

Water Quality in Ireland 2010 - 2012



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.*

Our Responsibilities

Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- 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.

National Environmental Enforcement

- 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.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

Water Management

- 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.

Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFÉ) Directive.
- Independent reporting to inform decision making by national and local government (*e.g. periodic reporting on the State of Ireland's Environment and Indicator Reports*).

Regulating Ireland's Greenhouse Gas Emissions

- 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.

Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

Strategic Environmental Assessment

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

Radiological Protection

- 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.

A scenic landscape photograph of a calm lake. In the foreground, a large, dark, mossy rock sits in the water. To the right, a clump of tall, golden-brown reeds grows from the water's edge. The lake's surface is still, reflecting the surrounding greenery and the sky. In the background, a lush green field stretches towards a line of trees, with rolling hills visible in the distance. The top of the image is framed by bare tree branches with some yellowing leaves. A semi-transparent green rectangular overlay covers the upper portion of the image, containing the word 'LAKES' in white capital letters.

LAKES

4. LAKES

Authors: Deirdre Tierney, Gary Free, Bryan Kennedy, Ruth Little, Caroline Plant, Wayne Trodd and Caroline Wynne

- ▲ 213 lakes representing 955 km² of lake surface area were monitored for the WFD in the period 2010-2012.
- ▲ 112 lakes (53% of lakes monitored) or 505 km² (54% of lake area monitored) of lake surface area did not change status. This implies no change in pressures in these lake catchments.
- ▲ 53 lakes or 221 km² of lake area declined in status. 33 lakes or 134 km² of lake area improved in status. The changes in status are generally a result of changes in phosphorus concentrations. For a small number of lakes, other factors such as abstraction pressure, habitat limitations, the presence of alien species and fish population dynamics, may be impacting on status and require further investigation.
- ▲ Overall, the changes in status translate into a 5% reduction (10 lakes) in the high or good status categories and a corresponding increase in the moderate or worse status category compared to 2007-2009. Overall, 91 lakes (43% of lakes monitored) were assigned high or good status and comprised 295 km². One hundred and twenty two lakes (57%) were moderate or worse in status (660 km² of lake area monitored).
- ▲ Fish status was the factor determining overall ecological status in 10 of 13 lakes that were classified as at poor or bad status, where biology was the sole status determinant. The reason for this requires further investigation.
- ▲ 6 of the 9 monitored heavily-modified water bodies were at maximum or good ecological potential.
- ▲ The levels of specific pollutants, priority substances and priority hazardous substances monitored in over 70 lakes remain low with few exceedances. Samples of trout and perch were analysed for mercury in 22 lakes. All samples exceeded the EQS. However, like PAHs, mercury has been identified as a ubiquitous persistent, bioaccumulative and toxic substance (uPBTs) under Directive 2013/39/EU. uPBTs occur widely in the environment on a global scale, due principally to atmospheric deposition.
- ▲ The Invasive Alien Species (IAS) zebra mussel was recorded in 70 of the monitored lakes and one heavily-modified water body compared to 50 known lake populations in the 2007-2009 period, suggesting that the zebra mussel continues to spread despite public awareness and biosecurity campaigns.
- ▲ Roach, an invasive fish species, was recorded in 36 of the 75 lakes monitored in 2010-2012.

Introduction

There are more than 12,000 lakes in Ireland, the majority of which are located along the western seaboard but substantial numbers are also located in the north-west, south-west and midlands. The WFD deals with lakes with an area greater than 50 hectares, and those acting as sources of drinking water or within protected sites²². Based on these criteria, approximately 856 lakes have been identified as Water Framework Directive (WFD) lakes. Of these, 213 representative lakes have been included in the national monitoring plan.

This chapter presents the monitoring results from the second three years (2010-2012) of the Water Framework Directive (WFD) lake monitoring programme cycle (2007-2012), and provides an integrated assessment of the biological, physico-chemical and hydromorphological quality elements monitored in Irish lakes. The assessment relates mainly to the primary pressure on lakes, which is eutrophication resulting from nutrient enrichment. Hydromorphological

22 Protected under habitats and birds Directives (92/43/EEC and 79/409/EEC) or nutrient sensitive waters under the UWWT Directive (91/271/EEC)

condition, acidification and alien species are also included but to a more limited extent in the monitoring programme. The information on these lakes was derived from monitoring carried out by the EPA, Local Authorities, Inland Fisheries Ireland and the Northern Ireland Environment Agency. The status assessments are summarised at the national and river basin district level.

A number of improvements to the classification tools have taken place since the publication of the 2007-2009 status report, and the 2007-2009 status has been updated to take account of these improvements. This is the baseline against which objectives were set and progress is measured. These changes included an improved version of the Fish in Lakes classification tool, the phytobenthos tool, and phytoplankton classification tool, which have been intercalibrated at EU level²³. Lake typologies were also updated with the best available data. The general physico-chemical parameter datasets have also undergone a review that has resulted in a more reliable and improved dataset than previously used. All these changes have been incorporated into the 2007-2009 lake status update.

Fifteen lakes were removed from the programme in 2010 due mostly to problems of access. Three water bodies were turloughs and were therefore removed. Fourteen lakes have been added, partly to replace those removed. The majority of those added were lakes that were deemed to be at risk from hydromorphological pressure as a result of water fluctuations arising from abstraction for drinking water.

WFD ecological status methodology

Ecological status is derived by taking the lowest status classes for the relevant biological and physico-chemical quality elements. For lakes that are deemed to be at high status for biological and physico-chemical quality elements, hydromorphological condition must be taken into consideration, and if found wanting, the lake is downgraded to good status. Further details on status setting can be sourced from the Agency's website.²⁴

Status based on biological quality elements

Biological status for surveillance lakes included three biological quality elements; aquatic flora (macrophytes and phytobenthos); phytoplankton and fish.



Monitoring macrophyte communities in a lake

²³ Commission Decision, 2013/480/EU

²⁴ http://www.epa.ie/reports/water/waterqua/Final_Status_Report_20110621.pdf

Status based on physico-chemical quality elements

General physico-chemical status was assigned using the Environmental Quality Standard (EQS) for total ammonium, dissolved oxygen and pH, as published in SI 272 of 2009. In addition, boundary values of 10 and 25 µg/l P total phosphorus (TP), representing the high/good and good/moderate boundary, were also used.

