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:

H1110 - Sandbanks which are slightly covered by sea water all the time

WALES

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 (Wales information only)**
1.2 Habitat code	**1110 - Sandbanks which are slightly covered by sea water all the time**

2. Maps

2.1 Year or period	
2.3 Distribution map	Yes
2.3 Distribution map Method used	
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	Bergmann, M., Gutow L., & Klages M. 2015. Marine Anthropogenic Litter. https://link.springer.com/content/pdf/10.1007%2F978-3-319-16510-3.pdf Birchenough, S. N. R., Bremne J., Henderson, P., Hinz, H., Jenkins, S., Mieszkowska, N., Roberts, J. M., Kamenos, N. and Plenty, S. 2013. Impacts of Climate Change on Shallow and Shelf Subtidal Habitats. MCCIP Science Review 2013: 193-203 Cottier-Cook, E., Beveridge, C., Bishop, J. D. D., Brodie, J., Clark, P. F., Epstein, G., Jenkins, S. R, Johns, D. G., Loxton, J., MacLeod, A., Maggs, C., Minchin, D., Mineur, F., Sewell, J. & Wood, C. A. 2017. Marine Climate Change Impacts Partnership: Science Review. Darbyshire, T., Mackie, A. S. Y., May, S. J., & Rostron, D. 2002. A macrofaunal survey of Welsh sandbanks. CCW Science Report No. 539 European Commission. 1992. The Habitats Directive (1992) http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm European Commission. 2000. The EU Water Framework Directive http://ec.europa.eu/environment/water/water-framework/index_en.html 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 European Commission. 2014. The Common Fisheries Policy (CFP) https://ec.europa.eu/fisheries/cfp_en HM Government. 1981. Wildlife and Countryside Act 1981 https://www.legislation.gov.uk/ukpga/1981/69/section/14 HM Government. 1989. Electricity Act 1989 (Section 36) https://www.legislation.gov.uk/ukpga/1989/29/section/36 HM Government. 2008. Planning Act 2008 https://www.legislation.gov.uk/ukpga/2008/29/part/3/crossheading/energy HM Government. 2009. Marine and Coastal Access Act 2009 https://www.legislation.gov.uk/ukpga/2009/23/contents HM Government. 2010. The Scallop Fishing (Wales) (No.2) Order 2010: http://www.legislation.gov.uk/wsi/2010/269/contents/made HM Government. 2010. The Single Use Carrier Bags Charge (Wales) Regulations

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HR Wallingford. 2016b. Review of aggregate dredging off the Welsh Coast - Review of Evidence, Report Number: DDM7582- RT001-R03-00
HR Wallingford. 2016c. Severn Estuary Long Term Morphology, Synthesis of data and modelling studies, Report Number: DDR-5432-RT002-R03-00, The Crown Estate, 60 pages, ISBN: 978-1-906410-72-8
Hughes, S. L., Tinker, J., & Dyec, S. 2017. Temperature. Marine Climate Change Impacts Partnership: Science Review.http://www.mccip.org.uk/media/1750/2017arc_sciencereview_003_tem.pdf
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ICES advice (M. Merlangus) (2017) Whiting (Merlangius merlangus) in Division 7.a (Irish Sea) http://www.ices.dk/sites/pub/Publication Reports/Advice/2017/2017/whg.27.7a.pdf
ICES advice (M. Merlangus) (2017) Whiting (Merlangius merlangus) in divisions 7.b-c and 7.e-k (southern Celtic Seas and western English Channel)[1] http://ices.dk/sites/pub/Publication Reports/Advice/2017/2017/whg.27.7b-ce-k.pdf
ICES advice (P. platessa) (2017) Plaice (Pleuronectes platessa) in Division 7.a (Irish Sea) http://www.ices.dk/sites/pub/Publication Reports/Advice/2017/2017/ple.27.7a.pdf
ICES advice (R. brachyura) (2016) Blonde ray (Raja brachyura) in divisions 7.a and 7.f-g (Irish Sea, Bristol Channel, Celtic Sea North) http://ices.dk/sites/pub/Publication Reports/Advice/2016/2016/rjh-7afg.pdf
ICES advice (R. clavata) (2016) Thornback ray (Raja clavata) in divisions 7.a, 7.f-g (Irish Sea, Bristol Channel, Celtic Sea North) http://www.ices.dk/sites/pub/Publication Reports/Advice/2016/2016/rjc-7afg.pdf
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IUCN Red List of Threatened Species Website; R. clavata (accessed 09.04.2018) http://www.iucnredlist.org/details/39399/1
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Welsh Government. 2016. Priority Species List. Environment (Wales) Act (2016). Section 7 - list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. https://www.biodiversitywales.org.uk/Environment-Wales-Act Note: This interim list, which is exactly the same as the previous list under Section 42 of the NERC Act, is under review in consultation with NRW.

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

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4. Range

4.1 Surface area (in km²)	6382	
4.2 Short-term trend Period		
4.3 Short-term trend Direction		
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	Use of different method	
	The change is mainly due to:	Use of different method
4.12 Additional information		

5. Area covered by habitat

5.1 Year or period			
5.2 Surface area (in km²)	a) Minimum 638	b) Maximum 638	c) Best single value 638
5.3 Type of estimate			
5.4 Surface area Method used			
5.5 Short-term trend Period			
5.6 Short-term trend Direction			
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used			
5.9 Long-term trend Period			

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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	Use of different method The change is mainly due to: Use of different method		
5.15 Additional information			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum	6.6	Maximum	6.6
	b) Area in not-good condition (km²)	Minimum	592.43	Maximum	592.43
	c) Area where condition is not known (km²)	Minimum	39.19	Maximum	39.19
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	Uncertain (u)				
6.5 Short-term trend of habitat area in good condition Method used	Insufficient or no data available				
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
Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (G01)	M
Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F22)	M
Industrial or commercial activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F23)	M
Mixed source marine water pollution (marine and coastal) (J02)	M

Threat	Ranking
Marine fish and shellfish harvesting (professional	M

recreational) causing reduction of species/prey populations and disturbance of species (G01)	
Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F22)	M
Industrial or commercial activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (F23)	M
Mixed source marine water pollution (marine and coastal) (J02)	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		Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures		

Management of professional/commercial fishing (including shellfish and seaweed harvesting) (CG01)
Reduce impact of mixed source pollution (CJ01)
Reduce/eliminate marine contamination with litter (CF08)
Adapt/manage extraction of non-energy resources (CC01)
Habitat restoration/creation from resources, exploitation areas or areas damaged due to installation of renewable energy infrastructure (CC07)
Adapt/manage renewable energy installation, facilities and operation (CC03)
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

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10.3. Specific structure and functions (incl. typical species)	
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	565
	b) Maximum	565
	c) Best single value	565
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	Uncertain (u)	
11.5 Short-term trend of habitat area in good condition within network Method used	Insufficient or no data available	
11.6 Additional information		

