

Marine cabling activities in Wales: information to support environmental assessment

Guidance note

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What is this document about?

This guidance has been produced by Natural Resources Wales (NRW) to provide information to developers about what to include in environmental assessments of cabling infrastructure in Welsh inshore waters (<12 nautical miles). The document provides an overview of the key environmental implications of cabling activity in Wales.

The guidance is not exhaustive and does not replace the need for detailed project-level assessments because these will be needed to take account of case specific information. It also does not take the place of the dialogue that will be needed with NRW marine licensing or advisory teams and is not a substitute for any statutory consultation on the scope of assessments that may be required by legislation.

Some effects can only be addressed by considering project design and location at an early stage. It is recommended that developers engage with NRW at the start of project planning to ensure that significant environmental effects and consenting risks can be understood and minimised.

NRW has published generic guidance on [Scoping and Preparing an Environmental Impact Assessment for Marine Development](#) and detailed guidance on more [technical matters](#) and the marine legislation and policy that is relevant to offshore renewables, in an annex to this document. Wherever possible this document avoids duplication of that guidance by focusing on additional information that is specifically relevant to the assessment of cabling. This guidance should therefore be read in conjunction with our generic and technical guidance that is signposted throughout this document.

The guidance is divided into three parts. Part A provides an introduction to the guidance and the assessment of cabling activities. Part B provides information to assist with the assessment of the implications of a project for environmental receptors. Part C provides guidance on the implications of cabling for other functions and uses of the marine environment that NRW advises on. **The three parts of the guidance are complementary and should be read together to ensure a full understanding of assessment requirements.**

This guidance is provided by the advisory arm of NRW and is without prejudice to advice NRW may give in response to consultation on an individual development, or decisions NRW may take in the determination of permissions that cabling may require, such as a marine licence. The guidance does not cover the marine licensing process.

Before contacting us, we advise that you review the information and guidance available on our website. You can contact the following teams for further information about the service and advice we are able to provide:

- [Development Planning and Marine Service](#) for advice from NRW as a consultee.
- [Marine Licensing Team](#) for advice about applying for a marine licence.

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To report technical issues with this guidance contact
guidance.development@cyfoethnaturiolcymru.gov.uk

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Part A: General information

A.1. Purpose and scope

The purpose of this document is to provide guidance to inform environmental assessments that are required to accompany licence applications for cabling by describing the receptors most likely to be affected by cabling and which represent the greatest environmental consenting risk.

This guidance is relevant to all cabling activities associated with offshore developments and transmission activities including cabling from energy generation developments as well as interconnector and telecommunications cables. This includes cables that are deployed in Welsh inshore waters and connect to grid infrastructure at the coast as well as cables that pass through Welsh inshore waters without making landfall.

The guidance provided is not exhaustive and the effects will ultimately be dependent upon the nature, location and timing of cabling activities. Impacts from cabling will depend on a number of factors including the type of cable being installed (e.g. telecommunication or power), location, environmental conditions (e.g. substrate type, water depth), receptor sensitivity and the potential for effects to act cumulatively and in-combination with other activities. The document sets out the main pressure and impact pathways for each receptor group. Not all pressures will apply to each type of installation and pressures may differ between installation, operational and decommissioning phases. The developer must therefore assess impacts based on those relevant to the activity being undertaken.

This guidance document does not cover the following topics:

- grid connection agreements and associated legislation
- guidance on NRW's [marine licensing](#) or [species licensing](#) procedures
- the environmental implications of sourcing construction materials (such as rock armouring) or waste handling

- specific advice on in-combination and cumulative effects
- the implications for commercial fisheries, except salmonid, eel and cockle fisheries managed by NRW
- guidance on matters that are within NRW's range of responsibilities but fall outside statutory responsibilities as a consultee (such as commercial land management)
- guidance that would be provided by other consultees such as on local nature reserves, tourism and recreation, Registered Historic Landscapes or effects upon other users of the marine environment (such as shipping, ports, energy generation etc)
- terrestrial considerations for onshore transmission, including protected sites that are not part of existing MPAs (e.g. Ramsar, SSSI)

This guidance identifies the following environmental receptors that NRW consider are most likely to be affected by cabling activity:

- physical processes
- subtidal, intertidal, coastal and benthic habitats and species
- marine and coastal birds
- marine mammals
- fish
- water quality
- landscape and seascape

We also summarise the potential implications for other relevant uses and functions of the marine environment that fall within NRW's responsibilities:

- freshwater and migratory fisheries regulated by NRW
- cockle fisheries managed by NRW under regulating orders (Burry Inlet until June 2025, Dee Estuary)
- management of safe navigation in the Dee estuary (the Dee Conservancy)

The pressures and impacts described in Part B will apply to varying degrees during construction, operation, maintenance and decommissioning. [Table 1](#) describes how the pressures apply at each development stage for each receptor.

The assessment of marine and coastal cabling activities on the seabed or connection at the coast are not typically required to consider the implications of new or reinforced grid infrastructure for onward transmission beyond initial grid connection at the coast. However, it is important to recognise that grid connection may only be possible some way inland from the landfall point. For this reason, this guidance includes some limited explanation of terrestrial receptors but developers are encouraged to contact NRW's Development Planning Advisory Service for more detailed advice at the earliest possible stage.

This guidance does not address in-combination or cumulative effects because they can only be meaningfully considered when the locations and individual effects of projects are known. You can find out more about the assessment of in-combination and cumulative effects [in our guidance on what to include in your marine development scoping report for EIA](#).

A summary of [NRW's roles and responsibilities](#) with respect to consenting and assessment of marine infrastructure and the legislation and policy that governs it can be found on our website.

A.2. Summary of key considerations

Main environmental implications

Cabling involves a wide range of activities that can exert pressure on the marine environment, including but not limited to:

- seabed surveys (e.g. benthic and seismic)
- cable laying and associated activities
- cable protection
- disturbance of the seabed during cable maintenance
- issues related to electromagnetic fields (EMF, including heat production) during operation

Typically, the most likely effects of cabling activity are:

- loss or alteration of marine or benthic habitats
- impacts on electrosensitive species
- changes to the physical environment and consequent implications for protected habitats and species

Effects may occur across boundaries and jurisdictions and may act in combination with the effects of other developments and activities. There is often interdependency between marine receptors, for example effects on fish or water quality, may have consequences for other receptors such as birds or marine mammals.

Mitigation

The Welsh National Marine Plan includes policies to protect the resilience of marine ecosystems:

Policy ENV_01: Resilient marine ecosystems Proposals should demonstrate how potential impacts on marine ecosystems have been taken into consideration and should, in order of preference: a. avoid adverse impacts; and/or b. minimise impacts where they cannot be avoided; and/or c. mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Proposals that contribute to the protection, restoration and/or enhancement of marine ecosystems are encouraged

Avoidance of adverse effects is the most desirable outcome. Where avoidance is not possible effects should be minimised. Where it is not possible to avoid or minimise the effects, mitigation will be required. Mitigation requirements will need to be identified for each project but would typically include:

- cable routing to avoid sensitive receptors
- cable burial (where appropriate) to increase the distance between cabling and sensitive receptors
- only carrying out works at times of least disruption to receptors, according to timings of migration, spawning, etc.
- using best-available cable-laying and protection technologies to reduce disruption to ecosystems.

Trans European Energy Networks ('The TEN-E Regulations')

The TEN-E Regulations for trans-European energy infrastructure EU 347/2013 (TEN-E Regulation) lay down rules for the timely development and interoperability of energy networks in European Union Member States and the European Economic Area. The TEN-E Regulations set out [guidelines](#) for streamlining the permitting processes for major energy infrastructure projects that contribute to European energy networks. The TEN-E Regulations will be relevant for some electricity interconnectors known as [Projects of Common Interest](#).

Planning for cabling activity

The [Welsh National Marine Plan](#) (WNMP) and [Planning policy Wales](#) contain sectoral and general environmental policies that guide cable infrastructure deployment activities and their assessment.

The WNMP contains a policy on marine cabling, CAB-01, with the objective “to support the optimal distribution of electricity and better global communications through the growth of digital communication networks”. Further information can be found in [the WNMP implementation guidance](#) (Section 3.1.8.) and in the [Welsh National Marine Plan \(gov.wales\)](#) (Sections 439 – 457). Welsh Government have also produced [guidance on the safeguarding policy for subsea cabling](#).

