Northern Ireland
Environment Agency

NORTH EASTERN

River Basin Management Plan Summary

December 2015

An Agency within
DOE
Department of the Environment
www.doeni.gov.uk

NIEA
www.ni-environment.gov.uk
Northern Ireland Environment Agency

"Results show that we are making progress towards meeting good ecological status in all of our water bodies"

Minister's Foreword

Our water environment is of key importance to us all, whether it be as a source of drinking water, or for recreational use, or use by agriculture and industry. Our water environment is improving, but it continues to face some significant pressures.

This is the second River Basin Management Plan for the North Eastern River Basin District. Results show that we are making progress towards meeting good ecological status in all of our water bodies, however not as fast as we would like. Existing measures, including the Nitrates Action Programme and Phosphorus Regulations plus significant capital investments made to our sewerage infrastructure will continue to contribute to sustained improvements to our water environment.

However, additional measures are needed if we are to achieve further improvements. We all recognise that the costs and funding of measures is particularly challenging in the current economic climate and any improvements we seek to implement will need to be bid for in the context of the current budgetary constraints facing the NI Executive and Departments.

Water management is something we all need to take responsibility for. The best way to protect and improve the water environment is by everyone being actively involved. My Department remains committed to working in partnership with local stakeholders and has developed a number of initiatives to encourage further partnership working. This second river basin management plan builds on the positive work already underway and I believe it brings forward a targeted and affordable programme of measures to meet our goals and objectives.

MARK H DURKAN MLA,
Minister of the Environment

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Executive Summary

The water environment in the North Eastern River Basin District continues to be special. Our economy, our health and our enjoyment of the environment depend on the way we maintain our rivers lakes, transitional (estuarine) waters, coastal waters and groundwater.

In 2014 we published a draft second cycle North Eastern River Basin Management Plan for consultation; we would like to thank all who responded. The feedback we received on that consultation has helped to influence this River Basin Management Plan.

Similar to the first River Basin Management Plan, this Plan has been updated and developed with input from a wide range of statutory agencies, non government organisations, private individuals and companies. It says where the water environment needs to be protected or improved, the timeframe to make these improvements and how that can be achieved.

The three components making up the Plan introduced in 2009 remain:-

1. This document providing a summary of the River Basin Management Plan for the North Eastern River Basin District;
2. The website containing detailed supporting documents;
3. The interactive web viewer on our website providing access to information at a local water body level.

Since the first North Eastern River Basin Management Plan was published in 2009, the Northern Ireland Environment Agency (NIEA) has been working with others to make improvements needed. We have also been carrying out monitoring and analysing those results to improve

Three components of the North Eastern River Basin Management Plan

our understanding of the pressures and impacts on the water and the effectiveness of the actions we have been taking. Progress has been made and there are signs of improvement throughout the North Eastern District water environment, however to date the impact of our Programme of Measures on the condition of water bodies is small. In 2009 we stated 'that implementation of the Programme of Measures would result in 49 % of the surface water achieving at least good ecological status or good potential by 2015'. Our 2015 classification indicates we have achieved 24 %. This is because it takes time to turn plans into changes on the ground and for those changes to be reflected in the monitoring results, partly due to lag times in the recovery of the plant and animal communities, and also since 2009 there have been changes made to standards, assessment methods and quality elements monitored.

The main pressures and issues for those not achieving good status or better from assessments carried out are diffuse pollution from agriculture and point source pollution from urban wastewater and development, with 65 % of river water bodies being impacted by these.

During 2014 and 2015 we conducted a review of our 2021 objectives based upon our new 2015 baseline classification. We aim to achieve at least good status or potential in 52 % of our surface water bodies and 43 % of groundwaters by 2021.

We have updated our Programme of Measures taking into consideration existing measures and identifying new measures which are required to meet our objectives for 2021 and 2027. In the current economic climate there is no certainty at this stage around future funding and budgets that will be available throughout the lifetime of this plan. However the Department of the Environment will in collaboration with other departments and agencies continue to make a strong case for additional funding through the standard government bidding processes.

This second River Basin Management Plan builds on the positive work already being carried out and details our changes and new measures for the second river basin planning cycle 2015-2021. For further information or if you wish to be involved in implementation of the North Eastern River Basin Management Plan please contact:

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Section 1 Introduction

1.1 The update to the River Basin Management Plan

In December 2009, the Department of the Environment (the Department) published the first North Eastern River Basin Management Plan (RBMP) as required by the Water Framework Directive (WFD). The Plan is being delivered by the Northern Ireland Environment Agency (NIEA) in conjunction with a number of Northern Ireland Executive Departments: the Department of the Environment (DOE); the Department of Agriculture and Rural Development (DARD); the Department of Culture, Arts and Leisure (DCAL); and the Department for Regional Development (DRD).

The Plan identified where our water environment is in a good or excellent condition and sets out objectives for the improvement or the prevention of deterioration of individual river, lake, marine and groundwaters for the next three river basin planning cycles to 2015, 2021 and 2027. A Programme of Measures was published as part of the Plan setting out actions required to meet the objectives to improve the status of all water bodies. An interim update on the measures was published in 2012.

As a precursor to this update of the plan, NIEA undertook a consultation on Significant Water Management Issues (SWMI) for the North Eastern River Basin District (RBD) in December 2013. In 2014 we published a draft second cycle North Eastern RBMP for consultation; we would like to thank all who responded. The feedback we received on that consultation has helped to influence this RBMP.

The WFD requires that the Plan is reviewed and updated every 6 years. This document is an update to the North Eastern RBMP, published in 2009, and provides an overview of the changes that have been made to:

- water body boundaries and designation;
- environmental standards and methods;
- objectives set for 2021; and
- new measures.

Throughout this document you will be directed to other sources of information which provide more detail. These include our website which contains detailed supporting documents and links to methods and technical work used. Also on our website is our interactive web map which provides information on monitoring, classification and objectives for each surface and groundwater body.

1.2 Supporting plans and programmes

It is essential that RBMPs are integrated with a wide range of strategies and initiatives impacting on the water environment in Northern Ireland. This exploits commonality across regional, national and European wide requirements and directives, ensuring efficient and cost effective delivery across Government.

A Long Term Water Strategy has been developed by DRD, in partnership with Northern Ireland Water (NIW), DARD and NIEA. The Strategy aims to encourage a sustainable and integrated approach to managing the different water needs within a catchment while promoting regional development without compromising the environment or increasing flood risk. Consultation on the draft Strategy was completed in October 2014 with the final Strategy due to be published in 2015.

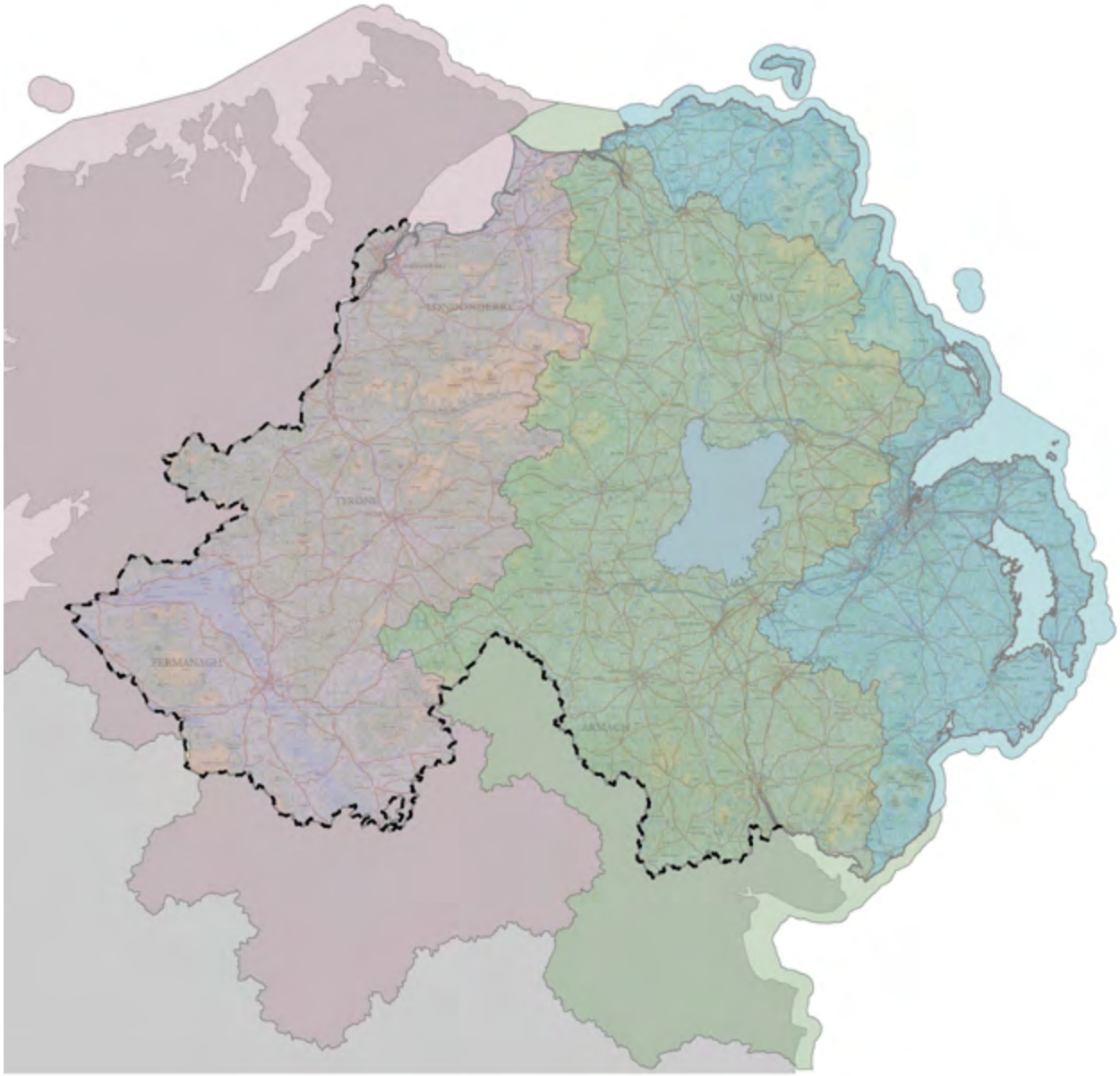
There are also specific measures being put in place to manage flood risk. The Water Environment (Floods Directive) Regulations (NI) 2009 requires the preparation and implementation of flood risk management plans by December 2015. Competent authorities for the implementation of both Floods Directive and WFD will work together and engage with stakeholders to actively seek measures which will have benefits under both directives. A Flood Risk Management Plan (FRMP) for Northern Ireland will be produced by 2015 and will contain objectives and measures to manage flood risk for the North Eastern RBD. Co-ordination between the personnel and stakeholders implementing the North Eastern RBMP and the Floods Directive will help to manage the adverse consequences that flooding has on human health, the environment, cultural heritage and economic activity.

Map 1:

River Basin Districts

Map Key

- Neagh Bann
- North Western
- North Eastern
- International Border



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The Marine Strategy Framework Directive (MSFD) came into force in July 2008, and sets the overall goal of achieving Good Environmental Status for Europe's seas by 2020. It will play a significant role in helping to achieve the UK's vision for the marine environment: the delivery of clean, healthy, safe, productive and biologically diverse oceans and seas. An initial assessment of marine waters, along with a paper on the UK view of the characteristics, targets and indicators for determining Good Environmental Status was completed in 2012. This MSFD milestone is known as MSFD, Part 1. Part 2 is the development of monitoring programmes to measure Environmental Status. This was completed in July 2014 after a UK-wide consultation and has been reported to the European Commission. The next stage is the development of a programme of measures by 2015, which will be operational by 2016. This will complement the WFD programme of measures, and will incorporate other measures for offshore areas including an ecologically coherent network of marine protected areas.

The UK Marine and Coastal Access Act 2009 includes new powers and a range of specific measures to better protect and manage UK territorial waters. Examples are a system for introducing Marine Plans, Marine Conservation Zones and an improved marine licensing system. The Marine Act (Northern Ireland) 2013 came into force in September 2013. It sets out a new framework for Northern Ireland's seas based on the development of a marine plan that will balance conservation, energy and resource needs; improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects.

A Nitrates Action Programme (NAP) has been in place across Northern Ireland since 2007. The NAP implements the EU Nitrates Directive and is supported by local legislation regulating the construction and management of farm storage and the use of chemical phosphorus fertiliser. The Directive requires that the action programme must be reviewed at least every four years. The most recent review was carried out in 2014/15. Following discussion with stakeholders and the European Commission, DOE and DARD (who are jointly responsible for NAP) proposed a number of revisions to the action programme in order to ensure that progress continues in the reduction of nutrient inputs from agriculture to the water environment. This review is now complete and the revised NAP was introduced in January 2015 to cover the period 2015-2018.

Under the NI Rural Development Programme the Northern Ireland Countryside Management Scheme (NICMS) required participating farmers to prepare and implement a farm nutrient and waste management plan. There was also provision within the scheme for participating farmers to undertake farm waterway and riparian zone management measures aimed at helping local agriculture meet WFD requirements. The successor to this, the Environmental Farming Scheme is currently being finalised and will contain water protection measures.

In May 2013, DOE published an Invasive Alien Species Strategy for Northern Ireland. This Strategy sets out a series of key actions and objectives for tackling invasive species, including aquatic and bank-side species, over the next five years and an implementation plan is in place.

DOE has also updated the Biodiversity Strategy for Northern Ireland, which was published in July 2015.

We continue to work with the UK Technical Advisory Group (UKTAG) to ensure WFD is implemented as consistently as is appropriate within the devolved administrations across the UK. UKTAG is a partnership of the UK environment and conservation agencies. It also includes partners from Ireland.

The responsible bodies in Northern Ireland and Republic of Ireland are coordinating their water management actions through a North-South Working Group on Water Quality. This group is supported by the North-South Technical Advisory Group and North-South Rivers and Lakes Group. NIEA also participates in the Irish Environmental Protection Agency's National Implementation Group for Water Framework Directive, which will provide a mechanism for cross-border catchment initiatives.

1.3 Assessing the impacts of the Plan

The first Plans in 2009 were designed to be rolling plans that evolve over time. The second cycle plans are modifications and changes made to the first set developed in 2009. This updated Plan outlines changes that have taken place during the first cycle and what we will undertake for the second cycle.

Some of the modifications and new measures in this Plan may require new or revised legislation and changes in policy or funding. These additional requirements will be considered as part of the existing workings of government in setting and agreeing priorities for action and funding.

A strategic environmental assessment under the Strategic Environmental Assessment (SEA) Directive was conducted for the first set of plans in 2009. This identified and assessed the wider environmental impacts of the plans and programmes. As these second cycle plans are modifications to the first set of plans, a SEA screening process has been undertaken. The outcome of the screening is that the 2015 RBMPs do not require strategic environmental assessment because the plans constitute minor modifications to existing plans and the modifications are not likely to have significant environmental effects.

In accordance with the requirements of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 and amending regulations (which transpose the EC Habitats Directive) an Article 6 assessment of the implications for Natura 2000 sites has been carried out.

The outcome of the assessment is there are not likely to be any significant adverse effects on Natura 2000 sites, at this stage, and therefore no further assessment is required.

Key documents on assessing the impacts of the Plan are available on the website.

