Biodiversity, Flora and Fauna either directly or indirectly through secondary effects. Other proposals were considered 'supportive' or 'advisory' measures which, by themselves, are not expected to be directly positive or negative for environmental topics. However, they have the potential to support active measures, and improve their implementation in the long-term (e.g., increased inspection rates to achieve improvements in compliance rates). In this way they have the potential for cumulative positive effects for environmental topics in the long-term in-combination with active measures. Administrative and enforcement measures increase the effectiveness of active measures, and therefore the scale and magnitude of the effects.

Consideration of the environmental baseline conditions indicates a decline in the status and trends in water quality, biodiversity and designated site condition in Northern Ireland; the initial improvements in water quality following the introduction of the first iteration of the NAP Regulations have not been sustained and there is no evidence of a clear and consistent recovery of water quality to meet the objectives of the WFD Regulations, or to the levels necessary to restore and maintain European Sites and their qualifying interests to favourable conservation status. Nutrient pressures, relating primarily to agricultural activities and sewage-related problems, have been identified as key pressures acting on the water environment in Northern Ireland. Although measures within the draft NAP 2027-2030, including the existing measures to be carried forward, aim to provide protection of water from pollution due to agricultural activities, they also effectively prescribe agricultural activities, such as the application of organic manures and chemical fertilisers. It is not clear from the evidence available, to what degree the lack of effective protection of water quality by the NAP is due to a lack of effective implementation and enforcement of measures, or to what degree the existing measures are technically effective enough to improve the situation.

The proposed new measures and amendments to existing measures, including the advisory limit on chemical phosphorus use, reducing the average phosphorus balance of Northern Ireland, and the increased mandatory use of LESSE, are expected to contribute towards a positive direction of change regarding the risk contribution of agricultural activities to water quality and designated site condition. However, the scientific evidence base to quantify the contribution of existing and proposed measures and the underlying thresholds and limits set, to the conditions required by the WFD Regulations and Habitats Regulations and whether they are technically effective enough to improve conditions remains uncertain. It is considered key to improve the effectiveness of implementation and enforcement of NAP measures, and it is the recommendation of Tetra Tech, that a Pathway to Compliance approach is implemented with geographic specificity, whereby focused measures are applied in areas of higher risk, in recognition of the differing water quality and catchment conditions, as well as agricultural activities, across Northern Ireland. The SEA and HRA teams recommended to DAERA that this Pathway to Compliance should be included within the draft NAP 2027-2030 to signify the commitment to this and to ensure that the NAP be in line with the objectives and requirements of the Habitats Regulations and WFD Regulations. As outlined in **Section 8.0**, a step by step approach is provided to establish methodology and for apply this approach throughout Northern Ireland, by identifying higher risk areas and targeting measures to achieve improvements in water quality.

Specific mitigation has also been recommended for both the retained existing measures of the NAP Regulations (Northern Ireland) 2019 and the proposed new measures and amendments included in the draft NAP 2027-2030, where the potential for negative and/or uncertain effects on SEOs from the implementation of measures has been identified in the assessments. Across the measures, it is recommended that inspection rates are significantly increased, and enforcement measures consistently applied and transparently reported in order to improve the implementation and efficacy of existing and proposed measures.

A Stage 2 appraisal for HRA was undertaken in the RIAA which considered the potential of the NAP to give rise to adverse effects on the integrity of European Sites, within both Northern Ireland (in the UK National Network of Sites) and in applicable areas of the Republic of Ireland (within the Natura 2000 network of sites), with regard to their qualifying interests, associated conservation status and the overall site integrity, alone and in combination with other relevant plans and programmes. In considering the potential for adverse effects, it was noted that the NAP is a strategic and high-level plan, which may inform the preparation of other strategies. It does not determine the precise location of any measures or designate or allocate specific land uses, nor does it preclude the consideration of alternatives. In light of this and where necessary, a precautionary approach was adopted in the Stage 2 appraisal to ensure that the measures proposed by the NAP are adequately assessed. Where actual or potential for adverse effects on integrity were identified, mitigation to address these effects was also identified, as laid out in the RIAA and in this SEA in **Section 8.0**. Given the significant deterioration of water quality and freshwater systems that has occurred in Northern Ireland, the principles and objectives of the Habitats Directive and the fact that the NAP is inherently at face value a good thing, deliberately constructed to strengthen compliance, improve accountability and target the key agricultural pressures contributing to nutrient loss, measures have additionally been proposed in the context of Article 6(2)

of the Habitats Regulations to avoid habitat deterioration from past pressures and nutrient enrichment in addition to measures to be adopted as part of this NAP. To do otherwise would be to set in motion an approach which maintains the status quo in terms of water quality, and which will either deliver some improvement and contribute to avoiding further deterioration but will ultimately maintain Northern Ireland's habitats within its European sites in a deteriorated state.

The conservation status of habitats and species vulnerable to agricultural emissions are unlikely to stabilise or improve and may well become more unfavourable as time goes on in the absence of measures or initiatives being taken or proposed to be initiated by Government as Article 6(2) proactive measures (of the Habitats Regulations) which are preventative in nature and which involve the taking of appropriate steps to avoid habitat deterioration. The mitigation and monitoring measures set out in the RIAA (and within this Environmental Report) propose both mitigation measures and a Pathway to Compliance to set a course towards a wider suite of Article 6(2) restorative measures to prevent ongoing deterioration. This is consistent with OEP (2026) who note that NAP Regulations form part of a wider suite of measures to address nutrient pollution in Northern Ireland, but that it is currently difficult to see which different measures are intended to combine together to deliver Northern Ireland's overall objectives for nutrient pollution and water quality. Unless these mitigation measures are implemented, adverse effects on the integrity of European sites will occur for the reasons set out in the RIAA; and this would be contrary to the obligations of the Habitats Regulations.

10.0 Next Steps

Consultations on the draft NAP 2027-2030, SEA Environmental Report and RIAA will commence in June 2026 and will run for 8 weeks. These documents will be made available for viewing digitally via the DAERA website – https://www.daera-ni.gov.uk/consultations/.

Following completion of the consultation period, all comments will be collated and the draft NAP 2027-2030, SEA Environmental Report and RIAA will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the draft NAP 2027-2030, the final version of the NAP 2027-2030 can be drafted and adopted. This is anticipated to be in Q4 2026. Following release of the adopted NAP, an SEA Statement will be drafted to summarise the process undertaken and identify the manner by which environmental considerations and consultations were integrated into the final NAP 2027-2030. **Table 10-1** demonstrates the proposed upcoming time stages for the NAP, SEA and HRA.

Table 10-1 Draft Anticipated Milestones

NAP	Dates	SEA / HRA
Development of draft NAP 2027-2030	July 2024 – June 2026	Strategic Environmental Assessment and Appropriate Assessment. Writing of Environmental Report and RIAA.
Public and statutory consultation on draft NAP 2027-2030	June – August 2026	Statutory, Non-Statutory and Public Consultation on Environmental Report and RIAA.
Release of Final NAP 2027-2030	Q4 2026	SEA Environmental Statement

Following adoption of the final NAP 2029-2029, the next stage of the Programme is the development of NAP legislation, incorporating the advice and mitigation measures proposed in these environmental reports.

The contact information for any information regarding the SEA of the draft NAP 2027-2030 is as follows:

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Appendix A

SEA Guidance

Northern Ireland

A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister. https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance

Guidance on Sustainability Appraisal and Strategic Environmental Assessment for the Historic Environment. June 2018. Department for Communities – Historic Environment Division

Strategic Environmental Assessment. Services and Standards for Responsible Authorities. Environment and Heritage Service. https://www.daera-ni.gov.uk/publications/strategic-environmental-assessment

Other

Article 8 (Decision Making) of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA) as amended. DoECLG Circular (PL 9/2013).

Developing and Assessing Alternatives in Strategic Environmental Assessment. 2015. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/SEA-Alternatives-157-Published_web.pdf

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2001. Environmental Protection Agency. https://www.epa.ie/pubs/advice/ea/EPA_development_methodology_SEA_synthesis_report.pdf

Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA). DoECLG Circular (PSSP 6/2011).

GISEA Manual, Improving the Evidence Base in SEA, 2016. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/EPA%20GISEA_web.pdf

Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government.
http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1616,en.pdf

SEA Scoping Guidance Document. 2016. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/seascopingguidance.html

Strategic Environmental Assessment (SEA) Checklist - Consultation Draft. January 2008. Environmental Protection Agency.
http://www.epa.ie/downloads/consultation/strategic_environmental_assessment_jan086.pdf

Guidance on Strategic Environmental Assessment (SEA) Statements and Monitoring. EPA 2023. https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/guidance-on-sea-statements-and-monitoring.php

Good Practice Guidance on SEA Screening. EPA 2021. https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA_Screening_GoodPractice_2021.pdf

Good Practice Guidance on Cumulative Effects Assessment in SEA. EPA 2020. https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/good-practice-guidance-on-cumulative-effects-assessment-in-sea.php

Integrating Climatic Factors into the SEA Process in Ireland. EPA 2019. https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/EPA-SEA-Climatic-Factors-Guidance-Note.pdf

Developing and Assessing Alternatives in SEA. EPA 2015. https://www.epa.ie/publications/research/biodiversity/EPA-157_web.pdf

Guidance on Consideration of Air in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

Guidance on Consideration of Climatic Factors within Strategic Environmental Assessment. March 2010. Scottish Environment Protection Agency.

Guidance on Consideration of Material Assets in Strategic Environmental Assessment. August 2016. Scottish Environment Protection Agency.

Guidance on Consideration of Soil in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

Appendix B

NAP Regulations (Northern Ireland) 2019

Regulation	Full Text of Regulation
Part 2 - General	
4	**Duty of the controller to prevent water pollution** – the controller of a holding shall not cause permit, directly or indirectly – (a) the entry of fertiliser into any waterway; or (b) the entry or risk of entry of fertiliser into water contained in any underground strata
5	**Duty of the controller to comply with these [NAP] Regulations** – In complying with a duty under these Regulations, the controller of a holding shall have regard to any guidance which may be issued from time to time by the Department [DAERA] for the purposes of these [NAP] Regulations and the Code of Good Agricultural Practice as may be amended from time to time.
6	**Exemption granted by the Department [DAERA]** – (1) the Department may exempt from the requirements of these Regulations- a) research activities of the Department, and institutes or agencies authorised by the Department, for the purpose of – ii. protecting or improving water quality; iii. increasing nutrient efficiency in agricultural systems; and b) activities carried out by the Department, and institutes or agencies authorised by the Department, so as to address emergency situations where there is a risk of – i. impact on human health; ii. widespread impact on animal health; or iii. impact on the quality of the environment as a whole. (2) The Department shall record all exemptions under this regulation.
Part 3 – Prevention of Water Pollution from the Application of Fertilisers	
7	**Prohibited application of fertilisers** – (1) the land application of chemical nitrogen fertiliser and chemical phosphorus fertiliser to grassland shall not be permitted from 15th September in any year to 31st January of the following year. (2) The land application of chemical fertiliser to any land shall not be permitted from 15th September in any year to 31st January of the following year for crops other than grass unless there is a demonstrable crop requirement between those dates. (3) The land application of organic manure, excluding farmyard manure and dirty water, to any land shall not be permitted from 15th October in any year to 31st January of the following year. (4) The land application of farmyard manure to any land shall not be permitted from 31st October in any year to 31st January of the following year.
8	**Requirements as to the manner of land application of fertiliser to any agricultural land** – (1) The land application of fertiliser shall be done in an accurate and uniform manner and in accordance with paragraphs (2) to (13). (2) The land application of fertiliser shall not be permitted when – - soil is waterlogged; - land is flooded or is likely to flood; - the soil is frozen; - land is snow covered;

	- heavy rain is falling or is forecast within 48 hours; - the land is steeply sloping land and where, taking into account the risk assessment set out in Part 1 of Schedule 4, there is significant risk of causing water pollution; - taking into account the risk assessment set out in Part 2 of Schedule 4 there is a significant risk of causing water pollution. (3) The land application of fertiliser shall not be permitted on any land in a location or manner which would make it likely that the fertiliser will directly enter a waterway or water contained in any underground strata. (4) Subject to paragraph (6), the land application of chemical fertiliser shall not be permitted within 2 metres of any waterway. (5) Subject to paragraphs (6) and (9), the land application of organic manure shall not be permitted within – a) 20 metres of lakes; b) 50 metres of a borehole, spring or well; c) 250 metres of a borehole used for a public water supply; d) 15 metres of exposed, cavernous or karstified, limestone features (such as swallow-holes and collapse features); or e) 10 metres of any waterway, other than lakes, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; except that (f) the distance mentioned in sub-paragraph (e) may be reduced to 3 metres of any waterway where the land has an average incline of less than 10% towards the waterway and where – i. organic manure is spread close to the ground using a bandspreader, dribble bar, trailing hose, trailing shoe or soil injection; ii. the adjoining area is less than 1 hectare in size; or iii. the adjoining area is not more than 50 metres in width. (6) On grassland with an average incline of greater than 15% and any other land with an average incline of greater than 12%, the land application of fertilisers shall not be permitted – a) for organic manures within – i. 30 metres of lakes; ii. 15 metres of any waterways, other than lakes, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; and b) for chemical fertilisers – i. 10 metres of lakes; or ii. 5 metres of any waterway, other than lakes, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate. (7) The maximum land application of solid organic manure shall be 50 tonnes per hectare at any one time provided this does not exceed the limits set out in regulation 9(1) and a period of at least 3 weeks shall be left between such land applications. (8) Subject to paragraph (9), the maximum land application of slurry shall be 50 cubic metres per hectare at any one time provided this does not exceed the limits set out in regulation 9(1) and a period of at least 3 weeks shall be left between such land applications.

	(9) During the month of February and the period of 30th September to 15th October – a) paragraph (5)(a) shall apply as if for 20 metres there were substituted 30 metres; b) paragraph (5)(e) shall apply as if for 10 metres there were substituted 15 metres; c) paragraph (8) shall apply as if for 50 cubic metres there were substituted 30 cubic metres; d) paragraph (5) (f) shall apply as if for 3 metres there were substituted 5 metres. (10) The maximum land application of dirty water shall be 50 cubic metres per hectare at any one time and a period of at least 2 weeks shall be left between such land applications. (11) The land application of slurry shall only be permitted by spreading close to the ground using inverted splash plate spreading, bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods, except – a) when applied by a slurry contractor, it shall be permitted only by spreading close to the ground using bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods, from 1st February 2021; b) on holdings with an average in any calendar year of 200 or more livestock units of bovine animals or holdings with a total annual livestock manure nitrogen production of 20,000kg or more from pigs, where it shall be permitted only by spreading close to the ground using bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods, from 1st February 2022; c) where it is not practical to comply with sub-paragraph (a) or (b) or paragraph (13), on a field due to the slope, the appropriate person may then spread on that field, close to the ground using inverted splash plate spreading and must keep a record of such spreading, in such format as DAERA may specify. (12) The land application of dirty water shall be permitted only by spreading close to the ground using inverted splash plate spreading, bandspreading, dribble bar, trailing hose, trailing shoe, soil injection, soil incorporation or irrigation methods. (13) From 1st February 2020, the land application of anaerobic digestate shall be permitted only by spreading close to the ground using bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods.
9	**General measures governing the limits on land application of nitrogen fertiliser** – (1) Except where regulation 39 applies, the amount of total nitrogen in livestock manure and anaerobic digestate containing digested livestock manure applied to the agricultural area of a holding, both by land application and by the animals themselves, shall not exceed 170 kg of nitrogen per hectare per year when calculated in accordance with paragraphs (2) and (3). (2) The total nitrogen from livestock manure from animals kept on the holding is calculated in accordance with Table 1 of Schedule 2. (3) The total nitrogen from imported livestock manure and other fertilisers is calculated in accordance with Table 2 of Schedule 2. (4) The amount of nitrogen available to a crop from organic manure or chemical fertiliser, in the year of application of that fertiliser, is the percentage specified in Table 3 of Schedule 2. (5) Any controller wishing to deviate from the values set out in Tables 1 or 2 of Schedule 2 must present a scientific case in order to obtain prior approval from DAERA, and DAERA

	shall grant such approval only where it is satisfied that a scientific case has been established. (6) A controller may appeal the decision by DAERA in paragraph (5) in accordance with the procedure set out in regulation 31.
10	**Measures governing the limits on land application of nitrogen fertiliser to grassland** – for each holding, the total amount of available nitrogen in organic manure and chemical fertiliser, excluding livestock manure and anaerobic digestate containing digested livestock manure, applied to grassland each year, shall be in proportion to the crop requirement for nitrogen of the holding and shall not exceed the amounts as defined in Table 4 of Schedule 2, when calculated in accordance with regulation 9.
11	**Measures governing the limits on land application of nitrogen fertiliser to land other than grassland** – (1) for each holding, the total amount of available nitrogen in organic manure and chemical fertiliser applied to land other than grassland or land under cultivation for the crops set out in Table 5 of Schedule 2 both by land application and by the animals themselves each year shall not exceed the recommendations contained in the fertiliser technical standards for crop requirement for nitrogen when calculated in accordance with regulation 9. (2) For each holding, the total amount of available nitrogen in organic manure and chemical fertiliser applied to land under cultivation for crops set out in Table 5 of Schedule 2 both by land application and by the animals themselves each year shall be applied in accordance with the recommendations contained in the fertiliser technical standards for crop requirements for nitrogen when calculated in accordance with regulation 9 and shall in no case exceed the limits set out in Table 5 of Schedule 2, adjusted in accordance with the notes to the table.
12	**Measures governing the application of anaerobic digestate** – (1) The controller shall not apply or permit the application of anaerobic digestate to the land unless he has in his possession the nutrient content analysis, containing the percentages of those substances listed in paragraph (5). (2) Where the controller applies anaerobic digestate to the land that application shall not exceed the recommendations contained in the fertiliser technical standards for crop requirements for phosphorus taking into consideration soil phosphorus index, the recommended soil phosphorus index for the crop and the supply of phosphorus available from the application of livestock manure and other fertilisers. (3) For the purposes of paragraph (2) — a) the soil phosphorus index shall be ascertained in accordance with Schedule 5; b) the phosphorus fertiliser recommendations for grassland shall be those set out in Tables 1 and 2 of Schedule 3, adjusted in accordance with the note to Table 1; and c) the available phosphorus content of livestock manures and other fertilisers is as set out in Table 3 of Schedule 3. (4) Where anaerobic digestate is applied, the controller must prepare and retain a fertilisation plan. (4A) Paragraphs (2) and (3) shall not apply in relation to the controller where anaerobic digestate is produced — a) on the holding on which it is to be applied; and b) from livestock manure or non-waste feedstocks generated on the holding. (5) The substances mentioned in paragraph (1) are — a) dry matter; b) total N (nitrogen);

	c) total P2O5 (phosphate); d) total K2O (potash) and; e) ammonia N or NH4+. (6) This regulation applies from 1st January 2020
13	**Measures governing the limits on the land application of chemical phosphorus fertiliser** – (1) The controller of a holding shall ensure that the total amount of available phosphorus in chemical phosphorus fertiliser applied each year to grassland and to land other than grassland shall not exceed the recommendations contained in the fertiliser technical standards for crop requirement for phosphorus taking into consideration soil phosphorus index, the recommended soil phosphorus index for the crop and the supply of phosphorus available from the application of organic manures. (2) For the purposes of paragraph (1) — a) the soil phosphorus index shall be ascertained in accordance with Schedule 5; b) the phosphorus fertiliser recommendations for grassland shall be those set out in Tables 1 and 2 of Schedule 3, adjusted in accordance with the note to Table 1; and c) the available phosphorus content of livestock manures and other fertilisers is as set out in Table 3 of Schedule 3. (3) From 1st January 2020, where chemical P fertiliser is applied to grassland, the controller shall prepare and retain a fertilisation plan. (4) The application limits set out in Table 2 of Schedule 3 shall have effect from 1st January 2020.
14	**Measures governing the limits on land application of organic manures with a high proportion of phosphorus** – (1) Where an organic manure contains more than 0.25 kg of total phosphorus per 1 kg of total nitrogen calculated in accordance with Table 2 of Schedule 2 it shall not be applied to land unless the controller of a holding can demonstrate that the total amount of available phosphorus applied does not exceed the recommendations contained in the fertiliser technical standards for crop requirement for phosphorus taking into consideration soil phosphorus index, the recommended soil phosphorus index for the crop and the supply of phosphorus available from the application of other fertilisers. (2) For the purposes of paragraph (1) — a) the soil phosphorus index shall be ascertained in accordance with Schedule 5; b) the phosphorus fertiliser recommendations for grassland shall be those set out in Tables 1 and 2 of Schedule 3, adjusted in accordance with the note to Table 1; and c) the available phosphorus content of livestock manures and other fertilisers is as set out in Table 3 of Schedule 3. (3) Paragraph (1) does not apply where — a) the organic manure is applied in accordance with the Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990 or a licence or exemption granted under the Waste Regulations; or b) the organic manure arises from a livestock enterprise contributing no more than 7 kg of nitrogen per hectare per year applied to the agricultural area of a holding, both by land application and by the animals themselves. (4) From 1st January 2020, where paragraph (1) applies, the controller shall prepare and retain a fertilisation plan.

