



Department of the
Environment
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Northern Ireland Environmental Statistics Report

January 2011



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Introduction

Welcome to the third 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.

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

The indicators that have been chosen for inclusion in this report, in most instances, complement those that were reported on 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.

The first report included 50 separate data sets. The indicators that were included were determined in agreement with key data providers, policy colleagues and other interested parties. Seven additional indicators were added in the 2010 report (with the loss of two indicators). This year there are six new / amended indicators, including polycyclic aromatic hydrocarbons, overall river quality, overall lake quality, Blue Flag award beaches, shellfish water quality and types of recycled / composted waste. There are a few indicators not included in this year's report that were included previously, namely; chemical and biological river quality (now combined as overall river

quality), and winter nutrient concentrations (now considered as part of overall marine water quality). The inclusion / omission of each of these indicators is dealt with in the introduction to their respective chapters.

In all, there are 57 separate data sets, which cover 8 main topics; Demographics & Public Opinion, Air & Climate, Water, Marine, Land, Biodiversity, Built Heritage and Waste. Each of these data sets reports the most recently available data for each indicator, and most provide data on trends over time and, where applicable, performance against quantified targets.

This report provides some commentary on each of the data sets and describes any trends that they illustrate. A new User Information section has been added to the report this year, which provides background information on the source and quality of the data used to produce the indicators. There are also links to be found 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, and 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 Central Statistics and Research Branch, Department for Regional Development, along with NIEA.

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 2010. 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

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

Acknowledgements

Central Statistics and Research Branch would like to acknowledge the assistance of all those 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 2009, the population was 7% greater than it had been 10 years previous and 16% greater than it was in 1971. The projected population indicates that this increasing trend is estimated to continue 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 the number of people per household is declining.

Environmental pressures such as the way we travel and how often we travel are becoming increasingly important. Air travel has increased by 64% in Northern Ireland in the last 10 years with the advent of low-fare airlines a major factor in this. Car travel continues to dominate the way we do most of our day-to-day travelling, with 70% of our journeys being made by car.

The level of public concern for our environment has increased in the last number of years with people taking more actions in order to protect the environment. In particular, public concern about climate change has increased dramatically and is now the biggest environmental concern for the Northern Ireland public.

Demographics

Figure 1.1 Northern Ireland population, estimated (1971 – 2009) and projected (2010 – 2031)

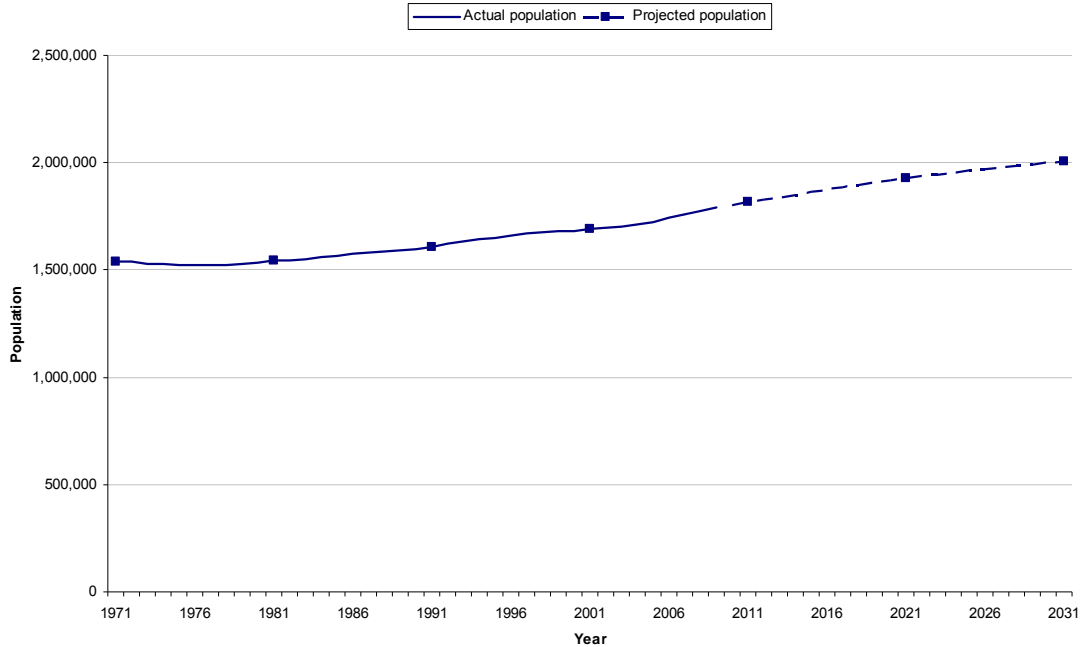


Table 1.1 Northern Ireland population, estimated (1971 – 2009) and projected (2010 – 2031)

	1971	1981	1991	2001	2011*	2021*	2031*
Northern Ireland population	1,540,400	1,543,000	1,607,300	1,689,300	1,815,100	1,926,900	2,004,700
Unit: Population							
<i>Source: NISRA</i>							
* Projected population							

- Northern Ireland population figures, whether estimated or projected 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 2001 with the next one scheduled for 2011.
- In 2009 the Northern Ireland population was estimated to be 1,788,900 and between 1971 and 2009, the population has increased by 16%.
- By 2031, the population is expected to grow by another 12%, to just over 2 million.

Demographics

Figure 1.2 Northern Ireland households, estimated (1971 – 2008) and projected (2009 – 2031)

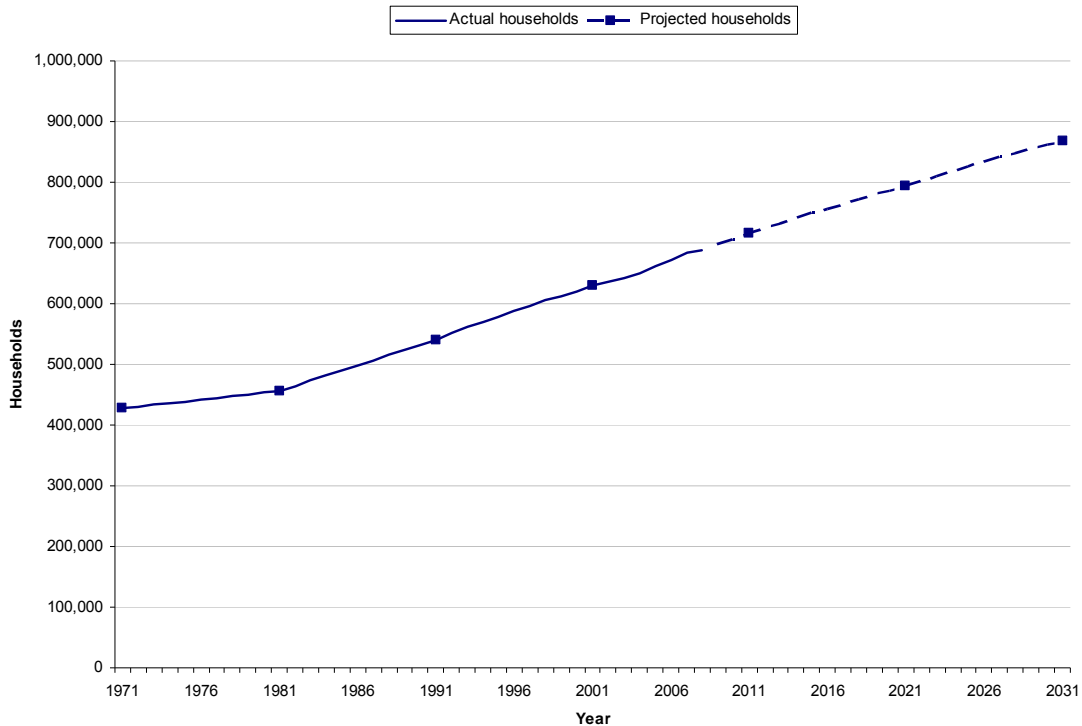


Table 1.2 Northern Ireland households, estimated (1971 – 2008) and projected (2009 – 2031)

	1971	1981	1991	2001	2011*	2021*	2031*
Northern Ireland households	427,400	456,300	540,700	629,100	715,200	794,400	867,900
Unit: Households							
<i>Source: NISRA</i>							
* Projected households							

- The historic data on the number of households in Northern Ireland are taken from the census of population.
- 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 and between 1971 and 2008, the number of households had increased by 61%.
- By 2031, the number of households in Northern Ireland is projected to increase by 25% on 2008 figures.

Environmental Pressures

Figure 1.3 Northern Ireland airport passenger numbers, 1999 – 2009

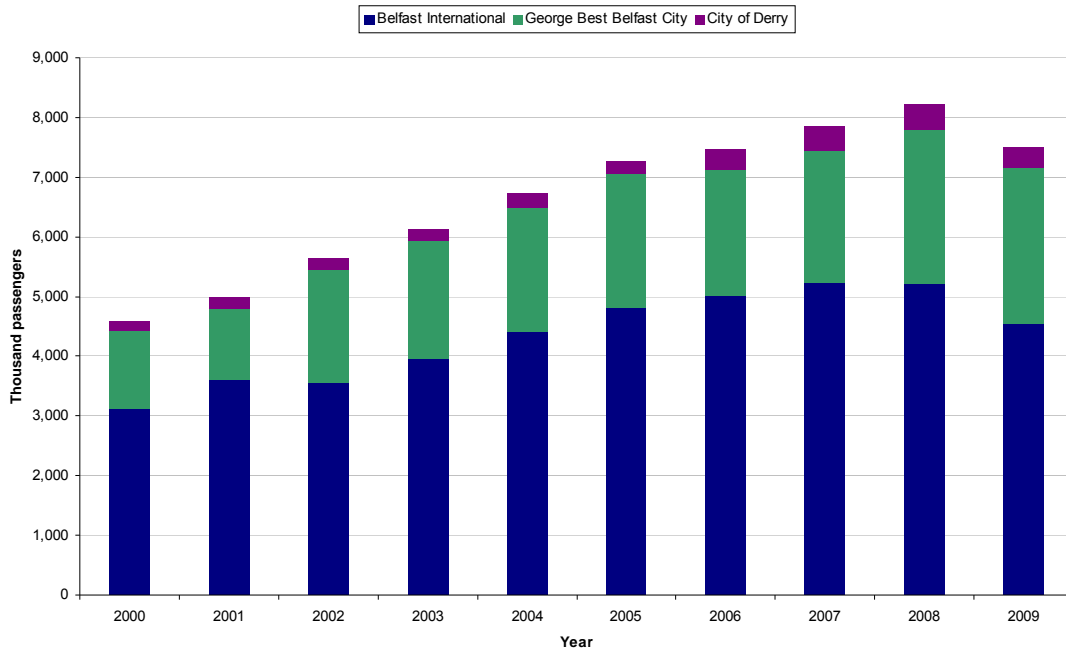


Table 1.3 Northern Ireland airport passenger numbers, 1999 – 2009

	2000	2001	2002	2003	2004	2005	2006	Unit: Thousand passengers			
	2007	2008	2009								
Belfast International	3,128	3,603	3,551	3,954	4,403	4,820	5,015	5,236	5,223	4,536	
George Best Belfast City	1,290	1,192	1,890	1,974	2,091	2,237	2,106	2,187	2,571	2,622	
City of Derry	163	188	199	206	234	199	342	428	439	346	
All Airports	4,581	4,983	5,640	6,134	6,728	7,256	7,463	7,851	8,233	7,504	

Source: Civil Aviation Authority

- Northern Ireland’s airports have handled increasing numbers of passengers each year, however both Belfast International and City of Derry airports have shown reductions in 2009.
- Since 2000, airport passenger numbers have increased by 64% in Northern Ireland, increasing from approximately 4.6 million in 2000 to approximately 7.5 million in 2009. However, total passenger numbers fell from 8.2 million in 2008 to 7.5 million in 2009, a drop of 9%.
- Belfast International Airport experienced a drop in passenger numbers between 2008 and 2009, from 5.2 million passengers in 2008 to 4.5 million in 2009, a decrease of 13%. City of Derry airport passenger numbers fell by 21% from 2008 to 2009.
- In 2009, Belfast International accounts for 60% of all airport passengers in Northern Ireland, with George Best Belfast City accounting for 35% of all airport passengers.

Environmental Pressures

Figure 1.4 Numbers of journeys per person by mode of transport, 2001-03 to 2007-09

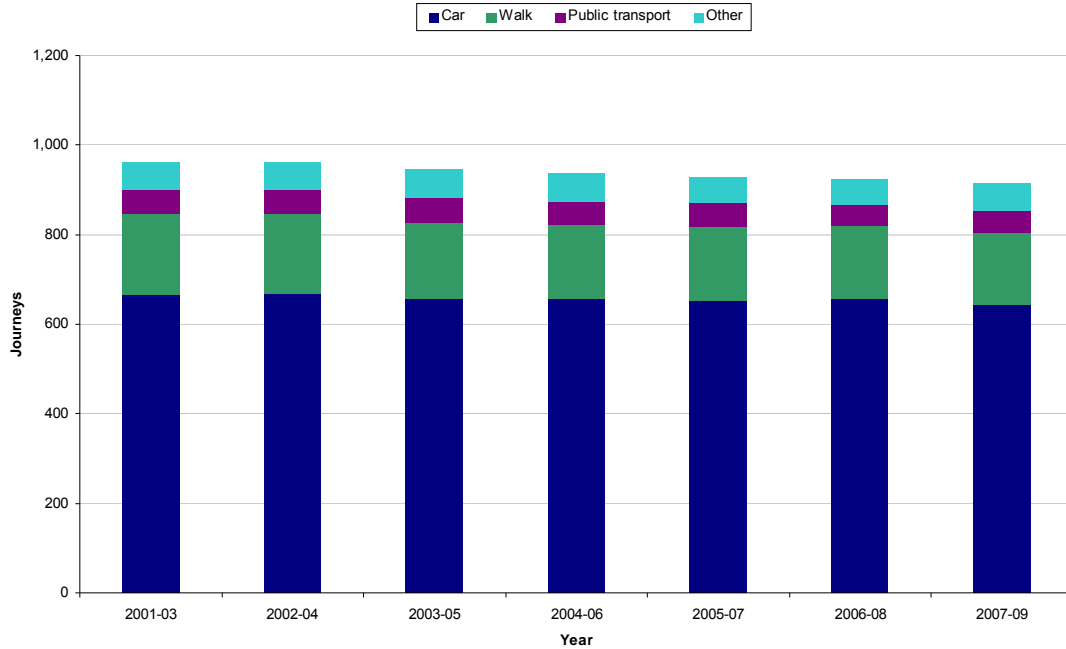


Table 1.4 Numbers of journeys per person by mode of transport, 2001-03 to 2007-09

	2001-03	2002-04	2003-05	2004-06	2005-07	2006-08	2007-09	Unit: Journeys
Car	665	668	655	657	654	659	643	
Walk	182	179	172	165	164	160	160	
Public transport	54	54	55	54	51	48	52	
Other	60	60	63	62	59	58	60	
All modes (3 year average)	960	963	947	937	929	926	914	

Source: Travel Survey for Northern Ireland, DRD

- Despite a 5% reduction in the average number of journeys made from 2001-03 to 2007-09, there has been little change in the pattern of the mode of transport used over the same period of time.
- On average, between 2007 and 2009, 70% of all journeys were made by car, either driving the car or as a passenger. This has not changed significantly over the course of the last 5 surveys.
- In the same period, 17% of all journeys made were by walking.
- Public transport only accounts for 6% of all journeys made in the same 3-year period.

Environmental Pressures

Figure 1.5 Average distance travelled per person by mode of transport, 2001-03 to 2007-09

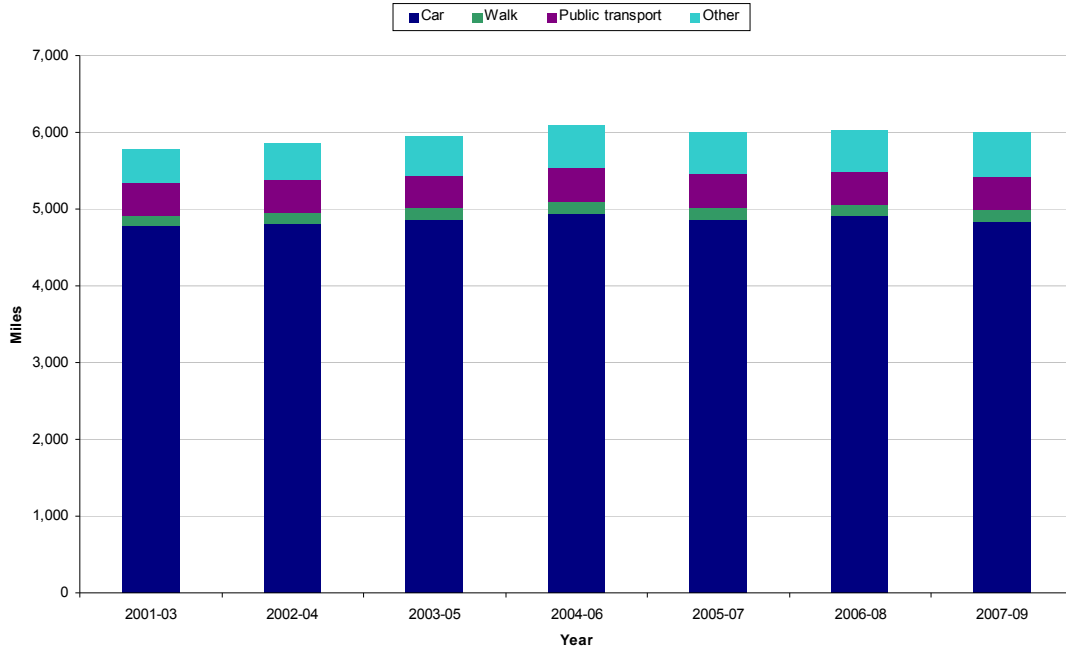


Table 1.5 Average distance travelled per person by mode of transport, 2001-03 to 2007-09

	2001-03	2002-04	2003-05	2004-06	2005-07	2006-08	2007-09	Unit: Miles
Car	4,777	4,816	4,870	4,943	4,864	4,916	4,840	
Walk	142	137	139	138	144	143	144	
Public transport	426	429	431	446	442	430	447	
Other	441	477	509	567	549	544	571	
All modes (3 year average)	5,786	5,861	5,951	6,094	5,999	6,033	6,002	

Source: Travel Survey for Northern Ireland, DRD

- During the period 2007 - 09, the average distance travelled per person each year was just over 6,000 miles.
- Car travel made up just over four fifths (81%) of the total distance travelled.
- People travelled on average 144 miles per year by walking, just 2% of the total distance travelled.
- Public transport accounted for 7% of the total distance travelled each year.

Public Opinion

Figure 1.6 Level of concern for the environment, 2003/04 – 2009/10

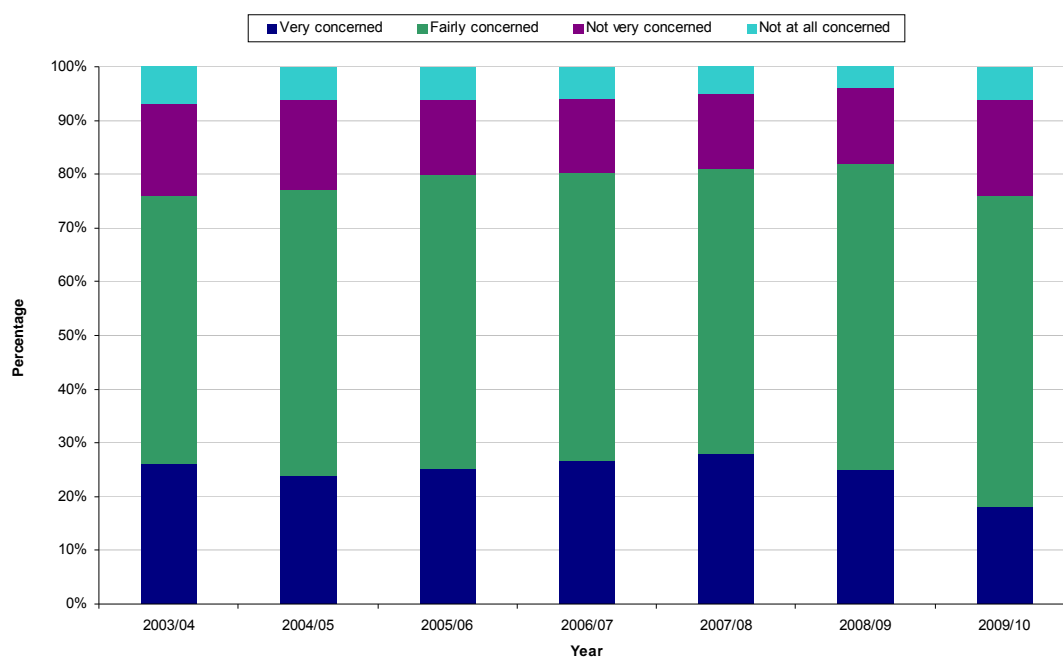


Table 1.6 Level of concern for the environment, 2003/04 – 2009/10

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

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).
- There was a significant increase in the number of people who are either very concerned or fairly concerned about the environment between 2003/04 and 2005/06.
- In 2009/10, 76% of people were either very concerned or fairly concerned about the environment. This is a drop of six percentage points on the level of concern in 2008/09.

