Harbour Porpoise (*Phocoena phocoena)* Special Area of Conservation: North Anglesey Marine/ Gogledd Môn Forol

Conservation Objectives and Advice on Operations

March 2019

Advice under Regulation 21 of The Conservation of Offshore Marine Habitats and Species Regulation 2017 and Regulation 37(3) of the Conservation of Habitats and Species Regulations 2017

Further information

This document is available as a pdf file on the JNCC website for download if required (www.jncc.defra.gov.uk).

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Summary of Conservation Objectives and Advice on Operations

The Conservation Objectives and Advice on Operations are set out for the North Anglesey Marine/Gogledd Môn Forol Special Area of Conservation (SAC) for harbour porpoise (*Phocoena phocoena*). The site covers both inshore (within 12 nautical miles of coast) and offshore (beyond 12 nautical miles of coast) waters where Natural Resources Wales (NRW) and the Joint Nature Conservation Committee (JNCC) have respective advisory responsibilities as the Statutory Nature Conservation Body (SNCB).

The general objective of achieving or maintaining Favourable Conservation Status (FCS) for all species and habitat types listed in Annexes I and II of the Habitats Directive needs to be translated into Conservation Objectives for SACs. These objectives describe the condition to be achieved by a site for it to contribute in the best possible way to achieving FCS at the national, bio-geographical and European level[1]. The Advice on Operations is site-specific but based on a broad assessment of the sensitivity of the harbour porpoise to anthropogenic pressures at a UK scale.

The advice in this document has been developed using the best available scientific information and expert interpretation as of February 2019. The advice provided here may be subject to change as our knowledge about the site and the impacts of human activities improves.

To ensure the site contributes in the best possible way to achieving FCS, management of human activities occurring in or around the site is required if these activities are likely to have an adverse impact (directly or indirectly) on the integrity of the site, with regards to its Conservation Objectives. It should be noted that as a European Protected Species under Annex IV of the Habitats Directive, harbour porpoises are already strictly protected throughout their European range. As such, several conservation measures are already in place in the UK.

To achieve the Conservation Objectives for the North Anglesey Marine/ Gogledd Môn Forol SAC, the relevant[2] and competent[3] authorities should consider human activities within their remit which might affect the integrity of the site.

[1] http://jncc.defra.gov.uk/PDF/comm02D07.pdf

[2] Relevant authorities are those who are already involved in some form of relevant marine regulatory function and would therefore be directly involved in the management of a marine site lying within territorial waters. The bodies which may be relevant authorities are listed in Regulation 6 of the Conservation of Habitats and Species Regulations 2017. All relevant authorities are also competent authorities.

[3] Competent authorities are defined in Regulation 5 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 and Regulation 7 of the Conservation of Habitats and Species Regulations 2017. In summary, a competent authority is any person or organisation that has the legally delegated or invested authority (e.g. Minister, government department, public body of any kind or statutory undertaker) to perform a designated function.

Crynodeb o Amcanion Cadwraeth a Chyngor ynglŷn â Gweithgareddau

Mae'r Amcanion Cadwraeth a Chyngor ynglŷn â Gweithgareddau wedi'u cyflwyno ar gyfer yr ymgeisydd Ardal Cadwraeth Arbennig (yACA) North Anglesey Marine / Gogledd Môn Forol ar gyfer yr rhywogaeth Atodiad II, y llamhidydd (*Phocoena phocoena*). Mae'r safle'n cwmpasu dyfroedd y glannau (o fewn 12 morfilltir o'r arfordir) a dyfroedd alltraeth (tu hwnt i 12 morfilltir o'r arfordir) lle mae gan Cyfoeth Naturiol Cymru (CNC), Natural England (NE) a'r Cyd-bwyllgor Gwarchod Natur (JNCC) gyfrifoldebau cynghori perthnasol.

Mae angen trosi'r amcan cyffredinol o gyrraedd neu gynnal Statws Cadwraeth Ffafriol i bob rhywogaeth a math o gynefin sydd wedi'u rhestru yn Atodiadau I a II o'r Gyfarwyddeb Cynefinoedd yn Amcanion Cadwraeth ar lefel safle. Mae rhain yn disgrifio'r cyflwr y dylai rhywogaethau a mathau o gynefin o fewn safle ei wireddu er mwyn i'r safle gyfrannu yn y ffordd orau posibl tuag at wireddu Statws Cadwraeth Ffafriol ar lefel genedlaethol, bio-ddaearyddol ac Ewropeaidd.

Mae'r Cyngor ynglŷn â Gweithgareddau yn benodol i safleoedd ond mae'n seiliedig ar asesiad ehangach o ba mor sensitif yw'r llamhidydd i bwysau anthropogenig ar lefel y DU. Datblygwyd y cyngor gan ddefnyddio'r wybodaeth gwyddonol orau bosibl a dehongliad arbenigol fel yr oedd ym mis Chwefror 2019. Bydd y cyngor a ddarperir yma yn newid wrth i'n gwybodaeth am y safle ac effeithiau gweithgareddau dyn wella.

Er mwyn sicrhau bod y safle'n cyfrannu at Statws Cadwraeth Ffafriol, mae angen rheoli gweithgareddau dyn ar y safle ac o'i gwmpas os ydynt yn debygol o gael effaith andwyol ar gyfanrwydd y safle (yn uniongyrchol neu'n anuniongyrchol) o safbwynt ei Amcanion Cadwraeth. Dylid nodi bod y llamhidydd yn ei warchod drwy Ewrop gyfan fel Rhywogaeth a Warchodir Gan Ewrop yn Atodiad IV y Gyfarwyddeb Cynefinoedd. O ganlyniad mae llawer o fesurau rheoli ar waith eisoes yn y DU.

Er mwyn diwallu Amcanion Cadwraeth safle llamhidydd North Anglesey Marine / Gogledd Môn Forol, dylai'r awdurdodau perthnasol[1] a chymwys[2] ystyried gweithgareddau dyn yn rhan o'u cylch gwaith a allai gael effaith ar gyfanrwydd y safle.

[1] Awdurdodau perthnasol yw'r rhai sydd eisoes yn ymwneud â rhyw fath o swyddogaeth reoleiddiol forol berthnasol a fyddai'n ymwneud yn uniongyrchol felly â rheoli safle morol sydd o fewn dyfroedd tiriogaethol. Mae'r cyrff a all fod yn awdurdodau perthnasol wedi eu rhestru yn Rheoliad 6 Rheoliadau Gwarchod Cynefinoedd a Rhywogaethau 2017. Mae'r holl awdurdodau perthnasol hefyd yn awdurdodau cymwys.

