Department of Agriculture, Food and the Marine

Strategic Environmental Assessment (SEA) Scoping Report

Agri-Food Strategy to 2030

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RSK GENERAL NOTES

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1 INTRODUCTION

1.1 Purpose of this Report

RSK Ireland Ltd (hereafter 'RSK') has been instructed by the Department of Agriculture, Food and the Marine (DAFM) to carry out a Strategic Environmental Assessment (SEA) of the Agri-Food Strategy to 2030. The Agri-Food Strategy to 2030 is a voluntary industry led strategy facilitated by the DAFM.

SEA is a systematic process for evaluating the environmental consequences of proposed plans or programmes to ensure environmental issues are fully integrated and addressed at the earliest appropriate stage of decision making, with a view to promoting sustainable development. The process of SEA was introduced under European Directive 2001/42/EC12 on the assessment of the effects of certain plans and programmes on the environment (SEA Directive), and came into force in 2001.

The Directive requires the assessment of the likely significant effects of plans and programmes on: "*the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship of the above factors" including "secondary, cumulative, synergistic, short, medium, and long-term, permanent and temporary positive and negative effects*".

The requirements of the SEA Directive are transposed into Irish domestic law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (SI 435/2004 and SI 200/2011), and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436/2004 and SI 201/2011).

Scoping is the process of determining the range and level of detail of the environmental issues to be taken forward in the SEA. The scope of the SEA depends on what is being proposed within the Strategy, its geographical and temporal coverage, and the nature of the receiving environment. The scoping process also identifies the methods to be used, the organisations and/or individuals to be consulted during the assessment, and the timing and length of the consultation period.

The aim of this Scoping Report is thus to set the scope of the work to be included in the SEA, and to provide a framework for the Environmental Report which will form the main output of the SEA process.

This Scoping Report is designed to set the context of the SEA and to invite the opinions of consultees on the proposed methods, scope and areas of focus.

1.2 Structure of this Report

The areas considered in this scoping report, and their location in the report, are as follows:

- Summary of the Agri-Food Strategy to 2030 – Section 1.3;

- Spatial and temporal scope – Section 2.6;
- Identification of other plans, programmes and environmental protection objectives to be assessed against the Strategy – Section 2.7;
- Summary of baseline environmental data – Chapter 3;
- Identification of key environmental and sustainability issues in Ireland – Section 3.13;
- Setting of draft SEA objectives – Chapter 4;
- Consideration of alternatives – Chapter 5;
- Identification of likely significant impacts – Section 5.3; and
- Scoping of topics to be considered in the SEA – Section 5.4.

1.3 Agri-Food Strategy to 2030

The agri-food sector is a key aspect of Ireland's economy, community and culture, exporting to at least 175 countries around the world and contributing a significant aspect of Ireland's global profile and reputation.

The 2030 Strategy builds on its predecessor programmes; Food Harvest 2020 and most recently Food Wise 2025.

Food Wise 2025

Food Wise 2025 is the current agri-food strategy, which provides a strategy for smarter, greener, more sustainable growth of the industry. The strategy includes for eight overarching sustainability recommendations with over 80 individual environmental actions.

The Environmental Sustainability Committee identified 26 priority actions within the sustainability chapter. At the end of 2019, approximately 27% of these actions are reported as target achieved; 42% have substantial action undertaken and are ongoing; and 31% of actions have commenced and are progressing. Approximately 88% of all of the actions in the sustainability chapter are reported as target achieved/substantial action undertaken and ongoing. The remaining actions are all either ongoing or annual actions. Some of the positive environmental actions that have taken place include:

- Pilot Farm Hazardous Waste Collection Scheme;
- Code of Good Practice for Reducing Ammonia Emissions from Agriculture;
- Voluntary Nitrates Derogation Review;
- DAFM Water Network;
- Agricultural Sustainability Support and Advisory Programme (ASSAP);
- Profiling energy use within the agriculture sector;
- Establishment of an Inventory Refinement Group: to ensure standardisation and use of common data in the inventories for the agriculture and land use sector;
- A high-level Bioeconomy Implementation Group;
- Publication of the Agriculture, Forest and Seafood Climate Change Sectoral Adaptation Plan;
- European Innovation Partnerships projects focusing on themes such as: the preservation of agricultural landscapes; water quality; resource efficiency; climate mitigation/adaptation and biodiversity

- Number of workshops including the Grassland Symposium, the Cross-sectoral Seminar on Climate Change Adaptation and the 2018 Environmental Sustainability Dialogue;
- Public consultation on a draft climate and air roadmap for the agriculture sector; and,
- Research projects such as LANDMARK Project and scheme evaluations including BDGP and GLAS.

Despite a number of positive actions, there has been an increase in absolute greenhouse gas (GHG) emissions over the Strategy period. In addition, ammonia emissions, which are almost exclusively from the agri-food sector, have also increased over recent years and are in breach of the limits as set out in the National Emissions Ceilings Directive. Furthermore, water quality has declined and biodiversity continues to decline, with many of the European designated sites in unfavourable condition. Further information is provided in Section 3, which covers the current baseline data.

Agri-Food Strategy to 2030

The Agri-Food Strategy to 2030 builds on its predecessor programmes; in establishing a vision of how the sector is anticipated to develop over the period to 2030 for the benefit of its stakeholders and the wider Irish economy and environment. This is reflected in the terms of reference for the 2030 Stakeholder Committee, to outline the vision and key objectives, with associated actions, required to ensure the economic, environmental and social sustainability of the agri-food sector in the decade ahead. It is intended that the Committee's report will be short, specific and cross-sectoral, with ambitious but realistic actions. A key feature of each of these strategies has been the level of joint engagement by stakeholders and Government. These strategies are fully owned by all who took part in forming them: farming organisations, food industry, environmental NGOs, retailers and academics; as well as the DAFM and relevant State agencies.

Strategic Priorities

At the time of writing, the strategy is still being drafted but discussions to date have focused on the context in which the strategy is being developed and a number of strategic priorities.

The backdrop to the development of the strategy takes into account the importance of the agri-food sector to the Irish economy, the contribution of primary producers to this and the consequent importance of the sector to regional and rural prosperity and employment. It also considers Food Wise 2025, including the context and environment in which it was developed, the projections that were agreed for output, export, value-added and employment growth, the five pillars of innovation, competitiveness, environmental sustainability, human capital and market development, and then a brief review of performance so far; the evolving external environment, particularly issues such as Covid-19, Brexit, EU policy changes, the natural environment including climate change, changes in the global food system, international trade developments and the emergence of disruptive technology and the growing importance of the bioeconomy. These were set out in Appendix I of the Public Consultation Document that was issued by DAFM as part of the public consultation process in 2019. The Committee has agreed

to adopt a 'Food Systems' approach in the development of the strategy and its deliberations so far have centred around four thematic areas, namely:

1) Future food and beverages that meet consumer and societal expectations.
2) Primary producer viability and well-being.
3) An innovative, competitive Agri-Food sector driven by technology and talent.
4) A climate smart, environmentally sustainable agri-food sector.

1.4 Geographic Coverage

The geographic area covered by the Strategy comprises the whole of the Republic of Ireland including Ireland's Exclusive Economic Zone (EEZ). The Irish agri-food industry is comprised of the agriculture; food and beverage; fishery; fish processing; forestry; and forestry processing sectors.

1.5 Characterisation of the Area

Ireland has 26 counties and is split into three Regional Assembly Areas: Northern and Western Region, Eastern and Midland Region and Southern Region. Ireland's EEZ extends out to a 200 nautical mile limit. Table 1.1 below provides statistics on the land area, population size and population density of Ireland's counties and regions.

Table 1.1: Area and Population of Ireland

County or Region	Area (km^2)	Population (2016)	Population Density (people/km^2)
Northern & Western (IE04)			
Border Region (IE041)			
Cavan	1,931	76,176	39
Donegal	4,857	159,192	33
Leitrim	1,588	32,044	20
Monaghan	1,294	61,386	47
Sligo	1,836	65,535	36
West Region (IE042)			
Galway	6151	258,058	42
Mayo	5,588	130,507	23
Roscommon	2,547	64,544	25
Southern (IE05)			
Mid-West Region (IE051)			
Clare	3,443	118,817	35

County or Region	Area (km^2)	Population (2016)	Population Density (people/km^2)
Limerick	2,755	194,899	71
Tipperary	4,303	159,553	37
South-East Region (IE052)			
Carlow	896	56,932	64
Kilkenny	2,071	99,232	48
Waterford	1,857	116,176	63
Wexford	2,370	149,722	63
South-West Region (IE053)			
Cork	7,503	542,868	72
Kerry	4,813	147,707	31
Eastern & Midlands (IE06)			
Dublin Region (IE061)			
Dublin	936	134,7359	1,439
Mid-East Region (IE062)			
Kildare	1,694	222,504	131
Louth	826	128,884	156
Meath	2,342	195,044	83
Wicklow	2,025	142,425	70
Midlands Region (IE063)			
Laois	1,719	84,697	49
Longford	1,091	40,873	37
Offaly	2,000	77,961	39
Westmeath	1,838	88,770	48
Republic of Ireland	**70,272**	**4,761,865**	**70**

Source: Central Statistics Office (CSO), 2017 and Ordnance Survey Ireland, 2019.

There are a number of nature conservation, landscape and cultural heritage designations in Ireland. These are designated as either statutory (protected by law) or non-statutory (a material planning consideration), and can be of international, national or local importance. Information on local and/or non-statutory designations is held by individual local authorities and has not been obtained for this strategic level assessment.

The number and/or area of statutory nature conservation, landscape and cultural heritage designated sites in Ireland are provided in Table 1.2 below (obtained from various GIS data sets). Further details on designated sites are provided in Chapter 3.

Table 1.2: Designated Sites in Ireland

	Border Region	Midland Region	Western Region	Dublin Region	Mid-East Region	Mid-West Region	South-East Region	South-West Region	Ireland Total*
Special Protection Areas (SPA)	39	19	42	10	11	14	15	29	**154**
Special Areas of Conservation (SAC)	76	47	150	13	33	67	29	53	**433 plus 6 offshore sites**
Ramsar sites	8	9	8	5	2	1	6	6	**45**
Natural Heritage Areas (NHA)	27	23	59	3	5	32	1	15	**155**
Proposed NHAs	189	120	234	31	104	158	109	167	**1,089**
National Nature Reserves (NNR)	9	8	13	4	7	5	9	25	**80**
National Parks	1	0	2	0	1	1	0	1	**6**
World Heritage Sites	0	0	0	0	1	0	0	1	**2**
National Monuments	16,403	11,707	27,541	3,025	12,048	24,779	16,966	31,553	**145,252**
Accessible Monuments	11	5	14	9	15	14	14	12	**94**

* The total number of sites may be less than the number of sites in each region added up, because some sites extend over more than one region.

Source: GIS datasets from NWPS, Ramsar Sites Information Service, National Monuments Service.

2 APPROACH TO THE SEA

2.1 Best Practice Guidance

Our SEA approach takes into account the procedures provided under the following guidance documents:

- European Commission (EC) (2003) Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment;
- EC (2013) Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment;
- Government of Ireland (2004) Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment Guidelines for Regional Authorities and Planning Authorities;
- Environmental Protection Agency (EPA) (2020) SEA Pack;
- EPA (2020) Good Practice Guidance on Cumulative Effects Assessment in SEA;
- EPA (2020) Guidance on SEA Statements and Monitoring;
- EPA (2019) Integrating Climatic Factors into the Strategic Environmental Assessment Process in Ireland;
- EPA (2019) Good Practice note on SEA for the Forestry Sector;
- EPA (2015) Developing and Assessing Alternatives in Strategic Environmental Assessment;
- EPA (2013) Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner's Manual;
- EPA (2003) Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland - Synthesis report; and
- Office of the Deputy Prime Minister, Scottish Executive, Welsh Assembly Government and Department of Environment (2005) A Practical Guide to the Strategic Environmental Assessment Directive.

To ensure this SEA follows best practice and adds real value to the Strategy, we shall also draw on the following relevant documents:

- EPA (2020) Second Review of Strategic Environmental Assessment Effectiveness in Ireland;
- EPA (2012) Review of Effectiveness of SEA in Ireland Key Findings & Recommendations;
- EPA (2018) SEA Effectiveness in Ireland – Action Plan 2018 – 2020; and
- EPA (2016) Ireland's Environment – An Assessment 2016.

2.2 The SEA Process

SEA guides were produced by the Government of Ireland in 2004, updated through the EPA Pack, most recently in 2020. In common with other SEA guidance documents, these set out a multi stage process for carrying out SEA. These stages have been amalgamated in Table 2.1 below.

Table 2.1: Stages in the SEA Process

Stage	Tasks
Pre-review	If SEA is not mandatory, screen for possible significant environmental effects
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	Step 1: Describe briefly the statutory purpose, geographic area, population, and timeframe of the plan, and its relationship (both vertical and horizontal) with other plans/programmes.
	Step 2: Summarise the main findings of the survey and analysis stage.
	Step 3: Describe in general terms the current state of the physical environment of the area, with particular reference to (a) areas of environmental importance (such as protected sites); and (b) areas experiencing environmental problems (such as waste, or air or water pollution) at present. Describe how that environment would be likely to evolve on the basis of current development trends but no change in current policies.
Initial public consultation	Step 4: Define (a) broad planning policy objectives for the area based on Steps 1 and 2; and (b) relevant environmental policy objectives for the area taking account of national policy and any relevant international legal obligations (e.g. EU Directives).
	Consult the Consultation Bodies on the scope of the SEA.
Stage B: Developing and refining alternatives and assessing effects Stage C: Preparing the Environmental Report	Step 5: Identify a number of reasonable alternative development strategies for the area which are capable of fulfilling the policy objectives established in Step 4.
	Step 6: Evaluate these alternative strategies against the chosen planning and environmental policy objectives (step 4), with a view to establishing the most sustainable option.
	Step 7: Select the preferred strategy (which may combine elements of different strategies), stating reasons for the choice, and work it up with detailed policy objectives.
	Step 8: Carry out an environmental assessment of the preferred strategy to determine whether implementation would be likely to cause any significant effects on the environment (in particular, the aspects listed in Annex I of the SEA Directive, such as biodiversity, air, cultural heritage, etc.).
Stage C: Preparing the Environmental Report	Step 9: Modify the preferred strategy to eliminate, reduce or offset any significant adverse effects, as appropriate.
	Step 10: Propose monitoring measures in relation to any likely significant environmental impacts.
	Step 11: Prepare a non-technical summary.
Stage D: Consulting on the draft plan or programme and the Environmental Report	Consult the public and Consultation Bodies on the draft plan or programme and the Environmental Report.
	Assess significant changes.
	Make decisions and provide information.

Stage	Tasks
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment	Develop aims and methods for monitoring.
	Respond to adverse effects.

This Scoping Report is the main output of Stage A of the SEA process presented above. Chapter 6 discusses in more detail the subsequent stages and outputs of the SEA process that will be carried out following the conclusion of Stage A.

2.3 Screening

DAFM has opted to not complete the screening stage and proceed voluntarily to SEA Scoping stage. Therefore, screening is not discussed any further.

2.4 Links with Appropriate Assessment

Under Article 6(3) of the Habitats Directive, an appropriate assessment (AA) is required where a plan or project is likely to have a significant effect upon a European site, either individually or in-combination with other projects. The purpose of AA is to protect sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) – collectively known as Natura 2000 sites – including maintaining the integrity of the internationally important species and habitats for which they were designated.

There are clear links and analogies between AA of plans and SEA. They are parallel but separate processes that commonly overlap but also differ in some key respects. AA is narrower in focus and requires more rigorous tests, with the conservation and protection of Natura 2000 sites at its core. Nonetheless both SEA and AA contribute to the integration of environmental considerations in the adoption of a plan and promote sustainable development.

The three main inter-relationships between AA and SEA are:

- AA is a tool that assists in addressing environmental issues as part of the SEA in relation to Natura 2000 sites;
- AA assists the SEA process in the systematic and explicit appraisal of alternatives in relation to Natura 2000 sites; and
- Undertaking AA in parallel with SEA provides for an efficient use of resources and expertise. Both processes benefit each other's findings.

AA is being carried out alongside the SEA of the Strategy.

2.5 Sustainability Topics

The baseline data, key environmental issues and SEA Objectives have been presented through a series of sustainability topics derived from Annex I(f) of the SEA Directive, namely: biodiversity, flora and fauna; population; human health; soil; water; air; climatic factors; material assets; cultural heritage (including architectural and archaeological heritage); landscape; and the inter-relationship between these.

The topics considered in the SEA will be in accordance with these requirements, updated to align more closely with the requirements of the SPPS, and expanded for clarity (see Table 2.2 below). In order to address recently highlighted concerns on the effects that human activities have had on the world's ecosystems, and on the public benefits that ecosystems provide, we have included an additional sustainability topic, Natural Capital, to this SEA.

Table 2.2: Sustainability Topics

Sustainability Topic	Sub-Topics	Relevant Topic in SEA Directive
Ecology and Nature Conservation	Internationally and nationally designated sites (including those in the marine environment) Locally designated sites and priority habitats Protected and priority species Biodiversity outside designations Ecological networks and connectivity Invasive species	Biodiversity Flora and fauna
Socio-Economics	Accessibility to education, employment, housing and community facilities/services Deprivation, inequality and exclusion Viability of agri-food businesses	Population
Health and Quality of Life	Health and wellbeing Walking and cycling Access to a high quality natural environment and urban greenspace Health deprivation Noise and vibration	Human health Population
Soil and Land Use	Soil and agricultural land quality Provision of land-based goods and services Previously developed and contaminated land Carbon storage and water attenuation Geology (including designated sites)	Soil
Water	Water resources and availability Water quality Flood risk	Water
Air Quality	Air pollution (both national and local levels) Travel and transport	Air
Climate Change	Energy conservation and efficiency Renewable energy Meeting mitigation targets to reduce greenhouse gas emissions Adaptation to relevant climate change risks and opportunities, such as flooding and global warming	Climatic factors

Sustainability Topic	Sub-Topics	Relevant Topic in SEA Directive
	Protection of habitats which act as carbon stores	
Material Assets	Natural resources including minerals Material recovery, re-use and recycling Waste generation and disposal	Material assets
Cultural Heritage	Designated and non-designated built heritage Archaeological assets Quality and character of townscape / villagescape	Cultural heritage (including architectural and archaeological heritage)
Landscape	Quality and character of landscape and coastal areas Designated and other important sites (including greenspace) Visual aesthetics Light pollution	Landscape
Natural Capital	Connectivity and multifunctionality of green and blue spaces including ecological networks Provisioning services that natural capital provides, e.g. food, fuel and freshwater Regulating services, e.g. control of natural processes such as soil, air and water quality and climate regulation Cultural services, e.g. recreational, educational and ethical benefits Supporting services, e.g. habitat and natural cycles	The inter-relationship between these

2.6 Spatial and Temporal Scope

The spatial scope for the assessment is the Republic of Ireland. As required by the SEA Directive the assessment will also take into account trans-boundary impacts where it is identified that actions taken under the Strategy have the potential to impact on the topic areas identified in Northern Ireland. It is not anticipated at this stage that additional trans-boundary impacts will need to be considered.

Consideration of trans-boundary impacts is likely to be particularly relevant with some of the environmental topics that transcend national boundaries, for example ecology, climate, air, water and landscape.

The Strategy covers the period to 2030. With certain aspects of the environment such as climate, ecology and landscape, any positive or negative impacts associated with the Strategy may take effect over a time period of many decades. For this reason, a longer term view will be taken on potential impacts rather than seek to set a fixed temporal scope.

2.7 Other Plans, Programmes and Conservation Objectives

Assessing the relationship of the Strategy with the existing international, European and national framework of plans and programmes and identifying gaps and conflicts is a key part of the SEA process. This includes the consideration of statutory and non-statutory environmental protection objectives.

The plans and programmes that have been considered are listed in full in Appendix A. The review comprises a short description of the plan or programme, an outline of what its scope and objectives are, how it relates to the Strategy, and whether it is likely to have in-combination effects.

In many cases, the Strategy is expected either to support the other plans and programmes through similar objectives or to have no relationship with them. Other plans and programmes with environmental protection objectives that the Strategy could support will be considered further at the next stage of the process.

Plans and programmes which could potentially have negative environmental effects in-combination with the Strategy, also to be assessed further at the next stage of the process, are thought to be:

- **Republic of Ireland**
  - DAFM (2015). National Strategic Plan for Sustainable Aquaculture Development;
  - Department of Communications, Energy and Natural Resources (DCENR) (2014) Offshore Renewable Energy Development Plan;
  - DCENR (2014) Draft Bioenergy Plan;
  - DAFM (2014) Rural Development Programme 2014-20;
  - Government of Ireland (2018) National Planning Framework; and
  - Fine Gael, Fianna Fail, Green Party (2020) Programme for Government – Our Shared Future.
- **Northern Ireland / UK**
  - Department for the Economy (DfE) (2017) Industrial Strategy for Northern Ireland; and
  - UK Fisheries Bill (in progress).
- **Europe**
  - EC (2020) Farm to Fork Strategy; and
  - EC CAP Strategic Plans (in progress).

There are a number of applicable EC Directives, such as the EU Directive 2007/60/EC on flood risks. EU Directives are transposed into national legislation.

2.8 Scoping Consultations

The SEA Directive requires authorities with “environmental responsibilities” (hereafter referred to as the statutory Environmental Authorities) to be consulted on the scope and level of detail of the information which must be included in the Environmental Report (Article 5(4)).

In Ireland, the statutory Environmental Authorities are:

- the Environmental Protection Agency (EPA);

- the Department of Housing, Local Government and Heritage (DHLGH)[1];
- the Department of Communications, Climate Action and Environment (DCCAE);
- the Department of Culture, Heritage and the Gaeltacht (DCHG); and
- the DAFM.

Prior to the formal consultation (see Section 6.1), as part of the preparation of the Scoping Report, the Statutory Environmental Bodies were invited to provide initial informal comments on the key environmental issues being faced by Ireland, the scope of the SEA and recommendations for relevant data sources. To date comments have been received from:

- DCCAE – Air Quality, Waste Policy and Resource Efficiency, Inland Fisheries Ireland, Geological Survey Ireland; and
- NIEA.

In addition, a meeting was held with the EPA on 30th June 2020 to discuss the SEA process and scope, and current key issues.

Informal scoping meetings were held with the 2030 Strategy Committee on 28th May 2020 and with the DAFM led Environmental Assessment Steering Group on 4th June 2020.

The scope as presented in this Scoping Report reflects the outcome of these discussions.

[1] Under the new Government, changes in some Department names and organisation have been proposed although at the time of writing these are yet to be enacted. In the interm current SEA contacts continue to be used.

3 BASELINE DATA

3.1 The Current State of Ireland's Environment

Schedule 2 of the Ireland SEA Regulations specifies that the Environmental Report must contain the following information in respect of baseline conditions:

> *"(b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.*
>
> *(c) The environmental characteristics of areas likely to be significantly affected.*
>
> *(d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive."*

A description of the current state of the environment in Ireland, in respect of each of the sustainability topics is provided below. Where appropriate, Geographic Information Systems (GIS) have been used to assist with analysis of this data; maps have been produced to display relevant spatial information and can be seen in Appendix B.

Analysis of baseline information has been carried out to provide an evidence base for current and likely future environmental conditions without the Strategy. Key environmental and sustainability issues for Ireland have also been identified.

Information for this section has been obtained from Government websites such as those of the National Parks & Wildlife Service (NPWS) and the EPA; the 2016 EPA report 'Ireland's Environment' and accompanying website resource; and other documents as referenced.

3.2 Ecology and Nature Conservation

Ireland's Biodiversity Resource

Ireland has a rich diversity of ecosystems and wildlife as it is home to over 31,000 recorded species and supports globally important populations of birds, fish, mammals, invertebrates, plants and fungi. Ireland has 28 species of land mammal, over 400 species of birds, more than 4,000 plant species and over 12,000 species of insect (NPWS, 2020).

Maps showing the key nature conservation designations across Ireland can be seen in Appendix B.

