

# 2012 Northern Ireland Water Management Facts & Figures



An Agency within the Department of the  
**Environment**  
[www.doeni.gov.uk](http://www.doeni.gov.uk)



Northern Ireland  
**Environment**  
Agency



# Contents

Introduction	01
River Quality	05
Chemical River Quality	11
Lake Quality	17
Groundwater Quality	25
Marine	32
Bathing Water Quality	33
Marine Water Quality	37
Shellfish Waters	44
Industrial Discharge Quality	49
Water Utility Discharge Quality	56
Water Pollution Incidents	61



White Rocks

# 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 publication provides a handy reference to the facts and figures on the condition of Northern Ireland's inland and marine waters, compliance with industrial and waste water discharge standards and pollution incident reporting.



There are over 15,000km of rivers and streams in Northern Ireland, of which approximately one third are monitored annually. Monitoring is carried out routinely against national standards for the Water Framework Directive (WFD). Just over a fifth (22 %) of monitored river water bodies are of at least a good standard.

Full details of classification are available at —  
[www.doeni.gov.uk/niea/wfd](http://www.doeni.gov.uk/niea/wfd)

WFD requires NIEA and other government departments to protect the status of waters from deterioration and where practicable, to restore waters to good status.

The level of compliance for rivers designated as salmonid and cyprinid under the EC Freshwater Fish Directive has increased in recent years, and all of the designated cyprinid river length met the Directive standards in 2010.

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

Groundwater is currently of a high quality, with 65 of Northern Ireland's 67 groundwater bodies at good status following Water Framework Directive quantitative and qualitative classification. All groundwater sites that were monitored for nitrate ( $\text{NO}_3$ ) in 2010 had an annual mean concentration of less than 40 mg  $\text{NO}_3/\text{l}$ .

Effluent discharges to our water environment can affect its quality and come from many different sources such as commercial and industrial premises, wastewater and water treatment works and private dwellings.

These discharges are controlled by the Department of the Environment through the granting of consents and permits under the Water (NI) Order 1999 and the Pollution Prevention and Control Regulations (NI) 2003. Industrial discharge quality has improved in recent years, with compliance rates in 2010 of 88 % and 91 % for private sewage and trade effluent respectively.

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

Bathing water quality is measured against mandatory and guideline standards. In 2011, all 24 of the beaches monitored in Northern Ireland met the EC Bathing Water Directive mandatory standards. Overall status of marine water bodies is also measured with almost half classified as high or good with the remaining areas being classified as moderate. Monitoring of shellfish waters also occurs, with all ten designated shellfish waters meeting the guideline standards. There were no exceedances of the dangerous substances standards in 2010.





Ness Country Park



# Section 1

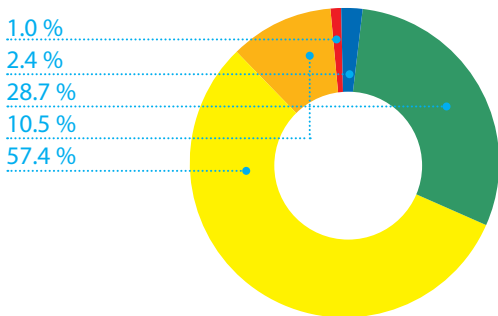
## River Quality

- The river water body 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 water bodies from deterioration and, where necessary and practicable, to restore water bodies to good status.
- The environmental objectives established in the river basin plan set the water status to be achieved for surface water bodies for each six year planning cycle starting from 2009.
- In 2010, 22 % of river water bodies were classified as 'High' or 'Good'. This is similar to the 2008 and 2009 figures.

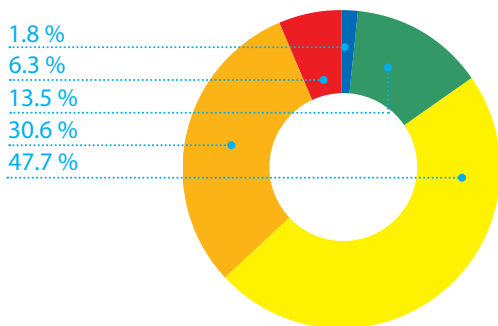
Figure 1 (2010)

Water Framework Directive Overall Classification (% river water bodies)

