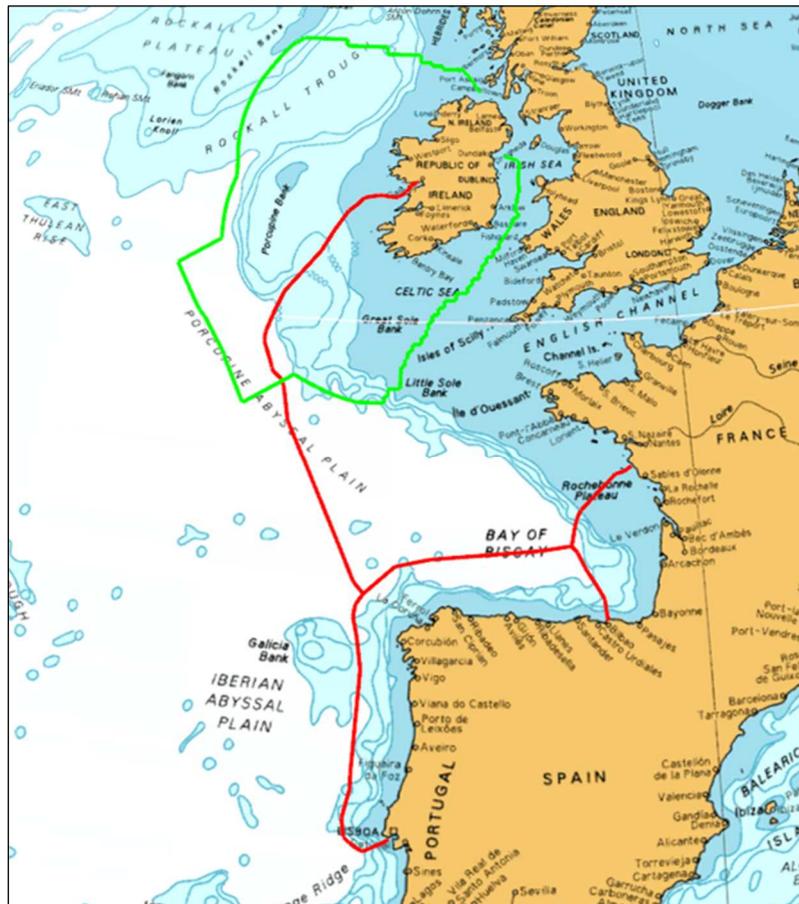


ALTEMAR

Marine & Environmental Consultancy

Altemar response to alteration recommendation to the period of Permitted Maritime Usage as outlined in the Specific Condition 37 (i) (08/05/2025) in Maritime Usage License MUL230024 (Pisces-fibreoptic cable marine survey).



15th January 2026

Prepared by:

Bryan Deegan (MCIEEM) of Altemar Ltd.

On behalf of:

Deep Sea Fibre Networks Ltd.

Altemar Ltd., 50 Templecarrig Upper, Delgany, Co. Wicklow. 00-353-1-2010713. info@altemar.ie

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1. INTRODUCTION

The following response has been prepared by Altemar Ltd. at the request of Deep Sea Fibre Networks Ltd. in relation to recommendation of an amendment by MARA to the applicant's response to 'Specific Condition 37' for the granted Pisces marine fibre optic cable marine survey in Irish waters. Surveys are currently underway outside the Irish EEZ. As a result of significant weather down time delays over the autumn and winter, the marine survey within Irish waters has been pushed into the 1st February and 30th June window.

This alteration recommendation relates to period of Permitted Maritime Usage as outlined in the Specific Condition 37 (i) (08/05/2025) in Maritime Usage License MUL230024. The purpose of this specific condition (i.e. Permitted Maritime Usage outside 1st February and 30th June to “ensure least disturbance to known fish spawning along the survey route”, based on findings within the application AIMU report (17th April 2024, Section 8.3) which highlighted “The risk of insignificant short-term disturbance to know fish spawning areas”.

The following report provides additional information to the findings of the Ecological Impact Assessment and AIMU report and considers further detail on the proposed methodology, duration and scale of the proposed project in the context of the total available spawning areas and timings of the subject species of concern, if survey were to be carried out in the 1st February and 30th June window . It also provides details on the potential impacts of the proposed survey equipment on commercial fish stocks who's spawning areas overlap with the survey route.

It should be noted that the subject matter of the response is in relation to timing of works within commercial fish spawning areas and is not related to Appropriate Assessment or the Habitats Directive or Annex IV species or Annex habitats.

2. BACKGROUND TO ALTEMAR LTD.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include residential, infrastructural, renewable, oil & gas, private industry, local authorities, EC projects and State/semi-State Departments. Bryan Deegan is the managing director of Altemar Ltd.. He is a marine biologist and an environmental scientist with 31 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science (Trinity College Dublin), BSc (Hons.) in Applied Marine Biology (Heriot-Watt, Edinburgh), NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture)(GMIT, Galway). Bryan has carried out over 1,500 marine biodiversity/habitat mapping based SCUBA dives for the National Parks and Wildlife Service in Ireland and carried out annual rocky shore ecology surveys for the Environmental Protection Agency. Altemar have previously carried out environmental assessments for site survey and main lay (AA screenings, NIS, and EcIA's) for 14 fibre optic cables in Ireland and the UK.

3. RE SPECIFIC CONDITION 37 (I) IN MARITIME USAGE LICENSE MUL230024

Within the “Response to Supplementary Material submitted by the applicant on Minded to Determination and Reasons for the Conditions” issued by MARA on 8th May 2025, the following applicant response to original Specific Condition 37 (i) was outlined:

“The applicant has requested that Specific Condition 37 (i) as quoted above be removed from the licence. They felt the reason given for proposed licence Specific Condition 37 “To ensure the protection of the marine environment” was not justified, although the applicant made clear they had no issue with Specific Condition 37. (ii) which restricts activities in the Aran fishing grounds for Nephrops.

The applicant provided supplementary information relating to this in the form of a report which visualised known spawning areas based on Marine Institute data and provided detail on the broadcast spawning method used by the fish species under

consideration. The applicant argued that, as the known spawning areas do not cover the entire survey route and the marine survey is along a narrow corridor within the relevant area, the low impact, short-term and transient nature of the operations did not warrant such a condition.”

In response, MARA recommended amending the Specific Condition 37 (i) to read:

“The Holder shall not undertake the Permitted Maritime Usage between 1st February and 30th June annually, to ensure least disturbance to known fish spawning along the survey route.”

Appendix II (Fisheries Areas) within the submitted Ecological Impact Assessment detailed the spawning and nursery grounds of commercial fish species off the Irish coast. As outlined in the EcIA *“The proposed survey works should not result in the direct mortality of any fish species due to the slow-moving nature of the survey vessel, limited seabed disturbance of sampling methods, and temporary nature of acoustic surveys. The risk of insignificant short-term disturbance to known fish spawning areas through which the proposed routes pass is highest from February to June. Therefore, the time frames for which the proposed survey routes would least impact known fish spawning activities are July – January. Additionally, the risk of insignificant short-term disturbance to nephrops reproduction in FU17 Aran Grounds can be mitigated by avoiding survey/sampling activities in this specific area in August and September. No significant impacts on fish nursery areas are predicted.”*

The following sections detail the potential effects of carrying out the proposed survey within the 1st February and 30th June window. The survey corridor, spawning areas and Marine Institute survey data are seen in Figures 1-10.

Spawning areas overlapping with license area

The license application area overlaps with the known spawning areas of seven commercial fish species:

- Blue whiting (*Micromesistius poulassou*)
- Horse mackerel (*Trachurus trachurus*)
- Haddock (*Melanogrammus aeglefinus*)
- Hake (*Merluccius merluccius*)
- Mackerel (*Scomber scombrus*)
- Megrim (*Lepidorhombus whiffiagonis*)
- Whiting (*Merlangius merlangus*)

Blue whiting

The proposed cable route and license application area passes through known blue whiting (*Micromesistius poulassou*) spawning grounds (Figure 1). These spawning grounds span large areas along the continental shelf in Ireland's western Exclusive Economic Zone, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for blue whiting constitutes a sea area of approximately 137,182 km² (Figure 1). The total area of this spawning area potentially impacted by the proposed survey effort is 719 km², equating to approximately half of one percent (0.52%) of the total known spawning area. The survey effort would be carried out in this spawning area over approximately five days (based on ship speed during seabed mapping and CPT/core sampling effort).