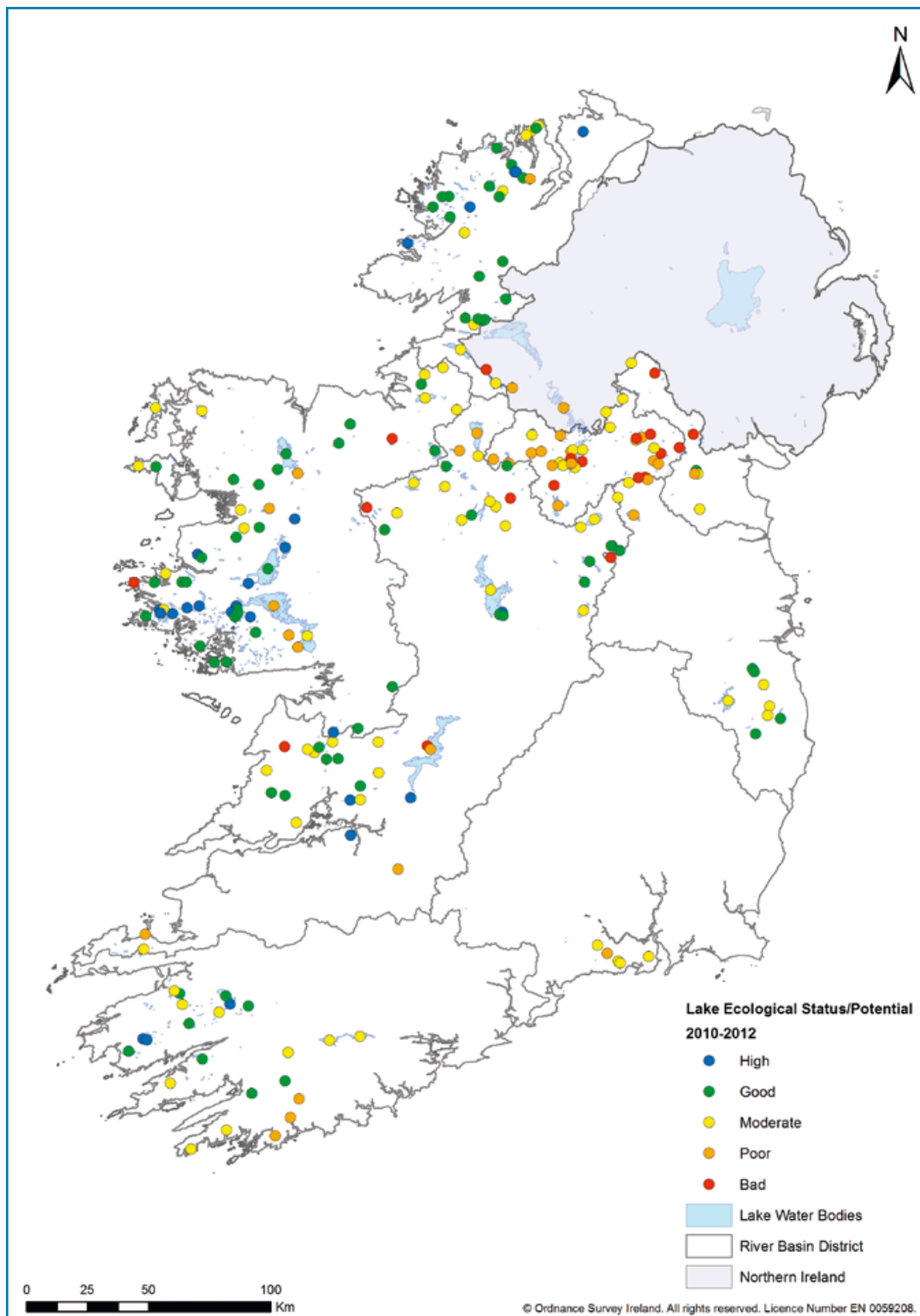


Figure 4-1 Lake ecological status/potential for 2010-2012.

2010-2012 ecological status

National Picture: The distribution of monitored lakes and their ecological status/potential are presented in **Figure 4-1**. High or good status was assigned to 91 (43%) of the lakes examined (see **Figure 4-2** and [Appendix 2](#)), with most lakes (68 lakes or 32%) in the good status category. The remaining 122 lakes were of moderate or worse ecological status, and accounted for 57% of the lakes examined. The 2010-2012 ecological status assessment results are mapped on the EPA ENVISION website and are available to download from the EPA geoportal²⁵.

Lakes in the high and good status categories accounted for 295 km² (31%) of the lake area examined (**Table 4-1**). A further 287 km² (30%) of lake area assessed was assigned moderate status. The 33 poor status lakes accounted for 354 km² (37%) of lake area examined, and the 19 bad status lakes accounted for 19 km² (2%) of lake area examined. In all, 69% or 660 km² of lake area examined was in the moderate or worse ecological status classes.

Western River Basin District: In the WRBD, 39 (67%) of the 58 lakes monitored were assigned high or good ecological status (**Figures 4-3, 4-4, Appendix 2**), accounting for 192 km² (48%) of lake area monitored in the district. These were predominantly in counties Galway and Mayo, areas of low populations and farming intensity; Lough Bunny in Clare; and four lakes in Sligo. The Sligo lakes were Easky, Killsellagh and Talt, which are upland lakes in catchments with few people, low intensity farming and some forestry, and Lough Arrow, a large lake draining an upland area, and all are used as drinking water sources.

Nineteen lakes were assigned moderate or worse ecological status, including some very large lakes; Corrib Lower, Corrib Upper, and Lough Cullin. The lake area examined in the district assigned moderate or worse ecological status was 209 km² (52%).

North-Western International River Basin District: In the NWRBD, 21 lakes (33%) were assigned high or good ecological status, accounting for 25 km² (20%) of lake area monitored in the district (**Figure 4-3** and **Figure 4-4**). These lakes were located in Co. Donegal in areas of low intensity agriculture, large tracts of natural vegetation and generally low levels of urbanisation. Forty-three lakes in this RBD (67%) were assigned moderate or worse ecological status, or 100 km² (80%) of the lake area examined. The majority of these lakes were located in Cavan and Monaghan, both counties with high intensity farming with poorly draining soils.

South-Western River Basin District: The SWRBD had 11 lakes (52%) assigned to the high or good ecological status categories, accounting for 37 km² (79%) of lake area monitored in the district (**Figure 4-3** and **Figure 4-4**). These lakes were primarily in Kerry, in hydrometric areas 21 and 22, which are mountainous areas with low intensity agriculture, large tracts of natural vegetation and generally low population levels.

Ten lakes (48%) were assigned an ecological status of moderate or less, accounting for the remaining 11 km² (21%) of lake area monitored. These were located primarily in hydrometric area 20, an area of intensive agriculture, relatively dense populations, with relatively high numbers of urban wastewater treatment plants and septic tanks.

Eastern River Basin District: The ERBD continues to have no lakes of high ecological status on the monitoring programme (**Figure 4-3** and **Figure 4-4**). Three lakes (1 km²), located in Meath (two lakes) and Wicklow (one lake) were assigned good ecological status. Nine lakes (15 km²), predominantly in Cavan (five lakes), were assigned to moderate or worse ecological status, and include lakes with a history of enrichment, such as Drumkeery and Ramor.

Neagh Bann International River Basin District: One lake, Spring, was of good status in the NBRBD, accounting for 2% of the total area monitored. It is an abstraction lake with apparently one inflow from a smaller lake with no river network. It is likely to be mostly fed by groundwater²⁶ being on karst with springs in or around the vicinity, which is reflected in its

²⁵ <http://gis.epa.ie/>

²⁶ Jean Wilson, *pers. comm.* CombiNed Earth ObservationN and GEoChemical Tracing (CONNECT) for Groundwater

name. The remaining six lakes were of moderate or worse ecological status, and accounted for 98% (<5 km²) of the total area monitored. Some of these lakes, such as Monalty, Muckno and Naglack, have a history of enrichment.

South-East River Basin District: The SERBD has very few lakes and therefore, the least number of lakes monitored. There are five lakes monitored which are <1 km². This is due to the lack of large lakes, with most lakes effectively being ponds as a result of the last glacial period ([Mitchell and Ryan, 1986](#)). Similar to the previous reporting period, all five lakes assessed in the SERBD were of moderate or poor ecological status, largely due to total phosphorus and chlorophyll, possibly related to nutrient inputs from intensive agriculture in their catchment areas.

Shannon International River Basin District: Sixteen lakes (35%) or 38 km² (11% of the lake area monitored in the district) were assigned good status (**Figure 4-3** and **Figure 4-4**). These were predominantly in Clare and Westmeath, and included such lakes as Cullaun, Inchicronan, Derravaragh and Owel. The remaining 30 lakes (65%) were assigned moderate or worse status, and accounted for 89% of lake area surveyed (321 km²) which included some very large lakes, such as Allen, Ree and Derg on the Shannon, with a third of the lakes located in County Clare.