Public Opinion

Table 1.7 Types of environmental concern, 2003/04 – 2009/10

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	Unit: Percentage						
Pollution in rivers	30	30	30	29	28	34	31
Pollution in bathing waters and beaches	21	23	23	23	22	23	22
Traffic exhaust fumes and urban smog	35	33	32	32	31	31	27
Loss of plants and animals in Northern Ireland	13	15	15	15	16	18	18
Ozone layer depletion	22	26	27	27	24	22	19
Tropical forest destruction	9	8	10	12	13	12	12
Climate change	13	19	29	34	39	37	38
Loss of trees and hedgerows in Northern Ireland	16	17	15	16	16	19	18
Fumes and smoke from factories	14	16	15	14	13	12	12
Traffic congestion	27	28	26	28	30	28	30
Use of pesticides and fertilisers	17	16	18	15	13	15	14
Acid rain	3	2	2	3	2	3	2
Household waste disposal	31	33	34	33	34	31	36
Noise	7	7	6	6	5	4	7
None of these	8	9	5	4	5	4	5
Other	1	2	2	1	1	1	1
All Households	2,718	2,766	2,594	2,675	2,562	2,464	2,757
<i>Source: Continuous Household Survey, NISRA</i>							
Note: Base does not equal 100% - Multiple responses permitted							

- Members of the public were asked to provide their views on what were their three main environmental concerns in NISRA's Continuous Household Survey (CHS).
- Results show that in 2009/10, the four main environmental concerns for Northern Ireland residents were climate change (38%), household waste disposal (36%), pollution in rivers (31%) and traffic congestion (30%).
- Since 2003/04, climate change has become a significantly bigger concern. In 2009/10, 38% of people mentioned climate change compared with 13% of people in 2003/04.
- Traffic exhaust fumes and urban smog and pollution in bathing waters and beaches are both mentioned by more than 20% of people as one of their three most important environmental concerns. However the level of concern over traffic exhaust fumes and urban smog has decreased significantly since 2003/04.

Sustainability of Lifestyle

Table 1.8 Actions taken to protect the environment, 2003/04 – 2009/10

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	Unit: Percentage						
Reduced amount of energy used in home	26	26	31	37	40	41	44
Reduced amount of water used in home	22	24	27	30	31	33	29
Used public transport for environmental reasons	16	16	16	18	18	18	18
Reduced the use of the car	17	19	18	19	19	22	20
Took action to protect wildlife	31	33	33	30	31	30	30
Recycled paper, glass	35	33	32	32	34	34	31
Not bought something because of packaging	9	9	10	11	13	14	14
Bought organic food	25	24	26	26	28	24	20
Used energy saving light bulbs	41	42	43	47	51	55	64
All Households	2,535	2,768	2,592	2,687	2,560	2,471	2,764
<i>Source: Continuous Household Survey, NISRA</i>							
Note: Base does not equal 100% - Multiple responses permitted							

- Members of the public were asked what actions they had taken in the last 12 months to protect the environment in NISRA's Continuous Household Survey (CHS).
- Results indicate that in 2009/10, the most common actions taken by individuals to protect the environment were using energy saving light bulbs (64%), reducing the amount of energy used in the home (44%) and recycling paper and glass (31%).
- Since 2003/04, reducing the amount of energy used in the home, reducing the amount of water used in the home, using energy saving light bulbs and not buying something because of the packaging have all increased significantly.
- In the last year, there has been a significant decrease in the percentage of people recycling paper and glass, buying organic food and reducing the amount of water used in the home.

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.

Northern Ireland's air quality has shown substantial improvement in recent years, with the majority of pollutant levels well within the national air quality objectives. In particular, levels of pollutants associated with coal and oil combustion have reduced over the past decade. An additional indicator on polycyclic aromatic hydrocarbons has been included in this year's report and will be updated annually.

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.

Greenhouse gas emissions in Northern Ireland have decreased since 1990, with a 11% fall in emissions achieved by 2008. The Programme for Government has a target of a 25% decrease in greenhouse gas emissions by 2025. 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 for Northern Ireland 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 our

rainfall with the proportion of annual rainfall falling in summer decreasing since the start of the 20th century.

Nitrogen Oxides

Figure 2.1 Annual mean concentration of nitrogen dioxide (NO₂), 2000 – 2009

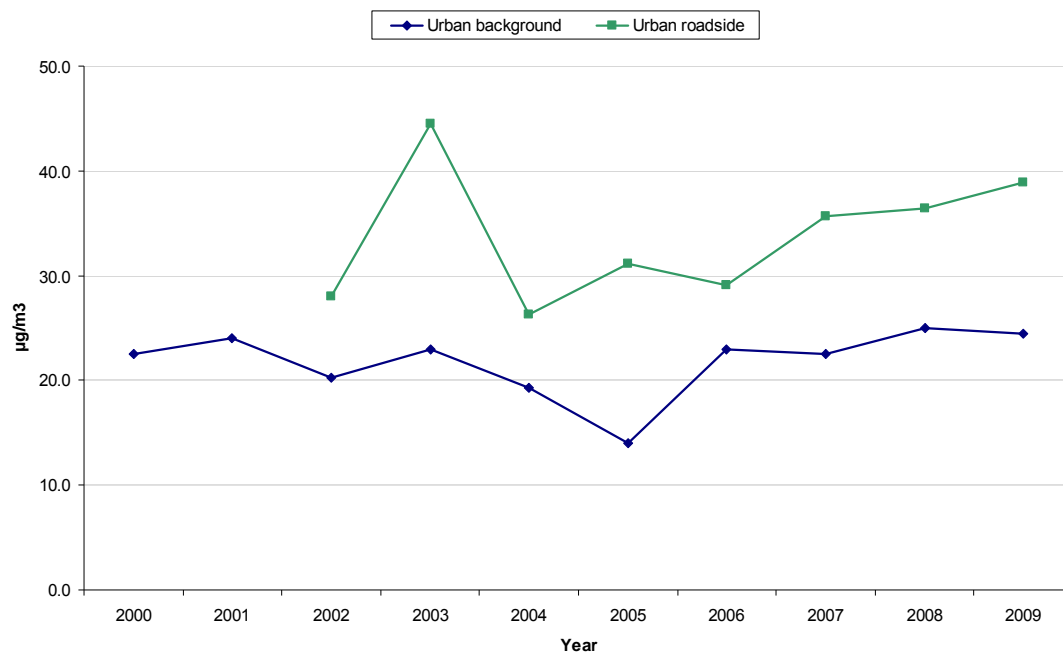


Table 2.1 Annual mean concentration of nitrogen dioxide (NO₂), 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: µg/m ³
Urban background	22.5	24.0	20.3	23.0	19.3	14.0	23.0	22.5	25.0	24.5	
Urban roadside			28.0	44.5	26.3	31.1	29.1	35.7	36.4	38.9	
<i>Source: AEA Technology</i>											
Note: Figures amended from previously published figures .											

- Nitrogen dioxide is monitored using automatic techniques at 17 urban sites across Northern Ireland.
- The annual mean background concentration of NO₂ in urban areas, for Northern Ireland has been 25 µg/m³ or less since the year 2000. This average is well within the National Air Quality objective annual mean for NO₂ of 40 µg/m³.
- In the last 10 years the background level of NO₂ 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 particulate matter of less than 10 microns, 2000 – 2009

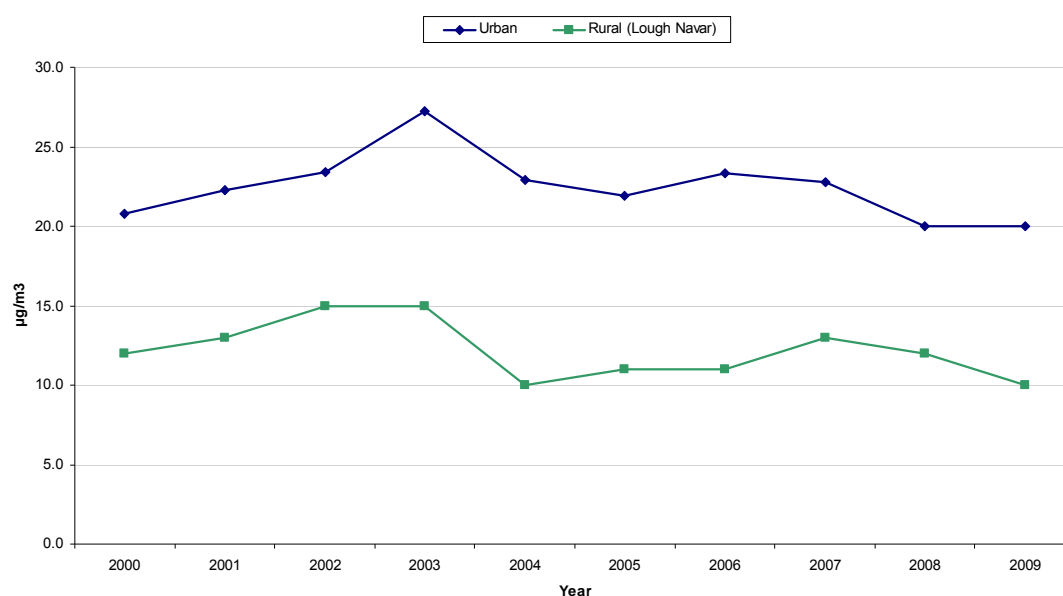


Table 2.2 Urban and rural annual mean particulate matter of less than 10 microns, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: µg/m ³
Urban	20.8	22.3	23.4	27.2	22.9	21.9	23.3	22.8	20.0	20.0	
Rural (Lough Navar)	12.0	13.0	15.0	15.0	10.0	11.0	11.0	13.0	12.0	10.0	
<i>Source: AEA Technology</i>											

- Particulate matter in the atmosphere with a diameter of less than or equal to 10 microns (PM₁₀) 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.
- In 2009, the annual mean concentration of PM₁₀ in urban areas was 20.0 µg/m³ and at the Lough Navar rural background monitoring site, it was 10.0 µg/m³.
- In the last ten years, the annual mean rural concentration of PM₁₀ has been no higher than 15 µg/m³ and the annual mean urban concentration has been less than 28 µg/m³.
- All the readings in the last 10 years have been well below the 40 µg/m³ level for annual mean that has been set as the UK Air Quality objective for the protection of human health from PM₁₀.

Air Quality Trends

Figure 2.3 Average number of days per year of moderate or worse air quality, 2000 – 2009

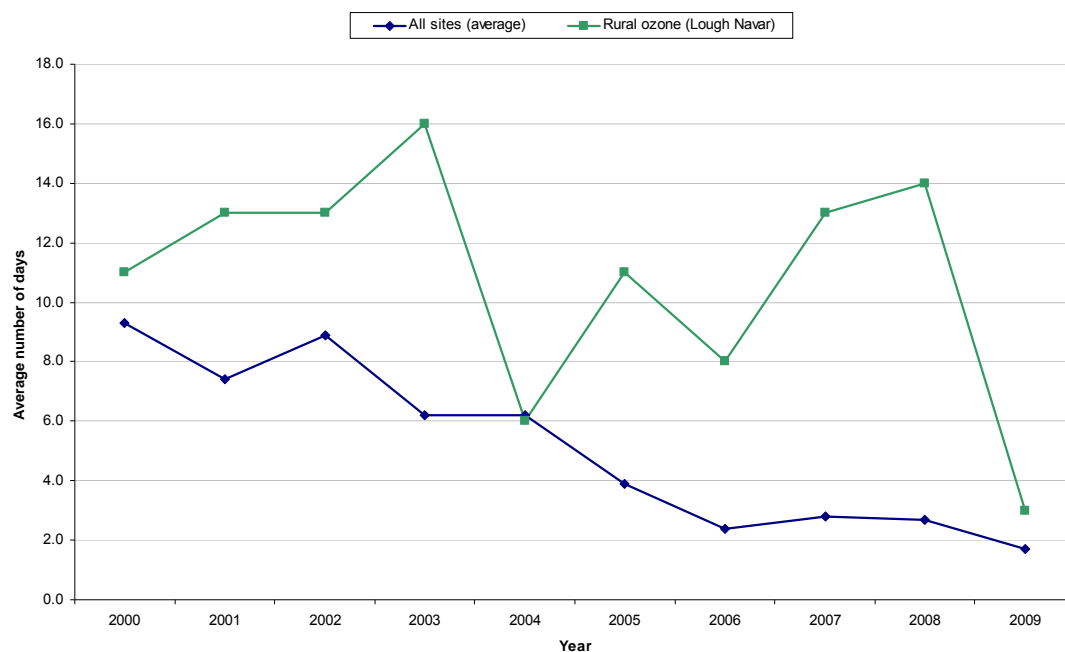


Table 2.3 Average number of days per year of moderate or worse air quality, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	Unit: Average number of days		
								2007	2008	2009
All sites (average)	9.3	7.4	8.9	6.2	6.2	3.9	2.4	2.8	2.7	1.7
Rural ozone (Lough Navar)	11.0	13.0	13.0	16.0	6.0	11.0	8.0	13.0	14.0	3.0
Source: AEA Technology										

- The average number of days of moderate or worse air quality in 2009 was 1.7 days across all sites, and 3 days at the Lough Navar rural background site.
- The average number of days of moderate or worse air quality across all sites in Northern Ireland has decreased in the last ten years from 9.3 days in 2000 to 1.7 days in 2009.
- In general, there has been a long term decline in the average number of air pollution days in Northern Ireland. This is largely because of a reduction in emissions of particles and sulphur dioxide, but deviations from this trend may be seen in certain years. For example, the high number of air pollution days seen at Lough Navar in 2003 was due to particular weather characteristics.

Ground Level Ozone

Figure 2.4 Urban and rural annual ozone exceedences, 2000 – 2009

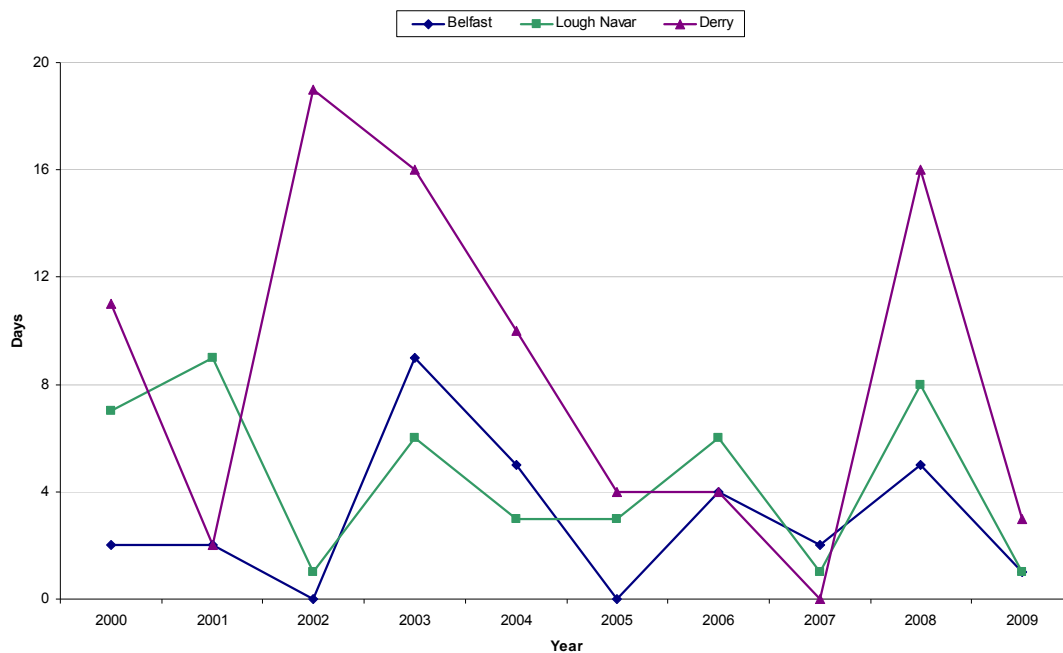


Table 2.4 Urban and rural annual ozone exceedences, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: Days
Belfast	2	2	0	9	5	0	4	2	5	1	
Lough Navar	7	9	1	6	3	3	6	1	8	1	
Derry	11	2	19	16	10	4	4	0	16	3	
<i>Source: AEA Technology</i>											

- Ozone is monitored using automatic sites at Belfast, Londonderry and Lough Navar.
- The National Air Quality Strategy sets an objective for an eight hour mean of $100 \mu\text{g}/\text{m}^3$ for ozone not to be exceeded more than 10 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. Therefore, ozone exceedences remain a possibility.
- The objective has been exceeded in Derry in five of the last ten years.

Polycyclic Aromatic Hydrocarbons

Figure 2.5 Annual mean concentration of Benzo(a)pyrene, 2001 – 2009



Table 2.5 Annual mean concentration of Benzo(a)pyrene, 2001 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
									Unit: ng/m ³	
Ballymena Ballykeel									2.50	1.60
Belfast Clara Street		0.37	0.13	0.08	0.15	0.27	0.14			
Derry Brandywell								0.60	1.30	1.10
Lisburn Dunmurry High School	0.93	0.96	0.66	0.95	0.62	0.61	0.44	0.60	0.75	0.91
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/m³ to be achieved by 2010.
- B[a]P has been measured at 4 different sites in Northern Ireland since 2001. The longest monitoring sequence (at Lisburn Dunmurry High School) has fluctuated between 0.4 and 1.0 ng/m³ since 2001. Currently all 3 sites are breaching the UK Air Quality Strategy Target

Value, while in addition, Ballymena Ballykeel and Derry Brandywell also breach the less stringent EC Target Value (1 ngm^{-3} for B[a]P).

- The 3 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 2.6 Annual ammonia emissions from agriculture, 2000 – 2009

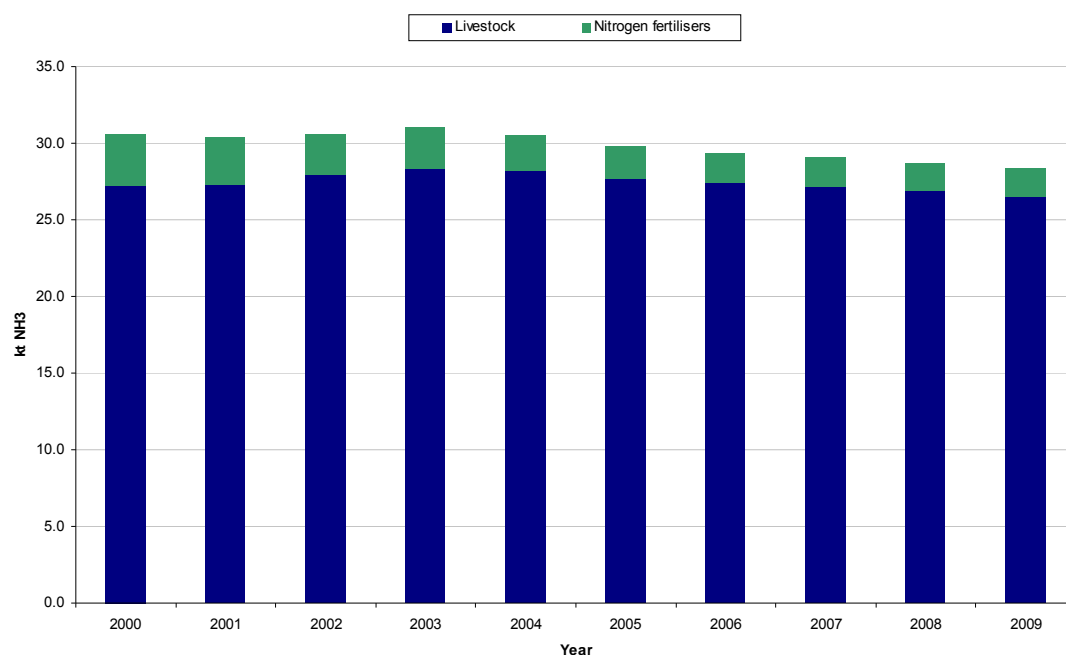


Table 2.6 Annual ammonia emissions from agriculture, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: kt NH ₃
Livestock	27.2	27.3	28.0	28.3	28.2	27.6	27.4	27.2	26.9	26.5	
Nitrogen fertilisers	3.3	3.1	2.7	2.7	2.3	2.1	1.9	1.9	1.7	1.8	
Total agriculture	30.6	30.4	30.6	31.0	30.5	29.7	29.4	29.0	28.7	28.4	

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 10 years, with a decrease of just over 2 kt since 2000. This equates to a 7% decrease in that time period.
- In 2009, of the ammonia emissions from agriculture, 94% is derived from livestock, and only 6% from the application of fertilisers containing nitrogen.