The International Blue Whiting Spawning Stock Survey (IBWSS) 2024 results found the highest density of spawning stock aggregated around the 57°N parallel (Rockall Trough), which were consistent with 2023 findings. As demonstrated in figure 2, the highest densities of spawning biomass typically occurred in areas outside the proposed survey corridor for the proposed surveys. It is therefore unlikely, in the event that any disturbance of spawning stock occurred, that the disturbance would occur to any significant proportion of the spawning biomass.

The spawning period for blue whiting peaks in April and May. Based on the proposed survey schedule, the survey period would not overlap with known blue whiting spawning areas during peak spawning season. The predicted impact on spawning blue whiting based on the proposed survey schedule is negligible-adverse/local/imperceptible/ brief. The probability of effects is unlikely.

Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning season due to delays, the potential impact on spawning blue whiting is predicted to be low-adverse/local/not significant/brief. The probability of effects is unlikely.

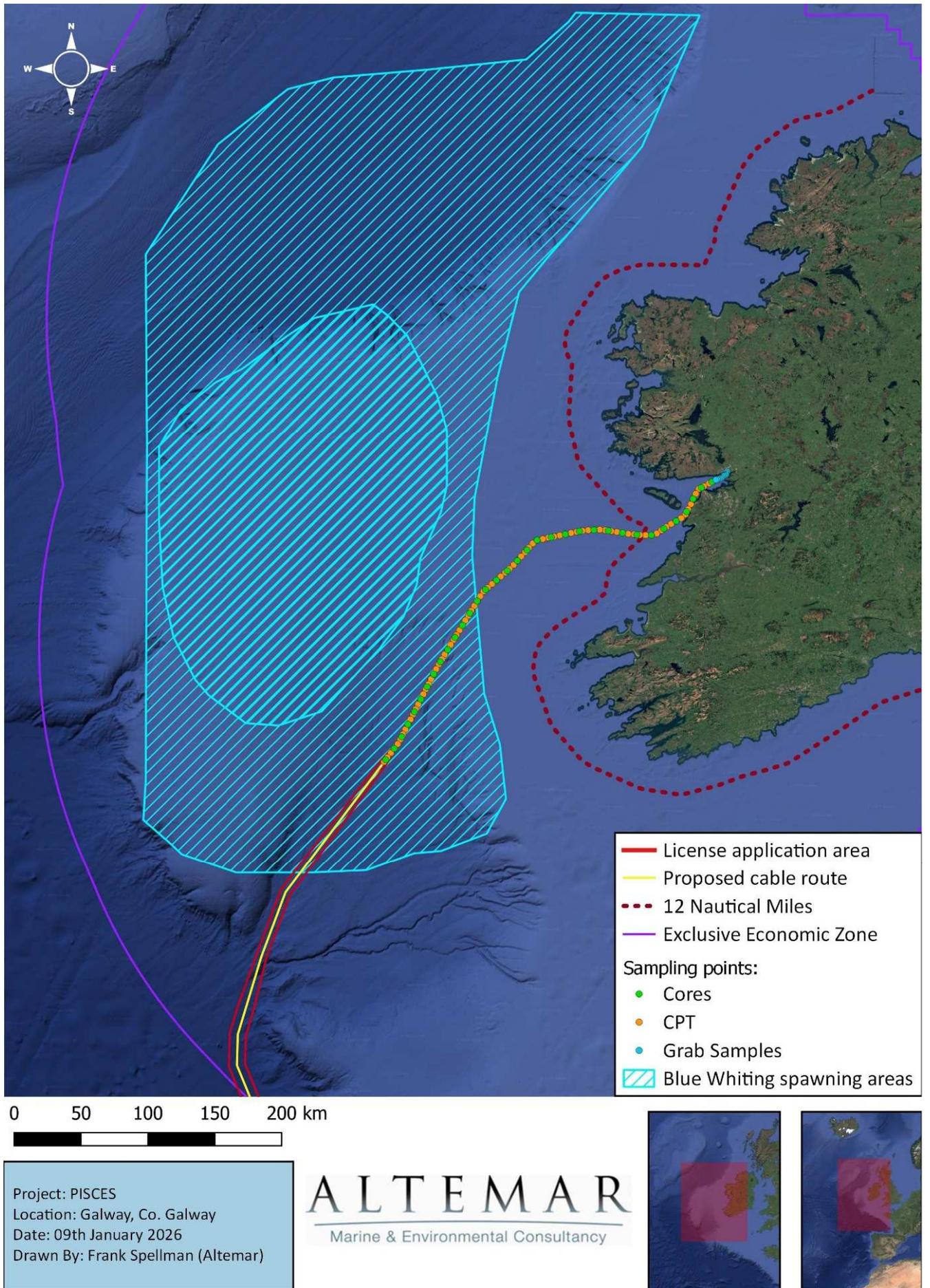


Figure 1. Blue whiting spawn areas proximate to the license application area.

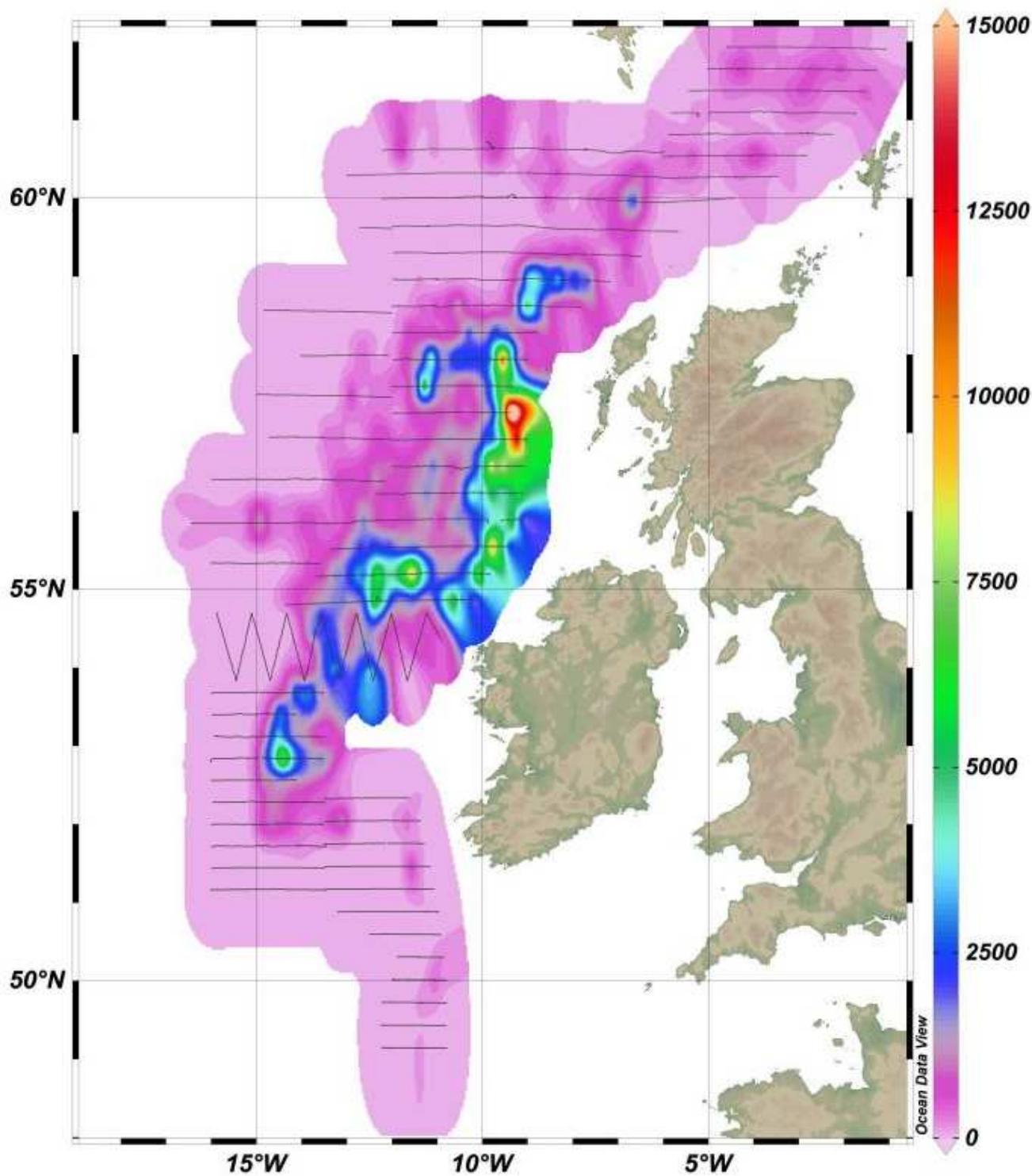


Figure 5. Acoustic density heat map ($s_A \text{ m}^2/\text{nmi}^2$) of blue whiting during the International Blue Whiting Spawning Stock Survey (IBWSS) from March-April 2024.