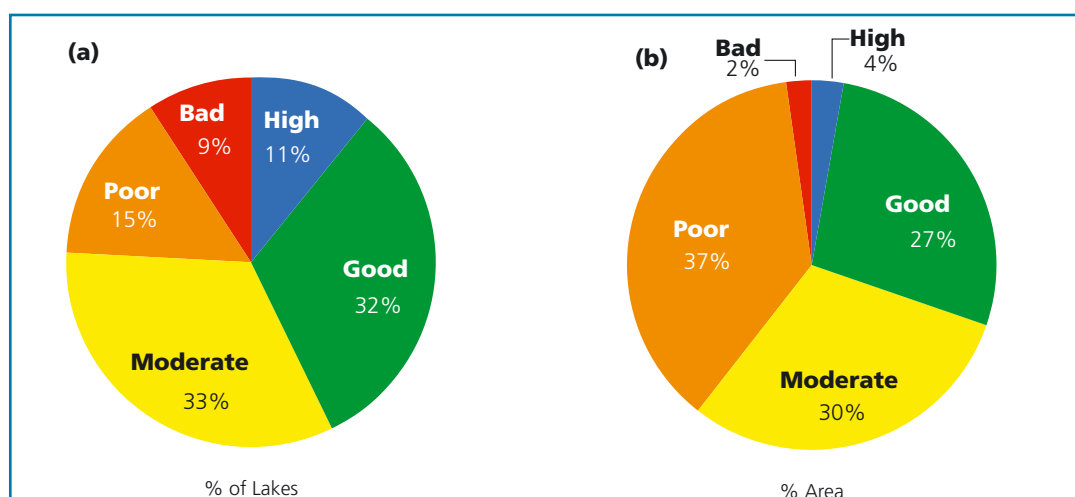


Figure 4-2. 2010-2012 WFD ecological status (nationally): (a) percentage of lakes and (b) percentage of lake area surveyed assigned to each ecological status category.

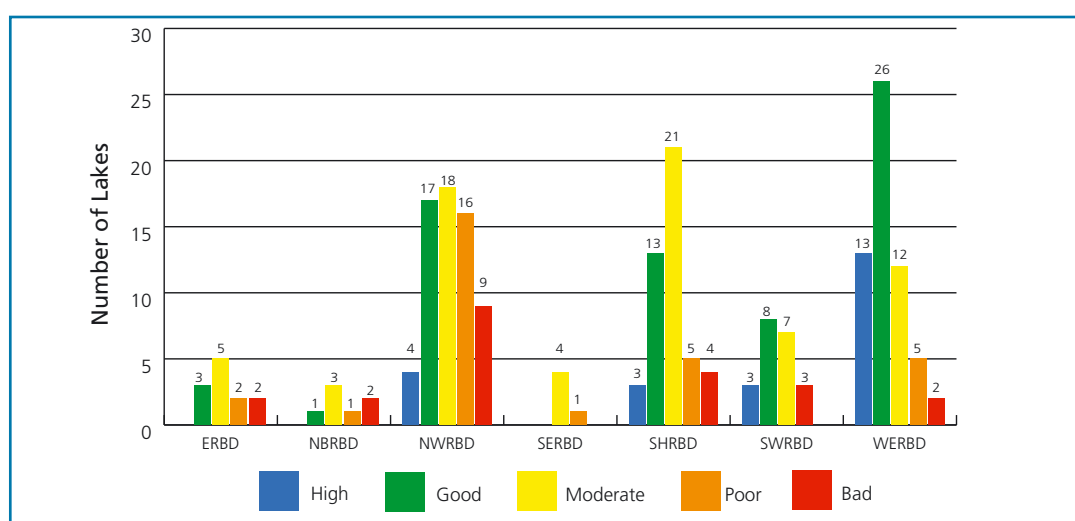


Figure 4-3. The number of lakes assigned to each ecological status class in each River Basin District for 2010-2012.

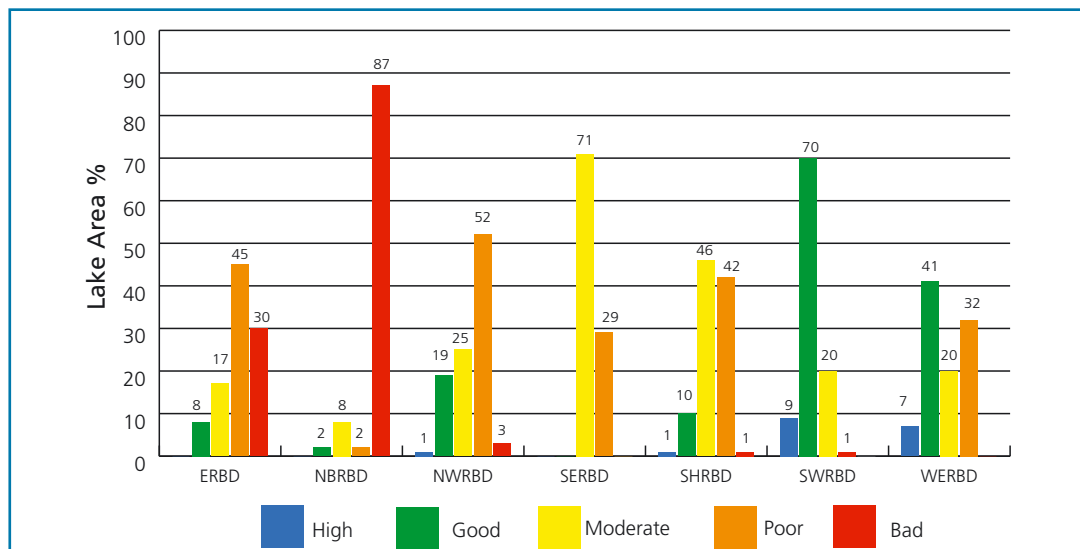


Figure 4-4. The percentage of lake area assigned to each ecological status class in each River Basin District for 2010-2012.

Update of 2007-2009 ecological status of lakes

National Picture: Results for the previous monitoring cycle (2007-2009) have also been revised following improvements in the assessment methods. The revisions resulted in minor adjustments to the overall figures. Nationally, the adjustments in status categories for the period 2007-2009 were: high (9% to 13%), good (38% to 35%), moderate (41% to 35%), poor (9% to 10%) and bad (3% to 7%). The revised results for 2007-2009 are also available on the Agency's geoportal²⁷. High or good status was assigned to 101 (48%) of the lakes examined (Figure 4-5, Table 4.1), with most lakes (74 lakes or 35%) in the good status category. The remaining 111 lakes were of moderate or worse ecological status, and accounted for 52% of the lakes examined. Lakes in the high and good status categories accounted for 420 km² (45%) of the lake area examined (Figure 4-5, Table 4.1). A further 285 km² (30%) of lake area assessed was assigned moderate status. The 22 poor status lakes accounted for 189 km² (20%) of lake area examined, and the 14 bad status lakes accounted for 52 km² (5%) of lake area examined. In all, 55% or 526 km² of lake area examined was in the moderate or worse ecological status classes (Figure 4-5, Table 4-1).