Titanic Building, Belfast Lough

Section 2 Economics

2.1 Funding and cost of the Programmes of Measures

This plan focuses on a scenario which sets out water body objectives that could be achieved during the second WFD cycle if all the measures in Section 7 - 9 that have been assessed as likely to proceed during the second cycle are implemented. Across the first WFD cycle, the private and public sectors in Northern Ireland have spent tens of £millions to protect and secure the benefits society receives from the water environment. Achieving the protected area objectives and proposed water body objectives set out in this plan will cost in the region of an additional £105m across the six year period subject to funding being made available for certain measures.

Affordability has been and remains a key issue in terms of implementing measures which will help the Department achieve the objectives of the WFD. The measures identified in the draft RBMPs and included in Section 7 - 9 of this plan are aimed at addressing the key pressures by concentrating our efforts on those pressures that pose the greatest threat to the water environment. Furthermore, the measures were derived through engagement with the organisations and sectors which will be responsible for implementing them on the basis of current and future resources available, what is considered affordable and what is likely to have the most positive impact from a water quality perspective. Because of funding and affordability issues, it is likely that some measures which have been identified in the draft RBMPs will not be taken forward although this may change if additional funding is obtained.

Decisions and choices have therefore had to be made about which measures will be taken forward, how the measures and subsequent improvements will be funded and around which water bodies to prioritise effort on first. This process has been very much linked to the objective setting process outlined in Section 6. In Northern Ireland, disproportionate cost has not been used as a justification for setting extended deadlines in relation to water bodies, rather this has been done on the basis of technical feasibility and natural conditions not allowing for timely improvements - although in some cases it is likely that the disproportionate cost exemption could also be applied in respect of measures which would be required to improve certain water bodies for which the other exemptions apply, particularly in respect of water bodies currently at poor and bad status. Nonetheless, the costs and benefits of proposed measures have been a key consideration in terms of the development of this plan and the Programme of Measures. The initial Programme of Measures in the draft second cycle RBMPs was developed on the basis of identifying measures for which the benefits were likely to outweigh the costs. While the quantification of the benefits of individual measures remains a challenge, certain large-scale measures could be ruled out at a very early stage in the process of identifying possible measures on the basis that high costs were likely to significantly outweigh the potential benefits.

Following the initial process from which the draft Programme of Measures was produced, the Department has drafted an economic impacts paper to identify options around which measures will be affordable and taken forward during the second cycle. The paper helps to assess the potential economic and cost implications of the options under consideration.

The economic impacts paper can be accessed through our website.

Options were developed to enable measures to be appraised by separating the measures into groups based on availability of funding and affordability. Costs have been identified for each of the proposed measures and a qualitative assessment of the benefits of the measures was undertaken to identify the sectors which would benefit from their implementation.

The four options which were considered are:

1. Status Quo: measures identified which have already been completed, are covered by steady state operations (business as usual) or are currently ongoing.
2. Option 1: Measures not yet introduced but where full funding has been secured (on top of the measures from the Status Quo).

3. Option 2: Measures likely to be introduced but with full funding not yet secured (on top of the measures from Option 1 and the Status Quo).
4. Option 3 (the aspirational option): Measures not funded and unlikely to be introduced during this cycle (all measures included).

Costs of Options considered

This section and table 1 below presents a summary of the costs identified for the options in the economic impacts paper at a NI level. More information on how these costs were derived and the assumptions made can be found in the full paper which can be downloaded through our website.

All of the options relate to suites of measures that could be taken forward during the second WFD cycle. Subject to agreement by the Northern Ireland Executive and funding being made available for implementing measures during the second cycle, the Department will be aiming to implement Option 2. Option 2 includes all the measures under Option 1 and additional measures for which funding has not yet been secured but where the Department(s) are reasonably confident that funding should become available during the second cycle. A significant portion of the costs of Option 2 consist of European funding already secured and proposed planned expenditure under PC15 (NIW's draft expenditure plan 2015-2021).

Benefits of Options considered

- The Status Quo option would most likely have resulted in deterioration in the quality of the water environment and would therefore not comply with WFD requirements.
- Option 1 would limit progress made with regard to improving the number of water bodies at good status.
- Option 2 will result in significant improvement to the water environment, with benefits in excess of costs. The scale of improvement is considered feasible and affordable if funding is secured in relation to all of the relevant measures.
- Option 3 would also result in significant improvement to the water environment, with benefits in excess of costs. Outcomes and improvements would be more certain and the additional measures should facilitate future improvements in the third cycle.

Based on the analysis undertaken by the Department and the objectives set for water bodies, it is considered that full implementation of Option 2 could result in the number of water bodies reaching good status by 2021 rising to 70 %. While Option 3 is the most costly option, the overall benefits in terms of the number of water bodies reaching good status would be similar to that under Option 2. The reason for this is that the additional measures under Option 3 mainly relate to research and the development and use of modelling tools for which the water quality status benefits would most likely occur in the

Table 1:

List of options considered for economics impact assessment

Option	Public Sector Cost	Private sector Cost	Total Cost
Status Quo	£0	£0	£0
Option 1	£11.0m	£2.0m	£13.0m
Option 2	£104.1m	£1.0m	£105.1m
Option 3	£105.4m	£1.0m	£106.4m

third WFD cycle. As well as the benefits in terms of water quality status, there will be significant recreational, aesthetic and financial benefits under Option 2 for the general public, the water industry, industry and the agricultural sector. The benefits assessment undertaken as part of the economic impacts paper estimated the potential benefits from the implementation of Option 2 in terms of the level of improvement in water quality to be in the range of £197.6m to £283.7m over the six years of the cycle, with annual benefits ranging from £63.2m to £90.8m.

Funding of Future Measures

The Department has made, and will continue to make, a strong case for additional funding through the standard government bidding processes and will also try to identify other avenues of funding to take forward important projects which will assist Northern Ireland in meeting its objectives under the WFD. In particular the Department will seek to tap into sources of EU funding such as the INTERREG V Programme administered by the Special European Union Programmes Body that would assist in developing research into environmental pressures and implementing new measures or approaches to addressing them.

NIW, DRD and their Irish counterparts are also working together to access additional EU funds through the INTERREG V programme to invest in sewerage and wastewater treatment upgrades designed to improve the water quality of Lough Foyle and Carlingford Lough. DRD is also working to secure other funds at a Northern Ireland level that will be necessary to progress implementation of a strategic drainage infrastructure investment project aimed at implementing sustainable long term drainage solutions in parts of Northern Ireland. This project will reduce the risk of flooding, enhance the environment and reduce the capital and operational costs for NIW over the medium and long term.

2.2 The economic value of our water environment

The economic importance of water use in Northern Ireland was described in the Article 5 Economic Analysis Summary Report which was first published in 2005 and has since been updated as part of the process of developing the second cycle River Basin Management Plans. Several key documents have also been published which provide strategic frameworks, goals and targets to help secure economic prosperity in Northern Ireland. These include Northern Ireland's Sustainable Development Strategy, Investment Strategy for Northern Ireland (2011-2021) and Northern Ireland's Programme for Government 2011 – 2015. The Northern Ireland Economic Strategy also identifies protecting and enhancing the environment as a key measure for business growth. All these documents recognise the importance of sustainable development encompassing economic, social and environmental considerations.

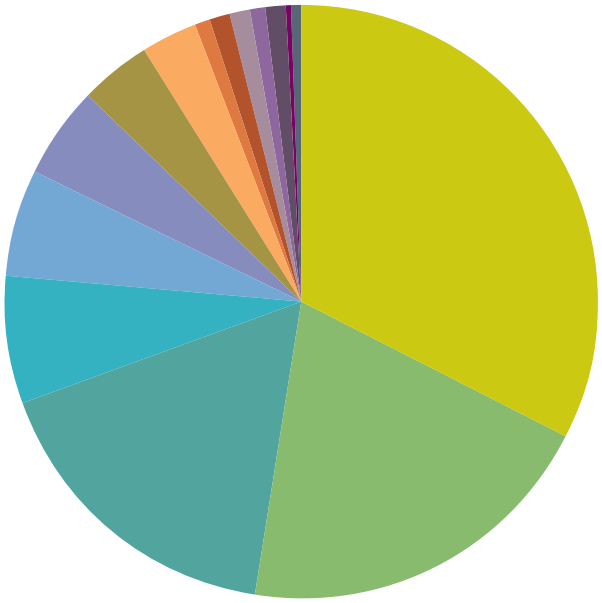
Several of the sectors considered to be of strategic importance in Northern Ireland have close links with the water environment: they include agriculture, manufacturing industry, (including food and beverages), water services industry, construction industry, commercial businesses, navigation and transport. Two key sectors in particular, agriculture and the water industry, will continue to have a significant role in addressing the pressures and meeting the objectives for water bodies set out in this RBMP.

Gross Value Added by sector in Northern Ireland

In order to assess the significance of water use, the activities for which water is used were considered for the updated Article 5 Economic Analysis Summary Report. The uses can be consumptive, as for production of mineral water, or non-consumptive, as for cooling of industrial facilities. The relative contributions made by different sectors were considered in terms of Gross Value Added (GVA) to the economy and employment and are shown in Figure 1 on page 13.

Figure 1:

Gross Value Added by sector in Northern Ireland

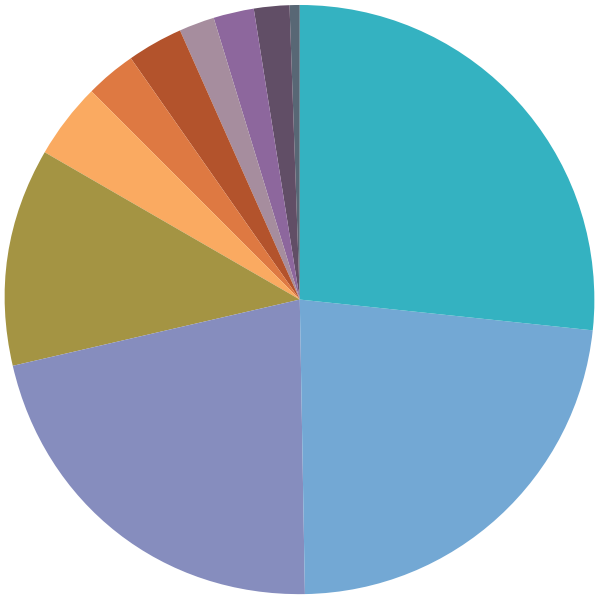


- Other Services - 33%
- Business services and Finances - 20%
- Wholesale, Retail, Repair, Accommodation and Food Services - 17%
- Transport, Storage, Information and Communication - 7%
- Construction - 6%
- Engineering and Allied Industries - 5%
- Food, Beverages and Tobacco - 4%
- Other Manufacturing - 3%
- Agriculture, Forestry and Fishing - 1%
- Chemical and Pharmaceutical Products - 1%
- Basic and Fabricated Metal Products - 1%
- Electricity and Gas - 1%
- Water and Sewage - 1%
- Textiles, Leather and Related Products - <1%
- Mining and Quarrying - <1%

Source: ONS, regional GVA – Contribution of Industrial sectors to GVA

Figure 2:

Summary of key sectors water use by volume (m^3)



- Agriculture, Forestry and Fishing - 27%
- Other Services - 23%
- Other Manufacturing Industry - 22%
- Distribution / Hotel /Catering - 12%
- Energy and Water Supply - 4%
- Extraction of Minerals and Ores - 3%
- Domestic Property - 3%
- Metal Goods and Engineering - 2%
- Transport and Communication - 2%
- Banking / Finance / Insurance - 2%
- Construction - <1%

By far the most significant sector in the economy in terms of Gross Value Added are the sectors that make up the services sector (which accounts for around four fifths of economy (by GVA)) which use water in cooking, sanitation and related uses. Water also has a significant cooling use in power stations and along with the rest of the utilities sector together with other key water-users, agriculture and manufacturing industry. The least significant sectors are mining and quarrying and textiles which account for less than 1 % of total GVA.

Figure 2 on page 13 provides an overview of the relative water volumes consumed by the key sectors. The biggest users in terms of overall NIW volumes consumed by non domestic customers comes from the 'other' services sectors (45 %), followed by Agriculture/forestry and fishing (27 %), and then Distribution/Hotel and Catering sector (12 %).

The updated Article 5 report contains further detail and statistics on each of the key sectors which are the biggest users in terms of water and which have the potential to impact on water quality.

2.3 Cost recovery of water services and water efficiencies

Regulatory, Institutional and Funding Arrangements for Water & Sewerage Industry

The Water and Sewerage Services (Northern Ireland) Order 2006 ('the Order') provides the regulatory and financial framework for the water and sewerage industry. Responsibility for delivery of water and sewerage services rests with a government owned company: Northern Ireland Water. NIW is run on a commercial basis and subject to independent environmental and economic regulation.

The Order sets out a framework for funding of water and sewerage services to be met by consumers. Water pricing is in place for agriculture and industry through (largely) metered water charges. Trade effluent charges are also in place. It is considered that households already make a contribution through the domestic regional rate.

Water Pricing for Agriculture & Industry

Water pricing arrangements for the agriculture and industrial sectors have been in place for many years. The majority of these customers are metered and charged according to usage. This is in line with the Directive's requirement for users to use water resources efficiently and promotes the 'polluter pays principle'. The bulk of non-essential or discriminatory water use is by non-domestic water users who account for around 30 % of the total water consumed in Northern Ireland. The continued roll out of metering in that sector will incentivise efficient use of water resources and help achieve the aims of the Directive. Water and sewerage charges were extended to all non-domestic customers on 1st April 2008.

Water Pricing for Households

It is considered that households make a contribution towards the costs of water and sewerage services through contributions paid through the domestic regional rate. It is estimated that this contribution equated to about half of the level of funding required to provide services to domestic customers in 2008/09. In the absence of specific additional household water and sewerage contributions, the Northern Ireland Executive, through the DRD, provides NIW with monthly payments (on behalf of domestic customers), raised through central Government taxes to cover the remaining cost for its services. Therefore the cost of providing water and sewerage services for domestic users is both directly and indirectly borne by the householders who benefit from these services.

The necessary regulatory and financial structures are in place to implement any Northern Ireland Executive decisions on future funding arrangements. In line with Article 9 of the Directive, and to ensure compliance with the terms of NIW's Licence, the costs of providing water and sewerage services are apportioned between each of the customer groups (including households) on a fair and equitable basis.

Application of Article 9(4) of the Water Framework Directive (WFD)

Article 9(4) provides a justification for not implementing full water pricing for all significant uses where this does not compromise the purposes and achievement of the objectives of the Directive. Water pricing policies are required to take into account social, environmental and economic factors as well as geographic and climatic conditions.

Due to Northern Ireland's relatively wet climate (annual average rainfall of about 1150mm across the first WFD cycle), there have not been any water scarcity issues within the 3 Northern Ireland River Basin Districts during the last 10 years. Furthermore demand for water as indicated by the Distribution Input (DI) measure has decreased by almost 11 % over the period of the first WFD cycle.

Northern Ireland has a strong record of compliance with many of the key EU water Directives, such as the Bathing Water Directive, the Nitrates Directive and the Urban Waste Water Treatment Directive, which form the framework of basic measures under the WFD. The improvements in terms of bathing water quality, drinking water quality and compliance with the Urban Waste Water Treatment Directive have been in part attributable to the level of investment over the last number of years by NIW.

The water pricing policy for domestic households has not significantly impaired the achievement of the WFD objectives in Northern Ireland and it takes account of the relevant environmental, climatic, social and economic factors. Therefore it is considered that the water pricing policy for households meets the conditions set out in Article 9(4) of the WFD.

