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

Supporting documentation for the
conservation status assessment for the habitat:

H1170 - Reefs

NORTHERN IRELAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this habitat is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (Northern Ireland information only)**
1.2 Habitat code	**1170 - Reefs**

2. Maps

2.1 Year or period	2013-2018
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	DAERA, 2017. River Basin Management Plan WFD 2nd Cycle Classification Summary-The Maidens.Internal Document DAERA, 2017. River Basin Management Plan WFD 2nd Cycle Classification Summary-North Channel. Internal Document Ellwood, H. 2103. Method for Creating a Composite Map of Annex I Reef in UK Waters. http://jncc.defra.gov.uk/pdf/20130607_AnnexI_Reef_Map_Methodology_v2.pdf DAERA, 2018. Strangford Lough Special Area of Conservation (SAC) Condition Assessment 2018. Internal Document. DAERA, 2018. Rathlin Island Coast Special Area of Conservation (SAC) Condition Assessment 2018. Internal Document. DAERA, 2018. Skerries and Causeway Special Area of Conservation (SAC) Condition Assessment 2018. Internal Document. DAERA, 2018. The Maidens Special Area of Conservation (SAC) Condition Assessment 2018. Internal Document. Goodwin C.E; Strain E.M, Edwards H, Bennett S.C, Breen J.P & Picton B.E, 2013. Effects of two decades of rising sea surface temperatures on sublittoral macrobenthos communities in Northern Ireland, UK. Marine Environmental Research. Vol 85 pp 33-44 OSPAR, 2017. Extent of Physical Damage to Predominant and Special Habitats . https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/extent-physical-damage-predominant-and-special-habitats/ JNCC, 2013. Reef H1170 in Northern Ireland, 3rd Reporting Cycle. http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H1170_NORTHERNIRELAND.pdf DEFRA, 2012. Climate Change Risk Assessment for NI. http://www.defra.gov.uk/environment/climate/government/ MCCIP (2015). Marine climate change impacts: implications for the implementation of marine biodiversity legislation. (Eds. Frost M, Bayliss-Brown G, Buckley P, Cox M, Stoker, B and Withers Harvey N) Summary Report, MCCIP, Lowestoft, 16pp.doi:10.14465/2015.mbl00.001-016

4. Range

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4.1 Surface area (in km²)	830.1		
4.2 Short-term trend Period			
4.3 Short-term trend Direction	Unknown (x)		
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum	
4.5 Short-term trend Method used			
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 No d) Method		
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			

5. Area covered by habitat

5.1 Year or period	2007-2018		
5.2 Surface area (in km²)	a) Minimum 830.1	b) Maximum 830.1	c) Best single value 830.1
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	Based mainly on extrapolation from a limited amount of data		
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 No d) Method		
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			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 50.772	Maximum 50.772
	b) Area in not-good condition (km²)	Minimum 17.73	Maximum 17.73

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	c) Area where condition is not known (km²)	Minimum 761.6	Maximum 761.6	
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data			
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	Increasing (+)			
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on extrapolation from a limited amount of 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				

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Agricultural activities generating marine pollution (A28)	M
Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging) (E03)	M
Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F22)	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
Illegal harvesting, collecting and taking (G11)	M

Threat	Ranking
Agricultural activities generating marine pollution (A28)	M
Wind, wave and tidal power, including infrastructure (D01)	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
Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F22)	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
Illegal harvesting, collecting and taking (G11)	M
Change of species distribution (natural newcomers) due to climate change (N08)	M

7.2 Sources of information

7.3 Additional information

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		Long-term results (after 2030)