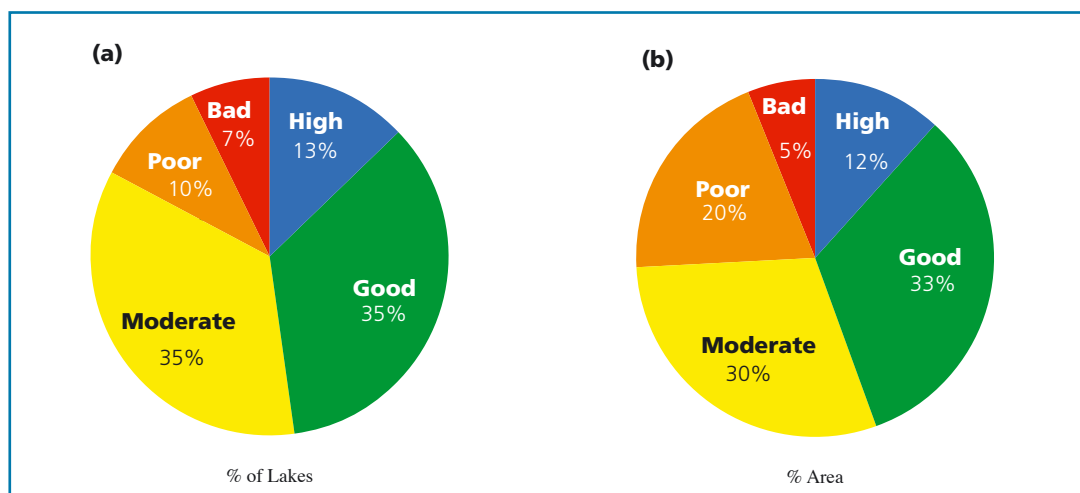


Figure 4-5. Updated 2007-2009 WFD ecological status: (a) percentage of lakes and (b) percentage of lake area surveyed assigned to each ecological status category.

Comparison of reporting periods

There was a decline of 5% in the high/good status category for 2010-2012 (91 lakes, 43%) compared to the period 2007-2009 (101 lakes, 48%). High status lakes declined from 27 lakes to 23 lakes (**Table 4-1, Figure 4-6**), and good status lakes declined in number from 74 to 68. The number of lakes in the moderate or worse category increased to 122 lakes (57%) compared to the previous reporting period, where 111 lakes were less than good (52%). The number of lakes in the moderate status category decreased from 75 to 70 lakes. There was a significant increase in the number of lakes in the poor and bad status categories. Thirty-three lakes were poor status in 2010-2012, compared to 22 lakes in 2007-2009. Nineteen lakes were bad status in 2010-2012, compared to 14 lakes in 2007-2009.

While the lake area assigned to moderate status was similar in both reporting periods, there was a decline in the lake area assigned to high status from 111 km² to 38 km², good status from 309 km² to 257 km², and bad status from 52 km² to 19 km². There was an increase in lake area assigned to poor status from 189 km² to 354 km² in 2010-2012.

Of the 33 lakes assigned poor status in 2010-2012, 10 were previously assigned poor status and accounted for 132 km². Therefore, 222 km² of lake area assigned poor status in 2010-2012 was a result of lakes changing in status. Two lakes, Corrib Upper and Drumlaheen, both previously good status, were assigned to poor status in 2010-2012. Corrib Upper (115 km²) accounted for the majority (52%) of the increase in lake area assigned poor status and the decline in lake area previously in good status. The poor status in Corrib is due to fish status classification and is not reflected by the other biological elements or the general physico-chemical elements. Sixteen lakes that were previously moderate, accounted for 64 km² (29%) of lake area in poor status in 2010-2012. Five lakes improved in status from the last period.

While 13 km² of lake area in high status was attributable to the same 11 lakes in both periods, 94 km² of lake area in high status in 2007-2009 (13 lakes) was classified good or lower (one lake, Caragh) in 2010-2012. Three lakes, Mask, Caragh and Guitane, accounted for 90% (85 km²) of the reduction. Three lakes were removed from the programme, accounting for 4 km². The 11 lakes that improved in 2010-2012 were considerably smaller, representing 22 km² in lake area. There was one new lake, Greenan, which is 2 km² in lake area.

Ecological Status	2007-2009				2010-2012			
	Number of Lakes	% of Lakes	Surface Area (km ²)	% Area	Number of Lakes	% of Lakes	Surface Area (km ²)	% Area
High	27	13	111	12	23	11	38	4
Good	74	35	309	33	68	32	257	27
Moderate	75	35	285	30	70	33	287	30
Poor	22	10	189	20	33	15	354	37
Bad	14	7	52	5	19	9	19	2
Total	212		946		213		955	

Table 4-1. The breakdown of ecological status for the periods 2007-2009 and 2010-2012 by numbers of lakes, surface area and the percentage total of each assigned to each ecological status class.

Fourteen lakes were new to the programme. These were assigned high (one lake), good (four lakes), moderate (four lakes) poor (one lake) and bad (four lakes) status. Both biological and general physico-chemical status were in agreement for 10 of these lakes, with general physico-

chemical status determined the ecological status for two lakes. Two of the lakes were assigned bad ecological status due to fish, in contrast to other elements which were at good or better in status. The reasons for the bad fish status will need to be investigated further.

One hundred and ninety-eight lakes were common to both reporting periods (**Table 4-2**). Of these, 112 lakes (53% of lakes monitored) or 505 km² (54%) of monitored lake surface did not change status. These were distributed across the status classes as follows: high (11 lakes), good (42 lakes); moderate (42 lakes); poor (10 lakes) and bad (seven lakes) status.

Thirty-three lakes or 134 km² of lake area improved in status. These were previously assigned good (10 lakes), moderate (11 lakes), poor (five lakes) and bad status (seven lakes). These lakes comprise 21 lakes for which both the 2010-2012 biological and general physico-chemical status agreed, thus indicating that the ecological status is a good reflection of conditions.

Fifty-three lakes or 221 km² of lake area declined in status (**Table 4-2**). These were previously good (17 lakes), moderate (18 lakes) and high (13 lakes) status lakes, with the remainder (five lakes) poor status lakes that were assigned to bad status. The category of quality element, biological and /or general physico-chemical, determining lower status assignments are presented in **Table 4-3**. Twenty-three lakes had good agreement between their 2010-2012 biological status and physico-chemical status. This would seem to indicate that these lakes are in decline.

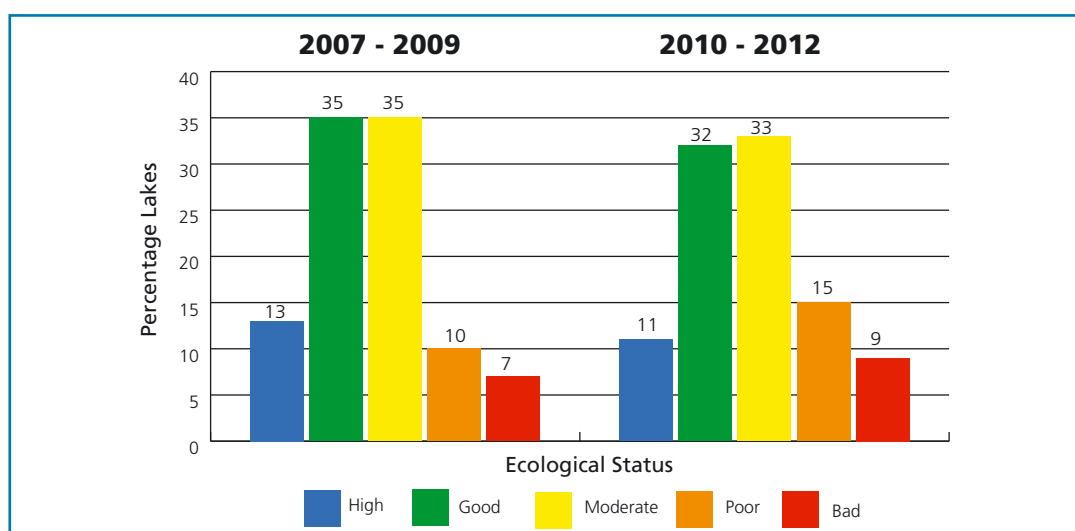


Figure 4-6. Comparison of ecological status between the two survey periods (2007-2009 and 2010-2012).

