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IOSEA6

SCOPING REPORT - APPENDIX C

C.8 POPULATION AND HUMAN HEALTH

P2510_R2923_Rev1 | 28 November 2022

Intertek Energy & Water Consultancy Services
Exchange House, Station Road, Liphook, Hampshire GU30 7DW, United Kingdom

C.8 POPULATION AND HUMAN HEALTH

This section describes the baseline and potential impacts on population and human health. The baseline draws on information from IOSEA4 and IOSEA5, providing updates where applicable.

There are many hazards involved in the exploration for offshore oil and gas, therefore Environmental, Health and Safety (EHS) guidelines and legislation must always be adhered to during operations. The main issues associated with population and safety hazards to human health involved in offshore oil and gas exploration includes:

- Commercial fisheries and Consumers of Fish and Shellfish
- Hazardous substances;
- Well blow out;
- Fire and explosions;
- Personnel transfer; and
- Ship sinkage and collision.

All these risks are very low due to the regulatory and legislative EHS context surrounding offshore oil and gas operations. There is a possibility, however, of indirect impacts on human health, that could occur from impacts on water quality, businesses, and recreation, in relation to a hydrocarbon spill.

C.8.1 Commercial Fisheries and Consumers of Fish and Shellfish

C.8.1.1 Commercial Fisheries

The seas around Ireland are among the most productive and biologically sensitive areas in EU waters. Fisheries within the IOSEA6 Study Area are important both nationally and internationally with demersal and pelagic fishing fleets targeting a wide range of fish and shellfish species across the IOSEA6 Study Area. In 2010 an estimated 1.3 million tonnes of fish were taken by the fishing fleets of EU member states from the waters around Ireland (ICES Sub-areas VI & VII) (Marine Institute 2021).

To the west of Ireland species such as monkfish, megrim, hake, ling, mackerel, horse mackerel, blue whiting, cod, haddock and Nephrops are targeted in shelf waters while deepwater fisheries, which have developed over the past few decades, pursue species such as orange roughly and roundnose grenadier on the continental slopes. The most important fish stocks for Ireland by value include macherel and Nephrops (SFPA, 2021).

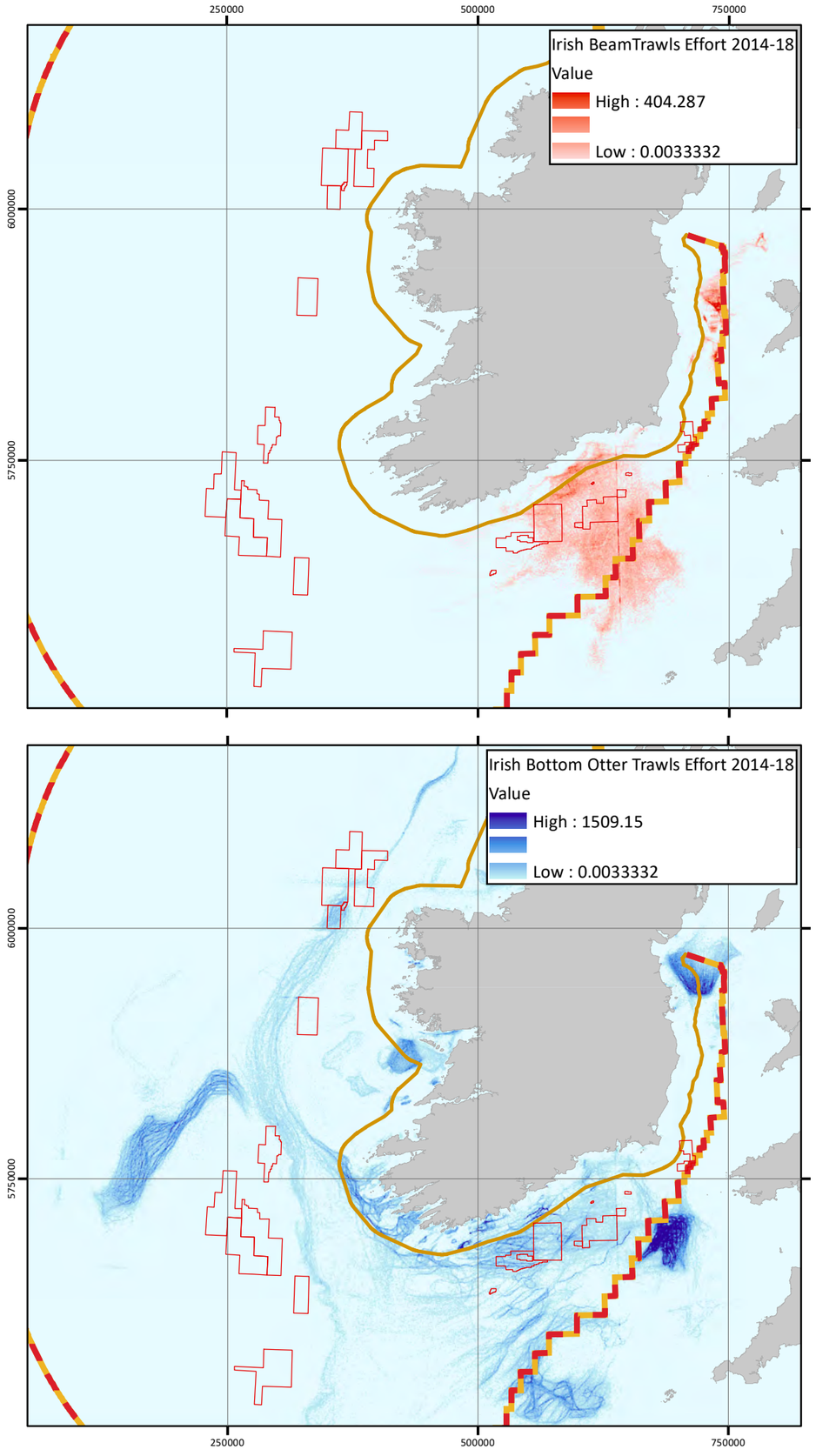
There are over 2000 registered fishing vessels operating around the Irish coasts, the majority of which are under 12m (DAFM 2019). The Irish fishing fleet is engaged in a variety of fisheries and targets a wide range of commercial species. Vessels under 12m tend to operate close to shore using both mobile and static gear types.

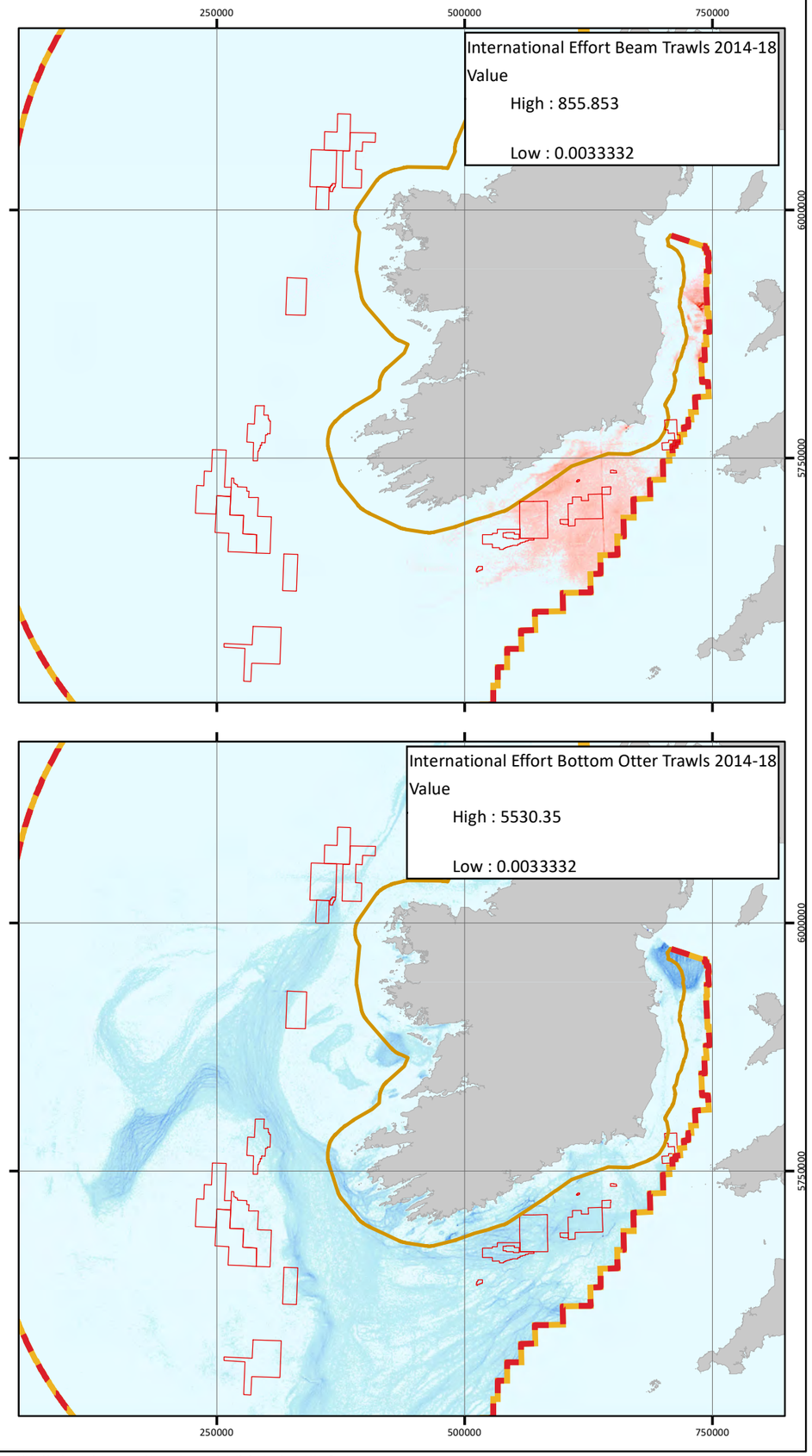
The "Atlas of Commercial Fisheries Around Ireland" uses Vessel Monitoring Systems (VMS), logbooks and the EU fleet register to map fishing effort in hours by gear and country, Figures C-37 to C-40 (Drawing Reference: P2510-FISH-001 to 004), it should be noted that these maps represent fishing vessels greater than 12m. The most recent edition (3rd edition) published in 2019, encompasses fishing activity from 2014 to 2018. The highest fishing effort of the three basins was observed in the Celtic Sea basin, with high levels of beam trawling, moderate levels of bottom otter trawling and seine fishing, and low, patchy levels of dredging, gill netting and pelagic trawling. In the Porcupine basin, low levels of international bottom otter trawling and pelagic trawling, as well as patchy bottom otter trawling, gill netting and international long-lining and seine fishing were observed. Low levels of

bottom otter trawling, pelagic trawling, and international long line fishing were recorded across the Slyne-Erris basin.