15	**Measures governing the location of supplementary feeding sites and livestock drinking points** – (1) From 1st January 2020, where there is significant risk of pollution to any waterway, supplementary feeding sites shall not be located within 20 metres of any waterway. (2) From 1st January 2022, where there is a significant risk of pollution to any waterway, supplementary livestock drinking points shall not be located within 10 metres of any waterway.
16	**Fertilisation Plans** – (1) Where the controller is required to prepare and retain a fertilisation plan, describing crop rotation and the planned application of nitrogen and phosphorus fertilisers to their agricultural area, it shall be made available on the holding every year. (2) Subject to paragraph (3), a fertilisation plans shall include — a) the number of livestock on the holding; b) the amount of nitrogen and phosphorus from livestock manure produced on the holding calculated in accordance with Table 1 of Schedule 2; c) the crop rotation and area of each crop, including a sketch map indicating the location of the area of each crop; d) the holding's foreseeable crop requirement for nitrogen and phosphorus in accordance with fertiliser technical standards; e) the quantity of each type of organic manure moved on or off the holding; f) the results of soil analysis relating to nitrogen and phosphorus soil status if available; g) the amount of nitrogen from nitrogen fertilisers applied in each area of the holding under the same cropping regime and soil type calculated in accordance with Tables 1 to 5 of Schedule 2; h) the amount of nitrogen from other organic manures, excluding livestock manures, applied in each area of the holding under the same cropping regime and soil type, calculated in accordance with regulation 9 and Schedule 2; i) the amount of phosphorus from chemical phosphorus fertilisers and organic manure applied in each area of the holding under the same cropping regime and with the same soil phosphorus index calculated in accordance with Tables 1 and 2 of Schedule 2; and j) in the case of a derogated holding, a description of the housing and manure storage system, including the volume of manure storage available. (3) Paragraph (2) is satisfied if a controller prepares and retains a fertilisation plan in accordance with DAERA's crop nutrient calculator or such other format as DAERA may specify. (4) Where changes in agricultural practices necessitate changes in the fertilisation plan of a holding the controller shall revise the plan within seven days of such changes taking effect.
Part 4 – Prevention of Water Pollution from the Application of Fertilisers	
17	**General obligations as to storage facilities for livestock manure and silage effluent** – (1) Subject to paragraphs (2) and (3) and regulations 18 to 24, the capacity of storage facilities for livestock manure and silage effluent of a holding shall be sufficient and adequate to provide for the storage of all the livestock manure and silage effluent which is likely to require storage on the holding for such period as may be necessary to ensure compliance with these Regulations and the avoidance of water pollution. (2) For the purposes of paragraph (1), the controller shall have due regard to the storage capacity likely to be needed by the holding during periods of adverse weather conditions

	when, due to extended period of wet weather, frozen ground or otherwise, the application to land of organic manure is not permitted. (3) Subject to regulation 18, the total livestock manure storage capacity on holdings shall be sufficient for at least 22 weeks storage. (4) All storage facilities for livestock manure and silage effluent shall be maintained free of structural defect, shall be of such standard as is necessary and be managed to prevent runoff or seepage, directly or indirectly, into a waterway or water contained in any underground strata and where applicable shall comply with regulations 19 and 24.
18	**Obligations as to livestock manure storage capacity on pig and poultry enterprises** – (1) Subject to paragraphs (2) and (3), on any holding where there is a pig or poultry enterprise or both the total livestock manure storage capacity on the holding shall be sufficient for at least 26 weeks storage. (2) On any holding with less than 10 breeding sow places or 150 finishing pig places and any holding with less than 500 poultry places the total livestock manure storage capacity on the holding shall be sufficient for at least 22 weeks storage. (3) On any holding where there is — a) a pig enterprise; b) a poultry enterprise; or c) both a pig and poultry enterprise, (4) in addition to another livestock enterprise the livestock manure storage capacity on the holding shall be sufficient for at least 26 weeks storage for the pig or poultry enterprise and at least 22 weeks for the other livestock enterprise.
19	**Manner of storage of slurry** – (1) Subject to paragraph (2), an appropriate person having custody or control of slurry shall store it in a slurry storage system in relation to which the requirements of Schedule 6 are satisfied or which is an exempt structure by virtue of paragraph (3). (2) Paragraph (1) shall not apply to slurry while it is stored temporarily in a tanker with a capacity not exceeding 18,000 litres which is used for transporting slurry on roads or about a holding. (3) A slurry storage system is an exempt structure if — a) its construction for the purpose of storing slurry was completed before 1st December 2003; and b) it has not ceased to be an exempt structure by virtue of paragraph (4). (4) A structure to which the circumstances set out at paragraph (3) apply shall cease to be an exempt structure if — a) any requirement of a notice under regulation 30(1) is not complied with within the period stated in the notice; b) it is substantially enlarged; or c) it is substantially reconstructed, unless, it appears to the Department, the risks of pollution will be reduced by such works. (5) Any reference in paragraph (4) to the period stated in a notice is to that period as extended if it has been extended under regulation 30(5) and any reference in that paragraph to a requirement of a notice is to that requirement as modified if it has been modified under regulation 30(5). (6) Any appropriate person who proposes to have custody or control of slurry which is to be kept or stored on a holding in a slurry storage system constructed, substantially enlarged or substantially reconstructed on or after 1st December 2003 shall serve notice on the Department specifying the type of structure to be used and its location at least 28 days before it is to be first used for such purpose.

20	**Manner of storage of farmyard manure and location of storage facilities** – (1) Prior to land application, farmyard manure shall only be stored on a holding— a) in a midden which shall have adequate effluent collection facilities; or b) subject to paragraphs (2) and (3), in the field where land application will take place. (2) Where stored in a field, farmyard manure shall be stored in a compact heap and such heaps shall not be placed in the same location of the field in consecutive years or within — a) 50 metres of lakes; b) 20 metres of any waterway, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; c) 50 metres around a borehole, spring or well; d) 250 metres from any borehole used for a public water supply; or e) 50 metres of exposed, cavernous or karstified, limestone features (such as swallow holes and collapse features). (3) Where stored in a field, land applications of the farmyard manure shall take place within 120 days from placement in that field, and the farmyard manure heap shall not be placed where — a) the soil is waterlogged; or b) the land is flooded or likely to flood.
21	**Manner of storage of poultry litter or anaerobic digestate fibre and location of storage facilities** – (1) Prior to land application, poultry litter or anaerobic digestate fibre shall only be stored on a holding — a) in a midden which shall have adequate effluent collection facilities; b) where anaerobic digestate fibre is stored in open midden, it must be covered within 24 hours of storage; or c) subject to paragraphs (2) to (5), in the field where land application will take place. (2) If poultry litter or anaerobic digestate fibre is to be stored in a field heap, the controller must inform the Department in such manner as it may require. (3) Where stored in a field, poultry litter or anaerobic digestate fibre shall be stored in a compact heap and such heaps shall not be placed in the same location of the field in consecutive years or within — a) 100 metres of lakes; b) 40 metres of any waterway, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; c) 50 metres around a borehole, spring or well; d) 250 metres from any borehole used for a public water supply; or e) 50 metres of exposed, cavernous or karstified limestone features (such as swallow holes and collapse features). (4) Where stored in a field, land application of the poultry litter or anaerobic digestate fibre shall take place within 120 days from storage in that field, and the poultry litter or anaerobic digestate fibre heap shall not be placed where— a) soil is waterlogged; or b) the land is flooded or likely to flood. (5) Where stored in a field, poultry litter or anaerobic digestate fibre shall be covered with an impermeable membrane within 24 hours of storage.

	(6) This regulation applies to the location and storage of anaerobic digestate fibre from 1st January 2020.
22	**Manner of storage of dirty water** – Provisions for the safe storage of dirty water should be available for those periods when weather and ground conditions, as set out in regulation 8(2), are unsuitable for land application.
23	**Calculations of livestock manure storage capacity** – (1) In calculating the livestock manure storage capacity of a holding, the following farming practices may be taken into account — a) the quantity of farmyard manure stored in a midden or field prior to land application in accordance with regulation 20; b) any solids removed from slurry other than pig slurry by means of a slurry separator; c) any additional storage available off the holding, by means of a rental agreement; d) any valid contract the controller has with a manure processing facility or demonstrable access to an approved treatment or recovery outlet; and e) the quantity of poultry litter or anaerobic digestate fibre stored in a midden or field prior to land application in accordance with regulation 21. (2) Subject to paragraph (4), the livestock manure storage capacity of a holding may be less than the capacity specified in regulation 17 in relation to — a) sheep, deer and goats which are out-wintered at a grassland stocking rate which does not exceed 130 kg of nitrogen at any time during the period specified in regulation 7(3) in relation to the application of organic manure as calculated in accordance with paragraph (6); b) livestock (other than dairy cows, sheep, deer and goats) which are out-wintered at a grassland stocking rate which does not exceed 85 kg of nitrogen at any time during the period specified in regulation 7(3) in relation to the application of organic manure, as calculated in accordance with paragraph (6), provided the amount of livestock manure produced on the holding does not exceed 140 kg of nitrogen per hectare per year, as calculated in accordance with regulation 9; and c) a mixed holding the nitrogen limit in sub-paragraph (b) shall apply except where the controller of the holding demonstrates to the Department that the livestock outwintered more appropriately reflects the composition of the livestock applicable in subparagraph (a). (3) The livestock manure storage capacity of a holding shall be calculated in accordance with— a) the livestock manure production figures specified in Table 6 of Schedule 2; and b) any further procedures for calculating such storage capacity which may be specified in any guidance issued in accordance with regulation 5. (4) A holding falling with paragraph (2) must ensure that — a) out-wintered livestock have free access at all times to the land area required for the relevant stocking rate; b) land is maintained in good agricultural and environmental condition; and (c) the reduction in storage capacity is proportionate to the extent of out-wintered livestock on the holding. (5) Any land used for the purpose of out-wintering under paragraphs (2) and (4) must be under the control of the controller of the holding to which the exemption applies. (6) In this regulation, a grassland stocking rate of 130 kg or 85 kg of nitrogen, as the case may be, means the stocking of grassland on a holding at any time by such numbers and types of livestock as would in the course of a year excrete waste products containing 130

	kg or 85 kg nitrogen, as the case may be, per hectare of the grassland when calculated in accordance with the nitrogen excretion rate of livestock specified in Table 1a of Schedule 2. (7) In this regulation, mixed holding means a holding where there are sheep, deer, goats or other livestock (other than dairy cows).
24	**Making and storage of silage** – (1) Subject to paragraph (3), an appropriate person shall not have custody or control of any crop which is being made into silage, or of any silage, which is being stored unless— a) it is kept in a silo in relation to which the requirements of Schedule 7 are satisfied or which is an exempt structure by virtue of paragraph (3); b) it is compressed in the form of bales which are wrapped and sealed within impermeable membranes (or are enclosed in impermeable bags) and are stored at least 10 metres from any waterway that effluent escaping from the bales could enter; or c) it is made as bulk bagged silage in bags which— (i) are made of 1000 gauge polyethylene or material of at least equivalent impermeability and durability; (ii) are kept sealed to prevent the escape of silage effluent; (iii) incorporate a facility designed to enable the safe removal of excess effluent when present; and d) (d) are stored at a place at least 10 metres from any waterway that effluent escaping from the bales could enter. (2) Any appropriate person having custody or control of any crop which is being made, or has been made, into silage in the manner described in paragraph (1)(b) or (c) shall not open or remove the wrapping of any bales or open or empty any bulk bags within 10 metres of any waterway that effluent escaping from the bales or bulk bags could enter. (3) A silo is for the time being an exempt structure if— a) its construction for the purpose of making and storing silage was completed before 1st December 2003; and b) it has not ceased to be an exempt structure by virtue of paragraph (4). (4) A structure to which the circumstances set out at paragraph (3) apply shall cease to be an exempt structure if— a) any requirement of a notice under regulation 30(1) is not complied with within the period stated in the notice; or b) it is substantially enlarged; or c) it is substantially reconstructed, unless, it appears to the Department, the risks of pollution will be reduced by such works. (5) Any reference in paragraph (4) to the period stated in a notice is to that period as extended if it has been extended under regulation 30(5) and any reference in that paragraph to a requirement of a notice is to that requirement as modified if it has been modified under regulation 30(5). (6) Any appropriate person who proposes to have custody or control of any crop which is being made into silage, or of any silage, which is to be kept or stored on a holding in a silo constructed, substantially enlarged or substantially reconstructed on or after 1st December 2003 shall serve notice on the Department specifying the type of structure to be used and its location at least 28 days before it is to be first used for such purpose.
25	**Cover in winter** – After harvesting a crop other than grass the controller shall ensure that from the date of harvesting to 15th January in the following year, one of the following conditions is met on the land at any time—

	a) the stubble of the harvested crop remains in the land; b) the land is sown with a crop which will take up nitrogen from the soil; or c) where soil or weather conditions prevent a subsequent crop from being sown, appropriate measures are put in place to limit soil erosion.
Part 5 – Measure Relating to Land Management	
26	**Crop management** – Where grass leys are grown in rotation with arable crops the first crop shall be sown as possible after the grass has been ploughed.
Part 6 – Record Keeping and Compliance Monitoring	
27	**Records required** – (1) In relation to all holdings and in accordance with paragraphs (2) and (3), the controller of the holding shall keep sufficient records to allow the following information to be ascertained for any calendar year — a) the identity of the controller of the land for the calendar year in question; b) the total agricultural area including the size and location of each field; c) the cropping regimes and their individual areas; d) the soil nitrogen supply index for cropping areas other than grassland as estimated in accordance with the fertiliser technical standards; e) the number of livestock kept on the holding, there species and type, and the length of time for which they were kept on the holding; f) the capacity of livestock manure storage and where applicable the details of rented storage, authorisation for storage of poultry litter or anaerobic digestate fibre in a field heap, farmyard manure production, out wintered livestock, manure separation and manure processing facilities utilised; g) the details of any rental agreement or contract to demonstrate compliance with regulation 23(1)(c) or (d); h) where regulation 8(11)(d) applies, particulars of the reason why that regulation applies to any particular field; i) the amount of each type of nitrogen fertiliser applied, the certified nitrogen content of any chemical fertiliser applied and the total nitrogen content per tonne of other organic manures as in accordance with Table 2 of Schedule 2; j) where regulation 12 applies — (i) the quantity of anaerobic digestate applied; (ii) the date of application of any anaerobic digestate; and (iii) the nutrient content analysis for the anaerobic digestate; k) where regulation 12(2), 13(1) or 14(1) applies — (i) the results of any soil tests carried out in accordance with Schedule 5; ((ii) a statement of the foreseeable crop requirement for phosphorus; (iii) the quantity of each type of phosphorus fertiliser applied; (iv) the certified phosphorus content of any chemical fertiliser and the available phosphorus content of all organic manures applied in accordance with Table 3 of Schedule 3; (v) the date of application of any phosphorus fertiliser; and (vi) the type and date of any crop sown; l) evidence of the right to graze common land; m) the quantity of each type of nitrogen fertiliser moved on to the holding, the date of that movement and, in the case of organic manure, the name and address of the consignee, the consignor and any third party transporter of the manure;

	n) the quantity of each time of nitrogen fertiliser moved off the holding, the date of that movement and, in the case of organic manure, the name and address of the consignee, the consignor and any third party transporter of the manure; and o) where regulation 21(2) applies, particulars of any communications given DAERA. (2) Records under paragraph (1)(a) to (m) and (o) shall be prepared for each calendar year by 30th June of the following year and shall be retained for a period of 5 years from that date. (3) Records under paragraph (1)(n) shall be prepared for each calendar year and shall be submitted to DAERA by 1st March of the following year for derogated holdings and by 31st January of the following year for all other holdings, in a format specified by DAERA and a copy shall be retained by the controller for a period of 5 years from the date of preparation or submission whichever is later. (3A) Where the controller is required to prepare a fertilisation plan in relation to a derogated holding for a calendar year they shall prepare that plan no later than 1st March in that calendar year. (4) Where the controller is required to complete a fertilisation plan, they shall retain the fertilisation plan for each calendar year for that holding for 5 years from the date upon which it was prepared or submitted to DAERA whichever is the later. (5) Records under paragraphs (1) to (4) shall be made available by the controller for inspection by DAERA on request.
28	**Duty of the controller not to provide false or misleading information** – The controller shall not compile records which are false or misleading or furnish any false or misleading information in any notice or other document for the purposes of these Regulations.
Part 7 – Enforcement	
29	**Enforcement** – (1) The enforcement authority for the purpose of compliance with these Regulations shall be DAERA or any person authorised by DAERA. (2) In ensuring compliance with these Regulations an authorised person may have regard to the Code of Good Agricultural Practice and any guidance produced on these Regulations. (3) An authorised person may exercise any of their functions to determine or ensure compliance with these Regulations
30	**Notices** – (1) DAERA may serve notice on any appropriate person — a) who has custody or control of slurry, or any crop which is being made into silage, or of any silage, in circumstances in which these Regulations apply, requiring that person to carry out such works, take such precautions or take such other steps as are specified in the notice and which, in the opinion of DAERA, are appropriate, having regard to any requirements of these Regulations in relation to that substance, for reducing to a minimum any significant risk of pollution of water in a waterway or underground strata arising from the custody or control of that substance; or b) where DAERA is of the opinion that the appropriate person is in breach or is likely to be in breach of these Regulations. (2) A notice served in accordance with paragraph (1) shall— a) require the person upon whom it is served to carry out such works or to take such precautions and other steps as DAERA specifies in the notice as