[Planning Policy Wales 12](#) (Chapter 6.4.24) places obligations on planning authorities to avoid development in SSSI's.

The [Offshore Transmission Network Review](#) (OTNR) is a strategic review of the design and delivery of the on- and offshore transmission network needed to achieve the ambition of net zero by 2050. The OTNR's recommendations can be found in the [Holistic Network Design](#) (HND) and HND Follow Up Exercise (HND FUE) (for the [Celtic Sea](#) and [Scotwind](#)). We encourage decisions about cable routing to follow the recommendations of the HND and HND FUE that encourage the coordination of cabling activity to reduce cost, environmental impacts and consenting risk.

A3. Information sources and other guidance

It may also be worth referring to cabling-specific guidance that is already available, including:

- [Natural Resources Wales, Sensitivity of marine ecology receptors to cabling activities in Wales](#) developed for The Crown Estate to inform potential siting of cabling infrastructure associated with offshore wind farm developments in Wales within Offshore Wind Leasing Round 4
- Natural England - JNCC advice on key sensitivities, habitats and MPAs for offshore cabling
- Natural England advice on operations also provides a detailed assessment of the feature/sub-feature or supporting habitat sensitivity to pressures associated with cabling and other marine activities
- JNCC Pressures-Activities Database (PAD)
- the Renewables Grid Initiative report on “Subsea Cable Interactions with the Marine Environment” (RGI_Subsea_cables_report.pdf (renewables-grid.eu))

- TCE's "review of cable installation, protection, mitigation and habitat recoverability" in support of the Plan Level Habitats Regulations Assessment for Offshore Wind Leasing Round 4. The Crown Estate's "Cable Route Protocol" for offshore wind developments that contains specific requirements for managing the export cable planning process to help avoid adverse effects on the integrity of Habitats Regulations sites.

The following sources provide general information that may be helpful when designing assessments of cabling activity:

- The [Marine Data Exchange and the Wales and Marine Planning Portal](#) for information on available evidence and spatial information about potential constraints
- Generic advice on the assessment of marine development is available on NRW's [marine development web page](#).
- Information about the [scope of an EIA](#) for marine development available on NRW's website. This includes explanation of related assessments, such as HRA and WFD Compliance Assessments.
- NRW guidance on assessing [impacts of development](#) and [guidance on marine ecological datasets](#) that show the known distributions of sensitive receptors.
- Interactive maps and spatial data about the environment of Wales, including the location of designated sites and some sensitive receptors available on the Welsh Government data portal: [Home | DataMapWales \(gov.wales\)](#).
- Practical advice about the ecological assessment of development in [Guidelines for Ecological Impact Assessment](#) published by the Chartered Institute of Ecology and Environmental Management.
- UK Governments [Offshore Energy Strategic Environmental Assessment pages and The Crown Estate's leasing plans for marine and seabed activities](#)
- Topic-specific Information [Notes](#) published by Welsh Government on the current state of science and evidence that underpins the assessment of selected matters relevant to energy and cabling activity in Wales.
- [NRW's Marine and coastal physical processes assessments](#) guidance is on our website

Part B. Implications for key receptors

B.1. General pressures and impacts

Cabling activity can have impacts on the marine environment, for example by ploughing and jetting, trenching, excavation and extraction of materials, laying of cables, seismic surveys etc. These can exert a range of pressures such as:

- habitat loss or change
- disturbance of electrosensitive species
- changes to physical processes
- changes to sediment and sediment distribution
- changes to distribution and behaviour of species and populations
- changes to water quality and sediment quality
- changes to landscape and seascape

Cabling activity can have indirect impacts on receptors by changing aspects of the environment, such as habitat or physical, that receptors rely on.

Cabling can also have effects on other uses of the marine environment that NRW has responsibilities for, for example, some fisheries, navigation and the Dee Conservancy.

The following sections provide guidance on the receptors that may be affected by cabling activity. However, these may vary depending on the nature, location and timing of individual project activities and will need to be determined on a case-by-case basis. For some receptors it may not be possible to discount impacts because there is insufficient data about their distribution. NRW encourages early discussion to determine which receptors will be relevant to individual projects and the data required for assessments.

The pressures on biodiversity identified in this section are largely drawn from established pressure matrices available from [MarLIN - The Marine Life Information Network - MarESA pressures and benchmarks](#) supplemented by additional pressures based on NRW technical advice. For non-biodiversity receptors the pressures have been compiled based entirely on NRW technical advice. Table 1 summarises how each pressure category can affect marine receptors. A more detailed breakdown of the pressures that apply to individual features are provided in the receptor chapters.

Assessments should consider the 'reasonable worst case' scenario where there is doubt about the details of cabling methodology.

A 'zone of influence' for the cabling activity will need to be calculated which describes the area affected by the project and enables the environmental assessment to establish what physical features or other receptors may be affected. There is a detailed list of questions to consider to help assess the impacts of cabling activity on the physical environment in Section 5.9 of the NRW evidence report [Guidance on best practice for marine and coastal physical processes baseline survey and monitoring requirements to inform EIA of major development projects \(PDF\)](#).

Table 1: Pressures and impacts of cabling activities on marine and coastal receptors

Pressure	Benthic	Coastal	Physical Processes	Fish	Birds	Mammals	Water Quality	Landscape & Seascape
Habitat loss or change	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	n/a
Changes to physical processes	Direct, indirect	Direct, indirect	Direct	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	n/a
Changes to sediment and sediment distribution	Direct, indirect	Direct, indirect	Direct, indirect	Direct, indirect	n/a	Direct, indirect	Direct, indirect	n/a
Changes to distribution and behaviour of species and populations	Direct, indirect	Direct, indirect	n/a	Direct, indirect	Direct, indirect	Direct, indirect	n/a	n/a
Changes to water quality	Direct, indirect	Direct, indirect	n/a	Direct, indirect	Direct, indirect	Direct, indirect	Direct	n/a
Changes to physical presence, noise, traffic, related human activity & views	n/a	Direct	n/a	n/a	n/a	n/a	n/a	Direct, indirect
EMF	Direct	Direct, indirect	n/a	Direct	Indirect	Indirect	n/a	n/a

B.2. Physical processes

Receptor characterisation

'Physical processes' refers to the nature and behaviour of the waves, tides, sediment and seabed in the vicinity of a cable route. It involves the following topics and their interaction:

- hydrodynamics (waves, tidal currents, water levels and stratification)
- geology, sediments and sediment transport
- the shape of the coast (topography) and seabed (bathymetry), often termed morphology, and their variation in time (termed morphodynamics)

Changes to physical processes that occur during cable construction, operation, maintenance and decommissioning can cause a direct impact on a physical receptor (e.g. change sandbank morphology) or can be a pathway to impact on other receptors (i.e. an indirect effect).

Potential changes to the physical marine environment from cabling fall into three main categories:

- 'sediment disturbance'
- 'blockage' related change
- bed level change

Cabling can exert pressure on the marine environment by:

- mobilising sediment
- changing suspended sediment concentrations (creating sediment plumes)
- changing bed level and habitat type due to settling sediment
- changing wave, current/flow and sediment transport regimes (including scour and turbulence)
- seabed changes affecting wave propagation, currents and sediment transport

Receptors likely to be indirectly affected include marine and coastal habitats and species, water quality, beach amenity and landscape. Many of these receptors will be subject to legal protection, for example as features of marine protected areas. Indirect pressures on other habitats and species are primarily caused by:

- sediment resuspension leading to turbidity and remobilisation of contaminants
- alteration of seabed sediment characteristics, affecting biodiversity that is reliant on specific sediment composition for feeding, shelter and reproduction

The magnitude of these changes will vary across the different stage of development, by cabling activity and will depend on site specific environmental conditions such as whether the activity is being undertaken in intertidal areas, the nearshore or further offshore.

NRW's guidance on [Marine physical processes and Environmental Impact Assessment \(EIA\)](#) provides more information.