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

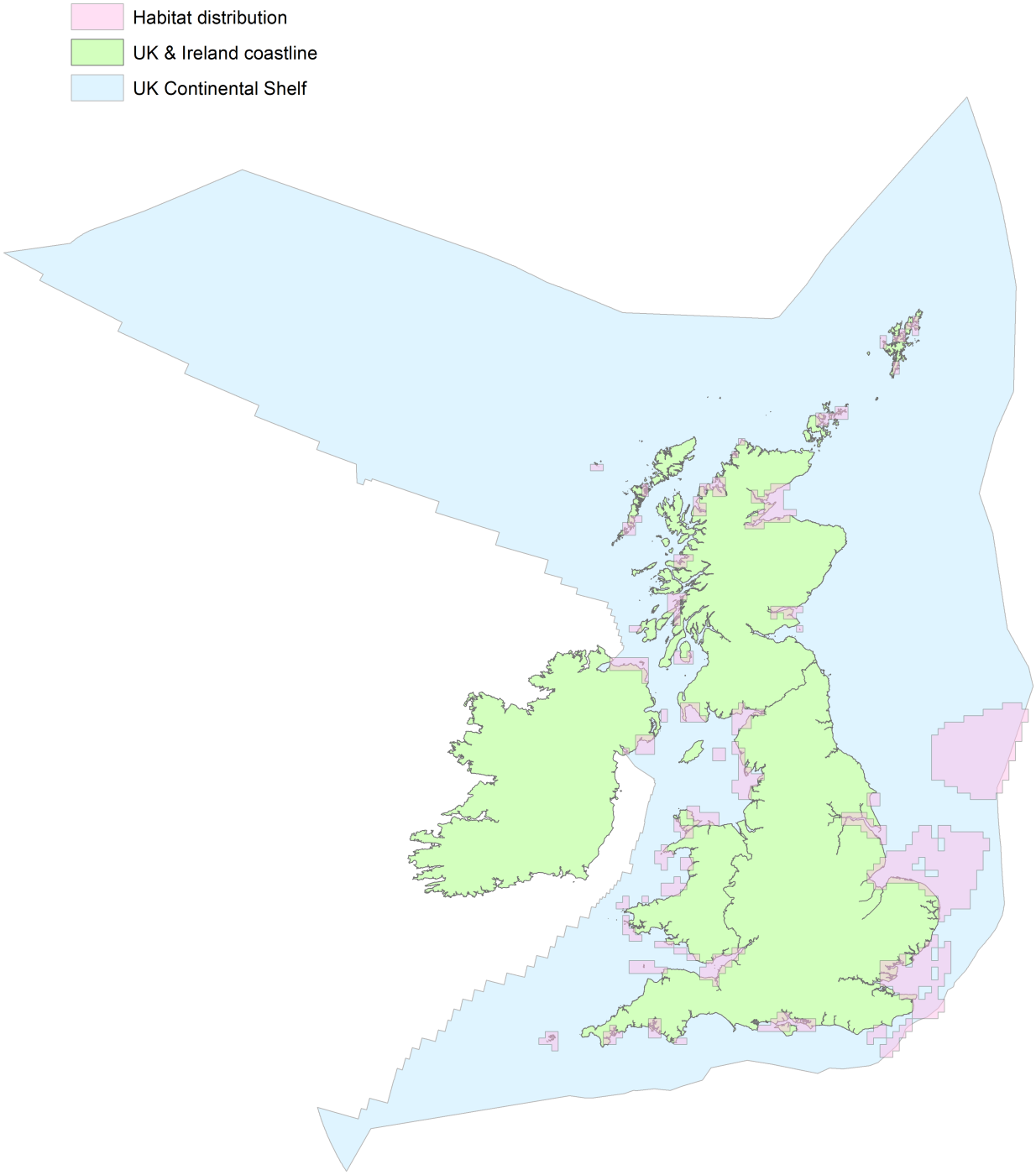

Figure 1: UK distribution map for H1110 - Sandbanks which are slightly covered by sea water all the time.

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

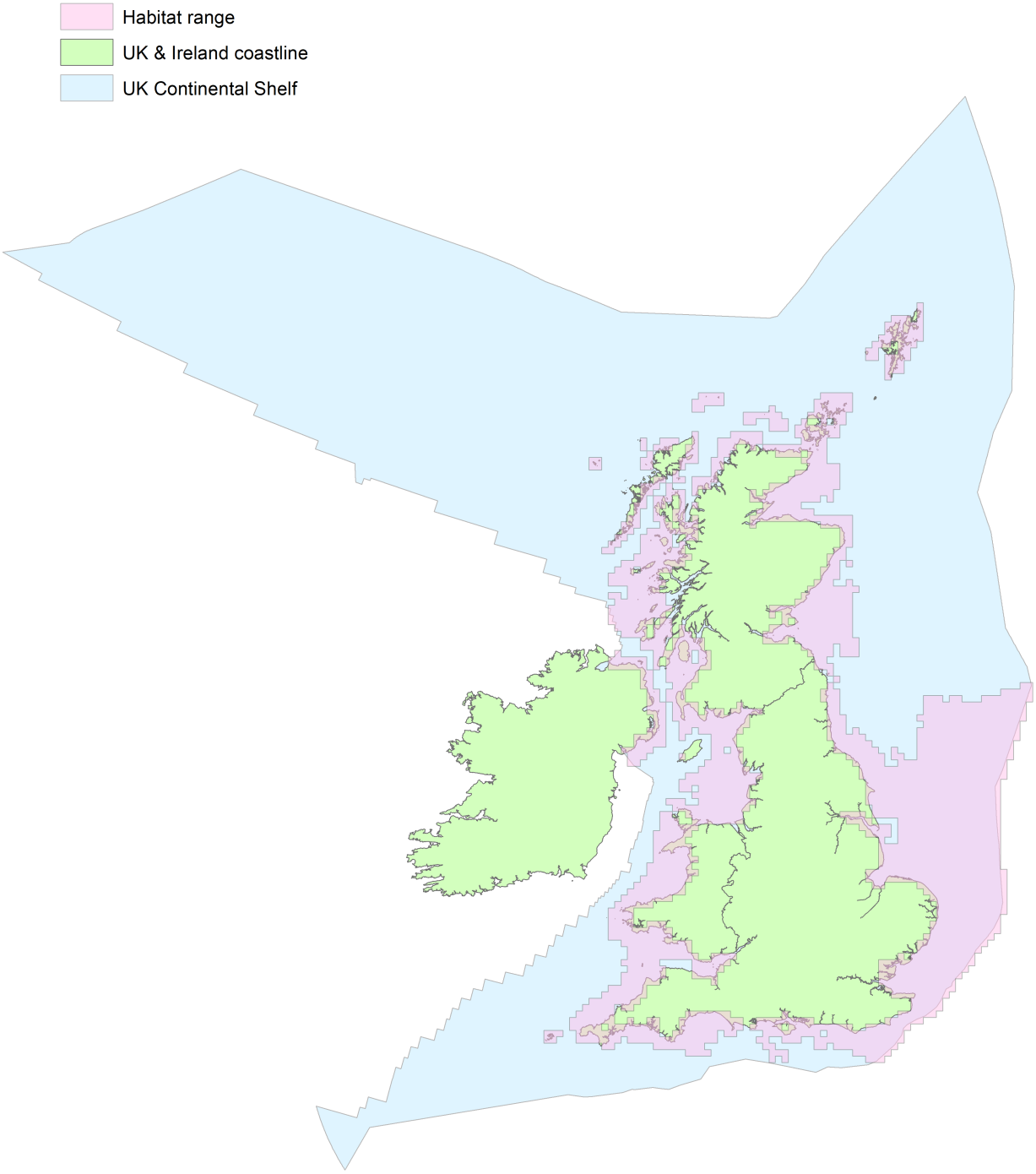

Figure 2: UK range map for H1110 - Sandbanks which are slightly covered by sea water all the time.