North West 2010



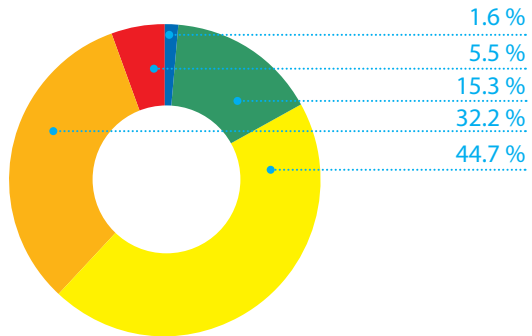
North East 2010



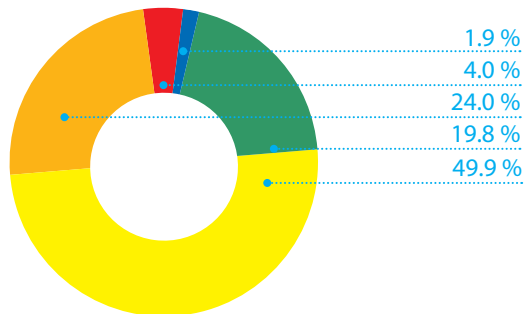
● High ● Good ● Moderate ● Poor ● Bad

### Water Framework Directive Overall Classification (% river water bodies)

#### Neagh Bann 2010



#### All Northern Ireland 2010



River basins (or catchments) have been assigned to River Basin Districts (RBD) which serve as the administrative areas for coordinated water management

Table 1

Water Framework Directive Overall Classification  
for river water bodies

	North West	
	2010	
	rwbs	% rwbs
High	5	2.4
Good	60	28.7
Moderate	120	57.4
Poor	22	10.5
Bad	2	1.0

	Neagh Bann	
	2010	
	rwbs	% rwbs
High	4	1.6
Good	39	15.3
Moderate	114	44.7
Poor	82	32.2
Bad	14	5.5

North East		
2010		
	rwbs	% rwbs
High	2	1.8
Good	15	13.5
Moderate	53	47.7
Poor	34	30.6
Bad	7	6.3

All Northern Ireland		
2010		
	rwbs	% rwbs
High	11	1.9
Good	114	19.8
Moderate	287	49.9
Poor	138	24.0
Bad	23	4.0



Bushmills

## Section 2

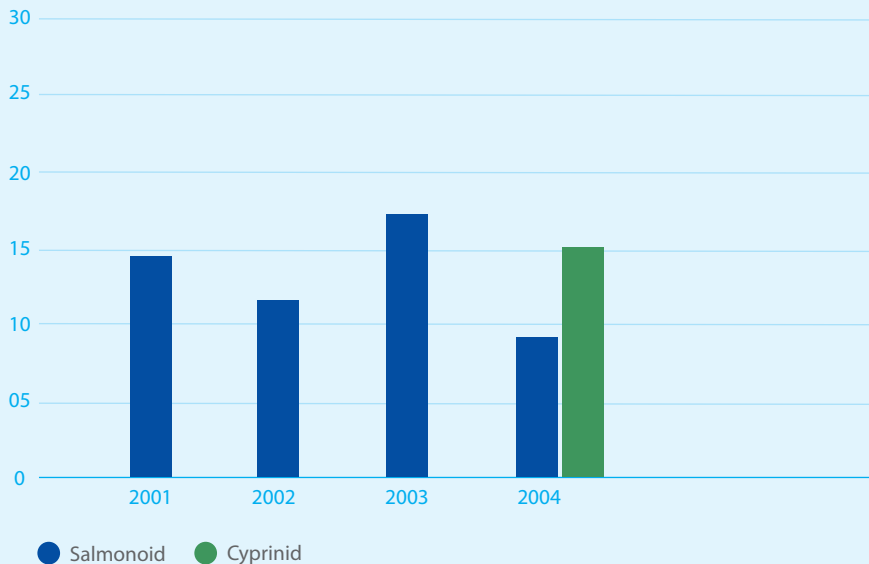
### Chemical River Quality

- 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 1,200km in 2003 to just less than 4,300km in 2004. This is made up of 4,154km 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 100km of new river lengths were designated as cyprinid. This led to an increase in the percentage failure recorded for cyprinids (although the overall river length of cyprinid designations is low).
- In 2010, 6.3 % of salmonid river length failed to meet the standards set by the Directive. All of the designated cyprinid river length met the Directive standards in 2010.



