Department of the Environment
www.doeni.gov.uk

# Northern Ireland Environmental Statistics Report

***January 2012***

Northern Ireland Statistics & Research Agency

# Revision Note: Revision to the Northern Ireland Environmental Statistics Report 2012

A revision has been made to the 2012 Northern Ireland Environmental Statistics Report. The revision is small and affects only the Waste section of the report. It has resulted from an audit conducted by NIEA in February 2012, which identified systematic errors in the data recorded in the WasteDataFlow system by Craigavon Borough Council, in both the current and prior i.e. 2010/11, reporting periods.

In terms of indicators, the revision affects only the waste section of the report:

- Municipal and household waste arisings both increase by less than 0.1%.
- Municipal and household waste recycled/composted both decrease by 0.3%.
- Recycling (including composting) rates for municipal waste and household waste both decrease by 0.1 percentage points.
- Household waste per household per year increases by less than 1 kilogram.

# Contents

# Introduction

Welcome to the fourth annual Northern Ireland Environmental Statistics Report. This report is intended to be the first reference point for a range of environmental indicators and will provide annual updates on all of the indicators contained within it. It is of both public and academic interest and provides a valuable resource across government in providing links to government strategies.

The first annual 'Northern Ireland Environmental Statistics Report' was launched on 29 January 2009 as a follow on to the first State of the Environment report (April 2008). This State of the Environment Report should be referenced for additional context.[1] The indicators that have been chosen for inclusion in this report, in most instances, complement those that were included in the State of the Environment report. Additional indicators have been added, particularly with regard to demographics, environmental pressures and public opinion. Some of the indicators reported in the State of the Environment report have not been continued in this report. This is either because there is no further up-to-date data available, or because the indicator is not suitable for annual updates.

In the 2012 report there are 56 separate datasets, which cover eight main topics: Demographics & Public Opinion, Air & Climate, Water, Marine, Land, Biodiversity, Built Heritage and Waste. Each of these datasets reports the most recently available data for each indicator, and most provide data on trends over time and, where applicable, performance against quantified targets. The indicators that were included were determined in agreement with key data providers, policy colleagues and other interested parties.

This report includes one new indicator, household waste recycled or composted. Two indicators that were included in last year's report have been removed this year, namely air quality trends and number of conservation areas. These indicator changes are discussed in the introduction to their respective chapters.

[1] State of the Environment Report (March 2008), http://www.doeni.gov.uk/niea/index/about-niea/state_of_the_environment/state_of_the_environment_report.htm

This report provides some commentary on each of the datasets and describes any trends that they illustrate. A User Information section provides background information on the source and quality of the data used to produce the indicators. There are also links in the appendix of this report which will provide further detail on any of the indicators included in the report.

This report is updated annually and each year the indicators will be reviewed for their usefulness and relevance. Additional indicators will also be considered for future years. Any comments on the indicators currently published or suggestions for future reports will be gladly received and should be forwarded to:

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As this is an environmental publication, no hard copies have been published. However, hard copies and alternative formats are available on request. Such requests should be directed as above.

# Statistical Note

This report has been prepared by Analytical Services Branch, Department of the Environment, along with the Northern Ireland Environment Agency.

The name of the department or organisation responsible for providing each series of statistics is shown under the appropriate table. There may be slight discrepancies between totals and the sum of their constituent items due to rounding. The data used are what was available up until November 2011. Any updates after that date will be included in the next report.

The following symbols are used throughout the report:

n/a = not available

0 = nil

[r] = data revised from previous publication

Also, where a vertical, dashed line appears in a chart, this is to indicate a change in methodology.

**Acknowledgements**

Analytical Services Branch would like to acknowledge the assistance of all data providers and consultees who participated in the preparation of this report, from colleagues in government departments and agencies, to those in non-departmental public bodies and external organisations, and would like to thank them for their valued contributions.

# 1. Demographics & Public Opinion

People and households use up significant levels of resources, such as water, energy and food, and can exert pressure on the environment. Our lifestyle choices also impact upon the state of the environment. This chapter will look at Northern Ireland's changing population and environmental pressures, as well as our changing attitudes towards the environment.

Northern Ireland's population has been steadily increasing since the early 1970s. In 2010, the population was 7% larger than it had been ten years previously and 17% larger than it was in 1971. The population projections indicate that the population will continue to increase over the next 20 years.

As the population increases, the number of households has also increased. The number of households has increased at a faster rate than the population, as a result of a declining number of people per household.

Environmental pressures such as the way we travel and how often we travel are becoming increasingly important. Air passenger numbers have increased by 42% in Northern Ireland between 2001 and 2010, with the advent of low-fare airlines a major factor in this. However a drop in air passenger numbers has been observed since the peak in 2008. Car travel continues to dominate the way we do most of our day-to-day travelling, with 71% of our journeys being made by car.

The level of public concern for our environment had increased in the last number of years, peaking in 2008/09 but falling back to almost 2003/04 levels in 2010/11. The proportion of people who consider climate change an important environmental problem has increased dramatically and is now one of the biggest environmental concerns for the Northern Ireland public alongside household waste disposal.

# Demographics

Figure 1.1 NI population, estimated (1971-2010) and projected (2011-2031)

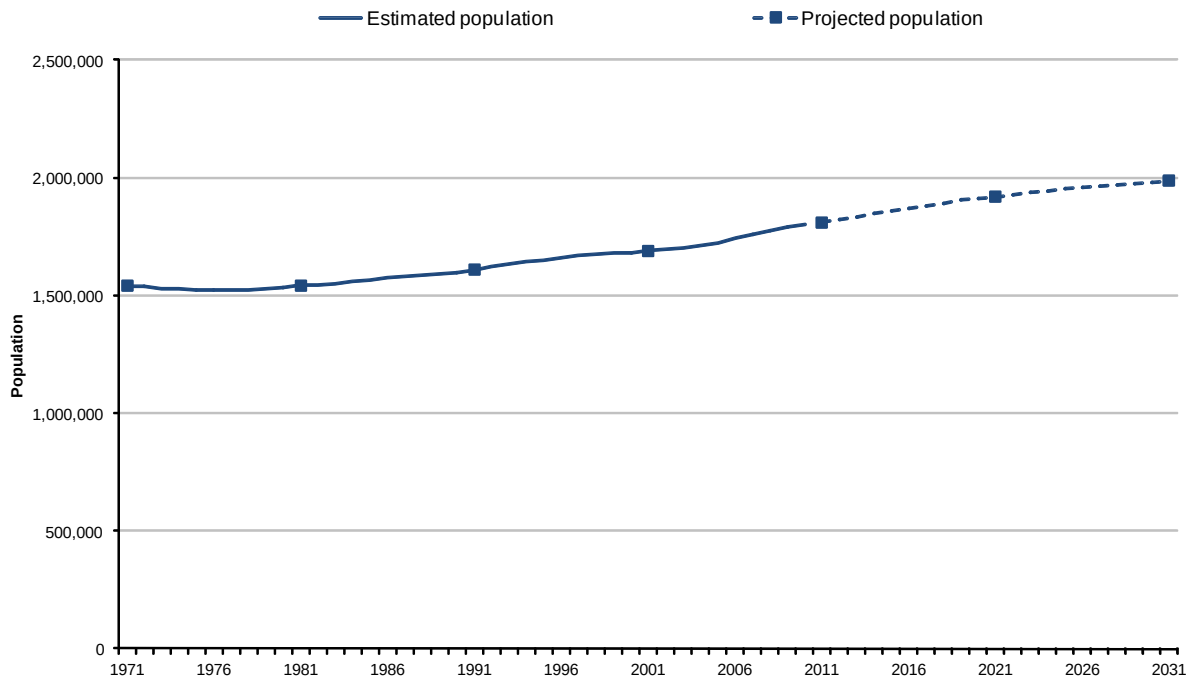



Table 1.1 NI population, estimated (1971-2010) and projected (2011-2031)

| | | | | | | Unit: Population | |
|---|---|---|---|---|---|---|---|
| | **1971** | **1981** | **1991** | **2001** | **2011*** | **2021*** | **2031*** |
| Northern Ireland population | 1,540,400 | 1,543,000 | 1,607,300 | 1,689,300 | 1,811,000 | 1,919,400 | 1,987,200 |
| | | | | | | | |
| *Source: NISRA* | | | | | | | |
| | | | | | | | |
| * Projected population, 2010-based. | | | | | | | |

- Northern Ireland population figures are based on the figures collected during the census of population which is carried out every ten years by the Census Office for Northern Ireland.
- The most recent census was carried out in 2011. The first results from the 2011 Census will be published in summer 2012.
- In 2010 the Northern Ireland population was estimated to be 1,799,400, an increase of 17% since 1971.
- By 2031, the population is expected to grow by another 10%, to just under 2 million.

# Demographics

Figure 1.2 NI households, estimated (1971-2008) and projected (2009-2031)

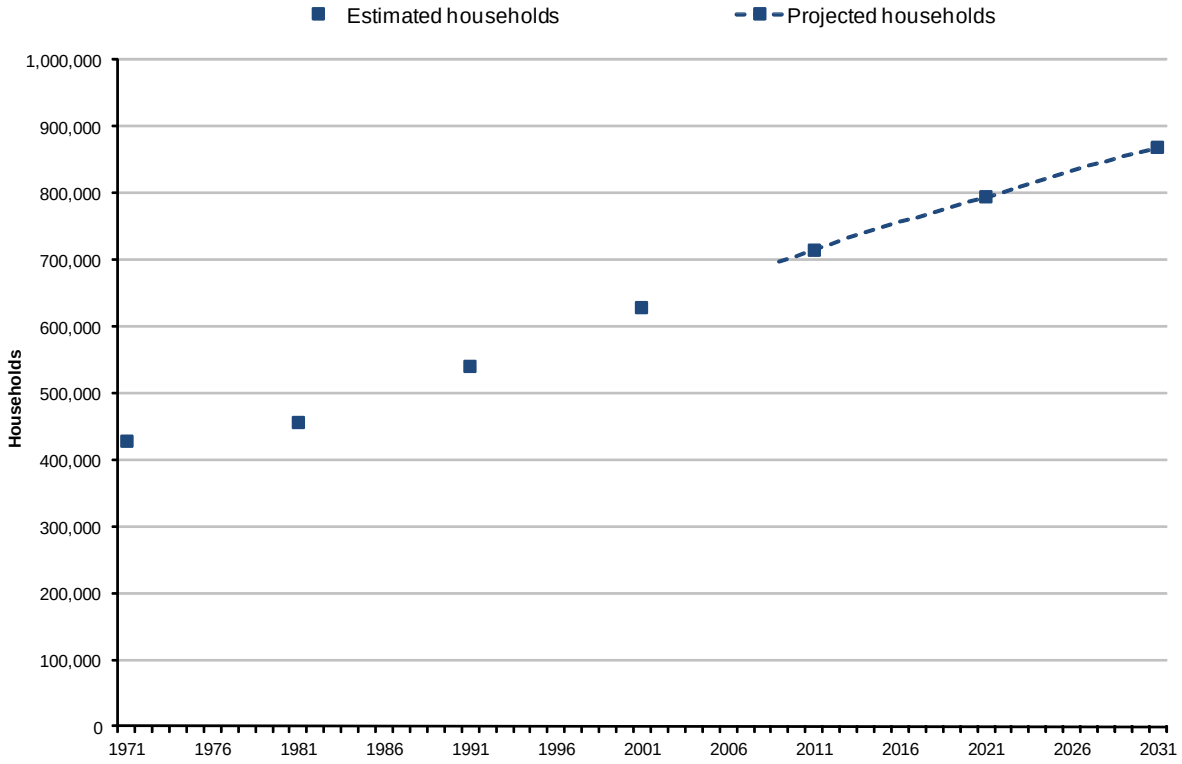



Table 1.2 NI households, estimated (1971-2008) and projected (2009-2031)

| | | | | | | Unit: Households | |
|---|---|---|---|---|---|---|---|
| | **1971** | **1981** | **1991** | **2001** | **2011*** | **2021*** | **2031*** |
| Northern Ireland households | 427,400 | 456,300 | 540,700 | 629,100 | 715,200 | 794,400 | 867,900 |
| | | | | | | | |
| *Source: NISRA* | | | | | | | |
| | | | | | | | |
| * Projected households, 2008-based. | | | | | | | |

- The historic data on the number of households in Northern Ireland are taken from the census of population. The next count of households in Northern Ireland will be available from the 2011 Census. The first results from the 2011 Census will be published in summer 2012.

- The projected number of households in Northern Ireland is derived using a series of assumptions on household formation and the 2008-based population projections.

- The number of households in Northern Ireland in 2008 was estimated to be 688,700, an increase of 61% since 1971.

- By 2031, the number of households in Northern Ireland is projected to increase by 26% on 2008 figures. This compares to a projected 12% increase of the population over the same period.

# Environmental Pressures

Figure 1.3 Northern Ireland airport passenger numbers, 2001 – 2010

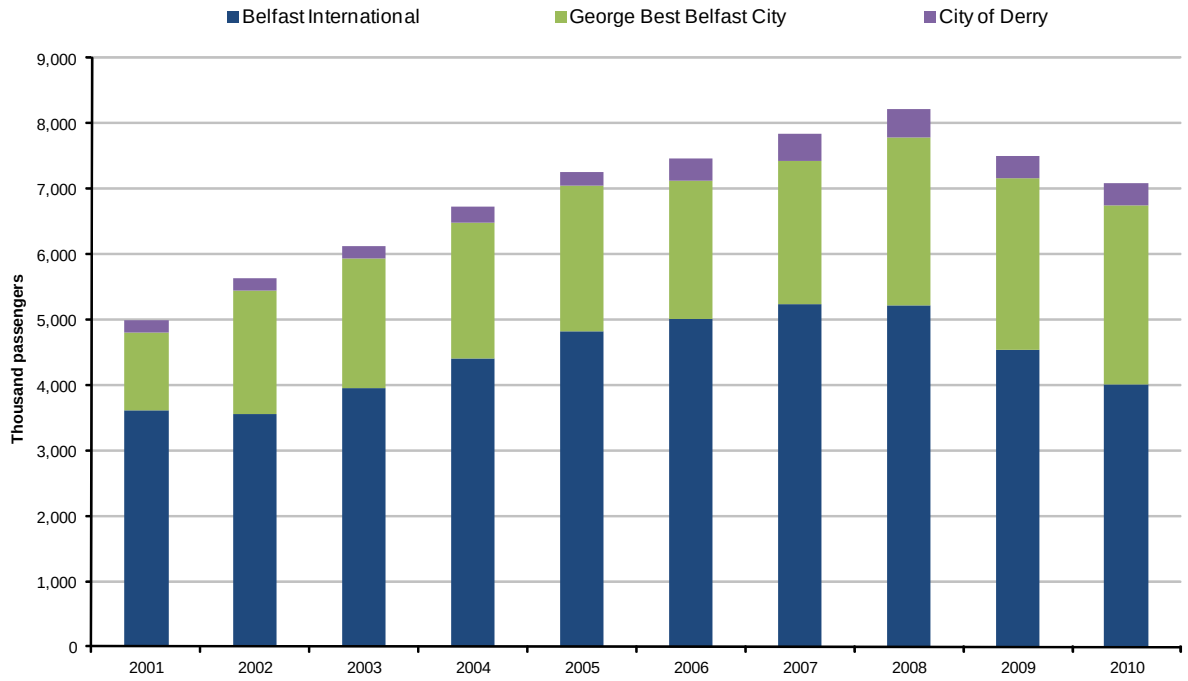



Table 1.3 Northern Ireland airport passenger numbers, 2001 – 2010

| | | | | | | | | Unit: Thousand passengers | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Belfast International | 3,603 | 3,551 | 3,954 | 4,403 | 4,820 | 5,015 | 5,236 | 5,223 | 4,536 | 4,011 |
| George Best Belfast City | 1,192 | 1,890 | 1,974 | 2,091 | 2,237 | 2,106 | 2,187 | 2,571 | 2,622 | 2,740 |
| City of Derry | 188 | 199 | 206 | 234 | 199 | 342 | 428 | 439 | 346 | 339 |
| **All Airports** | **4,982** | **5,640** | **6,134** | **6,728** | **7,256** | **7,463** | **7,851** | **8,233** | **7,504** | **7,090** |
| | | | | | | | | | | |
| *Source: Civil Aviation Authority* | | | | | | | | | | |

- Airport passenger numbers have increased by 42% in Northern Ireland, from 5.0 million in 2001 to 7.1 million in 2010. In 2010, total passenger numbers fell 14% to 7.1 million, from a peak of 8.2 million in 2008.

- Between 2008 and 2010, Belfast International Airport experienced a drop in passenger numbers from 5.2 million to 4.0 million, a decrease of 23%. City of Derry airport passenger numbers also fell by 23% to 0.3 million. However, George Best Belfast City airport passenger numbers increased by 7% in this period to 2.7 million.

- In 2010, Belfast International accounted for 57% of all airport passengers in Northern Ireland, with George Best Belfast City accounting for 39% of all airport passengers.

# Environmental Pressures

Figure 1.4 Number of journeys per person per year by mode of transport, 2001-2003 to 2008-2010

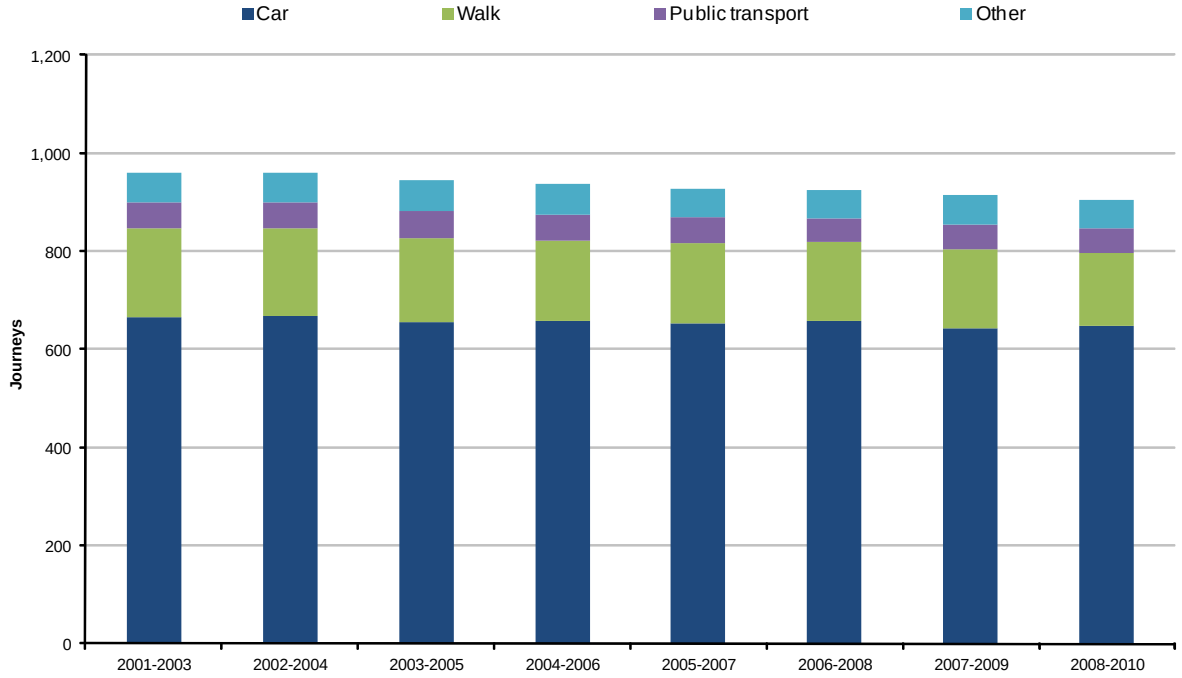



Table 1.4 Number of journeys per person per year by mode of transport, 2001-2003 to 2008-2010

Unit: Journeys

| | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 |
|---|---|---|---|---|---|---|---|---|
| Car | 665 | 668 | 655 | 657 | 654 | 659 | 643 | 647 |
| Walk | 182 | 179 | 172 | 165 | 164 | 160 | 160 | 150 |
| Public transport | 54 | 54 | 55 | 54 | 51 | 48 | 52 | 49 |
| Other | 60 | 60 | 63 | 62 | 59 | 58 | 60 | 59 |
| **All modes (3 year average)** | **960** | **963** | **947** | **937** | **929** | **926** | **914** | **905** |

*Source: Travel Survey for Northern Ireland, DRD*

- Despite a 6% reduction in the average number of journeys made from 2001-2003 to 2008-2010, there has been little change in the pattern of the mode of transport used over that time.

- On average, between 2008 and 2010, 71% of all journeys were made by car, either driving the car or as a passenger; 17% of all journeys made were by walking and public transport accounted for only 5% of journeys. This is similar to 2001-2003.

# Environmental Pressures

Figure 1.5 Average distance travelled per person per year by mode of transport, 2001-2003 to 2008-2010

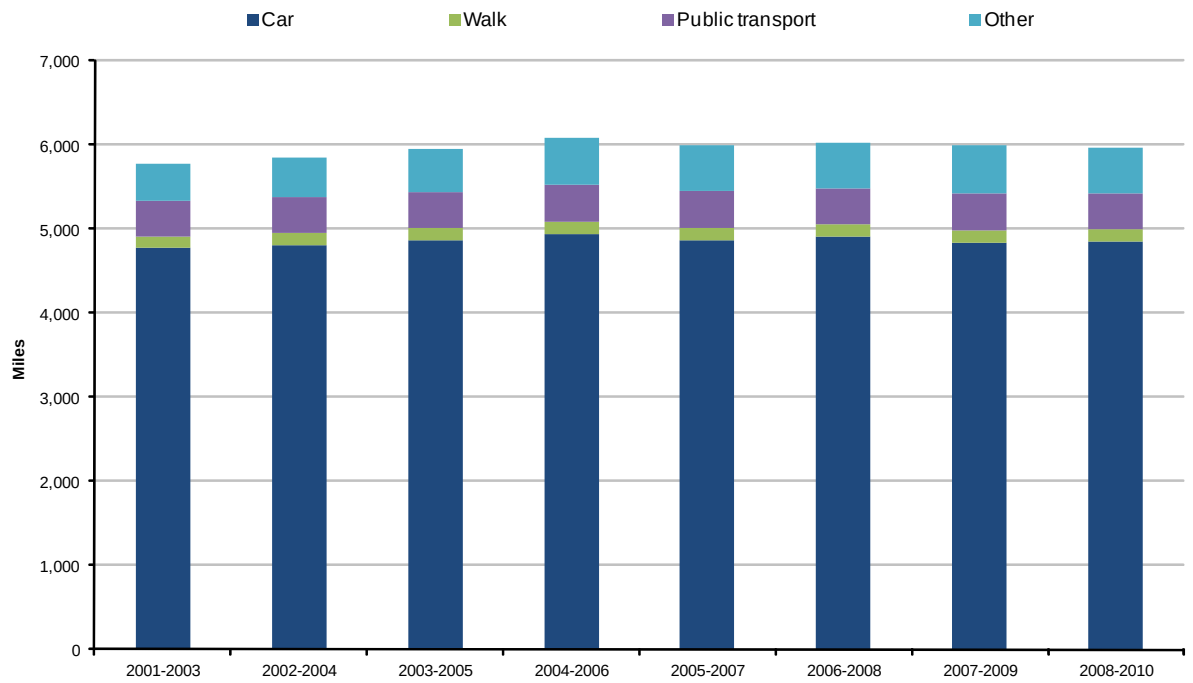



Table 1.5 Average distance travelled per person per year by mode of transport, 2001-2003 to 2008-2010

Unit: Miles

| | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 |
|---|---|---|---|---|---|---|---|---|
| Car | 4,777 | 4,816 | 4,870 | 4,943 | 4,864 | 4,916 | 4,840 | 4,859 |
| Walk | 142 | 137 | 139 | 138 | 144 | 143 | 144 | 136 |
| Public transport | 426 | 429 | 431 | 446 | 442 | 430 | 447 | 425 |
| Other | 441 | 477 | 509 | 567 | 549 | 544 | 571 | 556 |
| **All modes (3 year average)** | **5,786** | **5,861** | **5,951** | **6,094** | **5,999** | **6,033** | **6,002** | **5,976** |

*Source: Travel Survey for Northern Ireland, DRD*

- During the period 2008-2010, the average distance travelled per person each year was just under 6,000 miles.
- Car travel accounted for the majority of the total distance travelled at 81% in 2008-2010 and public transport accounted for just 7%. People travelled on average 136 miles per year by walking, 2% of the total distance travelled.

# Public Opinion

Figure 1.6 Level of concern for the environment, 2003/04 – 2010/11

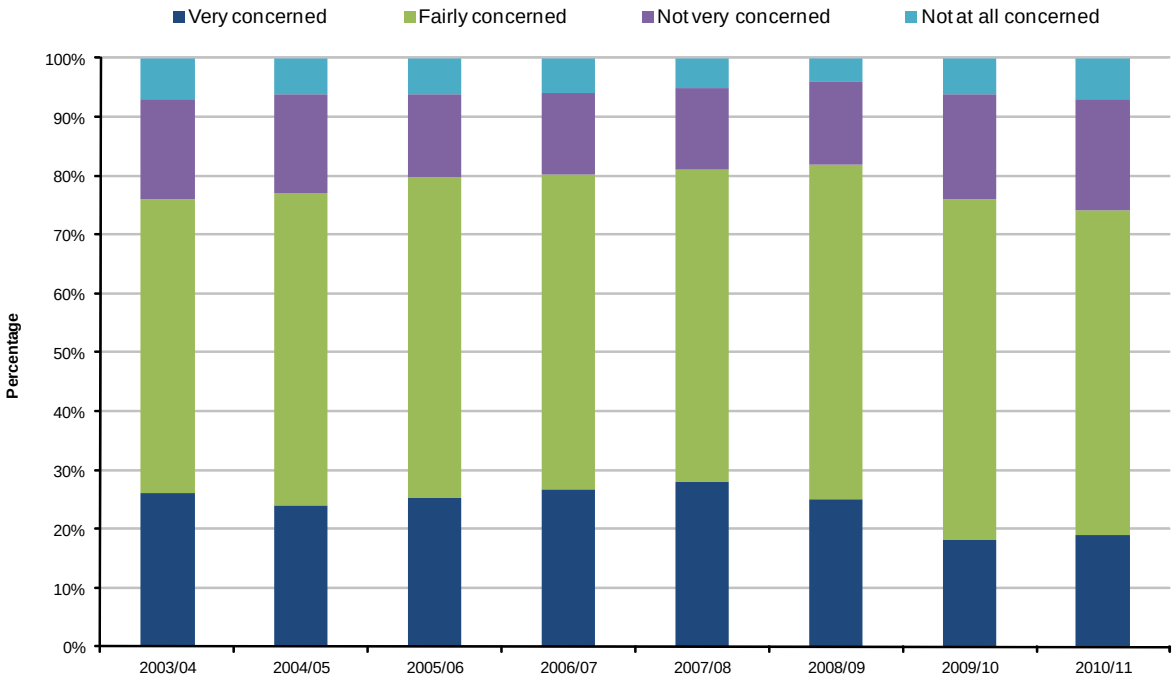



Table 1.6 Level of concern for the environment, 2003/04 – 2010/11

Unit: Percentage

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Very concerned | 26 | 24 | 25 | 27 | 28 | 25 | 18 | 19 |
| Fairly concerned | 50 | 53 | 54 | 54 | 53 | 57 | 58 | 56 |
| Not very concerned | 17 | 17 | 14 | 14 | 14 | 14 | 18 | 19 |
| Not at all concerned | 7 | 6 | 6 | 6 | 5 | 4 | 6 | 7 |
| | | | | | | | | |
| **All Households** | **2,528** | **2,761** | **2,586** | **2,686** | **2,559** | **2,471** | **2,761** | **2,720** |

*Source: Continuous Household Survey, NISRA*

- Members of the public were asked to provide their views on environmental issues in NISRA's Continuous Household Survey (CHS).
- Between 2003/04 and 2008/09 there was a significant increase in the number of people who are either very concerned or fairly concerned about the environment.
- However, by 2010/11, the level of concern about the environment had dropped such that 75% of people were either very concerned or fairly concerned about the environment compared to 82% in 2008/09.

# Public Opinion

Table 1.7 Types of environmental problems considered most important, 2003/04 – 2010/11

Unit: Percentage

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Pollution in rivers | 30 | 30 | 30 | 29 | 28 | 34 | 31 | 32 |
| Pollution in bathing waters and beaches | 21 | 23 | 23 | 23 | 22 | 23 | 22 | 24 |
| Traffic exhaust fumes and urban smog | 35 | 33 | 32 | 32 | 31 | 31 | 27 | 23 |
| Loss of plants and animals in Northern Ireland | 13 | 15 | 15 | 15 | 16 | 18 | 18 | 18 |
| Ozone layer depletion | 22 | 26 | 27 | 27 | 24 | 22 | 19 | 17 |
| Tropical forest destruction | 9 | 8 | 10 | 12 | 13 | 12 | 12 | 11 |
| Climate change | 13 | 19 | 29 | 34 | 39 | 37 | 38 | 34 |
| Loss of trees and hedgerows in Northern Ireland | 16 | 17 | 15 | 16 | 16 | 19 | 18 | 20 |
| Fumes and smoke from factories | 14 | 16 | 15 | 14 | 13 | 12 | 12 | 11 |
| Traffic congestion | 27 | 28 | 26 | 28 | 30 | 28 | 30 | 32 |
| Use of pesticides and fertilisers | 17 | 16 | 18 | 15 | 13 | 15 | 14 | 13 |
| Acid rain | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 |
| Household waste disposal | 31 | 33 | 34 | 33 | 34 | 31 | 36 | 34 |
| Noise | 7 | 7 | 6 | 6 | 5 | 4 | 7 | 8 |
| None of these | 8 | 9 | 5 | 4 | 5 | 4 | 5 | 8 |
| Other | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| | | | | | | | | |
| **All Households** | **2,718** | **2,766** | **2,594** | **2,675** | **2,562** | **2,464** | **2,757** | **2,714** |

*Source: Continuous Household Survey, NISRA*

Note: Base does not equal 100% - Multiple responses permitted

- In NISRA's Continuous Household Survey (CHS), members of the public were asked to provide their views on what were the three main environmental problems that were most important to them.

- Results show that in 2010/11, the most selected environmental problems were climate change (34%), household waste disposal (34%), pollution in rivers (32%) and traffic congestion (32%).

- Since 2003/04, climate change has been considered a problem by a significantly larger proportion of respondents. In 2010/11, 34% of people mentioned climate change as an important environmental problem, compared with just 13% of people in 2003/04.

- Traffic exhaust fumes and urban smog was mentioned by almost one quarter of respondents (23%) as one of their three most important environmental problems. However the proportion of respondents who consider it a problem has decreased significantly, from 35% in 2003/04 to 23% in 2010/11.

# Sustainability of Lifestyle

Table 1.8 Actions taken for environmental reasons, 2003/04 – 2010/11

Unit: Percentage

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Reduced amount of energy used in home | 26 | 26 | 31 | 37 | 40 | 41 | 44 | 47 |
| Reduced amount of water used in home | 22 | 24 | 27 | 30 | 31 | 33 | 29 | 30 |
| Used public transport for environmental reasons | 16 | 16 | 16 | 18 | 18 | 18 | 18 | 18 |
| Reduced the use of the car | 17 | 19 | 18 | 19 | 19 | 22 | 20 | 22 |
| Done things to encourage wildlife in your garden | 31 | 33 | 33 | 30 | 31 | 30 | 30 | 30 |
| Bought recycled toilet roll/ kitchen roll made from recycled paper | 35 | 33 | 32 | 32 | 34 | 34 | 31 | 30 |
| Not bought something because of packaging | 9 | 9 | 10 | 11 | 13 | 14 | 14 | 12 |
| Bought organic food | 25 | 24 | 26 | 26 | 28 | 24 | 20 | 20 |
| Used energy saving light bulbs | 41 | 42 | 43 | 47 | 51 | 55 | 64 | 70 |
| Reused plastic bags | | | | | | | 59 | 65 |
| | | | | | | | | |
| **All Households** | **2,535** | **2,768** | **2,592** | **2,687** | **2,560** | **2,471** | **2,764** | **2,720** |

*Source: Continuous Household Survey, NISRA*

Note: Base does not equal 100% - Multiple responses permitted

- In NISRA's Continuous Household Survey (CHS), members of the public were asked what actions they had taken in the last 12 months for environmental reasons.

- Results indicate that in 2010/11, the most common actions taken by individuals for environmental reasons were using energy saving light bulbs (70%), reusing plastic bags (65%) and reducing the amount of energy used in the home (47%).