Receptor specific information to guide assessment

Sediment disturbance related change

Sediment disturbance related change largely occurs in the construction and decommissioning phases where there can be short-term, large-scale disturbance. Seabed preparation, cable laying, drilling and deployment of cable protection can all mobilise sediment into the water column which is then transported with the tide creating suspended sediment plumes. Sediment type (grain size distribution and sorting) of this mobilised sediment, how much sediment will be mobilised and how far and where the sediment will travel before being deposited will need to be assessed. The deposited sediment may change the composition (grain size distribution) of the seabed sediment or accrete and change the bathymetry or smother benthic organisms. In some cases, particularly with very fine sediment, the sediment may persist in the water column for a long time. The assessment will need to consider whether an increase in turbidity has implications for other receptors. Remedial work during operation may also cause sediment disturbance and a realistic worst-case scenario for this aspect of your project should be assessed in your application.

Blockage related change

There are two main blockage related changes that need to be considered for cabling: scour and blockage of sediment transport. These effects are most important during the operation phase, but construction can also cause these changes. The changes are primarily linked to the presence of additional cable protection (e.g. rock armour or concrete mattresses). Construction activities (e.g. deployment of a coffer dam) may also cause blockage related change. Scour can be caused by the cable itself if burial depth is not sufficient and free spans of cable between migrating bedforms emerge.

Sediment scouring is dependent upon the cable laying process, the requirement for rock protection, sediment properties, hydrodynamic forcing (tidal currents or waves) and the water depth. Water depth will affect the relative importance of wave and tidal driven currents and change the shape and magnitude of the scour pits.

Where scour is expected, scour protection is often used, this can result in adjacent secondary scour. Rates of secondary scour are typically low and localised but can be higher in shallower water due to wave effects. Fine gravel filter layers or anti scour aprons can be effective mitigation.

Depending on the original nature of the sediment, scour protection will alter the substrate type, and cause physical loss of benthic habitats and / or changes in benthic community structure and function.

The other aspect to consider is blockage of sediment: where a cable is laid on the seafloor, crosses another cable or is exposed following burial, external protection is normally installed. This can block the movement of sediment over the seafloor (bed-load transport) and behave like a groyne on a beach. This may change or interrupt sediment transport pathways. Selection of appropriate cable protection methods can help mitigate this, for example intermittent or low-profile protection can facilitate flow over the structure.

Bed level related change

Preparation of the seabed for cable burial during construction and maintenance phases can involve the clearing (removal) of sand wave features and other bedforms. Bedforms are intrinsically linked with bedload sediment transport and so removal or changes to their shape can alter sediment transport pathways and rates: this can have implications for the wider sedimentary system, including in the far-field. The assessment should provide evidence about bedform migration rates and the ability and timescales for any removed bedforms to recover their morphology. Implications of changes to sediment transport on the regional sediment budget should also be considered.

When considering the cable laying strategy, seabed variability should be assessed to determine suitable cable burial depth. The depth at which sediment is undisturbed will need to be evidenced to demonstrate that cables will not become exposed and require remedial action in the form of cable protection. This often depends on bedform migration rates and the depth of the deepest bedform trough should be considered. In nearshore and intertidal areas especially, it is vital to include storm impacts when defining the 'envelope of change.'

In cases where sediment is removed before cable laying (e.g. via trenching), it should normally be deposited as close as possible to the removal site. If the sediment is moved further afield, the impact of this deficit on local and regional sediment budgets will need to be assessed. The [NRW position on sediment management](#) gives further information.

If it is possible that seabed preparation will impact other morphological features, the effect of this change on waves, tidal hydrodynamics and coastal morphodynamics will need to be established.

In shallow sub-tidal and intertidal areas, the height of external cable protection may be significant with respect to the total water depth and therefore consideration of changes to wave propagation and coastal currents must be made. Generally, any changes to bed level of 5% or more of the total water depth should be considered significant.

B.3. Biodiversity

Marine biodiversity is often protected by legislation. This is derived from European and, or national legislation and applies to species and habitats i) as named features within protected areas designated for their nature conservation importance or ii) habitats and species that are protected wherever they are located.

In terms of protected areas, this guidance focuses mostly on marine and coastal sites such as European Sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs) designated under the Conservations of Species and Habitats Regulations (hereafter 'Habitats Regulations'), and Ramsar Sites (Ramsar Convention) and Sites of Special Scientific Interest (SSSIs) ([Wildlife and Countryside Act 1981](#) (as amended)(WACA). There is also a single Marine Conservation Zone in Wales (Skomer) designated under the UK Marine and Coastal Access Act 2009 (MACA).

Under the MACA, SSSIs now legally form part of the marine protected area (MPA) network where they are considered to protect marine features. There are also SSSIs in Wales with marine features of interest that are designated MPAs. Consideration should be given to the potential implications of the recent policy changes around developments in SSSIs under [Planning Policy Wales 12](#) (Chapter 6.4.24).

In addition to protection as a feature of a designated site, some species are classified as a European Protected Species (EPS) under the Habitats Regulations or under Schedule 5 of the WACA. Assessments will need to consider potential implications for these species. Where it is not possible to avoid effects upon these species a licence may be required to avoid committing an offence under this legislation.

The habitats and species identified below are those we consider most at risk of being affected by cabling. For some receptor categories, it is possible to be confident that a particular species or habitat is very unlikely to be affected (for example benthic habitats such as sea caves or oceanic fish species, such as blue shark). For other receptor categories, these are less easily distinguished and where this is the case complete listings of those protected species are given.

[Section 7](#) of the Environment (Wales) Act (2016) requires Welsh Ministers to publish lists of species and habitats (hereafter Section 7 species and habitats) that are of particular significance to sustaining and improving the biodiversity in Wales and the implications for these species may need to be assessed.

Section 7 species in particular can be very widespread. Whether or not Section 7 species or habitats should be assessed will need to be considered on a case-by-case basis depending on the vulnerability, sensitivity and current condition of the species or habitat. This guidance does not address Section 7 species and habitats and applicants are advised to consult NRW about any assessment requirements.

Sources of data and information

Some information sources are specific to the receptor type, in which case they are described under *Sources of Data and Information* in the sections below. However, some sources provide information relevant to all biodiversity receptors and these are listed here to avoid unnecessary duplication.

Information about MPAs in Wales can be found on the [protected areas of land and seas](#) page of our website. '[Regulation 37](#)' advice provides management plans, conservation objectives and other advice associated with MPAs. NRW has also published [assessments of the condition of the features of MPAs in Wales](#). The [JNCC website](#) provides information about MPAs across the UK, including MPAs that are located further offshore.

An overview of the range of environmental protections and the legislation that underpins them can be found in our guidance on [what to include in your marine development scoping report for EIA](#). The protections vary by receptor type and so are also described in the Receptor Characterisation sections for each biodiversity receptor below. There is more information about species licensing in [our list of protected species](#).

NRW's '[mapping environmental considerations for marine planning](#)' webpage links to a series of maps describing potential biodiversity constraints for different sectors, including cabling.

The list of 'Section 7' species and habitats can be found on the [Wales Biodiversity Partnership website](#).

[A List of Threatened and/or Declining Species and Habitats](#) has been developed under the OSPAR Strategy for the Protection and Conservation of Ecosystems and Biological Diversity to ensure protection of biodiversity that is at risk. Some benthic habitats and species in Wales are listed as threatened or declining.

NRW has published guidance on the legal protection of [marine vertebrates](#) in Wales (cetaceans, seals, otter, turtles, Sturgeon and sharks) which includes information that will be helpful in undertaking assessments of these species.

NRW has also published information about the [marine ecology datasets that are most relevant to assessments of marine developments](#). This information should be consulted in the first instance to find out about the data that is already available and how to obtain it.

Many of the pressures identified for each of the biodiversity receptors have been derived from the [JNCC Pressures-Activities Database \(PAD\)](#) which should be consulted for a more detailed explanation of each receptor.

Intertidal and subtidal benthic habitats and species

Receptor characterisation

Benthic habitats typically comprise sessile or semi-sessile seabed species or physical features that support biodiversity. There are seven fully marine SACs in Wales that have been designated for habitat features including two cross border sites in the Dee and Severn Estuaries. There are four coastal SACs which have qualifying marine features, and two SACs and five SPAs in Wales where benthic habitats are supporting elements of the features of sites designated for mammal and birds.

