

## Information on vulnerable habitats in subareas of the NEAFC Regulatory Area closed to fishing for purposes other than VME protection

### Advice summary

ICES advises that existing closures – for purposes other than the protection of vulnerable marine ecosystems (VME) – should remain closed to fishing. This is based on evidence of the presence of vulnerable marine ecosystems in at least one of the areas closed to fishing for purposes other than VME protection in the NEAFC Regulatory Area, namely in the Rockall Haddock Box.

ICES also notes that some fishing activity still occurs in the Rockall Haddock Box, particularly in the western half of the area, with some bottom trawling occurring in the northwestern part.

### Request

*NEAFC requests ICES to provide information on the distribution of vulnerable habitats in subareas of the Regulatory Area that are closed to fishing for other purposes than VME protection, and provide advice relevant to help ensure the implementation by NEAFC of effective measures to prevent significant adverse impact of bottom fishing activity on vulnerable marine ecosystems, known to occur or likely to occur in the NEAFC Regulatory Area.*

### Elaboration on the advice

ICES is aware of one closure in the NEAFC Regulatory Area which is for purposes other than the protection of vulnerable marine ecosystems, namely the Rockall Haddock Box closure. This closure is not directed at the protection of VMEs, but rather designed as a fisheries management measure for the haddock stock in Division 6.b. In the Rockall Haddock Box closure area, 439 VME indicator records were submitted to the ICES VME database in the years 2016–2019 (Figure 1). No VME habitat records were submitted for the area. However, the closure remains an important area for VMEs, as indicated by the outputs of the VME index, shown in Figure 2. Confidence levels in VME indices are shown in Figure 3. ICES advises that the closure should remain to ensure VME protection.

ICES also notes the evidence of VME habitats in the vicinity of the Rockall Haddock Box.

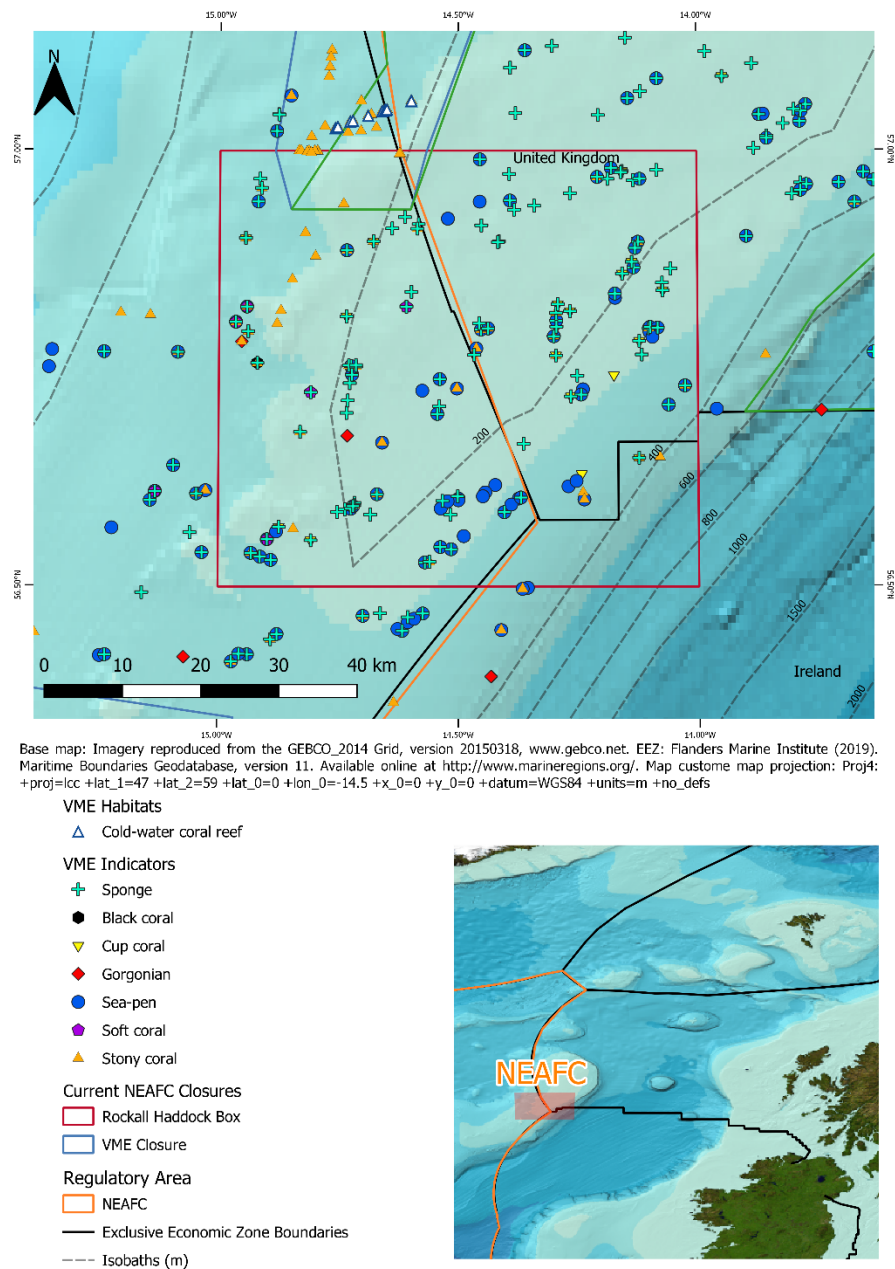
See the Methods section for explanation of VME habitats and indicators and VME index and VME index confidence.