[2] Mae awdurdodau cymwys yn cael eu diffinio yn Rheoliad 5, Rheoliadau Cadwraeth Cynefinoedd a Rhywogaethau Morol Alltraeth 2017 a Rheoliad 7, Rheoliadau Gwarchod Cynefinoedd a Rhywogaethau 2017. I grynhoi, mae awdurdod cymwys yn unrhyw berson neu sefydliad y rhoddwyd awdurdod cyfreithiol neu ddirprwyedig iddo (e.e. Gweinidog, adran o'r llywodraeth, unrhyw fath o gorff cyhoeddus neu ymgymerydd statudol) i gyflawni swyddogaeth ddynodedig.

Contents

1 Introduction

1.1 Background

Initial advice on a network of sites identified within UK waters for harbour porpoise (*Phocoena phocoena*) was submitted to UK and Devolved Governments as a series of draft SACs in June 2015. The sites were identified within the UK portions of Management Units (MUs[4]) defined for the species (ICES, 2014; IAMMWG, 2015). The Welsh and Northern Ireland Governments, along with Defra on behalf of England and relevant offshore waters, gave approval for sites within their areas of jurisdiction to proceed to consultation (January to May 2016). In light of the responses to the consultation, five sites were submitted to the European Commission as candidate SACs in January 2017. These five sites were adopted by the EC as Sites of Community Importance (SCIs) on 12 December 2017 and designated as SACs by Ministers on 26th February 2019. These sites are shown in Figure 1.

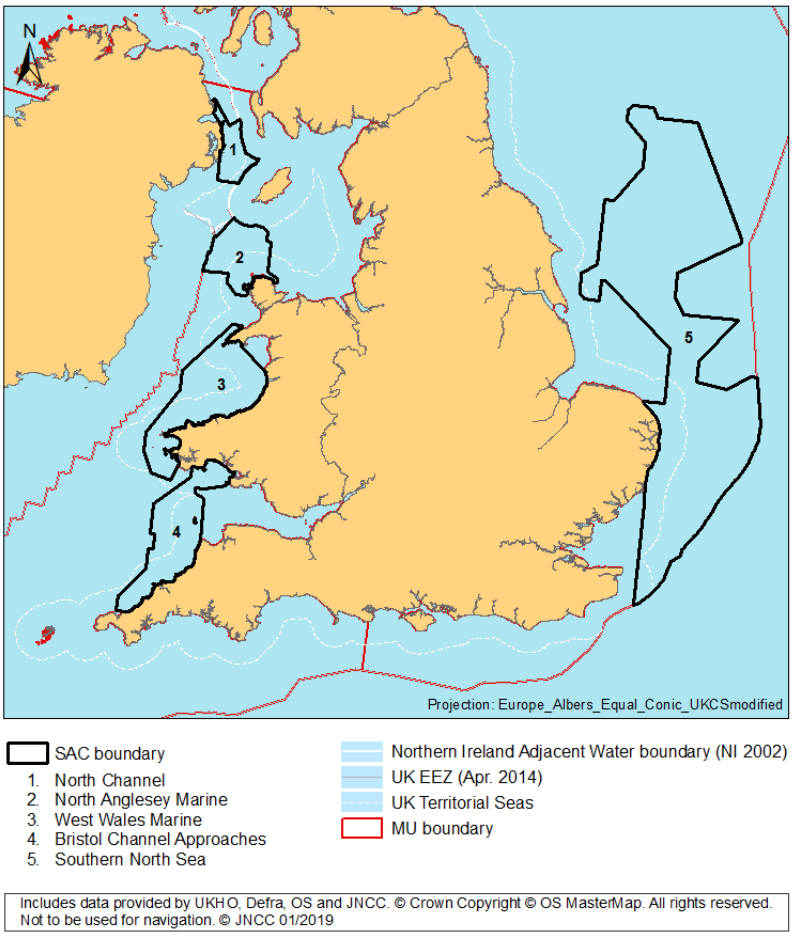


Figure 1: Special Areas of Conservation for the harbour porpoise, *Phocoena phocoena* identified in Northern Ireland, England, Wales and offshore waters. The Management Unit (MU) boundary (red line) refers to the UK portion of the North Sea and Celtic and Irish Seas MUs.

[4] For conservation and management purposes it is practical to divide the population into smaller units, termed Management Units (MUs). These MUs were developed to take account of biological populations of animals but were also be determined by political boundaries and are at an appropriate scale at which to assess human activities. In the UK, three MUs have been defined for harbour porpoise: West of Scotland, Celtic and Irish Seas, and North Sea (IAMMWG, 2015)

This advice document is for the North Anglesey Marine/ Gogledd Môn Forol SAC (Figure 2) which is subject to protection under the Conservation of Habitats and Species Regulations 2017[5] and the Conservation of Offshore Marine Habitats and Species Regulation 2017[6] (collectively referred to as the Habitats Regulations). The advice is given in fulfilment of the duty of the Statutory Nature Conservation Bodies (SNCBs) under the Habitats Regulations to advise Relevant and Competent Authorities as to (a) the Conservation Objectives for the site; and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. The SNCBs aim to ensure that the Conservation Objectives are up-to-date, accessible and enable the assessment of the potential effects of plans and projects.

2 Responsibilities of Relevant and Competent Authorities

Competent Authorities (including those which are also Relevant Authorities) are required to exercise their functions to comply with the Habitats Regulations. Competent Authorities must, within their areas of jurisdiction, consider both direct and indirect effects on the site. This includes considering operations inside and outside the boundary of the SAC, if the impacts could affect the achievement of the site's Conservation Objectives. Decisions on management measures (e.g. the scale and type of mitigation) are the responsibility of the relevant regulatory or management bodies. These bodies will consider SNCB advice and hold discussions with the sector concerned, where appropriate. Where consent is required and the operation (if considered a plan or project) is likely to significantly affect a European Site, Article 6(3) of the Habitats Directive requires that an Appropriate Assessment (AA) is carried out. The AA is part of the "Habitat Regulations Assessment" (HRA), which is a case-specific assessment made in view of the Conservation Objectives for the affected site or sites. Each HRA requires case-specific advice from the SNCB but the assessment is the responsibility of the competent authority concerned.

The variability of harbour porpoise distribution and abundance within sites is in part due to their mobility and wide-ranging nature as well as natural and anthropogenic changes in habitat and prey. Relevant and Competent Authorities are not required to undertake any actions to ameliorate changes in the condition of the site if it is shown that the changes result wholly from natural causes. It is therefore important to contextualise any apparent deterioration of harbour porpoise presence in the site in terms of natural variability and the abundance and distribution patterns at the population level (i.e. MU).

3 Conservation Objectives for harbour porpoise SACs

3.1 The role of Conservation Objectives

Site level Conservation Objectives (COs) are a set of specified objectives that must be met to ensure that the site contributes in the best possible way to achieving Favourable Conservation Status (FCS) of the designated site feature(s) at the national and biogeographic level (EC, 2012). Conservation Objectives constitute a necessary reference for:

- identifying any site-based conservation measures that may be required;
- carrying out HRAs of the implications of plans or projects.