2007-2009	Number of Lakes			Surface Area (km ²)		
Ecological Status	Dis-improved	No change	Improved	Dis-improved	No change	Improved
High	13	11	0	94	13	0
Good	17	42	10	137	148	21
Moderate	18	42	11	65	203	16
Poor	5	10	5	4	132	53
Bad	0	7	7	0	8	44
Total	53	112	33	221	505	134
Grand Total			198			940

Table 4-2. A summary of the number of lakes and lakes area remaining the same (0 class change) or changing (improving – plus class or declining –minus class) ecological class between 2007-2009 and 2010-2012.

Lough Guitane was assigned good status in 2010-2012 because of hydromorphology, which was not assessed in the previous period. This is an abstraction lake and, as such, is subjected to water level fluctuations and has soft engineering bank protection structures, both of which result in less than high hydromorphological condition. The lower status class is therefore not caused by increased enrichment.

The set of nine lakes that declined in status as result of lower status in both biological and general physico-chemical are a cause for concern because, in all likelihood, these lakes are experiencing increased enrichment pressure. Increased levels of chlorophyll and total phosphorus were evident for six of the nine lakes (Abisdealy, Acurry, Ballinlough (CK), Beaghcauneen, Drumlaheen and Tully). Macrophyte and phytobenthos status declined to good status in Lough Caragh and it failed for specific pollutants (lowering its general physico-chemical status from high to moderate). The three-year average of total phosphorus increased in Lough Licken by 0.05 ug/L. This resulted in an assignment of moderate general physico-chemical status. This does not suggest increased pressure from enrichment. However, fish status declined from good to bad, but was not supported by the other elements and would warrant further investigation.

Category	class change			Grand Total
	-3	-2	-1	
Biological	1	3	37	41
Biological, general physico-chemical		2	7	9
General physico-chemical			2	2
Hydromorphology			1	1
Grand Total	1	5	47	53

Table 4-3. The categories responsible for the assignment of lakes to a lower status classes.

All lakes at less than good status are considered to be at risk of failing their environmental objectives and require more in-depth analyses and exploration of the data before more definitive conclusions can be drawn and actions advised. In addition, conclusions are confounded by the absence of data for some years, the presence of the alien invasive species zebra mussel, significant water abstractions, and other unknown factors.

Determinants of ecological status in 2010-2012

The fact that the lowest status quality element, whether biological physico-chemical or hydromorphological, determines the final ecological status on the 'one-out-all-out' (OOAO) rule, means that, in some cases, one quality element may determine the final ecological status.

A summary of the main determinants of the 2010-2012 ecological status is presented in **Table 4-4**. 54% of lakes (116 lakes) had good agreement between biological status and general physico-chemical status. Macrophytes and/or phytoplankton, alone or with other biological elements, and nutrients status based on total phosphorus determined the ecological status for 104 of the 116 lakes. Ecological status for nine of the remaining lakes was determined by fish and nutrients. This provided a high degree of confidence in the status outcome for these lakes.

Category	No. of Lakes
Hydromorphology	4
General physico- chemical	12
Biological Quality Elements	81
Biological Quality Elements & general physico- chemical	116
Grand Total	213

Table 4-4. A summary of the main determinants of the 2010-2012 ecological status.

An assessment of hydromorphological condition was responsible for the downgrade of four otherwise high status lakes; Doo Lough, Guitane, Nahasleam, and Pollacappul. There was no evidence that these four lakes were impacted by enrichment.

General physico-chemical status determined the ecological status of 12 lakes (<6%). The general physico-chemical quality elements responsible are detailed in **Table 4-5**. The general physico-chemical status was no more than one class lower compared to the biological status in all cases, except Lough Shannagh. Shannagh, in Donegal, was moderate due to elevated pH but otherwise it would be in good status for enrichment pressures. Two lakes, Caragh in Kerry and Dan in Wicklow, were moderate as a result of specific pollutants (Zinc); otherwise these lakes are in good status. Nutrient status based on total phosphorus was the main quality element determining status for the remaining lakes; four lakes were assigned moderate status and five lakes were assigned good status. Four of the good status lakes were 1 ug/L or less above the high/good boundary of 10 ug/L TP and were effectively on the high/good boundary. Measures to reduce nutrients inputs would ensure these lakes are at high status. The remaining five lakes would warrant closer inspection to establish if the general physico-chemical status is in decline, which is not reflected yet in the biological elements.

Biological status determined the ecological status for 81 lakes (38%), see **Table 4-4**. One element alone was responsible in 67 lakes (macrophytes - 36 lakes, fish - 20 lakes and phytoplankton - 11 lakes). A combination of two or more biological elements determined the status for the remaining 14 lakes.

General physico-chemical element	Good	Moderate
pH		1
Nutrients – total phosphorus	5	4
Specific pollutants (zinc)		3
	5	7

Table 4-5. A summary of the general physico-chemical parameters determining the 2010-2012 ecological status.

For 60 of the 81 lakes, there was only one class difference between the biological and general physico-chemical status. Further investigation of the data may show that for many of these lakes the difference in status may not be substantial.

Twenty-one lakes were assigned a biological status two or more classes worse than their general physico-chemical status. For nine of these lakes, another biological quality element was no more than one class better in status. For the remaining 12 lakes, there was a very clear divergence in status between the determining element and the high or good status of the other biological elements. Nine of these lakes were assigned poor or bad ecological status based on macrophytes (two lakes) or fish (seven lakes), and their general physico-chemical status was at least good if not high status. Three of the lakes were assigned moderate status based on macrophytes (two lakes) or fish (one lake), and their general physico-chemical status was high status. This suggests that for these 12 lakes other factors, such as abstraction pressure, habitat limitations, and population dynamics, are influencing the main determinant of ecological status other than enrichment. This warrants exploration to correctly prescribe for the programme of measures.

In summary, 54% or 116 lakes biological status and general physico-chemical status agreed. A general physical parameter determined the ecological status of 12 lakes (<6%) and five of these lakes warrant further exploration. Biological status determined the ecological status of 81 lakes (38%), with macrophytes, fish and phytoplankton the primary determining elements, but only 21 lakes had a two or more class difference between biological and physico-chemical

status. Within this group, 12 lakes would warrant further exploration because the determining element was two or more classes worse than all other elements and parameters considered. This suggests there may be another factor influencing the main determinant of ecological status other than enrichment.

Specific pollutants

Specific pollutants status is based on Environmental Quality Standards (EQSs) for annual average and maximum allowable concentrations listed in SI 272 of 2009. An exceedance results in a lake being deemed to be of moderate status or lower.

