

Draft 3rd cycle River Basin Management Plan:

For the North Western,
Neagh Bann and North
Eastern River Basin Districts
(2021 – 2027)

Photo credit: South Bed in Inner Dundrum Bay by DAERA Marine and Fisheries Division

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Foreword



Water is of fundamental importance for life and our natural environment. Our water bodies provide us with drinking water and are critical for businesses, generating and sustaining wealth through activities such as agriculture, fishing, industry, services, transport & tourism. Our economy, our health and our enjoyment of the environment depend on the way we maintain our rivers, lakes, transitional (estuarine) waters, coastal waters and groundwater. The protection of our aquatic environment underpins our well-being and our livelihoods.

Since the last River Basin Management Plans (RBMPs) were published, our water quality has not shown the improvements than were set out in 2015. In fact, our rivers and lakes are clearly showing deteriorations, whilst our coastal & transitional water bodies remain unchanged (in latest 2018 assessment). Although the groundwater classification results show an improvement in status this is mostly due to changes in monitoring data collection or changes in monitoring stations within the groundwater bodies.

We do however, have a much better understanding of the increased pressures and potential mitigation measures needed to address the pressure on our water resource, both at the source and also at the pathway. We have a substantially strengthened evidence base on which to make management decisions and have developed strong partnerships to work together to address water quality issues. We recognise that the blanket approach to measures in the last cycle may not be the most effective in certain situations and we need to do things differently. Our strong evidence will allow us to move towards having “the right measure, in the right place”.

This draft plan has been developed in a collaborative way with many stakeholders and it is vital that this approach continues both in terms of developing the final plan and as we move into the implementation and delivery phase. We welcome your views, ideas and support for making the step changes required to protect and restore our water environment. It is critically important that the final plan reflects the best approach to protecting and restoring our water environment.

A handwritten signature in black ink, appearing to read 'Edwin Poots'.

Edwin Poots MLA
Minister of Agriculture, Environment and Rural Affairs

Executive summary

Northern Ireland's water resources are managed and protected using a catchment based approach which includes rivers, lakes and groundwater as well as coastal and transitional water bodies. The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 require the production and implementation of a RBMP in six yearly cycles. The RBMP takes an integrated approach, identifying those water bodies which can be classified as being at 'good or better' status. It also sets the objectives and a programme of measures for the next six year cycle to help improve those water bodies which are classified as below 'good' status.

The 3rd cycle RBMP period runs from 2021-2027. Northern Ireland Environment Agency (NIEA) presents this draft river basin management plan (the draft plan) for the 3rd cycle RBMP period. Its publication was delayed due to key staff being re-deployed in the response to the Covid-19 pandemic. The draft plan provides an update on the health of Northern Ireland's water environment (the status of water bodies), but also sets out our targets (objectives) and actions (programme of measures) on how we want to improve our water environment in the next six years. The draft plan covers the North Western, Neagh Bann and North Eastern River Basin Districts (RBDs), and includes detailed status updates on each RBD.

The public consultation is open for a period of six months and will end on 10 October 2021. NIEA encourages you to respond as early as possible due to the shortened timescales in preparing the final RBMP for December 2021.

Chapter overview

Chapter 1 provides an introduction to integrated catchment planning, information on the updates of the draft RBMP and linkages to other relevant policies and developments. It describes how we work together with our counterparts in Ireland to manage our shared water bodies as well as a summary on the cost of the provision of water services.

In **Chapter 2** summary statistics on the current status as well as deterioration and improvements are presented for each water body type: rivers, lakes, coastal & transitional water bodies and groundwater.

Chapter 3 explains the changes and updates since the last RBMP e.g. we propose changes in reporting the results: one of the key suggestions is to report ecological status and chemistry status separately for surface waters. It is further suggested that the chemistry

status is subdivided into three presentations: one overall chemical status; one chemical status without ubiquitous persistent, bioaccumulative and toxic substances (uPBT substances); and the third without uPBT and without the new priority substances (e.g. cypermethrin).

Chapter 4 presents the current classification results for each river basin district and water body type. Overall, 38 % are currently at 'good or better' status, which is similar to 2015 when 37 % were at 'good or better' status. While some water bodies did improve in status this was offset by other water bodies that deteriorated. In fact, our rivers and lakes are clearly showing deteriorations, whilst our coastal & transitional water bodies remain unchanged (in latest 2018 assessment). Although the groundwater classification results show an improvement in status this is mostly due to changes in monitoring data collection or changes in monitoring stations within the groundwater bodies.

An update on the status of protected areas, as set out in Part 3 of the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, is provided in **Chapter 5**.

Chapter 6 explains how we propose to report objectives and working targets in the final plan. The regulations set an objective that all water bodies achieve a status of 'good or better' by 2027 apart from where exemptions apply (e.g. Lough Neagh). We are also proposing to set working targets to allow us to prioritise our water bodies for actions and be able to determine the appropriate measures. We propose to maintain 70 % of all water bodies at 'good or better' status by 2027 as a working target. **Chapter 6** also describes the matrix approach we are proposing to determine our priority water bodies for action.

Chapter 7 describes how the main pressures acting upon our water environment were identified using the source-pathway-receptor approach. The evidence from our monitoring at the receptors showed mainly nutrient pressures. Following the source-pathway-receptor chain backwards with the use of additional information, agricultural activities and sewage-related problems were identified as the main pressures.

Chapter 8 provides an update on the measures from the 2nd cycle river basin management plan. Approximately 90 % of measures are complete or on track to be achieved. A further 6 % are making slow progress with regards to implementation whereas 4 % of measures were not started. It also describes key measures that have been implemented since the last RBMP.

Chapter 9 presents the suggested measures for the 3rd cycle RBMP by pressure type.

Chapter 10 provides a summary of all the consultation questions and gives information on how to reply to the consultation. The draft plan is accompanied by a number of supporting documents that are available on our [consultation webpage](#). Data layers with detailed information for each water body can be viewed on the [NIEA Catchment Data Map Viewer](#).

Key findings

The overall status of water bodies at 'good or better' status in the draft plan remains unchanged from 2015. The 2nd cycle RBMP objective (aims) was to improve the status of water bodies, so that 70 % of all water bodies would be at good status by 2021. The results of the draft plan classification means that Northern Ireland will not achieve that objective.

The key pressures acting upon our water environment are related to nutrients and attributed to agricultural land use activities and sewage related impacts. As a result the suggested key measures relate to the reduction of nutrients:

- reduce nutrient content in concentrate feed to lower the nutrient concentrate in slurry/manure
- provide support and advice to extent grazing period for cattle and reduce reliance on concentrate feed
- reduce the application of chemical fertiliser taking into account the soil optimum indices
- address pressures from sewage infrastructure through capital investment as part of Price Control Period 2021 (PC21)
- Implement a new Integrated Plan for Drainage and Wastewater Management in Greater Belfast (Living with Water)
- Reform regulation of point source discharges to achieve better environmental outcomes including a review of consenting decision making processes to move towards a catchment based approach; and a review of the compliance assessment methodologies for industrial, private sewage point source discharges and water utility discharges.

Other suggested key measures relate to chemicals and pesticides; abstraction, fisheries and morphology; non-native invasive species, forestry and waste & contaminated land.

Key questions

The draft plan contains a number of consultation questions, which are summarised in Chapter 10. The key questions are:

- **Do you agree with the suggested changes on how we present surface water body status?**
- **Do you agree with our suggested procedure to select priority areas? If you do not agree, what changes would you make?**
- **Do you agree with the suggested Programme of Measures? Which additional measures should be implemented?**

Conclusions

The overall status of water bodies at 'good or better' status in the draft plan remains unchanged from 2015. This means that Northern Ireland will not achieve the objective of the 2nd cycle RBMPs to have 70 % of its water bodies at 'good or better' status.

The main pressures acting upon our water environment are related to nutrients and attributed to agricultural land use activities and sewage related impacts. Suggested measures relate to the reduction of nutrients from these sectors. Key target measures have also been drafted to address pressures resulting from chemicals and pesticides; abstraction, fisheries and morphology; non-native invasive species, forestry and waste & contaminated land.

Chapter 1 - Introduction

1.1 Water – a vital resource

Water is an essential component of life, it is a valuable resource that we all rely on. Maintaining the quality of our water environment will help protect and improve public health, support agriculture and industry, protect and improve biodiversity and ecosystems, support tourism and recreation and help adapt to, and protect us from, impacts of climate change.

1.1.1 A catchment-based approach to managing the water environment

A catchment is an area of land delineated by elevation (e.g. the peak line of a mountain range) through which rain water (or melting snow or ice) drains into a water body (river, lake or reservoir, coastal water body, groundwater).

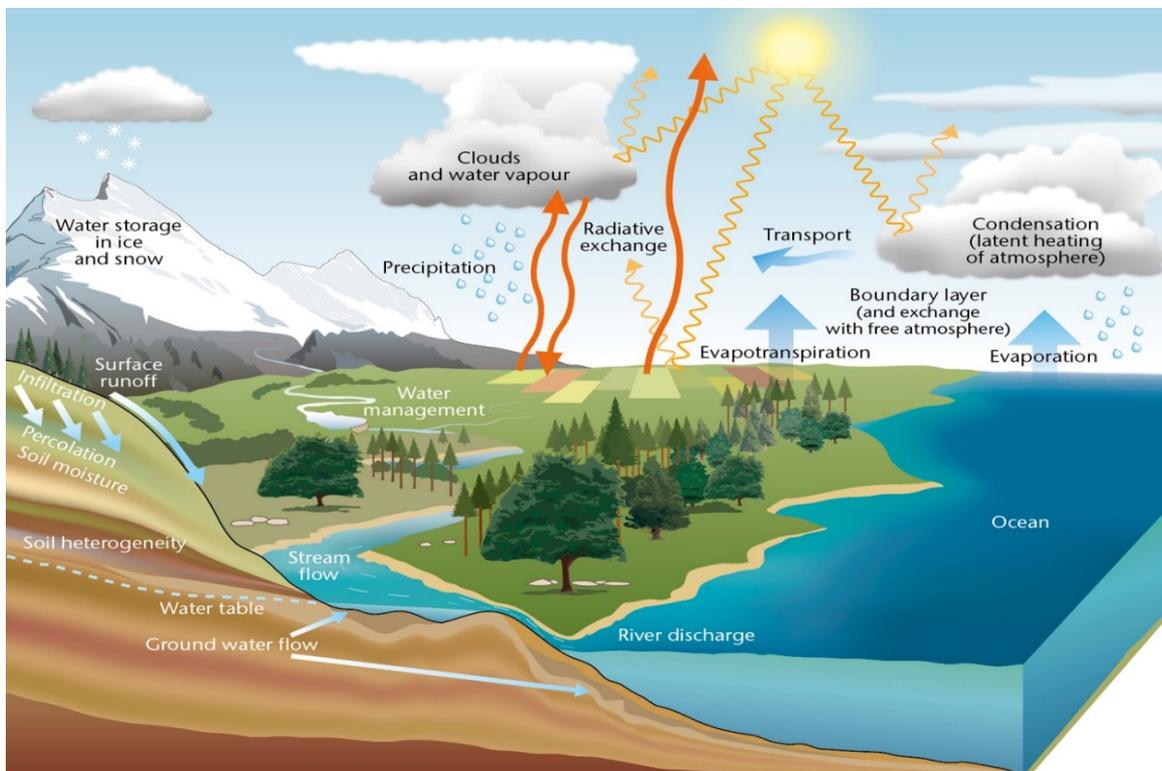


Figure 1: The water cycle shows that the water bodies (rivers, lakes, coastal water bodies and groundwater) in a catchment are not separate to each other, but a continuous volume of water¹.

The hydrological cycle (or water cycle) is a model used by pupils, students, water engineers and scientists across our planet to describe the different stages water goes through during its

¹ www.metoffice.gov.uk

journey from the oceans to the atmosphere, onto the land and back to the oceans. The different stages of the cycle are illustrated in Figure 1.

The water cycle also illustrates that the water in a catchment includes groundwater, coastal and transitional water bodies, lakes and rivers. These water bodies are hydraulically linked, meaning that the water is connected and flows between them. Large catchments are called river basin districts and include all water bodies within the district. Hence this river basin plan does not just deal with rivers (as the name might suggest), but also with the lakes, coastal and transitional water bodies and groundwater within Northern Ireland.

1.2 Update to the River Basin Management Plan

The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 ensure that the Water Framework Directive (as transposed) and the various supporting pieces of water legislation continue to operate in Northern Ireland after 1 January 2021. These supporting regulations are listed at Schedule 2 of The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. Integrated catchment planning through the preparation and implementation of a river basin management plan is a key element in implementing the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017.

The regulations take an integrated approach to the protection, improvement and sustainable use of the water environment. It applies to groundwater and to all surface water bodies, including rivers, lakes, transitional (estuarine) and coastal waters out to one nautical mile from baseline. The regulations use five status classifications for surface water bodies: High, Good, Moderate, Poor and Bad or if the surface water bodies have been designated as artificial or heavily modified, they are classified using ecological 'potential' rather than ecological 'status' e.g. Good/Moderate/Poor/Bad Ecological Potential (GEP/MEP/PEP/BEP). There are only two status classifications for groundwater bodies: 'Good' and 'Bad'. The regulations required us to aim to achieve good status/potential in all waters by 2015 or, if that was not possible, by 2027 at the latest. The RBMP is developed in Northern Ireland by NIEA, an agency within the Department of Agriculture, Environment and Rural Affairs (DAERA) in co-operation with the Department for Infrastructure.

In 2009 the first set of RBMPs as required by the regulations was published for the River Basin Districts within Northern Ireland. The plans identified where the water environment was in good or excellent condition and set out objectives for improvement or prevention of deterioration. This established a baseline against which the effectiveness of future River

Basin Management measures would be assessed and monitored. Over the period of implementation of the 1st cycle RBMP, between 2009 and 2015, status assessments showed an improvement from 28 % to 37 % of all water bodies. As required by the regulations, the plans were reviewed and updated every 6 years. In 2015 the second RBMPs were published providing an overview of changes and highlighting any progress that had been made.

The 2nd cycle plans published in 2015 built on the baseline established during the first cycle plans and incorporated 136 specific measures to improve the water bodies not yet at 'good' status and to prevent deterioration of individual rivers, lakes, marine and groundwater bodies. The mid-cycle review completed in 2018 showed a stagnation in the number of water bodies at 'good or better' status. Whilst there have been improvements in status of some water bodies, a number of water bodies have also deteriorated. In fact, our rivers and lakes are clearly showing deteriorations, whilst our coastal & transitional water bodies remain unchanged (in latest 2018 assessment). Although the groundwater classification results show an improvement in status this is mostly due to changes in monitoring data collection or changes in monitoring stations within the groundwater bodies.

NIEA undertook a consultation on Significant Water Management Issues (SWMI) for Northern Ireland in December 2019 to prepare the new RBMP. The feedback we received has helped to shape and influence this new draft RBMP. In the first two cycles, an individual RBMP was published for each River Basin District. However for the 3rd cycle, a single RBMP covering all three River Basin Districts is being published. This is the same approach that our colleagues in the Environmental Protection Agency (EPA) in Ireland have taken.

A new eGIS viewer NIEA Catchment Data Map Viewer has been produced for the 3rd cycle river basin plan. This map viewer helps you explore and download information about the water environment. It supports and builds upon the data in the river basin management plan. The maps include the River Basin Districts (RBDs) and their sub-units, the surface water bodies (water body category, ecological status or potential and chemical status), the groundwater bodies (aquifer type, quantitative status and chemical status) and the monitoring sites. The new map viewer has enhanced functionality allowing users to compare several different data sets across multiple years and use selection/reporting tools within the map extent. This viewer will be updated next year with the final plan and thereafter, updated in line with the river basin management planning cycle.

Additional information including detailed supporting documents, method statements and technical reports can be found on our [website](#).

The information contained in this draft plan sets out the current status of our water bodies; describes the progress we have made towards achieving our objectives for 2021; sets new objectives (where appropriate) and working targets for 2027; and proposes a Programme of Measures for the 3rd cycle RBMP to address the pressures acting upon the water environment.

1.3 Existing Plans & Projects which are key for 3rd cycle RBMP

River Basin Management planning is a key element in implementing the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 linking with other key policy areas such as agriculture, land use, biodiversity, tourism, recreation and flood protection. Some of the most significant water related current and long term plans that the Department will be seeking to ensure alignment with during the 3rd cycle RBMP include:

- **Sustainable Water - A Long Term Water Strategy for Northern Ireland (2015-2040)**² – published in 2016, is a 25 year plan to deliver the long term vision of a sustainable water sector in Northern Ireland. This includes the sustainable management of catchments to help improve water quality and reduce flood risk.
- **Living with Water Programme**³ – In 2014, the Northern Ireland Executive agreed to set up an interdepartmental group to develop a ‘Strategic Drainage Infrastructure Plan’ (SDIP) for Belfast. The programme includes development of an integrated drainage investment planning guide and programme for the rest of Northern Ireland with the main capital delivery phase expected to be during 2021-27. This plan will protect against flood risk, enhance the environment and support economic growth. The Northern Ireland Executive has committed to the Living with Water Programme in the New Deal New Decade approach
- **Water Resource Plan (WRP) (2010-2035)**⁴ - The plan explains how NI Water intend to meet the drinking water needs of the population of Northern Ireland over the period 2010 to 2035. The WRP takes into account forecast changes in population, housing and water usage and incorporates predicted changes to our climate. The plan includes

² <https://www.infrastructure-ni.gov.uk/articles/long-term-water-strategy-northern-ireland>

³ <https://www.infrastructure-ni.gov.uk/topics/living-water-programme>

⁴ <https://www.niwater.com/managing-northern-irelands-water-resources.aspx>

a range of options to manage demand by improving water efficiency and reducing leakage, as well as options to increase supply through the development of new resources.

- **NI Water: Our Draft Strategy**⁵–. The ‘draft strategy’ document provides a longer term view across the next quarter of a century (2021-2046) and updates the existing long term strategy (2015-2040). The focus of the draft strategy is delivery of high quality drinking water and recycling used water safely to the environment today and tomorrow. It has been designed to take advantage of opportunities available in a way which puts more back into society, the economy and the natural environment than what is taken out.
- **The UK Marine Strategy**⁶ - The Marine Strategy Regulations 2010 aim to ensure marine waters achieve and maintain the 11 Good Environmental Status indicators ensuring both protection and sustainable use of resources. Although Good Environmental Status is broader than the more specific status indicators for RBMPs there is crossover both in terms of the objectives and physical area covered by the UK Marine Strategy Regulations and the WFD. A coherent and integrated approach is vital to ensure that the statutory requirements of the legislation are met. A draft Marine Plan for Northern Ireland was published in April 2018.

1.4 Links to new and forthcoming plans, policies and strategies

In order to protect and enhance our water environment, in the next RBMP period and in the years to come, objectives and actions (Programme of Measures in Chapter 9) have been identified. These objectives and actions link to other existing and planned policies and plans and we need to ensure that synergies are identified to achieve multiple benefits for people living in Northern Ireland. These plans and policies include, but are not limited to:

- Green Growth
- Agricultural Policy
- Ammonia
- Environment Strategy
- PC21 sewage infrastructure capital investment plan

⁵ <https://www.niwater.com/ourstrategy.aspx>

⁶ [Marine Strategy | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](https://www.daera-ni.gov.uk/marine-strategy)

- Flood Risk Management Plans
- Northern Ireland Climate Change Adaptation Programme (NICCAP2)

Since the economic downturn, several international organisations; including the United Nations, the Organisation for Economic Co-operation and Development (OECD), the EU and the World Bank are stressing the importance of a green recovery. They have called for the economic recovery to be durable and resilient where environmentally destructive investment patterns and activities are replaced with nature based solutions and more sustainable development.

1.4.1 Green Growth

The Northern Ireland Executive has prioritised the development of a cross-cutting multi-decade Green Growth Strategy, to reduce emissions and tackle our climate and environment challenges. This work is being led by DAERA, on behalf of the Executive and will be the pathway to meeting our New Decade New Approach commitments, Programme for Government targets and Northern Ireland's contribution to the UK Net-Zero by 2050 target.

By working in partnership across Government Departments, Local Government and with stakeholders from across the business and voluntary sectors, Green Growth will tackle climate change head-on, through collaborative actions which will address both the immediate and longer term climate impacts, in a fair and just way. This will enable Northern Ireland to transform to a low carbon economy whilst protecting our natural assets.

1.4.2 Agricultural Policy

A revised Agricultural Policy is being developed incorporating key principles and approaches to ensure consistency with existing global, UK and local environmental objectives and commitments while taking into account increased productivity, environmental sustainability, improved resilience and food supply chain functionality. The policy will also provide the basis for the development of agri-environment schemes to succeed those currently funded under Common Agricultural Policy (CAP), such as the Environmental Farming Scheme. Pilot projects will be used to provide evidence to underpin scheme development. Engagement with the agricultural industry, outdoor recreation sector and environmental stakeholders will inform the development of associated policy instruments.

1.4.3 Ammonia

Ammonia (NH₃) is an air pollutant largely emitted from agriculture which is known to have a damaging impact on biodiversity, including sensitive habitats, and ecosystem resilience, as

well as human health. It is produced by many common farming activities, such as the housing of livestock, the storage and spreading of manure and slurries and the application of fertiliser. Reducing ammonia emissions across Northern Ireland is a key Departmental priority.

There are a number of measures which farmers can take to reduce the amount of ammonia their farming system emits and many of these measures will also help the water environment e.g.

- Extending the grazing season for livestock
- Spreading slurries and manures using low emission techniques
- Improving the cleanliness of farmyards
- Reducing crude protein in livestock diets

1.4.4 Environment Strategy

The issues that need to be addressed to protect the environment are wide-ranging and complex, requiring a cross-cutting approach with a range of stakeholders, including: other NI Departments and public sector bodies; the private sector; the community and voluntary sector; and the general public, working together with DAERA.

DAERA published a public discussion document, launched on 18 September 2019 designed to give stakeholders the opportunity to express their opinions freely on a wide range of environmental issues facing Northern Ireland. The new strategy will form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment and thereby create opportunities to develop our economy, improve the health and well-being of our citizens and play our part in protecting the global environment.

1.4.5 PC21 - Price Control process⁷ .

Price Control is the process through which NI Water reaches agreement with the Utility Regulator on the organisation's priorities and plans for the period of the Price Control. The next price control process is PC21 which will make a significant contribution to the success of this RBMP. PC21 covers the period 2021 to 2027 and includes both clean water and wastewater services. The PC21 plan shows how £2.2bn of capital funding could be allocated over a period of six years. It also identifies ways to prioritise the investment needed in the Living with Water Programme for the Greater Belfast area. NI Water state that there are over

⁷ <https://www.uregni.gov.uk/price-control-and-tariffs>

100 areas in NI where wastewater treatment works are at, or near full capacity. The PC21 Business Plan should provide the opportunity to halt and reverse some of the impacts of underinvestment and assist with the general aim of improving water quality.

1.4.6 Flood Risk Management Plans

The Department for Infrastructure (DfI) published the draft Flood Risk Management Plan 2021-2027 for public consultation in December 2020. The plan is an important step in the implementation of the Water Environment (Floods Directive) Regulations (Northern Ireland) 2009, commonly known as the Floods Directive Regulations. The aim of these Regulations is to establish a framework that will contribute to reducing the impact of flooding on communities and the environment. The draft plan sets out Objectives and Measures for the 2nd 6-year cycle between 2021 and 2027, primarily focusing on Areas of Potential Significant Flood Risk (APSFR) in Northern Ireland. DfI and DAERA are working together on catchment based natural flood management as well as nutrient and sediment run-off prevention.

1.4.7 Northern Ireland Climate Change Adaptation Programme (NICCAP2)

In Northern Ireland, disruption to business, services and people's daily lives will increase if adverse changes occur due to climate change. An increased risk of flooding and coastal wear will put pressure on drainage, sewage, roads, water and habitats. Increased temperature, increased pollution and poorer air quality may bring discomfort to the vulnerable and threaten species of animals and crops.

In Northern Ireland, the main sources of greenhouse gas emissions are:

- agriculture (27 %) - for example methane emissions from livestock and manure, and nitrous oxide from chemical fertilisers and livestock manure
- transport (23 %) – there is a reliance on road use in Northern Ireland
- energy (17 %) - the use of fuel to generate energy (excluding transport)
- residential use of fuel (13 %) - the energy used in your home (the main use is heating)

UK climate change projections, published in 2018 (UKCP18), set out a range of possible outcomes over the next century, based on different rates of greenhouse gas emissions into the atmosphere. UKCP18 projects greater chance of hotter, drier summers and warmer, wetter winters with more extreme weather and rising sea levels. The highest predicted releases for Northern Ireland show that by:

- 2070 winters could be up to 3.9 °C warmer and summers could be up to 4.9 °C hotter

- 2070 winters could be 25 % wetter and summers 38 % drier
- 2100 sea levels in Belfast could rise by up to 94 cm

Potential impacts of climate change scenarios with drier summers and increased winter rainfall will result in water resource poor “hotspots”, more frequent flood events and more frequent prolonged low flow events or droughts. These signs are becoming more evident in Northern Ireland. In August 2017, the North West was significantly impacted by severe flooding with flood damage affecting approximately 400 homes and numerous businesses. There was also significant damage to infrastructure with 210 roads either closed or impacted and 89 bridges requiring remedial action as a result of the flooding.

DAERA provided funding to the Loughs Agency to enable remedial works to be undertaken in the areas worst affected. Where an immediate fishery interest was identified, Loughs Agency carried out works to protect salmonid habitats. Climate change could lead to these flood events occurring on a more regular basis.

Northern Ireland’s second Climate Change Adaptation Programme (NICCAP) was published in September 2019. The NICCAP sets out the objectives, the proposals and policies for meeting the objectives including time scales for their introduction to address the relevant risks specific to Northern Ireland identified in the most recent UK-wide Climate Change Risk Assessment (CCRA). DAERA is responsible for coordinating a cross-departmental response to the risks and opportunities relevant to Northern Ireland in the CCRA. To achieve the overall aim of ‘A resilient Northern Ireland which will take timely and well-informed decisions to address the socio-economic and environmental impacts of climate change’, five key priority areas and seven outcome objectives for NICCAP2 were agreed and are laid out in Figure 2.

Key Priority Areas	Outcome Objectives (i.e. Visions - which are statements of the improvement which NI is seeking to address effects of Climate Change)
NC Natural Capital, including Terrestrial/Coastal/Marine/ Freshwater ecosystems, soils and biodiversity 	<ul style="list-style-type: none"> - NC1: We will have species, habitats and water bodies that are resilient to the impacts of climate change. - NC2: We have coastal communities, habitats, landforms and infrastructure that are resilient to impacts of climate change. - NC3: We have soils and woodland that are resilient to the impacts of climate change.
IF Infrastructure Services 	<ul style="list-style-type: none"> - IF1: We have Transport & Network Services that are resilient to the impacts of Flooding & extreme weather.
P People & Built Environment. 	<ul style="list-style-type: none"> - P1: We have people, homes, buildings and communities that are resilient to the impacts of flooding & extremes of weather.
B Disruption to Businesses & Supply Chains. 	<ul style="list-style-type: none"> - B1: We have businesses that can adapt to impacts of Climate Change & extreme weather.
I Food Security/ Global Food Production. 	<ul style="list-style-type: none"> - I1: We have a food system that is resilient to impacts of climate change.

Figure 2: NICCAP2 Key Priority Areas and Outcome Objectives

Further information on Government Delivery Plans on can be found in Annex B of [Northern Ireland Climate Change Adaptation Programme 2019-2024](#)

1.5 Working together

The 1st cycle RBMPs were developed in co-operation with the relevant authorities in Ireland and as a result all the water environments in Northern Ireland plus those shared with Ireland were assessed in unison. The 2nd cycle plans for Northern Ireland and Ireland were produced under differing timelines, however coordination still occurred in terms of the implementation of the plans, specifically with respect to setting objectives and identifying measures. Coordination is ongoing during the development and implementation of the 3rd cycle plans through various working groups which form part of the WFD Governance structure and NIEA are represented at each of these Governance groups.

The National Technical Implementation Group (NTIG) oversees technical implementation of the RBMP at a national level and provides a forum to ensure coordinated actions among all relevant Agencies and other State actors. It also addresses any operational barriers to

implementation that may arise. NIEA attends the group's meetings to provide updates on progress within Northern Ireland and also contribute to any discussions on cross border catchment issues.

NIEA is a member of the Border Region Operational Committee, which provides a forum to enhance interagency networking, develop relationships and work together to help achieve objectives set out in our river basin management plans to benefit both the local community and the environment. In terms of cross border catchments this committee provides an opportunity for operational staff to share knowledge and experience and seek opportunities to maximise outcomes for cross-border rivers.

NIEA attends meetings of the North West Water Forum which is chaired by Donegal County Council and attendees include Lough's Agency, Local Authorities Water programme (LAWPRO), Members of the project board of Source to Tap (Interreg project), Inland Fisheries Ireland, Members of the project board of Catchment Care (Interreg project), Teagasc, Coillte and National Parks & Wildlife Service (NPWS). It is a cross-border interdepartmental meeting which aims to discuss emerging issues, existing projects, and share information and help build better working relationships within interested groups on either side of the border.

The North South Rivers and Lakes Group is a technical group that covers the detail of all our freshwater monitoring, classification and reporting in shared water bodies. It includes attendees from EPA, NIEA, AFBI, Loughs Agency and Inland Fisheries Ireland. The key purpose of the group is to ensure proper alignment and consistent reporting for the classification of cross-border water bodies (about 70 in all).

There are a number of cross-border projects ongoing which focus on delivering water quality improvements in water bodies on the border. The INTERREG VA Programme (2014- 2020) was agreed by the Northern Ireland Executive, the Irish Government, the Scottish Government and the European Commission. NIEA and the EPA have worked closely on the projects through representation at Steering Group meetings and Advisory Committees. Further details of the INTERREG VA projects can be found in Chapter 8.

The cross-border INTERREG VA Programme will be replaced for the 2021-27 period by a new EU cross-border programme PEACE PLUS that will contribute to a more prosperous and stable society in Northern Ireland and the Border Region of Ireland. This will provide opportunities to build on successful projects for the water environment commissioned under

INTERREG VA using the same collaborative approach to delivery of environmental objectives.

High level themes in the new PEACE PLUS programme recognise the importance of managing our water resources properly to ensure that the needs of society, the economy and wildlife are met long-term. This will also help to reduce the costs associated with water pollution and drought. Catchments and their water resources are therefore a key environmental and economic asset within the PEACE PLUS Programme area, and deliver significant benefits to society through the ecosystem services that they provide. These include drinking water, wastewater assimilation, angling, tourism and cultural heritage.

A number of investment areas have been proposed for inclusion in the draft programme development to include projects and proposals which support the aims and objectives of the 3rd cycle RBMP. The main pressures acting on our water environment in our cross border catchments are related to excess nutrients and runoff. Proposed investment priorities are therefore to reduce inputs into our water bodies through nature-based solutions and sustainable catchment solutions. Investment is also required to address problems with raw water which is fundamental to sustainable catchment management, including facilities for treatment of wastewater and drinking water.

1. 6 Economic assessment

Water is a life-critical resource that we all rely on. Catchments and their water resources are a key environmental and economic asset within Northern Ireland, delivering significant benefits to society through the ecosystem services that they provide. These include drinking water, wastewater assimilation, angling, tourism (e.g. boating) and cultural heritage.

1.6.1 Recovery of cost of water services

Northern Ireland Water (NI Water) is a government-owned company and the sole provider of public drinking water and sewage services. The Utility Regulator in Northern Ireland periodically assesses the revenue (operating costs, Public Private Partnership (PPP) costs, capital maintenance costs and financing costs) needed to provide water and sewerage services. For the Price Control Period 2015 (PC15) the Utility Regulator set the total revenue at almost two billion pounds (£1,974.3 million) at 2012-13 prices covering a six-year period from 2015-16 to 2020-21. The details of the final price control determination for Northern Ireland Water for the PC15 period of the total revenue allocation are published on the Utility Regulator's webpage. Annex B provides a breakdown of the sources of revenue.

