AGRICULTURAL POLICY PROGRAMME FOR NORTHERN IRELAND

SEA Scoping Report

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ABBREVIATIONS

AA	Appropriate Assessment
AFBI	Agri-Food and Biosciences Institute
ASSI	Area of Special Scientific Interest
AONB	Area of Outstanding Natural Beauty
APIS	Air Pollution Information System
APSFR	Areas of Potential Significant Flood Risk
AQS	Air Quality Strategy
CAP	Common Agricultural Policy
CORINE	Co-ordinated Information on the Environment
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and the Marine
DECC	Department of Environment, Climate and Communications
DfC	Department for Communities
DfI	Department for Infrastructure
DHLGH	Department of Housing, Local Government and Heritage
DTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media
DWPA	Drinking Water Protected Area
EFS	Environmental Farming Scheme
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPO	Environmental Protection Objective
EU	European Union
FCS	Favourable Conservation Status
FSA	Food Standards Agency
GAEC	Good Agricultural and Environmental Condition
GES	Good Environmental Status
GHG	Greenhouse Gas
GSNI	Geological Survey of Northern Ireland
HRA	Habitats Regulations Assessment
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LCA	Landscape Character Area
LESSE	Low Emission Slurry Spreading Equipment
MSFD	Marine Strategy Framework Directive
NAEI	National Atmospheric Emission Inventory
NAP	Nutrients Action Programme
NI	Northern Ireland
NIEA	Northern Ireland Environment Agency

NIFRA	Northern Ireland Flood Risk Assessment
NISMR	Northern Ireland Sites and Monuments Record
NISRA	Northern Ireland Statistics and Research Agency
NPWS	National Parks and Wildlife Service
NNR	National Nature Reserve
NVZ	Nitrate Vulnerable Zones
POP	Persistent Organic Pollutant
P/P	Plan/Programme
RBD	River Basin District
RBMP	River Basin Management Plan
RLCA	Regional Landscape Character Area
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SLNCI	Site of Local Nature Conservation Importance
SPA	Special Protection Area
SWPA	Shellfish Water Protected Area
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WFD	Water Framework Directive
WHO	World Health Organisation
WTW	Water Treatment Works
WWTW	Wastewater Treatment Works

EXECUTIVE SUMMARY

This Environmental Scoping Report is presented as part of the scoping phase of the Strategic Environmental Assessment (SEA) for the draft Agricultural Policy Programme (APP) for Northern Ireland. The purpose of this Scoping Report is to provide sufficient information on the draft APP to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the SEA Environmental Report.

The Department for Agriculture, Environment and Rural Affairs (DAERA) is developing the draft APP for Northern Ireland. This is an overarching strategic framework programme for the development of future agricultural policy to achieve a future agricultural regime within Northern Ireland that promotes productive, efficient practices through greater innovation and capacity, whilst protecting the environment, animal health and welfare and public health. The draft APP aims to deliver on key outcomes that were identified within the Future Agricultural Policy Framework Portfolio, and manage a transition from schemes currently in place in Northern Ireland to new approaches and systems of support that should better address the needs of the agriculture sector, and the environment in Northern Ireland. DAERA has commissioned RPS to undertake an SEA of the draft APP. This will provide further information to DAERA on the potential positive and negative implications of implementing the draft APP, which will feed into the development process.

The SEA Directive has been implemented in order to integrate environmental considerations into the preparation of plans and programmes and is a means of ensuring a high level of protection for the environment, while also promoting sustainable development. The SEA Directive, and Northern Ireland's implementing Regulations, will ensure that consideration is given to the environment in implementing the draft APP. The first step in the SEA process involved a screening statement, which identified that SEA would be required for the draft APP. This SEA Scoping Report is the next step in the process. This document establishes the scope of works involved for the SEA for the draft APP.

An Environmental Report will be produced as part of the SEA and this will be available, together with the draft APP, for public consultation. All comments received during this SEA Scoping consultation, and the public consultation on the draft APP, SEA Environmental Report, and Habitats Regulations Assessment (HRA) Report, will be considered in the development of the draft APP.

Please send all comments on the scope of the SEA of the draft APP to:

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1 INTRODUCTION

1.1 Background

This Strategic Environmental Assessment (SEA) Scoping Report has been prepared in accordance with the European Communities Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive), and in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (S.R. 280/2004).

The purpose of this Scoping Report is to provide sufficient information on the draft Agricultural Policy Programme (APP) for Northern Ireland, to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the SEA Environmental Report.

The SEA of the draft APP is being completed on behalf of the Department of Agriculture, Environment and Rural Affairs (DAERA). The views and opinions of the consultees are sought on the following questions:

1. Is there any information missing from the key plans and programmes listed, relevant to the draft APP that you think should be included, and why?
2. Do you agree with the geographical and temporal scope of the assessment?
3. Do you agree with the scoping of the environmental assessment topics?
4. Have we identified the key environmental issues relevant to the draft APP?
5. Are we proposing the most appropriate data and scale of data to be used?
6. Can you propose any other data to be used in the SEA, and why it would be beneficial?
7. Do you agree with the approach to the assessment?
8. Do you agree with the draft SEA objectives?
9. Do you agree with the proposed project timescales, and proposed consultees in the SEA process?

1.2 Strategic Environmental Assessment and purpose of this Scoping Report

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is broadly comprised of the steps shown in **Figure 1-1**. These are given a summary description in **Table 1.1**. DAERA has commissioned RPS to undertake an SEA of the draft APP. This will provide further information to DAERA on the potential positive and negative implications of implementing the draft APP, which will feed into the development process.

Table 1.1 Summary Descriptions of the Main Stages in the SEA Process

Stage	Description	Status
Screening	Determines whether SEA is required for a Plan / Programme in consultation with the designated statutory consultees.	Completed September 2021
Scoping	Determines the scope and level of assessment detail for the SEA, in consultation with the designated statutory consultees.	Current stage
Environmental Assessment	Formal and transparent assessment of the likely significant impacts on the environment arising from implementation of the Plan / Programme, including all reasonable alternatives. The output from this is an	November – December 2021

	Environmental Report, which must go on public display along with the draft Plan / Programme.	
SEA Statement	Summarises the process undertaken, and identifies the manner in which environmental considerations and consultations have been integrated into the final Plan / Programme.	Anticipated Q1 2022

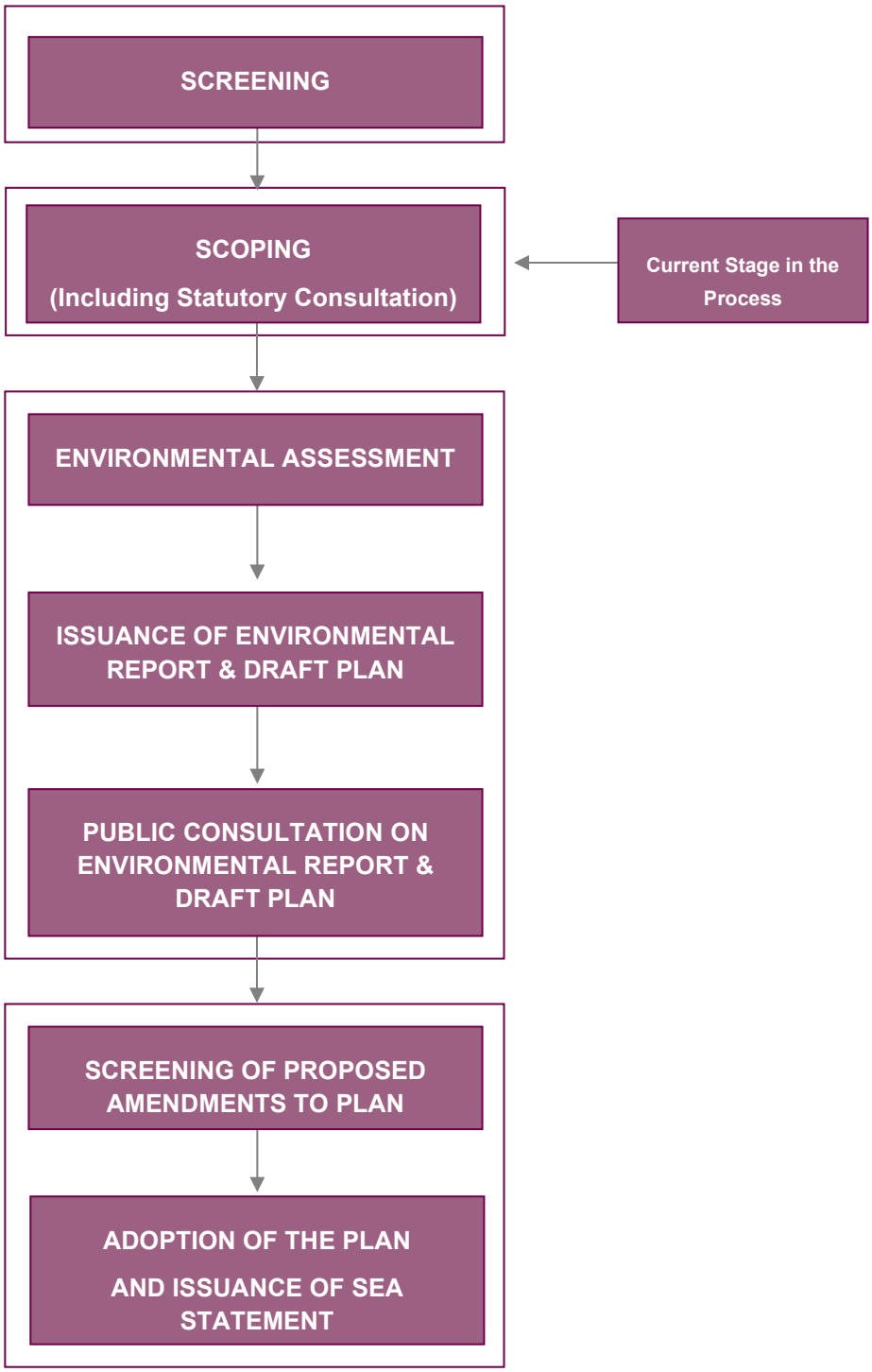

Figure 1-1 Overview of the SEA Process

1.3 Screening for SEA

On behalf of DAERA, RPS carried out an SEA Screening in September 2021. The Screening Report concluded the following information about the draft APP:

- It is not clear at this stage whether the detailed policy proposals emerging from the Framework Portfolio have the potential to set the framework for development consent of projects, as listed in Annexes I or II of the EIA Directive. However, DAERA intends to ensure that the strategic planning process includes full and proper consideration of the potential effects of the future policy proposals upon communities and the wider environment. DAERA acknowledges the potential for significant positive and / or negative effects of implementing the APP and believes that it is best environmental practice for them to undertake an SEA.

On this basis, DAERA concluded that it would complete an SEA of the draft APP. The SEA Screening Report was sent to DAERA (NIEA), as the statutory consultee for SEA in Northern Ireland. Owing to the potential for transboundary effects on the environment to arise from implementation of the draft APP, the statutory transboundary consultees in the Republic of Ireland were also provided with the SEA Screening Report, as follows:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Environment, Climate and Communications (DECC); and
- Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (DTCAGSM).

Consultee responses to the SEA Screening can be found in **Appendix A** of this report.

1.4 Scoping for SEA

This SEA Scoping Report is presented as part of the scoping phase of the SEA for the draft APP. The purpose of this Scoping Report is to provide sufficient information on the Programme to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the Environmental Report. A Scoping Report can inform stakeholders about the key environmental issues and the key elements of the Programme. In addition, the Scoping Report can be used as a tool to generate comments from stakeholders on the scope and approach of the SEA.

1.5 SEA Guidance

Key guidance documents that are to be used in the SEA for the APP are listed in **Appendix B** of this Scoping Report.

1.6 Statutory Consultees for SEA

Under Article 6 of the SEA Directive, the competent authority (in this case DAERA) preparing the plan or programme is required to consult with specific “environmental authorities” (statutory consultees) on the scope and level of detail of the information to be included in the Environmental Report.

The statutory consultee established within the SEA legislation for Northern Ireland is:

- The Department of Agriculture, Environment and Rural Affairs (DAERA)

As DAERA is responsible for preparation of the Programme, consultees will include all relevant units within the Department such as the Natural Environment Division, Drinking Water Inspectorate, Climate Change Unit, Marine and Fisheries Division, Marine Plan Team and Marine Conservation and Reporting Section. The Historic Environment Division of the Department for Communities (DfC), as the government authority on heritage, will also be consulted.

1.7 Appropriate Assessment

The Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats and of wild fauna and flora obliges Member States to designate, protect and conserve habitats and species of importance in a European Union context. Article 6(3) of the Habitats Directive requires that "*Any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives*." The Directive was transposed into Northern Ireland legislation through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. Any proposed plan or project that has potential to result in a likely significant effect on a designated European site will require an Appropriate Assessment (AA). Case law has determined that the likelihood need not be great, merely possible, and that the precautionary principle must apply as set out in European Commission Guidance and as required by CJEU case law (i.e. C 127/02 '*Waddenzee'*).

Habitats Regulations Assessment (HRA) for the draft APP is being carried out in parallel with the SEA process. The first stage of the HRA process is Screening, which is to determine whether implementation of the APP has the potential to have a likely significant effect on designated European sites.

2 DESCRIPTION OF THE AGRICULTURAL POLICY PROGRAMME

2.1 Existing Agricultural Policy and financial support in Northern Ireland

The EU Common Agricultural Policy (CAP) has been significant in terms of its financial support in sustaining the agriculture industry in Northern Ireland. Direct financial support of €327 million per annum has been provided to farmers in Northern Ireland through Pillar 1 of the CAP, as decoupled support paid on a per hectare basis, supporting the economic viability of the industry and its competitive trading position. The income support provided by the CAP has represented a substantial contribution to the total income achieved within the industry, with direct CAP support accounting for 87% of the cumulative total income[1] of the Northern Ireland agricultural industry over the past five years. Some sectors of the industry, and the industry as a whole for two of these years, would have been in a position of financial loss in the absence of this financial support.

Leaving the EU provides the opportunity to redesign the agricultural support arrangements to better meet the needs of Northern Ireland. Agricultural support policy is a matter decided by the devolved administrations, and DAERA has an opportunity to develop the most appropriate approach for the agriculture sector of Northern Ireland moving forward. UK retained law and the Agriculture Act 2000 (Schedule 6) provides the primary powers for future schemes in Northern Ireland following the UK's exit from the EU. Primary powers are also contained in the Agriculture Act (Northern Ireland) 1949.

2.2 Development of an Agricultural Policy Programme for Northern Ireland

2.2.1 Identification of Key Outcomes

The APP is being developed by DAERA to outline the future of agricultural policy and financial support in Northern Ireland following the UK's exit from the EU. In August 2021, DAERA published the Future Agricultural Policy Framework Portfolio for Northern Ireland[2], setting out the framework by which this would be achieved.

DAERA has identified four key desired outcomes that together constitute the long-term vision for Northern Ireland's agricultural industry, as follows:

1) An industry that pursues **increased productivity** in international terms as a means to sustained profitability, closing the productivity gap which has been opening up with other major suppliers.
2) An industry that is **environmentally sustainable** in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity while making its fair contribution to achieving net zero carbon targets. This outcome is an integral part of the new Green Growth Strategy and associated Climate Action Plan which will be the Department's initial route map to climate action, green jobs and a clean environment.
3) An industry that displays **improved resilience** to external shocks (such as market and currency volatility, extreme weather events, etc.) which are ever more frequent and to which the industry has become very exposed.
4) An industry which operates within an integrated, profitable, efficient, sustainable, competitive and **responsive supply chain**, with clear transmission of market signals and an overriding focus on high quality food and the end consumer.

The future of agricultural support in Northern Ireland will be designed to deliver on these four key outcomes. They are synergistic, whereby improvement in one outcome has the potential for positive effects upon one or

[1] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

[2] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/21.22.086%20Future%20Agriculture%20Framework%20final%20V2.PDF

more of the other outcomes, and with the aim that improvement in one outcome should not come at the expense of detriment in others.

2.2.2 Identification of APP Workstreams

The draft APP has been established as an overarching strategic programme, to develop a portfolio of measures and cross cutting initiatives that can address the four key desired outcomes identified in the Future Agricultural Policy Framework Portfolio, and oversee the transition from existing schemes to new approaches and support systems for Northern Ireland. These comprise fourteen workstreams that have been established in order to collate evidence, identify gaps, and develop policy proposals and design principles. These workstreams are not standalone policy instruments, and may be implemented at different timescales.

The main components of the draft APP for the foreseeable future are nine main product workstreams, as follows:

1) A Resilience Measure;
2) A Crisis Framework;
3) A Headage Sustainability Measure;
4) A Farming for Nature Package;
5) Carbon Farming Measures;
6) An Investment Measure;
7) Knowledge Measures;
8) A Generational Renewal Measure; and
9) Supply Chain Measures.

In addition, five cross-cutting initiatives have been identified, that aim to underpin achievement of the overall objectives, as follows:

10) Soil testing and LiDAR;
11) Livestock Genetics and Data Initiative;
12) Controls and Assurance;
13) Metrics, Monitoring and Evaluation; and
14) Environmental Assessments.

A Horticulture workstream is also exploring options through which to develop potential in this sector.

The draft APP presents the main issues identified for 13 of the 14 workstreams (i.e. with the exception of 'Environmental Assessments'), and the policy proposals and design principles being developed within these, with the aim of addressing the desired key outcomes.

2.3 Overview of Policy Context

The SEA Environmental Report will set out how the draft APP interacts with other key relevant plans and programmes and their environmental protection objectives, as required by Article 5(1) of Annex 1 of the SEA Directive, i.e. the environmental protection objectives (EPOs) within these plans / programmes that will directly influence, or be influenced by, the draft APP. These EPOs will be used to create the Strategic Environmental Objectives (SEOs) that are used for assessment of the draft APP.

Table 2.1 identifies the main significant environmental plans, programmes and legislation, adopted at International, European or National level, which would be expected to influence, or be influenced by, the draft APP. More information on these plans and programmes, along with their potential interaction with the draft APP, is given in **Appendix C**.

Table 2.1 Summary of Key Plans and Programmes Relevant to the draft APP

Level	Plan / Programme / Policy / Legislation
International / EU Level	*Biodiversity* • UN Convention on Biological Diversity (1992) • Ramsar Convention on Wetlands of International Importance (1971 and amendments)

Level	Plan / Programme / Policy / Legislation
	• Bern Convention (Convention on European Wildlife and Natural Habitats) (1982) • The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992) • Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals) (1983) • EU Biodiversity Strategy to 2030 • EU Birds Directive [2009/147/EC] • EU Habitats Directive [92/43/EEC] *Population / Human Health* • Seveso Directive [2012/18/EU] • Biocidal Products Directive [98/8/EC and 2007/107/EC] *Climate Change* • Paris Agreement (UNFCCC, 2015) • UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997) • EU 20-20-20 Climate and Energy Package Agreement (2007) • The European Green Deal 2019 • EU Methane Strategy 2020 • EU Farm to Fork Strategy 2020 • Renewable Energy Directive [2009/28/EC] • EU Strategy on Adaptation to Climate Change 2013 • Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021[COM(2021)82] • Second European Climate Change Programme (ECCP II) 2005 • EU Green Infrastructure Strategy (COM(2013) 249 final) *Air quality* • Stockholm Convention (2004) • WHO Air Quality Guidelines – global update (2005) • The Gothenburg Protocol (1999) • Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality Framework Directive [2004/107/EC] • Industrial Emissions Directive [2010/75/EU] • National Emissions reduction Commitments (NEC) Directive [2016/2284/EU] • Geneva Convention (1979) *Sustainable Development* • Common Agricultural Policy (CAP) (1962) • Seventh Environmental Action Programme to 2020 of the European Community • EUROPE 2020 A strategy for smart, sustainable and inclusive growth (COM/2010/2020) • SEA Directive [2001/42/EC] • EIA Directive [85/337/EEC] [2014/52/EU] • EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046] • Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC *Water* • Water Framework Directive [2000/60/EC] and amendments • Marine Strategy Framework Directive [2008/56/EC] • Floods Directive [2007/60/EC] • Bathing Water Directive [2006/7/EC]

Level	Plan / Programme / Policy / Legislation
	• Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC] • Drinking Water Directive [98/83/EC] • Urban Waste Water Treatment Directive [91/271/EEC] • Sewage Sludge Directive [86/78/EEC] • Nitrates Directive [91/676/EEC] • Environmental Liability Directive [2004/35/EC] • Environmental Quality Standards Directive [2008/105/EC] • A Blueprint to Safeguard Europe's Water Resource (COM(2012)73) *Waste* • Waste Framework Directive [2008/98/EC] • Use and Disposal of Animal By-products (Commission Regulation 2011/EU142) *Cultural Heritage* • Valetta Treaty (1992) • Granada Treaty (1985) • World Heritage Convention [WHC-2005/WS/02] *Landscape* • European Landscape Convention [ETS No. 176]
National Level	*Biodiversity* • Biodiversity Strategy for Northern Ireland to 2020 • UK Post-2020 Biodiversity Framework • Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 • Wildlife and Natural Environment Act (NI) 2011 • The Environment (Northern Ireland) Order 2002 • DAERA Conservation Management Plans for SACs (in prep.) • UK National Ecosystem Assessment (2011) • Northern Ireland Species Action Plan Freshwater Pearl Mussel, 2005 • Fisheries Act 2020 *Soils* • Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016 • Soil Nutrient Health Scheme for Northern Ireland *Climate Change / Air Quality* • Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024 • Northern Ireland Strategic Energy Framework (SEF) (2010) • (Northern Ireland) Sustainable Energy Action Plan 2012-2015 and beyond (2012) • UK Climate Change Act 2008 • The Climate Change Act 2008 (2050 Target Amendment) Order 2019 • UK Climate Change Risk Assessment 2017 • The National Emissions Ceiling Regulations 2018 • UK National Air Pollution Control Programme (NAPCP) 2019 • Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 • Air Quality Standards Regulations (Northern Ireland) 2010 • The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 • Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020 • Making Ammonia Visible (Annex to the SALMS for NI) 2017 • Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 • Northern Ireland Greenhouse Gas Inventory 1990-2019 statistical bulletin

Level	Plan / Programme / Policy / Legislation
	• Draft Ammonia Strategy for Northern Ireland (in development) • Draft Northern Ireland Peatland Strategy 2021- 2040 • DAERA Science Strategy Framework 2020 - 2035 • Climate Change (No.1) Bill • Climate Change (No.2) Bill *Sustainable Development* • Northern Ireland State of the Environment Report 2013 • Environment Strategy for Northern Ireland 2019 • Rural Development Programme for Northern Ireland 2014-2020 & Annual Implementation Report 2019 • Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 • Food Wise 2025 (Republic of Ireland strategy) • Northern Ireland Executive Programme for Government 2016-2021 • Draft Programme for Government 2021 • Strategic Planning Policy Statement for Northern Ireland 2015 • The Regional Development Strategy 2035 – Shaping Our Future • UK Sustainable Development Strategy • 10X Economy – An Economic Vision • Sustainability for the Future – "DAERA's Plan to 2050" • Draft Green Growth Strategy for Northern Ireland • Draft Northern Ireland Food Strategy Framework • Draft Environment Strategy for Northern Ireland (in development) • Draft Rural Policy Framework for Northern Ireland *Water* • Nutrient Action Programme Regulations (Northern Ireland) 2019 • Water Environment (Floods Directive) (Amendment) Regulations (Northern Ireland) 2018 • The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 • Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 • The Quality of Bathing Water Regulations (Northern Ireland) 2008 • Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 • Water Resources (Environmental Impact Assessment) Regulations 2017 • Private Water Supplies Regulations (Northern Ireland) 2017 • Water Supply (Water Quality) Regulations (Northern Ireland) 2017 • Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (NI) 2003 • Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment • Groundwater Regulations (Northern Ireland) 2009 and amendments • Pollution Control and Local Government (Northern Ireland) Order 1978 • Protection of Water Against Agricultural Nitrate Pollution (Northern Ireland) Regulations 2004 • Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990 • Urban Waste Water Treatment Regulations (Northern Ireland) 2007 • Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates) • Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007

Level	Plan / Programme / Policy / Legislation
	• Water (Northern Ireland) Order 1999 (including amendments up to 2004) • Water and Sewerage Services (Northern Ireland) Order 2006 • Water and Sewerage Services (Miscellaneous Provisions) (Northern Ireland) Order 2006 • NI Water Our Strategy 2021-2046 • NI Flood Risk Management Plan, 2021-2027 • Marine Act (NI) 2013 • Marine and Coastal Access Act 2009 • UK Marine Policy Statement 2011 • Draft Marine Plan for Northern Ireland 2018 *Waste* • Northern Ireland Waste Management Strategy, 2012 • Waste Management Plan 2013 – 2020 *Cultural Heritage* • Historic Monuments and Archaeological Objects (NI) Order 1995 *Landscape* • Nature conservation and Amenity Lands Order (NI) 1985
Regional Level	• Local Biodiversity Action Plans (LBAPs) • Draft 3rd cycle River Basin Management Plan (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027 • County Development Plans and Local Development Plans • Living With Water in Belfast 2020

Scoping Questions:

1. Is there any information missing from the key plans and programmes listed, relevant to the draft APP, that you think should be included, and why?

3 SCOPING FOR THE AGRICULTURAL POLICY PROGRAMME

The following section outlines the proposed scope of the SEA for the draft APP, including the geographic and temporal scope of the assessment, the likely significant impacts arising from implementation of the draft APP, and what elements of the draft APP will be part of the assessment.

3.1 Scope of the Programme

As part of the SEA scoping process, decisions need to be made as to what parts of the draft APP should be assessed, and to what level of detail. The purpose of the SEA is to provide a meaningful assessment of those parts of the programme that may lead to significant environmental effects. This will contribute to more transparent decision making, whilst ensuring that the objective of integrating environmental considerations into programme making is realised.

The overarching key outcomes, and the various workstreams, that comprise the draft APP are described in **Sections 2.1** and **2.2** of this report. **Table 3.1** below sets out the sections of the draft APP, and identifies those to be assessed as part of the SEA, and why. This information is provided to generate discussion during the consultation process and is subject to change based on the comments received.

Table 3.1 Proposed elements of the draft APP to be Assessed

	Draft APP Document Section	Will this be assessed in the SEA?
1	Part 1 - Introduction	**No** – This provides background and introduction for the Programme.
2	Part 2 – Consideration of the Agricultural Policy Programme Proposals	**Yes** – This presents the portfolio of measures and cross cutting initiatives that are being developed to address the Programme's desired outcomes. For each workstream, it provides a consideration of the main issues, policy proposals and design principles. These will be subject to and influenced by strategic environmental assessment.
3	Part 3 – Impact Assessments	**No** – This presents a summary of the impact assessments that have been carried out to consider the potential impacts of the Programme's proposals (including SEA) and seeks views in respect of these assessments.
4	Part 4 – Capturing Stakeholder Views – Next Steps	**No** – This section explains how the consultation questions can be responded to, and the closing date for responses.

3.2 Geographic Scope

The draft APP is a national level programme for agricultural policy in Northern Ireland. As such, the assessment will primarily focus on activities occurring at a national to regional scale, while having careful regard to any likely significant environmental effects of a transboundary nature to receptors in the Republic of Ireland.

3.3 Temporal Scope

The draft APP is proposed to cover the period from 2023/24 onwards. It is proposed that the APP will be reviewed periodically.

The SEA of the draft APP will consider the potential for short, medium, and long-term impacts from implementing policy proposals (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects), in line with the requirements of the SEA Directive.

3.4 Scoping of Strategic Environmental Assessment Topics

In accordance with the SEA Regulations (NI), consideration has been given to the type of environmental effects, both positive and negative, that could be expected to arise from implementation of the draft APP through the application of policy proposals described therein. **Table 3.2** and **Table 3.3** have been created to generate discussion in the scoping process and consultations.

Table 3.2 Scoping of SEA Issues

SEA Topic	Scoped In / Out	Potential Environmental Issues
Biodiversity, Flora & Fauna	**In**	• Potential for effects on protected areas, including those of international (SACs, SPAs, Ramsar Sites), national (ASSIs, NNRs) and local (SLNCIs) importance; • Potential for protection and enhancement of biodiversity at a national, regional and local level; • Potential for effects on protected or priority habitats and species; • Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands); • Potential for habitat loss, fragmentation or deterioration (temporary or permanent); and • Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).
Population & Human Health	**In**	• Potential for effects on water quality (drinking and recreational); • Requirement to protect waterbodies identified for current / future drinking water abstractions; • Potential effects on food quality (commercial aquatic species); • Potential effects on air quality; and • Potential risks from biohazards.
Geology, Soils & Landuse	**In**	• Potential for effects on soil fertility and improving efficiency of nutrient use; • Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility); • Potential for effects on the vulnerability of land to erosion; • Potential for effects on soil compaction and poaching; • Potential influence of soil type on land use practices (e.g. fertiliser application); • Potential for effects on discharges to receiving aquatic sediments; and • Potential for effects on landuse within agricultural land holdings.
Water	**In**	• Potential for effects on the ecological status of WFD surface water bodies via changes in the levels of nutrient pollution and sedimentation; • Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation and nutrient sensitive areas; • Potential for effects on nutrient concentrations within freshwater and marine water bodies; • Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies; • Potential effects of topography and landuse practices to risk of nutrient sediment loss and subsequent water pollution; and • Potential for effects on flood risk.
Air Quality and Climatic Factors	**In**	• Potential for effects on Methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) GHG emissions arising from agricultural and land use activities; • Potential for effects on transboundary emissions (e.g. NH_3) arising from agricultural activities; • Potential for effects of air pollutants on sensitive habitats; • Potential for effects of air pollutants on human health;

		• Potential for effects on climate resilience; and • Potential for improvement of efficiencies leading to a reduction in emissions.
Material Assets	**In**	• Potential for effects on the productivity of agricultural land holdings; • Potential for effects on the financial viability of agricultural land holdings, including the level of reliance on financial support; • Potential for effects on water-related assets; and • Potential for effects on the status of water bodies used for drinking water, recreation and production of food.
Cultural, Architectural & Archaeological Heritage	**In**	• Potential for effects on archaeological and architectural features and their settings; and • Potential for indirect effects on water based features and their settings via changes in water quality.
Landscape & Visual Amenity	**In**	• Potential for effects on areas of designated landscape quality and scenic views (i.e. in County Development Plans); • Potential for effects on the general landscape and on riverscapes, lakescapes and seascapes; and • Potential for effects on the recreational or tourism value of water bodies.

Scoping Questions:

2. Do you agree with the geographical and temporal scope of the assessment?
3. Do you agree with the scoping of the environmental assessment topics?
4. Have we identified the key environmental issues relevant to the draft APP?

Table 3.3 Potential Inter-Relationships between SEA Topics

Environmental Topic	Air	Biodiversity, Flora & Fauna	Climatic Factors	Cultural Heritage	Geology, Soils & Land use	Landscape & Visual Amenity	Material Assets & Infrastructure	Population & Human Health	Water
Air									
Biodiversity, Flora & Fauna	Y								
Climatic Factors	Y	Y							
Cultural Heritage	N	N	N						
Geology, Soils & Land Use	Y	Y	Y	Y					
Landscape & Visual Amenity	N	Y	N	Y	Y				
Material Assets & Infrastructure	Y	Y	Y	Y	Y	Y			
Population & Human Health	Y	Y	Y	Y	Y	Y	Y		
Water	N	Y	Y	Y	Y	Y	Y	Y	

4 BASELINE AND ENVIRONMENTAL PROBLEMS

In line with the SEA Directive, an environmental baseline will be compiled for the SEA Environmental Report of the draft APP. This will include: a description of the state of the environment at present; a discussion of the key problems/issues currently being faced in the area; and a description of the expected evolution of the environment should the APP not be implemented, i.e. in the absence of the plan.

4.1 Environmental Baseline Data

The SEA Environmental Report will contain a full description of the environmental baseline data within the study area. The key baseline information intended to be used are detailed in **Table 4.1**. It is proposed that much of the baseline information will be presented in the form of maps and tables, with supporting text in the Environmental Report which focuses on data directly relevant to the draft APP.

The baseline description will focus in the first instance on Northern Ireland, however given the shared land boundary with the Republic of Ireland, there is potential for environmental impacts on water quality, air quality, biodiversity etc. in the Republic of Ireland. As such, the baseline description will include reference, where relevant, to conditions in the Republic of Ireland.

Much of the proposed baseline information has been included within this SEA Scoping Report, with the anticipation of receiving more specific responses or recommendations from consultees at this scoping stage that can be taken into account in the Environmental Report.

Table 4.1 Summary of Proposed Environmental Baseline Data and Sources

Environmental Baseline Data	Data Sources
Biodiversity, Flora & Fauna	
Location and Condition of Designated Nature Conservation Sites and Species	NIEA, DAERA, JNCC (Article 17 Reporting), Food Standards Agency, National Trust, Local Authority data, NPWS: • SACs (NI & RoI) • SPAs (NI & RoI) • Ramsar Sites (NI & RoI) • Designated Sites condition / monitoring • ASSIs • NHAs and pNHAs • SLNCIs • Water Dependent Habitats & Species (NI & RoI) • Nature Reserves • Freshwater Pearl Mussel Catchments • Salmonid Lakes and Rivers • Shellfish Water Protected Areas • Habitats sensitive to atmospheric pollution
Population & Human Health	
Population Density and Perceived Health of the Population	NISRA data: • Census Small Areas • Settlements • Population Health and wellbeing DoH data: • Population Health and wellbeing

Quality of Water used for Drinking, Recreation and Food Supply.	NIEA, NI Water, DAERA Marine & Fisheries Division & WFD data: • Drinking Water Rivers and Lakes • Quality of Public and Private Water Supplies • Quality of Shellfish Waters
Geology, Soils & Landuse	
Soil and Geological Features	GSNI, NIEA, AFBI data: • Bedrock geology • Hydrogeology – groundwater wells and springs; groundwater vulnerability, aquifer types. • Soil types • Nutrient balance of NI farms
Landuse	GSNI, DAERA, AFBI data: • CORINE landcover • Agricultural practices / intensity information (e.g. annual data on chemical fertilizer purchase and livestock food purchase) • DAERA risk mapping / modelling
Water	

Locations, Status and Risk of Water Bodies	NIEA, NI Water, WFD & DfI data:
	• Rivers and lakes in NI (number, size and distribution)
	• WFD Management Units
	• Number, status and trends of WFD surface water bodies (rivers, lakes, coastal, transitional)
	• WFD Register of Protected Areas, including:
	  • Water Dependent Habitats & Species (NI & RoI)
	  • Economically Significant Aquatic Species
	  • Drinking Water Protected Areas (DWPAs)
	  • Recreation and bathing waters
	  • Nutrient Sensitive Areas
	• Number, status and trends of WFD groundwater bodies
	• Number and trends of surveillance rivers and marine water bodies
	• Number and status of MSFD water bodies

Air & Climatic Factors	
Air Quality and Emissions	Local Authority, DAERA, NAEI, AFBI, APIS data: • Air Quality Monitoring • GHG emissions monitoring • Transboundary Gas Emissions • Air pollution and sensitive habitats - Designated/priority habitat and critical loads for N deposition • Air pollution and human health
General Climatic Summary & Climatic Change Information	Met Office regional information
Material Assets	

Number and Type of Water Related Assets	NIEA, DAERA, WFD data: • Water Treatment Plants • Waste Water Treatment Plants and capacity
Agricultural Assets	DAERA agri-census data, NI: • Number farms / types / intensity info • Farm productivity (inputs and outputs)
Cultural, Archaeological and Architectural Heritage	
Location and Status of Heritage Assets	DfC, HED & DAERA data: • Northern Ireland Historic Buildings Database • NI Sites and Monuments Records • The National Monuments and Buildings Record (NI) • UNESCO World Heritage Sites • Listed Parks, Gardens and Demesnes • Areas of Significant Archaeological Interest (ASAI) • Areas of Archaeological Potential • Defence Heritage Sites • Industrial Heritage • Scheduled Zones • Battle sites • Marine Historic Environment
Landscape and Visual Amenity	
Landscape Character Areas and Sensitive Landscapes	NIEA, National Trust data: • Landscape Character Areas • NIEA Country Parks • AONBs • National Trust Lands

4.2 Current State of the Environment in Northern Ireland

Northern Ireland's most recent state of the environment review (2013)[3] found the situation to be variable. Air quality shows continuing improvement, while water quality has benefitted significantly from improved control of effluents, and rates of municipal waste recycling have been steadily increasing. Significant challenges remain, however, in reversing biodiversity declines and meeting EU objectives for water bodies, landscapes, habitats and heritage.

The main threats identified in the previous 2008 review, namely climate change, land use, and socio-economic growth, continue to create pressures on the environment in Northern Ireland. These key challenges are outlined below, and their relevance to the APP described in **Table 4.2**:

- Economic downturn –

The most significant change since 2008 with regards to socio-economic growth has been the economic downturn, which has had impacts on housing, development, energy and resource use and on waste production. The 2008 recession has intensified the need to stimulate growth and to use our resources, such as agricultural lands more efficiently whilst protecting and enhancing our natural environment.

- Living within our limits –

[3] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

Living within our limits relates to the impact of ever increasing populations on the environment in terms of food production, imports, energy use, and water security. There is an increasing realisation that living within our limits, both economically and environmentally, locally and globally, is now a major challenge.

- Sustainable rural land use –

It has been identified that the marine environment, from biodiversity indicators and the status of our waters are under threat. The 2013 State of the Environment report[4] notes the relationship between rural land practices and the water environment, and identifies that a fully integrated approach to management of the land and water environment is needed.

- Climate change –

Climate change remains an important issue for Northern Ireland and indeed globally. However recent legislation such as the UK Climate Change Act along with renewable energy policies and increasing energy costs are likely to contribute to already positive advancements.

Table 4.2 State of the Environment Key Challenges and Relevance to the draft APP

Challenge	Relationship to the draft APP
Economic downturn	The agri-food sector includes agriculture, horticulture and food and drinks processing and is Northern Ireland's largest indigenous industry. The economic downturn in 2008 has intensified the need to stimulate growth and to use our resources, such as agricultural lands, more efficiently. As a result, the agri-food sector has continued to report increases in output during the economic downturn and has emerged as a sector with substantial potential for growth, as set out in the Executive Programme for Government 2011-15. However managing this growth in a sustainable way continues to be a key challenge for the environment. Improved efficiencies in the agri-food sector adds increasing pressure to the environment from greenhouse gas emissions, loss of natural habitats, the use of pesticides and, notably, increased emissions of nutrients into the surrounding environment. The policy proposals outlined in the draft APP have potential to significantly influence these factors.
Living within our limits	Ever increasing populations and demand for resources such as land, energy and food are putting pressure on the environment in a global context. The most recent 7th EU Environmental Action Programme 'Living well, within the limits of our planet' sets out the framework for environmental policy making in the EU. This highlights the realisation that the environment has limits, and that in order to manage and maintain ecosystem services and natural capital, there needs to be greater resource efficiency. Agricultural production efficiencies in Northern Ireland must continue to be made but in a sustainable way, with regard to finite resources and to more sustainable emissions. Policy proposals within the draft APP aim to make improvements in the efficiency of resource use, and in emissions attributable to the sector.
Sustainable rural land use	Increasing agricultural targets across Northern Ireland has potential to impact on rural landscapes, as changing agricultural practices put increasing pressure on soils through increased risk of erosion, accumulation or leaching of nutrients and changing levels of soil organic matter. Unsustainable rural land practices can also result in negative impacts to the water environment. Policy proposals within the draft APP

[4] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

	aim to better manage agricultural land use practices, improve soil health and positively affect water quality in receiving environments.
Climate change	Climate change and greenhouse gas emissions remain an important global issue. Agricultural practices release large quantities of greenhouse gases. In Northern Ireland, although greenhouse gas emissions have been decreasing in the period from 1990-2011, intensification of agricultural practices and changes in land use could see increases in emissions, if not managed in a sustainable manner. Indeed climate change is a global issue, and records since the start of the 20th century show that the climate of Northern Ireland is changing. Preparing and adapting to the effects of climate change is therefore a key priority for Northern Ireland. Proposed policies within the draft APP seek to implement more sustainable and efficient land and farming practices, and to reduce the contribution of emissions from the sector.

Following on from the key challenges identified, three key principles underpinning the way forward were also listed, and comprise the following:

- Working to achieve **resilient, diverse ecosystems** capable of providing vital services while absorbing pressures and responding to change;
- Valuing and **managing natural resources** to support economic and social prosperity; and
- Protecting the quality of life by **reducing pollution, protecting heritage** and promoting **sustainable land use**.

