May 2024

Report

Draft Cork Wastewater Strategy

Strategic Environmental Assessment: Scoping Report

UE/FF/LDB/0323

Safeguarding our water for our future

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Acronyms and Abbreviations

Term	Definition	Term	Definition
AA	Appropriate Assessment	NBAP	National Biodiversity Action Plan
AQGs	Air Quality guidelines	NDP	National Development Plan
CFP	Common Fisheries Policy	NIS	Natura Impact Statement
CFRAM	Catchment-based Flood Risk Assessment and Management	NHA	National Heritage Area
CMA	Cork Metropolitan Area	NIAH	National Inventory of Architectural Heritage
CSO	Central Statistics Office	NPWS	National Parks and Wildlife Service
CWS	Cork Wastewater Strategy	NUTS	Nomenclature of territorial units for statistics
DAFM	Department of Agriculture, Food and the Marine	OPW	Office of Public Works
DECC	Department of the Environment, Climate and Communications	PAHs	Polycyclic Aromatic Hydrocarbons
DHLGH	Department of Housing, Local Government and Heritage	PAPs	Pathway Action Plans
DHPLG	Department of Housing, Planning and Local Government	pNHA(s)	Proposed National Heritage Area(s)
EEA	European Environment Agency	RBMP	River Basin Management Plan
EPA	Environmental Protection Agency	RMP	Record of Monuments and Places
EC	European Communities	RPS	Record of Protected Structures
EIA	Environmental Impact Assessment	SAC	Special Area of Conservation
ELC	European Landscape Convention	SEA	Strategic Environmental Assessment
EU	European Union	SMR	Sites and Monuments Record
GHG	Greenhouse Gas	SPA	Special Protection Area
GSI	Geological Survey Ireland	WFD	Water Framework Directive
IAS	Invasive Alien Species	UN	United Nations
IGH	Irish Geological Heritage	UNESCO	United Nations Educational, Scientific and Cultural Organisation
LAWPRO	The Local Authority Waters Programme	WFD	Water Framework Directive
LCA	Landscape Character Area	WHO	World Health Organisation
MSFD	Marine Strategy Framework Directive	WSSP	Water Services Strategic Plan
NAF	National Adaptation Framework	WWTP	Wastewater Treatment Plant

Glossary

Glossary Term	Definition
AA Screening Report	The report which provides information on and assesses the potential for the proposed plan to impact on European sites within the Natura 2000 network.
Natura Impact Statement	A document which summarises the findings of the AA and how they were factored into the plan, the reason for choosing the preferred plan in light of alternatives considered and to state the likely significant effects.
Appropriate Assessment	An assessment required under the Habitats Directive when a plan or project has the potential to affect a European site.
Baseline Environment	The state of the environment in the absence of the Plan.
Catchment	The total area of land that drains into a watercourse.
Cumulative effect	The combined effects from several plans, programmes or policies.
Strategic Environmental Assessment (SEA) Environmental Report	The SEA report that documents the effects of investment priorities outlined in a plan.
Invasive species	Non-native species that out-compete native species to the detriment of an ecosystem.
Mitigation	The implementation of measures designed to reduce the predicted effects of a plan or project on the environment.
RAMSAR site	An international designation for an important wetland site under the Ramsar Convention.
SEA Screening statement	A summary of the SEA screening determining whether the proposed plan requires SEA.
SEA Scoping Report	The SEA report sets out the scope and objectives of the SEA.
SEA Post Adoption Statement	The document which details how environmental considerations have been integrated into the plan, how the environmental report and consultation responses were taken into account, the reasons for choosing the plan as adopted in light of reasonable alternatives considered and the measures to be taken into account to monitor or mitigate the likely significant effects.
Special Area of Conservation	An international designation for habitats and/or species under the EC Habitats Directive.
Special Protection Area	A site of international importance for birds, designated as required by the EC Birds Directive.
Strategic Environmental Objectives	Methodological measures against which the effects of the Plan can be tested.

1 Introduction and Background

1.1 Background to Uisce Éireann

On the 1st of January 2014, through the Water Services Act (No. 1) 2013, Uisce Éireann (at that time known as Irish Water) assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Uisce Éireann's responsibility is to ensure that all of its customers (households and businesses) receive a safe and reliable water supply and have their wastewater collected, appropriately treated and returned safely to the environment. Figure 1.1 below shows some key facts about Uisce Éireann's wastewater services and infrastructure in the study area for Cork Wastewater Strategy (CWS).

Figure 1.1 Uisce Éireann statistics

Uisce Éireann's vision is for ***'A sustainable Ireland where water is respected and protected, for the planet and all the lives it supports.'***

1.2 Purpose of the CWS

The Cork Metropolitan Area (CMA) (see Figure 1.1) is a major regional metropolitan area, identified as such in the National Planning Framework (NPF)[1] and in the Regional Spatial and Economic Strategy (RSES) 2020-2032[2] to ensure long term economic, environmental, and social progress. The NPF 2040 envisages that Cork will become the fastest-growing city region in Ireland with a projected 50% to 60% increase of its population in the period up to 2040. This projected population and associated economic growth will result in a significant

[1] Department of Housing Planning and Local Government (DHPLG). 2018. Project Ireland 2040: National Planning Framework. Accessed: October 2023. Available from: https://www.npf.ie/
[2] Southern Regional Assembly. 2020. Southern Regional Spatial and Economic Strategy. Accessed: October 2023. Available from: https://www.southernassembly.ie/regional-planning/rses

increase in water supply and as a result demands on the existing wastewater infrastructure within the area which is now being challenged to keep pace with this growth and an increased demand for new serviced lands.

Uisce Éireann have identified the need for a strategic approach to a wastewater system assessment for the CMA based on the increase in population identified above, current compliance challenges at a number of wastewater treatment plants and sewerage networks, wastewater treatment capacity requirements to deal with current and future loads from the CMA and associated pressures on the receiving waters from wastewater discharges within the CMA. The challenges facing the CMA can be summarised as:

- Impact on wastewater systems as a result of rapid growth;
- Non-compliance challenges associated with existing Wastewater Treatment Plants (WwTP) and sewerage networks;
- Pressure on installed wastewater treatment capacity;
- Deterioration of receiving waters;
- Impact of new Urban Waste Water Treatment Regulations (UWWTR) on existing wastewater systems; and
- Climate change.

The delivery of a sustainable, integrated wastewater system for the CMA requires a strategic approach to system planning which incorporates needs of stakeholders, supports economic growth, allows for climate change and meets the demand of a growing population. A sustainable wastewater management solution must be consistent with statutory obligations and regulatory drivers designed to meet both national and international environmental objectives e.g., Water Framework Directive (WFD) and Urban Wastewater Treatment Directives (UWWTD), and those intended to address the impacts of climate change. The quality and resilience of wastewater system infrastructure in Ireland needs to be maintained in the face of increasing challenges and pressures brought about by factors including rapid growth in major metropolitan centres such as Cork and, increased demand for new serviced land for housing, commercial developments, and industry. The uncertainty associated with the most likely, emerging climate change scenario necessitates an initial step-back to develop and adopt a whole-system assessment approach.

The CWS is subject to the Strategic Environmental Assessment Directive (SEA Directive) Council Directive 2001/42/EC, the Birds Directive (Council Directive 2009/147/EC) and the Habitats Directive (Council Directive 92/43/EEC). This document is part of meeting requirements under the SEA Directive and explains how they link to the requirements of the Birds and Habitats Directives in the sections below.

1.3 Strategic Environmental Assessment (SEA)

The SEA Directive (2001/42/EC) set out a process for the environmental assessment of plans and programmes and aims to provide for a high level of protection of the environment and to promote sustainable development. It also sets out specific requirements with respect to the Habitats Directive (92/43/EEC) and Birds Directive (2009/42/EC).

The SEA Directive is implemented in Ireland via the European Communities (EC) (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended by the EC (Environmental Assessment of Certain Plans and Programmes) (Amendments) Regulations 2011 (known as the 'SEA Regulations'). Under these regulations, qualifying plans such as the CWS are required to be subject to SEA screening as a first step to determine if SEA is required. A screening review has been undertaken following the EPA 2021 screening guidance and this confirmed that the CWS requires a mandatory SEA (see Appendix A). The subsequent stages include scoping, assessment, public consultation and monitoring. The current stage is scoping.

The aim is that the SEA process should influence and improve the plan. The process involves assessing the likely significant effects on the environment of implementing the plan and considering reasonable alternatives for achieving plan objectives. Combined and cumulative effects of the plan as a whole and with other plans and programmes are also included as part of the assessment. The SEA Regulations set out specific requirements for consultation with Environmental Authorities (listed in Section 1.7) and transboundary environmental authorities (if relevant) at the scoping stage and for public consultation on the draft plan and SEA Environmental Report (see Table 1.1 below on the phases for developing the CWS alongside the assessments). The SEA Environmental Report and consultation responses are also required to be taken into account in finalisation of the plan and for implementation monitoring.

Table 1.1 Work phases and consultations during the development of the CWS

Phase	Plans/Reports	Consultation
1	Issues Paper, SEA Scoping Report, AA Screening Report	Key stakeholder consultation including environmental authorities and, where relevant, transboundary environmental authorities
2	Draft CWS, SEA Environmental Report, Natura Impact Statement	Public consultation including the key stakeholder and environmental authorities mentioned above
3	Final CWS, SEA Statement, Addendum to Natura Impact Statement (if required) and AA Determination	Plans/ Reports updated to address consultation feedback

Under the European Communities (Birds and Natural Habitats) Regulations 2011 as amended (the 'Habitats Regulations') there is a requirement, under regulation 42, for all public authorities to conduct a screening for Appropriate Assessment (AA). AA screening is the preliminary assessment of whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a European site in view of a site's conservation objectives. If the screening determines that likely significant effects cannot be excluded, then Uisce Éireann must determine that an AA is required. If an AA is required, Uisce Éireann must prepare a Natura Impact Statement (NIS), which is a report consisting of the scientific examination of a plan or project individually, or in combination with other plans or projects, in view of the conservation objectives of the site or sites, and any further information required to carry out the AA. The CWS, SEA and AA/NIS will be developed in parallel through an iterative process.

The SEA is undertaken as a four-stage process (detailed in Table 1.2).

Table 1.2 Stages of the SEA

Stage	Purpose and Requirements	Output
Stage 1: Screening	Prior to starting the SEA process, a plan or programme undergoes 'screening' to determine whether it requires SEA (also if SEA is to be undertaken on a voluntary basis).	SEA Screening Statement – Uisce Éireann (as the responsible authority) determined that SEA would be undertaken for the CWS (see 1.1.1.1..Appendix A)
Stage 2: Scoping **Current SEA Stage**	Consideration of the context and objectives of the SEA, provides information on baseline data, identifies relevant environmental issues and trends, and defines the parameters of the scope of the SEA for the purpose of consultation.	SEA Scoping Report – this report.
Stage 3: Identification,	Within the context and parameters identified at the Scoping Stage,	SEA Environmental Report.

Stage	Purpose and Requirements	Output
Prediction, Evaluation and Mitigation of Potential Effects	identification and evaluation of likely significant effects of the CWS is carried out, including consideration of alternatives and determination of measures to mitigate and monitor residual effects.	
Stage 4: Consultation, Revision and Post-Adoption	Consultation with statutory consultees and the public. This may require changes to the CWS in light of responses. Statement on how the SEA and consultation process has influenced the final CWS. The statement is required to include an environmental monitoring plan – this is intended to provide feedback on significant environmental effects. This will also aid any future review / revision of the CWS and the SEA.	SEA Statement. Implementation of the monitoring programme.

1.4 SEA Screening

Stage 1 of the SEA process is SEA screening. This is based on the SEA regulations (S.I.435 of 2004) requirements Section 9 (1) (a), which states that environmental assessment shall be carried out for all plans and programmes:

"*which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, and which set the framework for the future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive.*"

The CWS has been screened following the Environmental Protection Agency's (EPA) Good Practice Guidance on SEA Screening[3] published December 2021. The screening concluded that the CWS is a type of water management plan which sets a general framework influencing the future development consent of relevant projects identified from these plans that may require EIA. Uisce Éireann as the competent authority, has determined that SEA is required on the basis of the EPA 2021 screening guidance applicability tests. Therefore, the Cork Wastewater Strategy is to be subject to SEA in accordance with the regulations. The SEA Screening Statement is provided in Appendix A of this report.

1.5 SEA Scoping

This SEA Scoping Report is the output of Stage 2 of the four-stage SEA process. The SEA scoping process aims to:

- Outline what the plan is expected to cover and how the draft plan will be developed;
- Outline the existing environmental baseline – describe the environmental characteristics of the study area and to present the initial understanding of the key environmental issues relating to the CWS;
- Undertake a review of legislation, policies and plans – outline the potential external influences on the CWS and the environment in which it is proposed through a review of legislation, policies and plans;

[3] Environmental Protection Agency (EPA). 2021. SEA Screening Good Practice 2021. Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/sea-screening-good-practice-2021.php

- Propose a framework of Strategic Environmental Objectives (SEOs) and set out a draft SEA methodology, including outlining how alternative approaches for the CWS that will be considered, identify potential interrelated plans and programmes, and outline how cumulative effects will be addressed;
- Provide the Scoping Report for consultation and seek feedback from stakeholders on the proposed approach to the SEA of the CWS.

The SEA scoping process will inform the SEA assessment and development of the CWS (Stage 3 of the SEA process). The SEA Environmental Report will be the main documented output of Stage 3 of the SEA process. The SEA Environmental Report will present information on the SEA and the likely environmental issues related to the implementation of the CWS as a whole, as well as within each of the counties that are subject to the plan.

Scoping is informed by the preliminary baseline information that has been identified and described within this report. Stakeholders are invited to comment on any further information which may be relevant for the next stage of the SEA. Any relevant data gaps identified will be reported in Stage 3 of the SEA (the SEA Environmental Report) along with areas of uncertainty for the assessment.

1.6 Appropriate Assessment (AA)

In addition to compliance with the SEA Directive, the preparation and implementation of the CWS must comply with the requirements of the Birds Directive and EU Habitats Directive.

The Habitats Directive requires that if a plan, policy or programme is likely to have a significant effect on one or more European sites (that is, a Special Area of Conservation (SAC) or Special Protection Area (SPA), also referred to as "Natura 2000" Network), either alone or in combination with other schemes, plans or projects, then it must be subject to AA.

Uisce Éireann is the relevant 'public authority' as identified in the transposing (EC Birds and Natural Habitats) Regulations 2011. An initial AA screening has been undertaken for the CWS to determine if it is likely to have a significant adverse effect on a Natura 2000 site, either individually or in combination with other plans or projects.

The AA screening concludes that the CWS falls under the remit of the Habitats Regulations, 2011 and is therefore subject to the requirements of the Regulations to assess the implications of the plan on European sites in view of the sites' conservation objectives.

Given the strategic nature of the CWS, and the current stage of preparation, it is concluded that there is potential for likely significant effects on one or more European sites, in view of the sites' conservation objectives. At this stage of the AA process the European sites screened into assessment include Great Island Channel SAC, Ballymacoda (Clonpriest and Pillmore) SAC, The Gearagh SAC, Cork Harbour SPA, Ballycotton Bay SPA, Sovereign Islands SPA, Ballymacoda Bay SPA, Blackwater Estuary SPA, Blackwater Callows SPA, Courtmacsherry Bay SPA and The Gearagh SPA. The AA screening report is provided here: www.water.ie/cws

In the absence of more detailed information on the CWS, the precautionary principle must be applied. Therefore, in accordance with Article 6(3) of the Habitats Directive, Stage 2 AA of the CWS is required. This will be presented in a NIS to fully inform the AA to be undertaken by Uisce Éireann and will be published alongside the draft CWS and the SEA Environmental Report.

There is a degree of overlap between the requirements of the SEA and AA and in accordance with best practice, an integrated approach is being applied between the development of the CWS, the SEA and the AA, such as sharing of baseline data, cohesive assessment of the potential ecological effects of the CWS on European sites and clarification on more technical aspects of the CWS. These processes together will shape the development of the CWS. The SEA will take account of the findings of the AA in relation to potential

effects and mitigation relevant for Natural 2000 sites and will also cover aspects of biodiversity, habitats and species that are not required to be covered in the AA.

1.7 Consultation

The CWS will be developed following two phases of consultation.

An initial statutory consultation on the SEA Scoping Report,the AA Screening Report and Issues Paper will be undertaken . This firstconsultation, will include public consultation and engagement with key statutory and regulatory stakeholders.

In line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004), this SEA Scoping Report will be issued to the following statutory Environmental Authorities for their review and comment:

- The Environmental Protection Agency (EPA);
- The Department of Agriculture, Food and the Marine (DAFM);
- The Department of Housing, Local Government and Heritage (DHLGH) including the Development Applications Unit; and
- The Department of the Environment, Climate and Communications (DECC).

In addition, a copy of this SEA Scoping Report will be published online.

Feedback received on the SEA Scoping Report and the AA Screening Report, will be reviewed and taken into account as the draft CWS, SEA Environmental Report and NIS are prepared. The issues raised and the response to them will be summarised in the SEA Environmental Report.

As part of the second phase of consultation, Uisce Éireann will carry out a public consultation on the draft CWS together with the SEA Environmental Report and NIS (AA process) in Spring 2024.

The following key questions have been prepared to guide consultees and stakeholders in making a submission on this SEA Scoping Report and are repeated under the relevant sections throughout the report. However, your response and comments are not limited to responding to these questions.

SEA Scoping Questions

1. **Do you have any suggestions that you would like Uisce Éireann to consider in the preparation of the CWS?**
2. **Do you have any comments on the approach to the Strategic Environmental Assessment (SEA) of the CWS?**
3. **Section 3 sets out the current baseline environment conditions and future trends. The key considerations for the environmental assessment of the CWS and the proposed scope of the assessment is summarised in Section 3.20. Do you have any comments on these?**
4. **Are there any further plans, policies and programmes not identified in Section 4 or in Appendix B that should be considered?**
5. **Do you have any comments on the SEA approach to considering plan alternatives at this stage? If so, please discuss these and provide specific recommendations for changes if possible.**
6. **Are there any additional or specific plans or programmes that you feel should be considered within the cumulative impact assessment?**
7. **How would you like Uisce Éireann to communicate with you as the development of the CWS progresses?**

These authorities/consultees and the public will be consulted again at Stage 3 – SEA Environmental Report as required under the SEA Regulations.

1.8 Structure of the SEA Scoping Report

This SEA Scoping Report is organised as follows:

Section 2 Development of the CWS – This section outlines the proposed scope of the CWS and how the SEA process and AA are integrated with its development.

Section 3 Preliminary Baseline and Key Issues – The existing baseline environment is described along with key pressures and trends to identify key considerations relevant for assessing the beneficial and adverse impacts of the CWS and to consider the likely evolution of the existing baseline environment without the CWS in place. The scope of the topics and key aspects to be covered in the SEA are set out. The baseline environment information will be used for the SEA and will be include as part of the SEA Environmental Report in the next stage of the SEA process.

Section 4 Review of Policies, Plans and Programmes – An outline of the key relevant policies and plans to be considered and reference to a comprehensive review informing the development of SEA objectives and the approach to SEA. This section will cover the national and regional policies, plans and programmes that need to be considered in the development and assessment of CWS. Key relevant Uisce Éireann's plans and programmes in place or in progress are also summarized.

Section 5 SEA Methodology – This section provides the draft methodology to the SEA, including the SEA objectives, that are proposed to be used in the SEA of the CWS. The approach to assessing alternative approaches and cumulative effects is also set out.

Section 6 Next Steps – This section identifies what happens next in the SEA process following the consultation on the SEA Scoping Report.

2 Development of the CWS

2.1 CWS Vision and Objectives

The CWS will deliver a sustainable wastewater management strategy that will address the needs of wastewater infrastructure, offering achievable strategic and sustainable wastewater options, resulting in better overall performance and providing capacity to meet water demand and support economic growth for the CMA.

The key objectives of the CWS are as follows:

- Development of a sustainable wastewater strategy for the CMA consistent with the EU Water Framework Directive (WFD) and Urban Wastewater Treatment (UWWT) Regulations.
- Outline the requirements for wastewater treatment and drainage infrastructure capable of meeting the demands of the study area in the context of current Development Plans, the National Planning Framework (NPF)[1], the Southern Regional Spatial and Economic Strategy (RSES) 2020[2] and longer-term development potential of the area up to year 2080.
- Identification of alternative solutions for effective management of wastewater to protect and enhance the environment, support social and economic growth that are consistent with Uisce Éireann Water Services Strategic Plan (WSSP)[4][5] and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NSMP) and the Regional Water Resources Plan (RWRP) South-West.
- Evaluation of alternative solutions and identification of the medium and long-term solutions for upgrading and building new wastewater infrastructure up to 2080.
- To develop an adaptable strategy where outcomes are expected to be linked to volatile influences like climate and population change.

2.2 CWS and the Hierarchy of Plans

2.2.1 Hierarchy of plans

The **Water Framework Directive (WFD)** is the overarching Directive relating to water policy in the EU. Under this, there are a number of national level plans produced by Uisce Eireann to provide a framework for wastewater management services across Ireland (Figure 2.1) as outlined below:

The **Water Services Policy Statement** (WSPS) provides the framework within which our funding and investment plans are agreed. It sets out the priorities of Government regarding the provision of water services during the period of a Strategic Funding Plan[6].

The **Water Services Strategic Plan** (WSSP)[4] sets out our objectives for the 25 years following the approval of the plan by the Minister and the means by which Uisce Éireann will achieve them. This plan is in the process of being updated and the emerging new plan will be taken into account in the development of the CWS.

The **Strategic Funding Plan** (SFP)[6] presents the arrangements that Uisce Éireann propose to make and the measures that Uisce Éireann propose to deliver over a five-year period to implement the objectives of the CWS. The SFP is approved by the Minister for Housing, Local Government and Heritage. The current SFP covers the period from 2019 to 2024.

[4] Uisce Eireann. 2015. Water Services Strategic Plan 2015-2040. Accessed: December 2023. Available from: https://www.water.ie/projects/strategic-plans/water-services-strategic/
[5] The WSSP 2025-2050 is currently under preparation and a draft is due to be published for consultation in 2024
[6] Uisce Eireann. 2019. Strategic Funding Plan 2019-2024. Accessed: December 2023. Available from: https://www.water.ie/planning-sites/greater-dublin-drainage/docs/oral-hearing/Strategic-Funding-Plan.pdf

Whilst the SFP sets out the planned level of operational and capital expenditure over this period, the actual allowed operational capital expenditure is decided on by the economic regulator, the Commission for Regulation of Utilities through the **economic regulatory process**.

Environmental regulation of public wastewater services is by the EPA who provide Uisce Éireann's wastewater discharge authorisations.

The CWS is a regional level plan which provides the strategy for wastewater management in the CMA over the period 2025 to 2080, including the identification of local level projects to be delivered within this time frame. The CWS will be influenced by Uisce Eireann national level plans and other relevant regional level plans including the **National Wastewater Sludge Management Plan**.

A variety of strategic Tier 2 strategic plans and supporting strategies guide how Uisce Éireann deliver their work, beneath which sit Tier 3 specific programmes, plans and projects which Uisce Éireann implement across the country.

2.3 Issues Paper for the CWS

An Issues Paper has been drafted to support the development of the CWS. It summarises the key issues influencing the Cork Metropolitan Area and the approach taken to address the need for sustainable drainage options and wastewater infrastructure in the CMA. It is not intended to define solutions or strategies to address those issues. These will be presented in the draft CWS which is currently planned to go out for public consultation in Spring 2025. The Issues Paper is available at the following weblink: www.water.ie/cws

Hierarchy and interaction of plans and projects is presented in Figure 2.1.

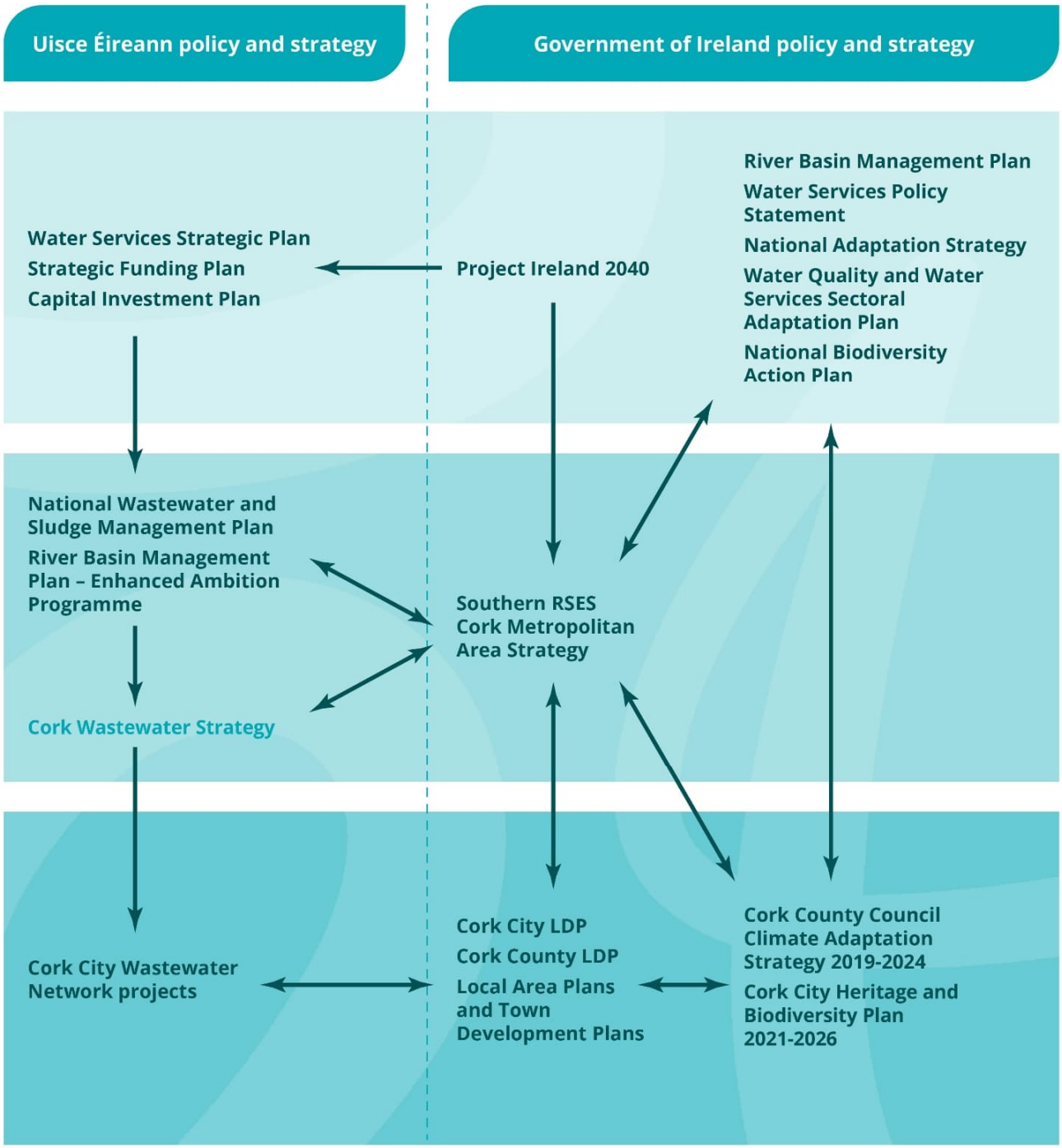

Figure 2.1 Hierarchy and interaction of plans and projects

2.4 CWS and the environmental assessments

In the draft CWS, Uisce Éireann will present the following information:

- Assessment of existing sewerage system conditions and of wastewater treatment plant and outfalls.
- Current and projected population and land use.
- Design flows and loads for the strategy horizon years.
- Hydraulic modelling and water quality modelling.
- Optioneering and solutions development and recommended technical solutions.

The CWS will respond iteratively to environmental assessments being undertaken as illustrated in Figure 2.2.

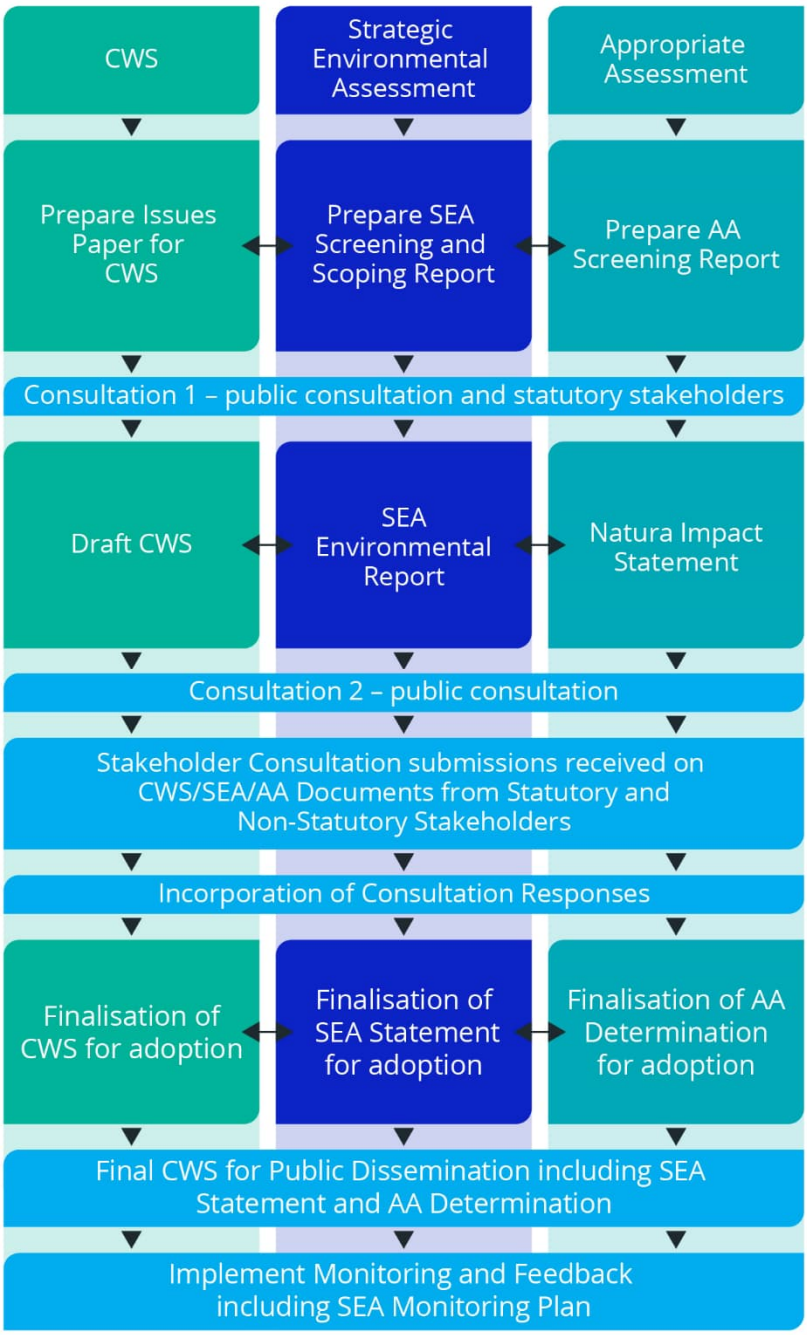

Figure 2.2 Development of CWS with the Environmental Assessments

SEA Scoping Questions – Chapter 2

8. **Do you have any suggestions that you would like Uisce Éireann to consider in the preparation of the CWS?**
9. **Do you have any comments on the approach to the Strategic Environmental Assessment (SEA) for the CWS?**

3 Environmental Baseline

3.1 Introduction

This section of the SEA Scoping Report describes preliminary information on the existing baseline environment including:

- Description of the existing baseline environment – the baseline is an outline of the current situation or condition drawn from available information, which provides a benchmark against which environmental effects of proposals can be assessed.
- Future trends – the likely future trends and the basis for the potential evolution of the existing baseline environment in the absence of the CWS is set out.
- Key considerations for the development of CWS and undertaking SEA – this summarises the key points to be considered from the review of the existing baseline environment most relevant to the development of CWS, including challenges and opportunities, to help focus the environmental assessment and inform the SEA objectives.

3.2 Types of Actions and Activities influenced by the CWS

As background for the scoping assessment, the broad types of activities that Uisce Éireann will be responsible for during the implementation of the CWS are considered to identify the types of impacts that could give rise to significant effects on the environment. These are summarised in Table 3.1 below.

Table 3.1 Types of CWS related activities and potential environmental impacts

CWS related activity	Potential types of environmental Impacts
Development of new wastewater services infrastructure including pipelines and wastewater treatment plants – construction, operation and decommissioning	• Land use change/loss - temporary and permanent. • Loss/change in habitat area. • Disturbance (short-term or long-term) to species. • Habitat fragmentation including barrier effects to species movement. • Species mortality (including prey species). • Hydrological changes to aquatic environments. • Transfer of invasive non-native species through construction and operational activities. • Construction disturbance effects from noise, air pollution, water pollution, visual amenity on nearby receptors and traffic disruption impacts. • Cultural heritage impacts on sites and risk to buried archaeological interest. • Landscape/ townscape and seascape impacts depending on structure and location. • Geological sites and soils loss or damage. • Source of carbon emissions, energy and material resource use for construction and waste generation. • Benefits from improved access to wastewater collection. • Improved operational energy efficiency and carbon emissions from rationalisation.