Range was calculated by JNCC using mapped surface area of the habitat in addition to the area of sloping sandy sediment habitat down to 60m and connected to a sandbank in less than 20m of water. The 60m limit is equivalent to the deepest known sandbank contour (found at Dogger Bank SAC). Mapped data of the habitat has been created by combining existing data (i.e. sandbanks already mapped within SACs) with an analysis of bathymetric depth, slope and aspect and sediment data across UK waters' and is based on current best available evidence (JNCC, 2018a).

Explanatory Notes

Habitat code: 1110 Region code: MATL

Field label	Note
4.3 Short term trend; Direction	As this feature is defined by topography and substrate type rather than by a specific biological community, its range is determined by geological and/or hydrodynamic processes depending on the type of sandbank (http://jncc.defra.gov.uk/page-1452). The nature of these processes means that the geographic range of this feature is likely to have remained stable in recent geological times.
4.11 Change and reason for change in surface area of range	No known actual changes in range have occurred since the last report. Any differences are due to change in methods.
5.6 Short term trend; Direction	The key source of loss for sandbanks in Wales is most likely to be due to wind farm development and aggregate dredging. Subtidal sandbanks which have had aggregate extraction activities since 2007 include Sandbanks in the Severn Estuary and Nash Bank. Aggregate activity in the Severn estuary are all assumed to be managed sustainably and do not represent loss in habitat. 20% loss in bank area was reported in 2010 at Nash Bank (HR Wallingford, 2010), at which point dredging ceasedIt is assumed that this initially represented loss of habitat, it is not clear whether habitat lost has since recovered in this area therefore the current area of bank in this location is unknown. A windfarm developed by 2009 on approximately 1 km2 of Constable bank would represent some loss of habitat (i.e. direct loss from the installation of piles and scour protection and some indirect loss from scour). In summary, the area assumed lost is with approximately 1km2 (0.16% of mapped Welsh resource) although the habitat directly lost is likely to be less than this. It is not clear whether the area lost at Nash bank has recovered or not, the area unknown is likely to be larger than that lost due to the wind farm. The trend is therefore uncertain.
5.14 Change and reason for change in surface area	Differences in surface area totals between reporting years are due to differences in mapping methods.

6.1 Condition of habitat

Note: there was a very small difference between the total habitat area calculated by NRW and JNCC (NRW = 638.21 & JNCC = 638.22) this was accounted for in the area in unknown condition as agreed with JNCC. Overview Area in Good/Not Good Condition: The area in good/not good/unknown condition for structure and function of welsh sandbanks was assessed using collated available evidence and conclusions from specific data analysis which were spatially and ecologically relevant to Welsh Sandbanks. Evidence used included; intersecting Water Framework Directive waterbody classification, Infaunal Qualify Index (IQI) analysis, physical disturbance indicator (BH3), reports of litter presence and conclusions of the indicative site level assessments for sandbanks within Welsh SACs. Where information was not readily available sandbanks were assessed as 'unknown'. Only one area estimate calculated, there is low confidence in this assessment due to low confidence in underlying assessment of data. Each bank was assessed as an individual unit, and the sum of area of banks was then used to calculate total area in good/not good/unknown condition. In summary, 53.6% of sandbank area (each bank was assessed as one unit) were wholly or partly in a WFD waterbody which failed for ecological or chemical element relating to water quality, 23.6% of banks were assessed, on average, to have an infaunal quality index of less than good, <1% of bank area was lost or likely impacted due to windfarm development, 65% of banks were assessed as 'unfavourable' by indicative condition assessments and 11.9% of banks were assessed to have proportions modelled to be disturbed (BH3), 38.6% of banks had notable proportions of litter recorded on the bank. Most banks had 2 or more factors contributing 'not good' condition conclusion. Sandbanks assessed to be in 'Not Good' based on only 1 factor were generally assessed based on WFD and indicative condition assessment. No sandbanks failed on litter, IQI assessment or BH3 alone. Water Framework Directive Assessment Where a sand bank was wholly or partially encompassed within a WFD water body, the WFD assessments for that water body were incorporated into the sand bank's assessment. Where an intersecting waterbody status, for either ecology or chemistry, was less than 'good' the structure and function of relevant sandbanks were assessed as 'Not Good'. Due to lack of time, no detailed assessment of the spatial distribution of contributing sample points or specific relevance of nature of failure was undertaken therefore low confidence should be associated with this analysis (WFD waterbody classifications, 2015). Infaunal Quality Index Analysis (IQI): Benthic invertebrate day and van veen grab (0.1m2) invertebrate and sediment monitoring data was analysed from a limited number of fixed sites at sandbanks within SACs around Wales (2007-2016). Surveys were generally repeated on a 3-year basis, data were analysed with the IQI tool (UK TAG IQI Tool, Accessed 2018; Phillips et al., 2014). This analysis used the same reference conditions as the 2015 WFD assessment. The IQI has been shown to detect the impact of various pressures on benthic invertebrate assemblages. These pressures are hazardous substances, organic enrichment and general disturbance (e.g. smothering). For other pressures, e.g. physical disturbance, the ability of the IQI to detect the response of benthic invertebrates is un-quantified so the IQI scores should be interpreted with caution (WFD-UKTAG Method Statement, 2014). Where the most recent survey average or overall average was less than 'Good' ecological status (as defined in Water Framework Directive) the Sandbank was assessed to be Unfavourable (Not Good). In general, the power of this analysis was poor due there being a low amount of similar sediment distribution data in the reference data. Therefore, the confidence in this assessment is low and these values must be treated with caution. A more powerful analysis would be to assess diversity and community patterns over time. Unfortunately, there was not enough time to undertake this analysis. Future modifications of this tool for use in the offshore environment will provide higher confidence in this assessment (i.e. MFSD). Where the average IQI was calculated to be 'Good' using data collected at sandbanks but another evidence source indicated less than good (e.g. drop in diversity noted in indicative condition assessments) then the bank was assessed as 'Not Good' due to low amount of similar sediment distribution data in the reference data meaning low