Promotion of Efficient and Sustainable Water Use

To help meet the sustainable water use aims as described in the WFD, the Order places a duty on NIW to promote the efficient use of water by customers. The independent Utility Regulator has the power to enforce this duty.

It is an offence to waste water from a water source allowing a water source to run to waste or by abstracting more than is licensed under the Abstraction and Impoundment Licensing Regulations (NI) 2006. The abstraction licences issued to NIW during 2007 are continually reviewed to ensure compliance with the Directive in terms of both water quantity standards and ecological need.

NIW currently has an extensive programme for promoting and improving water efficiency and conservation. This includes:

- continuing to invest in reducing water mains leakage: in 2014/15 the leakage was at 166Ml/d;
- reducing the total water put into the NIW network from 632Ml/d in 2008/9 to 565Ml/d in 2014/15;
- attending major public exhibitions, hosting events at its Silent Valley Education Centre and organising educational visits to schools and communities;
- travelling throughout the River Basin District areas using its Waterbus (mobile classroom) to teach pupils about issues such as water efficiency;
- publishing education leaflets for customers on water topics such as using water wisely;
- running campaigns designed to increase awareness of the need for water conservation and more environmentally friendly lifestyle choices and behaviours;
- implementing and enforcing the requirements of the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 which include an offence of installing or failing to maintain a fitting which wastes or misuses water supplied by NIW;
- by adding to the monitoring network in Northern Ireland to more accurately measure the volumes abstracted from each of the surface and groundwater sources currently operated by NIW; more detailed monitoring may identify reductions in volume or sources in the future;
- delivering catchment scale projects with support from NIEA officials to monitor and identify mitigation works which may be required under the Directive to ensure compliance; and
- preparing a Water Resource and Supply Resilience plan.

Section 3 About the North Eastern River Basin District

The water environment in the North Eastern RBD and the plentiful biodiversity it supports is one of our greatest assets. The decisions we make about the way we use it are inextricably linked to economic prosperity and well-being in the North Eastern RBD. There are economic and health gains to be realised when high environmental and heritage standards are attained. There are opportunities to either save money or generate wealth through a better, wiser and more integrated approach to using our environmental assets, for example: in recognising the huge savings to be made through the vital role our peatlands can play in naturally improving our water quality; how investing in our wetlands and river catchments can help prevent costly flooding; and maximising the economic and health benefits of visitors and locals alike spending time in our outstanding natural heritage.

The Garron Plateau is the largest intact peatland in Northern Ireland and a Special Area of Conservation (SAC), Special Protection Area (SPA), and an Area of Special Scientific Interest (ASSI). It is a Ramsar wetland of international importance, and one of the best examples of blanket bog in Ireland. It provides a wide range of vital services to society well beyond its intrinsic value. The blanket bog on this site helps to prevent flooding as it delays peak flows following rainfall; purifies water which contributes to savings in the costs associated with drinking water treatment at Dungonnell Reservoir; provides a natural solution to global warming as it increases storage of carbon that would otherwise contribute to climate change (soils store more carbon than vegetation and in Northern Ireland peat is estimated to hold about 42 % of the soil carbon store); and is vital for the successful life cycle of thousands of animal and plant species which are part of a complex ecosystem, providing a home for flora and fauna. The Garron Plateau also gives us a beautiful landscape, a place to walk in and to enjoy while improving our mental and physical health.

In 2004 the ASSI was surveyed by NIEA and found to be in unfavourable ecological condition due mainly to overgrazing which is the single biggest threat facing this habitat here, and across most areas of Northern Ireland. The site was surveyed again in 2010 and remains unfavourable while showing some signs of recovery. NIEA and the

Ballintoy Harbour


Cuttlefish

Royal Society for the Protection of Birds (RSPB) started working in partnership with NIW, the largest landowner on the Garron Plateau, to begin to help remedy the situation and to bring the site into favourable ecological condition. This will include the large-scale restoration of almost 2,000ha of peatland, mainly blanket bog primarily through appropriate grazing. The Northern Ireland Biodiversity Strategy aims to halt the decline of priority habitats and species in the Garron Plateau by 2016.

River basin planning takes an integrated approach to the protection, improvement and sustainable use of the water environment. It applies to groundwater (underground water) and to all surface water bodies including rivers, lakes, transitional (estuarine) and coastal waters out to one nautical mile, as well as wetlands which are directly associated with ground or surface waters.

In an effort to reduce water quality issues and improve the water environment in the North Eastern RBD, management during the first cycle was coordinated at a local level through Local Management Area (LMA) Action Plans. A LMA is an area with several, often interconnected, areas of water, such as rivers, lakes, transitional and coastal waters or groundwaters. The North Eastern RBD was divided into eight such areas (Map 2, page 18).

For the second cycle, a new, targeted approach to operational delivery will be implemented through the formation of NIEA Water Management Unit River Basin District Groups delivering in partnership with other government agencies and stakeholders. Actions will be targeted through a series of catchment projects.

For example the development of a strategic drainage infrastructure programme in partnership with key stakeholders to improve water quality within the Belfast Lough Catchment. The 'Living With Water Programme' will determine the capital investment necessary to protect against flood risk (excluding flooding from the sea), enhance the environment and support economic growth. The programme will take a holistic, integrated approach to planning future drainage provision for the Belfast Lough Catchment. Early estimates for the project delivery stage range from £350m to £750m.

The North Eastern RBD has an annual forum for stakeholders to discuss water management issues in their local area and to work in partnership to address them. The North Eastern RBD has dedicated Catchment Management Officers working in the area.

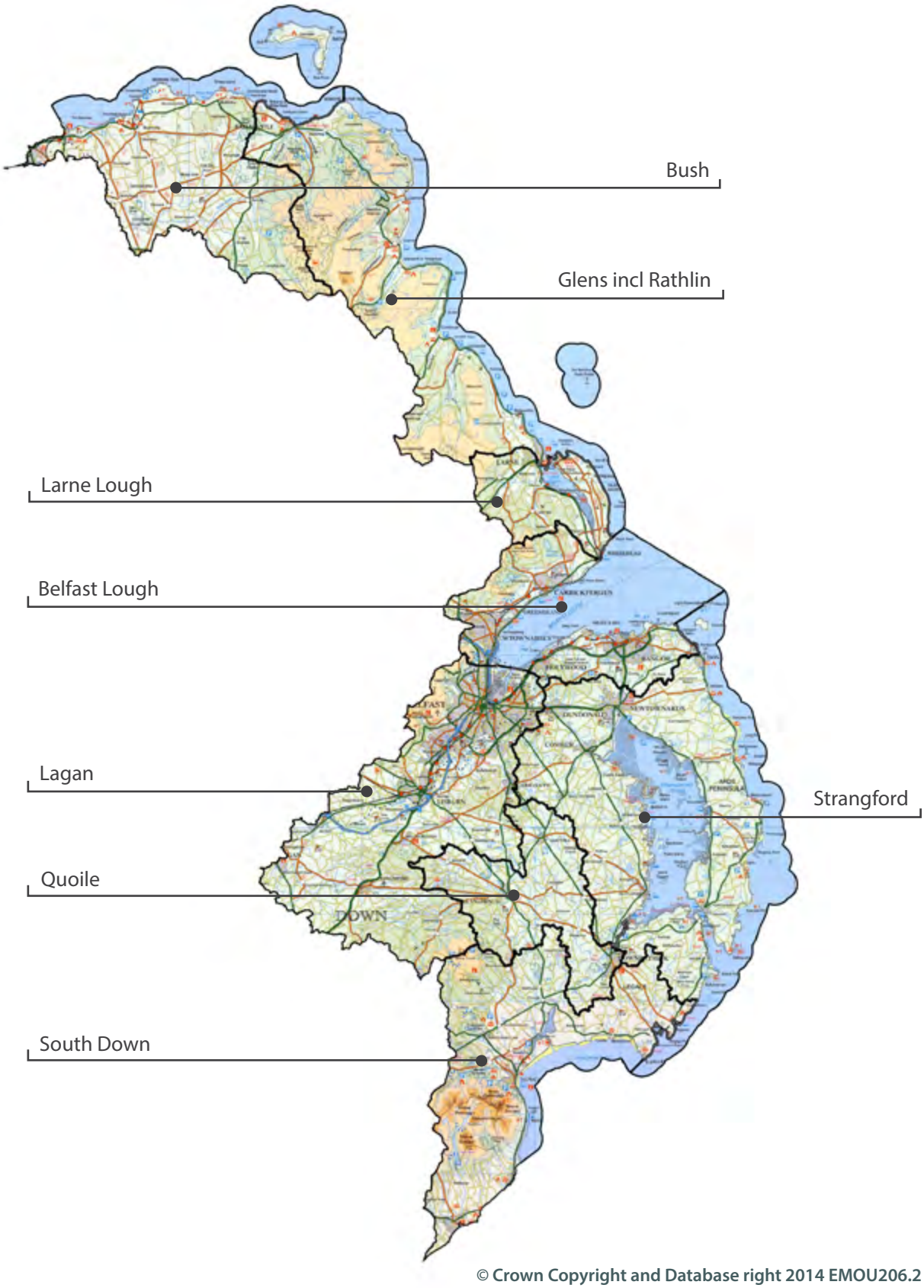
The District Stakeholder Groups feed into an overarching National Stakeholder Forum covering the whole of Northern Ireland, and which meets regularly to discuss nationally important water management issues related to specific sectors.

Information about River Basin District Groups can be found on the website.


Stakeholders

Map 2:

Local Management Areas in the North Eastern River Basin District



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Working Silage

Section 4 Water Bodies in the North Eastern RBD

4.1 Surface water bodies

Water bodies are the basic management units for reporting and assessing compliance with the Directive's environmental objectives. For the second cycle there will be 109 water bodies in the North Eastern RBD, including rivers, lakes, transitional and coastal waters. Table 2 below illustrates the number of water bodies in this Plan.

Heavily modified and artificial water bodies

The WFD recognises that some water bodies will have been changed to such a degree that they can no longer be restored to their original condition without compromising their current use. For example, some waters have been deepened to allow for navigation; others have flood defences or have been dammed to provide a source of drinking water. They are called **heavily modified (HMWBs) or artificial water bodies (AWBs).**

With engagement with relevant stakeholders HMWBs and AWBs were designated and classified for the first Plan. During the first cycle these designations have been verified on the ground which has led to recommendations for de-designation. Alongside this, new water bodies have been brought to our attention through stakeholder engagement as potential heavily modified with significant changes in their character due to specified use in or around the channel.

Table 3 below summarises the number of HMWBs in the North Eastern RBD. Those water bodies that are no longer heavily modified will be required to meet Good Ecological Status as set out by the Directive.

Further information on the changes to surface and heavily modified water bodies can be found within the **supporting documents** on the website.

4.2 Groundwater bodies

In the second cycle there will be 14 groundwater bodies (10 bedrock and 4 superficial) within the North Eastern RBD.

Further information on the changes to groundwater bodies can be found within the **supporting documents** on the website.

4.3 Protected areas

The North Eastern RBD supports important habitats and wildlife, including areas identified as requiring special protection under existing European legislation. These areas need action to protect their surface water or groundwater, or to conserve habitats or species that directly depend on those waters. Protected areas may be part of a water body, for example bathing waters, or may

Table 2:

Number of surface water bodies second cycle within North Eastern River Basin District

	No of water bodies
Water Body Type	Second RBMP
Rivers	89
Lakes	3
Transitional	2
Coastal	15

Table 3:

Number of HMWBs within North Eastern River Basin District

	Second RBMP
Water Body Type	HMWB
Rivers	15
Lakes	2
Transitional	2
Coastal	2

be a group of water bodies, for example areas designated for species or habitats of international conservation importance under the Birds Directive (79/409/EEC) and Habitats Directive (92/43/EEC).

The North Eastern RBD has a total of 27 water dependent Natura 2000 sites (that is Special Areas of Conservation and Special Protection Areas for wild birds) which has not changed since 2009.

In the 2009 North Eastern RBMP 57 % of these sites did not meet their conservation objectives, whilst 38 % were compliant and 5 % were yet to be assessed. The most up to date assessment indicates that all sites have now been assessed and whilst 57 % of sites are now failing to meet conservation objectives, the remaining 43 % of sites are compliant.

Both the Shellfish Directive (79/923/EEC) and Freshwater Fish Directive (78/659/EEC) were revoked on 22 December 2013 and have been subsumed under WFD. Areas designated under both these Directives have become areas designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register.

Table 4 on page 22 lists the number of protected areas in the North Eastern RBD and further information is provided in the Protected Areas section of the website.

The protected areas are shown on the **interactive web map**.

Newcastle Coastline

Table 4:

Protected Areas in the North Eastern River Basin District

Protected Area Type	Location
Waters used for the abstraction of drinking water (drinking water protected areas)	There are 16 drinking water protected areas; 6 in surface waters to serve the following WTW's - Altnahinch, Dungonnell, Fofanny, Dorisland, Drumaroad, Rathlin; and 10 for groundwaters
Areas designed to protect economically significant aquatic species	
Fish	662 km of rivers, 5.5 km^2 of canals and 2 km2 of lakes are designated for fish
Shellfish Waters	There are 7 shellfish waters in the North Eastern District: Belfast Lough; Dundrum Bay; Killough Harbour; Larne Lough; Marlfield Bay; Paddy's Point and Reagh Bay; and Skate Rock
Bathing waters	
These are bathing waters as identified under the Bathing Water Quality Directive (2006/7/EC)	There are 17 identified bathing waters in the North Eastern District: Ballycastle; Ballygally; Ballyholme; Ballywalter; Brown's Bay; Carnlough; Crawfordsburn; Groomsport; Helen's Bay; Millisle; Murlough; Newcastle; Portballintrae Salmon Rock; Portrush Curran Strand; Portrush Whiterocks; Tyrella; and Waterfoot
Nutrient Sensitive Areas	
Areas designated as sensitive under the Urban Waste Water Treatment Directive (91/271/EEC) and the Nitrates Directive (91/676/EEC)	There are 16 Urban Waste Water Treatment Directive sensitive areas: Paddy's Point and Reagh Bay Shellfish Water; Ballyholme Bathing Water; Ballyholme Bathing Water Catchment; Inner Belfast Lough; Inner Belfast Lough Catchment; Inner Dundrum Bay; Dundrum Bay catchment; Newcastle Bathing Water; Newcastle Bathing Water Catchment; Quoile Catchment; Quoile Pondage; River Bush Catchment; River Enler Catchment; River Lagan Catchment; Strangford Lough (North End) Catchment; and Tidal Lagan A total territory approach has been adopted in Northern Ireland for the Nitrates Directives
Areas designated for the protection of habitats or species (Natura 2000 sites)	
These are areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection Habitats Directive (92/43/EEC)	There are 16 water dependent Special Areas of Conservation: Rathlin Island; North Antrim Coast; Breen Wood; Garry Bog; Turmennan; Hollymount; Lecale Fens; Strangford Lough; Murlough; Ballykilbeg; Aughnadarragh; Eastern Mournes; and Garron Plateau; The Maidens Site of Community Importance (SCI); Red Bay (SCI); and Skerries and Causeway (SCI)
Birds Directive (79/409/EEC)	There are 11 water dependent Special Protection Areas: Belfast Lough; Killough Harbour; Larne Lough and Swan Island; Outer Ards; Rathlin Island; Strangford Lough; Antrim Hills; Sheep Island; Belfast Lough Open Water; and Copeland Islands
Ramsar Sites (Wetlands of international importance designated under the Ramsar Convention)	Larne Lough, Belfast Lough, Outer Ards, Strangford Lough and Killough Bay Special Protection Areas (SPAs) are also designated as RAMSAR sites. The boundaries of the designated areas are the same but non-bird features may also be taken into account

Johann, Cushendun

Section 5 Assessing the State of Our Water Environment

Our understanding of the state of Northern Ireland's water environment has developed as we have adapted to the requirements of the WFD. When assessing water status, we consider both ecological and chemical quality, as well as the pressures that can affect them. The ecological and chemical classification results for surface waters are combined to give an overall status in one of five classes: high; good; moderate; poor; and bad. Groundwater bodies are assigned to either good or poor status, for chemical quality and water quantity.