CWS related activity	Potential types of environmental Impacts
	• Odour issues from wastewater treatment but also potential for improvement with operational practices and upgraded treatment. • Potential vulnerability to effects of climate change on structures and operations – e.g. from increase in extreme events such as storms, floods, droughts and freeze/thaw events. • Supporting wastewater service demand and improving reliability and flexibility in the network.
Discharge of treated wastewater and stormwater and untreated discharges	• Surface and groundwater pollution from discharge of wastewaters from sewage treatment plants, and also stormwater and raw sewage discharges affecting WFD water quality objectives for freshwater, estuarine and coastal waters. • Impacts on the aquatic ecology of freshwater, estuarine and coastal waters with associated effects on ecosystem services such as through reduced biodiversity, recreation impacts (for example on designated Bathing Waters and angling), and fisheries impacts including on Shellfish Waters Protected Areas and associated users and livelihoods. • Landscape and visual amenity impacts related to effects of pollution such as algal blooms and untreated sewage. • Reduced resilience to climate change and other pollutant pressures.
Wastewater sludge disposal	• Wastewater treatment processes can influence the potential for disposal, recycling or resource recovery from sludges. • Potential for pollution from wastewater treatment sludge disposal – but also well established waste recovery through such as agricultural use.
Other types of activity	These can include a range of supporting actions, many of which can provide beneficial impacts for example: • Catchment management initiatives and Nature Based Solutions (NBS) typically requiring collaboration with other stakeholders for delivery but also potentially providing wider environmental benefits supporting the receiving environment. • Awareness raising /behaviour and upstream business/manufacturing changes to reduce pollutants entering system and environment • Innovation in treatment technology to address emerging issues • Property and operations management, investigations, monitoring, studies, and mitigation measures related to delivery and improving services and reducing impacts or uncertainty of outcomes.

3.3 SEA Topics

The SEA environmental baseline information is described under the following environmental topics and section headings:

- Water Environment;
- Population, Economy, Tourism and Recreation, and Human Health;

- Climate Change;
- Biodiversity;
- Material Assets;
- Landscape, Townscape and Seascape;
- Cultural Heritage – Archaeological and Architectural;
- Geology and Soils;
- Air Quality;
- Noise and Vibration; and
- Transboundary Environment.

3.4 SEA Study Area

The spatial areas for the SEA are as follows:

- Core study area: comprises the CMA and the Cork Harbour and Cork Outer Harbour WFD waterbodies;
- Zone of influence for European designated sites additionally including those located partially or fully outside of the Core study area which, by applying the "source-pathway-receptor" model, have been determined to have potential impact pathways connecting elements of the CWS to European sites in view of their conservation objectives (zone of influence as identified in Table 4.1 of the AA Screening Report)
- Zone of influence for WFD water bodies – this is based on the surface water hydrometric modelling area and used to identify the relevant WFD water bodies within and outside the Core study area for the assessment.

The core study area extent is shown in Figure 3.1 in Section 3.8, together with the surrounding WFD catchment areas, the WFD surface waterbodies and the surface water hydrometric modelling area (see figure inset). The European sites assessed as within the zone of influence for the AA screeening are identified in Table 3.11 in Section 3.11.

3.5 SEA Time Frame

The temporal scope for the SEA is the period between 2025 and 2080. The CWS will consider this time period including longer term design horizon years from 2055 to 2080 Options proposed in this iteration of the CWS will support the delivery of these longer term solutions. The long term horizon does create a challenge in establishing a robust environmental baseline this far into the future, however, the CWS will be revised and updated on a regular basis and the SEA assessment will be revised and updated alongside the future iterations of the CWS.

3.6 High Level Environmental Trends Across Ireland

The EPA's latest State of the Environment Report[7] provides:

- An assessment of the overall quality of Ireland's environment;
- An outline of the pressures being placed on this environment; and
- The key actions that can address these pressures.

[7] Environmental Protection Agency (EPA). 2020. Ireland's Environment 2020 - An Assessment – Report. Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/irelands-environment-2020---an-assessment.php

The following areas identified as challenges to address across Ireland within the State of the Environment Report (SOER) are environmental issues particularly pertinent to development of the CWS:

- Climate: high greenhouse gas (GHG) emissions continue, and the scale and pace of GHG reductions must accelerate to meet 2024 Climate Action Plan (consultation draft) targets.
- Water: deteriorating water quality trends over the last 20 years, particularly for coastal waters and rivers.
- Biodiversity: deteriorating protected habitat trends, with 85% of EU protected habitats having unfavourable status. Trends for EU protected species are mixed, however freshwater species are most at risk and some freshwater species are under threat.

Waste, soil health and the circular economy (including the EU Soil Strategy's aims to achieve good soil health by 2050): these aspects also support carbon, water quality and biodiversity, where further action is needed to meet long-term objectives and targets. Further detail regarding the baseline environment for each of these topic areas is provided in the baseline topic sections below.

These key challenges of relevance to the CWS also directly link to the following four UN Sustainable Development Goals (SDG):

- **SDG 6** Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all;
- **SDG 13** Climate Action: Take urgent action to combat climate change and its impacts;
- **SDG 14** Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- **SDG 15** Life On Land: Protect and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Significant population increase is anticipated over the coming decades, which is an important consideration for wastewater treatment, and therefore relevant for the water environment including compliance with the Water Framework Directive and SDGs 6 and 14.

Specific indicators for meeting the UN SDGs in Ireland are reported on Ireland's SDG data hub[8], and include a Central Statistics Office CSO Report on Indicators for Goal 6 Clean Water and Sanitation: Overview – SDG 6 Clean Water and Sanitation[9].

3.7 Sources

A wide range of publicly available sources of information are used as a basis for identifying the baseline environment including, web-based searches, published reports and Geographic Information Systems (GIS) mapped data. These sources, along with Uisce Éireann's own data, are referred to in the relevant topic sections and a reference list for the sources is provided at the end of the report. Key general sources for the review of the existing baseline environment for the SEA of CWS also include:

- The EPA https://gis.epa.ie/EPAMaps/ and https://enviromap.ie/;
- The Central Statistics Office (CSO) https://www.cso.ie/en/index.html;
- The National Parks and Wildlife Service (NPWS) https://www.npws.ie/; and

[8] Government of Ireland. 2023. Ireland's Sustainable Development Goals data hub. Accessed: October 2023. Available from: https://irelandsdg.geohive.ie

[9] Central Statistics Office (CSO). 2021. Ireland's UN SDGs 2019 - Report on Indicators for Goal 6 Clean Water and Sanitation. Accessed: October 2023. Available from: https://www.cso.ie/en/releasesandpublications/ep/p-sdg6/irelandsunsdgs2019-reportonindicatorsforgoal6cleanwaterandsanitation/

- The European Environment Agency (EEA) https://www.eea.europa.eu/.

3.8 Water Environment

3.8.1 Water Environment Baseline Conditions

There are three WFD catchments that intersect with the zone of influence based on hydrometric modelling area, and these are listed in Table 3.2 and shown in Figure 3.1.

Table 3.2 WFD catchments intersecting with the zone of influence

WFD catchment name	Total area (km^2)	Area within hydrometric modelling area (km^2)	% of total area
Lee, Cork Harbour and Youghal Bay	2,180.86	789.44	36.20
Blackwater (Munster)	3,309.99	0.10	0.003
Bandon-Ilen	1,798.77	24.67	1.37

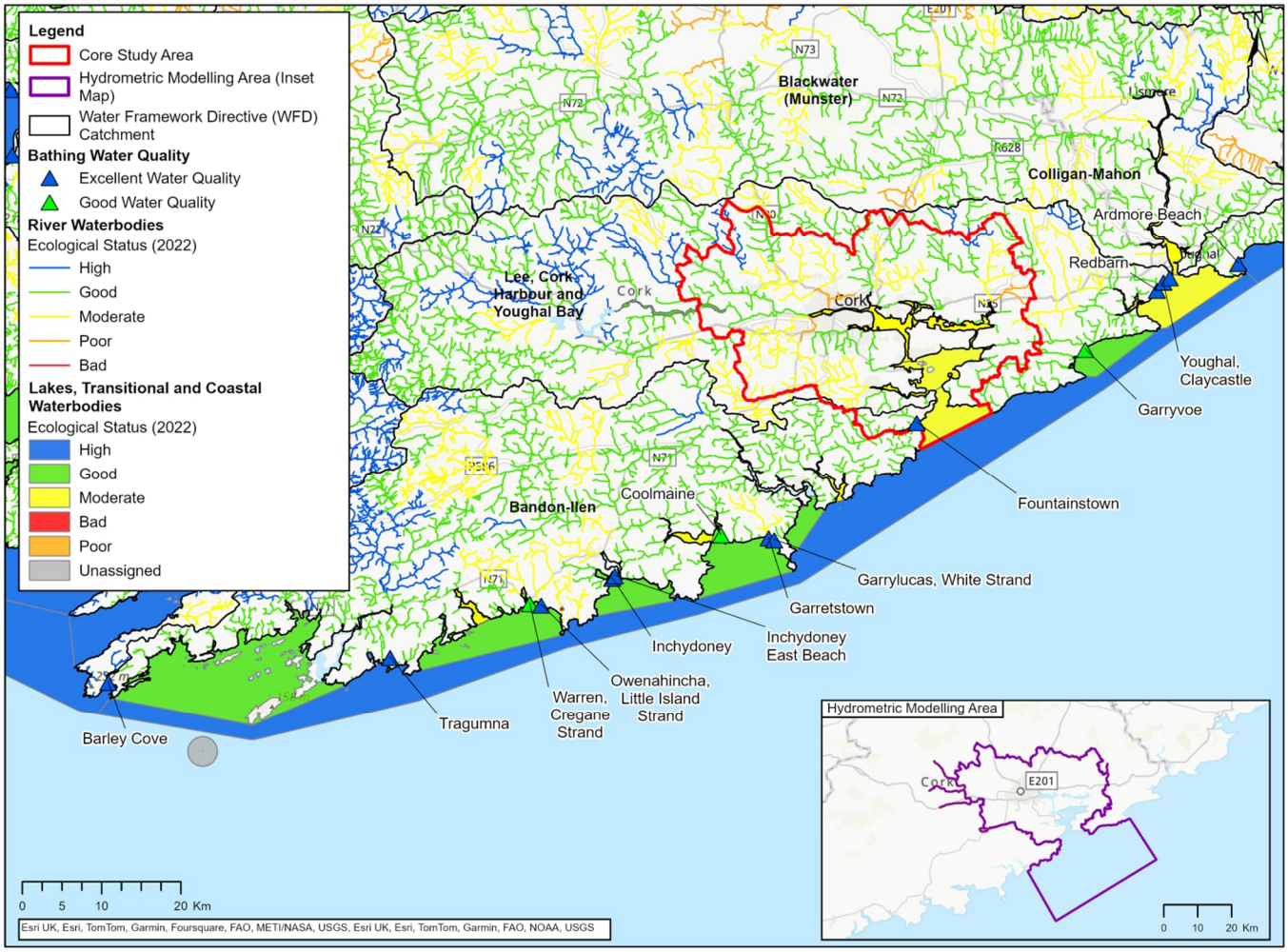

Figure 3.1 WFD ecological status of surface waterbodies and bathing water quality

Water Quality

Ireland has seen a continuing decline in high status waterbodies and an increase in the number of waterbodies in poor ecological health. Even more stark is the dramatic reduction in the number of the most

pristine rivers, which have fallen in 30 years from over 500 sites in 1990 to only 20 sites in 2020. The EPA also urge that focus should be given to protecting estuaries, as these waterbodies have the worst status overall and specific measures for their improvement and protection are needed[10].

The EPA 2022 assessment also identified that 88% of surface waterbodies achieved good chemical status when ubiquitous substances were excluded (for example mercury and polycyclic aromatic hydrocarbons (PAHs)).

Rivers

Total length of river waterbodies within the zone of influence (based on the hydrometric modelling area) is 984 km. A total of 57% of these achieved high or good 2016 – 2021 WFD ecological status; 37% achieved moderate status and 7% achieved poor status. Approximately half of the river waterbodies have WFD at risk status with 13 currently under review[11]. Table 3.3 presents ecological status of rivers within the zone of influence.

Table 3.3 Ecological status of river waterbodies within the zone of influence

WFD catchment	Number of river waterbodies	WFD ecological status					At risk
		High	Good	Moderate	Poor	Bad	
Bandon-Ilen	1	0	1	0	0	0	0
Lee, Cork Harbour and Youghal Bay	45	3	22	17	3	0	24
Blackwater (Munster)	0	N/A	N/A	N/A	N/A	N/A	N/A

Lakes

Lough Inniscarra is the only lake waterbody within the hydrometric modelling area, covering 4.9 km^2. The waterbody achieved good 2016 – 2021 WFD ecological status and is classed as at risk[11] due to unknown anthropogenic pressures[12].

Groundwater waterbodies

Groundwater waterbodies cover 815 km^2 of the surface water hydrometric modelling area. All of the 19 waterbodies bar one achieved good WFD 2016 – 2021 WFD status. Five groundwater waterbodies are classed as at risk and five are currently under review[11]. Figure 3.2 and Table 3.4 present WFD status of groundwater bodies within the Core Study area and surrounding area.

[10] Environmental Protection Agency (EPA). 2022. Catchments. Accessed: November 2023. Available from: https://gis.epa.ie/GetData/Download

[11] Environmental Protection Agency (EPA). 2021. WFD Cycle 3 Waterbodies. Accessed: November 2023. Available from: https://gis.epa.ie/GetData/Download

[12] Environment Protection Agency. 2023. 3rd Cycle Draft Lee, Cork Harbour and Youghal Bay Catchment Report (HA 19). Accessed: December 2023. Available from: https://catchments.ie/wp-content/files/catchmentassessments/19%20Lee,%20Cork%20Harbour%20and%20Youghal%20Bay%20Catchment%20Summary%20WFD%20Cycle%203.pdf

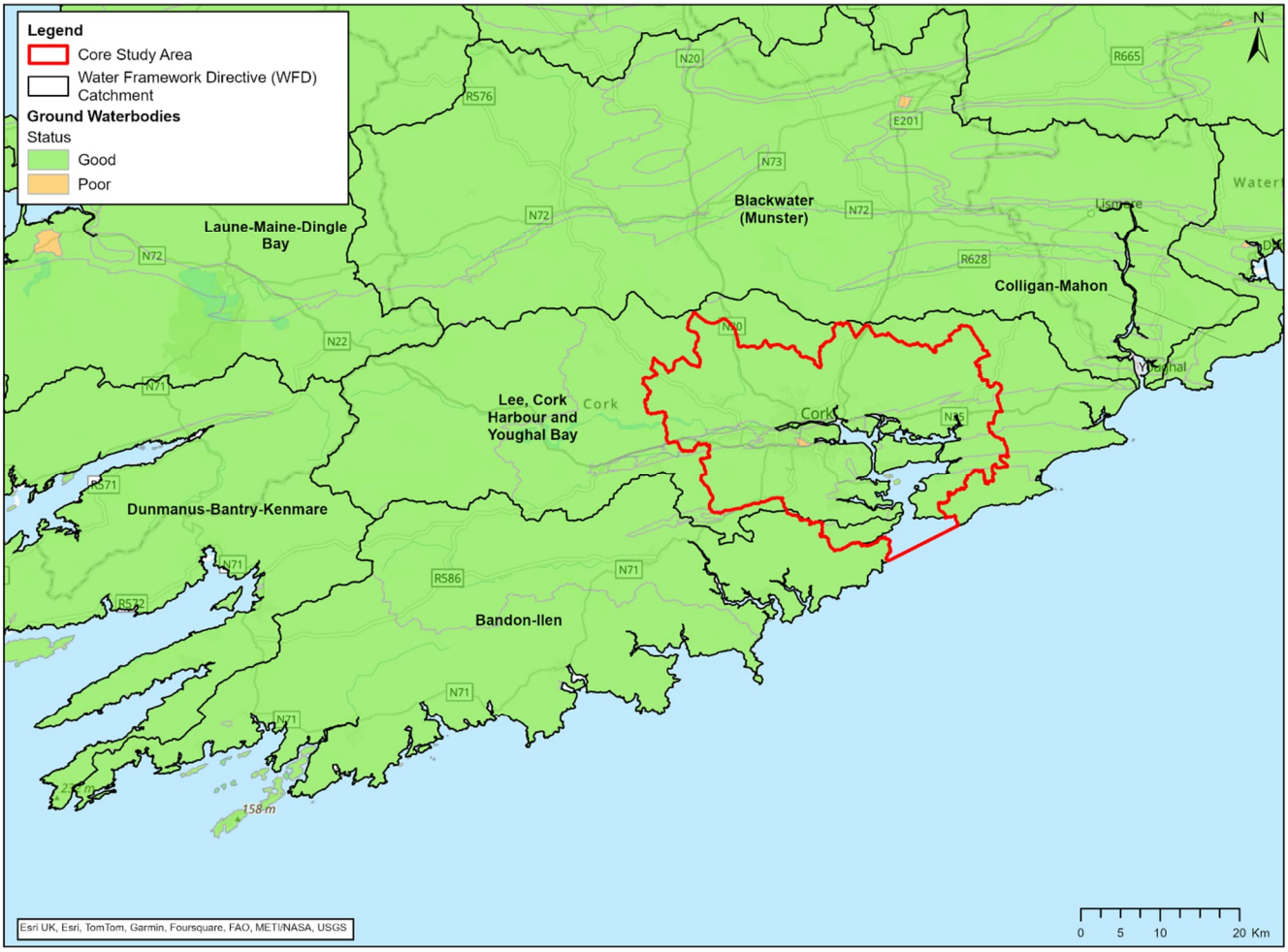

Figure 3.2 WFD status of groundwater waterbodies

Table 3.4 Status of groundwater waterbodies within the zone of influence

WFD catchment	Number of waterbodies	WFD status		At risk
		Good	Poor	
Blackwater (Munster)	1	1	0	1
Lee, Cork Harbour and Youghal Bay	16	15	1	3
Bandon-Ilen	2	2	0	1

Transitional (Estuarine) and Coastal Waters

Transitional and coastal waterbodies cover 303 km^2 of the hydrometric modelling area. 12% of these achieved high or good 2016 – 2021 WFD ecological status; 63% achieved moderate status; 13% achieved bad status and 13% of the waterbodies were unassigned. Over half of the waterbodies have WFD At risk status and five are currently under review[11].

Table 3.5 Transitional and coastal waterbodies intersecting with the zone of inflluence

WFD catchment	Number of waterbodies	WFD ecological status						At risk
		High	Good	Moderate	Poor	Bad	Unassigned	
Colligan-Mahon (borders only)	1	1	0	0	0	0	0	0
Lee, Cork Harbour and Youghal Bay	15	0	1	10	0	2	2	9
Blackwater (Munster)	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Marine Environment

The temperate waters that surround Ireland are highly productive and provide a rich mosaic of marine life. The assessment of the wider marine areas is covered under the EU Marine Strategy framework Directive.

Ireland's location in the Atlantic Ocean on the edge of the European continent has meant that its marine environment has remained relatively unpolluted. In recent years, however, the level of environmental stress, from both internal and external sources, has increased. Coastal development, particularly during the 1990s, has resulted in an increase in the range and magnitude of pressures that have the potential to impact negatively on the quality of Ireland's tidal waters.

Nutrient Sensitive Areas

Nutrient sensitive areas are designated under the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC. These areas are used to represent the waterbody containing the sensitive area. Waters may be identified as 'Sensitive (Eutrophic)' if found to contain excessive levels of nutrient waste as outlined by both the UWWT or Nitrates Directives, or likely to become eutrophic if preventative action is not taken. There are two transitional waterbodies classified as nutrient sensitive areas within the hydrometric modelling area: the Lee Estuary/Lough Mahon and Owencurra Estuary/North Channel (see Figure 3.3). There are no river nutrient sensitive areas within the study area.

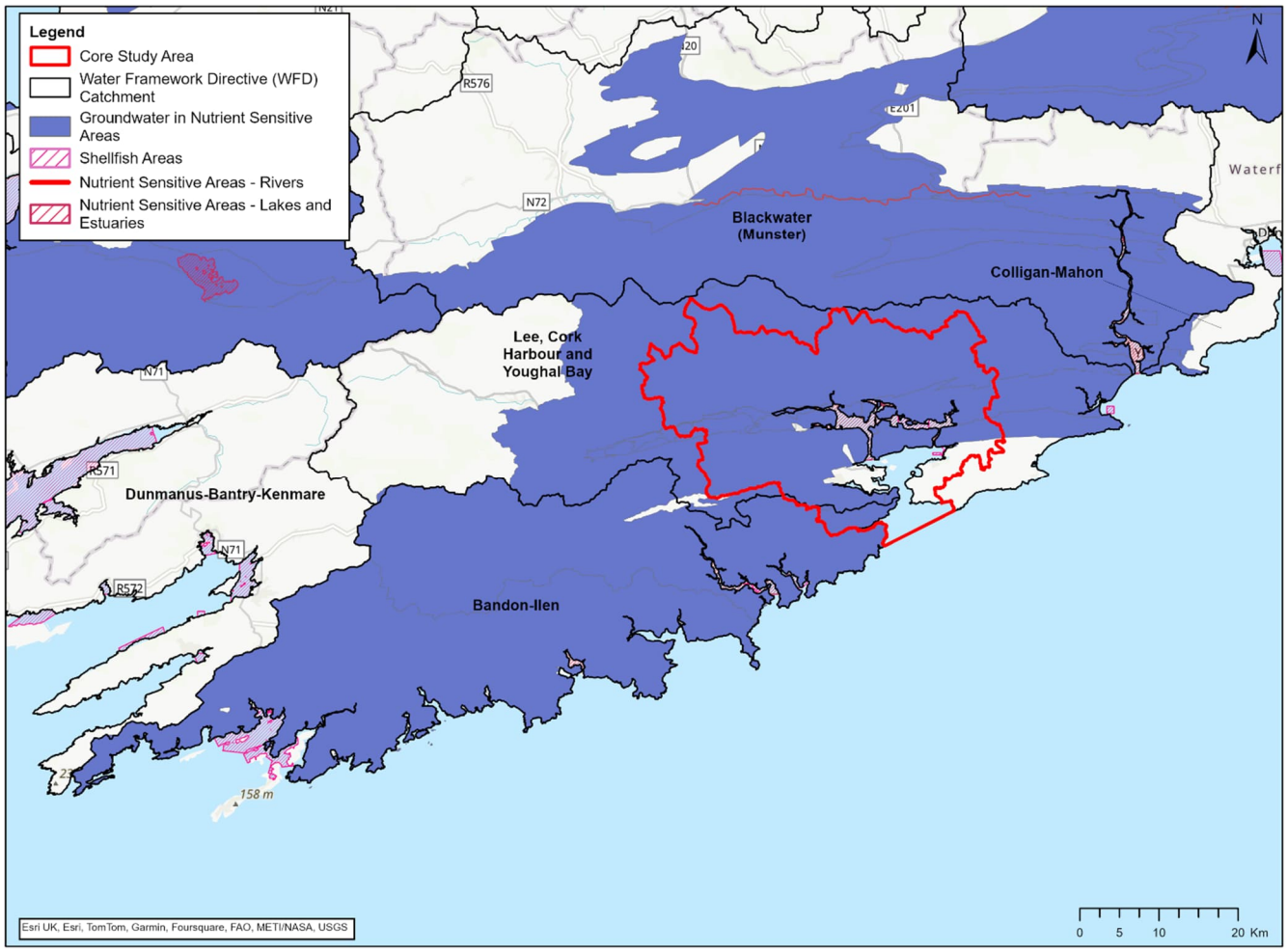

Figure 3.3 Nutrient sensitive areas and shellfish areas

Sources of Pollution

Significant pressures were identified for 39 waterbodies within the zone of influence (based on the hydrometric modelling area) and these are noted in Table 3.6[13]. Urban run-off accounts for 26% (5 river; one coastal; and four transitional waterbodies) and urban waste water accounts for 3% (one transitional waterbody, namely Lough Mahon) of the significant pressures on all types of water bodies within the zone of influence.

Table 3.6 Significant pressures on a number waterbodies within the zone of influence

Pressure category	Waterbody type			
	Rivers	Coastal and transitional	Lakes	Groundwater
Abstractions	0	0	0	0
Agriculture	7	3	0	3
Anthropogenic Pressures	4	0	1	0
Hydromorphology	7	0	0	0
Urban Run-off	5	5	0	0

[13] Environmental Protection Agency (EPA). 2022. WFD Significant pressures. Accessed: December 2023. Available from: https://gis.epa.ie/GetData/Download

Pressure category	Waterbody type			
	Rivers	Coastal and transitional	Lakes	Groundwater
Urban Waste Water	0	1	0	0
Forestry	0	0	0	0
Extractive Industry	0	0	0	0
Waste	0	0	0	1

3.8.2 Flood Risk

Flooding has become a greater issue in Ireland in recent years; the frequency of flood events has been increasing and with climate change, is expected to increase further. Increased flooding can cause pressure on drains and sewers affecting wastewater treatment plant operation and release of untreated stormwaters due to flood events affecting surface water quality. Flood events also increase nutrient rich sediment run off from agricultural and forestry land also affecting water quality.

The Floods Directive (2007/60/EC) required member states to develop Flood Risk Management Plans for areas of existing and future potentially significant flood risk. The Floods Directive was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations 2010 and sets out the responsibilities of the OPW.

The OPW has been implementing the Directive mainly through the Catchment-based Flood Risk Assessment and Management (CFRAM) Programme[14]. CFRAM mapping for all Areas for Further Assessment is available to view on the CFRAM website[14]. There are five Areas for Further Assessment (AFAs) identified in the study area: Cork City, Glanmire, Carragaline, Tower, Middleton and Ballynacorra.

An increase in likelihood of river and coastal flooding is predicted across Ireland from climate change projections. All of Ireland's major cities are located in coastal areas subject to tides, and a significant rise in sea levels will have major economic, social and environmental impacts.

This includes flood risks to water and wastewater services either directly or indirectly by affecting power supply or transport access for water services operation and also through impacts to customers experiencing the effects of inundation of residential areas and businesses.

High probability of fluvial flooding within the hydrometric modelling area has been identified in Cork City along River Lee and Lough Inniscarra, as well as in Blarney along Rivers Martin and Shournagh. Coastal high probability flooding has been identified for the areas adjacent to Lough Mahon and Cork Harbour, including parts of Carrigaline, Crosshaven, Cobh, Rostellan, Midleton, Ballynacorra, and Cork[15]. Figure 3.4 shows areas with medium or high probability of fluvial or coastal flooding within the hydrometric modelling area. No areas of medium or high probability of groundwater flooding have been identified.

[14] Office of Public Works (OPW). 2018. Catchment Flood Risk Assessment and Management Programme. Accessed: December 2023. Available from: https://www.floodinfo.ie/map/floodplans

[15] Office of Public Works. 2023. Flood Maps. Accessed: December 2023. Available from: https://www.floodinfo.ie/map/floodmaps/

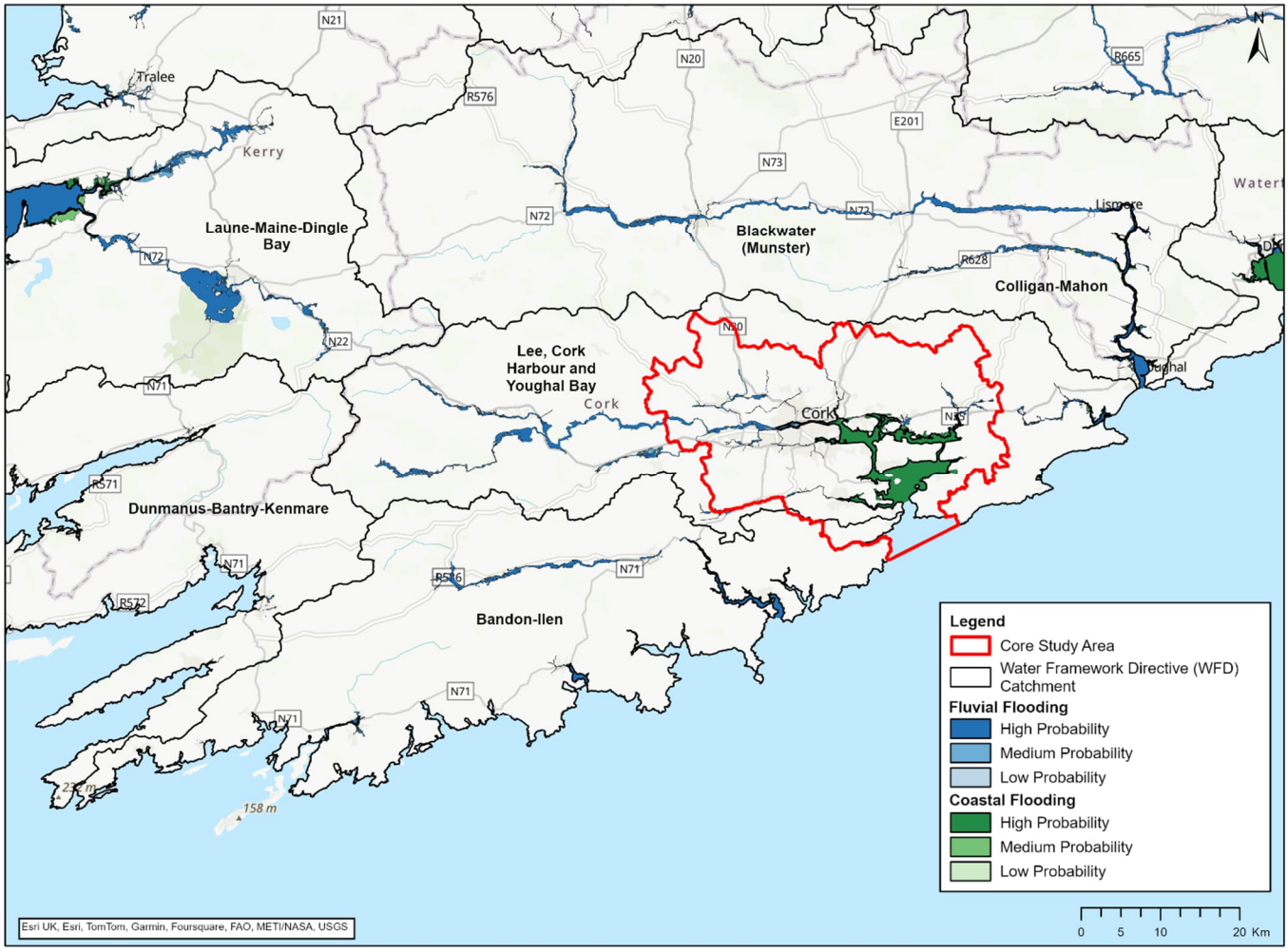

Figure 3.4 Fluvial and coastal flood risk

3.8.3 Future Trends

WFD environmental objectives

The second cycle River Basin Management Plan[16] sets out a programme of measures to improve water quality and the third cycle draft RBMP 2021- 2027 (published for consultation in 2021 with the final version expected in early 2024)[17] updates and takes this further. The current ecological status data can be used to assess progress against the environmental objectives that those measures were designed to achieve.

The evidence shows that there have been both improvements and declines in the water quality in all water body types between 2013-2018 (cycle 2) and the 2016-2021 (cycle 3) assessment period within the WFD Zone of Influence. In 2013-2018, 43% (35 waterbodies) of all waterbodies achieved their environmental objective (have high or good WFD ecological status[18]) whilst in 2016-2021, 57% (47 waterbodies) achieved their ecological objective. Cycle 2 saw 22 waterbodies with unassigned status of which 11 had high or good status and 9 had below good status in cycle 3. A total of 6 waterbodies have deteriorated and the status of 2 waterbodies remains unassigned. The draft RBMP 2021-2027[17] proposes 26 areas for focused action and collaboration by a range of bodies including the Local Authority Waters. Programme (LAWPRO), local

[16] DHLGH. 2018. River Basin Management Plan 2018 - 2021. Accessed: October 2023. Available from: https://www.gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/

[17] Department of Housing, Local Government and Heritage (DHLGH). 2021. Draft River Basin Management Plan for Ireland 2022-2027. Accessed: October 2023. Available from: https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/

[18] The Water Forum. 2022. Introduction to the Water Framework Directive (WFD). Accessed: January 2024. Available from: https://thewaterforum.ie/

authorities, public bodies, and stakeholders as part of implementation of the 3rd Cycle for implementation of the EU Water Framework Directive in Ireland. There is one objective for action: restoration (for 26 waterbodies); five of which are high status objective waterbodies. In June 2022, LAWPRO introduced a new element to their work programme called the Q5 River Engagement Initiative. The funding was directed towards 24 rivers in Ireland, including River Lee located west of the core study area.

Agricultural policy and water protection

A significant proportion of water pollution arises from agricultural land. Teagasc (Agriculture and Food Development Authority) identify a risk-based approach to identifying areas of diffuse pollution on farmland with the highest risk of affecting a waterbody. The approach can support the work of LAWPRO and Agricultural Sustainability Support and Advisory Programme (ASSAP) which have been addressing the second cycle PAAs to focus land management measures where they will be most effective. Recommendations[19] have been made to extend ASSAP as part of supporting the forthcoming third cycle RBMP. Many of the areas of action proposed in the draft RBMP 2021-2027 mentioned above will aim to address pollution from agricultural land.

The National Action Programme under the Nitrates Directive will provide an opportunity to evaluate the need to amend existing farm management measures under the programme. Measures will be required to address the issues identified during farm inspections such as inadequate management of animal manures, contamination of waters by run-off from farmyards and structural defects in manure storage facilities.

Local community initiatives

To deliver significant improvements in the condition of waters it will be important to generate and harness bottom-up community involvement and ownership of the environmental issues, for example through the formation of River Trusts. Funds available from the Community Water Fund and from national and European research projects (LEADER and LIFE projects) are providing opportunities for local communities and farmers to get involved in local water quality catchment-based projects. Local community initiatives, with the support of the LAWPRO, have the potential to tackle threats to water protection and restoration more effectively by examining the risks and developing tailored solutions at a local level.