There is evidence that some vessels with no registered gear type operate within the Haddock Box, particularly in the western half of the area (Figure 4). In addition, limited bottom trawling still occurs in the northwestern part of the Haddock Box (Figures 4, 5, 6, and 7).

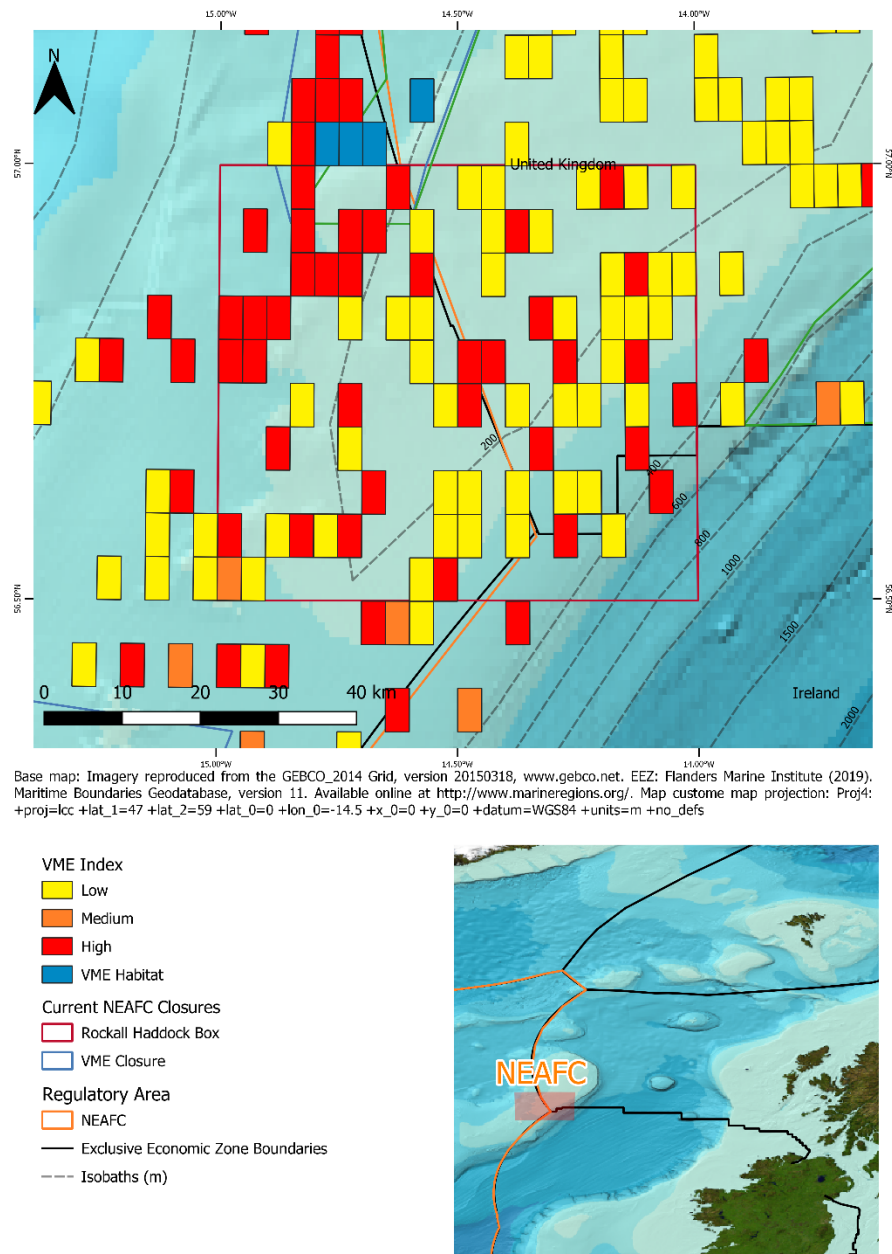
### NEAFC VMS and catch data supplied to ICES