Greenhouse Gas Emissions

Figure 2.7 Total greenhouse gas emissions, 1990 – 2008

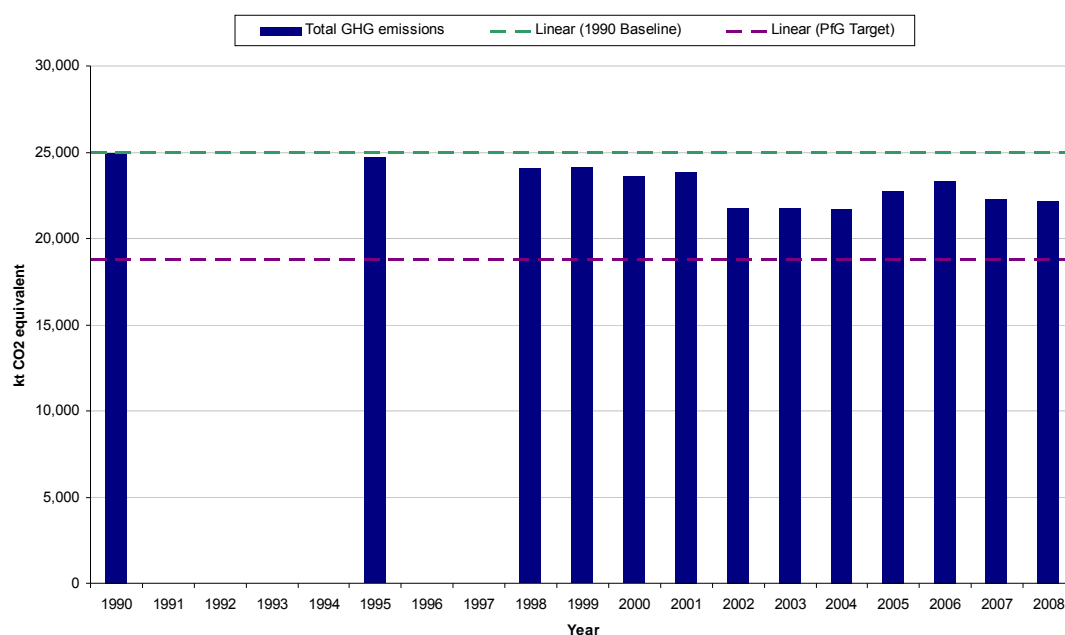


Table 2.7 Total greenhouse gas emissions, 1990 – 2008

	1990	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total GHG emissions	24,957	24,711	24,057	24,114	23,593	23,857	21,791	21,742	21,730	22,752	23,314	22,271	22,186

Units: kt CO₂ equivalent

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, OFMDFM published the 2008 - 2011 Programme for Government which set a target for a 25% decrease, on 1990 levels, in Northern Ireland's total greenhouse gas emissions by 2025.
- In 2008, 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 11.2%. This is less than the reduction seen for the UK as a whole, which has seen a decrease of 19.5% on 1990 levels.

Greenhouse Gas Emissions

Figure 2.8 Total greenhouse gas emissions by sector, 1990 & 2008

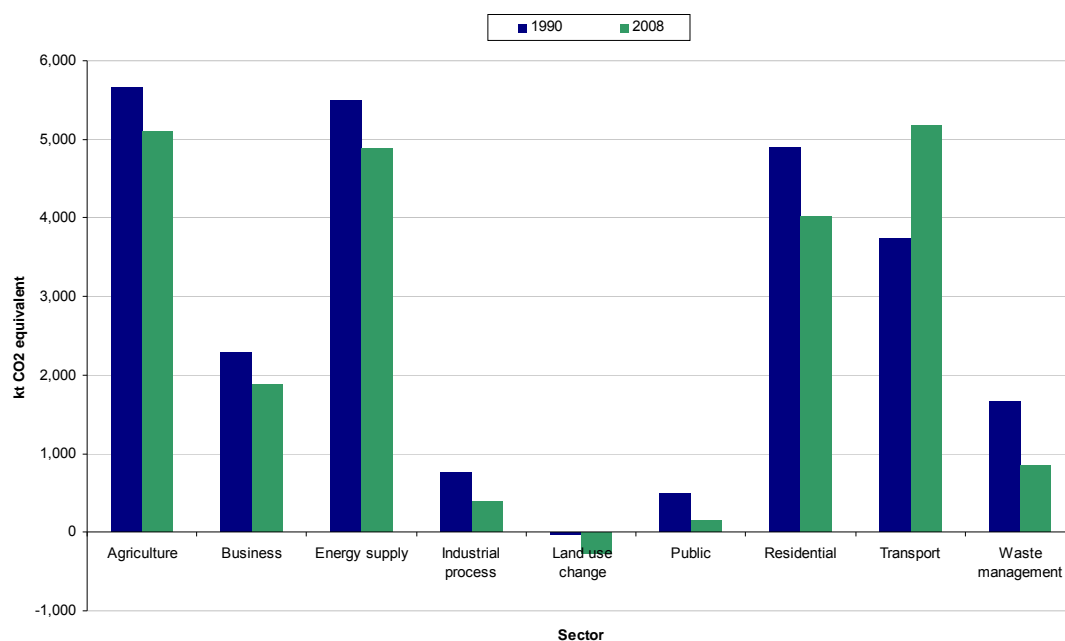


Table 2.8 Total greenhouse gas emissions by sector, 1990 & 2008

	Agriculture	Business	Energy supply	Industrial process	Land use change	Public	Residential	Transport	Waste management
1990	5,657	2,289	5,493	761	-28	491	4,897	3,731	1,666
2008	5,093	1,882	4,885	390	-265	153	4,016	5,177	855

Units: kt CO₂ equivalent

Source: AEA Technology

- In 2008, transport, agriculture and energy supply were the 3 main contributors to greenhouse gas emissions in Northern Ireland, contributing over two-thirds (68%) of Northern Ireland's total greenhouse gas emissions. A further 18% is from the residential sector.
- In 1990, agriculture, energy supply and residential combustion were the 3 main contributors to greenhouse gas emissions in Northern Ireland, contributing 64% of Northern Ireland's total greenhouse gas emissions, with a lesser contribution from the transport sector (15%).
- Most sectors have shown a decrease on 1990 levels, with the exception of transport. In 1990, transport accounted for 3,731 kt CO₂ equivalent. By 2008, this figure was 5,177 kt CO₂ equivalent, an increase of 39%.

Carbon Dioxide Emissions

Figure 2.9 Carbon dioxide (CO₂) emissions by sector, 1990 & 2008

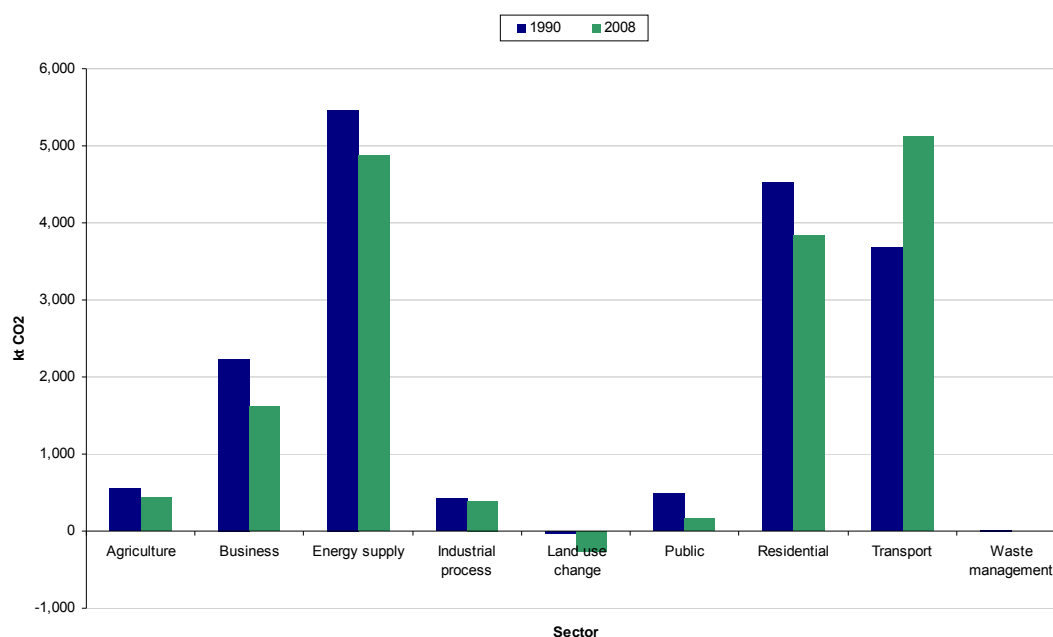


Table 2.9 Carbon dioxide (CO₂) emissions by sector, 1990 & 2008

	Agriculture	Business	Energy supply	Industrial process	Land use change	Public	Residential	Transport	Waste management	Units: kt CO ₂
1990	545	2,233	5,463	416	-30	486	4,527	3,676	8	
2008	434	1,629	4,864	390	-266	152	3,844	5,118	6	

Source: AEA Technology

- In 2008, Northern Ireland emissions of CO₂ amounted to 16171 kt, a decrease of 6.7% on 1990 emissions of CO₂.
- Energy supply and transport were the most significant contributors to CO₂ emissions, being responsible for 62% of all the CO₂ produced in Northern Ireland in 2008.
- Northern Ireland CO₂ emissions in 2008 represented 3.0% of UK CO₂ emissions, the same as the proportion in 1990.
- The 15% reduction of CO₂ achieved in the residential sector could be attributed to the increasing numbers of households on the natural gas network and improvements in home energy efficiency, such as double glazing, cavity wall insulation and roof insulation.

Energy

Figure 2.10 Percentage of electricity produced from indigenous renewable sources, 2000/01 - 2009/10

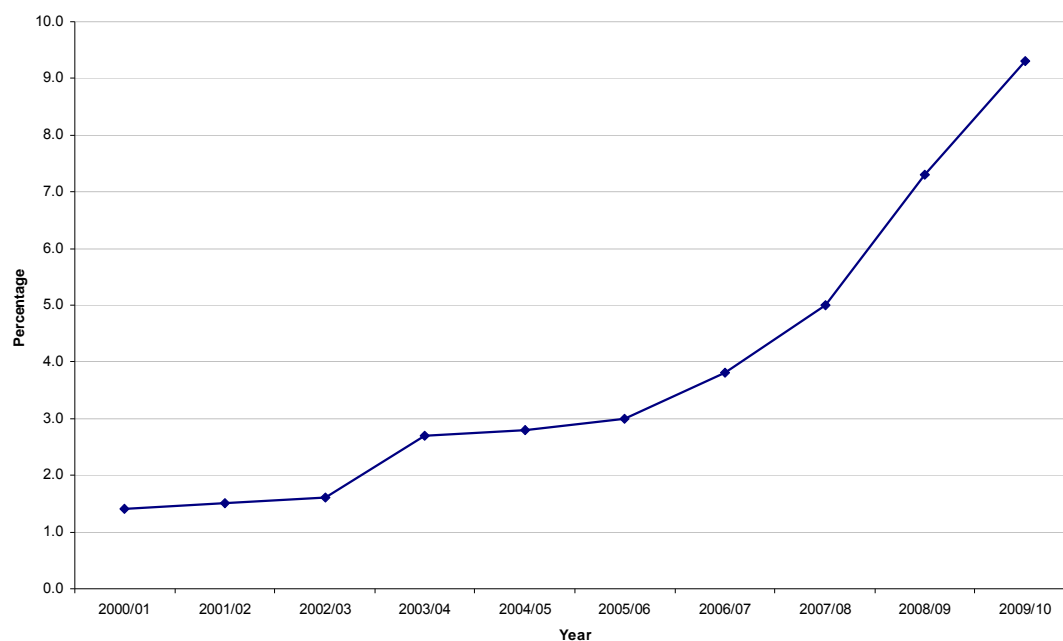


Table 2.10 Percentage of electricity produced from indigenous renewable sources, 2000/01 - 2009/10

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Total renewables generated (excluding imports) (000 MWh)	118	128	136	233	249	275	345	441	596	755
Total renewables as a % of total consumption	1.4	1.5	1.6	2.7	2.8	3.0	3.8	5.0	7.3	9.3
<i>Source: DETI</i>										

- 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 2009/10, 755,000 MWh of electricity in Northern Ireland was produced from indigenous renewable sources. This was equivalent to 9.3% of total electricity consumption in that period.
- There has been a sizable increase in the amount of electricity produced from indigenous renewable sources since 2000/01, when only 118,000 MWh (1.4% of total electricity consumed) was generated from renewable sources.

Environmental Installations

Figure 2.11 Planning applications for environmental installations, 2002/03 – 2009/10

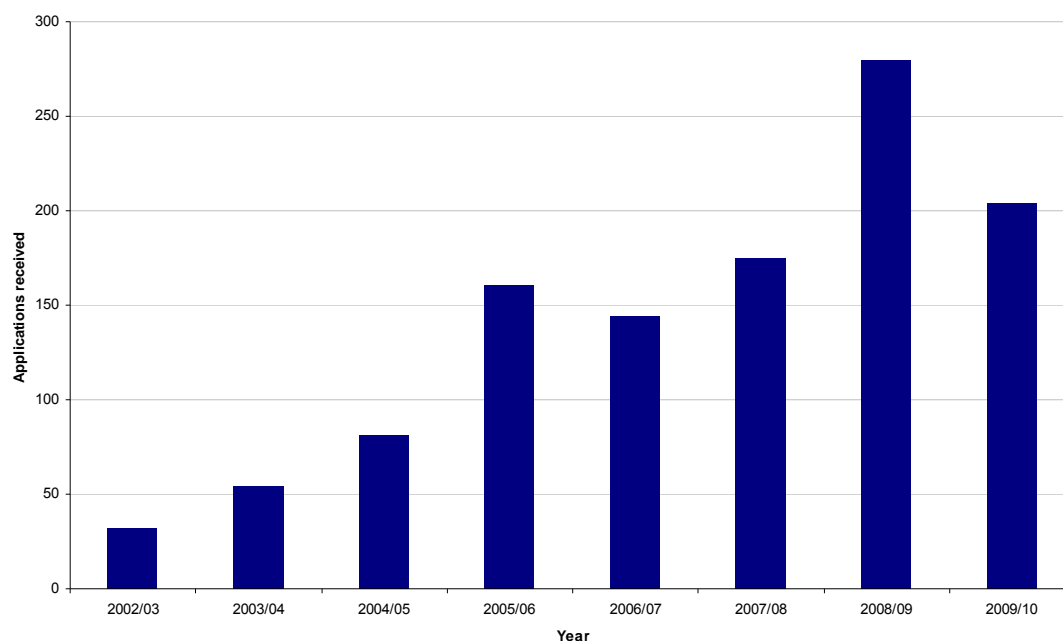


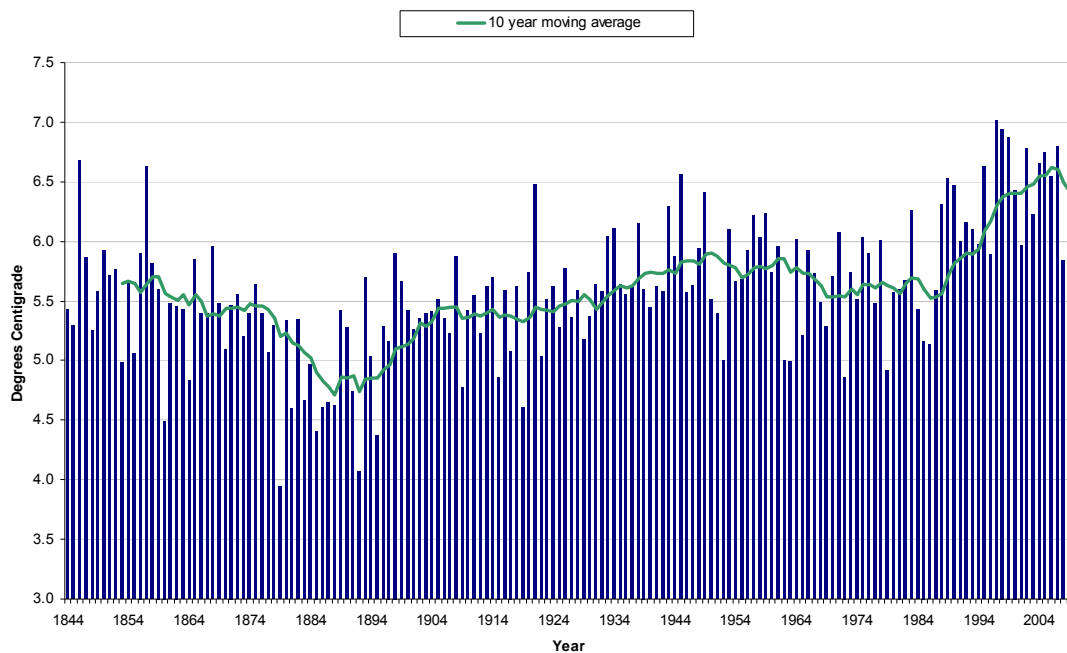
Table 2.11 Planning applications for environmental installations, 2002/03 – 2009/10

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Received	32	54	81	161	144	175	280	204
Decided	33	32	35	89	93	218	299	157
Approved	32	31	35	88	87	210	281	132
Percentage approved	97	97	100	99	94	96	94	84
<i>Source: Planning Service</i>								
Note: Figures amended from previously published figures .								

- Planning Service monitor the number of applications for environmental installations. These include wind turbines, solar water heating panels, wood pelletising plants and solar panels.
- There has been a 6-fold increase in the number of applications received in the last 8 years, although there was a drop off in 2009/10 from 2008/09, with an additional reduction of ten percentage points on the number of applications approved from 2008/09 to 2009/10.
- In 2002/03, Planning Service received 32 applications for such installations.
- In 2009/10, 204 applications were received, more than six times as many applications as were received in 2002/03.

Climate Change

Figure 2.12 Mean annual minimum temperature, 1844 – 2009

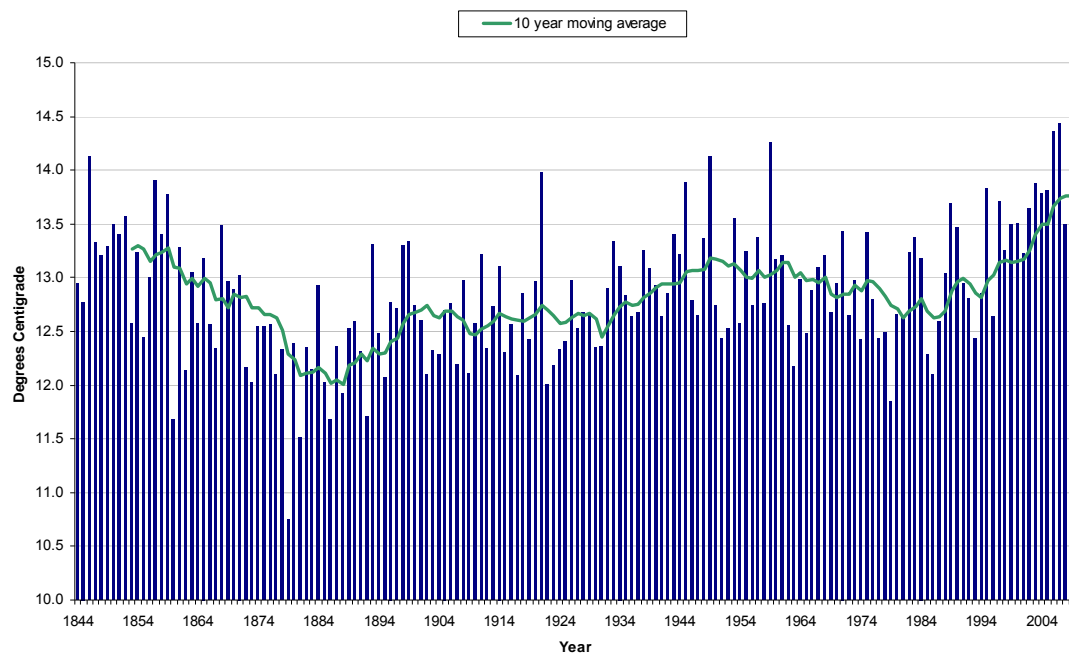


Source: Armagh Observatory

- The mean annual minimum temperature for Northern Ireland has been calculated from the Armagh Observatory temperature records.
- The 10 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.
- Since 1990, the 10 year moving average mean annual minimum temperature has risen to its highest levels since the temperature records began.
- 1997 had the highest mean annual minimum temperature recorded in the period up to 2009 (7.02°C).
- The lowest mean annual minimum temperature (3.95°C) recorded in the period up to 2009 was recorded in 1879.