8.5 List of main conservation measures

Reduce/eliminate marine pollution from agricultural activities (CA13)
Adapt/manage extraction of non-energy resources (CC01)
Adapt/manage renewable energy installation, facilities and operation (CC03)
Reduce/eliminate marine contamination with litter (CF08)
Manage changes in hydrological and coastal systems and regimes for construction and development (CF10)
Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities (CF12)
Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)
Reduce bycatch and incidental killing of non-target species (CG05)
Other measures related to exploitation of species (CG15)
Management, control or eradication of other invasive alien species (CI03)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters

a) Range

b) Area

c) Structure and functions

9.2 Additional information

10. Conclusions

10.1. Range

10.2. Area

10.3. Specific structure and functions (incl. typical species)

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10.4. Future prospects	
10.5 Overall assessment of Conservation Status	
10.6 Overall trend in Conservation Status	
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 No change The change is mainly due to:
10.8 Additional 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	283
	b) Maximum	283
	c) Best single value	283
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	Increasing (+)	
11.5 Short-term trend of habitat area in good condition within network Method used	Based mainly on extrapolation from a limited amount of data	
11.6 Additional information		

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

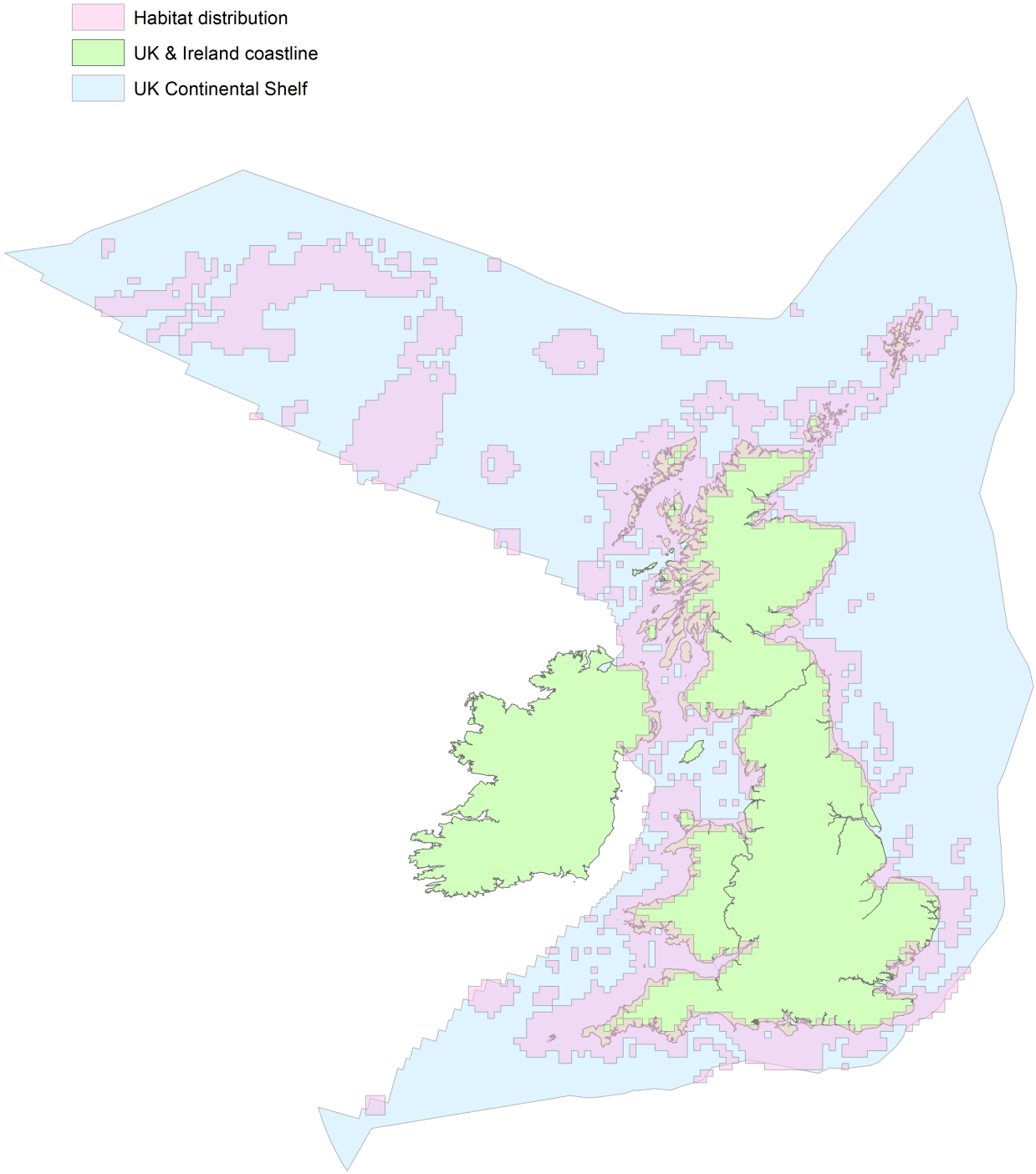

Figure 1: UK distribution map for H1170 - Reefs.