The purpose of the HRA is to determine whether a plan or project adversely affects a site's integrity. The critical consideration in relation to site integrity is not the extent or degree of an impact, or whether an impact is direct or indirect, but whether a plan or project, either

[5] http://www.legislation.gov.uk/uksi/2017/1012/contents/made
[6] http://www.legislation.gov.uk/uksi/2017/1013/contents/made

individually or in combination with other plans or projects, affects the site's ability to achieve its Conservation Objectives and therefore contribute to Favourable Conservation Status.

Harbour porpoise are protected everywhere in European waters under the provisions of the Habitats Regulations. The harbour porpoise in UK waters are considered part of a wider European population and the highly mobile nature of this species means that the concept of a 'site population' is not considered an appropriate basis for expressing Conservation Objectives for this species. Site based conservation measures will complement wider ranging measures that are in place for the harbour porpoise.

3.2 Background to Conservation Objectives

The Conservation Objectives are designed to help ensure that the obligations of the Habitats Directive can be met. Article 6(2) of the Directive requires that there should be no deterioration or significant disturbance of the qualifying species or to the habitats upon which they rely. Therefore, the focus of the Conservation Objectives for harbour porpoise sites is on addressing pressures that affect site integrity and would include:

- killing or injuring harbour porpoise (directly or indirectly);
- preventing their use of significant parts of the site (disturbance / displacement);
- significantly damaging relevant habitats; or
- significantly reducing the availability of prey.

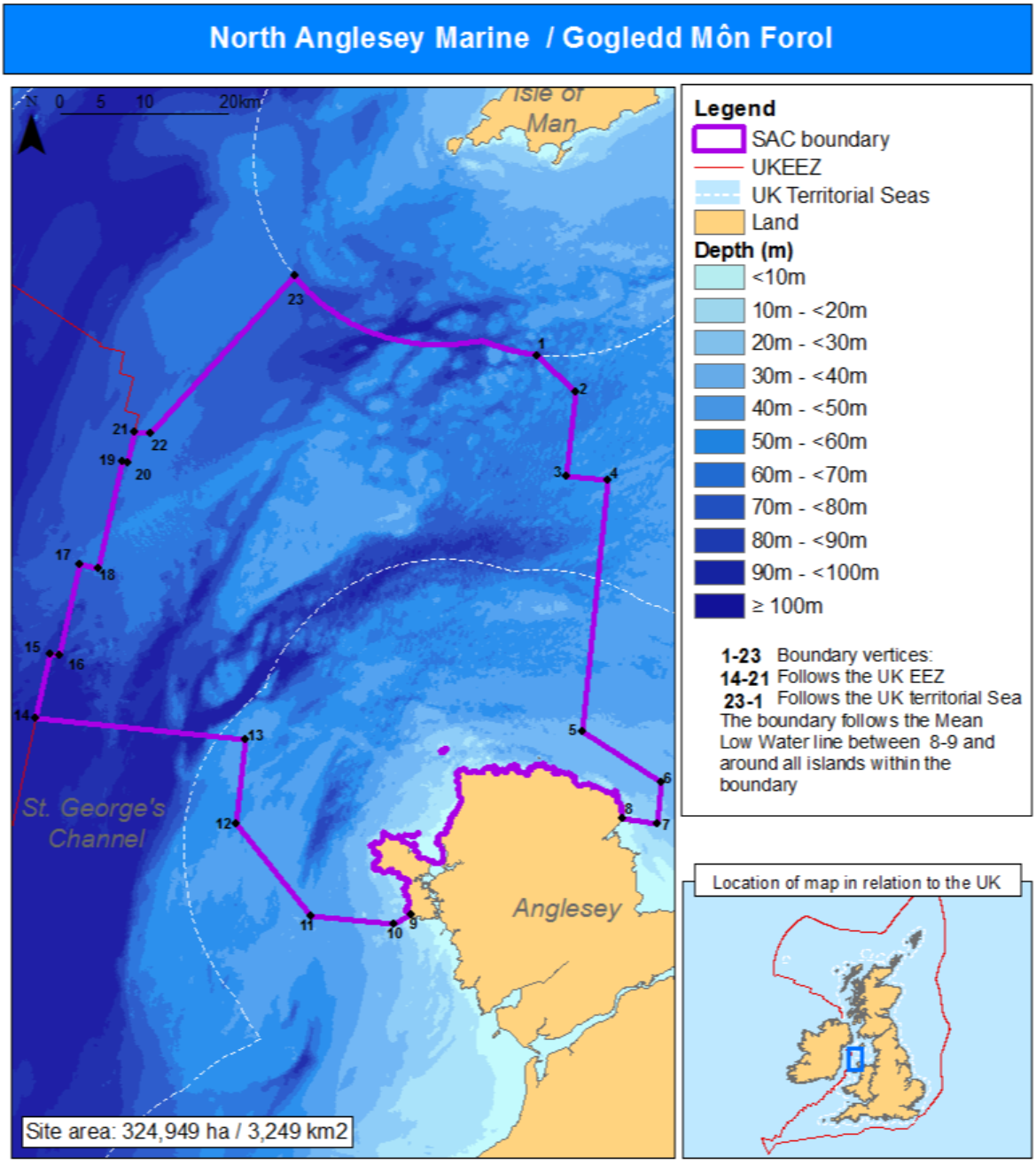
This document includes both a statement of the Conservation Objectives and explanatory text on their intent and interpretation specific to the site. The Objectives have been set taking account of European Commission guidance (EC, 2012). Further guidance on the management of specific pressures of harbour porpoise is being developed.

3.3 The North Anglesey Marine/ Gogledd Môn Forol SAC Conservation Objectives

The qualifying feature of the site is the Habitats Directive Annex II species:

- harbour porpoise (*Phocoena phocoena*)

Seasonal differences in the relative use of the site have been identified based on the analyses of Heinänen and Skov (2015). Harbour porpoise sightings data were modelled seasonally (Summer: April-September and Winter: October-March) for each MU. The outputs of this analysis were maps of areas by season and MU, that persistently contained elevated densities of harbour porpoises. These areas were used as the basis for site identification and as a consequence, sites may have seasonal components which should be considered in the assessment of impacts and proposed management. North Anglesey Marine / Gogledd Môn Forol (Figure 2) has been designated because of its importance to harbour porpoises in the summer months (April to September).