Citizen science also provides an opportunity for local communities to get involved in science projects to inform on the quality of the aquatic environment. The Dragonfly Ireland 2019-2024 project is seeking volunteers to record sightings of dragonflies and damselflies while the Explore Your Shore project is looking for volunteers to identify the different types of animals and plants found in seashore rockpools. An example of citizen science in practice can be seen from activity in Cork City in 2022 resulting in 20 sampling points surveyed across the city.

Urban wastewater

The Proposal for a revised Urban Waste Water Treatment Directive (UWWTD) was published by the European Commission in October 2022. It is envisaged that this revision will aim to take account of new standards and challenges and to support improving water quality by further addressing urban wastewater pollution. The revised UWWTD is currently scheduled for adoption in 2024 with implementation in Ireland likely sometime in 2026. The proposed revisions include:

- Extending application of the directive to settlements over 1000 p.e;
- New standards for decentralised facilities;

[19] Teagasc. 2021. External Expert Assessment of the Agricultural Sustainability Support and Advisory Programme (ASSAP) Report of the Independent Review Panel 12 October 2021. Accessed: October 2023. Available from: https://www.teagasc.ie/media/website/crops/ASSAP-Expert-Review-Final-Report---pdf--22-Nov-2021.pdf

- Integrated water management plans in all large settlements and those above 10,000 p.e where there is environmental risk with priority to green infrastructure and optimisation of existing systems;
- More stringent limit values for nutrients for all large facilities but also those over 10,000 where there are eutrophication issues;
- Establishment of new limit values for micro-pollutants requiring additional treatment initially for large facilities then on a risk basis for smaller facilities;
- Introduction of a system of producer responsibility for two main sources of micro- pollutants to raise funds and incentivise change; and
- Improved monitoring of non-domestic pollution supporting reuse of sludge and treated water.

The proposals also aim for facilities over 10,000 p.e to reach energy neutrality by 2040 and to improve governance and transparency of performance, access to sanitation and digital technology supporting improvements to monitoring and reporting.

Since 2014 there have been significant improvements in wastewater treatment and discharges and this is recognised in the draft RBMP 2021-2027. However, the existing infrastructure is ageing and dispersed while regulation standards are becoming more stringent. Significant investment will therefore be required to improve performance and reduce water pollution but this will not be achievable in the short term. The EPA highlighted urban areas (in mid-2022) where treatment must improve as a priority for the below urban areas within the core study area to address the following[20]:

- Cork City: inadequate treatment - failed EU treatment standards; inadequate collecting system (sewers) - failed EU requirements; significant pressure on waters at risk of pollution.
- Midleton: inadequate collecting system (sewers) - failed EU requirements.
- Whitegate: Agada: no treatment - discharging raw sewage.

Marine Planning Reform

As part of implementing the EU Marine Spatial Planning Directive (2014/89/EU), Ireland's National Marine Planning Framework (NMPF) (2021) has been produced to provide guidance for activities and developments affecting the marine environment up to 2040. The Maritime Area Planning Act 2021 (as amended), was enacted in 2021 and the Maritime Area Regulatory Authority (MARA) was established in July 2023 - together these introduce a new legislative regime around consent for development and activities in the marine area. The NMPF provides policies for sustainable planning and management of marine resources, balancing ecological, economic and social objectives in relation to aspects such as the environment, biodiversity, commercial fisheries and renewable energy. As part of this, the NMPF includes specific objectives and planning policies related to water quality and to wastewater treatment and disposal.

Impacts of climate change on the water environment

Climate change impacts on the water environment within the hydrometric modelling area identified by the Cork City Council[21] include:

- Recent experiences of tidal flooding in 2020, and 2021, resulted in the submergence of transport routes, damage to automobiles (e.g. Morrison's Island), inundation of buildings, and increased pressure on emergency services. Rising sea levels will increase the frequency of tidal inundation, resulting in an increased flood risk for Cork City.

[20] Environment Protection Agency (EPA). 2023. List of priority urban areas. Accessed: December 2023. Available from: https://www.epa.ie/publications/compliance--enforcement/waste-water/priority-areas-list-current.php

[21] Cork City Council. 2023. Draft Cork City Council Climate Action Plan 2024-2029. Climate Change Risk Assessment. Accessed: December 2023. Available from: https://consult.corkcity.ie/en/consultation/draft-cork-city-council-climate-action-plan-2024-2029

- Pluvial and fluvial flooding already pose a significant risk for Cork City and have resulted in the inundation of homes (e.g. Glanmire) and buildings (e.g. Douglas Shopping Centre), disruption of transport networks (e.g. South City Link Rd), increased pressure on emergency services (e.g. evacuation of residents in 2009), and the closure of public amenities (e.g. Mardyke Arena). Projected increases in the frequency of extreme precipitation events will result in increased surface water and riverine flood risk for Cork City.

Cork City experienced both a heatwave and a drought in 2018, with heatwaves also recorded in 2022. These events placed an increased demand on water resources, and also put increased pressure on recreational areas (e g. the Lough). Projected increases in the frequency of heatwaves and drought conditions will mean that events currently experienced on a common basis will become more frequent.

Recent experiences of cold spells and heavy snowfall events in 2018 (e.g. Storm Emma) and 2022 demonstrated the wide range of impacts for Cork City. These included, amongst others, damage to water infrastructure and disruption of supply, cancellation of public transport, and widespread business and economic impacts. Projected increases in average temperature and decreases in the frequency of snowfall indicate a decrease in the frequency of cold spells, heavy snow fall, and their associated impacts.

3.8.4 Key Considerations for CWS and the SEA

This section summarises the key challenges and opportunities to be taken into account in the environmental assessment of the CWS related to the water environment.

Challenges

- Additional pressures on the aquatic environment related to climate change and increased frequency of drought periods.
- Water pollution from wastewater discharge, storm water, and water treatment discharge affecting receiving waterbodies including rivers, lakes, transitional and coastal waterbody ecosystems and contributing to effects on aquatic ecology, bathing waters, recreation and fisheries.
- Stormwater management: separating the wastewater and stormwater network, reducing the number of combined sewer overflows and potential to increase the use of Sustainable Urban Drainage Schemes (SUDS) in new development.
- Wastewater management: upgrading and maintaining wastewater treatment plants to address existing and also new contaminants and to meet existing and future standards and protect the environment.
- Water pollution including from diffuse sources such as agriculture forestry and urban runoff affecting raw water quality affecting drinking water treatment requirements, health and aquatic ecology.
- Challenges from climate change increasing pressure on the natural environment and increased risks for infrastructure – importance of supporting environmental resilience and developing infrastructure and operational resilience of wastewater services.

Opportunities

- Understanding the pressures and effects on the water environment better and improving data, monitoring, knowledge sharing and making use of new digital and mapping technologies.
- Opportunities for collaboration with a range of stakeholders particularly in relation to addressing catchment wide issues, and developing new approaches including considering ecosystem services and valuing the wider benefits from nature-based solutions and catchment management.

3.9 Population, Economy, Tourism and Recreation, and Human Health

3.9.1 Population Baseline Condition

Table 3.7 shows the current population for settlements within the CMA. The current total population of the study area is approximately 310,000, with the most populous settlements being Cork City, Carragaline, Conh and Midleton. Population projections for 2028 and 2040 based on 2022 Census Data in combination with Cork City Local Development Plan[95] and and Cork County Local Development Plan[96] are currently being prepared and will be reported in the SEA Environmental Report.

Table 3.7 Current and projected populations

Area	2022 population
Aghada-Rostellan	1,159
Ballincurrig	389
Ballygarvan	556
Ballymore	295
Berrings	440
Carrigaline	18,239
Carrignavar	563
Carrigtwohill	5,568
Cloyne	1967
Cobh	14,148
Coole East	376
Cork City	222,526
Cork City (Blarney)	2,779
Cork City (Tower)	3,300
Courtbrack	459
Crosshaven	3,263
Grenagh	724
Halfway	252
Inniscarra	232
Killumney/Ovens	1,466
Knockraha	517
Leamlara	476
Lisgoold	325
Matehy	341

Area	2022 population
Midleton	13,906
Minane Bridge	282
Model Village (Dripsey)	323
Monard	273
Myrtle Village	965
Passage West / Monkstown	6,051
Ringaskiddy - Loughbeg	575
Saleen	601
Shanbally	350
Watergrasshill	1,840
Whitechurch	719
Whitegate	1,248
Total	**307,493**

3.9.2 Economy and Employment Baseline Condition

Nomenclature of Territorial Units for Statistics (NUTS) were created by Eurostat to define territorial units for regional statistics. There are eight NUTS3 regions in Ireland, and the study area falls within the South-West NUTS area. As shown in Table 3.8, unemployment rates in the South-West region were lower than the Ireland average in Q1 2022 and in 2020 disposable income levels were similar to the Ireland average.

Table 3.8 Economy and employment statistics [22,23]

Area	Q3 2022 unemployment rates (%)	Q3 2023 unemployment rates (%)	2020 household disposable income estimates per person (€)	2020 Indices of Disposable Income per person (state = 100)
Republic of Ireland	4.5	4.6	23,471	100.0
South-West	3.6	4.8	23,130	98.6

3.9.3 Human Health Baseline Condition

According to Irish Health Survey 2019[24] the key findings regarding the Ireland human health conditions are:

[22] Central Statistics Office (CSO). 2023. Labour Force Survey Quarterly Series. QLF08 – Persons aged 15 years and over. Accessed: December 2023. Available from: https://data.cso.ie/
[23] Central Statistics Office (CSO). 2023. Labour Force Survey Quarter 1 2023. Accessed: October 2023. Available from: https://www.cso.ie/en/releasesandpublications/ep/p-lfs/labourforcesurveyquarter12023/unemployment/
[24] Central Statistics Office (CSO). 2020. Irish Health Survey 2019. Accessed: October 2023. Available from: https://www.cso.ie/en/releasesandpublications/ep/p-ihsmr/irishhealthsurvey2019-mainresults/healthstatus/

- Affluent people are more likely to feel their health status is very good or good than people who are disadvantaged – 92% of very affluent persons compared to 78% of persons who are Very disadvantaged;
- Over a quarter of persons aged 15 years and over report having a long-lasting condition, with older persons reporting higher levels;
- Majority of persons (82%) report no limitations in everyday activities due to a health problem;
- Over a fifth (21%) of Unemployed persons report some form of mental ill-health compared to 9% of those In employment;
- Prevalence of hospital in-patient admissions rises with age and disadvantage level;
- In general, females and older people more likely to use a preventive health service.;
- Physical activity declines with age and relative disadvantage level;
- Younger persons more likely to drink 6 or more units of alcohol in one sitting; and
- Over half of persons aged 15 years and over in the State are overweight or obese.

The survey is based on self-reported data from persons aged 15 years and over and outlines their view of their health status.

Table 3.9 provides well-being indicators for Cork City Council and Cork County Council Local Authority areas (where available), the South West NUTS area and for Ireland.

Table 3.9 Well-being indicators of persons aged 15 years and over[25]

Well-being indicator		Republic of Ireland	South-West	Cork County Council	Cork City Council
Self-perceived health status	Very good or good (%)	85	84	87	85
	Fair (%)	12	12	37	8
	Bad or very bad (%)	3	4	1	2
Prevalence of long-lasting condition (%)	Yes (%)	26	29	ND	ND
	No (%)	74	71	ND	ND
Limitations in everyday activities due to a health problem	Severely Limited (%)	5	6	ND	ND
	Limited but not severely (%)	13	16	ND	ND
	Not limited at all (%)	82	78	ND	ND
Mental health status in previous two weeks	None to minimal depression (%)	86	83	ND	ND
	Mild depression (%)	9	11	ND	ND

[25] Central Statistics Office (CSO). 2023. SAP2022T12T3CTY – General Health of Population. Accessed: December 2023. Available from: https://data.cso.ie/

Well-being indicator		Republic of Ireland	South-West	Cork County Council	Cork City Council
	Moderate depression (%)	3	4	ND	ND
	Moderately severe or severe depression (%)	2	3	ND	ND
Average number of days absent from work due to a health problem	Absent from work due to a health related problem (%)	20	19	ND	ND
	Average number of days absent (days)	4.1	4.3	ND	ND

Table 3.10 provides an overview of participation in different types of physical activities in the South West NUTS region compared to Ireland.

Table 3.10 National and Regional participation in physical activity of persons aged 15 years and over

Activity	Participation (%)	
	Republic of Ireland*	South-West
Walk to get to and from places (2019)	81	81
Cycle to get to and from places (2019)	12	10
Do sports, fitness or recreational physical activities (2019)	49	47
Do muscle-strengthening activities (2019)	25	24

3.9.4 Tourism and Recreation Baseline Condition

Cork 2050 identifies tourism as a '*essential complement to Cork's towns, villages, rural areas and islands*'[26], and parts of the study area are located within within Fáilte Ireland's Ancient East and Wild Atlantic Way tourism programmes. Key tourist attractions within the study area include Cork City centre and its maritime heritage, Kinsale (including Charles Fort and harbour cruises) and Midleton Distillery. Garryvoe beach at Shanagarry and Myrtleville Beach and White Bay Beach at Cork City are popular recreational resources for the local community as well as a tourist attraction. Fountainstown Beach was awarded both a Blue Flag award and the Green Coast Award in 2023. There is one designated Bathing Water area within the hydrometric modelling area (Fountainstown), classified as having excellent water quality. Other waterbased recreational activites and tourist attractions include boat hire in Cork Harbour, dolphin and whale watching (based outside the hydrometric modelling area but potentially utilsiing coastal waters within the study area, kayaking, stand up paddleboarding, sailing, powerboating, water skiing and river angling (see Section 3.9.5) . One national waymarked trail, The Atlantic Coast Cycle Route, passes through the south southeastern portion of the study area. National waymarked trails located in the study area are shown in (see Section 3.12), and the locations of designated Bathing Water areas are shown in Figure 3.1 (see Section 3.8).

[26] Cork County Council. 2017. Cork 2050 Realising the full potential. Cork's submission to the National Planning Framework. Accessed: December 2023. Available from: https://www.corkcoco.ie/sites/default/files/2022-03/cork-2050-main-report-pdf.pdf

3.9.5 Commercial and Recreational Fishing Baseline Condition

Fish stocks in Irish waters (excluding the Inshore stocks) are managed by the EU under the CFP. Inland Fisheries Ireland (IFI) is the Agency that has the statutory responsibility for the protection, development, and management of rivers and streams, lakes and coastal waters (within a 12-mile jurisdictional limit) and including fisheries and sea angling resources[27].

Fresh water fishing

Fresh water fishing in Ireland is represented by mainly recreational fishing. The main types of recreational fishing in Ireland are trout, pike, salmon and coarse fishing.

IFI[27] note that brown trout thrive in most waters and as such are widespread across most of Ireland. In many areas fisheries are specifically managed for brown trout; however, they are also found in waters containing large stocks of pike and coarse fish. The Atlantic Salmon ("Bradán" in Gaelic) is a native Irish fish. Most rivers have a run of salmon from Spring until Autumn. Salmon can be caught in Irish waters from January through to October.

Coarse fishing in Ireland is a year-round activity. According to the IFI[27] fish feeding throughout the year, particularly roach and perch, can be fished all year round. Species such as tench, bream and rudd, which are most active in warmer weather, have a natural season extending from April to October. Most Irish rivers and loughs are subject to seasonal rhythms of high and low water and can be adversely affected by floods and droughts and fisheries are also affected by climate change and water pollution.

Data from Ireland's Marine Atlas[41] shows that inshore fishing activities undertaken within the study area include periwinkle harvesting and pot fishing. Fish species whose range includes the hydrometric modelling area include blue whiting, Atlantic cod, haddock, herring, horse mackerel, mackerel, megrim, whiting and wild Atlantic salmon.

Fish landing

Landings at Cork and Cobh ports were 1,555 tonnes and 80 tonnes respectively in 2022, with the landings for Cork increasing from 634 tonnes in 2021 and the landings for Cobh decreasing from 841 tonnes in 2021[28].

Shellfish Waters

There are four shellfish waters in the study area, Cork Great Island North Channel, Rostellan North, Rostellan South, Rostellan West and Ballymacoda Bay, which are protected areas designated to support the life and growth of oysters. Shellfish Water Protected Areas now come under the protected areas covered under the WFD. Inadequately treated wastewater discharges have potential to contaminate shellfish with bacteria and viruses which in turn poses risk to human health through the consumption of the shellfish. Between 2009 and 2015 Cork North Channel requently failed to meet the guide value[16].

The EPA has identified that Uisce Éireann must complete an assessment of the impacts of wastewater discharges at all four locations within the study area. As of July 2023 Uisce Éireann were completing the detailed assessment of discharges to Cork Great Island North Channel, Rostellan South, Rostellan South and Rostellan West using modelling studies.

3.9.6 Future Trends

The CMA is a major regional metropolitan area, identified as such in the NPF 2040[1] and in the Southern RSES 2020-2032[2] to ensure long term economic, environmental, and social progress. The NPF 2040 envisages that

[27] Inland Fisheries Ireland. 2023. Inland Fisheries Ireland. Accessed: December 2023. Available from: https://www.fisheriesireland.ie/#:~:text=Inland%20Fisheries%20Ireland%20is%20the,jurisdictional%20limit%20is%20also%20included.

[28] Central Statistics Office (CSO). 2023. Fish Landings 2022. Accessed: November 2023. Available from: https://www.cso.ie/en/releasesandpublications/ep/p-fl/fishlandings2022/

Cork will become the fastest-growing city region in Ireland with a projected 50% to 60% increase of its population in the period up to 2040.

Proposed new infrastructure projects within the study area include:

- N/M20 Cork to Limerick project part of the Cork Metropolitan Area Transport Strategy;
- N28 Cork to Ringaskiddy;
- Mahon to Marina Greenway;
- Runway reconstruction project at Cork Airport;
- Cork Commuter Rail Programme;
- MTU Cork Campus, refurbishment of 1974 building;
- Lower Lee (Cork City) Flood Relief Scheme (in development);
- Cork Lower Harbour Main Drainage Scheme (due for completion in 2021);
- Cork City Waste Water Network Drainage Area Plan;
- Completion of investments at Port of Cork; and
- Development of the Cork City Docklands.

Uisce Éireann is involved in Project Steering Committees/Groups for various ongoing research projects which focus on contaminants of emerging concern (CECs) and include Microplastics, Phthalates, Pharmaceuticals/Pesticides & Antimicrobial Resistance (EPA and UKWIR funded). Uisce Éireann provides asset data and facilitates sampling of wastewater influent and effluent and also raw drinking water. Uisce Éireann also participates in iNAP 2 (2021-2025) meetings, where the main objective is to increase environmental surveillance and monitoring for AMR to identify national levels and understand transmission routes.

Following the adoption of the Partnership Agreement 2021-2027 with Ireland, the European Commission has adopted the European Maritime, Fisheries and Aquaculture Fund programme for Ireland, to implement the EU CFP and EU policy priorities outlined in the European Green Deal.

The programme aims to boost the resilience of the entire seafood sector, to accelerate its green transition, as well as to support the coastal communities[29]. 50% of the programme allocation will be dedicated to sustainable fisheries and conservation of aquatic biological resources, 36% will be invested in sustainable aquaculture and in processing and marketing, 6% will be dedicated to sustainable blue economy in coastal areas and 2% will be invested in the strengthening of international ocean governance.

3.9.7 Key Considerations for CWS and the SEA

Key challenges and opportunities in relation to Population, Economy, Tourism and Recreation, and Human Health are:

Challenges

- Population growth within the study area will increase demands on the existing wastewater infrastructure, and also alter the geographical extent of serviced lands;
- Potential for the operation of wastewater treatment plants to affect freshwater or estuarine or marine water quality, fish stock and related livelihoods or recreation and tourism opportunities.
- Potential for the operation of wastewater treatment plants to affect shellfish, related livelihoods and human health.

[29] Directorate-General for Maritime Affairs and Fisheries. 2022. Ireland will receive €142 million from the European Maritime, Fisheries and Aquaculture Fund 2021-2027. Accessed: June 2023. Available from: https://oceans-and-fisheries.ec.europa.eu/news/ireland-will-receive-eu142-million-european-maritime-fisheries-and-aquaculture-fund-2021-2027-2022-12-09_en

- Potential for construction works to affect water quality, fish stock and related livelihoods or recreation and tourism.

Opportunities

- There are opportunities for programmes (such as Catchment Management Plans) to improve water quality and prevent or reduce pollutant load in the source waters, providing wider benefits to the environment.

3.10 Climate Change

Climate science is clear – human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels with a likely range of 0.8°C to 1.2°C. At current levels of global greenhouse gas emissions, the world remains on course to exceed the Paris Agreement's temperature thresholds of either 1.5°C or 2°C above pre-industrial levels[30].

Climate change not only means changes in the average climate such as temperature but also changes in the frequency and intensity of extreme weather and climate events[30].

The Climate Action Plan 2024 (consultation draft)[31] is the third annual update to Ireland's Climate Action Plan 2019. This Plan builds upon 2023 Plan by refining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings. The Plan provides a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021.

Reports from the Intergovernmental Panel on Climate Change reinforced the urgent need for greater action on climate adaptation globally. Observations show that Ireland's climate is changing in terms of sea level rise, increases in average temperature, changes in precipitation patterns, and weather extremes.

Climate change is expected to have diverse and wide-ranging impacts on Ireland's environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, human health, and coastal zones. The most immediate risks to Ireland from climate change are predominantly those associated with changes in extremes, such as floods, droughts, and storms.

A study by the EPA[32] found that 86% of Cork County residents were worried about climate change, with flooding (69% of residents), rising sea levels (69%) and severe storms (71%) being the risks which more Cork County residents are more concerned about than the Ireland average. The risk which was of most concern, both across Ireland and for Cork County residents, was water pollution.

3.10.1 Climate Change Baseline Condition

Observations show that Ireland's climate is changing in terms of sea level rise, increases in average temperature, changes in precipitation patterns, and weather extremes. This pattern is replicated within the study area, as summarised in the following subsections.

[30] Environmental Protection Agency (EPA). 2023. Land Use Review: Fluxes, Scenarios and Capacity Synthesis Report. Accessed: July 2023. Available from: https://www.epa.ie/publications/research/evidence-synthesis-reports/evidence-synthesis-report-4-land-use-review-fluxes-scenarios-and-capacity-synthesis-report.php

[31] Department of the Environment, Climate and Communications (DECC). 2024. Climate Action Plan 2024. Accessed: March 2024. Available from: https://www.gov.ie/en/publication/79659-climate-action-plan-2024/

[32] Environmental Protection Agency (EPA). 2021. Climate Change in the Irish Mind (CCIM). Accessed: December 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/climate-change/climate-change-in-the-irish-mind.php

Temperature Trend

The Cork City Council draft Climate Change Action Plan 2024-2029[33] identified that 2022 was *'the warmest year on record'* for Ireland based on annual average temperatures, and four of the hottest summers recorded were in the last 10 years.

Impacts associated with heatwaves recorded within Cork County over the last 10 years include[34,33]:

- High temperature and drought conditions; 30.1°C recorded at Moore Park; Driest summer on record in 56 years (July 2018);
- Red Flags raised at beaches across the county due to appearance of an invasive species, Portuguese man o' war, the stings of which can be fatal (August 2021);
- Deformation of road surfaces across the County (August 2022);

The frequency of identified severe weather events in Cork County, between 1985-2022, was of 3% for drought (once in a 10 to 100 years period) and 13% for heatwaves (once in a 2 to 10 years).

In December 2010 temperatures of -7.2°C recorded were recorded in Cork County, leading to widespread closure of business and significant damage to water and energy networks and infrastructure[33, 34].

Precipitation and Storms

The number of days with high rainfall has increased in the study area over the last 30 years, with average annual rainfall at Cork Airport increasing by 3% for the most recent period (1981-2010) compared to the 1961-1990 baseline. In addition, extreme rainfall events have been recorded, including the 230mm of rain that fell in one day during the 2020 Rosscarbery flood, which was the highest recorded daily volume since 1961[33, 34].

The main impacts of heavy rainfall and storms in Cork County in the last ten years have included[3334]:

- Storm force winds that caused coastal flooding of Bantry town square (Storm Eleanor – January 2018);
- Disruption to transport network; deep drifting of snow on roads caused cars to be abandoned. 15 cm of snow recorded at Cork Airport with minimum temperature of -7°C on March 1st (Storm Emma and Beast from the East – March 2018);
- Peak sustained wind speed of 91 km/h on Sherkin Island; Roads closed due to fallen trees and other debris; Flights cancelled at Airport (Storm Atiyah – December 2019);
- Dangerous roads, with debris and surface flood water along with a risk of falling trees (Storm Francis – August 2020);
- Lost power for 40,000 premises, in Cork, including Schull, Bantry, Skibbereen, Clonakilty, Dunmanway; Damaged boats and facilities at the new Cobh Marina in Cork Harbour (Storm Ellen – August 2020);
- 230 mm of rain fell during the 2020 Rosscarbery flood (highest recorded since 1961); Damages to roads and property (Rosscabery Flood – August 2020);
- 15 properties in Bantry flooded; the closure of part of the main N71 and serious damage to road surfaces (Rainfall – October 2020);
- Tidal flooding of 23 premises in Bantry; over 3,000 power outages, disruption to water supply affected several hundred homes (Storm Barra – December 2021); and

[33] Cork City Council. 2023. Draft Climate Action Plan 2024-2029. Accessed: December 2023. Available from: https://consult.corkcity.ie/en/consultation/draft-cork-city-council-climate-action-plan-2024-2029#:~:text=Goals,in%20all%20five%20thematic%20areas.
[34] Cork County Council. 2023. Draft Climate Action Plan 2024-2029. Accessed: December 2023. Available from: https://www.corkcoco.ie/sites/default/files/2023-10/final-draft-climate-action-plan-2024-29-for-website_0.pdf

- Approximately 17 council offices and amenity sites closed due to storm risks; approximately 22 incidents of fallen trees and road disruption; highest gust observed at Roches Point, Co. Cork at 137 km/h (74 kt) (Storm Eunice – February 2022).

The frequency of heavy precipitation and storm events identified in Cork County between 1985 and 2022 was of once in a 1 to 2 year period for severe windstorms and a 1 in 10 to 100 year period for heavy snowfall, cold spell and pluvial flooding.

Sea Level Rise

The rate of global sea level rise for 2006–2015 of 3.6 mm per year, is unprecedented over the last century, and about 2.5 times the rate for 1901–1990. Sea level is projected to continue to rise at this rate or greater, and would result in coastal erosion, flooding and damage to property and infrastructure. Sea levels in the Cork Harbour area have risen by 40 cm since 1942[33].

Marine environment

The Climate Action Plan 2024 (consultation draft)[31] states that climate change is causing fundamental and potentially irreversible changes to our marine environment, with effects for all society. Global ocean warming and ocean acidification may result in direct consequences for our marine ecosystems. At the same time, the intensity of storm events has increased, threatening coastal communities and infrastructure. These threats put at risk the many benefits provided by our seas, including food, energy, minerals, climate regulation, coastal protection, transport, leisure, and health and well-being.

Across the marine sector, a number of actions have been progressed under the Climate Action Plan 2021, including identifying areas of climate action appropriate to the Seafood Development Programme 2021-27, and completing the National Strategic Plan for Sustainable Aquaculture.

The Climate Action Plan 2024 (consultation draft) notes that significant developments are currently under way in the planning and consenting regime for the marine environment to support the ambitions for decarbonising the energy sector through the development of offshore renewable energy. This will facilitate the development of offshore renewable energy to progress at pace alongside the conservation, protection, and recovery of marine biodiversity.

3.10.2 Future Trends

Climate change is expected to have diverse and wide-ranging impacts on Ireland's environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, human health, and coastal zones. The most immediate risks to Ireland from climate change are predominantly those associated with changes in extremes, such as floods, droughts, and storms[30].

The first NAF identified that the role of Local Authorities is critical in building climate resilience and every Local Authority is required to develop a Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021; covering mitigation, adaptation, and citizen engagement.

The draft Climate Action Plan for Cork County[33] identifies that:

- Summer rainfall is expected to reduce by between 5 and 15% in the future when compared with the baseline period of 1981 to 2000, contributing to potential drought conditions;
- As a consequence of the increasing temperatures, a decrease in the number of frost days, ice days, and snowfall in the 2041-2060 future period when compared with the baseline period of 1981 to 2000, is predicted;
- The annual snowfall in the region is projected to decrease substantially by the middle of the century;

- Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for Cork County with some areas projected to see increase of up to 52%. This will likely result in an increased frequency of associated fluvial and pluvial flooding.
- Rising sea levels projections under a high emissions scenario indicate an increase of up to 0.26 m by 2050;
- By mid-century, projections indicate that average wind speed will remain similar to those currently experienced but an increase in more intense storms which are currently rare events is projected; and
- Projections of changes in groundwater flooding are not currently available.

The key climate risks identified for the study area are as follows:

- Increased risk of flooding (groundwater, pluvial (surfac water) and fluvial (river)) associated with increased precipitation driving higher river flows, increased frequency of extreme precipitation events.
- Increased risk of coastal flooding and coastal erosion associated with sea level rise and increased wave heights in the north east Atlantic.
- Increased average surface air temperatures and number of warm days, leading to heat waves, drought and thunderstorms.
- Increased windspeeds in winter and increased intensity of extreme wind storms, leading to high winds and wind storms.

The revised and updated National Adaptation Framework (NAF) 2024[35] (currently a consultation draft) reflects the increasingly important role of adaptation in addressing climate change impacts. The revised NAF also underpins the development of a new cycle of Sectoral Adaptation Plans. The revised NAF 2024 (draft consultation) identified 12 key sectors that would require Sectoral Adaptation Plans grouped under four themes: Natural and Cultural Capital, Critical Infrastructure, Water Resource and Flood Risk Management (with Flood Risk Management, Water Quality, and Water Services Infrastructure sector levels), and Public Health[31].

3.10.3 Key Considerations for CWS and the SEA

Key challenges and opportunities related to climate change mitigation and adaptation are set out below.

Challenges

The European Climate Law writes into law the goal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.

Climate neutrality by 2050 means achieving net zero greenhouse gas emissions for EU countries as a whole, mainly by cutting emissions, investing in green technologies and protecting the natural environment.

Changes in climate have direct and indirect influence on Uisce Éireann and the services it provides, and the changing climate will affect Uisce Éireann in many ways. Changes are already being felt and are expected to continue over the period to 2050 and beyond, and these include:

- Higher temperatures will impact receiving waters (rivers and the sea), potentially requiring new wastewater treatment practices. New treatment technologies for clean water may also be needed;
- More frequent extreme weather events and higher rainfall intensity can increase flood events and soil erosion with impacts on water quality from sediment and nutrients;

[35] Department of the Environment, Climate and Communications. 2024. National Adaptation Framework. Accessed: April 2024. Available from: https://www.gov.ie/en/consultation/3c620-national-adaptation-framework-public-consultation/

- Higher temperatures can increase vulnerability of aquatic ecosystems to pollution;
- Existing physical assets will need to manage additional rainfall and higher temperatures. They may be subject to increased fluvial and coastal flood and erosion risk; and
- Regulatory and policy commitments and compliance requirements on carbon emission targets and improving climate change resilience will have implications on operations and projects.

Opportunities

- Opportunities to achieve wider environmental benefits, infrastructure and service resilience and cost efficiency alongside contributing to meeting climate targets.

3.11 Biodiversity, Flora and Fauna

Biodiversity in Ireland is facing ongoing pressures which has the potential to cause further deterioration to the condition status of habitats and species.

Global trends of biodiversity loss are reflected in Ireland. According to Ireland's draft 4th National Biodiversity Action Plan[36], the main drivers of biodiversity loss are intensive agricultural and forestry practices, overfishing, invasive species, changes in land use (particularly for residential, agricultural and commercial development) and the over-exploitation of resources such as peatland loss.

The 2019 conservation status assessments reported that there is ongoing decline for 46% of EU protected habitats and 15% of EU protected species[37], with freshwater species most at risk. Although many mammal species were assessed favourably, such as seals, dolphins, and several whale and some bat species.

Nearly half of Ireland's rivers and lakes are in an unsatisfactory ecological condition and there has been a general pattern of decline in satisfactory water quality in Ireland's surface waters since the first assessment of ecological status was undertaken (2007-2009)[38]. These water quality declines have major consequences for biodiversity, with many freshwater species, such as the freshwater pearl mussel[38] affected.

3.11.1 Biodiversity, Flora and Fauna Baseline Condition

Protected areas

The Habitats Directive seeks to ensure the appropriate conservation of natural habitats and of wild fauna and flora. The Habitats Directive (92/43/EEC) was transposed into Irish law in 1997 by the EC (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997). The Regulations were subsequently revised and consolidated in the EC (Birds and Natural Habitats) Regulations 2011, as amended (S.I. No. 477 of 2011). Under the Directive, Ireland, like other member states, was required to establish an ecological network of Special Areas of Conservation – SACs (sites which host a range of natural habitats and species listed in Annex I and II of the Directive). The Birds Directive (2009/147/EC) ensures the appropriate protection of SPAs (sites which are classified for rare and vulnerable birds listed in Annex I of the Directive).