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

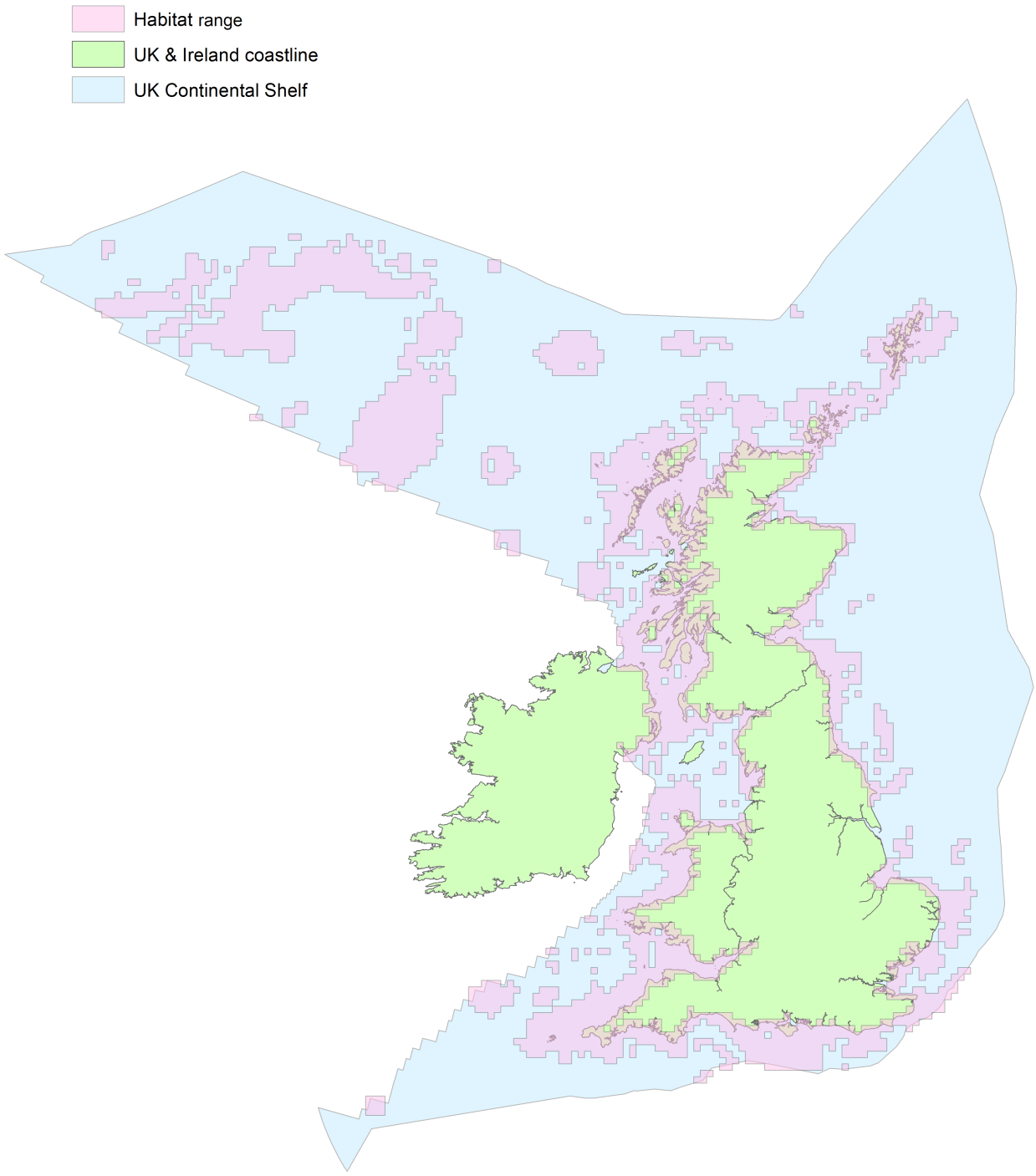

Figure 2: UK range map for H1170 - Reefs.

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 Region code: MATL

Field label	Note
4.11 Change and reason for change in surface area of range	There has been a comprehensive review of the Annex I Reef layer generated for 2013 report by JNCC. This review included seabed surveys and updated predicted Habitat mapping which was QA'd be the individual SNCBs.
5.2 Surface area	Reef mapping data was clipped to NI and reprojected in ETRS89, and then total area of Reef within NI waters was calculated.
5.6 Short term trend; Direction	Put this as 'Uncertain' due to the fact that we have data from the last reporting cycle but not enough to determine a trend direction
5.14 Change and reason for change in surface area	There has been a comprehensive review of the Annex I Reef layer generated for 2013 report by JNCC. This review included seabed surveys and updated predicted Habitat mapping which was QA'd be the individual SNCBs.
6.1 Condition of habitat	Discussion with JNCC who adapted the BH3 tool to look at the impact of demersal fishing gear on Reef in NI waters seem to show an exceptionally high (76%) proportion of reef in NI waters in not good condition. This did not appear to correspond with fishing intensity data within NI & it was felt that the tool was not appropriate for NI reef. In the abscence of any other measure of condition for reefs outside the N2K sites it was decided to report only within the SACs where the condition of reef had been assessed through condition assessment. All Reef outside the SACs was therefore reported as unknown. Strangford Lough is still reported as 'not good condition' but the most recent surveys have shown an increase in Modiolusclumps within which Modiolus spat were recorded which shows recovery.