This total revenue requirement is allocated to customer groups which ensures that the amount recovered from each customer group is based on the amount of water they use, or sewage they discharge. NI Water directly links the revenue recovered with the costs incurred by allocating its total revenue requirement to each of its eight customer groups (non-domestic measured water and sewerage, non-domestic unmeasured water and sewerage, domestic unmeasured water and sewerage, trade effluent and road drainage) on the basis of the volume of water they consume and sewage they discharge. Based on this allocation, NI Water sets tariffs to recover the revenue. The diagram in Figure 3 summarises the allocation to customer groups.

Most of the costs ($\geq 75\%$) for non-domestic customers are directly recovered through a Scheme of Charges set out by Northern Ireland Water. The remaining costs as well as those for domestic customers are funded by the Northern Ireland Executive.

The Economic Assessment Report (Article 5) will be updated for the final RBMP.

1.6.2 Regulation of private abstractions

The Water Abstraction & Impoundment (Licensing) Regulations (Northern Ireland) 2009 (Fees and Charges), gave powers to NIEA for the setting of fees and annual charges, in order to recover all of the costs associated with the regulation of The Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006. Abstractions can be for agricultural, industrial and recreational purposes and cover a wide spectrum from our drinking water supplies to the irrigation of golf courses. The vast majority of licensable abstractions or impoundments are required to pay an application fee, and those activities which are larger in scale, or are located in close proximity to a protected site, will also be required to pay an annual charge.

The [NIEA charging policy](#) ensures that NIEA fully recovers the cost of regulating all abstraction activities, from pre-application, to hydrological assessments, to compliance and enforcement tasks.

Chapter 1 - Introduction

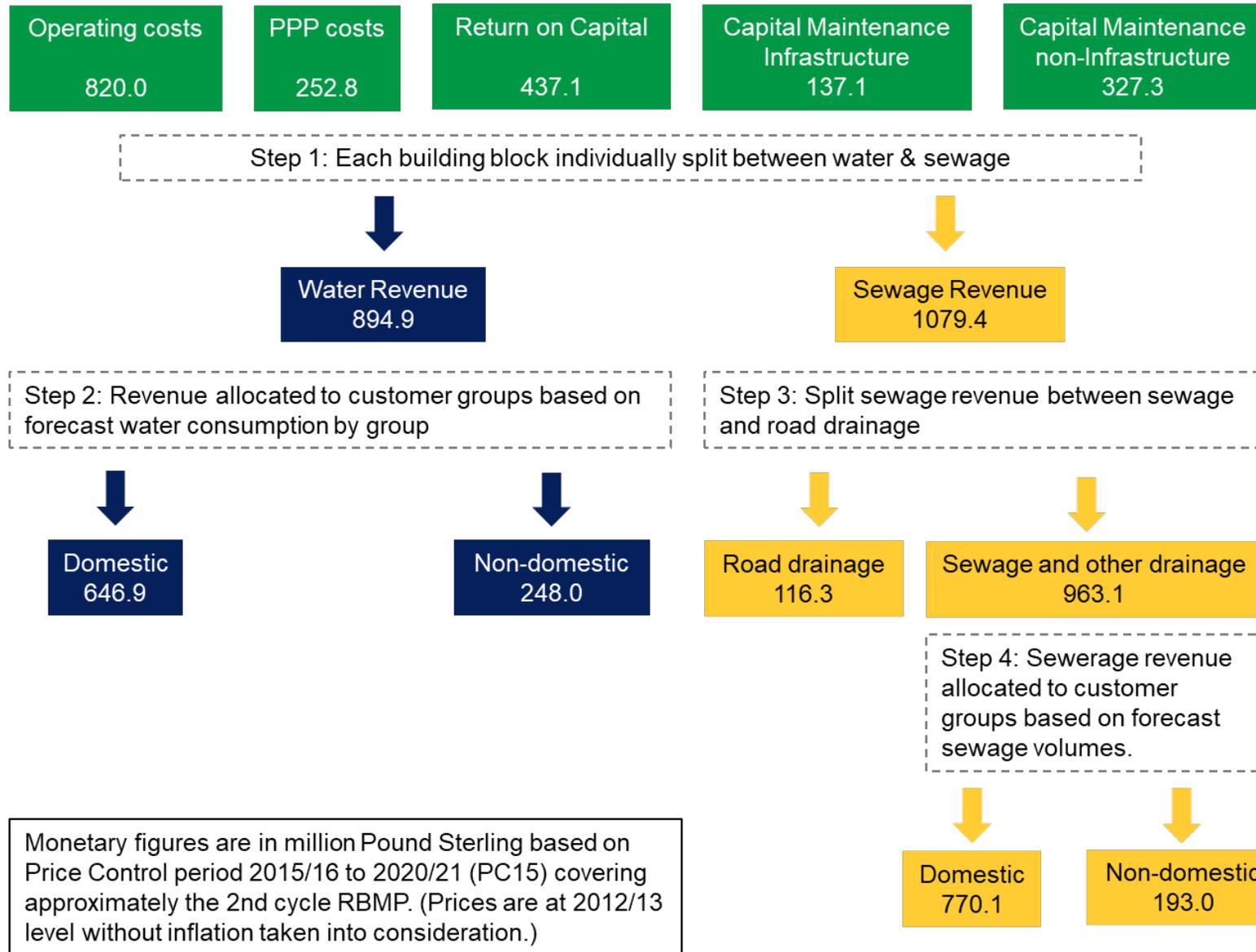


Figure 3: Overview of Northern Ireland Water Revenue allocation

1.6.3 Regulation of private sewage services

Discharges to the water environment, mainly consisting of domestic consents and industrial consents, are regulated under the Water (Northern Ireland) Order 1999. For domestic consents (mostly septic tanks) an application charge covers the costs of administration in processing and logging the application. The charge is the same for each consent, which applies to a single domestic dwelling.

Industrial consents cover discharges from business premises and multiple dwellings where connection to mains sewer is not possible. Charges for these activities include an application fee, to cover admin and processing costs, and an additional yearly charge to allow for ongoing monitoring and compliance testing. The level of this charge is based on the potential environmental impact of the discharge, by considering the quality and volume of the discharge and setting a suitable frequency for monitoring visits.

The charging schemes are made under the Water (Northern Ireland) Order 1999 and are updated on a yearly basis in line with NIEA policy.

1.6.4 Other services

Waterways Ireland is the cross-border body responsible for the management, maintenance, development and restoration of the inland navigable waterways, principally for recreational purposes. Waterways Ireland manages over 1000 km's of inland navigable waterways, which includes navigations either wholly or partly located within Northern Ireland including the Lower Bann Navigation, the Erne Navigation System, the Shannon-Erne Waterway and the Ulster Canal, the latter two navigations both having transboundary components between Northern Ireland and Ireland. Its work contributes principally to the recreational use (including tourism) of our navigable water resources and supports important linkages to the natural, built and cultural heritage of our inland navigable waterways.

DAERA manages the public angling estate in Northern Ireland. The Department is responsible for the conservation and protection of salmon and inland fisheries of Northern Ireland, apart from the Foyle and Carlingford areas, which are covered by the Loughs Agency. Approximately 5 % of the Northern Ireland population fish in our waterways and approximately one third of the population visits inland waterways for recreational purposes (e.g. walking, canoeing).

These services, based on a clean and healthy water environment, also contribute to the tourism offering of Northern Ireland. Expenditure by tourists contributed almost one billion pounds to the Northern Ireland economy in 2018.

1.6.5 Outlook

For the Price Control 2021 period (PC21), covering a six year period from 2021 to 2027, NI Water submitted a business plan to the Utility Regulator. The business plan includes increased capital investment at a nominal cost of £2 billion as per the Utility Regulator's Draft Determination⁸. This includes investment into the Living with Water Programme and investment in water and wastewater services to begin to address lack of capacity in wastewater services and start to relieve development constraints. The Utility Regulator is expected to publish its final determination in spring 2021.

NIEA consulted earlier in 2021 on the extension of the existing Regulatory Charging Policy. Documents can be found on the [DAERA webpage](#).

⁸ <https://www.uregni.gov.uk/pc21-draft-determination>

Chapter 2 – Summary statistics for overall Status

NIEA operates a rolling monitoring programme for surface water bodies within each river basin management planning cycle. Classifications were updated mid-cycle (2018) and at the end of the cycle (later in 2021). Updated classifications for river water bodies and coastal & transitional water bodies will be published in the final RBMP. However, the classifications for lakes and groundwater were updated in 2020. The most current classification of water bodies indicates that there has been very little improvement since 2015 where 37 % of all water bodies were at ‘good or better’ status compared to 38 % in the latest assessment with 2018 and 2020 updates.

The following for section present the previous and current classification results for each of the water body types:

- river water bodies
- lake water bodies
- coastal and transitional water bodies
- groundwater bodies

2.1 Summary results for river water bodies

The classification for river water bodies is summarised in Figure 4 to Figure 9 comparing 2015 status with 2018 status. While 37 water bodies improved in status between 2015 and 2018 this was offset by 52 water bodies that deteriorated.

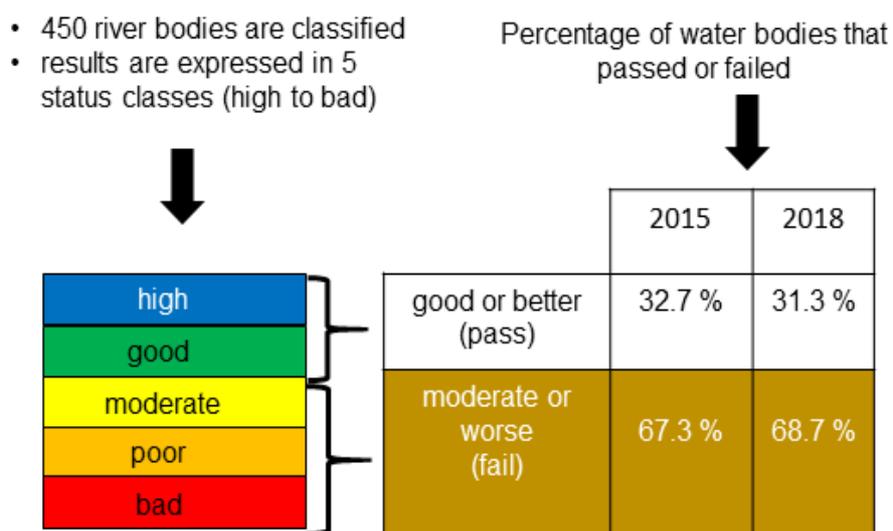


Figure 4: Percentage of river water bodies (last classified in 2018) at ‘Good or better status’

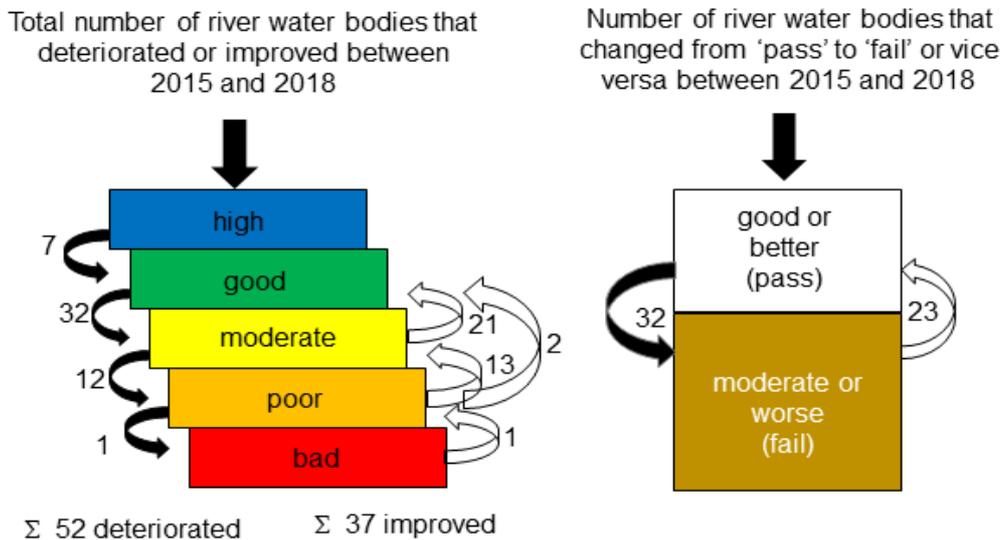


Figure 5: Total number of river water bodies that deteriorated or improved between 2015 and 2018 and changed from ‘pass’ to ‘fail’ or vice versa

To determine the status class of a river water body up to 40 tests are carried out and if one of these test fails the overall water body status fails. 6 shows in which of the elements there were improvements and deteriorations between 2015 and 2018. The biggest deterioration was in soluble reactive phosphorus (SRP), where an additional 7.8 % of river water bodies failed for this individual test element. Figure 7 shows the number of river water bodies where the SRP test element improved or deteriorated between 2015 and 2018.

We also looked closer at the water bodies that failed for one test element only. Figure 8 compares the reason for failure for those water bodies between 2015 and 2018.

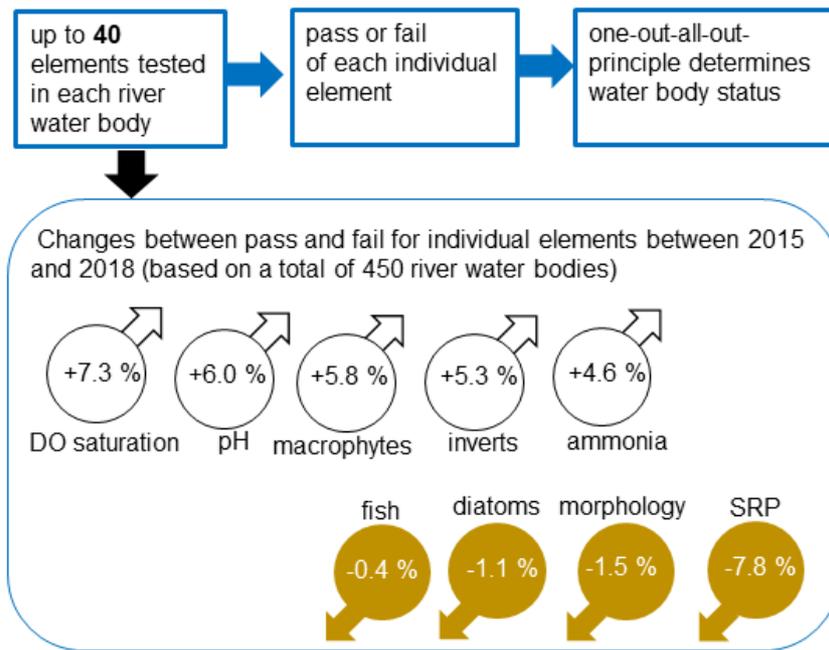


Figure 6: Reason for changes (in percent) between pass and fail for individual elements for river water bodies between 2015 and 2018

Total number of river water bodies that deteriorated or improved for SRP between 2015 and 2018

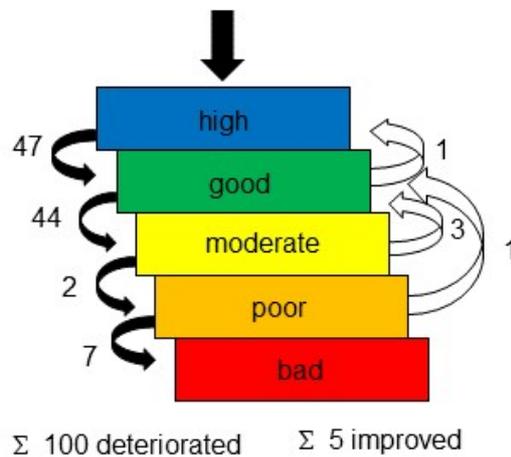


Figure 7: Between 2015 and 2018, Soluble Reactive Phosphorus (SRP) was the cause of decline in status for 100 river water bodies across Northern Ireland

In 2015 soluble reactive phosphorus (SRP) accounted for 20 % of cases where water bodies failed due to one test element. In 2018 this had increased to 40 %.

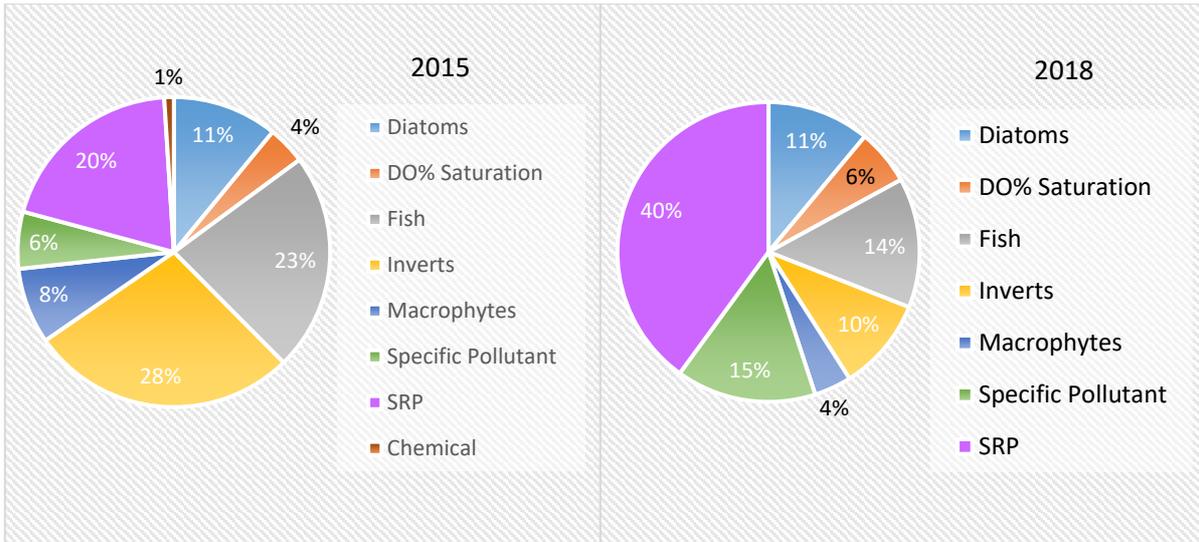


Figure 8: Reason for failure in river water bodies where only one element failed

The Programme for Government (PfG) Outcome 2 indicator includes SRP concentrations in rivers. On average across Northern Ireland, flow weighted mean concentrations of SRP concentration in rivers has increased from a low of 0.047 mg/ l in 2012 to 0.063 mg/ l in 2019.

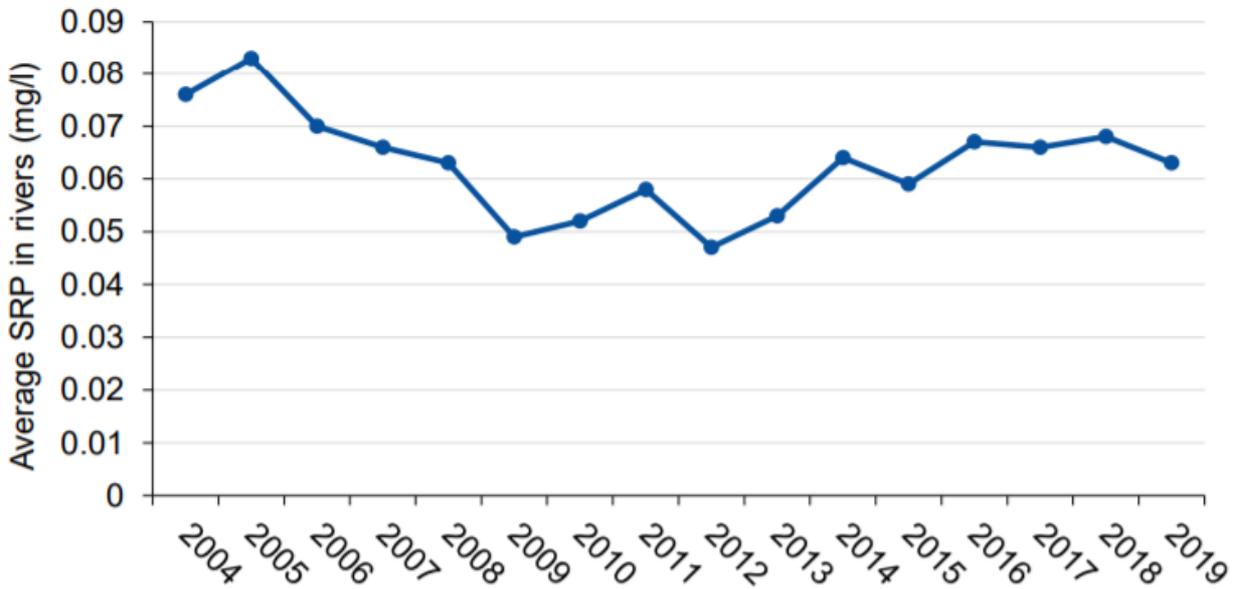


Figure 9: Soluble Reactive Phosphorus in rivers (NI Environmental Statistics Report 2020⁹)

The criteria used to report change for this indicator is +/- 0.01 mg/l against the baseline year value in 2015, when the SRP concentration was 0.059 mg/l. In 2019 SRP was measured at

⁹ https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2020_0.pdf

93 surveillance rivers across Northern Ireland giving an average concentration of 0.063 mg/l of phosphorus in river water. This was 0.004 mg/l more than the level reported in 2015. Therefore, there is considered to be no change in SRP in river water since the baseline year for PfG reporting using the criteria above.

2.2 Summary results for lake water bodies

Across Northern Ireland, there has been a significant decline in lake status since 2015¹⁰. In 2020, only 1 of the 21 lake water bodies in Northern Ireland was classified as 'good' status and 20 lakes were classified as less than 'good' status. This compares to 5 lakes at 'good' status and 16 at less than 'good' status in 2015 and 2018.

The summary statistics for lakes can be found in Figure 10 and Figure 11.

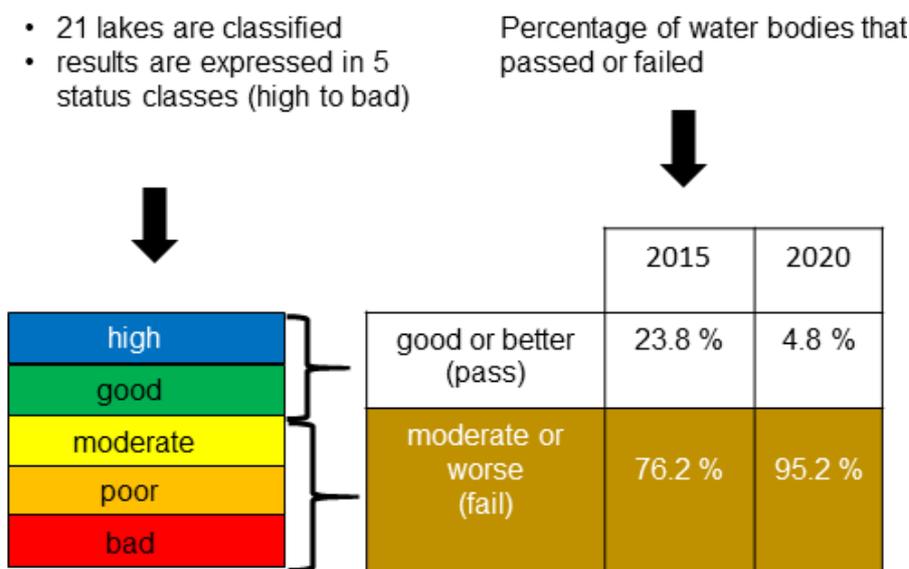


Figure 10: Summary of the lake classifications for 2015 and 2020.

¹⁰ <https://www.daera-ni.gov.uk/publications/northern-ireland-water-framework-directive-statistics-lake-quality-update-2020>

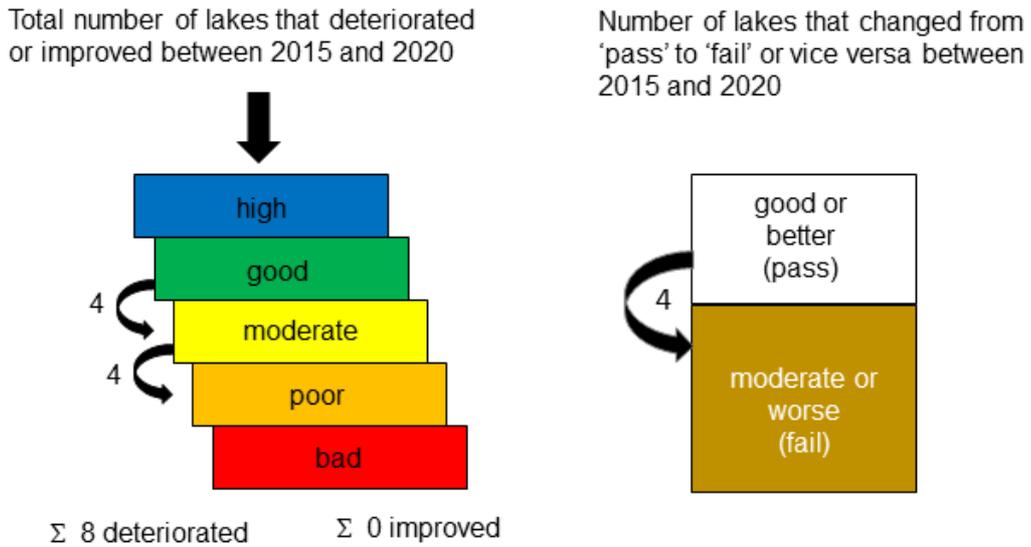


Figure 11: Total number of lake water bodies that deteriorated or improved between 2015 and 2020 and changed from 'pass' to 'fail' or vice versa

2.3 Transition & coastal water bodies

There are 25 transitional and coastal water bodies in Northern Ireland. Between 2015 and 2018 two water bodies deteriorated and three improved. Figure 12 and Figure 13 provide more detail.

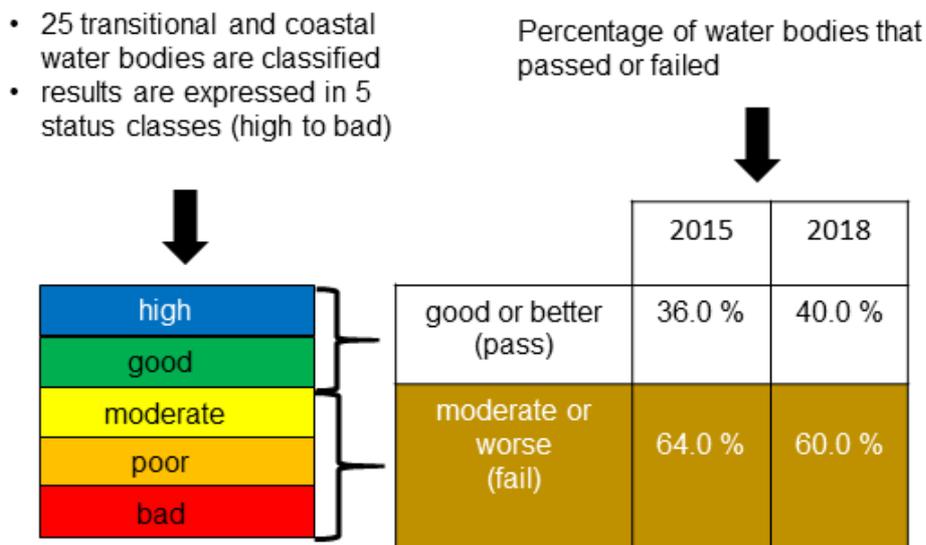


Figure 12: Summary of transitional and coastal water body status for 2015 and 2018

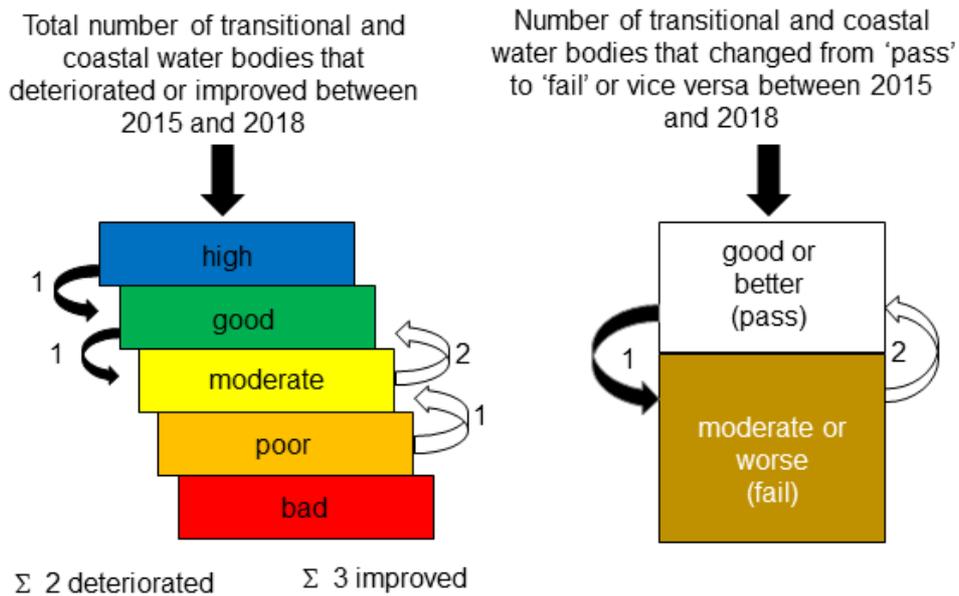


Figure 13: Total number of transitional and coastal water bodies that deteriorated or improved between 2015 and 2020 and changed from 'pass' to 'fail' or vice versa

2.4 Groundwater bodies

The classification for 75 groundwater bodies was updated in 2020. Fourteen groundwater bodies improved. Although the groundwater classification results show an improvement in status this is mostly due to changes in monitoring data collection or changes in monitoring stations within the groundwater bodies.

- 75 groundwater bodies are classified
- results are expressed in 2 status classes (good and poor)

Percentage of groundwater bodies that passed or failed (overall status)

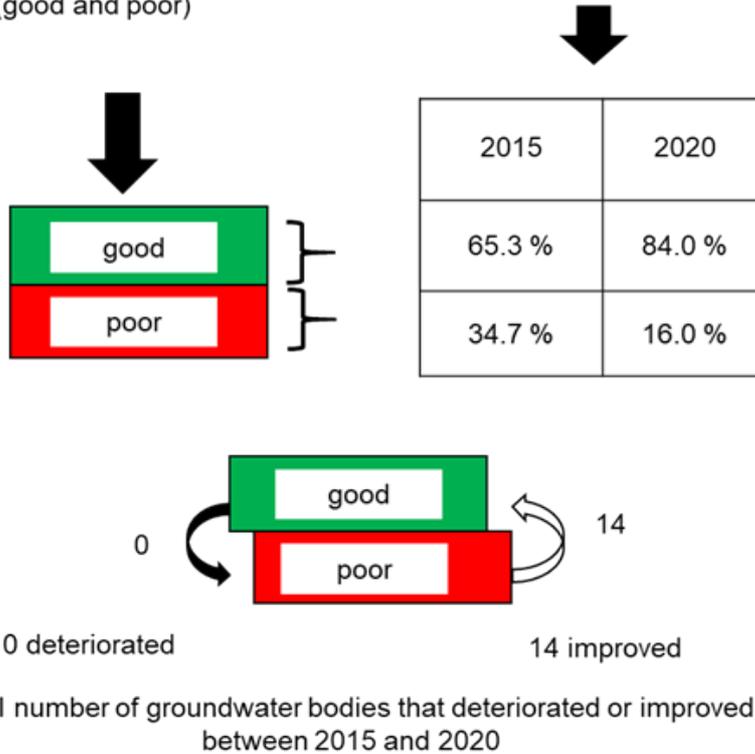


Figure 14: Summary of groundwater body status for 2015 and 2020 and number that deteriorated or improved

In the final RBMP, the updated status for all water bodies will be used.

