SOUTH COAST DESIGNATED MARITIME AREA PLAN

SEA Environmental Report

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NON-TECHNICAL SUMMARY

Introduction

RPS was commissioned by the Department of the Environment, Climate and Communications (DECC) to assist in undertaking a Strategic Environmental Assessment (SEA) of the draft South Coast Designated Maritime Area Plan (SC-DMAP) for Offshore Renewable Energy (ORE) (hereafter referred to as 'the draft SC-DMAP' or 'draft plan') in accordance with the requirements of EU and national legislation on the assessment of the effects of certain plans and programmes on the environment.

The purpose of this SEA is to inform the development of the draft SC-DMAP; identify, describe and evaluate the likely significant effects of the draft SC-DMAP and its reasonable alternatives; and provide an early opportunity for the statutory authorities and the public to offer views on any aspect of this environmental report and accompanying draft SC-DMAP documentation, through consultation. This is the Non-Technical Summary (NTS) of the Environmental Report of the draft SC-DMAP.

The SC-DMAP Proposal, published in July 2023 for an initial round of non-statutory consultation, put forward a 'proposed' geographical area within which a number of sub areas would subsequently be identified for future developments of fixed offshore wind technology. The geographical area of the initial proposal extended from the High-Water Mark on Ireland's south coast to the 80-metre depth contour and/or the edge of the Irish Exclusive Economic Zone (EEZ) as shown in **Figure 1**.

Figure 1 SC-DMAP Proposal Area as Published in 2023

The SC-DMAP Proposal was subject to a comprehensive nine and half week non-statutory public consultation during August to October 2023. The outcome of this consultation, alongside a process of environmental and technical assessment has subsequently led to the preparation of the draft SC-DMAP, which identifies a number of Maritime Areas for proposed future offshore wind deployments. In addition to identifying four maritime areas for proposed future offshore development, the draft DMAP contains a refined northern boundary, which is located at the limits of the administrative areas for local government on the south coast rather than the High Water Mark referenced in the SC-DMAP Proposal. Accordingly, the total geographical area of the draft SC-DMAP is approximately 8,813 square kilometres in size. The draft plan further includes a suite of associated policy objectives, which in conjunction with identification of four broad Maritime Areas will help to guide future decision-making by competent authorities.

Contents and Main Objectives of the SC-DMAP

Background

The SC-DMAP will be the first marine spatial plan under the State's new plan-led regime for future offshore renewable energy development in Ireland and focusses on delivery of fixed offshore wind. The draft Plan has been prepared in line with the Maritime Area Planning Act, 2021 (MAP Act), and the National Marine Planning Framework (NMPF).

The draft SC-DMAP identifies four Maritime Areas (A-D) within which future fixed offshore wind (OW) development may take place and sets out broad areas and policies for OW developments. The making of the draft plan is intended to allow Ireland to meet its decarbonisation and climate objectives including a 51% reduction in emissions by 2030 and a legally binding path to 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" as required by the Climate Action and Low Carbon Development Act 2015 to 2021.

Scope and Content

The policy areas addressed in draft SC-DMAP include the following broad headings:

- Draft DMAP Geographical Area for Offshore Wind Developments;
  - Plan-Led ORE Development and the South Coast DMAP,
  - Fixed Offshore Wind in the Irish Celtic Sea,
  - Fixed Offshore Wind Technology,
  - Draft DMAP Maritime Areas for Fixed Offshore Wind Deployment.
- Plan Level Measures;
- Implementation, Governance and Monitoring;
- Marine Environment and Biodiversity;
- Coexistence;
  - Co-existence with Aquaculture, Seafood and Fisheries,
  - Co-existence with Tourism and Recreation,
  - Co-existence with Telecommunications,
  - Co-existence with Marine Archaeological and Cultural Heritage.
- Land and Sea Interaction;
- Ports and Harbours;
- Shipping;
- Transmission System Infrastructure;
- Economic and Employment Growth Potential; and
- Commitment to On-going Local and Regional Community Engagement.

Strategic Environmental Assessment Methodology

The SEA Directive requires that certain plans and programmes, which are likely to have a significant impact on the environment, be subject to the SEA process. The main objective of SEA is to ensure that the environmental effects of a plan are identified during plan development, providing the opportunity for negative environmental effects to be avoided, mitigated or compensated and for positive environmental effects to be enhanced, where opportunities arise. In this way, environmental considerations can be integrated into the preparation of plans and programmes, in this case the draft SC-DMAP. The SEA process is broadly comprised of the following:

- **Screening:** The purpose of this stage of the process was to reach a decision, on whether or not an SEA of the draft SC-DMAP was required. Screening was undertaken in 2023 and determined that SEA of the draft SC-DMAP would be required
- **Scoping and statutory consultation:** The purpose of this stage of the process was to clarify the scope and level of detail to be considered in the environmental assessment. This was done in consultation with the defined statutory bodies for SEA in Ireland. This stage was completed in Q3 2023.
- **Environmental assessment and consultation:** The purpose of this stage of the process is to assess the likely significant impacts on the environment as a result of implementation of the draft SC-DMAP and consideration of reasonable alternatives. The output from this stage of the process is an SEA Environmental Report which records this assessment. Consultation on the draft SC-DMAP and Environmental Report are also part of this stage. This stage is underway.
- **SEA Statement:** The purpose of this stage of the process is to identify how environmental considerations and consultations have been integrated into the final plan culminating in the production of an SEA Statement. To be published with final SC-DMAP in 2024.

Integration of the SEA and draft SC-DMAP was achieved through involvement of relevant team members in all stages of the plan development including SEA Scoping; review of the existing situation; and public consultation. The SEA and SC-DMAP teams also worked on developing: the SEA assessment methodology; alternatives to be considered in the SEA; SEA objectives; and mitigation measures and monitoring strategies. This integration is shown in **Figure 2**.

Consultation as part of SEA Scoping was carried out with the statutory consultees for SEA in Ireland and included the development of a Scoping Report. Taking into consideration feedback from consultees, a broad assessment of the potential for the SC-DMAP to influence the environment was carried out. All of the environmental topics listed in the SEA Directive were scoped in for the assessment of the plan. These are: Biodiversity, flora and fauna; population and human health; land, soils / sediments; water, landscape and seascape; air; climatic factors, material assets; and cultural heritage including archaeology and architecture and the interrelationship between these factors.

An online SEA Scoping Workshop was also held in September 2023 via Microsoft Teams. This was attended by members of Plan team, the SEA/ AA team and representatives from the Environmental Protection Agency (EPA), National Parks and Wildlife Services (NPWS), Department of the Environment, Climate & Communications (DECC), Department of Housing, Local Government and Heritage (DHLGH), Geological Survey Ireland (GSI) and Department of Agriculture, Food and the Marine (DAFM).

In addition to this SEA, there is a requirement under the EU Habitats Directive (92/43/EC) to assess whether the draft SC-DMAP would give rise to likely significant effects and if it has the potential to adversely affect the integrity of on any European site. These sites include areas designated for the protection and conservation of habitats and of wild flora and fauna and include Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). In parallel to the SEA, an Appropriate Assessment (AA) is being carried out to inform decisions surrounding this issue. Screening for Appropriate Assessment was carried on the draft Plan and it was determined by the Minister for the Environment. Climate and Communication that preparation of a Natura Impact Statement (NIS) would be required to inform an AA. This determination also aligns with the requirement in section 22(3) of the MAP Act 2021, to cause an AA to be carried out in relation to the draft SC-DMAP. The NIS is presented under separate cover and has informed the Biodiversity, Flora and Fauna elements of the SEA also.

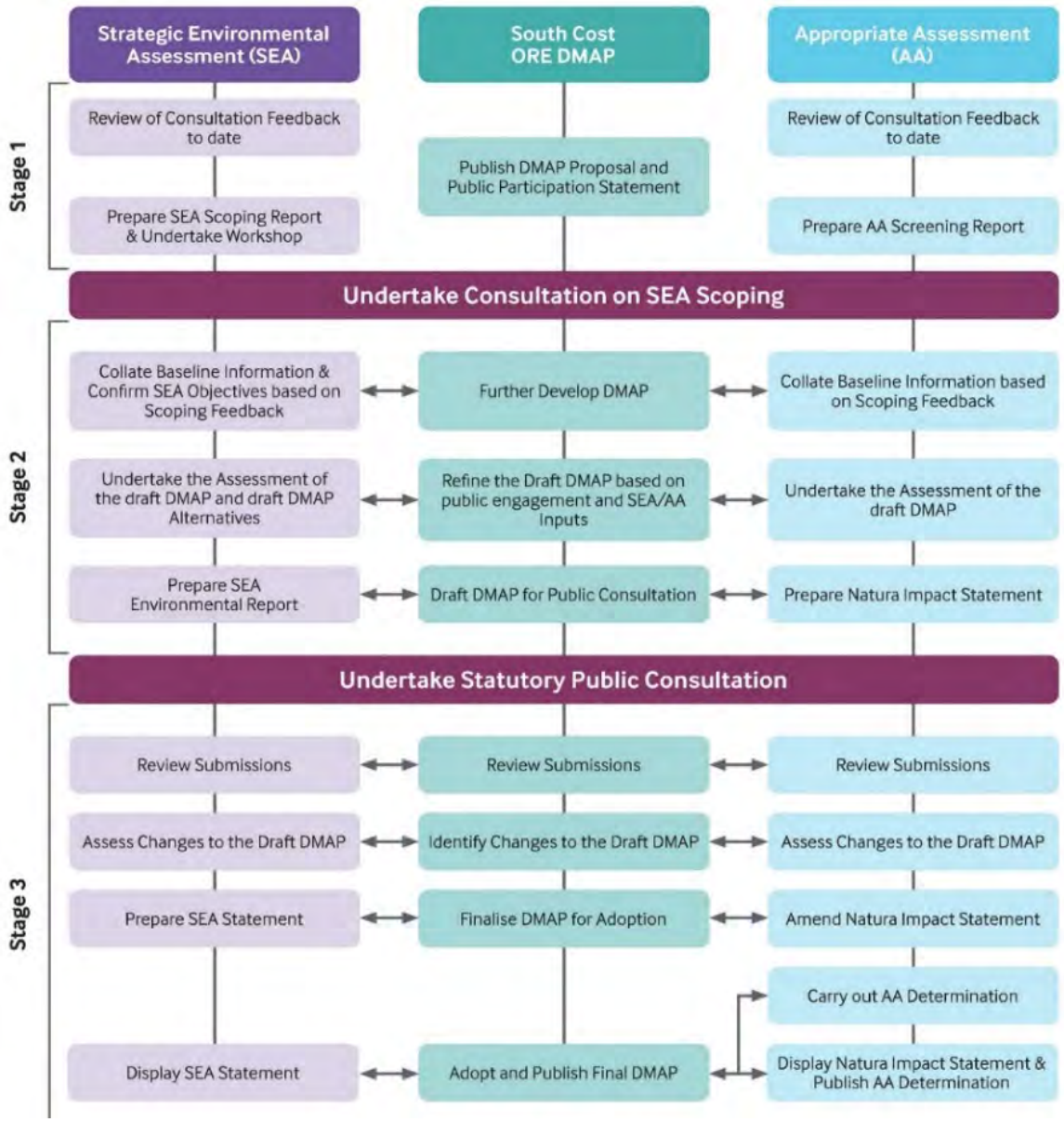


Figure 2 Links Between SEA, AA and Plan Processes

Review of Relevant Plans, Policies and Programmes

This section of the report has taken into consideration the plan, policy and programme framework within which the draft SC-DMAP has been developed. As the draft SC-DMAP is a sub-national plan, this review has focused on relevant international, European and national to regional plans and programmes and environmental protection objectives.

The emphasis in this section is on relevant plans, programmes relating to key areas of maritime planning, offshore renewable energy, climate change, sustainability, water quality, biodiversity and nature, landscape/seascape and land use, however, other plans and programmes from related sectors and topics are also discussed. It is not intended to be an exhaustive list but rather is focused on those considered key to the draft SC-DMAP and takes on board comments made by statutory consultees during the SEA scoping stage.

In order to set a framework for exploring the relationship between the draft Plan and key plans/ programmes the following two questions were borne in mind:

- Does the draft plan contribute to the fulfilment of environmental protection objectives set in other key plans/ programmes; and
- To what degree are the environmental protection objectives/ measures set in these other key plans/ programmes impacted by the draft Plan?

The suite of existing plans, policies and programmes which are particularly relevant to the draft SC-DMAP include but are not limited to:

EU Marine Spatial Planning Directive 2014/89/EU which set out the need for Member States to engage in marine spatial planning and the Marine Strategy Framework Directive (MSFD) 2008/56/EC which has adopted an ecosystem-based approach to protect and manage the marine environment.

The European Green Deal is the EU's long-term growth strategy which aims to make Europe climate-neutral by 2050 and put renewable energy at the heart of the energy system. As part of the Green Deal, with the European Climate Law (Regulation (EU) 2021/1119), the EU has set itself a binding target of achieving climate neutrality by 2050. As an intermediate step towards climate neutrality, the EU has raised its 2030 climate ambition, committing to cutting emissions by at least 55% by 2030. The EU is working on the revision of its climate, energy and transport-related legislation in order to align current laws with the 2030 and 2050 ambitions.

At a national scale, the key plans, policies and programmes include among others the NMPF, 2021, the National Planning Framework, 2019, the Climate Action Plan, 2023, the draft Climate Action Plan, 2024, the Carbon Budget Programme, 2021, and the draft Offshore Renewable Energy Future Framework Policy Statement, 2024. It is further consistent with the Offshore Wind Industrial Strategy, 2024, and the Energy Security in Ireland to 2030 Report, 2023.

Additionally, the facilitation of ORE development within the SC-DMAP area is aligned with the Regional Spatial and Economic Strategy for the Southern Region and City and County Development Plans for Local Authorities adjoining the SC-DMAP, notably Wexford, Waterford and Cork. The 2021 Act also requires local authorities to prepare Local Authority Climate Action Plans (LACAPs), to ensure that the national climate objective can be achieved through all levels of the planning hierarchy. The four local authorities adjoining the SC-DMAP have prepared such plans.

Relevant Aspects of the Current State of the Environment (Baseline)

The environmental baseline has been compiled using available datasets and indicators developed through scoping and review of relevant supporting documentation. It is noted that the draft Plan is a sub-national plan and this is mirrored in the level of detail presented for the baseline description in the main Environmental Report.

Many of the pressures impacting the marine environment are driven by human activities. The key pressures include: physical disturbance/damage to the seabed; intensity of commercial fishing, overfishing of stocks and bycatch of non-target species; introduction/ spread of non-native or invasive species; eutrophication; hazardous substances; marine litter; underwater noise and other energy inputs; and marine climate change.

In the 7th and most recent state of the environment review *Ireland's Environment – An Assessment 2020*[1], the EPA outlines a summary scorecard for the progress being made across key environmental policy areas as well as the general trend/outlook. These are summarised below in **Table 1**.

Table 1: Summary Assessment and Future Outlook for Selected Environmental Policy Areas and Relevance to the Draft SC-DMAP

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
Water	**Assessment: Poor / environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** In general, trends in water quality are mixed; over the past 20 years, there has been a deterioration in the number of the highest quality water bodies, particularly rivers, and mixed progress in waters achieving the environmental objectives under the WFD. Good progress has been made in improving wastewater treatment however issues remain. Nutrient enrichment remains the main significant issue. The outlook is also mixed, and a balance needs to be sought between a growing population and certain sectors in particular, such as intensive agriculture. 80% of coastal and 38% of transitional water bodies have achieved or maintained at least Good ecological status. Nutrient loading (namely of phosphorus and nitrogen) from freshwater sources to the marine environment have increased since 2012. Under the MSFD, Ireland's latest assessment found Ireland's coastal and marine waters are generally clean and healthy, but pressures persist including from increasing development in marine waters. Just five qualitative descriptors are fully compatible with Good Environmental Status (GES): D2 Non-indigenous species; D5 Eutrophication; D7 Hydrographical conditions; D8 Contaminants; and D9 Contaminants in seafood,	This is of direct relevance to the draft SC-DMAP. The WFD and MSFD outlines the environmental protection objectives which must be achieved by each Member State. These objectives are then to be achieved through a process of river basin and marine area planning which sets out the measures and the approach for implementation. Coherent spatial planning in line with the Maritime Area Planning Act 2021 is crucial for the protection of coastal, transitional and marine waters. Without proper management, the development of OW arising from the draft SC-DMAP can result in deterioration of water quality.
Nature	**Assessment: Very poor / significant environmental and/or compliance challenges to address** **Outlook: Largely not on track to meet policy objectives and targets**. The assessment and outlook are overall very poor. Biodiversity losses and habitat changes continue on an international scale. EU conservation status reporting indicates generally declining trends and unfavourable status for many habitats, with 85% having unfavourable status. Many species are faring better, but 15% are in decline at EU level, mostly freshwater species. Agricultural activities remain the key pressure. The outlook is very poor, with climate change adding to challenges and cumulative impacts.	Evidence from monitoring of natural habitats and species in Ireland's marine environment indicates that many habitats are not in good condition. Improving and protecting these is a challenge to all users of the sea. Like all Member States, Ireland reports every six years to the EU on the conservation status of the habitats and species listed in the Nature Directives. Marine habitats that were assessed as being in 'favourable' conservation status

[1] EPA (2020) Ireland's Environment – An Assessment. Available at: https://www.epa.ie/our-services/monitoring--assessment/assessment/irelands-environment/state-of-environment-report-/#

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
		were sandbanks and submarine structures made by leaking gas. Others such as reefs were assessed as inadequate and large shallow inlets and bays were assessed as being at bad status. In general, marine mammal species were reported as being in favourable status although for some cetaceans, their status was reported as unknown. The draft SC-DMAP is a key mechanism for managing OW development such that it protects and where possible enhances habitats and species in or depending on the marine.
Climate	**Assessment: Very poor / significant environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Ireland has made good progress in deploying renewable energy sources and has an ambitious National Energy and Climate Plan, and Climate Action Plan. However Ireland continues to have a high level of greenhouse gas (GHG) emissions and remains above its EU emission limit, missing the target for 2020. Should all the actions in the Climate Action Plan be fully adopted and implemented, the targets for 2050 could be achieved. However significant challenges remain to reaching these goals.	Society-wide efforts are urgently needed to reduce GHG emissions. Ocean warming and acidification are driven mainly by climate change. These pressures can exacerbate other issues such as impacting native biodiversity, facilitating expansion or spread of invasive or opportunistic species. Increased flows in rivers could also facilitate increased nutrient transport to the marine environment, combined with climate change, are expected to increase the risk of algal blooms. OW development arising from the draft SC-DMAP can help reduce overall GHG emissions for Ireland and help meet set climate targets for 2030, and beyond for Ireland's overall climate objective to reach climate neutrality by 2050. Increasing the rollout of renewable energy generation is critical to reaching these targets, as Ireland's Climate Action Plans have reiterated the target of 80% renewable electricity by 2030, a significant proportion of which will come from offshore wind.
Air Quality	**Assessment: Moderate / on track generally / local or occasional challenges** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Air quality in Ireland is generally very good and consistently meets its EU limit values. There was however an exceedance in 2019 of nitrogen dioxide at a monitoring station in Dublin, and Ireland at times does not meet the more stringent limit values set by the World Health Organisation (WHO) (namely of fine particulate matter). In terms of transboundary emissions, Ireland is failing to meet EU targets on ammonia emissions under the National Emissions Ceiling (NEC) Directive, of which agriculture is the main source. Progress is mixed progress in terms of reducing emissions from	Of direct relevance to the draft SC-DMAP are the transboundary pollutants such as NO_x and SO_x from related activities e.g. shipping. But the indirect effects experienced in terms of air quality are just as important. Transport and heating rely heavily on fossil fuels. In order to move away from the associated polluting emissions from these sectors an alternative must be in place i.e. renewable energy sources such as OW. Without the advancement of the alternative sources air quality from fossil fuel related emissions will remain an environmental and health pressure.

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
	other sectors such as transport and energy. Measures at a national level are required to tackle this and improve the outlook.	
Waste & Circular Economy	**Assessment: Poor / environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Ireland has made excellent progress in meeting its current EU targets. The generation of waste volumes however remains tied to economic activity which has been growing in recent years. Initiatives such as producer liability and waste prevention and recycling programs have also led to improvements and landfill needs have decreased while waste-to-energy capacity has increased. Challenges remain to shift from a linear economy to a circular one, with circular principles remaining low in Ireland.	Marine litter affects ocean life and pollutes beaches, the water column and the seafloor. Reducing marine litter is also a key target under the UN SDG 14: Life Below Water. It originates from land-based sources (including riverine inputs and sewage discharges) as well as offshore sources such as disposal of ship waste (fishing and aquaculture gear, ropes etc.). In terms of dredging, dumping at sea is required for maintaining ports and navigational channels; this is a licensable activity in Irish waters. The development of ORE arising from draft SC-DMAP will need to engage in waste management and circularity initiatives supported by the NMPF.

1.1 Summary of Environmental Baseline

The overall quality of the Irish environment is generally good, however climate change, water pollution and habitat loss are key threats. One of the main drivers and pressures on population and human health according to the current EPA state of the environment report (2020) is climate change. While significant progress has been made in recent years to increase the proportion of renewable energy generated, Ireland continues to remain heavily reliant on fossil fuels, which accounted for almost 90% of all energy used in Ireland in 2018.

The expected population growth in Ireland has the potential to lead to increased levels of emissions in the absence of sufficient decarbonisation. A potential risk to human health comes from exposure to air emissions from a range of combustion sources and burning of solid fuels for space heating. There is also an overreliance on private cars as the main mode of transport in Ireland. Some of the main pressures to population and human health and a changing climate relate to increased climate-change related events (e.g. flooding), economic impacts affecting industries, impacts on drinking water quality and bathing water quality, increase resource demand, increased requirement for transport services, and impacts on air quality from increased car dependency.

In Ireland, nearly half of Ireland's habitats are assessed as being at inadequate conservation status and a large proportion are at bad status. Aquatic habitats in particular are noted for being at poor conservation status compared to terrestrial habitats. The main pressures to terrestrial and coastal water-dependent habitats are from: pollution; drainage/cutting of peatlands and wetlands; invasive species; recreation; urbanisation; and fishing/aquaculture, among others. Overall, around 43% of Ireland's surface water bodies (river, lake, transitional and coastal) are failing to meet their objectives under the WFD. Just over half of Ireland's water bodies were at Good or High ecological status. Most of Ireland's coastal water bodies (80%) are of Good ecological status or better. Estuaries have the worst water quality with only 38% reported as being at Good or High status. Water quality issues in estuaries is driven mainly by excess nutrients/ eutrophication. Almost all of the negative trends are driven by changes in river water quality, with the trends also indicating that water quality is getting worse. In the marine space, the key drivers of pressures and impacts arise from anthropogenic sources such as litter, climate change, noise and pollution events.

In general, Ireland has good air quality and generally meets its EU emissions limit values. However, monitoring indicates that some pollutants are exceeding the stricter World Health Organization (WHO) guideline values e.g. fine particulates and ground-level ozone, indicating that air quality problems may be more widespread in Ireland than previously thought. In Ireland, it estimated that there are approximately 1,500 premature deaths per year, attributed to air pollution, mainly related to $PM_{2.5}$, the main sources of which are road transport in cities and biomass burning in villages and towns. In terms of transboundary

emissions, Ireland is failing to meet its EU targets on ammonia emissions, of which agriculture is the main source. In addition, non-methane volatile organic compounds are projected to be just over the 2030 emission ceiling limit.

The most recent EPA GHG emissions inventory and projection reports have highlighted the challenges that Ireland faces in achieving the scale and pace of GHG emissions reductions required to stay within the first two carbon budgets and reduce emissions by 51% relative to 2018. The EPA GHG inventory for 2022 shows that total national emissions in 2022 (including from LULUCF) were just 2.7% below the 2018 reference year. Of Ireland's Carbon Budget for 2021-2025, 47% has been used up in the first two years. If Ireland is to stay within the first carbon budget, a challenging annual reduction of 12.4% is now required for each of the remaining years. There is a high level of ambition set out the CAP, as outlined by the KPIs and abatement targets by sector. However, the very small decrease in emissions between 2020 and 2021 indicates that notwithstanding the ambition being high, the tangible progress towards significant abatement is lacking.

1.1 Existing Environmental Problems Relevant to the draft SC-DMAP

Having regard to the information collated regarding the environmental baseline, the key environmental problems with relevance to the draft SC-DMAP include but are not limited to:

- Population growth and associated intensification of activity in coastal and marine areas;
- Ongoing air pollution from burning of fossil fuels in the absence of sufficient renewables;
- Ongoing biodiversity emergency, linked to the climate emergency.
- Cumulative impacts in terms of land use change, pollution of water, air and soils, habitat fragmentation and loss are all contributing to pressure on biodiversity;
- Continued water pollution from a range of land and marine sources including nutrient enrichment (agriculture, wastewater sources), litter etc. leading to problems with achieving compliance with EU Directives such as the Water Framework Directive and the Marine Strategy Framework Directive;
- Coastal flood risk from more extreme weather events associated with climate change, impacting on coastal communities.

Evolution of the Baseline in the Absence of the draft SC-DMAP

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the draft Plan does not take place. **Table 2** summarises the key points.

Table 2: Likely Evolution of the Baseline in the Absence of Draft SC-DMAP

SEA Topic Area	Likely Evolution in the Absence of the Draft SC-DMAP
Population and Human Health	The population of Ireland has been increasing leading to increased pressure on provision of services, as well as other development such as access to the coast and recreational as activities e.g. cycleways and greenways. Increased economic development will also lead to increased activity in key sectors such as fisheries, shipping, and port development. In the absence of the draft SC-DMAP, this increased pressure and demands for resources and growth in the marine space will not be accounted for in terms of integration with evolving ORE policy and development, sectoral interactions, and competition for space. This will further increase the pressures on existing infrastructure and inadequate provision for future development.
Biodiversity, Flora and Fauna	Without the draft SC-DMAP, the pressure on both coastal and marine flora, fauna and habitats is likely to continue with key drivers from development and land-use from the terrestrial side (urban wastewater discharges, agricultural runoff) as well as impacts from development activities across marine sectors and intensification of existing activities. This is likely to lead to habitat loss/ fragmentation/ disturbance, as well as loss/ disturbance of species as other impacts such. In addition, there are changes expected to occur through climate change that may alter species and habitat ranges, with potential for range expansion of some invasive alien species which are an increasing concern. In the absence of the draft SC-DMAP, the development of ORE in the South Coast may not be coordinated or focussed in relation to the most sensitive habitats and species leading to permanent loss of key species.
Soils, Sediments & Geology	In the absence of the draft SC-DMAP the soil resource/sediments would continue to exist in much the same pattern. The EU Soil Monitoring Law was passed in July 2023, aiming to achieve healthy soils across EU by 2050. There is currently little or no legislation similar to that relating directly for the marine environment. Sectoral activities e.g. dredging and disposal operations, as well as

SEA Topic Area	Likely Evolution in the Absence of the Draft SC-DMAP
	marine aggregate extraction, would continue to be licensed under the existing EPA/ DHLGH processes.
Water	Article 11 of the WFD would continue to be implemented and enforced through River Basin Management Plans (RBMP) taking into account the most recent status of water bodies and the outputs of the risk characterisation process. The third RBMP cycle is in draft. The MSFD required Member States to achieve Good Environmental Status for their marine waters (water column and seafloor) by 2020. In the absence of the draft SC-DMAP, Ireland would continue to implement its MSFD Programme of Measures and will need to continue working towards filling the data gaps in terms of the MSFD descriptors. The existing planning system will need to account for water quality and refer to the Programmes of Measures being implemented through both the RBMP and under the MSFD. The Irish Water Investment Programme would continue working towards improving wastewater discharges to surface and coastal water bodies, as well as the requirements to comply with the UWWTD and the elimination of raw sewage discharges.
Air, Noise and Climatic Factors	Air quality in Ireland is of a high standard across the country, meeting all EU air quality standards, according to the EPA. The main activity affecting air quality in the marine environment is emissions from shipping, namely SOx, but also NOx and PM. The new reduced sulphur limits introduced to Annex VI to the MARPOL Convention will continue to contribute to much improved air quality in the marine space and for communities in proximity to ports/coastal areas. The absence of the draft SC-DMAP is not expected to affect these trends. Ireland is currently not on track to meet its 2030 target for a 51% reduction in GHG emissions; the EPA's GHG emissions projections for 2022-2040 indicate that the first two carbon budgets covering 2021-2030 are projected to be exceeded by a significant margin. The electricity sector, among others, is also on a trajectory to exceed its national sectoral emissions ceiling for 2025 and 2030. However, Government also set a national target for renewable electricity (RES-E) of 40% for 2020, rising to 80% by 2030. The SEAI reports that Ireland came in just under the 2020 target, achieving 39.1% RES-E in 2020. Therefore, in the absence of draft SC-DMAP (which aims to contribute to Government's 5 GW by 2030 offshore renewable energy target), there will be a lack of coordinated action in the area of offshore renewable electricity development, which will impact on the State's ability to meet both its 2030 and 2050 climate targets, as well as the 80% target by 2030 for renewable electricity.
Material Assets	In the absence of the draft SC-DMAP developer led provision of ORE would likely continue but in the absence of any coordination or programme therefore delivery on targets would be uncertain. Speculative surveying would continue leading to greater disruption in the marine environment and increased potential for conflict between sectors. Without the SC-DMAP there is likely to be missed opportunities for synergies and coordination with related infrastructure e.g. grid, ports etc.
Cultural Heritage	In the absence of the draft SC-DMAP, the uncoordinated approach to ORE development in South Coast could result in unnecessary impacts on existing cultural heritage resource. However, at a local level the existing development planning processes should provide a good level of protection.
Seascape and Landscape	In the absence of the draft SC-DMAP, the uncoordinated approach to ORE development off the South Coast could result in unnecessary impacts to protected or sensitive landscape and seascape. At a local level, the existing development planning processes should provide a level of protection. However, significant data gaps remain in terms of consistent approaches to seascape assessment for planning authorities at all levels. Energy developments in particular can have a high degree of interaction with the landscape aspect and proposals will continue to progress through the planning systems.

Framework for Assessment

The assessment is an objectives-led assessment which involves comparing the proposed alternatives against defined SEA Environmental Objectives for each of the identified issue areas. The selected SEOs for this SEA are set out in **Table 3**. These environmental objectives are based on the current understanding of the key environmental issues having regard to the environmental protection objectives outlined in **Chapter 6** of the main Environmental Report.

Table 3: Strategic Environmental Objectives for the Assessment of the Draft Plan

SEA Topic	SEA Environmental Objective(s)
Population and Human Health (PHH) Objective:	(i) To ensure bathing waters are not prevented from achieving excellent status as a result of the SC-DMAP. (ii) To ensure the quality standards for water quality in shellfish water are not compromised as a result of the SC-DMAP. (iii) To maintain access to the coastal and marine resource for tourism and recreation. (iv) To avoid significant disruption, disturbance or nuisance to local communities.
Biodiversity, Flora and Fauna (BFF) Objective:	(i) Preserve, protect, maintain and where appropriate restore marine biodiversity (and terrestrial aspects on which the marine biodiversity is reliant), particularly EU designated sites and protected species. (ii) Avoid, minimise or mitigate disturbance impacts on mobile species, within or reliant on the marine area, resulting from SC-DMAP. (iii) Safeguard space for the natural marine environment to enable continued provision of ecosystem goods and services within the SC-DMAP area. (iv) Contribute to achieving the environmental objectives under the MSFD and the WFD (v) Maintain and protect marine protected areas and ensure integrity of the network is not impacted as a result of the SC-DMAP.
Land and Soil (LS) Objective:	(i) Maintain the integrity of marine processes for the protection of coastal habitats and places within and influenced by the SC-DMAP. (ii) Protect the quality and character of the seabed and its sediments and avoid significant effects on seabed morphology and sediment transport processes.
Water (W) Objective:	(i) Contribute to achieving the objectives under the MSFD and the WFD i.e. achievement or maintenance of Good Environmental Status (GEnS) and Good Ecological Status (GEcS). (ii) Protect, maintain, and where possible improve status of classified water bodies within the Plan area in line with requirements of the WFD and MSFD. (iii) Avoid pollution of the coastal and marine environment. (iv) Reduce marine litter resulting from terrestrial and marine dumping. (v) Minimise generation and propagation of manmade noise within the marine environment. (vi) Promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment.
Air Quality (AQ) Objective:	(i) Avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air, including transboundary considerations. (ii) Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency. (iii) Avoid adversely impacting on air quality, with particular regard to known existing concentrations of transport and industrial related pollution close to the coast.
Climatic Factors (C) Objective:	(i) Minimise existing and avoid new emissions of greenhouse gases across all sectors. (ii) Decrease the usage of fossil fuels and increase renewable energy usage.

SEA Topic	SEA Environmental Objective(s)
	(iii) Reduce the environmental, social and economic vulnerability to the impacts of climate change and/or improve resilience to climate and coastal change.
Material Assets (MA) Objective:	(i) Contribute to transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. (ii) Address conflicts with other environmental protection objectives. (iii) Support marine material assets (including fisheries, shellfish, military activity and infrastructure) and resources by maximising opportunities for opportunities for co-existence, co-location and co-benefits. (iv) Ensure continuity and safety of navigation (marine and air).
Cultural Heritage (CH) Objective:	(i) Protect places, features, buildings and landscapes of cultural, historical archaeological or architectural heritage. (ii) Protect the site and setting of marine and coastal historic environment features. (iii) Protect known wrecks and historic and cultural features within the DMAP area. (iv) Incorporate opportunities to enhance cultural/historic knowledge and understanding.
Landscape (LandS) Objective	(i) Protect and maintain landscape character and visual amenity, including geo-heritage. (ii) Recognise and respect the value of wider (non-designated) landscapes and seascapes.

Consideration of Alternatives

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of range of alternatives. These alternative scenarios should meet the criteria outlined in Figure 3. Given that the SC-DMAP is of a sub-national scale plan and is strategic in nature, alternatives identified are reflective of this. The main alternatives meeting the criteria in **Figure 3** and brought forward for further assessment are presented in **Table 4**.

Figure 3 Criteria for Alternatives Considered [Source: EPA Guidance, 2015]

Table 4: Alternatives Considered

Type	Alternatives Considered
Spatial alternatives	• Geographic Extent to include marine only or marine and terrestrial interface • Identification of sub-areas versus whole DMAP focus.
Effects based alternatives	• Multiple benefits plan that addresses climate, biodiversity, sustainability, flooding etc. versus a climate and OW target driven plan.
Prioritisation alternatives	• Prioritise to available grid capacity or not
Map based alternatives	• Areas suitable in principle for OW Development

Preferred Scenario

The preferred scenario for which a policy base was subsequently developed was a marine based plan, identifying four Maritime Areas (A-D) within which fixed wind deployment will occur over the coming years. Where possible, the SC-DMAP will deliver multiple benefits in terms of climate, biodiversity, etc. and support the principle of co-existence. The initial deployment along the south coast will have regard to available grid capacity. The SEA has not been the only factor in identifying the Maritime Areas identified in the draft SC-DMAP. A constraints analysis which included both technical and environmental criteria was used to map out areas that were most suitable for future deployment of offshore wind. Technical factors considered included bathymetry, wind resource and buildability. The areas identified are shown in **Figure 4**.

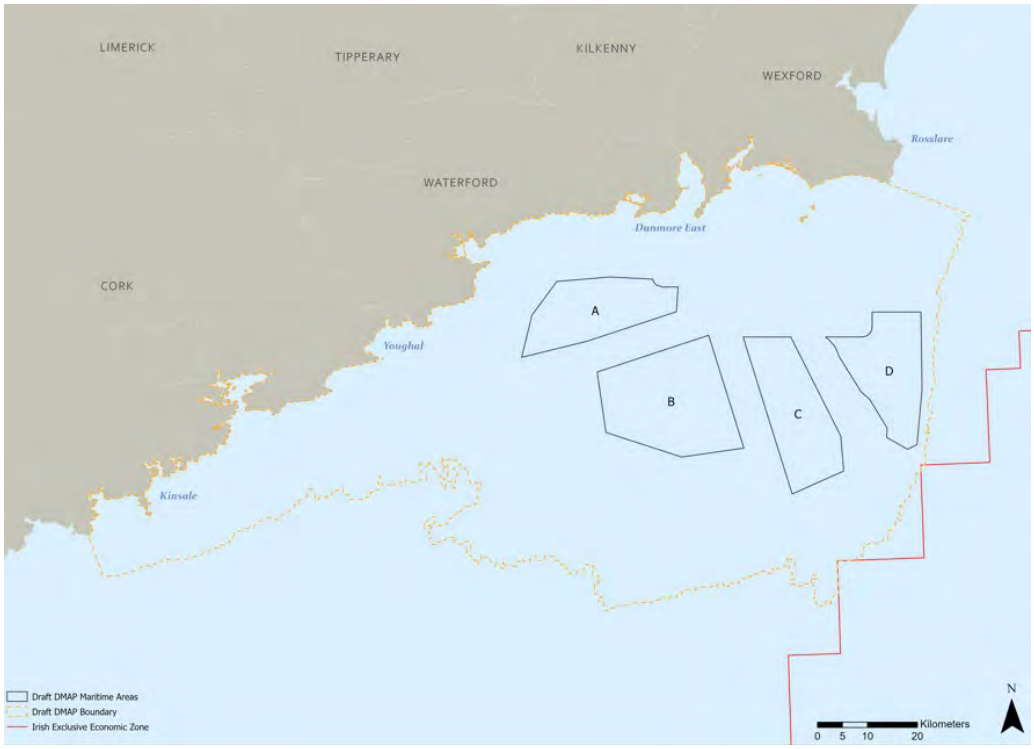


Figure 4 Maritime Areas A-D within the Wider Draft SC-DMAP Area

Assessment of Preferred Scenario

This section evaluates as far as possible the likely significant effects on the environment and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects of implementing the draft SC-DMAP. **Table 5** summarises the SC-DMAP and presents an overview of the environmental assessment of the policy objectives.

Table 5: Summary of Assessment

Policy Objective Reference	Summary of Policies and Assessment	Mitigation (✓/×)
Policy Objectives for Maritime Areas	This set of policy objectives recognises Ireland's ORE potential, and provides an overview of the type of ORE development and how this will be deployed in the defined Maritime Areas (A-D) within the SC-DMAP. Subject to application of related policies for lower tier plans and projects, and the application of proejct level requiremnts such as preparation of supporting plans and carrying out site specific surveys, no mitigation required.	×
Policy Objectives for Mitigation	This set of policy objectives sets out the requirement of regional surveys to be carried to inform the project level EIA and AA in-combination and cumulative assessments and sets out survey requirements and guidance to support applications. These policies reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered positive. No mitigation required.	×
Policy Objectives for Governance, Implementation, and Monitoring	This set of policy objectives relates to the governance structure proposed to support the implementation of the SC-DMAP. This includes an impelmntation Borad supported by working groups on environemnt and techncial matters. It also supports the publication of an Implementation Plan. These policies reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	✓
Policy Objectives for Overarching Environmental Protection	This set of policy objectives sets the requirement for planning applications to give regard to Guidelines issued under section 7 of the MAP Act, robust project assessments and a project-specific Nature Enhancement and Rehabilitation Plan to ensure adequate environmental protection is acheived at the project level within the SC-DMAP. These policies reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	✓
Policy Objectives for Biodiversity	The policy objective sets out plans and guidance and updates thereof that applications for development within SC-DMAP will have to give regard to. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	×
Policy Objectives for Protected Marine Sites	The policy objective aims to ensure appropriate consideration is given to evolving baseline conditions for the statutory reviews of the SC-DMAP and projects brought forward under this Plan. This will includes additional future national protected sites e.g. Marine Protected Areas (MPAs) and European Sites. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	×
Policy Objectives for Water Quality	The policy objective aims to protect and improve water quality by setting a requiremnet for projects to carry out comparative analysis of routes and installation techniques. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	×

Policy Objective Reference	Summary of Policies and Assessment	Mitigation (✓/×)
Policy Objectives for Marine Litter	This set of policy objectives sets out requirements for project proposals within the SC-DMAP to minimise the marine litter and electromagnetic field in the marine environment through prevention, reuse and recycling of waste and mitigation by design respectively. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	×
Policy Objectives for Underwater Noise	This set of policy objectives aims to reduce the impact of underwater noise levels on the marine environment. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	✓
Policy Objectives for Air Quality	The policy objective aims to reduce a reliance on fossil fuel emissions and air pollution by requiring projects to comply with existing regulatory and policy commitments under MARPOL and Ireland's enacting legislation. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	×
Policy Objectives for Climate Change	This set of policy objectives supports Ireland's climate and renewable energy objectives by providing for ORE development and aims to ensure that the development in the DMAP area should avoid impacts on carbon storage and carbon sequestration and include consideration of the integrity of European sites. This policy reflect iterative feedback from the SEA/AA teams over the evolution of the draft plan and are considered broadly positive.	✓
Policy Objectives for Co-existence	This set of policy objectives aims to promote co-existence between ORE and other existing and future uses in the SC-DMAP and sets requirements for developers to accurately map their respective development sites, including electricity export and inter-array cables as laid post development. The developers are required to provide this data to MARA and other maritime users in defined format. This policy reflects feedback from consutlation over the evolution of the draft plan and are considered broadly positive.	×
Policy Objectives for Aquaculture, Seafood and Fisheries	This set of policy objectives supports and facilitate the co-existence between ORE development and seafood, aquaculture and fisheries sector by setting requirements for the developers to engage with with Irish-registered fishers and the wider seafood sector, give regard to the objectives and principles established in the 'Seafood/ORE Engagement in Ireland. It also supports prepareation of a Fisheries Management and Mitigation Strategy (FMMS), an Aquaculture Management and Mitigation Strategy (AMMS) and appooinment of a Fisheries Liaison Officer (FLO). This policy reflects feedback from consutlation during the evolution of the draft plan and is considered broadly positive.	✓
Policy Objectives for Tourism and Recreation	The policy objective supports and facilitates coexistence between ORE development and a thriving tourism sector subject to carrying out statutory environmental assessment at plan and project level. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive..	✓
Policy Objectives for Telecommunications	The policy objective supports the principle of coexistence of offshore wind development with digital telecommunications infrastructure, subject to carrying out statutory environmental assessment at plan and project level (which may include SEA, EIA and/or AA) and the outcome of planning and licensing processes as relevant. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive.	✓
Policy Objectives for Marine	The policy objective aims to ensure that any ORE surveys, site investigation and development, including associated ORE and transmission infrastructure, should, where relevant, include measures to protect underwater archaeological and cultural heritage. This	✓

Policy Objective Reference	Summary of Policies and Assessment	Mitigation (✓/×)
Archaeological Heritage	policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive.	
Policy Objectives for Land and Sea Interaction	This set of policy objectives supports the coordination of land and sea interactions and the alignment of terrestrial plans and policy at national, regional, and local level that deliver sustainable onshore infrastructure to enable ORE in the SC DMAP. This will also include support for location and siting of supporting onshore infrastructure. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×
Policy Objectives for Ports and Harbours	The policy objective supports the alignment of terrestrial planning with marine planning at regional and local level to provide for the sustainable development of port infrastructure that enables the development of ORE within the SC-DMAP subject to revelant environmental assessments. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×
Policy Objectives for Shipping	The policy objective sets the requirement for consultation with port and harbour authorities and the Maritime Safety Directorate prior to submission of applications for development and associated surveys. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×
Policy Objectives for Electricity Transmission System	This set of policy objectives aims to prioritize the sustainable development of offshore and onshore transmission infrastructure that supports and enables the sustainable development of OW within the SC-DMAP. This will be acheived by supporting the integration and alignment of terrestrial planning and by avoiding, minimising and mitigating any associated adverse environmental and social impacts. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×
Policy Objectives for Economic and Employment Growth Potential	The policy objective aims to support actions under Government's Offshore Wind Industrial Strategy (2024) and through regional and local level plans that support research, innovation, skills development, enterprise, jobs growth and the sustainable development of economic clusters in the ORE sector subject to relevant environmental assessments. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×
Policy Objectives for Community Engagement	The policy objective aims to ensure that stakeholder engagement is continued at the project level by requiring MAC holders to prepare and publish a project-specific Public Engagement Plan. This policy reflects feedback from consutlation and iterative discussion during the evolution of the draft plan and is considered broadly positive. No mitigation required.	×

Monitoring

Member States are required to monitor the significant environmental effects of the implementation of plans so that any unforeseen adverse effects can be identified, and appropriate action taken. A monitoring programme is developed based on the indicators selected to track progress towards reaching the targets paired with each SEO, thereby enabling positive and negative impacts on the environment to be measured.

Proposed monitoring measures focus on the aspects of the environment that are likely to be significantly impacted by the SC-DMAP and from the identification of the key trends and issue areas. Where possible,

indicators have been chosen based on the availability of data/information and to show changes that would be attributable to the implementation of the SC-DMAP. To this end, the monitoring will use the Marine Strategy Framework Directive Monitoring programme which has been established for Ireland. This will be supplemented by additional sub-national plan specific monitoring of indicators relating to population and human health, nature, water, sediments, climate and material assets. Chapter 9 of the Environmental Report presents the proposed Environmental Monitoring Programme.

Next Steps

Witten submissions or observations on the draft SC-DMAP and associated environmental reports can now be made up to 5.30pm on the 14th June 2024.

. There are two methods for consultation submissions or observations as follows:

1. By e-mail to southcoastdmap@DECC.gov.ie

2. By post: FAO SC-DMAP Statutory Consultation, International and Offshore Energy Division. 29-31 Adelaide Road, Dublin 2, D02 X285

These submissions/ observations will be taken into consideration before the SC-DMAP is made final. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

It should be noted that in the interests of transparency, all written submissions received will be made publicly available on the Department's website. Receipt of submissions will be acknowledged but it will not be possible to issue individual responses.

1 INTRODUCTION

This Strategic Environmental Assessment (SEA) Environmental Report has been prepared by RPS on behalf of the Department of the Environment, Climate and Communications (DECC) as part of the SEA of the draft South Coast Designated Maritime Area Plan for Offshore Renewable Energy (hereafter referred to as 'the draft SC-DMAP' or 'draft plan') in accordance with the requirements of EU and national legislation on the assessment of the effects of certain plans and programmes on the environment.

The SC-DMAP Proposal, published in 2023 for an initial round of non-statutory consultation, put forward a 'proposed' geographical area within which a number of sub areas would subsequently be identified for future developments of fixed offshore wind technology would be developed. The geographical area of the initial proposal extended from the High-Water Mark on Ireland's south coast to the 80-metre depth contour and/or the edge of the Irish Exclusive Economic Zone (EEZ) as shown in **Figure 1.1**.

The SC-DMAP Proposal area was subject to a comprehensive nine and half week non-statutory public consultation during August to October 2023. The outcome of this consultation, alongside a process of environmental analysis and a technical assessment has subsequently led to the development of the draft SC-DMAP, which identifies a number of Maritime Areas for proposed future offshore wind deployments. In addition to identifying four maritime areas for proposed future offshore development, the draft DMAP contains an amended northern boundary, which is located at the limits of the administrative areas for local government on the south coast, rather than the High Water Mark referenced in the SC-DMAP Proposal.

Accordingly, the total geographical area of the draft SC-DMAP is approximately 8,813 square kilometres in size. The draft plan further includes a suite of associated policy objectives, which in conjunction with identification of the Maritime Areas will help to guide future decision-making by competent authorities.

The purpose of this SEA Environmental Report is to:

- Inform the development of the draft SC-DMAP;
- Identify, describe and evaluate the likely significant effects of the draft SC-DMAP and its reasonable alternatives; and
- Provide an early opportunity for the statutory authorities and the public to offer views on any aspect of this environmental report and accompanying draft SC-DMAP documentation, through consultation.

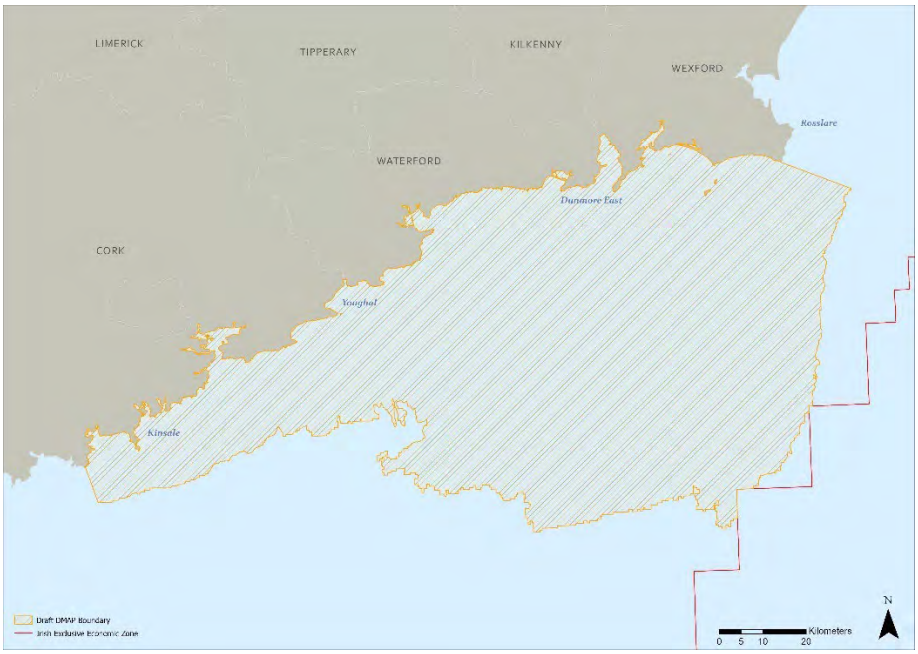


Figure 1.1: South Coast Designated Maritime Plan Area Proposal Area.

1.1 Background

The 2020 Programme for Government includes the commitment to the achievement of 5 Gigawatts (GW) of installed offshore wind generation by 2030. This target will contribute to the wider Government objectives of achieving up to 80% renewable electricity and a 51% reduction in greenhouse gas emissions by the end of this decade, and the longer-term objective of delivering a climate neutral economy by no later than 2050.

It is anticipated that a large proportion of the 5 GW target will be achieved through the initial Phase One of offshore wind development in Ireland, which includes the first offshore wind auction to take place under the Renewable Electricity Support Scheme (RESS). Having procured just over 3 GW of offshore wind capacity, the results of this first offshore auction (known as ORESS 1), announced in June 2023, highlighted that additional offshore projects will be needed to meet 5 GW by the end of this decade, with this transition from Phase One to the longer-term plan-led regime known as Offshore Wind Phase Two.

A new Policy Statement on the Framework for Phase Two Offshore Wind was approved by Government on 7 March 2023, which has provided clarity for all stakeholders regarding the development of offshore wind as Ireland moves to the enduring, plan led, offshore regime. The Policy Statement policy includes:

- A focus on delivery of proven technologies i.e., fixed offshore wind, which represents the best opportunity for the accelerated delivery of Ireland's renewable energy and legally binding decarbonisation objectives;
- The requirement that all post Phase One Offshore Renewable Energy (ORE) developments must take place within marine areas identified for this purpose by Government through establishment of DMAPs, to take place according to provisions in the Maritime Area Planning (MAP) Act, 2021; and
- Initial DMAPs are to be aligned with available onshore grid capacity in order to offer the best prospects of delivering on Government's 2030 decarbonisation objectives and will also seek to identify the most appropriate marine areas for offshore wind capacity for accelerated deployment beyond the end of this decade.

The south coast has been identified as the appropriate location for Ireland's first ORE DMAP for a number of reasons, which include: 1) there is a substantial marine area with sea-depths and an available wind resource that is consistent with the accelerated deployment of fixed offshore wind; 2) EirGrid has identified available capacity along the south coast to connect approximately 800 MW of offshore wind capacity; 3) there are a number of port facilities in proximity to the south coast from which future offshore windfarms may be deployed and serviced; and 4) there is a substantial existing population and industrial base along the south coast which will benefit from a secure, reliable and affordable source of sustainable renewable energy, the availability of which would be expected to deliver further important regional economic and employment opportunities. Accordingly, the south coast has become the focus of the first DMAP for ORE and for Ireland under the National Marine Planning Framework (NMPF).

The SC-DMAP will identify Maritime areas for future deployments of fixed offshore wind, which is a proven technology that can be delivered at scale and is therefore consistent with the accelerated and cost-effective achievement of Ireland's renewable energy and decarbonisation objectives.

The SC-DMAP commenced as a DMAP Proposal being prepared by the Minister for Environment, Climate and Communications (MECC) in his role as a designated Competent Authority (D) for ORE. The MECC was designated in this role under Section 20 of the MAP Act, 2021 by the Minister for Housing, Local Government and Heritage (MLGH). After the President has signed the Gas (Amendment) and Miscellaneous Provisions Bill 2023, Part 4 is commenced and Vesting Day Order under section 23 is completed, Section 27 of that Act will provide that, this designation as Competent Authority (D) will cease and the MECC will take on the role of Competent Authority (M). The work done to date on the SC-DMAP will be preserved and will be progressed by the MECC as Competent Authority (M) under Section 29 of the MAP Act, 2021.

1.2 Approach to Developing the SC-DMAP

Under the Phase Two policy[2], the SC-DMAP and all subsequent ORE DMAPs, will be established according to legislative provisions within the Maritime Area Planning (MAP) Act, 2021. This use of forward spatial planning will take place according to an ecosystem-based approach, in line with the requirements of European Union (EU) and national policies and legislation, including the NMPF, and will help to guide future investment and decision-making. This ecosystem-based approach is intended to ensure that the establishment of DMAPs and identification of maritime areas for future offshore wind development takes place with full consideration for potential impacts, including other maritime activities, and the protection of the marine environment and biodiversity, and will provide opportunities for comprehensive public engagement. As provided for in the MAP Act, 2021, the SC-DMAP will, when made, form part of the NMPF. In line with the Phase Two policy, competitive ORESS auctions will continue to provide supports for development of future offshore wind capacity within the entirety or within a specified sub-area of ORE DMAPs. It is possible that further financial supports outside the ORESS framework may provide for future offshore wind developments that do not connect to Ireland's onshore electricity transmission system. For the SC-DMAP, the MECC intends to identify specific sub-areas within the SC-DMAP for future development of fixed offshore wind, which will take place according to a phased basis, in line Ireland's renewable energy requirements and associated Government climate policy.

The preparation of the draft SC-DMAP forms part of the new plan-led system for the deployment of ORE, rather than a developer-led system, and is considered to be consistent with other EU Member States in this regard, including Denmark and the Netherlands.

The role for DMAP in the context of the NMPF and wider marine planning in Ireland is outlined in **Figure 1.2**, centring on a Maine Planning Policy Statement (MPPS).

[2] DECC (2023) A Policy Statement on the Framework for Phase Two Offshore Wind. Accessed at: https://www.gov.ie/en/publication/f3bb6-policy-statement-on-the-framework-for-phase-two-offshore-wind/

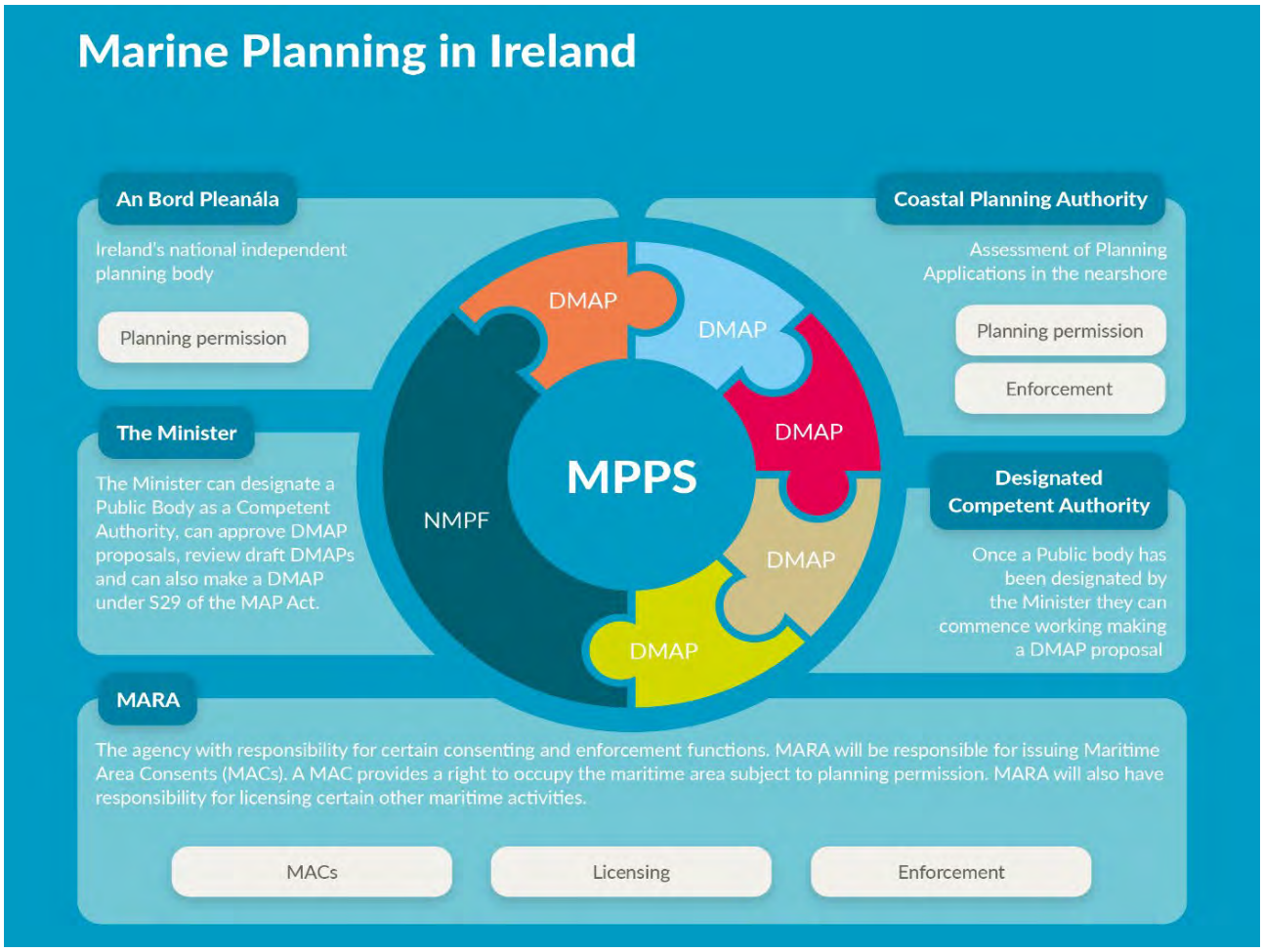


Figure 1.2: Marine Planning in Ireland

1.2.1 Current Status of the Process

The process of establishing the SC-DMAP will include but is not limited to the following steps in Table 1-1.

Table 1-1: Process of South Coast DMAP Establishment

Step	Action	Status
1	The SC-DMAP Proposal will be published, which will *inter alia* specify: – the objectives of the NMPF that the SC-DMAP will seek to attain or assist in the attainment of – the geographical areas of the maritime area proposed to be the subject of the SC-DMAP – the protected sites proposed to be taken into consideration during the preparation of the DMAP – the timeframe within which it is reasonably expected that the DMAP will be prepared – a public participation statement, outlining the proposed opportunities for involvement of interested persons and key stakeholders in the DMAP preparation, including public consultations.	This step has been completed.
2	MECC will prepare and public a public participation statement.	This step has been completed.
3	Non-Statutory 9 Week Public Engagement with key stakeholders on the SC-DMAP Proposal	This step has been completed.
4	Draft SC-DMAP is prepared and published by MECC.	This step is underway
5	Draft SC-DMAP to undergo Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA), in line with the requirements of the MAP Act 2021, the European Communities (Strategic Environmental Assessment) Regulations 2004, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended	This step is underway in parallel with the development of the draft SC-DMAP and the public consultation.
6	Public Consultation on draft SC-DMAP.	This will take place in 2024.
7	Revision (if necessary) of the draft SC-DMAP by the MECC to take into account any relevant considerations arising from the public consultation, AA and SEA carried out.	This will take place in 2024.
8	Following any revisions (if necessary) arising from the public consultation, AA and SEA (and any further assessment of revisions under the existing SEA and AA processes if necessary) MECC will submit the draft SC-DMAP and the relevant environmental assessments to be laid before both Houses of the Oireachtas.	This will take place in 2024.
9	SC-DMAP formally established having regard to any resolution, report or recommendation of any committee of both Houses of the Oireachtas or either such House and contingent on a resolution approving the DMAP being passed by the Houses of the Oireachtas. This completes the process of establishing the SC-DMAP	This is intended to take place in 2024.

Note, Guidelines on the Establishment of DMAP are planned from the DHLGH in 2024.

2 CONTENTS AND MAIN OBJECTIVES OF THE DRAFT PLAN

This chapter provides an overview of the draft SC-DMAP and sets out the spatial and policy provisions proposed for ORE in the study area, which have been subject to the SEA process as documented in this report. The maritime usage which is the subject of this draft SC-DMAP exclusively relates to fixed offshore wind technology (which is referred to as ORE in the draft Plan) and the draft Plan includes the following:

- The NMPF objectives which the Plan seeks to attain or assist in the attainment thereof.
- The geographical area the subject of the SC-DMAP.
- The proposed extent of the SC-DMAP area proposed to be utilised by future ORE (Maritime Areas A to D) and selection methodology.
- Particulars of the ORE provided for under the SC-DMAP (fixed offshore wind).
- Policy Objectives incorporating measures in the draft Plan to avoid, minimise and/or mitigate potential adverse impacts.
- Co-existence Provisions.
- Land-Sea Interactions.
- Governance, Implementation and Monitoring.

The making of DMAP for ORE is intended to enable Ireland to achieve its decarbonisation and climate objectives in an accelerated timeframe, including a 51% reduction in emissions by 2030 and the related electricity sectoral emissions ceiling, and a legally binding path to net-zero emissions no later than 2050, as required by the Climate Action and Low Carbon Development Acts 2015- 2021.

2.1 Scope and Function of the Draft Plan

The first DMAP for ORE is located off the south coast of Ireland and identifies four broad areas within which future fixed offshore wind development will be focussed. These areas, referred to as Maritime Areas A-D in the draft plan, have been identified through a refinement of the initial SC-DMAP Proposal area that has taken place through a process of public engagement and consultation, environmental impact assessments and other analysis, to assess their potential suitability for fixed offshore wind development. The final SC-DMAP will aim to contribute to achieving the Government decarbonisation objectives, through the sustainable development of fixed offshore wind, in the context of objectives of the NMPF regarding ORE, offshore electricity transmission system and ocean health.

It is intended that a development with an installed capacity of approximately 900 MW will be located within Maritime Area A which is targeted for deployment by 2030 or as soon as possible thereafter, to contribute to the Government's 5 GW by 2030 ORE target. However, it is intended that further deployments will take place within the remaining three Maritime Areas identified in the draft SC-DMAP area over the next decade through an orderly, strategic, and managed process of development. In line with the overarching EU and national legislative and policy frameworks, the process of making the draft SC-DMAP is being delivered in full consideration for the protection of marine environment and biodiversity. This process will be, informed by public engagement, stakeholder participation and environmental assessment.

2.2 Contents of the Draft Plan

Section 22 of the MAP Act 2021, requires that the draft SC-DMAP include the following information:

(a) the objectives of the NMPF that it is proposed that the DMAP will seek to attain or assist in the attainment of,

(b) the geographical or sectoral areas, or both, of the maritime area proposed to be the subject of the DMAP,

(c) the proposed extent of the maritime area (represented spatially or otherwise) proposed to be utilised by the maritime usages the subject of the DMAP,

(d) particulars of the maritime usages referred to in paragraph (c),

(e) any prohibitions or restrictions proposed to be imposed on the maritime usages referred to in paragraph (c),

(f) any proposed colocation or coexistence of the maritime usages referred to in paragraph (c),

(g) any proposed measures to avoid or mitigate any adverse impact of the maritime usages referred to in paragraph (c) on protected sites, species, or habitats,

(h) any proposals to –

i. avoid or mitigate any potentially adverse effect on the environment of the undertaking of one or more than one of the maritime usages referred to in paragraph (c), or
ii. benefit the environment or protected sites taking into account the potential effect on the environment of the undertaking of one or more than one of the maritime usages referred to in paragraph (c),

and

(i) . any proposals to avoid or mitigate any potentially adverse impact on other lawful users of the maritime area of the undertaking of one or more than one of the maritime usages referred to in paragraph (c).

Table 2-1 provides an overview of the contents of the draft SC-DMAP.

Table 2-1: Contents of Draft SC-DMAP

Section	Content	Suitable for Assessment?
The SC DMAP	Provides detailed introduction to the SC-DMAP. Sets out the Governments vision for DMAP and the SC-DMAP in particular, in the context of OW and Ireland's climate commitments. Explains how the vision will be achieved and what will happen if it is not achieved.	No – introductory and visionary statement
NMPF Objectives	Outlines how the NMPF has been considered during the development of SC-DMAP	No – sets out the NMPF objectives in relation to ORE and energy transmission. These were previously assessed as part of the SEA and AA carried out on the NMPF.
Draft DMAP Geographical Area for Offshore Wind Developments - Plan-Led ORE Development and the South Coast DMAP - Fixed Offshore Wind in the Irish Celtic Sea - Fixed Offshore Wind Technology - Draft DMAP Maritime Areas for Fixed Offshore Wind Deployment	Establishes the background and proposal to give effect to the decision by Government and the Oireachtas in 2023 that, as part of new national plan-led regime for ORE, all post Phase One offshore wind developments in Ireland should be located within marine areas identified for this purpose by Government through the establishment of DMAP. Identifies marine areas.	Yes – includes strategic policy objectives and identifies capacities and marine areas for OW

Section	Content	Suitable for Assessment?
Plan Level Measures	Provides policy objectives for any activities and developments proposed in the SC-DMAP related to offshore wind development and associated infrastructure, where required, to inform applications and assessments for the award of MACs and development permissions by relevant competent authorities.	Yes- includes policies for activities and developments proposed in the SC-DMAP related to offshore wind development and enabling works to mitigate adverse environmental impacts at the project level
Governance, Implementation and Monitoring	This chapter outlines the implementation and governance framework proposed to accompany the SC-DMAP.	Yes – includes policies and objectives relating to governance and implementation.
Marine Environment and Biodiversity	Describes actions to meet the requirements of section 22 of the MAP Act relating to protected sites and environmental protection. Commits to continued application of existing NMPF environmental policies and legislative requirements. Addresses issues of protected sites and species, including future MPA.	Yes – includes overarching protection objectives and biodiversity specific objectives
Coexistence - Co-existence with Seafood, Aquauculture and Fisheries - Co-existence with Tourism and Recreation - Co-existence with Telecommunications - Co-existence with Marine Archaeological and Cultural Heritage	Sets out commitment to co-existence as part of SC-DMAP. Optimal site locations for offshore wind development are identified within which future offshore windfarms will be required to co-exist with existing maritime uses and activities.	Yes – includes co-existence objectives
Land and Sea Interaction	The MSP Directive and the MAP Act 2021 requires land and sea interaction to be taken into consideration in member states maritime spatial plans. This chapter includes the objectives to achieve this.	Yes – includes objectives for land sea interactions
Ports and Harbours	Accelerated deployment of offshore wind generation in Ireland and the achievement of Government's wider renewable energy and decarbonisation objectives will require national and regional port infrastructure. This chapter includes the objectives to achieve this.	Yes – includes objectives for ports and harbours
Shipping	This chapter includes objectives in relation to shipping, by seeking to minimise impact on any shipping lanes or shipping navigation for ports and harbours as a result of the SC-DMAP.	Yes – includes objectives for shipping

Section	Content	Suitable for Assessment?
Transmission System Infrastructure	The realisation of Ireland's considerable ORE resource will require the establishment of an increasingly sophisticated integrated network of offshore and onshore electricity transmission infrastructure. This chapter includes the objectives to support this.	Yes – includes objectives for the transmission system
Economic and Employment Growth Potential	Implementation of the SC-DMAP is expected to generate significant associated economic and employment opportunities. This will be provided through the substantial inward investment in regional and local coastal community economies associated with the establishment of a transparent pipeline of future offshore wind developments off the South Coast. This chapter includes the objectives to support this.	Yes – includes objectives for employment and economics.
Commitment to on-going local and regional community engagement.	Sets out commitment to continued comprehensive and regular engagement by Government, EirGrid and developers of proposed offshore wind and offshore transmission infrastructure with regional and local communities, as well as other key stakeholders, including fishers.	Yes – includes policy objectives for communications

3 STRATEGIC ENVIRONMENTAL ASSESSMENT METHODOLOGY

3.1 The SEA Process

The SEA Directive requires that certain plans and programmes, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is broadly comprised of the following steps, as outlined in Table 3-1.

Table 3-1: SEA Stages

SEA Step/ Stage	Purpose	Status
Screening	The purpose of this stage of the process was to reach a decision, on whether or not an SEA of the draft SC-DMAP was required.	Screening was undertaken in 2023 and determined that SEA of the draft SC-DMAP would be required.
Scoping and statutory consultation	The purpose of this stage of the process was to clarify the scope and level of detail to be considered in the environmental assessment. This was done in consultation with the defined statutory bodies for SEA in Ireland.	This stage was completed in Q3 2023.
Environmental assessment and consultation	The purpose of this stage of the process was to assess the likely significant impacts on the environment as a result of implementation of the draft SC-DMAP and consideration of reasonable alternatives. The output from this stage of the process is an SEA Environmental Report which records this assessment. Consultation on the draft SC-DMAP and Environmental Report are also part of this stage.	This stage is underway and is the subject of this report.
SEA Statement	The purpose of this stage of the process is to identify how environmental considerations and consultations have been integrated into the final plan culminating in the production of an SEA Statement.	To be published with final SC-DMAP in 2024.

3.2 Work Completed to Date

3.2.1 Screening

The SEA Directive applies to plans and programmes which are (i) prepared or adopted by a national, regional or local level and (ii) required by legislative, regulatory or administrative provisions.

Mandatory SEA is required for plans and programmes that are prepared for certain specified sectors, notably energy, and which set the framework for future development consent of projects listed in Annexes I and II to the EIA Directive. This is recognised in Chapter 2, Article 22(3) of the MAP Act 2021 which requires strategic environmental assessment process to be carried out in relation draft DMAP. Having regard to the above, it was determined by DECC that the draft SC-DMAP would be subject to SEA.

3.2.2 Scoping

Scoping was carried out and a Scoping Report was prepared in August 2023 to help inform statutory scoping. The Scoping Report outlined the geographical and temporal scope of the draft SC-DMAP and identified the scope and level of detail of the proposed environmental assessment. The scoping report confirmed the following:

- **Geographic Scope:** The entire geographical area of the draft SC-DMAP extends from the marine area stretching from the Administrative Boundary for local government areas on the South Coast bordering the northern boundary of the SC-DMAP area to the 80-metre depth contour and/or the edge of the Irish Exclusive Economic Zone (EEZ) and comprises a total geographical area of approximately 8,813

square kilometres.. The western boundary of the geographical area is based on the location of a military danger and restricted area defined by the Irish Aviation Authority, while the eastern extremity is the demarcation between the Irish Celtic Sea and Irish Sea, classified by the International Hydrographic Office.

- **Temporal Scope:** In line with the SEA Directive, short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects) will be considered during the assessment. For the purpose of this SEA, the short-term will consider the period up to 2030, and the medium to long-term horizon will consider the period up to 2050, to coincide with Ireland's net zero emissions target and the ORE ambitions as part of Programme for Government.
- **Environmental Scope:** The environmental topics in the SEA Directive that were scoped in for the assessment of the draft SC-DMAP following SEA scoping in consultation with the statutory consultees for the SEA were: Biodiversity, Flora and Fauna; Population and Human Health; Soils, Geology and Hydrogeology; Water; Air Quality; Climatic Factors; Material Assets; Cultural Heritage including Architectural and Archaeological Heritage; Seascape / Landscape; and the interrelationship between the above factors.

In line with the SEA Directive, specific environmental authorities were consulted on the scope and level of detail of the information to be included in the Environmental Report. The relevant statutory consultees that were consulted as part of the SEA Scoping phase for the draft SC-DMAP SEA were:

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

An on-line SEA Scoping Workshop was also held on the 1st September 2023 via Microsoft Teams. This was attended by members of Plan team, the SEA/ AA team and representatives from the EPA, NPWS, DECC, DHLGH, GSI, and DAFM. Issues discussed at the scoping workshop were:

- Reasons for choice of south coast for first DMAP location – explained that it is due to the presence of the EirGrid's grid infrastructure along the south coast that can support the development of one or two ORE projects at present.
- Potential for transboundary consultation beyond EU Member States. Reference made to Annex I of the Common Fisheries Policy Regulations for list of EU Member States that have access to geographical zones within the coastal bands of Ireland where fishing activities for certain species are pursued.
- The need to consider impacts of climate change such as coastal erosion.
- Concerns regarding the impacts on sea fisheries and aquaculture industry present within the DMAP study area.
- Consideration of fishing stocks under material assets given they are a State-owned resource. Consideration should also be given to the impacts on non-mobile species.
- Clarification of the need for project level Environmental Impact Assessment and Appropriate Assessment beyond SEA and AA of the SC-DMAP.
- Importance of recognising the positive impacts on certain environmental topics like air quality and biodiversity over long term as a result of ORE development in the SEA.
- Example of the windfarm in Copenhagen harbour raised in terms of communication with local communities.
- Consideration of using a buffer in the vicinity of the SPA that are high activity areas for the birds.
- Review timeline for DMAP confirmed as 6 years in line with MAP Act 2021. Requirement for SEA and AA of any review plan noted.

- Alternatives could look at to data collection to assist with ORE development in line with the future technological advancements.

Following the workshop, the environmental authorities had the opportunity to provide further written submissions on the SEA Scoping. Responses were received from the EPA. A summary of the issues raised from written scoping feedback are presented in **Table 3-2**.

Table 3-2: SEA Scoping Statutory Responses

Summary of Points Raised	How this Has Been Addressed in the Draft Plan / Environmental Reports
Environmental Protection Agency	
Comments on the Plan • Plan should be cognisant of other relevant plans including the marine plans and sectors operating within the marine environment. • Plan should include a clear commitment to integrate and implement the full suite of recommendations and mitigation measures to be developed and presented in the SEA ER and the NIS. • A chapter on SEA related Environmental Monitoring along with relevant environmental thresholds which will trigger remedial action should be included. • Implications of the Plan on Local Authority Plans should be clarified. • The Plan should take account of the areas identified in OREDP II for ORE development and consider the extent to which environmental constraints have played a part in defining these initial areas, as relevant to the Plan area.	• Draft plan will reference its consistency with National Policy and Guidelines • Draft plan will include a chapter on Implementation and Monitoring which will include the mitigation and monitoring from the outputs of the SEA and AA. • Draft plan will include a section on the DMAP identification process. • Local Authority Plans have been reviewed and officials consulted as part of the development of the draft plan and referenced within the draft plan where relevant to draft plan policy objectives. • SC-DMAP is a statutory plan which and has been determined by a very comprehensive environmental constraints analysis
Comments on the SEA ER • The SEA ER should assess the potential for likely significant effects associated with developing the different technologies proposed to be developed in the Plan area. • The SEA ER should include a figure showing the hierarchy of how the DMAP fits in with OREDP, climate action plan, marine planning framework and other national and regional plans/programmes and policies. • Consider the list of additional relevant plans and programmes presented. • Potential impact of altered tidal flow/ wave regimes on the sediment erosion/deposition regimes in coastal areas should be considered. • SEA could clarify how dumpsites that are offshore from estuarine or coastal areas are to be taken into consideration, in preparing and implementing the Plan. • The density of renewable energy developments that may be established, should also be a consideration as regards consideration of potential for cumulative effects and the environmental capacity to absorb such developments. • The extent of any coastal / estuarine and terrestrial environment such as onshore grid infrastructure to be considered could also be described. • It should be clarified whether it is proposed to exclude the location of offshore renewable devices in Natura 2000 sites or sites or areas protected under other national or international instruments from development. The requirements of Article 6 of the Habitats Directive	• The scope of the draft SC-DMAP has been established as fixed offshore wind, to enable accelerated achievement of Ireland's renewable energy objectives. No other technologies have been identified. • The additional plans and programmes have been considered in Chapter 4 of the SEA ER. • The impact of altered tidal flow/wave regimes on the sediment erosion/deposition regimes has been considered in Chapter 7 SEA ER in terms of assessment of alternatives and Chapter 8 SEA ER in terms of assessment of the preferred approach. • The SEA ER record known dump sites in chapter 5 of the SEA ER. • The potential for cumulative impacts is addressed in Chapter 8 SEA ER Assessment of the preferred approach and Chapter 9 SEA ER – Mitigation and Monitoring. • Linkages with coastal/estuarine and terrestrial supporting infrastructure is considered in Chapter 7 SEA ER – Alternatives and Chapter 8 SEA ER – Assessment to the extent possible. • It is not proposed to fully exclude ORE from Natura 2000 sites at this stage in the planning hierarchy. The constraints analysis prepared to inform the draft SC-DMAP and SEA ER has taken Natura 2000 sites into account but recognises that greater consideration is needed at project level for the mobile species for which a number of the designations relate. A draft NIS has been prepared to accompany the draft SC-DMAP and

Summary of Points Raised	How this Has Been Addressed in the Draft Plan / Environmental Reports
should be fully integrated into the environmental assessment. • Servicing locations for ORE arising from the Plan should be covered. Other harbours and ports within the plan area can act downstream service or maintenance hubs for ORE developments. This could provide opportunities for local employment and support for rural coastal communities.	an AA determination will be required before the draft SC-DMAP can be adopted. • Linkages with coastal/estuarine and terrestrial supporting infrastructure is considered in SEA ER Chapter 7 – Alternatives and Chapter 8 – Assessment to the extent possible.
General Comments on both Plan and SEA ER • A commitment requiring offshore renewable energy developments to fully take account of the relevant requirements of the WFD and MSFD should be included. • Both Plan and SEA should consider the requirement of further environmental monitoring where the potential for significant effects on water quality remains uncertain, even after mitigation being applied. • A review of the implementation arrangements and governance structures, including lines of responsibility for implementation and delivery, as well as provisions for interim review and progress reporting should be carried out. • The relationship between the Plan, the NMPF, OREDP, Grid Implementation Plan, NPF and the Southern Regional Spatial and Economic Strategy should be clarified. • Under the SEA regulations, Environmental Protection Agency; Minister for Housing, Local Government and Heritage; Minister for Environment, Climate and Communications; and Minister for Agriculture, Food and the Marine should be consulted. • Consider transboundary consultation on the draft plan with any relevant environmental authorities in relation to the exclusive economic zone. SEA protocol under the ESPOO Convention should be considered for any possible transboundary consultations with non-EU Member States. • The Plan and SEA should clearly set out the scope, time period covered by the Plan, remit and implementation related elements of the Plan. • Consideration should be given to whether the provisions for generation of 2GW offshore wind for green hydrogen production is also proposed for the Plan areas or what proportion of the 2GW may be proposed for this area. • The Government's long-term ambition for at least 30GW floating energy should also be considered, where relevant and appropriate to the Plan area. • Where specific measures will be implemented directly, further detail should be provided in the Environmental Report and Plan on the relevant environmental assessments to be carried out at the project stage and relevant mitigation measures to be applied, as appropriate. • SEA and Plan should describe the extent to which existing or planned onshore infrastructure will be taken into account, for example, availability or status of supporting grid connectivity or proposed upgrades to	• This requirement has been integrated into the SEA mitigation. • The monitoring proposals for water are included in Chapter 9 SEA ER and have been integrated into the draft SC-DMAP. • Draft plan will include a chapter on Implementation which addresses governance. • Draft plan will include a section on Consistency with National Policy and Guidelines. • The SEA Scoping has already contacted all the listed statutory environmental authorities. These will be contacted again directly to consult on the draft plan and environmental reports in due course. • The forthcoming draft SC-DMAP consultation will include transboundary engagements with neighbouring jurisdictions. • Draft plan will include a chapter on Implementation. • Draft plan identifies marine areas for offshore wind deployments by 2030, or as soon as possible thereafter, as well as for post 2030 deployment. Projects located in some or parts of these marine areas may ultimately not be directly connected to the onshore transmission system, with possible non-grid offtake solutions including but not limited to offshore renewable energy focused on the production of green hydrogen. • The draft SC-DMAP identifies marine areas exclusively for deployments of fixed offshore wind. It is possible that future DMAPs may address floating wind and other ORE technologies. The SEA will identify next steps to prepare for that expansion of scope i.e., studies/ surveys that would be needed to support a plan led approach to wider ORE technologies. • Recommendations for mitigation and monitoring will be provided in the SEAE R. • In-combination impacts with onshore grid infrastructure will be considered to the extent possible at this stage.

Summary of Points Raised	How this Has Been Addressed in the Draft Plan / Environmental Reports
existing grid infrastructure, substations etc., that will support offshore developments in the Plan area.	
Department of Housing, Local Government and Heritage	
Archaeology • The proposed plan area contains a rich underwater cultural heritage, including wrecks, archaeological objects underwater, submerged landscapes and marine built heritage structures and features. • Over 18,000 wrecks have been recorded to date in the Wreck Inventory of Ireland database and previously unrecorded wreck sites may await discovery in the area under consideration here. • Underwater cultural heritage should be a core consideration in determining the appropriate locations for offshore wind developments within the plan area • It is recommended that the principle of preservation in situ is enshrined in the Plan. • The Environmental Impact Assessment of the Plan should contain a detailed consideration of any potential effects on underwater cultural heritage.	• Noted. The SEA ER includes a detailed cultural Heritage baseline in chapter 5 which covers terrestrial, estuarine and marine heritage features. • The constraints analysis prepared to support development of the draft SC-DMAP has included a number of relevant datasets including wrecks. At project level, assessment will be supplemented by detailed survey work to inform the EIA of any project arising from the draft SC-DMAP. Previously unrecorded wreck sites would be identified at that stage of the assessment process. • Noted. The SEA ER includes a detailed cultural Heritage baseline in chapter 5 which covers terrestrial, estuarine and marine heritage features. • The principle of preservation in situ has been included in SEA ER Chapter 9 – Monitoring and Mitigation. • The environmental assessment of the plan contains an assessment of potential effects on underwater cultural heritage in SEA ER Chapter 7 – Alternatives and Chapter 8- Assessment. The assessment is by its nature strategic at the plan scale as detail of precise locations, activities and technologies are not yet available. Further assessment will supplement the desktop work undertaken at the SEA stage. • Draft plan will include policy objectives for co-existence with marine cultural and archaeological heritage to protect this heritage.
Department of Environment, Climate and Communications (DECC)	
Geological Survey of Ireland • Recommend that the GSI website be consulted for data sets and use of any data should be attributed correctly to Geological Survey Ireland. • GSI provided a list and supporting details of publicly available datasets useful to the environmental assessment.	• The Geological Survey Ireland (GSI) website and data have been used to inform the SEA. Information has been used in SEA ER Chapter 5 – Baseline; Chapter 7 – Alternatives and Chapter 8 – Assessment. • The list of datasets has been reviewed and all have been incorporated into the SEA. • As part of the process to establish the draft SC-DMAP, DECC has comprehensively subsequently engaged bilaterally with GSI.

3.3 Environmental Assessment

3.3.1 Assessment Approach

Strategic Environmental Assessment, as its name suggests, is set at a strategic level. Therefore, it is not possible for the baseline environment to be described (and assessed) in as much detail as could be done for a project-level environmental impact assessment. SEA instead uses a system of objectives to rationalise information for the purposes of assessment. The environmental assessment is also focussed at the level of detail contained within the draft plan.

In order to streamline the assessment process, this report has used broad themes, based on the environmental topics listed in the SEA Directive, to group large environmental datasets e.g. human health, cultural heritage, climate etc. Assigned to each of these themes is at least one high-level Strategic

Environmental Objective (SEO) that specifies a desired direction for change, e.g. reduce CO_2 emissions, against which the future impacts of the SC-DMAP can be measured. These high-level SEOs are then paired with specific assessment criteria. The environmental assessment includes a combination of qualitative and quantitative assessment and expert judgement. It also uses GIS to support the assessment including the use of sensitivity mapping and constraints and opportunities mapping.

3.3.2 SEA Environmental Report

Based on the legislation and guidance, the Environmental Report includes the information outlined in Table 3-3**.**

Table 3-3: Requirements of the SEA Directive and Relevant Section in Environmental Report

Requirement of SEA Directive (Article 5(1) Annex I)	Chapter of Environmental Report
An outline of the contents and main objectives of the plan or programme, or modification to a plan or programme, and relationship with other relevant plans or programmes.	Chapter 2: Content sand Main Objectives of the Plan and Chapter 4: Review of Relevant Plans, and Programmes
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental characteristics of areas likely to be significantly affected.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
Any existing environmental problems which are relevant to the plan or programme, or modification to a plan or programme, including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme, or modification to a plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 4: Review of Relevant Plans and Programmes
The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Chapter 8: Assessment of draft SC-DMAP
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme, or modification to a plan or programme.	Chapter 9: Mitigation and Monitoring
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information	Chapter 7: Consideration of Alternatives
A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme	Chapter 9: Mitigation and Monitoring
A non-technical summary of the information provided under the above headings	Non-technical Summary

3.3.3 Links Between the SEA and AA Process

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) obliges member states to designate Special Areas of Conservation (SACs) to protect and conserve habitats and species of importance in a European Union context. Article 6 is one of the most

important articles of the Habitats Directive in determining the relationship between conservation and site use. Article 6(3) requires that "*any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment (AA) of its implications for the site in view of the site's conservation objectives*."

The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). In the context of the draft SC-DMAP, the governing legislation is European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). In addition to the requirement for Appropriate Assessment, under these regulations, Regulation 27 sets out the general duties of public authorities relating to nature conservation and the Birds and Habitats Directives. Public authorities are obliged, when exercising their functions, to take appropriate steps to avoid the deterioration of natural habitats and the habitats of species in European Sites, as well as disturbance of species for which a site has been designated insofar as this disturbance could be significant in relation to the objectives of the Habitats Directive. An NIS has been prepared for the draft plan and an Appropriate Assessment will be carried out and a determination made prior to adoption of the final plan.

Assessment and analyses in the NIS have been used to guide the development of the alternatives to be considered as part of the SEA. The NIS also feeds directly into the assessment of biodiversity, flora, and fauna in this SEA. Other aspects of the Habitats Directive, in addition to Art. 6(3) and 6(4), in relation to the conservation, protection and management of (European) sites are also noted including Art. 6(1) and Art 6(2). The EU considers the role of these supporting sub-articles in Art. 6 as: "*Article 6(1) makes provision for the establishment of the necessary conservation measures and is focused on positive and proactive interventions. Article 6(2) makes provision for avoidance of habitat deterioration and significant species disturbance. Its emphasis is therefore preventive*.''

Article 10 of the Habitats Directive refers to features of the landscape outside designated sites which are of major importance for wild flora and fauna. It is noted that the requirements of Article 10 of the Habitats Directive are not specifically considered under the AA (except in so far as they support a qualifying feature) but it is noted such features have been considered in the SEA under the broader heading of Biodiversity, Flora, and Fauna. Article 12 of the Habitats Directive refers to protection of species listed in Annex IV. This requires measures to establish a system of strict protection in their natural range. The requirements of Article 12 are not specifically considered under the AA (except in so far as they support a qualifying feature) but it is noted such features have been considered in the SEA under the broader heading of Biodiversity, Flora, and Fauna.