	appropriate to reduce to a minimum any significant risk of pollution of water in a waterway or underground strata arising from the custody or control of slurry, or any crop which is being made into silage, or of any silage, or to prevent any breach, to remedy any breach or to prevent the continuation or reception of any breach to which the notice relates; b) subject to paragraph (3) state the period within which any such requirement is to be complied with; and c) inform the person on whom the notice is served of their right to appeal in accordance with the procedure set out in regulation 31. (3) The period for compliance stated in the notice pursuant to paragraph (2)(b) shall be such as is reasonable in the circumstances and shall not in any case be less than 28 days from the day on which the notice is served. (4) Where an appeal is brought under regulation 31, the notice shall be of no effect pending the final determination or the withdrawal of the appeal. (5) DAERA may at any time— a) withdraw the notice; b) extend the period for compliance; or c) with the consent of the person on whom the notice is served, modify any requirement of the notice.
31	**Appeals against notices requiring works etc.** – (1) Any appropriate person upon whom a notice is served under regulation 30 may, within the period of 28 days from the day on which the notice is served, appeal in writing against the notice to the Appeals Commission. (2) Appeals under regulations 9(6), 30(2)(c) and 40(4) shall be determined by the Appeals Commission in accordance with the procedure pursuant to Article 293 of the Water and Sewerage Services (Northern Ireland) Order 2006 and, for the purposes of appeals under these Regulations, references to DAERA in Article 293 shall have the same meaning as under these Regulations.
32	**Offences** – (1) It shall be an offence for the controller to fail to comply without reasonable excuse with regulation 4, 9(1), 17(1) or (3), 18, 25, 27(3), 40(3) or Schedule 8 except paragraph 4. (2) It shall be an offence for the appropriate person to fail to comply without reasonable excuse with regulation 7(3) or (4), 8(2), (3), (7), (8), (10), (11)(c) or (d), 20(3) or 21(5). (3) It shall be an offence for the controller to fail to comply with regulation 9(5), 10, 11(1) or (2), 13(1), 14(1), 22, 27(1), (2), (3A) or (4), 28, 40(5) or paragraph 4 of Schedule 8. (3A) It shall be an offence — a) for the controller in relation to a derogated holding to fail to comply with regulation 16(1) or (4); b) for the controller in relation to any other holding to fail to comply without reasonable excuse with regulation 16(1) or (4). (4) It shall be an offence for the appropriate person to fail to comply with regulation 7(1) or (2); 8(1), (4), (5), (6), (9), (11) or (12), 17(4), 19(1) or (6), 20(1) or (2), 21(1), (2), (4) or (6), 24(1), (2) or (6) or 26. (5) From 1st January 2020, it shall be an offence for the controller to fail to comply with regulation 12(1), (2) or (4), 13(3), 14(4) or 15(1). (6) From 1st February 2020, it shall be an offence for the appropriate person to fail to comply without reasonable excuse with regulation 8(13).

	(7) From 1st February 2021, it shall be an offence for the appropriate person to fail to comply without reasonable excuse with regulation 8(11)(a). (8) From 1st January 2022, it shall be an offence for the controller to fail to comply with regulation 15(2). (9) From 1st February 2022, it shall be an offence for the appropriate person to fail to comply without reasonable excuse with regulation 8(11)(b). (10) It shall be an offence for the appropriate period to fail to comply without reasonable excuse with any requirement of a notice issued under regulation 30.
33	**Penalties** – Any person guilty of an offence under regulation 32 shall be liable — a) on summary conviction, to a fine not exceeding the statutory maximum together with a fine of an amount equal to one-tenth of that level for each day upon which the offence continues after the conviction; or b) on conviction on indictment to a fine or to imprisonment for a term not exceeding two years or both.
Part 8 – Powers, Duties and Functions of the Department	
34	**Implementation Report** – (1) DAERA must prepare a report on the implementation of these Regulations at four-yearly intervals. (2) A report in paragraph (1) must contain— a) details of any steps taken to promote good agricultural practice; b) a summary of the monitoring results on the effectiveness of the action programme; c) a summary of the most recent review conducted under regulation 35. (3) A report under paragraph (1) must be published— a) in such manner as DAERA considers appropriate; b) by the last day of the six month period beginning with the day on which the four-yearly interval ends.
35	**Reviewing the action programme** – (1) DAERA shall review at four-yearly intervals, in consultation with the public, this action programme and, if appropriate, publish a revised action programme for the protection of waters against nutrients from agricultural sources. (2) An action programme shall include such necessary measures as are required by these Regulations and shall contain a review of the action programme most recently made and of such additional measures as may be required. (3) The Department shall — a) ensure that the public is given early and effective opportunity to participate in the preparation, review or revision of an action programme; and b) in doing so shall — (i) ensure that the public is informed by public notices or other appropriate means, such as electronic media, about any proposals for the preparation, review or revision of an action programme; (ii) ensure that the information about the proposals referred to in sub-paragraph (a), is made available to the public, including information about the right to participate in decision making in relation to those proposals;

	(iii) ensure that the public is entitled to make comments before any decision is made on the establishment, review or revision of an action programme; (iv) in making any such decision, take due account of the results of the public participation; and (v) having examined the comments made by the public, make reasonable efforts to inform the public of the decisions taken and the reasons and considerations on which these decisions are based, including information on the public participation process. (4) In carrying out their functions under paragraph (3), the Department shall ensure that reasonable time is allowed such as is sufficient to enable the public to participate effectively. (5) In carrying out their functions under paragraph (3), where the Department publish any information, the Department shall — a) do so in a way as they consider appropriate for the purpose of bringing the information to the attention of the public; and b) make copies of that information accessible to the public free of charge through its websites or otherwise. (6) The Department shall specify in a notice on its websites or otherwise the detailed arrangements made to enable public participation in the preparation, review or revision of an action programme, including — a) the address to which comments in relation to those proposals may be submitted; and b) the date by which such comments should be received. (7) As part of the review conducted under this regulation, the Department must review the overall position of derogations granted under regulation 39(3) against the effectiveness in meeting objectives of reducing water pollution from nutrients and preventing further pollution.
Part 9 – Miscellaneous	
36	**Transitional provisions** – (1) A notice served under — a) regulation 28 (notices) of the Nitrates Action Programme Regulations (Northern Ireland) 2014; or b) regulation 9 (notice) of the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014 shall, notwithstanding the revocation of those Regulations, be deemed to be a notice served under regulation 30 (notices) of these Regulations. (2) Records required to retain under — a) regulation 25 (type of records required) of the Nitrates Action Programme Regulations (Northern Ireland) 2014; or b) regulation 7 (duty of the controller to provide information) of the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014; shall, notwithstanding the revocation of those Regulations, be deemed to be records required to be retained under regulation 27 (records required) of these Regulations.
37	**Consequential amendments** – (1) Schedule 2 to the Waste Management Licensing Regulations (Northern Ireland) 2003 is amended as follows—

	a) in paragraphs 9(3)(c), 10(10(c), 11(3)(e), 47A(10(d) and 47B(c) of Part I, for 'Nitrates Action Programme Regulations (Northern Ireland) 2014' substitute "Nutrient Action Programme Regulations (Northern Ireland) 2019"; b) in paragraphs (3)(c), (2)(b), (1)(b), and (b) of Part I for 'Nitrates Action Programme Regulations (Northern Ireland) 2014' substitute "Nutrient Action Programme Regulations (Northern Ireland) 2019"; and c) in paragraph 2(b) of Part III, for 'Nitrates Action Programme Regulations (Northern Ireland) 2014' substitute "Nutrient Action Programme Regulations (Northern Ireland) 2019". (2) For paragraph 1 of Schedule 1 to the Common Agricultural Policy Direct Payments and Support Schemes (Cross-Compliance) Regulations (Northern Ireland) 2014 substitute "A farmer shall comply with regulations 8(4), (5), (6) and (9) of the Nutrient Action Programme Regulations (Northern Ireland) 2019".
38	**Revocation and saving provisions** – (1) Subject to paragraph (2), the following regulations are revoked— a) the Nitrates Action Programme Regulations (Northern Ireland) 2014; b) the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014; c) the Nitrates Action Programme (Amendment) Regulations (Northern Ireland) 2015; and d) regulations 10 and 11 of the Pesticides, Genetically Modified Organisms and Fertilisers (Miscellaneous Amendments) Regulations (Northern Ireland) 2018. (2) Table 1a of Schedule 1 to the Nitrates Action Programme Regulations (Northern Ireland) 2014 shall continue to have effect until 31st December 2019.
Part 10 – Derogation from Measures Governing the Limits on Land Application of Livestock Manure	
39	(1) A controller may submit to the Department an application for an annual authorisation by such date as may be specified by the Department in a calendar year to apply grazing livestock manure containing up to 250kg nitrogen per hectare in that year. (2) In the application referred to in paragraph (1), the controller shall undertake in writing to submit to all the controls provided for in regulation 40 and to fulfil the conditions set out in Schedule 8. 3) An authorisation to apply an amount of livestock manure containing up to 250kg nitrogen per hectare per year shall be granted by the Department, subject to the conditions set out in Schedule 8.
40	(1) The Department shall carry out administrative controls in respect of all applications for authorisation for the assessment of compliance with the conditions set out in Schedule 8. (2) The Department shall refuse a derogation application as follows — a) where it is demonstrated that those conditions are not fulfilled, the Department shall refuse the application within a period of 28 days from the date specified by the Department in accordance with regulation 39(1) and the applicant shall be informed of the reasons for refusal, but; b) where the Department has not notified the applicant of a refusal within the period mentioned in sub-paragraph (a), the derogation shall be deemed to have been granted. (3) Where it is established that in any year, a grassland holding covered by an authorisation did not fulfil the conditions set out in Schedule 8, the controller commits an offence and shall not be eligible for an authorisation the following year.

	(4) The controller may appeal the decision by the Department in relation to a refusal under paragraph (2) or in relation to an authorisation under paragraph (3) in accordance with the procedure set out in regulation 31. (5) Where the derogation has been granted or deemed to have been granted, the controller shall prepare and retain a fertilisation plan.

Appendix C

Plans and Programmes

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
International / European			
UN Convention on Biological Diversity (1992)	Maintenance and enhancement of Biodiversity, and strategies to ensure a fair and equitable sharing of the benefits from the use of genetic resources.	• Conservation of biological diversity (or biodiversity); • Sustainable use of its components and • Fair and equitable sharing of benefits rising from genetic resources; • Development of national strategies for the conservation and sustainable use of biological diversity.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Ramsar Convention on Wetlands of International Importance (1971 and amendments)	Protection and conservation of wetlands.	• Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Bern Convention (Convention on European Wildlife and Natural Habitats) (1982)	The Bern Convention is a binding international legal instrument in the field of nature conservation, covering most of the natural heritage of the European continent and extending to some States of Africa.	• Objectives are to conserve wild flora and fauna and their natural habitats, as well as to promote European co-operation in this field. • The treaty also takes account f the impact that other policies may have on natural heritage.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992)	The current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. Objectives include the protection of the marine environment.	• Prevention and elimination of pollution, and protection of the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystem.	Environmental protection objectives of the Convention are reflected in the SEOs for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
North East Atlantic Environment Strategy 2030	The Strategy is the means by which OSPAR's 16 Contracting Parties will implement the OSPAR Convention until 2030, setting out objectives to tackle biodiversity loss, pollution including marine litter, and climate change.	• Sets out OSPAR's vision, strategic and operation objectives based around the following four themes: clean seas; biologically diverse seas; productive and sustainably used seas; and seas resilient to climate change and ocean acidification. • Strategic objectives set out overarching goals on eutrophication, hazardous substances, radioactive substances, marine litter protection, conservation and restoration or species and habitats, sustainable use of the marine environment, underwater noise, protecting the seabed, and climate change and ocean acidification. • Operational objectives set qualitative and quantitative targets to support achievement of the strategic objectives.	Environmental protection objectives of the Strategy are reflected in the SEOs for Water.
Bonn Convention [L210, 19/07/1982 (1983)]	The Bonn Convention focuses on preserving the habitats used by migratory species and aims to enhance the conservation of terrestrial, marine and avian species on a global scale throughout their range.	• Establishes a legal foundation for internationally coordinated conservation measures throughout a migratory range. • Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		migration and controlling other factors that might endanger them. • In Europe, legislation to ensure that the provisions of the Bonn convention are applied includes the Birds Directive and the Habitats Directive.	
EU Biodiversity Strategy to 2030 [COM(2020)380]	Aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet. The strategy aims to build societies' resilience to future threats such as: the impacts of climate change, forest fires, food insecurity and disease outbreaks.	The strategy contains specific commitments and actions to be delivered by 2030: • Establishing a larger EU-wide network of protected areas on land and at sea. Enlarging of existing Natura 2000 areas with strict protection for areas of very high biodiversity and climate value. • Launching an EU nature restoration plan. Including concrete commitments and actions (and proposed binding nature restoration targets) to restore degraded ecosystems by 2030 and manage them sustainably, addressing the key drivers of biodiversity loss. • Introducing measures to enable the necessary transformative change. Unlocking funding for biodiversity, and setting in motion a new, strengthened governance framework. • Introducing measures to tackle the global biodiversity challenge. In	Environmental protection objectives of the strategy are reflected in the SEOs for Biodiversity, Flora and Fauna.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		particular, working towards adoption of an ambitious global biodiversity framework under the Convention on Biological Diversity.	
Birds Directive [2009/147/EC]	Protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors.	• Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex I. • Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas); ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of biotopes • Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes. The protection of wetlands and particularly wetlands of international importance.	Environmental protection objectives of the Directive are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft NAP 2027-2030 should ensure that European Sites are suitably protected from loss or damage.
EU Habitats Directive [92/43/EEC]	Builds on the Birds Directive (see above) by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European	• Propose and protect sites of importance to habitats, plant and animal species.	Environmental protection objectives of the Directive are

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	network of protected areas known as Natura 2000: Special Protection Areas (SPAs, classified under the Birds Directive) and Special Areas of Conservation (SACs, classified under the Habitats Directive).	• Establish a network of Natura 2000 sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. • Carry out comprehensive assessment of habitat types and species present. • Establish a system of strict protection for the animal species and plant species listed in Annex IV.	reflected in the SEOs for Biodiversity, Flora and Fauna. The draft NAP 2027-2030 should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft NAP 2027-2030, to ensure that it implementation will not adversely affect SPAs and SACs.
EU Nature Restoration Law 2024	The law aims to restore ecosystems, habitats and species across the EU's land and sea areas in order to enable the long-term and sustained recovery of biodiverse and resilient nature; contribute to achieving the EU's climate mitigation and climate adaptation objectives; meet international commitments.	• Overarching restoration objective for the long-term recovery of nature in the EU's land and sea areas. • Binding restoration targets for specific habitats and species (pollinating insects, forest ecosystems, urban ecosystems, agricultural ecosystems, marine ecosystems, river connectivity). • These measures should cover at least 20% of the EU's land and sea areas by 2030, and ultimately all ecosystems in need of restoration by 2050.	The draft NAP 2027-2030 will need to have regard for this law with regard to transboundary regions.
EU Soil Strategy to 2030	The EU Soil Strategy for 2030 provides a framework and steps towards protecting and		The draft NAP 2027-2030 will need to have regard for the

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	restoring soils and ensuring that they are used sustainably.		proposed law with regard to transboundary regions.
Proposed Soil Monitoring Law	The proposed law, the Soil Monitoring and Resilience Directive, aims to protect soil health and upgrade soil monitoring. This forms part of the EU Soil Strategy to 2030.	• The proposed law aims to have all soils in healthy condition by 2050. • It provides a harmonised definition of soil health, puts in place a comprehensive and coherent monitoring framework and lays down rules on sustainable management and remediation of contaminated sites.	The draft NAP 2027-2030 will need to have regard for the proposed law with regard to transboundary regions.
Paris Agreement (UNFCCC, 2016)	To strengthen the global response to the threats of climate change by keeping this century's global temperature rise below 2 degrees Celsius.	The Paris Agreement and the outcomes of the UN climate conference (COP21) cover all the crucial areas identified as essential for a landmark conclusion: • Mitigation – reducing emissions fast enough to achieve the temperature goal; • A transparency system and global stock-take – accounting for climate action; • Adaptation – strengthening ability of countries to deal with climate impacts; • Loss and damage – strengthening ability to recover from climate impacts; and	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Support – including finance, for nations to build clean, resilient futures.	
UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997)	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.	• An international environmental treaty, who's objective is to "stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". • Does not set binding limits on GHG emissions for individual countries or contain enforcement mechanisms, but outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases.	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.
The European Green Deal 2019	The European Green Deal is a plan to make the EU's economy sustainable.	The growth strategy outlines transformation of the EU to a resource-efficient and competitive economy where: • There are no net emissions of GHGs by 2050; • Economic growth is decoupled from resource use; and • No person and no place are left behind. The Deal provides an Action Plan to: • Boost the efficient use of resources by moving to a clean circular economy; and	The draft NAP 2027-2030 will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Land use; Water; Air Quality; and Material Assets.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Restore biodiversity and cut pollution.	
EU Methane Strategy 2020	The EU Methane Strategy forms part of the European Green Deal. It recognises the importance of methane as the second biggest contributor to climate change, and aims to tackle methane emissions to reach 2030 climate targets and the 2050 climate neutrality goal, as well as contributing to the Commission's zero-pollution ambition.	• Sets out measures to cut methane emissions in Europe and internationally. • Presents legislative and non-legislative actions in the energy, agriculture and waste sectors, which account for around 95% of methane emissions associated with human activity worldwide. • Includes improved reporting of emissions from agriculture, through better data collection, and promotion of opportunities to reduce emissions with support from the Common Agricultural Policy. The main focus will be on best practice sharing for innovative methane-reducing technologies, animal diets, and breeding management. Non-recyclable organic human waste and agricultural waste and residue streams can be used to produce biogas, biomaterials and biochemical, generating additional revenue and avoiding methane emissions.	The draft NAP 2027-2030 will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEO for Climatic Factors.
EU Farm to Fork Strategy 2020	The EU Farm to Fork Strategy is at the heart of the European Green Deal, aiming to make food systems sustainable. Introduces a new approach to ensure that agriculture, fisheries and aquaculture, and the food value chain, contribute appropriately to reduction in GHG	The strategy aims to accelerate the transition to a sustainable food system that should: • Have a neutral or positive environmental impact;	The draft NAP 2027-2030 will need to have regard for this strategy. Environmental protection objectives of the strategy are