Substance	Period of monitoring	Number of lakes monitored	Number of confirmed exceedance of EQS (AA or MAC)	Exceedance of Annual Average (AA) EQS	Exceedance of Maximum Allowable Concentration (MAC)
Arsenic	2007-2009	74	0	0	NA ¹
	2010-2012	34	0	0	0
Chromium III	2007-2009	74	0	0	0
	2010-2012	34	0	0	0
Chromium IV ²	2007-2009	nm	-	-	-
	2010-2012	nm	-	-	-
Copper	2007-2009	74	0	0	NA
	2010-2012	34	0	0	NA
Cyanide	2007-2009	74	0	0	NA
	2010-2012	34	0	0	NA
Diazinon ³	2007-2009	nm	-	-	-
	2010-2012	19	0	0	0
Dimethoate	2007-2009	nm	-	-	-
	2010-2012	19	0	0	0
Fluoride	2007-2009	68	0	0	NA
	2010-2012	28	0	0	NA
Glyphosate	2007-2009	74	0	0	NA
	2010-2012	34	0	0	NA
Linuron	2007-2009	49	0	0	0
	2010-2012	34	0	0	0
Mancozeb ^{3,4}	2007-2009	74	0	0	0
	2010-2012	nm	-	-	-
Monochlorobenzene	2007-2009	74	0	0	0
	2010-2012	34	0	0	0
Phenol ⁵	2007-2009	nm	-	-	-
	2010-2012	nm	-	-	-
Toluene	2007-2009	74	0	0	NA
	2010-2012	34	0	0	NA

Substance	Period of monitoring	Number of lakes monitored	Number of confirmed exceedance of EQS (AA or MAC)	Exceedance of Annual Average (AA) EQS	Exceedance of Maximum Allowable Concentration (MAC)
Xylenes	2007-2009	75	0	0	NA
	2010-2012	34	0	0	NA
Zinc	2007-2009	74	2	2	NA
	2010-2012	34	1	1	NA

Notes:

1. NA = No MAC value applicable.
2. Chromium was measured as Total Chromium. No data available for Hexavalent Cr.
3. Limits of Detection for this parameter are above the EQS threshold.
4. Measured in 2006 as part of Dithiocarbamates suite – no detects found.
5. Measured in 2006 – no significant detection rate observed.

Table 4-6. Specific pollutants in lakes for 2007-2009 and 2010-2012. Several parameters not detected in the 2007-2009 monitoring were removed from the subsequent monitoring programme: nm = not measured.

The EPA commenced its monitoring programme for specific pollutants in 2006 with a screening programme, followed by an intensive period of monitoring that covered all surveillance monitoring lakes between 2007-2009. This led to the refinement of the programme, excluding some substances that were not detected from subsequent rounds of monitoring.

Monitoring of the surveillance monitoring lakes for specific pollutants is now carried out on a monthly basis for one year out of a six-year cycle. For the reporting period 2010-2012, a total of 34 lakes were monitored (**Table 4-6**).

High status lakes

Of the 213 lakes monitored, 23 lakes met all the criteria necessary to be assigned high ecological status (see EPA Geoportal). The high status lakes were distributed among the Shannon, North-Western, South-Western and Western River Basin Districts in the counties of Donegal (four lakes), Kerry (three lakes), Limerick (one lake), Clare (two lakes), Galway (eight lakes), Mayo (four lakes) and Westmeath (one lake). Eleven of the lakes were high status in the previous reporting period (**Table 4-7**). One lake was new to the programme. Ten lakes were previously good status lakes but improvements in fish (three lakes), macrophytes (two lakes), total phosphorus (four lakes) and chlorophyll and total phosphorus (one lake) resulted in a high status assignment. One lake was previously moderate in status but total phosphorus improved.

In the previous reporting period, 27 lakes were assigned high status, of which 24 lakes were monitored in 2010-2012. These lakes were distributed among the Shannon, North-Western, South-Western and Western River Basin Districts, the majority in the counties of Donegal (five lakes), Kerry (five lakes), and Galway (eight lakes).

Three lakes were dropped from the programme one to access issues and the remaining two are turloughs. One lake, Guitane, was assigned to a lower status class in the current period due to hydromorphological condition failing to meet high status. Hydromorphological condition was not assessed previously, and the lake failed to achieve high status due to soft engineering bank features and water level control. Biological status failed to reach high status in this reporting period at nine lakes. The biological elements resulting in the decline were: phytoplankton (four lakes), fish in Lough Veagh and Easky, and macrophytes in Mask and Talt. The three elements, macrophytes (previously on verge of the high/good boundary), phytobenthos (not monitored previously), and chlorophyll (three-year average doubled, 3.5 ug/l to 6 ug/l), failed to achieve

high status at one lake, Anure. Nutrients in Inchiquin (Kerry) were assigned good status. In Moher (Mayo), both biological (macrophytes) and general physical chemical status declined (total phosphorus increased from 10ug/l to 13.6 ug/l). In most cases, the element/s determining the status was approaching the high/good boundary in the previous reporting period. Lough Caragh failed due to specific pollutants (zinc).

LAKE	RBD	2007-2009 Ecological Status	2010-2012 Ecological Status	Elements less than high status
Ballynahinch Lake	Western	Good	High	Macrophytes
Barra	North-Western	Good	High	Macrophytes, fish
Bleach	Shannon	Good	High	Nutrients-total phosphorus
Bunny	Western	Good	High	Fish
Carra	Western	Good	High	Fish
Kiltooris	North-Western	Good	High	Fish
Nambrackmore	Western	Good	High	Nutrients-total phosphorus
Namona	South-Western	Good	High	Chlorophyll, Nutrients-total phosphorus
Shindilla	Western	Good	High	Nutrients-total phosphorus
Washpool	Western	Good	High	Nutrients-total phosphorus
Rosroe	Shannon	Moderate	High	Nutrients-total phosphorus
Mask Upper	Western	N/A	High	N/A
Bofin	Western	High	High	
Cloonaghlin	South-Western	High	High	
Derryclare	Western	High	High	
Enask	Western	High	High	
Fad	North-Western	High	High	
Fadda	Western	High	High	
Glencullin	Western	High	High	
Greenan	North-Western	High	High	
Killinure	Shannon	High	High	
Maumwee	Western	High	High	
Muckross	South-Western	High	High	
Caragh	South-Western	High	Moderate	Specific pollutants (zinc)
Agannive	North-Western	High	N/A	N/A
Funshinagh	Shannon	High	N/A	N/A
Nambrackkeagh	Western	High	N/A	N/A
Anaserd	Western	High	Good	Chlorophyll
Anillaun	Western	High	Good	Chlorophyll
Anure	North-Western	High	Good	Macrophytes, phytobenthos, phytoplankton

LAKE	RBD	2007-2009 Ecological Status	2010-2012 Ecological Status	Elements less than high status
Coosan	Shannon	High	Good	Chlorophyll
Cullaun	Shannon	High	Good	Phytoplankton
Easky	Western	High	Good	Fish
Guitane	South-Western	High	Good	Hydromorphology
Inchiquin	South-Western	High	Good	Nutrients - total phosphorus
Mask	Western	High	Good	Macrophytes
Moher	Western	High	Good	Macrophytes, Nutrients - total phosphorus
Talt	Western	High	Good	Macrophytes
Veagh	North-Western	High	Good	Fish

Table 4-7. The list of high status lakes in both reporting periods and the elements responsible for being less than high status.

Invasive alien species in Irish lakes

Previously, the presence of zebra mussels or roach was taken into account for the purposes of setting ecological status where a lake is assigned high status based on the normal assessment of status. Both the zebra mussel and roach, among others, are currently listed in Ecoregion 17 as Invasive Alien Species having a significant negative impact. The approach for alien species is currently under review. Alien species are noted but not used in the assessment on this occasion.

