

New information regarding the impact of fisheries on other components of the ecosystem

Advice summary

In 2020, ICES received 2065 new records of vulnerable marine ecosystem (VME) habitats or indicators in EU waters. These are located in the Rockall Bank, George Bligh Bank, the Darwin Mounds, the Faroe–Shetland Channel, the Anton Dohrn Seamount, the Scottish and Irish continental slopes, the Porcupine Bank and Seabight, and the Danish and Swedish continental slopes.

The geographical positions of areas subject to various protection and fisheries management regimes are included in this advice. Any bottom fishing on VME habitats will result in damage to these habitats.

Request

Provide any new information regarding the impact of fisheries on other components of the ecosystem including small cetaceans and other marine mammals, seabirds, and habitats. This should include any new information on the location of habitats sensitive to particular fishing activities.

Based on Work Package I, section 1.1.3. of the Administrative Agreement between the EU and ICES, the EU requests ICES to:

- 1. Provide information regarding the impact of fisheries on the ecosystem including marine mammals, seabirds, and habitats impacts (including incidental catches). This should include information on the location of habitats sensitive to particular fishing activities;*
- 2. Give warnings of any serious threats from fishing activities alone or in conjunction with any other relevant activity to local ecosystems or species as soon as ICES is aware of such threats.*

Elaboration on the advice

This advice covers only aspects relating to vulnerable marine ecosystem; information on impacts on marine mammals, seabirds, and other marine vertebrates will be advised separately and published by ICES.

ICES notes that all habitats (VMEs) considered in the current advice are, by definition, vulnerable. Any interactions of bottom fishing gear with these habitats will result in damage. ICES has consistently interpreted the request as identifying the location of VMEs, and not determining the location of fishing or its impacts.

Note that this advice only relates to new VME records. Other VME records can be viewed and downloaded from the ICES VME portal on ICES website <http://vme.ices.dk/map.aspx>.

New information on the location of habitats sensitive to particular fishing activities

In 2020, ICES has received 2065 new VME records, of which 1270 were VME habitat records and 795 were VME indicator records, all within EU waters (see the Methods section for explanation of VME habitats and indicators, VME index, and VME index confidence). These records were from the Rockall Bank, George Bligh Bank, the Darwin Mounds, the Faroe–Shetland Channel, the Anton Dohrn Seamount, the Scottish/Irish continental slopes, the Porcupine Bank and Seabight, and the Danish and Swedish continental slopes. These habitats are particularly sensitive to mobile bottom-contacting gear.

The figures below show the location of these VME habitats and VME indicators; however, it is often not possible to spatially resolve such records due to their close proximity.

Rockall Bank and George Bligh Bank

A total of 284 VME habitat records within EU waters have been added to the VME database for Rockall Bank, and 44 VME habitat records for George Bligh Bank (Figure 1). There are no new records of VME indicators. 227 of these new VME habitat records on Rockall Bank occur within existing protected areas. Nine are located within the East Rockall Bank Special

Area of Conservation (SAC). 147 VME habitat records are located within the Southeast Rockall Bank SAC in the Irish Exclusive Economic Zone (EEZ). In the Irish EEZ, for areas designated for the protection of sensitive habitats, including vulnerable marine ecosystems (VMEs), it is prohibited to deploy bottom trawls or similar towed nets, bottom-set gillnets, entangling nets or trammelnets, and bottom-set longlines; however, pelagic trawls are permitted in these areas under the provisions of Regulation (EU) 2019/1241 (EU, 2019). In addition, 71 VME habitat records are located within the Logachev Mounds NEAFC closure, which extends into the Irish EEZ and is closed to bottom trawling and fishing with static gear. The remaining 57 VME habitat records on Rockall Bank and the 44 VME habitat records on George Bligh Bank are located outside of the existing protected areas. Figure 2 shows the actual VME habitats and VME index (based on all records for the area) and Figure 3 the associated VME index confidence (based on all indicator records) for Rockall Bank and George Bligh Bank.

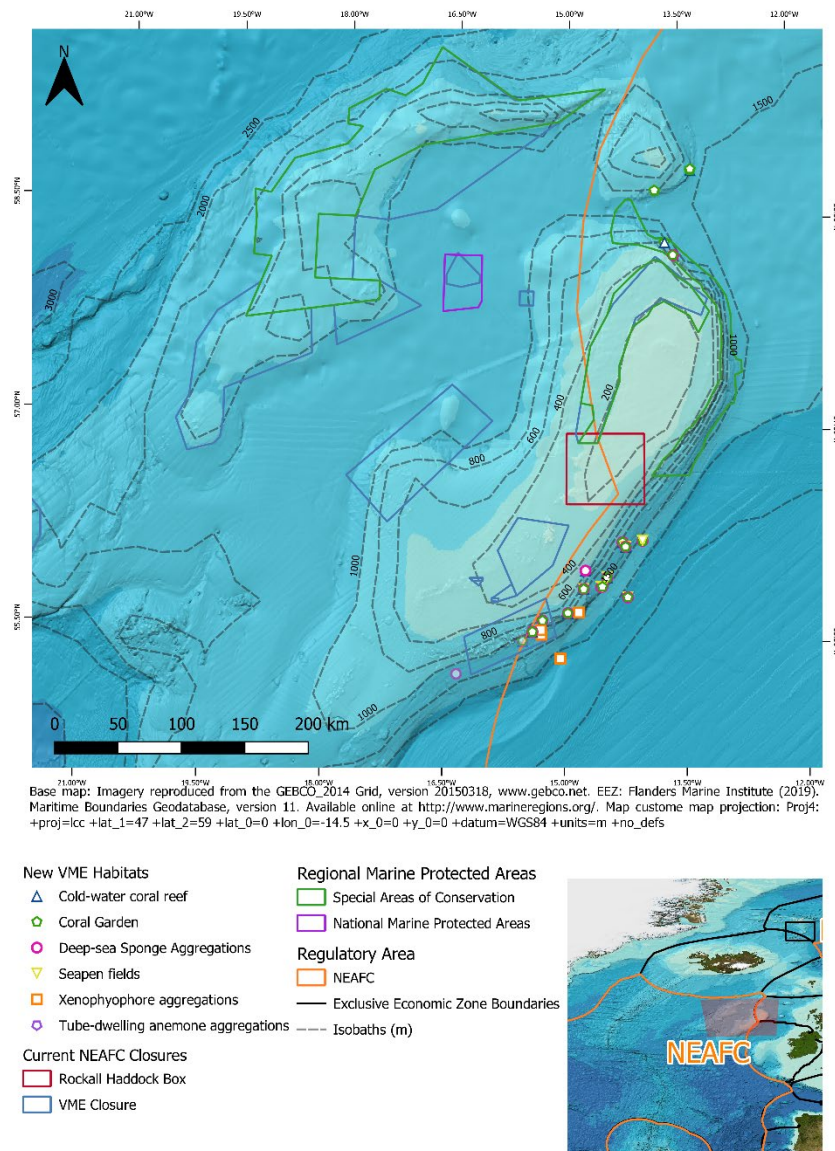


Figure 1 New VME habitat records for Rockall Bank and George Bligh Bank within EU waters. Note that other VME records from the VME database are not displayed for this area.

