Integrated Water Quality Assessment 2013

NORTH WESTERN & NEAGH BANN RIVER BASIN

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

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- waste facilities *(e.g. landfills, incinerators, waste transfer stations)*;
- large scale industrial activities *(e.g. pharmaceutical, cement manufacturing, power plants)*;
- intensive agriculture *(e.g. pigs, poultry)*;
- the contained use and controlled release of Genetically Modified Organisms *(GMOs)*;
- sources of ionising radiation *(e.g. x-ray and radiotherapy equipment, industrial sources)*;
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

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- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by co-ordinating a national enforcement network, targeting offenders and overseeing remediation.
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- Prosecuting those who flout environmental law and damage the environment.

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- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

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- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

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- Assessing the impact of proposed plans and programmes on the Irish environment *(e.g. major development plans)*.

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- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (*e.g. My Local Environment, Radon Maps)*.
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

Management and structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Climate, Licensing and Resource Use
- Office of Environmental Enforcement
- Office of Environmental Assessment
- Office of Radiological Protection
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

Integrated Water Quality Assessment for the North Western and Neagh Bann River Basin Districts 2013

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1 Introduction

The Neagh Bann is an international river basin district (NBIRBD): around 6,000 km^2 in Northern Ireland and 2,000 km^2 within the Republic of Ireland. It takes in all of County Armagh, large parts of Antrim, Louth, Monaghan and Derry, significant areas of Down, Meath and Tyrone and small areas of Cavan and Fermanagh. In the Republic of Ireland, the main rivers are the Blackwater, Castletown, Fane, Dee and Glyde while the main lakes include Lough Muckno, Emy Lough, Lough Bracken and Glaslough Lake. All of the areas requiring special protection include drinking water sources such as Emy Lough, and the Glyde and the Dee Rivers; shellfish waters such as Carlingford Lough; bathing waters including Clogherhead and Seapoint beaches. Nutrient-sensitive areas include Lough Muckno and the River Blackwater. Special Areas of Conservation include Dundalk Bay, Carlingford Shore and Clogherhead whilst Special Protection Areas include Carlingford Lough and Dundalk Bay.

The North Western International River Basin District (NWIRBD) is a cross-border area: 7,400 km^2 is in the Republic of Ireland and 4,900 km^2 in Northern Ireland. It takes in all of County Donegal, large parts of Fermanagh, Cavan, Derry, Monaghan and Tyrone, significant areas of Leitrim and Longford and a small portion of Sligo. In the Republic of Ireland, the main river is the Erne (draining parts of Cavan, Fermanagh and Monaghan) while the main lakes are Lough Erne, Lough Macnean and Lough Melvin. All of the areas requiring special protection include drinking water sources such as Gartan Lough and Lough Erne, shellfish waters such as Mulroy Bay, bathing waters such as Murvagh and Benone beaches, nutrient sensitive areas, such as Killybegs Harbour and Upper Lough Erne and Special Areas of Conservation and Special Protection Areas such as Lough Melvin.

This assessment presents the latest monitoring data, an assessment of the data and a **focus on key issues** that affect water quality in the NBIRBD and NWIRBD.

The assessment of water quality is presented using four Key Indicators:

1. Physico-Chemical Quality
2. Biological Quality
3. Pressures
4. Overall (Integrated) Quality

Under these headings the key issue is examined and there is a focus on sites of special interest, where water quality issues need to be addressed.

2 Physico-Chemical Assessment

2.1 Rivers

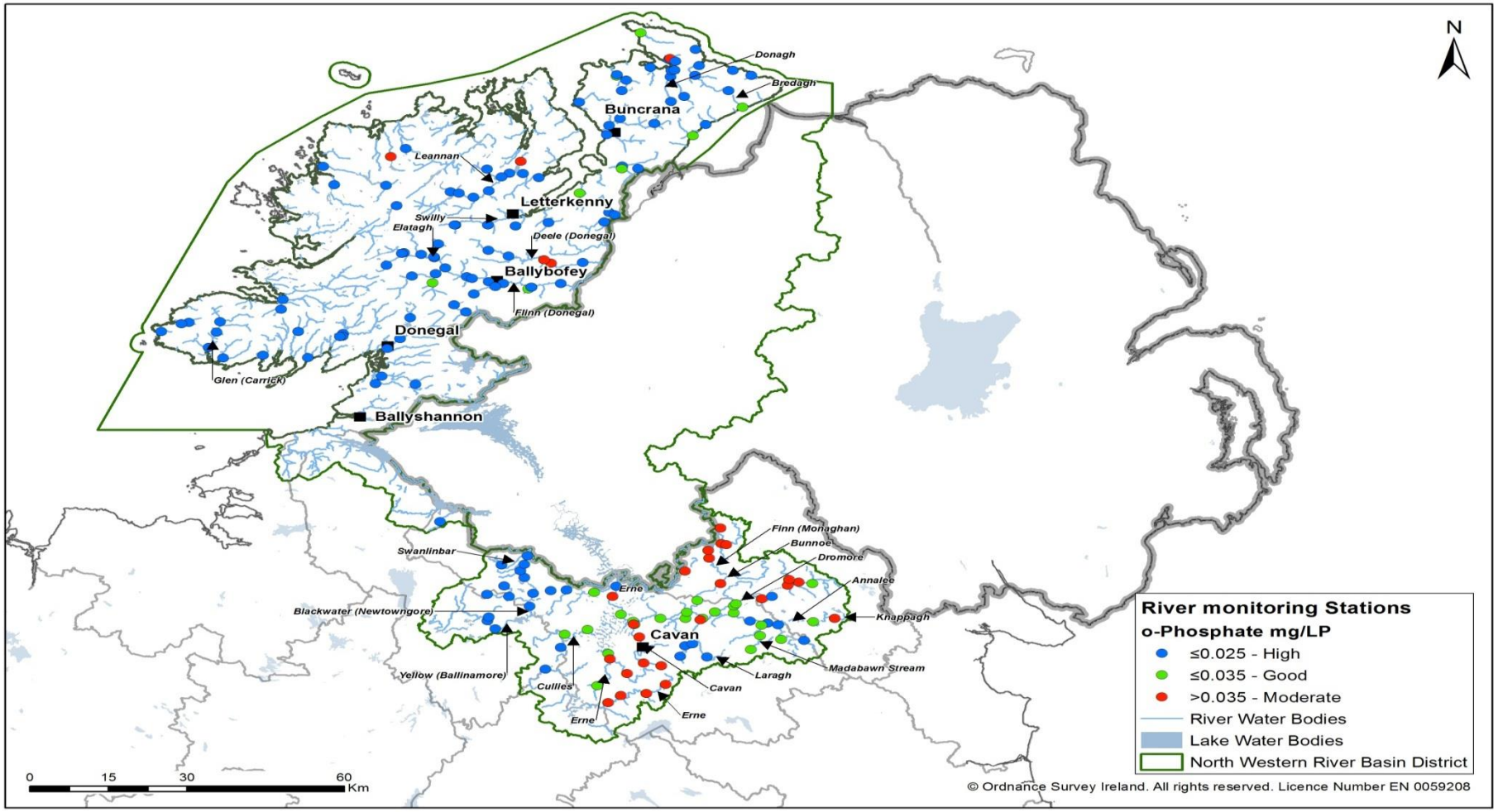
2.1.1 *Key Issue*: Nutrient Enrichment – Phosphorus (as Ortho-Phosphate)

Maps 1 and 2 below show the average ortho-phosphate concentration in NWIRBD and NBIRBD rivers, respectively, in 2013. The maps are based on a face value comparison of the annual mean against the EQS for High and Good Status. The relevant annual average EQS (SI 272 of 2009) are: 'Good' ≤0.035 mg/L P and 'High' ≤0.025 mg/L P.

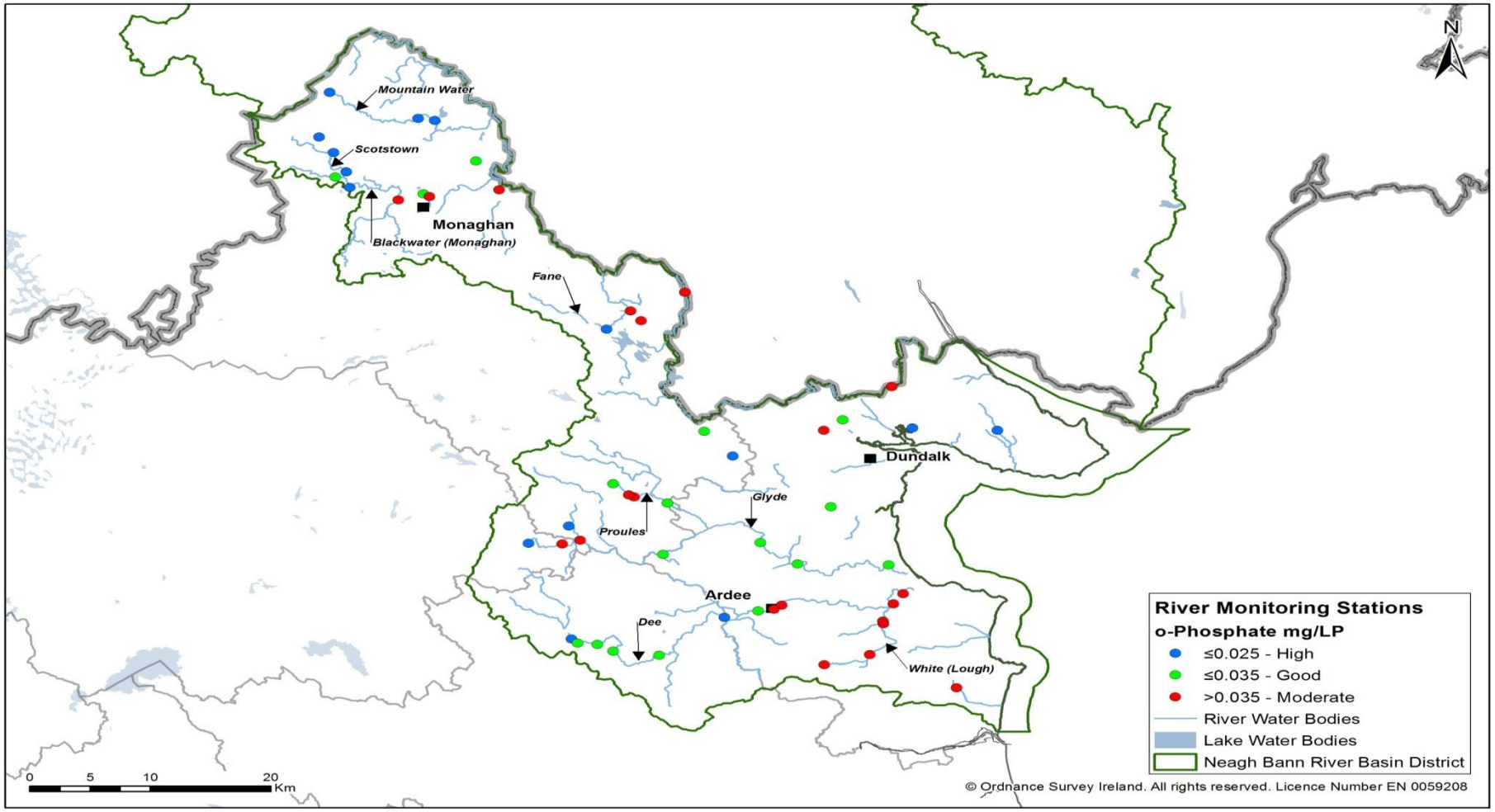
In the NWIRBD, the majority of stations whose annual average exceeds the EQS for 'Good' status are concentrated in the lower half of the RBD in counties Cavan and Monaghan. They include the Ballinagh, Bunnoe, Cavan, Dromore, Erne, Finn (Monaghan) and Knappagh rivers. Malin Stream and Tullaghobegly are the rivers with the highest annual average ortho-phosphate concentration in the northern half of the RBD.

In the NBIRBD, the stations whose annual average exceeds the EQS for 'Good' status are more evenly distributed across the RBD. They include the Clontibret, Conawary (Lower), County Water, Fane, Glyde, Proules, Shambles, Termonfeckin and White (Louth).

Overall, the level of compliance with the ortho-phosphate EQS is much better in the NWIRBD compared to the NBIRBD. The former compares well to the national picture while the NBIRBD performs poorly. Figure 1 shows the percentage compliance with the ortho-phosphate EQS in both RBDs as well as nationally.



Map 1. Average ortho-phosphate in NWIRBD rivers in 2013.



Map 2. Average ortho-phosphate in NBIRBD rivers in 2013.

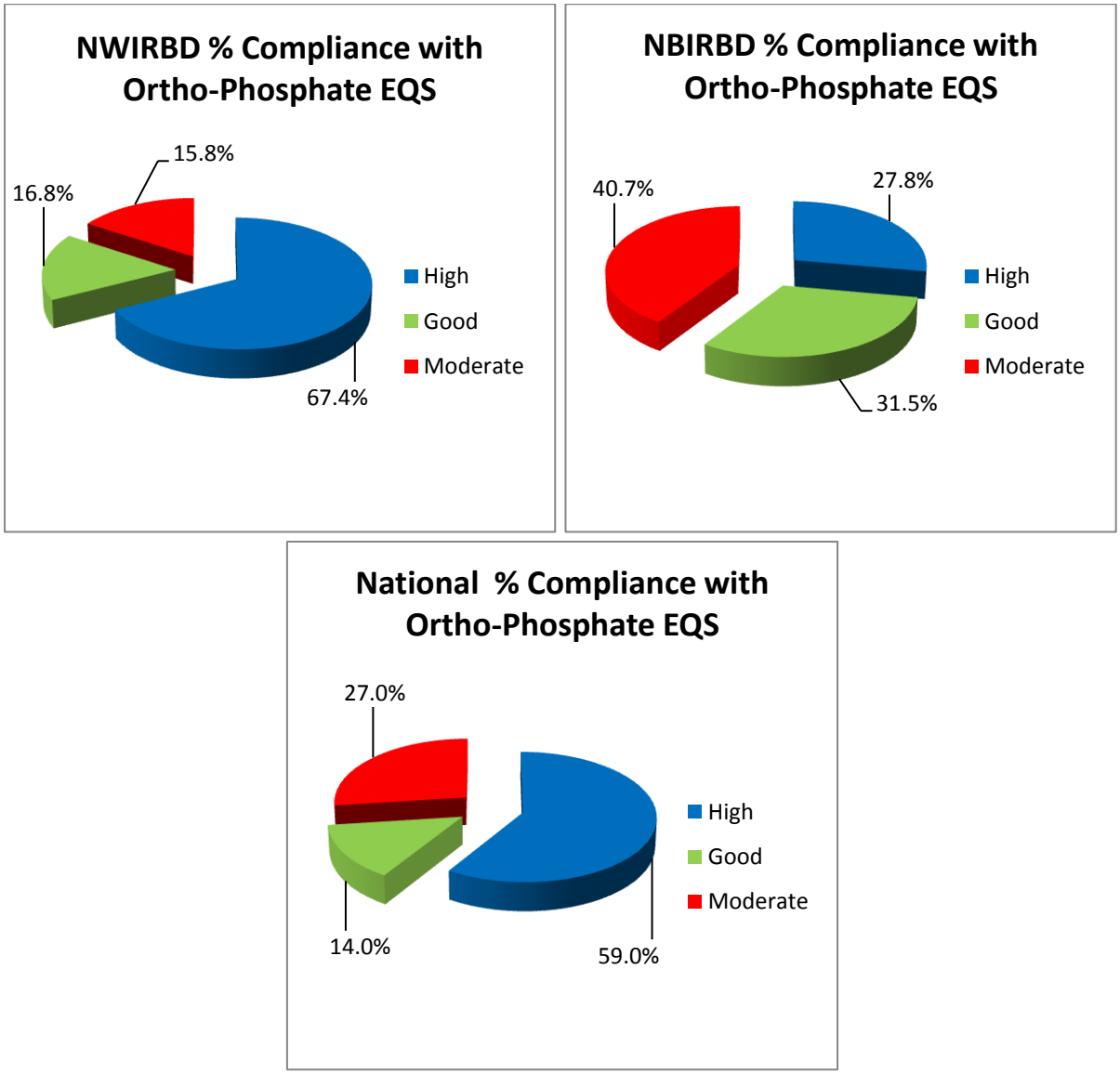


Fig. 1. Percentage compliance with ortho-phosphate EQS in NWIRBD and NBIRBD in 2013 and comparison with national statistics.

2.1.2 Case Study: Knappagh River

The Knappagh River extends from Lough Egish in County Monaghan to Derrygoney Lough on the Cavan/Monaghan border. Lough Egish has historic eutrophication problems including very elevated ortho-phosphate levels, which have impacted on the Knappagh River over the years. Figure 2 below shows the long-term 3-year rolling mean values for ortho-phosphate in the Knappagh River at two different stations (0100 and 0400) from 1995 to 2013. At station 0100 (Cross Roads NE of Bocks Lough), ortho-phosphate levels were at their highest in the late 1990s when they were more than six times above the EQS for 'Good' status. Levels have fallen steadily in the intervening period but still remain more than double this EQS. Ortho-phosphate levels at station 0400 (Lackan Br) have been historically much lower than station 0100 and annual average levels have been consistently below the EQS for 'High' status. Nitrate levels have been historically low at both stations. Over the last 15 years, annual average levels have been consistently below the surrogate nitrate EQS for 'High' status of 0.9 mg/l N.

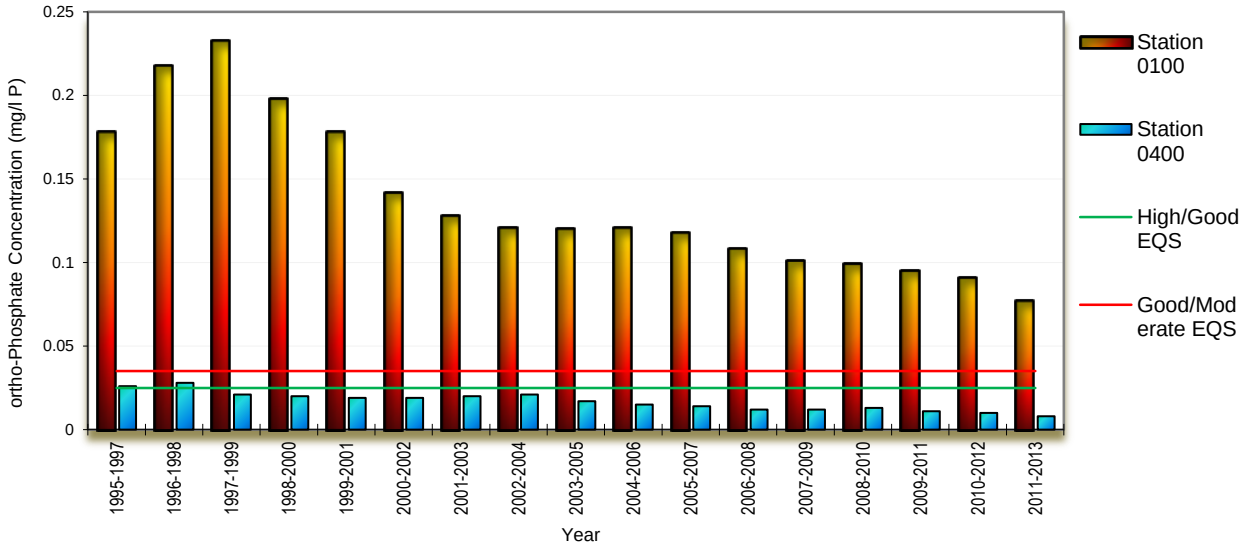


Fig. 2. Long-term ortho-phosphate trends for the Knappagh River.

The Knappagh catchment is mainly a grassland catchment but by comparison to other areas of County Monaghan it is not intensively farmed. Pressures on water quality in the Knappagh River include Lough Egish with its historic very elevated phosphorus levels; industrial, commercial and agricultural activities including land spreading and cattle access/poaching; and to a lesser extent imported manures/sludge, septic tanks, misuse of drains, quarries, contaminated lands, illegal dumping, accidental spillages, flooding and vegetation decay, physical modifications, land drainage, water abstractions and miscellaneous sources.

2.1.3 Case Study: Fane River

The Fane River extends from the mid Monaghan area around Annyalla and flows south eastwards into County Louth. Grassland agricultural activities dominate in the catchment. Pressures on water quality in the Fane River include point source discharges such as WWTPs, Section 4 licensed premises and a number of IPPC licensed facilities. In addition, silage effluent discharges, cattle access, bank erosion, septic tank discharges, oil spills, unauthorised developments, illegal dumping and land spreading of manures are also pressures in the catchment.