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	emissions, and to the objective for a climate neutral EU in 2050.	• Help to mitigate climate change and adapt to its impacts; • Reverse the loss of biodiversity; • Ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food; and • Preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.	reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Landuse; Water; Air Quality; and Material Assets.
Renewable Energy Directive (2009/28/EC)	This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020.	It requires the EU to fulfil at least 20% of its total energy needs with renewable by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Directive in terms of cumulative GHG emissions from the agricultural sector and other sources.
EU Strategy on Adaptation to Climate Change	The Adaptation Strategy recognise how important impact assessment is for climate proofing, identifies the key priorities for action and how EU policies can encourage effective adaptation action.	The strategy was adopted by the EC in April 2013. It outlines the measures for taking climate change preparedness to a new level. The strategy has three main objectives:	The draft NAP 2027-2030 will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Promote climate action in Member States through encouraging the adoption of adaptation strategies; • The promotion of informed decision-making through addressing knowledge gaps and the development of the European Climate Adaptation Platform for better knowledge dissemination; and • Promoting adaptation in key vulnerable sectors.	
Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021[COM(2021)82]	The Strategy outlines a long term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change by 2050, and complements the EU's goal of becoming climate neutral by this date. Deepens and expands upon adaptation actions in the 2013 EU Adaptation Strategy.	This strategy aims to reinforce the adaptive capacity of the EU and the world, and minimise vulnerability to the impacts of climate change, in line with the Paris Agreement and the proposal for European Climate Law. It seeks to step up action across the economy and society in synergy with other Green Deal policies such as biodiversity protection and sustainable agriculture. The Strategy has three objectives, and proposes a range of actions in order to meet them: • To make adaptation smarter - improving knowledge and availability of data, while managing the inherent uncertainty brought upon us by climate change; securing more and better data on climate-related risk and losses; and	The draft NAP 2027-2030 will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		making Climate-ADAPT the authoritative European platform for adaptation knowledge. • To make adaptation more systemic - supporting policy development at all levels of governance, society and the economy and in all sectors by improving adaptation strategies and plans; integrating climate resilience in macro-fiscal policy and promoting nature-based solutions for adaptation. • To speed up adaptation across the board – by accelerating development and rollout of adaptation solutions; reducing climate-related risk; closing the climate protection gap; and ensuring the availability and sustainability of fresh water.	
Second European Climate Change Programme (ECCP II) 2005.	Objectives seek to develop the necessary elements of a strategy to implement the Kyoto protocol.	Develop a framework for a low carbon economy which will be achieved through a National Mitigation Plan (to lower GHG emissions) and a National Adaptation Framework (to provide for responses to changes caused by climate change). This includes: • Reform of the EU Emissions Trading System (EU ETS) to include a cap on emission allowances in addition to existing system of national caps	Environmental protection objectives of the Programme are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Agreement of national targets for non-EU ETS emissions from countries outside the EU • Commitment to meet the national renewable energy targets of 16% for Ireland by 2020 • Preparation of a legal framework for technologies in carbon capture and storage	
EU Green Infrastructure Strategy (COM(2013) 249 final).	Aims to develop preserve and enhance healthy green infrastructure to help stop the loss of biodiversity and enable ecosystems to deliver their many services to people and nature. The greater the scale, coherence and connectivity of the green infrastructure network, the greater its benefits. The EU Strategy on green infrastructure aims to outline how to deploy such a network and encourages action at all levels.	The Green Infrastructure strategy is a key step towards the success of the EU Biodiversity Strategy. It is made up of four main elements: • Promoting Green Infrastructure in the main EU policy areas • Supporting EU-level GI projects • Improving access to finance for GI projects • Improving information and promoting innovation.	Environmental protection objectives of the Programme are reflected in the SEOs for Biodiversity, Flora and Fauna.
Stockholm Convention (2004)	The Stockholm Convention is an international treaty with the aim of eliminating or restricting the production and use of persistent organic pollutants (POPs).	The main objective of the treaty is in seeking to protect human health and the environment from POPs.	The draft NAP 2027-2030 will need to have regard for this strategy with regard to pesticide use.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide sulfur dioxide and carbon monoxide (2021)	Global air quality guidelines for particular pollutants.	• The main objective of these updated global guidelines is to offer health-based air quality guideline levels, expressed as long-term or short-term concentrations for six key air pollutants: PM2.5, PM10, ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide.	The draft NAP 2027-2030 should have regard for WHO air quality guidelines.
WHO Air Quality Guidelines – global update (2005).	Objectives seek the elimination or minimisation of certain airborne pollutants for the protection of human health.	• Air Quality Guidelines (AQGs) were published by the WHO in 1987 and revised in 1997 and most recently in 2005. • These offer guidance on threshold limits for key air pollutants that pose health risks and provide a reference for setting air pollution targets at regional and national levels to improve air quality. • The 2005 guidelines offer recommended exposure levels for particulate matter (PM10 and PM2.5), ozone, nitrogen dioxide and sulphur dioxide, as well as a set of interim targets to encourage a progressive improvement in air quality.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these guidelines, in terms of cumulative emissions affecting air quality from the agricultural sector and other sources.
The Gothenburg Protocol (1999), as amended in 2012.	The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) is a multi-pollutant protocol designed to reduce acidification, eutrophication and ground-level ozone by setting emissions ceilings for	• The 1999 Protocol set national emission ceilings for 2010 for four pollutants: sulphur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and ammonia (NH_3);	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Protocol, particularly those

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia to be met by 2010. The protocol was updated and amended in 2012.	• As amended in 2012, the Protocol includes national emission reduction commitments to be achieved by 2020 and beyond; • Includes specific measures for the control of ammonia emissions from agricultural sources; • Parties must report on their emissions annually and are required to provide projections of their future emissions.	relating to the control of ammonia emissions from agriculture. These environmental protection objectives are reflected in the SEO for Air Quality.
Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality Framework Directive [2004/107/EC]	Set air quality standards for protection of human health and the environment. Address air pollution at the level of zones, while the complementary NEC Directive addresses total emissions	• The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. • Sets limit and target values for certain pollutants. Covers in particular nitrogen dioxide (NO2) and particulate matter or fine dust (PM10), which is emitted by traffic and combustion engines. • Lays down limit values to be respected by Member States in their zones. • The 4th Daughter Directive relates to arsenic cadmium, mercury, nickel and polycyclic aromatic hydrocarbons.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Directives, in terms of cumulative emissions affecting air quality from the agricultural sector and other sources.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Industrial Emissions Directive [2010/75/EU]	• Aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT) • Around 50,000 installations undertaking the industrial activities listed in Annex I of the Industrial Emissions Directive (IED) are required to operate in accordance with a permit (granted by the authorities in Member States).	The IED is based on several pillars, in particular (1) an integrated approach, (2) use of best available techniques, (3) flexibility, (4) inspections and (5) public participation: • The integrated approach means that the permits must take into account the whole environmental performance of the plant. • The permit conditions including emission limit values must be based on the Best Available Techniques (BAT). • The IED allows competent authorities some flexibility to set less strict emission limit values. • The IED contains mandatory requirements on environmental inspections. Member States shall set up a system of environmental inspection and draw up inspection plans accordingly. • The IED ensures that the public has a right to participate in the decision-making process, and be informed of its consequences, by having access to permit applications, permits and the results of the monitoring releases.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
National Emissions reduction Commitments (NEC) Directive [2016/2284/EU]	This Directive seeks to limit the national emissions of certain airborne pollutants for the protection of human health and the environment. Implements at the EU level obligations under the Geneva Convention and Gothenburg Protocol. It replaced the earlier National Emission Ceilings for Certain Atmospheric Pollutants Directive (2001/81/EC).	It sets the limits on total national emissions from four pollutants - sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia. These can cause acidification (e.g. the chemical composition of the sea acidifies), water and soil pollution (eutrophication) and ground-level ozone (ozone resulting from the reaction of the four pollutants with heat and sunlight).	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Directive, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.
Geneva Convention (1979) on Long-range Transboundary Air Pollution (LRTAP)	International agreement with the aim of limiting problems of air pollution on a broad regional basis.	• First international legally binding instrument dealing with problems of air pollution on a broad regional basis. It was signed in 1979 and entered into force in 1983. It has since been extended by eight specific protocols. • Under the Convention, the parties commit to working together to limit, to gradually prevent, and to reduce their discharges of air pollutants in order to combat the resulting transboundary pollution. • The Convention has substantially contributed to the development of international environmental law and has created the essential framework for controlling and reducing the damage to	Environmental protection objectives of the Convention are reflected in the SEOs for Air Quality and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		human health and the environment caused by transboundary air pollution.	
EU Common Agricultural Policy (CAP) (1962)	Aims to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage.	The CAP is a common policy for all EU countries, managed and funded at European level from the EU budget. It aims to: • Support farmers and improve agricultural productivity, ensuring a stable supply of affordable food; • Safeguard EU farmers to make a reasonable living; • Help tackle climate change and the sustainable management of natural resources; • Maintain rural areas and landscapes across the EU; and • Keep the rural economy alive by promoting jobs in farming agri-foods industries and associated sectors.	Existing environmental protection objectives associated with the CAP have been considered during development of the draft NAP 2027-2030.
Seventh Environmental Action Programme to 2020 of the European Community	The Programme guides European environment policy until 2020, and sets out a vision beyond that, of where it wants the EU to be by 2050.	Objectives seek to make the future development of the EU more sustainable. It identifies three key objectives: • To protect, conserve and enhance the Union's natural capital;	Environmental protection objectives of the Programme are reflected in the SEOs Biodiversity, Flora and Fauna; Population and Human Health; Geology, Soils and Landuse; Water; Air Quality; and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• To turn the Union into a resource-efficient, green, and competitive low-carbon economy; and • To safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing. Two additional horizontal priority objectives complete the programme: • To make the Union's cities more sustainable; and To help the Union address international environmental and climate challenges more effectively.	
SEA Directive [2001/42/EC]	To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	• Requires that Plans & Programmes take into account protection of the environment and integration of the Plan into the sustainable planning of the country as a whole. • Eleven sectors are specified in the Directive and Competent Authorities (Plan/ Programme makers) must subject specific Plans and Programmes for these sectors to an environmental assessment where they are likely to have significant effects on the environment.	The draft NAP 2027-2030 is subject to the SEA process. This is being undertaken through this Environmental Report.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
UN Convention on Environmental Impact Assessment (ESPOO Convention) 1997 and Kyiv (SEA) Protocol 2003	The ESPOO (EIA) Convention provides for protection of the environment at an early stage of planning for certain activities. Complemented by the Protocol on Strategic Environmental Assessment (Kyiv Protocol).	• Sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning; • Sets out the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries; and • The SEA Protocol augments the Convention by ensuring that individual Parties integrate environmental assessment into their plans and programmes at the earliest stages and provides for extensive public participation in the decision-making process.	The draft NAP 2027-2030 is subject to the SEA process. This is being undertaken through this SEA Environmental Report.
EIA Directive [85/337/EEC] [2014/52/EU]	Objective is to require Environmental Impact Assessment of the environmental effects of those public and private projects, which are likely to have significant effects on the environment. Aims to assess and implement avoidance or mitigation measures to eliminate environmental effects, before consent is given of projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are	• All projects listed in Annex I are considered as having significant effects on the environment and compulsorily require an EIA. • For projects listed in Annex II, a "screening procedure" is required to determine the effects of projects on the basis of thresholds/criteria or a case by case examination. The competent authority may give a decision on whether a project requires EIA.	Certain agricultural projects will be subject to EIA.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	made subject to a requirement for development consent and an assessment with regard to their effects.	• Requirement for identification, description and assessment in an appropriate manner, in the light of each individual case, on the direct and indirect effects of a project on the following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, material assets and the cultural heritage, the interaction between each factor. • Requirement for consultation with relevant authorities, stakeholders and public allowing sufficient time to make a submission before a decision is made. • Establishment of a recognised structure and content for the Environmental Impact Statement, which is the document submitted as a written account of the EIA. • Inclusion of proposed flood risk management schemes in EIA screening process	
EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046]	Strategy for the protection of soils across the EU.	The Strategy consists of: • A communication from the commission, explaining why further action is needed to ensure a high level of soil protection, sets the overall objective of the strategy and explains the kinds of measures that	Environmental protection objectives of the Strategy are reflected in the SEO for Geology, Soils and Land use.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		must be taken. It establishes a 10-year work programme for the Commission; • A proposal for a framework Directive, setting out common principles for protecting soils across the EU. Within this common framework, Member States can decide how best to protect soil and how to use it in a sustainable way; and • An impact assessment, analysing the economic, social and environmental impacts of the different options considered in preparation of the Strategy and the measures retained. The 2012 report outlines implementation of the Strategy and ongoing activities, the blocking of progress on the proposed framework Directive, current soil degradation trends and future challenges.	
Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC	To achieve a high level of protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land from industrial sources.	The Directive provides an integrated approach to establish pollution prevention from stationary “installations”. This codified act includes all the previous amendments to the Directive 96/61/EC and introduces some linguistic changes and adaptations.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain intensive agricultural holdings. Environmental protection objectives of the Directive are reflected in the SEOs for

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
			Geology, Soils and Land use; Water; Air Quality; and Climatic Factors.
UN Sustainable Development Goals (2015)	The Sustainable Development Goals or Global Goals are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all".	• The UN Sustainable Development Goals outline 17 Sustainable Development Goals and 169 targets to be achieved by 2030 for people, the planet and for prosperity. • SDG 6 is to '*ensure availability and sustainable management of water and sanitation for all*'.	The draft NAP 2027-2030 should have regard for the UN Sustainable Development Goals, in particular SDG6.
Water Framework Directive (2000/60/EC), (as amended by Decision 2455/2001/EC and Directives 2008/32/EC, 2008/105/EC and 2009/31/EC.	Aims to improve water quality and quantity within rivers, estuaries, coasts and aquifers. Aims to prevent the deterioration of aquatic ecosystems and associated wetland by setting out a timetable until 2027 to achieve good ecological status or potential. Member States are required to manage the effects on the ecological quality of water which result from changes to the physical characteristics of waterbodies. Action is required in those cases where these "hydro-morphological" pressures are having an ecological impact which will interfere with the ability to achieve WFD objectives.	• Identification and establishment of individual river basin districts. • Preparation of individual river basin management plans for each of the catchments. These contain the main issues for the water environment and the actions needed to deal with them. • Establishment of a programme of monitoring water quality in each RBD. • Establishment of a Register of Protected Areas (includes areas previously designated under the Freshwater Fish and Shellfish Directives which have become sites designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register).	Successful implementation of the draft NAP 2027-2030 is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	The following Directives have been subsumed into the WFD: • The Drinking Water Abstraction Directive • Sampling Drinking Water Directive • Exchange of Information on Quality of Surface Freshwater Directive • Shellfish Directive • Freshwater Fish Directive • Groundwater (Dangerous Substances) Directive • Dangerous substances Directive	• Promotion of sustainable management of the water environment by carefully considering current land use and future climate scenarios, minimising the effects of flooding and drought events and facilitating long term improvements in water quality, including the protection of groundwater near landfill sites, as well as minimising agricultural runoff.	
Marine Strategy Framework Directive (2008/56/EC)	• Establishes a framework whereby the necessary measures are undertaken to achieve or maintain good environmental status in the marine environment by the year 2020. • Requires the development and implementation of marine strategies in order to protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected. • It aims to prevent and reduce inputs in the marine environment, with a view to phasing out pollution as defined in Article 3(8), so as to ensure that there are no significant impacts on or risks to marine	• Preparation of an assessment of the current environmental status of the waters concerned and the environmental impact of human activities. • Establishment of a series of environmental targets and associated indicators. • Development of a programme of measures designed to achieve or maintain good environmental status, by 2020. • Establishment of a monitoring programme for ongoing assessment and regular updating of targets.	Environmental protection objectives of the Directive are reflected in the SEO for Water.

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	biodiversity, marine ecosystems, human health or legitimate uses of the sea.	• Cooperation with transboundary Member States to implement these measures.	
Floods Directive (2007/60/EC)	This Directive provides a framework for the assessment and management of flood risks, aiming to reduce the adverse consequences associated with flooding for human health, the environment, cultural heritage and economic activity.	Member States must: • Assess the risk of flooding of all water courses and coast lines, • Map the flood extent and assets and humans at risk in these areas at River Basin level and in areas covered by Article 5(1) and 13(1); and • Implement flood risk management plans and take adequate and coordinated measures to reduce this flood risk. Member States are required to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by the end of 2015. The public must be informed and allowed to participate in the planning process.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface waterbodies.
Bathing Water Directive (2006/7/EC)	The overall objective of the revised Bathing Water Directive remains the protection of public health whilst bathing. It:	• Updates the way in which water quality is measured, focusing on fewer microbiological indicators, and setting	Environmental protection objectives of the Directive are

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	• Imposes stricter standards for water quality and the implementation of new method of assessment. • Establishes a more pro-active approach to the assessment of possible pollution risks, and to the management of bathing waters; and • Places considerable emphasis on promoting increased public involvement, and for improved dissemination of information on bathing water quality to the general public.	different standards for inland and coastal bathing sites. • Reduces the health risks linked to bathing by setting scientifically based minimum water quality standards. • Makes changes to monitoring and sampling frequency. • Allows a limited number of water samples to be disregarded during short term pollution incidents, if the event is predicted and the public warned beforehand. • Provides better information to the public, allowing more informed choices to be made about the risk of bathing. • Improves the overall management of bathing water quality by requiring an assessment of potential sources of pollution. • Is compatible with other EU water related legislation, in particular the WFD.	reflected in the SEO for Population and Human Health.
Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC]	• Aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater.	• Establishment of criteria for assessing good groundwater status and for the identification of significant and sustained upwards trends and the starting points for trend reversal.	Environmental protection objectives of the Directive are reflected in the SEO for Water.

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	• Made under the WFD, the Daughter Directive aims to prevent and limit inputs of pollutants to groundwater.	• Threshold values adopted for the pollutants, groups of pollutants and indicators of pollution which have been identified as contributing to the characterisation of bodies or groups of bodies of groundwater as being at risk.	
Drinking Water Directive (98/83/EC)	• Aimed at the improvement and maintenance of the quality of water intended for human consumption. • Aims to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.	• Sets values applicable to water intended for human consumption for a defined range of parameters. • Requires implementation of all measures necessary to ensure that regular monitoring of the quality of water intended for human consumption is carried out, in order to check that the water available to consumers meets the requirements set out in the legislation. • Any failure to meet the required standards is immediately investigated in order to identify the cause. • Any necessary remedial action is taken as soon as possible to restore its quality and gives priority to their enforcement action. • Undertake remedial action to restore the quality of the water where necessary to protect human health. • Notification of consumers when remedial action is being undertaken,	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.