This year, the quality of the speed data provided by NEAFC to ICES was significantly improved compared to previous years. However, a large proportion of the vessels still lack gear specification. The Data Flow Schematics publication (ICES, 2020a) shows the NEAFC VMS and catch data flow into the ICES data management systems and subsequent quality control steps used in the production of this advice. For this advice, ICES has plotted both bottom-trawling tow tracks and gridded (0.05° x 0.05°) fishing hours for 2019 bottom-contacting gears from NEAFC VMS and catch data.

## Basis of the advice

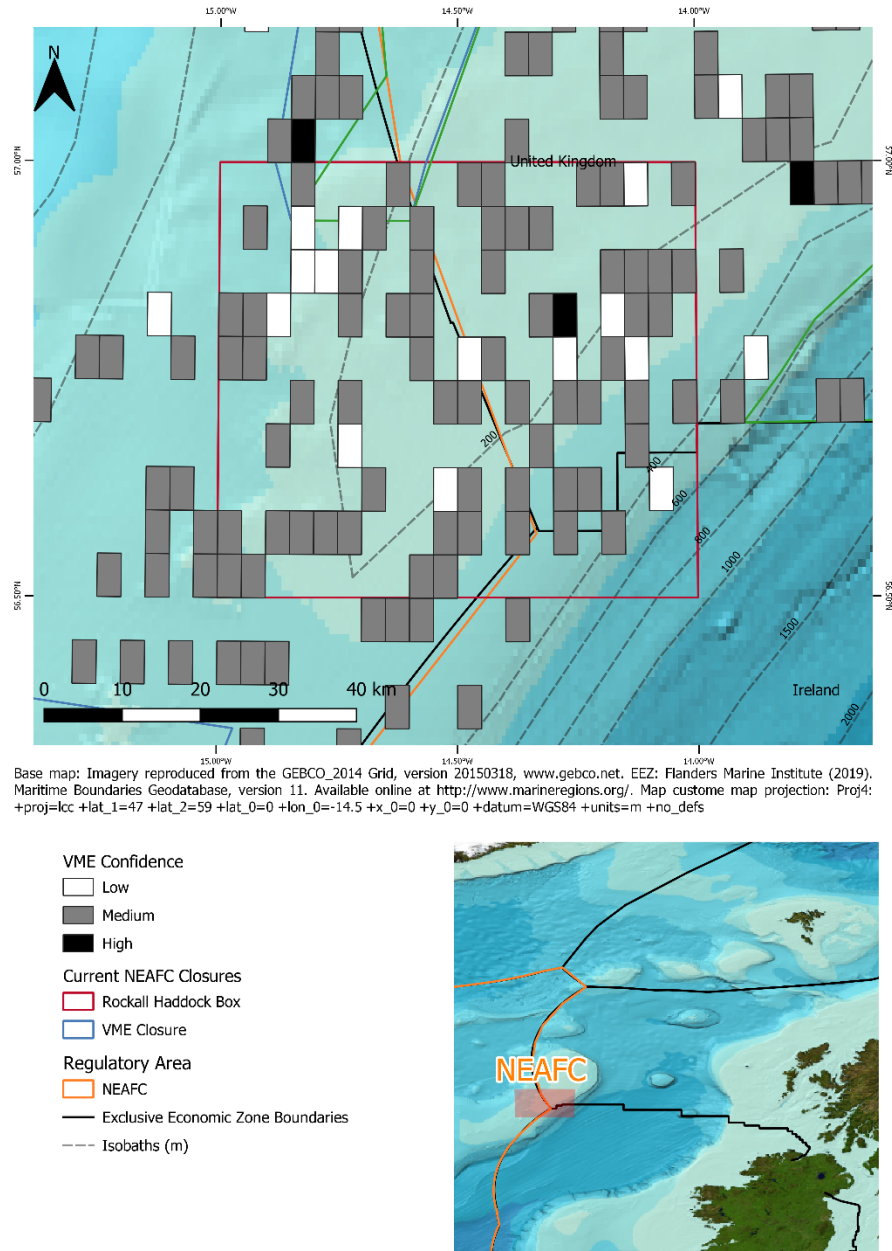


**Figure 1** VME habitats and indicator records submitted to the ICES VME database 2016-2019, showing all records occurring within and around the Rockall Haddock Box closure.