confidence in the analysis and the fact that the IQI analysis does not assess variation over time. Casework: Casework records of anthropogenic impacts on sand bank habitat were considered where available. These were limited to aggregate extraction in the Severn Estuary and Bristol Channel and an offshore wind farm development on Constable bank. Where casework indicated impairment structure and function the area impacted was assessed to be unfavourable-unknown (equating to less than good). Following this assessment, it was judged that structure and function was Not Good for 1km2 at constable bank due to development of a windfarm and unknown due to historic dredging at Nash Bank (HR Wallingford 2010, 2016a, b & c; Marine Ecological Surveys Ltd. 2012; Pethick & Thompson, 2002; Welsh Government, 2004; Rhyl Flats Offshore Windfarm, 2013). Indicative Condition Assessments: Indicative Condition Assessments used existing readily available data to assess indicative condition of sandbank habitats within SACs around Wales. Information was collated and assessed at an organisation-wide workshop held with NRW's specialists. By using the evidence available at the workshop and applying expert judgement, staff examined each feature for each Special Area of Conservation (SAC) and drew indicative conclusions on condition. Where indicative condition assessments indicated that either structure and function and/or typical species of sandbanks were in unfavourable condition, the structure and function of all sandbanks within the specific SAC were assessed to be overall Unfavourable (equating to 'Not Good'). Key information considered at the workshop was summarised subtidal infaunal monitoring data over time at banks and local WFD assessments. Group inferences were made from patterns in observed in data which indicated likely condition. Due to lack of time, infauna data has not yet been formally reported, although some progress has been made. Where the indicative condition assessment relied on WFD status and there were banks within the SAC which were wholly in a WFD waterbody assessed at 'good' status (i.e. not relating to the waterbody which was used for the assessment) the indicative assessment was not used and the bank was assessed as in Good condition. Each component of an assessment had an associated confidence level with an agreed overall confidence level for the assessment based on agreed rules. The assessments went through an external quality assurance and were then collated into site level reports. Generally, confidence in assessments for Sandbanks was reported as low due to the level of agreement or confidence in evidence (NRW, 2017a-f). Litter: Artificial material (usually reported as 'litter') from anthropogenic origin were recorded at all sandbanks surveyed in 2014-2017 by NRW at between 67-100% of grab sample stations per sandbank. Litter was recorded after sieving sediment (0.5mm sieve) during laboratory analysis. Assessment of litter over time at a sandbank ("2") in Cardigan bay (2014 – 2017) indicated an increase in the presence of this material by 30% (number of samples), all items were identified post sieving (over 0.5mm sieve) during invertebrate analysis. The number of items and mass of the litter is unclear at all banks. In general, the key physical impact of litter on species associated with sandbanks is likely to be linked to ingestion of plastic. Several invertebrate and fish species in relevant taxonomic groups to the species associated sandbanks have been shown to ingest plastic in field and laboratory experiments. Negative (and some negligible) impacts of ingestion of plastic have been observed on marine species but the research on the impacts of litter in the marine environment is in its infancy and impacts are poorly understood (see Bergmann et al., 2015 review). Further assessment of the impacts is required to aid understanding of the extent and the likely impact of litter on the function of communities associated with sandbanks (and other protected marine habitats) to recommend any appropriate management action. Further assessment of thresholds in relation to condition of marine habitats will be considered in the future. Monitoring, reporting and method development under MSFD and OSPAR will help increase knowledge and confidence over the coming years. Due to the high proportion of samples where litter has been recorded as present, evidence of ingestion of many related taxa and demonstrated impact on some studied marine taxa, there may be cause for concern. Therefore,

where a high proportion of samples contained litter (recorded present) this was considered at the associated sandbank. Due to the lack of understanding of the extent of litter, the potential for sample contamination and the uncertainty of ecological impact of the litter at sandbanks low confidence was associated with this assessment and this was not used alone for the calculation of condition area. Fish Stock Assessment: Fish are an important component of sandbank communities. Fish species known to be associated with Welsh sandbanks were identified using data collected in 2001 (Kaiser, 2004) from beam trawl surveys of key sandbanks around the welsh coast. The condition of typical fish species populations were considered using ICES/IUCN assessments (the area of assessment varies by species) (various ICES reports, 2015-2017). Most of the fish recorded at welsh sandbanks are non-commercial and small bodied teleost fish associated with sandy habitats (e.g. gobies and weavers) of which no assessment is available. Many of the commercial species were assessed as undefined by ICES usually where there remains insufficient information on which to base substantive advice. Plaice were assessed to be currently sustainably fished and at full reproductive capacity by ICES (area 7.a & area 7.f-g) (ICES, 2017). Whiting (area 7a) and sole (area7a & 7.f-g) were assessed to be fished (fishing mortality) above FPA or Flim reference points (and therefore above that estimated for long term maximum sustainable yield) and/or were assessed to have reduced reproductive capacity at ICES assessment areas encompassing relevant sandbanks (ICES advice reports, 2016-2017). The spawning stock biomass of these species were also estimated to be notably reduced compared to non-recent levels (reductions were observed in spawning stock biomass estimates over the past 40-50 years). Because of a marked decline in the UK; both species are included on the Welsh Biodiversity Action Plan (BAP) list and subsequently on the Environment Act (2016) Priority Species List and are therefore of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales (covered under Section 7, Environment (Wales) Act 2016; JNCC BAP reports, 2010). ICES assessment areas for these species, although large, were generally at the finest resolution undertaken by ICES within relevant areas. Some elasmobranch species recorded at sandbanks were assessed to be 'unknown' by ICES but 'Near Threatened' by the IUCN (blonde ray, thornback ray, small eyed ray and nursehound assessments) (IUCN website, accessed 2018) in European waters. For the rays this related to estimated long-term or short-term declines in population and/or range in the north east Atlantic. For nursehound it related to issues in the Mediterranean seas (therefore not relevant to this assessment). Threats to rays are consistently identified as fisheries. One or more of these species were recorded at most welsh sandbanks surveyed (Kaiser, 2004). However, it should be noted that recent data produced by ICES shows variable recent stock size indications (blonde ray = no info, thornback = The stock size indicator shows an increasing trend since 1994, small eyed ray = below average in recent years but recently increased) (ICES advice reports, 2016). Low confidence should be associated with this assessment due to the size of the area covered by assessments and, in some cases, low abundance of fish originally recorded. It is important to acknowledge that there is concern about the level of some commercial fish populations in the wider sea area which are associated with sandbanks. It is should be noted that the majority of fishing related whiting mortality is a consequence of discards in the Nephrops fishery (ICES whiting report, 2017, area 7.a); there is no specific Nephrops fishery in Welsh waters. It should also be noted that the Welsh fishing fleet currently consists of mainly <10m vessels (MMO, 2016) which concentrate mainly on shellfish fishing (Seafish, 2017). Whilst the information held in the ICES/IUCN assessments provides some wider context, there is very little evidence of the current removal of these typical species from the vicinity of Welsh sandbanks. The information available demonstrates that there is a lack of fisheries data that could be used in the assessment and that the available data are of low confidence. Therefore, this data was not used to calculate area in Good/Not Good condition. Physical Disturbance Indicator (BH3) Using the methodology outlined in OSPAR (2017), JNCC ran