There are 30 protected areas covering a total of 85 km^2 of the the hydrometric modelling area. Protected areas include one SPA (Birds Directive); one SAC (Habitats Directive); 57 pNHAs; and one Ramsar site[39]. Additionally, two SACs and seven SPAs outside of the hydrometric modelling area were screened in as within

[36] Department of Housing, Local Government and Heritage (DHLGH). 2024. Ireland's 4th National Biodiversity Action Plan 2023–2030. Accessed: March 2024. Available from: https://www.gov.ie/en/publication/93973-irelands-4th-national-biodiversity-action-plan-20232030/

[37] National Parks & Wildlife Service (NPWS). 2019. The Status of EU Protected Habitats and Species in Ireland Volume 1. Accessed: November 2023. Available from: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019

[38] Environmental Protection Agency (EPA). 2022. Water Quality in Ireland 2016 – 2021 Summary Report. Accessed: August 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/water-quality-in-ireland-20162021-summary-report.php

[39] National Parks & Wildlife Service (NPWS). 2023. Protected Sites in Ireland. Accessed: December 2023. Available from: https://www.npws.ie/protected-sites

the zone of influence for the AA screening. Designated sites within the study area are listed in Table 3.11 and shown in Figure 3.5.

Table 3.11 Designated sites within the hydrometric modelling area and European Sites within the zone of influence for the AA screening based on pathways for effects on qualifying features.

Designation Type	Designated Site	Total site area (km^2)	Area within the hydrometric modelling area (km^2)
Proposed Natural Heritage Area	Ardamadane Wood	0.22	0.22
	Ballincollig Cave	0.03	0.03
	Ballycotton Islands	0.97	0.07
	Ballynaclashy House, North Of Midleton	0.002	0.002
	Blarney Bog	0.73	0.73
	Blarney Castle Woods	0.14	0.14
	Blarney Lake	0.18	0.18
	Carrigshane Hill	0.06	0.06
	Cork Lough	0.08	0.08
	Cuskinny Marsh	0.14	0.14
	Douglas River Estuary	3.99	3.99
	Dunkettle Shore	0.36	0.36
	Fountainstown Swamp	0.06	0.06
	Glanmire Wood	0.12	0.12
	Great Island Channel	14.81	14.81
	Leamlara Wood	0.14	0.14
	Lee Valley	0.73	0.73
	Lough Beg (Cork)	1.78	1.78
	Loughs Aderry And Ballybutler	0.55	0.34
	Minane Bridge Marsh	0.25	0.08
	Monkstown Creek	0.72	0.72
	Owenboy River	1.34	1.34
	Rockfarm Quarry, Little Island	0.24	0.24
	Rostellan Lough, Aghada Shore And Poulnabibe Inlet	1.61	1.61
	Shournagh Valley	0.74	0.74
	Templebreedy National School, Crosshaven	0.0002	0.0002
	Whitegate Bay	1.36	1.36
Ramsar	Cork Harbour	14.27	14.27
Special Area of Conservation	Ballymacoda (Clonpriest and Pillmore) SAC*	4.95	4.95
	Great Island Channel SAC	14.38	14.38
	The Gearagh SAC*	5.54	5.54
Special Protection Area	Ballycotton Bay SPA*	2.81	2.81
	Ballymacoda Bay SPA*	5.86	5.86
	Blackwater Callows SPA*	10.37	10.37

Designation Type	Designated Site	Total site area (km²)	Area within the hydrometric modelling area (km²)
	Blackwater Estuary SPA*	8.69	8.69
	Cork Harbour SPA	26.77	26.77
	Courtmacsherry Bay SPA*	12.99	11.91
	Sovereign Islands SPA*	0.29	0.29
	The Gearagh SPA*	3.23	3.23

* Sites screened in as within the zone of influence for the AA screening but outside of the hydrometric modelling area.

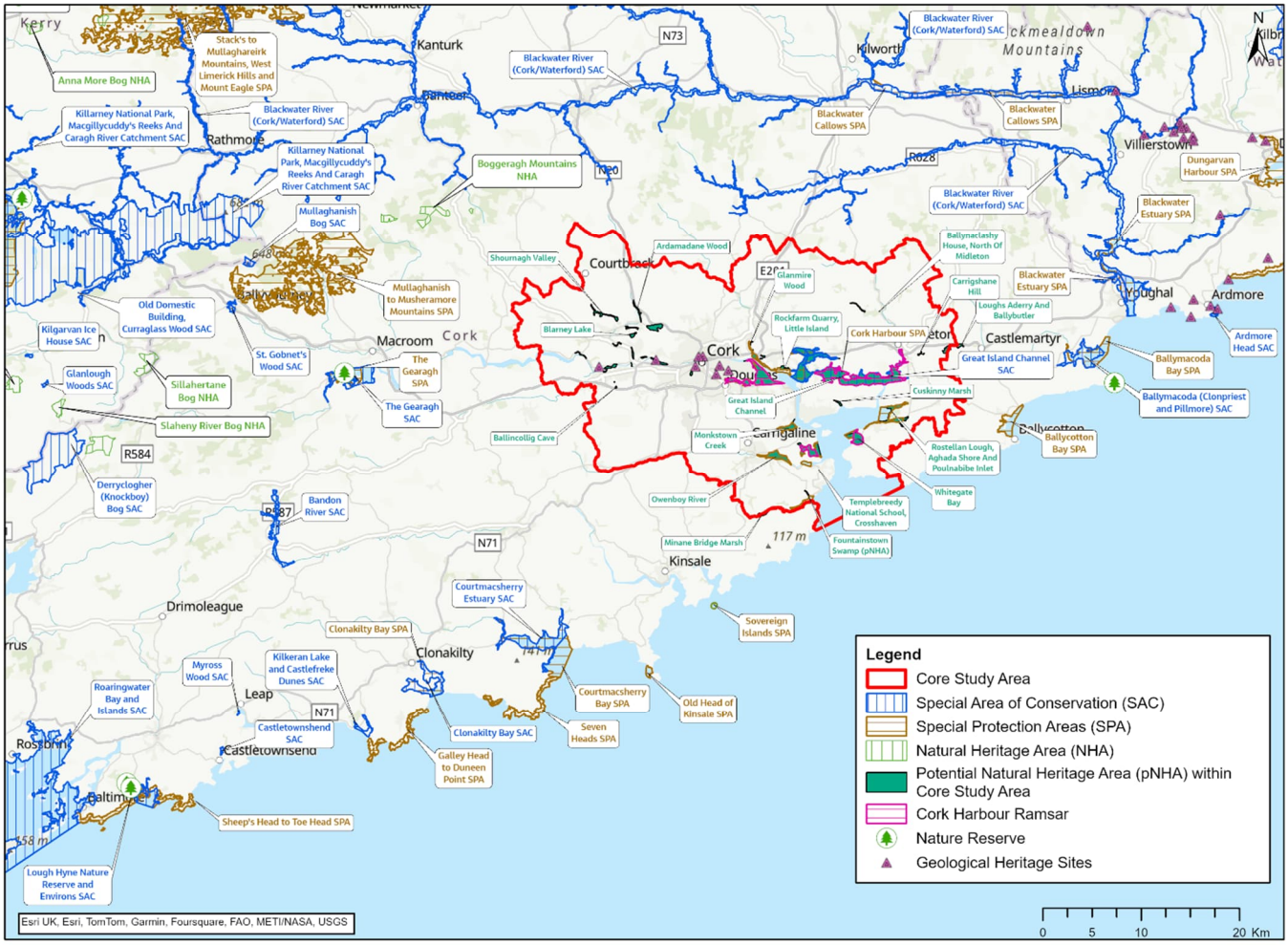

Figure 3.5 European and national protected biodiversity sites, natural heritage and geological designated sites

Habitats and Species Conservation Status

The status of protected species and habitats in Ireland is monitored by the National Parks and Wildlife Service (NPWS). Conservation status is assessed at a national level and the assessment takes into account the status of the range, area, structure and functions as well as future prospects of each species and habitat before defining an overall status for each.

Only 13% of protected habitats in County Cork have favourable overall conservation status (Figure 3.6), with only 2% of habitats showing improving status trend. 49% of habitats had a stable and 49% declining status trend[37].

At a national level pressures and threats are recorded in 54 of the 59 habitats assessed[40]. The most frequent pressures recorded in habitats relate to the agriculture category which impact over 70% of habitats. Some of the agricultural pressures sub-categories include drainage, recorded in approximately 12% of habitats; point source pollution, recorded in approximately 7% of habitats; diffuse pollution, recorded in approximately 14% of habitats; and marine pollution, recorded in approximately 5% of habitats. Human-induced changes in water regimes which includes abstractions, landfill and modification of water flow impacts approximately 22% of habitats by combined High and Medium-importance pressure or threat[40].

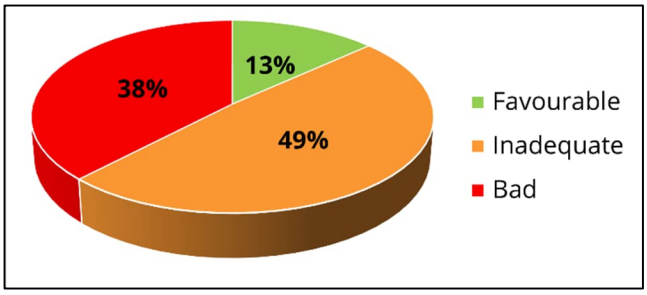

Figure 3.6 Status of Habitats in County Cork in 2019

53% of protected species in County Cork have favourable overall conservation status (Figure 3.7), with 19% of species showing improving; 47% stable and 9% declining status trend[37].

Nationally, pressures and threats are identified as impacting on 46 of the 57 taxa (taxonomic groups) assessed. Threats are identified for 48 taxa. Agriculture, impacts approximately 28% of species by combined High and Medium-importance pressure or threat. Human-induced changes in water regimes which includes abstractions, landfill and modification of water flow impacts approximately 6% of species by combined High and Medium-importance pressure or threat[37].

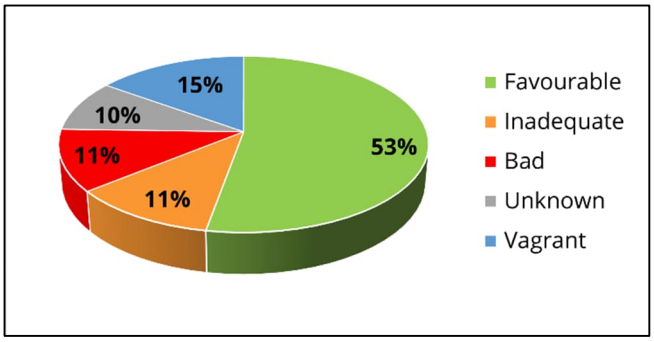

Figure 3.7 Status of Species in County Cork in 2019

Aquatic Habitats (including Freshwater, Coastal and Marine)

Aquatic biodiversity encompasses freshwater ecosystems including lakes, ponds, reservoirs, rivers, streams, groundwater, wetlands, coastal and marine. Aquatic species are dependent on clean water and suitable flows; macro-invertebrates and some species of fish, such as Atlantic salmon, are therefore good indicators of the condition of the overall water environment.

The NPWS has identified 44 different water dependent habitat types and 22 water dependent species in Ireland. Of these, the freshwater pearl mussel, is considered to be a highly sensitive surface water dependent species in Ireland. Cork Harbour SPA includes water dependent habitats (marine community types, tidal mudflats and sandflats) which are included in the WFD Register of Protected Areas (RPAs).

[40] National Parks & Wildlife Service (NPWS). 2019. Article 17 Reports 2019. Accessed: December 2023. Available from: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019

Coast and Marine Environment

In Ireland, the Habitats Regulations, is currently the only legislative instrument providing protection to habitats in the marine environment. For habitats, this protection regime is applicable within the Exclusive Economic Zone. There are no marine SACs within the hydrometric modelling area.

A review of Ireland's Marine Atlas data[41] shows that coastal and marine species whose range is known to cover the hydrometric modelling area include:

- Bottlenose Dolphin, Common Dolphin, Risso Dolphin
- Leatherback turtle;
- Harbour porpoise;
- Fin whale;
- Humpback whale;
- Killer whale; and
- Minke whale.

Invasive Species

With increased globalization there is an increase in the movement of non-native species around the world and numerous non-native species, many introduced only in the last 200 years, have become successfully established over large areas of Europe[42]. Research by the European Commission funded DAISIE project, showed that non-native species are invading Europe at an unprecedented rate. 10,822 non-native species are listed for Europe of which 10-15% are expected to have a negative economic or ecological impact[43]. This is demonstrated by trend analysis of non-native species introductions for Ireland where 13% of the species recorded and assessed in Ireland are high impact invasive species[44]. The study assessed 377 non-native species; of these, 21% occur in freshwater environments. The trend analyses also showed that four times as many species were recorded in the 20th Century as in the previous one with the trend of introductions increasing dramatically from 2001 to 2010 for high impact invasive species. Freshwater environment showed the greatest rate of invasive species increase since 1980.

In addition to the objective to halt biodiversity loss, Ireland has a responsibility to prevent the spread of invasive species. An invasive species is a non-native species which has a tendency to spread to an extent determined to cause damage to the environment, the economy or human health in the country into which it has been introduced. Invasive species can dominate and marginalise native species, lowering the value of the overall ecosystem. Invasive species (including aquatic species) in Ireland are controlled under regulations 49 and 50 of the Habitats Regulations. The 'Third Schedule' of the regulations provides an extensive list of the non-native species subject to those restrictions. The below list includes invasive species present within the study area:

American mink (Mustela/Neovison vison)

Canada goose (Branta canadensis)

Common carp (Cyprinus carpio)

Coypu (Myocastor coypus)

Grey squirrel (Sciurus carolinensis)

Greylag goose (*Anser anser*)

[41] Marine Institute. 2023. Ireland's Marine Atlas. Accessed: December 2023. Available from: https://atlas.marine.ie/#?c=52.0187:-8.8248:9
[42] Hulme, P.E., Roy, D.B., Cunha, T. & Larsson, T. B. 2009. A pan-European inventory of alien species: rationale, implementation and implications for managing biological invasions. Handbook of alien species in Europe (ed DAISIE), pp. 1-14. Springer, Dordrecht.
[43] European Commission. 2008. Commission presents policy options for EU strategy on invasive species. Press release: European Commission – IP/08/1890 05/12/2008. Accessed: December 2023. Available from: http://europa.eu/rapid/press-release_IP-08-1890_en.htm
[44] O'Flynn, C., Kelly, J. and Lysaght, L. 2014. Ireland's invasive and non-native species – trends in introductions. National Biodiversity Data Centre Series No. 2. Ireland.

Harlequin ladybird (*Harmonia axyridis*)

Japanese skeleton shrimp (*Caprella mutica*)

Muntac deer (Muntiacus reevesi)

Muskrat (Ondatra zibethicus)

Ruddy duck (Oxyura jamaicensis)

Stalked/leathery sea squirt (*Styela clava*)

American skunk-cabbage (*Lysichiton americanus*)

Brazilian giant-rhubarb (*Gunnera manicata*)

Cord-grasses (*Spartina spp*.)

Curly waterweed (*Lagarosiphon major*)

Giant hogweed (Heracleum mantegazzianum)

Giant knotweed (Fallopia sachalinensis)

Giant-rhubarb (Gunnera tinctoria)

Himalayan/Indian balsam (*Impatiens glandulifera*)

Himalayan knotweed (*Persicaria wallichii*)

Hottentot-fig (Carpobrotus edulis)

Japanese knotweed (*Fallopia japonica*)

Parrot's feather (Myriophyllum aquaticum)

Rhododendron (Rhododendron ponticum)

Sea-buckthorn (Hippophae rhamnoides)

Spanish bluebell (Hyacinthoides hispanica)

Three-cornered leek (*Allium triquetrum*)

Water fern (Azolla filiculoides)

Waterweeds (*Elodea spp.)*

Wireweed (Sargassum muticum

As there are likely to be a multitude of introduction pathways for very many non-native species, prioritizing those pathways that are likely to introduce most invasive species with potential to have the highest impact, is the most effective way to target limited resources to have the greatest preventative effect.

EU Regulation on Invasive Alien Species (IAS) and pathway action plans

The EU Regulation on Invasive Alien Species entered into force on 1st January 2015. This Regulation is based on the Convention of Biological Diversity's Guiding Principles of prevention, prioritization and coordination and seeks to address the problem of Invasive alien species in a comprehensive manner. The objective is to protect native biodiversity and ecosystem services, as well as to minimize and mitigate the human health or economic impacts that these species can have.

Under Article 13 (1) of the EU Regulation on IAS, Member States are required to carry out comprehensive analysis of the pathways of unintentional introduction and spread of invasive alien species and 'identify the pathways which require priority action because of the volume of species or of the potential damage caused by the species entering the Union through those pathways. By analysing the risk of each of the IAS of Union concern being introduced and spread in Ireland with the potential impact they may have, the associated pathways are ranked and prioritized. For the priority pathways, Pathway Action Plans (PAPs) are developed.

The Article 13 requirement for development of pathway action plans is in line with the international Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020, Aichi Target 9[45] and the similar European Commission's Target 5 of the EU Biodiversity Strategy to 2020 which states 'By 2020, Invasive Alien Species and their pathways are identified and prioritized, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS'.

3.11.2 Future Trends

There are many challenges to address in the future. These challenges will be further exacerbated by the effects of climate change, particularly on peatland habitats and fish species. Much will depend on the identification and development of necessary conservation measures and the elaboration of mechanisms for

[45] Convention on Biological Diversity. 2010. The Convention on Biological Diversity. Accessed: December 2023. Available from: https://www.cbd.int/

the delivery of these measures in the next period. Operational Programmes accessing EU funding instruments will need to be used to meet the strategic national and EU objectives for biodiversity, including in Natura 2000.

Future trends will be influenced by changes/additions to existing designated sites (SACs, SPAs and NHAs). A number of pNHAs may be reviewed and upgraded to NHAs.

Habitats and species within and outside protected sites are all potentially affected by climate change, and this can also mean that they are more vulnerable to other pressures such as from land loss, disturbance, severance and fragmentation.

Invasive species which are listed as potential threats may become established threats in the future. The continuing development of the National Biodiversity Data Centre National Invasive Species Database will aid in the documentation of the distribution of invasive species in Ireland. These reports and datasets will go towards the implementation of the recent European legislation on halting the spread of invasive species.

The challenges involved in protecting Ireland's habitats and species are now more serious than ever and need urgent action. But nature can recover under the right conditions. Implementing national biodiversity policies, such as the National Biodiversity Action Plan (NBAP), requires an increased level of collaboration and coordination across multiple sectors and the whole of society. This can also give rise to indirect co-benefits for other sectors and environmental issues such as climate change and water quality[7].

The third cycle draft RBMP[17] is expected to be finalised in early 2024. The draft plan includes proposals for a range of measures intended to support improvements to water quality and biodiversity, addressing nutrients from agriculture, developing a new Controlled Activities for the Protection of Waters regime to address physical condition of waterbodies, a restoration programme to address past impacts of construction on or near waterbodies programme, review of Waste Water Discharge Licences, and an expansion on the Priority Areas for Action - including Areas for Restoration, Areas for Protection and Catchment Projects.

Ireland's 4th NBAP has been in development since October 2021 and was published in January 2024. The Plan sets the national biodiversity agenda for the period 2023-2027 and aims to deliver the transformative changes required to the ways in which the nature is valued and protected. Key considerations in the development of the NBAP are set out below:

- Build on the successes of previous NBAPs, while addressing shortfalls and implementation challenges;
- Expand the governance and oversight of the NBAP and develop a robust Monitoring and Evaluation Framework to track progress;
- Achieve buy-in and ownership of the NBAP across all levels of government and society;
- Embed biodiversity at the heart of climate action;
- Achieve greater coherence between biodiversity policy and other policy areas;
- Strengthen compliance and enforcement of existing legislation;
- Increase focus on addressing the root causes and drivers of biodiversity loss rather than consequences of biodiversity loss;
- Determine biodiversity priorities, allocate financial and other resources, internalise the value of nature and recognise the cost of inaction; and
- Significantly strengthen the science base and enhance data accessibility.

Cork City Heritage and Biodiversity Plan 2021– 2026[46] contains a number of actions to help promote biodiversity conservation within the Local Authority area, such as implementing commitments under the All-Ireland Pollinator Plan, controlling the spread of invasive species, developing buffer zones around designated European sites, increasing native tree, woodland and hedgerow cover on public land.

3.11.3 Key Considerations for the CWS and SEA

Key challenges and opportunities in relation to Biodiversity, Flora and Fauna:

Challenges

- Water quality impacts on aquatic habitats and species related wastewater discharges
- Barriers for species movement avoiding creating barriers and taking opportunities for removing barriers or incorporating fish/eel passes in existing barriers and for improving habitat connectivity along riparian corridors and in the wider landscape.
- Avoiding contributing to the spread of invasive species during construction or operational activities.
- Construction impacts on terrestrial and aquatic habitats.

Opportunities

- Opportunities for reducing pollution loads from wastewater discharge and ensuring sustainable abstraction.
- Opportunities to include biodiversity enhancement measures in schemes to ensure no net biodiversity loss and potentially achieve net gain and improved connectivity and this approach is part of Uisce Éireann's Biodiversity Action Plan (BAP) .
- Opportunities for multiple benefits from habitat creation/ restoration and potential to capture the value of these using natural capital and ecosystems services approaches which can support the use of nature-based solutions and catchment management approaches.
- Opportunities for contributing to improvements in water quality and resources through better wastewater treatment and potential to reduce barriers to fish migration.

3.12 Material Assets

SEA legislation includes "material assets" as a topic to be addressed in the SEA. However, it does not clearly define what this topic includes. For the purpose of this SEA Scoping Report, Material Assets are considered to be the natural and built assets (non-cultural assets) and resources required to enable society to function as a place to live and work, in giving them intrinsic, economic value.

3.12.1 Material Assets Baseline Condition

Material assets considered here include:

- Land use/ natural material assets resources which include agricultural land, peatlands and forestry (see also geology and soils topic).
- Built assets - include infrastructure relating to public open spaces and buildings, schools, healthcare facilities, residential and social buildings such as housing, and infrastructural networks such as electricity, gas, transport with emphasis on water supply and wastewater infrastructure and management as most relevant.
- Waste management - an aspect of resource management and an important part of the circular economy.

[46] Cork City Council (2021) Heritage and Biodiversity Plan. Accessed: December 2023. Available from: corkcity.ie/en/media-folder/heritage/heritage-biodiversity-plan-2021-2026.pdf

These assets all need to be considered in new water services, resource planning and infrastructure development.

3.12.2 Land Use (Natural Assets)

More than half of the land within the study area comprises grassland, saltmarsh and swamp, with the other major types of land cover being forest, woodland and scrub, cultivated land, artificial surfaces and waterbodies. (see Figure 3.8). Table 3.12 provides a detailed breakdown of land uses within the study area in 2018[47].

Table 3.12 Total area in hectares (ha) and percentage of national area by Level 1 group for National Land Cover 2018[47]

Category	Category total area (ha)	Category total area (%)
Artificial surfaces	8,150	9.0
Cultivated land	13,812	15.3
Exposed surfaces	3,000	3.3
Forest, woodland and scrub	12,441	13.8
Grassland, saltmarsh and swamp	45,300	50.2
Heath and bracken	50	0.1
Waterbodies	7,484	8.3

[47] Environmental Protection Agency (EPA). 2018. National Land Cover Map 2018 - Final Report. Accessed: December 2023. Available from: https://www.tailte.ie/surveying/products/professional-mapping/national-land-cover-map/national-land-cover-map-v3-2.pdf

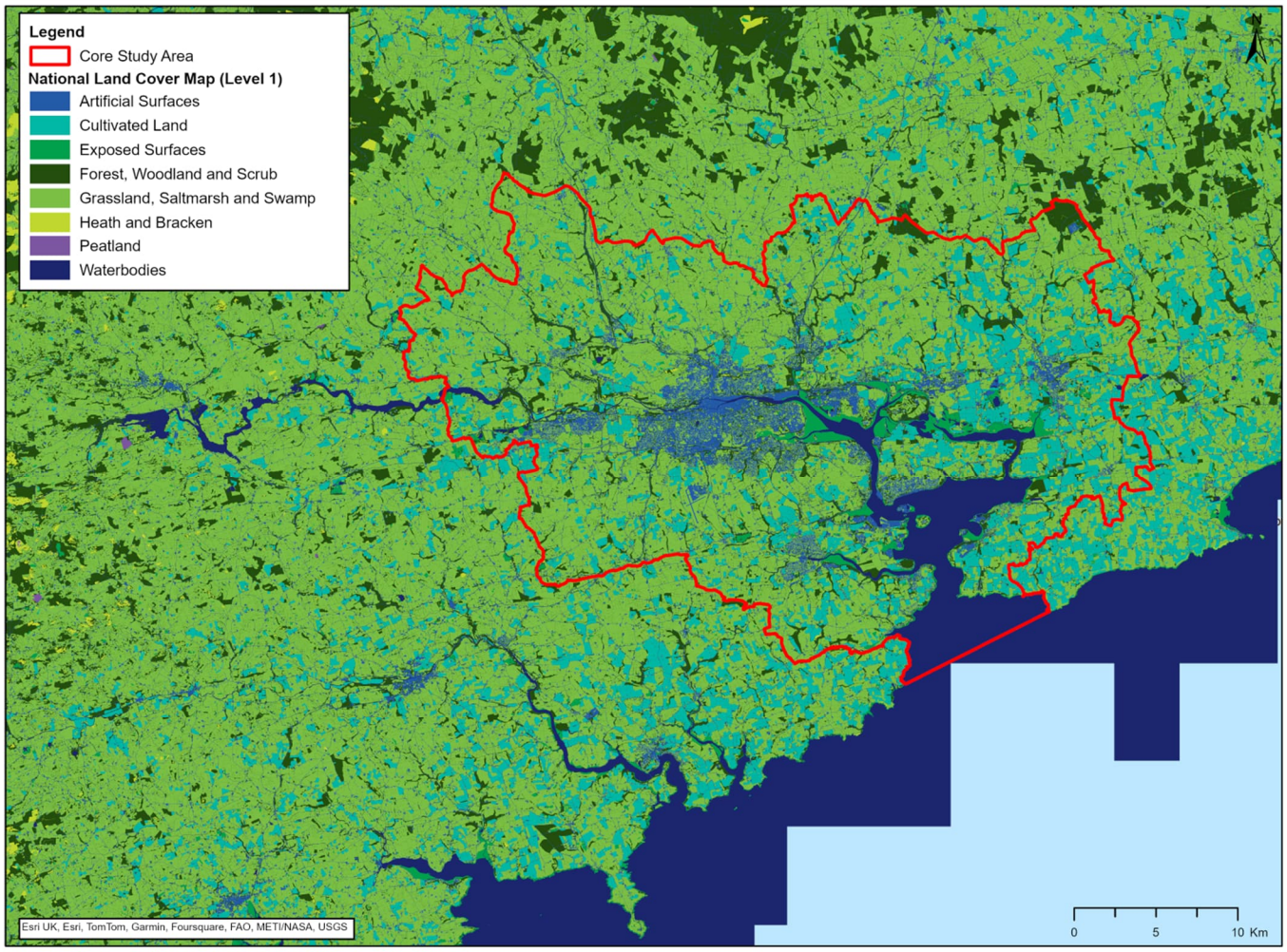

Figure 3.8 Land use - natural assets

3.12.3 Built Material Assets

Settlements

The key settlements within the study area are listed in Table 3.7 (see Section 3.9.1) and shown on Figure 3.9 below. Cork City is the largest settlement both in population and spatial extent, followed by Carrigwtohill, Midleton and Carrigaline.

National infrastructure

Key infrastructure within the study area is listed below and shown on Figure 3.9.

- Cork Airport located on the southern outskirts of Cork;
- IE Dublin – Cork railway line which runs in a north—south direction from the northern boundary of Cork past Blarney;
- M8 Rathcormac/Fermoy Bypass;
- Several primary roads including the N21, N22, N25, N28 and N40;
- Two fishing ports at Cobh and Crosshaven; and
- Two ferry ports at Glenbrook and Carrigaloe.

Cork Harbour is the second largest natural harbour in the world, and a key international trade gateway for Ireland. There are international shipping routes between Cork Harbour and Southampton (England), Roscoff

(France), Zeebrugg (Belgium), Rotterdam (Holland), Bremerhaven (Germany), the USA and central America and Africa[48].

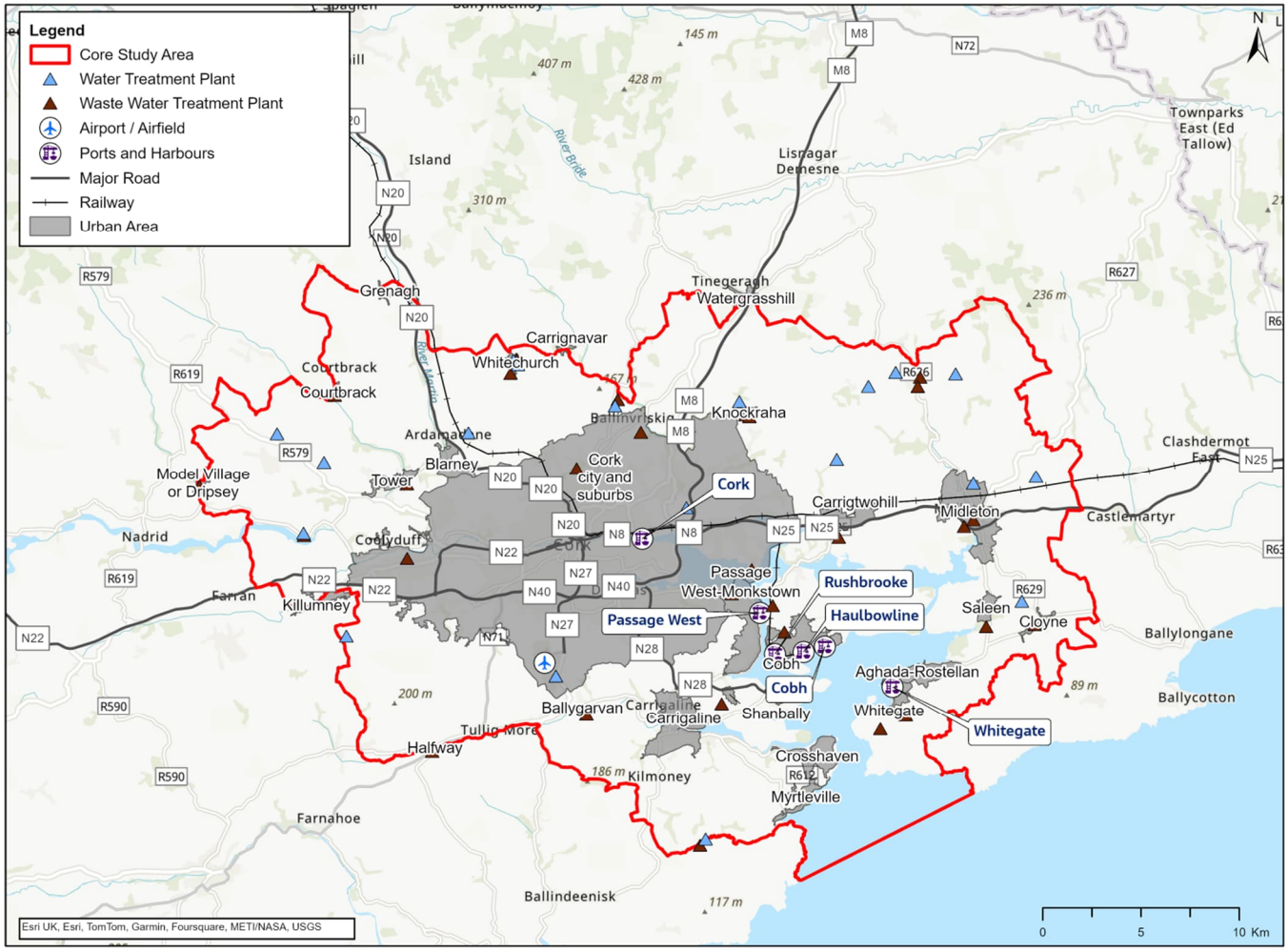

Figure 3.9 Land use - built assets

Wastewater infrastructure

The European Union's Urban Wastewater Treatment Directive sets standards for treating wastewater at all large urban areas (large urban areas are towns and cities with a population equivalent of at least 2,000 that discharge effluent to freshwater or estuaries, and areas with a population equivalent of at least 10,000 that discharge effluent to coastal waters), with the objective of protecting the environment from the harmful effects of wastewater discharge. The final deadline to meet the standards was 2005.

There are 25 wastewater treatment plants (WWTP) in the study area, 2 of which provide primary treatment, 16 of which provide secondary treatment and 7 of which provide tertiary level treatment. The locations of WWTPs in the study area are shown in Figure 3.9. Cork City (Cobh, Ringaskiddy-Crosshaven-Carrigaline) failed to meet the required treatment standards in 2020, but passed them in 2021 as a result of treatment upgrades that delivered improvements to effluent quality[49]. Whitegate-Aghada is the only settlement within the study area that is currently discharing raw sewage into the aquatic environment because public sewers are not connected to a WWTP. It is planned to eliminate raw sewage discharges from Whitegate-Aghada by 2024[49].

[48] Port of Cork Company. 2023. Port of Cork Deepwater Multimodal Port. Accessed: December 2023. Available from: https://www.portofcork.ie/

[49] Environmental Protection Agency (EPA). 2021. Urban Waste Water Treatment in 2021. Accessed: December 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/waste-water/Urban-Waste-Water-Treatment-in-2021-report.pdf

There are more than 1,300 km of wastewater gravity pipeline in the study area, along with 192 wastewater pumping stations and 225 storm water overflows (overflow outlets). Historically Uisce Éireann has had limited information regarding discharges of untreated wastewater through these outlets, and to rectify this Uisce Éireann is in the process of assessing its storm water overflow outlets against national standards. Uisce Éireann are also installing monitoring equipment to measure how often and for how long wastewater is discharged through storm water overflow outlets[49]. Works to the wastewater network at Midleton, Cork City (Silversprings storm water overflow) and Ringaskiddy have recently been completed to address UWWT non-compliance associated with storm water overflows in the study area, and further works to Cork City (Little Island,Glanmire and Pinecroft, Mahon, Tramore Valley, Bishopston, Balcpool, Shandon and Sundays Well) are currently ongoing.

