European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the habitat:

H1170 - Reefs

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this habitat, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the habitat are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level and/or UK offshore-level reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; and/or (ii) completion of the field was not obligatory.
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Habitat code	**1170 - Reefs**

2. Maps

2.1 Year or period	1960-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs: **Marine Atlantic (MATL)**

3.2 Sources of information:

England

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Sources of information continued in 12.2 Other relevant information

4. Range

4.1 Surface area (in km²)	80946	
4.2 Short-term trend Period	2007-2018	
4.3 Short-term trend Direction	Uncertain (u)	
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum
4.5 Short-term trend Method used	Insufficient or no data available	
4.6 Long-term trend Period		
4.7 Long-term trend Direction		
4.8 Long-term trend Magnitude	a) Minimum	b) Maximum
4.9 Long-term trend Method used		
4.10 Favourable reference range	a) Area (km²)	
	b) Operator	
	c) Unknown	Yes
	d) Method	The majority of the reef feature is composed of rocky reefs which are widely distributed and composed of robust species. Thus, the current range of the feature probably covers most of its potential range, with adequate provision for the full range of ecological variation. Although many individual biogenic reefs may have suffered declines due to anthropogenic impacts and we do not know how this has affected their overall distribution. In conclusion, as we can only estimate the range of the feature, it is not possible to give a favourable reference range.
4.11 Change and reason for change in surface area of range	Improved knowledge/more accurate data	
	The change is mainly due to:	Improved knowledge/more accurate data
4.12 Additional information	4.1-The UK range map was developed from the UK surface area map, but additionally included an area of iceberg ploughmarks off North-West Scotland in offshore waters, where cobble reefs had been recorded (JNCC, 2018a). 4.3-The trend should be reported uncertain because of the biogenic reefs that make up part of this Annex I habitat. The range of the biogenic reefs could have been affected by factors such as changing climate, pH, river discharges etc. There is not enough data available to draw conclusions about the effects of these. 4.11-As a result of improved mapping of the habitat, the surface area of range for UK reefs is smaller than the figure reported in 2013. For further details see the 2019 UK Approach Document (JNCC website).	

5. Area covered by habitat

5.1 Year or period	1960-2018			
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value	73482.20878

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5.3 Type of estimate	Best estimate		
5.4 Surface area Method used	Based mainly on extrapolation from a limited amount of data		
5.5 Short-term trend Period	2007-2018		
5.6 Short-term trend Direction	Uncertain (u)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Insufficient or no data available		
5.9 Long-term trend Period			
5.10 Long-term trend Direction			
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used			
5.13 Favourable reference area	a) Area (km²)		
	b) Operator		
	c) Unknown	Yes	
	d) Method	The current surface area map is comprised of both high confidence reef data and potential rocky reef data. Biogenic reefs may have suffered declines due to anthropogenic impacts and we do not know how this has affected their overall distribution. As we can only estimate that area of the feature, it is not possible to give a favourable reference area.	
5.14 Change and reason for change in surface area of range	Improved knowledge/more accurate data		
	The change is mainly due to:	Improved knowledge/more accurate data	
5.15 Additional information	5.1-The data sources used to produce this map ranged from 1960 to 2018 5.4-JNCC created the Annex I Reef habitat map (JNCC, 2018a). It is composed of both high confidence reef data (where survey data is available to verify the records) and potential rocky reef data derived from habitat modelling (where the UK Statutory Nature Conservation Bodies (SNCBs) believe, from the best available evidence, that Annex I Reef might be present. 5.6- Expert judgement was used to determine the overall short-term trend at the UK-level. We have data but not enough to establish a trend direction. Area is a more specific parameter than range and we don't generally have good enough data to establish a trend. Change in area will probably be due to improved mapping / method change. Continued small losses have been reported in Wales inshore waters. 5.14- As a result of improved mapping of the habitat, the surface area for UK reefs is smaller than the figure reported in 2013. For further details see the JNCC website for 2019 UK Approach document.		