Figure 2. Acoustic density heat map of blue whiting during IBWSS (March-April 2024)

Horse mackerel

The proposed cable route and license application area passes through known horse mackerel (*Trachurus trachurus*) spawning grounds (Figure 3). These spawning grounds span over a large proportion of the continental shelf to the west and south of Ireland, including much of the Celtic Sea, and so any disturbances to spawning activities from site investigations and seabed sampling within the proposed license application area would not be significant.

The spawning area of concern for horse mackerel constitutes a sea area of approximately 212,653 km². The total area of this spawning area potentially impacted by the proposed survey effort is 830 km², equating to less than half of one percent (0.39%) of the total known spawning area. The survey effort would be carried out in this spawning area over approximately nine days (based on ship speed during seabed mapping and CPT/core sampling effort).

The Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS) 2023 results found the highest density of spawning stock aggregated within the Cantabrian Sea, Bay of Biscay, Celtic Sea and Southwest of Ireland, with peak spawning recorded within the June 1st – 30th period. As demonstrated in figure 4, the highest densities of spawning biomass typically occurred in areas outside the proposed survey corridor for the proposed surveys. It is therefore unlikely, in the event that any disturbance of spawning stock occurred, that the disturbance would occur to any significant proportion of the spawning biomass.

The spawning period for horse mackerel peaks in May and June. Based on the proposed survey schedule, the survey period would not overlap with known horse mackerel spawning areas during peak spawning season. The predicted impact on spawning horse mackerel based on the proposed survey schedule is negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning season due to delays, the potential impact on spawning horse mackerel is predicted to be low-adverse/local/not significant/brief. The probability of effects is unlikely.

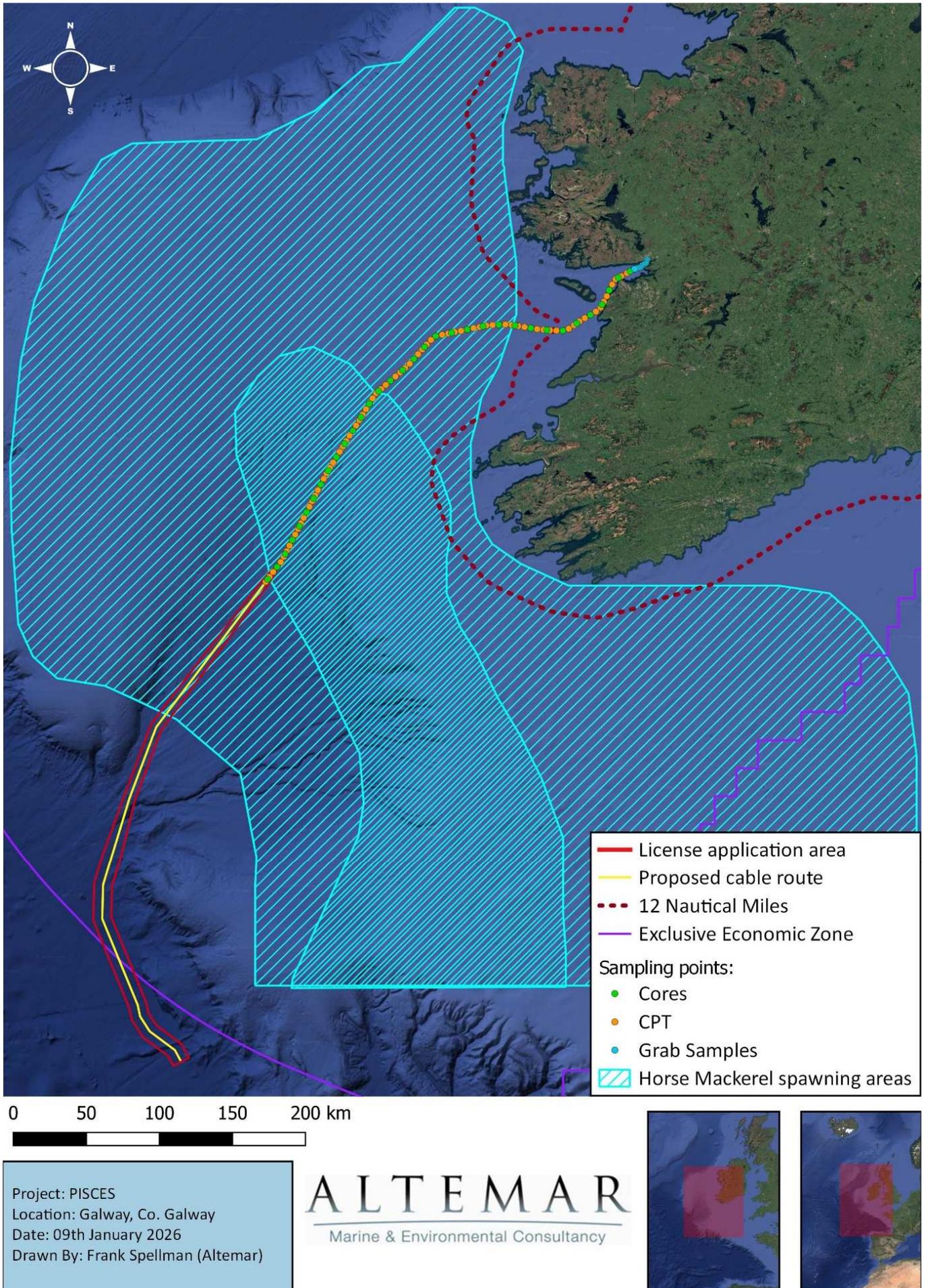


Figure 3. Horse mackerel spawn areas proximate to the license application area.