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		except where the competent authorities consider the non-compliance with the required standards value to be trivial.	
Urban Waste Water Treatment Directive [91/271/EEC]	The Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water and waste water from certain industrial sectors.	The Directive requires that: • The collection and treatment of waste water in all agglomerations of >2000 population equivalents (p.e.). • Secondary treatment of all discharges from agglomerations of >2000 p.e., and more advanced treatment for agglomerations >10,000 p.e. in designated sensitive areas and their catchments. • A requirement of pre-authorisation of all discharges of urban wastewater, of discharges from the food processing industry and of industrial discharges into urban wastewater collection systems. • Monitoring of the performance of treatment plants and receiving waters. • Controls of sewage sludge disposal and re-use, and treated waste water re-use whenever it is appropriate.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface waterbodies.
Sewage Sludge Directive [86/78/EEC]	The Directive promotes the use of sewage sludge in agriculture but regulates its use to prevent harmful effects on soil, vegetation, animals and people.	The aims of the Directive are: • To protect humans, animals, plants and the environment by ensuring that heavy	The draft NAP 2027-2030 will need to have regard for this Directive with regard to the use of

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		metals in soil and sludge do not exceed set limits; • To increase the amount of sewage sludge used in agriculture.	sewage sludge as a fertiliser source. Environmental protection objectives of the Directive are reflected in the SEO for Geology, Soils and Landuse.
Nitrates Directive [91/676/EEC]	The Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.	Aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. Outlines the following steps: • Identification of water polluted, or at risk of pollution; • Designation of nitrate vulnerable zones; • Establishment of codes of good agricultural practice to be implemented by farmers on a voluntary basis; • Establishment of action programmes to be implemented by farmers within NVZs on a compulsory basis; • Limits to the application of nitrogen from manure; and • National monitoring and reporting.	The draft NAP 2027-2030 must take into account any environmental objectives as established by the Directive.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Environmental Quality Standards Directive (Directive 2008/105/EC) (also known as the Priority Substances Directive), as amended by Directive 2013/39/EU.	Establishes environmental quality standards (EQS) for priority substances and certain other pollutants as provided for in Article 16 of the WFD and aims to achieve good surface water chemical status in accordance with the provisions and objectives of Article 4 of the WFD.	• Apply the EQS laid down in Part A of Annex I to this Directive for bodies of surface water. • Determine the frequency of monitoring in biota and/or sediment of substances. • Monitoring shall take place at least once every year, unless technical knowledge and expert judgment justify another interval. • Notify the European Commission if the substances for which EQS have been established if a deviation of the monitoring is planned along with the rationale and approach. • Establish an inventory, including maps, if available, of emissions, discharges and losses of all priority substances and pollutants listed in Part A of Annex I to this Directive for each river basin district.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface waterbodies.
Environmental Liability Directive [2004/35/EC]	• Establishes a framework for environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. • Relates to environmental damage caused by occupational activities (listed in Annex III), and to any imminent threat of such damage occurring by reason of any of	• Describes procedures for circumstances where environmental damage has occurred. Requires the polluter to take all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors in order to limit or to prevent further environmental damage and adverse	The draft NAP 2027-2030 will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Measures in the draft NAP 2027-2030 should aim to cause no

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	those activities; damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent.	effects on human health or further impairment of services and the necessary remedial measures. • Establishes measures for cases where environmental damage has not yet occurred, but there is an imminent threat of such damage occurring. • The regulations make the polluter financially liable and allow the competent authority to initiate cost recovery proceedings where appropriate.	damage and to enhance the wider environment.
A Blueprint to Safeguard Europe's Water Resource [COM(2012/673]	The Blueprint aims to improve implementation of existing water policy, to integrate water considerations into other policy areas and indicate where further measures may be necessary for water efficiency and adaptation to climate change.	• Outlines actions that relate to better implementation of current water legislation, integration of water policy objectives into other policies and filling gaps particularly in relation to water quantity and efficiency. • These actions are to ensure that water of sufficient quantity and good quality is available to service the needs of people as well as the environment and the EU's economy. • The Blueprint's time horizon is closely related to the EU 2020 Strategy particularly the Resource Efficiency Roadmap, of which the Blueprint is the water milestone. However, the Blueprint covers a longer time span, up to 2050,	The draft NAP 2027-2030 should have regard for this Blueprint. Environmental protection objectives are reflected in the SEO for Water.

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		and is expected to be the driver of long-term EU water policy rural development programme.	
Waste Framework Directive [2008/98/EC], as amended in 2018 [2018/51/EU]	• Sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. • Explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products.	The Directive requires that: • Waste is managed without endangering human health • Waste is managed without harming the environment. • Waste is managed without harming water, air, soil, plants or animals. • Waste does not cause a nuisance a nuisance through noise or odours, or to countryside or places of special interest.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on water, soil and air.
Use and Disposal of Animal By-products (Commission Regulation 2011/EU142)	Outlines health rules as regards animal by-products not intended for human consumption.	The Regulation lays down strict rules for the collection, transport, storage, handling, processing and use or disposal of all animal by-products.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Regulation.
Valletta Convention (1992)	Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992). The Valletta Treaty aims to protect the European archaeological heritage "as a source of European collective memory and as an instrument for historical and scientific study	Sets guidelines for the funding of excavation and research work and publication of research findings. Deals with public access, in particular to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage. The Convention constitutes an institutional framework for pan-European co-operation on the	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.

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		archaeological heritage, entailing a systematic exchange of experience and experts among the various States. The Committee responsible for monitoring the application of the Convention assumes the role of strengthening and co-ordinating archaeological heritage policies in Europe.	
Granada Treaty (1985)	Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985). The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties.	• Conservation of European architectural heritage.	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.
World Heritage Convention [WHC-2005/WS/02]	Objectives seek to ensure the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage and ensure that effective and active measures are taken for these. The Convention recognises the way in which people interact with nature and encourages signatories to integrate the protection of cultural and natural heritage into regional planning programmes, set up staff and services at their sites, undertake scientific and technical conservation research and	• Establishment of measures for the protection of monuments of national importance by virtue of the historical, architectural, traditional, artistic or archaeological interest attaching to them. Includes the site of the monument, the means of access to it and any land required to preserve the monument from injury or to preserve its amenities. • World Heritage Sites in Ireland are specific locations that have been included in the UNESCO World	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	adopt measures which give this heritage a function in the day-to-day life of the community.	Heritage Programme list of sites of outstanding cultural or natural importance to the common heritage of humankind. Two such sites in Ireland have been designated	
European Landscape Convention [ETS No. 176]	• Promotion of the protection, management and planning of European landscapes and organising European co-operation on landscape issues. • Applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. • Inclusion of landscapes that might be considered outstanding as well as every day or degraded landscapes. • Aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape. • Complements the Council of Europe's and UNESCO's heritage conventions.	• Respond to the public's wish to enjoy high-quality landscapes and to play an active part in the development of landscapes. • Each administrative level (national, regional and local) should draw up specific and/or sectoral landscape strategies within the limits of its competences. These are based on the resources and institutions which, when co-ordinated in terms of space and time, allow policy implementation to be programmed. The various strategies should be linked by landscape quality objectives.	Environmental protection objectives of the Treaty are reflected in the SEO for Landscape and Visual Amenity.

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National			
Biodiversity Strategy for Northern Ireland to 2020	A strategy for Northern Ireland to meet its international obligations and local targets to protect biodiversity	The strategy sets out the proposals for action to help halt the loss of biodiversity and the degradation of ecosystems up to 2020. 1. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society 2. Reduce the direst pressures on biodiversity and promote sustainable development 3. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity 4. Enhance the benefits to all from biodiversity and ecosystem services 5. Enhance implementation through participatory planning, knowledge management and capacity building.	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft NAP 2027-2030 should promote maintenance and, where possible, enhancement of biodiversity.
UK Post-2020 Biodiversity Framework	Succeeds the UK Biodiversity Action Plan and 'conserving Biodiversity – the UK Approach'. Sets out the UK's response to the CBD's 'Strategic Plan for Biodiversity 2011-2020' and its 20 'Aichi Targets' (2010), and the EU Biodiversity Strategy (2011).	The Framework demonstrates how the work of the four countries and the UK contributes to achieving the Aichi Targets, and identifies the activities required to complement the country biodiversity strategies in achieving the Targets.	Environmental protection objectives of the Framework are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft NAP 2027-2030 should promote maintenance and, where

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		The following are the Strategic Goals of the Framework: • Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; • Reduce the direct pressures on biodiversity and promote sustainable use; • To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; • Enhance the benefits to all from biodiversity and ecosystems; and • Enhance implementation through participatory planning, knowledge management and capacity building	possible, enhancement of biodiversity.
Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, and amendment Regulations	These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000. See EU Habitats Directive.	Protects certain birds, plants, animals, marine life and their habitats, including Natura 2000 sites, through creating criminal offences and changing planning requirements.	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft NAP 2027-2030 should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft NAP 2027-2030, to ensure that its

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
			implementation will not adversely affect SPAs and SACs.
Wildlife and Natural Environment Act (Northern Ireland) 2011	Amended the Wildlife (Northern Ireland) Order 1985 by giving protection to a wider range of plants, animals and birds, and providing additional enforcement powers and increased penalties for wildlife related offences. The Act also introduced a statutory duty on all public bodies to further the conservation of biodiversity.	Provides greater protection for a wider range of species and further the conversation of biodiversity.	The draft NAP 2027-2030 will have a 'Duty of Care' to conserve biodiversity. Environmental protection objectives of the Act are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Environment (Northern Ireland) Order 2002	Covers several environmental issues, including pollution prevention control, assessment and management of air quality, and designation of areas of special scientific interest (ASSIs).	Introduced further measures on the protections of ASSIs and the management of pollution	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna, and for Air Quality.
DAERA Conservation Management Plans for SACs (in prep.)	Series of Management Plans for SACs in Northern Ireland, determining the pressures and threats to habitats and species at the sites, and identifying the management actions required to address these pressures.	In line with obligations under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), measures must be put in place to maintain and, where needed, improve the ecological health of NI SACs (58 no.) In 2017, NIEA began a 4 year work programme to develop a series of Management Plans.	The draft NAP 2027-2030 should ensure that European Sites are suitably protected from loss or damage, with regard to the information provided in these Conservation Management Plans. Environmental protection objectives to protect European designated sites are reflected in the SEOs for Biodiversity, Flora and Fauna.
Northern Ireland Species and Habitat Action Plans	Northern Ireland Species and Habitat Action Plans are published to assist delivery of the Northern Ireland Biodiversity Strategy, for	A wide range of actions for these habitats and species continues to be undertaken, e.g. through the management of	Environmental protection objectives to protect European designated sites and species are reflected in the

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	the protection and enhancement of Northern Ireland Priority Species populations and areas of Priority Habitats which in turn supports Nature Recovery Networks and Green Growth Strategies.	designated sites, planning regulation, agri-environment schemes and grant-aided projects, but have not been specifically designed to fully implement these action plans or any overarching Habitat and Species Action Plan.	SEOs for Biodiversity, Flora and Fauna.
Draft Nature Recovery Strategy for Northern Ireland to 2032	The Draft Nature Recovery Strategy for Northern Ireland aims to recognise, safeguard, mainstream and restore nature and biodiversity through collaborative working.	The draft Strategy contains five strategic objectives with a series of actions to deliver these. The 2032 Mission is to halt and reverse biodiversity loss and with a by 2050 Vision of restoration and regeneration of biodiversity across Northern Ireland. The five strategic objectives are: 1. Well Protected Nature and Accelerated Restoration. 2. Reduction of the Pressures on Biodiversity. 3. Sustainable Use of Biodiversity through Nature-Friendly Policies and Practice. 4. Nature Valued and Mainstreamed across All of Government and Society. 5. Building Strong, Integrated Evidence and Knowledge to Enable Action and Reporting for Nature.	The draft NAP 2027-2030 will have a ‘Duty of Care’ to conserve biodiversity and help contribute towards the achievement of objectives in the draft Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Fisheries Act 2020	Provides a framework for fisheries management for the UK following exit from the EU.	The Act has the following eight fisheries objectives: 1. Sustainability – Fisheries are environmentally, economically and socially sustainable. 2. Precautionary – Stocks are harvested in a way that 'restores and maintains populations...above biomass levels capable of producing Maximum Sustainable Yield' 3. Ecosystem – An ecosystem-based approach to management is used, and bycatch of sensitive species is minimised and, where possible, eliminated. 4. Scientific Evidence – Data is collected and shared between authorities, and the best scientific advice is used to develop management measures. 5. Bycatch – By catch of undersized fish is minimised and avoided, catches are recorded and accounted for, and bycatch of commercial species is still landed but disincentivised. 6. Equal Access – British fishing boats have access to fish in all UK waters. 7. National Benefit- The fishing activities of UK boats bring economic and social benefits to UK communities. 8. Climate Change – The impacts of fisheries on climate change 9e.g. through emissions) is reduced, and	The draft NAP 2027-2030 should contribute towards the achievement of objectives in the Act.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		fisheries are able to adapt to the effects of climate change (e.g. shifting stocks). The Act creates a legal requirement for the UK's our national fisheries policy authorities to produce a Joint Fisheries Statement (JFS), that will lay out how these objectives will be met.	
Fisheries Act (NI) 1966 as amended	The Fisheries Act 1966 makes provision for the development and improvement of fisheries in Northern Ireland, consolidating amendments to the previous Fisheries Acts (Northern Ireland) from 1842 to 1954	The Fisheries Act (Northern Ireland) 1966 was originally designed to extend the functions of the Ministry of Agriculture in relation to fisheries and to make provision for the development and improvement of fisheries by that Ministry.	The draft NAP 2027-2030 should contribute towards the achievement of objectives in the Act.
Convention for the Conservation of Salmon in the North Atlantic	This convention recognises that salmon originating in the rivers of different States intermingle in certain parts of the North Atlantic Ocean.	The key objectives of the convention are the desire to promote the acquisition, analysis and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean and the desire to promote the conservation, restoration, enhancement and rational management of salmon stocks in the North Atlantic Ocean through international cooperation	The draft NAP 2027-2030 should contribute towards the achievement of the desires of the convention and the Articles therein.
Third cycle River Basin Management Plans (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027	Describes existing condition of waters in the River Basin Districts, the objectives for improving their condition and the measures to be used to deliver these improvements. • Establish a framework for the protection of waterbodies at River Basin District (RBD) level.	• Aims to improve water quality and quantity within inland surface waters (rivers and lakes), transitional waters coastal waters and groundwater and meet the environmental objectives outlined in Article 4 of the WFD;	The draft NAP 2027-2030 aims to contribute to protecting and enhancing water status in line with the WFD. Environmental Protection Objectives of the Plans are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	• Preserve, prevent the deterioration of water status and where necessary improve and maintain “good status” of waterbodies in that RBD. • Promote sustainable water usage.	• Identifies and manages waterbodies in the RBD; • Establishes a programme of measures for monitoring and improving water quality in the RBD; • Involves the public through consultations; RBMPs are prepared and reviewed every six years. The most recent is the third cycle RBMP, which runs from 2021-2027.	
Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016	The SALMS for Northern Ireland outlines how the ambitions to address the issue of agricultural ammonia and its impact on nature and sensitive environmental sites in Northern Ireland could be achieved in a way which improves farm incomes and environmental performance simultaneously.	The Strategy recommends the following first steps for implementation: • Building a detailed baseline of current productive and environmental performance (GPS soil sampling and analysis of all agricultural land; aerial LIDAR (Light Detection and Ranging) survey of NI; real-time water quality monitoring; establishment of a central database; online cloud-based decision support tool); • Improved soil health (appropriate application of lime to optimise pH; prioritising fields at low P levels for nutrient application; increase in slurries and manures applied using efficient methods; slurry/manure nutrient and biosecurity analysis; research into soil technologies e.g. potentiometers;	Objectives of the Strategy have been taken into account in the draft NAP 2027-2030. Environmental Protection Objectives of the Strategy are reflected in SEOs for Geology, Soils and Landuse, Water; Air Quality and Biodiversity, Flora and Fauna.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		capital support to separate P from slurries/manures); and • Establishment of a culture whereby farmers have the confidence to implement these sustainable land management practices.	
Soil Nutrient Health Scheme for Northern Ireland	This is a scheme for soil sampling and carbon analysis.	The scheme aims to build from the ground up, by putting an increased emphasis on improved soil nutrient health and farm carbon. It will be available to all farmers. It will provide farmers with detailed information on soil nutrient levels for every field on their farm, along with an estimate of the amount of carbon stored in their soils, hedgerows and trees.	Objectives of the Scheme have been taken into account in the draft NAP 2027-2030. Environmental Protection Objectives of the Scheme are reflected in SEOs for Geology, Soils and Landuse.
Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024	The NICCAP2 contains the NICS Departments response to the risks and opportunities relevant to Northern Ireland, as identified in the UK Climate Change Risk Assessment 2017 (CCRA 2017). It sets out preparation for climate change impacts that are already happening, and puts in place plans for future impacts.	• NICCAP2 focusses on priority areas identified in the NI Evidence Report as requiring urgent adaptation action over the next 5 years: • Sets the strategies, policies and actions by which government departments will deliver on the agreed outcome objectives	The draft NAP 2027-2030 aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Landuse.
Northern Ireland Strategic Energy Framework (SEF) (2010)	The Strategic Energy Framework (SEF 2010) is the result of examining the drivers, strengths, opportunities and threats to Northern Ireland's energy landscape and attempting to balance many diverse social,	The framework's four goals are to: • Build competitive markets; • Ensure security of supply; • Enhance sustainability; and	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Framework, which includes a contribution to reduced carbon emissions, in terms of cumulative