6.4 Short term trend of habitat area in good condition; Direction	Increasing -due to the return of Modiolus in the exclusion zone (where all static and mobile fishing gear is banned along with anchorage and diving).
6.5 Short term trend of habitat area in good condition; Method used	Increasing for reasons outlined in fields above
7.1 Characterisation of pressures/ threats	G11: Illegal harvesting, collecting and taking - This activity includes winkle-picking along rocky reef which can be damaged in traversing this habitat, by foot or vehicle and when overturning rocks to collect the desired species. The risk of damage was assessed as medium.
7.1 Characterisation of pressures/ threats	A28: Agricultural activities generating marine pollution-Reef also includes intertidal rock which in most of Nis SACs is adjacent to intensively cultivated agricultural land. The risk from nutrient enrichment from run off causing macroalgal blooms which can cause smothering of underlying communities on littoral rock was assessed as medium.
7.1 Characterisation of pressures/ threats	D01: Wind, wave and tidal power, including infrastructure--Annex I reef is located in renewable energy resource zones for wind, wave and tidal energy within NI waters. The risk and pressure from this activity was assessed as medium.
7.1 Characterisation of pressures/ threats	E03: Shipping lanes, ferry lanes and anchorage infrastructure (e.g. canalisation, dredging)- reef can be damaged by ships dropping anchor, for this reason any application for anchorage must take into account the potential damage to the Annex I feature. This is done through the Marine licencing process which would identify if any Annex I features are present in the proposed area through the HRA process. The risk of damage from this activity was assessed as medium.