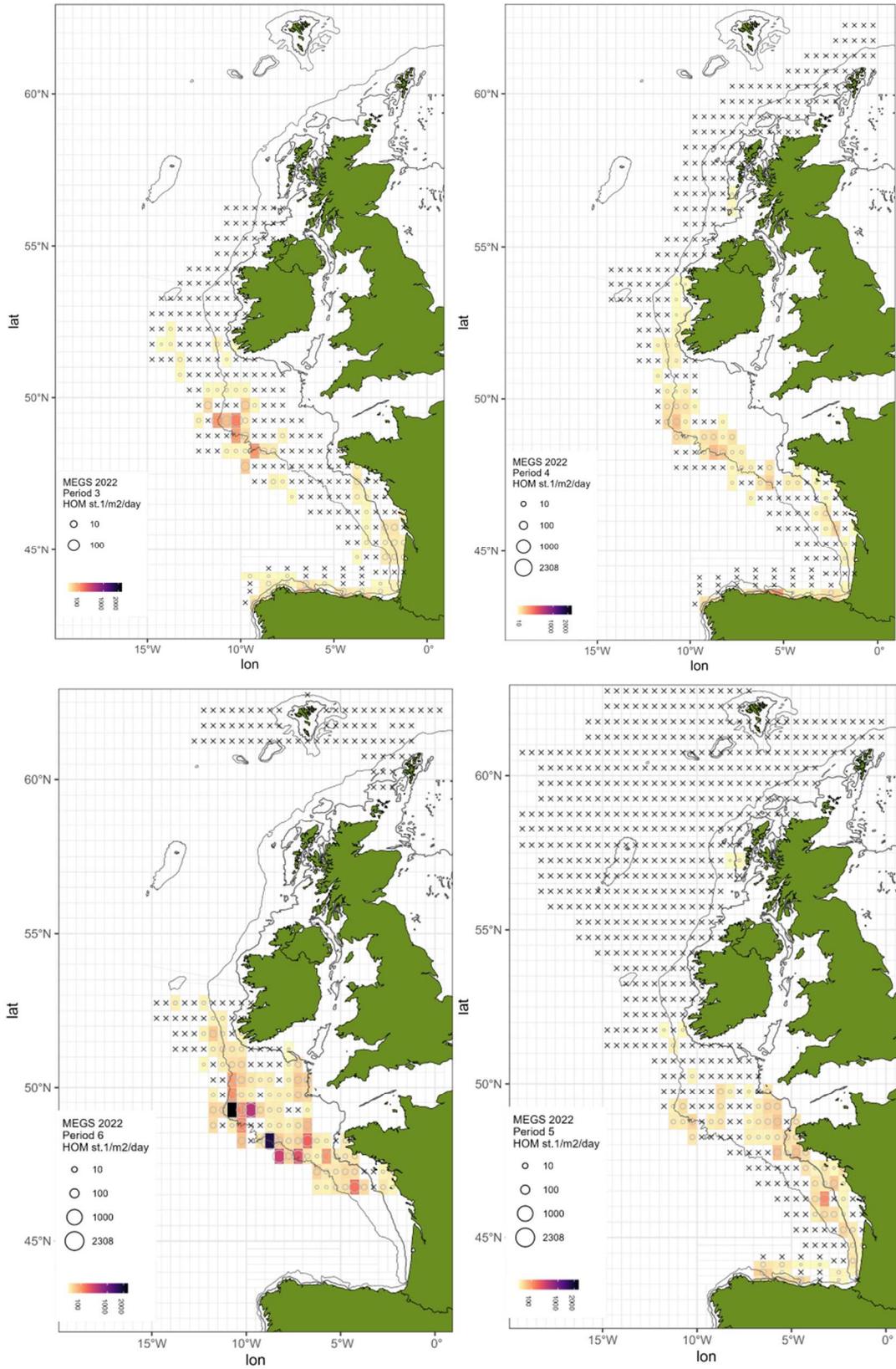


Figure 4. Horse mackerel egg production (WGMEGS 2023) over periods (clockwise from top-left); March 4th – April 8th, April 9th – 29th, April 30th – May 31st, and June 1st – 30th.

Haddock

The proposed cable route and license application area passes through known haddock (*Melanogrammus aeglefinus*) spawning grounds (Figure 5). These spawning grounds span large areas off the west, northwest, east and south coasts of Ireland, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for haddock constitutes a sea area of approximately 2,506 km², of a total of 31,542 km² known spawning areas within Irish waters. The total area of the subject spawning area potentially impacted by the proposed survey effort is 23 km², equating to approximately 1% (0.92%) of the subject spawning area and 0.07% of the total known spawning areas in Irish waters. The survey effort would be carried out in this spawning area over approximately two days (based on ship speed during seabed mapping and CPT/core sampling effort).

The spawning period for haddock peaks in March and April. Based on the proposed survey schedule, the survey period would not overlap with known haddock spawning areas during peak spawning season. The predicted impact on spawning haddock based on the proposed survey schedule is negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning season due to delays, the potential impact on spawning haddock is predicted to be low-adverse/local/not significant/brief. The probability of effects is unlikely.

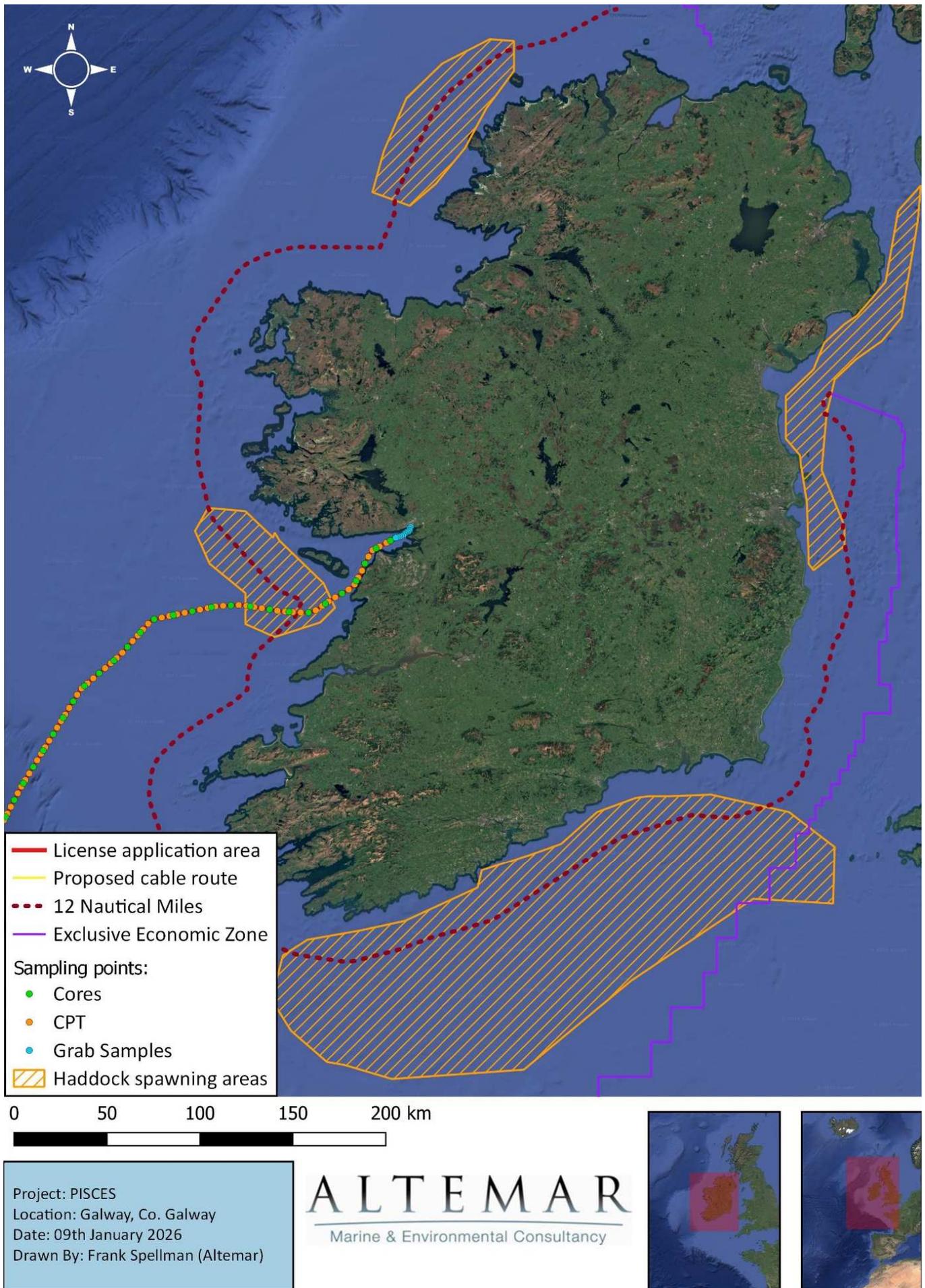


Figure 5. Haddock spawn areas proximate to the license application area.

Hake

The proposed cable route and license application area passes through known hake (*Merluccius merluccius*) spawning grounds (*Figure 6*). These spawning grounds span a large portion of Irish waters, including the majority of the Celtic Sea and seas off southwest and northwest of Ireland, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for hake constitutes a sea area of approximately 74,848 km². The total area of this spawning area potentially impacted by the proposed survey effort is 53 km², equating to 0.07% of the total known spawning area. The survey effort would be carried out in this spawning area over approximately three days (based on ship speed during seabed mapping and CPT/core sampling effort).

The spawning period for hake peaks in February and March. Based on the proposed survey schedule, the survey period would overlap with known hake spawning areas during the first half of the peak spawning season. Considering the type and scale of proposed license and the scale and timing of hake spawning, the predicted impact on spawning hake based on the proposed survey schedule is negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning season due to delays, the potential impact on spawning hake is predicted to be negligible-adverse/local/not significant/brief. The probability of effects is unlikely.