- Between 2003/04 and 2010/11, the use of energy saving light bulbs increased significantly from 41% to 70%. In the same period reducing the amount of energy used in the home also increased significantly from 26% to 47%; and reducing the amount of water used in the home increased significantly from 22% to 30%.

- Information relating to plastic bag reuse was first collected in 2009/10. There has been a significant increase in the percentage of people who reused plastic bags, from 59% in 2009/10 to 65% in 2010/11.

- Since 2003/04, there have been significant decreases in the percentage of people buying recycled toilet roll/ kitchen roll made from recycled paper, and the percentage of people buying organic food.

- Although the question specifically asks about a range of actions taken for environmental reasons, it is possible that economic factors such as increasing energy costs may also be contributing to the change in behaviour.

# 2. Air & Climate

The air that we breathe is vital to our health and wellbeing. Good air quality is essential for human health, the climate, habitats and the built environment. Pollutants from human activity are present in our atmosphere which may adversely impact our health and natural environment. This chapter will report on the quality of our air, on greenhouse gas emissions, renewable energy, environmental installations and the climate.

There are more than 30 air quality monitoring stations in Northern Ireland. Levels of carbon monoxide, nitrogen oxides, sulphur dioxide, particles, ozone, benzene, 1,3-butadiene and polycyclic aromatic hydrocarbons are monitored at many of these stations.

In 2010 the levels of nitrogen dioxide and particulate matter in the atmosphere were within national air quality objectives; however levels of ozone in Northern Ireland do not appear to be decreasing and occasional exceedances remain a possibility.

Weather conditions can be a contributing factor to some periods of poor air quality and subsequent elevated levels. This is true of hot, sunny weather which can lead to higher levels of ozone, and winter weather where temperature inversions can lead to increased pollutant levels at ground level.

The average number of days per year of moderate or worse air quality was included as an indicator in last year's Northern Ireland Environmental Statistics Report 2011. This indicator is no longer included as an indicator of air quality in Northern Ireland. Particulate matter ($PM_{10}$) in the atmosphere and ozone indicators are more important because there is considerable evidence suggesting long-term exposure to even low levels of particles may have a significant effect on public health.

Greenhouse gas emissions in Northern Ireland have decreased since 1990, with just over a 20% fall in emissions achieved by 2009. The Programme for Government has a target of a 25% decrease in greenhouse gas emissions by 2025, on 1990 levels.

Greenhouse gas emissions are calculated annually, with revisions made for previous years.

Climate change is of increasing concern to the Northern Ireland public, and some of the climate records do suggest that the average temperature in Northern Ireland has increased since the start of the 20th century. There is also some evidence of changing seasonal distribution of rainfall with the proportion of annual rainfall falling in summer decreasing since the start of the 20th century. Over time the ten year moving average has decreased from a high of 35% in 1897 to a low of 19% in 1984, however there has been an increase in the ten year moving average in recent years.

# Nitrogen Oxides

Figure 2.1 Annual mean concentration of nitrogen dioxide ($NO_2$), 2001 – 2010

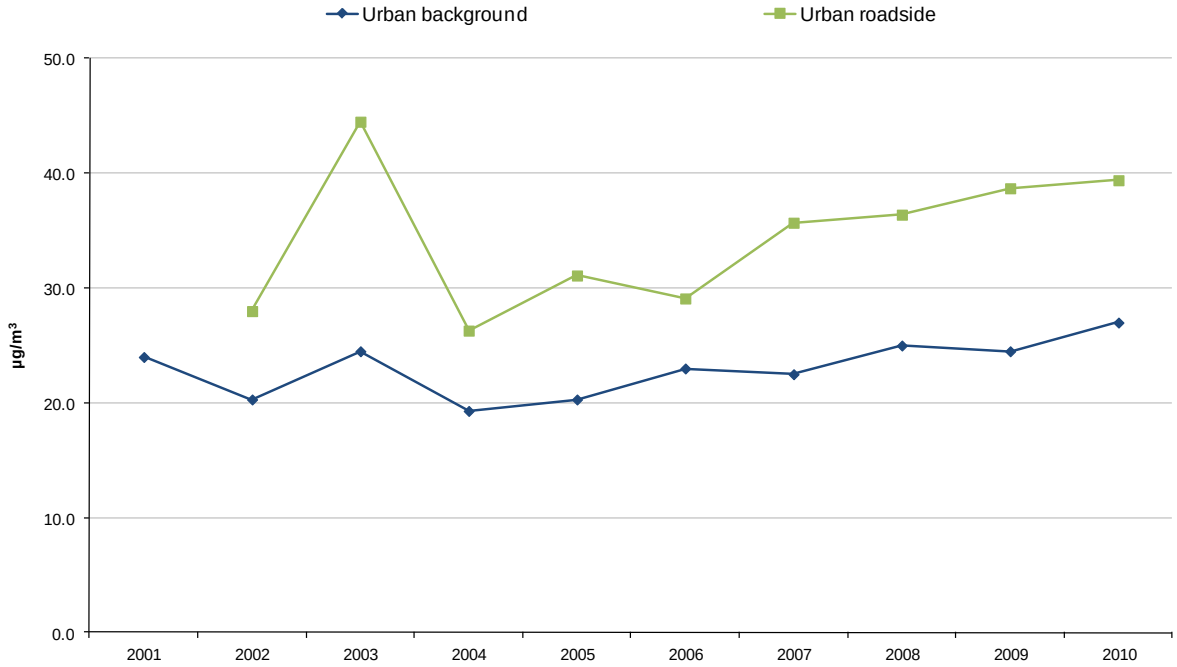



Table 2.1 Annual mean concentration of nitrogen dioxide ($NO_2$), 2001 – 2010

Unit: µg/m$^3$

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Urban background | 24.0 | 20.3 | 24.5 | 19.3 | 20.3 | 23.0 | 22.5 | 25.0 | 24.5 | 27.0 |
| Urban roadside | | 28.0 | 44.5 | 26.3 | 31.1 | 29.1 | 35.7 | 36.4 | 38.7 | 39.4 |

*Source: AEA Technology*

Note: Figures amended from previously published figures .

- Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections such as influenza. Continued or frequent exposure to concentrations typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children.

- Nitrogen dioxide is monitored using automatic techniques at 17 urban sites across Northern Ireland.

- The annual mean background concentration of $NO_2$ in urban areas for Northern Ireland has ranged from 19 to 27 µg/m$^3$ since 2001. This is well within the National Air Quality objective annual mean for $NO_2$ of 40 µg/m$^3$.

- In the last ten years the background level of $NO_2$ in urban areas has remained relatively stable, but roadside levels, which have been monitored since 2002, have been more variable.

# Particulate Matter

Figure 2.2 Urban and rural annual mean concentration of particulate matter of less than 10 microns, 2001 – 2010

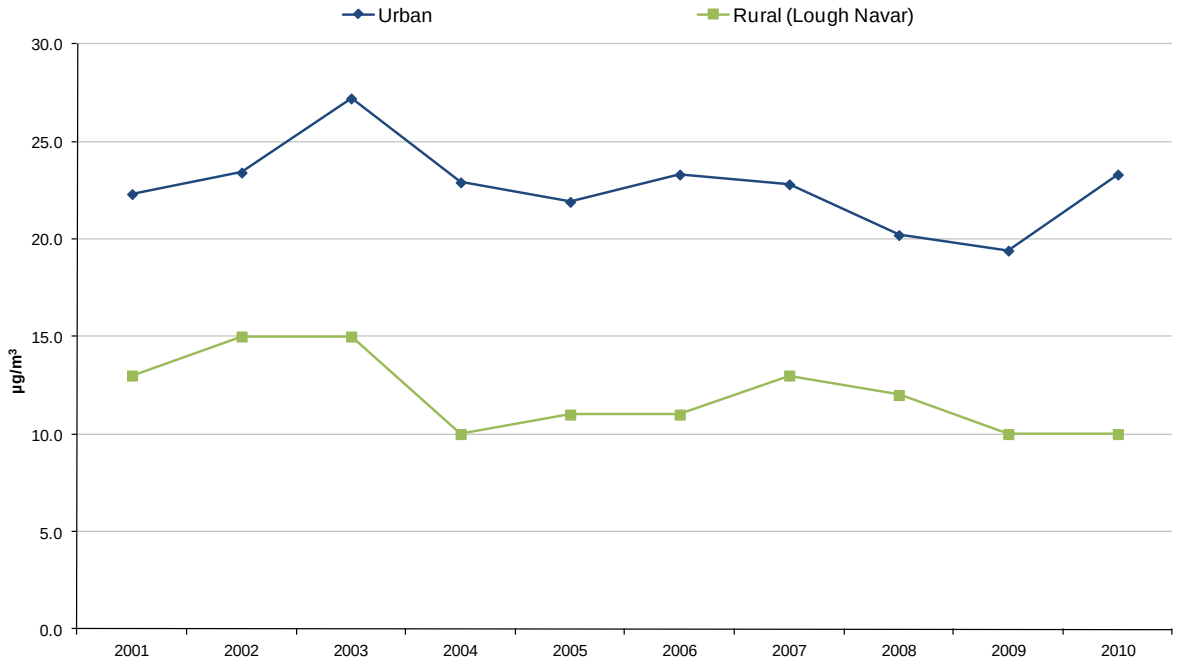



Table 2.2 Urban and rural annual mean concentration of particulate matter of less than 10 microns, 2001 – 2010

| | | | | | | | | | Unit: µg/m$^3$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Urban | 22.3 | 23.4 | 27.2 | 22.9 | 21.9 | 23.3 | 22.8 | 20.2 | 19.4 | 23.3 |
| Rural (Lough Navar) | 13.0 | 15.0 | 15.0 | 10.0 | 11.0 | 11.0 | 13.0 | 12.0 | 10.0 | 10.0 |
| | | | | | | | | | | |
| *Source: AEA Technology* | | | | | | | | | | |

- Particulate matter in the atmosphere with a diameter of less than or equal to 10 microns ($PM_{10}$) arises from both man-made and natural sources. Road transport and fossil fuel combustion produce the majority of airborne particulate matter found in urban locations.

- Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of the condition of people with heart and lung diseases. In addition, they may carry surface-absorbed carcinogenic compounds into the lungs.

- In 2010, the annual mean concentration of $PM_{10}$ in urban areas was 23.3 µg/m$^3$ and at the Lough Navar rural background monitoring site, it was 10.0 µg/m$^3$.

- In the last ten years, the annual mean rural concentration of $PM_{10}$ has been no higher than 15 µg/m$^3$ and the annual mean urban concentration has been less than 28 µg/m$^3$.

- All the readings in the last ten years have been well below the 40 μg/$m^3$ level for annual mean that has been set as the UK Air Quality objective for the protection of human health from $PM_{10}$.

# Ground Level Ozone

Figure 2.3 Urban and rural annual ozone exceedences, 2001 – 2010

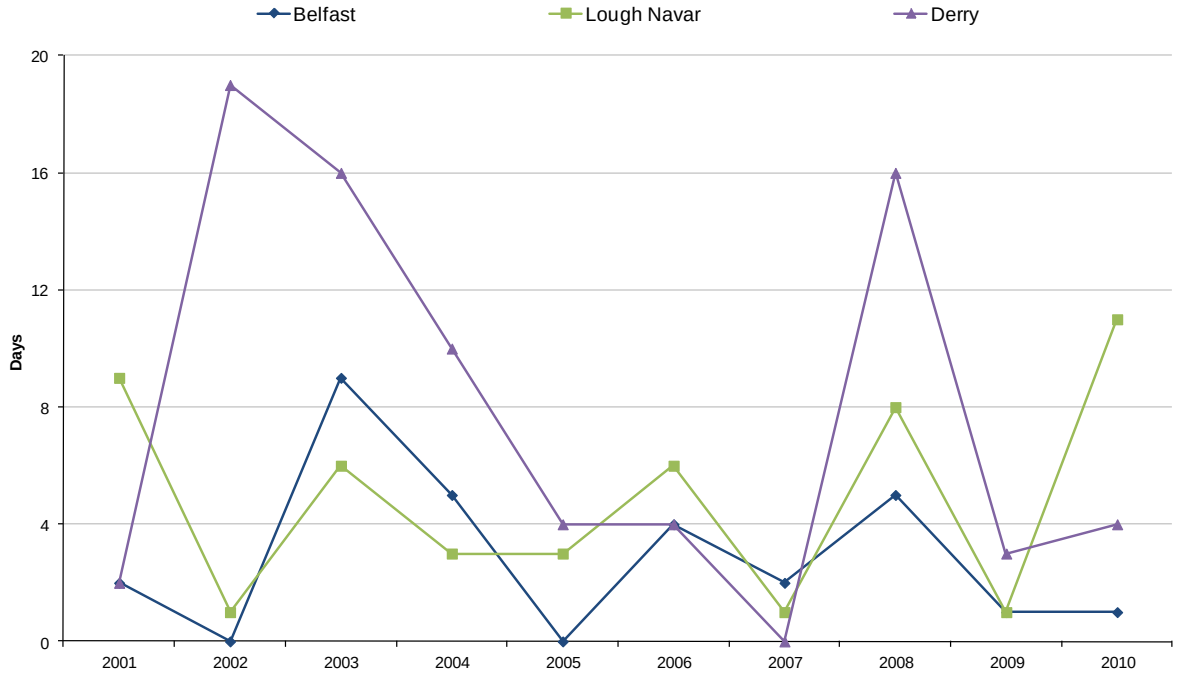



Table 2.3 Urban and rural annual ozone exceedences, 2001 – 2010

| | | | | | | | | | Unit: Days | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Belfast | 2 | 0 | 9 | 5 | 0 | 4 | 2 | 5 | 1 | 1 |
| Lough Navar | 9 | 1 | 6 | 3 | 3 | 6 | 1 | 8 | 1 | 11 |
| Derry | 2 | 19 | 16 | 10 | 4 | 4 | 0 | 16 | 3 | 4 |
| | | | | | | | | | | |
| *Source: AEA Technology* | | | | | | | | | | |

- Ozone is monitored using automatic sites at Belfast, Lough Navar and Londonderry.

- Ozone has a wide range of health and ecosystem impacts. It irritates the eyes and airways of the lungs, increasing the symptoms of those suffering from asthma and lung diseases. In addition to its serious impacts on human health, ozone is also phytotoxic - damaging to many plants and commercial crops. It can also damage or age some man-made materials such as rubbers and elastomers, as well as bleaching paints and fabrics.

- The National Air Quality Strategy sets an objective for the eight hour mean concentration of ozone not to exceed 100 µg/m$^3$ more than ten times per year at each particular site.

- Unlike some other pollutants, levels of ozone in Northern Ireland do not appear to be decreasing, but remain variable from year to year, depending on

weather conditions and transboundary levels of ozone i.e. ozone crossing provincial, territorial or national borders. Therefore, ozone exceedences remain a possibility.

- The objective has been exceeded in Derry in three of the last ten years.

# Polycyclic Aromatic Hydrocarbons

Figure 2.4 Annual mean concentration of Benzo(a)pyrene, 2001 – 2010

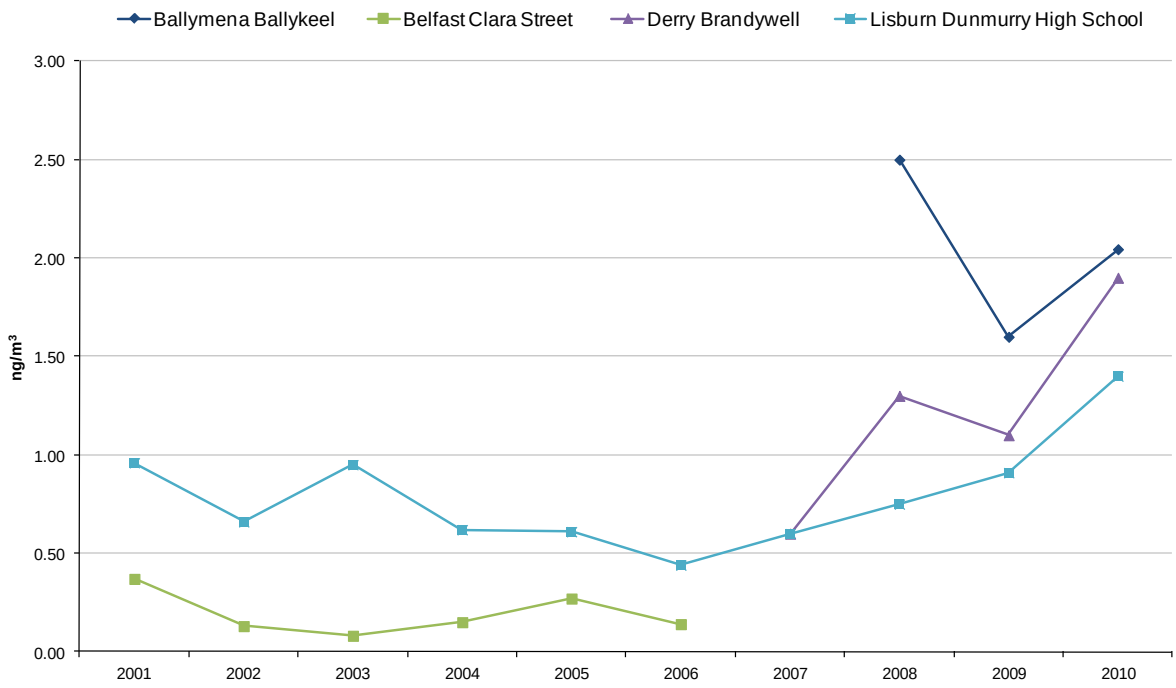



Table 2.4 Annual mean concentration of Benzo(a)pyrene, 2001 – 2010

| | | | | | | | | | | Unit: ng/m$^{-3}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Lisburn Dunmurry High School | 0.96 | 0.66 | 0.95 | 0.62 | 0.61 | 0.44 | 0.60 | 0.75 | 0.91 | 1.40 |
| Belfast Clara Street | 0.37 | 0.13 | 0.08 | 0.15 | 0.27 | 0.14 | | | | |
| Derry Brandywell | | | | | | | 0.60 | 1.30 | 1.10 | 1.90 |
| Ballymena Ballykeel | | | | | | | | 2.50 | 1.60 | 2.05 |
| | | | | | | | | | | |
| Source: AEA Technology | | | | | | | | | | |
| | | | | | | | | | | |
| Note: Belfast Clara Street has not been monitored for B(a)P since 2006. | | | | | | | | | | |

- Polycyclic aromatic hydrocarbons (PAHs) are harmful and are of particular concern to human health.

- Benzo(a)pyrene (B[a]P) is one of seventeen PAHs, and has been closely linked to causing some forms of cancer. The main source in Northern Ireland is from domestic solid fuel burning.

- The UK Government and Devolved Administrations have adopted a threshold annual average concentration of 0.25 ng/m$^3$ to be achieved by 2010.

- B[a]P has been measured at four different sites in Northern Ireland since 2001. The longest monitoring sequence (at Lisburn Dunmurry High School) has fluctuated between 0.44 and 1.40 ng/m$^{-3}$ since 2001. Currently all three

sites are breaching the UK Air Quality Strategy objective, as well as the less stringent EC Target Value (1 ng/$m^{-3}$ for B[a]P).

- The three Northern Ireland sites, although situated in predominantly residential areas, show annual mean B[a]P concentrations similar to those seen in industrial areas in GB such as Scunthorpe, Middlesbrough and Port Talbot.

- It is considered likely that the high PAH concentrations recorded at these locations are due to widespread combustion of coal, oil and other solid fuels. This is demonstrated by the lower PAH levels recorded at Belfast Clara Street (part of a Smoke Control Area) from 2001 to 2006, being comparable to levels recorded in other large UK cities.

# Ammonia

Figure 2.5 Annual ammonia emissions from agriculture, 2001 – 2010

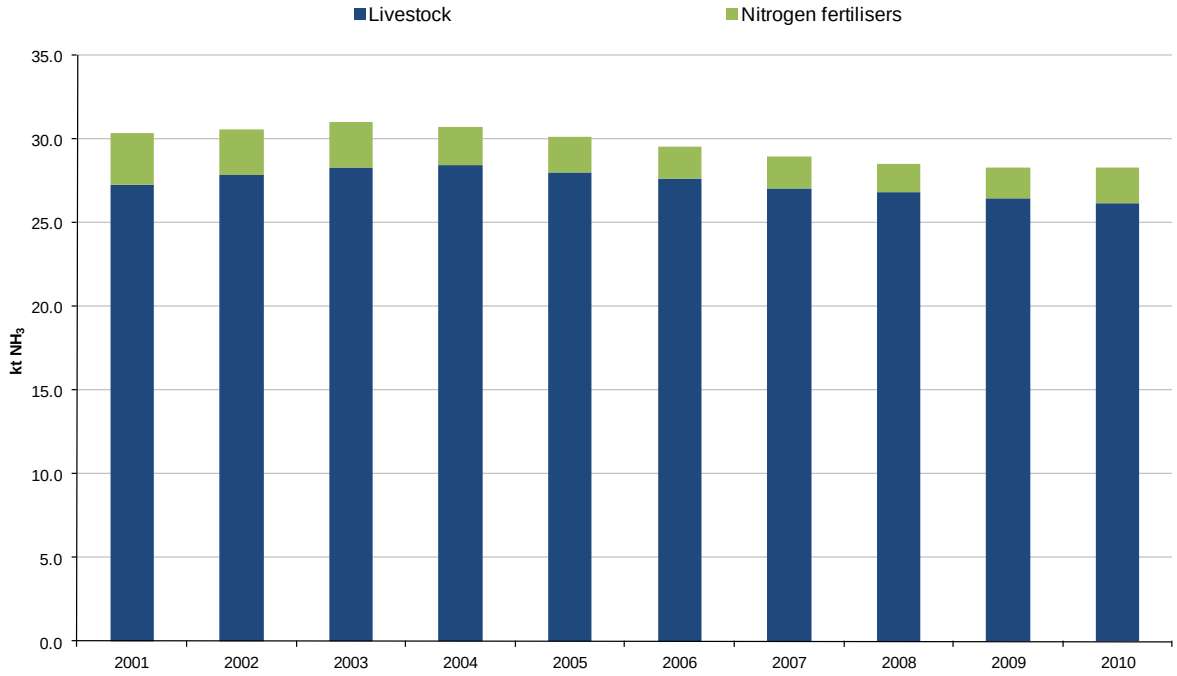



Table 2.5 Annual ammonia emissions from agriculture, 2001 – 2010

| | | | | | | | | | Unit: kt $NH_3$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Livestock | 27.3 | 27.9 | 28.3 | 28.4 | 28.0 | 27.7 | 27.1 | 26.8 | 26.4 | 26.2 |
| Nitrogen fertilisers | 3.1 | 2.7 | 2.7 | 2.3 | 2.1 | 1.9 | 1.9 | 1.7 | 1.8 | 2.1 |
| **Total agriculture** | **30.4** | **30.6** | **31.0** | **30.8** | **30.1** | **29.6** | **28.9** | **28.5** | **28.3** | **28.3** |
| | | | | | | | | | | |
| *Source: Rothamsted Research, North Wyke* | | | | | | | | | | |

- Ammonia is an air pollutant mainly associated with agricultural practices.
- Estimates of total ammonia emissions from agriculture are based on numbers of cattle, sheep, pigs, poultry, horses, goats, deer and the use of fertilisers.
- Ammonia emissions from agriculture have reduced slightly in the last ten years, with a decrease of just over two kilotonnes since 2001. This equates to a 7% decrease in that time period.
- In 2010, of the ammonia emissions from agriculture, 92% is derived from livestock, and only 8% from the application of fertilisers containing nitrogen.

# Greenhouse Gas Emissions

Figure 2.6 Total greenhouse gas emissions, 1990 – 2009

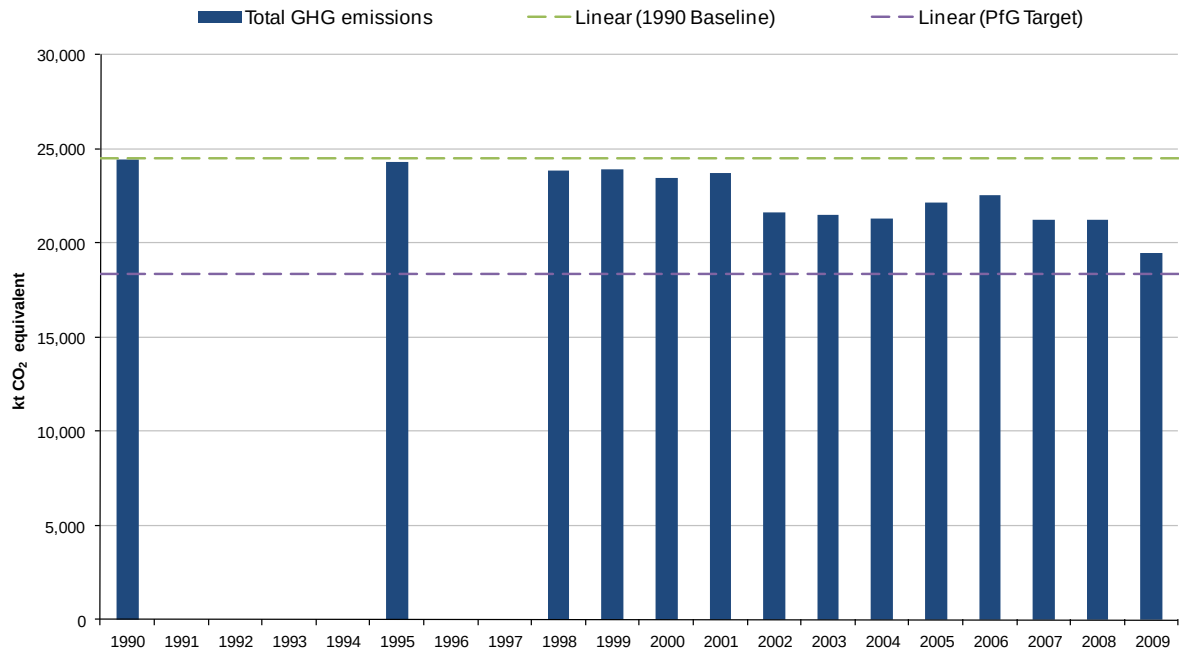



Table 2.6 Total greenhouse gas emissions, 1990 – 2009

| | | | | | Units: kt CO2 equivalent | | |
|---|---|---|---|---|---|---|---|
| 1990 - 2002 | **1990** | **1995** | **1998** | **1999** | **2000** | **2001** | **2002** |
| Total GHG emissions | 24,446 | 24,319 | 23,862 | 23,946 | 23,439 | 23,716 | 21,619 |
| | | | | | | | |
| 2003 - 2009 | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Total GHG emissions | 21,532 | 21,334 | 22,135 | 22,573 | 21,230 | 21,227 | 19,508 |
| | | | | | | | |
| *Source: AEA Technology* | | | | | | | |

- Greenhouse gas emissions for England, Scotland, Wales and Northern Ireland are published annually, detailing estimates of greenhouse gas emissions since 1990. The estimates are consistent with the United Nations Framework Convention on Climate Change reporting guidelines.

- In January 2008, the NI Executive Programme for Government set a target for a 25% decrease in Northern Ireland's total greenhouse gas emissions, on 1990 levels, by 2025.

- In 2009, Northern Ireland's total greenhouse gas emissions accounted for 3.5% of the UK total.

- Since 1990, Northern Ireland's total greenhouse gas emissions have decreased by just over 20%. This is less than the reduction seen for the UK as a whole, which has seen a decrease of just over 28% on 1990 levels.

# Greenhouse Gas Emissions

Figure 2.7 Greenhouse gas emissions by sector, 1990 & 2009

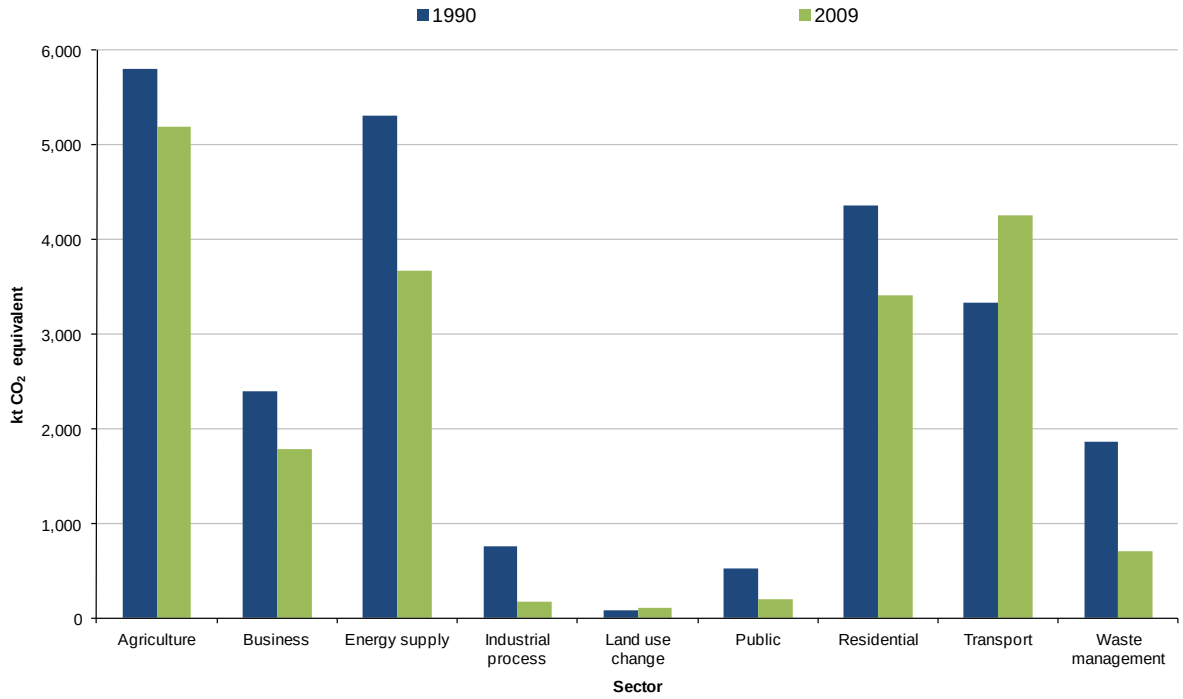



Table 2.7 Greenhouse gas emissions by sector, 1990 & 2009

| | | | | | | | | | Units: kt $CO_2$ equivalent | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Agriculture** | **Business** | **Energy supply** | **Industrial process** | **Land use change** | **Public** | **Residential** | **Transport** | **Waste management** | **Total** |
| 1990 | 5,807 | 2,403 | 5,315 | 761 | 80 | 523 | 4,361 | 3,330 | 1,868 | 24,446 |
| 2009 | 5,195 | 1,783 | 3,671 | 179 | 102 | 198 | 3,411 | 4,258 | 711 | 19,508 |
| | | | | | | | | | | |
| *Source: AEA Technology* | | | | | | | | | | |

- In 2009, transport, agriculture and energy supply were the three main contributors to greenhouse gas emissions in Northern Ireland, contributing over two-thirds (67%) of Northern Ireland's total greenhouse gas emissions. A further 17% is from the residential sector.
- In 1990, agriculture, energy supply and residential combustion were the three main contributors to greenhouse gas emissions in Northern Ireland, contributing 63% of Northern Ireland's total greenhouse gas emissions, with a lesser contribution from the transport sector (14%).
- Most sectors have shown a decrease on 1990 levels, with the exception of transport. In 1990, transport accounted for 3,330 kt $CO_2$ equivalent. By 2009, this figure was 4,258 kt $CO_2$ equivalent, an increase of 28%.