A summary of the relevant aspects of the current state of the environment in Northern Ireland, as presented in the most recent state of the environment review (2013), and taking into account the most recent Northern Ireland Environmental Statistics Report (2021)[5], has been provided in **Table 4.3**.

Table 4.3 Summary of Current State of the Environment in Northern Ireland

Theme	Key Findings
Air Quality	There are 18 air quality monitoring stations in Northern Ireland. Air quality in Northern Ireland has shown substantial improvement in recent years. The average annual mean concentration of NO_2 across Northern Ireland's urban background sites remained relatively stable between 2011 and 2016, varying between 20 and 23µg/m^3. However, since 2017 the average annual mean concentration of NO_2 has fallen below this level, and was 11.2µg/m^3 across Northern Ireland's urban background sites in 2020. The agriculture sector accounted for the majority of ammonia emissions in Northern Ireland in 2019. Other sources include transport, commercial and domestic combustion and industrial processes. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture. In 2019, of the ammonia emissions from agriculture, 88% came from livestock, 8% from the application of fertilisers containing nitrogen and 4% from the application of other organic materials to land (sewage sludge and digestate). Emissions from livestock have increased by 6.9% since 2001 (from 26.1kt to 27.9kt in 2019). This compares with a 13.7% decrease for the UK as a whole over the same period. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture.

[5] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

Climate	Since the start of the 20th century records show that the climate in Northern Ireland is changing. In 2019, Northern Ireland's greenhouse gas emissions were estimated to be 21.4 $MtCO_2e$, a reduction of 17.9% since 1990. Agriculture, transport and residential were the largest contributing sectors to greenhouse gas emissions in Northern Ireland in 2019. The UK Climate Change Act commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels. In 2019, Northern Ireland's total greenhouse gas emissions accounted for 4.7% of the UK total, higher than its population share of 3%.
Water	The overall status of water bodies in Northern Ireland has not significantly changed from that recorded in 2012, but improvements have been identified in water utility discharges and drinking water quality. In 2019, there were 1,754 water incident reports made to the NIEA of which 53.6% were unsubstantiated. Long-term seasonal trend analysis shows that the monthly trends in average nitrate concentrations in rivers in Northern Ireland are predominantly decreasing or stable over the 28-year period, 1992-2019, which may be attributed to the measures implemented through the Nitrates Action Programme.
Marine	The majority of Northern Ireland's 650 km of coastline is protected for its special interest, and a number of our coastal species and habitats are recognised as internationally important. Combined indicators for Soluble Reactive Phosphorus (SRP) in rivers and Winter Dissolved Inorganic Nitrogen (DIN) show no change in recent years. However in January 2014, the Shellfish Waters Directive was subsumed into the Water Framework Directive, resulting in more stringent *E. coli* standards and a noticeable "drop" in the percentage of designated shellfish waters. Three out of nine designated shellfish water protected areas (SWPAs) complied with the Water Framework Directive guideline *E. Coli* standard in Shellfish Flesh in 2020.
Land and Landscape	Agri-environment schemes encourage farmers and landowners to manage their land to benefit the environment. At the end of 2020, 47,700 hectares of land in Northern Ireland were under an agri-environment scheme agreement. In Northern Ireland, over 55% of forests and woodlands are state-owned or managed. The NI Environmental Statistics Report 2021, reported that in 2020/21, 283 hectares of new woodland (65 ha conifer and 218ha broadleaf) were planted and part funded by the European Commission under the 2014 - 2020 Rural Development Programme.
Biodiversity	The Northern Ireland Environmental Statistics Report 2021 reported that in 2020/21, the area of terrestrial protected sites under favourable management in Northern Ireland was recorded as 304.04km^2, which has increased since 2015/2016, when just 2.63km^2 were under favourable management. As well as this, between 1994 and 2019, the estimated total wild bird population has increased by 50%, however it should be noted that not all species populations are increasing. The total wetland bird population is estimated to be similar in 2018/2019 to what it was in 1994/1995.
Built Heritage	The key risks identified to archaeological resources come from agricultural landuse and urban activities. In 2019/20, there were a total of 2,008 scheduled historic monuments protected under Article 3 of the Historic Monuments and Archaeological Objects (NI) Order 1995. Overall there has been a 33% increase in the number of scheduled monuments since 2001/02, reflecting ongoing survey, designation and assessment. The figures provide an indication of this aspect of the rich cultural and built heritage of Northern Ireland, an increasingly important source of "soft power" and an important contributor to the Northern Ireland economy, through attracting tourism and filming.

Waste and Resources	Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact or by emissions to the air, groundwater and surface water as well as the contamination of land. The Northern Ireland Environmental Statistics Report 2021 notes that The Local Authority Municipal Waste Management Statistics show that amount of waste sent for energy recovery via incineration has grown exponentially since 2006-07, whilst the proportion of waste sent to landfill has more than halved in the same timescale. Recycling of waste is becoming much more common in Northern Ireland. The revised Northern Ireland Waste Management Strategy (Delivering Resource Efficiency, 2013) proposed to achieve a 50% recycling rate by 2020 for local authority collected municipal waste.

4.3 Current State of the Environment in the Republic of Ireland

A summary of the current assessment and outlook for the Republic of Ireland across five key environmental policy areas, as presented in the most recent State of the Environment report (Ireland's Environment 2020 – An Integrated Assessment[6]), has been provided in **Table 4.4**.

Table 4.4 Summary of Current State of the Environment in the Republic of Ireland

Policy Area	Overall Assessment
Climate	While there has been some progress on renewable energy and ambitious climate action and adaptation plans, the Republic of Ireland's failure to significantly reduce GHG emissions results in a 'very poor' current assessment. Meeting 2030 targets and the 2050 transition objective will require the full implementation of current policies and measures, and significant national investments.
Air	While overall air quality in the Republic of Ireland is good, there are localised issues with some pollutants (such as particulates) that have serious potential health impacts, resulting in an overall current assessment of 'moderate'. The Republic of Ireland is generally meeting EU air quality limits but not some WHO guideline values in places, and nitrogen oxides exceedance in 2019 is a warning about not being complacent in tackling air pollution. The Republic of Ireland is not on track to meet National Emission Ceilings Directive targets for ammonia, owing to emissions from agriculture. There has been mixed progress in reducing overall emissions from transport and energy. Overall, the Republic of Ireland's prospect of meeting targets and policy objectives is heavily dependent on the implementation of agreed national measures.
Nature	Overall current assessment is 'very poor'. Deteriorating trends dominate, especially for protected habitats. In the absence of far-reaching measures, the outlook is largely not on track to meeting policy objectives.
Water	Overall, current assessment is 'poor'. Trends are mixed, with serious declines in pristine river sites. In terms of outlook, significant challenges remain to achieving full compliance and meeting policy objectives.
Waste and Circular Economy	Overall current assessment is 'poor'; while the Republic of Ireland is meeting current targets, recycling rates for municipal waste and packaging have levelled off and in some cases declined, and waste generation remains high and linked to economic activity, while circular use of material remains very low. Publication of new national waste policy is welcome. Achieving future EU targets and circular

[6] https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/irelands-environment-2020---an-assessment.php

economy goals will be dependent on rigorous implementation of waste legislation, policy initiatives and measures.

The report identified the following key challenges for the next decade:

- Halt any further deterioration in our natural environment, while supporting our economy and accommodating our growing population.
- Accelerate action to decarbonise and green our economy and society, so achieving climate neutrality by 2050.
- Protect ourselves against the inevitable consequences of climate disruption.
- Start restoring the precious habitats and water bodies that we have lost.
- Leave space for nature as part of a new approach to biodiversity protection.
- Designate more of our marine area as protected areas
- Protect air quality by switching to cleaner fuels and energy for transport and heating homes.
- Massively reduce our annual one million tonnes of food waste.
- Foster more sustainable agricultural production and land-use systems and management.
- Invest in essential water services infrastructure that protects drinking water supplies and eliminates discharges of raw sewage.
- Achieve greater efficiency in our production and consumption activities when using raw materials.
- Secure the improvements in our natural environment that we have made through regulation and investment.
- Integrate measures to protect against radon into our built environment.
- Leverage a growing public engagement with environmental issues.
- Act on the highlights identified in 'Ireland's Environment - An Integrated Assessment 2020'. Covering thematic, sectoral and integrated areas, these highlights outline the scale of the challenges to be tackled.

4.4 Environmental Characteristics

This section describes the environmental baseline for Northern Ireland, of relevance to the draft APP. The baseline has been divided by topic into the issues requiring assessment under SEA legislation. The purpose of this section is to demonstrate the level of baseline environmental information used when assessing the potential impacts of implementing the draft APP. This baseline information forms the indicators which the policy proposals within the draft APP will have the potential to impact upon. Future variation in these indicators owing to implementation of the draft APP will be monitored as part of the APP and SEA review.

4.4.1 Biodiversity, Flora & Fauna

Biodiversity is the variety of all plants and animals, and the communities that they form. The conservation of biodiversity is important in its own right. Humans are also dependent on biodiversity for the provision of ecosystem services such as clean air and water, food and shelter, as well as for the health and amenity value that the natural environment can provide.

The importance of preserving biodiversity has increasingly been recognised from an international to a local level, and Northern Ireland has legal obligations under International and EU commitments and legislation. The UN Convention on Biological Diversity (1992) is an international legally-binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources. It requires the development of national strategies for the conservation and sustainable use of biological diversity. The most recent biodiversity strategy for the EU (EU Biodiversity Strategy to 2030) was published in 2020. It aims to put Europe's biodiversity on the path to

recovery by 2030 for the benefit of people, climate and the planet, and to build societies' resilience to future threats such as climate change impacts, forest fires, food insecurity and disease outbreaks. The Strategy contains specific commitments and actions to be delivered by 2030.

The most recent Biodiversity Strategy for Northern Ireland, "Valuing Nature", was published by DAERA in 2015 and covers the period up to 2020. This sets out how Northern Ireland plans to meet its international obligations and local targets to protect biodiversity, and to ensure that the environment can continue to support the population and economy of Northern Ireland. Its overall mission is "To make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society in general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland".

The draft APP must also have regard for the Habitats Directive and the Birds Directive, as transposed through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, which require that any plan or project not directly connected with or necessary to the management of a European site but likely to have a significant effect on such a site, must undergo an appropriate assessment in view of best scientific knowledge and in view of the conservation objectives of the site. The draft APP falls under this remit, and an Appropriate Assessment is being undertaken in parallel to the SEA process, to assess the potential implications of the Programme for European Sites.

It is considered that the key issues associated with implementation of the draft APP and Biodiversity, Flora and Fauna comprise:

- Potential for effects on protected areas, including those of international (SACs, SPAs, Ramsar Sites), National (ASSIs, NNRs) and local (SLNCI) importance;
- Potential for protection and enhancement of biodiversity at a national, regional and local level;
- Potential for effects on protected and priority habitats and species;
- Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands);
- Potential for habitat loss, fragmentation or deterioration (temporary or permanent); and
- Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).

4.4.1.1 Designated Sites

4.4.1.1.1 Overview of Designated Sites

There are a wide variety of natural habitats and species within Northern Ireland. The Northern Ireland Environment Agency (NIEA) has compiled a list of those habitats and species considered to be priority, on the basis of their listing as a UK Priority Habitat[7] / Species[8] or importance in an all-Ireland context, and current downward trends; the most recent lists comprise 51 Northern Ireland Priority Habitats, and 481 species.

Sites have been designated in order to provide protection to those habitats and species considered to be of particular conservation value. These include features whose conservation is considered to be of importance at a European level, for which 59 Special Areas of Conservation (SACs), 16 Special Protection Areas (SPAs), and 20 Ramsar Sites have been designated, to date. Northern Ireland has 49 habitats listed in Annex I of the Habitats Directive, of which 13 are considered to be priority habitats at a European level, and 18 species listed in Annex II of the Directive.

At a National level, 394 Areas of Special Scientific Interest (ASSIs) and 50 statutory Nature Reserves have been designated to provide protection to features considered to be of national importance, while 728 sites have been designated for their importance at a more local level. These designated sites in Northern Ireland are detailed in **Table 4.5** and their locations shown in **Figure 4.1**.

[7] https://www.daera-ni.gov.uk/publications/northern-ireland-list-priority-habitats

[8] https://www.daera-ni.gov.uk/articles/northern-ireland-priority-species

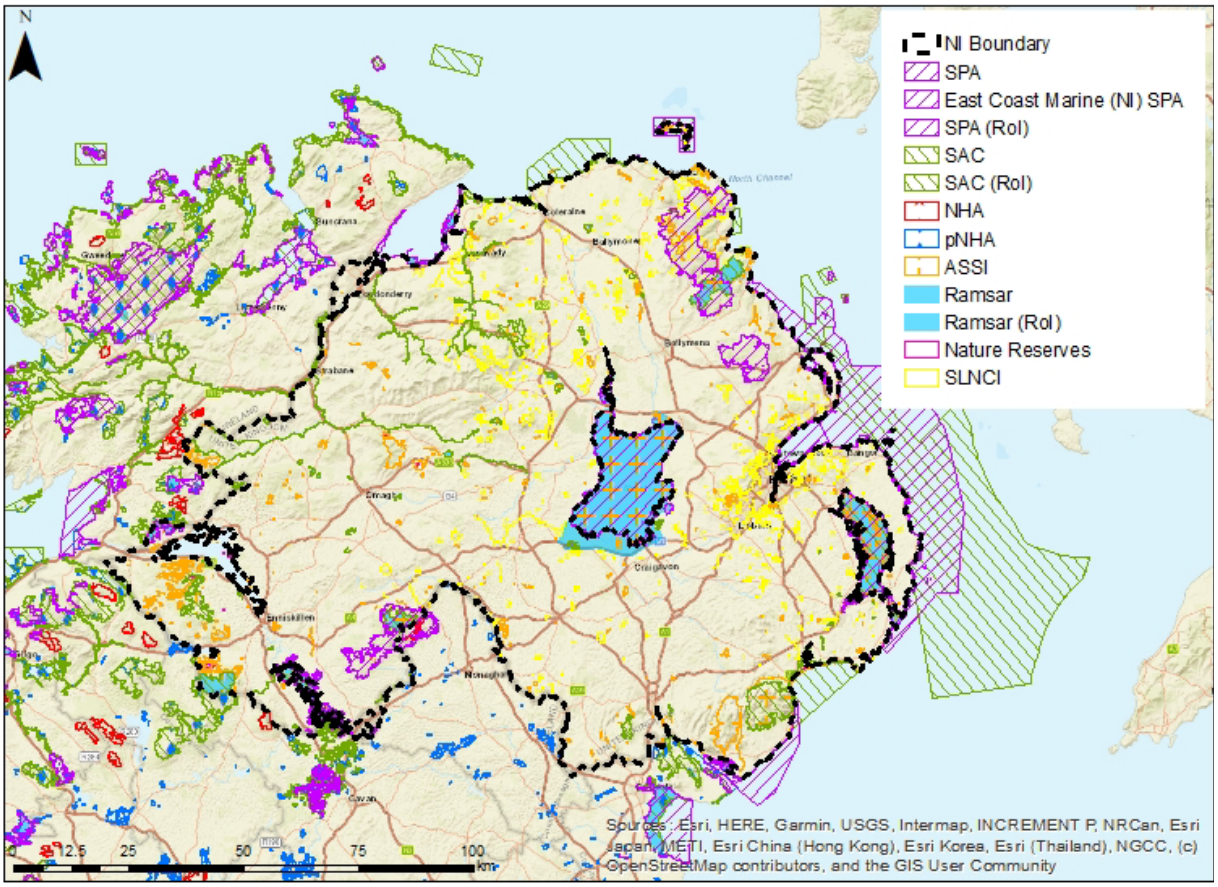

Figure 4-1 Designated sites across Northern Ireland and the border regions with the Republic of Ireland

Sites have also been designated for nature conservation within the Republic of Ireland. Some sites within the Republic of Ireland extend into Northern Ireland, and others are in close proximity; there is therefore potential for transboundary effects on these sites from implementation of the draft APP. There are 94 SACs, 46 SPAs, 36 Natural Heritage Areas (NHAs) and 249 proposed Natural Heritage Areas (pNHAs) in the Republic of Ireland within 15km of the boundary with Northern Ireland, as shown in **Figure 4.1**.

Table 4.5 Number and type of sites designated for conservation of Biodiversity, Flora and Fauna in NI

Site Designation	Description	Number
Special Areas of Conservation (SACs)	Existing SACs in Northern Ireland were designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species while SPAs were designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), "The Birds Directive", as areas that are important for breeding, feeding, wintering or migration of rare and vulnerable bird species. Together these formed part of the Natura 2000 network of protected sites. Following the UK's exit from the EU, there is now a UK National Site Network of European sites, comprising existing designated sites and any further sites designated under the Habitats Regulations. SACs and SPAs in the Republic of Ireland remain part of the Natura 2000 site network.	59
Special Protection Areas (SPAs)		16

Ramsar Sites	Ramsar sites are designated under the "Ramsar Convention" (Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, Iran 1971), an international treaty for the conservation and sustainable use of wetlands.	20
Areas of Special Scientific Interest (ASSIs)	Areas of Special Scientific Interest (ASSI) are protected under the Environment (Northern Ireland) Order 2002. This requires NIEA to designate land as an ASSI that it considers to be of special scientific interest, owing to the flora or fauna present, or the presence of geological features	394
National Nature Reserves	Statutory Nature Reserves are areas of importance for flora, fauna, geological or other special features for conservation purposes and to provide the opportunity for research. They are designated under the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.	50
Sites of Local Nature Conservation Importance (SLNCIs)	Each council area in Northern Ireland reports on locally important sensitive or valued habitats through the production of Local Biodiversity Action Plans (LBAPs). These Plans outline the areas of importance for natural heritage reasons within the council area, guiding development policy and potential enhancement of local biodiversity. These are known as SLNCIs.	728

4.4.1.1.2 Status and Trends for Sites Designated at a European Level

Article 17 of the Habitats Directive requires that, every six years, all EU Member States report on the implementation of the Directive, including on the conservation status of habitats and species (informally known as the Article 17 report). The 4th UK Habitats Directive Report was submitted to the European Commission in August 2019, and included a General Implementation Report, Habitat Reports and Species Reports. These outlined any changes in designated habitats and species, for the UK as a whole, in the period 2013-2018[9].

The status of designated habitats, as summarised from the 2019 reports is as follows:

- For 6 habitats, the overall conservation status was "Favourable";
- For 8 habitats, the overall conservation status was "Inadequate";
- For 62 habitats, the overall conservation status was "Bad"; and
- For 1 habitat, the overall conservation status was "Unknown".

Of these, 22 habitats showed improvement in overall conservation status, 29 habitats showed no change, 22 habitats showed a decline, and 4 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland's supporting documentation for the conservation status assessment of each habitat was examined to gain insight into which of these included pressures or threats that related to agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 44 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to water pollution and degradation, air pollution, and landuse including grazing practices, fertiliser application or land drainage.

The status of designated species, as summarised from the 2019 reports is as follows:

- For 33 species, the overall conservation status was "Favourable";
- For 24 species, the overall conservation status was "Inadequate";
- For 16 species, the overall conservation status was "Bad"; and

[9] https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019-habitats/

- For 20 species, the overall conservation status was “Unknown”.

Of these, 9 species showed improvement in overall conservation status, 47 showed no change, 12 showed decline and 25 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland’s supporting documentation for the conservation status assessment of each species was examined; of the 26 species for which specific supporting documentation for Northern Ireland was available, 24 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to agricultural land management practices (including grazing practices, removal of small structures used by bat species, and pest control methods), pollution of surface, ground or marine waters, and air pollution arising from mixed sources.

Article 12 of the Birds Directive requires that, every six years, all EU Member States report on the implementation of the Directive. The 11th UK Report for Article 12 of the EU Birds Directive was submitted to the European Commission in October 2019. The report format includes both a General Report on the implementation of the Directive (Annex A), and a Bird Species Status and Trends Report containing individual assessments for all relevant bird species (Annex B).

Following the UK’s exit from the EU, reporting to the European Commission will no longer be required, however DAERA will report periodically every 6 years following exit from the EU. The first of these reports is due in 2026.

4.4.1.1.3 Status and Trends for Sites Designated at a National Level

Northern Ireland launched its first State of the Environment Report in 2008, containing 30 indicators that were designed to assist future comparison and measurement of the changing environment. The last full State of the Environment Report for Northern Ireland was published in 2013 and, in the interim period, the NIEA has published annually a Northern Ireland Environmental Statistics Report, providing annual reports on a range of environmental indicators. The most recent report is for 2020[10], and Section 5 provides key information regarding the current status of biodiversity indicators in Northern Ireland.

Monitoring of the condition of features within Areas of Special Scientific Interest (ASSI) for the six year rolling period ending March 2020 indicated that:

- 61% of features were in a Favourable condition; and
- 36% of features were in an Unfavourable condition.

When this is partitioned into the biological and earth science features assessed, 54% of biological features were in favourable condition, compared to 97% of earth science features in favourable condition, reflecting the greater pressures on the natural environment.

These results remain very similar to the previous 10 years of reporting. NIEA is aiming to achieve favourable condition for a much higher proportion of the ASSI network, and there is now a focus on improving the overall condition of sites towards “favourable conservation status (FCS)” through effective land management to support recovery of the special features within the site. The Environmental Statistics Report 2021 states that, in 2020/2021, the area of terrestrial protected sites under favourable management in NI was 304.04km^2, a significant increase since the baseline year for reporting (2015/2016) when just 2.63km^2 of terrestrial sites were under favourable management. This is due to the implementation of various environmental management agreements such as the Environmental Farming Scheme (EFS).

The area of marine protected sites under favourable management in 2019/20 was recorded as 115km^2, which has increased since the baseline year for PfG reporting (2015/16) when 83.62km^2 of marine protected sites were under favourable management. The focus between 2018 and 2022 is on bringing the protected area network into favourable management, through identification and introduction of necessary management measures for marine protected areas.

4.4.1.2 Water-Dependent Habitats and Species at Risk of Water Pollution

The Water Framework Directive (WFD) (200/60/EC), transposed in Northern Ireland through The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, required Member States to

[10] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

develop a Register of Protected Areas comprising lands that have been designated as requiring special protection under specific Community legislation for protection of surface water or groundwater, or for conservation of habitats and/or species that depend upon water. These components, which had to be established for each River Basin District (RBD), are outlined in Annex IV of the WFD, and include sites that are used for water abstraction, those designated for salmonids, those designated for bathing, those designated for shellfish production, nutrient sensitive areas, and those designated "for the conservation of habitats and species directly depending on water". The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the various supporting pieces of water legislation continue to operate in Northern Ireland after 1 January 2021.

4.4.1.2.1 Water-dependent European Sites

Where a European site (SAC or SPA) lies within a water body, the WFD status objectives apply in addition to the requirement to maintain the site at favourable conservation status or restore it to that status. **Table 4.6** details the surface water-dependent European sites within the North Eastern, North Western and Neagh Bann RBDs. For the draft 3rd cycle RBMP 2021-2027[11], a total of 27 water-dependent European sites were identified for the North Western RBD. Of these, 81% are currently in unfavourable, and for 30% of sites this is due, at least in part, to pressures from the water environment. In the Neagh Bann RBD there were 24 water-dependent European sites; of these 75% are currently in unfavourable condition, and for 25% this relates to water pressures. A total of 25 water-dependent European sites were identified for the North Eastern RBD, of which 56% are currently in unfavourable condition, with 12% of sites due to water pressures.

For Northern Ireland as a whole, 71% of water-dependent European sites are currently in unfavourable conservation condition (i.e. failing to meet their conservation objectives), however these failures relate to pressures from the water environment in 23% of sites.

Table 4.6 Surface water-dependent European Sites in unfavourable condition owing to pressures from the water environment.

	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	%	No.	%	No.	%	No.	%
Number of sites	27	100	24	100	25	100	66*	100
Number of sites in unfavourable condition	22	81	18	75	14	56	47	71
Number of sites in unfavourable condition due to pressures from the water environment	8	30	6	25	3	12	15	23

*Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs.

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites not meeting conservation objectives was examined in order to elucidate any pressures or threats specified as relating to water pollution from agricultural activities. In many cases, agricultural or mixed source pollution, as well as drainage and abstractions for agricultural purposes, were listed as pressures or threats of high importance for these habitats or species, as shown in **Table 4.7**.

[11] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

Table 4.7 Article 17 Assessment of water-related pressures or threats from agriculture

Feature(s) not meeting conservation objectives	NI Article 17 Assessment of Water-Related Pressures or Threats
Transition Mires and quaking bogs	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Alkaline fens	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Active raised bogs	Drainage for use as agricultural land**
Degraded raised bogs	
Blanket bogs	
Humid dune slacks;	Agricultural activities generating diffuse pollution to surface or ground waters**; Active abstractions from groundwater, surface water or mixed water for agriculture**.
Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*,;	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*;Active abstractions from groundwater, surface water or mixed water for agriculture**; Drainage for use as agricultural land**.
Turloughs	Agricultural activities generating point source pollution and diffuse source pollution to surface or groundwaters*.
Water course *Ranunculion fluitantis* and *Callitricho-Batrachion*	Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
White-clawed crayfish	
Mesotrophic lough	Mixed source pollution to surface and ground waters (limnic and terrestrial)*.
Marl lakes	
Alluvial forests	
Eutrophic standing waters	
Freshwater Pearl Mussel	Agricultural activities generating diffuse pollution to surface or ground waters**; Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
Fixed dunes with herbaceous vegetation	None listed.
Marsh fritillary butterfly;	
Petalwort	

*High ranking pressure; **Medium ranking pressure

4.4.1.2.2 Freshwater Pearl Mussel

The freshwater pearl mussel, *Margaritifera margaritifera*, is a large bivalve mollusc that lives in the bed of rivers and streams. It is highly sensitive to changes in water quality, particularly concerning nutrient pollution and sediment loading. In Northern Ireland, the species formerly occurred widely in several catchments, with past records existing for 11 rivers from which no recent records have been obtained. Freshwater pearl mussel populations are now only found in 6 rivers in Northern Ireland (**Figure 4.2**), the Owenkillew River, Cladagh / Swanlibar River, upper Ballinderry River, Owenreagh River and Tempo River. The Owenkillew, Cladagh / Swanlibar and Upper Ballinderry Rivers are designated as SACs, while the Owenreagh and Tempo Rivers are designated as ASSIs.

A Species Action Plan for freshwater pearl mussel in Northern Ireland was published in 2005[12], which outlined the status of populations at that time, factors contributing to loss or decline of the species, and both current and proposed actions to protect the species. This indicated that the species had undergone a large decline in absolute numbers and range but, in at least three rivers, over one million individuals remained. However, populations were characterised by an ageing cohort, with little or no recent recruitment.

Article 17 reporting for the UK as a whole, in the period 2013-2018 indicates that freshwater pearl mussel is currently at 'Unfavourable-Bad' conservation status[13]. Northern Ireland's supporting documentation for the conservation status assessment of the species[14] states that the area and quality of occupied/unoccupied habitat is not sufficient to maintain the species at Favourable Conservation Status, and that the lack of juvenile recruitment and an ageing population is expected to lead to the future extinction of the species from Northern Ireland, unless a significant improvement of their habitat conditions occurs.

Owing to the sensitivity of the species, pressures and threats relating to water quality are of great importance. The following are listed as pressures / threats of high ranking importance for the species in Northern Ireland:

- Agricultural activities generating diffuse pollution to surface or ground waters;
- Forestry activities generating pollution to surface or ground waters;
- Mixed source pollution to surface and ground waters (limnic and terrestrial);
- Modification of hydrological flow;
- Physical alternation of water bodies.

4.4.1.2.3 Areas Designated to Protect Economically Significant Aquatic Species

Shellfish water protected areas (**Figure 4.2**) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high quality shellfish. Both the Shellfish Directive (79/923/EEC) and Freshwater Fish Directive (78/659/EEC) were revoked in 2013, and subsumed into the WFD. Areas previously designated under these Directives are now areas designated for the protection of economically significant aquatic species under the WFD, and listed on the Protected Areas register. Further information on the current status of shellfish water protected areas is given in Section 4.2.2 Population and Human Health.

Within the North Eastern RBD, 662km of rivers, 5.5km^2 of canals and 2km^2 of lakes are designated for fish[15]. In the North Western RBD, there are 1681km of rivers and 149km^2 of lakes designated for fish[16]. In the Neagh Bann RBD, there are 1936km of rivers, 43km of canals and 292km^2 of lakes designated for fish[17]. In Northern Ireland as a whole, 20 lakes and 413 rivers have been designated as salmonid waters (**Figure 4.2**).

[12] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/Natural-plan-species-action-freshwater-pearl-mussel.pdf

[13] https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019-habitats/

[14] https://jncc.gov.uk/jncc-assets/Art17/S1029-NI-Habitats-Directive-Art17-2019.pdf

[15] https://www.daera-ni.gov.uk/publications/north-eastern-river-basin-management-plan-2015-2021

[16] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/water-report-north-western-river-basin-plan-2015.pdf

[17] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/water-report-neagh-bann-river-basin-plan-2015.pdf

In addition to designated species, fish species in general can be significantly affected by changes in water quality and sedimentation, particularly in spawning and nursery areas, as well as by changes in the hydrology of surface water bodies, including those that may affect the passage of migratory species.

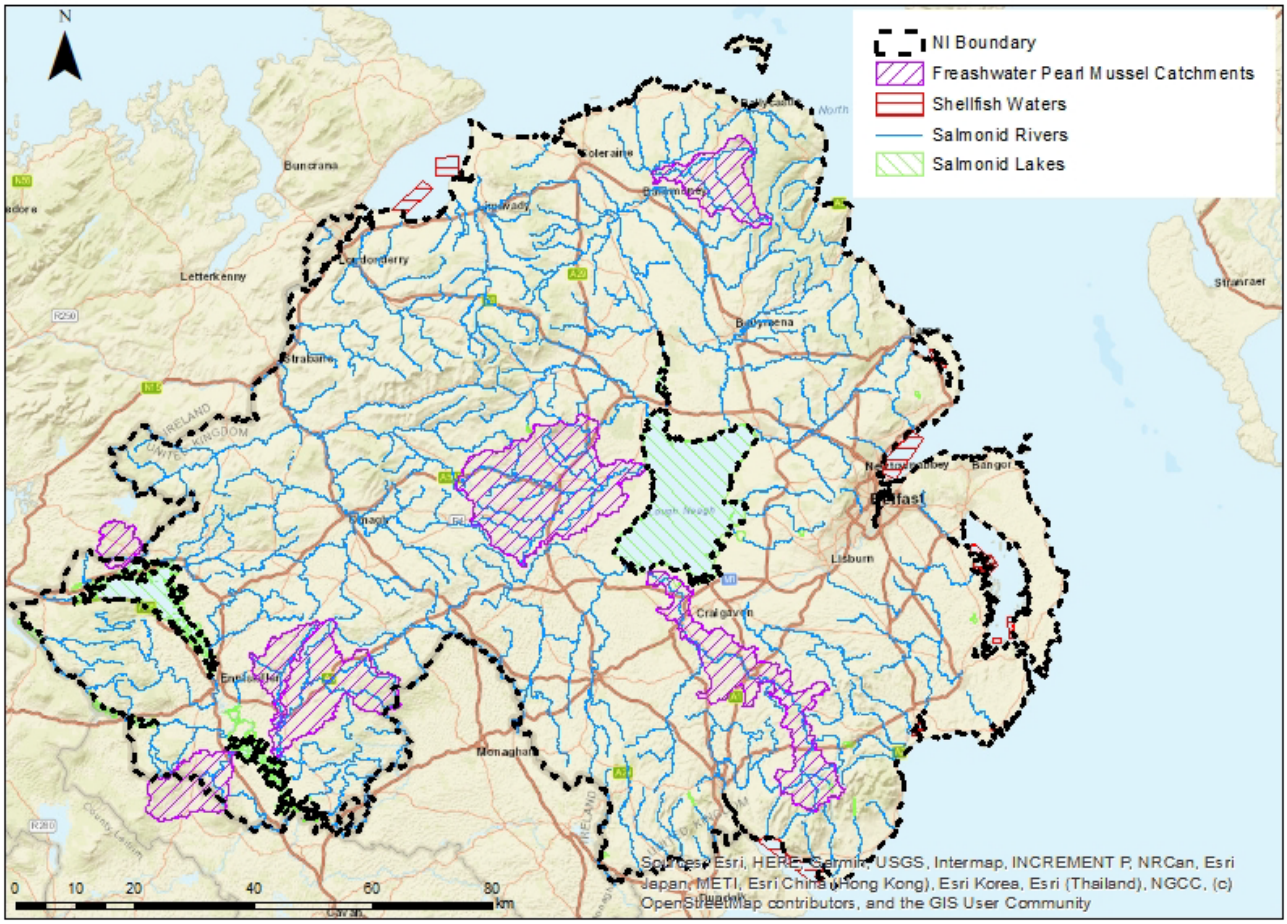

Figure 4-2 Designated Freshwater Pearl Mussel sites, Shellfish Waters and Salmonid waters across Northern Ireland

4.4.1.3 Habitats Sensitive to Atmospheric Pollution

Discussion of designated habitats that are sensitive to atmospheric pollution, and their current status is given in Section 4.4.5 Air Quality and Climatic Factors.

4.4.1.4 Summary of Existing Pressures and Issues for Biodiversity, Flora and Fauna in Northern Ireland

Despite an increase in actions to halt biodiversity loss, many elements of biodiversity in Northern Ireland are continuing to show declines[18]. Impacts of human activities, particularly landuse change associated with agriculture and development, pollution and fisheries (particularly in the marine environment) are key pressures affecting biodiversity in Northern Ireland. Invasive non-native species are also a significant threat to native biodiversity. Development such as housing and infrastructure associated with population growth has contributed to a loss of terrestrial and freshwater habitats, with over 40,000 hectares of countryside lost through urban development since the 1950s. Landuse change to support agricultural practices has included land

[18] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

reclamation, drainage, increased production and stocking rates, and subsequent impacts on water and air quality.

Priority habitats, and particularly grassland habitats, in Northern Ireland have shown an overall decline since 2000, while a significant number of priority species such as breeding waders are also showing declines[14]. The latest UK Article 17 reporting for habitats and species protected at a European level found that only 6% of habitats and 35% of species are currently at a favourable conservation condition, and that 22 habitats and 12 species showed a decline in condition since the previous reporting period. Of the habitats and species for which condition assessments specific to Northern Ireland were available, 92% of both included at least one pressure/threat that related to agriculture, including land management practices, water pollution and air pollution. Monitoring of features within nationally protected sites has shown that just 55% of biological features are in a favourable condition.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on biodiversity in Northern Ireland alone, or in combination with, these existing pressures. There is potential for positive or negative effects on habitats and species at a local, regional or national level, through both direct and indirect pathways. This includes the potential for positive or negative effects on the condition of habitats and species protected at a national and international level. Policies that make changes to land management within agricultural land holdings have potential implications on regional habitat connectivity. Owing to the recognised importance of the contribution of the agriculture sector to nutrient pollution of water bodies and emissions to air, there is also significant potential for positive or negative effects of policy proposals within the draft APP on biodiversity that may be affected via these pathways, i.e. water-dependent habitats and species, or habitats and species sensitive to atmospheric pollutants.

4.4.2 Population & Human Health

Population and human health considers the presence and wellbeing of people, and their activities and use of receiving environments. Population size, growth predictions and distribution within an area can indicate both the potential pressures that people may exert on resources and infrastructure, and the potential to which they may be exposed to pollution or other risks. Health of a population can be adversely affected through a number of direct and indirect pathways, the most common of which, and of most relevance to the draft APP, being through emissions to water and air.

It is considered that the key issues associated with implementation of the draft APP and Population and Human Health comprise:

- Potential for effects on water quality (drinking and recreational);
- Requirement to protect water bodies identified for current / future drinking water abstractions;
- Potential effects on food quality (commercial aquatic species);
- Potential effects on air quality; and
- Potential risks from biohazards.

4.4.2.1 Population Demographics for Northern Ireland

The total population of Northern Ireland in 2020 was approximately 1.90 million people[19], and is predicted to increase to approximately 1.99 million individuals by 2043[20]. Population growth has been positive for the past 25 years, and over the decade from mid-2010 to mid-2020 increased at an annual growth rate of 0.5%. The period from mid-2019 to mid-2020 showed the lowest level in population growth in over 20 years, at 0.1%, influenced by the Covid-19 pandemic and the EU Exit and their effects on the death rate and net migration[14].

[19] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

[20] https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report

The population density of Northern Ireland in 2020 was 139.8 people per km^2, varying across the Local Government Districts, and with a more dispersed population in rural areas. Rural populations in Northern Ireland are defined by their distance to Belfast, as the largest urban centre, as this tends to govern the type of rural land use that occurs as well as access to urban employment and to various services. The population of Northern Ireland estimated to be living in urban and rural areas in 2019 is shown in **Table 4.8**.

Table 4.8 Northern Ireland population in Urban and Rural Areas, 2019

Urban / Rural	No.	%
Urban	1,128,725	60%
Rural <= 60 mins from Belfast	432,334	23%
Rural > 60 mins from Belfast	244,687	13%
Mixed urban / rural	87,945	5%

In 2017-2019, life expectancy at birth was 78.8 years for men and 82.6 for women living in Northern Ireland[21], an increase from 69 and 76, respectively, since the base reporting period of 1980-1982. Northern Ireland has an ageing population, with 16.9% aged over 65 years, and it is projected that the over 65 year population will be larger than the number of children (0-15 years) from mid-2028 onwards[22]. The primary causes of death for people in Northern Ireland in 2019 were cancer (28.4%, most commonly in the lung) and circulatory (23.4%), followed by respiratory (12.5%), Alzheimer's / dementias (12.3%) and other causes (17.5%)[23].

4.4.2.2 Air Pollution and Health Risk

Good air quality is essential for human health and wellbeing. Air pollution generally, and particularly that arising from the transport sector, is recognised as a significant health burden in terms of illness and premature death. Nitrogen dioxide (NO_2) belongs to a group of gaseous air pollutants that are produced by road traffic and other forms of fossil fuel combustion. This can be a lung irritant, and can lower resistance to respiratory infections such as influenza; frequent or continuous exposure to high concentrations can result in increased incidence of acute respiratory illness in children[24]. Particulate matter in the atmosphere that has a diameter of ≤10 microns (PM_{10}) originates from both natural and man-made sources; in urban locations the majority of particulate matter in the air originates from road transport and fossil fuel combustion. Fine particles can cause lung inflammation, and can exacerbate symptoms of heart and lung disease, as well as potentially transmitting carcinogenic compounds.

Agriculture is a significant source of the greenhouse gas methane, as well as air pollutant emissions of particulate matter and reduced nitrogen. The contribution of the agricultural sector to air pollution in Northern Ireland is detailed further in Section 4.4.5. Ammonia can react with fumes from traffic and industry to produce particulates. A recent study in the journal Nature[25] that singled out the various outdoor pollution sources and estimated the number of premature deaths caused by each, found that agricultural emissions of ammonia were responsible for a fifth of all global premature deaths related to air pollution and were the largest cause of air pollution deaths in the eastern US, Japan and Europe.

[21] https://www.health-ni.gov.uk/news/life-expectancy-northern-ireland-2017-19

[22] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

[23] https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report

[24] https://www.daera-ni.gov.uk/publications/northern-ireland-environmental-statistics-report-2020

[25] https://www.nature.com/articles/nature15371

4.4.2.3 Water Pollution and Health Risk

4.4.2.3.1 Drinking Water Quality

The availability of a clean water supply is essential for the general health of the population of Northern Ireland. **Figure 4.3** illustrates waterbodies designated for drinking water across Northern Ireland. Contaminants that can have an adverse effect on human health arise from biological sources (e.g. *Cryptosporidium*, verotoxigenic *E. coli* [VTEC]) and also from chemical sources (e.g. from pesticides, herbicides, fertiliser, heavy metals, total trihalomethanes [THMs], pharmaceuticals).

Incidents of water pollution are investigated by NIEA; in 2019, there were 1,754 water pollution incidents, of which 53.6% were confirmed as having an impact on the receiving water quality, 17% of these as medium or high severity of impact[26]. The total number of confirmed incidences in 2019 was 39% lower than the annual average recorded in the period 2001-2003. Farming accounted for the greatest proportion of incidences in 2019 (36.5%), followed by industry (17.4%), other (17.1%), domestic (16%), Northern Ireland Water Limited (NI Water) (10.7%) and transport (2.3%).