Since 1990, the Marine Institute has undertaken groundfish surveys in Ireland to evaluate the distribution and abundance of fish. The Irish Groundfish Survey (IGFS) is conducted every year between October and December, with the latest published data from 2019 (Marine Institute Ireland, 2019). The highest biomass of fish in 2019 was observed in the Celtic Sea Basin area, which is consistent with the high fishing effort observed in the Atlas of Commercial Fisheries Around Ireland (Marine Institute Ireland, 2019).

Annual statistics published by the Sea-Fisheries Protection Authority show that the annual tonnes of fish landed into Ireland, and Irish landings into foreign ports was in decline in 2018 and 2019, but had recovered to 2017 levels in 2020 (SFPA, 2021). The value of landings into Ireland observed in 2020 was €347 million from 328,000 tonnes of fish (SFPA, 2021).





IOSEA6 - ENVIRONMENTAL REPORT

FISH ACTIVITY & FISHING
Fishing Effort by Gear Type
Sheet 1 of 4

Drawing No: P2510-FISH-001 | **B**

Legend

- IOSEA6 Area
- EEZ Boundary
- 12 NM Limit

N W E S

Effort for offshore fisheries is based on three data sources:

1. Vessel Monitoring Systems (VMS):
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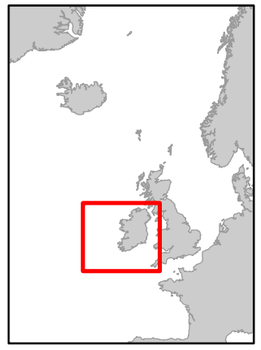

NOTE: Not to be used for Navigation

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Datum	European 1950
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File Reference	J:\P2510\Mxd\03_FISH\ P2510-FISH-001.mxd
Created By	Jessica Harvey
Reviewed By	Emma Langley
Approved By	Emma Langley

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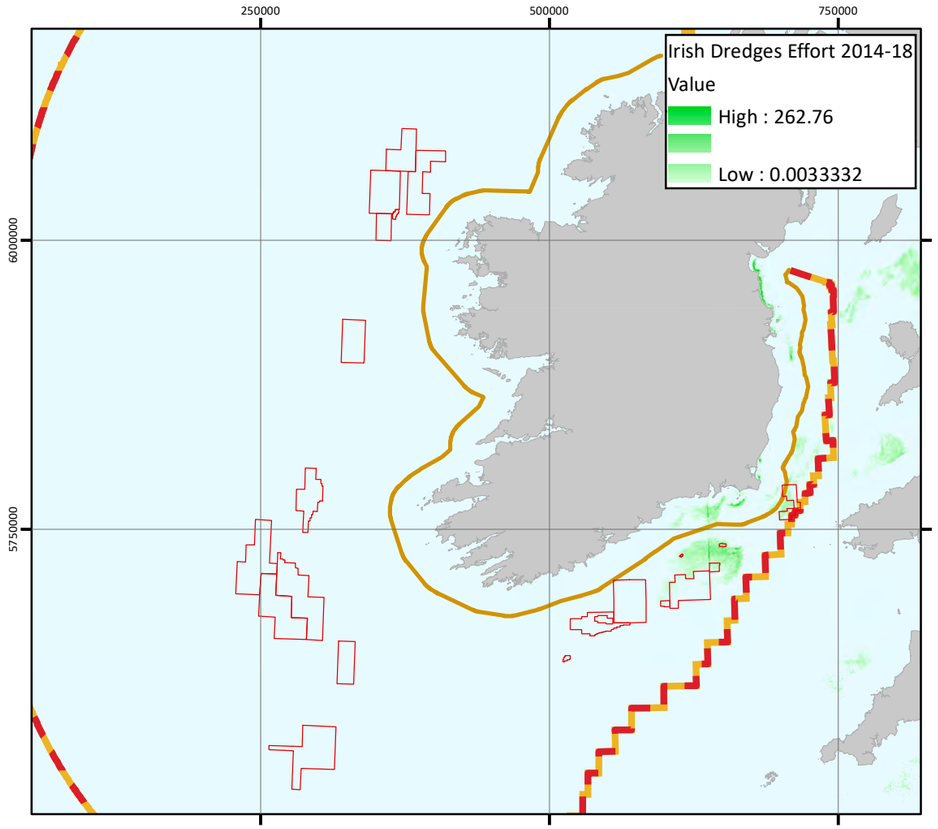