# Carbon Dioxide Emissions

Figure 2.8 Carbon dioxide ($CO_2$) emissions by sector, 1990 & 2009

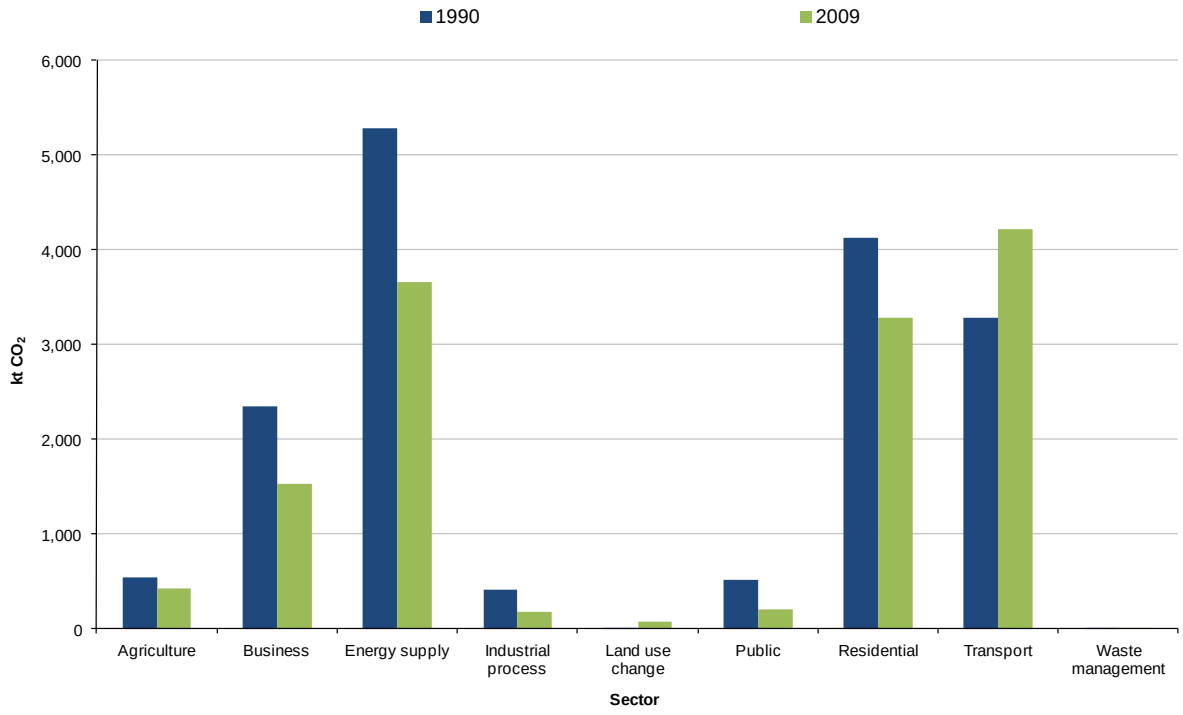



Table 2.8 Carbon dioxide ($CO_2$) emissions by sector, 1990 & 2009

Units: kt $CO_2$

| | Agriculture | Business | Energy supply | Industrial process | Land use change | Public | Residential | Transport | Waste management | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1990 | 545 | 2,346 | 5,285 | 416 | 4 | 518 | 4,131 | 3,278 | 8 | 16,532 |
| 2009 | 424 | 1,534 | 3,656 | 179 | 73 | 198 | 3,282 | 4,213 | 3 | 13,561 |

*Source: AEA Technology*

- In 2009, Northern Ireland emissions of carbon dioxide ($CO_2$) amounted to 13,561 kt, a decrease of 18% on 1990 emissions of $CO_2$.
- Energy supply and transport were the most significant contributors to $CO_2$ emissions, being responsible for 58% of all the $CO_2$ produced in Northern Ireland in 2009.
- Northern Ireland $CO_2$ emissions in 2009 represented 2.9% of UK $CO_2$ emissions, the same as the proportion in 1990.
- The 31% reduction of $CO_2$ achieved in the energy supply sector could be attributed to a switch in fuel used to generate electricity with more gas and less coal, and an increase in the amount of electricity imported from Great Britain.

# Energy

Figure 2.9 Percentage of electricity produced from indigenous renewable sources, 2001/02 - 2010/11

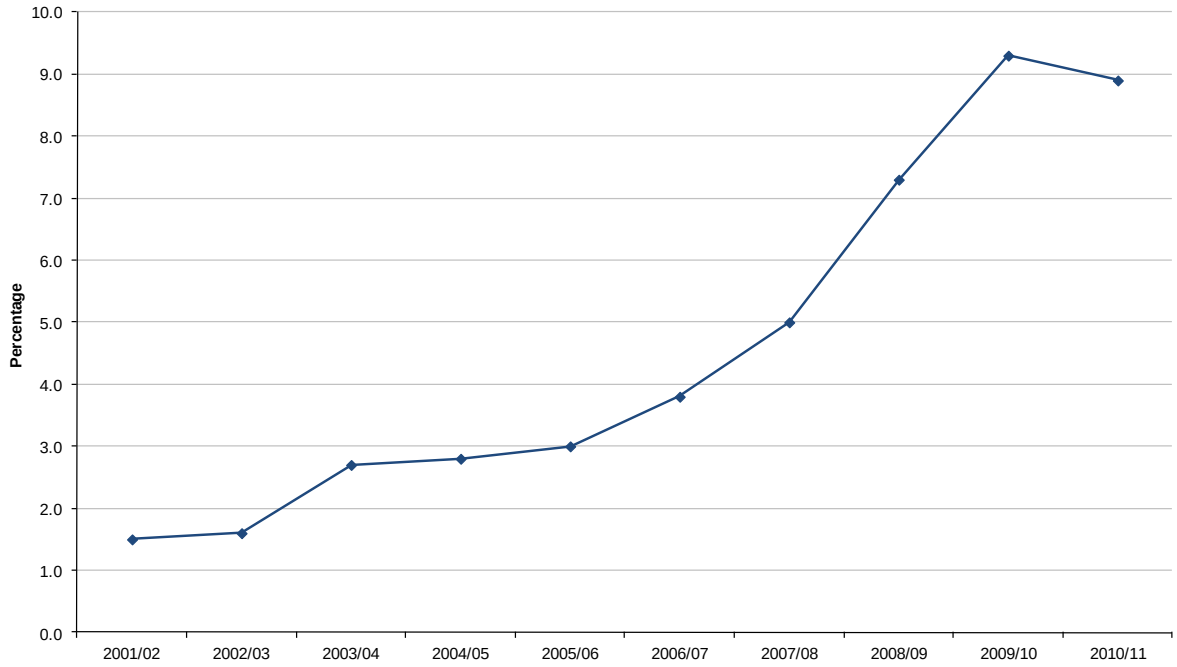



Table 2.9 Percentage of electricity produced from indigenous renewable sources, 2000/01 - 2010/11

Units: Thousand MWh, Percentage

| | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total renewables generated (excluding imports) | 128 | 136 | 233 | 249 | 275 | 345 | 441 | 596 | 755 | 745 |
| Total renewables as a % of total consumption | 1.5 | 1.6 | 2.7 | 2.8 | 3.0 | 3.8 | 5.0 | 7.3 | 9.3 | 8.9 |

*Source: DETI*

- The Northern Ireland Executive's Programme for Government sets a target that by 2012, 12% of all electricity consumed in Northern Ireland is generated from indigenous renewable sources, for example wind farms.

- In 2010/11, 745,000 MWh of electricity in Northern Ireland was produced from indigenous renewable sources. This was equivalent to 8.9% of total electricity consumption in that period.

- There has been a sizable increase in the amount of electricity produced from indigenous renewable sources since 2001/02, when only 128,000 MWh (1.5% of total electricity consumed) was generated from renewable sources.

- The slight drop in renewables generation in 2010/11 may be attributed to overall lower wind speeds during the year.

# Environmental Installations

Figure 2.10 Planning applications for environmental installations, 2002/03 – 2010/11

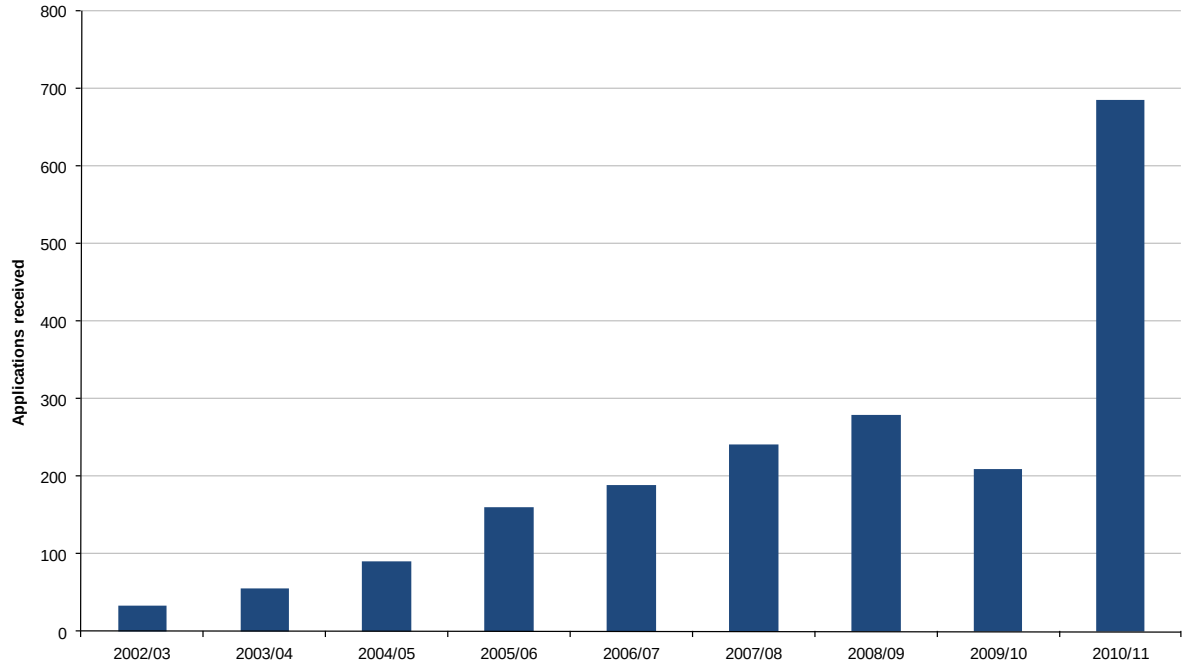



Table 2.10 Planning applications for environmental installations, 2002/03 – 2010/11

| | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|---|
| Received | 33 | 56 | 91 | 161 | 189 | 242 | 279 | 209 | 685 |
| Decided | 34 | 32 | 40 | 90 | 132 | 222 | 298 | 160 | 163 |
| Approved | 33 | 31 | 39 | 89 | 126 | 214 | 280 | 135 | 139 |
| Percentage approved | 97 | 97 | 98 | 99 | 95 | 96 | 94 | 84 | 85 |

*Source: Planning Service*

Note: Figures amended from previously published figures due to ongoing data cleansing and validation.

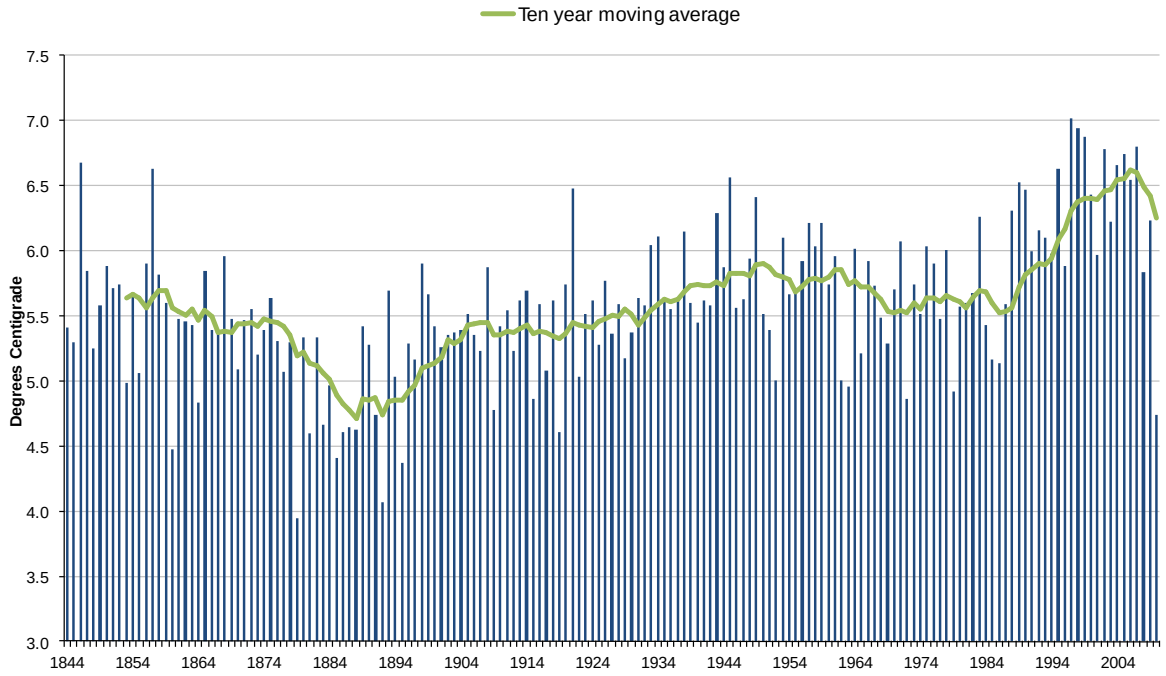
- Planning Service monitor the number of renewable energy applications. These include wind turbines, wind farms, solar panels, hydroelectric schemes etc. The majority of renewable energy applications are for single wind turbines. Planning permission is required for all wind turbines.

- In 2002/03, Planning Service received 33 applications for environmental installations. In 2010/11, 685 applications were received, more than twenty times as many applications as 2002/03. The availability of renewable energy grants by the Department of Agriculture and Rural Development through its Rural Development Programme may partially explain this large increase.

- Although there was a large increase in the number of applications received in 2010/11, the number of applications decided and approved remained similar to 2009/10 levels. There were 163 and 139 applications decided and approved respectively in 2010/11 compared to 160 and 135 respectively in 2009/10.

# Climate Change

Figure 2.11 Mean annual minimum temperature, 1844 – 2010

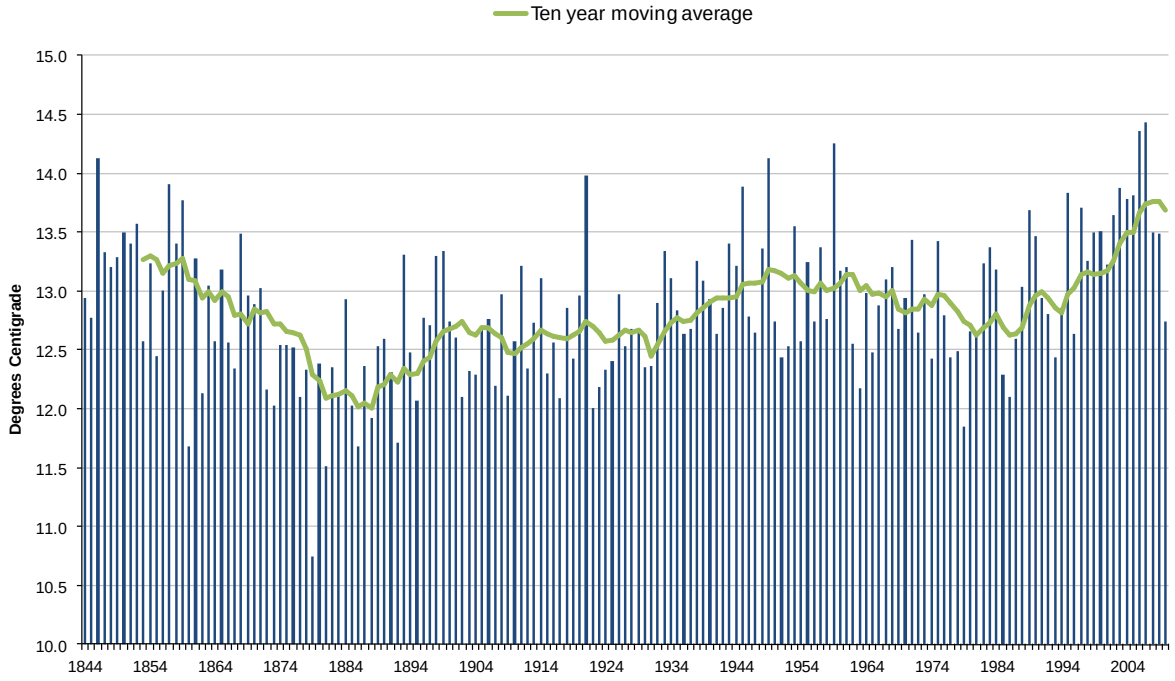



*Source: Armagh Observatory*

- The mean annual minimum temperature for Northern Ireland has been calculated from the Armagh Observatory temperature records.
- The ten year moving average trend line shows that the annual minimum temperature reached a low towards the end of the 19th century, and has been steadily increasing since.
- At the end of the 20th century, the ten year moving average mean annual minimum temperature had risen to its highest levels since the temperature records began.
- The 2010 mean annual minimum temperature (4.74 °C) was the lowest since 1919 due to particularly cold weather at the beginning and end of the year, and contributed to a marked drop in the ten year moving average.
- The lowest mean annual minimum temperature (3.95 °C) was recorded in 1879.

# Climate Change

Figure 2.12 Mean annual maximum temperature, 1844 – 2010

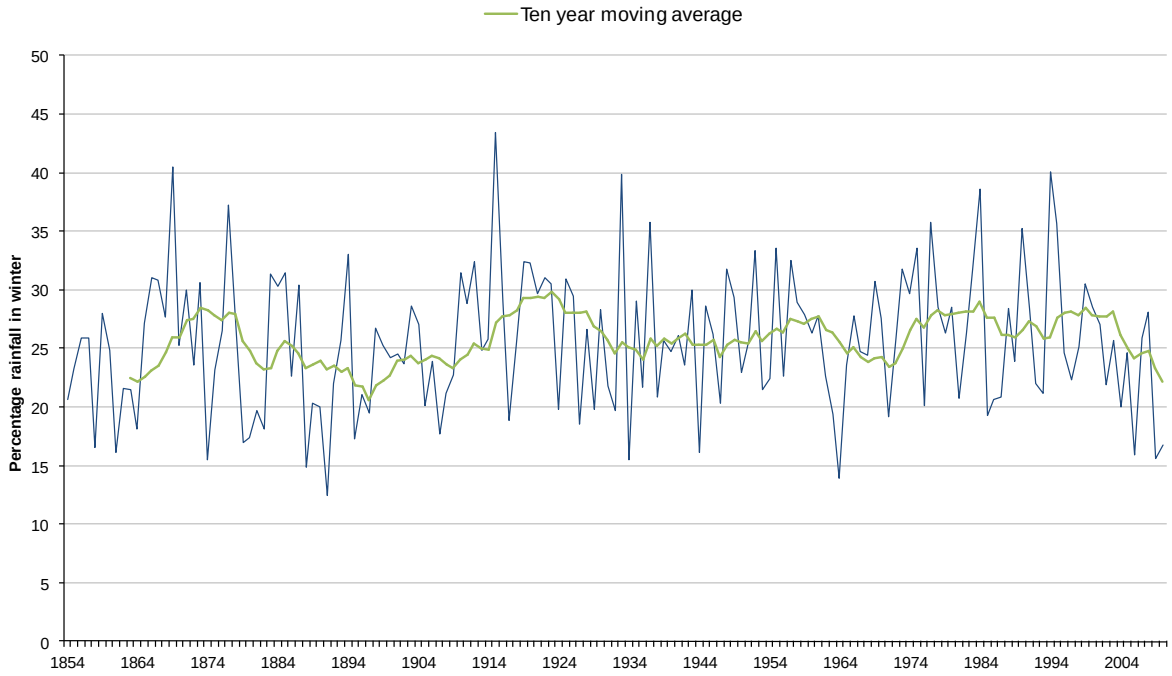



*Source: Armagh Observatory*

- The mean annual maximum temperature for Northern Ireland has been calculated from the Armagh Observatory temperature records.
- The ten year moving average of mean annual maximum temperature has not experienced as marked an increase as that for the mean annual minimum temperature.
- The ten year moving average trend line shows that the annual maximum temperature reached a low towards the end of the 19$^{th}$ century, and has been steadily increasing ever since.
- The highest mean annual maximum temperature (14.44 °C) was recorded in 2007.
- The lowest mean annual maximum temperature (10.74 °C) was recorded in 1879.

# Climate Change

Figure 2.13 Percentage of annual rainfall falling in winter (Dec – Feb), 1854 – 2010




*Source: Armagh Observatory*

- Rainfall records are also kept at Armagh Observatory. The amount of rainfall observed in winter (December to February) is calculated as a percentage of annual rainfall (December to November).

- The ten year moving average for winter rainfall has generally fluctuated between 25% and 30% since 1910 onwards. Prior to that the ten year average was between 20% and 25%, apart from a short period from 1870 to 1880 when it was between 25% and 30%.

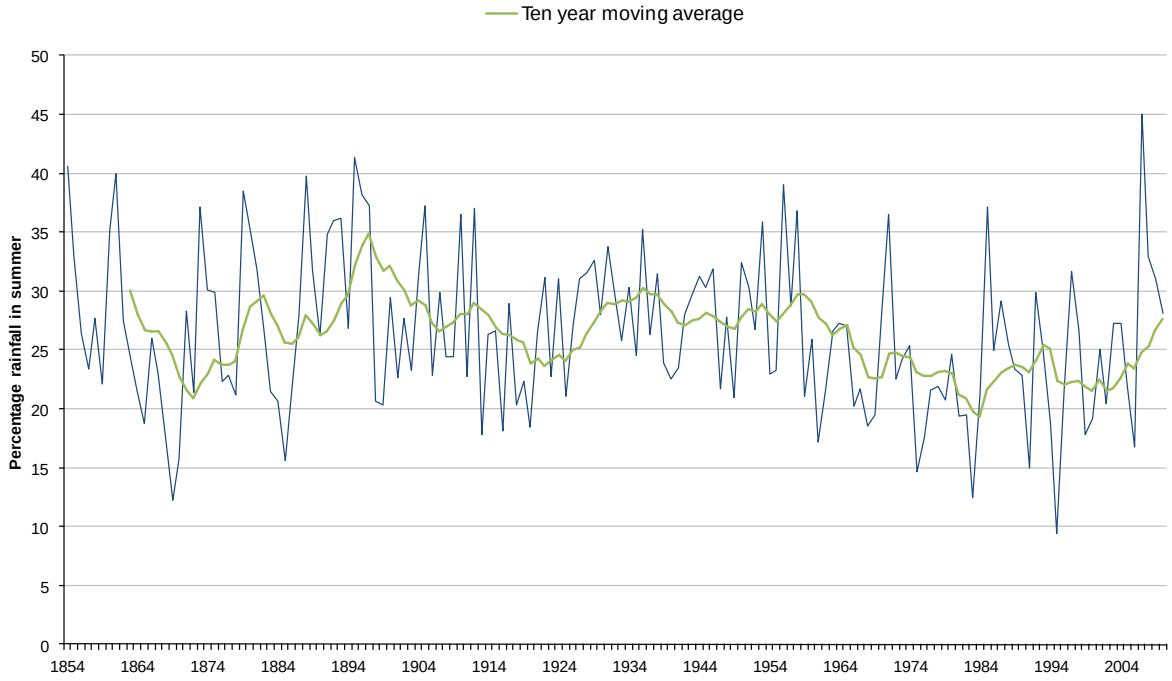
- In the last ten years the average proportion of rainfall falling in winter has dropped from 27% to 17%.

- The greatest percentage of annual rainfall falling in winter occurred in 1915, when 43% of the year's rainfall fell in the three winter months.

- In 1891 just 12% of the annual rainfall fell in winter, this is the smallest percentage of annual rainfall in winter recorded in Northern Ireland.

# Climate Change

Figure 2.14 Percentage of annual rainfall falling in summer (Jun – Aug), 1854 – 2010




*Source: Armagh Observatory*

- Rainfall records are also kept at Armagh Observatory. The amount of rainfall observed in summer (June to August) is calculated as a percentage of annual rainfall (December to November).

- Over time the ten year moving average has decreased from a high of 35% in 1897 to a low of 19% in 1984, however there was been an increase in the ten year moving average in recent years.

- The highest level recorded was in 2007, when 45% of the year's rainfall fell in the three summer months.

- In 1995, less than 10% of the annual rainfall fell between June and August, the lowest percentage recorded in Northern Ireland.

# 3. Water

Water is an essential natural resource and plays a vital role in maintaining biodiversity, our health and social welfare and our economic development. Our rivers, lakes, estuaries, seas and groundwater provide water to sustain many of our core social and economic activities, and also provide drinking water for our population. This chapter will report on the condition of Northern Ireland's inland waters, and on the levels of compliance with waste water standards and drinking water standards. Indicators on the state of the marine environment are covered in Chapter 4.

River monitoring is carried out routinely against national standards for the Water Framework Directive (WFD). Just over a fifth (22%) of monitored river waterbodies are of at least a good standard. The level of compliance for rivers designated as salmonid and cyprinid under the EC Freshwater Fish Directive has increased in recent years, and all of the designated cyprinid river length met the Directive standards in 2010.

Lakes are a significant source of drinking water supplies. Lough Neagh and Upper and Lower Lough Erne make up over 90% of the total hectarage of lakes greater than 50 hectares in Northern Ireland. There are 21 lakes currently monitored in Northern Ireland, of which 5 achieved a good standard in 2010.

Groundwater is currently of a high quality, with 65 of Northern Ireland's 67 groundwater bodies at good status following Water Framework Directive quantitative and qualitative classification. All groundwater sites that were monitored for nitrate ($NO_3$) in 2010 had an annual mean concentration of less than 40 mg $NO_3$/l.

Effluent discharges to our water environment can affect its quality and come from many different sources such as commercial and industrial premises, wastewater and water treatment works and private dwellings. These discharges are controlled by the Department of the Environment through the granting of consents and permits under the Water (NI) Order 1999 and the Pollution Prevention and Control Regulations (NI) 2003. Industrial discharge quality has improved in recent years with compliance

rates in 2010 of 88% and 91% for private sewage and trade effluent respectively. Compliance of Waste Water Treatment Works against the numeric conditions of their Water Order (WO) consent is a key performance indicator (KPI) for the water utility sector and has continued to improve since 2007 having reached 89% in 2010. Drinking water quality is also at the highest level of compliance since 2004, at 99.8%.

Water pollution incidents are investigated by NIEA. In 2010, 2,080 incidents were reported to NIEA, of which 1,237 were substantiated as having an impact on the water quality of the receiving waterway. Of these 19% were considered to be of high or medium severity, compared to 16% in 2009.

# Overall River Quality

Figure 3.1 Water Framework Directive (WFD) overall classification (% river waterbodies), 2008-2010

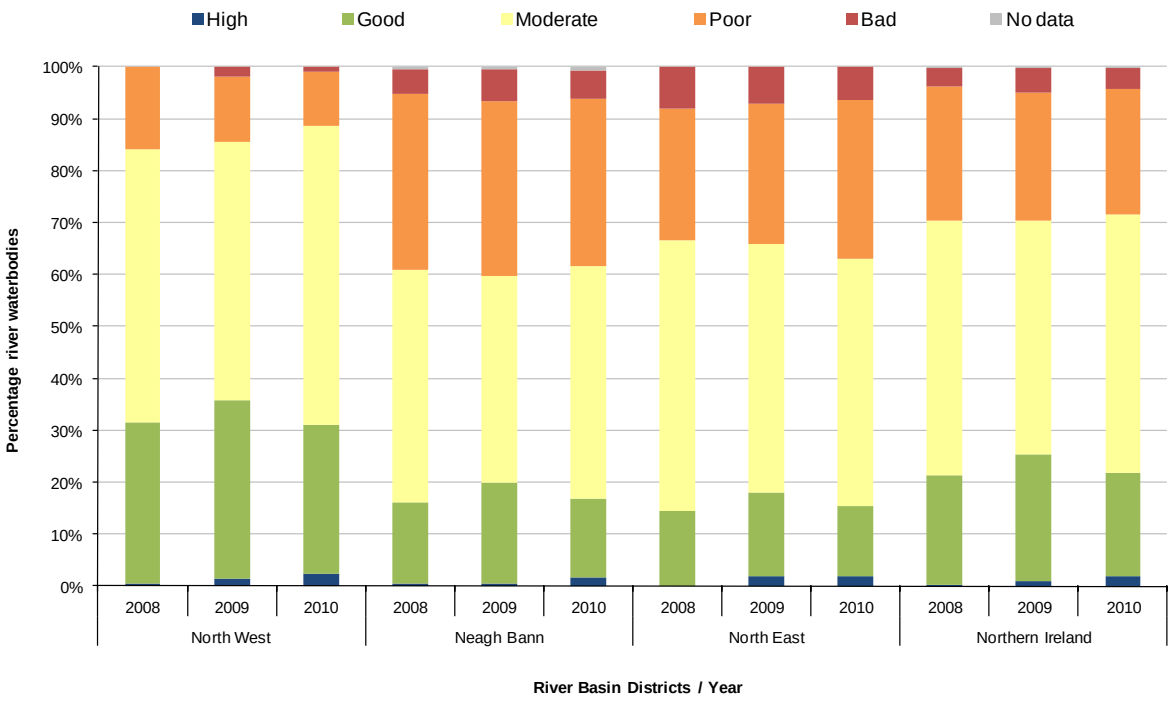



Table 3.1 Water Framework Directive (WFD) overall classification (% river waterbodies), 2008-2010

Unit: Percentage river waterbodies

| | North West | | | Neagh Bann | | | North East | | | Northern Ireland | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 |
| High | 0.5 | 1.4 | 2.4 | 0.4 | 0.4 | 1.6 | 0.0 | 1.8 | 1.8 | 0.3 | 1.0 | 1.9 |
| Good | 31.1 | 34.4 | 28.7 | 15.7 | 19.6 | 15.3 | 14.4 | 16.2 | 13.5 | 21.0 | 24.3 | 19.8 |
| Moderate | 52.6 | 49.8 | 57.4 | 44.7 | 39.6 | 44.7 | 52.3 | 47.7 | 47.7 | 49.0 | 44.9 | 49.9 |
| Poor | 15.8 | 12.4 | 10.5 | 34.1 | 33.7 | 32.2 | 25.2 | 27.0 | 30.6 | 25.7 | 24.7 | 24.0 |
| Bad | 0.0 | 1.9 | 1.0 | 4.7 | 6.3 | 5.5 | 8.1 | 7.2 | 6.3 | 3.7 | 4.9 | 4.0 |
| No data | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 |

*Source: NIEA*

- The river waterbody classification has been produced using the results from the Water Framework Directive quality elements. Overall classification utilises a combination of biological, chemical and hydromorphological quality elements including macroinvertebrates, pH (measure of acidity or alkalinity of a solution) and ammonia to assign status of river quality in one of five classes from ‘high’ through to ‘bad’.

- The Water Framework Directive requires NIEA to protect the status of waterbodies from deterioration and, where necessary and practicable, to restore waterbodies to good status.

- The environmental objectives established in the river basin plan set the water status to be achieved for surface waterbodies for each six year planning cycle starting from 2009.

- In 2010, 22% of river waterbodies were classified as ‘high’ or ‘good’. This is similar to the 2008 and 2009 figures.

# Chemical River Quality

Figure 3.2 Freshwater Fish Directive compliance failure summary, 2001 – 2010

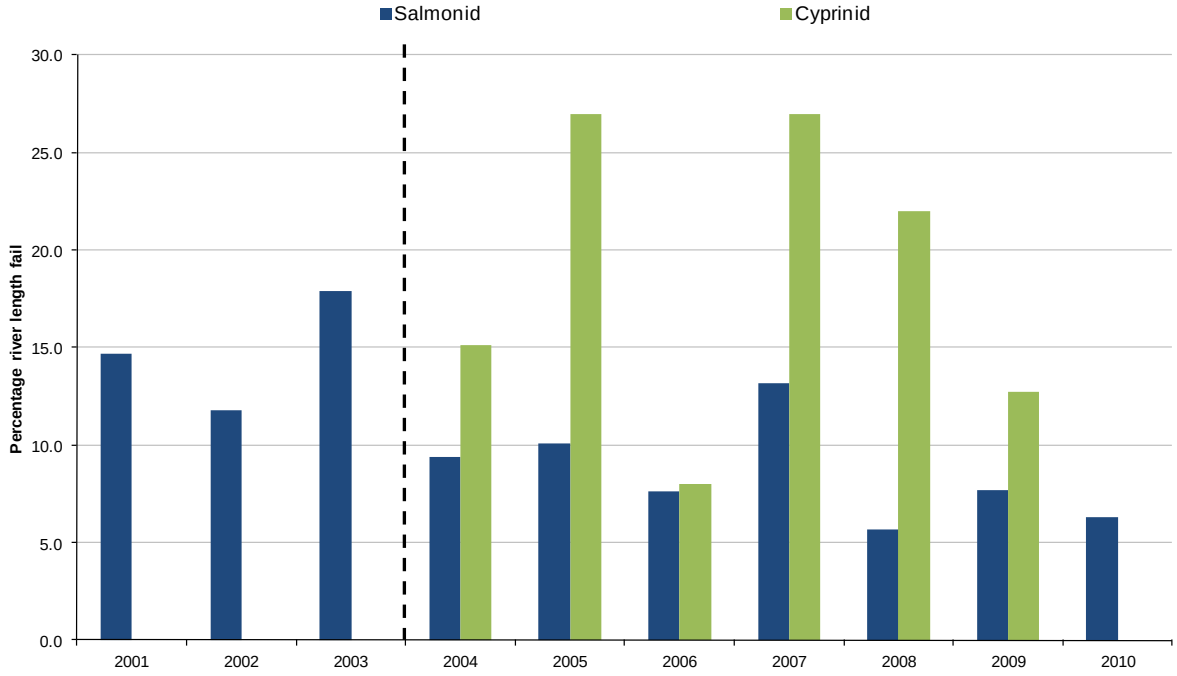



Table 3.2 Freshwater Fish Directive compliance failure summary, 2001 – 2010

| | | | | | | | Unit: Percentage river length fail | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Salmonid | 14.7 | 11.8 | 17.9 | 9.4 | 10.1 | 7.6 | 13.2 | 5.7 | 7.7 | 6.3 |
| Cyprinid | 0.0 | 0.0 | 0.0 | 15.1 | 27.0 | 8.0 | 27.0 | 22.0 | 12.7 | 0.0 |
| | | | | | | | | | | |
| *Source: NIEA* | | | | | | | | | | |

- The Freshwater Fish Directive requires the designation of waters needing protection or improvement in order to support fish life. They are divided into two categories: suitable for salmonids (salmon & trout) and suitable for cyprinids (coarse fish).