Physico-chemical monitoring has been carried out at a number of stations over the years, but particular focus is placed here on long-term trends at two stations, i.e. 0200 (Derrycreevy Br) in County Monaghan and 0900 (Stephenstown Br) in County Louth. Figures 3 and 4 below show the long-term 3-year rolling mean values for ortho-phosphate and nitrate, respectively, at both stations from 1978 to 2013. The pattern over this time is very similar for both nutrients with levels almost always much higher at station 0900. Here, annual average levels for both ortho-phosphate and nitrate have been hovering around the EQS for 'Good' status over the past few years while at station 0200 they have been below the EQS for 'High' status over the same period. However, the pattern for nutrient levels is in contrast to the biological Q values where generally better ecological status has been historically observed in the lower reaches of the river. Most recently poor ecological status has been recorded at station 0200 and good status observed at station 0900 (2012).

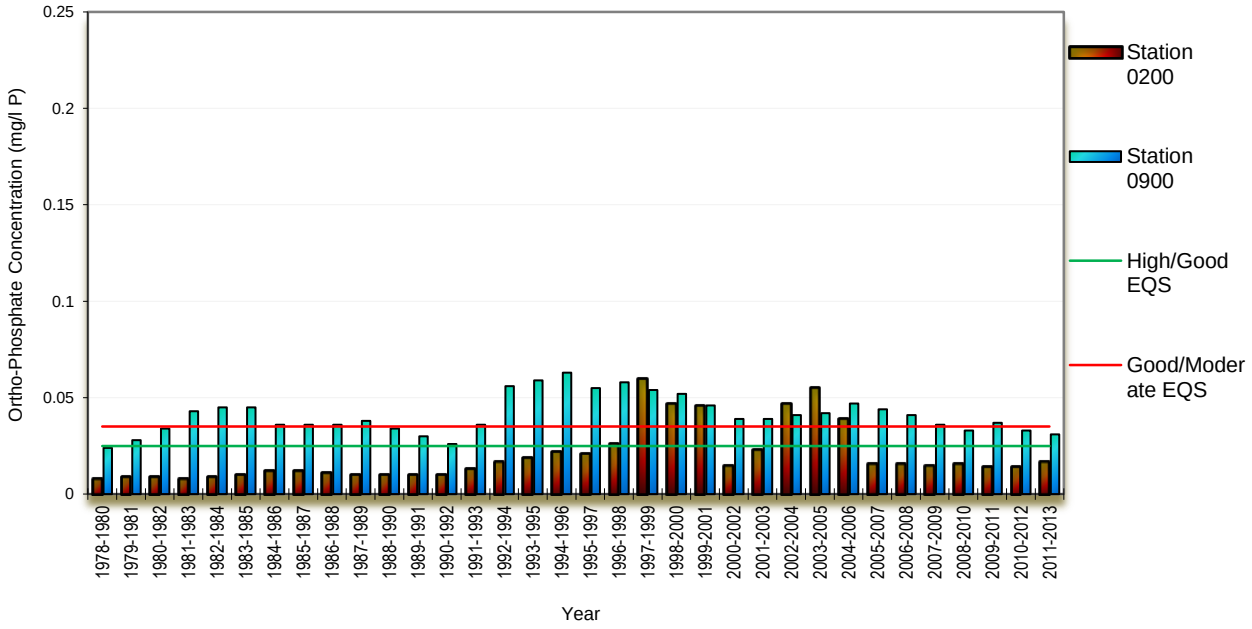


Fig. 3. Long-term ortho-phosphate trends for the Fane River.

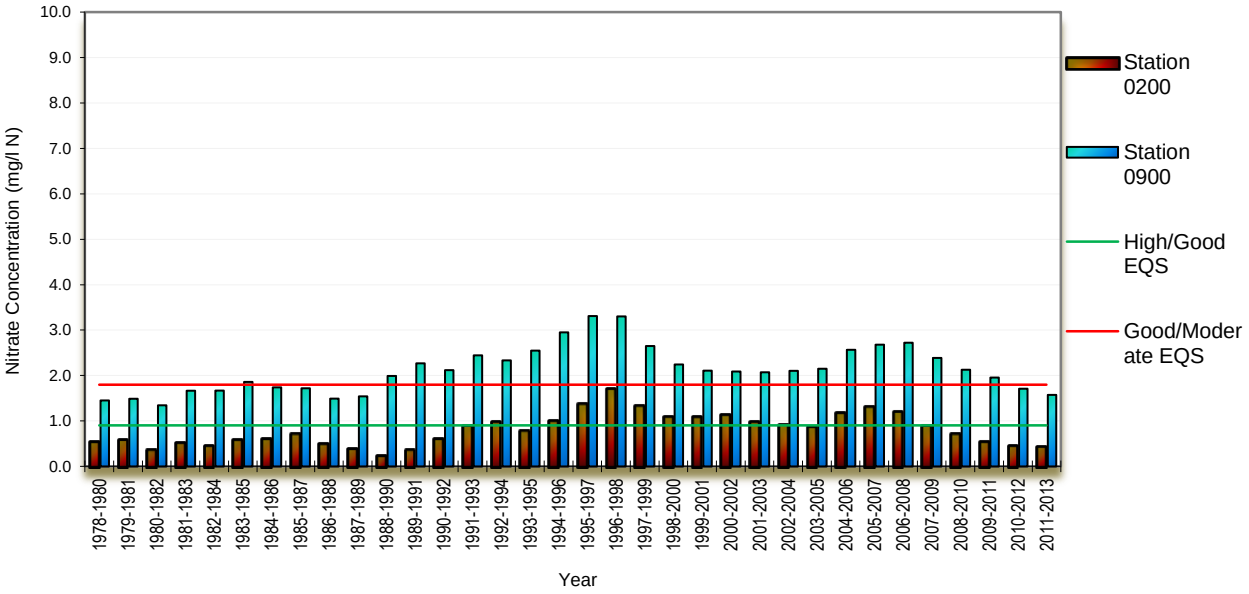


Fig. 4. Long-term nitrate trends for the Fane River.

2.1.4 Overall Physico-Chemical Assessment of Rivers in NWIRBD and NBIRBD

In determining the ecological status of a river water body, a number of general physico-chemical parameters are assessed against the annual mean and 95%ile standards, which have been set for each parameter. The assessment is based on a statistical approach whereby the pass/fail criteria requires 50% of these parameters, namely, ortho-phosphate, ammonia, BOD and nitrate to exceed the mean and 95%ile standards at a 99% confidence level. Assessment is typically based on three years of data.

This assessment has been undertaken on all surveillance stations in the NWRBD and NBIRBD. The assessment is based on 3-year rolling cycles since 2007 and the results of the assessment are presented in Table 1 below. The data shows a good 'pass' rate with a general improvement observed since 2007. This overall pass rate trend is displayed in Figure 5. The pass rate trend for each of the four relevant physico-chemical parameters is presented in Figure 6.

RBD	River	Full Code	Station Location	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013
NBIRBD	BIG (LOUTH)	06B010100	Ballygoly Br	Pass	Pass	Pass	Pass	Pass
NBIRBD	BLACKWATER (MONAGHAN)	03B010800	Newmills Br	Pass	Pass	Pass	Pass	Pass
NBIRBD	DEE	06D010600	Burley Br	Pass	Pass	Pass	Pass	Pass
NBIRBD	FANE	06F010650	Inniskeen Br	Pass	Pass	Pass	Pass	Pass
NBIRBD	WHITE (LOUTH)	06W010500	Coneyburrow Br	Fail	Fail	Fail	Fail	Fail
NWIRBD	ANNALEE	36A021400	0.2km d/s Cavan R confl	Pass	Pass	Pass	Pass	Pass
NWIRBD	BREDAGH	40B020400	Br in Moville	Fail	Fail	Fail	Fail	Pass
NWIRBD	BURNFOOT	39B020600	Bridge in Burnfoot	Pass	Pass	Pass	Pass	Pass
NWIRBD	CLADY (DONEGAL)	38C040300	Bridge u/s Bunbeg	Pass	Pass	Pass	Pass	Pass
NWIRBD	CRONANIV BURN	38C060100	Bridge u/s Dunlewy Lough	Pass	Pass	Pass	Pass	Pass
NWIRBD	CULLIES	36C030600	Kilbrackan Br	Pass	Pass	Pass	Pass	Pass
NWIRBD	DROMORE	36D020150	Br in Ballybay	Pass	Pass	Pass	Pass	Pass
NWIRBD	EANY WATER	37E030300	Just d/s Eany Beg/More confl	Pass	Pass	Pass	Pass	Pass
NWIRBD	ERNE	36E011100	Bellahillan Br	Pass	Pass	Pass	Pass	Pass
NWIRBD	ERNE	36E011400	Br at Kilconny Belturbet (RHS)	Pass	Pass	Pass	Pass	Pass
NWIRBD	FINN (MONAGHAN)	36F010500	Cumber Br	Fail	Fail	Fail	Pass	Pass
NWIRBD	GLASKEELAN	39G050100	Glaskeelan Br	Pass	Pass	Pass	Pass	Pass
NWIRBD	MOURNE BEG	01M010100	Red Burn Bridge	Pass	Pass	Pass	Pass	Pass
NWIRBD	OWENTOCKER	38O060300	500 m d/s Bridge in Ardara	Pass	Pass	Pass	Pass	Pass
NWIRBD	STRANAGOPPOGE	01S020200	Bridge u/s Finn River confl	Pass	Pass	Pass	Pass	Pass
NWIRBD	SWANLINBAR	36S010300	0.6km d/s Swanlinbar Br	Pass	Pass	Pass	Pass	Pass
NWIRBD	SWILLY	39S020050	Swilly Br (near Breenagh)	Pass	Pass	Pass	Pass	Pass
NWIRBD	WATERFOOT	36W030700	Letter Br	Pass	Pass	Pass	Pass	Pass

Table 1. Physico-chemical pass/fail assessment of surveillance rivers in NWRBD & NBIRBD 2007–2013.

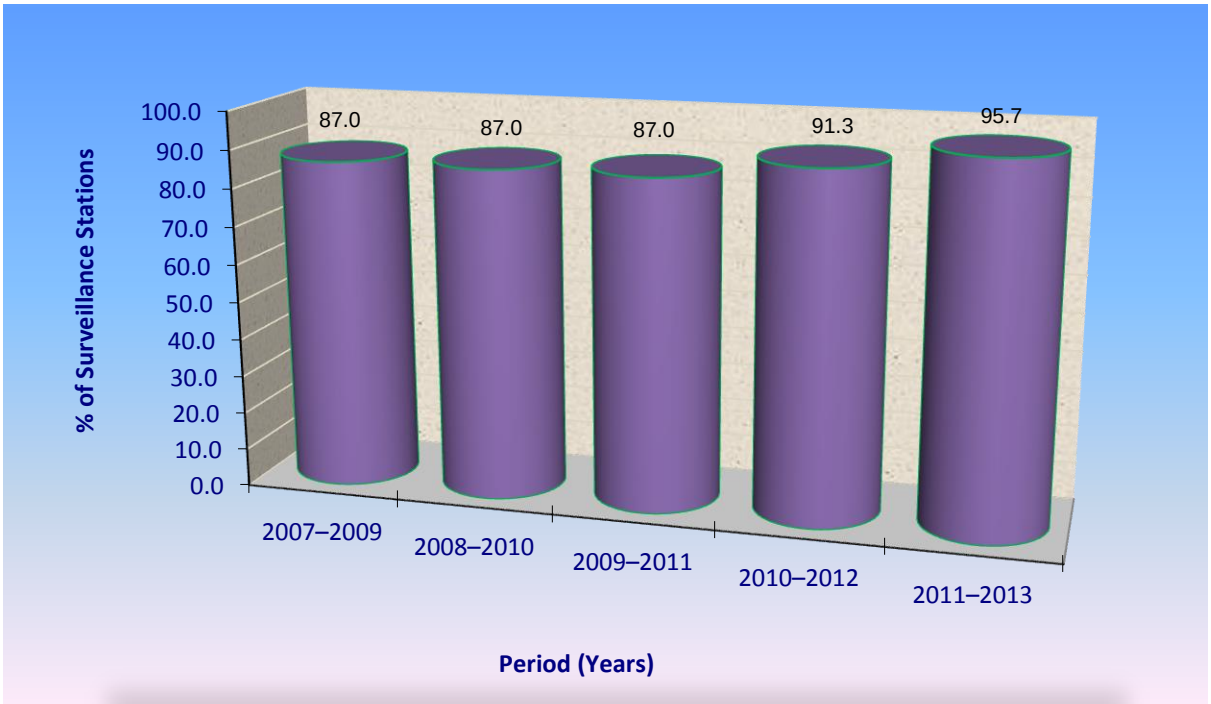


Fig. 5. Percentage physico-chemical pass rate for surveillance river stations in the NWIRBD and NBIRBD 2007–2013.

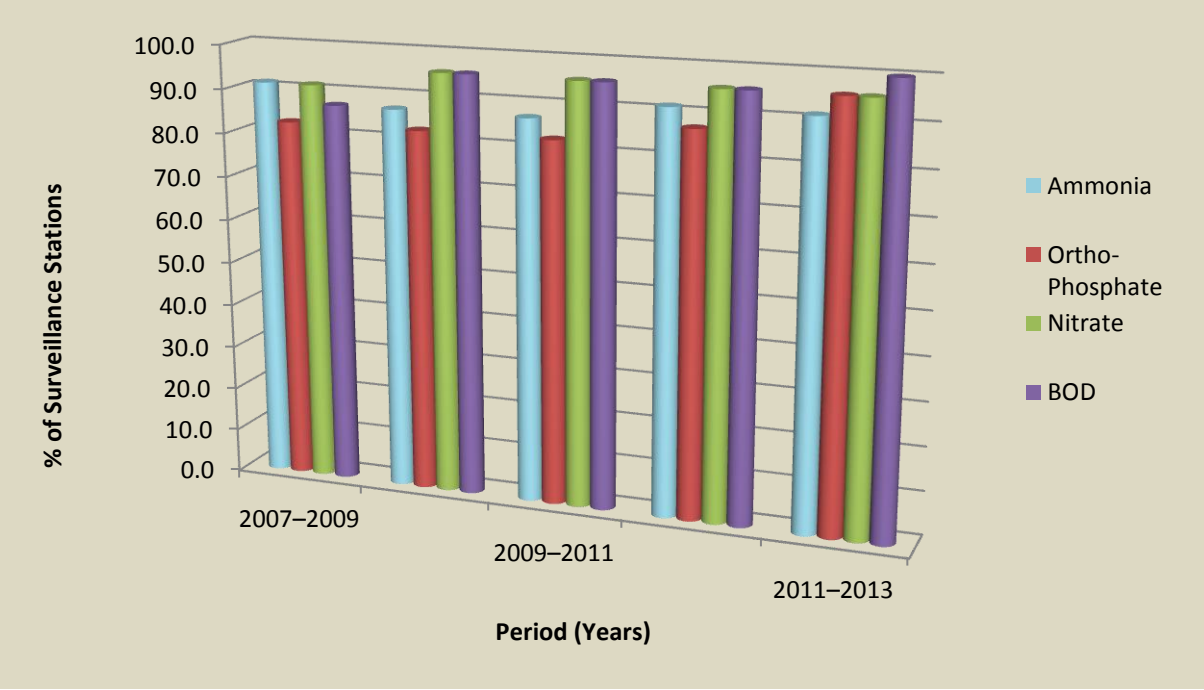


Fig. 6. Percentage physico-chemical pass rate by parameter for surveillance river stations in the NWIRBD and NBIRBD 2007–2013.

2.2 Lakes

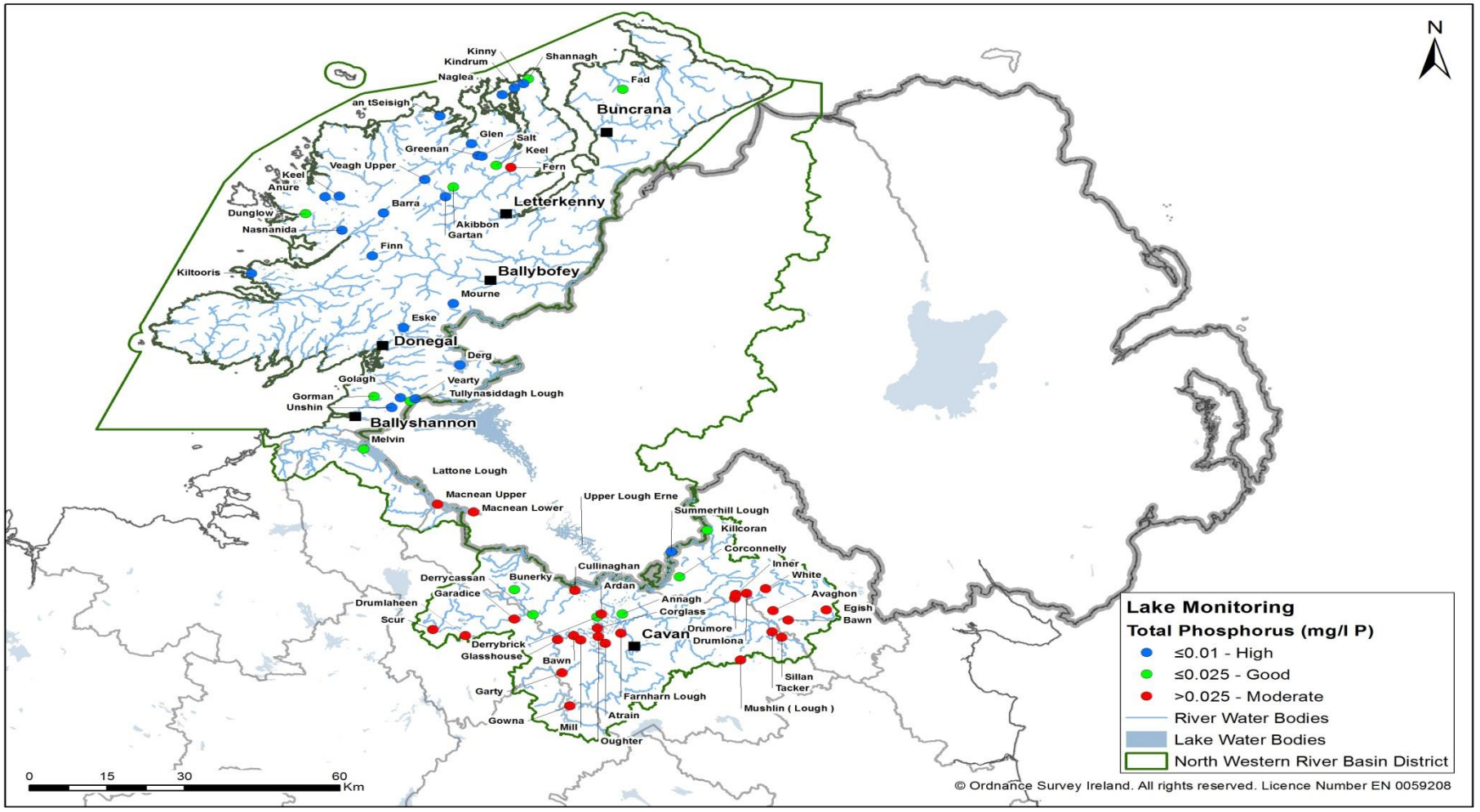
2.2.1 *Key Issue*: Nutrient Enrichment – Phosphorus (as Total P)

Maps 3 and 4 below show the average total phosphorus concentration in NWIRBD and NBIRBD lakes, respectively, in 2013. The map is based on a face value comparison of the annual mean against the surrogate EQS for High and Good Status. As yet there is no formal EQS for total phosphorus but the surrogate standards currently used are: 'Good' ≤0.025 mg/L P and 'High' ≤0.010 mg/L P.