ID	Latitude	Longitude	ID	Latitude	Longitude	ID	Latitude	Longitude	ID	Latitude	Longitude
1	53° 51' 13.5" N	4° 35' 25.8" W	7	53° 23' 31.3" N	4° 12' 22.2" W	13	53° 23' 20.3" N	4° 57' 33.8" W	19	53° 38' 60" N	5° 17' 0" W
2	53° 49' 25.9" N	4° 30' 32.1" W	8	53° 23' 27.2" N	4° 16' 4.9" W	14	53° 21' 47.7" N	5° 20' 0.0" W	20	53° 38' 60" N	5° 16' 20.4" W
3	53° 44' 5.1" N	4° 29' 34.5" W	9	53° 14' 36.2" N	4° 36' 12.8" W	15	53° 25' 60" N	5° 20' 0" W	21	53° 40' 59.383" N	5° 16' 20.401" W
4	53° 44' 22.0" N	4° 25' 4.0" W	10	53° 13' 49.5" N	4° 37' 45.7" W	16	53° 25' 60" N	5° 19' 0" W	22	53° 41' 6.545" N	5° 14' 35.945" W
5	53° 28' 19.3" N	4° 22' 14.9" W	11	53° 13' 14.7" N	4° 46' 40.1" W	17	53° 32' 0" N	5° 19' 0" W	23	53° 52' 54.106" N	5° 2' 58.412" W
6	53° 26' 11.8" N	4° 12' 49.5" W	12	53° 17' 59.8" N	4° 56' 34.0" W	18	53° 32' 0" N	5° 17' 0" W			

Figure 2: The North Anglesey Marine / Gogledd Môn Forol Special Area of Conservation for harbour porpoise.

The Conservation Objectives for the site are:

To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters

In the context of natural change, this will be achieved by ensuring that:

1. Harbour porpoise is a viable component of the site;

2. There is no significant disturbance of the species; and

3. The condition of supporting habitats and processes, and the availability of prey is maintained.

Conservation Objective 1: Harbour porpoise is a viable component of the site

This SAC has been selected primarily based on the long-term, relatively higher densities of porpoise in contrast to other areas of the MU. The implication is that the SAC provides relatively good foraging habitat and may also be used for breeding and calving. However, because the number of harbour porpoise using the site naturally varies (e.g. between seasons), there is no exact number of animals within the site.

The intent of this objective is to minimise the risk of injury and killing or other factors that could restrict the survivability and reproductive potential of harbour porpoise using the site. Specifically, this objective is primarily concerned with operations that would result in unacceptable levels of those impacts on harbour porpoises using the site. Unacceptable levels can be defined as those having an impact on the FCS of the populations of the species in their natural range. The reference population for assessments against this objective is the MU population in which the SAC is situated (IAMMWG, 2015).

Harbour porpoise is a European Protected Species (EPS) listed on Annex IV of the Habitats Directive and as such is protected under the Habitats Directive Article 12 and transposing regulations from deliberate killing (or injury), capture and disturbance throughout its range. In addition, Article 12 (4) of the Habitats Directive is concerned with incidental capture and killing. It states that Member States 'shall establish a system to monitor the incidental capture and killing of the species listed on Annex IV (all cetaceans). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'. Site based measures should therefore be aligned with the existing strict protection measures in place throughout UK waters. Significant disturbance within or affecting the site is considered in the second conservation objective.

Conservation Objective 2: There is no significant disturbance of the species

Disturbance of harbour porpoise typically, but not exclusively, originates from operations that cause underwater noise including, as examples, seismic surveys, pile driving and sonar. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise[7]. However, disturbance is primarily a behavioural response to noise and may, for example, lead to harbour porpoises being displaced from the affected area.

This SAC was identified as having persistently higher densities of harbour porpoises (Heinänen and Skov, 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is

[7] http://jncc.defra.gov.uk/page-4273

maintained. Disturbance is considered significant if it leads to the exclusion of harbour porpoise from a significant portion of the site. Specifically, draft SNCB advice / guidance for assessing the significance of noise disturbance to a site suggests:

Noise disturbance within an SAC from a plan/project individually or in combination is significant if it excludes harbour porpoises from more than:

1. 20% of the relevant area[8] of the site in any given day[9], and

2. an average of 10% of the relevant area of the site over a season[10,11].

Conservation Objective 3: The condition of supporting habitats and processes, and the availability of prey is maintained

Supporting habitats, in this context, means the characteristics of the seabed and water column. Processes encompass the movements and physical properties of the habitat. The maintenance of supporting habitats and processes contributes to ensuring that prey is maintained within the site and is available to harbour porpoises using the site. Some evidence shows that the harbour porpoise has a high metabolic rate compared to terrestrial mammals of similar size (Rojano-Doñate et al. 2018) and high feeding rates (Wisniewska et al., 2016). The harbour porpoise is therefore thought to be a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003). The densities of porpoise using a site are likely linked to the availability (and density) of prey within the site. Harbour porpoise eat a variety of prey including gobies, sandeel, whiting, herring and sprat. However, the diet of porpoises when within the sites is not well known but is likely comparable to that in the wider seas.

There are several operations (Table 2) which potentially affect the achievement of this Conservation Objective. Whilst some plans/projects are unlikely to have a significant effect alone, an effect might become significant when considered in combination with other plans/projects and against the background of existing activities/pressures on the site. Further work is needed to assess historic, existing and planned levels of plans/projects in the sites and to better understand their impacts on the habitats and prey within the sites.

4 Advice on Operations

4.1 Purpose of advice

This section details the activities specifically occurring within or close to the North Anglesey Marine/ Gogledd Môn Forol SAC that would be expected to impact the site; this is known as Advice on Operations. Initial assessments were conducted at a UK scale, with subsequent

[8] The relevant area is defined as that part of the SAC that was designated on the basis of higher persistent densities for that season (summer defined as April to September inclusive, winter as October to March inclusive).

[9] Applicable only in Habitats Regulations Assessments (HRA) due to impracticality of daily noise limit management of activities, but retrospective compliance analysis advised

[10] Summer defined as April to September inclusive, winter as October to March inclusive

[11] For example, a daily footprint of 19% for 95 days would result in an average of 19x95/183 days (summer) =9.86%

site-level assessment detailing our understanding of the operations and their potential to impact the site (Section 5 & 6). Advice is only given where pressures[12] may impact the site and therefore, may require management, if the Conservation Objectives are to be met. Widespread pressures may also act to affect the overall status of harbour porpoise, but their effects are not restricted to specific sites. Such pressures are best dealt with through broader measures. Alongside and in addition to the identification of the network of harbour porpoise sites, an overarching conservation strategy (DETR, 2000) has been in place for harbour porpoise since 2000. In light of a recent conservation literature review (IAMMWG *et al.,* 2015), a UK Dolphin and Porpoise Conservation Strategy is being developed.

The advice outlined below should also be used to help identify the extent to which existing operations are, or can be made, consistent with the Conservation Objectives, and thereby focus the attention of Relevant and Competent Authorities and monitoring programmes to areas that may need management measures.