	the BH3 physical damage indicator using the fishing pressure (The specific version used was Version 1 of sr.2017.17, published 25 August 2017, https://doi.org/10.17895/ices.pub.2861) and sensitivity layers for all UK sandbanks. This information was then summarised and used, in conjunction with other evidence, to assess the condition of welsh sandbanks. The MSFD UK target 2018 are for disturbance categories 0-4, as a qualitative indicator, and for each regional sea to have <15% of habitat in disturbance categories 5-9, as a quantitative indicator. For consistency, JNCC, NRW and NIEA will use the same qualitative criteria (0-4 / 5-9 disturbance categories) to aid judgement of area in Good/Not good condition of sandbank habitats for article 17. The total area in Wales assessed to be within disturbance category 5-9 (less than Good Ecological Status) was 14km2 this represented 2.2% of the area covered by Welsh sandbanks which were assessed (0 = 37.3%; 1-4 = 50.5%; unknown = 10%). Banks which were assessed to have notable proportions of habitat disturbance category 5-9 are Scarweather Sands bank (unknown; 1.7km2, category 0-4; 5.7km2; category 5-9; 6.6km2), Turbot Bank (unknown; 5km2, category 0-4; 8.1km2; category 5-9; 6km2) and Bastram Shoal (unknown; 0.5km2, category 0-4; 41.2km2; category 5-9; 1.4km2). This information was considered along with other evidence for these banks and condition conclusions were made. The model only included data for vessels above 12m, which may underestimate the disturbance in Welsh waters as most vessels are <10m (MMO, 2016). However, the majority of the Welsh fleet landings are shellfish rather than finfish (Seafish, 2017).
6.3 Short term trend of habitat area in good condition; Period	We are currently uncertain of the short-term trend in the area of good condition for this feature within Wales. Whilst evidence is available we are unable to assess this field in a meaningful way given current time resources.
6.4 Short term trend of habitat area in good condition; Direction	We are currently uncertain of the short-term trend in the area of good condition for this feature within Wales. Whilst evidence is available we are unable to assess this field in a meaningful way given current time resources.
6.5 Short term trend of habitat area in good condition; Method used	Whilst evidence is available we are unable to assess this field in a meaningful way given current time resources.

7.1 Characterisation of pressures/ threats	Pressure and Threats were identified using 2013 sandbank report, NRW Actions Database, by consulting with NRW conservation staff and where available evidence indicated a specific issue (e.g. Water Framework Directive Coastal Waterbody assessments). Pressures: G01: Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (Medium): Sandbanks are important for many fish species. Typical fish species of sandbanks are caught in commercial fisheries, either targeted or as bycatch. Where stock abundance or management data existed for typical species in an area that encompassed Welsh waters, the data was determined relevant to encompassed sandbanks. Abundance of typical fish species on the sandbanks may therefore be due to fishing related mortality that occurs, in part or predominantly, away from the sandbanks themselves, including outside Welsh waters. It should also be noted that fisheries have not been identified as a pressure in NRW's management database in relation to sandbanks within welsh SACs. Fish species known to be associated with Welsh sandbanks were identified using data collected in 2001 (Kaiser, 2004) from beam trawl surveys of key sandbanks around the Welsh coast. The condition of typical fish species populations were considered using ICES/IUCN assessments (the area of assessment varies by species) (various ICES reports, 2015-2017). Most of the fish recorded at Welsh sandbanks are non-commercial and small bodied teleost species associated with sandy habitats (e.g. gobies and weavers) of which no assessment is available. Many of the commercial species were assessed as undefined by ICES usually where there remains insufficient information on which to base substantive advice. Plaice were assessed to be currently sustainably fished and at full reproductive capacity by ICES (area 7.a & area 7.f-g). Whiting (7a) and sole (area7a & 7.f-g) were assessed to be fished (fishing mortality) above FPA or Flim reference points (and therefore above that estimated for long term maximum sustainable yield) and/or were assessed to have reduced reproductive capacity at ICES assessment areas encompassing relevant sandbanks (ICES advice reports, 2016-2017). The spawning stock biomass of these species were also estimated to be notably reduced compared to non-recent levels (reductions were observed in spawning stock biomass estimates over the past 40-50 years). Because of a marked decline in the UK; whiting and sole are included on the Welsh Biodiversity Action Plan (BAP) list and subsequently on the Environment Act (2016) Priority Species List and are therefore of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales (covered under Section 7, Environment (Wales) Act 2016; JNCC BAP reports, 2010). Some elasmobranch species recorded at sandbanks were assessed to be 'unknown' by ICES but 'Near Threatened' by the IUCN (blonde ray, thornback ray, small eyed ray and nursehound) in European waters. For the rays this related to estimated long-term or short-term declines in population and/or range in the north east Atlantic whereas. For nursehound, it related to issues in the Mediterranean seas (therefore not relevant to this assessment). Threats to rays were consistently identified as fisheries. One or more of the ray species were recorded at most welsh sandbanks surveyed (Kaiser, 2004). However, it should be noted that recent data produced by ICES shows variable recent stock size indications (blonde ray = no info, thornback = The stock size indicator shows an increasing trend since 1994, small eyed ray = below average in recent years but recently increased) (ICES advice reports, 2016). Low confidence should be associated with this assessment due to the size of the area covered by assessments and, in some cases, low abundance of fish originally recorded. There is concern about the level of some commercial fish populations in the wider sea area which are associated with sandbanks. It is should be noted that the majority of fishing related whiting mortality is a consequence of discards in the Nephrops fishery (ICES whiting report, 2017, area 7.a); there is no specific Nephrops fishery in Welsh waters. It should also be noted that the Welsh fishing fleet currently consists of mainly<10m vessels (MMO, 2016) which concentrate mainly on shellfish fishing (Seafish, 2017). Whilst the information held in the ICES/IUCN assessments provides some wider context, there is very little evidence of the current

removal of these typical species from the vicinity of Welsh sandbanks. The information available demonstrates that there is a lack of fisheries data that could be used in the assessment and that the available data are of low confidence. F22: Residential or recreational activities and structures generating marine macro-and micro-particulate pollution (e.g. plastic bags, Styrofoam) (Medium): F23: Industrial or commercial activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, Styrofoam) (Medium): Artificial material from anthropogenic origin were recorded at all sandbanks surveyed in 2014-2017 by NRW at between 42-100% of samples and at 60-100% of sample stations per sandbank. It was uncertain whether artificial litter originated from residential (F22) or industrial (F23) sources. The number of items, mass and material of the litter is unclear at all banks. However, due to the high proportion of samples where litter has been recorded as present at welsh sandbanks, evidence of ingestion of many related taxa and demonstrated impact on some studied marine taxa, there is cause for some concern. Due to the lack of understanding of the extent of litter, the potential for sample contamination and the uncertainty of ecological impact of the litter at sandbanks low confidence was associated with this assessment (see Bergmann et al., 2015). J02: Mixed source marine water pollution (marine and coastal) (Medium): Approximately 14 sandbanks representing 47.7% of sandbank area are partly or wholly within water bodies that have been assessed as achieving less than good status due to these factors (e.g. Severn Estuary and Helwick Bank and some North Wales banks). The causes of these failures are various ecological indications of poor water quality and chemical level failures confidence in this pressure assessment is low as the spatial spread of samples has not been assessed and the impact on sandbank communities is uncertain (WFD waterbody classifications, 2015). Threats: G01: Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species (Medium): Sandbanks are important for many fish species. Typical fish species of sandbanks are likely to be caught in commercial fisheries, either targeted or as bycatch. It was assessed that fish stock issues identified in the wider sea area are relevant to sandbanks across wales. One site did highlight a future concern about the removal of typical species in the NRW actions database as it relates to sea angling and our lack of information on the impact of this activity on sandbanks the importance of this threat is currently unknown. Fish species known to be associated with Welsh sandbanks were identified using data collected in 2001 (Kaiser, 2004) from beam trawl surveys of key sandbanks around the welsh coast. The condition of typical fish species populations recorded in these surveys were considered using ICES/IUCN assessments (the area of assessment varies by species) (various ICES reports, 2015-2017). Most of the fish recorded at welsh sandbanks are non-commercial and small bodied teleost fish associated with sandy habitats (e.g. gobies and weavers) of which no assessment is available. Many of the commercial species were assessed as undefined by ICES usually where there remains insufficient information on which to base substantive advice. Plaice were assessed to be currently sustainably fished and at full reproductive capacity (ICES area 7.a & area 7.f-g) (ICES 2017). Whiting [area7.a] and sole [area7.a & 7.f-g]) were assessed to be fished (fishing mortality) above FPA or Flim reference points (and therefore above that estimated for long term maximum sustainable yield) and/or were assessed to have reduced reproductive capacity at ICES assessment areas encompassing relevant sandbanks (ICES advice reports, 2016-2017). The spawning stock biomass of these species were also estimated to be notably reduced compared to non-recent levels (reductions were observed in spawning stock biomass estimates over the past 40-50 years). Because of a marked decline in the UK; both species are included on the Welsh Biodiversity Action Plan (BAP) list and subsequently on the Environment Act (2016) Priority Species List and are therefore of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales (covered under Section 7, Environment (Wales) Act 2016; JNCC BAP reports, 2010). ICES assessment areas for these species, although large, were generally at the finest resolution