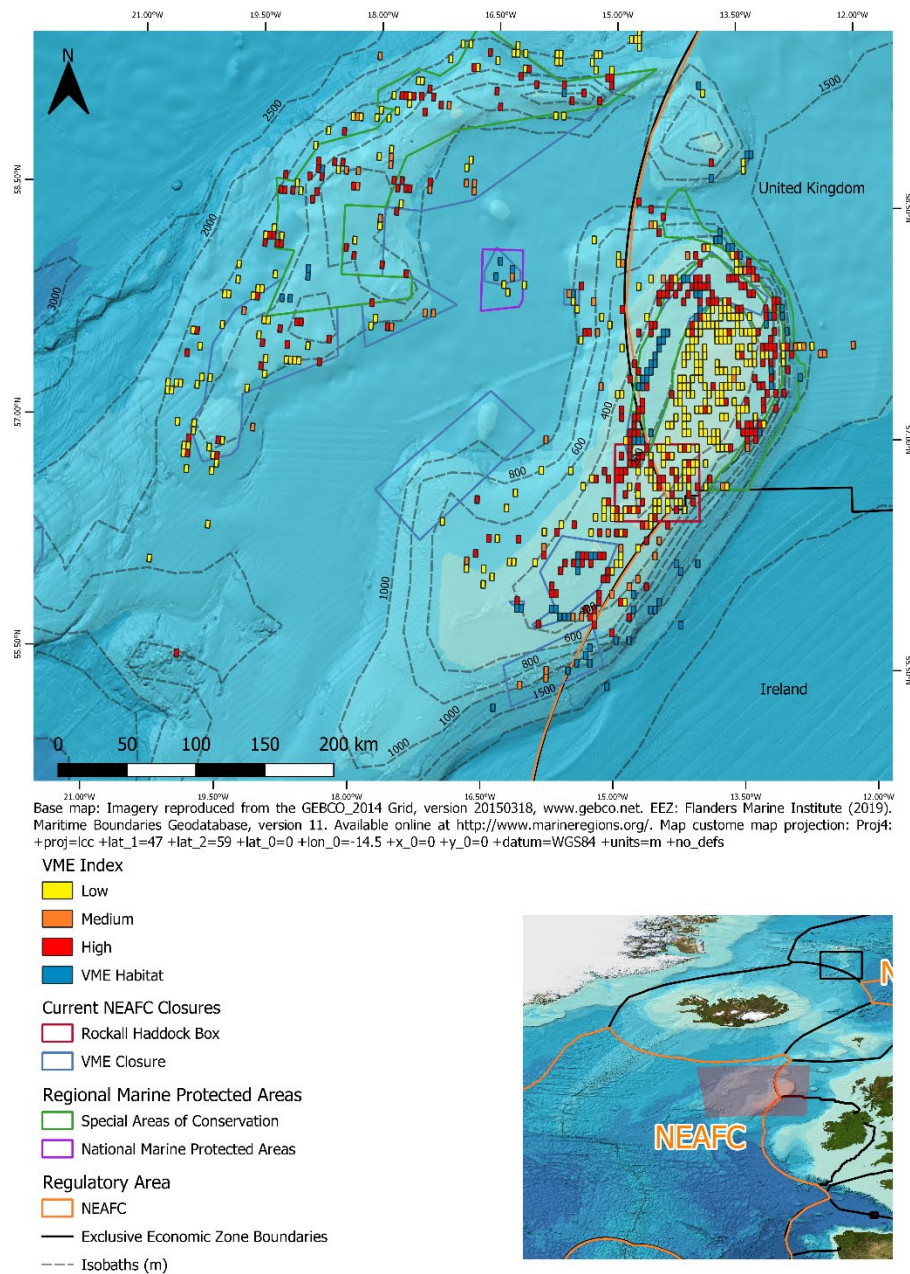


Figure 2

VME habitats and VME index (based on all records) for Rockall Bank and George Bligh Bank. Presence of actual VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high) are shown.

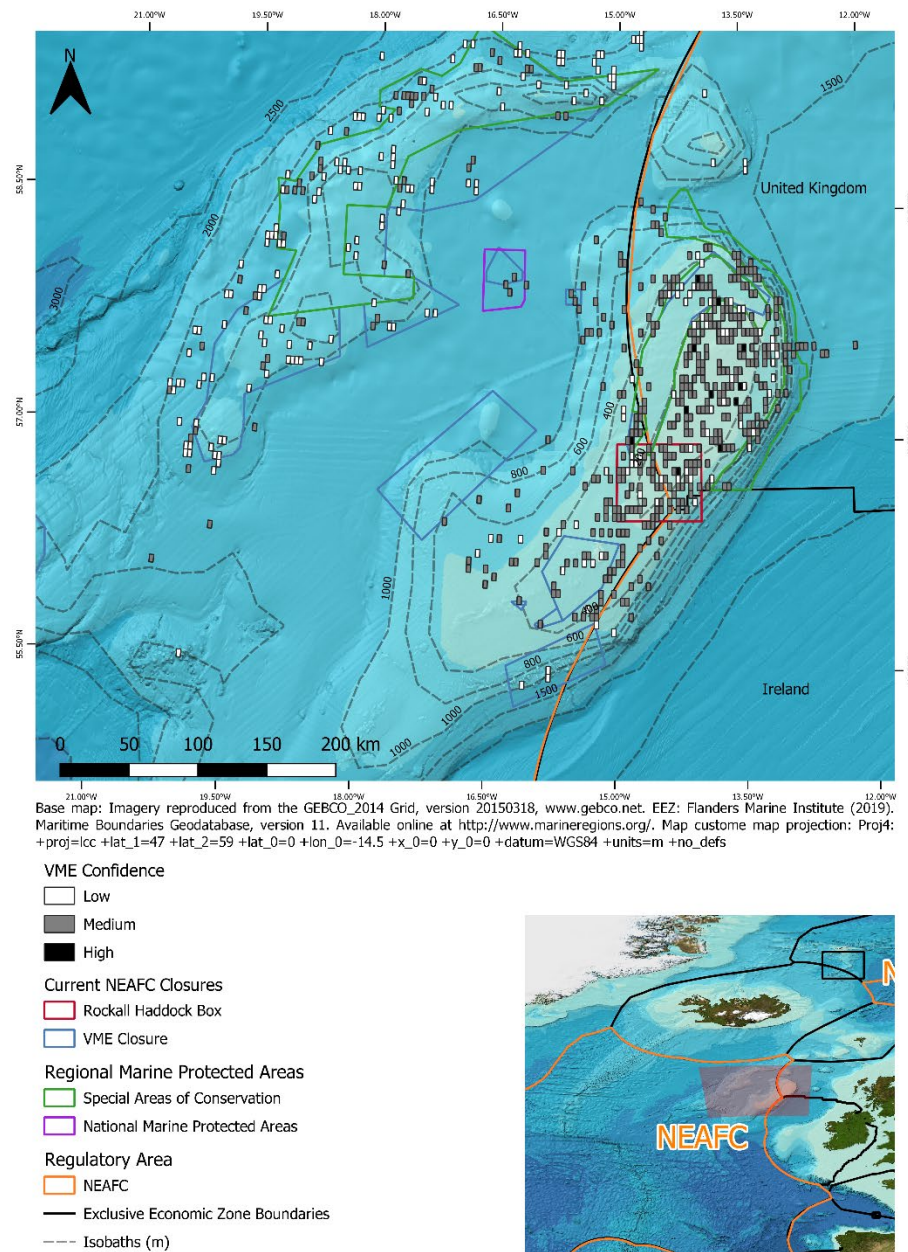


Figure 3 VME index confidence (based on all indicator records) for Rockall Bank and George Bligh Bank.

Darwin Mounds

A total of 15 new VME habitat and 29 new VME indicator records within EU waters were added to the VME database for the Darwin Mounds, which included historical data records from the literature (A in Figure 4). All of these records occur within the existing Darwin Mounds SAC, which is closed to demersal towed gears under NEAFC to protect VMEs. Two VME indicator records were also submitted for the northwestern part of Darwin Mounds within the Faroese EEZ; these indicator records occur outside existing protection measures.

Faroe-Shetland Channel

Within the Faroe–Shetland Channel, a total of 442 VME habitat and 21 VME indicator records were submitted to the VME database (B in Figure 4). Of these, the 442 VME habitat records occur within the Faroe–Shetland Sponge Belt Nature Conservation MPA (NCMPA), and a further 13 VME indicator records are located within the Northeast Faroe–Shetland

Channel NCMPA. The remaining eight VME indicator records occur outside of any existing protected areas. Figure 5 shows the VME index (based on all records for the area) and Figure 6 the associated VME index confidence for the Darwin Mounds and the Faroe–Shetland Channel.