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum	50087.06924	Maximum	50087.0692
	b) Area in not-good condition (km²)	Minimum	16765.95425	Maximum	16765.9543
	c) Area where condition is not known (km²)	Minimum	7261.95573	Maximum	7261.95573
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data				

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6.3 Short-term trend of habitat area in good condition Period	2007-2018
6.4 Short-term trend of habitat area in good condition Direction	Decreasing (-)
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on expert opinion with very limited data
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period? No
6.7 Typical species Method used	
6.8 Additional information	6.1-The area of habitat in 'good' (favourable),'not good' (unfavourable) and unknown condition was assessed in the inshore areas of the four countries and in the offshore area. 23% of the habitat is thought to be in unfavourable (not good) condition, 68% of the habitat is thought to be in favourable (good condition) and 10% of the habitat is in unknown condition. The structure and functions conservation status is, therefore, unfavourable-inadeqaute. The parameter conservation status was also unfavourable-inadequate in 2013. The result is driven by the offshore reef assessment because the majority of reef is located in the offshore area. The 'Extent of Physical Damage to Predominant and Special Habitats (BH3)' indicator (OSPAR Commission, 2017) was used to assess the condition of offshore reef. There is low confidence in the assessment. It should be noted that if some of the area (>15% of the total area) in unknown condition were deemed to be in unfavourable 'not good' condition, this would result in an unfavourable-bad conclusion for this parameter. 6.4-The short-term trend of habitat in good condition was assessed in the inshore areas of the four countries and in the offshore area. The results were then aggregated (see 2019 UK Approach Document). The trend was identified as decreasing in the offshore area where the largest proportion of UK reefs are found. The results of the extent of physical damage indicator (BH3), which was used to assess the condition of offshore reefs (6.1), suggest that reefs are highly disturbed as a result of widespread fishing. Therefore, it is likely that the condition of reefs has deteriorated over the last 12 years. There is low confidence in this assessment. A decreasing trend was also reported in 2013. For details on the approaches taken in this section see the JNCC website for 2019 UK Approach Document and relevant country/offshore-level reporting information.

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Transmission of electricity and communications (cables) (D06)	M
Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging) (E03)	M
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	M
Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (G01)	H

Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats (G03)	H
Marine aquaculture generating marine pollution (G16)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	M
Sea-level and wave exposure changes due to climate change (N04)	M

Threat	Ranking
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	M
Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (G01)	H
Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats (G03)	H
Other invasive alien species (other then species of Union concern) (I02)	M
Mixed source marine water pollution (marine and coastal) (J02)	M
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	M
Change of habitat location, size, and / or quality due to climate change (N05)	M
Desynchronisation of biological / ecological processes due to climate change (N06)	M
Decline or extinction of related species (e.g. food source / prey, predator / parasite, symbiote, etc.) due to climate change (N07)	M
Change of species distribution (natural newcomers) due to climate change (N08)	M

7.2 Sources of information

7.3 Additional information

For details on approaches taken in this section see JNCC website for the 2019 UK Approach Document and relevant country/offshore-level reporting information.
There were often more than ten pressures, threats (of high or medium importance), or conservation measures identified, and an aggregation method was used to identify the top ten of each. As a result the top ten lists for the habitat may not correspond with each other. For example, a pressure may be in the reported top ten list, but the corresponding conservation measure

might not appear in the top ten list of conservation measures. This does not mean that the measure is not in place, but instead it is in the extended list of measures that did not make the top ten but are detailed in the additional information section.
The following pressures were also identified as medium importance, however, a maximum of ten could be reported: A28-Agricultural activities generating marine pollution, G11-Illegal harvesting, collecting and taking, F20-Residential or recreational activities and structures generating marine pollution (excl. marine macro- and micro-particular pollution), F21-Industrial or commercial activities and structures generating marine pollution (excluding marine macro- and micro-particular pollution), F23-Industrial or commercial activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam), N08-Change of species distribution (natural newcomers) due to climate change, F22-Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam), D01-Wind, wave and tidal power, including infrastructure, F07-Sports, tourism and leisure activities, G17-Introduction and spread of species (including GMOs) in marine aquaculture.
The following threats were also identified as medium importance, however, a maximum of ten could be reported: A28-Agricultural activities generating marine pollution, E03-Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging), G11-Illegal harvesting, collecting and taking, F20-Residential or recreational activities and structures generating marine pollution (excl. marine macro- and micro-particular pollution), F23-Industrial or commercial activities and structures generating marine macro- and micro-particulate pollution (e.g. plastic bags, Styrofoam), F22-Residential or recreational activities and structures generating marine macro- and micro-particulate pollution (e.g. plastic bags, Styrofoam), F07-Sports, tourism and leisure activities, N04-Sea-level and wave exposure changes due to climate change, G16-Marine aquaculture generating marine pollution, D01-Wind, wave and tidal power, including infrastructure, D06-Transmission of electricity and communications (cables).