In Northern Ireland, over 99% of the population receive their drinking water from NI Water, with the remainder served by private water supplies. Quality compliance of drinking water is assessed against the EU Directive on Drinking Water Quality 98/83/EC, as enacted nationally through the Water Supply (Water Quality) Regulations (NI) 2017 and the Private Water Supplies Regulations (NI) 2017.

Drinking Water Protected Areas

Drinking Water Protected Areas (DWPAs) are designated under Article 8 of The Water Environment (WFD) Regulations (NI) 2017, with the aim of protecting the safety of drinking water supplies and reducing the need for additional treatments. There are 26 surface water DWPAs and 65 groundwater DWPAs in Northern Ireland. Surface water DWPAs are related to the surface water catchments that provide a supply of freshwater to the intakes of the public drinking water supplier NI Water. The draft 3rd cycle RBMP for Northern Ireland updates the status of DWPAs, as summarised in **Table 4.9**. This indicates that 92% of groundwater DWPAs are currently at good status, and 8% at poor status. For surface water DWPAs, 57.7% of sites (15 out of 26) at least one parameter exceeded the drinking water standard in the raw (i.e. pre-treatment by NI Water) water intake during the 2nd cycle.

Table 4.9 Summary of the status of DWPAs in Northern Ireland

	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	%	No.	%	No.	%	No.	%
Total groundwater DWPA	42	100	13	100	10	100	65	100
Groundwater DWPA at good status	41	98	11	85	8	80	60	92
Groundwater DWPA at poor status	1	2	2	15	2	20	5	8
Total Surface water DWPA	10	100	8	100	8	100	26	100
Surface water DWPA passing	4	40	1	12.5	6	75	11	42.3
Surface water DWPA failing for at least one parameter	6	60	7	875	2	25	15	57.7

[26] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

Quality of Public Water Supplies

Approximately 863,000 domestic, agricultural, commercial and business properties in Northern Ireland are currently connected to the public water supply, equating to *c*.99.9% of the total population. The overall drinking water compliance of public water supplies in 2020 was consistently high at 99.94%[27], a slight increase from that reported in 2019 (99.90%). There were 59 tests that failed to meet the required standard. Surrogate compliance level at consumer's taps (measured through zonal sampling in 2020) was also high at 99.91%, however 9 of the 43 regulatory parameters did not achieve full compliance; nickel, aluminium, iron, *Clostridium perfringens*, *Enterococci*, taste, odour, coliform bacteria, and pesticides – individual (MCPA).

Microbiological contaminants are the most important parameters in terms of their implications for human health. A breach of compliance with microbiological standards can indicate a failure in the water treatment process, or breach in integrity of the water supply. Microbiological compliance at consumer's taps was 99.94% in 2020; *Coliform* bacteria were detected in four samples, and *Clostridium perfringens* and *Enterococci* both detected in one sample each. NI Water reported 38 water quality events in 2020, one categorised as Major, three as Serious, 24 as Significant, three as Minor and seven as Not Significant. The Major event related to the impact of the Covid-19 pandemic on NI Water, and ensuring that regulatory monitoring was fulfilled as far as possible. Of the three serious events, one related to chlorinous taste and odour following over dosing of chlorine at Fofanny Water Treatment Works (WTW), one to very high network demand in May / June 2020 and the other one to discoloured water following an issue at High Tober Service Reservoir. Nineteen of the 24 Significant events reported related to ten water treatment works and were primarily related to difficulties with the treatment process or a lack of effective treatment relating to aluminium, Cryptosporidium, individual pesticides (MCPA), iron, odour and taste, and turbidity contraventions. When a water quality event occurs, NI Water must implement mitigations, which should reduce the likelihood of significant future events.

Quality of Private Water Supplies

Less than 1% of the Northern Ireland population receive water from a private supply for domestic purposes, however many people are exposed to these sources through their use in commercial activities and public buildings[15]. The Drinking Water Inspectorate (DWI) monitored 175 sites in their private water supply sampling programme in 2020. Overall compliance of samples with water quality standards was 99.24% in 2020, a slight decrease from 2019 (99.29%); regulatory requirements were not achieved on 114 occasions for 21 water quality parameters: *Coliform* bacteria, *Enterococci*, *E. coli*, *Clostridium perfringens*, Hydrogen ion (pH), Manganese, Sodium, Iron, Nickel, Boron, Turbidity, Copper, Lead, Sulphate, total Trihalomethanes (THMs), Mercury, Nitrite, Fluoride, Chloride, Individual Pesticides (total Atrazine, Metribuzin and Phenanthrene), and Radon. Full compliance was achieved for only 64% of the private water supplies tested in 2020; of the 63 sites that did not comply with the regulatory standards, 33% did not comply with microbiological standards, 54% with chemical standards, and 13% with both microbiological and chemical standards.

The presence of micro-organisms in a private water supply is indicative of contamination of the water at source or within the distribution system. The presence of *E.coli* or *enterococci* bacteria indicates faecal contamination of the water supply, which can be a public health risk; faecal contaminants were found in twelve private water supplies in 2020. Three pesticide contraventions were detected at private supplies in 2020, one each for Altrazine, Phenanthrene and Metribuzin. The DWI investigates all contraventions at private water supplies, with subsequent actions dependent on the severity of the failure and level of risk.

4.4.2.3.2 Economically Significant Aquatic Species Protected Areas (Shellfish Areas)

Shellfish water protected areas (SWPAs) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high quality shellfish. The Shellfish Directive (79/923/EEC) was revoked in 2013, and subsumed into the WFD under Regulation 9 of the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. Areas previously designated under this Directive are now areas designated for the protection of economically significant aquatic

[27] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Drinking%20Water%20Quality%20in%20Northern%20Ireland%2C%202020%20-%20FINAL.PDF

species under the WFD, and listed on the Protected Areas register. All SWPAs must be managed to ensure that they meet ecological and chemical objectives under the WFD. They must also meet at least Class B status classification by the Food Standards Agency (FSA) under the Food Hygiene Regulations, to ensure that the quality of shellfish harvested are sufficient to protect public health. SWPAs must also make progress to meet a WFD microbiological guideline standard of ≥75%of samples containing ≤230 *E.coli* in the shellfish flesh and intervalvular liquid[28].

There are currently 10 shellfish water protected areas in Northern Ireland (**Figure 4.3**), as detailed in **Table 4.10**. Shellfish Action Plans have been established for these sites, and will be next reviewed in 2021 in line with the third river basin cycle under the WFD. SWPAs are managed by DAERA's Marine and Fisheries Division to ensure no deterioration in water quality, and that progress is made towards compliance with guideline standards. **Table 4.10** outlines the most recent status of these sites, as given in the 2019 Shellfish Action Plans[29]. A total of 2 out of 9 (22%) designated shellfish waters complied with the guideline *E.coli* standard in 2019[30]. Only one site has consistently met the guideline standard over the past six years, while four sites have met the guideline standard at least once, and four sites have not met this standard in any year. The draft 3rd cycle RBMP for 2021-2027 indicates the status of surface water bodies associated with these sites; according to the surface water classification for 2018, three surface water bodies had 'good' surface water status, while seven were at 'moderate' or 'moderate ecological potential' status.

Table 4.10 Location and Status of Shellfish Water Protected Areas in Northern Ireland

Site Name	WFD Status 2018	WFD Target 2021	FSA Classification 2018	WFD *E.Coli* Guideline 2018
Larne Lough	Moderate	Good	B	Did not meet guideline
Belfast Lough	Moderate	Good	B/C	Did not meet guideline
Strangford Lough – Paddy's Point and Reagh Bay	Moderate	Good	B	Did not meet guideline
Strangford Lough – Skate Rock	Moderate	Good	A	Met guideline
Strangford Lough – Marlfield Bay	Moderate	Good	N/P	N/A
Killough Harbour	Good	Good	B	Did not meet guideline
Dundrum Bay	Moderate	Good	B/C*	Did not meet guideline
Lough Foyle, Longfield Bank	Good	Good	B	Did not meet guideline

[28] https://www.legislation.gov.uk/nisr/2015/351/contents/made

[29] https://www.daera-ni.gov.uk/publications/shellfish-action-plans-2019

[30] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

Lough Foyle, Balls Point	Good	Good	B	Did not meet guideline
Carlingford Lough	Moderate	Good	B**	Met guideline

*B Status for Inner North Mussels & C Status for Inner South Mussels

**B Status for all sites in Carlingford Lough with the exception of a B/C Status at Narrow Water Wild Fishery (seasonal classification)

4.4.2.3.3 Bathing Water Protected Areas

The Bathing Water Directive (Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC) requires each member state to identify its most popular bathing waters for regular testing in order to ensure that a minimum quality standard is reached, and is implemented in Northern Ireland by 'The Quality of Bathing Water (Northern Ireland) Regulations 2013. There are 26 designated bathing waters in Northern Ireland (**Figure 4.3**), as detailed in **Table 4.11**. These are monitored weekly from May to September, and classified into one of four categories:

- Excellent;
- Good;
- Satisfactory; or
- Temporary advice issued against bathing.

Classifications are based on the presence of *E.coli* in water samples. Individual sample results below 250 *E.coli* (EC)/100ml and 100 Intestinal Enterococci (IE)/100ml are typical of an 'Excellent' classification. Results below these values, and up to 500 EC/100ml and 200 IE/100ml are typical of a 'Good' or 'Sufficient' classification. When *E.coli* levels exceed 1250/100ml, temporary advice against bathing is issued. The most recent assessment of bathing water quality compliance at these sites classified 17 as 'Excellent' quality, 5 as 'Good' quality, and 4 as 'Sufficient' quality for bathing[31]. According to the draft 3rd cycle RBMP, over the assessment period of 2014-2019, 25 of the 26 bathing water sites consistently met the minimum standard (sufficient). Of these, 10 sites consistently met the 'excellent' standard, 7 sites consistently met 'excellent' of 'good' standard, and 5 sites consistently met 'good' or 'sufficient' standard. One site, Ballyholme, consistently met the 'sufficient' standard over this period. Investigations by DAERA has shown that this site is situated in a complex catchment, vulnerable to pressures from agricultural run-off and overflows from the WWT network. No bathing water sites in Northern Ireland have failed to reach the minimum standard of 'sufficient' during the assessment period.

Table 4.11 Location and Status of Bathing Water Sites in Northern Ireland

Bathing Water	2020 Compliance Level
Magilligan (Benone)	Excellent
Magilligan (Downhill)	Excellent
Castlerock	Excellent
Portstewart	Excellent
Portrush (Mill) West	Excellent
Portrush (Whiterocks)	Excellent
Portballintrae	Excellent
Helen's Bay	Excellent

[31] https://www.daera-ni.gov.uk/articles/bathing-water-quality

Crawfordsburn	Excellent
Groomsport	Excellent
Millisle	Excellent
Cloughey	Excellent
Tyrella	Excellent
Murlough Co Down	Excellent
Cranfield (Cranfield Bay)	Excellent
Kilclief	Excellent
Ballyhornan	Excellent
Portrush (Curran) East	Good
Ballycastle	Good
Browns Bay	Good
Ballygally	Good
Ballywalter	Good
Waterfoot	Sufficient
Carnlough	Sufficient
Ballyholme	Sufficient
Newcastle	Sufficient

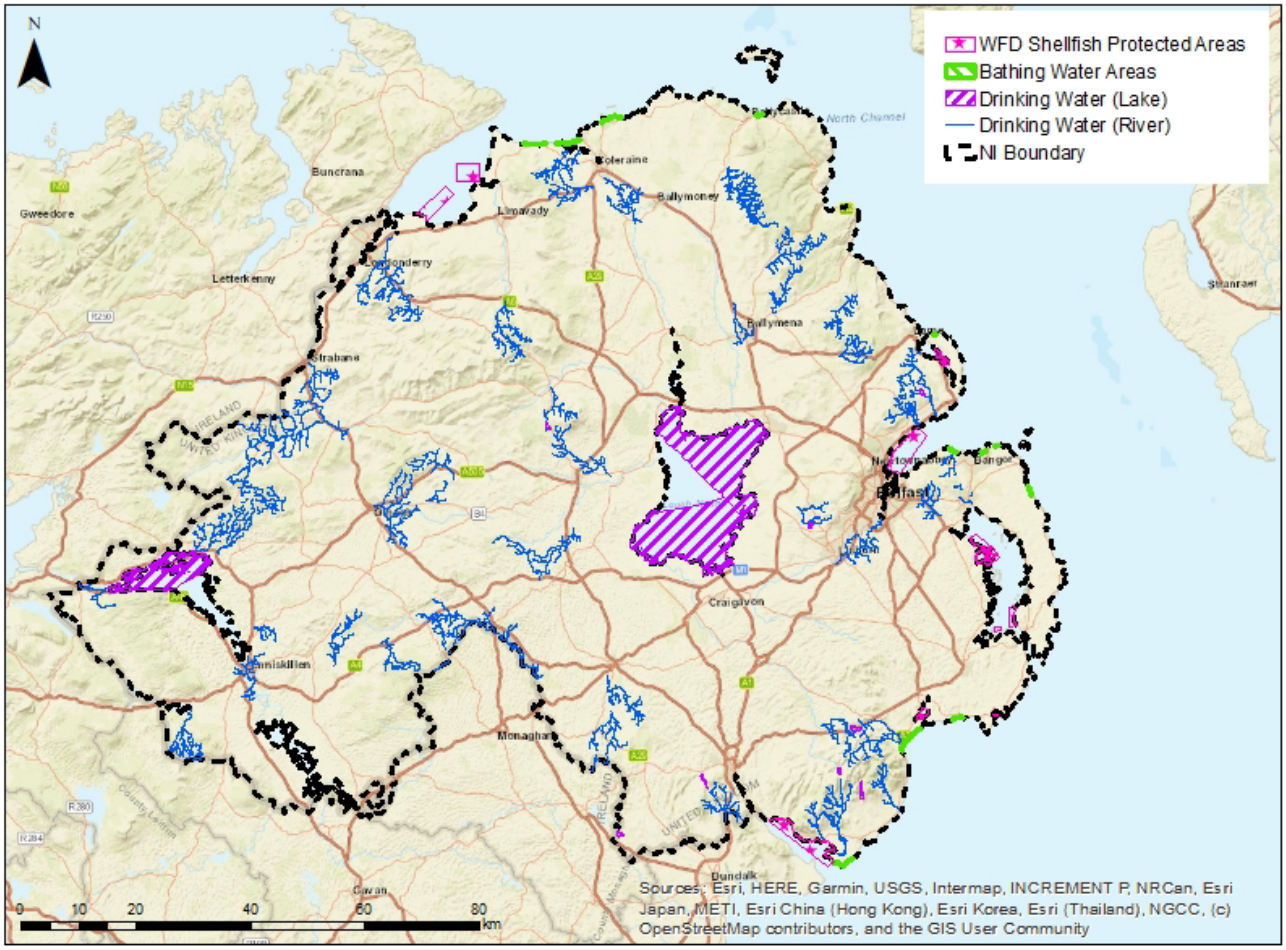

Figure 4-3 WFD Protected waterbodies across Northern Ireland

4.4.2.4 Summary of Existing Pressures and Issues for Population and Human Health in Northern Ireland

According to the current State of the Environment report (2013), air and water quality pose little overall risk to public health in Northern Ireland[32]. Risks from radioactivity exposure are also considered very low and, while the health impacts of hazardous chemicals is not fully known, recent legislation regulating chemical supply and use ensures increased safeguarding of the population from health risks. The report considers noise to be an emerging environment and health issue, as well as the effects of climate change, depletion of stratospheric ozone, biodiversity loss and land degradation.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on air and water quality alone, or in combination with, these existing pressures. While air and water quality are not implicated as serious public health risks in Northern Ireland as a whole, on a more local level there may be implications on health through effects on drinking water or food quality, or to recreational water-based resources such as bathing waters. Policy proposals within the draft APP also have the potential to contribute to positive or negative consequences of climate change, through GHG production, and to biodiversity loss, with implications for human health and wellbeing.

[32] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

4.4.3 Geology, Soils & Landuse

Soils are a non-renewable resource, which provide vital ecosystem services such as: filtration and transformation of nutrients; storage of carbon; regulating flows and storing surface water; providing habitats and supporting biodiversity and food production. Depending on their condition and landuse, soils may be degraded, disturbed or lost through activities which result in compaction, poaching, erosion, sediment loss or changes in fertility. Nitrates generally pass through well-drained soils such as brown-earth soils and can reach groundwater through locally and regionally important aquifers where the nutrient can be transported long distances, whereas in these well-drained soils, phosphate typically becomes bound up in soil minerals. Poorly draining and waterlogged soils, such as organic soils or gley-type soils, cause increased surface run-off and phosphorous concentrations and siltation issues.

It is considered that the key issues associated with implementation of the draft APP and Geology, Soils and Landuse comprise:

- Potential for effects on soil fertility and improving efficiency of nutrient use;
- Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility);
- Potential for effects on the vulnerability of land to erosion;
- Potential for effects on soil compaction and poaching;
- Potential influence of soil type on land use practices (e.g. fertiliser application);
- Potential for effects on discharges to receiving aquatic sediments; and
- Potential for effects on landuse within agricultural holdings.

4.4.3.1 Geology of Northern Ireland

4.4.3.1.1 Bedrock Geology

The geological landscape of Northern Ireland is remarkably varied considering its relatively small area of about 14,000km^2, and is a reflection of the diverse geology on which it has been shaped. Northern Ireland has widespread geological deposits of relatively recent origin, known as superficial deposits, which formed during the last 2-3 million years of the Earths' history, spanning the Ice Ages and Interglacial periods. By far the most abundant of these are glacial sediments, made of mixtures of clay, silt, sand and gravel that were laid down by the repeated growth and decay of former ice-sheets. Other sediments continue to form in lakes, rivers, estuaries and coastlines, whilst on high ground raised bogs of peat have steadily accumulated[33].

Below the superficial deposits, or with just a cover of soil where such deposits are absent, are older rocks which geologists broadly split into two distinct types: sedimentary bedrock and basement bedrock. Sedimentary bedrock geology consist of younger sequences, including limestones, sandstones and clays and older sequences, including sandstones, siltstones and mudstones. Basement geology (which underlies the sediment geology), consist of rocks which formed from the solidification of molten rock below volcanoes (igneous rocks) and sediments or intrusions which have changed as a result of high temperatures and pressures (metamorphic rocks).

At a high level, the bedrock geology of Northern Ireland (**Figure 4.4**) can be separated into four contrasting areas from oldest to youngest:

- The Sperrin Mountains in Londonderry and Tyrone contain the oldest basement rocks (Neoproterozoic);
- The Down-Longford area to the southeast is composed of basement rocks (Rhuddanian);
- The Lakelands in the southwest are predominantly a combination of various Palaeozoic sedimentary bedrock; and

[33] https://www.bgs.ac.uk/download/regional-geological-summaries-northern-ireland/

- The Antrim Hills in the northeast contain the youngest sedimentary bedrock (Paleocene).

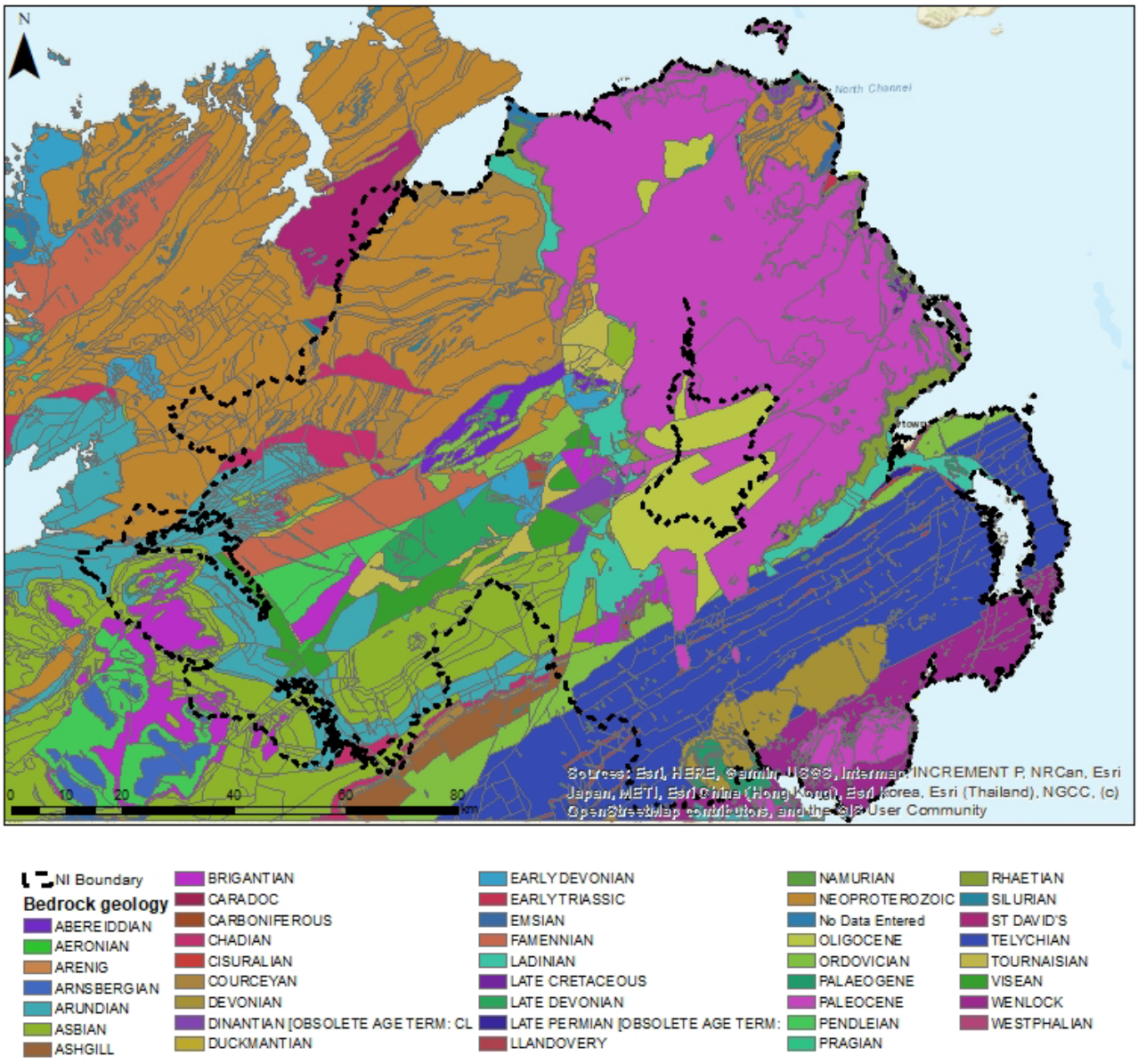

Figure 4-4 Bedrock geology mapping across Northern Ireland by age

This correlates with groundwater aquifers, as Northern Ireland contains four major aquifers (Figure 4.5). Three of these are layers within the younger sedimentary rocks of the Antrim Plateau, while the other is within the older sedimentary rocks in the southwest. There are no major aquifers in the northwest or the southeast, given that basement bedrock are the primary features in these areas.

4.4.3.1.2 Hydrogeology and Groundwater Vulnerability

Basement rocks, such as those found in The Sperrin Mountains and in the Down-Longford terrane, do not usually provide a water source except where intensely fractured and weathered near the surface, and so the nature of the rock types most commonly found is such that they generally represent only poorly to moderately productive aquifers.

As previously noted, there are four major aquifers across Northern Ireland, one of which is located within the older sedimentary bedrock in the southwest Lakelands (Enniskillen) and the remaining three within the younger sedimentary bedrock, typically found in the north and northeast. Across Northern Ireland there are a total of 6 classes of aquifer, which are identified in **Table 4.12** and **Figure 4.5**.

Table 4.12 Aquifer classification of bedrock in Northern Ireland

Aquifer Category	Symbol	Typical Rock Units/ Formations
High productivity Fracture Flow	Bh (f)	Certain Carboniferous basal formations
High Productivity Fracture/Intergranular Flow	Bh (I-f)	Permo-Triassic Sandstones
High Productivity Fracture flow with karstic element	Bh (f-k)	Carboniferous Darty Limestone with Knockmore Limestone Member (in places) Carboniferous Ballyshannon Limestone Formation Ulster White Limestone Formation (Chalk)
Moderate Productivity Fracture Flow Limited Productivity Fracture Flow	Bm (f) Bl (f)	Palaeogene Basalts Certain Carboniferous Dinatian Sandstones Ordovician/Silurian strata Dalradian strata Devonian strata Granites and Intrusives
Poor Productivity Fracture Flow	Bp (f)	Lough Neagh Clay Group Mercia Mudstone Group Waterloo Mudstone Formation

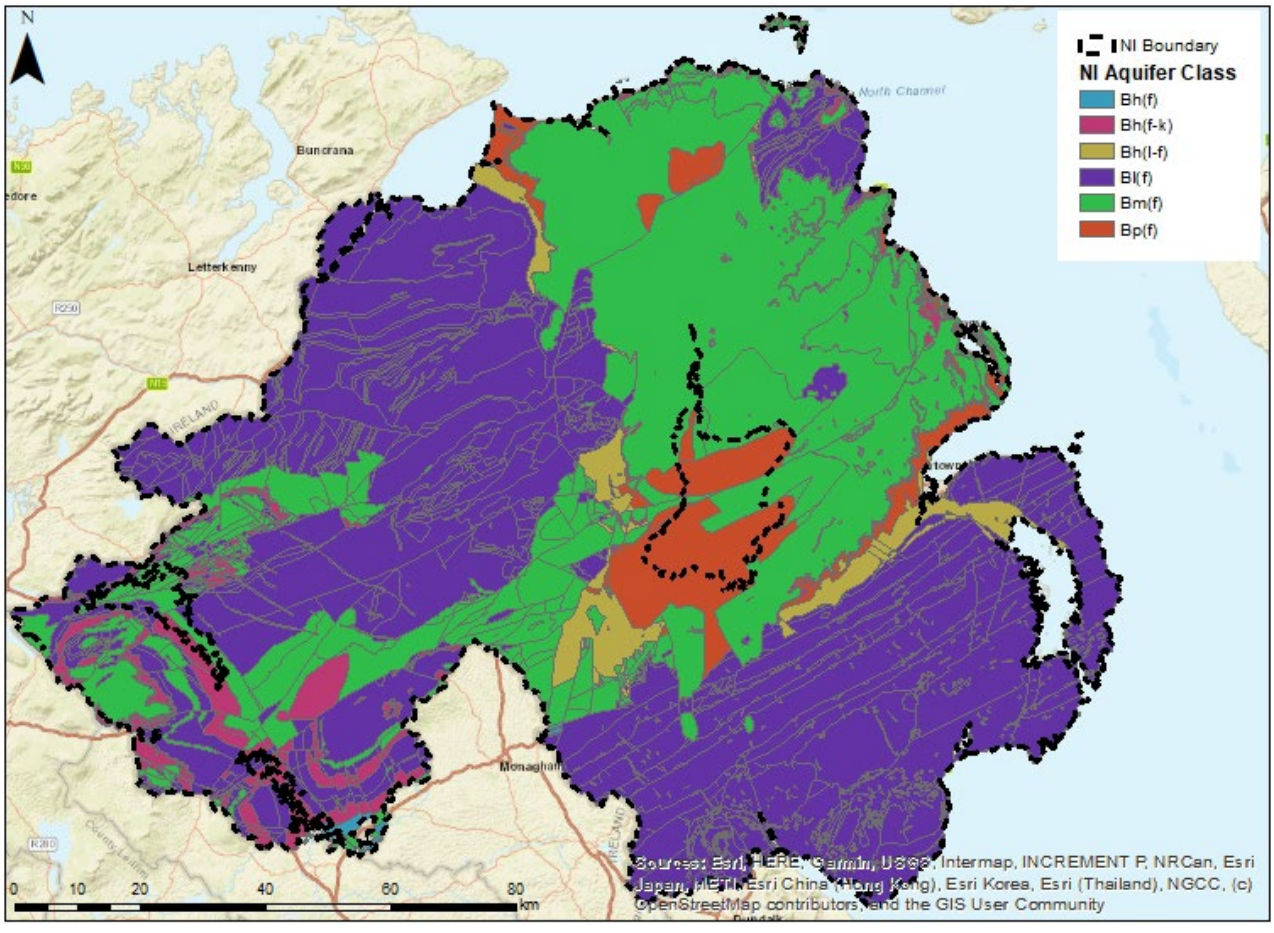

Figure 4-5 Aquifer classification across Northern Ireland

The tendency and likelihood for general contaminants to reach the water table after introduction at the ground surface is termed groundwater vulnerability. This vulnerability is therefore a combination of landuse and aquifer classification. Where the soil and unsaturated zone are highly permeable, water can readily flow from the surface to the water-table and the aquifer is vulnerable. However, if the unsaturated zone and soil is clay rich, recharge is reduced and the aquifer is less vulnerable.

Figure 4.6 indicates the groundwater vulnerability mapping across Northern Ireland. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sand and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains. In general, areas of lowest vulnerability are those located at a lower elevation, which contain low permeability deposits such as till (Diamicton).

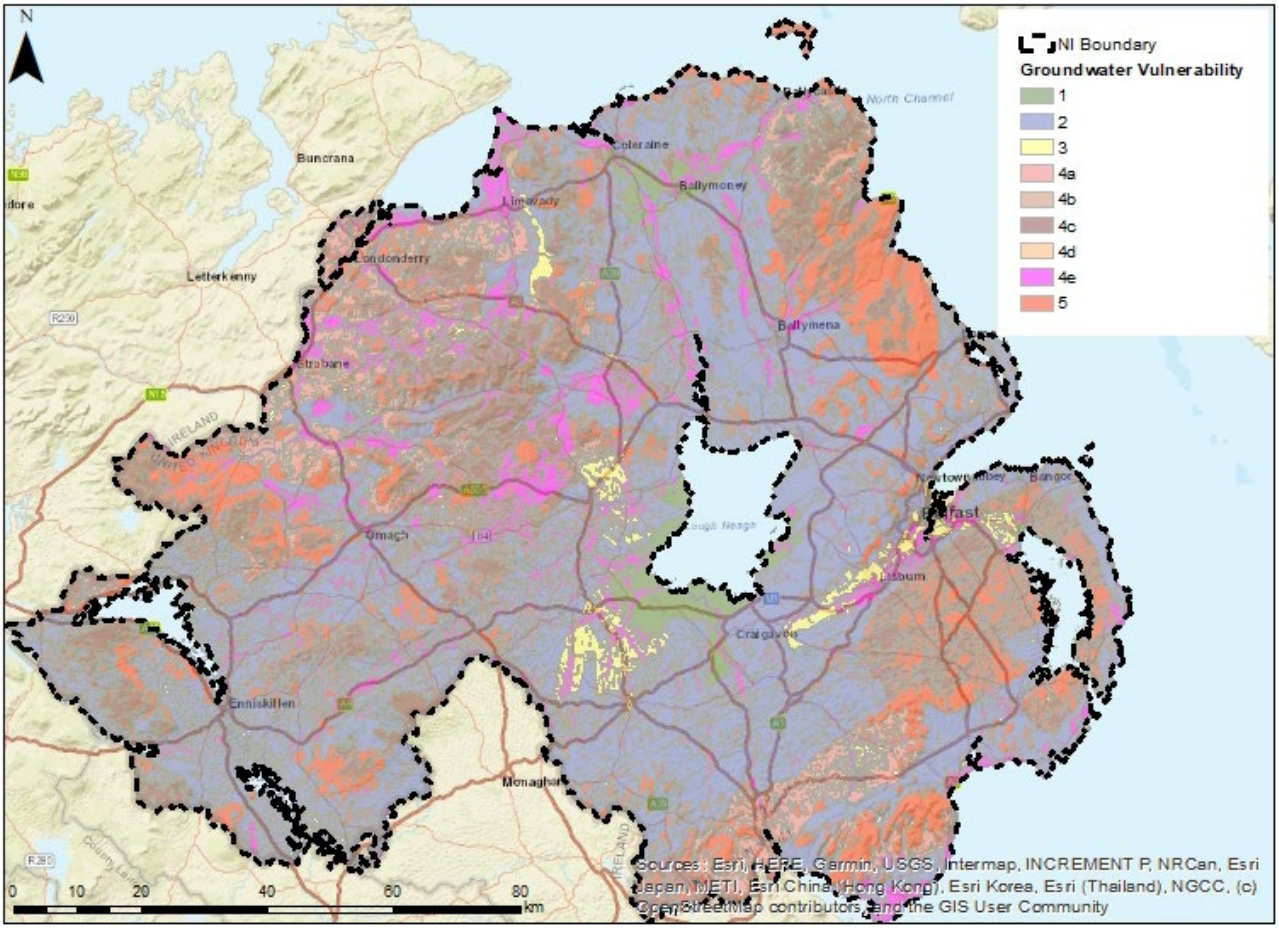

Figure 4-6 Groundwater Vulnerability mapping across Northern Ireland

4.4.3.2 Soil Types in Northern Ireland

A General Soil Map of Northern Ireland has been produced by the Agri-food and Biosciences Institute (AFBI)[34]. This map identifies 9 main soil types across Northern Ireland, as recognised by The World Reference Base map. These soils and their general occurrence are identified in **Table 4.13**.

Table 4.13 AFBI World Reference Base soil types across Northern Ireland

AFBI World Reference Base	General occurrence across Northern Ireland
Arenosols (sandy-textured soils that lack any significant soil profile development)	Located in coastal areas such as Murlough in County Down and Portrush in County Antrim
Cambisols (soil in the beginning of soil formation)	Most prevalent in the southeast, around County Down

[34] http://www.ukso.org/static-maps/soils-of-northern-ireland.html

Fluvisols (genetically young soil in alluvial deposits)	Generally widely dispersed across Northern Ireland in small pockets
Gleysols (wetland soils, which in the natural state are continuously water-saturated within 50 cm of the surface, for long periods of time)	Generally occur in small, isolated pockets across Northern Ireland
Histosols (soil consisting primarily of organic materials)	Generally present in the northwest, around the Sperrin Mountains and in the Antrim Hills
Leptosols (shallow soils with minimal development, formed typically on hard rock or highly calcareous materials)	Generally most prevalent in the southeast, around the Mourne Mountains and surrounding Strangford Lough
Podzols (soils with an ash-grey subsurface horizon, bleached by organic acids, on top of a dark accumulation horizon with brown or black illuviated humus and/or reddish iron compounds)	Most prevalent in the southeast and west
Stagnosols (soil with strong mottling of the soil profile due to redox processes caused by stagnating surface water)	Most abundant soil type, which is present across Northern Ireland but most dominant in the south and southwest
Urban (soil material having a non-agricultural, man-made surface layer more than 50 cm thick)	Mostly present around the Greater Belfast, Bangor and Lisburn urban areas.

Contaminants generally pass through high permeability, well-drained soils, such as Leptosols, Cambisols, Fluvisols etc., and can reach groundwater through locally and regionally important aquifers where they can be transported long distances. On the other hand, poorly draining and waterlogged soils, such as organic soils (peats), Stagnosols or Gleysols, cause increased surface run-off and siltation issues which can impact on downstream surface waterbodies. Stagnosols are the most abundant soil type across Northern Ireland in areas of lower elevation.

4.4.3.3 Nutrient Balance of Farms in Northern Ireland

Figure 4.7 and **Figure 4.8** below indicate historical nutrient balance trends for Northern Ireland from 1970-2019. This information has been extracted from the DAERA Statistical Review of Northern Ireland Agriculture[35]. Total inputs are the sum of those inputs from both fertilisers and feedstuff, outputs are animal production outputs such as beef, eggs, milk, sheep meat, poultry etc. and the balance data indicate the difference between the inputs and outputs.

[35] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202019%20final.pdf

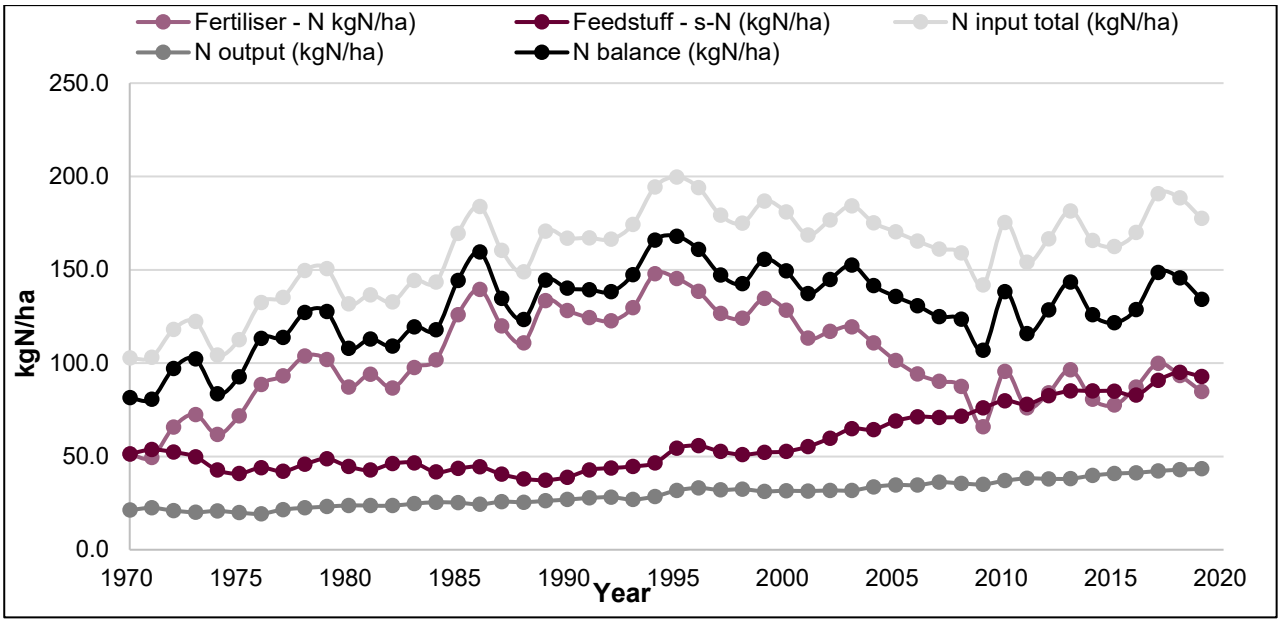

Figure 4-7 Annual nitrate concentration balances from 1970-2019 (at 17% protein)

In general, **Figure 4.7** indicates that the input data, and therefore balance data, follow a similar trend to fertiliser input figures, rather than feedstuffs. From 1972 to 2008, fertilisers contributed to much higher concentrations of nitrates than feedstuffs, however since 2008, contributions from both have remained similar. This coincides with the first Nitrates Action Programme Regulations, which became effective in 2007. Figure 4.7 indicates that the total nitrates input generally increased from 1970, with a peak of 200 kgN/ha in 1995. After 1995, this began to decrease, however since 2008 has remained at similar levels, with peaks of 175 kgN/ha in 2010, 182 kgN/ha in 2013, 191 kgN/ha in 2017 and 188 kgN/ha in 2018. This trend follows the input from fertilisers, while nitrates from feedstuffs have generally increased slowly from their lowest level of 37 kgN/ha in 1989 to a peak of 95 kgN/ha in 2018. In general, nitrate outputs, which are those outputs from animal production, have been increasing slowly every year, with some exceptions, such as a small decrease in 1976 and 1993.