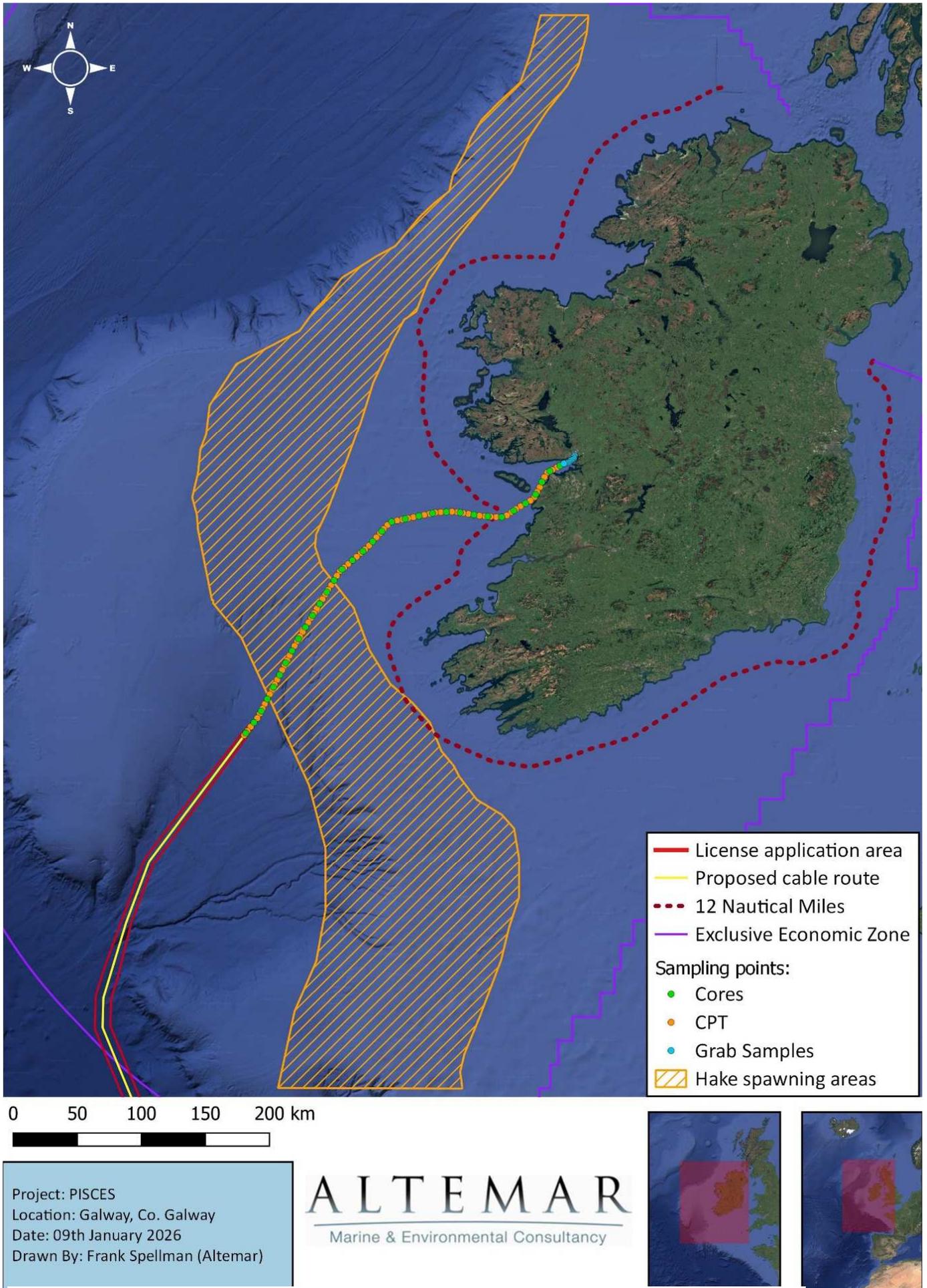


Figure 6. Hake spawn areas proximate to the license application area.

Mackerel

The proposed cable route and license application area passes through known mackerel (*Scomber scombrus*) spawning grounds (Figure 7). These spawning grounds span over a large proportion of the continental shelf to the west, north and south of Ireland, including much of the Celtic Sea, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for mackerel constitutes a sea area of approximately 175,048 km². The total area of this spawning area potentially impacted by the proposed survey effort is 68 km², equating to 0.04% of the total known spawning area. The survey effort would be carried out in this spawning area over approximately five days (based on ship speed during seabed mapping and CPT/core sampling effort).

The Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS) 2023 results found the highest density of spawning stock aggregated within the Cantabrian Sea, Bay of Biscay, Celtic Sea, south and west and north of Ireland and Scotland, with peak spawning recorded within the western area (Irish waters) in 2022 occurring between April 30th – May 31st. As demonstrated in figure 8, the highest densities of spawning biomass typically occurred in areas outside the proposed survey corridor for the proposed surveys. It is therefore unlikely, in the event that any disturbance of spawning stock occurred, that the disturbance would occur to any significant proportion of the spawning biomass.

The spawning period for mackerel typically peaks in May and June. Based on the proposed survey schedule, the survey period would not overlap with known mackerel spawning areas during peak spawning season. The predicted impact on spawning blue whiting based on the proposed survey schedule is negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning season due to delays, the potential impact on spawning mackerel is predicted to be negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

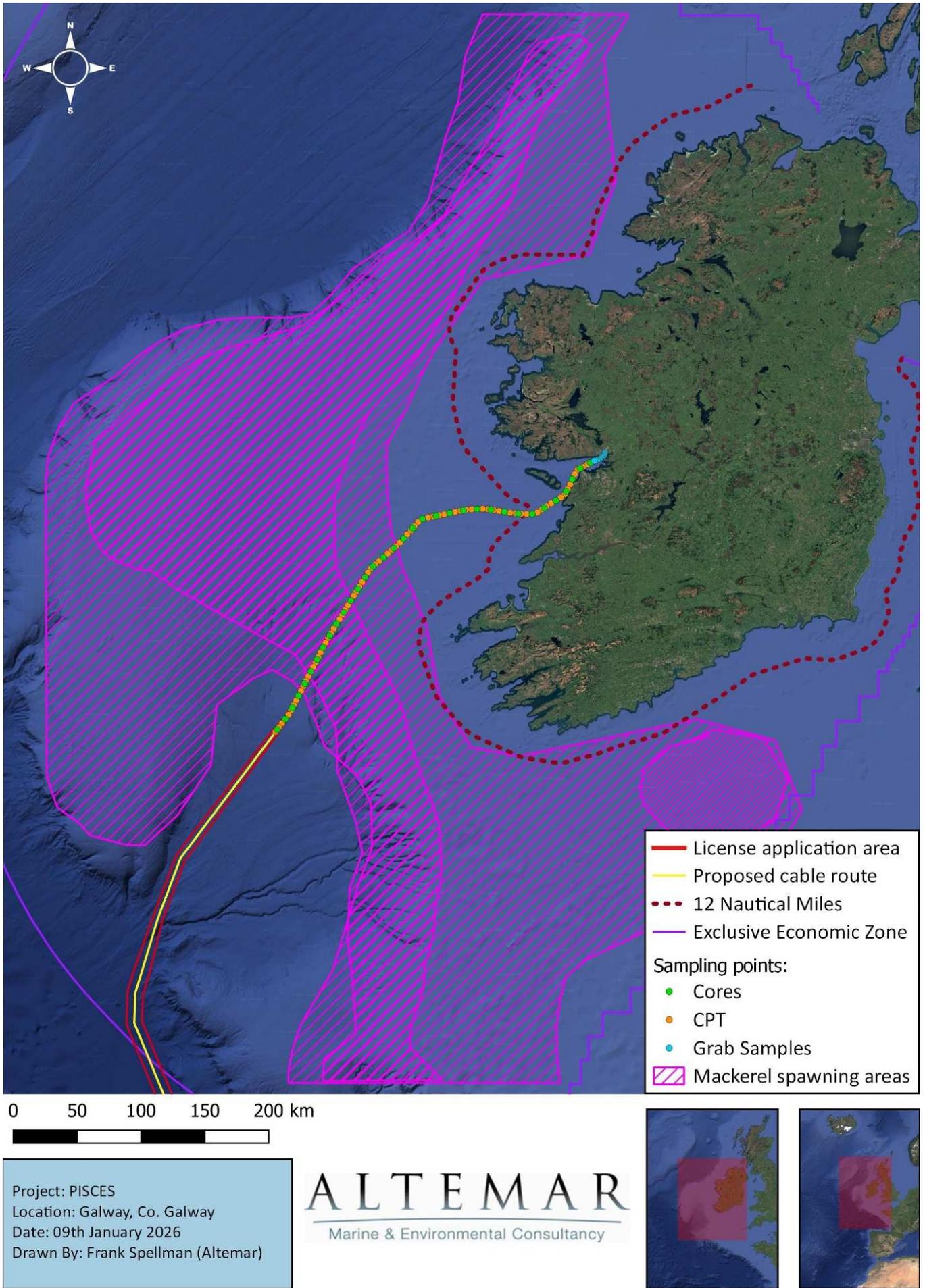


Figure 7. Mackerel spawn areas proximate to the license application area.