3.3.4 Difficulties Encountered

The following difficulties and data gaps were encountered:

- The SEA is based on robust data analysis using best publicly available datasets and is necessarily focussed at a sub-national plan scale. While four Maritime Areas for proposed future offshore wind development are identified in the draft SC-DMAP, they cannot include any project level design information at this point in time, i.e. there is no assumption on turbine heights, location, layout etc. This plan level assessment therefore does not in any way remove the absolute need for detailed project level assessments for proposed future offshore wind developments within these broad Maritime Areas.
- Details for proposed Marine Protected Areas (MPAs) are not available and so could not be considered as part of the constraints analysis. Consideration of ecosystem services has been included as part of the SEA.
- There was a lack of quantitative data for some topics (e.g. bird migratory routes). Regional surveys have been proposed as mitigation to address this and ensure regional information is available for in-combination and cumulative assessments for projects seeking development permission projects arising from the SC-DMAP.
- Multiple datasets and data sources presenting similar information were obtained from multiple sources. This presented the potential for double counting. This was taken into account in the constraints analysis methodology applied.
- A verified dataset for activity / location of fishing vessels less than 12 metres in length is not available and could not be integrated into the constraints analysis.

- There are multiple Departments and Agencies tasked with management roles for the marine and information is not always transparent and/or for public access which is challenging for baseline collation.
- Some data is only available in point rather than polygon data making it difficult to layer for constraints purposes.

3.4 SEA Statement

The main purpose of the SEA Statement is to provide information on the decision-making process and to document how environmental considerations, i.e. the views of consultees and the recommendations of the Environmental Report, have been considered in the draft plan and have influenced the final plan. The SEA Statement illustrates how decisions were taken, making the process more transparent. The SEA Statement for the SC-DMAP will be compiled in parallel with finalisation of the plan in due course and will be made available with the final plan.

3.5 Public Participation Activities

In August 2023, DECC launched a non-statutory public consultation on its initial DMAP Proposal for Offshore Renewable Energy off the South Coast. This period of consultation was later extended, resulting in nine-and-a-half weeks of public consultation, that concluded on in October 2023, in order to facilitate enhanced participation of interested persons. The public consultation period included several opportunities for the public to engage both in-person and online. Consultation was facilitated through six public drop-in meetings, one-to-one consultation meetings, two regional workshops, two webinars and one hybrid online / in-person ORE sector seminar.

Over the course of the focused period of public consultation, DECC officials and their appointed consultants, including a local Fisheries Liaison Officer (FLO), engaged with communities, individuals and stakeholders. This included them meeting / engaging with fishers, offshore renewable energy developers, local businesses, tourism & leisure operators, Local Authorities, environmental groups, and individuals. All stakeholders were invited and encouraged to make submissions through participating in community outreach drop-in meetings, scheduled meetings, regional workshops, webinars, online surveys or submitting written feedback via email or post.

Almost 2,000 people participated in the public consultation process with the majority of responses coming from the southern coastal counties of Cork, Waterford, and Wexford. A high-level summary is presented below, and the full *Consultation Findings Report* is available under separate cover. Feedback relevant to environmental matters and the SEA processes has been considered in the SEA Environmental Report.

- There was broad agreement that development of ORE off the South Coast will deliver benefits, economically, socially, and environmentally, and that securing a sustainable, local source of energy is essential for Ireland's future.
- There was widespread support for a Government plan-led approach and that this was optimum rather than the developer-led approach, particularly amongst communities.
- There was strong appreciation for DECC's efforts to engage with people in one-to-one meetings as well as community drop-in meetings, regional workshops, and webinars over the nine-and-a-half-weeks period of public consultation. Nevertheless, some stakeholders requested even more engagement and awareness-raising activities regarding the DMAP proposal.
- The fishing community and their representative groups were engaged with directly by a project FLO. They expressed concern at the potential impact on historical/sensitive fishing grounds, their livelihoods, and possible effects that development resulting from the SC-DMAP may cause.
- Potential visual impacts of future ORE arrays off the South Coast was a recurring theme in written submissions and at meetings. There were many calls for the SC-DMAP and subsequent developments to be located over 22km offshore, in particular from local people in the study area, as well as from the other relevant sectors.
- Environmental groups, fishers and ORE developers all expressed the need to align with the MPA legislative process and designations, along with calls for consideration of existing designated areas.

- Data and the multi-criteria analysis required for the designation of the SC-DMAP was raised in feedback across various stakeholder groups. Suggestions included that DECC consider leveraging existing data and undertake new studies to collect the required data. There were also suggestions on the types of data which should be gathered to inform the process.
- The fishing community and their representative groups were engaged with directly by a project Fisheries Liaison Officer (FLO). They expressed concern at the potential impact on historical / sensitive fishing grounds, their livelihoods and possible effects that development resulting from the SC-DMAP may cause.
- Potential visual impacts of future ORE arrays off the South Coast was a recurring theme in written submissions and at meetings. There were many calls for the SC-DMAP and subsequent developments to be located over 22km offshore, in particular from local people in the study area, as well as from the tourism and fisheries sectors.

4 REVIEW OF RELEVANT 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*". Therefore, the main objectives of the draft plan must be outlined along with the "*relationship with other relevant plans or programmes*". This chapter sets out how the draft plan interacts with other key relevant plans and programmes and their environmental protection objectives.

4.2 Methodology

As the draft plan is a sub-national scale marine plan, this review has focused on relevant regional, national, European and international plans and programmes and environmental protection objectives. The emphasis in this section is on relevant plans, programmes relating to key areas of maritime planning, offshore renewable energy, climate change, sustainability, water quality, biodiversity and nature, landscape/seascape and land use however other plans and programmes from related sectors and topics are also discussed.

In order to set a framework for exploring the relationship between the draft plan and key plans/ programmes the following two questions were borne in mind:

- Does the draft plan contribute to the fulfilment of environmental protection objectives set in other key plans/ programmes; and
- To what degree are the environmental protection objectives/ measures set in these other key plans/ programmes impacted by the draft plan?

In addition, this chapter seeks to take on board comments made on plans/programmes during the SEA scoping stage.

4.3 Relationship with Other Plans and Programmes

4.3.1 Sustainability

The Sustainable Development Goals (SDGs) represent a focal point for the 2030 Agenda for Sustainable Development. They were adopted in 2015, building on the framework established by the UN Millennium Development Goals (MDGs) in the preceding period 2000-2015. Where the MDGs were focussed at developing countries, the SGDs were intended to be universally applied. Ireland is a signatory to the SDGs. The 17 goals are shown in **Figure 4.1**. These goals are mirrored through EU strategies such as Europe 2020 Strategy and the European Regional Development Fund (ERDF) which emphasise smart, sustainable, and inclusive growth. The 2030 Agenda for Sustainable Development encourages countries to develop national responses to the SDGs and incorporate them into planning and policy which Ireland has done in the marine planning sector through the NMPF as the top tier plan. The SC-DMAP is part of the Government's efforts to squarely incorporate relevant SDG's (set out below) into the next tier of marine planning and policy.

Of particular relevance to the marine environment, **Goal 14, Life Below Water**, states: *Conserve and sustainably use the oceans, seas and marine resources for sustainable development:*

- *14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution*
- *14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans*
- *14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.*

Figure 4.1: United Nations Sustainable Development Goals (Source: United Nations)

Goal 7, Affordable and Clean Energy is also relevant to the draft SC-DMAP that states: *Ensure access to affordable, reliable, sustainable and modern energy for all:*

- *7.1 By 2030, ensure universal access to affordable, reliable and modern energy services*
- *7.2 By 2030, increase substantially the share of renewable energy in the global energy mix*

In October 2022, DECC published the second **SDG National Implementation Plan 2022-2024** which sets out the objectives, actions, and measures required to increase Ireland's ambition and strengthen implementation structures to achieve the Sustainable Development Goals. The plan includes five strategic objectives:

1. To embed the SDG framework into the work of Government Departments to achieve greater Policy Coherence for Sustainable Development;
2. To integrate the SDGs into Local Authority work to better support the localisation of the SDGs;
3. Greater partnerships for the Goals;
4. To further incorporate the principle of Leave No One Behind into Ireland's Agenda 2030 implementation and reporting mechanisms; and
5. Strong reporting mechanisms.

These objectives relate to the outcome of the draft SC-DMAP as it will be developed for the purposes of sustainable use of the marine environment and co-existence of ORE with other maritime usages.

The **EU Multi-annual Financial Framework & Next Generation** is a multiannual financial framework covering the period of 2021-2027 providing budgetary opportunities, including the EU Just Transition Fund, to support such investments and fight climate change, biodiversity loss, resource depletion and pollution in the EU Member States and globally. The framework will likely support the activities arising from the draft SC-DMAP in line with NMPF objective to "*support Ireland's decarbonisation journey through increased use of ORE while delivering significant and sustained benefits, import substitution, fiscal return, national and local economic development and technology learning".*

The **Whole of Government Circular Economy Strategy** is Ireland's first national circular economy strategy. It is a key addition to Government's drive to achieve a 51% reduction in overall greenhouse gas emissions by 2030 and to get on a path to reach net-zero emissions by no later than 2050, as per commitments in the Programme for Government and the Climate Action and Low Carbon Development (Amendment) Act 2021.

The purpose of this high-level, all-of-government strategy is to set a course for Ireland to transition across all sectors and at all levels of government toward circularity. Policy coherence across Government will ensure all policy levers are set towards the same, sustainable objectives. The draft SC-DMAP recognises that ORE will be a key enabler for Ireland to achieve its national climate and energy objectives under Ireland's Climate Action and Low Carbon Development Act 2015-2021. Allied to this is the **Circular Economy Programme 2021-2027** which sets out the actions for Ireland's move to a circular economy, where businesses, citizens and the public sector reduce resource use, prevent waste and achieve sustainable economic growth. Available, affordable green energy is a key underpinning factor to support this transition

4.3.2 Environmental Assessment

The principle statutory environmental assessments of relevance to the draft SC-DMAP are Strategic Environmental Assessment, Environmental Impact Assessment and Appropriate Assessment.

The **Strategic Environmental Assessment (SEA) Directive 2001/42/EC** on the assessment of the effects of certain plans and programmes on the environment, as transposed into Irish law is being applied to the draft SC-DMAP. It has the objective to provide a high level of protection to the environment and contribute to integrating environmental considerations into the preparation, adoption and implementation of plans and programmes to promote sustainable development.

The **Environmental Impact Assessment (EIA) Directive 2011/92/EU**, amended by Directive 2014/52/EU, requires member states to carry out assessments of the environmental impact of certain public and private projects before they are permitted. It provides for environmental protection and transparency with regard to the decision-making process. The application of the EIA process, as transposed into Irish law, will be required for offshore wind farms and associated infrastructure developed under the draft SC-DMAP.

The **Habitats Directive 92/43/EEC (alongside the Birds Directive 2009/147/EC),** as transposed into Irish law, requires that plans and projects engage in the AA process and an AA determination be made before a plan is adopted or a project is given development consent. The directive seeks to ensure no adverse effects on the integrity of any European site (which includes Special Areas of Conservation (SAC) and Special Protection Areas (SPA)), alone or in combination with other plans and projects. Other aspects relating to conservation of wild flora and fauna, designation of sites and features of interest etc. are also addressed in these directives and through transposing legislation. The draft SC-DMAP recognises the relevance of obligations under the Habitats and Birds Directive, and AA is ongoing in parallel to inform the draft SC-DMAP. An AA determination will be made by the Minister prior to adoption of the plan.

4.3.3 Marine Planning

At EU level, the **EU Marine Spatial Planning Directive 2014/89/EU** sets out a legal requirement for member states to develop and implement a Marine Spatial Plan (MSP) by 2021. The directive provides a framework for *"maritime* spatial planning aimed at promoting sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources". The SC-DMAP will be made according to the legislative requirements provided for in the Maritime Area Planning Act 2021 and will form part of the National Marine Planning Framework.

The **Marine Strategy Framework Directive (MSFD) 2008/56/EC** is also relevant. It has adopted an ecosystem-based approach to protect and manage the marine environment. Ireland has developed a Programme of Measures that will meet targets set in order to achieve or maintain good environmental status (GES). Under MSFD, marine waters must be assessed against an agreed set of standards across a number of important environmental areas (e.g. biodiversity, fish stocks, and contaminants). Based on the assessment, appropriate environmental targets and indicators must be set and programmes of measures put in place to reach GES. A number of phases have been carried out to assist with implementation by Ireland of the requirements of the MSFD. An initial assessment of Irish marine waters characterised the current status of marine waters with reference to 11 descriptors for GES. The second phase established and implemented the monitoring programmes needed for the continuing environmental status assessment of marine waters. The final phase involved development of a programme of measures (POMs) to assist in achieving/ maintaining GES (see **Figure 4.2**). The SC-DMAP will have regard to the 11 descriptors and the targets set for them.

Figure 4.2: Good Environmental Status (Source: OSPAR Environment Strategy)

The **European Communities (Environmental Liability) (Amendment) Regulations 2015 S.I. No. 293 of 2015** extended the scope of existing environmental liability regulations to cover liability for environmental damage within the area covered by MSFD, sitting alongside the Water Framework Directive but the focus is on the marine environment.

At national level, **Harnessing Our Ocean Wealth (HOOW)** established a high-level vision, goals and targets for the ocean economy which included that the ocean wealth would be a key element of economic recovery and sustainable growth. This was followed by the first national **Marine Planning Policy Statement (MPPS)** which was published in 2019 on a non-statutory footing, pending the development of the **NMPF** and the introduction of the new marine legislation in the form of the MAP Act 2021. The MPPS sets out the vision for the future development of our marine planning system and the overarching policies and principles the Government expects marine planning bodies and other public bodies that engage with the marine planning system to observe (e.g., public engagement, transparency, governance, environmental assessment, climate action, social and economic benefit). The MPPS and subsequent updates will inform and influence the roll out of the draft SC-DMAP. Building on the MPPS, the NMPF creates an overarching framework, for marine decision-making that is consistent, and evidence-based and which parallels the National Planning Framework (NPF). It sets out marine protection and sectoral objectives, including for ORE, which directly inform lower tier plans which will articulate the geographic and spatial aspects of marine planning. The Government approach to spatial designation for future activities is set out in the **MAP Act 2021**. This legislation recognises that DMAPs are a fundamental consideration for marine spatial planning in the development of the NMPF. The SC-DMAP will be established "*according to an ecosystem-based approach with the objectives of the NMPF, which include supporting ORE development as a key decarbonisation driver, as well as its further alignment with the EU MSP Directive*". The draft SC-DMAP will have regard to the NMPF, particularly the Overarching Environmental Objectives on development in the marine and coastal area as they directly relate to the sectoral activities and are supportive of sustainable practices.

The **Offshore Renewable Energy Development Plan (OREDP)** sets out key principles, policy actions and enablers for delivery of Ireland's significant potential in Offshore Renewable Energy. The OREDP provides a framework for the sustainable development of Ireland's offshore renewable energy resources and is currently guiding the State's policy approach to achieving 5 GW of ORE by 2030, mostly through fixed-bottom wind turbines in relatively shallow waters of up to 70 metres off the east and southeast coasts. This aligns with the draft SC-DMAP. The draft OREDP II considers advances in technology to assess the ORE potential in Irish waters.

The draft **Offshore Renewable Energy Future Framework (OREFF) Policy Statement 2024** is currently in finalisation after a period of consultation. This reiterates Ireland's ambitious targets of achieving installed ORE capacity targets of 5 GW by 2030, 20GW by 2040; and at least 37GW in total by 2050. It also addresses: the project development process including the use of DMAPs; the commitment to significantly scaling up the collection of data on the maritime environment to support the ORE DMAP establishment process and the development of associated environmental assessments; grid and port needs for domestic demand and supply; export potential; and economic benefits. The SC-DMAP approach and objectives will progress in line with the policy contained in the OREFF Policy Statement.

The obligations placed on Ireland by the EU Marine Spatial Planning Directive 2014/89/EU extends to **other Member States and other jurisdictions**, notably the UK have also prepared marine spatial plans which have relevance to the SC-DMAP. Of particular note are those for Wales and Southwest England. The Welsh plan mirrors the approach taken in the NMPF and includes overarching policy for Living Within Environmental Limits. There are a number of important ecological areas noted on the western Welsh coast which will be of note for project ORE developments arising from the SC-DMAP. Wales has identified a large area for potential wave energy in the sea between the southeast coast of Ireland and Wales up to their EEZ. Resource areas identified as technically suitable for wind are also shown closer to their coastline. Wave, tidal and fixed wind areas are noted near the Bristol and Plymouth channels in the South West England Marine plan. Similar to Wales the plan also includes policy on living within environmental limits and specifically recognises the need for cross-border cooperation.

4.3.4 Land Planning

The **National Planning Framework (NPF)** is a national document to guide at a high-level strategic terrestrial planning and development for the country over the next 20 plus years (see **Figure 4.3**). The NPF, together with the National Development Plan (NDP), sets the context for each of Ireland's three regional assemblies to develop their Regional Spatial and Economic Strategies taking account of and co-ordinating local authority County and City Development Plans in a manner that will ensure national, regional, and local plans align. The NPF sets out a high-level vision to shape the future growth and development of Ireland to 2040 and, expressed as ten National Strategic Outcomes (NSOs) a shared set of national goals and benefits that the plan can deliver if implemented according to the identified National Policy Objectives (NPOs).

Figure 4.3: National Strategic Outcomes (Source: NPF)

Of particular relevance is Objective 8, which underpins the requirement for a transition to a low carbon, climate resilient society. The draft SC-DMAP feeds directly into achievement of this objective. Other objectives of direct relevance are NSO 9 in relation to sustainable use of resources and NSO 7 on enhanced amenity and heritage. These must be balanced with the delivery of the draft SC-DMAP, particularly in relation to coastal communities that directly interface with the SC-DMAP area. The NPF is currently undergoing a revision which is itself subject to SEA and AA processes. Mitigations relevant to ORE from this revision will need to be considered in the final SC-DMAP.

The **National Development Plan 2021-2030** outlines the investment priorities which underpin the NPF and the 10 NSO referenced in Figure 5-2. The NDP includes investment not only in ORE development but also related critical infrastructure of onshore and offshore grid, transport cables and ports. Integration of these considerations into the draft SC-DMAP will be required for a full assessment of the implications of the draft SC-DMAP on the environment.

At a regional level, the NPF and NDP are expressed through the three **Regional Spatial and Economic Strategies (RSES)** of the Eastern and Midlands, the Southern and the Western and Northern regions. The RSES provide the roadmap for effective regional development and support the delivery of the NPOs contained in the NPF at the regional level. They in turn inform lower-level planning (i.e. County Development Plans and Local Area Plans). In the context of the draft SC-DMAP, the Southern Region is the relevant RSES. It provides a long-term, strategic development framework for the future physical, economic and social development of the Southern Region. It includes Metropolitan Area Strategic Plans (MASP) for Cork, Limerick and Waterford and a regional strategy for key towns, towns, villages and rural areas. The RSES for the Southern Region supports the marine economy and future regional and local marine plans. In addition, the Southern Region RSES contains several Regional Policy Objectives (RPO) which focuses on marine and coastal assets, including:

- Marine Economy: It is an objective to ensure alignment, and consistency between land use and ocean-based planning, and to ensure co-ordination, which supports the protection of the marine environment and the growth of the marine economy.
- Maritime Spatial Planning Consistency and Alignment: It is an objective to support the integration of different uses in the marine environment and ensure consistency and alignment between high level plans such as the National Maritime Spatial Plan, regional based approaches to maritime spatial planning and localised coastal management plans and local integrated coastal zone management plans. It is important to be cognisant of the need to promote cross-boundary management of coastal areas within the region. Development of any plans in coastal zones should be informed by the relevant Strategic Flood Risk Assessment.
- First Mover under Maritime Spatial Planning: It is an objective to support the sustainable development of the potential of the marine environment to foster opportunities for innovation in the maritime Economy and drive forward the Region as a first mover under Marine Spatial Planning while preserving the environmental and ecological conservation status of our marine natural resource. Initiatives arising from this objective shall be subject to robust feasibility and site selection, which includes undertaking flood risk assessment and explicit consideration of likely significant effects on European Sites and potential for adverse effects on the integrity of European sites in advance of any development.
- Marine Resource and Blue Economy: It is an objective to support the development of new coalitions amongst productive sector enterprises, coastal communities and public agencies to support the sustainable development of the marine resource and Blue Economy. Any supports arising, which result in further expansion of, or new enterprise will be subject to the outcomes of the required appraisal, planning and environmental assessment processes.
- Fishery Harbour Centres and Local Authority Harbour: It is an objective to seek investment in the sustainable development of infrastructure improvements to Fishery Harbour Centres and Local Authority Harbours in the Southern Region. Robust site selection and environmental feasibility and assessment is required in advance of seeking investment.
- Renewable offshore energy: To promote regional cooperation in terms of offshore renewable energy development, environmental monitoring and awareness of the benefits of realising the region's offshore energy potential. Initiatives arising from this objective shall be subject to robust feasibility and site selection, which includes explicit consideration of likely significant effects on European Sites and potential for adverse effects on the integrity of European sites in advance of any development.

Specific policies relating to landscape and biodiversity are also relevant in the Southern RSES including but not limited to.

- Promote biodiversity protection and habitat connectivity both within protected areas and in the landscape through promoting the integration of green infrastructure and ecosystem services, including landscape, heritage, biodiversity and management of invasive and alien species in the preparation of statutory and non-statutory land-use plans. The RSES recognises the role of the National Biodiversity Data Centre through its Citizen Science initiatives;

- Support local authorities to work with all stakeholders to conserve, manage and where possible enhance the Regions natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the Region.

A policy to develop a regional landscape character map was also included in the Southern RSES however this has not been delivered to date.

At county and city level, the development plans relevant to the draft SC-DMAP are the Wexford County Development Plan (CDP) 2022-2028 , Waterford City and County Development Plan 2022-2028, Cork County Development Plan 2022-2028, and Cork City Development Plan 2022-2028. The 2021 Act also requires local authorities to prepare **Local Authority Climate Action Pans (LACAPs)** and formal instruction was issued by the Minister of the DECC in February 2023 to all local authorities to prepare their plans, with guidelines prepared to assist LAs in their preparation.

The **Wexford County Development Plan 2022-2028** includes Map 2a which identifies the natural heritage of the county. Map 3 delineates the coastal zone including coastal settlements. These maps are supported by a policy base which is relevant to aspects of the SC-DMAP which include Chapter 2 Climate Action; Chapter 10 Environmental Management; Chapter 11 Landscape and Green Infrastructure and Chapter 12 Coastal Zone Management and Marine Spatial Planning and Chapter 13 Conservation and Heritage. Chapter 12 in particular addresses the CDP alignment with the NMPF, highlighting in Table 12-1 the specific CDP policies as they relate to the NMPF high level objectives and key sectors / activities.

The **Waterford County and City Development Plan 2022-2028** includes several policy areas of relevance to the draft SC-DMAP. Specifically, it includes Map 5, Natural Heritage Map: Landscape and Seascape Character Assessment which was undertaken to inform the development of the CDP. This provides map based and policy text in relation to protected views and designated sites. It also characterises areas of highest sensitivity and those capable of accommodating developments without loss of overall character. Specific policies in support of protected landscape views and designated sites for biodiversity are also included and must be considered in the overall assessment of impacts from the SC-DMAP.

The **Cork County Development Plan 2022-2028** prioritises the protection and enhancement of biodiversity and natural heritage as a core component for the development of green and blue infrastructure and this is addressed in Chapter 11 Water Management, Chapter 14 Green Infrastructure and Recreation and Chapter 15 Biodiversity and Environment. Chapter 7 focuses on Marine Spatial Planning and Integrated Coastal Management and aims to identify coastal areas that may have particular coastal zone management requirements, following the adoption of the NMPF. Of particular relevance to the SC-DMAP is also Chapter 13 of the Plan that aims to facilitate and support investment in sustainable energy production and infrastructure in Cork to meet the future energy needs, while transitioning to a low carbon economy. In terms of offshore wind energy, the plan recognises the 2030 national targets for ORE and the potential for County Cork in providing significant infrastructure which will support the development of ocean and offshore wind energy. The need for land-based infrastructure to support the assembly, deployment, and maintenance of the offshore energy structures is recognised under objective ET-13-16 of the Plan, as is the need for an integrated approach to the use and management of the coastal zone and coastal resources.

The **Cork City Council Development Plan 2022-2028** covers objectives relevant to the SC-DMAP including those relating to Renewable and low carbon energy, International and National Climate Change Legislation, Policy and Guidance, and the Maritime Economy.

4.3.5 Water

The **Water Framework Directive (WFD) 2000/60/EC** came into force in December 2000 and establishes a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater. The key environmental protection objectives are:

- Prevent deterioration of the status of all bodies of surface water and groundwater;
- Protect, enhance and restore all bodies of surface water and groundwater with the aim of achieving good status by the end of 2027 at the latest;
- Protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status; and

- Achieve compliance with the requirements for designated protected areas (which includes Designated Shellfish Waters).

Compliance with these objectives will be relevant for the draft SC-DMAP. The mechanism under the WFD by which these objectives are to be achieved is through the adoption and implementation of **River Basin Management Plans (RBMP)** and **Programmes of Measures (PoM).** The 2nd cycle RBMP covers the period 2018-2021 and its Programme of Measures are being implemented by local authorities. The 3rd Cycle Plan is in preparation and will cover the period to 2027.

The WFD subsumed the **Shellfish Waters Directive 2006/111/EC** which aims to protect or improve Ireland's shellfish waters in order to support shellfish life and growth. **Shellfish Pollution Reduction Programmes (PRPs)** for a number of these designated shellfish areas along with supporting Characterisation Reports for each shellfish area were prepared. The actions specified in the PRPs are derived from the PoM outlined in the WFD first phase of River Basin Management Planning, reflecting the common objective to improve water quality in the two Directives. In addition, designated shellfish areas are part of the WFD Register of Protected Areas, providing a link between the PRPs, River Basin Management Planning and the draft SC-DMAP. The draft SC-DMAP should have regard to the RBMP and Catchment Management Plans in terms of providing co-existence of ORE with fisheries and seafood production. The following sites are within / adjacent to the draft SC-DMAP: Bannow Bay, Waterford Harbour, Dungarvan Harbour, Ballymacoda Bay, Oyster Haven, Kinsale, Cork Great Island North Channel and three sites at Rostellan. The draft SC-DMAP has considered these sites in its constraints analysis.

The Office of Public Works (OPW) have functions and responsibilities in relation to coastal protection and coastal flooding including undertaking risk assessments associated with coastal flooding and coastal erosion; provision of an advisory service in relation to coastal flooding and coastal erosion to support the preparation of annual coastal protection funding programmes, coordination of the **Catchment Flood Risk Assessment and Management (CFRAM) programme**; and maintenance of coastal protection schemes constructed under the Coast Protection Act, 1963, as amended. As part of the CFRAM, **Flood Risk Management Plans (FRMP)** have been developed for 29 geographic areas, including several management areas within the SC-DMAP. The draft SC-DMAP covers the following management areas: Carrigaline, Cork City, Passage West, Glanmire, Midleton and Ballynacorra, Youghal and Dungarvan. The FRMPs set out the feasible range of flood risk management measures proposed for their respective river basins. The draft SC-DMAP has considered these sites in the constraints analysis.

The **Dumping at Sea Act 1996,** as amended, is of relevance to the draft SC-DMAP, due to the direct impacts from siting of infrastructure. The EPA is the competent authority for issuing and enforcing Dumping at Sea permits. The draft SC-DMAP has considered these sites in its constraints analysis.

4.3.6 Biodiversity and Nature Conservation

Ireland is a party to the **UN Convention on Biological Diversity** which includes five Strategic Goals and 20 Aichi Biodiversity Targets. The strategic goals and their associated targets aim to address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; reduce the direct pressures on biodiversity and promote sustainable use; to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; enhance the benefits to all from biodiversity and ecosystem services; and enhance implementation through participatory planning, knowledge management and capacity building. A 2019 report on Irelands progress toward achieving the goals and targets indicates some progress is being made toward the targets but there is more work to do. Target 6 is particularly relevant to the draft SC-DMAP as it addresses the sustainable management of marine living resources requiring that "*all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem-based approaches…"* Target 11 is also relevant identifying the need for protection of coastal and marine areas and ensuring they are through effectively and equitably managed and integrated into the wider landscapes and seascapes.

The **EU Biodiversity Strategy to 2030** aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate, and the planet. Following the COVID-19 pandemic, this updated policy aims to build resilience to future threats, including climate change, security of food supplies, forest fires, outbreaks of disease and combating the illegal trade in wildlife. Furthermore, there is an intention to increase the Natura 2000 network which will put forward a proposal for an EU restoration plan. Implementation will be assisted by better tracking of progress, improving knowledge transfer, and emphasising 'respect for nature' in public and business decision-making. The plan includes a target to legally protect a minimum of 30% of EU's seas and a similar percentage of land area. It also includes a target for nature restoration including no deterioration in

conservation trends and status of habitats and species and at least 30% showing favourable conservation status or a positive trend toward this. In keeping with the ocean health policies in the NMPF, protection, enhancement and restoration of marine biodiversity will be an important focus for the draft SC-DMAP.

The proposed **EU Nature Restoration Law** aims to address the severe decline in biodiversity across the EU and to return ecosystems to good conservation condition. The rules aim to set a binding target at EU-level where member states will have to enact restoration measures that cover at least 20% of the land and sea area of the EU by 2030. For those ecosystems that require restoration, measures must be put in place by 2050. The law is now to be adopted by the Council before being published and entering into force. The principle of restoration has been reflected in the draft SC-DMAP through the application of an ecosystems approach to identification of broad Maritime Areas, along with integration of robust mitigation from both the SEA and AA processes being applied to inform the draft plan.

Article 13.4 of the **Marine Strategy Framework Directive (MSFD)** requires that a coherent and representative network of spatial protection measures including Marine Protected Areas (MPAs) be put in place where appropriate in order to achieve or maintain the good environmental status of our national and shared maritime area. MPAs may take a wide variety of forms including the incorporation of existing SPA and SACs under the Birds or Habitats Directives where measures are put in place to restrict certain human activities to protect vulnerable species and habitats. MPAs may also be established under Article 11 of the Common Fisheries Policy which may designate areas where certain types of fishing or all fishing is prohibited or limited to protect commercial fish stocks. MPAs can also consist of new types of protected areas or may cover species or ecosystems not identified under the Birds or Habitats Directive but to which MSFD applies. In such MPAs some or all human activities may be restricted or limited some or all of the time. As well as providing measures to protect the environment, MPAs may also incorporate measures to protect localised social, cultural, or economic activities that are deemed important (such as traditional fishing, aquaculture or seaweed harvesting methods). A 2020 report[3] by the Marine Protected Area Advisory Group for DHLGH, into expanding Irelands marine protected areas notes with regard to MSP that: *Implementing an ecosystem-based approach to the management of maritime activities is an important part of securing healthy marine ecosystems. Member States are also required to identify the spatial and temporal distribution of relevant existing and future activities and uses in their marine waters during the development of maritime plans. One of the uses to be considered is nature and species conservation sites and protected areas.* In July 2022 approval was given by the relevant Ministers for a general scheme to provide for MPAs in Ireland with a commitment to designate a network of up to 30% of our maritime area as MPAs by 2030. The identification of MPA has not yet been completed and as such the draft SC-DMAP cannot take them into account however the application of an ecosystem-based approach to identification of areas suitable for ORE in the draft SC-MAP has been used to address this.

The **Birds and Habitats Directives** form the cornerstones of EU biodiversity policy. The Birds Directive aims to protect all naturally occurring wild bird species present in the EU and their most important habitats. In the first instance all Member States must designate SACs under the Habitats Directive and SPAs under the Birds Directive. They must ensure no damaging activities are consented which could significantly disturb the species or deteriorate the habitats for which the site is designated save in certain limited circumstances. In addition, measures must be taken to maintain and restore the species present and their habitats, taking account of the economic, social and cultural requirements and regional and local characteristics of the area concerned. There are a number of such designated sites within and adjacent to the SC-DMAP area. An Appropriate Assessment is being undertaken in parallel to this SEA under Article 6(3) of the Habitats Directive and this will inform the decision making in relation to the nature and content of the final SC-DMAP when made in due course.

The **8th Environmental Action Programme to 2030** entered into force in 2022 to reiterate the EU's long-term vision to 2050 of living well, within planetary boundaries. It sets out priority objectives for 2030 and the conditions needed to achieve these. Building on the European Green Deal, the action programme aims to speed up the transition to a climate-neutral, resource-efficient economy, recognising that human wellbeing and prosperity depend on healthy ecosystems. There are six priority objectives to 2030 which will have relevance for the draft SC-DMAP, particularly given the twin crises of biodiversity and climate:

- Achieving the 2030 greenhouse gas emission reduction target and climate neutrality by 2050;

[3] https://www.gov.ie/en/publication/135a8-expanding-irelands-marine-protected-area-network/

- Enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change;
- Advancing towards a regenerative growth model, decoupling economic growth from resource use and environmental degradation, and accelerating the transition to a circular economy;
- Pursuing a zero-pollution ambition, including for air, water and soil and protecting the health and well-being of Europeans;
- Protecting, preserving and restoring biodiversity, and enhancing natural capital; and
- Reducing environmental and climate pressures related to production and consumption (particularly in the areas of energy, industry, buildings and infrastructure, mobility, tourism, international trade and the food system).

The fourth **National Biodiversity Action Plan 2023-2030** sets the national biodiversity agenda for the period 2023-2030 and aims to deliver the transformative changes required to the ways in which we value and protect nature. This version builds on the previous plan and continues to implement actions within the framework of five strategic objectives, while addressing new and emerging issues:

- Objective 1 - Adopt a Whole of Government, Whole of Society Approach to Biodiversity
- Objective 2 - Meet Urgent Conservation and Restoration Needs
- Objective 3 - Secure Nature's Contribution to People
- Objective 4 - Enhance the Evidence Base for Action on Biodiversity
- Objective 5 - Strengthen Ireland's Contribution to International Biodiversity Initiatives

Of particular note is Outcome 2C focussing on ensuring "*biodiversity and ecosystem services in the wider countryside are conserved and restored"* which includes the action to "*support the National Climate promote freshwater, transitional, coastal, and marine nature-based solutions (such as coastal, and wetland restoration and restoring 'blue carbon' ecosystems') in national, regional, and local rural and urban programme*." Outcome 2D is also notable as it focusses on "e*nsuring biodiversity and ecosystem services in the marine and freshwater environment are conserved and restored*". A key aspect is collection of data and target 2D17 notes that the "DHLGH and DAFM will continue to undertake high quality research into and mapping of Ireland's coastal and wider marine environments, including the deep ocean, thereby supporting the identification of biologically diverse, naturally productive and eco-systemically important areas within Ireland's maritime area, including those of importance to climate resilience, carbon capture and storage." Other targets relate to achieving compliance with MSFD and OSPAR objectives. It should be noted that the Wildlife (Amendment) Act 2023, as amended, introduced a new public sector duty on biodiversity. The legislation provides that every public body is obliged to have regard to the objectives and targets in the National Biodiversity Action Plan, ensuring that preparation of the draft SC-DMAP must have regard to these objectives and targets.

The NPWS produced a **Sectoral Climate Change Adaptation Plan for Biodiversity** in 2019[4]. The goal of the adaptation plan is to protect biodiversity from the impacts of climate change, a key driver for the SC-DMAP. Key options identified in the adaptation plan include the need to build resilience in ecosystems to help them adapt to changing conditions e.g. reduce habitat fragmentation or facilitate migration routes; and use of an ecosystem services approach to adaptation by establishing protected areas, protecting coastal systems, direct species management etc. The draft SC-DMAP applies an ecosystem-based approach and will take full consideration of the preservation, protection and improvement of the environment and biodiversity, including resilience to climate change impacts.

4.3.7 Climate and Energy

The United Nations Intergovernmental Panel on Climate Change (IPCC) states that there is now "unequivocal" evidence of climate change. There is marked evidence that Ireland's climate is changing with projections for Ireland indicating that there is a likelihood of a rise in sea levels, changes in rainfall events, increased frequency of storm events, changes to air and soil temperature and periods of increased drought.

[4] DCHG, 2019 Ireland's biodiversity Sectoral Climate Change Adaptation Plan

The IPCC released a report in September 2019 on the *Ocean and Cryosphere in a Changing Climate*[5] which outlined anticipated outcomes with varying degrees of certainty. Key messages included:

- *"It is virtually certain that the global ocean has warmed unabated since 1970 and has taken up more than 90% of the excess heat in the climate system (high confidence).*"
- *"Coastal ecosystems are affected by ocean warming, including intensified marine heatwaves, acidification, loss of oxygen, salinity intrusion and sea level rise, in combination with adverse effects from human activities on ocean and land (high confidence). Impacts are already observed on habitat area and biodiversity, as well as ecosystem functioning and services (high confidence).*
- *"In many regions, declines in the abundance of fish and shellfish stocks due to direct and indirect effects of global warming and biogeochemical changes have already contributed to reduced fisheries catches (high confidence)."*
- *"In some areas, changing ocean conditions have contributed to the expansion of suitable habitat and/or increases in the abundance of some species (high confidence)."*
- *A decrease in global biomass of marine animal communities, their production, and fisheries catch potential, and a shift in species composition are projected over the 21st century in ocean ecosystems from the surface to the deep seafloor under all emission scenarios (medium confidence*).

There is a body of policy, plans programmes and legislation which relate to climate and energy, all of which act as drivers for the draft SC-DMAP. Key documents are highlighted below.

The **Kyoto Protocol (1997)** binds industrialised countries and economies in transition to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Protocol's 2008-2012 commitment period expired, and thereafter the **Doha Amendment to the Kyoto Protocol** was agreed to, which established new commitments for the period 2013–2020.

The **United Nations Framework Convention on Climate Change (UNFCCC)** under the Kyoto protocol seeks to ensure that countries party to the protocol adopt policies and measures on mitigation and report the progress periodically. The primary aim of UNFCCC is to stabilise GHG concentrations at a level that will help prevent dangerous human interference with the climate system. It states that "*such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner*." The Conference of the Parties (COP) is the decision-making body of the UNFCCC. A key task is to review emissions inventories submitted by countries and assess the effectiveness of measures and progress. COP 21 was held in Paris in 2015. It resulted in adoption of the **Paris Agreement** that specifies the long-term temperature goal to keep the rise in mean global temperature to well below 2 °C above pre-industrial levels, and preferably limit the increase to 1.5 °C, recognising that this would substantially reduce the effects of climate change. Emissions need to be reduced as soon as possible and reach net zero by 2050. It has been anticipated that, in order to stay below 1.5 °C of global warming, emissions need to be cut by 50% by 2030. The most recent COP, COP 28 was held in Dubai in December 2023. The primary objective of COP 28, alongside the review of the Paris Agreement terms, was the production of the first Global Stocktake (GST) to allow countries to adapt their next climate action plans. The four themes at the forefront of discussion included: fast-tracking the energy transition; fixing climate finance; nature, people, lives, and livelihoods; and inclusivity in climate management.

The **European Green Deal** is the EU's long-term growth strategy which aims to make Europe climate-neutral by 2050 and put renewable energy at the heart of the energy system. As part of the Green Deal, with the **European Climate Law (Regulation (EU) 2021/1119)**, the EU has set itself a binding target of achieving climate neutrality by 2050. As an intermediate step towards climate neutrality, the EU has raised its 2030 climate ambition, committing to cutting emissions by at least 55% by 2030. The EU is working on the revision of its climate, energy and transport-related legislation under the so-called 'Fit for 55 package' in order to align current laws with the 2030 and 2050 ambitions.

[5] IPCC, 2019 Special Report on the Ocean and Cryosphere in a Changing Climate, Summary for Policy Makers

The **EU 2030 Climate and Energy Framework 2014** sets out targets and measures to make the EU's economy and energy systems more competitive, secure, and sustainable. It sets out binding targets relating to GHG emissions, renewables, and energy efficiency to be met by each Member State by 2030 of:

- At least 40% cut in greenhouse gas emissions (from 1990 levels);
- At least 32% share for renewable energy; and
- At least 32.5% improvement in energy efficiency.

A review clause by 2023 allows for a potential upward revision of the EU level target. The agreement on the 2030 Framework, specifically the EU domestic GHG reduction target of at least 40%, forms the basis of the EU's contribution to global climate change. The 2020 EU Effort Sharing Decision target commits Ireland to reducing emissions from those sectors that are not covered by the emissions trading scheme (e.g. agriculture, transport, residential, non-energy intensive industry, commercial services, and waste) to 20% below 2005 levels.

The **Renewable Energy Directive (RED) EU 2018/2001 recast to 2030, RED II** entered into force in December 2018 and set a target of at least 32% for renewable energy, at EU-wide level, by 2030. A further revision, **RED III Directive (EU) 2023/2413**, part of the Fit for 55 Package, has increased the target for the EU's renewable energy to 42.5% by 2030; this directive sets specific targets for Member States in the industry, transport, and building sectors.

The **Fit for 55 Package** comprises a set of proposals to revise and update EU legislation and includes new initiatives with the overall aim of ensuring that EU policies are in line with the Council and the European Parliament 's climate goals of reducing net GHG emissions by at least 55% by 2030. It includes an update to the **Emissions Trading Scheme (ETS)** with new provisions such as extension to cover maritime emissions and a revision of rules applying to the aviation sector. The changes to the EU ETS have now been agreed under **Directive (EU) 2023/959** (amending Directive 2003/87/EC and Decision (EU) 2015/1814) and were to be implemented in national regulation by December 31, 2023, at the latest.

The Package also includes for a suite of new rules, revisions and targets across many aspects, including: a social justice fund; new rules to increase the EU-level GHG emissions reduction target for 2030 from 29% to 40%; a provisional deal on new rules for decarbonised fuels in shipping via the **FuelEU** maritime initiative; new rules under the **Alternative Fuels Infrastructure Regulation (AFIR)**, which includes for charging stations to be installed every 60 km; revision of the RED (RED III); new rules to accelerate energy efficiency and the energy performance of buildings (new buildings should be zero-emission by 2030 and existing buildings transformed into zero-emission buildings by 2050); and a proposal to revise the directive on the taxation of energy products and electricity.

The **REPowerEU Plan** is focused on rapidly reducing the European Union's reliance on Russian fossil fuels by progressing the clean energy transition and fostering increased collaboration throughout and across Member States to create a more resilient European energy system. REPowerEU expands the 'Fit for 55' proposals by setting forward additional actions to save energy by reducing demand and consumption, diversify energy sources and supplies, accelerate fossil fuel substitution, and improve investment frameworks facilitating reforms, faster permitting, and innovation.

The **EU Adaptation Strategy 2021** outlines a long-term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change by 2050. This strategy aims to reinforce the adaptive capacity of the EU and the world and minimise vulnerability to the impacts of climate change, in line with the Paris Agreement and the **European Climate Law** which writes into law the goal set out in the European Green Deal. The law recognises adaptation as a key component of the long-term global response to climate change and requires Member States and the Union to enhance their adaptive capacity, strengthen resilience and reduce vulnerability to climate change. It also introduces a requirement for the implementation of national strategies. The three main objectives of this Strategy include: improving knowledge and managing uncertainty; supporting policy development at all levels and all relevant policy fields; and speeding up adaptation implementation.

At national level, the **National Policy Position on Climate Action and Low Carbon Development 2014** recognised the threat of climate change for humanity; anticipated and supports mobilisation of a comprehensive international response to climate change, and global transition to a low-carbon future; recognised the challenges and opportunities of the broad transition agenda for society; and aimed, as a fundamental national objective, to achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050.

The **Climate Action and Low Carbon Development Act 2015** facilitates the approval of plans for Ireland in relation to climate change to aid the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of 2050. In line with this objective, a national mitigation plan and national adaptation framework were required to be produced by the Minister to the Government for approval. The **Climate Action and Low Carbon Development (Amendment) Act 2021** further strengthens the governance framework on climate action, and through this Act, Ireland has:

- Set economy-wide carbon budgets and sectoral emission ceilings (SECs) for the periods 2021-25 and 2026-30;
- Established pathways to deliver the SECs, incorporating 26 $MtCO_2eq.$ in unallocated emissions savings for the second carbon budget period; and
- Defined a delivery approach through specific measures and actions to meet emissions ceilings, which are estimated to require €119 bn in capital investment between 2022-2030.

The 2021 Amendment Act places the national climate objective of achieving, by no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy, on a statutory footing. The 2021 Amendment Act also replaced the 2015 Act's requirement for a National Mitigation Plan with a requirement for the preparation of an annual update to the Climate Action Plan and to prepare, not less frequently than once every five years, a national long term climate action strategy.

The first Climate Action Plan in 2019 (CAP19) was formulated on a non-statutory basis. It set out many measures, key objectives and targets to address the climate change agenda. There have since been two updates building on the 2019 plan – the first in 2021 (CAP21) which set out a wide range of policies aimed at decarbonisation in relation to the particular sectors of the economy, and the second CAP23.

CAP (2023) contained a number of measures which are relevant to the draft SC-DMAP including objectives to:

- Establish a new maritime state agency, known as the Maritime Area Regulatory Authority (MARA), which is responsible for manging consenting, licensing, and enforcement activities in our marine space;
- Adopt a new statutory Marine Planning Policy Statement, which sets out the Government's principles and priorities in relation to maritime planning;
- Develop Marine Planning Guidelines to support decision making by An Bord Pleanála;
- Progress designation of marine SAC and SPA sites at pace, in line with Government decisions; and
- Progress the mapping of all Irish offshore waters through the INFOMAR Programme to support all marine activities, including climate effect monitoring; site selection for offshore energy; and improving the scientific knowledge base on coastal and marine habitat types.

DECC is required to publish an update to the CAP annually. The **Climate Action Plan 2024 (CAP24)** will therefore form the latest update of the CAP, building upon the measures and actions of CAP23. The draft CAP24 at present outlines the actions required to 2035 and beyond to achieve the ambition of halving Ireland's GHG emissions by the end of the decade and aiming for carbon neutrality by 2050. The 2021 Act also requires local authorities to prepare **Local Authority Climate Action Pans (LACAPs)** and formal instruction was issued by the Minister for the Environment, Climate and Communications in February 2023 to all local authorities to prepare their plans, with guidelines prepared to assist local authorities in their preparation. Cork County Council[6] and Wexford County Council[7] published their first Climate Action Plans

[6] Cork County Council Climate Action Plan 2024-2029. Available at: https://www.corkcoco.ie/sites/default/files/2024-02/cork-county-council-climate-action-plan-2024-2029.pdf

[7] Wexford County Council Climate Action Plan 2023-2029. Available at: https://www.wexfordcoco.ie/sites/default/files/content/Climate%20Action%20Plan%202024-2029%20English.pdf

(2024-2029) in February 2024. Waterford City and County Council's Climate Action Plan was published in March 2024[8].

These plans will help ensure that the national climate objective can be achieved through all levels of the planning hierarchy, from the Climate Action Plan, down through the RSESs and Regional Renewable Electricity Strategies, and through the LACAPs.

The **Long-term Strategy on Greenhouse Gas Emissions Reductions** was published in 2023 as part of the actions proposed under CAP23 and as a requirement under the Climate Action and Low Carbon Development (Amendment) Act 2021. This strategy sets out indicative pathways, beyond 2030, towards achieving carbon neutrality for Ireland by 2050. A long-term strategy is also a requirement of the **Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999,** as amended.

First published in 2018, the **National Adaptation Framework, 2018** contained Ireland's strategy for the application of climate adaptation measures to reduce the vulnerability of the State to the negative effects of climate change, and to seek opportunities for any positive effects that may occur. This framework is currently being reviewed in line with the requirements of the Climate Action and Low Carbon Development Act 2015-2021. Twelve **Sectoral Climate Change Adaptation Plans** were published in June 2020 in line with the National Adaptation Framework and CAP19. These sectoral plans identified the key risks faced across sectors including agriculture, biodiversity, built and archaeological heritage, transport infrastructure, electricity and gas networks, communications, flood risk management, water quality and services infrastructure and health. The plans detail the approach being taken to address these risks and build climate resilience for the future.

The **National Retrofit Plan** was first published as a part of the CAP21, setting out how the government will deliver on retrofit targets. The plan is designed to address barriers to retrofit across four key pillars: driving demand and activity; financing and funding; supply chain, skills and standards; and governance. For each pillar, barriers were identified, and time-bound policies, measures and actions were put in place to address them.

The Governance of the Energy Union and Climate Action Regulation requires Member States to develop **National Energy and Climate Plans (NECP)**. The aim of the NECP is to provide an integrated policy framework for the period up to 2030 to ensure regulatory certainty and a coordinated approach among Member States. In March 2019, the Joint Oireachtas Committee on Climate Change recommended a more ambitious target be set for RES-E than was proposed in the first draft NECP – from 55% to 70% RES-E by 2030, which was then included in Ireland's CAP19[9]. Key objectives of the NECP are set out under the five dimensions of the Energy Union: Decarbonisation and Renewable Energy; Energy Efficiency; Energy Security; Internal Energy Markets; and Research, innovation and competitiveness. The NECP is currently under revision as required by Regulation (EU) 2018/1999. The draft updated-NECP recognises the establishment of the SC-DMAP as part of the Phase two offshore wind development. The draft updated NECP contains measures to *"support the ocean energy research, development and demonstration pathway for emerging marine technologies and associated test infrastructure"* as part of its objectives relating to the renewable energy.

A framework, **Policy Statement on the Framework for Phase Two Offshore Wind**, was developed in 2023 to guide the development of Phase Two ORE projects. It is anticipated that a large proportion of the 5 GW target will be achieved through the initial Phase One of offshore wind development in Ireland. However, with a combined capacity of Phase One projects falls short of this target and so additional offshore projects will be needed to meet 5 GW by the end of this decade under Phase Two. This policy statement aims to provide clarity for all stakeholders regarding the development of offshore wind in line with an enduring, plan led, offshore regime.

EirGrid's Strategy 2020-2025 is a strategy which is predominantly shaped by climate change and the transition of the electricity sector to low-carbon, renewable energy generation and transmission. The main aim of this strategy is to transform the power system for future generations by phasing out coal, peat and oil-based generation in the next decade and implementing new technologies that will allow the consumers to generate and store power and return any surplus to the grid. Transmission and distribution of electricity

[8] Waterford City and County Council Climate Action Plan 2024-2029. Available at: https://www.waterfordcouncil.ie/app/uploads/2024/03/Waterford-Climate-Action-Plan-2024-2029.pdf

[9] Houses of the Oireachtas (March 2019) Report of the Joint Committee on Climate Action. *Climate Change: A Cross-Party Consensus for Action.*

impacts energy efficiency resulting in a percentage of lost power. Producing renewable electricity can be more advantageous if the retention of that energy is sustained as much as possible over various distances. These challenges can be attenuated by grid upgrades. EirGrid's **Transmission Development Plan 2021-2030** builds on their preceding policy, the Grid Implementation Plan 2017-2022. Both support the continued development of a safe secure and reliable transmission system in Ireland and identify, at a strategic level, key developments in the transmission system to take place over the next few years and highlights. One of its key strategy statements to ensure a balanced approach to grid development is consideration of all practical technology options.

Energy Security in Ireland to 2030 outlines a new strategy to ensure energy security in Ireland for this decade, while ensuring a sustainable transition to a carbon neutral energy system by 2050. This energy security package sets out a strategic approach to ensure a secure transition for Ireland's energy systems in line with its climate objectives. It considers lessons, in particular, from the disruption to European energy supplies following the invasion of Ukraine and the domestic capacity shortfall experienced in the electricity sector. Six key pillars of analysis underpin the overall response and recommendations which are presented in Energy Security in Ireland to 2030, including a public consultation, and a range of external reviews and analyses which are published alongside the Energy Security Package. A follow-up to the Energy Security Package will be published in 2030, and every five years thereafter, with implementation monitored by the Government's Energy Security Group.

EirGrid's **Shaping Our Electricity Future Roadmap Version 1.1**, published in 2023, is a roadmap to achieve Ireland's renewable ambition for 2030 for the electricity sector. It also aims to support the broader transition to net zero by 2050. The roadmap proposed a change from a developer led approach to a plan led approach in order to support the transition to increased levels of renewable energy. This plan led approach will allow collaboration between relevant stakeholders and will aid the prioritisation of areas that contribute most towards meeting the renewable energy targets.

The **Renewable Electricity Spatial Policy Framework (RESPF)**, currently under preparation, will aim to establish a nationally consistent and standardised approach to identify and designate key onshore renewable energy resources and development areas. It will help support a more equitable distribution of onshore renewable electricity generating facilities using just transition principles, ensuring an appropriate spatial balance and distribution of renewables, helping to foster and sustain public support.

4.3.8 Human Health and Wellbeing

The Institute of Public Health in Ireland recognised the role of climate change for the population in their 2022 Joint Public Health Conference, Healthy Planet, Healthy People. This addressed impacts of climate change on population health in Ireland and Northern Ireland citing direct impact of extreme weather events e.g. heat, flooding and storms and indirect impacts from food and water insecurity, fuel poverty and mental health. There are limited plans and programmes in an Irish context dealing with these matters directly.

Healthy Ireland Framework 2019 – 2025, adopted in April 2019 is the latest HSE strategy on addressing public health issues in Ireland. It states that health is an essential resource for everyday life and that healthy people contribute to the health and quality of the society in which they live, work and play. The framework includes four goals: increase the proportion of people who are healthy at all stages of life; reduce health inequalities; protect the public from threats to health and wellbeing; and create an environment where every individual and sector of society can play their part in achieving a healthy Ireland. The development of ORE as envisaged in the SC-DMAP has the potential to reduce harmful emissions associated with the continued use of fossil fuels for transport and heating. However it must ensure that access to the marine area is maintained for coastal communities and consultation with the communities addresses the need to protect the health and quality of the place in which they live and work.

At a sectoral level, the Offshore Renewable Energy Development Plan (OREDP) and draft OREDP II and the National Marine Planning Framework (NMPF) include objectives relating to issues relevant to human health in the context of ORE. The NMPF includes objectives on access, social, employment and rural and island communities. It encourages proposals which contribute to a net increase in marine related employment, energy self-sufficiency, sustainability of rural coastal and / or island communities and proposals that increase the understanding and enjoyment of the marine environment (including its natural, historic and social value), or that promote conservation management and increased education and skills. Sector specific objectives relating to tourism, safety and recreation are also included. Optimisation of facilities and use of space is supported as is minimisation of navigational risk to commercial and recreational vessels and avoidance of activities that adversely impact sports clubs and other recreational users.

The OREDP includes objectives in relation to:

- Economics – creation of opportunities for local employment;
- Noise – avoidance of key recreational periods; identification and avoidance of popular recreational areas where possible;
- Access – avoidance of peak tourist seasons for construction; identification and avoidance of popular routes for water sports;
- Safety - avoidance of popular cruising routes, diving areas and key water sports locations; incorporation of suitable safety features; provision of suitable information for the public regarding safety; restriction of access to construction sites; good practice during construction, removal and maintenance.
- Disturbance to wildlife – avoidance of areas that are popular with tourists and wildlife tour operators.

The National Planning Framework is also relevant. Adopted in 2018, an overarching aim is "Creating a clean environment for a healthy society" through three main objectives:

- *Promoting Cleaner Air – Addressing air quality problems in urban and rural areas through better planning and design;*
- *Noise Management – Incorporating consistent measures to avoid, mitigate and minimise or promote the pro-active management of noise; and*
- *Social Inclusion – Plan for a more diverse and socially inclusive society that targets equality of opportunity and a better quality of life for all citizens, through improved integration and greater accessibility in the delivery of sustainable communities and the provision of associated services.*

The draft SC-DMAP will contribute to delivery of renewable energy which will contribute to better health outcomes in terms of air quality (reduction in use of fossil fuels including decrease in particulate matter from burning of these fuels), access to affordable and reliable energy sources and stabilisation of climate change.

4.3.9 Air Quality

The **Convention on Long-Range Transboundary Air Pollution (CLRTAP)**, also referred to as the Air Convention, entered into force in 1983. The primary aim of this convention is to protect the human environment against air pollution and to gradually reduce and prevent air pollution, including long-range transboundary air pollution. It is implemented by the **European Monitoring and Evaluation Programme (EMEP)**, directed by the United Nations Economic Commission for Europe (UNECE). Parties of the CLRTAP meet annually to develop policies and strategies to combat the discharge of air pollutants through exchanges of information, consultation, research and monitoring. The Convention has been extended by eight protocols that identify specific measures to be taken by Parties to cut their emissions of air pollutants, such as sulphur emissions, nitrogen oxides, volatile organic compounds, heavy metals, persistent organic pollutants, and abating acidification, eutrophication and ground-level ozone:

The **Ambient Air Quality and Cleaner Air for Europe Directive** (2008/50/EC, known as the "CAFE" Directive) sets out the requirements for ambient air quality to protect human health and the environment as a whole. The CAFE Directive (2008/50/EC) was transposed into Irish legislation by the Ambient Air Quality Standards Regulations 2022 (S.I. No 739 of 2022).. The Regulations set ambient air quality limits and target values for pollutants such as oxides of nitrogen (NO_x) as well as fine particulates (PM_{10} and $PM_{2.5}$) amongst others. While Ireland met all of its CAFÉ limits in 2022, it will be challenging for Ireland to meet more stringent limits set by the World Health Organisation (WHO) in new Air Quality Guidelines for Health, published by the WHO in 2021. These guidelines are not legally binding standards, however, they do provide WHO Member States with an evidence-informed tool that they can use to inform legislation and policy. The levels are presented as an ultimate guideline as well as a series of interim targets which are proposed as incremental steps in a progressive reduction of air pollution and are intended for use in areas where pollution is high. It is notable that the limits recommended by the WHO are significantly lower than the **Air Quality Standards Regulations 2022**, for key traffic pollutants such as NO_2 and PM_{10}. In October 2022,

the EC proposed to revise the Ambient Air Quality Directives to align more closely with the recommendations of the WHO AQGs.

The **Clean Air Strategy for Ireland (2023)** aims to '*provide the strategic policy framework necessary to identify and promote the integrated measures across government policy that are required to reduce air pollution and promote cleaner air while delivering on wider national objectives'.* It sets out the detail of the seven strategic frameworks that will be used to ensure that air quality continues to improve. These frameworks include communications, monitoring, enforcement, legislation, policy developments, ambition and strong governance and targeted policy measures.

At a local level, in compliance with the CAFE Directive and Irish air quality regulations, the county and city councils adjacent to the draft SC-DMAP area have a number of air quality monitoring locations to provide real time measurements of various pollutants. Cork City Council has also adopted a specific **Clean Air Strategy 2021 – 2026.** The Air Quality Strategy outline the actions that Cork City Council will undertake to reduce the concentration of pollutants in Cork City. Ireland also has a **National Air Quality Monitoring Programme 2017-2022**, operated by the EPA.

Air quality from shipping activities in the marine environment is regulated by the **International Convention for the Prevention of Pollution from Ships (MARPOL)**. The Annex VI standards to the convention were first developed through the International Maritime Organization (IMO) in 1997 and then subject to major revision in October 2008. The October 2008 amendments have already resulted in significant reductions of NO_x, SO_x, and PM emissions around the world with extensive benefits to both human health and the environment. In January 2020, the global sulphur content of ship fuels was revised to 0.50% m/m (mass/mass) which will lead to substantial improvements to marine and coastal air quality. The draft SC-DMAP should have regard to MARPOL as revised taking into account the co-existence of ORE with other maritime usages including harbour and shipping.

4.3.10 Noise

Underwater noise is increasing as human activities in the marine environment continue to expand. Activities such as vessel movement (e.g. shipping, fishing, and leisure crafts), seismic surveys, drilling, use of sonar, pile-driving, underwater explosions and dredging all contribute to levels of noise in the marine environment. Consents for many marine projects are required to consider underwater noise e.g. under the requirements of the *Habitats Directive*. Noise is a disturbance, which may have detrimental effects on marine wildlife, and therefore it has to be assessed under Article 6(3) requirements. Similarly, where the EIA Directive is applicable to marine projects, an assessment of likely significant underwater noise effects would be required.

NPWS guidelines "***Guidance to manage the risk to marine mammals from man-made sound sources in Irish Waters*"** were published in 2014. This guidance outlines practical risk avoidance and reduction measures that must be considered in order to minimise the potential effects of sound sources (arising from licensable plans or projects) on the natural ecology of marine mammal species in Ireland's marine waters.

Regulation of noise comes under the remit of the **Environmental Noise Directive (END) (2002/49/EC)**, with the requirement for member states to produce noise maps and compile noise action plans based on those maps. The END was amended by **Directive (EU) 2015/996** establishing common noise assessment methods and replacing Annex II of the 2002 END. The END is transposed in Ireland through the **Environmental Noise Regulations 2018 S.I. No. 549/2018,** as amended. Local authorities publish Noise Action Plans on a regular basis. These local plans serve as a means of managing environmental noise, and to meet the aim of the END Directive. While noise action plans are not directly relevant to the SC-DMAP area, these are relevant to construction and operational activities that will take place on land for any projects arising from the SC-DMAP including port activities. With this in mind, the Noise Action Plan 2018-2023 for the Cork Agglomeration Area, Waterford City and County Council 2019-2023 Noise Action Plan and Wexford County Council Noise Action Plan 2019-2023 would be relevant.

Environmental noise is unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport (road, rail and air traffic), and from sites of industrial activity including the categories of activities specified in Annex I to the IED. Nuisance noise is dealt with under the **Environmental Protection Agency Act 1992, as amended**.

4.3.11 Waste

Waste in the marine area can generate from a number of sources, principally disposal of dredge spoil derived from maintaining navigation in ports, harbours, estuaries and coastal waterways; emissions from shipping; marine litter and by-product of activities including fishing, recreation and aquaculture.

The **MARPOL Convention** is the main international instrument covering prevention of pollution of the marine environment by ships from operational or accidental causes. The convention includes regulations aimed at preventing and minimising pollution from ships (both accidental pollution and from routine operations) and currently includes six technical Annexes covering air pollution, shipping waste, sewage, and release of toxic substances.

The **8th Environment Action Plan** includes priority objectives for the pursuit of a zero-pollution ambition for a toxic-free environment for air, water, soil, and protecting the health and wellbeing of citizens from environmental-related risks and impacts. In particular, this zero-pollution target aims to reduce litter in the marine environment.

The **EU's Circular Economy Action Plan** was published in 2020, forming one of the pillars of the European Green Deal. The Circular Economy Action Plan also details actions to tackle plastic pollution across the EU, including implementation of the Directive on Single Use Plastic Products and fishing gear to address the problem of marine plastic pollution, while safeguarding the single market. Marine plastic is a major issue which is also transboundary in nature and reducing levels of litter is a key action for achieving UN SDG 6 also.

The **Revised Waste Framework Directive (EU) 2018/851** lays down measures to protect the environment and human health by preventing or reducing the adverse impacts due to the generation and management of waste. The revised directive places responsibility on EU Member States to improve their waste management systems, to improve the efficiency of resource use, and to ensure that waste is valued as a resource. The Waste Directive sets the context for waste management in member states and informs waste management plans at national level.

The **MSFD** also required EU Member States to ensure that, by 2020, "*properties and quantities of marine litter do not cause harm to the coastal and marine environment*." The pollution of the seas from plastics and microplastics is one of the three major areas of the EC *Strategy for Plastics,* adopted by the EC in 2018; most of the proposed actions of which are directly or indirectly related to marine litter.

At national level, the **Circular Economy and Miscellaneous Provisions Act 2022** defined the Circular Economy for the first time in Irish domestic law. Key measures within the Act include incentives for the use of reusable and recyclable alternatives to a range of wasteful single-use disposable packaging and other items, the re-designation of the Environment Fund as a Circular Economy Fund and the introduction of a mandatory segregation and incentivised charging regime for commercial waste. The Act also seeks to streamline 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.

The **Waste Action Plan for Circular Economy – Ireland's National Waste Policy 2020-2025** builds on Ireland's previous national waste policy, *A Resource Opportunity*. Overarching objectives of the Waste Action Plan include ensuring materials and products remain in use longer by rewarding circularity and discouraging waste. The Plan notes that a functional circular economy has wider environmental benefits through reduced waste generation, better management of residual waste, and reduced GHG emissions. The draft **National Waste Management Plan for a Circular Economy 2023-2029** has been prepared to replace the previous three Regional Waste Management Plans 2015-2021. It sets out a framework for the prevention and management of waste in Ireland for the period 2023 to 2029. The plan aims to support and supplement the wider policy base while also including specific targets, policies and actions to enable the waste and resource sector to meet the circular challenge.

The SC-DMAP must address waste and resource use throughout the life cycle of ORE projects. This includes encouraging the prevention, reuse and recycling of waste during enabling construction, operation and decommissioning stages of any project and the application of the waste hierarchy throughout.

4.3.12 Landscape/Seascape and Cultural Heritage

The National Landscape Strategy for Ireland (2015-2025)[10] was produced in line with Ireland's obligations under the European Landscape Convention which requires signatories to protect both landscapes and seascapes. The strategy contains data outlined to assist with future decision-making processes in Ireland, ensuring that decisions are made on the basis of factual evidence collected and that there is consistency in the decision making across the country. It is noted that the national strategy does not explicitly reference seascape. More recently, in December 2020 the Marine Institute published a **Regional Seascape Character Assessment** for Ireland[11] which is directly relevant for the SC-DMAP. The assessment represents a core component of the evidence base for Marine Spatial Planning and marine policy formulation.

The **Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023** will replace the National Monuments Acts (1930–2014) and will provide for the protection of historic and archaeological heritage and the regulation of archaeological activities. Newly discovered archaeological sites will be afforded immediate legal protection, mirroring the existing system for archaeological objects and historic wrecks that are automatically protected without a need for formal designation or registration. There will be explicit provision for the protection of World Heritage sites, including, for the first time, a definition in Irish law for "World Heritage Property".

The Government has published the successor of the National Heritage Plan (2002-2007) in 2020- **'Heritage Ireland 2030'. Heritage Ireland 2030** is a cross-Government Strategic Policy for Heritage that sets out a framework for the protection, conservation, promotion and management of Ireland's heritage for the next decade and beyond. The Strategy lays out a roadmap for the best possible future for Irish heritage with a joined-up approach at government, stakeholder and community levels. A comprehensive implementation plan is now being developed to deliver on its actions. The principal themes of the strategy are communities, leadership and partnerships, reflecting the importance of ongoing collaboration between government and communities, stakeholders, citizens and local authorities in delivering upon the objectives of this strategy. Relevant considerations in the development of the draft SC-DMAP include the implementation of the Climate Change Sectoral Adaptation Plans for Biodiversity and Built and Architectural Heritage and consideration of measures to protect and enhance coastal and marine heritage, both natural and cultural.

Heritage Ireland 2030 is a cross-Government Strategic Policy for Heritage that sets out a framework for the protection, conservation, promotion and management of Ireland's heritage for the next decade and beyond. The Strategy lays out a roadmap for the best possible future for Irish heritage with a joined-up approach at government, stakeholder and community levels. A comprehensive implementation plan is now being developed to deliver on its actions. The principal themes of the strategy are communities, leadership and partnerships, reflecting the importance of ongoing collaboration between government and communities, stakeholders, citizens and local authorities in delivering upon the objectives of this strategy. The coastal, rural and marine cultural heritage are important aspects of the SC-DMAP and will need to be fully integrated to the final SC-DMAP.

The **Built and Archaeological Heritage Climate Change Sectoral Adaptation Plan (2019)** recognises that the effects of climate change pose a risk to historic buildings and archaeological heritage sites, via structural damage arising from extreme weather events, flooding, coastal erosion and rising sea levels. The adaptation strategy and its accompanying actions plan aims to build adaptive capacity into the sector, reduce the vulnerability of architectural and archaeological heritage to the effects of climate change, but also to capitalise on opportunities within the sector. The SC-DMAP will contribute to climate stabilisation and as such supports this adaptation plan.

4.3.13 Material Assets

Marine Food Resources

Aquaculture policy and strategy are under the primary competence of the Member State but shared with the EU, primarily via the **Common Fisheries Policy (CFP)** and the open method of coordination (OMC). There are also other EU policy and coordination directives across food production (inc. organic products),

[10] National Landscape Strategy For Ireland 2015-2020 – DCHG.

[11] Marine Institute – Definition and Classification of Ireland's Seascapes: https://emff.marine.ie/blue-growth/definition-and-classification-ireland%E2%80%99s-seascapes

biosecurity, research and innovation, and environmental protection that will influence how aquaculture will develop in Ireland over the strategic planning period. The CFP seeks to 'ensure that fishing and aquaculture activities are environmentally sustainable in the long term and are managed in such a way as to produce economic and social benefits and jobs and to help ensure food security'. As an integral part of the CFP, aquaculture also benefits from the EU's financial support for this policy through the EMFF and the new EMFAF and from measures on the common organisation of the markets (COM) for fisheries and aquaculture products.

DAFM is responsible for the development and implementation of the **Seafood Development Programme 2021-2027** under the EMFAF which supports the EU Common Fisheries Policy, the EU Maritime Policy and the EU agenda for international ocean governance. It provides support for developing innovative projects ensuring that aquatic and maritime resources are used sustainably. This is based on four priorities:

- Fostering sustainable fisheries and the restoration and conservation of aquatic biological resources.
- Fostering sustainable aquaculture activities, and processing and marketing of fishery and aquaculture products, thus contributing to food security in the Union.
- Enabling a sustainable blue economy in coastal, island and inland areas, and fostering the development of fishing and aquaculture communities.
- Strengthening international ocean governance and enabling seas and oceans to be safe, secure, clean and sustainably managed.

The **European Green Deal (EGD)** provides an action plan to boost the efficient use of resources by moving to a clean, circular economy and restore biodiversity and cut pollution. It will support a move towards a cleaner energy production, a circular economy, ecosystem preservation, a blue economy and "*a fair, healthy and environmentally friendly food system*" (EC, 2019) via the Farm to Fork Strategy. The Farm to Fork aims to accelerate a transition to a sustainable food system that should:

  - have a neutral or positive environmental impact;
  - help to mitigate climate change and adapt to its impacts;
  - reverse the loss of biodiversity;
  - ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food and
  - preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.

The **EU Bioeconomy Strategy** contributes to the EGD, as well as industrial, circular economy and clean energy innovation strategies. They all highlight the importance of a sustainable, circular bioeconomy to achieve their objectives. It also mentions further integration of marine and land-based farming. The strategy has 5 goals:

- Ensure food and nutrition security;
- Manage natural resources sustainably;
- Reduce dependence on non-renewable, unsustainable resources;
- Limit and adapt to climate change; and
- Strengthen European competitiveness and create jobs.

The Department of Agriculture, Food and the Marine (DAFM) **Statement of Strategy 2023-2026** has a strategic goal for the seafood sector to "Deliver a sustainable, competitive and innovative seafood sector, driven by a skilled workforce, delivering value added products in line with consumer demand". In terms of aquaculture this has mainly been delivered via the **National Strategic Plan for Sustainable Aquaculture 2030** (DAFM, 2023). At the local level, BIM have established the Co-ordinated Local Aquaculture Management Systems (CLAMS) process. This is an initiative for the development and management of aquaculture in bays and inshore areas. As part of the CLAMS process, a plan is established for an area in order to integrate aquaculture interests with relevant national policies. It also considers Single Bay Management (SBM) practices; the interests of other users of the bays/inshore waters; Integrated Coastal Zone Management (ICZM) plans; and County Development Plans.

Other key influencing plans and programmes include **Food Vision 2030** which is the fifth national agri-food strategy since 2000 and promotes an integrated food systems approach to producing food. The Strategy has set the objective of achieving a carbon-neutral food system by 2050, encompassing emissions, water quality and biodiversity. **Origin Green** is Ireland's food and drink sustainability programme applying across the full supply chain including farmers, food producers, food service and retail sectors.

Tourism

Fáilte Ireland launched four **Regional Tourism Development Strategies 2023-2027** to provide a framework for sustainable tourism development across Ireland. The Regional Tourism Strategy relevant to the SC-DAMP is Ireland's Ancient East Regional Tourism Development Strategy 2023-2027 and Wild Atlantic Way Regional Tourism Development Strategy 2023-2027. These strategies are roadmaps for the tourism industry and all stakeholders involved in the relevant regions to navigate the current challenges and steer a course towards recovery and future success. In particular, Ireland's Ancient East Regional Tourism Development Strategy 2023-2027 recognises the importance of tourism to the national, regional and local economies and cites the development of coastal tourism experiences in East Cork, Waterford and Wexford under one of its strategic objectives. Coastal paths and walks, coastal and maritime heritage, access for recreation and protection of important views will be important considerations for the SC-DMAP.

Ports

Ports are an essential facilitator in achieving the ORE targets at EU and national level. Port location cannot be overlooked in the context of the roll-out of the ORE industry in Ireland as the location has operational advantages that reduce costs and delays and de-risk the construction phase of the ORE project. Recognising this a **Policy Statement on the Facilitation of Offshore Renewable Energy by Commercial Ports in Ireland** was published by government in 2021. This bridges the gap between the earlier **National Ports Policy 2013** and the upcoming review in 2024. The 2013 policy categorised ports in terms of national significance and provided a planning hierarchy including Tier 1, 2 and 3 ports. Within the SC-DMAP area, Port of Cork is identified as a Tier 1 Port, Waterford and Rosslare Ports are both Tier 2 Ports.

4.4 Conclusion

The relationship of the draft SC-DMAP with other relevant plans and programmes was considered by the plan team and key policies and objectives have informed the evolution of the draft plan as a result and are reflected in the policy base which has evolved. The draft plan includes policies to reflect environmental protection relating to air quality, underwater noise, water quality, marine sediments, biodiversity, marine litter, and protected marine sites among others. This is in addition to overarching environmental protection objectives and the requirement for specific regional and project level mitigations to ensure that the key environmental objectives are tiered down to project level.

Furthermore, they have been used to inform the identification of strategic Environmental Objectives, the development and assessment of alternatives and the assessment the of the draft SC-DMAP.

5 RELEVANT ASPECTS OF THE CURRENT STATE OF ENVIRONMENT

5.1 Introduction

This section of the Environmental Report examines the relevant significant issues of the current state of the environment in relation to Biodiversity, Flora and Fauna, Population and Human Health, Water, Land and Soils, Air Quality and Climatic Factors, Material Assets, Cultural Heritage, Landscape, and the interrelationship between these factors. The baseline has been compiled using available datasets and indicators developed through scoping and this environmental assessment.

5.2 State of the Environment Overview

Many of the pressures impacting the marine environment are driven by human activities. The key pressures include: physical disturbance/damage to the seabed; intensity of commercial fishing, overfishing of stocks and bycatch of non-target species; introduction/ spread of non-native or invasive species; eutrophication; hazardous substances; marine litter; underwater noise and other energy inputs; and marine climate change.

Ireland's natural environment, although under increasing pressure, generally remains of good quality and represents one of the country's most essential national assets (EPA, 2012, 2016 and 2020). However, it is acknowledged that problems and challenges still remain. In the 7th and most recent state of the environment review *Ireland's Environment – An Assessment 2020*[12], the EPA outlines a summary scorecard for the progress being made across key environmental policy areas as well as the general trend/outlook. These are summarised below in **Table 5-1**.

Table 5-1: Summary Assessment and Future Outlook for Selected Environmental Policy Areas and Relevance to the Draft SC-DMAP

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
Water	**Assessment: Poor / environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** In general, trends in water quality are mixed; over the past 20 years, there has been a deterioration in the number of the highest quality water bodies, particularly rivers, and mixed progress in waters achieving the environmental objectives under the WFD. Good progress has been made in improving wastewater treatment, however issues remain. Nutrient enrichment remains the main significant issue. The outlook is also mixed, and a balance needs to be sought between a growing population and certain sectors in particular, such as intensive agriculture. 80% of coastal and 38% of transitional water bodies have achieved or maintained at least Good ecological status. Nutrient loading (namely of phosphorus and nitrogen) from freshwater sources to the marine environment have increased since 2012. Under the MSFD, Ireland's latest assessment found Ireland's coastal and marine waters are generally clean and healthy, but pressures persist including from increasing development in marine waters. Just five qualitative descriptors are fully compatible with Good Environmental Status (GES): D2 Non-indigenous species;	This is of direct relevance to the draft SC-DMAP. The WFD, in respect of coastal waters and MSFD, in respect of the broader maritime area, outlines the environmental protection objectives which must be achieved by each Member State. These objectives are then to be achieved through a process of river basin and marine area planning which sets out the measures and the approach for implementation. Coherent spatial planning in line with the Maritime Area Planning Act 2021 is crucial for the protection of coastal, transitional and marine waters. The development of OW arising from the draft SC-DMAP can result in deterioration of water quality without proper management.

[12] EPA (2020) Ireland's Environment – An Assessment. Available at: https://www.epa.ie/our-services/monitoring--assessment/assessment/irelands-environment/state-of-environment-report-/#

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
	D5 Eutrophication; D7 Hydrographical conditions; D8 Contaminants; and D9 Contaminants in seafood.	
Nature	**Assessment: Very poor / significant environmental and/or compliance challenges to address** **Outlook: Largely not on track to meet policy objectives and targets**. The assessment and outlook are overall very poor. Biodiversity losses and habitat changes continue on an international scale. EU conservation status reporting indicates generally declining trends and unfavourable status for many habitats, with 85% having unfavourable status. Many species are faring better, but 15% are in decline at EU level, mostly freshwater species. Agricultural activities remain the key pressure. The outlook is very poor, with climate change adding to challenges and cumulative impacts.	Evidence from monitoring of natural habitats and species in Ireland's marine environment indicates that many habitats are not in good condition. Improving and protecting these is a challenge to all users of the sea. Like all Member States, Ireland reports every six years to the EU on the conservation status of the habitats and species listed in the Nature Directives. Marine habitats that were assessed as being in 'favourable' conservation status were sandbanks and submarine structures made by leaking gas. Others such as reefs were assessed as inadequate and large shallow inlets and bays were assessed as being at bad status. In general, marine mammal species were reported as being in favourable status although for some cetaceans, their status was reported as unknown. The draft SC-DMAP is a key mechanism for managing OW development such that it protects and, where possible, enhances habitats and species in or depending on the marine.
Climate	**Assessment: Very poor / significant environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Ireland has made good progress in deploying renewable energy sources and has an ambitious National Energy and Climate Plan, and Climate Action Plan. However Ireland continues to have a high level of greenhouse gas (GHG) emissions and remains above its EU emission limit, missing the target for 2020. Should all the actions in the Climate Action Plan be fully adopted and implemented, the targets for 2050 could be achieved. However significant challenges remain to reaching these goals.	Society-wide efforts are urgently needed to reduce GHG emissions. Ocean warming and acidification are driven mainly by climate change. These pressures can exacerbate other issues such as impacting native biodiversity, facilitating expansion or spread of invasive or opportunistic species. Increased flows in rivers could also facilitate increased nutrient transport to the marine environment, combined with climate change, could be expected to increase the risk of algal blooms. OW development arising from the draft SC-DMAP can help reduce overall GHG emissions for Ireland and help meet climate targets for 2030, and beyond for Ireland's overall climate objective to reach climate neutrality by 2050. Increasing the rollout of renewable energy generation is critical to reaching these targets, as Ireland's Climate Action Plans have reiterated the target of 80% renewable electricity by 2030, a significant proportion of which will come from offshore wind.
Air Quality	**Assessment: Moderate / on track generally / local or occasional challenges** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Air quality in Ireland is generally very good and consistently meets its EU limit values. There was however an exceedance in 2019 of nitrogen dioxide at a monitoring station in Dublin, and Ireland at times does not meet the more stringent limit values set by the World Health Organisation (WHO) (namely of fine particulate matter). In terms of transboundary emissions, Ireland is failing to meet EU targets on ammonia emissions under the	Of direct relevance to the draft SC-DMAP are the transboundary pollutants such as NO_x and SO_x from related activities e.g. shipping But the indirect effects experienced in terms of air quality are just as important. Transport and heating rely heavily on fossil fuels. In order to cove away from the associated polluting emissions from these sectors an alternative must be in place i.e. renewable energy sources such as OW. Without the advancement of the alternative sources air quality from fossil fuel related emissions will remain an environmental and health pressure.

Policy Area	Summary Assessment & Outlook	Relationship to the Draft SC-DMAP
	National Emissions Ceiling (NEC) Directive, of which agriculture is the main source. Progress is mixed in terms of reducing emissions from other sectors such as transport and energy. Measures at a national level are required to tackle this and improve the outlook.	
Waste & Circular Economy	**Assessment: Poor / environmental and/or compliance challenges to address** **Outlook: Partially on track to achieving full compliance or measures in place or planned that will improve the situation** Ireland has made excellent progress in meeting its current EU targets. The generation of waste volumes however remains tied to economic activity which has been growing in recent years. Initiatives such as producer liability and waste prevention and recycling programs have also led to improvements and landfill needs have decreased while waste-to-energy capacity has increased. Challenges remain to shift from a linear economy to a circular one, with circular principles remaining low in Ireland.	Marine litter affects ocean life and pollutes beaches, the water column and the seafloor. Reducing marine litter is also a key target under the UN SDG 14: Life Below Water. It originates from land-based sources (including riverine inputs and sewage discharges) as well as offshore sources such as disposal of ship waste (fishing and aquaculture gear, ropes etc.). In terms of dredging, dumping at sea is required for maintaining ports and navigational channels; this is a licensable activity in Irish waters. The development of ORE arising from draft SC-DMAP will need to engage in waste management and circularity initiatives supported by the NMPF.

Source: *Ireland's Environment – An Assessment 2020. Adapted from Table 16.1.*

In addition, thirteen key State of the Environment (SOE) messages that require vision and full implementation to be successful are outlined for Ireland in order to protect the environment, health, and wellbeing. These comprise:

- **SOE 1 – Environmental Policy Position:** The various links and dependencies between environmental policies and legislation could be reinforced, to lead to better overall environmental outcomes. The draft SC-DMAP seeks to integrate maritime and terrestrial planning in relation to OW developments.
- **SOE 2 – Full Implementation:** There needs to be an improvement in tracking plans and policies, as well as compliance with several directives and legislation. Continued targeting of non-compliances by environmental enforcement bodies is needed, as is improving coordination across different bodies. The draft SC-DMAP will include a comprehensive Governance structure and monitoring and research programme to track the implementation of the draft plan and its environmental outcomes.
- **SOE 3 – Health & Wellbeing:** Recognition that protecting and maintaining a good quality environment is directly linked to health and wellbeing. Protecting the environment from pollutants is important, as is access to green and blue spaces. The draft SC-DMAP will ensure that alternatives to polluting fossil fuels are brought on stream with benefits for health and wellbeing.
- **SOE 4 – Climate:** The response to climate change needs to be accelerated - we urgently need to act to transform our energy systems in order to meet national, European, and international decarbonisation goals, and to limit global temperature increases. The draft SC-DMAP is critical to Ireland reaching its overall objective for new zero by 2050.
- **SOE 5 – Air Quality:** Adoption of the WHO's air quality guideline limits as part of Ireland's Clean Air Strategy. This strategy is needed to combat air pollution, as the WHO limits are more stringent than the values at European level. Integrating these measures along with noise mitigation and climate action are also key related measures. The draft SC-DMAP will ensure that alternatives to polluting fossil fuels are brought on stream with benefits for air quality, health and wellbeing.
- **SOE 6 – Nature:** Biodiversity networks and nature must be protected and safeguarded as a national priority. Habitat and biodiversity loss continue. It is considered that the next Biodiversity Action Plan should be more ambitious. The draft SC-DMAP has, through constraints analysis at the plan level, has avoided areas of high biodiversity value at the coast and as part of marine based European sites. This protection approach will cascade down through the marine planning hierarchy to ensure safeguarding of nature is integrated into the plan and projects arising from it.
- **SOE 7 – Water Quality:** Water pollution needs to continue to be addressed both locally and at catchment level, particularly to address the key impact, which is primarily nutrients. Measures should

continue to be implemented to achieve WFD protection objectives for all water bodies through evidence-based measures, projects, and research. The draft SC-DMAP will ensure that co-benefits including water quality are maximised in outputs from the draft SC-DMAP.

- **SOE 8 – Marine:** The target should be to reduce anthropogenic pressures on the marine environment. Given Ireland's large marine area, one of the largest in continental Europe, robust governance and planning is needed to ensure its protection. The draft SC-DMAP will include a comprehensive Governance structure and monitoring and research programme to track the implementation of the draft plan and its environmental outcomes. It will seek co-existence with other marine users but has also included safeguards to address cumulative pressures.
- **SOE 9 – Clean Energy:** Ireland needs to rapidly decarbonise and move away from fossil fuel combustion across heating, electricity, and transport, to a suite of clean energy systems**.** The draft SC-DMAP is critical to Ireland reaching its overall objective for new zero by 2050.
- **SOE 10 – Environmentally-sustainable Agriculture:** A more integrated and holistic approach to farming alongside catchment-level water management is needed which reduces its environmental footprint and moves towards carbon neutral food production.
- **SOE 11 – Water Services:** Water and wastewater systems need to meet the needs of society while providing for a high-level of environmental protection in terms of abstractions and treatment of water/wastewater. National-level action is needed to address priority areas and shortcomings, as well as consideration given to climate impacts and the resiliency of infrastructure.
- **SOE 12 – Circular Economy:** The move to climate-neutral circular economy is urgently needed to preserve resources, reduce consumption, and reduce waste at all levels of society. The development of OW arising from the draft SC-DMAP will need to engage in waste management and circularity initiatives at an early stage as this will be a relatively new space which will benefit from further R&D.
- **SOE 13 – Land Use:** Moving towards an integrated land use mapping approach is needed to support better decision making and promote a better understanding of environmental issues and allow for consideration of competing land use interests (e.g. preserving carbon sinks, tourism, land use planning etc.). The draft SC-DMAP seeks to integrate maritime and terrestrial planning in relation to OW developments. A comprehensive constraints analysis underpins the identification of areas within the draft SC-DMAP for OW developments. This can further align with integrated land use mapping to improve decision making overall.