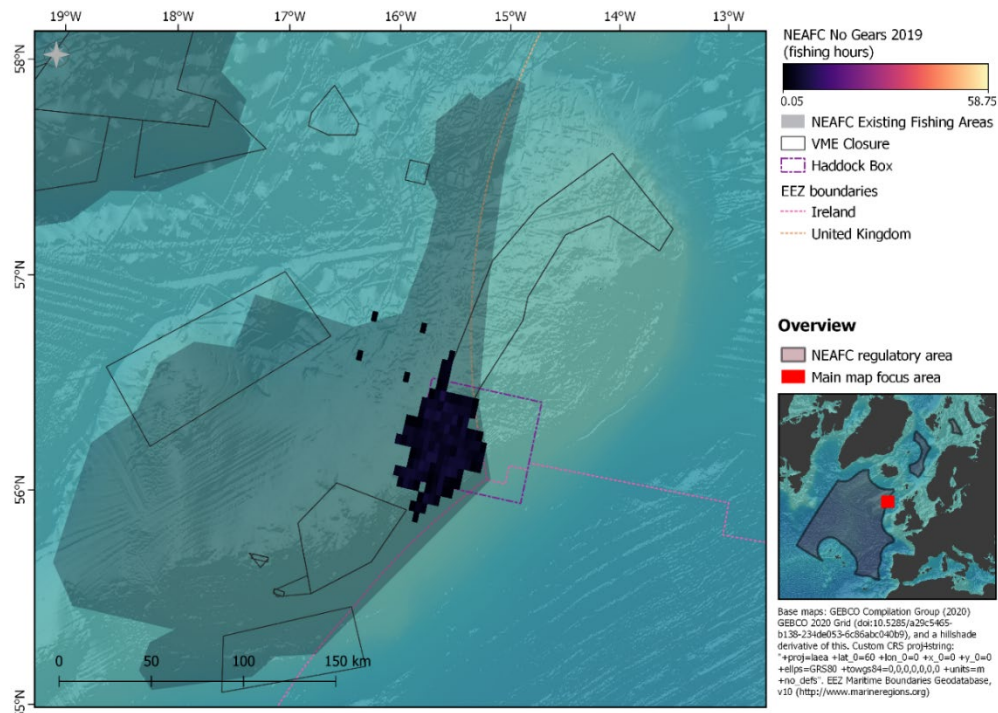
**Figure 2**

VME index (based on all records for the area) for the Haddock Box VME closure, showing the presence of verified VMEs (blue cells) and the likelihood of encountering a VME within each grid cell (ranging from low to high) based on data submitted to the ICES VME database in the years 2016–2019.