Climate Change

Figure 2.13 Mean annual maximum temperature, 1844 – 2009

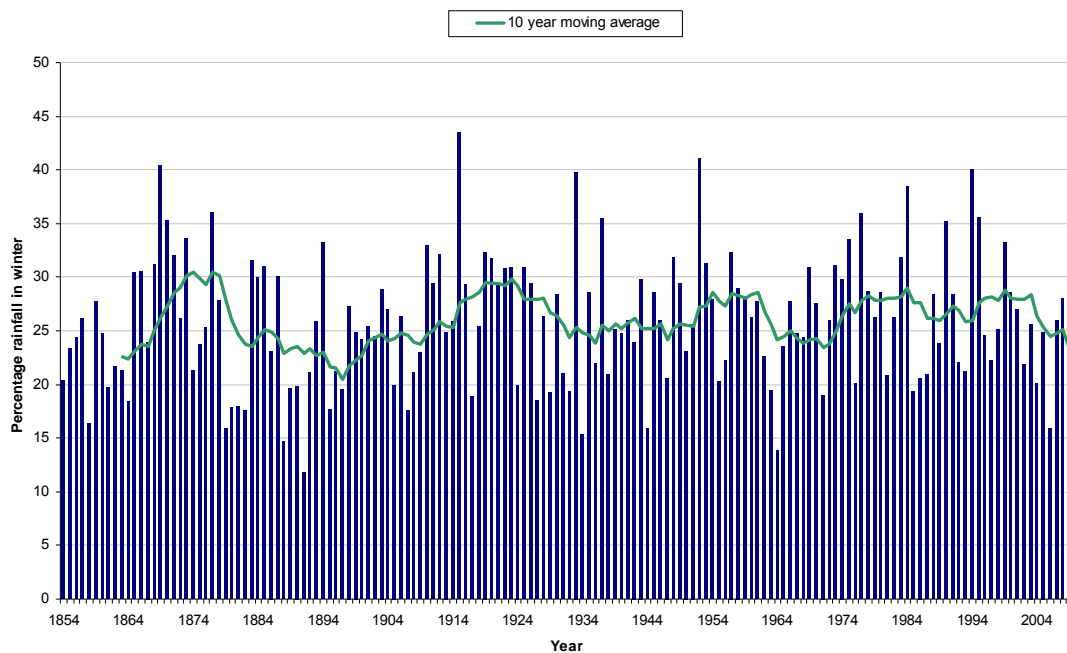


Source: Armagh Observatory

- The mean annual maximum temperature for Northern Ireland has been calculated from the Armagh Observatory temperature records.
- The 10 year moving average trend line shows that the annual maximum temperature reached a low towards the end of the 19th century, and has been steadily increasing ever since.
- In the last 10 years, the average annual maximum temperature has continued to slowly increase.
- 2007 had the highest mean annual maximum temperature recorded in the period up to 2009 (14.44°C).
- The lowest mean annual maximum temperature (10.74°C) in the period up to 2009 was recorded in 1879.

Climate Change

Figure 2.14 Percentage annual winter rainfall, 1854 – 2009

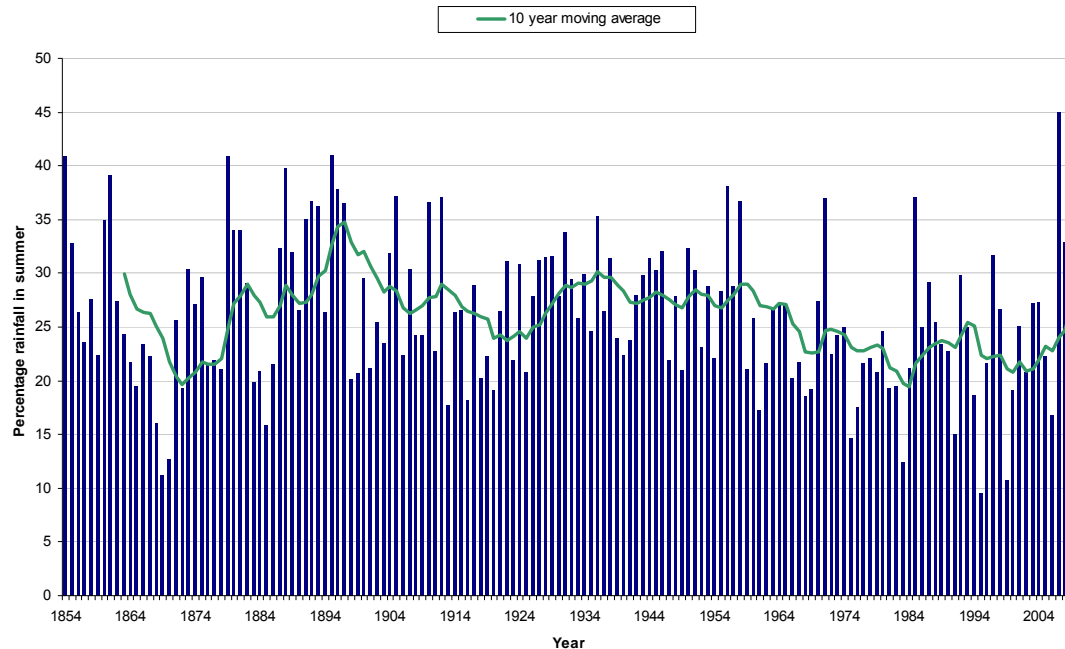


Source: Armagh Observatory

- 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 10 year moving average for the percentage of annual rainfall in winter has fluctuated between 25 and 30% since the start of the 20th century.
- In the last 10 years the average winter rainfall percentage has fallen from 28% to 23%.
- The wettest winter on record was 1915, when 43.5% of the year's rainfall fell in the three winter months.
- The lowest level recorded was in 1891, when just 12% of the annual rainfall fell between December and February.

Climate Change

Figure 2.15 Percentage annual summer rainfall, 1854 – 2009



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).
- The 10 year moving average for the percentage of annual rainfall in summer shows a slight downward trend towards a lower percentage of mean annual rainfall in the summer months.
- In the last 10 years the average summer rainfall percentage has increased from 21% to 27%.
- The highest level recorded was in 2007, when 45% of the year's rainfall fell in the three summer months.
- The driest summer on record was 1995, when less than 10% of the annual rainfall fell between June and August.

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 our drinking water standards. Indicators on the state of the marine environment are covered in Chapter 4.

There have been a number of changes in the indicators included in this chapter from last year's report. These mainly are to do with the change in river and lake quality monitoring. The Water Framework Directive (WFD) replaced the General Quality Assessment classification system last year, and has been further updated this year to report on overall river quality (as opposed to separately recording biological and chemical river quality) and lake quality is also given an overall rating (as opposed to providing a breakdown of the three main parameters for lake quality).

River monitoring is carried out routinely against national standards for the Water Framework Directive (WFD). A quarter of monitored river waterbodies are of at least a good standard. The level of compliance for rivers designated as salmonid under the EC Freshwater Fish Directive has increased in recent years, whereas the level has decreased for the relatively small length of cyprinid designated rivers.

Lakes are a significant source of drinking water supplies. Lough Neagh and Upper and Lower Lough Erne make up over 90% of the total hectareage 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 2009.

Groundwater is currently of a high quality, with 65 of Northern Ireland's 67 groundwater bodies at good status following WFD quantitative and qualitative

classification. All groundwater sites that were monitored for nitrate (NO₃) in 2009 had an annual mean concentration of less than 40mg NO₃/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 and water utility discharge quality have improved in recent years, although there was a slight drop off for water utility discharge quality in 2009. Drinking water quality is also at the highest level recorded since 2004.

Water pollution incidents are investigated by NIEA. In 2009, 2,152 incidents were reported to NIEA, of which 1,248 were substantiated as having an impact on the water quality of the receiving waterway. Of these 16% were considered to be of high or medium severity.

River Quality

Figure 3.1 Water Framework Directive (WFD) overall classification (% river waterbodies), 2008 - 2009

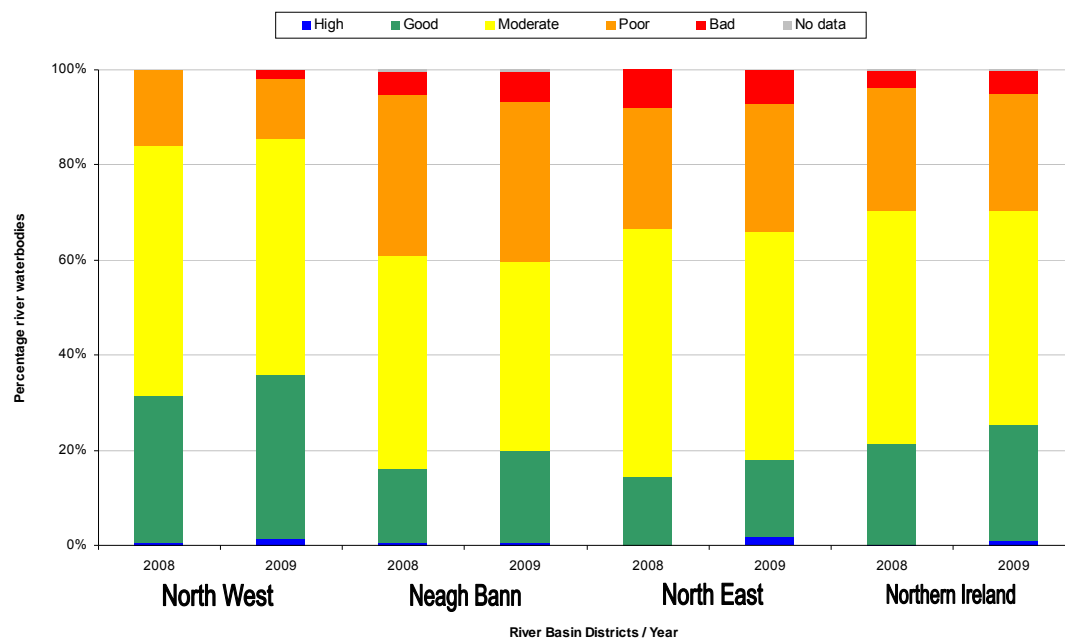


Table 3.1 Water Framework Directive (WFD) overall classification (% river waterbodies), 2008 - 2009

	North West		Neagh Bann		North East		All Northern Ireland									
	2008		2009		2008		2009		2008		2009					
	rwbs	% rwbs	rwbs	% rwbs	rwbs	% rwbs	rwbs	% rwbs	rwbs	% rwbs	rwbs	% rwbs				
High	1	0.5	3	1.4	1	0.4	1	0.4	0	0.0	2	1.8	2	0.3	6	1.0
Good	65	31.1	72	34.4	40	15.7	50	19.6	16	14.4	18	16.2	121	21.0	140	24.3
Moderate	110	52.6	104	49.8	114	44.7	101	39.6	58	52.3	53	47.7	282	49.0	258	44.9
Poor	33	15.8	26	12.4	87	34.1	86	33.7	28	25.2	30	27.0	148	25.7	142	24.7
Bad	0	0.0	4	1.9	12	4.7	16	6.3	9	8.1	8	7.2	21	3.7	28	4.9
No data	0	0.0	0	0.0	1	0.4	1	0.4	0	0.0	0	0.0	1	0.2	1	0.2

Unit: River waterbodies

Source: NIEA

- The river waterbody classification has been produced using the results from WFD quality elements. Overall classification utilises a combination of biological, chemical and hydromorphological quality elements including macroinvertebrates, pH and ammonia to assign status of river quality in one of five classes from 'high' through to 'bad'.
- WFD 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 2009, 25% of river waterbodies were classified as 'high' or 'good'. This is an increase of four percentage points on 2008.

Chemical River Quality

Figure 3.2 Freshwater Fish Directive compliance failure summary, 2000 – 2009

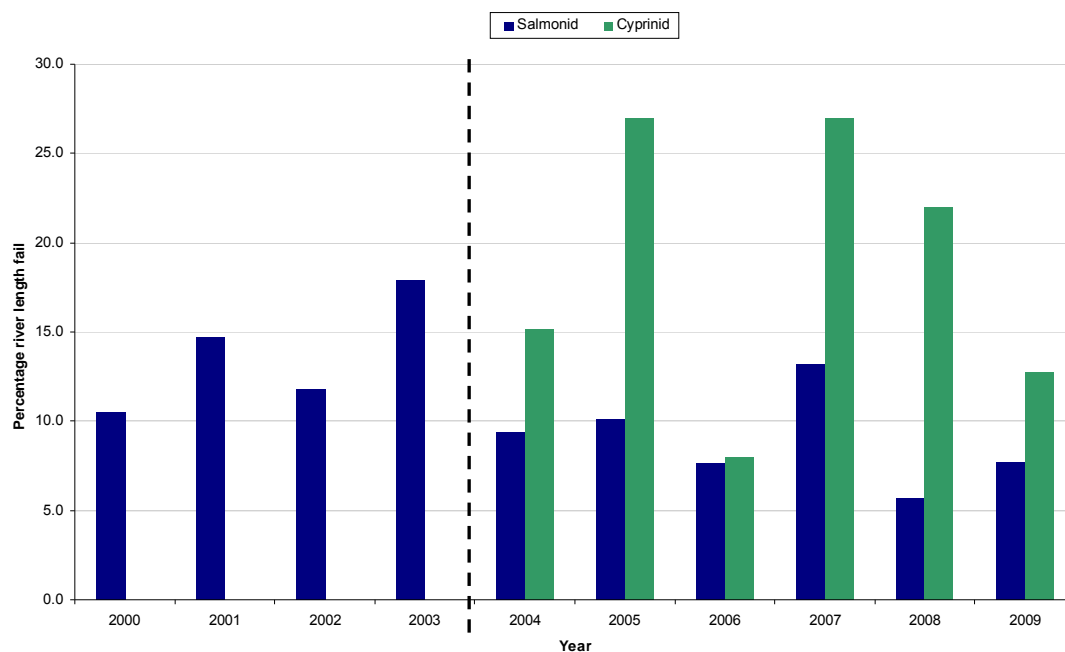


Table 3.2 Freshwater Fish Directive compliance failure summary, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Salmonid	10.5	14.7	11.8	17.9	9.4	10.1	7.6	13.2	5.7	7.7
Cyprinid	0.0	0.0	0.0	0.0	15.1	27.0	8.0	27.0	22.0	12.7

Unit: Percentage river length fail

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. This is made up of 4,154 km of salmonid rivers and 126km of cyprinid. These rivers are monitored and compliance is measured against water quality standards set by the Directive.
- The majority of 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 2009, 7.7% of salmonid river length and 12.7% of cyprinid river length failed to meet the standards set by the Directive.

Lake Quality

Figure 3.3 Lake Water Framework Directive status, 2008 - 2009

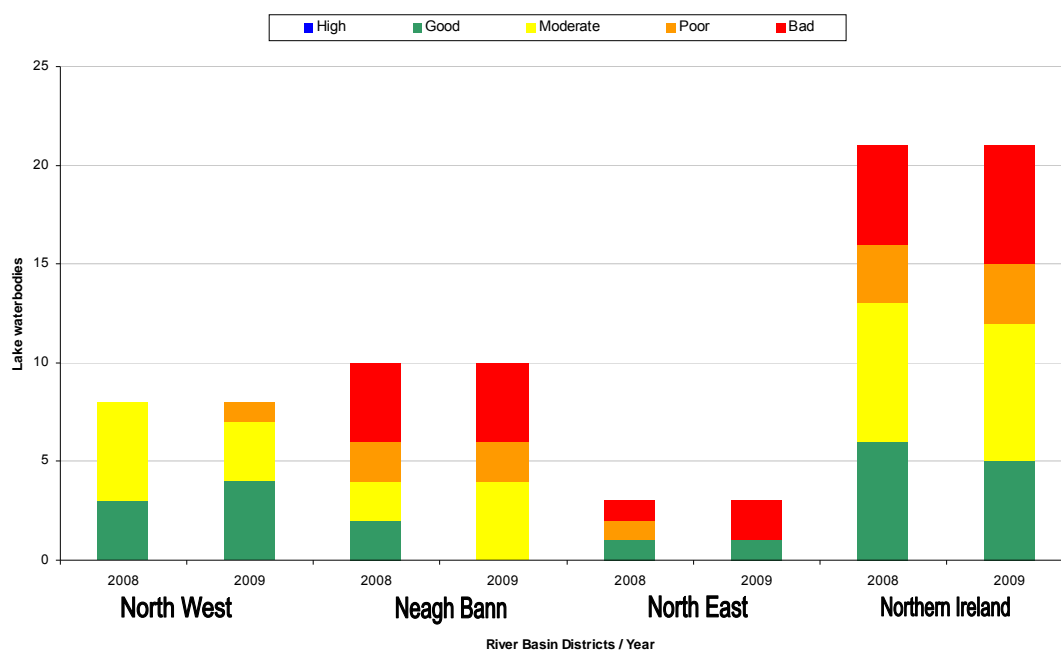


Table 3.3 Lake Water Framework Directive status, 2008 – 2009

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

Unit: Lake waterbodies

Source: NIEA

- 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 ha.
- 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 2009, 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.

Groundwater Quality

Figure 3.4 Annual mean nitrate concentrations, 2000 – 2009

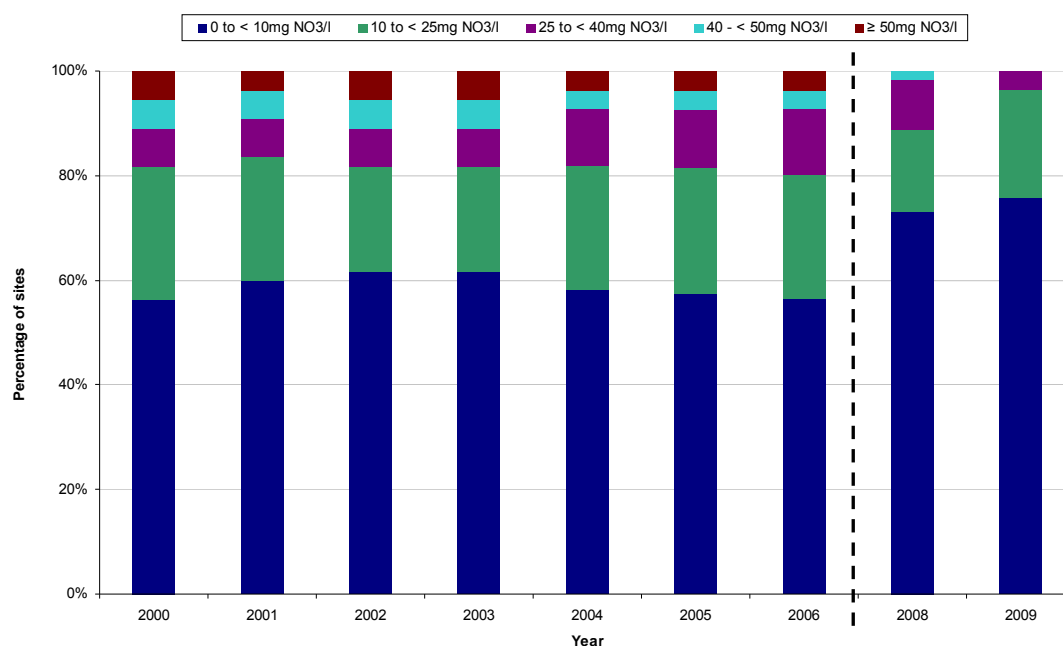


Table 3.4 Annual mean nitrate concentrations, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2008	2009
	Unit: Percentage of sites								
0 to < 10mg NO ₃ /l	56.4	60.0	61.8	61.8	58.2	56.4	56.4	73.0	75.9
10 to < 25mg NO ₃ /l	25.5	23.6	20.0	20.0	23.6	23.6	23.6	15.9	20.7
25 to < 40mg NO ₃ /l	7.3	7.3	7.3	7.3	10.9	10.9	12.7	9.5	3.4
40 - < 50mg NO ₃ /l	5.5	5.5	5.5	5.5	3.6	3.6	3.6	1.6	0.0
≥ 50mg NO ₃ /l	5.5	3.6	5.5	5.5	3.6	3.6	3.6	0.0	0.0
<i>Source: NIEA</i>									

- Regional monitoring of nitrate concentrations in groundwater across Northern Ireland began in 2000. In the period of 2000 to 2006 approximately 90% of sites had an annual mean concentration of less than 40mg NO₃/l and approximately 81% were less than 25mg NO₃/l.
- Fifty-eight sites were monitored in 2009, all of which had an annual mean concentration of less than 40mg NO₃/l and 97% of sites were less than 25mg NO₃/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). The related Groundwater Daughter Directive (2006/118/EC) sets the groundwater quality standard at 50mg NO₃/l. 65 out of 67 groundwater bodies are currently at “good” status following WFD classification.