8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken		Restore the habitat of the species (related to ‘Habitat for the species’)
8.3 Location of the measures taken		Both inside and outside Natura 2000
8.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures		

Reduce/eliminate marine pollution from agricultural activities (CA13)
Adapt/manage exploitation of energy resources (CC02)
Adapt/manage renewable energy installation, facilities and operation (CC03)
Manage/reduce/eliminate point pollution to surface or ground waters from resource exploitation and energy production (CC08)
Reduce impact of transport operation and infrastructure (CE01)

Reduce/eliminate marine pollution from industrial, commercial, residential and recreational areas and activities (CF07)

Manage changes in hydrological and coastal systems and regimes for construction and development (CF10)

Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)

Reduce/eliminate marine pollution from marine aquaculture (CG08)

Other measures to reduce impacts from marine aquaculture infrastructures and operation (CG09)

8.6 Additional information

For details on approaches taken in this section see JNCC website for the 2019 UK Approach Document and relevant country/offshore-level reporting information.
8.1b)Measures have been identified and taken in UK inshore areas. In the offshore area some measures are in place, however, a number of proposals have been recommended for the majority of offshore sites but have not been submitted yet to the European Commission (EC). Please see offshore-level reporting information (JNCC website) for more details.
8.5- There were often more than ten pressures, threats (of high or medium importance), or conservation measures identified, and an aggregation method was used to identify the top ten of each. As a result the top ten lists for the habitat may not correspond with each other. For example, a pressure may be in the reported top ten list, but the corresponding conservation measure might not appear in the top ten list of conservation measures. This does not mean that the measure is not in place, but instead it is in the extended list of measures that did not make the top ten but are detailed in the additional information section.
The following conservation measures were also identified, however, a maximum of 10 could be listed: CF03- Reduce impact of outdoor sports, leisure and recreational activities, CN01- Adopt climate change mitigation measures, CC01- Adapt/manage extraction of non-energy resources, CG15- Other measures related to exploitation of species, CF02- Habitat restoration of areas impacted by residential, commercial, industrial and recreational infrastructure, operations and activities, CH03- Reduce impact of other specific human actions, CG05- Reduce bycatch and incidental killing of non-target species, CF12- Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities, CC11- Manage/reduce/eliminate marine pollution from resource exploitation and energy production, CG02- Management of hunting, recreational fishing and recreational or commercial harvesting or collection of plants, CG04- Control/eradication of illegal killing, fishing and harvesting, CF08- Reduce/eliminate marine contamination with litter, CI03- Management, control or eradication of other invasive alien species, CC06- Reduce impact of service corridors and networks

9. Future prospects

9.1 Future prospects of parameters

a) Range	Unknown
b) Area	Poor
c) Structure and functions	Poor

9.2 Additional information

Future trends for each parameter were identified in the inshore areas of the four countries and in the offshore area. The results were then aggregated to give a future trend for the UK (see 2019 UK Approach Document). Table 32 in the EU Guidelines was used to bring the future trend and conservation status of each parameter together to conclude on future prospects.
9.1a) The future prospects are unknown because the future trend for range is unknown and the range conclusion is unknown. The range of the rocky reef component of Annex I reefs is determined by geological processes and is unlikely