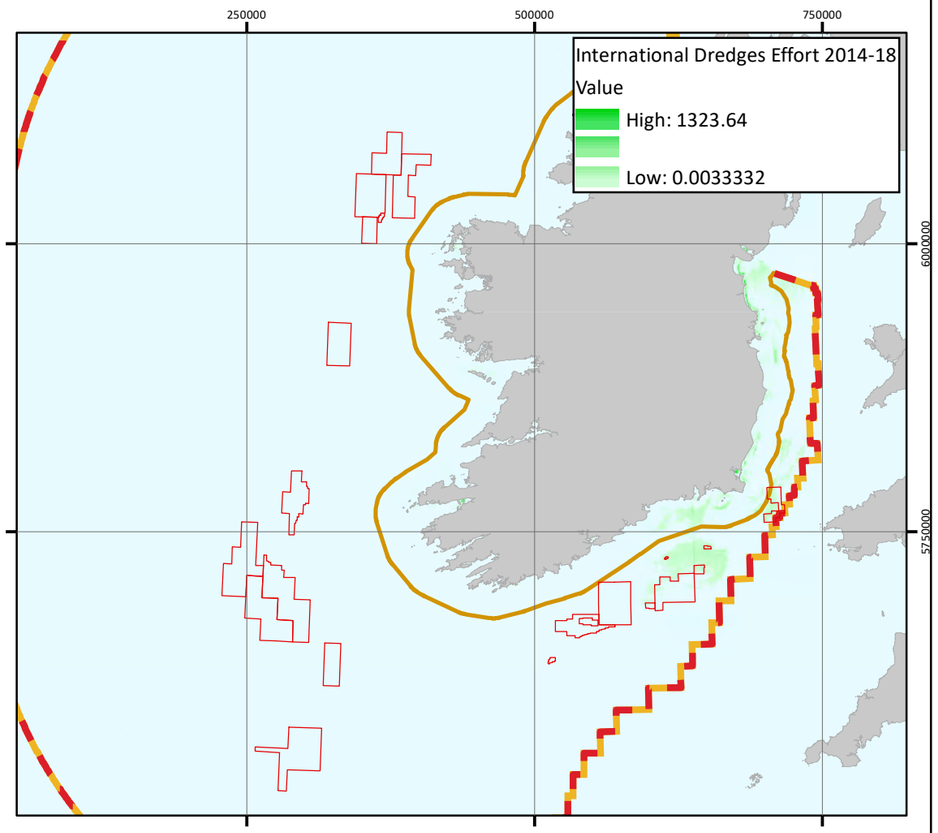

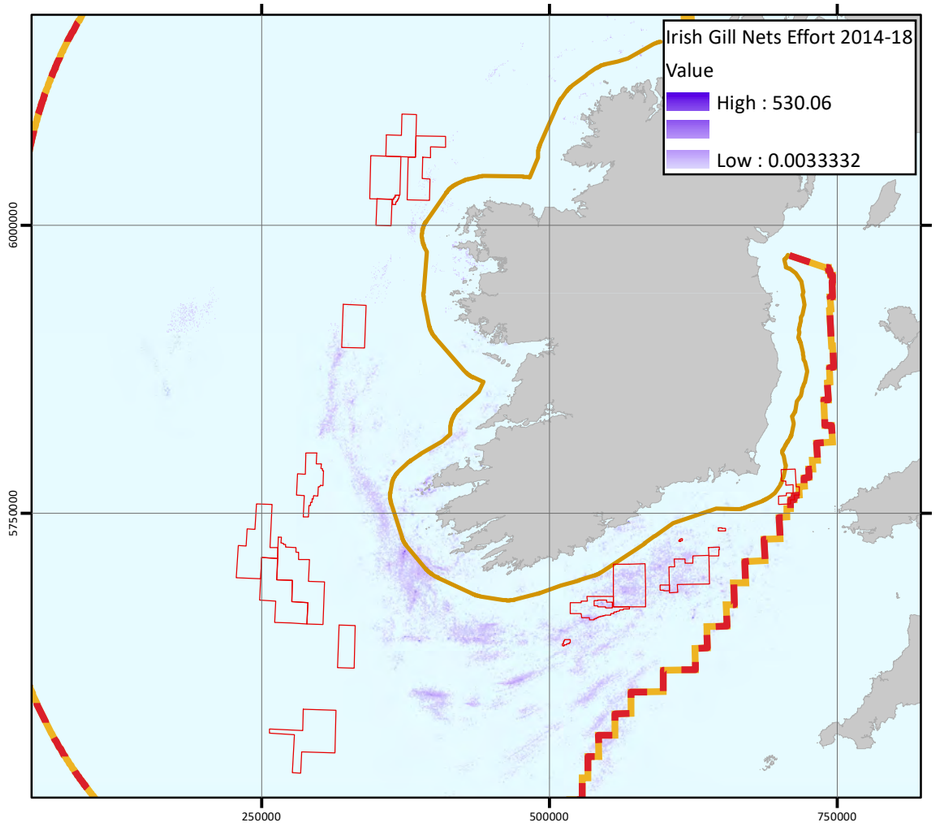

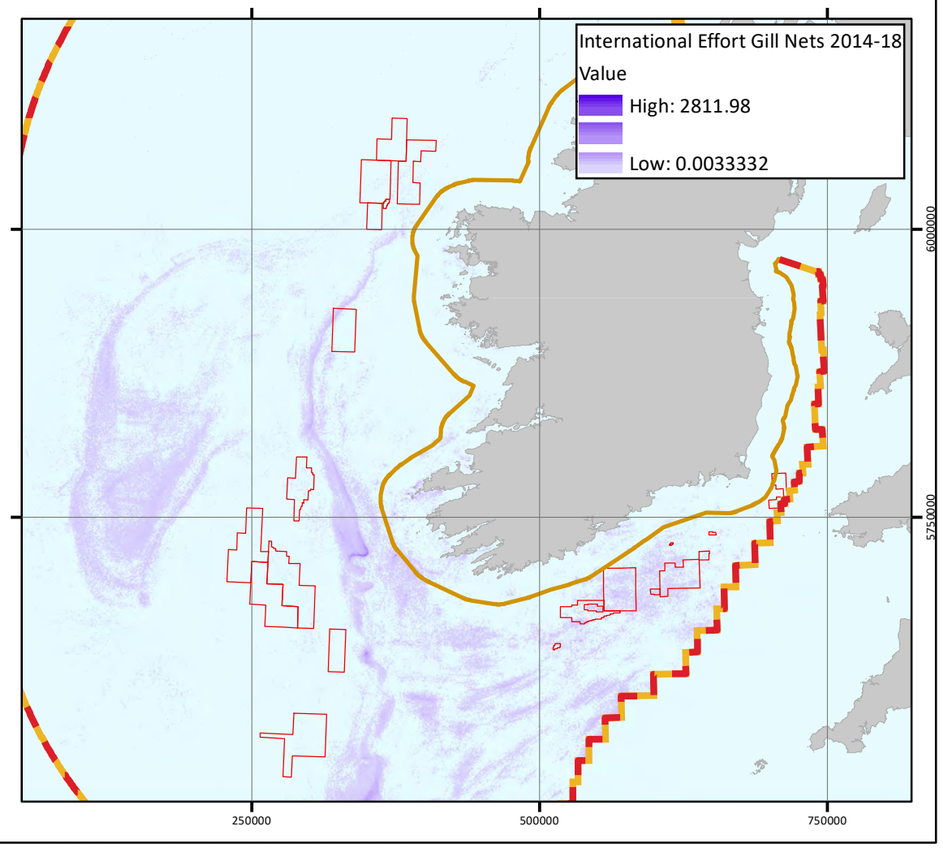

IOSEA6 - ENVIRONMENTAL REPORT

FISH ACTIVITY & FISHING
Fishing Effort by Gear Type
Sheet 2 of 4

Drawing No: P2510-FISH-002 | **B**

Legend

- IOSEA6 Area
- EEZ Boundary
- 12 NM Limit

N W E S

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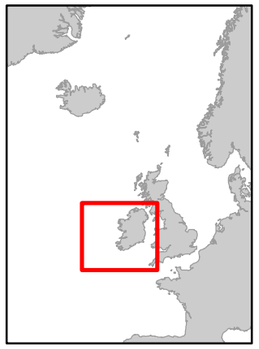

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Reviewed By	Emma Langley
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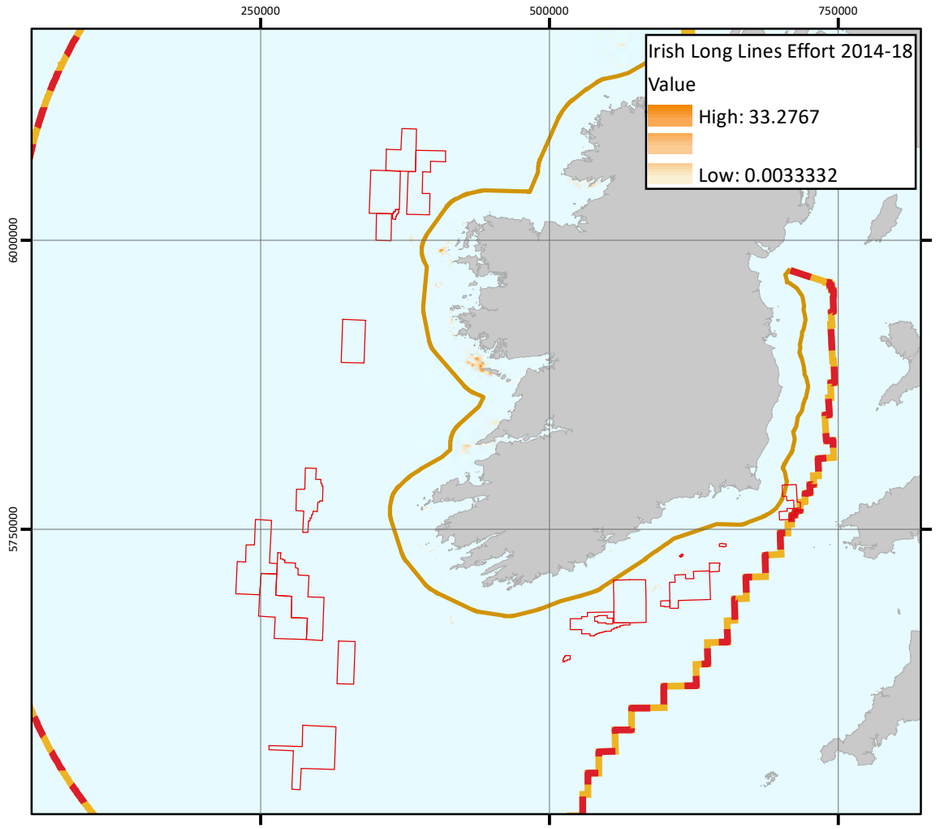