European sites, also known as Natura 2000 sites, are protected sites for flora and fauna designated under the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC). Ireland has:

- 439 Special Areas of Conservation (SACs) covering approximately 1,350,000 ha; and
- 154 Special Protected Areas (SPAs) covering approximately 597,000 ha.

The EC has recently decided to refer Ireland to the Court of Justice of the EU because Ireland failed to designate 154 out of 423 Sites of Community Importance (SCI) as SACs

within the appropriate deadline as well as failing to establish site-specific conservation objectives for 87 sites and conservation measures for any of the 423 sites (EC, 2020).

A total of 45 sites have been designated as Ramsar sites, which are wetlands of significant value for nature (Irish Ramsar Wetlands Committee, 2020). Under the OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland has also committed to establishing Marine Protected Areas (MPA) to protect biodiversity: nineteen of its SACs are MPAs for marine habitats (NWPS, 2020).

Ireland has a number of internationally important habitats representing 59 of those listed in Annex I of the Habitats Directive. Of these, 16 are deemed to be priority habitats at the national level, including limestone pavements, machair, turloughs and active peatlands, whilst the country is relatively rich in bryophytes, algae and lichens. Peat bogs cover approximately 13.7% of land, the majority of which are located in the south-west, west and north of the country as shown on the CORINE 2018 landcover map in Appendix B (EPA, 2018).

Ireland includes important breeding habitat for seabirds, and is particularly important for its breeding populations of manx shearwater (*Puffinus puffinus*) and storm petrel (*Hydrobates pelagicus*). Coastal areas provide important habitats for chough (*Pyrrhocorax pyrrhocorax)* and breeding dunlin (*Calidris alpina*). Ireland's wetlands are an important resource for over 50 species of overwintering migratory birds such as light-bellied brent goose (*Branta bernicla hrota*), black-tailed godwit (*Limosa limosa*), whooper swan (*Cygnus cygnus*), greenland white-fronted goose (*Anser albifrons flavirostris*) and ringed plover (*Charadrius hiaticula*). Blanket bog and upland areas provide habitats for species like merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*). Agricultural areas also represent a share of the SPA network and upland agricultural areas provide habitat for hen harrier (*Circus cyaneus*) while the more intensively farmed coastal lowlands provide habitat for internationally important numbers of swans and geese (NPWS, 2020).

Nationally important areas for wildlife are designated as Natural Heritage Areas (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. To date, 75 raised bogs, mainly in the midlands, have been designated as NHAs, covering approximately 23,000 ha. In addition, 73 blanket bogs, located mostly in western areas, are also designated as NHAs, covering approximately covering 37,000 ha. Furthermore, there are number of proposed NHAs, which were published on a non-statutory basis, but have not yet been statutorily proposed or designated and are afforded limited protection. The pNHAs cover approximately 65,000 ha (NWPS, 2020).

Ireland also has Nature Reserves, which are areas of importance to wildlife, and Refuges for Fauna, which are designated to protect habitats of named species.

High nature value (HNV) is a type of low-intensity farming system which is particularly valuable for wildlife and the natural environment. A recent study mapped the likely distribution of HNV farmland based on established European indicators which identified that higher likelihood of HNV potential was located in the north-west, west and south-west of Ireland (EPA, 2016).

Conservation Status

According to the *Interim Review of the Implementation of the National Biodiversity Action Plan 2017-2021* (Biodiversity Working Group, 2020) the conservation status of 85% of EU protected habitats in Ireland is unfavourable, while 46% are demonstrating ongoing declines in conservation status with peatlands, grassland and some marine habitats a particular concern. For comparison, the overall proportion of protected habitats with an unfavourable conservation status in EU is 72%, showing that Ireland has a higher proportion of sites in unfavourable status than the EU average (European Court of Auditors, 2020).

There are 68 Habitats Directive-listed species in Ireland, of which 8 are described as vagrants. Of the remaining 60 species, 57% are in favourable condition and 30% are in unfavourable condition. While 72% demonstrate stable or improving trends, 15% demonstrate trend of ongoing decline. Population increases and range expansion have been observed for several bat species, marsh fritillary (*Euphydryas aurinia*), otter (*Lutra lutra*) and pine marten (*Martes martes*), however ongoing declines are reported for all whorl snails, freshwater pearl mussel (*Margaritifera margaritifera*), lesser horseshoe bat (*Rhinolophus hipposideros*) and maërl species (DCHG, 2019).

Ireland has undertaken Red List assessments of the threat of extinction of vascular plant, bryophyte and non-marine vertebrate taxa as well as the better known invertebrate groups. Although most are not considered threatened, just over 14% of the taxa were assessed as under threat of extinction (including 30 species of bees, European eel (*Anguilla anguilla*), Arctic char (*Salvelinus alpinus*), and natterjack toad (*Epidalea calamita*)) (DCHG, 2017).

Stocks of Atlantic salmon (*Salmo salar*) have been declining and only 34% of Irish salmon waters are considered to have healthy salmon populations. According to the Marine Institute Stockbook 2018 and Shellfish Stockbook 2018, there are 28 stocks whose biomass levels are below those capable of delivering maximum sustainable yield (MSY), 46 stocks were above levels that could support MSY and 60 were unknown (Biodiversity Working Group, 2020). To avoid overfishing and ensure a sustainable long-term seafood industry, fisheries are managed through the EU Common Fisheries Policy (CFP). This includes for the setting of annual Total Allowable Catches (TAC) for most commercial fish stocks from which national quotas are derived.

In addition, the breeding distributions of bird species that are associated with farmland, such as the curlew (*Numenius arquata*), lapwing (*Vanellus vanellus*) and yellowhammer (*Emberiza citrinella*) have declined substantially over recent decades, with curlew on the brink of local extinction according to survey work in 2015 and 2016 (DCHG, 2017). However, the Curlew Conservation Programme has been running for three years to implement conservation measures in core breeding areas and in 2019 a record high number of breeding pairs and increase in breeding productivity was recorded (Biodiversity Working Group, 2020).

Short term assessments also undertaken for breeding bird populations and a selection of wintering bird populations reported declines of 18% and 52% respectively (Biodiversity Working Group, 2020). The 2013 assessment of the status of 185 regularly occurring bird species placed 37 species on the Birds of Conservation Concern in Ireland Red list, 90 on the Amber list and 58 on the Green list. The number of Red-listed species had

increased by 12 and Amber-listed species by five since the previous review in 2007 (DCHG, 2017). The more recent Countryside Bird Survey (CBS) (Lewis, L. et al., 2019) identified that over an 18-year period, population trend analyses indicate that 47% of species are increasing, 27% of species are stable and approximately 26% are in decline. In terms of seabirds, monitoring data identified that over approximately 16 years, 85% of assessed species were increasing while two were showing stable trends and one was decreasing. However, when compared to approximately 32 year period, 68% species were estimated to have increased, 11% showing stable trends and 21% decreased (Cummins, S. et al., 2019).

Pressures

Agriculture (and to a lesser extent forestry) has been identified as a key contributors to the declines in conservation status described above. *The Status of EU Protected Habitats and Species in Ireland* (DCHG, 2019) reports that over 70% of habitats are being impacted by agricultural practices, including:

- inappropriate grazing regimes (over or undergrazing);
- land abandonment (abandonment of grassland management);
- activities generating diffuse pollution to surface and groundwaters; and
- activities generating air pollution.

In addition, agricultural practices such as inappropriate drainage and inappropriate herbicide and pesticide use are also contributing to the deterioration of habitats.

Blanket bog, alpine heath and wet heath were cited as being particularly vulnerable to air pollution (further information on air pollution such as ammonia emissions is provide in Section 3.7 on Air Quality). Certain forestry practices (e.g. clear-felling) have also been implicated in the decline of some aquatic species such as the freshwater pearl mussel (*Margaritifera margaritifera*).

A feature of the distribution of protected sites in Ireland is such that the burden for their protection falls unequally on different agricultural sectors, with upland and marginal farmers, where farming is often less profitable, having the greatest responsibility for implementation of habitat and species conservation and climate change mitigation.

The recent European Court of Auditors report on *Biodiversity on Farmland* (2020), identified that populations of birds and grassland butterflies, which are good indicators of change in farmland biodiversity, have declined in Europe by more than 30% since 1990. The report concluded that the effect of CAP direct payments on farmland biodiversity is limited and that agricultural intensification remains one of the main causes of biodiversity loss and ecosystem degradation.

Non-agricultural pressures include primarily alien and problematic species and development, construction and use of residential, commercial, industrial and recreational infrastructure and areas.

There are a number of pressures and threats on different bird groups including:

- Terrestrial birds - agriculture and forestry (changes to grazing and grassland management and use of pesticides), development and climate change (Lewis, L. et al., 2019);

- Wintering waterbirds - climate change, energy production (e.g. wind farms), hunting, recreational and other disturbance, shellfish harvesting and aquaculture, as well as afforestation, bycatch, and mixed source water pollution/eutrophication (Lewis, L. et al., 2019); and,
- Seabirds - offshore wind energy developments, climate change, the fishing industry via overfishing or by way of incidental seabird bycatch, mammalian predation, recreational disturbance and plastic waste (Cummins, S. et al. 2019).

In line with global trends, coastal and marine biodiversity is coming under pressure from human activities including nutrient and chemical discharge and through direct physical disturbance and habitat degradation from pollution, litter, man-made noise and light. These pressures are mainly in transitional and coastal waters. Fishing impacts on both pelagic (i.e., water column) and seabed communities, particularly for species with low growth rates, soft substrates or cold water coral reefs, and some areas have been heavily impacted by this activity. There are also concerns about the level of by-catch of birds and marine mammals in certain fisheries (DCHG, 2017).

There are also concerns that increased restrictions on access to UK waters as a result of Brexit may result in displacement of vessels to Irish waters, resulting in additional pressure on fish stocks and general marine biodiversity (DAFM, 2020).

Climate change is also expected to have an increasingly negative impact on habitats, particularly coastal and upland habitats, and various species as well as increasing ocean acidification. The rise in temperatures, changes in precipitation patterns, weather extremes (storms and flooding, sea surges, flash floods) and sea-level rise is predicted to affect the abundance and distribution of some Irish species. Degraded upland habitats are likely to become less resilient to the impacts of climate change (DCHG, 2017). Climate change is also predicted to result in increased spread of invasive species, affecting terrestrial, freshwater and marine ecosystems (DCHG, 2019).

Invasive and non-native species are increasing and species such as the zebra mussel (*Dreissena polymorpha*), grey squirrel (*Sciurus carolinensis*) and Pacific oyster (*Crassostrea gigas*), may displace native species and considerably alter biodiversity, and subsequently, ecosystem processes and services. While to date the majority of invasive species have been plants (including hottentot fig (*Carpobrotus edulis*), giant rhubarb (*Gunnera tinctoria*), and giant hogweed (*Heracleum mantegazzianum*)), in the future invertebrates and vertebrate species may increase (DCHG, 2017). Invasive species are having a greater impact on freshwater and marine species (Biodiversity Working Group, 2020). The direct annual cost of invasive species to Ireland's economy was estimated in 2013 to be over €200 million, but may be higher with the increasing trend of invasive species (DCHG, 2017).

While there is data on protected areas and the threats they are facing, there is a lack of data on the status of biodiversity in other areas used for agriculture which creates difficulty in addressing negative impacts (EPA, 2016).

Policy Response

The *National Biodiversity Action Plan 2017-2021* (DCHG, 2017) was published in 2017 and reiterates Ireland's vision for biodiversity:

> *"That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally."*

The Plan provides a framework of actions towards achieving the seven objectives set out in the second Biodiversity Action Plan (BAP):

1. Mainstream biodiversity into the decision making process across all sectors;
2. Strengthen the knowledge base for conservation, management & sustainable use of biodiversity;
3. Increase awareness & appreciation of biodiversity & ecosystems services;
4. Conserve & restore biodiversity & ecosystem services in the wider countryside;
5. Conserve & restore biodiversity & ecosystem services in the marine environment;
6. Expand & improve on the management of protected areas & species;
7. Strengthen international governance for biodiversity & ecosystem services.

The recent BAP notes that the second Action Plan has had a number of achievements, but that overall a significant proportion of Ireland's biodiversity is still in a vulnerable state.

The National BAP acknowledges the critical role that agriculture, rural development and forestry policies have on delivery of Objective 6 Expand & improve on the management of protected areas & species. A central priority of the Irish Rural Development Plan (RDP) is restoring, preserving and enhancing ecosystems related to agriculture and forestry and agri-environment schemes such as the Green, Low-Carbon, Agri-Environment Scheme (GLAS) and Locally Led Agri-Environment Schemes (LLAES) will continue to be developed and implemented (DCHG, 2017).

The NPWS has published detailed site-specific conservation objectives for 327 SACs and 37 SPAs (NPWS, 2020). The objective of the Habitats Directive is to maintain or restore the favourable conservation status of habitats or species and the conservation objectives define the favourable conservation condition for a particular habitat or species at that site. Some of the below schemes are specifically targeted at SAC/SPA conservation objectives.

Approximately 50,000 farmers participated in the GLAS scheme under the RDP 2014-2020 and as of 2019 approximately 796,000 ha were covered by area based actions. Approximately 23,191 ha of land is covered by the Burren Programme, a locally led Agri-environment climate measure, with 328 participating farmers. Another programme is the Hen Harrier Programme, which is aimed at farmers with land designated for the protection of breeding hen harrier. Currently 57,732 ha is covered by this scheme. The Pearl Mussel Project, a European Innovation Partnership (EIP) for Freshwater Pearl Mussel catchments, covers approximately 21,405 ha of farmland (Biodiversity Working Group, 2020).

Transboundary Considerations

As Ireland shares a boundary with Northern Ireland, there is potential for the Agri-Food Strategy to affect biodiversity and nature conservation in Northern Ireland, in particular designated nature conservation sites near the border or with hydrological connections and mobile species such as birds and bats.

Northern Ireland has a large area of land of nature conservation value, including 17 SPAs, 57 SACs, 21 Ramsar sites, 394 Areas of Special Scientific Interest (ASSIs), 12 National Nature Reserves and a number of MPAs. Some of the designated sites are located on the border with Ireland, including 10 SACs, 4 SPAs, 4 Ramsar sites and a number of ASSIs. A proportion of Natura 2000 sites are in poor condition and approximately 35% of ASSI features are in unfavourable condition, compared to 62% in favourable condition (NIEA and DAERA, 2020).

Northern Ireland's State of the Environment Report (NIEA, 2013) determined that despite increased action to halt biodiversity loss, there has been a steady decline. There has been an overall decline in priority habitats, in particular grasslands, as well as a decline in priority species such as breeding waders. The key pressures on biodiversity were found to be land-use change, particularly agriculture and development, pollution, invasive species and fisheries practices. While the Northern Ireland Breeding Bird Survey suggested an average increase in common bird species between 1994 and 2018, there has been a decrease in wetland bird species (NIEA and DAERA, 2020).

3.3 Socio-Economics

The Census 2016 results show that Ireland's population stood at 4,761,865 in April 2016, an increase of 173,613 (3.8%) since April 2011 (CSO, 2016).

The same census data shows the change of urban and rural population, 2011 to 2016 as shown in Figure 3.1 below. The majority of population change is seen in areas classed as more urban showing people are continuing to move away from the countryside into more built up areas.

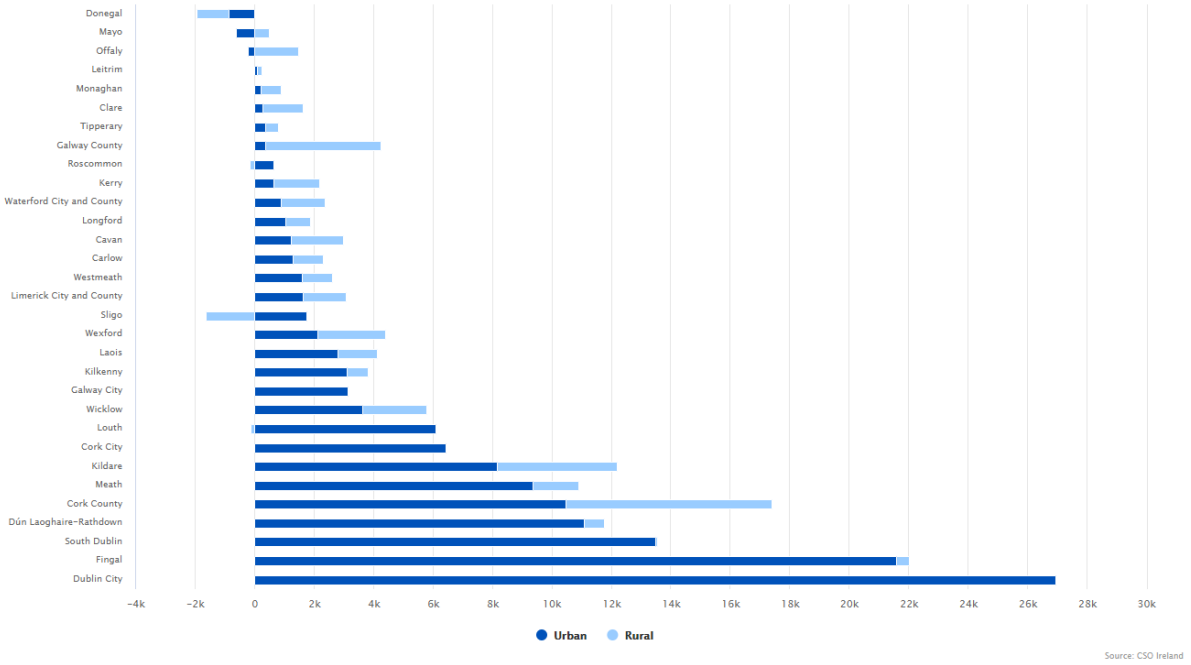

Figure 3.1: Urban and Rural Population Change, Ireland between 2011 and 2016

Figure 3.2 below shows the level of education across Ireland in 2016. The figure shows that amongst the adult population in Ireland a greater proportion of the younger generation have achieved higher education levels.

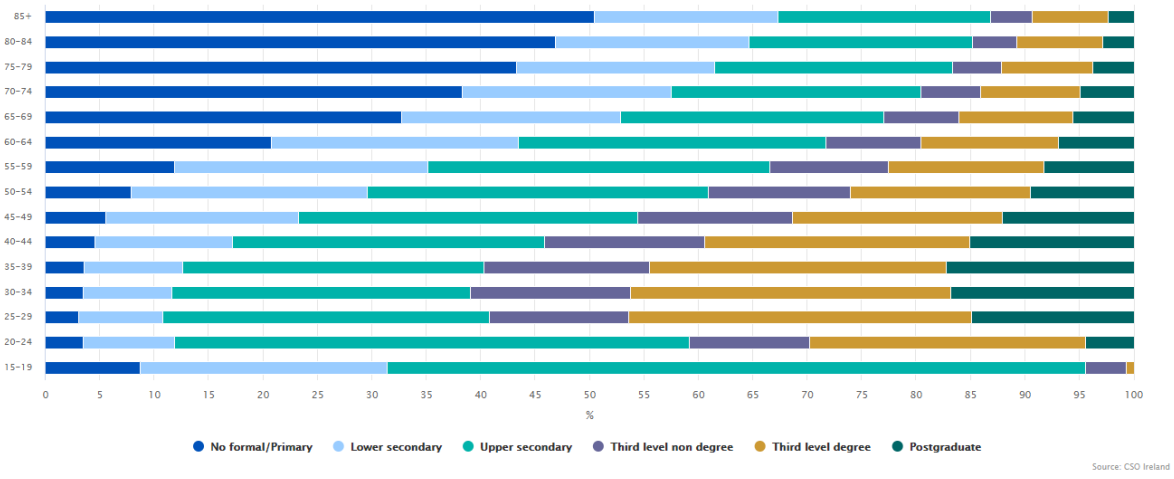

Figure 3.2: Age and Level of Education in Ireland, 2016 (CSO, 2016)

As shown in Table 3.1, in Quarter 1 of 2020, the employment rate for people aged 15-64 years old in Ireland is 69.8% (Ireland Employment Statistics, 2020). The unemployment rate for people of the same age is 4.7%. The number of unemployed persons aged 1574 is currently around 114,400. In percentage terms, this level of unemployment is comparable to other similar European economies.

The effect of the Covid-19 pandemic is likely to be to increase levels of unemployment in the short to medium term particularly amongst younger and lower skilled groups, with the lasting long term impact as yet uncertain. However at the time of writing, this effect is yet to be seen in the available statistics.

Table 3.1: Ireland Employment Statistics, Quarter 1, 2020

Indicator	Standard LFS Methodology (ILO)
Employed persons aged 15 years and over	2,353,500
Employment rate for those aged 15-64 years	69.80%
Unemployed persons aged 15-74 years	114,400
Unemployment rate for those aged 15-74 years	4.70%
In labour force	2,467,900
Not in labour force	1,490,500

Source: CSO, 2020.

The agri-food sector plays a key role in Ireland's economy employing roughly 164,400 people which is approximately 7.1% of total employment in the country. However, outside Dublin and mid-east region the agri-food sector provides between 10% and 14% of total employment emphasising the importance of the agri-food sector in rural and coastal areas. Agri-food product exports were valued at €14.5 billion in 2019 with demand predicted to rise over the next ten years (DAFM, 2019). Demand is expected to reflect a shift towards more sustainable and environmentally aware produce and animal derived products and as such the agri-food industry should be adaptive to the opportunities available to meet such demand. In 2019 the distribution of agri-food and drink exports based on CSO statistics were as follows:

- Dairy products (35%);
- Beef (16%);
- Beverages (12%);
- Pigmeat (6%)
- Fish (4%);
- Cereal and cereal preparation (4%);
- Live animals (3%)
- Forestry (3%)
- Sheepmeat (2%)
- Poultry (2%)

The beef and dairy categories are the largest and account for 27% and 32% of goods output at producer prices respectively.

According to the *Business of Seafood 2019 (*BIM, 2019) the Irish sea food industry was worth €1.22billion in 2019 with approximately 16,150 people directly and indirectly employed within the industry around Ireland's coastline. These areas are often characterised by being relatively remote from other major sources of employment and hence fishing is often disproportionately important to coastal towns and villages.

The 2016 CSO Census data shows how Ireland has an increasing number of people retiring from the workforce as they reach retirement age. As per Table 3.2 below, the largest age group of farm holders across the State is that aged 65 and above. As more of these farm holders look to retire or withdraw from farm operations there is both weaknesses in lost farming knowledge and continuity and opportunities to seek new farming methods.

Table 3.2: Age of Farm Holders in Ireland

Age	Number of Farm Holders 2013	Number of Farm Holders 2016
State wide		
Under 35 years	8,200	7,400
35 - 44 years	22,800	21,400
45 - 54 years	34,800	32,500
55 - 64 years	35,600	34,700
65 years and over	37,700	41,200

Source: CSO, farm surveys 2013 and 2016.

The *Annual Review and Outlook for Agriculture, Food and the Marine 2019* (DAFM, 2019) considers gender diversity in agriculture and notes that in 2018 only 16.4% of workers in the agriculture, forestry and fishing sector were female, although this is an increase from an average of 14.2% between 2000 to 2009. Nevertheless, the percentage of women in agriculture in Ireland is much lower than the EU average of 28%.

In the seafood industry, only approximately 1% of the fisheries workforce and 8% of the aquaculture workforce is female. However approximately 33% of the processing workforce are female (BIM, 2020).

The new *Program for Government Our Shared Future* (Fine Gael, Fianna Fail, Green Party, 2020) aims to address the economic challenges facing Ireland in the coming years. The Programme acknowledges that there will be greater clarity as to the likely economic impact of the Covid-19 pandemic (both domestically and internationally) when Budget 2021 is announced in October 2020. The programme aims to address some of these challenges by stabilising public finances, improving competitiveness, getting people back to work and supporting businesses.