- The length of designated rivers in Northern Ireland increased from almost 1,200 km in 2003, to just less than 4,300 km in 2004. The majority of designated rivers are made up of salmonid rivers, 4,154 km, with cyprinid rivers accounting for the remaining 126 km. These rivers are monitored and compliance is measured against water quality standards set by the Directive.

- Most cyprinid rivers were re-designated as salmonid at the start of 2004 and around 100 km of new river lengths were designated as cyprinid. This led to an increase in the percentage failure recorded for cyprinids (although the overall river length of cyprinid designations is low).

- In 2010, 6.3% of salmonid river length failed to meet the standards set by the Directive, compared to 9.4% failure recorded in 2004. All of the designated cyprinid river length met the Directive standards in 2010, compared to the 15.1% of river length failure recorded in 2004.

# Lake Quality

Figure 3.3 Lake Water Framework Directive status, 2008 - 2010

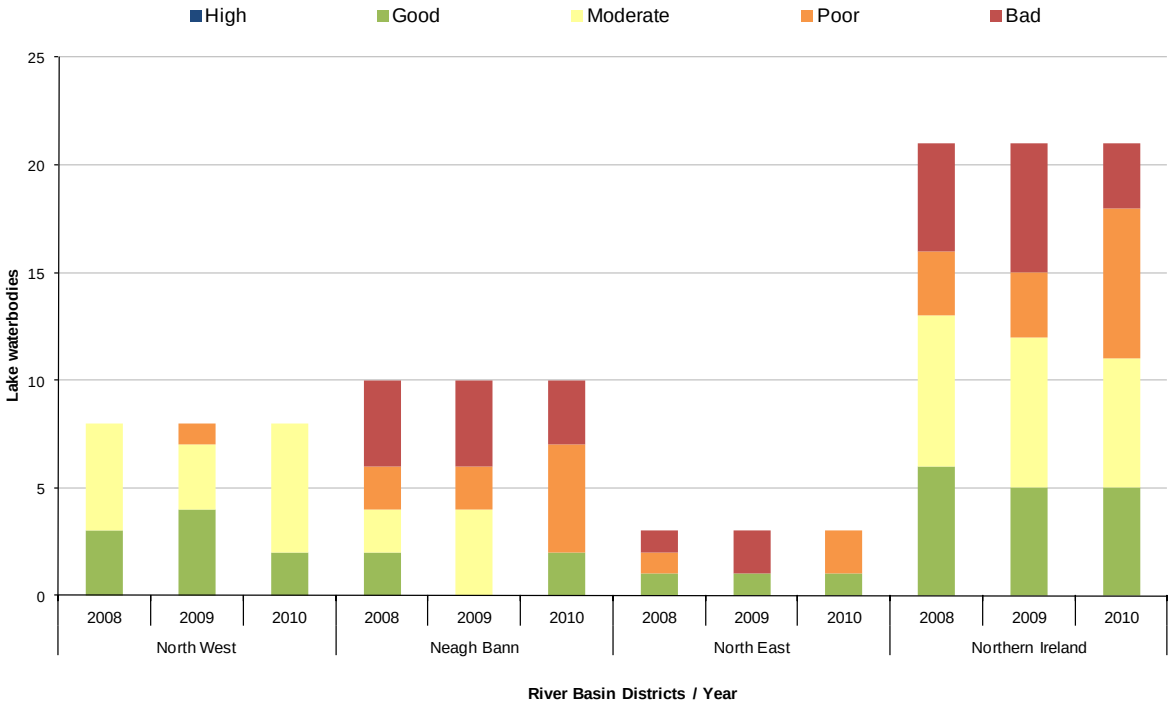



Table 3.3 Lake Water Framework Directive status, 2008 – 2010

Unit: Lake waterbodies

| | North West | | | Neagh Bann | | | North East | | | Northern Ireland | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 | 2008 | 2009 | 2010 |
| High | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Good | 3 | 4 | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 6 | 5 | 5 |
| Moderate | 5 | 3 | 6 | 2 | 4 | 0 | 0 | 0 | 0 | 7 | 7 | 6 |
| Poor | 0 | 1 | 0 | 2 | 2 | 5 | 1 | 0 | 2 | 3 | 3 | 7 |
| Bad | 0 | 0 | 0 | 4 | 4 | 3 | 1 | 2 | 0 | 5 | 6 | 3 |

*Source: NIEA*

Note: Results are based on the mean of 12 monthly samples

- The Water Framework Directive requires NIEA to classify the 'surface water status' of Northern Ireland's lake water bodies.
- There are 21 lake waterbodies in Northern Ireland, that is lakes with an area of greater than 50 hectares.
- There are five classes for ecological status; 'high', 'good', 'moderate', 'poor' and 'bad'. Overall ecological status of a water body is determined by the lower of a water body's 'ecological status' and its 'chemical status'. Status is based on a number of parameters including Macrophytes, Phytoplankton, Phytobenthos, Total Phosphorus, Chlorophyll and Dissolved Oxygen.
- In 2010, five of the 21 lake waterbodies in Northern Ireland are classified as 'good' status and 16 lake waterbodies are classified as less than 'good' status, the same as in 2009.

# Groundwater Quality

Figure 3.4 Annual mean nitrate concentrations, 2000 – 2010

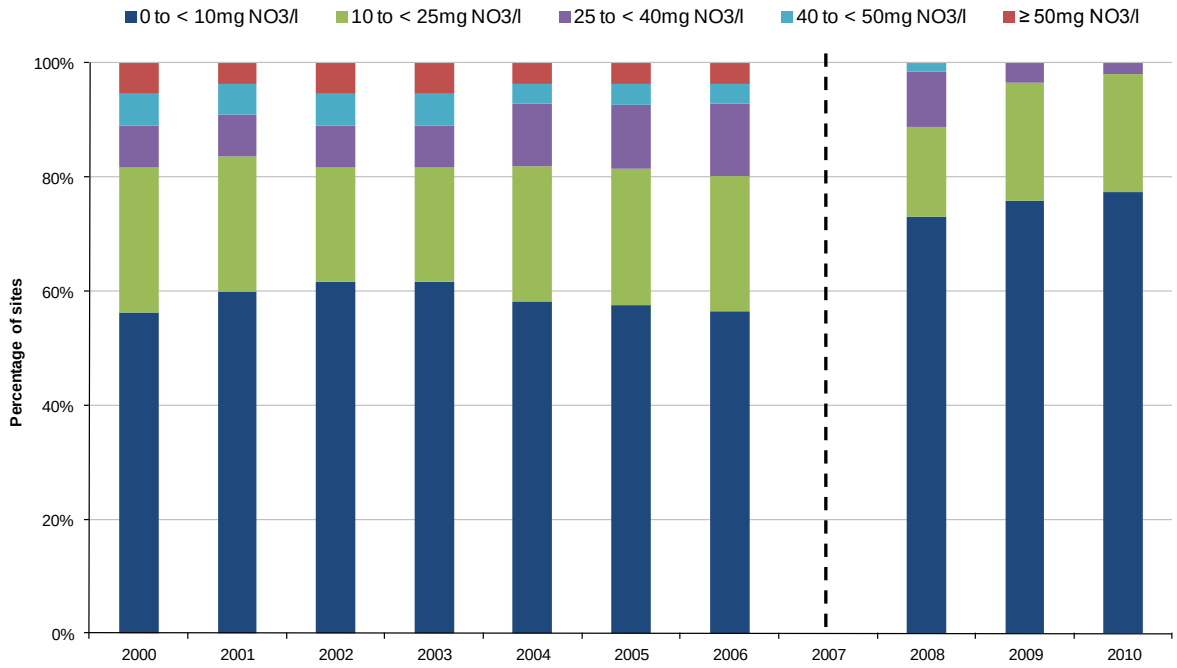



Table 3.4 Annual mean nitrate concentrations, 2000 – 2010

| | | | | | | | | | Unit: Percentage of sites | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| 0 to < 10mg $NO_3$/l | 56.4 | 60.0 | 61.8 | 61.8 | 58.2 | 56.4 | 56.4 | n/a | 73.0 | 75.9 | 77.4 |
| 10 to < 25mg $NO_3$/l | 25.5 | 23.6 | 20.0 | 20.0 | 23.6 | 23.6 | 23.6 | n/a | 15.9 | 20.7 | 20.8 |
| 25 to < 40mg $NO_3$/l | 7.3 | 7.3 | 7.3 | 7.3 | 10.9 | 10.9 | 12.7 | n/a | 9.5 | 3.4 | 1.9 |
| 40 to < 50mg $NO_3$/l | 5.5 | 5.5 | 5.5 | 5.5 | 3.6 | 3.6 | 3.6 | n/a | 1.6 | 0.0 | 0.0 |
| ≥ 50mg $NO_3$/l | 5.5 | 3.6 | 5.5 | 5.5 | 3.6 | 3.6 | 3.6 | n/a | 0.0 | 0.0 | 0.0 |
| | | | | | | | | | | | |
| *Source: NIEA* | | | | | | | | | | | |

- Regional monitoring of nitrate concentrations in groundwater across Northern Ireland began in 2000. The Groundwater Daughter Directive (2006/118/EC) sets the groundwater quality standard at 50 mg $NO_3$/l. In the period 2000 to 2006, approximately 90% of sites had an annual mean concentration of less than 40 mg $NO_3$/l and approximately 81% were less than 25 mg $NO_3$/l.

- Regional monitoring re-commenced in 2008, after a major review of the network was undertaken. The review ensured that the groundwater monitoring network was fit-for-purpose for the requirements of the Water Framework Directive (2000/60/EC).

- Fifty-eight sites were monitored in 2010, all of which had an annual mean concentration of less than 40 mg $NO_3$/l and 98% of sites were less than 25 mg $NO_3$/l. These figures were very similar to those recorded in 2009.

# Industrial Discharge Quality

Figure 3.5 Trends in annual private and trade discharge consent compliance (EA 95-percentile), 2001 - 2010

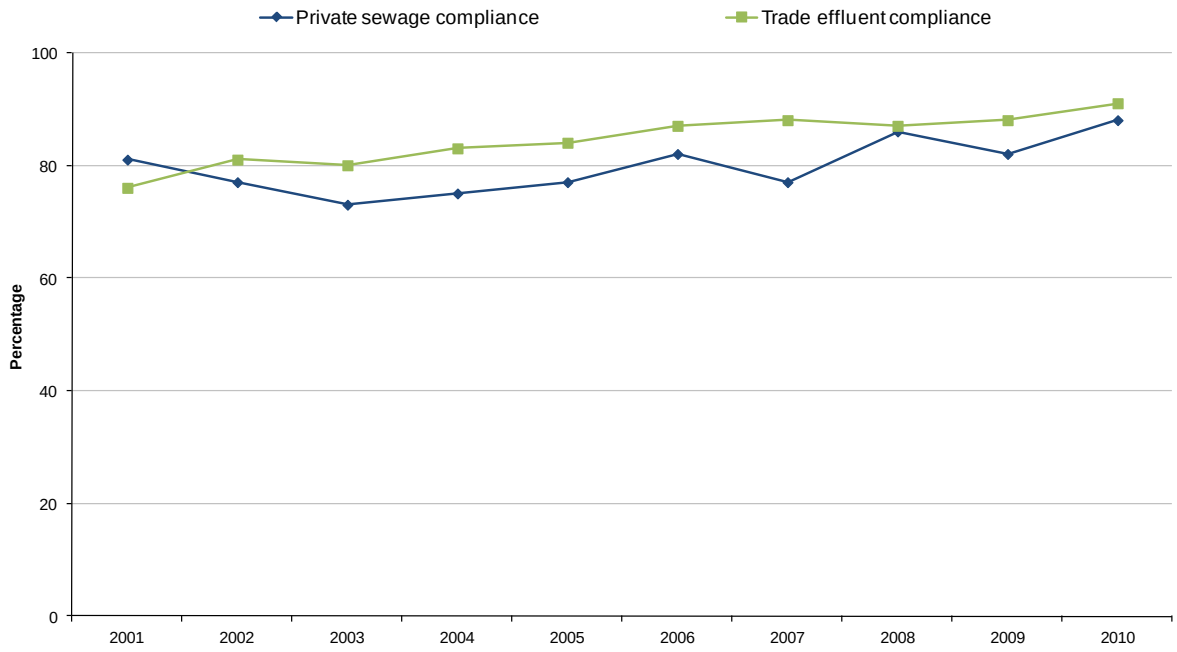



Table 3.5 Trends in annual private and trade discharge consent compliance (EA 95-percentile), 2001 – 2010

Unit: Percentage

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Private sewage compliance | 81 | 77 | 73 | 75 | 77 | 82 | 77 | 86 | 82 | 88 |
| Trade effluent compliance | 76 | 81 | 80 | 83 | 84 | 87 | 88 | 87 | 88 | 91 |

*Source: NIEA*

- The monitoring of effluent discharges gives an indication of levels of pollution to the water environment and improvements in controls.
- Numerical limits on Water Order consents for private sewage and trade discharges are set as absolute standards. However, compliance is assessed on a 95-percentile basis, i.e. a discharge must be within its consent conditions 95% of the time to comply.
- Compliance for private sewage reached its highest level in 2010 (88%) compared to 82% in 2009.
- For trade effluent compliance there has been a steady increase from 76% in 2001 to 91% in 2010.

# Water Utility Discharge Quality

Figure 3.6 Summary of compliance of Water Utility Sector Waste Water Treatment Works (WWTW), 2007-2010

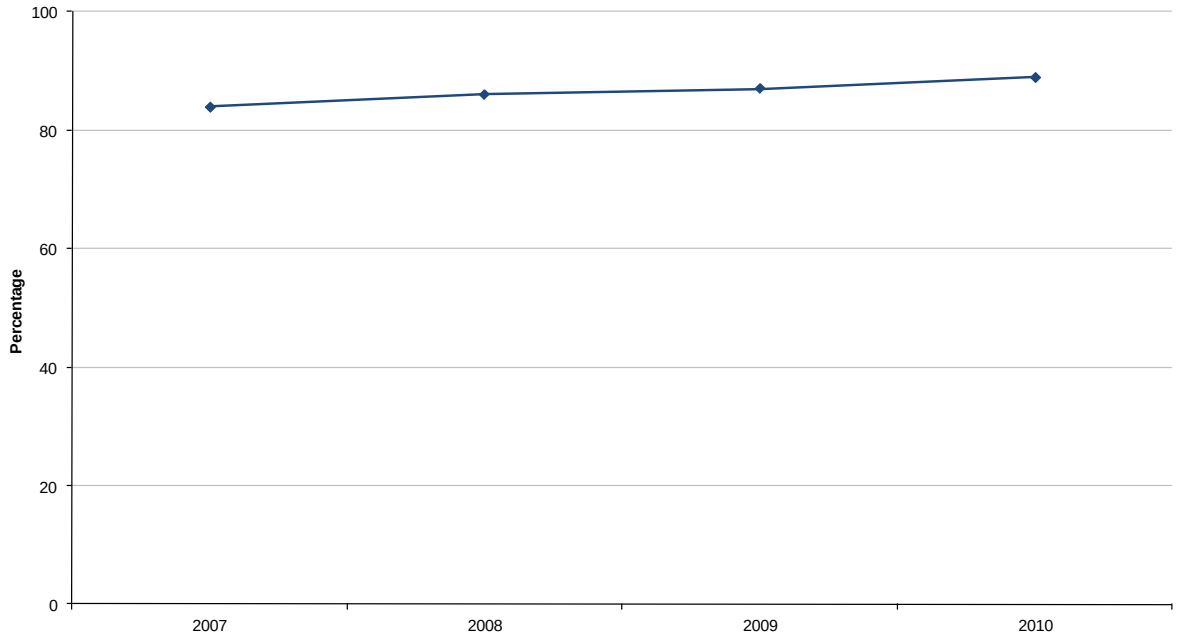



Table 3.6 Summary of compliance of Water Utility Sector Waste Water Treatment Works (WWTW), 2007-2010

| | | | Unit: Percentage | |
|---|---|---|---|---|
| | **2007** | **2008** | **2009** | **2010** |
| Overall Water Utility Sector WWTW compliance with numeric standards | 84 | 86 | 87 | 89 |
| | | | | |
| *Source: NIEA* | | | | |
| | | | | |
| Note: Change in methodology from previously published figures. | | | | |

- There has been a change in how compliance of water utility sector waste water treatment works is assessed. As a result the compliance levels will differ from previously published figures.

- Compliance of waste water treatment works against the numeric conditions of their Water Order consent was introduced in 2007, is a key performance indicator for the water utility sector and has continued to improve since 2007, having reached 89% in 2010.

- In 2010 NI Water compliance was assessed against numeric standards set for discharges from 231 waste water treatment works, serving a population equivalent greater than 249. In addition numeric compliance was also assessed for six waste water treatment works operated under Public Private Partnership contracts.

# Drinking Water Quality

Figure 3.7 Percentage mean zonal compliance failure with Northern Ireland water quality regulations drinking water standards, 2004 - 2010

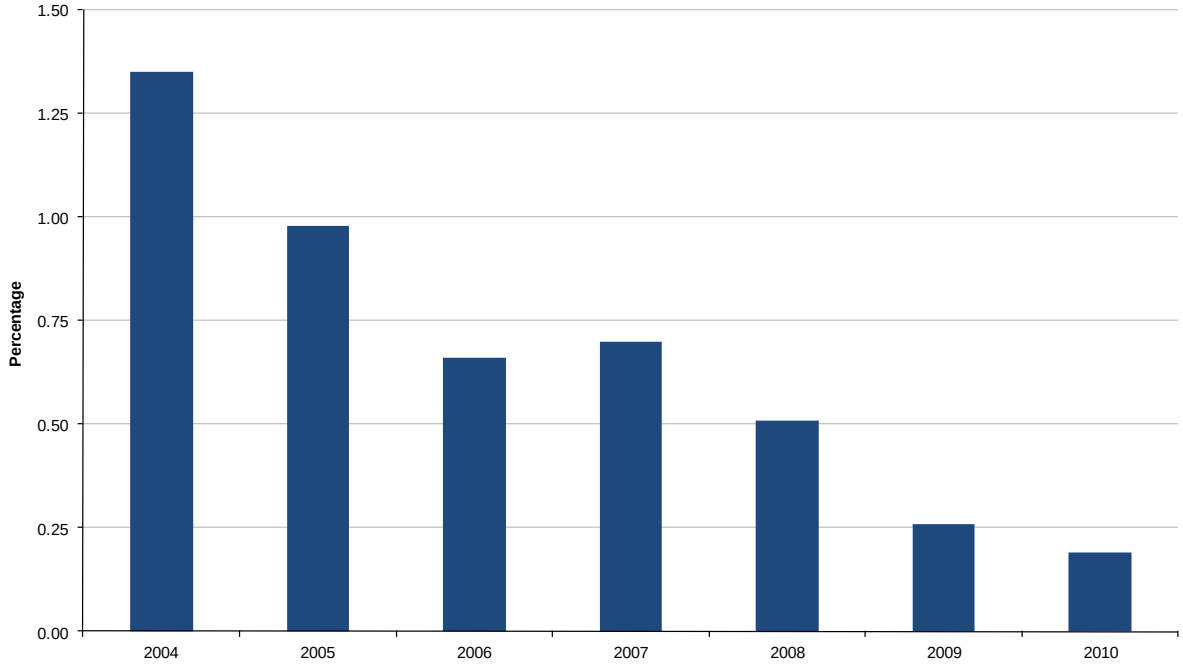



Table 3.7 Percentage mean zonal compliance failure with Northern Ireland water quality regulations drinking water standards, 2004 - 2010

| | | | | | | Unit: Percentage | |
|---|---|---|---|---|---|---|---|
| | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Mean zonal compliance | 98.65 | 99.02 | 99.34 | 99.30 | 99.49 | 99.74 | 99.81 |
| Mean zonal compliance failure | 1.35 | 0.98 | 0.66 | 0.70 | 0.51 | 0.26 | 0.19 |
| | | | | | | | |
| *Source: NIEA* | | | | | | | |

- Drinking water quality at consumer taps is assessed using 'mean zonal compliance', an index which is calculated using 39 parameters from the public water supplies regulatory sampling programme undertaken by NI Water.

- The results for mean zonal compliance are based on upwards of 40,000 samples taken at consumers' taps across Northern Ireland throughout the year.

- In 2010, the mean zonal compliance for Northern Ireland was 99.81%, a significant improvement on the level in 2004 of 98.65%.

- Currently, 116 private water supplies are included in the regulatory sampling programme. In 2010, the overall compliance with the regulatory standards for private water supplies was 97.41%.

# Water Pollution Incidents

Figure 3.8 Severity of substantiated water pollution incidents, 2001 – 2010

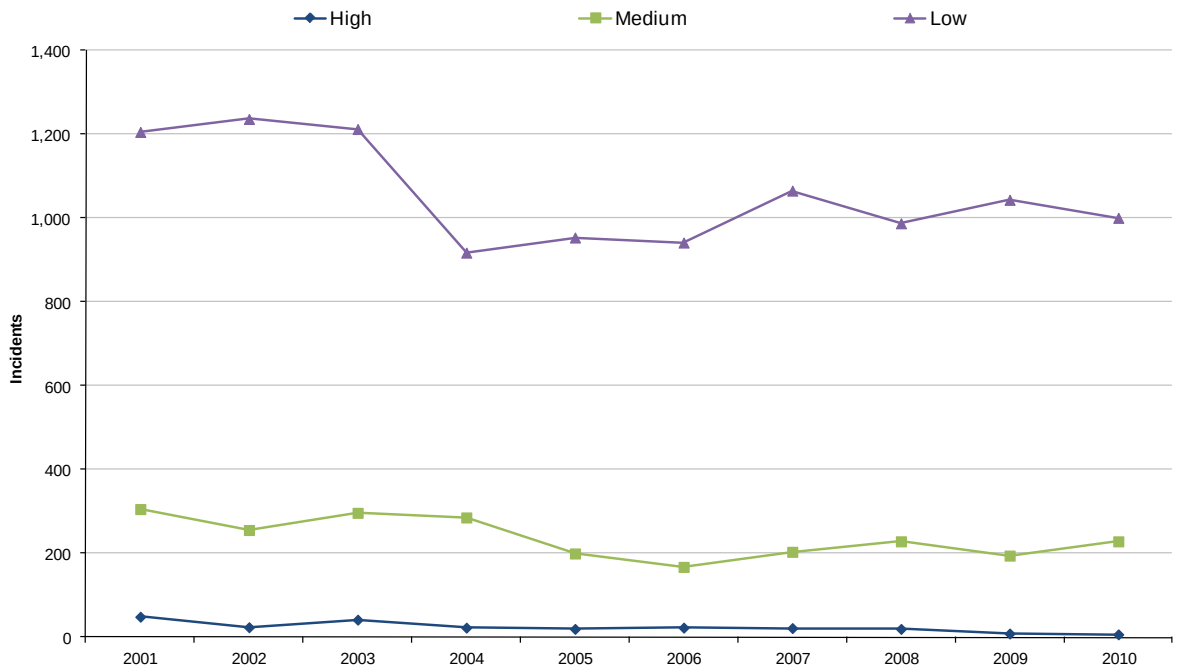



Table 3.8 Severity of substantiated water pollution incidents, 2001 – 2010

Unit: Incidents

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| High | 49 | 24 | 42 | 23 | 20 | 23 | 22 | 20 | 9 | 7 |
| Medium | 306 | 256 | 297 | 286 | 200 | 168 | 204 | 229 | 195 | 229 |
| Low | 1,206 | 1,237 | 1,213 | 918 | 954 | 942 | 1,066 | 988 | 1,044 | 1,001 |
| **Total** | **1,561** | **1,517** | **1,552** | **1,227** | **1,174** | **1,133** | **1,292** | **1,237** | **1,248** | **1,237** |

*Source: NIEA*

- Water pollution incidents are investigated by NIEA. In 2010, there were 2,080 incidents reported to NIEA, of which 1,237 were substantiated as having an impact on the water quality of the receiving waterway.

- The total number of substantiated incidents has fallen from the levels recorded in 2001 - 2003. The number of substantiated incidents in 2010 is 21% less than the number recorded in 2001, but has remained relatively stable between 2008 and 2010.

- Pollution incidents are then classified according to their severity. In 2010, 19% were classified as high or medium; an increase on the 2009 level of 16%.

# 4. Marine

The majority of Northern Ireland's 650 km of coastline is protected for its special interest and a number of our coastal species and habitats are recognised as internationally important. The marine life in the seas surrounding Northern Ireland is rich and varied and includes marine mammals such as harbour seals, whales and dolphins, seabirds, waterfowl and other species that migrate here. Our coastline also includes productive and biologically diverse ecosystems, with features which serve as critical natural defences against storms, floods and erosion. This chapter looks at the quality of Northern Ireland's bathing water, coastal water and shellfish water, and Irish Sea temperatures.

Bathing water quality is measured against mandatory and guideline standards. In 2011, all 24 of the beaches monitored in Northern Ireland met the EC Bathing Water Directive mandatory standards. Overall status of marine water bodies is also measured, and this accounts for both the ecological and chemical status of each water body. Almost half of marine water bodies around Northern Ireland's shores are classified as high or good, with the remaining waterbody areas being classified as moderate. Monitoring of shellfish waters also occurs, with all ten designated shellfish waters meeting the mandatory standards. There were no exceedences of the dangerous substances standards in shellfish waters in 2010.

Sea temperatures are subject to change throughout the year. During the autumn and winter months there is generally little difference between the surface and seabed temperatures. However, between April and September there is a divergence between the two temperatures with the surface temperature moving above that of the seabed.

# Bathing Water Quality

Figure 4.1 Bathing water compliance for microbial standards of EC Bathing Water Directive, 2002 – 2011

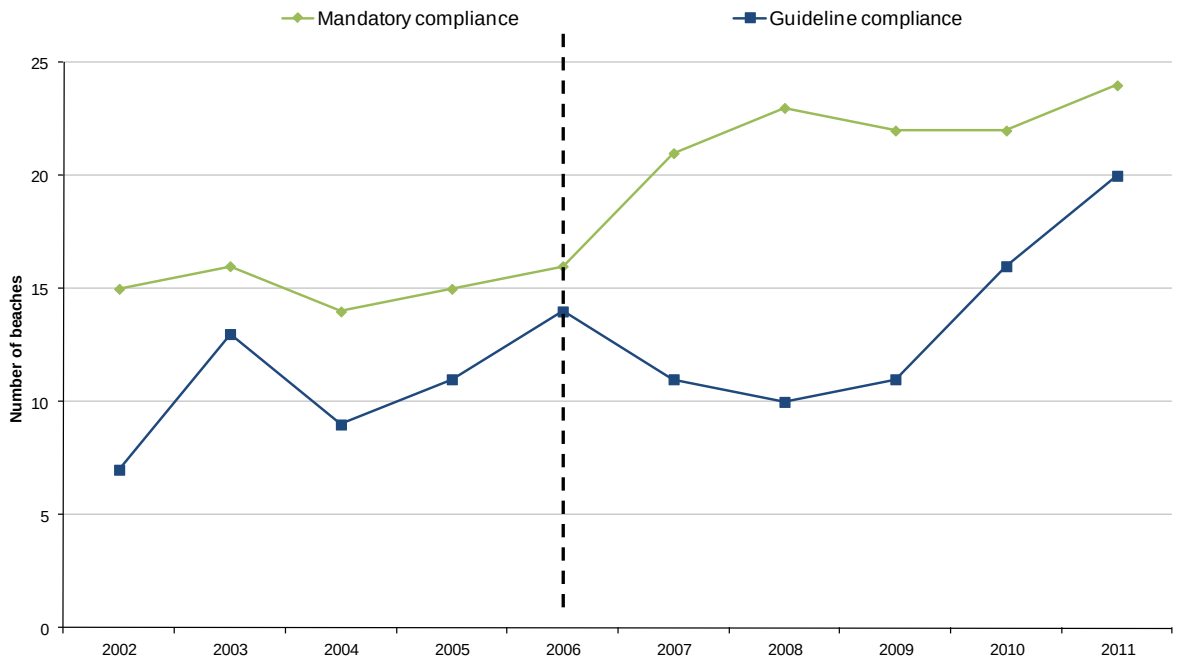



Table 4.1 Bathing water compliance for microbial standards of EC Bathing Water Directive, 2002 - 2011

| | | | | | | | | | Unit: Number of beaches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Mandatory compliance | 15 | 16 | 14 | 15 | 16 | 21 | 23 | 22 | 22 | 24 |
| Guideline compliance | 7 | 13 | 9 | 11 | 14 | 11 | 10 | 11 | 16 | 20 |
| | | | | | | | | | | |
| *Source: NIEA* | | | | | | | | | | |
| | | | | | | | | | | |
| Note: Up until 2006, there were 16 identified bathing waters in Northern Ireland. This increased to 23 in 2007 and to 24 in 2008. | | | | | | | | | | |

- The Bathing Waters Directive mandatory standard requires that 95% of samples collected throughout the bathing season must not exceed the limits set for total and faecal coliforms which are 10,000 and 2,000 colony forming units (cfu)/100 ml respectively.

- To comply with guideline values, 80% of samples should not exceed 500 cfu/100 ml for total coliforms and 100 cfu/100 ml for faecal coliforms, and 90% of samples must not exceed 100 cfu/100 ml for faecal streptococci.

- Up until 2006, there were 16 identified bathing waters in Northern Ireland. This increased to 23 in 2007 and to 24 in 2008.

- In 2011, all 24 of the beaches monitored in Northern Ireland met the mandatory standards, while 20 achieved the higher guideline standards.