Chapter 3 – Changes and updates since the last River Basin Management Plans

3.1 Reporting of results in the 3rd cycle River Basin Management Plan

The 3rd cycle final RBMP will be an update on the RBMPs published in 2015 for the 2nd cycle. Since the beginning of river basin management planning changes to the regulations, including:

- The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017
- Groundwater Regulations (Northern Ireland) 2009 as amended
- The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015

have been made, to take account of changes to the Water Framework Directive (WFD, 2000/60/EC) that were made before the end of the EU transition period. These changes include, for example, new priority substances that have been added to Annex 10 since 2015.

In 2018/19 WFD UKTAG undertook consultations on new and revised standards for ecological status in freshwaters. This includes standards for Nitrogen in lakes, water resources in rivers, and the list of aquatic non-native species. As a result of a consultation exercise, UKTAG recommended the adoption of these for classification for the 3rd cycle RBMP from 2021.

As a result, further updates to our regulations (the proposed changes to the regulations will be published for consultation in 2021), as well as updates to our classification methodologies will be introduced in the 3rd cycle.

We are therefore proposing changes to the reporting in the final RBMP which are outlined in this chapter.

3.1.1 Reporting of status for surface water bodies

We are proposing changes to the reporting of status for surface water bodies to make it easier to see where the failures in water body status are. In order to classify water bodies a number of assessments are carried out, as illustrated in Figure 16 below, which are then combined into an overall status class 'surface water status' following the one-out all-out principle.

For surface water bodies these tests fall into two broad groups: ecological status and chemical status. We are therefore proposing to report both ecological status and chemical status in addition to overall surface water status. This approach is similar to the one already being used for groundwater bodies where in addition to the overall status both quantitative and chemical (qualitative) status are reported.

Question 1: Do you agree that reporting for surface water bodies should include ecological and chemical status in addition to the overall surface water status?

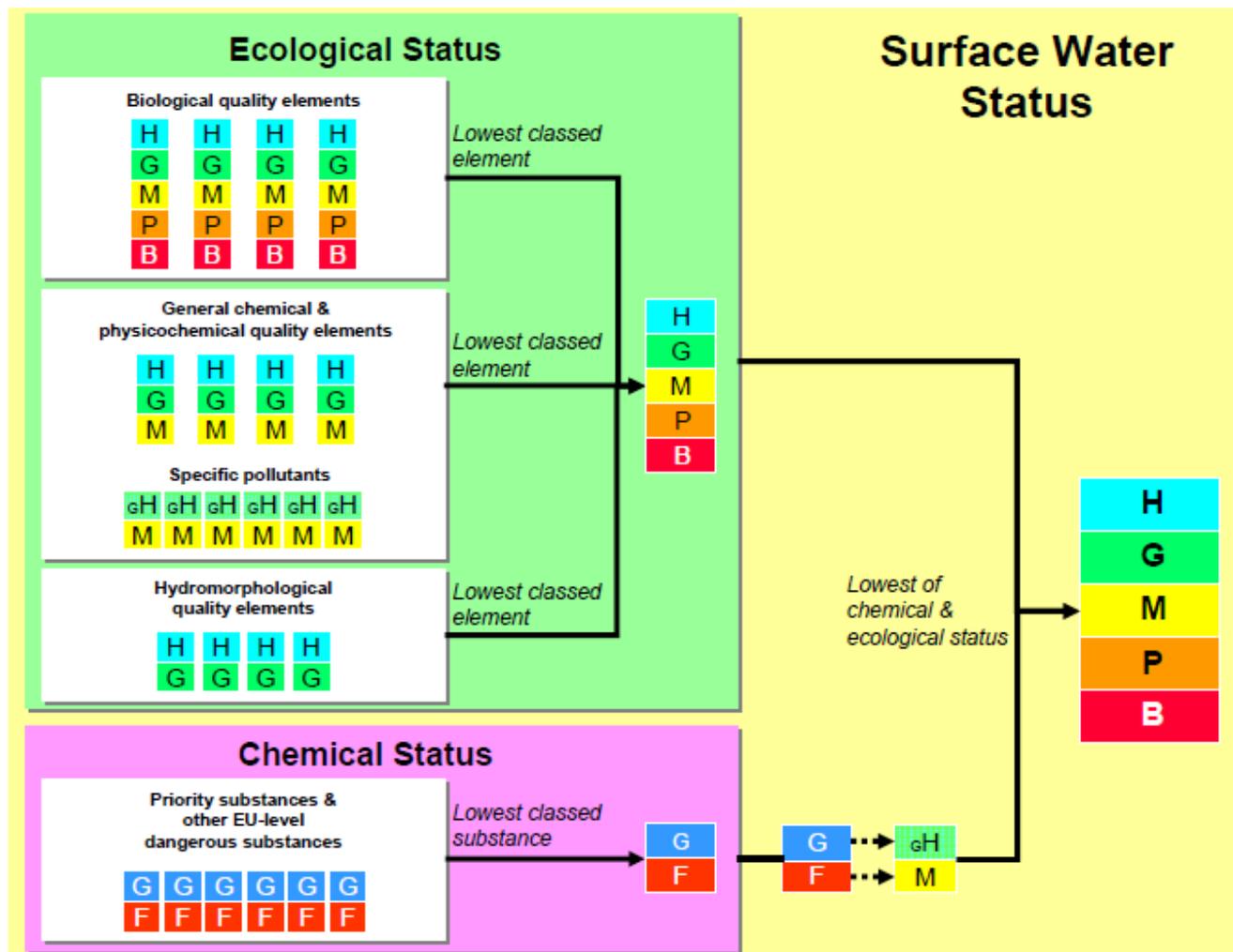


Figure 15: Schematic representation of how result for different quality elements are combined to classify ecological status, chemical status and surface water status [UKTAG, 2007]

3.1.2 New Standards relating to chemical status

In 2021 we will update our classification for rivers and coastal & transitional water bodies. The 'chemical status assessment' will include an assessment of the new priority substances. For the first time the presence of ubiquitous, persistent, bioaccumulative, toxic (uPBT)

substances will be assessed as part of chemical status. Although a number of these uPBT substances are now banned or have restricted use their widespread use in the past has resulted in their accumulation in the aquatic environment with subsequent breaching of assigned EQS values. It is widely recognised that given their persistence the levels present in the aquatic environment will likely remain in breach of EQS values for some years to come. This finding is in common with European countries and indeed with countries across the globe where usage was widespread. Therefore to allow for a meaningful comparison with chemical status in 2015, for which the uPBTs were not monitored, it is important that overall chemical classification be presented both including and excluding the uPBTs.

In addition cypermethrin, which was previously part of ecological classification and is now a priority substance, will now be assessed as part of the chemical classification. As a result there will be more failures in chemical status for water bodies, but they are due to an improved assessment methodology rather than a deterioration in chemical water quality. To allow a comparison between the chemical status in 2015 and 2021 we therefore propose to break the chemical status further into three subgroups:

- overall chemical classification
- overall chemical classification excluding uPBT
- overall chemical classification excluding uPBT as well as cypermethrin – this subgroup can be compared with the chemical classification results from 2015

Question 2: Do you agree with presenting chemical status for surface water bodies in three subgroups?

3.1.3 Impact on proposed standard changes on water body status

The new priority substances were already considered for the updated lakes classification in 2020. A number of lakes were included in monitoring for cypermethrin. In 2015 and 2018 all lakes were reported as high chemical status. The 2020 published chemical status found that ten (47.6 %) Northern Ireland surveillance lakes deteriorated to moderate. All chemical status failures are due to these lakes failing the standard for cypermethrin. Cypermethrin is an insecticide and mostly used to control a range of pests in both arable and livestock farming, but is also used by private individuals in consumer products for domestic purposes.

Cypermethrin was previously defined as a specific pollutant under WFD and therefore included in the assessment of ecological status until 2018. In December 2018, cypermethrin was designated as a priority substance by the EU under the Environmental Quality Standards

Directive (2013/39/EU), a daughter directive of the Water Framework Directive (WFD, 2000/60/EC). Due to the high toxicity of cypermethrin to aquatic life, very small concentrations have been identified to be of concern to lake ecology. An annual average (AA) EQS for cypermethrin of 0.08 ng/l for freshwaters has been specified in this directive. In addition a maximum allowable concentration (MAC) of 0.6 ng/l has been set for freshwaters. This is in contrast to the acceptable daily intake (ADI) for human health of 0 to 0.05 g/kg body weight as set out by the World Health Organisation. The cypermethrin levels found in Northern Ireland lakes are therefore not an issue for drinking water or human health.

It should be noted that cypermethrin was not analysed at every lake but that it failed for every lake for which it was tested resulting in moderate status for those lakes.

The Department has carried out monitoring of uPBT substances including mercury in biota during the 2nd cycle river basin management planning period at selected monitoring points. The monitoring stations were selected on a risk based approach for screening purposes.

3.1.4 Changing to a single document covering all three river basin districts

For the 3rd cycle RBMP update, there will be one RBMP covering all 3 RBDs. A similar approach has been taken in Ireland. This does not in any way detract from the work on-going at a local level within each RBD. Whilst we continue to ensure effective national measures are in place to address pressures on a whole RBD basis, it has become apparent that the delivery of supporting measures must be prioritised to ensure the implementation of the “right measures in the right place”.

There are six dedicated catchment officers, who continually work with groups of stakeholders on local water quality issues within each RBD. Each RBD is split into local management areas (LMA) and these are shown in the map (see Figure 16) with the colour highlighting the area covered by each of the six catchment officers.

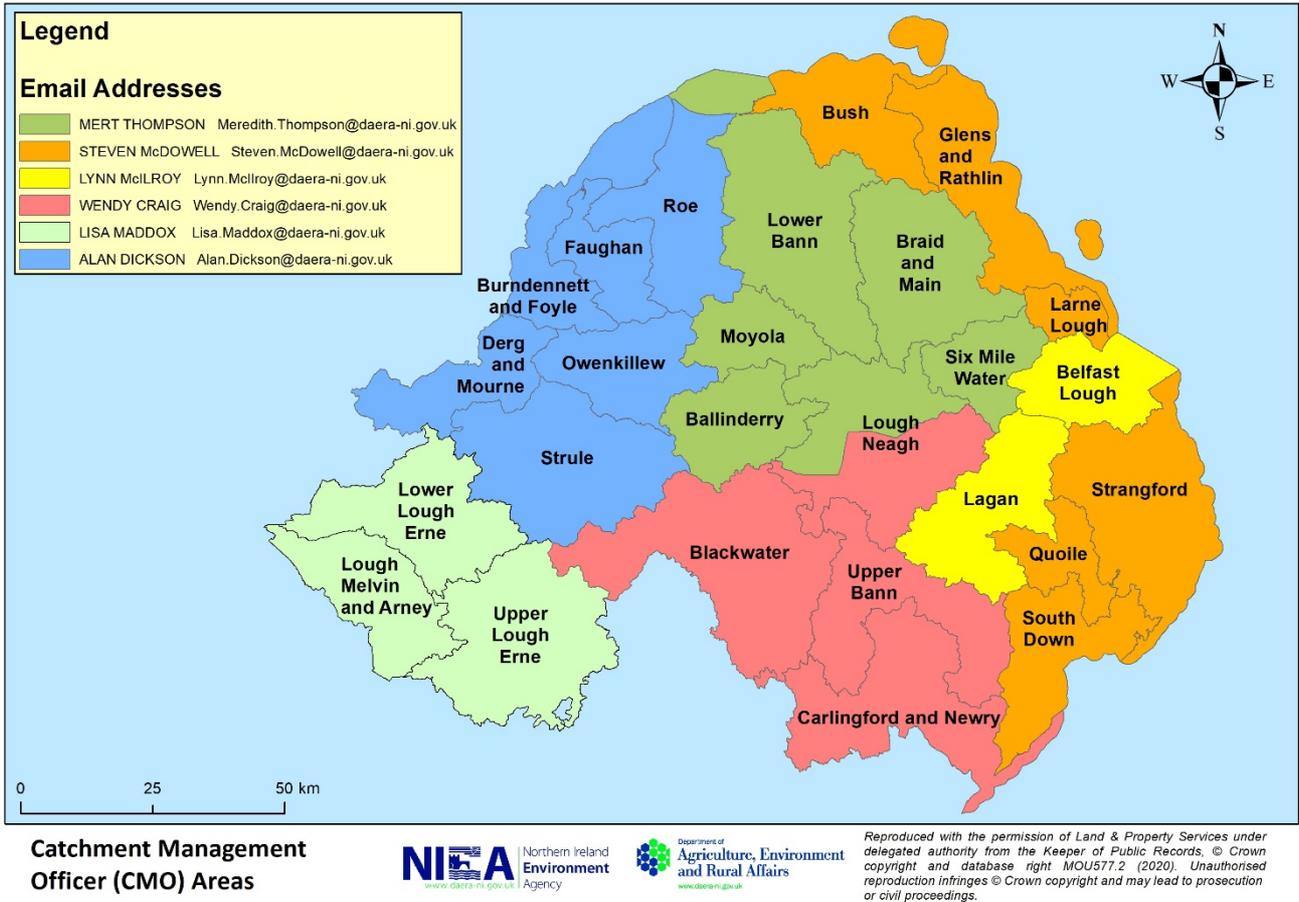


Figure 16: Map showing the catchment management officer areas in Northern Ireland

3.1.5 Heavily Modified Water bodies

The WFD recognises that some water bodies will have been changed to such a degree that they can no longer be restored to their original condition without compromising their current use. For example, some waters have been deepened to allow for navigation; others have flood defences or have been dammed to provide a source of drinking water. They are called heavily modified water bodies (HMWBs) or artificial water bodies (AWBs).

Following engagement with relevant stakeholders HMWBs and AWBs were designated in the 1st cycle and reviewed and updated for the 2nd cycle. There have been no further changes to HMWBs in the 3rd cycle. The classification tables in the next section relating to lake and transitional & coastal water bodies show the HMWBs with a dashed line through the cell and these water bodies are required to reach good ecological potential as opposed to good ecological status.

3.1.6. Proposal for the assessment of coastal river water bodies for the third cycle river basin management plan

A number of small river catchments which were of less than 10km² along the coast were not identified as water bodies in the 1st or 2nd cycle RBMPs as this is the minimum size threshold for WFD. As these coastal river water bodies remain unclassified this has resulted in areas around the coast which are coloured grey on classification maps.

For the 3rd river basin cycle management plan we are therefore proposing a method to provide an assessment of water quality in these coastal areas. The proposed method can be found in a supporting document on our [website](#).

To summarise, we do not intend to identify the small river coastal water bodies as water bodies in their own right but instead propose to follow the UKTAG and CIS guidance which states 'Small elements that belong to same category and type, that are influenced by the same pressure category and level, and that have an influence on another well delimited water body may be grouped for assessment and reporting purposes'. These water bodies will not be reported, so this change will not impact on numbers or percentage of water bodies in each status class.

Question 3: Do you agree with the proposal for the assessment of coastal river water bodies for the third cycle river basin management plan?

Chapter 4 – Classification results for each River Basin District

4.1 North Western River Basin District – Status

4.1.1 River status in the NWRBD in 2018

The North Western River Basin District (NWRBD) covers an area of around 4900 km². It takes in large parts of Counties Fermanagh, Londonderry and Tyrone. There are 162 river water bodies in the NWRBD. 87 of these were classified as less than ‘good’ status in 2015 and in 2018 this number has increased to 94, showing an overall deterioration in classification in 7 river water bodies.

The principal river systems are the Foyle (with its tributaries the Mourne, Derg, Strule and Finn Rivers) and the River Erne which drains the uplands of Cavan, Fermanagh and Monaghan. Lough Foyle is the main coastal water and Upper and Lower Lough Erne, Lough Melvin and Lough MacNeaen the main lakes.

Overall in the NWRBD 41.9 % of water bodies are classified as ‘good or better’ in 2018 compared to 46.3 % in 2015. Maps are located at the end of the section 3.2 (Figure 18 to Figure 23).

River status	2015	2015 (%)	2018	2018 (%)
High	5	3.1	0	0.0
Good	70	43.2	68	42.0
Moderate	74	45.7	84	51.9
Poor	12	7.4	10	6.2
Bad	0	0.0	0	0.0
No Data	1	0.6	0	0.0
Total	162	100	162	100

Table 1: Comparison of 2015 and 2018 river water body status in NWRBD

4.1.2 Lake status in the NWRBD in 2020

In 2020, the status for lake water bodies was updated following the interim classifications in 2018. In the NWRBD, 8 surveillance lakes are monitored, which includes the 1 lake in Northern Ireland to remain at ‘good’ status. 4 lakes have deteriorated since 2015. 50 % of lakes in the NWRBD remained at the same surface water status class between 2015 and 2020, the other 50 % deteriorated by one class. Table 2 shows the 2015, 2018 and 2020

status as Good, Moderate, Poor or Bad and Good Ecological Potential (GEP), Moderate Ecological Potential (MEP), Poor Ecological Potential (PEP).

Lake	2015 Status	2018 Status	2020 Status
Castlehume lake	Good	Good	Moderate
Lower Lough Erne at Kesh	MEP	PEP	PEP
Lower Lough Erne at Devenish	MEP	MEP	MEP
Upper Lough Erne	MEP	PEP	PEP
Lower MacNea	Bad	Bad	Bad
Upper MacNea	Moderate	Poor	Poor
Lough Melvin	Moderate	Moderate	Moderate
Lough Scolban	Good	Good	Good

Table 2: Overall lake status in the NWRBD

In the 2015 RBMP, chemical and ecological status were reported together as overall status. As explained earlier in previous chapter the chemical and ecological status will be reported separately in the 3rd cycle RBMP. Table 3, Table 4 and Table 5 show a comparison of the ecological status, the chemical status and the overall status for lakes in 2015 and in 2020.

Ecological status	2015	2015 (%)	2020	2020 (%)
High	0	0	0	0.0
Good	2	25	1	12.5
Moderate	5	62.5	3	37.5
Poor	0	0	3	37.5
Bad	1	12.5	1	12.5
Total	8	100	8	100

Table 3: Ecological status for lake water bodies in the NWRBD for 2015 and 2020

Chemical status	2015	2015 (%)	2020	2020 (%)
High	8	100	7	87.5
Moderate	0	0	1	12.5
Total	8	100	8	100

Table 4: Chemical status for lake water bodies in the NWRBD in 2015 and 2020

Overall Lake status	2015	2015 (%)	2020	2020 (%)
High	0	0.0	0	0.0
Good	2	25.0	1	12.5
Moderate	5	62.5	3	37.5
Poor	0	0.0	3	37.5
Bad	1	12.5	1	12.5
Total	8	100	8	100

Table 5: Overall status for lake water bodies in the NWRBD in 2015 and 2020

4.1.3 Transitional & coastal water bodies in the NWRBD in 2018

In the NWRBD 3 transitional & coastal water bodies are monitored. The status used for this draft plan is the interim classification from 2018. All of the water bodies maintained their 2015 status in 2018.

NWRBD	2015	2018
Foyle Harbour and Faughan (HMWB)	MEP	MEP
Lough Foyle	Good	Good
Upper Foyle	Moderate	Moderate

Table 6: Surface water classification for transitional and coastal water bodies in NWRBD in 2015 and 2018

4.1.4 Groundwater bodies in the NWRBD in 2020

There are 45 groundwater bodies in the NWRBD. In 2020, the status was updated and 41 were classified as good and 4 were classified as poor. Groundwater is reported as quantitative status (Table 7), chemical status (Table 8) and overall status (Table 9).

Quantitative Status	2015	2015 (%)	2020	2020 (%)
Good	42	93.3	45	100.0
Poor	3	6.7	0	0.0
Total	45	100	45	100

Table 7: Quantitative groundwater status in the NWRBD in 2015 and 2020

Chemical status	2015	2015 (%)	2020	2020 (%)
Good	38	84.4	41	91.0
Poor	7	15.6	4	9.0
Total	45	100	45	100

Table 8: Chemical status for groundwater bodies in the NWRBD in 2015 and 2020

Overall status	2015	2015 (%)	2020	2020 (%)
Good	37	82.2	41	91.0
Poor	8	17.8	4	9.0
Total	45	100	45	100

Table 9: Overall status for groundwater bodies in the NWRBD in 2015 and 2020

4.1.5 Case study in the NWRBD - Conservation Management Plans

The development of conservation management plans (CMPs) for designated sites is a key mechanism for defining the necessary conservation measures (both on-site and off-site) to move towards favourable condition. CMPs are being developed for 54 Special Areas of Conservation (SACs) in the first instance.

The development of CMPs involves completing an established five-stage process which includes:

- producing a habitat map of the site
- a pressures and threats assessment
- undertaking stakeholder engagement
- establishing and developing the necessary management actions and conservation measures
- completing a Habitats Regulations Assessment.

In the NWRBD there are 7 Freshwater Conservation Management Plans being developed for the Rivers Cladagh, Owenkillew, Faughan, Foyle, Roe and some of their tributaries and Loughs Melvin and Upper Erne.

CMPs will define the necessary conservation measures for the particular site. It will be important to have the necessary mechanisms in place to ensure that conservation and protection measures are being applied and implemented, as obliged by legislation. The

CMPs will also highlight off-site pressures and the need for specific measures to address the local and regional emissions affecting site integrity. Due to the impacts of Covid-19, contract prolongations are being explored, but it is envisaged all plans will have drafts completed by Dec 2022.

When the final draft CMPs are completed, habitats across the sites will have been mapped, pressures and threats identified and recommended management actions developed which will better inform the decision making process for managing these protected sites.



4.1.6 Maps for the NWRBD

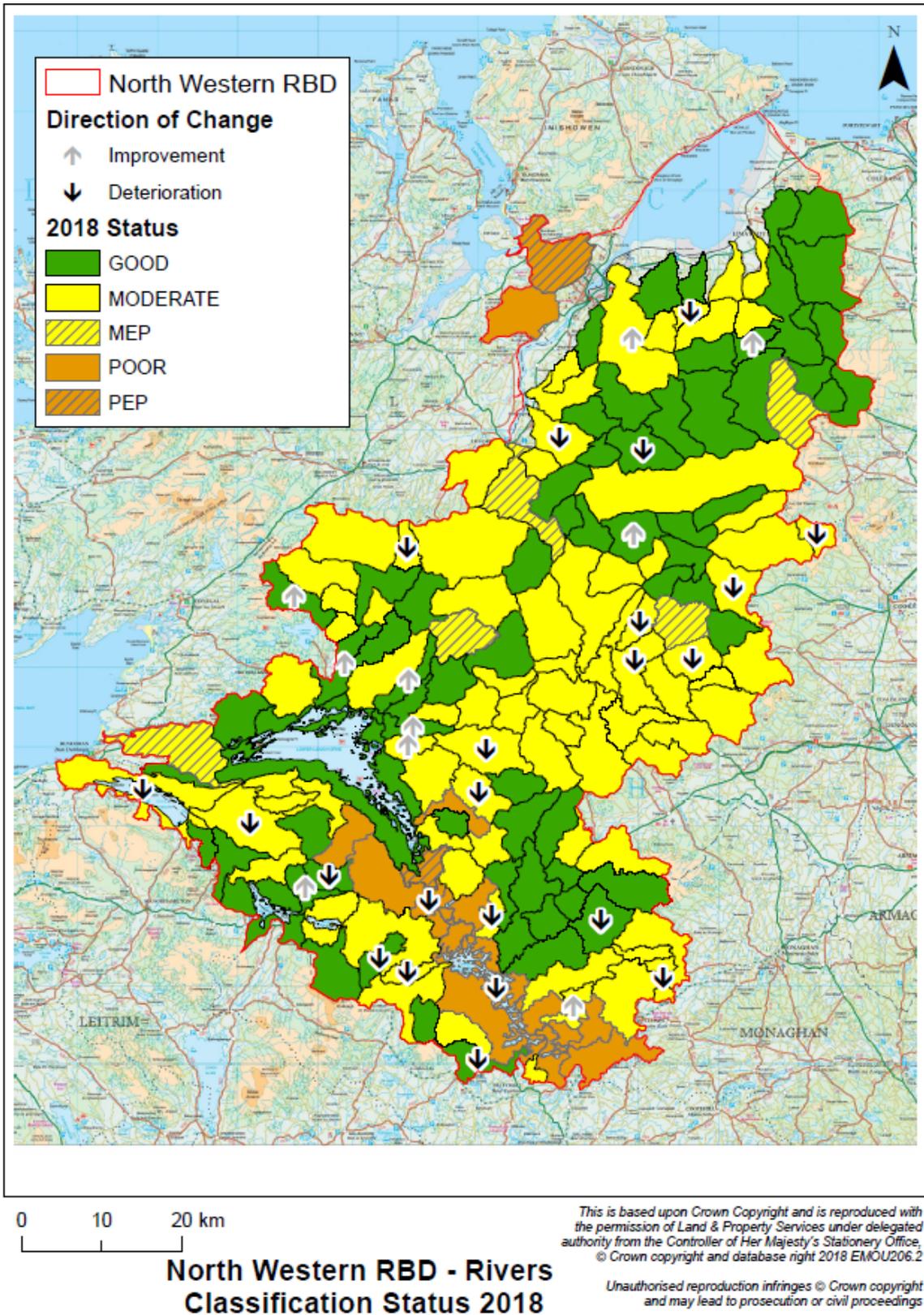


Figure 17: Map showing 2018 surface water classification for river water bodies and their deterioration and improvement in relation to 2015

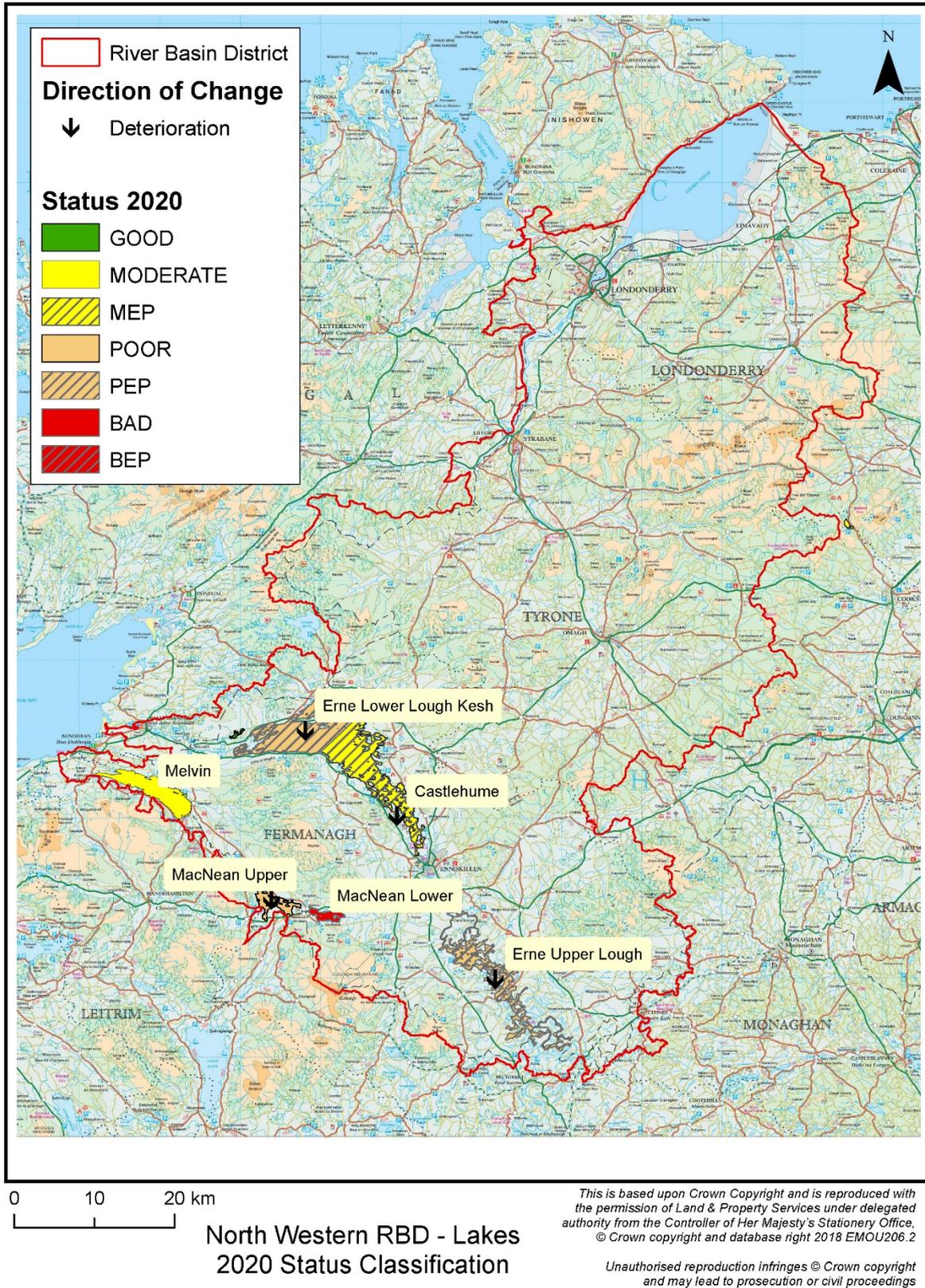
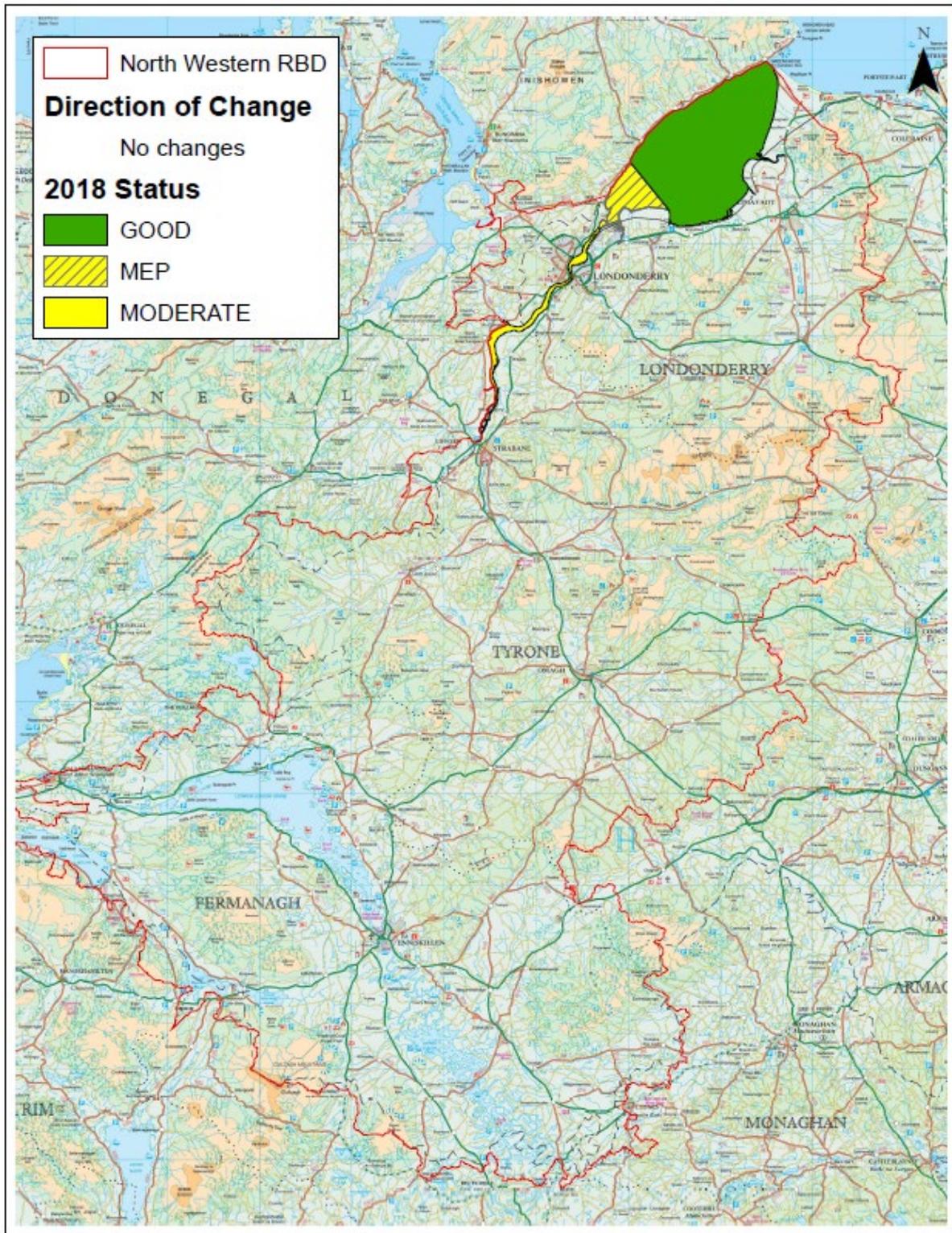