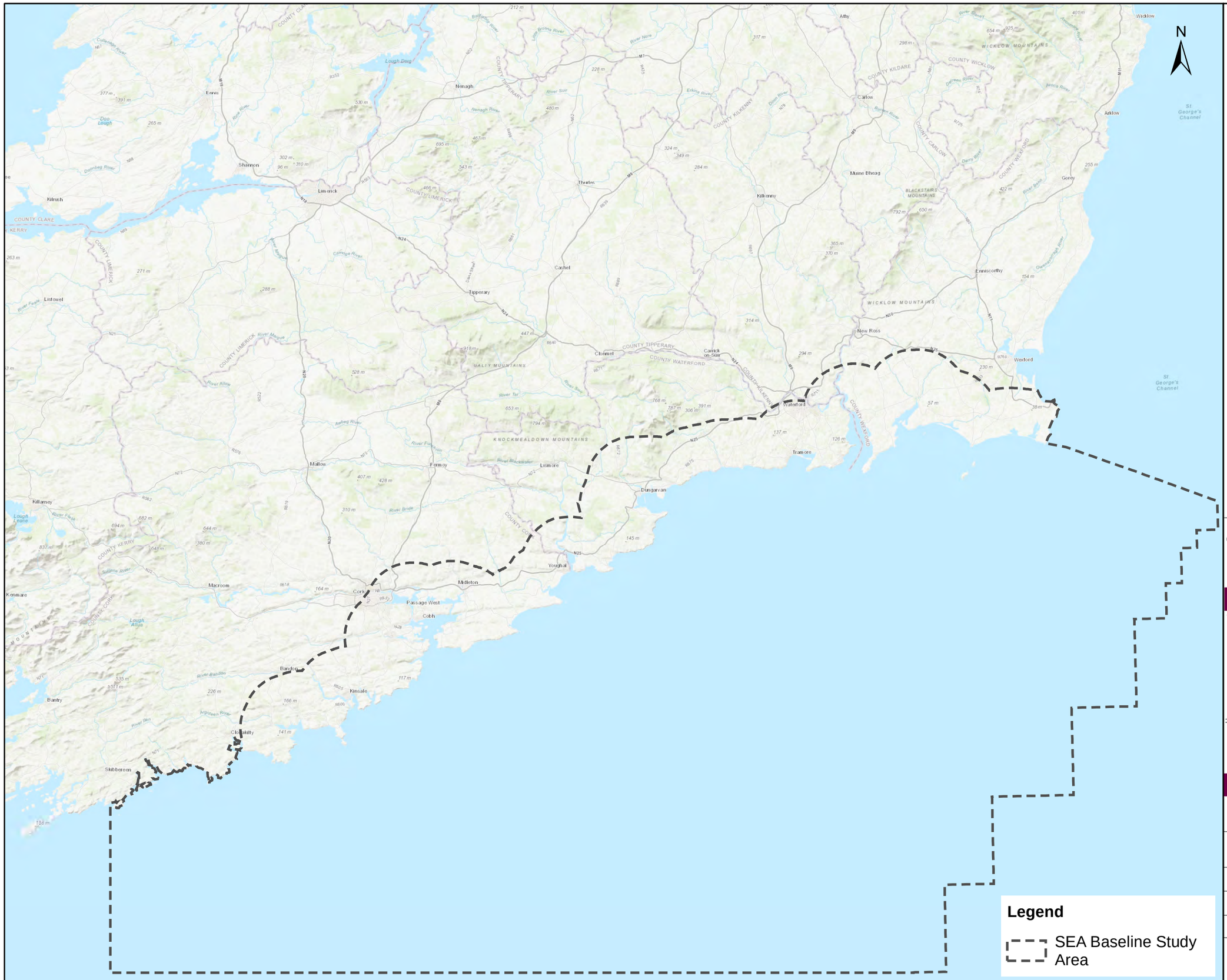
A summary of the relevant aspects of the current state of the environment in Ireland, as presented in the *Ireland's Environment – An Assessment 2020* (EPA, 2020) has been incorporated and referenced as relevant to the draft SC-DMAP as part of the baseline sections that follow.

5.3 Environmental Characteristics

The geographical area of the draft SC-DMAP is the wider marine area within which four smaller Maritime Areas have been identified as the proposed locations within which future deployments of fixed offshore wind will take place. Of these, Maritime Area A is identified for the first deployment of offshore wind within the draft SC-DMAP, which will have an installed capacity of up to approximately 900MW. The draft SC-DMAP is entirely marine, however, for this SEA baseline description, elements of both the offshore and onshore environment have been considered[13]:

In the offshore, the SEA baseline study area incorporates the entire draft SC-DMAP Proposal Area as published in 2023 and an additional buffer to the south and west. For onshore considerations, the SEA baseline study area extends 10 km inland from the Irish coastline. The study area for the SEA baseline is shown in **Figure 5.1**.

[13] Supporting figures in this chapter are not to scale.



Client

Rialtas na hÉireann
Government of Ireland

South Coast DMAP

Title

Figure 5.1

SEA Baseline Study Area

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5.3.1 Population and Human Health

Population and human health are broad topic areas within the SEA assessment framework which encompass consideration of the presence of people, their activities, their use of the receiving environment and their wellbeing. Population distribution and growth forecasts are important indicators of both pressure on infrastructure and resources, and potential exposure to pollution and risk.

5.3.1.1 Population

The draft SC-DMAP adjoins the Southern Region (**Figure 5.2**). The total population of the Southern Region in the most recent 2022 census was just over 1.7 million, an increase of 7.4% since the previous census in 2016. Overall, the Southern Region represents just over 33% of Ireland's population.

Figure 5.2: Southern Region[14]

The draft SC-DMAP adjoins the local authority areas of Wexford, Waterford, Cork County and Cork City. The populations in counties Wexford, Waterford and Cork have all increased since the 2016 census as outlined in **Table 5-2**.[15]

Table 5-2: Population of Relevant Counties for 2011, 2016, 2022 (Source: CSO)

Administrative Area	2011	2016	2022
Nationally	**4,588,252**	**4,761,865**	**5,149,139**
Southern Region	**1,541,439**	**1,585,906**	**1,703,393**
Wexford	145,320	149,722	163,919
Waterford	113,795	116,176	127,363
Cork	519,032	542,868	584,156

Wexford, Waterford and Cork have strong urban character associated with the Cork and Waterford metropolitan areas (and each has its own Metropolitan Area Strategic Plan or MASP). There are also a number of other large settlements with a population greater than 10,000 within the study area notably, Carrigaline, Midleton, Cobh, Tramore and Dungarvan.

[14] Source: Southern Regional Assembly (southernassembly.ie) [Accessed April 2024]

[15] F1001 - Population at Each Census (cso.ie) [Accessed Oct 2023]

The National Planning Framework (NPF) 2018 set out the phased population growth targets to 2040 for the region at 340,000 - 380,000 (**Table 5-3**). Furthermore, it set out the growth targets for each of the three cities in the Southern Region, two of which are within the onshore study area for the draft SC-DMAP.

Table 5-3 NPF Targeted Pattern of City Population Growth Relevant to Draft SC-DMAP

City	Population 2016	Population Growth to 2040		Minimum Target Population 2040
		% Range	People	
Cork City and Suburbs	209,000	50-60%	105,000 - 125,000	314,000
Waterford City and Suburbs	54,000	50-60%	27,000 - 32,000	81,000

There is also a strong rural element in the hinterland, in all three counties with smaller towns and villages spread throughout, including along the coast. **Figure 5.3** shows the settlements that have a population of more than 1,500 people. These settlements are vital for sustaining viable rural communities. The most recent reporting on persons residing close to coastal areas from the CSO dates to 2016 however it gives an indication on the quantum of population interaction with proximity to the coast. The CSO reported that there were 1.9 million persons residing within 5 km of the coast, representing 40 per cent of the total population in 2016. Of these, 40,468 were identified as living less than 100 metres to the nearest coastline. In the context of the draft SC-DMAP the figures for the three counties adjoining the DMAP are presented in **Table 5-4**.

Table 5-4: Population living within 5-10 km of the coast and within 100m of the coast

Persons living within	Wexford	Waterford City and County	Cork City and County[16]
5-10 km	31,234	54,609	56,761
1 km	23,377	25,963	154,406
100 m	1,084	1,100	17,140

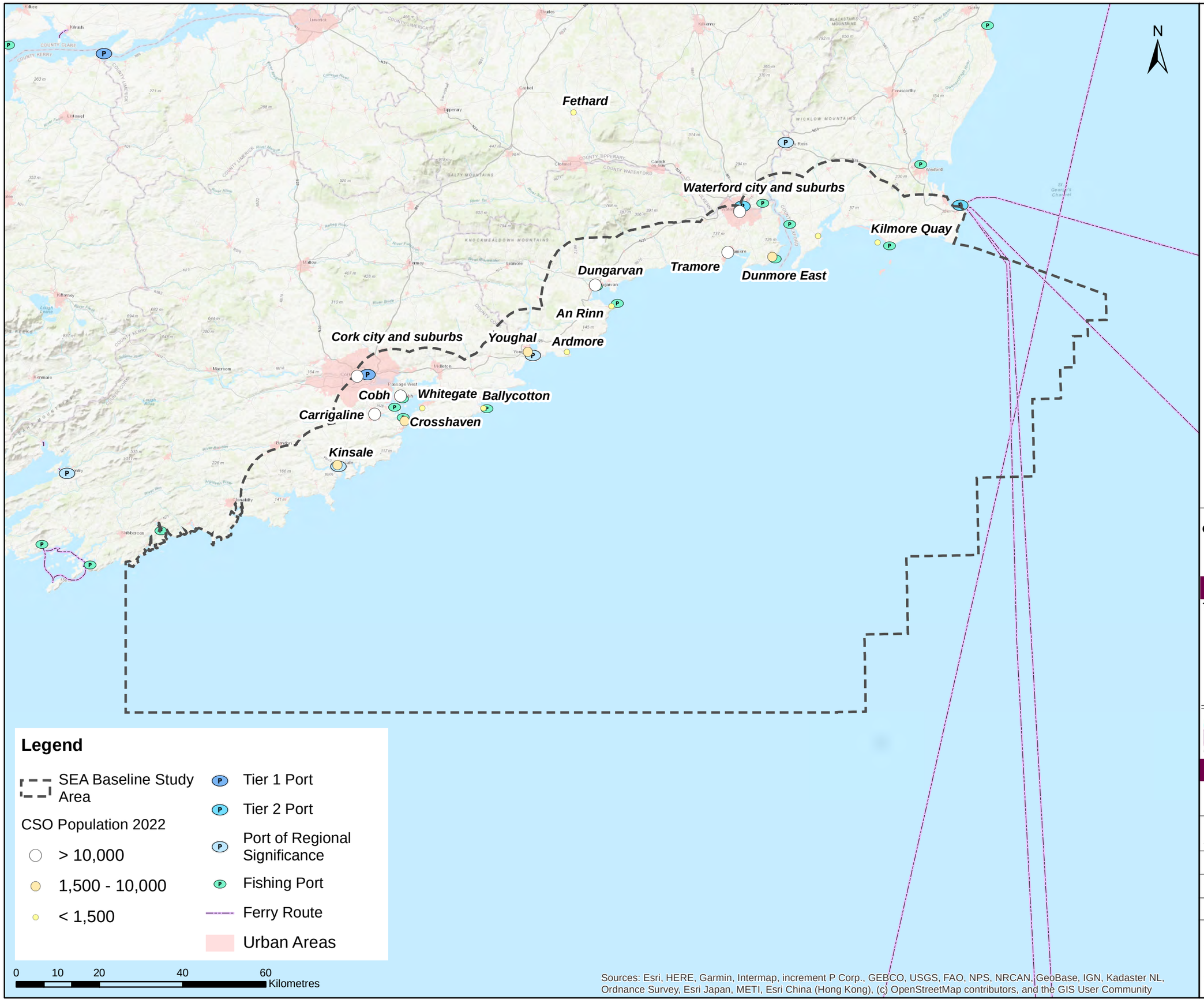
Of particular relevance to draft SC-DMAP, are the key coastal settlements Dunmore East, Tramore, Kinsale, Kilmore Quay, Carrick, Dungarvan, Youghal, Carrigaline, Cobh, and Cork City. Populations for these and other settlements are provided in **Table 5-5** below.

The coastline adjoining the draft SC-DMAP and the nearshore area within the draft SC-DMAP contain areas of intense commercial activity and some of the most important economic drivers in the region including the aquaculture and sea fishing sectors (including farming, catch and processing facilities) and the key ports at Rosslare, Waterford and Cork[17]. Other key employment opportunities in the region include biotechnology, ICT, engineering, manufacturing and processing, professional services, tourism and hospitality, pharmaceutical, life science, international business services sectors and local services. Agriculture also supports thousands of jobs in the rural economy, both directly in food and drink processing and also in the wider agri-industry[18]. Further details on these sectors is presented in **section 5.3.6** (Material Assets).

[16] It is noted that there are seven inhabited islands off the west Cork coast but none are within the baseline study area.

[17] Cork County Council (2022). Cork County Development Plan 2022-2028. Available at: https://www.corkcoco.ie/sites/default/files/2022-06/volume-1-main-policy-material.pdf

[18] Waterford County Council (2022). Waterford City and County Development Plan 2022-2028. Available at: https://consult.waterfordcouncil.ie/en/consultation/waterford-city-county-development-plan-2022-%E2%80%93-2028



Client

Rialtas na hÉireann
Government of Ireland

South Coast DMAP

Title

Figure 5.3

SEA Baseline
CSO Settlements 2022

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Table 5-5: Population of Key Coastal Settlements from Census 2016 and 2022

Coastal Settlement	2016 Census	2022 Census	% Change
An Rinn	499	665	33.3 increase
Ardmore	434	468	7.8 increase
Ballycotton	497	544	9.5 increase
Carrigaline	15,770	18,239	15.7 increase
Cobh	12,800	14,148	10.5 increase
Cork City	125,657	222,526	77.1 increase
Crosshaven	2,577	3,263	26.6 increase
Dungarvan	9,227	10,081	9.3 increase
Dunmore East	1,808	1,731	-0.43 decline
Fethard	311	363	16.7 increase
Kilmore Quay	372	447	20.2 increase
Kinsale	5,281	5,991	13.4 increase
Tramore	10,381	11,277	8.6 increase
Waterford City	53,504	60,079	12.3 increase
Whitegate	1,154	1,248	8.1 increase
Youghal	7,963	8,564	7.5 increase

5.3.1.2 Human Health

Marine Safety

The Irish Coast Guard (ICG) provides a maritime search and rescue service (SAR) which is provided through three 24/7 Rescue Co-ordination Centres and dedicated search and rescue units. The ICG maintains distress listening watch and maintains four SAR helicopter bases under contract including one at Waterford Airport. The Coast Guard maintains 44 volunteer Coast Guard units with cliff, boat and coastal search capabilities as shown on **Figure 5.4**.

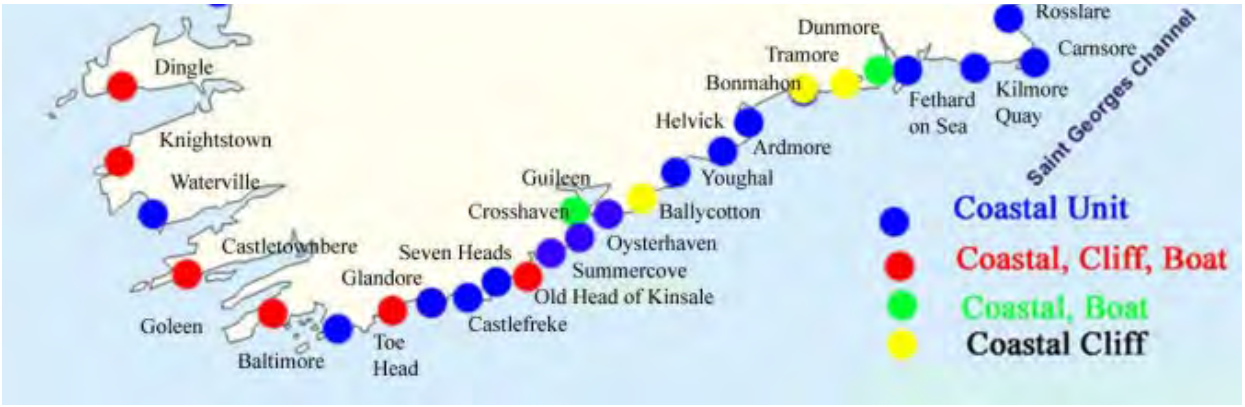

Figure 5.4: Irish Coast Guard Units[19]

Seafood Safety

[19] Comparison of maritime and land emergency management frameworks, Irish Coast Guard Presentation [asset.gov.ie accessed Oct 2023]

There are 105 licenced aquaculture sites present within the overall geographical area of the draft SC-DMAP. The majority of which are licensed to farm Pacific Oysters (*Crassostrea gigas*). MSFD Descriptor 9 requires that contaminants in fish and shellfish for human consumption do not exceed levels established by Community legislation or other relevant standards. The Seafood Protection Authority (SFPA) is responsible for implementing and enforcing national and EU legislation pertaining to seafood safety. Bord Iascaigh Mhara (BIM) is Ireland's Seafood Development Agency. Any seafood business seeking approval or existing operations seeking food safety assistance or third-party certification, can avail of BIM's Food Safety Management System Advisory Services and the associated legally required training offered by the BIM Food Safety team. Further details on aquaculture are presented in **section 5.3.6** (Material Assets).

Bathing Water Quality

There are 15 designated bathing water sites along the coastline adjoining the draft SC-DMAP. **Table 5-6** lists the sites and the latest recorded status (for the year 2022) following monitoring carried out by Local Authorities over the bathing period which runs from 1st June to 15th September. **Figure 5.5** shows the locations of the designated Bating Waters. The majority of the locations were recorded as being good or excellent status. Only two – Duncannon and Bunmahon – were recorded at sufficient. See also **section 5.3.4** (Water) and **section 5.3.6** (Material Assets) for further information on water and water infrastructure.

Table 5-6: Designated Bathing Waters and their Recorded 2023 Status within the Study Area

Name	Location	2023 Bathing Water
Redbarn	Cork	Excellent Water Quality
Youghal, Claycastle	Cork	Excellent Water Quality
Youghal Front Strand Beach	Cork	Excellent Water Quality
Garryvoe	Cork	Good Water Quality
Fountainstown	Cork	Excellent Water Quality
Coolmaine	Cork	Good Water Quality
Garretstown	Cork	Excellent Water Quality
Garrylucas, White Strand	Cork	Excellent Water Quality
Inchydoney	Cork	Excellent Water Quality
Owenahincha, Little Island Strand	Cork	Excellent Water Quality
Inchydoney East Beach	Cork	Excellent Water Quality
Ardmore Beach	Waterford	Excellent Water Quality
Bunmahon Beach	Waterford	Sufficient Water Quality
Counsellors' Strand, Dunmore East	Waterford	Good Water Quality
Dunmore Strand, Dunmore East	Waterford	Good Water Quality
Tramore Beach	Waterford	Good Water Quality
Clonea Beach	Waterford	Excellent Water Quality
Rosslare Strand	Wexford	Excellent Water Quality
Duncannon	Wexford	Sufficient Water Quality
Carne Beach	Wexford	Excellent Water Quality

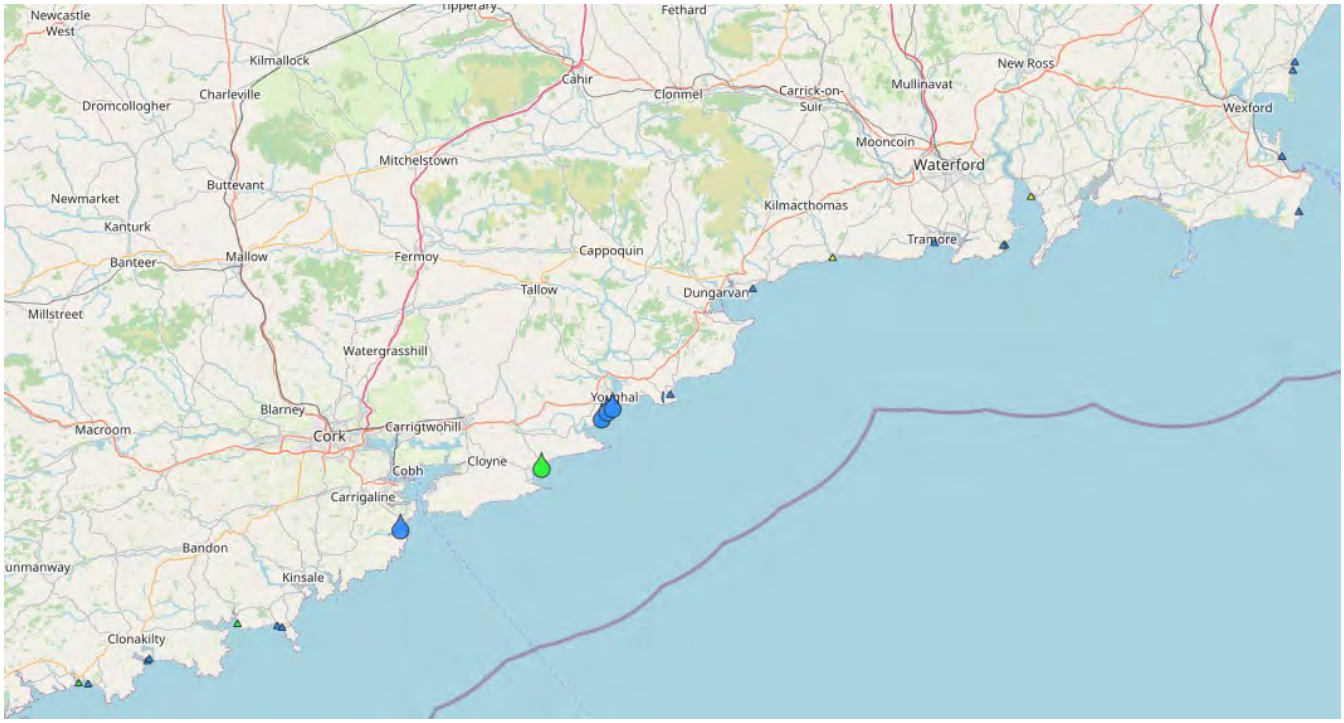

Figure 5.5: Locations of Designated Bathing Waters and Bathing Water Status

Air Quality and Noise

Air pollution is recognised as a significant public health burden in terms of illness and premature death associated with air pollution generally, and from the transport sector in particular. At a national scale, Ireland has good air quality which is consistently rated among the best in Europe. The Environmental Protection Agency report an Air Quality Index for Health (AQIH) which is a number from 1 to 10 that indicates what the air quality is at any given station and whether or not this might affect health. A reading of 10 means the air quality is very poor and a reading of one to three inclusive means that the air quality is good. Monitoring stations within the onshore study area currently (April 2024) reflect an AQIH between 1-3 which is in the range of Good (EPA, 2023)[20]. Air quality is discussed further in **section 5.3.5** (Air Quality, Noise and Climatic Factors).

Noise is also recognised as affecting health and wellbeing by causing stress, anxiety and disruption of activities such as sleep. Exposure to excessive noise has also been linked to an increased risk of heart attack, stroke and premature death[16]. Regulation of noise comes under the remit of the Environmental Noise Directive (END) (2002/49/EC), with the requirement for Member States to produce noise maps and noise action plans based on those maps; each local authority in Ireland is required to produce a Noise Action Plan for their administrative area. Each of the local authorities within the onshore study area for the draft SC-DMAP have prepared Noise Action Plans and the main noise source identified for the purpose of the plans is major roads and road traffic. Noise is discussed further in **section 5.3.5** (Air Quality, Noise and Climatic Factors).

5.3.2 Biodiversity, Flora, and Fauna

Biodiversity is the variety and variability of plants (flora) and animals (fauna) in an area and their associated habitats. The importance of preserving biodiversity is recognised from an international to a local level. Biodiversity is important in its own right and has value in terms of quality of life and amenity. The natural environment is also critical in delivering ecosystem services such as providing clean air and water, food and raw materials and cultural benefits.

[20] EPA (2023). EPA Air Quality https://airquality.ie/ (Accessed January 2024)

5.3.2.1 Designated Sites

Ireland has designated sites and species of conservation value and/ or concern in an effort to protect its biodiversity resource. There are eleven types of nature conservation sites considered for the purposes of the draft SC-DMAP. The number of each type of designation within the onshore and offshore draft SC-DMAP baseline study area is presented in Table 5-7. and represented in **Figure 5.6**.

Table 5-7: Nature Designations Wholly or Partially Within the Study Area for the SEA Baseline

Designation Type	Description	Number
Special Areas of Conservation (SAC)	Special Areas of Conservation (SAC) are designated under the EU Habitats Directive (92/43/EEC). Together with Special Protection Areas designated under the Birds Directive (2009/147/EC) these sites form the backbone of the Natura 2000 network. Further details on these sites can be found in the Natura Impact Statement for the draft SC-DMAP.	20
Special Protection Area (SPA)	Special Protection Areas are designated under the Birds Directive (2009/147/EC). Together with Special Areas of Conservation (SAC) designated under the EU Habitats Directive (92/43/EEC), these sites form the backbone of the Natura 2000 network.	23
Natural Heritage Area (NHA)	Natural Heritage Areas (NHAs) are protected under the Wildlife Amendment Act 2000. NHAs are areas considered important for the habitats present or which hold species of plants and/ or animals whose habitat needs protection.	2
Proposed Natural Heritage Area (pNHA)	Proposed Natural Heritage Areas (pNHAs) were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats.	66
Ramsar	Ramsar sites are wetlands of international importance designated under the Ramsar Convention on Wetlands 1971, which Ireland joined in 1984. This intergovernmental treaty provides for national action and international cooperation for the conservation and wise use of wetlands and their resources with a particular focus on birds.	7
Important Bird Area	The Important Bird Areas (IBA) Programme is a BirdLife International initiative aimed at identifying and protecting a network of critical sites for the conservation of the world's birds. BirdWatch Ireland is the BirdLife partner and is responsible for promoting and	15

	updating the status of Ireland's birds and their key sites.	
National Nature Reserve	A National Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order. Most are owned by the State, but some are owned by organisations or private landowners. The NPWS provides an online spatial viewer displaying the National Parks and Nature Reserves.	3
Refuge for Fauna	Refuges for Fauna are designated by ministerial order under Section 17 of the Wildlife Act 1976 as amended by Section 28 of the Wildlife (Amendment) Act 2000.	2
Wildfowl Sanctuary	A Wildfowl Sanctuary is an area that has been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed.	5

The name of each of the relevant designated sites referenced above are included in Appendix 5.1.

In addition to the designated sites noted above that occur directly within the draft SC-DMAP onshore and offshore baseline study areas, other designated sites may have connectivity, particularly as a result of mobile species of marine mammals and birds and also as a result of connectivity between the species in the terrestrial and freshwater onshore environment and the marine environment, e.g. otters, salmon and freshwater pearl mussel.

The Natura Impact Statement for the draft SC-DMAP which is being prepared under separate cover under the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, has identified the European sites and Qualifying interests designated pursuant to the Habitats and Birds Directive which may have connectivity within the NIS zone of influence. =The reader is directed to the NIS for further details on qualifying interests and conservation objectives associated with those sites.

Further to these sites it is acknowledged that there are a number of sites in the UK which would previously have formed part of the Natura 2000 network prior to the UK leaving the European Union. Notwithstanding that these sites are no longer formally European sites; it must be noted that they still represent an important biodiversity resource in the context of coherence of the wider Natura network. Former UK European sites have now been designated as national sites within the UK and may have connectivity with the objectives of the SC-DMAP. 89 UK sites with potential for connectivity have been identified in the SEA and these are listed in Appendix 5.1.

N

Legend

- SEA Baseline Study Area
- Refuge for Fauna
- Wildfowl Sanctuary
- Nature Reserve
- Important Bird Area
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- Ramsar Site
- Known Marine Annex I Habitats

0 5 10 20 30 Kilometres

Client Rialtas na hÉireann Government of Ireland

South Coast DMAP

Title

Figure 5.6

SEA Baseline Designated Sites

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Issue Details

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Status:	Rev:	Model File Identifier:
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Approved: AG		**Projection:** ITM

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5.3.2.2 Biodiversity

5.3.2.2.1 Benthic Habitats

The INFOMAR online database displays the broad benthic habitat type in the marine environment off the coast of the Republic of Ireland.

Circalittoral rock is present all around the coast of Ireland and is characterised by animal dominated communities (a departure from the algae dominated communities in the infralittoral zone). The character of the fauna varies enormously and is affected mainly by wave action, tidal stream strength, salinity, turbidity, the degree of scouring and rock topography. The shallow circalittoral biozone (closest to the coastline) is commonly composed of A5.25 or A5.26: circalittoral fine sand or circalittoral muddy sand with some A4: circalittoral rock and other hard substrata becoming more common away from the shore. A5.14: Circalittoral coarse sediment are located within the A4 rock in the shallow circalittoral. The deep circalittoral biozone is composed of predominantly A5.15: deep circalittoral coarse sediment, A5.27: deep circalittoral sand and A4: circalittoral rock and other hard substrata.

In addition, data from the European Marine Observation and Data Network (EMODnet) provides habitat information across Europe and provides data on the potential habitats present in the vicinity of and within the Study Area. As shown in **Figure 5.7**, the benthic environment within the Offshore Study Area is a mix of A4.1: Atlantic and Mediterranean high energy circalittoral rock, A5.14: Circalittoral coarse sediment coarse sediment and sand, A5.25 or A5.26: Circalittoral fine sand or circalittoral muddy sand, A5.27: Deep circalittoral sand, A5.37: Deep circalittoral mud and A5.23 or A5.24: Infralittoral fine sand or infralittoral muddy. There are also some areas of A4.2: Atlantic and Mediterranean moderate energy circalittoral rock and A4.27: Faunal communities on deep moderate energy circalittoral rock. To the south-west there is a large area of subtidal sand waves which in areas are of significant heights. These are subject to the strong tidal streams along the southeast coast and are ephemeral in nature.

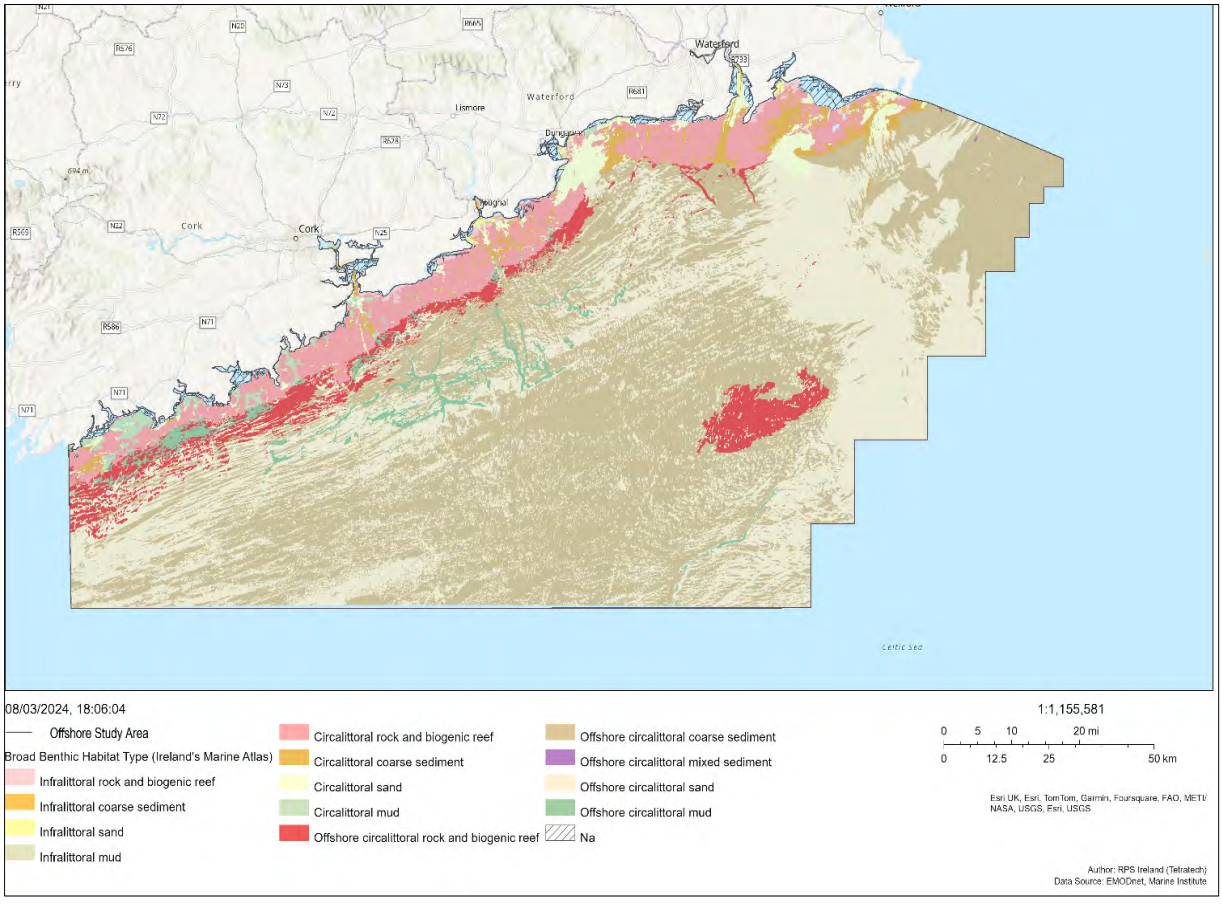


Figure 5.7: Broad Benthic Habitat Types Present in the Offshore Study Area

5.3.2.2.2 Spawning and Nursery Grounds for Fisheries

Fish and shellfish are important components of marine ecosystems as well, operating at a number of trophic levels. They utilise a variety of feeding strategies, including filter feeding for plankton suspended in the water column, scavenging for detritus on the seabed, and both pelagic and demersal predation of plankton, small fish, cephalopods, crustaceans and other benthic organisms. Pelagic fish, species which typically inhabit mid water depths, such as mackerel, primarily feed on planktonic crustaceans, zooplankton, and small fish. Demersal fish, species which inhabit the depths close to the seabed such as gadoids and flatfish, often consume a wide range of benthic invertebrates including crustaceans, polychaetes, molluscs and echinoderms, along with cephalopods and fish. Most benthic crustaceans are scavengers to some extent, feeding on detritus, although many species are also active predators of a variety of benthic organisms. Many bivalve molluscs (e.g., mussels, oysters) are filter feeders of material suspended in the water column.

The Offshore Study Area overlaps with nursery or spawning grounds for the following species, based upon Ireland's Marine Atlas (2022) (See **Figure 5.8**):

- Cod (*Gadus morhua*) spawning and nursery grounds;
- Herring (*Clupea harengus*) spawning and nursery grounds;
- Haddock (*Melanogrammus aeglefinus*) spawning and nursery grounds;
- Mackerel (*Scomber scombrus*) nursery grounds;
- White Belly Angler Monk (*Lophius piscatorius*) nursery grounds;
- Megrim (*Lepidorhombus whiffiagonis*) nursery grounds
- Hake (*Merluccius merluccius*) nursery grounds
- Horse mackerel (*Trachurus trachurus*) nursery grounds; and
- Whiting (*Merlangius merlangius*) spawning and nursery grounds.

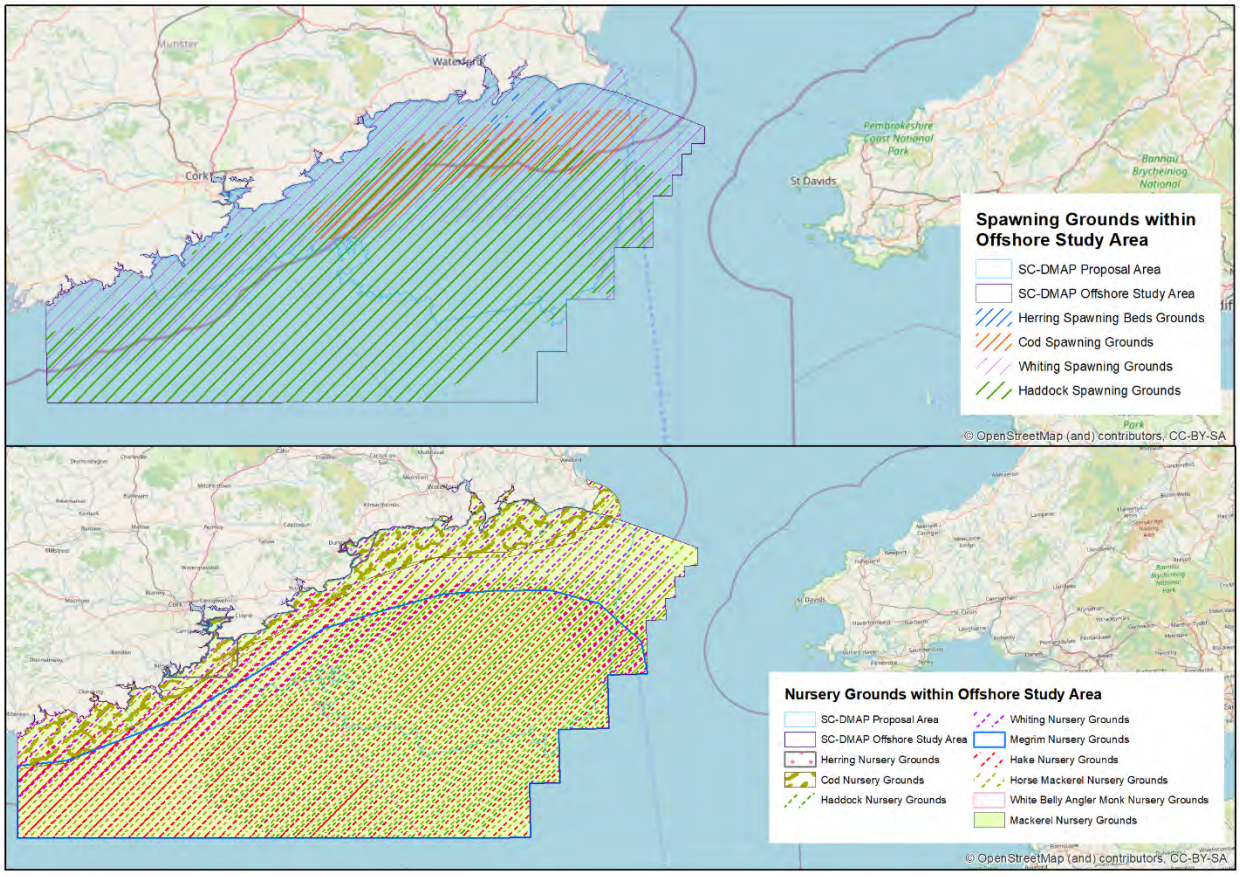


Figure 5.8: Spawning and Nursery Grounds for Relevant Fish Species

5.3.2.2.3 Marine Mammals

The bottlenose dolphin (*Tursiops truncatus*), harbour porpoise (*Phocoena phocoena*), grey seal (*Halichoerus grypus*) and common/harbour Seal (*Phoca vitulina*) are marine mammals protected by Annex II of EC Habitats Directive. According to the National Parks and Wildlife Services the grey seal is a qualifying interest species of the Saltee Islands SAC. Harbour seal usage of the south-eastern coastline as haul out locations is rare (Duck & Morris, 2013); however, they may still be present in small numbers in the area. The Irish Whale and Dolphin Group (IWDG) validated sightings[21] of marine mammals (cetaceans) and other large marine species between transversing the Offshore Study Area January 1st, 2000, to April 9th, 2019. Fin whales were identified as being the most common species followed by harbour porpoise and common dolphin. Minke whale, humpback whale, bottlenose dolphin, Risso's dolphin, killer whale and long-finned pilot whale make up the remainder of the sightings. It should be noted that in addition to cetacean records, the IWDG have records of basking sharks (*Cetorhinus maximus*) from the Offshore Study Area and three sightings of single leatherback turtles (*Dermochelys coriacea*).

5.3.2.2.4 Fish Species

Inland Fisheries Ireland (IFI) is the primary body responsible for management of the fish habitat, which is a national resource that needs to be protected. In Ireland, there are 7 fish species listed under Annex II and/ or Annex V of the Habitats Directive, of which Sea lamprey (*Petromyzon marinus*), Brook lamprey (*Lampetra planeri)*, Twaite shad (*Alosa falax*), Atlantic salmon (*Salmo salar*) are recorded within the draft SC-DMAP Study Area. The Article 17 Report produced by NPWS (2019) lists Atlantic salmon population as being "inadequate and declining" with future prospects also listed as "inadequate". Killarney shad populations were recorded as being "favourable" but sea lamprey and twaite shad populations remain at "bad" status. This is due to a variety of pressures which include physical barriers such as weirs which limit migration to breeding sites, nutrient enrichment and general habitat quality.

5.3.2.2.5 Interaction with Freshwater

The freshwater pearl mussel (FPM) (*Margaritifera margaritifera*) is a mollusc species which lives in freshwater and is protected under Annex II and V of the Habitats Directive and is legally protected in Ireland under the Wildlife Act, as amended. There has been a considerable decline in species distribution and numbers of FPM in Ireland and the conservation status for FPM is currently "bad" and declining, with few locations with recruiting populations showing near-adequate replenishment. The FPM is a filter feeder and is associated with salmonid waters but requiring a higher water quality than salmonids. Salmon are an essential part of their life cycle and as salmon are diadromous fish, migrating between freshwater and marine waters they interact directly with the marine environment. As noted above, the NPWS (2019) lists Atlantic salmon as having an "inadequate" conservation status and this has relevance for the freshwater pearl mussel as it is critical to its life cycle. There is one FPM catchment i.e., Licky Margaritifera SAC Catchment that falls within the Onshore Study Area. However, the Onshore Study Area also overlaps with six Margaritifera Sensitive Areas (MSAs): Suir, Mahon, Tay, Munster Blackwater - Licky, Bandon, and Argideen MSAs. Emissions to water from activities and infrastructural developments related to spatial planning e.g. effluent, suspended solids, release of material during construction etc., have the potential to impact on water quality and in turn on salmon and the life cycle of the FPM.

5.3.2.2.6 Invasive Alien Species

Invasive alien species (IAS) are species that are transported outside of their natural range across and ecological barriers as a result of human action. They can establish and spread in their new location and cause negative impacts on biodiversity, society and the economy. The management and removal of IAS cost Ireland €2.2 every year[22]. Impacts associated with IAS in Ireland include competition with native species, alteration to habitats, introduction of pathogens and parasites and economic loss.

[21] Irish Whale and Dolphin Group. Sightings. Available at: https://iwdg.ie/sightings/

[22] https://invasives.ie/about/irelands-invasive-species/

Construction and demolition waste, such as that generated through development, in particular of brownfield sites, has the potential to spread invasive species.

The introduction of marine species not native to Irish waters, i.e. invasive or alien species (IAS), can result in decline of native species via increased competition, preying directly on native species; or through proliferation as a harmful parasite or as an infectious disease. Fouling or clogging of marine vessels and installations due to increased rapid growth and infection or reduction of yields of commercially harvested species can also result in substantial economic impacts.

IAS may arrive through accidental or deliberate means. The majority of the known accidental introductions of IAS to Irish waters have occurred via shipping (commercial and recreational) or as passengers with aquaculture stock. Deliberate introductions have almost all been for marine culture proposes, such as the farming of Pacific oysters. To date, the observed impacts of IAS on marine habitats and species have been relatively low with the exception of the introduction of the parasite *Bonamia ostrea* that has led to declines in yields of commercially harvested native oyster. There are also concerns for the impact of the nematode parasite *Anguillicoloides crassus* on declining European eel populations. Identifying non-native species and determining the route of introduction of such species is often very difficult, because its presence is only likely to be noticed once it has become established.

There is currently limited information on the presence and impacts of IAS in Irish marine waters and so an accurate assessment of the level of the pressure cannot be made at this time. Ireland is endeavouring to improve its understanding of the presence, distribution and impact of IAS in Irish marine waters.

5.3.2.3 Ornithology

The requirements for reporting under Article 12 of the Birds Directive (2009/147/EC) are every six years. Ireland's Article 12 submission to the EU Commission on the Status and trends of bird species (2013-2018)[23] (European Commission) covers 196 species which includes breeding, wintering and passage species. The NPWS spatial data from 2019 for Article 12 reporting shows the distribution of 114 breeding bird species within the draft SC-DMAP Study Area. The SPA which intersects with the SC-DMAP study area are listed in Appendix 5.1.

Great crested grebe, light-bellied brent goose, shelduck, red-breasted merganser, oystercatcher, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank and turnstone are some of the wintering waterbirds sited across these SPAs.

Peregrine, fulmar, gannet, cormorant, shag, lesser black-backed gull, herring gull, kittiwake, guillemot, razorbill and puffin are the key species of seabirds listed as an QIs for some of these SPAs. Other bird species listed as SCIs for the above listed SPAs include curlew, redshanks

5.3.3 Soils, Sediments and Geology

Soils and sediments are a valuable resource that performs many ecosystem services: production of food; production of biomass; storage, filtration and transformation of nutrients and water; carbon storage and cycling; and contribution to the landscape and cultural environment. Such functions are worthy of protection because of their socio-economic as well as environmental importance. Soils and sediments in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action, hydrology, hydrographic regimes, erosion rates etc.

This baseline provides an overview of soil, sediments and geology features within the study area including seabed and coastal geology features. Seabed substrate will host infrastructure envisaged under the draft SC-DMAP. It also contributes to coastal processes, provides a habitat for flora and fauna, and hosts historical artefacts and evidence. Onshore land and soils will host inter-related infrastructure such as cables and sub-stations needed to support the draft SC-DMAP. Soils and geology contribute to essential land uses, notably agriculture. These indirect land uses may can have unintended consequences such as sterilisation of soils and spread of invasive species etc.

[23] https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

5.3.3.1 Seabed Environment

The rich variety of Ireland's marine plants and animals and the huge range of habitats that they live in (and sometimes create themselves) are largely a result of geographical location, with Ireland lying within the influence of both cool northern waters and warmer southern current flows. This, coupled with the natural physical processes and features described above, creates the conditions to support biologically diverse communities found at all depths and encompassing all substrate types, from rock and biogenic reef to sand and soft muds.

Human activities affect marine habitats and species, either through the discharge and runoff of nutrients and chemicals or through direct physical contact or disturbance. Ireland's MSFD Initial Assessment required under Article 19 concluded that seabed habitats are generally considered to be in a healthy condition. **Figure 5.9** illustrates the seabed sediment classification for the Study Area.

The bathymetry for the SC DMAP proposal area includes a relatively large flat area towards the south east with depths between 60 and 80 m, while south of Cork in the west and in the east, the seabed in much steeper, quickly falling to depths greater than 90 m.

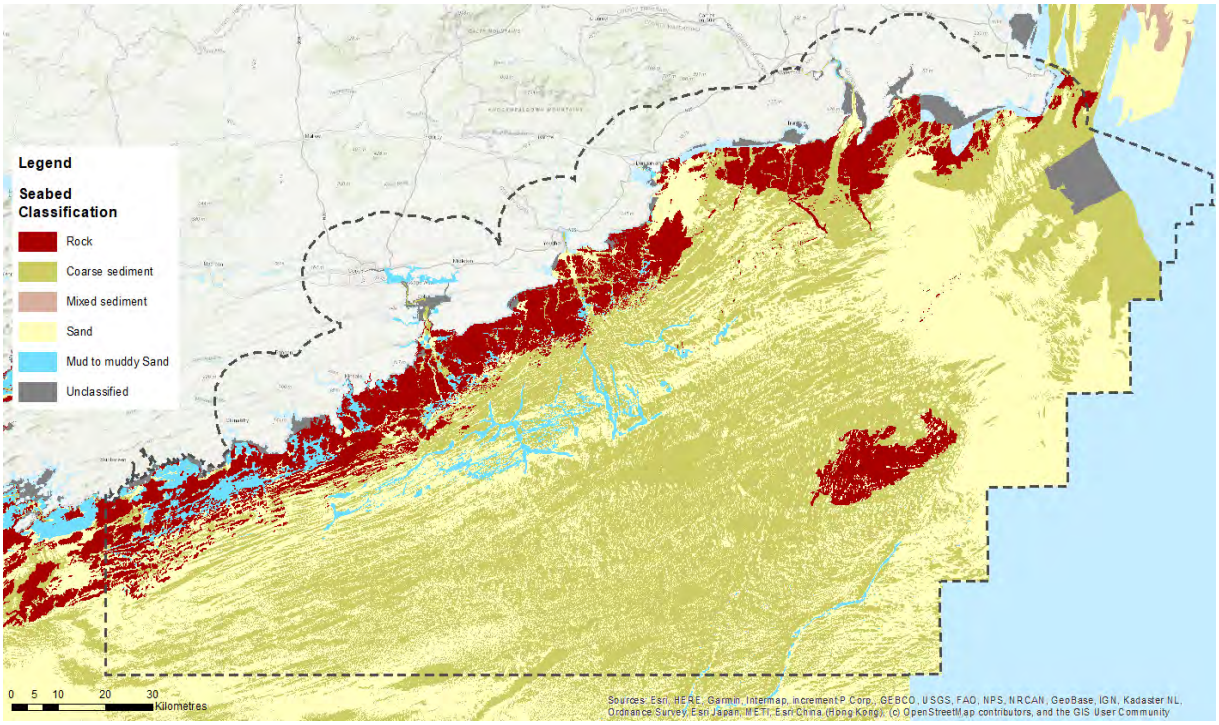


Figure 5.9: Seabed Classification within the draft SC-DMAP Study Area

5.3.3.2 Marine and Coastal Geology

Consideration of bedrock geology is relevant to the design and siting of offshore infrastructure. Rocks occurring on the seabed may exert control over sedimentary processes and affect both physical and biological habitats at the seabed. The morphology of the substrate includes a number of factors such as the bedrock, hard substrate, gravels, sands or silts, as well as the marine sedimentary processes of erosion, transport and deposition that control their distribution, character and thickness. These factors affect the feasibility of different infrastructure installations and foundation technologies, and hence the viability of installation and the nature of potential environmental impact associated with them. Seabed installations can have potentially significant effects on marine sedimentary processes and influence the seabed sediments at some distance from the site. Exposed bedrock is less desirable for cable-laying as the cable would lie on the surface and may need to be armoured with rock from other sources. Biology associated with these features (epifauna) is therefore subject to greater impact than sediments.

The current seabed landscape is a relic of the underlying bedrock geology and the actions of several glacial periods when large volumes of material was eroded from the shelf and land masses, with

deposition on the shelf, at the shelf edge and also over the continental slope. The morphology and distribution of superficial sediments in the study area has resulted largely from repeated glacial deposition/ scour processes combined with reworking and re-deposition as a result of riverine input and tidal processes. **Figure 5.10** illustrates the offshore geology of the Study Area.

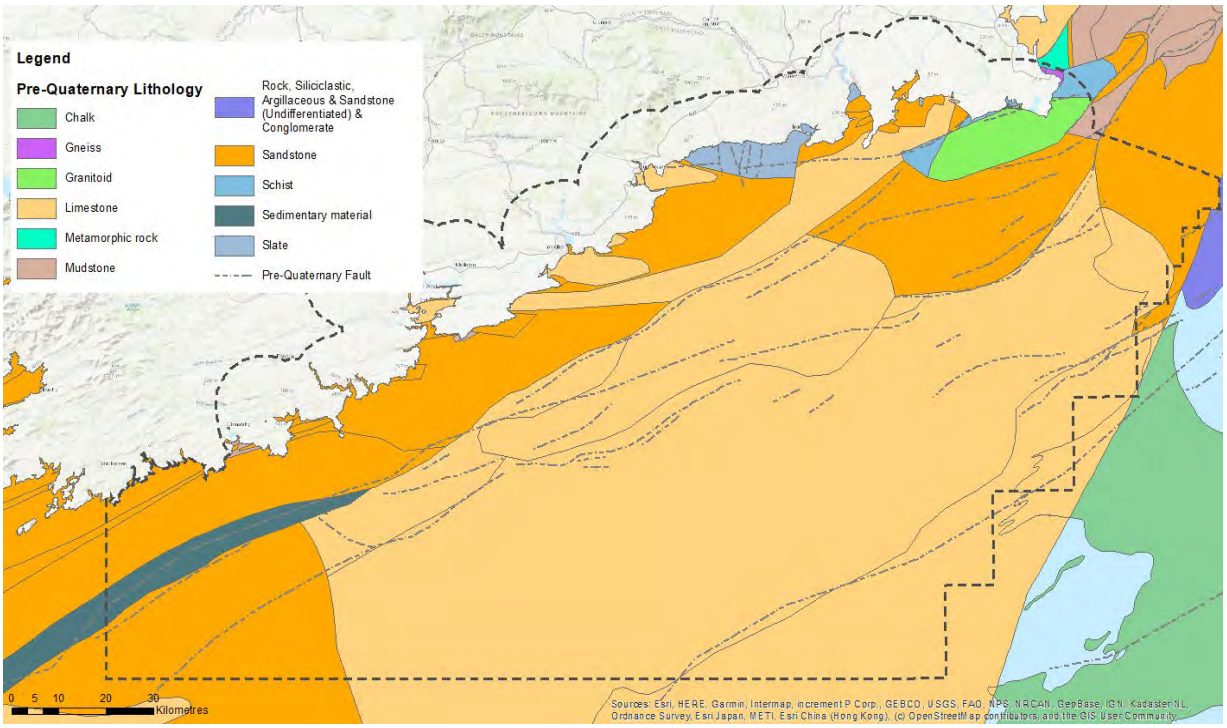


Figure 5.10: EMODnet Bedrock Geology in the Offshore Study Area

5.3.3.3 Coastal Processes

Coastal processes are highly complex. Within the coastal and nearshore environment, the processes driving sediment transport will comprise a complex mixture of wind, wave, tidal and in some cases, fluvial forcing. Consequently, the sensitivity of sediment transport processes will be complex and very site specific. The range and scale of sediment transport mechanisms in the coastal zone is detailed and there is insufficient understanding of these processes to report on these at the strategic level.[24]

Generally suspended sediments which are finer grained or more easily entrained, such as silts, are found in low energy (tide, current or wave-derived) environments. In very high energy environments with strong near-bottom currents, all superficial deposits may have been scoured leaving bedrock on the seabed. Another influence on the nature of the sea bed and associated coastal processes is the supply of freshwater and sediment from major fluvial sources.

The local and regional sediment transport regime will vary considerably from area to area. However, exposed parts of some coasts, and coasts that have narrows with tidal streams such as between islands, are higher energy environments. Local sediment transport regimes are highly sensitive to the effects of wave and tidal action. Some areas are vulnerable to coastal erosion where sediments are also lost from one area by erosion then deposited elsewhere. EMODnet has produced a map showing coastal migration around Europe; much of the east coast of Ireland for instance shows coastal retrogradation or erosion.[25]

The installation of offshore infrastructure could disrupt coastal processes such as sediment transport links to other areas. This could result in localised deposition on the infrastructure or starve sediment supply to pre-existing marine and coastal features. Introduction of artificial structures and hard substrate features can also cause localised scour in the vicinity of the structure by altering local

[24] Department of Energy and Climate Change (2016) Environmental Report, UK Offshore Energy Strategic Environmental Assessment - OESEA3.

[25] https://www.emodnet-geology.eu/map-viewer/?p=coastal_behavior

erosion patterns and diverting flows. Offshore renewable energy infrastructure which actively exploits the hydrology of an area (i.e. wave and tidal structures) can change the velocity structure of the local water column as well as affect wave heights and wave amplitude in the vicinity of a structure and create far-field effects.

5.3.3.4 Terrestrial Soils

The quality of soils in Ireland is considered generally good and Teagasc have indicated that 57% of soil samples had a pH at or above 6.3, considered optimal for agricultural use while reducing the need for fertilisers. Land use change is the major pressure impacting soils across Europe; urban land-take and intensification continues, with about a third of Europe's landscape already considered to be highly fragmented (EEA, 2015)[26]. The current target is for there to be no net land-take in Europe by 2050.

The dominant soil associations (EPA, 2023)[27] in County Cork areas that overlap with the Onshore Study Area are Ross Carbery Association and Clashmore Association. In County Waterford, the dominant soil associations within the buffer are Moord, Knockboy and Clashmore Associations. In County Wexford, the dominant soil associations within the buffer are Kilrush, Clashmore and Rathowen Associations; refer to **Figure 5.11**. More recently, the GSI Tellus programme (GSI, 2023)[28] also provides information in terms of geochemical and geophysical data across Ireland and undertakes both ground and airborne surveys, which is relevant for consideration of the soil baseline at project-level.

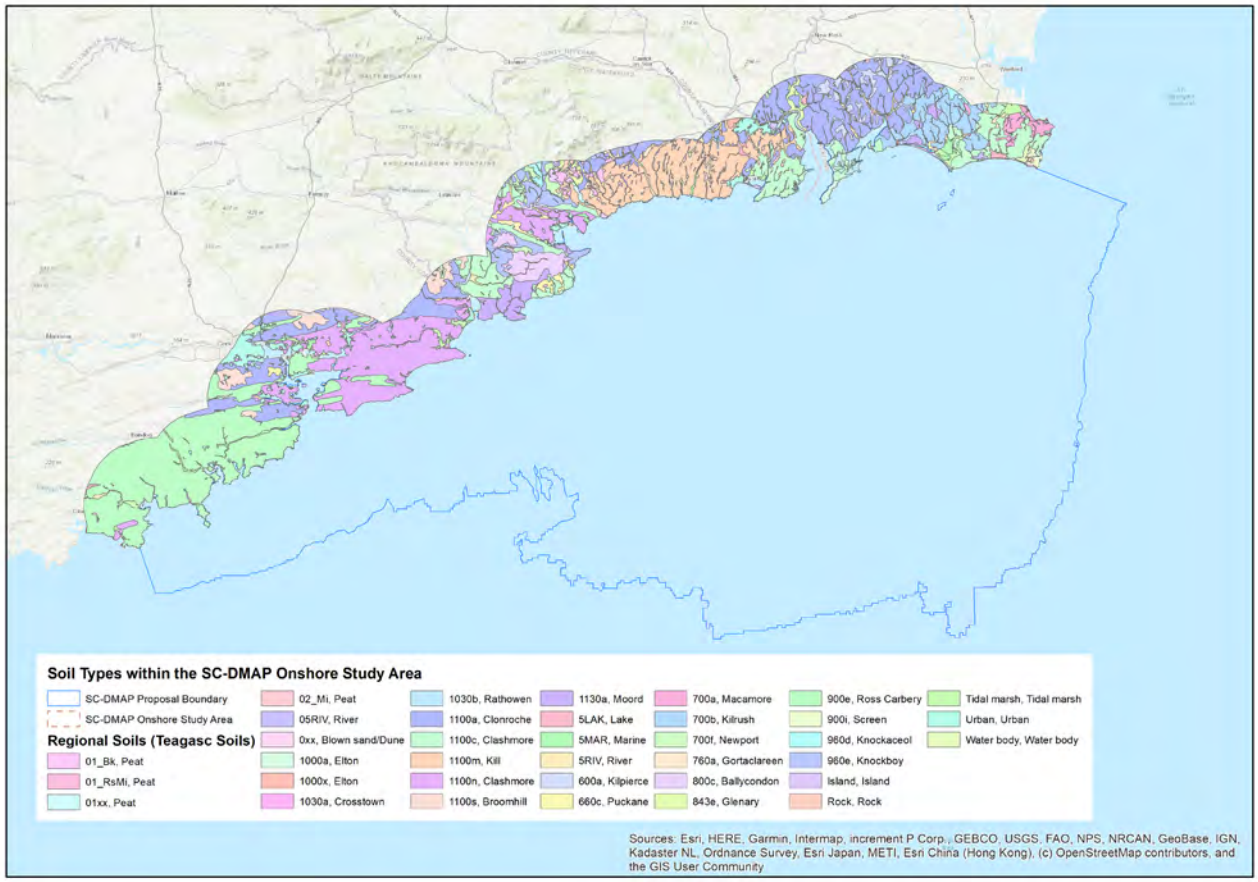


Figure 5.11: Soil Types in the Onshore Study Area

[26] EEA (2015) The European Environment State and Outlook Synthesis Report.

[27] EPA (2023). EPA Teagasc soil http://gis.teagasc.ie/soils/map.php

[28] GSI (2023). Tellus Programme: https://www.gsi.ie/en-ie/programmes-and-projects/tellus/Pages/default.aspx

5.3.3.5 Land Cover

The main land cover type within the Onshore Study Area is coniferous forest covering approximately 22.7% of the Study Area, followed by pastures (15.65%) and mixed forest (14.64%). There is about 12.62% of land principally occupied by agriculture, with significant areas of natural vegetation. Approximately 10.6% of the Onshore Study Area is covered by transitional woodland-shrub, 5.5% is intertidal flats, 3.53% is salt marshes, 2.27 is dominated by beaches, dunes, sands and 2.2% are covered by mineral extraction sites. Inland marshes and port areas, peat bogs occupy 1.5% each of the Study Area and the remaining parts of the Study Area are covered by green urban areas (1.01%), dump sites (0.25%), natural grasslands (1.26%), coastal lagoons (1.26%), water bodies (1.26%) and moors and heathland (0.75%).

Note that the actual amount of urban fabric/ artificial surfaces (such as road and rail infrastructure) is likely to be higher given the resolution of the CORINE data.

5.3.3.6 Terrestrial Geology

The bedrock types underlying the area within the Onshore Study Area includes the following as shown in **Figure 5.12**.

- Greenore Point Group; Schistose amphibolite
- Continental redbed facies (Permo-Triassic, Wexford); Sandstone, conglomerate & siltstone
- Continental redbed facies; Sandstone, conglomerate & siltstone (in places extends into the Carboniferous)
- Gabbro, dolerite & diorite
- Basalt - andesite, tuff, slate & mudstone
- Fluvio-deltaic & basinal marine (Turbiditic); Shale, sandstone, siltstone & coal
- Rhyolite, rhyolitic tuff & slate
- Marine; Quartzite & minor slate
- Deep marine; Slate, shale, minor sandstone & siltstone
- Continental redbed facies; Sandstone, siltstone & mudstone
- Deep marine; Slate, schist & minor greywacke
- Marine; Greywacke & shale
- Shallow marine, (Cork Group, Old Head Sandstone Fm); Sandstone & mudstone
- Marine (Cork Group) (extends into the Visean); Mudstone, sandstone & thin limestone
- Kilmore Quay Group; Paragneiss, schist
- Granite, granodiorite
- Marine shelf & ramp facies; Argillaceous dark-grey bioclastic limestone, subsidiary shale
- Marine; Slate
- Microgranite & porphyry
- Waulsortian mudbank; Pale-grey massive limestone
- Shallow marine ("Lower Limestone Shale"); Shale, sandstone & thin limestone
- Marine shelf facies; Limestone & calcareous shale

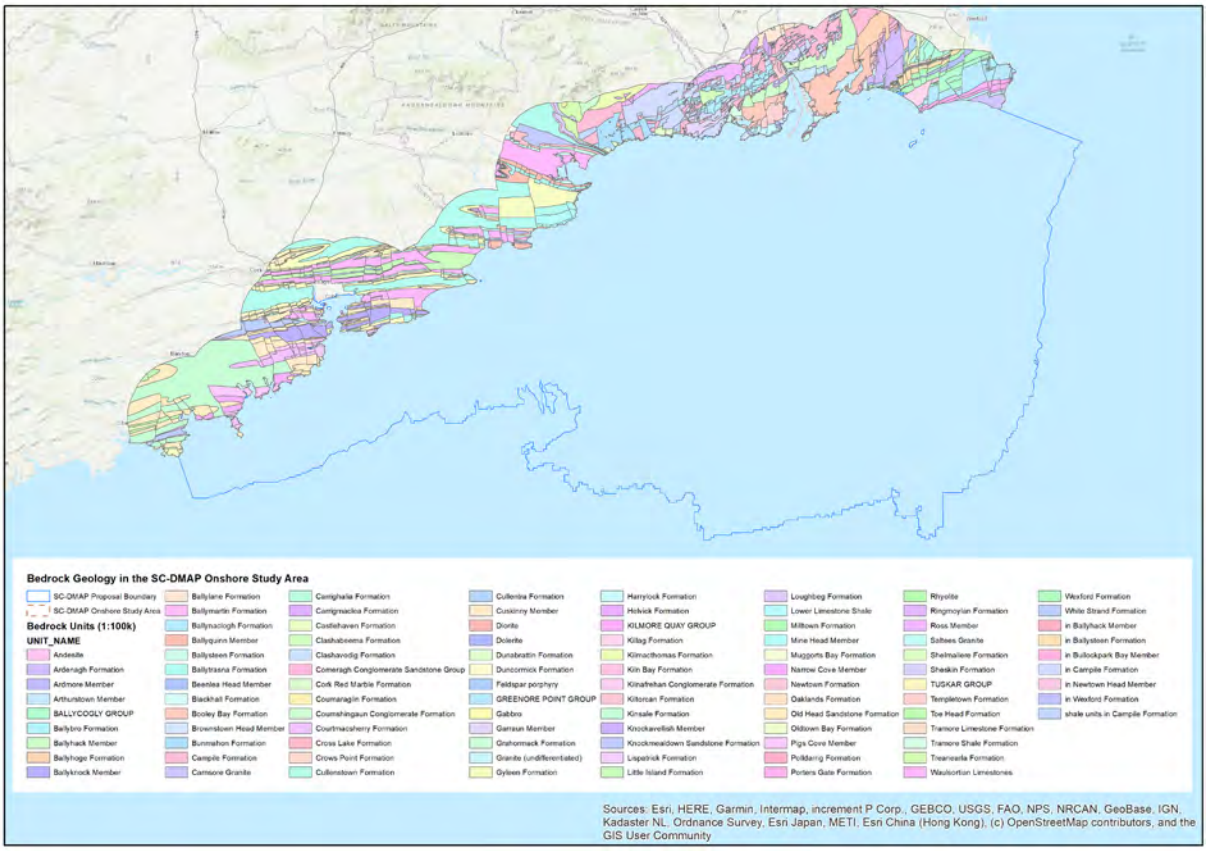


Figure 5.12: Bedrock Geology in the Onshore Study Area

5.3.3.7 Karst Landforms

There are 84 karst features present within the Onshore Study Area. The overlapping areas of County Cork contain 58 karst features and predominant types include caves, boreholes and springs. The overlapping areas of County Waterford contain 26 karst landforms and predominant types include caves and enclosed depressions. There are no karst features present in areas of County Wexford that falls within the Onshore Study Area.

5.3.3.8 Mines and Quarries

The GSI's active quarries database indicates that 19 quarries were reported as currently active in the Study Area, majority of which are in County Cork. In the Onshore Study Area (shown in **Figure 5.13**), there are about 253 mineral locations, majority of which are present in County Waterford as recorded by the GSI. These locations do not represent mining activities but rather are locations of possibly commercial mineral deposits as well as other mineral and geological features of interest.

5.3.3.9 Geological Heritage

The Irish Geological Heritage (IGH) Programme is a partnership between the GSI and the NPWS. In Ireland, geological heritage is assessed under a framework of 16 themes which cover different time periods and aspects of geology. Some of these sites have been selected or recommended for eventual designation as Geological NHAs. The remainder are being considered as County Geological Sites (CGS) which have no statutory protection but can be included within County Development Plans. There are currently 110 heritage sites in the draft SC-DMAP Study Area which are viewable online via the GSI's dedicated heritage map viewer.[29] 66 of these sites are audited. **Figure 5.13** also shows both

[29] GSI Geological Heritage Map Viewer:

audited and unaudited geological heritage sites within the draft SC-DMAP Study Area. There is also a geopark located in Waterford within the Onshore Study Area, Copper Coast Geopark.

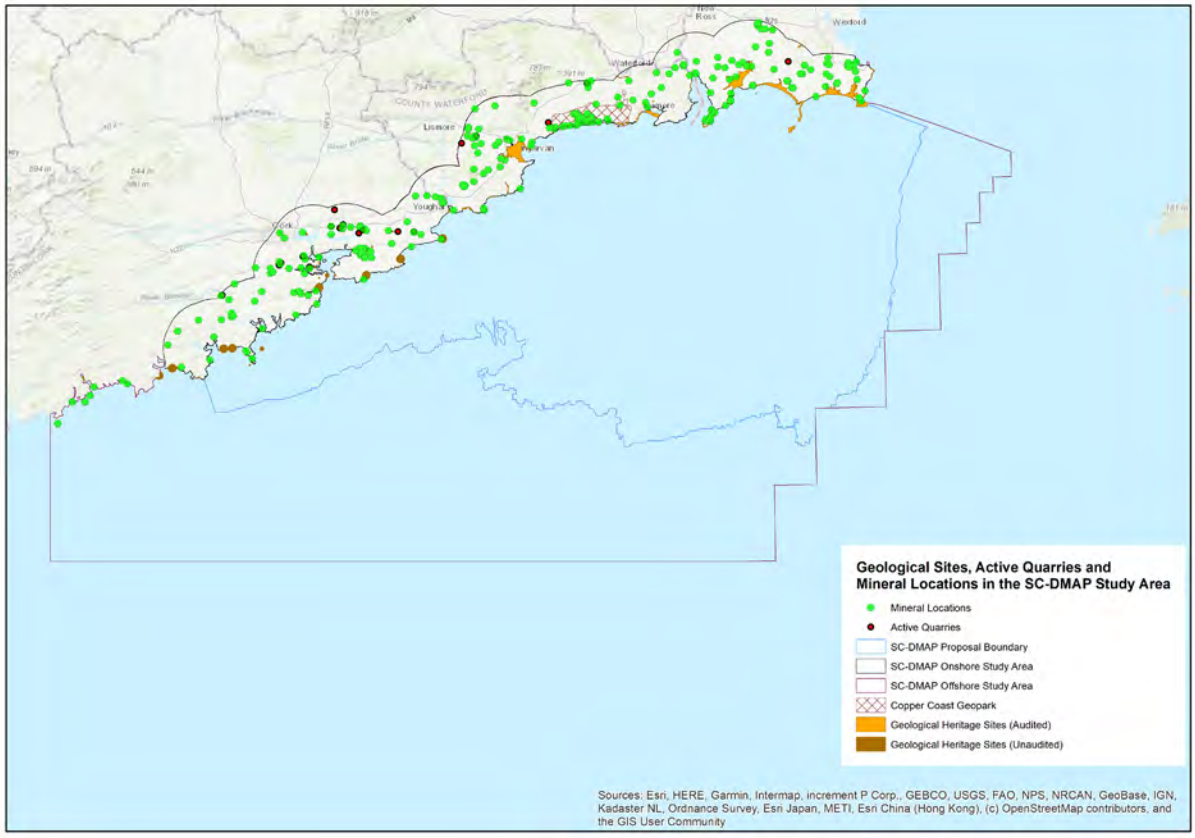


Figure 5.13: Geological Sites, Mineral locations and Active Quarries within the draft SC-DMAP Study Area

5.3.3.10 Seveso Sites

The EU also has directive regarding the control of major accident hazards, commonly known as the Seveso III Directive (2012/18/EC)[30]. This was adopted and ratified into Irish law through the Control of Major Accident Hazards Involving Dangerous Substances (COMAH) Regulations 2015 (S.I. No. 209 of 2025). In conjunction with the Health and Safety Authority (HSA), it is policy for local authorities to implement the provisions of the Seveso III Directive (2012/18/EU). Seveso sites are defined as industrial sites which, because of the presence of sufficient quantities of dangerous or hazardous substances, must be regulated under this EU directive. Seveso sites are categorised as Upper Tier or Lower Tier depending on the size of the site and the quantities of dangerous/ hazardous material present. Within Onshore Study Area, there are 9 Lower Tier and 12 Upper Tier Seveso Sites in County Cork, one Upper Tier site in County Waterford and two Upper Tier site in County Wexford.

5.3.3.11 Hydrogeology

An aquifer is an underground body of water-bearing rock or unconsolidated materials (gravel or sand) from which groundwater can be extracted in useful amounts. The GSI classifies aquifers and the classes are divided into three main groups based on their resource potential, and further subdivided

http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 [Accessed January 2024]

[30] EU Seveso Directive (2012). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012L0018

based on the type of openings through which groundwater flows. County Cork within the Study Area is dominated by Locally Important Aquifers – Moderately Productive in Local Zones, with smaller areas of Locally Important Karstified and Regionally Important Aquifer - Karstified (diffuse). The areas of County Waterford within the Study Area are underlain mainly by Locally Important Aquifers including karstified type, Regionally Important Aquifer - Karstified (diffuse) and Regionally Important Aquifer - Fissured bedrock. Areas of County Wexford overlapping the Study Area include mainly Poor Aquifer (Bedrock which is Generally Unproductive except for Local Zones) along with some areas of Regionally Important Aquifer - Karstified (diffuse) and Regionally Important Aquifer - Fissured bedrock. Gravel aquifers are much smaller in number and extent. The gravel aquifers within the Onshore Study Area are classified as locally important and regionally important. The distribution of aquifers is mapped in **Figure 5.14** and their vulnerability is shown in **Figure 5.15.**

Karst springs, both large and small, are ready sources of drinking water in areas where there are often no other alternatives due to the absence of adequate surface watercourses. Due to the particular characteristics of karst, including an irregular bedrock surface, the presence of large voids and rapid underground drainage, it can present problems for infrastructure development as groundwater is most at risk where the subsoils are thin or absent and contaminants can enter the groundwater with little or no filtration or attenuation. Common karst features can include swallow holes, caves, turloughs and enclosed depressions.

The GSI borehole database (those with the highest positional accuracy) indicates that there are 137 verified boreholes within the Onshore Study Area, majority of which lie in County Waterford.

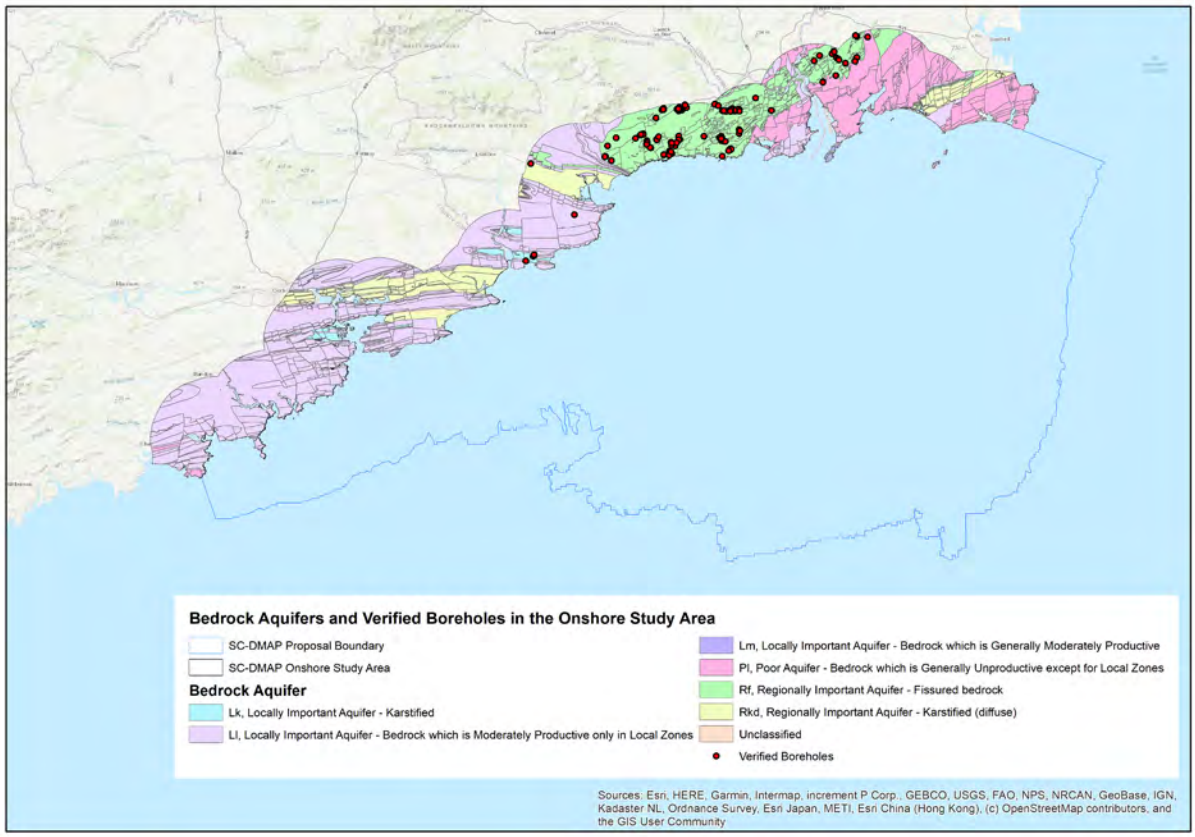


Figure 5.14: Distribution of Aquifers within the Onshore Study Area

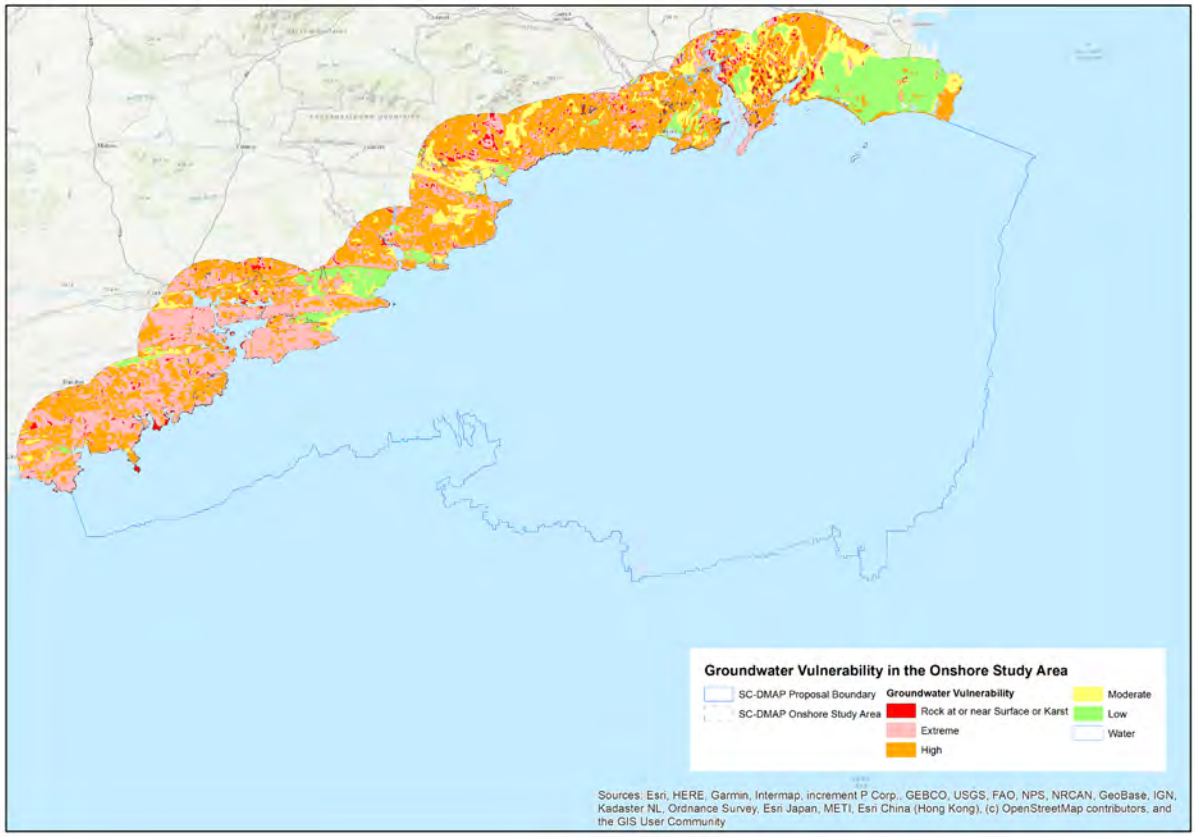


Figure 5.15: Groundwater Vulnerability (Vulnerability of Aquifers) found within the Onshore Study Area

5.3.3.12 Contamination and Sediment Quality

In Ireland, the main sources of non-synthetic contaminants are from industries on land, shipping and urban wastewater discharges. Synthetic contaminants result from land-based activities, combustion, historic use of PCBs and pesticide use. The main sources of radionuclides in Irish waters arise from the medical and research sectors. Radionuclides are also discharged from the Kinsale Heads Alpha gas platform in the Irish Sea. It is difficult to assess trends of contaminants in dredged materials. Contaminants in these materials generally represent historic contaminants associated with ports and harbours which are maintained regularly with the expectation that repeated dredging leads to successively lower loads of contaminants. Across 2003-2007, data from 3 monitoring stations for OSPAR assessments (Dublin Bay and northern Irish Sea) indicated exceedances in the upper threshold values for cadmium, copper, lead and zinc in sediment. Levels of PCBs and pesticides were detected at low levels at these sites over the same period and are not considered to cause negative effects. The radionuclide caesium-137 is monitored in sediments and noted to remain at fairly stable levels after a downwards trend observed since 1995. Overall, contaminant levels in Irish sediments are within OSPAR assessment criteria.

5.3.4 Water

Water is essential for all life on earth and as such management of the water resource is a significant issue nationally and within Europe. While Ireland's surface and groundwater water quality compares favourably with other EU Member States, there are ongoing pressures and problems associated with achieving and maintaining at least good status in line with Water Framework Directive (2000/60/EC) objectives, as well as other water directives.

The baseline focuses on surface water bodies, coastal and transitional water bodies and ground waterbodies with the draft SC-DMAP proposal area. There is also overlap between the provision of water services and material assets/ infrastructure. Therefore abstractions/ water supply, and wastewater treatment are discussed under **Material Assets** in **section 5.3.6.10** (Water Supplies and Wastewater) and **section 5.3.6.11** (Wastewater Treatment and Disposal) respectively.

5.3.4.1 River Water Body Status

A total of 171 river water bodies transverse the Onshore Study Area. **Table 5-8** presents of number of river waterbodies under each WFD status category that are indirectly connected to the draft SC-DMAP proposal area. Also, **Figure 5.16** shows the river water bodies with associated ecological status.

Table 5-8: River Water Bodies in Counties of Cork, Waterford and Wexford within the Study Area

Administrative Area	No. of Rivers (%) with High Status	No. of Rivers (%) with Good Status	No. of Rivers (%) with Moderate Status	No. of Rivers (%) with Poor Status
Wexford	0 (0%)	7 (21.87%)	19 (59.37%)	6 (18.75%)
Waterford	6 (10.90%)	20 (36.36%)	17 (30.90%)	12 (21.81%)
Cork	3 (3.57%)	56 (66.66%)	22 (26.19%)	3 (3.57%)

5.3.4.2 Coastal and Transitional Water Body Status

The coastal and transitional waterbodies (WBs) that have connectivity with the draft SC-DMAP proposal area are listed in Table 5-9 with associated water quality status and risk status; these are also shown in **Figure 5.17**. The EPA's latest Water Quality Indicator's Report (2022)[31] states that 21 of the 103 estuarine and coastal water bodies assessed were in unsatisfactory condition for dissolved inorganic nitrogen, indicating increased contributions from anthropogenic sources. There are two water bodies that had the highest concentrations within the Onshore Study Area: Glashaboy Estuary (Co. Cork) at 124% above the threshold value and Corock Estuary (Co. Wexford) at 83% above the threshold value. Nitrogen levels have also significantly increased in Lee Estuary (Co. Cork) over the period of 2012 to 2022.

Nearly all (97%) estuaries and coastal waters assessed were in satisfactory condition for phosphate[25]. An analysis of change over time from 2012-2022 shows that there has been significant increase in winter median phosphate concentrations in Cork Harbour (Co. Cork), New Ross Port (Co. Wexford), Barrow Nore Estuary Upper (Co. Wexford), Outer Cork Harbour (Co. Cork). However, the Lower Lee Estuary (Co. Cork) showed a significant decrease in phosphate concentrations over this same period.

Table 5-9: Coastal and Transitional Waterbodies in Counties of Cork, Waterford and Wexford within the Study Area

Water Body Type	Water Body Code and Name	WFD Status (2016-2021)	WFD Risk (WFD 3rd Cycle)
Coastal Water Body	Irish_SW_100_0000 Clonakilty Bay	Good	Review
	IE_SW_090_0000 Courtmacsherry Bay	Good	Review
	IE_SW_050_0000 Outer Cork Harbour	Moderate	At Risk
	IE_SW_010_0000 Western Celtic Sea	High	Not At Risk
	IE_SW_060_0000 Cork Harbour	Moderate	At Risk
	IE_SW_080_0000 Kinsale Harbour	Good	Not At Risk
	IE_SW_040_0000 Ballycotton Bay	Good	Not At Risk
	IE_SW_020_0000 Youghal Bay	Moderate	At Risk
	IE_SE_050_0000 Eastern Celtic Sea	High	Not At Risk
	IE_SE_140_0000 Dungarvan Harbour	Good	Not At Risk
	IE_SE_110_0000 Tramore Bay	Good	Not At Risk

[31] EPA (2022) Water Quality in 2022. An Indicators Report. Available at: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/water-quality-in-2022-.php. Accessed: January 2024.