to change over shorter time scales. However, the range of the biogenic component of reefs could be affected by a number of pressures and it unclear how these will affect the range in the next 12 years. The future prospects were also unknown in 2013.
9.1b) The future prospects are poor because the future trend for area is negative and the area conclusion is unknown. The future prospects were unknown in 2013, however, improved knowledge has allowed the field to be reported on in 2019.
9.1c) The future prospects are poor because the future trend for structure and functions is negative and the conclusion for structure and functions is unfavourable-inadequate. The future prospects were also poor in 2013.
For details on approaches taken in this section see JNCC website for the 2019 UK Approach Document and relevant country/offshore-level reporting information.

10. Conclusions

10.1. Range	Unknown (XX)
10.2. Area	Unknown (XX)
10.3. Specific structure and functions (incl. typical species)	Unfavourable - Inadequate (U1)
10.4. Future prospects	Unfavourable - Inadequate (U1)
10.5 Overall assessment of Conservation Status	Unfavourable - Inadequate (U1)
10.6 Overall trend in Conservation Status	Unknown (x)
10.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status Use of different method The change is mainly due to: Use of different method
10.8 Additional information	10.1-Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is uncertain; and (ii) the Favourable Reference Range is unknown. 10.2-Conclusion on Area covered by habitat reached because: (i) the short-term trend direction in Area is uncertain; and (ii) the Favourable Reference Area is unknown. 10.3-Conclusion on Structure and functions reached because habitat condition data indicates that between c.5-25%/ of the habitat is in unfavourable (not good) condition. 23% of the habitat is in unfavourable (not good) condition, 68% of the habitat is in favourable (good) condition and 10% of the habitat is in unknown condition. It should be noted that if some of the area (>15% of the total area) in unknown condition were deemed to be in unfavourable 'not good' condition, this would result in an unfavourable-bad conclusion for this parameter. 10.4-Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Area covered by habitat are poor; and (iii) the Future prospects for Structure and functions are poor. The Future prospects conclusion was unknown in 2013, however, in 2019 habitat sensitivity information was used to make a prediction on future trends. 10.5-Overall assessment of Conservation Status is Unfavourable-inadequate

because one or more of the conclusions is Unfavourable-inadequate.
It should be noted that if some of the area (>15% of the total area) in unknown condition were deemed to be in unfavourable 'not good' condition, this would result in an unfavourable-bad conclusion for the structure and functions parameter and would result in the overall assessment of Conservation Status being unfavourable-bad.
10.6-Overall trend in Conservation Status is based on the combination of the short-term trends for Range - uncertain, Area covered by habitat - uncertain, and Structure and functions - decreasing.
10.7b)- The Overall Trend in Conservation Status has changed between 2013 (declining) and 2019 (unknown). This was a methodological change because of the removal of the Future Prospects trend from the 2019 method used to assess Overall Trend. 2013: Range = unknown, Area = unknown, S&F= declining, FP = unknown. 2019: Range=uncertain, Area = uncertain, S&F = decreasing, [FP not included].

For methods see JNCC website for 2019 UK Approach Document and country/offshore-level reporting information.

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)	a) Minimum b) Maximum c) Best single value 32782
11.2 Type of estimate	Best estimate
11.3 Surface area of the habitat type inside the network Method used	Based mainly on extrapolation from a limited amount of data
11.4 Short-term trend of habitat area in good condition within the network Direction	Decreasing (-)
11.5 Short-term trend of habitat area in good condition within network Method used	Based mainly on expert opinion with very limited data
11.6 Additional information	11.3-The reefs surface area map was intersected with all Natura 2000 sites that contain qualifying marine habitats or species (JNCC, 2018b). The cut-off used for SAC designations was Tranche 56 in November 2017. For details on approaches taken in this section see JNCC website for the 2019 UK Approach Document and relevant country/offshore-level reporting information.