# Blue Flag Beaches

Figure 4.2 Number of Blue Flag Awards - Beaches & Marinas, 2002 – 2011

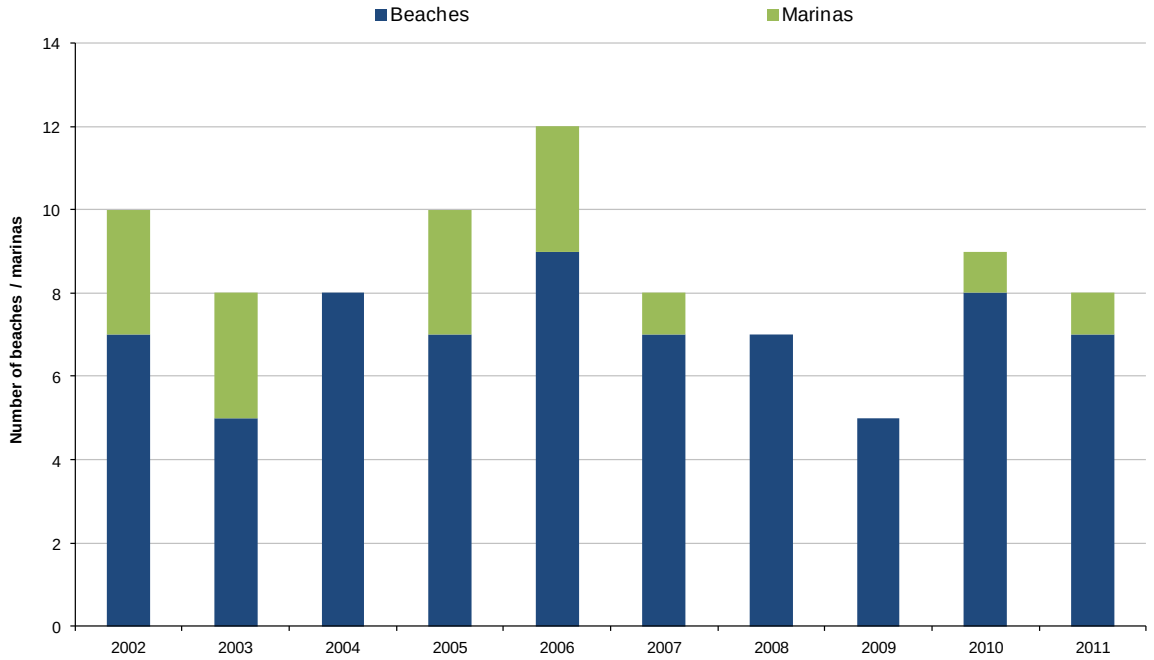



Table 4.2 Number of Blue Flag Awards - Beaches & Marinas, 2002 – 2011

Unit: Number

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|
| Beaches | 7 | 5 | 8 | 7 | 9 | 7 | 7 | 5 | 8 | 7 |
| Marinas | 3 | 3 | 0 | 3 | 3 | 1 | 0 | 0 | 1 | 1 |
| **Total** | **10** | **8** | **8** | **10** | **12** | **8** | **7** | **5** | **9** | **8** |

*Source: Tidy Northern Ireland*

- The Blue Flag Award is a voluntary eco-label for well managed beaches and marinas. The international Blue Flag Programme uses a number of criteria which beaches and marinas have to meet to gain the award such as water quality, safety, facilities and information.

- In Northern Ireland the programme is administered by Tidy Northern Ireland.

- In 2011, seven beaches and one marina were awarded with Blue Flag status, which is similar to the previous year (eight beaches, one marina).

- Benone beach received the Blue Flag Award for the 21st year in a row. The other recipients were Downhill, Portrush East, Portrush West, Portstewart Strand, Tyrella, Whiterocks and Ballyronan Marina.

# Marine Water Quality

Figure 4.3 Water Framework Directive overall status in transitional and coastal waters (% marine waterbody area), 2009 & 2011

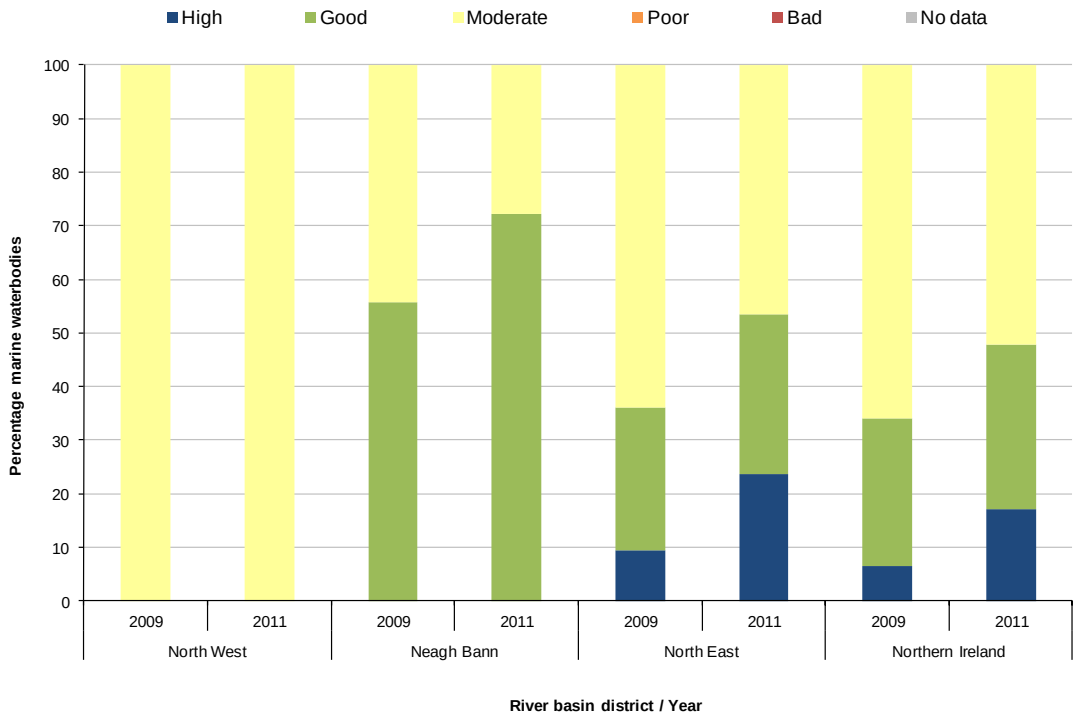



Table 4.3 Water Framework Directive overall status in transitional and coastal waters, 2009 & 2011

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Unit: Percentage marine waterbodies | | |
| | North West | | Neagh Bann | | North East | | Northern Ireland | |
| | 2009 | 2011 | 2009 | 2011 | 2009 | 2011 | 2009 | 2011 |
| High | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 | 23.6 | 6.4 | 17.1 |
| Good | 0.0 | 0.0 | 55.7 | 72.1 | 26.7 | 29.9 | 27.5 | 30.8 |
| Moderate | 100.0 | 100.0 | 44.3 | 27.9 | 63.9 | 46.5 | 66.1 | 52.2 |
| Poor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bad | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| No data | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | | |
| *Source: NIEA* | | | | | | | | |

- The Water Framework Directive requires NIEA to classify water bodies as high, good, moderate, poor or bad. The first classification took place in 2009 and the next required classification is in 2015. A rolling assessment was performed in 2011 which included data from the previous six years.

- Of transitional and coastal water bodies in Northern Ireland, 17% are at high status, with almost a third (31%) at good status. The remaining water bodies are classified as moderate (52%).

- In 2009, 6% of transitional and coastal water bodies were classified at high status, 27% at good status and the remaining two thirds (66%) were classified as moderate status.

- In measuring water status in transitional and coastal waters, NIEA considers water chemistry, plant life and sediment dwelling animals. Fish are also considered in transitional waters. Surface water status is determined by the lowest classification of any of the elements above.

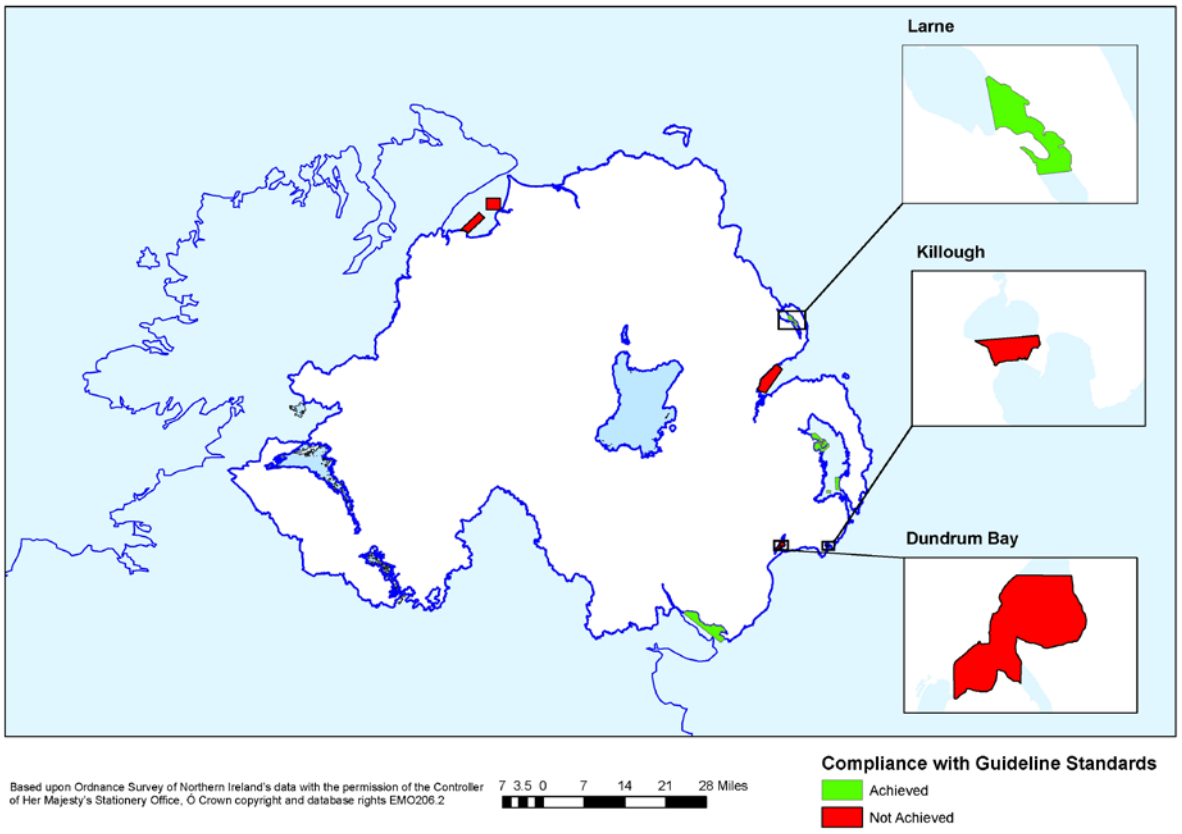
- The factors driving classification in coastal waters tend to be nutrient concentrations and plant life. Nutrients and dissolved oxygen concentrations are the most important elements in determining status in transitional waters.

- Full details of classification are available at http://www.ni-environment.gov.uk/water-home/wfd.htm

- The Water Framework Directive requires NIEA and other government departments to protect the status of waters from deterioration and where practicable, to restore waters to good status.

# Shellfish Waters

Figure 4.4 Compliance with more stringent guideline faecal coliform standard in shellfish waters, 2010




*Source: NIEA*

- A total of ten shellfish waters are designated under the Shellfish Waters Directive. These are located within Lough Foyle, Larne Lough, Belfast Lough, Strangford Lough, Killough Harbour, Dundrum Bay and Carlingford Lough. Shellfish Waters are considered as protected areas under the Water Framework Directive.

- NIEA manages Shellfish Waters to ensure no deterioration and steady progress towards compliance with the guideline standards.

- All ten designated shellfish waters achieved the mandatory standard in 2010.

- Compliance with the guideline standards is measured in shellfish flesh against standards. Faecal indicators and some dangerous substances such as heavy metals and organochlorine compounds are measured. There were no exceedences of the dangerous substances standards.

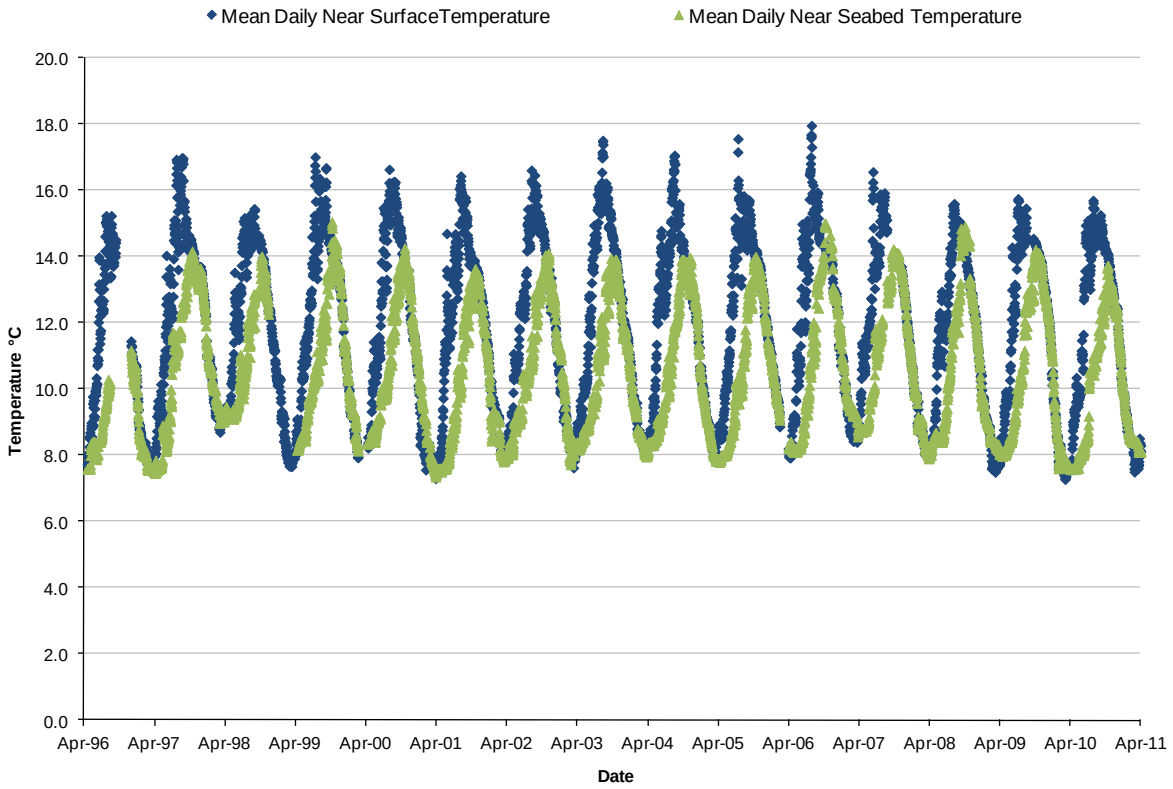
- In 2010, five of the ten shellfish waters met the more stringent guideline coliform standards, compared to four of the ten shellfish waters in 2009.

- Once shellfish are harvest, they are categorised by the Food Standards Agency before being placed on the market for public consumption. This process ensures that the purification of shellfish is sufficient to protect public health.

- NIEA works closely with the Food Standards Agency and the Department of Agriculture and Rural Development in managing shellfisheries from both an environmental and public health perspective.

# Sea Temperature

Figure 4.5 Daily sea temperature, Irish Sea, April 1996 – March 2011




*Source: AFBI*

- Daily sea temperature levels are recorded every three hours and from these readings a daily mean is calculated.

- The temperature is recorded by two moored thermistors. One of the thermistors is located close to an anchor on the seabed at a depth of 100m, while the other is attached to the underside of a moored buoy. These moorings are permanent and share the same grid reference point.

- During the autumn and winter months the profile is mixed there is generally little difference between the surface and seabed temperatures. Between April – September the profile is generally stratified and there is a divergence between the two temperatures with the surface temperature moving above that of the seabed.

- The highest recorded difference was in July 2005, when on occasions there was a 7 to 8 °C difference.

# 5. Land

Land and landscape management have the greatest visual impact on our environment and our appreciation of it. Whether the land is used for agriculture, housing or forestry its value is immense and perhaps most importantly, it is a limited resource. This chapter examines soil quality, forest and woodland plantings, the role of agri-environment schemes on our land and housing completions and designations of townscape and villagescape.

Soil quality in Northern Ireland has improved slightly in recent years. In 2010/11, there were fewer soils that were either under or over-enriched with phosphorus compared to 2005/06.

Agri-environment schemes encourage farmers and landowners to manage their land to benefit the environment. At the end of 2010, 470,000 hectares of land in Northern Ireland were under agri-environment scheme agreement.

Forests and woodlands provide important habitats, natural resources and diversity to landscapes. In 2010, there were just over 250 hectares of new plantings. Of these, 100% were planted by the private sector supported by grant aid from the Forest Service.

Following the steep decline in housing completions since 2007/08, the number of housing completions remains low, despite an increase of 9% percent in housing completions between 2008/09 and 2009/10.

# Soil Quality

Figure 5.1 Soil phosphorus (as Olsen-P) by P-index for managed grassland soils, 2004/05 – 2010/11

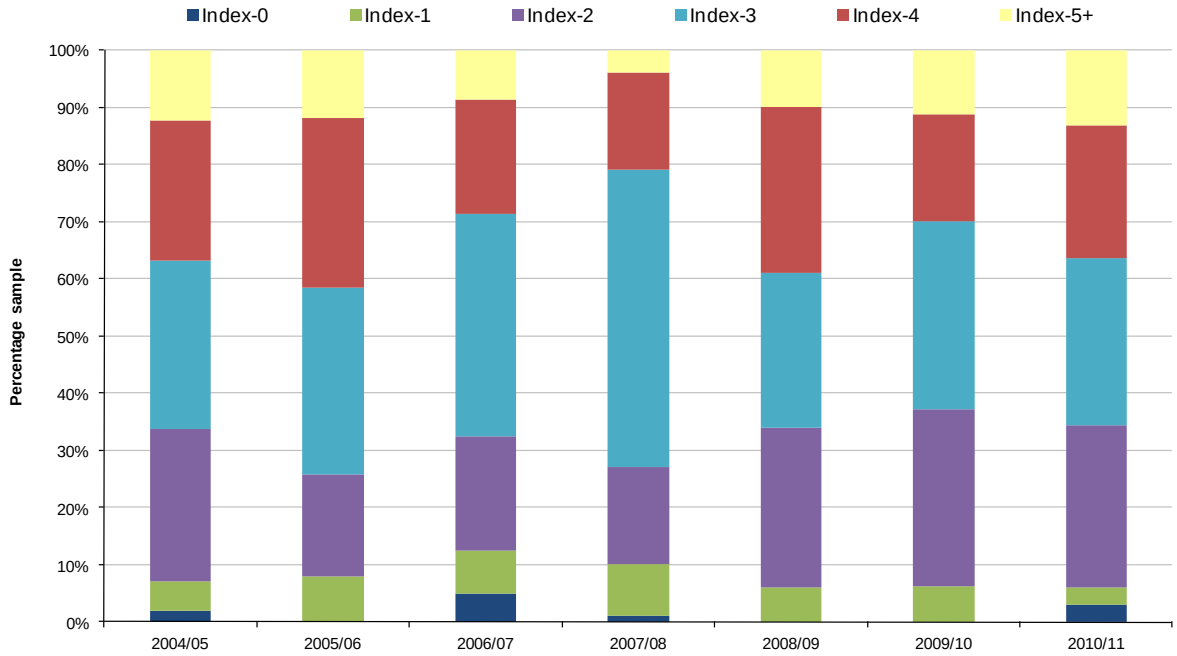



Table 5.1 Soil phosphorus (as Olsen-P) by P-index for managed grassland soils, 2004/05 – 2010/11

Unit: Percentage sample

| | | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Index-0 | Low or deficient | 2.0 | 0.0 | 5.0 | 1.0 | 0.0 | 0.0 | 3.0 |
| Index-1 | | 5.1 | 7.9 | 7.5 | 9.0 | 6.0 | 6.2 | 3.0 |
| Index-2 | Sufficient | 26.5 | 17.8 | 20.0 | 17.0 | 28.0 | 30.9 | 28.3 |
| Index-3 | High | 29.6 | 32.7 | 38.8 | 52.0 | 27.0 | 33.0 | 29.3 |
| Index-4 | Excessive | 24.5 | 29.7 | 20.0 | 17.0 | 29.0 | 18.6 | 23.3 |
| Index-5+ | | 12.2 | 11.9 | 8.8 | 4.0 | 10.0 | 11.3 | 13.1 |
| | | | | | | | | |
| *Source: AFBI* | | | | | | | | |

- The AFBI Representative Soil Sampling Scheme (RSSS) began in 2004/05. Five hundred fields were randomly selected from intensive cattle farms across Northern Ireland and each winter one hundred of these fields are sampled.
- The quantity of 'plant-available' phosphorus (P) in soil (measured by the Olsen method) is expressed as an index from 0 (deficient in P) to 9 (excessive in P for all crops).
- For grassland, Olsen P-indices normally range from 0 to 5. Furthermore:
    - A P-index of 0 means deficient in soil-P and a soil-P concentration of 0-9 mgP/l.
    - A P-index of 5 means excessive soil-P and a soil-P concentration greater than 70 mgP/l.

- For managed grassland soils, an Olsen P-index greater than 3, indicating a soil-P concentration greater than 45 mgP/l, is considered to be excessive.
- The samples taken in 2010/11 provide an opportunity to compare results of soil samples taken from the same fields five years earlier. Using GPS, soils were re-sampled from the *same* transect used in 2005/06. This allows a direct comparison of changes in soil fertility over the five year period from 2005/06 to 2010/11.
- Comparison of annual summary soil datasets for 2005/06 and 2010/11 shows that there has been a decrease in the number of samples at P-index 1 (-4.9%), P-index 3 (-3.4%) and P-index 4 (-6.4%). With a corresponding increase in those at P-index 0 (+3.0%), P-index 2 (+10.5%) and P-index 5 (+1.2%).
- Therefore, in 2010/11, there are fewer soils which are deficient in phosphorus *and* fewer soils which have excessive phosphorus concentrations compared with 2005/06.

# Sustainable Land Management

Figure 5.2 Northern Ireland agri-environment schemes, area under agreements, 2001 – 2010

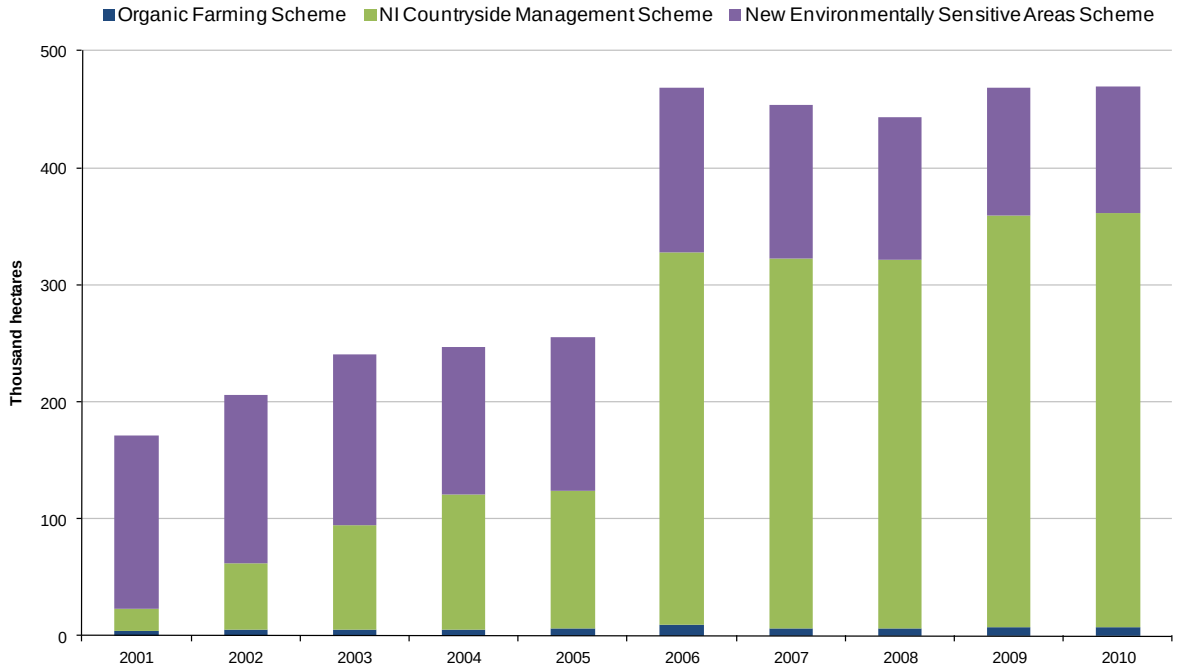



Table 5.2 Northern Ireland agri-environment schemes, area under agreements, 2001 – 2010

Unit: Thousand hectares

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Organic Farming Scheme | 4 | 5 | 5 | 5 | 6 | 10 | 6 | 6 | 7 | 7 |
| NI Countryside Management Scheme | 19 | 57 | 90 | 116 | 118 | 318 | 317 | 315 | 352 | 354 |
| New Environmentally Sensitive Areas Scheme | 148 | 144 | 146 | 126 | 131 | 141 | 131 | 122 | 109 | 109 |

*Source: DARD*

Note: CMS only began in 2001.

- The aim of agri-environment schemes is to enhance biodiversity, improve water quality, enhance the landscape and heritage features, and help reduce the impact of climate change by integrating sustainable environmental management into the everyday workings of the farm. In return for this, farmers and landowners receive a payment, based on the area of habitat and archaeological features present on the farm, and the area/length of habitat enhancement options carried out.

- In 2010, 470,000 hectares (approximately 42%) of the farmed area in Northern Ireland was managed through the Northern Ireland Countryside Management Scheme (NICMS), the Environmentally Sensitive Areas Scheme (ESAS) and the Organic Farming Scheme (OFS).

- The new NICMS and OFS were launched in 2008 with 943 and 33 agreements issued respectively to begin from 1 January 2009. Both NICMS and OFS opened to new applications in 2010 and funding is available to progress approximately 2,300 NICMS agreements and 30 OFS agreements. These new agreements will be signed so that 1,000 begin in 2012 and 1,300 begin in 2013.

# Area of Woodland

Figure 5.3 Area of new forest and woodland plantings, 2001/02 – 2010/11

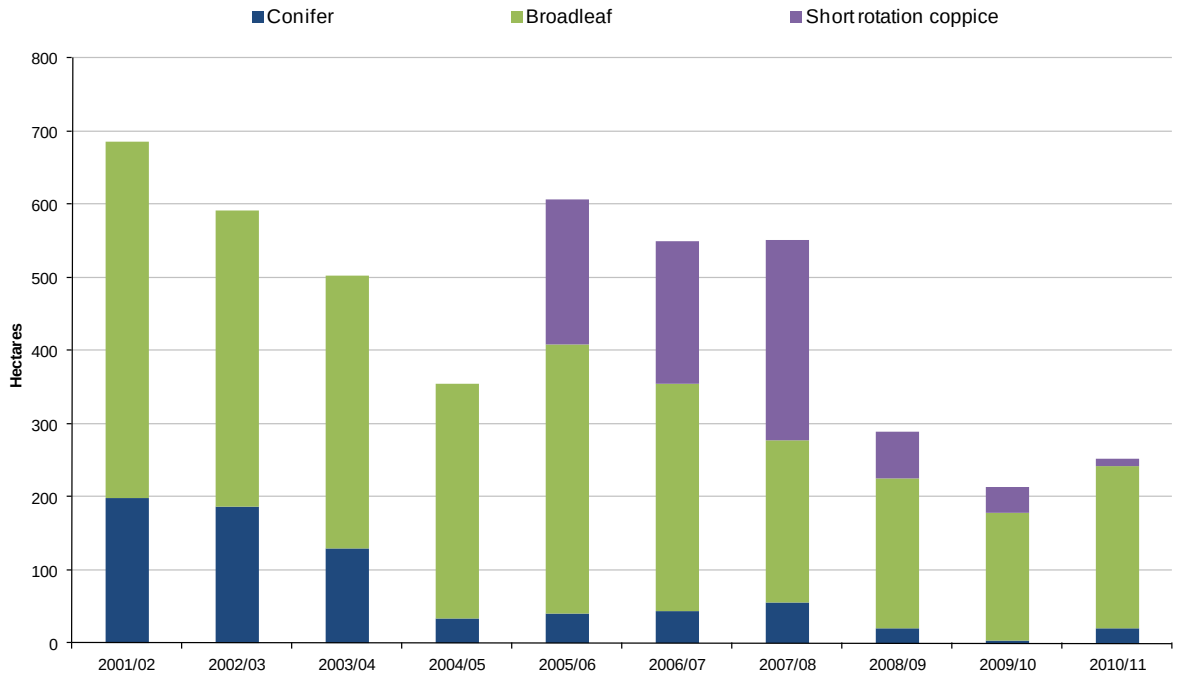



Table 5.3 Area of new forest and woodland plantings, 2001/02 – 2010/11

| | | | | | | | | | Unit: Hectares | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001/02** | **2002/03** | **2003/04** | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11** |
| Conifer | 198 | 187 | 130 | 34 | 41 | 44 | 56 | 20 | 3 | 21 |
| Broadleaf | 488 | 405 | 373 | 321 | 367 | 310 | 221 | 205 | 175 | 221 |
| Short rotation coppice | n/a | n/a | n/a | n/a | 198 | 195 | 275 | 64 | 36 | 10 |
| | | | | | | | | | | |
| *Source: Forest Service of Northern Ireland* | | | | | | | | | | |

- In Northern Ireland, over 70% of the woodlands and semi-natural forests are owned and managed by the Forest Service. The remainder is managed mostly by private landowners.

- In 2010/11, there were 252 hectares of new plantings. Of these, 100% were planted by the private sector supported by grant aid from the Forest Service.

- Short rotation coppice (SRC) is the practice of planting woody crops at high density which is harvested every 2 - 5 years. In Northern Ireland, SRC plantings have been counted separately since 2005, due to the introduction of a challenge fund specifically for SRC. These crops are grown for renewable energy purposes and they accounted for 4% of all new plantings in 2010/11, compared to 17% of new plantings in 2009/10.

- There has been a dramatic decrease (89%) in conifer plantings in the past 10 years; however there has been a small increase between 2009/10 and 2010/11. A shortage of suitable land at affordable prices has resulted in fewer

conifer plantings by Forest Service in recent times. New planting is now generally restricted to smaller scattered areas of the countryside and broadleaves are normally preferred for landscape and environmental reasons.

# Housing

Figure 5.4 Housing completions, 2000/01 – 2009/10

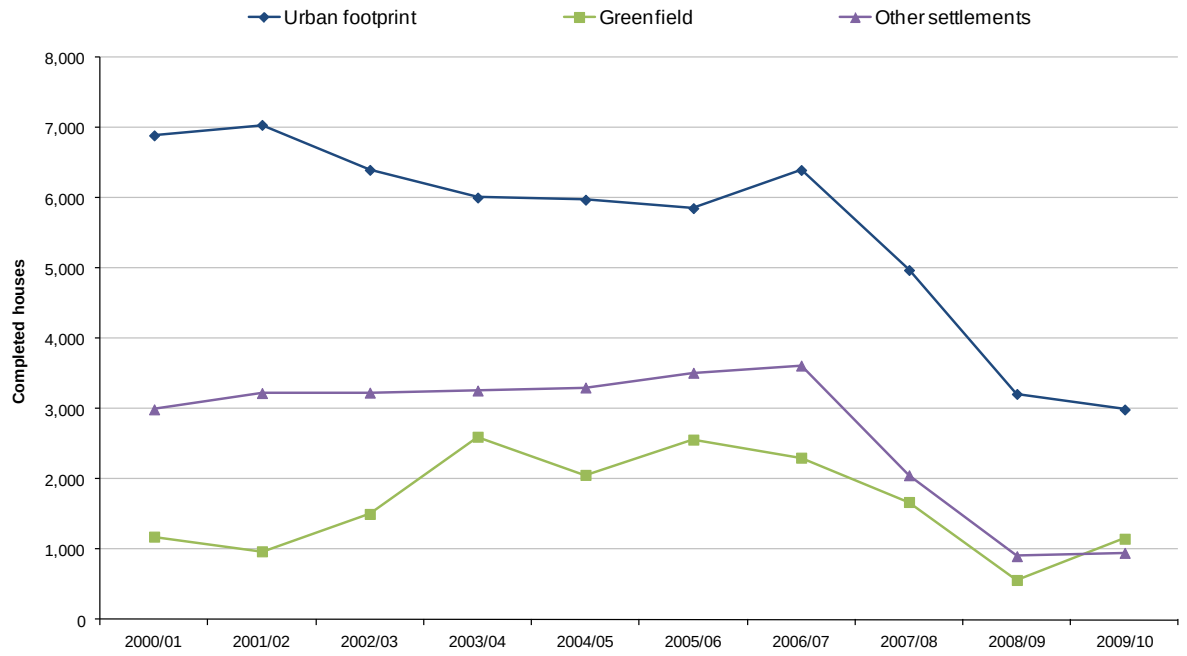



Table 5.4 Housing completions, 2000/01 – 2009/10

| | | | | | | | | | Unit: Houses | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2000/01** | **2001/02** | **2002/03** | **2003/04** | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** |
| Urban footprint | 6,894 | 7,043 | 6,403 | 6,009 | 5,978 | 5,858 | 6,401 | 4,977 | 3,213 | 2,992 |
| Greenfield | 1,182 | 973 | 1,505 | 2,604 | 2,061 | 2,563 | 2,306 | 1,675 | 565 | 1,152 |
| Other settlements | 2,994 | 3,226 | 3,232 | 3,262 | 3,305 | 3,515 | 3,617 | 2,056 | 904 | 951 |
| Total | 11,070 | 11,242 | 11,140 | 11,875 | 11,344 | 11,936 | 12,324 | 8,708 | 4,682 | 5,095 |
| | | | | | | | | | | |
| *Source: Planning Service* | | | | | | | | | | |
| | | | | | | | | | | |
| Note: 2007/08 has been amended from previously published figure. | | | | | | | | | | |

- Housing completions and the land available for housing in settlements across Northern Ireland are monitored with regard to the provisions of prevailing development plans.