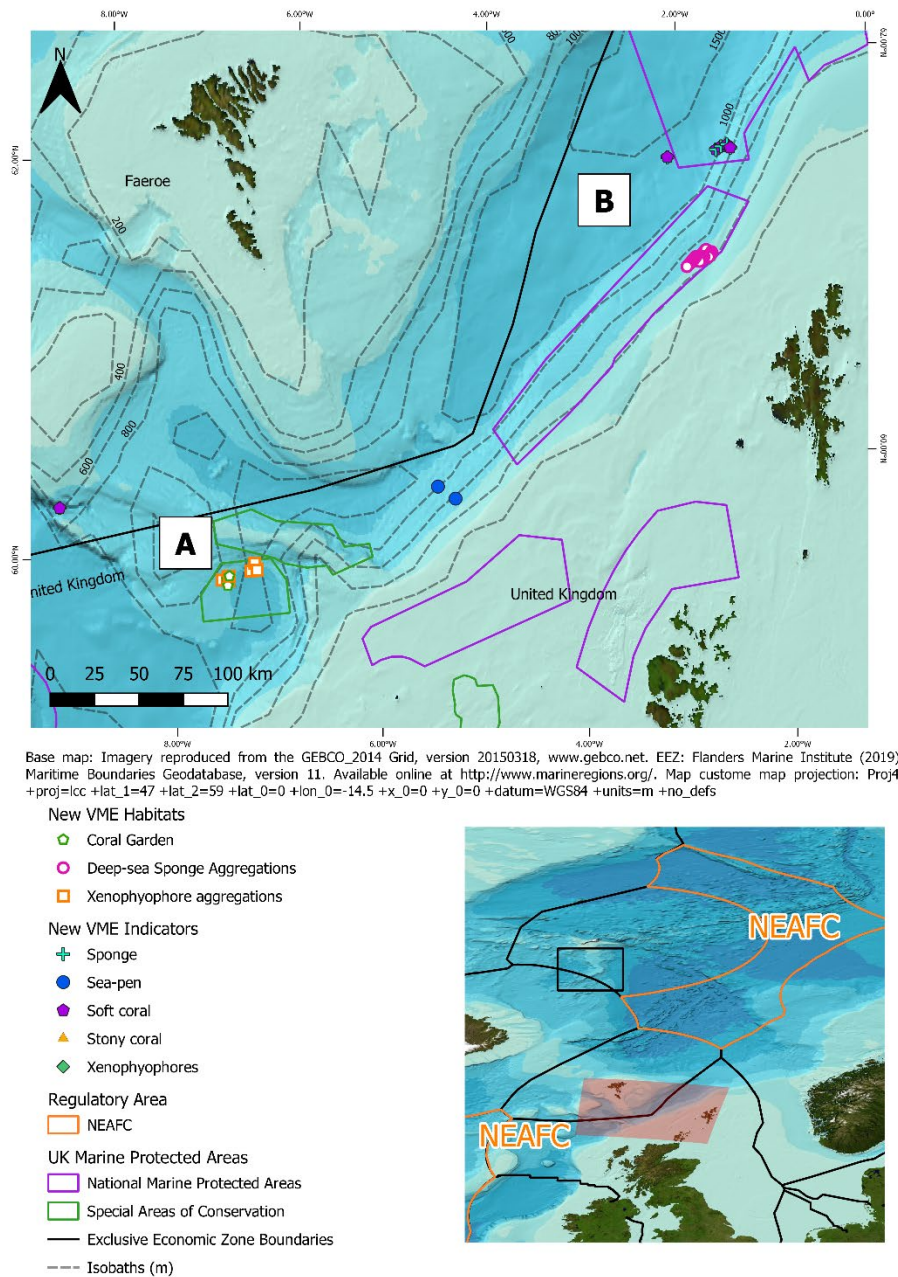


Figure 4 New VME habitat and indicator records for the Darwin Mounds (A) and the Faroe–Shetland Channel (B). Note that other VME records from the VME database are not displayed for this area.

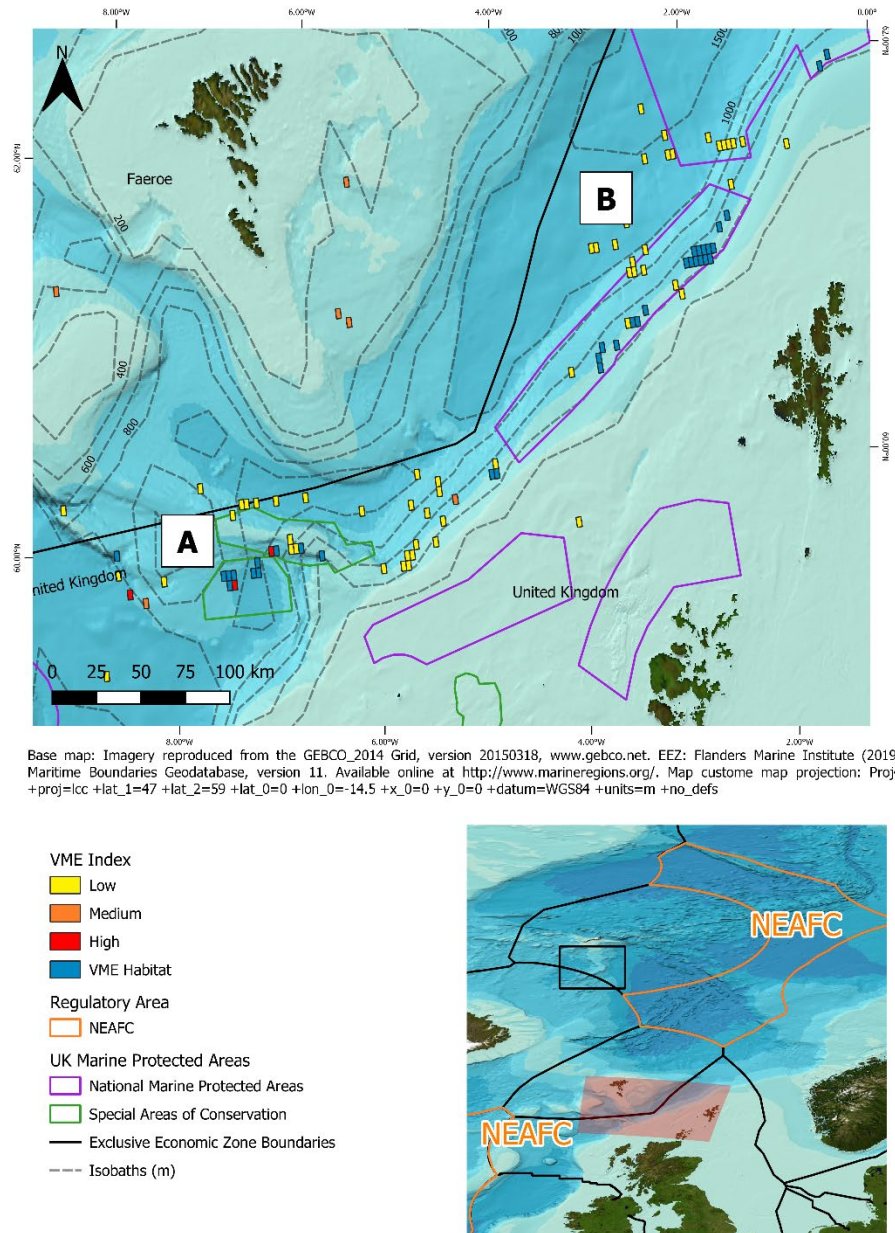


Figure 5 VME index (based on all records for the area) for the Darwin Mounds (A) and the Faroe–Shetland Channel (B), showing the presence of actual VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high).