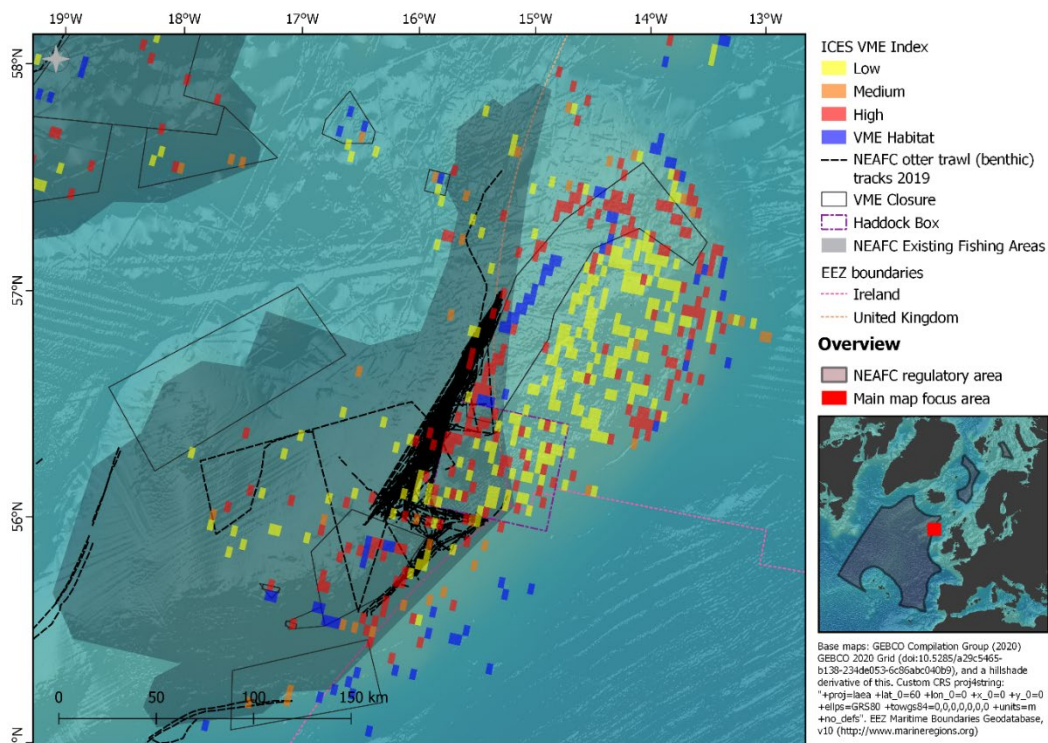


**Figure 3** VME index confidence (based on all records for the area) for the Haddock Box VME closure based on data submitted to the ICES VME database in the years 2016–2019.