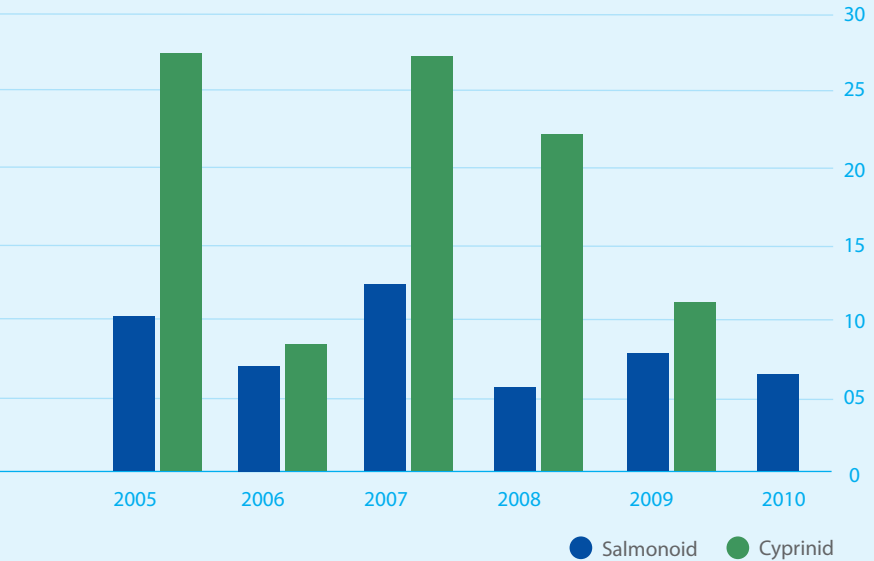
Figure 2

Freshwater Fish Directive compliance failure summary (2001 - 2010)



% River Length

	2001	2002	2003	2004
Salmonoid	14.7	11.8	17.9	9.4
Cyprinid	0.0	0.0	0.0	15.1



% River Length

2005	2006	2007	2008	2009	2010
10.1	7.6	13.2	5.7	7.7	6.3
27.0	8.0	27.0	22.0	12.7	0.0





Annalong River & Slieve Lamagan



Lower Lough Erne

## Section 3

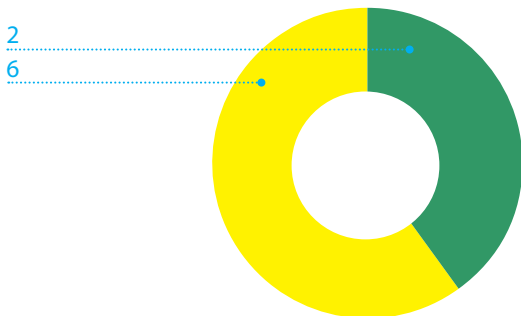
### Lake Quality

- The Water Framework Directive requires NIEA to classify the 'surface water status' of Northern Ireland's lake water bodies.
- There are 21 lake water bodies in Northern Ireland, that is lakes with an area of greater than 50 ha.
- The lake water body classification has been produced using the results from WFD quality elements. Overall classification utilises a combination of biological, chemical and hydromorphological quality elements including macrophytes, phytoplankton, phytobenthos, total phosphorus, chlorophyll and dissolved oxygen to assign status of lake quality in one of five classes from 'high' through to 'bad'.
- In 2010, 5 of the 21 lake water bodies in Northern Ireland are classified as good status and 16 lake water bodies are classified as less than good status, the same as in 2009.

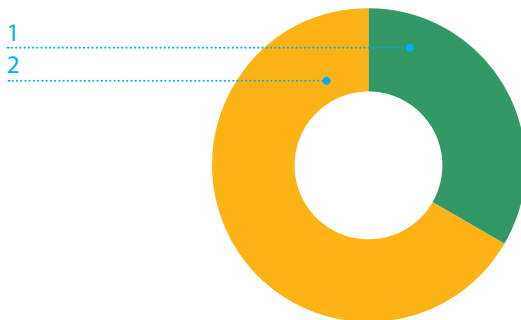
Figure 3 (2010)

Water Framework Directive Overall Classification (Number of Lake Water Bodies)