Zebra mussel was recorded in 69 of the monitored lakes and one heavily-modified water body compared to 54 known lake populations in the 2007-2009 period, with 50 lakes in common. Some are new known records, such as Atrain and Farnharn Lough. Both are new lakes to the programme and others were simply missed in 2007-2009 when recording was under-developed. The majority of the 18 additional known populations are in the Shannon region (nine lakes) but every region, with the exception of the South-East and the South-West, recorded a new population. The evidence suggests that zebra mussel continues to spread despite public information and biosecurity campaigns.

The presence of zebra mussels can affect many facets of lake ecology depending on population size, length and stage of colonisation, of which little has been quantified for most of these lakes. Predation by zebra mussels on the phytoplankton community can affect composition and reduce production, resulting in reduced chlorophyll levels. This, in turn, can result in increased light transparency promoting increased plant colonisation particularly in enriched lakes. Therefore, many elements, such as chlorophyll, transparency, invertebrates, and plants used to quantify status, can be affected and may be presenting a better status than would be the case if zebra mussels were absent.

Roach were recorded in 36 of the 75 lakes monitored in 2010-2012 compared to 35 recordings for the 2007-2009 period. One lake was not surveyed until 2010-2012. Fish are predominantly monitored in surveillance lakes for WFD purposes but Inland Fisheries Ireland does survey other lakes, including some operational lakes. Details of these surveys can be sourced from the IFI website.

Protected areas

Many lakes are included in the Water Framework Directive lakes monitoring programme because they qualify as a protected area for one of the following reasons; they are a designated bathing water, they are a significant drinking water source, they are part of a Natura 2000 site, they have a qualifying interest under the Habitats Directive, or they are designated as nutrient sensitive areas under the Urban Wastewater Treatment Directive (**Table 4-8**). All lakes with a protected area interest must be on the register for protected areas, require monitoring in their own right, and must meet their objectives.

Protected Area	Nos. nationally	Nos. on monitoring programme
Bathing Water	7 lakes, 9 bathing waters	6 lakes, 8 bathing waters
Nutrient Sensitive	7 lakes	7 lakes
Drinking Water Source	Not quantified	96 lakes (incl. 7 Reservoirs)
Natura 2000 sites	Not quantified	115

Table 4-8. Details of the respective protected areas interests on lakes, their numbers nationally and on the monitoring programme.

Under the provisions of the WFD, the protected areas' objectives and requirements must be considered when setting environmental objectives, prescribing the programme of measures and compiling the river basin management plans.

Identified pressures on Irish lakes

Diffuse pollution is considered to be the most significant risk to lake ecological status. The main source of enrichment for the vast majority of lakes is from agricultural activities, septic tanks and other activities carried out in the catchment. There are limited pressures from point source activities, such as urban wastewater treatment facilities, IPPC licensing and Section 4 facilities. Water abstractions and morphological alterations have also been identified as posing a risk to the ecological status of lakes. Risk assessments for lakes are currently underway and will be updated by the end of 2015.

Important factors that need to be considered when assessing the risks of pollution to lakes include; the pressures immediately surrounding a lake, the pollutant load contribution to the lake from inflowing rivers, and groundwater where groundwater contributes a significant volume to the lake. Technical work is ongoing to improve the information available on these factors, so as to improve future risk assessments.

Heavily-modified water bodies (HMWB)

Sixteen lake water bodies, predominantly reservoirs, were designated nationally as heavily-modified water bodies (South Western River Basin District Project, 2008). Nine of these water bodies are on the lake monitoring programme (**Table 4-9**). As macrophytes were considered to be negatively affected by the physical modifications to these water bodies, an adjusted assessment was applied to the macrophyte classification tool. The designation and assessment methodology will be reviewed for the second river basin cycle.

Lake Name	Use	Measures-based Classification	Ecological Potential	Final Potential Assignment
Glenasmole Reservoir Lower (Dublin)	Drinking water supply	GEP	Moderate	Moderate
Glenasmole Upper (Dublin)	Drinking water supply	GEP	Good	Good
Pollaphuca Reservoir (Wicklow)	Drinking water supply	GEP	Moderate	Moderate
Vartry Reservoir Lower (Wicklow)	Drinking water supply	GEP	Moderate	Good
Inniscarra Reservoir (Cork)	Drinking water supply, Power Generation	MEP	Moderate	Moderate
Carrigdrohid Reservoir (Cork)	Power Generation	MEP	Moderate	Moderate
Doo (Clare)	Drinking water supply	MEP	Moderate	Good
Derg pHMWB (Clare)	Power Generation	MEP	Good	Good
Salt (Donegal)	Drinking water supply	GEP	Good	Maximum

DW = Drinking water supply, PG= Power generation, M=moderate, G=Good

Table 4-9. The list of HMWB, their use, measures-based classification, ecological potential based on monitored data, and the final assignment.

The nine heavily-modified water bodies comprised 37 km². Six reservoirs (67%) or 7 km² were at maximum or good ecological potential (**Table 4-10**), and the remaining were assessed as being moderate or worse in ecological potential (30 km²). While the number of water bodies at maximum or good ecological potential is comparable to the period 2007–2009 (six reservoirs), the area has declined from 31 km² to 6 km², with a concurrent increase in area assigned moderate or worse ecological potential. This is because Pollaphuca Reservoir, which accounts for 54% of the area monitored, declined in potential from good to moderate as a result of exceeding the maximum pH. Both of the Cork Reservoirs are now moderate in potential, with the decline of Carrigdrohid to moderate potential due to increasing chlorophyll and total phosphorus.

2007-2009					2010-2012			
Ecological Potential	Number of Water bodies	% of Water bodies	Surface Area (km ²)	% Area	Number of Water bodies	% of Water bodies	Surface Area (km ²)	% Area
Maximum					1	11	<1	1
Good	7	78	31	83	5	56	7	18
Moderate	2	22	6	17	3	33	30	81
Total	9		37		9		37	

Table 4-10. The breakdown of ecological potential for the period 2007-2009 and 2010-2012 by numbers of reservoirs, surface area, and the percentage total assigned to each ecological potential class.

Chemical status

Priority substances

The WFD requires compliance with the Environmental Quality Standards established for priority substances. [Appendix 3](#) lists the priority substances required to be monitored under legislation and the number of lakes monitored for both reporting periods 2007-2009 and 2010-2012. Of the 25 priority substances, evidence of exceedances of an Annual Average (AA) or a Maximum Allowable Concentration (MAC) was not found for any of the lakes.

Priority hazardous substances

The WFD requires compliance with the Environmental Quality Standards established for priority hazardous substances, as well as the cessation or phasing out of emissions, discharges and losses to waters. This is owing to concern about their toxicity, persistence or tendency to bioaccumulate. Of the 13 priority substances listed in [Appendix 3](#), exceedances were found for cadmium and polyaromatic hydrocarbons (PAHs). Cadmium exceeded the EQS for Lough Muckno in 2010. Exceedance was caused by one uncharacteristic high value but there were detectable concentrations on other sampling occasions, making it more prudent to fail the lake.

The majority of surface water failures were caused by the ubiquitous poly aromatic hydrocarbons (PAHs), which are a group of ring-structured organic compounds that are commonly associated with the combustion of fossil fuels, such as oil or coal, or from forest and heathland fires. They are also present in run-off from roads. They have a strong affinity to solids and may be present from both fuel spills and bound to particulate material, such as tyre residues. They present an undesirable parameter in waters even at very low concentrations due to their build up in the aquatic food chain. They are among a group of substances known as “PBTs” i.e. persistent, bio-accumulative and toxic. Two lakes failed for benzo(a)pyrene; Lough an tSeisigh in 2009 and Lough Kindrum in 2010. Concentrations exceeded the limit of detection on only one occasion in Kindrum but on a total of four occasions in Lough an tSeisigh in 2009 and 2012. The sum of the parameters benzo(b)fluoranthene and benzo(k)fluoranthene have an AA-EQS of 0.03µg/l. This was exceeded for Lough Kindrum in 2012, with values being above the limit of detection on three occasions.