Industrial Discharge Quality

Figure 3.5 Trends in annual private and trade discharge consent compliance (EA 95-percentile), 2000 - 2009

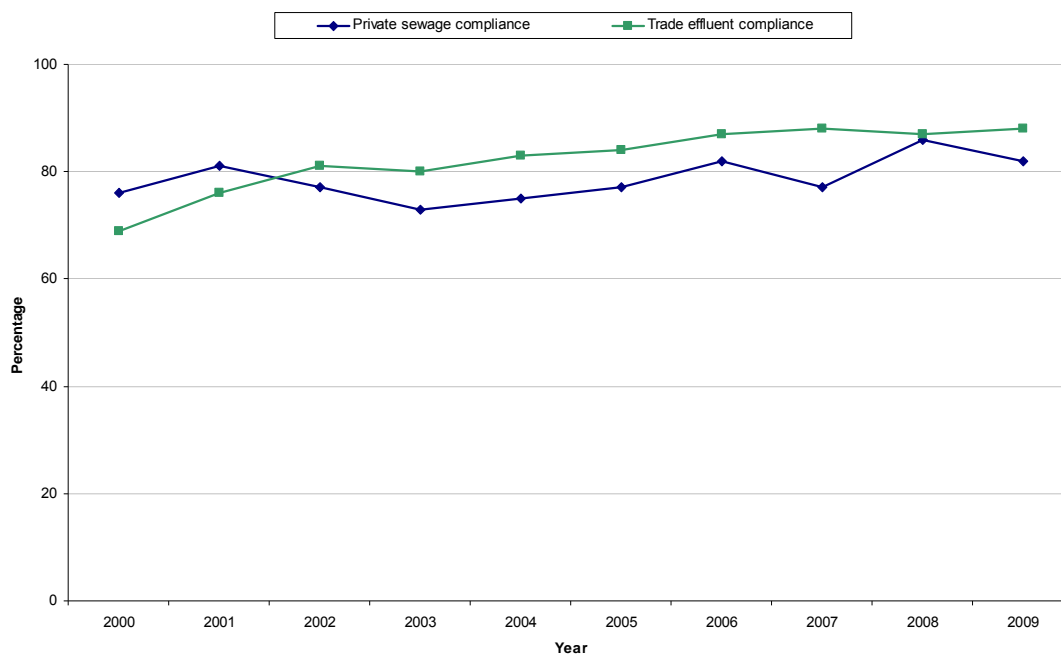


Table 3.5 Trends in annual private and trade discharge consent compliance (EA 95-percentile), 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Private sewage compliance	76	81	77	73	75	77	82	77	86	82
Trade effluent compliance	69	76	81	80	83	84	87	88	87	88

Unit: Percentage

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 it's highest level in 2008 (86%). It dropped back down to 82% in 2009.
- For trade effluent compliance there has been a steady increase from 69% in 2000 to 88% in 2009.

Water Utility Discharge Quality

Figure 3.6 Compliance of water utility discharges (95-percentile), 2000 - 2009

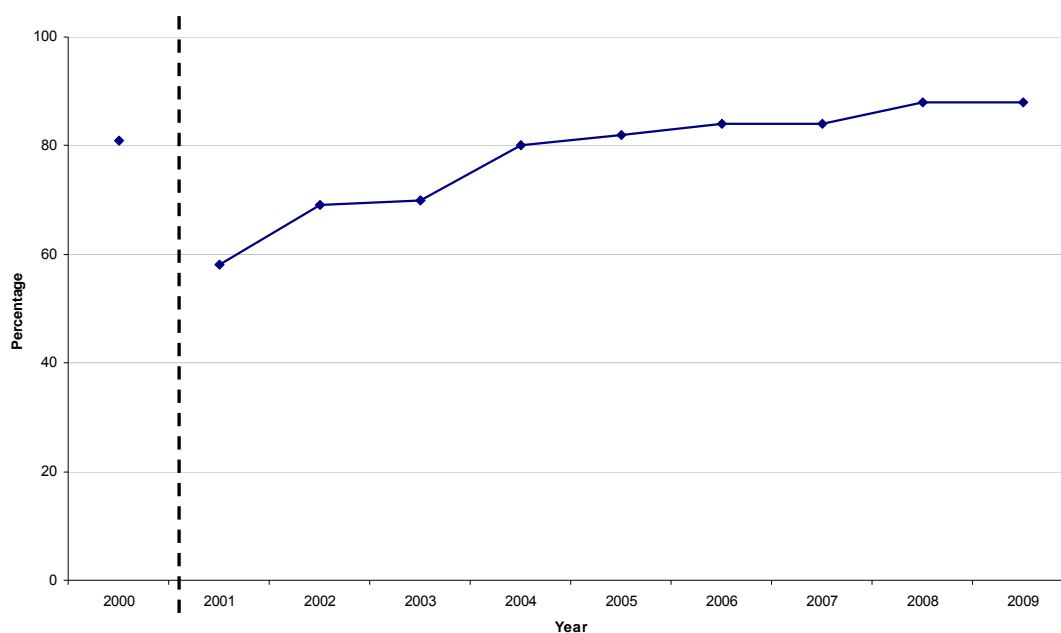


Table 3.6 Compliance of water utility discharges (95-percentile), 2000 - 2009

	2000	2001	2002	2003	2004	2005	2006	2007	Unit: Percentage	
									2008	2009
Overall compliance with WWTW discharge standards	81	58	69	70	80	82	84	84	88	88
<i>Source: NIEA</i>										

- NIEA monitors the compliance of Water Utility discharges from Waste Water Treatment Works (WWTW) and Water Treatment Works (WTW). Compliance assessment includes discharges from both Northern Ireland Water (NIW) and the Private Public Partnership schemes. Prior to April 2007, NIW was known as the Water Service and compliance was assessed against registered standards.
- On the 1 April 2007, NIW was for the first time required to have consents issued under The Water Order (NI) 1999 in respect of all discharges. These consent conditions take into account the requirements of the Urban Waste Water Treatment (UWWT) Regulations. Some WWTW have been identified as discharging to sensitive areas and their effluent will require more stringent treatment.
- Compliance levels fell to 58% in 2001. This decrease can be explained by an increase in the number of sites between 2000 and 2001. In 2000, there were 160 sites, but the following year there were 268. This was due to the addition of those works to the public register with population equivalent down to 250.

- The sustained improvement in compliance, which has now reached 88%, can be attributed to the commissioning of a number of new WWTW and to improvement schemes carried out by NIW.

Drinking Water Quality

Figure 3.7 Percentage mean zonal compliance failure with Northern Ireland water quality regulations drinking water standards, 2004 - 2009

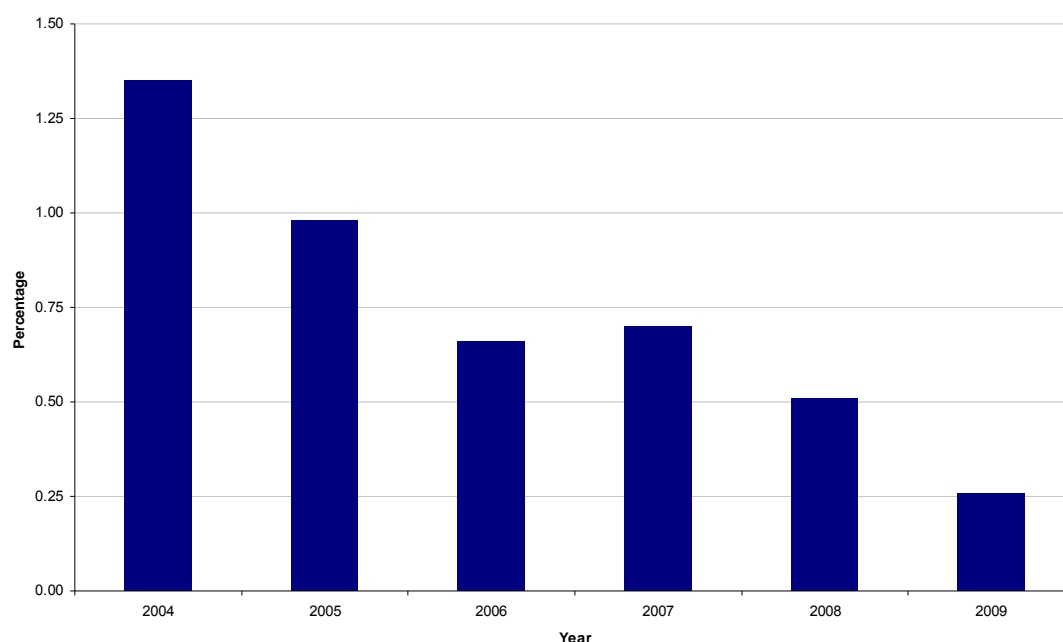


Table 3.7 Percentage mean zonal compliance failure with Northern Ireland water quality regulations drinking water standards, 2004 - 2009

	2004	2005	2006	2007	Unit: Percentage	
	2008	2009				
Mean zonal compliance	98.65	99.02	99.34	99.30	99.49	99.74
Mean zonal compliance failure	1.35	0.98	0.66	0.70	0.51	0.26
<i>Source: NIEA</i>						

- Drinking water quality at consumer taps is assessed using 'mean zonal compliance', an index which is calculated using 40 parameters from the public water supplies regulatory sampling programme undertaken by NI Water.
- The results for mean zonal compliance are based on upwards of 50,000 samples taken at consumers' taps across Northern Ireland throughout the year.
- In 2009, the mean zonal compliance for Northern Ireland was 99.74%, a significant improvement on the level in 2004 of 98.65%.
- Currently, 1,276 private water supplies are included in the regulatory sampling programme. In 2009, the overall compliance with the regulatory standards for private water supplies was 96.96%.

Water Pollution Incidents

Figure 3.8 Severity of substantiated water pollution incidents, 2001 – 2009



Figure 3.8 Severity of substantiated water pollution incidents, 2001 – 2009

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

- Water pollution incidents are investigated by NIEA. In 2009, 2,152 incidents were reported to NIEA, of which 1,248 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 2009 is 20% less than the number recorded in 2001.
- Pollution incidents are then classified according to their severity. In 2009, 16% were classified as high or medium. This is a decrease on the 2008 level of 20%.

4. Marine

The majority of Northern Ireland's 650km 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 quality, and Irish Sea temperatures.

There are two new indicators in this chapter, with the loss of one indicator. The new indicators are Blue Flag beaches and a measure of shellfish water quality. The winter nutrient concentrations indicator has been removed as this is considered in the overall status measure.

Bathing water quality is measured against mandatory and guideline standards. In 2010 only two beaches (out of 24 monitored) in Northern Ireland failed to meet 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. Just over one-third of marine water bodies around Northern Ireland's shores are classified as high or good, with the remaining two-thirds of the total area being classified as moderate. Monitoring of shellfish waters also occurs, with four of the ten shellfish waters meeting the guideline standards. There were no exceedences of the dangerous substances standards in 2009.

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, 2001 - 2010

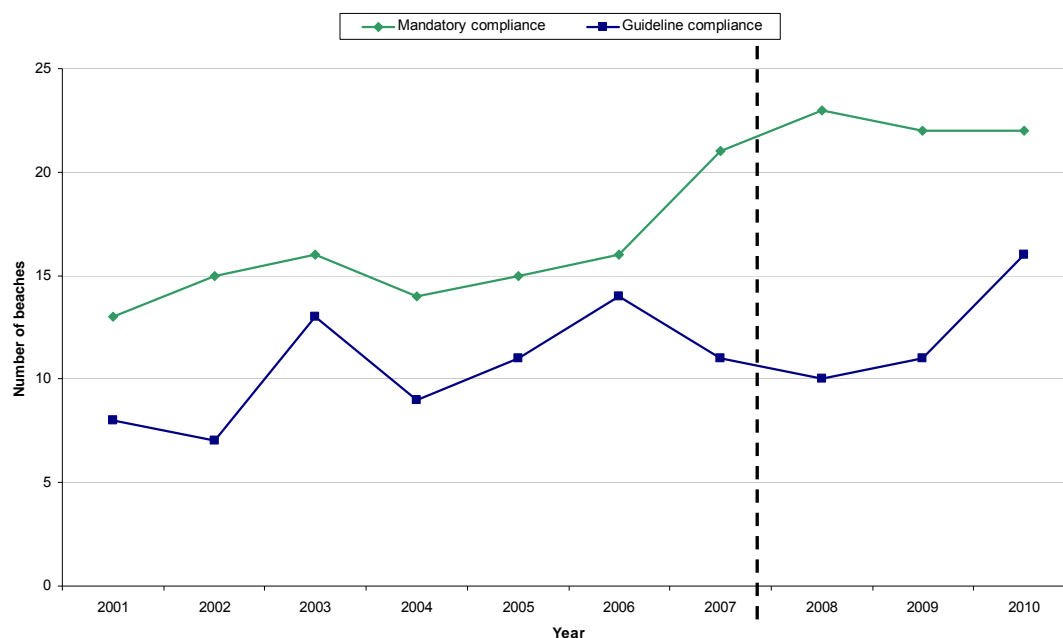


Table 4.1 Bathing water compliance for microbial standards of EC Bathing Water Directive, 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	Unit: Number of beaches			
	2008	2009	2010								
Mandatory compliance	13	15	16	14	15	16	21	23	22	22	
Guideline compliance	8	7	13	9	11	14	11	10	11	16	
<i>Source: NIEA</i>											
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)/100ml respectively.
- To comply with guideline values, 80% of samples should not exceed 500 cfu/100ml for total coliforms and 100 cfu/100ml for faecal coliforms, and 90% of samples must not exceed 100 cfu/100ml 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 2010, two beaches (out of 24 monitored) in Northern Ireland failed to meet the mandatory standards, while sixteen achieved the higher guideline standards.

Blue Flag Beaches

Figure 4.2 Number of Blue Flag Awards - Beaches & Marinas, 2000 – 2009

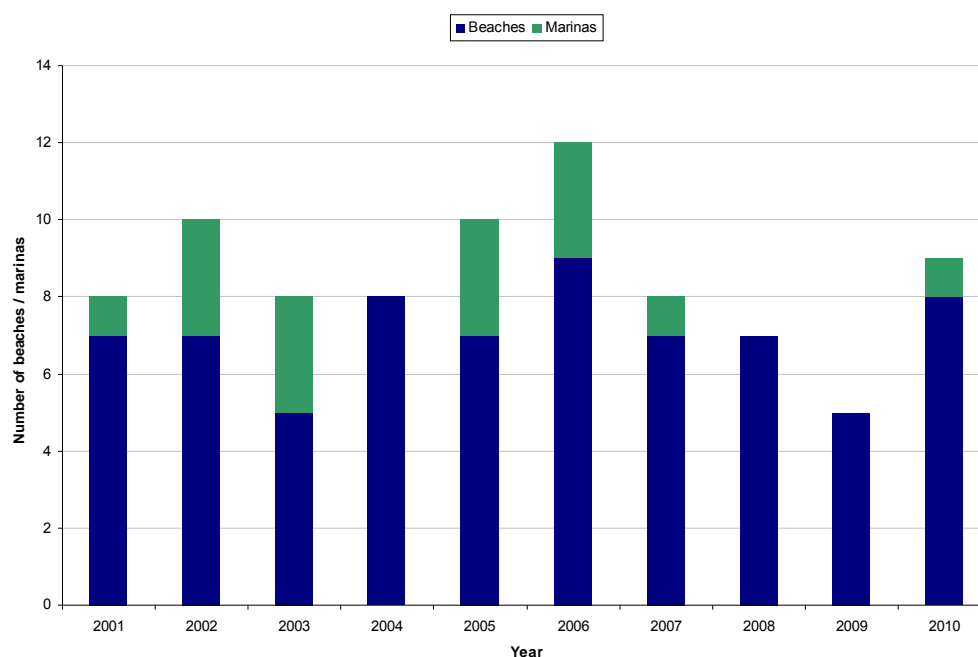


Table 4.2 Number of Blue Flag Awards - Beaches & Marinas, 2000 – 2009

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Unit: Number
Beaches	7	7	5	8	7	9	7	7	5	8	
Marinas	1	3	3	0	3	3	1	0	0	1	
Total	8	10	8	8	10	12	8	7	5	9	
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 2010, eight beaches and one marina were awarded with Blue Flag status, which is an improvement on the year previous (5 beaches, no marinas), and is the highest level since 2006.
- Benone beach received the Blue Flag Award for the 20th year in a row. The other recipients were Downhill, Castlerock, Portstewart Strand, Portrush West, Whiterocks, Tyrella, Cranfield West and Ballyronan Marina.

Marine Water Quality

Figure 4.3 Water Framework Directive overall status in transitional and coastal waters (area km²), 2009

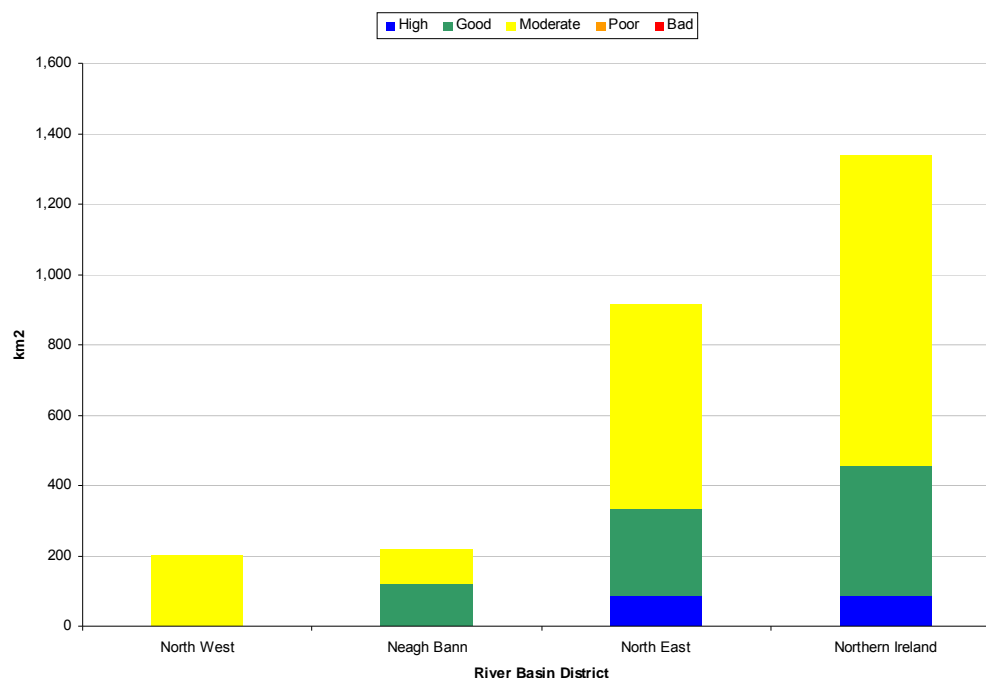


Table 4.3 Water Framework Directive overall status in transitional and coastal waters, 2009

	North West		Neagh Bann		North East		Northern Ireland	
	Area (km ²)	%	Area (km ²)	%	Area (km ²)	%	Area (km ²)	%
High	0.0	0.0	0.0	0.0	86.2	9.4	86.2	6.4
Good	0.0	0.0	122.1	55.7	245.2	26.7	367.3	27.5
Moderate	200.8	100.0	97.1	44.3	585.2	63.9	883.2	66.1
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
<i>Source: NIEA</i>								

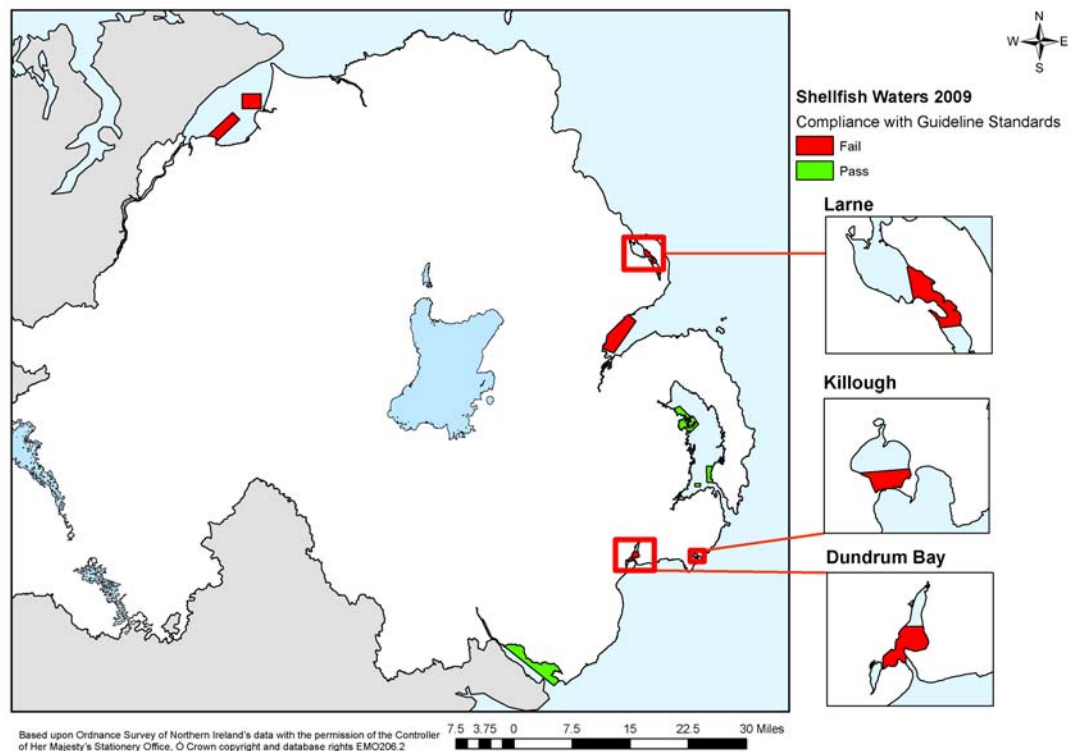
- The Water Framework Directive requires NIEA to classify water bodies as High, Good, Moderate, Poor or Bad.
- 66% of transitional and coastal water bodies in Northern Ireland are at moderate status with approximately 27.5% at good status and 6.5% at high status by area/km².
- In measuring water status 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>
- WFD 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 guideline faecal coliform standard in shellfish waters, 2009.