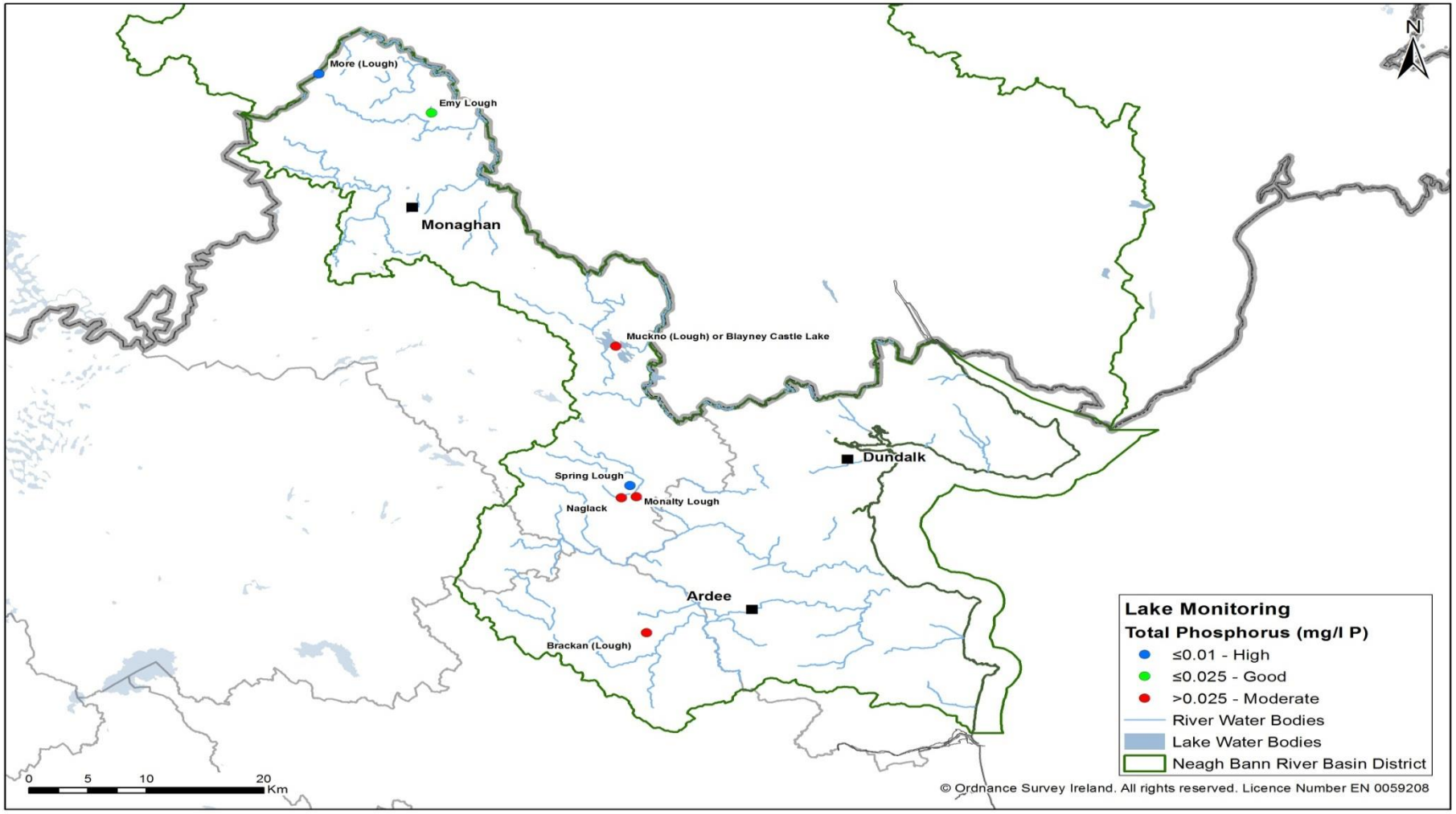
In the NWIRBD, the majority of lakes whose annual average exceeds the EQS for 'Good' status are concentrated in the lower half of the RBD in counties Cavan and Monaghan. This follows a similar pattern observed for rivers in the RBD. The lakes with the highest annual average total phosphorus in 2013 included Drumlaheen, Drumlona, Egish, Farnharn Lough, Inner, Sillan and White.

There are relatively few lakes in the NBIRBD but a high percentage of them had an average total phosphorus in 2013 that exceeded the EQS for 'Good' status. They include Brackan, Monalty, Muckno and Naglack.

Overall, the level of compliance with the total phosphorus EQS is marginally better in the NWIRBD compared to the NBIRBD. However, both perform poorly when compared to the national picture. Figure 7 shows the percentage compliance with the total phosphorus EQS in both RBDs as well as nationally.



Map 3. Average total phosphorus in NWIRBD lakes in 2013.



Map 4. Average total phosphorus in NBIRBD lakes in 2013.

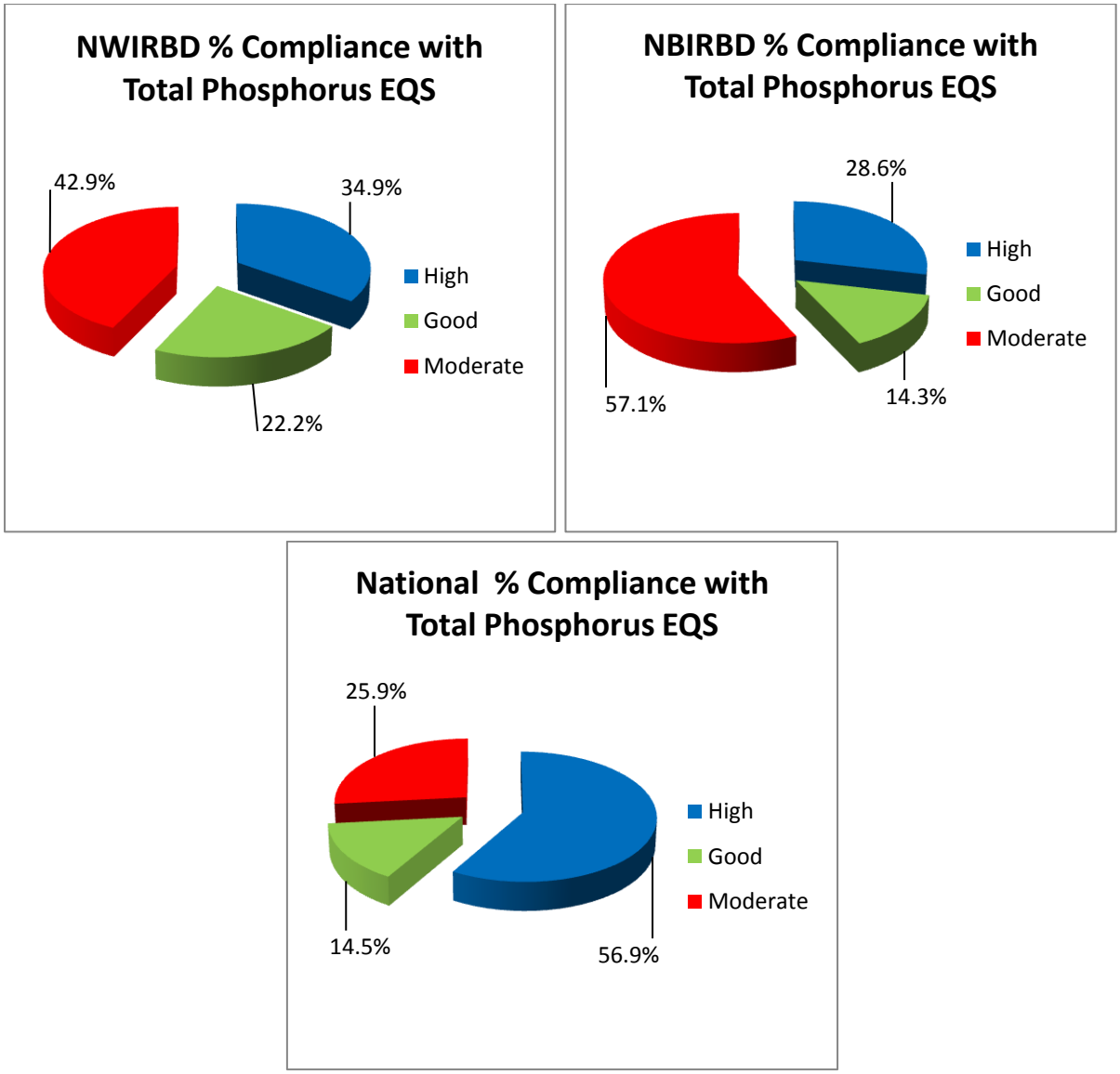


Fig. 7. Percentage compliance with total phosphorus EQS in NWIRBD and NBIRBD lakes in 2013 and comparison with national statistics.

2.2.2 Case Study: Lough Egish

Lough Egish is located in the Bawn Catchment in the South Eastern corner of the NWIRBD. It is a WFD Surveillance lake that is monitored for general physico-chemical parameters at two sites, one in the north west region of the lake (010) and a second in the south east (020). Historically the lake has suffered from significant eutrophication problems characterised by very elevated phosphorus levels. Figure 8 shows the 3-year rolling mean total phosphorus levels at both stations from 2007 to 2013. Over this period, levels have been generally declining although the average levels in 2013 alone still remain over five times above the EQS for 'Good' status.

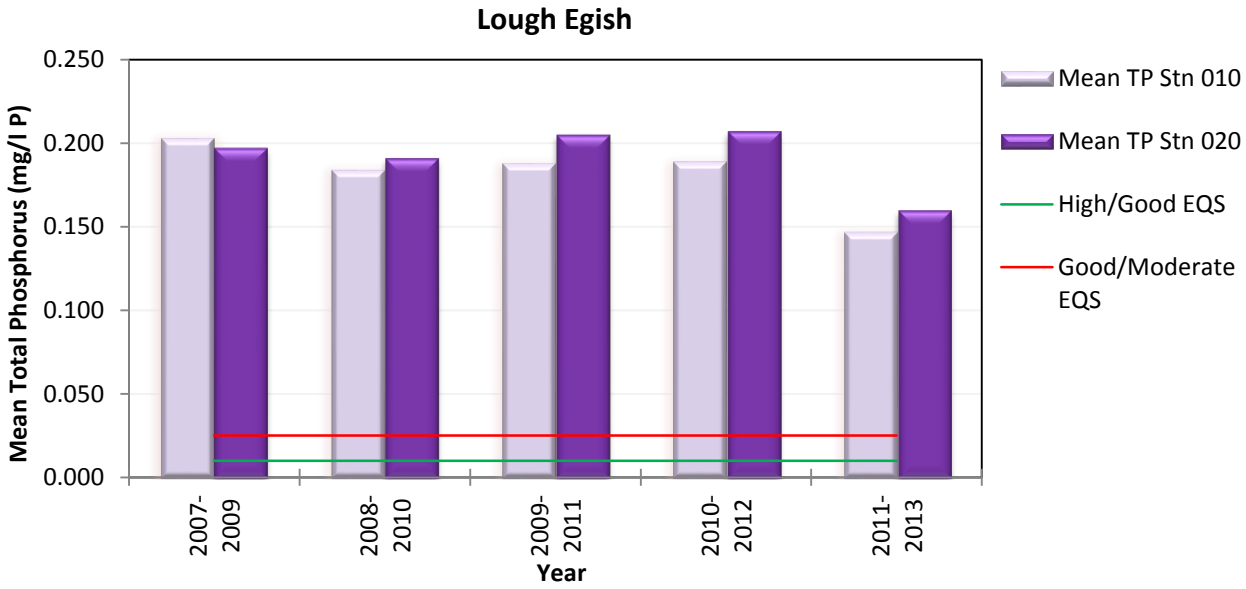


Fig. 8. Total phosphorus trend as 3-year rolling mean in Lough Egish 2007–2013.

2.2.3 Case Study: Lough Muckno

Lough Muckno is located in the upper reaches of the Fane River System in the NBIRBD. It is monitored as part of the surveillance network on the WFD lake monitoring programme. General physico-chemical monitoring is carried at three sites, from station 010 in the northern region of the lake to station 030 in the southern region. The lake has suffered from historical nutrient enrichment issues.

Figure 9 shows the 3-year rolling mean total phosphorus levels at all stations from 2007 to 2013. Over this period, phosphorus levels in the lake have fallen slowly and it is noticeable that the rate of decrease has been greatest in the southern region of the lake (station 030). That said, current levels at all stations remain above the EQS for 'Good' status.

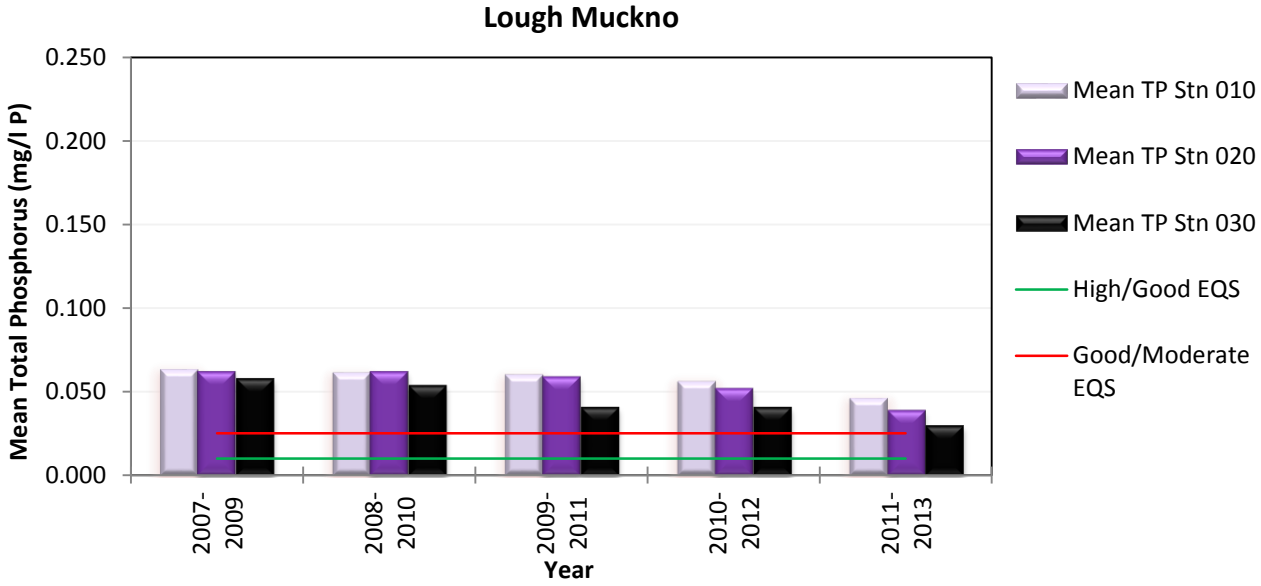


Fig. 9. Total phosphorus trend as 3-year rolling mean in Lough Muckno 2007–2013.

2.2.4 Overall General Physico-Chemical Assessment of Lakes in NWIRBD and NBIRBD

General physico-chemical (GPC) status is assigned to lakes by assessing Oxygenation Status, Nutrient Conditions Status, Acidification/Alkalisation Status, Thermal Status and Specific Pollutants. The results of the assessment of lakes in the NWIRBD and NBIRBD are presented in Table 2.

Lake Name	Lake Code	2007–2009	2008–2010	2009–2011	2010–2012	2011–2013
Brackan	NB_06_209			Moderate	Moderate	Moderate
Corcaghan	NB_03_71	Moderate				
Emy	NB_03_102	Moderate	Moderate	Moderate	Moderate	Moderate
Monalty	NB_06_234	Moderate	Moderate	Moderate	Moderate	Moderate
More	NB_03_87			Good	Moderate	Moderate
Muckno or Blayney	NB_06_56	Moderate	Moderate	Moderate	Moderate	Moderate
Naglack	NB_06_55	Moderate	Moderate	Moderate	Moderate	Moderate
Spring	NB_06_198			Good	Good	Good
Agannive	NW_38_665	High				
Akibbon	NW_39_11	Good	Good	Good	Good	Good
an tSeisigh	NW_38_61	Good	High	High	High	High
Annagh	NW_36_517	Moderate	Moderate	Moderate	Moderate	Good
Anure	NW_38_83	High	High	High	High	High
Ardan	NW_36_432	Moderate	Moderate	Moderate	Moderate	Moderate
Atain	NW_36_618		Moderate	Moderate	Moderate	Moderate
Avaghon	NW_36_638	Moderate	Moderate	Moderate	Moderate	Moderate
Barra	NW_38_84	High	High	High	High	High
Bawn	NW_36_573	Moderate	Moderate	Moderate	Moderate	Moderate
Bawn	NW_36_623			Moderate	Moderate	Moderate
Birroge	NW_38_57	Good				
Bunerky	NW_36_624	Moderate	Moderate	Moderate	Good	Good
Corconnelly	NW_36_192			Moderate	Moderate	Moderate
Corglass	NW_36_655	Moderate	Moderate	Moderate	Moderate	Moderate
Cullinaghan	NW_36_385	Moderate	Moderate	Moderate	Moderate	Moderate
Derg	NW_01_115	Good	Good	Good	Good	High
Derrybrick	NW_36_400	Moderate	Moderate	Good	Good	Good
Derrycassan	NW_36_514	Moderate	Moderate	Moderate	Moderate	Moderate
Drumlaheen	NW_36_614	Moderate	Moderate	Moderate	Moderate	Moderate
Drumlona	NW_36_525b	Moderate	Moderate	Moderate	Moderate	Moderate
Drumore	NW_36_525a	Moderate	Moderate	Moderate	Moderate	Moderate
Dunglow	NW_38_692	High	High	High	Good	Good
Egish	NW_36_671	Moderate	Moderate	Moderate	Moderate	Moderate
Eske	NW_37_188	Good	Good	High	High	High
Fad	NW_40_2	Good	Good	High	High	High
Farnharn Lough	NW_36_564			Moderate	Moderate	Moderate
Fern	NW_39_13	Good	Good	Good	Moderate	Moderate
Finn	NW_01_102	Good	Good	Good	High	High
Garadice	NW_36_648	Moderate	Moderate	Moderate	Moderate	Moderate
Gartan	NW_39_12	Good	Good	Good	Good	Good

Lake Name	Lake Code	2007–2009	2008–2010	2009–2011	2010–2012	2011–2013
Garty	NW_36_430	Moderate	Moderate	Moderate	Moderate	Moderate
Glasshouse	NW_36_615	Moderate	Moderate	Moderate	Moderate	Moderate
Glen	NW_38_22	Good	High	High	High	High
Golagh	NW_36_715	Good	Good	Good	Good	High
Gorman	NW_36_706			Good	Good	Good
Gowna	NW_36_524	Moderate	Moderate	Moderate	Moderate	Moderate
Greenan	NW_38_635	Good	Good	Good	High	High
Inner	NW_36_526	Moderate	Moderate	Moderate	Moderate	Moderate
Keel	NW_38_576	Good	High	High	High	High
Keel	NW_38_75	Good	Good	Good	Good	Good
Killcoran	NW_36_329			Moderate	Moderate	Moderate
Kiltooris	NW_38_47	High	High	High	High	Good
Kindrum	NW_38_670	High	High	High	High	High
Kinny	NW_38_59	Good	Good	Good	Good	Good
Lattone Lough	NW_35_143	Moderate	Moderate	Moderate	Moderate	Moderate
Macnean Lower	NW_36_445	Moderate	Moderate	Moderate	Good	Moderate
Macnean Upper	NW_36_673	Moderate	Moderate	Moderate	Good	Moderate
Melvin	NW_35_160	Good	Good	Good	Good	Moderate
Mill	NW_36_597	Good	Moderate	Moderate	Moderate	Moderate
Mourne	NW_01_104	Good	High	High	High	High
Mushlin	NW_36_272			Good	Good	Good
Naglea	NW_38_668			Good	Good	Good
Nasnanida	NW_38_67	High	High	High	High	High
Oughter	NW_36_657	Moderate	Moderate	Moderate	Moderate	Moderate
Reelan	NW_38_514	Good				
Salt	NW_38_649	Good	High	High	High	High
Scur	NW_36_665	Moderate	Moderate	Moderate	Moderate	Moderate
Shannagh	NW_38_678	Good	Moderate	Moderate	Moderate	Good
Sillan	NW_36_528	Moderate	Moderate	Moderate	Moderate	Moderate
Summerhill Lough	NW_36_721	Moderate	Moderate	Moderate	Moderate	Moderate
Tacker	NW_36_363	Moderate	Moderate	Moderate	Moderate	Moderate
Tullynasiddagh Lough	NW_36_651	Good	Good	Good	Good	Good
Unshin	NW_36_712	Good	Good	Good	Good	Good
Upper Lough Erne	NW_36_672	Moderate	Moderate	Moderate	Moderate	Moderate
Veagh Lower	NW_38_80a	High				
Veagh Upper	NW_38_80b	High	High	High	High	High
Vearty	NW_36_711	Good	Good	High	High	High
White	NW_36_647	Moderate	Moderate	Moderate	Moderate	Moderate

Table 2. GPC status of lakes in the NWIRBD and NBIRBD.