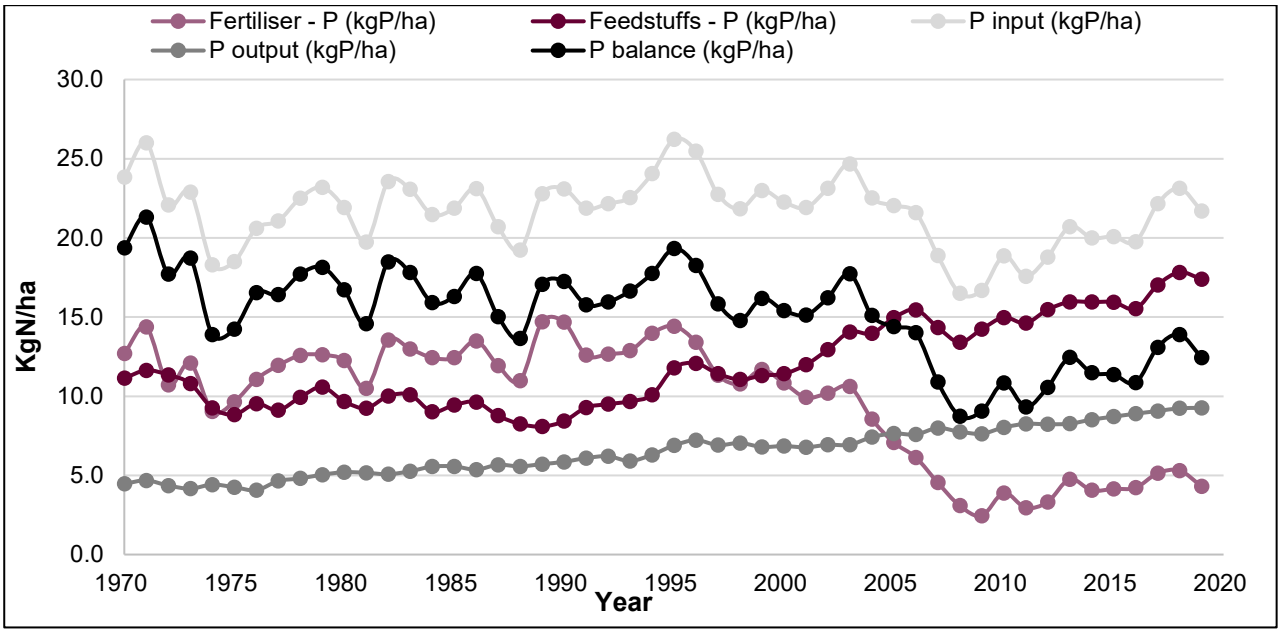

Figure 4-8 Annual phosphate concentration balances from 1970-2019

In general, **Figure 4.8** indicates that from 1970 to 1975, phosphate contributions from fertilisers and feedstuffs were similar, however from 1975 to 1997, inputs from fertilisers had become higher than from feedstuffs. Since 2003, phosphate contributions from fertilisers has decreased, while contributions from feedstuffs has increased to approximately 3 times higher than fertilisers. When comparing total phosphate inputs, which is the sum of inputs from fertilisers and feedstuffs, Figure 4.8 indicates that total phosphate inputs decreased from their peak of 26 kgP/ha in 1971 for four years then began to increase after 1975. From 1975, phosphate inputs generally remained around 23 kgP/ha, with multiple peaks and troughs. Phosphate outputs, which are from animal production outputs, have generally increased steadily since 1970.

4.4.3.4 Landuse in Northern Ireland

Landuse in Northern Ireland, as identified within the Corine Dataset, is shown in **Figure 4.9** and summarised in **Table 4.14,** which indicates that landuse across Northern Ireland is primarily composed of 'Pastures' (>7,600km^2), followed by 'Complex Cultivation Patterns' (1,438km^2) and 'Peat Bogs' (1,321km^2). Pastures, which cover >56% of land cover across Northern Ireland are located across the country, with the exception of upland areas such as the Mourne Mountains in the southeast, the Antrim Hills in the Northeast, the Sperrins in the west and raised bog peatland areas in mid-Ulster. Complex cultivation patterns are generally located in the east of Northern Ireland, primarily surrounding Strangford Lough and peat bogs are generally located in western areas.

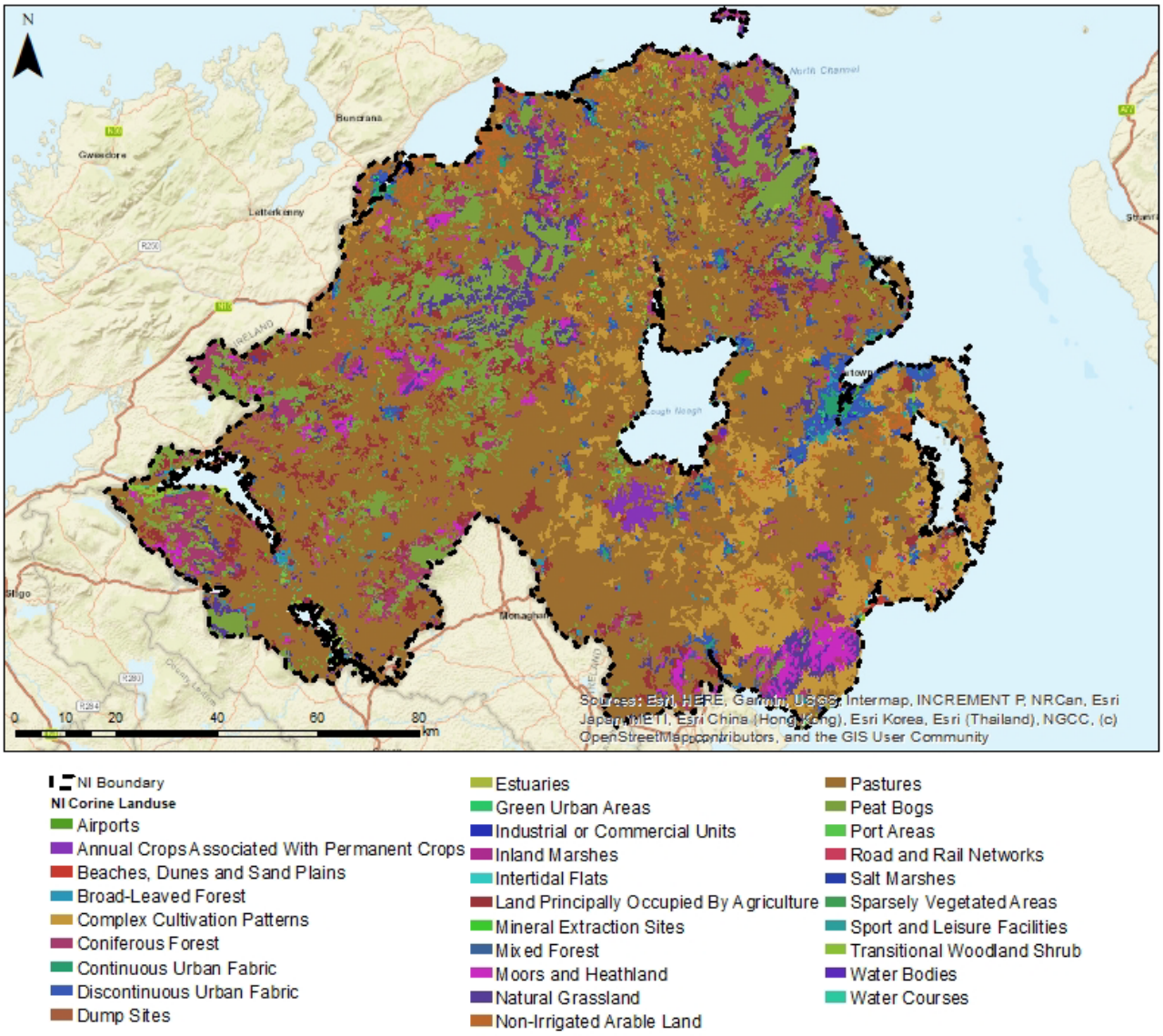

Figure 4-9 Corine landuse mapping across Northern Ireland

Approximately 78% of the total Northern Ireland land area (1.35 million hectares) is used for agriculture, including common rough grazing. Most farmland in Northern Ireland is under grass, in fact only 2,951 farms (12%) have arable or horticultural crops. In 2019[36], cattle were present on 19,919 farms (80%), sheep on 9,921 farms (40%) and cattle and/or sheep on 23,282 farms (94%). In addition, pigs and/ or poultry (for commercial purposes) were present on 4.6% of farms.

Table 4.14 Dominant Land Cover Types within Northern Ireland

Land Cover Class	Total Land Cover (km^2)	% of Total
Pastures	7,624	56
Complex Cultivation Patterns	1,438	11
Peat Bogs	1,321	10
Land Principally Occupied by Agriculture	620	5
Natural Grassland	532	4
Coniferous Forest	521	4
Moors and Heathland	325	2
Non-Irrigated Arable Land	323	2

4.4.3.5 Agricultural Critical Risk Areas

Agricultural Critical Risk Areas have been identified by DAERA, based on activities that have been classed as arable horticulture or improved grassland by the CEH land cover map 2007[37], which is carried out on land parcels scored against a matrix of risk factors and the 2015 status of WFD enrichment indicators. These risk factors have the potential to contribute to in-stream biological, chemical and physiochemical impact. In order to calculate these Agricultural Critical Risk Areas, a modelling application SciMAP was applied with a 5m DTM to produce sediment source and deposition areas as well as identifying significant hydrological links to the river network. Each risk factor has been assigned a relative weighting from 0 – 1, dependant on its contribution to the overall risk. These weightings have been used as multipliers for a three category risk index, 1 - 3 relating to banding of risk factor variables into increasing risk. The scores are then totalled to provide an overall risk for each land parcel. These scores across Northern Ireland, are shown in **Figure 4.10**.

[36] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202019%20final.pdf

[37] https://www.ceh.ac.uk/services/land-cover-map-2007

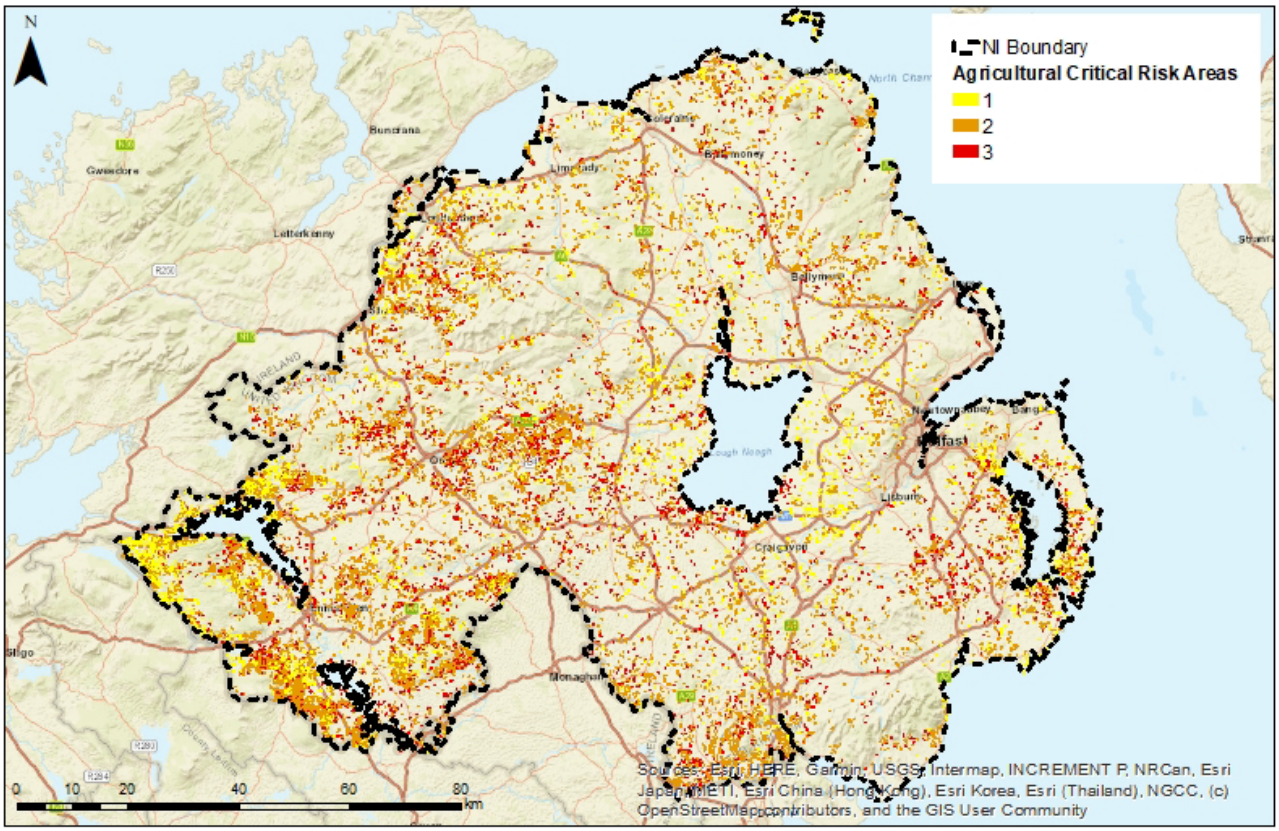

Figure 4-10 Agricultural Critical Risk Areas across Northern Ireland

Figure 4.10 illustrates Agricultural Critical Risk Areas where 1 (yellow) is the lowest risk and 3 (red) is the highest risk. There are 6,937 highest risk areas, which cover an area of 7,744ha, 24,578 moderate risk areas which cover 24,814ha, and 6,874 lower risk areas which cover 8,667ha. In general, the Agricultural Critical Risk Areas are more prevalent within the west of Northern Ireland, and along the east of Strangford Lough. The identified Agricultural Critical Risk Areas can also be further assessed to determine if the areas are hydrologically connected to any waterbodies, which could therefore impact on downstream water quality. Out of the 38,389 Agricultural Critical Risk Areas identified, 26,600 have a hydrological connection, 6,483 (7,471ha) of which are highest risk areas, 17,840 (19,857ha) are moderate risk and 5,273 (7,385ha) are lower risk areas.

This mapping information of Agricultural Critical Risk Areas is used to identify areas of highest risk which are therefore used in the risk selection process for cross-compliance inspections.

4.4.3.6 Sustainable Land Management

The Sustainable Agricultural Land Management Strategy (SALMS) for Northern Ireland was established in 2014 with the aim of outlining how the Agri-Food Strategy Boards' "Going for Growth" targets would be achieved in a way which improved farm incomes and environmental performance simultaneously. The SALMS report was published in 2016, within which improving the health of Northern Ireland's agricultural soils was the central focus. The report sets out a series of key features for sustainable land management:

- Achieving sustainable profits per hectare
- Good nutrient management leading to greater utilisation of higher quality grass and silage
- Production of more diverse swards with greater proportions of legumes to help extend the grazing season while improving soil structure, carbon and biology
- Properly located woody riparian strips in overland flow pathways to reduce nutrient and sediment loss to waterways to improve biological water quality
- Woody biofiltration blocks, placed downhill of farmyards and at discharges to septic tanks to capture "grey water" and reduce the risk of nutrient leakage

- Appropriate agro forestry planting on grassland farms to extend the grazing season while improving biodiversity and carbon sequestration and providing renewable fuel
- Woodland barriers between farms to improve biosecurity and herd health while increasing biodiversity and carbon sequestration
- Strategic planting of trees around intensive livestock units to reduce ammonia drift resulting in nitrogen deposition on sensitive environmental sites

Through adherence to these features of sustainable land management, there is anticipated to be improved nutrient management.

Agri-environmental schemes are currently managed in Northern Ireland under the Rural Development Programme (RDP). In 2015, 305,000 ha (approximately 29% of NI farmland) had been managed under agri-environment scheme agreements. In 2016, the area of agricultural land managed through these schemes decreased by 85% to 46,000 ha (approximately 4-5% of NI farmland), however this was due to the expiration in 2016 of those remaining 10 year agreements from the older agri-environment schemes. In 2017 DAERA subsequently launched a new agri-environment scheme, known as the Environmental Farming Scheme (EFS). This is a voluntary, 5 year scheme under the NI RDP 2014-2020, which is part financed by the EU. At the end of 2020, there were three tranches of the EFS, with 47,700 ha being managed through 4,700 agreements; this comprises 3,891 wider agreements covering 4,683 ha, and 774 higher level agreements (primarily for environmentally designated sites or priority habitats and species) covering 43,035 ha[38].

4.4.3.7 Summary of Existing Pressures and Issues for Geology, Soils and Landuse in Northern Ireland

Existing pressures and issues for geology across Northern Ireland relate to the presence of permeable sedimentary bedrock or where the occurrence of fracture flows results in highly productive aquifers, such as those in the northeast Antrim Hills and southwest Fermanagh Lakelands. Where these areas are overlain by freely draining soils, contaminants may be leached into groundwater or into nearby waterbodies and therefore may be transported considerable distances from their source. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sand and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains.

In poorly draining or waterlogged soils, contaminants can be mobilised during runoff and erosion and, as such, streams, lakes and other waterbodies in the vicinity of the source are at highest risk. This is particularly important, given that Stagnosols (which are given their name due to stagnating surface water) are the most abundant soil type across Northern Ireland, particularly in areas of lower elevation.

At present, only 46,000ha of agricultural land is being managed under agri-environment scheme agreements which is only 4-5% of NI farmland, yet 41,229ha of agricultural land has been identified as Critical Risk Areas. There is significant potential for positive or negative effects on soils and landuse within agricultural land holdings from policy proposals within the draft APP that relate to changes in land management.

4.4.4 Water

Water is essential for the maintenance of biodiversity, supports the population through the provision of drinking water and supports many of our core activities[39]. Although there have been improvements in drinking water quality and water utility discharge quality, and a decrease in incidents of water pollution, the most recent status of WFD surface water bodies in Northern Ireland (2021) highlights that only 38% are currently at least at a good status[40]. Pressure assessments have identified that two significant pressure sources related to nutrients

[38] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf

[39] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[40] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

are preventing the achievement of good status for water bodies: agricultural activities and sewage-related problems.

An excessive supply of nutrients to water bodies, particularly nitrogen and phosphorus, can lead to eutrophication, whereby these elevated concentrations result in accelerated growth of plants and algae. This reduces oxygen levels in the system, which can cause a loss of sensitive species and impact upon the ecological status of the water body. Elevated nutrient concentrations, arising from both point (e.g. sewage discharges) and diffuse (e.g. agricultural run-off) anthropogenic sources, represent the most significant threat to water quality in Northern Ireland. In freshwaters, phosphorus is usually the limiting nutrient for plant and algal growth, whereas in marine waters nitrogen is generally the limiting nutrient. Water quality can also be adversely affected through the addition of hazardous substances such as pesticides and heavy metals, specific pollutants and microbial contamination.

It is considered that the key issues associated with implementation of the draft APP and Water comprise:

- Potential for effects on the ecological status of WFD surface water bodies via changes in the levels of nutrient pollution and sedimentation;
- Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation and nutrient sensitive areas;
- Potential for effects on nutrient concentrations within freshwater and marine water bodies;
- Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies;
- Potential effects of topography and landuse practices to risk of nutrient and sediment loss and subsequent water pollution;
- Potential for effects on flood risk.

4.4.4.1 Water Framework Directive Surface Water Bodies

The EU Water Framework Directive (WFD) (2000/60/EC), transposed in Northern Ireland through 'The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017' the "WFD Regulations", established a new legal framework for the protection, improvement and sustainable use of rivers, lakes, transitional waters, coastal waters and groundwater across Europe. This was undertaken in order to prevent deterioration and to enhance the status of aquatic ecosystems, promote sustainable water use and reduce pollution. The WFD is implemented through River Basin Management Plans (RBMPs). Northern Ireland has three River Basin Districts (RBDs): North Western RBD, Neagh Bann RBD and North Eastern RBD. The Water (Amendment) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the supporting pieces of water legislation continue to operate in Northern Ireland following the UK's exit from the European Union in January 2021; as the preparation and implementation of a RBMP is a key part of the implementation of the WFD Regulations, this process will continue within Northern Ireland.

The WFD Regulations require the production and implementation of a RBMP for Northern Ireland in six yearly cycles. The most recent is the draft third cycle RBMP (2021), which runs from 2021-2027. This classifies the status of all WFD surface water bodies according to chemical, biological and hydromorphological parameters, providing an overall status of either 'High', 'Good', 'Moderate', 'Poor' or 'Bad' for each surface water body (if the surface water bodies have been designated as artificial or heavily modified, they are classified using ecological 'potential' rather than ecological 'status'). 'Water Bodies' are the basic management units for reporting and assessing compliance with the environmental objectives of the WFD Regulations. There are 496 WFD surface water bodies in Northern Ireland, comprising 450 rivers, 21 lakes and 25 transitional and coastal waters.

There are 75 WFD groundwater bodies in Northern Ireland (66 bedrock and 9 superficial), comprised of 45 in the North Western RBD, 14 in the North Eastern RBD and 16 in the Neagh Bann RBD. Under the WFD, groundwater bodies are classified as 'good' or 'poor' status for quantitative and chemical status, and overall good status requires that both the quantitative and chemical status are good.

The WFD Regulations set a requirement to meet 'Good Status' in all water bodies by 2015, with the exception of water bodies where this was not achievable for reasons of technical feasibility or disproportionate costs.

The second cycle RBMPs aimed to prevent the deterioration of water bodies and to protect, enhance and restore them, with the aim of achieving at least 'Good' status (or 'Good Ecological Potential') in 70% of surface water bodies by 2021.

The third cycle RBMP for Northern Ireland 2021-2027 will identify those water bodies which can be classified as being at 'good or better' status and set objectives and a programme of measures for the next six year cycle to help improve those water bodies which are classified as below 'good' status. This is currently at a draft stage, and an updated classification for water bodies for 2021 will be published in the final RBMP. In the interim period, WFD water body classifications were updated mid-cycle (2018) for rivers, transitional and coastal water bodies, while classifications for lakes and groundwater bodies were updated in 2020. **Figure 4.11** illustrates the current (2018) status of WFD surface water bodies (i.e. river, lake, transitional and coastal water bodies), and **Figure 4.12** the current (2020) status of groundwater bodies within Northern Ireland.

Table 4.15 compares the number and percentage of waterbodies within the North Eastern, Neagh Bann and North Western RBDs at 'good or better' status in 2015 and 2018 (2020 for lakes and groundwater bodies). This indicates the following:

- River status - In 2018, 31.3% of Northern Ireland's river water bodies were classified as 'good or better' status, compared to 32.7% in 2015 (based on 450 river water bodies);
- Marine status – In 2018, 40% (10 out of 25) of transitional and coastal water bodies in Northern Ireland were classified at 'good or better' status, compared to 36% (9 water bodies) in 2015;
- Lake status - The assessment of lake water quality in Northern Ireland is based on 21 lakes with a surface area of >50ha. In 2020, 4.8% (1 lake) was classified as 'Good or better' status, compared to 23.8% (5 lakes) in 2015; and
- Groundwater status- In 2020, 84% of groundwater bodies were classified as at overall good status, compared to 65.3% in 2015.

The results of the draft third cycle RBMP classification mean that Northern Ireland will not achieve the objective to have 70% of its water bodies at 'good or better' status. Little improvement has occurred since 2015; at that time 37% of all water bodies were at 'good or better' status, compared to 38% in the latest assessment considering 2018 and 2020 classification updates. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems.

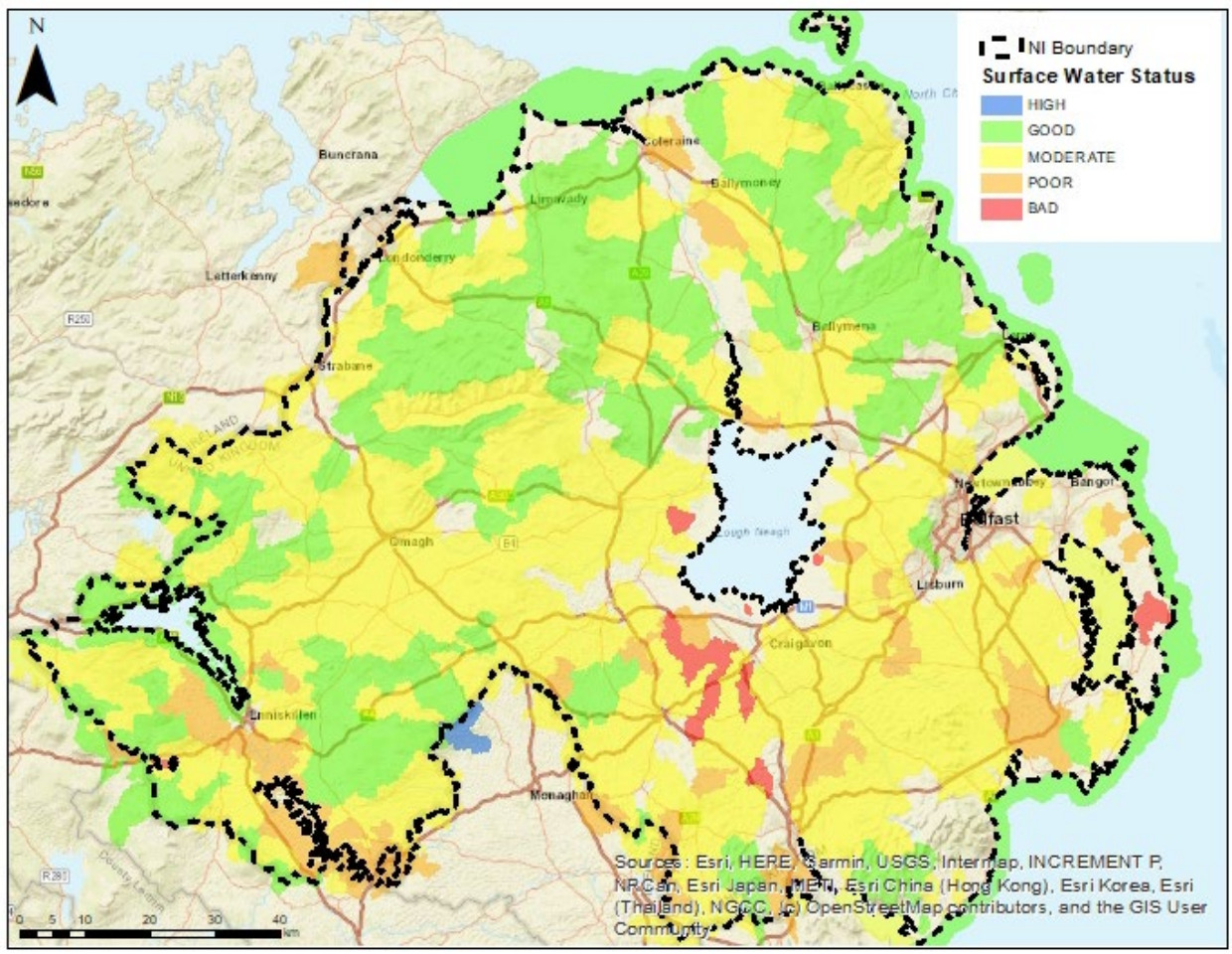

Figure 4-11 WFD Surface Water Ecological Status 2018

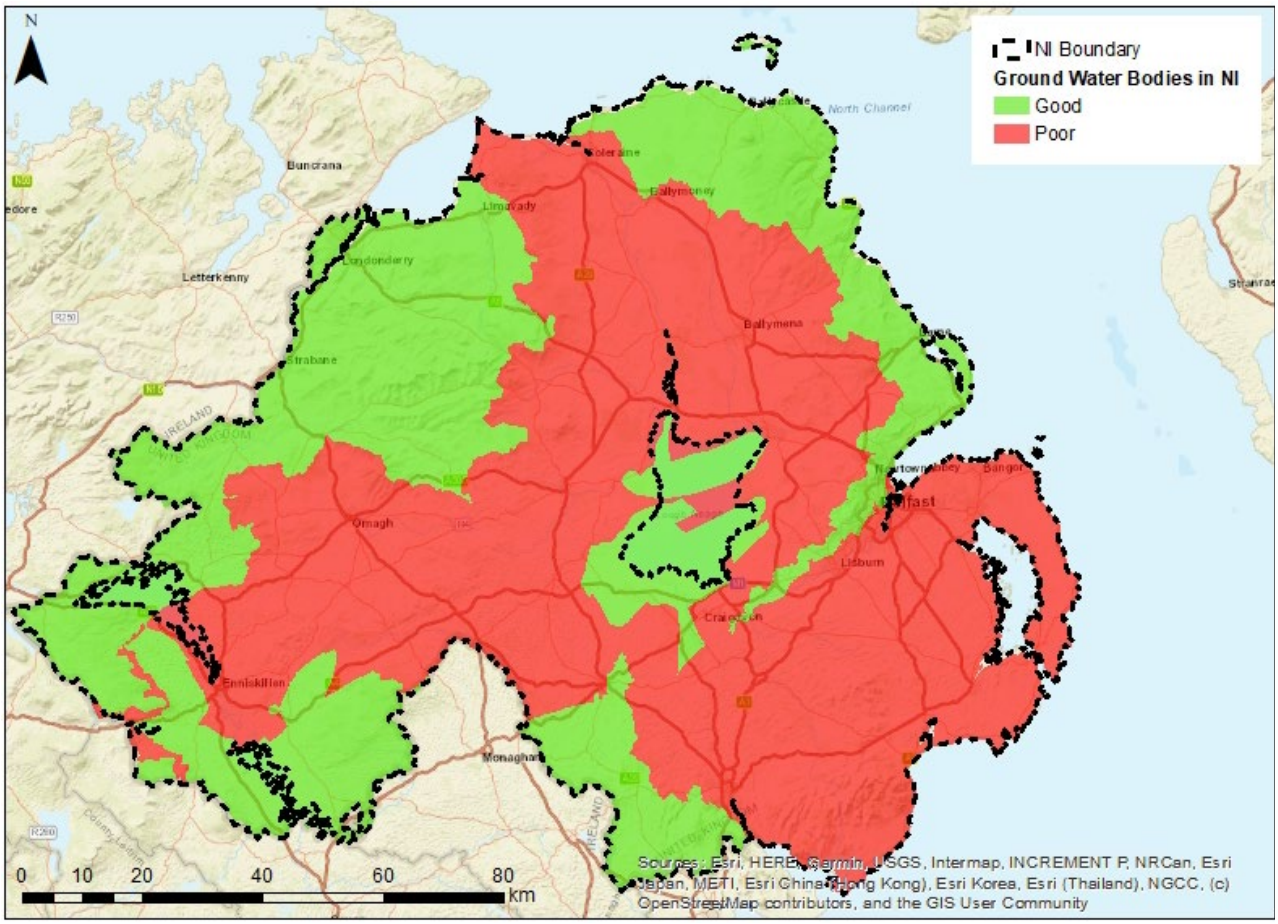

Figure 4-12 WFD status of groundwater bodies in Northern Ireland 2015

Table 4.15 Comparison of WFD Water Bodies at 'Good or Better' Status for 2015 and 2018

	No. in NW IRBD	No. in NB IRBD	No. in NE RBD	Northern Ireland	
				No.	%
Rivers 2015	75	54	18	147	33
Rivers 2018	68	56	17	141	31
Transitional & coastal 2015	1	1	7	9	36
Transitional & coastal 2018	1	2	7	10	40
Lakes 2015	2	2	1	5	24
Lakes 2020	1	0	0	1	5
Groundwater 2015	37	6	6	49	65
Groundwater 2020	41	12	10	63	84
All water bodies 2015	115	63	32	210	37

All water bodies 2018/2020	111	70	34	215	38

4.4.4.2 Water Framework Directive Protected Areas

The WFD Regulations required the establishment of a register of protected areas for Northern Ireland, for water bodies or parts thereof that require additional water quality protection owing to their importance to people or wildlife. This is outlined in Article 10 of the WFD Regulations.

The register comprises the following protected areas:

a) A drinking water protected area;

b) An area or body of water requiring special protection in accordance with any EU instrument protecting surface water, groundwater or conservation of habitats and species, including:

   (i) Areas designated for the protection of economically significant aquatic species (including shellfish water protected areas);

   (ii) Bodies of water designated as recreational waters;

   (iii) Nutrient-sensitive areas; and

   (iv) 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.

The WFD protected areas in Northern Ireland are summarised in **Table 4.16**.

Table 4.16 WFD Register of Protected Areas

WFD Protected Area Type		North Eastern RBD	North Western IRBD	Neagh Bann IRBD	Total Number
Drinking Water Protected Areas	Surface water	8	10	8	26
	Groundwater	10	42	13	65
Shellfish Water Protected Areas		7	2	1	10
Bathing Waters		22	3	1	26
Urban Waste Water Sensitive Areas		16	4	3	23
Water Dependent Protected Areas		25	27	24	66*
Groundwater-dependent terrestrial ecosystems		2	5	2	9

*Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs.

Drinking water protected areas are waters used for the abstraction of drinking water, including surface waters and groundwaters; within the three RBDs of Northern Ireland, there are a total of 26 surface waters and 65 groundwaters included as WFD Protected Areas. Further information regarding these areas is provided in Section 4.4.2.

Economically significant aquatic species protected areas are designed to protect aquatic species that are of economic importance, including designated shellfish waters; within the three RBDs of Northern Ireland, there are 10 sites designated as WFD Protected Areas for shellfish. Further information regarding the status of designated shellfish water protected areas is provided in Section 4.4.2.

Bathing water protected areas are those identified under the Bathing Waters Directive (2006/7/EC); within the three RBDs of Northern Ireland, there are a total of 26 bathing waters included as WFD Protected Areas. Further information regarding bathing water protected areas is provided in Section 4.4.2.

Nutrient sensitive areas in Northern Ireland are those designated as sensitive under the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) and the Nitrates Directive (91/676/EEC); within the three RBDs of Northern Ireland, there are a total of 23 Urban Waste Water Treatment Directive sensitive areas. These are areas where more stringent treatment is required to prevent surface water becoming eutrophic, to prevent exceedance of the nitrates drinking water standard, and to meet the requirements of other Regulations, such as those for bathing waters. A review of sensitive areas is required by the UWWTD every four years. In the 2015 review, existing sensitive areas in the three RBDS were reviewed, and the Castletown catchment and Newry transitional waters were designated within the Neagh Bann RBD. No individual areas have been designated as nutrient sensitive WFD Protected Areas under the Nitrates Directive, rather a total territory approach has been adopted for Northern Ireland.

Water-dependent protected areas in Northern Ireland are 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. Northern Ireland has a total of 66 water-dependent European sites, which are designated under the Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland). Further information regarding the status of water-dependent protected areas is provided in Section 4.4.1.

There are also 9 groundwater-dependent terrestrial ecosystems (GWDTEs) in Northern Ireland. Under the WFD these are assessed as part of the groundwater chemical and quantitative status. In the draft third cycle RBMP 2021-2027, all 9 sites have been classified as at ‘good status’ in terms of the impact of groundwater quality or quantity on their conditions.

4.4.4.3 Marine Strategy Framework Directive

The European Marine Strategy Framework Directive (MSFD) (2008/56/EC), implemented in Northern Ireland through the Marine Strategy Regulations 2010, requires action to be taken to achieve or maintain Good Environmental Status (GES) in marine waters within the marine strategy area by 2020. GES is defined in the Regulations as “the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations”.

The Marine Strategy Regulations required the production of a marine Strategy for UK waters, coordinated across the four UK Administrations. The Strategy aims to help in the delivery of international obligations and commitments such as those under the UN Convention on the Law of the SEA (UNCLOS), UN Sustainable Development Goal 14, OSPAR Strategy and Convention on Biological Diversity. The Strategy applies an ecosystem –based approach to the management of human activities, and considers the following 11 quality descriptors:

- D1 – Biological diversity (cetaceans, seals, birds, fish, pelagic habitats and benthic habitats);
- D2 – Non-indigenous species;
- D3 – Commercially-exploited fish and shellfish;
- D4 Food webs (cetaceans seals, birds, fish and pelagic habitats);
- D5 – Eutrophication;
- D6 – Sea-floor integrity (benthic habitats);
- D7 – Hydrographical conditions;
- D8 – Contaminants;
- D9 – Contaminants in fish and other seafood;
- D10- Marine litter; and
- D11 – Underwater noise.

The UK Marine Strategy comprise three parts, to be updated every six years: assessment, monitoring programmes and a programme of measures. The first UK assessment of our seas was published in 2012[41], and set objectives, targets and indicators for achieving GES; this was updated in 2019[42], and the status of descriptors for the UK is summarised in **Table 4.17**.

Table 4.17 UK Assessment of Environmental Status for the MSFD

Descriptor	GES Achieved	Trend	Description
D1 & D4 Cetaceans	Partially	Stable/mixed	Achievement of GES uncertain. Status of coastal bottlenose dolphin & minke whale consistent with GES in the Greater North Sea, but uncertain elsewhere.
D1 & D4 Seals	Partially	Improving	GES achieved for grey seals. Harbour seals have not achieved GES in the Greater North Sea; in the Celtic Sea, significant increase in West Scotland but status uncertain in other areas.
D1 & D4 Birds	No	Declining	GES achieved for non-breeding waterbirds in the Greater North Sea but not the Celtic Sea. Breeding seabirds have not achieved GES.
D1 & D4 Fish	No	Improving	GES not yet achieved in the Greater North Sea or Celtic Seas; demersal fish communities recovering from past over-exploitation.
D1 & D4 Pelagic Habitats	Partially	Stable/mixed	Achievement of GES uncertain; prevailing environmental conditions likely driving changes in plankton communities but influence of human activities not certain.
D1 & D6 Benthic habitats	No	Stable/mixed	GES achievement uncertain for intertidal & soft sediment habitats; for soft sediments, the level of physical damage consistent with GES in waters west of the Celtic Seas but not in the Celtic Seas or he Greater North Sea. GES not achieved for sublittoral rock and biogenic habitats.
D2 Non-indigenous species (NIS)	No	Stable/mixed	GES not achieved, but ability to detect new NNIS has improved.
D3 Commercial fish	No	Improving	GES achieved for some commercially exploited fish. In 2015, 53% of marine fish (quota) stocks fished below maximum sustainable yield (MSY), and has increased significantly since 1990. Most national shellfish stocks have not achieved GES or their status is uncertain.
D4 Food webs	Partially	Improving	Achievement of GES is uncertain, components of the marine food web are changing but it is not clear how they are affecting each other.
D5 Eutrophication	Yes	Stable/mixed	GES largely achieved. A small number of problems remain in coastal and estuarine

[41] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69632/pb13860-marine-strategy-part1-20121220.pdf

[42] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921262/marine-strategy-part1-october19.pdf

			waters, representing 0.03% of the UK EEZ and 0.41% of estuarine and coastal waters.
D7 Hydrographical conditions	Yes	Stable/mixed	GES continuing to be achieved.
D8 Contaminants	Yes	Improving	GES largely achieved. Highly persistent legacy chemicals cause of new failures, mainly in coastal waters close top polluted sources.
D9 Contaminants in seafood	Yes	Improving	GES achieved, high level of compliance with agreed safety levels.
D10 Marine litter	No	Stable/mixed	Beach litter levels in the Celtic Seas largely stable, while levels in the Greater North Sea have slightly increased.
D11 Underwater noise	Partially	Stable/mixed	Achievement of GES is uncertain but research and monitoring programmes are improving understanding.

The NI State of the Seas Report[43] details Northern Ireland's input to the 2012 UK assessments, and highlights the issues that are specific to Northern Ireland. This includes chapters on marine biodiversity, invasive alien species, fisheries and aquaculture, marine food webs, eutrophication, seabed integrity, hydrographical conditions, contaminants, contaminants in biota, litter, energy and underwater noise, maritime archaeology, bathing water quality, and ports and harbour. The status of these descriptors in Northern Ireland is summarised below:

- **Marine biodiversity –** many of the NI marine species and habitats are considered to be in a good state, however some important marine habitats have been damaged by mobile fishing gear (in Strangford Lough, Rathlin Island and the Skerries). Greater protection will be achieved through the designation of Marine Protected Areas under the Norther Ireland Marine Bill.
- **Invasive alien species –** recognised as second (after habitats destruction) in the threat they pose to biodiversity. Several invasive alien species identified in NI coastal waters, including plants (Japanese wireweed and common cord grass) and animals (leathery sea squirt, slipper limpet, Pacific oyster, *Didemnum vexillum*, bamboo worm and Japanese skeleton shrimp). Non-commercial boating and commercial shipping are considered to pose a significant risk of introduction and spreading. Aquaculture and boating have historically been associated with spread in NI coastal waters.
- **Fisheries and aquaculture –** Irish Sea cod is suffering reduced reproductive capacity and is being harvested unsustainably; sole is at risk of unsustainable harvesting. There has been a sharp reduction in whiting abundance. In the Irish Sea, haddock spawning biomass and herring biomass has recently increased, and the plaice stock is being harvested sustainably. Angel shark is severely depleted and spurdog is depleted, but lesser spotted dogfish and nursehound are stable or increasing. The common skate is severely depleted, but thornback ray and blonde ray are stable or increasing and cuckoo ray is widespread and abundant. The survival of wild salmon at sea has significantly declined in cent years. The WFD has classified estuarine fish communities of the Foyle/Faughan as 'high', the Bann and Newry as 'good' and the Roe, Lagan and Connswater as 'moderate' status. The Dublin Bay prawn stock in the western Irish Sea is being harvested sustainably. The main aquaculture shellfish species in Norther Ireland are blue mussels, pacific oysters, and king scallops.
- **Marine food webs –** The MSFD descriptor concerns the flow of energy and matter between plants and animals and the interactions between species. Abundance of key species in the Irish Sea is closely linked to the seasonal cycle of water movement and the plankton production season. Integration of monitoring programmes and further modelling studies, as well as an awareness of the role played by zooplankton, are needed to gain further information on the status of food webs in Northern Ireland.
- **Eutrophication –** The trophic status of inshore and coastal waters has been monitored over the last 20 years by NIEA and AFBI. Inputs of nitrogen and phosphorus from human sources has generally declined over the last 10 years, however there is evidence of eutrophication in small areas that have restricted water movement, in the brackish and estuarine waters of inner Belfast Lough, tidal Lagan

[43] https://www.daera-ni.gov.uk/publications/state-seas-report

Estuary, north end of Stragford Lough and the Quoile Pondage. Long-term monitoring of Irish Sea open marine waters by AFBI show that they are not eutrophic.