- The data shows, for each year, the total number of housing completions within all settlements. For those settlements with a population greater than 5,000 these are broken down in terms of those completed within the urban footprints of settlements and those completed on greenfield sites, which are outside of urban footprints but within settlement limits. The data also shows the total number of houses completed in other settlements, which have a population less than 5,000.

- Following the steep decline in housing completions since 2007/08, the number of housing completions remains low, despite an increase of 9% percent in housing completions between 2008/09 and 2009/10.

# 6. Biodiversity

Biodiversity describes the vast range of living organisms on earth. Biological diversity has been defined as:

> "The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."
>
> *Convention on Biological Diversity, 1992*

The state of our biodiversity is a cumulative measure of the relative state of our air, water and land environments. This chapter reports on the extent of nature conservation designations in Northern Ireland, the condition of some of these designations, wild and wetland bird populations, sites of local nature conservation importance, the number of tree preservation orders imposed annually, the condition of priority habitats and species and common seal populations.

Habitats and species in Northern Ireland are protected by a series of statutory designations. These include Areas of Special Scientific Interest (ASSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites (areas of wetland and waterfowl conservation), National Nature Reserves, Marine Nature Reserves and Local Nature Reserves. Protection is also afforded by non-statutory Sites of Local Nature Conservation Importance (SLNCI).

Wild bird populations are considered to be a good indicator of the broad state of the wildlife and the countryside. Between 2000 and 2010, the wild bird population has decreased by 21%. The wetland bird population has also decreased, by 22% between 1999/2000 – 2009/10.

Tree preservation orders (TPO) are used by Planning Service to protect trees from being cut down or damaged. Trees provide a valuable habitat to a wide variety of species, and therefore the number of TPOs issued each year can be regarded as an indicator of one method of maintaining biodiversity.

Priority habitats and species have previously been monitored on a three year cycle by NIEA as an indicator of biodiversity and as part of a UK-wide monitoring round. The overall status and trends of priority habitats and species, for which information is available, has remained relatively unchanged between 2005 and 2008. A major review of all UK priority habitats and species has resulted in 481 Northern Ireland priority species and 51 Northern Ireland priority habitats being identified and published in 2010.

Seal populations are regularly monitored across Northern Ireland, with the longest record held at Strangford Lough. Adult common seal populations at Strangford Lough have fluctuated over recent years, but the 2011 population of 172 was below the average for the last ten years (201).

# Nature Conservation Designations

Figure 6.1(a) Area of nature conservation designations, 2000/01 – 2010/11

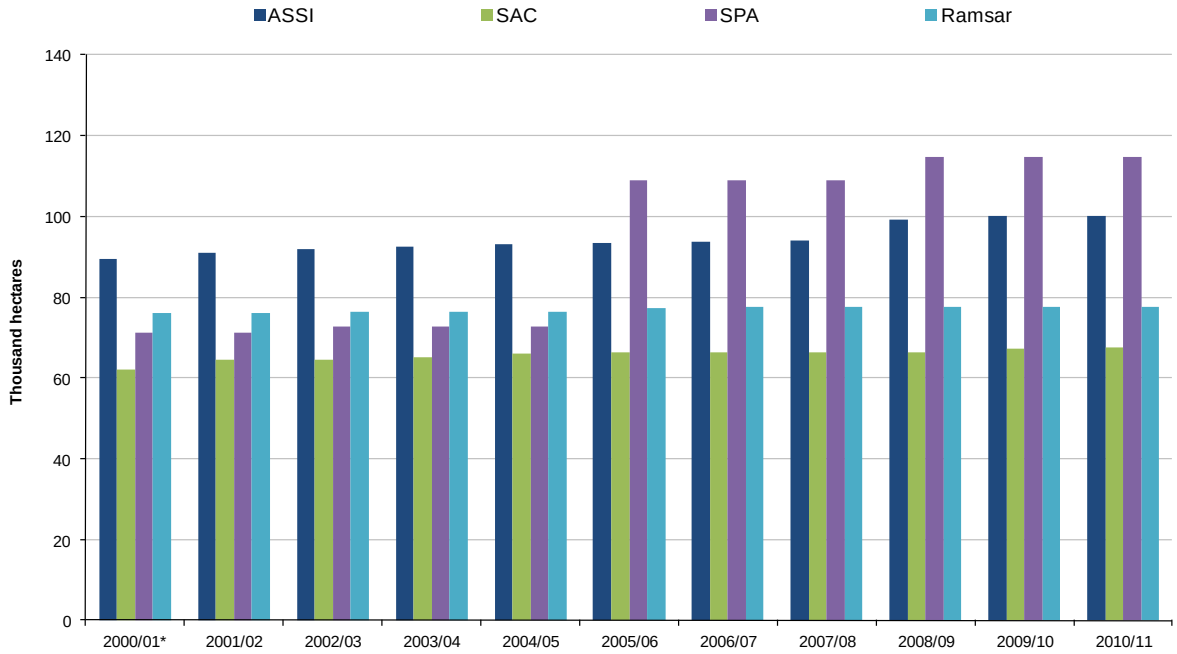



Table 6.1 Area of nature conservation designations, 2000/01 – 2010/11

Unit: Thousand hectares

| | 2000/01* | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ASSI | 89.6 | 91.1 | 91.9 | 92.4 | 93.1 | 93.5 | 93.8 | 94.2 | 99.3 | 100.1 | 100.2 |
| SAC | 62.1 | 64.6 | 64.6 | 65.1 | 65.9 | 66.4 | 66.4 | 66.4 | 66.4 | 67.3 | 67.6 |
| SPA | 71.3 | 71.3 | 72.8 | 72.8 | 72.8 | 108.8 | 108.8 | 108.8 | 114.6 | 114.6 | 114.6 |
| Ramsar | 76.1 | 76.1 | 76.2 | 76.2 | 76.2 | 77.4 | 77.5 | 77.5 | 77.7 | 77.7 | 77.7 |

*Source: NIEA*

* These figures include all conservation designations up to and including 2000/01.

- Identifying and protecting areas of natural and semi-natural scientific interest and the flora and fauna they support has been a cornerstone of nature conservation action in the UK during the last 50 years. Some sites are deemed of such importance that they are formally designated under a number of pieces of national and international legislation.

- Many areas in Northern Ireland have been designated to protect their nature conservation value. Sites include land, freshwater, coastal and marine areas.

- At 31 March 2011, a total of 100,200 hectares had been declared as Areas of Special Scientific Interest (ASSI), 67,600 hectares as Special Areas of Conservation (SACs), 114,600 hectares as Special Protection Areas (SPAs) and 77,700 hectares as Ramsar sites (areas of wetland and waterfowl conservation).

- There is some overlap between these different types of designation and therefore these cannot be totalled to give an absolute figure on the extent of

designations. Figures 6.1(b) and 6.1(c) show the spatial extent and distribution of these areas.

Figure 6.1(b) Areas of Special Scientific Interest (ASSI), designated between 1975/76 and 2010/11

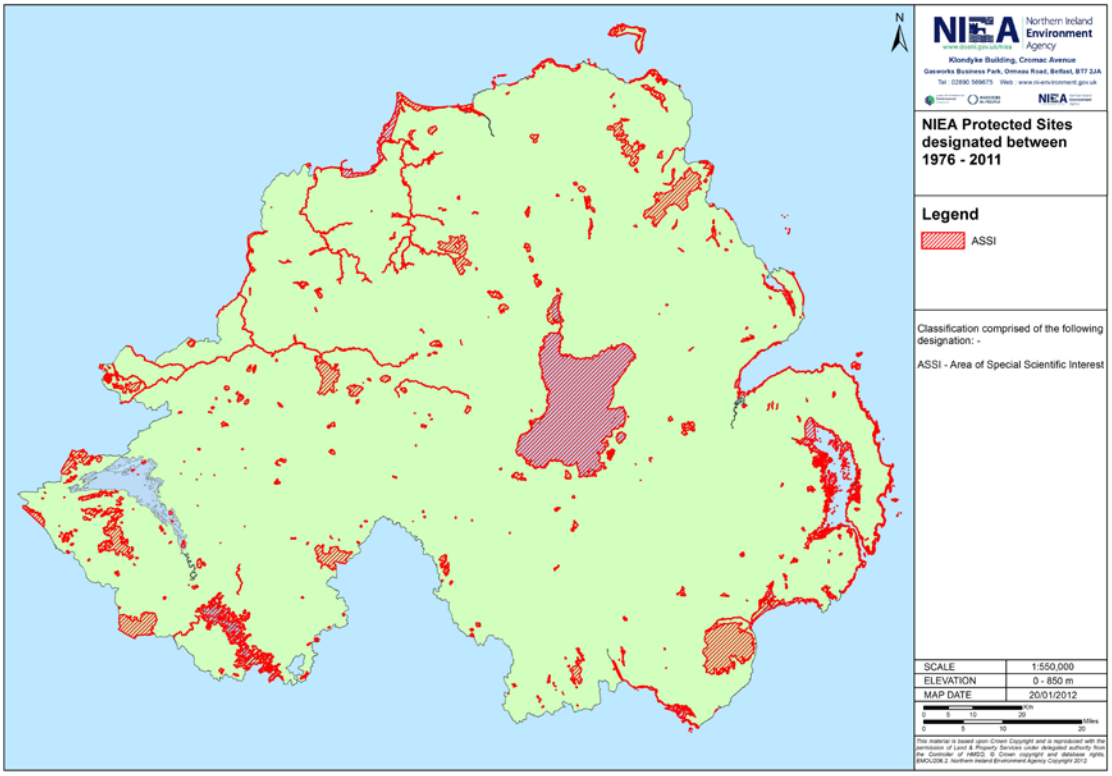
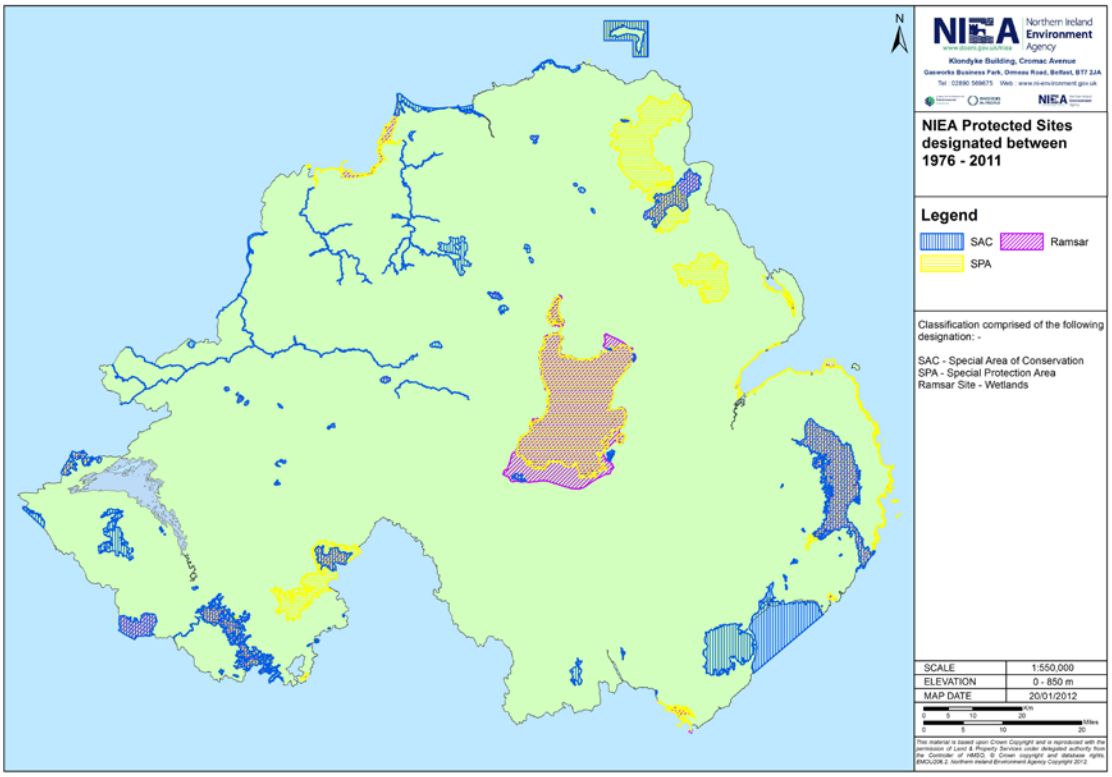



Figure 6.1(c) Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites, designated between 1975/76 and 2010/11



# Nature Conservation Designations

Figure 6.2 Condition of features within Areas of Special Scientific Interest (ASSI), for the six year rolling period ending March 2011

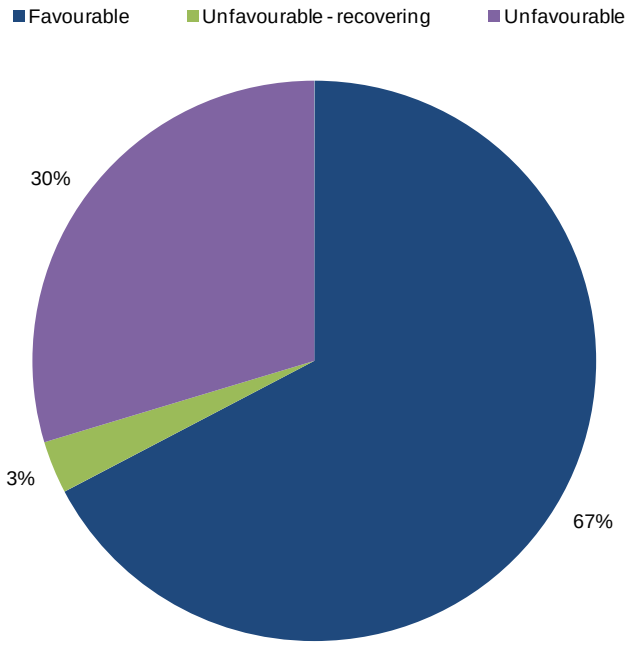



Table 6.2 Condition of features within Areas of Special Scientific Interest (ASSI), for the six year rolling period ending March 2011

| | Favourable | Unfavourable - recovering | Unfavourable | All conditions |
|---|---|---|---|---|
| Number of features | 646 | 29 | 285 | 960 |
| Percentage | 67 | 3 | 30 | 100 |
| | | | | |
| *Source: NIEA* | | | | |

- Areas of Special Scientific Interest (ASSIs) are designated sites which are protected under Northern Ireland law for their nature and earth science value. They are selected based on specific qualifying features which include earth science features, habitats and species. The condition of these features is assessed over a six year monitoring programme.

- The first full cycle was completed in March 2008, during which 916 features from 195 ASSIs were assessed. These data have been updated with the results from the subsequent three monitoring years. Over 170 features have been reassessed as part of the second six-year cycle. In addition, around 30 features on recently declared ASSIs have been assessed for the first time.

- The results show little change from previous years, with just over two-thirds of the features in favourable condition and 30% of features in an unfavourable condition.

- No definitive comments about trends in condition can be made at this stage. However, the condition of features is not expected to improve rapidly, as restoring features to favourable condition will take time. NIEA is working with landowners and other stakeholders – in particular the Department of Agriculture and Rural Development through its NI Countryside Management Scheme and other agri-environment schemes - to ensure that sympathetic management of ASSIs is in place.

# Wild Birds

Figure 6.3 Wild bird populations in Northern Ireland, 1994 – 2010

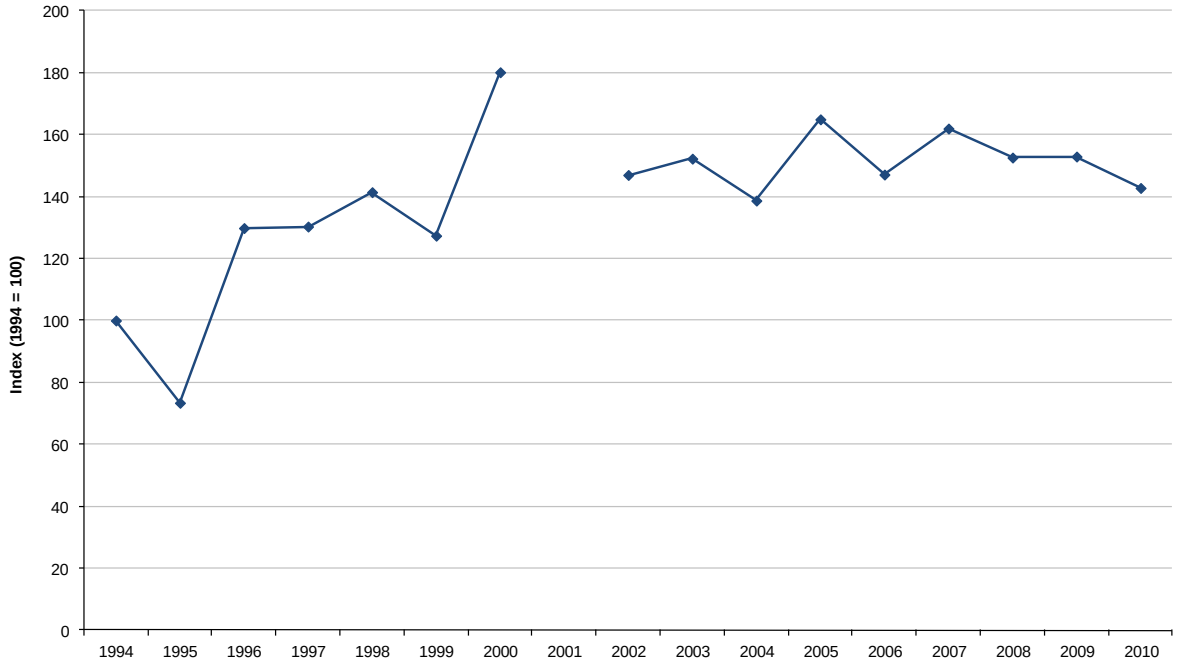



Table 6.3 Wild bird populations in Northern Ireland, 1994 – 2010

| 1994 - 2002 | **1994** | **1995** | **1996** | **1997** | **1998** | **1999** | **2000** | **2001** | **2002** |
|---|---|---|---|---|---|---|---|---|---|
| Index (1994 = 100) | 100 | 73 | 130 | 130 | 141 | 127 | 180 | n/a | 147 |
| | | | | | | | | | |
| 2003 - 2010 | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | |
| Index (1994 = 100) | 152 | 139 | 165 | 147 | 162 | 153 | 153 | 143 | |
| | | | | | | | | | |
| *Source: British Trust for Ornithology* | | | | | | | | | |

- Northern Ireland's wild bird population is monitored as part of the UK BTO/JNCC/RSPB Breeding Bird Survey, which is undertaken annually at just over 3,000 sites across the UK.

- In Northern Ireland, information on trends is only available for 29 of the most common species.

- Between 1994 and 2010, the wild bird index is estimated to have increased by 43%. However the index peaked in 2000 and since then has decreased by 21%.

- There is no figure for 2001, due to the impact that the foot and mouth outbreak had on the collection of data, i.e. observers not being able to access many rural areas, and as such a much smaller sample being taken.

# Wetland Birds

Figure 6.4 Wetland bird populations in Northern Ireland, 1999/2000 – 2009/10

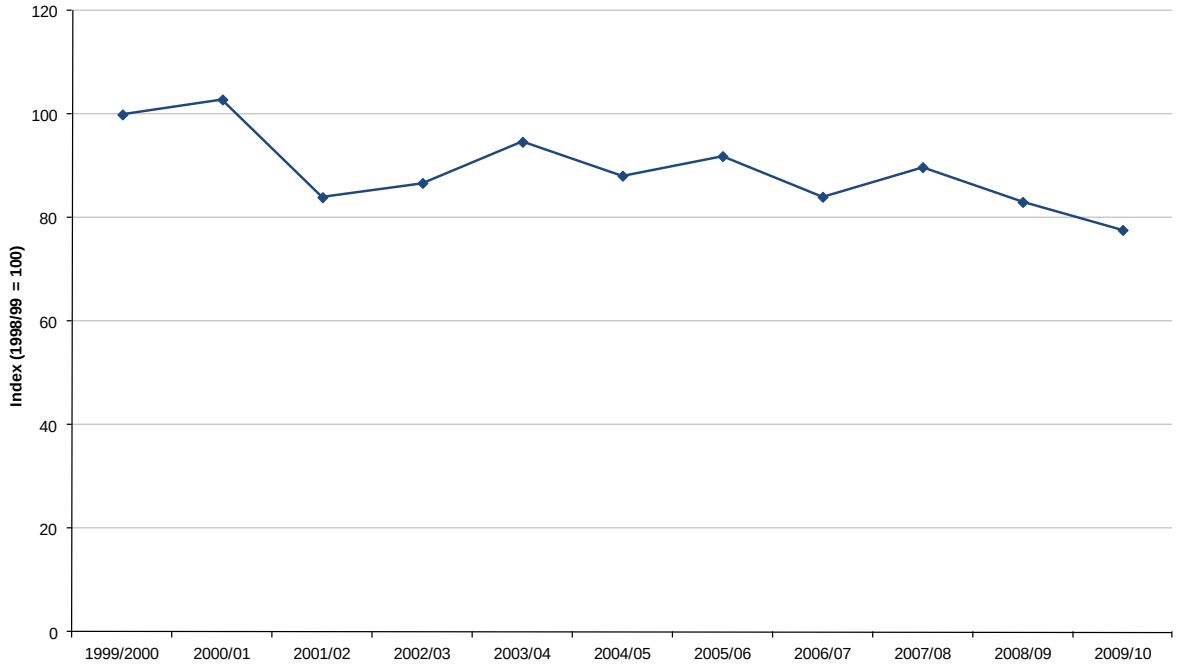



Table 6.4 Wetland bird populations in Northern Ireland, 1999/2000 – 2009/10

| 1999/2000 - 2004/05 | **1999/2000** | **2000/01** | **2001/02** | **2002/03** | **2003/04** | **2004/05** |
|---|---|---|---|---|---|---|
| Index (1999/2000 = 100) | 100 | 103 | 84 | 87 | 95 | 88 |
| | | | | | | |
| 2005/06 - 2009/10 | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | |
| Index (1999/2000 = 100) | 92 | 84 | 90 | 83 | 78 | |
| | | | | | | |
| *Source: British Trust for Ornithology* | | | | | | |

- Northern Ireland's wetland bird population is monitored as part of the Wetland Bird Survey (WeBS). This survey monitors non-breeding waterbirds across the UK, identifying population sizes at local and regional scales, determining trends in numbers and identifying important sites for waterbirds.

- The index above is based on the seven main sites for waterbirds in Northern Ireland, i.e. Strangford Lough, Loughs Neagh and Beg, Lough Foyle, Belfast Lough, Outer Ards shoreline, Carlingford Lough and Upper Lough Erne.

- Between 1999/2000 and 2009/10, the wetland bird population is estimated to have decreased by 22%. This is principally due to the decline in Lough Neagh's winter diving duck population in recent years.

# Sites of Local Nature Conservation Importance

Figure 6.5 Number of Sites of Local Nature Conservation Importance (SLNCI) adopted or proposed in area plans, 2001 – 2010

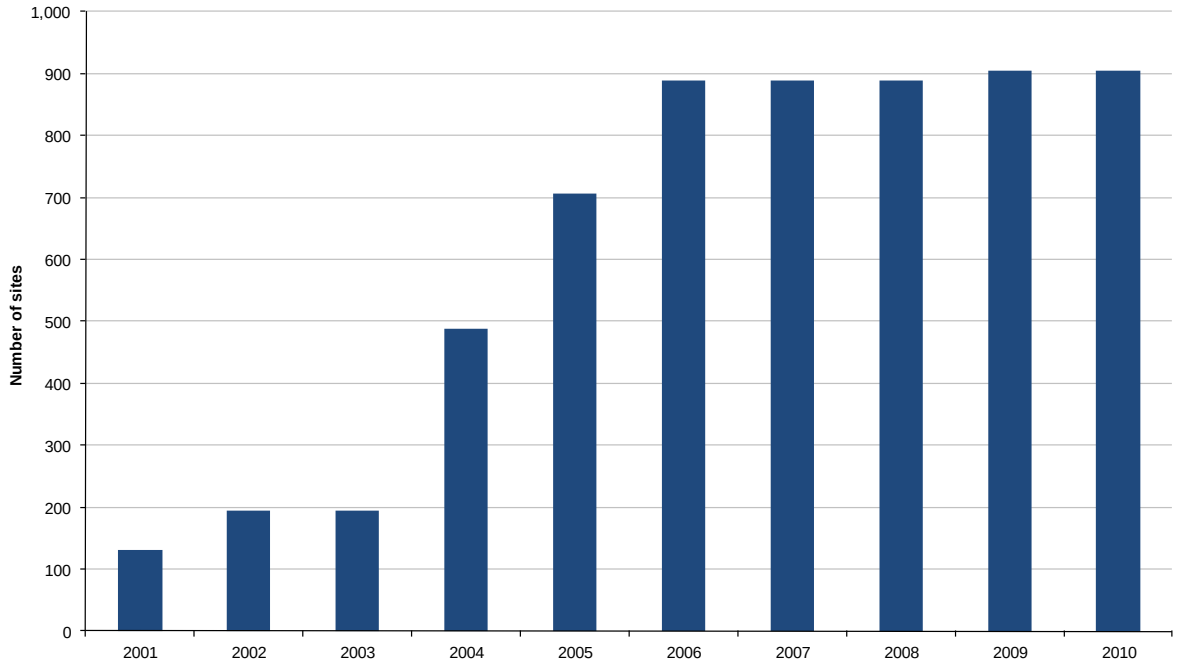



Table 6.5 Number of Sites of Local Nature Conservation Importance (SLNCI) adopted or proposed in area plans, 2001 – 2010

| | | | | | | | | | Unit: Number of sites | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Cumulative total | 130 | 194 | 194 | 488 | 706 | 889 | 889 | 889 | 904 | 904 |
| | | | | | | | | | | |
| *Source: NIEA* | | | | | | | | | | |
| | | | | | | | | | | |
| Note: Sites proposed in one year may not be adopted in subsequent years and are subtracted from the cumulative total. | | | | | | | | | | |

- Sites of Local Nature Conservation Importance (SLNCIs) are published in development / area plans and are afforded protection by planning policies.
- Prior to an area plan being published, Planning Service request that NIEA provide information on sites which contain substantive local nature conservation value. Where such sites are identified, area plans will set out specific planning policies which will apply to development proposals on those sites.
- Unlike Areas of Special Scientific Interest, the condition of SLNCIs is not routinely monitored.
- The number of SLNCIs has increased from 130 in 2001 to 904 in 2010. The number of proposed or adopted SLNCIs is linked to the publication of area plans.

# Tree Preservation Orders

Figure 6.6 Number of imposed Tree Preservation Orders (TPO), 2003 – 2010

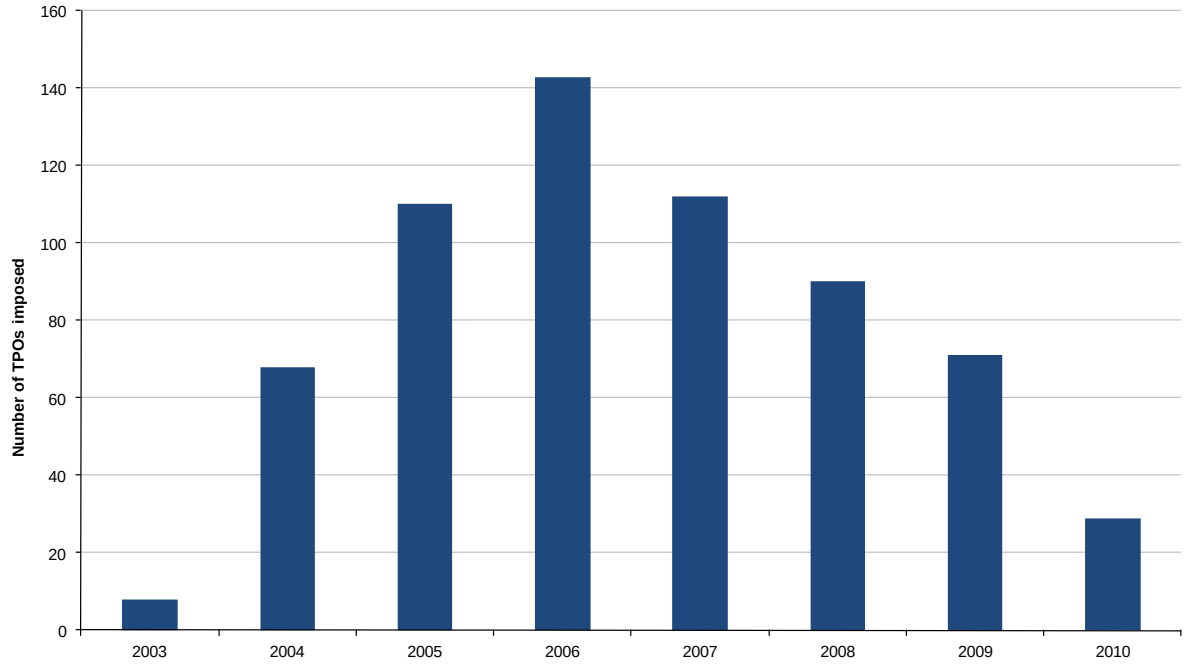



Table 6.6 Number of imposed Tree Preservation Orders (TPO), 2003 – 2010

Unit: Number

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|
| TPOs imposed | 8 | 68 | 110 | 143 | 112 | 90 | 71 | 29 |

*Source: Planning Service*

- Planning Service has a statutory duty to protect trees by making Tree Preservation Orders (TPO). The issuing of a TPO makes it an offence to cut down, top, lop, uproot, wilfully damage or destroy any protected tree(s) without first having obtained permission from the Planning Service.

- All types of tree can be protected in this way, whether as single trees or as part of a woodland, copse or other grouping of trees. Protection does not extend to hedges, bushes or shrubs.

- Between 2003 and 2010, Planning Service has imposed a total of 631 TPOs. Of those, 29 were imposed in 2010.

- The marked decrease in the numbers of TPOs issued in recent years may be due to a number of different factors, including a decrease in the number of development applications, reductions in the number of requests from the general public and conservation groups, reductions in the number of Local Landscape Policy Areas identified during Development Plan survey work and a reduction in the budget allocated for tree surveys, which required the criteria for protection, on occasions, to be increased to imminent threat of felling.

# Priority Habitats

Figure 6.7 Trend for priority Biodiversity Action Plan habitats, 2005 & 2008

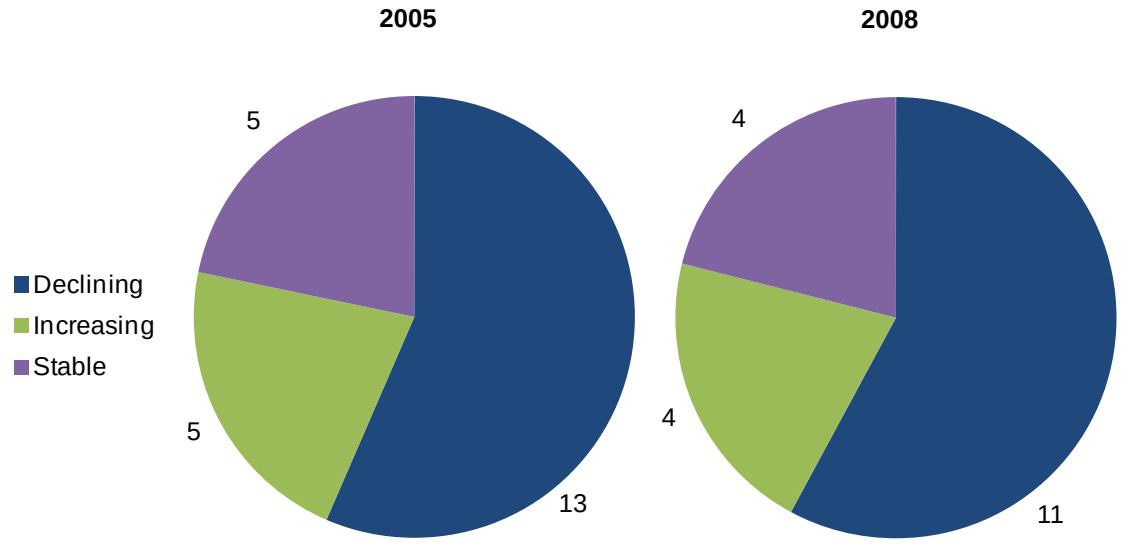



Table 6.7 Trend for priority Biodiversity Action Plan habitats, 2005 & 2008

| | | | Unit: Priority habitats | |
|---|---|---|---|---|
| | **Declining** | **Increasing** | **Stable** | **Total number of habitats reported** |
| 2005 | 13 | 5 | 5 | 23 |
| 2008 | 11 | 4 | 4 | 19 |
| | | | | |
| *Source: NIEA* | | | | |

- The status and trends in priority habitats provide an indicator of habitat changes in Northern Ireland.
- NIEA has published 37 habitat action plans which are used as a focus for the maintenance and enhancement of these habitats.
- As part of a three year reporting cycle, 35 of these habitats were included in the UK Biodiversity Action Plan reports of 2005 and 2008.
- Of the 19 habitats reported in 2008 (for which the status and trend where known), 11 were considered to be declining, four were classified as increasing and four were stable.
- A major review of all UK priority habitats and species has resulted in 481 Northern Ireland priority species and 51 Northern Ireland priority habitats being identified and published in 2010. For more information see http://www.doeni.gov.uk/niea/biodiversity/habitats-2.htm.