North West 2010



North East 2010

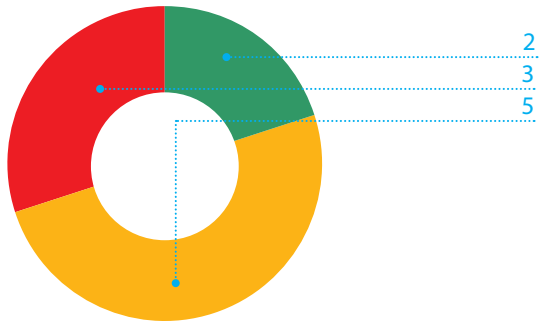


● High ● Good ● Moderate ● Poor ● Bad

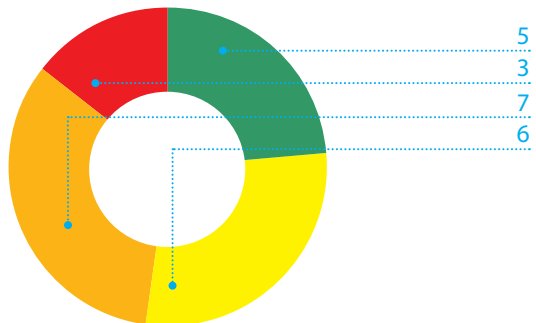


Water Framework Directive Overall  
Classification (Number of Lake Water Bodies)

Neagh Bann 2010



All Northern Ireland 2010



● High ● Good ● Moderate ● Poor ● Bad

Table 3

Water Framework Directive Overall Classification  
(Lake Water Bodies 2010)

	North West
	Number of Lake Water Bodies
	2010
High	0
Good	2
Moderate	6
Poor	0
Bad	0

	Neagh Bann
	Number of Lake Water Bodies
	2010
High	0
Good	2
Moderate	0
Poor	5
Bad	3

North East	
Number of Lake Water Bodies	
2010	
High	0
Good	1
Moderate	0
Poor	2
Bad	0

All Northern Ireland	
Number of Lake Water Bodies	
2010	
High	0
Good	5
Moderate	6
Poor	7
Bad	3





Glenarm



Groundwater

## Section 4

### Groundwater Quality

- 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 40 mg NO<sub>3</sub>/l and approximately 81 % were less than 25 mg NO<sub>3</sub>/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 50 mg NO<sub>3</sub>/l. Sixty-five out of sixty-seven groundwater bodies are considered to be at 'Good' status by WFD classification.
- Fifty-eight sites were monitored in 2010, all of which had an annual mean concentration of less than 40 mg NO<sub>3</sub>/l and 98 % of sites were less than 25 mg NO<sub>3</sub>/l. These figures were very similar to those reported in 2009.





Waterfall, Annalong River

Figure 4 (2000 — 2010)

Annual mean nitrate concentrations

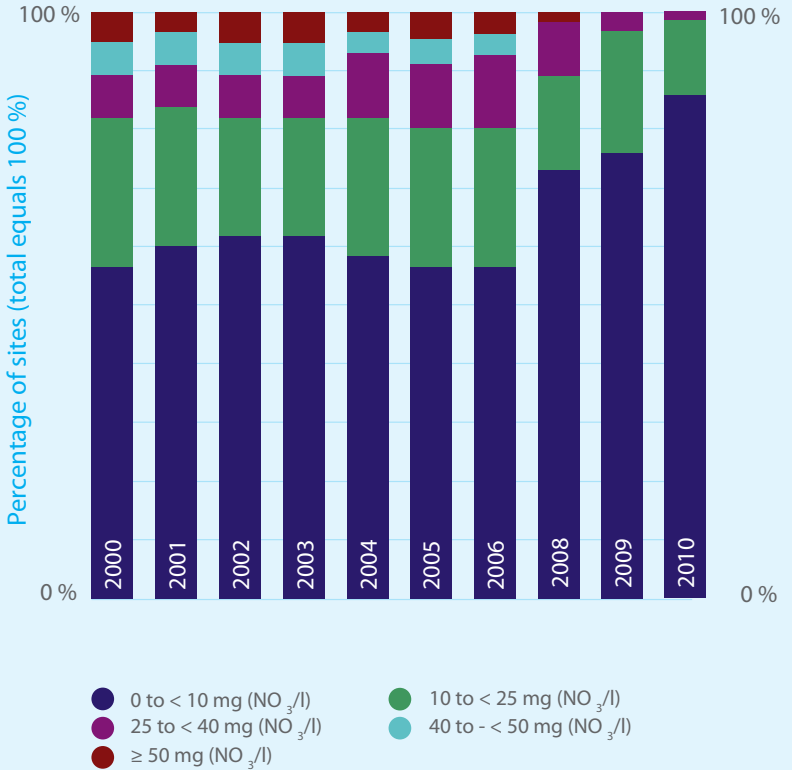


Table 4

Annual mean nitrate concentrations ( $\text{NO}_3/\text{l}$ )