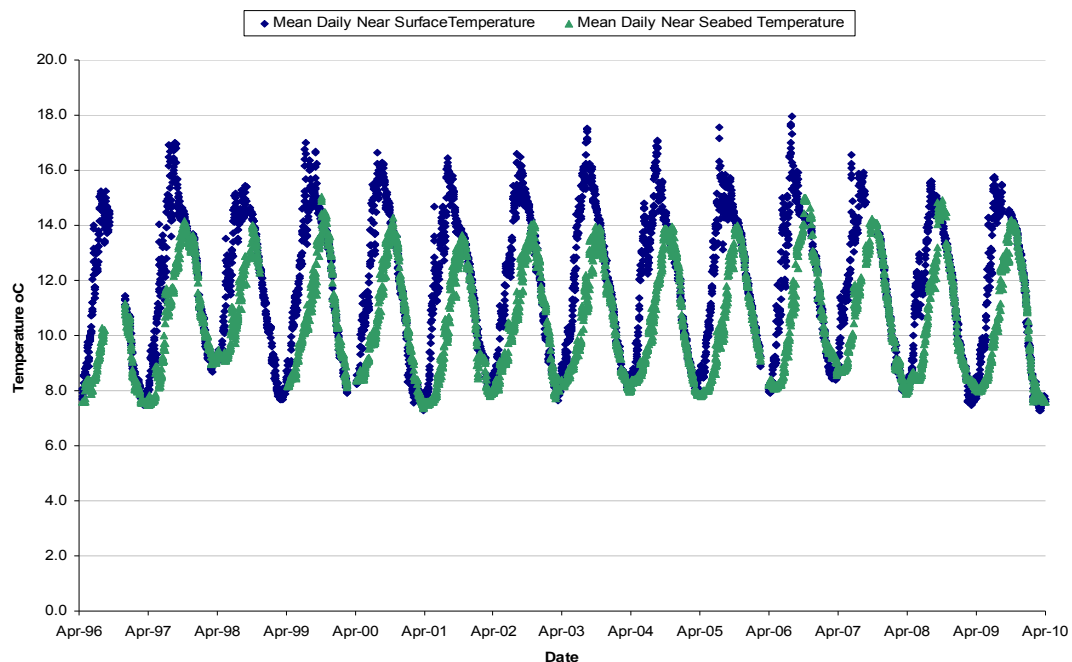
Source: NIEA

- A total of 10 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.
- 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 are no exceedences of the dangerous substances standards.
- In 2009, 4 of the 10 shellfish waters meet the guideline coliform standards representing 40% of all waters.

- 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 trends, Irish Sea, April 1996 – March 2010



Source: AFBI

- Daily sea temperature levels are recorded every 3 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 and July 2006, when on occasions there was as much as a 7°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, housing completions and designations of townscape and villagescape.

Soil quality in Northern Ireland has improved slightly in recent years. In 2009/10, there were fewer soils that were either under or over-enriched with phosphorus compared to 2004/05

Agri-environment schemes are schemes that attempt to manage our agricultural land in a more sustainable way. At the end of 2009, 468,000 hectares of land in Northern Ireland were under agri-environment scheme management.

Forests and woodlands provide important habitats, natural resources and diversity to landscapes. In Northern Ireland in 2009, there were just over 200 hectares of new plantings, the majority of which were broadleaf plantings. The amount of plantings has been decreasing in the past couple of years.

The number of new dwellings dropped sharply in 2008/09, with housing completions in 2008/09 falling by 46% on 2007/08 figures. Housing completions on greenfield sites have decreased by almost two-thirds in the last year, down from 1,675 completions in 2007/08 to 565 in 2008/09.

Soil Quality

Figure 5.1 Soil phosphorus (as Olsen-P) by P-index for managed grassland soils, 2004/05 – 2009/10

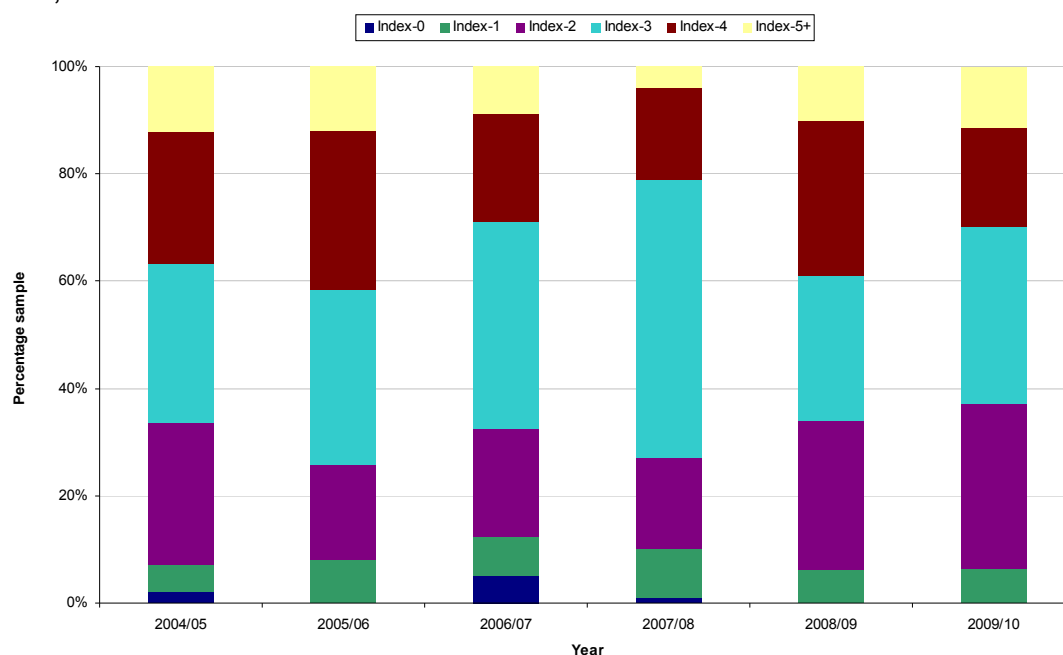


Table 5.1 Soil phosphorus (as Olsen-P) by P-index for managed grassland soils, 2004/05 – 2009/10

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

- 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 100 of these fields are sampled.
- The samples taken in 2009/10 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 2004/05. This allows a direct comparison of changes in soil fertility over the 5-yr period from 2004/05 to 2009/10.
- Comparison of the annual summary soil datasets for 2004/05 and 2009/10 shows that, as we move from 2004/05 to 2009/10, there has been a decrease in the number of samples at P-index 0 (-2.0%), 4 (-5.9%) and 5 (-0.9%) with a corresponding increase in those at P-index 1 (+1.1%), 2 (+4.4%) and 3 (+3.4%). Therefore, in 2009/10, there are

fewer soils which are very deficient in P *and* fewer soils which have excessive P concentrations compared with 2004/05.

- A comparison of the full datasets for 2004/05 and 2009/10 showed that just over half (50.5%) of all samples showed no change in P-index. Of the remainder, 27.8% of samples showed a decrease in P-index while the remaining 21.7% of samples showed an increase in P-index between the sampling periods.
- Mean soil-P concentrations for 2004/05 and 2009/10 were 39.6 and 37.9 mg/l, respectively. However this difference was not statistically significant.

Sustainable Land Management

Figure 5.2 Northern Ireland agri-environment schemes, area under agreements, 2000 – 2009



Table 5.2 Northern Ireland agri-environment schemes, area under agreements, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Organic Farming Scheme	1	4	5	5	5	6	10	6	6	7
Countryside Management Scheme	n/a	19	57	90	116	118	318	317	315	352
New Environmentally Sensitive Areas Scheme	154	148	144	146	126	131	141	131	122	109
Unit: Thousand hectares										
<i>Source: DARD</i>										
Note: CMS only began in 2001.										

- The aim of agri-environment schemes is to enhance biodiversity, water quality, landscape and heritage features, and mitigate 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 2009, 468,000 hectares (approximately 42%) of the farmed area in Northern Ireland was managed through the Countryside Management Scheme (CMS), the Environmentally Sensitive Areas Scheme (ESAS) and the Organic Farming Scheme (OFS).
- New CMS and Organic Farming Schemes (OFS) were launched in June 2008, with 943 agreements issued on 1 January 2009 from approximately 4,500 CMS applications being received during July and August 2008, and 33 agreements issued on 1 January from 102 OFS applications being received during September and October.

Area of Woodland

Figure 5.3 Area of new forest and woodland plantings, 2000/01 – 2009/10

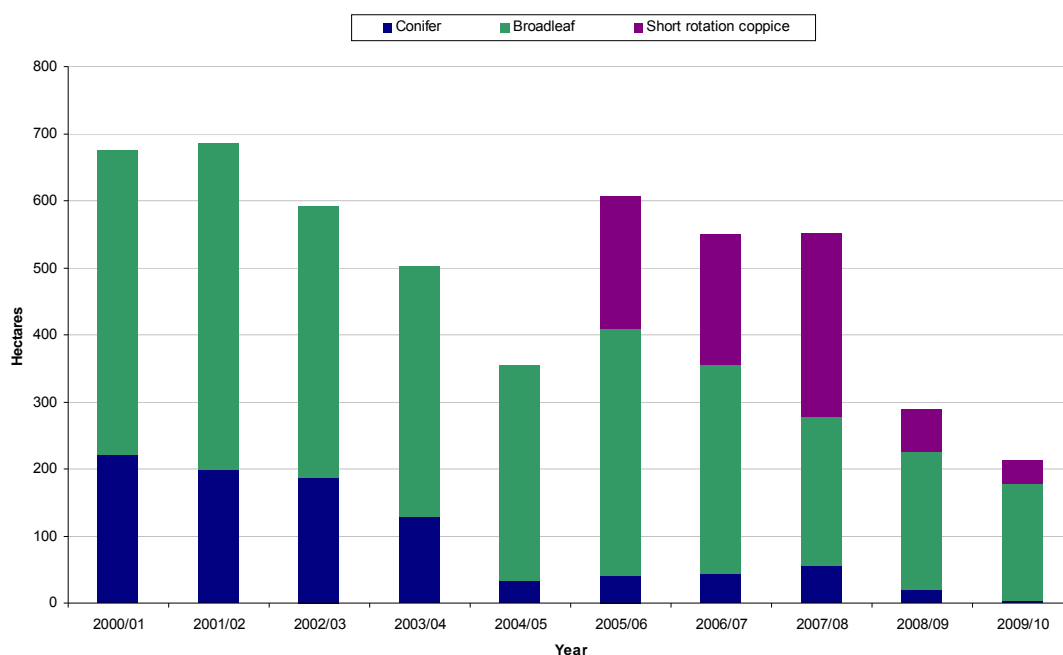


Table 5.3 Area of new forest and woodland plantings, 2000/01 – 2009/10

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Unit: Hectares
Conifer	222	198	187	130	34	41	44	56	20	3	
Broadleaf	453	488	405	373	321	367	310	221	205	175	
Short rotation coppice	n/a	n/a	n/a	n/a	n/a	198	195	275	64	36	

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 2009/10, there were 214 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 17% of all new plantings in 2009/10.
- There has been a dramatic decrease in conifer plantings in the past 10 years. 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 – 2008/09

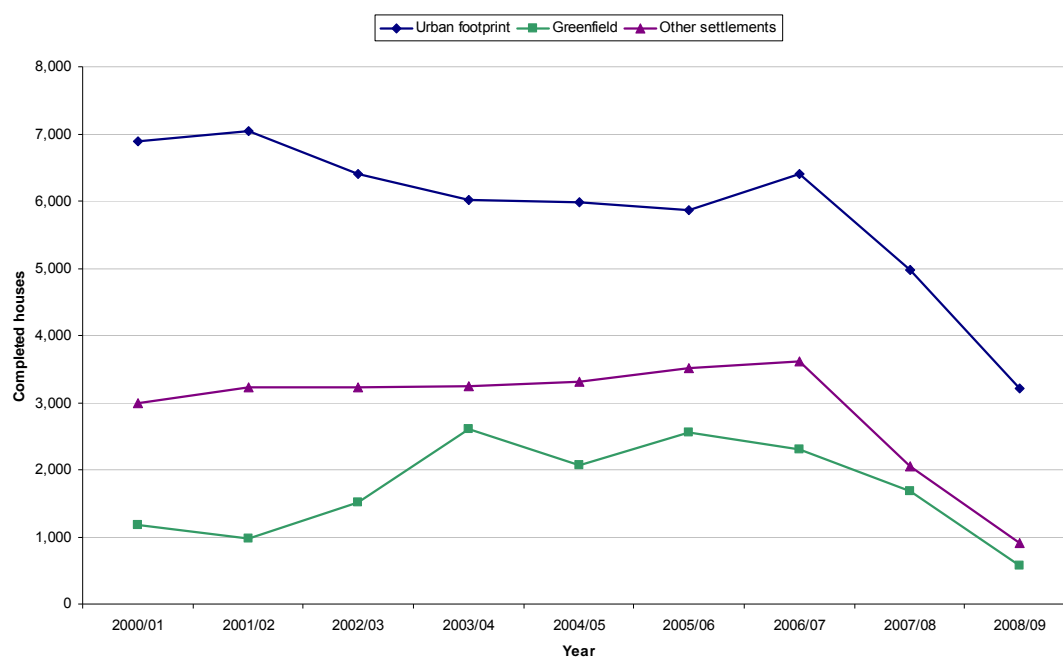


Table 5.4 Housing completions, 2000/01 – 2008/09

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	Unit: Houses								
Urban footprint	6,894	7,043	6,403	6,009	5,978	5,858	6,401	4,977	3,213
Greenfield	1,182	973	1,505	2,604	2,061	2,563	2,306	1,675	565
Other settlements	2,994	3,226	3,232	3,244	3,305	3,515	3,617	2,056	904
<i>Source: Planning Service</i>									
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.
- There was a steep decline in housing completions in 2008/09, continuing the trend from the year previous, with 46% fewer completions than in 2007/08, and the number of completions was the lowest this decade.
- Completions on greenfield sites witnessed a dramatic fall of almost two-thirds from the level recorded in 2007/08.

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, 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. Figures over the last ten years indicate that Northern Ireland’s wild bird population has decreased by 16%. The wetland bird population has also decreased by 16% between 1999/2000 – 2008/09.

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 are monitored over a 3-year period by NIEA as an indicator of biodiversity. The overall status and trends of priority habitats and species, for which information is available, has remained relatively unchanged between 2005 and 2008.

Seal populations are regularly monitored across Northern Ireland, with the longest record held at Strangford Lough. Common seal populations at Strangford Lough have fluctuated over recent years, but the 2009 population of 176 was below the average for the last ten years (251).

Nature Conservation Designations

Figure 6.1 Area of nature conservation designations, 2000/01 – 2009/10



Table 6.1 Area of nature conservation designations, 2000/01 – 2009/10

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	Unit: Thousand hectares									
ASSI	89.6	91.1	91.9	92.4	93.1	93.5	93.8	94.2	99.3	100.1
SAC	62.1	64.6	64.6	65.1	65.9	66.4	66.4	66.4	66.4	67.3
SPA	71.3	71.3	72.8	72.8	72.8	108.8	108.8	108.8	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
<i>Source: NIEA</i>										

- 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 2010, a total of 100,100 hectares had been declared as ASSIs, 67,300 hectares as SACs, 114,600 hectares as SPAs and 77,700 hectares as Ramsar sites. There is some overlap of area between these different types of designation and therefore, these cannot be totalled to give an absolute figure on the extent of designations.
- In 2005/06, two large SPAs were declared, adding a total of 36,000 hectares to the SPA designation.

Nature Conservation Designations

Figure 6.2 Condition of features within Areas of Special Scientific Interest (ASSI), for the 6 year rolling period ending March 2010

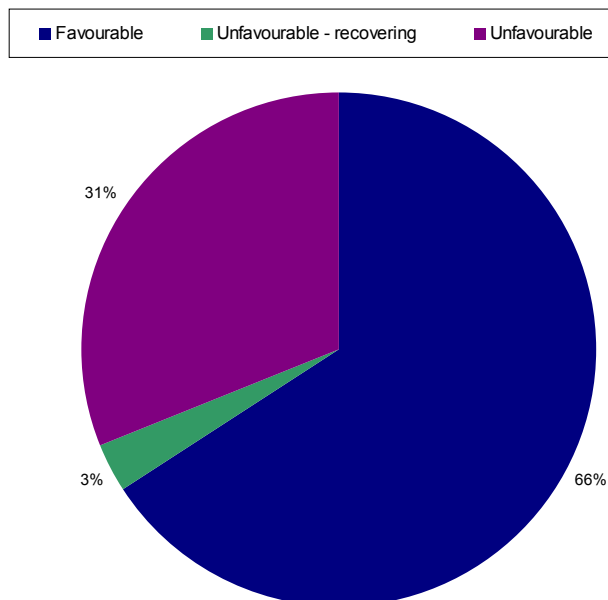


Table 6.2 Condition of features within Areas of Special Scientific Interest (ASSI), for the 6 year rolling period ending March 2010

	Favourable	Unfavourable - recovering	Unfavourable	All conditions
Number of features	618	27	292	937
Percentage	66	3	31	100
<i>Source: NIEA</i>				

- 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 two monitoring years. Over 90 features have been reassessed as part of the second six-year cycle. In addition, just over 20 features on recently declared ASSIs have been assessed for the first time.
- The results show little change from previous years, with two-thirds of the features in favourable condition and 31% of features in an unfavourable condition.

- As the second cycle of monitoring has only started, no definitive comments about trends can be made. 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 (DARDNI) through its NI Countryside Management Scheme (NICMS) 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, 2000 – 2009

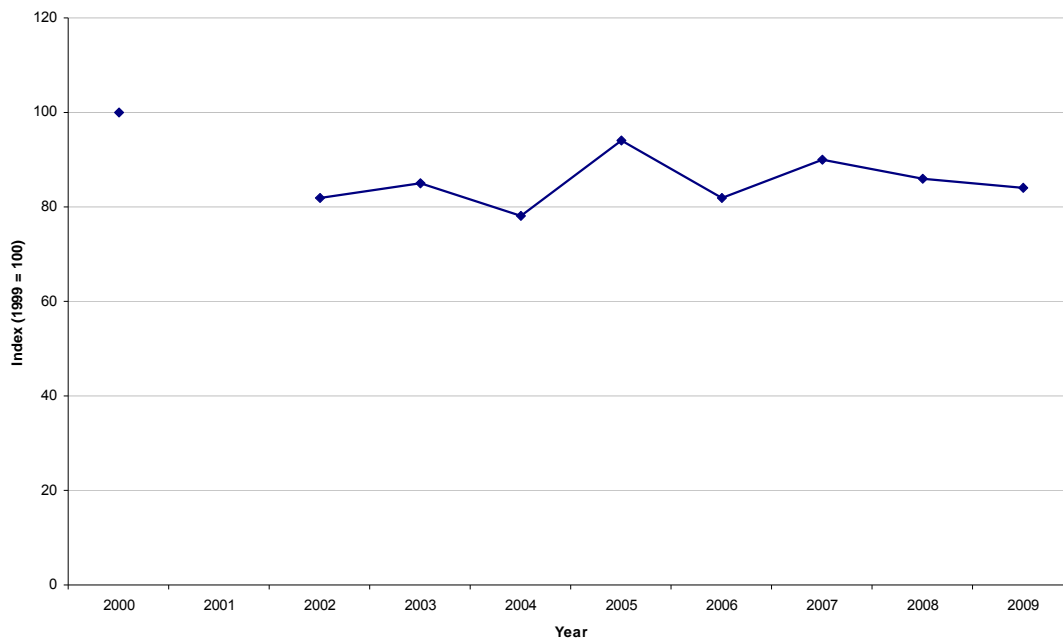


Table 6.3 Wild bird populations in Northern Ireland, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Index (2000 = 100)	100		82	85	78	94	82	90	86	84
<i>Source: British Trust for Ornithology</i>										

- 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.
- The wild bird index in Northern Ireland has decreased by 16% in the last 10 years.
- 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 – 2008/09