Water Body Type	Water Body Code and Name	WFD Status (2016-2021)	WFD Risk (WFD 3rd Cycle)
	IE_SE_120_0000 Tramore Back Strand	High	Not At Risk
	IE_SE_100_0000 Waterford Harbour	Moderate	At Risk
	IE_SE_090_0000 Bannow Bay	Moderate	At Risk
	IE_SE_010_0000 SouthwesterIrishsh Sea	Good	Not At Risk
Transitional Water Body	IE_SE_060_0100 Lady's Island Lake	Poor	At Risk
	IE_SE_070_0100 Tacumshin Lake	Moderate	At Risk
	IE_SE_080_0100 Bridgetown Estuary	Moderate	Review
	IE_SE_090_0100 Corock Estuary	Moderate	At Risk
	IE_SE_100_0100 Barrow Suir Nore Estuary	Moderate	At Risk
	IE_SW_060_0800 Glashaboy Estuary	Bad	At Risk
	IE_SE_100_0500 Lower Suir Estuary (Little Island - Cheekpoint)	Moderate	At Risk
	IE_SE_100_0200 New Ross Port	Moderate	At Risk
	IE_SE_130_0100 Mahon Estuary	Moderate	Review
	IE_SE_140_0100 Colligan Estuary	Moderate	At Risk
	IE_SE_140_0200 Brickey Estuary	Moderate	Review
	IE_SW_020_0100 Lower Blackwater M Estuary / Youghal Harbour	Moderate	At Risk
	IE_SW_030_0100 Womanagh Estuary	Moderate	Review
	IE_SW_060_0100 Rostellan Lake	Moderate	Review
	IE_SW_060_0300 North Channel Great Island	Moderate	At Risk
	IE_SW_060_0900 Lee Cork Estuary Lower	Moderate	At Risk
	IE_SW_060_0950 Lee Cork Estuary Upper	Moderate	At Risk
	IE_SW_060_0200 Cuskinny Lake	Bad	Review
	IE_SW_060_0750 Lough Mahon	Moderate	At Risk
	IE_SW_060_0700 Lough Mahon (Harper's Island)	Moderate	At Risk
	IE_SW_060_1200 Owenboy Estuary	Moderate	At Risk
	IE_SW_060_1100 Lough Beg / Curraghbinny	Good	Review
	IE_SW_070_0100 Oysterhaven	Moderate	At Risk
	IE_SW_080_0100 Lower Bandon Estuary	Poor	At Risk
	IE_SW_080_0300 Upper Bandon Estuary	Poor	At Risk
	IE_SW_090_0200 Argideen Estuary	Moderate	At Risk
	IE_SW_100_0100 Clonakilty Harbour	Poor	At Risk

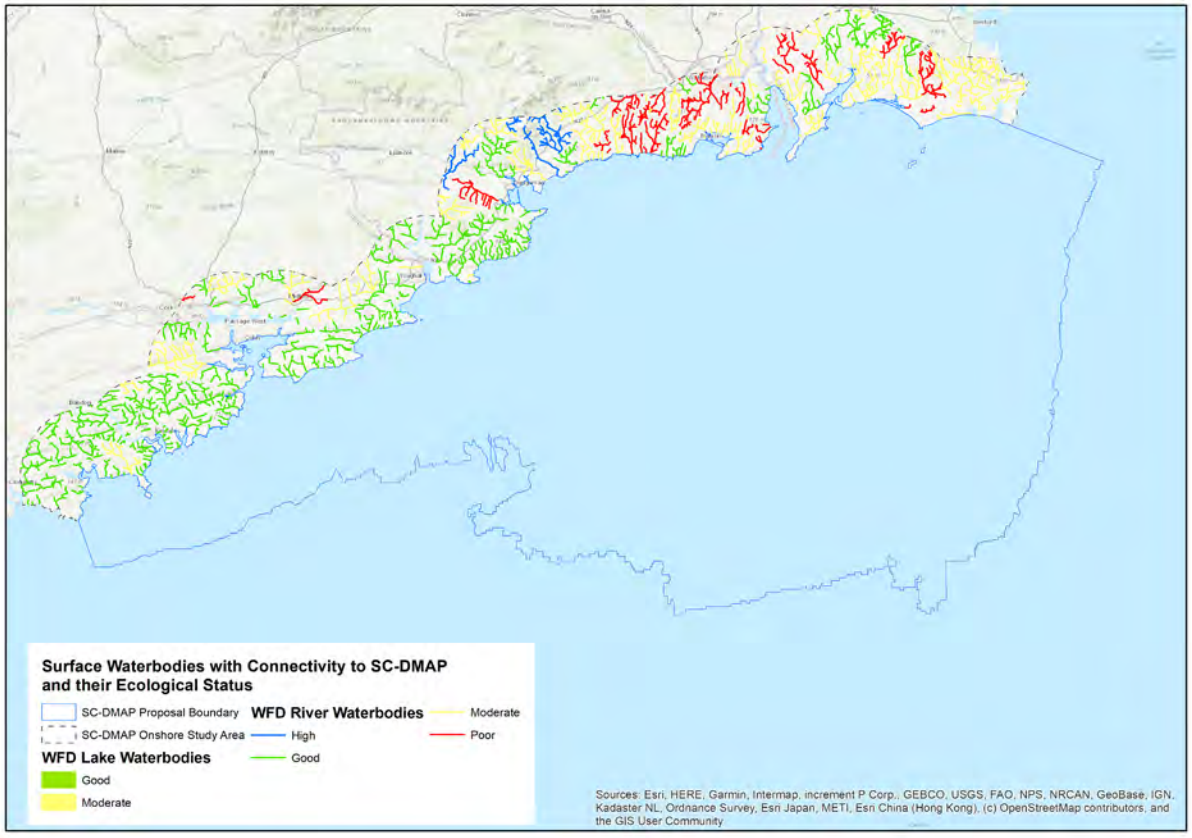


Figure 5.16: WFD Status of River Water Bodies with Connectivity to SC-DMAP Proposal Area

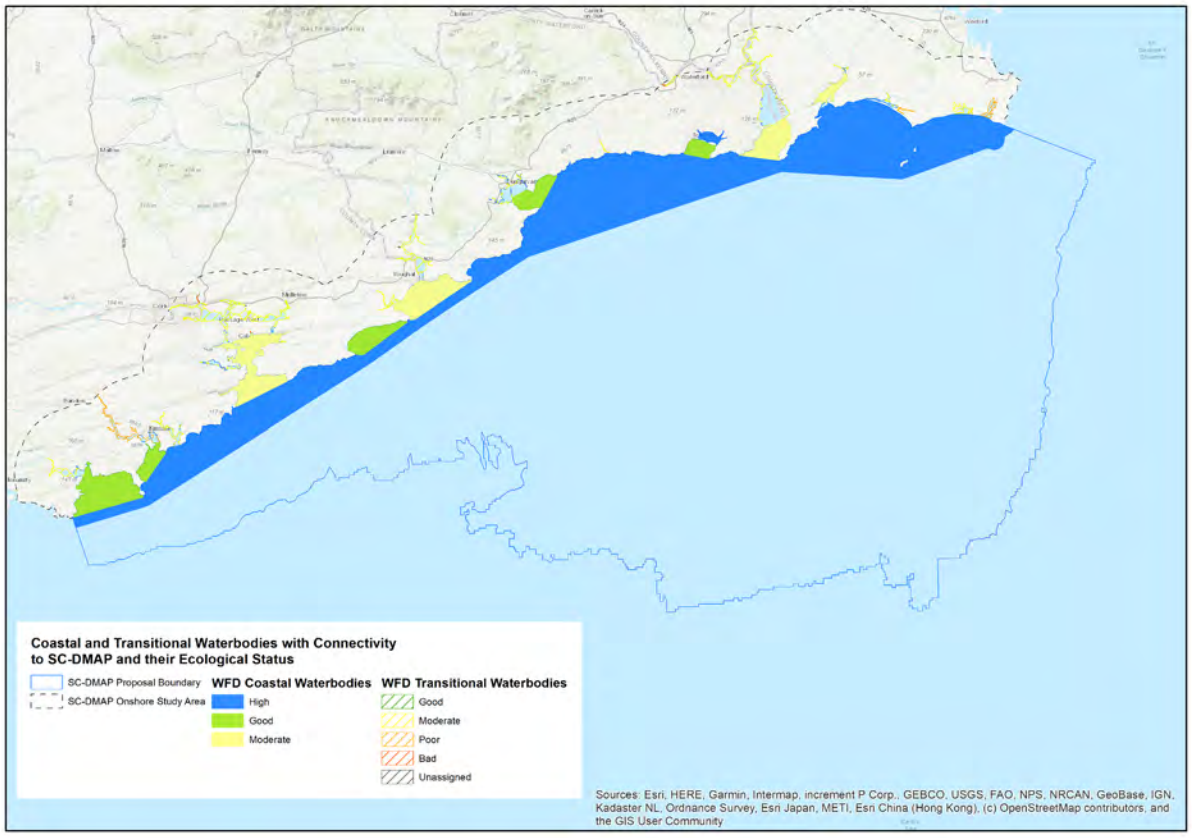


Figure 5.17: WFD Status of Coastal and Transitional Water Bodies with Connectivity to SC-DMAP Proposal Area

5.3.4.3 Groundwater Status

There are 46 ground waterbodies (GWBs) underlying the Onshore Study Area. Of these, three GWBs have poor status: Waste Facility (W0032-02), Waste Facility (W0012-03) and Waste Facility (W0018-01). The remaining 43 GWBs have good status. The status can be viewed online at EPA's catchments website[32].

5.3.4.4 Nutrient Sensitive Areas

Nutrients, predominantly as nitrogen and phosphorus, find their way into the sea from a variety of sources, most commonly from agriculture, wastewater treatment discharges and from unsewered domestic or industrial properties. The presence of excessive or unnatural levels of nutrients (eutrophication) can cause the proliferation or accelerated growth of nuisance seaweeds or plankton blooms. The levels of chlorophyll (a measure of phytoplankton density), opportunistic seaweeds, dissolved oxygen and organic matter in coastal waters currently meet the standards required under the WFD.

The EPA Water Quality in 2022 - An Indicators Report concludes that the loads of nitrogen and phosphorus coming from the major rivers to Ireland's marine environment has been increasing since 2013 and is putting the water quality of the estuaries and coastal waters, particularly in the south east, under sustained pressure. Addressing the emissions of nitrogen and phosphorus to the water bodies is a priority.

Within the Onshore Study Area, there are seven WFD Nutrient Sensitive Areas[33]: Clonakilty Harbour, Bandon Estuary Lower, Bandon Estuary Upper, Lee Estuary / Lough Mahon, Owennacurra Estuary / North Channel, Blackwater Estuary Lower, Middle Suir Estuary.

5.3.4.5 Ireland's Ocean Setting

The coastal and oceanic influences are constantly colliding, forming water masses of different temperatures that are further modified by the north-eastward flow of the comparatively warm North Atlantic Current. Surface water temperatures fluctuate seasonally between averages of around 7°C after winter cooling, to 19°C following the warming influence of summer. In deeper water, temperatures are cooler, ranging between around 6°C to 17°C along the shelf (up to 200m depth) and in the Celtic Sea (the waters extending from the south coast of Ireland, east toward the southwest coast of England and south toward the northwest coast of France). In the very deep waters it is colder still, ranging between around 3°C to 9°C with very little seasonal variation. At certain times of the year in the Celtic Sea and Irish Sea the temperature differences between the upper and lower water masses creates stratification, a layering effect that prevents the water masses from mixing. This effect results in a barrier to the vertical movement of nutrients and some marine organisms.

The salinity (saltiness) of the coastal waters around Ireland varies depending on the freshwater input from rivers and coastal areas, which, in turn, is dependent on the amount of rainfall. In general, salinity is reduced during winter months when rainfall is greatest. Offshore, the influence of riverine water declines sharply and there has been very little recorded fluctuation in offshore salinity over long time periods. The movement of water masses around Ireland is complex with several ocean and inshore currents interacting to produce a broad northward water movement, flowing clockwise around the south, west and north of Ireland. These currents are primarily wind-driven, but in spring and summer the current flow off the west coast is enhanced by temperature differences or salinity changes in surface and bottom water masses over the shallow continental shelf, causing a layering of different water densities. More widely, the North Atlantic Current, flowing across the Atlantic as an extension of the Gulf Stream, is a major influence on the movement of water masses around Ireland, splitting into two at the Rockall Bank and combining with, and enhancing, more local current flows. The divergence of ocean currents can also lead to upwelling in open water where cold, nutrient-rich waters from the

[32] https://www.catchments.ie/data/#/?_k=esr7d8. Accessed: January 2024

[33] Those water bodies listed in accordance with the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC on Urban Waste Water Treatment and S.I. 254 / 2001, S.I. 440/2004 and S.I. 48/2010 i.e. water bodies that are sensitive to urban wastewater discharges.

ocean depths are driven up into the surface waters. In coastal waters the same event is caused by winds pushing surface water seaward forcing deeper water upward to replace it. In Irish waters both types of upwelling are known to occur but it is most commonly wind-driven, an example of which is the summer upwelling event around Fastnet Rock, off the south-west of Ireland. Upwelling events may stimulate periodic diatom blooms, the released nutrients fuelling a burst of growth. Wind-driven wave action also plays a significant role in these ocean processes, mixing water masses and shaping the coasts and shallow sea beds. As might be expected, the larger, more violent swell and wave movement occurs along the open Atlantic and the western coasts with the more sheltered Irish Sea experiencing smaller, more localised wave disturbance. The average wave height has been increasing in recent decades, driven by the stronger and more frequent winds that are being generated by changing seasonal atmospheric pressure patterns that form over the north-eastern Atlantic.

Both wave and tidal movement contribute to the level of suspended material in the water column, lifting sediments from the sea bed and reducing the clarity of the water. Water transparency is an important factor for marine life because it governs the depth limits for the survival and growth of marine plants that depend on the sunlight that filters through the seawater. The Irish Sea is naturally high in suspended matter but there is evidence to suggest that the more frequent strong winds are reducing water clarity in shallow waters. All of the physical features described here combine to create and support a network of inter-dependent ecosystems that gives rise to the unique biodiversity that characterises Ireland's marine waters, providing an extremely valuable economic and social resource.

5.3.4.6 Chemical Contaminants

Non-synthetic Contaminants

Non-synthetic contaminants are naturally occurring chemicals that, through human activity, are introduced into the marine environment at higher-than-natural concentrations. Examples of non-synthetic contaminants include trace metals found in the earth's crust, or polyaromatic hydrocarbons (PAH) which predominantly result from the combustion of fossil fuels and organic materials. The main human sources of non-synthetic contaminants are land-based industry (including sewage discharges), urban wastewater, shipping activities and combustion processes.

A small number of non-synthetic chemicals present in marine food chains are currently monitored through water, sediment and organism sampling programmes. Results of this monitoring indicate that the concentrations of the monitored non-synthetic chemicals are within internationally acceptable ranges or standards. Concentrations in seafood from Irish waters consistently meet the standards set under European legislation, while wider environmental concentrations are unlikely to cause adverse effects on marine life. There is still, however, a high degree of uncertainty in relating the environmental concentrations of these substances to specific biological effects and so an overall evaluation of the actual impacts of these contaminants for draft SC-DMAP Area cannot be made at this time.

Synthetic Chemical Contaminants

Synthetic contaminants are man-made products that, through human activity, are introduced into the marine environment. Examples of synthetic contaminants include polychlorinated biphenyls (PCBs), pesticides, brominated flame retardants, dioxins and organotins (e.g. tributyltin or TBT). The main human sources of synthetic contaminants are discharges from land-based industry (including sewage discharges) and urban emissions.

Current levels of synthetic contaminants in Irish waters are considered to be low and within the limits set under European standards or protocols, indicating that existing concentrations are unlikely to cause adverse effects on marine life. Levels of PCBs and dioxins present in seafood from Irish waters are consistently within maximum limits set under European legislation.

The ability to determine actual biological effects of elevated concentrations of synthetic contaminants is presently very limited and is currently restricted to observations of the disruptive effects of TBT compounds on the sexual development (imposex) of the dogwhelk sea snail. TBT was incorporated as the active ingredient in antifouling paints commonly applied to vessel hulls and marine structures until a global ban of its use was imposed in 2008. Despite this ban, TBT concentrations remain detectable at some Irish coastal locations mostly in the vicinity of harbours and ports. On-going monitoring indicates that marked improvements in the incidence of imposex is evident suggesting that TBT levels are continuing to decline.

Radionuclides

Radionuclides are radioactive contaminants that are introduced to the marine environment from both natural and man-made sources. Natural inputs result from the weathering of minerals present in the earth's crust and from cosmic radiation. Man-made radionuclides are released into the marine environment from a variety of human activities, either associated directly with the nuclear industry, or as a part of the military, medical, educational and research sectors. Human activities have also led to enhanced levels of naturally occurring radionuclides, such as those discharged in wastewater from offshore oil and gas extraction activities.

Traditionally, Ireland's radionuclide monitoring programme has focused on evaluating direct human exposure to radioactive sources together with assessments of the geographic distribution of man-made radionuclides in the Irish marine environment. Currently no regulatory threshold levels have been established for what might constitute an adverse impact on marine habitats and species, so it has not been possible to undertake an assessment of the current status of radioactive contamination from a wider marine environmental perspective. The OSPAR Commission has considered the issue and has concluded that current radioactivity dose rates across the OSPAR area are below the level at which damage to ecosystems is likely to occur.

5.3.4.7 Marine Acidification

The level of atmospheric CO_2 originating from human activity is increasing globally. When the gas dissolves in seawater it increases the acidity of the oceans. Small increases in acidity have been detected in both shallow and deep Atlantic water off the coast of Ireland in recent decades. These observations correlate well with the results of studies undertaken in other parts of the world. The main human activities contributing to increased CO_2 and other greenhouse gas emissions are fossil fuel combustion, cement production, farming and forestry (including land-use change). Little is known about the ecological and economic impacts of marine acidification but it could hold major implications for critical components of marine ecosystems and the economies they rely on. In the context of the SC-DMAP, changes in acidification could, in particular impact the aquaculture sector. Many species, ranging in size from microscopic plankton organisms to large seabed grazers and filter feeders, use calcium, secreted as calcium carbonate, to construct external skeletons, shells or shared reef structures. Increasing seawater acidity is thought to interfere with the secretion process and significantly impair their ability to make these structures, resulting in little or no growth and a possible eventual loss of these key ecosystem elements. Research to determine the severity of the projected impacts and implications of the current trends in ocean acidity is continuing.

5.3.4.8 Marine Litter

Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine or coastal environment. It consists mainly of very slowly degrading waste items such as plastic, metals and glass. It can have damaging ecological and economic effects on the seabed, in the water column and on the seashore.

Marine litter enters the marine environment from multiple sources. In Ireland, beach surveys have indicated that the main land-based sources of litter are tourism and sewage. The primary sea-based sources are shipping and fishing. Litter is also known to be widely distributed on the seabed, although information on the amount and environmental impact is very limited. It is, however, thought that both shore and seabed litter originate from similar sources.

Marine litter can pose a risk to a wide range of marine organisms such as seabirds, marine mammals and turtles through ingestion and entanglement. The relationship between the types and amounts of marine litter in the environment and the degree of harm caused to organisms is not at present fully understood. Current evidence suggests that the impacts on cetacean and seal populations in Irish waters are minimal. Plastic items have occasionally been recovered from cetaceans and seal carcases during post-mortem examination but the direct role that these ingested items play in mammal mortality cannot usually be determined.

5.3.4.9 Flood Risk

Floods are a natural and inevitable part of life that can pose a risk to human life and well-being, property and the environment, and this includes coastal areas, and related impacts from climate change, sea level rise and erosion. Flood risk can be minimised or avoided on land to a degree

through careful selection of areas for development however legacy planning decisions mean some areas require mitigations to reduce / eliminate existing and future risks.

The Office of Public Works (OPW) is responsible for the implementation of the Floods Directive (2007/60/EC) which is being carried out through the Catchment-based Flood Risk Assessment and Management Studies (CFRAMS). The OPW undertook Preliminary Flood Risk Assessments to identify areas of existing or potentially significant future flood risk and to prepare flood hazard and risk maps which can be found at www.floods.ie.

The work to date as part of CFRAMS has had a direct strategic influence on land use planning and siting of developments, ensuring that future infrastructure growth is positioned in the appropriate locations, taking flood risk into account.

The FRMPs that were developed were published in early 2018 and flood extent mapping is available on the OPW's dedicated flood map viewer.[34] In addition, in 2009 *The Planning System and Flood Risk Management Guidelines for Planning Authorities* were published (DHLGH, 2009)[35], which ensures that flood risk assessment and management is incorporated at the appropriate level throughout the planning system, from plan-level down to project and site-specific level where detailed flood risk assessments may be required. Onshore enabling infrastructure will be subject to such requirements and flood risk assessment e.g. as part of CDP SEA processes and project-level EIA.

There are a number of terrestrial areas along the boundary of the SC-DMAP proposal area which are at higher risk of flooding from coastal influences and also at higher risk of erosion. Cork City has had several recent events. Other areas noted as At Risk include Dungarvan, Youghal and Waterford.

There are opportunities for synergies in measures which can naturally alleviate or protect against flooding e.g. support for enhancement and multiple benefit measures which address biodiversity, climate, water quality and flood risk.

Refer also to **section 5.3.5** (Air Quality, Noise and Climatic Factors) for further context on the impacts to the water environment arising from changing climatic factors.

5.3.5 Air Quality, Noise and Climatic Factors

5.3.5.1 Air Quality

Air quality impacts can be on a local scale or a regional/ national scale. Local air quality impacts such as dust can have health and nuisance impacts in the vicinity of construction activities. These local impacts are typically addressed through the consent processes with restrictions imposed by planning regulation. On a regional scale, vehicle and plant emissions generate transboundary gases i.e. greenhouse gases (GHGs) such as carbon dioxide (CO_2). Given the geographic scope of the draft SC-DMAP, this baseline assessment addresses the national scale emissions, as local impacts will be addressed through the planning and EIA processes and has had regard to the EPA Guidance Note on integrating climate change into SEA.

At a national scale, Ireland has good air quality which is consistently rated among the best in Europe; this is due largely to the prevailing clean westerly air-flow from the Atlantic and the relative absence of large cities and heavy industries. The Clean Air for Europe (CAFE) Directive (2008/50/EC) deals with each EU member state in terms of "zones" and "agglomerations" for managing air quality. For Ireland, four zones are defined in the Air Quality Standards Regulations (S.I. No. 180 of 2011, as amended) and Zone B, Zone C and Zone D overlap with the study area as shown in **Figure 5.18**. In Ireland, the Air Quality Index for Health (AQIH) ranges from 1 (Good) to 10 (Very Poor). All monitoring stations currently reflect an AQIH between 1-3 which is in the range of Good (EPA, 2023)[36]. **Figure 5.18** shows the AQIH of the relevant areas of County Cork, County Waterford and County Wexford within the Onshore Study Area.

[34] OPW Flood Maps Viewer: http://www.floodinfo.ie/map/floodmaps/

[35] DHLGH (2009). The Planning System and Flood Risk Management for Planning Authorities gov.ie - The Planning System and Flood Risk Management - Guidelines for Planning Authorities (Nov 09) (www.gov.ie)

[36] EPA (2023). EPA Air Quality https://airquality.ie/ (Accessed January 2024)

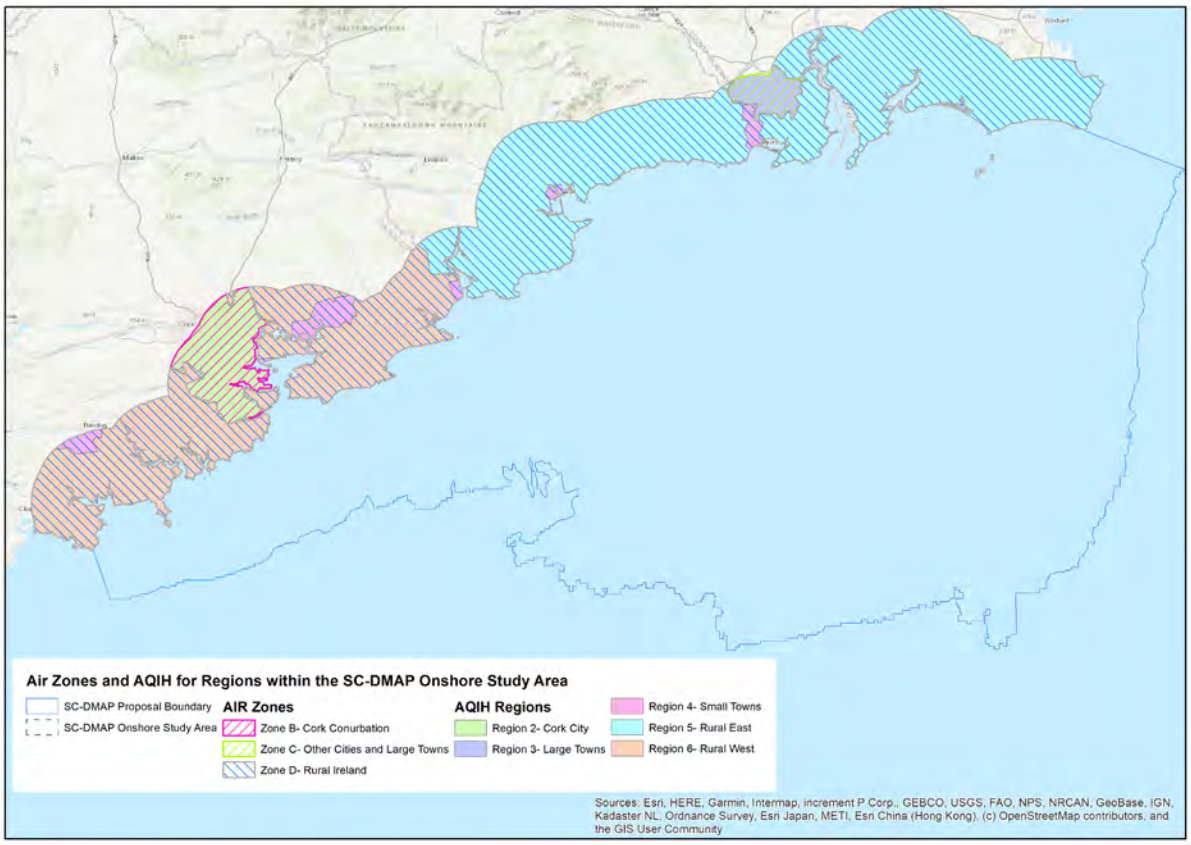


Figure 5.18: Air Zones and AQIH within the Onshore Study Area (Source: EPA[27])

Air Pollution

The EPA's National Ambient Air Quality Monitoring Programme (AAMP) was established in 2017 and expands on the national monitoring network. For ambient air quality, the EPA report *Air Quality in Ireland 2021* (EPA, 2023)[37] states that in 2021, measured particulate matter (PM_{10} and $PM_{2.5}$), sulphur dioxide (SO_2), ozone, dioxins, polycyclic aromatic hydrocarbons (PAH), and all other monitored pollutant concentrations were all below their individual limit and target values as set out in the EU CAFE Directive (2008/50/EC) and Fourth Daughter Directive (2004/107/EC); refer to **Table 5-10**.

Ireland was also above the stricter WHO guidelines values for: SO_2 at 1 station; PM_{10} at 21 stations (24 hr WHO guideline daily value) and at 8 stations (for the WHO guideline annual average value); $PM_{2.5}$ at 61 stations (24 hr WHO guideline daily value) and at 65 stations (for the WHO guideline annual average value); and ozone at 19 stations. Levels of PAHs also exceeded the European Environment Agency (EEA) reference value at 5 stations; refer to **Table 5-11**.

[37] EPA (2023). EPA Air Quality in Ireland 2022. Available at: Monitoring & Assessment: Air Publications | Environmental Protection Agency (epa.ie)

Table 5-10: Selected pollutants measured in 2021 and their adherence to EU legal limit values (CAFE Directive)[67]

Pollutant	Number of stations, parameter monitored in 2021	EU legal limit values
PM_{10}	87	No exceedances
$PM_{2.5}$	81	No exceedances
NO_2	30	No exceedances
Ozone (O_3)	21	No exceedances
Sulphur dioxide (SO_2)	15	No exceedances
PAHs	5	No exceedances
Heavy metals	5	No exceedances
CO	6	No exceedances
Benzene	2	No exceedances

Table 5-11: Selected pollutants measured in 2021 failing the WHO AGQ levels[67]

Pollutant	Number of stations monitored	WHO Air Quality Guideline (AQG)
PM_{10}	87	Above annual WHO AQG value at 8 stations. Above daily WHO AQG value at 21 stations
$PM_{2.5}$	81	Above annual WHO AQG value at 65 stations. Above daily WHO AQG value at 61 stations
NO_2	30	Above WHO annual or 24 hour AQG level at 23 stations
Ozone (O_3)	21	Above WHO AQG level at 19 stations
Sulphur dioxide (SO_2)	15	Above WHO 24 hour AQG level at 1 station
PAHs	5	Above EEA reference level at 3 stations

Maritime Air Quality

Air pollution from ships is currently regulated by the MARPOL Convention, specifically Annex VI which limits the main air pollutants from ships, namely sulphur oxides (SO_x), nitrogen oxides (NO_x), PM and the prohibition of deliberate release of ozone-depleting substances. Incineration on ships and emissions of volatile organic compounds (VOCs) are also regulated. The objectives are for progressive reductions in air pollution from shipping. The Annex VI standards were first developed through the International Maritime Organization (IMO) in 1997 and were subject to revisions in October 2008. Since then, these amendments have resulted in significant global reductions of NO_x, SO_x and PM emissions. The regulations also allow for emission control areas (ECA) to be established for which more stringent stands may apply. There is an EAC applied to the North Sea and English Channel for NO_x and SO_x, however there is currently none in place for the North-east Atlantic/Celtic Sea/Irish Sea.

Sulphur, however, is a globally significant air pollutant emitted from ships, with a 2016 Finnish study reporting that should SO_x emissions from ships not be reduced from 2020, pollution from ships would contribute to more than 570,000 additional premature deaths globally between now and 2025.[38] Therefore under the revised MARPOL Annex VI standards, the global sulphur limit in ship fuels is to be reduced from its current limit of 3.5% down to 0.50%, which came into effect from January 2020. This will continue to improve air quality, particularly for populations in close proximity to ports.

[38] Marine Environment Protection Committee (August 2016). Air Pollution and Energy Efficiency: Study on effects of the entry into force of the global 0.5% fuel oil sulphur content limit on human health. Available: http://www.imo.org/en/MediaCentre/HotTopics/Documents/Finland%20study%20on%20health%20benefits.pdf

5.3.5.2 Noise

Underwater noise is increasing as human activities in the marine environment continue to expand. Activities such as vessel movement (e.g. shipping, fishing, and leisure crafts), seismic surveys, drilling, use of sonar, pile-driving, underwater explosions and dredging all contribute to levels of noise in the marine environment. With many offshore activities in the oil, gas and renewable sectors expected to increase in the future, levels of underwater noise are likely to increase accordingly. Many marine organisms, in particular marine mammals, rely on sound for navigation, communication and prey location. The introduction of additional noise from human activities holds the potential to disrupt these natural activities leading to adverse effects on individuals and populations.

Regulation of noise comes under the remit of the Environmental Noise Directive (2002/49/EC), with the requirement for Member States to produce noise maps and compile noise action plans based on those maps. The Noise Directive only regulates terrestrial and coastal sources of noise (e.g. ports). However, the MSFD provides regulation against harmful levels of underwater noise in the form of Descriptor 11 – "*Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment*".

Exposure to noise is recognised as being both an environmental pressure to wildlife as well as human beings and can affect human health and general well-being by causing stress, anxiety and disruption of activities (e.g. sleep). Exposure to excessive noise has also been linked to an increased risk of heart attack, stroke and premature death[30]. On the terrestrial side, people generally are exposed to the most noise from transport-related sources, particularly road traffic. Railways, airports and industrial activities are also major sources of noise, however Ireland has a relative lack of large industries compared to continental Europe. Urban areas can exacerbate the impacts of noise to human health, in particular because air pollution levels are often higher, creating in-combination effects.

The knowledge base regarding sources of noise in the marine environment is relatively recent. This is also reflected in Member States MSFD assessments where just a few sources of underwater noise are identified. Ireland's MSFD Article 19 Report states that information on the sources, magnitude, distribution and impacts of sound in the Irish marine environment is presently limited. Research currently being undertaken is intended to support the development of 'risk-based' noise monitoring programmes for Irish waters, incorporating the establishment of baselines and the determination of trends. DECC's ObSERVE report on acoustic surveys for instance, represents a good knowledge base on the noise in the marine environment and the distribution of cetaceans.[39]

The main sources relate to shipping, resource extraction (including use of seismic surveys) and military/defence activities; data from OSPAR indicates that background levels of underwater noise in the Celtic Sea for instance are thought to be high due to the intensity and diversity of human activities which take place[16]. Exposure of the majority of populations to marine sources of noise is thought to be negligible, given that most activities which generate underwater noise are located some distance from land and generally only affect ship crews or operational staff on offshore structures (platforms, rigs etc.). Noise levels from offshore or nearshore activities may become a nuisance where populations are located close to ports and harbours.

5.3.5.3 Climatic Factors

National Context

The EPA published Ireland's Climate change Assessment (ICCA): *Climate Science – Ireland in a Changing World* in 2024. The Summary for Policymakers (SPM) from Volume 1 of the ICCA provides key insights[40]. The following key relevant summary points are extracted from Sections A, C and D of that SPM as follows:

[39] DCCAE (2018) Acoustic Surveys of Cetaceans in the Irish Atlantic Margin in 2015–2016: Occurrence, distribution and abundance.

[40] EPA 2023. Ireland's Climate Change Assessment (ICCA). Volume 1: Climate Science – Ireland in a Changing World. Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/irelands-climate-change-assessment-volume-1.php Accessed: April 2024.

A. Ireland's climate is changing:

- *"**A.1** There has been a rapid rise in atmospheric greenhouse gas concentrations, measured at numerous sites around the world, including Mace Head, since the Industrial Revolution without precedent in millions of years. Concentrations of methane and nitrous oxide are higher now than in over 800,000 years, and for carbon dioxide, for which longer-term reconstructions are possible, concentrations are higher than for millions of years. The increases in greenhouse gas concentrations since 1850 are due to global human activities, principally through fossil fuel combustion and land use change.*
- ***A.2** Changes in the concentrations of these three major greenhouse gases since 1750 exceed those between successive glacial and interglacial cycles of the past 800,000 years for carbon dioxide and methane. For nitrous oxide the changes in concentration are of comparable magnitude to these successive glacial and interglacial cycles. These past changes in concentrations of all three gases were much slower, occurring over thousands of years.*
- ***A.3** Globally, widespread and rapid changes in the atmosphere, ocean, land, cryosphere and biosphere have occurred. The scale of recent changes across the climate system as a whole – and the present state of many aspects of the climate system – are unprecedented over many centuries to many thousands of years.*
- ***A.4** Global surface temperatures have risen by 1.15°C [1.00-1.25°C] between 1850–1900 and the most recent decade, 2013–2022. This most recent decade was likely warmer than any sustained period in at least the past 100,000 years.*
- ***A.5** In Ireland annual average temperatures are now approximately 1.0°C higher than they were in the early 20th century. Sixteen of the top twenty warmest years since 1900 have occurred since 1990, with 2022 being the warmest year to date. Centennial timescale changes in Ireland are broadly consistent with global changes owing to our geographical situation between Europe (which is warming considerably faster than the global mean) and the North Atlantic (which is warming at a slower rate).*
- ***A.6** Globally averaged precipitation over land has likely increased since 1950, with a faster rate of increase since the 1980s. The frequency and intensity of extreme precipitation events has increased almost everywhere, particularly so in already wetter regions in the northern hemisphere, and a greater proportion of total precipitation is falling in extreme precipitation events across most of the globe.*
- ***A.7** Over Ireland median annual precipitation was 7% higher in the period 1991–2020, compared to the 30-year period 1961–1990. Regions where trends in precipitation since 1950 are significant have generally experienced overall annual increases. Analysis of local observations does not reveal evidence of a clear climate change signal in extreme precipitation indices due to natural variability. Overall, when aggregated, there has been an increase in heavy precipitation extremes across a range of indicators.*
- ***A.8** The rate of warming of the global ocean was likely faster in the past century than for any century since the last deglaciation event 11,000 years ago. Global sea level increased by approximately 0.20m between 1901 and 2018, and the rate of global sea level rise is accelerating. Consistent with global open ocean changes, Irish marine waters have experienced long-term acidification due to uptake of anthropogenic atmospheric carbon dioxide.*
- ***A.9** Recent studies have highlighted higher rates of sea level rise since the late 20th century in Cork and Dublin than the global average. Reasons for this are unclear and currently under investigation. There are a range of processes that can lead to local sea level changes diverging to a certain extent from global changes over a broad range of timescales.*
- ***A.10** Globally, over the last century there have been poleward and upslope movements of many terrestrial species in response to climate changes. There have also been changes in the timing of life cycle events, such as birds migrating and plants flowering in all mid-latitude regions. Changes in the marine biosphere are consistent with large-scale warming and changes in ocean geochemistry. The ranges of many marine organisms are shifting towards the poles and towards greater depths, but a minority of organisms are shifting in the opposite directions.*
- ***A.11** The main impacts of climate change on Irish terrestrial species and habitats observed to date have been changes in species abundance and distribution, lifecycle events, community composition, and habitat structure and ecosystem processes. These changes are in addition to*

much larger changes arising from other human interventions. In Irish waters, there have been substantial changes in marine ecosystems, including changes in seasonality and abundance of many species, including phytoplankton and zooplankton at the base of the food web. Many of these changes are consistent with a changing climate.

- ***A.12** Global climate changes have been modified over Ireland by proximity to the North Atlantic and by internal climate system variability, mainly, but not exclusively, related to variations driven by the North Atlantic. Most notably, the Atlantic Multi-decadal Variability explains successive multi-decadal periods when Ireland has warmed or cooled relative to global trends."*

C. Future global emissions will determine our future climate:

- "***C.5** Projections of Irish temperature changes consistently show warming, with the magnitude of this warming increasing with delays in global mitigation action. Under Early action, the temperature increase averaged across the island of Ireland relative to the recent past (1976–2005) would reach 0.91°C [0.44–1.10°C] by mid-century before falling back to 0.80°C [0.34–1.07°C] at the end of the century. Whereas under Late action, by the end of the century it is projected that the temperature increases could be 2.77°C [2.02–3.49°C]. Warming also generally increases with the climate sensitivity of the ESMs used for a given mitigation pathway (see Box SPM.1). Heat extremes will become more frequent and more severe and cold extremes will become less frequent and less severe with further warming.*
- ***C.6** In Ireland, intense precipitation extremes are projected to become more frequent and extreme with further warming in most locations. Projected changes in precipitation accumulations are more uncertain than those for temperature. While winters tend to get wetter and summers tend to get drier, this signal is not consistently found across all global ESMs. There is also substantial sensitivity to the choice of ESM used to drive the national simulations. Changes averaged across the island of Ireland show a slight increase of < 10% in annual mean accumulated precipitation amounts.*
- ***C.8** Global sea level increases will be modified locally around the island of Ireland by ongoing isostatic rebound – the north-east of the island is slowly rising and the south-west slowly sinking (<0.2mm per year in most regions); multi-decadal ocean basin variability (order of several centimetres in a decade); and the relative contributions to sea level change arising from the Greenland and Antarctic Ice Sheets over time. Larger relative contributions from Greenland would result in smaller increases for Ireland and vice versa due to the gravitational effects of the two ice sheets.*
- ***C.9** Storm surges and extreme waves pose an ever-increasing threat to Ireland as sea levels continue to rise, including for many coastal cities such as Cork, Dublin, Galway and Limerick, and to critical infrastructure. Particularly at risk are soft sediment shorelines. Projections of changes in storminess are highly uncertain and translate into large uncertainties in future frequency and intensity of extreme waves.*
- ***C.10** Compound events are combinations of multiple climate impact drivers that occur at the same time, in the same area or both. The likelihood of both concurrent heatwave and drought conditions and storm surges with heavy precipitation have been observed to increase to date in Europe and are projected to further increase with additional warming.*
- ***C.12** Ireland will continue to experience seasonal to multi-decadal variability arising from natural internal variations in the climate system. These will serve to modulate aspects such as temperature, precipitation and storminess on seasonal to multi-decadal scales and, in doing so, periodically may reduce or enhance long-term global climate trends arising from human activities.*
- ***C.13** Current atmospheric carbon dioxide levels are higher than at any time since the Middle Miocene (14 to 16 million years ago), according to the latest consensus atmospheric carbon dioxide record from a global consortium of scientists who study past atmospheric composition using proxies. Paleo-temperature estimates for the North Atlantic Ocean off Ireland indicate sea surface temperatures 10 to 13°C warmer than present-day during the Middle Miocene. Early action would keep global mean surface temperature rise within the bounds of our and our ancestors' (genus Homo dates back 3 million years) past experience."*

D. High-impact outcomes, although unlikely, cannot be ruled out:

- *"**D.4** For Ireland, the Atlantic Meridional Overturning Circulation (AMOC) is the most immediately important potential tipping point, given the importance of the North Atlantic in determining our*

climate[41] *and agricultural productivity. The AMOC will almost certainly weaken over the 21st century, and a full collapse cannot be ruled out. If there were to be a collapse in the AMOC, as has occurred repeatedly in the past during rapid climate transitions of past glacial phases, winters would become considerably colder and summers warmer, and there would likely be an increase in storminess and potential implications for sea level. These would have very profound implications for the Irish climate and society."*

Greenhouse Gas Emissions Overview

Greenhouse gases (GHGs) in the atmosphere are rising as a result of human activity, in particular the burning of fossil fuels for heating, energy and transport, in addition to other activities such as agriculture, the residential and commercial sectors, as well as waste. The European Environment Agency reported in 2021 that Ireland had the third-highest per capita GHG emissions in the EU (behind Luxembourg and Iceland), at 12.34 tonnes CO_2eq, compared to 13.53 tonnes CO_2eq in 2020 (EEA, 2020[42]).

The EPA published the provisional 1990-2022 inventory data in 2023 (EPA, 2023)[43] stating Ireland's GHG latest emissions data. Under the EU's Effort Sharing Regulation (ESR), Ireland has a target to deliver a 42% reduction of emissions (relative to 2005 levels) by 2030. There are also annual binding emission allocations over the 2021-2030 period to meet that target. Ireland's national emission reduction objectives as set in the Climate Action and Low Carbon Development (Amendment) Act 2021, are to achieve a 51% emissions reduction (including from Land Use, Land Use Change and Forestry [LULUCF]) (relative to 2018 levels) by 2030 and achieve a climate neutral economy by no later than the end of 2050. The ESR includes the sectors which are outside the scope of the Emissions Trading Systems (ETS), and comprise the following: agriculture, transport, residential, commercial, non-energy intensive industry, and waste.

According to the latest emissions data, there were decreases in GHG emissions per capita from 12.4 tonnes CO_2eq/person in 2021 to 11.9 tonnes CO_2eq per person in 2022. Ireland's GHG emissions are estimated to be 60.76 Mt CO_2eq in 2022, which is 1.9% lower (or 1.19 Mt CO_2eq) than emissions in 2021 (61.95 Mt CO_2eq) and follows a 5.1% increase in emissions reported for 2021.

Decreases in emissions were observed in the three largest sectors, except for transport, waste and commercial services which saw increases in emissions of +6.0%, +4.9% and +0.2%, respectively; refer to **Table 5-12**.

Table 5-12: National Greenhouse Gas Emissions Changes by Sector between 2021 and 2022

Mt CO_2 eq	2021	2022	% Change
Agriculture	23.626	23.337	-1.2%
Transport	10.978	11.634	6.0%
Energy Industries	10.262	10.076	-1.8%
Residential	6.992	6.105	-12.7%
Manufacturing Combustion	4.614	4.288	-7.1%
Industrial Processes	2.475	2.289	-7.5%
F-Gases	0.745	0.741	-0.5%
Commercial Services	0.765	0.767	0.2%
Public Services	0.672	0.659	-1.9%
Waste	0.826	0.867	4.9%

[41] The AMOC is the overturning circulation in the North Atlantic. The surface component advects warm water from the tropics to Ireland via the Gulf Stream and North Atlantic Drift, and this in large part determines our climate.

[42] EEA (2020). EEA Country Profiles – greenhouse gases and energy 2020. Available at: https://www.eea.europa.eu/themes/climate/trends-and-projections-in-europe/climate-and-energy-country-profiles/country-profiles-greenhouse-gases-and-1

[43] EPA (June 2023). Latest Emissions Data Latest emissions data | Environmental Protection Agency (epa.ie)

Mt CO_2 eq	2021	2022	% Change
Land Use, Land Use Change and Forestry (LULUCF)	7.338	7.305	-0.4%
Total excluding LULUCF	**61.955**	**60.763**	**-1.9%**
Total including LULUCF	**69.293**	**68.068**	**-1.8%**

Source: *EPA – Latest Emissions Data Latest emissions data | Environmental Protection Agency (epa.ie)*

Ireland's emissions profile has changed considerably since 1990, with the contribution from transport more than doubling and the share from agriculture reducing since 1998.

However, since 2011, emissions have trended upwards again with an overall peak in emissions reported in 2016. Agriculture is the largest source of emissions, representing 38.4% of total national emissions in 2022, based on provisional estimates. Both the transport and energy industries sectors represent 19.1 and 16.6 per cent respectively, of total greenhouse gas emissions in 2022. The transport sector has been the fastest growing source of greenhouse gas emissions. Residential and Manufacturing Combustion emissions account for 10.0% and 7.1% respectively. These five sectors accounted for 91.2% of national total emissions in 2022 (EPA, 2023)[44].

Emissions from Maritime Activities

In addition to terrestrial sources, maritime transport is the key activity that continues to exert pressures on the environment. Shipping contributes to GHG emissions, and both shipping and port activities contribute to air pollution (in particular nitrogen and sulphur oxides, and particulate matter).

While shipping is the key activity responsible for GHG emissions in the maritime environment, under the Kyoto Protocol, shipping represents a complex global activity, emissions from which are not easily attributable to any one country. However the International Maritime Organisation (IMO) is pursuing emissions reductions from international shipping and produces studies estimating the emissions levels. The most recent IMO study, Fourth IMO GHG Study 2020[45], outlines that GHG emissions from total shipping have increased from 977 million tonnes in 2012 to 1,076 million tonnes in 2018 (a 9.6% increase). The share of shipping emissions to total global GHG emissions grew from 2.76% in 2012 to 2.89% in 2018. However emissions are projected to increase by 90-130% of 2008 emissions by 2050, which is not in accordance with international agreements to limit GHG emissions under the Paris Agreement.

At national level, emissions from maritime navigation is reported under "memo items" in Ireland's national emissions inventory i.e. it is not counted as part of Ireland's national total emissions but is reported by Ireland to the UNFCCC and EU for information purposes. In 2022, maritime emissions in Ireland amounted to 0.39 Mt CO2eq, which is a reduction of 27.4% on 2021.[44]

5.3.6 Material Assets

There is no clear definition of material assets under the SEA Directive, however it typically overlaps with other areas such as biodiversity, water, land, soils etc. In the context of the draft SC-DMAP, this section addresses issues relating to marine shipping, sea fisheries, industry, nature, tourism among other. The baseline will focus on an onshore buffer area of 10 km from the Irish coastline that runs parallel to the draft SC-DMAP proposal area boundary along with the marine waters that fall within the draft SC-DMAP proposal area. Key interactions for material assets and the draft SC-DMAP relate to:

- General social and economic benefits from utilising marine resources;
- Exploitation of indigenous energy supplies, security of energy supply;

[44] EPA (2023). Ireland's Provisional Greenhouse Gas Emissions 1990-2022. Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-provisional-greenhouse-gas-emissions-1990-2022.php

[45] IMO (2020). Fourth IMO GHG Study 2020. Available at: https://www.imo.org/en/ourwork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx

- Investment in electricity grid, cables and interconnectors, facilitating greater connectivity for e.g. broadband, data hosting and cloud services, EU electricity markets, renewable development, import/export opportunities etc.;
- Ensuring sufficient capacity at ports/harbours to handle projected increases in freight volumes and associated shipping traffic;
- Sectoral activities which expose existing submarine cables or restrictions on siting of cables;
- Conflicts with existing traffic volumes or navigation routes;
- Potential for interference with military/defence activities and aviation from: e.g. interference with radio and radar systems from physical presence of infrastructure or EMF effects, exclusion or displacement from military areas and physical obstruction to low-flying aircraft e.g. offshore platform helicopter safe landing zones and height of wind turbines; and
- Other sectoral activities which exclude resource areas or opportunity sites e.g. for aggregate extraction, dredging/dumping, CCS.

5.3.6.1 Aquaculture and Sea Fisheries

As an island nation, fishing is economically, culturally and socially important to the state, and in particular for coastal communities including those from Cork, Waterford and Wexford. Seafood production is an important economic sector in Ireland and contributes to both national and wider food security along with direct employment in the industry e.g., fishing, processing etc. and indirectly in tourism as tourism product. Both inshore and offshore fishing activities have been taking place along the coastline of Counties Cork, Waterford and Wexford. These activities mainly include periwinkle harvesting, dredge fishing, midwater trawl fishing, nets fishing and pot fishing[46].

Aquaculture

Aquaculture is an integral part of the coastal economy in Ireland and has co-existed in various locations with other marine sectors such as ports, marine leisure and tourism. Aquaculture includes the culture or farming of fish, aquatic invertebrates, aquatic plants or any aquatic form of food suitable for the nutrition of fish. Land-based aquaculture may also require planning permission and a discharge permit from the local authority. Aquaculture licensing is administered through the Aquaculture and Foreshore Management Division of the Department of Agriculture, Food and the Marine (DAFM). The Division also processes companion foreshore licences required for coastal aquaculture operations.

Aquaculture is divided primarily between finfish, shellfish and seaweed species, and an aquaculture licence is required for this activity. Some aquaculture takes place on land but the vast majority of aquaculture activity takes place in the marine environment on the foreshore, with the main activity concentrated on the south, west and northwest coast.

Aquaculture production in Ireland is mainly driven by export demand and is mainly marine-based, with a smaller proportion of land-based/freshwater aquaculture production. The Annual Aquaculture Report from BIM[47] (2023) states that in 2022, the sector contributed €208 million to the economy, supporting 2,008 jobs, with a full-time equivalent (FTE) of 1,177 across the 292 production units. Production increased by 4% to 44,623 tonnes in 2022 compared the previous year's 42,822 tonnes, generating a sales value of €186 million. The culture of Atlantic salmon continues to be the largest contributor to the national sales value (€104 million in 2022). Most of the employment in the aquaculture sector is however in the mussel and oyster producing segments (1,693 people employed across 260 production units), generating €76 million in 2022. Where most salmon farming occurs along the west coast, shellfish operations are dispersed across all maritime regions in Ireland.

The BIM Annual Report states that the deep sheltered bays of the South Region[48] are the primary location for rope mussel production. The region also includes pen and hatchery salmon, farmed

[46] Data from the Fishing Activity theme accessed through Ireland's Marine Atlas at http://atlas.marine.ie/ [October, 2023]

[47] BIM (2022) Annual Aquaculture Report 2022. Available at: https://bim.ie/publications/aquaculture/

[48] Note: BIM references the CSO NUTS III Regions, defined here: https://www.cso.ie/en/methods/informationnotefordatausersrevisiontotheirishnuts2andnuts3regions/

oysters, trout, and seaweed units. In 2022, the region contributed 10,526 tonnes of combined produce, valued at €17 million (9% of national turnover). It employed 312 people across 43 production units, representing the second-largest workforce by region. The bays of the Northeast and Southeast Regions together specialise in farmed oyster and seabed cultured mussel production. The BIM Annual Report states that combined, these two regions generated a sales value of €30.6 million (16% of the national total) in 2022. They employed 315 individuals across 39 production units. The Southwest region is characterised by pen salmon, rope mussel, farmed oyster, and native oyster production. With a sales value of €25.6 million (14% of the national total), the region supported 307 people employed in 49 production units.

There are 105 licenced aquaculture sites present within the overall geographical area of the draft SC-DMAP. the majority of which are licensed to farm Pacific Oysters (*Crassostrea gigas*). There are also two sites that harvest seaweed. **Table 5-13** presents an overview of the location and type of aquaculture activity associated with these sites, and **Figure 5.19** illustrates their locations.

Table 5-13: Licenced Aquaculture Sites within the Study Area

Location	No. of Licensed Sites	County	Aquaculture Type	Species (No. of Licensed Sites)
Dungarvan Harbour	55	Waterford	Shellfish	Pacific Oyster (53) and Seaweed (2)
Woodstown Strand	9	Waterford	Shellfish	Pacific Oyster
Ballymacoda Bay	3	Cork	Shellfish	Manila Clam (1) and Pacific Oyster (2)
Oysterhaven	5	Cork	Shellfish	Pacific Oyster
Bannow Bay	13	Wexford	Shellfish	Pacific Oyster
Waterford Harbour	7	Waterford	Shellfish	Blue Mussel (6) and Pacific Oyster (2)
Cork Harbour	2	Cork	Shellfish	Blue Mussel (1) and Pacific Oyster (1)
Kinsale Harbour	4	Cork	Shellfish	Pacific Oyster
Waterford Estuary	6	Waterford	Shellfish	Blue Mussel
Rossmore Bay	1	Cork	Shellfish	Pacific Oyster

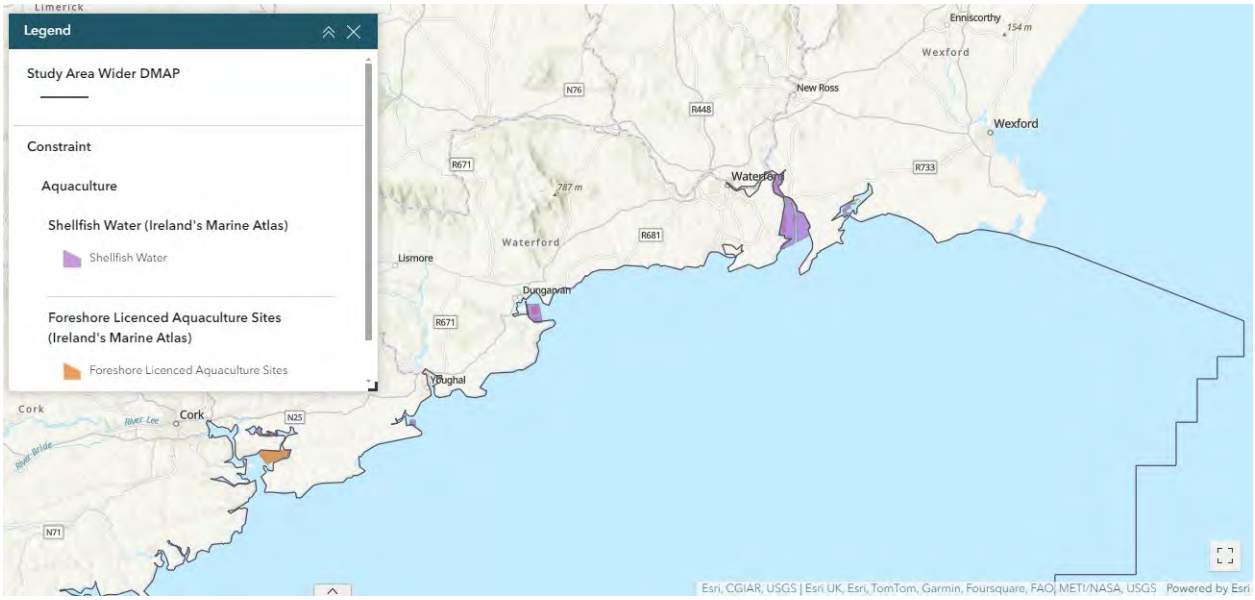


Figure 5.19: Designated Shellfish Waters and Licensed Aquaculture Sites within the Study Area

Fisheries

The fisheries sector, like aquaculture, is recognised as an important economic and employment sector for Ireland, and coastal communities in particular. The industry has also made a significant contribution to Ireland's social and cultural history. Ireland's coastline, inshore and offshore waters contain some of the largest and most valuable sea fisheries resources in Europe.

Over 14,000 people are employed either directly or indirectly, many of them working and living in rural coastal communities. The value of the Irish seafood economy also increased to €1.3 billion in GDP terms in 2023, an increase of 4% compared to 2021. This was largely driven by an increase in domestic consumption of seafood in Ireland in the food services sector as well higher prices, both domestically and on the main export markets (BIM, 2022)[49]. Castletownbere in County Cork was the second largest fishing port in 2022 by value, with €129 million worth of catch landed. The sector employed about 15,300 people in 2022, with 1,993 registered vessels, over 100 seafood processors and just under 300 aquaculture sites. More than 8,200 people are directly employed in the sector, with a further 7,100 jobs supporting the sector indirectly.

DAFM owns and directly manages six Fishery Harbour Centres across Ireland. There is one such centre present within the geographical area of the draft SC-DMAP, located at Dunmore East. This centre managed and operated in accordance with the provisions of the Fishery Harbour Centres Acts 1968 which requires the Minister to manage, control, operate and develop each of the Harbours. It also places specific responsibility on the Minister in relation to maintenance, repair, improvement, extension and modification of the harbours including buildings and road access.

The two main categories of commercial fisheries activities are inshore and offshore fisheries. Inshore fishing is generally understood to apply vessels less than 12m in length using non-towed gear. Of relevance to the draft SC-DMAP as shown in **Figure 5.20**, are 14 areas where Pot Fishing occurs, 41 Periwinkle Harvesting Collecting Sites, two Net fishing areas, two Midwater Trawl Fishing areas and 35 Dredge Fishing areas. **Figure 5.21** shows the Irish and international fishing effort that is occurring within the draft SC DMAP area, which indicates that here is a high level of vessel activity across the entirety of the area. **Figure 5.22** shows the fishing intensity associated with fishing activities.

The main commercial offshore fish stocks are managed under the Common Fisheries Policy (CFP). The seas around Ireland are among the most productive and biologically sensitive in EU waters. Most of the fisheries resource within this area comes under the remit of the CFP Ireland's quota total share of these TACs in 2023 amounted to 164,990 tonnes. These figures do not include the valuable shellfish fisheries (e.g., crab, lobster, whelk, scallops, etc.), worth approximately €64 million annually, which are not managed by TACs but do come within the remit of the CFP[50].

[49] BIM (2022). Business of Food, 2022. Facts and Figures. Available at: https://bim.ie/a-seafood-way-of-life/facts-and-figures/

[50] Marine Institute (2023). The Stock Book 2023: Annual Review of Fish Stocks in 2023 with Management Advice for 2024. Galway, Ireland. Available at: https://oar.marine.ie/handle/10793/1873. Accessed: January 2024

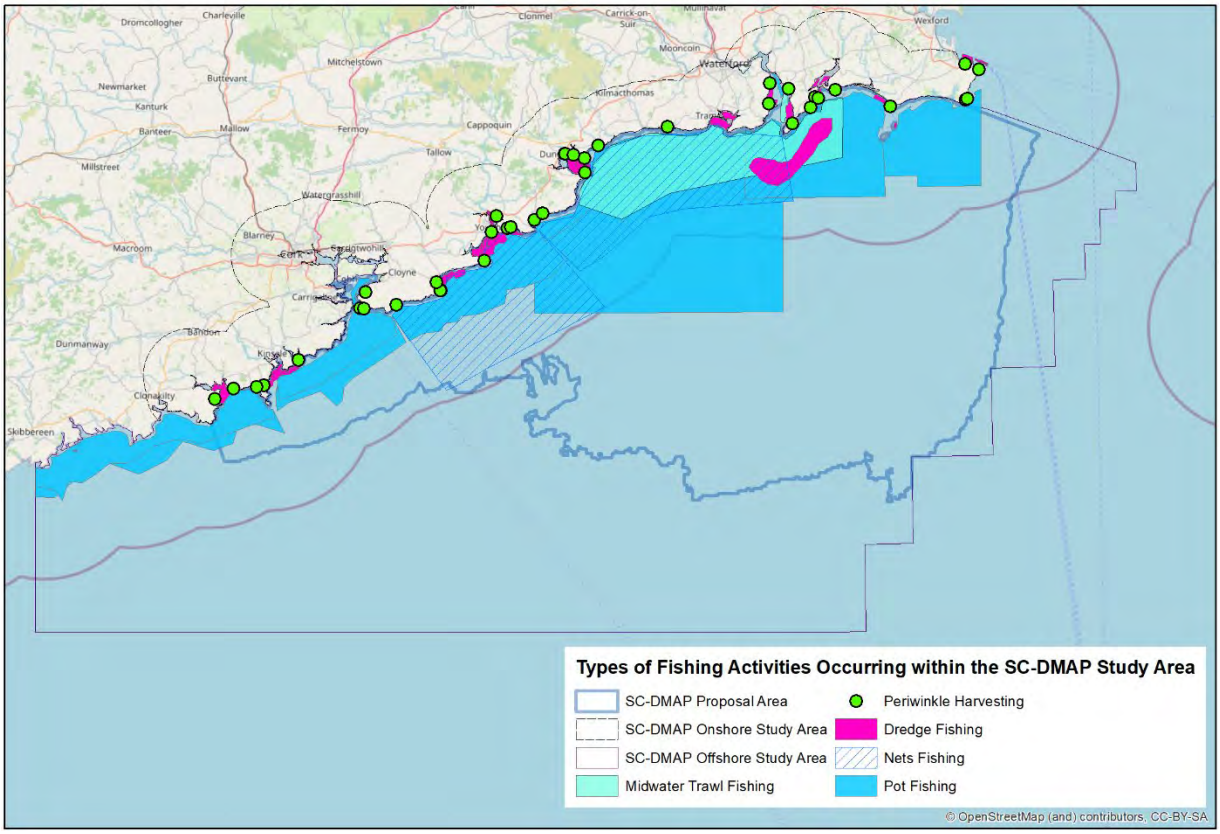
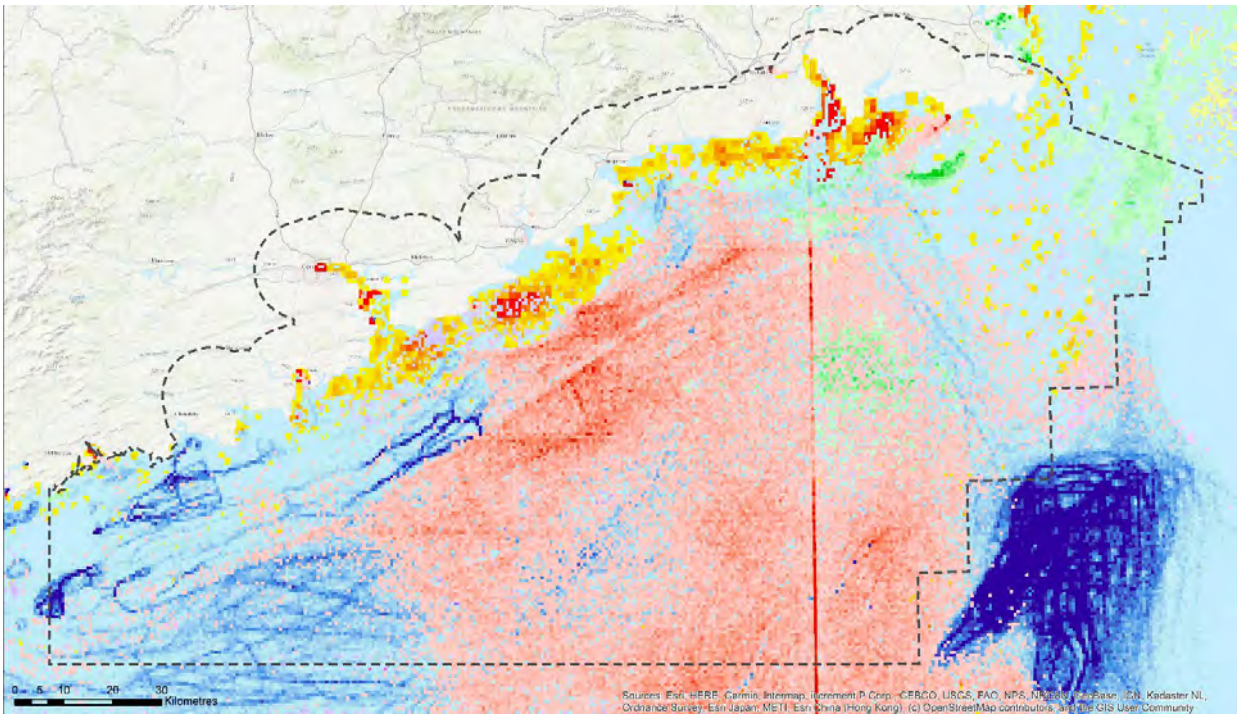


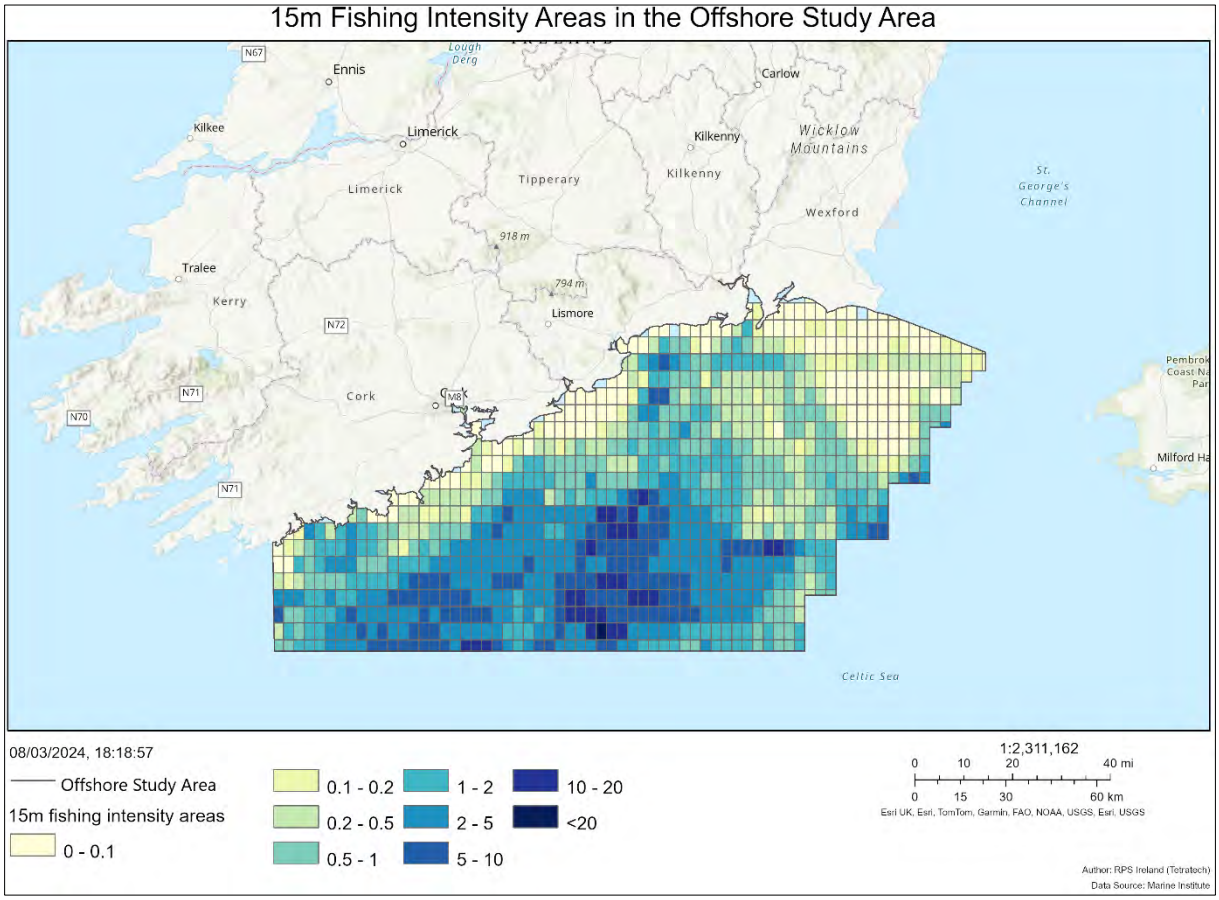
Figure 5.20: Inshore Fishing Activities in the SEA Baseline Study Area



Source: Marine Institute, fishing effort for 2014-2018 The Marine Institute defines fishing effort for this data which was measured as average hours fishing per kilometre square, per year. The data from years 2014 to 2018, was collated from 3 sources; vessel monitoring systems, logbooks and EU fleet register.

Note: The various colours represent the fishing effort for eight types of fishing method: beam trawls, bottom otter trawls, dredges, gill nets, longlines, pelagic trawls, pots, seines.

Figure 5.21: Irish and International Fishing Effort 2014-2018 (All Methods) within the draft SC-DMAP Study Area



Note: The fishing intensity for vessels >15m in length indicates vessel positioning as reported, typically every couple of hours, by the vessels' Vessel Monitoring System (VMS).

Figure 5.22: Fishing Intensity across SC-DMAP Study Area

5.3.6.2 Defence and Security

The Defence Organisation provides a broad range of marine services in accordance with its primary security role while it also undertakes a diverse range of non-security related tasks in Irish waters (and beyond, for example as part of EU efforts to rescue migrants). The Sea-Fisheries and Maritime Jurisdiction Act 2006 established the Sea-Fisheries Protection Authority (SFPA) as the competent Authority for securing efficient and effective enforcement of sea fisheries protection legislation and the sustainable exploitation of marine fish resources from the waters around Ireland. The SFPA has a Service Level Agreement with the Department of Defence (DoD) to secure efficient enforcement of sea-fisheries law through support provided by the Irish Defence Forces. An Annual Control Plan is agreed between the SFPA and the DoD. This plan sets out the strategy for achieving sea-fisheries control targets each year.

The Naval Service is the State's principal sea-going agency. A flotilla consisting of eight ships is maintained at Haulbowline Naval Base in Cork. The primary day-to-day tasking of the Naval Service is to provide a fishery protection service in accordance with national legislation and the State's obligations as a member of the EU. All eight vessels are multi-tasked in the sense that, in addition to their fishery protection role, they also undertake general surveillance, security, pollution monitoring and marine search and rescue support, amongst other duties whilst on patrol. Haulbowline Naval Base is of strategic importance to the Naval Service and Ireland given its geographic location. In line with the ongoing Investment programme in new ships, it is intended that the base is expanded in the future with the requirement for additional berthage and the development of a dry-dock.

The Air Corps operates from Casement Aerodrome Baldonnel County Dublin. Within the Air Corps, the primary mission of 101 Squadron is to support the Naval Service in the Maritime environment. 101 Squadron currently provides air surveillance capacity through two Airbus Military CN235-100 Maritime

Patrol Aircraft. The Maritime Patrol Aircraft are primarily tasked and deployed on domestic fishery protection missions on the basis of target inputs and outputs as agreed between the SFPA and DoD.

There is one marine Danger and Restricted Area that borders the draft SC-DMAP Proposal Area boundary on the west.

5.3.6.3 Carbon Capture and Storage

Carbon Capture and Storage (CCS) is a technology chain with the objective of removing CO_2 from the pre- or post-combustion exhaust gas of power stations and other industrial processes and injecting it into underground geological reservoirs of porous rock, aiming for permanent storage. Subject to commercial and technical considerations, CCS is a potential route for assisting decarbonisation. CCS is a proven technology, but not widely deployed globally.

SEAI published a report on Carbon Capture Utilisation and Storage (CCUS)-Suitability, Costs and Deployment Options in Ireland as a part of the National Heat Study in February 2022[51]. It states that Advanced planning on the role of CCUS and bioenergy with carbon capture and storage (BECCS) in Ireland, particularly around clustering of sites and infrastructure, is needed if policy seeks to encourage deployment of the technology.

All geological storage options currently considered in Ireland are offshore. An Assessment of the Potential for Geological Storage of Carbon Dioxide for the Island of Ireland[52] prepared for the SEAI and others in 2008 identified storage potential in the depleted Kinsale Head natural gas field in the Celtic Sea Basin, with a calculated practical capacity of 330 million tonnes CO_2. Permo-Triassic basins in the Irish Sea with similar geology to the East Irish Sea gas and oil field (UK) were also found to have a theoretical capacity. The Irish Sea Carbon Capture and Storage Project[53] carried out jointly by the Geological Survey of Ireland and British Geological Survey (2012-2014) found that these basins were structurally complex and storage compartments too small to be economic. Nevertheless, potential still exists in the Irish Sea and in the deeper-water Mesozoic basins on the western shelf. An economic study by Element Energy (2013) found that CCS infrastructure costs in the Irish and Celtic Sea areas are competitive with European cost estimates.

5.3.6.4 Telecommunications Cables

There are a number of telecommunications cables around Ireland that form an integral part of the region's communications network, linking Ireland and the UK to continental Europe. In addition, the area also has a number of trans-Atlantic communication links routed through to connections in Ireland; these which connect to the US and Canada. The laying of cables is protected under the United Nations Convention on the Law of the Sea (UNCLOS) and telecommunication connectivity is generally given a high priority in maritime spatial planning. **Figure 5.25** shows the telecommunication cables that overlap with the draft SC-DMAP Study Area.

5.3.6.5 Marine Aggregates

Marine aggregates are sedimentary sand or gravel materials located on the seabed. Extraction of marine aggregates typically involves dredging of the deposit to remove it from the seabed. Sands and gravels sourced from the seabed may be used in the construction of infrastructure such as buildings, roads and bridges. To date all aggregate used commercially in the Irish market is extracted from terrestrial sources. To the limited extent that marine aggregate extraction has taken place it has been permitted only for beneficial purposes such as beach nourishment, coastal protection, and backfill. However, anticipated growth in construction activity and associated demand for aggregates may lead to a greater level of marine aggregates extraction in the future.

[51] SEAI, 2022. Carbon Capture Utilisation and Storage (CCUS)-Suitability, Costs and Deployment Options in Ireland. Available at: https://www.seai.ie/data-and-insights/national-heat-study/carbon-capture-utilisatio/ Accessed: January 2024.

[52] https://www.seai.ie/resources/publications/Assessment-of-the-Potential-for-Geological-Storage-of-CO2-for-the-Island-of-Ireland.pdf

[53] https://www.gsi.ie/en-ie/programmes-and-projects/geoenergy/activities/Pages/Carbon-Capture-and-Storage.aspx

The IMAGIN research study carried out jointly by the UCC Coastal and Marine Resources Centre and the Marine Institute in 2008 concluded that a number of areas with potential to support marine aggregate extraction exist in the Irish Sea and that marine aggregates can contribute to the sustainable management of demand and future use of aggregates in Ireland. In the area covered by the study the available resource was estimated to be 5 to 7 billion m^3.[54]

Offshore (or seafloor/deep-sea) mining has to date been a relatively small-scale industry in other countries, generally undertaken within the nearshore areas (less than 50m water depth) for extraction of heavy metals (e.g. sulphides, polymetallic nodules), other minerals (e.g. phosphate) and rare earth elements (to supply increasing demands for these elements for rapid and expanding growth in technologies). Limiting factors include economic considerations, as well as the scale and extent of environmental impacts, as this type of mining activity uses dredging systems to excavate the seafloor; many of which are not fully understood in deep-sea environments.[55]

Figure 5.25 below shows the presence of marine aggregates that overlap with draft SC-DMAP area.

5.3.6.6 Ports, Harbours and Shipping

Seaports, Harbours and Shipping

As an island nation, ports play a crucial role in facilitating Irish economic growth and prosperity. The Competition and Consumer Protection Commission has estimated that ports handle 84% of Ireland's merchandise trade in volume and 62% in value terms. The National Ports Policy (DoT, 2013)[56] provides the framework for the provision of port services and categorises the state's commercial ports sector based on their significance. Of relevance to the draft SC-DMAP is the Port of Cork which is classed as a Tier 1 Port of National Significance. The Port of Cork Company is capable of handling traffic across all five principal traffic modes (Lift-On/Lift-Off, Roll-On/Roll-Off, Break Bulk, Dry Bulk and Liquid Bulk). It handles approx. 19% of all seaborne trade in the State.

Rosslare Europort and the Port of Waterford are classed as Tier 2 Ports of National Significance. These also meet the European Commission's criteria for inclusion in the comprehensive network under the TEN-T proposal. Rosslare Europort is the fourth largest port in terms of overall tonnage handled, and the State's second largest passenger port.

The Ports of Regional Significance that are relevant to draft SC-DMAP include Castletownbere, Kinsale and Youghal, all of which are located in County Cork.

Irish ports handled 11.8 million tonnes of goods in Q3 2023, an decrease of 4% over the previous year. The total number of vessels that arrived in the seven main Irish ports during Q3 2023 ports fell by 2% when compared with Q3 2022. During Q3 2023, 3,130 vessels arrived in the seven main Irish ports compared with 3,202 in Q3 2022 as shown in **Table 5-14**. **Figure 5.3** in **Section 5.3.1.1** (Population) above illustrates the locations of the various ports. **Figure 5.23** illustrates the cargo and passenger vessel density across the Study Area.

[54] Sutton G, O'Mahony C, McMahon T, Ó'Cinnéide M & Nixon E (2008). Policy Report - Issues and Recommendations for the Development and Regulation of Marine Aggregate Extraction in the Irish Sea. Marine Environment & Health Series, No. 32, 2008.

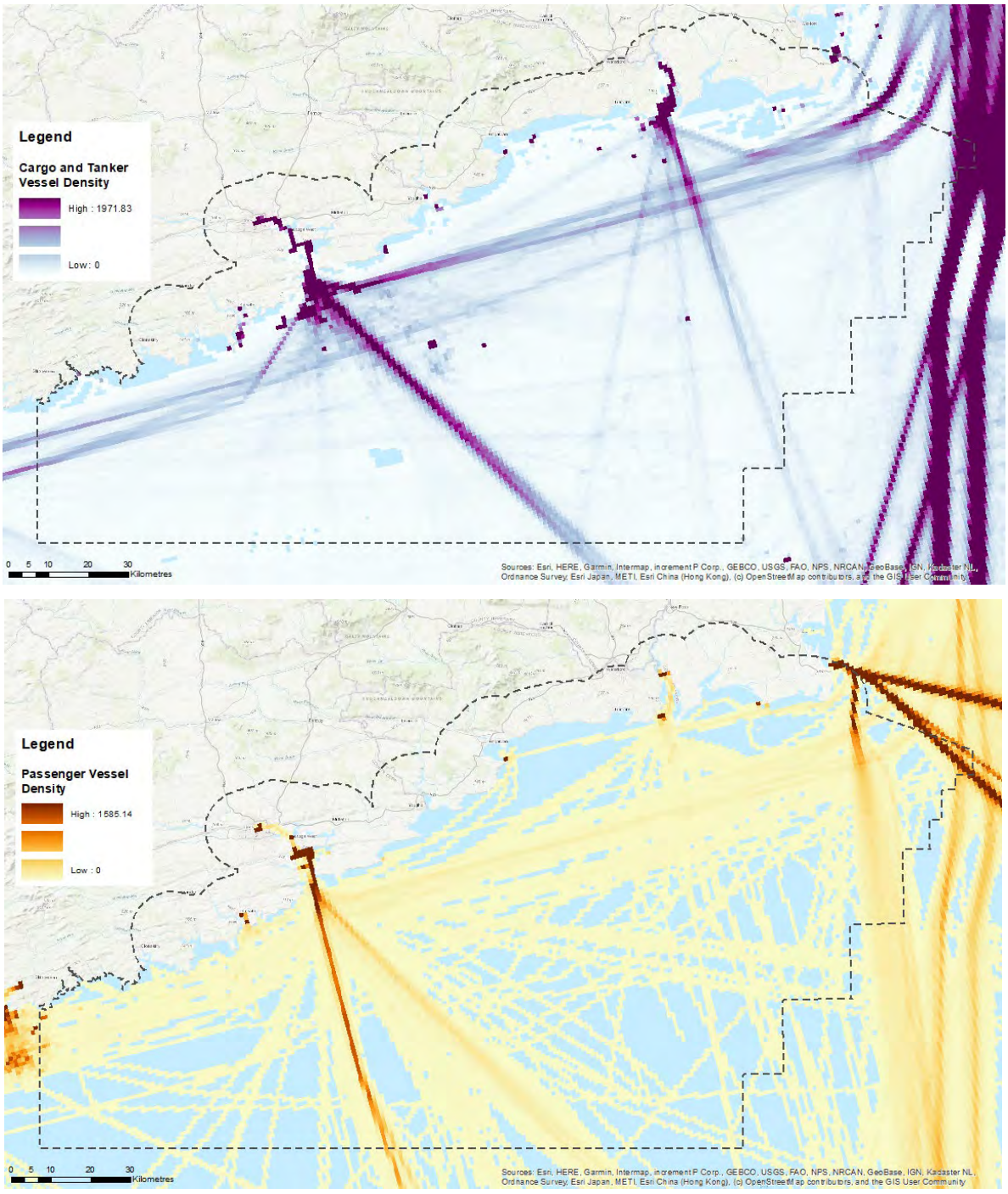
[55] Baker E., Gaill F., Karageorgis A., Lamarche G., Narayanaswamy B., Parr J. et al. (2016). Offshore mining industries. The First Global Integrated Marine Assessment - World Ocean Assessment I. United Nations. chapter 23. http://www.un.org/Depts/los/global_reporting/WOA_RPROC/Chapter_23.pdf

[56] DoT (2013) . National Ports Policy. Available at: https://www.gov.ie/en/publication/4aa3cc-national-ports-policy/ Accessed: January 2024.

Table 5-14: Number of arrivals and gross tonnage of vessels, Q3 2023 (CSO, 2022)

Port	Arrivals (Number)	Gross Tonnage of Vessel ('000 Tonnes)
All Main Irish Ports	**3,130**	**76,754**
Cork	395	9,804
Rosslare	569	16,884
Waterford	111	981

Source: Statistics Of Port Traffic Quarter 3 2023 (CSO), Table 1, https://data.cso.ie/table/TBQ01



Source: Marine Institute.

Figure 5.23: Cargo & Tanker Vessel Density [Top] and Passenger Vessel Density [Bottom] across the draft SC-DMAP Study Area

Airports

There are 10 main airports across Ireland: Cork International Airport, Donegal Airport, Dublin International Airport, Weston Airport, Galway Airport, Kerry (Farranfore) Airport, Ireland West Airport Knock, Shannon Airport, Sligo Airport and Waterford Airport. Two of these, Cork and Waterford, are located within the Study Area. There are control zones and control areas associated with each airport; these are shown for Cork and Waterford Airports in **Figure 5.24**. These areas represent the volume of controlled airspace to protect air traffic operating to and from airports.

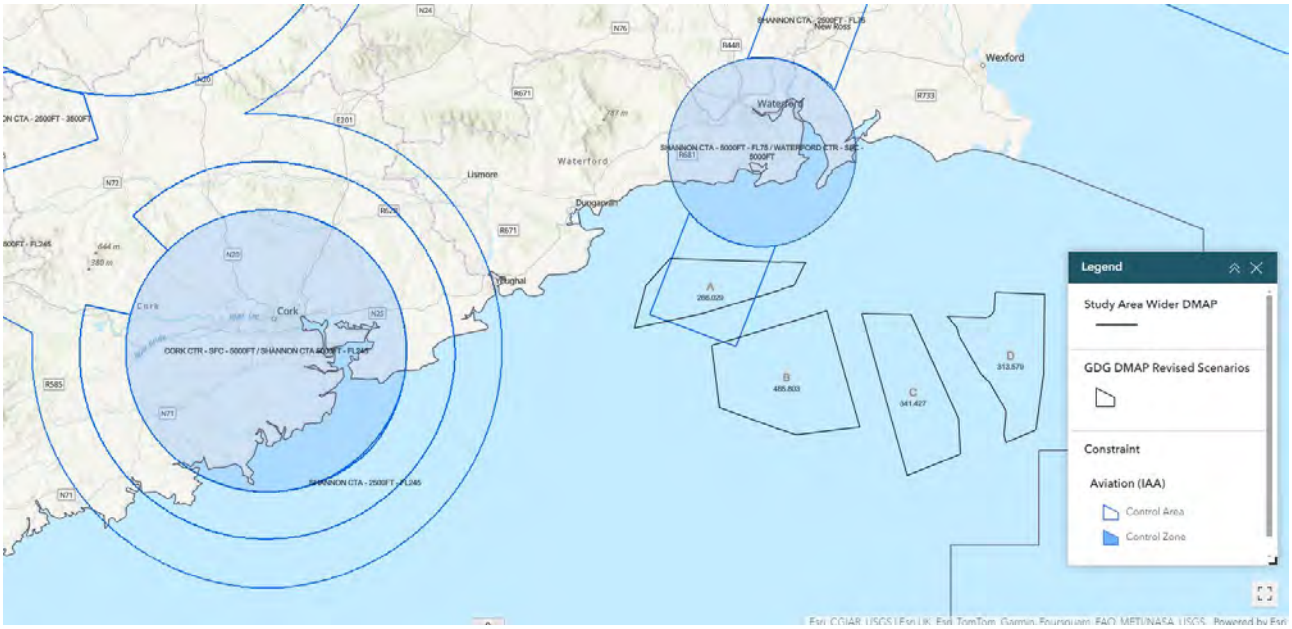


Figure 5.24: Airport Control Zones and Control Areas within the draft SC-DMAP Study Area

5.3.6.7 Energy: Petroleum

Oil remains an important component in Ireland's energy mix. It is the dominant fuel used in Ireland at 48% of the total primary energy requirement (TPER) in 2017.[57] Ireland has no domestic oil production and so depends heavily on imported oil which is used primarily in the transport and heating sectors. All crude oil is imported into the Whitegate refinery in Cork.[58]

Natural gas represented 31.6% of Ireland's TPER in 2022. Natural gas comes from both indigenous production and imports. The indigenous resources included gas fields at Kinsale and Corrib. After 40 years, production of gas from the Kinsale Area Gas Fields (Kinsale Head, Ballycotton and Seven Heads) came to an end on 5 July 2020, as the gas reserves are depleted. However, production from Corrib is also now in decline and is projected to stop around 2030[59]. The remaining natural gas requirement is imported from the UK. Ireland, Northern Ireland and Great Britain are physically interconnected by two interconnector pipelines under the Irish Sea, which are owned and operated by Gas Networks Ireland (GNI) and its subsidiary GNI (UK), and there is a continued mutual interest in ensuring the ongoing operation of arrangements to deliver safe, secure and competitive energy supplies for consumers.

Figure 5.25 presents relevant exploration well locations, offshore gas pipelines and current authorisations for petroleum lease, exploration licence and licensing option etc. within the draft SC-DMAP Study Area.

[57] SEAI (December 2018). Energy in Ireland 2018 Report.

[58] https://www.dccae.gov.ie/en-ie/energy/topics/Oil/oil-key-facts/Pages/Oil-Key-Facts.aspx

[59] https://www.gov.ie/en/policy-information/bf1b50-oil-and-gas-exploration-and-production/

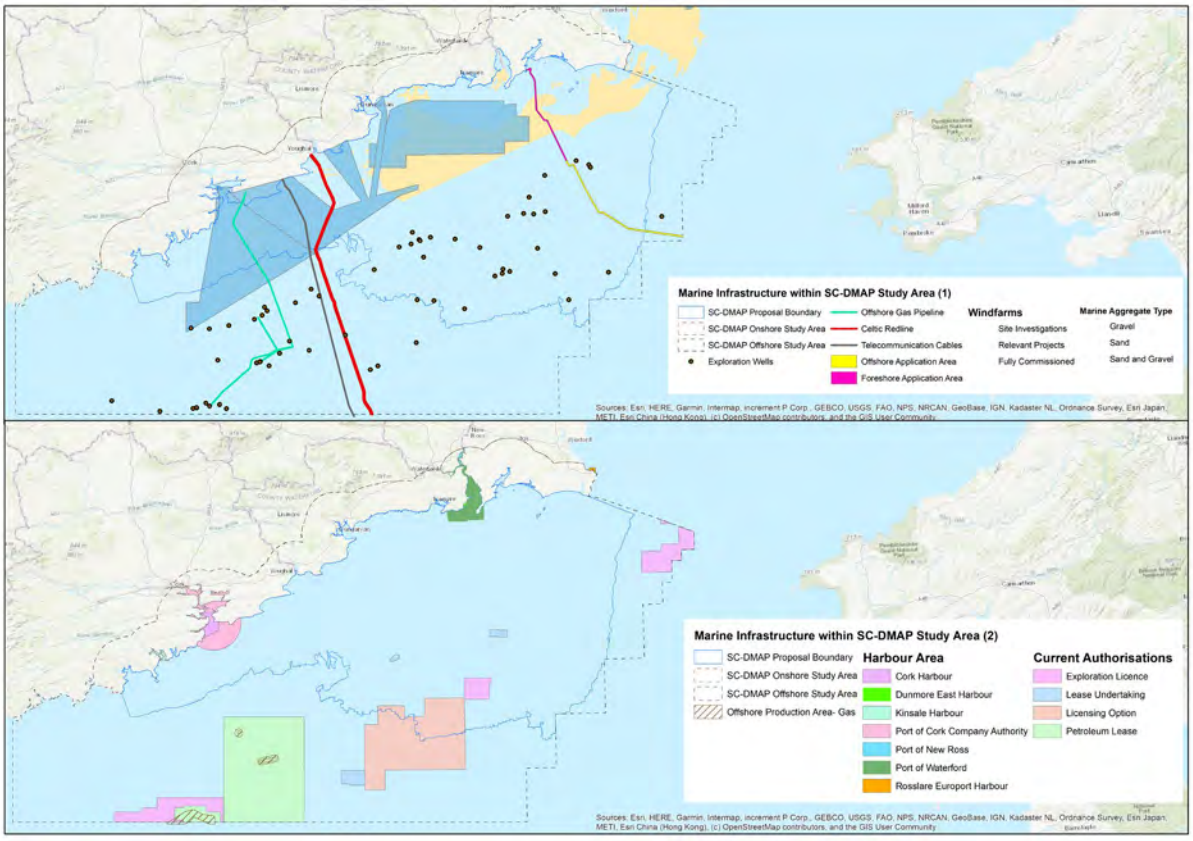


Figure 5.25: Marine Infrastructure within SC-DMAP Study Area

5.3.6.8 Energy: Transmission System

The transmission system consists of high voltage lines and cables that transmit electricity around Ireland and Northern Ireland. The network in Ireland operates at 110 kilovolts (kV), 220 kV and 400 kV, and in Northern Ireland (NI) at 110 kV and 275 kV. There are three connections between the two networks, one at 275 kV and two at 110 kV.

Interconnectors

The Moyle interconnector between Northern Ireland and Scotland became operational in 2002, with a capacity of 500 MW. The all-Ireland Single Electricity Market (I-SEM) was then introduced in 2007, allowing for imports and exports of electricity between the island of Ireland and Great Britain, and more recently between the I-SEM and continental Europe.

A 400 kV interconnector between Ireland and NI, the North-South Interconnector, is being planned and is expected to be complete by 2025 (EirGrid, 2023)[60].

The interconnector between Ireland and Wales, the East West interconnector (EWIC) is a high voltage direct current (HVDC) submarine and underground cable with a power rating of 500 MW. The EWIC connects Rush North Beach converter station in north County Dublin to the Shotton converter station on north Wales.[61]

[60] EirGrid (2023). North south 400 kV Interconnection Development The Project (eirgridgroup.com).