	2000	2001	2002	2003
0 to < 10 mg $\text{NO}_3/\text{l}$	56.4	60.0	61.8	61.8
10 to < 25 mg $\text{NO}_3/\text{l}$	25.5	23.6	20.0	20.0
25 to < 40 mg $\text{NO}_3/\text{l}$	7.3	7.3	7.3	7.3
40 to - < 50 mg $\text{NO}_3/\text{l}$	5.5	5.5	5.5	5.5
$\geq 50$ mg $\text{NO}_3/\text{l}$	5.5	3.6	5.5	5.5



2004	2005	2006	2008	2009	2010
58.2	56.4	56.4	73.0	75.9	77.4
23.6	23.6	23.6	15.9	20.7	20.8
10.9	10.9	12.7	9.5	3.4	1.9
3.6	3.6	3.6	1.6	0.0	0.0
3.6	3.6	3.6	0.0	0.0	0.0



Downpatrick







Whiterocks

## Section 5

### Marine

**This section looks at the quality of Northern Ireland's bathing water, coastal water and shellfish water quality.**

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



## Section 5.1

### Bathing Water Quality

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

Figure 5.1 (2002 - 2011)

Bathing water compliance for microbial standards of EC Bathing Water Directive



	2002	2003	2004
Mandatory Compliance	15	16	14
Guideline Compliance	7	13	9

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



	2005	2006	2007	2008	2009	2010	2011
	15	16	21	23	22	22	24
	11	14	11	10	11	16	20



Lions Mane Jellyfish

## Section 5.2

### Marine Water Quality

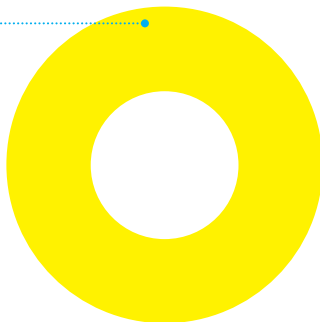
- The Water Framework Directive requires NIEA to classify water bodies as High, Good, Moderate, Poor or Bad.
- 52 % of transitional and coastal water bodies in Northern Ireland are at moderate status with approximately 31 % at good status and 17 % at high status by area km<sup>2</sup>.
- In measuring 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.

Figure 5.2 (2011)

Water Framework Directive Overall Classification  
(transitional and coastal waters — area km<sup>2</sup>)

North West

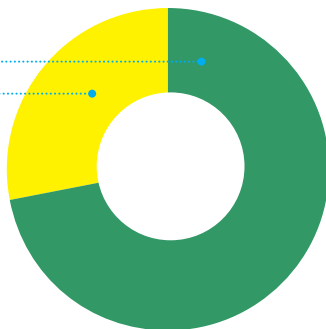
100 %



Neagh Bann

72 %

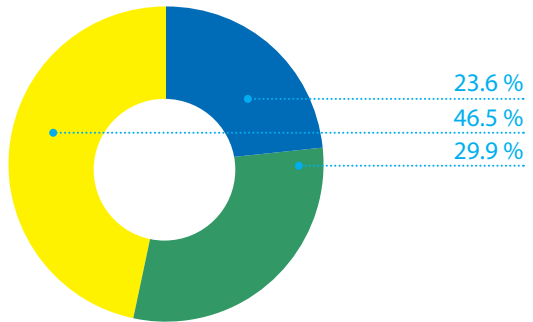
27.9 %



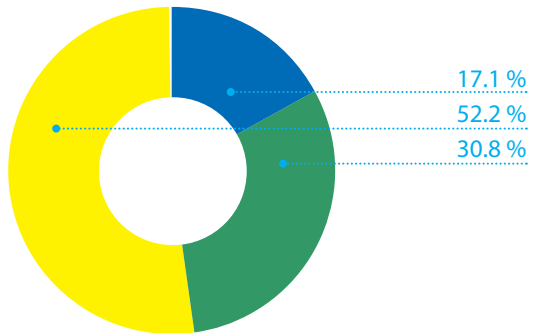
● High ● Good ● Moderate ● Poor ● Bad

### Water Framework Directive Overall Classification (transitional and coastal waters — area km<sup>2</sup>)

#### North East



#### All Northern Ireland



● High ● Good ● Moderate ● Poor ● Bad

Table 5.2 (2011)