- **Seabed integrity –** The seabed around Northern Ireland has approximately equal areas of mixed coarse sediment, sand and mud. Mixed coarse areas are not subject to the same pressures as other areas and integrity is relatively high. Sandy areas are under more pressure; these may be in poorer condition but generally have high recovery rates. The most significant pressure on seabed integrity is fishing activity; this is concentrated on muddy seabeds for Dublin Bay prawn, and integrity is likely to be lower than in coarser substrata. Some aspects of seabed integrity in the sea loughs are low. Further information and assessment is considered necessary for more accurate assessment.
- **Hydrographical conditions –** Coastal defence structures have altered a substantial proportion of the Northern Ireland coastline, estimated at 100 km. This is particularly the case on soft coastlines. An accurate baseline of coastal defences is necessary, and a strategic approach to shoreline management, taking into account appropriate responses to climate change.
- **Contaminants –** Key sites show significant reductions in heavy metal contamination in sediments; less information is available for newer contaminants that can accumulate in sediments. Effects from tributyl tin (TBT) pollution has significantly declined. Inputs and concentrations of contaminants in seawater have decreased in recent years through control of their use, and are generally below UK EQS limits.
- **Contaminants in biota –** Shellfish flesh is monitored to protect human health; biotoxin levels in shellfish infrequently exceed thresholds for safe consumption, and closure of shellfish areas for this reason are uncommon. Abundance of phytoplankon species that produce biotoxins is low in NI coastal waters, and does not appear to be increasing. Blue mussel in Belfast Lough (Victoria Channel) show a decline in the level of industrial discharges of heavy metals.
- **Litter-** Marine letter is present in significant quantities and does not appear to be reducing, the main forms being plastics and packaging. It is considered that this issue can only be effectively dealt with at source.
- **Underwater noise –** Underwater noise is important for communication by marine mammals and fish. Insufficient data exists for a quantitative assessment of underwater noise in Northern Ireland or the UK, and more information is need to better understand impacts of noise on these biota.

4.4.4.4 DAERA Water Quality Monitoring

DAERA has responsibility for monitoring water quality of surface waters (rivers, lakes, transitional and coastal marine waters) and groundwaters across Northern Ireland. The Northern Ireland Environmental Statistics Report provides annual reporting on a range of environmental indicators, updating the State of the Environment Report for Northern Ireland, as published in 2013. The most recent report is for 2021[44], and Section 4 provides key information regarding the current status of water in Northern Ireland. Information on the status and trends of water bodies in Northern Ireland is also provided in the 'Report on the State of Implementation of the Nitrates Directive in the United Kingdom (Northern Ireland) 2016-2019', produced in accordance with the requirements of Article 10 of the Nitrates Directive (DAERA in prep. July 2020).

Coverage of the surface freshwater monitoring network aims to fulfil all monitoring requirements under various EU Directives such as the WFD and Nitrates Directive. The number of sites monitored differs between reporting periods; changes were implemented in 2015 through better targeting and adoption of a risk-based monitoring approach.

Nitrate concentrations were measured at 622 surface freshwater monitoring stations across Northern Ireland in the period 2008-2011, at 337 stations in the period 2012-2015, and at 534 stations in the 2016-2019 period. The 2021 Statistics Report outlines trends in nitrate for surface waters in Northern Ireland, based on monitoring requirements of the Nitrates Directive. The mandatory standard for nitrate (NO_3) is 50 mg/l, while there is a guide standard for surface waters whereby 90% of samples should be <25 mg/l. For the period 2000-2011, >99% of sites had an annual mean concentration <25 mg NO_3/l, while all monitored rivers had an annual mean concentration <25 mg NO_3/l for the period 2012-2016, and 99.8% of sites in 2019. According to long-term seasonal trend analysis for the 28-year period 1992-2019, monthly trends in average NO_3 concentrations in

[44] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

Northern Ireland rivers have predominantly been decreasing or stable. The Statistics Report suggests that this may be attributable to measures that have been implemented since the introduction of the Nitrates Action Programme. However it has also been recognised that a strong contributing factor to the decreasing long term trend is the initial high nitrate levels in the early 1990s, from which there has been a gradual decrease. When looking at the data from 2016, the percentage of waterbodies showing an increasing long term trend went from 4.6% in 2016 to 9.8% in 2020, which is masked when looking at the data over the long term.

NIEA monitored Soluble Reactive Phosphorus (SRP) concentrations at 568 surface freshwater stations across Northern Ireland in 2008-2011 and at 391 surface freshwater stations in 2012-2015. During the 2016-2019 reporting period 534 sites were monitored. Overall changes between the current and previous reporting period indicate that the majority (73.8 %) of river sites experienced a decrease or stabilisation in WFD SRP classification status; 26 % of sites exhibited a weak increase in SRP between the two reporting periods as they deteriorated by one class, while one site exhibited a strong increase in SRP between the two reporting periods as it deteriorated by 2 classes from High to Moderate.

SRP is a plant nutrient that, when present in excess amounts in rivers, can lead to accelerated growth of plants and algae, and adverse effects on water quality. Secondary impacts can include reduced dissolved oxygen levels caused by the overnight respiration of higher aquatic plants or macrophytes which can have a negative impact on fish. SRP is an indicator in the Programme for Government (PfG) framework. In the baseline monitoring year (2015), the SRP concentration was 0.059 mg/l, and a change of +/-0.01 mg/l is used to indicate change against this baseline. The average 2020 SRP concentration in 93 surveillance rivers was 0.067 mg/l, considered as no change from the baseline for PfG reporting requirements. According to the Statistics Report, there has been a reduction in phosphorus originating from agricultural activities since the introduction of the Phosphorus (Use in Agriculture) Regulations (NI) in 2006, in combination with improvements in the treatment of domestic wastewater, however recent years have seen a marginal increase in SRP levels in surveillance rivers, which consistently remain above the low of 0.047 mg/l reported in 2012.

Eutrophication in transitional, coastal, and marine waters is assessed following the Common Procedure for the Identification of the Eutrophication Status of the Maritime Area of the OSPAR Convention (OSPAR 97/15/1, Annex 24) and selected quality elements monitored under the WFD. The OSPAR Comprehensive Procedure includes a set of assessment parameters relating to nutrient enrichment (e.g. dissolved inorganic nitrogen (DIN)). Although the WFD does not specifically define eutrophication, many of the parameters under the OSPAR Comprehensive Procedure are included as quality elements within the WFD. The trophic status of transitional and coastal waters was assessed using the results of the 2018 WFD interim water body classification. Based on the results of the 2018 WFD classification results, the trophic status of transitional and coastal waters indicated that 58% of water bodies were high or good status, 25% were moderate status, and 17% were either poor or bad status. The assessment also showed that eutrophication did not appear to be an issue in coastal waters; all coastal water bodies were either good or high status. All water bodies that were classified as moderate or worse were either transitional (estuarine) waters or nearshore sea loughs.

Levels of winter Dissolved Inorganic Nitrogen (DIN), comprising nitrate, nitrite and ammonia have been monitored at 24 marine water bodies in Northern Ireland since 2012. Excess concentrations of nutrients in marine waters can lead to eutrophication, and local imbalances of phytoplankton (planktonic blooms) and macroalgae, with nitrogen the most important nutrient in limiting marine algal growth. Nutrient concentrations are highest in the winter in temperate regions, when higher rainfall levels lead to greater agricultural run-off. Winter DIN is an indicator in the PfG framework. In the baseline monitoring year (2015), the winter DIN concentration was 26.45 µM, and a change of +/-3 µM is used to indicate change against this baseline. Winter DIN levels were relatively stable between 2012 and 2018, with a sharp rise in levels recorded in 2019. In 2020 the mean winter DIN value fell to 26.2 µM, which is considered to be no change since the baseline year for PfG reporting.

Groundwater quality in Northern Ireland is assessed in accordance with NIEA's groundwater monitoring programme through the collection of groundwater water samples from boreholes, wells and springs that are mostly owned and operated by third parties. Hence, NIEA rely mostly on third party owned groundwater boreholes and the co-operation of land/property owners to continue sampling from their groundwater sources for chemical monitoring and analysis. This means that the groundwater monitoring network can change due to businesses closing or changing their groundwater usage and in addition datasets available for trend assessments can be small. Monitored average nitrate concentrations for the current reporting period 2016–2019 in groundwater in Northern Ireland were generally low. Results show that of the 56 sites, 54 had an annual average of less than 25 mg/l NO_3, one site had an annual average value less than 50 mg/l NO_3, and one site has consistently been greater than 50 mg/l NO_3 for the past 8 years.

4.4.4.5 DAERA Risk Mapping

DAERA has prepared a risk mapping tool, which takes into account WFD waterbodies that are at increased risk of pollution from agricultural land holdings. This tool is used in the risk-based selection process for cross-compliance inspections of farms. The use of this approach for the protection of water bodies is further discussed in Section 4.4.3.5.

4.4.4.6 Flood Risk in Northern Ireland

The Floods Directive (2007/60/EC), implemented in Northern Ireland through 'The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009' and amendments, the "Floods Directive Regulations" requires the establishment of a framework for the assessment and management of flood risks, with the aim of reducing the adverse consequences of flooding on human health, the environment, cultural heritage and economic activity. This works on a six-year cycle of flood risk assessment, prioritisation, updated flood mapping and planning for flooding. As part of the second cycle of flood risk management planning, the NIFRA 2018[45] reviewed the situation regarding flood risk within Northern Ireland. It identified that the main sources of flooding within Northern Ireland are rivers (fluvial flooding), the sea (coastal flooding), and overland surface water flows (pluvial flooding). In total, the NIFRA 2018 identified that approximately 45,000 properties, comprising 5% of the total in Northern Ireland, are at risk from flooding from these sources. Owing to the large number of rivers within Northern Ireland, there is a significant degree of fluvial flood risk, particularly in relation to large rivers. Fluvial flooding occurs when the channel capacity of rivers is exceeded, and water overtops the river banks and flows across the natural floodplain of the river. The impact of fluvial flooding is significantly greater within urban and suburban areas, in part due to the density of receptors and the impact of landuse upon drainage patterns. Significant risk of surface water (pluvial) and coastal flooding also exists throughout Northern Ireland. Significant coastal flooding is relatively rare in Northern Ireland, but can potentially cause major damage in low lying areas, with effects of saltwater inundation causing long term economic and environmental damage. Pluvial flooding results from rainfall that has not reached, or has overwhelmed, man-made drainage systems, and leads to overland flows and ponding within low-lying areas. It can be exacerbated by the extensive areas of hard, impermeable surfaces that are frequently present within urban areas. The manner by which agricultural land is managed can influence the propensity for flooding, both within those areas, and also in downstream catchments.

The NIFRA 2018 identified twelve Areas of Potential Significant Flood Risk (APSFRs). The names of these areas, along with the RBD in which they are located are listed in **Table 4-18**, and they are shown in **Figure 4-13**. The Northern Ireland Flood Risk Management Plan 2021-2027 is the second cycle Plan for Northern Ireland. It focuses on planning for measures to manage flood risk in these twelve APSFRs.

Table 4-18 Areas of Potential Significant Flood Risk in Northern Ireland

APSFR Name	River Basin District
Belfast	North Eastern RBD
Londonderry	North Western IRBD
Newry	Neagh Bann IRBD
Lurgan	Neagh Bann IRBD
Glengormley and Mallusk	Neagh Bann IRBD
Larne	North Eastern RBD
Bangor	North Eastern RBD

[45] https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/northern-ireland-flood-risk-assessment-report-2018-updated-may2019.pdf

Portadown and Craigavon	Neagh Bann IRBD
Omagh	North Western IRBD
Newtownabbey	North Eastern RBD
Carrickfergus	North Eastern RBD
Ballymena	Neagh Bann IRBD

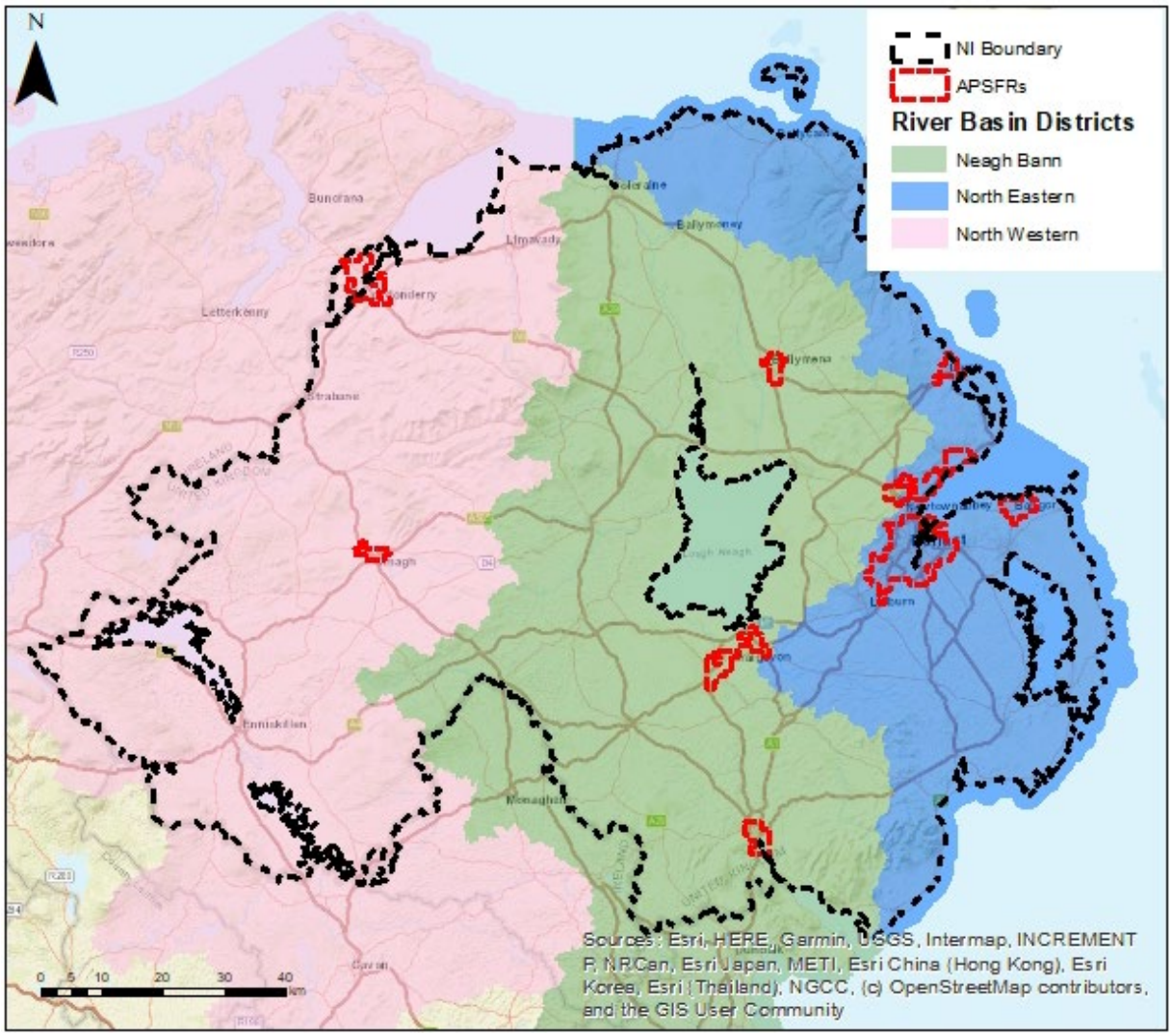

Figure 4-13 Location of Areas of Potential Significant Flood Risk in Northern Ireland

4.4.4.7 Summary of Existing Pressures and Issues for Water in Northern Ireland

The most recent State of the environment report for Northern Ireland states that industry, power generation, agriculture and forestry, development, transport and infrastructure pressures all potentially impact on Northern Ireland's water environment[46]. Under the WFD, pressures on the quality of the water environment have been assessed according to two types, as follows:

[46] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

- Point source pollution pressures on water quality – e.g. effluent discharges arising from industry and WWTWs; sewer overflows during heavy rainfall events; and
- Diffuse source pollution pressures on water quality – e.g. contaminated surface run-off from roads, construction sites, fuel storage areas; septic tank discharges; acid and nutrient deposition from the air; run-off of pesticides, soils and nutrients from agriculture and forestry, and migration of these to groundwaters and surface waters.

Abstractions and impoundments of water for drinking water supply, industry, agriculture, recreation, and hydropower can lead to pressures on water quantity and flow, and can exacerbate existing water quality issues. The introduction and spread of invasive non-native species, including aquatic plants such as Floating Pennywort and Curly Waterweed, can impact upon native aquatic biodiversity, and can adversely affect water-based recreational activities. The risk of flooding following heavy rainfall events can be increased by land management practices that influence water storage potential and run-off, such as in urban areas where impermeable surfaces are common. Flood events can also lead to increased run-off of sediments and pollutants from agricultural lands, with consequences for receiving water quality, while land management practices can have a significant influence on flood risk in downstream areas.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on the quality of water bodies in Northern Ireland alone, or in combination with, these existing pressures. There is potential for positive or negative effects on the ecological status and chemical status of surface water bodies, including rivers, lakes, coastal and marine bodies, from nutrient and sediment pollution, including areas protected under the WFD for water-dependent habitats and species, food supply of aquatic species, drinking water supply and use for recreation. There is also potential for positive or negative effects on flood risk within, and downstream of agricultural land.

4.4.5 Air Quality & Climatic Factors

Good air quality is vital for human health and wellbeing, for our climate, habitats and built environment. Air pollution is the result of a range of substances that are introduced into the atmosphere from a variety of different sources. On the whole, air quality in Northern Ireland has improved significantly over the past few decades; in particular, concentrations of sulphur dioxide, originating from the combustion of coal and oil, has reduced. However, some pollutants are continuing to exceed air quality objectives. This has consequences on both human health and on some of our most important habitats that are sensitive to the effects of atmospheric pollutant deposition. Of particular relevance to the agriculture sector are the concentrations of ammonia gas, with agriculture recognised as the dominant source of ammonia emissions in Northern Ireland and worldwide.

The UK has international obligations for ammonia reduction, as a signatory to the UN Gothenburg Protocol, which has set a target of 8% ammonia reduction for the UK by 2020, from 2005 levels. This 8% target for the UK is also contained within the EU National Emissions reduction Commitments (NEC) Directive 2016. The SALMS 2016, described in Section 4.4.3.6 Sustainable Land Management, is a strategic land management policy document with the aim of outlining how the ambitions put forward in the 'Going for Growth' strategy could be achieved in such a way as to improve farm incomes and environmental performance simultaneously. The significance of ammonia for the agriculture sector was recognised in 2017 with the addition of an Annex to the SALMS 'Making Ammonia Visible'[47] outlining policy for agriculture in Northern Ireland in relation to ammonia. The overarching aim is to "satisfy the joint need of bringing ammonia emissions from agriculture down to a level that lets an expanding sector deliver the ambition laid down in the 'Going for Growth' report, while allowing Priority Habitats to recover". A draft ammonia strategy for Northern Ireland is also currently in production by DAERA.

Climate change represents one of the most important threats to our environment, and to our economy, and projections indicate that hotter, drier summers and warmer wetter winters will occur over the next century as a result of climate change. The Paris agreement, signed in 2015, committed to strengthening the global response to the threats of climate change, by holding the global temperature rise to no more than 2°C and preferably below 1.5°C. Key to this agreement is the reduction of Greenhouse Gas (GHG) emissions fast enough to achieve this temperature goal.

[47] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

The recent European Green Deal 2019 aims to make significant advance in climate action, providing a more sustainable low-carbon economy for the EU. It plans to boost the efficient use of resources by moving to a clean circular economy, and to restore biodiversity and cut pollution. The Deal has set a goal of net zero carbon emissions by 2050, and a 50-55% reduction in emissions by 2030. The UK Climate Change Act 2008 introduced a legally binding target for the reduction of GHG emissions in the UK by at least 80% below 1990 baseline levels by 2050. The target for the current 2018-2022 period is a reduction in emissions by 37% by 2020 and, for the next period (2025) to reduce emissions by 51%. The Act was amended in 2019, and now commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels (in line with the EU's 'net zero 2050 target').

It is considered that the key issues associated with implementation of the draft APP and air quality / climatic factors comprise:

- Potential for effects on Methane (CH_4), nitrous oxide (N_2O),and carbon dioxide (CO_2) GHG emissions arising from agricultural and land use activities;
- Potential for effects on transboundary emissions (e.g. NH_3) arising from agricultural activities;
- Potential for effects of air pollutants on sensitive habitats;
- Potential for effects of air pollutants on human health;
- Potential for effects on climate resilience; and
- Potential for improvement of efficiencies leading to a reduction in emissions.

4.4.5.1 Air Quality in Northern Ireland

Air quality is monitored regularly at 21 stations within Northern Ireland. At each of these locations, levels of carbon monoxide, nitrogen oxides, sulphur dioxide, particulates, ozone, benzene and polycyclic aromatic hydrocarbons are monitored, and measured with regard to EU Air Quality Directives and the 2007 UK Air Quality Strategy (AQS) objectives. Air quality in Northern Ireland is reported annually by DAERA, the most recent report in 2019[48], and is compiled from data supplied by the monitoring stations. This highlights any exceedances of air quality objectives, and highlights any emerging air quality trends. The most significant air pollutants for Northern Ireland and their sources are the following:

- Nitrogen oxides (NO_x, including nitric oxide NO and nitrogen dioxide NO_2), arising from fuel combustion in transport and energy generation;
- Sulphur dioxide (SO_2), arising from combustion of fuels that contain sulphur, from power generation, industry and domestic solid fuel combustion;
- Particulate matter (PM_{10} and $PM_{2.5}$), arising from road transport and domestic solid fuel combustion;
- Ground-level ozone (O_3), arising from the interaction of various air pollutants with sunlight;
- Ammonia (NH_3), arising from agricultural activities and handling of manure. NH_3 reacts with other pollutants (NO_x, S), producing fine particles of ammonium nitrate and ammonium sulphate; and
- Polycyclic aromatic hydrocarbons (PAHs), arising from incomplete combustion primarily from domestic sources.

The following pollutants were monitored in Northern Ireland in 2019: Carbon monoxide (CO), Nitrogen oxides (NO_x, including NO and NO_2), sulphur dioxide (SO_2), particles (PM_{10}, $PM_{2.5}$ and black carbon), Ozone (O_3), Benzene, polluting elements (lead, arsenic, cadmium, nickel, mercury) and polycyclic aromatic hydrocarbons (PAHs). The EU limit values, target values and AQS objectives were met for PM_{10} particulate matter, O_3, CO, Benzene, SO_2 and polluting elements. The four sites monitored for NO_2 met EU limit values, but all exceeded the more stringent AQS objectives for annual mean concentrations; each of these are traffic related. The three sites monitored for PAHs met EU limit values but exceeded the more stringent AQS objectives.

[48] https://www.daera-ni.gov.uk/DAERA_Air_Pollution_in_NI_2019

The UK National Atmospheric Emission Inventory (NAEI) is the standard reference air emissions inventory for the UK, and includes emission estimates for England, Scotland, Wales and Northern Ireland for a wide range of important pollutants including GHGs, regional pollutants leading to acid deposition and photochemical pollution, persistent organic pollutants (POPs) and other toxic pollutants such as heavy metals. The NAEI is compiled annually, when the latest set of data are added and the full time series updated and reported internationally. The latest report was published in September 2021, and covers the period 2005-2019[49]. This summarises emissions in Northern Ireland for the eight priority air pollutants: ammonia (NH_3), carbon monoxide (CO), nitrogen oxides (NO_x as NO_2), non-methane volatile organic compounds (NMVOCs), particulate matter less than 10 micrometres (PM_{10}), particulate matter less than 2.5 micrometres ($PM_{2.5}$), sulphur dioxide (SO_2) and lead (Pb). Most pollutant emission levels were lower in 2019 than they were in 2005. Ammonia emissions have increased since 2010 a result of greater numbers of dairy cattle and associated manure management and spreading, as well as increase in other nitrogen-based (primarily urea-based and digestate) fertiliser use. Ammonia emissions were estimated to be 33kt in 2019, an overall increase of 7% since 2005. Inventory figures show that, in 2019, 12% of the total UK ammonia emissions came from Northern Ireland. This is disproportionate when compared to Northern Ireland's population (3% of the UK total) and land area (6% of the UK total) as a result of the importance of agriculture to Northern Ireland's economy. In 2019 it was estimated that 96.9% of all ammonia emissions in Northern Ireland came from the agriculture sector. Agriculture was also an important sector in the contribution of NMVOCs (45.7% of the NI total) and PM_{10} (16.1% of the NI total).

Nitrogen can be lost to the air in gaseous forms such as ammonia or nitrous oxide from livestock, their manures and from the application of fertiliser. The transport of ammonia can vary greatly and, emissions can lead to impacts at a localised level, as well as contributing to the effects of long-range pollutant transport. Ammonia emissions lead to the deposition of nitrogen compounds on land, which can occur in two ways:

- Dry deposition of nitrogen compounds close to the ammonia source; and
- Wet deposition of nitrogen compounds in rainfall, which can be transported much further than the source.

The Making Ammonia Visible report (2017)[50] highlighted that ammonia emissions from agriculture in Northern Ireland are not predominantly caused by the intensive sector, with only 20% of emissions emanating from the pig and poultry sectors. Cattle production is responsible for by far the greatest proportion of ammonia originating from the agriculture sector at over 70%. Fertiliser is estimated to contribute 7% of the total ammonia emissions. The source of agricultural ammonia emissions in 2015 was estimated as follows:

- Manure spreading 34%;
- Housing 28%;
- Hardstandings 11%;
- Grazing/outdoor 10%;
- Manure storage 10%; and
- N fertilisers 7%.

The Inventory of Ammonia Emissions from UK Agriculture 1990-2019 was published in 2021[51], and provides a breakdown of ammonia emission quantities and sources for the UK as a whole for 2019. This estimates that 47% of UK ammonia emissions came from cattle (24% from dairy cows and 24% from other cattle), 14% from poultry, 8% from pigs, 5% from sheep, 1% from horses, and 25% from fertilisers, sludge and digestates. In terms of emission sources, housing (26%), manure application (25%) and storage (9%) and the application of fertilisers (17%) contributed the majority of ammonia emissions.

In Northern Ireland, the Code of Good Agricultural Practice (COGAP) for the Prevention of Pollution of Water, Air and Soil was developed prior to the first designation of Nitrate Vulnerable Zones in 1999. In addition to the COGAP for the Prevention of Pollution of Water, Air and Soil, the COGAP for Reducing Ammonia Emissions

[49] https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2109270949_DA_Air_Pollutant_Inventories_2005-2019_Issue1.1.pdf

[50] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

[51] https://uk-air.defra.gov.uk/assets/documents/reports/cat07/2103191000_UK_Agriculture_Ammonia_Emission_Report_1990-2019.pdf

was published by DAERA in May 2019[52]. This was produced in collaboration with the farming industry, and provides farmers with a range of practical steps they can take to minimise ammonia emissions. In particular, it outlines legislative requirements of the NAP in relation to the storage of organic manures, and how to apply organic manures effectively and efficiently through the use of Low Emission Slurry Spreading Equipment (LESSE). As a consequence of the total territory approach in Northern Ireland, the sections of the COGAP for the Prevention of Pollution of Water, Air and Soil relevant to livestock manure storage and nitrogen fertiliser application are incorporated into the 2019 NAP Regulations and compliance is a legal requirement for all farm businesses in Northern Ireland. In addition, the COGAP for the Reducing Ammonia Emissions section on spreading organic manure using LESSE is compulsory for farms which meet certain criteria.

The draft ammonia strategy currently being developed by DAERA will propose a strategic approach to addressing ammonia to include an ammonia reduction programme for implementation on farms, a programme to restore and manage habitats to alleviate the symptoms of ammonia and nitrogen exceedances, and a revised operational protocol for assessing impacts from atmospheric nitrogen pollution.

4.4.5.2 Greenhouse Gas Emissions in Northern Ireland

The Northern Ireland GHG Inventory includes data on GHG emissions in Northern Ireland, forming part of the UK GHG Inventory reported at an International level in line with UK commitments under the Kyoto Protocol. The Inventory is updated annually, the latest available covers the period 1990-2019[53].

In 2019, Northern Ireland accounted for 4.7% of the UK total GHG emissions, which is higher than its population share of 3%. Since the base year (1990), Northern Ireland's total GHG emissions have decreased by 17.9 per cent from 26.1 to 21.4 million tonnes of carbon dioxide equivalent ($MtCO_2e$), with a 1.4% decrease compared to 2018. Decreases are largely attributable to the energy supply, waste management and residential sectors, resulting from energy efficiency improvements, the switch of fuel use from coal to natural gas, and improvement landfill management. Agriculture, transport and land use change sectors showed higher GHG emissions in 2019 than in the base year of reporting.

Agriculture was the sector responsible for the greatest amount of GHG emissions in 2019 (26%), followed by transport (20%) and residential (14%). Agricultural sources accounted for a significantly higher proportion of emissions in Northern Ireland than in the rest of the UK, owing to the greater relative importance of the sector to the Northern Ireland economy. The composition of GHG emissions for Northern Ireland in 2019 was as follows:

- 68% Carbon dioxide (UK 80%);
- 22% Methane (UK 12%)
- 8% Nitrous oxide (UK 5%); and
- 2% Fluorinated and other gases (UK 3%).

The total quantity of Northern Ireland's emissions attributed to the agriculture sector in 2019 was 5.6 of the total 21.4 $MtCO_2e$. This represents a 7.7% change from the base year. Across all sectors other than agriculture and waste management, carbon dioxide was the most common emitted GHG. For the agriculture sector, methane arising from livestock and nitrous oxide from soils represented more significant emissions than carbon dioxide. The agriculture sector was accountable for 3.7 of the 4.8 $MTCO_2e$ of methane (CH_4), and 1.3 of the 1.7 nitrous oxide (N_2O) emitted within Northern Ireland in 2019, but a much lower proportion of CO_2 (0.6 of the 14.6 $MTCO_2e$ emitted).

The land use change sector includes sinks and sources of GHG emissions from land use, land use change and forestry; sinks remove GHGs from the atmosphere, while sources emit GHGs. This sector showed 9.1% higher GHG emissions in 2019 than in the base year, contributing 12% of the total Northern Ireland emissions (2.5 $MtCO_2e$), and making it a net emitter of GHG emissions[53]. This increase since 1990 is reflective of changes in carbon stock that are associated with conversion of land between cropland, grassland, settlements and

[52] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/code-of-good-agricultural-practice-for-the-reduction-of-ammonia-emissions.pdf

[53] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Greenhouse%20Gas%20Statistics%201990-2019_2.pdf

forest land, the largest growth being attributed to conversion from grassland to settlements, cropland remaining as cropland, and conversion of cropland to grassland.

GHG emissions are an indicator in the draft 2016-2021 PfG, based on a criteria for change set at +/ 1.0 percentage points annually since the baseline of 21.9 $MtCO_2e$ in 2014. The decrease of 2.1% from 2014 to 2019 is considered as 'no change' for PfG reporting. On the whole, the UK has reduced emissions by 44% since the base year, however the different parts of the UK vary in their reduction, with Northern Ireland achieving the lowest reduction of 18% in emissions to date (Scotland 45%; England 44%; Wales 31%).

4.4.5.3 Effects of Air Pollution on Sensitive Habitats

According to the Expert Working Group on Sustainable Land Management, nitrogen deposition, particularly on priority habitats, arising primarily from ammonia emissions, is one of the key environmental challenges that faces the agriculture sector in Northern Ireland[54].

Emissions of ammonia lead to the deposition of nitrogen compounds on land, through either dry deposition close to the emission source, or wet deposition in rainfall that can be transported much further afield. The effects of exposure to ammonia are particularly important for sensitive habitats such as bogs and woodlands. In bogs, sensitive plants are subject to stress from ammonia exposure much faster than they are through wet N deposition (i.e. at lower nitrogen loads), and exposure can lead to direct damage to sensitive species, changes in community composition, plant water stress, and changes in plant morphology. Owing to their acidic nature, ombrotrophic bogs provide a significant sink for ammonia. In woodlands ammonia can result in direct damage to foliage, and adverse effects such as increased sensitivity to drought, frost, and pest attack, loss of mycorrhiza and fruit bodies, and changes in community composition.

The Air Pollution Information System (APIS)[55] provides a searchable database and information on pollutants and their impacts on habitats and species. This includes indicative values of critical levels of ammonia concentrations for sensitive habitats. This enables a search of designated European sites, and features within, that are receiving ammonia concentrations that are above their critical level. Of the 59 SACs in Northern Ireland, 33 site have ammonia concentrations that are above the critical level for the habitats present. This relates to the following broad habitat types:

- Raised and blanket bogs (20 sites)
- Valley mires, poor fens and transition mires (3 sites)
- Dry heaths (3 sites)
- Rich fens (3 sites)
- Alluvial woodland (2 sites)
- Alpine and subalpine grasslands (2 sites)
- Arctic, alpine and subalpine scrub habitats (2 sites)
- Non-Mediterranean dry acid and neutral closed grassland (2 sites)
- Northern wet heath (2 sites)
- *Erica tetralix* dominated wet heath (2 sites)
- Acidophilous *Quercus*-dominated woodland (1 site)
- Sub-Atlantic semi-dry calcareous grassland (1 site)
- Marsh fritillary butterfly (1 site – supporting habitat)
- Coastal dune heaths (1 site)

Each of these habitats have a critical level of 1µg NH_3/m^3 (annual mean); at 23 European sites, ammonia levels are over twice this value, and at 11 sites they are over 3 times this concentration.

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites was examined for any pressures or threats relating to air pollution, and those specified as arising from agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 10 habitat assessments specified 'mixed-source air pollution, air-borne pollutants' as a pressure

[54] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

[55] http://www.apis.ac.uk/

or threat (7 as a high-ranking pressure/threat and 3 as medium-ranking), while 22 habitat assessments specified 'agricultural activities generating air pollution' as a pressure or threat to the habitat (9 at a high-ranking level and 13 at a medium-ranking level). Of the 26 species for which specific supporting documentation for Northern Ireland was available, one specie's assessment (Marsh fritillary butterfly) specified 'agricultural activities generating air pollution' as a pressure or threat to the species (medium-ranking), while four other species (Petalwort, large white-moss, Marsh saxifrage and Pollan) specified 'mixed-source air pollution, air-borne pollutants' as a pressure or threat (all high-ranking).

The deposition of nitrogen compounds aids the growth of some plant species, but can lead to significant negative effects on plant species that are adapted to low nitrogen concentrations. In designated sites, which protect sensitive and environmentally important habitats and species, the availability of excess nitrogen through deposition can lead to out-competition of sensitive species by those that are more nitrogen-tolerant, and subsequent changes in community composition, biodiversity loss and changes in the structure and function of the ecosystem.

APIS provides indicative values within nutrient nitrogen critical load ranges for habitats, for use in air pollution impact assessments. This enables a search of European sites, and features within, that are receiving a level of nitrogen deposition that is above their critical load. **Table 4.19** shows the European sites in Northern Ireland with one or more features receiving above their critical nitrogen load. Of the 59 SACs in Northern Ireland, 48 are receiving nitrogen deposition that is above the critical load for the designated habitat or species present.

In addition to the total nitrogen deposition at the site, APIS provides an indication of the source attribution (how the deposition at the site is apportioned between different emission sources), and the relative extent to which these are local or long-range in nature. **Table 4.19** indicates the total % of nitrogen deposition at these sites attributable to agricultural activities occurring within Northern Ireland, and the proportional contribution of livestock and fertiliser to this. This indicates that, of the nitrogen deposited at these sites, between 21 and 57% is attributable to agricultural activities taking place within Northern Ireland (a combination of livestock and fertiliser sources).

Table 4.19 European Sites with N Deposition above Critical Loads and Proportion Attributable to NI Agriculture

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
Aughnadadarragh Lough	Marsh fritillary butterfly	41	4	45
Ballykilbeg	Marsh fritillary butterfly	34	2	36
Ballynahone Bog	Raised and blanket bogs	49	3	52
Banagher Glen	Acidophilous Quercus-dominated woodland; Meso- and eutrophic Quercus woodland	45	3	48
Bann Estuary	Coastal stable dune grasslands - acid type; Shifting coastal dunes	40	2	42
Binevenagh	Alpine and subalpine grasslands; Arctic, alpine and subalpine scrub habitats; Non-mediterranean dry acid and neutral closed grassland	48	5	53
Black Bog	Raised and blanket bogs	54	3	57
Breen Wood	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	47	3	51
Carn-Glenshane Pass	Raised and blanket bogs	45.9		
Cranny Bogs	Raised and blanket bogs	46	2	48

Cuilcagh Mountain	Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Arctic, alpine and subalpine scrub habitats; Northern wet heath: Erica tetralix dominated wet heath; Dry heaths	26	2	28
Curran Bog	Raised and blanket bogs	44	2	46
Dead Island Bog	Raised and blanket bogs	52	3	55
Deroran Bog	Raised and blanket bogs	52	3	55
Derryleckagh	Acidophilous Quercus-dominated woodland; Valley mires, poor fens and transition mires	40	2	42
Eastern Mournes	Raised and blanket bogs; Alpine and subalpine grasslands; Arctic, alpine and subalpine scrub habitats; Northern wet heath: Erica tetralix dominated wet heath; Dry heaths	35	2	37
Fairy Water Bogs	Raised and blanket bogs	50	3	53
Garron Plateau	Permanent oligotrophic waters: Softwater lakes; Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Alpine and subalpine grasslands; Valley mires, poor fens and transition mires; Northern wet heath: Erica tetralix dominated wet heath; Rich fens	48	2	50
Garry Bog	Raised and blanket bogs	53	3	56
Hollymount	Acidophilous Quercus-dominated woodland	36	3	38
Largalinny	Acidophilous Quercus-dominated woodland	34	2	37
Lecale Fens	Rich fens	33	2	35
Lough Melvin	Permanent oligotrophic waters: Softwater lakes; Acidophilous Quercus-dominated woodland	20	1	21
Magheraveely Marl Loughs	Rich fens	26	2	27
Magilligan	Coastal stable dune grasslands - acid type	36	3	39
Main Valley Bogs	Raised and blanket bogs	53	3	56
Monawilkin	Acidophilous Quercus-dominated woodland	34	2	36
Moneygal Bog	Raised and blanket bogs	43	2	45
Moninea Bog	Raised and blanket bogs	25	2	27
Montiaghs Moss	Marsh fritillary butterfly	42	2	45
Murlough	Coastal stable dune grasslands - acid type; Coastal stable dune grasslands - calcareous type; Non-mediterranean dry acid and neutral closed grassland; Moist to wet dune slacks; Shifting coastal dunes; Coastal dune heaths	32	2	34

North Antrim Coast	Vertigo angustior - Narrow-mouthed whorl snail; Coastal stable dune grasslands - acid type; Coastal stable dune grasslands - calcareous type; Non-mediterranean dry acid and neutral closed grassland; Shifting coastal dunes	44	3	46
Owenkillew River	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	51	3	54
Peatlands Park	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	51	2	53
Pettigoe Plateau	Permanent oligotrophic waters: Softwater lakes; Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs	29	2	31
River Faughan and Tributaries	Acidophilous Quercus-dominated woodland	44	3	47
River Roe and Tributaries	Acidophilous Quercus-dominated woodland	45	3	48
Rostrevor Wood	Acidophilous Quercus-dominated woodland	34	2	36
Slieve Beagh	Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Dry heaths	49	3	51
Slieve Gullion	Dry heaths	41	2	43
Strangford Lough	Coastal stable dune grasslands	35	2	37
Teal Lough	Raised and blanket bogs	52	3	55
Tonnagh Beg Bog	Raised and blanket bogs	50	3	52
Tully Bog	Raised and blanket bogs	44	2	46
Turmennan	Valley mires, poor fens and transition mires	41	2	44
Upper Lough Erne	Acidophilous Quercus-dominated woodland	36	3	39
West Fermanagh Scarplands	Raised and blanket bogs; Alpine and subalpine grasslands; Meso- and eutrophic Quercus woodland	30	2	32
Wolf Island Bog	Raised and blanket bogs	53	3	56

*Figures are rounded.