[61] EirGrid (nd). EirGrid EWIC Trading Brochure 'The East West Interconnector' http://www.eirgridgroup.com/site-files/library/EirGrid/EWICTradingBrochure.pdf

EirGrid and its French equivalent, Réseau de Transport d'Electricité (RTE), are currently developing an interconnector between Ireland and France, the Celtic interconnector, which will have a capacity of 700 MW. As of April 2024, construction works have commenced[62].

The Greenlink interconnector is a proposed interconnector which will link Great Island substation in County Wexford and Pembroke substation in Wales. Project construction has commenced and commissioning is planned for 2024[63].

Grid opportunities to 2030

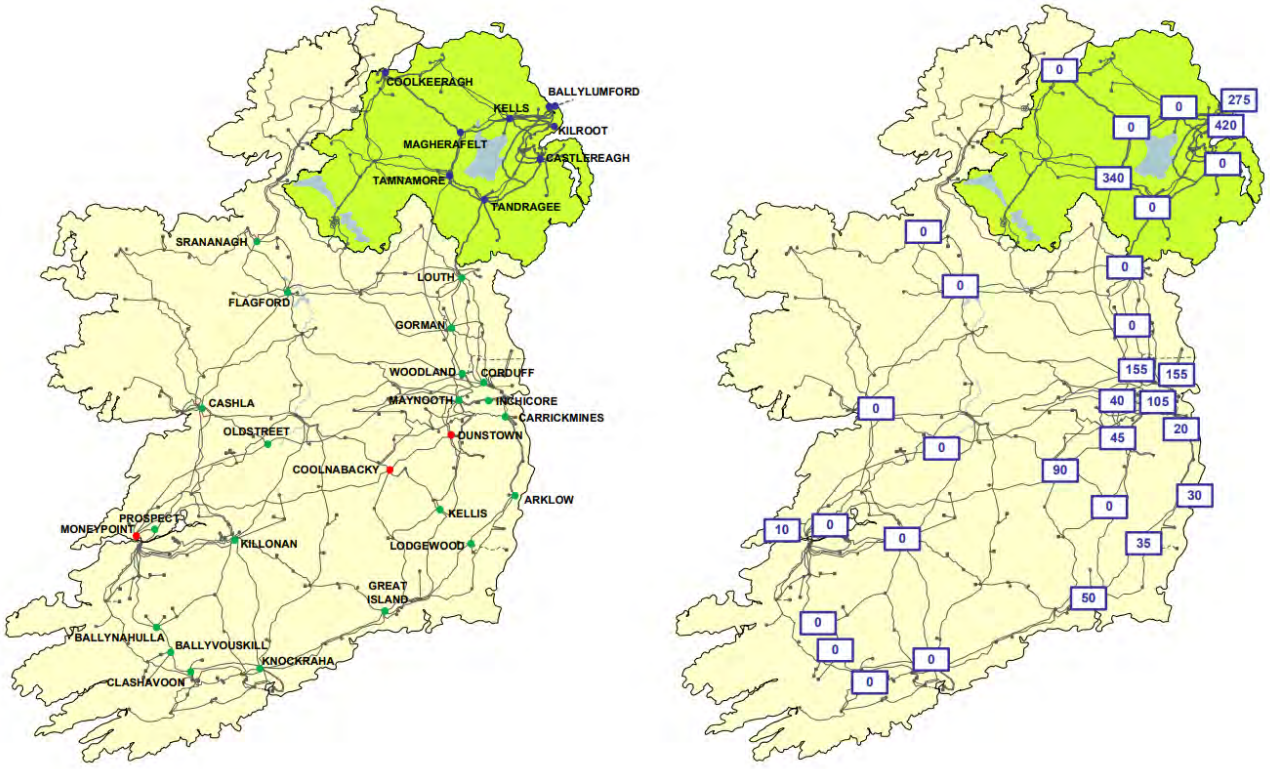
A system needs assessment was carried out by EirGrid to determine the level of development required for the transmission grid in Ireland for 2030 (EirGrid, 2018). Demand, generation and interconnection are the three main influencing factors. The four scenarios of steady evolution, low carbon living, slow change and consumer action to project future demand and generation and identify the needs of the grid in each area. The South-West and South-East are areas of high demand and conventional generation, while also having high levels of power transfer through the regions. It is expected that there will be a moderate-to-high need for grid development to support onshore and offshore wind and a potential interconnection. Solar PV, particularly in the South-East, is also expected to add to this need.

A generation opportunity analysis has been carried out by EirGrid on the network in Ireland and by SONI for Northern Ireland (EirGrid and SONI, 2021). The aim of the analysis is to determine the opportunities for additional generation at specific areas of the network in 2030. The 220 kV, 275 kV and 400 kV networks were considered together, with specific stations selected. The stations were then tested on their capability to support additional generation up to a maximum of 600 MW; refer to **Figure 5.26**. A maximum of 200 MW additional generation was considered for the analysis of the selected 110 kV stations; refer to **Figure 5.26**.

The values at each location indicate the capacity of the opportunity for new generation associated with the selected 220 kV, 275 kV or 400 kV station (**Figure 5.26**). EirGrid and SONI (2022) report states that in general, the analysis indicates there is no opportunity for new generation in the North, West and South of Ireland. The transmission network in these areas has significant levels of connected and planned renewable generation. Moreover, the southern region contains efficient conventional gas generators and plans for further interconnection. In the East, and to a lesser extent South-Eastern region, there are opportunities for new generation connections near the large demand centres.

[62] Celtic Interconnector project website. https://www.eirgrid.ie/celticinterconnector#project-updates

[63] Greenlink project website. https://www.greenlink.ie/



Source: *Figure 7-1, EirGrid & SONI (October 2022) All-Island Ten Year Transmission Forecast Statement 2021. Available at: https://www.eirgridgroup.com/site-files/library/EirGrid/All-Island-Ten-Year-Transmission-Forecast-Statement-TYTFS-2021.pdf*

Figure 5.26: Generation Opportunity at 220 kV, 275 kV and 400 kV Stations in 2030

For the selected 110 kV stations, the EirGrid and SONI (2022) report states that the results show that there is little opportunity for generation connections at 110 kV. By 2030, there is a high level of renewable generation connected to both the transmission and distribution systems in Ireland, with the renewable connections concentrated in the North-West, West and South-West. The installed capacities will exceed the demand in these areas, resulting in limited opportunities for new connections without additional reinforcements.

Some capacity for additional generation is available within the 110 kV network at some nodes in the South-East and Midlands of Ireland. This is due to the presence of large demand centres, the lower penetration of renewable generation, as well as the strength of the transmission network in this region. Detailed connection studies are required to determine more accurate quantities of available capacity and connection arrangements.

All-Island Ten year Transmission Forecast Statement 2021

The EirGrid and SONI All-Island Ten Year Transmission Forecast statement (TYTFS) 2021 (EirGrid & SONI, 2022)[64] was prepared to describe the transmission system on Ireland from 2021 to 2023.

As part of this, an All-island Generation analysis was performed on the Ireland and Northern Ireland power systems. A demand forecast was used in the analysis and represents an average annual increase in all-island winter peak demand of 1.7% between the period 2021-2030. The cumulative forecast increase in demand over the period 2021-2030 is 16.5%. Results state that *several stations on the island are approaching, or have the potential to exceed, their rated short circuit current level.* There will need to be network reinforcements for future generations in the North-West, West and South-West regions.

[64] EirGrid and SONI (2022). All-Island Ten Year Transmission Forecast Statement 2021 All-Island-Ten-Year-Transmission-Forecast-Statement-TYTFS-2021.pdf (eirgridgroup.com).

Generation Capacity Statement

The Generation Capacity Statement is an annual report from EirGrid and System Operator Northern Ireland (SONI) which identifies capacity deficits during the ten years to 2030 (EirGrid, 2030)[65]. There are expected to be increases in capacity deficits over the short term due to deteriorating availability of power plants and growing electricity demand. These deficits are expected to reduce as new capacity comes through the Single Electricity market (SEM) capacity auctions, and with the advent of new onshore and offshore renewables.

Analysis from the Winter Outlook 2022 has identified a reduction of 124 MW on the median demand which is driven by lower than expected economic growth and the impacts of retail pricing/tariffing signals. For 2022/2023, the overall electricity demand growth is trending between the median and low scenarios, with an envelope of credible forecasts between the low to high demand scenarios. The median scenario assumes that 100% of the targets that were set under Climate Action Plan 2021 will be met. The low scenario assumes 75% and the high scenario assumes 110%.

Data Centres

Data centres are facilities that house the computing and networking equipment of organisations. They are used to collect, store, process and distribute large amounts of data and are vital for backup and recovery purposes.

As of June 2023, there are 82 operational data centres in Ireland, comprising 1,261 MW of capacity (Bitpower, 2023)[66]. Most of the facilities are currently located in the Dublin metropolitan area and EirGrid expects this trend to continue as extra data centre load is introduced. Cork has been identified as a potential area for data centre development as plans are in place for the required fibre connectivity.

5.3.6.9 Energy: Renewables

A secure, sustainable and affordable supply of energy is of central importance to the economic and social wellbeing of Ireland. Ireland has some of the best offshore renewable energy resources in the world. The term offshore renewable energy covers a number of technology types and includes wind (fixed and floating), wave and tidal, all of which rely on harnessing the motion of wind or water to generate energy. Of these fixed offshore wind technology type has reached the commercial stage, while floating wind, wave and tidal technology are still at the experimental stage globally, though floating wind turbines have been successfully deployed as part of the Hywind Project 15km off the Scottish coast.

The relevant offshore renewable energy activities undertaken in the Irish maritime environment relate to site investigations and surveys, pilot schemes, and commercial energy generation (extent of this is shown in **Figure 5.25**). Site investigations may include such activities as geological, geophysical, and topographic examination, and surveys could include vessel deployment for marine mammal and ornithology surveys, and floating LiDAR deployment for MetOcean data gathering.

Any organisation seeking to undertake 'activities' including investigations and surveys, in the Irish offshore requires a Maritime Area Consent (MAC) and/or Maritime Licence to be issued by the Maritime Area Regulatory Authority (MARA) under the Maritime Area Planning Act (as amended).[67] For construction and operation of an OW project within the SC-DMAP, the applicant will require development permission from An Board Pleanála.

To date there is only one commercial offshore renewable energy development in the form of Arklow Bank Wind Farm, a circa 25 MW capacity wind farm off the Wicklow coast. Government funding supports Ireland's commitment to world class test facilities and infrastructure including the Lir National Ocean Test Facility in Cork, the quarter scale Galway Bay Marine Renewable Energy test site and the full-scale Atlantic Marine Energy Test Site (AMETS), off the coast of Mayo.

[65] EirGrid (October 2022). Ireland's Capacity Outlook 2022-2023 *EirGrid_SONI_Ireland_Capacity_Outlook_2022-2031.pdf (eirgridgroup.com)

[66] Bitpower (2023). Tracking Ireland's Data Hosting Industry Digital Dashboard (bitpower.ie).

[67] Maritime Area Regulatory Authority. https://www.maritimeregulator.ie/ Accessed: April 2024.

The 2014 Offshore Renewable Energy Development Plan (OREDP)[68] sets out the Government's policy for the sustainable development of the country's abundant offshore renewable energy resources. It found that 4.5 GW of offshore wind and 1.5 GW of wave and tidal energy could be sustainably developed in Irish waters. The OREDP identifies policy actions and enablers that are key to the development of this sector. Progress is monitored by the Offshore Renewable Energy Steering Group (ORESG) which is responsible for the implementation of the OREDP across three workstreams: Job Creation; Infrastructure; and Environment. The OREDP I is currently guiding the State's policy approach to achieving 5 GW of ORE by 2030, mostly through fixed-bottom wind turbines in relatively shallow waters of up to 70 metres depths.

While the OREDP I aimed to facilitate the development of ORE across sectors, the draft OREDP II[69] consulted upon in 2023 represents a national-level spatial strategy designed to promote the sustainable and organized growth of ORE over the long haul. The draft OREDP II was intended to provide a high-level framework for the long-term, sustainable and planned development of Ireland's immense wind, wave and tidal renewable energy resources.

More recently, under the CAP23[70] and draft CAP24[71], Ireland has set a target for 9 GW of onshore wind and at least 5 GW of offshore wind by 2030. There are longer term Government targets to achieve installed offshore wind capacities of 20 GW by 2040 and 37 GW by 2050.

5.3.6.10 Water Supplies and Wastewater

Water Supplies

The areas of County Cork within the Onshore Study Area are more concentrated with groundwater wells and springs followed by County Waterford and then County Wexford as indicated by the GSI web map viewer[72]. Across Ireland, there are 2,979 registered abstractions as of 2023, which are taken from a mix of groundwater, lake and river sources and are used for both public and private water supplies.[73] Of these, County Cork has 1209 registered abstraction points, County Waterford has 209, and County Wexford has 586 registered abstraction points.

There are also approximately 24 water related works in progress in County Cork.

The EPA Climate Status Report for Ireland 2020 (EPA, 2021) states that in 2018, approx. 82% (1,655 million m^3) was abstracted from surface water, with the remaining 18% (375 million m^3) coming from groundwater sources. More than half of the surface water abstracted was used for public water supply. Just over a quarter of the surface water abstracted was used by the electricity generation sector for cooling, with almost none abstracted from groundwater sources. Most of the water used in manufacturing sector was abstracted from groundwater, which is also the primary source of water used in agriculture (noting that while the overall proportion used in agriculture was small, this may be underestimated). Abstractions are reported by the EPA as being a significant pressure on 9 lake water bodies and 7 river water bodies.

The GSI has now completed Groundwater Protection Schemes (which includes the delineation of source protection zones for public water supplies) in collaboration with local authorities, and there is

[68] DECC, 2019. Offshore Renewable Energy Development Plan (OREDP). Available at: https://www.gov.ie/en/publication/e13f49-offshore-renewable-energy-development-plan/ Accessed: January 2024

[69] DECC, 2022. Offshore Renewable Energy Development Plan II (OREDP II). Available at: https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/

[70] DECC, 2023. Climate Action Plan 2023. Available at: https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/ Accessed: January 2024

[71] DECC, 2024. Draft Climate Action Plan 2024. Available at: https://www.gov.ie/en/publication/79659-climate-action-plan-2024/ Accessed: January 2024

[72] GSI Web Map Viewer. Available at: https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef [Accessed January 2024]

[73] EPA Register of Abstractions. Available at: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/epa-water-abstraction-register.php [Accessed January 2024]

now national coverage. The EPA also delineates additional source protection zones not covered by the GSI programme.

Security of supply is an ongoing issue Ireland, with many areas reliant on a single supply. The water supply for the Greater Dublin Area for instance, frequently has just 2% headroom and across other towns and cities, does not meet international standards for spare capacity. This has implications for security and sustainability of supplies in light of the population growth projections set out in the National Planning Framework and three RSES's, which may also have implications for certain sectors requiring large amounts of water.

The EPA Climate Status Report for Ireland 2020 (EPA, 2021) states that groundwater volumes and levels are influenced by not only rainfall and dry periods but mainly human use. In Ireland, the EPA reports that groundwater 91% of groundwater bodies are in good chemical status and nearly all are in good quantitative status.[61]

5.3.6.11 Wastewater Treatment and Disposal

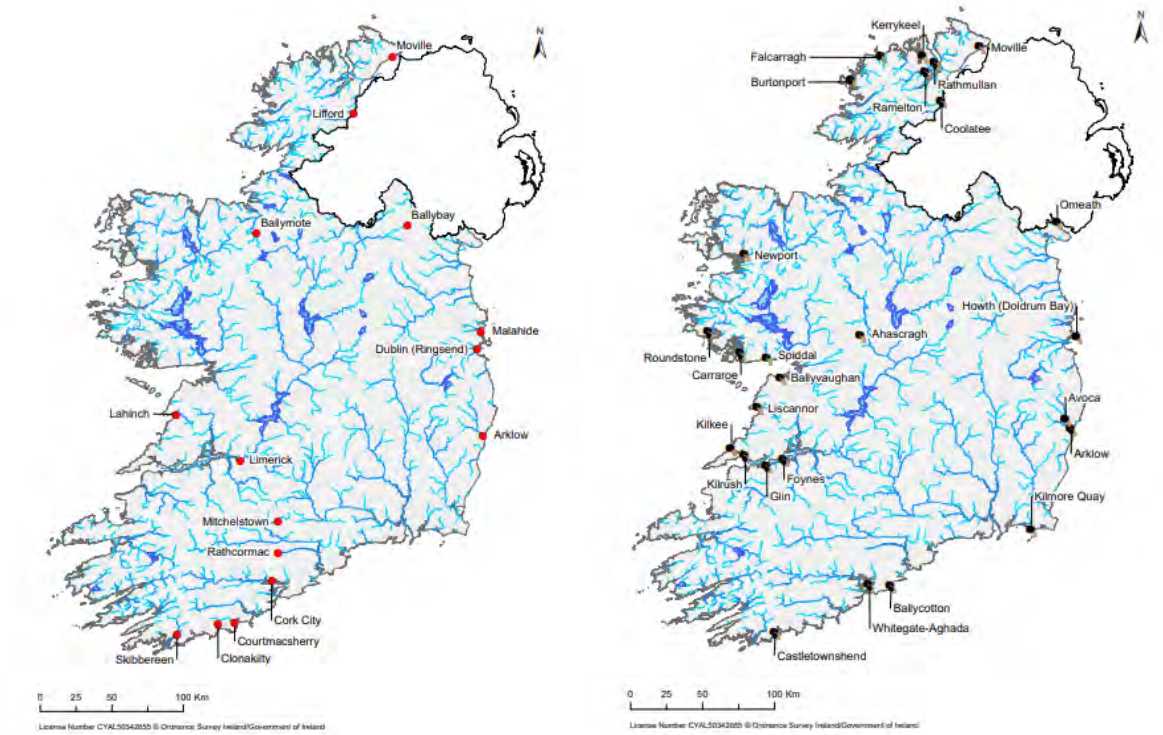
Wastewater treatment and disposal involves the collection of waste water generated within communities, removing the polluting material at waste water treatment plants, and then releasing the treated water safely back into the environment, which in many cases is the marine environment. The European Union's Urban Waste Water Treatment Directive (UWWTD) sets the basic standards for the collection, treatment and discharge of urban waste water from large urban areas.

Irish Water is the national water services authority, responsible for the collection, treatment and discharge of urban waste water. The EPA is the environmental regulator of Irish Water. The EPA issues and enforces authorisations for waste water discharges. The Commission for the Regulation of Utilities is the economic regulator of Irish Water. It ensures that Irish Water's revenue is spent efficiently and effectively to improve services. Irish Water are required to submit consent applications for all their waste water development proposals. These include planning applications to the local authorities or An Bord Pleanála where applications for strategic infrastructure are sought. Where development is required below the High Water Mark, a licence may also be required. Where required, development proposals are subject to AA and EIA.

The EPA publishes a report on Urban Waste Water Treatment in Ireland, which gives an overview of quality of treatment, risks to the environment and action required to prevent waste water from harming the environment. In 2022, waste water treatment at 15 of Ireland's 173 large urban areas failed to meet European Union standards[74] (shown in **Figure 5.27)**. 55% of all the waste water collected in Ireland's large urban areas was produced in the 15 areas that failed the standards, with Dublin (Ringsend) accounting for most of this. Furthermore, raw sewage from equivalent to approx. 54,000 people is currently discharged into the water environment daily, locations of which are also shown in **Figure 5.27**.

Investment in waste water treatment infrastructure continues to bring improvements for the environment. Positive achievements during the past year include the provision of treatment for six villages that used to discharge raw sewage every day. While Uisce Éireann is making progress, it is concerning that Ireland has still not met all its obligations under the Urban Waste Water Treatment Directive, some 30 years after the country was required to bring provisions into force to comply with the Directive. Waste water continues to impact the quality of Irish rivers, lakes, estuaries and coastal waters and it will take substantial investment over many years to bring all treatment systems up to the standards needed to protect the environment and build resilience for the future.

[74] EPA, 2023. Urban Waste Water Treatment in 2022 https://www.epa.ie/our-services/compliance--enforcement/waste-water/urban-waste-water/



Source: [Left] Figure 2 (Areas that failed the EU treatment standards in 2022)]; Figure 4 (Areas discharging raw sewage in mid-2023) [Right], EPA (October 2023) Urban Waste Water Treatment in 2022 Report [Right][56]

Figure 5.27: Locations that failed the EU Wastewater Treatment Standards in 2022 and Locations of Raw Sewage Discharge in 2023

5.3.6.12 Sport, Recreation and Tourism

Tourism is a significant industry for coastal communities and recreation and tourism infrastructure exists. It includes physical assets such as beaches, marinas etc. and associated activities (recreational sailing, sport fishing and navigation). For example, the Irish coastline is home to many sailing and diving clubs, and there is recreational fishing all around Irish coasts, as well 148 designated bathing waters as of 2021.

Ireland's coastal areas, marine resources and activities are significant components in Ireland's overall tourism offering. As regards the domestic tourism market, out of a total of 13.3 million domestic holiday trips in 2022, about 6% domestic holidaymakers engaged in water sports (excluding swimming), 10% in boat tours, and 4% engaged in angling. F**igure 5.28** shows the Sport and Recreation Trends and Features in the within SC-DMAP Study Area.

Cork Tourism

Cork's coastal and inland waters are a major asset in terms of tourism and marine leisure activities as well. This county hosts two of the three main tourism areas developed by Fáilte Ireland, The Wild Atlantic Way and Irelands Ancient East. There are about 27 Discovery Points and three Signature Discovery Points (SDP) of Wild Atlantic Way in Cork of which one SDP (Lusitania Museum & Old Head Signal Tower) falls within the Onshore Study Area and one discovery point (Timoleague Abbey) falls right outside the Onshore Study Area. There are several existing long-distance walkways on the Cork Coastline that have the potential to be further developed such as Sheep's Head trail (88km), Beara Way in Cork/Kerry (206kms).

Based on Failte Ireland's Annual Visitor Attraction Survey[75] for Cork from 2022, the most visited attraction were the historic sites (37%), visitor centres (19%), museums and galleries (14%) and visitor gardens (12%). The visitor attractions within the one SDP (Lusitania Museum & Old Head Signal

[75] Failte Ireland - Visitor Numbers to Attractions, Tourism Research & Statistics https://www.failteireland.ie/Research-Insights/Activities/visitor-numbers-to-attractions-dashboard.aspx

Tower) falls within the Onshore Study Area includes mostly visitor centres, brand experiences, historic sites, visitor gardens and zoo.

There are six blue flag beaches, 12 bathing water locations and 12 marinas present in County Cork within the draft SC-DMAP Study Area.

Waterford Tourism

Waterford is known to be an urban/ coastal/rural/cultural/ heritage destination with a mix of attractions and activities that appeal to a wide variety of visitors. Some of the key tourism related developments of relevance in Waterford include the Waterford Greenway 46km off road cycling /walking trail, UNESCO Global Geopark status for the Copper Coast, and development of 39 accredited recreational walking and cycling trails.

Based on Failte Ireland's Annual Visitor Attraction Survey for Waterford from 2022, the most visited attraction were the historic sites (28%), visitor centres (22%), visitor gardens (22%) and museums and galleries (17%). The visitor attractions within the Onshore Study Area includes a historic site and a visitor garden.

There are five blue flag beaches, six bathing water locations and three marinas present in County Waterford within the draft SC-DMAP Study Area.

Wexford Tourism

Some of the key elements of County Wexford Tourism Development Strategy 2019-2023 include establishing the most compelling clustered experience of Ireland's Ancient East encompassing the Hook Peninsula, Loftus Hall, the Dunbrody Famine Ship, the Irish National Heritage Park, Tintern Abbey, JFK Homestead and Arboretum; developing Wexford's Town profile as a unique and vibrant Maritime town; establishing Wexford's contemporary coastal experience which will be focused on coastal towns from Gorey to Fethard, and encompassing key Blueways and Greenways.

Based on Failte Ireland's Annual Visitor Attraction Survey for Wexford from 2022, the most visited attraction were the historic sites (59%), visitor gardens (18%), heritage/leisure park (6%) and museums and galleries (6%). The visitor attractions within the Onshore Study Area includes three historic sites and a visitor garden.

There are two blue flag beaches, three bathing water locations and one marina present in County Wexford within the draft SC-DMAP Study Area.

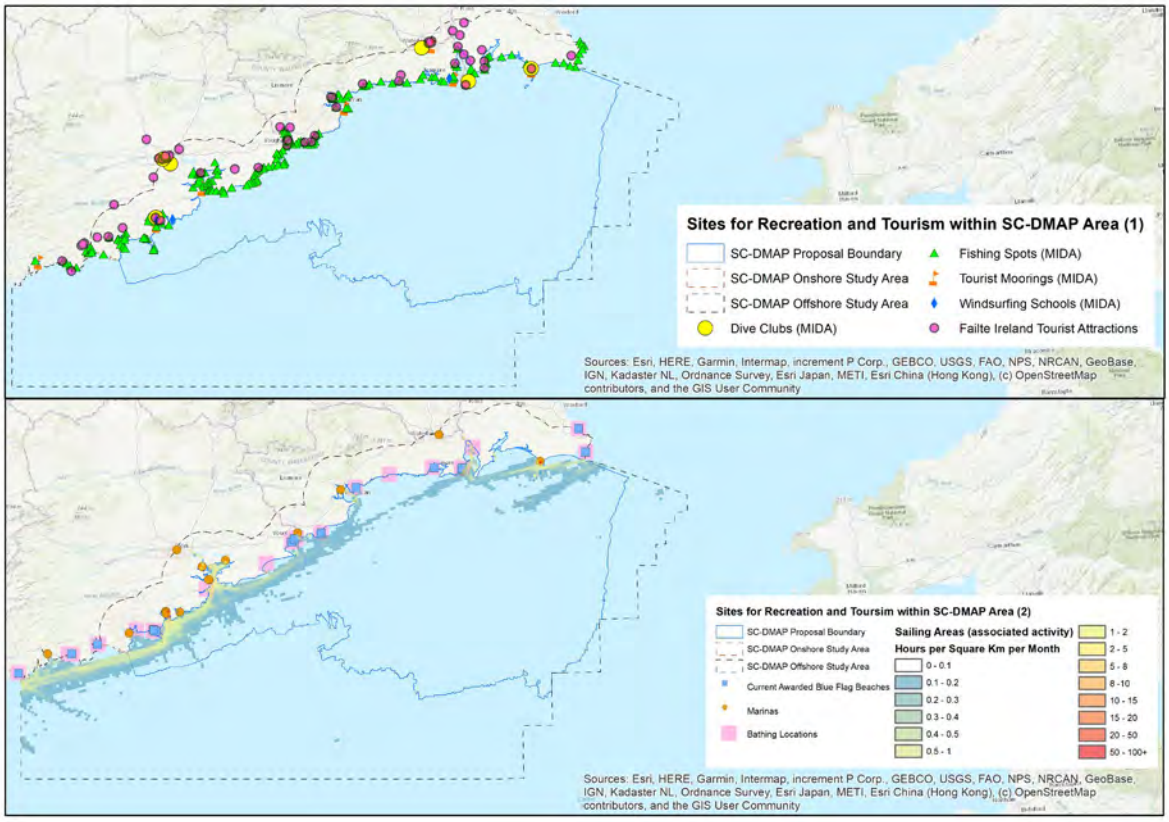


Figure 5.28: Sport and Recreation Trends and Features in SC-DMAP Study Area

5.3.7 Cultural Heritage

The cultural heritage baseline is focussed at both the terrestrial and marine heritage features and their settings.

5.3.7.1 Cultural Heritage (Terrestrial)

A review of heritage datasets from the DHLGH and the CDP for Cork, Waterford and Wexford identified heritage sites and features that are designated and lie within the overall SC-DMAP Study Area. These include:

- **Record of Monuments and Places (RMP)** - The most common RMPs in the study area include ringforts, burnt mounds, enclosures, standing stones, churches and graveyards.
- **National Inventory of Architectural Heritage (NIAH)** - The most common NIAH in the study area include houses, country houses, farm houses, churches, bridges, graveyards and gate lodges/walls.
- **Record of Protected Structures (RPS)** - The most common RPS in the study area include storeyed-houses, thatched houses, town houses and churches.
- **Architectural Conservation Areas (ACA)** - Within the study area for the SEA baseline, there are 54 ACA in Cork and 12 in Waterford. There are no ACAs located within the Wexford County that fall within this study area.

5.3.7.2 Cultural Heritage (Coastal and Marine)

Coastal cultural heritage is characterised by traditions of travel and commerce and influences community identity, language and livelihood. Coastal areas and inland waterways have always been important for human habitation as means of transportation and for water supply. Maritime heritage can also play an important part in developing a cultural identity and a tourism brand for coastal regions

while also creating awareness of the need to protect and preserve this fragile aspect of the cultural heritage. For this baseline, the overall SC-DMAP Area was considered to encompass the relevant coastal areas of County Cork, County Waterford and County Wexford as well elements of marine cultural heritage.

Historic Coastal Towns

The historic coastal towns define Ireland's open island character and their surviving heritage assets, both above and below the water, provide a historic environment that is irreplaceable to coastal communities and is strategic for the on-going development of cultural tourism. They present the opportunity for economic development, expansion and cultural developments where adaptation and re-use is well considered in the context of retaining original character, patina of age and structural integrity.

There are eight historical coastal towns that are located within this study area. Two towns are 16-17th towns of the Tudor-Stewart plantation period, three are towns from 12-15th century Anglo-Norman and the remaining two are 19th century New Towns. **Figure 5-26** presents different types of historic coastal towns along the coastline that fall within the SC-DMAP Study Area.

Coastal Built Heritage

The maritime villages and towns are an integral part of Ireland's built heritage, many of which have an idyllic setting in relation to natural coastal or riverine features. The abundance of the major historic towns and ports are predominantly situated on the east, south east and southern coast of Ireland that afforded strategic access to Europe and the wider Atlantic and global trading routes over the centuries. These sites represent Ireland's past maritime trading interests and industry in exporting and importing goods and materials as well as being the nostalgic points of departure of Irish immigrants that made passage to new lands of opportunity. Many of these towns retain a distinct character arising from the development of prominent defensive infrastructure, harnessing dramatic topographical settings and lookouts which are evident from the sea approach and engineering ingenuity in the construction of harbours, piers and landings. **Figure 5.29** presents different types of built heritage sites along the coastline that are of relevance to draft SC-DMAP.

Cultural heritage along coastlines typically features structures such as promontory forts, shell middens, defensive structures, tombs, burial grounds and batteries. In Ireland, there are shell middens dating from the Mesolithic to the modern era. However, these shell middens are being lost due to a combination of natural and human factors. The PRISM project (Preservation by Record of Ireland's Shell Middens) is a citizen science participatory mapping scheme initiated by researchers from University College Dublin and University College Cork. The project is developing digital mapping tools which will help volunteer citizen scientists to record observations about the impacts of climate change and human activities on coastal shell middens in their community. There are 30 shell middens recorded in areas of County Cork, ten in County Waterford and two in County Wexford that fall within the overall SC-DMAP Area[76].

Shipwrecks (Marine Heritage)

Ireland's coastal waters have been central to the development of life on this island since the first water craft crossed the seaways from Britain and the European continent almost 10,000 years ago. With such a long-standing maritime legacy, it is no surprise that significant numbers of shipwrecks have been recorded from around Ireland's coast. Legislation is in place to protect wrecks and archaeological objects in Ireland's territorial waters, in the intertidal zone and within the inland waterways. Section 3 of the National Monuments (Amendment) Act 1987 is the primary piece of legislation for the protection of wrecks over 100 years old and archaeological objects underwater irrespective of age. Wrecks that are less than 100 years old and archaeological objects, or the potential location of such a wreck or archaeological object, can also be protected under the Act. Within the Offshore Study Area, there are currently approximately 2749 recorded wrecks, 2035 of which are located in the draft SC-DMAP Proposal Area as shown in **Figure 5.29**.

Many monuments are located in or adjacent to Ireland's coastal, intertidal, estuarine, and subtidal zones. Information regarding these monuments can be accessed through the Historic Environment

[76] https://prismproject.ie/

Viewer[77] which is an online digital mapping service providing access to both the databases of the NMS Sites and Monuments Record (SMR) and the National Inventory of Architectural Heritage (NIAH). All recorded monuments are afforded statutory protection under Section 14 of the National Monuments Acts 1930-2014.

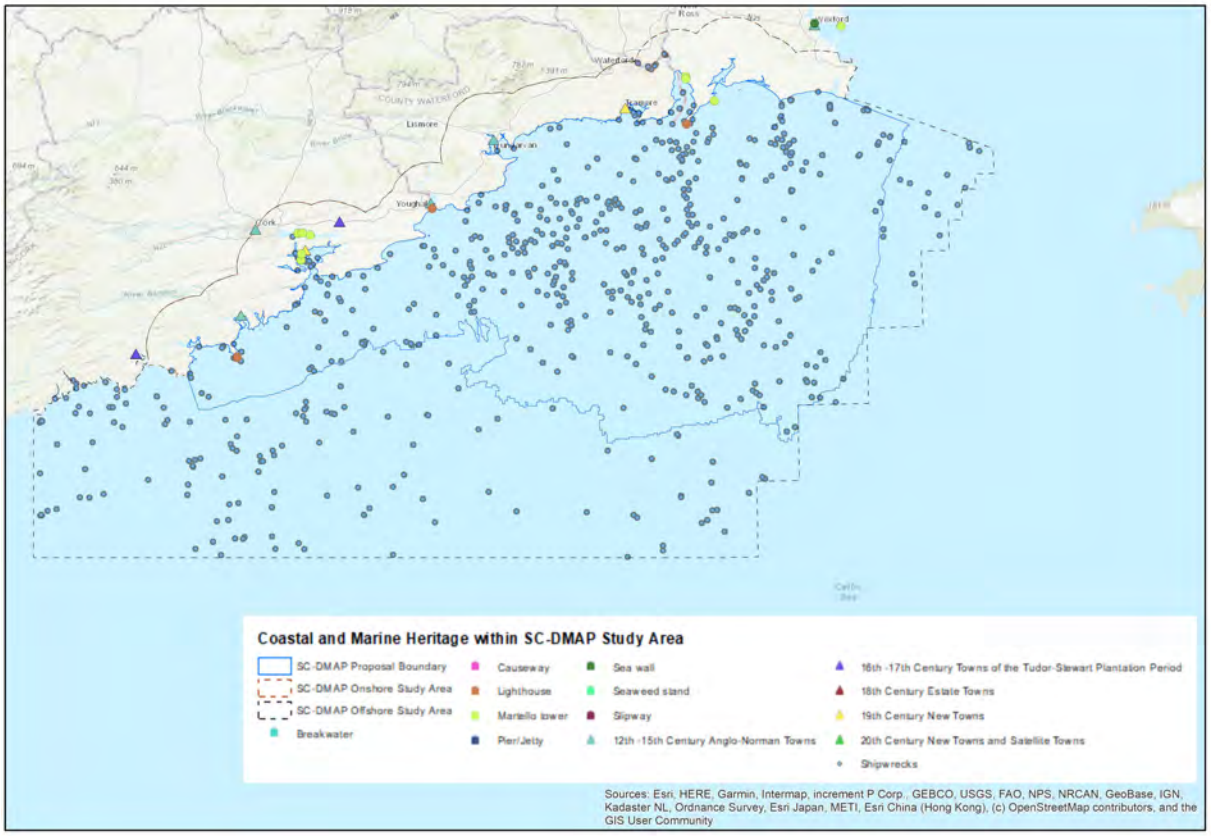


Figure 5.29: Coastal Built Heritage and Historic Coastal Towns relevant to Draft SC-DMAP

5.3.8 Seascape and Landscape

Broadly speaking, landscapes are areas that are perceived by people which are made up of a number of layers:

- Landform, which results from geological and geomorphological history;
- Land cover, which includes vegetation, water, and human settlements; and
- Human values, which are a result of historical, cultural, religious, and other understandings and interactions with landform and land cover.

5.3.8.1 Landscape/ Seascape Assessment in Ireland

Ireland is a signatory to the European Landscape Convention, which aims to promote landscape protection, management and planning and to organise European co-operation on landscape issue. Ireland ratified the Convention in 2002 and it came into effect in 2004. Ireland, as a party to the Treaty, is required to undertake general measures to recognise landscapes in law, establish landscape policies with public participation and to integrate landscape into its existing policies.

The National Landscape Strategy for Ireland (2015-2025) was produced in line with Ireland's obligations under the convention. The document recognises the importance of Irelands coastline and the iconic status of areas such as the Cliffs of Moher. Existing pressures on landscape and visual

[77] http://webgis.archaeology.ie/historicenvironment/

resources are primarily related to infrastructure development and expansions. The main drivers of change over the coming decade will be renewable energy developments, recreation, and aquaculture.

In the absence of national or regional guidance and assessments, local authorities currently conserve and protect scenic value as areas of high amenity, high sensitivity, areas of outstanding natural beauty, protected views and similar designations, but the approach is uncoordinated and can lead to different prioritisations in neighbouring counties. Each local authority is responsible for the designation of these within their individual jurisdictions, with each development plan providing objectives to protect such scenic values. It is noted the National Landscape Strategy does not specifically mention 'seascape' but is included as part of the Landscape Convention: '*The Convention covers natural, urban, peri-urban and rural areas, encompassing land, inland water, coastal and marine areas*.'

A Landscape Character Assessment (LCA) aims to classify the character of a landscape. Landscape character is defined as the distinct, recognisable and consistent pattern of elements in a landscape that make it different from another. Landscape Character Areas (LCAs) are designated by Local Authorities (LAs). Spatial datasets of LCAs are not available for all LAs. Inconsistencies also exist in the methodological approach used to assign classifications to LCAs. A re-classification of LCAs into 3 groups; Low Sensitivity, Medium Sensitivity, High Sensitivity was conducted in consultation with Local Authority Planning Departments.

The areas of County Cork, County Waterford and County Wexford that overlap the Onshore Study Area are characterised with different type of LCAs. These have been obtained from the respective City and County Development Plans. However, it is to note that Wexford County Council will carry out a full review of the full LCA after National Landscape Character Assessment and Guidelines for Planning Authorities on the preparation of Landscape Character Assessments are published. Therefore, at this stage the CDP presents the Landscape Character Units. These are listed below in Table 5-15 below:

Table 5-15: Types of Landscape Character Areas/Units in the Onshore Study Area and their Associated Sensitivity

County	Type of Landscape Character Area (LCA) / Landscape Character Unit (LCU)	
Cork	• Rolling Patchwork Farmland (Medium) • Indented Estuarine Coast (High) • Broad Fertile Lowland Valleys (High)	• City Harbour and Estuary (High) • Broad Bay Coast (High) • Fissured Fertile Middleground (Low)
Waterford	• Coastal Landscape (Most Sensitive) • Farmed Lowland Landscapes (Low Sensitive) • River Corridor Landscapes (Most Sensitive) • Estuaries (Most Sensitive)	• Foothill Landscapes (High Sensitive) • Upland Landscapes (Most Sensitive) • Urbanising Landscapes (Least Sensitive)
Wexford	• Coastal Landscape (High) • Upland Landscapes (High) • Lowland Landscapes (Low to Moderate)	• River Valleys (Moderate to High) • Distinctive Landscapes (High)

Furthermore, seascapes are increasingly being recognised as being a key element of the coastal and marine environment. Seascape characterisation should form an integral part of any overall landscape character assessment where there is any coastal element. For instance, some local authorities have already undertaken LCAs which also consider seascape, e.g., Donegal and Clare. Northern Ireland as an example has undertaken regional landscape and seascape character assessments, and the digital data is available from DAERA.[78]

The Offshore Renewable Energy Development Plan (OREDP) undertook an intermediate step towards national LCA by outlining a high-level methodology for seascape character assessment as part of a desktop by describing the key characteristics of strategic seascapes Ireland, and outlined which areas are likely to be least sensitive to offshore renewable energy development. The approach was adapted from DTI Guidance on Seascape and Visual Impact Assessment of Offshore Wind Farms and the good practice outlined in the Guidelines for Landscape and Visual Impact Assessment (GLVIA), published by the Landscape Institute and the Institute of Environmental Management and Assessment in 2002. In 2020, the Marine Institute published a Regional Seascape Character Assessment for

[78] DAERA Landscape digital data available at: https://www.daera-ni.gov.uk/articles/download-digital-datasets

Ireland for consultation, and the maps and GIS information is available from the Marine Institute.[79] The Seascape Character Areas (SCAs) identified within the Onshore Study Area are as follows:

- **SCA 10**: Atlantic Celtic Bays and Estuaries
- **SCA 11**: Cork Harbour and Estuary
- **SCA 12**: Celtic Sea bays and beaches

Geomorphology also forms a key consideration for how landscape character areas are delineated. The GSI has published a 'Physiographic Units' dataset, which shows cartographic representations of broad-scale physical landscape of a region. These are available as part of a three-tier hierarchy, with different levels of detail depending on the needs of the end user. Data is available from the GSI's web viewer.[80]

5.3.9 Inter-relationships

In accordance with the SEA Directive, the interrelationship between the SEA environmental topics must be taken into account (**Table 5-16**). The key interrelationships identified in this SEA are set out below.

Table 5-16: Inter-relationships between SEA Topics

	Biodiversity Flora, Fauna	Population & Human Health	Physical Environment/ Sediments	Water	Air Quality	Climatic Factors	Material Assets	Cultural Heritage	Seascape/ Landscape
Biodiversity, Flora & Fauna	✓								
Population & Human Health	✓	✓							
Physical Environment/ Sediments	✓	✓	✓						
Water	✓	✓	✓	✓					
Air Quality	✓	✓	X	✓	✓				
Climatic Factors	✓	✓	✓	✓	✓	✓			
Material Assets	✓	✓	✓	✓	✓	✓	✓		
Cultural Heritage	X	✓	✓	✓	X	✓	✓	✓	
Seascape/ Landscape	✓	✓	✓	✓	X	✓	✓	✓	✓

5.3.10 Existing Environmental Problems Relevant to the Draft SC-DMAP

Having regard to the preceding sections, the key environmental problems with relevance to the draft SC-DMAP are discussed below in Table 5-17.

Table 5-17: Key Existing Environmental Problems Relevant to the Draft SC-DMAP

[79] Marine Institute – Definition and Classification of Ireland's Seascapes: https://emff.marine.ie/blue-growth/definition-and-classification-ireland%E2%80%99s-seascapes

[80] GSI web viewer – see tab 'Physiographic Units': https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

SEA Topic Area	Existing Environmental Problems
Population and Human Health	• Population growth in Ireland is set to continue, with an estimated one million addition people by 2040, and a growth of between 340,000 - 380,000 people targeted for the Southern Region which will lead to further pressure on coastal areas for residential development and recreational access. There will be more people working and travelling for work and education, and this will place demand and pressure on space, provision of services and infrastructure. Without alternatives to fossil fuel this population growth will further compound the reliance on fossil fuels to for heat and transport in particular. • Expansion and intensification of coastal and marine industries / economy alongside tourism, recreation and new residential development is resulting in increased competition and conflicts for in both marine and coastal areas. This is exacerbated by the many existing small towns and villages, one off housing and ribbon developments close to coastal areas. Development at the coast (e.g., ports, harbours, communities) and the nearshore space (e.g., recreation, expanding aquaculture industry) is likely to lead to the intensification of activities in the inshore space, and thus competition for space. • A potential risk to human health comes from exposure to air emissions from a range of combustion sources, namely associated with road traffic and domestic space heating using solid fuels (i.e., coal, peat, biomass). The provision of renewable energy alternatives will contribute to improvements in air quality as the shift moves from fossil fuel burning to use of renewable alternatives.
Biodiversity	• The Government declared a Biodiversity Emergency in 2019 alongside a Climate emergency. This was both an acknowledgement of the inter-related nature of biodiversity and climate and also a realisation that many of Irelands native habitats and flora are under extreme pressure in addition to the climate driver. This is further acknowledged in the 4th national biodiversity Action Plan for Ireland which records that 85% of our EU- protected habitats are in unfavourable status, with almost half (46%) demonstrating ongoing declines with the marine environment specifically noted. Almost a third of EU- protected species are in unfavourable status, over half of native Irish plant species have declined, 21% of breeding and 52% of key wintering bird species were reported to have short term declining trends and extinction threatens 48 species living in the Irish marine environment, including fish, crustaceans, shellfish and invertebrates. The threats and pressures are many and include air and water pollution, alien and problematic species, recreation, development and the modification of coastal areas. • Pressures exist from cumulative impacts to habitats from various sectors and activities: physical loss/destruction, changes to sedimentation/hydrography/ turbidity, scour effects, pollution of sediment, colonisation of hard substrate, disturbance/ remobilisation of contaminated material; • Pressures exist from cumulative impacts to species from various sectors and activities: collision risk, flight/scare response, adverse behavioural/ physiological reactions, barrier to movement, surface and underwater noise (machinery, traffic, acoustic survey techniques), introduction/ spread of invasive or alien species; Climate change and ocean acidification present considerable threats to the marine environment and may modify effects of other pressures and facilitate further establishment and spread of invasive species. • In the last Article 17 report from Ireland in 2019, the only marine habitats to be assessed as being in 'favourable' conservation status were sandbanks, submarine structures made by leaking gas and sea caves. Estuaries, tidal mudflats and reefs were assessed as being in 'inadequate' status. Large

	shallow inlets and bays were in 'bad' and 'declining' status. In general, marine mammal species were reported as being in favourable status although for some cetaceans, their status was reported as unknown. • In 2017 a first Red List of Cartilaginous Fish (sharks, skates, rays and chimaeras), showing risk of extinction, was published for Irish waters. Of the 58 species assessed, 6 (10.3%) were reported to be Critically Endangered: Portuguese dogfish; common (blue) skate; flapper skate; porbeagle shark; white skate and angel shark. A further 5 species (8.6%) were assessed as Endangered: leafscale gulper shark; basking shark; common stingray; undulate skate and spurdog.
Sediments, soils and geology	• Climate change is impacting on coastal processes along Ireland coasts including through increased erosion. The EPA estimate that approximately 20% of Ireland's coast is at risk of coastal erosion with those most susceptible being composed of unconsolidated (soft) sediment. These areas are most common on Ireland's eastern and southern coasts. Coastal erosion risk is projected to increase as a result of projected changes in sea level in combination with projected increase in the severity of coastal storms. • Activities such as dredging (e.g. dredging for port activities such as) and bottom trawling fisheries have an impact on marine sediments and associated habitats, flora and fauna. • The significant existing pressure in terms of geology and sediment is contamination from synthetic and non-synthetic chemicals and heavy metals which can be present in the water column, in biota and in marine sediments. OSPAR data indicates that, overall, trends in contaminant levels have shown decreases across Europe however each member state has localised areas where contaminant levels exceed background levels (usually OSPAR background assessment concentrations) in sediments. These areas are generally ports, harbours, estuaries and dredge dump sites. These are areas of high human activity and riverine inputs to the marine environment; for the latter, particularly in the form of urban wastewater discharges and sludges, and industry emissions, which are the primary sources. Concentrations of contaminants are expected to drop off in the open seas away from highly developed areas, where the main significant inputs are from atmospheric deposition and shipping.
Water	• Over 78% rivers are failing to meet their objectives under the WFD in County Cork, over 55% in County Waterford and almost 30% in County Wexford. The majority of groundwater bodies that are of relevance to draft SC-DMAP have good status, with just over 6% at poor status. • There are a number of existing issues regarding water quality for Ireland's transitional waters, where nitrogen is considered the main limiting nutrient, and where changing concentrations can impact on the growth of plant matter, such as algae. Nitrogen loading to marine waters is also a transboundary issue, as atmospheric deposition is also a major pathway for this nutrient. • In the marine space, the key drivers of pressures and impacts arise from anthropogenic sources such as litter, climate change, noise and pollution events. • Coastal flood risk will very likely be exacerbated by climate change, involving more frequent and intense precipitation and storm events which have implications for land run-off and urban drainage, as well as coastal defences and coastal erosion affected by rising sea levels. Areas of Cork have suffered significant flooring in recent years, increased by the combined effects of fluvial and coastal flooding. • The EPA 2021 report, Status of Ireland's Climate 2020, highlights that climate change has caused changes in a number of hydrological variables. Ocean warming and acidification are driven mainly by climate change. In cumulation, these pressures can exacerbate other issues such as impacting native biodiversity, facilitating expansion or spread of invasive or

	opportunistic species, and incidences of disease. Increased flows in rivers could also facilitate increased nutrient transport to the marine environment, combined with climate change, are expected to increase the risk of algal blooms.
Air	• Air pollution remains a serious environmental health risk across Europe; despite Ireland's generally very good air quality, the EEA reported that in 2020, exposure to concentrations of fine particulate matter above the 2021 World Health Organization guideline level resulted in 238,000 premature deaths in the EU-27.[81] The reduction in SO_x emissions from shipping as a result of the revised MARPOL Annex VI, and taking effect from January 2020, should contribute to better air quality for coastal communities and those in proximity to ports and harbours in particular. There are potentially a range of indirect positive impacts where offshore renewable energy development enables the shift away from fossil fuel combustion and a resultant reduction in emissions. The decarbonisation of the electricity generation sector will have significant co-benefits for air quality through the reduction in NO_x, SO_x and PM emissions with positive impacts for human health and ecosystems**.** The use of carbon capture and storage, while aspirational, is currently an untested technology in the Irish maritime space. • General trends indicate that Ireland is not on track for meeting its binding 2030 emissions reduction targets. The most recent EPA GHG emissions inventory and projection reports have highlighted the challenges that Ireland faces in achieving the scale and pace of GHG emissions reductions required to stay within the first two carbon budgets and reduce emissions by 51% by 2030 relative to 2018. The EPA GHG inventory for 2022 shows that total national emissions in 2022 (including from LULUCF) were just 2.7% below the 2018 reference year. Almost all sectors are on a trajectory to exceed their national sectoral emissions ceilings for 2025 and 2030, including *Agriculture, Electricity, Transport and Industry*. The EPA reports that a continued lack of delivery of large-scale practical actions to decarbonise activities in all sectors will result in exceeding the national carbon budgets.
Material Assets	• Increased competition for space in the marine in particular from aquaculture, tourism/recreation, fisheries etc. In the context of a growing aquaculture industry and increasing competition for space, new areas are being examined and used for aquaculture purposes. This presents challenges for regulatory authorities in terms of licensing processes and environmental assessments. • There has been a dramatic escalation in the fishing of some inshore fisheries stocks for instance (e.g. razor clams) in recent years, while others are under long-term pressure. Overfishing is a serious and pervasive global issue across all marine territories. The EU Common Fisheries Policy (CFP) aimed to end overfishing by 2015, and by 2020 at the latest, but member states fall well short of these targets. As of 2019, many of the total allowable catch (TAC) for the North-east Atlantic continued to exceed limits set by scientific advice.[82] Other issues documented include lack of bycatch reduction plans, and "poor monitoring control and enforcement of the landing obligation (LO) risks overfishing, particularly in 2019." CFP requirements are also reported as being implemented too slowly. • A significant amount of marine litter also comes from the fisheries sector; lost gear contributes to "ghost fishing" where marine life becomes entangled. Other waste from fishing disposed at sea includes sewage discharges and

[81] EEA (November 2022). Air Quality in Europe – 2022 Report. EEA Report No 05/2022.

[82] Analysis of Fisheries Council agreement on fishing opportunities in the north-east Atlantic for 2019. The PEW Charitable Trusts, 14 March 2019.

	accidental loss, or intentional disposal of, fuel or oil, despite such emissions being regulated by MARPOL[83]. • The seas around Ireland are also important for trawl and static gear fisheries which have the greatest possibility of interaction with any proposed infrastructure or other sectoral activities. Seabed and benthic habitats can be damaged or destroyed by trawl gear or dredge-type fishing; habitats which are particularly sensitive include reefs and corals; the NPWS, in its latest status assessment of habitats and species, notes that fisheries remain the most significant pressure on the offshore environment.[84] The status of reefs has moved from bad to inadequate status over the past six years, and are under pressure from the impacts of fishing methods which damage the seafloor. Non-target pelagic and benthic species can be indirectly smothered by sediment or disturbed by hydrologic effects, or killed outright, and the benthic surface may be disturbed or unevenly displaced. The FAO reports that the full environmental impacts of this type of fishing is still poorly understood, despite its worldwide deployment.[85] • With Ireland's national policy position on electricity interconnection now in place, the Commission for Regulation of Utilities is separately developing an approach to the regulatory treatment of interconnector applications. Interconnector projects will need appropriate regulatory treatment to be decided before the final investment decision will be taken. Upstream pipelines from any further offshore sources that may be found will be developed in accordance with relevant legislative and regulatory regimes, including the Marine Spatial Plan when developed. • Dredging is essential to maintain channels and deepen berths especially as the sector is moving to ever larger ships with greater capacity. Dredged material may be disposed of at marine sites licensed by the EPA or, if possible, used for alternative purposes such as land reclamation or beach nourishment to minimise disposal at sea. Locations of disposal sites may change over time for a variety of reasons – exhaustion of site capacity, monitoring requirements, need for new sites in additional locations. Designated areas are required to dispose dredged material to ensure that ports subject to silting can be kept operational and maintain their depths, in particular when urgent dredging is required after storm activity. • Freight volumes are expected to continue to increase over the coming decades, while vessel sizes are also predicted to grow and vessel types set to further diversify. In this context accessibility, capacity and navigational safety will be significant challenges for all players and port development will attempt to trend seawards. Allocation of sufficient space for future growth, the strategic identification of long term port locations and development of existing ports all need to be factored into long term economic and spatial planning (terrestrial and marine). • In 2022, waste water treatment at 15 of Ireland's 173 large urban areas failed to meet European Union standards. Raw untreated wastewater from equivalent to approx. 54,000 people is currently discharged into the water environment daily. Further progress is dependent on sufficient infrastructure and capital investment. Some agglomerations may be more prone to additional loading during the summer months for instance, where a treatment system may be compliant with water quality standards for most of the year but is less able to handle increased visitor pressures. • Seasonal increases in visitor numbers may also put pressure on water and wastewater treatment in towns and villages with limited to no capacity to accommodate such fluctuations in the absence of mitigation. The

[83] https://www.marpol-annex-vi.com/marpol-annex-vi/

[84] NPWS (April 2019). Article 17 Overview Report 2019, Volume I. Available at: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019 [Accessed: January 2024]

[85] FAO description of fishing gear types: bottom trawls: http://www.fao.org/fishery/geartype/205/en

	introduction or spread of non-naïve or invasive species is also an issue with tourism and recreational activities. Boating or other water-related activities can facilitate the spread of such species through absent or inadequate disinfection or control measures. Cycleways and greenways/blueways may also act as stepping stones for invasives. Increased access and use of coastal and beach sites may also result in increased marine litter which is an ongoing problem in many coastal areas.
Cultural Heritage	• Climate change is having an effect on Ireland's maritime and coastal heritage. The DHLGH's Climate Change Sectoral Adaptation Plan for Built and Archaeological Heritage from 2019 that aims to build adaptive capacity within the sector and reduce the vulnerability of built and archaeological heritage to climate change.
Landscape and Seascape	• The intensification of coastal and nearshore development in particular has put significant pressure on landscape and seascape. While some regional characterisation has been developed for coastal areas, guidance on LVIA and SVIA is not available. • Cumulative loss of seascape is an emerging pressure particularly with regard to the ORE developments.

5.3.11 Evolution of the Baseline in the Absence of the draft SC-DMAP

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the draft plan does not take place. Terrestrial planning will continue to align with Project Ireland 2040 (the National Planning Framework and National Development Plan), and the revised planning system for the maritime space will continue to be rolled out in line with recent developments in national legislation and the planning system. **Table 5-18** summarises the key points.

Table 5-18: Likely Evolution of the Baseline without Implementation of the Draft SC-DMAP

SEA Topic Area	Likely Evolution in the Absence of the Draft SC-DMAP
Population and Human Health	The population of Ireland has been increasing leading to increased pressure on provision of services, as well as other development such as access to the coast and recreational aspects such as cycleways and greenways. Increased economic development will also lead to increased activity in key sectors such as fisheries, shipping, and port development for instance. In the absence of the draft SC-DMAP, this increased pressure and demands for resources and growth in the marine space will not be accounted for in terms of integration with evolving ORE policy and development, sectoral interactions, and competition for space. This will further increase the pressures on existing infrastructure and inadequate provision for future development.
Biodiversity, Flora and Fauna	Without the draft SC-DMAP, the pressure on both coastal and marine flora, fauna and habitats is likely to continue with key drivers from development and land-use from the terrestrial side (urban wastewater discharges, agricultural runoff) as well as impacts from development activities across marine sectors and intensification of existing activities. This is likely to lead to habitat loss/ fragmentation/ disturbance, as well as loss/ disturbance of species as other impacts such. In addition, there are changes expected to occur through climate change that may alter species and habitat ranges, with potential for range expansion of some invasive alien species which are an increasing concern. In the absence of the draft SC-DMAP, the development of ORE in the South Coast may not be coordinated or focussed in relation to the most sensitive habitats and species leading to permanent loss of key species.
Soils, Sediments & Geology	In the absence of the draft SC-DMAP the soil resource/sediments would continue to exist in much the same pattern. The EU Soil Monitoring Law was passed in July 2023, aiming to achieve healthy soils across EU by 2050. There is currently little or no legislation similar to that relating directly for the marine environment. Sectoral

SEA Topic Area	Likely Evolution in the Absence of the Draft SC-DMAP
	activities e.g. dredging and disposal operations, as well as marine aggregate extraction, would continue to be licensed under the existing EPA/ DHLGH processes.
Water	Article 11 of the WFD would continue to be implemented and enforced through River Basin Management Plans (RBMP) taking into account the most recent status of water bodies and the outputs of the risk characterisation process. The third RBMP cycle is underway. The MSFD required Member States to achieve Good Environmental Status for their marine waters (water column and seafloor) by 2020. In the absence of the draft SC-DMAP, Ireland would continue to implement its MSFD Programme of Measures and will need to continue working towards filling the data gaps in terms of the MSFD descriptors. The existing planning system will need to account for water quality and refer to the Programmes of Measures being implemented through both the RBMP and under the MSFD. The Irish Water Investment Programme would continue working towards improving wastewater discharges to surface and coastal water bodies, as well as the requirements to comply with the UWWTD and the elimination of raw sewage discharges.
Air, Noise and Climatic Factors	Air quality in Ireland is of a high standard across the country, meeting all EU air quality standards, according to the EPA. The main activity affecting air quality in the marine environment is emissions from shipping, namely SOx, but also NOx and PM. The new reduced sulphur limits introduced to Annex VI to the MARPOL Convention will continue to contribute to much improved air quality in the marine space and for communities in proximity to ports/coastal areas. The absence of the draft SC-DMAP is not expected to affect these trends. However, ORE development arising from draft SC-DMAP will contribute towards renewable electricity targets and subsequently the reduction of GHG emissions, and help with achieving the climate action targets in line with the relevant Climate Action Plans. Ireland is currently not on track to meet its 2030 target for a 51% reduction in GHG emissions; the EPA's GHG emissions projections for 2022-2040 indicate that the first two carbon budgets covering 2021-2030 are projected to be exceeded by a significant margin. The electricity sector, among others, is also on a trajectory to exceed its national sectoral emissions ceiling for 2025 and 2030. However, Government also set a national target for renewable electricity (RES-E) of 40% for 2020, rising to 80% by 2030. The SEAI reports that Ireland came in just under the 2020 target, achieving 39.1% RES-E in 2020. Therefore, in the absence of draft SC-DMAP (which aims to contribute to Government's 5 GW by 2030 offshore renewable energy target), there will be a lack of coordinated action in the area of offshore renewable electricity development, which will impact on the State's ability to meet both its 2030 and 2050 climate targets, as well as the 80% target by 2030 for renewable electricity.
Material Assets	In the absence of the draft SC-DMAP, Irish Water would continue to invest in water services, bringing improvements to water bodies, particularly where urban wastewater is the single pressure. The population will continue to grow with the associated demand for infrastructure and associated services. Without the draft SC-DMAP, there would remain an uncoordinated approach ensuring that the ORE development in the South Coast have regard to sectoral interactions with other sectors.
Cultural Heritage	In the absence of the draft SC-DMAP, the uncoordinated approach to ORE development in South Coast could result in unnecessary impacts on existing cultural heritage resource. However, at a local level the existing development planning processes should provide a good level of protection.
Seascape and Landscape	In the absence of the draft SC-DMAP, the uncoordinated approach to ORE development off the South Coast could result in unnecessary impacts to protected or sensitive landscape and seascape. At a local level, the existing development planning processes should provide a level of protection. However, significant data

SEA Topic Area	Likely Evolution in the Absence of the Draft SC-DMAP
	gaps remain in terms of consistent approaches to seascape assessment for planning authorities at all levels. Energy developments in particular can have a high degree of interaction with the landscape aspect and proposals will continue to progress through the planning systems.

6 FRAMEWORK FOR ASSESSMENT

6.1 Introduction

Strategic Environmental Assessment, as its name suggests, is set at a strategic level, therefore it is not possible for the baseline environment to be described (and assessed) in as much detail as could be done for a project-level EIA. Instead, SEA uses a system of objectives, targets, and indicators to set a framework for assessment of the plan. In order to streamline the assessment process, this report has used broad themes, based on the environmental topics listed in Annex I(f) of the SEA Directive, to group large environmental datasets e.g. water quality, human health etc. Assigned to each of these themes is at least one high-level Strategic Environmental Objective (SEO) that specifies a desired direction for change, e.g. reduce water pollution, against which the future impacts of the plan can be measured.

6.2 Approach to Developing Strategic Environmental Objectives

At SEA scoping stage, a series of draft SEO and associated guiding questions were prepared, reflective of the extent of the environmental factors listed in Annex I(f) of the SEA Directive; the scope of the draft plan (being ORE); wider environmental protection objectives at a national, European and international level identified in **Chapter 4**; and the baseline information collated in **Chapter 5**. The draft SEO and guiding questions were subject to statutory consultation as outlined in section 3.2.2. Additional context was also added with regard to their alignment with both the relevant associated UN Sustainable Development Goal and the relevant overarching ocean health objectives from the NMPF, to facilitate a rounded assessment of the policy base. Each of the draft SC-DMAP policy objectives and the SC-DMAP spatial elements have been assessed against these SEO and their guiding questions. In each case, the assessment considered to what extent the draft SC-DMAP will contribute (or not) to achieving the desired outcomes. In Chapter 9, the SEO are linked to indicators which can facilitate monitoring the environmental effects of the draft plan.

6.3 Assessment Approach

The approach used for assessing the actions of the draft SC-DMAP is an objectives-led assessment. Using the assessment symbology shown in Table 6-1, each SC-DMAP policy has been assessed against the SEO in column 1 of Table 6-2 using the guiding questions in column 2 of the same table. The assessment considers if the likely impacts of the SC-DMAP policy will contribute (or not) to achieving the desired outcomes. This is then recorded in a matrix using the assessment symbology below, supported by assessment text in each case to explain the impacts and context.

Table 6-1: SEA Assessment Symbology

Symbol	Meaning
Plus (+)	Indicates a potential positive environmental impact
Minus (-)	Indicates a potential negative environmental impact
Plus/minus (+/-)	Indicates that both positive and negative environmental impacts are likely or that in the absence of further detail the impact is unclear
Zero (0)	Indicates neutral or no significant impact

The following notation is used in the assessment tables: **BFF** (biodiversity, flora and fauna); **PHH** (population and human health); **LS** (land and soils/sediments); **W** (water); **AQ** (air quality); **CF** (climatic factors); **MA** (material assets); **CH** (cultural heritage); **LandSeaS** (landscape and seascape).

Table 6-2: SEO and Guiding Questions

SEA Environmental Objective(s)	To What Extent will the SC-DMAP contribute to….	Related NMPF and SDG Policies for Context
Population and Human Health (PHH) Objective: (v) To ensure bathing waters are not prevented from achieving excellent status as a result of the SC-DMAP (vi) To ensure the quality standards for water quality in shellfish water are not compromised as a result of the SC-DMAP (vii) To maintain access to the coastal and marine resource for tourism and recreation. (viii) To avoid significant disruption, disturbance or nuisance to local communities.	• Inclusive public access to and within the SC-DMAP area? • Opportunities for co-existence and co-operation with other activities in the SC-DMAP area? • Future provision of services for tourism and recreation activities particularly in the coastal adjacent area? • A net increase in marine related employment in the hinterland of the SC-DMAP? • Enhancement or promotion of social benefits? • Addressing transboundary impacts beyond the SC-DMAP area?	**NMPF Policies:** • Environmental – Ocean Health Policy 1 • Biodiversity Policy 1 and 2 • Water Quality Policy 1 • Sea-floor and Water Column Integrity Policy 1 and 2 • Co-existence Policy 1 • Access Policy 1 • Rural Coastal and Island Communities Policy 1 **Strategic Development Goals:** • SDG 3 - good health and wellbeing • SDG 7 - affordable and clean energy • SDG 11 - Sustainable cites and communities • SDG 13 - Climate action • SDG 14 - Life below water
Biodiversity, Flora and Fauna (BFF) Objective: (vi) Preserve, protect, maintain and where appropriate restore marine biodiversity (and terrestrial aspects on which the marine biodiversity is reliant), particularly EU designated sites and protected species. (vii) Avoid, minimise or mitigate disturbance impacts on mobile species, within or reliant on the marine area, resulting from SC-DMAP. (viii) Safeguard space for the natural marine environment to enable continued provision of ecosystem goods and services within the SC-DMAP area. (ix) Contribute to achieving the environmental objectives under the MSFD and the WFD (x) Maintain and protect marine protected areas and ensure integrity of the network is not impacted as a result of the SC-DMAP.	• Achieving MSFD targets relating to biodiversity, non-indigenous species? • Safeguarding aquatic ecosystems and space for the provision of ecosystem goods and services? • Avoiding, minimising, or mitigating disturbance impacts on mobile aquatic species? • Preserving, protecting, maintaining and / or restoring protected areas and ensuring integrity of the network is not impacted? • Protecting and conserving ecological corridors? • Monitoring and research as part of the implementation of the draft plan? • Ongoing engagement with MPA process and Celtic Sea sensitivity mapping?	**NMPF Policies:** • Environmental – Ocean Health Policy 1 • Biodiversity Policy 1, 2, 3, 4 • Protected Marine Sites Policy 1 and 2 • Water Quality Policy 1 and 2 • Sea-floor and Water Column Integrity Policy 1, 2 and 3 **Strategic Development Goal:** • SDG 14 - Life below water • SDG 15
Land and Soil (LS) Objective: (iii) Maintain the integrity of marine processes for the protection of coastal habitats and places within and influenced by the SC-DMAP. (iv) Protect the quality and character of the seabed and its sediments and avoid significant effects on	• Maintaining the integrity of marine processes for the protection of coastal habitats and areas influenced by the SC-DMAP? • Maintaining character of seabed and sediments?	**NMPF Policies:** • Environmental – Ocean Health Policy 1 • Sea-floor and Water Column Integrity Policy 1, 2, and 3 • Seascape and Landscape Policy 1.

SEA Environmental Objective(s)	To What Extent will the SC-DMAP contribute to….	Related NMPF and SDG Policies for Context
seabed morphology and sediment transport processes.	• Avoiding affecting seabed morphology and sediment processes?	• **Strategic Development Goal:** • SDG 14 - Life below water • SDG 15
Water (W) Objective: (vii) Contribute to achieving the objectives under the MSFD and the WFD i.e. achievement or maintenance of Good Environmental Status (GEnS) and Good Ecological Status (GEcS). (viii) Protect, maintain, and where possible improve status of classified water bodies within the Plan area in line with requirements of the WFD and MSFD. (ix) Avoid pollution of the coastal and marine environment (x) Reduce marine litter resulting from terrestrial and marine dumping (xi) Minimise generation and propagation of manmade noise within the marine environment. (xii) Promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment.	• Achieving the objectives under the MSFD and the WFD? • Pollution prevention of the coastal, marine and freshwater environment from ORE related activity? • Ensuring minimal noise pollution within the marine environment? • Ensuring EMF is minimised?	**NMPF Policies:** • Environmental – Ocean Health Policy 1 • Water Quality Policy 1 and 2 • Sea-floor and Water Column Integrity Policy 1,2 and 3 • Marine Litter Policy 1 • Underwater Noise Policy 1 • Transmission Policy 1 and 2 **Strategic Development Goal:** • SDG 3 • SDG: 6 • SDG: 7 • SDG 14 - Life below water
Air Quality (AQ) Objective: (iv) Avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air, including transboundary considerations. (v) Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency. (vi) Avoid adversely impacting on air quality, with particular regard to known existing concentrations of transport and industrial related pollution close to the coast.	• Avoiding adverse impacts on air quality, with particular regard to known pollution from ORE activities? • Mitigating effects on human health and the environment from emissions? • Promoting air quality improvement measures?	**NMPF Policies:** • Air Quality Policy 1 and 2 • Transboundary Policy 1 **Strategic Development Goal:** • SDG 3 - • SDG 11 - Sustainable cites and communities
Climatic Factors (C) Objective: (iv) Minimise existing and avoid new emissions of greenhouse gases across all sectors. (v) Decrease the usage of fossil fuels and increase renewable energy usage.	• Reduction of greenhouse gas emissions? • Reduction in reliance on fossil fuels and encourage renewable energy use? • Reduction in the environmental, social, and economic risks from climate change?	**NMPF Policies:** • Climate Change Policy 1 • Climate Change Policy 2, • Protected Marine Sites Policy 3 • ORE Policy 1,

SEA Environmental Objective(s)	To What Extent will the SC-DMAP contribute to….	Related NMPF and SDG Policies for Context
(vi) Reduce the environmental, social and economic vulnerability to the impacts of climate change and/or improve resilience to climate and coastal change	• Improving resilience to climate and coastal change? • Achievement of Ireland's 2030 and longer-term renewable energy and legally binding decarbonisation objectives, including the overarching objective to deliver a net zero greenhouse gas emissions Irish economy by 2050.	• Transmission Policy 1 **Strategic Development Goal:** • SDG 3 – • SDG 7 – • SDG 11 - Sustainable cites and communities
Material Assets (MA) Objective: (v) Contribute to transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050 (vi) Address conflicts with other environmental protection objectives. (vii) Support marine material assets (including fisheries, shellfish, military activity and infrastructure) and resources by maximising opportunities for opportunities for co-existence, co-location and co-benefits. (viii) Ensure continuity and safety of navigation (marine and air).	• Supporting marine material assets by maximising co-location and co-benefit opportunities? • Avoiding conflict with other environmental protection objectives? • Transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy? • Ensuring continuity and safety of marine and air navigation? • Enhancing future energy security at regional and national level through displacing volatile fossil fuel imports with indigenous green energy? • Maximising opportunities for co-existence between ORE and commercial fisheries, through minimising overlaps between ORE development areas and commercially significant fisheries, avoiding the most ecologically sensitive fisheries spawning/nursery areas, as well as mitigatory measures that enhance co-existence opportunities.	**NMPF Policies:** • Co-existence Policy 1 • Protected Marine Sites Policy 1 • Infrastructure Policy 1 • Defence and Security Policy 1 • ORE Policy 1, 10 and 11 • Transmission Policy 1 • Fisheries Policy 2, 3, 4 and 6 • Transboundary Policy 1 **Strategic Development Goal:** • SDG 8 - • SDG 9 - • SDG 11 - Sustainable cites and communities • SDG 12 - Life below water • SDG 14 - Life below water
Cultural Heritage (CH) Objective: (v) Protect places, features, buildings and landscapes of cultural, historical archaeological or architectural heritage. (vi) Protect the site and setting of marine and coastal historic environment features. (vii) Protect known wrecks and historic and cultural features within the DMAP area. (viii) Incorporate opportunities to enhance cultural/historic knowledge and understanding.	• Protecting, conserving, or enhancing places, features, buildings, and landscapes of cultural, archaeological, or architectural heritage significance? • Protecting the site and setting of marine, freshwater and coastal historic environment features? • Protecting historical and cultural features (including wrecks)? • Ensuring opportunities to enhance cultural/historic knowledge and understanding are incorporated?	**NMPF Policies:** • Heritage Assets Policy 1 • Seascape and Landscape Policy 1 • Transboundary Policy 1 **Strategic Development Goal:** • SDG 11 - Sustainable cites and communities
Landscape (LandS) Objective: (iii) Protect and maintain landscape character and visual amenity, including geo-heritage.	• Valuing and protecting diversity and local distinctiveness of wider (non-designated) landscapes /seascapes? • Protecting and enhancing the landscape / seascape including geo-heritage?	**NMPF Policies:** • Heritage Assets Policy 1 • Seascape and Landscape Policy 1 **Strategic Development Goal:**

SEA Environmental Objective(s)	To What Extent will the SC-DMAP contribute to….	Related NMPF and SDG Policies for Context
(iv) Recognise and respect the value of wider (non-designated) landscapes and seascapes.		• SDG 11 - Sustainable cites and communities

7 CONSIDERATION OF ALTERNATIVES

7.1 Introduction

The consideration of alternatives is a requirement of the SEA Directive (2001/42/EC). Article 5(1)[86] states:

'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.'

Furthermore the requirement of Article 5(1) is further explained by Article 5(2), which states:

"The environmental report prepared pursuant to paragraph 1 shall include the information that may reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme, its stage in the decision-making process and the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment. "

The Directive does not prescribe at what stage consideration of alternatives should be undertaken, however, to present a useful input into the plan making process, all guidance points to considering alternatives as early as possible. Guidance also recognises that multiple layers of alternatives may exist, particularly for plans of this nature. Given the nature of the draft Plan, alternatives have been focused primarily at the strategic level.

7.2 Approach to Alternatives for the Draft Plan

Both the Plan team and the SEA team were conscious of the need for iteration with regard to alternatives and, as such, alternatives were first considered during the SEA Scoping stage. The basis for alternatives discussions has been the EPA Guidance: Developing & Assessing Alternatives in Strategic Environmental Assessment. This guidance points to achieving four key criteria for identification of alternatives and broad categories of alternatives that might be considered (Figure 7-1).

Figure 7-1: Criteria for Alternatives Considered [Source: EPA Guidance, 2015]

[86] Directive 2001/42/EC On the assessment of effects of certain plans and programmes on the environment, EC 2001

In the context of the SC-DMAP the criteria considered were:

- **Realistic:** Does the alternative achieve the objectives of national policy and objectives in relation to climate, marine planning and renewable energy? Does the alternative have the capacity to deliver the required outcomes from the plan i.e. contribute to Ireland achieving its decarbonisation and climate objectives, including a 51% reduction in emissions by 2030 and the related electricity sectoral emissions ceiling, and a legally binding path to net-zero emissions no later than 2050, under the Climate Action and Low Carbon Development Act, 2015 (as amended) (the "Climate Act 2015"). Is the alternative "within the legal competence of the plan-making authority".
- **Reasonable:** Do the alternatives consider baselines and trends in environmental quality, do they reflect the legal requirement under inter-related environmental protection legislation such as the Habitats Directive and the Climate Act 2015
- **Viable:** Are the alternatives technically possible and feasible on the ground within the timeframe of the plan; and
- **Implementable:** Are the alternatives capable of being put into action, within realistic timeframes, and for which there are adequate resources including supporting infrastructure and supply chains.

The SEA Scoping Report included a series of high-level considerations on alternatives for discussion under a range of categories as shown in Figure 7-2**.** Furthermore the report provided an outline of types of alternatives that could be relevant to the SC-DMAP – see Table 7-1.

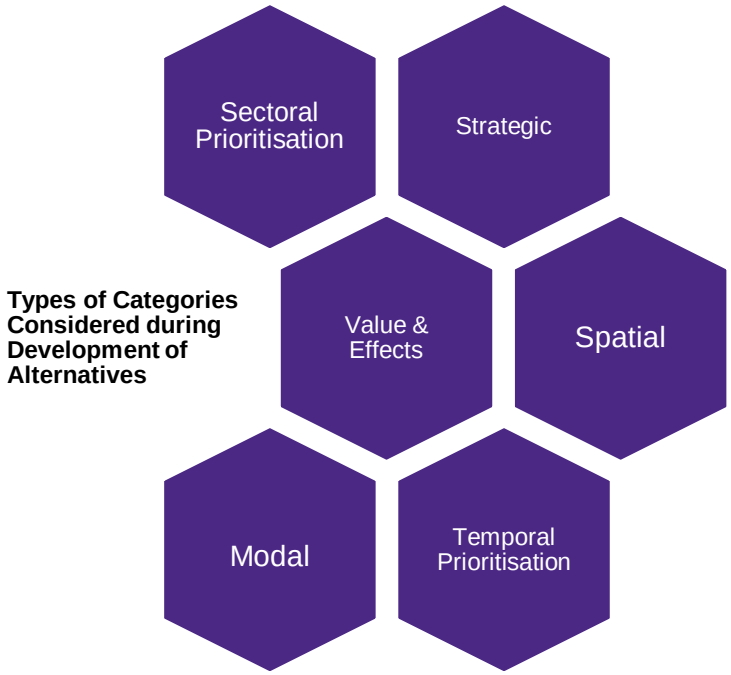


Figure 7-2: Alternatives Categories Considered

Table 7-1: Early Consideration of Alternatives for the SEA Scoping Phase

Alternative Type	Description	Example Considerations with Respect to the SC-DMAP
Strategic	High-level options that achieve a given objective.	• Spatial versus policy based
Value and Effects Oriented	Alternatives that address policy priorities, cultural values or safety issues. Such alternatives are most appropriate for addressing public perceptions, concerns and values. Alternatives that address issues identified during scoping. Such alternatives are effective at mitigating potential significant effects.	• Public participation and engagement • Zoning for ORE areas • Zoning to include protection of e.g. fisheries, recreation, biodiversity areas etc.
Spatial	Alternative locations for the implementation of planning objectives.	• Location of activities within the DMAP area – zoning • Suitable locations for different infrastructure elements
Modal	Different technical/ mode alternatives to achieve the same objective	• Different methods to achieve policies/priorities can include for example: – Legal; – Administrative; – Financial; – Education / awareness / training; and – Related research and development. • Consideration of policy support / exclusion for specific technologies and the mix of technologies brought forward e.g. fixed base wind only or wider ORE considerations.
Sectoral and/ or Temporal Prioritisation	Alternatives that look at sectoral feasibility and needs at the strategic level, policies can be formulated to promote one sector versus another. Alternatives for the timing of implementation of plan/ programme measures. These are most suitable at the local level for addressing infrastructure development.	• Identification of sub-areas for prioritisation • Sub-areas aligned to grid capacity

Following the scoping phase, the early consideration of alternatives was developed further based on statutory scoping feedback, wider public non-statutory consultation feedback and through two focused internal workshops with DECC in Quarter 1 of 2024. Based on this input, a list of possible SC-DMAP specific alternatives was generated which could be assessed. In the first instance the alternatives were assessed to determine if they met all the criteria outlined in Figure 7-1. This initial assessment in relation to the core criteria is recorded **Table 7-2**.Those meeting the criteria were brought forward for further detailed assessment under the Strategic Environmental Objectives (SEO) outlined in Chapter 6 of this Environmental Report.

In the case of the spatial alternatives, a bespoke approach was developed to identify areas for OWE development. The approach is presented in section 7.4.6.

Table 7-2: Long List of Alternatives Considered

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
Strategic Alternatives – see section 7.4.1					
A developer led approach versus a Government led approach	✓	X	X	X	While a developer led approach can be considered **realistic** as it is likely to deliver some additional capacity toward achieving climate commitments, there is less certainty about achieving the timelines required by the Climate Act 2015. A developer led alternative is not considered a **reasonable, viable or implementable** alternative. As envisaged in the NMPF, a DMAP will be a management plan for a specific area of our marine waters and can be used to develop multi-activity area plans; to promote use of specific activities, including ORE; and/or for the purposes of the sustainable use and protection of particular marine environments. Provisions for the use of forward spatial planning and the establishment of DMAPs have been subsequently provided for in national legislation through the MAP Act. **Not brought forward for assessment.**
Use of OREDP versus use of DMAP.	✓	X	X	X	Despite being a non-statutory plan, the application of the OREDP to deliver ORE capacity can be considered realistic as it would, if implemented deliver additional capacity towards achieving climate commitments. However, using OREDP is not considered **reasonable, viable or implementable** in the context of Part 2, Chapter 3 of the MAP Act. This provides that DMAPs, which may include plans specifically focused on a single sectoral area, such as ORE, are prepared by a Competent Authority under the Act . In this instance, the Minister for the Environment, Climate and Communications (the Minister) is the Competent Authority to prepare DMAPs for the development of ORE for the Irish maritime area, including those DMAPs that will seek to assist in achieving the Government's objective of 5 GW of offshore wind by 2030. This designation includes the preparation of an initial South Coast ORE DMAP, which is the focus of this draft DMAP. **Not brought forward for assessment.**
Roll out of ORE DMAPs for whole country versus a focus on regional roll out..	✓	X	X	X	Roll out of ORE DMAPs for whole country to deliver ORE capacity can be considered **realistic** as this would move toward delivery of additional capacity toward achieving climate commitments. However, it is not considered a **reasonable, viable or implementable** alternative to a SC-DMAP. The Phase 2 policy approved by Government determined that the establishment of the first ORE DMAP will be located off the South Coast of Ireland. This reflects the requirement to ensure that projects in Phase 2 are developed in proximity to available onshore grid capacity that will connect offshore wind generation to the onshore transmission system, and crucially the objective to accelerate ORE

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
					deployment to contribute to Ireland's climate and renewable energy objectives. The decision further reflects analysis by Ireland's transmission system operator (TSO), EirGrid, that there is sufficient current available onshore grid capacity to connect up to 900 MW of offshore wind capacity to the onshore transmission system along the South Coast in the short to medium term and also further potential for connection through additional capacity and / or alternative offtake connections in the future. **Not brought forward for assessment.**
Spatial Alternatives– see section 7.4.2					
Spatial plan or spatial and objectives based plan.	X	X	X	X	A spatial only plan is not considered a **reasonable, realistic, viable or implementable alternative**. Part 2, Chapter 3 of the MAP Act requires that the Competent Authority must prepare a DMAP Proposal which includes information on the objectives of the NMPF that the DMAP Proposal seeks to attain or assist in the attainment of; geographical areas of the maritime area proposed to be the subject of the DMAP; existing DMAPs or existing maritime usages, or both, proposed to be taken into consideration during the preparation of the DMAP.
Geographic Extent to include marine only or marine and terrestrial interface	✓	X	X	X	Any ORE developed under the DMAP will interface with the terrestrial environment through landfalls and connection to the onshore grid and furthermore will require transport support from roads, rail and ports. The potential for environmental impacts via this supporting infrastructure is therefore possible. However, whilst it must have regard to land-sea interactions as appropriate with a view to promoting integration and coherence between maritime and terrestrial planning, the DMAPs jurisdiction is the maritime area and, as such, policy making for the terrestrial planning area is not considered a **reasonable, viable or implementable** alternative for the SC-DMAP. **Not brought forward for assessment.** *NOTE: While the study area for the draft SC-DMAP is confined to the marine area only, the SEA baseline and assessment study areas extend into the terrestrial area to identify and assess direct and indirect impacts of the draft DMAP.
Scope of considerations in the SC-DMAP	X	✓	✓	✓	Under the MAP Act, DMAPs are proposed for specific sectoral activities and, as such, this DMAP is the first proposed for ORE. Increasing the scope of the plan is outside the SC-DMAP jurisdiction of

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
					ORE and as such is not considered a **realistic** alternative for the SC-DMAP. **Not brought forward for assessment.** Notwithstanding that, ORE developed under the DMAP will have to consider the receiving environment and how they can impact on and address baselines and trends in environmental quality. An alternative that focusses more broadly on wider environmental effects has been considered under effects based alternatives, **See Section 7.4.3.**
Identification of **sub-areas** versus whole DMAP focus.	✓	✓	✓	✓	Consideration of the entire draft SC-DMAP geographical area generally for future ORE development does deliver on a plan led approach as intended by the MAP Act and the NMPF, as does identification of sub-areas for ORE development. Alternatives in this regard are considered **realistic** as they will contribute to achieving the climate objective and targets, they are **reasonable** in that they can address baselines and trends in environmental quality, they are technically possible and feasible and will deliver within the timeframes required and are therefore considered viable and implementable. **See Section 7.4.2.2.**
Effects Based Alternatives– see Section 7.4.3					
Multiple benefits plan that addresses climate, biodiversity, sustainability, flooding etc. versus a climate and OW target driven plan.	✓	✓	✓	✓	The NMPF outlines that a DMAP will be a management plan for a specific area of our marine waters and can be used to develop multi-activity area plans; to promote specific activities, including ORE; and/or for the purposes of the sustainable use and protection of particular marine environments. This presents opportunities to explore other related benefits from the plan including climate, biodiversity, sustainability, heritage and social. Alternatives in this regard are considered **realistic** as they will contribute to achieving the climate objective and targets, they are **reasonable** in that they can address baselines and trends in environmental quality, they can also be integrated into **viable** and **implementable** OW approaches. **See Section 7.4.3.1**
Modal Alternatives – see section 7.4.4					
Consideration of all ORE technologies under the DMAP or focus on fixed	X	X	X	X	This is not considered a reasonable, realistic, viable or implementable alternative. Timelines are a key consideration for the development of ORE capacity and currently the only proven deliverable technology for Ireland is fixed wind within depths less than 70m. This does not preclude additional deeper fixed wind and / or other technologies including floating wind, tidal or wave in the future however they will not be delivered within the first cycle of the SC-DMAP and as such are not

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
wind only for the first iteration					considered **reasonable, realistic, viable or implementable** in the first iteration of the SC-DMAP. Furthermore a decision by Government was made in 2022 to locate Ireland's first ORE DMAP off the South Coast to reflect the existence of a substantial maritime area with sea depth levels that are consistent with future development of fixed offshore wind projects. **Not brought forward for assessment.**
Prioritisation Alternatives – see section 7.4.5					
Prioritise to available grid capacity or not	✓	✓	✓	✓	While it is acknowledged that sufficient available onshore grid capacity may constrain some development in the short to medium term, there may be other considerations to apply phasing to the SC-DMAP area which can be considered. **See Section 7.4.4.1**
Map Based Alternatives – see section 7.4.6					
Areas suitable in principle for OW Development	✓	✓	✓	✓	Consideration of spatial extent of technical and environmental constraints within SC-DMAP area which would represent higher to risk in terms of OW development.

7.3 Assessment Parameters

The approach used for assessing alternatives for the draft Plan was an objectives-led assessment. Each alternative has been assessed against a set of strategic environmental assessment objectives. The assessment compares the likely impacts in terms of the SEO to see how alternatives perform in relation to the stated environmental objectives.

The following notation is used in the assessment tables:

Symbol	Meaning
Plus (+)	Indicates a potential positive environmental impact
Minus (-)	Indicates a potential negative environmental impact
Plus/minus (+/-)	Indicates that both positive and negative environmental impacts are likely or that, in the absence of further detail, the impact is unclear
Zero (0)	Indicates neutral or no significant impact

Under each alternative a discussion is presented to support the assessment parameters shown and the reason for choosing the preferred alternative. Assessments include qualitative and, where possible, quantitative information.

7.4 Alternatives Considered

7.4.1 Strategic

No strategic alternatives were identified as reasonable, realistic, viable and / or implementable.