Figure 18: Map showing the 2020 surface water status for lake water bodies with deteriorations in relation to 2015



0 10 20 km

North Western RBD - Marine Classification Status 2018

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Figure 19: Map showing the 2018 surface water status of transitional & coastal water bodies in NWRBD

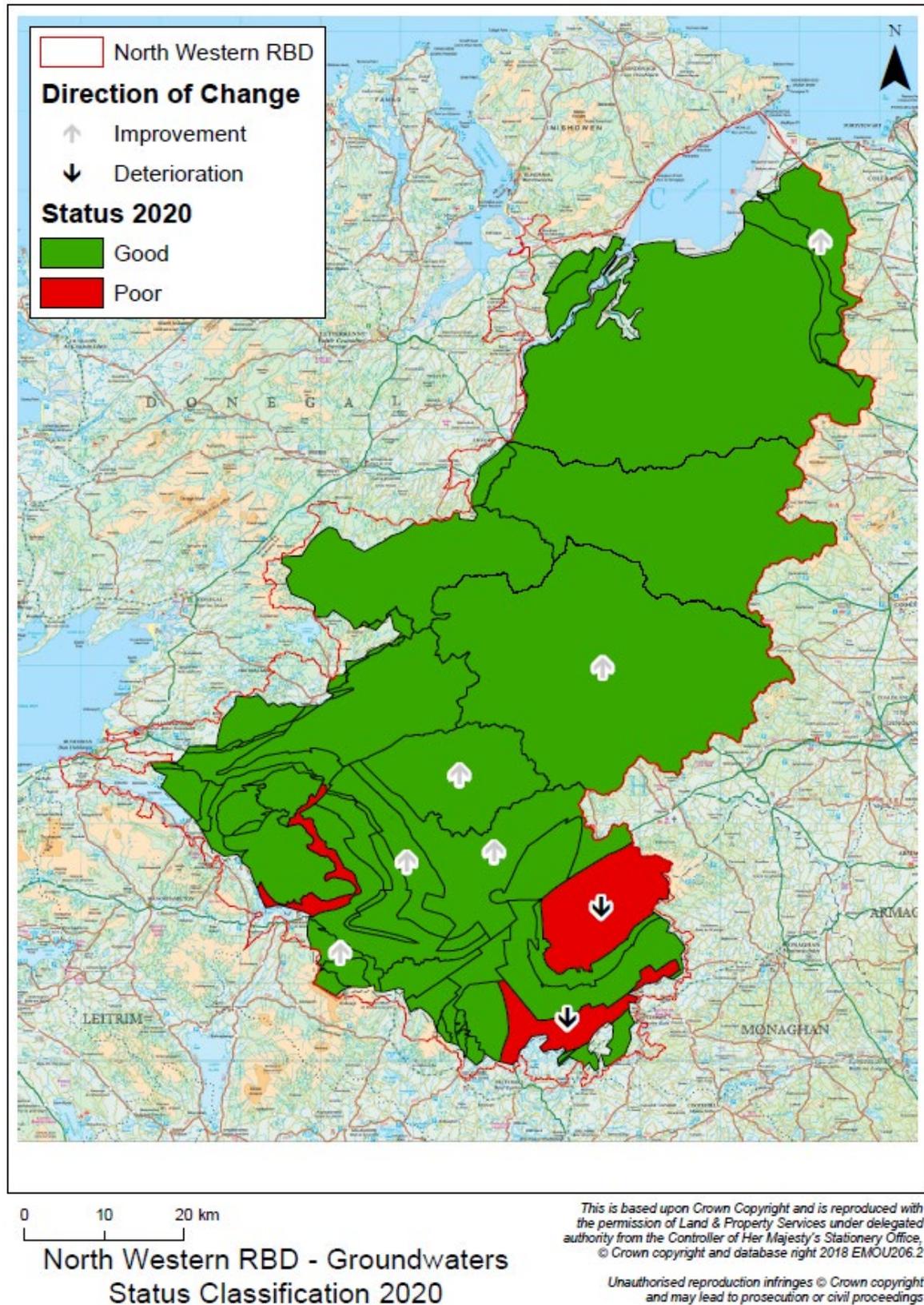
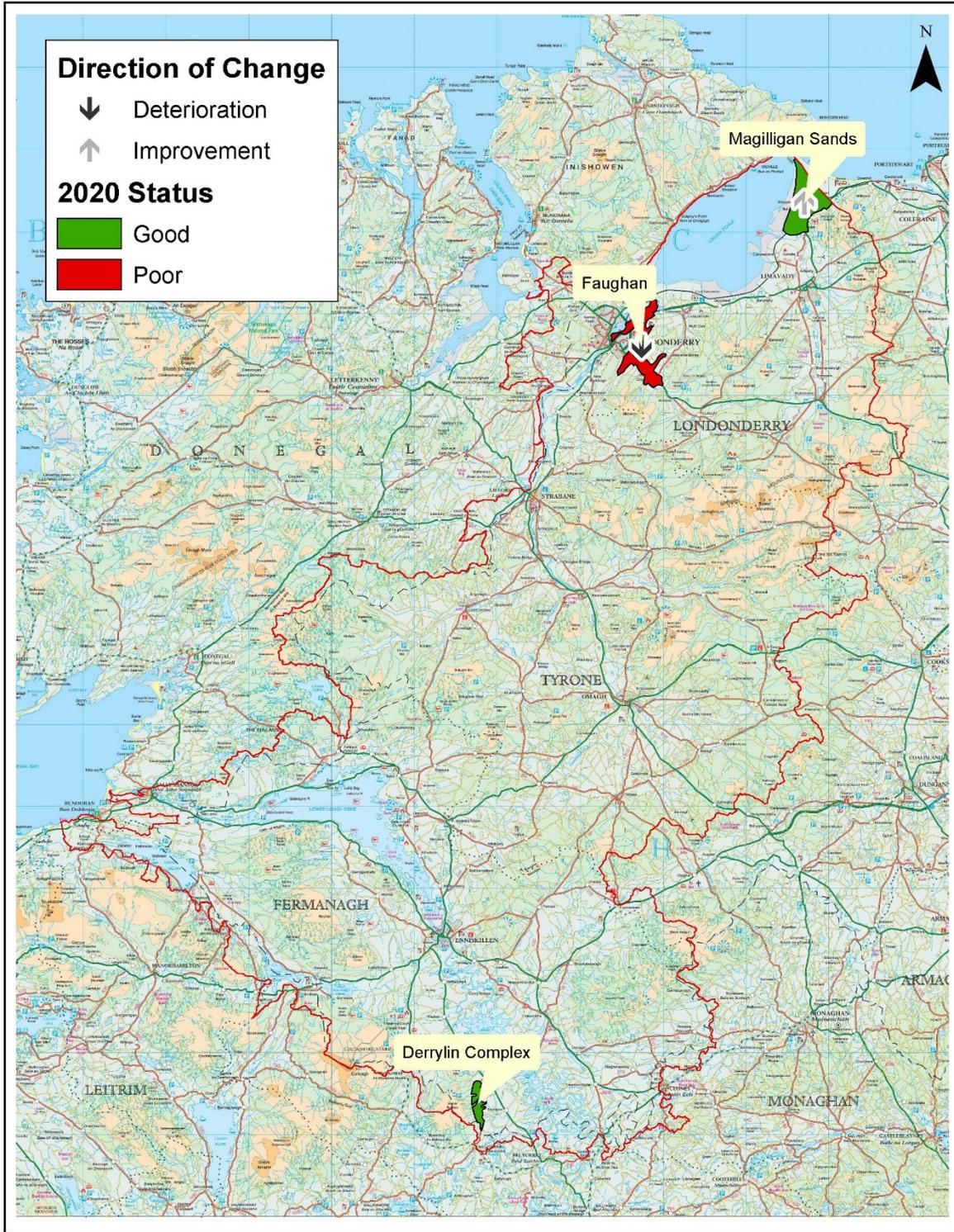


Figure 20: Map showing overall 2020 groundwater status for bedrock groundwater bodies



0 10 20 km

**North Western RBD - Superficial Groundwaters
Classification Status 2020**

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Figure 21: Map showing overall 2020 groundwater status for superficial groundwater bodies

4.2 Neagh Bann River Basin District – Status

4.2.1 River Status in the NBRBD in 2018

The Neagh Bann River Basin District (NBRBD) covers an area of around 5740 km². It includes all of County Armagh, large parts of Counties Antrim, Londonderry, Down and Tyrone and a small area of County Fermanagh. There are 199 river water bodies in the NBRBD, of which 145 were classified as less than ‘good’ status in 2015. In 2018 this number has decreased to 143, showing an overall improvement in classification in 2 river water bodies.

The principal river system is the Bann, with its tributaries the Moyola, Ballinderry, Blackwater, Six Mile Water and Main. The Newry river system drains into Carlingford Lough. Lough Neagh, located in the centre of the district is the main lake, with other smaller ones including Lough Fea, Portmore, Ross and Beg. This district has a limited coastline to the north where the River Bann enters the Atlantic and to the south where the Newry system enters Carlingford Lough.

Overall in the NBRBD 28.4 % of water bodies are classified as ‘good or better’ in 2018 compared to 27.4 % in 2015. Maps are located at the end of section 3.3 (Figure 23 to Figure 27).

River status	2015	2015 (%)	2018	2018 (%)
High	3	1.5	2	1.0
Good	51	25.6	54	27.1
Moderate	116	58.3	114	57.3
Poor	19	9.5	21	10.6
Bad	6	3	6	3.0
No Data	4	2	2	1.0
Total	199	100	199	100

Table 10: Comparison of 2015 and 2018 river water body status in NBRBD

4.2.2 Lake Status in the NBRDB in 2020

In 2020, the status for lake water bodies was updated following the interim classifications in 2018. In the NBRDB 10 surveillance lakes are monitored. 3 lakes have deteriorated since 2015: 2 from good to moderate and 1 from moderate to poor surface water status.

Lake	2015 Status	2018 Status	2020 Status
Lough Beg	Poor	Poor	Poor
Cam Lough	PEP	PEP	PEP
Lough Fea	GEP	GEP	MEP
Lough Gullion	Bad	Bad	Bad
Lough Island Reavy	MEP	MEP	MEP
Lough Neagh	BEP	PEP	BEP
Portmore Lough	Bad	Bad	Bad
Lough Ross	Moderate	Moderate	Poor
Spelga	GEP	GEP	MEP
Stoneyford	PEP	PEP	PEP

Table 11: Overall lake status in the NBRBD

In the 2015 RBMP, chemical and ecological status were reported together as overall status. As explained earlier in the previous chapter the chemical and ecological status will be reported separately in the 3rd cycle RBMP. A comparison of the ecological status, the chemical status and the overall status for lakes in 2015 and in 2020 is given in Table 12, Table 13 and Table 14.

Ecological status	2015	2015 (%)	2020	2020 (%)
High	0	0	0	0.0
Good	2	20	1	10.0
Moderate	2	20	2	20.0
Poor	3	30	4	40.0
Bad	3	30	3	30.0
Total	10	100	10	100

Table 12: Ecological status for lake water bodies in the NBRBD in 2015 and 2020

Chemical status	2015	2015 (%)	2020	2020 (%)
High	10	100	3	30.0
Moderate	0	0	7	70.0
Total	10	100	10	100.0

Table 13: Chemical status for lake water bodies in the NBRBD in 2015 and 2020

Overall Lake status	2015	2015 (%)	2020	2020 (%)
High	0	0.0	0	0.0
Good	2	20.0	0	0.0
Moderate	2	20.0	3	30.0
Poor	3	30.0	4	40.0
Bad	3	30.0	3	30.0
Total	10	100	10	100

Table 14: Surface water status for lake water bodies in the NBRBD in 2015 and 2020

4.2.3 Transitional & Coastal water bodies in the NBRBD in 2018

Five transitional & coastal water bodies are monitored in the NBRBD. The status used for this draft plan is the interim classification from 2018. 1 water body improved in surface water classification since 2015 (Table 15).

NBRBD	2015 status	2018 Status
Bann Estuary (HMWB)	PEP	PEP
Carlingford Lough	Moderate	Moderate
Mourne Coast	Moderate	Good
Newry Estuary (HMWB)	MEP	MEP
Portstewart Bay	Good	Good

Table 15: Surface water classification for transitional and coastal water bodies in the NBRBD in 2015 and 2020

4.2.4 Update on the groundwater bodies in the NBRBD in 2020

There are 16 groundwater bodies in the NBRBD. In 2020, the status was updated and 12 are currently in good status and 4 are poor status. Groundwater is reported as quantitative status, chemical status and overall status.

Quantitative Status	2015	2015 (%)	2020	2020 (%)
Good	13	81.2	16	100.0
Poor	3	18.8	0	0.0
Total	16	100	16	100

Table 16: Quantitative status of groundwater bodies in the NBRBD in 2015 and 2020

Chemical status	2015	2015 (%)	2020	2020 (%)
Good	7	43.8	12	75.0
Poor	9	56.2	4	25.0
Total	16	100	16	100

Table 17: Chemical status of groundwater bodies in the NBRBD in 2015 and 2020

Overall status	2015	2015 (%)	2020	2020 (%)
Good	6	37.5	12	75.0
Poor	10	62.5	4	25.0
Total	16	100	16	100

Table 18: Overall groundwater body status in the NBRBD in 2015 and 2020

4.2.5 Case Study for the NBRBD – Upper Bann Catchment: Soil & Risk Mapping for Nutrient Management & Water Quality Protection

It has been recognised that whilst the Nutrient Action Programme (NAP) Regulations play a vital role in the protection of water quality from agricultural pressures, there is a need for more targeted measures. These measures need to account for the fact that farms are unique and the nutrient management requirement on each farm varies greatly for a range of reasons including landscape, soil type, proximity to watercourses, topography etc. In addition, the challenges posed by a changing climate with e.g. increased flows, more intense rainfall events and increased potential for run-off all need to be closely considered in nutrient management planning.

The Upper Bann Catchment was the focus for the catchment-centred component of a large scale soil pilot scheme in 2017/ 18 (EU EAA SSAS) which sampled in total 1613 farms and almost 30,000 fields across Northern Ireland. Eight-hundred (800) farmers received nutrient management training within Upper Bann. The project aimed to inform nutrient management practices to improve profitability and to reduce impact on water quality. This was done through soil sampling and additional LiDaR, (which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth), based runoff risk mapping in 11 agricultural sub-catchments. In this area 513 farms and 7340 fields were soil sampled. Soil testing and runoff

risk mapping were completed for each participating farm in the area. This work identified sub-field areas with high source pressures and connectivity to water bodies, so that farmers are aware to take additional precautions in these areas and focus on sub-field areas when planning mitigation measures. In the Upper Bann, the project revealed significant nutrient management issues on farms, with lime deficiencies and low potassium resulting in underperforming grasslands and surplus phosphorus in ~40 % of fields. The results were also linked to long-term water quality monitoring in the catchment and showed strong correlations between the proportion of catchment area with above optimum soil test P, the area with high runoff risk and P concentrations in the rivers. These findings can be used to establish environmental targets in the catchments.



The results from this pilot study highlight that targeted measures to protect water quality from agricultural pressures need to be landscape and soil specific and climate resilient. Large scale soil and hydrological risk mapping enables management from field, to farm, to catchment scales. The knowledge transfer to farmers is crucial to empower them to make informed decisions, which will save them money, as well as protecting water quality. It is hoped that this approach to nutrient management will be rolled out to other catchments during the 3rd river basin management cycle.

4.2.6 Maps for the NBRBD

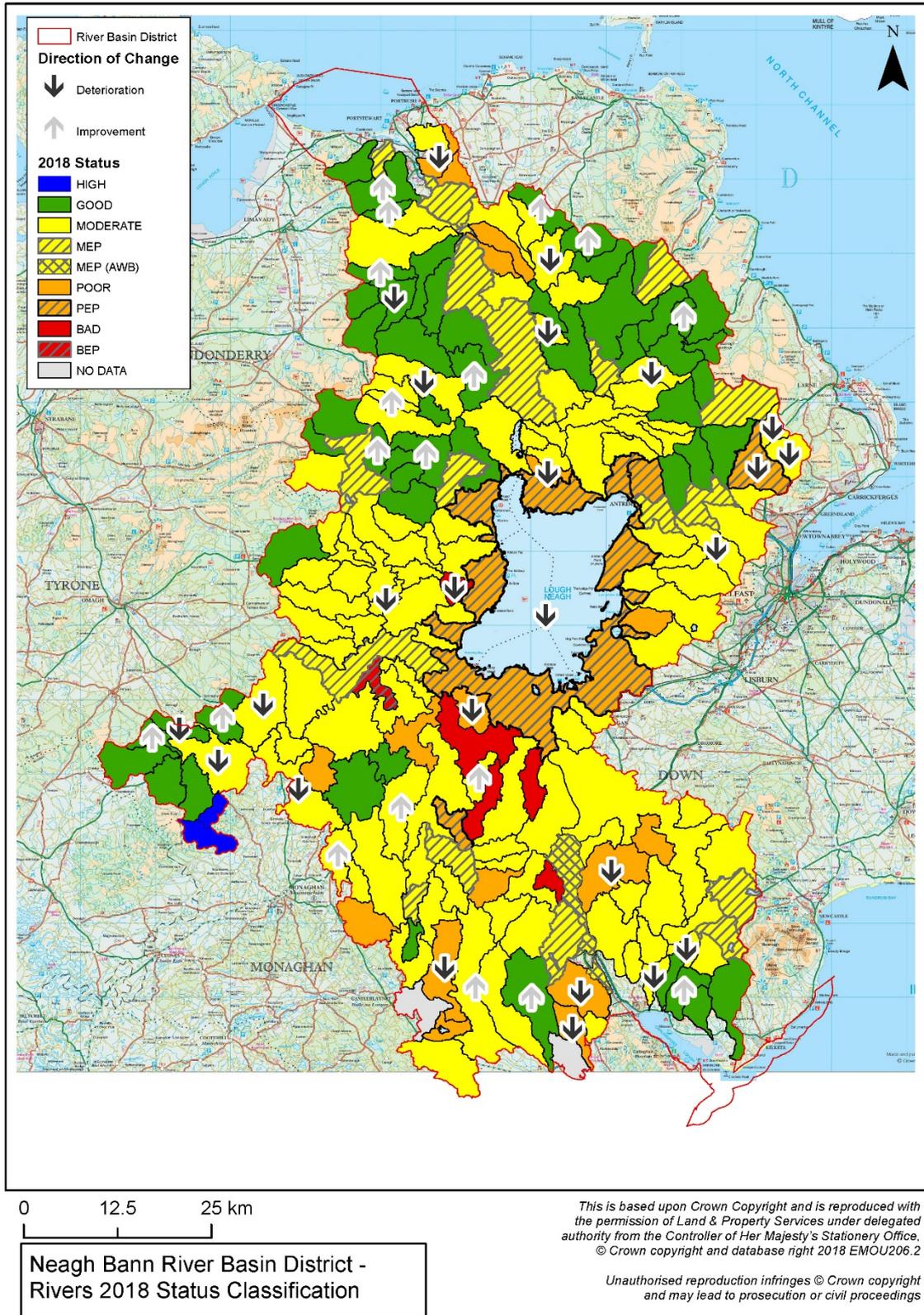


Figure 22: Map showing 2018 surface water classification for river water bodies and their deterioration and improvement in relation to 2015

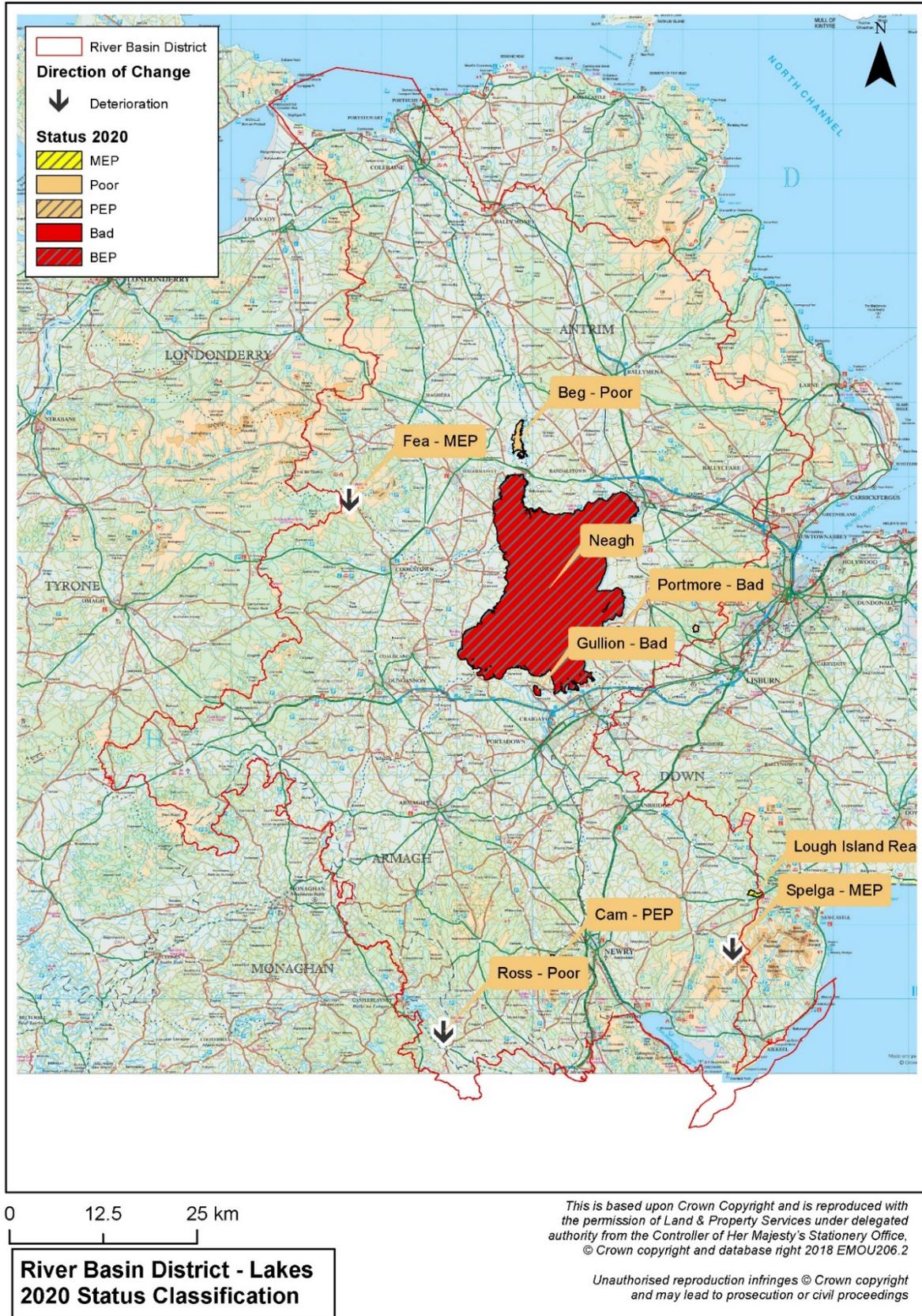


Figure 23: Map showing the 2020 surface water status for lake water bodies with improvements & deteriorations in relation to 2015

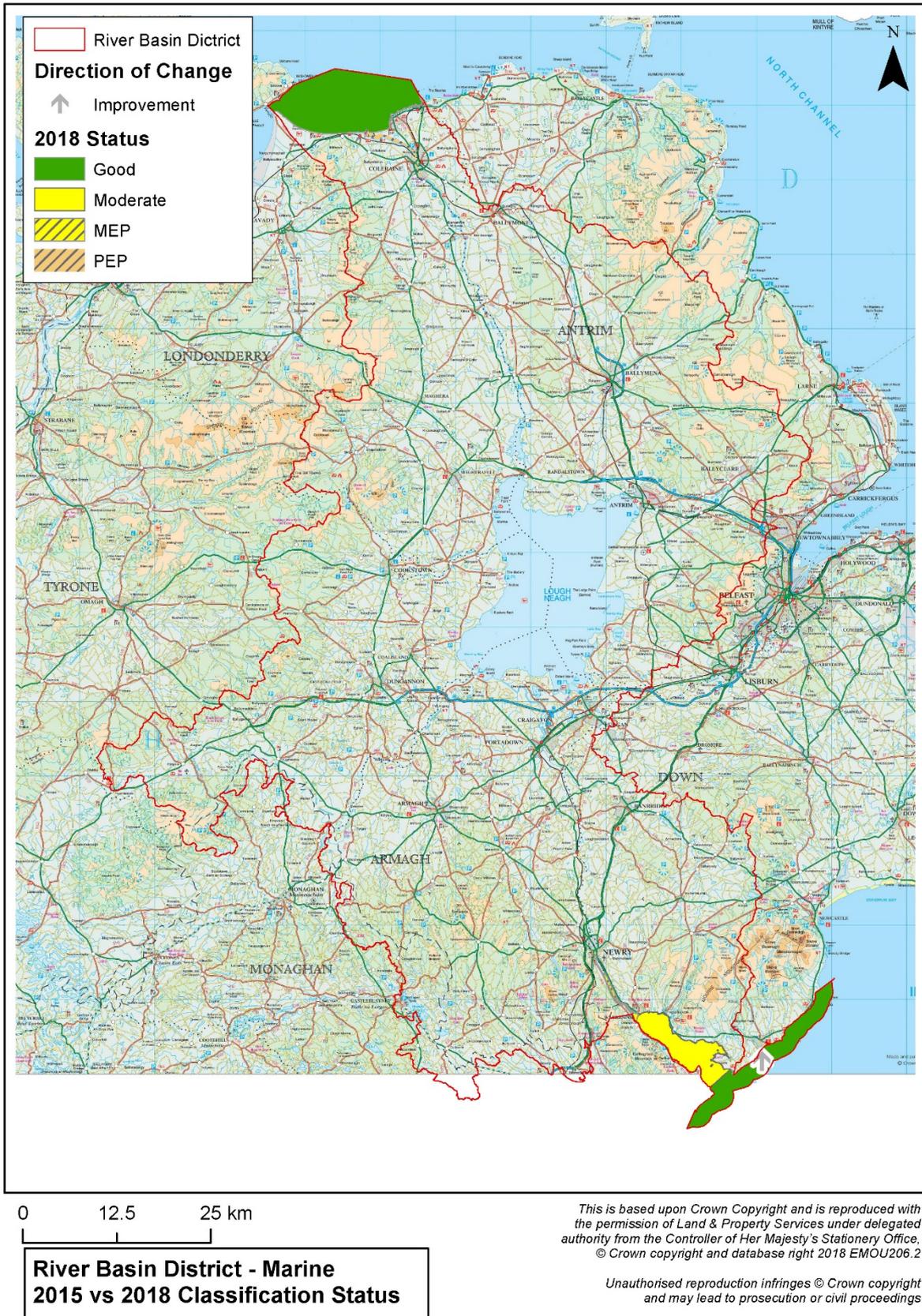


Figure 24: Map showing the 2018 surface water status of transitional & coastal water bodies in NWRBD

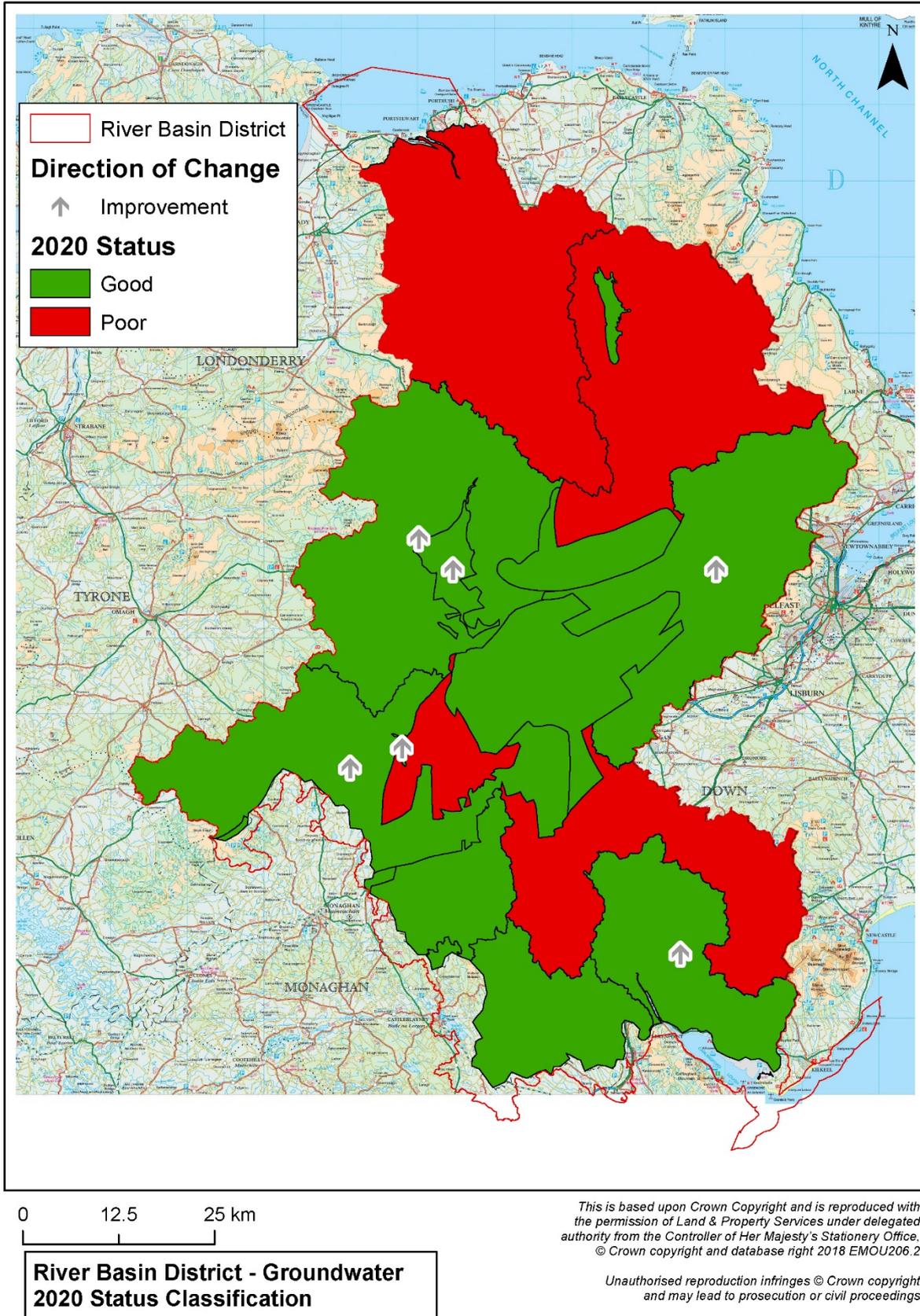


Figure 25: Map showing overall 2020 groundwater status for bedrock groundwater bodies

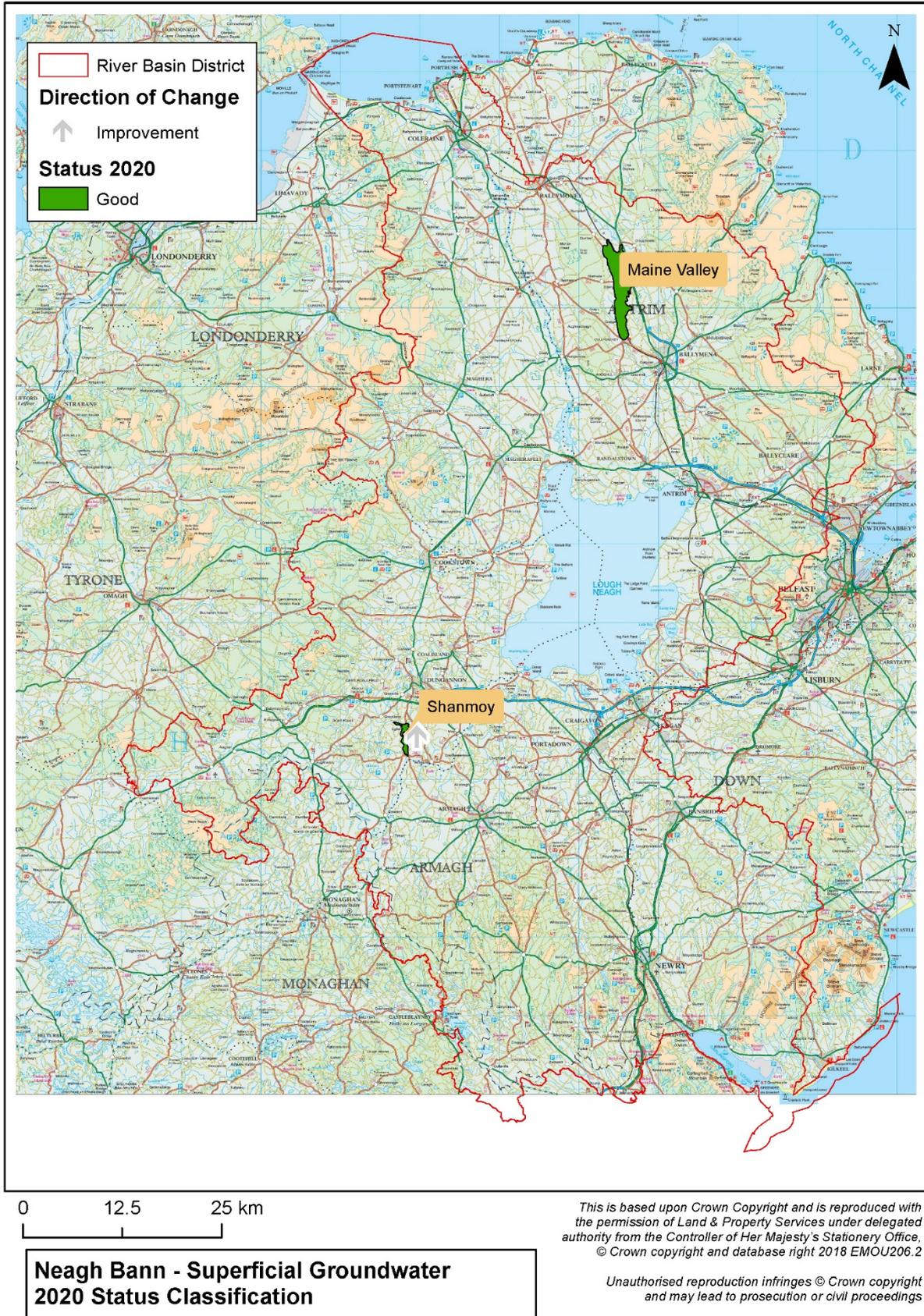


Figure 26: Map showing overall 2020 groundwater status for superficial groundwater bodies

4.3 North Eastern River Basin District – status

4.3.1 River Status in the NERBD in 2018

The North Eastern River Basin District (NERBD) covers an area of around 4000 km², including 1000 km² of marine waters. It takes in large parts of Counties Antrim and Down and a smaller portion of County Londonderry. There are 89 river water bodies in the NERBD, of which 71 were classified as less than ‘good’ status in 2015. In 2018 this number has increased to 72, showing an overall deterioration in classification in 1 river water body.