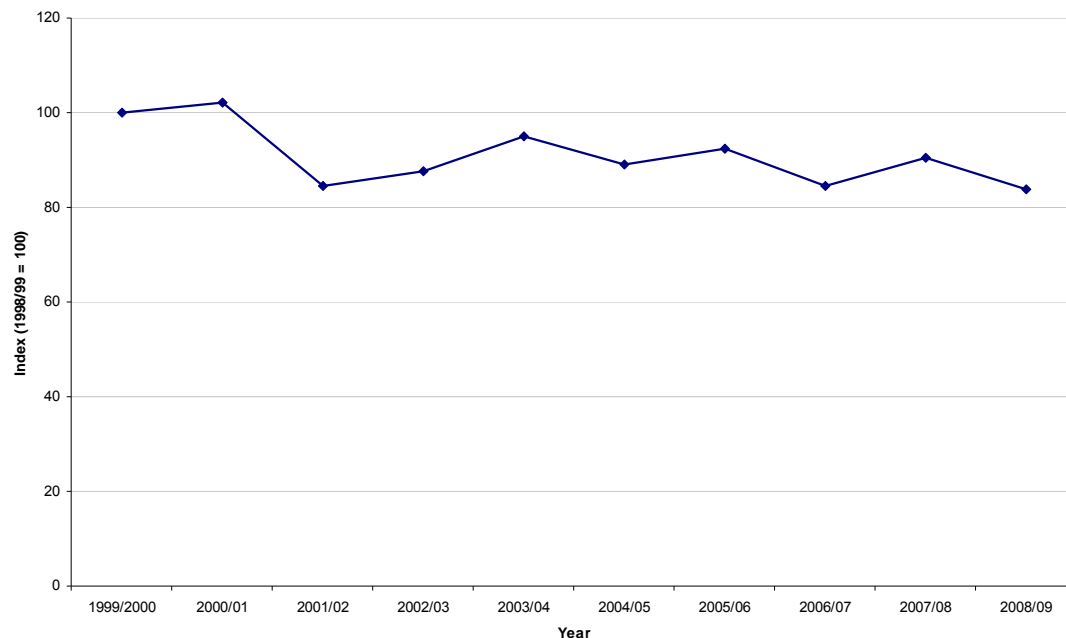


Table 6.4 Wetland bird populations in Northern Ireland, 1999/2000 – 2008/09

	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Index (1999/2000 = 100)	100	102	85	88	95	89	92	85	90	84
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 7 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 2008/09, the wetland bird population is estimated to have decreased by 16%. 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, 2000 – 2009

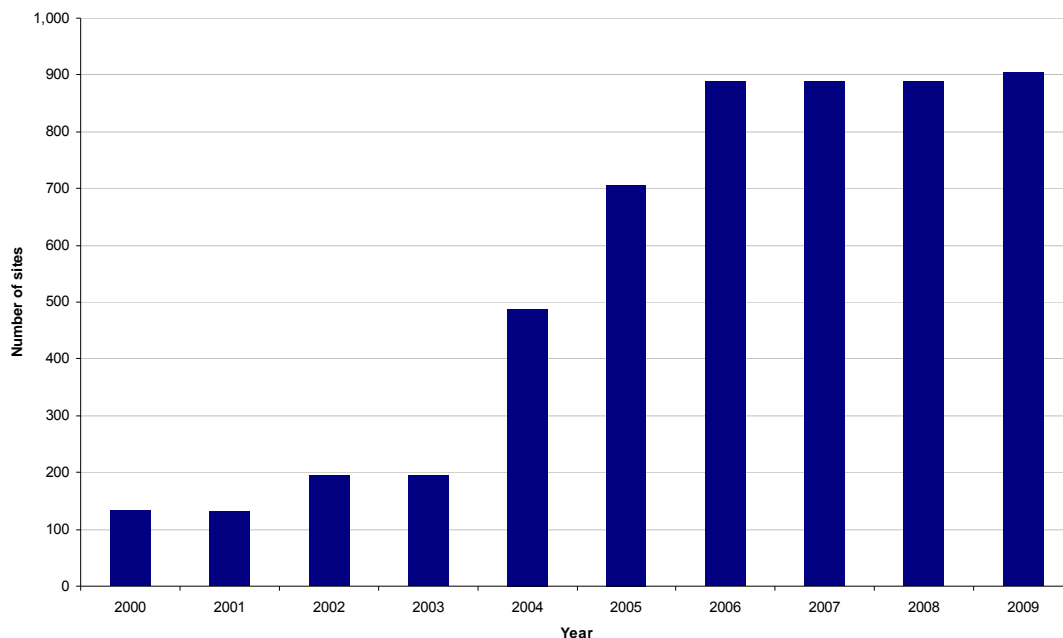


Table 6.5 Number of Sites of Local Nature Conservation Importance (SLNCI) adopted or proposed in area plans, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: Number of sites
Cumulative total	133	130	194	194	488	706	889	889	889	904	
Source: NIEA											

- 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 ASSIs, the condition of SLNCIs is not routinely monitored.
- The number of SLNCIs has increased from 133 in 2000 to 904 in 2009. 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 – 2009

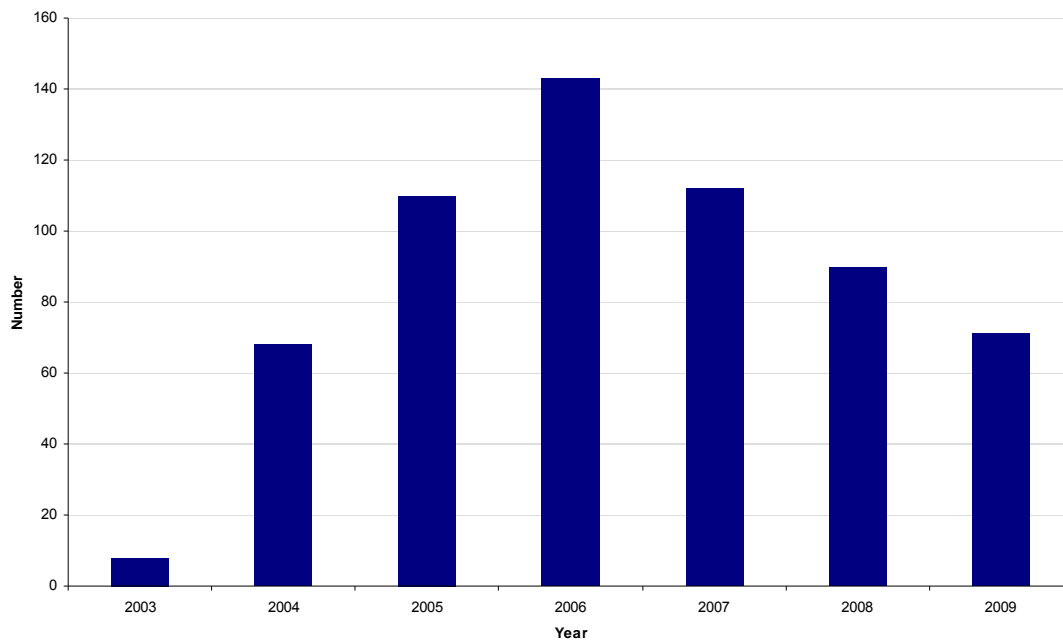


Table 6.6 Number of imposed Tree Preservation Orders (TPO), 2003 – 2009

	2003	2004	2005	2006	2007	2008	2009
TPOs imposed	8	68	110	143	112	90	71
Unit: Number							
<i>Source: Planning Service</i>							

- 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 2009, Planning Service have imposed a total of 602 TPOs. Of those, 71 were imposed in 2009.
- The reason for the marked increase in the numbers of TPOs issued in more recent years may be due to a variety of different factors, such as Local Landscape Policy Areas designations; increasing public awareness in the value of trees within the environment; or an increase in the amount of development applications within the country generally.

Priority Habitats

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

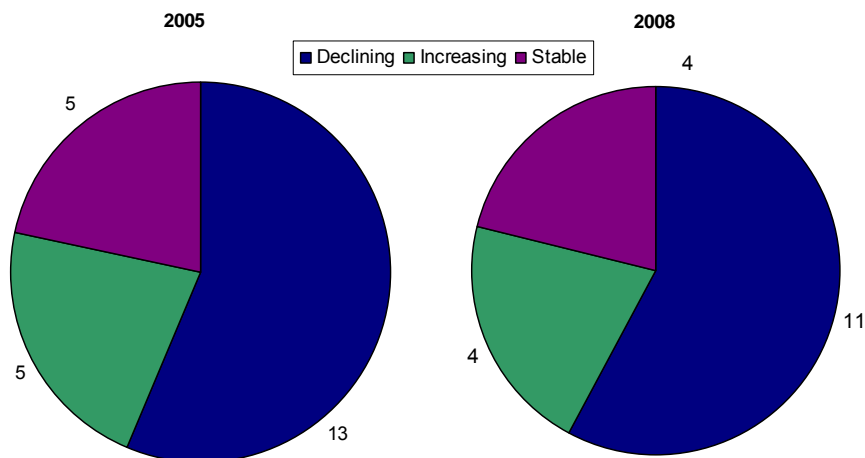


Table 6.7 Trend for priority Biodiversity Action Plan habitats, 2005 & 2008

	Unit: Priority habitats			No. of habitats reported
	Declining	Increasing	Stable	
2005	13	5	5	23
2008	11	4	4	19
<i>Source: NIEA</i>				

- 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 4 were stable.

Priority Species

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

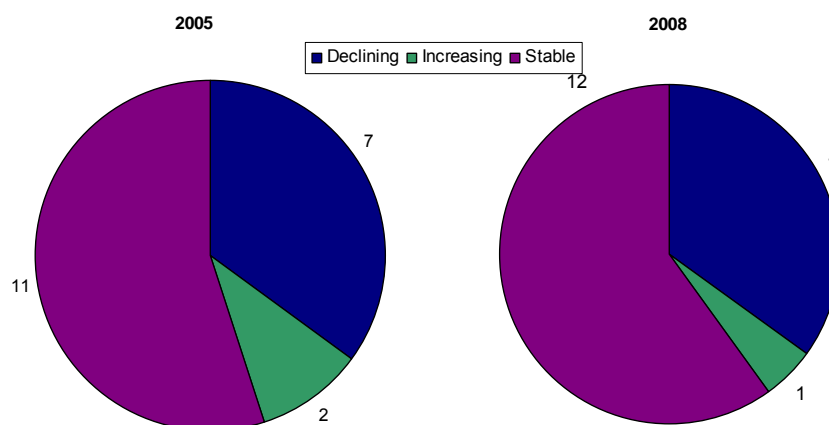


Table 6.8 Trend for priority Biodiversity Action Plan species, 2005 & 2008

	Unit: Priority species			No. of species reported
	Declining	Increasing	Stable	
2005	7	2	11	20
2008	7	1	12	20
<i>Source: NIEA</i>				

- 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.

Seals

Figure 6.9 Strangford Lough common seal population, adults and pups, 2000 – 2009

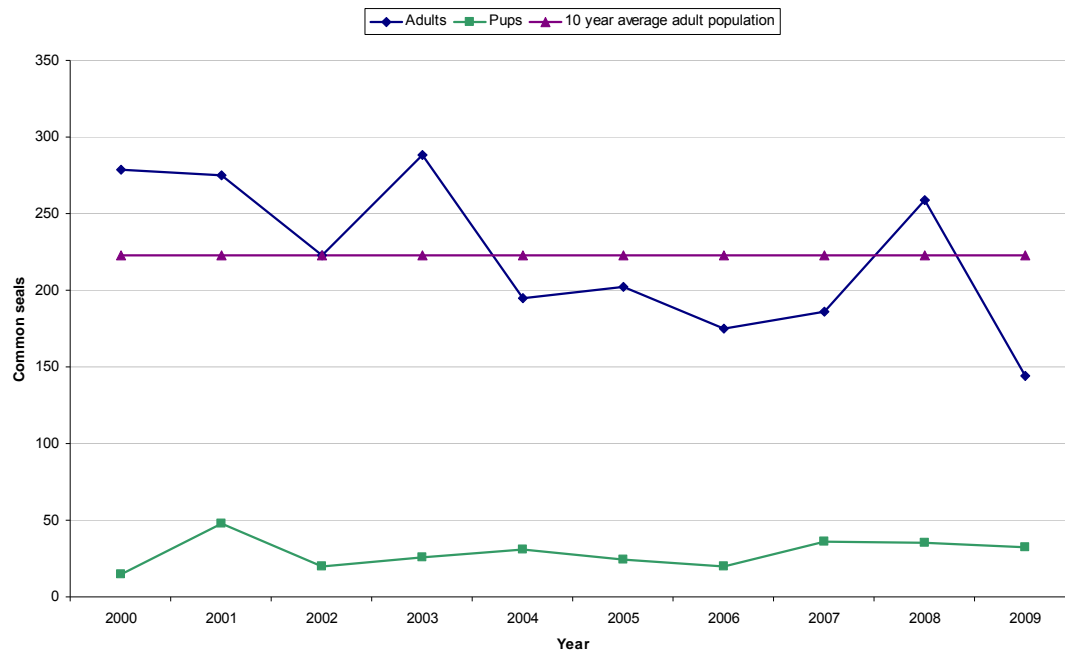


Table 6.9 Strangford Lough common seal population, adults and pups, 2000 – 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unit: Common seals
Adults	279	275	223	288	195	202	175	186	259	144	
Pups	15	48	20	26	31	24	20	36	35	32	
<i>Source: NIEA</i>											

- 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 and the associated environmental data.
- The adult common seal population was monitored at 144 for 2009. The highest population in the last ten years was 288 in 2003.
- The number of pups recorded in 2009 was 32. 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, and the number of conservation areas.

There are upwards of 35,000 archaeological sites and monuments in Northern Ireland dating from 9,000 years ago to the recent past. Monuments are selected from this group each year for scheduling under article 3 of The Historic Monuments and Archaeological Objects (NI) Order.

In 2009/10, there were a total of 1,853 scheduled monuments. Their condition is assessed regularly, and they were judged to be better managed than most non-scheduled sites in a survey “The Condition and Management Survey of the Archaeological Resource (CAMSAR) for Northern Ireland” published by NIEA in 2009.

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 8,424 buildings recorded by the NIEA in 2009/10. Because some listings include multiple buildings the total number of buildings protected in this way is estimated to be around 8,500 structures.

Buildings classified as at risk in Northern Ireland and recorded on the NIEA online database BHARNI, are those most at risk from deterioration or demolition. In 2009/10, there were 445 listed buildings and structures on the BHARNI database.

There are currently 60 designated conservation areas in Northern Ireland. These are defined as areas of special architectural or historic interest.

Monuments

Figure 7.1 Number of scheduled monuments, 2000/01 – 2009/10

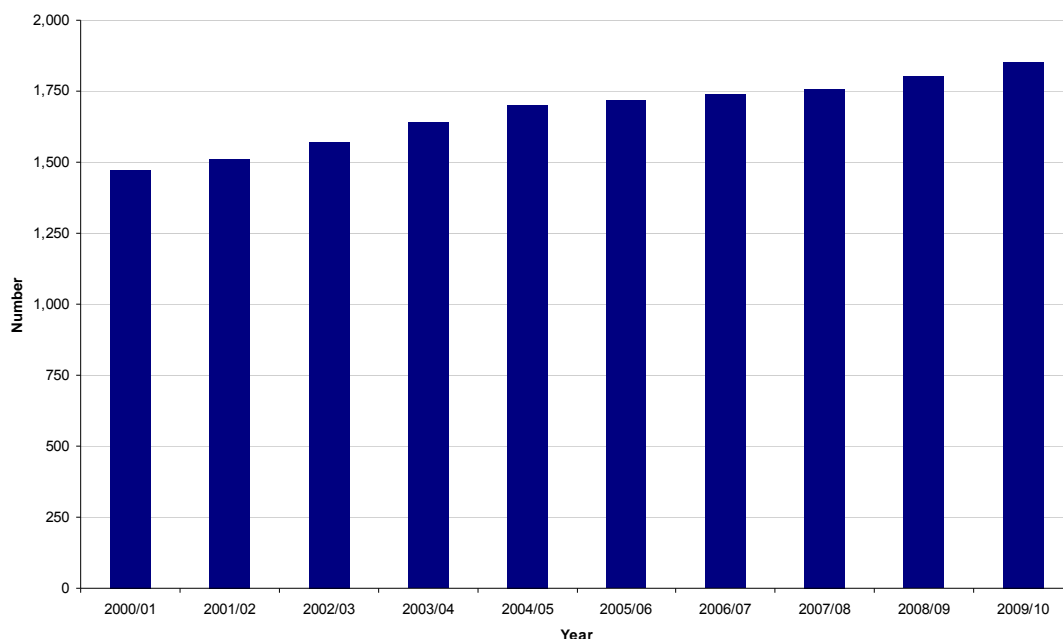


Table 7.1 Number of scheduled monuments, 2000/01 – 2009/10

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Number of scheduled monuments	50	40	60	66	65	14	20	20	46	50
Cumulative total	1,473	1,513	1,573	1,639	1,704	1,718	1,738	1,757	1,803	1,853
Source: NIEA										
Note: One monument was descheduled in 2007/08										

- Scheduled Historic Monuments include settlements, defences, workplaces, routeways and sites for ritual and burial.
- There has been an increase in the number of monuments being scheduled in the last couple of years in Northern Ireland with 20 or fewer monuments scheduled in the years 2005/06, 2006/07 and 2007/08 but 46 scheduled in 2008/09 and 50 scheduled in 2009/10.
- Overall there has been a 26% increase in the total number of scheduled monuments rising to 1,853 in 2009/10 compared to 1,473 in 2000/01.

Listed Buildings

Figure 7.2 Number of listed buildings, 2003/04 – 2009/10

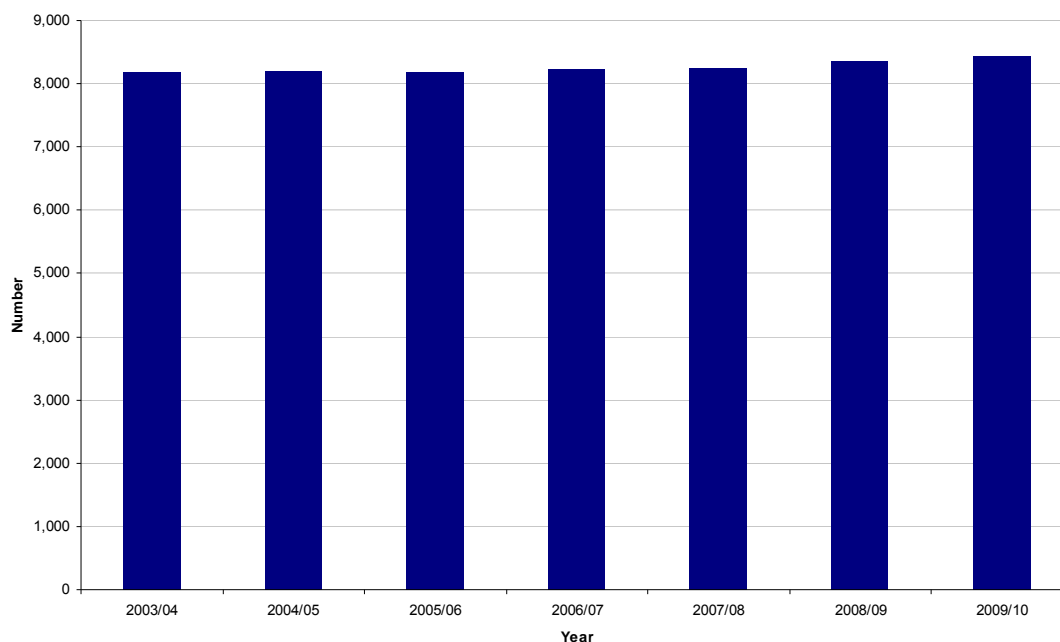


Table 7.2 Number of listed buildings, 2003/04 – 2009/10

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Number of listed buildings	8,184	8,206	8,177	8,242	8,248	8,350	8,424
Unit: Number							
<i>Source: NIEA</i>							

- The Planning (Northern Ireland) Order 1991, enables lists of buildings of special architectural or historic interest to be compiled by NIEA.
- There has been a modest increase in the number of buildings listed in recent years with a total of 8,424 statutory listings in 2009/10.
- 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.
- Because some listings include multiple buildings, such as terraces or farm buildings under a single listing reference, the total number of structures is greater than the figure given and is estimated to be around 8,500.