Classification of water bodies helps us in planning what measures might be required for improvements; it will eventually show how our actions have benefitted our environment.

Environmental Standards are an essential element in the implementation of WFD and are used for classification, objective setting, monitoring and regulation of water use. In particular, standards are used to help assess risks to the ecological quality of the water environment and subsequently to identify the scale of improvements that would be needed to bring waters under pressure back into a good condition.

The WFD requires that the overall status of the water body is determined by the lowest status from all the standards that are assessed. This is known as the 'one out, all out' rule. To have high status, for example, a water body cannot fail any of the standards associated with high status. The hydromorphological elements can only downgrade an otherwise high status water body to good.

Read about how we classified our water bodies in **supporting documents** on the website.

5.1 Changes to classifying the state of our water bodies

The classification tools and standards that have been used for WFD classification in 2015 have changed during the first river basin cycle.

UKTAG undertook a technical review of the tools and standards, and consultation exercises were undertaken in 2012 and 2013. As a result a number of recommendations were made. These were incorporated in The Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015. An overview of the main changes is listed below.

Ecological assessment methods

New and revised ecological assessment methods and associated standards have been adopted. The standards for good status for the majority of the methods have been benchmarked against the corresponding standards used to define good ecological status across Europe. The new methods provide the most comprehensive understanding yet of the ecological impact of nutrient pollution.

Water quality standards

New or revised water quality standards for a wide range of toxic pollutants in surface waters and groundwater, for phosphorus, for oxygen conditions and for acidity in rivers have been adopted. The standards incorporate the latest understanding of the ecological risk posed by the pollutants and include, for example, standards for a number of metals that, for the first time, take account of local environmental characteristics that affect how much of the metal is bound up and so unavailable to cause toxic effects.

River flow and lake level standards

Revised standards for river flows and water levels in freshwater lakes have been introduced. The research and work carried out by UKTAG identified that, in particular circumstances, the existing standards may overestimate ecological risk. The new standards are designed to remedy this.

Further information on the new classification tools and standards can be found in **supporting documents** on the website.

5.2 Current state of our water bodies: 2015 classification

Surface water classification

There are 109 surface water bodies in the North Eastern RBD, comprising of 89 rivers, 3 lakes and 2 transitional and 15 coastal water bodies. 2015 classification results indicate 26 (24 %) of our 109 surface water bodies are at good or better status or potential. Of the remaining water bodies 66 (61 %) are classified as moderate, 15 (13 %) poor and 2 (2 %) bad. The results are illustrated in Map 3 on page 27 and summarised in Table 5 below for each surface water category.

Rivers

There are 89 rivers in the North Eastern RBD. The majority of our individual quality elements monitored are at good status (74 %) however because of the one out all out rule for classification it has led to many water bodies not achieving overall good status. Table 6 on page 27 lists the numbers of rivers achieving high or good standards for each quality element.

Lakes

There are three lake water bodies but only one is at overall good status because of the one out all out rule. 52 % of elements monitored are at good status or better. Table 7 on page 27 lists the numbers of lakes achieving high or good standards for each quality element.

Marine

There are 17 marine water bodies in the North Eastern RBD with the majority (79 %) of those elements monitored at good status. Table 8 on page 27 lists the numbers of marine water bodies achieving high or good standards for each quality element.

The 2015 status of individual water quality elements and the reasons for status of individual water bodies can be viewed on the interactive web map.

Many of our elements are at good status as discussed above, however because of the one out all out rule for classification many water bodies are not achieving overall good status. Table 9 on page 27 illustrates 22 (20 %) of our 109 surface water bodies are failing only one element.

Table 5:

Overall 2015 Classification for Surface water bodies in the North Eastern River Basin District

2015 Classification	Rivers	Lakes	Transitional	Coastal	Total No of water bodies	% of water bodies
HIGH	0	0	0	1	1	1
GOOD	18	0	0	6	24	22
MODERATE	44	1	0	6	51	47
POOR	11	0	0	0	11	10
BAD	1	0	0	0	1	1
GEP*	0	1	0	0	1	1
MEP*	11	1	1	2	15	14
PEP*	3	0	1	0	4	3
BEP*	1	0	0	0	1	1
Total	89	3	2	15	109	100

* HMWBs and AWBs are classified as ecological potential

Map 3:

2015 Status of surface water bodies

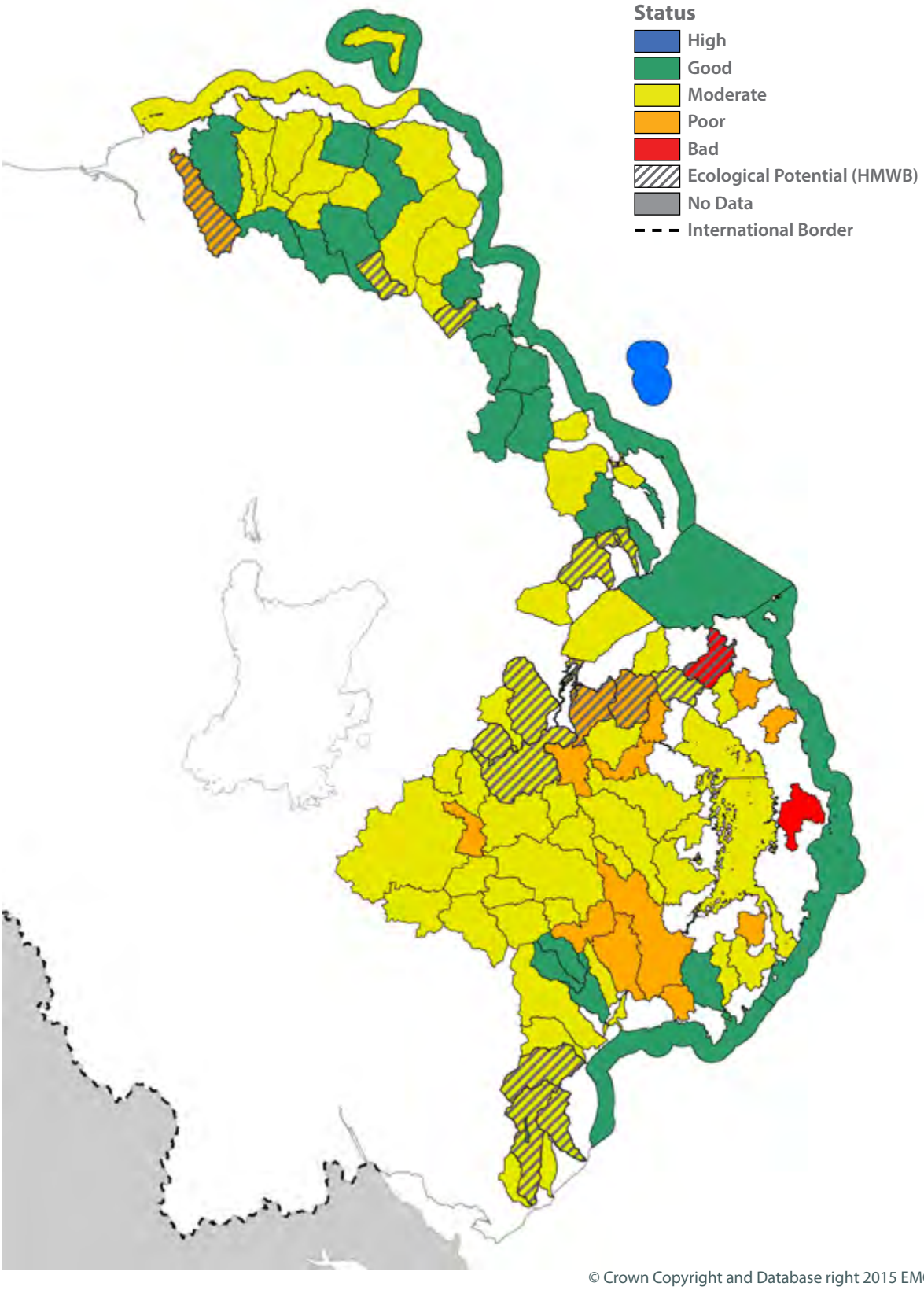

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Table 6:

High and Good quality elements for river water bodies in the North Eastern River Basin District

Quality Element	High/Good RWBs	Total RWBs Monitored
Invertebrates	47	85
Macrophytes	65	85
Fish*	6	19
Diatoms	65	85
Dissolved Oxygen (DO)	71	84
Soluble Reactive Phosphorus (SRP)	41	84
pH	82	84
Total Ammonia	79	84
Other Specific Pollutants	42	47
Hydrology	67	89
Morphology	6	40
Chemical status	45	48
Total	**616**	**834**

*Fish are monitored at surveillance sites only

Table 7:

High and Good quality elements for lake water bodies in the North Eastern River Basin District

Quality Element	High/Good LWBs	Total LWBs Monitored
Priority Substances	3	3
Phytoplankton	1	3
Diatoms-LTDI 2	2	2
Macrophytes	0	3
Fish	0	1
Total Phosphorus (TP)	1	3
Salinity	3	3
Dissolved Oxygen (DO)	1	2
Specific pollutants	1	3
Hydrology	1	3
Morphology	2	3
Total	**15**	**29**

Table 8:

High and Good quality elements for marine water bodies in the North Eastern River Basin District

Quality Element	High/Good MWBs	Total MWBs monitored
Phytoplankton	14	16
Macroalgae	13	15
Angiosperms	1	2
Benthos	10	13
Fish	0	1
Dissolved Oxygen	15	17
Dissolved Inorganic Nitrogen (DIN)	13	16
Specific Pollutants	3	11
Hydrology	17	17
Morphology	17	17
Chemical status	4	11
Total	**107**	**136**

Table 9:

Number of quality elements failing for each surface water category in the North Eastern River Basin District

	Number of Quality Elements Failed				
NE RBD	0	1	2	3 +	Total
Rivers	15	20	16	38	89
Lakes	0	0	0	3	3
Marine	7	2	3	5	17
Total	**22**	**22**	**19**	**46**	**109**

The 2015 status of individual water quality elements for each surface water body and the reasons for status of individual water bodies can be viewed on the interactive web map.

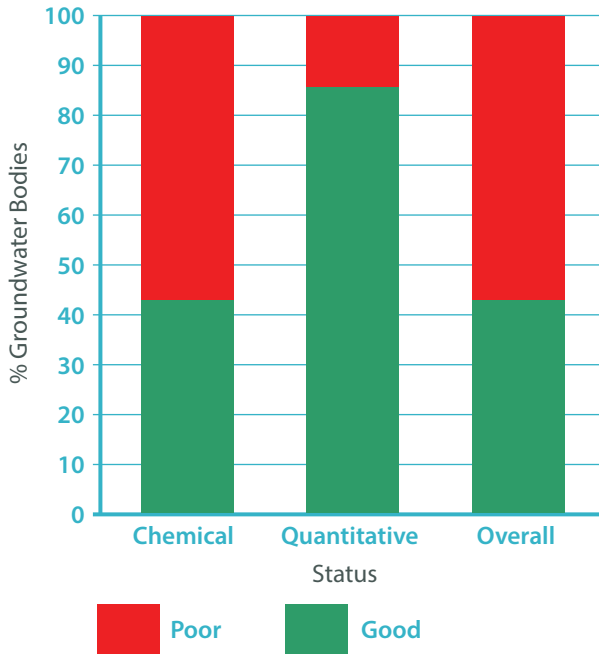
Groundwater Classification

There are 14 groundwater bodies (GWBs) in the North Eastern RBD (10 bedrock and 4 superficial). Unlike surface waters, groundwater is only classified at good or poor status for quantitative and chemical status. Overall good status requires both the quantitative and chemical status to be at good. In the North Eastern RBD 12 water bodies have been classified at good quantitative status and 6 at good chemical status. When assessments are combined six groundwater bodies are at overall good status. A summary of groundwater classification is illustrated in Figure 3 below and Table 10 on page 29 and overall groundwater status for bedrock and superficial bodies is illustrated in Map 4 on page 30.

More detailed information on 2015 classification of individual groundwater water quality elements and the reasons for status can be found within **supporting documents** on the website.

Figure 3:

2015 status of quality elements for groundwaters in the North Eastern River Basin District



Groundwater Tests

Overall groundwater status is determined by a number of tests. The one out all out rule also applies to these tests when assessing overall groundwater status. Of the groundwater bodies assessed 82 % of the tests achieve good status. Table 11 on page 29 lists the numbers of groundwater bodies achieving good for each groundwater test and Table 12 on page 29 illustrates 6 (43 %) of our groundwater bodies are failing only on one test.


Black Headed Gull

Table 10:

2015 Chemical quality and quantitative status of groundwater bodies (superficial and bedrock) in the North Eastern River Basin District

2015 Status of groundwater bodies		Chemical Quality No of groundwater bodies	Quantitative No of groundwater bodies	Overall Status No of Groundwater bodies
Bedrock and Superficial	Good	6	12	6
	Poor	8	2	8

Table 11:

Number of groundwater tests at good in the North Eastern River Basin District

Groundwater Test	Total GWB good	Total GWB
Drinking Water Protected Area	10	14
Groundwater Dependent Terrestrial Ecosystem	14	14
Saline Intrusion	12	14
Surface Water Chemical	6	14
Surface Water Quantitative	14	14
Water Balance	13	14
Total	**69**	**84**

Table 12:

Number of groundwater tests failing for groundwater in the North Eastern River Basin District

	Number of Tests Failed				
NE RBD	0	1	2	3 +	Total
Groundwater	6	3	4	1	14

Map 4:

2015 Overall status for groundwaters

Status

- Good
- Poor
- Significant and Sustained Upward Trend
- International Border

Overall status of Bedrock groundwater bodies

Overall status of Superficial groundwater bodies

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5.3 Progress to date against our current objectives and reasons for not meeting good status

In 2009 we stated that we would be able to achieve good status or better in 49 % of our surface water bodies within the North Eastern RBD by 2015. In 2009, 18 % of our surface waters were at good status, and our 2015 classification indicates that we have now achieved good status in 24 % of all surface water bodies. Table 5 on page 25 illustrates a summary of 2015 classification for all surface waters in the North Eastern RBD.

In 2009 we aimed to achieve good status or better in 48 % of our rivers with the remaining 52 % at moderate or less. Our 2015 classification states we have achieved good or better in 20 % of our rivers, 62 % moderate, 16 % poor and 2 % bad.

Further analysis of surface waters indicate all 3 lakes have met their 2015 objective with Silent Valley achieving GEP. Ten of the 17 marine water bodies have met their 2015 objective with 7 reaching good or better.

We aimed to achieve good status in 88% of groundwater bodies by 2015. Results indicate that 6 (43 %) out of 14 groundwater bodies have achieved an objective of overall good status.

We have investigated reasons why good status is not being achieved as set out below.