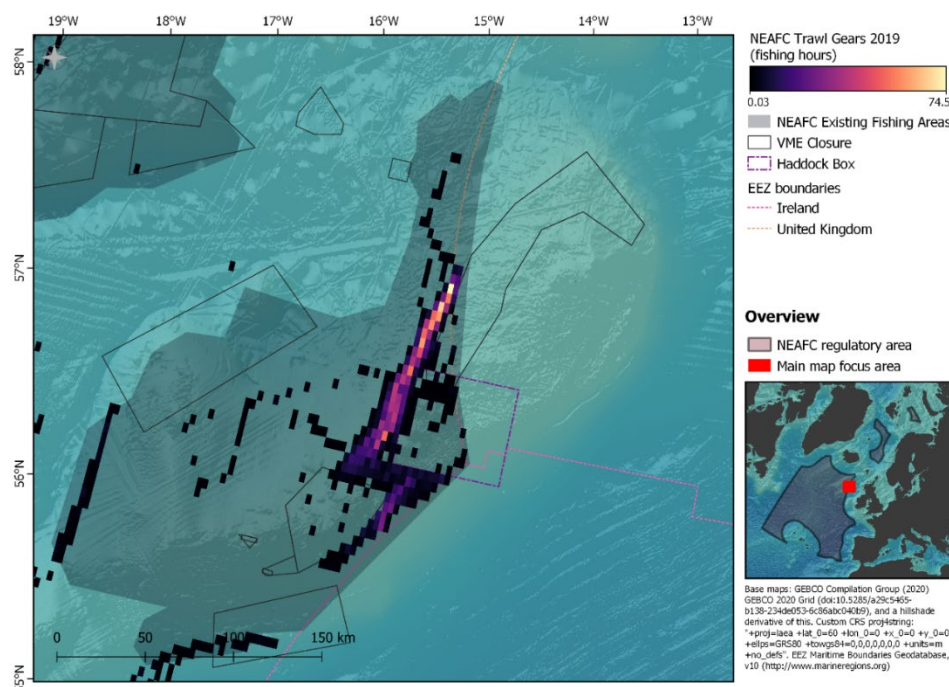




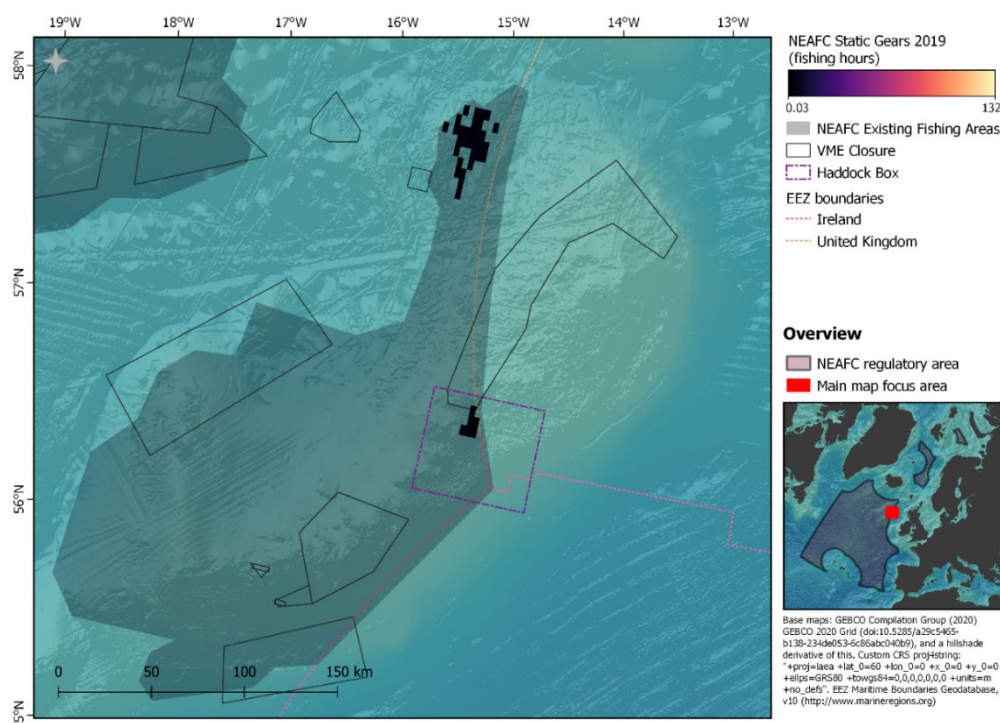
**Figure 4** Bottom fishing activity in 2019 shown as gridded data (fishing hours), where no gear was registered on Rockall Bank, overlain with VME closures, the Haddock Box, existing NEAFC fishing areas, and EEZ boundaries.



**Figure 5** Fishing activity in 2019 of bottom-contacting otter-trawl tow tracks (black lines) on Rockall Bank, overlain with the ICES VME index (based on all records for the area), the likelihood of encountering a VME within each grid cell (ranging from low to high), and the presence of verified VMEs based on data submitted to the ICES VME database in the years 2016–2019.



**Figure 6** Fishing activity in 2019 shown as gridded data (fishing hours) for bottom-contacting trawl gears on Rockall Bank, overlain with VME closures, the Haddock Box, existing NEAFC fishing areas, and EEZ boundaries.



**Figure 7** Fishing activity in 2019 shown as gridded data (fishing hours) for bottom-contacting static gears on Rockall Bank, overlain with VME closures, the Haddock Box, existing NEAFC fishing areas, and EEZ boundaries.

## Methods

ICES has applied its standard VME weighting algorithm (ICES, 2018) to VME information held within the ICES VME database for Rockall Haddock Box region. 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 Haddock Box is shown in Figure 2. Associated with the VME index layer is a confidence layer, which includes a consideration of the survey method, number of surveys, and the age of the data. Cells range from low (black) to high confidence (white). The VME confidence layer for the Haddock Box is shown in Figure 3.

The Data Flow Schematics publication (ICES, 2020a) shows the NEAFC VMS and catch data flow into the ICES data management systems and subsequent quality control steps used in the production of this advice. For this advice, ICES has plotted both bottom-trawling tow tracks and gridded ( $0.05^\circ \times 0.05^\circ$ ) fishing hours for 2019 bottom-contacting gears from NEAFC VMS and catch data.

## Sources and references

ICES. 2018. Report of the ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC), 5–9 March 2018, Dartmouth, Nova Scotia, Canada. ICES CM 2018/ACOM:26. 126 pp.

ICES. 2020a. Vessel Monitoring System (VMS) and Catch Data in the North East Atlantic Fisheries Commission (NEAFC) regulatory area. ICES Data Flow Schematics, Vol. 1: Ed. 1. 8 pp. <https://doi.org/10.17895/ices.advice.6101>.

ICES. 2020b. ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC). ICES Scientific Reports, 2:62. 171 pp. <http://doi.org/10.17895/ices.pub.6095>.

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ICES. 2020. Vulnerable marine ecosystems in the NEAFC Regulatory Area closed to fishing for purposes other than VME protection. In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, vme.neafc.2. <https://doi.org/10.17895/ices.advice.7427>.