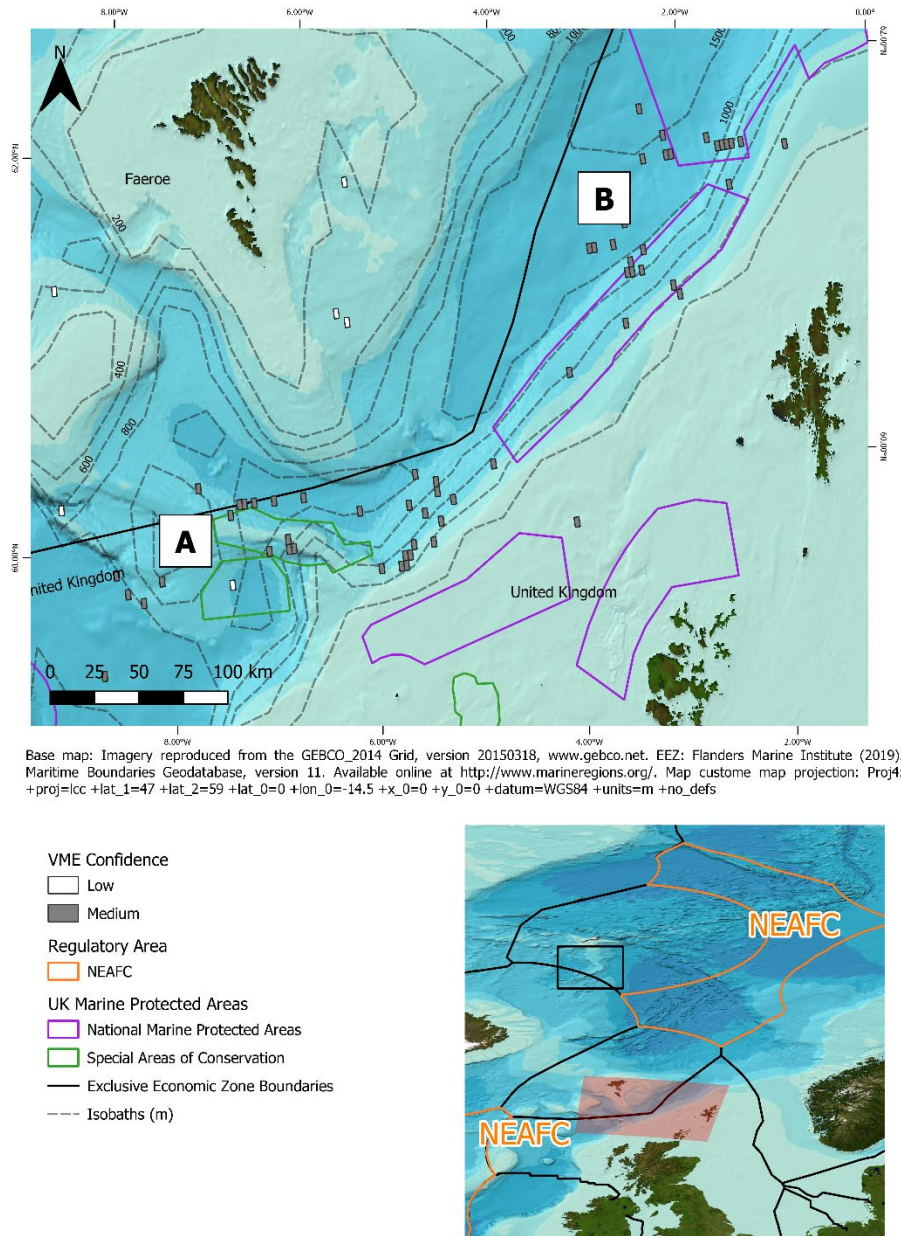


Figure 6 VME index confidence (based on all records for the area) for the Darwin Mounds (A) and the Faroe–Shetland Channel (B).

Anton Dohrn Seamount

A total of 15 new VME habitat records were submitted to the VME database for the Anton Dohrn Seamount (C in Figure 7). All of these records occur within the Anton Dohrn Seamount SAC.

Scottish/Irish continental slopes

A total of 112 VME habitat and indicator records were submitted to the VME database for the Scottish and Irish continental slopes (D and E, in Figures 7 and 8). Of these, four VME indicator records occur within the Geikie Slide and Hebridean Slope NCMPS, and a further two VME indicators occur within the Barra Fan and Hebrides Terrace Seamount NCMPS. The remaining 106 records occur outside of any existing protected areas.

Figure 8 shows the VME index (based on all records for the area) and Figure 9 the associated VME index confidence for the Anton Dohrn Seamount and the Scottish/Irish continental slopes.

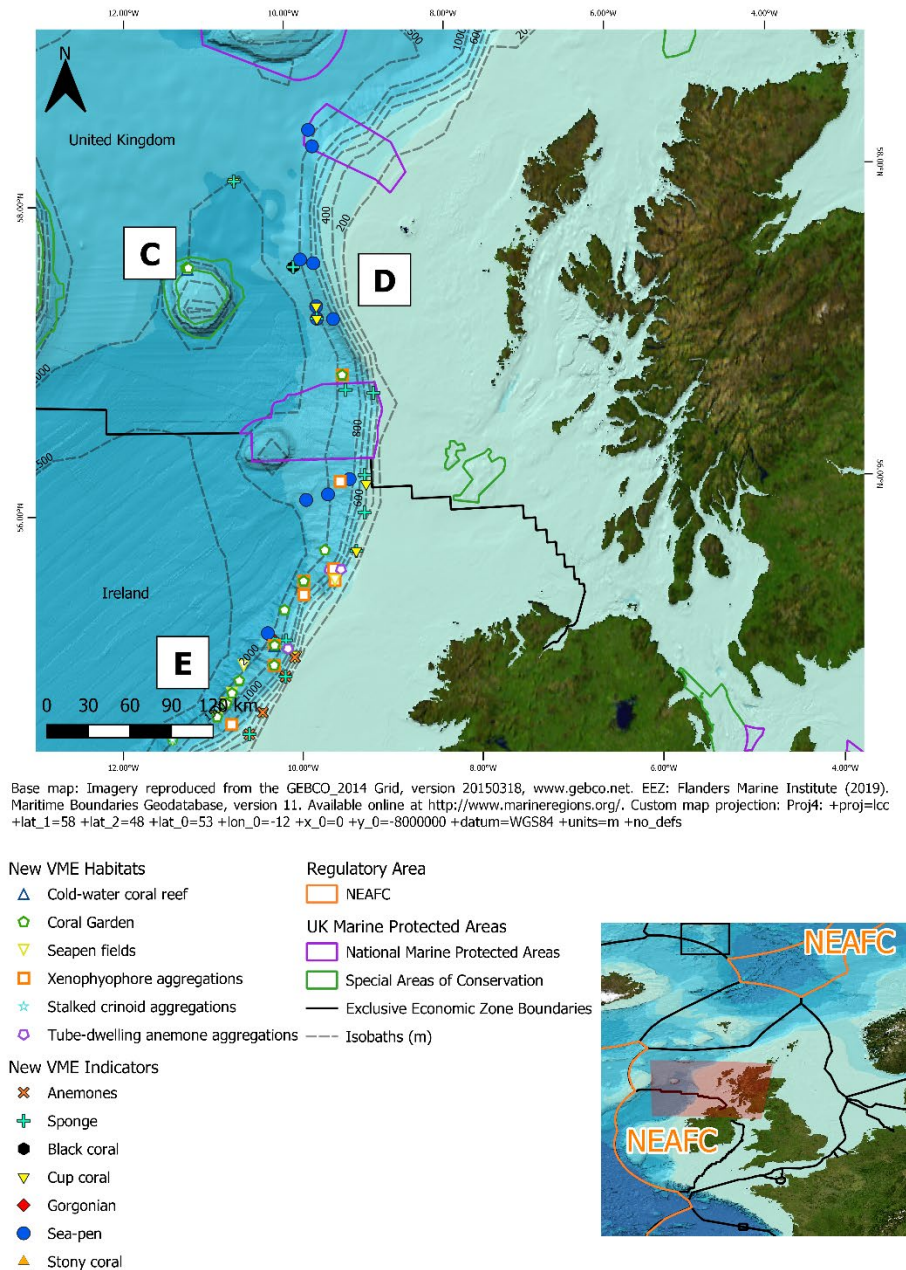
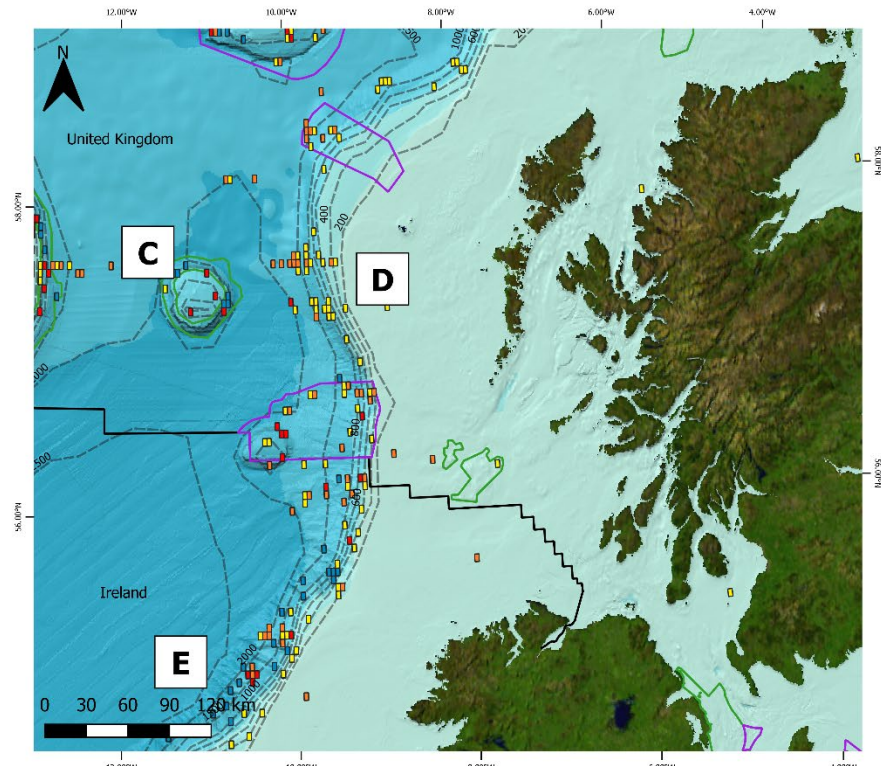