3.12.4 Waste Management

Ireland's waste management landscape changed radically with the implementation of the Waste Management Act in 1996. From a low base, the country made great strides in reducing disposal to landfill, providing an infrastructure for the collection of recyclables and developing expertise in waste management, regulation, research and innovation. Ireland showed innovation by being the first country to introduce a plastic bag tax and to launch a National Waste Prevention Programme. However, Ireland has reached a plateau in relation to waste management; to further deliver the necessary waste prevention and circular economy ambitions will be a challenge.

The latest data highlights the need for Ireland to do more to prevent waste, improve recycling, increase self-sufficiency and move towards a more integrated approach to waste management, as part of implementation of the new national waste policy, the EU Circular Economy Package and the European Green Deal.

The latest waste statistics[50] indicate that waste generation is increasing in many waste streams. Construction and demolition waste is the largest waste stream in Ireland in 2020 (over 8.2 million tonnes). Ireland generated approximately 16.2 million tonnes of waste in 2020, corresponding to 3.25 tonnes per person, up from 12.7 million tonnes (2.77 tonnes per person) in 2012. Although, the amount of municipal waste recycled has increased by 11% since 2016, total waste generated has also increased by 11%.

Ireland missed the waste electrical and electronic equipment (WEEE) collection target in 2020 and is in danger of missing future EU waste targets for municipal and plastic packaging waste recycling. Ireland is still heavily reliant on export markets, particularly for the treatment of municipal waste, hazardous waste, packaging waste, WEEE and biowastes.

Wastewater treatment sludge

Sewage sludge is a by-product of wastewater treatment. The Urban Wastewater Treatment Directive requires sewage sludge to be reused whenever appropriate. Good sludge management, such as removing sludge from a treatment plant at an appropriate rate, is an essential part of the treatment process. Uisce Eireann removed 60,467 tonnes of sewage sludge from its treatment plants in 2021 (EPA, 2021c). Sludge contains valuable nutrients such as nitrogen and phosphorus and most of this was subsequently reused as a fertiliser or soil improver on agricultural land (55,182 tonnes), with the rest used for composting (5,154 tonnes) and placed in storage at the end of 2021 awaiting land spreading on soil/agricultural land in 2022 (131 tonnes).

Uisce Eireann is progressing a number of initiatives through the water treatment plant residual strategy taking a circular economy model for the management of sludges, as they provide a sustainable source of precious finite materials. The sludge provides an alternative/ complement to current raw materials being used. We view water sludge as a valuable resource particularly in the context of the circular economy model.

[50] Environmental Protection Agency (EPA). 2020. National Waste Statistics 2020 Summary Report for 2020. Accessed: December 2023. Available from: https://www.epa.ie/media/epa-2020/publications/monitoring-amp-assessment/waste/EPA_National_Waste_Stats_Summary_Report_2020.pdf

This model is in direct contrast to the current linear model of 'take, make, consume, dispose', with landfill being the primary end point. Uisce Éireann are progressing a number of potential sustainable options. Recovery/reuse of the sludge is the preferred long term sustainable option for Uisce Éireann. A key milestone has been reached with nearly 90% of water treatment sludge going to circular economy outlets.

Uisce Éireann is currently involved in a number of innovative projects, funded by the Water Services Innovation Fund administered by the Commission for Regulation of Utilities and will deliver benefits for our customers, the environment and the economy. These projects include enhancing existing wastewater treatment plants through aerobic granular sludge addition and developing pilot sludge treatment reed beds for use in treating and de-watering water sludge containing aluminium sulphate.

The EPA has identified Cork City as a priority area where wastewater treatment needs to be improved to prevent wastewater discharges from causing harm to the aquatic environment[49].

3.12.5 Future Trends

Natural assets/land use

Whilst agriculture is the dominant land cover type across Ireland and second greatest land cover type within the study area, at national level there has been an overall downwards trend in this land usage since the 1990s, with shift from agricultural land cover to forestry and artificial areas. On a national level, artificial areas have increased by 65% since the 1990s. There is no publicly available data for the study area specifically, however it is anticipated that the overall trend of a decrease in agricultural land cover and increase in artificial land cover seen nationally is likely also reflected within the study area[7].

Built material assets

Significant population growth is forecast within the study area over the coming 15 years , with a 50% to 60% increase in the population of Cork anticipated by 2040. This will require provision of new infrastructure to service the increased population and facilitate economic growth. However, rural and coastal areas also make a strong contribution to the CMA economy and sense of character, so efforts to maintain rural communities are necessary to benefit the wider regions.

Waste and the Circular Economy

The Circular Economy and Miscellaneous Provisions Act (2022), underpins Ireland's shift from a 'take-make-waste' linear model to a more sustainable pattern of production and consumption, that retains the value of resources in the economy for as long as possible and that will significantly reduce the nation's greenhouse gas emissions. The 2022 Whole of Government Circular Economy Strategy provides the policy framework for the circular economy in the country and Ireland's National Waste Policy 2020-2025, A Waste Action Plan for a Circular Economy[51], sets out a roadmap that aims to ensure that Ireland not only meets the legal targets but also takes full advantage of the opportunities of the circular economy.

The new legislation and strategies strengthen the approach to addressing waste and implementing circular economy principles. Nevertheless, with a circularity material use rate of 2% in 2020, Ireland has significant scope for progress[52]. No data on circularity material use rates relevant to the study area specifically has been identified, however it is not anticipated to differ significantly from the national trend.

The development of circular economy principles will impact all sectors of society and collaboration between stakeholders will be key to this transition in Ireland. Some examples of how the wastewater treatment processes may be changed by the progressive adoption of circular economy principles include:

[51] DECC. 2020. A Waste Action Plan for a Circular Economy. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/

[52] Organisation for Economic Cooperation and Development (OECD). 2022. OECD Economic Surveys: Ireland 2022. Accessed: December 2023. Available from: https://www.oecd-ilibrary.org/ireland

- Reusing wastewater in sectors such as agriculture and manufacturing can decrease Ireland's dependence on freshwater sources. Reusing wastewater can also contribute to reducing the impact of flooding and improving water quality.
- Nutrient recovery systems can extract valuable resources from wastewater sludge, for example by converting nutrients to fertilisers or energy. This can contribute to reducing nutrient pollution, potentially reducing treatment requirements for water abstracted from rivers. Sustainable agricultural practices will also support this trend.
- Minimising use of consumables in the delivery of wastewater services and generating renewable electricity.

There are several challenges to overcome to maximise the opportunities associated with circular economy principles, in particular wastewater reuse. These include public perception, regulatory challenges and market failures linked to the cost of reused water[53].

Relevant to these challenges are the limitations on landfill capacity. According to the EPA's National Waste Statistics Report[50], two of the three operational municipal landfills will approach their maximum lifetime consented capacity by 2027 if additional capacity is not authorised. There is a risk in the event of export markets closing at short notice and the planned contingency landfill capacity needs to be secured without delay. Treating waste as close to its source as possible (the proximity principle) is one of the core pillars of EU waste policy. Waste exports also represent missing valuable opportunities to maximise the beneficial and efficient use of waste materials. By addressing waste infrastructure deficits, Ireland can develop circular economy opportunities and reduce the emissions associated with transporting waste over long distances. Whilst the sludge disposal does not fall under the remit of the CWS, the nature of wastewater treatment processes employed can affect the potential range of disposal or reuse options available.

3.12.1 Key Considerations for CWS and the SEA

Key challenges and opportunities in relation to the material assets topic are:

Challenges

- Land management: agricultural practices can contribute to the release of nutrients and fertilisers into waterbodies, causing eutrophication (the gradual increase in the concentration of phosphorus, nitrogen, and other plant nutrients in an aquatic ecosystem). Wastewater sludge spreading can also contribute to this, with nutrient levels within wastewater sludge affected by the treatment process employed.
- Resilience of infrastructure and operations – Uisce Éireann's wastewater treatment infrastrucure will have to cope with the various impacts of climate change, and support growth.

Opportunities

- Land use and habitat type are the basis for natural capital and ecosystem services with links across topics including biodiversity, carbon, water, food production, fisheries and recreational uses.
- Waste management and potential to contribute to the circular economy - supporting sustainable waste disposal and minimising release of industry pollutants into water sources can benefit the environment, reduce carbon and reduce treatment costs.

[53] EPA. 2019. Water Reuse in the Context of the Circular Economy. Accessed: December 2023. Available from: https://www.epa.ie/publications/research/water/Research_Report_293.pdf

3.13 Landscape, Townscape and Seascape

3.13.1 Landscape Baseline Condition

Landscapes reflect many variables, including underlying geology, soils, topography, land cover including habitats and agricultural, forestry and urban land, hydrology, historic and cultural development, and climate. These physical and socio-economic influences, and interrelationships, makes one landscape different from another. Landscape character is the distinct and recognisable pattern of elements, or characteristics, in the landscape that make these differences. Landscape features such as hedgerows field boundaries, woodlands, riparian corridors, canals and wetlands are part of landscape character and are also important as ecological corridors providing connectivity but can be especially vulnerable to linear infrastructure development.

The European Landscape Convention (ELC) is the first international treaty to focus solely on landscape. The Convention promotes the protection, management and planning of European landscapes. The Irish Government ratified the Convention in 2002. The National Landscape Strategy 2015-2025[54] was put in place to drive compliance with the European Landscape Convention by establishing principles that provide the high-level policy framework to achieve the Convention's objectives.

The draft Landscape Character Assessment for County Cork[55] identified 76 Landscape Character Areas (LCA), which were amalgamated into a set of 16 generic Landscape Character Types (LCT) based on similarities evident within the various areas. The study area overlaps Cork City Harbour and Estuary area and partially, the Broad Bay Coast, Indented Estuarine Coast, Broad Fertile Lowland Valleys (Blarney, Ballincollig, West Carrigaline), Broad Fertile Lowland Valleys (Cloyne), Rolling Patchwork Farmland (Belgooly, Nohoval), Hilly River and Reservoir Valleys (Dripsey, Coachford) and Fissured Fertile Middleground (Watergrasshill) areas, which are mostly of high and very high landscape value and sensitivity.

The Cork City Landscape Study 2008[56] identified seven Landscape Character Areas (LCA), within the Cork City:

- Estuarine/Riverine;
- Natural harbour;
- Historic urban core;
- Inner-city residential;
- Sub-urban residential;
- Urban sylvan character; and
- Urban industrial/commercial/Institutional.

The emerging Cork City Development Plan 2022-2028 also identifies Areas of High Landscape Value (AHLV) and Landscape Preservation Zones (LPZ). AHLV display an intrinsic landscape character and a special amenity value, and LPZ are areas in need of special protection as their character and amenity value is considered to be to highly sensitive to development. In addition, Scenic Routes within the study area, as identified int eh Cork County LDP 2022-2028 and emerging Cork City LDP 2022-2028 can be viewed

Townscape is the landscape within the built-up area, including the buildings, the relationship between them, the different types of urban open spaces, including green spaces and the relationship between buildings and

[54] Department of Arts, Heritage and the Gaeltacht (DAHG). 2021. National Landscape Strategy for Ireland 2015-2025. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/8a59b-national-landscape-strategy/

[55] Cork County Council. 2007. Cork County Draft Landscape Strategy. Accessed: December 2023. Available from: http://corkcocoplans.ie/wp-content/uploads/bsk-pdf-manager/2016/07/Draft-Landscape-Strategy-2007.pdf

[56] Mitchell and Associates. 2008. Cork City Landscape Study. Accessed: December 2023. Available from: https://www.corkcity.ie/en/media-folder/planning/cork-city-landscape-study-2008.pdf

open spaces. Based on the Irish Historic Towns Atlas Online[57], the origins of principal localities in the study area are listed below:

- Cork City: Anglo – Norman town from 12th-15th centuries and Viking sea port from 9th – 15th centuries;
- Cobh: new town (seaside resort, garrison, town and railway junction town from 19th century;
- Mallow, Fermoy, Midleton: towns of the Tudor-Stuart plantation period from 15th – 16th centuries and an Anglo-Norman boroughs with doubtful settlement continuity and manorial centres from 12th-15th centuries;
- Youghal, Kinsale: Anglo – Norman town of 12th-15th centuries and presumed Viking sea port from 9th – 15th centuries.

Across the Cork County, there are layers of archaeological and historic landscape, such as mining landscapes, prehistoric settlements and strategic battlefield, ambush and siege sites, and coastal fortifications with their associated landscape (the Napoleonic landscape of Cork Harbour);

The scenic and landscape qualities of coastal and upland areas, particularly along the peninsulas in the southwest and Cork Harbour are very important for region's tourism economy. Seascape , as an extension of landscape, with 1,100km of coastline, is a crucial element of the Cork County's history, identity and culture.

The Regional Seascape Character Areas of County Cork include[58]:

- SCA9 - Atlantic South West Rias, Bays and Islands - this SCA comprises an indented coastline of the five southwestern peninsulas of counties Kerry and Cork; Dingle, Iveragh, Beara, Sheep's Head and Mizen, and their intervening bays; Dingle Bay, Kenmare Bay (River), Bantry Bay, Dunmanus Bay and Roaringwater Bay;
- SCA10 - Atlantic Celtic Bays and Estuaries - this large SCA comprises a stretch of Cork and Waterford coastline and bays from Cape Clear to Helvick Head, Co. Waterford;
- SCA11 - Cork Harbour and Estuary - this SCA is relatively small at regional scale but due to its historical role and influence on the surrounding seascapes, is identified with its own character area.

There are also Areas of Special Amenity which are designated according to their outstanding natural beauty for special recreational value. For Cork City, these sites include the regional and city parks (e.g. Tramore Valley Park, Lee Fields), area parks (e.g.The Lough, Glen River Park) and local parks (e.g. Shalom Park). More broadly, areas which can be most sensitive to visual impacts in Cork County, include:

- Lands with an elevation of >200m;
- Forestry areas;
- Lands with a slope of >30;
- Open landscapes like lakes and estuaries, seaside and coastal amenities; and
- Other natural land cover types.

3.13.2 Future Trends

The National Landscape Strategy 2015-2025 is in the process of being implemented and will be Ireland's vehicle for complying with the EU Landscape Convention.

[57] Haughton, J.P. 1971. The origin of Irish towns. Accessed: December 2023. Available from: https://www.ria.ie/sites/default/files/origins_of_towns_0.pdf
[58] The Marine Institute. 2020. Definition and Classification of Ireland's Seascapes. Accessed: December 2023. Available from: https://emff.marine.ie/sites/default/files/bluegrowth/PDFs/final_seascape_character_assessment_report_with_annexes.pdf

The existing landscape character within the study area is not expected to change significantly in the immediate future, although planned developments are potential sources of change and loss of landscape feature. Longer term influences on landscape character would be related to land use changes such as agricultural and forestry practices, and climate change responses and their impacts on habitats and landscape features.

3.13.3 Key Considerations for CWS and the SEA

Key challenges and opportunities in relation to Landscape, Townscape and Seascape are:

Challenges

- Potential for new wastewater treatment infrastructure to impact landscape, townscapes and seascapes including visual amenity during construction and operation.
- Potential for the new wastewater treatment infrastructure to be constrained by the need to protect the landscape character and local visual amenity in sensitive areas.

Opportunities

- Opportunities for enhancements linked to biodiversity and water quality improvement measures, such as restoring riparian corridors, nature- based solutions and catchment management approaches.

3.14 Cultural Heritage – Archaeological and Architectural

3.14.1 Cultural Heritage

Record of Monuments and Places

The Record of Monuments and Places (RMP) is the statutory list of recorded monuments. Monuments listed in the RMP are afforded legal protection under the National Monuments Act 1930-2004 and any work taking place at or in relation to a Recorded Monument will typically need to be notified to the Minister.

The National Monuments Act 1930-2004 was enacted to make provision for the protection and preservation of national monuments and archaeological objects and provides for the protection of monuments and archaeological sites, the protection of the portable archaeological heritage and the regulation of archaeological works. The Historic Archaeological and Heritage Bill 2023 will replace the National Monuments Act and will represent a significant modernisation of the law protecting Ireland archaeological and historic heritage.

National Inventory of Architectural Heritage

The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 was enacted to provide for the establishment of a National Inventory of Architectural Heritage (NIAH) and to provide for the obligations of statutory authorities in respect of these historic monuments. In this Act "architectural heritage" means all structures and buildings together with their settings and attendant grounds, fixtures and fittings; groups of such structures and buildings; and sites which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Each structure is given a rating: National, Regional, Local or Record Only. Any structure rated as being Regional or higher importance will be recommended to have a separate record under the Record of Protected Structures (RPS).

Record of Protected Structures

The Planning and Development Act 2000 (as amended) requires each planning authority to compile and maintain a RPS that forms part of each planning authority development plan. The purpose of the RPS is to protect structures, or parts of structures "which form part of the architectural heritage, and which are of

special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest." Sites, structures and groups of structures rated by the NIAH as being of Regional or above importance are included in the RPS which provides statutory protection for Ireland's architectural heritage.

While the prime objective of the RPS is to protect the structure and its setting, proposals for the sensitive restoration, extension and alteration of Protected Structures are positively encouraged by the Planning Authority.

Sites and Monuments Record

The Sites and Monuments Record (SMR) appear on the Archaeological Survey of Ireland Map Viewer, however it does not, of itself confer legal protection. Not all of these are included in the RMP and hence have no statutory protection.

The designations considered as part of the cultural heritage baseline are:

- Archaeological sites monuments included on the RMPs and/or SMRs; and
- Architectural structures and sites included on the NIAH and/or RPSs.

Architectural Conservation Areas

Architectural Conservation Areas (ACAs) are places, areas, group of structures or townscapes that are of special architectural, historical, archaeological, technical, social, cultural, or scientific, interest, or that contributes to the appreciation of an RPS site. ACAs are identified by local planning authorities and protected under Section 81 of the Planning and Development Act 2000.

Unknown archaeological remains

The National Monuments Service has an interactive mapping search facility that provides access to all records relevant to the archaeological heritage of Ireland. This extensive body of records is stored on the national database of the Archaeological Survey of Ireland, and a list of recorded archaeological monuments for each county is available at www.archaeology.ie based on OSI mapping. The National Monuments Service is also tasked with addressing the protection and preservation of Ireland's underwater cultural heritage. The Underwater Archaeology Unit of the National Monuments Service has a wide remit, including quantification of the record, research, underwater survey, excavation and regulation. The Underwater Archaeology Unit maintains the Wreck Viewer and Wreck Inventory of Ireland Database, and also assesses potential development impacts on underwater archaeology by making recommendations to the relevant planning authorities and other regulatory bodies on developments which have the potential to impact on underwater archaeology[59].

3.14.2 Cultural Heritage Baseline Condition

The study area contains 2,180 SMR sites, 1,215 NMS sites and 4,627 NIAH sites (see Figure 3.10) as well as 59 architectural conservation areas. There are also potentially unknown, undesignated archaeological and architectural remains within the study area, as well as likely several undesignated heritage assets within the coastal parts of the study area.

[59] National Monuments Service. 2023. Underwater Archaeology. Accessed: December 2023. Available from: https://www.archaeology.ie/underwater-archaeology

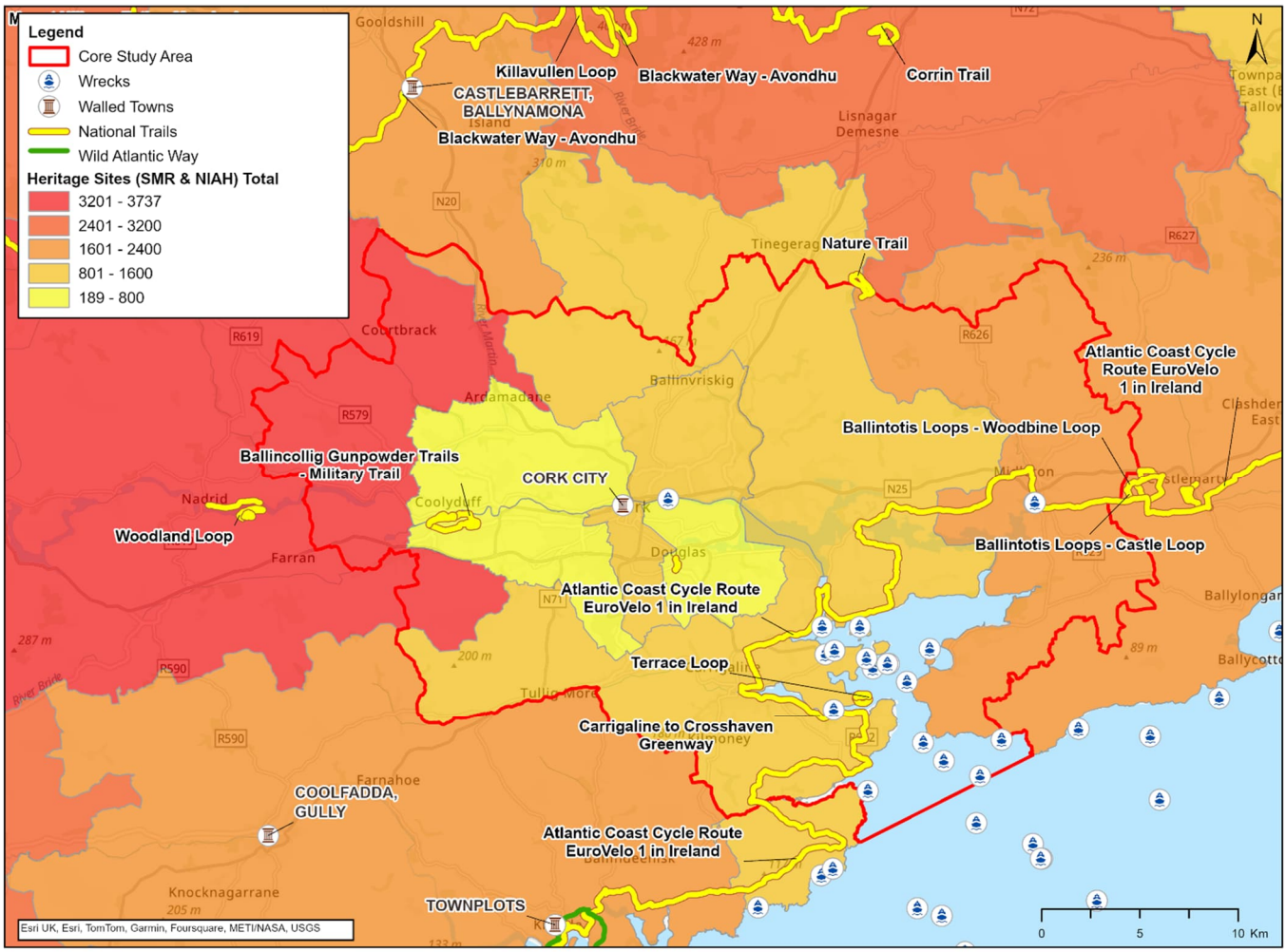

Figure 3.10 Cultural heritage, recreation and tourism sites

3.14.3 Future Trends

The National Heritage Plan, Heritage Ireland 2030, was published in 2022[60]. This plan sets out a wide range of actions aimed at protecting and nurturing Ireland's heritage and recognising the importance of community engagement and the links to biodiversity and climate change. An Implementation Plan for the actions is to be developed. The Historic Archaeological and Heritage Bill 2023, replacing the National Monuments Act, will introduce a single integrated licensing system and statutory codes of practice, and will confer legal protection on new finds at archaeological sites. These forthcoming changes to cultural heritage legislation and policy strengthen the protection of designated cultural, archaeological and architectural heritage assets and as well as undesignated archaeological. There are recognised threats to heritage assets from development activities affecting settings or resulting in loss of buried unknown assets. Climate change and habitat loss can also affect the preservation of buried archaeological remains.

3.14.4 Key Considerations for CWS and the SEA

The key challenges and opportunities in relation to Cultural Heritage for the CWS and SEA are:

Challenges

- The potential for the construction of wastewater treatment infrastructure to damage archaeological and architectural heritage monuments/site or affect access to or the settings of sites/monuments.

[60] DHLGH. 2023. Heritage Ireland 2030. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/778b8- heritage-ireland-2030/

- The potential for new structures to impact the setting of heritage sites/monuments.
- New developments could be constrained by the need to avoid and protect sites/monuments and their settings.

Opportunities

- Opportunities for linking protecting heritage with supporting biodiversity and climate change objectives.
- Potential to uncover (and damage) unknown, undesignated archaeological remains, including underwater and marine archaeology but also potential to record and add to knowledge and improve access to cultural heritage and archaeology.

3.15 Geology and Soils

3.15.1 Geology Baseline Condition

The bedrock underlying the study area mainly comprises of Ballytrasna Formation, Devonian sandstones and conglomerates located to the north, and White Strand Formation, Carboniferous sandstone and mudstone located to the south[61]. The center of the study area bedrock and Shannon Estuary area comprises mainly of Waulsortian Limestones, Carboniferous massive, unbedded limes mudstones and Little Island Formation, Carboniferous massive mudbank calcilutite limestone of The Superficial deposits comprise unconsolidated geological deposits.

The Geological Survey of Ireland (GSI) have identified Irish Geological Heritage (IGH) Sites as part of their IGH Programme, a partnership between GSI and the NPWS. IGH sites comprise caves, dry valleys, springs and swallow holes. The GSI audit in the hydrometric modelling area identified ten Irish Geological Heritage Sites (IGHS) as listed below in Table 3.13 and shown in Figure 3.5. According to the Geological Survey of Ireland (GSI), the audit of County Geological Sites for County Cork is not completed to date[62].

There are no UNESCO Global Geoparks in County Cork[63].

[61] Geological Survey Ireland. 2021. Bedrock Geology 1:100,000 Ireland (ROI) ITM. Accessed: December 2023. Available from: https://dcenr.maps.arcgis.com/home/item.html?id=a40f6a8ca91f4340a86b12649d831d74

[62] Geological Survey Ireland. 2022. Geological Heritage Audited Sites Ireland. Accessed: December 2023. Available from: https://www.gsi.ie/en-ie/data-and-maps/Pages/Geoheritage.aspx#Nationwide

[63] UNESCO. 2023. UNESCO Global Geoparks. Accessed: December 2023. Available from: https://www.unesco.org/en/iggp/geoparks#list

Table 3.13 Irish Geological Heritage Sites located within the core study area

Site name	Total site area (km^2)	Area within core study area (km^2)
Ardoginna	0.0418	0.0031
Whiting Bay and Goat Island	0.5882	0.3090
Inniscarra Bar	0.0002	0.0002
Ballinlough Fields	0.0010	0.0010
Beaumont Quarry	0.0377	0.0377
Patrick's Hill	0.0003	0.0003
Shandon Tower	0.0006	0.0006
St Fin Barre's Cathedral	0.0013	0.0013
Blackrock Diamond Quarry	0.0423	0.0423
St Joseph's Section	0.0003	0.0003

3.15.2 Soil Baseline Condition

There is relatively little legislation relating directly to soil and soil protection at an international level and there is no legislation solely directed to soil protection in Ireland. However, the key driver for future policy is the EU Soil Strategy for 2030[64] which was published in 2021. This sets out the aim for EU soils to be in a healthy condition by 2050. Soils are defined in this strategy as:

"when they are in good chemical, biological and physical condition, and thus able to continuously provide as many of the following ecosystem services as possible:

- Provide food and biomass production, including in agriculture and forestry;
- Absorb, store and filter water and transform nutrients and substances, thus protecting groundwater [and surface water] bodies;
- Provide the basis for life and biodiversity, including habitats, species and genes;
- Act as a carbon reservoir;
- Provide a physical platform and cultural services for humans and their activities;
- Act as a source of raw materials;
- Constitute an archive of geological, geomorphological and archaeological heritage".

Soils in the study area are represented mainly by coarse and loamy soils from the following associations:

- Ross Carbery (900e) - Coarse loamy drift with siliceous stones;
- Clonroche (1100a) - Fine loamy drift with sillceous stones;
- Ballylanders (1100e) - Fine loamy over shale or slate bedrock;
- Clashmore (1100n) - Coarse loamy drift with siliceous stones;
- Broomhill (1100s) - Fine loamy over sandstone bedrock.

[64] Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. EU Soil Strategy For 2030 Reaping The Benefits Of Healthy Soils For People, Food, Nature And Climate, Com (2021) 699, Final. Accessed: December 2023. Available from: http://Eur-Lex.Europa.Eu/

Along the river courses in the area River alluvium soils are present from River (5RIV) association and in close vicinity to Cork Harbour and Lough Mahon small areas with Coarse loamy drift with siliceous stones from Puckane (660c) association and Tidal Marshes are present.

Figure 3.11 below shows the distribution of soil associations within the study area. There are no areas of peatland soils within the study area, based on Peatland of Ireland[65] map published by Teagasc.

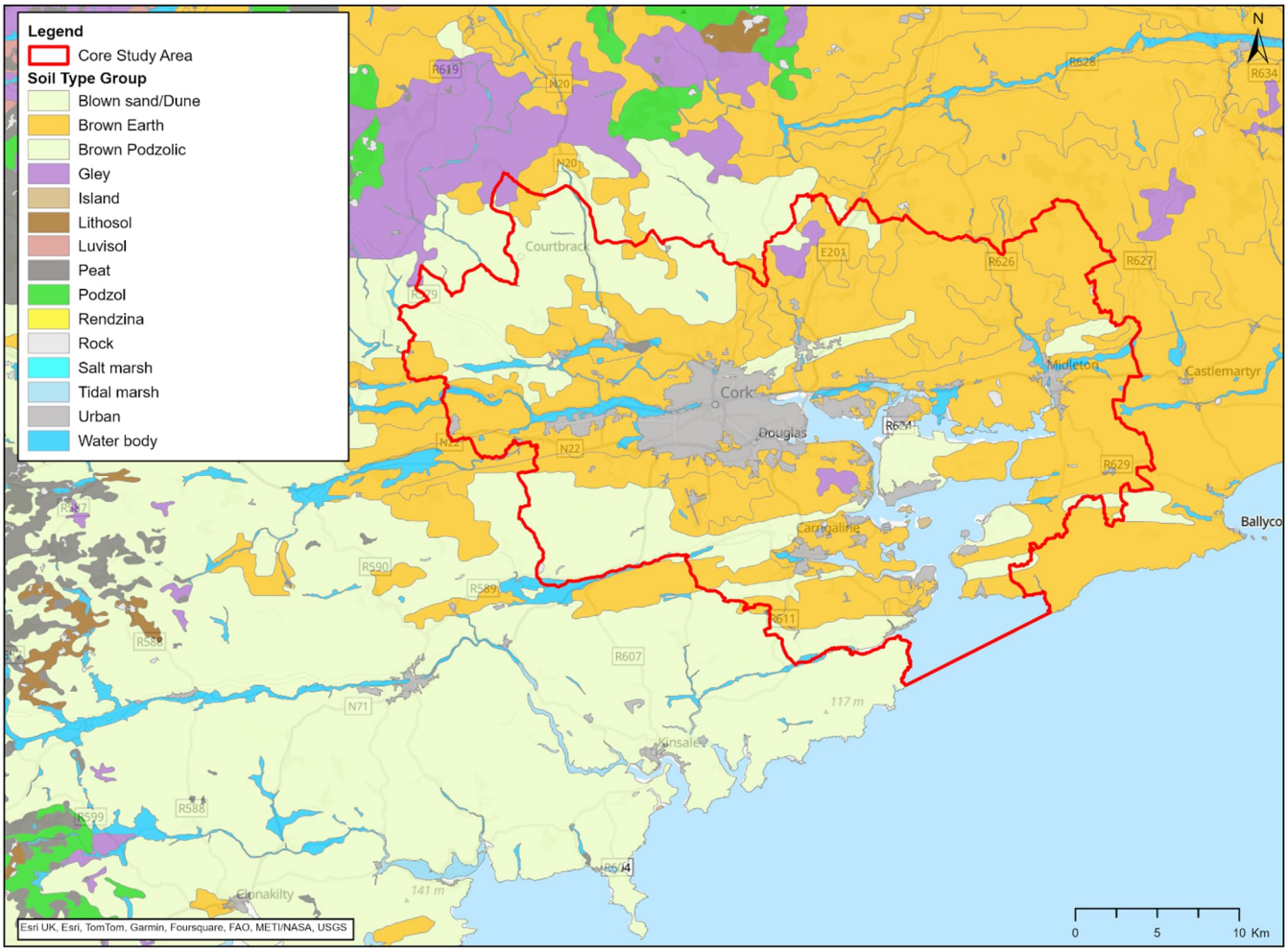

Figure 3.11 Simplified soils map

Soil quality or contamination

The EPA's State of the Environment 2020[21] highlights six key degradation processes that can impact on soils: soil sealing, erosion, organic matter decline, compaction, salination and landslides. Surface sealing (urbanisation) is the main soil quality pressures for Ireland with human activity also being a significant driver of degradation through poor (or inappropriate) land management practices.

Soil contamination can occur as a result of unauthorised waste-related activities, historical activities, leakages and accidental spillages of chemicals. The EPA is responsible for enforcing the remediation of contamination identified at EPA-licensed facilities but there is currently no specific contaminated land policy or legislation in Ireland.