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	environmental and economic issues alongside their associated risks.	• Develop energy infrastructure.	emissions affecting air quality and climate.
(Northern Ireland) Sustainable Energy Action Plan, 2012-2015 and beyond (2012)	The Action Plan outlines the various initiatives being undertaken by the Northern Ireland Executive and includes a statement of leadership from the Executive, demonstrating a united and long-lasting commitment to sustainable energy. This Plan builds from the Strategy Energy Frameworks, 2010. • Building energy markets • Ensuring security supple • Enhancing sustainability and development of competitive energy markets • Increasing the level of electrify and heat from renewable sources	The aim is underpinned by three strategic objects: • Reduce greenhouse gas emission from transport. • Protect biodiversity. • Reduce water, noise and air pollution.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on air quality and climate, biodiversity and water.
UK Climate Change Act 2008	The Climate Change Act, the first of its kind in any country, set out a framework for moving the UK to a low-carbon economy.	The key component of the legislation requires a mandatory 60% cut in the UK's carbon emissions by 2050. Two key aims underpinning the Act: 1. Improve carbon management and help the transition towards a low carbon economy in the UK 2. Demonstrate strong UK leadership internationally,	The draft NAP 2027-2030 aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		signalling that we are committed to taking our share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009.	
The Climate Change Act 2008 (2050 Target Amendment) Order 2019	Sets a legal requirement to reduce the UK's emissions of GHGs by 100% relative to 1990 levels by 2050.	Legislative basis for achieving the 'net zero' target by 2050, increasing the previous target committed to within UK legislation.	The draft NAP 2027-2030 aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.
Climate Change (Northern Ireland) Act 2022	Sets a legal requirement to reduce Northern Ireland's emissions of GHGs by 100% relative to 1990 levels by 2050.	• Target of an at least 100% reduction in net zero greenhouse gas (GHG) emissions by 2050 (i.e., net zero emissions by 2050) for NI compared to baseline; • Target of at least 48% reduction in net emissions by 2030; and • Raised the commitment for renewable electricity consumption from 70% as established in the NI Energy Strategy to 80% by 2030.	The draft NAP 2027-2030 should aim to contribute towards climate change mitigation. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.
Draft Climate Action Plan 2023-2027	Sets out policies and proposals to help achieve a 33% reduction in greenhouse gas emissions from the 1990 baseline for Northern Ireland to be consistent with the first carbon budget.	Series of plans and proposals to achieve reductions in emissions, this climate action plan seeks to met the first carbon budget and ensure that the initial pathway to meet targets for 2030, 2040 and 2050 can occur. This has been published in co-	The draft NAP 2027-2030 should aim to contribute towards climate change mitigation. Environmental Protection Objectives of the Plan are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		ordination with the Programme for Government 2024-2027. A series of policies and proposals have been developed in the following sectors to achieve greenhouse gas emission reductions: • Energy production and supply. • Transport. • Business and industrial processes. • Residential and public buildings. • Waste management. • Agriculture. • Land use, land change and forestry. • Fisheries.	
UK Climate Change Risk Assessment (CCRA) Programme 2017	The UK Government is required, under the Climate Change Act, to publish a CCRA every 5 years, setting out the risks and opportunities facing the UK from climate change.	The first CCRA was published by the Department for Environment, Food and Rural Affairs (Defra) in 2012, second in 2017 and third in 2021. These assessments identify the risk and opportunities posed by climate change over the next 5 years. Evidence Reports feed into the UK National Adaptation Programme, and national adaptation programmes of devolved administrations (i.e. the NICCAP2).	The draft NAP 2027-2030 aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Land use.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
The National Emissions Ceiling Regulations 2018	Implement in the UK Directive 2016/2284/EU relating to national emission ceilings for certain atmospheric pollutants.	The Regulations require: • Preparation of an annual inventory of emissions of certain pollutants occurring in the UK, and projections of such emissions; • Ensure from 2010-2019 that anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs and ammonia occurring within the UK do not exceed specified amounts; • Ensure from 2020-2029 those anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs, ammonia and fine particulate matter occurring within the UK do not exceed specified amounts, and from 2030 that they do not exceed additional specified amounts; • Ensure emissions in 2025 are following a linear reduction trajectory between 2020 and 2030 targets; • Preparation of a national air pollution control programme, to which public authorities must have regard; • Locate sites representative of specified ecosystems and habitats in order to monitor the negative impacts of air pollution.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
UK National Air Pollution Control Programme (NAPCP) 2019	Programme required under The National Emission Ceilings Regulations 2018. The NAPCP sets out how the UK can meet the legally binding 2020 and 2030 emission reduction commitments.	• Emission reduction commitments apply for 5 pollutants: nitrogen oxides, ammonia, non-methane VOCs, particulate matter and sulphur dioxide. • Policies and Measures (PaMs) are included for agriculture, including: Funding for low emission equipment; Regulation to reduce urea-based fertiliser emissions and regulation to reduce emissions from fertiliser use; Requiring covers on slurry & digestate, stores and requiring spreading by trailing hose, trailing shoe or injection; Incorporation of manures within 12 hours; Mandatory standards for livestock housing; Environmental permitting for dairy & intensive beef units.	Measures proposed for the agriculture sector in the Programme have been incorporated into the draft NAP 2027-2030. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Land use, Air Quality and Climatic factors.
Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007	The Air Quality Strategy sets out air quality objectives and policy options to improve air quality in the UK from current to long term. As well as direct benefits to human health, these options are intended to provide important benefits to quality of life and to help protect the environment.	The Strategy sets out the UK Government and devolved administrations' air quality objective and the measures selected to achieve desired improvements in air quality. The overall aim is a steady decrease in ambient levels of pollutants towards the objectives over the period of implementation. These objectives are a statement of policy intentions or targets and are not legally binding in themselves.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Strategy, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		The main sources, hazards and strategy's objectives are provided for the following pollutants: particulate matter, oxides of nitrogen, ozone, sulphur dioxide, polycyclic aromatic hydrocarbons, benzene, 1,3-butadiene, carbon monoxide, lead and ammonia.	
Air Quality Standards Regulations (Northern Ireland) 2010, and amendments (2017)	Transpose the EU Air Quality Directives and place a duty on the NI government departments to monitor levels of air pollutants specified in the Air Quality Directives and ensure compliance with limit values for these pollutants.	Designate zones in which ambient air will be protected by limiting the concentration of pollutants within them.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides, ammonia as a secondary particulate matter precursor, and cumulative effects of pollutants on air quality. Environmental protection objectives are reflected in the SEO for Climatic Factors.
The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013, and amendments up to 2018	Transpose Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control).	The Regulations revoked 18 sets of previous regulations relating to industrial emissions and consolidated all the provisions of the Industrial Emissions Directive into a single set of regulations. They control the operation of any installation or mobile plant that carries out activities listed in Part 1 of Schedule 1 to the Regulations.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Regulations, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.

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Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020	Discussion document in advance of developing the first Clean Air Strategy for Northern Ireland.	Presents evidence and research on a range of ambient air pollutants and outline policy and legislation currently in place to control air pollution.	The draft NAP 2027-2030 should have regard for Environmental Protection Objectives of this Strategy.
Making Ammonia Visible (Annex to the SALMS for NI) 2017	Aim is to satisfy the joint need of bringing ammonia emissions from agriculture down to a level that lets the agricultural sector expand and deliver, while allowing Priority Habitats to recover.	Provides recommendations for the medium to long term, and recommends 6 guiding principles and approaches to alleviate acute pressure in the short term, which DAEREA should apply in considering applications for development.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEO for Air.
Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020	Plan for the agriculture and forestry sector to reduce GHG emissions.	Focus on supporting the implementation of on-farm efficiency measures designed to reduce the carbon intensity of food products, while simultaneously improving productivity and profitability. Priority on-farm actions are founded in the key themes identified in Phase 1: • Better Nutrient Management; • Better livestock management; • Improving land and carbon management; and • Increasing energy efficiency.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Land use; and Climatic Factors.
Northern Ireland Greenhouse Gas Inventory 1990-2022 statistical bulletin	This statistical bulletin is updated annually and outlines key NI figures from the GHG Inventories for England, Scotland, Wales and Northern Ireland.		Provides environmental baseline information on which the draft NAP 2027-2030 could have impacts upon.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Proposed Ammonia Strategy for Northern Ireland 2025-20230 (Consultation Draft DAERA 2023)	The draft Ammonia Strategy aims to plan the way forward to reduce ammonia emissions from agriculture in Northern Ireland.	The draft Ammonia Strategy consultation sets out two targets for 2030: • Reduce total Northern Ireland agricultural ammonia emissions by at least 30% from 2020 levels. • Reduce ammonia at internationally designated sites by 40% or <Cle (Critical Level for ammonia concentration at a site). The draft Strategy includes two pillars as part of a strategic approach to addressing ammonia: □ An ambitious and verifiable ammonia reduction programme. • Conservation actions to protect and restore nature.	The draft NAP 2027-2030 is being developed in alignment with the draft Ammonia Strategy. Environmental Protection Objectives are reflected in the SEO for Air.
Northern Ireland State of the Environment Report 2013	The second report on the State of the Environment in Northern Ireland brings together recent information on how the NI environment is performing across land, water, sea and air.	Updates the first state of the environment report and provides commentary on 44 environmental indicators across 8 themes. The report draws together in one place an overall picture of our environment and identifies cross-cutting issues.	Provides environmental baseline information on which the draft NAP 2027-2030 could have impacts upon.
Environment Strategy for Northern Ireland 2019	A NI Environment Strategy is required to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.	Requirement to monitor environmental progress against the NI Environment Strategy on an annual basis and focus on natural environmental issues.	The draft NAP 2027-2030 should have regard for this Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Rural Development Programme for Northern Ireland 2014-2020 & Annual Implementation Report 2022	The Northern Ireland Rural Development Programme (NIRDP) is supported through Pillar 2 of the EU Common Agricultural Policy (CAP), focussed on improving the structural and environmental performance of agriculture and promoting local/rural development.	The NIRDP has 3 objectives for the development of NI rural areas: • Competitiveness; • Environment; and • Development of rural areas. The NIRDP includes associated agri-environmental schemes: Environmental Farming Schemes (EFS), Areas of Natural Constraint (ANC) and Forestry Schemes. The Annual Implementation Report outlines progress that has been made towards each of these objectives.	The draft NAP 2027-2030 should have regard for this Programme. Environmental Protection Objectives are reflected in SEOs for Geology, Soils and Landuse; and Material Assets.
Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004	Implements the SEA Directive (2001/42/EC) in Northern Ireland. To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	See SEA Directive.	The draft NAP 2027-2030 will be subject to the SEA process. This is being undertaken through this Scoping Report and subsequent Environmental Report.
Future Agricultural Policy Decisions for Northern Ireland	Sets out the future direction for agricultural policy for Northern Ireland.	Sets out the decisions for the future of agricultural policy for Northern Ireland. It outlines 43 decisions including under the following topics: • Resilience Measure • Headage Sustainability Package • Farming for Nature Package	The draft NAP 2027-2030 will have regard to the policy decisions of the programme.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Farming for Carbon • Investment Measure • Knowledge Measures • Generational Renewal • Supply Chain Measures • Soil Testing and LiDAR • Livestock Genetics and Data • Controls and Assurance • Metrics, Monitoring and Evaluation • Environmental Assessments • Horticulture	
Food Wise 2025 (Republic of Ireland strategy)	Food Wise is sets out the strategic plan for the development of the Republic of Ireland's agri-food sector over the next decade.	Growth projections include increasing the value added in the agri-food, fisheries and wood products sector by 70% to in excess of €13 billion. Sustainable production at its core setting out a range of specific recommendations aimed at managing the projected growth in a sustainable way. There is a strong commitment to the measurement and monitoring of the sustainability credentials of the sector as the strategy rolls out.	The draft NAP 2027-2030 should have regard for the environmental protection objectives included in the Strategy.
Northern Ireland Executive Programme for Government 2016-2021	The Programme for Government identifies the actions the Executive stated purpose – Improve wellbeing for all – by tackling disadvantage, and driving economic growth.	List of Programme for Government Outcomes • We prosper through a strong, competitive, regionally balanced economy.	The draft NAP 2027-2030 will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute towards the achievement of the objectives of this programme.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• We live and work sustainably - protecting the environment. • We have a more equal society. • We enjoy long, healthy, active lives. • We are an innovative, creative society where people can fulfil their potential. • We have more people working in better jobs. • We have a safe community where we respect the law and each other. • We care for others and we help those in need. • We are a shared, welcoming and confident society that respects diversity. • We have created a place where people want to live and work, to visit and invest. • We connect people and opportunities through our infrastructure. We give our children and young people the best start in life.	
Northern Ireland Executive Programme for Government 2021	The Northern Ireland Executive is currently developing a new strategic, outcomes-based Programme for Government. Two of the key outcomes in the draft PfG that are most relevant to agricultural policy are: 'an	Key priority areas have been identified as: • Providing the tools under a future agricultural policy to increase productivity, enhance environmental sustainability, improve resilience and	The draft NAP 2027-2030 will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	economy that is globally competitive, regionally balanced and carbon neutral'; and 'that we live and work sustainably – protecting the environment'.	supply chain integration of the agri-food industry; and • Protecting and enhancing biodiversity and the natural environment, supporting sustainable practices and resource use in the energy, agri-food, fishing and forestry sectors and ensuring human, animal and plant health.	towards the achievement of the objectives of this programme.
Strategic Planning Policy Statement for Northern Ireland 2015	This planning policy sets out the Department's regional planning policies for securing the orderly and consistent development of land in Northern Ireland under the reformed two-tier planning system. The provisions of the SPPS must be taken into account in the preparation of Local Development Plans, and are also material to all decisions on individual planning applications and appeals.	There are two new Core Planning Principles included in the SPPS: • Supporting Sustainable Economic Growth, and • 'Preserving and Improving the Built and Natural Environment	The draft NAP 2027-2030 will have consideration for these planning policies.
Planning Policy Statements 1 – 23	Policies on land-use and other planning matters that apply to the whole of NI. Planning Policy Statements will be superseded by Local Development Plans when they are adopted.	PPS1: General Principles- Sets out the general principles that the DoENI observes in carrying out its planning functions. PPS2: Natural Heritage- Sets out the Department's planning policies for the conservation, protection and enhancement of our natural heritage. PPS4: Planning and Economic Development- Sets out the Department's revised planning policies for economic	The draft NAP 2027-2030 should have consideration for these planning policies and LDPs, when adopted.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		development uses and indicates how growth associated with such uses can be accommodated and promoted in development plans. PPS6: Planning, Archaeology and the Built Heritage- Provides the main criteria in assessing proposals which affect the archaeological or built heritage. PPS15: Planning and Flood Risk- The main objectives are to: Adopt a precautionary approach to decision-making taking account of climate change so that risk is avoided where possible. PPS18: Renewable Energy- Sets out the planning policy for development that generates energy from renewable resources. PPS21: Sustainable Development in the Countryside- sets out planning policies for development in the countryside.	
The Regional Development Strategy 2035 – Shaping Our Future - Updates the Regional Development Strategy for Northern Ireland 2025	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will support and enable the aspirations of the Region to be met.	The over-arching vision of the Regional Development Strategy is: "An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. "	The draft NAP 2027-2030 will consider land use changes and spatial planning impacts.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		The aims of the RDS 2025 remain valid: • Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West • Support our towns, villages and rural communities to maximise their potential. • Promote development which improves the health and well-being of communities. • Improve connectivity to enhance the movement of people, goods, energy and information between places. • Protect and enhance the environment. • Take actions to reduce our carbon footprint and facilitate adaptation to climate change. Strengthen links between north and south, east and west, with Europe and the rest of the world	
UK Sustainable Development Strategy, Agenda 21	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will	The over-arching vision of the Regional Development Strategy is: “An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	support and enable the aspirations of the Region to be met.	opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. “ The aims of the RDS 2025 remain valid: • Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West • Support our towns, villages and rural communities to maximise their potential • Promote development which improves the health and well-being of communities • Improve connectivity to enhance the movement of people, goods, energy and information between places • Protect and enhance the environment • Take actions to reduce our carbon footprint and facilitate adaptation to climate change • Strengthen links between north and south, east and west, with Europe and the rest of the world.	

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
10X Economy – An Economic Vision	In May 2021, the Department for the Economy launched its economic vision for the next 10 years, called 10x Economy - an economic vision for a decade of innovation.	The concept embraces innovation to deliver a ten times (10X) better economy with benefits for all the people of Northern Ireland. 10 guiding principles have been identified to underpin this vision and a number of these are central to agriculture, such as delivering positive economic, environmental and societal outcomes; supporting a greener, sustainable economy; position Northern Ireland amongst the most competitive small advanced economies in the world; and focussing on increasing innovation in high value-added areas and priority clusters. "*Agri-Tech"* has been identified as one of the priority sectors.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the vision.
Sustainability for the Future – 'DAERA's Plan to 2050'	Sustainability for the Future, published in May 2021, presents DAERA's strategic priorities up to 2050.	The Plan outlines the following strategic priorities: • To enhance our food, forestry, fishery and farming sectors using efficient and environmentally sustainable models which support economic growth; • To protect and enhance our natural environment now and for future generations whilst advocating its value to and wellbeing for all; • To champion thriving rural communities that contribute to prosperity and wellbeing; and	Future agricultural policy has a significant role in delivering against these priorities and is underpinned by our purpose of '*Sustainability at the heart of a living, working, active landscape valued by everyone'*. The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the Plan.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• To be an exemplar, people focused organisation, committed to making a difference for the people we serve.	
Draft Green Growth Strategy for Northern Ireland	Green Growth is an over-arching multi-decade Strategy, led by DAERA, which sets out the long-term vision and a solid framework for tackling the climate crisis by balancing climate action with the need for a clean, resilient environment and economy. It has been developed by all Ministers and Government departments working together, in collaboration with external stakeholders from local government, the private sector, voluntary and community sectors and others.	The cross-cutting strategy will be delivered through a series of Climate Action Plans, which will set out the actions to meet sector-specific greenhouse gas emission targets to deliver a cleaner environment rich in biodiversity; delivering a more efficient use of resources within a circular economy; and green jobs.	The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the Strategy.
Draft Northern Ireland Food Strategy Framework	DAERA has been leading on the development of a Northern Ireland Food Strategy Framework. This Framework has been developed collaboratively with officials across Northern Ireland Departments and other interested parties and is complementary to the Agricultural Policy Framework, extending issues relating to food production and consumption out into other areas of government policy.	The draft Food Strategy Framework recognises the interconnectedness between food, health, the economy and the environment. It proposes a new strategic food systems approach for Northern Ireland, and sets out a long-term vision, high level principles and areas for strategic focus. The vision is a transformed food system that protects natural resources for future generations, is economically and environmentally sustainable and provides safe, nourishing, accessible food to people, who make informed healthy choices.	The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Environment Strategy for Northern Ireland 2019	The Environment Strategy will set out Northern Ireland's environmental priorities for the coming decades and will form part of the Executive's Green Growth Delivery Framework. It will be used to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.	The strategy lists a series of priorities and interventions which are designed to bring about improvements in the environment.	The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the Strategy. Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
Rural Policy Framework for Northern Ireland	The overall aim of the policy framework is to create a sustainable rural community where people want to live, work and be active.	The framework comprises five key thematic pillars, and nineteen associated priority interventions. The thematic pillars are: • Innovation and entrepreneurship; • Sustainable tourism; • Health and wellbeing; • Employment; and • Connectivity	Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of the objectives of the framework.
Northern Ireland Energy Strategy 2050	In June 2019 the UK became the first major economy to commit to a 100 per cent reduction in greenhouse gas emissions by 2050. This 'net zero' target represents a significant step-change in the commitment to addressing the climate crisis. This Northern Ireland Energy strategy 2050 will seek to meet this commitment.	The Department for the Economy has begun the process of developing a new energy strategy to decarbonise the Northern Ireland energy sector by 2050 at least cost to the consumer. A new energy strategy will be published by the end of 2021.	Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of greenhouse gas emission targets of the Strategy.
Northern Ireland Peatland Strategy to 2040	The strategy outlines a range of strategic objections and actions considered necessary to ensure that semi-natural	The objectives of the Northern Ireland Peatland Strategy to 2040 include:	Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	peatlands are conserved and restored to functioning ecosystems.	• By 2040, all peatlands supporting semi-natural vegetation being managed for their peatland biodiversity and ecosystem function; • By 2030, degraded peatland habitats prioritised for restoration to favourable conservation status; • By 2040, all high priority degraded peatlands under restoration management; and also by 2040, that high priority degraded peatlands in Northern Ireland are under sustainable management.	Environmental Protection Objectives of the Strategy.
DAERA Science Strategy Framework 2020-2035	The Framework will guide how DAERA can optimise its use of science to help deliver Departmental and Programme for Government objectives, as part of the Science Transformation Programme.	The Framework: • Outlines a Vision for DAERA science; • Defines high level principles to be adopted; • Describes the desired end-state goals to be achieved in terms of providing leadership, understanding needs, optimising investment in resources and having effective governance. It then defines objectives to reach the goals in terms of: • Providing better leadership for science;	The Science Strategy Framework will support the measures of the draft NAP 2027-2030.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Becoming more intelligent customers of science; • Better targeting of science funding; • Pursuing value for money; and • Ensuring impact of science products.	
Climate Change (No.1) Bill	The Bill sets down in legislation the net-zero carbon target for Northern Ireland.	The purpose of the Bill is: • To enable the mitigation of the impact of climate change in Northern Ireland; • Establish a legally binding net-zero carbon target for Northern Ireland; • Provide for the establishment and powers of the Northern Ireland Climate Commissioner and Northern Ireland Climate Office; • Guarantee existing environmental and climate protections; and • For connected purposes.	Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of the net-zero carbon target of the Bill.
Climate Change (No.2) Bill	The Bill sets down in legislation the carbon targets for Northern Ireland.	The purpose of the Bill is: • To set targets for the years 2050, 2040 and 2030 for the reduction of GHG emissions; • To provide for reporting and statements against those targets and budgets;	Successful implementation of the draft NAP 2027-2030 will contribute towards the achievement of the carbon targets of the Bill.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• To confer power to impose climate change reporting duties on public bodies; • To provide for reports and advice from the Committee on Climate Change; and • For connected purposes.	
Water Environment (Floods Directive) Regulations (Northern Ireland) 2009, and amendment Regulations 2018	Implement EU Floods Directive 2007/60/EC on the risk and management of flood risk in Northern Ireland.	Main purpose is to establish a framework for the assessment of adverse consequences of flooding on human health, the environment, cultural heritage and economic activity.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations, in terms of cumulative effects on surface waterbodies.
The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017	Transpose the Water Framework Directive (2000/60/EC) into NI legislation.	• Place a responsibility on NI to try to ensure that all inland and coastal waters reach at least “good status” (or good ecological potential for artificial or heavily modified waterbodies); • Implementation of management planning at river basin level, to achieve this target, linking with other key policy areas such as agriculture, land use, biodiversity, tourism and flood protection through a river basin management plan (RBMP). This sets out a programme of measures to be implemented over 6-year cycles aimed at improving waterbody status.	Successful implementation of the draft NAP 2027-2030 is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015	Transpose Directive 2013/39/EU which revised environmental standards for some priority substances and added a further twelve additional substances to the list of priority substances introduced by the original Priority Substances Directive (2008/105/EC). Consolidate all the current legislation which set out the Water Framework Classification Schemes.	• Consolidate all the current legislation which set out the Water Framework Classification Schemes. • Sets environmental quality standards for priority substances. • Outlines standards required for Shellfish waters.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations for priority substances, in terms of cumulative effects on surface waterbodies. Environmental protection objectives are reflected in SEOs for Biodiversity, Flora and Fauna; Population and Human Health; and Water.
The Marine Strategy Regulations 2010	The Marine Strategy Regulations 2010 require action to be taken to achieve or maintain Good Environmental Status (GES) in UK seas.	• Require production of a “Marine Strategy” for all UK waters. • Applies an ecosystem-based approach to the management of human activities. • Considers 11 qualitative descriptors, alongside a wide range of human activities and prevailing physiographic, geographic and climatic conditions. • The Strategy comprises three parts, with the Regulations requiring updates to be made every six years.	Environmental protection objectives of the Regulations are reflected in the SEO for Water.
Marine and Coastal Access Act 2009	Provides for the preparation of marine plans and enabled the adoption of the UK MPS. It includes provision changing the system for licensing, provides for the designation of conservation zones, and how marine fisheries are managed. It also modified how		The draft NAP 2027-2030 will need to take account of the provisions included, particularly in relation to decisions that affect or might affect the marine area.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	licensing, conservation and fisheries rules are enforced.		
Marine Act (Northern Ireland) 2013	Builds on provision of the MCAA. It establishes a system of marine planning in NI inshore region, assists in delivery to modernise the licensing and enforcement regime, contributes to the delivery of the UK aim of establishing an ecologically coherent network of Marine Protected Areas and the UK vision.	• Sustainable development, in line with Northern Ireland (Miscellaneous Provisions) Act 2006, the Executives Sustainable Development Strategy and High-Level Marine Objectives	The draft NAP 2027-2030 will need to take account of the provisions included, particularly in relation to decisions that affect or might affect the marine area.
UK Marine Policy Statement 2011	Provides the framework for preparing Marine Plans and taking decisions affecting the marine environment. It contributes to the achievement of sustainable development in the UK marine area and delivering the UK vision.	• Ensures marine resources are used in a sustainable way in line with the high-level marine objectives published in 2009.	Where the draft NAP 2027-2030 facilitates authorisation or enforcement decisions that affect or might affect the UK marine area, these must be made in accordance with the UK MPS. The draft NAP 2027-2030 will also need to have regard to the policies contained in this statement.
Draft Marine Plan for Northern Ireland 2018	Provides the framework for the management of the marine area through the taking of decisions affecting the Northern Ireland marine area. It contributes to the delivery of national and regional policy and objectives, sustainable development and the integration between marine and terrestrial management processes.	• Ensures a healthy marine area and that its resources are managed sustainably for the economic, environmental, and social prosperity of future and present generations, in line with the UK MPS and high-level marine objectives.	Where the draft NAP 2027-2030 facilitates authorisation or enforcement decisions that affect or might affect the UK marine area, these must be made in accordance with marine planning policy, such as a marine plan. The draft NAP 2027-2030 will also need to have regard to the policies contained in any relevant marine plan.