Saltmarsh, invertebrates, rocky shore macroalgae, seagrass and some saline lagoons are also covered separately by the provisions of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. See the WFD section in [annex 1](#) for more information on how to assess for WFD. Under the WFD, the implications for the infaunal quality index must also be considered for all transitional water bodies.

The distribution of marine features is often unknown and additional survey may be required to understand the potential for impacts to occur.

Pressures and impacts

Cabling activity can exert the following pressures on benthic habitat:

- abrasion/disturbance/compaction of the surface substrate (seabed/Intertidal)
- changes in suspended solids (water clarity)
- smothering and siltation rate changes (heavy and light)
- habitat structure changes - removal of substratum (extraction)
- contamination by Hydrocarbons, PAH, metals and other synthetic compounds and substances (solid, liquid or gas)
- penetration, disturbance and abrasion of the substrate below the seabed surface
- physical change (to another seabed, substrate or sediment type)
- thermal radiation and temperature change
- changes in patterns of immersion and exposure
- physical loss (to land or freshwater habitat)
- water flow (tidal current) changes, including sediment transport considerations
- toxic contamination
- electromagnetic fields (EMF)

- introduction of non-native species (INNS)

Receptor specific Information to guide assessments

The overarching aim of the Habitats Regulations is to achieve favourable conservation status of Annex I habitats and its typical species, and this aim relates to the entire occurrence of a habitat type within its natural range rather than applying only to the occurrences within the SAC network. NRW therefore advises that assessments should also consider impacts on Annex I habitats outside of protected sites, to ensure compliance with the requirements of the Regulations, and any effects mitigated as far as possible.

Table 2 lists the Annex I habitat features that are sensitive to cabling within relevant SACs in Wales. Advice about cable routing should be sought from NRW at an early stage of project design if the feature cannot be avoided.

Table 2: The sensitivity of marine Annex I habitat features

Annex I feature	Sensitivity
Reefs (rocky, stony, subtidal biogenic, (including blue-mussel (<i>Mytilus edulis</i>) beds, horse-mussel (<i>Modiolus modiolus</i>) beds, honeycomb worm (<i>Sabellaria alveolata</i>) and ross worm (<i>Sabellaria spinulosa</i>) reefs))	Cabling through reef can cause permanent damage to the feature through loss and alteration of habitat, with limited ability to recover. Additionally, boulder clearance as preparation for cable installation can cause impacts on reef habitats. Whilst tolerant to a certain amount of smothering, biogenic reefs are highly sensitive to damage by abrasion and penetration (although if the area of impact is limited there is potential for some biogenic communities to reform over time). NRW advises that all bedrock reef areas should be avoided, especially where these are a feature of an SAC.
Estuaries	Estuaries are highly complex features and are closely associated with surrounding coastal and terrestrial habitats. Many of the habitats found within Estuary features are also Annex I features and/or features of SACs and are highly sensitive to disturbance and physical damage.
Large shallow inlets and bays (LSIBs)	LSIB features can cover large areas within our SACs and comprise different habitats of varying sensitivity to cabling. Like estuaries, they contain a mosaic of habitats and features that are protected.
Coastal lagoons	Scarce features in Wales with specialist communities that depend on specific physico-chemical parameters. NRW notes that cabling through lagoons is unlikely to be proposed and that impacts on these features can be avoided by route planning.
Mudflats and sandflats not covered by seawater at low tide	Comprise different biotopes with varying sensitivities to cabling. Cabling through this feature might be possible in some circumstances, subject to the chosen installation method, levels of impact and likely recovery, and provided

Annex I feature	Sensitivity
	the conservation objectives for the feature and site are not compromised.
Sea caves	Sea-caves are generally nested within the reef features of SACs. These features often contain specialised communities that would be highly sensitive to cabling.
Sandbanks	Sand-based sediment features are often able to recover from the impacts of cabling (with the exception of sand wave clearance) as long as cables can be buried to sufficient depth and that no additional protection is required. However, some sandbanks in Wales may contain communities that are sensitive to pressures associated with cabling and should be considered in assessments.
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) Salicornia and other annuals colonising mud and sand	Saltmarsh habitats are features of both marine and coastal SACs, as well as SSSIs in Wales. The sensitivity of saltmarsh habitats to cabling are discussed in the Coastal Habitats section.

NRW recommends that sensitivity assessments should use information provided by the [MarLIN MarESA data extract](#) as a starting point for identifying the sensitivity of individual biodiversity receptors to each pressure.

There is uncertainty about the sensitivity of some habitats to some pressures. Links to evidence used for biotope pressure/sensitivity assessments are provided by MarLIN as part of the [MarESA programme](#). Not all pressures have been assessed for all features and component biotopes and these evidence gaps are highlighted on the MarESA website. The assessments also use pressure benchmarks that may not be appropriate for the scale, duration and nature of a proposed activity, and should be evaluated accordingly.

Interactions with other receptors

The close functional relationship with the physical environment means that any alteration of physical processes is likely to affect benthic habitats (see section B2).

In particular, alterations to benthic habitats may have implications for:

- food and foraging
- spawning/mating
- juvenile life stages
- protection from predators.

Sources of data and information

NRW holds data layers describing the location of INNS that already occur in Wales. These can be obtained from NRW by completing an [online data request](#).

NRW has published guidance on [Benthic habitat assessments for marine developments](#) which gives details of the types of information and surveys required for impact assessments.

The PAD pressures list can be found at: [Marine evidence and sensitivity assessment - MarLIN - The Marine Life Information Network](#)).

Coastal habitats

Receptor characterisation

Coastal habitats are dynamic, influenced by coastal processes and characterised by maritime conditions. This gives rise to specialised and varied ecosystems, and the extent of maritime influence (tidal inundation or inputs of salt spray for example) is often reflected in distinct zones of vegetation. Coastline geology is a major influence on coastal habitats. Sand dune, saltmarsh and soft cliff habitat form on the mobile sediments of 'soft' coasts. More resistant hard coastlines support a range of maritime communities including crevice and ledge communities, maritime grassland and maritime heath.

Coastal habitats in Wales include:

- saltmarsh
- sand dune
- sea cliff which includes cliff top habitats, coastal grassland and coastal heathland
- shingle and strandline

There are 16 SACs in Wales that between them support 14 Annex I coastal habitat types. Coastal habitats provide supporting habitat for SPA bird features and are included within 4 RAMSAR sites. There are also numerous SSSIs around the Welsh coastline where coastal habitats are either qualifying or supporting SSSI features.

Sand dune, shingle, saltmarsh, and sea cliff are all included on the list of Section 7 habitats. Saltmarsh also qualifies as an OSPAR habitat and a WFD element.

The Annex I habitats (Table 2) also provide supporting habitat for Annex II species, [SPAs](#) and [RAMSAR](#) sites in some instances.

Pressures and impacts

The most significant pressures on coastal habitats from cabling activity include:

- abrasion/disturbance/compaction of the surface substrate,
- smothering, burial, or disturbance e.g. removal and replacement of turfs,
- changes to coastal processes including water flow (tidal current) and sediment transport,
- changes in suspended solids (water clarity), smothering and siltation rate changes potentially leading to habitat loss or change,
- disruption of soils / substratum potentially leading loss of habitat, vegetation and supported species.
- disturbance to hydrology / water table / channels / damage to dune aquifer.
- contamination by Hydrocarbons, PAH, metals, other synthetic compounds and substances (solid, liquid or gas)

- change in vegetation type due the changes in salt-spray inputs and light levels.
- damage to geomorphological landforms including those which may have a supporting role for other habitats, such as spits and shingle structures leading to habitat loss and disruption to coastal processes.
- introduction or spread of invasive non-native species, ‘ruderal’ or invasive native species.
- disturbance potentially leading loss of species reliant on coastal habitats.

These pressures can lead to physical habitat loss, changes to vegetation community distribution, structure and function and may also contribute to changes to physical processes. Habitat loss, change and disturbance could also impact the coastal species.

The [MarESA programme](#) provides an assessment of sensitivity but for saltmarsh only, and it is worth noting that some of the information is relatively old and may need to be reviewed before including it in an assessment.