undertaken by ICES within relevant areas. Some elasmobranch species recorded at sandbanks were assessed to be 'unknown' by ICES but 'Near Threatened' by the IUCN (blonde ray, thornback ray, small eyed ray and nursehound) in European waters. For the rays this related to estimated long-term or short-term declines in population and/or range in the north east Atlantic whereas. For nursehound it related to issues in the Mediterranean seas (therefore not relevant to this assessment). Threats to rays are consistently identified as fisheries. One or more of these species were recorded at most welsh sandbanks surveyed (Kaiser, 2004). However, it should be noted that recent data produced by ICES shows variable recent stock size indications (blonde ray = no info, thornback = The stock size indicator shows an increasing trend since 1994, small eyed ray = below average in recent years but recently increased) (ICES advice reports, 2016). Low confidence should be associated with this assessment due to the size of the area covered by assessments and, in some cases, low abundance of fish originally recorded. In summary, there is ongoing concern about some commercial fish populations in the wider sea area which are associated with Welsh sandbanks. It is should be noted that the majority of fishing related whiting mortality is a consequence of discards in the Nephrops fishery (ICES whiting report, 2017, area 7.a); there is no specific Nephrops fishery in Welsh waters. Whilst the information held in the ICES/IUCN assessments provides some wider context, there is very little evidence of the current removal of these typical species from the vicinity of Welsh sandbanks. It should be noted that the Welsh fishing fleet consists of mainly small (><10m) boats which (MMO, 2016) concentrated on shellfish fishing (Seafish, 2017) and issues relate to the wider sea area. The information available demonstrates that there is a lack of fisheries data that could be used in the assessment and that the available data are of low confidence. It is unclear how long it will take for relevant fish populations to recover to an abundance equal to or greater than that required to achieve maximum sustainable yield and/or fishing pressure to be less than or equal to that required for maximum sustainable yield. F22: Residential or recreational activities and structures generating marine macro-and micro-particulate pollution (e.g. plastic bags, Styrofoam) (Medium): F23: Industrial or commercial activities and structures generating marine macro- and micro-particulate pollution (e.g. plastic bags, Styrofoam) (Medium): Artificial material from anthropogenic origin were recorded at all sandbanks surveyed in 2014-2017 by NRW at between 42-100% of samples and at 60-100% of sample stations per sandbank. An increase in the number samples containing litter was seen between 2014 and 2017 at Cardigan bay. It was uncertain whether artificial litter originated from residential (F22) or industrial (F23) sources. Poor knowledge of the material present and little knowledge of its impact on species gives little scope to infer persistence of materials and future impact (see Bergmann, 2015). However, due to the high proportion of samples where litter has been recorded as present at welsh sandbanks, the long-term prevalence of some anthropogenic materials, evidence of ingestion of many related taxa and demonstrated impact on some studied marine taxa, there is cause for concern and it is likely that pressure will continue into the near future. Due to the lack of understanding of the extent of litter, the potential for sample contamination and the uncertainty of ecological impact of the litter at sandbanks low confidence was associated with this assessment. N08: Change of species distribution (natural newcomers) due to climate change (Medium): It has been noted that climate change is likely to impact the benthos in future. The changes documented in soft-sediment communities in adjacent seas are expected to continue, and probably escalate, in response to the cumulative effects of seawater warming and ocean acidification. Changes to the species dominating crustacean assemblages in the Bristol Channel and the occurrence of previously undocumented species in the western Channel suggest some degree of climate-influence (Birchenough et al., 2013). Broad scale habitats associated with sandbanks were assessed to have medium sensitivity to increases in seawater temperature (of 1.5-4oC by 2100) (Tillin et al, 2010). A recent study projected increases in sea surface temperature over the long term (2069-89 relative to 1960-89)

	of over 3 degree C for the Irish and Celtic Seas (Hughes et al., 2017). It is difficult to make predictions on temperature trends over the next two Article 17 reporting cycles (12 years). With the limited information available it seems likely that temperatures will rise at a magnitude which associated communities of the majority of welsh sandbanks maybe mediumly sensitive to over long-time periods. It was also thought that sandbanks would be susceptible to increases in wave exposure if wave exposure increases this is likely to have an impact (relates to N04), however, there isn't evidence to be able to predict this locally (Woolf & Wolf, 2013). J02: Mixed source marine water pollution (marine and coastal) (Medium): Coastal nearshore waters are subject to anthropogenically raised levels of contaminants and these are significant in some areas. Approximately 14 sandbanks representing 47.7% of sandbank area are partly or wholly within water bodies that have been assessed as achieving less than good status due to these factors (e.g. Severn Estuary and Helwick Bank and some North Wales banks). The causes of these failures are various ecological indications of poor water quality and/or chemical level failures (WFD waterbody classifications, 2015). Confidence in this threat assessment is low as the spatial spread of samples has not been assessed and the impact on sandbank communities is uncertain. A programme of measures is currently being developed due to improve water quality issues highlighted by WFD monitoring. It is likely that some improvements will be seen over the next two reporting cycles however it is difficult to predict the time scales and success of measures in relation to sandbanks at this point.
8.1 Status of measures	Majority of most important conservation measures relating to this habitat type have been identified and are taken or planned to some degree. This is considered to be a low confidence assessment because the ability of some of these measures to fully address known and potential pressures and threats is uncertain.
8.2 Main purpose of the measures taken	The majority of main conservation measures relating to this habitat focus on (d). This is considered to be a low confidence assessment because the ability of some of these measures to fully address known and potential pressures and threats is uncertain.
8.4 Response to the measures	This is considered to be a low confidence assessment because the ability of some of these measures to fully address known and potential pressures and threats is uncertain.