Figure 10 below shows how both RBDs compare with the national picture and figure 11 shows trends in GPC status since 2007 in the NWIRBD and NBIRBD (combined).

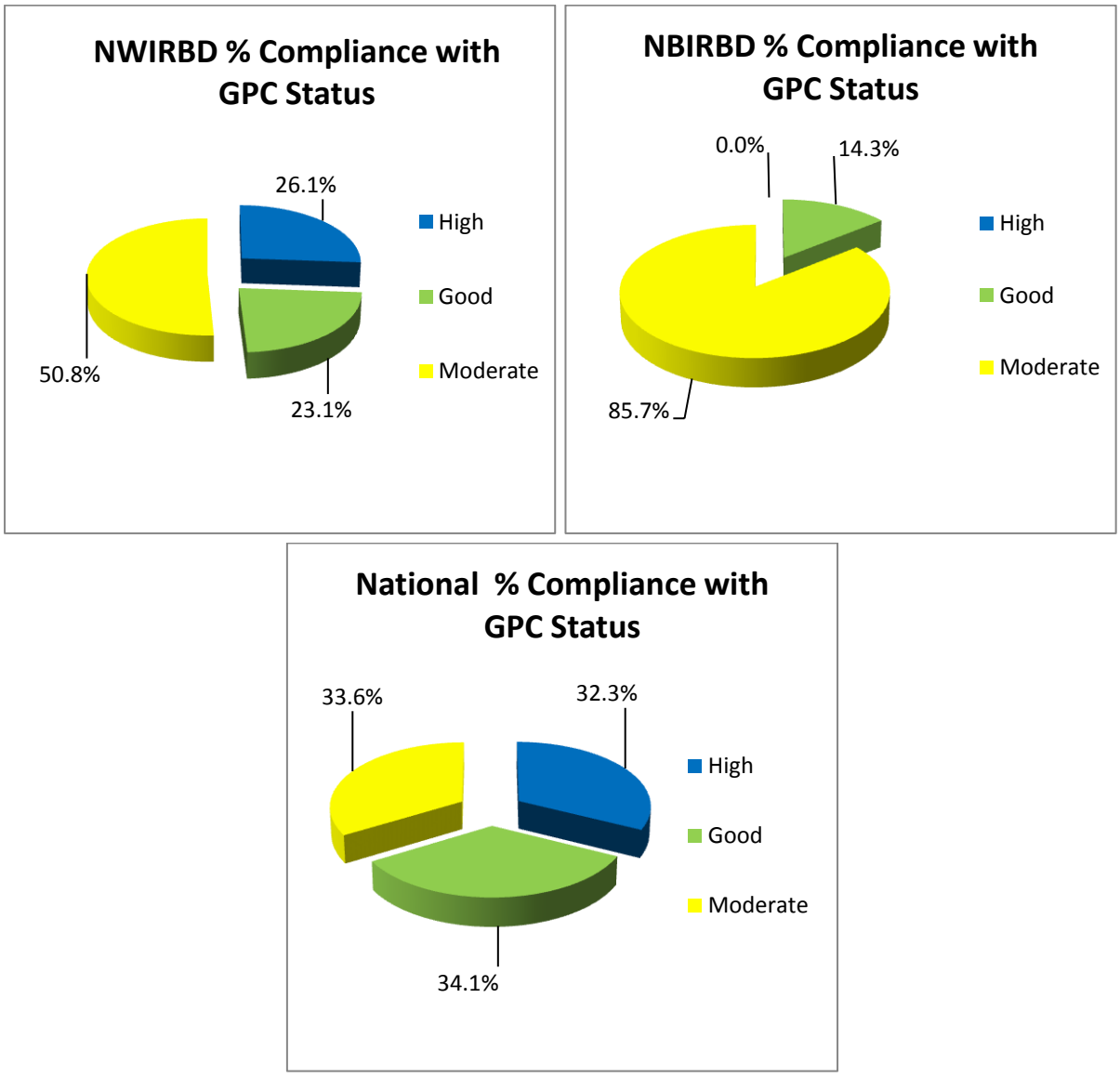


Fig. 10. Percentage compliance with GPC status in NWIRBD and NBIRBD and comparison with national statistics 2011–2013.

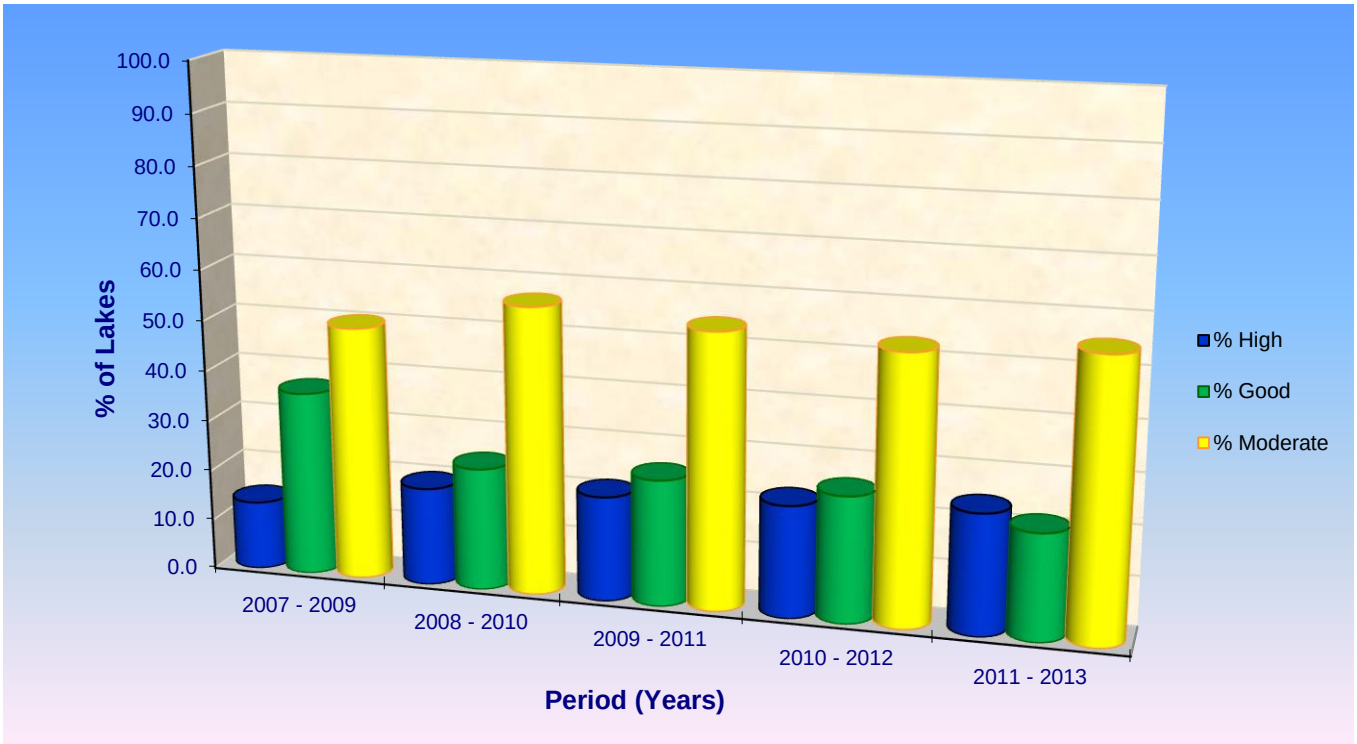


Fig. 11. GPC status of lakes by percentage in the NWIRBD and NBIRBD (combined) 2007–2013.

2.3 Transitional and Coastal Waters

2.3.1 *Key Issue*: Nutrient Enrichment –Trophic Status

The trophic status of transitional and coastal waters is assessed using the EPA's Trophic Status Assessment Scheme (TSAS) which captures the cause-effect relationship of the eutrophication process and considers the following:

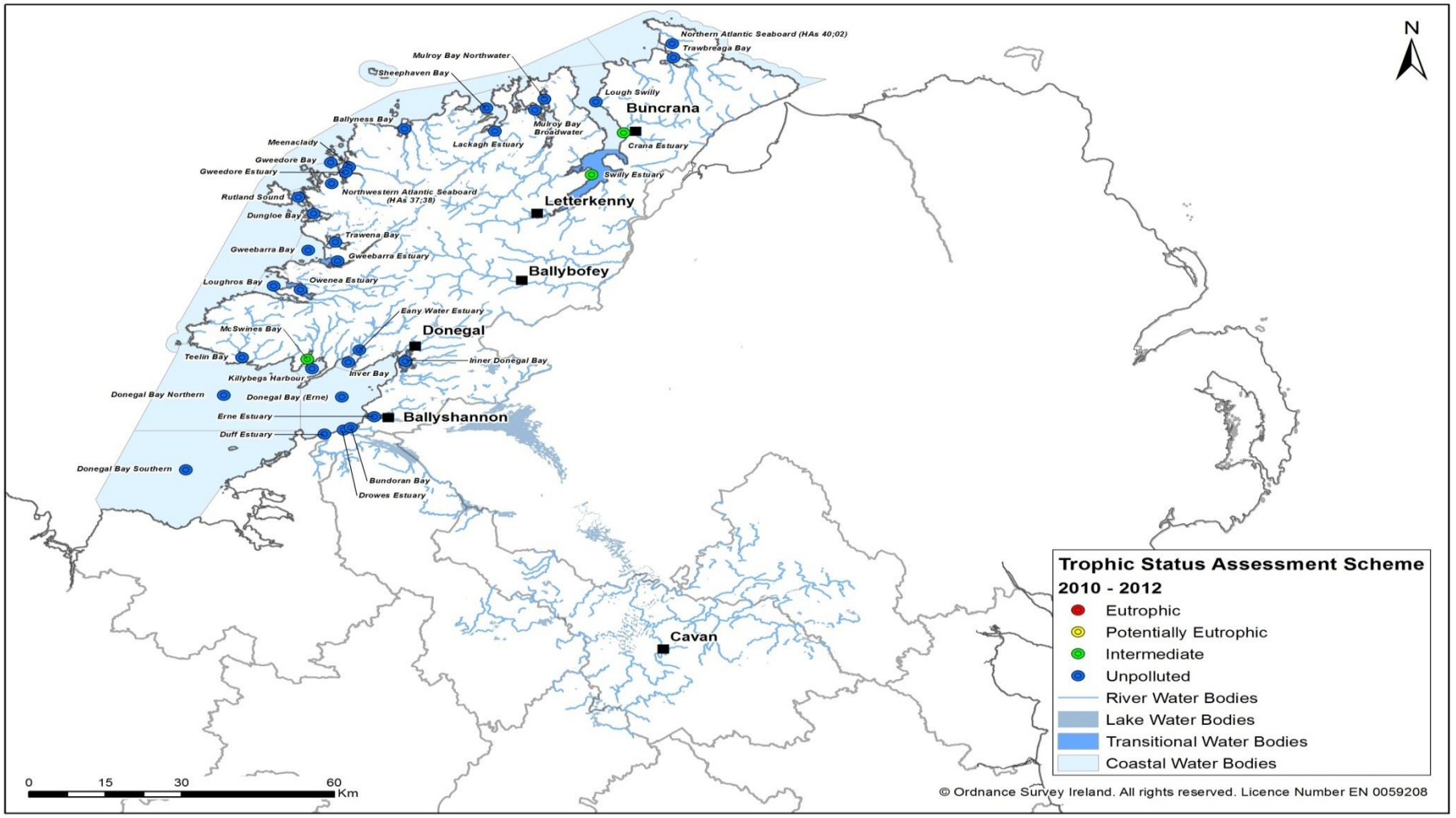
- Enrichment of waters by nutrients (dissolved inorganic nitrogen and phosphorus)
- Accelerated algal growth (phytoplankton and opportunistic macroalgae)
- Undesirable disturbance (oxygen content)

Trophic status assessments are based on the analysis of data collected over a period of three years, and each water body assessed is categorised as either eutrophic, potentially eutrophic, intermediate or unpolluted with respect to nutrient enrichment.

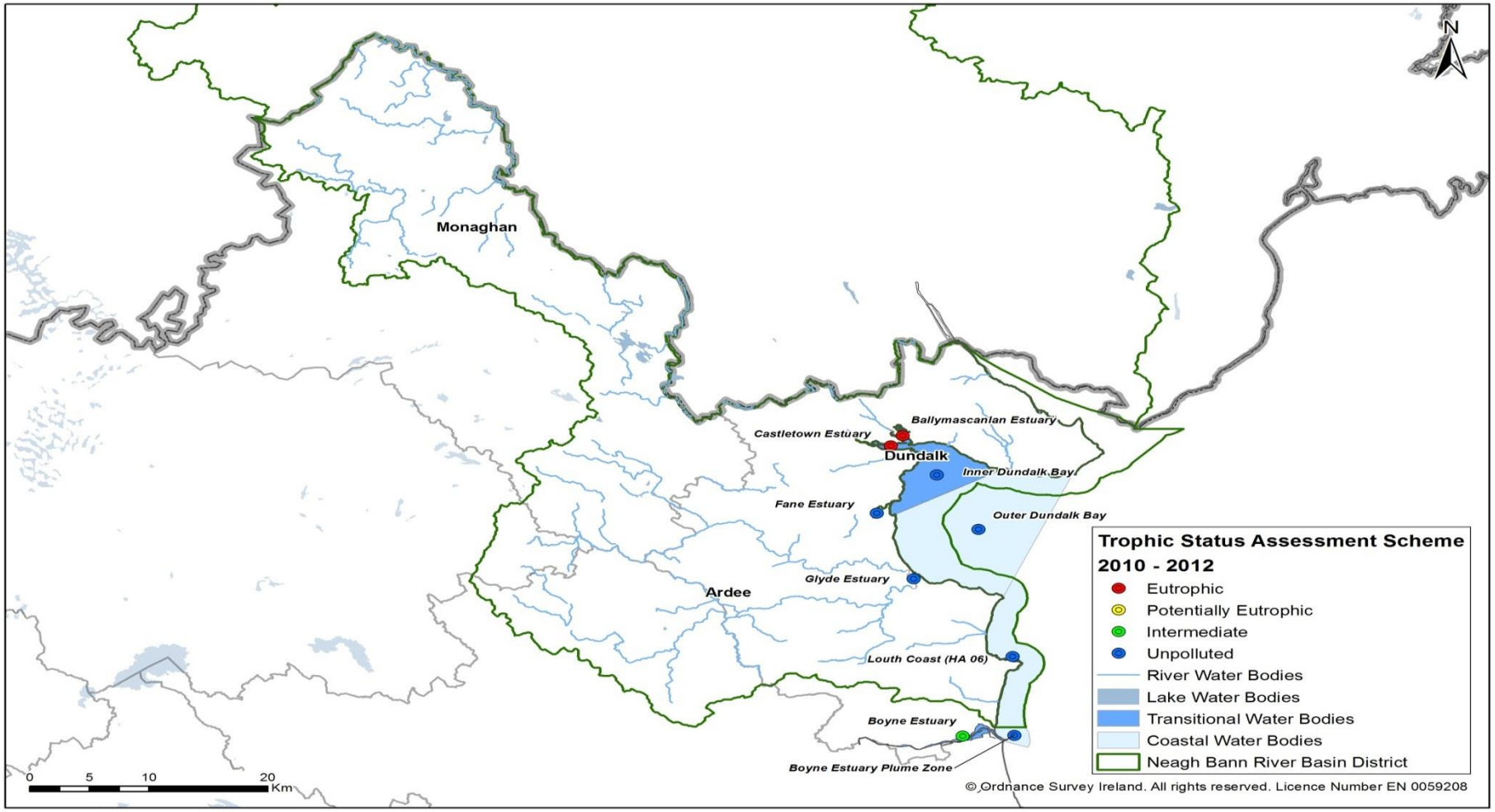
The trophic status of transitional and coastal waters in the NWIRBD and NBIRBD for the period 2010–2012 are displayed in Maps 5 and 6, respectively. Table 3 shows the percentage breakdown in both RBDs and how both compare to national statistics. The TSAS classification is based on extrapolated data to all monitored and non-monitored water bodies. Overall, the NWIRBD fares well when compared to national figures. While the NBIRBD compares well to the national figures in terms of unpolluted water bodies, it does less well in terms of eutrophic water bodies though the figures are influenced by the relatively few water bodies involved.

Trophic Status	North Western (%)	Neagh Bann (%)	National (%)
Eutrophic	0	29	5.5
Potentially Eutrophic	0	0	6
Intermediate	9	0	21
Unpolluted	88	71	62.5
Unassigned	3	0	5

Table 3. TSAS classification, based on extrapolated data to all monitored and non-monitored water bodies in the NWIRBD and NBIRBD 2010–2012.



Map 5. Trophic status of transitional and coastal waters in the NWIRBD 2010–2012.



Map 6. Trophic status of transitional and coastal waters in the NBIRBD 2010–2012.

2.4 Groundwater

2.4.1 *Key Issue*: Nutrient Enrichment – Ortho-Phosphate and Nitrate

Groundwater, which originates from rain that soaks into the ground, is an important natural resource in Ireland. It flows through and is stored in the fractures in bedrock and the pore spaces of sand and gravel deposits. In the past the focus was on its use as drinking water; however, under the WFD there is an increased emphasis on the environmental quality of groundwater, as well as its value as a potable water supply. Groundwater plays an essential role in the hydrological cycle and is critical for maintaining river levels and surface water ecosystems. In many Irish rivers, more than 30% of the flow is derived from groundwater, rising to 90% in periods of low flow. Therefore, the quality of groundwater can have a major impact on the quality of river water.

In Ireland approximately a quarter of all public and private drinking water supply is from groundwater. Most of the private group schemes and small supplies are reliant on groundwater and many have inadequate treatment. Therefore, it is critical that groundwater is protected to maintain the quality of drinking water and ensure the water is safe to drink without the requirement for excessive levels of treatment.

In 2013 the Environmental Protection Agency's groundwater monitoring programme included 15 monitoring locations in the NBIRBD and NWIRBD. The breakdown of these groundwater monitoring points is presented in Table 4.

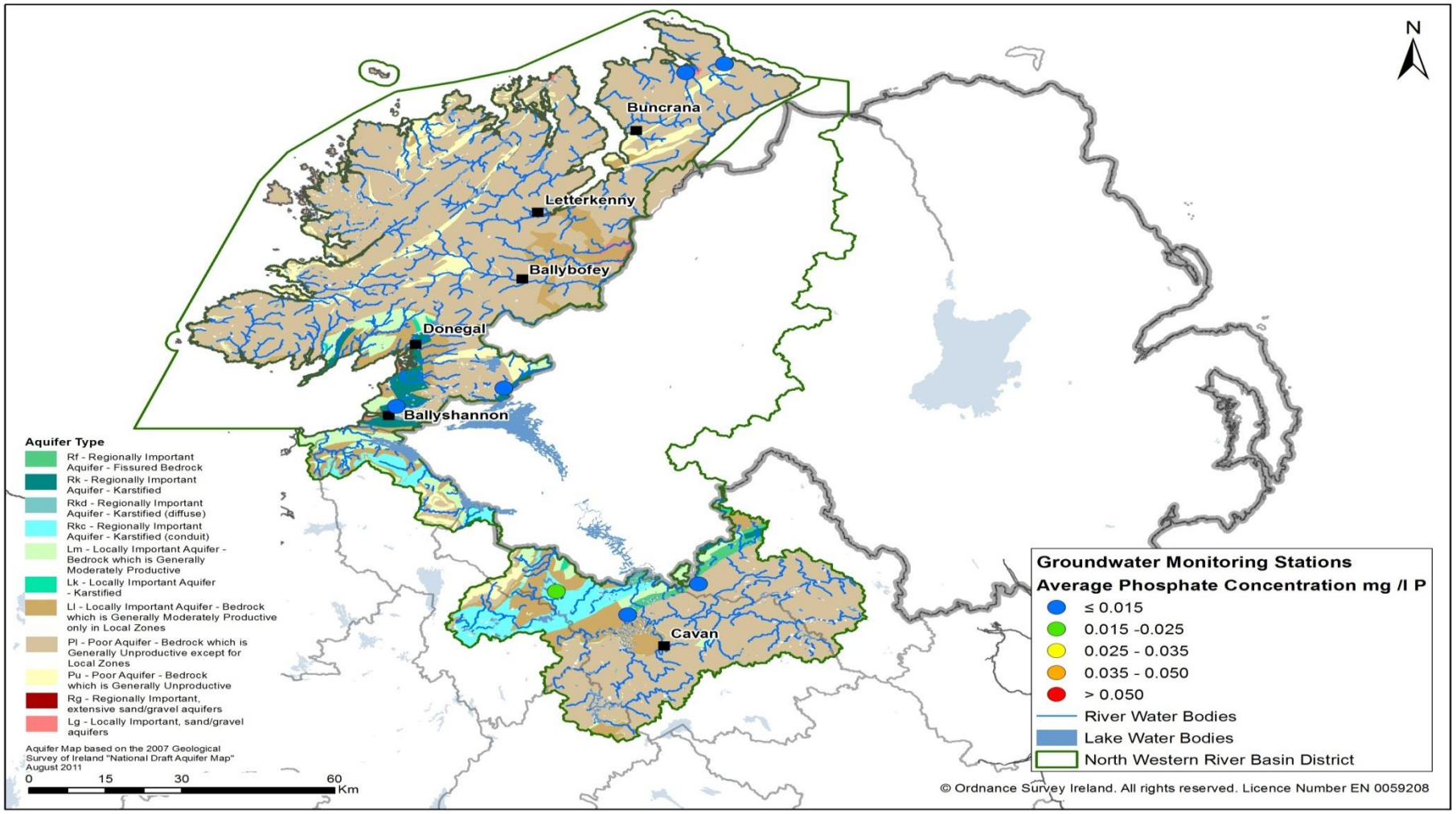
RBD	Number of Groundwater Monitoring Points
NBIRBD	8
NWIRBD	7

Table 4. Number of groundwater monitoring points in 2013.