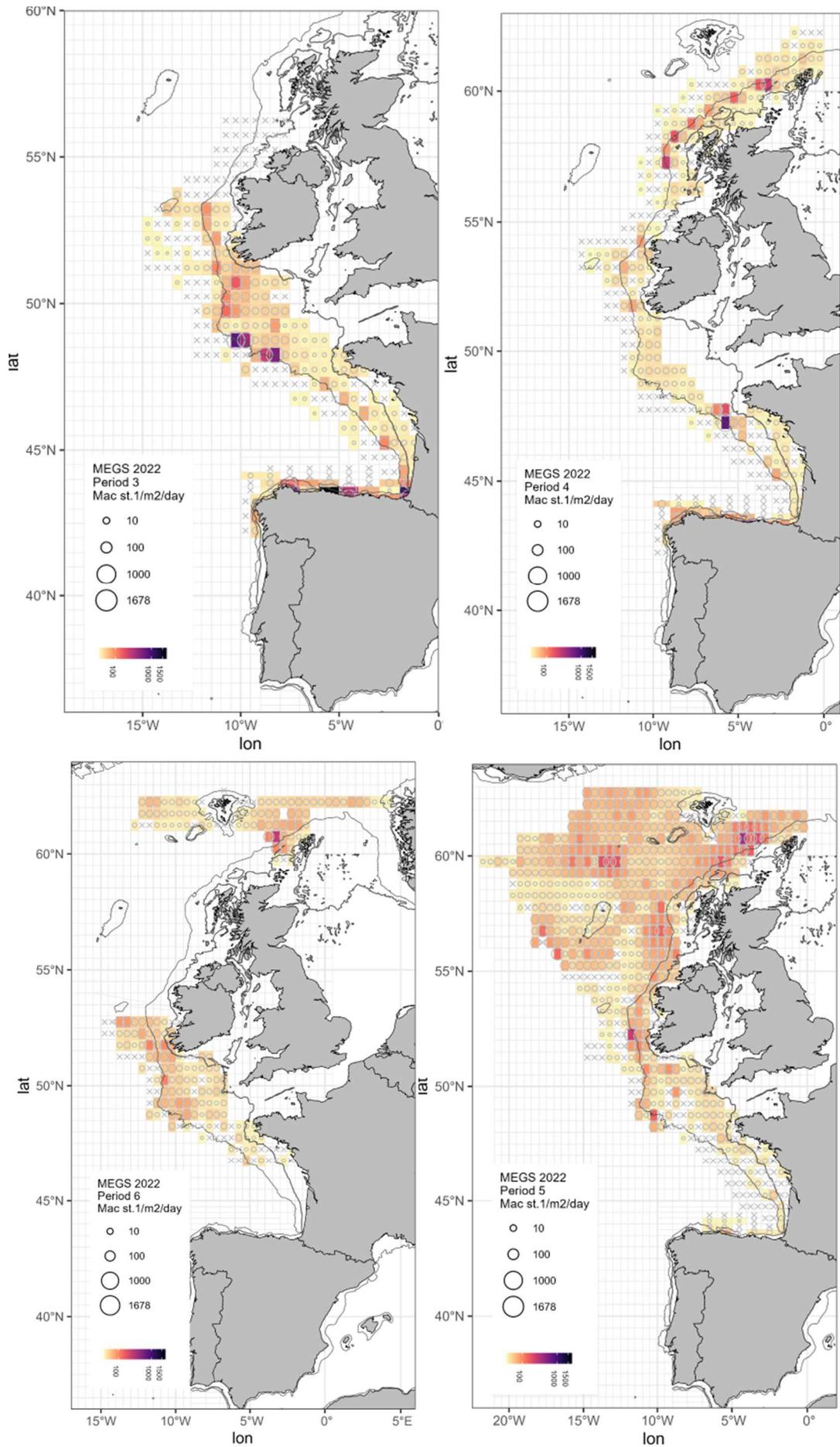


Figure 8. Mackerel egg production (WGMEGS 2023) over periods (clockwise from top-left); March 4th – April 8th, April 9th – 29th, April 30th – May 31st, and June 1st – 30th.

Megrim

The proposed cable route and license application area passes through known megrim (*Lepidorhombus whiffiagonis*) spawning grounds (Figure 9). There is the potential for minor disturbances to megrim within their spawning grounds. These spawning grounds span a large proportion of Irish waters, including a large proportion of the Celtic Sea, and the majority of the continental shelf (including Porcupine Bank) to the north, west and south of Ireland,, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for megrim constitutes a sea area of approximately 129,748 km². The total area of this spawning area potentially impacted by the proposed survey effort is 57 km², equating to 0.04% of the total known spawning area. The survey effort would be carried out in this spawning area over approximately four days (based on ship speed during seabed mapping and CPT/core sampling effort).

The spawning period for megrim peaks in February and March. Based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, during direct overlap of survey efforts with peak spawning season, the potential impact on spawning megrim is predicted to be negligible-adverse/local/imperceptible/brief. The probability of effects is unlikely.

Whiting

The proposed cable route and license application area passes through known whiting (*Merlangius merlangus*) spawning grounds (Figure 10). There is the potential for minor disturbances to whiting within their spawning grounds. These spawning grounds span the majority of Galway Bay, and so any disturbances to spawning activity due to site investigations and seabed sampling within the proposed license application area would be minimal, short-term, and not likely to have any significant effect.

The spawning area of concern for whiting constitutes a sea area of approximately 1,069 km², of a total of 59,512 km² known spawning areas within Irish waters. The total area of the subject spawning area potentially impacted by the proposed survey effort is 23 km², equating to 2.15% of the subject spawning area and 0.04% of the total known spawning areas in Irish waters. The survey effort would be carried out in this spawning area over approximately three days (based on ship speed during seabed mapping and CPT/core/grab sampling effort).

The spawning period for whiting occurs from February to June. Based on the proposed survey schedule, the survey period would overlap with known whiting spawning areas during the first half of the peak spawning season. However, based on the total area potentially impacted in relation to the overall non-impacted known spawning area, the duration of time over which these surveys are estimated to take place and the amount of time survey efforts will occur in any particular area within known spawning grounds, in the event of direct overlap of survey efforts with peak spawning activity, the potential impact on spawning whiting is predicted to be low-adverse/local/not significant/brief. The probability of effects is unlikely.

Nephrops

The proposed cable route and license application area passes through known *Nephrops norvegicus* (Dublin Bay Prawn) grounds (FU17 Aran Grounds) (Figure 11). The proposed license application area passes just inside the southern boundary of these nephrops grounds. Given the scale of these grounds in comparison to the footprint of the proposed license application area, and the limited physical disturbance to the seabed during the proposed survey methodology, no significant impact on these grounds is foreseen. Nephrops reproduction takes place throughout the months of August and September, and so any potential disturbances to this functional unit by site investigations and seabed sampling within the proposed license application area can be minimised by carrying out survey and sampling activities within these nephrops grounds outside of these months.