The Programme for Government also focuses on housing healthcare, transport and energy whilst acknowledging that Ireland has a major role to play in combating climate change. The parties commit Ireland to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030, which is a 51% reduction over the decade, with the aim of achieving net zero emissions by 2050.Ireland's rural economy is based

primarily on the SME sector with a variety of strong indigenous businesses. Rural areas exhibit a strong sense of community and local identity as well as a strong developed community infrastructure. Ireland has significant strengths in research, technology, development and innovation and a growing international industry base centred on ICT and life sciences. These, coupled with a strength in marine science and technology, provide the means to enable smart, knowledge-based enterprises to target global markets.

There are problems relating to access to services and public transport frequency and connectivity for rural dwellers, which has subsequent impacts on those who do not own private transport (Department for Education and Skills, 2013). Traverse routes in Ireland suffer from bottlenecks and congestion or slow journey times, and are in need of improvement.

Ecosystems provide provisioning services which assist with the production of food and water, regulating services that help control climate and disease and supporting services that help nutrient cycling and crop pollination. Preventing biodiversity loss and enhancing these networks can therefore positively influence the economic output of Ireland's agri-food strategy giving greater security during production processes.

3.4 Health and Quality of Life

Human Health is a combination of good levels of physical health, mental health and wellbeing (World Health Organisation (WHO), 2020). As of 2016, life expectancy at birth in Ireland is 80 years for males and 83 for females (WHO, 2020). The Irish Health Survey (CSO, 2015) shows 83% of people rate their own health as good or very good whilst 32% have a long-standing illness or health problem.

Mental health illnesses are prevalent in Ireland and the number of people experiencing such problems is expected to increase in the coming years. Approximately 25% of the population are expected to experience mental health challenges in their lifetime and the level of suicide amongst younger age groups is amongst the highest in the EU. Mental health therefore is a growing health, social and economic problem for Ireland.

According to the *Farmers have Hearts Study* which began back in 2007 and was carried out in partnership between the National Centre for Men's Health at IT Carlow, Teagasc, the HSE, the Irish Heart Foundation (IHF) and Glanbia, death rates have been falling in Ireland generally, but farmers show the slowest reduction of any socio-economic group. This could be due to a number of key factors underpinning health inequalities among farmers such as lower education attainment, limited access to health services, rural living conditions, social exclusion, gender and being a 'hard to reach group'. The most recent 2018 report found that from the 868 male farmers who participated in the baseline phase of the study, one in eight (13%) reported experiencing stress 'often' or 'very often'. However, more than one in three farmers (34.9%) scored 'poor' or 'below average' on the self-administered short well-being scale. This supports the idea that farming can bring a high level of stress and isolation which can lead to poor physical and mental health for farmers (The Irish Farmers Association (IFA), 2020). The IFA have distributed literature advising farmers on the need for improved healthier diets, an increase in the level of exercise they undertake and a greater awareness of how stress can affect them and their loved ones.

Other studies such as the Teagasc National Farm Survey reported high levels of stress amongst farmers, identifying three-quarters of dairy farmers, 57% of cattle and tillage farmers and 37% of sheep farms reported elevated stress levels in 2018. The main factors contributing to this were weather conditions, workload and financial pressure (Dillon, E. et al., 2018).There are around 1,200 premature deaths per year attributable to the effects of poor air quality in Ireland (EPA, 2016) with the agricultural industry being a contributor of particulate matter (PM) in ambient air. Further information on air quality is provided in Section 3.7.As seen in the 2016 CSO Census data, the population density of Ireland is unevenly spread across the country. Higher population numbers are generally found to the east and in and around main urban settlements. Some areas to the west can be seen as having the lowest density of population in the country. As these areas to the west are some of the most rural areas, they may be targeted for increased agricultural use but a smaller number of people in the area may result in a lack of local labour availability to sustain such expansion, resulting in increased use of private transport.

The Healthy Ireland Survey (Department of Health, 2019) identified that 37% of the surveyed population are overweight and 23% are obese. However, among those aged 65 and over, 74% are overweight or obese. There is also a higher proportion of overweight or obese people in deprived areas. Access to high quality, healthy food is one factor in maintaining physical health across the population and primary agriculture is the first stage in providing fresh produce.

Similarly, safe drinking water is essential to maintaining good physical health and must be clear of microorganisms and substances that could endanger health. There are a large number of public and private water sources across the country reflecting the dispersed settlement pattern and standards/regulations should be maintained to ensure herbicides, pesticides, fertilisers and other contaminants do not enter the water table.

Impacts to mental health and wellbeing can arise from damage to the environment, be that noise or odour issues or the loss/negative changes to open space. Research has shown that environments that encourage people to spend more time in natural settings can improve mental health and wellbeing. Green and blue spaces should therefore be maintained to provide a full range of sustainability benefits whilst remaining accessible for all. Preventing biodiversity loss links to both physical and intangible benefits for agriculture and human health. Balanced ecosystems can help to support farming in relation to soil, crop and flood management. For people, areas of high biodiversity can encourage going outdoors for physical exercise which improves cardiovascular health and as noted above can also benefit mental health and wellbeing. The healthy Ireland Survey identified that only 46% of surveyed respondents were achieving the minimum level of activity recommended by the National Guidelines, although this had increased from 44% in 2015 (Department of Health, 2019).

3.5 Soil and Land Use

Ireland is one of the most geologically diverse regions in the world relative to its land area and has substantial mineral deposits. Bedrock geology has a major influence on landform and provides the parent material from which soils are created. The nature of the bedrock determines the nature and chemistry of the soil formed, which strongly affects the natural vegetation and the type of agriculture that it can sustain.

A healthy soil is a vital component in creating and maintaining a balanced and productive natural ecosystem that provides a medium for the growth of plant and animal life. According to the European Commission, it is estimated that approximately one-quarter of all living species live in soils (bacteria, fungi, invertebrates etc.), all of which play a crucial role in the regulation of the atmosphere as well as water quality and quantity. Furthermore, as soil is biologically active, soil organic matter aids and improves water and air quality and provides carbon sequestration alleviating issues associated with climate change. As a finite resource that supports a range of critical functions, soil must be protected and managed with caution.

Land Use

CORINE (Coordination of Information on the Environment) is a Pan-European land use and land cover (LULC) mapping programme established by the European Community and is the main source of national-scale LULC information. The initiative was devised in order to compile geo-spatial environmental information for European countries to allow for standardisation and comparison (DAFM, 2014a). The most recent assessment shows that agriculture is the primary LULC type within Ireland (67.6% national land cover), followed by wetlands (14.9%) and forestry (9.5%, although other sources show forestry covering 11%). Work is underway by the Ordnance Survey of Ireland and the EPA to develop a high-resolution map of Ireland that will eventually lead to the development of a national land use map, to be used in reporting under the LULUCF Regulations (Regulation (EU) 841/2018) (EPA, 2020). In 2018, agriculture remains the dominant national land cover type at 67.6%. While this represents a small decrease in total since the last assessment from 2012, there is an overall downward trend with a reduction of 8,230 ha since 1990 (EPA, 2020). When breaking down agricultural land use in Ireland further, the main agricultural class is pasture (55.1% national land cover), that is interspersed with areas of natural vegetation (6.9%), and arable land (4.5%). Since 2000, the main change in land cover has been from agriculture to forestry (10% increase) and a further 15% increase in artificial area due to increases in urban, commercial and industrial development, transport infrastructure, and recreational facilities (EEA, 2015). A balance between placing a demand on soils for agricultural intensification objectives set in Food Wise 2025 and ‘green’, environment focused objectives of the Common Agricultural Policy must be met in order to encourage sustainable increase in agriculture productivity.

Soil

Soil types vary significantly throughout the Ireland; in the south east Ireland has well drained, highly fertile and highly productive soils (e.g. acid brown earths), while other regions (north west and south west) are covered by blanket peats that have limited use for agricultural production. Some peatland soils in the country are protected under the Habitats Directive and NHA designation, but many may be vulnerable to intensification of use with consequential impacts (amongst others) on carbon sequestration.

The drainage and fertility characteristics of soils largely determine their use and value from an agricultural perspective. For example, grey brown earths are well drained and have high fertility, while peats are poorly drained and have poor fertility. Wet soil conditions have been identified as the most important factor limiting the utilisation of

grazing grass on Irish farms (Creighton et al., 2011). In such lands, there is likely to be an enhancement of farm drainage schemes in order to increase stock carrying capacities (DAFM, 2014b).

Pressures

The soil in Ireland is considered to be in good condition and is relatively rich in soil organic matter, especially wetter soils and blanket and basin peats. However, Ireland's soil is fragile due to damage from a number of factors, including settlement patterns, generation of slurry and sludge, nutrient loss from soil to water, ammonia emissions to the atmosphere and soil organic carbon losses. Adverse effects can include reduced soil quality and quantity, such as erosion, loss of organic matter, compaction, salinisation, landslides and flooding, soil sealing, loss of biodiversity and contamination (Dublin and Mid-East Regional Authorities, 2010).

Land drainage, reclamation for agricultural purposes and peat extraction have all impacted peatlands. Only 10% of the original raised bog and 28% of the original blanket peatlands resource are suitable for conservation (as natural peatlands). The loss of peatland also has an effect on climate change prevents carbon sequestration and reduces the available carbon stock as, when drained, peat oxidises and CO2 is released (EPA, 2020).

Policy Response

Few EU Member States have specific legislation for the protection of soil resources, but a *Soil Thematic Strategy* (COM(2006) 231) was produced in 2006 with the objective to protect soils across the EU. The proposal for a Soil Framework Directive (EC, 2006) was withdrawn in 2014, but the Seventh Environment Action Programme (EC, 2020) recognises soil degradation as a serious challenge and provides that by 2020 land is managed sustainably, soil is adequately protected and the remediation of contaminated sites is well underway. It specifically commits the EU and Member States to increasing efforts to reduce soil erosion and increase soil organic matter.

Regulation of soils falls under Cross Compliance under the basic-payment scheme of the Common Agricultural Policy and, where project-related, under EIA Regulation for On-Farm Development 2011 (SI 456 of 2011). Under the basic-payment scheme, farmers are obliged to comply with Good Agricultural and Environmental Conditions (GAEC) which cover the topics of minimum soil cover (GAEC 4), soil erosion (GAEC 5) and maintenance of soil organic matter (GAEC 6).

The EPA and Teagasc have developed an Irish Soil Information system to inform decision makers in terms of protecting the soil resource.

3.6 Water

Ireland's Water Resource and Condition

Ireland has a water network comprising 84,800 km of mapped river channels, 12,000 lakes, 514 groundwater bodies, 844 km^2 of estuaries and 13,325 km^2 of coastal waters (EPA, 2019). Abstraction of water from the groundwater system for primary production is negligible due to high rainfall and the relative absence of irrigation systems.

Water quality is assessed by the EPA and the DHLGH through local authorities against Water Framework Directive (WFD) standards. Overall classification utilises a combination of biological, chemical and hydromorphological quality elements including macroinvertebrates, pH (measure of acidity or alkalinity of a solution) and ammonia to assign status of river quality in one of five classes; high, good, moderate, poor or bad. The key aim of the WFD is for all water bodies to achieve good ecological and chemical status (Teagasc, 2017). The original target year to meet this was 2015 but further deadlines are set for 2021 (end of 2nd River Basin Management Cycle) and 2027 (end of 3rd River Basin Management Cycle) (River Basin Management Plan, 2018). As a result of this slow progress, the government is adopting a more collaborative approach to facilitate improvements in water quality and as agriculture is the most frequent significant pressure in water bodies that are not meeting their WFD targets, It was decided that the EPA would identify priority catchments where the status of the water is at risk of falling. In this instance, ASSAP will focus its resources on addressing the agricultural pressures and where one is identified will offer famers a free visit from an ASSAP advisor (Teagasc, 2017).

The most recent EPA's *Water Quality in Ireland 2013-2018* report (EPA, 2019) sets out the Ireland's achievements with respect to WFD targets.

Overall

Approximately 52.8% of surface water bodies (rivers, lakes, transitional, coastal) assessed meet either good or high ecological status. Overall this is a net 4.4% decline in the quality of surface water bodies since the last assessment period 2010-2015. In particular is the decline in high status water bodies, from 12.9% in the assessment period 2007-2009 to 8.5% in the current assessment period.

Agricultural intensification is acknowledged as a contributor to localised water quality issues where they exist (pers comm. EPA).

Rivers

Approximately 53% of river water bodies are in good or high ecological status. The report stated that 301 river water bodies have improved in ecological status, 429 declined and 1,612 remained unchanged, resulting in a net decline of 128 (or 5.5%) river water bodies meeting WFD targets since 2010-2015. This decline is marked by a drop in the number of high status river water bodies, which have declined by a third since the baseline assessment in 2007-2009 and an increase in the number of poor status river water bodies by a third in the same time frame. The number of seriously polluted bad status river water bodies has increased to nine having reached a low of six water bodies in the last assessment period 2010-2015. Between 2013 and 2018, over a quarter of monitored river sites increased phosphorus and nitrogen concentrations with over a third (35.8%) of

monitored river sites failing to meet the environmental quality standard for phosphorus of 0.035 mg/l P in the same period (EPA, 2020).

However, across Europe, 41.5% of river water bodies have good or high ecological status, leaving Ireland's river water bodies in better ecological condition than the European average.

Lakes

In Ireland, 50.5% of lake water bodies are good or high ecological status. When compared to the last assessment period (2010-2015), there has been a 4.3% improvement in the number of lake water bodies meeting this criteria. However, overall lake status has seen little change when compared to the baseline assessment (2007-2009) and Irish lake water quality lags the EU average (53.6% at high or good status).

Despite the improvement in ecological status noted above, trend analysis over the latest assessment period (2013-2018) has identified total phosphorus concentration has increased in over a quarter of lakes that were analysed. For the period 2013-2018, over a quarter (28.8%) of lakes had increasing trends of total phosphorus concentration that is significantly higher than the 11.3% increase of lakes in the period 2006-2015. The environmental quality standard for total phosphorus is 0.025 mg/l P, meaning almost a third of lakes failed to meet the standard (EPA, 2020). As phosphorous is a key contributor to algal blooms in lakes, higher concentrations observed now could be a precursor to a decline in future ecological status.

Transitional, Coastal (Marine) and Canal

Transitional water bodies are the worst performing type of water body with only 38% in good or high ecological status. This figure is still above the European average which is at 30.2%. Conversely, 80% of coastal water bodies are in good or high ecological status, the highest for any surface water category. This is considerably higher than the European average of 54.6%, making Ireland's coastal waters some of the best quality in Europe. The quality of Ireland's canal system has remained stable since the last assessment (87%), with 87% (13 out of 15) in good or better ecological condition.

After many years of reductions, loadings of phosphorus and nitrogen to the marine environment have started to increase. Phosphorus loads have increased by 31% (329 tonnes) and nitrogen by 16% (8,806 tonnes) since the lowest three-year average value in 2012-2014. Just under a quarter (23.3% of estuaries and coastal waters failed the assessment criteria for dissolved inorganic nitrogen (EPA, 2020).

Groundwater

Groundwater provides between 20% and 25% of drinking water supplies in Ireland, although in some areas this is much higher, particularly in some rural areas not served by public or group water schemes (Department of the Environment and Local Government, EPA and Geological Survey of Ireland (GSI), 1999). Approximately 92% of groundwater bodies were found to be in good chemical and quantitative status, accounting for 98% of the country by area. This is a 1% improvement in the number of water bodies in good chemical and quantitative status when compared with the previous assessment period (2010-2015) and is higher than the European average of 74%.

Flooding

Flooding within the River Shannon catchment in late December 2015 into New Year 2016 caused severe impacts on local communities and businesses. The event highlighted the need for greater investment, thought and debate into how the risks of flooding can be mitigated, managed and alleviated in Ireland. The *Flood Risk Management – Climate Change Sectoral Adaption Plan* notes that significant work has been undertaken since to assess the level of risk associated with flooding in Ireland, through the Preliminary Flood Risk Assessment (PFRA) which acts as a national screening for flood risk under current conditions at a national level to identify the areas potentially significant flood risk (Office of Public Works, 2019). In addition, the Catchment Flood Risk Assessment and Management (CFRAM) Programme has been created to provide direction in Ireland's long-term flood risk management and mitigation plan. The CFRAM also aims to deliver core components of the National Food Policy and meeting requirements of the EU Foods Directive (EPA Catchments Unit, 2019). The aim of the programme is to map and assess the existing and potential future flood risk on inland watercourses and coastlines in Ireland in order to identify suitable, cost-effective and sustainable flood mitigation options (EPA, 2016). As the CFRAM Programme covers the whole of Ireland, it is split into more local River Basin Districts and each district has a flood risk management plan. More recent development of the programme lead to a consideration of the potential for an increase in flood risk from the effects of climate change.

Climate change is likely to have an impact on groundwater flooding, affecting the severity, frequency and duration of flood events. The GWClimate project aims to establish a long-term strategic groundwater level monitoring network and develop an approach to evaluating the impacts of climate change on groundwater (GSI, 2020).

Pressures

According to the EPA (2019), the main significant pressures impacting water quality in Ireland include agriculture, wastewater discharges, physical impacts on habitats including excess fine sediment and pressures from forestry activities. Agriculture covers almost 70% of the land area of Ireland and diffuse pollution from agriculture is the most frequently observed significant pressure on water bodies (EC, 2020). The main pollutants are nutrients (nitrogen and phosphorus), sediment, pesticides and faecal indicator organisms. Elevated phosphorus levels have been recorded in various parts of Ireland including areas in north west, north east, east coast and south east (EPA, 2019). Monitored nitrogen losses to water have increased since 2013 and elevated nitrogen levels are the main issue for estuaries and coastal waters and are currently of concern in the south and south east of Ireland (EPA, 2019). Figure 3.3 illustrates the main pressures placed on Ireland's aquatic environment.

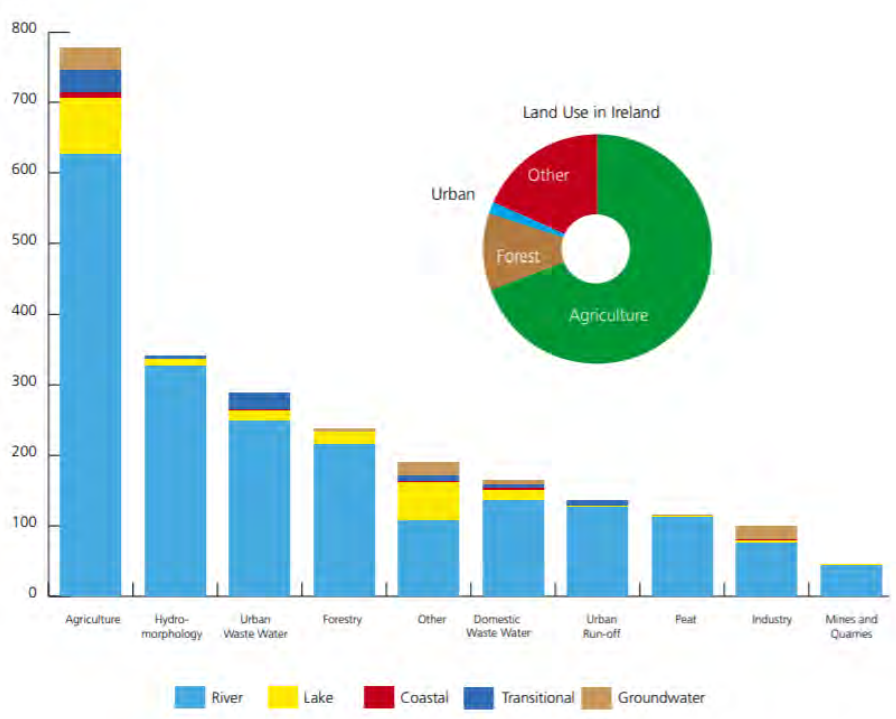

Figure 3.3: A Breakdown of the Main Significant Pressures Placed on Ireland's Aquatic Environment (EPA, 2019)

Agricultural losses to water bodies arise from point sources on farms (e.g. slurry stores), diffuse sources such as fertiliser or pesticide spreading or direct emissions from livestock (especially if they have access to a watercourse). On the back of Food Harvest 2020, Foodwise 2025 and the removal of milk quotas, the Irish agriculture sector has expanded in recent years in terms of area under management and number of livestock units. The increase in the number of dairy cows (typically an intensive activity) is particularly notable at 27% between 2013 and 2018 (EPA, 2020). This increase, and the increase in sales of nitrogen fertiliser correlate with the increase in nitrogen losses to water observed above, and the geographies associated with elevated nutrient levels are typically those which have seen the largest expansions in livestock number.

Groundwater is mainly impacted by point source contamination such as farmyard wastes (mainly silage effluent and soiled water), septic tank effluent, sinking streams, leakages, spillages, pesticides used for non-agricultural purposes and leachate from waste disposal sites. While point sources have caused most of the contamination problems identified to-date, there is evidence that diffuse sources, such as spreading of fertilizers (organic and inorganic) and pesticides, are increasingly impacting on groundwater (Department of the Environment and Local Government, EPA and GSI, 1999).

Ireland's offshore marine waters currently show no evidence of nutrient pollution but it could become problematic if nutrient loading continues to increase. Ireland's marine environment faces different pressures, mainly as a result of climate change. With marine water temperatures and sea levels continue to increase, increases in storm frequency

and pH continuing to decrease, Ireland's coast and coastal cities could potentially be at serious risk.

Policy Response

Measures to reduce pollution have been successfully implemented through the Water Services Investment Programme, the Nitrates Action Programme (under the Nitrates Directive) and River Basin Management Plans. All public bodies are required to coordinate their policies and operations to maintain the good status of water bodies that are currently unpolluted and to improve polluted water bodies to good status in accordance with agreed WFD cycle deadlines, i.e. 2021, 2027.

The assessment of water quality in Ireland shows signs of encouragement, such as improvements in the ecological status of lakes and groundwater with Irish coastal waters maintaining their status as some of the best in Europe. However, the continuing decline of rivers' ecological health, increasing concentrations of nutrients in surface water bodies and an overall net decline in water quality since 2013 is concerning. With only 52.8% of water bodies achieving the required minimum 'good status' and with the number of sites achieving the 'high quality status' falling, delivery on the WFD will prove a challenge.

3.7 Air Quality

Overview

The Clean Air for Europe Directive requires that member states designate "Zones" for the purpose of managing air quality. Ireland has defined four zones within the Air Quality Standards Regulations 2011 (as amended). The main areas defined in each zone are:

Zone A: Dublin

Zone B: Cork

Zone C: Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise.

Zone D: Rural Ireland.

The EPA coordinates and manages the monitoring programme for ambient air quality. A nationwide network of 57 monitoring stations measures levels of air pollutants in each zone (EPA, 2019).

Pollutants Other than Ammonia

Air quality in Ireland is good compared to other EU member states and monitoring stations show that Ireland continues to meet the EU air quality standards for most atmospheric pollutants as shown in Table 3.1.

Table 3.3: Key Pollutants Measured in 2018

Pollutant	Number of Stations where Monitored 2018	EU Legal Limit Values	WHO Air Quality Guideline (AQG) Level or EEA Reference Level
PM_{10}	26	No exceedance	Above WHO AQG level at 9 of the 26 stations
$PM_{2.5}$	20	No exceedance	Above WHO AQG at 1 of the 20 stations
NO_2	17	No exceedance	Above WHO hourly AQG level at 1 station
Ozone	15	No exceedance	Above WHO AQG level at 13 stations
PAH	4	No exceedance	Above EEA reference level at 3 stations
Dioxins	37	No exceedance	n/a
All other pollutants		No exceedance	Below AQG levels

Source: EPA, 2019

However, there are some localised air quality issues associated with these pollutants. Nitrogen dioxide (NO_2) levels are close to the specified EU limit values for air quality in traffic-impacted areas of Dublin and Cork. In some smaller towns and villages particulate matter (PM) levels are also elevated from combustion of solid fuel due to the lack of alternative fuel such as gas.

Wood, upland and peat burning is emerging as a potentially significant contributor to polycyclic aromatic hydrocarbons (PAH) and PM levels, along with a wide variety of other solid fuel products that are on the market (EPA, 2016). In addition, when compared to the more stringent WHO guidelines and EEA reference level values, ozone, PM and PAH are pollutants of concern in the short term, while NO_2 is projected to increase due to increase in road traffic (EPA, 2016).