7.1 Characterisation of pressures/ threats	F08: Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas -This pressure in NI primarily covers repair/installation of shoreline reinforcement for roads, flood defences & coastal rail infrastructure and the vulnerability of reef to this activity was assessed as medium.
7.1 Characterisation of pressures/ threats	F22: Residential or recreational activities and structures generating marine macro- and micro- particulate pollution -Many of NI intertidal reef is adjacent to cliff and coastal paths which are well used by the public and are impacted by litter from sourced back to this activity. The risk to reef from this activity was assessed as medium when taking into account the sensisitivity and intensity.
7.1 Characterisation of pressures/ threats	G03: Marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats. This pressure was assessed as high due to the high sensitivity of reef to this demsersal fishing gear impacting the reef.
7.1 Characterisation of pressures/ threats	N08: Change of species distribution (natural newcomers) due to climate change - Modiolus reef in Strangford Lough is at the southernmost extent of its distribution in Ireland and a recent report (http://www.defra.gov.uk/environment/climate/government/) suggested that in the long term, with increase in sea temperature there may be a reduction in Modiolus reef in the south of their range (in UK waters) and increase it to the north (further into the arctic).
7.1 Characterisation of pressures/ threats	G01: Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species- This pressure was assessed as high due to the high sensitivity of reef to this pressure and the intensity of the activity.
8.2 Main purpose of the measures taken	Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions') This relates to the restoration work done to help the Modiolus reef recover in Strangford Lough. Recent monitoring survey work in Strangford's exclusion zone (where a bye-law was introduced to ban the use of mobile and static gear, diving & anchoring) have demonstrating that the Modiolus reef is showing signs of recovery with clumps present where they were not reported before and Modiolus spat present among the byssus in these clumps.
8.3 Location of the measures taken	Fisheries Regulations were introduced in 2016 to prohibit the use of mobile fishing gear within Rathlin SAC to protect Annex I features, particularly reef along the east coast of Rathlin which showed damage from fishing gear. Management Plan in prep for Skerries and Causeway SAC and preparing to put forward zones to prohinit the use of mobile fishing gear within this SAC. Conservation measures described below also show that there are measures in place to protect Annex I reef both inside and outside SACs.
8.4 Response to the measures	Although Modiolus Reef is showing signs of recovery the mobile gear ban was introduced in 2003, it is slow to reproduce which means the recovery of this features must be viewed as a long term goal. For this reason the reponse to measures was reported as Long Term.
8.5 List of main conservation measures	CA13: Reduce/eliminate marine pollution from agricultural activities - Intertidal and subtidal reef fall within other 'protected areas' including UWWTD sensitive area and Nitrate Sensitive area which have targeted management to help improve the water quality in these areas under the Water Framework Directive.
8.5 List of main conservation measures	CC01: Adapt/manage extraction of non-energy resources -Under the Marine and Coastal Access Act aggregate extraction from the seabed is a licencable activity and is subject to an EIA through the Marine Licensing process.
8.5 List of main conservation measures	CC03: Adapt/manage renewable energy installation, facilities and operation- Marine Renewable development is a licensable activity which is managed by the Marine Licencing Team in DAERA. There are currently two applications in for tidal energy arrays along the North Coast is areas of reef. The applications are subject to screening and EIAs at which stage impact on Annex I Reef was considered.