8.5 List of main conservation measures	Measures identified either by conservation national legislation, thematic actions plans or outputs from the actions database. CG01: Management of professional/commercial fishing (including shellfish and seaweed harvesting) (High): Key measures which are in place to mitigate fisheries related pressure and threats identified in this assessment (G01 & G03) are driven by national and European legislation and cover the wider sea area. The Common Fisheries Policy measures and the Scallop Order are the key measures which will protect habitats and improve fish stock levels. The Common Fisheries Policy (CFP) manages common resources, seeks to ensure that fishing and aquaculture are environmentally, economically and socially sustainable. Reform of this policy came into effect from 2014 including measures to protect endangered stocks, and the ending of discards. Measures (mainly effort controls and technical measures based on scientific advice) implemented over time should (and have in some cases) improve poor stock levels. The Marine Strategy Framework Directive (MSFD) 2009 aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020. The MSFD has 11 descriptors, one of which is Commercial fisheries (D3) (target = Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock), other descriptors also have relevance for marine fisheries including Biodiversity (D1), Food webs (D4) and Seafloor integrity (D6). Marine and Coastal Access Act (MCAA) 2009 is system to improve management and protection of the UK marine and coastal environment. It has eight key elements, including fisheries management and marine enforcement. The legislation allowed WG to rationalise management of marine fisheries in Wales by transferring functions of the two Sea Fisheries Committees and the Marine Fisheries Agency (MFA) to the Welsh Government (WG). It also expanded the remit of marine fisheries management organisations to conserve marine ecosystems. The Scallop Fishing (Wales) (No.2) Order 2010 restricts fishing effort (e.g. closed season, engine capacity, amount of dredges, number of boats permitted to fish), fishing location (predominantly not within MPAs or close to shore) species size restrictions (size of scallop). A thematic fisheries action plan was developed under the LIFE N2K Project highlighting the actions needed to improve fisheries evidence collection and understanding as associated with N2K sites in Wales. Work is underway to address some of the priorities identified. Details of the plan can be found on the NRW website (http://naturalresources.wales/about-us/our-projects/nature-projects/life-n2k-wales/life-n2k-thematic-action-plans/?lang=en). In general, the impacts of offshore fishing in Wales is poorly understood. Investigatory actions identified in thematic actions plans should improve understanding and aid better management in the future (one example of this is assessing welsh fisheries project currently underway by NRW). Combined this legislation, management and investigation aims to improve and maintain fish stocks and reduce impact of fishing to marine species and habitats. The measure is ranked as High as related pressure and threat G01 ranked medium and is relevant to a wide area. CJ01 Reduce impact of mixed source pollution (High): Key measures which are in place to mitigate water quality related pressure and threats identified in this assessment (J02) are driven by European legislation and cover the wider sea area: The Water Framework Directive (WFD) aims to maintain the 'high and good status' of waters where it exists, prevent any deterioration in the existing status of waters and to restore at least 'good status' in relation to all waters. The mechanism by which this is to be achieved under the WFD is through the adoption and implementation of River Basin Management Plans and Programmes of Measures for each of the identified River Basin Districts. The programme of measures will be incorporated in to the delivery plan for updated river basin management plans. The aim is to have the programme of measures operational by December 2018. NRW are reviewing progress currently. Many measures planned aim to deal with issues causing WFD coastal and estuarine waterbody failures for ecological and chemical elements. The Programme of measures delivers many of the statutory requirements for other directives and associated legislations e.g. Marine Strategy Framework Directive,

Urban Waste Water Directive, Bathing Waters Directive and Eel Regulations. Related measures are relevant for large areas of sandbank, therefore, pressure ranked high. It is difficult to assess the timeframe and success of measures in relation to sandbanks at this point. A thematic action plan for diffuse water pollution was developed under the LIFE N2K Project highlighting the actions needed to improve evidence collection and understanding as associated with this issue on N2K sites in Wales Details can be found in the plan on the NRW website (http://naturalresources.wales/about-us/our-projects/nature-projects/life-n2k-wales/life-n2k-thematic-action-plans/?lang=en). CC03 Adapt/manage renewable energy installation, facilities and operation (Medium): Consents are required to develop a windfarm/tidal lagoon and associated cable lines. Over the past reporting period, for 1-100MW capacity projects developers were required to gain approval from the Marine Management Organisation (Section 36 Electricity Act). Future projects between 1 and 350MW will require electricity generation consent from Welsh Ministers. In the current period, for larger projects (>100MW), developers are required to gain approval from the UK government (nationally significant infrastructure projects - Planning Act 2008). For all projects such as these a marine licence is required (Marine and Coastal Access Act, 2009). The licence application is determined by NRW. Each application may require an Environmental Impact Assessment and Habitats Regulation Assessment (where within or adjacent to a Natura 2000 site). Based on evidence produced any mitigation required is agreed and implemented as appropriate. The inclusion of mitigation in a project proposal or consent reduces the environmental impact, or potential environmental impact, to a level acceptable under the relevant regulatory framework. This measure relates to D06 and D01 and was ranked as medium because only a small area of sandbanks affected but potentially this process prevents development at a wider-scale. CF08 Reduce/eliminate marine contamination with litter (Medium): This conservation measure relates to pressure and threat F22 & F23. European policies aim to reduce the effect of marine litter, which has recently been well publicised as an issue. The Marine Strategy Framework Directive (MSFD) (descriptor 10) requires EU Member States to ensure that, by 2020, properties and quantities of marine litter do not cause harm to the coastal and marine environment. Pollution of the seas from plastics and microplastics is one of the three major areas of the Strategy for Plastics, adopted by the European Commission on 16th January 2018; most of the proposed Actions are directly or indirectly related to marine litter, including its international dimension. Initiatives against plastic pollution of the oceans, flowing from the Strategy are: * consideration of measures against Single Use Plastics and fishing gear * assessment of the need to restrict microplastics intentionally used in products * consideration of measures against microplastics generated during the life cycle of products * The 7th Environment Action Programme calls for the development of an EU-wide quantitative reduction headline target for marine litter, supported by source-based measures and taking into account marine strategies established by Member States. The Circular Economy Package sets a target for reducing by 30% beach litter and list fishing gear until 2020. A thematic action plan for marine litter was developed under the LIFE N2K Project highlighting the actions needed to improve evidence collection and understanding as associated with this issue on N2K sites in Wales Details can be found in the plan on the NRW website (http://naturalresources.wales/about-us/our-projects/nature-projects/life-n2k-wales/life-n2k-thematic-action-plans/?lang=en). Actions Identified by the actions database (site level) include: * Direct management is the most frequently identified mechanism for addressing marine litter impacts. This mechanism predominantly refers to action required by Local Authorities (LA) to support and help implement measures to remove litter from beaches (e.g. third party collections and LA beach cleaning), ensuring that approaches are sensitive to features. * Investigation actions principally relate to improving the evidence base to underpin better management and reduce both sources of marine litter and impacts on features. This includes investigations to develop better understanding of local sources of marine litter and its disposal, and