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Integrated Coastal Zone Management Strategy for NI 2006-2026	The Integrated Coastal Zone Management Strategy for NI 2006-2026 is based around four broad themes, consistent with the principles of sustainable development.	• The Integrated Coastal Zone Management Strategy for NI 2006-2026 is intended to set out long-term objectives for achieving sustainable coastal management, through improvements to existing management systems, the development of new management systems and identifying and dealing with potential areas of conflict.	Where the draft NAP 2027-2030 facilitates authorisation or enforcement decisions that affect or might affect UK coastal areas, the objectives of the Strategy will need to be considered.
The Quality of Bathing Water Regulations (Northern Ireland) 2008	These Regulations set quality standards for bathing water.	• Require regular testing of bathing waters, to ensure that they are of high enough quality for the general public to bathe in; • Require a Profile to be prepared for each designated bathing water site, giving detailed information on the physical characteristics and assessing the pollution risk to each site • Set quality standards for a number of issues, the most important of which relate to coliform and streptococcal groups of bacteria, which can indicate the mount of sewage or other faecal contaminants present.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEO for Population and Human Health.
Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017	Implement Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, in		The draft NAP 2027-2030 should have regard for the environmental protection objectives of these

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	respect of drainage schemes and drainage works.		Regulations, in terms of cumulative effects on surface waterbodies.
Water Resources (Environmental Impact Assessment) Regulations 2017	Revoke and replace the Water Resources (EIA) Regulations (NI) 2005 and provide (in relation to relevant water management projects for agriculture in Northern Ireland) for the assessment of the effects of such projects on the environment. They impose procedural requirements in relation to the consideration of applications or proposals for consent for a relevant project.		The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations relating to certain water management projects for agriculture, in terms of cumulative effects on surface waterbodies.
Private Water Supplies Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption from private supplies by ensuring that the water meets water quality standards and revoke and replace the 2009 Regulations (as amended).	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.
Water Supply (Water Quality) Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that the water meets water quality standards within the public water supply and revoke and replace the 2007 regulations (as amended).	The draft NAP 2027-2030 should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.
Control of Pollution (Silage, Slurry and	Reduction of water pollution from agricultural activities.	Establishes construction and storage standards for silage making and storage, slurry storage systems and agricultural	The draft NAP 2027-2030 should have regard for the environmental

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Agricultural Fuel Oil) Regulations (NI) 2003		fuel oil stores, with aim of reducing water pollution.	protection objectives of these Regulations. Environmental protection objectives are reflected in SEO for Water.
Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment	Implement the Environmental Liability Directive (2004/35/EC) in Northern Ireland.	• Brings into force rules to force polluters to prevent and repair damage to water systems, land quality, species and their habitats and protected sites. • The polluter does not have to be prosecuted first, so remedying the damage should be faster.	The draft NAP 2027-2030 will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Measures in the draft NAP 2027-2030 should aim to cause no damage and to enhance the wider environment.
Groundwater Regulations (Northern Ireland) 2009 and amendments	Protection of groundwater from pollution.	Introduces classification systems in line with EU developments, makes it an offence to discharge listed substances without an authorisation, controls issuing and reviewing authorisations and consents. Covers enforcement, codes of practice and penalties.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Pollution Control and Local Government (Northern Ireland) Order 1978	Prevention and regulation of waste and pollution.	Regulates waste on land, abandoned vehicles, noise nuisance, noise abatement zones, sulphur content of oil fuel used in furnaces and engines, cable burning, and pollution of the atmosphere and water. Other aspects have been revoked.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of this Order, in terms of cumulative effects on surface waterbodies and air quality.
Protection of Water Against Agricultural Nitrate Pollution	Implement the requirement of the Nitrates Directive (91/676/EEC) to formulate an “Action Programme”, for the protection of	Establishes that an Action Programme must be established and applied	These Regulations establish the requirement for the NAP for Northern Ireland. These are reflected in the

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(Northern Ireland) Regulations 2004	water from nitrate pollution from agricultural activities.	throughout the territory of Northern Ireland.	SEOs for Geology, Soils and Land use; and Water.
Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990	Bans the use of sewage sludge from treatment plants in agriculture, unless certain requirements are met including specified pH levels, no fruit or vegetable harvesting and no soil and groundwater pollution.	To prevent pollution arising from the use of sludge on agricultural land.	Environmental protection objectives of the Regulations are reflected in the SEOs for Geology, Soils and Land use and Water.
Urban Waste Water Treatment Regulations (Northern Ireland) 2007	Implements the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) in Northern Ireland, designed to reduce the pollution of freshwater, estuarine and coastal waters by domestic sewage and industrial wastewater.	Revokes and replaces the Urban Waste Water Treatment Regulations (Northern Ireland) 1995, to reflect new arrangements for sewerage services set out in the Water and Sewerage Services (Northern Ireland) Order 2006.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface waterbodies
Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates)	Sets out the waste management regime covering waste carrier registration and identifying and remedying contaminated land.		The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on soils and surface waterbodies.
Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007	Sets out a control regime for regulating the abstraction of water from underground strata and waterways and for constructing, altering or operating impounding works.		The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface waterbodies.
Water (Northern Ireland) Order 1999 (including	Revokes and replaces the Water Act (Northern Ireland) 1972 and makes provision for discharge consents. Enables		The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Order, in

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amendments up to 2004)	the DoE to set water quality objectives and prevent pollution from anti-pollution works.		terms of cumulative effects on surface waterbodies.
Water and Sewerage Services (Northern Ireland) Order 2006	Establishes government-owned companies' obligations for water supply, drinking water quality, trade effluent and sewage disposal, water and sewerage charges and customer service.		The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on surface waterbodies and quality of drinking water supplies.
NI Water Our Strategy 2021-2046	Strategy for the provision of a high quality water supply. The Strategy covers a longer term view over a quarter of a century (2021-2046).	The Strategy centres around 5 strategic priorities: • Customer – delivering an exceptional customer experience; • Water – delivering great tasting, clean and safe water to meet customer need; • Economy – efficiently delivering infrastructure to underpin sustainable growth; • Nature – protecting and enhancing the natural environment; and • People – providing a great place to work.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Strategy, in terms of cumulative effects on surface waterbodies and quality of drinking water supplies.
NI Flood Risk Management Plan, 2021-2027	The NI Flood Risk Management Plan (FRMP) is a key requirement of the Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) and is aimed at reducing the potential adverse consequences of significant floods	The objectives set, in relation to each area of impact are: Economic Activity	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on surface waterbodies.

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	on human health, economic activity, cultural heritage and the environment.	• To reduce the cost of potential future flood damages to properties and infrastructure; • To reduce the economic costs caused by disruption to essential infrastructure and services; and, • To optimise the economic return on flood risk management investment. Human Health and Social • To reduce the risk to life, health and wellbeing. • To increase awareness and understanding of flooding and its adverse consequences and improve community resilience. • To reduce the impact on people caused by the disruption to essential infrastructure and services. • To improve recreation and public amenities. Environmental • To consider the impact of Climate Change across all areas of impact; • To support the objectives of the WFD and contribute to the achievement of good ecological potential/status for waterbodies;	

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		To protect and enhance the natural environment.	
Third cycle River Basin Management Plan (RBMP) for NI 2021-2027	Describes existing condition of waters in the River Basin Districts, the objectives for improving their condition and the measures to be used to deliver these improvements. • Establish a framework for the protection of waterbodies at River Basin District (RBD) level; • Preserve, prevent the deterioration of water status and where necessary improve and maintain “good status” of waterbodies in that RBD; and • Promote sustainable water usage.	• Aims to improve water quality and quantity within inland surface waters (rivers and lakes), transitional waters, coastal waters and groundwater and meet the environmental objectives outlined in Article 4 of the WFD; • Identifies and manages waterbodies in the RBD; • Establishes a programme of measures for monitoring and improving water quality in the RBD; • Involves the public through consultations; and • RBMPs are prepared and reviewed every six years. The most recent is the third cycle RBMP, which runs from 2021-2027.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the RBMP. It will need to consider the requirements of the WFD and ensure that it does not compromise its objectives, and that it contributes to achieving its aims.
Lough Neagh Action Plan 2024	The Lough Neagh Report and Action Plan aims to reduce incidences of water pollution through education, investment of sustainable practices to promote behavioural change, regulation for environmental protection and enforcement to ensure compliance and, when failures occur, that this is in a proportionate manner.	Nine main actions are developed under the Action Plan, including an interagency protocol for the monitoring of blue-green algae blooms, which include the following: 1. Ensure all existing and emerging DAERA policies contribute to the achievement of “Good” water quality status. 2. Introduce a new regulatory framework for the processing of livestock slurries to reduce land spreading of excess	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Plan and should aim to contribute towards its objectives.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		phosphorus, produce renewable energy and recycle/reuse of organic nutrients. 3. Review of NAP regulations, with a consultation on restricting the use of chemical fertilisers containing phosphorus on grassland on a scientific basis and guided by the SNHS (with understanding that Privacy Notice and agreements in terms of data use under the SNHS remain unaltered, including data not being shared for enforcement purposes and the establishment of a Fertiliser Database). Encourage and incentivise the continued uptake of LESSE. 4. Launch a Small Business Research Initiative (SBRI) Phase 2 project to improve the Sustainable Utilisation of Livestock Slurry (SULS) and develop demonstrator sites to process livestock manures/slurry. 5. Roll out of the Defra-Led Dairy Demonstrator Project to formulate and test on farm livestock diets which reduce ammonia emissions, phosphorus losses and greenhouse gas emissions in Dairy herds. 6. Increased activity focused in areas of highest risk including cumulative breaches and informed by scientific	

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		evidence with a view to having a focussed enforcement taskforce. 7. Subject to funding availability seek to deliver on the Lough Neagh wastewater schemes as set out in the price control determination with a focus on reducing nutrient loading, especially phosphorus and nitrogen. 8. Deliver targeted education and training in compliance and environmental performance with participation introduced as a requirement for involvement in the Farm Support and Development Programme. 9. Initiate a Lough Neagh science platform to improve knowledge and understanding and provide evidence to inform policy, decision making and assist in both setting baseline data and measuring outcomes. The specific measures emerging from the Action Plan include the following: • Delivery of water quality monitoring outreach events to build on soil analysis and runoff risk mapping within the SNHS to optimise on-farm nutrient applications; • Development of a Lough Neagh science platform providing near real-time water quality and ecosystem data for public use and with further	

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		research on Cyanobacteria dynamics and cycles. This includes research on nutrient recovery manage options and evaluation impacts on ecology and development of models for source apportionment for nutrient enrichment of Lough Neagh and the evaluation of intervention methods; • Training in compliance for slurry spreading contractors to reduce runoff incidences; • Scope and implement water quality initiatives for farm sustainability training and advisory campaigns; • Education campaign to raise awareness and encourage behavioural change for water use and maintenance of septic tanks; • Scope a Conservation Management Plan for Lough Neagh for restoration to favourable status; • Catchment wide awareness programme on education and enforcement practices; • Engage in public participation for policy development; • Development of forecasting system for application of slurry to reduce nutrient losses from agriculture; • Launch a SBRI Phase 2 project to improve the Sustainable Utilisation of Livestock Slurry (SULS) and develop	

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		demonstrator sites to process livestock manures/slurry; • Roll out of the DEFRA-Led Dairy Demonstrator Project to formulate and test livestock diets which reduce ammonia emissions, phosphorus losses and greenhouse gas emissions in dairy herds; • Seek to delivery on Lough Neagh wastewater schemes to reduce nutrient loading; • Launch a SBRI on solutions to reduce blue-green algae blooms; • Scope for expansion of the Sustainable Catchment Programme to reduce point and diffuse nutrient losses; • Deliver the Farming with Nature Package by 2026; • Scope on wastewater treatment systems with potential to expand a septic tank replacement scheme; • Establish pilot tree planting system as a riparian buffer to improve water quality; • Continuation of Lough Neagh Environmental Farming Scheme Group Project with each participating farm having an environmental management plan; • Scoping of community challenge fund in conjunction with 'Live Here, Love	

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		Here' and bid for new grant programme for organisations aiming to improve water quality; • Complete statutory review of NAP, consult on proposals within updated NAP and introduce revised NAP Regulations; • Consult on restrictions on use of chemical phosphorus fertilisers; • Development of a fertiliser database; • Establish DAERA working group to consult with stakeholders on a new regulatory framework for processing of slurry to reduce spreading of excess phosphorus with move towards renewable energy production and recycling/reuse of organic nutrients; • Review of third cycle RBMPs; • Increased activity in areas of highest risk with a focussed enforcement taskforce; • Additional Water Quality Inspectors to enhance response to reports of water pollution; • Establishment of enforcement project team for consulting on enforcement methods and a review on the penalties and fines for Environmental Crimes in consultation with the Department of Justice as a separate Cross-Compliance penalty regime as	

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		a deterrent to reduce water pollution incidents; • Following consultation, introduction of a streamlined and more effective penalty regime with Department of Justice supported by targeted risk-based inspections to drive compliance with new Farm Sustainability Standards; • Scoping for provision of dedicated teams for catchments of lowest water quality in NI, with an initial focus on Lough Neagh to educate and support farm businesses; • DAERA Postgraduate Studentship Scheme to focus on PhDs on nature-based solutions for Lough Neagh and commission of an Innovation Lab for long-term solutions and vision for water quality improvement; • Scientific review on the environmental impact of sand extraction on Lough Neagh; • Implementation of inter-agency Cyanobacteria monitoring protocol to respond to incidents and provide public health advice.	
Northern Ireland Waste Management Strategy, 2012	The Waste Management Strategy sets out in detail those proposed policies, including specific actions to be taken. Strategy development is a continuous process and	The proposals of this Strategy are as follows: • The development of a Waste Prevention Programme;	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Strategy,