This Advice on Operations will be supplemented through further discussions with the Relevant and Competent Authorities and any advisory groups that may be formed for the site.

4.2 Background

In compiling this Advice on Operations, the SNCBs have considered the pressures that may be caused by human activities and may affect the integrity of the site when considered against the Conservation Objectives. The advice is generated through a broad grading of sensitivity and exposure of the harbour porpoise to pressures associated with activities to gain an understanding of how vulnerable the species is to each activity at a UK level. The activities and their associated pressures to which the harbour porpoise is deemed vulnerable at a UK level are then considered at a site level to inform the risks to achieving the Conservation Objectives along with any potential management that may be required to mitigate against such risks. Annex A details the assessments of the level of impact risk[13] from operations on harbour porpoise populations at a UK-wide scale. This informs on the activities likely to impact the site.

This document is guidance only and activities and their management within or affecting the site will be considered in the context of Habitats Regulations Assessment (HRA) and where applicable through other environmental assessment processes, such as Environmental Impact Assessment (EIA).

5 Operation assessments at UK scale

The assessments have been carried out using all available evidence as of February 2019. If further information is made available in future which would improve our understanding of harbour porpoise vulnerability in UK waters, the assessments may be updated. This advice is provided without prejudice for use by the Relevant and Competent Authorities. The level of any impact will depend on the location, timing and intensity of the relevant operation. This advice is provided to assist and focus the Relevant and Competent Authorities in their consideration of the management of these operations.

The harbour porpoise is a wide-ranging species and occurs throughout the UK Continental Shelf area (JNCC, 2013). It does occur in deeper waters but in very low densities, and perhaps only seasonally. As a predominantly continental shelf species, it is exposed to a wide range of pressures that are both ubiquitous (e.g. pollution) and patchy (e.g. bycatch) in nature, and the list of anthropogenic activities leading to these pressures is long. Based on current

[12] See Annex B for definition of key terms
[13] Risk includes consideration of severity of implications of impact

available information, the operations that pose the most notable risk of impact to UK harbour porpoise are shown in Table 1.

The current levels of impact of the various pressures are based on the Article 17 assessments[14] and the full list of assessed activities and key references can be found in Annex A. Updates to the assessments will occur as more evidence becomes available.

Definitions of pressures are explained in Annex B.

Activities which currently pose a low risk of impact to harbour porpoise at the UK level (Annex A) have not been considered in this advice. The exposure to the pressures associated with these activities is currently very limited. Non-anthropogenic impacts are also not considered, such as attack and predation from other marine mammal species that have the potential to impact harbour porpoise populations.

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Table 1: Key activities (operations) and the relative level of risk of impactson harbour porpoise throughout UK waters. Those pressures ranked 'high' are known to have the greatest impact relative to other pressures on the population of UK harbour porpoises. Activities which currently pose a low risk are not shown.

Operations	**Pressures**	**Impacts**	**Current relative level of risk of impact**
Commercial fisheries with bycatch of harbour porpoise (predominantly static nets)	**Removal of non-target species**	• Mortality through entanglement/bycatch	High
Discharge/run-off from land-fill, terrestrial and offshore industries	**Contaminants**	• Effects on water and prey quality • Bioaccumulation through contaminated prey ingestion • Health issues (e.g. on reproduction)	High
Shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity	**Anthropogenic underwater sound**	• Mortality • Internal injury • Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising) • Habitat change/loss	Medium
Shipping, recreational boating, tidal energy installations	**Death or injury by collision**	• Mortality • Injury	Medium/Low
Commercial fisheries (reduction in prey resources)	**Removal of target species**	• Reduction in food availability • Increased competition from other species • Displacement from natural range	Medium

[14] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf . Updated Article 17 reports for 2013-2018 will be available in 2019.

6 Site specific considerations: North Anglesey Marine/ Gogledd Môn Forol SAC

6.1 Sensitivity of harbour porpoise to existing activities within or impacting on the site

The North Anglesey Marine / Gogledd Môn Forol site covers an area of 3,249km^2, reaching north-west from the Isle of Anglesey into the Irish Sea. It sits at the northern extent of St. George's Channel, extending approximately half way across to the Republic of Ireland, skirting the national waters of the Isle of Man. A summary of the site can be found in the Selection Assessment Document on the Site Information Centre [15].

All available information on activities within the site has been used to assess the threats and pressures within the site. However, precise information on some activities within the boundary is not currently available due to lack of targeted data collection to date. Assessing exposure carries certain assumptions about the spatial extent, frequency and intensity of the pressures associated with marine activities.

Table 2 is an overview of activities (operations) occurring within or in proximity to the North Anglesey Marine / Gogledd Môn Forol site to which the harbour porpoise has a current level of impact risk of High or Medium at UK level and therefore may require further consideration concerning options for management. The impact of a pressure at the site level can differ to that at UK level dependent on the amount of activity within or adjacent to the site. GIS layers of spatial activity data as well as review of literature, were used to identify the impact risk within the site (where a pressure is concentrated within a site) and whether it differs from the UK level risk. These assessments include all available information as of February 2019.

In 2012, Defra announced a revised approach to the management of fishing activities within European Marine Sites (EMS) in England[16]. The revised approach is designed to ensure consistency in the management of fishing activities with Article 6 of the Habitats Directive. For SACs or parts of SACs outside of 12 nm, management measures will be introduced by appropriate regulators to ensure adequate protection.

The Welsh Government is assessing new fisheries legislation and permitted activities under Article 6 of the Habitats and Birds Directives. The Welsh Government, in partnership with Natural Resources Wales, are undertaking a structured evaluation of the impacts from fishing activities (from licensed and registered commercial fishing vessels) on the features of Marine Protected Areas (MPA) in Welsh waters is. This is referred to as the Assessing Welsh Fishing Activities (AWFA) Project[17]. The Welsh Government is responsible for decisions relating to whether additional management measures are required to avoid impacts to features of MPAs in Welsh waters. The evidence base provided by the AWFA Project will inform fisheries management decisions and support the aims of The Well-being of Future Generations (Wales) Act 2015, The Environment (Wales) Act 2016 and the Habitats Directive by contributing to the sustainable management of the marine environment.

JNCC and the country SNCBs are working with the Regulators and Industry to ensure that a pragmatic approach to mitigation and management of pressures that may affect the integrity of the site is adopted. Any future guidance documents will be made available on the Site Information Centre on the JNCC website[18].

[15] SAC Selection Assessment Document: http://jncc.defra.gov.uk/page-7244

[16] https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery

[17] https://naturalresources.wales/about-us/our-projects/marine-projects/assessing-welsh-fishing-activities/?lang=en

[18] http://jncc.defra.gov.uk/page-7244

Table 2: Operations (activities) occurring within/near to the North Anglesey Marine/Gogledd Môn Forol site which may affect the integrity of the site.