Listed Buildings

Figure 7.3 Number of buildings and monuments at risk, 2003/04 – 2009/10

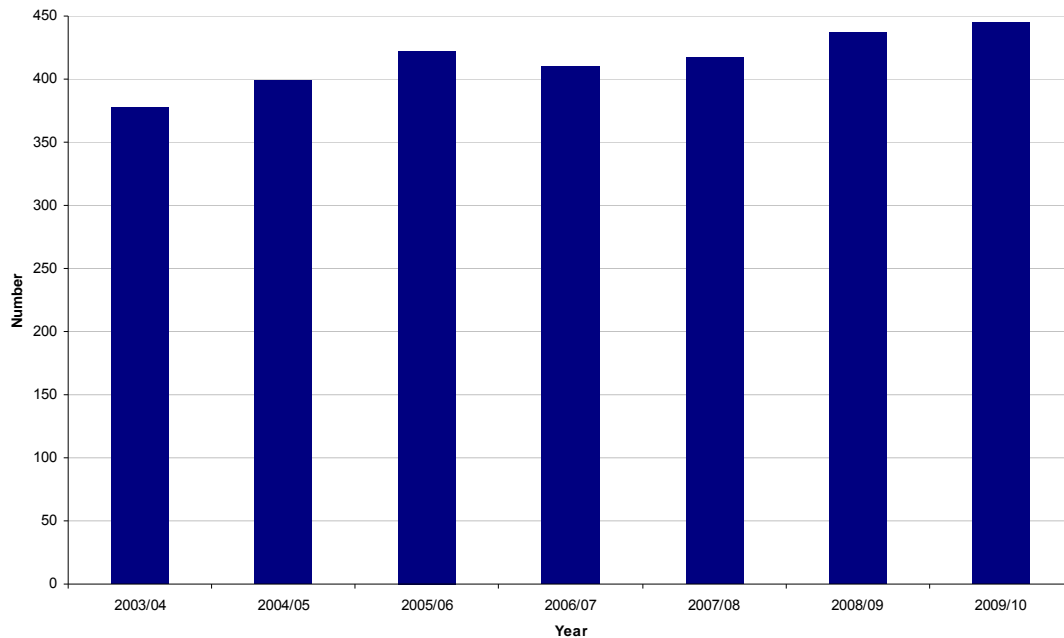


Table 7.3 Number of buildings and monuments at risk, 2003/04 – 2009/10

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Number of buildings and monuments at risk	378	399	422	410	417	437	445
Unit: Number							
<i>Source: NIEA</i>							

- 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 2009/10, there were 445 buildings and structures on the BHARNI database. In total, 17 listed buildings were removed from the database in 2009/10 and were no longer at risk.
- The Sustainable Development Strategy sets a target of removing 200 buildings from the BHARNI register (based on 2006 figure) by 2016. However, as the collection of data is ongoing it is expected that numbers of buildings identified as being at risk will continue to rise in the initial years as this work is completed.

Conservation Areas

Figure 7.4 Number of conservation areas, 2002/03 – 2009/10

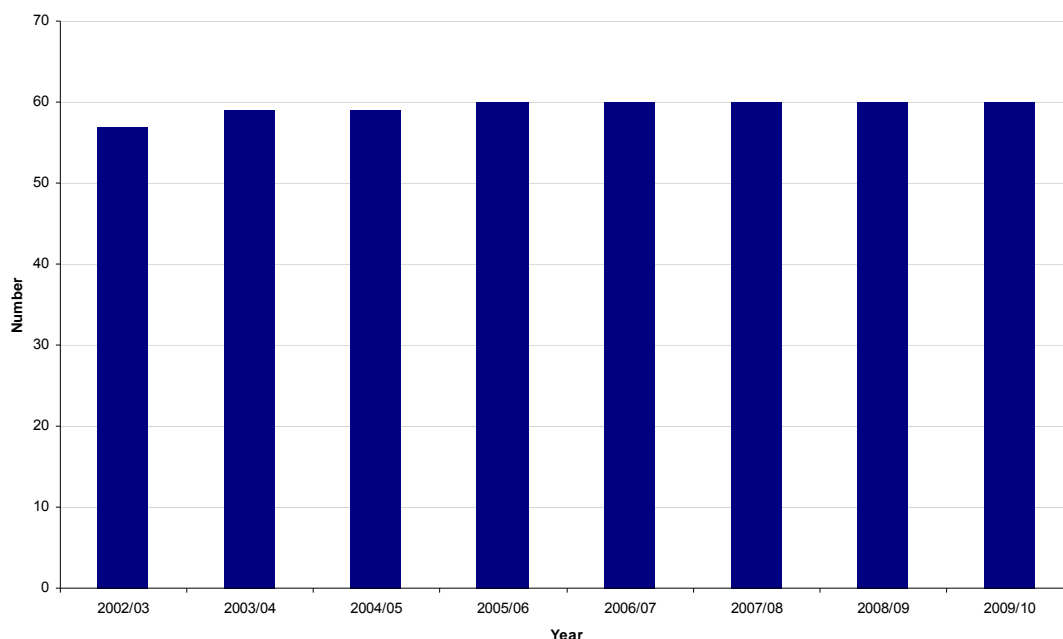


Table 7.4 Number of conservation areas, 2002/03 – 2009/10

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Conservation areas	57	59	59	60	60	60	60	60
Unit: Number								
<i>Source: Planning Service</i>								

- Planning Service and NIEA are both within the Department of the Environment. Planning Service is responsible for area based heritage controls.
- Planning Service has been responsible for the designation of Conservation Areas since 1995. These are defined as areas of special architectural or historic interest.
- Since 1975, the Department of the Environment has designated 60 conservation areas in Northern Ireland. They range in scale from city and town centres to villages and relatively small residential parks and streets.

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 recycled and recovered and the amount of waste produced per household. Municipal waste is defined as all of the waste collected from households and any other sources that comes under the control or possession of the local authorities.

In Northern Ireland, the amount of municipal waste we produce has remained fairly constant since 2004/05. The majority of waste is sent to landfill, with 66% of municipal waste in 2009/10 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 2009/10, 36% of household waste was sent for recycling (including composting) and 33% of municipal waste was sent for recycling (including composting). Compostable materials were the most common municipal waste material type collected for recycling or composting (39%).

The amount of waste produced per household has remained fairly constant at 1.20 tonnes per year, which equates to approximately 23kg per week.

Waste Arisings

Figure 8.1 Municipal waste arisings, 2004/05 – 2009/10

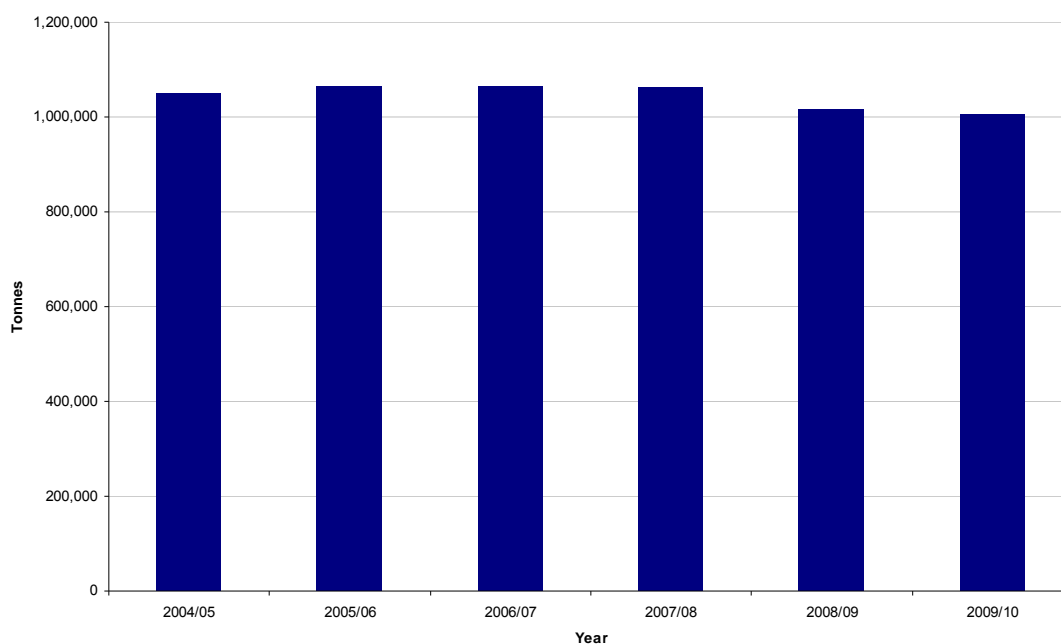


Table 8.1 Municipal waste arisings, 2004/05 – 2009/10

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Municipal waste arisings	1,050,716	1,063,510	1,064,090	1,061,108	1,017,215	1,004,020

Unit: Tonnes

Source: Northern Ireland Municipal Waste Management Statistics, DOE

- Municipal waste in Northern Ireland is defined as all of the waste from households and any other sources that comes 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 2009/10, there was 1,004,020 tonnes of municipal waste arisings in Northern Ireland, a slight decrease on the amount of arisings in 2008/09.

Waste Recycled or Composted

Figure 8.2 Municipal waste sent for recycling (including composting), 2004/05 – 2009/10

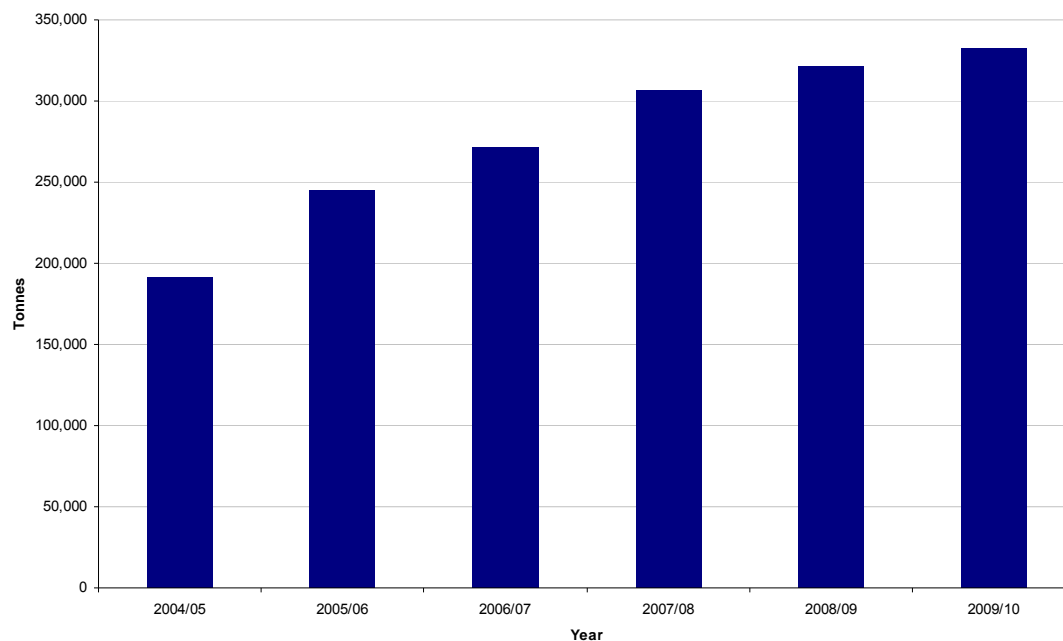


Table 8.2 Municipal waste sent for recycling (including composting), 2004/05 – 2009/10

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Municipal waste recycled or composted	191,197	244,811	271,730	306,021	321,457	332,392

Units: Tonnes

Source: Northern Ireland Municipal Waste Management Statistics, DOE

- The management of municipal waste in Northern Ireland is through recycling, composting and landfill, with a small portion being sent for reuse.
- 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 2009/10, 332,392 tonnes of municipal waste was sent for recycling or composting.
- There has been a steady increase in the amount of municipal waste sent for recycling or composting since 2004/05. The amount sent has increased by 74% on the 2004/05 level, and the proportion of municipal waste recycled or composted has increased from 18% in 2004/05 to 33% in 2009/10.

Waste Recycled or Composted

Figure 8.3 Municipal waste material types collected for recycling, 2009/10

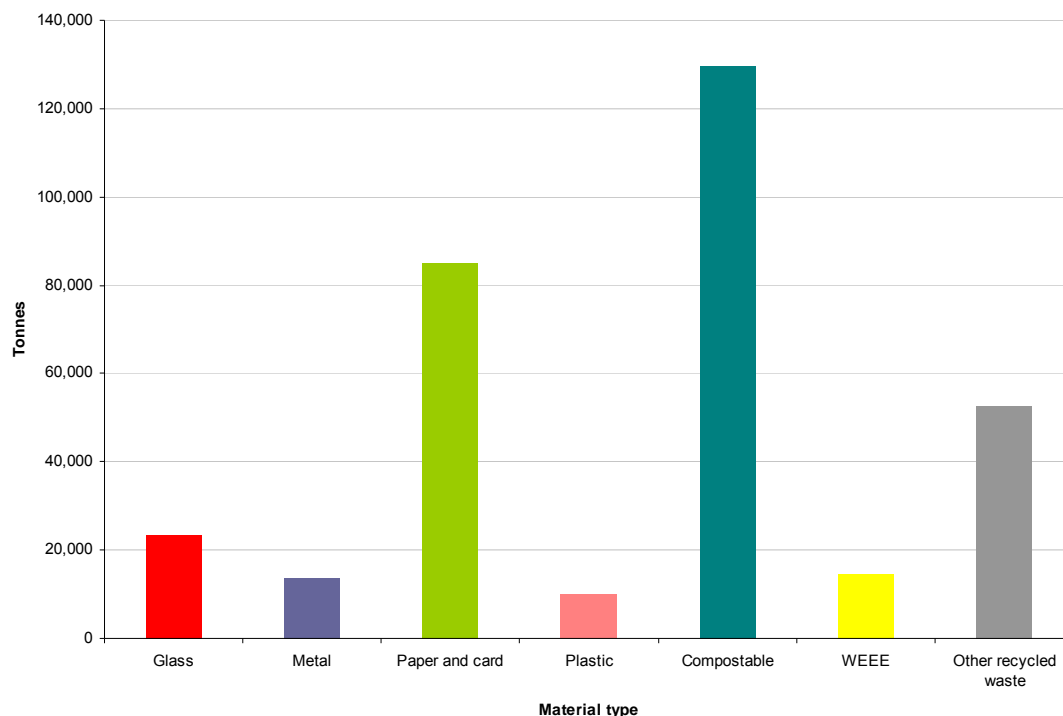


Table 8.3 Municipal waste material types collected for recycling, 2009/10

	Glass	Metal	Paper and card	Plastic	Compostable	WEEE	Other recycled waste	Unit: Tonnes
Municipal waste collected for recycling or composting	23,405	13,766	85,172	10,073	129,497	14,490	52,812	329,216
<i>Source: Northern Ireland Municipal Waste Management Statistics, DOE</i>								
Note: Collected recycled waste is not always sent for recycling due to contamination of recyclates.								

- In 2009/10, there was 129,497 tonnes of compostable waste collected for recycling, which accounted for 39% of the total municipal waste collected for recycling.
- Paper and card was the next highest material type with 26%. Other recycled waste accounted for 16%, glass for 7%, metal and waste electrical & electronic equipment (WEEE) both accounted for 4%, and plastic for 3%.

Household Waste

Figure 8.4 Household waste collected per household per year, 2004/05 – 2009/10

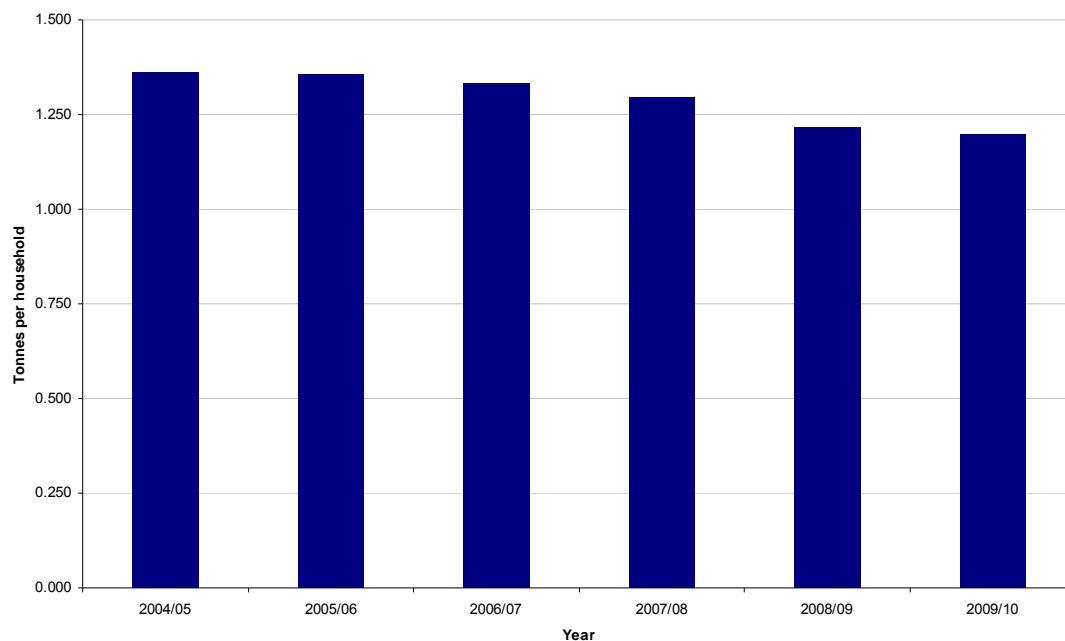


Table 8.4 Household waste collected per household per year, 2004/05 – 2009/10

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Household waste per household per year	1.361	1.357	1.332	1.295	1.217	1.196

Unit: Tonnes per household

Source: Northern Ireland Municipal Waste Management Statistics, DOE

- 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
- In 2009/10, there was a total of 875,062 tonnes of household waste collected.
- In 2009/10, this was the equivalent of 1.196 tonnes of household waste per household, a 12% decrease on the 2004/05 figure of 1.361 tonnes of household waste per household.

Appendix

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/stateoftheenvironmentreportfornorthernirelandforwordcontentsandintroduction.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 on
Polycyclic aromatic hydrocarbons	Added	2.5	Page 22
Overall river quality	Amended	3.1	Page 34
Lake quality	Amended	3.3	Page 36
Blue Flag beaches	Added	4.2	Page 46
Marine water quality	Amended	4.3	Page 47
Shellfish waters	Added	4.4	Page 49
Municipal waste material types collected for recycling	Added	8.3	Page 73

Indicators removed from the publication

Indicator	Table Number (in last year's publication)	Details on	Reason for removal
Chemical river quality	3.1	Page 34	Subsumed in Overall river quality indicator
Biological river quality	3.3	Page 36	Subsumed in Overall river quality indicator
Winter nutrient concentrations	4.2	Page 48	Subsumed in Marine water quality indicator

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. Indicator data from previous publications have been used to inform a mid-term review of NIEA's State of the Environment Report and refresh its conclusions. Annual updates of key environmental indicators will continue to inform the evidence base for the development of future environment strategies.

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. Northern Ireland Environmental Statistics Reports are used to inform the Northern Ireland chapter of the UK National Ecosystem Assessment being

carried out by Northern Ireland Environment Link. In addition for future reporting some of the indicators will be used for comparative statistics with the Republic of Ireland.

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 in their own right. These data are also subject to a vigorous validation process by Northern Ireland Statistics & Research Agency.

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 to protect the environment. 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.

Air Quality (Tables 2.1 to 2.6)

Description of data

The data provides information on air quality including ambient concentrations of nitrogen oxides, particles, air quality trends, 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.airquality.co.uk/verification_and_ratification.php?action=

Greenhouse Gases (Tables 2.7 to 2.9)

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 2.10)

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 2.11)

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 2.12 to 2.15)

Description of data

These data tables provide details of temperature and rainfall changes from 1844 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.

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

Northern Ireland Environment Agency (Tables 4.1, 4.3 and 4.4)

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.

Tidy Northern Ireland (Table 4.2)

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 5 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/northern_ireland_housing_land_availability_summary_report_2009.pdf

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 2009, 116 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, and the number of conservation areas (defined as areas of special architectural or historic

interest). 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: 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: 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: 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.

Northern Ireland Planning Service (Table 7.4):

Very Good - The data on designated conservation areas are derived from an administrative system with full coverage. In addition, variance checks are employed as an integral part of the publication production process; however the conservation areas rarely fluctuate. Further details on designated conservation areas can be found at:

http://www.planningni.gov.uk/index/policy/supplementary_guidance.htm

Waste (Chapter 8)

Description of data

The figures in this section report on the amount of municipal waste produced, the amount of municipal waste recovered, the type and volume of materials sent for recycling or composting and the amount of waste produced per household. 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. 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/northern_ireland_municipal_waste_management_statistics_annual_report_2009-10.pdf

References

[Our Environment, Our Heritage, Our Future: State of the Environment Report for Northern Ireland](#)

[First Steps Towards Sustainability: A Sustainable Development Strategy for Northern Ireland](#)

[Northern Ireland Programme for Government](#)

[The Air Quality Strategy for England, Scotland, Wales and Northern Ireland](#)

[United Nations Framework Convention on Climate Change Reporting Guidelines](#)

[Northern Ireland Renewables Obligation](#)

[EC Freshwater Fish Directive](#)

[Water \(NI\) Order 1999](#)

[Pollution Prevention and Control Regulations \(NI\) 2003](#)

[EC Water Framework Directive](#)

[EC Nitrates Directive](#)

[Urban Waste Water Treatment Regulations](#)

[Bathing Waters Directive](#)

[Northern Ireland Countryside Management Scheme](#)

[Organic Farming Scheme](#)

[Belfast Metropolitan Area Plan](#)

[Convention on Biological Diversity](#)

Further Information

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.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

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>

SLNCIs: <http://www.ni-environment.gov.uk/landscape/plan/whencon/whenareaplan.htm>

TPOs: 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>

Conservation areas:
http://www.planningni.gov.uk/index/policy/supplementary_guidance/conservation.htm

8. Waste

All indicators: http://www.ni-environment.gov.uk/waste/municipal_data_reporting.htm