As a party to the United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution (CLRTAP), Ireland annually reports emission data for a wide range of air pollutants and other substances released into the atmosphere. The EPA's latest *Informative Inventory Report 2020* estimated an overall reduction in emissions between 1990 and 2018 of sulphur dioxide (SO_2), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs), carbon monoxide (CO),

Particulate Matter (PM_{10}, $PM_{2.5}$), polycyclic aromatic hydrocarbons (PAH), total suspended particulates (TSP), black carbon (BC), priority metals, other metals (apart from copper), dioxins and furans (PCDD/F), hexachlorobenzene (HCB) and polychlorinated biphenyls (PCB).

However, although overall these emissions have been decreasing, for some of the emissions, the agricultural contribution has been rising rather than decreasing (Table 3.2).

Table 3.4: Emissions from the Agricultural Sector

Pollutant	Percentage of Emissions from Agriculture Out of Total Emissions in 2018	Percentage Increase in Emission from Agriculture Since 1990
NO_x	34.9%	6.1%
NMVOCs	39.4%	17.6%
PM_{10}	31.7%	4.1%
$PM_{2.5}$	7.4%	7.1%
TSP	18.9%	9.1%

Source: EPA, 2020

The inventory report also predicted that NO_x emission would not meet the 2020 emission reduction target set by the National Emissions Ceiling Directive (NECD) (2016/2284), although they are predicted to meet the 2030 emission reduction target. The report predicts that NMVOCs would not meet either the 2020 or the 2030 emission reduction targets. NO_x and NMVOCs emissions have been non-compliant with the emission ceilings from the previous NECD (2001/81/EC) for the period 2010 to 2018 (EPA, 2020).

Ammonia

Modelled ammonia emissions are estimated to have increased by approximately 7.9% between 1990 and 2018 (EPA, 2020). This tallies with the findings from physical monitoring carried out between June 2013 and July 2014 which reported an annual average of 1.72 µg/m^3 across 25 sites as compared to the 1.45 µg/m^3 average of a 1999-2000 study (Doyle, B. et al, 2017). This observed mean is above the 1 µg/m^3 critical level set to protect lichens and bryophytes but less than the 3 µg/m^3 critical level set to protect higher plants. The increase of atmospheric ammonia results in increased nitrogen deposition, which may impact on sensitive ecosystems such as peatlands, semi-natural grasslands, lakes and forests. A recent study estimated that nitrogen deposition in Irish grasslands ranged from 2 to 22 kg/ha per year and that 35% of mapped acid grasslands exceeded the empirical critical load of 15 kg/ha per year.

Ammonia concentrations were found to be higher in areas with higher agricultural intensity such as the north-east midlands and the south-east of the country. The station with the lowest mean concentration (0.48 µg/m^3) was Mace Head, Connemara, County Galway, while the highest mean (2.96 µg/m^3) was at Leiter, County Cavan (Doyle, B. et al, 2017).

Ammonia emissions are almost entirely driven by the agricultural sector. Figure 3.1 shows the contributing activities, including manure management (46.7%), organic fertilisers (29.8%), urine and dung deposited by grazing animals (12.2%) and inorganic fertilisers applied to soil (10.5%). Dairy cattle and non-dairy cattle account for the major part of the agriculture sector's ammonia emissions at approximately 38.2%.

As mentioned previously, the implementation of Food Harvest 2020, Foodwise 2025 and the removal of milk quotas, has resulted in an expansion of the Irish agriculture sector in terms of area under management and number of livestock units. There has been an increase in dairy numbers of 27% between 2013 and 2018 as well as an increase of 37% in synthetic fertiliser use (EPA, 2020).

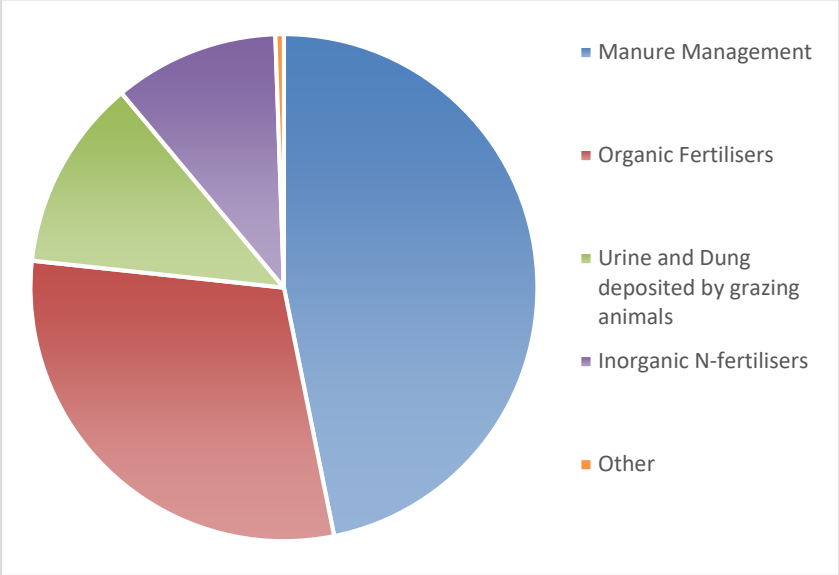

Figure 3.4: Contribution to Ammonia Emissions in 2018 (EPA, 2020)

Since 2016, ammonia emissions have exceeded the NECD national total ammonia emission ceiling of 116 kilotonnes (EPA, 2020). New emission reduction targets apply from 2020. Ammonia emissions present a significant challenge to meeting the NECD 2020 emission reduction target of 1% compared to 2005 levels and the 2030 emission reduction target of 5% compared to 2005. The emission projections in the EPA's Informative Inventory Report 2019 are based on projected activity data provided by Teagasc, taking into account the Food Wise 2025 objectives. Two emission projections are provided and both, including the 'With Additional Measures' projection (based on Teagasc Marginal Abatement Cost Curve) indicate non-compliance with both the 2020 and 2030 reduction targets (EPA, 2020).

Policy Response

A *Code of Good Agricultural Practice for reducing Ammonia Emissions from Agriculture* was published in November 2019 to help farmers identify appropriate actions to reduce ammonia emissions from their farms (DAFM, 2019). Ammonia emissions have also been considered in the *Nitrates Derogation Review 2019* which recommended a number of

measures to help reduce ammonia including adoption of a farm scale liming programme and use of low emission slurry spreading (LESS) equipment (Nitrates Expert Group, 2019).

Transboundary Considerations

As Ireland shares a land boundary with Northern Ireland there is potential for transboundary air quality impacts. Air quality in Northern Ireland is generally improving, however, ammonia emissions have increased by 8.7% between 2001 and 2018. Ammonia emissions from livestock have increased by 10.6% since 2001, and approximately 90% of emissions in 2018 are estimated to come from livestock (NIEA and DAERA, 2020). Approximately 89.3% of Northern Ireland is estimated to receive ammonia concentrations above the critical level set to protect lichens and bryophytes (1 µg/m^3) and approximately 22.8% receives ammonia concentration above the level set to protect higher plants (3 µg/m^3) (Rowe, E. et al., 2019).

3.8 Climate Change

Ireland's total national greenhouse gas (GHG) emissions were estimated to be 60.93 million tonnes carbon dioxide equivalent (MtCO2e) in 2018 (EPA, 2020). This is down from 2005 when emissions were close to 70 MtCO2e, mainly driven by increased energy efficiency and increased share of renewables in energy generation.

Agriculture is the largest sectoral contributor with 20.63 MtCO2e (34% of Ireland's total greenhouse emissions) in 2018, slightly higher than their 1990 and 2005 values (20.40 and 19.80 MtCO2e). Breaking down the agricultural sector's 34% of total emissions further, in 2018, 57.8% of emissions came from enteric fermentation, 29.5% from agricultural soils, 9.9% from manure management and 2.3% from liming. Emissions are projected to increase as animal numbers continue to increase.

The slight increase in total agricultural emissions reflects the increase in livestock numbers under Food Harvest 2020, FoodWise 2025 and the removal of milk quotas. This has caused dairy cow numbers to increase by 27% (contributing to methane emissions) and synthetic fertiliser use to increase by 37% (contributing to nitrous oxide emissions) in the period 2013-2018. This also suggests that the increase in agricultural output envisaged in FoodWise 2025 will provide a significant challenge for Ireland in meeting future emissions targets, reiterating the idea that any future expansion of output will have to be carried out whilst maintaining environmental sustainability; particularly as agriculture comprises one-third of national emissions and 44% of the non-Emission Trading Sectors (non-ETS) (*Lanigan, G.J. and Donnellan, T. et al.*, 2019).

Despite individual economic sectors within Ireland not having specific GHG emission targets at this time (July 2020), the fact that the latest data shows the agricultural sector accounting for such a large percentage of non-ETS emissions suggests that the it has a significant role to play in the national solution in terms of absolute reductions in GHG.

Under the EU's Effort Sharing Decision (ESD) Ireland has to reduce GHG emissions outside the EU's emission trading scheme by 20% by 2020 as compared with 2005 levels. It is noted however that agricultural GHG emissions increased by approximately 14.8% in the period 2011 and 2018 (DAFM, 2020). Ireland exceeded its 2018 annual limit set

under the EU's Effort Sharing Decision (ESD) by 5.59 MtCO2e and is set to miss the 2020 target. Although agriculture is the largest contributing factor, there have also been increases in other sectors (in particular transport) (EPA, 2020).

Beyond 2020, the Paris Agreement forged at COP21, provides further impetus for strong action on climate change mitigation in Ireland and internationally. Ireland is expected to contribute to Paris Agreement via the Nationally Determined Commitment which commits to a 40% reduction in EU-wide emissions by 2030 (compared to 1990 levels). Ireland has a target of 30% reduction in the non-Emissions Trading System (ETS) sector by 2030 relative to 2005 levels (Government of Ireland, 2019).

Adaptation

The impacts of climate change are likely to impact Ireland in many ways. Agriculture is highly susceptible to disruption due to climate change and extreme weather events such as prolonged periods of rainfall, drought and snow, whilst flood risk is also of particular concern for infrastructure (e.g. roads, railways, sewage treatment works, electricity substations and hospitals).

Changing climatic conditions may increase the threat from pests and diseases (particularly in agricultural and forest environments), as well as from invasive non-native species. The food and drinks industry is also susceptible to climate change impacts due to extreme weather events which have the potential to effect the quantity and quality of water availability. Extreme weather events also have the potential to effect transportation as well as damage caused by flooding. The *Agriculture, Forest and Seafood - Climate Change Sectoral Adaption Plan* identifies the impacts of climate change on the sector and recognises the need to support and foster sustainable growth (*DAFM, 2019).*

Temperature records for Ireland show a mean increase of 0.8°C for the last 110 years, with an increase in the number of warm days (temperatures over 20°C) and a decrease in the number of annual frost days (temperatures below 0°C). In addition annual national rainfall has increased by approximately 600 mm, which is an increase of approximately 5% in the period 1981-2010 compared to 1961-1990. The marine environment will also be affected with the Irish Sea being observed to increase by 0.6°C per decade since 1994 and sea levels rising by approximately 4-6 cm since the early 1990s. Climate change impacts are expected to increase, with a mean annual temperature increase of 1-1.6°C by mid-century, as well as decrease of rainfall in spring and summer with an increase of heavy rainfall in winter and autumn (DAFM, 2018).

While climate change impacts are projected to increase, it is hard to predict the scale and extent of its impacts on Ireland; this is due in part to the inherent variability and turbulent nature of the climate system. Therefore, it is crucial that climate change adaption is integrated into as many policies, measures and schemes in the agri-food sector so as the industry as a whole can evolve and keep pace with the consequences of a changing climate.

3.9 Material Assets

Ireland has significant natural resources such as water, carbon rich soils and high quality grassland, whilst natural resources are also available for renewable energy generation.

The Low Carboniferous carbonate rocks of the Irish Midland are host to one of the great orefields of the world. Ireland is ranked first in the world for zinc discovered per square kilometre and second with respect to lead (EPA, 2016).

The soils in Ireland have evolved slowly after long periods of time and are therefore considered as a finite resource. Soil is a complex resource made of many components and is fundamental to terrestrial ecosystems and agriculture, consequently it is valued as a highly valuable natural resource for Ireland. Further information on soils is provided in Section 3.5.

Ireland is seen as one of the best practice examples for how it deals with its waste and is currently meeting five of its eight EU Recovery and Recycling targets which includes the Packaging and Packaging Waste Directive, Landfill Directive, Waste Framework Directive and efficiencies towards recycling of batteries. Three of these targets are categorised as not met and they relate to recycling vehicles at their end of life, recycling of waste electrical and electronic equipment and recycling of batteries.

The current and future focus for Ireland's waste is prevention, reuse, maximising recycling and using waste as a fuel. This circular economy approach will lend itself to reducing the use of resources and thus the amount of waste being handled across the country. As part of this, Ireland has reduced the number of landfills for the disposal of municipal waste from 18 to 6 since 2012. This does bring a challenge however as the majority of these are in private ownership and therefore there is risk that if these companies fail the State could be responsible for any mitigation required as a result. Landfills and waste facilities are also subject to a high number of odour complaints which has the potential to impact on the health of the local people.

The *Towards A Resource Efficient Ireland* (EPA, 2020) publication contains objectives relating to increasing efficiencies in the use of water, material and natural resources in business. Agri-food businesses are subject to these objectives and can help to improve the overall effectiveness of resource use.

There has been an increase in number/capacity of anaerobic digestion (AD) facilities and segregated food waste at recycling centres. There was an increase in the quantity of waste accepted for treatment at composting and AD plants of 11% (EPA, 2016). This waste is being turned into biofuels which is helping to reduce the use of fossil fuels therefore helping to reduce GHG emissions. Approximately 500,000 tonnes of animal by products are produced in Ireland per annum which generates approximately 27,000 tonnes of biofuel. An increase in agricultural production will generate additional waste products however Ireland is well placed to accept and re-use this waste. This in turn will lead to an increase in the availability of sustainable fuels across Ireland. An increase in fuel security will help underpin economic growth and further development in the agri-food industry (Department of Communications, Climate Action and Environment (DCCAE), 2014).

3.10 Cultural Heritage

Cultural heritage in Ireland ranges from sites of local and regional importance to those of national and global significance. Archaeological sites in Ireland are legally protected from

unauthorised interference or damage by the National Monuments Acts and Amendments 1930-1994.

There are two heritage assets in Ireland inscribed on the World Heritage List: the Archaeological Ensemble of the Brú Na Bóinne (Europe's largest and most important concentration of prehistoric megalithic art, which straddles the border of the Counties of Louth and Meath) and Skellig Michael (an early monastic complex on an island off the southwest coast) (DCHG, 2020).

In addition, Ireland has almost 1,000 individual monuments at 768 locations under state care, comprising individual or groups of monuments ranging in age from the Neolithic period to the 20th Century. The Record of Monument and Places (RMP) is a statutory list of all known archaeological monuments, comprising over 140,000. A map showing key cultural heritage designations across Ireland can be seen in Appendix B.

The Archaeological Survey of Ireland has recorded 142,891 sites within the RMP. The RMP shows that the existence of above and below-ground archaeological heritage is spread relatively evenly across the country, with a slightly higher density in the west. The lower quality farming land in the west of Ireland is said to have helped preserve a higher level of above and below ground monuments. The organic environment of waterlogged bogs and peatland also help to preserve below ground artefacts. Underwater archaeology is recorded by the Underwater Archaeology Unit which has recorded over 18,000 shipwrecks (DCHG, 2019).

The National Inventory of Architectural Heritage (NIAH) is a state record which identifies, records and evaluates the built heritage of Ireland. Although properties listed on the NIAH are not statutorily protected, it provides a resource for the identification of structures and sites that should be placed in the Record of Protected Structures (RPS) which is managed by local authorities. Collection of buildings and sites of historic, architectural or cultural value are also protected as part of an Architectural Conservation Area (ACA) designated by local authorities.

The Economic Value of Ireland's Historic Environment report (Ecorys and Fitzpatrick Associates, 2011) identified that the historic environment of Ireland supports 25,000 FTE jobs, however, this number would increase to 40,000 if the indirect jobs are accounted for. Overall the historic environment represents 1% of Ireland's gross value added (GVA) and 2% of overall employment. The report found that Ireland's historic environment is estimated to account for €1.5 billion annually to GVA, with almost half of this coming through tourism. The importance of cultural heritage to tourism is acknowledged in Ireland's policy statement on tourism: *People, Place and Policy: Growing Tourism to 2025* (Department of Transport, Tourism and Sport, 2015).

A report by University College Dublin (2006) revealed a number of major drivers of change facing Irish archaeology. those listed include:

1. Urban change, road building and other developments, including one-off houses;
2. Growing demands for public access to upland and wetland areas;
3. Further concentration and intensification of commercial farming, especially in the more productive agricultural areas of Munster and south Leinster;

4. The replacement of traditional rural landscapes with scrub encroachment, and extensive afforestation with commercial coniferous species, particularly in western counties;
5. The relative marginalisation of the built heritage within national and EU environmental conservation measures; and
6. Exploitation of peatlands.

Similarly, the Heritage Council (2007) revealed various challenges for Irish archaeology. These included a need to increase public participation and enjoyment of Ireland's archaeological heritage; ensure development-related work be undertaken within an agreed research framework; and ensure that results of archaeological work be published. An issue for rural areas across Ireland has been the on-going and gradual decline in archaeological monuments in the countryside and degradation of field monuments (Dublin and Mid-East Regional Authorities, 2010).

The DCHG is currently developing Ireland's new national heritage plan; Heritage Ireland 2030, which is due to be published later in 2020. Responses from the public consultation on the new plan identified that concerns over built heritage including tourism, derelict structures, demolition of structures, lack of care of historic structures, decline in traditional crafts (DCHG, 2020).

Climate change is also seen a big threat to Ireland's heritage. The Built & Archaeological Heritage Climate Change Sectoral Adaption Plan (DCHG, 2019) has recently been published, which acknowledges the vulnerability of Ireland's built and archaeological heritage to impacts of climate change and includes actions to build adaptive capacity and reduce vulnerability as well as identify and capitalise on various potential opportunities in the sector.

3.11 Landscape

Ireland occupies over 70,000 square kilometres, of which about four million hectares are agricultural land, the remainder being mountain, peat bog, forest and settlements. Ireland has approximately 2,797 km length of coast (Department of Arts, Heritage and the Gaeltacht, 2011). Agriculture accounts for approximately 67% of the land cover, of which approximately 55% is pasture.

Ireland has attractive, largely unspoilt and high quality rural landscapes, numerous protected area designations and major rural tourism attractions. A map showing landscape designations across Ireland can be seen in Appendix B. There are six areas in the Ireland that have been designated as National Parks due to the national importance of the landscape. The landscapes of these protected areas vary dramatically, from the Burren's shattered limestone rock garden (County Clare), to the Wicklow Mountains, blanketed with heath and bog (County Wicklow). Landscapes are also protected at the local level by designations such as 'Areas of High Amenity' and 'Protected Views' through development plans.

Pressures

According to the Landscape Character Assessment (LCA) in Ireland report (Heritage Council, 2006), LCAs have been carried out for 19 of the 29 counties in Ireland, however, only 15 have the correct level of detail. Surveys of Heritage Officers, planners and

consultants showed most people did not find the LCA guidelines helpful and almost all respondents thought they needed to be rewritten. Nevertheless they have been used widely in planning in Ireland and are most commonly used in wind development applications, as well as for afforestation proposals.

The report raises concerns over the unprecedented urbanisation and landscape fragmentation experienced in Ireland due to extensive new housing, major roads and other infrastructure projects, and the affect this may have on Ireland's tourist economy, because scenery is the single most important reason why people visit and holiday in Ireland.

The Heritage Council's Proposals for Ireland's Landscapes (2010) also raised concerns over the number of state bodies which influence Ireland's landscapes at a variety of scales, resulting in a fragmented approach to landscape management. There is a lack of uniformity between counties in terms of the approach to the designation of landscapes and protected views, which leads to inconsistency in their management.

The report acknowledges that farmers play a critical role as landscape managers, a role that should be recognised and supported more effectively. Agricultural landscapes are hugely significant cultural reference points, and their multifunctional nature means they deliver a range of services.

Policy Response

The National Landscape Strategy was published in 2015 in line with Ireland's obligations under the European Landscape Convention. The strategy acknowledges that "*the Irish landscape is an integral component of our surroundings and well-being, a visual expression of the diversity of our shared cultural and natural heritage, and intrinsic to our identity as an island nation*" (Department of Arts, Heritage and the Gaeltacht, 2015). The Strategy recognises the contribution that landscape makes to the well-being of society, environment and economy. It includes six core objectives including:

1. Recognise landscapes in law;
2. Develop a National Landscape Character Assessment;
3. Develop landscape policies;
4. Increase landscape awareness;
5. Identity education, research and training needs; and
6. Strengthen public participation.

3.12 Natural Capital

This section looks at the inter-relationship between the preceding sustainability topics and links the environmental, social and economic issues in a more integrated way, and emphasises that a good quality environment is essential to continuing social and economic prosperity. There are a number of inter-relationships between the sustainability topics such as dependence of biodiversity on landscape, water, soil, air and climatic factors or the relationship between water quality with air and soil quality. Human economic and social well-being is also tied to these natural assets as well as cultural heritage and material assets.

The Natural Capital approach is a good way of taking into account these inter-relationships as it provides a way to understand the value of natural resources and our dependence on them for our economic, social and health. According to the Irish Forum on Natural Capital:

> *"Natural capital is defined as the stock of natural assets (air, water, land, habitats) that provide goods and services which benefit society, the economy and business. Natural capital provides goods and critical "ecosystem services" essential for a functioning economy and society."*

There are a number of studies being carried out to identify the value of natural assets. The EPA commissioned a study to document the ecosystem services (e.g. provisioning, regulating and maintenance, and cultural services) provided by freshwater systems in Ireland (Feeley, H.B. et al, 2017). Freshwater systems were determined to have high importance for a number of services such as:

- Provision of water;
- Mediation of waste, toxics and other nuisances;
- Mediation of flows;
- Maintenance of physical, chemical and biological conditions;
- Physical and intellectual interaction with biota, ecosystems and landscapes; and
- Other cultural outputs.

Another study commissioned by the EPA (Norton, D. et al, 2018) looked at the value of the Irish marine ecosystems, identifying that the economic value included:

- Recreational services - €1.6 billion;
- Fisheries and aquaculture - €664 million;
- Carbon absorption services - €819 million;
- Waste assimilation services - €317 million;
- Scientific and educational services - €11.5 million;
- Coastal defence services - €11.5 million;
- Seaweed harvesting - €4 million; and
- Aesthetic services added to value of housing stock near shore - €68 million.

In addition, in terms of recreation and tourism it is estimated that freshwater and marine angling supports over 11,000 jobs and was worth €836 million to the Irish economy (Inland Fisheries Ireland, 2015).

The Pollival project estimated that the annual value of animal pollination to home-produced crops in Ireland was estimated to be €20–59 million per year. It was also estimated that the agri-food industry is at risk from pollinator losses overseas. If all of the animal-pollinated crops that are imported are taken into account, the estimated value of global pollinators to Ireland rises by an additional €153–843 million per year. The study however concluded that pollinators and pollination services also have many other non-market and non-use values for human health, well-being and society, and that more work was required to define this value (Stout, J.C. et al., 2019).

DAFM has commissioned a project on valuing agricultural catchments ecosystems services which aims to create an inventory of the ecosystem services provided by farmers in agricultural catchments and place economic values on these services. Agricultural

ecosystems supply market services such as food, fibres, fuels and other non-market services vital to human well-being (Irish Forum on Natural Capital, 2020).

3.13 Key Environmental and Sustainability Issues and Likely Future Trends

In 2012 the Irish Government launched the new sustainable development framework to identify and prioritise policy areas and mechanisms where sustainable measures will add value to the lives of current and future generations. The framework set out clear objectives, defines timelines and allocates key responsibilities. The project aims to promote the green economy as part of the economic recovery and produce a framework for the coherent approach to policy and sustainable development.