[65] Teagasc. 2023. Peatlands of Ireland. Accessed: December 2023. Available from: https://www.teagasc.ie/media/website/environment/soil/Peatlands-of-Ireland-Map.pdf

Soil and the circular economy

Soil plays a key role in recycling water, carbon and nutrients, and can break down and filter pollutants as well as providing raw material resource. The EU Soil Strategy 2030 proposes a land take hierarchy placing emphasis on aiming to avoid loss of soil resources and promote development of healthy soils.

3.15.3 Future Trends

Changes in geology are generally considered to happen over very long timescales. However, changes affecting soils due to water regime, climate change, land use practices influence soil carbon, nutrients levels and erosion rates and are relevant within the timescale for the CWS.

Soils and ecosystems services they support are resources that need to be protected, monitored and managed, from high-level national and sectoral land use plans through to local management activities on farms, forest plantations, peatlands, urban and rural settlements. In the absence of European and national soil legislation, the challenge remains to ensure a consistent approach to protecting and managing the limited soil resource, in the context of supporting environmentally sustainable economic and population growth. The EU Soil Strategy to 2030 which is closely linked to the EU Biodiversity Strategy and a proposed EU Nature Restoration Law, sets out actions to support achieving it overarching long term aims which should also influence future national policy related to soils.

3.15.4 Key Considerations for CWS and the SEA

Key challenges and opportunities in relation to geology and soils potentially relevant for the CWS and the SEA are:

Challenges

- Land take with a loss of soil resources from construction works on wastewater services infrastructure.
- Soil management and health affecting how water and nutrients are retained in soil and susceptibility to erosion with loss of soil and high levels sediment and nutrients in run off entering water bodies.
- Potential impact on geological resources and protected sites from construction works;
- Indirect effects on soil quality, beneficial and negative, from sludge spreading and potential for waterbody pollution as wastewater treatment processes influence the nutrient and heavy metal content of sludges.

Opportunities

- Opportunities for peatland restoration including peat rewetting initiatives, catchment-based soil conservation initiatives and wetland enhancements/creation. These approaches can support water quality and soil health and provide other ecosystem benefits such as carbon sequestration and support biodiversity enhancement.
- Opportunities to use soil management plans to apply hierarchy to avoid loss and promote reuse and maintain soil health.

3.16 Air Quality

3.16.1 Air Quality Baseline Condition

Air pollution is a major environmental risk to our health. According to the World Health Organisation (WHO), air pollution can increase the risk of stroke, heart disease, lung cancer, and both chronic and acute

respiratory diseases, including asthma. It is estimated that there are approximately 1,300 premature deaths annually in Ireland[66] due to poor air quality from fine particulate matter ($PM_{2.5}$).

Under the EU's Green Deal's Zero Pollution Action Plan[67], the European Commission set the 2030 goal of reducing the number of premature deaths caused by fine particulate matter ($PM^{2.5}$, a key air pollutant), by at least 55% compared with 2005 levels. To this end, in 2022 the European Commission published a proposal to review the ambient air quality directives, aiming, among other things, to align the air quality standards more closely with WHO recommendations.

The CAFÉ (Ambient Air Quality and Cleaner Air for Europe) Directive establishes objectives on how to assess ambient air quality in order to reduce, prevent and avoid harmful effects on our health and on the environment.

Cork City Council's Air Quality in Cork City Annual Report 2022[68] states that air quality in Cork is generally good but declines during winter months and at heavy traffic points, with particulate matter ($PM_{2.5}$) emissions from burning solid fuels for domestic heating and nitrogen dioxide (NO_2) emissions from road traffic being the main contributors to poor air quality.

Table 3.14 shows EPA regulatory air quality monitoring data in the study area. There are eight active air quality monitoring sites within the study area as listed in Table 3.14. Exceedances of the 24 hour 2005 WHO Air Quality Guideline (AQG) level for PM_{10} (>50µg/m^3) were noted at several locations, however annual 2005 WHO AQG levels were not exceeded at any stations. In addition, Cork City Council also maintains a PM2.5 monitoring network across the city, and monitoring data from this network 2022 also showed that there were no exceedances of the WHO AQG level in 2022[68].

Table 3.14 Selected pollutants measured in 2021 failing the WHO AQG levels

EPA air quality monitoring site	2022 air quality monitoring results[69]	2023 (January -October) air quality monitoring results[70]
Cork Southern Link Road	Two PM_{10} exceedances (>50 µg/m^3)	No NO_2 or PM_{10} exceedances
Cork City Centre	Two PM_{10} exceedances (>50 µg/m^3)	No PM_{10} exceedances. No NO_3 data available.
Heatherton Park	No data available	No PM_{10} exceedances (NO_2 not monitored)
Bishopstown MCU	No PM_{10} exceedances (NO_2 not monitored)	No data available
Cork UCC	No data available	No NO_2 or PM_{10} exceedances
Lower Glanmire Road	No data available	No NO_2 or PM_{10} exceedances
Cobh	No NO_2 or PM_{10} exceedances (>50 µg/m^3)	No NO_2 or PM_{10} exceedances

[66] Environmental Protection Agency (EPA). 2021. Air Quality in Ireland Report 2021. Accessed: December 2023. Available from: https://indd.adobe.com/view/67188a5f-37ff-44bd-b335-5d168fdcf113

[67] European Commission. 2021. Zero pollution action plan. Accessed: December 2023. Available from: https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

[68] Cork City Council. 2022. Air Quality in Cork Annual Report 2022. Accessed: December 2023. Available from: https://www.corkcity.ie/en/media-folder/environment/cork-city-council-air-quality-report-2022.pdf

[69] EPA. 2022. Air Quality Bulletin – PM10 December 2022. Accessed: December 2023. Available from: https://s3.eu-west-1.amazonaws.com/airquality.ie/docs/bulletins/Air-Quality-Bulletin-2022.pdf https://s3.eu-west-1.amazonaws.com/airquality.ie/docs/bulletins/Air-Quality-Bulletin-2022.pdf

[70] EPA. 2023. Air Quality Bulletin October 2023. Accessed: December 2023. Available from: https://s3.eu-west-1.amazonaws.com/airquality.ie/docs/bulletins/Air-Quality-Bulletin-2023.pdf

EPA air quality monitoring site	2022 air quality monitoring results[69]	2023 (January -October) air quality monitoring results[70]
Cork Harbour	One PM_{10} exceedance (>50 µg/m^3) (NO_2 not monitored)	No NPM_{10} exceedances (NO_2 not monitored)

Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011).

According to the EPA[21], 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; and
- Zone D: Rural Ireland, i.e., the remainder of the State excluding Zones A, B and C.

The central part of the study area falls within Zone B Cork, with the remainder of the study area falling within Zone D Rural Ireland.

In general, the water industry is not a major contributor to air quality issues, although there is potential for odour nuisance as a result of nearby wastewater treatment facilities. There is a requirement to comply with air pollution regulations and also identify potential opportunities for reducing emissions.

3.16.2 Future Trends

WHO published new AQGs in 2021 based on the impact of pollutants on our health. There are 4 Interim Targets (IT) identified (IT1, IT2, IT3, IT4) towards achieving the final AQG levels. Europe as part of the European Union's (EU) Green Deal and the EU's zero pollution visions for 2050 is revising its air quality standards to align them more closely with the lower WHO recommendations. Currently air quality within the study area is of an acceptable standard and remains within the European Union (EU) legislative and target values, however achieving the WHO Air Quality Guidelines in the future will challenging for Cork and Ireland as whole.

The Cork City Council Air Quality Strategy 2021-2026[71] outlines a number of actions aimed at reducing air pollution within the city area, such as measures aimed at increasing public awareness, developing city wide air quality monitoring (implemented in 2022), increasing the accessibility and attractiveness of public transport and active travel modes and supporting the transition to electric vehicle (EV) usage.

3.16.3 Key Considerations for CWS and the SEA

Key challenges and opportunities in relation to air quality potentially relevant for the CWS and the SEA are:

Challenges and opportunities

- The temporary generation of air pollution such as during construction and operational phases of wastewater infrastructure development, although it should be noted that upgrades to existing infrastructure and the provision of new services are likely to present an opportunity to utilise technologies that are more energy efficient.
- Odour can be a concern from wastewater treatment and agricultural sludge spreading and new facility design or upgrades to wastewater treatment will need to take account of standards

[71] Cork City Council. 2021. Air Quality Strategy 2021-2026. Accessed: December 2023. Available from: https://www.corkcity.ie/en/council-services/services/environment/air-quality/air-quality-strategy.html

required in relation to receptors around plants and good practice approaches for sludge spreading and storage.

In the context of the development of the CWS, the challenges and opportunities related to air quality are considered localised issues addressed through application of appropriate standards identified at programme and project levels. In terms of the SEA of the CWS they will therefore be considered generally as in terms of potential nuisance or disturbance effects under the topic of population and health.

3.17 Noise and Vibration

3.17.1 Noise and Vibration Baseline Condition

According to the WHO, noise is defined as unwanted sound and can be harmful to human and ecosystem health. The Noise Directive (2002/49/EC), which is commonly referred to as the Environmental Noise Directive or END relating to the assessment and management of environmental noise, was transposed into Irish national legislation via the Environmental Noise Regulations 2006 (S.I. No. 140 of 2006). This Directive called for the development of strategic noise maps and action plans for major roads, railways, airports and cities.

The END defines a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The END does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Limit values are left to each member state. At this point in time, Ireland does not have any statutory noise limit values.

Cork City Council Noise Action Plan 2018-2023[72] finds that 63% of Cork urban agglomeration population are exposed to environmental noise which exceeds 55 decibels (dB) L_{den} which are marginally higher than the WHO Environmental Noise Guidelines for the European Region targets of 54 dB L_{den} for road traffic noise and 53 dB L_{den} from railway traffic[73], and 76% are exposed to night time noise levels which exceed the WHO Night Noise Guidelines for Europe[74] interim target of 55 dB L_{night}.

Water and wastewater infrastructure development is not expected to add significantly to noise pollution. Uisce Éireann acknowledges that construction noise can have adverse effects on terrestrial and marine environments and therefore it will be considered through scheme construction management and design for local receptors and during operation for sensitive receptors in close proximity.

3.17.2 Future Trends

Future noise trends are difficult to predict. The Environmental Noise Regulations 2006 may be revised in future to enforce a stricter level of noise management, and further strategic noise maps and plans are to be developed.

The EPA has commissioned a three-year research project Noise and Health Evidence from Ireland that will provide a detailed review of the relationship between environmental noise and health/wellbeing. This research will provide a national estimate of the burden of disease from environmental noise in disability-adjusted-life-years (DALYs). It is led by University College Dublin (UCD) and the Economic and Social Research Institute (ESRI). The aim is to combine noise modelling and health data to examine contributory relationships between noise exposure and health/wellbeing outcomes.

[72] Cork City Council. 2020. Noise Action Plan 2018-2023. Accessed: December 2023. Available from: https://www.corkcity.ie/en/media-folder/environment/cork-agglomeration-area-noise-action-plan-2018-2023.pdf
[73] World Health Organisation (WHO). 2018. Noise Guidelines for the European Region. Accessed: December 2023. Available from: https://iris.who.int/bitstream/handle/10665/343936/WHO-EURO-2018-3287-43046-60243-eng.pdf?sequence=2
[74] World Health Organisation (WHO). 2009. Night Noise Guidelines for Europe. Accessed: December 2023. Available from: https://iris.who.int/handle/10665/326486

Cork City Noise Action Plan[72] identifies 145 high priority areas where noise mitigation is required in order to comply with the EPA guideline limits for licensed activities[75], along with mitigation and protection measures to be applied over the lifetime of the strategy.

3.17.3 Key Considerations for CWS and the SEA

The key challenges and opportunities in relation to noise and vibration potentially relevant to the CWS and SEA are:

Challenges and opportunities

- Generation of noise during construction and operation of wastewater infrastructure; and
- Generation of noise from the construction and operation of wastewater treatment, including the disposal of sludge waste, related to the use of plant and HGV movements.

Opportunities to consider noise and vibration standards in design and procurement where sensitive receptors maybe affected.

In the context of the development of the CWS, the challenges and opportunities related to noise and vibration are considered localised issues to be addressed through the application of appropriate standards at programme and project levels. In terms of the SEA of the CWS they will therefore be considered generally as potential nuisance or disturbance effects under the topic of population and health.

3.18 Transboundary Effects

No transboundary effects are anticipated due to the distance involved between the CWS SEA study area and other nations (approximately 250 km) and because as the WFD catchments scoped into assessment for the CWS are not shared with any other nation. Transboundary effects are therefore scoped out of further assessment.

3.19 Summary of the Scope of the SEA

The scope of the SEA has been determined by the key issues and trends established in the baseline assessment. The scope of the assessment is outlined in Table 3.15.

Table 3.15 Scope summary for the SEA of draft CWS

SEA topic	Scope	Scoped in - Y/N?	
	Matters for consideration	**Construction Phase**	**Operation Phase**
Water Environment	**Challenges**: Water pollution affecting fresh, estuarine and coastal waters from treated and untreated (stormwater or septic tank) discharges. New and upgraded infrastructure requirements to meet needs and improve resilience. **Opportunities**: Continued investment to reduce pressure and achieve environmental improvements. Targeted and wider catchment based actions to improve water quality, ecosystems services and resources and use of nature-based solutions.	Y	Y
Population, Socio-economics	**Challenges:** Population growth with implications for level of demand for wastewater services.	Y	Y

[75] EPA. 2016. Office of Environmental Enforcement (OEE) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4). Accessed: December 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/noise/NG4-Guidance-Note-(January-2016-Update).pdf

SEA topic	Scope	Scoped in - Y/N?	
	Matters for consideration	**Construction Phase**	**Operation Phase**
and Human Health	Access to, and quality of, natural environment including rivers, lakes, canals, coastal areas, bathing waters, marine and freshwater fisheries and shellfish waters is important for local economies, tourism, recreation and wellbeing. Construction and operational nuisance from noise, air pollution and traffic generation and from wastewater treatment plant odour. **Opportunities:** Investment in wastewater treatment and catchment management plans will support improved water quality with wider social and environmental benefits. Opportunities to reduce nuisance effects from wastewater treatment odour.		
Climate Change	**Challenges**: Changes to rainfall patterns, temperature, seal level rise and increase frequency of weather events affecting the environment and risks to infrastructure and services. **Opportunities**: Support environment resilience by reducing pressure from wastewater discharges and avoiding exceeding sustainable abstraction thresholds and planning for drought conditions. Making infrastructure and services more resilient to extreme events.	Y	Y
Biodiversity	**Challenges**: Impacts from wastewater discharges to waterbodies – pollution potentially affecting aquatic ecology, fresh water estuarine and marine. New and upgraded infrastructure – plants and pipelines with potential for habitat loss, fragmentation, disturbance and pollution. **Opportunities**: Reduce pollutant loads and pressure on aquatic environment from abstraction, opportunities to remove barriers for fish/eel migration or provide passes. Biodiversity no net loss and potential for net gain including benefits from nature-based solutions and catchment management actions.	Y	Y
Landscape, Townscape and Seascape	**Challenges**: Infrastructure development and construction work can have impacts on visual amenity and landscape, townscape or seascape depending on location. Wastewater discharges, storm water overflows and pollution can lead to algal blooms also affecting visual amenity such as litter. **Opportunities:** Sensitive siting and construction of new infrastructure, improvements to the wastewater discharge and support for improving water quality to benefits.	Y	Y
Cultural Heritage	**Challenges**: Infrastructure development and construction work can have impacts on cultural heritage and archaeology and architecture either through direct loss or impacts on their settings. River and coastal heritage structures and sites in particular. **Opportunities**: Sensitive siting and construction of new infrastructure actions supporting wetland and soil	Y	Y

SEA topic	Scope	Scoped in - Y/N?	
	Matters for consideration	**Construction Phase**	**Operation Phase**
	conservation could also help conserve archaeological interest.		
Geology and Soils	**Challenges**: Potential impacts on designated geological sites of interest from infrastructure construction and soil loss. **Opportunities**: Potential for nutrient recovery and reuse of sewage sludge in agriculture supporting soil health and circular economy principles. Catchment management and nature-based solutions aimed at improving raw water quality can support soil health with related benefits for water retention and water quality and carbon sequestration. Wetland restoration and peat and soil conservation measure can help to reduce soil erosion, polluting run off and flash flooding.	Y	Y
Air quality	**Challenges**: Air pollution from construction works, vehicle movements and operations including odour from wastewater treatment works. **Opportunities**: Construction air emissions can be managed through good construction practice, fuel/ energy policy. Wastewater treatment improvements, higher design standards and operation practice can reduce odour. Construction related emissions are considered local issues addressed through application of appropriate standards at lower programme and project levels and are therefore considered generally as potential nuisance or disturbance effects under population and health.	N	Y
Noise and vibration	**Challenges**: Noise and vibration from construction works and operations including vehicle movements. **Opportunities**: Construction noise can be managed through good construction practice and appropriate design standards and siting to take account of sensitive receptors. These are considered local issues addressed through application of appropriate standards at lower programme and project levels and are therefore considered generally as potential nuisance or disturbance effects under population and health.	N	N
Material Assets	**Challenges**: Ageing wastewater infrastructure assets needing repair maintenance and replacement. Waste management challenges for sewage sludge and water treatment residuals to avoid pollution and minimise disposal of waste to landfill. **Opportunities**: Potential to adopt circular economy principles and potential for waste resource recovery through use on land and innovation for use for renewable energy/fuel.	Y	Y
Interrelated aspects	Opportunities: potential to use natural capital and ecosystems-based approaches to support consideration of scale and multiple environmental impacts and benefits using quantification and metrics to add to qualitative environmental assessment approaches.		

As shown in Table 3.15, there is potential for likely significant effects of both a positive and negative nature in relation to all of the environmental topics listed in the SEA Directive when developing the CWS. On this basis, it was determined that none of the environmental topics would be scoped out at the scoping stage and that all the environmental topics listed will be considered further, however within the topics the focus will be on relevant aspects identified.

3.20 Interrelated SEA Topics

In accordance with the SEA Directive, it is important to recognise the interrelationships between environmental topics, as changes to one environmental aspect can directly and indirectly influence others.

Table 3.16 below illustrates the potential interrelationships between the environmental topics discussed in Sections 3.8 to 3.17 which will be explored further during the next stages of the SEA.

All SEA topics will be relevant to some degree related to potential positive or negative impacts from the implementation of the CWS.

Table 3.16 Interrelated SEA topics

	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality
Population, Economy, Tourism and Recreation, and Human Health	Y								
Climate Change	Y	Y							
Biodiversity	Y	Y	Y						
Material Assets	Y	Y	Y	Y					
Landscape, Townscape and Seascape	Y	Y	Y	Y	Y				
Cultural Heritage – Archaeological and Architectural	Y	Y	Y	Y	Y	Y			
Geology and Soils	Y	Y	Y	Y	Y	Y	Y		
Air Quality	N	Y	Y	Y	N	N	N	Y	
Noise and Vibration	N	Y	N	Y	Y	N	Y	N	N

SEA Scoping Questions – Chapter 3

1. Chapter 3 sets out the current baseline environment conditions, future trends and relevant issues for the assessment. Do you have any comments on these?
2. Are there are recreational or tourism uses of the waterways within the SEA study area or additional locations where fishing and watersports take place, that should be considered as part of the baseline?

4 Review of Policies, Plans, and Programmes

4.1 Introduction

The SEA Directive states in Article 5(1) of Annex 1 that the environmental assessment must identify "*the environmental protection objectives, established at International, European Union or national level, which are relevant to the plan or programme, or modification to the plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation*".

In accordance with this requirement, a review of other plans, policies and programmes and the legislative framework is an important part of setting the context for the SEA and the CWS. The review also identifies wider environmental protection objectives. These may be plans and programmes at an international (European), national (including cross-boundary), regional or sub-regional level, commensurate with the scope of the CWS. The review aims to identify the relationships between the CWS and these other documents i.e., how the CWS could be affected by the other plans and programmes' aims, objectives and/or targets, or how it could contribute to the achievement of their environmental and sustainability objectives.

The review has been undertaken in two stages firstly as a comprehensive review of plans, policies to identify those directly relevant for the CWS and SEA (Appendix B) and a further review focusing on the how those identified can inform the scope of the baseline and the assessment including the SEA Objectives. Those considered most influential are also outlined in more detail in Section 4.2 in keeping with the EPA's guidance[92] recommending focus on a few key policy and plans. Figure 2.1 identifies how the CWS relates to the key national, regional, and local level plans, policies and strategies.

4.2 Key Influences and interactions

The key legislation, policies and plans that need to be taken into account in the CWS and the environmental assessment are considered below under the following headings (note a comprehensive list of relevant plans is provided in Appendix B):

- Water resources and quality;
- Climate change;
- Biodiversity;
- Circular Economy; and
- Land use and planning.

4.2.1 Water Resources and Water Quality Plans and Policies

Water Framework Directive and River Basin Management Plan

The EU WFD (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy) and the RBMP (required under WFD) are of particular relevance to the development of the CWS as they set the framework for managing Uisce Éireann activities relating to pollution from wastewater discharges (DHLGH, 2021c). They strongly influence investments in wastewater infrastructure to address inadequately treated waste water, deficits and future growth needs.

The WFD establishes a standard European wide strategic approach to managing surface water, groundwater, transitional and coastal waterbodies, wetlands and to meeting common environmental objectives.

The Directive is linked to, and reinforces, other EU environmental directives including directives relating to the protection of biodiversity (Birds and Habitats Directives), directives related to specific uses of waters (drinking water, bathing waters and urban wastewater directives) and to directives concerned with the regulation of activities undertaken in the environment (Industrial Emissions and Environmental Impact Assessment

directives). The Nitrates Directive also forms an integral part of the Directive and is one of the key instruments in the protection of waters against agricultural pressures.

European Union Member States implement the WFD through RBMPs in six-year cycles. This process allows for assessment, planning, implementation, and review at regular intervals. Ireland's approach to water quality management has developed over the first and second RBMPs and will continue to evolve into the third cycle RBMP 2022 – 2027 to protect and improve water quality nationally and locally.

Under Article 4(1)(a) of the WFD, Ireland must adopt the necessary measures to achieve the objectives of non-deterioration, preservation and enhancement of the status of bodies of water by making the programmes specified in the RBMP operational for the achievement of the WFD environmental objectives. Both the obligations to enhance, and to prevent deterioration of the status of bodies of water, are designed to attain the qualitative objectives pursued by the EU legislature, namely the preservation or restoration of good status, good ecological potential and good chemical status of surface waters.

More details on the WFD and the current baseline and key trends for the water environment are presented in Section 3.8 of this SEA Scoping Report.

The WFD establishes a standard European wide strategic approach to managing surface water, groundwater, transitional and coastal waterbodies, wetlands and to meeting common environmental objectives.

The WFD environmental objectives for surface waters include the following:

- Prevent deterioration;
- Aim to achieve good ecological status (or for Artificial or Heavily Modified waterbodies, good ecological potential);
- Aim to achieve good chemical status;
- Aim to reduce/cease emissions, discharges and losses from priority substances and priority hazardous substances; and
- Meet protected area objectives where relevant.

Under Article 4(1)(a) of the WFD, Ireland must adopt the necessary measures to achieve the objectives of non-deterioration, preservation and enhancement of the status of bodies of water by making the programmes specified in the RBMP operational for the achievement of the WFD environmental objectives. Both the obligations to enhance, and to prevent deterioration of the status of bodies of water, are designed to attain the qualitative objectives pursued by the EU legislature, namely the preservation or restoration of good status, good ecological potential and good chemical status of surface waters.

More details on the WFD and the current baseline and key trends for the water environment are presented in Chapter 5 of this SEA Environmental Report.

The RBMP for Ireland sets out how organisations, stakeholders and communities will work together to improve the water environment and fulfil the requirements of the WFD. The RBMP is updated every six-years as part of the river basin planning cycle; the current RBMP[16] is the second cycle and sets out what measures will be undertaken to protect and improve Uisce Éireann.

The third cycle draft RBWP for the period of 2022-2027[17] was published for consultation in September 2021 and is currently under review. The draft RBMP sets out the measures that are necessary to protect and restore water quality in Ireland. The overall aim of the plan is to ensure that the natural waters are sustainably managed and that freshwater resources are protected so as to maintain and improve Ireland's water environment.

Protecting and restoring water quality in Ireland will most of all need measures to address the loss of agricultural nutrients to water, continue to improve wastewater treatment and to re-establish natural free-

flowing conditions in more rivers. Ireland's wastewater services face challenges on a number of fronts including a continued need for investment in infrastructure and an ever-increasing demand for water and wastewater services due to urbanisation, population and economic growth all set against a backdrop of widespread, rapid, and intensifying climate change.

Wastewater Treatment Plants (WWTPs) identified in the Draft RBMP 2022-2027 as causing water quality impacts in the rivers they discharge, are included in Uisce Éireann River Basin Management Plan Enhanced Ambition Programme funded by the European Union under Ireland's National Recovery and Resilience Plan. This will support the objectives of Ireland's River Basin Management Plans and improve water quality in rivers. The programme is aimed at ensuring that Uisce Éireann assets are not impacting on the ability of receiving waters to achieve their water quality objectives.

The CWS and the SEA need to take account of the objectives and targets of the River Basin Management Plans for the environment and the specific actions identified for Uisce Éireann.

Urban Wastewater Directive

The Urban Wastewater Directive (UWWTD)(Council Directive 91/271/EEC of 21 May 1991) is a European Union (EU) directive regarding urban wastewater collection, wastewater treatment and its discharge. It sets standards for both treatment and disposal of sewage for communities of more than 2,000 person equivalents as well as monitoring requirements for wastewater discharges from urban areas.

Wastewater discharges are regulated by the EPA under the European Union (Waste Water Discharge) Regulations 2007 to 2020. The EPA can also issue notices to review Water Water Discharge Authorisation.

In 2022, the European Commission published its proposal for a revised UWWTD. The revised UWWTD is currently scheduled for agreement in 2024 with implementation in Ireland likely sometime in 2026. These upcoming revisions will have implications for investment that will need to be taken into account in implementation of the CWS.

Floods Directive

The EU Floods Directive (2007/60/EC) required member states to develop Flood Risk Management Plans for areas of existing and future potentially significant flood risk. The Floods Directive was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations 2010 and sets out the responsibilities of Office of Public Works (OPW). The OPW has been implementing the Directive mainly through the Catchment-based Flood Risk Assessment and Management (CFRAM) Programme, identifying areas where risks associated with flooding might be significant (Areas of Further Assessment, or AFAs) and developing measures to address these risks. Floods and weather patterns are closely connected to challenges for urban drainage and contribute to issues related to storm water discharges and vulnerability to flooding is also a risk for treatment and supply infrastructure including impacts on associated services such as electricity supply and transport access.

Marine Planning

As part of implementing the Marine Spatial Planning Directive, Ireland's National Marine Planning Framework (2023)[76] has been produced to provide guidance for activities and developments affecting the marine environment up to 2040. The Maritime Area Planning Act was enacted in 2021 and the Maritime Area Regulatory Authority (MARA) was established in July 2023 - together these introduce a new legislative regime around consent for development and activities in the marine area. The NMPF provides policies for sustainable planning and management of marine resources, balancing ecological, economic and social objectives in relation to aspects such as the environment, biodiversity, commercial fisheries and renewable

[76] DHLGH. 2023. National Marine Planning Framework. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/a4a9a-national-marine-planning-framework/

energy. As part of this, the NMPF includes specific objectives and planning policies related to water quality and to wastewater treatment and disposal which will need to be taken into account in the development of the CWS and for the SEA,

4.2.2 Climate Change Related Plans and Policies

Climate Action and Low Carbon Development (Amendment) Act 2021

In July 2021 the Climate Action and Low Carbon Development (Amendment) Act 2021 was signed into law. This Act establishes the following national climate objective:

"*The State shall, so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy*."

To achieve that objective the Act sets out a number of actions. These include:

- The preparation of an annual update to the Climate Action Plan 2019 (currently Climate Action Plan 2024 (consultation draft) is the latest annual Plan);
- The preparation, not less frequently than once every 5 years, of a national long term climate action strategy (referred to as a 'national long term climate action strategy);
- The establishment of carbon budgets, aligned with the achievement of the national climate objective, for consecutive 5-year periods;
- The preparation of "*sectoral emissions ceilings*" which establish the maximum amount of greenhouse gas emissions that are permitted in different sectors of the economy during the 5-year period of a carbon budget;
- The preparation of "*local authority climate action plans*" covering periods of five years, which are required to specify the mitigation measures and the adaption measures to be adopted by the relevant local authority in relation to climate matters; and
- An obligation that public bodies must take account of Climate Action Plans in the performance of their functions.

The Act provides that the first two 5-year carbon budgets should equate to a total reduction of 51% over the period to 2030, relative to a baseline of 2018. While that overall target has not yet been disaggregated into sectorial targets, it is understood that the transport sector will be required to achieve this 51% reduction in full.

The Climate Action Plan and Low Carbon Development Act will strongly influence the investments set out in the CWS and guide development of its aim to identify sustainable wastewater management and treatment strategies and to develop a prioritised solutions list for medium and long term. The CWs will explore ways to minimise the carbon impact of wastewater treatment through prioritisation of sustainable solutions for effective wastewater management.

Climate Action Plan 2024 (consultation draft)

The Climate Action Plan 2024 (CAP24)[31]) is the third annual update to Ireland's Climate Action Plan 2019. The Plan was approved by Government on 20 December 2023, subject to SEA and AA. CAP24 has been updated to include an additional Sustainable Development Goals (SDG) chapter which provides an assessment of each chapter of the Plan for SDG impact at SDG target level.

The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. The CAP24 sets out how Ireland can accelerate the actions that are required

to respond to the climate crisis, putting climate solutions at the centre of Ireland's social and economic development (DECC, 2024)[77].

Progress Reports on the Climate Action Plans are published each quarter. For CAP24, the progress reports will highlight 'high impact' measures, Key Performance Indicators, state of play on emissions targets, recent emissions trends, action case studies and foresight on key actions due later in 2024.

The CWS will set the context for subsequent implementation plans and projects that will detail the programmes of works to be completed in specific areas relevant to climate change adaptation and mitigation and wastewater compliance in accordance with the CAP24.

National Adaptation Framework and Sectoral Adaptation Planning

Building on the work completed under the National Climate Change Adaptation Framework, the Department of Communications, Climate Action and Environment published Ireland's first statutory National Adaptation Framework (NAF) in January 2018[78] and has been subject to review and update with a consultation draft for the second NAF published in 2024[35]. The NAF sets out the national approach to adaptation in Ireland in order to reduce the negative impacts of climate change. The framework requires each government department to develop a sectoral adaptation plan for their area of responsibility.

As part of the 2018 NAF, the DHLGH produced the Adaptation Plan for Water Quality and Water Services Infrastructure[79].

The 2015 Climate and Low Carbon Development Act (the Climate Act) requires that the National Adaptation Framework (NAF) be reviewed at least every five years. The NAF review process took place in 2022. The Review also takes account of key developments at International and EU level, notably the publication of the IPCC Working Group I and II reports, the agreement and publication of the new 2021 EU Adaptation Strategy, and feedback on current Adaptation policy in Ireland. A Report on the NAF Review was approved in October 2022, and recommended the development of a new NAF and that provision for the making of joint Sectoral Adaptation Plans would be best accommodated within a new framework. Revision of sectoral adaptation plans is also highlighted as a requirement. The 2024 NAF consultation draft takes account of the changes and challenges and in particular the need for national climate change adaptation indicators and a national climate adaptation risk assessment.

The CWS will be relevant to the implementing of measures identified in the Adaptation Plan for Water Quality and Water Services Infrastructure and addressing the recommendations of the new 2024 NAF (Consultation Draft).

Local Climate Adaptation Strategies

Under the National Adaptation Framework (NAF), which was published in response to the provisions of the Climate Action and Low Carbon Development Act 2015, all Local Authorities were tasked with producing a Climate Adaptation Strategy for their functional areas. In 2019 Cork County Council developed the Climate Adaptation Strategy for Cork County[80] and Cork City Council developed the Climate Adaptation Strategy for Cork City[81]. These strategies draw on the data issued by both national and international forums in addition to

[77] DECC. 2024. *Climate Action Plan 2024.* Accessed: 22.03.24. Available from: https://www.gov.ie/en/publication/79659-climate-action-plan-2024/#:~:text=The%20Plan%20provides%20a%20roadmap,Development%20(Amendment)%20Act%202021

[78] Department of the Environment, Climate and Communications. 2018. National Adaptation Framework. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/fbe331-national-adaptation-framework/

[79] Department for Housing, Local Government and Heritage (DLGH). 2019. Water Quality and Water Services Infrastructure – Climate Change Sectoral Adaptation Plan. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/f5710-water-quality-and-water-services-infrastructure-climate-change-sectoral-adaptation-plan/

[80] Cork County Council. 2019. Climate Adaptation Strategy 2019-2024. Accessed: December 2023. Available from: https://www.corkcoco.ie/sites/default/files/2021-11/cork-county-council-climate-adaptation-strategy-2019-2024-pdf.pdf

[81] Cork City Council. 2019. Climate Change Adaptation Strategy 2019-2024. Accessed: December 2023. Available from: https://www.corkcity.ie/en/media-folder/environment/final-cork-city-council-climate-change-adaptation-strategy-30-sept-2019-.pdf

those from regional and local sources. They establish an extreme weather event baseline and predicts the challenges and risks that climate change will pose for the county in the future.

Climate Change Adaptation Strategies take on the role as the primary instrument at local level to ensure a proper comprehension of the key risks and vulnerabilities of climate change; bring forward the implementation of climate resilient actions in a planned and proactive manner and, ensure that climate adaptation considerations are mainstreamed into all council operations and functions.