The second grouping of PAHs, the sum of the sum of benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene, recorded the highest level of exceedances of 44% of monitored sites (15 lakes) in the reporting period 2010-2012. Recorded exceedances were lower in the period 2007-2009 but this was an artefact of the less sensitive methodology used. This group of PAHs is one of the most common causes of failure of EQSs across Europe, with up to 60% of river samples failing to meet standards ([Kodeš et al., 2013](#)). Recent EPA-funded research in Ireland has shown the ubiquitous nature of PAHs, being present in even upland headwater lake catchments not subject to direct industrial emissions ([Scott et al., 2012](#)).

Priority hazardous substances in biota

Environmental Quality Standards for priority hazardous substances (PHSs) have also been published for concentrations in biota (SI 327, 2012). Analysis was carried out by the Marine Institute on brown trout and perch collected from 21 lakes by Inland Fisheries Ireland. Samples were examined for the presence of mercury, hexachlorobenzene (HCB) and hexachlorobutadiene (HCBd) ([Appendix 3](#)). Results for the mercury analysis showed concentrations exceeding the EQS of 20 µg/kg at all sites ranging from 38-388 µg/kg. These concentrations and failure rates are consistent with other studies across Europe ([Collins et al., 2011](#)). It should be noted that

the concentrations were well below standards for fishery products²⁸ and therefore, do not pose a risk to human health. Airborne deposition of mercury from fossil fuel combustion is widely regarded as the source. No exceedances of HCB and HCBd were observed.

Conclusions

Two hundred and thirteen lakes, representing 955 km² of lake surface, were monitored for the WFD in the period 2010-2012. Fifteen lakes (7%), accounting for 15 km² (2%) of the lake area examined, were new to the programme and were assigned high (one lake), good (four lakes), moderate (five lakes) and bad (four lakes) status. One hundred and ninety-eight lakes (93% of lakes monitored), representing 940 km² (98% of lake area monitored), were common to both reporting periods. Of these, 112 lakes (53% of lakes monitored) or 505 km² (54% of lake area monitored) of lake surface did not change status. Fifty-three lakes or 221 km² of lake area declined in status. Thirty-three lakes or 134 km² of lake area improved in status. Overall, 91 lakes (43% of lakes monitored) were assigned high or good status and comprised 295 km², and 122 lakes (57%) were moderate or worse in status or 660 km² of lake area monitored. This represents a 5% reduction (10 lakes) in the high or good status categories and a corresponding increase in the moderate or worse status category compared to 2007-2009.

For 2010-2012, 54% of lakes (116 lakes) had good agreement between biological status and general physico-chemical status, suggesting a high degree of confidence in the status assignment. There was only one class difference between the biological and general physico-chemical for status in 60 lakes. This provides a good degree of confidence in the status assignment. General physico-chemical status determined the 2010-2012 ecological status of 12 lakes (<6%), which is comparatively low. Twenty-one lakes were assigned a biological status two or more classes lower than their general physico-chemical status based largely on macrophytes or fish. Nine of these lakes had other biological element within one class of the status determining element. There is little confidence in status assignment for the remaining 12 lakes with respect to enrichment. It is considered that other factors, such as abstraction pressure, habitat limitations, and population dynamics, are influencing the elements determining status in these lakes. There may be instances where the fish or macrophyte monitoring tools should be used with caution or are inappropriate.

Nine heavily-modified water bodies, predominantly reservoirs, are on the lake monitoring programme and comprised 37 km². Six reservoirs (67%) or 7 km² were at maximum or good ecological potential, and the remaining were assessed as being moderate or worse (30 km²).

The levels of specific pollutants, priority substances and priority hazardous substances monitored in over 70 lakes were generally below prescribed standards. There were some naturally elevated levels of zinc due to geological anomalies in a small number of lakes. There were no confirmed exceedances of any priority substances. Of the priority hazardous substances, one lake failed for cadmium and only PAHs and mercury in biota showed widespread exceedance of the EQS in the lakes monitored. This was to be expected as both substances are ubiquitous, persistent, bio-accumulative, and toxic substances. They can be found for decades in the aquatic environment at levels posing a significant risk, even if extensive measures to reduce or eliminate emissions of such substances have already been taken. Some are also capable of long-range transport and are largely ubiquitous in the environment. Therefore, non-compliant results do not infer specific issues local to a water body or indeed river basin district.

28 European Commission Regulation (EC) No.1881/2006 as amended by Regulation 629/2008 sets maximum levels for certain contaminants, such as mercury, cadmium and lead, in fishery products

Recommendations

The current monitoring programme consists of 213 representative lakes. However, there are approximately 600 lakes that are not monitored. A methodology for grouping and extrapolating status is being developed and implemented through an ongoing STRIVE funded project called *'Predicting ecological status of unmonitored lakes based on relationships between status, hydrogeomorphological and landuse characteristics'*. The outcome of this project will be available by the end of 2015.

A number of areas require further development, some of which are underway, including:

- ▲ Investigation of the factors influencing the unsatisfactory ratings for fish and macrophytes in some lakes
- ▲ Development of biological tools which are sensitive to hydromorphological pressures
- ▲ While face value assessment using the one-out-all-out rule is useful for a general and broad understanding of the national picture of lake water quality and for reporting, it has its limitations. A weight of evidence approach both for status assessment and for prioritising programmes of measures may be appropriate.

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Gníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaoil a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil 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, spriocdhírthe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

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

Ár bhFreagrachtaí

Ceadúnú

- Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaoil:
- 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 peitрил;
- 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.
- Curi 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 ídionn an císeal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

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 gComhshaoil

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFE) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (m.sh. tuairisciú tréimhsiúil ar staid Chomhshaoil 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 gcomhshaoil in Éirinn (m.sh. mórfheananna 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 gcomhshaoil ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaoil (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 gníomhaíocht 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 inní agus le comhairle a chur ar an mBord.



Headquarters
PO Box 3000,
Johnstown Castle Estate
County Wexford, Ireland

T: +353 53 916 0600

F: +353 53 916 0699

E: info@epa.ie

W: www.epa.ie

LoCall: 1890 33 55 99

Regional Inspectorate
McCumiskey House,
Richview, Clonskeagh Road,
Dublin 14, Ireland

T: +353 1 268 0100

F: +353 1 268 0199

Regional Inspectorate
Inniscarra, County Cork,
Ireland

T: +353 21 487 5540

F: +353 21 487 5545

Regional Inspectorate
Seville Lodge, Callan Road,
Kilkenny, Ireland

T +353 56 779 6700

F +353 56 779 6798

Regional Inspectorate
John Moore Road, Castlebar
County Mayo, Ireland

T +353 94 904 8400

F +353 94 902 1934

Regional Inspectorate
The Glen, Monaghan, Ireland

T +353 47 77600

F +353 47 84987

Regional Offices

The Civic Centre
Church St., Athlone
Co. Westmeath, Ireland
T +353 906 475722

Room 3, Raheen Conference Centre,
Pearse House, Pearse Road
Raheen Business Park, Limerick,
Ireland
T +353 61 224764