In September 2015, 193 UN Member States, including Ireland, adopted the Sustainable Development Goals (SDGs) to 'end poverty, protect the planet and ensure prosperity for all' as part of the new 2030 Agenda for Sustainable Development - Transforming our World. The 17 SDGs cover the three dimensions of sustainable development; economic growth, social inclusion and the protection of the environment. Though voluntary and therefore not legally binding, countries have pledged to achieve the Goals by 2030.

Ireland's current policy in relation to the Goals, the *Sustainable Development Goals National Implementation Plan 2018-2020* (DCCAE, 2018) sets out the role of Government in implementing the SDGs here at home and supporting countries around the world to do the same.

A 2007 survey carried out in Ireland by the Heritage Council into public attitudes on the environmental and heritage found that 92% of respondents felt more should be done to protect the Irish countryside and 70% felt that access to heritage and the environment improves their quality of life.

When asked what their preferences for spending additional tax revenue on the environment would be (out of 8 categories), 29% opted for restoration of canals and rivers, 22% for safeguarding and improving coastal landscapes, and 12% for protection and improvement of habitats. Cultural heritage assets and attractive landscapes were deemed to be less important. A survey carried out in 2015 of the public's awareness and understanding of Irish heritage found that 93% of respondents felt that protecting Irish heritage was very or fairly important (Heritage Council, 2015).

A survey conducted by the EU in 2014 found that approximately 56% of the survey respondents in Ireland felt that protecting the environment was very important, 38% felt that it was fairly important and 6% felt that it was not very or not at all important. The survey found that the environmental issue of most concern to the public in Ireland was water pollution, followed by waste, air pollution, the impact on health of chemicals used in everyday products and shortage of drinking water.

An assessment carried out in 2016 by the EPA identified the following key environmental actions for Ireland:

- "*Environment and Health & Wellbeing: Recognition of the benefits of a good quality environment to health and wellbeing;*

- *Climate Change: Accelerate mitigation actions to reduce greenhouse gas emissions and implement adaption measures to increase our resilience in dealing with adverse climate change;*
- *Implementation of Legislation: Improve the tracking of plans and policies and the implementation of environmental legislation to protect the environment;*
- *Restore & Protect Water Quality: Implement measures that achieve ongoing improvements in the environmental status of water bodies from source to the sea;*
- *Sustainable Economic Activities: Integrate resource efficiency and environmental sustainability ideas and performance accounting across all economic sectors;*
- *Nature & Wild Places: Protect pristine and wild paces that act as biodiversity hubs, contribute to health and wellbeing and provide sustainable tourism opportunities;*
- *Community Engagement: Inform, engage and support communities in the protection and improvement of the environment*."

From analysis of the baseline data and consultations carried out to date, the key sustainability issues facing Ireland and relevant to the policy area of the Agri-Food Strategy are identified to be:

- **Ecology and Nature Conservation:**
  - Unfavourable condition of habitats and species in protected sites due to unsustainable agricultural, and fishing practices;
  - Continuing declines in species and habitats within protected areas;
  - Continuing decline in species and habitats outside of protected areas;
  - Threats facing areas outside of protected areas;
  - Potential impacts of climate change; and
  - Increasing problems of pests, diseases and invasive species.
- **Socio-economic;**
  - Risk to reputation of Ireland and farmers as a food producing nation with strong environmental credentials; and
  - Balance between supporting the viability of SME producer businesses, with managing the potential environmental impact of agricultural intensification and unsustainable fishing.
- **Health and Quality of Life;**
  - Air quality impacts on health relating to agricultural emissions including ammonia and particulates;
  - High levels of obesity, particularly among the older population; and
  - High levels of mental health illnesses amongst the population; more specifically it has been found that farming can bring about a high level of stress and isolation, subsequently leading to poor physical and mental health for those working in the sector.
- **Soil and Land Use:**
  - Increasing pressure on soils from settlement patterns, generation of slurry and sludge, nutrient loss from soil to water, ammonia emissions to the atmosphere and soil organic carbon losses; and
  - Ireland's extensive peatland exists in a degraded state due to land drainage, reclamation for agricultural purposes and peat extraction.

- **Water:**
  - Increased trends in ammonia and phosphate pollution, much of which is linked to agricultural activity; and
  - Risk of increased flooding due to climate change.
- **Air Quality:**
  - Increasing ammonia emissions from agriculture and non-compliance with NECD emission targets;
  - Increasing NOx and NMVOC emissions from agriculture and non-compliance with the NECD emission targets; and
  - Challenge in meeting more stringent WHO and EEA reference guidelines.
- **Climate Change:**
  - Increase of GHG emissions from agricultural sector with emissions projected to rise;
  - Risk to farmers and producers due to extreme weather events and climate breakdown; and
  - Increasingly frequent and severe weather events such as flooding are disrupting infrastructure and agriculture.
- **Material Assets:**
  - None identified.
- **Historic Environment and Landscape:**
  - Effect of development, public access, intensive farming, extensive afforestation and exploitation of peatlands;
  - Vulnerability of built and archaeological heritage to impacts of climate change; and
  - Landscapes have been affected by housing and infrastructure development, agricultural intensification, forestry and decline/ loss of natural and cultural features.
- **Natural Capital:**
  - Understanding of the non-monetary value of natural assets; including the ability of smaller farmers to receive benefits for ecosystem services provided; and
  - Ireland is also susceptible to causing or being affected by transboundary effects with Northern Ireland, particularly in relation to water bodies, biodiversity, landscape and climate, and for activities taking place in coastal and border areas.

3.14 Information Gaps

As indicated by the baseline section, a wealth of existing data exists about the state of Ireland's environment. This is necessarily focused on national or regional levels and therefore it is acknowledged that the large-scale trends discussed may not in every case fully represent sub-regional circumstances.

The information available does not allow for the specific effects of the predecessor strategies to be isolated from the observed general trends, this is therefore identified as an information gap for the SEA process. Cumulative effects of the predecessor programmes, in combination with those of the 2030 Strategy will be taken into account at the Environmental Reporting stage where applicable.

4 SEA FRAMEWORK

4.1 SEA Objectives

The purpose of the SEA Objectives is to ensure that the assessment process is transparent and robust and that the review of the Strategy areas considers and addresses potential environmental effects. SEA Objectives (including more detailed sub-objectives) have been set for each of the ten sustainability topics outlined in Section 2.5.

The SEA Objectives are deemed to be appropriate based on the other relevant plans and programmes, baseline conditions and potential impacts identified in Ireland and Northern Ireland (as described in the preceding chapters), but may change as the assessment process develops.

The proposed SEA Objectives are detailed in Table 4.1 below.

Table 4.1: SEA Objectives

SEA Objective	Sub-objective (Will the Strategy…?)
1. Ecology and Nature Conservation – Protect, restore and support Ireland's unique biodiversity assets.	a. Maintain and enhance internationally and nationally designated sites, specifically SPAs, SACs, Ramsar sites and Natural Heritage Areas. b. Maintain and restore habitats, species and sites. c. Support uptake of biodiversity measures through agri-environment schemes d. Prevent, minimise or address the spread of invasive species
2. Socio-Economics – Reduce deprivation and improve social cohesion of the community	a. Improve accessibility to education, employment and community facilities/services b. Reduce deprivation and inequality c. Support the economic viability of primary producers and others agri-food sector businesses
3. Health and Quality of Life – Improve health and quality of life	a. Improve long-term health and wellbeing of primary producers and others employed in the sector. b. Maximise opportunities for the agri-food sector to support recreational activities and access to the countryside
4. Soil and Land Use – Protect and enhance soil quality	a. Safeguard and improve the highest quality soil and agricultural land b. Reduce soil pollution, degradation and erosion c. Support increased uptake of sustainable management of soil resources and fertility
5. Water – Protect, enhance and manage water resources and flood risk	a. Protect water resources from pollution, particulate nitrate and phosphorous pollution with no further deterioration of water quality status. b. Support the Water Framework Directive achievement of good ecological status by 2027. c. Protect and improve the quality of marine waters, particularly those involved in seafood growing and fishing. d) Minimise exposure to flood risk and droughts

SEA Objective	Sub-objective (Will the Strategy…?)
6. Air Quality – Reduce air pollution and ensure continued improvements to air quality	a. Support Ireland in its requirement to achieve the NECD thresholds for NOx, SO_2, NH_3, NMVOC, $PM_{2.5}$.
7. Climate Change – Support national objectives to cut absolute greenhouse gas emissions and adapt to its predicted effects	a. Support the agri-food sector in reducing its GHG footprint per unit of output, b. Improve the climate change resilience and adaption capacity of the sector, c. Support land management practices that protect and capture carbon, particularly from peatlands and forests.
8. Material Assets – Conserve natural resources and reduce waste production	a. Safeguard natural resources (including minerals, forestry and peatland) and minimise unsustainable use, b. Increase recycling rates and re-use of materials.
9. Cultural Heritage – Protect, enhance and manage Ireland's rich archaeological and cultural heritage	a. Preserve and enhance designated and non-designated built heritage b. Preserve and enhance designated and non-designated archaeological sites and areas, including all National Monuments
10. Landscape – Protect, enhance and manage the character and quality of Ireland's distinctive landscape and seascape	a. Maintain and support farming and marine harvesting practices that maintain and enhance the scenic landscape b. Maintain and enhance designated sites, including Ireland's six National Parks and two World Heritage Sites.
11. Natural Capital- To support an agri-food sector that continues to deliver wider natural capital benefits including carbon sequestration, protection from flooding and access to the countryside.	a. Preserve and enhance the ability of an area to provide services such as carbon sequestration and flood resilience. b. Improve knowledge and understanding of and connection with the natural environment. c. Support agri-food based tourism and recreation.

5 ALTERNATIVES AND SCOPE OF THE SEA

5.1 Consideration of Alternatives

Consideration of alternatives is a key feature of the SEA process as defined by the SEA Directive and the SEA Regulations. In practical terms, it refers to possible alternative mechanisms for delivering the goals of the Agri-Food Strategy, and the assessment of the impacts of each of these options against the SEA objectives.

The recommended approach to consideration of Alternatives is addressed in the EPA Research Report; *Developing and Assessing Alternatives in Strategic Environmental Assessment* (EPA, 2015).

The development of reasonable alternatives to the Agri-Food Strategy is being addressed predominantly through the 2030 Committee, and with reference to the previous 2025 Food Wise SEA process.

5.2 Reasonable Alternatives Considered

Strategy Context

The agri-food sector in Ireland is extremely diverse ranging from sole trader, subsistence-oriented producers to multi-national processor and retail businesses. Similarly the range of producer-and processor-based activities range widely in nature, extent and location across the marine and terrestrial sectors.

As at the previous strategy period it was also recognised by the committee that agriculture both at primary production and processing level is limited in its capacity to respond quickly, being dependent on biological processes to grow crops and rear animals. It is also significantly dependent on external factors such as weather, and variable growing conditions across the country.

The Strategy is therefore not intended to provide a prescriptive plan for the sector, it instead represents a strategic framework for the sector as a whole and within which support and the future direction for the sector should be framed.

There is also a desire to build on the 2025 Food Wise Strategy approach, recognising its successes and limitations to create a stronger strategy for the period to 2030. As a sector, rather than government driven strategy a key aspect of this throughout different implementation periods has been allowing for public and industry perceptions on strategy performance to be reflected in subsequent implementation periods.

This is addressed through the public consultation on the 2030 strategy, conducted in 2019.

These responses (Q5) indicated that only 18% of respondents agreed or strongly agreed that Foodwise 2025 was *"delivering on its vision of thriving primary producers and agri-food businesses at the heart of vibrant communities across the country".* However here was general support for continuation of the similar themes from Food Wise; Q6 asked if "*the five themes in Food Wise 2025 (human capital, competitiveness, market*

development, innovation and environmental sustainability) should continue to feature in the next 10 year strategy".

In response, 67% of respondents indicated that they agreed or strongly agreed, with only 20% indicating that they disagreed or strongly disagreed.

Q7 asked respondents "*if these five themes are to continue in the next strategy, please rank them in order of their importance (1 being most important, 5 being least important)".*

In response, the most selected 1st choice answer was 'Environmental Sustainability', ranked as most important by 52% of respondents and second most important by a further 23%. 'Human Capital' was selected as the 2nd most popular answer, selected as 1st choice by 21% of respondents and as 2nd choice by a further 48%.

Q8 asked respondents to "*rank the seven contributions of the primary sector (farmers and fishers) in our society (1 being most important and 7 being least important)."*

In response, the top three weighted responses were in descending order of rank:

- Ensuring a supply of safe, healthy and diversified food;
- Protecting biodiversity and water quality; and
- Addressing climate change.

Q9 asked respondents to "*rank the following eight orders of priority for the next 10 year strategy to address at primary production level (1 being most important and 8 being least important)*":

In response, the top three weighted responses were in descending order of rank:

- Climate change mitigation and adaption;
- Protection and improvement of biodiversity; and
- Water and air quality improvements.

Q12 asked respondents to rank five objectives in order of priority for the next 10 year strategy to address at processing level (1 being most important, 5 being least important). Of the objectives provided "*Environmental sustainability (including climate change mitigation)"* was ranked 1 by 56% of respondents and ranked 2 by a further 18%.

Reasonable Alternatives

The public consultation indicates a clear support for the 2030 Strategy to place an increased emphasis on environmental sustainability, particularly climate change resilience and protection of biodiversity and water quality. However, some support was also expressed for continuation of the 2025 Food Wise priorities either in full or part.

In this context; the reasonable alternatives to be considered by the SEA are proposed as follows. These are still under review by the 2030 Strategy Committee so may be subject to change.

Alternative 1: Base Case

The base case is assumed to comprise continuation of the 2025 Food Wise priorities unedited into the 2030 Strategy.

Alternative 2: Greater Emphasis on Environmental Sustainability

Alternative 2 assumes that the focus of the strategy be skewed more heavily towards the promotion of greater environmental sustainability in food production and processing, including consideration of the circular bioeconomy, in comparison with 2025 Food Wise.

Alternative 3: Greater Emphasis on Production and Value

Alternative 3 assumes that the focus of the strategy be skewed more heavily towards increased production and output compared to 2025 Food Wise.

Alternative 4: Blended Approach

Alternative 4 assumes a blended approach between Alternatives 2 and 3, taking elements of both improved environmental sustainability and production to produce a balanced plan.

The SEA will further consider these alternatives, together with other options proposed by the Committee and consultees and will only assess the reasonable alternatives that emerge during this process.

5.3 Potential Significant Effects of the Agri-Food Strategy

Agriculture (and to a lesser extent forestry) has been identified as a key contributor to the decline of the conservation status of designated nature conservation sites. As land managers, the agricultural sector has a considerable impact on ecology and nature conservation within and outside of designated nature conservation sites, with the ability to improve or cause deterioration of habitats depending on what farming practices are used. The seafood industry also has a big impact on fish stocks and the marine environment.

The 2030 Agri-Food Strategy therefore has potential to result in either positive or adverse effects on ecology and nature conservation.

The agricultural sector also has a considerable impact on soils, land use and landscape, particularly as agriculture accounts for 67.6% of the land use in Ireland.

Depending on the actions of the 2030 Agri-Food Strategy there is potential for either positive or adverse effects on soils, land use and landscape.

Emissions from the agricultural sector have been increasing, in particular ammonia emissions, which have exceeded the national total ammonia emission ceiling since 2016 and are projected to be non-compliant with the 2020 and 2030 emission reduction targets.

The agricultural sector contributes to approximately 99% of total ammonia emissions. In addition, GHG emissions from the agricultural sector have also increased and are projected to continue to increase. Agriculture is the largest sectoral contributor to GHG emissions in Ireland, accounting for 34% of the total emissions in 2018. The 2030 Agri-Food Strategy has the ability to influence this situation, positively or negatively.

Agriculture is also the most frequently observed significant pressure on water bodies, in particular due to nutrient pollution (nitrogen and phosphorus). The 2030 Agri-Food Strategy has the potential to influence farming practices and may result in an increase or decrease of pollutants, which would have positive or adverse effects on air quality, climate change and water bodies. By impacting on climate change, agriculture also

indirectly affects a number of sustainability topics which are affected by climate change such as biodiversity, water (flooding), cultural heritage and material assets (infrastructure).

The agri-food sector also has an impact on socio-economics and health and well-being. The agri-food sector provides employment for approximately 7.7% of total employment in Ireland and between 10% and 14% outside of Dublin and the mid-east region. High quality healthy food contributes to health and well-being, while pollutants from agriculture such as PM has an adverse effect human health.

Also key in respect of the scope of the Strategy is the physical and mental health of people working in the sectors, and the viability of SME producer and processor businesses.

5.4 Scope of the SEA

The scoping process has revealed that due to the likelihood of the Agri-Food Strategy having uncertain or adverse effects on the environment, and/or because key environmental and sustainability issues have been identified in Ireland, the following sustainability topics should be carried forward to the environmental assessment stage of the SEA process:

- Ecology and Nature Conservation;
- Socio-economics;
- Health and Quality of Life;
- Soil and Land Use;
- Water;
- Air Quality;
- Climate Change;
- Material Assets;
- Cultural Heritage;
- Landscape; and
- Natural Capital.

6 NEXT STEPS

6.1 Consulting on the Scope of SEA

As stated in section 2.2 of this report, the SEA guides produced by the Government of Ireland in 2004 and other European jurisdictions set out a multi stage process for carrying out SEA. As was revealed in Table 2.1, consulting on the scope of SEA comes at the end of Stage A.

The SEA Directive requires authorities with "environmental responsibilities" the statutory Environmental Authorities) to be consulted on the scope and level of detail of the information which must be included in the Environmental Report (Article 5(4)). The Directive does not require full consultation with the public or bodies other than statutory Environmental Authorities until the Environmental Report on the draft plan or programme is finalised.

In Ireland, the statutory Environmental Authorities are:

- the EPA;
- the DHLGH;
- the DCCAE;
- the DCHG; and
- the DAFM.

This Scoping Report has been issued to the relevant statutory Environmental Authorities on behalf of the DAFM. Due to the possibility of transboundary effects, this Scoping Report has also been issued to the Northern Ireland Environment Agency (NIEA).

Statutory Environmental Authorities must provide a view, once consulted, within four weeks. This Scoping Report has also been published on the DAFM website (for information only).

Full public consultation will be taken on the Environmental Report, which will be duly informed by the Scoping consultation responses.

6.2 Stage B: Developing and Refining Alternatives and Assessing Effects

This stage of the SEA process, the second of five main stages, involves the identification and evaluation of the likely significant effects on the environment of implementing the Agri-Food Strategy and its reasonable alternatives. This will be carried out in three stages:

- Prediction of the adverse, beneficial, neutral and uncertain effects of the alternatives and the 'zero option' (the likely evolution of the environment without implementation of the Agri-Food Strategy) on the environment and natural capital. The development and refining of realistic strategic alternative approaches will be carried out in consultation with DAFM throughout the development of the Strategy. The reasons for selecting the alternatives dealt with, including the chosen option, will be outlined in the Environmental Report, with reference to their likely environmental impacts.

- Prediction of the adverse, beneficial, neutral and uncertain effects of the Strategy on the environment (i.e. biodiversity, flora and fauna (including Natura 2000 sites); population and human health; water; air; climate factors; material assets; cultural heritage; landscape; and the inter-relationship between these), in light of the baseline conditions identified in the Scoping Report. This will be carried out by way of a matrix assessment (Agri-Food Strategy measures measured against SEA Objectives, and also against natural capital services). Any in-combination effects with other relevant plans or programmes will also be identified.
- Evaluation of the likely adverse or uncertain effects identified in the above assessments to determine their significance, and assist in the refinement of the Strategy. This will be done using a more detailed and descriptive matrix assessment, and will include consideration of short, medium or long-term effects, permanent or temporary effects, secondary, cumulative or synergistic effects, and transboundary effects.

6.3 Stage C: Preparing the Draft Environmental Report

Stage B of the SEA process will culminate in the production of the Draft Environmental Report (Stage C). The Draft Environmental Report will be structured similarly to this Scoping Report, and will be as required by the SEA Directive and the implementing Regulations. The proposed structure of the Draft Environmental Report is as follows:

- Outline of contents, comments received on the Scoping Report, SEA objectives and relationship with other plans and programmes;
- Environmental protection objectives that are relevant to the Strategy, and a description of how these have been accounted for in the preparation of the document;
- Description of the current state of the environment, likely future trends in the absence of the Strategy, and key environmental and sustainability issues facing Ireland;
- Consideration of Alternatives;
- Matrix assessment of the Strategy measures against the SEA objectives and determination of likely significant effects;
- Schedule of mitigation measures aimed at avoiding, reducing or offsetting any potentially significant environmental effects;
- Acknowledgement of data gaps or technical deficiencies;
- Suggestions of measures to monitor the environmental effects of implementation of the Strategy, including success or otherwise of mitigation measures; and
- Non-technical summary (NTS).

6.4 Stage D: Consultation and Decision Making

The Draft Environmental Report (including NTS) will be presented for public and statutory consultation during the same eight week period as the draft Agri-Food Strategy. The statutory Environmental Authority for Ireland is the EPA, along with DHLGH, DAFM, DCCAE and DCHG.

If transboundary effects are thought likely, the Draft Environmental Report will also be issued to the relevant statutory Environmental Authority in Northern Ireland; NIEA. Members of the public likely to participate in SEA consultation are those affected or likely

to be affected by, or having an interest in the decision-making, including relevant non-governmental organisations, such as those promoting environmental protection.

The purpose of this stage is to give the public and the statutory Environmental Authorities an opportunity to express their opinions on the findings of the Draft Environmental Report, and to use it as a reference point in commenting on the Agri-Food Strategy. In line with the Ireland SEA Regulations, DAFM must take account of the Draft Environmental Report and of any opinions which are expressed upon it as it prepares the Strategy for adoption. Therefore, comments received from the EPA, members of the public and other stakeholders during the consultation process will be reviewed to determine their relevance. These will be addressed in the final Environmental Report where necessary by means of an appendix containing consultation responses and details of how they have been accounted for. The final Environmental Report must be taken into account in the final published Strategy.

Once the Strategy has been adopted, an SEA Post-Adoption Statement will be produced to provide information on how the Environmental Report and consultees' opinions were taken into account in deciding the final form of the published Strategy.

6.5 Stage E: Monitoring Implementation of the Programme

The SEA Directive requires DAFM, as the Managing Authority, to monitor significant environmental effects of implementing the Agri-Food Strategy. This must be done in such a way as to also identify unforeseen adverse effects and to take appropriate remedial action.

If significant effects are identified, a monitoring programme will be proposed and incorporated into the SEA Post-Adoption Statement so that the actual impacts of the Strategy can be evaluated. Monitoring should commence as soon as the Strategy is adopted, with annual reporting carried out for the operational life. It may be necessary to revise the monitoring programme periodically so that it takes account of new methods and increased understanding of the baseline environment.