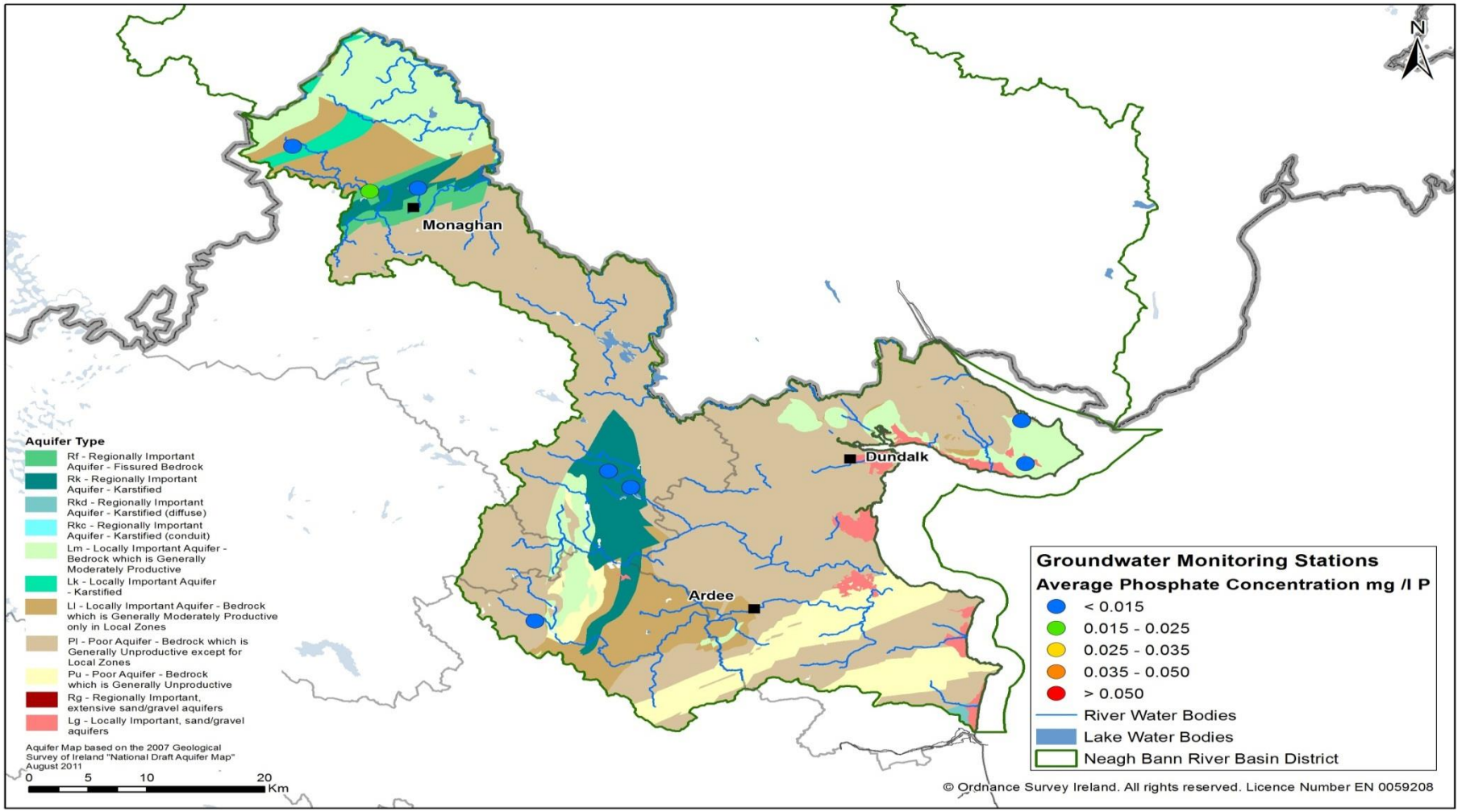
These sites were monitored for a variety of physico-chemical and microbiological parameters. Nitrate and ortho-phosphate, two of the main indicators of anthropogenic pollution from diffuse and small point sources, were measured and these are discussed in more detail in Section 4.2.

Ortho-Phosphate in Groundwater

Maps 7 and 8 show the locations and the associated average ortho-phosphate concentrations in 2013 for the groundwater monitoring points in the NWIRBD and NBIRBD, respectively.



Map 7. Average ortho-phosphate concentrations in the NWIRBD in 2013.



Map 8. Average ortho-phosphate concentrations in the NBIRBD in 2013.

Figures 12 and 13 summarise the average annual ortho-phosphate concentrations from 2007 to 2013 for the groundwater monitoring programme in the NBIRBD and NWIRBD, respectively.

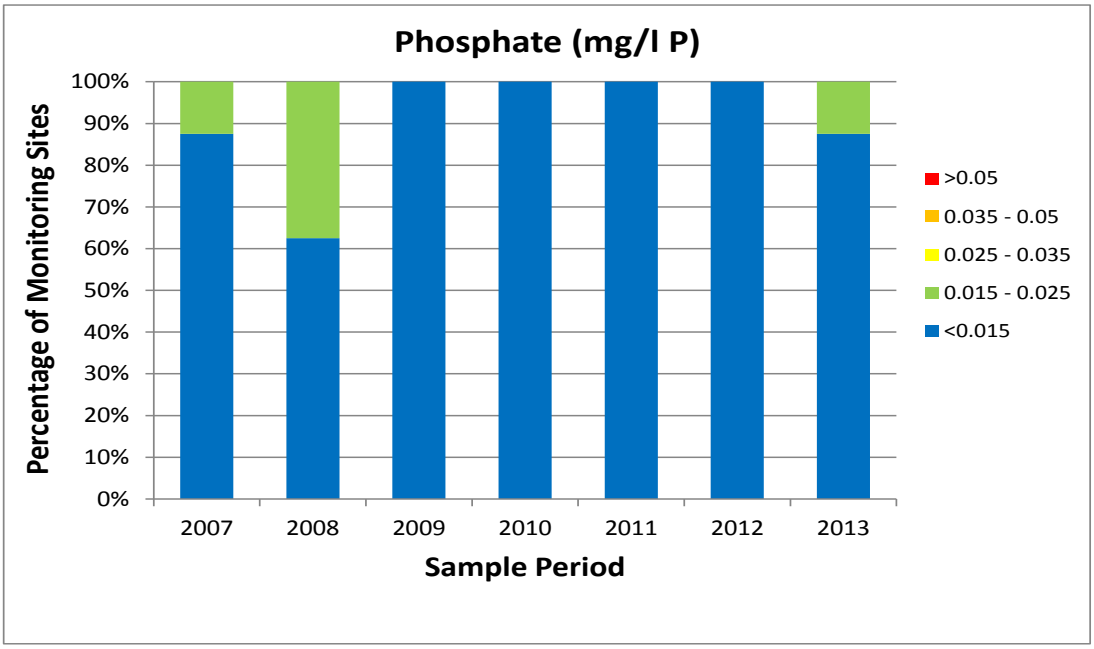


Fig. 12. Average ortho-phosphate concentrations in groundwater in the NBIRBD 2007–2013.

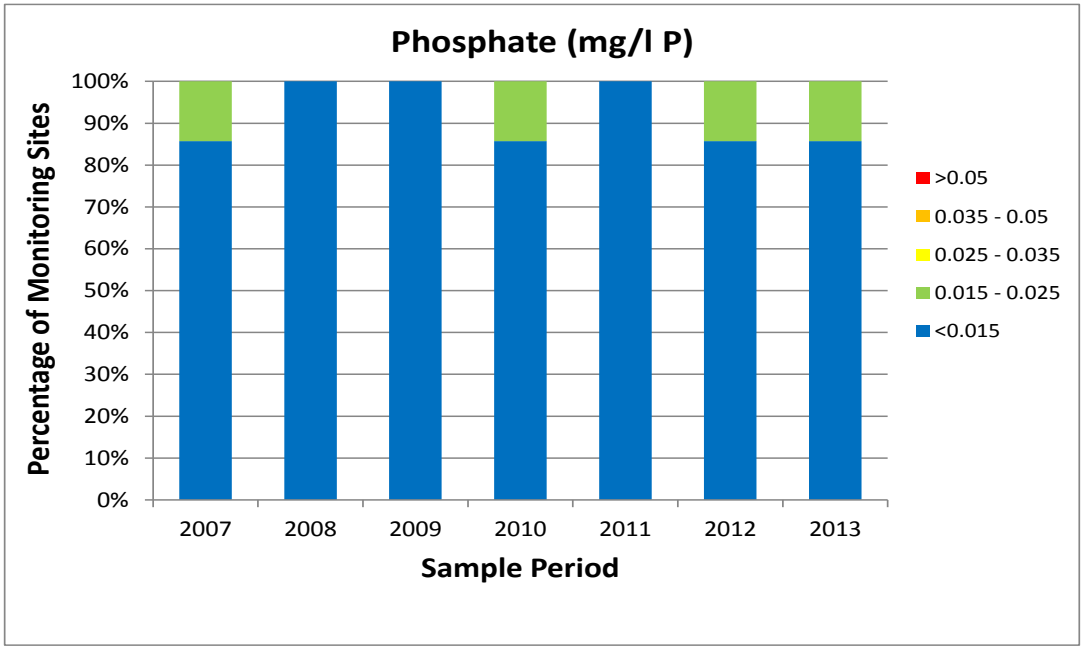


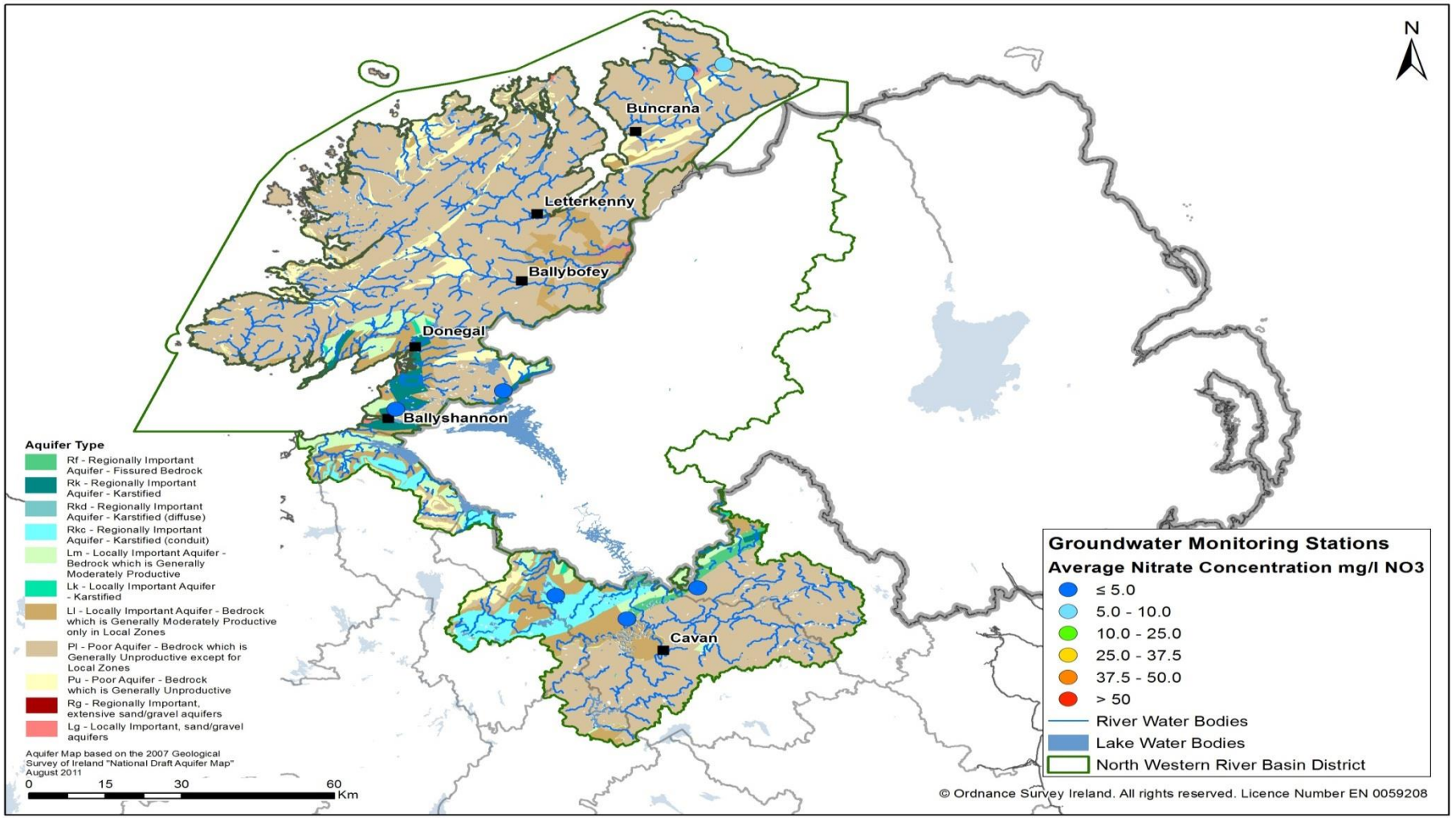
Fig. 13. Average ortho-phosphate concentrations in groundwater in the NWIRBD 2007–2013.

The average ortho-phosphate concentration at groundwater monitoring locations in the NBIRBD has been relatively steady over the period 2007–2013. Concentrations in 2013 were similarly low to those in 2012 with only one of the eight monitoring locations having an average concentration >0.015 mg/l P. All sites had average concentrations below the Irish WFD Threshold Value concentration of 0.035 mg/l P (considered when assessing the contribution of ortho-phosphate in groundwater to rivers). In 2009, during the first River Basin Management Plan cycle, two groundwater bodies in the NBIRBD were identified as being at less than good status because of groundwater contributions of ortho-phosphate to rivers that are less than good status. However, these groundwater bodies (Carrickmacross and Carrickmacross 1) make up a small proportion of the RBD (approximately 85 km^2 or 4.7% of RBD area).

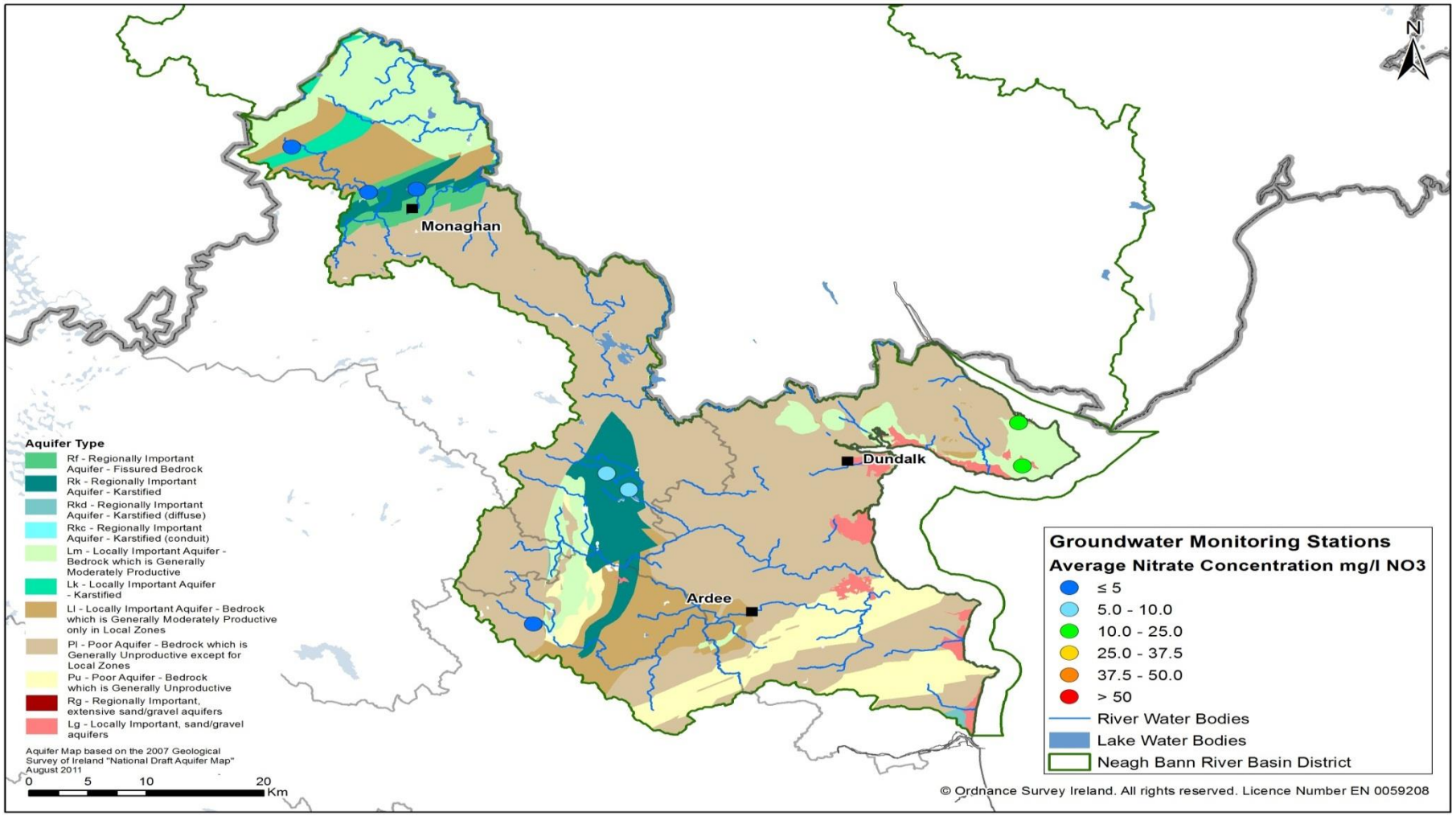
The average ortho-phosphate concentration at groundwater monitoring locations in the NWIRBD has been relatively steady over the period 2007–2013. Concentrations in 2013 were similarly low to those in 2012 with only one of the seven monitoring locations having an average concentration >0.015 mg/l P. All sites had average concentrations below the Irish WFD Threshold Value concentration of 0.035 mg/l P (considered when assessing the contribution of ortho-phosphate in groundwater to rivers). There were no groundwater bodies classified at poor status for the first WFD reporting cycle in the NWIRBD.

Nitrate in Groundwater

Maps 9 and 10 show the locations and the associated average nitrate concentrations in 2013 for the groundwater monitoring points in the NWIRBD and NBIRBD, respectively.



Map 9. Average nitrate concentrations in the NWIRBD in 2013.



Map 10. Average nitrate concentrations in the NBIRBD in 2013.

Figures 14 and 15 summarise the annual average nitrate concentrations from 2007 to 2013 for the groundwater monitoring programme in the NBIRBD and NWIRBD, respectively.