Figure 7 New VME habitat and indicator records for the Anton Dohrn Seamount (C), and the Scottish (D) and Irish (E) continental slopes. Note that other VME records from the VME database are not displayed for this area.



Base map: Imagery reproduced from the GEBCO_2014 Grid, version 20150318, www.gebco.net. EEZ: Flanders Marine Institute (2019). Maritime Boundaries Geodatabase, version 11. Available online at <http://www.marinerregions.org/>. Custom map projection: Proj4: +proj=lcc +lat_1=58 +lat_2=48 +lat_0=53 +lon_0=-12 +x_0=0 +y_0=-8000000 +datum=WGS84 +units=m +no_defs

- VME Index
 - Low
 - Medium
 - High
 - VME Habitat
- Regulatory Area
 - NEAFC
- UK Marine Protected Areas
 - National Marine Protected Areas
 - Special Areas of Conservation
 - Exclusive Economic Zone Boundaries
 - Isobaths (m)

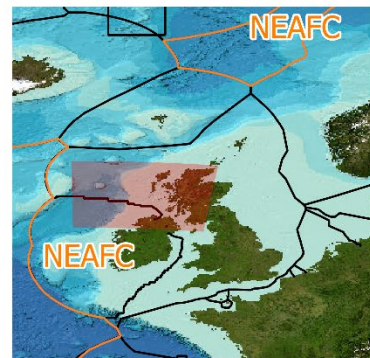


Figure 8

VME index (based on all records for the area) for the Anton Dohrn Seamount (C), and the Scottish (D) and Irish (E) continental slopes, showing the presence of actual VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high).

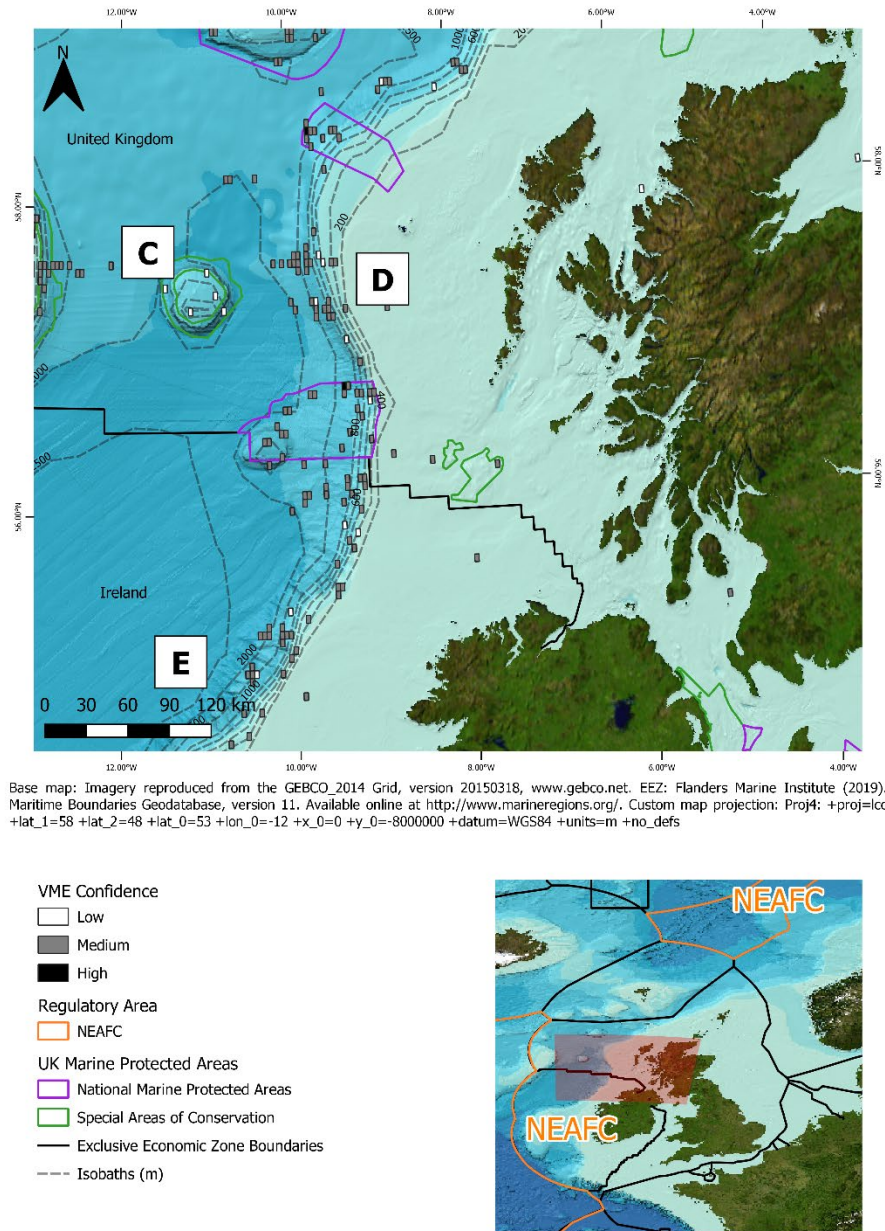


Figure 9 VME index confidence (based on all records for the area) for the Anton Dohrn Seamount (C), and the Scottish (D) and Irish (E) continental slopes.

Porcupine Bank and Seabight

A total of 401 new VME habitat and 682 new VME indicator records were submitted to the VME database for the Porcupine Bank, including the Irish continental slope, and the Porcupine Seabight (Figure 10). Some of these records were resubmissions, following data submitted in 2019. Of these, 12 VME records occur within the Northwest Porcupine Bank SAC, 48 within the Porcupine Bank Canyon SAC, 11 within the Southwest Porcupine Bank SAC, 35 within the Hovland Mound Province SAC, and 8 within the Belgica Mound Province SAC. In the Irish EEZ, for areas designated for the protection of sensitive habitats, including vulnerable marine ecosystems, it is prohibited to deploy bottom trawls or similar towed nets, bottom-set gillnets, entangling nets or trammelnets and bottom-set longlines; however, pelagic trawls are permitted in these areas under the provisions of Regulation (EU) 2019/1241 (EU, 2019). The remaining 969 records occur outside of existing protected areas, although 15 are very close to SAC boundaries.