8.5 List of main conservation measures	CF08: Reduce/eliminate marine contamination with litter- At NI level the Department (DAERA) is are addressing the problem of marine litter through the NI Marine litter Strategy. The Strategy's goals are to tackle marine litter through measures to reduce the amount of litter entering the sea and removing some of the litter pollution already there. Measures to reduce litter entering the sea are grouped around the following: 1. Awareness raising - these measures include campaigns such as Live Here Love Here or Fishing for Litter part sponsored by DAERA; 2. Enforcement of Statutory Deterrents - eg enforcing the Litter (Northern Ireland) Order 1994 (as amended) which makes it an offence to drop litter and waste legislation; 3. Data gathering and reports - eg through the Marine Litter Survey delivered by KNIB sponsored by DAERA, Coastwatch - all island survey and report led by Ulster Wildlife in NI, and the Marine Conservation - Great British Beachclean in September. These also feed into awareness raising and removing litter. 4. Coastal infrastructure - having appropriate sewage treatment works and litter bins eg compactor bins. Measures to remove litter already in the sea are primarily beach cleans. These are facilitated by local charities such as KNIB, Ulster Wildlife, volunteer groups eg Love Your Lough, divers and kayakers.In addition DAERA intends bringing forward the draft Environmental Protection (Microbeads) Regulations 2018 to ban the manufacture and sale of cosmetic products containing plastic microbeads.
8.5 List of main conservation measures	CF12: Other measures related to residential, commercial, industrial and recreational infrastructures, operations and activities- All activities which have the potential to impact the seabed including the foreshore area are subject to marine licence. If an application for work is in an SAC a Habitat Regulation Assessment will be required and if necessary an EIA to assess the likely risks from this activity to the designated habitat. The Marine licencing process is managed by DAERAs Marine Licencing team under the Marine and Coastal Access Act. In addition all planning applications down to the low water mark (ie covering the Intertidal Area) within ASSIs are subject to review under the Evironment Order. This is considered mitigation against F08 pressure.
8.5 List of main conservation measures	CG01 & CG05: Management of professional/commercial fishing (including shellfish and seaweed harvesting) - Management of professional/commercial fishing (including shellfish and seaweed harvesting)- Fisheries regulations have been put in place to protect Reef, a designated feature in Strangford, Rathlin, & Murlough SACs. While in Skerries and Causeway and Red Bay voluntary bans are in place while the appropriate fisheries regulations are being drafted. Fish stocks are managed through quotas allocated to the 4 Devolved Administrations to ensure that fish stocks remain sustainable and to help reduce bycatch. In Northern Ireland DAERA, Sea Fisheries Team allocate the quotas and monitor fish landings through inspections at sea, in port and at fish markets to ensure compliance. Exploitation of Northern Ireland's inshore fisheries is mainly through pot fishing from comprises fishing vessels that target mostly shellfish such as crab (brown & velvet), lobster and prawns. Within the inshore region a number of gear restrictions apply to the Queen scallops fishery to try to reduce by-catch and, within the cod recovery zone, fishing has been incentivised through arrangements for gear selectivity with open panels to allow non-target fish to escape. An inshore fishery review carried out in 2013 resulted in a strategy for the inshore sector which is consistent with the delivery of the European Maritime and Fisheries Fund (2014-2020), Europe 2020 and the aim of the Marine Strategy Framework Directive for the achievement of Good Environmental Status by 2020.
8.5 List of main conservation measures	CI03: Management, control or eradication of other invasive alien species- There is a Spartina Eradication programme in place which uses a herbicide under licence and specific conditions to eradicate swarths of Spartina anglica in areas of Strangford and Murlough SACs. The Department also runs an aquatic invasive species surveillance monitoring programme with regular checks of harbours & marina's. In addition Fisheries Officers also check aquaculture imports and movement of stock between sea loughs for the presence of non-native species.

8.5 List of main conservation measures	CG15: Other measures related to exploitation of species - DAERA is currently developing legislation to introduce strategic management of unregulated harvesting & gathering of shellfish in intertidal areas through fisheries regulations through seasonal closures and closed areas.
9.1 Future prospects of parameters	Overall Stable was selected as there has been no change in the majority of reef and the pressures and threats have measures in place to prevent damage. In addition the Strangford Lough Biogenic Reef is showing signs of recovery in the exclusion zone with the presence of clumps of Modiolus within which juveniles were recorded.