The principal river systems are the Lagan, Bush and Quoile as well as the smaller systems draining from the Glens of Antrim, and the County Down Coastline. The NERBD has an extensive coastline including Larne, Belfast and Strangford Loughs, with Lough Mourne, Clea Lakes and Silent Valley the main lakes.

Overall in the NERBD 19.3 % of water bodies are classified as ‘good or better’ in 2018 compared to 20.0 % in 2015. Maps are located at the end of section 3.4 (Figure 28 to Figure 32).

River status	2015	2015 (%)	2018	2018 (%)
High	0	0	0	0.0
Good	18	20.2	17	19.1
Moderate	55	61.8	58	65.2
Poor	14	15.7	11	12.4
Bad	2	2.2	2	2.2
No Data	0	0	1	1.1
Total	89	100	89	100.0

Table 19: Comparison of 2015 and 2018 river water body status in NERBD

4.3.2 Lake Status in the NERDB in 2020

In 2020, the status for lake water bodies was updated following the interim classifications in 2018. In the NERDB 3 surveillance lakes are monitored. 1 lake has deteriorated since 2015 from good to moderate and the other 2 remain at moderate.

Lake	2015 Status	2018 Status	2020 Status
Clea lakes	Moderate	Moderate	Moderate
Mourne	MEP	MEP	MEP
Silent Valley	GEP	GEP	MEP

Table 20: Lake status in the NERBD

In the 2015 RBMP, chemical and ecological status were reported together as overall status. As explained earlier in the previous chapter the chemical and ecological status will be reported separately in the 3rd cycle RBMP. A comparison of the ecological status, the chemical status and the overall status for lakes in 2015 and in 2020 is given in Table 21, Table 22 and Table 23.

Ecological status	2015	2015 (%)	2020	2020 (%)
High	0	0	0	0.0
Good	1	33.3	0	0.0
Moderate	2	66.6	3	100.0
Poor	0	0	0	0.0
Bad	0	0	0	0.0
Total	3	100	3	100

Table 21: Ecological status for lake water bodies in the NERBD in 2015 and 2020

Chemical Lake status	2015	2015 (%)	2020	2020 (%)
High	3	100	1	33.3
Moderate	0	0	2	66.7
Total	3	100	3	100

Table 22: Chemical status for lake water bodies in the NERBD in 2015 and 2020

Overall Lake status	2015	2015 (%)	2020	2020 (%)
High	0	0	0	0.0
Good	1	33.3	0	0.0
Moderate	2	66.6	3	100.0
Poor	0	0	0	0.0
Bad	0	0	0	0.0
Total	3	100	3	100

Table 23: Surface water body status for lakes in NERBD in 2015 and 2020

4.3.3 Transitional & Coastal water bodies in the NERBD in 2018

In the NERBD 17 transitional & coastal water bodies are monitored. Since 2015, 2 have deteriorated, 1 from high to good and 1 from good to moderate. 1 has improved from poor to moderate.

NERDB	2015 Status	2018 Status
Ards Peninsula	Good	Good
Belfast Harbour (HWMB)	MEP	MEP
Belfast Lough Inner	Moderate	Moderate
Belfast Lough Outer	Good	Good
Dundrum Bay Inner	Moderate	Moderate
Dundrum Bay Outer	Good	Good
Lagan Estuary (HMWB)	PEP	MEP
Larne Lough Mid	Moderate	Moderate
Larne Lough North (HMWB)	MEP	MEP
Larne Lough South	Good	Moderate
Maidens	High	Good
North Channel	Good	Good
North Coast	Moderate	Good
Quoile Pondage (HMWB)	MEP	MEP
Rathlin	Good	Good
Strangford Lough North	Moderate	Moderate
Strangford Lough South	Moderate	Moderate

Table 24: Surface water classification for transitional and coastal water bodies in the NERBD in 2015 and 2020

4.3.4 Groundwater bodies in the NERBD

There are 14 groundwater bodies in the NERBD. In 2020, the status was updated and 10 groundwater bodies are classified as good and 4 are classified as poor status. Groundwater is reported as quantitative status, chemical status and overall status.

Quantitative Status	2015	2015 (%)	2020	2020 (%)
Good	12	85.7	12	85.7
Poor	2	14.3	2	14.3
Total	14	100	14	100

Table 25: Quantitative status of groundwater bodies in the NERBD in 2015 and 2020

Chemical status	2015	2015 (%)	2020	2020 (%)
Good	6	42.9	10	71.4
Poor	8	57.1	4	28.6
Total	14	100	14	100

Table 26: Chemical status of groundwater bodies in the NERBD in 2015 and 2020

Overall status	2015	2015 (%)	2020	2020 (%)
Good	6	42.9	10	71.4
Poor	8	57.1	4	28.6
Total	14	100	14	100

Table 27: Overall groundwater body status in the NERBD in 2015 and 2020

4.3.5 Case study in the NERBD - Inner Dundrum Bay Priority Catchment Working Group

The Inner Dundrum Bay Priority group was established in 2017 as a pilot programme to examine how water management issues are being addressed within DAERA and how to improve catchment working across the Environment, Marine and Fisheries Group (EMFG) within the department.

The reason for selection of this site was that it is failing to meet its objectives set in the RBMP and a deterioration has also been measured in shellfish quality. The failing elements in the coastal water are on macroalgae and angiosperms (linked to nutrient enrichment), Dissolved inorganic nitrogen (DIN) and *Escherichia coli*, also known as *E. coli*, in shellfish flesh. Some of the rivers in the catchment are also failing on nutrients (SRP) and benthic invertebrates.

The Priority Catchment Working Group aimed to assist in the delivery of the water quality objectives in the RBMP by:

- improving the catchment approach across group
- empowering staff at all levels in managing water in the catchment context.

In addition to ongoing DAERA monitoring, NI Water conducted extensive surveys in the Bay and catchments since 2015. A first report was produced in 2017 which concluded that 80 % of the microbial loading over the Dundrum shellfishery was from the Carrigs River. The further study conducted over summer 2017 and reported in September 2018, demonstrated that in dry conditions, 80 % of the microbial loading in the Carrigs River is from ruminant sources (e.g. cattle), and that this proportion increases in wet weather. In the combined

loadings from the Carrigs and Moneycarragh, 88 % of the *E. coli* loading is from ruminant sources.

To date there have been 8 meetings with representation from across various stakeholders including EMFG, AFBI and Northern Ireland Water. This group has been an excellent mechanism to share information on the catchment as a whole and to raise awareness of the totality of the issues. It has also been useful to explain the links between agricultural practices, waste water issues and water quality.

The Priority Catchment Working Group approach has been successful in helping members understand the complexity and catchment links in managing water quality. The failure to show improvement at this stage is disappointing, but perhaps not unexpected, as Northern Ireland Water is still carrying out upgrades, and the uptake of the environmental farming scheme (EFS) within the catchment has been limited. Although the catchment investigations by Northern Ireland Water, AFBI and EMFG have been resource intensive, the conclusions on improving agricultural practices may be relatively simple. At the last meeting, it was agreed that providing fencing and/or riparian strips and pasture pumps in key sections of the catchment, would go a long way in reducing agricultural pollution.



The new Knowledge Advisory Service (KAS) is designed to ensure that farmers are fully informed about how EFS can assist them in their businesses. Implementing KAS and incorporating advice on water quality within its service, is another linkage the group has made to raise awareness and tackle the issues in Dundrum Bay. A new phase of the pilot looking at other mechanisms to reduce agricultural impacts has been initiated to build on the learning with the ultimate outcome of improving water quality in the rivers and Dundrum Bay.

4.3.6 Maps for NERBD

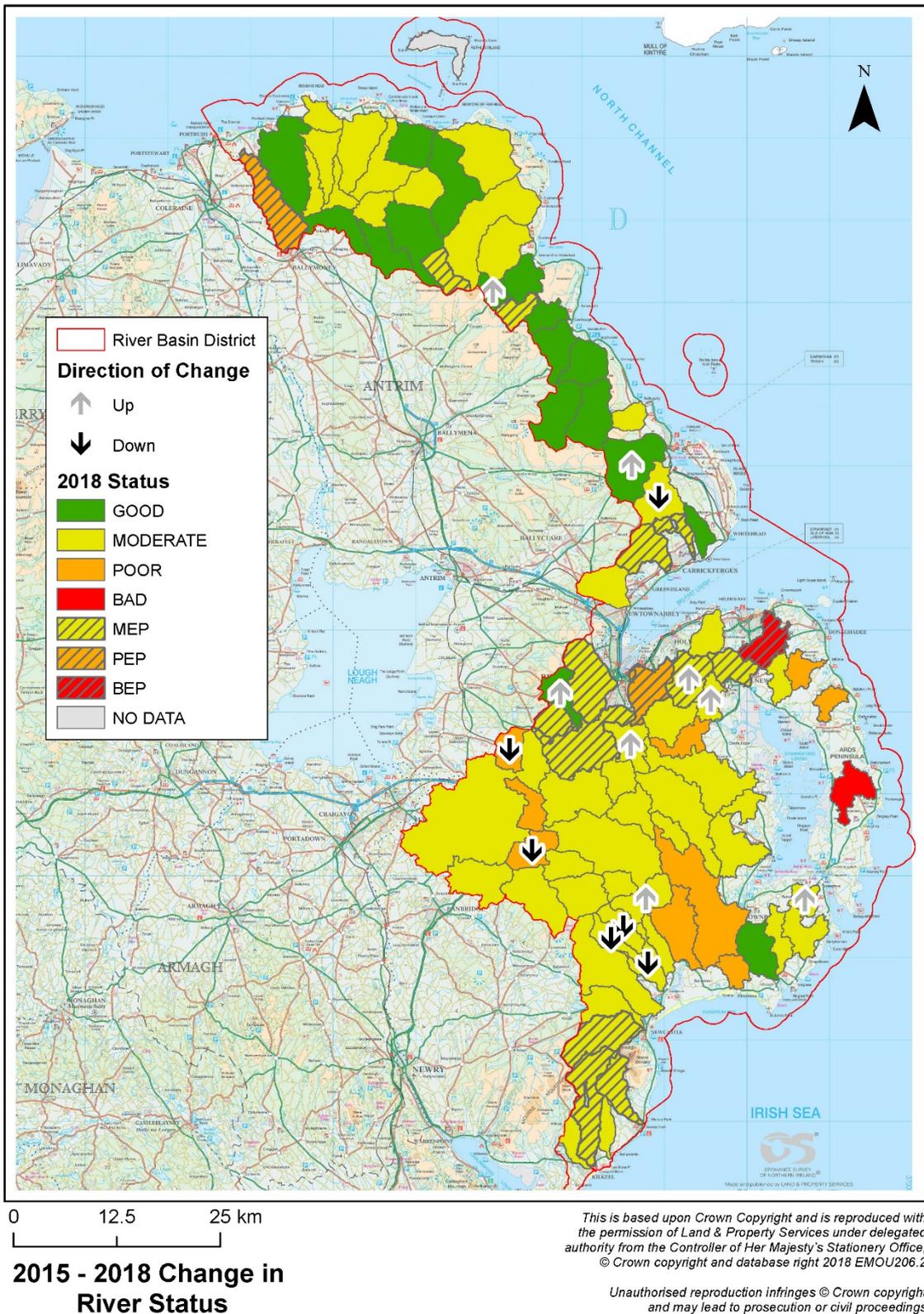
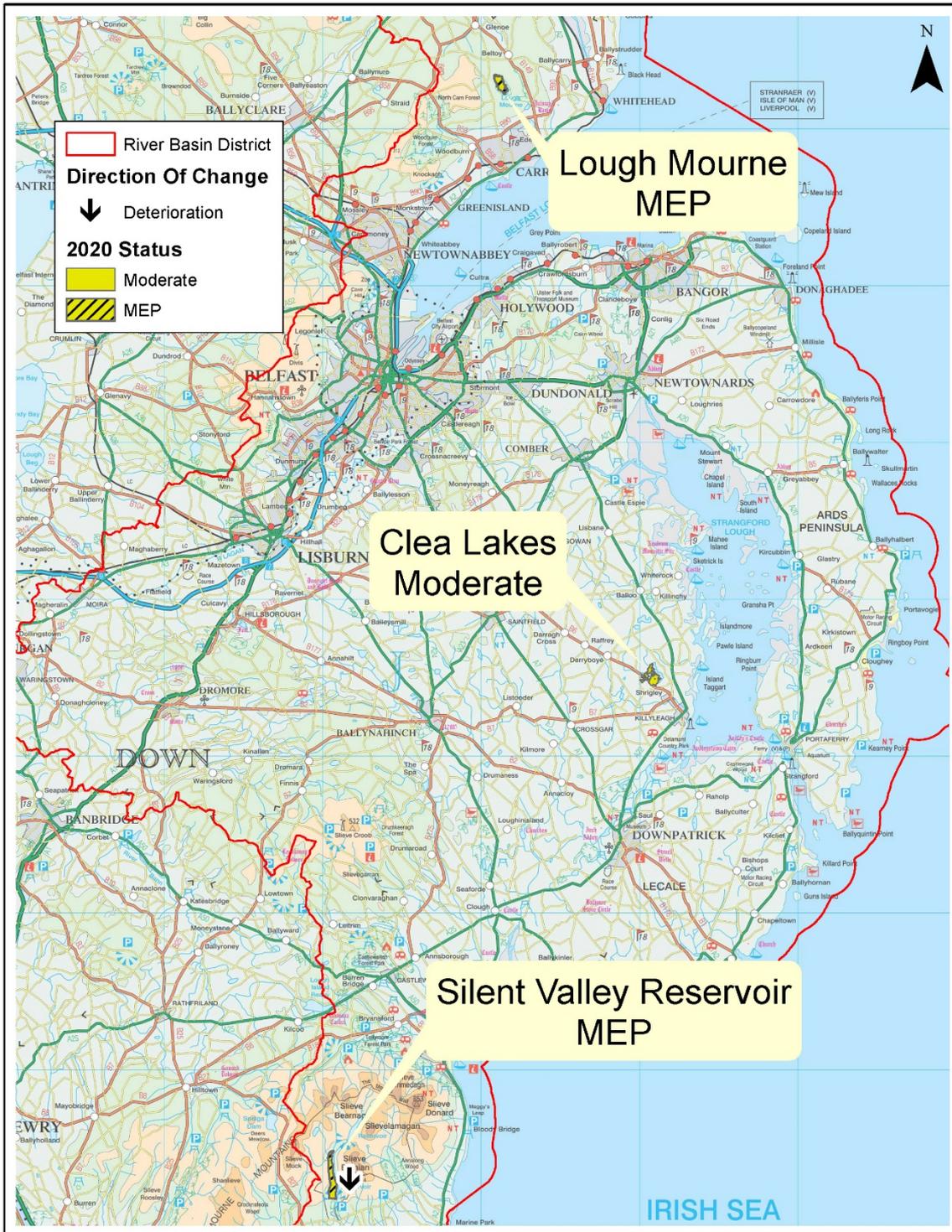


Figure 27: Map showing 2018 surface water classification for river water bodies and their deterioration and improvement in relation to 2015



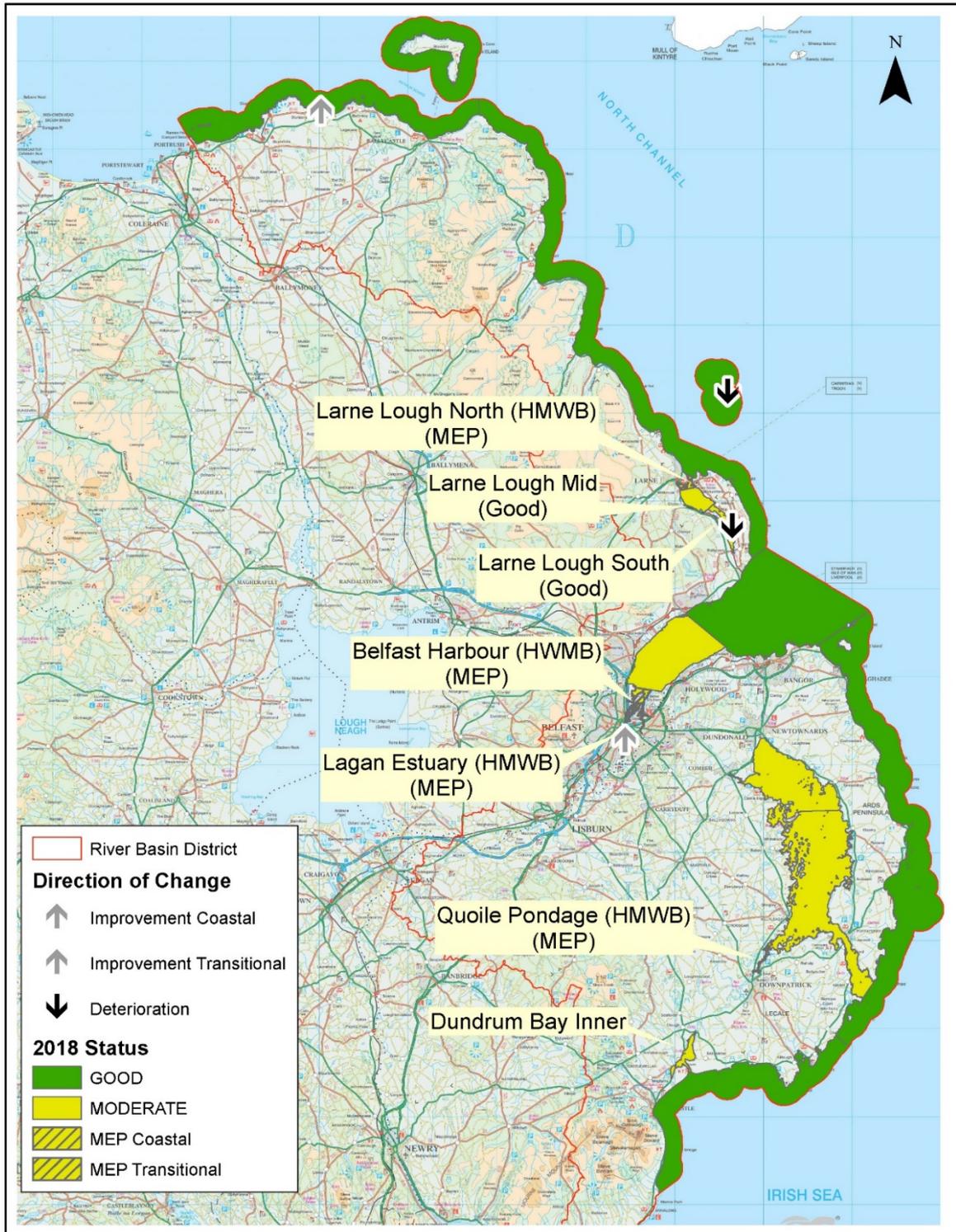
0 5 10 km

2015 - 2020 Change in Lake Status

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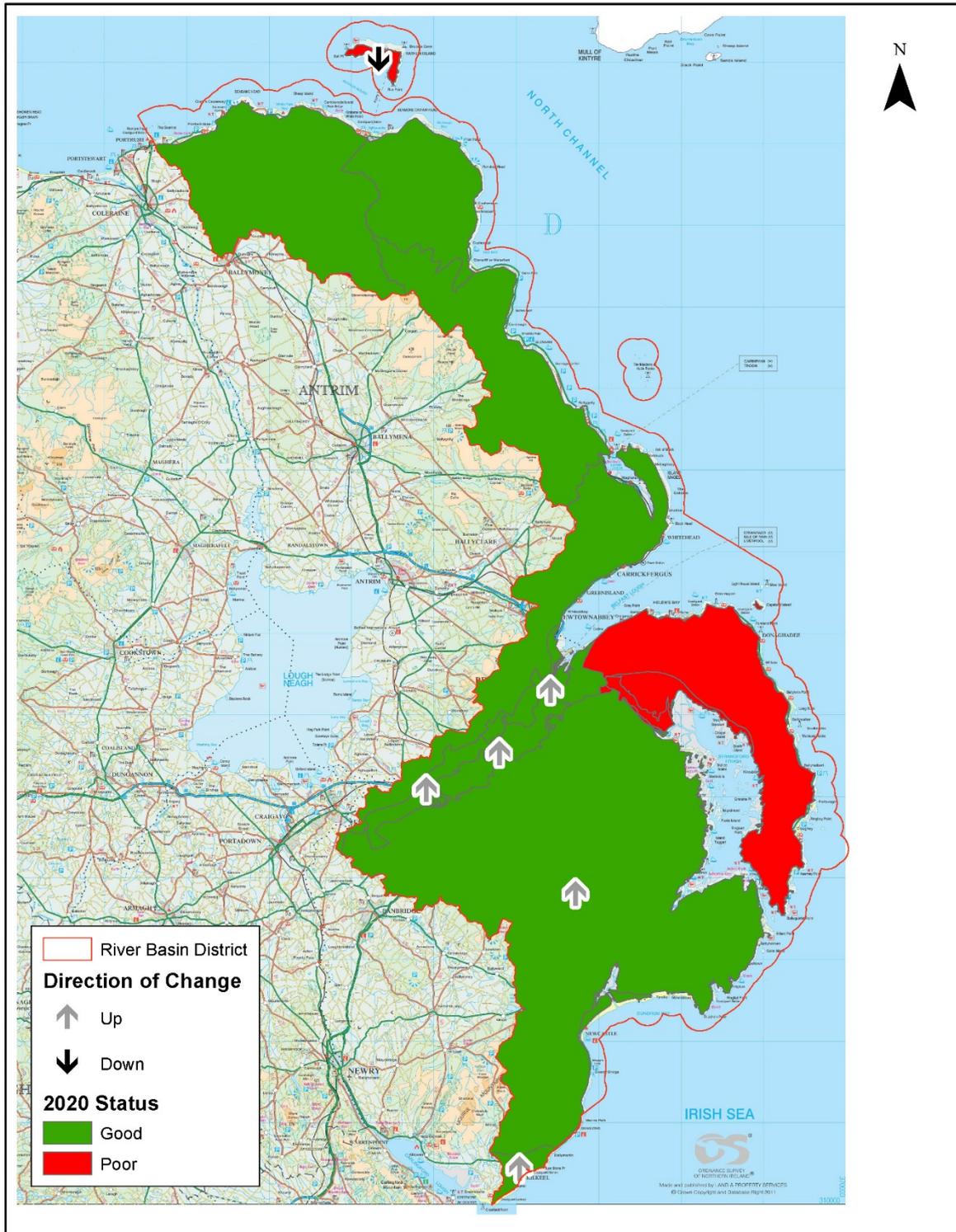
Figure 28: Map showing the 2020 surface water status for lake water bodies with improvements & deteriorations in relation to 2015



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Figure 29: Map showing the 2018 surface water status of transitional & coastal water bodies in the NERBD

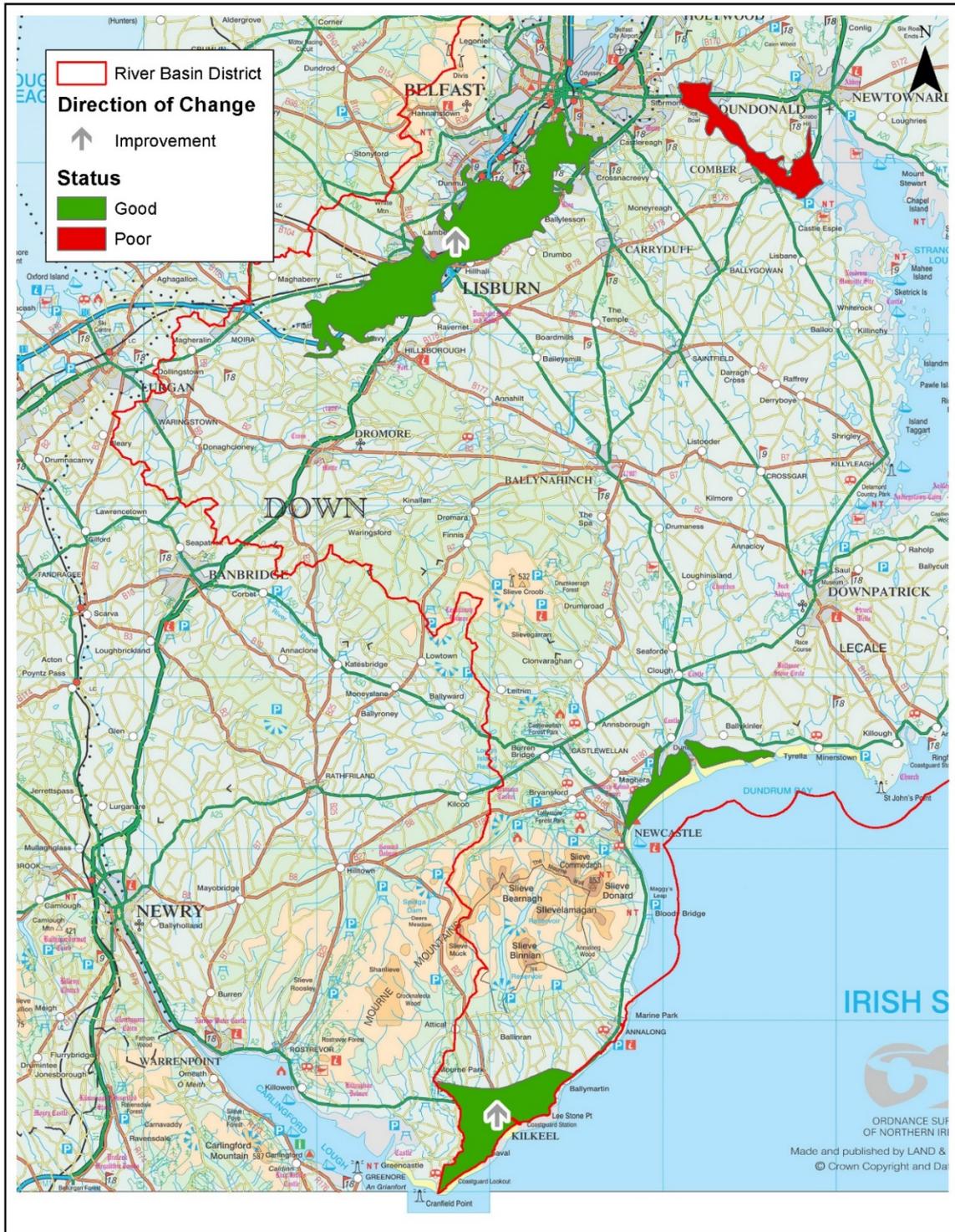


0 12.5 25 km
**2015 - 2020 Changes in
 Groundwater Status**

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Figure 30: Map showing overall 2020 groundwater status for bedrock groundwater bodies



**Superficial Groundwater
2020 Status Classification**

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Figure 31: Map showing overall 2020 groundwater status for superficial groundwater bodies

Chapter 4 – Classification results for Northern Ireland

	North West (162)		Neagh Bann (197)		North East (88)		Northern Ireland (450)	
	no	%	no	%	no	%	no	%
Rivers 2015	75	46.3	54	27.4	18	20.0	147	32.7
Rivers 2018	68	41.9	56	28.4	17	19.3	141	31.3
	North West (3)		Neagh Bann (5)		North East (17)		Northern Ireland (25)	
	no	%	no	%	no	%	no	%
Transitional & Coastal 2015	1	33.3	1	20.0	7	41.2	9	36.0
Transitional & Coastal 2018	1	33.3	2	40.0	7	41.2	10	40.0
	North West (8)		Neagh Bann (10)		North East (3)		Northern Ireland (21)	
	no	%	no	%	no	%	no	%
Lakes 2015	2	25.0	2	20.0	1	33.3	5	23.8
Lakes 2020	1	12.5	0	0.0	0	0.0	1	4.8
	North West (45)		Neagh Bann (16)		North East (14)		Northern Ireland (75)	
	no	%	no	%	no	%	no	%
Groundwater 2015	37	82.2	6	37.5	6	42.8	49	65.3
Groundwater 2020	41	91.1	12	75.0	10	71.4	63	84.0
	North West (218)		North West (228)		North East (122)		Northern Ireland (571)	
	no	%	no	%	no	%	no	%
All water bodies 2015	115	52.7	63	27.6	32	26.2	210	36.8
All water bodies 2018/2020	111	50.9	70	30.7	34	27.8	215	37.7

Table 28: Comparison of number and percentage of all water bodies at ‘good or better’ status between 2015 & 2018/2

Chapter 5 – Protected areas

All river basin districts within Northern Ireland support important habitats and wildlife, but also human and economic uses of water including areas previously identified as requiring special protection under existing legislation. These areas need action to protect their surface water or groundwater, or to conserve habitats or species that directly depend on those waters.