Figure 11 shows the VME index (based on all records for the area) and Figure 12 the associated VME index confidence for the Porcupine Bank and Seabight.

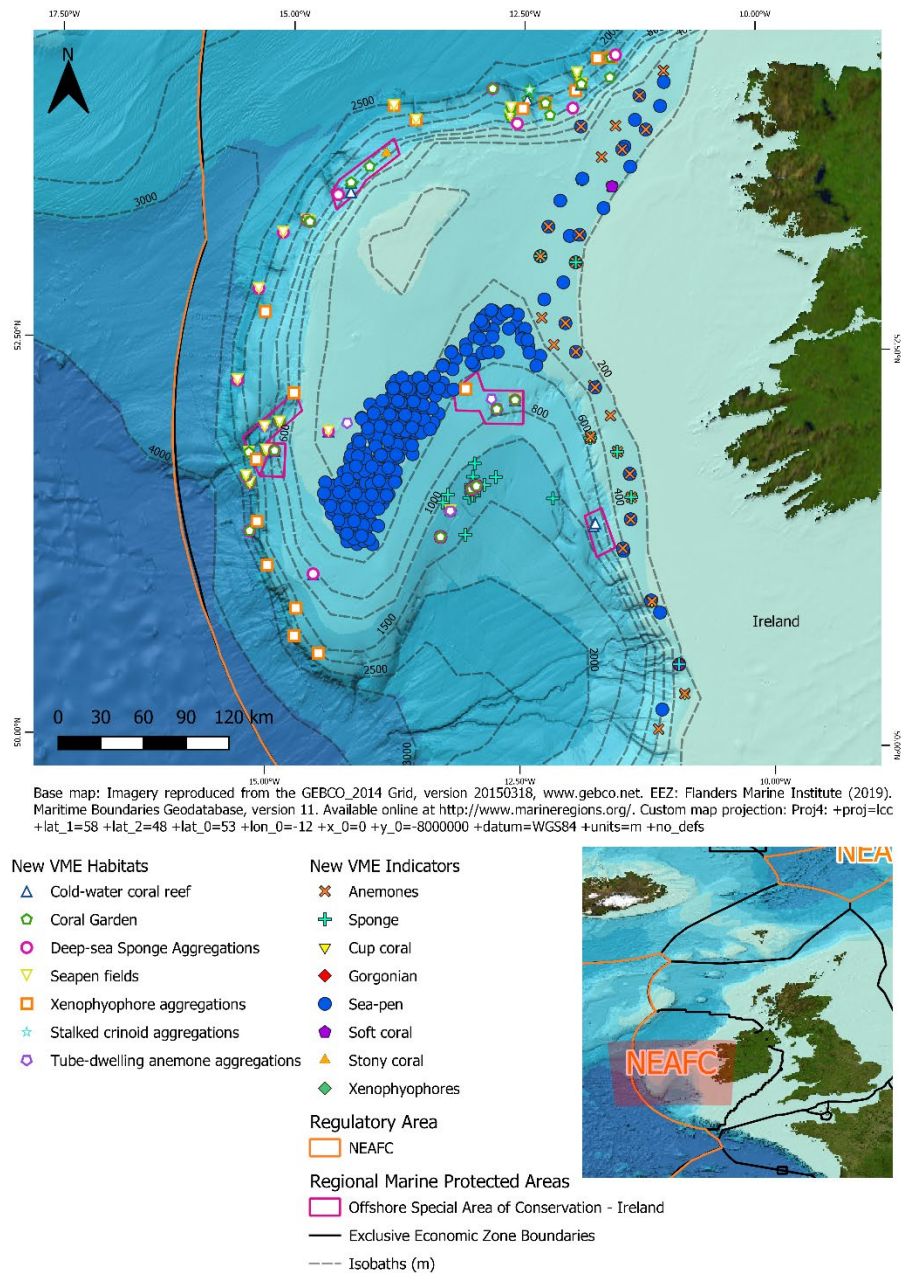


Figure 10 New VME habitat and indicator records for the Porcupine Bank and Seabight. Note that other VME records from the VME database are not displayed for this area.

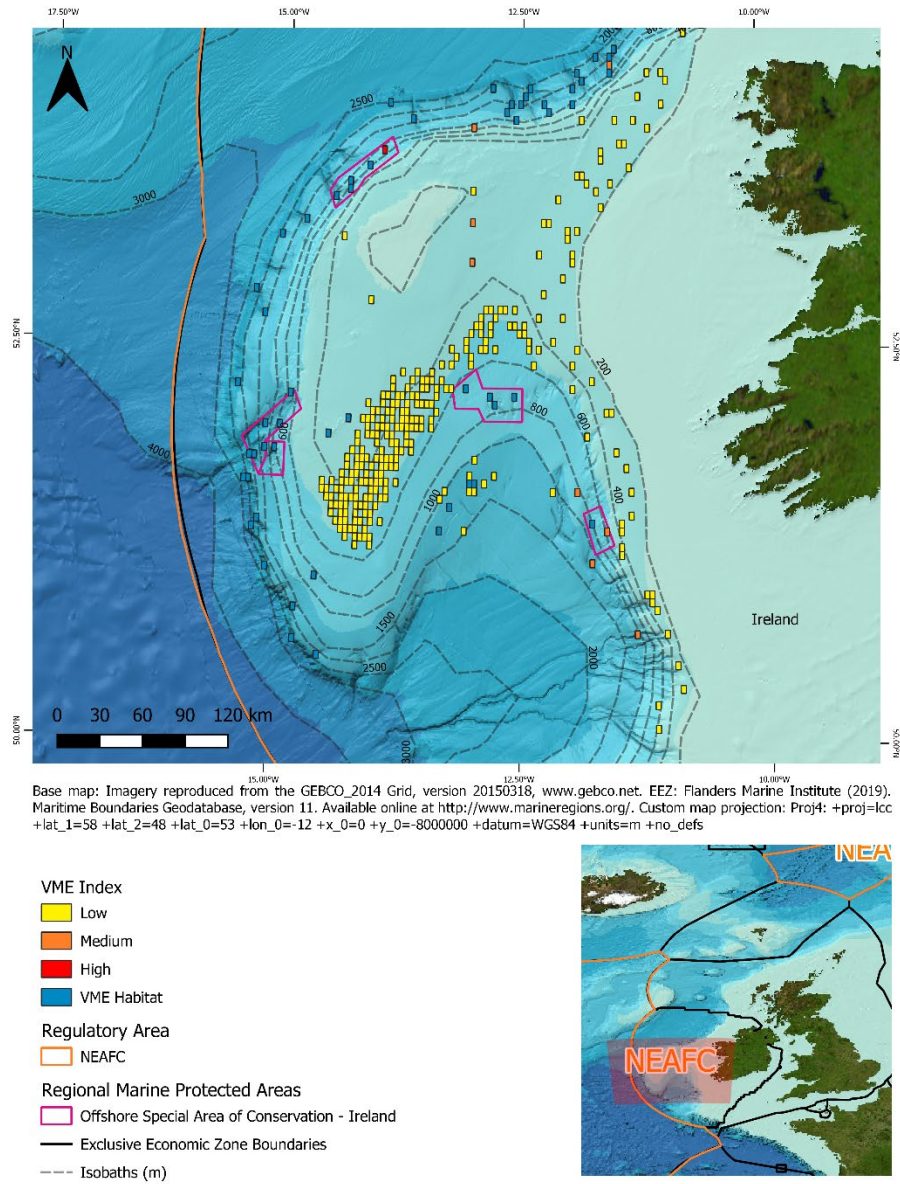


Figure 11 VME index (based on all records for the area) for the Porcupine Bank and Seabight, showing the presence of actual VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high).