Specific Information to guide assessments

Table 3 identifies which Annex I habitats (A,B or C grade features) are present in each SAC followed by a description of the relevant pressures. Cabling options may be very limited in some cases and early discussion with NRW about route choices or cabling methods is strongly recommended.

Table 3: SACs in Wales containing sensitive coastal Annex I habitat features

SAC	H1330 Atlantic salt meadow	H1310 Salicornia	H1420 Med. & thermo-Atlantic Scrubs	H2110 Embryonic shifting dunes	H2120 Shifting dunes with <i>Ammophila</i>	H2130 Fixed dune with herbaceous vegetation	H2190 Humid dune slacks	H2150 Atlantic decalcified fixed dunes	H2170 Dunes with <i>Salix repens</i>	H2130 Vegetated sea cliffs	H1210 Annual vegetation of drift lines	H1220 Perennial vegetation of stony banks
Dee Estuary	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No (England only)	Yes	No
Penrhyn Gogarth/ Great Orme	No	No	No	No	No	No	No	No	No	Yes	No	No
Cemlyn Bay	No	No	No	No	No	No	No	No	No	No	No	Yes
Glannau Ynys Gybi	No	No	No	No	No	No	No	No	No	Yes	No	No
Glannau Mon, Cors Heli	Yes	Yes	No	No	No	No	No	No	No	No	No	No

SAC	H1330 Atlantic salt meadow	H1310 Salicornia	H1420 Med. & thermo-Atlantic Scrubs	H2110 Embryonic shifting dunes	H2120 Shifting dunes with <i>Ammophila</i>	H2130 Fixed dune with herbaceous vegetation	H2190 Humid dune slacks	H2150 Atlantic decalcified fixed dunes	H2170 Dunes with <i>Salix repens</i>	H1230 Vegetated sea cliffs	H1210 Annual vegetation of drift lines	H1220 Perennial vegetation of stony banks
(Anglesey Coast)												
Y Twyni o Abermenai i Aberffraw	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Clogwyni Pen Llyn	No	No	No	No	No	No	No	No	No	Yes	No	No
Pen Llyn a'r Sarnau	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Morfa Harlech a Morfa Dyffryn	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
St David's	No	No	No	No	No	No	No	No	No	Yes	No	No
Limestone Coast of South Wales	No	No	No	No	No	Yes	No	No	No	Yes	No	No
Carmarthen Bay and Estuaries	Yes	Yes	No	No	No	No	No	No	No	No	No	No
Carmarthen Bay Dunes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Pembrokeshire Marine	Yes	No	No	No	No	No	No	No	No	No	No	No
Kenfig	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Severn Estuary	Yes	No	No	No	No	No	No	No	No	No	No	No

Note that Habitats H1420 and H2150 are not features of MPAs in Wales.

Saltmarsh (Annex I habitats: H1310, H1330 and H1420)

Saltmarsh usually occurs in dynamic association with mudflats and sandflats. It is characterised by salt tolerant plants which dominate the lower levels of the marsh,

gradually declining towards the landwards saltmarsh transitions. Evidence of the impacts of cabling through saltmarsh has shown that recovery has been inconsistent and is not certain. Impacts include compaction, loss of disturbed sediments and physical habitat loss. Therefore, NRW recommends that cabling through saltmarsh is avoided in the first instance.

Sand dunes (Annex I habitats: H2110, H2120, H2130, H2150, H2170 and H2190)

Sand dunes are dynamic habitat complexes which support a range of distinctive vegetation types, with vegetation communities being influenced by the degree of sand mobility, sand chemical composition and hydrology. Fixed dune grassland (H2130) and dune heath (H2150) are priority habitats under the Habitats Regulations. Embryonic shifting dunes are particularly vulnerable to cabling and penetration of the dune aquifer should be avoided. Effects of cabling on sand dunes include damage to and physical loss of vegetation, damage to dune aquifer, introduction of Invasive Non-Native Species (INNS) and ruderal species, increased risk of erosion and damage to geomorphological landforms. NRW recommends that cabling through dune systems is avoided to protect the integrity of the dune aquifer.

Shingle (Annex I habitats: H1210 and H1220)

Shingle systems can be vegetated and unvegetated, with vegetation forming only where the shingle system is sufficiently stable. The vegetation of shingle structure is influenced by substrate stability, the proportion of fine material within the shingle matrix and water availability. Vegetated shingle systems are often associated with other coastal and marine priority habitats such as saline lagoons (coastal lagoons), sand dunes, saltmarsh and mudflats. These functionally interdependent habitats frequently support transitional habitats which are often SSSI features. Potential pressures of cabling on shingle systems include damage to and physical loss of vegetation, disturbance to hydrology, loss of sediment, erosion and changes to geomorphological processes. NRW recommends that cabling through shingle systems is avoided.

Maritime Cliff and slopes (Annex I habitats: H1230)

Maritime cliff and slopes include habitats from the supralittoral zone through to the limit of coastal slope vegetation. Crevice and ledge vegetation is particularly sensitive to physical loss and disturbance associated with cable placement on cliff faces, due to the thin soils and very limited opportunity for habitat restoration. Coastal grassland and heathland are sensitive to physical loss due to damage from the installation of cables and associated structures such as draw pits and cable shoots, the use of heavy machinery and risk of introduction of INNS and other ruderal species. NRW therefore recommends that cabling through cliff and coastal slope habitats is avoided in the first instance. NRW recommends that cabling through soft cliff structures is avoided due to their dynamic nature and high rates of erosion.

Interactions with other receptors

Alterations to coastal physical processes can impact coastal habitats leading to habitat loss or change. For example, declines in sediment supply could cause loss of pioneer communities or erosion of dunes and changes to wave climate can impact the distribution of some coastal vegetation communities.

Coastal habitats are important for many species groups including lower plants, vascular plants, reptiles, amphibians, birds, invertebrates and mammals by providing foraging and

breeding habitat and resting places. The species which rely on coastal habitats may be scarce or declining and therefore particularly sensitive to coastal habitat loss or change.

Alterations to coastal habitats can also change the character and appearance of the landscape or seascape, for example by changing sand dunes to coastal grassland or salt marsh to mudflats.

Sources of data and information

Interactive map layers of Section 7 and OSPAR habitats and species are available to view on the [Welsh Government data portal: Datamap Wales](#) (individual habitat maps can also be downloaded). OSPAR habitat maps for the whole of Europe are available from the [European Marine Observation and Data Network \(EMODnet\)](#) using the seabed habitat and biology data portals.

Marine birds

Receptor characterisation

A wide range of bird species and assemblages are protected as features of SPAs and SSSIs in Wales. Impacts to bird populations that are not features of these sites may also need to be considered especially those listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). All wild birds, their nests and their eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended).

A number of marine and coastal birds are listed under Section 7 of the Environment Act (Wales) 2016.

Pressures and impacts

Key pressures include:

- loss of habitat
- disturbance (visual and noise)
- loss of prey species
- increased turbidity

These pressures can lead to direct effects (physical, visual or noise related disturbances) and indirect effects (loss or alteration of supporting habitat for bird species, and impacts to prey, such as fish, and prey habitat) leading to sub-optimal foraging and breeding and effects on roosting. These pressures can operate both at sea and at the coast.

Pressures and impacts need to be considered both temporally (short and long term) and spatially to account for life cycle and behavioural patterns.

Specific Information to guide assessments.

Birds most likely to be affected include wintering waterbirds and waders in estuaries, breeding seabirds at the coast and wintering sea ducks and divers in shallow bays.

SPAs and SSSIs close to development are most likely to be affected including at the coast where there may be disturbance of roosting birds in estuaries and of nesting birds in low lying coastal areas. Direct loss of habitat in estuaries can also affect foraging and roosting. Estuarine birds rely on nearby estuaries for roosting and feeding with some connectivity to areas close by, although they may not be affected by cabling at distance. Breeding seabirds however can forage at distance from their breeding colonies and therefore could be affected at a considerable distance from the breeding colony. Cabling does not typically lead to direct mortality, such as collision with windfarms, so the effects of cabling at distance are less of a concern. However, some species such as red throated diver and common scoters are very sensitive to boat traffic and can be displaced to distances of up to 2 km by boats. Some seabirds forage great distances such as Gannet and Manx shearwater whilst others rely on very small areas and therefore could be more easily affected if that small area is impacted such as shag, black guillemot and little tern.