Protected areas may be part of a water body, for example bathing waters, or may be a group of water bodies, for example areas designated for species or habitats of international conservation importance under the Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) which transposed the Birds Directive (79/409/EEC) and Habitats Directive (92/43/EEC) in Northern Ireland law.

5.1 Protected Areas – Areas designated for the protection of habitats or species

Northern Ireland has a total of 66 water dependent UK national network sites (formerly Natura 2000 sites) which are designated under the Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland). The most up to date assessment indicates that while 71 % of water dependent sites are still failing to meet conservation objectives in only a quarter (23 %) of water dependent sites the failures are related to pressures from the water environment (see Table 29).

	North Western		Neagh Bann		North Eastern		Northern Ireland total*	
	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

Table 29: Overview of surface water dependent protected sites broken down by river basin district. (*Note: some protected sites straddle more than one RBD – hence the Northern Ireland total does not equal the sum of the RBDs)

5.2 Groundwater dependent terrestrial ecosystem sites

Groundwater dependent terrestrial ecosystems (GWDTE) are assessed as part of groundwater chemical and quantitative status. In total there are 9 GWDTE in Northern Ireland and all of them have been classified as being at ‘good status’ regarding the impact of groundwater quality or quantity on their conditions (see Table 30).

	North Western		Neagh Bann		North Eastern		Northern Ireland total	
	No	%	No	%	No	%	No	%
number of sites	5	100	2	100	2	100	9	100
number of sites at good status	5	100	2	100	2	100	9	100
number of sites at poor status	0	0	0	0	0	0	0	0

Table 30: Overview of groundwater dependent terrestrial ecosystems broken down by river basin district

5.3 Bathing waters

In Northern Ireland 26 sites are formally identified as bathing waters along our coast. There are currently no designated freshwater bathing waters (lakes or rivers) in Northern Ireland. DAERA works in partnership with Keep Northern Ireland Beautiful (KNIB), Northern Ireland Water, community groups, local councils and other land-owners like the National Trust to manage our bathing waters and beaches through the annual Better Beaches Forum. Our 26 “identified” bathing waters continue to perform well when compared with other parts of the UK, Ireland and further afield. Further information regarding bathing waters can be found on the DAERA website.

An overview of the compliance of our bathing waters during the 2nd river basin planning cycle is given in Table 31. 25 of Northern Ireland’s 26 identified bathing waters have consistently met at least the minimum standard (sufficient) over the assessment period (2014-2019). The bathing water data for 2020 have been included for information.

10 bathing waters consistently met the ‘excellent’ standard: Magilligan (Benone), Magilligan (Downhill), Portstewart, Portrush (Mill) West, Portrush (Whiterocks), Portballintrae (Salmon Rock), Helens Bay, Tyrella, Murlough, Cranfield Bay.

A further 7 bathing waters consistently met ‘excellent’ or ‘good’ standard: Castlerock, Ballycastle, Browns Bay, Crawfordsburn, Groomsport, Millisle, Cloughey. Ballygally bathing water consistently met ‘good’ standard, whereas 5 bathing waters consistently meet ‘good’ or ‘sufficient’ standards: Portrush (Curran) East, Waterfoot, Carnlough, Ballywalter, Newcastle.

Only 1 of Northern Ireland’s 26 identified bathing waters typically met the minimum standard (sufficient) over the assessment period. Ballyholme met ‘sufficient’ classification on four out of the six years. It was classified as poor in 2016 and 2017. In 2017 Ballyholme bathing water catchment was prioritised for investigation by DAERA staff to determine outstanding sources of pollution. The investigations determined that Ballyholme is in a complex catchment which is vulnerable to pressures from both agricultural run-off and overflows from the wastewater treatment network. Some of the proposed improvement actions are completed, some are underway and further actions are currently being considered. NI Water are continuing with an extensive programme of upgrades to the wastewater treatment network in the area.

None of the Northern Ireland identified bathing waters have failed to reach the minimum standard (i.e. ‘sufficient’) during the assessment period (2014-2019).

Bathing Water	2020	2019	2018	2017	2016	2015	2014
Magilligan (Benone)							
Magilligan (Downhill)							
Castlerock							
Portstewart							
Portrush (Mill) West							
Portrush (Curran) East							
Portrush (Whiterocks)							
Portballintrae (Salmon Rock)							
Ballycastle			**				
Waterfoot							
Carnlough							
Ballygally							
Brown’s Bay							
Helen’s Bay							

Bathing Water	2020	2019	2018	2017	2016	2015	2014
Crawfordsburn	Excellent	Good	Good	Good	Good	Excellent	Excellent
Ballyholme	Sufficient	Sufficient	Sufficient	Poor	Poor	Sufficient	Sufficient
Groomsport	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Millisle	Excellent	Good	Excellent	Good	Good	Good	Good
Ballywalter	Good	Good	Sufficient	Sufficient	Good	Good	Good
Cloughey	Excellent	Excellent	Good*	Excellent	Excellent	Excellent	Excellent
Tyrella	Excellent						
Murlough Co. Down	Excellent						
Newcastle	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Good	Good
Cranfield Bay	Excellent						
Kilclief	Excellent	Excellent	Good*	Excellent	Excellent	Excellent	Excellent
Ballyhornan	Excellent	Excellent	Good*	Excellent	Excellent	Excellent	Excellent

Note * compliance based on 2 years data

Excellent	Excellent
Good	Good
Sufficient	Sufficient
Poor	Poor

Table 31: Overview of compliance of bathing water during the assessment period

A breakdown of bathing water compliance by river basin district is given in Table 32.

	North Western		Neagh Bann		North Eastern		Northern Ireland total*	
	No	%	No	%	No	%	No	%
Bathing waters total	3	11.5	1	3.8	22	84.6	26	100
Bathing waters compliant	3	100	1	100	22	100	26	100
Bathing waters non-compliant	0	0	0	0	0	0	0	0

Table 32: Overview of bathing water compliance

5.4 Shellfish waters

Designated Shellfish Water Protected Areas are areas designated for the protection of shellfish growth and production. Good water quality is important for the production of high quality shellfish. In Northern Ireland there are currently 10 Shellfish Water Protected Areas which were designated under the Shellfish Waters Directive and subsequently managed under the Water Framework Directive. They are now classified under The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015. The Shellfish Water Protected Areas are located within Lough Foyle (Longfield Bank and Balls Point), Larne Lough, Belfast Lough, Strangford Lough (Skate Rock, Reagh Bay/ Paddy's Point and Marlfield Bay), Killough Harbour, Dundrum Bay and Carlingford Lough. Further information regarding areas sampled can be found on the DAERA webpage.

In January 2014, the Shellfish Waters Directive was subsumed into the Water Framework Directive, resulting in more stringent E. coli standards and a noticeable drop in the percentage of designated shellfish waters meeting the guideline standard. A total of 2 out of 9 designated shellfish waters (22 %) complied with the guideline E. coli standard in 2019. No data was available for Marlfield in Strangford Lough which has not seen any shellfish harvesting for a number of years. The Department will consider the de-designation of this site if harvesting is not recommenced.

Comprehensive monitoring programmes are in place to assess the status of Shellfish Water Protected Areas under the regulations. A suite of determinants are assessed to determine ecological status and the overall objective under the regulations. DAERA Marine and Fisheries Division continues to manage Shellfish Water Protected Areas to ensure that there is no deterioration in water quality and that steady progress is made towards compliance with guideline standards. Compliance with guideline standards are determined by measuring E. coli and other prescribed contaminants in shellfish flesh. Relevant shellfish waters contaminants are monitored under The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 in relation to Water Framework Directive Annex VIII and Annex X specific pollutants and priority hazardous substances.

Table 33 summarises the compliance of Northern Ireland's shellfish waters during the 2nd cycle RBMP period. Northern Ireland currently has 10 designated Shellfish Water Protected Areas, however there has been no production data for Marlfield since 2014.

Shellfish Water	RBD	2019	2018	2017	2016	2015	2014
Balls Point	NW						
Longfield Bank	NW						
Skate Rock	NE						
Marlfield	NE						
Paddy's Point	NE						
Larne Lough	NE						
Belfast Lough	NE						
Dundrum Bay	NE						
Killough	NE						
Carlingford Lough	NB						

	Met Guideline
	Did not Meet Guideline
	Not Designated or Not in Production

Table 33: Overview of shellfish water compliance with Guideline *E. Coli* Standard in Flesh during the 2nd RBMP

One (Skate Rock) of Northern Ireland's 10 Shellfish Water Protected Areas has consistently met the guideline standard over the last 6 years. 4 of Northern Ireland's Shellfish Water Protected Areas have met the guideline standard at least once: Ball's Point, Paddy's Point, Larne Lough, and Carlingford Lough. Longfield Bank, Killough, Dundrum, Belfast (4 Shellfish Water Protected Areas) have never met the guideline standards over the last 6 years.

The Department has developed Shellfish Action Plans to address the key pressures through concentrated efforts targeted at greatest threats to Shellfish Water Protected Areas.

As outlined above shellfish waters are now classified under The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015. Table 34 summarises the surface water status of those 10 surface water bodies that contain designated shellfish waters. 3 surface water bodies had good surface water status, whereas 7 were at moderate or moderate ecological potential surface water status.

Shellfish Water	RBD	surface water body	surface water classification 2018
Balls Point	NW	Lough Foyle	good

Shellfish Water	RBD	surface water body	surface water classification 2018
Longfield Bank	NW	Foyle Harbour and Faughan (HMWB) Lough Foyle	moderate ecological potential good
Skate Rock	NE	Strangford Lough South	moderate
Marlfield	NE	Strangford Lough South	moderate
Paddy's Point	NE	Strangford Lough North Strangford Lough South	moderate moderate
Larne Lough	NE	Larne Lough Mid Larne Lough South	moderate moderate
Belfast Lough	NE	Belfast Lough Inner	moderate
Dundrum Bay	NE	Dundrum Bay Inner	moderate
Killough	NE	Dundrum Bay Outer	good
Carlingford Lough	NB	Carlingford Lough	moderate

Table 34: Surface water classification of water bodies related to Northern Ireland shellfish waters

5.5 Drinking water protected areas (DWPA)

Drinking Water Protected Areas (DWPAs) are identified and designated under Article 8 of The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 and aim to enhance the safety of drinking water supplies, and to reduce the need for additional treatment to be provided. In addition, Safeguard Zones (SGZs) may also be identified around DWPAs, when considered necessary. In Northern Ireland, there are 26 surface water DWPAs and 65 groundwater DWPAs. A Management Group has been established between NI Water, Water Management Unit (WMU) and the Drinking Water Inspectorate for Northern Ireland (DWI) to share information on monitoring, pollution incidents, catchment initiatives and emerging pollutants.

The Water Supply (Water Quality) Regulations (Northern Ireland) 2017 and The Private Water Supplies Regulations (Northern Ireland) 2017 implement a risk based approach to the regulation of drinking water quality. For the public water supply, there is a requirement for Northern Ireland Water to undertake risk assessments of its catchments, water treatment works, and distribution systems leading to the Drinking Water Safety Plans (DWSPs). For

each Water Treatment Works, a catchment management plan is in place which feeds into the DWSPs for each water supply. These plans identify and assess the risks to the raw water supply and appropriate controls are then put in place within the DWSP to mitigate these risks. A similar risk assessment process is required for private water supplies.

Under the current 2018-2019 WFD risk assessment, which uses a process developed to risk assess sites for the Surveillance Monitoring Programme, 7 of these DWSPAs are already being monitored for the Herbicides/ Fungicides suite and 3 for the revised PAH suite. The risk assessment has been revised to ensure that 11 of the DWSPAs are monitored for both suites.

5.5.1 Groundwater DWPA

There are 65 groundwater DWSPAs in Northern Ireland. Groundwater classification includes a sub-test for DWSPAs and further information can be found in the supporting document of groundwater classification methodologies. Supplementary information from the monitoring of private water supplies by the DWI was also utilised.

Microbiological contamination is not part of the groundwater classification sub-test for drinking water protected areas. This is because microbiological contamination is often due to inadequate headworks protection of the borehole rather than contaminants being present in the wider aquifer, therefore microbiological drinking water failures have not been included.

Groundwater DWPA	RBD	Parameters
Antrim	NB	Ammonium, Clopyralid, MCPA, MCPP (Mecoprop), Pesticides & related products
Aughnacloy	NB	Ammonium, Phenanthrene
Ballymena	NB	Metribuzin, Trichloroethane, Tetrachlorethene
Belfast Hills Island Magee	NE	MCPA, Pesticides & related products, Triclopyr, Trihalomethanes
Belfast West	NE	Glyphosate
Coleraine Kilrea	NB	Bromate, Trihalomethanes, Saline Intrusion
Downpatrick	NE	Diuron, Tetrachloroethene and Trichloroethene (sum of 2), Trichloroethene

Groundwater DWPA	RBD	Parameters
Fairhead	NE	Trihalomethanes
Tandragee	NB	Asulam
Belfast East	NE	Ammonia, Arsenic, Nitrate
Belcoo Boho	NW	Aluminium
Ards Peninsula	NE	Lead
Claudy	NW	Faughan Groundwater body at poor status due to Mobuoy Road site - see supporting document for information.

Table 35: Groundwater DWPA's and parameters causing failures during the 2nd Cycle RBMP

	North Western		Neagh Bann		North Eastern		Northern Ireland total*	
	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

Table 36: Summary of groundwater DWPA's at good and poor status in each groundwater body

5.5.2 Surface Water DWPA's

There are 26 surface water DWPA's in Northern Ireland. They are related to the surface water catchments supplying freshwater to the intakes of the public drinking water supplier NI Water. In 15 surface water DWPA catchments at least one of the parameters tested exceeded the drinking water standard in the raw water intake during the 2nd cycle RBMP. This assessment is based on data collected by NI Water. It is important to note that the information in Table 37 refers to the raw water quality and not to the treated water quality that is delivered to NI Water customer's taps.

DWPA	RBD	Parameters
Ballinrees	NB	MCPA, Mecoprop, Glyphosate, Clopyralid
Carmony	NW	MCPA, Mecoprop
Carran Hill	NB	MCPA
Clay Lake	NB	MCPA, Clopyralid
Derg/Strule (Newtownstewart, Bunderg)	NW	MCPA, Mecoprop, Glyphosate
Derg/Strule (Tievenny)	NW	MCPA, Mecoprop, Glyphosate
Dorisland	NE	MCPA, Clopyralid
Dungonnell (Neagh Bann RBD)	NB	Clopyralid
Dungonnell (North Eastern RBD)	NE	Clopyralid
Glenhordial	NW	MCPA
Lough Erne (Belleek)	NW	MCPA
Lough Erne (Killyhevlin)	NW	MCPA, Clopyralid
Lough Fea	NB	Clopyralid
Lough Neagh (Dunore, Castor Bay, Moyola)	NB	MCPA, Mecoprop
Seaghan	NB	MCPA, Glyphosate, Mecoprop

Table 37: Surface water DWPAs and parameters causing failures during the 2nd cycle RBMP

	North Western		Neagh Bann		North Eastern		Northern Ireland total*	
	No	%	No	%	No	%	No	%
Total surface water DWPA	10	100	8	100	8	100	26	100
Surface water DWPA passing	4	40.0	1	12.5	6	75	11	42.3
Surface water DWPA failing for at least one parameter	6	60.0	7	87.5	2	25	15	57.7

Table 38: Summary of surface water DWPAs failing for at least one parameter

5.6 Urban waste water sensitive areas

Sensitive areas need to be identified under the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 SR 2007/187 which transposed the Urban Waste Water Treatment Directive (UWWTD) (1991/271/EEC) into Northern Ireland law. This identifies areas where more stringent treatment is required:

- to prevent surface water becoming eutrophic
- exceeding the nitrates drinking water standard
- to meet other regulations, such as Quality of Bathing Water Regulations (Northern Ireland) 2008 SR 2008/231, which transposed the Bathing Waters Directive into Northern Ireland law.

Any qualifying discharges into sensitive areas require additional treatment and are required under the UWWTD to review the trophic or nutrient status of all their water bodies (coastal, estuarine and freshwaters) every four years. Assessments for the review are carried out on the basis of scientific sensitive areas identification criteria and evidence. In the 2015 sensitive area review the existing sensitive areas were reviewed in the North Western, North Eastern and Neagh Bann RBDs. In the Neagh Bann RBD the Castletown catchment and Newry transitional water bodies were designated. This information will be updated for the final plan when the updated UWWT report is published. More information is available on the DAERA website.

5.7 Nutrients Action Programme – Total territory approach

Since 2007, an action programme to implement the Nitrates Directive (91/676/EEC) has been applied throughout the whole territory of Northern Ireland (a total territory approach). The action programme is reviewed and revised, if necessary, every four years.

The Nutrients Action Programme Regulations (Northern Ireland) 2019 SR 2019/81 (the 2019 NAP Regulations) and subsequent amending regulations (SR 2019/183) set out the Nutrients Action Programme 2019-2022 for the protection of waters against pollution caused by agricultural sources. The Regulations contain a range of controls on manures and chemical fertilisers. This includes a limit on the amount of nitrogen (N) from livestock manure that can be applied to land to 170 kg N/ha/year on all non-derogated farms. Northern Ireland has had a derogation since 2008 and in parallel with the action programme, has been reviewed and renewed on a four-yearly basis. The derogation permits an increase in the amount of grazing livestock manure that may be applied to land from 170 kg N/ha/year up to a limit of 250 kg N/ha/year on grassland farms which meet certain criteria and implement additional nutrient management measures.

In the [2018 Derogation report](#) for Northern Ireland, annual average nitrate concentrations at common surface freshwater monitoring stations across Northern Ireland were stable or decreasing at 69.2 % of surface freshwater sites between the two reporting periods, 2012-2015 and 2018. Increasing nitrate concentrations were reported in 30.8 % of sites across Northern Ireland. The majority of these increases (68 %) were located in catchments (especially Strangford, Lagan, Upper Bann, Clanrye and Blackwater) with higher intensity farming practices. A higher proportion of derogated farms is used as an indicator for higher intensity farming practices in these catchments. However, that does not mean that derogated farms are the source of the increase in nutrients.

In 2019 soluble reactive phosphorus was measured at 93 surveillance rivers across Northern Ireland giving an average concentration of 0.063 mg/l of phosphorus in river water, this was 0.004 mg/l more than the level reported in 2015. In 2019, winter Dissolved Inorganic Nitrogen (DIN) was recorded at 35.71 μM , this is an increase from the baseline year value in 2015, when the level of winter DIN was 26.45 μM . For groundwater in 2018, nitrate concentrations were monitored at 54 groundwater sites across Northern Ireland with an average concentration of 6.14 mg NO₃/l. For 51 of the 54 groundwater monitoring stations, (94 per cent) in 2018, groundwater nitrate concentrations were consistently below 25 mg NO₃/l.

(Northern Ireland Environmental Statistics Report May 2020¹¹). More details on nutrient pressures can be found in the supporting document ‘Agricultural Nutrients and Water Quality’.

¹¹ <https://www.daera-ni.gov.uk/publications/northern-ireland-environmental-statistics-report-2020>

Chapter 6 - Pressures

Significant pressures contribute to impacts on water bodies and their status. Pressures are a result of human land use activities, for example landfill sites; agricultural activities; daily use of water resources in households, manufacturing and the business sector; and discharges to the water environment. 'Significant' means that the pressure contributes to an impact that may result in failing to meet the WFD objectives of having at least good status.

6.1 Source-Pathway-Receptor model

The potential impact of pressures on the environment can be conceptually assessed using the source-pathway-receptor model. The model is used to identify risk to the (water) environment and to identify potential mitigation measures.

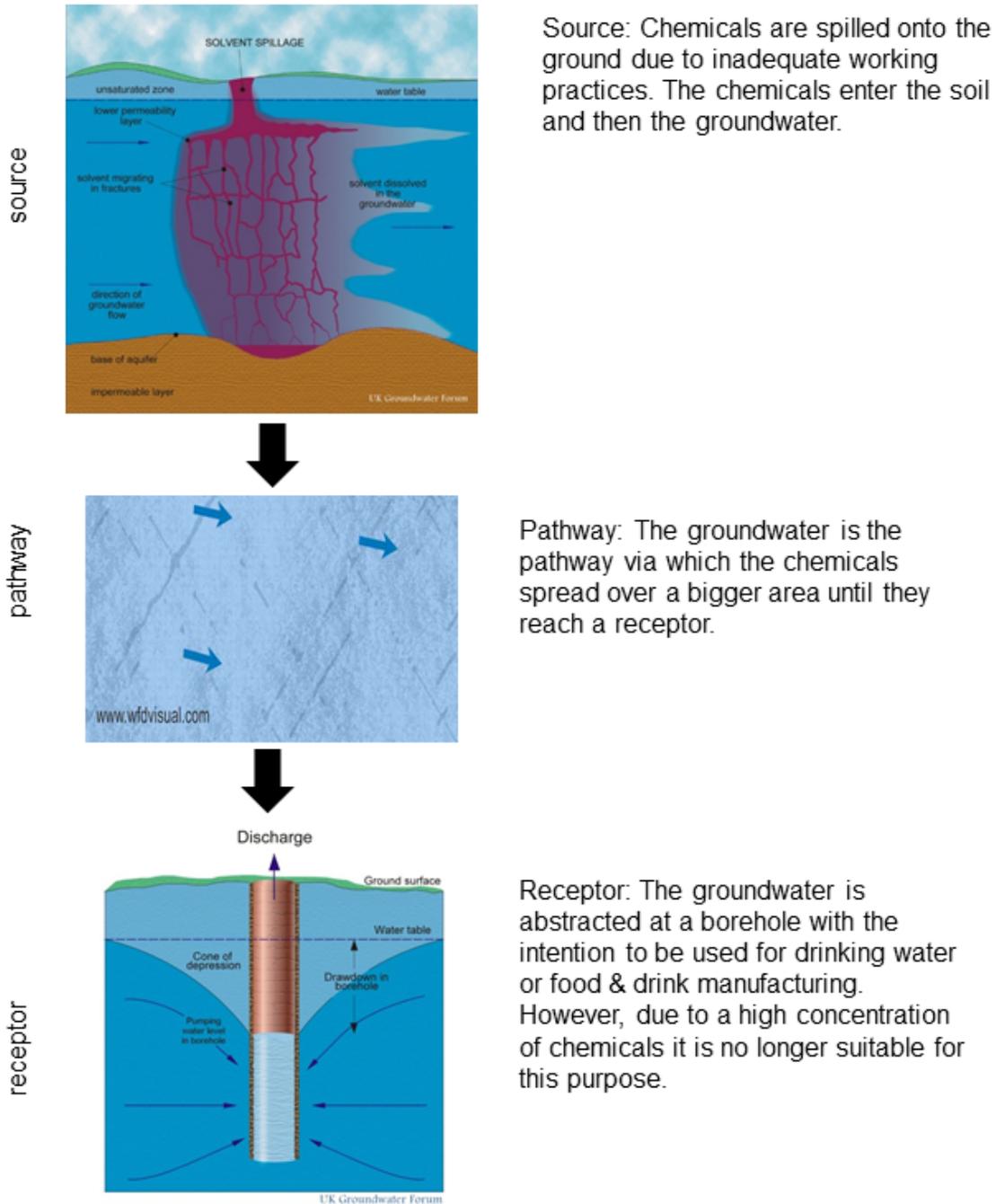
Figure 34 shows an example for the source-pathway-receptor model, where a chemical is spilled onto the ground; then seeps into the soils and enters groundwater. The quality of the groundwater (that is abstracted at the borehole) is impacted by the chemical and no longer suitable for its intended purpose.

Another example would be the spreading of manure on sloping land close to a waterway. The source of the pressure would be the nutrients within the manure that are spread on land. The pathway is the sloping land that facilitates easy runoff of the manure towards the waterway. The receptor is the waterway whose status might be impacted by the increase in nutrients.

If any of the linkages; either between source and pathway; or between pathway and receptor; can be broken the environmental risk has been prevented. Hence the model allows to identify appropriate mitigation measures and the Programme of Measures presented in Chapter 9. It can also easily be seen that measures fall broadly into two groups: those that tackle pathways and those that tackle the source of the environmental pressure.

In some instances it is not possible to break the linkage between receptor and pathway. For example, groundwater is both a pathway and a receptor. Hence, the only way to prevent impacts are to control the source either by minimising or eliminating it. That is why for example 'Codes of good practice' are important for reducing pressures and preventing impacts on the environment.

The source-pathway-receptor model is a conceptual model. Hence the distinction between source, pathway and receptor is not always as clear-cut in nature due to the complexity of environmental processes.



Source: Chemicals are spilled onto the ground due to inadequate working practices. The chemicals enter the soil and then the groundwater.

Pathway: The groundwater is the pathway via which the chemicals spread over a bigger area until they reach a receptor.

Receptor: The groundwater is abstracted at a borehole with the intention to be used for drinking water or food & drink manufacturing. However, due to a high concentration of chemicals it is no longer suitable for this purpose.

Figure 32: Example for the source-pathway-receptor model. A chemical spillage enters groundwater and impacts on borehole water supply

6.1.2 Information about receptors in Northern Ireland

Our monitoring of the water environment and classification updates presented in Chapter 2 and Chapter 4 show us that human activities within Northern Ireland have impacted upon the receptor (i.e. water environment). Nutrient pressures, either in the form of soluble reactive

phosphorus, dissolved inorganic nitrogen or nitrate are the biggest reason why water bodies have not achieved good status.

6.1.3 Information about pathways in Northern Ireland

There are two main pathways relating to nutrient pressures in Northern Ireland - they either travel via the land surface or via groundwater to their receptors. Pathways include:

- Runoff at ground surface entering waterways. Rivers can in turn become a pathway for lakes and coastal & transitional water bodies.
- Nutrients (or other contaminants) soaking into the soil and being washed into the unsaturated zone of the aquifer until they reach the water table. The contaminants travel with the natural groundwater flow or altered groundwater flow (due to a groundwater abstraction at a pumped borehole) until they reach a receptor. Groundwater also provides baseflow to surface water and its contaminant load can join other pathways, e.g. rivers.

6.1.4 Information about sources in Northern Ireland

While some impacts are due to point source pressures like discharges to water ways, others are of a diffuse nature. These include the application of nutrients or pesticides over large areas of land, but also a proliferation of small point sources in an area, for example hotspots of septic tanks within a catchment.

Applying the source-pathway-receptor model the potential main sources for nutrient pressures are agricultural land use and pressures related to sewage infrastructure.

6.2 Further evidence on sources relating to agricultural pressures

Doody et al (2020) published an analysis of the Substance Flow Analysis (SFA) for Phosphorus (P) in the Northern Ireland food system as part of the RePhoKUS project. The project found that over 60 % of P losses to our water bodies originate from agriculture. Furthermore the study found a regional P imbalance between demand and supply, with supply far exceeding demand and a resulting food system P efficiency of 38 %. Northern Ireland has too much P in its food system driven by livestock demand.

The report also highlights that in 2017 there was an excess of 10,300 tons of P in Northern Ireland, above what is required for agricultural production. Over two thirds (7,300 tonnes) of this P is accumulating in our soils on an annual basis, which is an economic loss for farmers

and has the potential to impact on our water quality well into the future. In 2017 a total of 1,530 tonnes of P was lost to water, with 62 % of this arising from agricultural sources.

Agriculture is the biggest land user in Northern Ireland (70 %) and has a significant pressure on our water quality as outlined above. This industry is vital for the Northern Ireland economy, employing more than 3.5 % of the total workforce - well above the UK average of 1.2 %. Before the introduction of the Common Agriculture Policy (CAP) in the early 1970s, the Northern Ireland agricultural landscape was a mix of arable and livestock farming, supplying varied habitat for farmland wildlife. Land use in Northern Ireland is now dominated by improved grassland management for dairy, beef and sheep production.

A pilot for an Integrated Ecosystem Model (IEM) for the Dundrum Bay Catchment has been taken forward by Northern Ireland Water, AFBI and DAERA. The IEM has been designed to model the complete catchment considering all inputs both point (mostly sewage) and diffuse (mostly agricultural) sources within the catchment. As part of this pilot, work was carried out to identify and apportion the sources of nutrients and microbial loading within the catchment. In dry conditions, 80 % of the microbial loading in the Carrigs River is from ruminant sources (e.g. cattle) and this proportion increases in wet weather. In the combined loadings from the Carrigs and Moneycarragh rivers 88 % of the E. coli loading is from ruminant sources.

An analysis of data sourced from the Statistical Review of Northern Ireland Agriculture, which is published by DAERA each year was carried out. The Review provides statistics on inputs of fertilisers and imported feedstuffs to agriculture together with measures of agricultural outputs such as milk, meat and crops. Figure 35 and Figure 36 show that total nitrogen and phosphorus inputs respectively, have increased during the 2nd cycle river basin management planning period. The 2nd cycle started in 2015.

Further information on the impact on receptors and evidence regarding the sources is presented in more detail in the supporting document on 'Agricultural nutrients and water quality'.