Significant issues and pressures

Many of our elements are at good status however because of the one out all out rule for classification it has led to many water bodies not achieving overall good status. We have investigated the failing elements that have resulted in water bodies in the North Eastern RBD not reaching good status.

- More than 15 % of river water bodies in the North Eastern RBD have failures in diatoms, macrophytes and soluble reactive phosphorus, either individually or in combination. Failures in these three elements can be an indication that nutrient enrichment is a problem and sources of these could be attributed to agriculture and point sources such as waste water treatment works (WWTWs), industrial discharges and septic tanks. Nutrient enrichment is also the main reason for failure for lake, transitional and coastal water bodies.
- Approximately 10 % of North Eastern river water bodies have failures in invertebrates, dissolved oxygen and ammonia elements either individually or in combination. Failure in these elements would indicate pressures from agriculture and point sources such as WWTWs, septic tanks and industrial discharges.
- A further 40 % of North Eastern river water bodies have failures in a combination of the above failing elements.
- Overall, 22 % of river water bodies in the North Eastern RBD fail on one element only.
- All of our failing lakes have failures in three or more quality elements. These include failures in phytoplankton, macrophytes, diatoms, total phosphorus, fish or morphology.
- In the marine environment five water bodies have failures in three or more quality elements. These include failures in benthos, fish, phytoplankton, Dissolved Inorganic Nitrogen, specific pollutants and chemical quality either individually or in combination.
- Five of the eight failing groundwater bodies fail on two or more tests from: drinking water protected area test which assesses the impact of groundwater quality on potential use for drinking water in designated areas; intrusion of water of different quality test namely chloride and electrical conductivity; surface water chemical test to assess chemical interaction between surface water and groundwater; or water balance test which compares the rate of groundwater replenishment to ecological flows and groundwater abstractions.
- From pressure assessments conducted we have identified two significant sources of pressure preventing water bodies from achieving good status in the North Eastern RBD. These are diffuse pressures from agricultural sources and point source pressures from urban wastewater and development.

Timescale for recovery

It takes time to turn plans into changes on the ground. It also takes time for changes on the ground to be reflected in monitoring results. This

is partly due to lag times in the recovery of plant and animal communities and partly because classification results are based on combining and averaging monitoring results collected over a number of years. In terms of groundwater it may be many years before the objective is achieved.

Deterioration

All water bodies have an objective to prevent deterioration in the water body's classification status. We have assessed if there is deterioration in overall water body status by assessing the current 2015 classification against the baseline classification reported for a water body in the 2009 river basin plan. Since 2009 there have been a number of changes which could affect the overall status including changes in the water quality standards, ecological assessment methods and an increase in the range of quality elements monitored. In addition we now monitor more extensively for some elements, such as phytobenthos, so more evidence on the status of the surface water bodies has become available. In our groundwater bodies new information has become available which has enabled us to carry out more detailed assessments for saline intrusion and groundwater dependent ecosystems. Therefore there are changes affecting status resulting from monitoring and assessment methods, as well as real impacts on the water environment. We have reviewed all water bodies showing a downgrade in status, and confirmed deterioration in overall water body status only where this has occurred when using a directly comparable monitoring or assessment method.

In the North Eastern RBD no water bodies have deteriorated in overall status since 2009.

Further information on deteriorating water bodies can be found on our website

Woodburn

Castle Espie

Section 6 What we plan to achieve by 2021 and beyond

Establishing environmental objectives to deliver improvements in water quality is a key part of the river basin planning process. Environmental objectives aim to:

- provide at least good status for all water bodies;
- prevent deterioration in status;
- promote sustainable development; and
- achieve specific standards for protected areas.

The objectives set the water status to be achieved for all surface water bodies and groundwaters. They should provide an appropriate balance between protecting and improving the water environment and ensuring that sustainable activities can continue and flourish.

6.1 Our starting point

In 2009, we established environmental objectives to deliver improvements or prevent deterioration of water quality for individual river, lake, marine and groundwater bodies for the three river basin planning cycles to 2015, 2021 and 2027.

During 2014 and 2015 we conducted a review of our 2021 and 2027 objectives based upon our 2015 baseline classification results (Maps 3 and 4 in Section 5). The 2015 classification results indicate that 24 % of our surface water bodies are already achieving the standards for good status or higher in the North Eastern RBD. For groundwater, the classification results indicate that 43 % of groundwater bodies are at overall good status. For all these water bodies we will aim to maintain good status and prevent deterioration.

6.2 Exemptions to the environmental objectives

The WFD recognises that achieving good status in all surface water bodies may not be possible for reasons as set out in Article 4.4 and 4.5 of the WFD. These objectives are referred to as alternative objectives. There are two types of alternative objective, extended deadline and less stringent objectives.

In such cases, as long as the water body is not allowed to deteriorate, the necessary improvement may extend over several planning cycles. We can set extended deadline objectives for achieving good ecological status by 2027 for reasons of:

- technical feasibility;
- carrying out the improvements by 2015 may be disproportionally expensive; and
- natural conditions may not allow for timely improvements.

We can also set an extended deadline objective of good status beyond 2027 for natural conditions whereby ecological recovery time in lakes and natural recovery time in groundwaters can be justified.

The WFD also allows a less stringent objective to be set, where it is considered that good status cannot be achieved by 2027 for the reasons of technical feasibility or disproportionally expensive.

At present we have set extended deadlines in preference to less stringent objectives where an alternative objective was considered necessary.

6.3 Protected Area Objectives

Protected areas have their own objectives and standards set out under the legislation that governs them. These objectives and standards and deadlines for implementation set out in the legislation for the protected areas must be adhered to. For Natura 2000 sites we have developed an approach for alignment of environmental standards and objectives under both WFD and the Habitats Directive. For Natura 2000 protected areas we have agreed an overall objective of good status by 2021. In addition, those elements at high will be maintained as high under the no deterioration principle. For 2027 we will identify objectives at element level at good or high for Natura 2000 protected areas.

6.4 How we set our objectives

In setting environmental objectives we have tried to be realistic and the objectives for 2021 have been set in the light of the new evidence we have gathered through our monitoring programmes and investigations carried out to date in partnership with local stakeholder groups

and what further improvements measures are expected to deliver over the next two planning cycles.

Those water bodies currently at good and high status we aim to keep at good and prevent deterioration. Where it is considered that good status cannot be achieved by 2021 we aim to prevent deterioration from its current status and achieve good status as soon as feasible thereafter.

The judgement on what was considered achievable by 2021 was established through a series of workshops carried out in 2015. The workshops reviewed each water body individually examining the impacts observed, trends over time, the effects of the current measures and effect of agreed and funded measures to deliver good status. For each water body, the pressures causing less than good status were examined to determine whether good status is likely to be achieved by 2021, or a further extension is required to 2027.

Read more on how we set our objectives in **supporting documents** on the website.

6.5 What we plan to achieve by 2021 and beyond

Surface waters

Map 5 on page 36 and Table 14 below illustrate that we aim to meet at least good status or potential in 57 (52 %) of our 109 surface water bodies by 2021. By 2027 we aim to achieve at least good status or potential in all of our surface water bodies (Map 6, page 37).

Rivers

We have set an extended deadline objective to achieve good by 2027 in 45 rivers for the reasons of technical feasibility and natural conditions. Further details of individual water bodies objectives can be found on our web map.

Lakes

When setting objectives for lakes we considered the long term ecological recovery time it may take for plants and animals to re-colonise and become established. Our aim is to prevent deterioration in current status for all our lakes for 2021 and move to achieving good in all three lakes by 2027.

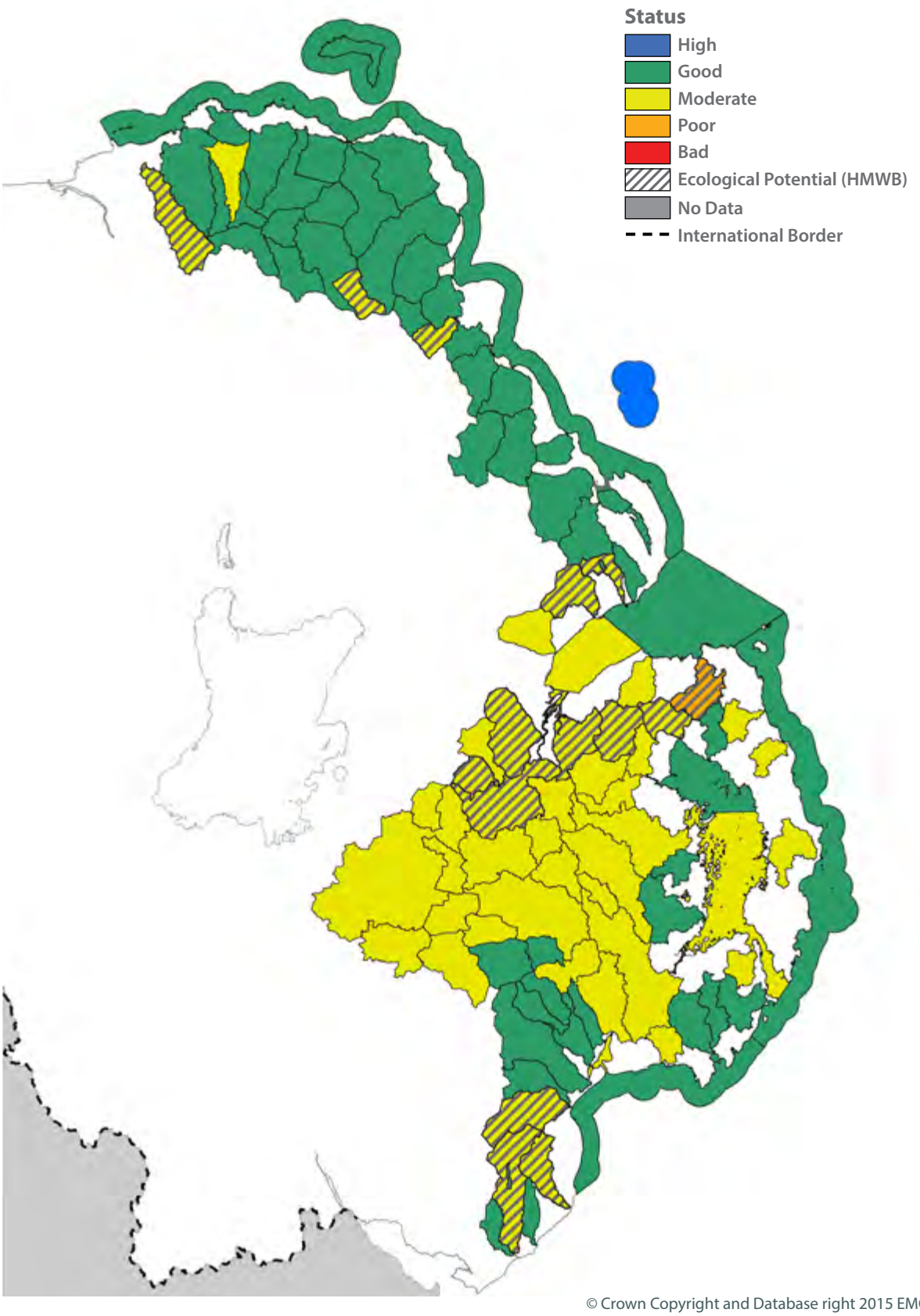
Table 14:

Surface water bodies objectives in the North Eastern River Basin District for 2021 and 2027

	Number of water bodies	
Surface Water Objective	2021	2027
HIGH	1	1
GOOD	53	87
MODERATE	34	0
POOR	0	0
BAD	0	0
Good Ecological Potential	3	21
Moderate Ecological Potential	17	0
Poor Ecological Potential	1	0
Bad Ecological Potential	0	0
Total	109	109

Map 5:

2021 Objectives for surface water bodies



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Map 6:

2027 Objectives for surface water bodies

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Transitional and Coastal

Our aim is to prevent deterioration in all marine water bodies and increase the number from seven to eleven in achieving good by 2021. We have set extended deadline objectives for six water bodies to achieve good by 2027 for the reasons of technical feasibility. We aim to achieve good in all marine water bodies by 2027.

Groundwater

Map 7 on page 39 and Table 15 below illustrate 6 of our 14 groundwater bodies will be maintained at overall good status by 2021. By 2027 we believe we will meet good status in 100 % of our groundwater bodies (Map 8, page 40) and have set an extended deadline of good by 2027 based upon groundwater status recovery time. We believe that recovery will take longer, but we currently are unable to project beyond 2027.

Further details of individual water bodies objectives can be found on our website.

Table 15:

Groundwater bodies in the North Eastern River Basin District at good from 2015-2027

Groundwater status	2015	2021	2027
Good	6	6	14
Poor	8	8	0

Map 7:

2021 Objectives for groundwater bodies

Status

- Good
- Poor
- International Border

Bedrock groundwater bodies

Superficial groundwater bodies

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Map 8:

2027 Objectives for groundwater bodies

Status

- Good
- Poor
- International Border

Bedrock groundwater bodies

Superficial groundwater bodies

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Connswater

Section 7 Measures we will use to achieve environmental objectives

Significant Water Management Issues

Our environmental objectives set out what we want to achieve. The next step is to work out how we are going to do that. Using all the research and evidence we have gathered to date, along with the responses to the draft RBMP, we have reviewed the draft programme of measures published in 2014.

In the preceding sections, we have summarised the failing elements that have resulted in water bodies in the North Eastern RBD not reaching good status:

- More than 15 % of river water bodies in the North Eastern RBD have failures in diatoms, macrophytes and soluble reactive phosphorus, either individually or in combination. Failures in these three elements can be an indication that nutrient enrichment is a problem and sources of these could be attributed to agriculture and point sources such as waste water treatment works (WWTWs), industrial discharges and septic tanks. Nutrient enrichment is also the main reason for failure for lake, transitional and coastal water bodies.
- Approximately 10 % of North Eastern river water bodies have failures in invertebrates, dissolved oxygen and ammonia elements either individually or in combination. Failure in these elements would indicate pressures from agriculture and point sources such as WWTWs and industrial discharges.
- A further 40 % of North Eastern river water bodies have failures in a combination of the above failing elements.
- Overall, 22 % of river water bodies in the North Eastern RBD fail on one element only.
- All of our failing lakes have failures in three or more quality elements. These include failures in phytoplankton, macrophytes, diatoms, total phosphorus, fish or morphology.
- In the marine environment five water bodies have failures in three or more quality elements. These include failures in benthos, fish, phytoplankton, Dissolved Inorganic Nitrogen, specific pollutants and chemical quality either individually or in combination.
- Five of the eight failing groundwater bodies fail on two or more tests from: drinking water protected area test which assesses the impact of groundwater quality on potential use for drinking water in designated areas; intrusion of water of different quality test namely chloride and electrical conductivity; surface water chemical test to assess chemical interaction between surface water and groundwater; or water balance test which compares the rate of groundwater replenishment to ecological flows and groundwater abstractions.