NRW typically advises the use of foraging distances described by Woodward et al. 2019 to identify the species that should be screened into assessments of SPAs in terms of breeding seabirds. However, other data and information are available to understand the foraging areas of seabird species from colonies. For example RSPB tracking (Wakefield et al. 2013) modelled foraging ranges of Welsh seabird colonies, including guillemot, razorbill, shag and kittiwake. Evans & Waggitt (2023), also modelled seasonal distribution of seabirds around the Irish Sea.

Early discussions with NRW are essential when planning cabling operations to avoid disturbance of features at key times of the year.

Assessments will also need to consider those species that are part of a community assemblage where this is a designated feature of a site. EIAs will also need to assess potential effects on regional and national populations. Variation of feature distribution within sites should also be taken into account.

Some impacts can be avoided by timing works to coincide with periods when birds are absent from an area, during the summer for wintering waterfowl and wader species or during winter periods for breeding seabirds.

Interactions with other receptors

There is particular sensitivity to changes to other receptors that are dietary components (e.g. fish and shellfish) and changes to supporting habitat caused by physical loss or changes in physical processes.

Large increases in turbidity can hamper foraging especially in tern species. Habitat loss or change from mattresses or trenching can affect prey availability.

Sources of data and information

Evans, P.G.H. & Waggitt, J.J., (2023). Modelled Distributions and Abundance of Cetaceans and Seabirds in Wales and Surrounding Waters. NRW Evidence Report Series 646. [646: Modelled Distributions and Abundance of Cetaceans and Seabirds of Wales and Surrounding Waters \(cyfoethnaturiol.cymru\)](#)

Further information on bird protections and species licensing can be found on the [bird licensing pages of the NRW website.](#)

Identification of species vulnerability is best achieved by reference to Woodward *et al.* (2019), colony tracking studies in the scientific literature and the modelling results from the RSPB, FAME and STAR projects available at [RSPB Open Data](#).

MMO (2018). Displacement and habituation of seabirds in response to marine activities. A report produced for the Marine Management Organisation. MMO Project No: 1139, May 2018, 69pp.

The [marine mammal atlas](#) provides modelled distributions and abundance of cetaceans and seabirds in Wales and surrounding waters.

Wakefield, E. D., Bodey, T. W., Bearhop, S., Blackburn, J., Colhoun, K., Davies, R., Dwyer, R. G., Green, J. A., Gremillet, D., Jackson, A. L., Jessopp, M. J., Kane, A., Langston, R. H. W., Lescroel, A., Murray, S., Le Nuz, M., Patrick, S. C., Peron, C., Soanes, L., Hamer, K. C. (2013). Space Partitioning Without Territoriality in Gannets. SCIENCE, 341(6141), 68-70. <https://doi.org/10.1126/science.1236077>

Woodward .I, Thaxter C.B., Owen E., and Cook A.S.C.P., 2019. Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate BTO Research Report No. 724.

Marine mammals

Receptor characterisation

The most common marine mammal species in Welsh waters are harbour porpoise, bottlenose dolphin, common dolphin, Risso's dolphin, minke whale and grey seal

Of these harbour porpoise and bottlenose dolphin and grey seal are listed on Annex II of the Habitats Regulations. These species are features of six SACs in Welsh waters.

All cetaceans and European otter are listed on Annex IV of the Habitats Regulations as European Protected Species (EPS) for which there is strict protection throughout their natural range in European territorial waters.

Seals are also protected under the Conservation of Seals Act 1970 (as amended). The following provides information on protective measures/offences for [seals](#) and [cetaceans](#). Species Licensing information for Wales can be found here: [seals](#) / [cetaceans](#). A description of the [conservation legislation for marine vertebrates in Wales](#) is also available on the NRW website, although this is in need of updating. Several marine mammal species are also on the Section 7 list. Harbour porpoise is on the OSPAR list of threatened and/or declining Species & Habitats.

Pressures and impacts

Key pressures include:

- abrasion/disturbance/compaction of the surface substrate (seabed/Intertidal)
- barrier to species movement/connectivity
- changes in suspended solids (water clarity)
- collision/passage through static or moving objects not naturally found in the marine environment

- contamination by Hydrocarbons, PAH's metals and other synthetic compounds and substances (solid, liquid or gas)
- disturbance from airborne noise
- habitat structure changes - removal of substratum (extraction)
- physical change (to another seabed, substrate or sediment type)
- physical loss of habitat
- salinity increase or decrease/change to stratification
- smothering and siltation rate changes (heavy and light)
- underwater noise and, or vibration
- water flow (tidal current) changes, including sediment transport considerations

These pressures can lead to a range of impacts including injury and mortality, disturbance/displacement, loss or alteration of supporting habitat of the species, and impacts to prey and prey habitat.

Pressures and impacts need to be considered both temporally and spatially to account for patterns in life cycle and behaviour and should consider immediate and longer-term population/SAC level impacts.

Specific Information to guide assessments

Marine mammals associated with SACs are thought to be part of much larger populations that occupy wider spatial areas known as Marine Mammal Management Units ([MMMUs](#)) that comprise functionally linked areas upon which the mammals depend. Impacts upon these populations are also assumed to potentially affect the SACs within corresponding [MMMUs](#) (updated MMMU boundaries are found [here](#)).

The use of MMMUs is NRW's preferred approach to screening in HRA, particularly in consideration of in-combination effects and where impacts have the potential to cause mortality. However, other approaches can be applicable for certain impacts provided there is good evidence to justify the approach.

The following position statements are relevant for assessing marine mammal features in HRA. Applicants should use these to formulate assessments:

- NRW's position on determining [marine mammal mortality and adverse effect on site integrity](#) describes the supporting evidence and rationale used to develop levels of permissible marine mammal mortality where only a small number of annual marine mammal removals are permissible in a MMMU before being unable to rule out an AEoSI.
- NRW's [position](#) on the spatial scale that should be used to determine the Likely Significant Effects of a plan or project on special areas of conservation (SACs) with marine mammal features (a process known as 'screening').

Seals

Cabling activity ashore may affect seals on land, and cabling activity offshore may affect seals at sea. Grey seals show strong site fidelity during the pupping season (Langley et al. 2018, 2020; Pomeroy et al. 2000), when they give birth and nurse pups on land. Outside of this season, seals rely on land for moulting and resting but forage at sea, with animals dispersing over a wide area (SCOS 2022). Thus, we see a difference in the grey seal

population distribution at different times of the year, and animals may be more sensitive to certain impacts, e.g. disturbance, at different times, such as during pupping and moulting.

Pembrokeshire Marine SAC is a key site, supporting most grey seal pupping within the Celtic and Irish Seas. Other areas in Wales and the adjacent seas are also important for pupping, and for non-breeding haul-outs, such as the West Hoyle Sandbank at the mouth of the River Dee in North Wales (Thompson 2025). Evidence demonstrates a high degree of connectivity throughout the region among haul out and pupping sites inside and outside of SACs (e.g. Langley et al. 2018, 2020). Grey seals are a relatively complex feature to assess, and an Appropriate Assessment should be conducted on a case-by-case basis, often requiring an assessment against each of the Welsh SACs.

Data on Pupping and haul-out sites throughout Wales are available on the [Wales Marine Planning Portal](#). The distribution and abundance of seals at sea are described and quantified in [Carter et al \(2022\)](#).

Cetaceans

Impacts of cabling on cetaceans will be highly dependent on the location and the type of cabling activity and the methodology being used. One key impact pathway for cetaceans relates to possible effects from underwater noise (e.g. hearing injury and disturbance), for which there are well established methods of assessment; for example see NRW Position Statements on assessing effects on [behaviour](#) and [hearing injury](#).

NRW's recent 'Atlas' of cetacean and seabird distribution and abundance in Wales (Evans and Waggitt 2023), contains maps of seasonal and long-term patterns of sightings for 12 cetacean and 28 seabird species, and modelled abundance (densities) for the most common species encountered in Welsh waters. The report and data from this publication are available [here](#) and from [DataMapWales](#).

The most recent bottlenose dolphin monitoring data are presented in [Lohrengel et al \(2018\)](#) with a forthcoming report due in 2025.