7.4.2 Spatial

7.4.2.1 Sub-Areas

Description of Alternative
• **Area 1:** Use of DMAP area entirely
• **Area 2:** Use of discrete Sub-areas

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
Area 1	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Area 2	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Discussion:

Area Alternative 1 considers identification of a final SC-DMAP area throughout the entirety of which OW can broadly be developed. This permits maximum flexibility for developers, and decision makers on development applications, to identify exactly where and how much capacity can be achieved. This approach addresses the concept of plan led, focussing on a broad maritime area off the south coast and, as such, would be consistent with the NMPF. This approach would be broadly positive for CF and MA as it is likely that developers will identify sites and proposals for OW, contributing to the overall targets and objectives for the SC-DMAP. However, this flexibility has potential for medium to long term negative effects on all environmental receptors, especially PHH, LandSeaS and CH where development is proposed close to shore

Discussion:

and also for W, BFF, LS from multiple uncoordinated proposals. A review of foreshore licences off the south coast (Plate 1 below] prior to the change in Government approach indicates the high level of speculative surveying that was ongoing in the general SC-DMAP area. Such surveying can have negative impacts for BFF in particular and CH from repeated noise, vibration and sediment disturbance.

This approach also has potential for great impact on sensitive receptors both on a project by project and a cumulative basis. Under Area Alternative 1 individual projects could be located in heavily constrained areas of the nearshore impacting negatively on coastal biodiversity designations, protected land and sea views, access to shore and disruption of recreation, impacts on fishing and aquaculture among others.

Area Alternative 2 considers identification of sub-areas for development of OW based on constraints analysis of both environmental and engineering issues. While this approach does have potential for direct and indirect negative effects on all environmental receptors, it provides the greatest opportunity to avoid impacts to sensitive receptors in the first instance through consideration of sensitivities including but not limited to impact on habitats and species, intrusion on landscape and seascape views, deterioration in water quality, interruption of shipping lanes, collision risk to birds and impact to fisheries. This significance can be further reduced through addition of thoughtful policies to ensure overall sustainability. By designating areas within the wider DMAP, Alternative 2 seeks to ensure that areas of high environmental sensitivity are discounted at an early stage.

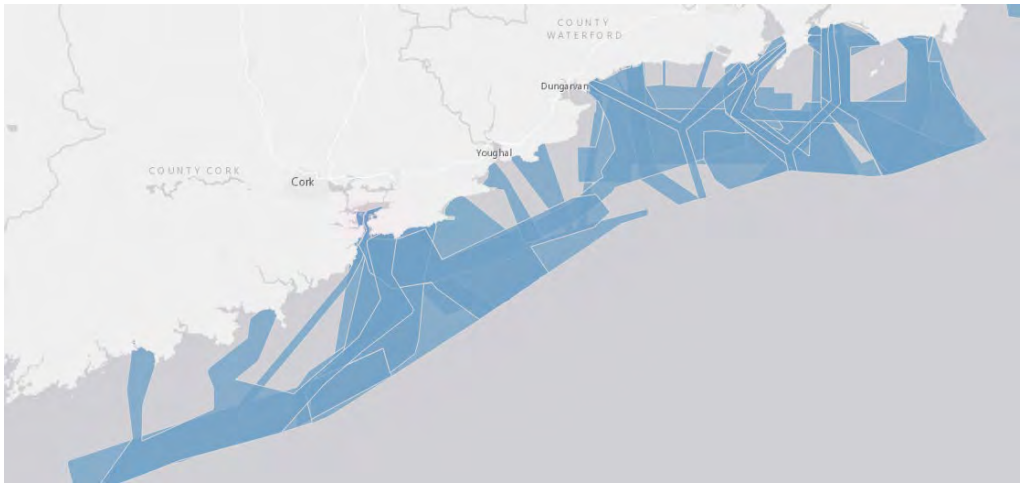


Plate 1: Overview of speculative licenses off the south coast.

Preferred Environmental Alternative: More certainty and planning control will lead to better outcomes in the longer term therefore Area Alternative 2 is the preferred environmental alternative. The environmental and technical constraints analysis carried out to support the development of the draft SC-DMAP has afforded greater understanding of the sensitivities in the wider area and as such avoidance and mitigation are being applied at the earliest opportunity.

How has this been integrated into the plan: The draft SC-DMAP has identified four sub-areas, termed Maritime Area A-D. These areas have been identified following technical and environmental constraints analysis which has sought to avoid direct effects on sensitive receptors as far as possible. The policy base has taken this further and included specific polies to support integration with other sectors and activities and mitigation policies to ensure project level assessments are robust.

Mitigation: **Area Alternative 2** should ensure that the policy supports a feedback loop to accommodate new data e.g. from site specific surveys, monitoring etc. as it becomes available. This will in turn guide phasing and support cumulative and in combination assessments at project level for development permission applications within sub areas.

Discussion:

How has this been integrated into the plan: The draft SC-DMAP includes for regional and project level surveying alongside coordinated data collation into an accessible GIS repository.

7.4.3 Effects Based

7.4.3.1 Multiple Benefits versus Target Focus

Description of Alternative
• Benefits 1: This alternative considers actions and policy related to the ORE sector only.
• Benefits 2: This alternative considers actions and policy related to inter-related policy on climate, water, biodiversity, health etc.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandS
Benefits 1:	+	+	0	0	+	+	+	0	0
Benefits 2:	+	+	0	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment Discussion

Benefits Alternative 1 will have direct positive effects for CF and MA as it will contribute to reduction in the reliance on fossil fuels and encourage / facilitate the shift to renewable energies, contributing to the transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy. It will also have indirect positive impacts for BFF, PHH and AQ which are impacted by the effects of climate change, including emissions associated with burning of fossil fuels for transport, heat, industry etc. There will also be indirect positive effects for PHH resulting from marine related employment in the hinterland of the SC-DMAP.

Benefits Alternative 2 has potential for direct and indirect positive effects on all environmental receptors as it acknowledges and facilitates interaction across a wide range of inter-related policy. Most notable is potential for multiple benefits to BFF by integrating opportunities for protection and enhancement of habitats and species, W by integrating consideration of coastal flooding and flood risk and integrating MSFD and WFD compliance into the proposals and also PHH by ensuring integration with benefits in the social arena linking to health and recreation in terrestrial planning. The approach facilitates achievement contributes to the support of marine material assets (including fisheries, shellfish, military activity and infrastructure) and resources by maximising opportunities for opportunities for co-existence, co-location and co-benefits and by proactively addressing conflicts with other environmental protection objectives. Of particular note is alignment with the 11 descriptors for Good Ecological Status or GES under the MSFD. These descriptors cover key issues of biodiversity, sea floor integrity, and underwater noise among others. The opportunity to support achievement of GES should be maximised to the extent possible under the DMAP.

It is noted that the SC-DMAP is legally limited to consider and actively plan for ORE, as noted in Table 7-2 above, however it must do so in the context of other environmental commitments at national and EU level. It is possible to apply the mitigation hierarchy to avoid conflicts between ORE and other sensitive receptors at the earliest opportunity through the use of tools such as constraints analysis, site or route selection and thoughtful policy base, which can then cascade down through the planning hierarchy achieving further refinements where possible. However, beyond constraints there are also opportunities which can be considered at the earliest stage to ensure sustainable use of limited national resources. This would include opportunities for avoidance of inshore areas to protect amenity, protection of provisioning services such as fisheries and aquaculture sites, protection of European sites, better safeguarding of ecosystems including

Assessment Discussion

opportunities to contribute to the ecological enhancement of the marine environment and ensuring integrity of nature based networks is maintained. Engaging with benefits as well as constraints at an early stage will ensure that the wider ecosystem led approach is applied. This would have long term positive impacts for all SEOs.

Preferred Environmental Alternative: **Benefits Alternative 2** is the preferred environmental alternative. It recognises the wider opportunities which can deliver greater benefits overall, allowing the State to meet more compliance targets for other areas such as MSFD.

How has this been integrated into the plan: Constraints analysis has been used to support development of the draft SC-DMAP. This recognises the potential for a wider opportunity framework as envisaged under Benefits Alternative 2 providing for long term sustainability of the wider area. For example, the SC-DMAP has avoided direct impacts on European sites in identifying sub-areas. Furthermore the draft SC-DMAP has included supporting and protective policies for a range of environmental issues and a specific policy on multiple benefits at CC 1.

7.4.4 Modal

No modal alternatives were identified as reasonable, realistic, viable and / or implementable.

7.4.5 Prioritisation

7.4.5.1 Grid Capacity [

Description of Alternative
• Grid Capacity 1: Identify broad Offshore Wind Development Areas within the SC-DMAP that are suitable for offshore wind development now and / or in the future.
• Grid Capacity 2: Identify only Offshore Wind Development Areas in the first SC-DMAP that can be accommodated by existing onshore grid capacities i.e. 900MW in the short to medium term.
• Grid Capacity 3: Identify broad Offshore Wind Development Areas within the SC-DMAP that are suitable for offshore wind development now and / or in the future and also identify and prioritise a specific area that can be accommodated by existing onshore grid capacities i.e. 900MW in the short to medium term.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandS
Grid Capacity 1:	0/-	0/-	0/-	0/-	0/-	+/-	+/-	0/-	0/-
Grid Capacity 2:	0	0	0	0	0/+	+	+	0	0
Grid Capacity 3	0	0	0	0	0/+	+	+	0	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment Discussion

The establishment of the SC-DMAP gives effect to the decision by Government and the Oireachtas in 2023 that, as part of the new national plan-led regime for ORE, all post-Phase One offshore wind developments in Ireland will be located within maritime areas identified for this purpose by Government through the establishment of DMAPs. This reflects analysis by Ireland's transmission system operator (TSO), EirGrid, that there is sufficient current available onshore grid capacity to connect up to 900 MW of offshore wind capacity to the onshore transmission system along the South Coast. Beyond the 900 MW, it is intended that additional future OW development, for deployment beyond 2030, will also follow under the draft SC-DMAP, however additional / alternative grid connection will be required to accommodate this. Other ORE developments beyond fixed wind may also follow into the future. It is noted that the three options are broadly similar in terms of environmental effects in so far as they relate to the same areas and impact sources. The environmental impacts relate to delays in addressing climate change more broadly. The key differences are therefore driven by policy approach rather than environmental impact.

Grid Capacity 1 alternative considers an approach wherein large areas are identified which are, in principle, suitable to OW developments based on a broad constraints analysis. This alternative will have direct positive effects for CF and MA in that it presents a way forward for harnessing the OW in the SC-DMAP area. However, it lacks certainty on where and how much. This is a "plan led lite" approach where developers take the lead on timelines and scope. This has potential for indirect negative impacts for all receptors if delays are introduced which perpetuate the climate crisis.

Grid Capacity 2 alternative aligns with grid capacity in the short to medium term to deliver up to 900 MW of capacity but does not assist in longer term planning beyond 2030. This alternative will have direct positive effects for CF and MA in the short term as it is clear on the scale and extent of OW in the first phase. It can be aligned with onshore capacity, reducing design and consenting risks. This alternative has potential for indirect positive effects for all other receptors in the medium to long term as a result of its overall contribution to climate targets achieved by a development of 900 MW. The area for OW development does have potential for indirect negative impacts for PHH, BFF, LS, W, CH and LandSeaS associated with construction and operation/maintenance.

The identification of an area and capacity brings forward the certainty and transparency however it is noted that a full impact assessment process would be required to confirm the exact extent of the site and the layout of turbines within and grid connection required. The delivery of up to 900 MW would in the short to medium term have indirect positives for all receptors but a lack of focus beyond the first project has potential for longer term negative impacts where data gaps / surveys etc. cannot be targeted. This alternative does limit the scope of potential impacts to a smaller defined area.

Grid Capacity 3 alternative addresses the short to medium certainty by identifying an area suitable for up to 900 MW of grid capacity but also identifies further areas which can be accommodated for connection through additional capacity and / or alternative offtake connections. This provides greater certainty for stakeholders on the short to medium term plans. It supports phasing which in turn allows for introduction of new technologies, better supporting infrastructure, continuous improvement, lessons learned, greater data resolution, and monitoring outputs to inform continuous improvement and adaptive management. It also allows for enhancement or promotion of social benefits and time for people to adapt. With this alternative it would be important to ensure additional information collected could be fed back into the decision-making as it became available. This alternative has potential for direct positive effects for CF and MA in the short term to medium term and indirect positive effects for all other receptors in the medium to long term. It facilitates scaled cumulative impact assessment

The area for OW developments is however larger and therefore there is a recognition that indirect negative impacts may occur for PHH, BFF, LS, W, CH and LandSeaS, more so than in the Grid Capacity 2 alternative where a more limited area would be identified. This alternative adds a degree of certainty in the short term to stakeholders on the scale and extent of proposals in the wider area but also acknowledges the stated intent of the Government Policy that grid capacity is an initial limitation but it is intended to add additional future OW development, for deployment beyond 2030 including by way of alternative off-take solutions.

Assessment Discussion

Preferred Environmental Alternative: Grid Capacity 3 is the preferred environmental alternative as it delivers certainty in the short term on location and scale but also allows for future phased delivery which allows stakeholders a series of opportunities including: continuous improvement in evidence base, application of lessons learned, new technology advances, further focussed data collection.

How has this been integrated into the plan: The draft Plan provides that a proposed fixed offshore windfarm located in Maritime Area A will be directly connected to the onshore electricity transmission system. It additionally provides that prospective developments located in the remaining Maritime Areas B, C and D may either be directly connected to the onshore transmission system or otherwise, should alternative offtake arrangements be available.

7.4.6 Map Based Spatial Assessment for Draft SC-DMAP

The spatial assessment of the SC-DMAP area to identify suitable Maritime Areas for offshore wind development was carried out by BVG Associates (BVGA) and Gavin & Doherty Geosolutions (GDG), supported by RPS, on behalf of DECC. Full details are provided in the BVG Associates *South Coast Designated Maritime Area Plan: Maritime Area Identification* report, April 2024, which is available under a separate cover on the draft SC-DMAP consultation webpage https://www.gov.ie/southcoastdmap/.

A bespoke approach to assessment was developed to identify Maritime Areas for development within the wider SC-DMAP Proposal Area. This included constraints analysis across multiple technical and environmental criteria in order to remove areas considered unsuitable for windfarm development, leaving broad areas (referred to in the draft plan as Maritime Areas) within which offshore wind developments could apply for a MAC and/or Maritime license (for investigations/surveys). In due course MAC holders would be able to apply for planning in accordance with the mitigations included in the final SC-DMAP as adopted (mitigations from both the SEA Environmental Report and Natura Impact Statement) and subject to all necessary environmental assessment and legislative requirements[87].

The identification of the Maritime Areas does not confer planning consent for any offshore wind developments.

7.4.6.1 Definition of Study Area

For the purposes of examining offshore constraints for map based spatial alternatives, the study area was primarily defined by the geographical area of the SC-DMAP Proposal Area, published by DECC in 2023. However, acknowledging potential for ex-situ effects outside the SC-DMAP Proposal Area, a wider study area was considered. With this in mind, the defined study area for spatial alternatives was determined to extend to the North Celtic Sea - South Irish Sea boundary and to the south-east European Economic Zone (EEZ) boundary limits. No specific boundary was followed for the south and west regions, however these were expanded 30 km to the south and a further 40km to the west from the SC-DMAP Proposal Area, to ensure constraints that could indirectly influence the draft SC-DMAP area, and designation of sub-areas, were considered. The SC-DMAP Study Area for map based spatial alternatives is shown in Figure 7-3.

[87] Supporting figures in this chapter are not to scale.

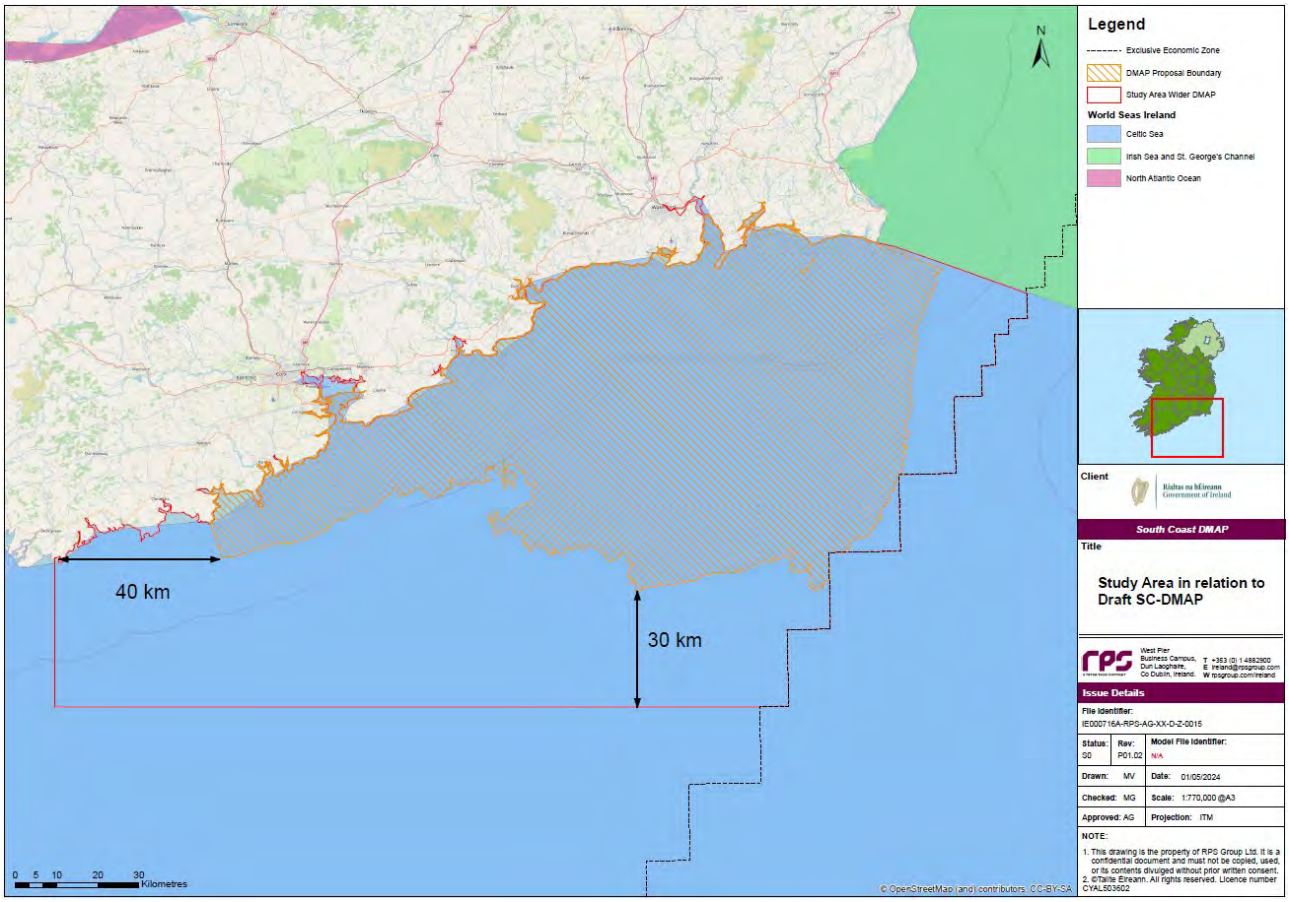


Figure 7-3: Study Area for SC-DMAP Constraints Identification for Map Based Spatial Alternatives

7.4.6.2 Broad Spatial Alternatives Considered

Four broad spatial alternatives were considered to identify a preferred spatial alternative.

- Consideration of Levelized Cost of Energy (LCOE) only to identify optimum areas;
- Consideration of Technical Constraints only to identify optimum areas;
- Consideration of Environmental Constraints only to identify optimum areas; and
- Multi-criteria analysis applying technical, environmental and LCOE considerations to identify optimum areas.

As with the alternatives considered in Table 7-2 above, the broad spatial alternatives were assessed against the criteria in Figure 7-1 and this assessment is recorded in Table 7-3.

Table 7-3: Broad Spatial Alternatives Considered

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
Consideration of Levelised Cost of energy (LCOE)	✓	X	✓	X	In this alternative the cost of delivery of electricity is the only consideration. LCOE combines a range of technical aspects to derive a lifetime cost per unit energy.[88] Key

[88] LCOE is the revenue required (from whatever source) to earn a rate of return on investment equal to the weighted average cost of capital (WACC) over the life of the wind farm. Tax and inflation are not modelled. In other words, it is the lifetime average cost for the

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
only to identify optimum areas					aspects that have a large impact on LCOE are water depth, wind speed, distance from port, and distance to grid connection. If only LCOE were considered then the Maritime Area(s) would be identified close to shore, thereby reducing all of: water depth, distance to port, and grid connection distance. This application of LCOE considerations is shown in Figure 7-4. This alternative is **realistic** in that it can contribute to achieving the required outcomes from the plan. It is also technically **feasible** and would represent a lower cost alternative. However this alternative is not considered **reasonable** or **implementable**. A development of this nature in the darkest green areas shown on Figure 7-4 does not address requirements under inter-related environmental protection legislation, notably the Habitats and Birds Directives (proximity to and interaction with coastal European sites in particular, with potential to cause disturbance of / or destruction of habitats and species which are qualifying interests of these sites); the Water Framework Directive and the Marine Strategy Framework Directive (potential to negatively impact water quality and in turn water dependant receptors including population using the nearshore area for recreation and foodstuffs, and flora and fauna). An OW development in this broad area is also likely to meet significant resistance from stakeholders due to potential for significant impact to landscape/seascape, commercial activity e.g. aquaculture, tourism and recreational activities e.g. sailing. This is likely to result in significant opposition and delays in delivery of the necessary OW to meet Ireland's climate targets and to comply with the legal requirements of the Climate Act 2015.**Not brought forward for assessment**
Consideration of Technical Constraints only to identify optimum areas	✓	x	✓	x	In this alternative, technical constraint is the only consideration and the development of OW would be located within the depth contour of 75m, and away from surface bedrock. Technical constraints would include: Bathymetry; Seismic activity; Ground condition; Significant wave height; Tidal currents; Extreme gust wind speed; Mean wind speed; Aggregate and material extraction areas; location of grid connection. This application of technical considerations is shown in Figure 7-4.

energy produced, quoted in today's prices. LCOE is used to evaluate and compare the cost of electricity production from different technologies and at different locations.

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
					As with LCOE only, considering technical constraints only does not address requirements under inter-related environmental protection legislation, notably the Habitats and Birds Directives (proximity to and interaction with coastal European sites in particular, with potential to cause disturbance of / or destruction of habitats and species which are qualifying interests of these sites); the Water Framework Directive and the Marine Strategy Framework Directive (potential to negatively impact water quality and in turn water dependant receptors including population using the nearshore area for recreation and foodstuffs, and flora and fauna). An OW development in this broad area is also likely to meet significant resistance from stakeholders due to potential for significant impact to landscape/seascape, commercial activity e.g. aquaculture, tourism and recreational activities e.g. sailing. This is likely to result in significant opposition and delays in delivery of the necessary OW to meet Ireland's climate targets and to comply with the legal requirements of the Climate Act 2015. **Not brought forward for assessment.**
Consideration of Environmental Constraints only to identify optimum areas	✓	x	✓	x	In this alternative environmental constraint is the only consideration. In such a circumstance the development of OW would be located outside any area of greatest cumulative environmental constraint considering environmental factors such as: Aquaculture; Commercial Fisheries; Fish and Shellfish; Industry Shipping and Navigation; Aviation; Military; Obstruction and Wrecks; Designated Sites Marine Habitats; Marine Historic Environment; Marine Infrastructure; Marine Mammals and Megafauna; Offshore Ornithology; Seascape and Landscape; and Tourism & Recreation. This application of environmental considerations is shown in Figure 7-4. In this case, several overlapping constraints with the technical considerations would occur resulting in a more rounded consideration of the wider area. However, this alternative does not take into account timelines and costs of ORE project deliverability, including issues such as supply chain presence, available technology or cost, all of which would result in risk to viability. Environmental considerations only would likely drive the areas identified as suitable very significantly further from shore. While this would reduce risk to landscape and seascape for example, it would also result in driving areas into water depths that cannot currently support construction of a

Alternative	Realistic	Reasonable	Viable	Implementable	Outcome
					windfarm. As such, it is overwhelmingly likely that binding 2030 targets would be missed, compromising objectives of the SC-DMAP. As this alternative is not considered reasonable or implementable, **it has not been brought forward for assessment.**
Multi-criteria analysis applying technical, environmental and LCOE considerations to identify optimum areas	✓	✓	✓	✓	In this alternative, environmental and technical considerations are used to refine areas suitable for OW development. Only after that is LCOE applied to optimise the most suitable areas. This alternative uses a multi-criteria approach to assess the SC-DMAP and identify suitable areas in which OW developments can be progressed subject to all necessary project level assessments and consents. By considering environmental, technical and cost constraints, this alternative achieves the criteria of **reasonable, realistic, viable and implementable**. The alternative will contribute to achieving Ireland's climate targets and national, climate objective. It can also ensure baselines trends in environmental quality are taken into account and requirements under other environmental legislation can be integrated into decision making. Considerations of technical constraints will also ensure that the outputs are technically viable and implementable on the ground. As this alternative is considered to meet the relevant criteria, **it has been brought forward for assessment. See section 7.4.6.3.**

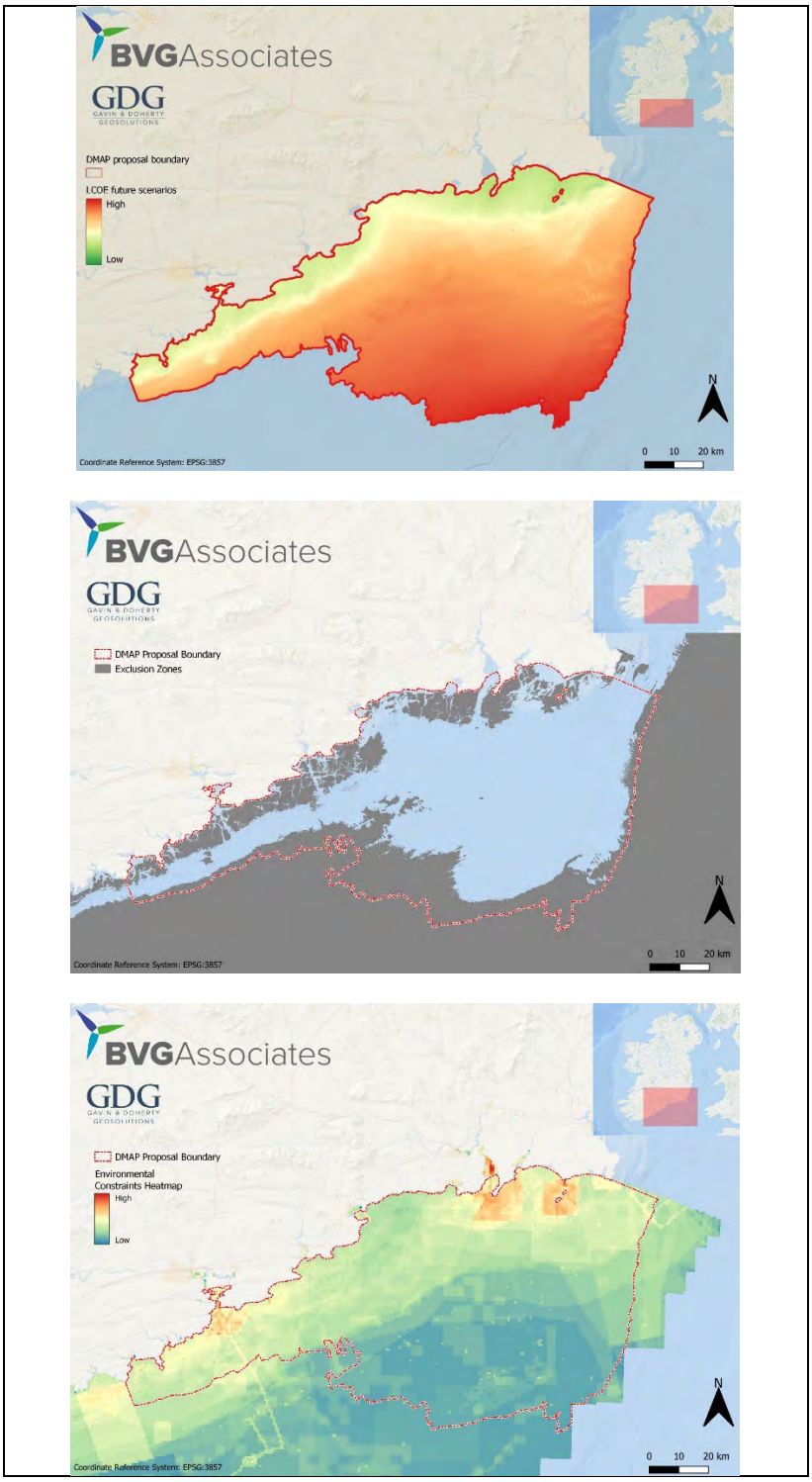


Figure 7-4:Outputs Based on Alternatives 1-3 with LCOE for Future Areas (Top), Technical (Middle) and Environmental (Bottom) Constraints Prioritised

7.4.6.3 Assessment Process Overview

The overall process for consideration of map based spatial alternatives and identification of areas suitable for offshore wind energy as part of the draft SC-DMAP is listed below and further detail is provided in the BVG Associates South Coast Designated Maritime Area Plan: Maritime Area Identification Report, April 2024 which is available under separate cover on the draft SC-DMAP consultation webpage - https://www.gov.ie/southcoastdmap/.

1. Identification of Constraints
2. Data Gathering
3. Sensitivity Analysis
4. GIS Spatial Model Outputs

The spatial analysis of the draft SC-DMAP area was carried out with reference to two outputs:

- A single prioritised area suitable for up to 900 MW capacity to be auctioned in ORESS 2.1, later in 2024; and
- Further blocks in the draft SC-DMAP area, to be considered for deployment at a later date.

1. Identification of Constraints

The scope of the environmental constraints identified was informed by the following assumptions:

- Use of best publicly available datasets that were freely interrogatable;
- A focus on a resource area for fixed foundation offshore wind only;
- No prerequisites in terms of size of turbines, layout of turbines or project characteristics;
- Consideration of offshore array and export cables separately;
- Focus was on the maritime constraints aligned with the jurisdiction of the DMAP.

To ensure a robust scope of environmental constraints for analysis and to ensure all environmental topics and potential data sources were adequately considered, a desktop review of a number of published resources was carried out. These included:

- The Offshore Renewable Energy Development Plan (OREDP) I and its associated SEA Environmental Report;
- The draft Offshore Renewable Energy Development Plan (OREDP) II and its associated SEA Environmental Report;
- Published EIA Scoping Reports for Phase I Projects;
- The Crown Estate Round 3&4 Offshore Wind Leasing Constraints Analysis for Offshore Wind;
- The Crown Estate Scotland- ScotWind Leasing Rounds; and
- Review of literature available from the European Wind Energy Association

A comprehensive *Long List* of environmental constraints was developed and categorised into seventeen key topic areas. These topic areas are presented below.

- Administration;
- Aquaculture;
- Commercial Fisheries;
- Fish and Shellfish;
- Industry;
- Shipping and Navigation;
- Aviation;
- Military;
- Designated Sites
- Marine Habitats;
- Marine Historic Environment;
- Marine Infrastructure;
- Marine Mammals and Megafauna;
- Ornithology;
- Seascape and Landscape;
- Tourism and Recreation.

- Obstruction and Wrecks;

A full list is provided in Table 7-3. Data gaps were also considered at this early stage. Notable data gaps in publicly available datasets were: absence of data on vessel activity for fishing vessels less than 12m; and Marine Protected Areas which have not yet been identified and are not anticipated until late 2024 at the earliest. Data for offshore ornithology is also limited.

In addition to the Environmental Constraints, Technical Constraints were also identified in parallel by BVG Associates and DECC. These included data on wind speed, bathymetry, ground conditions etc. A full list is provided in Table 7-4 and is available in BVG Associates South Coast Designated Maritime Area Plan: Maritime Area Identification Report, April 2024.

2. Data Gathering

Publicly available spatial datasets were identified based on knowledge and expertise of environmental constraints and potential consenting risks, along with input from the Marine Institute and DECC. Environmental constraints and associated data sources are listed below in Table 7-4. The information used was the most up to date data available. Each identified dataset was considered to represent a consenting / environmental or physical constraint to development. Consenting / Environmental and Physical constraints are as defined below:

- Consenting / Environmental Constraints – a constraint which presents an obstruction to gaining consent for the development of the Project, such as the route crossing through an area which is designated for benthic features, areas of high fishing activity or areas of high fish spawning activity. These constraint types are typically legal, environmental, or social barriers to development; and
- Physical Constraints - a constraint which presents a physical obstruction to the development of hard infrastructure, or engineering/installation challenges which could then incur cost increases and/or schedule delays (e.g., unsuitable sediment types). These constraint types are typically technical or physical barriers to development.

In addition to the Consenting / Environmental and Physical Constraints identified, Technical Constraints were also collated in parallel as outlined in Table 7-5.

Table 7-4 Environmental Constraints and Data Sources for Inclusion in the Constraints Process

Ref.	Environmental Constraint	Data Sources	Notes
E1	**Administration**	Oceanwise	Input to constraints mapping
E2	**Aquaculture**	European Marine Observation and data Network (EMODnet)	Input to constraints mapping
		Ireland's Marine Atlas / Marine Institute (MI)	
		Oceanwise	
E3	**Aviation**	Irish Aviation Authority (IAA)	Input to constraints mapping
E4	**Commercial Fisheries**	Ireland's Marine Atlas / Marine Institute (MI)	Input to constraints mapping
		MMO (Marine Management Organisation – UK)	
		EUTRADE- ICES	
E5	**Designated Sites**	National Parks and Wildlife Service (NPWS)	
		Ramsar	

		United Nations Educational, Scientific and Cultural Organization (UNESCO)	Input to constraints mapping - Seas off Wexford special protection area (SPA) Excluded with 2 km buffer
		CEFAS (Centre for Environment, Fisheries and Aquaculture Science – UK)	
E6	**Fish and Shellfish**	Ireland's Marine Atlas	Input to constraints mapping
E7	**Industry**	Oceanwise	Input to constraints mapping
E8	**Marine Habitats**	European Marine Observation and data Network (EMODnet)	Input to constraints mapping
		Ireland's Marine Atlas / Marine Institute (MI)	
E9	**Marine Historic Environment**	UKHO (UK Hydrographic Office)	Input to constraints mapping
		Ireland's Marine Atlas / Marine Institute (MI)	
E10	**Marine Infrastructure**	Environmental Protection Agency (EPA)	Input to constraints mapping
		OceanWise	Input to constraints mapping - Oil and gas pipelines excluded with 1852 m buffer
		Ireland's Marine Atlas / Marine Institute (MI)	Submarine cables excluded with 750 m buffer as per European Subsea Cables Association (ESCA) guidance No UXO dumping grounds identified in the DMAP area; site specific surveys are advised
E11	**Marine Mammals and Megafauna**	National Parks and Wildlife Service (NPWS)	Input to constraints mapping
		Ireland's Marine Atlas / Marine Institute (MI)	
E12	**Military**	European Marine Observation and data Network (EMODnet)	Input to constraints mapping
		Oceanwise	Input to constraints mapping - Excluded with 500 m buffer
E13	**Obstruction and Wrecks**	Oceanwise	Input to constraints mapping
E14	**Offshore Ornithology**	OBSERVE data sets	Input to constraints mapping
E15	**Seascape and Landscape**	Ireland's Marine Atlas	Input to constraints mapping - Excluded <5 km from shore
E16	**Shipping and Navigation** -	European Marine Observation and data Network (EMODnet)	Input to constraints mapping
		Oceanwise	Navigation lines and ferry routes excluded with 750 m buffer in line with ESCA guidance
		Ireland's Marine Atlas / Marine Institute (MI)	

E17	**Tourism & Recreation**	Environmental Protection Agency (EPA)	Input to constraints mapping
		Ireland's Marine Atlas / Marine Institute (MI)	
		European Marine Observation and data Network (EMODnet)	

Table 7-5 Technical Constraints and Data Sources for Inclusion in the Constraints Process

Ref	Attribute	Data Sources	Notes
T1	Bathymetry	Integrated Mapping for the Sustainable Development of Ireland's Marine Resource (INFOMAR)	Input to constraints mapping and Levelised cost of Energy or LCOE[89] mapping - exclusion beyond 75 m depth applied
T2	Seismic activity	Peak ground acceleration (250 year return period), Coalition for Disaster Risk Response	Input to constraints mapping – not a limiting factor in the draft SC-DMAP Proposal Area.
T3	Type of ground condition	INFOMAR/GDG	Input to constraints mapping and LCOE mapping
T4	Significant wave height	NOAA Wavewatch III Glo	Input to constraints mapping – not a limiting factor in the draft SC-DMAP Proposal Area
T5	Tidal currents	NOAA Tides and Currents	Input to constraints mapping – not a limiting factor in the draft SC-DMAP Proposal Area.
T6	Extreme gust wind speed, 50-year return period	The Global Atlas of Siting Parameters	Input to constraints mapping – not a limiting factor in the draft SC-DMAP Proposal Area.
T7	Mean wind speed measured at 150m height	Global Wind Atlas	Input to constraints mapping and LCOE mapping
T8	Airports*	See E3 above	Input to constraints mapping See E7 above
T9	Submarine cables	See E10 above	Input to constraints mapping See E13 above
T10	Levelized cost of energy (LCOE)	BVGA	Input to location assessment
T11	Military practice, danger and	See E12 above	Input to constraints mapping See E8 above

[89] LCOE is the revenue required (from whatever source) to earn a rate of return on investment equal to the weighted average cost of capital (WACC) over the life of the wind farm. Tax and inflation are not modelled. In other words, it is the lifetime average cost for the energy produced, quoted in today's prices. LCOE is used to evaluate and compare the cost of electricity production from different technologies and at different locations.

	other no-go areas*		
T12	Locations of oil and gas activity*	See E10 above	Input to constraints mapping See E13 above
T13	Aggregate and material extraction areas	INFOMAR	Input to constraints mapping – not a limiting factor in the draft SC-DMAP Proposal Area
T14	Offshore disposal sites	See E10 above	Input to constraints mapping - exclusion with 500 m buffer
T15	Unexploded ordnance (UXO)*	See E10 above	Input to constraints mapping See E13 above
T16	Pipelines*	See E10 above	Input to constraints mapping See E13 above
T17	Ports	BVGA	Input to LCOE mapping
T18	Shipping density*	See E16 above	Input to constraints mapping See E6 above
T19	Navigational lanes*	See E16 above	Input to constraints mapping See E6 above
T20	Substations	EirGrid	Input to LCOE mapping
T21	Transmission network (current and planned)	EirGrid	Input to LCOE mapping

3. Sensitivity Analysis

Metadata associated with each data source was collated in Excel and each dataset was allocated a draft sensitivity rating from 0-5, based on the environmental and/or consenting risk posed by each constraint. Environmental sensitivity ratings were determined by RPS subject matter experts while technical scoring was determined by BVGA and GDG. The rationale for each score is provided in Table 7-4 (Environmental) and Table 7-5 (Technical). See also BVG Associates South Coast Designated Maritime Area Plan: Maritime Area Identification Report, April 2024 on the draft SC-DMAP consultation webpage https://www.gov.ie/southcoastdmap/.

Justification for each layer was also included to reflect the particular environmental sensitivities within the topics and scoring varied accordingly. Table 7-6 outlines the scoring rationale used for environmental datasets. The environmental scoring for each data layer was compiled into an Excel spreadsheet and was issued to DECC for review before the spatial modelling was undertaken. The environmental scoring spreadsheet also underwent review by the Marine Institute and the Marine Unit of the Department of the Housing, Planning and Local Government (DHPLG). The current version of the spreadsheet with draft scoring is presented in Workbook 1 – Draft Environmental Scoring which is available under separate cover on the draft SC-DMAP consultation webpage https://www.gov.ie/southcoastdmap/. The ratings only apply to the offshore area and do not consider the grid connection cable route, which would be evaluated separately once project locations are confirmed.

Table 7-6: Scores Applied for Environmental Considerations

Score	Scoring Rationale	Notes
5	Constraint is likely to preclude development. Disturbance of this constraint would cause	Avoidance of development in these areas is likely to be required. Further detailed studies and in-depth

Score	Scoring Rationale	Notes
	permanent loss and / or represent a direct conflict where co-location / co-existence with offshore wind cannot be facilitated.	consultation would be required at the project level if development in these areas was to be considered,.
4	Significant constraint with potential to significantly affect future project parameters e.g. scale. Constraint would be of high susceptibility to impact from offshore wind with low rates of recoverability. Co-location / co-existence with offshore wind would be challenging to achieve.	Development in these areas may need to be avoided. As a minimum restrictions on development are likely apply. To inform decisions on the development potential of these areas before projects are sited, further detailed investigations and related stakeholder engagement are required.
3	Constraint will require detailed assessment, but unlikely to stop development. Constraint would be of moderate susceptibility to impact from offshore wind, with a moderate degree of recoverability possible. There would be moderate potential for co-location / co-existence with offshore wind. Mitigations likely to be necessary at project level.	Restrictions on development are likely to be required, in line with the mitigation hierarchy. The project specific restrictions (for example, micro-siting of infrastructure, timing of construction activity, or specific construction or operational protocols), will be informed by project specific investigations and stakeholder consultation at the project development level.
2	Constraint present, but low likelihood of significant constraint on development. Constraint would be of low to moderate susceptibility to impact, with a high degree of recoverability possible. Opportunities for co-location / co-existence with offshore wind possible.	Development in these areas is likely to be possible, subject to implementation of the mitigation outlined in the SEA and subject to detailed project-level investigations and stakeholder consultation alongside application of the mitigation hierarchy at all subsequent planning levels.
1	No likely constraint. Constraint would be of low to negligible susceptibility to impact from offshore wind with a high degree of recoverability. Opportunities for co-location / co-existence with offshore wind possible.	Development in these areas is likely to be possible, in line with the mitigation outlined in the SEA and subject to detailed project-level investigations and stakeholder consultation.
0	Dataset is presented for informative purposes only and no firm constraint value can be ascribed at the broad scale / no data available	N/A

In parallel to the environmental scoring, scoring was also applied to the Technical Constraints used in the constraints analysis as shown in Table 7-7.

Table 7-7: Scores Applied for Technical Considerations

Score	Scoring Rationale	Notes
5	Constraint excluding development of offshore wind in a given location, typically within a buffer zone around the presence of the attribute	Applied to layers used in constraints analysis
1	not a limit to offshore wind	Applied to layers used in constraints analysis

4. GIS Spatial Model

The constraint layers were each turned into raster gridded datasets with each cell assigned a score as per the tables above. The constraint layers were created to be the same size and have the same 10-metre cell configuration so that multiple raster datasets could be combined.

Each constraint layer was rescaled so that the maximum value was the sensitivity score assigned. These layers were then squared to increase the contrast between the low and high constraint areas. They were then aggregated into a single layer. The final heatmap raster scores were therefore the squared maximum values of all the datasets combined ranging from 35 for the least constrained areas to 270 for the most constrained. Areas closer to shore generally displayed higher cumulative constraints, in particular, the areas south of Cork Harbour, south of Waterford Estuary and around the Saltee Islands as shown in Figure 7-5.

While Figure 7-5 highlights the areas of higher cumulative constraint, it was acknowledged that this is liable to allow areas of the highest sensitivity, scoring a 5, to become out-scored by a number of lower scoring layers. Locations which score a 5 have therefore been excluded individually, with the exclusions noted in

Table 7-3 and Table 7-4 applied. Figure 7-6 shows the same sensitivity data, but with exclusions, locations with sensitivity score 5, and areas where the score is above 129 (i.e. within 60% of the maximum ratings) excluded. This is to ensure areas of high cumulative constraint (which may be due to a large number of lower sensitives layers combining) are removed from consideration. A 60% threshold was chosen as it removed areas of high cumulative constraint whilst still allowing sufficient room for development of offshore wind farms to meet the stated objectives of the draft SC-DMAP.

Figure 7-7 shows the consolidated impact of all technical exclusions. The draft SC-DMAP area is excluded at its southern and eastern perimeter by the 75 m depth contour. This limit was applied as significant supply chain constraint is likely as projects access these deeper waters, with a limited number of installation vessels suitable for installing foundations of the size and weight required. A number of exclusion lines cross the area from the south east corner heading north. These relate to submarine cables, pipelines and navigation routes.

Figure 7-8 shows the combined technical and environmental exclusions.

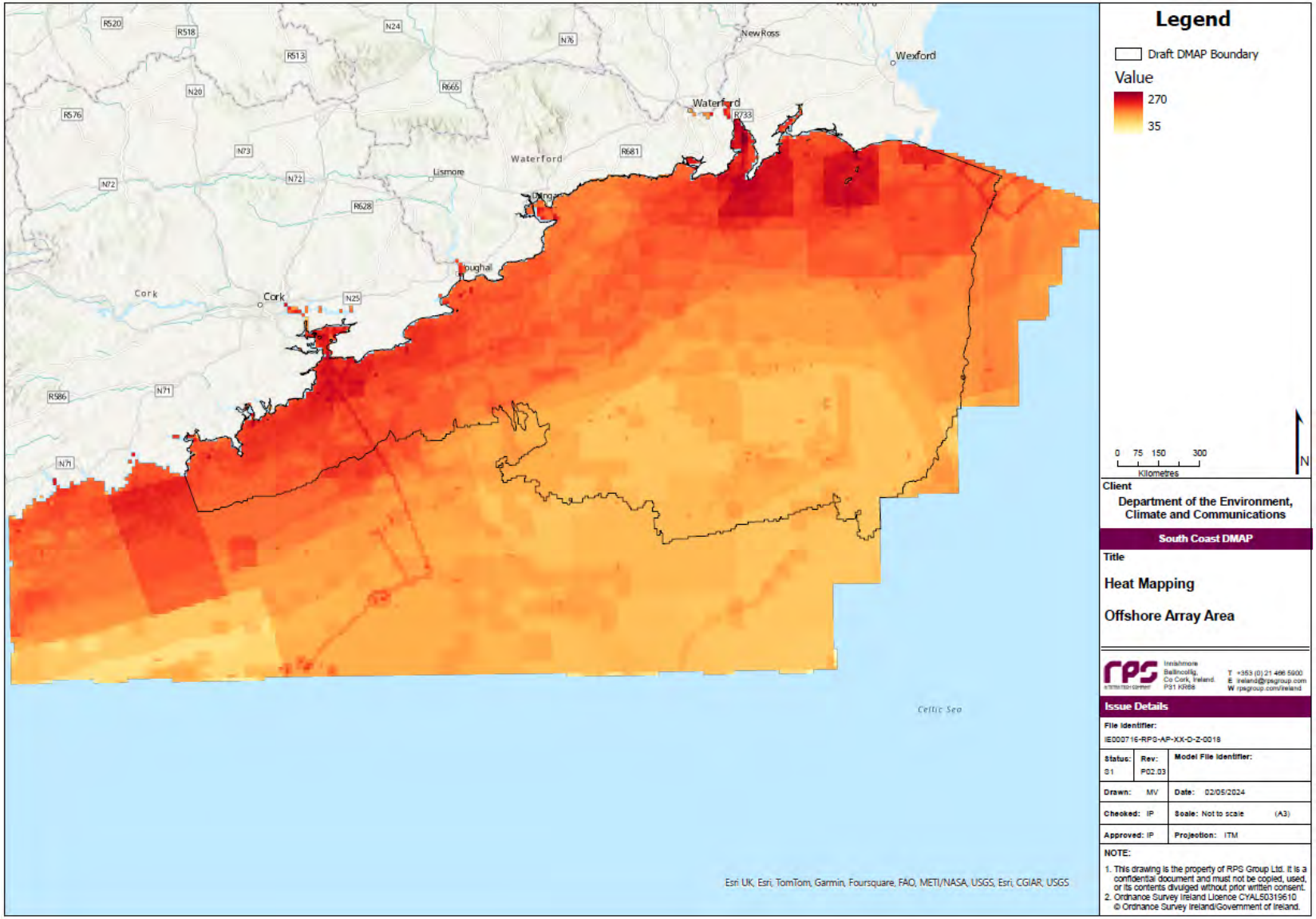


Figure 7-5:Consolidated Environmental Constraints Heat Map

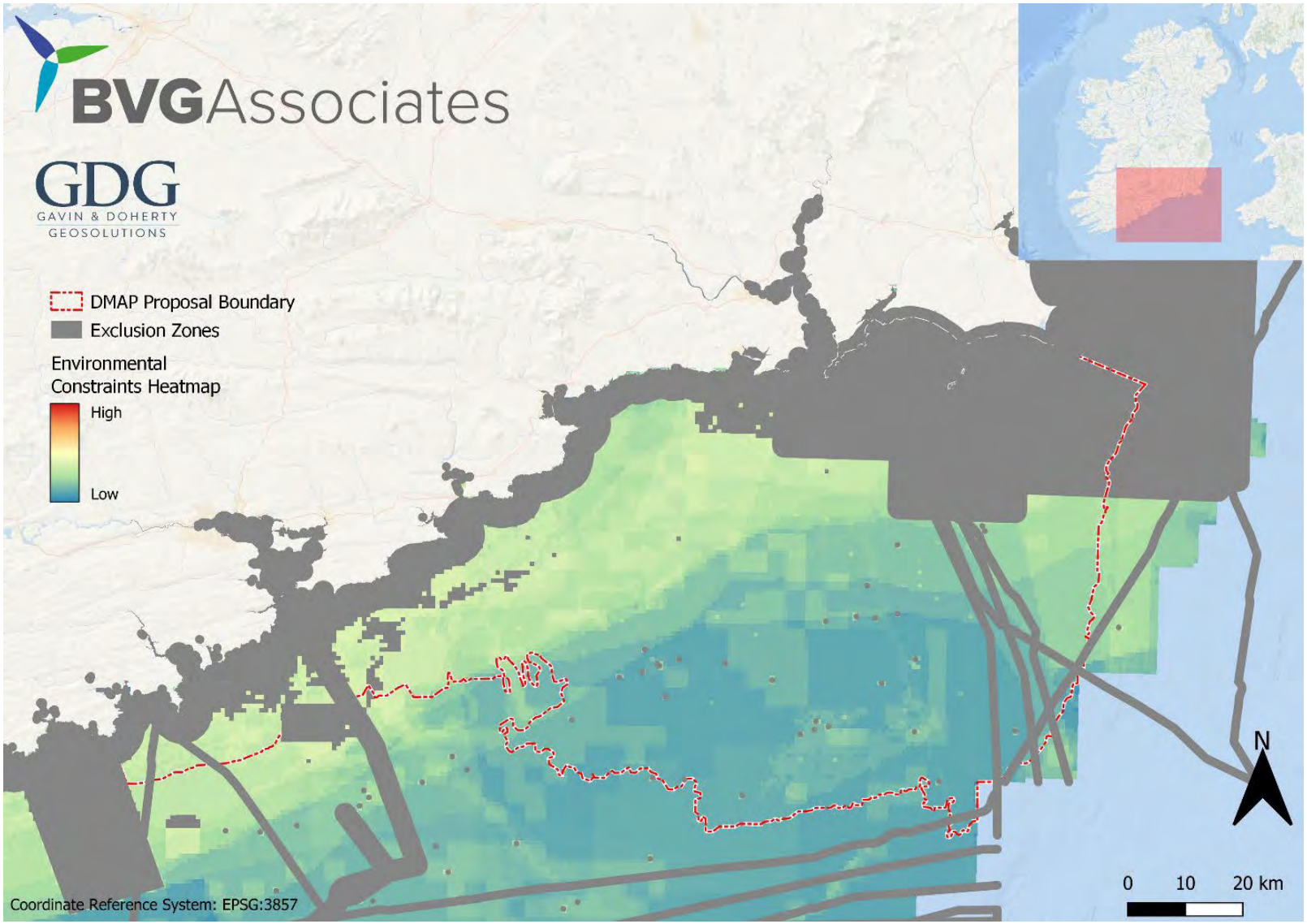


Figure 7-6: Environmental Exclusions and Highest Cumulative Environmental Constraint Areas.

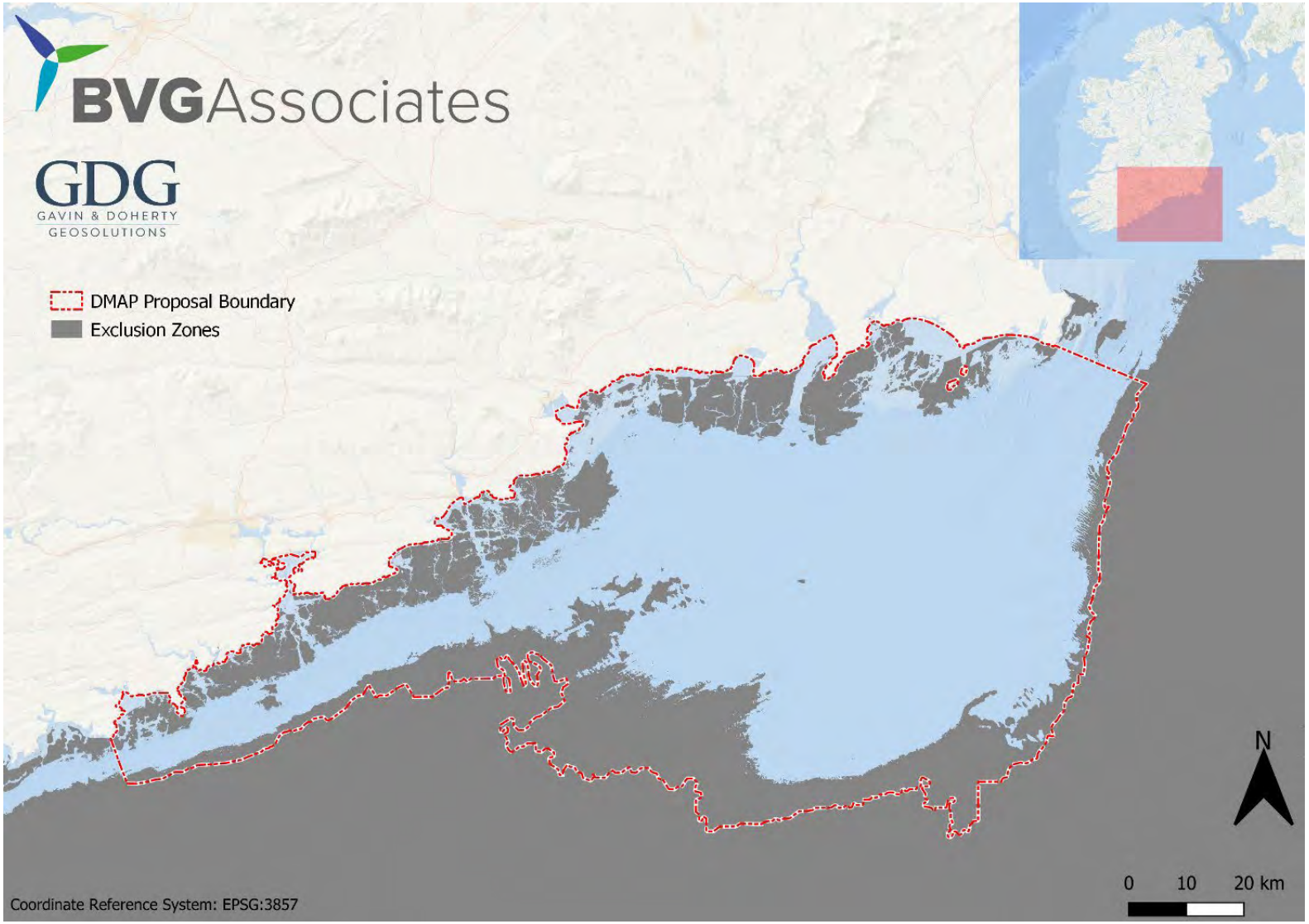

BVGAssociates
GDG
GAVIN & DOHERTY
GEOSOLUTIONS
DMAP Proposal Boundary
Exclusion Zones
N
0
10
20 km
Coordinate Reference System: EPSG:3857

Figure 7-7: Technical Exclusions

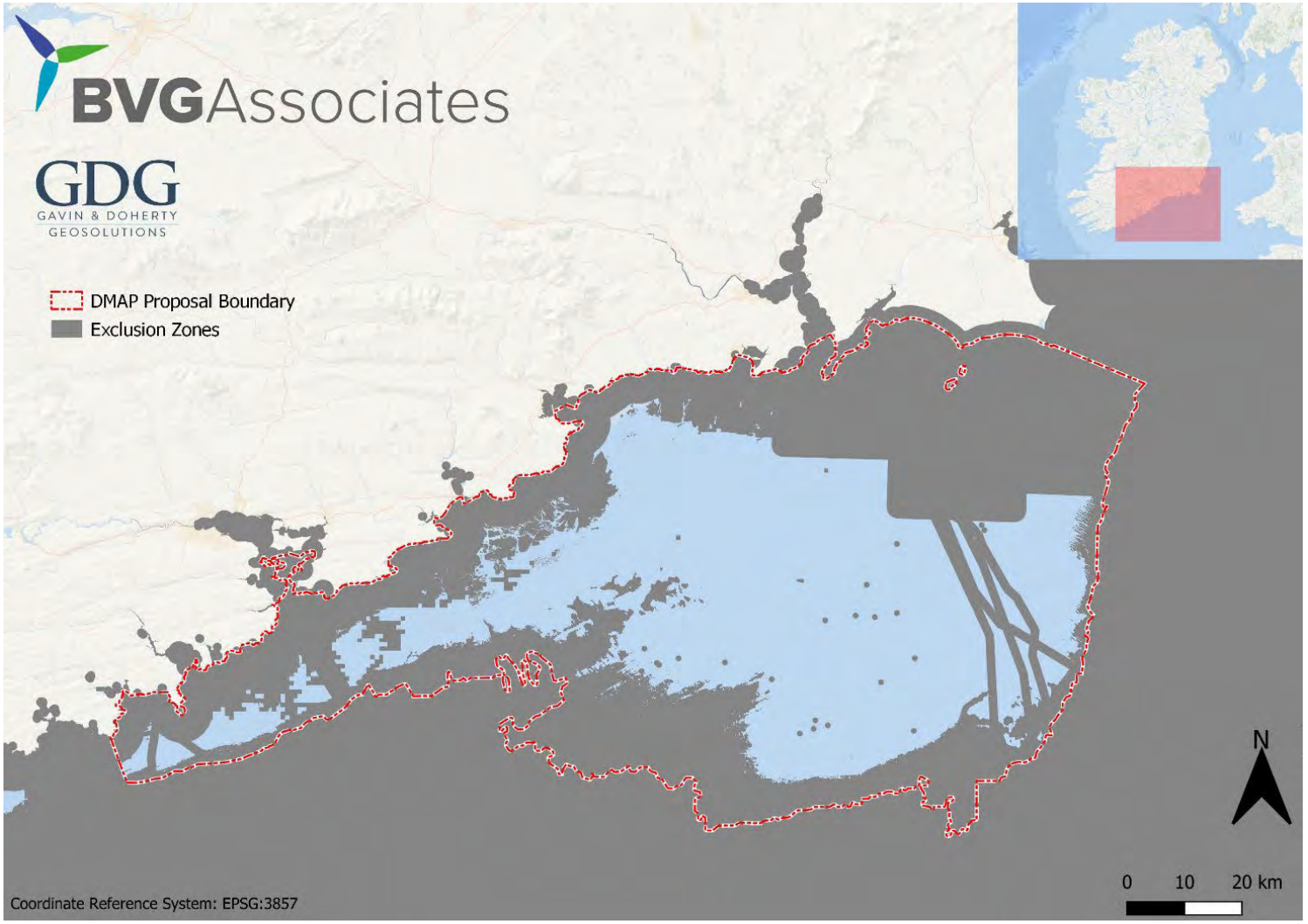
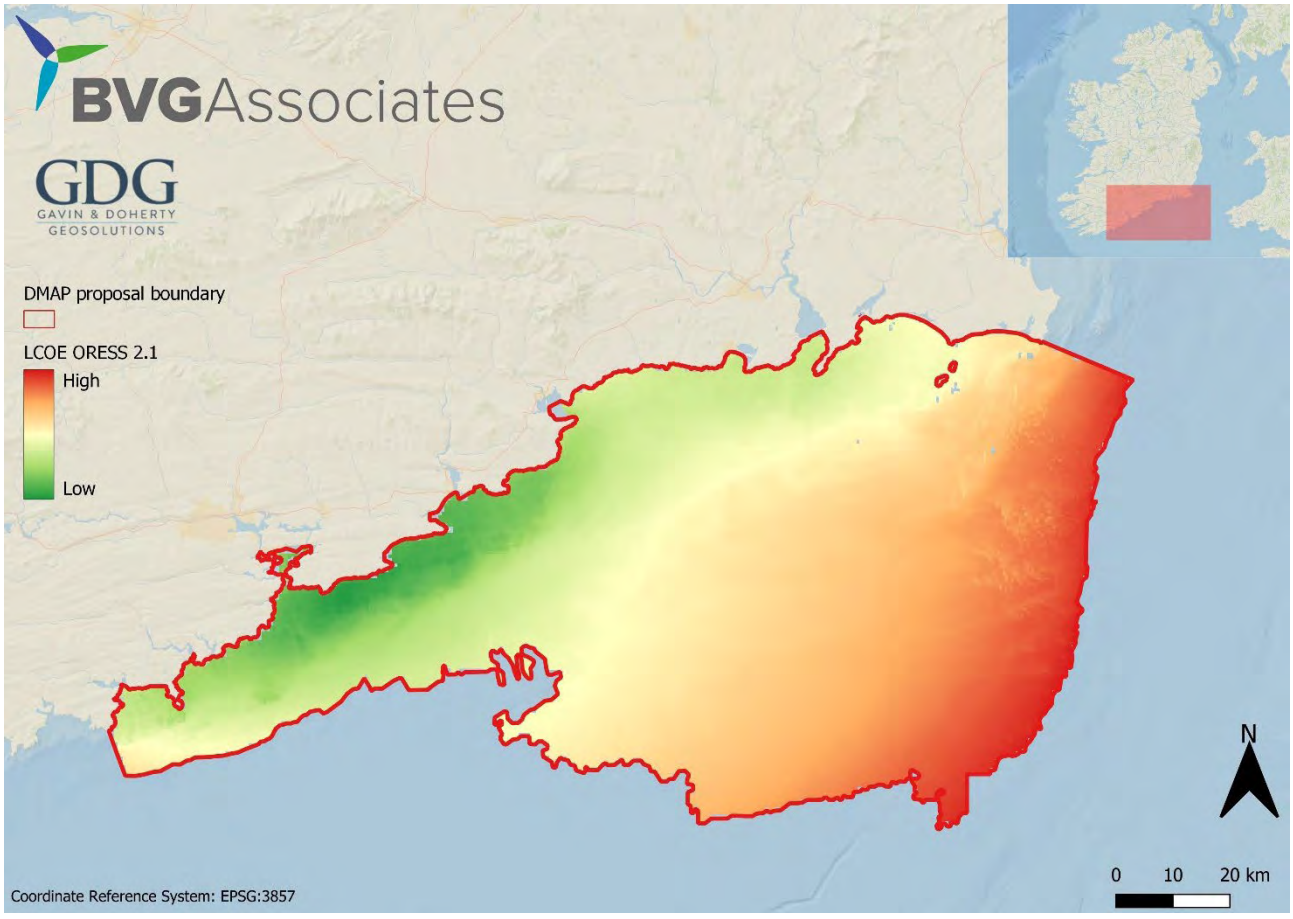


Figure 7-8: Combined Technical and Environmental Exclusions

7.4.6.4 Consideration of Levelized Cost of Energy (LCOE)

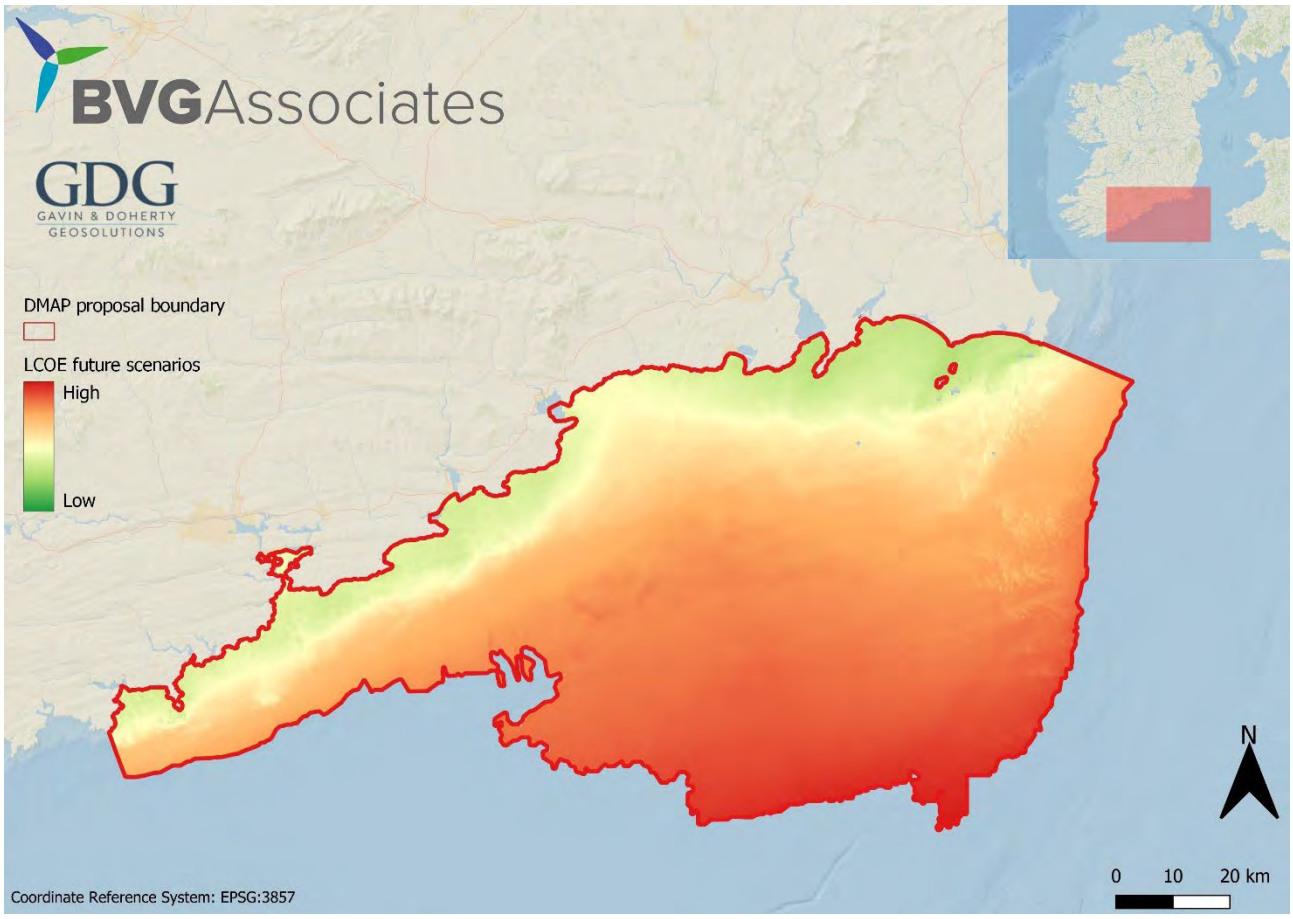
The final consideration of the spatial analysis of the wider SC-DMAP area considered the LCOE. As well as identifying areas of low environmental and technical sensitivity, the LCOE was applied to identify the areas economically most appropriate for offshore wind development. The LCOE assessment was applied after the technical and environmental constraints analysis to ensure it could not inadvertently skew results in favour of the lowest cost option. Key drivers in for the LCOE were bathymetry, wind speed, and shipping density although others were also considered. Full details of the LCOE assessment are included in the BVG Associates South Coast Designated Maritime Area Plan: Maritime Area Identification Report, April 2024 which is available under separate cover on the draft SC-DMAP consultation webpage https://www.gov.ie/southcoastdmap/.

Two output maps were produced to support identification of firstly Maritime Area A intended to contain the first development of fixed offshore wind within the SC-DMAP area, to be developed by the winner of the ORESS 2.1 auction, which aims to deploy by 2030 and secondly a map to support identification of areas for future projects. A second output was produced for the future areas (Maritime Areas B-D) The output maps and the relevant assumptions applied to the two maps are shown in Figure 7-9 and Figure 7-10.



Parameter	Assumption
Project capacity (MW)	900
Foundation type	Jacket
Grid connection	HVAC Split between Cork and Waterford, no reactive compensation
Year of commercial operation date (COD)	2030
Turbine rating (MW)	18
Lifetime	30
Operations and maintenance strategy	Service operations vessel

Figure 7-9: Maritime Area for ORESS 2.1 and Assumptions applied for LCOE



Parameter	Assumption
Project capacity (MW)	1200
Foundation type	Jacket
Grid connection	Offtake for future development areas is unknown therefore distance from shore has been assumed as offshore connection length
Year of commercial operation date (COD)	2035
Turbine rating (MW)	20
Lifetime	30
Operations and maintenance strategy	Service operations vessel

Figure 7-10: Future Development Areas and Assumptions applied for LCOE

7.4.7 Output Maps for Single Area

The single development zone to be auctioned in ORESS 2.1 was identified by considering Figure 7-5 to Figure 7-8 and Figure 7-9. The zone identified represented the area where there were no exclusion areas present and where the environmental constraint and LCOE were lowest. The area is shown on Figure 7-11.

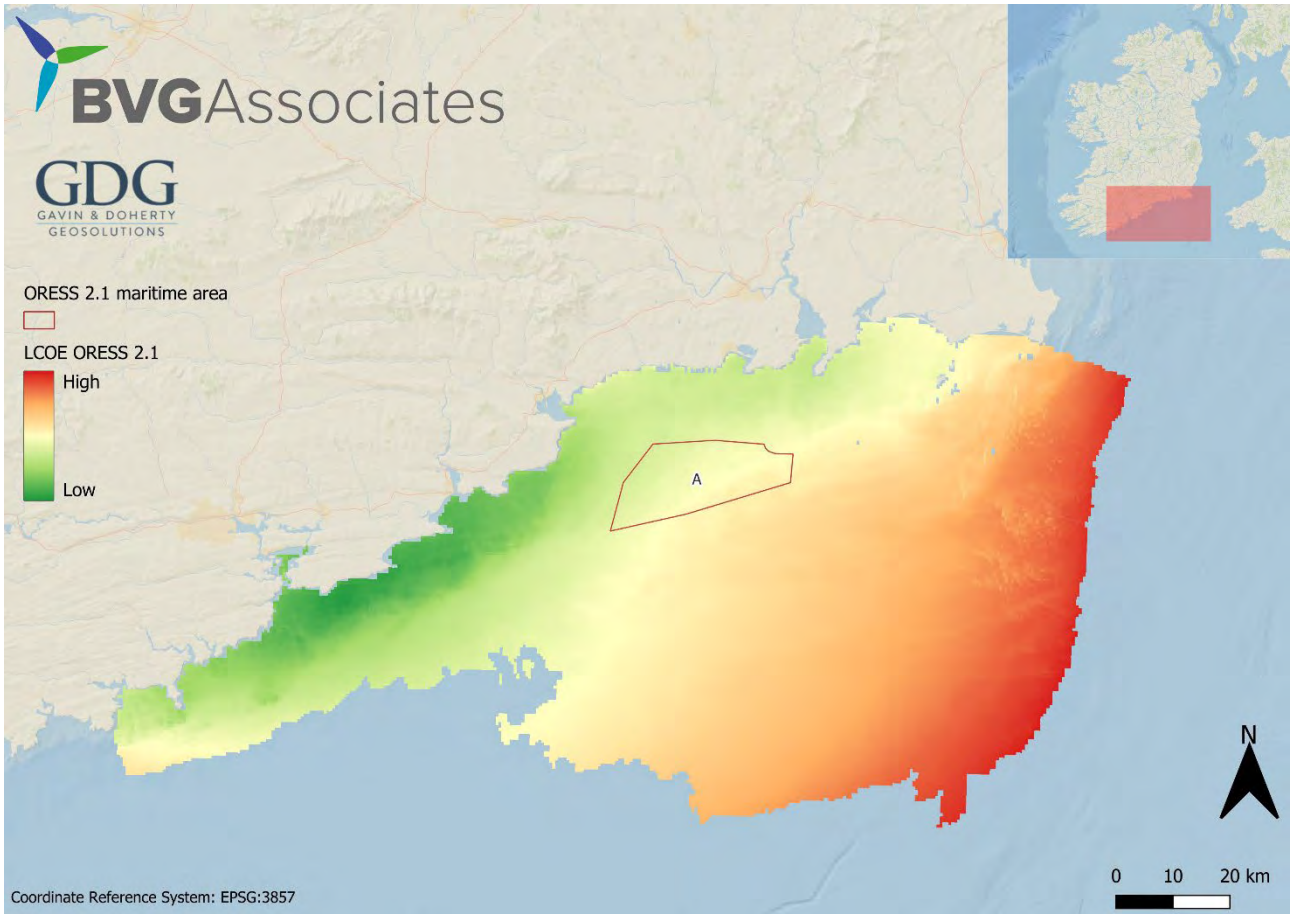


Figure 7-11: Location for ORESS 2.1 Maritime Area

Maritime Area A is situated off the coast of County Waterford and has a total area of 313 km². The distance to shore varies between 12.2 km along the western boundary and 12.4 km along the northern boundary. Maritime Area A has a mean water depth of 57 m with a minimum water depth of 48 m and a maximum water depth of 69 m, giving an overall range of 21 m. The average wind speed at 150 m height in the area is 10.4 m/s. With a typical density of 4.5 MW/km^2, a 900 MW project would use 65% of the Maritime Area shown. This margin gives room for a project developer to optimise wind farm layout within the Maritime Area, including with regard to environmental constraints identified following project-level data gathering and analysis, and efforts to maximise co-existence opportunities between offshore wind and other marine activities, including commercial fishing.

Maritime Area A's southern and eastern boundaries were selected to avoid the areas of higher shipping density, while allowing sufficient space between Maritime Area B to its south. The western boundary is constrained by areas of surface bedrock. The northern boundary is constrained by areas of surface bedrock and the 60% highest cumulative constraint scores. Its north eastern corner is constrained by the buffer around the Seas off Wexford cSPA.

Maritime Area A's southern and eastern boundaries were selected to avoid areas of higher shipping density. The western boundary is constrained by areas of surface bedrock. The northern boundary is constrained by areas of surface bedrock and the area of highest cumulative environmental constraint. Its north eastern corner is constrained by the buffer around the Seas off Wexford cSPA.

Maritime Area A has been identified as the best place to deliver an offshore wind farm with an installed capacity of approximately 900 MW, that aims to deploy before 2030, as it has relatively short export cable lengths, compared to the other Maritime Area identified, to both the east and west connections. Its position in shallower water also increases the number of suitable installation vessels currently available, reducing supply chain constraint and maximising the possibility of project deployment by 2030, or as soon as feasible thereafter. It is for these reasons that Maritime Area A is located closer to shore that Maritime Areas B, C

and D. Further, the Maritime Area A has the lowest LCOE of the Study Area remaining, making it the most attractive Maritime Area for the ORESS 2.1 project.

From an environmental perspective, Maritime Area A avoids direct conflicts with the heavily used nearshore area. At its closest it is approximately 12 km from shore, avoiding the nearshore area where there is greatest conflict in terms of population, recreation, visual intrusion and commercial activity. There will be some interaction with watercraft in the nearshore side of the area. The area broadly avoids fisheries including the herring fishery to the northeast however there is some overlap with scallop habitat as noted in the Marine Institute Ecosystem Services Mapping report. The area avoids direct overlap with any European or nationally designated biodiversity / conservation sites however it is acknowledged that such sites, including a newly designated SPA for birds is present to the east and there is potential for mobile species to interact over the area. Similarly, there is evidence of marine mammals using the seas off Wexford, Waterford and Cork coast and there is potential for mobile species to interact over the area. There is also evidence of species such as basking shark to the north of Maritime Area A but the main distribution data is concentrated closer to shore.

7.4.8 Output Maps for Future Development

The future development areas were identified by considering Figure 7-5 to Figure 7-8 and Figure 7-10. The zone identified represented the area where there were no exclusion areas present and where the environmental constraint and LCOE were lowest. The area is shown on Figure 7-12.

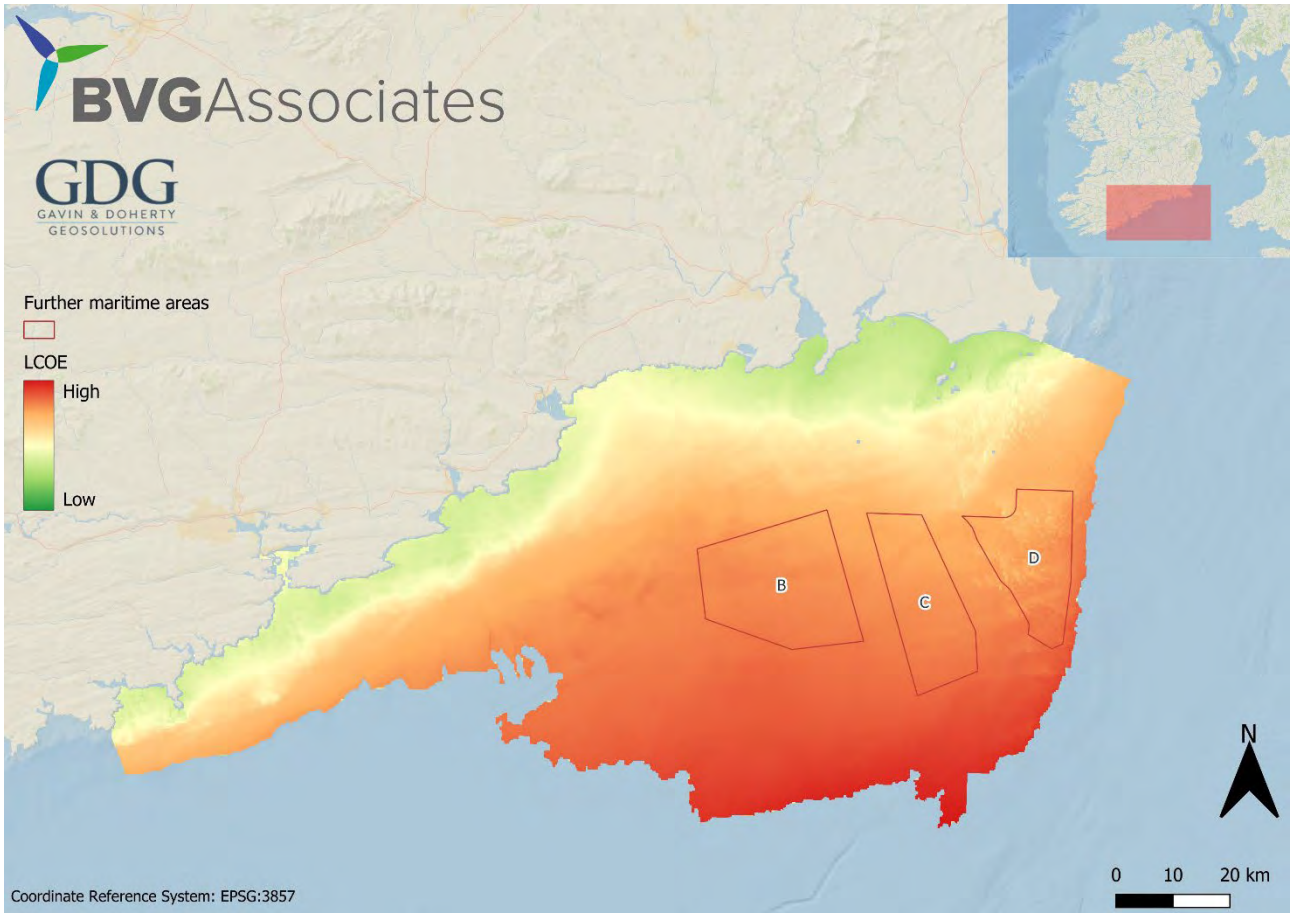


Figure 7-12: Location of Future Maritime Area

Maritime Area B is situated off the coast of County Waterford and has a total area of 486 km². The distance to shore varies between 49 km along the western boundary and 29 km along the northern boundary. Maritime Area B has a mean water depth of 71 m with a minimum water depth of 66 m and a maximum water depth of 76 m, giving an overall range of 10 m. The average wind speed in the area is 10.4 m/s. Indicatively, within this Maritime Area, our early expectation is of a project rating of 1.4 GW. With a typical

density of 4.5 MW/km^2, such a project would use 64 % of the area. Maritime Area B is bounded by an area of higher density shipping to its north, and allowance of a sufficient gap between Maritime Area A for shipping. Similarly, its eastern edge is also bounded by an area of high shipping density and allowance of a sufficient gap to Maritime Area C. Its southern boundary is dictated by increased sea depth and LCOE while allowing sufficient space for an offshore wind project of the required size.

Maritime Area C is situated off the coast of County. Wexford and has a total area of 342 km^2. The distance to shore varies between 52 km along the western boundary and 27 km along the northern boundary. Maritime Area C has a mean water depth of 69 m with a minimum water depth of 64 m and a maximum water depth of 72 m, giving an overall range of 8 m. The average wind speed in the area is 10.4 m/s. Within this Maritime Area, our early expectation is of a project rating of 1.0. With a typical density of 4.5 MW/km^2, such a project would use 65 % of the area. Maritime Area C is bounded at its northern edge by the buffered Seas off Wexford cSPA. Its eastern edge is bounded by submarine cables and pipelines with their buffers applied. Its western edge is bounded by an area of >75 m depth seabed. Its southern boundary is dictated by increased sea depth and LCOE while allowing sufficient space for an offshore wind project of the required size.

Maritime Area D is situated off the coast of County. Wexford and has a total area of 304 km^2. The distance to shore varies between 52 km along the western boundary and 27 km along the northern boundary. Maritime Area D has a mean water depth of 67 m with a minimum water depth of 55 m and a maximum water depth of 78 m, giving an overall range of 23 m. The average wind speed in the area is 10.4 m/s. Within this Maritime Area, our early expectation is of a project rating of 0.9 GW. With a typical density of 4.5 MW/km^2, such a project would use 65 % of the area. Maritime Area D's northern boundary is also dictated by the Seas off Wexford cSPA buffer. Its eastern and southern edges are bounded by the 75 m depth contour. As with Maritime Area C, Maritime Area D is also bounded by the submarine cable and pipelines.

From an environmental perspective, the proposed future development areas all avoid direct conflicts with the heavily used nearshore area. At its closest Area B is 29 km from shore; Area C is 27 km from shore; and Area D is 27 km from shore. As such they all avoid the nearshore area where there is greatest conflict in terms of population, recreation, visual intrusion and commercial activity. The greatest potential for interaction is with fisheries, shipping and biodiversity. The three areas broadly avoid known fisheries however there is some overlap with scallop habitat in Maritime Area B.

All three areas broadly avoid conflicts with telecoms and sub-sea cables however, it is noted that some cables may reach the end of their lifecycle and new ones may appear and, as such, this information would need to be verified to inform micro-siting of turbines as part of a project assessment in due course. Allowance has been made for a broad shipping corridor between Areas B, C and D to ensure shipping traffic is not significantly disrupted.

All three areas avoid direct overlap with any European or nationally designated biodiversity / conservation sites however, as with Area A, it is acknowledged that such sites, including a newly designated cSPA - Seas off Wexford - is present to the east and there is potential for mobile species to interact over the area. Similarly, there is evidence of marine mammals using the seas off the coast and there is potential for mobile species to interact over the wider area.

7.4.8.1 Summary

Following analysis of technical and environmental constraints four areas were identified as suitable for OW development based on the analysis. This stage of the process has considered best available desk top data and applied analysis tools designed to avoid, as far as possible, known technical and environmental constraints that could be impacted by the implementation of the SC-DMAP. It is acknowledged that all of the areas identified will require further detailed and site specific survey at lower tiers of planning to support best available desk top data used in this analysis. The identification of these areas does not in any way confer development consent and as such, any, projects brought forward will be subject to the full rigours of the planning consent procedures for such projects in accordance with the law and all requisite environmental assessments. An environmental assessment of the 4 areas which represent the preferred map based scenario is provided in Chapter 8, alongside the objectives which will be applied in parallel to any development

8 ASSESSMENT OF THE PREFERRED SCENARIO

The approach used for assessing the policies and policy actions for the draft plan was an objectives led assessment. Each policy grouping has been assessed against a set of strategic environmental assessment objectives (SEOs). The assessment compares the likely impacts in terms of the strategic environmental objectives to see which policies and policy actions meet the strategic environmental objectives and which, if any, contradict them. For the purposes of this assessment:

The approach used for assessing the policies and policy actions for the draft plan was an objectives led assessment. Each policy grouping has been assessed against a set of strategic environmental assessment objectives. The assessment compares the likely impacts in terms of the strategic environmental objectives to see which policies and policy actions meet the strategic environmental objectives and which, if any, contradict them. For the purposes of this assessment:

Symbol	Meaning
Plus (+)	Indicates a potential positive environmental impact
Minus (-)	Indicates a potential negative environmental impact
Plus/minus (+/-)	Indicates that both positive and negative environmental impacts are likely or that in the absence of further detail the impact is unclear
Zero (0)	Indicates neutral or no significant impact

Under each policy heading a discussion is presented to support the assessment parameters shown. Not all of these policies are suitable for detailed assessment as they may relate to administration issues or additional monitoring etc. In these cases, a qualitative statement has been made to describe how the policy or action might support the overall strategy approach.

8.1 Assessment Parameters

Within the current scope of this SEA, temporary impacts have not been assessed. *Temporary impacts* arising from the SC-DMAP and proposals contained therein would be associated with construction phase, however, no specific location or design parameters are addressed at this strategic level. *Permanent effects* are addressed in the assessment which follows.

The primary effect of the SC-DMAP is to manage the marine environment sustainably. Many of the policies under consideration will have *direct* impacts on material assets as a result. However, a number of the policies and policy actions also have the potential to impact on other environmental receptors both directly and indirectly. These *secondary and indirect* effects have been taken into account in the assessment which follows**.**

In line with the SEA Directive, *short, medium, and long-term impacts* must be considered during the assessment. As such, assessments have been made for 2020, 2030 (as a short-term horizon), up to 2040 (as a medium term horizon) and post 2040 (as a long term horizon). Short, medium, and long-term impacts are addressed in the assessment which follows.

Cumulative effects arise for instance where several developments may each have an insignificant effect but together have a significant effect or where several individual effects of the SC-DMAP have a combined

effect. *Synergistic effects* interact to produce a total effect greater than the sum of the individual effects so that the nature of the final impact is different to the nature of the individual impact. Cumulative / synergistic assessment is addressed in the assessment which follows.

The maritime usage which is the subject of the draft SC- DMAP exclusively relates to fixed offshore wind technology which is referred to as ORE in the draft Plan. The assessment in the SEA references Offshore Wind (OW) specifically for clarity on the nature of impact pathways anticipated.