Water Framework Directive overall status  
in transitional and coastal waters

	North West	
	2011	
	rwbs	% rwbs
High	0	0
Good	0	0
Moderate	3	100
Poor	0	0
Bad	0	0

	Neagh Bann	
	2011	
	rwbs	% rwbs
High	0	0
Good	1	72.1
Moderate	4	27.9
Poor	0	0
Bad	0	0



North East		
2011		
	rwbs	% rwbs
High	3	23.6
Good	4	29.9
Moderate	12	46.5
Poor	0	0
Bad	0	0

All Northern Ireland		
2011		
	rwbs	% rwbs
High	3	17.1
Good	5	30.8
Moderate	19	52.2
Poor	0	0
Bad	0	0





Whitepark Bay

## Section 5.3

### Shellfish Waters

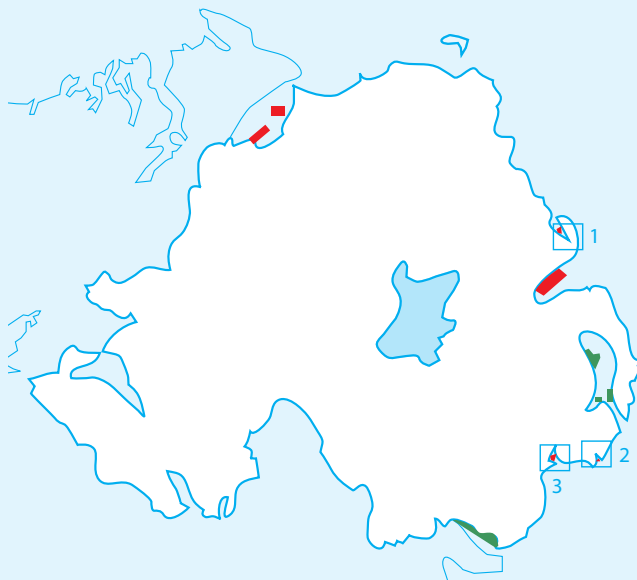
- A total of 10 Shellfish Waters are designated under the Shellfish Waters Directive. These are located within Lough Foyle, Larne Lough, Belfast Lough, Strangford Lough, Killough Harbour, Dundrum Bay and Carlingford Lough. Shellfish Waters are considered as protected areas under the Water Framework Directive.
- NIEA manages Shellfish Waters to ensure no deterioration and steady progress towards compliance with the guideline standards.
- All 10 designated shellfish waters achieved the mandatory standard in 2010.
- Compliance with the guideline standards is measured in shellfish flesh against standards. Faecal indicators and some dangerous substances such as heavy metals and organochlorine compounds are measured.
- There are no exceedences of the dangerous substances standards.
- In 2010, 5 of the 10 shellfish waters met the guideline coliform standards representing 50 % of all waters.



- Once shellfish are harvested, 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.

Figure 5.3 (2010)

Compliance with guideline faecal coliform standard in shellfish waters

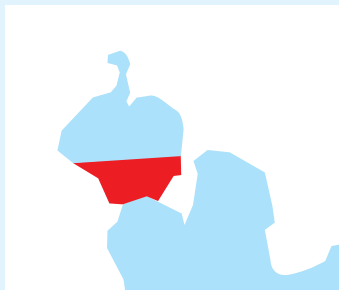


Compliance with Guideline Standards

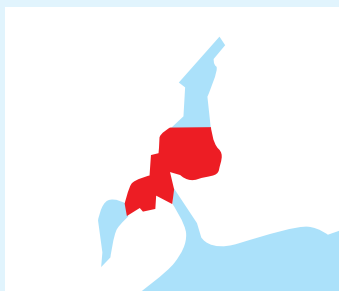
- Fail
- Pass



1. Larne



2. Killough



3. Dundrum Bay



PORT OF  
BELFAST

Harbour



## Section 6

### Industrial Discharge Quality

- 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 2010 (88 %) compared to 82 % in 2009.
- For trade effluent compliance there has been a steady increase from 76 % in 2001 to 91 % in 2010.