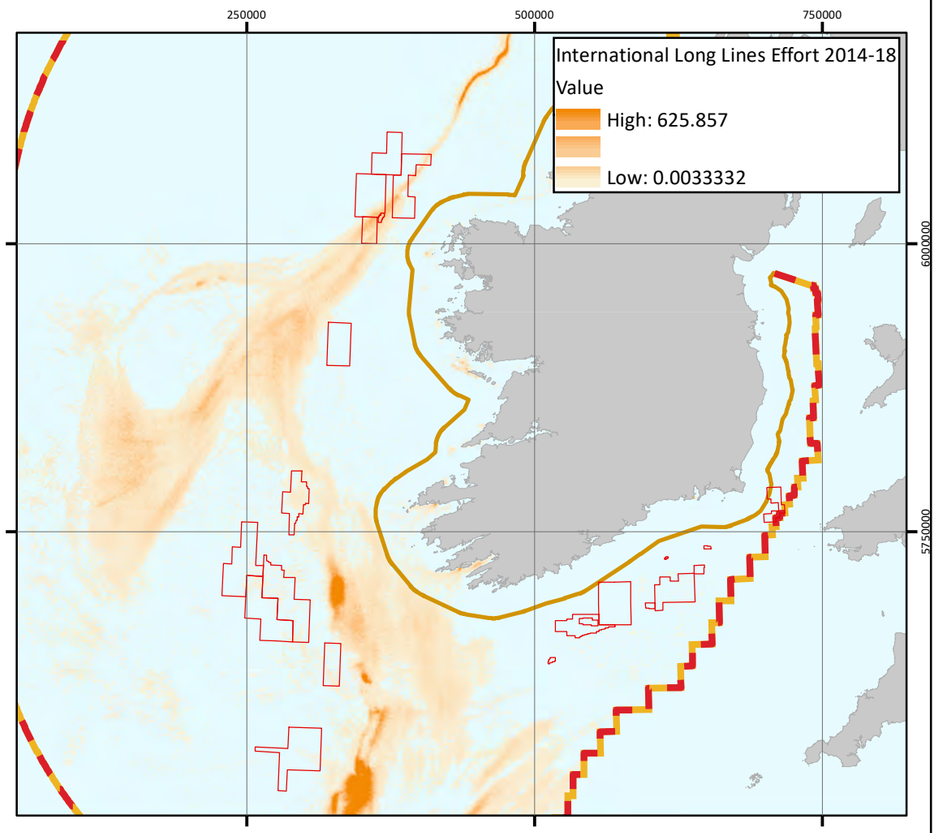

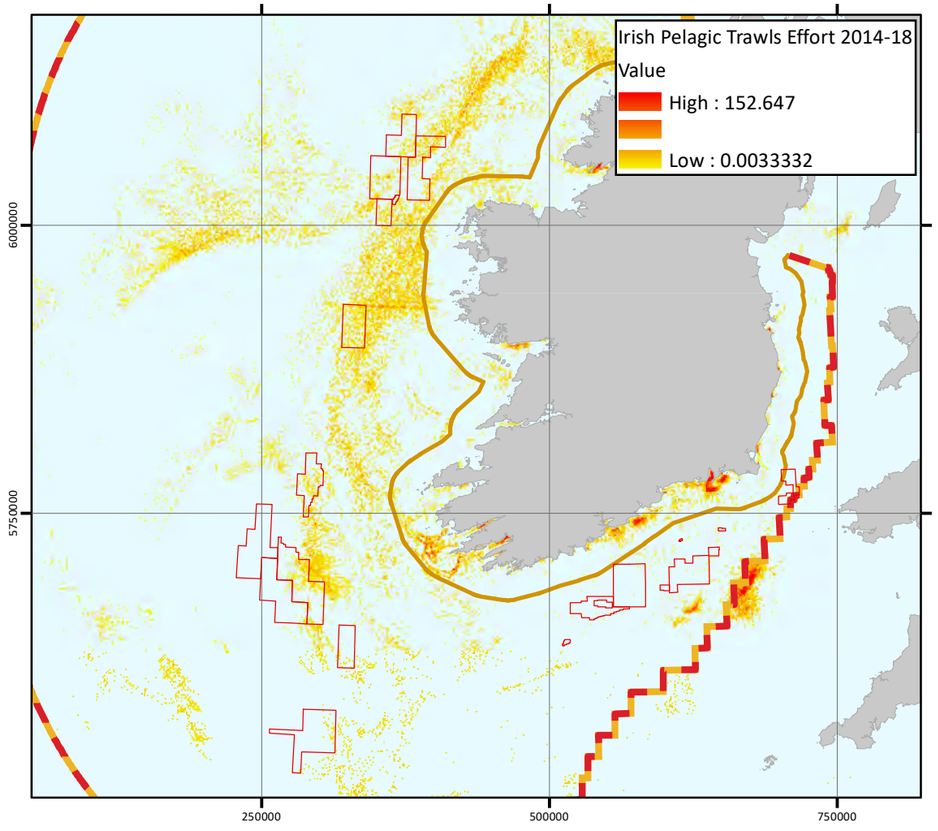

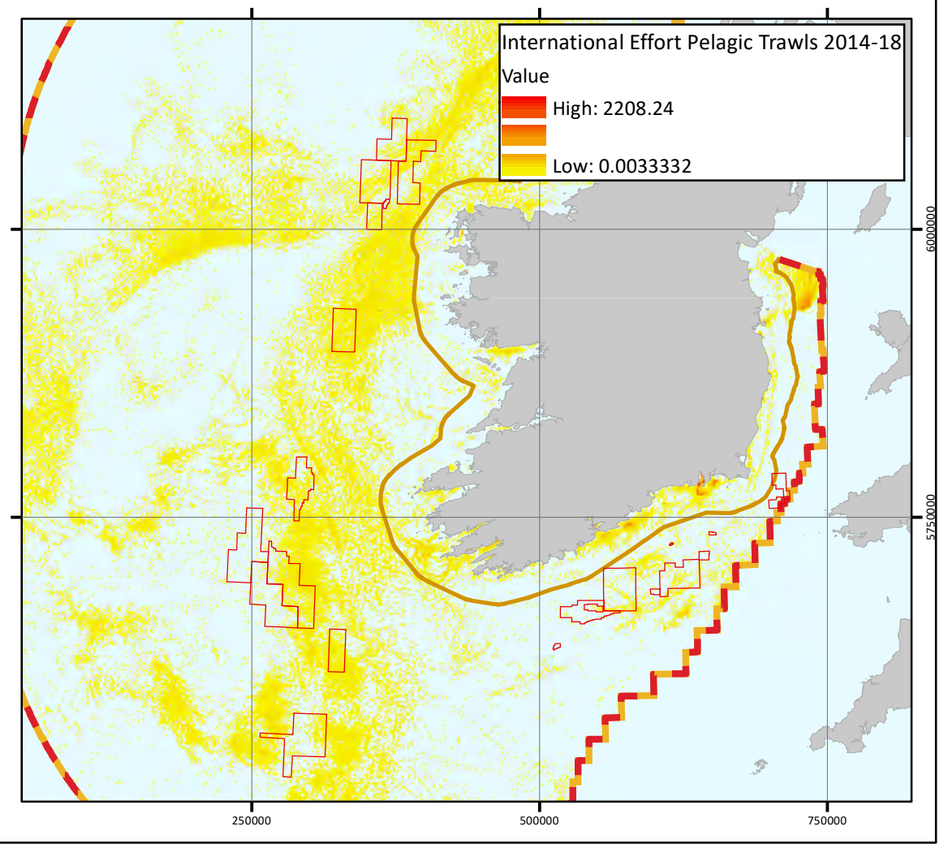

IOSEA6 - ENVIRONMENTAL REPORT

FISH ACTIVITY & FISHING
Fishing Effort by Gear Type
Sheet 3 of 4

Drawing No: P2510-FISH-003 | **B**

Legend

- IOSEA6 Area
- EEZ Boundary
- 12 NM Limit

N W E S

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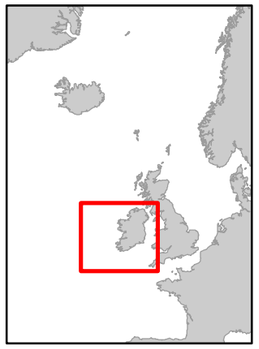

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Created By	Irinios Yiannoukos
Reviewed By	Emma Kilbane
Approved By	Emma Langley

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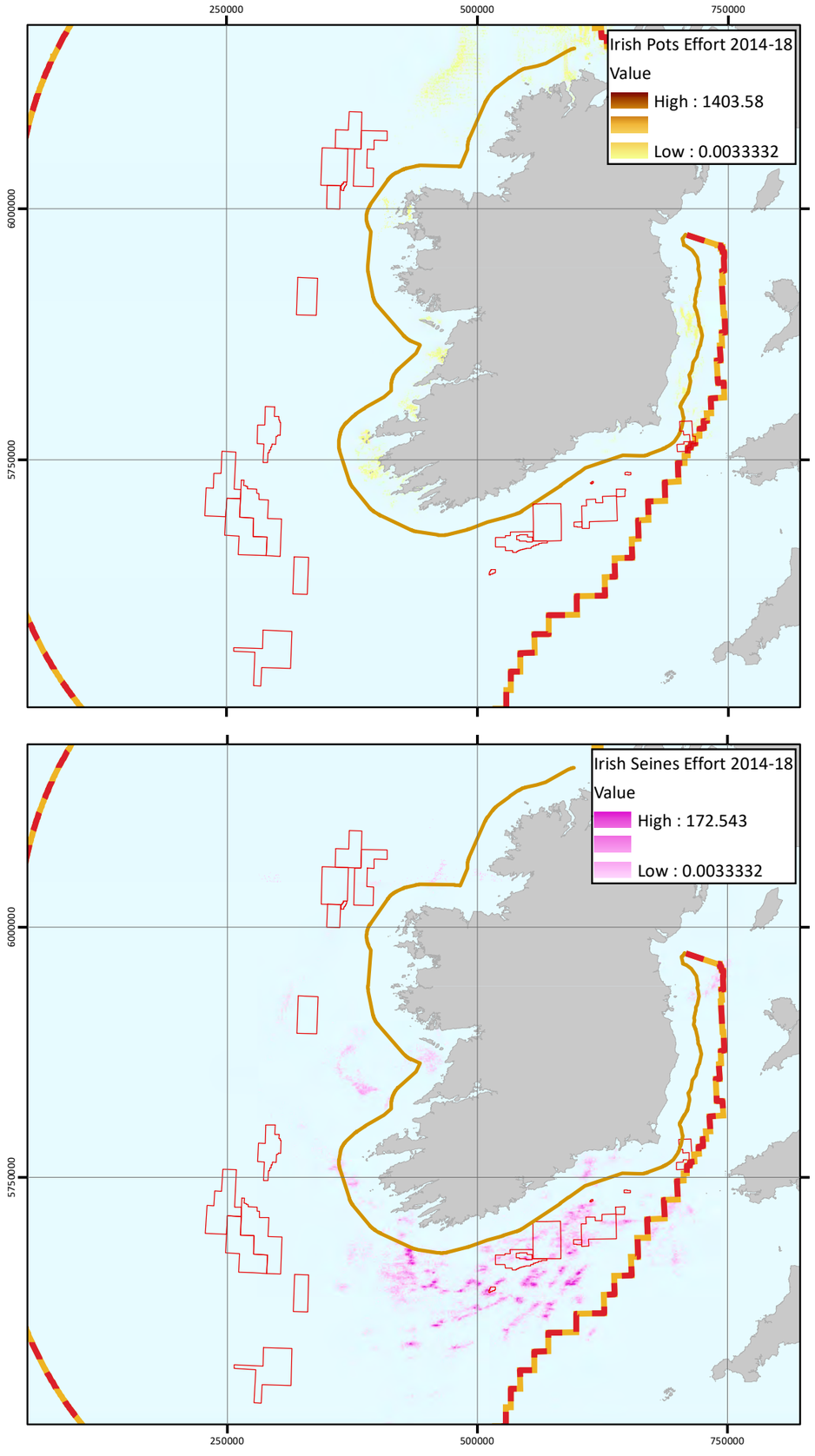