8.2 Policy Assessment

8.2.1 Policy Objectives for Maritime Areas

Ref.	Objective
MA 1	To support Ireland's legally binding climate objectives through enabling achievement of 5 GW of offshore wind by 2030, 20 GW by 2040 , and 37 GW by 2050, by providing for the strategically managed and sustainable development of fixed offshore wind technology and associated offshore transmission system infrastructure within the SC-DMAP area. The development of fixed offshore wind brought forward under this Plan is considered to be of strategic and national importance to the State.
MA 2	That the development of ORE within the SC-DMAP area will exclusively relate to fixed offshore wind technology and may incorporate projects that are directly connected to the onshore electricity transmission system, as well as projects with alternative offtake solutions and therefore not connected to the onshore transmission system.
MA 3	Maritime Area A will contain the first development of fixed offshore wind within the SC-DMAP area, to be developed by the winner of the ORESS 2.1 auction, which aims to deploy by 2030, or as soon as feasible thereafter, and will be connected to the onshore electricity system.
MA 4	Following the SC-DMAP being made, the award of MACs in respect of proposed future ORE developments within Maritime Areas B, C, and D, should be granted according to timing, methodology and processes to be determined by MARA in accordance with the MAP Act.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
MA 1	+	+	+	+	+	+	+	+	+
MA 2	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
MA 3	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
MA 4	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The support for the progressive deployment of Ireland's offshore renewable energy potential under Policy Objective **MA 1** and acknowledgement that such development brought forward under the SC-DMAP will be considered to be strategic and national in importance provides clear and direct policy support which have indirect positive effects for CF and MA over the short to long term. A consistent national policy which is clearly cascading down from government policy through marine plans offers confidence for all interested parties including developers, financing institutions, investors and communities. This will also diversify the energy mix nationally, allowing a managed move toward the overall long-term target of reaching net zero carbon by 2050.

MA 1 is fully aligned with that already committed to under the Climate Action and Low-Carbon Development Act (2015 to 2021) as amended and in the actions identified in the Climate Acton Plan(s) by contributing towards the reduction of Ireland's GHG emissions and its reliance on fossil fuels. The delivery of ORE generally and fixed offshore wind in particular in the short to medium term is a fundamental element of the Government's climate change strategy. It

Assessment and Discussion:

underpins climate ambitions of the transport and electricity sectors and without it would result in Ireland being unable to achieve its climate objective at a national level or contribute to the targets set at EU or global level.

Strategic management of offshore wind farm development within the SC-DMAP is intended to ensure not only delivery of the infrastructure but also that appropriate consideration is given to environmental and community considerations at the plan stage, allowing for a cascade of environmental and community protections and accommodations to be in place alongside a robust mitigation strategy.

Indirect positive effects are also anticipated for all environmental factors in the medium to long term as the required infrastructure comes on stream and can contribute to from a reduction in the environmental, social, and economic risks of climate through improved resilience to climate and coastal change, reduction in emissions from fossil fuels currently in use and appropriate protections of environmental features and processes built in to a managed approach.

MA 2 refers to fixed offshore wind projects that are directly connected to the onshore transmission system as well as the projects that are not connected to the onshore transmission system with alternative offtake solutions. For instance, this could include projects that are directly connected to a terrestrial large energy user, a hydrogen electrolyser, or an energy park. This has the potential for direct, indirect and cumulative effects for all environmental receptors depending on the nature and scale and location of projects. Robust route selection to these end users will be essential to avoiding significant effects from cabling and connection. It is noted that the Marine Environment and Biodiversity section of the draft Plan include inter-related commitments and policy objectives which work in tandem with MA 2. Specifically, OEP 1 requires for the application of roust route and site selection and the use of constraints analysis to guide decision making at lower tiers.

MA 3 and **MA 4** confirm the key spatial components of the draft SC-DMAP – the intention to prioritise areas within the SC-DMAP proposal area for OW development. Maritime Areas A-D have been identified following application of a constraints analysis which has included technical, environmental and social considerations. As far as possible at this stage of forward planning, the constraints analysis has sought to avoid and / or reduce risk to technical, environmental and social receptors, based on the level of detail available. The application of the constraints process at such an early stage is considered broadly positive for all environmental receptors however, notwithstanding the proactive approach, it is acknowledged that this constraints process does not completely or fully eliminate potential for effects to these receptors but rather starts a process of management and mitigation at the earliest opportunity to avoid, remove or remedy significant effects in a cascading planning framework. Further detailed surveys and assessment will be undertaken at a regional, marine area and project scale to further inform and refine any project proposals within the cascading planning hierarchy as committed to in the Marine Environment and Biodiversity section of the draft Plan. Specifically, OEP 2 requires for the application of roust route and site selection and the use of constraints analysis to guide decision making at lower tiers.

The SC-DMAP does not confer development consent on any project that might arise from the SC-DMAP. A full detailed whole project level assessment will be required, including the preparation of an Environmental Impact Assessment Report and a Natura Impact Statement as part of any future development consent(s). These documents will take the constraints desk top analysis and develop a detailed site-specific survey scope to further guide project level of assessment including not only array areas but also all relevant supporting infrastructure including grid. Project specific site selection within the maritime areas, project specific alternatives and project specific mitigation measures will all be presented as part of any future project that may progress, applying the cascading model of avoid, reduce, remedy throughout. Identification of maritime areas suitable for fixed wind development in the SC-DMAP have been based on desktop analysis and this does not remove the need for site specific survey to further inform planning. The areas shown on the SC-DMAP are of sufficient size to ensure refinements can be made to accommodate constraints identified through detailed site survey however, the award of MACs in respect of a proposed future fixed offshore wind developments within Maritime Areas B, C, and D, as stated in MA 3, will be granted according to timing, methodology and processes to be determined by MARA in accordance with the MAP Act. This is considered a positive objective for all environmental receptors as it facilitates a phased release or areas and the opportunity for evidence base to continue to guide decision making.

The assessment of map-based alternatives is presented in section 7.4.6 of this report. An assessment of the four maritime areas identified is presented in section 8.3 of this report.

Mitigation

- None required due to inclusion of the Marine Environment and Biodiversity section of the draft Plan and policy objectives which work in tandem with MA 2- MA 4. Specifically OEP 2 requires for the application of roust route and site selection and the use of constraints analysis to guide decision making at lower tiers.

8.2.2 Policy Objectives for Mitigation

Ref.	Objective
MI 1	(a): Applications for development of ORE in Areas B – D and associated transmission infrastructure, should only be submitted to and considered by the planning authority when the data from completed Regional Level Surveys is available to inform the project level EIA and AA in-combination and cumulative assessments. The scope of the Regional Level Surveys, and a decision regarding whether they will be carried out by the State, MAC holders, or both, will be determined by the DMAP Implementation Programme Board. (b) Within 6 months of the SC DMAP being made, DECC will establish the SC-DMAP Implementation Programme Board to agree the scope of Regional Level Surveys and the mechanism for making such data accessible via a GIS Data Repository to be established as an implementation action of the SC-DMAP. (c) Proposed ORE developments and associated transmission infrastructure should use data collected through the GIS Data Repository to support project level EIA and AA assessments as this data is completed and made accessible.
MI 2:	At the project level, all applications for development consents for ORE projects and transmission infrastructure emanating from any SC-DMAP policy objective should have regard to the relevant pre-consent survey requirements and guidance set out in Appendix B. Applications for development consent that may give rise to likely significant effects on the environment should be accompanied by one or more of the following, as relevant: • Ecological Impact Assessment Report; • Environmental Report; • Environmental Impact Assessment Report if required under the relevant legislation (statutory document); • Natura Impact Statement if required under the relevant legislation (statutory document); and • Article 12 (Habitats Directive) Assessment on Annex IV species. • Article 5 (Birds Directive) Assessment on wild or migratory bird species. • An assessment of any proposed derogation from the requirements of the Habitats or Birds Directives.
MI 3	Any Licence application that may need to be made to MARA under Part 5 of the MAP Act for the purposes of carrying out the Regional Level Surveys, as well as Licence applications by MAC holders in Areas A to D for the purposes of ORE project-specific site investigations and marine environmental surveys in the SC-DMAP area, should be treated as priority by MARA, subject to compliance with Part 5 of the MAP Act and any relevant regulations.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
MI 1	+	+	+	+	+	+	+	+	+
MI 2	+	+	+	+	+	+	+	+	+
MI 3	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

One of the most challenging aspects of offshore wind development is the scale of the zone of influence for some environmental receptors. In some cases, this may extend to regional (or in the case of seabirds even further). Policy Objective **MI 1** directly addresses the need for a common pool of data at a regional scale which all prospective developers can access and use to increase the scope of data available to use. This in turn is also available to decision makers. Improvements in data, be it scope, or scale is considered a positive policy objective and one to be welcomed in the draft SC-DMAP.

Policy Objective MI 1 sets the requirement for regional level surveys and that development permission applications for ORE in Maritime Areas B to D should only be submitted to and considered by the planning authority when the data from completed Regional Level Surveys is available to inform the project level EIA and AA in-combination and cumulative assessments. This is likely to have indirect positive effects in the short to long term for all the SEOs, particularly for BFF,

Assessment and Discussion:

LS, W and LandSeaS. At the project level, the collation of comprehensive data on environmental conditions, ecosystem dynamics, heritage, valuable landscapes and seascapes and cumulative effects within the specified areas will be crucial for conducting robust EIA and AA.

The proposed policy also sets out the responsibility of DMAP Implementation Board following its establishment within the specified timeframe, to determine the scope of the Regional Level Surveys, and the responsible body to carry out these surveys. This centralized approach ensures coordination and consistency in survey methodologies, data collection, and decision-making processes across multiple offshore wind energy development projects. This is therefore indirectly and broadly positive across all SEOs in the short to medium term.

Establishment of a GIS Data Repository for the regional survey data demonstrates a commitment to effective coordination, data accessibility, and transparency in implementing the maritime area plan for offshore wind energy development. This will have a direct positive impact for BFF, LS, W and LandSeaS as improved access to environmental data can support informed decision-making, enhance stakeholder engagement, and promote sustainable development of the proposed OW developments within the SC-DMAP area.

Indirect positive effects are also anticipated for PHH and MA SEOs in the short to medium term as standardizing the use of data from the GIS Data Repository will facilitate comparability among different projects, enabling regulators, stakeholders, and the public to assess the environmental implications of proposed OW developments more effectively.

Policy Objective **MI 2** requires the submission of various statutory and non-statutory environmental assessment reports for ORE projects and transmission infrastructure as relevant. It is acknowledged that statutory assessment is mandatory for many projects emanating from any SC-DMAP policy objective, and these would require preparation of EIA and AA documentation however in some cases projects or specific pieces of infrastructure may be sub-threshold and in those cases inclusion of ecological impact assessment and ecological assessment reports is considered good practice. The stated commitment to ensuring a rigorous evaluation of potential environmental effects, will have indirect positive effects in the short to medium term for all the SEOs.

Policy Objective **MI 3** seeks to support prioritisation of applications by MARA, subject to compliance with Part 5 of the MAP Act and any relevant regulations. This prioritisation will ensure that data is being collected as early as possible to support applications within the SC-DMAP area. This will have indirect positive effects for all environmental receptors as it will ensure robust data is available to inform analysis.

Mitigation

- None required.

8.2.3 Policy Objectives for Implementation, Governance and Monitoring

Ref.	Objective
IGM 1	A governance structure to facilitate the implementation of the SC-DMAP will be established within six months following the making of the SC-DMAP, and will include the following: • A SC-DMAP Implementation Programme Board, headed by the Department of the Environment, Climate and Communications, which, *inter alia,* will: oversee the implementation of the SC-DMAP; agree the scope and coordination of Regional Levels Surveys to inform the project application assessment and development stage of Maritime Areas B to D; convene and chair a bi-annual meeting of all SC-DMAP governance groups within a single 'Collaborative Forum' to discuss all proposed ORE projects and enabling infrastructure to be brought forward under the Plan and cumulative and in-combination effects; and facilitate a data repository for the SC-DMAP including a common, shared, GIS data repository for Plan and project level data. • A Marine Ecosystems and Ornithology Working Group whose role will include: advising the SC-DMAP Implementation Programme Board on the monitoring of and implementation of the SC-DMAP and recommending the scope of the Regional Level Surveys.
IGM 2	Include biodiversity representatives as part of the governance framework for the implementation of the SC-DMAP to ensure that marine biodiversity objectives are central to the implementation and monitoring of the SC-DMAP and any remedial or corrective action required.

IGM 3	To monitor the implementation the SC-DMAP an Implementation Plan will be developed within one year following the making of the SC-DMAP. It will incorporate SEA monitoring requirements to monitor any identified significant environmental effects of implementation of the SC-DMAP.
IGM 4	Establish a dedicated offshore wind-maritime research programme in partnership with and managed by the MI.
IGM 5	To support the Maritime Authorisation Database provided for in the MAP Act. MACs and development permissions for projects within the SC-DMAP area should include conditions requiring developers to gather data, including ecological data, to inform project level EIA and AA and data relevant to cumulative and in-combination assessment. Data gathered will be submitted to MARA in a format to be determined by MARA within three months of being collected. The data will be added to a common, shared GIS data repository for use by the projects and Government Departments and State bodies.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
IGM 1	+	+	+	+	+	+	+	+	+
IGM 2	+	+	+	+	0	0	+	0	+
IGM 3	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
IGM 4	+	+	+	+	+	+	+	+	+
IGM 5	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Monitoring in the context of the SC-DMAP must consider two integrated but distinct elements. The first is the implementation and monitoring of the SC-DMAP itself. Monitoring can help to evaluate whether a plan is fulfilling its core objectives and if not, it can provide information on what might be acting as a block. To achieve this, it is essential that the principle of SMART goal and objective setting is applied, specifically that objectives should be Specific, Measurable, Achievable, Relevant, and Time-Bound. In addition, implementation would be further supported by identification of Key Performance Indicators (KPIs) which will aid tracking of roll out of the SC-DMAP.

Aligned and integrated with the plan is the legal requirement under the SEA Directive and implementing national legislation and guidance to monitor the environmental effects of the plan with the purpose of providing for a high level of protection of the environment and the promotion of sustainable development. Article 10 of the SEA Directive requires that monitoring be carried out in order to identify, at an early stage, any unforeseen adverse effects due to implementation of a plan, and to be able to take remedial action. Monitoring is carried out by reporting on a set of indicators, which enable positive and negative impacts on the environment to be measured. Environmental monitoring requires committed investment and effort, but it can lead to significant benefits. As outlined in the EPA Guidance on SEA Monitoring (2023), it can allow data gaps to be filled by identifying knowledge gaps and collecting new data over time, which should reduce uncertainties in the assessment and future iterations of the plan; monitor indicators over time which can identify long-term changes and trends in the environment, including those not directly linked to the plan; identify unforeseen effects or impacts; and help identify the need for additional mitigation measures or remedial action.

IGM 1 sets out the overall governance structure proposed for the SC-DMAP. This includes a multi-tiered bespoke structure designed in recognition of the complexities involved in delivering ORE developments essential to achieving Irelands emissions reductions. The tiering at its highest level is driven by the Minister for Environment, Climate and Communications (MECC) as the Competent Authority for the SC-DMAP. On behalf of the Minister, DECC will lead on the implementation of the SC-DMAP, with input as needed from relevant Government Departments, State agencies and other stakeholders. The Minister will be further supported by a SC-DMAP Implementation Programme Board. DECC will lead this Board with support and input, as required, from relevant key stakeholders such as MARA. The SC-DMAP Implementation Programme Board will be further supported by a Marine Ecosystems and Ornithology Working Group. This comprehensive structure ensures oversight of implementation informed by integration of specialist knowledge in both environment and sectoral elements. This collaboration affords downward and upward flows of information and feedback to ensure the SC-DMAP is successfully and sustainably delivery. The governance structure allows for a feedback loop which facilitates interaction and learnings to flow up from projects in development / construction on the

Assessment and Discussion:

ground in order to inform further iterations of the plan. See also IGM 5 in terms of data sharing. Policy Objective IGM 1 will have direct and indirect positive effects from short to long term on all environmental receptors by ensuring the full range of interests is represented.

IGIM 2 recognises the fundamental and cross-cutting role for biodiversity in the delivery of the objectives under the SC-DMAP. The requirement for biodiversity representatives as part of the governance framework will have indirect positive effects for BFF, LS and W by ensuring these elements have dedicated representation in governance. Indirect positive effects are also anticipated for PHH (e.g. tourism and recreation) and MA (Fisheries and aquaculture), as integrated receptors that benefit for healthy functioning ecosystems.

As noted above, monitoring is a legal requirement under the SEA Directive and a monitoring programme must be included as part of the SEA of the SC-DMAP. While IGM 3 commits to developing an implementation plan within one year which will incorporate the SEA monitoring, this does not remove the requirement for a monitoring programme to be included as part of the plan adoption which can be subject to consultation prior to finalisation of the SC-DMAP. Furthermore, it is noted that monitoring of environmental indicators must include consideration of unforeseen effects rather than only those previously identified. Beyond that it is accepted that implementation of the plan itself will require a wider scope of monitoring and reporting which will be developed in line with IGM 3 and commitments in the draft plan. The policy objective, as written is uncertain in terms of effects on all environmental receptors.

IGM 4 proposes the establishment of a dedicated offshore wind-maritime research programme in partnership with the Marine Institute. This will have positive long terms effects for all environmental receptors by ensuring focussed research is available to inform ORE developments. The scope of research should be informed by the working and technical groups.

IGM 5 has been included to recognise the importance of data and data sharing in ensuring sustainable development of ORE in the SC-DMAP. Fundamentally the data gathered for regional or site-specific surveys must be available to the wider stakeholder group to ensure the most robust assessments possible are carried out and that decision makers have access to the best available scientific information to ensure delivery of sustainable development. This will have positive long terms effects for all environmental receptors by ensuring robust data is available.

Mitigations

- IGM 3 should be revised in relation to commitments on environmental monitoring to ensure it is fully compliant with the SEA directive as transposed in Ireland.

Recommendations

- The draft plan would benefit from more measurable actions aligned to the principles of SMART objective setting and also identification of KPIs to facilitate the regular transparent tracking of those actions and KPIs.

8.2.4 Policy Objectives for Overarching Environmental Protection

Ref.	Objective
OEP 1	Development permission applications for development for ORE and associated infrastructure within the SC-DMAP area should have regard as appropriate to Guidelines issued under section 7 of the MAP Act including forthcoming Marine Planning Guidelines for ORE. Applications should also include, where relevant, the proposed management plans listed at Appendix C. The proposed management plans will then form part of the public consultation and assessment process and final plans may be submitted for approval by the consenting authority prior to construction.
OEP 2	To ensure robust project assessments and to contribute to best practice for projects brought forward under the Plan, environmental constraints such as the presence of designated sites, the attainment of good environmental status and the processes and functions necessary to ensure no adverse effects on the integrity of European Sites should be integrated in to all stages of decision making including but not limited to constraints analysis, route and site selection, and project level assessment for EIAR and NIS preparation. If it cannot be concluded that a plan or project will not adversely affect the integrity of European Sites following mitigation, it will be a matter for the competent authority to determine if permission should be granted in accordance with the

	requirements of Article 6(4) of the Habitats Directive and all necessary compensatory measures must be taken to ensure the overall coherence of the Natura 2000 network is protected.
OEP 3	To contribute to the ecological enhancement of the marine environment, projects should, through a project-specific Nature Enhancement and Rehabilitation Plan, provide for ecological enhancement and recovery of the marine environment that goes beyond measures required for project mitigation and which contribute to European, national and local biodiversity policies, including any National Nature Restoration Plan, and are commensurate with and proportional to the scale/footprint and potential environmental effect of the project. Projects which incorporate features that enhance or facilitate species adaptation or migration, or natural native habitat connectivity will be supported, subject to the outcome of statutory environmental assessment processes and subsequent decision by the competent authority, and where they contribute to the policy objectives of this SC-DMAP.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
OEP 1	+	+	+	+	+	+	+	+	+
OEP 2	+	+	+	+	+	+	+	+	+
OEP 3	+	+	+	+	0	0	+	0	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

It is intended that there will be a Marine Ecosystems and Ornithology Working Group as part of the overall SC-DMAP governance structure to assist in monitoring the implementation of the SC-DMAP. This group will advise and guide key aspects of the implementation of the SC-DMAP from an environmental perspective and provide recommendations to SC-DMAP Implementation Programme Board on matters relevant to environmental health and wellbeing. This addition to the governance structure of the SC-DMAP is considered to represent good practice and will have indirect benefits for all environmental receptors, particularly BFF, W, and LS. The Marine Ecosystems and Ornithology Working Group will ensure that Policy objectives OEP 1-3 are implemented and achieve the environmental benefits intended.

Policy Objective **OEP 1** supports the application of Guidelines including soon to be released offshore wind energy guidelines for planning applications for development for ORE and associated infrastructure within the SC-DMAP area. Furthermore, it supports the preparation of key supporting plans as part of the consenting regime to demonstrate how key mitigations in statutory assessments will be translated into real world actions during construction and / or operation of ORE and associated infrastructure. These supporting plans are listed in Appendix C of the draft plan and include plans which typically accompany planning for ORE developments in other jurisdictions which indicates a desire to apply good practice to the plan led approach in an Irish context. Typical plans include marine mammal management plan, stakeholder engagement plan, construction environmental management plan etc. Policy Objective OEP 1 will therefore have indirect positive effects for all environmental factors and contribute to achieving the SEO across the environment.

Policy objective **OEP 2** focusses on robust assessment and the application of tools for analysis including constraints and route selection. Robust processes such as these, applied in a tier manner from plan to project offer the greatest potential to avoid significant effects. A critical commitment in OEP 2 is that if it cannot be concluded that a plan or project emanating from the SC-DMAP will not adversely affect the integrity of European Sites, the decision maker must determine if permission should be granted in accordance with the requirements of Article 6(4) of the Habitats Directive and all necessary compensatory measures must be taken to ensure the overall coherence of the Natura 2000 network is protected. If this is not an option, the plan or project cannot proceed. This maintains the primacy of the Habitats Legislation. Policy Objective OEP 2 will therefore have indirect positive effects for all environmental factors and contribute to achieving the SEO across the environmental factors.

Policy objective **OEP 3** specifically addresses the concept of ecological enhancements and promotes the reparation of a Nature Enhancement and Rehabilitation plan to accompany applications. This represents a best practice approach not yet mainstreamed in other sectors. It specifically speaks to the twin crises of climate and biodiversity and offers an opportunity for developers of OW and associated infrastructure to contribute to European, national and local biodiversity policies, and establishes a pathway for integration of any National Nature Restoration Plan objectives in due course. This has potential for indirect positive effects for BFF, W, and LS in particular and also potentially indirect positive effects for MA, LandSeaS and PHH where these enhancement support ecological functioning and deliver ecosystems services including fishing, tourism, aquaculture and flood management and protect landscape character

Assessment and Discussion:

and features. The nature and scope of the enhancements must be compatible with the sensitivities of the BFF, W, LS receptors to ensure no long term negative consequences.

Mitigations

- OEP 1: Until such time as ORE Guidelines are published by the DHLGH, a Guidance Note on the scope and expectations for applications for a typical offshore wind and associated infrastructure, based on current good practice should be provided to assist developers and regulators in meeting basic expectations.

8.2.5 Policy Objectives for Biodiversity

Ref.	Objective
B 1	Applications for development permission should have regard to the following guidance and plans, and updates thereof, set out in Appendix D

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
B 1	0	+	+	+	0	0	0	0	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The inclusion of specific guidance under Policy Objective **B 1** (Appendix D of the SC-DMAP) to inform development permissions for ORE is noted and welcomed and will have broad positive indirect effects for BFF, W, LS and LandSeaS in the short to long term by ensuring best practice in assessment is applied to development permissions. The inclusion of the 4th National Biodiversity Action Plan and any National Nature Restoration Plan in the list in Appendix D is noted given the requirement for all public bodies to have regard to the objectives and targets contained therein.

In the absence of national guidance, the available guidance from other jurisdictions of EU and UK listed in Appendix D of draft SC-DMAP will ensure good industry practice is applied in the interim until national guidance is developed.

Mitigations

- None proposed.

8.2.6 Policy Objectives for Protected Marine Sites

Ref.	Objective
MS 1	To ensure that statutory reviews of the SC-DMAP and projects brought forward under this Plan must consider the evolution of baseline conditions, which includes additional future national protected sites e.g. Marine Protected Areas (MPAs) and European Sites e.g. marine SPAs and SACs and data from regional level survey activities and projects. This augmented baseline should inform statutory environmental assessment processes including cumulative and in-combination assessment with respect to EIA and AA of projects under the plan.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
MS 1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Policy Objective **MS 1** is broadly positive as it recognises that marine baseline conditions are dynamic with ongoing changes related to climate change, natural processes and environmental parameters. In addition to these there is also external changes to be accommodated, notably the designation of protected marine sites including Marine Protected Areas which are anticipated after Q4 2024 and designation of further marine dependant European Sites (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) designated under the Birds and Habitats Directives (Natura designations)). This policy reflects a commitment to recognising and accommodating the evolving baseline.

It is noted that while undertaking the constraints analysis for the draft SC-DMAP which supported the identification of the four Maritime Areas, the candidate SPA off the coast of Wexford was announced in January 2024. The constraints analysis was re-run to avoid any overlap and furthermore included a 2km buffer to decrease risks to the Seas off Wexford candidate Special Protection Area (cSPA). This reflects the ongoing commitment by DECC to adapt to a dynamic baseline.

Policy Objective MS 1 also important in the context of integration of survey data associated with site specific surveys carried out by developers and also the regional level surveys committed to under Policy Objective MI 1. These will augment the current baseline and inform the comprehensive environmental assessments and rigorous evaluation of the potential environmental effects of any OW developments brought forward at project level. This will have indirect positive effects in the short to long term for the SEOs under BFF, LS, W, CH and LandSeaS although the augmented data will indirectly benefit all environmental receptors when considering cumulative and in-combination assessments as more MACs are awarded within the SC-DMAP.

It is noted that the Policy Objective for MS 1 will be overseen by the Marine Ecosystems and Ornithology Working Group as part of the overall SC-DMAP governance structure to assist in monitoring the implementation of the SC-DMAP. This group will advise and guide the SC-DMAP Implementation Programme Board on matters relevant to environmental health and wellbeing including how new designations are integrated into the wider plan.

Mitigations:

- None required

8.2.7 Policy Objectives for Water Quality

Ref.	Objective
WQ 1	To protect and improve water quality, projects should carry out comparative analysis of routes and installation techniques, including the use of modelling to determine the scale of sediment plume relative to the sensitivity of the environmental receptors e.g. wading birds or aquaculture sites.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
WQ 1	+	+	+	+	0	0	+	+	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The proposed WQ 1 objective will have direct positive effects for PHH, BFF, LS, W, MA and CH over the short to long term by reducing potential for negative effects such as mobilisation of contaminants or smothering of fauna from installation techniques / routes. Comparative analysis of routes and installation techniques using modelling of sediment transport potential will help inform alternatives in terms of routing and construction techniques used at project level. This will also ensure appropriate consideration is given to sensitive environmental receptors such as wading birds or aquaculture sites while optioneering for sediment for foundations, cabling etc. This is in line with PHH and BFF SEOs as the consideration of environmentally sensitive receptors will likely minimise the indirect impacts on water quality standards in shellfish waters and indirect disturbance impacts on certain bird species. In addition, modelling of

Assessment and Discussion:

sediment transport can fully inform decision making not only on routes but also on construction techniques e.g. plough dredging mobilises a smaller amount of sediment into suspension at the seabed and may have reduced sediment plume concentrations and extents compared to other types of dredging activities, such as trenched cable installation depending on the receiving environmental characteristics.

WQ 1, therefore, also aligns with the W SEO as modelling of sediment plumes will provide an evidence base to consequently help understand the magnitude potential of the pollution generated from these plumes. This data can then be utilised to develop methods to reduce the magnitude of pollution of the coastal and marine environmental from ORE related activity. It also aligns with the LS SEO as the well-informed and improved route analysis can aid in maintaining the character of seabed and sediments and avoid affecting seabed morphology and sediment processes to the best possible extent.

There is also potential for sediment plume overlap with the installation of from other projects ongoing in the SC-DMAP area. The potential for interaction would need to be considered at project stage.

Mitigations

- None proposed.

8.2.8 Policy Objectives for Marine Litter

Ref.	Objective
ML 1	Proposals for projects should comply with Marine Litter Policy 1 set out within the NMPF, specifically priority should be given within project design to proposals that, in order of preference, facilitate the prevention, reuse and recycling of waste. Where waste is expected to be generated a waste management plan should be in place to prioritise a hierarchy of avoid, minimise, mitigate in relation to marine litter. The waste management plan should explicitly address wastes and litter generated during enabling, construction, operation and decommissioning of development.
ML 2	Projects brought forward under this Plan should minimise electromagnetic field (EMF) in the marine environment, including where necessary, through project design mitigation e.g., prioritisation of cable burial where possible. Projects should gather evidence to inform the project level impact assessment.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
ML 1	+	+	+	+	0	0	+	0	+
ML 2	+	+/-	0/-	+/-	0	0	+	0/-	0/+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Marine litter is a serious transboundary issue impacting all of the world's watercourses and oceans; litter which originates in one country or in the open seas can end up on the shores of other, often far distant country. Plastics are by far the most common litter type in Europe's seas with the EC estimating that approximately 80% of marine litter comes from land-based sources. Litter in plastic form is one of the most challenging environmental problems as it does not biodegrade. Instead, it persists in the environment in the long-term and can break down into smaller particles through erosion. This has significant negative consequences for marine life and other marine users. Marine litter can negatively impact on fauna such as birds, mammals, fish and turtles for example, by causing adverse effects via injury resulting from entanglement, health impacts caused by ingestion and death caused by starvation. Marine and coastal users e.g. sea swimmers, divers, tourists etc. can also be negatively affected by litter as a result of entanglement, health issues caused by associated pollution and the negative visual intrusion and disturbance the physical presence of litter causes.

Waste prevention remains the preferred waste management option in line with the waste hierarchy and in keeping with the EU circular Economy principles. This includes reducing the demand for virgin raw materials to create "new"

Assessment and Discussion:

products, reducing consumption overall and ensuring resource efficiency and a progression towards a circular economy throughout the life cycle of processes and products. A reduction in marine litter has many benefits.

ML 1 will have direct and indirect long-term positive effects for PHH, BFF and W, where waste and litter can be prevented from entering the marine environment in the first place. This will reduce the risk of this pollution from plastics and microplastics negatively impacting water quality and in turn human health and furthermore it will reduce risk of harm / mortality on marine fauna as a result of encountering / ingesting these pollutants. Indirect long-term positive impacts are also anticipated for MA and LandSeaS where waste and litter are prevented / controlled. It is also noted that the OEP 1 and Appendix C address supporting documentation for planning applications for development for ORE and associated infrastructure within the SC-DMAP. These elements of the draft SC-DMAP include a specific reference to preparation of a Circular Economy Plan to establish how essential materials will be reused and/or recycled at the end of life of the offshore wind farm. This inter-related policy adds further weight to the Marine Litter policy objective and ensure positive effects from the draft SC-DMAP in this regard.

ML 2 seeks to minimise EMF as a part of the project proposals within the SC-DMAP. This aligns with the Water SEO to promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment. Electromagnetic fields may arise during the operational and maintenance phase from the operation of the inter-array cables and offshore cabling. Electric and magnetic fields occur naturally in the marine environment and some predators use electric fields as important cues to detect and locate prey species (Crampton, 2019). Electrosensitive species are known from laboratory studies to either be attracted to sources of EMF or show avoidance of them. Neither the scale of any adverse impact nor the long-term impacts of man-made sources of EMF in the marine environment are well known however, therefore this may be a knowledge gap where such species occur. Elasmobranchs are one group thought to be more sensitive than other marine fauna. There are also worries over the cumulative effects that may occur from the burial of numerous cables, a situation which will occur with the expansion of the wind farms in the SC-DMAP area. Burial of the cables is believed to mitigate much of the impact by increasing the distance between cables and marine mammal and megafauna (and fish and shellfish) receptors rather than reducing the strength of EMF. The inclusion of requirement for projects to gather evidence to help inform the project-level impact assessment is positive as it will ensure improved and robust decision making and removes the risk of significant effects.

Burial of cables does however introduce additional risk in terms of BFF, W, LS and CH. There is potential to disturb habitats directly or indirectly from burial of cables, depending on the nature of the geology and sediment in the area. There may be short terms disturbance to W through increased suspended solids, reduced visibility etc. with indirect impacts to fauna. Previously unrecorded archaeology may also be negatively impacted by cable burial. Surveys required in advance of planning and / or construction will ensure that such features are fully resolved prior to commencement.

Mitigations

- None proposed.

8.2.9 Policy Objectives for Underwater Noise

Ref.	Objective
UN 1	Applications for projects should demonstrate that they have had regard to guidance relating to underwater noise including NPWS Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters and updates thereof and propose appropriate mitigation measures for any activity that may generate underwater noise. Until such time as the NPWS guidance is updated projects should have regard to the underlying research this guidance is based on, and updates to this research.
UN 2	To minimise the risk of disturbance on biodiversity and the cumulative effects of underwater noise along with other pressures such as increased sedimentation, survey and installation works should, so far as possible, be programmed to be carried out at separate times to reduce potential for noisy or other disturbing activities to occur at the same time and which could affect the same area.
UN 3	To support MSFD descriptor 11 that the introduction of offshore renewable energy, including underwater noise is at levels that do not adversely affect the marine environment. Projects should consider techniques such as adjusting the parameters of the pile stroke, soft-start piling activities, avoiding piling in periods of ecological importance, delaying piling if mammals are spotted, or using acoustic deterrent devices or sound barriers (where suitable) to avoid, minimise or mitigate to reduce those impacts on marine fauna. Best available

techniques should be used to reflect the emerging evidence base on noise abatement for offshore wind developments in water greater than 45m.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
UN 1	0	+	0	0	0	0	0	0	0
UN 2	0	+	0	0	0	0	0	0	0
UN 3	0	+	0	0	0	0	0	0	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Underwater noise can be considered a pollutant in the marine environment with potential for negative effects on BFF, in particular marine mammals but also fish and diving birds. Sources of noise can include construction and decommissioning of infrastructure, exploration activities including surveying, drilling and blasting, shipping, power boating piling etc. Research has been conducted into the impact of certain noise sources on marine mammals and evidence of disturbance and displacement has been found as a result of underwater noise ((Koschinski et al. 2003; Carstensen et al. 2006; Southall, et al. 2007; Southall, et al. 2019). Effects may be direct causing auditory injury resulting in Permanent Threshold Shift (PTS), where there is no hearing recovery in the animal, or as a Temporary Threshold Shift (TTS), where an animal can recover from the tissue damage. It may also be indirect affecting defence, resting, social interactions and navigation; mating and parenting behaviours; and search, pursuit, capture and consumption of prey. This can be exacerbated where fish are negatively impacted which adds to the negative impacts on foraging mammals. Underwater noise can be generated through all phases of OW development including from piling, survey equipment, boats etc.

UN 1 specifically refers to the use of guidance, including the NPWS document Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters, which provides best-practice and knowledge-led guidance for managing developments and activities that have the potential to affect sensitive marine mammal species. This policy will have direct and indirect positive effects on BFF. The supporting text should note that the recommendations contained within the document must be integrated into the consents and licensing conditions for all planning applications. The policy objective is considered positive in the short to long term as it acknowledges that this issue is the subject to ongoing research which may result in further guidance into the future. Having regard not only to the guidance but also to the ongoing and evolving research will ensure best available scientific data is used in assessment and mitigation.

UN 2 seeks to control the cumulative effect of many noisy activities ongoing in parallel in addition to in-combination effects from other pressures such as increased sedimentation. This policy will have direct and indirect positive effects on BFF in terms of controlling the risk of disturbance. These considerations may necessitate species focussed assessments on a project by project / species by species basis.

Policy Objective UN 3 links to MSFD descriptor 11 which states that *Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.* Typical noise abatement measures for OW developments are noted. This policy will have direct and indirect positive effects on BFF.

Best available techniques are referenced for area beyond 45m depths in **UN 3**. Scottish Natural Heritage (nature.scot) prepared a review of noise abatement systems for offshore wind farm construction noise, and the potential for their application in Scottish waters in 2019, noting that in some cases there is limited evidence for some measures in waters beyond 30 - 45m. This is borne out in the 2020 update to the OSPAR inventory of measures to mitigate the emission and environmental impact of underwater noise. It includes a limited selection of options for deep water. This evidence base will need to be developed in the short to medium term to inform future projects which may be developed beyond 45m.

Recommendation

- UN 3 would benefit from a commitment to developing an evidence base, in partnership with other stakeholders, for future ORE projects in deeper waters in the medium to longer term, to future proof the plan.

8.2.10 Policy Objectives for Air Quality

Ref.	Objective

AQ 1	To reduce a reliance on fossil fuels, and associated emissions and air pollution. Projects should comply with existing regulatory and policy commitments to offshore and vessel management air pollution protocols as set out in MARPOL and Ireland's enacting legislation. Installation and Maintenance vessels should use alternative lower emission fuels and more efficient transport strategies, where possible.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
AQ 1	+	+	0	0	+	+	+	0	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Air quality emissions are primarily expected from installation and maintenance vessels during the life cycle of individual projects as part of SC-DMAP. In particular shipping emissions relate to NOx and Sox and particulate matter. AQ 1 is therefore broadly positive as it commits to comply with existing regulatory and policy commitments to offshore/vessel management air pollution protocols as set out with MARPOL. The policy also promotes the use of alternative fuels or more efficient transport strategies for the installation and maintenance vessels where possible which is broadly positive for all SEOs particularly CF and AQ.

The air quality benefits more generally of OW development must also be acknowledged, notably the positive effects resulting from reducing reliance on fossil fuel emissions with indirect impacts on air quality more generally and also on PHH, BFF and MA.

Mitigations

- None proposed.

8.2.11 Policy Objectives for Climate Change

Ref.	Objective
CC 1	To support Ireland's climate and renewable energy objectives by providing for ORE development. In addition to delivering renewable energy, projects should demonstrate the integration of a multi-benefit approach into their project, which may include the delivery of carbon sequestration, biodiversity enhancement, coastal management, water quality management or other ecosystem services through the project design and/or mitigation.
CC 2	To support the role played by the marine environment in carbon storage and carbon sequestration, development in the SC-DMAP area should avoid impacts on carbon storage and carbon sequestration and include consideration of the integrity of European sites. Project-specific impacts on carbon sequestration resources, biodiversity enhancement, managing coastal erosion e.g., through stabilising sediment and opportunities for carbon sequestration should be considered and any losses in storage or sequestration should be quantified and compensated for.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
CC 1	+	+	+	+	+	+	+	+	+
CC 2	+	+/-	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Policy Objective **CC 1** seeks to deliver on Ireland's climate and renewable energy objectives with direct positive effects for CF in the medium to long term. The effects of climate change on habitats and species within the terrestrial and marine environment are well documented. In relation to the marine environment, these effects are particularly related to the impact of global warming, ocean acidification and increased deoxygenation. CC1, therefore, contributes to addressing climate change which includes addressing the predicted adverse effects of climate change on the marine and terrestrial environment. Furthermore, it seeks to harness opportunities for multiple other benefits in terms of carbon sequestration, biodiversity enhancement, coastal management, water quality management or other ecosystem services with potential for direct and indirect positive effects for all environmental factors.

Policy Objective **CC 2** in the first instance seeks to avoid impacts on carbon storage and carbon sequestration potential in the SC-DMAP area and this will have indirect positive effects for CF in particular and also potential for indirect benefits for LS, AQ, CH, PHH, W and BFF by minimising net loss of storage (and hence protecting LS, CH and BFF assets that may rely on the sediments) and maximising net gains. Notwithstanding the potential positive effects related to the policy objective, the reference to consideration of the integrity of European sites in the context of the preceding statements on avoiding impacts on carbon storage and sequestration is noted. Avoidance of impacts on site integrity must be at the forefront of policy if negative effects are to be avoided.

Mitigations

- CC 1 - It is recommended that DECC commit to working with the Marine Institute to develop an SC-DMAP area specific Ecosystems Services Map which identifies key services including but not limited to climate regulation services. This map will build on work undertaken by NPWS in a 2015 - National Ecosystem and Ecosystem Services Mapping Pilot; EPA funded research in 2018 - Valuing Ireland's Coastal, Marine and Estuarine Ecosystem Services; and DAFM / Marine Institute 2020 report on Natural Capital and Ecosystem Services Mapping.

8.2.12 Policy Objectives for Co-existence

Ref.	Objective
CO 1	That, in order to promote co-existence between ORE and other existing and future uses within the SC-DMAP area, permanent exclusions on activities or usages around or within ORE or transmission infrastructure located within the SC-DMAP area should be avoided where possible, save relating to safety or in other exceptional circumstances where considered warranted by MARA or statutory authorities in accordance with their respective roles. The likely requirement for temporary exclusion zones during periods of offshore infrastructure construction, maintenance and decommissioning is recognised. Any such restrictions should, where possible, endeavour to avoid adverse impacts on other maritime users.
CO 2	Developers of ORE projects and transmission infrastructure shall accurately map their respective development sites, including electricity export and inter-array cables as laid post development. This location and coordinate data shall be made available to MARA and other maritime users, including fishers, in a format that can be downloaded on navigation systems including a suitable plotter format which can be installed within fishing vessels.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
CO 1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
CO 2	+	+	+	+	0	0	+	+	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

CO 1 seeks to avoid imposition of mandatory permanent exclusions on activities or usages around or within windfarms located in the SC-DMAP, save relating to safety or in exceptional circumstances as warranted by MARA or planning authorities. This would have positive effects for MA in particular as it would avoid loss of access to resources such as

Assessment and Discussion:

fishing grounds. Positive effects are also likely for PHH as this policy objective will assist in maintaining access to the coastal and marine resource for tourism and recreation and will minimise disturbance to other marine users.

Poor weather conditions can impact on shipping and navigation within a very short timeframe, therefore, the reference to exclusions relating to safety and exceptional circumstances is noted and is positive for MA and PHH. Exceptional circumstances are not however defined and there is no reference to environmental protection specifically. As such there is potential for indirect negative effects where cumulative effects from ORE and other maritime activities could have significant negative effects on the environment if both were carried on in tandem. The requirement for exclusions on the grounds of cumulative environmental effects cannot be discounted, acknowledging the impact of this would need to be fully considered in a project level EIAR / NIS. Without the flexibility to use exclusions if necessary there is potential for direct and indirect negative effects on PHH, BFF, W, LS, and LandSeaS.

CO 2 relates to the availability of accurate data and sharing of this data in a format that can be used by fishers in particular reducing the potential for conflicts. The provision of accurate mapping will have indirect positive effects for MA and PHH as it allows the SC-DMAP to take proper account of fisheries and for fisheries to understand where risk may have changed as a result of cables etc. It is noted that data flow should be in both directions. Accurate data on where and what fishing is being undertaken is also essential. Data on the activity of fishing vessels less than 12 m in length is poorly recorded and represents a data gap in terms of co-existence. If accurate data is not available to developers they will be able to fully account for the activity it in their construction and operational plans.

Mitigations

- General – To support the co-existence of fishery activity with OW developments, accurate information on the location and nature of activities for by vessels less than 12 m should be collected by DAFM or DECC in order to inform future decision making and necessary planning conditions. The lack of this data is highlighted in the difficulties encountered section of the Environmental Report.
- General – Funding should be made available to specifically research and test co-existence examples to ensure a growing evidence base is developed to help inform the SC-DMAP and future ORE DMAP elsewhere. Research should extend to other jurisdictions where the ORE sector is more mature and are likely to have working examples of successes and important lessons learned from which the State can benefit.
- CO 1 - This objective should be rewritten to state: *That, in order to promote co-existence between ORE and other existing and future uses in the SC-DMAP, permanent exclusions on activities or usages around or within ORE or transmission infrastructure located in the SC-DMAP should be avoided where possible, save relating to safety and / or environmental protection and / or in other exceptional circumstances where considered warranted by MARA or planning authorities in accordance with their respective roles. The likely requirement for temporary exclusion zones during periods of offshore infrastructure construction and maintenance is recognised. Any such restrictions should, where possible, endeavour to avoid adverse impacts on other maritime users.*

8.2.13 Policy Objectives for Co-existence with Seafood, Aquaculture and Fisheries

Ref.	Objective
SF 1	Developers of proposed ORE projects and transmission infrastructure within the SC-DMAP area should maintain a record of engagement with Irish-registered fishers and the wider seafood sector regarding proposed survey activity and should optimise infrastructure design and layout to maximise opportunities for co-existence with fishing and seafood activity. Where feasible, a reduction of potential adverse impacts should be investigated through avoiding areas of identified high fishing activity or, failing this, through minimising and/or mitigating impacts on fishing activity, including through optimising windfarm layout to facilitate co-existence.
SF 2	Developers of proposed ORE projects and transmission infrastructure, as well as the seafood/fishing sector, should take into account the objectives and principles established in the 'Seafood/ORE Engagement in Ireland - A Summary Guide' and its successors, regarding protocols for constructive cooperation and engagement between the ORE and Seafood Sectors. Proposed developers of ORE projects and transmission infrastructure should document these efforts.

SF 3 A Fisheries Management and Mitigation Strategy (FMMS) shall be prepared by developers of proposed ORE projects and transmission infrastructure, in consultation with identified local fishing interests. All efforts should be made to agree the FMMS with those interests. Those interests must also undertake to engage with developers and provide spatial information in a timely manner to enable completion of the FMMS. The FMMS should identify management and mitigation measures for each commercial fishery that can establish within a reasonable timeframe to developers of prospective offshore wind projects and transmission infrastructure, through the provision of spatial information, that they would be adversely affected by the development. The FMMS will be updated and amended by developers throughout the lifetime of a project as appropriate and as necessary.

SF 4 As part of an FMMS, developers of prospective ORE projects and transmission infrastructure, shall consult with local seafood/aquaculture interests and other interests as appropriate, and shall prepare an Aquaculture Management and Mitigation Strategy (AMMS) where relevant. All efforts should be made to agree the AMMS with those interests. The AMMS should identify management and mitigation measures to ensure that potential adverse impacts of ORE and transmission infrastructure development on seafood/aquaculture activity are, in order of preference, avoided, minimised and mitigated.

SF 5 Developers of proposed ORE projects and transmission infrastructure shall maintain a Fisheries Liaison Officer (FLO) to facilitate direct, effective, constructive consultation and engagement on an ongoing basis with Irish-registered fishers and wider seafood sector members operating within the SC-DMAP area at all stages of any offshore wind project pre-construction, and during construction, operation and decommissioning.

SF 6 Any FMMS should include a Cable Management Plan (CMP) exploring options and identifying appropriate site-specific, substrate-specific inter-array and offshore transmission cable protection measures that can be installed to mitigate the risk of cable exposure and unintentional cable snagging by seafood/fishing activity. Consideration should be given to prioritising the burial of cables at a suitable depth where possible, as well as other types of cable protection measures compatible with relevant types of fishing for each area.

SF 7 Developers of proposed ORE projects and transmission infrastructure shall engage with potentially impacted seafood sector members and Irish-registered fishers to ensure that risks associated with fishing/seafood activity over the cables are minimised. A cable risk mitigation plan shall be submitted with any application for development involving the laying of cables within the SC-DMAP area and include requirements for fishing trials over the cables and other inspections considered relevant on an appropriately regular basis.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
SF 1	+	+/-	0	0	0	0	+	0	0
SF 2	+	+/-	0	0	0	0	+	0	0
SF 3	+	0	0	0	0	0	+	0	0
SF 4	+	0	0	0	0	0	+	0	0
SF 5	+	0	0	0	0	0	+	0	0
SF 6	+	+	+	+	0	0	+	+	0
SF 7	+	+	+	+	0	0	+	+	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Ireland contains some of the largest and most valuable sea fisheries resources in Europe. The seafood sector provides an important source of economic activity with BIM reporting that in 2022 there were over 8,000 people directly employed in the sector with over 7,000 jobs supporting the sector indirectly many of whom are working and living in rural coastal communities. The value of the seafood sector was estimated as €1.3 billion. The main pressures on fisheries are historically intensive fishing activities as well as changes to marine food webs (declining numbers of top predators, fishing of smaller prey species) and climate change. Other species are impacted by physical barriers to migration e.g. those species which migrate inland and offshore can become trapped or blocked by nearshore infrastructure. Longer-

Assessment and Discussion:

lived fish species are particularly vulnerable to these pressures (e.g. elasmobranchs such as sharks, skates and rays) as they grow more slowly and spawn less frequently than other species. The EU Common Fisheries Policy (CFP) aimed to end overfishing by 2015, and by 2020 at the latest, but member states have fallen well short of these targets. In 2021 the EC initiated a review of the CFP, recognising that more effort is needed to fully implement the CFP. In 2023 this work resulted in a package of measures to improve the sustainability and resilience of the EU's fisheries and aquaculture sector.

The suite of SF policy objectives included in the draft SC-DMAP seek to protect commercial fisheries. The delivery of OW and supporting infrastructure has potential for negative effects on commercial fisheries if not adequately planned and / or mitigated. Negative effects potentially include displacement of fishing activity, changes to fishing activity due to the presence of infrastructure, snagging of gear, reduction in available seabed due to the presence of infrastructure, and the need to relocate static fishing gear where direct conflicts occur. A significant reduction in impact can be achieved through a robust framework of communication and micro-siting as part of developing and optimising windfarm layout.

SF 1 recognises the importance of engagement between fishers and developers in achieving co-existence. The policy objective also supports avoidance of impacts in the first instance in line with the mitigation hierarchy. The constraints analysis for the SC-DMAP has already taken a significant step in achieving this by avoiding known high risk areas and this work will cascade down to project level assessment where micro-siting and other mitigation proposals specific to an area / project can further reduce potential for conflict. This will have positive effects on for PHH and MA as the policy objective seeks to protect employment and the economic benefits associated with fisheries. Indirect benefits are also possible for BFF where protection of spawning grounds and nursery areas contributes to the wider ecosystem health. However, cumulative negative effects are also possible where fishing and windfarm activity cumulatively impact BFF through disturbance and reduced environmental quality.

This policy along with SF 2 also promotes appropriate reasonable efforts to engage with fishers. The framework for this engagement points to the Summary Guide on Seafood/ORE engagement in Ireland. While this lays out the roadmap for when and who might be consulted, the nature of how engagement to be undertaken is less developed. Greater benefits could be achieved for both developers and fishers from the policy where a commitment is made to evolve the framework based on lessons learned in other sectors and with reference to other industry guidance from other jurisdictions e.g. The UK Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison 2014. The aim of engagement should be consensus building to allow for opportunities to support decision making and to harness stewardship of the wider DMAP proposals.

SF 3 introduces the requirement for a Fisheries Management and Mitigation Strategy (FMMS) which is also aligned with requirements under policy Objective OEP 1 as one of a suite of management plans to be prepared to support development applications and is listed as such a plan in Appendix C to the draft SC-DMAP. Within this framework, suitable procedures to facilitate co-existence will evolve through discussion with fisheries stakeholders as plans are first identified and then refined. This may include information on communication strategies, programme, provision and communication of construction and cable laying plans; and undertaking of post-lay and burial cable inspection surveys; and adherence to good practice guidance with regard to fisheries liaison and mitigation (e.g. FLOWW guidance or Irish equivalent when developed). This open dialogue will have direct positive effects in the short to long term for PHH and MA. Policy Objective **SF 4** introduces the concept of a sub-plan to the FMMS in the form of an Aquaculture Management and Mitigation Strategy or AMMS. Similar in intent and anticipated to be part of the FMMS, the AMMS will strive to facilitate co-existence through open dialogue with aquaculture and shell fishing interests. This will have direct positive effects in the short to long term for PHH and MA.

The requirement for a Fisheries Liaison Officer (FLO) in SF 5 is considered to have direct and indirect positive and ongoing effects for PHH and MA as it is part of a wider consultation and communication framework in place to facilitate dialogue and consensus building. The main responsibility of the FLO is to be the key point of contact for fisheries stakeholders and also includes building a clear understanding of the individual commercial vessels and skippers operating in areas relevant to the Project, understanding their concerns and identifying potential conflicts and solutions. Depending on the project there may also be a need for an offshore FLO to support the main FLO. This additional resource may be placed onboard main survey and construction vessels to act as the point of communication with fisheries stakeholders at sea e.g. keep the masters and watch officers of survey and construction vessels informed of fishing vessels operating in the vicinity of their vessel's working areas, and the gears and modes of operation of such vessels.

The requirement for a Cable Management Plan (CMP) in SF 6 and a Cable Risk Mitigation Plan in **SF 7** are also considered directly positive for PHH and MA as they clearly establish the need to have explored options and design mitigation early in development planning. Indirect positive effects are also anticipated for other environmental factors notably BFF, W, LS and CH as they will benefit from early integration into considerations as part of cable routeing processes. It is essential that in developing a Cable Management Plan (CMP) and Cable Risk Mitigation Plan that wider environmental constraints such as habitat and species sensitivities and underwater cultural heritage are taken into account as they have the potential to be negatively impacted by cable management options.

Assessment and Discussion:

As part of alternatives development for any project, cable routing will first and foremost strive to avoid conflict with sensitivities including fisheries. Beyond that, cabling techniques will be explored in the context of the receiving environment, its overall sensitivities and the possibilities for recoverability. This consideration for cable routing must be bespoke to cables as the risks are different compared to array areas. A similar constraints analysis approach to that carried out to inform development of the broad Maritime Areas for this draft SC-DMAP, applying a risk rating specific to cabling could be implemented as part of route analysis. While no cable routes or corridors are included in the SC-DMAP, this constraints analysis work will serve to inform developers and stakeholders at early routing stage about the risks to different receptors and where balance has to be achieved. The Cable Risk Mitigation Plan will be part of any development permission application involving the laying of cables within the SC-MAP area; any such development permission application would be subject to environmental assessment including EIA and AA as per the requirements of Policy MI 2 SC-DMAP and any existing regulatory or policy requirements. It is acknowledged that these plans will be part of any development permission application involving the laying of cables within the SC-DMAP area; and any such development permission application would be subject to environmental assessment including EIA and AA as per the requirements of Policy MI 2 SC-DMAP and any existing regulatory or policy requirements.

Mitigations

- General - It is noted in the Difficulties Encountered section of the SEA Report that data on fishing activity by vessels less than 12 m is not accurate due to the manner in which it is reported. In order for a plan led approach to avoid impacts on fishers in the first instance, accurate information on where and what is being harvested is required. It is therefore recommended that this information is collated and recorded to inform future decision making.

8.2.14 Policy Objectives for Tourism

Ref.	Objective
T 1	To support and facilitate coexistence between ORE development and a thriving tourism sector subject to carrying out statutory environmental assessment at plan and project level for these activities as required (which may include SEA, EIA and/or AA) and the outcome of planning and / or licensing processes as relevant.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
T1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

T1 recognises the need for ORE development to coexist alongside tourism. Tourism is an important indigenous economic industry in Ireland and coastal tourism opportunities in particular are a significant draw for tourists as evidenced by initiatives such as the Wild Atlantic Way. Failte Ireland reported in 2022 that the estimated tourism expenditure arising from domestic tourism alone in the south east region was €381 million and in the south west region €665 million. Tourism as a cross-cutting sector has potential to interact with OW developments across a number of factors, notably LandSeaS; W; BFF; PHH; and MA.

Objective T1 aims to support and facilitate the co-existence of a thriving tourism sector alongside the ORE developments foreseen under the SC-DMAP. This will have indirect positive effects for PHH by recognising the importance of the coastal and marine resource for tourism and recreation and ensuring that access and services which underpin the tourism offering are accounted for in plans and projects related to the SC-DMAP. There is also indirect positive impacts for MA as T1 supports a thriving tourism sector and the employment and opportunities that brings for the coastal areas along the SC-DMAP and the wider hinterland of the southern region.

The T1 objective further acknowledges that tourism can have direct and indirect effects across a range of environmental factors in and of itself hence the support is qualified by reference to carrying out statutory environmental assessment at plan and project level for these activities as required (which may include SEA, EIA and/or AA) and the outcome of development permission and / or licensing processes as relevant. This is considered broadly positive across all the SEOs, particularly for BFF, W, LS CH and LandSeaS as potential impacts can be described, assessed and if required mitigated in line with the mitigation hierarchy to ensure sustainable development which takes account of impact

Assessment and Discussion:

pathways and importantly the potential for cumulative effects. Early environmental considerations related to co-existence of tourism activities can help avoid any potential conflicts or competition for space.

Mitigations

- None proposed.

8.2.15 Policy Objectives for Telecommunications

Ref.	Objective
TEL 1	The SC-DMAP supports the principle of coexistence of ORE development with digital telecommunications infrastructure, subject to carrying out statutory environmental assessment at plan and project level (which may include SEA, EIA and/or AA) and the outcome of planning and licensing processes as relevant. No exclusions should be placed on the deployment, operation or maintenance of subsea telecommunications cables within or around ORE developments or the associated cabling, unless required for safety or environmental reasons. Project route selection for ORE cables should seek to avoid the need for exclusions in the first instance and projects should consult with service providers to understand limitations on their existing infrastructure.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
Tel 1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Marine digital telecommunications connectivity underpins Ireland's competitiveness in global markets and in the knowledge and information economy. Despite being out of sight, it is critical infrastructure, and it is anticipated additional subsea telecommunications cable infrastructure will be required over the coming years, to meet demands. Objective **Tel 1** recognises the need for ORE development to coexist alongside digital telecommunications infrastructure if both critical pieces of infrastructure are to be delivered. This will have indirect positive effects for PHH and MA in particular as it lays the groundwork to ensure that both pieces of infrastructure can be delivered. Notwithstanding that, there is also a recognition in Objective Tel 1 that the co-existence can only be achieved through the prism of statutory environmental assessment at plan and project level for these activities as required (which may include SEA, EIA and/or AA) and the outcome of development permission and / or licensing processes as relevant. This is considered broadly positive across all the SEOs, particularly for BFF, W, CH and LS as application of these statutory processes at subsequent tiers of planning will ensure that there is a cascading consideration of impacts and mitigation as plan and project detail emerges. This affords further opportunities to identify, describe, and assess impacts as increasing detail is developed and if required mitigate in line with the mitigation hierarchy to ensure sustainable development which takes account of impact pathways and importantly the potential for cumulative effects. Early environmental considerations related to co-existence of digital telecommunications infrastructure activities can help avoid any potential conflicts or competition for space.

While the Objective seeks to avoid exclusions on the deployment, operation or maintenance of digital telecommunications infrastructure in the first instance which is positive for MA, there is a clear recognition that this must be in the context of safety or environmental concerns which will have broadly positive effects for the achievement of all SEO. It is noted that the constraints analysis undertaken to support the identification of the Maritime Areas for the SC-DMAP have taken the location of sub-sea cables into account alongside the wider environmental and safety factors considerations. Route section as referenced in the objective, provides another tool at project level to further avoid conflicts in an holistic manner.

Mitigation

- None proposed.

8.2.16 Policy Objectives for Marine Archaeological and Cultural Heritage

Ref.	Objective
AH 1	ORE surveys, site investigation and development, including associated ORE and transmission infrastructure, should, where relevant, include measures to protect underwater archaeological and cultural heritage in the SC-DMAP area and: (a) Comply with the National Monuments Act as amended, and the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 when commenced and have regard to guidance of the National Monuments Service for assessment(s) to avoid and mitigate impacts with marine archaeological and cultural heritage features. (b) Undertake early consultation with the Underwater Archaeology Unit of the National Monuments Service and engage qualified archaeologist(s) to prepare assessments including an Underwater Archaeological Impact Assessment and Archaeology Management Plan as relevant. (c) Support the protection of onshore archaeological, architectural, and cultural heritage in terrestrial plans and projects in the development of associated onshore infrastructure to enable ORE sites in the SC-DMAP area.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
AH 1	+	0	0	0	0	0	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The draft SC-DMAP recognises that Ireland's coastal and marine area possesses a wealth of cultural and archaeological heritage.

AH 1 seeks to protect the site and setting of this marine and coastal heritage. The various elements of the policy objective – compliance with legislation, consultation and the integration with onshore built heritage – set a framework for developments arising from the SC-DMAP to manage risk to underwater archaeology in particular and built heritage more generally. This will be achieved by ensuring that robust planning and environmental assessment processes are put in place, that the Underwater Archaeology Unit (UAU) of the National Monuments Service (NMS) is consulted and that advice, guidance and assessment is carried out by suitably qualified professionals and that the impact to terrestrial based built heritage is taken into account when locating / planning for onshore supporting infrastructure. This will have indirect positive effects for PHH and for CH by ensuring these features can be accounted for in evolving designs. Indirect positive impacts are also anticipated for PHH, LandSeaS and MA and also for PHH and MA through the support of tourism and recreation based on heritage through the support of tourism and recreation based on heritage.

The policy objective could be further enhanced by recognizing the importance of CH considerations in route and site selection for both the marine based infrastructure and also for landfall points, grid routes and substation sites. In many cases historical connectivity will exist between marine and land based features and this will need to be factored into assessments at route and site selection stage to ensure the opportunity for avoidance of impacts is maximized.

Mitigation

- Inclusion of text referencing the importance of considering underwater archaeology and built heritage in route and site selection processes should be included.

8.2.17 Policy Objectives for Land and Sea Interactions

Ref.	Objective
LS 1	The SC-DMAP supports the coordination of land and sea interactions and the alignment of terrestrial plans and policy at national, regional, and local level that deliver sustainable onshore infrastructure to enable

	offshore wind energy in the SC DMAP area. This support is subject to the carrying out of all statutory environmental assessments at plan and project level (which may include SEA, EIA and/or AA), cumulative and in-combination assessment of plans and projects and the outcome of planning and / or licensing processes as relevant.
LS 2	The SC-DMAP supports the location and siting of onshore infrastructure, enabling ORE within the SC-DMAP area, which takes into account the risks associated with coastal change and flooding, avoids locations that are most at risk such as areas where managed retreat may be necessary and are in accordance with Local Authority Development Plans and Coastal Change Management Plans.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
LS 1	+	+	+	+	+	+	+	+	+
LS 2	+	0	0	+	0	+	+	0	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The effective coordination of land and sea interaction in land use planning and policy across national, regional, and local level as articulated in **LS 1** is essential to the delivery of the ORE ambitions laid out in Government Policy, in the Climate Act (2015) as amended and the CAP. Notwithstanding this, Policy Objective LS 1 acknowledges that there will be potential impacts from supporting infrastructure such as ports and grid and this will require statutory environmental assessment at plan and project level (SEA, EIA and AA) and will be subject to the outcome of planning and / or licensing processes as relevant. An acknowldgement of qualification of support subject to this proper planning and assessment is considered broadly positive for all environemntal receptors as it will ensure these matters can be robustly considered by the Local Authorities and Competent Authorities as projects arise.

Policy Objective LS 2 addresses the issue of challenges of climate change for coastal communities in terms of coastal erosion and sea-level rise resulting in increased frequency of coastal flooding and erosion. It is recognised that a more proactive management approach is required or coastal local authorities. Policy Objective LS 2 supports the location and siting of onshore supporting infrastructure to reduce the risks associated with coastal change and flooding by increasing the resilience of the infrastructure but also aligning with the relevant Local Authority Development Plans and Coastal Change Management Plans where prepared. This will have indirect positive effects in the medium to long term on PHH, W and MA in particular where risks can be reduced through appropriate siting and measures can be integrated into designs. The role for route and site selection is again noted as a key stage in which risks can be removed or reduced is adequate consideration is given to such matters.

Mitigations

- None required

8.2.18 Policy Objectives for Ports and Harbours

Ref.	Objective
PH 1	The SC-DMAP supports, in accordance with national policy, the alignment of terrestrial planning with marine planning at regional and local level to provide for the sustainable development of port infrastructure that enables the development of ORE within the SC-DMAP area. This support is subject to the carrying out of the requisite statutory environmental assessments at plan and project level (which may include SEA, EIA and/or AA) and the outcome of planning and / or licensing processes as relevant.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
PH 1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

Irish ports are a key facilitator of economic development. They support regional, national and international movement of people and goods. Their strategic development is supported by National Ports Policy which is currently under review and subject to both SEA and AA processes. Furthermore their development is also supported through the NPF (NPO 40 which seeks to ensure that the strategic development requirements of Tier 1 and Tier 2 Ports, ports of regional significance and smaller harbours) which is also currently under review and subject to both SEA and AA processes. In the context of the draft SC-DMAP there are a number of key ports adjacent and / or in proximity to the SC-DMAP including Cork, Shannon Foynes, Waterford and Rosslare. All represent strategic infrastructure not only for the local economies but also for the wider regional hinterland. The importance therefore of alignment with terrestrial planning to ensure their sustainable development to support OW development is therefore key and will need to be reflected through the Southern Region RSES and the local authorities which are within the hinterland of these ports.

PH 1 acknowledges the need for the alignment of terrestrial and marine planning in order to ensure sustainable development of the ports can take place. This will have indirect positive effects for PHH and MA, recognising both the importance of ports to regional economies and the essential role they play they can play in delivery of OW. This objective will also have indirect positive effects for MA and CF as it contributes to the transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050 and furthermore support marine material assets and resources by maximising opportunities for co-location and co-benefits. There is also direct benefits to PHH and MA from supporting supply chain logistics trade, tourism, and local employment through all lifecycle stages of OW development.

Notwithstanding these benefits, ports and harbours do have potential for negative effects, particularly where they may need to expand or enhance current offerings in order to provide commercial support for developments coming out of the SC-DMAP. These negative effects include potential for increased noise and disturbance associated with intensification of activities or introduction of noisier activities impacting negatively on PHH and BFF that may be in the area. It is important to note that much of the coastline around harbours and ports in the south of Ireland are designated as European sites and include bird and mammal species that could be disturbed by certain types of noise (see NIS for further details). Water quality (W) may also be impacted negatively through release of fuel and other waste product pollutants and by disturbance of contaminated sediments which often occur near ports and harbours. Increased marine litter is also a potential effect as activity increases. Collision risk to birds and mammals, recreational users and commercial users may also increase with intensification of activity. Shipping movements required to service construction and operation & maintenance stages of OW developments also have potential to contribute to deterioration in air quality (AQ) (in particular SO2 and particulates). The fact that the objective includes a qualification of support for ports as subject to the application of statutory environmental assessments at plan and project level and the outcome of development permission and / or licensing processes is a recognition of this and is welcomed. This will ensure broadly positive effects for all SEOs, particularly for BFF, W, LS CH and LandSeaS as potential impacts can be described, assessed and if required mitigated in line with the mitigation hierarchy to ensure sustainable development which takes account of impact pathways and importantly the potential for cumulative effects. Early environmental considerations related to ports and harbours can help avoid any potential conflicts or competition for space. Application of mitigation from the SEA and AA processes ongoing on the National Ports policy and the NPF alongside the mitigations included in the SC-DMAP will together form the top of a series of cascading protections which will ensure sustainable projects are brought forward for planning.

Mitigations

- None required.

Recommendation

- Supporting text on Ports and Harbours should include an explicit reference to the Guidance document on the implementation of the Birds and Habitats Directive in estuaries and coastal zones with particular attention to port development and dredging, European Commission (2011). This should also be added to the list in Appendix D which is related to Policy B1 biodiversity.

8.2.19 Policy Objectives for Shipping

Ref.	Objective
S 1	Applications for development in the SC-DMAP area and associated survey applications should be subject to consultation with port and harbour authorities and the Maritime Safety Directorate prior to submitting planning or licence applications and any consequent surveys or works and shall comply with all required Marine Notices to avoid any disruption to shipping lanes in the SC-DMAP area.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
S 1	+	0	0	0	0	0	+	0	0

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

In the first instance, the Maritime Areas identified for OW deployment in the SC-DMAP have sought to avoid the areas of highest density shipping traffic. Further shipping and navigation studies at project level planning stage will also be undertaken to inform site specific assessments to protect shipping routes and navigation safety further when project specific detail is developed.

S1 supports this further by requiring consultation with port and harbour authorities and Maritime Safety Directorate prior to the submission of any planning or licence applications, for any proposed offshore wind projects and associated surveys and infrastructure works, along with compliance with Marine Notices for any consequent surveys or works, within the area of SC-DMAP.

This consultation requirement will have indirect positive effects for MA in particular and PHH also as it will ensure that there is no disruption caused to the shipping services as a result of such projects. It will also enhance the overall planning, safety from navigational hazards, and sustainability of offshore wind projects within the SC-DMAP, contributing to the responsible development of renewable energy resources while safeguarding other maritime activities. Consultation with port and harbour authorities and the Maritime Safety Directorate will also contribute to achieving co-existence as articulated under policy objectives CO 1 and CO 2 which promote this co-existence between ORE and other existing and future uses within the SC-DMAP.

Mitigations

- None proposed.

8.2.20 Policy Objectives for Transmission System Infrastructure

Ref.	Objective
ETS 1	To prioritize the sustainable development of offshore and onshore transmission infrastructure that supports and enables the sustainable development of offshore wind capacity within the SC-DMAP area, which is considered to be of critical and strategic importance. This objective relates to the development of transmission infrastructure for both grid-connected and non-grid connected ORE projects, as well as projects seeking to connect to another country(s) via hybrid-interconnection.
ETS 2	To support the integration and alignment of terrestrial planning with marine planning at regional and local level that provides for the sustainable development of transmission infrastructure to enable ORE development in the SC-DMAP area. This support is subject to the carrying out of statutory environmental assessment at plan and project level (which may include SEA, EIA and/or AA) and the outcome of planning and / or licensing processes as relevant.
ETS 3	To avoid, minimise and mitigate potential associated adverse environmental and social impacts and reduce development costs, existing offshore and onshore infrastructure required to connect offshore wind generation to the onshore electricity system should be utilized to as great an extent as possible, with additional provisions for future proofing offshore transmission assets.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
ETS 1	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-	+/-
ETS 2	+	+	+	+	+	+	+	+	+
ETS 3	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The objectives presented under electricity transmission collectively acknowledge the importance of related transmission infrastructure in achieving the ORE ambitions of Government. Without a pathway to connection, be that grid connected, non-grid connected or other hybrid-interconnection, targets cannot be reached in the timelines required. For Phase 1 projects, it has been determined that the connection solutions will be delivered by developers however for Phase Two projects, at least in the short term, the transmission system assets, including export cables and offshore sub-stations required for connection will be delivered by the TSO – EirGrid. This will provide for the development of fixed offshore wind with an installed capacity of up to 900 MW, in order to maximise utilisation of existing available onshore transmission system capacity.

Prioritisation of sustainable development of offshore and onshore transmission infrastructure as stated in ETS 1, is considered directly positive for CF and MA by ensuring that climate targets and the national climate objective can be reached. It is also indirectly positive for AQ and PHH which will benefit from the shift away from polluting fossil fuels used in heating, transport etc. As with the main components of ORE developments, offshore and onshore transmission infrastructure has potential for both positive and negative effects on the receiving environment and as such, there is potential for indirect positive and negative effects for all SEOs as a result of the ETS 1. Notwithstanding the reference to sustainable development, key components of transmission infrastructure - overhead lines, underground cables, substations, sub-sea cables etc. – present risk of impacts to all environmental factors during construction and / or operation. As such, constraints analysis, site selection and route analysis will be critical processes to ensure robust consideration of avoidance of impacts is achieved to the greatest extent possible. EirGrid, as TSO, has a clear roadmap for plan and project development which is supported by environmental assessment (SEA, EIA and AA) and stakeholder engagement and as such, it is anticipated that this, when applied to plans and projects relating to development of transmission infrastructure to support the ORE development in the SC-DMAP will ensure the delivery of sustainable infrastructure. Similar requirements will be needed to apply beyond the short term, especially if EirGrid does not remain the main transmission system infrastructure developer. Similarly, the commitments under OEP 1-3 must be applied in the context of ETS 1 if adverse effects are to be avoided.

ETS 2 aims to support the integration and alignment of terrestrial planning with marine planning at regional and local level to ensure sustainable development of transmission system infrastructure that can support OWE development in the SC-DMAP. This is broadly positive across all SEOs over short to long term as this cohesive planning will ensure development of resilient energy systems by diversifying energy sources and transmission pathways while ensuring robust consideration of the interface with the marine resource and the communities and stakeholders that depend on the stated support for the application of environmental assessments at plan/project level is noted and welcomed as a key mechanism under which environmental issues can be identified, described, assessed, and mitigated to avoid significant effects on both terrestrial and marine ecosystems.

ETS 3 is broadly positive for all environmental factors over short to long term as it seeks to use / re-use existing infrastructure as far as possible which aligns with circular economy and sustainable use of resource principles. the objective as stated reduces the potential for unnecessary greenfield development which has potential to remove / disturb environmental receptors including BFF, W, PHH, LandSeaS, and CH for leveraging existing onshore electricity systems and future-proofing offshore transmission assets will also enhance reliability and resilience to future challenges with direct positive impacts for MA and PHH.

Mitigations

- None proposed.

8.2.21 Policy Objectives for Economic and Employment Growth Potential

Ref.	Objective
EC 1	The SC-DMAP supports actions under Government's Offshore Wind Industrial Strategy (2024) and through regional and local level plans that support research, innovation, skills development, enterprise, jobs growth and the sustainable development of economic clusters in the offshore renewable energy sector to support the development and operation of ORE projects in the SC-DMAP area. This support is subject to carrying out of all statutory environmental assessment at plan and project level (SEA, EIA and AA) and the outcome of planning and / or licensing processes as relevant

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
EC 1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

EC 1 supports the delivery of actions within The Offshore Wind Industrial Strategy (2024). The overarching objective of the strategy is to ensure that Ireland maximises the economic benefits associated with government targets to deliver 37GW of offshore wind by 2050. The strategy addresses issues such as supply chains, building cooperation and research, development and investment (RD&I). These issues are fundamental to Ireland achieving its OWE targets. Support for the strategy will have indirect positive effects for PHH, MA and CF as the strategy seeks to remove roadblocks to achievement of Ireland's OWE targets while supporting generation of jobs and enterprise growth. This will be particularly important for PHH and MA along the south coast. The broad strategy also addresses skills and training which will be essential to maximising jobs and growth for the region and will have long term positive effects for PHH and MA. Notwithstanding that, as with all development and in particular clustering of economic activity in locations must be mindful of potential for negative impacts from construction and operation. County development plans and local area plans will be essential to identifying suitable locations with appropriate servicing to ensure significant negative effects can be avoided in the first instance and migrated where necessary. The qualification of support for the actions being subject to carrying out of all statutory environmental assessment at plan and project level (SEA, EIA and AA) and the outcome of development permission and / or licensing processes as relevant is a positive inclusion in the policy objective ensuring broad indirect positive effects for all environmental receptors.

Mitigations

- None required

8.2.22 Policy Objectives for Commitment to On-going Local and Regional Community Engagement

Ref.	Objective
CE 1	To facilitate continued engagement with South Coast stakeholders, including local coastal communities and fishers, holders of a MAC in the SC-DMAP Maritime Areas should prepare and publish a Public Engagement Plan concerning all matters relating to the Permitted Maritime Usage.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
CE 1	+	+	+	+	+	+	+	+	+

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

Assessment and Discussion:

The preparation of the draft SC-DMAP has been informed by a wide-reaching process of public engagement since summer 2023 which has included a multi-faceted approach of social media, other media, face to face meetings, workshops and open days. This was outlined in a Public Participation Statement, which has been regularly updated to outline anticipated opportunities for public engagement throughout establishment of the plan. The approach has been prepared with the intention of providing as many avenues as possible for interested stakeholders to engage in the process of preparing the draft SC-DMAP. Engagement has raised issues relating to fisheries, biodiversity enhancement, local and regional economies, visual impacts, proximity to shore and governance among others. These have in turn been addressed through the draft plan and the SEA and AA which are accompanying the draft plan. This engagement will continue through the statutory consultation stage which will follow the publication of the draft SC-DMAP and environmental assessments.

The policy objective **CE 1** commits to longer term engagements which will continue post adoption of the SC-DMAP. It supports that the development of offshore wind within the SC-DMAP will require continued comprehensive and regular engagement by Government, EirGrid and developers of proposed offshore wind infrastructure with regional and local communities, as well as other key stakeholders and sectors. As such, policy objective CE 1 will have indirect positive impacts in the short to long-term for PHH and MA in particular but also the wider environmental ensuring there is a framework within which environmental and social protections can be discussed, debated and resolved. The requirement for holders of a MAC in the DMAP Maritime Areas to prepare and publish a Public Engagement Plan is another positive element to policy objective CE 1. Such a plan can promote transparency and stakeholder involvement, with direct positive effects in the short to long-term for PHH expected. Such a plan will also set the framework for dynamic consultation and provide a grounding for consensus building with communities based on communication and trust built up over the life time of the project. Effective communication, collaboration, and dynamic responses during the construction, operation and maintenance phases will be essential to navigate conflicts and achieve the desired balance between environmental protection, economic development, and social equity in relation to offshore wind energy development.

Mitigation

- None proposed.

Recommendations

- CE 1 would benefit from a guidance note on minimum standards for developers to ensure they provide a minimum standard of detail. Further clarity on when this plan is to be prepared and if it were part of the Planning Pack would also add clarity to the policy objective.

8.3 Spatial Assessment of Sites

The purpose of the draft SC-DMAP is to outline the spatial framework and principles to plan for future offshore wind developments off the south coast. It informs the parameters that will be essential to the preparation of project level designs and assessment in due course. By its nature the SC-DMAP is a strategic document which is one of a series of building block for a tiered planning system from the National Marine Planning Framework, to the DMAP and, from this point, there will be further integration with County Development planning tiers before reaching project level. The SC-DMAP does not, in and of its own right, confer planning permission for any specific development but rather guides the subsequent tiers of planning in their more detailed decision making.

As described in section 7.4.6 of this report, a robust constraints analysis of technical and environmental data was undertaken for the identification of broad Maritime Areas within the draft SC-DMAP proposal area. The identification of spatial areas was carried out by BVG Associates (BVGA) and Gavin & Doherty Geosolutions (GDG) and supported by RPS, on behalf of DECC. For a detailed description of the process the reader is directed to section 7.4.6. Supporting reports are also available on the consultation webpage https://www.gov.ie/southcoastdmap/. The four broad areas, known as Maritime Area A-D, in Figure in **Figure 8.1** have been identified as those marine areas considered most suitable for future deployments of fixed offshore wind within the wider geographical area of the SC-DMAP. The assessment is desk based and has been carried out with reference to best available data sets and publicly available information.

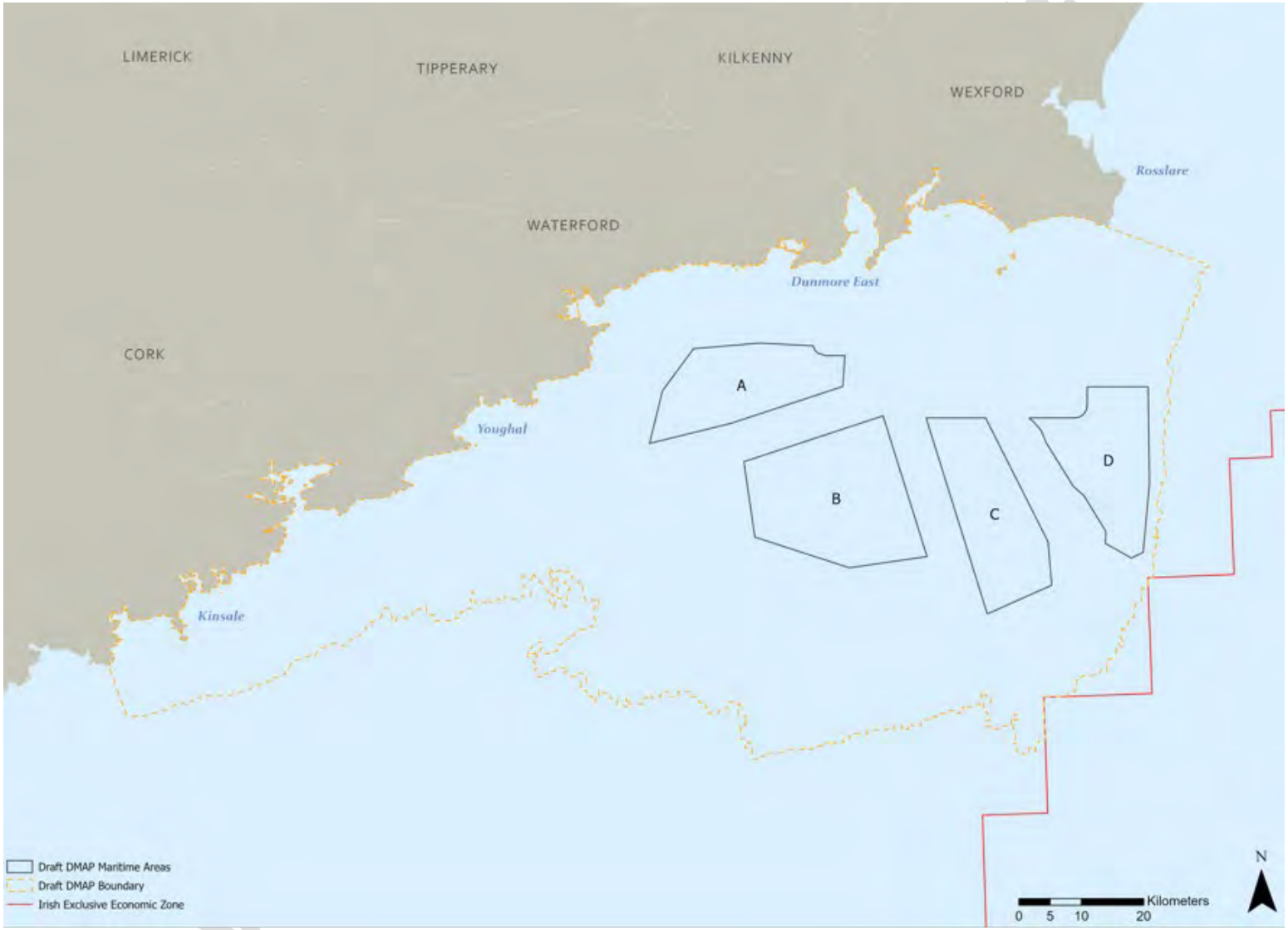


Figure 8.1: Maritime Areas Identified as Part of SC-DMAP

8.3.1 Description of Maritime Areas

Maritime Area A: Area A is situated off the coast of County Waterford and encompasses a total marine area of 312.6 kilometres (km)². The distance to shore varies from between approximately 12.4 km along the western boundary to 12.5 km along the northern boundary. Area A has a mean water depth of 57 metres (m), with a minimum water depth of 48 m and a maximum water depth of 69 m, giving an overall range of 21 m. The average wind speed in the area is estimated to be 10.4 m per second (s). With a typical density of 4.5 MW/km^2, a 900 MW development would use 65% of the total marine space within Area A. The spatial flexibility provided will allow for windfarm layout and project boundaries to be adjusted in accordance with further required measures identified in the draft DMAP in order to address potential adverse environmental impacts. However, the scale and location of this deployment will be contingent on a range of additional factors, including further project level environmental assessments and technical analysis. Area A is identified as the proposed location of a single fixed ORE deployment with an installed capacity of approximately 900 MW. It is proposed that this project will be developed by the winner of Ireland's second offshore wind auction, known as ORESS 2.1, currently scheduled to commence in late 2024 or 2025.

Maritime Area B: Area B is situated off the coast of County Waterford and has a total area of 485.8 km², with distances to shore varying approximately between 24.1 km along the western boundary and 30.2 km along the northern boundary. Area B has a mean water depth of 71 m with a minimum water depth of 66 m and a maximum water depth of 76 m, giving an overall range of 10 m. The average wind speed in the area is estimated to be 10.4 m/s. An initial estimate is that this Maritime Area could potentially facilitate a fixed offshore wind project with a realistic installed capacity of between 1.4 to 2.0 GW. With a typical density of 4.5 MW/km^2, such a project would use 64 to 91% of the Area.

Maritime Area C: Area C is situated off the south coast of County Wexford and has a total area of 341.4 km². The distance to shore varies approximately between 26.6 km along the western boundary and 27.2 km along the northern boundary. Area C has a mean water depth of 69 m with a minimum water depth of 64 m and a maximum water depth of 72 m, giving an overall range of 8 m. The average wind speed in the area is estimated to be 10.4 m/s. An initial estimate is that this Maritime Area could potentially facilitate a fixed offshore project with an installed capacity of 1 to 1.4 GW. This is based on a typical density of 4.5 MW/km^2, and utilisation of 65% to 91 % of the total Area.

Maritime Area D: Area D is situated off the south coast of County Wexford and has a total area of 304.3 km². The distance to shore varies approximately between 31 km along the western boundary and 25.8 km along the northern boundary. Area D has a mean water depth of 67 m with a minimum water depth of 55 m and a maximum water depth of 78 m, giving an overall range of 23 m. The average wind speed in the area is 10.4 m/s. An initial estimate is that this Maritime Area could potentially facilitate a fixed offshore project with an installed capacity of 0.9 to 1.3 GW. With a typical density of 4.5 MW/km^2, such a project would use 65 to 95 % of the Area.

8.3.2 Assessment of Maritime Areas

Constraints analysis of the wider SC-DMAP has to a large extent avoided known environmental sensitivities and coastal waters entirely. In addition, the following assessment is undertaken in the context of the wider draft policy base which includes further environmental protections which limit the range of significant effects possible in relation to the draft defined Maritime Areas A-D.

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
Marine Area A	+/-	0/-	0/-	0/-	+/-	+	+/-	0/-	0/-
Marine Area B	+/-	0/-	0/-	0/-	+/-	+	+/-	0/-	0/-

Ref.	PHH	BFF	LS	W	AQ	CF	MA	CH	LandSeaS
Marine Area C	+/-	0/-	0/-	0/-	+/-	+	+/-	0/-	0/-
Marine Area D	+/-	0/-	0/-	0/-	+/-	+	+/-	0/-	0/-

***Key**: **PHH:** Population & Human Health; **BFF:** Biodiversity, Flora & Fauna; **LS:** Land & Soils/Sediments; **W:** Water; **AQ:** Air Quality; **CF:** Climatic Factors; **MA:** Material Assets; **CH:** Cultural Heritage; **LandSeaS:** Land/Seascape.*

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Population and Human Health (PHH)

The increased development and rollout of offshore renewable energy will have cumulative positive benefits over the longer term in terms of direct effects such as offsetting need for fossil fuel in electricity generation/heating, and indirect positive impacts over the longer term for AQ and HH which can be expected from decreasing demand from solid fuel burning and particulate/nitrogen dioxide emissions. There are also indirect positive impacts to economic aspects, for example positive effects in the medium and longer term during the survey, construction and operation/maintenance phases of wind farm via the increased use of the area for provisioning, worker accommodation, and increased potential for training and employment opportunities.

The potential for negative impacts for PHH arising from offshore wind farm development across any of the Maritime Areas is likely to be limited as the four areas are located beyond the normal tourism and recreational areas, which typically occur within 5 km / 2.6 NM of the shore. There is potential for short term temporary indirect disturbance effects during the construction and installation phase of associated infrastructure components, such as the export cable at landfall locations.

In terms of tourism and recreational aspects, the primary interaction with any of the Maritime Areas relates to recreational sailing routes from nearby ports and harbours in and around the south coast area, which comprise popular routes where recreational craft can be seen at most times during summer daylight hours, with a medium level of intensity. The routes intersect with Maritime Area A. The majority of these routes are coastal however and due to the typical sailing season are restricted to the spring to autumn period (generally April to October, weather dependant). The impacts to such routes from development in any of the Maritime Areas is likely to be limited and localised, providing that there are clear communications implemented during all stages of project development e.g. notifications related to project activities and necessary clearances.

There is potential for some long term permanent negative impacts in relation to effects on views and visual amenity from the presence of operational wind farm infrastructure (see also Landscape and Seascape below).

Biodiversity, Flora and Fauna (BFF)

Constraints analysis of the wider SC-DMAP has to a large extent avoided known ecologically important features as far as possible in defining the Maritime Areas shown. However, notwithstanding that, there remains risks to BFF from development of OW in these areas both from the array and from the supporting infrastructure such as cables which will be required to support and connect arrays in both the offshore and onshore space.