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	Continued from 3.2 Sources of information Welsh Assembly Government (2018) Environmental Protection (Microbeads) (Wales) Regulations 2018 was voted on and passed by the Welsh Assembly in June 2018 http://www.assembly.wales/laid documents/sub-ld11558-em/sub-ld11558-em-e.pdf HM Government. 2010a. The Scallop Fishing (Wales) (No.2) Order 2010 (SI 2010 No. 269): http://www.legislation.gov.uk/wsi/2010/269/contents/made HM Government. 2010b. The Single Use Carrier Bags Charge (Wales) Regulations 2010 http://www.legislation.gov.uk/wsi/2010/2880/contents/made

HM Government. 2012a. The Scallop Dredging Operations (Tracking Devices) (Wales) Order 2012 (SI 2012 No. 2729): http://www.legislation.gov.uk/wsi/2012/2729/contents/made
HM Government 2012b. The Sea Fish (Specified Sea Areas) (Prohibition of Fishing Method) (Wales) Order 2012 is SI 2571
European Commission (2014) The Common Fisheries Policy (CFP) https://ec.europa.eu/fisheries/cfp_en
European Commission (2008) The Marine Strategy Framework Directive https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056. http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/index_en.htm
HM Government (2009) Marine and Coastal Access Act 2009 https://www.legislation.gov.uk/ukpga/2009/23/contents
European Commission (2000) The EU Water Framework Directive http://ec.europa.eu/environment/water/water-framework/index_en.html
European Commission (1992) The Habitats Directive (1992) http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm
HM Government (1989) Electricity Act 1989 (Section 36) https://www.legislation.gov.uk/ukpga/1989/29/section/36
HM Government (2017) Wales Act 2017 http://www.legislation.gov.uk/ukpga/2017/4/section/39/enacted
HM Government (2008) Planning Act 2008 https://www.legislation.gov.uk/ukpga/2008/29/part/3/crossheading/energy
HM Government (1981) Wildlife and Countryside Act 1981 https://www.legislation.gov.uk/ukpga/1981/69/section/14
HM Government (2017) The Conservation of Habitats and Species Regulations 2017 http://www.legislation.gov.uk/uksi/2017/1012/contents/made
IMO. 2014. International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx
Tyler-Walters, H. 2018. Bubbling reefs in the aphotic zone. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 10-09-2018]. Available from: https://www.marlin.ac.uk/habitat/detail/1163
Welsh National Marine Plan (draft). 2018. https://beta.gov.wales/draft-welsh-national-marine-plan.
UK
JNCC, 2018a. Marine Habitat Mapping Products. http://jncc.defra.gov.uk/page-6639
JNCC, 2018b. SACs with Marine Components. https://jncc.gov.uk/our-work/uk-marine-protected-area-datasets-for-download/#special-areas-of-conservation-with-marine-components-all-uk-waters