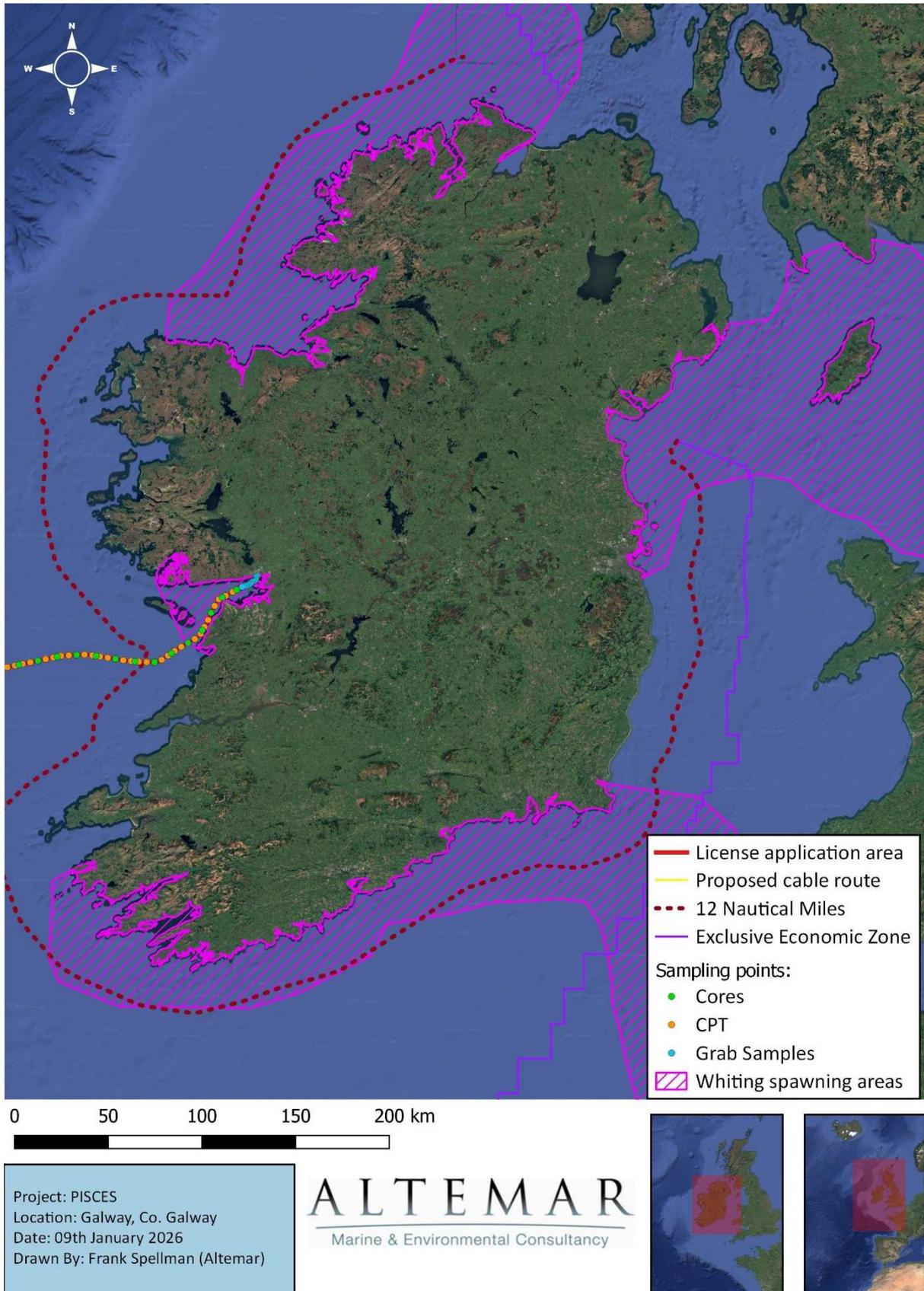


Figure 10. Whiting spawn areas proximate to the license application area.

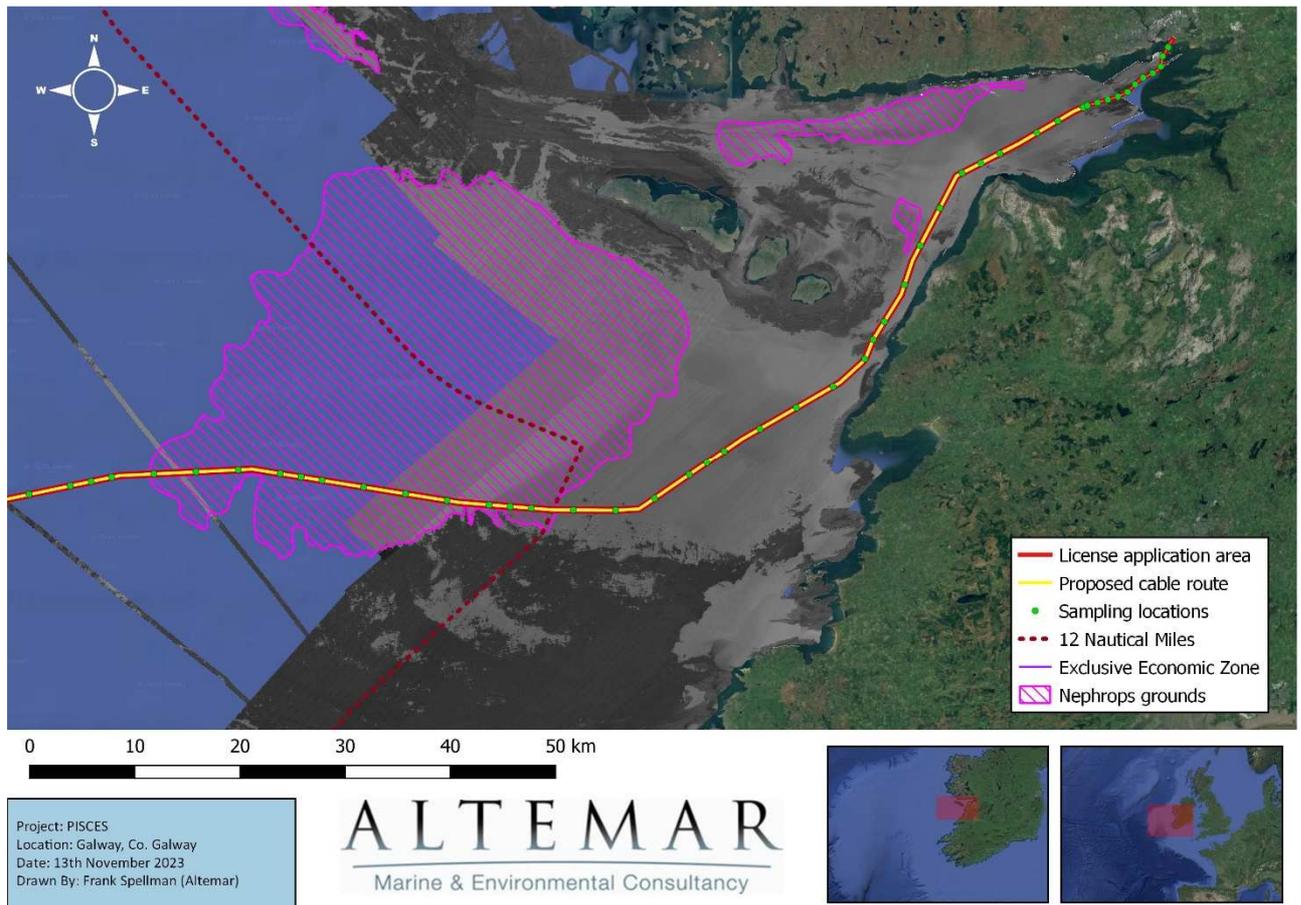


Figure 11. Aran Nephrops Spawning grounds proximate to the license application area.

Survey Vessel

The survey vessel (Explora) is currently surveying the route outside the Irish EEZ. Until 2020, the Explora was owned and operated by the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) in Italy as part of the Italian Research Fleet. The vessel is Ice Class IB designated and designed and fitted specifically for Scientific or technological research. It is now operated by GeoTeam, and is carrying out the PISCES cable survey. Between 2010 and 2020, the Explora undertook scientific research surveys as part of the EUROFLEET's project. Over its lifetime, the Explora regularly carried out marine and scientific surveys in the sensitive environments of the Arctic and Antarctic as well as the Mediterranean Sea and Atlantic Ocean.

The Marine Institute Vessels such as the Celtic Explorer, Tom Crean and formerly the Celtic Voyager are also involved in the Eurofleets initiative and are similarly equipped. It would be expected that the potential effects on the marine environment would be similar to those surveys that have been carried out by the Infomar project (<https://www.infomar.ie>) but on a much more restricted scale along a narrow survey corridor.

Conclusion

The above response is in relation to recommendation of an amendment by MARA to the applicant's response to 'Specific Condition 37' for the granted Pisces marine fibre optic cable marine survey in Irish waters. Surveys are currently underway outside the Irish EEZ. As a result of significant weather down time delays over the autumn and winter, the marine survey within Irish waters has been pushed into the 1st February and 30th June window. The response is in relation to timing of works within commercial fish spawning areas and is not related to Appropriate Assessment or the Habitats Directive or Annex IV species or Annex habitats.

The proposed marine survey if carried out between February and June is outside many of commercial fish spawning areas and or periods. Where the timing of the surveys could potentially interact with spawning species a more detailed review was carried out. In areas where the spawning coincided with the marine survey the maximum area covered by the marine survey was 1% of a fish spawning area for maximum of 8 days duration. The survey is short term and would have minimal impact on fish spawning even if the works were carried out between February and June 2026.