None of the Maritime Areas overlap with designated (including European) sites, and there are currently no other areas designated as Marine Protected Areas (MPAs) in Irish waters. However, under Article 12 of the Habitats Directive, Annex IV species are protected wherever they occur; mobile species such as basking sharks, turtles and other megafauna are known/ have been previously sighted transiting through the area of all four Maritime Areas, with a large range of foraging movements and hearing bandwidths. The most common fauna recorded across all Maritime Areas include: common harbour porpoise, fin whale, minke whale, grey seal, harbour seal, leatherback turtle. Humpback whales likely transit throughout the DMAP area. Bottlenose dolphin and Risso's dolphin are most commonly recorded off Cork, Waterford Harbour and

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off Wexford coast. Pilot whales have been recorded within the northern section of Maritime Area A. Basking shark has been recorded all around the coast; while not an Annex IV species, it has been afforded greater level of protections.

As previously mentioned, none of the Maritime Areas overlap with any European sites, however there are many notable SPAs designated for seabirds in the vicinity of the draft SC-DMAP proposed boundary. The SC-DMAP area supports these seabirds at various stages of their life cycle, such as breeding, foraging and migrating. In addition to these seabirds, the SC-DMAP has the potential to be supporting other species of migrating SCI birds, passing through the area on their migration routes.

All of the Maritime Areas overlap to some degree with the spawning and/or nursery grounds for a variety of commercially valuable fish species (with the exception of the hearing-sensitive herring). The Marine Institute (MI) have undertaken a preliminary analysis of the fishing and shellfish grounds and commercial fishing activities for the proposed SC-DMAP Maritime Areas and noted that the potential impacts to these areas is unlikely to be severe to the stocks as a whole.

In terms of the benthic substrate, circalittoral rock and biogenic reef is present all around the coast of Ireland and is characterised by animal dominated communities. However, the character of the fauna off the south coast varies enormously and is influenced mainly by wave action, tidal stream strength, salinity, turbidity, the degree of scouring, and rock topography. Where highly sensitive habitats occur outside the boundary of a designated site (such as reefs) these should be avoided in the first instance, as installation of offshore infrastructure over reef habitat will lead to permanent habitat loss, and there is potential for such habitats to be designated in the future as Marine Protected Areas (MPAs).

The Marine Evidence based Sensitivity Assessment (MarESA) approach was considered when generating the constraints and heat mapping that informed the delineation of the proposed Maritime Areas, to determine the degree of sensitivity/resilience of each of the dominant habitats present to disturbance and degree of recoverability. The eastern and southern section of Maritime Area A and the northern section of Maritime Area C overlaps with patches of benthos that have been designated as offshore circalittoral rock and/or biogenic reef; this is a habitat type with a high degree of sensitivity to disturbance and low resilience/recoverability rates. This means that siting of turbines and or cables over these sites would result in permanent habitat loss. It is recommended that the larger and more cohesive section to the north-east of Maritime Areas A is avoided where possible, and micro-siting conducted for other areas within the site. Sections of Maritime Area A also overlap with a scallop bed. Micro-siting will be important for projects in this location.

The predominant habitats that are found in Maritime Areas B and C comprise offshore circalittoral coarse sediment, and offshore circalittoral sand which have a low degree of sensitivity with a high degree of resilience to disturbance and rapid recoverability rates. The southern section and south-western section of Maritime Areas B and C respectively overlap with the northern areas for a commercially important scallop bed. Micro-siting will be important for projects in this location.

Maritime Area D is located on offshore circalittoral sand with patches of offshore circalittoral coarse sediment due to its location off the south coast, however as this area is subject to strong and variable tidal streams as well as storm influences means that the deposition and erosion of the sands is in constant flux/movement, and it would be considered a disturbed habitat. The presence of turbines in this area may therefore have an impact on scouring and deposition rates.

In summary, for any offshore development, there is potential for short, medium and long term, direct and indirect, temporary and permanent, and cumulative impacts on BFF. There are various pathways for impact and can include for instance: permanent loss of benthic/seafloor habitat; sediment plumes generated during intrusive surveys, construction and decommissioning activities, with potential effects arising on water quality or from smothering effects; displacement to fauna such as mobile species (e.g. whales and diving birds) and from exclusion from breeding, spawning/nursery, feeding or foraging grounds; and disturbance effects such as noise and vibration generated from surveys and infrastructure installation such as foundation piling, as well as from the physical presence of infrastructure and vessel movements during all stages of a project's

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development. The presence of additional vessels and the physical presence of wind turbines can give rise to potential vectors or stepping-stones for the introduction of non-indigenous or invasive species.

The installation of fixed wind turbines will result in a permanent change to the seabed morphology, hydrographical conditions, habitat loss/alteration to marine biodiversity and could in the absence of appropriate mitigation exclude certain fishing activities within the windfarm array area itself. The presence of a wind farm may however over time give rise to indirect and secondary positive impacts for BFF in terms of new infrastructure providing shelter/refuge/pseudo-nursery for species via the 'artificial reef effect', where fish and shellfish species may proliferate, which would have a knock-on positive effect for marine biodiversity, food webs and seabed integrity. The physical presence of offshore wind farms may also however have an impact on migratory and foraging patterns of marine mammals, fish, birds.

Due to the use of the general south coast area by marine mammals, megafauna, pelagic species, and commercial fisheries, interactions with these receptors will be unavoidable.

Land & Soil / Sediment (LS)

In terms of LS, the key pathways for negative impacts in the marine environment arising from wind farm development in any of the Maritime Areas would relate to changes to marine processes arising from, for instance: altered tidal flow/ wave regimes on the sediment erosion/deposition regimes in coastal areas; increased suspended sediment concentrations and associated deposition (which can arise during the construction and operational stages); from the presence of infrastructure during the operational stage which may lead to changes to wave climate, tidal and littoral currents, and associated changes in sediment transport, as well as increased suspended sediment concentrations and associated deposition. However, these impacts are likely to be localised and mitigation at project level for marine processes generally relates to ensuring appropriate scour protection for turbine foundations. The installation of fixed-bottom wind turbines will result in a permanent change to the seabed morphology, hydrographical conditions, and this may also include impacts on BFF and MA also via benthic habitat loss/alteration to marine biodiversity and exclusion of certain fishing activities within the windfarm array area (refer also to the discussions under Biodiversity, Flora and Fauna, Water and Material Assets).

Water

The objectives of the WFD relate to water bodies out to a distance of 1 nautical mile (NM) and as such there is no direct overlap with any of the Maritime Areas.

Under the MSFD, there are 12 descriptors for achieving or contributing to environmental objectives. Short term temporary negative impacts are likely to arise during the site-specific survey stages, and during wind farm construction, with limited potential for impacts arising from the operation and maintenance phases.

With the undertaking of data-gathering and pre-construction surveys, the key pathways for effect arise from temporary disturbance/impacts from underwater noise, increased vessel movements and disruption to commercial fish and shellfish activities (e.g., commercial fishing activities may be excluded from certain areas during survey activities). During the construction phases, sediment plumes may be generated from the installation of turbines and their foundations, the duration of which will be dependent on the site-specific sediment regimes for a given area (where coarser particles settle quickly, with finer grades remaining in suspension for longer). There is also potential for contaminants to be released via disturbance to seabed sediments during intrusive surveys or during infrastructure installation. Other pathways include the potential for accidental spills to occur from vessels traversing the Maritime Areas during any stage of project development, though the effects of such impacts are likely to short term and temporary, given the dilutive capacity of the offshore environment. However, the application of best practice in the management of fuels, oils etc. on vessels and the appropriate disposal routes of same should avoid these impacts.

There is potential for the generation of electromagnetic field (EMF) effects from e.g., inter-array cabling and other infrastructure. There is potential for indirect negative impacts on BFF to arise as EMF can disturb some

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sensitive marine species as sharks. However, the magnitude and significance of such effects would require project-level considerations.

Air Quality

In terms of AQ (and also PHH), there are medium to longer term indirect positive impacts from the development of offshore wind energy; as increased renewable energy is connected to the grid and offsets the burning of fossil fuels, there is a subsequent reduction in pollutants to the air, or which the key emissions are particulate matter and nitrogen dioxide, and the main sources of which are from vehicle tailpipes and burning of solid fuels for heating.

At the project level, there are short term temporary negative impacts to air quality arising from the construction and decommissioning stages of a wind farm project. There are also impacts to air quality during the operational stage where maintenance vessels may need to traverse to and from a development area at specified intervals; these emissions to air will likely be localised to the Maritime Areas and to the ports used during operation. The nature and scale of such air quality impacts, however, are not likely to lead to significant effects. Over the longer term, there is likely to be cumulative positive impacts arising from development of offshore wind for AQ and also PHH, due to the progressive offsetting of fossil fuel demand as more offshore renewable energy is built out.

Climatic Factors

Ireland's national climate objective is to reach a 51% reduction in emissions by 2030, and to reach climate neutrality by no later than 2050. Related to this is the Climate Action Plan 2023 and draft CAP24 target of up to 80% renewable electricity by 2030. These targets require a build out of renewable energy projects if they are to be achieved. The overall ambition of developing offshore wind within the Maritime Areas is to contribute to these targets, which will also give rise cumulatively to direct, long term positive impacts for CF. Globally, marine environments also play a critical role in carbon sequestration. In the Irish context, the NPWS has conducted a review of benthic habitats and seabed substrates and determined that some have greater potential to sequester carbon e.g. areas with circalittoral mud are more likely to store higher levels of carbon, whereas coarse sediments to sand are less likely to store carbon. Rocky areas or seabed only have negligible potential and are unable to act as a carbon sink. Across the south coast, Maritime Area D overlaps an area classed as having higher sequestration potential, Areas A and C overlap with areas classed mostly as having moderate sequestration potential, and Area B overlaps with areas of both moderate and lower sequestration potential. There is potential therefore for fixed wind farms to variably remove or disturb the ability of sediment, which would have long term indirect permanent negative effects for CF. It should be noted however that this NPWS carbon model is based off broad scale data and that more detailed consideration of this aspect at project level will be required.

At a more macro scale, the transition to green energy underpinning the SC-DMAP proposals must also acknowledge the total life cycle impacts which go beyond the typical pre-construction/ construction/ operation/ decommissioning stages of a wind farm in a local area. The global drive for renewable energy is compelling greater material demands, in particular, for various critical materials including but not limited to rare earth elements (REE), many of which are only in any abundance in other countries where the potential for medium to long term negative implications on environmental and social receptors is already recognised and groups such as the World Bank have begun developing tools to address these challenges e.g., Climate-Smart Mining Initiative. Therefore, while the green energy transition is itself overwhelmingly positive and urgently needed, the transition in general raises issues around supply and demand of the critical materials needed to facilitate the transition now and into the future. Beyond the major elements that comprise a wind farm in terms of, for instance, cement, steel and fibreglass/resins for turbines, other elements are needed e.g. neodymium, praseodymium, dysprosium and terbium, to make the permanent magnets used in turbine nacelles (as well as the traction motors in electric vehicles). The International Energy Agency (IEA) reports that as of 2019, Congo and China produced 70% of the world's cobalt and 60% of the world's REEs

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respectively, with China responsible for almost 90% of the world's refining capacity for RREs.[90] The International Renewable Energy Agency (IRENA) produced a 2023 report into the Critical Materials for the Energy Transition: Rare Earth Elements, looking at supply and demand as well as ways to de-risk the supply chain including investment in research and development of new technologies and designs that might reduce dependency as well as policy responses that support collaborative working and fair long terms pricing for countries that hold the supplies of these materials.

The EC for its part has proposed a Critical Raw Materials Act, and in 2022 and has established a European Raw Materials Alliance (ERMA). The Irish the Government published the *Policy Statement on Mineral Exploration and Mining - Critical Raw Materials for the Circular Economy Transition* (which was subject to SEA and AA). The latter recognises the importance of minerals and mining and how Ireland can contribute to mineral exploration and mining. Greater consideration however must be given to wider factors such as supply chain issues and dependencies/security of supply from third countries, as well as social responsibilities from offsetting the environmental effects of the energy transition to other countries. Clearly research into alternatives is urgently needed along with a policy commitment to ensure sustainable procurement is at the forefront of Irelands transition.

A circular economy plan will be required to accompany applications for OW Development as part of the SC-DMAP to establish the manner in which essential materials can be reused and / or recycled at end of life.

Material Assets

Material assets in the offshore environment relate to receptors such as commercial fisheries, military activity, aviation and other infrastructure such as shipping and navigation routes. There are numerous pathways for impacts to arise from the development of offshore wind farms.

For aviation, impacts can include: cable installation activities at landfall points that may restrict hang gliding and paragliding activities; and the presence of wind turbines may interfere with television signals. For other infrastructure and users of the sea, impacts can include: displacement of recreational sailing, fishing (boat angling), motor cruising, and other recreational activities (e.g. diving vessels), resulting in a loss of recreational resource; displacement of recreational fishing (shore angling) and recreational activities (kayaking, kite surfing, surfing and windsurfing, sea swimming and beach users) along the nearshore and intertidal section during cable-laying activities, resulting in a temporary loss of recreational resource; and potential for increased suspended sediment concentrations and associated deposition affecting other recreational activities (swimming, diving and angling).

Offshore wind farms themselves represent a material asset to the state; their development more generally will contribute to greater renewable electricity generation which will have long term direct cumulative positive impacts for contributing to Ireland's renewable electricity targets, and subsequent contribution to the overall national climate objective. As noted under BFF, the physical presence of offshore infrastructure once installed could potentially lead of indirect positive effects in terms of the artificial reef effects, where infrastructure can provide a refuge/ pseudo-nursery for fish and shellfish.

For commercial fisheries, the pathways for impact can include, during all stages of a project's development: full or partial displacement of fishing activity; potential required changes to fishing activity due to presence of infrastructure; potential for snagging of fishing gear; permanent reduction in available seabed and fishing grounds due to the physical presence of infrastructure; temporary displacement from fishing grounds during e.g. survey activities and from project-related vessel movements.

For shipping and navigation, impacts may include: the presence of project-related vessels transiting to and from their marshalling harbour and operation and maintenance base, and displacement of others vessels from the offshore wind farm array area – this can lead to increased risk of vessel-to-vessel collision; the

[90] IEA (March 2022) The Role of Critical Minerals in Clean Energy Transitions. World Energy Outlook Special Report. Available at: https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/mineral-requirements-for-clean-energy-transitions

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physical presence of wind farm infrastructure or survey devices may lead to vessel-to-structure contact/collision; and the presence of underwater project-related devices and cables may lead to snagging and damage to anchors and/or fishing gear.

Maritime Area A will avoid interaction with the majority of marine material assets. There is partial overlap with shipping and navigation routes, spawning and nursery areas, tourism, and recreation routes (in the form of recreational sailing). The southern boundary of the site overlaps with the west-east shipping corridor, which could result in disruption/displacement of vessels to the south in the absence of appropriate mitigation.

Maritime Area B, in the south-eastern portion of the site there are one plugged and abandoned (P&A) with/without shows or untested pay exploration well head and one P&A oil well head, one of which was capped due to lack of output; these features would require an exclusion buffer to avoid interaction at a project level.

The site also overlaps with a single P&A with/without shows or untested pay exploration wellhead in the northern section and would require an exclusion buffer to avoid interaction at a project level. There is a primary shipping and navigation route running between the Marine Sites B and C.

Maritime Area D, there is overlap with two P&A with/without shows or untested pay exploration well heads in the north-western corner of the site, one of which was capped due to lack of output; these would require an exclusion buffer to avoid interaction at a project level. There is navigation route running to the east of the boundary of this site; the majority of the vessel traffic appears to be fishing vessels to reach fishing grounds.

From the constraints and heat mapping exercise undertaken, it should be noted that for the following receptors:

- Administrative: This includes anchorage areas, restricted zones, pilot boarding areas and traffic separation boundary's safe movement of vessels at sea. No overlap with any of the 4 sites.
- Military: There is a single military exercise zone on the south coast located to the west of Cork which is outside of the SC-DMAP boundary area. No overlap with any of the 4 sites.
- Aviation: The approach corridor to Waterford Airport overlaps with Maritime Areas A and B; while the approach height means there would be no interaction with this zone, consultation with Waterford Airport is recommended.
- Fish and shellfish and Commercial Fisheries: The Marine Institute (MI) undertook the analysis of the fishing and shellfish grounds and commercial fishing activities. A summary of their findings was as follows:

The northern part of the main scallop grounds in the Celtic Sea overlaps majorly with the eastern portion and slightly with the western portion of Maritime Area A and southern portions of Maritime Areas B and C– this is likely to be the fishery most impacted excluded (either temporarily or permanently) from sections of these areas. All four Marine Sites overlap with the spawning and/or nursery grounds of some species (with the exception of herring). The summary finding from the MI was that the potential impact to these areas from the development of ORE is unlikely to be severe to the stocks as a whole. The Maritime Areas will not directly interact with any designated shellfish waters, as the sites are located more than 12km from the coast. Project specific modelling will be required for potential sediment plumes based off number of turbines, type, placement, and installation methods. Impacts are likely to be temporary in nature, at worst minimal to negligible in the inshore coastal waterbodies. The routing and installation methods of the export cable route is currently unknown. Though it is recommended to avoid existing aquaculture sites and designated shellfish waters.

Cultural Heritage

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Underwater archaeology and cultural heritage features can have historic importance at a national, regional or local level due to its association with an historical event, due to perceived level of importance associated with the loss of life associated with the sinking of a ship/submarine, or features associated with particular maritime periods that are considered important, or by its rarity as a representation within the maritime archaeological record. Wrecks are also considered to be a 'non-renewable' and 'finite' resource and are generally considered to be highly vulnerable and of low recoverability. Other underwater features of heritage importance can include underwater 'landscapes', the form of which may be important form the perspective of contributing to the understanding human history and culture. For instance, there are a number of wrecks that occur within each Maritime Areas as follows:

Maritime Area A: 30 recorded wrecks (26 unnamed) intersecting the area; named wrecks include: Castlehill SS [W03294], Feltria SS [W0494], Lavander HMS [W05021] and Lough Fisher SS [W05032].

Maritime Area B: 42 recorded wrecks (33 unnamed) intersecting the area; named wrecks include: Karina SS [W03818], Lady of the Lake SV [W03843], Mediterranean SV [W03989], T. Crowley [W04376], Manchester Engineer SS [W0503], Bedale SS [W04774], U-1276 W10120], Unknown 'Middle Wreck' [W11628] and Vervain HMS [W05340].

Maritime Area C: 23 recorded wrecks (21 unnamed); named wrecks include: Falaba SS [W03511], Unknown 'outside Lead Wreck' (probably UKHO 11784) [W11631] and Cairo SS [W04795].

Maritime Area D: 3 recorded wrecks (2 unnamed); named wreck includes the Brika SS [W03256].

There is potential for a number of negative impacts to occur via various pathways during the construction, operation and/or decommissioning stages of a wind farm project. This can include, for instance, the removal/disturbance of seabed sediments leading to negative effects on prehistoric land surfaces, wreck sites and artefacts; the removal or disturbance of deeply buried sediments leading to effects on prehistoric land surfaces; disturbance of sediment causing sediment deposition on the seabed resulting in potential effects on archaeological receptors; and alteration of sediment transport regimes. These impacts may have direct and indirect, temporary and permanent, short and medium term negative impacts on heritage features/ underwater landscapes. Given the scattered and widespread distribution of wrecks all across the south coast and marine space, cumulatively there is potential for negative long term impacts on CH due to loss and/or disturbance to heritage features as a result of development activities.

The presence of heritage features does not preclude a development but there are a number of licences that may need to be applied for (through the NMS) before any form of survey can be carried out at the Marine Sites.

In terms of incorporating opportunities to enhance cultural/historic knowledge and understanding, as the four Maritime Areas are strategic proposals, it is unclear what if any opportunities would be available to enhance cultural/historic knowledge. However, through the undertaking of detailed surveys at project level, there is opportunity to further investigate and characterise the nature of the heritage features within a given Maritime Area and therefore add to the knowledge base of specific heritage features. Detailed project-level surveys and works to install wind farm infrastructure may also yield new discoveries or previously unknown features. This would have longer term direct positive impacts for CH in terms of contributing to the Irish maritime knowledge base.

LandSeaS

For the draft OREDP II, the impacts of the presence of infrastructure on seascape and landscape character was sectioned into four bands:

- 0-5 km: substantial level of impact
- 5-15 km: substantial level of impact

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- 15-24 km: substantial decreasing to moderate level impact
- 24-35 km: Moderate level decreasing

Maritime Area A partially lies within the second band, approx. 12 km from the coastline; very small areas of the northern sections of Maritime Areas B, C and D are located within the band 3 and majority of these Maritime Areas lie within band 4. For all Maritime Areas, there is potential for long term permanent negative impacts in relation to effects on visual amenity as well as landscape and seascape character from the presence of wind farm infrastructure. The closer infrastructure is located to the coastline, the greater the potential for negative impacts. The magnitude and the significance of effects will depend on a number of factors such as distance from viewing points, the sensitivity of the coastline/landscape/seascape character at that point, and the parameters of the wind farm components such as turbine height, rotor diameter and arrangement of the turbines in the array area.

Mitigations:

– See Chapter 9 for overarching mitigation, policy level mitigation and project level mitigations which would apply to all OW developments which may arise within Maritime Areas A-D.

8.4 Cumulative Effects

Two types of cumulative effects are relevant in the context of the SC-DMAP - regional scale and project scale. At regional scale, the purpose of Cumulative Effects Assessment (CEA) is to understand the total impact of anticipated development – in this case, a build out of offshore wind in Maritime Areas A-D. **Table 8-1** identifies the broad cumulative effects identified at this stage in the process. At project level, each project will assess cumulative effects on a case-by-case basis, reflective of the project design proposed and the current receiving environment at the time of preparing the development permission application.

Table 8-1: Cumulative Assessment

SEA Environmental Objective(s)	Assessment
Population and Human Health (PHH)	
To ensure bathing waters are not prevented from achieving excellent status as a result of the SC-DMAP	WFD applies out to 1NM. All 4 Maritime Areas are beyond this distance. Project specific modelling will be required for potential sediment plumes based off number of turbines, type, placement, and installation methods as projects progress. Impacts are likely to be temporary in nature, at worst minimal to negligible in the inshore coastal waterbodies. The 4 sites will not be built out in parallel so potential for temporal overlap is reduced. Neutral for cumulative effects.
To ensure the quality standards for water quality in shellfish water are not compromised as a result of the SC-DMAP	All 4 Maritime Areas are beyond a minimum of 12 km from shore at their closest point. Any potential windfarm will not directly interact with any designated shellfish waters. Project specific modelling will be required for potential sediment plumes based off number of turbines, type, placement, and installation methods. Impacts are likely to be temporary in nature, at worst minimal to negligible in the inshore coastal waterbodies. The routing and installation methods of the export cables is currently unknown however, existing aquaculture sites and areas that have been designated for shellfish waters can be avoided through careful routing. Neutral to Unknown for cumulative effects.
To maintain access to the coastal and marine resource for tourism and recreation.	Array areas are located out with the normal tourism and recreational areas which typically occur within 5km/ 2.6NM from shore). There is potential for temporary disturbance during the installation phase of the export cable at selected/discrete points along the coastline Neutral for cumulative effects.
To avoid significant disruption, disturbance or nuisance to local communities	The increased development and rollout of offshore renewable energy will have cumulative direct and indirect positive impacts for communities and employment, via enhanced requirement for local services e.g. lodging, food etc. and the requirement for local skill labour. Some cumulative indirect negative effects are possible as a result of the change to

	the local seascape and landscape resulting from the supporting transmission infrastructure both offshore and onshore which will be required to connect the offshore windfarms. Positive with some Negative for cumulative effects without mitigation.
Biodiversity, Flora and Fauna (BFF)	
Preserve, protect, maintain and where appropriate restore marine biodiversity (and terrestrial aspects on which the marine biodiversity is reliant), particularly EU designated sites and protected species.	None of the four Maritime Areas overlap directly with any European site following the constraints analysis undertaken to inform the identification of the sites. This has contributed significantly to reducing the risk for cumulative effects. Notwithstanding, avoidance of direct effects, there does remain the potential for indirect impacts through disturbance from noise and vibration during the site investigation surveys, construction phase and maintenance which will also include the physical presence of more vessels. Phasing of development in the four Maritime Areas will reduce the potential for temporal overlap which could result in cumulative effects negative on BFF. ORE developments on all four areas may cumulatively impact on migratory and foraging patterns of marine mammals, fish, birds. This would have to be modelled on a project specific level. Negative for cumulative effects without mitigation
Avoid, minimise or mitigate disturbance impacts on mobile species, within or reliant on the marine area, resulting from SC-DMAP	Mobile species such as marine mammals, basking shark, turtles and other megafauna are known/ have been previously sighted transiting through the wider area including all four Maritime Areas identified. The areas are also within a known nursery/spawning ground for a variety of commercially valuable fish species (but not the hearing sensitive herring). Negative for cumulative effects without mitigation.
Safeguard space for the natural marine environment to enable continued provision of ecosystem goods and services within the SC-DMAP area	Constraints analysis undertaken to inform the identification of the sites has included consideration of ecosystem goods and services including fisheries, designated sites, water quality, recreation and heritage. Features have been avoided to the extent possible at the plan scale however some impacts are possible which will require further consideration at project scale through micro-siting. Due to the density of marine wrecks, use of the area by marine mammals, megafauna, pelagic species, and commercial fisheries interaction with these features will be unavoidable. Negative for cumulative effects without mitigation.
Contribute to achieving the environmental objectives under the MSFD and the WFD	WFD extends out 1NM from the shore - no overlap with any of the four Maritime Areas directly. Under the MSFD, there are 11 descriptors for achieving or contributing to environmental objectives. Short term temporary negative impacts are likely to arise during the site-specific survey stages, and during wind farm construction, with limited potential for impacts arising from the operation and maintenance phases. The installation of fixed wind turbines will result in a cumulative permanent change to the seabed morphology, hydrographical conditions, and also to cumulative habitat loss/alteration to marine biodiversity. The presence of windfarms may (with time and protections) for fish and shellfish species providing a pseudo nursery area where they can proliferate which would have a knock-on positive effect for marine biodiversity, food webs and seabed integrity. There would also be a cumulative positive impact towards climate change.
Maintain and protect marine protected areas and ensure integrity of the network is not impacted as a result of the SC-DMAP	None of the four sites overlap with any designated sites. Cumulative indirect effects on mobile species are still a potential. There are currently no designated MPAs in Irish waters. Neutral to negative without mitigation.
Land & Soils/ Sediment (LS)	
Maintain the integrity of marine processes for the protection of coastal habitats and places within and influenced by the SC-DMAP.	Array areas will not interact with the intertidal and or coastal habitats. Export cable installation routes will likely be installed via, burial, HDD and or have armour protection. Exact routes and installation method proposed are unknown. Uncertain for cumulative effects.
Protect the quality and character of the seabed and its sediments and avoid significant effects on seabed morphology and sediment transport processes.	Potential cumulative effects to tidal currents, wave climate and sediment transportation. This will have to be modelled on a project specific basis as it will be influenced by number of turbines, fixed turbine type (e.g., monopile, tripod, gravity base, jacket) and layout of the ORE farms.
Water (W)	
Contribute to achieving the objectives under the MSFD and the WFD i.e. achievement or	WFD extends out 1NM from the shore- no overlap with any of the four Maritime Areas. Neutral for cumulative effects.

maintenance of Good Environmental Status (GEnS) and Good Ecological Status (GEcS).	
Protect, maintain, and where possible improve status of classified water bodies within the Plan area in line with requirements of the WFD and MSFD.	WFD extends out 1NM from the shore- no overlap with any of the four Maritime Areas. Neutral for cumulative effects.
Avoid pollution of the coastal and marine environment	It is assumed that all vessels will be fit for purpose, certified and capable of safely undertaking all required survey work. Marine vessels will be governed by the provisions of the Sea Pollution Act 1991, as amended, including the requirements of MARPOL. In addition, all vessels will adhere to published guidelines and best working practices such as: the National Maritime Oil/HNS Spill Contingency Plan (NMOSCP), Marine Pollution Contingency Plan (MPCP), Chemicals Act 2008 (No. 13 of 2008), Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated regulations. Vessels shall have a Health, Safety and Environmental Managements system which should conform to the requirements of the latest International Maritime Organization (IMO), Safety of Life at Sea (SOLAS) and environmental requirements for their classification and with any national requirement of the territorial or continental / EEZ waters to be operated in.in the event of a spill the appropriate authorities will be notified and the appropriate action to clear the spill up will be undertaken. Neutral for cumulative effects.
Reduce marine litter resulting from terrestrial and marine dumping	Marine little and dumping are governed by legislative and administrative controls. Neutral for cumulative effects.
Minimise generation and propagation of manmade noise within the marine environment.	Marine mammals and megafauna known to traverse all four areas. Disturbance to marine mammals and fish from underwater noise during pile-driving activities associated with installation of the turbine foundations and cables is possible and cumulative effects are possible if there is temporal overlap however phasing of development within the four areas is proposed therefore this overlap is removed. Neutral for cumulative effects. In addition, standard mitigations would apply, i.e. Marine Mammal Mitigation Plan to include proposals for soft start to piling, adoption of Codes of Conduct for vessel operators, and consideration towards the use of bubble curtains during installation/construction to reduce potential for noise disturbance and underwater noise propagation.
Promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment.	Potential for cumulative effects from EMF arising from e.g. inter-array cabling and other infrastructure. Possible indirect cumulative negative impacts on BFF as potential to impact migration routes for example. Negative for cumulative effects without mitigation. Standard mitigation would include Cable Burial Risk Assessment to inform cable installation and reduce the potential for EMF on shark and other sensitive species.
Air Quality (AQ)	
Avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air, including transboundary considerations.	Cumulative positive long-term effects as reducing fossil fuel use and allowing transition to low / no carbon. Positive for cumulative effects.
Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.	Cumulative positive long-term effects as reducing fossil fuel use and allowing transition to low / no carbon. Positive for cumulative effects.
Avoid adversely impacting on air quality, with particular regard to known existing concentrations of transport and industrial related pollution close to the coast.	Cumulative positive long-term effects as reducing fossil fuel use and allowing transition to low / no carbon. Positive for cumulative effects.
Climatic Factors (C)	

Minimise existing and avoid new emissions of greenhouse gases across all sectors.	Cumulative positive long-term effects. This will contribute to the wider Government objectives of achieving up to 80% renewable electricity and a 51% reduction in greenhouse gas emissions by the end of this decade, and the longer-term objective of delivering a net zero economy by 2050. Positive for cumulative effects.
Decrease the usage of fossil fuels and increase renewable energy usage.	Cumulative positive long-term effects This will contribute to the wider Government objectives of achieving up to 80% renewable electricity and a 51% reduction in greenhouse gas emissions by the end of this decade, and the longer-term objective of delivering a net zero economy by 2050. Positive for cumulative effects.
Reduce the environmental, social and economic vulnerability to the impacts of climate change and/or improve resilience to climate and coastal change	Cumulative positive long-term effects This will contribute to the wider Government objectives of achieving up to 80% renewable electricity and a 51% reduction in greenhouse gas emissions by the end of this decade, and the longer-term objective of delivering a net zero economy by 2050. Positive for cumulative effects.
Material Assets (MA)	
Contribute to transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050	Cumulative positive long-term effects This will contribute to the wider Government objectives of achieving up to 80% renewable electricity and a 51% reduction in greenhouse gas emissions by the end of this decade, and the longer-term objective of delivering a net zero economy by 2050. Positive for cumulative effects.
Address conflicts with other environmental protection objectives.	To the extent possible, the constraints analysis performed to identify the four areas has avoided known conflicts with environmental protection objectives and the application of SEA and AA to the plan has addressed this further. Efforts will be made at project scale and through EIA and AA of any projects to further reduce conflicts. Neutral for cumulative effects but will require project level mitigation.
Support marine material assets (including fisheries, shellfish, military activity and infrastructure) and resources by maximising opportunities for co-location and co-benefits.	The four areas to a large extent avoid interaction with the majority of marine material assets with the exception of a limited number of oil and gas infrastructure, partial overlap with shipping and navigation routes and interaction with some scallop areas. Cumulatively the impacts are considered to be minor negative and mitigation through use of buffer zones and micro-siting can reduce conflict further at project scale.
Ensure continuity and safety of navigation (marine and air).	Low to moderate cumulative negative effects on shipping as the four areas are developed through displacement and increased collision risk. Ongoing consultation required. Constraints has avoided main shipping as far as possible.
Cultural Heritage (CH)	
Protect places, features, buildings and landscapes of cultural, historical archaeological or architectural heritage.	Cumulative risk to known and unknown wrecks across the 4 Maritime Areas. Total of 98 recorded wrecks identified in desk study. The project level will identify any wrecks of historic importance. Proposed mitigation of 250m buffer around all wrecks at project stage to account for fragmentation of the wreaks. Exact location of wrecks will be confirmed through non-invasive sight investigation techniques e.g., geophysical and magnetometry, with divers used to confirm extent. All information will be shared with the National Monuments Service.
Protect the site and setting of marine and coastal historic environment features.	
Protect known wrecks and historic and cultural features within the DMAP area.	
Incorporate opportunities to enhance cultural/historic knowledge and understanding.	
Landscape / Seascape (LandSeaS)	
Protect and maintain landscape and seascape character and visual amenity, including geo-heritage	Marine Area A is located within 12nm line (22km) however the remaining three sites are located beyond the 12nm line/ 22km from shore and further. The height number and layout of the windfarms would have to be modelled at a project level to determine significance of effect but cumulative change to seascape would be expected.
Recognise and respect the value of wider (non-	Cumulative change to wider (non-designated) landscapes and seascapes as a result of the SC-DMAP expected, particularly with regard to indirect effects from supporting grid, port and other non-grid infrastructure in the longer term.

designated) landscapes and seascapes.

8.5 Summary of Effects

The following key points are noted in relation to the SEA of effects of the draft SC-DMAP:

- A robust and comprehensive constraints analysis informed the development of the Maritime Areas A-D;
- A comprehensive non statutory public consultation has been carried out in parallel to the development of the draft SC-DMAP that has informed the policy base included;
- Iterative review and assessment of the emerging policy base as part of the SEA process has resulted in a number of mitigations being integrated into the draft plan, as presented. Most notably these include a comprehensive governance structure founded on collaboration; collection of and sharing of data by all stakeholders; regional surveys to inform project level cumulative impacts for development in Maritime Areas A-D; and guidance on the information required for project level EIA and AA.

Based on the above, the assessment presented has resulted in minimal requirement for additional mitigation as the draft SC-DMAP has evolved to reflect a balanced and nuanced approach to underpin ORE off the southern coast. It remains the case that the final SC-DMAP does not confer development consent on any project and where projects progress into the planning system they will be required to comply with the requirements of all relevant planning and environmental legislation.

9 MITIGATION AND MONITORING

9.1 Mitigation

Chapter 7 and 8 of this Environmental Report have highlighted the potential significant environmental effects of the implementation of the draft SC-DMAP and the reasonable alternatives considered. It has also had regard to the assessment work carried out to inform the Appropriate Assessment. In line with Annex I(g) of the SEA Directive, this chapter presents the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan. This has commenced with avoidance, in line with the mitigation hierarchy, achieved through the use and application of constraints analysis to inform the development of the draft plan. This has been supplemented by impact reduction strategies to reduce / remove the significant impacts through modification of policies and addition of protective policies to offset negative effects.

The draft SC-DMAP has benefitted from iterative discussion and assessment feedback to inform the draft as presented for public consultation. Over the course of this iterative feedback, the plan team have amended and added policies to the emerging draft to address many of the issues raised through the SEA and AA processes. As a result, much of the intended mitigation has been integrated directly into the draft SC-DMAP.

In the first instance, the sections below recognise the key mitigation elements which have been integrated to the draft plan and in addition also addresses additional mitigation which the SEA considers appropriate for inclusion in the draft plan prior to finalisation.

These are presented as follows:

- Section 9.1.1 – Overarching mitigation which applies to all activities
- Section 9.1.2 - Policy Objectives
- Section 9.1.3 - Regional Level Mitigations
- Section 9.1.5 - Project Level Mitigations
- Section 9.1.5 – Post-consent Mitigation

9.1.1 Overarching Mitigation

The following overarching mitigations were identified during the iterative assessment of the plan:

SEA Recommendation	How Has this been Integrated into the draft SC-DMAP
• The draft plan shall include policy relating to *the need to demonstrate that projects can be implemented without adverse effects on the integrity of Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). Where adverse effects from proposals remain following mitigation, in line with Habitats Directive Article 6(3), consent for the proposals cannot be granted unless the prerequisites set by Article 6(4) are met*.	This has been addressed in the draft SC-DMAP through policies OEP 1-3.
• *The draft plan should support the need for all investigative and feasibility studies to be carried out to support decision making in relation to this strategic plan should also include an environmental appraisal which considers the potential effects on the wider environment, including specifically the Natura 2000 Network.*	This has been addressed in the draft SC-DMAP. Specific reference to the need for investigative and feasibility studies to include an environmental appraisal which considers the potential effects on the wider environment, including specifically the Natura 2000 Network is considered necessary as early avoidance of conflicts leads to better outcomes.
• Acknowledging that the draft SC-DMAP goes up to the Administrative Boundary on Ireland's south coast, it is	This has not been addressed in the draft SC-DMAP.

considered essential that the draft SC-DMAP includes a policy relating to the Water Framework Directive and the 3rd Cycle River Basin Management Plan as there is overlap within the 1 nautical mile zone. It is therefore recommended that the draft plan shall include a commitment to implement the relevant measures included in the 3rd Cycle River Basin Management Plan.	
• It is recommended that delivery of the SC-DMAP shall be achieved through phasing which is paralleled by a proactive improvement of the evidence base including deployment in deeper waters where limitations exist currently in terms of supply chain and technology.	This has been achieved in the draft SC-DMAP. Policy MA 4 requires that in respect of a proposed future fixed offshore wind developments within Maritime Areas B, C, and D, they should be granted according to timing, methodology and processes to be determined by MARA in accordance with the MAP Act. It is further required that detailed surveys and assessment be undertaken at a regional, marine area and project scale to further inform and refine any project proposals in these Areas within the cascading planning hierarchy as committed to in the Marine Environment and Biodiversity section of the draft Plan as outlined in Policy MI 1. Policy OEP 2 also requires the application of roust route and site selection and the use of constraints analysis to guide decision making at lower tiers.
• The draft plan should explicitly acknowledge that the Maritime Areas identified within the SC-DMAP will be subject to further, more detailed analysis.	This has been achieved in the draft SC-DMAP. The draft plan now incudes at MA 4 and MI 1 for regional scale surveys in addition to project level surveys, the sharing of data and establishment of a data repository. The regional level surveys will particularly guide deployment in Areas B-D where cumulative impacts may occur with Area A which will deploy first.
• The following new policy will be added: *DECC will establish and manage a central, GIS-based, repository of environmental data for the SC DMAP area which will be used for to inform future revisions of the Plan and to inform the evidence base for environmental assessment of Projects delivered through the SC DMAP; particularly with respect to informing robust and comprehensive cumulative and in combination assessments.* • *All public stakeholders who hold relevant environmental data for the SC-DMAP area will be expected to contribute to this repository. All data collected through State-funded (in whole or part) research projects will be expected to contribute to this repository. All projects delivered through the SC-DMAP will be expected to share data with the repository. The repository will be accessible to all data contributors.*	This has been achieved in the draft SC-DMAP. The draft plan now includes MI 1b which requires the establishment of a GIS Data Repository and MI1c which stipulates this data should be used to inform lower tier surveys.

9.1.2 Policy Objectives Mitigation

As noted in the section 9.1, there has been considerable iteration and integration of environmental concerns into the draft SC-DMAP as it has developed. The emerging draft contains policies which have benefitted from that consideration and the integration of the overarching protection policies discussed in section 9.1.1 above. As a result, there is limited additional mitigation required at the policy scale. This additional mitigation along with some recommendations to further improve the draft are presented in Table 9-1

Table 9-1: SEA Mitigation/Recommendation for Policy Objectives

Draft Plan Policy Section Ref.	Proposed Mitigation/Recommendation
Implementation, Governance and Monitoring	**Mitigation:** IGM 3 should be revised in relation to commitments on environmental monitoring to ensure it is fully compliant with the SEA directive as transposed in Ireland. **Recommendation:** The draft plan would benefit from more measurable actions aligned to the principles of SMART objective setting and also identification of KPIs to facilitate the regular transparent tracking of those actions and KPIs.
Overarching Environmental Protection	**Mitigation:** Until such time as ORE Guidelines are published by the DHLGH, **OEP 1** should include for a Guidance Note on the scope and expectations for applications for a typical offshore wind and associated infrastructure, based on current good practice should be provided to assist developers and regulators in meeting basic expectations.
Climate Change	Mitigation: CC 1 - It is recommended that DECC commit to working with the Marine Institute to develop an SC-DMAP area specific Ecosystems Services Map which identifies key services including but not limited to climate regulation services. This map will build on work undertaken by NPWS in a 2015 - National Ecosystem and Ecosystem Services Mapping Pilot; EPA funded research in 2018 - Valuing Ireland's Coastal, Marine and Estuarine Ecosystem Services; and DAFM / Marine Institute 2020 report on Natural Capital and Ecosystem Services Mapping.
Underwater Noise	**Recommendation: UN 3** would benefit from a commitment to developing an evidence base, in partnership with other stakeholders, for future ORE projects in deeper waters in the medium to longer term, to future proof the plan.
Co-existence	**General Mitigation** – To support the co-existence of fishery activity with OW developments, accurate information on the location and nature of activities for by vessels less than 12 m should be collected by DAFM or DECC in order to inform future decision making and necessary planning conditions. The lack of this data is highlighted in the difficulties encountered section of the Environmental Report. **General Mitigation** – Funding should be made available to specifically research and test co-existence examples to ensure a growing evidence base is developed to help inform the SC-DMAP and future ORE DMAP elsewhere. Research should extend to other jurisdictions where the ORE sector is more mature and are likely to have working examples of successes and important lessons learned from which the State can benefit. **Mitigation CO 1** - This objective should be rewritten to state: *That, in order to promote co-existence between ORE and other existing and future uses in the SC-DMAP, permanent exclusions on activities or usages around or within ORE or transmission infrastructure located in the SC-DMAP should be avoided where possible, save relating to safety and / or environmental protection and / or in other exceptional circumstances where considered warranted by MARA or planning authorities in accordance with their respective roles. The likely requirement for temporary exclusion zones during periods of offshore infrastructure construction and maintenance is recognised. Any such restrictions should, where possible, endeavour to avoid adverse impacts on other maritime users.*
Seafood and Fisheries	**General Mitigation** - It is noted in the Difficulties Encountered section of the SEA Report that data on fishing activity by vessels less than 12 m is not accurate due to the manner in which it is reported. In order for a plan led approach to avoid impacts on fishers in the first instance, accurate information on where and what is being harvested is required. It is therefore recommended that this information is collated and recorded to inform future decision making.
Marine Archaeological Heritage	**General Mitigation:** Inclusion of text referencing the importance of considering underwater archaeology and built heritage in route and site selection processes should be included.

Draft Plan Policy Section Ref.	Proposed Mitigation/Recommendation
Ports and Harbours	**Recommendation:** Supporting text on Ports and Harbours should include an explicit reference to the *Guidance document on the implementation of the Birds and Habitats Directive in estuaries and coastal zones with particular attention to port development and dredging, European Commission (2011).* This should also be added to the list in Appendix D which is related to Policy B1 biodiversity.
Community Engagement	**Recommendation:** CE 1 would benefit from a guidance note on minimum standards for developers to ensure they provide a minimum standard of detail. Further clarity on when this plan is to be prepared and if it were part of the Planning Pack would also add clarity to the policy objective.

9.1.3 Regional Level Mitigation

In acknowledgement of the continued need for robust data to inform project level assessments, iterative feedback between the SEA and AA teams and the SC-DMAP team resulted in both the commitment for these regional surveys in policy OEP 2 and the inclusion of an implementation framework to guide delivery of the SC-DMAP in the coming years under IGM 1-5.

The framework includes an Implementation Programme Board which will be supported in its work by a Marine Ecosystems and Ornithology Working Group. This Working Group will include biodiversity representatives such as the Department of Housing, Local Government and Heritage, which has responsibility for Marine Protected Areas (MPAs), National Parks and Wildlife and the Marine Institute (MI). It will also be supported by a Technical Working Group which will include key stakeholders such as MARA, EirGrid, SC-DMAP MAC holders and the Department of Transport (ports). One of the roles of this WG will be to recommend the scope of the required Regional Level -Surveys. An overview is presented in Table 9-2 below for information however the final agreed scope will be developed by the WG as part of implementation. Site specific surveys may also be required to ensure a full, detailed characterisation for the purposes of the project specific EIA and AA.

Table 9-2 Outline Programme of Regional Level Surveys

Issue	Discussion
Seabirds	Ornithological surveys are undertaken to determine the presence, abundance, spatial distribution, and seasonality of key species within a relevant study area. The main approach employed is the use of digital aerial surveys (DAS) to cover the area of interest extending over a two-year period (to account for inter-annual variability). Given the long lead-in time required for these surveys it is important to initiate such survey items early in the development cycle. Key benefits would be early identification of ornithology “hot spots” to inform more detailed site selection. Robust survey planning is required, including statistical analysis, to ensure an appropriate area is covered. .
Marine Mammals	The main approach employed for surveying marine mammals is the use of digital aerial surveys (DAS) to cover the area of interest extending over a two-year period, commonly undertaken in parallel with digital aerial bird surveys. In common with the discussion of bird surveys in the section above, given the long lead-in time required for these surveys it is important to initiate such survey items early in the development cycle. A long lead in time is required for these surveys and where surveys are missed (e.g. due to inclement weather) it is often a requirement to cover missing months at the end, thereby extending the survey period. As with ornithology surveys discussed above, Robust survey planning is required, including statistical analysis, to ensure an appropriate area is covered.

9.1.4 Project Level Mitigation

This section aims to provide an overview of the offshore pre-consent environmental surveys which will be typically required for offshore wind farm array projects. It should be noted that the list of surveys below would need to be tailored for the specifics of the project in question. It is noted that further offshore energy guidance to inform offshore wind farm consent applications is due to be published by Government and therefore the information set out below in Table 9-3 may need to be updated based on that guidance.

9.1.5 Post Consent Plans

A minimum set of the required supporting plans for any Offshore Wind development should be included in the SC-DMAP. These management plans translate the commitments made in the EIAR into practical management plans relevant to the project design. These will form the basis for discussion with the consenting authority and appropriate stakeholders and final plans will be submitted for approval by the consenting authority prior to construction. These management plans are considered standard industry practice for this type of development. The minimum list is as follows:

- Construction Environmental Management Plan – This relates to the construction of the onshore infrastructure
- Environmental Management Plan – This relates to the management of the construction, operation and maintenance and decommissioning of the offshore infrastructure;
- Marine Invasive Non-native Species Management Plan – This relates to the management of marine invasive non-native species during construction of the offshore infrastructure;
- Marine Mammal and Megafauna Mitigation Plan – This includes mitigation for marine mammals during the construction of the offshore infrastructure;
- Marine Megafauna: Vessel Code of Conduct – This includes mitigation for marine mammals during the construction of the offshore infrastructure;
- Marine Ornithology Monitoring Strategy – This includes a strategy of ornithology monitoring post construction of the offshore infrastructure;
- Fisheries Management and Mitigation Strategy– This sets out the approach to fisheries liaison and mitigation for the offshore infrastructure;
- Aquaculture Management and Mitigation Strategy (where relevant). This sets out the approach to aquaculture liaison and mitigation for the offshore infrastructure.
- Emergency Response Co-operation Plan – This addresses emergency response and coordination arrangements for the construction, operational and maintenance of the offshore infrastructure;
- Lighting and Marking Plan – This includes the lighting and marking scheme to be implemented for the offshore infrastructure of the Project;
- Construction Traffic Management Plan – This provides traffic management measures for the construction of any onshore infrastructure;
- Nature Rehabilitation and Enhancement Plan – This supports the rehabilitation and ecological enhancement of the development area and any part of the maritime area which may be adversely affected by the development; and
- Circular Economy Plan – This includes how essential materials will be reused and/or recycled at the end of life of the offshore wind farm.

Table 9-3 Typical Offshore Pre-consent Surveys Required to Inform Project Level Assessment

Survey	Scope	Approach	Survey Outputs
Geophysical	To undertake a survey to identify key physical features of the seabed to characterise the seabed conditions and aid in the development of the project description, including project boundaries and offshore export cable routes, where relevant. Often undertaken in conjunction with benthic surveys	A geophysical survey is needed for detailed site refinement of the offshore infrastructure (including the offshore export cable route, where relevant). The survey would include collection of multibeam echosounder (MBES), magnetometer, sub-bottom profiler (pinger/ parametric echosounder/ chirp/ sparker/ boomer/ minigun) and side scan sonar (SSS) data. MBES are used to collect detailed topographical data of the seabed. SSS surveys are used to determine sediment characteristics and seabed features. Magnetometer surveys are used to identify magnetic anomalies and confirm interpretation of SSS and hazard mapping for metal obstructions, shipwrecks and unexploded ordnance on the surface and in the sub-surface. Sub-bottom profiler surveys are used to characterise the subsurface geological units and foundation conditions. This may include identification of the bedrock/weathered chalk and other features.	Information from the geophysical survey would inform site refinement of the offshore infrastructure and inform determination of archaeological exclusion zones (AEZs)[91]. This would also be used for various topics of the EIA scoping and EIA documents, including Marine Processes (developing models), Intertidal and Subtidal Benthic Ecology (habitat mapping) and Marine Archaeology (to support the baseline characterisation for the EIARs).
Geotechnical	Survey and interpretation to determine seabed conditions associated with the offshore infrastructure .	A geotechnical survey would be proposed for detailed site refinement of the offshore infrastructure and refinement of the offshore export cable route. The survey would include collection of boreholes, seabed and downhole cone penetration tests (CPTs) and vibrocore / grab samples. Samples would then be sent to a laboratory for testing for geotechnical parameters and where applicable contaminant testing.	This information would inform offshore infrastructure site/ route refinement, and engineering design, which may feed into the EIA through refinement of the Project Design Envelope. Geotechnical data are also used to inform the following EIA topics: Marine Processes: although usually to inform subsurface substrates which may be brought into

[91] With correct planning, the geophysical and geotechnical surveys conducted during the planning phase of the development can provide satisfactory archaeological data to support a marine archaeology and cultural heritage EIA chapter.

Survey	Scope	Approach	Survey Outputs
			suspension during construction (e.g. drilling); and Marine Archaeology: to inform the baseline characterisation, providing information on potential palaeo-landscapes. Geotechnical survey information is often collected and analysed for archaeological interest during the post consent/pre-construction phase. As such, this may not be essential for the EIAR.
Metocean	Survey to determine the wave and tidal conditions across the project site	Oceanographic and meteorological survey (to include for example Acoustic Doppler Current Profiler (ADCP), wave measurement device, and floating lidar system). ADCPs would be deployed to examine current conditions in the application area. These are typically deployed on the seafloor. Floating LiDAR System (FLS) would be deployed for a minimum of 12 months. The FLS will measure the wind resource, along with the wave climate and atmospheric parameters at sea level such as air temperature, pressure and humidity. The FLS may also measure tide levels and sea surface water temperature. Waverider buoys may also be deployed to measure the wave climate to feed into the detailed design of the project.	This information would inform site selection, offshore design and form the basis of the hydrodynamic model used to undertake numerical modelling. Metocean data are used to inform marine processes modelling as part of the EIA.
Marine Mammals / Ornithology	Survey to determine temporal and spatial abundance, distribution and density (where data allows) of marine mammal and bird	Boat based/aerial/high definition videography marine mammal and ornithology surveys to be carried out monthly for at least 2 years (24 months). Boat based surveys are undertaken monthly by trained personnel who record bird/ marine mammals species, count data and behaviour.	This data would inform baseline characterisation for the project and would be used to inform EIA scoping, Marine Mammal and Ornithology EIA chapters and the LSE screening and Natura Impact

Survey	Scope	Approach	Survey Outputs
	species within the offshore infrastructure study area.	Aerial surveys are undertaken monthly from an aeroplane. High definition imagery data is collected and analysed by specialists to identify bird and marine mammal species occurring within the survey area. From this data abundance, distribution and densities can be calculated. Flight height data of key bird species can potentially be determined. Where possible, animal behaviour (e.g. direction, foraging) is also recorded. Bird survey should follow European Seabirds at Sea (ESAS) survey methodology and conventional distance sampling (CDS/MCDS) using recommended software (Distance, MRSea, GLM, design based methods). Additionally, haul out counts during breeding and moulting season and provision of seal satellite tracking data from tagged seals can be commissioned to assess specific abundance of seals within the area and quantify the degree of connectivity between the wind farm array and protected haul out sites. Passive acoustic monitoring (PAM) using static acoustic devices, such as CPODs, for some species of marine mammals can be undertaken using acoustic data logger located at fixed points inside and outside the offshore area over a 24 month period. This method is particularly useful for highly vocalising species such as harbour porpoise.	Statement undertaken as part of the Habitats Regulations Assessment (HRA) process.
Intertidal / Coastal Ornithology	Survey to determine temporal and spatial abundance of bird populations within the intertidal / coastal landfall section of the export cable route.	Intertidal / coastal seabird survey would be required for landfalls, particularly where these occur in soft sediment habitats which could be used by overwintering birds. Surveys would include monthly count surveys of nesting/wintering/migratory birds undertaken by qualified ornithologists over winter months (September to March, including the autumn and spring passage). These could potentially be extended beyond the overwintering period, depending on the potential for nesting birds in the vicinity of the landfall. Surveying through the tidal cycle to understand bird usage of the landfall area at different tidal states.	This information would inform scoping (where surveys have been undertaken prior to scoping), the Ornithology EIA chapter and the LSE screening and Natura Impact Statement undertaken as part of the (HRA) process, if relevant.
Intertidal and subtidal	Surveys to determine abundance/ coverage of benthic habitats and	Subtidal survey techniques include Drop Down Video (DDV), deployment of a sediment grab for infaunal and grain size analysis, seabed imagery sampling and potentially epibenthic beam trawl	This information would inform offshore site selection, offshore export cable route refinement, EIA

Survey	Scope	Approach	Survey Outputs
benthic ecology	biotopes within the offshore and export cable route. It is often undertaken in conjunction with geophysical survey.	sampling in order to aid characterisation of the benthic fauna, sediment type and habitats present within the survey area. Surveys could be undertaken in association with geophysical or geotechnical survey to ground truth geophysical data collected. Intertidal survey of the export cable route landfall location would comprise a Phase I intertidal walkover survey at each potential landfall location and may include intertidal transects, sieving and replicate core sampling to identify habitat types and benthic species. Each intertidal core station sampled may be accompanied by a sediment sample from the same location, so the sediment particle (grain) size and organic content can be measured.	scoping and the following EIA chapters: Marine Processes, Benthic Subtidal and Intertidal Ecology and Fish and Shellfish Ecology.
Shipping and Navigation	Vessel Traffic Survey to provide evidence base to determine commercial, fishing, recreational and all other vessel activity within the array area and export cable corridor.	While MGN 654 (MCA, 2021) is UK guidance, it has been considered as the primary guidance document in the absence of equivalent, detailed Irish guidance. Survey requirements described in MCA's MGN 654: • AIS, radar and visual observation data of vessels - coverage of array site (cable route and surface piercing structures as required) plus suitable buffer. • Traffic survey of the area concerned should be undertaken within 12 months of submission of EIA Report (24 months subject to conditions). Survey should include all the vessel types found in the area and total at least 28 days – accounting for seasonality (typically 2 weeks summer, 2 weeks winter). It is advised to discuss the traffic survey proposals with relevant stakeholders, as the scope and depth of the assessment should be proportionate to the scale of the development and magnitude of the risks.	This information would inform array site selection, EIA scoping and the Shipping and Navigation EIA chapter and associated Navigation Risk Assessment (NRA).
Seascape, Landscape	To identify potential impacts of the offshore infrastructure on landscape character,	Viewpoint photography should be undertaken following consultation, to confirm appropriate candidate viewpoint locations and receptors. Consultation with key stakeholders to identify potential visual receptors is a standard approach to seascape and visual resources. Land-based visual receptors within the coastal landscape and marine based visual	The report will identify key seascape and landscape features and inform

Survey	Scope	Approach	Survey Outputs
and Visual Resources	seascape character and visual amenity.	receptors likely to have views of either the construction, operation or decommissioning of the offshore wind farm array, or the construction or decommissioning at the landfall and offshore export cable laying activities will be identified. This will also be used to inform the seascape and landscape character baseline and assessment.	the SLVIA EIA chapter and associated photomontages.
Potential Surveys			
Subsea Noise	To characterise ambient noise levels in the project area.	Data collected using sound traps to record ambient noise levels in the project area monthly over a one year period to inform the subsea noise baseline study.	Data would ultimately be used to inform the subsea noise characterisation and marine mammal and fish and shellfish ecology impact assessment.
Fish & Shellfish	Survey of fish and shellfish species populations within the offshore wind farm and export cable route.	There is expected to be sufficient desk-based data on the distribution, abundance and ecology of relevant fish and shellfish species likely to be present in the area for the purposes of the EIA. Given the temporal and spatial variation in marine fish populations within a given location, fish surveys will provide little additional information to that which is already available. However, if the insufficient data resources are identified, it should be noted that specific monitoring for key species such as herring, sandeel and cod may be required following consultation with key stakeholders. Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (2017) recommends the following surveys: • Trawling; • Beam trawl; • Natural fish population survey; and • Drop-down video. If surveys are considered to be necessary, it is recommended that the advice of the Marine Institute Fisheries Ecosystems Advisory Services (FEAS) is sought on suitable survey methods for the assessment of potential stock in the vicinity of the offshore wind farm array.	This information would inform the Fish and Shellfish EIA chapter

Survey	Scope	Approach	Survey Outputs
Commercial fisheries	Survey to determine fishing activity within the offshore wind farm.	Given the temporal and spatial variability in fishing activity and the availability of landings and effort data for most fisheries commercial fisheries surveys are generally not undertaken for offshore wind farm projects, unless the site is close to shore and small (i.e. < 10 m vessels, where less data is available) operate across the array area. If stock data is not available from other sources (including desk based studies and consultation with local stakeholders) it might be required to conduct trawl/acoustic surveys to identify species present at the site. Surveys can also include: • Synoptic fish-presence mapping; • Observer trips (fishing and potting); • Fishing activity questionnaire. The precise nature of any survey would be determined through scoping of the potential effects and determining whether sufficient data is already available. The need for these surveys would also be determined through engagement with fisheries stakeholders. Typically, a robust baseline characterisation can be gained through desk based studies and effective consultation with fisheries stakeholders, however those discussions with stakeholders may raise the need for further studies to fill data gaps, or resolve concerns raised by stakeholders. In some cases this may include monitoring of particular species/stocks which may be well received by fisheries stakeholders. However, these are typically undertaken during pre/post construction monitoring and therefore not critical for the EIA process.	This information would inform offshore site selection, EIA scoping, the Commercial Fisheries EIA chapter and the Fish and Shellfish Ecology EIA chapter.

Table 9-4: Typical Offshore Mitigation Measures Used at Project Level to Reduce Impact Significance.

EIA Topic/ Receptor	Mitigation measure	Justification
All topics	Environmental Management Plan (EMP)	A Project EMP should set out all mitigation/monitoring measures and commitments made within the EIAR. The EMP should include a Marine Pollution Contingency Plan (MPCP) which should set out details of measures to manage hazardous substances to minimise potential for spillages and include key emergency contact details (e.g. Environmental Protection Agency (EPA)).
Benthic Subtidal Ecology	Pre-construction surveys and micro-siting	Pre-construction surveys are typically undertaken within the Project area to identify any areas of reef habitats and microsite to avoid these wherever possible.
	Marine Invasive Non-Indigenous Species Management Plan	A Marine Invasive Non-Indigenous Species Management Plan should be developed for the project to manage the risk of introduction or spread of non-indigenous species as a result of the project.
Marine Mammals	Marine Mammal Mitigation Plan (MMMP)	An MMMP is typically required to set out measures to avoid injury to marine mammals during piling, UXO clearance and other noisy activities. Measures which may need to be implemented in advance of and during piling, as part of the MMMP, include the implementation of a mitigation zone, soft starts and monitoring by Marine Mammal Observers and Passive Acoustic Monitoring (PAM).
	Vessel Code of Conduct	Vessel Code of Conduct can be developed for offshore wind projects to manage the risk of collision between vessels and marine mammals (and other megafauna). This would depend on the site specifics of the relevant project and local sensitivities.
Offshore ornithology	Vessel Code of Conduct	Depending on the location of the project and site sensitivities, a Vessel Code of Conduct (or similar) may be developed for offshore wind projects to manage the risk of disturbance to sensitive bird species which may be sensitive to vessel movements (e.g. rafting birds).
	Limits on blade tip heights/turbine hub heights	Depending on project location and local sensitivities there may be a requirement to ensure hub heights or blade tip heights are set to a minimum height (see also shipping and navigation). This mitigation measure is typically required to minimise the impact of bird collisions.

EIA Topic/ Receptor	Mitigation measure	Justification
Commercial Fisheries (see also Shipping and Navigation measures)	Fisheries Management and Mitigation Strategy	A Fisheries Management and Mitigation Strategy is produced and implemented in consultation with local fishing interests and fisheries organisations in accordance with good practice guidance and relevant policies. The purpose of this is to ensure effective communication between the project and fishing industry, including notification of construction, maintenance and decommissioning activities, details of any associated safety zones, advisory clearance distances, use of guard vessels etc. This also sets out the roles and responsibilities of Fisheries Liaison Officers and Fisheries Industry Representatives employed by the project and communications procedures including Notices to Mariners (NtMs).
Shipping and Navigation	Promulgation of information to mariners	Information and warnings will be distributed via NTMs and other appropriate media (e.g. Admiralty Charts and fishermen's awareness charts) to enable vessels to effectively and safely navigate around the array infrastructure. This may include clear and effective communication on the use of advisory clearance distances, safety zones and guard vessels etc. during construction and periods of major maintenance. May include additional consultation above and beyond the minimum standard required, depending on project specifics. Provision of 'as-laid' co-ordinates of the cable route to relevant authorities and marking of these on Admiralty Charts and fisherman's awareness charts (paper and electronic format)
	Cable protection requirements	Where cable protection is used, this should not exceed a 5% reduction in under keel clearance, unless otherwise agreed with the regulatory authority.
	Limits on blade tip heights/ Clearances	WTG blade air draught clearance of at least 22 m above High Water Mark (HWM) in line with best practice guidance (i.e. MGN 372, noting there is no equivalent guidance for the Republic of Ireland).
Shipping and Navigation Aviation, military and communications	Emergency Response Co-operation Plan (ERCoP)	An ERCoP is put in place for the operation and maintenance of offshore wind farm arrays and details specific marking and lighting of wind turbines and other offshore structures, in accordance with relevant guidance and policies and with agreement of relevant bodies (e.g. Irish Aviation Authority, Commissioner of Irish Lights).

EIA Topic/ Receptor	Mitigation measure	Justification
Aviation, military and communications	Lighting and Marking Plan	Implementation of a Lighting and Marking Plan (LMP) setting out specific requirements of aviation lighting to be installed on the turbines. The LMP will be prepared in consultation with the relevant stakeholders (e.g. IAA, DoD, IRCG, Commissioner of Irish Lights) to ensure appropriate lighting is in place to facilitate aeronautical safety.
Marine archaeology	Archaeological Management Plan	Provision of a Marine Archaeological Management Plan (AMP) including an Outline Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) to set out mitigation for marine archaeology receptors and unexpected archaeological discoveries made during the course of the development. This plan and the measures within it enables the protection and, if necessary, recording of any sites/objects of archaeological significance identified during the course of the development.
	Use of Archaeological Exclusion Zones (AEZs)	The identification and implementation of Archaeological Exclusion Zones (AEZs) around sites identified as having a known important archaeological potential. AEZs are required in order to avoid the potential for direct impacts on, and therefore preserve sites of identified archaeological importance, as directed by the National Monuments Act.

9.2 Monitoring

Article 10 of the SEA Directive requires that monitoring be carried out in order to identify, at an early stage, any unforeseen adverse effects due to implementation of a plan, and to be able to take remedial action. Monitoring is carried out by reporting on a set of indicators, which enable positive and negative impacts on the environment to be measured. The environmental indicators of relevance to the plan were identified from the SEA process. These will be used to identify unforeseen adverse effects from implementation of the plan.

9.2.1 Responsibility for Monitoring

A monitoring programme will be developed to facilitate monitoring of environmental effects during implementation of the SC-DMAP. This will be focused on key impact issues identified during the assessment phase. Where possible thresholds for action will be included to ensure that action is taken where unforeseen impacts are identified. It is noted that the EPA have recently compiled guidance on monitoring in SEA and will be taken into consideration prior to finalisation.

To ensure efficient use of national resources for monitoring, it is proposed that the SC-DMAP will align as far as possible with the established monitoring programme required under Article 11 of the MSFD for the following descriptors as indicators and targets in the context of achieving GES are already in place:

- Descriptor 1- Biological diversity
- Descriptor 2- Non-indigenous species
- Descriptor 3 – Population of commercial fish / shellfish
- Descriptor 4 – Marine food webs
- Descriptor 5 - Eutrophication
- Descriptor 6 – Sea Floor integrity
- Descriptor 7 – Hydrographical conditions
- Descriptor 8 – Contaminants
- Descriptor 9 – Contaminants in fish/shellfish
- Descriptor 10 – Marine litter
- Descriptor 11 – Introduction of energy including underwater

This monitoring is reviewed on a cyclical basis allowing for the programme of measures established by the MSFD and implemented by the MSFD Implementation Group to be amended in consultation with DECC and to determine if additional measures are required to achieve GES for marine waters in the SC-DMAP area.

Further to this wider programme, additional plan specific monitoring is proposed and this is presented in **Table 10-2** gives monitoring requirements and remedial actions for each SEA Objective. It is noted that this is a draft programme and is subject to consultation feedback before finalisation.

Table 9-5: Environmental Monitoring Programme

SEA Issues	Monitoring Requirement – Indicator and Targets	Remedial Actions
Population and Human Health (PHH) • Impacts of on coastal communities as a result of ORE development in SC-DMAP Area. • Disruption to recreational activities (marine and coastal)-indirect impacts on bathing water quality. • Impacts on employment opportunities.	**Indicator PHH 1:** Changes in bathing water quality for beaches within the SC-DMAP area. **Target:** No deterioration in bathing water quality as a result of ORE activities related to the SC-DMAP. **Indicator PHH 2:** Publication of Public Engagement Plans (PEP) by holders of a MAC in the SC-DMAP Maritime Areas as required in CE 1. **Target:** All holders of a MAC in the SC-DMAP Maritime Areas to have published a PEP to support their applications. **Indicator PHH 3:** Commission the preparation of economic impact analysis of the ORE sector in the region to inform the evidence base for SC-DMAP monitoring. **Target:** Create a baseline economic analysis of the ORE sector in the region. See also Monitoring under **MSFD Descriptors: 3, 8 and 10**	• Where bathing water quality is showing deterioration in beaches within the SC-DMAP area, this will be reviewed by the DECC and EPA to establish if the pressures are related the implementation of the SC-DMAP. A tailored response will be developed in consultation with any relevant authorities in such a circumstance. • If the required publication of Public Engagement Plans is not being adhered to or if the quality of the plans is not sufficient, DECC will provide guidance to ensure a sufficient standard is reached. • New data and evidence base will be used by the SC-DMAP governance structures including the SC-DMAP Implementation Programme Board to identify further actions to encourage economic benefits in the region served by the SC-DMAP. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository.
Biodiversity, Flora and Fauna (BFF) • Loss or damage to habitats (structures attached to the seabed) and / or non-mobile species from ORE structures. • Generation of underwater noise. • Barriers to species movement. • Suspended sediment and increased turbidity, as a result of smothering or scouring. • Collision risk (above and below surface).	**Indicator BFF 1:** Condition of European sites designated for marine components or with connectivity to the marine environment [data source: NPWS 6 yearly Article 17 reporting]. **Target:** No deterioration in the condition of European sites identified in the NIS as a result of offshore renewable energy infrastructure. **Indicator BFF 2:** Levels of anthropogenic impulsive sound sources from ORE activities. **Target:** The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources from ORE activities- not to	• Where the condition of European sites is found to be deteriorating because of ORE in the SC-DMAP area, this will be investigated by DECC in collaboration with DHLGH to establish if the pressures are related to the implementation of the SC-DMAP. A tailored response will be developed in consultation with any relevant authorities in such a circumstance. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository.

SEA Issues	Monitoring Requirement – Indicator and Targets	Remedial Actions
• Impacts of marine pollution from accidental release of pollutants from ORE infrastructure and/or vessels.	exceed levels that adversely affect populations of marine animals [MSFD Monitoring Programme]. **Indicator BFF 3:** Regional survey results for marine mammals and sea birds. **Target:** No barrier to movement of mobile species. See also Monitoring under **MSFD Descriptors: 1, 2, 4, 8, 10 and 11**	
Land and Soil (LS) • Impacts of the integrity of marine processes for the protection of coastal habitats and places within and influenced by the SC-DMAP.	**Indicator LS 1:** Rates of coastal change in beach and sea bed sediment levels and volumes, coastal vegetation lines and nearshore sediment reservoirs / sinks as monitored by the OPW as part of their pilot coastal survey monitoring programme along the south coast. **Target:** No increase in coastal erosion risk as a result of activities / infrastructure associated with SC-DMAP. See also Monitoring under **MSFD Descriptors: 6 and 7.**	• DECC will work with OPW to determine if increased risk of coastal erosion is due to activities associated with SC-DMAP. The most up to date data and evidence base will be used to inform the SC-DMAP governance structures including the SC-DMAP Implementation Programme Board which will work with OPW to agree any further actions required. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository.
Water (W) • Impacts on water quality leading to deterioration in status of waterbodies influenced by the SC-DMAP.	**Indicator W 1:** Status of waterbodies within or adjoining the SC-DMAP area. **Target:** No deterioration in status as a result of ORE activities related to the SC-DMAP. See also Monitoring under **MSFD Descriptors: 5, 7 and 8**	• Review the effectiveness of implementation of policy objective WQ1 to inform the SC-DMAP governance structures including the SC-DMAP Implementation Programme Board which will liaise with the EPA to agree additional measures, if required. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository.

SEA Issues	Monitoring Requirement – Indicator and Targets	Remedial Actions
Climatic Factors (C) • Impacts of increased renewable energy usage on greenhouse gas emissions.	**Indicator C 1:** Cumulative % of offshore renewable energy (ORE) target achieved in line with Climate Action Plan commitments i.e. "at least" 5GW offshore renewable energy [data source: DECC]. **Target:** 5GW offshore renewable energy by 2030.	• Review progress on CO^2 emission reduction, ORE output, progress in achieving carbon budgets and electricity sectoral emission ceilings under the National Climate Action Plan, review data from EPA Greenhouse Gas Emissions Trends and Inventories, SEAI Ireland Energy Statistics, research and actions of the Climate Action Regional Offices, actions and implementation progress under Local Authority Climate Action Plans adjoining the SC-DMAP area inter alia. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository.
Material Assets (MA) • Impacts on fishers using the SC-DMAP area. • Impacts on tourism in the region.	**Indicator MA 1:** Landings of fish stocks at key relevant locations to be agreed with DAFM / BIM. **Target:** No net loss in volume / value of landings compared to 2024 figures arising from SC-DMAP related activities. **Indicator MA 2:** Net visitor numbers and bed nights at key locations to be with Failte Ireland. **Target:** No net loss in volume / value of tourism compared to 2024 figures arising from agreed SC-DMAP related activities. See also Monitoring under **MSFD Descriptors: 3, 4 and 9.**	• Review the effectiveness of measures and outcomes of preparing and implementing Fisheries Management and Mitigation Strategies (FFMS) prepared by developers of ORE projects under Policy Objective SF3 and SF4 and provide additional guidance if required. • Review the effectiveness of Policy Objective T1 and CO 1 and work with Failte Ireland to identify further guidance if required. • Use most up to date data to inform the evidence base for SC-DMAP monitoring including sharing of data with the data repository for the SC-DMAP which includes a common, shared GIS repository. • Use most up to date data and evidence base to inform the SC-DMAP governance structures including the SC-DMAP Implementation Programme Board which will work with DAFM / BIM to agree any further actions required.

10 NEXT STEPS

There is still some important work to be done before the draft SC-DMAP can be adopted. The next step in the SEA and plan-making process will be a stakeholder consultation period. During this time, comment on the findings of the Environmental Report, the Natura Impact Statement and the content of the draft SC-DMAP may be submitted for consideration. Table 10-1 outlines the remaining steps in this process.

Table 10-1: Remaining Steps in the Draft SC-DMAP, SEA and AA Processes

SC-DMAP Milestones	SEA and AA Milestones
Publication of draft SC-DMAP	Publication of Environmental Report and Natura Impact Statement
End of statutory consultation	End of statutory consultation
Review of submissions and amendments to draft SC-DMAP	Review of submissions and assessment of proposed amendments
Finalisation of SC-DMAP	Preparation of SEA Statement and finalisation of NIS
Making of SC-DMAP	AA Determination
Publication of final SC-DMAP	Publication of SEA Statement, final NIS and AA determination

Witten submissions or observations can now be made up to **5.30pm on the 14th June 2024**.

There are two methods for consultation responses as follows:

1. The dedicated online consultation platform at: https://www.gov.ie/southcoastdmap/

2. By e-mail to southcoastdmap@DECC.gov.ie

3. By post: FAO SC-DMAP Statutory Consultation, International and Offshore Energy Division. 29-31 Adelaide Road, Dublin 2, D02 X285

What will happen with your response?

Responses will inform the finalisation of the SC-DMAP.

Freedom of Information

All submissions and comments submitted to DECC for this purpose are subject to release under the Freedom of Information (FOI) Act 2014 and the European Communities (Access to Information on the Environment) Regulations 2007- 2018. Submissions are also subject to Data Protection legislation.

Personal, confidential or commercially sensitive information should not be included in your submission and it will be presumed that all information contained in your submission is releasable under the Freedom of Information Act 2014.

A copy of the Department's Privacy Notices are available at https://www.gov.ie/en/collection/be6db-data-protection-privacy-notices/

Appendix 5.1

List of SACs Intersecting the SEA Baseline Study Area

Site Code	Site Name	Site Code	Site Name
000077	Ballymacoda (Clonpriest and Pillmore) SAC	001058	Great Island Channel SAC
000091	Clonakilty Bay SAC	001061	Kilkeran Lake and Castlefreke Dunes SAC
000665	Helvick Head SAC	001230	Courtmacsherry Estuary SAC
000671	Tramore Dunes and Backstrand SAC	001952	Comeragh Mountains SAC
000696	Ballyteige Burrow SAC	002123	Ardmore Head SAC
000697	Bannow Bay SAC	002137	Lower River Suir SAC
000704	Lady's Island Lake SAC	002162	River Barrow And River Nore SAC
000707	Saltee Islands SAC	002170	Blackwater River (Cork/Waterford) SAC
000709	Tacumshin Lake SAC	002269	Carnsore Point SAC
000764	Hook Head SAC	002324	Glendine Wood SAC

List of SPAs Intersecting the SEA Baseline Study Area

Site Code	Site Name	Site Code	Site Name
004002	Saltee Islands SPA	004076	Wexford Harbour and Slobs SPA
004009	Lady's Island Lake SPA	004081	Clonakilty Bay SPA
004020	Ballyteigue Burrow SPA	004092	Tacumshin Lake SPA
004021	Old Head of Kinsale SPA	004118	Keeragh Islands SPA
004022	Ballycotton Bay SPA	004124	Sovereign Islands SPA
004023	Ballymacoda Bay SPA	004156	Sheep's Head to Toe Head SPA
004027	Tramore Back Strand SPA	004190	Galley Head to Duneen Point SPA
004028	Blackwater Estuary SPA	004191	Seven Heads SPA
004030	Cork Harbour SPA	004192	Helvick Head to Ballyquin SPA
004032	Dungarvan Harbour SPA	004193	Mid-Waterford Coast SPA
004033	Bannow Bay SPA	004219	Courtmacsherry Bay SPA

List of NHAs Intersecting the SEA Baseline Study Area

Site Code	Site Name	Site Code	Site Name
000105	Sovereign Islands NHA	000703	Keeragh Islands NHA

List of pNHAs Intersecting the SEA Baseline Study Area

Site Code	Site Name	Site Code	Site Name
000072	Blackwater River And Estuary pNHA	001058	Great Island Channel pNHA
000076	Ballycotton, Ballynamona And Shanagarry pNHA	001060	James Fort pNHA
000077	Ballymacoda (Clonpriest And Pillmore) pNHA	001061	Kilkeran Lake And Castlefreke Dunes pNHA
000078	Ballyvergan Marsh pNHA	001064	Leamlara Wood pNHA
000083	Capel Island And Knockadoon Head pNHA	001066	Lough Beg (Cork) pNHA
000087	Garrylucas Marsh pNHA	001074	Rockfarm Quarry, Little Island pNHA
000091	Clonakilty Bay pNHA	001075	Rosscarbery Estuary pNHA
000099	Ballynaclashy House, North Of Midleton pNHA	001076	Rostellan Lough, Aghada Shore And Poulnabibe Inlet pNHA
000100	Old Head Of Kinsale pNHA	001077	Seven Heads And Dunworly Bay pNHA
000107	Templebreedy National School, Crosshaven pNHA	001082	Dunkettle Shore pNHA
000371	Fountainstown Swamp pNHA	001084	Whitegate Bay pNHA
000446	Loughs Aderry And Ballybutler pNHA	001183	Clasharinka Pond pNHA
000659	Belle Lake pNHA	001230	Courtmacsherry Estuary pNHA
000660	Carrickavrantry Reservoir pNHA	001235	Ballyquirk Pond pNHA
000664	Dunmore East Cliffs pNHA	001408	Carrigacrump Caves pNHA
000666	Islandtarnsey Fen pNHA	001515	Bandon Valley Below Inishannon pNHA
000671	Tramore Dunes And Backstrand pNHA	001691	Ballin Lough (Waterford) pNHA
000695	Ballyhack pNHA	001692	Ballyeelinan Wood pNHA

000696	Ballyteige Burrow pNHA	001693	Ballyvoyle Head To Tramore pNHA
000698	Barrow River Estuary pNHA	001695	Castlecraddock Bog pNHA
000699	Boley Fen pNHA	001697	Fennor Bog pNHA
000704	Lady's Island Lake pNHA	001698	Glenanna Wood pNHA
000707	Saltee Islands pNHA	001700	Kilbarry Bog pNHA
000709	Tacumshin Lake pNHA	001702	King's Channel pNHA
000711	Tintern Abbey pNHA	001705	Lissaviron Bog pNHA
000712	Wexford Slobs And Harbour pNHA	001707	Stradbally Woods pNHA
000764	Hook Head pNHA	001738	Duncannon Sandhills pNHA
000782	St. Helen's Burrow pNHA	001740	Bandon Valley Above Inishannon pNHA
000787	Waterford Harbour pNHA	001966	Minane Bridge Marsh pNHA
001042	Carrigshane Hill pNHA	001978	Ballycotton Islands pNHA
001046	Douglas River Estuary pNHA	001979	Monkstown Creek pNHA
001053	Garrettstown Marsh pNHA	001987	Cuskinny Marsh pNHA
001054	Glanmire Wood pNHA	100990	Owenboy River pNHA

Other Designated Sites Intersecting the SEA Baseline Study Area

Designation Type	Site Name
Ramsar Sites	830- Ballycotton Bay
	831- Ballymacoda
	835- Tramore Backstrand
	836- Blackwater Estuary
	837- Cork Harbour
	839- Dungarvan Harbour
	840- Bannow Bay
Important Bird Area	Old Head of Kinsale

	Sovereign Islands
	Cork Harbour
	Ballycotton, Ballynamona and Shanagarry
	Ballymacoda
	Blackwater estuary
	Helvick Head
	Dungarvan Harbour
	Tramore Backstrand
	Bannow Bay
	Keeragh Islands
	The Cull/Killag
	Saltee Islands
	Tacumshin lake
	Lady's Island Lake
Wildfowl Sanctuary	Ballynamona & Shanagarry
	Bannow Bay
	Lough Aderry
	Tacumshin Lake
	Douglas Estuary
Refuge for Fauna	704- Lady's Island
	100- Old Head of Kinsale
Nature Reserve	Ballyteigue Burrow
	Cape Island and Knockadoon Head
	Fenor Bog

QI species/habitats considered in the assessment (UK sites)

Site code	Site name	Species code	Species name	Receptor
UK0030075	Afon Eden - Cors Goch Trawsfynydd	S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030046	Afon Gwyrfai a Llyn Cwellyn	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0012670	Afon Teifi/ River Teifi	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0013010	Afon Tywi/ River Tywi	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0013091	Ardgour Pinewoods	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030079	Ardnamurchan Burns	S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030084	Bann Estuary	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0012956	Ben Nevis	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030396	Bristol Channel Approaches / Dynesfeydd môr Hafren	S1351	*Phocoena phocoena*	Harbour porpoise
UK0030104	Cadair Idris	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0012712	Cardigan Bay/ Bae Ceredigion	S1364	*Halichoerus grypus*	Pinniped
		S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0020020	Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM

Site code	Site name	Species code	Species name	Receptor
UK0030116	Cladagh (Swanlinbar) River	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030118	Coedydd Aber	S1106	*Salmo salar*	Anadromous fish/FPM
UK0014789	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030141	Coedydd Nedd a Mellte	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030121	Corsydd Eifionydd	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030381	Croker Carbonate Slabs	S1351	*Phocoena phocoena*	Harbour porpoise
UK0030128	Cwm Doethie - Mynydd Mallaen	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0030131	Dee Estuary/ Aber Dyfrdwy	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
UK0012735	Downton Gorge	S1096	*Lampetra planeri*	Anadromous fish/FPM
	Downton Gorge	S1106	*Salmo salar*	Anadromous fish/FPM
UK0012946	Eryri/ Snowdonia	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030148	Exmoor and Quantock Oakwoods	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0013112	Fal and Helford	S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0030311	Firth of Tay and Eden Estuary	S1349	*Tursiops truncatus*	Bottlenose dolphin
UK0030154	Glen Beasdale	S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030160	Grogwynion	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030369	Haisborough, Hammond and Winterton	S1351	*Phocoena phocoena*	Harbour porpoise
UK0013694	Isles of Scilly Complex	S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0030255	Langavat	S1106	*Salmo salar*	Anadromous fish/FPM
UK0019815	Lewis Peatlands	S1106	*Salmo salar*	Anadromous fish/FPM
UK0014787	Limestone Coast of Southwest Wales/ Arfordir Calchfaen de Orllewin Cymru	S1364	*Halichoerus grypus*	Pinniped
UK0017070	Loch nam Madadh	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030047	Lough Melvin	S1106	*Salmo salar*	Anadromous fish/FPM
UK0013114	Lundy	S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0030206	Mingarry Burn	S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0019816	Mointeach Scadabhaigh	S1106	*Salmo salar*	Anadromous fish/FPM
UK0013027	Morecambe Bay	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
UK0016612	Murlough	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030398	North Anglesey Marine / Gogledd Mon Forol	S1351	*Phocoena phocoena*	Harbour porpoise

Site code	Site name	Species code	Species name	Receptor
UK0030399	North Channel	S1351	*Phocoena phocoena*	Harbour porpoise
UK0012935	North Harris	S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030227	North Pembrokeshire Woodlands/ Coedydd Gogledd Sir Benfro	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0019804	North Uist Machair	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030233	Owenkillew River	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0013116	Pembrokeshire Marine/ Sir Benfro Forol	S1364	*Halichoerus grypus*	Pinniped
		S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0013117	Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau	S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0013117				
UK0030379	Pisces Reef Complex	S1351	*Phocoena phocoena*	Harbour porpoise
UK0013111	Plymouth Sound and Estuaries	S1349	*Tursiops truncatus*	Bottlenose dolphin
		S1351	*Phocoena phocoena*	Harbour porpoise
UK0012598	Preseli	S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030249	River Bladnoch	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0030250	River Clun	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030252	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030032	River Derwent and Bassenthwaite Lake	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0012643	River Eden	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM

Site code	Site name	Species code	Species name	Receptor
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030057	River Eden	S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030361	River Faughan and Tributaries	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0030320	River Foyle and Tributaries	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030256	River Kent	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0012994	River Moidart	S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0030360	River Roe and Tributaries	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
UK0013007	River Usk/ Afon Wysg	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0012642	River Wye/ Afon Gwy	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1096	*Lampetra planeri*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0012594	Rum	S1106	*Salmo salar*	Anadromous fish/FPM
UK0019798	Sligachan Peatlands	S1106	*Salmo salar*	Anadromous fish/FPM
		S1095	*Petromyzon marinus*	Anadromous fish/FPM

Site code	Site name	Species code	Species name	Receptor
UK0013025	Solway Firth	S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM
		S1351	*Phocoena phocoena*	Pinniped
UK0012713	South Uist Machair	S1106	*Salmo salar*	Anadromous fish/FPM
UK0012785	Strath	S1106	*Salmo salar*	Anadromous fish/FPM
UK0019803	Sunart	S1106	*Salmo salar*	Anadromous fish/FPM
UK0012863	Trotternish Ridge	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030296	Upper Ballinderry River	S1106	*Salmo salar*	Anadromous fish/FPM
		S1029	*Margaritifera margaritifera*	Anadromous fish/FPM
UK0016614	Upper Lough Erne	S1106	*Salmo salar*	Anadromous fish/FPM
UK0030397	West Wales Marine / Gorllewin Cymru Forol	S1351	*Phocoena phocoena*	Harbour porpoise
UK0030380	Wight-Barfleur Reef	S1349	*Tursiops truncatus*	Bottlenose dolphin
UK0030202	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay	S1095	*Petromyzon marinus*	Anadromous fish/FPM
		S1099	*Lampetra fluviatilis*	Anadromous fish/FPM
		S1102	*Alosa alosa*	Anadromous fish/FPM
		S1103	*Alosa fallax*	Anadromous fish/FPM

SCI species considered in the assessment (UK sites)

Site code	Site name	Species code	Species name	Notes
UK9003091	Ailsa Craig	A016	*Morus bassanus*	Seabird
UK9001021	Flannan Isles	A009	*Fulmarus glacialis*	Seabird
		A015	*Oceanodroma leucorhoa*	Seabird
UK9013121	Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	A013	*Puffinus puffinus*	Seabird
UK9014041	Grassholm	A016	*Morus bassanus*	Seabird
UK9002011	Hermaness, Saxa Vord and Valla Field	A016	*Morus bassanus*	Seabird
UK9020328	Irish Sea Front	A013	*Puffinus puffinus*	Seabird
UK9020288	Isles of Scilly	A014	*Hydrobates pelagicus*	Seabird
UK9001121	Mingulay and Berneray	A009	*Fulmarus glacialis*	Seabird
UK9020316	Outer Firth of Forth and St Andrews Bay Complex	A013	*Puffinus puffinus*	Seabird
UK9001341	Rum	A013	*Puffinus puffinus*	Seabird
UK9014051	Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	A013	*Puffinus puffinus*	Seabird
		A014	*Hydrobates pelagicus*	Seabird
		A204	*Fratercula arctica*	Seabird
UK9001031	St Kilda	A013	*Puffinus puffinus*	Seabird