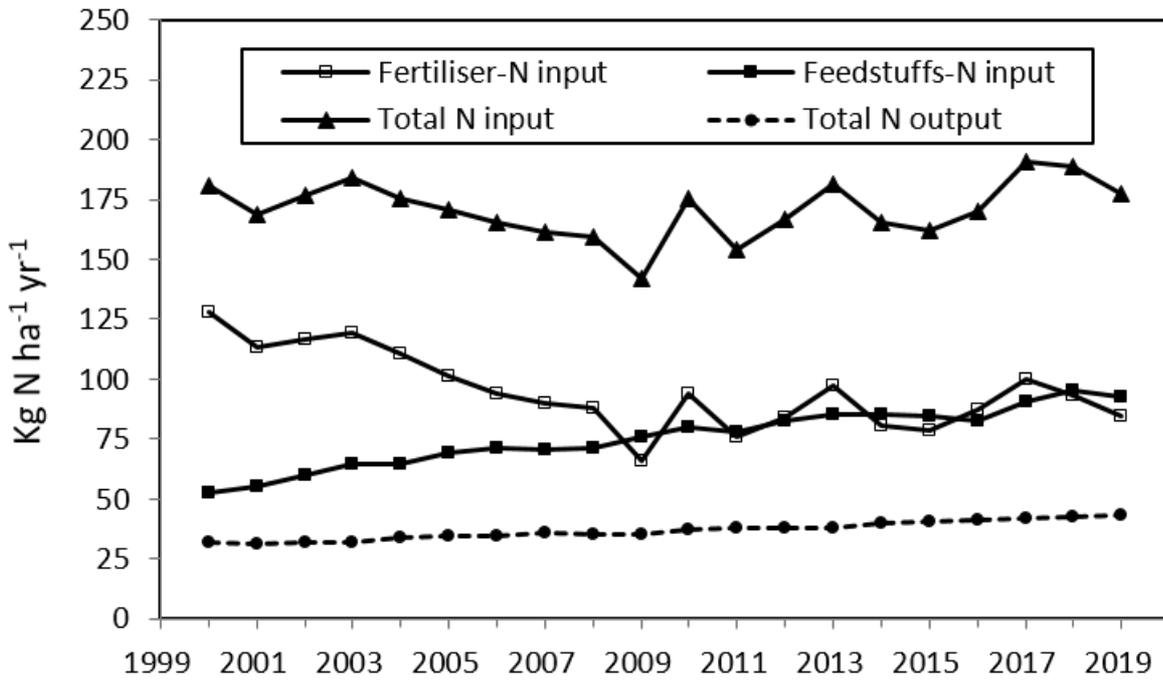


Figure 33: Time series of nitrogen (N) inputs and outputs for agriculture in Northern Ireland for the years 2000 to 2019

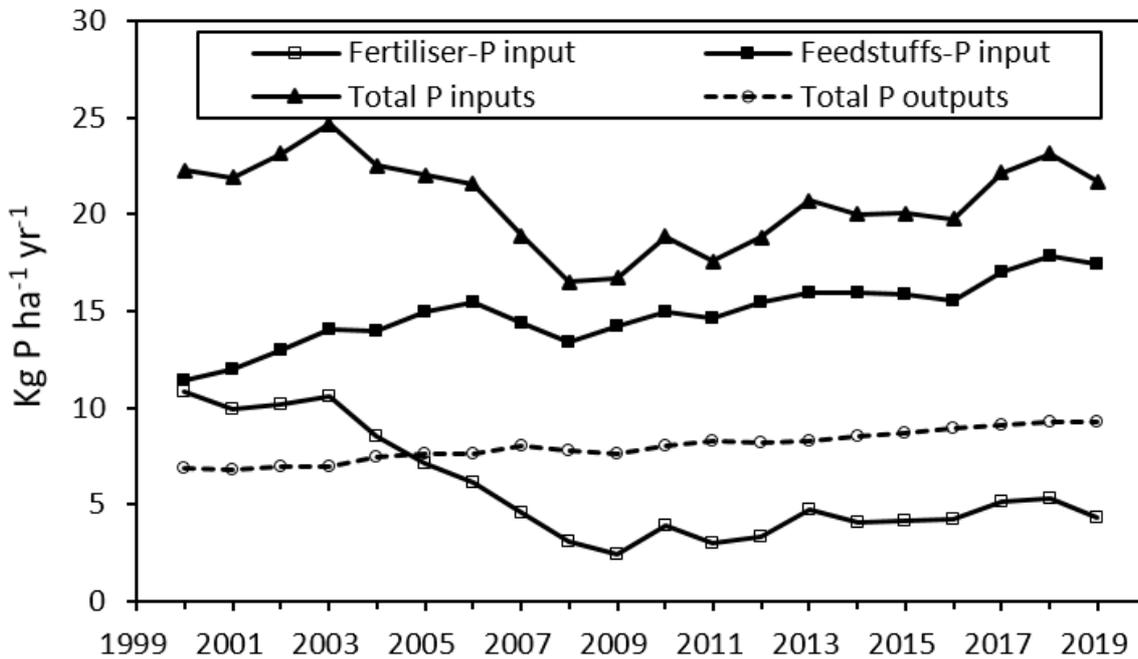


Figure 34: Time series of phosphorus inputs and outputs for agriculture in Northern Ireland for the years 2000 to 2019. (Data normalised to the area of crops and grass)

6.3 Further evidence on sources relating to sewage pressures

The phosphorus (P) system flow analysis carried out as part of the RePhokUs project [Doody et al (2020)] found that over one third of P input to the water environment can be attributed to sewage related impacts. 24 % of the overall P load lost to the water environment is linked to waste water treatment facilities, whereas a further 12 % is linked to septic tanks.

NI Water is the sole provider of water and sewerage services in Northern Ireland and despite major improvements both in capital investment and operating techniques significant investment is still required to make the difference on the delivery of 'Good Status' and the protection of sensitive waters [Drinking Water Protected Areas, Bathing Water, Shellfish Waters and UK site network (SPA/ SAC)].

Underfunding of the PC15 business plan 2015-21 has resulted in capacity issues in over 100 locations across Northern Ireland with the sewage network and Wastewater Treatment Works at or near their full capacity. This increases the risk of flooding from sewers, especially during storm events.

6.4 Other pressures

Other pressures relate to flow, levels and volumes of our water resources as well as chemicals and emerging contaminants. Impacts resulting from abstractions, impoundments and unfavourable channel hydro-morphology have also been considered as part of water body classification. The results of NIEA's chemical monitoring programme also input into water body classification. Appropriate measures for these pressures have been identified and are presented in Chapter 9.

Chapter 7 – Reporting of objectives and working targets in the 3rd cycle River Basin Management Plan

The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 which transposed the Water Framework Directive (WFD, 2000/60/EC) into Northern Ireland law requires that all water bodies achieve good status by 2027, unless where exemptions apply. The regulations set a target of no deteriorations; to achieve good water body status by 2021 and where this is not possible a further cycle of integrated catchment planning is allowed up to 2027. For some specified priority substances an extension of the ‘good status’ objective to 2033 or 2039 is possible. Deadlines can also be extended due to natural conditions, processes and technical limitations.

When the WFD was drafted in the late 1990s it set a target to achieve good water body status by 2015 and two further cycles (up to 2027) of integrated catchment planning were allowed to implement required measures and achieve improvements to the water environment.

Since then it has become clear that implementation of measures to tackle pollution, especially of diffuse nature, is challenging and requires a cross-cutting approach across society. Academic research has studied this ‘implementation gap’ considering factors like technical assessments of the goals and targets versus the feasibility of a response within the required timescales (De Vito et al, 2020). Research also considered the text and technical approaches to classification methodologies. Problems with implementation are attributed to a lack of shift towards system thinking – the fundamental concept of the directive (Voulvoulis et al, 2016).

Northern Ireland is not alone in the struggle to achieve improvement in all water bodies to good ecological status by 2021. In fact, in the EEA Report No 7/2018 on the Assessment of status and pressures 2018 in European waters, it was noted that ‘Overall, the second RBMPs show limited change in status, as most water bodies have the same status in both cycles’. So while the limited progress in improving water body status is disappointing, that disappointment is shared across many other countries that apply river basin management planning to their water resources.

7.1 Setting working targets for the 3rd cycle RBMP

Although improvements in water body status have been made over the last two cycles, this progress has unfortunately been off-set by deterioration in other water bodies. From the

resulting stagnation in the overall percentage of water body status at ‘good or better status’ it is highly unlikely that Northern Ireland will achieve good status in all water bodies (100 % status objective) by 2027.

In addition to the objectives working targets have been set for each waterbody for 2027. These ‘working targets’ will sit alongside the objective of ‘good status’ set out by the regulations. The working targets aid the prioritisation of water bodies for action during the 3rd cycle as well as the identification of the most appropriate measures to address key pressures. This will support focussing resources in the right location.

In 2015 our objective was to have 70 % of all our water bodies at good status in 2021. We are committed to this aim and propose to continue with this goal, to have 70 % of our water bodies at ‘good or better status’ and use this as our working target for 2027.

When setting the working targets for each waterbody for 2027 we have followed three key principles:

- 2015 principle: all water bodies that remain at moderate status in 2020/21 but had been assigned a ‘good status’ objective for 2021 in the 2nd cycle RBMP back in 2015 have a working target of ‘good status’
- improvement principle: all water bodies that improved in status have their new 2020/21 status as the working target
- no deterioration principle: all water bodies that had true deterioration in status (i.e. deterioration is not due to an updated and improved classification methodology) have their 2015 status from before the deterioration as their working target

We will also take into account extended deadlines due to natural conditions.

The flow diagram in Figure 33 sets out how we derived our working targets for each water body. The working targets for each water body can be viewed in NIEA Catchment Data Map Viewer.

Question 4: Do you agree with the ‘working target’ of 70 % of water bodies to be at ‘good or better’ status by 2027?

Question 5: Do you agree with the work flow process to set working targets for 2027 (see Figure 35).

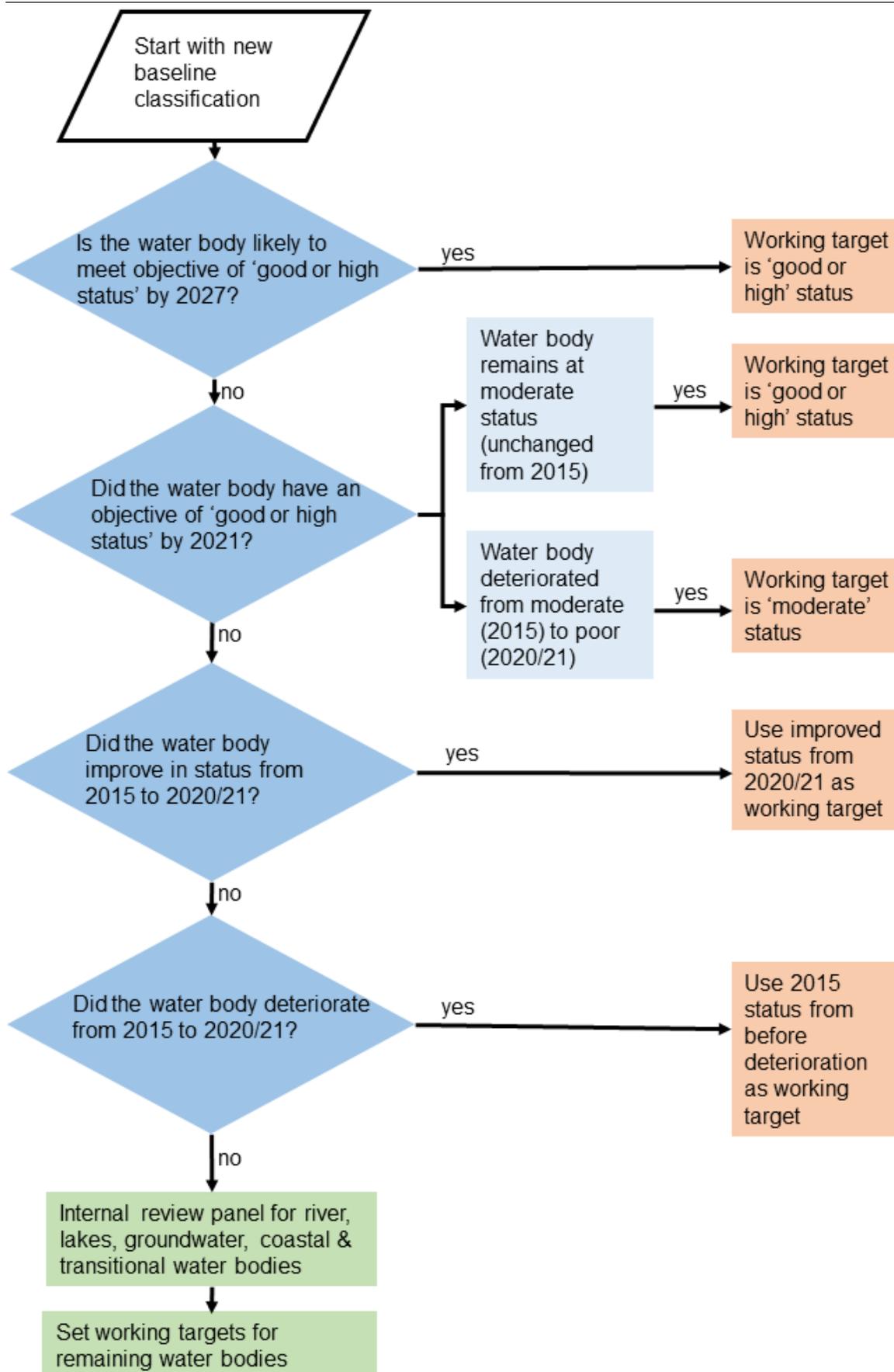


Figure 35: Flow diagram showing how working targets for 2027 will be set

7.2 Protected area objectives

Protected areas have their own objectives and standards set out under the legislation that governs them. These objectives, standards and deadlines for implementation set out in the legislation for the protected areas must be adhered to.

We have developed a matrix to prioritise our catchments for actions that considers classification status of the water body as well as impacts on protected areas related to the water environment. This prioritisation matrix is explained in more details in the next section.

7.3 Suggested procedure to select priority areas

We are proposing a matrix approach in order to prioritise the water bodies for action during the 3rd river basin planning management cycle. The matrix aims to combine the priorities resulting from the working targets for the future status of our water bodies, with the need for measures relating to our protected areas. The protected areas that are considered under the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 are water-dependent protected sites under the UK site network (SAC and SPA), bathing waters, shellfish waters, drinking water protected areas, urban waste water sensitive areas and nitrate vulnerable zones. However, since Northern Ireland has a total territory approach with regards to nitrate and the vast majority of Northern Ireland comprises urban waste water sensitive areas, these two protected-area types do not lend themselves to prioritisation.

In addition to protected areas we are also proposing to consider impacts on fish resulting from water quality when prioritising catchments; and whether catchments are upstream of an Area of Potentially Significant Flood Risk (APSFR) where measures could have co-benefits for flood protection.

The resulting priority list of waterbodies will assist catchment officers in planning their work, help to focus actions by our delivery partners and ensure that the right measures are carried out in the right place. It can also aid assessing funding applications to ensure that limited resources are targeted in the right locations.

We have developed 3 different matrices – see Table 39 through to Table 41:

- matrix 1: related to surface water ecological status
- matrix 2: related to surface water chemical status
- matrix 3: related to groundwater qualitative and quantitative status

7.3.1 Explanation of the matrix approach using matrix 1 (see Table 39)

We have developed six priority groups (ranging from A to F) which are noted vertically in column 2. These priority groups are based on:

- water body status: whether the water body deteriorated, improved or remained stable between 2015 and 2020/21
- which 2021 objectives were set for the water body back in 2015

Priority group C has been further divided into three subgroups.

At the beginning of the prioritisation process (**step 1**) all water bodies will be sorted into one of the priority groups. If one water body fits more than one criterion it will be sorted into the higher group.

The protected area and further criteria for prioritisation have been listed horizontally at the top of columns 3 to 10. As already explained above, urban waste water sensitive areas (column 7) and nitrate vulnerable zones (column 8) cannot be used for prioritisation purposes as they cover almost all or all of Northern Ireland.

In the next step (**step 2**) we will identify those protected areas that are impacted by water quality or quantity (volume/ flow/ levels) – these are columns 3 to 6 with a blue background. Where this is the case a weighting of two points is added to the relevant cell. Hence a water body can obtain a maximum score of eight points from the protected areas criteria.

In **step 3** – columns 9 and 10 with the green background - further environmental considerations like flood risk and fish are taken into account. A different weighting of one point can be applied in each cell and the water body can gain a maximum of two further points for prioritisation.

In **step 4** all points in each row are added up and each water body will have been assigned a weighting ranging between zero and ten points. Hence a water body can be assigned a priority rating (e.g. A10) consisting of its priority group (e.g. A) and the weighting (e.g. 10).

The final step (**step 5**) is drawing up the list of priority water bodies. The list starts with the highest priority (A10), followed by A9, A8 and so on until A0 is reached. The list then proceeds with water bodies in group B: B10, B9, B8 until B0 is reached. The same process is repeated for all the other groups: Ca, Cb, Cc, D, E and F until F0 is reached. A worked example is presented in Table 42 and Table 43.

Surface water ecology is classified into five status classes: high, good, moderate, poor and bad. In contrast, surface water chemistry (either high or moderate) and groundwater chemistry and quantitative status (either good or poor) are classified into only two status classes. As a result the corresponding matrices are simpler and priority groups D and E have been removed so that an overall priority list (as described in step 5) can be produced.

Question 6: Do you agree with our suggested procedure to select priority areas?

Question 7: In relation to Question 6, if you do not agree, what changes would you make?

Depending on the pressures acting on and the location of the prioritised catchments, the delivery of the Programme of Measures can consist of local catchment actions including the Challenge Fund, regional measures like INTERREG or PeacePlus projects, capital investment measures (e.g. PC21) and national measures. Delivery of the Programme of Measures must be through a partnership approach including public sector bodies, the voluntary sector and also through behavioural changes of people living in Northern Ireland.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11
Setting working targets for: surface water ecology status	Protected area criteria: for protected areas that are water dependent only water bodies linked to the protected site and/ or water bodies upstream of protected site	SPAs and SACs that are in unfavourable condition, where pressures are known and linked to the water environment and a site linked to the water environment and a site Conservation Management Plan available	Bathing waters: a) bathing waters assessed as poor b) bathing waters assessed as sufficient	Drinking Water Protected Areas: catchments where Drinking Water Standards were exceeded in the raw water (before treatment)	Shellfish Waters: Shellfish Water that did not meet guideline	Urban Waste Water sensitive areas: catchments that have been designated as sensitive areas	Nutrients Action Programme – Total territory approach	Catchments upstream of APSFR (Areas of Potential Significant Flood Risk)	Pressure on fish due to water quality	Additional environmental considerations criteria
Priority group	Water body criteria based on surface water ecological classification									
A (highest)	Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from 'good or better' to 'moderate or worse'					The majority of surface water bodies are considered a sensitive area. It excludes those water bodies that do not have sewage treatment works serving population equivalent (PE) of 2000 or more	The Nutrients Action Programme applies throughout the whole territory of Northern Ireland (a total territory approach)			These criteria give an additional weighting
B	Water bodies that had a 'good or better' objective for 2021 and where status remains moderate in 2020/21 (unchanged from moderate in 2015)									
C	a) Water bodies that improved in status from 2015 to 2020/21: water bodies that improved to good or better b) Water bodies that have a working target of 'good or better', but are 'moderate' in 2020/21 c) Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from moderate (2015) to poor or bad (2020/21)									
D	Water bodies that improved in status from 2015 to 2020/21: water bodies that improved to moderate or poor									
E	Water bodies that are at 'good or better' status and have a 'good or better' working target for 2027									
F (lowest)	All other water bodies									

Table 39: Matrix 1 - Prioritisation matrix related to surface water ecological status

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11
Setting working targets for: surface water chemistry status	Protected area criteria: for protected areas that are water dependent only water bodies linked to the protected site and/ or water bodies upstream of protected site	SPAs and SACs that are in unfavourable condition, where pressures is known and linked to the water environment and a site linked to the water environment and a site Conservation Management Plan available	Bathing waters: a) bathing waters assessed as poor b) bathing waters assessed as sufficient	Drinking Water Protected Areas: catchments where Drinking Water Standards were exceeded in the raw water (before treatment)	Shellfish Waters: Shellfish Water that did not meet guideline	Urban Waste Water sensitive areas: catchments that have been designated as sensitive areas	Nutrients Action Programme – Total territory approach	Catchments upstream of APSFR (Areas of Potential Significant Flood Risk)	Pressure on fish due to water quality	Additional environmental considerations criteria
Priority group	Water body criteria based on surface water chemical classification (excluding uPBT and new priority substances)									
A (highest)	Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from 'high' to 'moderate'					The majority of surface water bodies are considered a sensitive area. It excludes those water bodies that do not have sewage treatment works serving population equivalent (PE) of 2000 or more	The Nutrients Action Programme applies throughout the whole territory of Northern Ireland (a total territory approach)			These criteria give an additional weighting
B	Water bodies that had a 'high' objective for 2021 and where status remains 'moderate' in 2020/21 (unchanged from 'moderate' in 2015)									
C	a) Water bodies that improved in status from 'moderate' in 2015 to 'high' in 2020/21 b) Water bodies that are 'moderate' in 2020/21 with a working target of 'high' for 2027									
F (lowest)	All other water bodies (includes water bodies that are 'high' in 2021 and have a 'high' working target for 2027)									

Table 40: Matrix 2 - Prioritisation matrix related to surface water chemical status

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11
Setting working targets for: groundwater chemistry and quantitative status	<p style="text-align: center;">↓</p> <p>Protected area criteria: for protected areas that are water dependent only</p> <p style="text-align: center;">→</p> <p>water bodies linked to the protected site and/ or water bodies upstream of protected site</p>	SPAs and SACs that are in unfavourable condition, where pressures is known and linked to the water environment and a site Conservation Management Plan available	Bathing waters: a) bathing waters assessed as poor b) bathing waters assessed as sufficient	Drinking Water Protected Areas: catchments where Drinking Water Standards were exceeded in the raw water (before treatment)	Shellfish Waters: Shellfish Water that did not meet guideline	Urban Waste Water sensitive areas: catchments that have been designated as sensitive areas	Nutrients Action Programme – Total territory approach	Catchments upstream of APSFR (Areas of Potential Significant Flood Risk)	Pressure on fish due to water quality	Additional environmental considerations criteria
Priority group	Water body criteria based on groundwater chemistry and quantitative status									
A (highest)	Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from 'good' to 'poor'					The majority of surface water bodies are considered a sensitive area. It excludes those water bodies that do not have sewage treatment works serving population equivalent (PE) of 2000 or more	The Nutrients Action Programme applies throughout the whole territory of Northern Ireland (a total territory approach)			These criteria give an additional weighting
B	Water bodies that had a 'good' objective for 2021 and where status remains 'poor' in 2020/21 (unchanged from 'poor' in 2015)									
C	a) Water bodies that improved in status from 'poor' in 2015 to 'good' in 2020/21 b) Water bodies that are 'poor' in 2020/21 with a working target of 'good' for 2027									
F (lowest)	All other water bodies (includes water bodies that are 'good' in 2021 and have a 'good' working target for 2027)									

Table 41: Matrix 3 - Prioritisation matrix related to groundwater chemical and quantitative status

Column 1	Column 2	Example	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Example		
Setting working targets for: surface water ecology status	Protected area criteria: for protected areas that are water dependent only water bodies linked to the protected site and/ or water bodies upstream of protected site	Water body (WB) names	SPAs and SACs that are in unfavourable condition, where pressures is known and linked to the water environment and a site linked to the water environment and a site Conservation Management Plan available	Bathing waters: a) bathing waters assessed as poor b) bathing waters assessed as sufficient	Drinking Water Protected Areas: catchments where Drinking Water Standards were exceeded in the raw water (before treatment)	Shellfish Waters: Shellfish Water that did not meet guideline	Urban Waste Water sensitive areas: catchments that have been designated as sensitive areas	Nutrients Action Programme – Total territory approach	Catchments upstream of APSFR (Areas of Potential Significant Flood Risk)	Pressure on fish due to water quality	Additional environmental considerations criteria	Priority rating (sum of weighting points)		
Priority group	Water body criteria based on surface water ecological classification			a) b)										
A (highest)	Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from 'good or better' to 'moderate or worse'	WB 1 WB 2 WB 3			2	2		The majority of surface water bodies are considered a sensitive area. It excludes those water bodies that do not have sewage treatment works serving population equivalent (PE) of 2000 or more The Nutrients Action Programme applies throughout the whole territory of Northern Ireland (a total territory approach)			These criteria give an additional weighting	4 0 2		
B	Water bodies that had a 'good or better' objective for 2021 and where status remains moderate in 2020/21 (unchanged from moderate in 2015)	WB 4 WB 5 WB 6	2						1			2 0 3		
C	a) Water bodies that improved in status from 2015 to 2020/21: water bodies that improved to good or better	WB 7 WB 8	2							1			3 0	
	b) Water bodies that have a working target of 'good or better', but are 'moderate' in 2020/21	WB 9 WB 10 WB 11 WB 12	2			2	2			1			3 4 0 1	
	c) Water bodies that have deteriorated in status from 2015 to 2020/21: Water bodies that deteriorated from moderate (2015) to poor or bad (2020/21)									1				
D	Water bodies that improved in status from 2015 to 2020/21: water bodies that improved to moderate or poor	WB 13 WB 14 WB 15					2			1				0 1 2
E	Water bodies that are at 'good or better' status and have a 'good or better' working target for 2027	WB 16 WB 17 WB 18							2			1		1 0 2
F (lowest)	All other water bodies	WB 19 WB 20 WB 21	2						1			0 1 2		

Table 42: Worked example for the prioritisation matrix (Note: columns not required for the example have been omitted)

7.3.2 Worked example for prioritisation matrix

We have included a worked example for the prioritisation matrix in Table 42. For this example we have used 21 fictional water bodies (WB) and have allocated them to the priority groups A through to F. Fictional weightings for protected areas (columns 3 to 8) and additional environmental considerations (columns 9 and 10) were assigned. The total score is recorded in the far right-hand column. The resulting priority list for this example is given in Table 43.

priority group	water body	priority rating
A	WB 1	4
A	WB 3	2
A	WB 2	0
B	WB 6	0
B	WB 4	2
B	WB 5	0
Ca	WB 7	3
Ca	WB 8	0
Cb	WB 10	4
Cb	WB 9	3
Cc	WB 12	1
Cc	WB 11	0
D	WB 15	2
D	WB 14	1
D	WB 13	0
E	WB 18	2
E	WB 16	2
E	WB 13	0
F	WB 21	2
F	WB 20	1

priority group	water body	priority rating
F	WB 19	0

Table 43: Resulting priority list for worked example (starting with the highest priority)

Chapter 8 – Delivery of 2nd cycle Programme of Measures and on-going implementation

8.1 Assessment of the existing Programme of measures

The implementation of the Programme of Measures (PoMs) falls to a number of key stakeholders, but ultimately everyone living in Northern Ireland has to play their part by assessing their behaviours towards a more sustainable use of our precious water resource. The delivery and implementation of the PoMs is overseen by the WFD Project Board and regular engagement with stakeholders occurs through the WFD Strategic Planning and Resources Group (SPAR).

The key stakeholders include: NI Water, DfI Water and Drainage Policy Division, DfI Rivers and DfI Roads, AFBI, Loughs Agency, local councils, Rivers Trusts, Ulster Farmers Union, Ulster Angling Federation; the private sector; the community and voluntary sector; and the general public, working together with DAERA. Active engagement between delivery partners and stakeholders is key for the successful delivery of measures through partnerships and catchment projects.

Water quality is impacted upon by a wide range of factors and the effectiveness of the measures is influenced by the natural lag time for recovery. It also depends on the buy-in and successful implementation of the measures by all those using the land or discharging into the water environment. Non-compliance, delays or incomplete implementation of measures prolong improvements in water status and achievement of objectives. Despite all of the work that has been happening, the time lag between the introduction of some measures and their impact on expected improvements means that it is unlikely that the 2021 objectives will be achieved.

At the beginning of the 2nd cycle NIEA faced uncertainty regarding funding for INTERREG VA projects and agri-environment schemes. This ultimately resulted in a delay in implementation of the Key Target Measures (KTMs) identified in the 2015 plans, however, 90 % of the 136 KTMs are now achieved or on track to be achieved. A further 6 % are making slow progress but the positive impacts on water quality resulting from these will not be expected to occur until beyond 2021. The remaining 4 % were not started. Some of these key measures and projects, which are now underway, include:

- **The Shared Waters Enhancement and Loughs Legacy (SWELL)** project, which has made improvements to sewage treatment works in Lough Foyle and Carlingford

Lough, investing approximately €35 million, has seen a steady flow of progress since its launch in the summer of 2019, with all of the wastewater capital upgrades due to be completed and commissioned by the end of 2021.

- **CatchmentCare** is focussed on three water quality improvement projects in the Finn, Blackwater and Arney Catchments. As well as installing groundwater monitoring stations to better understand groundwater in the catchments and the interaction between groundwater & surface water bodies, the project runs an incentive scheme for land improvements: for example in stream and riparian works, fencing and installation of livestock drinkers. CatchmentCare is promoting best practice, for example in relation to sheep dipping/sheep dip disposal and have held a number of demonstration events. A number of guidance leaflets and educational resources have been developed and are available on the project webpage. The project also works with local farmers to identify areas of high risk from nutrient runoff by producing risk maps and carrying out soil sampling. This is a 5 year project investing £13.8million and will complete in 2022.
- **Source to Tap (StT)** is focussed on the River Erne and River Derg catchments developing sustainable catchment scale solutions for the protection of rivers and lakes in the Erne and Derg catchments, which are the main sources of our shared drinking water. Source to Tap has delivered a learning and outreach programme (available online) to inform and empower the public about their role in protecting our clean and healthy environment. The StT project also has land-incentive trials working with farmers to adopt sustainable land management practices that help reduce herbicide residue and soil escaping from the land into rivers. The trials included weed-wiping, rush topping, and stock fencing and clean/ dirty water separation projects, farm track improvements and solar powered drinkers for livestock. It is a 5 year project with an investment of €5.3million due to be completed in 2022.

Within the past year, and before the restrictions brought about by Covid-19, the StT project team hosted numerous educational and stakeholder engagement events in both Donegal and Tyrone. These were successful in bringing additional farmers into the Land Incentive Scheme. Farmers already in the scheme are proceeding with work such as stock fencing and weed wiping, which was greatly assisted by the good weather in April and May 2020.

- **SWIM - System for Bathing Water Quality Monitoring** is a partnership project of £1m which enables a bathing water quality prediction model to predict short-term pollution and provide public information through media channels and the installation of real time signage at all our bathing water sites. This will help to protect public health, significantly improving communication with the public, and in doing so, contribute to promoting tourism. The 'EU SWIM app' is now available for download.
- **Marine Protected Areas Management and Monitoring (MarPAMM)** is focussed on the delivery of four new cross-disciplinary models to support the conservation of marine habitats and species, through integrated elements including a seabird's model designed to quantify and help manage protected seabird species.
- **Collaborative Oceanography and Monitoring for Protected Areas and Species (COMPASS)** is delivering a project that will connect the regions' key marine research Institutes to deliver a coherent monitoring network to support the management of Marine Protected Areas and Species.

In addition to INTERREG VA projects, there are a number of initiatives that are delivered through the collaboration of a range of Government Departments, Councils, Community groups & local stakeholders, some of these are listed below:

- **Inner Dundrum Bay**
Inner Dundrum Bay Priority group was established in 2017 as a pilot programme to examine how water management issues are being addressed across DAERA and how to improve catchment working across the group. For further details see the Case study in the NERBD in Chapter 4.
- **Priority Catchments for the 2nd cycle**
In 2015, a decision was taken to prioritise the water bodies that were failing for a single element. At that time 85 out of 450 rivers (19 %) failed on one element only. A total of 34 Single Failing Element water bodies were prioritised in 2016 and 2017, and investigations were undertaken into all 34 water bodies. Outcomes from the investigations included Agriculture Regulation visits, Pollution Response visits and Pollution Prevention visits.
In 2018, an interim classification for surface water bodies was published to review progress towards meeting the objectives set for 2021 and to prioritise actions. 52 river water bodies had deteriorated in status between 2015 and 2018. The deteriorations

were all by one class only. Of greatest concern were the 32 river water bodies which deteriorated from Good to Moderate status.

In 2018, the focus for the selection of Priority Areas changed from ‘single failing element’ water bodies to water bodies which had deteriorated since 2015 to try and improve them as quickly as possible back to their 2015 status. 20 deteriorated water bodies were prioritised and investigated in 2019-20, and a further 15 were selected for investigation in 2020-21. The nature of the investigations were bespoke to the water body and the failing element, however the basic framework for an investigation included a desktop study; a more focused walk over survey on the areas highlighted through the desktop study and additional sampling. Recommendations from the investigations are currently being actioned and include targeted cross compliance and pollution prevention inspections, areas for targeted EFS interventions and farm businesses where targeted environmental advice on diffuse pollution measures can be delivered.

The selection of priority areas for the 3rd cycle RBMP was discussed in further detail in Chapter 7.