4.4.5.4 Effects of air pollutants on Human Health

Air pollution can pose a serious risk to human health, from lung irritation and inflammation to acute respiratory illness and exacerbation of heart and lung disease. The agriculture sector is a significant contributor of atmospheric pollutants, such as methane, ammonia and nitrogen oxides, as discussed in previous sections. The consequences for human health is expanded upon in Section 4.2.2 Population and Human Health.

4.4.5.5 Summary of Existing Pressures and Issues for Air Quality and Climatic Factors in Northern Ireland

Although air quality in Northern Ireland has improved significantly over the past few decades, some pollutants continue to exceed air quality objectives. In urban areas, nitrogen dioxide concentrations are exceeding UK

Air Quality Standards at monitoring sites, owing to traffic emissions. This has implications for human health, as it can lead to an aggravation of respiratory conditions either directly, or through the formation of secondary particles and ground-level ozone, and can also lead to damage to sensitive habitats and buildings. Air pollution from domestic combustion and from road transport remain as challenges in the improvement of air quality for the protection of human health[56].

While most pollutant emission levels are lower than they were in 2005, ammonia emissions have increased since 2010, as result of increased numbers of dairy cattle and associated manure management, and an increase in nitrogen-based fertiliser use. They contribute a disproportionate amount to the total UK emissions owing to the importance of agriculture to Northern Ireland's economy. Over 96% of ammonia emissions in Northern Ireland have been attributed to the agriculture sector. These emissions pose a risk to sensitive habitats and ecosystems, through direct exposure that can cause physical damage, to their contribution to deposition of nitrogen compounds that can result in biodiversity loss and changes in ecosystem structure and function. The UK has international obligations for an 8% target for ammonia reduction, through the EU National Emissions reduction Commitments (NEC) Directive 2016. Regardless of the implications of the UK's exit from the EU to these commitments, as a signatory to the Gothenburg Protocol the UK is obliged to meet this target of 8% ammonia emissions reduction.

Climate change represents a significant challenge internationally. GHG emissions in Northern Ireland have decreased by 17.9% since 1990, owing to improvements in energy efficiency, switching from coal to natural gas as a fuel source, and improvements in management of landfills. The agriculture, transport and land use change sectors have higher emissions of GHGs currently than they had in 1990. The UK has committed to a target of a 37% reduction in GHGs by 2020; although in 2019 the UK as a whole had a 44% reduction, in Northern Ireland GHG reduction stood at only 18%. This has implications for successfully contributing to the UK target for 'net zero emissions' by 2050. The agriculture sector is responsible for the greatest amount of GHG emissions in Northern Ireland (26% in 2019), accounting for a significantly higher proportion of emissions in Northern Ireland than in the rest of the UK. The deposition of nitrogen compounds from these emissions can also indirectly lead to increased emissions of nitrous oxide from wet soils; this is a very potent GHG with a global warming potential 298 times greater than carbon dioxide[57]. The Climate Change Committee's sixth Carbon Budget publication[58] sets out in Chapter 3, Part 6 the pathways to reach net zero emissions that can be taken by agriculture and land use, land-use change and forestry (such as low-carbon farming measures), and the policy proposals introduced in the draft APP should be advancing these.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on air quality and climatic change in Northern Ireland and further afield alone, or in combination with, these existing pressures. There is potential for positive or negative effects on emissions of ammonia and GHGs from agricultural activities, with implications for climate resilience. There is potential for direct and indirect positive or negative effects on sensitive habitats and ecosystems from exposure to air pollutants and deposition of nitrogen compounds.

4.4.6 Material Assets

The term 'Material Assets' can be considered very broadly within the SEA process, encompassing for example infrastructure, settlements, transport and utilities.

In recognition of the importance of agricultural land and farm outputs to the economy of Northern Ireland, consideration of material assets in the following section predominantly focusses on the number and types of agricultural assets found in Northern Ireland, as it is considered that the most potential for positive or negative effects on material assets from implementation of the draft APP relates to these.

In addition, consideration has been given to water-related infrastructure in Northern Ireland, owing to the possibility of their operations being affected by implementation of the draft APP.

[56] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[57] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

[58] https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

It is considered that the key issues associated with implementation of the draft APP and material assets comprise:

- Potential for effects on the productivity of agricultural land holdings;
- Potential for effects on the financial viability of agricultural land holdings, including the level of reliance on financial support;
- Potential for effects on water-related assets; and
- Potential for effects on the status of water bodies used for drinking water, recreation and production of food.

4.4.6.1 Water-related Material Assets in Northern Ireland

4.4.6.1.1 Water Treatment and Supply

There were 24 water treatment works in service with NI Water during 2020, serving 51 water supply zones (designated areas with a population of no more than 100,000). Water supplies in Northern Ireland were obtained from three types of source[59]:

- Rivers and loughs - 54.4%;
- Impounding reservoirs - 45.5%; and
- Boreholes – 0.1%

Microbiological, physical and chemical tests on water samples taken from water treatment works, service reservoirs and customer taps indicated that the overall drinking water compliance of public water supplies in 2020 was consistently high at 99.94%[60], as detailed further in Section 4.4.2 Population and Human Health.

4.4.6.1.2 Waste Water Treatment Works

Since 2007, waste water treatment works (WWTWs) must be compliant with numeric conditions of Water Order consents, and NI Water has been responsible for regulating discharges from WWTWs under the Water (Northern Ireland) Order 1999. Water Order permissions or 'consents' specify the quality and quantity for discharges into the water environment, taking into account the requirements of EU Directives and implementing national legislation. NI Water assess compliance against these standards for discharges that serve a population equivalent (PE) of greater than 249. The number of WWTWs assessed in Northern Ireland was 235 in 2020, a decrease of 11 since 2007[61]; of these 224 (95%) were found to be compliant with the conditions of Water Order consents. There are also six WWTWs that operate under a Public Private Partnership (PPP); each of these continued to achieve 100% compliance with conditions of their Water Order consents.

The Urban Waste Water Treatment Directive (UWWTD) protects the environment from the adverse effects of sewage discharges, setting treatment levels on the basis of the size of sewage discharges and the sensitivity of waters receiving the discharges. There were 78 WWTWs in Northern Ireland assessed for compliance with the implementing national legislation, the Urban Waste Water Treatment (UWWT) Regulations (Northern Ireland) 2007, in 2020. The level of compliance has improved since 2007, with one WWTW non-compliant in 2019, a compliance rate of 99%.

[59] https://www.niwater.com/sitefiles/resources/pdf/2020/2020niwaterdrinkingwaterqualityannualreport.pdf

[60] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Drinking%20Water%20Quality%20Report%20for%20Northern%20Ireland%2C%202019.pdf

[61] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf

4.4.6.1.3 Water bodies used for Drinking Water, Food Supply and Recreation

Water bodies support the population of Northern Ireland, through the provision of drinking water and aquatic food resources, supply for industry, and recreational amenity. The current status and trends of waters utilised for these purposes is expanded upon in Section 4.4.2 Population and Human Health and Section 4.4.4 Water.

4.4.6.2 Agricultural Land Holdings in Northern Ireland

4.4.6.2.1 Number and types of Farms in Northern Ireland

Agriculture is very important to Northern Ireland's economy, accounting for approximately 1.6% of Gross Value Added (GVA) and supporting 2.4% of civil employment in 2020[62]; making the sector proportionally around three times as important to the local economy as was the case for the UK as a whole.

There were a total of 25,896 farms in Northern Ireland in 2020, covering an area of 1, 029,822 hectares[63]. This refers to all active farm businesses having at least a hectare of farmed land. Although this is an increase of 1,069 in the total number of farms from the previous year, this predominantly results from differences in sampling methodology, and the number of farms has shown a continuous downward trend from a total of 40,724 in 1981, decreasing by 10% in the 15 year period between 2004 and 2019. The area of land farmed, however, has remained relatively stable since 1981. Over three quarters of Northern Ireland farms were classed as very small in 2020 (20,329).

The proportion of the various farm types in Northern Ireland are outlined in **Table 4.20**. Cattle and sheep represent the predominant farm type, with 79% of farms keeping some cattle, and 38% keeping some sheep. This is similar to figures reported for 2019; total numbers of sheep and cattle were consistent, however the number of beef cows decreased by 1%. There was also a 2% decrease in total poultry numbers, and a 1% increase in total pig numbers, from the previous year.

Table 4.20 Farm Business Types in Northern Ireland, 2020

Farm Type	% Farms
Cattle and sheep	79
Dairy	10
Cereals / General Cropping / Horticulture	6
Pigs / Poultry	3
Mixed / Other	2

4.4.6.2.2 Productivity of Northern Ireland Farms

Productivity is a measure of the efficiency with which businesses turn inputs into outputs, indicating the economic competitiveness of a sector. The two main ways of measuring this are total factor productivity and labour productivity.

There were a total of 51,301 farm workers in Northern Ireland in 2020, 77% of which were farmers, partners, directors or spouses, and the remaining 33% other farm workers. This compares to a total workforce of 67,786 in 1981, comprising 76% famers or spouses and 24% other farm workers. This represents a decrease of approximately 7.5% in the total farm workforce between 1981 and 2020, however the breakdown of total farm

[62] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202020%20final_1.pdf

[63] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Agricultural%20Census%202020%20Publication.pdf

workers between farmers, directors, partners or spouses and all other farm workers (approximately 77% to 3%) has remained relatively stable since 2004.

The total income attained from farming includes the return to farmers, partners, directors, spouses, etc. for labour, management input and personal capital invested; this increased by 34% (26% in real terms) from £342 million in 2019 to £456 million in 2020, and is now 44.4% above the average of the last 20 years, after counting for inflation[64]. This increase has been attributed to higher product and subsidy payments in 2020, although agricultural markets showed considerable volatility in 2020.

The gross output from farming in 2020 was estimated at £2.23 billion, an increase of 4.2% from 2019. The proportional contribution of sectors to outputs in 2020 are shown in **Table 4.21**. There were increases in the output of the milk, cattle, sheep, pigs, and eggs sectors, but these were partially offset by decreases in output from the poultry, crops and horticultural sectors. Milk was the highest valued output, at approximately £667 million, an increase in 1.5% from 2019. The annual average dairy cow population in 2020 was 0.1% higher than 2019, at 312,200 head, and the average gross milk yield per cow increased by 2.2%. There was a 0.8% decrease in the average gross milk price for 2020, however the higher dairy cow population and milk yields contributed to an overall increased in value of milk output by 1.5% from 2019. The overall value of output of cattle and calves increased by 0.8% from 2019.

Table 4.21 Gross output of Northern Ireland agriculture, 2020

Output Type	% of Total
Milk	30
Cattle	20
Poultry	13
Pigs	10
Eggs	6
Horticulture	4
Crops	3
Sheep	4
Others	10

The gross input to farming in 2020 was estimated at £1.55 billion, an increase of 0.1% from the previous year. The proportional contribution of inputs in 2020 are shown in **Table 4.22**. The total value of feed consumed in 2020 was £837 million, accounting for 54% of the gross input. This was an overall 0.9% increase in cost from the previous year; the average price of feedstuffs increased by 1.8%, while the total purchased volume decreased by 1.2%.

Total machinery expenses decreased by 4.7 per cent to £145 million in 2020. This decrease was mainly due to a 12.1 per cent decrease in the cost of fuel & oils. Agricultural contracting costs also increased by 2.1 per cent to £93 million in 2020 whereas, total fertiliser and lime costs decreased by 2.9% to £83 million in 2020.

Changes in the volumes of inputs and outputs combined to give a 0.6% improvement in the total factor productivity (TFP), a measure of the productivity of all resources within the sector. The single factorial terms of trade, a measure of the economic welfare of farmers, also increased by 3.2% from 2019.

[64] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202020%20final_1.pdf

Table 4.22 Gross input of Northern Ireland agriculture, 2020

Input Type	% of Total
Feedstuffs	40
Capital consumption	17
Machinery	7
Labour	4
Fertilisers and lime	4
Net rent	3
Interest	2
Other expenses	23

Through Pillar 1 of the EU CAP, approximately €327m of direct financial support has been provided annually to farmers in Northern Ireland. This has significantly influenced how economically viable the sector has been, and its competitive trading position relative to other regions. Over the past five years, direct CAP support payments (£1.3 billion) have represented 87% of the total cumulative income of the sector in Northern Ireland[65], and have prevented the sector from being in a loss making position.

4.4.6.3 Summary of Existing Pressures and Issues for Material Assets in Northern Ireland

Population growth and development are placing increasing pressure on water treatment and supply and wastewater treatment, particularly in urban areas. There are currently c. 863,000 domestic, agricultural, commercial and business properties connected to the public water supply in Northern Ireland (around 99.9% of the total population). NI Water, the utility provider for Northern Ireland supplies 562 million litres of water daily, and treats 134 million m^3 of wastewater annually[66]. Annual population growth has been positive for the past 25 years in Northern Ireland, and the total population is predicted to increase from approximately 1.9 million in 2020 to approximately 1.99 million by 2043. There is a growing demand for water resources, owing to a lower average house occupancy, increased use of appliances, economic development and changing land uses. This is likely to put increasing pressure on the provision of water and wastewater treatment services.

The value of inputs and outputs to farming in Northern Ireland is dependent on economic fluctuations at a national and international level. The value of increased outputs can be offset by lower market prices, e.g. increased milk production offset by a decrease in average milk prices. Likewise, a decrease in the volume of inputs required, such as fertiliser and feedstuff, can be offset by price increases in these products.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on water-related material assets and productivity of Northern Ireland farm holdings alone, or in combination with, these existing pressures. There is potential for positive or negative direct effects, or in-combination effects on clean water supply and wastewater treatment from the application of policy proposals. There is also potential for direct or indirect effects on the productivity of farm holdings in Northern Ireland from application of these policy proposals, with implications for farm incomes and value of the sector, and for effects on the level of reliance of farm businesses on government subsidies.

[65] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

[66] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

4.4.7 Cultural, Architectural and Archaeological Heritage

Northern Ireland is rich in cultural, archaeological and architectural heritage, with many important archaeological sites, monuments and heritage buildings. It is considered that the key issues associated with implementation of the draft APP and Cultural, Architectural and Archaeological Heritage comprise:

- Potential for effects on archaeological and architectural features and their settings; and
- Potential for indirect effects on water-based features and their settings via changes in water quality.

4.4.7.1 Designated Heritage Features

There are over 16,500 features within Northern Ireland that are registered on the Northern Ireland Sites and Monuments Record (NISMR). This includes over 1,980 Scheduled Zones, i.e. zones scheduled for protection under Article 3 of the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995. A Scheduled Monument Consent is required for any works within Scheduled Areas. In addition, there are 9,636 industrial heritage sites and 738 defence heritage sites in Northern Ireland that are not included on the NISMR. The Northern Ireland Buildings Database contains records of buildings judged to be of architectural or historic merit; there are over 10,229 Listed buildings, within Northern Ireland, including houses, churches, bridges and canal structures. Listed Buildings are those designated through listing as being of 'special architectural or historic interest' under Section 80 of the Planning Act (NI) 2011. In Northern Ireland territorial waters there are approximately 340 known historic wrecks and approximately 2,700 recorded marine losses.

Areas of Significant Archaeological Interest (ASAI) are non-statutory designations that seek to identify distinctive areas of the historic landscape in Northern Ireland. There are 10 Areas of Significant Archaeological Interest in Northern Ireland, including Devenish in Fermanagh and Dunluce in Coleraine.

Areas of Archaeological Potential (AAPs) are areas within the historic cores of towns and villages, where, on the basis of current knowledge, it is likely that archaeological remains will be encountered in the course of continuing development and change. There are 117 Areas of Archaeological Potential within Northern Ireland.

A Register of Parks, Gardens and Demesnes of Special Historic Interest was established in the late 1990s to identify those sites that can be considered of exceptional importance within Northern Ireland; there are 242 of these sites.

There is one UNESCO world heritage site in Northern Ireland; being the Giant's Causeway, designated for its unique geological heritage.

4.4.7.2 Summary of Existing Pressures and Issues for Cultural Heritage in Northern Ireland

Built heritage in Northern Ireland has been adversely affected by population growth and expansion of the agricultural sector since the 18th century, with major landscape changes such as marginal land reclamation and removal of peatland occurring since the UK joined the EU in the 1970s[67]. According to the most recent State of the Environment report for Northern Ireland (2013), the archaeological resource is at risk from agricultural land use practices such as ploughing and tree planting, and from urban development. While archaeology and built heritage in urban areas tends to be most susceptible to impacts associated with development, resources in rural areas are susceptible to impacts associated with agriculture, particularly through cultivation, but also through stock density and machinery use.

At present, 527 heritage assets, including 5.4% of listed buildings, are on the Heritage at Risk register, while 3% of Scheduled Historic Monuments are considered to be in poor condition[68]. Environmental protection policies since the 1980s have brought protection to known archaeological sites and have incentivised good

[67] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[68] NI Heritage Statistics (communities-ni.gov.uk)

management practices, while introduction of the CAP has improved land management and associated earthwork monuments through the reduction of herd sizes; however protected and unprotected sites are considered to remain at risk from arable practices and urban development. Considering the high proportion of land in Northern Ireland that is in agricultural use, the majority of archaeological and heritage features are found on farmland. The CAMSAR Report (Condition and Management Survey of the Archaeological Resource), published in 2009, recognised prehistoric monuments present within arable and improved grassland as being the most vulnerable. DAERA has provided technical guidance regarding the protection of historic monuments on farmland[69]. Landowners in receipt of direct payments are obligated to maintain their land in Good Agricultural and Environmental Condition (GAEC), including protection of archaeological sites, which must be retained and cannot be damaged, and this is a condition of cross-compliance. Conditions regarding the sensitive management of heritage features have also been attached to agri-environmental schemes.

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on the condition or setting of heritage assets alone, or in combination with, these existing pressures. There is potential for direct or indirect effects on archaeological and architectural features within farm holdings, and for indirect effects on water-related heritage assets via changes in water quality, from the implementation of policy proposals outlined in the draft APP.

4.4.8 Landscape and Visual Amenity

'Landscape' is defined by the European Landscape Convention as ''an area as perceived by people whose character is the result of the action and interaction of natural and/or human factors' and 'it concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes'. It aims to promote landscape protection, management and planning, and to organise European co-operation on landscape issues. The UK ratified the Convention in 2006, and it came into effect in 2007. Signatories to the Convention are required to draw up specific and/or sectoral landscape strategies, linked by landscape quality objectives.

The current landscape of Northern Ireland is a product of land use changes and human interventions that have taken place in the *c*.9, 000 years since the area was first settled. Although population growth in the late 20th and early 21st centuries expanded the extent of built up areas, the Northern Ireland landscape remains predominantly rural, with agriculture the most prevailing land use[70].

It is considered that the key issues associated with implementation of the draft APP and Landscape and Visual Amenity comprise:

- Potential for effects on areas of designated landscape quality and scenic views (i.e. in County Development Plans);
- Potential for effects on the general landscape and on riverscapes, lakescapes and seascapes; and
- Potential for effects on the recreational or tourism value of water bodies.

4.4.8.1 Designated Landscapes

The value of the landscape present in Northern Ireland is recognised through the designation of eight Areas of Outstanding Natural Beauty (AONB), designated for their distinctive landscape character and high scenic value. These areas cover approximately 325,000 hectares, or *c*.20% of the total land area of Northern Ireland. There are also eight NIEA Country Parks, and 56 National Trust Sites within Northern Ireland.

[69] https://www.nienvironmentlink.org/cmsfiles/policy-hub/files/documentation/Built/protecting_historic_monuments_on_farmland-3.pdf

[70] State of Environment Report 2013 (daera-ni.gov.uk)

4.4.8.2 Landscape Character Assessment

Landscape character assessments are used as a tool to identify the landscape features that give a locality its 'sense of place'. The use of landscape character assessments for this purpose arose in response to the European Landscape Convention of 2000. The Nature Conservation and Amenity Lands Order (NI) 1985 (NALCO) is the current legislative basis for the protection of landscapes. A Landscape Character Assessment of the whole territory of Northern Ireland was carried out in 1999, before the European Landscape Convention was published and became binding. The Northern Ireland Landscape Character Assessment 2000[71] (NILCA) subdivided the countryside into 130 Landscape Character Areas (LCAs), each based upon local patterns of geology, landform, landuse, cultural and ecological features. For each LCA, the key characteristics were described and an analysis of landscape condition and its sensitivity to change was made. The land use planning system will generally refer to the NILCA where development might affect the landscape character[72].

The Northern Ireland Regional Landscape Character Assessment (NIRLCA), developed in 2016, aimed to complement the NILCA by providing a regional framework upon which more detailed local studies could be based. This subdivided the countryside into 26 Regional Character Areas (RCAs), based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness. These aim to provide information on which to base plans at a more local level that might affect landscape character.

The NIEA also published Northern Ireland's Landscape Charter in 2014 in response to the European Landscape Convention, with the following affirmations and guiding principles for decision making: landscape is essential; landscape contributes to wellbeing; landscape is part of identity; landscape reflects culture; landscapes matter and each of us has a right to landscape benefit; landscapes are shared and each of us is responsible; landscape is a networked asset whose whole is more than the sum of its parts; landscape change is inevitable but can be managed to enhance value; and transparency engenders awareness and confidence. Those interested in the value of Northern Ireland's landscape can sign the charter, thereby committing to these affirmations and guiding principles through their actions.

4.4.8.3 Summary of Existing Pressures and Issues for Landscape and Visual Amenity in Northern Ireland

The main pressures on Landscape in Northern Ireland, according to the most recent State of the Environment report (2013), are development (including housing, industrial and recreational), infrastructure, extraction industries, agriculture and forestry, and tourism. Land cover and habitats have changed in the past few decades as a result of population increases, changes in household structure and employment patterns and agricultural restructuring. While the economic recession slowed the rate of developments for a period post-2008, actions to stimulate economic growth put continued pressure on urban and rural landscapes[73].

Implementation of the draft APP, and policy proposals therein, has the potential to lead to positive or negative effects on local and regional landscape character or visual quality alone, or in combination with, existing pressures. There is potential for direct or indirect effects on the general landscape, as well as on areas designated for landscape quality and scenic views, from the application of policy proposals outlined in the draft APP.

Scoping Questions:

5. Are we proposing the most appropriate data and scale of data to be used?
6. Can you propose any other data to be used in the SEA, and why it would be beneficial?

[71] Landscape Character Assessment for Northern Ireland 2000

[72] kess_es_policybriefing_landscape-planning-for-sustainable-development-.pdf (niassembly.gov.uk)

[73] State of Environment Report 2013 (daera-ni.gov.uk)

5 FRAMEWORK FOR ASSESSING ENVIRONMENTAL EFFECTS

5.1 SEA Approach

The measures that are proposed to be assessed have been outlined in **Section 3.1**. They have been categorised under the following section of the draft APP:

- **Part 2 – Consideration of the Agricultural Policy Programme Proposals.** This Section of the draft APP presents the portfolio of measures and cross cutting initiatives that are being developed to address the Programme's desired outcomes. For each workstream, it provides a consideration of the main issues, policy proposals and design principles.

The approach to be used for assessing the draft APP is an objective-led assessment. This will be a strategic level assessment, as it is not possible or practicable for the baseline environment to be described and assessed in as much detail as could be done for a project-level Environmental Impact Assessment. Instead, the SEA approach is based on a system of *objectives*, *targets* and *indicators*, in order to rationalise information for assessment purposes.

Each policy proposal introduced in Part 2 of the draft APP will be assessed in terms of their potential positive and negative impacts and the significance of these impacts on the environment against the SEA objectives for each of the following broad environmental topics:

- Biodiversity, Flora & Fauna (BFF);
- Population & Human Health (PHH);
- Geology, Soils & Landuse (S);
- Water (W);
- Air Quality (AQ);
- Climatic Factors (CF);
- Material Assets (MA);
- Cultural, Architectural and Archaeological Heritage (CH); and
- Landscape & Visual Amenity (L).

The purpose of this is to predict and evaluate, as far as is possible, the environmental effects of the draft APP, highlighting any environmental problems that are likely to arise from its implementation. Policy proposals will be assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects. For the purposes of this assessment:

- Plus (+) will indicate a potential positive environmental impact;
- Minus (-) will indicate a potential negative environmental impact;
- Plus/minus (+/-) will indicate that both positive and negative environmental impacts are likely or that, in the absence of further detail, the potential impacts are unclear. If a situation arises whereby positive impacts out way negative impacts, or *vice versa*, an additional + or – will be used (++/- or +/--); and
- Zero (0) will indicate neutral or no impact.

Other impacts that will be assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of "The Evolution of the Environment without the Plan" will also be assessed in the same format. This will be considered the Do-Nothing Scenario. All potential positive and negative impacts will be presented individually, with a text description, and a summary graphic.

5.2 Draft SEA Objectives

Measures will be assessed against a set of strategic environmental objectives (SEOs). These SEOs have been developed in the context of broader environmental protection objectives set at both international and national level (outlined in **Section 2.3** and detailed in **Appendix C**), and also take into account the context of potential for impacts associated with the draft APP. Each of the environmental topics described in **Section 4** has been assigned at least one high-level SEO, specifying a desired outcome, against which the policy proposals comprising the draft APP can be assessed. Each high-level SEO has been paired with a specific target(s), as well as indicator(s) that can be used to measure the progress towards achievement of these targets.

The draft SEOs, Sub-Objectives, Indicators and Targets to be used are given in **Table 5.1**. The assessment will examine the likely significant impacts of the policy proposals comprising the draft APP, and how their implementation will contribute to achieving these SEOs.

5.3 Consideration of Alternatives

It is proposed that the following strategic-level alternatives will be considered in the assessment:

- Alternative 1: Implementation of the draft APP; and
- Alternative 2: The 'Do-Nothing' scenario, or a continuation of the existing agricultural policies within Northern Ireland.

During the development of the full Environmental Report, discussions with the key stakeholder group (the Agri-Policy Stakeholder Group) will take place to consider the policy alternatives. These discussions will include an assessment of local need and how best the policies at Alternative 1 and Alternative 2 meet the needs of the sector and deliver against the four key outcomes identified in the Future Agricultural Policy Framework Portfolio. These meetings will be led by RPS to ensure an independent assessment is made of the alternatives.

Agri –Policy Stakeholder Group:
UFU – Ulster Farmers Union
NIMEA – Northern Ireland Meat Exporters Association
Dairy Council Northern Ireland
NIFDA – Northern Ireland Food and Drink Association
NIAPA – Northern Ireland Agricultural Producers Association
NIEL – Northern Ireland Environment Link – made up of RSPB, Ulster Wildlife and National Trust.

Table 5.1 Draft Strategic Environmental Objectives, Indicators and Targets.

Criteria		Objective		Sub-Objective	Indicators	Target
Biodiversity, Flora & Fauna	**1**	Support International and National Environmental Designations for flora and fauna, and contribute to the protection and restoration of natural habitats and species.	**A**	Preserve, protect, maintain and, where possible, enhance internationally protected species and habitats.	• Conservation condition of designated habitats and species within European sites (SACs, SPAs, Ramsar sites).	• No negative change, or a positive change, in the conservation status of designated habitats and species within European sites.
			B	Preserve, protect, maintain and, where possible, enhance national and local nature conservation sites.	• Status of designated habitats and species within national and local sites.	• No negative change, or a positive change, in the conservation status of designated habitats and species within national and local sites.
			C	Preserve, protect, maintain and, where possible, enhance protected and priority species and habitats, or other known species of conservation concern, and increase the naturalness and connectivity of the countryside.	• Status of protected and priority habitats and species. • Naturalness and connectivity of the countryside.	• No negative change, or a positive change, in the status of protected or priority species and habitats outside of designated sites. • Improved naturalness and connectivity of the countryside.
Population & Human Health	**2**	Support the provision of clean and safe water and food, and contribute towards a healthy population in the countryside.	**A**	Preserve, protect, maintain and where possible enhance water used for drinking, bathing and food supply.	• Status of drinking, bathing and shellfish water protected areas.	• No negative change, or a positive change, in the status of areas protected for drinking water, bathing water or shellfish production.
			B	Support the production of a clean and safe food supply.	• Quality of animal products available for consumption.	• No negative change, or a positive change, in the quality of animal products.

			C	Contribute towards a healthy population living in the countryside.	• Health statistics of the population.	• No negative change, or a positive change, in the health of the population living in the countryside.
Geology, Soils and Landuse	**3**	Protect soils from pollution and prevent degradation or loss of the soil resource, and protect and enhance soil quality.	**A**	Protect and enhance the function and quality of agricultural soils.	• Soil health and nutrient levels, and quality of agricultural land.	• No negative change, or a positive change in soil health and land quality.
			B	Protect against physical damage to, or loss, of the agricultural or natural soil resource.	• Soil resource within the agriculture sector.	• No loss of the agricultural or natural soil resource.
Water	**4**	Support the objectives of the Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD) and Floods Directive (WFD).	**A**	Support the objectives of the WFD and MSFD.	• WFD status of surface and groundwater bodies. • Status of NI seas, as reported for the MSFD.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, and potential to contribute to the achievement of water body objectives under the WFD. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the MSFD.
			B	Contribution to flood risk management.	• Flood risk to people and property.	• No increase in flood risk, or a reduction in flood risk.
Air	**5**	Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	**A**	Reduce impacts to air quality from agricultural emissions.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.

Climatic Factors	**6**	Reduce GHG emissions from the agricultural sector in line with national commitments.	**A**	Reduce GHG emissions from agriculture.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use sector.	• Reduction in the quantity of GHG emissions arising from the agricultural sector.
Material Assets & Infrastructure	**7**	Support economic agricultural activities without conflicting with the objectives of other EU Directives.	**A**	Support sustainable agricultural land use and improved land management practices.	• Agricultural outputs and productivity.	• Sustainable increase in agricultural productivity, i.e. a more efficient use of resources.
			B	Support the long-term viability of farms.	• Agricultural sector income, costs and revenues.	• Decrease in the reliance of farm incomes on direct payments.
Cultural, Architectural & Archaeological Heritage	**8**	Protect International, National and Local Heritage Designations, and their settings.	**A**	Protect International, National and Local Heritage Designations, and their settings.	• Condition of international, national and local heritage designations.	• No negative change, or a positive change, in the condition or setting of international, national and local heritage designations.
Landscape & Visual Amenity	**9**	Protect and enhance the character and quality of landscapes, riverscapes, lakescapes and seascapes.	**A**	Protect and enhance the character and quality of landscape sand riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments.	• No negative change, or a positive change, in visual amenity or landscape / seascape character.

5.4 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of a Plan/Programme are monitored in order to identify at an early stage unforeseen adverse effects and in order to undertake appropriate remedial action. This monitoring programme will be based on the Indicators and Targets established in the SEA Objectives. This programme will aim to be realistic and achievable, with existing monitoring arrangements being used where possible. Examples of likely monitoring to be proposed are:

- Reported conservation status and condition of designated sites within Northern Ireland, to gauge impacts on Biodiversity, Flora and Fauna;
- Reported water quality status of WFD-monitored water bodies within Northern, to gauge impacts on Water, Biodiversity, Flora and Fauna, Population and Human Health (drinking water quality); and
- Reported emissions within Northern Ireland attributable to the agriculture sector and land use change, to gauge impacts on Air Quality and Climatic Factors.

Scoping Questions:

7. Do you agree with the approach to the assessment?
8. Do you agree with the draft SEA objectives?

6 CONSULTATION AND NEXT STEPS

6.1 Consultation

Under Regulation 4 of the SEA Regulations (NI), the competent authority (in this case DAERA) preparing the plan or programme is required to consult with specific "environmental authorities" (statutory consultees) throughout the SEA process.

The statutory consultee established within the national legislation in Northern Ireland is:

- The Department of Agriculture, Environment and Rural Affairs

This statutory consultee will be formally consulted upon as part of the scoping of the SEA for the draft APP. Non-statutory consultees that may have an interest in the development of the APP will also be contacted with this scoping information, such as UFU – Ulster Farmers Union, NIMEA – Northern Ireland Meat Exporters Association, Dairy Council Northern Ireland, NIFDA – Northern Ireland Food and Drink Association, NIAPA – Northern Ireland Agricultural Producers Association, NIEL – Northern Ireland Environment Link.

This Scoping Report, including contact details, will also be published on the DAERA website so that interested parties can submit comments and feedback on the report. Comments and submissions received on the report will be logged, reviewed and applied to the SEA process where relevant.

The SEA Environmental Report, once completed, will also be sent to the statutory consultee for Northern Ireland, and to the statutory transboundary consultees established within the Republic of Ireland's national legislation, as follows:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Environment, Climate and Communications (DECC); and
- Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (DTCAGSM).

The SEA Environmental Report will be issued for public consultation along with the HRA and the draft APP. The public and stakeholders will have the opportunity to comment on the draft APP and associated environmental reports. Comments and submissions received on the reports will be logged, reviewed and applied where relevant.

6.2 Next Steps

Table 6-1 demonstrates the proposed upcoming time stages for the draft APP, SEA and HRA.

Table 6.1 Draft Anticipated Milestones

APP	Dates	SEA / HRA
Development of draft APP	November 2021	Strategic Environmental Assessment and Appropriate Assessment. Writing of SEA Environmental Report and HRA.
Public and statutory consultation on draft APP	December 2021 – January 2022	Statutory, Non-Statutory and Public Consultation on SEA Environmental Report and HRA.
Release of Final APP	March 2022	SEA Environmental Statement

The proposed timescale to complete the SEA process is given in **Table 6-2**.

Table 6.2 Proposed Timescale for SEA of the draft APP

Actions	Timescales
Scoping	October / November 2021
Consultation	November 2021
Environmental Assessment	November / December 2021
Public Consultation	December 2021 – January 2022
Environmental Statement	Q1 2022

The contact for any information regarding the SEA of the draft APP is as follows:

By post	Richard Bingham RPS 74 Boucher Road Belfast BT12 6RZ Northern Ireland
By email	Richard.bingham@rpsgroup.com

Scoping Questions:

9. Do you agree with the proposed project timescales, and proposed consultees in the SEA process?

Appendix A – SEA Screening Responses

Northern Ireland Environment Agency
www.daera-ni.gov.uk

Natural Environment Division
Klondyke Building
Cromac Avenue
Gasworks Business Park
Malone Lower
BELFAST
BT7 2JA

Email: SEATeam@daera-ni.gov.uk

14th October 2021

Richard Bingham
Senior Associate - Water Environment and Flood
Risk Management
Elmwood House
74 Boucher Road, Belfast
Co. Antrim BT12 6RZ

Re: Strategic Environmental Assessment Screening report for Agricultural Policy Programme for Northern Ireland.

Dear Richard,

Thank-you for your email dated 17th September 2021 regarding the Strategic Environmental Assessment (SEA) Screening Report for the Agricultural Policy Programme for Northern Ireland (APP).

The SEA Team within the Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) has considered the consultation and our opinions are set out below.

Consideration of Likely Significant Effects

DAERA SEA Team agree with the responsible authority and the conclusions of the SEA Screening Report that the Agricultural Policy Programme is likely to have significant environmental effects and therefore a Strategic Environmental Assessment should be carried out in line with the requirements of Regulation 9 of the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004.

We note that the screening has highlighted the potential for emerging policy proposals to set the framework for the development consent of projects.

We welcome that the responsible authority will undertake Habitat Regulations Assessment prior to the adoption of the APP to ensure the Programme is not likely to have significant effects on any designated sites within Northern Ireland and/or transboundary effects on sites within the Republic of Ireland.

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Regulation 10 publicity of Determinations should now be initiated.

General Comments

Natural Environment Division (NED) notes that the SEA screening report highlights the potential effects of the APP on designated sites and concludes that a HRA will be carried out, we would point out that the forthcoming SEA of the APP should also consider any potential effects on priority species and habitats which fall outside of designated sites in NI.

DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer

As highlighted in the Future Agricultural Policy Framework Portfolio Agriculture can have negative impacts on many aspects of the environment, this also includes biodiversity. Particularly in relation to Outcome 1: increased productivity NED would reiterate the biodiversity duty on all public bodies as set out in The Wildlife and Natural Environment Act (Northern Ireland) 2011 (known as the WANE act) when progressing the APP and any future policies and proposals which stem from it.

Climate Change Branch

Climate Change Mitigation Branch refers Department of Agriculture, Environment and Rural Affairs (DAERA) to the requirements laid out within the Climate Change Committee's Sixth Carbon Budget publication, specifically Chapter 6 on Agriculture and land use, land-use change and forestry. A link for this can be found below.

https://www.theccc.org.uk/publication/sixth-carbon-budget/

Climate Change Mitigation Branch also refers Department of Agriculture, Environment and Rural Affairs (DAERA) to the UK's legal position on net zero greenhouse gas emissions by 2050 (The Climate Change Act 2008 (2050 Target Amendment) Order 2019).

Drinking Water Inspectorate

Drinking Water Inspectorate (DWI) based on the available information, would highlight that all catchments are considered as Drinking Water Protected Areas (DWPAs) under Article 7 of the Water Framework Directive. The nationwide basins are utilised by the primary Water Undertaker, Northern Ireland Water Limited (NI Water), to provide the public supply of water.

Consideration should be given to ensure the integrity of catchments especially when considering Outcome 1: Increased productivity and this will have impacts

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on how to achieve Outcome 2: Environmental Sustainability. It is also paramount that any future policies do not impact on reservoirs or groundwater sources used for Drinking Water supply.

Marine and Fisheries Response

Agriculture activity can impact on the marine environment, as well as social and economic assets.

In developing the APP (and future policy proposals) and progressing this SEA process it is advised that appropriate account must be taken of marine policy documents in line with the obligations as outlined in Section 8 of the Marine Act (NI) 2013 (MANI) and Section 58 of the Marine and Coastal Access Act (MCAA) 2009 with respect to decisions affected by marine policy documents / a marine plan.

Current marine policy documents include the UK Marine Policy Statement 2011 and the draft Marine Plan for Northern Ireland published in April 2018. Both documents are available on the DAERA website at: Marine planning | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

The marine policy documents above provide the framework for decision making by public authorities taking decisions which affect or might affect the marine area. This applies to both authorisation and enforcement decisions and decisions related to the exercise of any function capable of affecting the marine area, such as this APP and future policy proposals.

This document does not acknowledge departmental responsibilities in respect of our historic environment, as enshrined in the Valetta convention 1992 (The European Convention on the Protection of the Archaeological Heritage) to which the UK government is a signatory.

The document should also take countenance of the enhanced level of consideration afforded to the archaeological & historic environment within the UK Fisheries Act 2020. This will be relevant to any terrestrial agricultural policies which fall within 'marine or coastal areas, or of inland waters or waterside areas' (see 52. interpretation within this Act).

To take countenance of the above we would recommend that paragraph 3.1.4 should be amended to include 'Protected Historic Environment assets', or something similar.

DAERA Inland Fisheries welcomes the opportunity to comment on the - Agricultural Policy Programme for Northern Ireland – Strategic Environmental Assessment Screening. At this stage it is difficult to assess what should be

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included within any SEA as the content of any APP is still to be formalised, will there be any legislative outcomes (development consent etc.) outside of the funding program which is to be employed?

Inland Fisheries notes the aspirations within the Future Agricultural Policy Framework Portfolio with a view to protecting the environment and focusing specifically on the aquatic environment and water quality, how funding is approached and rewarding different activities has the potential to greatly impact the aquatic environment. With this in mind Inland Fisheries would suggest that Priority species and Priority habitats are considered within any SEA to be carried out, the assessments currently focus on designated sites and as many of the rivers and watercourses in Northern Ireland contain priority species and are not designated in this regard the potential impacts may not be considered. This should be included in section 3.1.4

Inland Fisheries would recommend that any potential out comings of this process consider both the Fisheries Act (NI) 1966 as amended and Convention for the Conservation of Salmon in the North Atlantic.

Inland Fisheries notes that this is in the early stages of development and will welcome the opportunity to consider any proposals which stem from this process. Inland Fisheries will continue to provide advice when required and also as a statutory consultee will assess any proposed development received through the planning system and comment on any potential impacts to inland fisheries.

The following documents provide the policy framework for public authorities in making their decisions with particular reference to the marine environment:

- The UK Marine Policy Statement (MPS);
- The Draft Marine Plan for Northern Ireland;
- Strategic Planning Policy Statement (SPPS); and
- Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026.

Decisions (authorisations and enforcement) that affect or might affect the whole or any part of the Northern Ireland marine area, must be made in accordance with marine policy documents, unless relevant considerations indicate otherwise. The marine area includes the sea (below mean high water spring tide); and estuaries, rivers or channels so far as the tide flows at mean high water spring tide (tidal waters).