Distribution Map

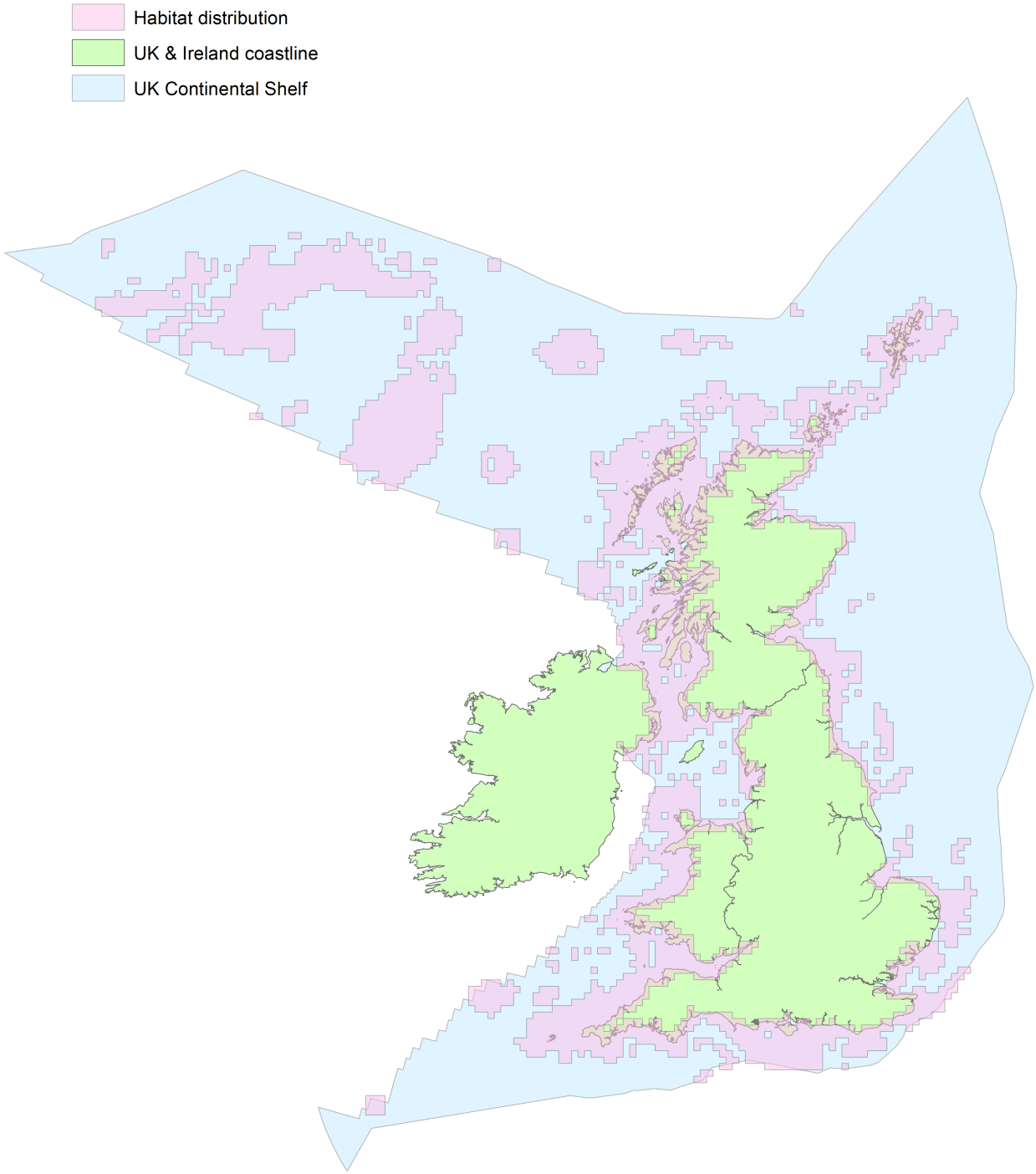

Figure 1: UK distribution map for H1170 - Reefs.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