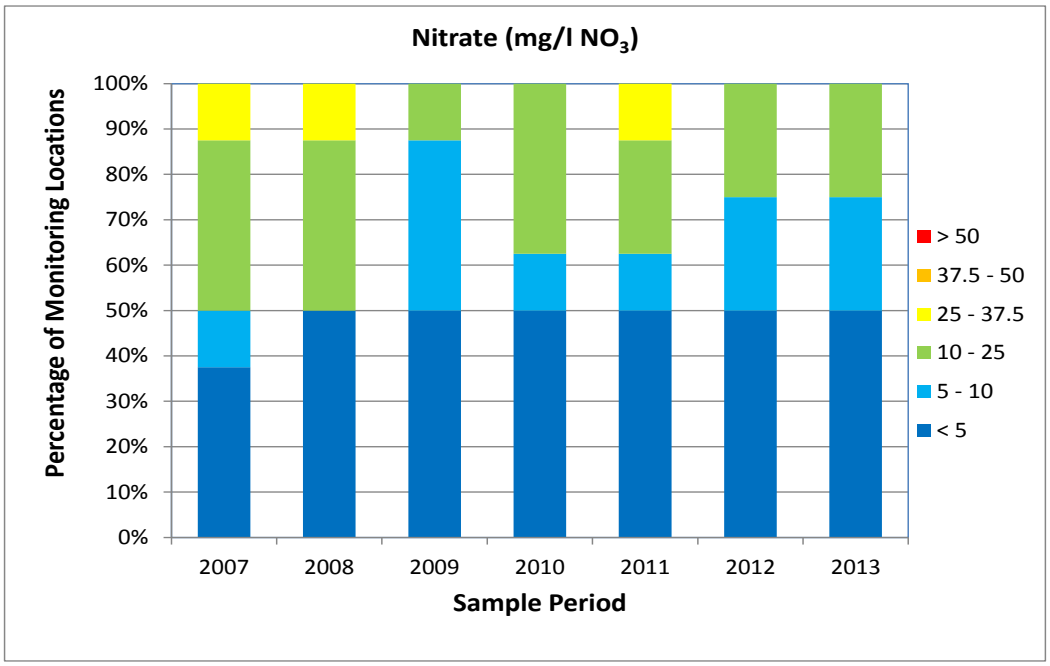


Fig. 14. Average nitrate concentrations in groundwater in the NBIRBD 2007–2013.

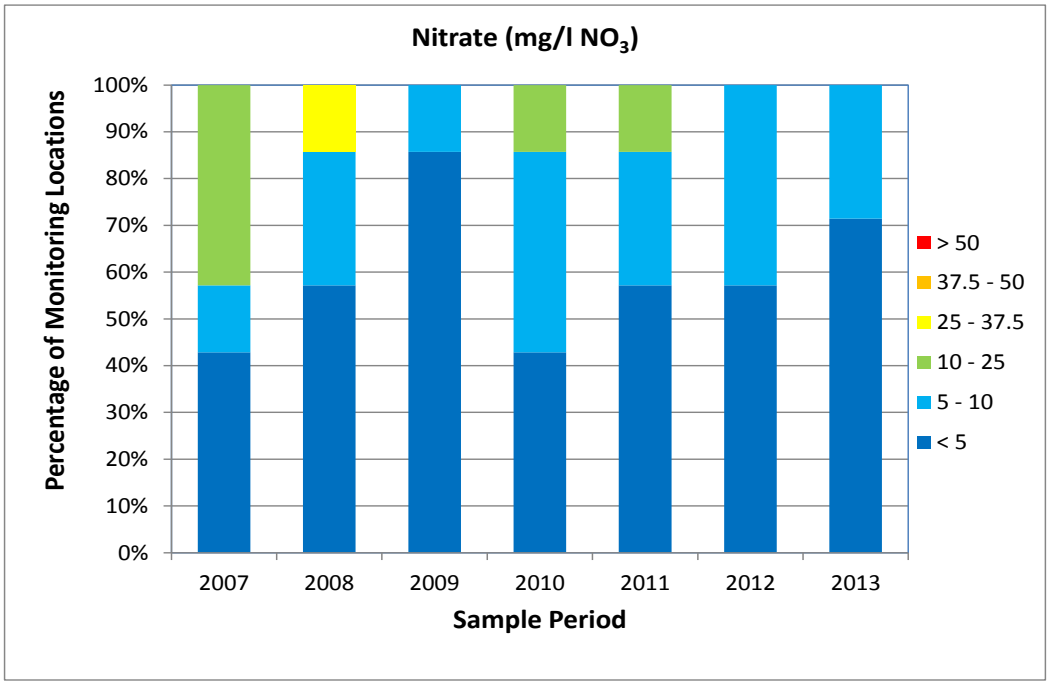


Fig. 15. Average nitrate concentrations in groundwater in the NWIRBD 2007–2013.

The average nitrate concentration at groundwater monitoring locations in the NBIRBD has decreased over the period 2007–2013. Concentrations in 2013 were similar to those in 2012 with only two of the eight monitoring locations, both in the eastern end of the RBD, having average concentrations >10 mg/l NO_3. All sites had average concentrations below the Irish WFD Threshold Value concentration of 37.5 mg/l NO_3 but one of the monitoring locations (Ardtullybeg) did have an average concentration of 24.6 mg/l, which was close to the 25 mg/l NO_3 boundary used in the assessment.

The average nitrate concentration at groundwater monitoring locations in the NWIRBD has decreased over the period 2007–2013. The Irish WFD Threshold Value concentration of 37.5 mg/l NO_3 was not exceeded at any monitoring location in 2013 as all monitoring locations had an average concentration <10 mg/l NO_3.

In both the NBIRBD and the NWIRBD above average rainfall in 2008–2009 and the resultant increase in dilution (particularly in 2009) also contributed to a noticeable decrease in the average nitrate concentration. A number of factors may have influenced the reduction in average nitrate concentration over the period 2007–2013 including: reductions in inorganic fertiliser applications, improvements in storage for organic fertiliser and the implementation of landspreading restrictions as part of the Good Agricultural Practice Regulations.

3. Biological Assessment

3.1 Rivers

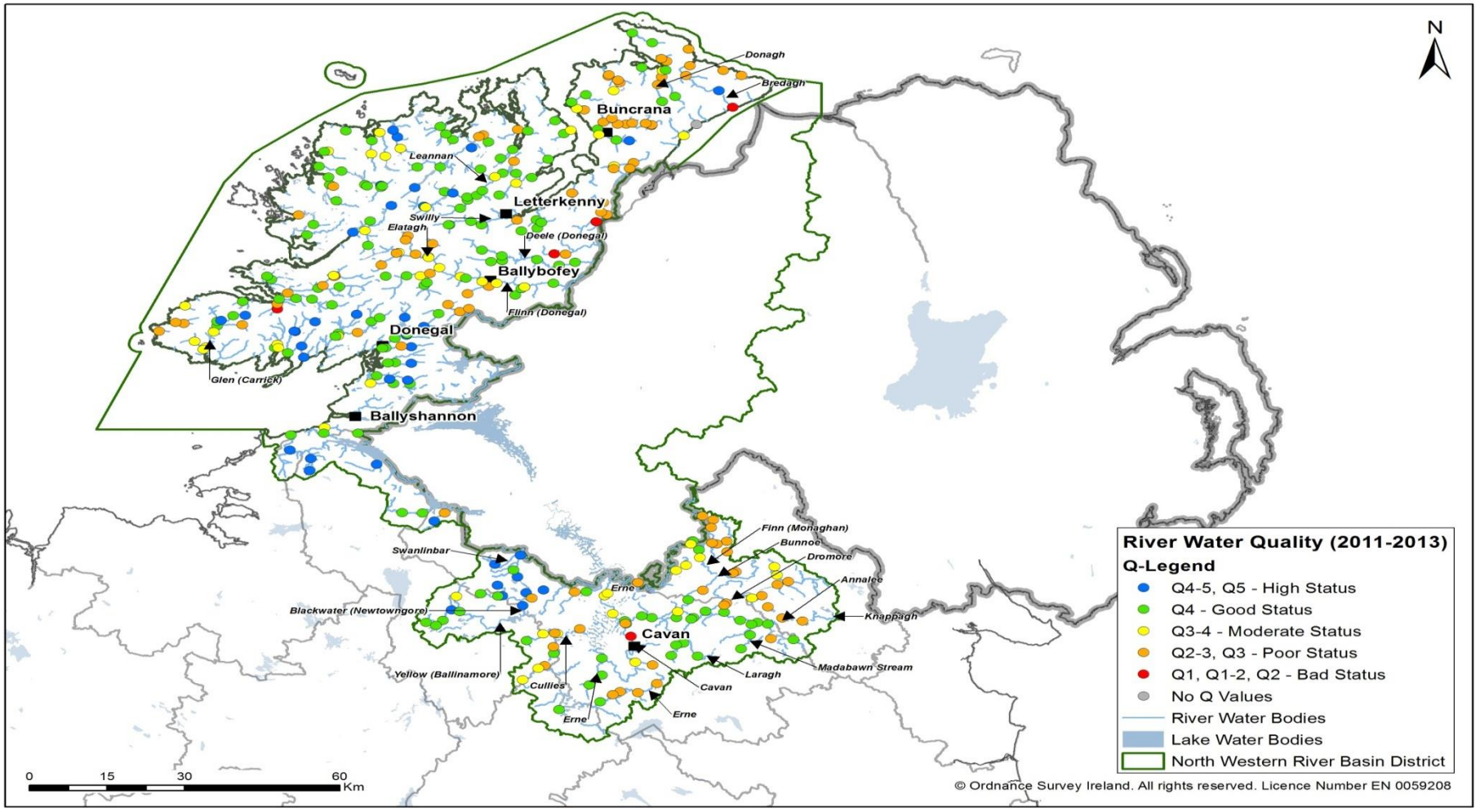
3.1.1 *Key Issue:* Macroinvertebrates

In the overall assessment for WFD status, biological elements including macroinvertebrates, plants (macrophytes), algae (including diatoms) and fish, as well as hydromorphological and chemical criteria, are taken into account. The assessment here relies on the macroinvertebrate biological survey. Relationships between water quality and macroinvertebrate community structure are usually described by means of a numerical scale of values. The EPA scheme of Biotic Indices or Quality (Q) Values and its relationship to WFD status is set out in the table below.

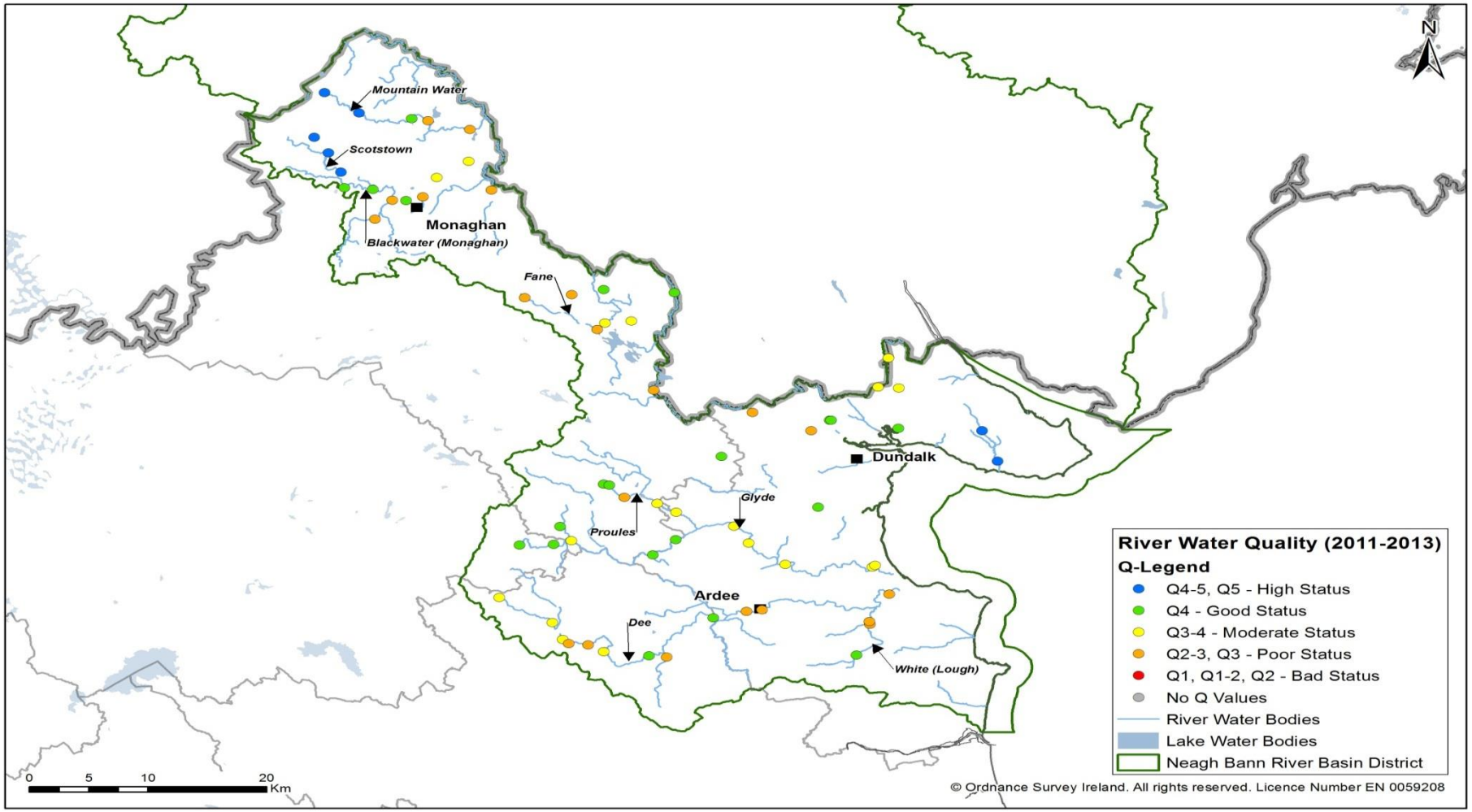
Q Value		WFD Status
5, 4-5		High
4		Good
3-4		Moderate
3, 2-3		Poor
2, 1-2, 1		Bad

Table 5. Reference table for WFD status and Q value.

Maps 11 and 12 below show the biological classification of rivers in the NWIRBD and NBIRBD, respectively in the period 2011–2013. Figure 16 shows the percentage of river stations that fall within each biological class in both RBDs as well as nationally in the period 2010–2012. It is clearly evident that both RBDs perform poorly when compared to the national picture. For example, 65% of all river stations in the country are at least 'Good' status with regard to biological Q Value. This drops to 49% in the NWIRBD and further still to a mere 35% in the NBIRBD.



Map 11. Biological classification of rivers in the NWIRBD 2011–2013.



Map 12. Biological classification of rivers in the NBIRBD 2011–2013.

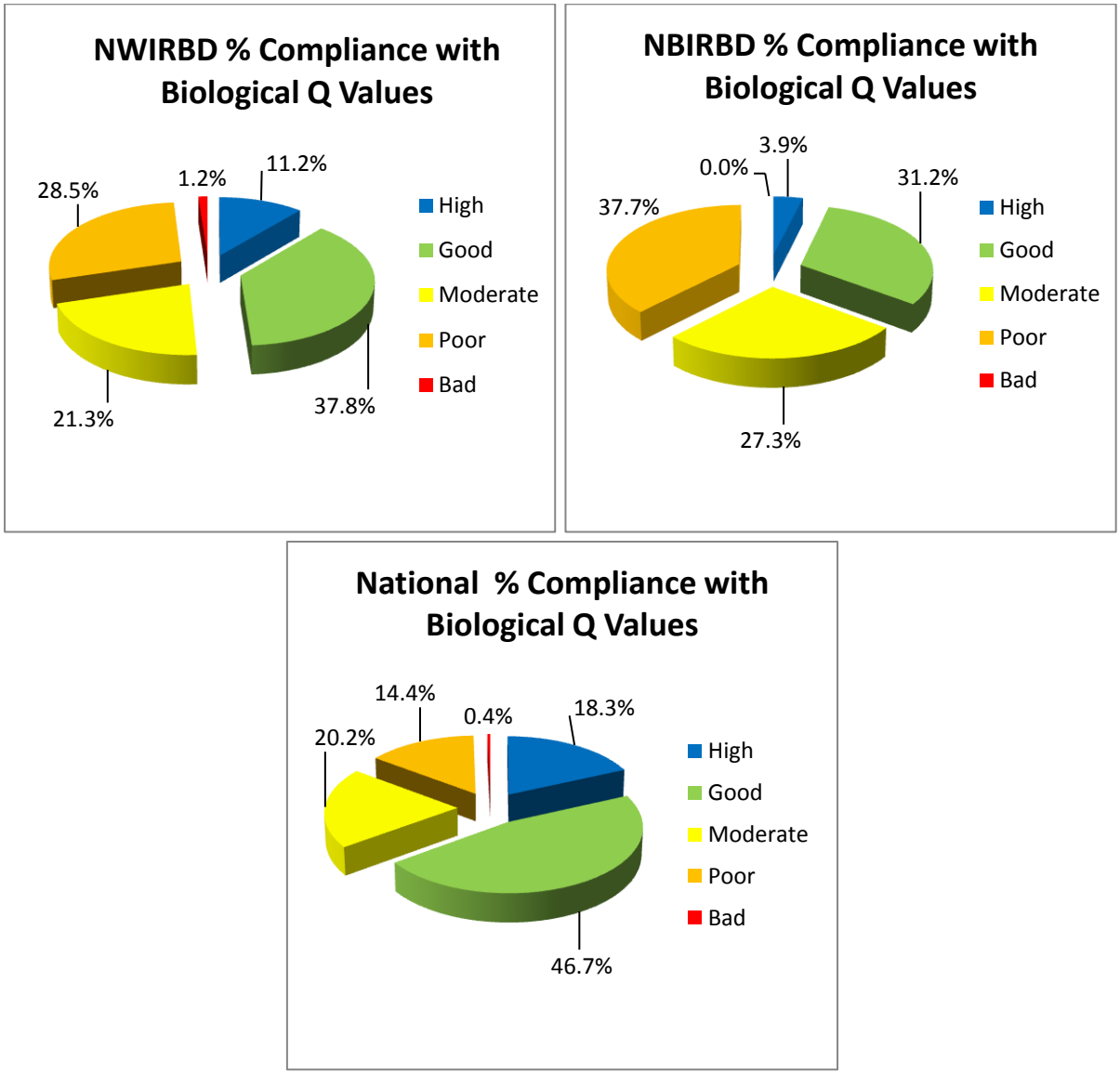


Fig. 16. Percentage compliance with biological Q Values in NWIRBD and NBIRBD and comparison with national statistics 2010–2012.

3.1.2 Long-Term Trends

Figure 17 below shows the long-term 3-year rolling trends in the percentage of river stations in the NWIRBD and NBIRBD that are at least 'Good' status with regard to biological Q value over the period 1978–2013. The graph shows a general decline in Q values in both RBDs over the period assessed with a slightly sharper decline observed in the NBIRBD. The NBIRBD has consistently performed poorer than the NWIRBD over the assessment period.

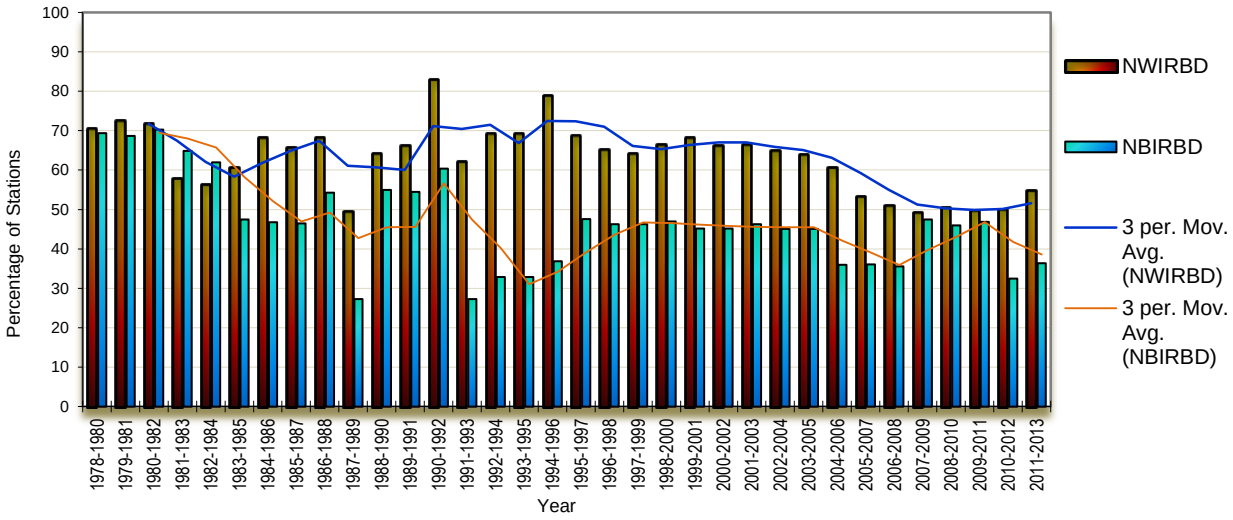


Fig. 17. Long-term 3-year rolling trends in percentage of river stations at least 'good' status in the NWIRBD and NBIRBD 1978–2013.