Figure 6 (2001 - 2010)

Trends in annual private and trade discharge consent compliance (EA 95-percentile)



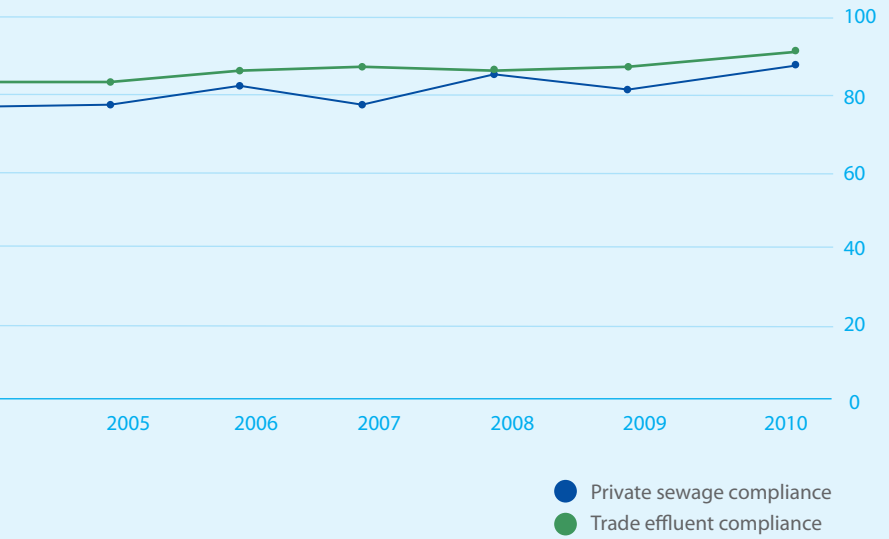


Table 6 (2001 - 2010)

Trends in annual private and trade discharge consent compliance (EA 95-percentile)

	2001	2002	2003	2004
Private sewage compliance	81	77	73	75
Trade effluent compliance	76	81	80	83



2005	2006	2007	2008	2009	2010
77	82	77	86	82	88
84	87	88	87	88	91







Monawilkin

## Section 7

### Water Utility Discharge Quality

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



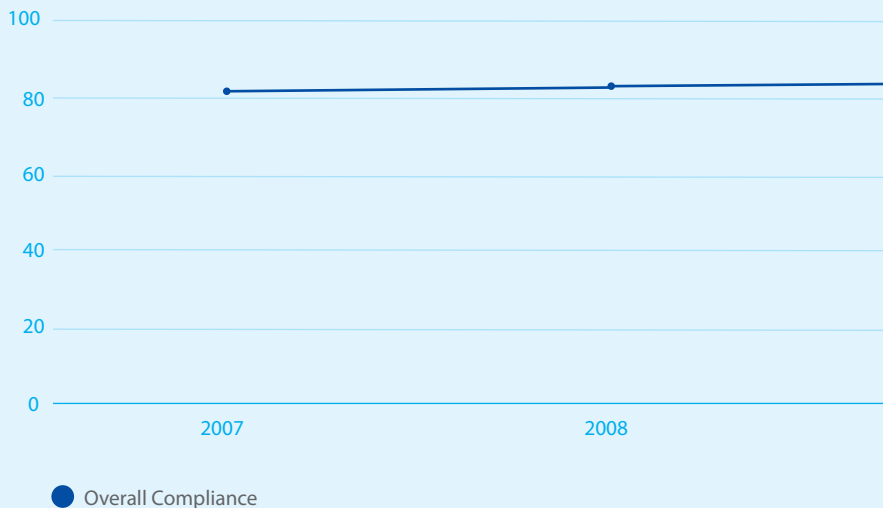


Silent Valley Reservoir

- In 2010 NI Water compliance was assessed against numeric standards set for discharges from 231 waste water treatment works, serving a population equivalent greater than 249. In addition numeric compliance was also assessed for six waste water treatment works operated under Public Private Partnership contracts.
- Compliance of waste water treatment works against the numeric conditions of the Water Order consent was introduced in 2007. This is a key performance indicator for the water utility sector and has continued to improve since 2007, having reached 89 % in 2010.