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APPENDIX A: REVIEW OF OTHER PLANS, PROGRAMMES AND ENVIRONMENTAL PROTECTION OBJECTIVES

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
Republic of Ireland		
DAFM (2012) Harnessing Our Ocean Wealth: An Integrated Marine Plan for Ireland	The Plan aims to support an integrated system of policy and programme planning for marine affairs in Ireland. Its vision is to provide a healthy ecosystem by protecting/conserving rich marine biodiversity and ecosystems, managing the living and non-living resources in harmony with the ecosystem and implementing/complying with environmental legislation. The plan outlines three main goals: 1. Thriving Maritime Economy 2. Healthy Ecosystems 3. Engaging with the Sea	The Plan's integrated approach to marine and coastal planning and licensing will influence recommendations under the AFS related to maximising the potential for Ireland's ocean economy; managing resources effectively and sustainably; managing potential conflicts; and ensuring harmonisation with coastal/terrestrial planning.
DAFM (2015) National Strategic Plan for Sustainable Aquaculture Development (NSPA)	The Plan aims to promote a sustainable and competitive aquaculture sector, where production will grow according to market and consumer demand and in balance with nature and society. Summary of actions within this Plan: • Aiming for Growth • Knowledge, Innovation and Technology • Ensuring Sustainability • Coordinated Spatial Planning • Aquaculture Licensing	The NSPA will influence recommendations or strategic priorities within the AFS that relate to expanding the raw material base for seafood; enhancing the aquaculture industry's structure and skills; optimising product added-value, export markets and environmental sustainability. However, the impact of any expansion in the aquaculture sector could impact on the aquatic environment and will need to be considered in combination with aquaculture elements of the AFS.
DAHG (2015) A National Landscape Strategy for Ireland 2015-2025	The National Landscape Strategy will be used to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing the landscape while positively managing its change. It will provide a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of	The plan references agriculture in relation to encouraging the inclusion of landscape categories in established award schemes such as those in agriculture, and those linked to enhancing landscape education and research through agriculture.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	supporting actions. The objectives of the National Landscape Strategy are to: • implement the European Landscape Convention by integrating landscape into our approach to sustainable development; • establish and embed a public process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape; • provide a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local level, together with civil society, to protect, manage and properly plan through high quality design for the sustainable stewardship of our landscape; • ensure that we take advantage of opportunities to implement policies relating to landscape use that are complementary and mutually reinforcing and that conflicting policy objectives are avoided in as far as possible.	
DCENR (2014) Offshore Renewable Energy Development Plan (OREDP)	The overarching objective of the Government's energy policy is to ensure secure and sustainable supplies of competitively priced energy to all consumers. The development of Ireland's renewable energy resources is critical for the achievement of each element of this objective. The OREDP also has three high-level goals which are to ensure that: • Ireland harnesses the market opportunities presented by offshore renewable energy to achieve economic development, growth and jobs • There is increased awareness of the value, opportunities and societal benefits of developing offshore renewable energy	The growth in the offshore renewables sector could have an influence on fisheries and aquaculture in terms of habitat disturbances and disruption to fish stocks. The OREDP goals for job creation and growth within offshore renewables is a potential risk to the agri-food labour market. This is due to labour moving from the fisheries industry to the renewables sector.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	• Offshore renewable energy developments do not adversely impact our rich marine environment and its living and non-living resources	
DCENR (2014) Draft Bioenergy Plan	In line with the other energy policies developed by the Irish Government this plan has the overall objective of ensuring a secure and sustainable supply of competitively priced energy to all consumers. The plan has the vision that bioenergy resources will be contributing to economic development and sustainable growth, generating jobs for citizens, supported by coherent policy, planning and regulation, and managed in an integrated manner. The plan has three high-level objectives: • To harness the market opportunities presented by bioenergy in order to achieve economic development, growth and jobs • To increase awareness of the value, opportunities and societal benefits of developing bioenergy • To ensure that bioenergy developments do not adversely impact the environment and its living and non-living resources	The Draft Bioenergy Plan references schemes to incentivise the supply of biomass from agriculture and the importance of linking schemes to the REFIT 3 scheme for biomass technologies which will underpin the development of a robust and sustainable biomass supply in Ireland and provide a stable demand.
DPER (2015) Building on Recovery: Infrastructure and Capital Investment 2016-2020	This is a €27 billion multi-annual Exchequer Capital Investment Plan, which is supported by a programme of capital investment in the wider State sector, and which over the period 2016 to 2021 will help to lay the foundations for continued growth in Ireland. The new Capital Plan seeks to build on prior investments in a way that is sustainable and long-term in its design and focus, building on the stock of infrastructure already delivered and setting a course to return to investment levels typical of a developed economy. These investments will also be complemented by other State initiatives that provide funding and investment in support of capital development. These include the Ireland Strategic Investment Fund (ISIF) and the capital programmes of the State-owned companies, which also make a significant contribution to the overall level of public investment. Key areas of investment include; schools, roads,	The Infrastructure and Capital Investment plan sets out a capital investment of over €1.25 billion in the Agricultural sector over the period of the plan. This is to reinforce the Government's commitments to the fully implement the EU co-funded Rural Development and Seafood Development Programmes, the Forestry Programme and a number of other specific projects. There are also other areas of investment in agriculture from this plan including the Ireland Strategic Investment Fund and support for enterprise. All of these different investment sources can help towards achieving the aims of the AFS to 2030.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	public transport, healthcare, flood defences, social housing, heritage, broadband, enterprise and sport.	
Inland Fisheries Ireland (IFI) (2015): National Strategy for Angling Development (NSAD)	The NSAD identifies three strategic objectives that are all underpinned by the conservation and protection responsibilities of IFI. The strategy aims to ensure that Ireland's fish stocks and angling infrastructure are protected and enhanced with a view to ensuring a sustainable habitat and delivering the economic, health and recreational benefits they offer to communities across Ireland. This plan's strategic objectives are: • Making angling accessible and attractive to all • Tourism development through promotion of angling resource • Recognition of angling as a key leisure and recreation pursuit The plan hopes to achieve an addition of 18,000 jobs, €96 million in revenue and 40,000 tourists to the angling sector over five years. This will be supported by a €25 million investment.	The NSAD will directly affect the AFS through the delivery of considerable benefits in terms of employment, tourism and health and wellbeing, particularly in rural areas. Effective and sustainable implementation of the NSAD, delivered together with local and national stakeholders, will ensure stability of existing jobs and businesses reliant on angling, and the creation of new jobs as the economic impact of angling grows.
IFI (2016): Corporate Plan 2016-2020	The IFI report their mission as ensuring the valuable natural resources of Inland Fisheries and Sea Angling are protected, conserved, managed, developed and promoted to enable them to achieve their full potential. The plan includes a number of high-level objectives including: • Fish- To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and that pristine aquatic habitats are also enjoyed for other recreational uses. • Habitats- To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected. • Stakeholders- To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met • in a sustainable conservation focused manner.	The AFS will influence the IFI corporate plan objectives around managing and protecting Ireland's fish populations and habitats. Any recommendations related to sustainable production and SDG14 (life below water) will link directly to the IFI corporate plan.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	• Our people- We will invest in our people to achieve operational excellence and become one of the best places to work. • Corporate management- IFI will promote a culture of value for money and continual evaluation of its performance in a measurable, transparent and accountable manner.	
DAFM (2019): Agriculture, Forest and Seafood Climate Change Sectoral Adaptation Plan	This plan aims to raise awareness of climate adaptation issues arising in the Irish agriculture, seafood and forestry sector and attempt to start a conversation around building resilience in the sector. The overall objective is to 'Build resilience to the effects of climate change and weather-related events in the agriculture, forest and seafood sector, reduce any negative impacts where possible, take advantage of any opportunities and to contribute to achievement of DAFM Statement of Strategy Goals'. There are a further four overarching objectives: • Ensure a joined-up approach to adaptation planning in the Department of Agriculture, Food and the Marine • Raise awareness of the impacts of climate change in the agriculture, forest and seafood sector • Reduce vulnerability of the agriculture, forest and seafood sector to main climate impacts and seek to increase resilience • Embed adaptation planning in agriculture, forest and seafood sectoral policies	The AFS will be directly influenced by this adaptation plan across multiple common objectives and through DAFM joined-up approaches and cross-sectoral engagement in the agriculture, forest, food and seafood sectors.
DAFM (2018): DRAFT Plan for Forests & Freshwater Pearl Mussel in Ireland	The objective of this plan is to eliminate, reduce or mitigate diffuse and point sources of sediment and nutrients and the disruption of the natural hydrological regime, arising from forests and regulated forestry activities within the area of the plan, to ensure that these do not threaten the achievement of the conservation objective for each of the SACs involved, in relation to Freshwater Pearl Mussels. The plan includes the threats and opportunities forests and forest activities represent, describes the Management Framework and supporting components, outlines a model for woodlands and forests in	Any recommendations under the AFS related to land use change within agriculture or agro-forestry industries will impact on this plan. Any impacts from agricultural expansion or intensification associated with AFS recommendations will also affect this plan's objectives related to diffuse and point source sediments and nutrients.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	FPM catchments, and includes a description of the priority eight catchments and the nature of the forest resource within each.	
DAFM (2019): Resource Efficiency Action Plan 2019-2021	These REAP documents set out how government departments are monitoring their resources efficiency. The DAFM document includes sections on energy, canteens, waste disposal and food waste, paper/stationary and water conservation. The aim of the report is to provide an update of how the department are doing in terms of reducing their impact on the environment and provide an opportunity to introduce some new actions to reduce their impact even further.	AFS could influence how DAFM report, monitor and account for environmental impact and efficiency in the use of their resources.
DAFM (2019): 'Ag-Climatise' A draft National Climate & Air Roadmap for the Agriculture Sector to 2030 and beyond	This plan is a consultation document which sets out the unique climate and air challenges facing Irish agriculture, the opportunities that may arise from meeting our targets and ambitions, and how we are proposing to address the issues through this draft climate and air roadmap for the agriculture sector to 2030 and beyond. The document proposes a roadmap of three elements: • Implementing Changes Now: to ensure the actions necessary to protect the environment and address climate change are carried through to operational reality for farmers on the ground now; • Acting in Partnership: To succeed in the effort outlined in this roadmap, all stakeholders right along the food chain, from farm to fork, will have to contribute in a spirit of partnership. • Preparing for the Future: using best available science to inform policy development and to help stakeholders make strategic choices about the future.	Direct impact on AFS through requirement for partnership along food chain. Links to all-of -Government Climate Action Plan 2019. The roadmap will set out specific actions to ensure that the agricultural sector lives up to its climate commitments and enhances its green credentials.
DBEI (2019): Resource Efficiency Action Plan 2019-2020	Similarly, to the DAFM Resource Efficiency Action Plan the DBEI plan details current efforts made by the Department of Business, Enterprise and Innovation to reduce their impact on the environment. The DBEI split their Green plan into pillars focusing on water, energy, waste and ecology. The plan proposes some future actions which include; promotion of their	AFS could influence how DBEI report, monitor and account for environmental impact and efficiency in the use of their resources.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	green agenda via their intranet and a 'Green Week', greening of meetings and events, establishing 'Green Ambassadors' and continued engagements with other departments to look into structural changes.	
DBEI (2019): Future Jobs Ireland	Future Jobs Ireland (FJI) aims to ensure Irelands enterprises and workers are well placed to prosper in a rapidly changing global economy by creating highly productive and sustainable jobs. There are five pillars that the FJI will focus on: • embracing innovation and technological change; • improving SME productivity; • enhancing skills and developing and attracting talent; • increasing participation in the labour force; and • transitioning to a low carbon economy.	This plan will directly align with the AFS and will influence recommendations related to labour market supply and demand, including attracting and retaining labour across multiple sectors such as Dairy, Horticulture, Meat processors etc. and having the right skillsets and infrastructures to assist the agri-food industry to realise opportunities in a low carbon economy. Human capital, is likely to be a key theme of the AFS and recommendations around this will be influenced by several of the ambitions in the FJI, including 5.1: become a leader in adopting and developing standards in the low carbon economy (2019 deliverable (i)).
DCCAE (2018): Sustainable Development Goals National Implementation Plan 2018 – 2020	This Plan aims to provide a framework for how Ireland will implement the Sustainable Development Goals from 2018-2020, to support national policies which contribute to meeting the Goals, and to facilitate multi-stakeholder participation. The strategic priorities are: • Awareness: Increase public awareness of the Sustainable Development Goals, their relevance to Ireland, and national efforts to achieve them. • Participation: Provide stakeholders with meaningful opportunities to contribute to national follow-up and review processes regarding the Goals, and with opportunities to further the development of the national implementation framework. • Support: Support and encourage communities and organisations to make their own contributions to achieving the Goals, and to foster public participation. • Policy Alignment: Support and promote policies and initiatives across	This plan will influence the AFS through the actions listed under the different priorities and the mainstreaming of SDGs related directly or indirectly to the global food system, including food security which is linked to SDG2 (zero hunger) and SDG3 (good health and well-being). Livelihoods and rural development are reflected in SDG1 (no poverty), SDG6 (decent work and economic growth), and SDG10 (reduced inequalities). Sustainable resource use and climate change mitigation are contained within SDG12 (responsible consumption and production), SDG13 (climate action), SDG14 (life below water) and SDG15 (life on land).

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	government which contribute towards meeting the Goals at home and abroad and identify opportunities for enhancing policy coherence.	
DCCAE (2017): National Mitigation Plan	This plan represents an initial step on the pathway to achieve the level of decarbonisation required by the Paris Agreement and UN Sustainable Development Goals. The main strategic objectives for this plan are; • policy will contribute to reductions in Ireland's greenhouse gas emissions and enhancement of sinks in a manner that achieves the optimum benefits at least cost; • a stable and predictable policy and regulatory framework will be underpinned by rigorous analysis and appraisal, supported by strong research and analytical capacity; • the Government will pursue investment, innovation and enterprise opportunities towards building a competitive, low carbon, climate-resilient and environmentally sustainable economy; and • the citizen and communities will be at the centre of the transition.	The NMP will influence recommendations under the AFS related to transition to low carbon, circular and resource efficient bioeconomy and reducing GHG emissions from agricultural practices. Chapter 6 of the NMP specifically outlines actions required for carbon neutrality in Agriculture, Forest and Land Use sectors, including sustainable use of farm manures and agri residues.
DCCAE (2017): Cleaning our Air Public Consultation to inform the development of a National Clean Air Strategy	This document is a consultation paper which aided in the development of a national Clean Air Strategy which aims to promote clean air policies to enhance and protect the quality of the air we breathe. The Clean Air Strategy will provide the strategic policy framework necessary to identify and promote the integrated measures across government policy that are required to reduce air pollution and promote cleaner air while delivering on wider national objectives. This document is used to discuss whether the legislation needs updating and how it could be updated.	The broadcast slurry spreading technique and the agitation of slurry storage tanks on farms can result in emissions to air, that have the potential to cause odour nuisances to the neighbouring community. The improvement of waste storage facilities, waste handling and spreading techniques can all decrease emissions to air. The Draft National Bioenergy Plan includes recommendations to further incentivise the expansion of Anaerobic Digestion and other bioenergy technologies in Ireland. The consultation questions in this paper ask for more specific guidelines to be given.
DCCAE (2017): Ireland's fourth National Energy Efficiency Action Plan 2017-2020	This is the fourth National Energy Efficiency Action Plan which sets out progress towards the target of improving energy efficiency by 20% by 2020 across Ireland. It also sets out the measures needed to maximise progress to the target. The plan	Agriculture is referenced in relation to the carbon tax for transport and in Table 4 giving estimates of key national energy consumption figures in 2020.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	looks at sectors such as buildings, public bodies, the commercial sector, energy supply and transport.	
DCCAE (2018): National Adaptation Framework: Planning for a Climate Resilient Ireland	This framework sets out a whole-of-government basis, what Ireland is doing and is planning to do to further their transition to a low-carbon, climate resilient and environmentally sustainable economy by 2050. The aim of adaptation is to reduce the vulnerability of our environment, society and economy and increase resilience. Adaptation also brings opportunity through green growth, innovation, jobs and ecosystem enhancement as well as improvements in areas such as water and air quality. Key actions under the framework: • Putting in place revised governance and reporting arrangements • Formalising the status of existing guidelines • Formalising long term operational support for key sectors • Facilitating the establishment of regional local authority climate action offices • Increasing awareness around climate adaptation and resilience • Integrating climate adaptation into key national plans and policies	The National Adaption Framework will influence AFS recommendations related to the development of the bioeconomy, including transitioning towards a circular, low carbon and resource-efficient bioeconomy. Links to research and innovation across all agri-food sectors, including resource-efficient production and distribution systems, value chains based on new and more efficient use of wastes (e.g., food waste), residues and by-products, as well as new business models that maintain and enhance natural capital.
DCCAE (2019): Climate Action Plan	This plan is the Irish Governments Climate Action Plan which is committed to achieving a net zero carbon energy systems objective for Irish society and in the process, create a resilient, vibrant and sustainable country. The Government will take the lead on this agenda through this Plan in defining a roadmap to this goal and initiating a coherent set of policy actions to get us there. The plan highlights a number of actions relating to targets, governance, carbon pricing, electricity, enterprise, built environment, transport, agriculture, waste, public sector, international action, citizen engagement, and adaptation.	Large agriculture section in plan that will influence recommendations in AFS related to environmental sustainability, bioeconomy opportunities and sustainable development goals. The agricultural sector will be required to respond and play its part in the transition to a low carbon, climate resilient economy and society for the future, while also taking advantage of the opportunities that this challenge presents. The 10% to 15% emissions reduction target for agriculture in the Climate Action plan, translates to a reduction in emissions from 20.2 Mt CO2eq in 2017 to between 17.5 and 19 Mt CO2eq by 2030. This plan also requires agriculture to enhance CO2 removals from the landscape by at least 26.8 Mt

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
		CO2eq and contribute to the development of sustainable decarbonised energy systems.
DCCAE (2019): Delivering the National Broadband Plan (NBP)	This is the Government's plan to deliver high speed broadband services to all businesses, farms and households in Ireland. It will ensure that people living and working in rural areas have the same digital opportunities as those in urban areas. The key objectives are to: • Ensure that every home and business will have access to high speed broadband with a choice of service providers. • Deliver the intervention as quickly as possible to ensure a national high-speed broadband network for Ireland. • Ensure that the network can meet current and future demand. • Maximise re-use of existing infrastructure. • Incentivise additional commercial investment. • Stimulate growth and retention in jobs while enabling Smart Farming, eHealth, trading online, education, tourism, savings for consumers etc.	Direct influence on AFS recommendations related to Digital/Disruptive technologies, including innovations that lead to substantial change in the way food is grown and distributed. Actions under the Broadband plan will impact on the use of technologies such as satellite data to monitor crop growth, land quality, water resources, or other environmental outcomes; combining sensors, automated farm machinery and advanced analytics software to fine-tune and automate agricultural production; machine learning to automate advisory services and using digital technology to connect farmers in new ways; and experimenting with blockchain technology and other innovative data management systems to improve efficiency and transparency of agri-food value chains. However environmental impacts of installation and maintenance of broadband technology under the NBP will need to be considered in conjunction with any support for increased demand for the service potentially premised under Strategic Priority Area 4.
DCCAE (2019): Public Consultation Waste Action Plan (WAP) for a Circular Economy	This document is a consultation paper for the WAP for a Circular Economy. The proper management of resources is crucial to securing a better, more sustainable Ireland for future generations and is central to the Climate Action Plan (CAP) as 60% of greenhouse gas emissions come from the use of materials.	The WAP could influence AFS recommendations related to transition to a low carbon, circular and resource efficient bioeconomy, including any specific recommendations related to value chains based on new and more efficient use of wastes (e.g., food waste) and residues and by-products. Also links to Climate Action Plan which will influence AFS.
DCCAE (2019) National Air Pollution Control Programme (draft NAPCP report)	This document is a consultation paper for the National Air Pollution Control Programme. Reporting of national air pollutants and air quality is an obligation for all European member states. Annual emissions of atmospheric pollutants and limits for ambient air quality are primarily regulated in European member states under the National Emissions Ceilings Directive [2016/2284/EU] (NECD) and the Ambient Air Quality and Cleaner Air for Europe Directive [2008/50/EC] (AAQD) respectively. Where a member state anticipates a	The NAPCP report incorporates elements from a number of connected National strategies and plans, primarily the Clean Air Strategy and the National Energy and Climate Plan, all of which will influence AFS recommendations related to pollutant-specific quantitative reduction commitments.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	breach of these directives at the time of the National Air Pollution Control Plan (NAPCP) drafting, the NAPCP requires that the member state sets out specific actions to address the breach and thereby avoid non-compliance.	
DCHG (2017) National Biodiversity Action Plan (NBAP) 2017-2021	The new NBAP for 2017-2021 demonstrates Ireland's continuing commitment to meeting and acting on its obligations to protect their biodiversity for the benefit of future generations through a series of targeted strategies and actions. The plan has seven objectives; 1. Mainstream biodiversity into decision-making across all sectors 2. Strengthen the knowledge base for conservation, management and sustainable use of biodiversity 3. Increase awareness and appreciation of biodiversity and ecosystems services 4. Conserve and restore biodiversity and ecosystem services in the wider countryside 5. Conserve and restore biodiversity and ecosystem services in the marine environment 6. Expand and improve management of protected areas and species 7. Strengthen international governance for biodiversity and ecosystem services.	This NBAP identifies key actions for sustaining and improving the condition of biodiversity, and consequently its ecosystem services, on land and in seas and freshwaters. A number of actions under the NBAP will influence the AFS particularly those under Target 4.1: *Optimised opportunities under Agriculture and Rural Development, Forestry and Other Relevant Policies to Benefit Biodiversity.*
DHPLG (2020) National Marine Planning Framework Consultation (NMPF) - Draft	This is a consultation draft paper for the National Marine Planning Framework. It sets out a vision, objectives and policies to help direct decision-making in the maritime area using a plan-led approach. The aim of this endeavour is to recognise the increasing pressure on our maritime area and provide a common framework for environmental, social and economic factors to be considered in decision-making ranging from projects, plans and policy.	The AFS will be influenced by the NMPF goals related to sustainable resource use and climate change mitigation linked to SDG14.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	The NMPF is part of the Government's efforts to squarely incorporate relevant SDG's into marine planning and policy under *Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.* Specific SDG's are: • 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution • 14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans • 14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.	
DoT (2018) National Policy Statement on the Bioeconomy (NPSB)	The Government's vision for the bioeconomy is to grow Ireland's ambition to be a global leader for the bioeconomy through a co-ordinated approach that harnesses Ireland's natural resources and competitive advantage and that fully exploits the opportunities available while monitoring and avoiding unintended consequences. An important objective of the bioeconomy is to move Ireland beyond simply a target compliance and carbon mitigation focus to integrating sustainable economic development into our economic model as we transition to a low carbon and circular economy. The strategic policy objectives for this plan include: • Sustainable economy and society • Decarbonisation of the economy • Jobs and Competitiveness • Regional Prosperity	This NPSB will influence AFS recommendations related to transition to a low carbon, circular and resource efficient bioeconomy

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
DoT (2018) Global Ireland: Ireland's Global Footprint to 2025	Global Ireland 2025 is an initiative that will help define Ireland's global outlook for their own time and the generations to come. The initiative aims to 'double' Irelands impact on the world by: • opening up new embassies and consulates in important locations around the world; • expanding some of the missions we already have; • investing more in our agencies, such as the IDA, Enterprise Ireland, Bord Bia and Tourism Ireland; • sharing our culture more widely around the world and deepening links to our global family; • building new air and sea connections; and • welcoming more international students to Ireland	The pursuit and development of new export markets for Irish agri-food is central to the strategic development of the sector. The UK's decision to leave the EU presents significant new risks and challenges for the agri-food sector in particular. Under this initiative, we will: • Accelerate market diversification for trade, tourism and inward investment across all regions • Increase revenues from developing and priority tourism markets • Appoint additional diplomatic and agency personnel to locations, as specified in this strategy document • Appoint additional departmental attachés to strategic embassy locations and to our permanent representation to the EU in Brussels • Appoint contracted Bord Bia representatives in overseas markets, including North, West and Southern Africa, Japan, South Korea and Saudi Arabia • Expand the Bord Bia Fellowship and Global Graduate programmes in locations including France, Germany, Italy, Netherlands, Poland, Spain, Sweden, UK, USA, China, Singapore, Russia, UAE, Africa, Japan, Vietnam and Australia • Continue to strengthen the Team Ireland approach, at home and overseas, including further development of the Ireland House model, the Team Ireland annual conference, and the implementation of a Team Ireland communications strategy and digital platform. Ambitions to expand inland tourism, air/sea connections etc. will have environmental effects which will need to be considered in combination with planned investments in the agri-food sector under the AFS.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
EPA (2018) River Basin Management Plan for Ireland 2018-2021	This second River Basin Management Plan (RBMP) outlines the new approach that Ireland will take as it works to protect its rivers, lakes, estuaries and coastal waters over the next four years. The following evidence-based priorities have been adopted for this river basin planning cycle: • Ensure full compliance with relevant EU legislation • Prevent deterioration • Meet the objectives for designated protected areas • Protect high-status waters • Implement targeted actions and pilot schemes in focused sub-catchments aimed at (1) targeting water bodies close to meeting their objective and (2) addressing more complex issues that will build knowledge for the third cycle	AFS recommendations related to agricultural expansion or intensification will impact on priorities and actions under the RBMP related to agricultural diffuse and point-source pollution.
Project Ireland 2040: National Development Plan (NDP) 2018-2027	The National Development Plan sets out the investment priorities that will underpin the successful implementation of the new National Planning Framework (NPF). The objectives of the National Development Plan match those of the NPF (see below). This National Development Plan sets out the significant level of investment, almost €116 billion, which will underpin the National Planning Framework and drive its implementation over the next ten years. A fundamental underlying objective of the National Development Plan is, therefore, to focus on continued investment to yield a public infrastructure that facilitates priorities such as high-speed broadband and public transport in better cities and in better communities. The public goods generated through investment in physical infrastructure will be critical to strengthening Ireland's human capital and to fostering the development of clusters in important growth areas in order to attract new investment.	Significant investment in Ireland's natural resources and agri-food industry will be provided under NDP. Linked to NPF (see below). Investments in rural infrastructure may have environmental effects that will need to be considered in combination with investments under the AFS
Project Ireland 2040: National Planning Framework (NPF)	The National Planning Framework (NPF) is a long-term Framework that sets out how Ireland can move away from the current, 'business as usual' pattern of development. This means that it seeks to disrupt trends that have been apparent	Under the NPF the government will support the development of sustainable supply chains in the bioeconomy. National Strategic Outcome 3 outlines continued investment in the agri-food sector which will be underpin sustainable growth as