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	the Waste Management Strategy for Northern Ireland is considered as a living document, requiring regular review and revision to ensure that it remains relevant and the policies and actions therein remain appropriate.	• A new 60% recycling target for local authority collected municipal waste (LACMW); • The introduction of a statutory requirement on waste operators to provide specified data on commercial and industrial waste; • New and more challenging collection and recycling targets for packaging and WEEE; • The introduction of a landfill restriction on food waste; • The potential for the devolution of landfill tax; • The implementation of legislation on carrier bags; • The development of detailed proposals for an Environmental Better Regulation Bill.	with regard to waste arising from agriculture.
Waste Management Plan 2013 – 2020	The Waste Management Plan 2013-2020 outlines how it will efficiently manage waste for the Councils it represents with the overall goal of creating a system that 'meets the region's needs and contributes towards economic and sustainable development'. Subject to review every five years the Plan details how NI will fulfil its statutory obligations under the EU Waste Framework Directive and The Waste and Contaminated Land (Northern Ireland) Order 1997.	The Action Plan proposes to: • Deliver a communications campaign to build public awareness, understanding of and confidence in recycling. • Undertake a Recycling Gap study to identify kerbside recycling options. • Provide £2.5m to the Rethink Waste Capital fund in 2016/17 with further government support planned for successive years.	The draft NAP 2027-2030 should have regard for the environmental protection objectives of the Plan, with regard to waste arising from agriculture.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Support the development of strategic infrastructure for treating and recovering waste; and • support separate treatment of food waste	
Planning Act (NI) 2011	This is the principle piece of planning legislation in Northern Ireland and underpins the reformed two-tier planning system in place which transfers responsibility for planning from central government to district councils on 1 April 2015.	The Planning Act aims to create a planning system which is more accessible and provides clear guidelines for planning applications with assessments focused at the local council level for informed decision making on specific local needs.	The draft NAP 2027-2030 should have regard for the environmental effects which should be considered under the Act.
The Regional Development Strategy 2035- RG 11	The strategy aims to consider economic ambitions and needs of a Region to develop a framework and planning priorities to meet this goal.	The strategy develops spatial planning, transport and housing priorities that are required in order for a region to achieve its economic ambitions and needs. It aims to address economic, social and environmental issues through social cohesion and sustainable development approaches.	The draft NAP 2027-2030 should have regard for sustainable environmental development goals outlined under the strategy.
Archaeology 2030 – A Strategic Approach for Northern Ireland	The strategy sets out a strategic approach and recommendations to develop engagement and understanding of archaeology socially.	Development of a resilient archaeological sector which is socially valued and promotes five key aims: 1. Archaeological work is conducted in line with internationally recognised standards and guidance; 2. Broaden and deepen understanding of the past;	The draft NAP 2027-2030 should have consideration for this strategy and its aims.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		3. Legislation and related policies for the historic environment are up to date, relevant and fit for purpose; 4. The value of heritage, and associated archives and records are communicated effectively across society; 5. The sector recognises the full range of skills needed to deliver results for heritage assets of NI.	
Historic Monuments and Archaeological Objects (NI) Order 1995	The Order allows for Monuments to be protected by taking them into State Care, or by Scheduling, and also places restrictions on searching for archaeological material	The protection provided under this Order is as follows: • State Care sites and monuments are in the ownership or guardianship of DfC, representing all periods of human settlement in Northern Ireland, and including some of the premier examples of monument types in the region; • Scheduled historic monuments are protected under Article 3 of the Order, making it an offence to undertake changes to these structures without consent from DfC; • Archaeological objects discovered by members of the public must be reported to DfC's Historic Environment Division (HED) within 14 days of discovery, and may be held for up to three months. Any objects classified as	Environmental Protection Objectives of the Order are reflected in the SEO for Cultural Heritage.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		treasure are dealt with under special procedures under The Treasure Act 1996.	
The Protection of Wrecks Act 1973	An Act to protect the historic wrecks located in UK territorial waters from unauthorised interference by designation. On account of the historical, artistic or archaeological importance of the vessel, a restricted area around the vessel on or in the seabed is designated.	The Key Objectives of the Act are: • The protection and preservation of wrecks of historic and archaeological significance, ensuring their survival; • Designation of wrecks as 'protected' through official designation orders by the Secretary of State, legally protecting wreck sites and associated artefacts from unauthorised interference; • A legal framework is established that prohibits activities such as diving, excavation, salvage and removal without an appropriate license or consent; • Licensing and regulation for activities can be granted for specific purposes including conservation, archaeological research and controlled excavation; and • Responsible research and exploration of the wrecks are allowed by licenced individuals or organisations if the regulations and guidelines are followed.	The draft NAP 2027-2030 should have regard for the protection objectives of this Act.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
The Protection of Military Remains Act 1986	An Act to secure the protection from unauthorised interference of the remains of military aircraft and vessels that have crashed, sunk or been stranded and of associated human remains; and for connected purposes.	All military aircraft are automatically protected under this Act. It is an offence to interact with any of these vessels in absence of a licence from the MoD.	The draft NAP 2027-2030 should have regard for the protection objectives of this Act.
Nature conservation and Amenity Lands Order(NI 1985	Provides for designation of the finest landscape areas as either Areas of Outstanding Natural Beauty (AONB) or National Parks land, and takes steps to manage them for both conservation and recreation.		Environmental Protection Objectives of the Plans are reflected in the SEOs for Biodiversity, Flora and Fauna; and Landscape and Visual Amenity.
Northern Ireland Regional Landscape Character Assessment 2016	Provides a regional framework and information upon on which to base plans at a more local level that might affect landscape character. Complements the Northern Ireland Landscape Character Assessment (NILCA).	Subdivided the countryside into 26 Regional Character Areas (RCAs), based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness.	The draft NAP 2027-2030 should have consideration of the type and sensitivity of landscapes.
Northern Ireland Regional Seascape Character Assessment 2014	Provides a regional framework and information upon on which to base plans at a more local level that might affect seascape character. Complements the Northern Ireland Landscape Character Assessment (NILCA) and Regional LCA.	Identified 24 Seascape Character Areas along the Northern Ireland coast, describing the key features and characteristics of each area, and relating these to neighbouring terrestrial LCAs.	The draft NAP 2027-2030 should have consideration of the type and sensitivity of seascapes.
Republic of Ireland			
National Planning Framework (2018)	National document guiding strategic terrestrial planning and development for Ireland over the next 20 plus years.	Together with the National Development Plan (NDP) 2018-2027, sets the context for each of Ireland's three regional assemblies to develop their Regional	The draft NAP 2027-2030 should have consideration for this planning framework and its objectives.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		Spatial and Economic Strategies (RSES), taking account of and coordinating local authority County and City Development Plans in a manner that ensures national, regional and local plans align. Sets out a high-level vision to shape the future growth and development of Ireland to 2040, expressed as 10 National Strategic Outcomes (NSO) a shared set of national goals and benefits that the plan can deliver if implemented according to the identified National Policy Objectives (NPO).	
National Implementation Plan for the Sustainable Development Goals 2022-2024	Ireland's second plan to achieve the Sustainable Development Goals.	The Plan sets out five strategic objectives and 51 actions, with 119 individual measures to increase Ireland's ambition and strengthen implementation structures to achieve the Sustainable Development Goals (SDGs). It also incorporates 23 external actions from four other National Plans or Strategies which contribute to and are complementary to the objectives of this Plan. • Strategic Objective 1: To embed the SDG framework into the work of Government Departments to achieve greater Policy Coherence for Sustainable Development. • Strategic Objective 2: To integrate the SDGs into Local Authority work to	The draft NAP 2027-2030 should have consideration for this Plan and its objectives.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		better support the localisation of the SDGs. • Strategic Objective 3: Greater partnerships for the Goals. • Strategic Objective 4: To further incorporate the principle of Leave No One Behind into Ireland's Agenda 2030 implementation and reporting mechanisms. • Strategic Objective 5: Strong reporting mechanisms.	
National Adaptation Framework (2024)	Ireland's second statutory National Adaptation Framework (NAF), replacing the first iteration published in 2018. Sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts. Climate adaptation refers to action that helps reduce vulnerability to, and avail of potential benefits from expected impacts of climate change. In Ireland, these impacts include extreme weather events, flooding, drought, loss of biodiversity, sea level rise and increased temperatures.	The NAF identifies 13 priority sectors under 7 lead departments that are required to prepare sectoral adaptation plans under the Climate Act. The NAF also identifies a new sector in Planning and Built Environment where a scoping exercise is to be carried out in advance of any sectoral plan.	The draft NAP 2027-2030 should have consideration for this framework and its objectives.
Sectoral Adaptation Plans 2019	Sectoral Adaptation Plans were required by the NAF 2018 to ensure protection from the effects of climate change. Each Plan identifies the key risks faced across the sector and the approach being taken to	These Plans cover 12 priority sectors: • Agriculture, Forestry and Seafood. • Biodiversity. • Built and Archaeological Heritage.	The draft NAP 2027-2030 should have consideration for these Plans and their objectives.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	address these risks and build climate resilience for the future. Revised and/or new Sectoral Adaptation Plans (SAPs) are currently being developed under Ireland's second statutory NAF 2024.	• Transport Infrastructure. • Electricity and Gas Networks. • Communications Networks. • Flood Risk Management. • Water Quality and Water Services Infrastructure. • Health.	
Climate Action Plan (2024)	The Climate Action Plan 2024 (CAP24) is the third annual update to Ireland's Climate Action Plan. It lays out the roadmap of actions to meet the national climate objective to halve Ireland's emissions by 2030 and reach net zero by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021.	The Plan lists the actions needed to deliver on Ireland's climate targets. It aligns with the legally binding economy-wide carbon budgets and sectoral emissions ceilings that were agreed by Government in July 2022. It will be updated annually to ensure alignment with legally binding economy-wide carbon budgets and sectoral ceilings. For the agriculture sector, the required reduction in annual emissions (on 2018) is -25% (17.25 MtCO2eq. per annum by 2030).	The draft NAP 2027-2030 should have regard to the objectives of the Plan and should aim to contribute towards climate objectives and obligations.
National Dialogue on Climate Action	The role of the National Dialogue on Climate Action is to actively engage stakeholders and the public with climate action across Ireland. This can be achieved by enabling and empowering people at a local and national level.	The objectives of the programme are set out by the Irish government's Climate Action Plan 2024. The programme aims to facilitate the engagement of citizens to increase awareness of climate change based on evidence.	The draft NAP 2027-2030 should have regard to the objectives of this programme and should aim to contribute towards climate objectives and obligations.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		There are three main objectives that relate to public engagement and deliberation: • To create awareness, understanding, and engagement on climate change. • To motivate and enable climate action at the level of communities and citizens, including the empowerment of citizens to adopt more sustainable behaviours. • To empower citizens to have conversations on climate action and to inform policy responses and behavioural research.	
Draft National Energy and Climate Plan 2021-2030	Outlines the Department of the Environment, Climate, and Communications (DECC) energy and climate policies for the period 2021 to 2030 and looks onwards to 2050.	The draft NECP for 2021-2030 collates the policies, measures and actions related to energy and climate outlined in a range of government plans, including the Climate Action Plan, the National Development Plan, and Project Ireland 2040, into one cohesive document. The draft plan also presents modelling that illustrates Ireland's current trajectories toward its three main European targets.	The draft NAP 2027-2030 should aim to contribute towards climate objectives and obligations.
Sectoral Emissions Ceilings Plan to 2030	The plan was published in 2022, and sets out the ceilings for seven economic sectors. The GHG emission targets were required under the carbon budget programme under	The sectoral ceilings set by the Government concern seven sectors: electricity; transport; commercial and public buildings; residential buildings;	The draft NAP 2027-2030 should aim to contribute towards climate objectives and obligations, in particular the targets for GHG

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	the Climate Action and Low Carbon Development (Amendment) Act 2021.	industry; agriculture; and others (F-gases, petroleum refining, and waste). The reduction targets for 2030 (set against 2018 emission levels) are: • Electricity Sector – 75% • Transport Sector – 50% • Commercial and Public Buildings Sector – 45% • Residential Buildings Sector – 40% • Industry Sector – 35% • Agriculture Sector – 25% • Other Sector – 50%	emissions from the agriculture sector.
Clean Air Strategy for Ireland 2023	The Strategy provides the high-level strategic policy framework necessary to identify and promote the integrated measures across government that are required to reduce air pollution and promote cleaner ambient air, while delivering on wider national objectives. It outlines how the quality of the air will be enhanced and protected and the full environmental and health benefits of cleaner air will be realised.	The aims of the key strategic frameworks are: • To set the appropriate targets and limits to ensure continuous improvements in air quality across the country, to deliver health benefits for all. • To ensure the integration of clean air considerations into policy development across Government. • To increase the evidence base that will help us to continue to evolve our understanding of the sources of pollution and their impacts on health, in order to address them more effectively.	The NAP should seek to support the objectives of the Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• To enhance regulation required to deliver improvements across all pollutant. • To improve the effectiveness of our enforcement systems. • To promote and increase awareness of the importance of clean air, and the links between cleaner air and better health. • To develop the additional targeted/specific policy measures as required to deal with national or local air quality issues.	
Draft National Hazardous Waste Management Plan (2021)	To protect the environment and human health, through promoting awareness, driving prevention and advocating for best-practice management of hazardous wastes.	The objectives of the draft National Hazardous Waste Management Plan 2021 - 2027 are to: • Support and drive prevention of hazardous waste; • Improve the collection infrastructure for hazardous waste; • Endorse the proximity principle so that hazardous wastes are treated as close to the point of production as possible – including within Ireland; • Support effective regulation of the movement and disposal of hazardous wastes in line with national policy priorities; and	The NAP should seek to support the objectives of the Plan.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Promote safe reuse and recycling pathways in support of the circular economy.	
The Fifth Nitrates Action Programme 2022-2025	The Nitrates Action Programme (NAP), and implementing Regulations, aim to provide protection of water quality from pollution by agricultural sources.	Existing requirements within Fifth NAP that apply to farming practices and the protection of water include: • Limits on farm stocking rates; • Limiting the application of fertilisers; • The application of 'closed periods' preventing the application of organic and chemical fertilisers during environmentally vulnerable parts of the season; • Minimum storage requirements for livestock manures; • Requirements regarding maintenance of green cover in tillage lands; • Requirements for farmers to maintain adequate records; • Knowledge transfer to farmers and farming advisors on Good Agricultural Practice (GAP); • Nutrient Management Planning (NMP) is required from farmers to maximises the value of chemical and organic nutrient inputs;	The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the NAP. These are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Cattle are prevented from entering watercourses on farms with a grassland stocking rate of 170 kg N/ha or above - water courses to be fenced 1.5 metres from the top of the river bank or water's edge; • Phosphorus build-up is permitted on farms with stocking rates of 130 kg N/ha or above to optimise soil productivity; and • Low Emission Slurry Spreading (LESS) is a requirement for all derogation farmers from 2020. • Better policy alignment, with particular reference to the Farm 2 Fork and the EU Biodiversity Strategy for 2030 both of which have set ambitious targets for the agricultural sector; • Climate action measures, in particular the Climate Action Plan 2019, and specifically Action 109 on the improvement of on-farm slurry management; • Biodiversity measures such as those in the National Biodiversity Action Plan 2017-2021; and • Nitrates derogation and the potential to seek a new derogation for DAFM approved farms and units.	

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Food Vision 2030	This is a new stakeholder strategy for the Irish agri-food sector for the period to 2030.	The strategy sets out four high-level missions to achieve its vision: • A Climate Smart, Environmentally Sustainable Agri-Food Sector; • Viable and Resilient Primary Producers with Enhanced Wellbeing; • Food that is Safe, Nutritious and Appealing, Trusted and Valued at Home and Abroad; and • An Innovative, Competitive and Resilient Sector, driven by Technology and Talent. There are seven goals in the environmental mission that aim to deliver a climate-neutral food system by 2050, with verifiable progress achieved by 2030, encompassing emissions reductions, carbon sequestration, improvements in air quality, restoration and enhancement of biodiversity, improvements in water quality, development of diverse forests, enhanced seafood sustainability, exploring the bioeconomy and strengthening Origin Green.	The draft NAP 2027-2030 will have regard for the Environmental Protection Objectives of the Strategy. These are reflected in the SEOs for Climatic Factors, Air Quality, Biodiversity, Flora and Fauna.
CAP Strategic Plan 203-2027	Ireland's CAP Strategic Plan aims to support farmers as well as climate ambitions.	The Plan has three key objectives: • Protect farm family incomes.	The draft NAP 2027-2030 should seek to support the objectives of the Plan.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
		• Recognise the hard work of farm families as food producers regardless of where they are in the country. • Play a meaningful role in supporting climate ambitions.	
National Biodiversity Action Plan 2023-2030	Sets out Ireland's Vision for Biodiversity, in response to the requirements of the UN Convention of Biological Diversity 1992 (Article 6).	• The first Biodiversity Action Plan (BAP) was prepared by the Department of Arts, Heritage and the Gaeltacht, subsequently revised in 2011. • The aims are to achieve Ireland's Vision for Biodiversity through addressing issues ranging from improving the management of protected areas to increasing awareness and appreciation of biodiversity and ecosystem services. • Ireland's fourth iteration of the BAP for conserving and restoring Ireland's biodiversity covers the period 2023-2030.	Environmental protection objectives of the Plan are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft NAP 2027-2030 should promote maintenance and, where possible, enhancement of biodiversity.
Draft Water Action Plan 2024 – A River Basin Management Plan for Ireland	Describes existing condition of waters in the River Basin Districts, the objectives for improving their condition and the measures to be used to deliver these improvements. • Establish a framework for the protection of waterbodies at River Basin District (RBD) level.	• Aims to improve water quality and quantity within inland surface waters (rivers and lakes), transitional waters coastal waters and groundwater and meet the environmental objectives outlined in Article 4 of the WFD;	The draft NAP 2027-2030 aims to contribute to protecting and enhancing water status in line with the WFD. Environmental Protection Objectives of the Plans are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
	• Preserve, prevent the deterioration of water status and where necessary improve and maintain “good status” of waterbodies in that RBD. • Promote sustainable water usage.	• Identifies and manages waterbodies in the RBD; • Establishes a programme of measures for monitoring and improving water quality in the RBD; • Involves the public through consultations; RBMPs are prepared and reviewed every six years. The most recent is the third cycle RBMP, which runs from 2022-2027.	
Bioeconomy Action Plan 2023-2025	The Plan aims to develop Ireland’s bioeconomy “to be a global leader for the bioeconomy through a coordinated approach that harnesses Ireland’s natural resources and competitive advantage and that fully exploits the opportunities available while monitoring and avoiding unintended consequences”.	The action plan approaches the bioeconomy using seven pillars: • Governance and awareness. • Research development and Innovation. • Nature, climate, energy and circular economy. • Agriculture, food, forestry, and the marine. • Communities, regions and cities. • Industry and enterprise. • Knowledge and skills. Alongside the Climate Action Plans, the Bioeconomy Action Plan aims to compliment the National Biodiversity Action Plans and the River Basin Management Plan.	The draft NAP 2027-2030 should seek to support the objectives of the Plan.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Regional			
Local Biodiversity Action Plans (LBAPs)	Local Biodiversity Action Plans are a way of encouraging people to work together and deliver a programme of continuing action for biodiversity at a local level. They set out practical steps that aim to help protect biodiversity, enhance and improve biodiversity where possible, and promote biodiversity at a local level.		The draft NAP 2027-2030 will have regard for these local plans. SEOs for Biodiversity, Flora and Fauna should contribute towards the Environmental Protection Objectives of LBAPs.
County Development Plans and Local Development Plans	Development Plans set out how an area should look in the future by deciding the type and scale of development and where building should be allowed. Each Council must prepare a development plan for their area in consultation with the local community.	When preparing a development plan the council should consider • The council's Community Plan, a long-term vision for the social, environmental and economic well-being of the area and its citizens; • The council's Statement of Community Involvement (SCI) which sets out who, how, where and when consultation and policy making is to take place; • The RDS 2035, as the spatial strategy for NI; • Planning Policy and guidance; and • A sustainability appraisal prepared by the council so that economic and social factors are considered alongside environmental factors when developing the plan.	The draft NAP 2027-2030 will have regard for these plans, and reflect the general Environmental Protection Objectives in SEOs for Biodiversity, Flora and Fauna; and Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft NAP 2027-2030
Living With Water in Belfast 2020	An integrated plan for drainage and wastewater management for the Greater Belfast area.	• Aims to deliver a new, strategic, long-term approach to drainage and wastewater management to protect from flooding, provide a cleaner and greener environment and support growth of the Greater Belfast area.	Environmental Protection Objectives of the Plan are reflected in the SEO for Water.