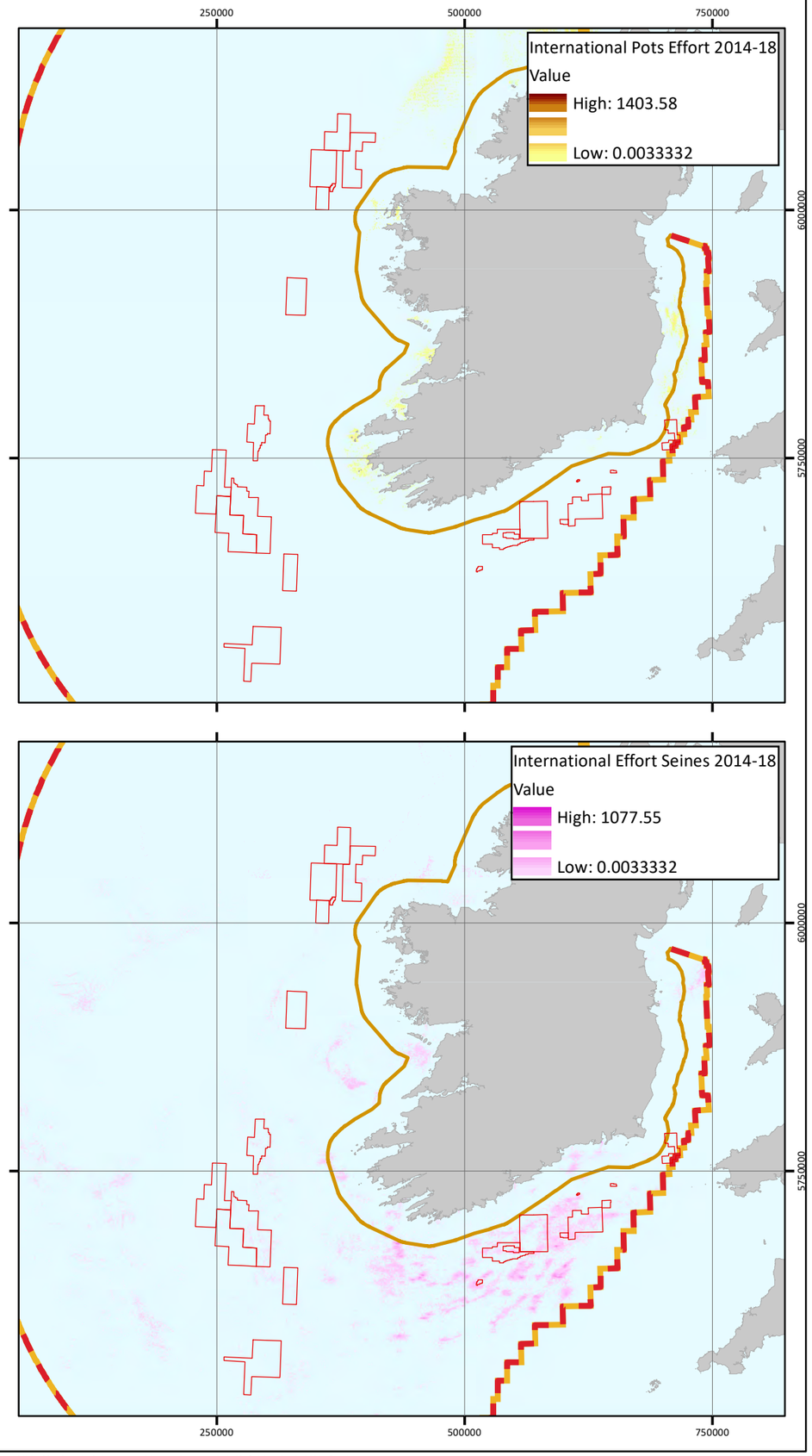

IOSEA6 - ENVIRONMENTAL REPORT

FISH ACTIVITY & FISHING
Fishing Effort by Gear Type
Sheet 4 of 4

Drawing No: P2510-FISH-004 | **B**

Legend

- IOSEA6 Area
- EEZ Boundary
- 12 NM Limit

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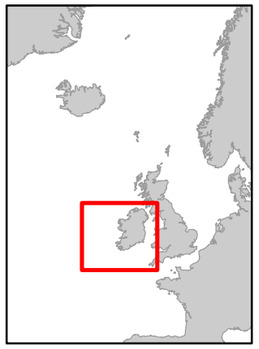

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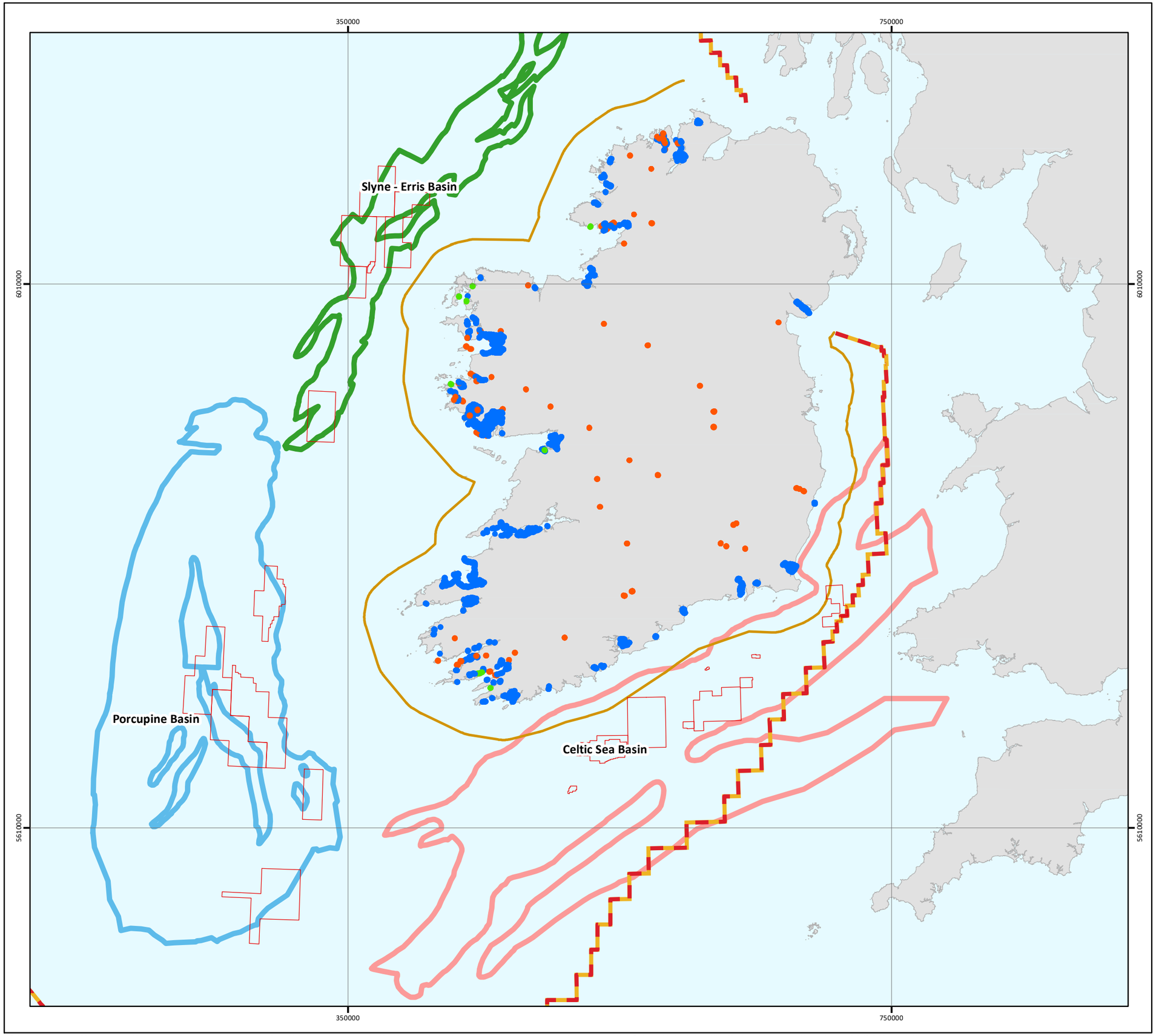
C.8.1.2 Consumers of Fish and Shellfish

The Republic of Ireland has 64 shellfish designated sites and 309 aquaculture production units A number of recent studies established that consumption of fish can have the potential to lead to a risk to exposure of environmental pollutants, which can have severe effects on human health (Vilavert et al, 2007) environmental pollutants can come from accidental oil spills or from pipeline leakage, although this is a very rare occurrence as fishing activity is not allowed to take place in areas of oil and gas exploration, it is possible that fish can come into contact with environmental pollutants.

Shellfish cultivation has been practiced in Ireland for over a century and extensive cultivation of flat oysters (Ostreaa edulis) and mussels (Mytilus edulis) on managed natural beds is still carried out at a several locations on the coastal regions of Ireland. Bottom cultivation of mussels in areas fished for sprat is common in the Irish and Celtic Sea, especially in the Wexford and Waterford estuaries (Niall McGuigan pers. comm., 2011). As well as the four core species (salmon, mussels, oysters, and scallops) which account for the majority of aquaculture output in Ireland, a range of new species have entered the sector including sea trout, cod, perch, charr, abalone, sea urchin, clam, and seahorse (BIM, 2010, Browne et al., 2007).

Figure C-41 (Drawing Reference: P2510-FISH-005) presents an overview of the aquaculture areas around Ireland. Whilst there are currently no aquaculture areas in the IOSEA6 Study Area as the aquaculture activity takes place along the coast, it is possible that increased focus on development of offshore areas will occur in the future, although this is possible it is unlikely that fish farms will appear in deep waters of the IOSEA6 Study Area, this is because' technology is advancing which allows for much more efficient aquaculture to take place closer to Irish shores' (Marine Institute, 2020). In IOSEA5 minimal baseline data on the water quality in the vicinity of these aquaculture activities was included.