Operations	Pressure	Comment on current level of activity	Management considerations
Fisheries (commercial and recreational) with harbour porpoise bycatch	Removal of non-target (bycatch) species	Bycatch of harbour porpoise in fishing gear is one of the most significant anthropogenic pressures impacting the population at a UK level. The relevant commercial fisheries with harbour porpoise bycatch are bottom set nets, such as gillnets and tangle nets. UK registered vessels >12m: Evidence in Vessel Monitoring System (VMS) data of low levels of static gear vessels crossing over a small portion of the northwest corner of the site boundary[19]. Vessels <12m (the majority, ~92%, of Welsh small scale commercial fleet being <10m) include static nets: Effort is considered low and byatch is thought to be negligible. Recreational netting also occurs at a very low level of effort along the coast with likely negligible (no known) bycatch. EU registered vessels: Evidence in Vessel Monitoring System (VMS) data of low levels of static gears (>12m vessels) crossing over the northwest of the site boundary.	Where bycatch may pose a risk to achieving the site's conservation objectives, mitigation may be required. Where management measures are required, the development of these would be led by fishery managers in discussion with fishing interests and informed by any detailed information about fishing activity that can be made available. Detailed measures, if required, will be developed by the relevant management authority (European Commission/MMO/Defra/Welsh Government) Gillnetters of >12m working within the site operate within ICES area VIIa and are therefore not legally required to use pingers under EU Regulation 812/2004[20]. The risk of bycatch from this sector in the context of the Conservation Objectives of the site may need to be assessed. Although bycatch is thought to be negligible within the site, the greatest risk is posed by the numerous small bottom-set gillnetting vessels (<12m), for which the use of pingers is not mandatory under Regulation 812/2004. Effort by this sector of the fleet in the site is currently considered low and risk of bycatch is likely negligible. The need for further management will need to be fully assessed based on local fisheries data. However, it is currently considered that requirement of further measures is unlikely given current impact.
Discharge/ run-off from land-fill, terrestrial/ offshore industries	Contaminants	Current exposure within/near the site is unknown but historical metal mining operation outfalls potentially exist within the site. Wylfa nuclear power station operation and decommissioning, and re-construction and operation of new proposed nuclear station	This pressure generally cannot be managed effectively at the site level. Most of the pollutants of relevance to marine mammals have been effectively phased out of use by action under the OSPAR Convention and, more recently, the EU (through Council Directives 67/548/EEC and 76769/EEC and the Stockholm convention, which restrict the marketing and use of PCBs;

[19] The fisheries data are aggregated VMS data collected between 2006 and 2013.
[20] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:150:0012:0031:EN:PDF

		will have thermal discharge inputs.	plan for disposal of PCBs; and eliminate or restrict the production and use of persistent organic pollutants [POPs]). However, human activities are the most likely cause of the re-release of these chemically stable chemicals into the environment or for introduction of other contaminants of which the impacts are poorly known. Any novel sources of potential contamination and/or activities likely to cause re-release of pollutants from stores associated with a new plan or project will be assessed under HRA both within and outside the site where there is the potential to impact upon site integrity. Current sources of exposure have to be identified and further efforts to limit or eliminate discharges to the marine environment may still be needed.
Shipping	Anthropogenic underwater sound	The ferry port in Holyhead on Anglesey is the only significant harbour affecting the site. Shipping routes cross the site serving Liverpool Bay and Dublin. There is the traffic separation scheme to the west of the site.	Harbour porpoise use sound for foraging, navigation, communication and predator detection. Underwater noise therefore has the potential to interrupt or affect these behaviours as well as cause hearing damage, particularly at short distances. The peak frequency of echolocation pulses produced by harbour porpoise is 120–130 kHz, corresponding to their peak hearing sensitivity although hearing occurs throughout the range of ~1 and 180 kHz (Southall *et al.,* 2007). The underwater sounds created by large ships are unlikely to cause physical trauma, but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance). However, additional management is unlikely to be required based on current levels of activity. Significant increases in vessel traffic, for example as may be associated with large-scale marine developments in the area,would be routinely assessed in HRA.
Oil and gas drilling		Licensed areas for oil and gas extraction are not currently present in the site.	No management required, other than HRA of any plans/projects that may come forward.
Pile driving		Proposed harbour/breakwater construction likely to utilise impact piling. Other marine developments, eg tidal stream and offshore wind, may utilise	A European Protected Species (EPS) licence may be needed for any construction activity which carries the risk of significant disturbance or deliberate injury to cetaceans.

		impact piling during installation of turbine foundations. The Crown Estate Potential New Leasing Round (2019) for offshore wind may propose leasing regions that overlap or are adjacent to the North Anglesey Marine SAC: Irish Sea (Region 17), Anglesey (Region 15) and North Wales (Region 16)	Developers are advised to follow the 'Statutory Nature Conservation Agency protocol for minimising the risk of injury to marine mammals from piling noise''[21]. A Habitats Regulations Assessment (HRA) is required for any development that might affect site integrity. If mitigation additional to the standard SNCB protocols (as above) is required as a result of environmental assessments (e.g. noise abatement techniques, Acoustic Deterrent Devices), planning and management of pile driving activities and mitigation will be needed within the site to ensure the Conservation Objectives are met. Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs.
Dredging and disposal		Maintenance dredging occurs at ports. The Holyhead North disposal site (ISO43) is within/close to the site and planned dredging and disposal activities are likely for Wylfa power station.	Dredging and disposal can cause disturbance leading to changes in harbour porpoise behaviour as well as changes to their habitat and prey. There is also potential for resuspension of pollutants from the sediment. The risk from single plans/projects may be considered relatively low but is assessed through HRA. However, there is currently considerable uncertainty regarding effects on habitat and prey. New dredge and disposal projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA.
Aggregate extraction		Limited aggregate resource within the site.	Aggregate extraction can cause disturbance leading to changes to harbour porpoise behaviour as well as to their habitat and prey. However, the risk is considered relatively low for single plans/projects and additional management is unlikely to be required. New aggregate extraction projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA.