Our Programme of Measures aims to address the key pressures by concentrating our efforts on those pressures that pose the greatest threat to the water environment. From pressure assessments conducted we have identified two significant sources of pressure preventing water bodies from achieving good status in the North Eastern RBD. These are diffuse pressures from agricultural sources and point source pressures from urban wastewater and development. Other pressures include:

- **diffuse and point source pollution** – pollution arising from a number of other sources including industry, forestry, sediment, urban catchments, quarries & mines including oil and gas exploration, waste & contaminated land and chemicals;
- **water quantity and flow** – taking too much water from rivers, lakes and groundwater which causes problems for wildlife, reduces the amount of water available for people to use and affects the environmental ecology;
- **the physical condition of the water environment** – man made changes to the natural habitat of rivers, lakes, estuaries and coastal waters, for example flood defences and weirs, and changes to the natural river channels for land drainage and navigation. These modifications alter natural flows, may cause excessive build up of sediment, increase erosion, reduce the quality of habitats and may also present a barrier to fish movement;

- **invasive alien species** – the negative effects on the health of the water environment and native plants and animals from those species originating outside Northern Ireland and introduced to the Northern Ireland water environment; and
- **other pressures** – factors that affect fish populations and habitat not captured above.

It is important to recognise that these issues, for example forestry, will not be present in all water bodies and their relative contribution to the pressures and impacts on the water environment will vary significantly across Northern Ireland. The type of catchment including soil type and existing controls are important factors to be taken into account.

We are also assessing the risks to the water environment through an inventory of pollution emissions. It assesses the significance of priority substances in the North Eastern RBD. For each relevant substance, point source loads, estimated diffuse loads and future data requirements are reported. This will be used to identify the main sources and hotspots of emissions and to determine the effectiveness of the measures implemented to achieve reduction and phasing out of emissions as required.

The pollution inventory is available on the website.

Programme of Measures

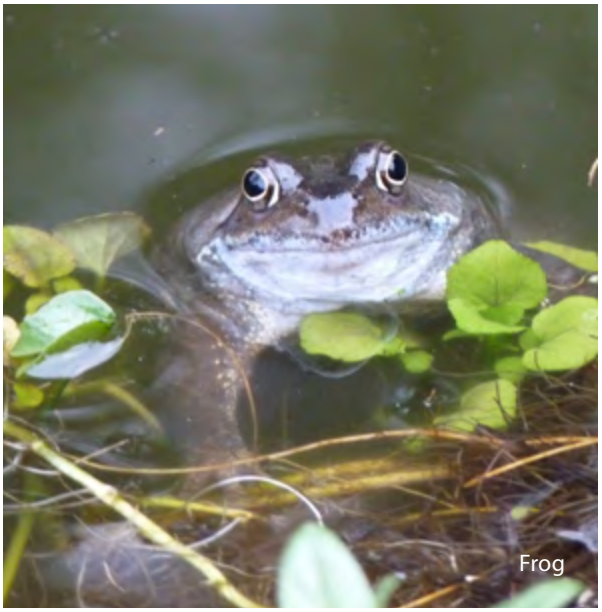
The production of this plan has identified progress towards meeting the WFD objectives based on current assessments using data up to the end of 2014. However, it has shown that there are gaps and we may not be able to meet good status until 2027. The following sections list new measures we will take forward in the second cycle. **These are the key measures which require coordination between a number of different organisations.**

For further details and a full list of measures see the website. These include measures which will improve our understanding of the pressures, enable us to improve the evidence base to target actions, and build on actions already complete. Some measures will apply to several sectors, in such cases, this will be identified in the detailed lists of measures.

Read more about Programme of Measures including progress we have made against pressures set out in the first RBMP on the website.

In the current economic climate there is no certainty at this stage around future funding and budgets that will be available throughout the lifetime of this plan. However DOE will in collaboration with other departments and agencies continue to make a strong case for additional funding through the established government bidding processes.

The following tables include 29 new measures identified as a result of consultation on draft RBMPs and also through ongoing liaison between NI government departments and agencies.



Frog

7.1

Key Sector: Agriculture
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from agriculture. Actions identified under sediment and chemicals are also relevant to agriculture.

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in nutrients	Measures to address nutrients including review delivery of Nitrates Action Programme (NAP) and review of Rural Development Programme (RDP); Provision of training in Nutrient Management Planning; Provision of online farm nutrient calculators and the facilitation of soil sampling and analysis	NAP 2015-2018 agreed with European Commission. College of Agriculture, Food and Rural Enterprise (CAFRE) Training Programme. DARD online Services. Proposed Land Management Programme (LMP) under NI RDP 2014-2020	DARD/ NIEA/ DOE Regulatory and Natural Resources Policy Division (RNRPD)	2016
Reduction in pollution from sediment	The Environmental Farming Scheme (EFS) will include measures for riverbank fencing, riparian buffers and pasture pumps. These measures will help to address sediment input to rivers caused by livestock poaching and bank erosion by livestock	Proposed EFS under the NI RDP	DARD	2016
Reduction in pollution from agricultural land	Consider measures within Woodland and Environmental Farming schemes as part of Rural Development Programme such as riparian woodland	Proposed Woodland schemes under the NI RDP to run 2016-2020	DARD	2016
Education and Awareness	Use the Water Catchment Partnership (WCP) approach to work proactively together to promote and raise awareness of best practice when using pesticides on the farm	WCP	WCP	2027
Reduction in nutrients	Target areas identified under Nitrates Directive reporting with increasing nutrients for investigation and action	As part of the targeted catchment projects identified through annual reporting	NIEA	2019
Protection of Bathing and Shellfish Water Protected areas	Developing models and catchment based approach to protect these areas. INTERREG VA project to develop prediction and discounting at bathing waters	Partnership working between Government and Non-Government Organisations (NGOs)	Marine Environment Division (MED)	2021
Protection of Bathing and Shellfish Water Protected areas	Potential further new measure on Microbial source tracking work to identify sources of bacterial contamination (waste water/ agriculture) being undertaken by NIW in conjunction with AFBI	Partnership working between government organisations	NIW	2021

7.2

Key Sector: Sewage & industry
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from sewage and industry

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in pollution from sewage	Review consents to discharge on a pilot catchment basis using the SIMCAT model	Programme of priority catchments to be piloted	NIEA	2021
	Introduce flow and priority pollutant monitoring as part of the compliance regulation regime	Programme of compliance projects to be piloted	NIEA	2021
	Further development and implementation of innovative and sustainable measures such as the use of willows to treat effluent from small waste water treatment works and then harvesting for fuel	Enactment of PC15 Business Plans	NIW/ NIEA	2021
	Controlling sewage gross solids by using separation devices such as screens in unsatisfactory storm overflows	Enactment of PC15 Business Plans	NIW/ NIEA	2021
Reduction in pollution from industry	Consider Regulatory Reform to include single integrated permits, unified inspection powers for all environmental obligations, and enhanced enforcement powers	Integrated permitting and inspection coordination group	DOE RNRPD	2021
Reduction in pollution from sewage and industry	Work with other UK agencies and the water industry to scope and develop cost effective measures for reducing Phosphorus loads in WWTWs, septic tanks, human food, dishwasher detergents and use in water supply dosing	Engage with UK agencies and water industries on relevant projects	NIEA	In place/ Ongoing
Protection of Bathing and Shellfish Water Protected areas	Developing models and catchment based approach to protect these areas. INTERREG VA project to develop prediction and discounting at bathing waters	Partnership working between Government and NGOs	MED	2021
	Potential further new measure on Microbial source tracking work to identify sources of bacterial contamination (waste water/ agriculture) being undertaken by NIW in conjunction with the Agri-Food and Biosciences Institute (AFBI).	Partnership working between government organisations	NIW	2021

7.3

Key Sector: Forestry
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from forestry

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Restoration of rivers and lakes	Consider the inclusion of new woodlands, wet woodlands and floodplain forests as part of catchment wide pilot projects to protect and improve water quality and quantity	Partnership working with stakeholders, NGOs and other Government Agencies	All partners and stakeholders	2021
Promote the environmental and water protection benefits of woodland	Forest Service to provide woodland management advice and promote wider expansion of afforestation taking account of forestry best practice and sustainable forest management standards	Approval processes compliant with UK Forestry Standard	DARD Forest Service	2021
Minimise risks from forests in acid sensitive catchments	Implement measures in the Forestry Commission Practice Guide 'Managing Forests in Acid Sensitive Water Catchments'	Approval processes compliant with UK Forestry Standard	DARD Forest Service	2021

7.4

Key Sector: Sediment
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface waters from sedimentation

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in pollution from sediment	Develop and enhance modelling tools to help understand the natural dynamics and science of the catchments, such as further development of the SCIMAP tool	Working in partnership with other agencies, and research community	NIEA	2017
	Develop a pilot project in a catchment with diffuse pollution including sediment problems to consider alternative sustainable methods to dealing with issues e.g in FWPM catchments	Partnership working with stakeholders, NGOs and Government Agencies	All partners and stakeholders	2021
	The Environmental Farming Scheme (EFS) will include measures for riverbank fencing, riparian buffers and pasture pumps. These measures will help to address sediment input to rivers caused by livestock poaching and bank erosion by livestock	Proposed EFS under the NI Rural Development Programme	DARD	2016
	Assess the need and incorporate sediment management plans as part of NIW Abstraction Licences	Abstraction and Impoundment Licensing regime	NIEA	2021
Reduction in Pollution from sediment	Continue with Environmental Liaison Groups as part of TransportNI consultation process to minimise sediment disturbance during each major road scheme	Environmental liaison group	DRD TransportNI	2015
	Produce guidance on best practice to minimise sediment disturbance during river works	Regulation of in river works	DARD Rivers Agency (RA)	2016

7.5

Key Sector: Urban Catchment
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from urban catchments

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in pollution and flood risk	Increase awareness of WFD requirements and stormwater management (SuDs) within local planning processes, underpinned by Strategic Planning Policy Statement	Capacity building within DOE Planning and the 11 Council's Planning Departments	NIEA	2017
Control of diffuse and point sources of pollution	Co-ordinate Bathing Waters pollution reduction programmes with the misconnections prioritised list to minimise bathing water failures as a result of polluted storm water systems entering local rivers	Source apportionment studies	NIEA/ MED	2015
Reduction in pollution	Continue with Environmental Liaison Groups as part of TransportNI consultation process for each major road scheme	Environmental liaison group	DRD TransportNI	2015

7.6

Key Sector: Quarries & mines, including oil and gas exploration
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from quarries and mines, including oil and gas exploration

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in pollution	Significant Island of Ireland research project that will contribute to providing the evidence base for the regulation of fracking	Research programme	NIEA	2016
	Promoting and supporting greater environmental compliance and performance, product innovation, resource efficiency and adoption of best practice	Partnership working	Quarry Products Association (QPA)/ NIEA	In Place/ Ongoing
	Potential for disused/ abandoned quarries to be used as flood attenuation to aid with the management of volume in river systems during flood events	Consideration under future reviews of the Flood Risk Management Plans	DARD RA	2021

7.7

Key Sector: Waste & contaminated land
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from waste and contaminated land

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in pollution	Improved collection, coordination and analysis of data in and around waste and the waste system	Waste data flow project and LIFE SMART Waste Project	NIEA	2016
	To advise on new waste management facilities and extensions for legacy landfills and remediation of contaminated land-advise planners and third parties on the risk management and remediation of contaminated land and groundwater sites	Advice to planners in line with NIEA's statutory requirements	NIEA	Ongoing
	Develop partnership process with Local Councils to support their effective management of significant waste contracts	Development of Stakeholder engagement structure	DOE RNRPD	2015
	Update and develop a NI Groundwater Protection Strategy to support land use planning	Working with UK/ROI counterparts, GSNI Research community	DOE RNRPD	2021
	Develop process for joint Waste/Water authorisations to include regulation DOE Regulatory Reform programme	DOE Regulatory Reform programme	DOE RNRPD	2015

7.8

Key Sector: Chemicals
Pressure Type: Diffuse and point source pollution

Summary of supplementary measures to address diffuse and point source pollution of surface and groundwaters from chemicals

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Reduction in priority hazardous/ priority substances	Coordinate activities to reduce Dangerous Substances through an Expert Group	Partnership working across government	NIEA	2016
	Pilot project looking at the regulation of priority and new substances of concern with more stringent standards for waste water treatment effluents	Licence reviews under the Water (Northern Ireland) Order 1999	NIEA	2016
	Investigate how existing and new technology and methods can apply to monitoring emerging chemicals of concern in the aquatic environment	Collaboration with other agencies	NIEA/ MED	2017
	Investigate how passive sampling and associated analytical technology and methods can apply to monitoring emerging chemicals of concern in the marine environment	Delivery of surveillance, operational & investigative monitoring programmes by NIEA	MED	2020
	Implementation of EU REACH regulations	Awareness and enforcement campaigns	NIEA/ Health and Safety Executive for Northern Ireland (HSENI)	2021
	Further development of Drinking Water Protected Areas and establishment of safeguard zones to improve and maintain water quality within drinking water catchments	Partnership working with NIW and Drinking Water Inspectorate (DWI)	NIEA	2021
	Submit a project proposal through INTERREG V SCaMP to improve raw water quality in 3 cross border drinking water catchments	Partnership Working through INTERREG	NIW/ Irish Water (IW)	2016 – subject to INTERREG programme for funding application process

7.8 (continued)

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Education and Awareness	Use the Water Catchment Partnership approach to work proactively together to promote and raise awareness of best practice when using pesticides in the garden	WCP programme	WCP	2027
	Promote best practice when using insecticides, such as cypermethrin in livestock and forestry sectors	Engage with DARD, Farming community and forest service to reduce usage and promote best practice	NIEA/DARD	2017
	Promote no-pesticide usage by local authorities when managing green areas	Engage with local Government via the interdepartmental Priority Subs Group	NIEA	2021

7.9

Key Sector: Abstraction & flow regulation
Pressure Type: Water quantity & flow

Summary of supplementary measures to address impacts from abstraction and flow regulation on surface and groundwaters

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Improve flows in rivers and levels in lakes	DRD Water Policy to prepare a Long-Term Water Strategy for Northern Ireland	Publish Long-Term Water Strategy for Northern Ireland	DRD Water Policy	2015
	Northern Ireland Water to prepare a Water Resource and Supply Resilience Plan by 2017	NIW Water Resource and Supply Resilience Plan	NIW	2017
	Implement a programme of water resource assessments and multi-disciplinary studies to provide evidence to inform abstraction and impoundment licence reviews	Programme of investigations	NIEA	2020
Protection of fisheries and allow fish migration	Draft a guidance document for small scale hydro power scheme applicants to include advice on fish/lamprey passage	Hydro power scheme interdepartmental working group	NIEA/ DCAL/ Loughs Agency (LA)	2016
	Co-ordination between DCAL and NIEA on the regulation of hydro power schemes, including pilot studies to examine the impact of hydro power schemes on fish stocks	Hydro power scheme interdepartmental working group	NIEA/DCAL/ LA	2016
	Clarify roles and responsibilities around fisheries and Abstraction and Impoundment Licensing legislation and enforcement	Hydro power scheme interdepartmental working group	NIEA/DCAL/ LA	2016
	Research into recovery times for groundwater bodies to achieve good chemical status/ travel times through the unsaturated zones	Research community	Research community e.g Queens, University of Ulster (UU), Trinity College Dublin (TCD)	2021
	Consider Common Implementation Strategy (CIS) guidance on Ecological Flows during the next review of UKTAG Environmental Flow Standards	UKTAG Water Resources Task Team	UKTAG Members	2021
	Develop a programme of Reservoir surveys to assess the impact of impoundments on the aquatic environment	Surveys to be completed by NIW	NIW	2021

7.10

Key Sector: The physical condition of the water environment
Pressure Type: Morphology

Summary of supplementary measures to address impacts from the physical condition of the water environment