IOSEA6 - ENVIRONMENTAL REPORT

AQUACULTURE SITES
Aquaculture Type

Drawing No: P2510-FISH-005 | **B**

Legend

- IOSEA6 Area

Aquaculture Sites

- Finfish
- Seaweed
- Shellfish
- EEZ Boundary
- 12 NM Limit

Offshore Geological Basin

- Celtic Sea Basin
- Porcupine Basin
- Slyne - Erris Basin

N W E S

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C.8.2 Mariculture

According to the Marine Institute (2014), the principal shellfish species produced in Ireland at the moment are mussels, Pacific oysters (Crassostrea gigas), native oysters (Ostrea edulis), clams, and scallops. The two main finfish species farmed at sea are salmon and rainbow trout. Salmon regularly represents for 85-95 percent of annual finfish production by volume. The primary salmon farming locations are in Donegal and Galway counties, which also have substantial mussel farming activities. However, there are licenced aquaculture sites across the east and southern coasts of Ireland (Department of Agriculture, Food and the Marine, 2022).

According to the latest Bord Iascaigh Mhara (BIM) Business of Seafood 2021 Report, the aquaculture sector was worth €175 million and Irish seafood exports were worth €619 million (Bord Iascaigh Mhara, 2021). Around the coast, "16,647 people are employed in the seafood industry, both directly and indirectly, with 8,705 employed in aquaculture"(BIM, 2020). In 2021, Irish aquaculture produced 42,000 tonnes of farm-gate produce valued at €175 million from 319 aquaculture production units. In comparison to 2020, aquaculture production increased volumes by 11%; however, the value of the sector fell by 2% to €175m (Bord Iascaigh Mhara, 2021). Salmon production had the greatest contribution to Irish aquaculture by value and tonne in 2021, with 13,400 tonnes worth €109 million, followed by rock oysters (€45 million, 9,900 tonnes) and rope mussels (€8 million, 11,800 tonnes).

There is also a long history of seaweed collecting along the west coast, which continues to this day with a number of processing companies. In Ireland, a number of seaweed species are ideal for cultivation (e.g. *Alaria esculenta, Palmaria palmata, Asparagopsis armata, Chondrus crispus*, and *Laminaria saccharina*); with the majority of activity in remote areas where it has an important contribution to the local economy.

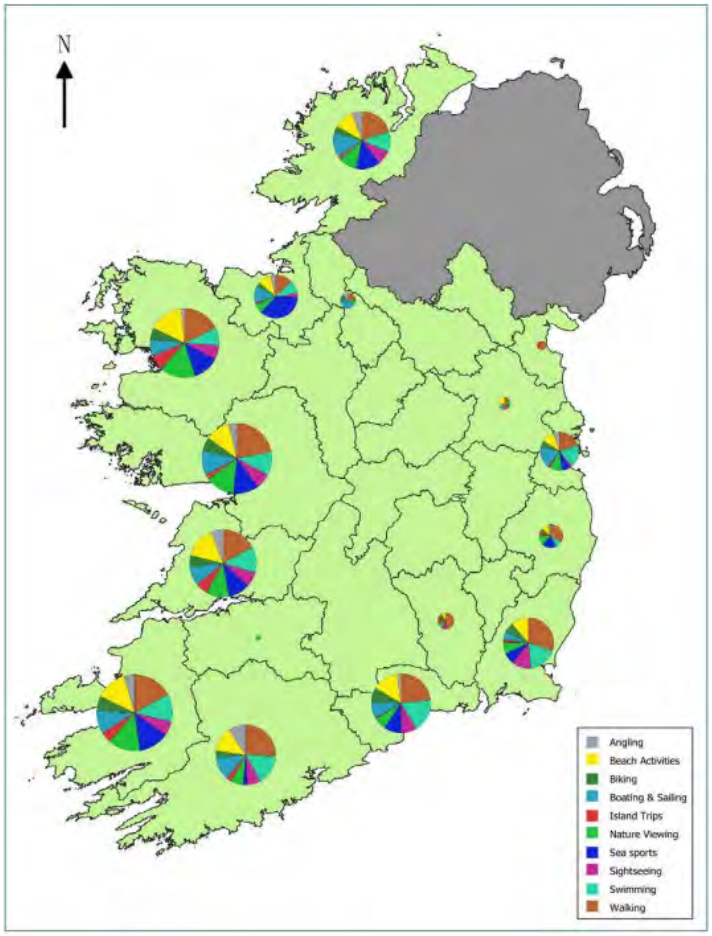
C.8.3 Recreation and Tourism

The foreshore and offshore coast around Ireland supports a wide range of developed and natural activities, which facilitates both organised and unregulated recreational and tourism use. Activities supported by the coastal environment include sailing, surf clubs, fishing, diving, wildlife watching, snorkelling, and bathing and are important for both resident and tourist populations. Ireland's high quality coastal landscapes and seascapes including beaches, rugged cliffs, picturesque harbours, and an abundance of wildlife are integral to these activities, and to sustain growth in domestic and international tourism and recreation economy.

In 2019, almost 11 million overseas tourists visited Ireland, generating €1.8 billion in revenue, and 11.6 million domestic trips generated €2.1 billion (Fáilte Ireland, 2019). Tourism in the marine and coastal environment is estimated to represent 10% of the overall tourism sector (MI, 2022). The tourism industry supports an estimated 325,000 jobs in Ireland, excluding part-time or seasonal work undertaken by students (Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media, 2019).

'Natural, unspoilt environment' and 'beautiful scenery' were amongst the most important factors to holidaymakers when considering Ireland for their holiday (Fáilte Ireland, 2019). The most popular activities related to the marine and coastal environment which were undertaken by tourists in 2018 were walking/running along the coast/beach/cliffs, coastal sightseeing, beach or seaside trips and island trips (Government of Ireland, 2018). These activities are often informal and widely dispersed, so are difficult to quantify, especially spatially. Figure C-42 indicates marine and coastal activities undertaken by overseas tourists in 2018 at broad, county scale (NUI, 2019b).

Figure C-42 Overseas tourist marine activity by coastal county (NUI, 2019b)



The increasingly popular the 'Wild Atlantic Way' scenic driving route along Ireland's west coast plays an important role to bring revenue to small businesses and rural communities along the west coast (Fáilte Ireland, 2015). Additionally, one-off events in the coastal and marine environment can contribute significantly to tourism revenue, such as SeaFest and its associated activities which generated €6.5 million in Galway (Government of Ireland, 2018).

It is estimated that there are 96 million recreational trips to the marine and coastal environment annually, worth €1.7 billion per year. Scientific and educational services in the marine and coastal environments generate a further €11.5 million per year (NUI, 2019a). Additionally, the most recent census showed that 1.9 million people, or 40% of the Irish population, reside within 5km of the coast. In Cork County, which is adjacent to the IOSEA6 North Celtic Sea Basin area, this increases to 61% of the population living within 5km of the coast (CSO, 2016).

Some of the most popular marine recreational activities in Ireland include trips to the beach or seaside, swimming in the sea, surfing, angling, bird watching, boating and sailing (NUI, 2019a). In 2003, the Economic and Social Research Institute (ESRI) found that approximately 1,475,000 people participated in water-based activities (ESRI, 2004). In 2012 a survey conducted by the Socio-Economic Marine Research Unit (SEMRU), 73% of the 812 respondents visited that coastline at least once in the last 12 months, and 38% more than ten times (NUI, 2019a).

Boating, including cruising in the sea in power boats, rigid inflatable boats or other boats with in-board engines accounts for just under 10% of national marine activity expenditure. When combined with non-power boating, this rises to 18.35% of marine activity expenditure (NUI, 2019a). Figure C-43 (Drawing Reference: P2510-AIS-001) shows that recreational boating predominantly occurs within 10km of the shoreline and along the east and south coasts of Ireland (Marine Atlas, 2022).

The most popular type of angling in the marine and coastal environment is shore angling, which is undertaken from beaches, rocks, estuaries and piers and is most popular between May and September. It is estimated that approximately 127,000 people so sea angling every year along Ireland's 5,600 kilometres of coastline (Hynes, Gaeven and O'Reilly, 2017; NUI, 2019a).

Recreation and tourism in the marine and coastal environment plays an increasingly important role in the lives of Ireland's people and its economy. The extent of the IOSEA6 Study Area means that the potential impacts on tourism and recreation are wide-ranging, and particularly significant in areas of rural communities.

Key recreation and tourism-related activities to be considered as part of IOSEA6 are as follows:

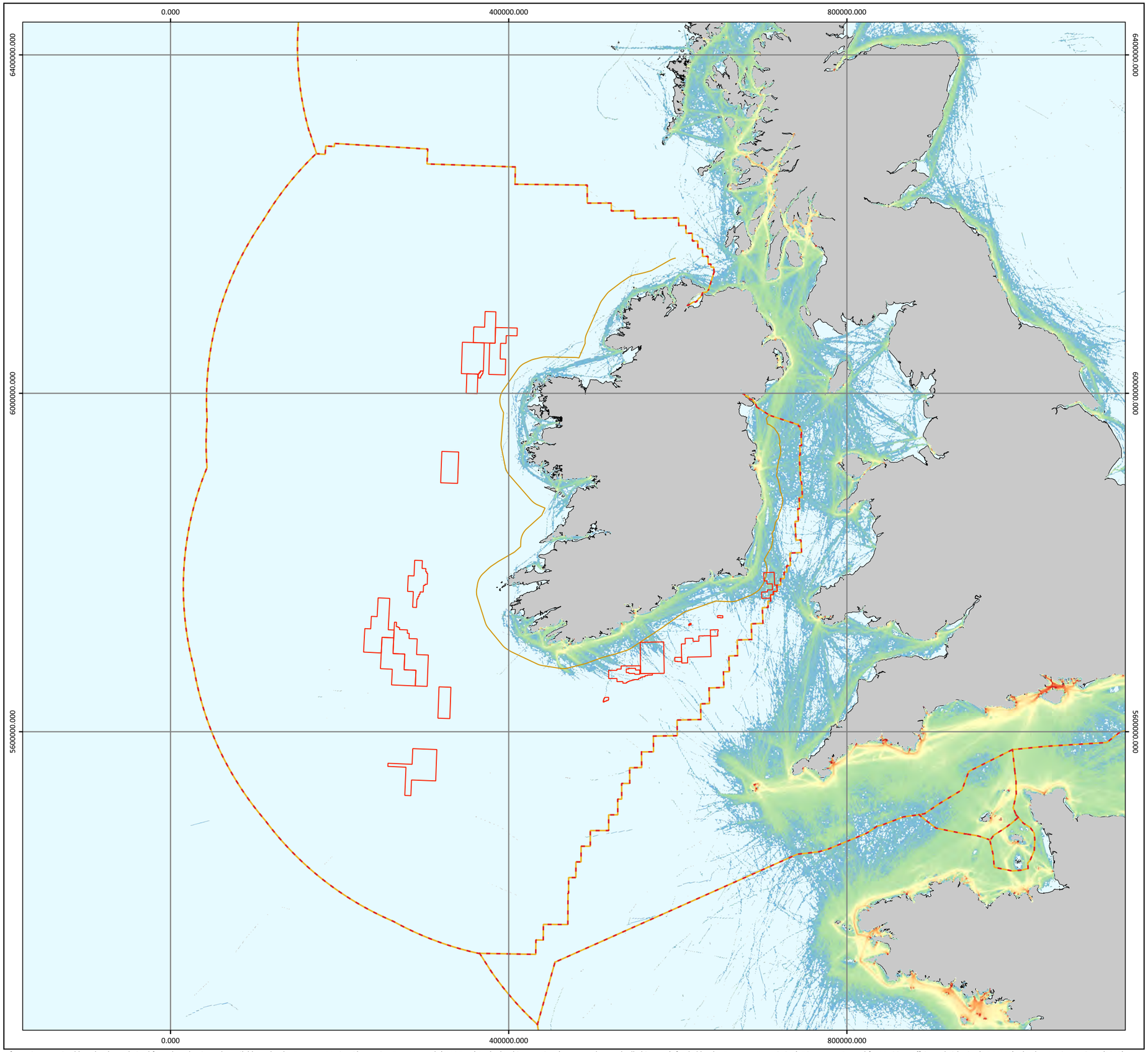
- Recreational fishing trips and boat tours;
- Sailing/boating;
- Cruise shipping;
- Water sports (including diving and snorkelling);
- Coastal walking;
- Coastal amenities, resorts and tourist centres;
- Beach trips;
- Whale and dolphin watching; and
- Bird watching.

IOSEA6 - ENVIRONMENTAL REPORT

AIS VESSEL DENSITY

Recreational Boating AIS Density

Drawing No: P2510-AIS-001 | B



Legend

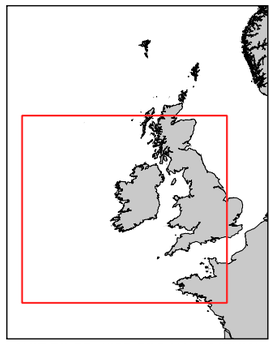
- IOSEA6 Area
- EEZ Boundary
- 12 NM Limit

AIS Vessel Density

(Hours per Square Km per Month)

- <0.1
- 4000+

N



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Date	2022-11-15 09:34:38
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Scale @A3	1:4,500,000
Data Sources	EMODnet; GEBCO; MarineRegions; DECC
File Reference	J:\P2510\Mxd\04_AIS \P2510_AIS.qgz
Created By	Jessica Harvey
Reviewed By	Emma Langley
Approved By	Emma Langley

An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

intertek

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C.8.4 Hazardous Substances

Offshore oil and gas operations bring significant risk for workers involved in these operations, with many hazardous materials used in offshore oil and gas operations. Chemical usage in oil and gas industry is high and these chemicals can have an adverse effect on workers involved in the industry during the operational phase of projects. General guidance for the management of hazardous materials is provided in the General EHS Guidelines. The main use of chemicals is for drilling and production operations.

Offshore chemical use is of major concern in the working environment on offshore installations; some chemicals may cause allergy, skin irritation or more serious effects such as cancer for workers.

With regard to chemical use, the following measures are already in place, either integral with good practice, or with regulatory systems, or both.

- Storage and transportation of chemicals on the drilling rig will be in line with industry standard procedures and best practice, which have been designed to minimise the risk of loss of containment and impacts upon human health and the environment; and
- The approved Offshore Contingency Plan (OSCP) will also address procedures in the event of chemical spillages.

The following act and regulations have also been implemented in the Irish Offshore industry, which includes oil and gas exploration:

- Safety, Health and Welfare (Offshore Installations) Act, 1987
- S.I. No. 13 of 1991- Safety, Health and Welfare (Offshore Installations) (Installation Managers) Regulations, 1991
- S.I. No. 14/1991-Safety, Health and Welfare (Offshore Installations) (Emergency Procedures) Regulations, 1991
- S.I. No. 15/1991 - Safety, Health and Welfare (Offshore Installations) (Life-Saving Appliances) Regulations, 1991
- S.I. No. 16/1991: Safety, Health and Welfare (Offshore Installations) (Operations) Regulations, 1991

In addition to the act and regulations outlined above, the Commission for Regulation of Utilities (CRU) and offshore safety has implemented a Petroleum Safety Framework. “Petroleum (Exploration and Extraction) Safety Act 2015 gives the CRU, with the HSA, responsibility for the safety regulation of petroleum exploration and extraction activities in Ireland” (HSA, 2022). This act gives a requirement to the CRU to implement a risk-based safety framework for petroleum exploration and operations. This framework is a system which regulates the safety of petroleum related activities.

Although the severity of an accident relating to hazardous substances would be high, with the auditable regulatory and reporting system in place for offshore chemical usage, the probability of such incidents is generally small and as such it is most likely that there is a low risk to human health from hazardous substances. It is therefore concluded that impacts from hazardous substances on human health can be scoped out from any further assessment within IOSEA6.

C.8.5 Well Blow Outs

A blowout can be caused by the uncontrolled flow of reservoir fluids into the wellbore which results in an uncontrolled release of hydrocarbons into the marine environment. Blowouts may occur during drilling, production or work-over phases, “blowouts are often inevitable but the risk can be maintained to be below the acceptable criteria with effective strategies devised by risk analysis”(Yin et al. 2021).

"Blowouts can have significant environmental impact, with one well blowout occurring in 2018 releasing enough methane to rival a significant percentage of the man-made emissions of several European countries over an entire year"(UN Environment Programme, 2020).There are HSE safety measures which should be in place in order to prevent a well blowout, including:

- Maintaining wellbore pressure by effectively estimating formation fluid pressures and strength of subsurface formations;
- Installing a Blow Out Preventor (BOP) system that can be closed rapidly in the event of an uncontrolled influx of formation fluids and which allows the well to be circulated to safety by venting the gas at surface and routing oil so that it may be contained; and
- Facility personnel should conduct well control drills. Blow out contingency measures should be included in the facility's emergency response plan

With these systems and measures in place it is not considered that there is a high risk to human health from well blowouts and, therefore, this can be scoped out from any further assessment within IOSEA5.

C.8.6 Fire and Explosions

A gas 'blowout' may be caused when the drill bit encounters a shallow or a deep pressurised gas zone or an over-pressured rock layer in the subsurface without being prepared to counter the pressure.

This allows the gas or the fluid from the rock layer to enter the drilling pipe and up towards the surface. Any gas zone penetrated before a blowout preventer (BOP) has been installed is called a shallow gas blowout.

"A survey by ICES (International Council for the Exploration of the Sea) indicates that more than 20% of well blowouts in offshore drilling were caused by shallow gas" (Ren. S et al 2019). Shallow gas blowouts occur in approximately one in every 200 wells drilled (UNEP, 1997).

Whilst potentially dangerous, there are few studies available on gas interactions with the marine environment. Naturally occurring gas seeps have been linked to gas hydrates and form a potential natural geohazard in the marine environment.

In addition to planned operations such as power generation, atmospheric emissions may also occur as a result of a blowout in an emergency situation. Emissions would be reservoir specific and likely to contain a large proportion of methane (CH4) with smaller amounts of volatile organic compounds. In the unlikely event of an explosion and hydrocarbons being burnt then combustion products including carbon dioxide (CO2) and carbon monoxide (CO) will be emitted.

Seabed features, such as pockmarks and doming features, would be of concern for safety reasons when planning drilling activities. Such features are identified within the IOSEA6 Study Area as a part of the assessment. See the Annex E, sections on Geology, Seabed and Ocean Circulation, for further details.

Guidance on fire precautions and prevention and control of fire and explosions is provided in the General EHS Guidelines. The following measures are already in place, either integral with good practice, or with regulatory systems, or both:

- The potential for shallow gas should be identified and minimised by site survey prior to drilling;
- The BOP is installed to prevent gas blowout once drilling has progressed beyond the riserless stage;
- Gas detection systems are installed on mud shakers to give early indication of any potential for gas blowout;
- Adequate ventilation in closed or partially closed spaces is required. Air intakes should be installed to ventilate facility safe areas and areas that should be operable during emergency situations. If

necessary, means to detect dangerous gas concentrations in the intakes, and automatic shut-down in the event of dangerous gas levels should be installed; and

- Training in safety awareness and response procedures for drilling crews will ensure that the risk of a blowout will be minimised, and that the appropriate responses will be made should one occur.

IOSEA4 concluded that on the basis of accidental events statistics compiled for exploration activity, the risk of a gas blowout during exploration, appraisal and development drilling is considered to be very low. With the safety measures listed above already in place it is considered that human health impacts from gas explosions can be scoped out from any further assessment within IOSEA6.