Interactions with other receptors

All marine mammal species are reliant upon prey species and habitat of prey species (mostly fish: see fish section).

Grey seals additionally depend on intertidal habitats (beaches, rocky shores, sea caves) for pupping, moulting and hauling-out.

Sources of data and information

Guidance on [Marine Vertebrate Conservation Legislation in Wales](#) is available from the NRW website (note: this is now outdated).

Conservation advice in relation to the bottlenose dolphin and grey seal is presented in the NRW [conservation advice packages](#) on the NRW website. More information about harbour porpoise SACs can be obtained from the [JNCC website](#), and on the Welsh Government mapping portal [DataMapWales](#).

Various Position Statements relevant to marine mammals can be found on [Natural Resources Wales / Marine development](#) guidance pages.

References cited in the text above are listed below:

Carter MID, Boehme L, Cronin MA, Duck CD, Grecian WJ, Hastie GD, Jessopp M, Matthiopoulos J, McConnell BJ, Miller DL, Morris CD, Moss SEW, Thompson D, Thompson PM and Russell DJF (2022) Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management. *Front. Mar. Sci.* 9:875869. doi: 10.3389/fmars.2022.875869. [Frontiers | Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management](#)

Evans, P.G.H. and Waggitt, J.J. 2023. Modelled Distribution and Abundance of Cetaceans and Seabirds in Wales and Surrounding Waters. NRW Evidence Report, Report No: 646, 354 pp. Natural Resources Wales, Bangor. Available at [646: Modelled Distributions and Abundance of Cetaceans and Seabirds of Wales and Surrounding Waters](#)

IAMMWG. 2015. Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC Peterborough. [Management Units for cetaceans in UK waters \(January 2015\) | JNCC Resource Hub](#)

IAMMWG. 2023. Review of Management Unit boundaries for cetaceans in UK waters (2023). JNCC Report 734, JNCC, Peterborough, ISSN 0963-8091. [Review of Management Unit boundaries for cetaceans in UK waters \(2023\) | JNCC Resource Hub](#)

Langley I, Rosas da Costa Oliver T, Hiby L, Morris CW, Stringell TB, Pomeroy P 2018. EIRPHOT: A critical assessment of Wales' grey seal (*Halichoerus grypus*) photoidentification database. NRW Evidence Report Series Report No: 280, 94pp, Natural Resources Wales, Bangor [Contents](#)

Langley, I., Rosas da Costa Oliver, T., Hiby, L. *et al.* Site use and connectivity of female grey seals (*Halichoerus grypus*) around Wales. *Mar Biol* **167**, 86 (2020). <https://doi.org/10.1007/s00227-020-03697-8>

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SCOS (2022) Scientific Advice on Matters Related to the Management of Seal Populations: 2022. Natural Environment Research Council Special Committee on Seals, Sea Mammal Research Unit, University of St Andrews. 206pp. [Scientific Advice on Matters Related to the Management of Seal Populations: 2022](#)

Thompson D (2025 in prep). Census of grey seals (*Halichoerus grypus*) around Wales during August 2023 using aerial survey. NRW Evidence Report.

Fish

Guidance on the impacts of cabling on commercial or recreational marine fisheries are outside the scope of NRW's responsibilities, however, NRW manage cockle fisheries and

fisheries for Atlantic salmon, sea trout and European eel around the Welsh coast. The impacts of cabling on these fisheries are described in Part C.

Shellfish may be protected as benthic features of protected sites and may be important prey species for other biodiversity receptors (for example mammals, birds etc) and are therefore considered primarily in the benthic habitats section. There are also designated shellfish waters under the WFD and NRW manage some recreational fisheries that may need to be considered in WFD Assessments – see section C and [annex 1](#).

Receptor characterisation

Numerous fish species in Welsh waters are of nature conservation importance because they are rare, threatened, or important as food sources for other protected species. These include diadromous fish species, which migrate between freshwater and marine environment to complete their life cycle, and marine fish species which complete their life cycle in marine and estuarine waters.

There are five estuarine/marine SACs and eight riverine SACs with diadromous fish species as qualifying features and sub-features. The Severn Estuary Ramsar site is also designated for its fish assemblage, which includes both diadromous and marine fish species. Several marine fish species are protected under the Wildlife & Countryside Act (1981) (Allis & Twaite Shad, Basking Shark, White Skate, Sturgeon, & Whitefish) and a number appear on the Section 7 list. Both marine, estuarine and riverine sites should be considered, as diadromous fish species make long distance migrations and may interact with developments even at some distance from the sites where they are designated.

Fish are quality elements of WFD transitional water bodies and upstream rivers. As with SACs, marine, estuarine and riverine sites should be considered.

Pressures and impacts

The pressures from cabling activity that are most likely to be relevant to fish include:

- artificial light generation
- electromagnetic field generation
- barrier to species movement/connectivity
- direct/indirect loss of species
- habitat structure changes - removal of substratum (extraction)
- water flow (tidal current) changes, including sediment transport considerations
- collision/passage through static or moving objects not naturally found in the marine environment
- smothering and siltation rate changes (heavy and light)
- underwater noise and, or vibration
- temperature increase
- water quality changes (incl. nutrient enrichment)
- penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion
- physical loss (to land or freshwater habitat)
- physical change (to another seabed type)
- physical change (to another sediment type)

The above pressures could impact on the abundance, distribution and age-structure of fish species by causing mortality, injury, reduced migration or spawning success, reduced feeding or prey availability, reduced spawning or nursery ground habitat availability, or increased predation risk.

Receptor specific information to guide assessments

Pressures and impacts need to be considered both temporally and spatially to account for patterns in life cycle and behaviour including both immediate and long-term population level impacts.

Due to their mobility, fish species may be able to avoid some of the pressures due to cabling. However, some species are particularly sensitive to pressures at certain stages of their lifecycle, and unable to avoid them. Impacts should be avoided or reduced through cable routing, choice of installation methods and timing of installation works during the project development process.

Pelagic and highly mobile species may be able to avoid affects or may only experience temporary disturbance to migration routes or feeding areas, while other species may be subject to more acute direct effects due to their proximity to the seabed, limited mobility, or where their biology or ecology makes them more sensitive to pressures. There is limited published data on the distribution of many fish species within Welsh waters, but some information to inform cable routes is provided below.

Given the nature of cabling installation, operation, maintenance and decommissioning, effects will be more pronounced upon fish species that spawn or live on or in the seabed. This guidance does not address all marine Section 7 species (and [habitats](#)) but have been grouped where appropriate (such as benthic elasmobranchs). However, it is worth noting that all diadromous fish are listed as Section 7 and that some fish species such as Sand eel and Herring, are important as a food source for other receptors such as fish and birds that are features of European Sites. Impacts upon these species are therefore likely to require assessment.

Effects on pelagic and demersal species are less likely to be able to be mitigated for by cable route choice given the wide-ranging nature of the species and lack of reliance upon specific habitats. Therefore, the following sections focus on species which are particularly sensitive to cabling pressures or which utilise specific areas of the seabed that may be directly affected by cabling.

Benthic-oriented and benthic spawning fish

A range of data on spawning and nursery grounds of fish are available from [DataMap Wales](#). There are limitations in the representativeness of these data, due to the age and collection methods used, but they are the most recent assessment of the spatial distribution of nursery and spawning grounds of fish in Welsh waters.

Spawning grounds identified for benthic spawning fish are included in Data Map Wales.

For herring and sand eel where impact to benthic habitat is of concern NRW advise using the habitat mapping methods developed by Reach et al (2013) for herring and (Latto et al (2013) for sand eel.

Benthic elasmobranch

Egg cases of ray and skate species in Welsh waters rest on the seabed before hatching. However, these species deposit their egg cases on a wide range of substrates and delineation of potential spawning habitat from habitat maps alone cannot define key areas for these species. Coull et al. (1998) and Ellis et al. (2012) provides some spatial information as described above.

Key species in Welsh waters include Common / blue skate *Dipturus batis*, white / bottlenosed skate *Rostroraja alba*, thornback ray *Raja clavate*, undulate ray *Raja undulata*, small-eyed ray *Raja microocellata*, spotted ray *Raja montagui*, blonde ray *Raja brachyura* and cuckoo ray *Leucoraja naevus*. Whilst the angel shark *Squatina squatina* is ovoviviparous, and therefore does not spawn egg cases on the seabed, it does rest on and within seabed sediments.