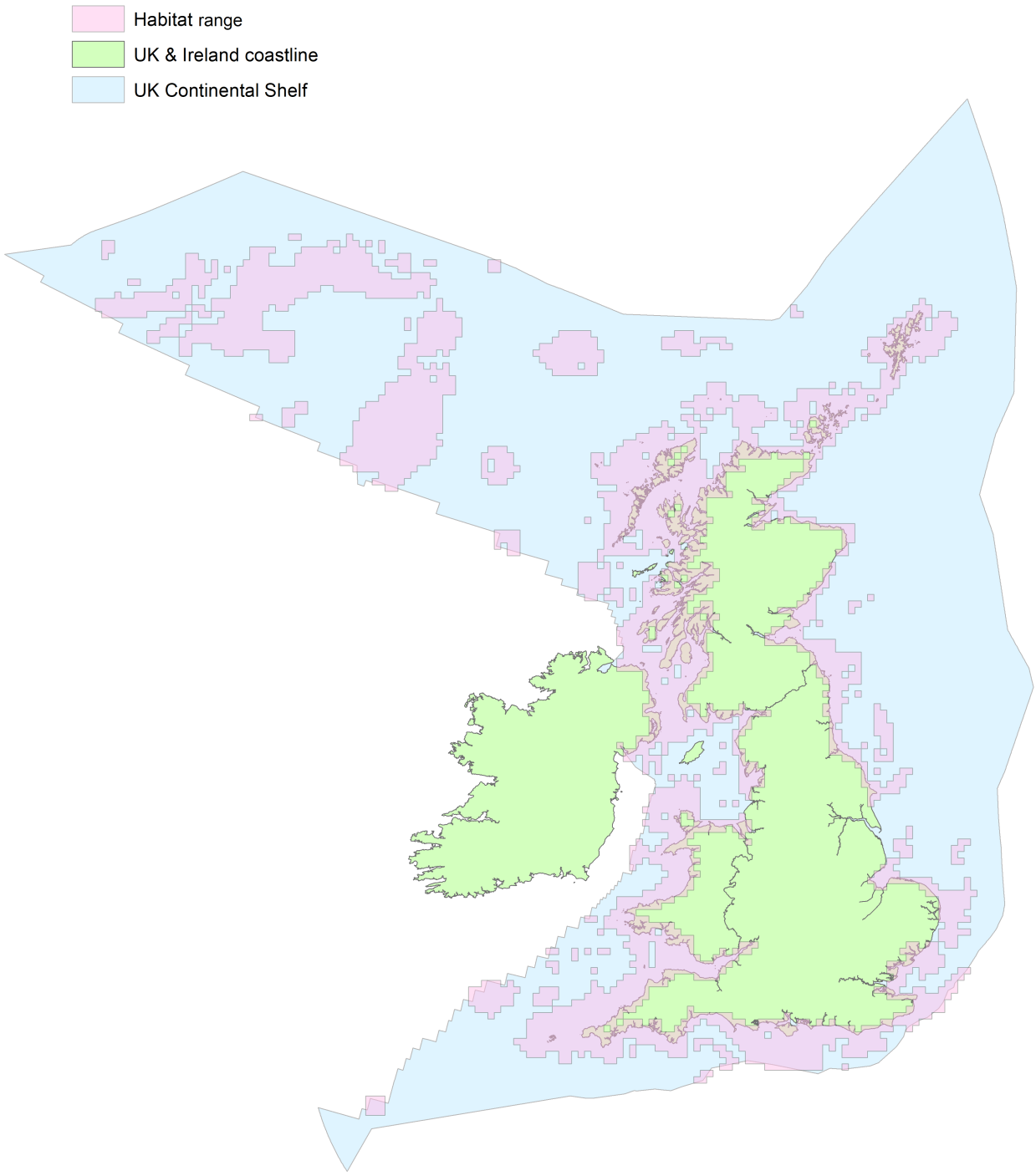

Figure 2: UK range map for H1170 - Reefs.

The UK range map was developed from the UK surface area map, but additionally included an area of iceberg ploughmarks off North-West Scotland in offshore waters, where cobble reefs had been recorded (JNCC, 2018a).

Explanatory Notes

Habitat code: 1170

Field label	Note
2.1 Year or period	The data sources used to produce this map ranged from 1960 to 2018
2.3 Distribution map; Method used	The surface area map was gridded to create the distribution map. The 2013 UK Article 17 area data for Annex I Reefs were revised at a UK level by the JNCC following updates submitted by the UK Country Agencies. For further details see JNCC website (JNCC 2018a).

Habitat code: 1170 Region code: MATL

Field label	Note
4.1 Surface area	The UK range map was developed from the UK surface area map, but additionally included an area of iceberg ploughmarks off North-West Scotland in offshore waters, where cobble reefs had been recorded (JNCC, 2018a).
4.3 Short term trend; Direction	The trend should be reported uncertain because of the biogenic reefs that make up part of this Annex I habitat. The range of the biogenic reefs could have been affected by factors such as changing climate, pH, river discharges etc. There is not enough data available to draw conclusions about the effects of these.
4.5 Short term trend; Method used	See 4.3
4.11 Change and reason for change in surface area of range	As a result of improved mapping of the habitat, the surface area of range for UK reefs is smaller than the figure reported in 2013.
5.1 Year or period	The data sources used to produce this map ranged from 1960 to 2018
5.3 Type of estimate	See 5.4
5.4 Surface area; Method used	JNCC created the Annex I Reef habitat map (JNCC, 2018a). It is composed of both high confidence reef data (where survey data is available to verify the records) and potential rocky reef data derived from habitat modelling (where the UK Statutory Nature Conservation Bodies (SNCBs) believe, from the best available evidence, that Annex I Reef might be present.
5.6 Short term trend; Direction	Expert judgement was used to determine the overall short-term trend at the UK-level. We have data but not enough to establish a trend direction. Area is a more specific parameter than range and we don't generally have good enough data to establish a trend. Change in area will probably be due to improved mapping / method change. Continued small losses have been reported in Wales inshore waters.
5.8 Short term trend; Method used	See 5.6
5.14 Change and reason for change in surface area	As a result of improved mapping of the habitat, the surface area for UK reefs is smaller than the figure reported in 2013.