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Please contact the SEA Team at seateam@daera-ni.gov.uk should you have any queries or require clarification.

Yours sincerely,

p.p. *C.Nolan*
Caroline Nolan

Donna Whelan
Senior Scientific Officer
Countryside, Coast and Landscape
Northern Ireland Environment Agency
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Historic Environment Division

9 Lanyon Place
Town Parks
BELFAST
BT1 3LP

Telephone: (028) 90569840

Email: Liam.mcquillan@communities-ni.gov.uk

Date: 05/10/2021

DfC: HISTORIC ENVIRONMENT DIVISION, COMMENTS RE: SEA SCREENING REPORT FOR AGRICULTURAL POLICY PROGRAMME FOR NORTHERN IRELAND

DfC Historic Environment Division (HED) operate via a Service Level Agreement with colleagues in DAERA in relation to SEA, whereby we provide authoritative comment and advice in relation to matters of Cultural Heritage including archaeological and architectural heritage. We make the following comments in respect of the documentation received by our office on 20/09/2021.

HED welcome that SEA is to be carried out to assess the potential impacts of the policy programme with regard to the environment.

In reference to section 2.2 point 2 of the report HED highlight that when considering environmental sustainability, landscape and cultural heritage, including architectural and archaeological heritage must also be clearly factored as environmental components. The historic environment is intertwined with the natural environment, providing a key vein in the narrative of our landscape evolution, and through this influencing aspects such as landscape character and biodiversity, with many heritage assets providing valuable habitats.

Further in terms of transboundary considerations, we highlight that the nature of the transboundary area means that we have many shared landscape and historic environment characteristics, and some assets which transcend the boundary such as historic routeways, waterways and ancient earthworks.

HED also advise that in considering assessment in relation to policy proposals it will be key to examine how provisions under the EU CAP have related and performed in relation to cultural heritage, so that the impacts of new proposals can be robustly assessed.

Our historic environment datasets are available at the link below and will aid understanding of the breadth of our cultural heritage and spatial assessment of the potential for impact.
https://www.communities-ni.gov.uk/publications/historic-environment-digital-datasets

Should you have any queries in regard to the content of our response we can be contacted at the above address.

Yours sincerely

Liam McQuillan MCIfA
Senior Archaeologist

Naoimh Quinn RIBA
Senior Architect

HERITAGE RECORDS AND DESIGNATIONS BRANCH

Enda Brady,
Corporate Support Unit,
Department of Environment, Climate and Communications

5th October, 2021

Re: Agricultural Policy Programme for Northern Ireland
– Strategic Environmental Assessment Screening

Dear Sir,

Thank you for your correspondence regarding SEA Screening for the Agricultural Policy Programme for Northern Ireland.

Inland Fisheries Ireland (IFI) is a statutory agency responsible for inland fisheries in Ireland. Under section 7(1) of the Inland Fisheries Act 2010 (No. 10 of 2010) *the principal function of IFI is the protection, management and conservation of the inland fisheries resource*.

Rivers by their very nature provide natural boundaries, so it is no surprise that a significant number also form political boundaries and their catchment areas and channels cross these boundaries. There are also a significant number of lakes that straddle the border between the Republic of Ireland and Northern Ireland. It is important, therefore, that the proposed Agricultural Policy Programme for Northern Ireland includes reference to these shared natural resources and recognise the responsibilities of statutory authorities both sides of the border with regard to their protection, management and conservation.

Agricultural practices can impact both positively and negatively on water quality and aquatic habitats. Education and knowledge transfer are vital to increase understanding of the potential impacts. For example, understanding soil type and geology with effective nutrient management planning must be the cornerstone to achieving optimum productivity while protecting the environment on farms and beyond the farm boundary. Productivity and environmental protection must go hand in hand.

In determining the likely significant effects of the Agricultural Policy Programme for N.I. under the Strategic Environmental Assessment process some key issues for consideration regarding the conservation of fish and other species of fauna and flora, aquatic habitats and the biodiversity of inland and marine water ecosystems include:

- Water quality
- Surface water hydrology
- Fish spawning and nursery areas
- Passage of migratory fish

- Areas of natural heritage importance including geological heritage sites
- Biological Diversity
- Ecosystem structure and functioning
- Sport and commercial fishing and angling
- Amenity and recreational areas

IFI are grateful for the opportunity to have our views considered in this process.

Should you require clarification on any of the above or require a consultation meeting please contact Inland Fisheries Ireland.

Inland Fisheries Ireland
3044 Lake Drive
Citywest Business Campus,
D24 Y265.

Appendix B – SEA Guidance

Northern Ireland

A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister. https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance

Guidance on Sustainability Appraisal and Strategic Environmental Assessment for the Historic Environment. June 2018. Department for Communities – Historic Environment Division

Strategic Environmental Assessment. Services and Standards for Responsible Authorities. Environment and Heritage Service. https://www.daera-ni.gov.uk/publications/strategic-environmental-assessment

Other

Article 8 (Decision Making) of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA) as amended. DoECLG Circular (PL 9/2013).

Developing and Assessing Alternatives in Strategic Environmental Assessment. 2015. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/SEA-Alternatives-157-Published_web.pdf

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2001. Environmental Protection Agency. https://www.epa.ie/pubs/advice/ea/EPA_development_methodology_SEA_synthesis_report.pdf

Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA). DoECLG Circular (PSSP 6/2011).

GISEA Manual, Improving the Evidence Base in SEA, 2016. Environmental Protection Agency.

http://www.epa.ie/pubs/advice/ea/EPA%20GISEA_web.pdf

Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government. http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1616,en.pdf

SEA Scoping Guidance Document. 2016. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/seascopingguidance.html

Strategic Environmental Assessment (SEA) Checklist - Consultation Draft. January 2008. Environmental Protection Agency. http://www.epa.ie/downloads/consultation/strategic_environmental_assessment_jan086.pdf

Guidance on Consideration of Air in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

Guidance on Consideration of Climatic Factors within Strategic Environmental Assessment. March 2010. Scottish Environment Protection Agency.

Guidance on Consideration of Material Assets in Strategic Environmental Assessment. August 2016. Scottish Environment Protection Agency.

Guidance on Consideration of Soil in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

Appendix C – Plans and Programmes

PRELIMINARY REVIEW OF PLANS AND PROGRAMMES

This table will be updated accordingly following the receipt of scoping responses and will be presented in the SEA Environmental Report later in the process.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
International / European			
UN Convention on Biological Diversity (1992)	Maintenance and enhancement of Biodiversity, and strategies to ensure a fair and equitable sharing of the benefits from the use of genetic resources.	• Conservation of biological diversity (or biodiversity); • Sustainable use of its components and • Fair and equitable sharing of benefits rising from genetic resources; • Development of national strategies for the conservation and sustainable use of biological diversity.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Ramsar Convention on Wetlands of International Importance (1971 and amendments)	Protection and conservation of wetlands.	• Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Bern Convention (Convention on European Wildlife and Natural Habitats) (1982)	The Bern Convention is a binding international legal instrument in the field of nature conservation, covering most of the natural heritage of the European continent and extending to some States of Africa.	• Objectives are to conserve wild flora and fauna and their natural habitats, as well as to promote European co-operation in this field. • The treaty also takes account f the impact that other policies may have on natural heritage.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992)	The current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. Objectives include the protection of the marine environment.	• Prevention and elimination of pollution, and protection of the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystem.	Environmental protection objectives of the Convention are reflected in the SEOs for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Bonn Convention [L210, 19/07/1982 (1983)]	The Bonn Convention focuses on preserving the habitats used by migratory species and aims to enhance the conservation of terrestrial, marine and avian species on a global scale throughout their range.	• Establishes a legal foundation for internationally coordinated conservation measures throughout a migratory range. • Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. • In Europe, legislation to ensure that the provisions of the Bonn convention are applied includes the Birds Directive and the Habitats Directive.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
EU Biodiversity Strategy to 2030 [COM(2020)380]	Aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet. The strategy aims to build societies' resilience to future threats such as: the impacts of climate change, forest fires, food insecurity and disease outbreaks.	The strategy contains specific commitments and actions to be delivered by 2030: • Establishing a larger EU-wide network of protected areas on land and at sea. Enlarging of existing Natura 2000 areas with strict protection for areas of very high biodiversity and climate value. • Launching an EU nature restoration plan. Including concrete commitments and actions (and proposed binding nature restoration targets) to restore degraded ecosystems by 2030 and manage them sustainably, addressing the key drivers of biodiversity loss. • Introducing measures to enable the necessary transformative change. Unlocking funding for biodiversity, and setting in motion a new, strengthened governance framework. • Introducing measures to tackle the global biodiversity challenge. In particular, working towards adoption of an ambitious global biodiversity framework under the Convention on Biological Diversity.	Environmental protection objectives of the strategy are reflected in the SEOs for Biodiversity, Flora and Fauna.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Birds Directive [2009/147/EC]	Protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors.	• Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex I. • Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas); ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of biotopes • Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes. The protection of wetlands and particularly wetlands of international importance.	Environmental protection objectives of the Directive are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft APP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft APP, to ensure that it implementation will not adversely affect SPAs and SACs.
EU Habitats Directive [92/43/EEC]	Builds on the Birds Directive (see above) by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000: Special Protection Areas (SPAs, classified under the Birds Directive) and Special Areas of Conservation (SACs, classified under the Habitats Directive).	• Propose and protect sites of importance to habitats, plant and animal species. • Establish a network of Natura 2000 sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. • Carry out comprehensive assessment of habitat types and species present. • Establish a system of strict protection for the animal species and plant species listed in Annex IV.	Environmental protection objectives of the Directive are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft APP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft APP, to ensure that it implementation will not adversely affect SPAs and SACs.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Seveso Directive [2012/18/EU]	Prevention of harmful effects on humans and the environment through major accidents involving dangerous substances.	Objectives seek to prevent major accidents involving dangerous substances and limit their consequences for man and the environment, with a view to ensuring high levels of protection throughout the Community.	The draft APP has an indirect link to this Directive, owing to the inclusion of certain fertiliser production facilities as COMAH establishments in NI.
Biocidal Products Directive [98/8/EC and 2007/107/EC]	Prevention of harmful effects on human health and the environment from biocidal products.	A biocide is classified as a substance (whether chemical or biological) designed to destroy or render harmless a harmful organism (e.g. disinfectants, preservatives etc.). These products have a high degree of regulation owing to the potential effects on human health and the environment. The directive is regularly updated as new products are manufactured and authorised.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.
Paris Agreement (UNFCCC, 2016)	To strengthen the global response to the threats of climate change by keeping this century's global temperature rise below 2 degrees Celsius.	The Paris Agreement and the outcomes of the UN climate conference (COP21) cover all the crucial areas identified as essential for a landmark conclusion: • Mitigation – reducing emissions fast enough to achieve the temperature goal; • A transparency system and global stock-take – accounting for climate action; • Adaptation – strengthening ability of countries to deal with climate impacts; • Loss and damage – strengthening ability to recover from climate impacts; and • Support – including finance, for nations to build clean, resilient futures.	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.
UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997)	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.	• An international environmental treaty, who's objective is to "stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Does not set binding limits on GHG emissions for individual countries or contain enforcement mechanisms, but outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases.	
EU 20-20-20 Climate and Energy Package Agreement (2007)	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.	To meet the EU's obligation under international law and in line with European ambition. Member States are required to: • 20% cut in GHG emissions collectively (from 1990 levels) • 20% of EU energy produced from renewables • 20% improvement in energy efficiency The collective EU target of reducing emissions by 20 % by 2020 is to be achieved by: The EU Emissions Trading System, the backbone of the EU mitigation effort, which sets a cap on emissions from the most polluting sectors, including over 11 000 factories, power plants and other installations, including airlines. By 2020, the cap should result in a 21 % reduction relative to 2005 levels. The EU ETS covers about 40 % of all EU emissions. The 'effort sharing decision', which operates outside the EU ETS and establishes annual binding GHG emission targets for individual Member States for the 2013-2020 period. These concern emissions from sectors such as waste, agriculture, buildings, etc. The '20-20-20' targets are supported by the long-term target of 85-90 % reduction in GHG emissions against 1990 levels by 2050.	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
The European Green Deal 2019	The European Green Deal is a plan to make the EU's economy sustainable.	The growth strategy outlines transformation of the EU to a resource-efficient and competitive economy where: • There are no net emissions of GHGs by 2050; • Economic growth is decoupled from resource use; and • No person and no place is left behind. The Deal provides an Action Plan to: • Boost the efficient use of resources by moving to a clean circular economy; and • Restore biodiversity and cut pollution.	The draft APP will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Landuse; Water; Air Quality; and Material Assets.
EU Methane Strategy 2020	The EU Methane Strategy forms part of the European Green Deal. It recognises the importance of methane as the second biggest contributor to climate change, and aims to tackle methane emissions to reach 2030 climate targets and the 2050 climate neutrality goal, as well as contributing to the Commission's zero-pollution ambition.	• Sets out measures to cut methane emissions in Europe and internationally. • Presents legislative and non-legislative actions in the energy, agriculture and waste sectors, which account for around 95% of methane emissions associated with human activity worldwide. • Includes improved reporting of emissions from agriculture, through better data collection, and promotion of opportunities to reduce emissions with support from the Common Agricultural Policy. The main focus will be on best practice sharing for innovative methane-reducing technologies, animal diets, and breeding management. Non-recyclable organic human waste and agricultural waste and residue streams can be used to produce biogas, biomaterials and biochemical, generating additional revenue and avoiding methane emissions.	The draft APP will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEO for Climatic Factors.
EU Farm to Fork Strategy 2020	The EU Farm to Fork Strategy is at the heart of the European Green Deal, aiming to make food	The strategy aims to accelerate the transition to a sustainable food system that should:	The draft APP will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	systems sustainable. Introduces a new approach to ensure that agriculture, fisheries and aquaculture, and the food value chain, contribute appropriately to reduction in GHG emissions, and to the objective for a climate neutral EU in 2050.	• Have a neutral or positive environmental impact; • Help to mitigate climate change and adapt to its impacts; • Reverse the loss of biodiversity; • Ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food; and • Preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.	Environmental protection objectives of the strategy are reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Landuse; Water; Air Quality; and Material Assets.
Renewable Energy Directive (2009/28/EC)	This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020.	It requires the EU to fulfil at least 20% of its total energy needs with renewable by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.	The draft APP should have regard for the environmental protection objectives of this Directive in terms of cumulative GHG emissions from the agricultural sector and other sources.
EU Strategy on Adaptation to Climate Change	The Adaptation Strategy recognise how important impact assessment is for climate proofing, identifies the key priorities for action and how EU policies can encourage effective adaptation action.	The strategy was adopted by the EC in April 2013. It outlines the measures for taking climate change preparedness to a new level. The strategy has three main objectives: • Promote climate action in Member States through encouraging the adoption of adaptation strategies; • The promotion of informed decision-making through addressing knowledge gaps and the development of the European Climate Adaptation Platform for better knowledge dissemination; and	The draft APP will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Promoting adaptation in key vulnerable sectors.	
Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021[COM(2021)82]	The Strategy outlines a long-term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change by 2050, and complements the EU's goal of becoming climate neutral by this date. Deepens and expands upon adaptation actions in the 2013 EU Adaptation Strategy.	This strategy aims to reinforce the adaptive capacity of the EU and the world, and minimise vulnerability to the impacts of climate change, in line with the Paris Agreement and the proposal for European Climate Law. It seeks to step up action across the economy and society in synergy with other Green Deal policies such as biodiversity protection and sustainable agriculture. The Strategy has three objectives, and proposes a range of actions in order to meet them: • To make adaptation smarter - improving knowledge and availability of data, while managing the inherent uncertainty brought upon us by climate change; securing more and better data on climate-related risk and losses; and making Climate-ADAPT the authoritative European platform for adaptation knowledge. • To make adaptation more systemic - supporting policy development at all levels of governance, society and the economy and in all sectors by improving adaptation strategies and plans; integrating climate resilience in macro-fiscal policy, and promoting nature-based solutions for adaptation. • To speed up adaptation across the board – by accelerating development and rollout of adaptation solutions; reducing climate-related risk; closing the climate protection gap; and ensuring the availability and sustainability of fresh water.	The draft APP will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Second European Climate Change Programme (ECCP II) 2005.	Objectives seek to develop the necessary elements of a strategy to implement the Kyoto protocol.	Develop a framework for a low carbon economy which will be achieved through a National Mitigation Plan (to lower GHG emissions) and a National Adaptation Framework (to provide for responses to changes caused by climate change). This includes: • Reform of the EU Emissions Trading System (EU ETS) to include a cap on emission allowances in addition to existing system of national caps • Agreement of national targets for non-EU ETS emissions from countries outside the EU • Commitment to meet the national renewable energy targets of 16% for Ireland by 2020 • Preparation of a legal framework for technologies in carbon capture and storage	Environmental protection objectives of the Programme are reflected in the SEO for Climatic Factors.
EU Green Infrastructure Strategy (COM(2013) 249 final).	Aims to develop preserve and enhance healthy green infrastructure to help stop the loss of biodiversity and enable ecosystems to deliver their many services to people and nature. The greater the scale, coherence and connectivity of the green infrastructure network, the greater its benefits. The EU Strategy on green infrastructure aims to outline how to deploy such a network and encourages action at all levels.	The Green Infrastructure strategy is a key step towards the success of the EU Biodiversity Strategy. It is made up of four main elements: • Promoting Green Infrastructure in the main EU policy areas • Supporting EU-level GI projects • Improving access to finance for GI projects • Improving information and promoting innovation.	Environmental protection objectives of the Programme are reflected in the SEOs for Biodiversity, Flora and Fauna.
Stockholm Convention (2004)	The Stockholm Convention is an international treaty with the aim of eliminating or restricting the production and use of persistent organic pollutants (POPs).	The main objective of the treaty is in seeking to protect human health and the environment from POPs.	The draft APP will need to have regard for this strategy with regard to pesticide use.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
WHO Air Quality Guidelines – global update (2005).	Objectives seek the elimination or minimisation of certain airborne pollutants for the protection of human health.	• Air Quality Guidelines (AQGs) were published by the WHO in 1987 and revised in 1997 and most recently in 2005. • These offer guidance on threshold limits for key air pollutants that pose health risks and provide a reference for setting air pollution targets at regional and national levels to improve air quality. • The 2005 guidelines offer recommended exposure levels for particulate matter (PM10 and PM2.5), ozone, nitrogen dioxide and sulphur dioxide, as well as a set of interim targets to encourage a progressive improvement in air quality.	The draft APP should have regard for the environmental protection objectives of these guidelines, in terms of cumulative emissions affecting air quality from the agricultural sector and other sources.
The Gothenburg Protocol (1999), as amended in 2012.	The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) is a multi-pollutant protocol designed to reduce acidification, eutrophication and ground-level ozone by setting emissions ceilings for sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia to be met by 2010. The protocol was updated and amended in 2012.	• The 1999 Protocol set national emission ceilings for 2010 for four pollutants: sulphur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and ammonia (NH_3); • As amended in 2012, the Protocol includes national emission reduction commitments to be achieved by 2020 and beyond; • Includes specific measures for the control of ammonia emissions from agricultural sources; • Parties must report on their emissions annually, and are required to provide projections of their future emissions.	The draft APP should have regard for the environmental protection objectives of the Protocol, particularly those relating to the control of ammonia emissions from agriculture. These environmental protection objectives are reflected in the SEO for Air Quality.
Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality	Set air quality standards for protection of human health and the environment. Address air pollution at the level of zones, while the complementary NEC Directive addresses total emissions	• The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives.	The draft APP should have regard for the environmental protection objectives of these Directives, in terms of cumulative emissions

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Framework Directive [2004/107/EC]		• Sets limit and target values for certain pollutants. Covers in particular nitrogen dioxide (NO2) and particulate matter or fine dust (PM10), which is emitted by traffic and combustion engines. • Lays down limit values to be respected by Member States in their zones. • The 4th Daughter Directive relates to arsenic cadmium, mercury, nickel and polycyclic aromatic hydrocarbons.	affecting air quality from the agricultural sector and other sources.
Industrial Emissions Directive [2010/75/EU]	• Aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT) • Around 50,000 installations undertaking the industrial activities listed in Annex I of the Industrial Emissions Directive (IED) are required to operate in accordance with a permit (granted by the authorities in Member States).	The IED is based on several pillars, in particular (1) an integrated approach, (2) use of best available techniques, (3) flexibility, (4) inspections and (5) public participation: • The integrated approach means that the permits must take into account the whole environmental performance of the plant. • The permit conditions including emission limit values must be based on the Best Available Techniques (BAT). • The IED allows competent authorities some flexibility to set less strict emission limit values. • The IED contains mandatory requirements on environmental inspections. Member States shall set up a system of environmental inspection and draw up inspection plans accordingly. • The IED ensures that the public has a right to participate in the decision-making process, and be informed of its consequences, by having access to permit applications, permits and the results of the monitoring releases.	The draft APP should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
National Emissions reduction Commitments (NEC) Directive [2016/2284/EU]	This Directive seeks to limit the national emissions of certain airborne pollutants for the protection of human health and the environment. Implements at the EU level obligations under the Geneva Convention and Gothenburg Protocol. It replaced the earlier National Emission Ceilings for Certain Atmospheric Pollutants Directive (2001/81/EC).	It sets the limits on total national emissions from four pollutants - sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia. These can cause acidification (e.g. the chemical composition of the sea acidifies), water and soil pollution (eutrophication) and ground-level ozone (ozone resulting from the reaction of the four pollutants with heat and sunlight).	The draft APP should have regard for the environmental protection objectives of the Directive, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.
Geneva Convention (1979) on Long-range Transboundary Air Pollution (LRTAP)	International agreement with the aim of limiting problems of air pollution on a broad regional basis.	• First international legally binding instrument dealing with problems of air pollution on a broad regional basis. It was signed in 1979 and entered into force in 1983. It has since been extended by eight specific protocols. • Under the Convention, the parties commit to working together to limit, to gradually prevent, and to reduce their discharges of air pollutants in order to combat the resulting transboundary pollution. • The Convention has substantially contributed to the development of international environmental law and has created the essential framework for controlling and reducing the damage to human health and the environment caused by transboundary air pollution.	Environmental protection objectives of the Convention are reflected in the SEOs for Air Quality and Climatic Factors.
EU Common Agricultural Policy (CAP) (1962)	Aims to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage.	The CAP is a common policy for all EU countries, managed and funded at European level from the EU budget. It aims to: • Support farmers and improve agricultural productivity, ensuring a stable supply of affordable food; • Safeguard EU farmers to make a reasonable living;	The draft APP represents the future agricultural policy for Northern Ireland following EU exit. Existing environmental protection objectives associated with the CAP have been considered during development of the draft APP.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Help tackle climate change and the sustainable management of natural resources; • Maintain rural areas and landscapes across the EU; and • Keep the rural economy alive by promoting jobs in farming agri-foods industries and associated sectors.	
Seventh Environmental Action Programme to 2020 of the European Community	The Programme guides European environment policy until 2020, and sets out a vision beyond that, of where it wants the EU to be by 2050.	Objectives seek to make the future development of the EU more sustainable. It identifies three key objectives: • To protect, conserve and enhance the Union's natural capital; • To turn the Union into a resource-efficient, green, and competitive low-carbon economy; and • To safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing. Two additional horizontal priority objectives complete the programme: • To make the Union's cities more sustainable; and To help the Union address international environmental and climate challenges more effectively.	Environmental protection objectives of the Programme are reflected in the SEOs Biodiversity, Flora and Fauna; Population and Human Health; Geology, Soils and Landuse; Water; Air Quality; and Climatic Factors.
EUROPE 2020 A strategy for smart, sustainable and inclusive growth (COM/2010/2020)	Europe 2020 is a 10-year growth strategy proposed by the European Commission in 2010 for advancement of the EU economy. It aims at "smart, sustainable, inclusive growth", with greater coordination of national and European policy. It follows the Lisbon Strategy for the period 2000–2010.	The Strategy set five overarching objectives to be reached by 2020: • Employment: 75% of population aged 20-64 should be employed; • Innovation: 3% EU's GDP should be invested in R&D;	Environmental protection objectives of the Strategy, with regard to climate change objectives, are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Climate Change: 20/20/20 climate/energy targets should be met (including an increase to 30% of emissions reduction if conditions are right); • Education: Share of early school leavers should be under 10% and at least over 40% of the younger generation should have a tertiary degree; and • Poverty: At least 20m fewer people in at-risk-of-poverty and social exclusion.	
SEA Directive [2001/42/EC]	To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	• Requires that Plans & Programmes take into account protection of the environment and integration of the Plan into the sustainable planning of the country as a whole. • Eleven sectors are specified in the Directive and Competent Authorities (Plan/ Programme makers) must subject specific Plans and Programmes for these sectors to an environmental assessment where they are likely to have significant effects on the environment.	The draft APP will be subject to the SEA process. This is being undertaken through this Scoping Report and subsequent Environmental Report.
EIA Directive [85/337/EEC] [2014/52/EU]	Objective is to require Environmental Impact Assessment of the environmental effects of those public and private projects, which are likely to have significant effects on the environment. Aims to assess and implement avoidance or mitigation measures to eliminate environmental effects, before consent is given of projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.	• All projects listed in Annex I are considered as having significant effects on the environment and compulsorily require an EIA. • For projects listed in Annex II, a "screening procedure" is required to determine the effects of projects on the basis of thresholds/criteria or a case by case examination. The competent authority may give a decision on whether a project requires EIA. • Requirement for identification, description and assessment in an appropriate manner, in the light of each individual case, on the direct and indirect effects of a project on the	Certain agricultural projects will be subject to EIA.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, material assets and the cultural heritage, the interaction between each factor. • Requirement for consultation with relevant authorities, stakeholders and public allowing sufficient time to make a submission before a decision is made. • Establishment of a recognised structure and content for the Environmental Impact Statement, which is the document submitted as a written account of the EIA. • Inclusion of proposed flood risk management schemes in EIA screening process	
EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046]	Strategy for the protection of soils across the EU.	The Strategy consists of: • A communication from the commission, explaining why further action is needed to ensure a high level of soil protection, sets the overall objective of the strategy and explains the kinds of measures that must be taken. It establishes a 10-year work programme for the Commission; • A proposal for a framework Directive, setting out common principles for protecting soils across the EU. Within this common framework, Member States can decide how best to protect soil and how to use it in a sustainable way; and • An impact assessment, analysing the economic, social and environmental impacts of the different options considered in preparation of the Strategy and the measures retained. The 2012 report outlines implementation of the Strategy and ongoing activities, the blocking of progress on the proposed framework Directive,	Environmental protection objectives of the Strategy are reflected in the SEO for Geology, Soils and Landuse.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		current soil degradation trends and future challenges.	
Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC	To achieve a high level of protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land from industrial sources.	The Directive provides an integrated approach to establish pollution prevention from stationary "installations". This codified act includes all the previous amendments to the Directive 96/61/EC and introduces some linguistic changes and adaptations.	The draft APP should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain intensive agricultural holdings. Environmental protection objectives of the Directive are reflected in the SEOs for Geology, Soils and Landuse; Water; Air Quality; and Climatic Factors.
Water Framework Directive (2000/60/EC), (as amended by Decision 2455/2001/EC and Directives 2008/32/EC, 2008/105/EC and 2009/31/EC.	Aims to improve water quality and quantity within rivers, estuaries, coasts and aquifers. Aims to prevent the deterioration of aquatic ecosystems and associated wetland by setting out a timetable until 2027 to achieve good ecological status or potential. Member States are required to manage the effects on the ecological quality of water which result from changes to the physical characteristics of water bodies. Action is required in those cases where these "hydro-morphological" pressures are having an ecological impact which will interfere with the ability to achieve WFD objectives. The following Directives have been subsumed into the Water Framework Directive : • The Drinking Water Abstraction Directive • Sampling Drinking Water Directive • Exchange of Information on Quality of Surface Freshwater Directive • Shellfish Directive • Freshwater Fish Directive	• Identification and establishment of individual river basin districts. • Preparation of individual river basin management plans for each of the catchments. These contain the main issues for the water environment and the actions needed to deal with them. • Establishment of a programme of monitoring water quality in each RBD. • Establishment of a Register of Protected Areas (includes areas previously designated under the Freshwater Fish and Shellfish Directives which have become sites designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register). • Promotion of sustainable management of the water environment by carefully considering current land use and future climate scenarios, minimising the effects of flooding and drought events and facilitating long term improvements in water quality, including the	Successful implementation of the draft APP is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	• Groundwater (Dangerous Substances) Directive • Dangerous substances Directive	protection of groundwater near landfill sites, as well as minimising agricultural runoff.	
Marine Strategy Framework Directive (2008/56/EC)	• Establishes a framework whereby the necessary measures are undertaken to achieve or maintain good environmental status in the marine environment by the year 2020. • Requires the development and implementation of marine strategies in order to protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected. • It aims to prevent and reduce inputs in the marine environment, with a view to phasing out pollution as defined in Article 3(8), so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.	• Preparation of an assessment of the current environmental status of the waters concerned and the environmental impact of human activities. • Establishment of a series of environmental targets and associated indicators. • Development of a programme of measures designed to achieve or maintain good environmental status, by 2020. • Establishment of a monitoring programme for ongoing assessment and regular updating of targets. • Cooperation with transboundary Member States to implement these measures.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Floods Directive (2007/60/EC)	This Directive provides a framework for the assessment and management of flood risks, aiming to reduce the adverse consequences associated with flooding for human health, the environment, cultural heritage and economic activity.	Member States must: • Assess the risk of flooding of all water courses and coast lines, • Map the flood extent and assets and humans at risk in these areas at River Basin level and in areas covered by Article 5(1) and 13(1); and • Implement flood risk management plans and take adequate and coordinated measures to reduce this flood risk. Member States are required to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at	The draft APP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by the end of 2015. The public must be informed and allowed to participate in the planning process.	
Bathing Water Directive (2006/7/EC)	The overall objective of the revised Bathing Water Directive remains the protection of public health whilst bathing. It: • Imposes stricter standards for water quality and the implementation of new method of assessment. • Establishes a more pro-active approach to the assessment of possible pollution risks, and to the management of bathing waters; and • Places considerable emphasis on promoting increased public involvement, and for improved dissemination of information on bathing water quality to the general public.	• Updates the way in which water quality is measured, focusing on fewer microbiological indicators, and setting different standards for inland and coastal bathing sites. • Reduces the health risks linked to bathing by setting scientifically based minimum water quality standards. • Makes changes to monitoring and sampling frequency. • Allows a limited number of water samples to be disregarded during short term pollution incidents, if the event is predicted and the public warned beforehand. • Provides better information to the public, allowing more informed choices to be made about the risk of bathing. • Improves the overall management of bathing water quality by requiring an assessment of potential sources of pollution. • Is compatible with other EU water related legislation, in particular the Water Framework Directive.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.
Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC]	• Aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater.	• Establishment of criteria for assessing good groundwater status and for the identification of significant and sustained upwards trends and the starting points for trend reversal.	Environmental protection objectives of the Directive are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	• Made under the Water Framework Directive, the Daughter Directive aims to prevent and limit inputs of pollutants to groundwater.	• Threshold values adopted for the pollutants, groups of pollutants and indicators of pollution which have been identified as contributing to the characterisation of bodies or groups of bodies of groundwater as being at risk.	
Drinking Water Directive (98/83/EC)	• Aimed at the improvement and maintenance of the quality of water intended for human consumption. • Aims to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.	• Sets values applicable to water intended for human consumption for a defined range of parameters. • Requires implementation of all measures necessary to ensure that regular monitoring of the quality of water intended for human consumption is carried out, in order to check that the water available to consumers meets the requirements set out in the legislation. • Any failure to meet the required standards is immediately investigated in order to identify the cause. • Any necessary remedial action is taken as soon as possible to restore its quality and gives priority to their enforcement action. • Undertake remedial action to restore the quality of the water where necessary to protect human health. • Notification of consumers when remedial action is being undertaken, except where the competent authorities consider the non-compliance with the required standards value to be trivial.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.
Urban Waste Water Treatment Directive [91/271/EEC]	The Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water and waste water from certain industrial sectors.	The Directive requires that: • The collection and treatment of waste water in all agglomerations of >2000 population equivalents (p.e.). • Secondary treatment of all discharges from agglomerations of >2000 p.e., and more	The draft APP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		advanced treatment for agglomerations >10,000 p.e. in designated sensitive areas and their catchments. • A requirement of pre-authorisation of all discharges of urban wastewater, of discharges from the food processing industry and of industrial discharges into urban wastewater collection systems. • Monitoring of the performance of treatment plants and receiving waters. • Controls of sewage sludge disposal and re-use, and treated waste water re-use whenever it is appropriate.	
Sewage Sludge Directive [86/78/EEC]	The Directive promotes the use of sewage sludge in agriculture but regulates its use to prevent harmful effects on soil, vegetation, animals and people.	The aims of the Directive are: • To protect humans, animals, plants and the environment by ensuring that heavy metals in soil and sludge do not exceed set limits; • To increase the amount of sewage sludge used in agriculture.	The draft APP will need to have regard for this Directive with regard to the use of sewage sludge as a fertiliser source. Environmental protection objectives of the Directive are reflected in the SEO for Geology, Soils and Landuse.
Nitrates Directive [91/676/EEC]	The Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.	Aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. Outlines the following steps: • Identification of water polluted, or at risk of pollution; • Designation of nitrate vulnerable zones; • Establishment of codes of good agricultural practice to be implemented by farmers on a voluntary basis;	The draft APP must take into account any environmental objectives as established by the Directive. Environmental protection objectives of the Directive are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Establishment of action programmes to be implemented by farmers within NVZs on a compulsory basis; • Limits to the application of nitrogen from manure; and • National monitoring and reporting.	
Environmental Quality Standards Directive (Directive 2008/105/EC) (also known as the Priority Substances Directive), as amended by Directive 2013/39/EU.	Establishes environmental quality standards (EQS) for priority substances and certain other pollutants as provided for in Article 16 of the Water Framework Directive and aims to achieve good surface water chemical status in accordance with the provisions and objectives of Article 4 of the Water Framework Directive.	• Apply the EQS laid down in Part A of Annex I to this Directive for bodies of surface water. • Determine the frequency of monitoring in biota and/or sediment of substances. • Monitoring shall take place at least once every year, unless technical knowledge and expert judgment justify another interval. • Notify the European Commission if the substances for which EQS have been established if a deviation of the monitoring is planned along with the rationale and approach. • Establish an inventory, including maps, if available, of emissions, discharges and losses of all priority substances and pollutants listed in Part A of Annex I to this Directive for each river basin district.	The draft APP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface water bodies.
Environmental Liability Directive [2004/35/EC]	• Establishes a framework for environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. • Relates to environmental damage caused by occupational activities (listed in Annex III), and to any imminent threat of such damage occurring by reason of any of those activities; damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by	• Describes procedures for circumstances where environmental damage has occurred. Requires the polluter to take all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors in order to limit or to prevent further environmental damage and adverse effects on human health or further impairment of services and the necessary remedial measures.	The draft APP will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Policy proposals outlined in the draft APP should aim to cause no damage and to enhance the wider environment.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	reason of any of those activities, whenever the operator has been at fault or negligent.	• Establishes measures for cases where environmental damage has not yet occurred, but there is an imminent threat of such damage occurring. • The regulations make the polluter financially liable and allow the competent authority to initiate cost recovery proceedings where appropriate.	
A Blueprint to Safeguard Europe's Water Resource [COM(2012/673]	The Blueprint aims to improve implementation of existing water policy, to integrate water considerations into other policy areas and indicate where further measures may be necessary for water efficiency and adaptation to climate change.	• Outlines actions that relate to better implementation of current water legislation, integration of water policy objectives into other policies and filling gaps particularly in relation to water quantity and efficiency. • These actions are to ensure that water of sufficient quantity and good quality is available to service the needs of people as well as the environment and the EU's economy. • The Blueprint's time horizon is closely related to the EU 2020 Strategy particularly the Resource Efficiency Roadmap, of which the Blueprint is the water milestone. However, the Blueprint covers a longer time span, up to 2050, and is expected to be the driver of long-term EU water policy rural development programme.	The draft APP should have regard for this Blueprint. Environmental protection objectives are reflected in the SEO for Water.
Waste Framework Directive [2008/98/EC], as amended in 2018 [2018/51/EU]	• Sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. • Explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products.	The Directive requires that: • Waste is managed without endangering human health • Waste is managed without harming the environment. • Waste is managed without harming water, air, soil, plants or animals.	The draft APP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on water, soil and air.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Waste does not cause a nuisance a nuisance through noise or odours, or to countryside or places of special interest.	
Use and Disposal of Animal By-products (Commission Regulation 2011/EU142)	Outlines health rules as regards animal by-products not intended for human consumption.	The Regulation lays down strict rules for the collection, transport, storage, handling, processing and use or disposal of all animal by-products.	The draft APP should have regard for the environmental protection objectives of this Regulation.
Valletta Convention (1992)	Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992). The Valletta Treaty aims to protect the European archaeological heritage "as a source of European collective memory and as an instrument for historical and scientific study	Sets guidelines for the funding of excavation and research work and publication of research findings. Deals with public access, in particular to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage. The Convention constitutes an institutional framework for pan-European co-operation on the archaeological heritage, entailing a systematic exchange of experience and experts among the various States. The Committee responsible for monitoring the application of the Convention assumes the role of strengthening and co-ordinating archaeological heritage policies in Europe.	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.
Granada Treaty (1985)	Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985). The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties.	• Conservation of European architectural heritage.	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.
World Heritage Convention [WHC-2005/WS/02]	Objectives seek to ensure the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage and ensure that effective and active measures are taken for these.	• Establishment of measures for the protection of monuments of national importance by virtue of the historical, architectural, traditional, artistic or archaeological interest attaching to them. Includes the site of the	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	The Convention recognises the way in which people interact with nature and encourages signatories to integrate the protection of cultural and natural heritage into regional planning programmes, set up staff and services at their sites, undertake scientific and technical conservation research and adopt measures which give this heritage a function in the day-to-day life of the community.	monument, the means of access to it and any land required to preserve the monument from injury or to preserve its amenities. • World Heritage Sites in Ireland are specific locations that have been included in the UNESCO World Heritage Programme list of sites of outstanding cultural or natural importance to the common heritage of humankind. Two such sites in Ireland have been designated	
European Landscape Convention [ETS No. 176]	• Promotion of the protection, management and planning of European landscapes and organising European co-operation on landscape issues. • Applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. • Inclusion of landscapes that might be considered outstanding as well as everyday or degraded landscapes. • Aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape. • Complements the Council of Europe's and UNESCO's heritage conventions.	• Respond to the public's wish to enjoy high-quality landscapes and to play an active part in the development of landscapes. • Each administrative level (national, regional and local) should draw up specific and/or sectoral landscape strategies within the limits of its competences. These are based on the resources and institutions which, when co-ordinated in terms of space and time, allow policy implementation to be programmed. The various strategies should be linked by landscape quality objectives.	Environmental protection objectives of the Treaty are reflected in the SEO for Landscape and Visual Amenity.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
National			
Biodiversity Strategy for Northern Ireland to 2020	A strategy for Northern Ireland to meet its international obligations and local targets to protect biodiversity	The strategy sets out the proposals for action to help halt the loss of biodiversity and the degradation of ecosystems up to 2020. 1. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society 2. Reduce the direst pressures on biodiversity and promote sustainable development 3. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity 4. Enhance the benefits to all from biodiversity and ecosystem services 5. Enhance implementation through participatory planning, knowledge management and capacity building.	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft APP should promote maintenance and, where possible, enhancement of biodiversity.
UK Post-2020 Biodiversity Framework	Succeeds the UK Biodiversity Action Plan and 'conserving Biodiversity – the UK Approach'. Sets out the UK's response to the CBD's 'Strategic Plan for Biodiversity 2011-2020' and its 20 'Aichi Targets' (2010), and the EU Biodiversity Strategy (2011).	The Framework demonstrates how the work of the four countries and the UK contributes to achieving the Aichi Targets, and identifies the activities required to complement the country biodiversity strategies in achieving the Targets. The following are the Strategic Goals of the Framework: • Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; • Reduce the direct pressures on biodiversity and promote sustainable use; • To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity;	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft APP should promote maintenance and, where possible, enhancement of biodiversity.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Enhance the benefits to all from biodiversity and ecosystems; and • Enhance implementation through participatory planning, knowledge management and capacity building	
Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, and amendment Regulations	These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000. See EU Habitats Directive.	Protects certain birds, plants, animals, marine life and their habitats, including Natura 2000 sites, through creating criminal offences and changing planning requirements.	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft APP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft APP, to ensure that it implementation will not adversely affect SPAs and SACs.
Wildlife and Natural Environment Act (Northern Ireland) 2011	Amended the Wildlife (Northern Ireland) Order 1985 by giving protection to a wider range of plants, animals and birds, and providing additional enforcement powers and increased penalties for wildlife related offences. The Act also introduced a statutory duty on all public bodies to further the conservation of biodiversity.		The draft APP will have a 'Duty of Care' to conserve biodiversity. Environmental protection objectives of the Act are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Environment (Northern Ireland) Order 2002	Covers several environmental issues, including pollution prevention control, assessment and management of air quality, and designation of areas of special scientific interest (ASSIs).		Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna, and for Air Quality.
DAERA Conservation Management Plans for SACs (in prep.)	Series of Management Plans for SACs in Northern Ireland, determining the pressures and threats to habitats and species at the sites, and identifying the management actions required to address these pressures.	In line with obligations under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), measures must be put in place to maintain and, where needed,	The draft APP should ensure that European Sites are suitably protected from loss or damage, with regard to the information provided in these Conservation Management Plans.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		improve the ecological health of NI SACs (58 no.) In 2017, NIEA began a 4 year work programme to develop a series of Management Plans.	Environmental protection objectives to protect European designated sites are reflected in the SEOs for Biodiversity, Flora and Fauna.
UK National Ecosystem Assessment (2011)	Provides a comprehensive overview of the state of the natural environment in the UK and a new way of estimating our national wealth. Northern Ireland covered in Chapter 18. The four key components are: 1. environmental spaces; 2. cultural practices; 3. cultural values; and 4. benefits need to be considered if CES are to be fully addressed in the ecosystem service framework		The draft APP should ensure that the natural environment is suitably protected from loss or damage in its implementation.
Northern Ireland Species Action Plan Freshwater Pearl Mussel, 2005	To assist delivery of the NI Biodiversity Strategy, for the protection and enhancement of NI Priority Species.	The Action Plan has the following targets: • Maintain the size of the 3 existing populations of *M. margaritifera*; • Maintain the range of existing populations of *M. margaritifera* at 7 10km^2 squares; • By 2010, increase the size of each of the 3 populations above by 50%; • By 2015, re-establish a population of *M. margaritifera* in one former known locality for the species; and • By 2020, re-establish a population of *M. margaritifera* in a further suitable site.	Environmental protection objectives to protect European designated sites and species are reflected in the SEOs for Biodiversity, Flora and Fauna.
Fisheries Act 2020	Provides a framework for fisheries management for the UK following exit from the EU.	The Act has the following eight fisheries objectives: 1. Sustainability – Fisheries are environmentally, economically and socially sustainable.	The draft APP should contribute towards the achievement of objectives in the Act.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		2. Precautionary – Stocks are harvested in a way that 'restores and maintains populations...above biomass levels capable of producing Maximum Sustainable Yield' 3. Ecosystem – An ecosystem-based approach to management is used, and bycatch of sensitive species is minimised and, where possible, eliminated. 4. Scientific Evidence – Data is collected and shared between authorities, and the best scientific advice is used to develop management measures. 5. Bycatch – By catch of undersized fish is minimised and avoided, catches are recorded and accounted for, and bycatch of commercial species is still landed but disincentivised. 6. Equal Access – British fishing boats have access to fish in all UK waters. 7. National Benefit- The fishing activities of UK boats bring economic and social benefits to UK communities. 8. Climate Change – The impacts of fisheries on climate change 9e.g. through emissions) is reduced, and fisheries are able to adapt to the effects of climate change (e.g. shifting stocks). The Act creates a legal requirement for the UK's our national fisheries policy authorities to produce a Joint Fisheries Statement (JFS), that will lay out how these objectives will be met.	
Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016	Linked to the 'Going for Growth' Strategy, which specifically recommended the development of a strategic land management policy. Outlines how the ambitions in this strategy could be achieved in a way which improves farm incomes and environmental performance simultaneously.	The Strategy recommends the following first steps for implementation: • Building a detailed baseline of current productive and environmental performance (GPS soil sampling and analysis of all agricultural land; aerial LIDAR survey of NI; real-time water quality monitoring;	Objectives of the Strategy have been taken into account in the draft APP. Environmental Protection Objectives of the Strategy are reflected in SEOs for Geology, Soils and Landuse, Water; Air Quality and Biodiversity, Flora and Fauna.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		establishment of a central database; online cloud-based decision support tool); • Improved soil health(appropriate application of lime to optimise pH; prioritising fields at low P levels for nutrient application; increase in slurries and manures applied using efficient methods; slurry/manure nutrient and biosecurity analysis; research into soil technologies e.g. potentiometers; capital support to separate P from slurries/manures); and • Establishment of a culture whereby farmers have the confidence to implement these sustainable land management practices.	
Soil Nutrient Health Scheme for Northern Ireland	This is a scheme for soil sampling and carbon analysis.	The scheme aims to build from the ground up, by putting an increased emphasis on improved soil nutrient health and farm carbon. It will be available to all farmers. It will provide farmers with detailed information on soil nutrient levels for every field on their farm, along with an estimate of the amount of carbon stored in their soils, hedgerows and trees.	Objectives of the Scheme have been taken into account in the draft APP. Environmental Protection Objectives of the Scheme are reflected in SEOs for Geology, Soils and Landuse.
Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024	The NICCAP2 contains the NICS Departments response to the risks and opportunities relevant to Northern Ireland, as identified in the UK Climate Change Risk Assessment 2017 (CCRA 2017). It sets out preparation for climate change impacts that are already happening, and puts in place plans for future impacts.	• NICCAP2 focusses on priority areas identified in the NI Evidence Report as requiring urgent adaptation action over the next 5 years: • Sets the strategies, policies and actions by which government departments will deliver on the agreed outcome objectives	The draft APP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Landuse.
Northern Ireland Strategic Energy Framework (SEF) (2010)	The Strategic Energy Framework (SEF 2010) is the result of examining the drivers, strengths, opportunities and threats to Northern Ireland's energy landscape and attempting to balance many diverse social, environmental and	The framework's four goals are to: • Build competitive markets; • Ensure security of supply;	The draft APP should have regard for the environmental protection objectives of the Framework, which includes a contribution to reduced carbon emissions, in terms of cumulative