21 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50006/jncc-pprotocol.pdf

Geophysical surveys (including seismic)		Commercial seismic activity is currently of a low level in the site, although large-scale surveys have covered areas within the site boundary in the past. Some acoustic surveys are carried out in relation to marina works. Commercial and research based acoustic seabed surveys using multibeam and/or sidescan sonar occur in parts of the site.	Some geophysical surveys that may affect the integrity of the site may require consent and be subject to HRA. Each case needs to be assessed individually, and the *JNCC Guidelines for minimising the risk of injury to marine mammals from geophysical surveys* (updated August 2017[22]) are available online. Within the guidance, seismic survey is defined as *'Any geophysical survey that uses airguns to generate sound which is sent into the seabed and the reflected energy is recorded and processed to produce images of the geological strata below; described as 2D, 3D and 4D and includes any similar techniques that use airguns.'* It is currently not known whether sub-bottom profilers cause disturbance to harbour porpoise. Further research is needed to understand the sound propagation and effect ranges from these types of equipment. Cumulative impacts of geophysical surveys will need to be considered Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs.
Recreational boating activity		Royal Yachting Association (RYA) cruising routes present around the coast of Anglesey.	Adherence to wildlife codes of conduct is already advocated: WiSe scheme; SeaWatch code of conduct; ZSL code of conduct; The RYA good practice guide - The Green Wildlife Guide for Boaters; Wild Seas Wales; Anglesey and Conwy Marine codes. UK SNCBs are looking at the option of developing an overarching wildlife watching code of conduct to sit alongside the Scottish code.
Acoustic deterrent/mitigation devices		Negligible or not currently present.	Management/assessment would be required for use of devices in the site since they introduce noise to the environment and are designed to disturb marine mammals.
Pinger devices		Some UK and EU registered >12m vessels may be using	See 'Fisheries (commercial and recreational) with harbour porpoise bycatch'.

[22] http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismicsurvey_apr2017.pdf.

		gillnets in the site. Use of pinger devices is unknown.	The use of pingers is required for the >12m sector. However, because vessels <12m are the greatest component of the UK gillnetting fleet, most bycatch occurs in this sector. Effort by <12m of the fleet in the site is currently considered low and, therefore, risk of bycatch is likely to be negligeable. The need for further management will need to be fully assessed based on local fisheries data but it is currently considered unlikely that further measures will be required. If further measures were deemed necessary, one option for management could be to extend the pinger requirement to vessels deploying static nets within site boundaries. However, the impact of potential disturbance as a result of pinger use in the site may need to be assessed and the potential for other mitigation options such as alternative gear types or gear modifications considered.
Military activity		Although no active MOD areas are located within the site, MOD can operate anywhere in UK waters.	Activities take place under Range Standing Orders, command guidance and environmental risk management tools, which include measures to reduce the risk of killing, injury and disturbance of marine mammals (for example live firing trials are subject to confirmation that marine mammals are not present in the vicinity of targets). No further management is considered necessary as the MOD, which are a Competent Authority, incorporates the SACs into their assessments via their MOD Environmental Protection Guidelines (Maritime) and Marine Environment and Sustainability Assessment Tool (MESAT)[23].
Unexploded ordnance (UXOs)		Unknown whether they exist in the site. However, unexploded ordnance from WWII can be found in many areas of UK seas. Projects that could inadvertently explode UXOs must undertake a survey to search for possibly ordnance ahead of the project commencing. Any ordnance found must be exploded on	Although the removal (detonation) of unexploded ordnance (UXOs) is short term, the noise is significant and can cause injury or death to harbour porpoise. A HRA may be required. A European Protected Species licence may also be required. Mitigation is usually required to reduce risk of injury and killing. As a minimum, the JNCC guidelines for minimising the risk of disturbance and injury to marine mammals whilst using explosives are applied. A combination of Marine

[23] http://www.royalnavy.mod.uk/-/media/royal-navy-responsive/documents/useful-resources/environmental-protection/environmental-protection-guidelines-maritime-v21.pdf?la=en-gb

		site, or removed for health and safety reasons.	Mammal Observers (MMO)s, Acoustic Deterrent Devices (ADD) and occasionally scare charges are used to ensure harbour porpoise and other marine mammals are a sufficient distance from the explosion to prevent death or injury. Discussions are ongoing between industry, regulators and SNCBs on the most appropriate suite of mitigation measures for UXO clearance (including the possible use of bubble curtains). This will depend on the size of UXOs likely to be encountered and the practicality of deployment of the mitigation measure, amongst other factors.
Shipping	Death or injury by collision	The ferry port in Holyhead on Anglesey is the only significant harbour affecting the site. Shipping routes cross the site serving Liverpool Bay and Dublin.	Post mortem investigations of stranded harbour porpoise (Deaville and Jepson, 2011; Deaville 2011:2017) have revealed some deaths caused by trauma (potentially linked with vessel strikes). However, this is not currently considered a significant risk and no additional management is likely to be required.
Recreational boating activity		Sailing and racing routes focussed around the coastal areas, with cruising routes throughout the site.	See 'Shipping' (with death or injury by collision) above. Boats conducting recreational activity should adhere to wildlife codes of conduct to avoid risk of collision (see 'recreational boating activity' with regards to underwater noise).
Wet renewable energy installations		A variety of wet renewable development projects have been and are proposed within the site, including in the West Anglesey Demonstration zone for tidal energy.	New tidal range, tidal stream and wave projects would be subject to HRA. Additionally, an EPS licence might be suitable if there is a residual risk of significant disturbance or injury. Any consented, but not yet built, tidal stream and tidal range developments likely to impact the SAC will likely undergo a review of consent. Animal detection systems, e.g. active and passive acoustics, are used to monitor animal presence and behaviour around devices for consented projects. These systems might be used to establish any probable collisions and invoke adaptive management decisions. In addition, the use of ADDs is a possible mitigation tool to exclude animals from the vicinity of devices Potential future mitigation related to death or injury by collision will be based on new and emerging research and evidence.

Commercial fisheries (and recreational set nets)	Removal of target (prey) species	UK and EU Fisheries targeting prey species such as whiting, herring, mackerel, sandeel and sprat are present in the Celtic and Irish Seas. However, pelagic fishing effort is low within the site. The majority of the Welsh fleet are vessels <10m length i.e. small scale. Most fisheries within the site are demersal and target shellfish, but there are some vessels that use static nets but fishing effort is considered to be low.	Currently, most commercial species are managed at scales relevant for stock management via the Common Fisheries Policy (CFP), not at the site level. Some species, however, are caught and sold commercially but do not have a Total Allowable Catch (TAC) for the Irish Sea area e.g sandeel, gurnard or stocks are not managed under the CFP eg flounder, black bream. Harbour porpoise diet within UK waters includes a wide variety of fish and they will generally focus on the most abundant local species (De Pierrepont *et al* 2005; Camphuysen *et al* 2006). The predominant prey type in the UK appears to be whiting, gobies and sandeel, although shoaling fish such as mackerel and herring are also taken. Harbour porpoise diets overlap extensively with diets of other piscivorous marine predators (notably seals) and many of the main prey species are also taken by commercial fisheries, although porpoise tend to take smaller fish than those targeted by fisheries (Santos and Pierce 2003). The overlap between commercial fisheries and harbour porpoise prey is unknown within the site. Further research is required to establish whether any management would be required.