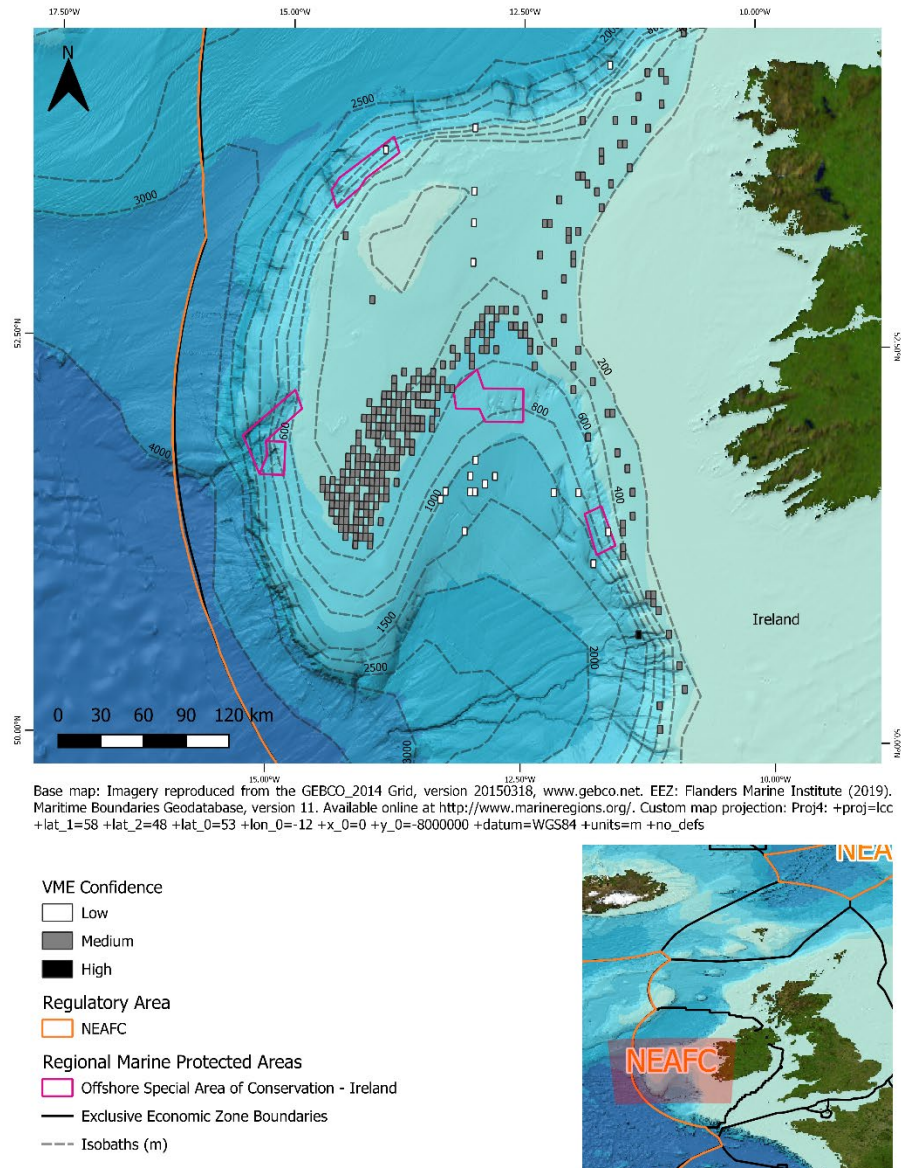


Figure 12 VME confidence index (based on all records for the area) for the Porcupine Bank and Seabight.

Danish continental slope

A total of six new VME habitat and indicator records were submitted to the VME database for the Danish continental slope (F in Figure 13). These occur outside of any existing protected areas.

Swedish continental slope

A total of 12 VME habitat records were submitted to the VME database for the Swedish continental slope (G in Figure 13). These are located within the Bratten Site of Community Importance (SCI). The SCI has 14 zones where fishing activity is prohibited under Commission Delegated Regulation (EU) 2017/118 (EU, 2017).

Figure 14 shows the VME index (based on all records for the area) and Figure 15 the associated VME index confidence for the Danish and Swedish continental slopes.

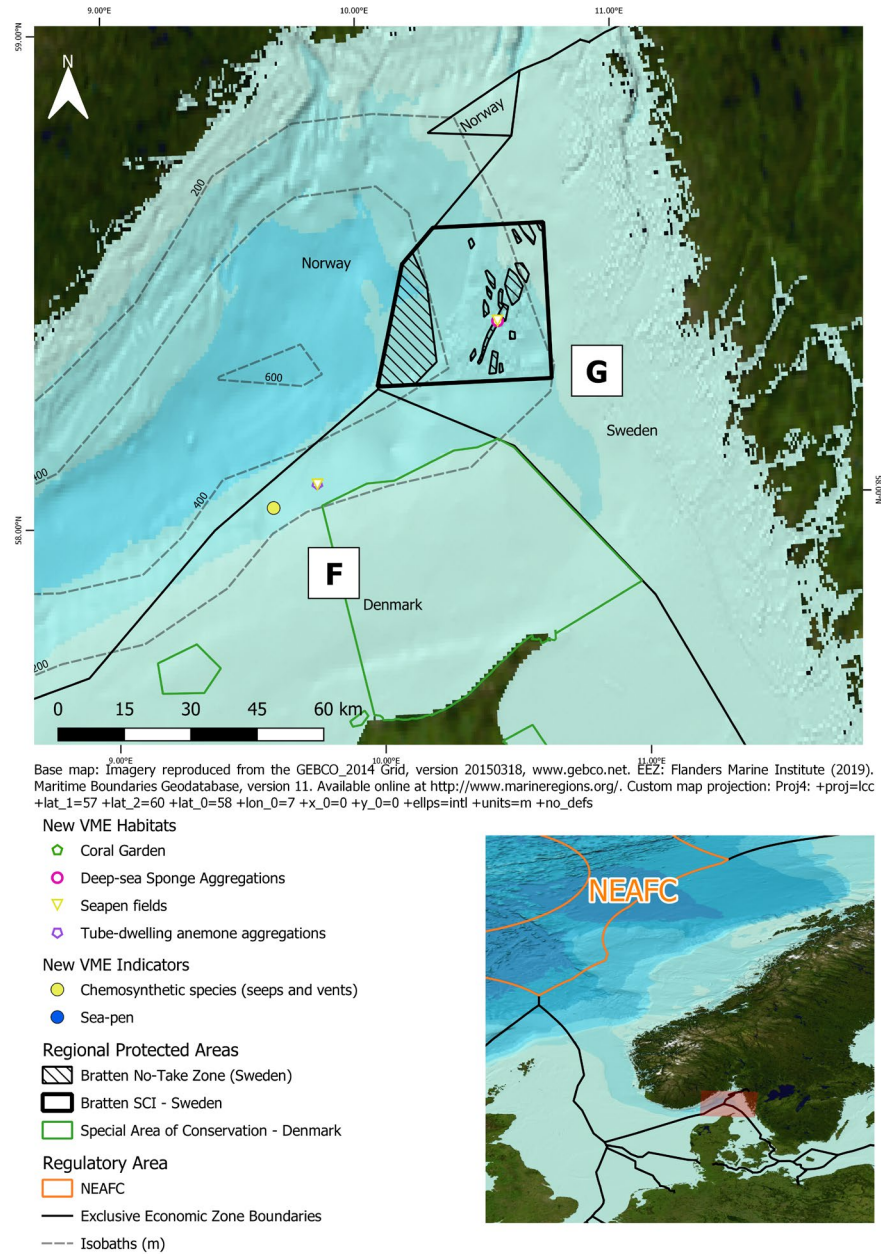


Figure 13

New VME habitat and indicator records for the Danish (F) and Swedish (G) continental slopes. VME records are found in all the Bratten No-Take Zones, but positions for VME indicators are only provided, as a central position in the main canyon. Note that other VME records from the VME database are not displayed for this area.