# Priority Species

Figure 6.8 Trend for priority Biodiversity Action Plan species, 2005 & 2008

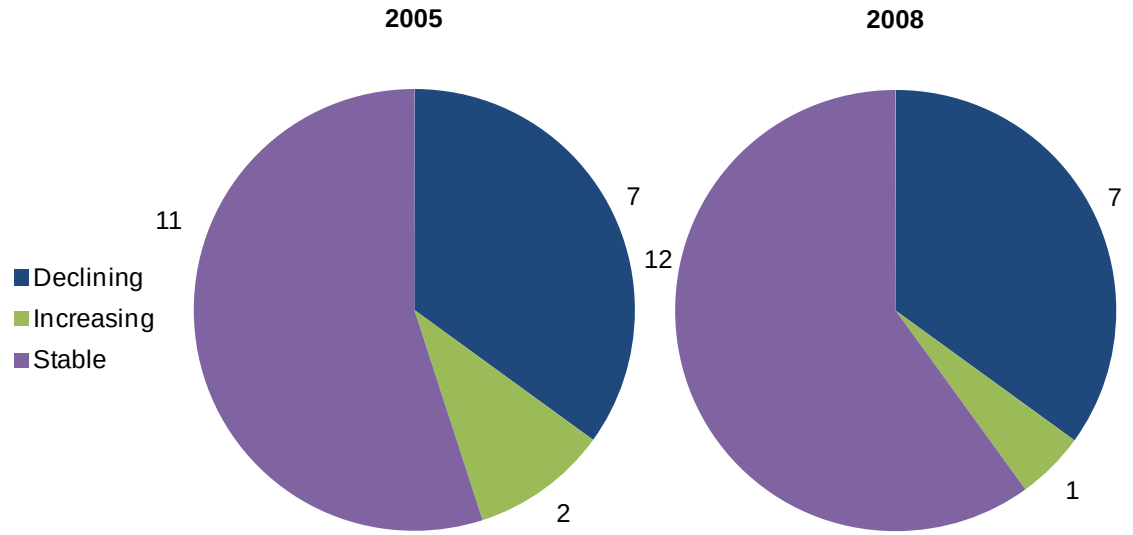



Table 6.8 Trend for priority Biodiversity Action Plan species, 2005 & 2008

| | | | Unit: Priority species | |
|---|---|---|---|---|
| | **Declining** | **Increasing** | **Stable** | **Total number of species reported** |
| 2005 | 7 | 2 | 11 | 20 |
| 2008 | 7 | 1 | 12 | 20 |
| | | | | |
| *Source: NIEA* | | | | |

- The status of priority species provides an indicator of change for a wide range of ecosystems and natural processes throughout the UK and thus an indirect indicator of biodiversity.

- As part of a three year reporting cycle, a number of priority species were included in the UK Biodiversity Action Plan reports of 2005 and 2008.

- Of the species reported in 2008 (for which the status and trend was known), only one was considered to be increasing. Seven were declining and 12 were stable.

- A major review of all UK priority habitats and species has resulted in 481 Northern Ireland priority species and 51 Northern Ireland priority habitats being identified and published in 2010. For more information see http://www.doeni.gov.uk/niea/biodiversity/sap_uk.htm.

# Seals

Figure 6.9 Strangford Lough common seal population, adults and pups, 2002 – 2011

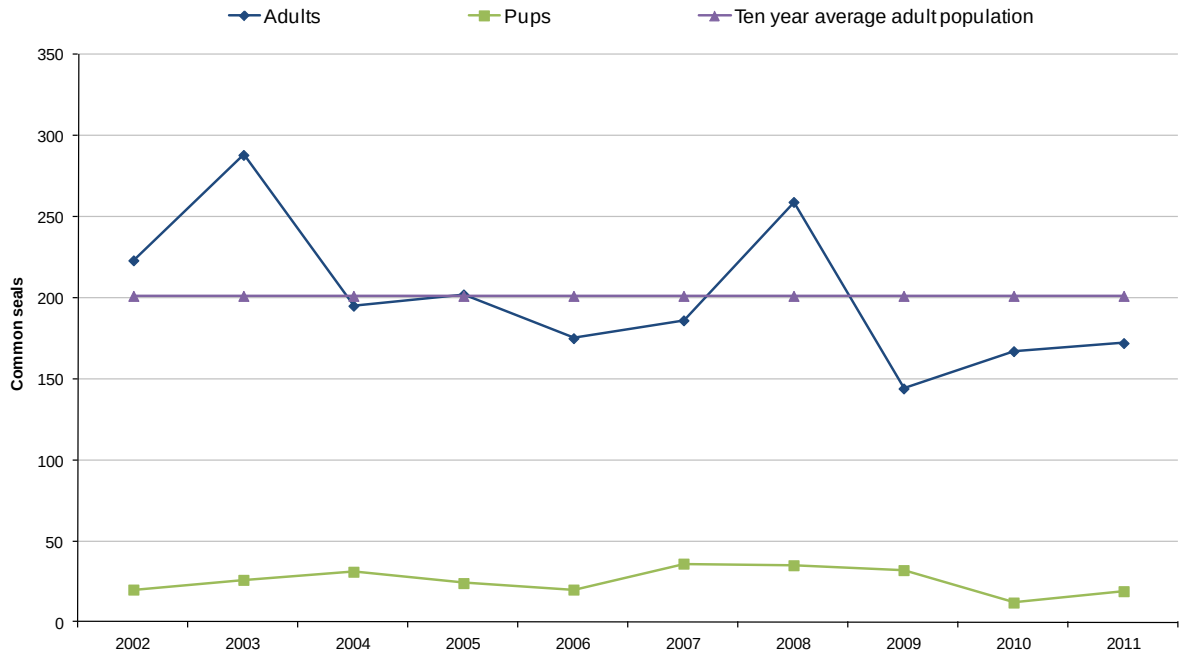



Table 6.9 Strangford Lough common seal population, adults and pups, 2002 – 2011

| | | | | | | | | Unit: Common seals | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
| Adults | 223 | 288 | 195 | 202 | 175 | 186 | 259 | 144 | 167 | 172 |
| Pups | 20 | 26 | 31 | 24 | 20 | 36 | 35 | 32 | 12 | 19 |
| | | | | | | | | | | |
| *Source: NIEA* | | | | | | | | | | |

- NIEA monitor the seal population of Strangford Lough throughout the year. The highest count recorded each year is taken to be the population for that year.

- Under the NI Seal Monitoring Programme, NIEA and National Trust staff undertake boat-based and shore-based observations of both common seals and grey seals within Strangford Lough. Adults and pups are counted, along with records of any anthropogenic disturbance (disturbance resulting from human activity) and the associated environmental data.

- Adult common seal populations at Strangford Lough have fluctuated over recent years, but the 2011 population of 172 was below the average for the last ten years (201). The highest population in the last ten years was 288, in 2003.

- The number of pups recorded in 2011 was 19. The pup population is more consistent than the adult population over the last ten years.

# 7. Built Heritage

Northern Ireland has a rich heritage of archaeological sites, monuments and buildings representing the aspirations and achievements of past societies, providing evidence of settlement, agricultural, industrial and ritual activity from 9,000 years ago to the present day. This chapter looks at the numbers of scheduled monuments and listed buildings in Northern Ireland, including those which are at risk.

There are upwards of 35,000 historic monuments and sites in Northern Ireland dating from 9,000 years ago to the recent past. Monuments are chosen each year for scheduling and some of these are entered into the Built Heritage at Risk in Northern Ireland (BHARNI) register.

In 2010/11, there were a total of 1,896 scheduled monuments. Scheduled sites are managed by their owners under NIEA: Built Heritage guidance. The condition of these scheduled monuments is assessed regularly, and results of a survey which include them were published in 2009 by NIEA in the Condition and Management Survey of the Archaeological Resource (CAMSAR) for Northern Ireland.

Listed buildings are those of special architectural or historic interest, and provide an indication of the extent of this historical architectural resource. Since 2003 there has been a modest increase in the number of listed buildings with a total of 8,472 buildings recorded by the NIEA in 2010/11.

Buildings that are classified as ‘at risk’ in Northern Ireland are recorded on the online Built Heritage at Risk in Northern Ireland (BHARNI) database. In 2010/11, there were 499 listed buildings and structures on this database, and fifteen buildings had been removed.

The number of conservation areas was included as an indicator in the Northern Ireland Environmental Statistics Report 2011. Given that there has been little or no change in this indicator over the last eight years, this indicator has been removed from the 2012 report.

# Monuments

Figure 7.1 Number of scheduled monuments, 2001/02 – 2010/11

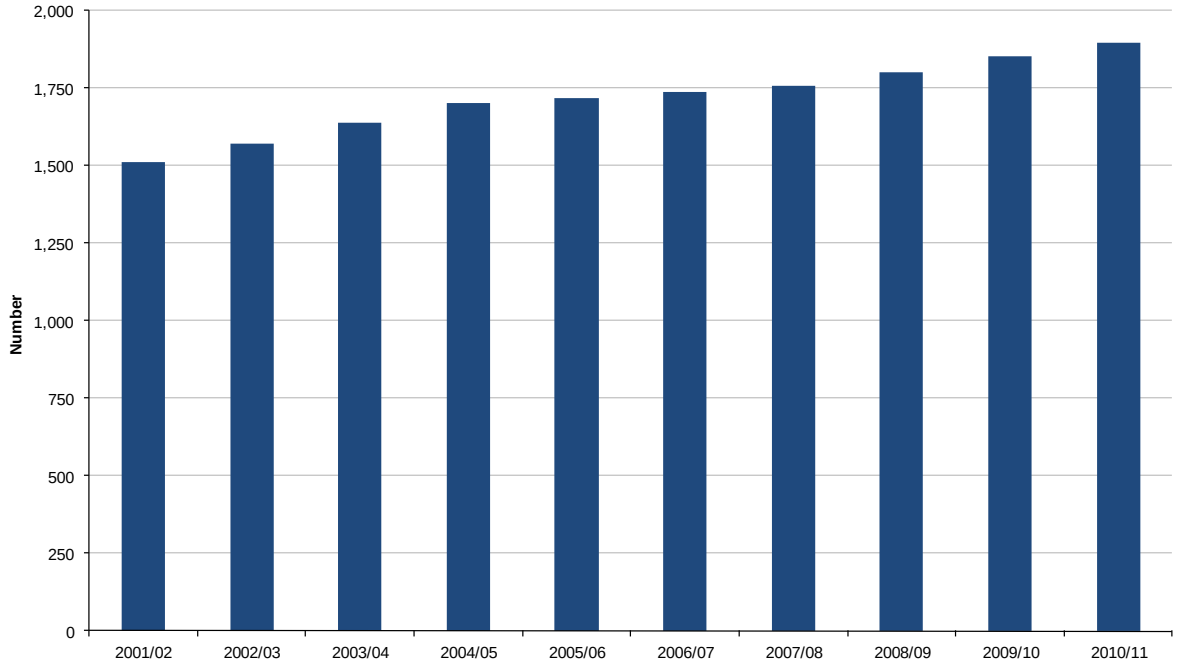



Table 7.1 Number of scheduled monuments, 2001/02 – 2010/11

Unit: Number

| | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of scheduled monuments | 40 | 60 | 66 | 65 | 14 | 20 | 20 | 46 | 50 | 43 |
| Cumulative total | 1,513 | 1,573 | 1,639 | 1,704 | 1,718 | 1,738 | 1,757 | 1,803 | 1,853 | 1,896 |

*Source: NIEA*

Note: One monument was descheduled in 2007/08

- Scheduled Historic Monuments include settlements, defences, workplaces, routeways and sites for ritual and burial. Scheduled sites are managed by their owners under NIEA: Built Heritage guidance.

- There has been an increase in the number of monuments being scheduled in the last few years in Northern Ireland with 20 monuments scheduled in the years 2006/07, rising to 50 in 2009/10. However, 2010/11 saw a small drop in the number of scheduled monuments to 43.

- Overall there has been a 25% increase in the total number of scheduled monuments rising from 1,513 in 2000/01 to 1,896 in 2010/11.

# Listed Buildings

Figure 7.2 Number of listed buildings, 2003/04 – 2010/11

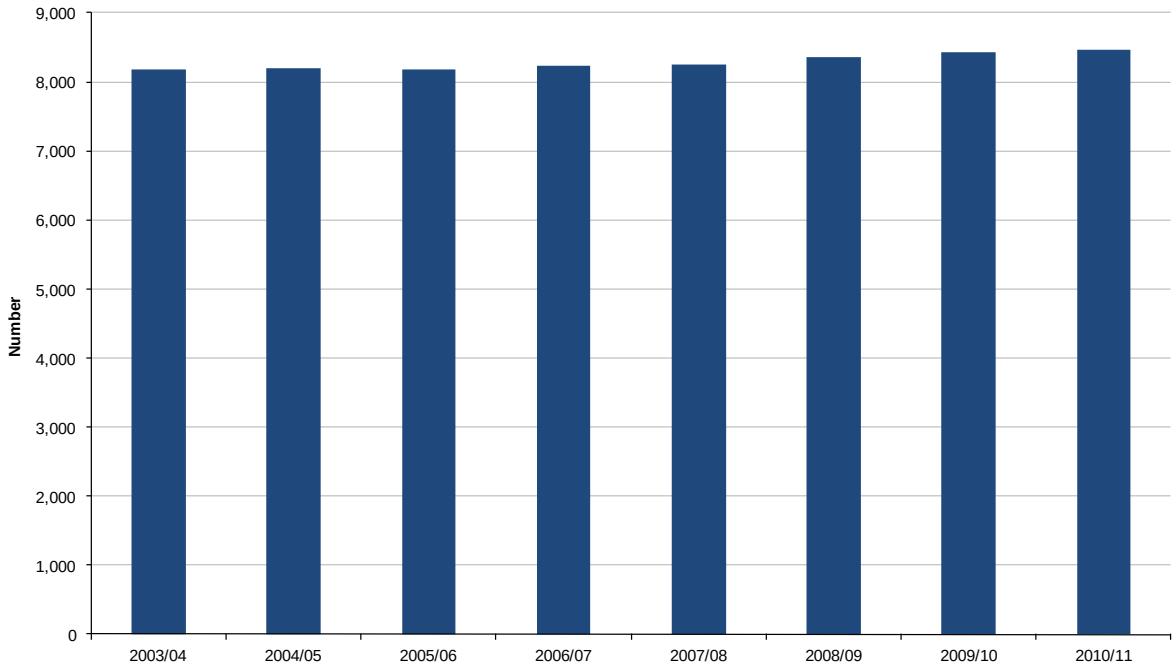



Table 7.2 Number of listed buildings, 2003/04 – 2010/11

| | | | | | | | Unit: Number | |
|---|---|---|---|---|---|---|---|---|
| | **2003/04** | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11** |
| Number of listed buildings | 8,184 | 8,206 | 8,177 | 8,242 | 8,248 | 8,350 | 8,424 | 8,472 |
| | | | | | | | | |
| *Source: NIEA* | | | | | | | | |

- Listed buildings are those of special architectural or historic interest, and provide an indication of the extent of this historical architectural resource. They therefore represent our most important historic buildings.

- All of Northern Ireland was surveyed between 1970 and 1995 and suitable buildings were protected by listing. Such structures can range from large stately homes to small gate screens but all must meet the test of Article 42(1) of the Planning Order in that they must be of 'special architectural or historic interest'.

- There has been a modest increase in the number of buildings listed in recent years with a total of 8,472 statutory listings in 2010/11, compared to 8,184 in 2003/04. Because some listings include multiple buildings the total number of buildings protected in this way is estimated to be around 8,500 structures.

- A second, area based survey of all historic buildings (The Second Survey) has been underway since 1997 and is largely responsible for this increase. However it should be noted that a significant number of buildings have also been found which no longer meet the legislative test and have therefore been removed.

# Buildings and Monuments at Risk

Figure 7.3 Number of buildings and monuments at risk, 2003/04 – 2010/11

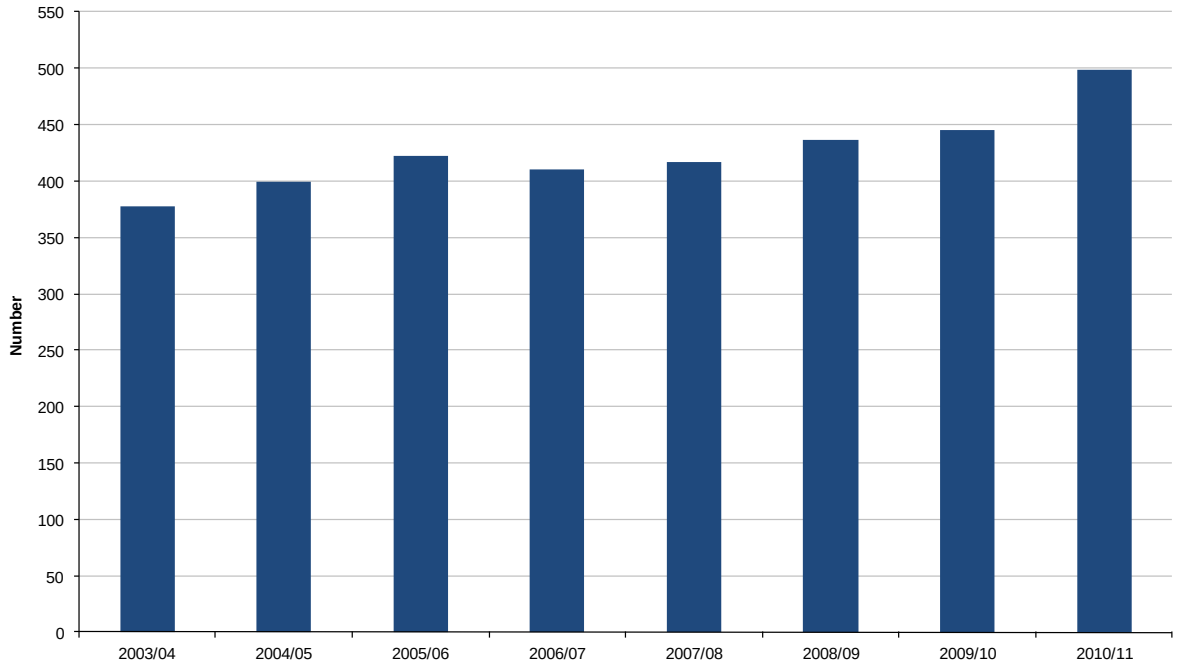



Table 7.3 Number of buildings and monuments at risk, 2003/04 – 2010/11

Unit: Number

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Number of buildings at risk | 378 | 399 | 422 | 410 | 417 | 437 | 445 | 499 |
| Number of buildings removed | - | 25 | 26 | 32 | 22 | 29 | 17 | 15 |

*Source: NIEA*

Note: No figures available for buildings removed in 2003/04.

- A listed building or structure is at risk when its condition and management is deemed to be poor and unsustainable, placing the building or structure under threat of deterioration and/or demolition.
- Such listed buildings, structures and some scheduled monuments are recorded on an on-line database Built Heritage at Risk in Northern Ireland (BHARNI) register.
- The BHARNI register provides an indicator of changes in the number of buildings judged to be at risk. In 2010/11, there were 499 buildings and structures on the BHARNI database.
- The number of buildings on the register can be expected to rise as more detailed information is made available through surveys.
- The NI Sustainable Development Strategy sets a target of removing 200 buildings from the BHARNI register (based on 2006 figure) by 2016. Fifteen buildings were removed in 2010/11.

# 8. Waste

Waste and, especially, how we deal with it, is becoming an increasingly important issue. Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact or by emissions to the air, groundwater and surface water as well as the contamination of land.

This chapter reports on the amount of municipal waste produced, the amount of municipal waste recovered, the type and volume of materials sent for recycling or composting, the amount of waste produced per household and the amount of household waste produced and recovered. Municipal waste is defined as all of the waste collected from households and any other sources that come under the control or possession of the local authorities.

In Northern Ireland, the total amount of municipal waste arising has declined by just over 6% between 2004/05 and 2010/11. The majority of waste is sent to landfill, with almost 63% of municipal waste in 2010/11 landfilled. Landfilled biodegradable waste emits methane and carbon dioxide into the atmosphere as it decomposes and leachate is produced when water becomes contaminated as it filters down through a landfill.

Recycling of waste is becoming much more common in Northern Ireland. The Northern Ireland Waste Management Strategy (2006) set a target that 35% of household waste should be recycled or composted by 2010. In 2010/11, just over 37% of household waste was sent for recycling (including composting) and almost 36% of municipal waste was sent for recycling (including composting). Compostable materials were the most common municipal waste material type collected for recycling or composting (42%).

In recent years the amount of waste produced per household has been approximately 1.20 tonnes per year, which equates to around 23 kg per week.

# Municipal Waste Arisings

Figure 8.1 Municipal waste arisings, 2004/05 – 2010/11

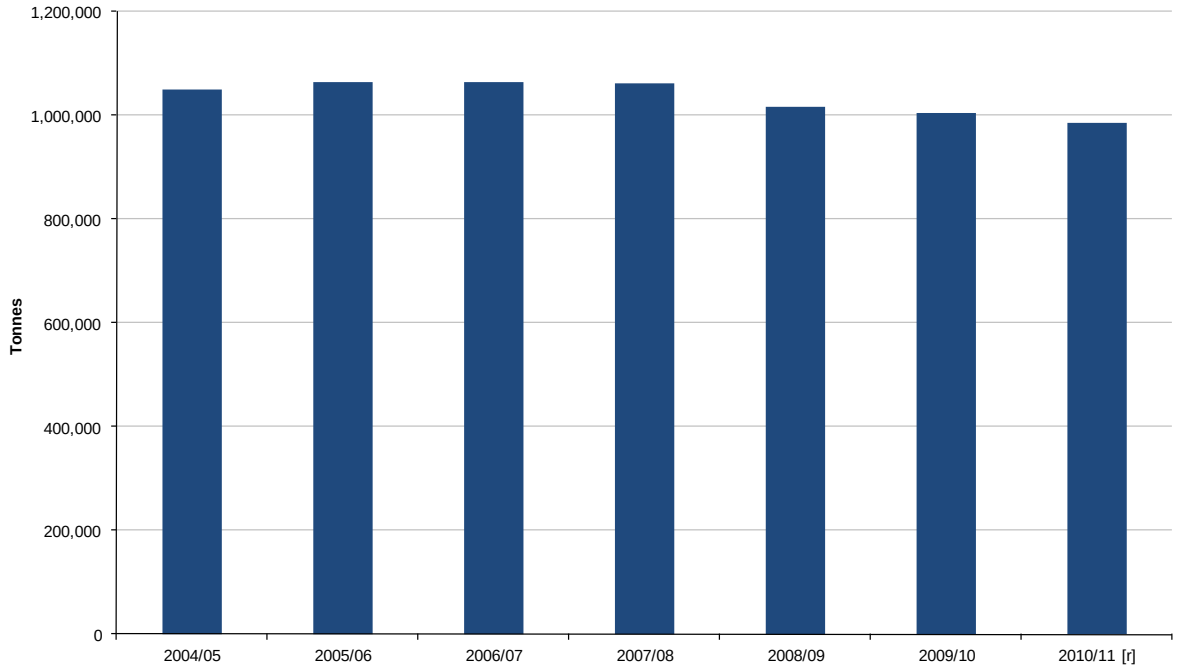



Table 8.1 Municipal waste arisings, 2004/05 – 2010/11

| | | | | | | Unit: Tonnes | |
|---|---|---|---|---|---|---|---|
| | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11 [r]** |
| Municipal waste arisings | 1,050,716 | 1,063,510 | 1,064,090 | 1,061,108 | 1,017,215 | 1,004,020 | 985,176 |
| | | | | | | | |
| *Source: Northern Ireland Municipal Waste Management Statistics, DOE* | | | | | | | |
| [r] - *data revised from previous publication.* | | | | | | | |

- Municipal waste in Northern Ireland is defined as all of the waste from households and any other sources that come under the control or possession of any of the 26 district councils. It is predominantly made up of waste collected from households, but also includes waste collected from civic amenity sites and some commercial waste.

- Municipal waste data for Northern Ireland is collected via quarterly data returns submitted by all district councils through the WasteDataFlow system.

- In 2010/11, there were 985,176 tonnes of municipal waste collected in Northern Ireland, a decrease of approximately 2% on the 2009/10 total.

# Municipal Waste Recycled or Composted

Figure 8.2 Municipal waste sent for recycling (inc. composting), 2004/05 – 2010/11

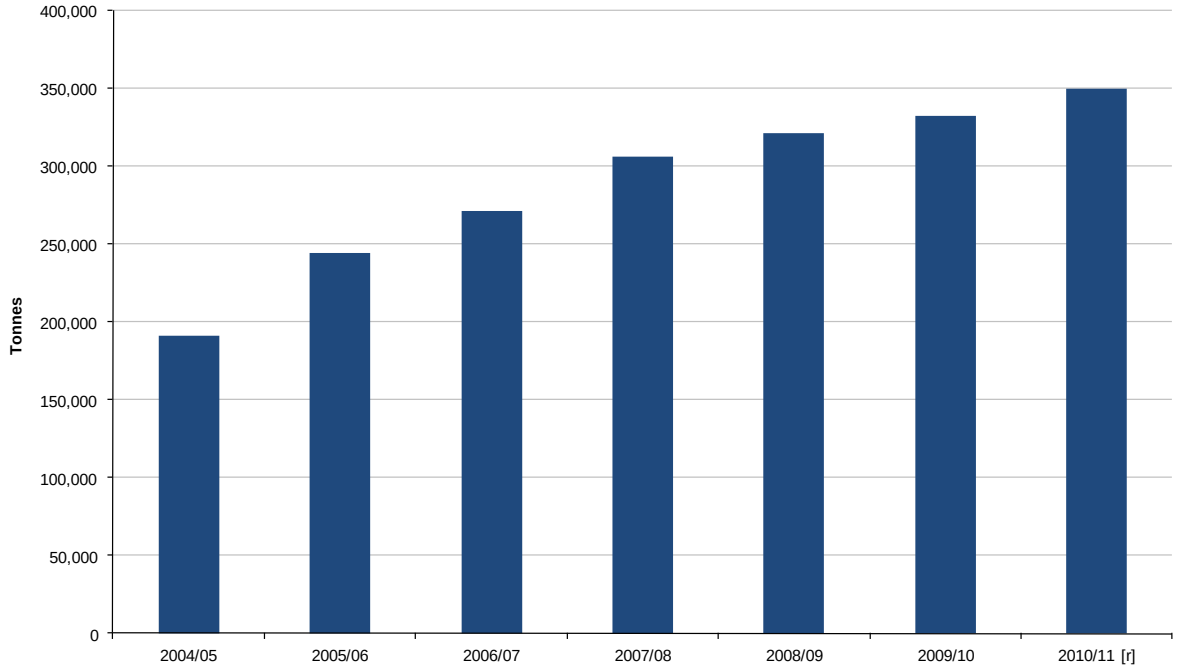



Table 8.2 Municipal waste sent for recycling (inc. composting), 2004/05 – 2010/11

| | | | | | | Units: Tonnes | |
|---|---|---|---|---|---|---|---|
| | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11 [r]** |
| Municipal waste recycled or composted | 191,197 | 244,811 | 271,730 | 306,021 | 321,457 | 332,392 | 349,929 |
| % municipal waste recycled or composted | 18.2% | 23.0% | 25.5% | 28.8% | 31.6% | 33.1% | 35.5% |
| | | | | | | | |
| *Source: Northern Ireland Municipal Waste Management Statistics, DOE* | | | | | | | |
| [r] - *data revised from previous publication.* | | | | | | | |

- The management of municipal waste in Northern Ireland is through recycling, composting and landfill, with a very small portion being sent for refuse derived fuel or reused. Refuse derived fuel consists largely of organic components of municipal waste and can be used in a variety of ways to generate electricity.

- Recycling and composting is based on kerbside collections, materials brought to civic amenity sites, materials brought to bring sites and materials collected by a third party, such as charities/voluntary groups.

- In 2010/11, 349,929 tonnes of municipal waste was sent for recycling or composting, an increase of 5.3% on the amount recycled in 2009/10, and an increase of 83.0% on the 2004/05 level.

- The proportion of municipal waste recycled or composted has increased from 18.2% in 2004/05 to 35.5% in 2010/11.

# Municipal Waste Recycled or Composted by Material Type

Figure 8.3 Municipal waste material types collected for recycling, 2010/11

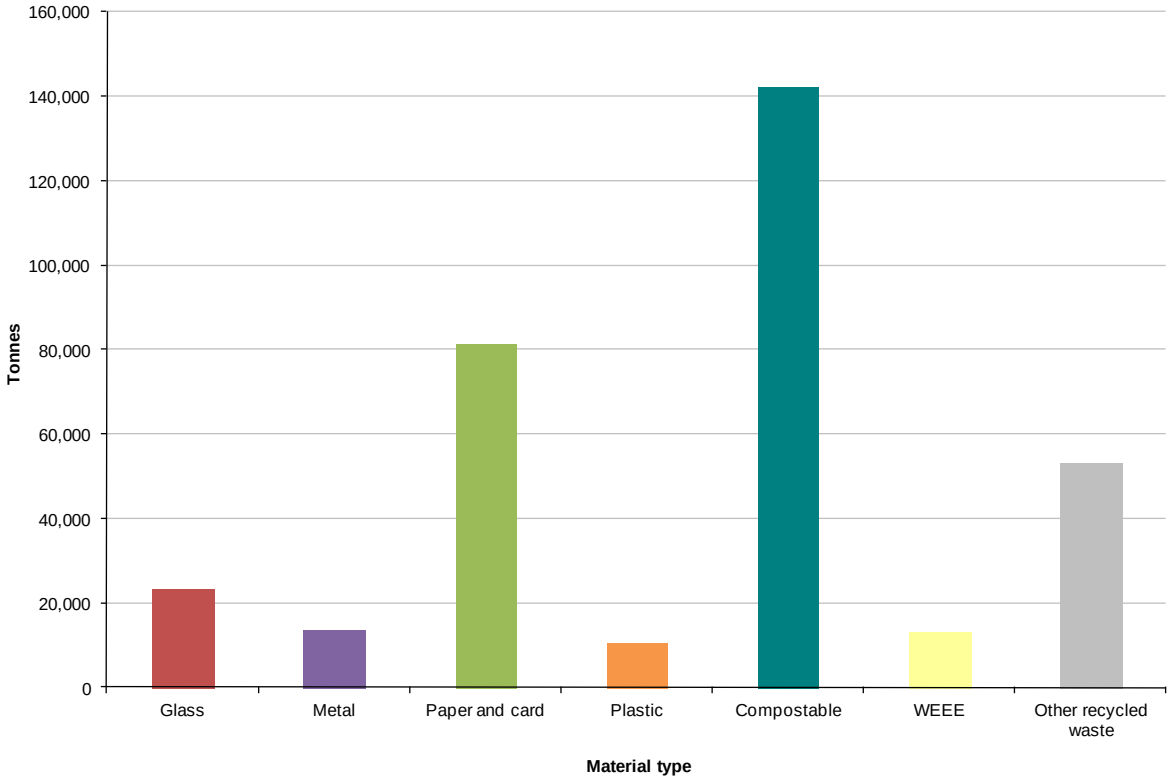



Table 8.3 Municipal waste material types collected for recycling, 2010/11

Unit: Tonnes

| | Glass | Metal | Paper and card | Plastic | Compostable | WEEE | Other recycled waste | All Materials |
|---|---|---|---|---|---|---|---|---|
| Municipal waste collected for recycling or composting | 23,256 | 13,535 | 81,266 | 10,375 | 142,005 | 13,133 | 53,145 | **336,715** |
| Municipal waste material types collected for recycling or composting (%) | 7% | 4% | 24% | 3% | 42% | 4% | 16% | **100%** |

*Source: Northern Ireland Municipal Waste Management Statistics, DOE*

Note: Collected recycled waste is not always sent for recycling due to contamination of recyclates.