identification or high risk areas for marine litter. * Targeted education, awareness raising and liaison actions include, for example, developing opportunities to reduce litter at source (locally), including site level awareness. Example Welsh legislation include: * Plastic bags: The Single Use Carrier Bags Charge (Wales) Regulations 2010 (http://www.legislation.gov.uk/wsi/2010/2880/contents/made) came into force on the 1 October 2011 and brought into effect a charge of 5p for all plastic bags formerly given out for free by retailers. * 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) - Explanatory Memorandum prepared by the Department for Economy, Skills and Natural Resources and laid before the National Assembly for Wales on the 18th May 2018. Future legislation: the EU is looking to create a Directive on single use plastics: http://ec.europa.eu/environment/circular-economy/pdf/single-use_plastics_proposal.pdf. The European Commission (EC) has proposed a full ban on some of the most commonly used and littered disposable plastic products in Europe. The draft 'Single-Use Plastics Directive', announced on Monday (28 May), proposes measures covering a range of items which constitute the most common sources of marine litter in Europe, including 10 single-use plastic products. CC07 Habitat restoration/creation from resources, exploitation areas or areas damaged due to installation of renewable energy infrastructure (High): Active management has led to cessation of dredging at some banks, for example, at Nash Bank and contributed to cessation of dredging at Helwick Bank (both banks represent 5.7% of the sandbank resource). At Nash Bank dredging was phased out and finally ceased in 2010. This decision, made by Welsh Government, who were the regulator at the time, was based on evidence suggesting the bank volume was reducing more than the extracted tonnage, with no clear evidence of replenishment (Pethick & Thompson, 2002). The extraction was considered unsustainable, and there was concern that it may have led to reduced coastal protection from this feature. At Helwick Bank, after a public enquiry (2005), the permitted extraction rate and time period was significantly reduced from that proposed. This was implemented to address environmental concerns regarding the morphology of the bank and concern regarding potential impact on local beaches. The new licence was not used and was eventually relinquished by the applicant. This is in part because the applicant had successfully developed a new licence further offshore. This conservation measure relates to pressure and threat C01. Management of aggregate activity is ranked as high as it represents management of direct removal of habitat. CC01 Adapt/manage extraction of non-energy resources (High): Appropriate management of aggregate extraction within the Severn Estuary SAC is undertaken using a marine licence which provides a means of adaptive management. Habitats Regulation Assessment is the main driver/legislative tool in relation to protection of subtidal sandbanks but WFD compliance and EIA Directive compliance are also part of the Marine licence regulatory process and have a role in protection of this feature. Regulation of activities ensure that aggregate extraction occurs in areas which are likely to be resilient and not to excess. This conservation measure relates to pressure and threat C01. Management of aggregate activity is ranked as high as it represents direct removal of habitat. CI03 Management, control or eradication of other invasive alien species (Medium): Legislative agreements seek to protect biodiversity, species and habitats, and include provisions requiring measures to prevent the introduction, spread and control of, invasive non-native species, especially those that threaten native or protected species and habitats. The UK is a signatory to the Ballast Water Convention which aims to prevent the spread of harmful aquatic organisms by establishing standards and procedures for the management and control of ships' ballast water and sediments. These include specific ballast water management standards (e.g. concerning the efficacy of water exchange), the requirement for international vessel traffic to manage ballast water and sediments in accordance with vessel-specific ballast water management plans, and for all such vessel to carry a ballast water record book and an

international ballast water management certificate. Through its implementation of the Marine Strategy Framework Directive (MSFD), the UK aims to ensure that INNS introduced by human activities are at levels that do not adversely alter the ecosystems'. The UK's Marine Strategy includes targets to reduce the risk of introduction and spread of non-native species through improved management of high risk pathways and vectors, and for action plans to be developed for key high-risk marine non-indigenous species by 2020. The strategy also sets out indicators for Good Ecological Status (GES) in respect of these INNS targets, and monitoring programmes for measuring progress towards achieving or maintaining GES. In Wales, various statutory and ad-hoc monitoring programmes contribute towards the MSFD INNS evidence baseline. Examples include marine rapid assessment surveys of Welsh marinas carried out in 2011 and 2014. Contingency plans are currently being developed for priority marine INNS species not yet established in Wales. Where potentially high impact INNS have been detected historically, innovative approaches to rapid eradication or control have been implemented where appropriate/technically feasible (e.g. Didemnum vexillum at Holyhead Marina). The impacts associated with INNS are also recognised as potentially significant anthropogenic pressures through the UK's approach to implementing the Water Framework Directive. Impacts from invasive non-native species are considered as part of the assessment of the ecological status of water bodies and, in general terms, measures are adopted to improve status and address impacts, on a water body by water body basis, where INNS are implicated in a water body failing to achieve its objectives. At a national level, specific legislation restricts the spread or release of INNS in the wild. Section 14 of the Wildlife and Countryside Act 1981, for example, contains specific provisions relating to the introduction of new species and provides that it is an offence to release or allow to escape into the wild, any animal which is not ordinarily resident in Great Britain, or those listed in Schedule 9. Of the marine species listed under Schedule 9, Crepidula fornicata is of particular relevance to sandbanks which are slightly covered by sea water all of the time. In Wales, anthropogenic activities with the potential to introduce or spread INNS are managed through the implementation of biosecurity risk assessment and management planning under existing regulatory and consenting frameworks. Examples include the marine licensing provisions of the Marine and Coastal Access Act, Habitats Regulations Assessments under the Conservation of Habitats and Species Regulations 2017 and Sites of the Special Scientific Interest (SSSI) consenting procedures under the Wildlife and Countryside Act 1981. Work is ongoing to assess the prevalence of invasive non-native species (INNS) at priority dredge disposal sites in Wales to inform our understanding of INNS distribution and future management advice. Natural Resources Wales and the Welsh Government are standing members of the UK Marine Pathways Group, a coordinated approach to preventing new INNS introductions, early detection and rapid action to prevent the establishment of INNS, and containment and long-term control measures across the UK and Ireland. The Marine Pathways Group, in its earlier project form, produced specific INNS guidance and voluntary best practice for marina operators, boat owners and the aquaculture sector, and led on the identification of locations at high risk of introduction where biosecurity efforts should be focused. Specific Welsh control and eradication projects taken forward under the Marine Pathways banner include The Dee Chinese Mitten Crab Project and determining the extent of Grateloupia turuturu in Wales and feasibility of eradication. A thematic action plan for Invasive Species and Pathogens was developed under the LIFE N2K Project highlighting the actions needed to improve evidence collection and understanding as associated with this issue on N2K sites in Wales Details can be found in the plan on the NRW website (http://naturalresources.wales/about-us/our-projects/nature-projects/life-n2k-wales/life-n2k-thematic-action-plans/?lang=en). This was included as a medium rank as sandbanks were assessed to have medium sensitivity to introduction of non-native species.

9.1 Future prospects of parameters	9.1a) The occurrence of this habitat is defined by physiographic processes over long timescales. While the physical area of some banks may change (although this is very uncertain) (see 9.1b), the geographic spread and distribution of features is not expected to change within the next 12 years. 9.1b) Future prospects for area are currently unclear. It is uncertain what impact future planned marine renewable energy developments may have on the area of sandbanks in Wales. 9.1c) Future prospects were assessed as unknown as there are many uncertainties and confidence are low in almost all assessments of condition of area, likely pressure and threats and likely effectiveness of conservation measures. Further analysis was not possible due resource constraints.
11.3 Surface area of the habitat type inside the network; Method used	Data sources: Combination of JNCC Digital Elevation Model, Survey data, Admiralty Charts and Expert knowledge
11.4 Short term trend of habitat area in good condition within the network; Direction	We are currently uncertain of the short-term trend in the area of good condition for this feature within SACs. Whilst evidence is available we are unable to assess this field in a meaningful way given current time resources.
11.5 Short term trend of habitat area in good condition within the network; Method used	Whilst evidence is available we are unable to assess this field in a meaningful way given current time resources.