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Control modifications to surface waters	Develop the methodology for including river continuity in Water Framework Directive classification	Inter-agency Catchment Oversight Group	NIEA/ DCAL/ LA	In Place
River and Lake restoration	Inter-Agency Catchment Oversight Group to prioritise issues (e.g. potential barriers to fish movement) and co-ordinate river restoration and continuity work	Inter-agency Catchment Oversight Group	NIEA/DCAL/ DARD RA/LA	2020
	Continue to support local stakeholder restoration projects through the Environmental Challenge Fund and Fisheries Habitat works	Northern Ireland Environment Link (NIEL) Challenge fund and similar schemes	NIEA/ DCAL	2021
	Continue with Environmental Liaison Groups as part of DRD TransportNI consultation process for each major road scheme	Environmental liaison group	DRD TransportNI	2021
Control modifications to transitional and coastal waters	A new marine licensing system	New UK-wide primary legislation - the Marine and Coastal Access Act, 2009 and sub-ordinate legislation	Department for Environment Foods and Rural Affairs (DEFRA)	In Place

7.11

Key Sector: All
Pressure Type: Invasive alien species

Summary of supplementary measures to address impacts from invasive alien species

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Control of invasive alien species	Consider research, in conjunction with DARD, to improve understanding of the effects of alien species in the aquatic environment	Invasive Species Ireland Project (subject to funding)	NIEA	2021
	Continue to implement the actions set out in the Invasive Alien Species Strategy for Northern Ireland	Invasive Alien Species Strategy partners	DOE RNRPD	2021
	Develop process for assessing significant impact of species as listed in Ecoregion 17 lists for WFD classification	UKTAG Aliens Species Group and Ecoregion 17 Group on Alien Species	NIEA	2021
Education and awareness	Continue partnership approach between professionals and volunteers for invasive alien species monitoring to improve understanding of current distributions and spread	Invasive Species Ireland Project, NGO projects and Challenge Fund	NIEA	2021

7.12

Key Sector: Fisheries
Pressure Type: All pressures

Summary of supplementary measures to address factors that affect fish populations and habitat

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Protection and restoration of fish populations	Further integration of river assessments and planned fishery habitat improvements, including targeted river restoration projects	Inter-agency Catchment Oversight Group and Fish Group	NIEA	2020
Restoration of fish populations	NIEA to work with DCAL Inland Fisheries Group in order to quantify, and seek through the courts, the costs in relation to fish kills	Memorandum of Understanding between NIEA and DCAL Inland Fisheries Group	NIEA/ DCAL/ LA	2015
Improved management of habitats	Develop and monitor a demonstration project based on adapted channel maintenance, and through a partnership approach	Inter-agency Catchment Oversight Group	DARD RA/ NIEA/ DCAL/ LA	2020
Improved Fishery Management	Consider regulatory options to protect stock of the European Eel	Introduction of Eel passage regulations	LA	2015
	Consider regulatory options for the conservation of Juvenile Coarse Fish	Introduction of Protection of Juvenile Coarse Fish regulations	LA	2015
	Consider regulatory options for the protection of prescribed species	Introduction of regulations to protect prescribed species	LA	2015
	Increase awareness of fish passability issues for bridges and culverts to facilitate improved design and remediation.	Environmental Liaison Group	NIEA	2017
	Introduction of a fishery management tool through the Fisheries Habitat Improvement Strategy.	Fisheries Habitat Improvement Strategy 2014	LA	2021
	Management of fisheries through DARD Inshore Fisheries Partnership	Improved partnership working	DARD	Ongoing

Glenariff

Section 8 Climate Change in Northern Ireland

8.1 Our Changing Climate

The water environment is constantly changing as a result of natural forces and human activity. We need to consider possible future changes, as well as current issues. For example, a growing population and a changing climate will place increasing pressures on the water environment.

The Intergovernmental Panel on Climate Change (IPCC) Synthesis report 2014 highlighted that warming of the climate system is unequivocal and that anthropogenic drivers are extremely likely to have been the dominant cause since the mid 20th Century. It also highlighted that continued emissions will cause further warming increasing the likelihood of severe pervasive and irreversible impacts for people and ecosystems.

The potential impacts in the UK were produced based on models and observed trends on 3 different greenhouse gas emission scenarios and published as part of the UK Climate Projections 2009. Projections were made for the UK until the end of the 21st Century. The 2009 climate change main predictions for NI in 2050 are listed in Table 16.

Table 16:

Climate projections for NI in 2050's

Attribute	Change (approx)
Winter mean temperature	+1.7°C
Summer mean temperature	+2.2°C
Winter mean precipitation	+9%
Summer mean precipitation	-13%

In addition, sea level rise is projected to increase above 1990 levels by between about 0.11 m and 0.19 m.

The UK Climate Change Act came into force in 2008 and requires Government to report at least every five years on the risks to the UK of climate change, and publish a programme setting out how these impacts will be addressed. In Northern Ireland, DOE were responsible for publication of a NI Climate Change Risk Assessment (CCRA) in 2012, and also for the development of a NI Climate Change Adaptation Programme (NICCAP).

The 2012 report presents the findings of an assessment of climate change risks for Northern Ireland where it examined 700 of the UK risks and concentrated in detail on 100 of them in a NI context. It notes that the predictions above are "highly uncertain" due to the factors involved in the calculation.

In this context the interpretation and use of the results should be as follows:

1. The results provide a guide to the possibility of a risk occurring, its order of magnitude, direction of change and potential timing.
2. The supporting evidence on specific risks illustrates possible future changes.
3. Adaptation actions should recognise the likely direction of change and the high degree of uncertainty.
4. For the impacts of greatest concern, gaps in evidence should be addressed including the establishment of monitoring and further research where appropriate.

Though uncertainty exists around the 2012 CCRA it remains the best means in the UK of examining climate change with respect to future proofing the Water Framework Directive. In 2015 it remains the most up to date examination of climate change as required by the 2008 Climate Change UK legislation. Table 17 on page 59 lists a summary of the main pressures and environmental implications of climate change in Northern Ireland.

The 2012 risk assessment is currently under review and an update will be published in 2016 which is too late for inclusion in the current RBPs. We cannot yet include identified risks from the 2016 risk publication in the 2015 plans, however, we will aim to include any newly identified risks in the Interim progress report on implementation in 2018 and integrate them into the 2021 RBMPs.

Table 17:

A summary of the main pressures and environmental implications of climate change in Northern Ireland.

Pressure	Implications of climate change
Abstraction and flow regulation	Use of water as a resource for hydropower or fish farms will likely be impacted. Increases in autumn and winter rainfall would contrast with a reduction in summer rainfall causing seasonal variations in resource usage and productivity The security of drinking water supplies may be compromised due to an increased likelihood of summer droughts leading to reduced resources but higher abstraction demands (particularly from irrigation). There may also be a consequent potential to cause salination of some aquifers, which would be exacerbated by anticipated sea level rises Drier, hotter summers will increase demand for water and water-related products and activities, putting pressure on abstractions Increased soil moisture deficits and drying, with consequences for species, habitats and soil organic carbon
Diffuse and point source pollution	Higher annual rainfall with more intense episodes may increase loads of diffuse pollutants from both urban and rural areas. This may increase loading of pollutants to the sea and increase the risk of the failure of microbiological standards in bathing waters and shellfish waters Lower summer river flows will restrict dilution of discharges. Combined with higher temperatures and reduced dissolved oxygen in water bodies, this will lead to increased discharge treatment, energy usage and cost Lower summer flows can also cause reduction in sewer base flows, leading to blockages and potential flooding risks Higher intensity rainfall could increase combined sewer overflow discharges and consequently damage aquatic life Enhanced algal and plant growth due to increased temperature and increased nutrient run-off will exacerbate the effects of eutrophication. Increased temperature may also cause problems through dissolved oxygen depletion Increased land runoff can lead to siltation of fish spawning gravels and increased nutrient loading to loughs and marine waters. This can be exacerbated on steep and poorly vegetated land which can be prone to landslides
Flow pressures	The possibility of more frequent and severe river flooding will increase requirements for flood defence schemes and sustainable flood management More intense rainfall and higher flows will result in variation changes to flood peaks and duration altering erosion patterns and changing established understanding of each river's dynamic processes such as erosion and deposition Rising sea levels will impact on low-lying coast and transitional waters, and may be exacerbated by larger and more frequent storm surges. This will cause increased coastal flooding in vulnerable areas and more coastal erosion Increased riparian and coastal erosion may adversely affect key native species Sea level changes may cause evolutions in salt marsh and intertidal habitats Lower flows in summer combined with higher water temperatures will likely increase stratification of bodies of water in both freshwater (lakes and ponds) and marine (coastal lagoons)

Table 17 (continued):

Pressure	Implications of climate change
Invasive Alien Species	Changing hydrological conditions, higher temperatures, and water quality may provide more favourable conditions for invasive non-native species and allow the spread of rare or non-native diseases including those of aquatic species Changes in seasonal cycles may have an impact on the interactions between species (for example, reduced pollination, changes in migration timing) leading to competition between species and earlier or delayed fish spawning There will be changes in the abundance and distribution of currently native species and the length of growing season depending on the exact nature of the climate change. This is already evident in the marine environment to a certain extent Habitats may be affected by changes in land use for example the introduction of new crops to suit new climates, or increased production of biofuel

8.2 Measures to address the implications of climate change on the water environment

Climate change is not explicitly included in the text of the WFD. One of the requirements of the Directive is however that measures must be "effective, sustainable, and cost effective under changing conditions". The water environment is particularly vulnerable to the effects of climate change. As with the first cycle it is important that climate change is taken into account when implementing measures in this cycle and in continued planning exercises. Based on the undertakings of the first cycle reporting it is not anticipated that climate change will require significant amendments to planned implementation during the second cycle. The measures we are putting in place, for the second cycle, to achieve WFD objectives will help the water environment be more resilient to the impacts of climate change. Table 18 below lists some of the planned measures to address the relevant impacts of climate change on the water environment as identified in the NI CCRA.

These issues will require cross Departmental co-ordination for a number of policies and strategies. The NIEA will lead on the RBMPs but will have to do so minded of these, in particular the DRD Long Term Water Strategy and the Rivers Agency Flood Risk Management Plans.

The measures in Table 18 will help ensure that we:

- protect waters from deterioration due to climate change; and
- take into account climate change factors when developing and implementing measures to improve the water environment.

During the next river basin cycle in 2016 the CCRA will be updated. These would supplant the 2012 risks contained in the table. The 2016 update may introduce new risks or remove existing ones. This table and its mechanisms will be updated for use in the interim progress report in 2018 and at the end of the cycle.

Table 18:

Summary of measures to address the implications of climate change, taken from the UK 2012 Climate Change Risk Assessment risk assessment for Northern Ireland.

Action Required to address climate change risks	Mechanism	Lead Department / Agency
The Freshwater Environment		
Assess risk of pests (including Invasive non-native species) to biodiversity	Existing management plans for a range of species are currently undergoing review as part of the Invasive Species Ireland project. Once the review of existing management plans is completed work will commence on the development of new Invasive Species Action Plans Enforce EU Regulation 1143/2014 on the prevention and management of the introduction and spread of invasive alien species. The Wildlife (NI) Order 1985 Natural Environmental Division (NED) Invasive Species Team assisted by Invasive Species Ireland Project (subject to funding)	NIEA / Enviro Centre, QUB / DOE RNRPD/ DARD / Centre for Environmental Data and Recording (CEDaR)
Understand changes in species migration patterns	Continue partnership approach between professionals and volunteers for invasive alien species monitoring to improve understanding of current distributions and spread Natural Environmental Division (NED) Invasive Species Team assisted by Invasive Species Ireland Project (subject to funding)	NIEA/ DOE RNRPD/ DARD / CEDaR
Evaluate decline of native freshwater fish species	Loughs Agency developing a rare fish monitoring programme Loughs Agency Fisheries Habitat Improvement Strategy DCAL Fisheries strategic plan Inter-agency Catchment Oversight Group and Fish Groups to coordinate action in agreed catchments. Promote as potential projects for EU funding bids by external bodies	NIEA / DCAL / LA / DARD RA
Assess potential decline in summer water quality (point source pollution)	SIMCAT review of consents to discharge Introduce flow and priority pollutant monitoring as part of the compliance regulation regime Engage with UK Agencies and water industries on relevant projects scope and develop cost effective measures for reducing Phosphorus loads in WWTWs, septic tanks, human food, dishwasher detergents and use in water supply dosing. Develop a priority list on misconnections Enactment of the NIW PC15 business plan Partnership working between Government and NGOs especially in relation to INTERREG projects Capacity building for Planners within DOE Planning and the 11 local Council Planning Departments across the Councils	NIEA / DARD / CAFRE / NIW and other UK Agencies

Action Required to address climate change risks	Mechanism	Lead Department / Agency
Potential decline in water quality due to diffuse pollution	Cross Compliance on farm inspections and follow up NAP Review to reduce phosphorus usage Water Catchment Partnership approach to work proactively together to promote and raise awareness of best practice when using pesticides on the farm CAFRE Training Programmes. DARD Online Services. Proposed Land Management Programme (LMP) under NI RDP Partnership working between Government and NGOs especially in relation to INTERREG projects Identification of agricultural and general diffuse critical risk areas using Geographical Information System (GIS) and linking with hydrological significant pathways using SciMAP	NIEA
Lower summer river flows (Q95)	Interdepartmental working group on hydroschemes to be set up by Abstraction and Impoundment Licensing (AIL) Long-Term Water Strategy for NI	NIEA / DARD RA
Algal growth*	All measures to reduce diffuse and point source nutrient pollution	Climate Change Risk Assessment
Coastal and Marine Natural Environments		
Northward spread of invasive non-native species	Marine Division to work with DRD Ports, DARD and NIEA to develop a Ports and Harbours Guidance document, outlining good environmental management within ports NED Invasive Species Team assisted by Invasive Species Ireland Project Phase 3 contractor EU Regulation 1143/2014 on the prevention and management of the introduction and spread of invasive alien species The Wildlife (NI) Order 1985 UKTAG Alien Species Group and Ecoregion Group on Alien Species will develop an impact assessment for Ecoregion17	NIEA/MED
Decline in marine water quality due to sewer overflows	Flow and priority pollutant monitoring agreed Event monitoring on networks in the vicinity of bathing and shellfish waters Enactment of the NIW PC15 business plan	NIEA/MED
Risks to species and habitats due to coastal evolution	Marine Division to work with DRD Ports, DARD and NIEA to develop a Ports and Harbours Guidance document, outlining good environmental management within ports	NIEA/MED
Eutrophication of sea loughs	Enactment of the NIW PC15 business plan Capacity building for Planners within DOE Planning and the 11 local Council Planning Departments across the Councils	MED
Plankton blooms	Enactment of the NIW PC15 business plan Capacity building for Planners within DOE Planning and the 11 local Council Planning Departments across the Councils	MED