3.1.3 High Status Sites

Figure 18 below shows the long-term 3-year rolling trends in the percentage of river stations in the NWIRBD and NBIRBD that are at 'High' status with regard to biological Q value (Q4-5, 5) over the period 1978–2013. The graph shows a sharp decline in the percentage of high status sites in both RBDs over the period assessed and especially in the period 2000–2010. The number of high status sites in the NWIRBD fell from a high of 177 in the period 1989–1990 to a low of 37 in the period 2008–2010. The high in the NBIRBD was 39, also in the period 1989–1990 but fell to a mere two in the period 20062007 though there has been a slight improvement in 2013. Nonetheless, the overall downward trend is of major concern.

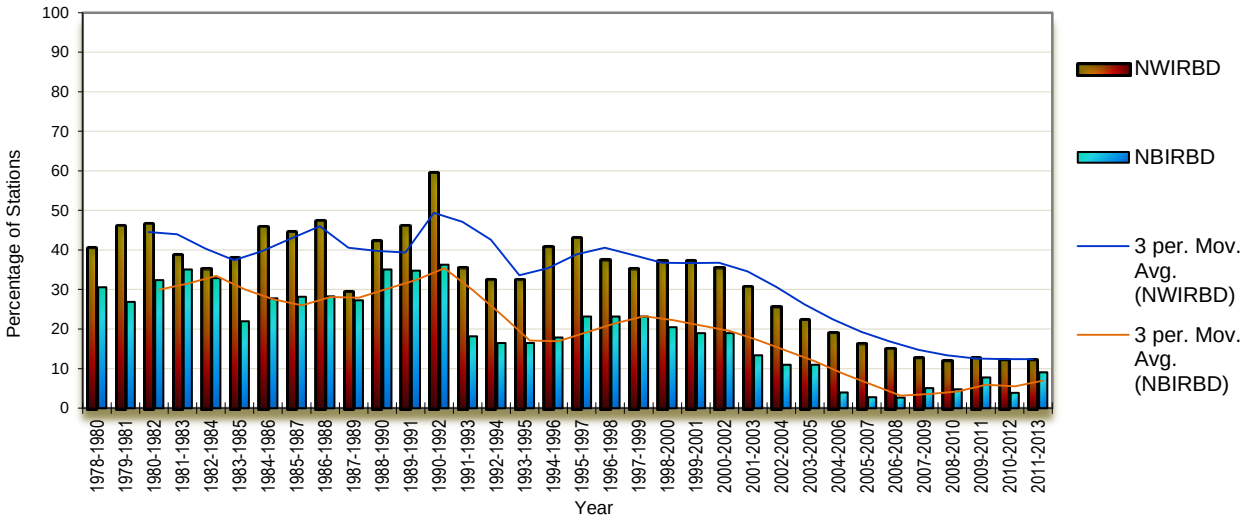


Fig. 18. Long-term 3-year rolling trends in percentage of river stations at 'high' status in the NWIRBD and NBIRBD 1978–2013.

3.2 Lakes

3.2.1 *Key Issue*: Nutrient Enrichment

Phytoplankton, aquatic plants (macrophytes), benthic diatoms and fish are currently used to assign biological status in the surveillance monitoring lakes, while macrophytes and chlorophyll a are used to assign biological status in the operational monitoring lakes. Biological monitoring is carried out once every 3 years, apart from phytoplankton, which is sampled annually. The results of the biological assessment of lakes for the period 2010–2012 in the NWIRBD and NBIRBD are presented in Table 6 and Figure 19 below. Maps 13 and 14 also display the biological classification of lakes for the period 2010–2012.

Lake Name	Lake Code	RRBD	County	Overall Status for BQE 2010-2012
Brackan	NB_06_209	NBRBD	Meath	Moderate
Emy	NB_03_102	NBRBD	Monaghan	Bad
Monalty	NB_06_234	NBRBD	Monaghan	Moderate
More	NB_03_87	NBRBD	Monaghan	Moderate
Muckno or Blayney	NB_06_56	NBRBD	Monaghan	Bad
Naglack	NB_06_55	NBRBD	Monaghan	Poor
Spring	NB_06_198	NBRBD	Monaghan	High
Akibbon	NW_39_11	NWRBD	Donegal	Moderate
an tSeisigh	NW_38_61	NWRBD	Donegal	Good
Annagh	NW_36_517	NWRBD	Cavan	Moderate
Anure	NW_38_83	NWRBD	Donegal	Good
Ardan	NW_36_432	NWRBD	Cavan	Good
Atrain	NW_36_618	NWRBD	Cavan	Moderate
Avaghon	NW_36_638	NWRBD	Monaghan	Moderate
Barra	NW_38_84	NWRBD	Donegal	High
Bawn	NW_36_573	NWRBD	Cavan	Moderate
Bawn	NW_36_623	NWRBD	Monaghan	Bad
Bunerky	NW_36_624	NWRBD	Cavan	Moderate
Corconnelly	NW_36_192	NWRBD	Monaghan	Moderate
Corglass	NW_36_655	NWRBD	Cavan	Bad
Cullinaghan	NW_36_385	NWRBD	Cavan	Poor
Derg	NW_01_115	NWRBD	Donegal	Good
Derrybrick	NW_36_400	NWRBD	Cavan	Poor
Derrycassan	NW_36_514	NWRBD	Cavan	Poor
Drumlaheen	NW_36_614	NWRBD	Leitrim	Poor
Drumlona	NW_36_525b	NWRBD	Monaghan	Poor
Drumore	NW_36_525a	NWRBD	Monaghan	Poor
Dunglow	NW_38_692	NWRBD	Donegal	Good

Lake Name	Lake Code	RRBD	County	Overall Status for BQE 2010–2012
Brackan	NB_06_209	NBRBD	Meath	Moderate
Emy	NB_03_102	NBRBD	Monaghan	Bad
Monalty	NB_06_234	NBRBD	Monaghan	Moderate
More	NB_03_87	NBRBD	Monaghan	Moderate
Muckno or Blayney	NB_06_56	NBRBD	Monaghan	Bad
Naglack	NB_06_55	NBRBD	Monaghan	Poor
Spring	NB_06_198	NBRBD	Monaghan	High
Akibbon	NW_39_11	NWRBD	Donegal	Moderate
an tSeisigh	NW_38_61	NWRBD	Donegal	Good
Annagh	NW_36_517	NWRBD	Cavan	Moderate
Anure	NW_38_83	NWRBD	Donegal	Good
Ardan	NW_36_432	NWRBD	Cavan	Good
Atrain	NW_36_618	NWRBD	Cavan	Moderate
Avaghon	NW_36_638	NWRBD	Monaghan	Moderate
Barra	NW_38_84	NWRBD	Donegal	High
Bawn	NW_36_623	NWRBD	Monaghan	Bad
Bawn	NW_36_573	NWRBD	Cavan	Moderate
Bunerky	NW_36_624	NWRBD	Cavan	Moderate
Corconnelly	NW_36_192	NWRBD	Monaghan	Moderate
Corglass	NW_36_655	NWRBD	Cavan	Bad
Cullinaghan	NW_36_385	NWRBD	Cavan	Poor
Derg	NW_01_115	NWRBD	Donegal	Good
Derrybrick	NW_36_400	NWRBD	Cavan	Poor
Derrycassan	NW_36_514	NWRBD	Cavan	Poor
Drumlaheen	NW_36_614	NWRBD	Leitrim	Poor
Drumlona	NW_36_525b	NWRBD	Monaghan	Poor
Drumore	NW_36_525a	NWRBD	Monaghan	Poor
Dunglow	NW_38_692	NWRBD	Donegal	Good
Egish	NW_36_671	NWRBD	Monaghan	Bad
Eske	NW_37_188	NWRBD	Donegal	Good

Lake Name	Lake Code	RRBD	County	Overall Status for BQE 2010-2012
Fad	NW_40_2	NWRBD	Donegal	High
Farnharn Lough	NW_36_564	NWRBD	Cavan	Bad
Fern	NW_39_13	NWRBD	Donegal	Poor
Finn	NW_01_102	NWRBD	Donegal	Moderate
Garadice	NW_36_648	NWRBD	Leitrim	Poor
Gartan	NW_39_12	NWRBD	Donegal	High
Garty	NW_36_430	NWRBD	Cavan	Poor
Glasshouse	NW_36_615	NWRBD	Cavan	Poor
Glen	NW_38_22	NWRBD	Donegal	Good
Golagh	NW_36_715	NWRBD	Donegal	Good
Gorman	NW_36_706	NWRBD	Donegal	Good
Gowna	NW_36_524	NWRBD	Cavan	Poor
Greenan	NW_38_635	NWRBD	Donegal	High
Inner	NW_36_526	NWRBD	Monaghan	Bad
Keel	NW_38_576	NWRBD	Donegal	Good
Keel	NW_38_75	NWRBD	Donegal	High
Killcoran	NW_36_329	NWRBD	Monaghan	Good
Kiltooris	NW_38_47	NWRBD	Donegal	High
Kindrum	NW_38_670	NWRBD	Donegal	Moderate
Kinny	NW_38_59	NWRBD	Donegal	Good
Lattone Lough	NW_35_143	NWRBD	Leitrim	Bad
Macnean Lower	NW_36_445	NWRBD	Cavan	Poor
Macnean Upper	NW_36_673	NWRBD	Cavan	Moderate
Melvin	NW_35_160	NWRBD	Leitrim	Moderate
Mill	NW_36_597	NWRBD	Cavan	Moderate
Mourne	NW_01_104	NWRBD	Donegal	Good
Mushlin	NW_36_272	NWRBD	Cavan	Bad
Naglea	NW_38_668	NWRBD	Donegal	Moderate
Nasnanida	NW_38_67	NWRBD	Donegal	Good
Oughter	NW_36_657	NWRBD	Cavan	Poor
Salt	NW_38_649	NWRBD	Donegal	Good
Scur	NW_36_665	NWRBD	Leitrim	Poor
Shannagh	NW_38_678	NWRBD	Donegal	High
Sillan	NW_36_528	NWRBD	Cavan	Poor
Summerhill Lough	NW_36_721	NWRBD	Monaghan	Good
Tacker	NW_36_363	NWRBD	Cavan	Poor
Tullynasiddagh Lough	NW_36_651	NWRBD	Donegal	Good
Unshin	NW_36_712	NWRBD	Donegal	Moderate
Upper Lough Erne	NW_36_672	NWRBD	Cavan	Poor
Veagh Upper	NW_38_80b	NWRBD	Donegal	Good
Vearty	NW_36_711	NWRBD	Donegal	Good
White	NW_36_647	NWRBD	Monaghan	Bad

Table 6. BQE status of lakes in the NWIRBD and NBIRBD 2010–2012.

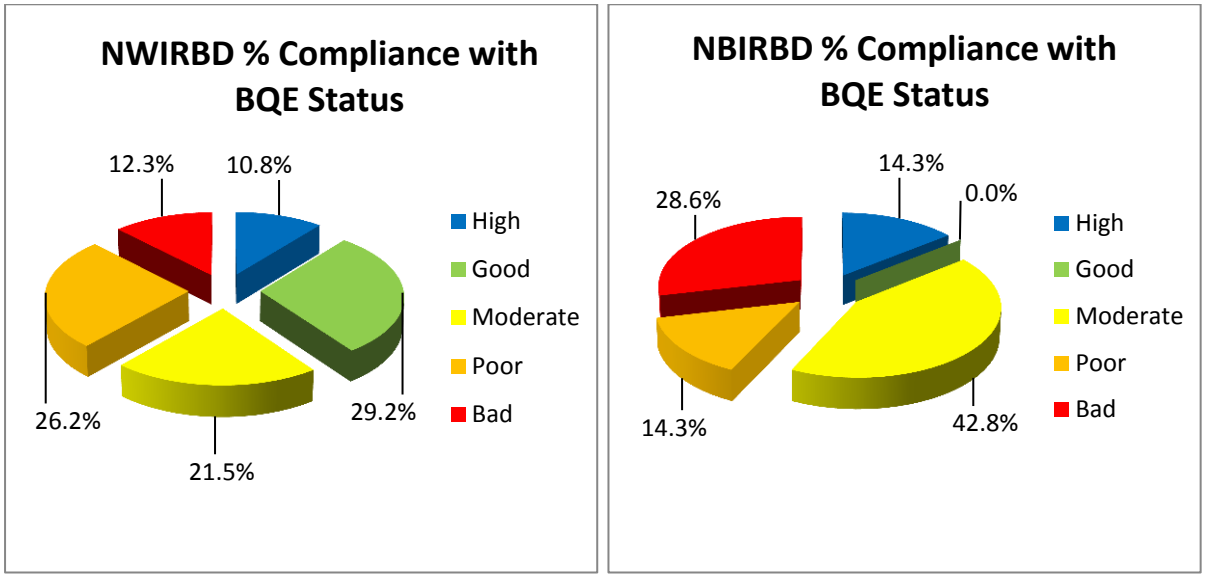
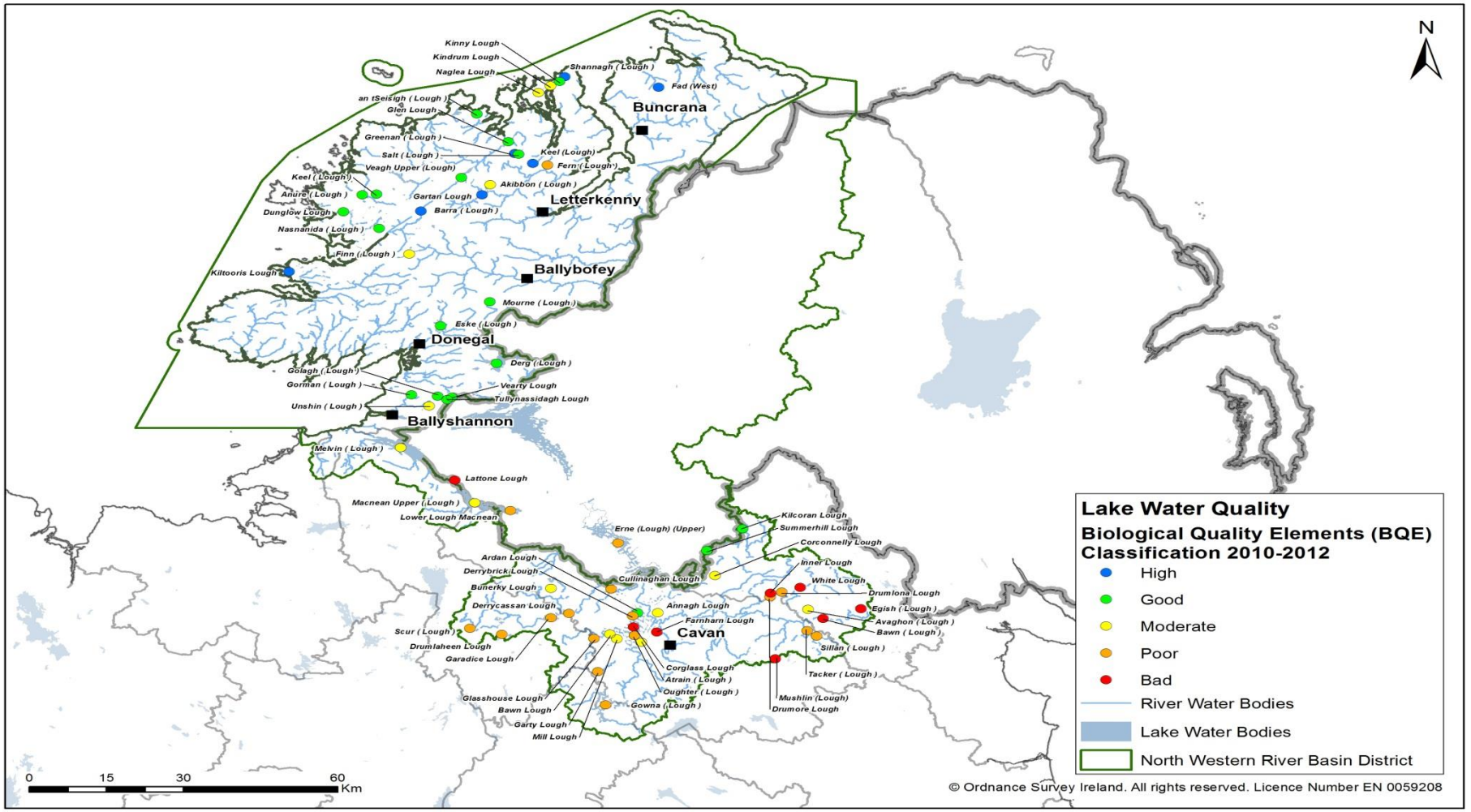
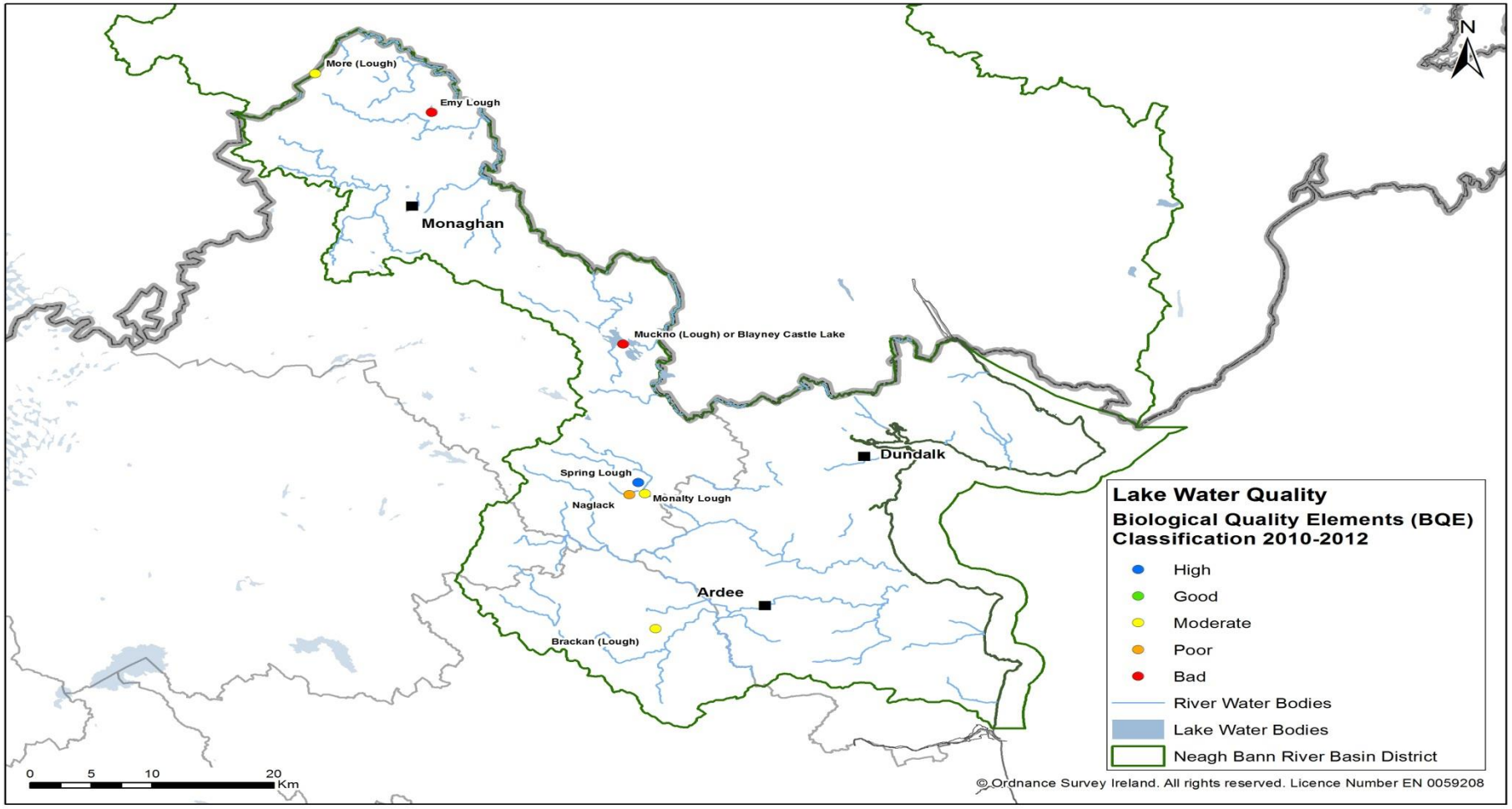


Fig. 19. Percentage compliance with BQE Status in NWIRBD and NBIRBD 2010–2012.