- **The Water Catchment Partnership**

Pesticides play an important role in the food production process, but they can also lead to harmful effects in the environment. Pesticides used for weed control are often detected in rivers and lakes by NIEA and NI WATER. They pose a potential risk to human health, local aquatic life and subsequently, increase public costs for treating drinking water. The Water Catchment Partnership (WCP) was established in 2013 to help address significant water quality issues caused by pesticides in Northern Ireland. The WCP is a working partnership established with representatives from NIEA, Ulster Farmers Union (UFU), NI WATER, DAERA and the Voluntary Initiative. The WCP aim is to proactively work together to promote and raise awareness of best practice when using pesticides in the garden or on the farm, through a voluntary approach to improve water quality.

- **Sustainable Catchment Area Management Programme Northern Ireland (SCaMP)**

SCaMP NI aims to improve the quality and reliability of the water received at NI WATER’s raw water abstraction points through sustainable catchment based solutions that focus on protecting and enhancing the natural environment. The SCaMP NI approach steers away from asset focussed, high energy, and high ongoing cost

measures towards long-term, low cost, integrated solutions involving the pooling of resources across a range of public and private stakeholders. It aims to deliver the optimum quality and quantity of raw water to NI WATER's water treatment works through the reduction of diffuse pollution and improvement of land management practices.

Garron Plateau Blanket Bog Restoration Project - NI Water have worked with the assistance of the RSPB and NIEA on an award winning project to protect and restore peatland at the Garron Plateau, within the catchment area of Dungonnell WTW in the Antrim Hills. The area is the largest expanse of intact blanket bog in Northern Ireland and its value has been recognised both nationally and internationally. It helped restore habitats and enhanced water quality by natural filtration through the peat and vegetation.

- **Mourne Mountain Wildfire Project**

Wildfires in the Mourne Mountains have in the past damaged habitats and adversely affected water quality. NI Water, in conjunction with Mourne Heritage Trust NIEA and NI Fire & Rescue Service, have taken a practical approach to wildfire management. The project aims to protect the drinking water supply, protect the heathland and preserve a beautiful Mourne landscape for generations to come.

- **Environment Fund**

The Environment Fund Water Quality Improvement strand seeks to facilitate local communities and voluntary organisations to run projects to bring about improvements in their local water environment. A total of £113k funding was awarded to 8 different projects throughout Northern Ireland. Funding was available for two key priority areas – Water Quality Actions and Public Education & Awareness.

The water quality actions include an investigation into barriers on a tributary of the River Lagan; riparian management on the Glenavy River; and the creation of wet woodlands to treat agricultural run-off within the Foyle catchment.

The projects focused on public participation and awareness include a citizen science project developing “river guardians” on the Ballinderry River; an invasive species control project that includes training and invasive control on the Bann estuary; and engaging with farmers and local stakeholders to put in place water management plans, and increase public participation on the Ring of Gullion. These projects will help

communities improve their understanding of the aquatic ecosystems and develop their connection to their local waterways.

8.2 Additional measures introduced since the last RBMP

8.2.1 Urban Development

Since the last RBMP, significant investment has been put into the development of a modelling approach to provide a better understanding of the source of the pressure and the pathways used to reach the water bodies. NI Water, AFBI and DAERA are working collaboratively on the development of an Integrated Ecosystem Model. The Model has been designed to analyse the complete catchment considering all inputs, both point and diffuse sources, within the freshwater and marine environment. The outputs will identify where investment is needed to provide the greatest benefit to water quality and delivery of the WFD Good Status. Strong evidence and source apportionment modelling is required to assist decision makers and policy makers in how best to tackle the issues in both fresh water and the marine environment. Trial projects are underway with Dundrum, LWWP, Shared Waters Enhancement and Loughs Legacy (SWELL) and the NI WATER Shellfish & Bathing Waters Remediation Project (SABRE) all applying the Integrated Ecosystem Model principles. The outcome of the trial projects will inform consenting decisions and investment prioritisation for the 3rd cycle RBMP period.

8.2.2 Agriculture

Some areas of agriculture and the agri-food sector has seen extensive expansion since the beginning of the 2nd cycle RBMP¹². Agricultural impacts on water quality are regulated through the Nutrients Action Programme Regulations (Northern Ireland) 2019 (as amended). The revised NAP 2019-2022 builds on previous NAPs and has additional measures to promote more efficient nutrient management and best practice¹³. Most of these additional measures have been phased in from January 2020.

DAERA also established a new **Knowledge Advisory Service (KAS)** in April 2018 as a new single advisory service aimed at supporting Northern Ireland's farm and food businesses to promote better integration of environmental advice to support to farmers and the agri-food

¹² <https://www.daera-ni.gov.uk/articles/interactive-statistics-hub>

¹³ www.daera-ni.gov.uk/sites/default/files/publications/daera/new-nap-measures-information-for-farmers-11-July-2019.PDF

sector. This service offers training and online tools (Nitrogen loading calculators etc.) to enable farms to meet legislative requirements and improve on-farm sustainability.

The **Environmental Farming Scheme (EFS)** is DAERA's agri-environment scheme funded under the Rural Development Programme 2014-2020. EFS has been designed to address specific environmental needs, primarily relating to biodiversity and water. EFS provides support to farmers to protect water quality including the fencing of waterways and creating riparian buffer zones. Currently some 5000 farmers are participating in the scheme. After three tranches, ~ 3000 km of water course stabilisation with fencing and ~ 200 km riparian margins have been implemented at a cost of £15.7 million. To encourage a wider uptake of the riparian margin options, the water course stabilisation fencing option will not be available from Tranche 4 onwards. Approximately 49,000 hectares of land is managed under EFS agreement.

The **Sustainable Agricultural Land Management Strategy** for Northern Ireland was published in 2016 and contains further recommendations aimed at reducing phosphorus levels and managing agricultural land more effectively. The Department is currently taking forward some of the recommendations set out in the strategy in the form of pilot studies in two catchments using soil testing analysis supported by Lidar scanning. Training was provided to farmers to help analyse the results of the soil testing which identified areas at risk of leaching nutrients and also where fertiliser costs could be reduced. Within the Colebrooke and Strule water catchments, 9,736 fields have been sampled and results provided to 584 farm businesses. In addition, the Department and AFBI delivered a pilot study which included a soil testing scheme in the Upper Bann catchment, sampling 19,990 fields and results were provided to 1035 farm businesses.



Soil Health' is a relatively new term that is being discussed more and more by farmers, growers, agronomists and researchers. The SALMS Report (2016) stated that 98% of NI

soils are inadequately analysed every year and that 82% of soils are below optimum fertility. In terms of soil health, the real challenge is defining the concept and to determine what are the key characteristics. Soil testing generally uses chemical and physical parameters but the importance of generating information on soil biology is now being acknowledged. AFBI are conducting a four-year DAERA-funded project on Soil Health that is measuring key soil chemical, physical and biological characteristics in soils from experimental plots in long-term experiments and on-farm across NI. On-farm sampling commenced in 2018.

The project aims to develop guidelines for policy makers, farmers and growers on how to achieve sustainable soil health. This will be key to the delivery of more environmentally sustainable agriculture in Northern Ireland.

Chapter 9 - Draft Programme of Measures for the 3rd cycle RBMP 2021-2027

The draft plan includes a draft Programme of Measures to improve the status of our water bodies. The Programme of Measures has been split into key sectors set out in sections 9.1 to 9.6 and covers the period of the 3rd cycle river basin management plan (1 January 2022 to 31 December 2027).

9.1 Key Sector: Agriculture

Pressure type: Diffuse and point source pollution

Table 44 provides a summary of supplementary measures to address diffuse and point source pollution of surface and groundwater from agriculture during the 3rd cycle RBMP. Actions under drinking water, chemicals and pesticides are also relevant to agriculture.

Key Targeted Measure	Measure	Owner
Reduce nutrient pollution from agriculture	Continued application of the Nutrients Action Programme (NAP) 2019-2022. The Nutrients Action Programme Regulations (Northern Ireland) 2019 (as amended) came into operation on 11 April 2019 ¹⁴ . The revised NAP 2019-2022 builds on previous NAPs and has additional measures to promote more efficient nutrient management and best practice ¹⁵ .	DAERA, CAFRE
Advisory services for agriculture	Continue training and advice through the new Knowledge Advisory Service (KAS). It was set up in April 2018 as a new single advisory service aimed at supporting Northern Ireland's farm and food businesses, where economic and environmental performance is inextricably linked.	DAERA, CAFRE
Reduce nutrient pollution from agriculture	Support the proposed programme to roll out soil testing and Lidar surveys and continued advice and education packages on the importance of soil nutrient management and soil fertility.	DAERA, CAFRE

¹⁴ <https://www.legislation.gov.uk/nisr/2019/81/contents>

¹⁵ www.daera-ni.gov.uk/sites/default/files/publications/daera/new-nap-measures-information-for-farmers-11-July-2019.PDF

Key Targeted Measure	Measure	Owner
Reduce nutrient pollution from agriculture	Support the reduction in use of chemical fertiliser and encourage behaviour change based on evidence from further soil analysis.	DAERA, CAFRE
Reduce nutrient pollution from agriculture	Work with the industry to reduce the Phosphorus content in animal feed. Provide support / advice on increasing grass yields and utilisation on livestock farms so that concentrate feed volumes can be reduced.	DAERA, NIGTA
Reduce nutrient pollution from agriculture	Support the development of innovative technologies for manure/ slurry processing.	DAERA, CAFRE
Measures to reduce sediment from soil erosion and surface run-off	Continued delivery and implementation of the Environmental Farming Scheme (EFS) (or future replacement scheme) measures to protect water bodies, including riparian buffer zones and tree planting options. Monitor and evaluate the effectiveness of these measures.	DAERA, CAFRE
Measures to reduce sediment from soil erosion and surface run-off	Prioritise 3 catchments (one per RBD) and using spatial technology, identify areas of livestock poaching and focus advice and EFS measures to resolve.	DAERA, CAFRE
Measures to reduce sediment from soil erosion and surface run-off	Promote 'Forests for Our Future' through the Forest Expansion Scheme and Small Woodland Grant Scheme for woodland creation in areas of high and medium priority identified in 'Opportunity mapping for woodland creation to reduce flood risk in Northern Ireland' Forest Research (2017).	DAERA, CAFRE, Forest Service
Advisory services for agriculture	Development of collaborative catchment actions to be taken forward within Priority water bodies during the 3rd cycle RBMPs.	DAERA, CAFRE

Key Targeted Measure	Measure	Owner
Reduce pesticides pollution from agriculture	Continue to use the Water Catchment Partnership approach to proactively work together to promote and raise awareness of best practice when using pesticides.	DAERA, CAFRE
Research, improvement of knowledge base reducing uncertainty	Consider outputs of Integrated Ecosystem Modelling (IEM) to achieve the most sustainable outcomes. Ensure sustainable solutions to reduce nutrient inputs into bathing waters and shellfish water, in line with integrated catchment management practices to address River Basin Management pressures acting upon the water environment.	NI Water, DAERA

Table 44: Draft measures relating to agriculture

9.2 Key Sector: Urban Development

Pressure type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwater from sewage during the 3rd cycle RBMP.

Key Targeted Measure	Measure	Owner
Construction or upgrades of wastewater treatment plants	Upgrades of Wastewater Treatment Works and infrastructure as set out in the price control period PC21 (2021-2027).	NI Water
Reduce nutrient pollution from sewage	Develop an Integrated Ecosystem Model for Lough Foyle, Belfast Lough and Carlingford Lough to inform consenting decisions and investment prioritisation.	NI Water, AFBI and DAERA
Natural water retention measures	Implement the Integrated Plan for Drainage and Wastewater Management in Greater Belfast'. (Living with Water Programme as committed in New Decade New Approach).	NI Water, DAERA, DfI

Key Targeted Measure	Measure	Owner
Reduce nutrient pollution from sewage & industry	Carry out a Water reform & review of the regulation of point source discharges to achieve better environmental outcomes. Review consenting decision making processes and procedures to move towards a catchment based approach and review the compliance assessment methodologies for both Industrial/ Private Sewage point source discharges and Water Utility discharges.	DAERA
Reduce nutrient pollution from sewage & industry	Carry out a Water reform & review of NI Water discharge consents and the NI Water Compliance Assessment.	DAERA
Reduce nutrient pollution from sewage	Carry out a pilot study on the impact of hotspot areas of both domestic discharges and private Wastewater Treatment systems to gather evidence to inform the delivery of future sustainable sewage management for NI.	DAERA
Reduce nutrient pollution from sewage Natural water retention measures	Continue work through the Stormwater Management group (SWMG) to ensure that all new developments incorporate sustainable solutions e.g. soft SuDs to control Stormwater run-off.	DAERA, DfI
Reduce nutrient pollution	Continue to work together to address the issue of misconnections. DfI to consider legislation that would enable misconnections to be resolved.	NI Water, DfI, DAERA
Reduce nutrient pollution from sewage	Continue to work together to deliver Sustainable Wastewater Treatment Technologies. NIEA has been working with NI Water on the development of these technologies to ensure the treatment meets the WFD requirements.	NI Water, DAERA

Key Targeted Measure	Measure	Owner
Reduce nutrient pollution	Continue support & implementation of the ConnectRight campaign, a partnership of water companies and environment agencies in the UK who are working to reduce water pollution from drains and sewers.	NI Water, DAERA
Construction or upgrades of wastewater treatment plants	Consider & prepare PEACE PLUS bid to secure funding to upgrade sewage treatment facilities in cross-border catchments.	NI Water, Irish Water,

Table 45: Draft measures relating to urban development and sewage

9.3 Key Sector: Drinking Water, Chemicals & Pesticides

Pressure type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwater bodies from chemicals & pesticides during the 3rd cycle RBMP. Actions under agriculture and urban development are also relevant to the protection of Drinking Water.

Key Targeted Measure	Measure	Owner
Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	Establish a Northern Ireland Regulators Forum for Chemicals & Pesticides to ensure a collaborative approach across Northern Ireland to regulation and enforcement.	DAERA & key regulators
Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous	Investigate existing & new activities regarding the use of pesticides & chemicals detected in waterways to better understand and address the source e.g. Cypermethrin.	DAERA

Key Targeted Measure	Measure	Owner
Substances or for the reduction of emissions, discharges and losses of Priority Substances		
Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	Consider the need for the provision of a Disposal Scheme in Northern Ireland for no longer authorised pesticides, similar to the schemes that have occurred in Donegal & Wales.	DAERA
Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances	Carry out a Public Sector Estate pilot of pesticide reduction or elimination (with the exception of use for non-native invasive species eradication).	NI WATER
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue Management Group between NI Water, Water Management Unit and the Drinking Water Inspectorate for Northern Ireland to share information on monitoring, pollution incidents, catchment initiatives and emerging pollutants.	DAERA, NI WATER
Drinking water protection measures (e.g. establishment of	Continue monitoring pharmaceutical contaminants in the aquatic environment including antibiotics, as an extension of the EU Watch List, WFD Regulations.	DAERA

Key Targeted Measure	Measure	Owner
safeguard zones, buffer zones etc.)	Continue the development of methods of analysis for Targeted Screening covering high use Agrochemicals not on WFD monitoring list.	DAERA
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue the use of automatic sampling techniques to further investigate issues identified.	DAERA
	Carry out research and further investigation into the source of the chemicals causing poor groundwater chemical status.	DAERA
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue Water Catchment Partnership, consisting of representatives from NIEA, Ulster Farmers Union (UFU), NI Water, DAERA and the Voluntary Initiative to help address significant water quality issues caused by pesticides in Northern Ireland.	NI Water, DAERA, UFU
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue Source to Tap Programme to protect and improve rivers and lakes in the Erne and Derg cross border catchments.	NI Water, DAERA, AFBI
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Investigate ways to ensure the valuable educational initiatives and incentives from the Source to Tap project can be used as a blueprint for other Drinking Water Catchments.	NI Water, DAERA, AFBI
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Consider & prepare PEACE PLUS bid to secure funding for catchment interventions to reduce loading of chemicals and pesticides in raw water	PEACE PLUS delivery partners

Key Targeted Measure	Measure	Owner
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Carry out a Water reform & review of the governance and enforcement processes for public and private water supplies.	DAERA
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue to work together on projects to protect drinking water catchments e.g. Sustainable Catchment Action Management Plans (SCAMP).	NI Water, RSPB, DAERA
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue to work together to implement projects to reduce bankside erosion and improve water quality e.g. the Glenedra River Riparian Tree Planting Project.	NI Water, Woodland Trust, Loughs Agency
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue work on the Mourne Mountain Wildfire Project.	NI Water, The Mourne Heritage Trust, DAERA, NIFRS
Drinking water protection measures (e.g. establishment of safeguard zones, buffer zones etc.)	Continue to work together to improve Forestry Activities in order to reduce the impacts on water quality.	NI Water, Forest Service
Research, improvement of knowledge base reducing uncertainty	Continue to support research into the distribution, abundance and impacts of plastic pollution in Northern Ireland's freshwater ecosystems.	DAERA, QUB

Key Targeted Measure	Measure	Owner
Research, improvement of knowledge base reducing uncertainty	Continue monitoring antibiotic concentrations and undertake AMR testing in NI's aquatic environment as part of the NI AMR Action Plan to provide a better understanding of the potential risks to the environment and both human and animal health.	DAERA, ABFI, QUB, NI WATER

Table 46: Draft measures relating to drinking water, chemicals & pesticides

9.4 Key Sector: Abstraction, Fisheries & Morphology

Pressure type: Water quantity & flow, morphology

Summary of supplementary measures to address impacts from water quantity, flow and morphology on surface and groundwater during the 3rd cycle RBMP.

Key Targeted Measure	Measure	Owner
Protection of fisheries and allow fish migration	Carry out a Water reform & review of the compliance assessment methodologies for abstraction to include site inspection programme findings and Inland Fishery observations.	DAERA
Improvements in flow regime and/ or establishment of ecological flows	Continue to work collaboratively with Inland Fisheries on the regulation of abstractions ensuring sustainable abstraction and protection of fish passage and habitats.	DAERA
Protection of fisheries and allow fish migration	Continue to tackle the Deemed Authorisations and license activities appropriately securing sustainable water abstraction, protection of fish passage and fish habitat.	DAERA
Protection of fisheries and allow fish migration	Finalise the Fish Farm Policy to facilitate the licensing of the Deemed Fish Farms supporting the growth of sustainable Aquaculture Industry alongside protecting water resource, fish passage and fish habitat.	DAERA

Improvements in flow regime and/ or establishment of ecological flows	Ensure the sustainable regulation of NI Water abstraction including linkage with groundwater on increased use as a resource for industry and NI Water.	DAERA
Protection of Groundwater	Carry out a review of groundwater abstractions and their compliance monitoring data in groundwater bodies that fail for saline intrusion. Work with stakeholders to identify possible suitable mitigation measures.	DAERA
Improving longitudinal continuity (e.g. establishing fish passes, demolishing old dams)	Carry out an assessment and prioritisation for the easement of barriers to fish migration.	DAERA, Inland Fisheries
Protection of fisheries	Implement the NASCO habitat improvement projects utilising a variety of targeting methods including, habitat assessments, fisheries data sets, WFD fish monitoring results and recommendations etc. a broad suite of improvement tools to be utilised.	DAERA, Inland Fisheries
Protection of fisheries	Robust enforcement of the Fisheries Act (Northern Ireland) 1966.	DAERA, Inland Fisheries
Protection of fisheries	Ongoing participation in the statutory planning process.	DAERA, Inland Fisheries
	Ongoing consultation and engagement with cross border partners on transboundary issues.	DAERA, Inland Fisheries
Protection of fisheries	Implementation of conservation and protection initiatives outlined within Eel management plans,	DAERA, Inland Fisheries

	NASCO Implementation plans and DAERA Inland Fisheries, Fishery Management Plans.	
Research, improvement of knowledge base reducing uncertainty	Utilisation of research to develop and implement applied projects to conserve, protect and improve fish populations and habitats.	DAERA, Inland Fisheries
Adaptation to climate change	Draft Work Programme of the Coastal Forum to improve baseline from which to measure coastal change and approach to coastal management.	DAERA, DfI
Adaptation to climate change	DAERA will work with DfI and a range of delivery partners to consider sustainable flood risk management in addition to water status pressures at a catchment level.	DAERA, DfI

Table 47: Draft measures relating to Abstraction, Fisheries & Morphology

9.5 Key Sector: Non Native Invasive species, Forestry, Waste & Contaminated land

Pressure type: Invasive species & Diffuse and point source pollution from forestry and waste & contaminated land

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwater from forestry and waste & contaminated land and the impact of invasive non-native species during the 3rd cycle RBMP.

Key Targeted Measure	Measure	Owner
Measures to prevent or control the input of pollution from forestry	Continue to implement the UK Forestry Standard 4th edition (2017) Practice Guide entitled 'Managing Forest Operations to Protect the Water Environment'. Forest Research (2019).	DAERA
Measures to reduce sediment from soil erosion and surface run-off	Promote 'Forests for Our Future' through the Forest Expansion Scheme and Small Woodland Grant Scheme for woodland creation in areas of high and medium priority identified in 'Opportunity mapping for woodland creation to reduce flood risk in Northern Ireland.' Forest Research (2017).	DAERA

Key Targeted Measure	Measure	Owner
Measures to prevent pollution from waste & contaminated land	DAERA to prepare an outline Business Case to assess the resources required to inform any future decision on the implementation of a contaminated land regulatory regime for Northern Ireland.	DAERA
Measures to prevent pollution from waste & contaminated land	Carry out an assessment of the environmental impacts of high risk legacy waste sites on the water environment.	DAERA
Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)	Seek to exercise powers to ensure remediation of Mobuoy Road Waste Site.	DAERA
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Continue to implement the Enforcement of the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019. It is an offence to keep; permit to grow, cultivate or reproduce; transport (to, from or within Northern Ireland); place on the market; use or exchange any species that is included on the 'List of Union Concern'.	DAERA
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Continue to raise awareness and when necessary, enforcement procedures on land owners to prevent the spread and eventually remove from their land those species classified as Widely Spread Species (WSS), which include riparian species such as Himalayan balsam and giant hogweed and aquatics such as parrots feather, under the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019.	DAERA
Measures to prevent or control the adverse impacts of invasive	Continue to work together to prevent the introduction of INNS into Northern Ireland. Liaise with Partnership Against Wildlife Crime Northern Ireland	DAERA

Key Targeted Measure	Measure	Owner
alien species and introduced diseases	(PAWNI) to ensure certain species are not being traded, e.g. slider terrapins.	
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Ensure funding streams e.g. the Environment Fund and Environmental Farming schemes (EFS) incorporate options for the removal of invasive species to help landowners fulfil their responsibilities under the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019.	
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Continue to raise public and other stakeholder awareness of INNS and provide advice including guidance on control methods and identification information e.g. awareness raising campaigns such as 'Clean, Check, Dry' & 'Be Plant Wise'.	DAERA
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Continue to maintain, update, develop and promote the 'Invasive Species Ireland' website, which provides resources on INNS, including identification guides and management methods.	DAERA
Measures to prevent or control the adverse impacts of invasive alien species and introduced diseases	Develop and implement Pathway Action Plans (PAPs) for recreational boating and horticulture to reduce the spread of INNS.	DAERA

Table 48: Draft measures relating to Non Native Invasive species, forestry, waste & contaminated land

9.6 Key Sector: Other

Pressure type: All pressures

Summary of supplementary measures to address all pressures on surface and groundwater during the 3rd cycle RBMP.

Key Targeted Measure	Measure	Owner
Research, improvement of knowledge base reducing uncertainty	Develop and implement a programme of catchment based research projects to better understand the impacts of land use on water status in the Northern Ireland context. Consolidate current projects to provide a long term research platform, through AFBI and other research partners.	DAERA
Research, improvement of knowledge base reducing uncertainty	Further investigate the use of new technology, real-time water quality monitoring, and rapid assessment techniques as part of catchment research projects and investigations.	DAERA, AFBI
Research, improvement of knowledge base reducing uncertainty	Continue to expand the research base on nature-based solutions and ‘blue carbon’ to inform habitat restoration, catchment and coastal-based interventions to improve resilience and to mitigate against the impacts of climate change.	DAERA, AFBI
Research, improvement of knowledge base reducing uncertainty	Investigate setting up small bursary scheme to support MSc students during their research project with additional costs to address NIEA research needs.	DAERA
Education and awareness	Consider the viability of an Education Officer for DAERA.	DAERA
Protected Areas	Develop site specific Conservation Management Plans for freshwater and marine protected areas which will determine the pressures and threats affecting the wellbeing of the important habitats and species of these sites and identify all the management actions required to address these issues.	DAERA
Education and awareness	Continue to support the Riverfly Monitoring Initiative which allows ownership of the water	DAERA

Key Targeted Measure	Measure	Owner
	ways to local residents through monitoring their own water quality.	
Education and awareness	Continue the Environment Challenge Fund for community led targeted water improvement projects.	DAERA, community groups
Education and awareness	Continue to promote and support the establishment of Rivers Trusts.	DAERA

Table 49: Draft measures for other pressures

9.7 Consultation questions for draft Programme of Measures

The following consultation questions apply to all key sectors, pressure types and draft measures presented in this Chapter.

Question 8: Do you agree with the draft Programme of Measures?

Question 9: In relation to 8, if you disagree, what would do you differently? What measures would you remove or add from the draft Programme of Measures?

Chapter 10 – Summary of consultation questions and how to respond

10.1 Screening documents and impact assessments

When preparing the 3rd cycle draft River Basin Management Plan and the Programme of Measures, the department has screened and carried out the following assessments:

- Screening for Equality & Disability Duties
- Rural Needs Impact Assessment
- Screening Report on the determination of the need for a Strategic Environmental Assessment (SEA)
- Screening matrix (in accordance with article 6(3) of the Habitats Regulations)

The relevant documents and screening forms can be found on the [consultation webpage](#).

Question 10: Do you agree with the findings of the screening and impact assessments?

10.2 Summary of consultation questions

Question 1: Do you agree that reporting for surface water bodies should include ecological and chemical status in addition to the overall surface water status?	40
Question 2: Do you agree with presenting chemical status for surface water bodies in three subgroups?.....	41
Question 3: Do you agree with the proposal for the assessment of coastal river water bodies for the third cycle river basin management plan?	44
Question 4: Do you agree with the ‘working target’ of 70 % of water bodies to be at ‘good or better’ status by 2027?	96
Question 5: Do you agree with the work flow process to set working targets for 2027 (see Figure 35).	96
Question 6: Do you agree with our suggested procedure to select priority areas?.....	100
Question 7: In relation to Question 6, if you do not agree, what changes would you make?.....	100
Question 8: Do you agree with the draft Programme of Measures?	129
Question 9: In relation to 8, if you disagree, what would you do differently? What measures would you remove or add from the draft Programme of Measures?	129
Question 10: Do you agree with the findings of the screening and impact assessments? ..	130

10.3 How to respond to the consultation

This consultation is open until 10 October 2021. You can respond by:

- e-mail to catchmentplanning@daera-ni.gov.uk or
- sending a written response to:
Integrated Catchment Planning
NIEA Water Management Unit
17 Antrim Road
Tonagh
Lisburn, BT28 3AL
- online through Citizen Space on the consultation webpage

Please indicate in your response if your comments refer to the whole of Northern Ireland or one RBD in particular.

Before you submit your responses please read the “Freedom of Information Act 2000 - Confidentiality of Consultation Responses” section below, which gives guidance on the legal position. If you require any further information, contact Lisa Frazer on 028 9056 9497.

10.3.1 Freedom of Information Act 2000 - Confidentiality of Consultations

The Department will publish a summary of responses following completion of the consultation process. Your response, and all other responses to the consultation, may be disclosed on request. The Department can refuse to disclose information only in exceptional circumstances. Before you submit your response, please read the paragraphs below on the confidentiality of consultations and they will give you guidance on the legal position about any information given by you in response to this consultation.

The Freedom of Information Act 2000 gives the public a right of access to any information held by a public authority (the Department in this case). This right of access to information includes information provided in response to a consultation. The Department cannot automatically consider as confidential information supplied to it in response to a consultation. However, it does have the responsibility to decide whether any information provided by you in response to this consultation, including information about your identity, should be made public or treated as confidential.

This means that information provided by you in response to the consultation is unlikely to be treated as confidential, except in very particular circumstances.

The Lord Chancellor's Code of Practice on the Freedom of Information Act provides that:

- the Department should only accept information from third parties in confidence if it is necessary to obtain that information in connection with the exercise of any of the Department's functions and it would not otherwise be provided;
- the Department should not agree to hold information received from third parties 'in confidence' which is not confidential in nature;
- acceptance by the Department of confidentiality provisions must be for good reasons, capable of being justified to the Information Commissioner.

For further information about confidentiality of responses, please contact the Information Commissioner's Office

Tel: (028) 9027 8757

Email: ni@ico.org.uk

Website: <https://ico.org.uk/>

Appendix A - Abbreviations

- AA: Annual Average
- ADI: Acceptable Daily Intake
- AFBI: Agri-Food and Biosciences Institute
- APSFR: Areas of potentially significant flood risk
- ARMI: Anglers Riverfly Monitoring Initiative
- AWB: Artificial Water bodies
- BCC: Belfast City Council
- CAFRE: College of Agriculture, Food & Rural enterprise
- CAP: Common Agricultural Policy
- CCRA: Climate Change Risk Assessment
- CMO: Catchment Management Officer
- CMP: Conservation Management Plan
- DAFM: Department of Agriculture, Food and the Marine; Ireland
- DAERA: Department for Agriculture, Environment and Rural Affairs
- DfI: Department for Infrastructure
- DHPLG: Department of Housing, Planning and Local Government; Ireland
- DIN: Dissolved inorganic nitrogen
- DoF: Department for Finance
- DWI: Drinking Water Inspectorate in Northern Ireland
- DWPA: Drinking water protected area
- DWSP: Drinking Water Safety Plan
- EFS: Environmental Farming Scheme
- EMFG: Environment, Marine and Fisheries Group within DAERA
- EPA: Environmental Protection Agency; Ireland
- ERDF: European Regional Funding
- EQS: Environmental Quality Standard
- GSNI: Geological Survey of Northern Ireland
- GWDTE: Groundwater Dependent Terrestrial Ecosystem
- HMWB: Heavily Modified Waterbodies
- IEM: Integrated Ecosystem Model
- IFI: Inland Fisheries Ireland
- KAS: Knowledge Advisory Service

- LIDAR: Light detection and ranging
- LMA: Local Management Area
- LAWPRO: Local Authority Waters Programme; Ireland
- LWWP: Living with Water Programme
- LTWS: Long Term Water Strategy
- MAC: Maximum Allowable Concentration
- NAP: Nutrient Action Programme
- NBRBD: Neagh Bann River Basin District
- NCMC: National Coordination and Management Committee
- NERBD: North Eastern River Basin District
- NI: Northern Ireland
- NICCAP2: Northern Ireland's second Climate Change Adaption Programme
- NICS: Northern Ireland Civil Service
- NIEA: Northern Ireland Environment Agency
- NIW: Northern Ireland Water
- NPWS: National Parks and Wildlife Service; Ireland
- NWRBD: North West River Basin District
- NTIG: National Technical Implementation Group
- OPW: Office of Public Works; Ireland
- PfG: Programme for Government
- POM: Programme of Measures
- RBD: River Basin District
- RBMP: River Basin Management Plan
- SCAMP: Sustainable Catchment Area Management Plan
- SDIP: Strategic Drainage Infrastructure Plan
- SGZ: Safeguard Zone
- SFA: System Flow Analysis
- SIB: Strategic Investment Board
- SRP: Soluble Reactive Phosphorus
- SWMI: Significant Water Management Issues
- UFU: Ulster Farmers Union
- UKCP18: UK climate change projections published in 2018
- uPBT substances: ubiquitous (present, appearing or found everywhere), persistent, bioaccumulative and toxic substances

- WFD: Water Framework Directive

Appendix B - References

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