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	for the last fifty years and have accelerated over the past twenty. The fundamental objectives of the NPF are listed below: • Carefully managing the sustainable growth of compact cities, towns and villages to achieve effective density and consolidation through a streamlined and co-ordinated approach to their development. • Reinforcing accessibility between key urban centres of population and their regions. • Ensuring that the fabric of rural areas is strengthened and the contribution of rural communities is harnessed as a major part of Ireland's strategic development. • Continuing to enhance Ireland's public transport and the environmental sustainability of our mobility systems. • Fostering enterprise and innovation and attracting investment and talent by building regional economic drivers and by supporting opportunities to diversify and strengthen the rural economy. • Further supporting Ireland's high-quality international connectivity which is crucial for overall international competitiveness and addressing opportunities and challenges from Brexit through investment in our ports and airports. • Enhancing amenities and heritage linked to and integrated with our built, cultural and natural heritage. • Achieving a transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. • Safeguarding Ireland's abundant natural and environmental resources through the sustainable management of water, waste and other environmental resources. • Improving access to quality education and health and childcare services	currently set out in FoodWise 2025. Investments in rural infrastructure may have environmental effects that will need to be considered in combination with investments under the AFS.
DCRD (2018): Realising our Rural	This sets out policies to improve quality of life in rural areas, small towns and villages. Topics / key objectives are:	The policy complements existing and planned policy in rural development and is likely to complement the ambitions of the

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
Potential: Action Plan for Rural Development.	• Sustainable Communities. Revitalised 600+ towns/villages • Enterprise & Employment. Support 135,000 new jobs by 2020. • Tourism & Recreation. Increase overseas visitors by 12% • Culture & Creativity. Invest €50+m in sports, recreation and cultural facilities. • Infrastructure & Connectivity: Ensure all homes/businesses are connected to broadband.	AFS through parallel investment in critical rural infrastructure. Investments in rural infrastructure may have environmental effects that will need to be considered in combination with investments under the AFS.
DAFM (2014). Rural Development Programme (RDP) 2014-2020.	The RDP is a requirement under Pillar II of the CAP and sets out strategy to provide EU co-funded support to underpin: knowledge transfer and innovation in agriculture, forestry and rural areas; farm viability and competitiveness; food chain organisation; restoration, preservation and enhancement of ecosystems related to agriculture and forestry; resource efficiency and shift to low carbon/climate resilient economy in agriculture, food and forestry sectors; social inclusion, poverty reduction and economic development in rural areas. Key instruments are: • GLAS – Ireland's main agri-environment scheme (AES) which provides support for farmers to take up environmental conservation actions. • Areas of Natural Constraint (ANC) – support for those who face natural disadvantages on their farmland. • Organic Farming scheme (OFS). • TAMS – support for capital investments linked to RDP objectives. • LEADER – support for projects aimed at improving quality of life in rural areas and diversification of economic activity in line with local strategies. • European Innovation Partnerships (EIP) - support bespoke programmes where landscape scale cooperation needed to address specific issues, including some locally led AES (e.g. Burren, Hen Harrier).	Much of the funding in the RDP directly mitigates adverse environmental impacts related to agricultural activity by encouraging land use change, stocking reductions and lower inputs (GLAS, some EIPs, OFS). These may reduce agricultural outputs but given that the current AFS's intentions are not to encourage greater outputs the effect need not necessarily be contrary – indeed the RDP may well complement the stronger sustainability ambitions in the current AFS under Strategic Priority Area 3. However, the extent to which it is complementary will depend on the specific sectors encouraged under the AFS – the current set of measures in GLAS has limited appeal to more intensive sectors (dairy, tillage) which were encouraged by the AFS's predecessors. TAMS and LEADER investments should typically be complementary to the AFS as they encourage efficiency in agricultural production and diversification in rural activities. The ANC support is intended to discourage land abandonment and thus supports a continuing of farming activity. This is likely to support Strategic Priority Area 2. However, continued support for potentially non-viable farm businesses may conflict with ambitions under Strategic Priority Area 4 and may limit the potential to deliver environmental objectives under Strategic Priority 3.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	The RDP will be replaced by the CAP Strategic Plan in 2021 (see below). Details of the CAP Strategic Plan for Ireland are yet to be published and so cannot be assessed at this point. In any case transitional arrangements will still apply so the current RDP will still be relevant to the emerging AFS.	
Bord Bia (2016 -). Origin Green.	Origin Green is Ireland's food and drink sustainability programme. It provides sustainability assessments and accreditation/verification for 53000 farms and 320 food/drink companies representing 90% of food/drink export and more than 70% of domestic retailers.	Origin Green will support the sustainability ambitions of the AFS.
Fine Gael, Fianna Fail, Green Party (2020). Programme for Government – Our Shared Future	Our Shared Future sets out a proposed framework for government in Ireland between the three parties following the inconclusive General Election on 8 Feb 2020. The Programme has 12 "Missions" (policy areas) and a final section describing the functioning of government between the three parties. The Missions are: • A Better Quality of Life for All • Reigniting and Renewing the Economy • A Green New Deal • Universal Health Care • Housing for All • Balanced Regional Development • A New Social Contract • Building Strong and Safer Communities • Better Opportunities through Education and Research • A Shared Island • At the Heart of Europe and Global Citizenship • Reforming and Reimagining our Public Life	Initiatives and policies outlined in the Shared Future programme relate directly to the AFS, including strategies for soil health and nutrient management, organic farming, land use review, climate and biodiversity, forestry and marine. Specific policies within the Missions that are of possible relevance to the AFS include: • A National Clean Air Strategy – may impose further limitations on ammonia emissions from agriculture • Decarbonisation of Road Transport – not likely to have implications for agricultural vehicles at current point but may have implications for wider food industry. • Job led recovery – target of 200,000 jobs by 2025 through Recovery Fund likely to support aims of AFS. • Carbon tax - €1.5 billion to be hypothecated to future agri-environment scheme, but not clear if this tax will have implications for agri-food sector. • Ports – proposal to expand capacity may have implications for marine environment. • Green New Deal reinforces 2030/50 GHG emissions targets in particular role of agriculture – so AFS will need to be clear on how it supports these targets. Also mentions a strategy to expand afforestation, which may conflict with agricultural production objectives (or may even complement depending on strategy details – e.g.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
		agroforestry). Strategy for offshore renewables will need to be complementary to aquaculture ambitions of AFS. The AFS may potentially be affected by strategies for biodiversity and water. • The Rural Development aspect of Balanced Regional Development will build and complement existing rural development policies and have similar interaction with the AFS. • The Agriculture and Food aspect of Balance Regional Development mentions the role of existing and future CAP models plus the EU Farm to Fork strategy in supporting farm viability, specific sectors including forestry and the marine, young farmers and international markets.
DCHG (2018) National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017-2022	The aim of this plan is to provide guidance and clarity on how Ireland's network of raised bog SACs will be managed, conserved and restored in future years, including national restoration targets for raised bog habitats. The five objectives of the plan are: 1. To understand and describe the conservation status and the ecological and hydrological conditions of our raised bogs; 2. To put in place a raised bog national designated network that will be sustainable into the future; 3. To develop mechanisms to restore and rehabilitate protected habitats within the network of designated raised bogs; 4. To manage protected raised bogs in a manner compatible with their uses and the concerns of stakeholders whilst maintaining their biodiversity and natural function; and To raise awareness and understanding of the benefits and values of raised bogs and encourage community involvement to inform future decisions.	The sustainable management approach to the designated raised bog network advocated in this plan will require a joint understanding between landowners, land users, communities and government. Restoration measures under the plan may influence recommendations within the AFS related to farming activities within SAC areas including livestock grazing, spreading of slurry, lime or fertiliser and drainage works.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
National Waste Prevention Programme	The National Waste Prevention Programme (NWPP) is a Government of Ireland initiative, led by the EPA, which supports national-level, strategic programmes to prevent waste and drive the circular economy in Ireland.	The Food Waste Charter under the NWPP encourages and supports sustainability along the food supply chain, from farm to fork which complements the ambitions of the AFS. Likewise the Smart Farming initiative helps farmers manage resource use and reduce GHG emissions which will complement the AFS sustainability ambitions.
DAFM (2015) Forestry Programme 2014-2020	The Forestry Programme 2014-2020 is a 100% exchequer funded programme that contributes to Irelands Rural Development Policy. The programme aims to address four key needs in relation to Ireland's forest sector: • Increase on a permanent basis, Ireland's forest cover to capture carbon, produce wood and help mitigation; • Increase and sustain the production of forest-based biomass to meet renewable energy targets; • Support forest holders to actively manage their plantations; and • Optimise the environmental and social benefits of new and existing forests.	Both the AFS and the Forestry Programme focus on the sustainable growth of the forestry industry and complement each other. The Forestry Programme will directly support the AFS through investment targeted at increasing forest cover, including rate increases for the forestry to fibre planting category. The AFS will support the Forestry Programme through improvements in forest technology that will help the forest supply chain become more efficient and therefore reduce the production costs of forest products in order to increase its value.
Northern Ireland / UK		
ASC (2016) UK Climate Change Risk Assessment 2017 Evidence Report- summary for Northern Ireland	The Evidence Report uses the concept of urgency to summarise the Northern Ireland-specific evidence included in the UK Climate Change Risk Assessment 2017 (CCRA2) Evidence Report. One of four 'urgency categories' has been assigned to each risk or opportunity, to summarise the ASC's advice for the next round of national adaptation programmes. The urgency categories are designed to be mutually exclusive, so that each risk or opportunity falls into a single urgency category: •**More action needed**. New, stronger or different Government policies or implementation activity – over and above that already planned – are needed in the next five years to reduce long-term vulnerability to climate change.	The evidence report identifies a number of research gaps relating to the agri-food sector including understanding the risk to freshwater species and marine ecosystems, future land-use changes, impact on soil conditions and understanding varieties/species and cropping regimes. As climate change is a transboundary issue there could be potential for transboundary impacts.

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	•**Research priority**. Research is needed in the next five years to fill significant evidence gaps or reduce the uncertainty in the current level of understanding in order to assess the need for additional action. •**Sustain current action**. Current and planned levels of future activity are appropriate, but continued implementation of these policies or plans is needed to ensure that the risk is managed in the future. This includes any existing plans to increase or change the current level of activity. •**Watching brief**. The evidence in these areas should be kept under review, with long-term monitoring.	
DfE (2017) Economy 2030: A consultation on and Industrial Strategy for Northern Ireland	The Industrial Strategy sets out the Government's plan to turn Northern Ireland into one of the world's most innovative and competitive small advanced economies. The objectives are to build a globally competitive economy on the pillars of innovation, enhanced skills and employability, an international outlook and the best economic infrastructure Northern Ireland can build. The Government will prioritise and support the sectors of the Northern Ireland economy that are already world class and those that can become world class, striving, at all times, to ensure that everyone, everywhere in Northern Ireland feels the benefits of an improving economy with more jobs and rising incomes.	Industrial strategy states that Agriculture and the agri-food sector is the largest employer and provides regional employment throughout Northern Ireland. Links to the Going for Growth Strategy and identifies need to innovate through closer collaboration between the Agri Food and Biosciences Institute (AFBI), universities and private sector employers. Also highlights the importance of the Department of Agriculture, Environment and Rural Affairs (DAERA)'s Rural Development Programme 2014-2020 in delivering economic growth and improving the competitiveness of Northern Ireland's rural areas. Therefore, in order for the Republic of Ireland to be competitive in deals and markets with Northern Ireland the AFS must be informed by this strategy. The strategy also considered collaboration with the Republic of Ireland for research purposes. This partnership is strategically important in terms of delivering research that attracts developing and growing businesses, leverages further international funding, enhances Northern Ireland's international reputation, and produces a highly educated and relevant workforce in demand by industry and academia.
DoH, DAERA and FSA (2019) Changing the	The five-year action plan has been developed by three government departments in Northern Ireland working together – the Department of Health; the Department of Agriculture,	This plan states that there is more that could be done to strengthen cooperation on AMR between the Republic of Ireland and Northern Ireland, and strengthen the links between

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
Culture 2019-2024: One Health Tackling Antimicrobial Resistance (AMR) in Northern Ireland	Environment and Rural Affairs, and the Food Standards Agency – and professionals in associated agencies. It has been prepared in conjunction with a new UK 20-year Vision and five-year National Action Plan (NAP), and it provides actions under these national documents specific to Northern Ireland. Like the UK Vision and NAP, its structure reflects UN IACG Framework for Action aimed at tackling Antimicrobial Resistance by: • reducing infections and unintentional exposure, • optimising use of medicines, and • investing in innovation, supply and access.	research, policy and professional practice. If the AFS does not consider the recommendations within this plan then the outcomes of the plan will be weakened as the agri-food sector has a large impact on environmental conservation and antibiotic use within the livestock sector. It is in the best interest of the Republic of Ireland for the AFS to follow the principles of this plan to work together with Northern Ireland on this cause.
DAERA (2019) Environment Strategy for Northern Ireland Public Discussion Document	The purpose of the document is to give the people of Northern Ireland who will be affected by environmental decisions taken in the future, an opportunity to express their views on what the Northern Ireland environment should look like in the future, what the environmental priorities and objectives should be, and how these should be achieved.	It is unclear how this strategy will affect or be affected by the AFS at the current time as this is a public discussion document.
DOE (2006) An Integrated Coastal Zone Management Strategy for Northern Ireland 2006 – 2026	Strategy aims for the coast include: • establish and maintain a sustainable quality of life • maintain, enhance, and develop coastal infrastructure • maintain the distinct cultural identities, traditions and skills • maintain and enhance natural resources and the condition of designated nature conservation sites • conserve, protect and where possible enhance the estuarine and coastal environment and terrestrial ecosystems • secure a vibrant economic future through the sustainable use of the natural resources of the coastal zone • maintain the visual appeal and environmental quality of Northern Ireland's coastal landscapes and seascapes	This strategy outlines integrated coastal policies and forms of collaboration between Northern Ireland and the Republic of Ireland, these include; North/South Ministerial Council, Special EU Programmes, and the Cross-Border Aquaculture Initiative. The report also highlights that there is cross-border collaboration on issues such as flood defences, fisheries and aquaculture, and renewable energy. It is therefore likely that this strategy will inform the AFS in some way in relation to aquaculture and fisheries.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	• maintain and enhance safe passage to ports and harbours for commercial shipping, fishing and recreational navigation • provide statutory mechanisms to develop and implement integrated planning for the coastal zone • establish a lead agency and structures to assist the delivery of ICZM, co-ordinate efforts and to facilitate participation • provide co-ordinated services to support ICZM including research, databases and mapping	
DBEIS (2019) The UK's Draft Integrated National Energy and Climate Plan (NECP)	This plan outlines a National Energy and Climate strategy which would span the devolved nations of the UK. It would cover the five dimensions of the Energy Union which include; Energy security, Energy efficiency, Decarbonisation, Internal energy market, and Research, innovation and competitiveness.	This plan outlines international partnerships on research towards clean energy and innovation. However, it is unlikely that this plan will affect or be affected by the AFS.
UK Fisheries Bill [HL] 2019-21	A bill to make provision in relation to fisheries, fishing, aquaculture and marine conservation; to make provision about the functions of the Marine Management Organisation; and for connected purposes. The introduction of the Fisheries Bill delivers a legal guarantee the UK will leave the Common Fisheries Policy (CFP) at the end of the Transition Period, in December 2020 - allowing the UK to control who may fish in UK waters, and on what terms. The Bill includes powers to ensure fisheries management decisions are taken strategically, for the benefit of the whole marine environment. Fisheries management plans will be tailored to the UK's 'mixed fisheries', which have lots of fish stocks swimming together and where certain fishing practices can have a significant impact on the marine environment.	The Bill's provisions on sustainable fishing will be underpinned by the requirement for the UK government and the Devolved Administrations to publish a Joint Fisheries Statement to coordinate fisheries management where appropriate, and Fisheries Management plans to achieve sustainable stocks. The proposed Bill will impact heavily on the Irish fishing industry and the agri-food labour market. There may be in-combination effects on marine habitats and fish stocks, depending on the aquaculture ambitions of the AFS.
EU / Other		
EC (2013) A Clean Air Programme for Europe	This programme sets out the European Commission's strategy to ensure existing clean air targets are met. It also sets out new air quality objectives for the period up to 2030, including:	To achieve the new air policy targets for 2030, the proposed NEC Directive requires ammonia reductions of 27%. The Directive provides a set of source measures to be taken into

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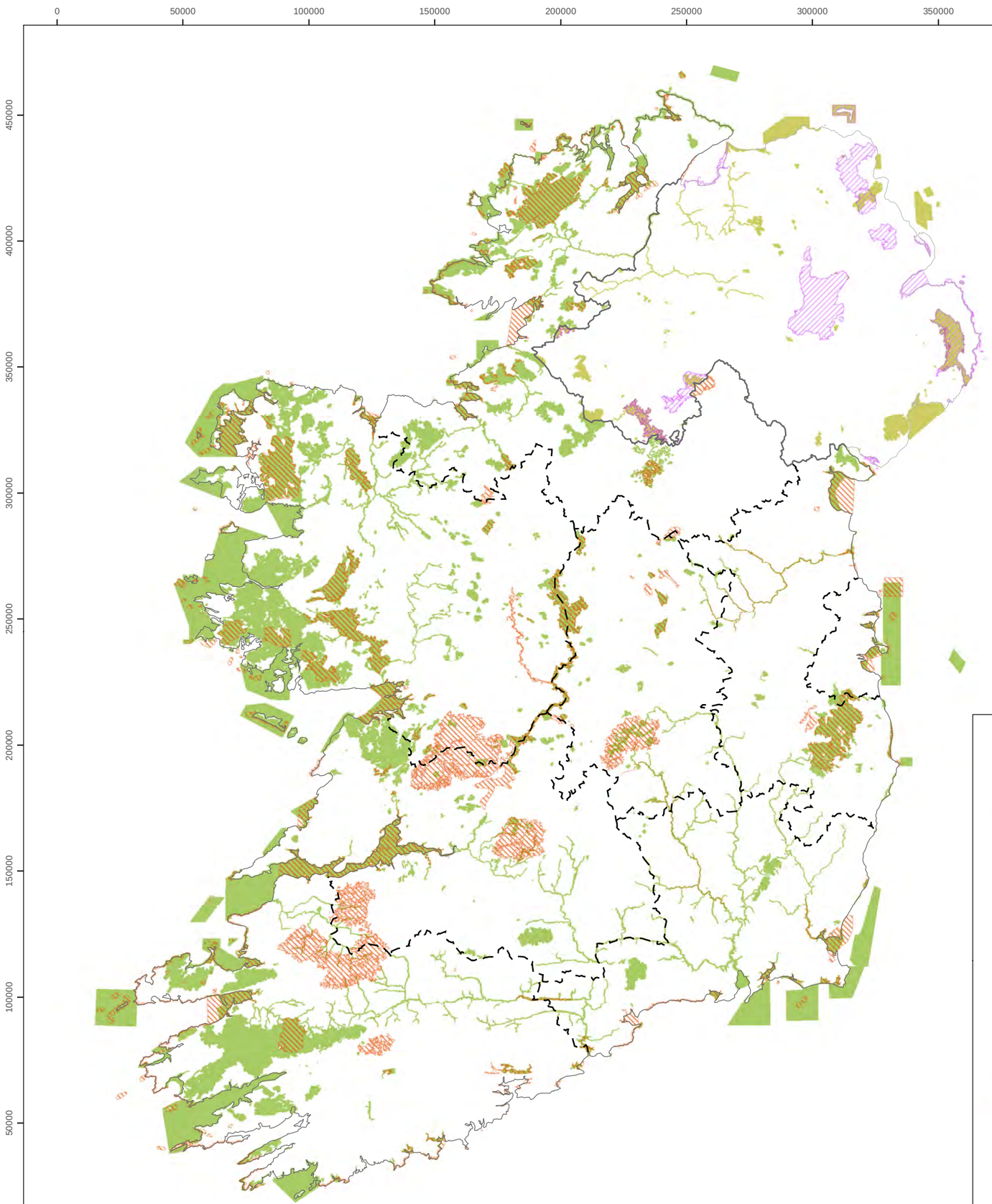
	Reducing health impacts (premature mortality due to particulate matter and ozone) by 52%, and Reducing ecosystem area exceeding eutrophication limits of 35% by 2030	account by Member States when developing national programmes.
EC (2014) A policy framework for climate and energy in the period from 2020 to 2030	Key Elements of the 2030 framework include: • Greenhouse gas emissions reduction target of 40% • A renewable energy target at EU level of at least 27% • Energy Efficiency increase of 25% in 2030 • Reform of the Emissions Trading System • Ensuring competition in integrated markets • Competitive and affordable energy for all consumers • Promoting security of energy supply	The AFS to 2030 could be impacted by the National targets set under the EU 2030 framework in relation to environmental sustainability, bioeconomy or sustainable development goal recommendations.
EC (2018) A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy	The aim of this long-term strategy is to confirm Europe's commitment to lead in global climate action and to present a vision that can lead to achieving net-zero greenhouse gas emissions by 2050 through a socially-fair transition in a cost-efficient manner. It underlines the opportunities that this transformation offers to European citizens and its economy, whilst identifying challenges ahead. The proposed Strategy does not intend to launch new policies, nor does the European Commission intend to revise 2030 targets. It is meant to set the direction of travel of EU climate and energy policy, and to frame what the EU considers as its long-term contribution to achieving the Paris Agreement temperature objectives in line with UN Sustainable Development Goals, which will further affect a wider set of EU policies. This strategy involves two main areas which are Transition to a net-zero greenhouse gas emissions economy; and Investing into a sustainable society.	The strategy outlines the role of agriculture in a bioeconomy and the benefits that can be gained from carbon sinks in soils, forests and agricultural lands. One of the priorities listed in the Strategy, guided by the transition to a climate neutral Europe, is to promote a sustainable bio-economy, diversify agriculture, animal farming, aquaculture and forestry production, further increasing productivity while also adapting to climate change itself, preserve and restore ecosystems, and ensure sustainable use and management of natural land and aquatic and marine resources.
EU (2019-) European Green Deal	The European Green Deal is a roadmap for sustainability in the EU with actions to boost efficient resources by moving to a clean, circular economy, restore biodiversity and cut pollution. Key elements of this include the Biodiversity Strategy to 2030,	See below.