Map 13. Biological classification of lakes in the NWIRBD 2010–2012.



Map 14. Biological classification of lakes in the NBIRBD 2010–2012.

4 Pressures

The causes of water pollution (or pressures) can be broken into two main categories, point source and diffuse. The NWIRBD and NBIRBD are predominantly rural areas and diffuse pollution from agriculture and forestry as well as small point sources such as Domestic Wastewater Treatment Systems (DWWTS) and farmyards are significant contributory pressures in both RBDs. In addition, discharges from wastewater treatment plants, storm water overflows and industrial discharges are the more predominant pollution sources in the more urbanised areas. In many cases, the cause of pollution may not be due to one single pressure but more a combination of pressures.

In 2013, a total of 217 river stations had a biological Q value that was less than 'good' status (i.e. <4). There were 168 of these stations in the NWIRBD while the remaining 49 were in the NBIRBD. Table 7 below indicates the number and percentage of stations impacted by each suspected cause of pollution.

Suspected Pressure	NWIRBD		NBIRBD	
	No. of Stations	% of Stations	No. of Stations	% of Stations
Agriculture	93	55.4%	39	79.6%
Aquaculture	1	0.6%	0	0.0%
Domestic Wastewater	10	6.0%	4	8.2%
Forestry	32	19.0%	0	0.0%
Hydromorphology	1	0.6%	0	0.0%
Illegal Oil Activities	0	0.0%	3	6.1%
Industrial	12	7.1%	2	4.1%
Lake Outflow Effects	14	8.3%	3	6.1%
Landfill	1	0.6%	1	2.0%
Mixed Rural Influences	21	12.5%	19	38.8%
Municipal Wastewater	22	13.1%	5	10.2%
Urbanisation	17	10.1%	11	22.4%
Waterworks	5	3.0%	0	0.0%
Other	4	2.4%	0	0.0%
Unknown	22	13.1%	2	4.1%

Table 7. Suspected causes of pollution for NWIRBD and NBIRBD river stations in unsatisfactory condition (i.e. biological classification less than 'Good').

Note: 'Mixed Rural' is used to describe any one or a combination of agricultural runoff, cattle access, DWWTS, commercial activities, small industrial activities, rural schools, rural housing settlements, community centres etc suspected of having an impact on water quality.

Maps 15 and 16 below show the main point source pressures in the NWIRBD and NBIRBD along with the river stations whose biological classification is less than 'good' status.

4.1 Urban Waste Water Discharges (UWWD)

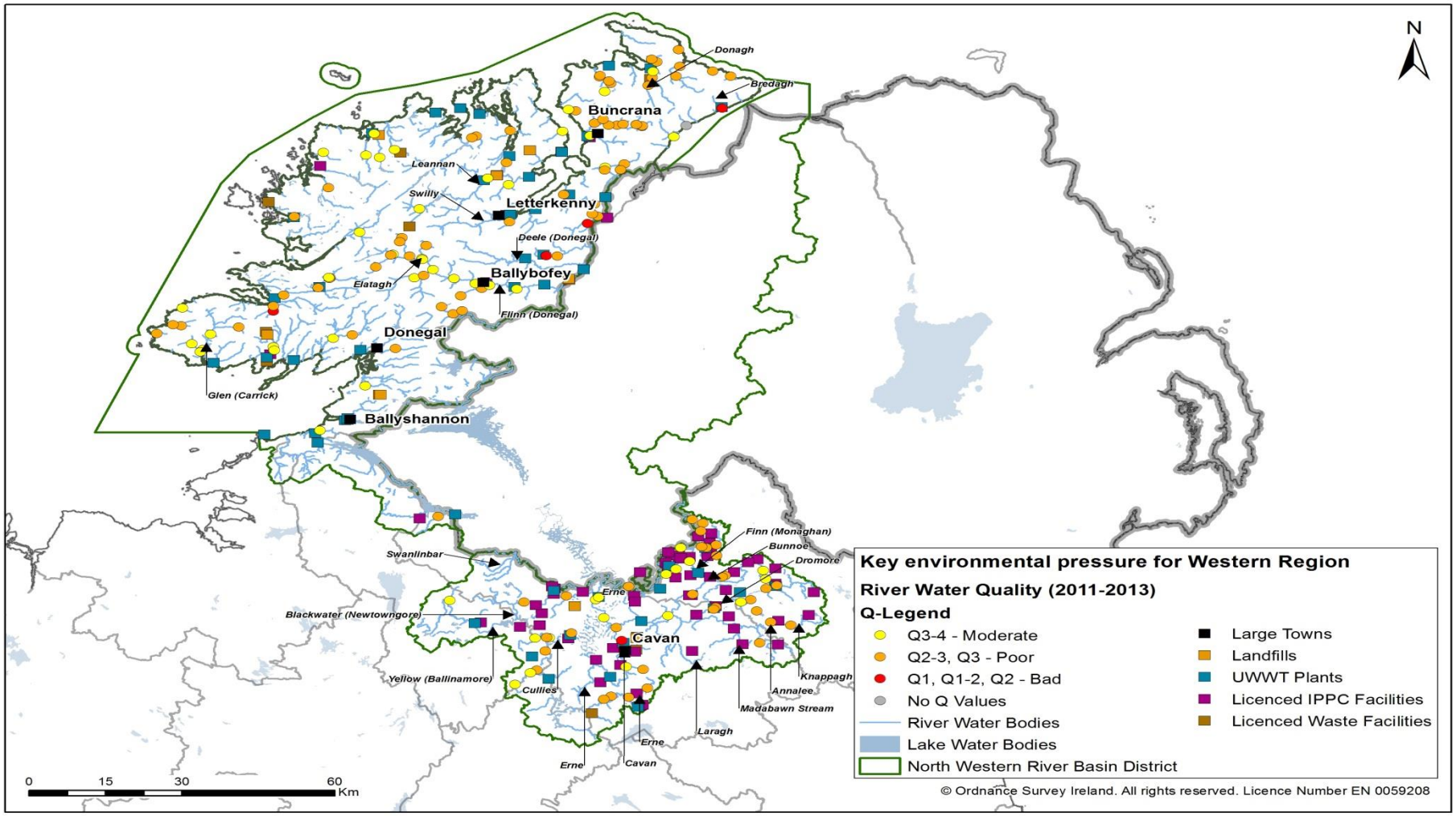
Municipal waste water discharge is one of the main sources of pollution in the NWIRBD and NBIRBD. In accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations, 2007 (SI 684 of 2007), the EPA is responsible for the licensing or certification of all discharges to the aquatic environment from sewerage systems owned, managed and operated by water service authorities. The number of UWWD Licences and Certs of Authorisation that have been issued by the end of 2013 are given in Table 8 below. Table 9 shows the UWWD Licences that were issued in 2013. In 2012, a report entitled Focus on Urban Waste Water Discharges in Ireland (Reports for the years 2008-2011) was produced which includes a review of the operation of waste water treatment plants at all urban areas that are subject to the waste water discharge licensing regime.

RBD	No. of Licenses Issued	No. of Certs of Authorisation Issued
NWIRBD	25	63
NBIRBD	12	14

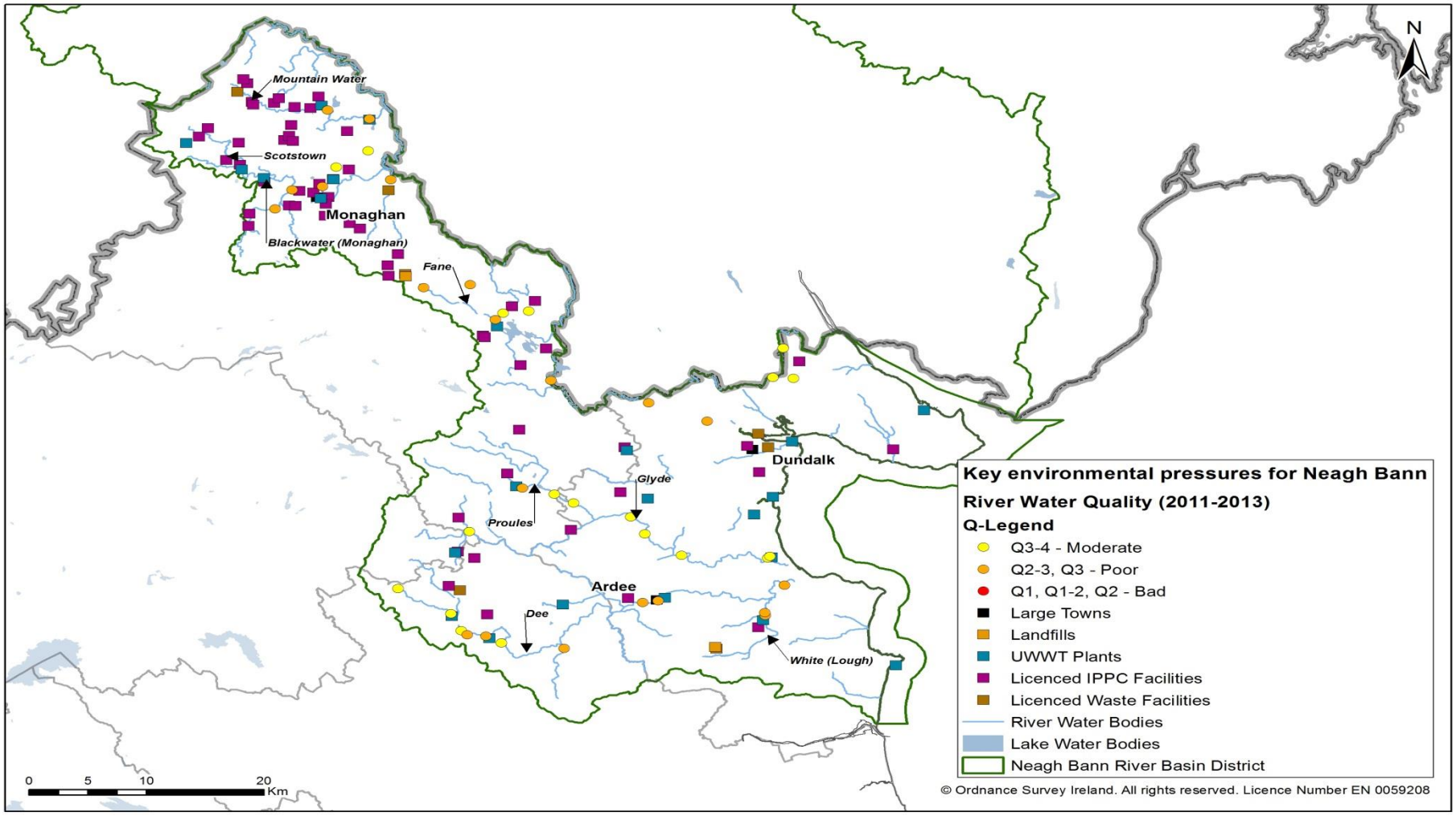
Table 8. Number of UWWD Licences and Certs of Authorisation issued to the end of 2013 in the NWIRBD and NBIRBD.

RBD	County	Licence Number	Agglomeration
NWIRBD	Monaghan	D0464-01	Smithborough
NWIRBD	Monaghan	D0458-01	Newbliss
NWIRBD	Donegal	D0514-01	Castlefinn
NWIRBD	Donegal	D0518-01	Killygordon
NWIRBD	Donegal	D0533-01	Clonmany
NBIRBD	Meath	D0481-01	Kilmainhamwood
NBIRBD	Meath	D0483-01	Drumconrath
NBIRBD	Monaghan	D0463-01	Knockaconny
NBIRBD	Meath	D0487-01	Nobber

Table 9. UWWD Licences issued in 2013 in the NWIRBD and NBIRBD.



Map 15. Point source pressures and river stations whose biological classification is less than 'good' status in the NWIRBD.



Map 16. Point source pressures and river stations whose biological classification is less than 'good' status in the NBIRBD.

4.2 Agriculture

In the NWIRBD and NBIRBD, agriculture is the most significant pressure on water quality. For example, in the NBIRBD, agriculture is listed as one of the main pressures for over 80% of river stations in the RBD. While the figure is somewhat lower at 56% in the NWIRBD, it nevertheless remains a very significant pressure. The impact of agriculture can be point source in nature (e.g. farmyard runoff) but also diffuse (e.g. nutrient runoff from agricultural land). In both cases, inputs of nitrogen and phosphorus are the main issue; however, the misuse of pesticides such as sheep dip is a cause for concern in areas of Donegal in particular.

Legislation through the Nitrates Directive (SI 610 of 2010) is the main measure for addressing agricultural pollution. These regulations also provide statutory support for good agricultural practice to protect waters against pollution. Although there have been decreases in the phosphorus and nitrogen concentrations in water bodies, which may be attributed to improvements in agricultural practices in recent years, a significant portion of farms nationally may be non-compliant with the nitrates regulations. A third national Nitrate Action Plan (NAP) to achieve compliance with the Nitrates Directive is currently being implemented. The NAP includes limits on farm stocking rates, limits for nitrogen and phosphorus application rates, prohibited spreading periods, minimum storage requirements, requirements regarding maintenance of green cover in tillage lands and set back distances from waters. An effective inspection and enforcement regime is needed to ensure full compliance with the Nitrates Directive.

The targets set by *Food Harvest 2020*, to increase agricultural output, will provide welcome economic development, but will also pose significant challenges in meeting the requirements of the WFD. In this context, an improved approach to dealing with these pressures may be warranted. Improved awareness at a local level including better consultation with local communities as part of a more integrated catchment management approach may pay greater dividends.

4.3 Domestic Wastewater Treatment Systems (DWWTS)

The focus on domestic waste water treatment systems (DWWTS) has continued to increase in recent years. The Water Services (Amendment) Act 2012 and SI 223 of 2012 places the responsibility for the operation and maintenance of DWWTS on home owners and sets out the requirements for an inspection regime to ensure DWWTS are working satisfactorily. The National Inspection Plan for DWWTS was launched by the EPA in 2013. The aim of the plan is to protect water and human health by using a two-strand approach of locally delivered

education and awareness strategies with a risk-based inspection process. The plan is delivered by local authorities and the number of inspections for each county is allocated on a risk basis. However, there have been wide variations in the rate of inspections carried out. In the period 01/07/2013–28/02/2014, 100% of target inspections were carried out in Louth. This dropped to 38% in Cavan and 36% in Monaghan, but no inspections were carried out in Donegal. In the aforementioned counties where inspections were carried out, the average compliance rate was 35%.

4.4 Forestry

Pressures exerted by forestry include artificial acidification of waters arising from the presence of coniferous afforestation on acid sensitive soils; nutrient enrichment, siltation and sedimentation impacts from forestry operations. Forestry occupies a relatively low percentage of land in the NBIRBD but in the NWIRBD it is a more significant pressure. It is considered one of the key pressures for 19% of river stations in this RBD. Table 10 below shows the total forest cover in terms of the percentage of land covered in the counties that form part of the NWIRBD and NBIRBD (2012).

County	Total Forest Cover (% Planted)
Cavan	9.14
Donegal	12.25
Leitrim	16.89
Longford	8.63
Louth	4.22
Meath	3.22
Monaghan	5.08
Sligo	12.37

Table 10. Total forest cover by county in 2012.

5 Overall Integrated Water Quality

Nutrient enrichment remains the main cause of pollution in both the NWIRBD and NBIRBD. While phosphorus is the key nutrient responsible for enrichment of water bodies in both RBDs, there are noticeable geographical variations. In addition, there are significant differences in terms of how the different water body types perform with regard to the relevant WFD standards and also in terms of how they compare to national statistics. In this regard, rivers and lakes in both RBDs perform significantly poorer compared to groundwaters and transitional & coastal waters.

It is evident that phosphorus levels are a more significant issue in NBIRBD rivers compared to those in the NWIRBD. In 2013, the average ortho-phosphate level in 73% of river stations in the country was below the EQS for 'good' status. In the NWIRBD, this figure was 84.2% but only 59.3% in the NBIRBD. It is noticeable that biological Q values for the period 2011–2013 follow a slightly different pattern. 65% of all river stations in the country were at least 'good' status with regard to biological Q value, this drops to 49% in the NWIRBD and further still to 35% in the NBIRBD. In addition to indicating that river water quality in the NWIRBD is better than the NBIRBD, it also suggests that factors other than phosphorus enrichment (e.g. use of agricultural pesticides) may be a significant contributor to poor water quality in the NWIRBD. In terms of long-term trends, it is evident that ortho-phosphate levels in rivers have been steadily declining since the late 1970s. However, over the same period, the percentage of river stations in both RBDs that have been at least 'good' with regard to biological Q value have also fallen. Even more significant is the drop in the number of 'high' status sites over the same period. While it was common to see over 30% of river stations in the NWIRBD and over 20% in the NBIRBD at 'high' status in the 1980s and 1990s, there was an alarming drop in the mid 2000s, so much so that 'high' status sites almost disappeared entirely in the NBIRBD.

The situation with lakes follows a similar pattern to that of rivers with the NWIRBD performing better than the NBIRBD but both performing poorly compared to the national picture. In 2013, the average total phosphorus level in 71.4% of lakes in the country was below the EQS for 'good' status. In the NWIRBD, this figure dropped to 57.1% and further still to 42.9% in the NBIRBD. It is noticeable that levels in the southern half of the NWIRBD are much higher than the northern half (Donegal) – this follows a similar pattern for rivers. In terms of GPC status in the period 2011–2013, 66.4% of all lakes in the country were at least 'good' status, this drops to 49.2% in the NWIRBD and to 14.3% in the NBIRBD. The pattern for BQE status is similar with only 40.0% of lakes in the NWIRBD and 14.3% in the NBIRBD meeting the requirements for at least 'good' status.

Ortho-phosphate levels in groundwaters in the NWIRBD and NBIRBD were relatively low in 2013 and have remained generally steady over the period 2007–2013. All sites had average concentrations below the Irish WFD Threshold Value concentration of 0.035 mg/l P (considered when assessing the contribution of ortho-phosphate in groundwater to rivers). Nitrate concentrations have declined steadily in both the NWIRBD and NBIRBD over the period 2007–2013 with the NWIRBD performing better than the NBIRBD. In 2013, all monitoring locations in the NWIRBD had an average concentration <10 mg/l NO_3 while in the NBIRBD two of the eight monitoring locations, had an average concentration >10 mg/l NO_3. In terms of nutrient levels, both RBDs perform well when compared to national the national picture.

In terms of trophic status and with regard to 2010–2012 figures for transitional and coastal waters, the NWIRBD and NBIRBD fare well when compared to national figures. Nationally, 62.5% of water bodies are unpolluted with regard to trophic status, the figure rises to 71% in the NBIRBD and further still to 88% in the NWIRBD. While the NBIRBD does less well in terms of eutrophic water bodies, the figures are influenced by the relatively few water bodies involved.

6 References

SI 684 of 2007: Waste Water Discharge (Authorisation) Regulations.

SI 223 of 2012: Water Services Acts 2007 and 2012 (Domestic Waste Water Treatment Systems) Regulations, 2012.

SI 272 of 2009: European Communities Environmental Objectives (Surface Water) Regulations, 2009.

SI 610 of 2010: European Communities (Good Agricultural Practice for the Protection of Waters) Regulations, 2010.

2014 Forestry & Timber Yearbook.

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: *Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.*

Ár bhFreagrachtaí

Ceadúnú

- Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola (m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola);
- gníomhaíochtaí tionsclaíocha ar scála mór (m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta);
- an diantalmhaíocht (m.sh. muca, éanlaith);
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (OGM);
- foinsí radaíochta ianúcháin (m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha);
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce

- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí).

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn

Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn (m.sh. mórphleananna forbartha).

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol (m.sh. Timpeall an Tí, léarscáileanna radóin).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig Aeráide, Ceadúnaithe agus Úsáide Acmhainní
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Measúnú Comhshaoil
- An Oifig um Cosaint Raideolaíoch
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

ENVIRONMENTAL PROTECTION AGENCY

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