- In 2010/11, compostable waste accounted for the largest proportion of municipal waste material collected for recycling at 42%, compared to 39% in 2009/10.

- Paper and card was the next most abundant material type collected, at 24% of the total, compared to 26% in 2009/10. Other recycled waste accounted for 16%, glass for 7%, metal and WEEE (waste electrical & electronic equipment) each accounted for 4%, with plastic contributing the smallest proportion at 3%; which were broadly similar to the rates from 2009/10.

# Household Waste

Figure 8.4 Household waste collected per household per year, 2004/05 – 2010/11

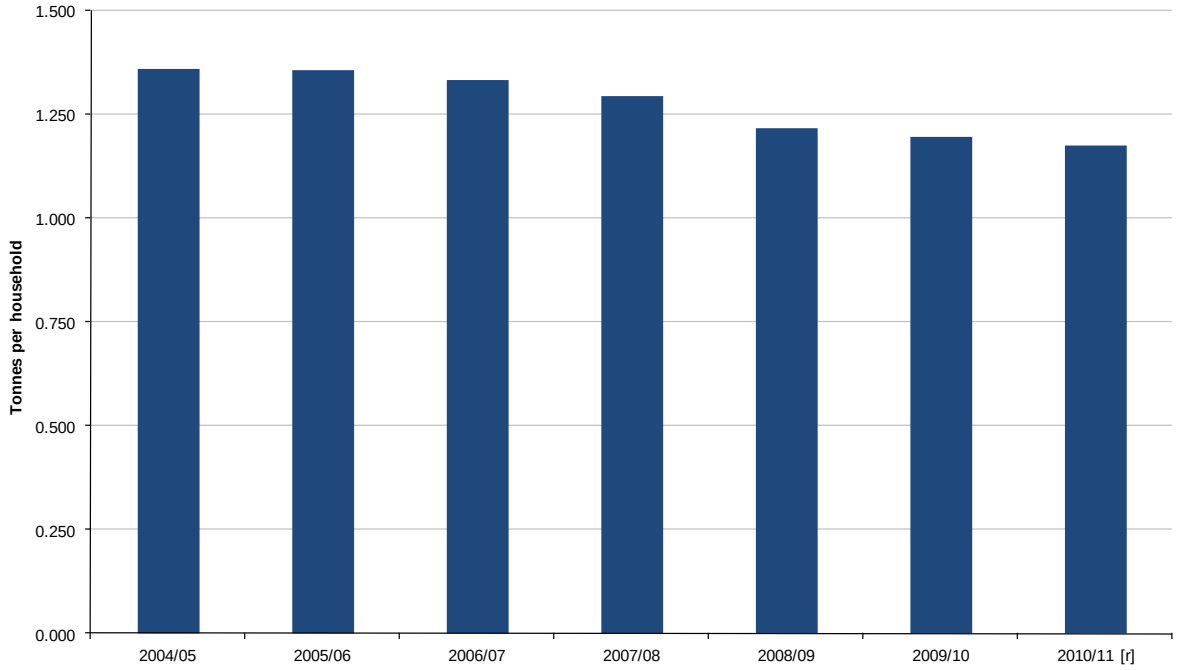



Table 8.4 Household waste collected per year and per household per year, 2004/05 – 2010/11

| | | | | | Units: Tonnes, Tonnes per household | | |
|---|---|---|---|---|---|---|---|
| | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11 [r]** |
| Household waste arisings | 919,169 | 937,331 | 938,726 | 928,122 | 879,846 | 875,062 | 870,254 |
| Household waste per household per year | 1.361 | 1.357 | 1.332 | 1.295 | 1.217 | 1.196 | 1.177 |
| | | | | | | | |
| *Source: Northern Ireland Municipal Waste Management Statistics, DOE* | | | | | | | |
| [r] - *data revised from previous publication.* | | | | | | | |
| Note: Households likely to include vacant properties. | | | | | | | |

- Household waste is one element of municipal waste collected, and is recorded using the WasteDataFlow system as the amount of waste collected by the district council's regular household collections, kerbside collection, civic amenity and bring site collections.

- Household waste accounted for 88.3% of all municipal waste collected in Northern Ireland in 2010/11, compared to 87.2% in 2009/10.

- In 2010/11, there was a total of 870,254 tonnes of household waste collected, a decrease of 0.5% on the amount collected in 2009/10. Since 2004/05, total household waste arisings in Northern Ireland have fallen by 5.3%.

- In 2010/11, 1.177 tonnes of household waste was collected per household, a 13.5% decrease on the 2004/05 figure of 1.361 tonnes.

# Household Waste Recycled or Composted

Figure 8.5 Household waste sent for recycling (including composting), 2004/05 – 2010/11

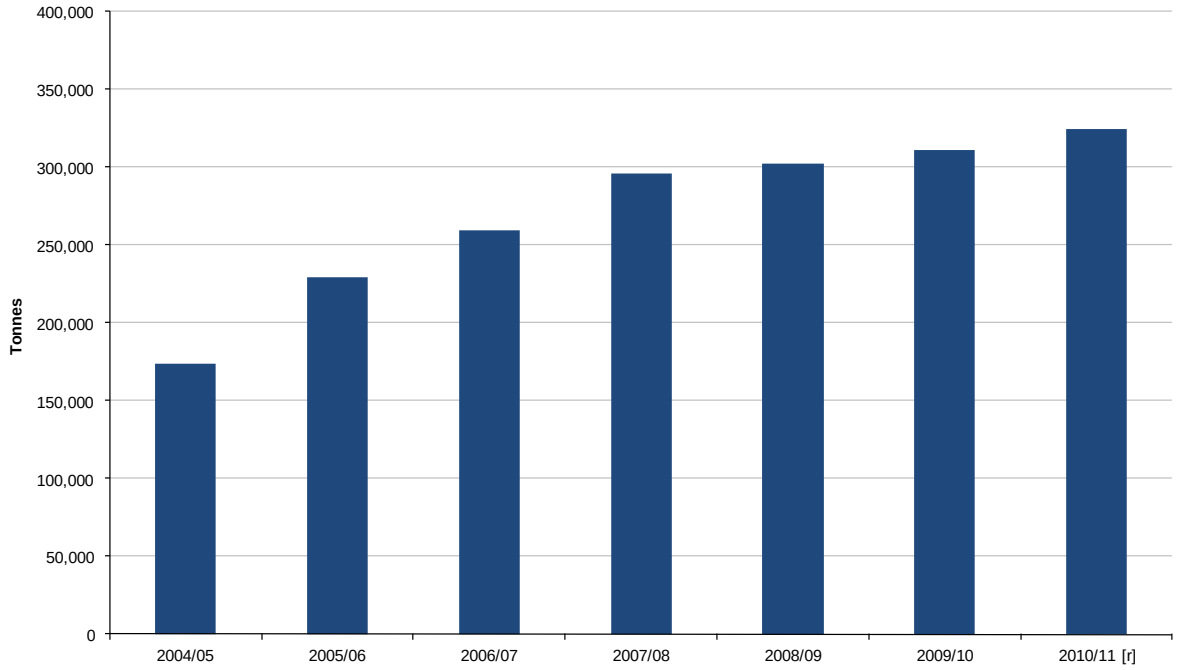



Table 8.5 Household waste sent for recycling (including composting), 2004/05 – 2010/11

Units: Tonnes

| | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 [r] |
|---|---|---|---|---|---|---|---|
| Household waste recycled or composted | 173,456 | 229,637 | 259,825 | 296,063 | 302,719 | 311,306 | 324,875 |
| % household waste recycled or composted | 18.9% | 24.5% | 27.7% | 31.9% | 34.4% | 35.6% | 37.3% |

*Source: Northern Ireland Municipal Waste Management Statistics, DOE*

[r] - *data revised from previous publication.*

- Recycling and composting is based on kerbside collections, materials brought to civic amenity sites, materials brought to bring sites and materials collected by a third party, such as charities/voluntary groups.

- In 2010/11, 324,875 tonnes of household waste was sent for recycling or composting, an increase of 4.4% on the amount sent in 2009/10, and an increase of 87.3% on the 2004/05 level.

- The proportion of household waste recycled or composted has increased from 18.9% in 2004/05 to 37.3% in 2010/11.

# User Information

This section contains some information about the quality and source of the data used in the Northern Ireland Environmental Statistics Report.

## Background Information

### Background

The first Northern Ireland Environmental Statistics Report was produced in January 2009. It brought together in one publication a range of environmental indicators.

The report follows on from 'Our Environment, Our Heritage, Our Future: State of the Environment Report for Northern Ireland'. This was published by the Northern Ireland Environment Agency (NIEA), formally the Environment & Heritage Service (EHS), in April 2008. The State of the Environment Report should be referenced for additional context:

http://www.doeni.gov.uk/niea/stateoftheenvironmentreportfornorthernirelandforewordcontentsandintroduction.pdf

Each year the content of the report is reviewed and the indicators are updated. Some additional indicators may be added and in some instances indicators may need to be removed. Inclusion or omission of these indicators is dealt with in the introduction to the respective chapters.

### Summary of changes in indicators since previous publication

Indicators added to / amended in the publication

| Indicator | | Table Number | Details |
|---|---|---|---|
| Sustainability of Lifestyle | Amended | 1.8 | Revision to category label in table. |
| Buildings and monuments at risk | Amended | 7.4 | Addition of data on number of buildings removed from risk register. |
| Household waste | Amended | 8.4 | Addition of household waste arisings data. |
| Household waste recycled and composted | Added | 8.5 | New indicator data. |

Indicators removed from the publication

| Indicator | Table Number (in last year's publication) | Details on | Reason for removal |
|---|---|---|---|
| Air quality trends | 2.3 | Page 18 | No longer used as an indicator of air quality in Northern Ireland. Particulate matter in the atmosphere with a diameter of less than or equal to 10 microns ($PM_{10}$) and ozone indicators are more important because there is considerable evidence suggesting long-term exposure to even low levels of particles may have a significant effect on public health. |
| Number of conservation areas | 7.4 | Page 78 | Given that there has been little or no change in this indicator over the last eight years, this indicator has been removed. |

**Data collection and timeliness**

To inform this publication data are supplied from a variety of sources. As most of this information is readily available it is not thought to create an unreasonable burden on the data suppliers. Due to the nature of compendium publications, some data are available earlier than others but we cannot publish until the final piece of data is provided. In addition, in order to publish data at a common point, the figures may not be the latest available. More up-to-date data may be available directly from the individual data suppliers.

**Uses of the publication**

This publication provides annual updates of key environmental indicators, ensuring that the most up to date information is readily available for decision makers, environmental interest groups and the public.

*Policy Development and Briefing*

The information in the publication is used for input into and monitoring of a number of strategies and policies. For example, the indicator data has been used for the Second Report of the Northern Ireland Biodiversity Group 2005-2009 on Delivery of

the Northern Ireland Biodiversity Strategy. It has also been used to inform an internal NIEA State of the Environment mid-term review of the key environmental challenges facing NI and to assist in the development of its strategic priorities over the next ten years. The data included in previous NI Environmental Statistics Reports have also been included in the NI chapter of the UK National Ecosystem Assessment, the NI summary of which was officially launched in October 2011.[2]

*General Information and Research*

The publication is generally used for reference and is a good starting point when looking for information on key environmental indicators specific to Northern Ireland. It is circulated to a number of external users including Sustainable Northern Ireland; Northern Ireland Environment Link; Northern Ireland Local Government Association and UK Climate Impacts Programme. In addition for future reporting some of the indicators will be used for comparative statistics with the Republic of Ireland of key environmental indicators reported under EU Directives.

## Data in the Publication

### Rounding

There may be slight discrepancies between totals and the sum of the constituent items due to rounding.

### Demographics (Tables 1.1 & 1.2)

*Description of data*

These tables report on estimated and projected population figures, the number of households and the projected number of households in Northern Ireland. These data are provided by Northern Ireland Statistics & Research Agency (NISRA). Further information relating to these statistics can be found at: http://www.nisra.gov.uk/demography/default.asp3.htm

*Data Quality Assessment*

Very Good – Population estimates, population projections and household projections are currently classified as National Statistics. These data are also subject to a vigorous validation process by Northern Ireland Statistics & Research Agency.

[2] Full chapter: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx
NI summary: http://www.nienvironmentlink.org/cmsfiles/files/Publications/NEA-Summary-for-web.pdf

## Environmental Pressures (Tables 1.3 to 1.5)

*Description of data*

Northern Ireland airport passenger numbers are provided by the Civil Aviation Authority. Data on the number of journeys per person by mode of transport and average distance travelled per person by mode of transport are sourced from the Travel Survey for Northern Ireland. This survey is run by the Central Survey Unit of Northern Ireland Statistics & Research Agency, on behalf of the Department of Regional Development.

*Data Quality Assessment*

Civil Aviation Authority (Table 1.3):
Very Good – These data are derived from an administrative system with full coverage and incorporating various validation checks. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year or any inconsistencies queried with the data provider.

Travel Survey for Northern Ireland (Table 1.4 & 1.5):
Very Good – These data are currently provisionally classified as National Statistics and are produced from government surveys which are of high quality. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year queried with the data provider. Further information on the Travel Survey for Northern Ireland can be found at:
http://www.drdni.gov.uk/index/statistics/stats-catagories/stats-catagories-travel_survey.htm

## Public Opinion & Sustainability of Lifestyle (Tables 1.6 to 1.8)

*Description of data*

Data provided relates to the level of public concern for the environment and what actions the public take for environmental reasons. These data are sourced from the Continuous Household Survey run by the Central Survey Unit of Northern Ireland Statistics & Research Agency. Further information on these statistics can be found at: http://www.csu.nisra.gov.uk/survey.asp2.htm

*Data Quality Assessment*

Very Good - These data are currently classified as National Statistics and are produced from government surveys which are of high quality. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year queried with the data provider.

Table 1.8 revision to category label: The response 'bought recycled toilet roll/ kitchen roll made from recycled paper' was mistakenly reported in the Continuous Household Survey report as 'recycled paper, glass'. This revision has been applied to Table 1.8.

**Air Quality (Tables 2.1 to 2.5)**

*Description of data*

The data provides information on air quality including ambient concentrations of nitrogen oxides, particulate matter, ozone, polycyclic aromatic hydrocarbons and ammonia emissions from agriculture. The ambient air quality data are provided by the AEA Group, an international consulting firm, working in the areas of climate change, energy and environment. The ammonia emissions data are provided by North Wyke Research.

*Data Quality Assessment*

Very Good - The ambient air quality data are sourced from the Automatic Urban and Rural Network, the UK's national air quality monitoring network. The Network is operated to a documented quality assurance and quality control programme, and data are subject to validation and ratification procedures, described on the Air Quality Archive at: http://www.airqualityni.co.uk/verification_and_ratification.php

**Greenhouse Gases (Tables 2.6 to 2.8)**

*Description of data*

The data on all greenhouse gas emissions and carbon dioxide emissions are reported by source sector. These data are sourced from AEA Group, an international consulting firm, working in the areas of climate change, energy and environment. Further details on greenhouse gases can be found in 'Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland' reports at: http://www.naei.org.uk/reports.php?list=GHG

*Data Quality Assessment*

Very Good - These estimates produced are of high quality and each year the greenhouse gas inventory is extended and updated, and the whole historical data series is revised to incorporate methodological improvements and new data. This takes into account revisions to the datasets which have been used in its compilation. However there is always going to be some level of uncertainty in the estimates of greenhouse gas emissions, and this uncertainty changes from year-to-year as the methodology and input data of the inventories changes. These uncertainties are presented as confidence intervals and such figures are contained within the main Devolved Administration report.

## Renewable Energy (Table 2.9)

*Description of data*

This table provides data on the percentage of electricity produced in Northern Ireland from indigenous renewable sources. These data are sourced from the Department of Enterprise Trade & Investment.

*Data Quality Assessment*

Very Good – The data is primarily gathered by Northern Ireland Electricity Data Aggregation Team, on a monthly basis. Variance checks are employed by Department of Enterprise Trade & Investment and any unusual breaks in trends are queried with the data provider.

## Environmental Installations (Table 2.10)

*Description of data*

This table provides data on planning applications for environmental installations, provided by the Northern Ireland Planning Service.

*Data Quality Assessment*

Very Good - Data is taken from an administrative system, with full coverage and incorporating various validation checks. Any data produced is subject to quality assurance before final release.

## Climate Change (Tables 2.11 to 2.14)

*Description of data*

These data tables provide details of temperature and rainfall changes from 1844 and 1854 respectively, to present. These meteorological data are sourced from Armagh Observatory, which has the longest series of meteorological records from a single site in the UK or Ireland. Further details can be found at:
http://climate.arm.ac.uk/contents.html

*Data Quality Assessment*

Very Good – These data are produced from daily readings of air temperature and rainfall. The raw temperature data have been standardised and corrected for various instrumental and exposure effects. The complete daily rainfall series from 1836 to present have been standardised and subject to data verification and correction.

**Water (Chapter 3)**

*Description of data*

The figures in this section report on the condition of Northern Ireland's inland waters including river, lake and groundwater quality. Data relating to the levels of compliance with waste water standards, drinking water quality and water pollution incidents are also reported. These data are provided by Northern Ireland Environment Agency.

*Data Quality Assessment*

Very Good – These data are of high quality and are collected through quality controlled scientific monitoring programmes. Monitoring of river, lake and groundwater quality is carried out routinely against national standards for the Water Framework Directive. Monitoring of effluent discharge is conducted and compliance is assessed against limits set under the Water (NI) Order and Pollution Prevention and Control Regulations (NI). In addition, variance checks are employed as an integral part of the publication production process and any large discrepancies between current and previous year queried with the data provider.

In relation to the drinking water quality indicator, the number of private water supplies registered has dropped from 1,276 to 116, as in previous years private water supplies in use on dairy farms were included. Sampling at these sites was not undertaken in 2010, as the quality of water required within primary production is currently under consideration by the Foods Standards Agency.

**Marine (Chapter 4)**

*Description of data*

This chapter looks at the quality of Northern Ireland's estuarine and coastal water, including bathing water quality, blue flag award beaches and marinas and sea temperature. These data are provided by Northern Ireland Environment Agency, Tidy Northern Ireland and Agri-Food and Biosciences Institute (AFBI).

*Data Quality Assessment*

<u>Northern Ireland Environment Agency (Tables 4.1, 4.3 and 4.4):</u>
Very Good – These data are of high quality and are collected through scientific monitoring programmes. Monitoring of marine water quality, including bathing and shellfish waters, is carried out in line with national standards developed for the Water Framework, Bathing Water and Shellfish Waters Directives. The Northern Ireland Environment Agency participates in both internal and external quality control schemes and has full UKAS (United Kingdom Accreditation Service) accreditation for the microbiological analysis required for bathing waters analysis. These measures and controls mean there are high levels of confidence in the data reported.

<u>Tidy Northern Ireland (Table 4.2):</u>
Very Good – These data are taken from an administrative system with full coverage

and incorporating various validation checks. Each application for Blue Flag status is brought before a jury of experts to ensure it meets all criteria and the beach/marina is inspected by Tidy Northern Ireland as the national operator for Blue Flag. In addition an international inspector from the Foundation for Environmental Education may carry out spot inspections.

AFBI (Table 4.5):
Very Good – Daily sea temperature levels are recorded every three hours, at Irish Sea mooring site, and from these readings a daily mean is calculated. The raw temperature data is subject to a regular calibration check.

**Land (Chapter 5)**

*Description of data*

This section examines soil quality, the role of agri-environment schemes on our land, forest and woodland plantings and housing completions. These data are sourced from Agri-Food and Biosciences Institute (AFBI), Department of Agriculture and Rural Development, Forest Service of Northern Ireland & Northern Ireland Planning Service respectively.

*Data Quality Assessment*

AFBI (Table 5.1):
Very Good - Data on soil phosphorus are of high quality and are sourced from AFBI's Representative Soil Sampling Scheme, which runs in a five year cycle, with sets of 100 managed grassland soils sampled at random each year.

Department of Agriculture and Rural Development (Table 5.2):
These data are derived from the following computer systems - Grants and Subsidies (GAS) and Agri-environment Schemes (CISAES). These systems are used to record individual land parcels data, including agri-environment scheme agreement data. Validation checks are incorporated within and between these computer systems to ensure that data generated is accurate and the data is checked for discrepancies as part of the scheme's annual payment process.

Forest Service of Northern Ireland (Table 5.3):
Very Good - These data are derived from geographic information systems with full coverage and incorporating various validation checks. In addition, variance checks are employed as an integral part of the publication production process and any large discrepancies between current and previous year queried with the data provider.

Northern Ireland Planning Service (Table 5.4):
Very Good – These data are produced from the Housing Land Availability Monitor, which is based on an annual survey of housing monitor sites. In addition, variance checks are employed as an integral part of the publication production process and any large discrepancies between current and previous year queried with the data provider. Further details can be found in the Northern Ireland Housing Land

Availability Summary Report available at:
http://www.planningni.gov.uk/index/policy/dev_plans/policy_housing_availability.htm

**Biodiversity (Chapter 6)**

*Description of data*

This section reports on the extent of nature conservation designations in Northern Ireland; the condition of some of these designations; wild and wetland bird populations; the number of sites of local nature conservation importance (SLNCIs); the number of tree preservation orders imposed annually; priority species and habitats and the seal population. These data are sourced from Northern Ireland Environment Agency, British Trust for Ornithology and Northern Ireland Planning Service.

*Data Quality Assessment*

Northern Ireland Environment Agency (Tables 6.1, 6.2, 6.5, 6.7 to 6.9):
Very Good – These data are of high quality with data collected through scientific monitoring programmes. The condition of features within Areas of Special Scientific Interest is assessed over a six year monitoring programme; data on priority habitats and priority species is collected as part of a three year reporting cycle; and the seal population of Strangford Lough is monitored throughout the year, with the highest count recorded each year taken to be the population for that year.

British Trust for Ornithology (Table 6.3 and 6.4):
Very Good (medium to long term) – The indices reported are considered to give reliable medium to long term trends but strong reliance should not be attached to levels for individual years or short term changes from year to year.

The data on Northern Ireland wild bird population is monitored as part of the UK Breeding Bird Survey. Through careful design the survey provides reliable trends. In 2010, 114 squares were surveyed in Northern Ireland. Of these, 52 squares were surveyed by professional fieldworkers, funded by the Northern Ireland Environment Agency. However because of the relatively small number of squares surveyed in Northern Ireland information on trends is only available for the 29 most common species. Further details on the UK Breeding Bird Survey can be found at:
http://www.bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports

Northern Ireland's wetland bird population is monitored as part of the Wetland Bird Survey. Counts are made once a month, ideally on predetermined 'priority dates' and the data are input by a professional data input company and data discrepancies identified by computer for correction. Any unusual counts are checked by the National Organisers and are confirmed with the counters if necessary. Further details on the Wetland Bird Survey can be found at: http://www.bto.org/volunteer-surveys/webs

Northern Ireland Planning Service (Table 6.6):
Very Good - The data on Tree Preservation Orders are derived from an

administrative system with full coverage. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year or any inconsistencies queried with the data provider.

## Built Heritage (Chapter 7)

*Description of data*

The figures in this chapter report on the number of scheduled monuments and listed buildings in Northern Ireland, including those at risk. These data are sourced from Northern Ireland Environment Agency and Northern Ireland Planning Service.

*Data Quality Assessment*

Northern Ireland Environment Agency (Tables 7.1 to 7.3):
Monuments (Table 7.1):
Very Good – The figures are derived from an administrative database which incorporates various validation checks. The scheduled monuments data is audited regularly to ensure that the targeted numbers of sites have been scheduled.

Listed Buildings (Table 7.2):
Very Good – The figures are derived from the Northern Ireland Environment Agency Buildings database with full coverage and incorporating various validation checks. Buildings are selected to become listed after systematic or ad-hoc surveys. The systematic First Survey of the whole of Northern Ireland was completed by 1994 and a Second Survey is ongoing. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year or any inconsistencies queried with the data provider.

Buildings & Monuments at Risk (Table 7.3):
Very Good – These data are derived from the Built Heritage at Risk in Northern Ireland (BHARNI) register, with risk assessed mainly on the basis of condition and occupancy. The register is managed by the Northern Ireland Environment Agency in conjunction with the Ulster Architectural Heritage Society. Decisions relating to whether a structure is added or removed from the register are subject to validation and audit by both managing organisations.

## Waste (Chapter 8)

*Description of data*

The figures in this section report on the amount of municipal waste produced, the amount of municipal waste sent for recycling (including composting), the volume and type of municipal waste materials sent for recycling (including composting), household waste arisings, the amount of waste produced per household and the amount of household waste sent for recycling (including composting).

Municipal waste is defined as all of the waste collected from households and commercial premises that comes under the control or possession of local authorities. Household waste includes materials collected directly from households (kerbside collections) or taken to bring sites, including civic amenity sites or collected by private and voluntary organisations not included elsewhere. Household waste accounted for the bulk (88%) of all municipal waste arisings in 2010/11.

Data used in this report are taken from the Northern Ireland Municipal Waste Management Statistics Annual Report which uses data from WasteDataFlow (WDF), a web based system for municipal waste reporting by UK local authorities for government.

*Data Quality Assessment*

High Quality: These data are derived from WDF with full coverage for all district councils and incorporating various validation checks. The system provides a complete picture of district council controlled waste activity in NI and sampling errors associated with survey data are not, therefore, an issue. In addition, variance checks are employed as an integral part of the publication production process with any large discrepancies between current and previous year queried with the data provider. Further details on Northern Ireland municipal waste management statistics can be found at:
http://www.doeni.gov.uk/index/information/asb/statistics.htm#ni

Table 8.4: Household data used to calculate figures in table 8.4 are based on the number of households at the 2001 Northern Ireland Census plus quarterly new dwelling starts provided by the Department for Social Development. This source is used to ensure that the number of households is updated quarterly. However, it is likely to include vacant properties and this should be borne in mind when interpreting the figures. The existing methodology used in this report to estimate the total housing stock by area is currently under review and, in future, it is possible that a revised measure based only on occupied households may be introduced.

*Revision Note*

A revision has been made to the 2012 Northern Ireland Environmental Statistics Report. The revision is small and affects only the Waste section of the report. It has resulted from an audit conducted by NIEA in February 2012, which identified systematic errors in the data recorded in the WasteDataFlow system by Craigavon Borough Council, in both the current and prior i.e. 2010/11, reporting periods.

In terms of indicators, the revision affects only the waste section of the report:

- Municipal and household waste arisings both increase by less than 0.1%.
- Municipal and household waste recycled/composted both decrease by 0.3%.
- Recycling (including composting) rates for municipal waste and household waste both decrease by 0.1 percentage points.
- Household waste per household per year increases by less than 1 kilogram.

# References


Everyone's Involved – Sustainable Development Strategy: A Sustainable Development Strategy for Northern Ireland

Northern Ireland Programme for Government 2008 - 2011

Northern Ireland draft Programme for Government 2011 - 2015

State of the Environment Report for Northern Ireland

The European environment – state and outlook 2010 report

**Chapter 2 - Air & Climate**

Northern Ireland Renewables Obligation

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

UK Climate Change Act 2008

**Chapter 3 - Water**

EC Nitrates Directive

EC Water Framework Directive

Pollution Prevention and Control Regulations (NI) 2003

Regulating Sewage Discharges

Urban Waste Water Treatment Regulations

Water (NI) Order 1999

**Chapter 4 - Marine**

Bathing Waters Directive

EC Freshwater Fish Directive

EC Marine Strategy Framework Directive

Northern Ireland State of the Seas Report

**Chapter 5 - Land**

Belfast Metropolitan Area Plan

Northern Ireland Countryside Management Scheme

Organic Farming Scheme

UK National Ecosystem Assessment: Status and Changes in the UK Ecosystems and their Services to Society in Northern Ireland

**Chapter 6 - Biodiversity**

Convention on Biological Diversity

**Chapter 7 - Built Heritage**

Condition and Management Survey of the Archaeological Resource

Historic Monuments and Archaeological Objects (NI) Order

**Chapter 8 - Waste**

Northern Ireland Waste Management Strategy (2006)

# Further Information

The links in this section provide further information relating to each of the indicators used in this publication.

## 1. Demographics, Transport & Public Opinion

Population:
http://www.nisra.gov.uk/demography/default.asp17.htm
http://www.nisra.gov.uk/demography/default.asp20.htm

Households:
http://www.nisra.gov.uk/demography/default.asp21.htm

Environmental pressures:
http://www.drdni.gov.uk/index/statistics/stats-catagories/ni_transport_statistics.htm
http://www.drdni.gov.uk/index/statistics/stats-catagories/stats-catagories-travel_survey.htm

Public opinion:
http://www.csu.nisra.gov.uk/survey.asp136.2.htm

## 2. Air & Climate

Air Quality:
http://www.airqualityni.co.uk/

Greenhouse gas emissions:
http://www.naei.org.uk/reports.php

Climate Change:
http://www.doeni.gov.uk/index/protect_the_environment/climate_change.htm
http://www.doeni.gov.uk/index/information/asb/statistics.htm#climate_change

## 3. Water

River quality: http://www.ni-environment.gov.uk/water-home/wfd.htm

Lake quality: http://www.ni-environment.gov.uk/water-home/wfd.htm

Groundwater quality:
http://www.ni-environment.gov.uk/water/quality/groundwater.htm

Discharge quality:
http://www.ni-environment.gov.uk/water/regulation_of_discharges_industrial.htm

Drinking water quality:
http://www.doeni.gov.uk/niea/water-home/drinking_water.htm

Water pollution:
http://www.ni-environment.gov.uk/water-home/waterpollution.htm

## 4. Marine

Bathing water quality:
http://www.ni-environment.gov.uk/water/quality/bathingqualityni.htm

Blue Flag Beaches:
http://www.tidynorthernireland.org/beaches/index.php

Marine water quality:
http://www.ni-environment.gov.uk/water-home/wfd.htm

Shellfish water quality:
http://www.doeni.gov.uk/niea/water-home/quality/shellfish.htm

Sea temperature:
http://www.afbini.gov.uk/index/services/services-specialist-advice/coastal-science/coastal-monitoring/monitored-sites/irish-sea.htm

## 5. Land

Soil quality:
http://www.afbini.gov.uk/index/services/services-specialist-advice/soils-environment.htm

Sustainable land management:
http://www.dardni.gov.uk/index/grants-and-funding/agri-environmental-schemes.htm

Area of woodland:
http://www.forestserviceni.gov.uk/

Housing:
http://www.planningni.gov.uk/index/tools/about-statistics.htm

## 6. Biodiversity

Nature conservation designations:
http://www.ni-environment.gov.uk/biodiversity/designated-areas.htm

Wild birds:
http://www.bto.org/bbs/

Wetland birds:
http://www.bto.org/webs/index.htm

Sites of Local Nature Conservation Importance:
http://www.ni-environment.gov.uk/landscape/plan/whencon/when-areaplan.htm

Tree Preservation Orders:
http://www.planningni.gov.uk/index/advice/advice_leaflets/leaflet04.htm

Priority habitats:
http://www.ni-environment.gov.uk/biodiversity/habitats-2.htm

Priority species:
http://www.ni-environment.gov.uk/biodiversity/sap_uk.htm

Seals:
http://www.doeni.gov.uk/niea/biodiversity/sap_uk/coast-wildlife/content-newpage-54.htm

## 7. Built Heritage

Monuments and sites:
http://www.ni-environment.gov.uk/built/owning.htm

Listed buildings:
http://www.ni-environment.gov.uk/built-home/protection/listed_buildings_p.htm

Buildings at risk:
http://www.ni-environment.gov.uk/built/risk.htm

## 8. Waste

All indicators:
http://www.doeni.gov.uk/index/information/asb/statistics.htm#ni
http://www.ni-environment.gov.uk/waste/municipal_data_reporting.htm

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