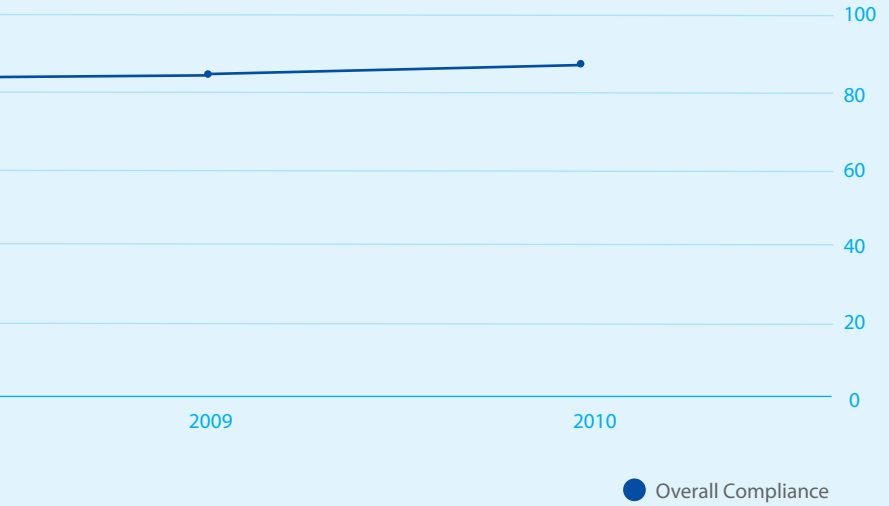
Figure 7 (2007 - 2010)

Compliance of water utility discharges  
(95-percentile)



	2007	2008	2009	2010
Overall compliance with WWTW discharge standards	84	86	87	89

Note: Change in methodology from previously published figures





Pollution Prevention, Bangor

## Section 8

### Water Pollution Incidents

- Water pollution incidents are investigated by NIEA. In 2010, 2,080 incidents were reported to NIEA, of which 1,237 were substantiated as having an impact on the water quality of the receiving watercourse.
  - The total number of substantiated incidents has fallen from the levels recorded in 2001 – 2003. The number of substantiated incidents in 2010 is 21 % less than the number recorded in 2001, but has remained relatively stable between 2008 and 2010.
  - Pollution incidents are then classified according to their severity:
    - High - major pollution incident
    - Medium - significant pollution incident
    - Low - minor pollution incident
- In 2010, 19 % were classified as high or medium. This is an increase on the 2009 level of 16 %.

Figure 8 (2001 — 2010)

Severity of substantiated water pollution incidents







Table 8

Severity of substantiated water pollution incidents

	2001	2002	2003	2004
High	49	24	42	23
Medium	306	256	297	286
Low	1,206	1,237	1,213	918
Total	1,561	1,517	1,552	1,227



	2005	2006	2007	2008	2009	2010
	20	23	22	20	9	7
	200	168	204	229	195	229
	954	942	1,066	988	1,044	1001
	1,174	1,133	1,292	1,237	1,248	1,237



Camlough

# Water Pollution Hotline

In the event of urgent water pollution incidents, members of the public are advised to call the hotline number below and report such incidents.



**\*Freephone 0800 80 70 60**

This is manned 24 hours a day, 7 days a week.

\*Mobile calls are charged at standard network rates.

## **Photographers**

NIEA would like to thank the following photographers for their contribution to this report —

Alain Le Garsmeur

Andrew Rankin

Arthur Ward

John Doherty

Laurie Campbell

Mike Hartwell

Robert Thompson

## **Cover Image**

Lough Erne, from Galloon Island, Co. Fermanagh -

Alain Le Garsmeur Alan



Northern Ireland  
**Environment**  
Agency

Our aim is to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations.

Northern Ireland Environment Agency  
Water Management Unit  
17 Antrim Road  
Lisburn  
BT28 3AL  
Tel: (028) 9262 3004  
[www.doeni.gov.uk](http://www.doeni.gov.uk)



**INVESTORS  
IN PEOPLE**

ISBN 978-1-907053-29-0

# 2012 Northern Ireland Water Management Facts & Figures



An Agency within the Department of the  
**Environment**  
[www.doeni.gov.uk](http://www.doeni.gov.uk)



Northern Ireland  
**Environment**  
Agency