4.2.3 Biodiversity Plans and Policies

4th National Biodiversity Action Plan 2023-2030

The Plan[82] sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and follows on from the work of the first, second and third National Biodiversity Action Plans. It has been developed in line with the EU and International Biodiversity strategies and policies.

The 4th NBAP aims to take account of the Global Biodiversity Framework. This recognises that despite three decades of co-ordinated global action for conservation, the loss of biodiversity continues, posing significant threats to human well-being. This Framework is intended to guide actions worldwide for the decade to 2030 to preserve and protect nature and its essential services to people. It includes a vision for biodiversity governance further into the future, aiming for a global effort towards living in harmony with nature by the year 2050. The 4th NBAP set out a Vision for Biodiversity in 2050 where '*Biodiversity in Ireland is valued, conserved, restored and sustainably used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people'*.

194 targeted actions are contained in the Plan, underpinned by five strategic objectives. The objectives contain series of outcomes and lay out a clear framework for Ireland's national approach to biodiversity, ensuring that efforts and achievements of the past are built upon, while looking ahead to what can be achieved over the next five years and beyond.

They include:

- Adopt a Whole-of-Government, Whole-of-Society Approach to Biodiversity;
- Meet Urgent Conservation and Restoration Needs;
- Secure Nature's Contribution to People;
- Enhance the Evidence Base for Action on Biodiversity;
- Strengthen Ireland's Contribution to International Biodiversity Initiatives.

The CWS will need to take account of the objectives and actions under 4th National Biodiversity Action Plan particularly those aimed at improving biodiversity and water quality including meeting urgent protection and restoration needs (Objective 2) and linkage to meeting the third cycle RBMP objectives.

EU's proposed Nature Restoration Law

The European Commission has proposed an EU Nature Restoration Law (July 2023). This is the first continent-wide, comprehensive law of its kind and is a key element of the EU Biodiversity Strategy and a step towards implementing the EU Green Deal. The proposal aims to restore ecosystems, habitats and species across the EU's land and sea areas to:

- Enable the long-term and sustained recovery of biodiverse and resilient nature;
- Contribute to achieving the EU's climate mitigation and climate adaptation objectives; and

[82] Department of Culture, Heritage and the Gaeltacht. 2024. Ireland's 4th National Biodiversity Action Plan 2023–2030. Accessed: March 2024. Available from: https://www.gov.ie/en/publication/93973-irelands-4th-national-biodiversity-action-plan-20232030/

- Meet international commitments.

The proposal combines an overarching restoration objective for the long-term recovery of nature in the EU's land and sea areas with binding restoration targets for specific habitats and species. These measures should cover at least 20% of the EU's land and sea areas by 2030, and ultimately all ecosystems in need of restoration by 2050. This proposal could have significant implications for national strategies and targets if passed as EU law. The CWS and SEA will need to address the requirements of the Nature Restoration Law as these are brought into national policy and regulations, and potentially including through future updates to Uisce Éireann's own Biodiversity Action Plan.

Local Heritage and Biodiversity Plan

The Cork City Heritage and Biodiversity Plan 2021-2026[46] contains 73 actions which aim to add to the understanding of heritage and biodiversity in Cork City as well as helping to enhance and restore this precious resource. It will also contribute to Cork City's economy, tourism sector, recreation facilities and the health and wellbeing of our communities.

The aim of Heritage and Biodiversity Plan is to protect, enhance, promote and restore the heritage and biodiversity of Cork City and to place the care of our heritage at the heart of the community. The Plan sets out four themes on Heritage and Biodiversity which are:

- Promote best practice and encourage heritage and biodiversity conservation and management;
- To be at the forefront of research and education, and support training in heritage and biodiversity related fields;
- To raise awareness, appreciation, engagement with and enjoyment of heritage and biodiversity and communicate heritage message to a citizens and visitors alike; and
- To increase the level of social, economic and tourism activity for heritage and biodiversity in the city.

4.2.4 Circular Economy Plans and Policies

EU Soil Strategy for 2030

The EU soil strategy for 2030[64] sets out a framework and concrete measures to protect and restore soils, and ensure that they are used sustainably. It sets a vision and objectives to achieve healthy soils by 2050, with specific actions by 2030. The strategy also proposed a new Soil Health Law to ensure a level playing field and a high level of environmental and health protection.

The new EU soil strategy for 2030 is a key deliverable of the EU biodiversity strategy for 2030. It will contribute to the objectives of the European Green Deal. Healthy soils are essential for achieving climate neutrality, a clean and circular economy and halting desertification and land degradation. They are also essential to reverse biodiversity loss provide healthy food and safeguard human health.

The EU soil strategy aims to ensure that, by 2050:

- All EU soil ecosystems are healthy and more resilient and can therefore continue to provide their crucial services;
- There is no net land take and soil pollution is reduced to levels that are no longer harmful to people's health or ecosystems; and
- Protecting soils, managing them sustainably and restoring degraded soils is a common standard.

A proposal for an EC Directive on soil monitoring was published July 2023. This will set out a framework for soil monitoring and aim to support sustainable soil management and required contaminated land to be identified and addressed.

The CWS will need to consider how proposd actions can support this strategy especially through sludge waste disposal and circular economy approaches.

Circular Economy and Miscellaneous Provisions Act 2022

The Circular Economy and Miscellaneous Provisions Act 2022 builds on Ireland's commitment to achieving a circular economy, as set out in the 2020 Waste Action Plan for a Circular Economy and the 2021 Whole-of-Government Circular Economy Strategy. The Act demonstrates commitment to a more sustainable pattern of production and consumption, that retains the value of resources in the economy for as long as possible which will also significantly reduce greenhouse gas emissions.

In a circular economy, waste and resource use are minimised. The use and value of products and materials is maintained for as long as possible. When a product has reached the end of its life its parts are used again and again – to create further useful products, instead of being discarded which is an all too familiar pattern now. The Act includes:

- Incentives for the use of reusable and recyclable alternatives to a range of wasteful single-use disposable packaging and other items;
- Re-designates the existing Environment Fund as a Circular Economy Fund, which will remain ring-fenced to provide support for environmental and circular economy projects;
- Introduces a mandatory segregation and incentivised charging regime for commercial waste, similar to the household market. This will increase waste separation and support increased re-cycling rates;
- Places the Circular Economy Strategy and National Food Loss Prevention Roadmap on a statutory footing, establishing a legal requirement for governments to develop and periodically update these 2 policies;
- Streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market; and
- Consolidates the government's policy of keeping fossil fuels in the ground – by introducing prohibitions on exploration for and extraction of coal, lignite and oil shale.

For CWS, the Circular Economy and Miscellaneous Provisions Act 2022 Act will be particularly relevant for CWS addressing wastewater treatment wastes.

4.2.5 Land Use and Economic Planning Plans and Policies

The Planning and Development Bill 2023

The Planning and Development Bill 2023 is a Draft bill published in November 2023.

The Bill represents a major overhaul of the planning system in Ireland. It, *inter alia,* proposes to strengthen the legal status of ministerial guidelines and policy directives. These will require Government approval and alignment with the policies and measure will be mandatory. Other plans will be required to be materially consistent with them. There will be changes to Local Development Plans and to the structure of the Local Area Plan system. Statutory timelines for all consent processes will be introduced and changes proposed to Judicial Reviews.

The bill once enacted will provide the legislative framework for spatial planning and sustainable development which will be relevant for implementing development proposals identified through the CWS.

National Development Plan 2021-2030

As part of Project Ireland 2040[1] the NDP[83] sets out the Government's over-arching investment strategy and budget for the period 2021-2030. It is an ambitious plan that balances the significant demand for public investment across all sectors and regions of Ireland with a major focus on improving the delivery of infrastructure projects to ensure speed of delivery and value for money.

This NDP is identified as being 'the largest and greenest ever delivered in Ireland', with a particular focus on supporting the largest public housing programme in the history of the state. While many of the investments in this NDP are already well known and have been progressing through planning for some time, there are a range of investments which are new or enhanced in this NDP. The CWS will need to take accounf of population and economic growth and the related requirements for wastewater services.

National Planning Framework – Project Ireland 2040

The National Planning Framework (NPF)[1] is a national document published on 16th February 2018. The commencement of the first revision to the NPF has been approved by Government and a Road Map for the revision was Published in June 2023. This sets out the commitment to update the NPF in 2024.

The National Planning Framework 2040 is a strategic development framework setting out the long-term context for Ireland's physical development and associated progress in economic, social, and environmental terms. The National Planning Framework is being followed and underpinned by supporting policies and actions at sectoral, regional and local level. The National Planning Framework is accompanied by the ten-year National Development Plan, together forming one plan to guide strategic development and infrastructure investment at a national level.

In the period to 2040, the National Planning Framework recognises Dublin as Ireland's key international and global city of scale and principal economic driver, accounting for 25% of growth. A further 25% of growth is estimated to occur across the other four cities combined (Cork, Limerick, Galway, and Waterford), enabling all four to become cities of greater scale by growing their population and jobs by 50-60%.

Under the framework three regional assemblies have been identified, Eastern and Midland, Northern and Western, and Southern. The study area falls within the Southern region.

The first revision to the NPF will be made in the context of a number of changes in policy and legislation since 2018 when the NPF was originally published and will include taking account of the Climate Action Plan 2023/2024, the National Marine Planning Framework from 2021 and the prospective changes expected once the draft Planning and Development Bill is enacted.

The NPF and regional and local plans are key for the CWS in terms of the population and economic growth and housing development that needs to be supported by wastewater services and also the potential to inform and influence these plans to support more sustainable development.

Regional Spatial and Economic Strategy (RSES) for the Southern Region of Ireland

Under the Local Government Reform Act 2014, the Southern Regional Assembly assumed a number of new functions - chief among these is the preparation and implementation of a Regional Spatial and Economic Strategy (RSES) for the Southern Region of Ireland.

The RSES[2] sets out the strategic regional development framework for the Region, with a primary aim to implement Project Ireland 2040 - the National Planning Framework, at the regional tier of Government and to support the achievement of balanced regional development.

[83] Department of Public Expenditure, NDP Delivery and Reform. 2021. National Development Plan 2021-2030. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/774e2-national-development-plan-2021-2030/

The Planning and Development Act 2000 (as amended) requires that all City and County Development Plans and variations are consistent with the RSES and relevant national policy, with draft development plans or proposed variations to development plans referred by the relevant local authority to the Regional Assembly. The Regional Assembly considers the consistency of the draft with the RSES and can make formal recommendations to the local authority on what amendments, in the opinion of the Regional Assembly, are required to ensure consistency of the proposed variation to the development plan and its core strategy with the RSES.

Local Development Plans

The Cork County Development Plan 2022[96] has been prepared in accordance with the steps set out in the Planning and Development Acts. The plan a six year development plan for the County that attempts to set out, as concisely as possible Cork County Council's current thinking on planning policy looking towards the horizon year of 2028. The plan also sets out the overall planning and sustainable development strategy for the county which must be consistent with the NPF, Southern RSES, and Cork Metropolitan Area Strategic Plan (MASP) 2020.

The Cork City Development Plan 2022-2028[95] has been incorporated in accordance with Section 31(17) of the Planning and Development Act 2000 (as amended) and sets out how the city will grow and develop over the next six years, while complementing a longer 2040 vision. This statutory plan also encompasses the towns of Ballincollig, Blarney, Tower and Glanmire, and their wider hinterland areas. The Plan sets out how the city can best enable this growth and investment over the next six years, while continuing to be an innovative, vibrant, healthy and resilient city.

4.3 Relevant Uisce Éireann Plans

The hierarchy of plans related to the CWS is illustrated in Figure 2.1. These include:

- Topic specific plans such as, on climate change or biodiversity, which inform all Uisce Éireann's plans and programme; and
- Implementation plans for wastewater related services- identifying targets and investment needs.

Key Uisce Éireann plans and programmes most relevant to the CWS are discussed below.

4.3.1 Topic Specific Plans

Sustainable Energy – Climate Change Mitigation and Adaptation3

Improving energy efficiency is one of Uisce Éireann's key sustainability measures for improving their carbon footprint and reducing greenhouse gas emissions. Uisce Éireann is in the process of preparing a sustainable energy strategy to become a low carbon, energy efficient, sustainable water utility and improve energy efficiency. This strategy will take account of mandatory targets.

Energy efficiency improvement is a key mitigation measure of Uisce Éireann's climate change policy to help ensure water and wastewater services are resilient to climate change, developing a low greenhouse gas emitting water and wastewater service. Uisce Éireann is implementing a business wide climate mitigation and adaptation strategy, aligned with the Water Sector Adaptation Plan under the National Adaptation Framework. The strategy identifies the adaptation and mitigation actions to be undertaken to minimise the consequences of climate change on Uisce Éireann, their customers and the environment.

Improving energy efficiency is one of Uisce Éireann's key sustainability measures for improving their carbon footprint and reducing greenhouse gas emissions. Uisce Éireann aims to become a low carbon, energy efficient, sustainable water utility with targets to improve energy efficiency by 50% by 2030 (2009 baseline) and achieve an absolute reduction (51%) in GHG emissions from energy by 2030 (2016-18 baseline). The strategy includes business wide energy action plans that focus on Capital Energy Efficiency, Operational Energy Efficiency, Renewable Energy, Innovation and Transformation and Energy Management. Significant

progress has been made in implementing the sustainable energy strategy with a 30% improvement in energy efficiency performance to date. Uisce Éireann is on track to meet the target of 50% energy efficiency improvement by 2030 and achieving an absolute reduction (51%) in GHG emissions energy by 2030, putting them in a strong position for net zero carbon by 2040.

Energy efficiency improvement is also a key mitigation measure of Uisce Éireann climate change policy to help ensure water and wastewater services are resilient to climate change, developing a low greenhouse gas emitting water and wastewater service. Uisce Éireann is implementing a business wide climate mitigation and adaptation strategy, aligned with the Water Sector Adaptation Plan under the National Adaptation Framework. The strategy identifies the adaptation and mitigation actions to be undertaken to minimise the consequences of climate change on Uisce Éireann, their customers and the environment.

Biodiversity Action Plan

Uisce Éireann's Biodiversity Action Plan (BAP)[84] details specific objectives and actions to address the biodiversity emergency. These objectives and actions align with Uisce Éireann policy-level strategic objectives and implementation is in progress. The plan will be reviewed and updated every five years in line with the company's periodic review. The following key objectives have been identified:

- Issue all Uisce Éireann sites with a clear set of measures that will enhance and protect biodiversity.
- Raise awareness and provide educational supports on biodiversity to Uisce Éireann staff and its partners. Ensure 'no net loss' of biodiversity when carrying out activities, or delivering plans or projects.
- Implement actions arising from the All-Ireland Pollinator Plan across all Uisce Éireann sites, to support and increase our pollinator population.
- Promote the use of nature-based solutions for water protection and wastewater treatment.
- Manage invasive alien species at Uisce Éireann's sites.
- Collaborate and work with key internal and external stakeholders, and the wider community, to protect and enhance biodiversity.

4.3.2 Implementation Plans

National Wastewater Sludge Management Plan

Uisce Éireann has published a long-term National Wastewater Sludge Management Plan (referred to as the NWSMP) that outlines its strategy to ensure a nationwide, standardised approach for managing wastewater sludge over the next 25 years[85]. The NWSMP is one of Uisce Éireann 's Tier 2 Implementation Plans.

Uisce Éireann has looked at how wastewater sludge is currently managed throughout the country and estimates that the quantity of wastewater sludge generated is expected to increase by more than 80% by 2040 as new and upgraded plants to treat our wastewater are completed. The management of this wastewater sludge poses economic, planning and environmental challenges. The NWSMP presents a national approach to wastewater sludge. This will ensure that, for the first time, treated wastewater sludge across the country is effectively managed, stored, transported and re-used or disposed of in a sustainable way, to the benefit of the public and the environment we all live in.

Uisce Éireann is currently reviewing and updating the National Wastewater Sludge Management Plan. The next revision of the Plan will provide a progress update on the objectives identified in the original Plan (2016). The

[84] Irish Water. 2021. Irish Water's Biodiversity Action Plan. Accessed: December 2023. Available from: https://www.water.ie/docs/21668_Ervia_IrishWaterBiodiversityActionPlan_v7.pdf

[85] Irish Water. 2016. National Wastewater Sludge Management Plan. Accessed: December 2023. Available from: https://www.water.ie/iw-documents/our-projects/Final-NWSMP.pdf

next revision of the Plan will also include detail around sludge management activities and how these activities impact climate change, sustainability and circular economy initiatives.

5 SEA Methodology

5.1 Introduction

The aim of this SEA Scoping Report is to determine the scope of the assessment and methodology to be applied for the SEA of the CWS.

The existing baseline conditions, future baseline trends and legal requirements within relevant plans, policies and programmes have shaped the development of the scope and objectives for this assessment.

This Section sets out the proposed SEA methodology, noting that Section 2.4 of this report describes how the development of the CWS will be influenced through the SEA process.

Key guidance taken into account in the approach to the SEA includes:

- SEA pack including scoping guidance and checklists (updated 2022)86;
- Developing and Assessing Alternatives in SEA[87];
- Guidance on SEA Statements and Monitoring[88];
- Integrating Climatic Factors into SEA in Ireland – A Guidance Note[89];
- Good practice guidance on Cumulative Effects Assessment in SEA[90];
- EPA guidance 'The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment'[91]; and
- Good Practice Guidance Strategic Environmental Assessment in the Water Sector.[92]

5.2 Proposed SEA Objectives

During this scoping stage of the SEA process a set of SEOs and assessment criteria has been developed based on the key considerations from the baseline review and the policy, plan and programme review outlined in Sections 3 and 4. These objectives will provide the framework for assessing the alternative plan approaches and preferred plan proposals. The draft SEOs and assessment criteria are provided in Table 5.1.

[86] EPA. 2002. SEA Pack (Updated September 2021). Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA-Pack-2022.pdf

[87] EPA. 2015. Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA). Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA-Alternatives-157-Published_web.pdf

[88] EPA. 2020. Guidance on SEA Statements and Monitoring. Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/guidance-on-sea-statements-and-monitoring.php

[89] EPA. 2019. Integrating Climatic Factors into Strategic Environmental Assessment in Ireland - A Guidance Note. Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/EPA-SEA-Climatic-Factors-Guidance-Note.pdf

[90] EPA. 2020. Good practice guidance on Cumulative Effects Assessment in SEA. Accessed: October 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/good-practice-guidance-on-cumulative-effects-assessment-in-sea.php#:~:text=Land%20and%20Soil-,Good%20practice%20guidance%20on%20Cumulative%20Effects%20Assessment%20in%20SEA,and%20the%20reasonably%20foreseeable%20future.

[91] EPA. 2021. The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment. Accessed: October 2023. Available from: https://www.epa.ie/publications/research/epa-research-2030-reports/Research_Report_391.pdf

[92] EPA. 2022. Good Practice Guidance Strategic Environmental Assessment in the Water Sector. Accessed: October: 2023. Available from: https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/SEA_Screening_GoodPractice_Water-2022.pdf

Table 5.1 Draft SEA Objectives for draft CWS Assessment

SEO topic	Objective
Water Environment	*Water quality and quantity* Prevent deterioration of the WFD status of waterbodies with regard to quality and quantity due to discharges of wastewater from treatment plants. Contribute towards the "no deterioration" WFD condition target and restore and improve waterbody status to meet WFD and RBMP objectives related to the provision of wastewater services. *Flood risk* Protect and, where possible, reduce risk from flooding as a result of Uisce Éireann's provision of wastewater services.
Population, Economy, Tourism and Recreation, and Human Health	Protect and contribute to enhancement of human health and wellbeing and support sustainable economic and population growth, with (i) preventing restrictions to recreation and amenity facilities and (ii) protecting and enhancing freshwater and marine fisheries and shellfish protected areas.
Climate Change	*Climate change mitigation* Minimise contributions to climate change emissions to air (including greenhouse gas emissions) through energy efficiency, consideration of ecosystem services including carbon sequestration, water reuse and conservation - related to the provision of wastewater services. *Climate change adaptation* Take account of additional pressures on the environment due to climate change and promote measures supportive of climate change resilience related to provision of wastewater services. Take account of additional risks to wastewater services and infrastructure due to climate change and improve resilience to the effects of climate change such as to extreme weather events.
Biodiversity	Protect and enhance terrestrial, aquatic and soil biodiversity and habitat connectivity, with particular regard for European and nationally designated sites (including proposed and candidate sites and protected species). Achieve BAP commitments to No Net Loss of habitats related to provision of wastewater services.
Material Assets	*Resource use and waste management* Minimise resource use and waste generation from new or upgraded wastewater infrastructure and the management of sludge and residuals from treatment processes. Seek to apply circular economy principles across lifecycle decision making for resources and wastes. *Asset use* Minimise impacts on other material assets and infrastructure, and optimise use of existing wastewater assets including through capacity and upgrades of existing wastewater sites.
Landscape, Townscape and Seascape	Protect and enhance designated and valued landscapes/townscapes and seascapes and visual amenity in relation to the provision wastewater services.
Cultural Heritage – Archaeological and Architectural	Protect and enhance designated and undesignated cultural heritage assets and archaeological interest, including their condition, settings and access related to the provision of wastewaterservices.

SEO topic	Objective
Geology and Soils	Protect soils and geological heritage sites and contribute towards the appropriate management of soil quality and quantity related to wastewater services.
Air Quality	Identify and seek to apply wastewater treatment improvements, higher design standards and operation practices to minimise odour from wastewater plants.
Noise and Vibration	Scoped out - as CWS unlikely to have significant effects related to noise and vibration (see Section 3.19)

5.3 SEA Assessment Approach

The next SEA stage follow scoping will involve assessment of the draft CWS and alternative approaches considered against the SEOs identified in Table 5.1.

5.3.1 Optioneering

The optioneering process for the CWS will include the following steps:

1. Develop long list of unconstrained options;
2. Course screening of unconstrained options to produce short list of constrainted options;
3. Fine screening of constrained options to develop short list of options; and
4. Final assessment of short list options.

The following subsections set out the process to be followed at each stage of the optioneering process, including how the SEA will be integrated such that environmental considerations are considered throughout.

Unconstrained Options

The first stage of the options assessment will involve identifying and evaluating an unconstrained list of solutions to meet the identified need, regardless of cost, environmental or social implications. The intervention hierarchy will involve:

- Behavioural solutions – changes in customer behaviour;
- Planning area solutions – inter-agglomeration approaches;
- System operation of assets (both WwTPs and networks/assets);
- Partnership or 3rd party solutions – measures co-created with other stakeholders;
- Catchment measures - catchment management and 'green' measures such as Sustainable Urban Drainage Systems (SuDs) and Nature Based Solutions; and
- System upgrades or new assets.

An options long list will be built for each agglomeration and design horizon (2030, 2055 and 2080), which will include:

- Do nothing;
- Minimal upgrades via process optimisation;
- Reuse and upgrading of existing assets;
- Pump away options;
- Construction of new plants and/or relocation of outfalls;
- Optimisation of sludge treatment facilities;
- Nature based solutions/SUDS; and

- Catchment level nutrient balancing approaches such as farm level interventions.

Coarse Screening

Options included in the unconstrained options list will be subject to coarse screening againt a variety of criteria (including environmental and sustainability considerations) using a red – amber – green (RAG) rating system. Options with red rating (unfeasible options) will be discarded from the optioneering process at this point, and options with amber rating against several criteria will also be evaluated for discardment. Options with an amber rating against one criteria or with green rating will progress to the constrained options list.

Constrained Options List

Options on the constrained options list will be developed further, taking into account regional considerations and focussing on drainage, treatment and discharge. The following specific options will be considered:

- Local treatment options;
- Flow transfer to Cork main drainage network, between catchments, or to a new WwTP;
- Infrastructure and asset upgrades to improve both treatment and flow transfer capacity;
- Introduction of sludge treatment facilities
- Outfall upgrades to maintain and improve environmental objectives of receiving waterbody;
- Developing emergency action plans to provide resilience of infrastructure; and
- Works necessary to Storm Water Overflows to meet relevant environmental limits (for example upgrade or decommissioning, downstream ser upsizing or diversion, storage facilities, storm separation and increased flows to full treatment).

Fine Screening

A Multi Criteria Assessment (MCA) will be completed to refine the constrained options list into the short list. MCA involves assessing options based on key criteria (to be confirmed, but under the broad headings of resilience, deliverability, progressibilty and sustainability) to verify criteria and understand risks. Environmental sub-criteria under the sustainability heading will be linked to the SEOs set out in Section 5.2 as well as consideration of impacts on European sites as required through the Appropriate Assessment process. Each option on the constrained list will be considered against sub-criteria, resulting in scores between -3 and +3.

Short List

The options short list will include three options per WwTP/agglomeration and per design horizon. All shortlisted options will be subject to water quality and network modelling to inform further assessment, and sufficiently developed in order to inform CAPEX and OPEX cost estimation (direct and indirect costs, including environmental and social costs).

Final Assessment of Short List

Short listed options will be assessed against bespoke criteria using multicritera analysis including , SEA based criteria informed by modelling outputs and stakeholder inputs. Long term strategic plans and growth projections will be considered in determining potential option combinations, and a phased development approach used to facilitate the use of existing assets as far as possible.

5.3.2 Preferred Plan

The assessment of the Preferred Plan will be summarised through matrices identifying the potential for significant effects against each SEO. The assessment will be made taking planning procedures and legislative protection into account, since they would be implemented regardless of the SEA process. The evidence that has informed the assessment, along with the level of certainty, will also be reported.

Recommendations for mitigation to help avoid or reduce the potential impacts or to contribute to achieving objectives will be identified as part of the assessment. An assessment of significance will be recorded with mitigation in place to address how the effects will change following implementation of the mitigation recommendations and provide an assessment of residual effects.

A description of the expected nature of these effects will be given, for example whether they are cumulative, direct/indirect, short-term/ long-term, negative, positive, mixed positive and negative or neutral, in accordance with Schedule 2, part (f) of the SEA Directive and Schedule 2B of the Planning and Development (SEA) Regulations, 2004 (as amended).

The assessment will cover the proposals in the draft CWS comprising:

- Overall approach and alternatives considered in the development of the proposed draft plan;
- Assessment of the draft plan including:
  - Assessment of proposed options for the 2030, 2055 and 2080 design horizons ;
  - Overarching comparative assessment of the proposed draft plan compared to a no plan scenario;
  - Assessment of cumulative impacts of the proposed CWS with other plans and programmes; and
  - Identification of mitigation measures and recommended actions and monitoring requirements for the plan implementation.

5.4 Assessment of Significant Effects

The assessment of the effects that are expected to occur from the implementation of the CWS will be based on technical judgement and knowledge of similar schemes. The significance of the effect will be determined based on the sensitivity of the receptor and the scale of the change. Using this method, a sensitive receptor (for example a European designated site) may only require a small change to be considered as a significant effect.

Alternatively, a less sensitive environment may tolerate a larger change and may therefore be judged as a minor or no effect. The effects can be beneficial or adverse as indicated by colour and by the + and – symbol and are shown in Table 5.2. The effects will be assessed both before and after the identification of mitigation. The magnitude of the predicted effect will take into account the likelihood of the effect occurring, the severity of the effect and the spatial extent (i.e. how large an area, or size of population) would be affected.

Table 5.2 Assessment Criteria for Assessment of the CWS

Description of comparison of effect	Effect score	Description of comparison of effect	Effect score
Plan approach/alternative is likely to make a considerable positive contribution to SEOs or greatly improve likelihood of delivery of positive effects and reduce risk of adverse effects.	+++	Plan approach/alternative has potential to conflict to a greater extent with SEOs or high risk of significant adverse effects.	---
Plan approach/alternative is likely to make a moderate positive contribution to SEOs or greatly improve likelihood of delivery of positive effects and reduce risk of adverse effects.	++	Plan approach/alternative has moderate potential to conflict to a greater extent with SEOs or increase risk of adverse effects.	--

Description of comparison of effect	Effect score	Description of comparison of effect	Effect score
Plan approach/alternative has potential to provide a minor positive contribution to SEOs or improve likelihood of delivery of positive effects and reduce risk of adverse effects.	+	Plan approach/alternative has moderate potential to conflict to a greater extent with SEOs or increase risk of adverse effects.	-
Plan approach/alternative has negligable of contribution or conflict with SEOs or low risk of effects or uncertainty of effects.	0/?	Plan approach/alternative has potential to provide mixed effects so both positive and negative contribution to SEOs or in terms likelihood of delivery of effects and risk.	+/-

5.5 Plan Alternatives

The SEA Directive requires the SEA process to identify and describe 'reasonable alternative' means of achieving the objectives of the CWS. It states under Article 5(1) that;

"*Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and* ***reasonable alternatives*** *taking into account the* ***objectives*** *and the* ***geographical scope*** *of the plan or programme, are identified, described and evaluated.*"

The reasons for selecting (a) the alternatives and (b) the preferred approach for the plan must be documented, together with a description of how this assessment of alternatives was undertaken.

Alternatives assessed will include:

Option level alternatives as considered at the coarse screening and fine screening and through the muti criteria analysis included option based environmental assessment stages of optioneering as described in Section 5.3.1;

- Consideration of combinations of options to address CWS objectives
- Plan level '*Do Minimum*' scenario assuming the continuation of current or committed development under the previous CWS but without the implementation of the CWS; and
- Plan level alternatives for the identified permutations of option combinations which could potentially meet the strategy need as described for the final assessment stage of optioneering in Section 5.3.1.

Option and plan level alternatives will be assessed agains the SEOs using a matrix based approach as described for the preferred plan in Section 5.3.2.

5.6 Cumulative Effects

Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact. Cumulative effects can be described as either:

- Additive effects: the addition of many minor or significant effects to create larger, more significant effects. Therefore, effects that arise, for instance, where several developments (such as multiple

options) each have insignificant effects but together have a significant effect; or where several individual effects of the CWS (for example noise, dust and visual) have a combined effect (in-combination effects).

- Synergistic effects: "Where the resultant effect is of greater significance than the sum of its constituents." Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance, a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species.
- Both intra-plan and inter-plan cumulative effects will be considered within the SEA:
- Intra-Plan cumulative effects – these arise from the interactions between different types of environmental effects resulting from a plan, programme. Interrelationships include for example between air quality and vegetation; human health and flood risk; and ecology and water quality.
- Inter-Plan cumulative effects – these arise when the effects of the implementation of one plan occurs in combination with those of other plans, programmes, or projects. With regard to potential inter-Plan cumulative environmental effects, these occur as a result of the combination of environmental effects which are identified by the assessment and the effects arising from other policies, plans and programmes.

The plans we propose to include as part of the inter-plan cumulative assessment are listed below:

- Climate Sectoral Adaptation Plan 2021[31];
- Climate Action Plan 2023 and Climate Action Plan 2024 (consultation draft)
- Cork City draft Climate Action Plan 2024 - 2029[33]
- Cork County draft Climate Action Plan 2024 - 2029[34];
- National Adaptation Framework 2024 (consultation draft)[35];
- Water Quality and Water Services Infrastructure, Climate Change Sectoral Adaptation Plan[93];
- Ireland's 4th National Biodiversity Action Plan 2023-2030[36];
- Cork City Heritage and Biodiversity 2021-2026[46];
- National Development Plan 2021-2030[83];
- National Planning Framework, Project Ireland 2040[1];
- Southern Regional Spatial and Economic Strategy[94];
- Cork City Development Plan 2022-2028[95];
- Cork County Development Plan 2022 - 2028[96];
- River Basin Management Plan 2018-2021[16] and Draft River Basin Management Plan 2022-2027[17] (expected to be issued in 2024 to replace the 2018-2027 plan);
- Catchment Flood Risk Assessment and Management (CFRAM) Programme[14];
- National Marine Planning Framework[76];

[93] DHLGH. 2021. Water Quality and Water Services – Climate Change Sectoral Adaptation Plan. Accessed: December 2023. Available from: https://www.gov.ie/en/publication/f5710-water-quality-and-water-services-infrastructure-climate-change-sectoral-adaptation-plan/
[94] Southern Regional Assembly. 2020. Southern Regional Spatial and Economic Strategy. Accessed: December 2023. Available from: https://www.southernassembly.ie/regional-planning/rses
[95] Cork City Council. 2022. Proposed Cork City Development Plan 2022-2028. Accessed: December 2023. Available from: https://www.corkcity.ie/en/proposed-cork-city-development-plan-2022-2028/
[96] Cork County Council. 2022. Cork County Development Plan 2022-2028. Accessed: December 2023. Available from: https://www.corkcoco.ie/en/resident/planning-and-development/cork-county-development-plan-2022-2028

- Uisce Éireann's Water Services Strategic Plan 2040[97];
- Uisce Éireann's National Wastewater Sludge Management Plan[98];
- Uisce Éireann's Lead in Drinking Water Mitigation Plan[99];
- Uisce Éireann's Regional Water Resources Plan – South West[100]; and
- Uisce Éireann's Biodiversity Action Plan[101].

The CWS will be developed in line with Uisce Éireann's own national, regional and local level plans and programmes and therefore these are not considered as part of the inter-plan assessment.

5.7 Appropriate Assessment

As described in Section 4, all Natura 2000 sites (SPAs, SACs, including candidate and potential sites) will be the subject of a separate AA, in accordance with the Birds and Natural Habitats Regulations 2011. This will be carried out in parallel with the SEA and will feed into the SEA on European site issues. The first stage screening has been undertaken and is provided in the AA Screening Report. This has concluded that LSE cannot be ruled out and a second stage AA, will be undertaken on the draft CWS including alone, in combination (including cumulative) effects in accordance with guidance on AA. The results of the AA will inform the SEA, including the SEA cumulative effects assessment. The NPWS, DHLGH and EPA will be consulted on the AA findings.