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	economic issues alongside their associated risks.	• Enhance sustainability; and • Develop energy infrastructure.	emissions affecting air quality and climate.
(Northern Ireland) Sustainable Energy Action Plan, 2012-2015 and beyond (2012)	The Action Plan outlines the various initiatives being undertaken by the Northern Ireland Executive and includes a statement of leadership from the Executive, demonstrating a united and long-lasting commitment to sustainable energy. This Plan builds from the Strategy Energy Frameworks, 2010. • Building energy markets • Ensuring security supple • Enhancing sustainability and development of competitive energy markets • Increasing the level of electrify and heat from renewable sources	The aim is underpinned by three strategic objects: • Reduce greenhouse gas emission from transport. • Protect biodiversity • Reduce water, noise and air pollution	The draft APP should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on air quality and climate, biodiversity and water.
UK Climate Change Act 2008	The Climate Change Act, the first of its kind in any country, set out a framework for moving the UK to a low-carbon economy.	The key component of the legislation requires a mandatory 60% cut in the UK's carbon emissions by 2050. Two key aims underpinning the Act: 1. Improve carbon management and help the transition towards a low carbon economy in the UK 2. Demonstrate strong UK leadership internationally, signalling that we are committed to taking our share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009.	The draft APP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
The Climate Change Act 2008 (2050 Target Amendment) Order 2019	Sets a legal requirement to reduce the UK's emissions of GHGs by 100% relative to 1990 levels by 2050.	Legislative basis for achieving the 'net zero' target by 2050, increasing the previous target committed to within UK legislation.	The draft APP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.
UK Climate Change Risk Assessment (CCRA) Programme 2017	The UK Government is required, under the Climate Change Act, to publish a CCRA every 5 years, setting out the risks and opportunities facing the UK from climate change.	This Programme provides details and national targets for the reduction of greenhouse gas emissions in accordance with the Kyoto agreement. The goal of the programme is a 20% reduction of the 1990 CO_2 emissions by 2010. It also aims to protect and where possible enhance, the UK's economic standing, tackle social exclusion and health risks. Evidence Reports feed into the UK National Adaptation Programme, and national adaptation programmes of devolved administrations (i.e. the NICCAP2).	The draft APP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Landuse.
The National Emissions Ceiling Regulations 2018	Implement in the UK Directive 2016/2284/EU relating to national emission ceilings for certain atmospheric pollutants.	The Regulations require: • Preparation of an annual inventory of emissions of certain pollutants occurring in the UK, and projections of such emissions; • Ensure from 2010-2019 that anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs and ammonia occurring within the UK do not exceed specified amounts; • Ensure from 2020-2029 that anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs, ammonia and fine particulate matter occurring within the UK do not exceed specified amounts, and from 2030 that they do not exceed additional specified amounts;	The draft APP should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Ensure emissions in 2025 are following a linear reduction trajectory between 2020 and 2030 targets; • Preparation of a national air pollution control programme, to which public authorities must have regard; • Locate sites representative of specified ecosystems and habitats in order to monitor the negative impacts of air pollution.	
UK National Air Pollution Control Programme (NAPCP) 2019	Programme required under The National Emission Ceilings Regulations 2018. The NAPCP sets out how the UK can meet the legally binding 2020 and 2030 emission reduction commitments.	• Emission reduction commitments apply for 5 pollutants: nitrogen oxides, ammonia, non-methane VOCs, particulate matter and sulphur dioxide. • Policies and Measures (PaMs) are included for agriculture, including: Funding for low emission equipment; Regulation to reduce urea-based fertiliser emissions and regulation to reduce emissions from fertiliser use; Requiring covers on slurry & digestate, stores and requiring spreading by trailing hose, trailing shoe or injection; Incorporation of manures within 12 hours; Mandatory standards for livestock housing; Environmental permitting for dairy & intensive beef units.	Measures proposed for the agriculture sector in the Programme have been incorporated into the draft APP. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Landuse, Air Quality and Climatic factors.
Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007	The Air Quality Strategy sets out air quality objectives and policy options to improve air quality in the UK from current to long term. As well as direct benefits to human health, these options are intended to provide important benefits to quality of life and to help protect the environment.	The Strategy sets out the UK Government and devolved administrations' air quality objective and the measures selected to achieve desired improvements in air quality. The overall aim is a steady decrease in ambient levels of pollutants towards the objectives over the period of implementation. These objectives are a statement of policy intentions or targets and are not legally binding in themselves.	The draft APP should have regard for the environmental protection objectives of the Strategy, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		The main sources, hazards and strategy's objectives are provided for the following pollutants: particulate matter, oxides of nitrogen, ozone, sulphur dioxide, polycyclic aromatic hydrocarbons, benzene, 1,3-butadiene, carbon monoxide, lead and ammonia.	
Air Quality Standards Regulations (Northern Ireland) 2010, and amendments (2017)	Transpose the EU Air Quality Directives and place a duty on the NI government departments to monitor levels of air pollutants specified in the Air Quality Directives and ensure compliance with limit values for these pollutants.	Designate zones in which ambient air will be protected by limiting the concentration of pollutants within them.	The draft APP should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides and cumulative effects of pollutants on air quality. Environmental protection objectives are reflected in the SEO for Climatic Factors.
The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013, and amendments up to 2018	Transpose Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control).	The Regulations revoked 18 sets of previous regulations relating to industrial emissions and consolidated all the provisions f the Industrial Emissions Directive into a single set of regulations. They control the operation of any installation or mobile plant that carries out activities listed in Part 1 of Schedule 1 to the Regulations.	The draft APP should have regard for the environmental protection objectives of the Regulations, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.
Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020	Discussion document in advance of developing the first Clean Air Strategy for Northern Ireland.	Presents evidence and research on a range of ambient air pollutants and outline policy and legislation currently in place to control air pollution.	The draft APP should have regard for Environmental Protection Objectives of this Strategy.
Making Ammonia Visible (Annex to the SALMS for NI) 2017	Linked to the 'Going for Growth' Strategy, which specifically recommended the development of a strategic land management policy. Aim is to satisfy the joint need of bringing ammonia emissions from agriculture down to a level that lets an expanding sector deliver the	Provides recommendations for the medium to long term, and recommends 6 guiding principles and approaches to alleviate acute pressure in the short term, which DAEREA should apply in considering applications for development.	The draft APP should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEO for Air.

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	ambition laid down in the "Going for Growth" report, while allowing Priority Habitats to recover.		
Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020	Plan for the agriculture and forestry sector to reduce GHG emissions.	Focus on supporting the implementation of on-farm efficiency measures designed to reduce the carbon intensity of food products, while simultaneously improving productivity and profitability. Priority on-farm actions are founded in the key themes identified in Phase 1: • Better Nutrient Management; • Better livestock management; • Improving land and carbon management; and • Increasing energy efficiency.	The draft APP should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Landuse; and Climatic Factors.
Northern Ireland Greenhouse Gas Inventory 1990-2018 statistical bulletin	This statistical bulletin is updated annually and outlines key NI figures from the GHG Inventories for England, Scotland, Wales and Northern Ireland.		Provides environmental baseline information on which the draft APP could have impacts upon.
Draft Ammonia Strategy for Northern Ireland (in development)	DAERA has been developing a comprehensive draft Ammonia Strategy for consultation, with publication expected soon.	The draft Ammonia Strategy consultation sets targets for 2030 and beyond for ammonia reduction, and proposes three pillars as part of a strategic approach to addressing ammonia: • An ambitious and verifiable ammonia reduction programme for implementation on farms; • A programme of restoration and management of our most valuable habitats to alleviate the symptoms of ammonia and nitrogen exceedance; and	The draft APP is being developed in alignment with the draft Ammonia Strategy. Environmental Protection Objectives are reflected in the SEO for Air.

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		• A revised Operational Protocol for the assessment of impacts from atmospheric nitrogen pollution.	
Northern Ireland State of the Environment Report 2013	The second report on the State of the Environment in Northern Ireland brings together recent information on how the NI environment is performing across land, water, sea and air.	Updates the first state of the environment report and provides commentary on 44 environmental indicators across 8 themes. The report draws together in one place an overall picture of our environment and identifies cross-cutting issues.	Provides environmental baseline information on which the draft APP could have impacts upon.
Environment Strategy for Northern Ireland 2019 (in development)	A NI Environment Strategy is required to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.		The draft APP should have regard for this Strategy.
Rural Development Programme for Northern Ireland 2014-2020 & Annual Implementation Report 2019	The Northern Ireland Rural Development Programme (NIRDP) is supported through Pillar 2 of the EU Common Agricultural Policy (CAP), focussed on improving the structural and environmental performance of agriculture and promoting local/rural development.	The NIRDP has 3 objectives for the development of NI rural areas: • Competitiveness; • Environment; and • Development of rural areas. The NIRDP includes associated agri-environmental schemes: Environmental Farming Schemes (EFS), Areas of Natural Constraint (ANC) and Forestry Schemes. The Annual Implementation Report outlines progress that has been made towards each of these objectives.	The draft APP represents the future agricultural policy for Northern Ireland following EU exit. Existing environmental protection objectives associated with the RDP have been considered during development of the draft APP. Environmental Protection Objectives are reflected in SEOs for Geology, Soils and Landuse; and Material Assets.
Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004	Implements the SEA Directive (2001/42/EC) in Northern Ireland. To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	See SEA Directive.	The draft APP will be subject to the SEA process. This is being undertaken through this Scoping Report and subsequent Environmental Report.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Food Wise 2025 (Republic of Ireland strategy)	Food Wise is sets out the strategic plan for the development of the Republic of Ireland's agri-food sector over the next decade.	Growth projections include increasing the value added in the agri-food, fisheries and wood products sector by 70% to in excess of €13 billion. Sustainable production at its core setting out a range of specific recommendations aimed at managing the projected growth in a sustainable way. There is a strong commitment to the measurement and monitoring of the sustainability credentials of the sector as the strategy rolls out.	The draft APP should have regard for the environmental protection objectives included in the Strategy.
Northern Ireland Executive Programme for Government 2016-2021	The Programme for Government identifies the actions the Executive stated purpose – Improve wellbeing for all – by tackling disadvantage, and driving economic growth.	List of Programme for Government Outcomes • We prosper through a strong, competitive, regionally balanced economy. • We live and work sustainably - protecting the environment. • We have a more equal society. • We enjoy long, healthy, active lives. • We are an innovative, creative society where people can fulfil their potential. • We have more people working in better jobs. • We have a safe community where we respect the law and each other. • We care for others and we help those in need. • We are a shared, welcoming and confident society that respects diversity. • We have created a place where people want to live and work, to visit and invest. • We connect people and opportunities through our infrastructure.	The draft APP will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute towards the achievement of the objectives of this programme.

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		We give our children and young people the best start in life.	
Draft Northern Ireland Executive Programme for Government 2021-	The Northern Ireland Executive is currently developing a new strategic, outcomes-based Programme for Government. Two of the key outcomes in the draft PfG that are most relevant to agricultural policy are: 'an economy that is globally competitive, regionally balanced and carbon neutral'; and 'that we live and work sustainably – protecting the environment'.	Key priority areas have been identified as: • Providing the tools under a future agricultural policy to increase productivity, enhance environmental sustainability, improve resilience and supply chain integration of the agri-food industry; and • Protecting and enhancing biodiversity and the natural environment, supporting sustainable practices and resource use in the energy, agri-food, fishing and forestry sectors and ensuring human, animal and plant health.	The draft APP will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute towards the achievement of the objectives of this programme.
Strategic Planning Policy Statement for Northern Ireland 2015	This planning policy sets out the Department's regional planning policies for securing the orderly and consistent development of land in Northern Ireland under the reformed two-tier planning system. The provisions of the SPPS must be taken into account in the preparation of Local Development Plans, and are also material to all decisions on individual planning applications and appeals.	There are two new Core Planning Principles included in the SPPS: • Supporting Sustainable Economic Growth, and • 'Preserving and Improving the Built and Natural Environment	The draft APP will have consideration for these planning policies.
The Regional Development Strategy 2035 – Shaping Our Future Updates the Regional Development Strategy for Northern Ireland 2025	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will support and enable the aspirations of the Region to be met.	The over-arching vision of the Regional Development Strategy is: "An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. " The aims of the RDS 2025 remain valid:	The draft APP will consider landuse changes and spatial planning impacts.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West • Support our towns, villages and rural communities to maximise their potential • Promote development which improves the health and well-being of communities • Improve connectivity to enhance the movement of people, goods, energy and information between places • Protect and enhance the environment • Take actions to reduce our carbon footprint and facilitate adaptation to climate change Strengthen links between north and south, east and west, with Europe and the rest of the world	
UK Sustainable Development Strategy, Agenda 21	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will support and enable the aspirations of the Region to be met.	The over-arching vision of the Regional Development Strategy is: "An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. " The aims of the RDS 2025 remain valid: • Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West	The draft APP should have regard for the environmental protection objectives of the Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Support our towns, villages and rural communities to maximise their potential • Promote development which improves the health and well-being of communities • Improve connectivity to enhance the movement of people, goods, energy and information between places • Protect and enhance the environment • Take actions to reduce our carbon footprint and facilitate adaptation to climate change • Strengthen links between north and south, east and west, with Europe and the rest of the world.	
10X Economy – An Economic Vision	In May 2021, the Department for the Economy launched its economic vision for the next 10 years, called 10x Economy - an economic vision for a decade of innovation.	The concept embraces innovation to deliver a ten times (10X) better economy with benefits for all the people of Northern Ireland. Ten guiding principles have been identified to underpin this vision and a number of these are central to agriculture, such as delivering positive economic, environmental and societal outcomes; supporting a greener, sustainable economy; position Northern Ireland amongst the most competitive small advanced economies in the world; and focussing on increasing innovation in high value-added areas and priority clusters. "*Agri-Tech"* has been identified as one of the priority sectors.	The draft APP should have regard for the environmental protection objectives of the vision.
Sustainability for the Future – 'DAERA's Plan to 2050'	Sustainability for the Future, published in May 2021, presents DAERA's strategic priorities up to 2050.	The Plan outlines the following strategic priorities: • To enhance our food, forestry, fishery and farming sectors using efficient and environmentally sustainable models which support economic growth;	Future agricultural policy has a significant role in delivering against these priorities and is underpinned by our purpose of '*Sustainability at the heart of a living, working, active landscape valued by everyone'*.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• To protect and enhance our natural environment now and for future generations whilst advocating its value to and wellbeing for all; • To champion thriving rural communities that contribute to prosperity and wellbeing; and • To be an exemplar, people focused organisation, committed to making a difference for the people we serve.	The draft APP will have regard for the Environmental Protection Objectives of the Plan.
Draft Green Growth Strategy for Northern Ireland	Green Growth is an over-arching multi-decade Strategy, led by DAERA, which sets out the long-term vision and a solid framework for tackling the climate crisis by balancing climate action with the need for a clean, resilient environment and economy. It has been developed by all Ministers and Government departments working together, in collaboration with external stakeholders from local government, the private sector, voluntary and community sectors and others.	The cross-cutting strategy will be delivered through a series of Climate Action Plans, which will set out the actions to meet sector-specific greenhouse gas emission targets to deliver a cleaner environment rich in biodiversity; delivering a more efficient use of resources within a circular economy; and green jobs.	The draft APP has been developed as a Foundation Programme under the umbrella of the draft Green Growth Strategy for Northern Ireland. Successful implementation of the draft APP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
Draft Northern Ireland Food Strategy Framework	DAERA has been leading on the development of a Northern Ireland Food Strategy Framework. This Framework has been developed collaboratively with officials across Northern Ireland Departments and other interested parties and is complementary to the Agricultural Policy Framework, extending issues relating to food production and consumption out into other areas of government policy.	The draft Food Strategy Framework recognises the interconnectedness between food, health, the economy and the environment. It proposes a new strategic food systems approach for Northern Ireland, and sets out a long-term vision, high level principles and areas for strategic focus. The vision is a transformed food system that protects natural resources for future generations, is economically and environmentally sustainable and provides safe, nourishing, accessible food to people, who make informed healthy choices.	The draft NI Food Strategy is complementary to the draft APP

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Draft Environment Strategy for Northern Ireland (in development)	The Environment Strategy will set out Northern Ireland's environmental priorities for the coming decades and will form part of the Executive's Green Growth Delivery Framework. It will be used to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.		The draft APP has been developed as a Foundation Programme under the umbrella of the draft Green Growth Strategy for Northern Ireland. Successful implementation of the draft APP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
Draft Rural Policy Framework for Northern Ireland	The overall aim of the policy framework is to create a sustainable rural community where people want to live, work and be active.	The framework comprises five key thematic pillars, and nineteen associated priority interventions. The thematic pillars are: • Innovation and entrepreneurship; • Sustainable tourism; • Health and wellbeing; • Employment; and • Connectivity	Successful implementation of the draft APP will contribute towards the achievement of the objectives of the framework.
Draft Northern Ireland Peatland Strategy 2021-2040	The strategy outlines a range of strategic objections and actions considered necessary to ensure that semi-natural peatlands are conserved and restored to functioning ecosystems.	The objectives of the Northern Ireland Peatland Strategy 2021-2040 include: • By 2040, all peatlands supporting semi-natural vegetation being managed for their peatland biodiversity and ecosystem function; • By 2030, degraded peatland habitats prioritised for restoration to favourable conservation status; • By 2040, all high priority degraded peatlands under restoration management; and also by 2040, that high priority degraded peatlands in Northern Ireland are under sustainable management.	Successful implementation of the draft APP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
DAERA Science Strategy Framework 2020-2035	The Framework will guide how DAERA can optimise its use of science to help deliver Departmental and Programme for Government	The Framework: • Outlines a Vision for DAERA science;	The Science Strategy Framework will support the policies of the draft APP.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
	objectives, as part of the Science Transformation Programme.	• Defines high level principles to be adopted; • Describes the desired end-state goals to be achieved in terms of providing leadership, understanding needs, optimising investment in resources and having effective governance. It then defines objectives to reach the goals in terms of: • Providing better leadership for science; • Becoming more intelligent customers of science; • Better targeting of science funding; • Pursuing value for money; and • Ensuring impact of science products.	
Climate Change (No.1) Bill	The Bill sets down in legislation the net-zero carbon target for Northern Ireland.	The purpose of the Bill is: • To enable the mitigation of the impact of climate change in Northern Ireland; • Establish a legally binding net-zero carbon target for Northern Ireland; • Provide for the establishment and powers of the Northern Ireland Climate Commissioner and Northern Ireland Climate Office; • Guarantee existing environmental and climate protections; and • For connected purposes.	Successful implementation of the draft APP will contribute towards the achievement of the net-zero carbon target of the Bill.
Climate Change (No.2) Bill	The Bill sets down in legislation the carbon targets for Northern Ireland.	The purpose of the Bill is:	Successful implementation of the draft APP will contribute towards the

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• To set targets for the years 2050, 2040 and 2030 for the reduction of GHG emissions; • To provide for reporting and statements against those targets and budgets; • To confer power to impose climate change reporting duties on public bodies; • To provide for reports and advice from the Committee on Climate Change; and • For connected purposes.	achievement of the carbon targets of the Bill.
Nutrient Action Programme Regulations (Northern Ireland) 2019 and Nutrients Action Programme 2019-2022	The Nutrients Action Programme (NAP), and implementing Regulations aims to provide protection of water quality from pollution by agricultural sources.	The Nitrates Action Programme includes: • A limit on the quantity of livestock manure to be applied to agricultural land annually; • Set periods during which land spreading was prohibited owing to pollution risk; and • Set capacity levels for livestock manure storage. Modifications were made to the most recent (2019) NAP Regulations were added to address the following: • Water Protection; • Phosphorus Reduction and Efficiency; • Nitrogen Efficiency; • Slurry and Manure Storage; and • Controls on the use of Anaerobic Digestate.	The draft APP will have regard for the Environmental Protection Objectives of the NAP. These are reflected in the SEOs for Geology, Soils and Landuse; and Water.
Water Environment (Floods Directive) Regulations (Northern Ireland) 2009,	Implement EU Floods Directive 2007/60/EC on the risk and management of flood risk in Northern Ireland.	Main purpose is to establish a framework for the assessment of adverse consequences of flooding on human health, the environment, cultural heritage and economic activity.	The draft APP should have regard for the environmental protection objectives of these Regulations, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
and amendment Regulations 2018			
The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017	Transpose the Water Framework Directive (2000/60/EC) into NI legislation.	• Place a responsibility on NI to try to ensure that all inland and coastal waters reach at least "good status" (or good ecological potential for artificial or heavily modified water bodies); • Implementation of management planning at river basin level, to achieve this target, linking with other key policy areas such as agriculture, land use, biodiversity, tourism and flood protection through a river basin management plan (RBMP). This sets out a programme of measures to be implemented over 6-year cycles aimed at improving water body status.	Successful implementation of the draft APP is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.
Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015	Transpose Directive 2013/39/EU which revised environmental standards for some priority substances and added a further twelve additional substances to the list of priority substances introduced by the original Priority Substances Directive (2008/105/EC). Consolidate all the current legislation which set out the Water Framework Classification Schemes.	• Consolidate all the current legislation which set out the Water Framework Classification Schemes. • Sets environmental quality standards for priority substances. • Outlines standards required for Shellfish waters.	The draft APP should have regard for the environmental protection objectives of these Regulations for priority substances, in terms of cumulative effects on surface water bodies. Environmental protection objectives are reflected in SEOs for Biodiversity, Flora and Fauna; Population and Human Health; and Water.
The Quality of Bathing Water Regulations (Northern Ireland) 2008	These Regulations set quality standards for bathing water.	• Require regular testing of bathing waters, to ensure that they are of high enough quality for the general public to bathe in; • Require a Profile to be prepared for each designated bathing water site, giving detailed information on the physical characteristics and assessing the pollution risk to each site	The draft APP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEO for Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Set quality standards for a number of issues, the most important of which relate to coliform and streptococcal groups of bacteria, which can indicate the mount of sewage or other faecal contaminants present.	
Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017	Implement Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, in respect of drainage schemes and drainage works.		The draft APP should have regard for the environmental protection objectives of these Regulations, in terms of cumulative effects on surface water bodies.
Water Resources (Environmental Impact Assessment) Regulations 2017	Revoke and replace the Water Resources (EIA) Regulations (NI) 2005 and provide (in relation to relevant water management projects for agriculture in Northern Ireland) for the assessment of the effects of such projects on the environment. They impose procedural requirements in relation to the consideration of applications or proposals for consent for a relevant project.		The draft APP should have regard for the environmental protection objectives of these Regulations relating to certain water management projects for agriculture, in terms of cumulative effects on surface water bodies.
Private Water Supplies Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption from private supplies by ensuring that the water meets water quality standards and revoke and replace the 2009 Regulations (as amended).	The draft APP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.
Water Supply (Water Quality) Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that the water meets water quality standards within the public water supply and revoke and replace the 2007 regulations (as amended).	The draft APP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (NI) 2003	Reduction of water pollution from agricultural activities.	Establishes construction and storage standards for silage making and storage, slurry storage systems and agricultural fuel oil stores, with aim of reducing water pollution.	The draft APP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEO for Water.
Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment	Implement the Environmental Liability Directive (2004/35/EC) in Northern Ireland.	• Brings into force rules to force polluters to prevent and repair damage to water systems, land quality, species and their habitats and protected sites. • The polluter does not have to be prosecuted first, so remedying the damage should be faster.	The draft APP will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Policy proposals outlined in the draft APP should aim to cause no damage and to enhance the wider environment.
Groundwater Regulations (Northern Ireland) 2009 and amendments	Protection of groundwater from pollution.	Introduces classification systems in line with EU developments, makes it an offence to discharge listed substances without an authorisation, controls issuing and reviewing authorisations and consents. Covers enforcement, codes of practice and penalties.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Pollution Control and Local Government (Northern Ireland) Order 1978		Regulates waste on land, abandoned vehicles, noise nuisance, noise abatement zones, sulphur content of oil fuel used in furnaces and engines, cable burning, and pollution of the atmosphere and water. Other aspects have been revoked.	The draft APP should have regard for the environmental protection objectives of this Order, in terms of cumulative effects on surface water bodies and air quality.
Protection of Water Against Agricultural Nitrate Pollution (Northern Ireland) Regulations 2004	Implement the requirement of the Nitrates Directive (91/676/EEC) to formulate an “Action Programme”, for the protection of water from nitrate pollution from agricultural activities.	Establishes that an Action Programme must be established and applied throughout the territory of Northern Ireland.	These Regulations establish the requirement for the NAP for Northern Ireland. The draft APP will have regard for the Environmental Protection Objectives of the NAP. These are reflected in the SEOs for Geology, Soils and Landuse; and Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990	Bans the use of sewage sludge from treatment plants in agriculture, unless certain requirements are met including specified pH levels, no fruit or vegetable harvesting and no soil and groundwater pollution.		Environmental protection objectives of the Regulations are reflected in the SEOs for Geology, Soils and Landuse and Water.
Urban Waste Water Treatment Regulations (Northern Ireland) 2007	Implements the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) in Northern Ireland, designed to reduce the pollution of freshwater, estuarine and coastal waters by domestic sewage and industrial wastewater.	Revokes and replaces the Urban Waste Water Treatment Regulations (Northern Ireland) 1995, to reflect new arrangements for sewerage services set out in the Water and Sewerage Services (Northern Ireland) Order 2006.	The draft APP should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface water bodies
Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates)	Sets out the waste management regime covering waste carrier registration and identifying and remedying contaminated land.		The draft APP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on soils and surface water bodies.
Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007	Sets out a control regime for regulating the abstraction of water from underground strata and waterways and for constructing, altering or operating impounding works.		The draft APP should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface water bodies.
Water (Northern Ireland) Order 1999 (including amendments up to 2004)	Revokes and replaces the Water Act (Northern Ireland) 1972 and makes provision for discharge consents. Enables the DoE to set water quality objectives and prevent pollution from anti-pollution works.		The draft APP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on surface water bodies.
Water and Sewerage Services (Northern Ireland) Order 2006	Establishes government-owned companies' obligations for water supply, drinking water quality, trade effluent and sewage disposal, water and sewerage charges and customer service.		The draft APP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on surface water bodies and quality of drinking water supplies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
NI Water Our Strategy 2021-2046	Strategy for the provision of a high quality water supply. The Strategy covers a longer term view over a quarter of a century (2021-2046).	The Strategy centres around 5 strategic priorities: • Customer – delivering an exceptional customer experience; • Water – delivering great tasting, clean and safe water to meet customer need; • Economy – efficiently delivering infrastructure to underpin sustainable growth; • Nature – protecting and enhancing the natural environment; and • People – providing a great place to work.	The draft APP should have regard for the environmental protection objectives of the Strategy, in terms of cumulative effects on surface water bodies and quality of drinking water supplies.
NI Flood Risk Management Plan, 2021-2027	The NI Flood Risk Management Plan (FRMP) is a key requirement of the Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) and is aimed at reducing the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The objectives set, in relation to each area of impact are: Economic Activity • To reduce the cost of potential future flood damages to properties and infrastructure; • To reduce the economic costs caused by disruption to essential infrastructure and services; and, • To optimise the economic return on flood risk management investment. Human Health and Social • To reduce the risk to life, health and wellbeing. • To increase awareness and understanding of flooding and its adverse consequences and improve community resilience. • To reduce the impact on people caused by the disruption to essential infrastructure and services.	The draft APP should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• To improve recreation and public amenities. Environmental • To consider the impact of Climate Change across all areas of impact; • To support the objectives of the Water Framework Directive and contribute to the achievement of good ecological potential/status for water bodies; To protect and enhance the natural environment.	
Marine and Coastal Access Act 2009 / Marine Act (NI) 2013	New Marine Licensing legislation came into operation in Northern Ireland on the 6th April 2011. It replaced licensing under the Food and Environment Protection Act 1985 (FEPA). The purpose of this licensing system is to aid industry and encourage investment by enabling more strategic decisions to be made about what activities are permissible in the marine environment. The overall objective of marine licensing is to regulate sustainable development in a cohesive and fair manner. The Marine Act sets out a new framework for Northern Ireland's seas based on: a system of marine planning that will balance conservation, energy and resource needs; improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects.	The key features of the new system include • The definition of marine licensable activities; • exempt activities; • fees and charges; • implementation of measures for sanctioning and enforcement; and] • making appeals against licensing decisions, statutory notices and monetary penalties. The Marine Act enables DAERA to prepare a marine plan for the inshore region and to designate areas as Marine Conservation Zones (MCZ).	The draft APP should consider the implications of these Acts with policy proposals that may impact on coastal and marine areas.
UK Marine Policy Statement 2011	The Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment.	• Achieve integration between different objectives; • Recognise that the demand for use of our seas and the resulting pressures on them will continue to increase;	The draft APP will have to consider the policies of the MPS in the strategic planning for agricultural policies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Manage competing demands on the marine area, taking an ecosystem-based approach; • Enable the co-existence of compatible activities wherever possible; and • Integrate with terrestrial planning.	
Draft Marine Plan for Northern Ireland 2018	The Marine Plan for Northern Ireland will inform and guide the regulation, management, use and protection of our marine area. It is a single document made up of two plans, one for the inshore region and one for the offshore region.	The Marine Plan will be used by Public Authorities in taking decisions which affect or might affect the marine area, including: • Authorisation or enforcement decisions Decisions that relate to the exercise of any function capable of affecting the marine area.	The draft APP will have to consider the policies of the Marine Plan in the strategic planning for agricultural policies.
Northern Ireland Waste Management Strategy, 2012	The Waste Management Strategy sets out in detail those proposed policies, including specific actions to be taken. Strategy development is a continuous process and the Waste Management Strategy for Northern Ireland is considered as a living document, requiring regular review and revision to ensure that it remains relevant and the policies and actions therein remain appropriate.	The proposals of this Strategy are as follows: • The development of a Waste Prevention Programme; • A new 60% recycling target for local authority collected municipal waste (LACMW); • The introduction of a statutory requirement on waste operators to provide specified data on commercial and industrial waste; • New and more challenging collection and recycling targets for packaging and WEEE; • The introduction of a landfill restriction on food waste; • The potential for the devolution of landfill tax; • The implementation of legislation on carrier bags; The development of detailed proposals for an Environmental Better Regulation Bill.	The draft APP should have regard for the environmental protection objectives of the Strategy, with regard to waste arising from agriculture.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Waste Management Plan 2013 – 2020	The Waste Management Plan 2013-2020 outlines how it will efficiently manage waste for the Councils it represents with the overall goal of creating a system that 'meets the region's needs and contributes towards economic and sustainable development'. Subject to review every five years the Plan details how NI will fulfil its statutory obligations under the EU Waste Framework Directive and The Waste and Contaminated Land (Northern Ireland) Order 1997.	The Action Plan proposes to: • Deliver a communications campaign to build public awareness, understanding of and confidence in recycling. • Undertake a Recycling Gap study to identify kerbside recycling options. • Provide £2.5m to the Rethink Waste Capital fund in 2016/17 with further government support planned for successive years. • Support the development of strategic infrastructure for treating and recovering waste; and • support separate treatment of food waste	The draft APP should have regard for the environmental protection objectives of the Plan, with regard to waste arising from agriculture.
Historic Monuments and Archaeological Objects (NI) Order 1995	The Order allows for Monuments to be protected by taking them into State Care, or by Scheduling, and also places restrictions on searching for archaeological material	The purpose of designation is to ensure that policies are created and action taken to: • Conserve or enhance the natural beauty or amenities of that area; • Conserve wildlife, historic objects or natural phenomena within it; • Promote its enjoyment by the public; and • Provide or maintain public access to it.	Environmental Protection Objectives of the Order are reflected in the SEO for Cultural Heritage.
Nature conservation and Amenity Lands Order(NI 1985	Provides for designation of the finest landscape areas as either Areas of Outstanding Natural Beauty (AONB) or National Parks land, and takes steps to manage them for both conservation and recreation.		Environmental Protection Objectives of the Plans are reflected in the SEOs for Biodiversity, Flora and Fauna; and Landscape and Visual Amenity.
Regional			

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
Local Biodiversity Action Plans (LBAPs)	Local Biodiversity Action Plans are a way of encouraging people to work together and deliver a programme of continuing action for biodiversity at a local level. They set out practical steps that aim to help protect biodiversity, enhance and improve biodiversity where possible, and promote biodiversity at a local level.		The draft APP will have regard for these local plans. SEOs for Biodiversity, Flora and Fauna should contribute towards the Environmental Protection Objectives of LBAPs.
Draft 3rd cycle River Basin Management Plans (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027	Describes existing condition of waters in the River Basin Districts, the objectives for improving their condition and the measures to be used to deliver these improvements. • Establish a framework for the protection of water bodies at River Basin District (RBD) level • Preserve, prevent the deterioration of water status and where necessary improve and maintain "good status" of water bodies in that RBD • Promote sustainable water usage	• Aims to improve water quality and quantity within inland surface waters (rivers and lakes), transitional waters coastal waters and groundwater and meet the environmental objectives outlined in Article 4 of the Water Framework Directive • Identifies and manages water bodies in the RBD; • Establishes a programme of measures for monitoring and improving water quality in the RBD; • Involves the public through consultations; • RBMPs are prepared and reviewed every six years. The most recent is the draft 3rd cycle RBMP, which runs from 2021-2027.	The draft APP aims to contribute to protecting and enhancing water status in line with the WFD. Environmental Protection Objectives of the Plans are reflected in the SEO for Water.
County Development Plans and Local Development Plans	Development Plans set out how an area should look in the future by deciding the type and scale of development and where building should be allowed. Each Council must prepare a development plan for their area in consultation with the local community.	When preparing a development plan the council should consider • The council's Community Plan, a long-term vision for the social, environmental and economic well-being of the area and its citizens; • The council's Statement of Community Involvement (SCI) which sets out who, how, where and when consultation and policy making is to take place; • The RDS 2035, as the spatial strategy for NI;	The draft APP will have regard for these plans, and reflect the general Environmental Protection Objectives in SEOs for Biodiversity, Flora and Fauna; and Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft APP
		• Planning Policy and guidance; and • A sustainability appraisal prepared by the council so that economic and social factors are considered alongside environmental factors when developing the plan.	
Living With Water in Belfast 2020	An integrated plan for drainage and wastewater management for the Greater Belfast area.	• Aims to deliver a new, strategic, long-term approach to drainage and wastewater management to protect from flooding, provide a cleaner and greener environment and support growth of the Greater Belfast area.	Environmental Protection Objectives of the Plan are reflected in the SEO for Water.