C.8.7 Personnel Transfer's and Vessels

Personnel transfer to and from offshore facilities is typically by helicopter or boat. It is assumed that the exploration activities will involve personnel transfer by boat only. General HSE measures which should be in place for the transfer of personnel by boat include:

- Specific safety procedures for vessel transport of personnel are required and a safety briefing for passengers should be provided systematically along with safety equipment;
- Facilities for mooring boats during the transfer of personnel should consider adverse sea conditions to protect the boat and the facility structure from heavy impacts; If personnel are transferred from the boat to the facility by crane, only cranes, cables, and baskets certified for personnel transfer should be used.
- Support vessels should have the relevant permits and certifications to comply with the requirements of the International Maritime Organization. A Vessel Safety Management System should be implemented.

With these systems and measures in place it is considered that there is a low risk to human health from personnel transfer by boat and this can therefore be scoped out from any further assessment within IOSEA6. Ship sinkage and collision is discussed below.

C.8.8 Ship Sinkage and Collisions

There are a number of the principal ports on the Irish coast are located within the in the vicinity of the IOSEA6 Study Area, including Cork, Waterford, New Ross, Rosslare and Dublin. In addition, the North-east Atlantic Ocean, and the Celtic and Irish Seas and have historically been traversed by major shipping routes and this continues to be the case.

Shipping densities will be established as part of the full IOSEA6 assessment (Figure C-43). The IOSEA6 assessment will include an assessment of the risk of interaction or collision with another vessel in the IOSEA6 Study Area in light of the levels of routine shipping off the west, east and south-east coasts of Ireland.

C.8.9 Existing Environmental Problems

C.8.9.1 Commercial Fisheries and Mariculture

Ireland historically had a significant problem with overfishing, according to a report published by the New Economics Foundation (2020). In recent times there have been reports of overfishing occurring Irish waters, New Economics Foundation 2020, and Birdwatch Ireland (2019). However, in the IOSEA6 Study Area significant progress has been made in alleviating the historical issue of overfishing in Ireland bringing down fishing mortality rates to sustainable levels. The latest ICES fisheries overview for the Celtic Seas (ICES, 2021) clearly shows declining levels of overfishing for many stocks and species groups especially since around 2000. The most recent Marine Institute Stock Book 2021 indicates that the majority of fish stocks are not overfished (DAFM 2022).

"Ireland collected 765,152 tonnes more fish from the seas than was scientifically advised", this has made Ireland the second worst offender to overfishing in the EU behind Spain. An investigation conducted by the EU into Ireland's application of Common Fisheries Policy rules has resulted in 'Ireland potentially loosing tens of thousands of tonnes of fish in their fishing quotas, along with almost €40 million in EU funding' (Horgan-jones, 2021). This has not just been a new occurrence for Ireland with multiple reports over the last years, for example in 2018 the EU Commission identified serious deficiencies in the Irish fisheries control system in the fishing harbour of Killybegs Co.Donegal. A draft audit in 2018 found that Ireland's fishery protection controls suffer from severe and significant weaknesses, with a lack of effective enforcement and penalties" (Siggins 2018).

C.8.10 Potential Sensitivities to the plan

There are a number of issues and problems identified with regards to direct impacts on population which are shown in Table C-46 below. With regards to direct impacts on human health, there is very little direct impacts. However, indirect impacts on human health could occur from impacts on water quality which can cause impacts on fisheries, businesses, and recreation, such as in relation to a hydrocarbon spill. Potential indirect impacts will be considered within the assessment stage.

Table C-46 Summary of potential pressures to the Plan on Population and Human Health

Plan activity	Aspect	Pressure	Sub-Topic	Key sensitivities
Seismic survey and drilling	Marine discharges (normal operations / drill rigs)	Sediment contamination / potential for bioaccumulation in food chain	Consumers of fish/shellfish	Indirect effects of sea water contamination affecting fish/shellfish and then passing into the food chain, likely to be negligible.
Drilling	WBM & WBM contaminated cuttings discharge from surface, including payzone cuttings	Sediment contamination / potential for bioaccumulation in food chain	Consumers of fish/shellfish	Indirect effects of sea water contamination affecting fish/shellfish and then passing into the food chain, likely to be negligible.
Seismic survey	Accidental events (e.g. loss of cable oil, diesel, equipment, collision)	Human Health / injury	Oil and gas industry workers and other users of the sea.	Potential for death or injury of workers or other users of the sea due to vessel collision. The Oil and Gas sector has a good health and safety record.
Seismic survey and drilling	Accidental events (e.g. loss of diesel, chemicals, base oil; worst case scenario - blowout)	Hydrocarbon & PAH contamination	Commercial fishing	A severe hydrocarbon and PAH contamination could lead to direct (e.g. restrictions to activities in the local area) or indirect (e.g. reduced amenity value, impact to water quality or marine life) impacts on recreation and tourism.
			Mariculture	
			Recreation and Tourism	
Seismic survey and drilling	In-combination effect		Commercial fishing	No potential impact predicted for the receptors.
			Mariculture	
			Recreation and Tourism	

C.8.11 Data Gaps

Table C-47 Summary of data gaps in the topic Population and Human Health

Section	IOSEA5 identified data gap	Update for IOSEA6	IOSEA6 Data Gap	Availability of other datasets
Commercial Fishing and consumers of fish	The primary issue which has affected previous IOSEAs is the lack of comprehensive overviews of commercial fish distributions and the fisheries that exploit them. This is a result of the scale and remote	Updated versions of key resources such as the Irish Groundfish Survey (IGFS) and the Atlas of Commercial Fisheries (Marine Institute). The third edition Atlas of Commercial Fisheries Around	The issue of the lack of overview of commercial fish distributions which was identified in IOSEA5 still remains. Ground fish survey and other MI fisheries surveys are	The VMS linked logbook information in the Atlas of commercial fisheries is available for the years 2019-2022 with a lag of around 1 year due to data transmission delays. The data is available from the Marine Institute but is just not published.

Section	IOSEA5 identified data gap	Update for IOSEA6	IOSEA6 Data Gap	Availability of other datasets
	nature of much of the assessment area, reliability of catch statistics and the nature of some data relating to fishing activities (for example VMS data are confidential and reported only at a basic resolution). However, there is sufficient information to illustrate the general distribution of fishing effort and improving data on the underpinning stocks such that it is expected that adequate information will be available to inform the IOSEA5 assessment.	Ireland provides the most comprehensive fisheries effort distribution to date. Whilst improvement fish stocks is still required to fill the data gaps identified in IOSEA5, the new edition of the Atlas of Commercial Fisheries is adequate to inform approximate fisheries distribution for the IOSEA6 assessment.	conducted annually (Nephrops UWTV and acoustic survey). Main data gap lack of species distributions models and up to date synthesis of knowledge on essesntial fish habtiats..	The Irish Groundfish survey is undertaken annually.
Mariculture	None identified.	The Status of Irish Aquaculture Report published by the Marine Institute and mentioned in IOSEA5 has not been updated since 2007. Therefore, IOSEA6 will instead use the Business of Seafood report, which is published by BIM as an indicator of the status and performance of aquaculture in Ireland.	None identified.	The 'Business of Seafood' report is published by BIM annually (Bord Iascaigh Mhara, 2021). The location of current aquaculture licenses are regularly updated and published by the Department of Agriculture, Food and the Marine (Department of Agriculture, Food and the Marine, 2022).
Recreation and Tourism	None identified.	IOSEA6 has utilized the latest tourism and recreation data and publications from Fáilte Ireland, the Government of Ireland and the University of	Due to the impact of Covid-19, data from 2020 and 2021 was not deemed to be an accurate representation of regular recreation and tourism. There	The 'Ireland's Ocean Economy' report is updated by SEMRU and NUI annually. The 'Harnessing Our Ocean Wealth Review of Progress' is updated annually

Section	IOSEA5 identified data gap	Update for IOSEA6	IOSEA6 Data Gap	Availability of other datasets
		Ireland However, it should be noted that Fáilte Ireland typically release a report on tourism in Ireland annually. However, there has not been a new report since 2019.	was also subsequently limited published data available for recreation and tourism during these years. Therefore, data from pre-Covid has been used.	by the Government of Ireland, coinciding with the annual Our Ocean Wealth Summit.
Hazardous substances	No data gap identified	No update		
Well blow out	Up to date information regarding the frequency of well blow outs	No update		
Fire and Explosions	No data gap identified	No update for IOSEA6	No data gap	
Personnel transfer	Information on likely vessel traffic due to seismic survey work and personnel transfers and moving drilling rigs.	No update		
Ship sinkage and collision	Details of historic collision data within the IOSEA6 Study Areas	No update		

C.8.12 Predicted future baseline for the topic

Risks to human health are likely to remain low due to the regulatory systems in place in order to preclude significant impacts to the health of employees. OSPAR sets targets for the reduction of accidents and improvements to occupational health and safety of oil and gas workers within the North-east Atlantic. However, the predicted baseline for future studies for elements of the Population topic is outlined below.

C.8.12.1 Commercial fishing

Future fishing activity will depend on the interaction of multiple factors such as fish and shellfish stock resources, fisheries management and the commercial viability of specific fisheries.

C.8.12.2 Mariculture

The turnover of the aquaculture sector between 2010 and 2018 has fluctuated from €118 million to €176 million (NUI, 2019b). The National Strategic Plan for Sustainable Aquaculture Development, outlined in the National Marine Planning Framework (NMPF) aims to achieve sustainable growth of the industry towards 2040 (Department of Housing, Local Government and Heritage, 2021). However, this will depend on the economic condition and the balance between production costs and market prices.

C.8.12.3 Tourism and Recreation

Tourism has grown year on year from 2015 to 2019, with total revenue increasing from €7,688 million to €9,532 million in this period (Fáilte Ireland, 2019). Whilst there was a decline due to Covid-19, it is expected that tourism will quickly recover and continue to grow into the future, especially with promotion of schemes such as the “Wild Atlantic Way” and SeaFest. Increased exploration and/or pollution are unlikely to have a major impact on future recreation and tourism.

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