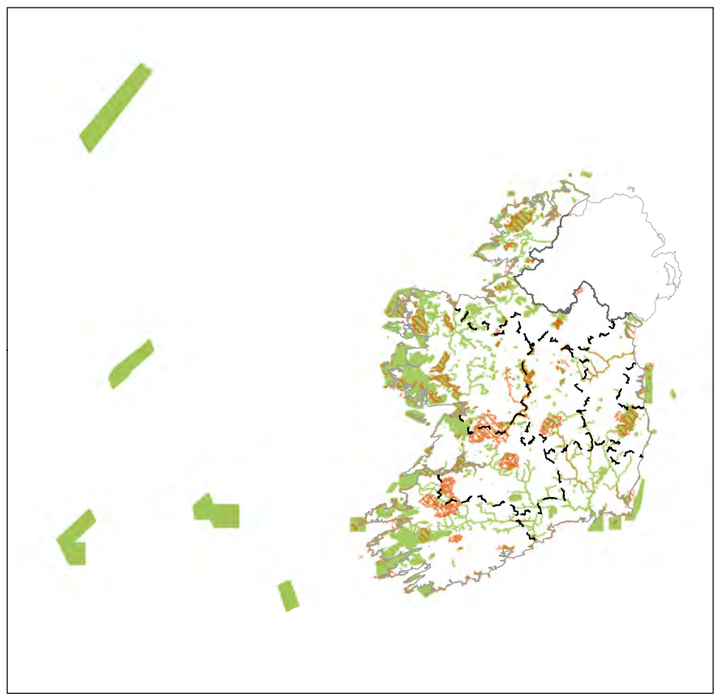
Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	the Circular Economy Action Plan and the Farm to Fork Strategy. These are discussed below.	
EC (2020) EU Biodiversity Strategy for 2030	This strategy aims to ensure that **Europe's biodiversity will be on the path to recovery by 2030** for the benefit of people, the planet, the climate and our economy, in line with the 2030 Agenda for Sustainable Development and with the objectives of the Paris Agreement on Climate Change. It addresses the five main drivers of biodiversity loss, sets out an enhanced governance framework to fill remaining gaps, ensures the full implementation of EU legislation, and pulls together all existing efforts. It covers three main areas: Protecting and restoring nature in the European Union, Enabling transformative change, and The European Union for an ambitious global biodiversity agenda.	Section 2.2.2 outlines importance of bringing nature back to agricultural land and how biodiversity can help farmers provide safe, sustainable, nutritious and affordable food. Links to EU Farm-to-Fork Strategy and new Common Agriculture Policy.
EC (2020) A new Circular Economy Action Plan (CEAP)	This Circular Economy Action Plan provides a future-oriented agenda for achieving a cleaner and more competitive Europe in co-creation with economic actors, consumers, citizens and civil society organisations. It aims at accelerating the transformational change required by the European Green Deal, while building on circular economy actions implemented since 2015. This plan will ensure that the regulatory framework is streamlined and made fit for a sustainable future, that the new opportunities from the transition are maximised, while minimising burdens on people and businesses. The plan sets out a number of areas to focus on: • A sustainable product policy framework • Key product value chains • Reducing waste • Making circularity work for people, regions and cities • Crosscutting action • Leading efforts at a global level • Monitoring progress	Section 3.7 of the CEAP relates directly to food, water and nutrients. Links to EU Farm-to-Fork Strategy.
EC (2020) Farm to Fork Strategy	The EU's goals are to reduce the environmental and climate footprint of the EU food system and strengthen its resilience,	The EU's Farm to Fork Strategy will have a direct influence on AFS. The Irish Government are committed to following this

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	ensure food security in the face of climate change and biodiversity loss and lead a global transition towards competitive sustainability from farm to fork and tapping into new opportunities. This means: • ensuring that the food chain, covering food production, transport, distribution, marketing and consumption, has a neutral or positive environmental impact, preserving and restoring the land, freshwater and sea-based resources on which the food system depends; helping to mitigate climate change and adapting to its impacts; protecting land, soil, water, air, plant and animal health and welfare; and reversing the loss of biodiversity; • ensuring food security, nutrition and public health – making sure that everyone has access to sufficient, nutritious, sustainable food that upholds high standards of safety and quality, plant health, and animal health and welfare, while meeting dietary needs and food preferences; and • preserving the affordability of food, while generating fairer economic returns in the supply chain, so that ultimately the most sustainable food also becomes the most affordable, fostering the competitiveness of the EU supply sector, promoting fair trade, creating new business opportunities, while ensuring integrity of the single market and occupational health and safety.	strategy, therefore it will lead the way for the new AFS to 2030. The AFS to 2030 will be aiming for a fair, healthy and environmentally-friendly food system. However, ambitions to preserve affordability of food and food security may be challenging to achieve without maintaining farming intensity.
EC (2018) CAP Strategic Plans Briefing	The proposal for a regulation on CAP strategic plans introduces a new delivery model, described by the Commission as a fundamental shift in the CAP, involving a shift from compliance towards results and performance. It includes a new distribution of responsibilities between the EU and Member States. A new planning process is proposed which will cover both Pillar I (direct payments) and Pillar II (rural development) of the CAP. The 9 objectives of the future CAP are: • to ensure a fair income to farmers; • to increase competitiveness;	Future CAP will continue to ensure access to high-quality food and strong support for the unique European farming model. The AFS will be influenced by mandatory requirements related to: preserving carbon-rich soils through protection of wetlands and peatlands; obligatory nutrient management tool to improve water quality, reduce ammonia and nitrous oxide levels; crop rotation instead of crop diversification. However, continued income support may sustain intensive agriculture and/or non-viable extensive farms with effects that might need to be considered in-combination with support for farms under the AFS.

Plan or Programme	Main Objectives and Requirements of the Plan or Programme	How it Affects, or is Affected by the Agri-Food Strategy to 2030 (AFS)
	• to rebalance the power in the food chain; • climate change action; • environmental care; • to preserve landscapes and biodiversity; • to support generational renewal; • vibrant rural areas; • to protect food and health quality.	

APPENDIX B: ENVIRONMENTAL BASELINE MAPS





Special Protection Areas
Special Area of Conservation

Northern Ireland

Special Protection Area
Special Area of Conservation

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

Rev	Date	Description	Drn	Chk	App
00	30/06/2020	First Draft	PT	NR	AA

Agri-food Strategy to 2030
SEA Scoping Report

TITLE: Figure 1:
Natura 2000 Sites
Map 1 of 1

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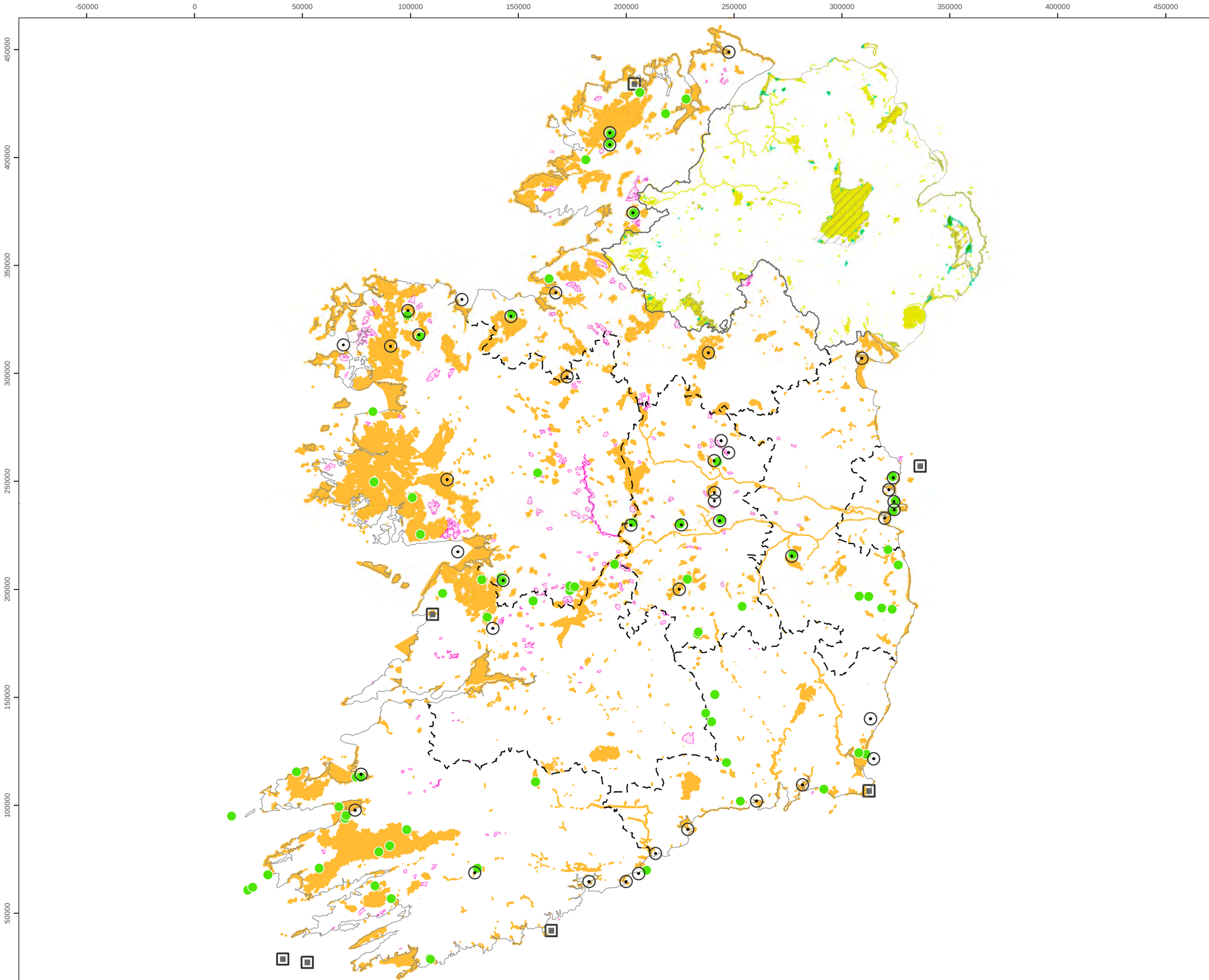
Sources: Natura (Ireland): https://www.npws.ie/research-projects/ecosystems-services-mapping-and-assessment/story-map-viewer-and-data-downloads under licence - https://creativecommons.org/licenses/by/4.0/legalcode.
NI Data: DAERA-NI
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.



Ramsar
Refuge for Fauna
National Nature Reserve
Natural Heritage Area
Proposed Natural Heritage Area

Northern Ireland

Ramsar area / site
National Nature Reserve
Area of Special Scientific Interest

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

Rev	Date	Description	Drn	Chk	App
00	17/06/2020	First Draft	PT	NR	AA

Agri-food Strategy to 2030
SEA Scoping Report

TITLE: Figure 2:
Other Designated Nature Conservation Sites
Map 1 of 1

0 20 40 60
Kilometres
SCALE:1:1,635,000 @ A3

N W E S

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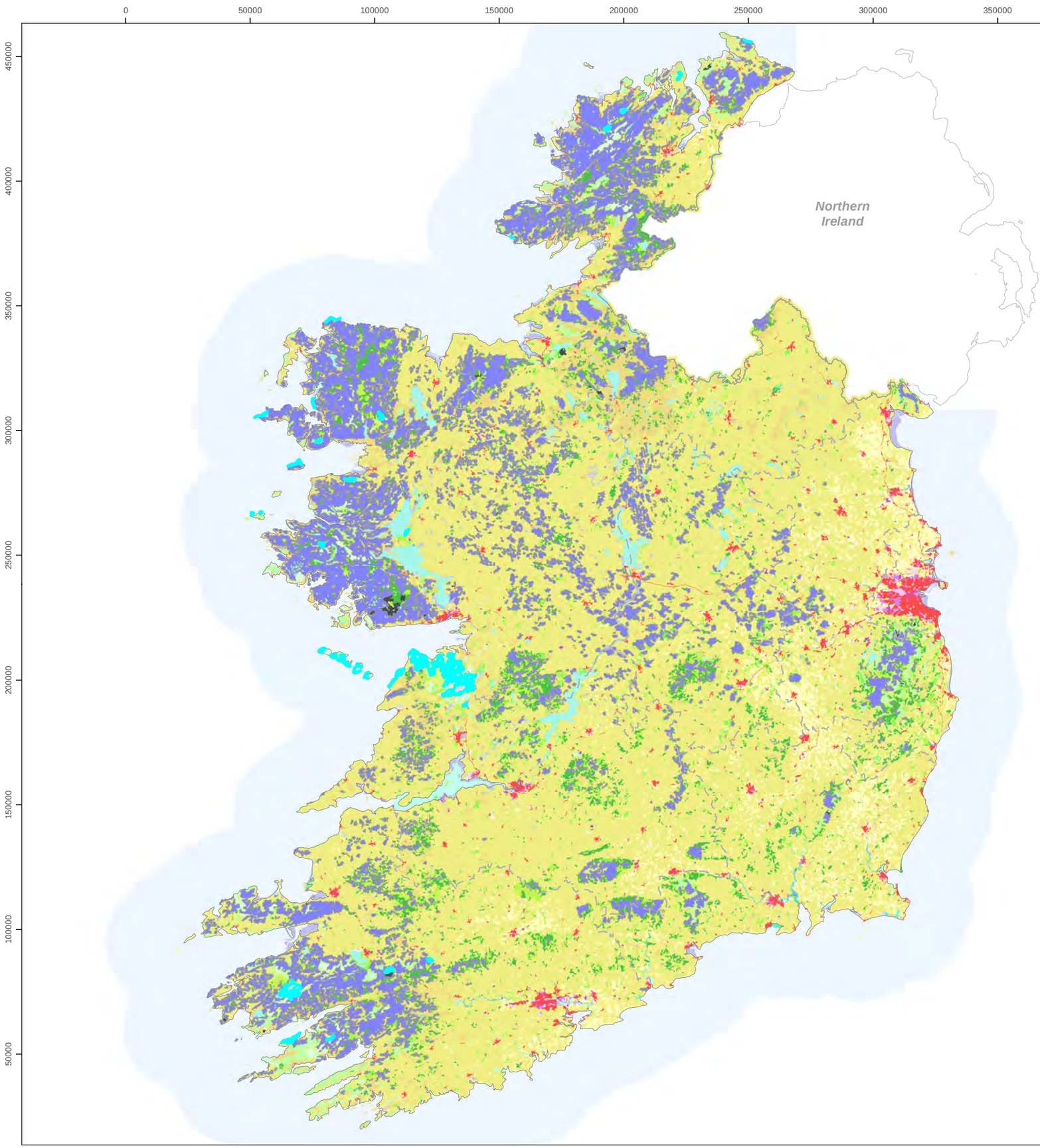
Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_OtherDesigNatCon.mxd

Sources: NHA, NNR: NPWS & DAHRRG https://www.npws.ie/research-projects/ecosystems-services-mapping-and-assessment/story-map-viewer-and-data-downloads
or http://services3.arcgis.com/ArIWe98F0BECP9pn/arcgis/rest/services/NatureReservesUpdateAug2016/FeatureServer
Ramsar: https://rsis.ramsar.org/ris-search?pagetab=3&f%5B0%5D=regionCountry_en_ss%3AEurope&f%5B1%5D=regionCountry_en_ss%3AIreland
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries. NI data: Northern Ireland Environment Agency



CLC Code

- Continuous urban fabric :111
- Discontinuous urban fabric :112
- Industrial or commercial units :121
- Road and rail networks and associated land :122
- Port areas :123
- Airports :124
- Mineral extraction sites :131
- Dump sites :132
- Construction sites :133
- Green urban areas :141
- Sport and leisure facilities :142
- Non-irrigated arable land :211
- Fruit trees and berry plantations :222
- Pastures :231
- Complex cultivation patterns :242
- Land principally occupied by agriculture, with significant areas of natural vegetation :243
- Broad-leaved forest :311
- Coniferous forest :312
- Mixed forest :313
- Natural grasslands :321
- Moors and heathland :322
- Transitional woodland-shrub :324
- Beaches, dunes, sands :331
- Bare rocks :332
- Sparsely vegetated areas :333
- Burnt areas :334
- Inland marshes :411
- Peat bogs :412
- Salt marshes :421
- Intertidal flats :423
- Water courses :511
- Water bodies :512
- Coastal lagoons :521
- Estuaries :522
- Sea and ocean :523

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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Agri-food Strategy to 2030
SEA Scoping Report

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TITLE: Figure 3:
CORINE Landcover 2018
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_CORINE2018.mxd

Sources: CORINE 2018: https://gis.epa.ie/GetData/Download under licence - https://creativecommons.org/licenses/by/4.0/legalcode.
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

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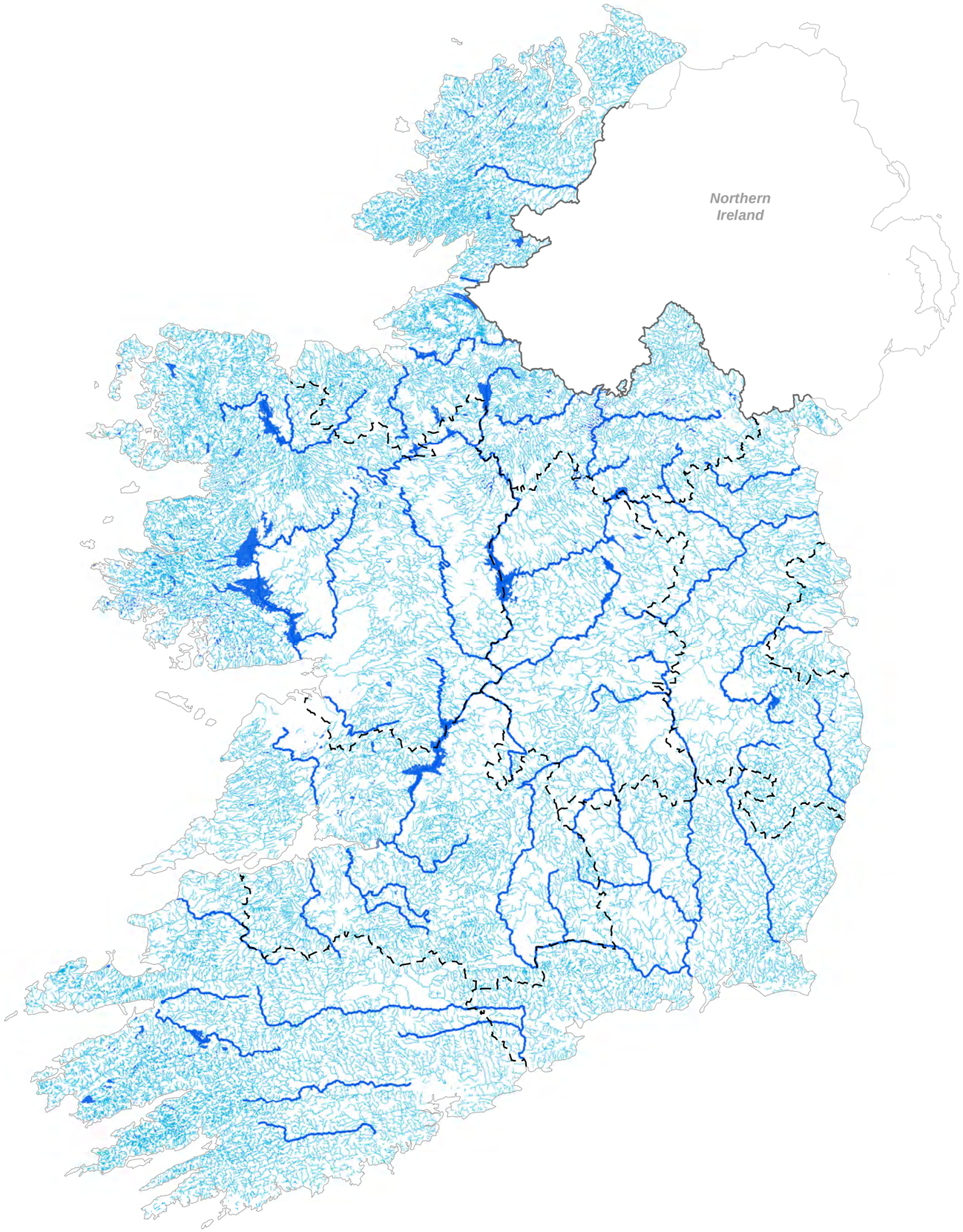
450000 400000 350000 300000 250000 200000 150000 100000 50000



Waterbodies
National Rivers Network
Main Rivers

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

Rev	Date	Description	Drn	Chk	App
00	17/06/2020	First Draft	PT	NR	AA

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TITLE: Figure 4:
Rivers and Waterbodies
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_Rivers_Waterbodies.mxd

Sources: http://gis.epa.ie/GetData/Download
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

Ecological Status

- High
- Good
- Moderate
- Poor
- Bad
- Unassigned

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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TITLE: Figure 5:
Water Quality - Ecological Status
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_WaterQuality_EcologicalStatus.mxd

Sources: http://gis.epa.ie/GetData/Download
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

Nitrate Concentration

- High quality
- Good quality
- Moderate quality
- Unassigned

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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SEA Scoping Report

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TITLE: Figure 6:
Water Quality - Nitrate Concentration
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_WaterQuality_NitrateConcentration.mxd

Sources: http://gis.epa.ie/GetData/Download
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

NH_3 emissions

- 0.000000 - 0.000002
- 0.000003 - 0.000013
- 0.000014 - 0.000069
- 0.000070 - 0.000358
- 0.000359 - 0.001856
- 0.001857 - 0.009615
- 0.009616 - 0.049802
- 0.049803 - 0.257952

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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TITLE: Figure 7a:
National Total Ammonia Emissions
Map 1 of 1

0 20 40 60
Kilometres
SCALE:1:1,635,000 @ A3

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Document Path: D:\Covid_19\EIA\SEA_Ireland\RSK_A3L_AgriFood_to_2030_SEA_scope_Ammonia_Emissions_3Maps.mxd

Sources: Ammonia Emssions: National mapping of GHG and non-GHG emissions sources (MapEIre) - https://projects.au.dk/mapeire/spatial-results/download/
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

NH_3 emissions

- 0.000000 - 0.000002
- 0.000003 - 0.000013
- 0.000014 - 0.000069
- 0.000070 - 0.000358
- 0.000359 - 0.001856
- 0.001857 - 0.009615
- 0.009616 - 0.049802
- 0.049803 - 0.257504

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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SEA Scoping Report

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TITLE: Figure 7b:
Ammonia Emissions from Agriculture - Livestock
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Sources: Ammonia Emssions: National mapping of GHG and non-GHG emissions sources (MapEIre) - https://projects.au.dk/mapeire/spatial-results/download/
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

NH_3 emissions

- 0.000000 - 0.000002
- 0.000003 - 0.000013
- 0.000014 - 0.000069
- 0.000070 - 0.000358
- 0.000359 - 0.001856
- 0.001857 - 0.009615
- 0.009616 - 0.049802
- 0.049803 - 0.257952

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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Agri-food Strategy to 2030
SEA Scoping Report

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TITLE: Figure 7c:
Ammonia Emissions from Agriculture - Other
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Sources: Ammonia Emssions: National mapping of GHG and non-GHG emissions sources (MapEIre) - https://projects.au.dk/mapeire/spatial-results/download/
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.

-50000 0 50000 100000 150000 200000 250000 300000 350000 400000 450000

450000 400000 350000 300000 250000 200000 150000 100000 50000

Northern Ireland

WHS Bru na Boinne

WHS Skellig Michael

National Park
World Heritage Site
National Monument
Accessible Monuments

Coordinate System: TM65 Irish Grid
Projection: Transverse Mercator
Datum: TM65
Units: Meter

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TITLE: Figure 8:
Designated Landscape and Cultural Heritage Sites
Map 1 of 1

0 20 40 60
Kilometres

SCALE:1:1,635,000 @ A3

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Sources: National Park: http://services3.arcgis.com/ArIWe98F0BECP9pn/arcgis/rest/services. World Heritage Sites: http://whc.unesco.org/en/documents/
Monuments: http://webservices.archaeology.ie/arcgis/services/NM/NationalMonuments/MapServer/WMSServer?request=GetCapabilities&service=WMS
NUTS: https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/nuts under licence - EN: © EuroGeographics for the administrative boundaries.