The AA Screening Statement and NIS will be provided as standalone separate reports for consultation alongside the SEA report.

[97] Uisce Éireann. 2015. Water Services Strategic Plan 2050. Accessed: December 2023. Available from: https://www.water.ie/projects/strategic-plans/water-services-strategic/
[98] Uisce Éireann. 2016. National Wastewater Sludge Management Plan (NWSMP) 2016-2021. Accessed: December 2023. Available from: https://www.water.ie/projects/strategic-plans/national-wastewater-sludg/
[99] Uisce Éireann. 2016. Lead in Drinking Water Mitigation Plan. Accessed: December 2023. Available from: https://www.water.ie/projects/strategic-plans/lead-mitigation-plan/
[100] Uisce Éireann. 2023. Regional Water Resources Plan – South West. Accessed: December 2023. Available from: https://www.water.ie/projects/strategic-plans/national-water-resources/rwrp/south-west/
[101] Uisce Éireann. 2021. Uisce Éireann's Biodiversity Action Plan. Accessed: December 2023. Available from: https://www.water.ie/projects/national-projects/biodiversity/

6 Next Steps

6.1 Cork Wastewater Strategy Development and SEA Assessment

The next stage in the process will be the review of consultation comments received on this SEA Scoping Report, the Issues Paper and the AA Screening report. These will be used as a basis for developing the draft CWS and for undertaking the assessments required for the SEA and AA. An outline roadmap of the process and future public consultation on the draft CWS and accompanying SEA Environmental Report and NIS is set out in Figure 6.1 below.

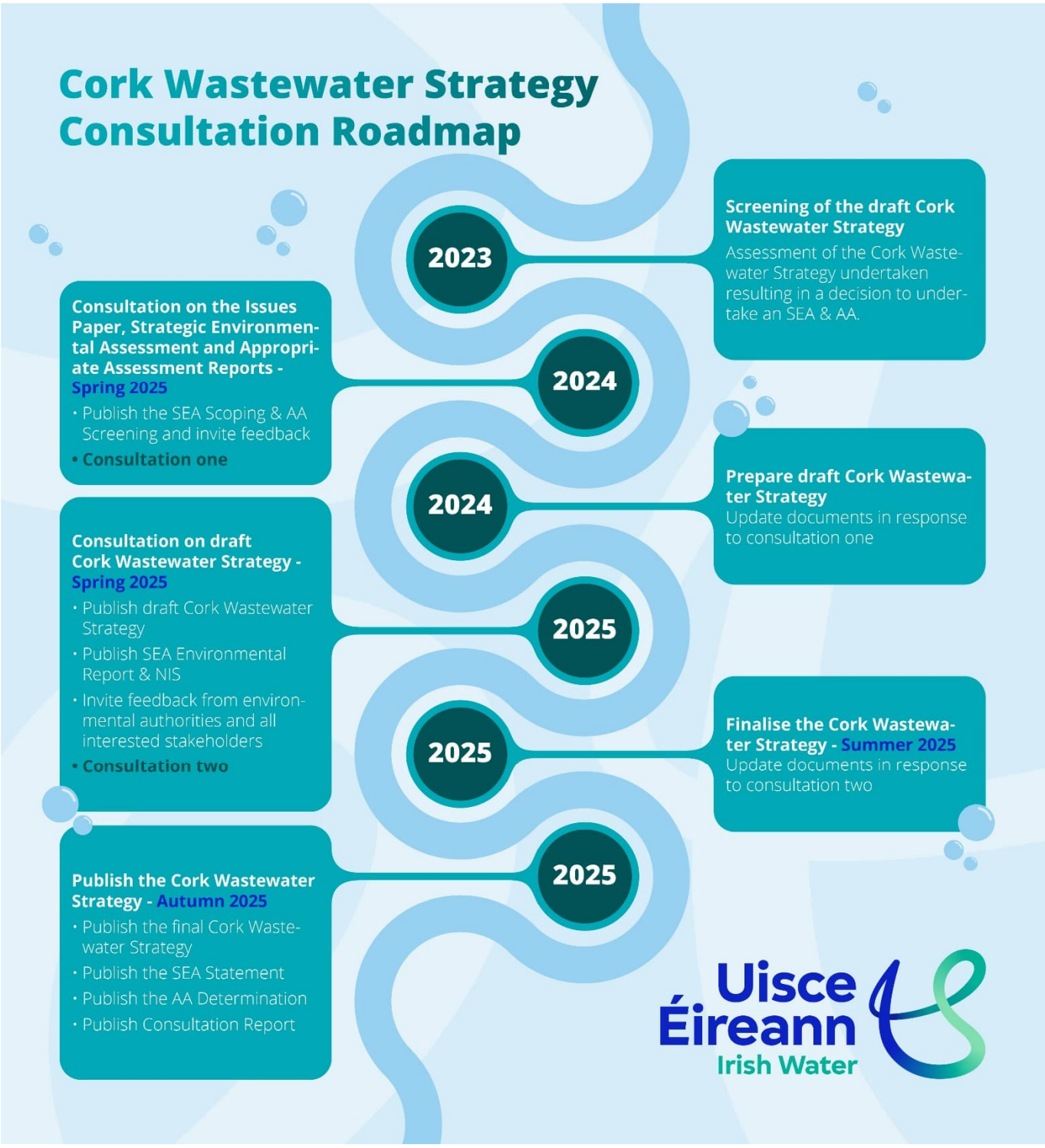

Figure 6.1 Consultation Road Map for the CWS and environmental assessments

6.2 The SEA Environmental Report

The outcomes of the assessment stage and recommended approach will be presented in the CWS and SEA Environmental Report.

6.2.1 Proposed Outline Structure for the SEA Environmental Report

5. Introduction/Background – Covering need for the plan and SEA;
6. CWS – Outline of how the plan was developed, objectives and summary of proposals;
7. Consultation – Outline of consultation informing the development of the plan and the SEA scoping process comments and responses (summary with table of comments in an appendix);
8. Review of Policy, Plans and Programmes context review – (summary with more detail in an appendix);
9. Baseline Environment – Summary of baseline, trends, pressures and future evolution without the plan (with the full information included as an appendix)
10. Assessment Methodology – Outline of approach to the SEA Assessment applied;
11. Assessment of the CWS and Alternatives
12. Cumulative Effects Assessment – Including intra plan effects and inter plan effects with other plans;
13. Mitigation and Monitoring Plans – Covering proposed actions to be undertaken for the plan implementation and providing recommendations for downstream project level mitigation and monitoring; and
14. Appendices – supporting information including the scoping report comments and responses, baseline information, and the policy and plan review.

SEA Scoping Questions – Chapter 6

1. **Any comments on the next steps or the outlined SEA Environmental Report structure?**
2. **How would you like to be involved in the development of the CWS as this progresses?**

Appendix A SEA Screening Statement

A.1 The SEA Screening Process

Under the Strategic Environmental Assessment (SEA) Directive 2001/42/EC and Ireland's transposing regulations S.I. No. 435/2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended) (henceforth referred to as the SEA Regulations), a Plan or Programme (or modification thereto) requires an SEA if it meets criteria set out under Regulation 9(1)(a) or where it is considered likely to have significant effects on the environment.

The screening assessment takes account of the EPA's Good Practice Guidance on SEA Screening published December 2021 (the EPA Guidance). This sets out a four-stage screening process which has been used as the basis for screening for the proposed Cork Wastewater Strategy.

In terms of the SEA Regulations, definition of what constititutes a plan or programme is based on the purpose and status rather than name (hence for example a strategy or study may effectively be a plan or programme under the regulations).

The Stages consist of:

Stage 1: Applicability test to consider if mandatory SEA is required for the Plan or Programme.

Stage 2: If mandatory SEA is not required or if it is unclear, then more detailed screening is required (including consultation).

Stage 3: Where screening of a non-mandatory Plan or Programme is required then a SEA Determination is required.

Stage 4: Determination confirming decision for non mandatory SEA plans or programmes.

Figure A.1 provides a flow chart of the process based on the EPA 2021 guidance:

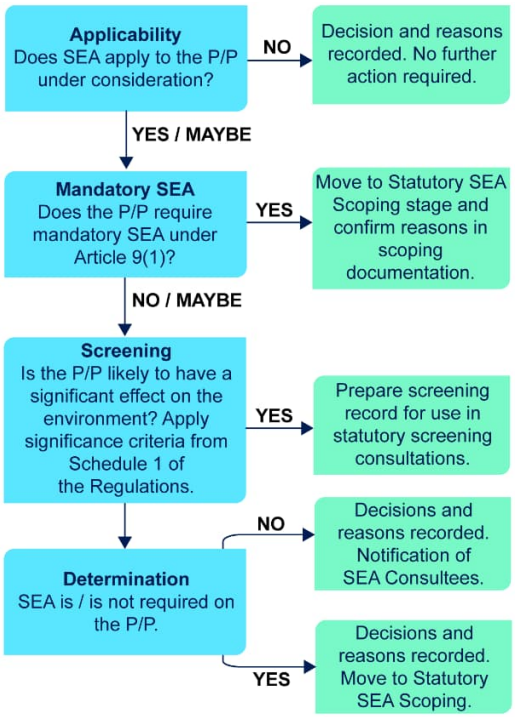

Figure A.1 SEA Screening Process

This statement reports on the first stage being 'applicability' and follows the template provided in the EPA Guidance. This statement determines if the proposed plan falls within the scope of the SEA Directive and transposing legislation, and to confirm if if constitutes a plan that requires mandatory SEA.

A.2 The Proposed Plan

The proposed Cork Wastewater Strategy is an area plan beneath Uisce Éireann's overarching national Water Services Strategic Plan (WSSP). The strategy will cover the Cork Metropolitan Area (CMA), and will identify sustainable drainage strategies and projects for the growing CMA that meets projected long term drainage needs to 2080 and will include periodic review and updating. It will be consistent with Uisce Éireann's Water Services Strategic Plan (WSSP) and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NSMP) and the Regional Water Resources Plan (RWRP) South-West.

Table A.1 SEA Applicability (EPA template for SEA applicability 2021)

Details of the Plan	
Name of Plan Maker	Uisce Éireann
Title of Plan /Type of Plan	Cork Wastewater Strategy
Date	February 2024
Status of the Plan Maker	
Is the P/P prepared and/or adopted by an authority at national, regional or local level or prepared by an authority for adoption through a legislative procedure by Parliament or Government?	Yes. The plan is to be prepared and adopted by Uisce Éireann. Uisce Éireann was established under the Water Services (No. 2) Act 2013 on the 1st of January 2014, and assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Uisce Éireann's role is to provide public water and wastewater services throughout the country.
Is the P/P required by legislative, regulatory, or administrative provisions?	Implicitly yes. Although it is not a named plan, the plan is considered at a regional level and has been identified as required by Uisce Éireann as part of its statutory functions and due to the population increases anticipated in the Cork Metropolitan Area (CMA), in addition to current compliance challenges at a number of existing wastewater treatment plants and sewerage networks.
Nature of the Plan	
Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use?	Yes, the plan will identify wastewater management strategies and projects for the CMA.
Does the P/P provide a framework for the development consent for projects listed in the EIA Directive?	Yes, the plan will identify projects for implementation, including those listed in Annexes I and II of the EIA Directive.

Is the P/P likely to have a significant effect on a Natura 2000 site which leads to a requirement for Article 6 or 7 assessments?	Yes, the Cork Wastewater Strategy has been screened by Uisce Éireann as requiring application of the Appropriate Assessment process. Projects identified by the Cork Wastewater Strategy have potential for significant effects that will be required to be assessed through the Appropriate Assessment process.
Exemptions	
Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current SF/RDF programme?	No, the purpose of the Cork Wastewater Strategy is not to serve national defence or civil emergency, and is not a financial budget, or co-financed by the current Structural Funds and Regional Development Funds programme.

A.3 Applicability Conclusion

Based on the Table A.1 responses above, although the Cork Wastewater Strategy is not directly required by legislative, regulatory or administrative provisions, the EPA guidance identifies that plans that are required as part of fulfilling statutory functions are implicitly required. In this case Uisce Éireann has identified a need for undertaking such a plan to meet growth and environmental requirements, and the plan is a type that falls within the remit of the SEA Directive/SEA Regulations and therefore requires mandatory SEA. Therefore, the Cork Wastewater Strategy will be taken forward to the next stage in the SEA process which is SEA Scoping and statutory consultation with the designated environmental authorities. The Screening outcome will be reported within the SEA Scoping Report. No second stage screening is required.

A.4 Summary of Screening Outcome

Based on Section 9 (1) (a) of the SEA Regulations, which states that: Environmental assessment shall be carried out for all plans and programmes

a) *which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, and which set the framework for the future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive.*

It is the view of Uisce Éireann that the proposed plan, the Cork Wastewater Strategy is a qualifying plan under section 9 (1) (a) because it will identify projects, including those requiring development consent and EIA as referred to in Table A.1 above, and is therefore subject to Strategic Environmental Assessment in accordance with the regulations.

Appendix B Relevant Legislation, Plans and Programmes

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
International											
Environmental Liability Directive (2004/35/EC)	✓	✓	✓	✓				✓	✓		H
Water Framework Directive (2000/60/EC)	✓	✓	✓	✓	✓	✓		✓			H
Bathing Water Directive (2006/7/EC)	✓	✓									H
Floods Directive (2007/60/EC)	✓	✓	✓		✓	✓	✓	✓			H
Nitrates Directive (91/676/EEC and derogation 2018/209)	✓	✓		✓				✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Urban Wastewater Treatment Directive (91/271/EEC as amended 98/15/EEC)	✓	✓		✓	✓	✓					H
Marine Strategy Framework Directive (2008/56/EC)	✓		✓	✓		✓					H
Groundwater Directive (2006/118/EC)	✓	✓		✓				✓			H
Maritime Spatial Planning Directive 2014/89/EU	✓	✓				✓	✓				H
Common Fisheries policy (2023)	✓	✓		✓		✓	✓				H
Aarhus Convention	✓	✓	✓	✓				✓	✓		H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
WHO Global Air Quality Guidelines (published 2021)		✓							✓		L
Drinking Water Directive (2020/2184)	✓	✓	✓		✓			✓			H
Strategic Environmental Directive (2001/42/EC)	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
Environmental Impact Assessment Directive (2014/52/EU)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
Proposed EU Nature restoration law	✓		✓	✓	✓	✓	✓	✓		✓	H
The Habitats Directive (92/43/EEC)	✓	✓	✓	✓		✓	✓	✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
The Birds Directive (2009/147/EC)				✓							L
Fish Directive (2006/44/EC)	✓			✓							H
Waste Framework Directive (2008/98/EC)	✓	✓		✓	✓		✓				H
European Landscape Convention (ELC) (published 2000)	✓	✓				✓	✓	✓			L
Ambient Air Quality Directive (2008/50/EC)		✓		✓					✓		L
Industrial Emissions Directive (2010/75/EU)	✓	✓		✓				✓	✓	✓	L
Environmental Noise Directive (2002/49/EC)		✓								✓	L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
The Kyoto Protocol 1997	✓		✓	✓				✓	✓		L
Paris Agreement 2015	✓	✓	✓	✓				✓	✓		H
EU Energy and Climate (2020) Package 2009	✓	✓	✓	✓		✓		✓	✓		L
Renewable Energy Action Plan (Directive 2018/2001)	✓	✓	✓	✓	✓			✓		✓	L
EU Action Plan - Towards a Zero Pollution for Air, Water and Soil 2021	✓	✓	✓	✓				✓	✓		H
EU Conventions on Archaeological, Architectural and Cultural Heritage							✓				L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Proposed EU Soil Health Directive	✓		✓	✓	✓			✓		✓	H
EU Urban Waste Water Directive (91/271/EEC) (as amended)	✓	✓		✓	✓				✓		H
EU Drinking Water Directive (2020/2184) (as amended	✓	✓			✓						H
EU Sustainability Policy	✓	✓	✓	✓		✓		✓	✓		L
UN Sustainable Development Goals 2015-2030	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
Sustainable Development Goals National Implementation Plan 2018-2020	✓	✓	✓	✓	✓	✓	✓	✓	✓		H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
National Implementation Plan for the Sustainable Development Goals 2022-2024	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
European Green Deal 2020-2050	✓	✓	✓	✓		✓		✓	✓		H
World Health Organization Guidelines for Drinking Water Quality (4th edition, 2017)	✓	✓	✓	✓	✓	✓		✓			H
Water safety plan manual: step-by-step risk management for drinking-water suppliers (2nd edition, 2023)	✓	✓	✓		✓			✓			H
EU Tourism Policy		✓				✓	✓				L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
EU Biodiversity Strategy for 2030	✓	✓	✓	✓				✓	✓		H
Green Infrastructure: Enhancing Europe's Natural Capital Strategy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
EU Soil Strategy for 2030	✓		✓	✓		✓		✓			H
Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985)							✓				L
Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992)							✓				L
National											

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	**Water Environment**	**Population, Economy, Tourism and Recreation, and Human Health**	**Climate Change**	**Biodiversity, Flora and Fauna**	**Material Assets**	**Landscape, Townscape and Seascape**	**Cultural Heritage – Archaeological and Architectural**	**Geology and Soils**	**Air Quality**	**Noise and Vibration**	**Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L**
Wildlife Act 1976 (as amended including 2010)	✓		✓	✓				✓			L
The Climate Action and Low Carbon Development Act 2015	✓	✓	✓	✓	✓			✓			H
Transcribed Irish legislation - European Communities (Environmental Liability) Regulations 2008 S.I. No. 547/2008 (as amended 2015 S.I. No. 293/2015)	✓	✓	✓	✓				✓	✓		H
Transcribed Irish legislation - European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 S.I. No.	✓	✓	✓	✓	✓			✓	✓		H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
435/2004 (as amended 2011 S.I. No. 200/2011)											
Environmental Protection Agency Act 1992 - 2007	✓	✓	✓	✓				✓	✓		H
Climate Action and Low Carbon Development (Amendment) Bill 2021		✓	✓	✓	✓			✓			H
Transcribed Irish legislation - European Communities (Industrial Emissions) Regulations 2013 S.I. No. 138/2013	✓	✓						✓	✓		L
Transcribed Irish legislation - European Communities (Water Policy) Regulations 2003 S.I. No. 722/2003 (as	✓	✓	✓	✓		✓		✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
amended 2010 S.I. No. 326/2010)											
Transcribed Irish legislation - Bathing Water Quality Regulations 2008 S.I. No. 79/2008 (as amended 2016 S.I. No. 163/2016)	✓	✓									H
Transcribed Irish legislation – European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261/2018)	✓							✓			H
Transcribed Irish legislation - European Communities (Assessment and Management of Flood	✓	✓	✓			✓	✓	✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Risks) Regulations 2010 S.I. No. 122/2010											
Transcribed Irish legislation - European Communities (Marine Strategy Framework) Regulations 2011 S.I. No. 249/2011 (as amended 2018 S.I. No. 648/2018)	✓		✓	✓		✓					H
Transcribed Irish legislation - European Communities Environmental Objectives (Groundwater) Regulations 2010 S.I. No. 9/2010 (as amended 2016 S.I. No. 366/2016)	✓	✓		✓	✓			✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	**Water Environment**	**Population, Economy, Tourism and Recreation, and Human Health**	**Climate Change**	**Biodiversity, Flora and Fauna**	**Material Assets**	**Landscape, Townscape and Seascape**	**Cultural Heritage – Archaeological and Architectural**	**Geology and Soils**	**Air Quality**	**Noise and Vibration**	**Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L**
Water Environment (Abstractions and Associated Impoundments) Act, 2022 (the Abstractions Act)	✓		✓	✓	✓						L
Transcribed Irish legislation - Planning and Development (Strategic Environmental Assessment) Regulations 2004 S.I. No. 436/2004 (as amended 2011 S.I. No. 201/2011)	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
Transcribed Irish legislation - European Union (Planning and Development) (Environmental Impact Assessment) Regulations	✓	✓	✓	✓		✓	✓	✓	✓		H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
2018 S.I. No. 296/2018 (as amended S.I. No. 646/2018)											
Water Services Act, 2013 (as amended 2017)	✓	✓									H
National Water Resources Plan (2021) and Regional Plans (2021-2023) - Uisce Éireann	✓	✓									H
Transcribed Irish legislation - European Union (Renewable Energy) Regulations 2020 S.I. No. 365/2020	✓		✓		✓	✓					L
Water Services Strategic Plan (2015) Uisce Éireann	✓	✓									H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Planning and Development Act 2000 (as amended)	✓	✓		✓		✓	✓	✓	✓	✓	H
Planning and Development Regulations 2001 (as amended)	✓	✓		✓		✓	✓	✓	✓	✓	H
General Scheme of the Water Environment (Abstractions) Bill 2020	✓	✓	✓	✓		✓	✓	✓			H
Transcribed Irish legislation - European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 S.I. No. 31/2014 (as amended 2023 S.I. No. 62/2023)	✓	✓						✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	**Water Environment**	**Population, Economy, Tourism and Recreation, and Human Health**	**Climate Change**	**Biodiversity, Flora and Fauna**	**Material Assets**	**Landscape, Townscape and Seascape**	**Cultural Heritage – Archaeological and Architectural**	**Geology and Soils**	**Air Quality**	**Noise and Vibration**	**Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L**
Transcribed Irish legislation - Urban Wastewater Treatment Regulations 2001 S.I. No. 254/2001 (as amended 2010 S.I. No. 48/2010)	✓	✓		✓						✓	H
Transcribed irish legislation - European Union (Drinking Water) Regulations 2014 S.I. No. 122/2014 (as amended 2017 S.I. No. 464/2017) The European Union Drinking Water Regulations 2023 (S.I 99/2023),	✓	✓								✓	H
Fisheries Consolidation Act, 1959	✓				✓						H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
National Strategic Plan for Sustainable Aquaculture Development 2030	✓										L
Transcribed Irish legislation - European Communities (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011(as amended 2015 S.I. No. 355/2015)				✓							H
Waste Management Act 1996 (as amended 2023)	✓	✓		✓	✓			✓	✓		H
The Maritime Area Planning Act 2021	✓	✓			✓	✓					H
Transcribed Irish legislation - European Communities (Air Quality		✓	✓		✓				✓		L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Standards) Regulations 2011 S.I. No. 180/2011											
National Clean Air Strategy for Ireland (published 2023)		✓	✓		✓				✓		L
National Air Pollution Control Programme (published 2021)		✓	✓						✓		L
Transcribed Irish legislation - European Communities (Environmental Noise) Regulations 2006 SI. No. 140/2006		✓			✓					✓	L
Transcribed Irish legislation - European Communities (Environmental Noise)		✓			✓					✓	L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Regulations 2018 S.I. No. 549/2018											
Proposed Planning and Development Bill 2022	✓	✓	✓	✓		✓	✓	✓	✓	✓	H
Heritage Act 2018	✓			✓	✓		✓				L
Proposed Historic Archaeological and Heritage Bill 2023		✓		✓	✓	✓	✓				L
National Monuments Act 2004 (as amended)		✓		✓		✓	✓	✓			L
Architectural Heritage and Historic Monuments Act 1999		✓					✓				L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Our Sustainable Future, a Framework for Sustainable Development for Ireland	✓	✓	✓	✓	✓		✓	✓			H
Ireland 2040: Our Plan, National Planning Framework	✓	✓	✓				✓	✓			H
Water Services Policy Statement 2018 - 2025	✓	✓	✓								H
Capital Investment Plan 2020-2024 (Uisce Éireann)		✓									L
Climate Action Plan 2023 & 2024 (consultation draft)	✓	✓	✓					✓			H
Grid Implementation Plan 2017-2022 For the		✓									L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Assets	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Electricity System in Ireland											
State of the Environment Report (SOE) Ireland's Environment – An Integrated Assessment 2020 (published 2020)	✓	✓	✓	✓				✓	✓	✓	H
National Spatial Strategy for Ireland 2002-2020 (Department of the Environment and Local Government)		✓	✓								H
River Basin Management Plan 2018 - 2021	✓	✓	✓	✓							H
Draft River Basin Management Plan 2022-2027	✓	✓	✓	✓							H

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Fifth Nitrates Action Programme 2022-2025	✓	✓	✓	✓							H
Project Ireland 2040 National Marine Planning Framework (2021)	✓	✓	✓	✓		✓	✓		✓	✓	H
Marine Planning Act 2021	✓	✓	✓	✓		✓	✓		✓	✓	H
EPA Drinking Water Advice Note No. 8: Developing Drinking Water Safety Plans (2011)	✓	✓									H
Groundwater Protection Schemes (published 1999)	✓							✓			H
Healthy Ireland Framework 2013-2025	✓	✓							✓		H

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Draft Agri-Food Strategy 2030	✓		✓	✓							H
Food Vision 2030		✓	✓								L
Food Wise 2025		✓	✓								L
Food Harvest 2020		✓	✓								L
Fàilte Ireland's 10 Year Tourism Strategy		✓									L
Fáilte Ireland Visitor Experience Development Plans		✓									L

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National Outdoor Recreation Strategy 2023-2027	✓	✓		✓							L
National Countryside Recreation Strategy (published 2018)		✓	✓								L
People, Place and Policy – Growing Tourism to 2025		✓									L
Tourism Development and Innovation. A Strategy for Investment 2016-2022		✓									L
Tourism Action Plan 2019-2021		✓	✓								L
Tourism Recovery Plan 2020-2023		✓	✓								L

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Town Centre First: A Policy for Irish Towns (published 2022)		✓	✓			✓					L
Tourism Action Strategy 2016-2018		✓	✓								
Creating Green Infrastructure for Ireland: Enhancing Natural Capital for Human Wellbeing	✓	✓	✓	✓				✓			H
National Biodiversity Action Plan 2017-2021	✓			✓							H
Ireland's 4th National Biodiversity Action Plan 2023-2030			✓	✓							H
All-Ireland Pollinator Plan 2021-2025		✓		✓				✓			L

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Biodiversity Climate Change Sectoral Adaptation Plan (published 2019)	✓		✓	✓							L
Infrastructure and Capital Investment Plan 2016-2021	✓	✓						✓			H
CAP Strategic Plan 2023-2027	✓	✓	✓								H
National Development Plan 2021-2030		✓			✓						H
Healthy Cities Project (WHO)		✓			✓						H
National Peatlands Strategy 2015-2025	✓	✓	✓	✓				✓			L

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Forestry Programme 2023-2027		✓	✓	✓							L
Waste Action Plan for a Circular Economy 2020	✓	✓	✓	✓		✓		✓	✓		H
National Hazardous Waste Management Plan 2021 – 2027 (EPA)	✓	✓	✓	✓				✓	✓		L
Circular Economy and Miscellaneous Provisions Act (2022)	✓		✓	✓				✓			H
Whole of Government Circular Economy Strategy 2022	✓		✓	✓				✓			H
National Landscape Strategy for Ireland 2015-2025	✓	✓	✓	✓		✓	✓	✓			L

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Regional Seascape Character Assessment for Ireland (published 2020)	✓	✓									L
National Climate Change Adaptation Framework (published 2012)	✓	✓	✓	✓		✓	✓	✓	✓		H
Ireland's National Policy Position on Climate Action and Low Carbon Development 2014	✓	✓	✓	✓				✓			H
National Mitigation Plan (published 2017)	✓	✓	✓	✓				✓	✓		H
Energy White Paper: Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007-2020		✓	✓								H

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Offshore Renewable Energy Development Plan (2014) and Interim Review (2018)		✓	✓	✓		✓					L
Ireland's Second National Energy Efficiency Action Strategy 2009-2020		✓									L
National Energy and Climate Plan 2021-2030		✓									L
Uisce Éireann Interim Pesticide Strategy: A collaborative approach with catchment stakeholders (published 2021)	✓	✓						✓			H
Heritage Ireland 2030	✓	✓	✓	✓		✓	✓	✓			L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	**Water Environment**	**Population, Economy, Tourism and Recreation, and Human Health**	**Climate Change**	**Biodiversity, Flora and Fauna**	**Material Assets**	**Landscape, Townscape and Seascape**	**Cultural Heritage – Archaeological and Architectural**	**Geology and Soils**	**Air Quality**	**Noise and Vibration**	**Policy, Plans or Programmes with some relevance to the CWS and SEA - screening Direct /higher relevance- H Indirect relevance - L**
Regional and Local											
Regional Spatial and Economic Strategy (RSES) for the Southern Region of Ireland	✓	✓	✓	✓		✓	✓	✓			H
Regional Tourism Strategy (currently being developed by Fáilte Ireland)	✓	✓									L
Catchment Flood Risk Management (CFRAM) Programme	✓	✓	✓	✓	✓	✓	✓	✓			H
The Planning System and Flood Risk Management – Guidelines for Planning Authorities (the 'FRM Guidelines') (published 2009)		✓									L

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Cork County Development Plan 2022-2028	✓	✓	✓	✓		✓	✓	✓			H
Cork City Development Plan 2022-2028	✓	✓	✓	✓		✓	✓	✓			H
Cork County Council Climate Adaptation Strategy 2019-2024	✓	✓	✓	✓							H
Cork City Council Climate Change Adaptation Strategy 2019-2024	✓	✓	✓	✓							H
Cork County Local Economic and Community Plan (published 2016)		✓									H

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Cork City Local Economic & Community Plan 2016-2021		✓									H
Visit Cork Sustainability Strategy 2020-2023		✓									L
Cork City Heritage and Biodiversity Plan 2021-2026	✓	✓	✓	✓			✓				H
Muskerry Heritage Plan: Conservation, Management and Interpretation Plan 2018-2032		✓				✓	✓				L
Cork City Landscape Study for Cork City Council 2008						✓					L

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Cork County Council Noise Action Plan 2018-2023										✓	L
Cork Agglomeration Area Noise Action Plan 2018-2023										✓	L
Transboundary											
Planning Act (NI) 2011		✓					✓				H
Climate Change Act (Northern Ireland) 2022		✓	✓								H
The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009	✓				✓						H

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Water Abstraction and Impoundment (Licensing) (Amendment) Regulations (Northern Ireland) 2007	✓			✓							H
The Water Supply (Water Quality) Regulations (Northern Ireland) 2017	✓	✓									H
The Private Water Supplies Regulations (Northern Ireland) 2017	✓	✓									H
Fisheries Act (NI) 1966 (as amended)	✓			✓							H
Marine Act (Northern Ireland) 2013	✓			✓							H
Historic Monuments and Archaeological Objects							✓				H

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(Northern Ireland) Order 1995											
Protection of Wrecks Act 1973	✓										L
The Wildlife (NI) Order 1985 (as amended)				✓							H
Wildlife and Natural Environment Act (NI) 2011				✓							H
The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)				✓							H
The Environment (NI) Order 2002	✓		✓					✓	✓		H

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The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017	✓	✓	✓	✓		✓	✓	✓	✓	✓	H
The Marine and Coastal Access Act 2009	✓			✓							H
Convention for the Conservation of Salmon in the North Atlantic Implementation Plan for the period 2019 – 2024	✓			✓							H
Marine and Coastal Access Act 2009	✓			✓							H
Regional Development Strategy: Building a Better Future, 2035	✓	✓	✓				✓		✓		L

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Northern Ireland's Climate Change Adaptation Programme 2019 – 2024		✓	✓	✓							L
Climate Risk Independent Assessment 2021	✓		✓	✓				✓			L
NI Water (2020) Our Strategy 2021-2046	✓	✓	✓								H
NI Water (2020) Water Resource and Supply Resilience Plan	✓	✓	✓								H
Sustainable Water – A Long term water strategy for Northern Ireland (2015 –2040)	✓	✓									H

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NI Draft Flood Risk Management Plan 2021-2027	✓	✓	✓				✓				H
UK Marine Policy Statement	✓			✓			✓				H
The Marine Strategy Regulations 2010	✓										H
Climate Change Risk Assessment 3 Report		✓	✓								
Adapting to Climate Change – Progress in Northern Ireland Report		✓	✓								
Archaeology 2030 - A Strategic Approach for Northern Ireland		✓					✓				L

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The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023							✓				L
Draft 3rd cycle River Basin Management Plan 2021-2027	✓			✓				✓			H
The Strategic Planning Policy Statement (SPPS) for Northern Ireland		✓	✓								L
Biodiversity Strategy for NI to 2020	✓	✓		✓					✓		H
Draft Environment Strategy	✓	✓	✓	✓			✓		✓		H

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The Draft NI peatland policy	✓		✓	✓				✓			L
Strategic Planning Policy Statement		✓	✓								L
Northern Ireland Regional Landscape Character Assessment				✓		✓	✓	✓			L
The Draft Green Growth Strategy Consultation on the draft Green Growth Strategy for Northern Ireland	✓	✓	✓	✓					✓		L
Northern Ireland Energy Strategy 2050 Northern Ireland Energy Strategy 2050			✓								L

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Strategic Planning Policy Statement for Northern Ireland 2015		✓	✓			✓	✓				L
An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026	✓	✓	✓	✓		✓					H
Northern Ireland Regional Seascape Character Assessment 2014	✓					✓	✓				H
Draft Northern Ireland Marine Plan (2018)	✓	✓	✓	✓		✓					H
The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017	✓										H

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Nutrient Action Programme Regulations (Northern Ireland) 2019	✓							✓			H
Draft Policy Statement on Geothermal Energy for a Circular Economy		✓	✓					✓			L
UK Marine Strategy	✓	✓	✓	✓		✓					H
Draft Offshore Renewable Energy Development Plan		✓	✓								L
Dumping at Sea Act Revised	✓										H
Zero Pollution Action Plan									✓		H

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Forest Strategy 2023-2030				✓							L
Environmental Protection Agency (Designated Development) (Industrial Emissions) (Licensing) Regulations 2023									✓		L
Kyiv (SEA) Protocol and the European Climate Law	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H