Action Required to address climate change risks	Mechanism	Lead Department / Agency
Consequences for Agriculture		
Assess the impact of Flooding of agricultural land	Refer to the Preliminary Flood Risk Assessment and Methodology for the Identification of Significant Flood risk Areas 2011 UK and Ireland Working Group set up to consider outworkings of EU group on Floods/Diffuse Pollution/nature conservation including natural water retention measures, including role of bogs and wetlands	DARD RA
Waterlogging (winter)	Refer to the Preliminary Flood Risk Assessment and Methodology for the Identification of Significant Flood risk Areas 2011 UK and Ireland Working Group set up to consider outworkings of EU group on Floods/Diffuse Pollution/nature conservation including natural water retention measures, including role of bogs and wetlands	DARD RA
Consequences for Business		
Numerous business provisions threatened due to increased flood risk	Refer to the Preliminary Flood Risk Assessment and Methodology for the Identification of Significant Flood risk Areas 2011	DARD RA
Risk of restrictions in water abstraction for industry	Ensure that water abstraction licences take account of climate change projections and update the licences where required (e.g. UKCIP09 projected new low flow regimes) Enactment of the NIW PC15 business plan Completion of the NIW Water Resource and Supply Resilience Plan	NIEA / NIW
Consequences for Infrastructure		
Reduction in water available for public supply	Enactment of the NIW PC15 business plan Completion of the NIW - Water Resource and Supply Resilience Plan Drinking Water Inspectorate to maintain an up to date register of private drinking water supplies in Northern Ireland	NIW / NIEA
Combined Sewer Overflow spill frequency	Enactment of the NIW PC15 business plan Use of SUDS in PPS 15 planning application Draft a policy paper on Polluted Surface Water Outfalls Inter-agency Catchment Oversight Group to provide guidance on enhancement of streams	NIW / NIEA
Scouring of road and rail bridges	Continue to support local stakeholder restoration projects funded through the Water Quality Improvement Grant, Environmental Challenge Fund, and Fisheries Habitat Works Continue with Environmental Liaison Groups as part of DRD TransportNI consultation process for each major road scheme Liaison with DRD TransportNI through RR&C group or relevant sub group for existing structures	NIEA / DRD
Risk of restrictions in water abstraction for energy generation	Enactment of the NIW PC15 business plan Monitor actual abstraction and compensation flows Inter-agency Catchment Oversight Group to coordinate action in agreed catchments	NIEA / NIW/ DCAL/ DARD RA

Action Required to address climate change risks	Mechanism	Lead Department / Agency
Failure of water impoundment structures*	Reservoir Safety Act	NIW
Algal growth in raw water supply sources*	NI Long Term Water Strategy. Measures to reduce Diffuse nutrient pollution	NIW
Change in reservoir yields for public water supply*	NI Long Term Water Strategy	NIW

***These have been identified as risks in 2012 but have not undergone risk analysis nor confidence analysis.**

Lagan Towpath

Section 9 Working together to implement the Plan

9.1 Partnership working

Progress has been made in implementing the Programme of Measures within Northern Ireland and this is the result of the co-ordinated efforts of a range of responsible authorities and stakeholders.

NIEA has developed a number of initiatives to encourage partnership working. In support of this, Catchment Management Officers attended national and local events to raise awareness of the importance of the water environment and water quality issues in the first cycle. NIEA's Water Environment Community Awards funded eighteen projects across Northern Ireland (£18,000) which improved awareness and understanding of the importance of the water environment. The Water Quality Improvement Grant scheme funded the wider community to help improve their local water quality, and this has continued through the Challenge Fund.

NIEA supported the Rivers Trust in the development of trusts across Northern Ireland and are also involved in supporting the set up of Riverfly Partnerships. There are seven Rivers Trusts (Ballinderry, Blackwater, Erne, Lagan, Main, Six Mile Water and Strule) and the programme is complimented by trusts in the Republic of Ireland. Many of the Rivers Trusts have developed from established angler's groups, although a broad range of stakeholders with interests in the water environment are now involved.

A Riverfly Partnership is a community-led initiative to monitor river stretches to identify pollution and groups are active in the Enler, Lagan, Six Mile Water, Derg, Faughan and Roe rivers. Anglers and other stakeholders are trained by the Riverfly partnership, supported by NIEA freshwater ecologists, in the identification of key indicator groups which are used to monitor levels of river pollution. By monitoring on a regular basis, Riverfly volunteers can quickly detect changes and report these to NIEA for further investigation.

Local District Councils have responsibility for implementing the two main pieces of legislation relating to litter (The Clean Neighbourhoods and Environment Act (Northern Ireland) 2011 and The Litter (Northern Ireland) Order 1994). Although NIEA has no statutory obligation to address litter in the water environment, it actively encourages the public to take more responsibility through good land management practices. To this end, NIEA supports the non-government organisation, Keep Northern Ireland Beautiful, and works in partnership in many areas, for example, Beach NI website, beach cleans, coastal litter surveys. In addition to this, NIEA helps to organise a large number of local river events with local angling clubs and community groups in an effort to encourage the general public to take ownership of their rivers. These events include voluntary litter cleanups, as well as educating attendees about the importance of the river both to themselves and the wider environment. Water Quality Improvement Grants have been used by local communities to assist river clean ups.

Litter in the marine environment is being addressed through the Northern Ireland Marine Litter Strategy (published on 4 July 2013). The Strategy is a coordinated response which aims to reduce the levels of litter entering the sea and removing litter which is already there. It contains measures designed to change attitudes and behaviour towards littering. This will be done through education, adequate provision of bins, fining offenders and collecting data on the extent of the problem. The Strategy will be implemented through partnerships between public, private and voluntary and community organisations. The implementation role for DOE's Marine Division will include on-going communication and sharing of best practice with stakeholders.

A significant opportunity is available through the INTERREG V programme for cross border projects. Funding streams for marine, freshwater, groundwater and habitats are worth a total of €37m. The programme was launched in October 2015, with projects expected to start in Autumn 2016.

Water management is something for which we all need to take responsibility. The best way to protect and improve the water environment is by everyone being actively involved, and government is committed to working in partnership with local stakeholders in catchments. This plan builds on the positive work already being carried out. The

following table outlines the measures for the second river basin planning cycle 2015-2021. These have been consolidated and added to following the consultation on the draft plans. Consideration has also been given to the Action Plan developed following two Freshwater Summits held in 2014.

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Protection of rivers	Support established river trusts through specific projects	Established NI Rivers Trusts Rivers Trust Action Plans Community Engagement	NIEA	2021
Reduction impacts from waste disposal	Work with Local Councils and wider stakeholders to increase awareness and support actions to address litter in the water environment	Partnership working	NIEA	2021
Restoration of rivers and lakes	Develop and implement a programme of catchment improvement projects to protect and improve water status	INTERREG V and other funding sources	All partners and stakeholders	2021
Protection of lakes and control of diffuse and point sources of pollution	Develop management measures for smaller lakes based on the outcomes from the DOLMANT project and other lakes programmes	Set up an inter-agency Lakes Restoration working group	NIEA / DCAL	2018
Reduction in pollution	Consider options for civil sanctions, such as on the spot fines, as part of the regulatory reform programme for environmental regulation	DOE Regulatory Reform programme	DOE RNRPD	2017
	Develop and agree five prosperity agreements with local industry/ business	Partnership working with businesses and interest groups	NIEA	In place/ Ongoing
Reduction in pollution and flood risk	Consider increased utilisation of flood plain storage as part of Flood Risk Management Plans (FRMPs)	Partnership working on local projects and schemes	DARD RA	2021

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Education and Awareness	Continue to work together to improve understanding of the wider public of the value, wider benefits and protection of the water environment	Partnership working, Education and Awareness campaigns and River Basin Stakeholder Groups	NIEA	2017
	Increase awareness of the role of groundwater in the management of the aquatic environment as part of catchment wide projects	Working with others such as Geological Survey of Northern Ireland (GSNI), Universities, Councils, NIW and local stakeholder groups	NIEA	2021
Reduction in discharges/ impacts from waste disposal	Review success of pilots with local councils to address fly tipping, including hazardous and fuel laundering waste	Partnerships between NIEA and Local Councils	NIEA	2015
Protect drinking water sources	Complete Catchment Management Plans for 24 Drinking Water Catchments	Catchment Plan studies undertaken by external contractor under NIW framework with support from NIW internal staff - Catchment Manager, Catchment Officers, Water Quality Scientists and Water Supply staff	NIW	2021
	Submit a proposal through INTERREG V SCaMP to improve raw water quality in 3 cross border drinking water catchments	Partnership working through INTERREG	NIW/ IW	2016
Protection of rivers and lakes	NIEA will expand the use of new technologies to extend its investigative monitoring capabilities. This includes the use of in-river instrumentation and lake monitoring buoys as part of multi-agency catchment studies	Development of in house skills and equipment deployment	NIEA	2018
	Establish a Freshwater Award scheme to highlight areas of good ecological condition	Water Community Award scheme/ Stakeholder engagement	NIEA	2018
	Ensure WFD Objectives are integrated within the new development plans being developed by the 11 councils	Utilisation of role as a consultee to the development plan consultation process at appropriate stages	NIEA	2018

Improvement Required	Actions	Delivery mechanism	Lead Department/ Agency	Deadline for delivery of action (year end)
Protection of bathing waters	Continue to work together to increase awareness of bathing water protection through the implementation of biannual Good Beach Summits	Good Beach Summit Action Plan, stakeholder engagement	MED	In place / ongoing
	Strategic development of a concerted Citizen Science programme for Northern Ireland – a one-stop-shop for standardised sampling and recording methodologies/ training and the collation of data collected by the wider community	DOE Digital Strategy	DOE	2021
	Management of fisheries through DARD Inshore Fisheries Partnership	Improved partnership working	DARD	Ongoing

9.2 Local Management Areas

The measures summarised in Sections 7 to 9 and detailed in the document on the website are a combination of region wide and local measures. Since 2010 we have been working with stakeholders, through catchment stakeholder groups, to develop focused Local Management Area Plans. These plans set out local actions targeted at water body and sub catchment levels. Highlights of our integrated working are given in a summary of each LMA within the North Eastern RBD available on the website.

9.3 A new Operational Delivery Framework

For the second cycle River Basin Management Plans a new approach to operational delivery has been implemented. All the water related functions carried out by NIEA have been aligned on a RBD basis, including regulation, enforcement, compliance, inspections, pollution response and catchment management.

The North Eastern District Manager will have responsibility for prioritising resources across all functions to target specific catchments and water bodies in order to achieve WFD objectives. This will be through a series of partnership projects, investigations and catchment walks examples of which are provided below. Resources will be primarily focused upon water bodies not yet attaining good status.

In addition, interdepartmental working groups with representatives from Fisheries Agencies, Rivers Agency, and DARD Countryside Management Branch will be put in place to better coordinate delivery against a range of responsibilities on the ground, including Fisheries Improvement Strategies, implementation of the Flood Directive and river restoration schemes.

Examples of catchment based projects being initiated within this cycle in the North Eastern RBD include the following:

- Develop, implement and support a programme of catchment improvement projects to protect and improve water status.
- Development of water quality improvements within a strategic drainage infrastructure programme for the Belfast Lough and Lagan Catchments in partnership with key stakeholders (DRD NIW, DARD RA and TransportNI. Belfast City Council, DOE Marine Division and DFP). The 'Living With Water

Programme' will determine the capital investment necessary to protect against flood risk (excluding flooding from the sea), enhance the environment and support economic growth. The programme will take a holistic, integrated approach to planning future drainage provision for the Belfast Lough catchment. Early estimates for the project delivery stage range from £350m to £750m.

- Focused intensive river surveys within water bodies at risk of not meeting their 2021 objectives, with the intention of identifying and alleviate pressures.
- Continue stakeholder engagement with one stakeholder meeting serving the North Eastern RBD every year; a biennial conference relating to issues within the RBD is also planned; along with on-going bilateral meetings with specific stakeholder groups.
- Promote best practice when using insecticides and herbicides, such as Cypermethrin.
- Undertake GIS modelling exercise to assess the impact of domestic septic tanks.

Cattle at Three Mile Burn

Appendix Key Documents to Support the River Basin Plans 2015 – 2021 Available on the Website

Freshwater (Rivers and Lakes)

- Water body Boundary Changes for the final River Basin Plans 2015
- Surface Water Monitoring and Methodology for the final River Basin Plans 2015
- River Continuity Classification 2015 for the final River Basin Plans 2015
- An approach to the Revoked Freshwater Fish Directive

Marine (Transitional and Coastal)

- Changes to Northern Ireland Marine Transitional and Coastal Water Body Boundaries for the Water Framework Directive Second Monitoring Cycle.
- Operational Guidance Note on Alignment of Water Framework Directive Classification and Objectives in Natura 2000 Protected Areas
- Water Framework Directive implementation in Northern Ireland: Management of Protected Areas under the Water Framework Directive
- Monitoring Saline Lagoons in Northern Ireland under the Water Framework Directive.

Heavily Modified (HMWBs)

- Summary of changes to Heavily Modified and Artificial water bodies for final river basin plans 2015
- Designation and classification of HMWB Rivers – December 2015
- Changes to HMWB Lakes for second river basin cycle – December 2015
- The Classification of Ecological Potential for Heavily Modified Transitional and Coastal Water Bodies in Northern Ireland

Groundwater

- Summary document on Groundwater Body Classification – December 2015
- Groundwater Body Boundary Changes
- Groundwater Classification Methodology - General Chemistry– December 2015
- Groundwater Classification Methodology - Saline Intrusion – December 2015
- Groundwater Classification Methodology -Water Balance - December 2015
- Groundwater Classification Methodology - Surface Water Quantitative – December 2015
- Groundwater Classification Methodology - Surface Water Chemical –December 2015
- Groundwater Classification Methodology – Groundwater Dependent Terrestrial Ecosystems – December 205
- Groundwater Classification Methodology – Drinking Water Protected Area – December 2015
- Groundwater Classification - Trend Assessment and Points for Trend Reversal – December 2015
- WFD Aquifer Classification Scheme for Northern Ireland - GSNI Report March 2005
- Cumulative Nitrogen and Phosphorus Loadings to Groundwater - Entec UK Report Nov 2010

Objectives

- What we plan to Achieve by 2021 and Beyond – December 2015

Programme of Measures

- Agriculture - Diffuse and Point Source Pollution – December 2015
- Sewage and Industry - Diffuse and Point Source Pollution – December 2015
- Forestry - Diffuse and Point Source Pollution – December 2015
- Urban Catchment - Diffuse and Point Source Pollution – December 2015
- Sediment -Diffuse and Point Source Pollution – December 2015
- Quarries and Mines, including oil and gas exploration - Diffuse and Point Source Pollution– December 2015
- Waste and Contaminated Land - Diffuse and Point Source Pollution – December 2015
- Chemicals - Diffuse and Point Source Pollution – December 2015
- Abstraction and Flow Regulation - Water Quantity and Flow – December 2015
- The Physical Condition of the Water Environment - Morphology – December 2015
- All Sectors – Invasive Alien Species – December 2015
- Fisheries - All Pressures – December 2015
- Register of Plans and Programmes - December 2015
- Mechanisms for Action – December 2015
- Pollution Inventory for the final River Basin Plans 2015

Assessing the Impact of the Plan – Strategic Environmental and Habitat Directive Assessment

- Screen Report on the determination of the need for a Strategic Environmental Assessment (SEA) for the River Basin Plans 2015
- Screening Matrix (in accordance with article 6 (3) of the Habitat Directive) for the River Basin Plans 2015
- Screening Matrix (in accordance with article 6 (3) of the Habitat Directive) Annex 1 – Test of Likely Significance for the River Basin Plans 2015

Economics

- Water Framework Directive - Economic Assessment report required for Article 5
- Economic Analysis Paper – Programme of Measures for the River Basin Management Plans 2015-2021

Others

- Record of Public Consultation and Engagement – North Eastern River Basin District 2015
- Water Dependent Natura 2000 sites in the North Eastern River Basin District 2015
- Northern Ireland Drinking Water Protected Area Management Plan for the final River Basin Plans 2015

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ISBN 978-1-907053-94-8