6.2 Limitations of the evidence

It is important to note that the information used to catalogue activities/operations occurring within the site is not complete. The available data are drawn from existing monitoring programmes (e.g. the UK's Bycatch Monitoring Scheme for Protected Species and other European datasets linked to VMS monitoring of fishing vessels) but these have limitations, including availability and accessibility of data at the time of preparing this advice. Caveats with how the data have been collected also need to be understood to correctly interpret the information. This has resulted in the use of expert judgement where sufficient evidence is lacking but risk is implied. Below are some points to consider alongside the above table to ensure the information is not taken out of context:

- **Data availability**
    - Globally, the marine environment, particularly in offshore areas, is generally far behind the evidence levels for the terrestrial environment, mainly due to scale and difficulty/cost of data acquisition.
    - There can be sensitivities surrounding data that have been gathered by industry, and some data are not available for use for advice and management purposes. Often these data become available eventually, but not in time to inform management decisions.

- **Fishing: Limitations of fishing Vessel Monitoring System (VMS) data**
    - VMS positional data are transmitted at approximately 2 hour intervals. There is no information transmitted regarding precise vessel activity, therefore assumptions about activity, based on logbook returns and vessel speed profile, are often made.
    - Vessel positional data (VMS) cannot inform regulators regarding extent of static gear deployment or soak times.
    - Fishing vessels under 12m long, (and from 2009 until 2013, vessels under 15m long) are not required to use the VMS.. However, local information can be obtained from fisheries management authorities and will be used to develop more detailed guidance to assist with identification of any management measures where considered necessary.
    - In Wales, the Scallop fishing fleet (mostly <12m long) have vessel tracking devices (Succorfish). There is no evidence of harbour porpoise bycatch associated with this fleet.

- **Contaminants**
    - Although use of many of the relevant substances (e.g. PCBs) has been heavily regulated for many years, including a ban on further production, re-suspension or reintroduction of pollutants may occur. It is difficult to identify sources of contamination when dealing with highly mobile species.

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8 Annex A: Assessment of the level of impact risk from operations (activities) on UK harbour porpoise populations

The relative level of risk of impact to harbour porpoise from a range of pressures was assessed at UK level (Table A1) as part of the 3rd reporting round for Article 17[24].See Annex B for the definitions of pressures as used for the harbour porpoise assessments. For the assessment the relative importance of the pressure was assessed by considering the evidence available of an impact and the nature of that impact (direct/indirect) together with the area over which the pressure is acting in UK waters in relation to the species distribution. The relative levels are assigned according to the Artcile 17 guidance (Evans and Marvela, 2013) as:

Code	Meaning	Comment
H	High importance/impact	Important direct or immediate influence and/or acting over large areas
M	Medium importance/impact	Medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally
L	Low importance/impact	Low direct or immediate influence, indirect influence and/or active over small part of the area/acting only regionally

Table A1 Full assessment of level of the impact risk from operations (activities) on harbour porpoise in UK waters based on considerations for Article 17 assessment for harbour porpoise conservation status[25].

Operations	**Pressures**	**Impacts**	**Relative level of risk of impact**	**Evidence**		**Key references**
				Spatial overlap (species & pressure)	**Post-mortem examination**	
Commercial fisheries with bycatch (predominantly static nets)	Removal of non-target species	• Mortality through entanglement/ bycatch	High	✓	✓	Deaville and Jepson, 2011; Morizur *et al* 1999; Read *et al* 2006; Northridge and Kingston 2010; Northridge *et al* 2016; ICES 2015b
Discharge/run-off from land-fill, terrestrial and offshore industries	Contaminants	• Effects on water and prey quality • Bioaccumulation through contaminated prey ingestion	High		✓	Jepson *et al* 2005; Jepson *et al* 2016; Deaville & Jepson, 2011; ICES, 2015a; Van De Vijver *et al* 2003; Law *et al* 2012; Pierce *et al* 2008; Murphy *et al* 2015.

[24] http://jncc.defra.gov.uk/page-6564

[25] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

		• Health issues (e.g. on reproduction)				
Noise from shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity	Anthropogenic underwater sound	• Mortality • Internal injury • Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising) • Habitat change/loss	Medium	✓		Deaville & Jepson, 2011; Stone & Tasker, 2006; Stone, 2015; Jepson *et al* 2005; Fernandez *et al* 2005; Würsig & Richardson, 2009; WGMME, 2012.
Shipping, recreational boating, renewable energy installations	Death or injury by collision	• Mortality • Injury	Medium/ Low	✓	✓	Deaville & Jepson, 2011; Dolman *et al* 2006; ICES 2015a
Commercial fisheries, bycatch	Removal of target species	• Reduction in food availability • Increased competition from other species • Displacement from natural range • Habitat change/loss	Medium		✓	Simmonds and Isaac, 2007; OSPAR QSR 2010; MacLeod *et al* 2007a, b; Thompson *et al* 2007; Santos and Pierce, 2003; Pierce *et al* 2007; ICES 2015b
Agriculture, aquaculture, sewage	Nutrient enrichment	• Effects on water quality • Increased risk of algal blooms may present health issues • Habitat change/loss	Low	✓	✓	Craig *et al* 2013
Agriculture, aquaculture, sewage	Organic enrichment	• Effects on water quality • Increased risk of algal blooms may present health issues • Habitat change/loss	Low	✓		Craig *et al* 2013
Waste disposal - navigational dredging (capital, maintenance)	Physical change (to another seabed type)	• Changes in availability of prey species • Habitat change/loss	Low			
Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Water flow (tidal current) changes - local	• Changes in location of prey species • Displacement of harbour porpoise • Habitat change/loss	Low			

Terrestrial and at-sea 'disposal'	Litter	• Mortality through entanglement • Ingestion	Low	✓	✓	Deaville and Jepson, 2011
Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Barrier to species movement	• Habitat inaccessible • Potential physiological effects • Habitat change/loss	Low	✓		WGMME., 2012; ICES 2015a
Sewage	Introduction of microbial pathogens	• Increased risk of disease	Low		✓	Harvell *et al* 1999; Gulland and Hall, 2007; Van Bressem *et al* 2009

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9 Annex B: Definitions of Pressures as applied within harbour porpoise SAC Advice on Operations

Pressures	Definition in the context of harbour porpoise advice
Removal of non-target species	The removal of species not targeted by the fishery; in this case the bycatch (and probable mortality) of harbour porpoise
Contaminants	Introduced material capable of contaminating harbour porpoise, prey or habitat important to harbour porpoise, with a negative impact directly or indirectly on porpoises
Anthropogenic underwater sound	Introduced noise with the potential to cause injury, stress, or distrubance of harbour porpoise
Death or injury by collision	Introduction of physical objects; mobile or immobile, that may collide with or result in potential collision of harbour porpoise resulting in injury or mortality
Removal of target species	Removal of harbour porpoise prey, resulting in increased competition amongst porpoise and other species, and/or displacement from their natural range