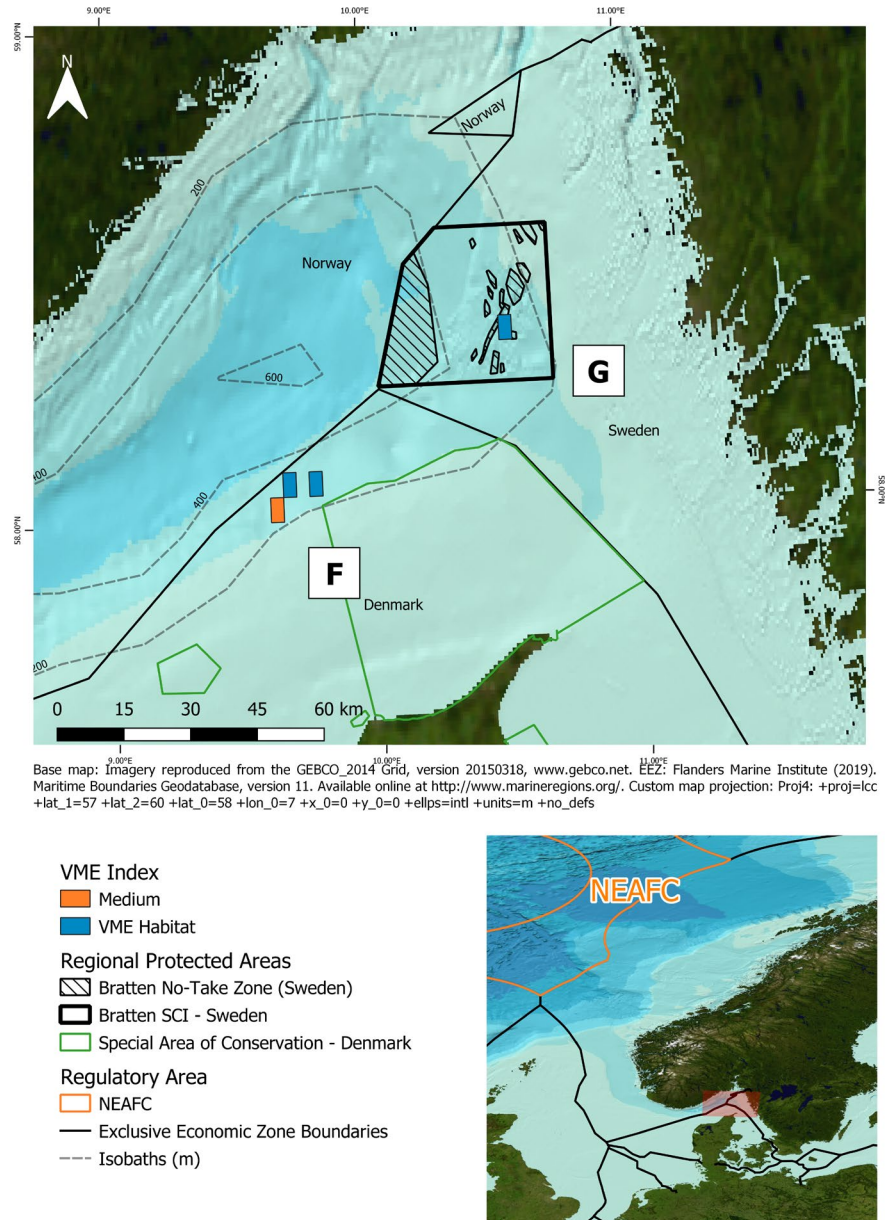


Figure 14

VME index (based on all records for the area) for the Danish (F) and Swedish (G) continental slopes, showing the presence of actual VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high).

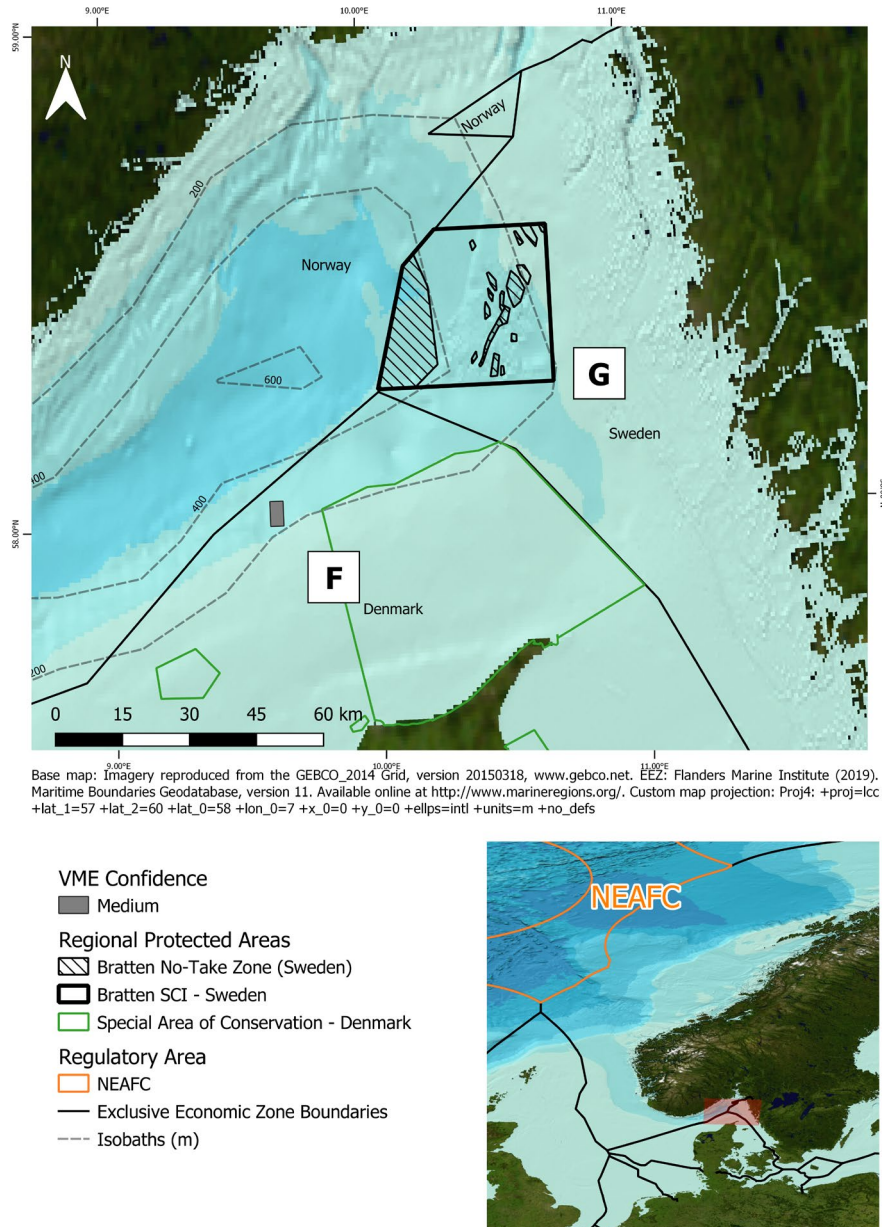


Figure 15 VME index confidence (based on all records for the area) for the Danish (F) and Swedish (G) continental slopes.

Basis of the advice

Methods

ICES has applied its standard VME weighting algorithm (ICES, 2018) to new VME information submitted to the ICES VME database in 2020 for regions within EU waters. This database consists of two main types of records: (1) confirmed VMEs that are based on, e.g. high quality underwater imagery; and (2) VME indicator records with varying degrees of confidence, e.g. trawl bycatch records or low-quality underwater imagery. These two types of records are treated separately. The VME weighting system assigns each VME indicator a score of between 1 and 5, based on expert judgement for each of the five FAO criteria for what classifies a habitat as a VME, and also examines whether the quantity of VME indicators is above or below NEAFC weight thresholds. The final VME weighting output shows the likelihood of encountering a VME for each for each c-square ($0.05^\circ \times 0.05^\circ$) grid cell. Those grid cells that contain bona fide records of VME habitats are shaded blue, e.g. from an ROV transect surveying a cold-water coral reef, and are excluded from the VME weighting algorithm. The VME index for the areas detailed above are shown in Figures 2, 5, 8, 11, and 14. Associated with the VME index layer is a

confidence layer, which includes a consideration of the survey method, the number of surveys, and the age of the data. Cells range from low confidence (black) to high (white). The VME confidence layer for the areas detailed above are shown in Figures 3, 6, 9, 12, and 15.

Sources and references

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