6.1 Condition of habitat	The area of habitat in 'good' (favourable),'not good' (unfavourable) and unknown condition was assessed in the inshore areas of the four countries and in the offshore area. 23% of the habitat is thought to be in unfavourable (not good) condition, 68% of the habitat is thought to be in favourable (good condition) and 10% of the habitat is in unknown condition. The structure and functions conservation status is, therefore, unfavourable-inadeqaute. The parameter conservation status was also unfavourable-inadequate in 2013. The result is driven by the offshore reef assessment because the majority of reef is located in the offshore area. The 'Extent of Physical Damage to Predominant and Special Habitats (BH3)' indicator (OSPAR Commission, 2017) was used to assess the condition of offshore reef. There is low confidence in the assessment. It should be noted that if some of the area (>15% of the total area) in unknown condition were deemed to be in unfavourable 'not good' condition, this would result in an unfavourable-bad conclusion for this parameter.
6.4 Short term trend of habitat area in good condition; Direction	The short-term trend of habitat in good condition was assessed in the inshore areas of the four countries and in the offshore area. The results were then aggregated (see 2019 UK Approach Document). The trend was identified as decreasing in the offshore area where the largest proportion of UK reefs are found. The results of the extent of physical damage indicator (BH3), which was used to assess the condition of offshore reefs (6.1), suggest that reefs are highly disturbed as a result of widespread fishing. Therefore, it is likely that the condition of reefs has deteriorated over the last 12 years. There is low confidence in this assessment. A decreasing trend was also reported in 2013.
8.1 Status of measures; Status	Measures have been identified and taken in UK inshore areas. In the offshore area some measures are in place, however, a number of proposals have been recommended for the majority of offshore sites but have not been submitted yet to the European Commission (EC). Please see offshore-level reporting information (JNCC website) for more details.
9.1 Future prospects of parameters	Future trends for each parameter were identified in the inshore areas of the four countries and in the offshore area. The results were then aggregated to give a future trend for the UK (see 2019 UK Approach Document). Table 32 in the EU Guidelines was used to bring the future trend and conservation status of each parameter together to conclude on future prospects.
9.1a Future prospects of parameters - Range	The future prospects are unknown because the future trend for range is unknown and the range conclusion is unknown. The range of the rocky reef component of Annex I reefs is determined by geological processes and is unlikely to change over shorter time scales. However, the range of the biogenic component of reefs could be affected by a number of pressures and it unclear how these will affect the range in the next 12 years. The future prospects were also unknown in 2013.
9.1b Future prospects of parameters - Area	The future prospects are poor because the future trend for area is negative and the area conclusion is unknown. The future prospects were unknown in 2013, however, improved knowledge has allowed the field to be reported on in 2019.
9.1c Future prospects of parameters - Structure and functions	The future prospects are poor because the future trend for structure and functions is negavtive and the conclusion for structure and functions is unfavourable-inadequate. The future prospects were also poor in 2013.
11.1c Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km2 in biogeographical/ marine region) - Best single value	See 11.3
11.2 Type of estimate	See 11.3

11.3 Surface area of the habitat type inside the network; Method used	The reefs surface area map was intersected with all Natura 2000 sites that contain qualifying marine habitats or species (JNCC, 2018b). The cut-off used for SAC designations was Tranche 56 in November 2017.