M/N OGS Explora



Technical Specifications

General

Name	OGS Explora
Owner	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS
Built	Elsflether Werft A.G., Germany, 1973
Flag	Italian
Port / No.	Trieste - 764
Call Sign	IXWQ
IMO No.	7310868
Class	100-A-1.1-Nav IL ; IAQ-1 ; Ice Class IB
Material	Steel (hull) / Aluminium (superstructure)
Bunker	MGO

Dimensions

Gross Tonnage	1408 GT
Net Tonnage	422 NT
Overall Length	72.62 m
Moulded Breadth	11.8 m
Moulded Depth	6.55 m
Free Board	2154 mm
Draft	4.8 m
Displacement	1845 t

Main Machinery and Speed

Propulsion	2 x RBV8M545 DEUTZ diesel 8 cyl.-line
Installed power	2 x 1294,5 Kw (1780 HP) 500 rpm
Main gear	LOHMANN & STOLTERFOHT ratio 1:2
Propeller	1 Variable Pitch Propeller ESCHER WYSS
Speed (max)	14 kn
Speed (cruise)	12 kn
Endurance	about 30 days

Auxiliary Machinery

Aux	5 x TAMD 103A VOLVO PENTA 160 Kw
Electrical plant	5 x 200 kVA 440 220 V 50 Hz
UPS	Soft Nife 110/220
Fuel separator	OSD 6 WESTFALIA SEPARATOR
Oil separator	2 x OSD 6 WESTFALIA SEPARATOR
Air compressor	2 x L80 HATLAPA
Fresh water	watermaker MD 2000 TECNICOMAR 5760 l/day watermaker CS 2/44 TECNICOMAR 14400 l/day SFD13 SONDEX 20 t/day
Heater/Boiler	FSM 650 FROHLING 650000 kcal/h WERMERT (500l)
Seismic HP	3 compressors LMF 4 stages 24000 l/min - (140 bar)
Derricks/Cranes	1Derrick 47.48 KN 1Crane HEILA Type HLRM 19/12 - 3SL
Davit	1 davit for life/rescue boat 1 davit for service boat
Serviceboat	Zodiac Ribo 600 (70hp)

Marine Equipment

Magnetic Compass	Reflection Ludolph
Gyro	Gyrostar II Anschutz
Radars	FR2117 FURUNO TM 340AM SPERRY X band Bridgemaster DECCA
AIS	FA100 FURUNO
Autopilot	AP50 FURUNO
GPS	RS5000 SHIPMATE
Solcometer	Dopplerlog EML500 YOKOGAWA
Communications	Inmarsat C SKANTI Scansat CT Inmarsat Fleet Broad Band Inmarsat Fleet77 THRANE IRIDIUM Oilot VSAT data system Vhf SKANTI Vhf 1000 DSC MF/HF SKANTI TRP 1250 SDGTSP Navtex ALDEN AE-900 Rx Sailor R1119 - Tx Sailor T1130 area A4 (SKANTI station)
GMDSS	

Safety

MOB	Recue boat Pesbo BSC 40M
Lifeboat	Pesbo BSC 40M (42 people)
Life rafts	5 x 25, 1 x 20, 1 x 6 (156 people)
Survival suits	48
Fire fighting	Hydrants, hoses and nozzles (3 fire pumps + 1 emergency) 58 portable fire extinguishers
Engine room	CO ₂ extinguishers
Compressor room	CO ₂ extinguishers + fixed fire line

Accommodation

IMO crew	10 x single room cabins 4 x double room cabins
Scientific crew	12 x double room cabins
Hospital	1 single berths
Recreation	TV / Video Lounge Gym

Cargo Capacity

2 x 20' container	Location hold 2 nd deck
2 x 10' container	back deck fore deck

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Telephone: +39 040 21401
Fax: +39 040 327307
Email: mailbox@ogs.trieste.it
www.ogs.trieste.it

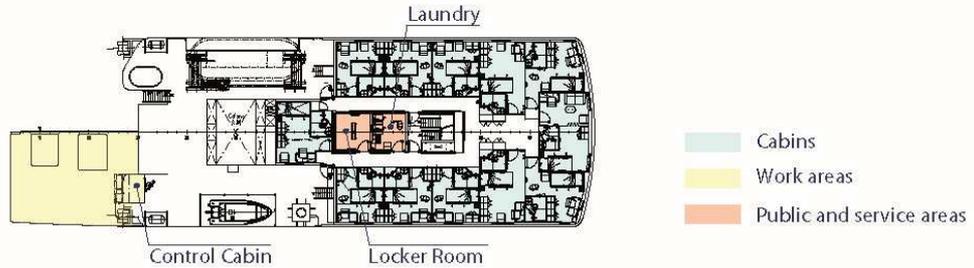


M/N OGS Explora

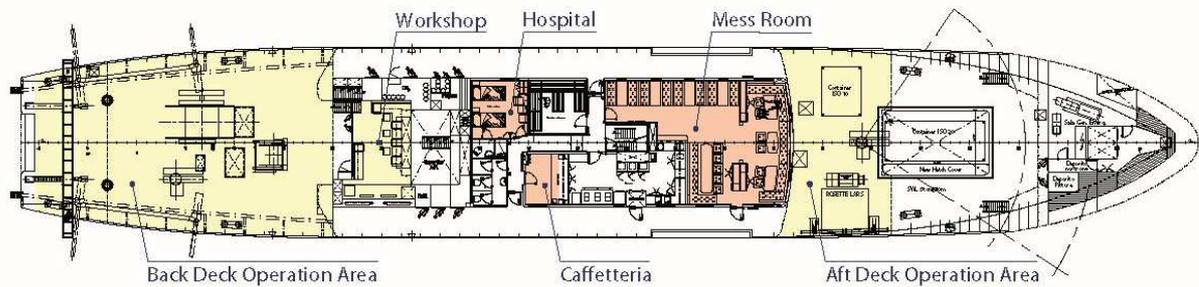


General Plan - Public areas

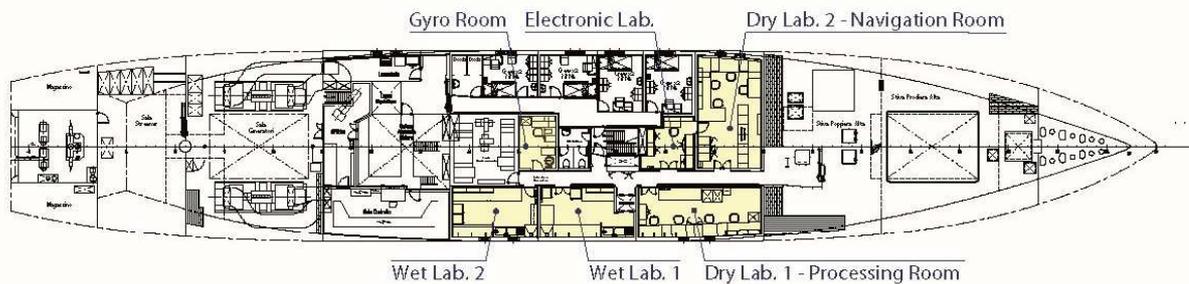
Deck B - Scientific crew cabins



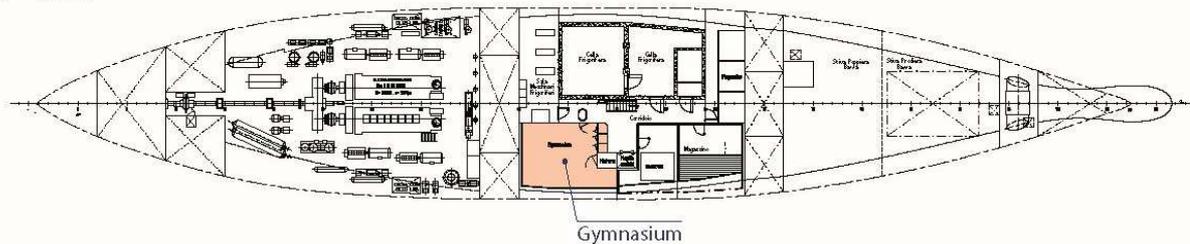
Deck A - Main Deck



1st Deck - Labs



2nd Deck



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