Long snouted seahorse *Hippocampus guttulatus* and *H. hippocampus*

This species occurs mostly in shallow inshore waters among algae and eel grass (*Zostera* or *Posidonia*), or among rocks and in gravel bottoms and adults appear to maintain very restricted home ranges (Curtis and Vincent, 2006). Records of this species are from Pembrokeshire only, and these are the most northerly records in the UK. No records of the short snouted seahorse *Hippocampus hippocampus* have been made in Welsh waters.

Fish species sensitive to electromagnetic fields

A number of fish species, particular elasmobranchs, European eel and lampreys are sensitive to electromagnetic fields (EMFs), with some fish species also utilising the earth's natural magnetic field for orientation and to guide migrations. Currents running through electricity transmission cables can give rise to magnetic fields, electric fields and induced-electric fields depending upon the shielding of the cable and the time-varying nature of the electricity transmission through the cable. Anthropogenic magnetic fields of different intensities have been shown to be detectable to various fish species and also to cause behavioural and physiological changes in individuals.

Fish species sensitive to underwater noise and vibration

A number of fish are sensitive to impacts from underwater sounds, particularly clupeids and gadoids. Popper et al. (2014) provides guidelines on the effects of sound exposure on a range of species, including various fish classified into hearing categories, based on physiology.

It is advised that the fish species to be assessed are grouped into each of the three categories and the effects upon each category assessed using the guidelines provided in Popper et al. (2014). Species which would be in the category of most potential concern are *Fishes in which hearing involves a swim bladder or other gas volume* category and include Allis shad, Twaite shad, Cod, and European eel.

Interactions with other receptors

Changes to physical processes, water quality and benthic ecology receptors are likely to impact fish species. Changes to marine and diadromous fish species populations are likely to impact upon marine mammal and bird species, as well as recreational and commercial fisheries.

Sources of data and information

Our website has a list of [UK fish protected by law](#)

[Latto P. L., Reach I.S., Alexander D., Armstrong S., Backstrom J., Beagley E., Murphy K., Piper R. and Seiderer L.J., \(2013\). Screening Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat. A Method Statement produced for BMAPA. Available online at: <https://www.marinespace.co.uk/wp-content/uploads/2021/06/Sandeel-Potential-Habitat-MethodStatement-v1.1.pdf>](#)

[Reach, I.S., Latto P., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L.J., \(2013\). Screening Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas. A Method Statement produced for the British Marine Aggregates Producers Association.](#)

Popper, A.N., Hawkins, A.D., Fay, R.R., Mann, D., Bartol, S., Carlson, T., Coombs, S., Ellison, W.T., Gentry, R., Halvorsen, M.B., Løkkeborg, S., Rogers, P., Southall, B.L., Zeddies, D. and Tavalga, W.N., 2014. Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report, ASA S3/SC1.4 TR-2014 prepared by ANSI Accredited Standards Committee S3/SC1 and registered with ANSI. Springer and ASA Press, Cham, Switzerland

B4. Landscape and seascape

Receptor characterisation

NRW's advisory responsibilities are focussed on development proposals that affect the statutory landscape designations of National Parks and Areas of Outstanding Natural Beauty (AONBs), collectively referred to as designated landscapes. Note that whilst AONB remains the legal name for the statutory designation, these areas are now called National Landscapes. The scenic quality of coastal landscapes and sea views can be a key reason for the designation. In these areas, coastal features and seascape characteristics are likely to be included as special qualities of the designation and the seascape will form an important part of the setting of the Designated Landscape. The coast and seascape may also form a component of the setting of inland areas.

The importance of all landscapes and seascapes is set out in the European Landscape Convention, of which the UK is a signatory. Definitions of terms and high-level working principles for landscapes are set out in the [European Landscape Convention](#).

The policy context for nationally designated landscapes is described in the Wales National Marine Plan (See Part A of this document) but also [Planning Policy Wales](#).

Pressures and impacts

The main pressures exerted by cabling activity include:

- direct physical presence
- noise, traffic and related human activity
- alteration of views

The above pressures could impact on the character, special qualities and user experience of a designated landscape. For Designated Landscapes, proposals must have regard to the purposes of the designation and their special qualities. Reference should be made to the relevant National Park or AONB (National Landscape) Landscape Management Plan.

The assessment of impacts on designated landscapes should refer to the National Marine Character Areas for context and to local seascape character assessments, where available. The cultural and perceptual influences that make the character of each seascape distinct and unique should be considered. LANDMAP also provides detailed information on intertidal areas and overlaps with seascape assessments. Additionally, the visual impact of offshore platforms/conversion stations should be assessed.

Receptor specific Information to guide assessments

Landscape and seascape assessments should be included within the EIA and will need to consider the implications of cabling. Impacts would typically be confined to intertidal and terrestrial areas if cabling is above ground or the sea and are mostly confined to cabling within the designated landscape boundaries but cabling outside these boundaries may have implications depending on the nature and location. Assessments will need to evaluate the implications for seascape character and visual amenity of people experiencing the area. National Parks and AONBs (National Landscapes) have management plans that set out the purposes and special qualities of the area and which provide further information on the landscape and seascape characteristics and qualities to be conserved and enhanced.

NRW has published guidance on the different aspects of landscape and seascape assessments (see Sources of Data and Information) but recommends discussion to resolve potential issues at an early stage of project design. This is especially important for addressing impacts to seascape and designated landscapes before development designs and layouts have become fixed.

Interactions with other receptors

Changes to coastal habitats can alter character and experience. Mitigation, such as through habitat enhancement, can adversely affect landscape character although can also provide landscape enhancement.

Sources of data and information

[Natural Resources Wales / LANDMAP - the Welsh landscape baseline](#)

[Marine Character Areas](#) (including published local seascape character assessments in Wales)

Most Local Planning Authorities and National Park Authorities have local landscape character assessments which have been informed by [LANDMAP](#) which comprises spatial landscape datasets to support decision-making.

[Considering the visible setting when choosing your development site](#)

Each National Park Authority and Area of Outstanding Natural Beauty (National Landscape) publishes its own Management Plan, detailing the special qualities being conserved.

[Offshore Renewables - guidance on assessing the impact on coastal landscape and seascape \(pnpl.gov\)](#)

[MMO1204 An Approach to seascape sensitivity assessment technical report for publication.pdf \(publishing.service.gov.uk\)](#)

[Guidelines for Landscape and Visual Impact Assessment \(GLVIA3\) | Landscape Institute](#)

The Landscape Institute have recently provided clarifications in an update to GLVIA3 (23/8/24): "Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3)". This is available at: [LITGN-2024-01-GLVIA3-NC Aug-2024.pdf](#)

[Landscape and seascape character assessments - GOV.UK \(www.gov.uk\)](#)

[Registered historic landscapes | Cadw \(gov.wales\)](#)

B5. Water and sediment quality

Receptor characterisation

Water quality is based on parameters such as water clarity (turbidity), temperature, salinity, oxygen levels, nutrients, microbial pollution, acidity and contaminants such as metals and chemicals. Changes in water quality affect most other receptors (biological, hydromorphological) in the marine environment. Contaminants can also be released from sediments when they are disturbed.

Pressures and impacts

The key pressures from cabling that can be detrimental to marine water quality include:

- changes in suspended solids (water clarity)
- disturbance of seabed contaminants
- accidental spills
- runoff from terrestrial developments.

Receptor specific information to guide assessments

Sediment disturbance can release metals, chemicals and pathogens into the water column. Sediment disturbance can also cause dissolved oxygen sags. In particular, you will need to consider the risk to SAC feature condition, WFD water objectives and WFD protected areas such as Bathing and Shellfish waters.

You should consider guidance within the [Guidance for Pollution Prevention](#), particularly GPP5: Works and Maintenance in or near water.

Interactions with other receptors

Water quality changes, like changes to physical processes, have a range of impacts which can be widespread and can cause long term changes to marine ecosystems. The impacts likely to affect other receptors are:

- altering sediments and affecting biodiversity that is reliant on specific sediment composition for feeding, shelter and reproduction
- sediment resuspension leading to turbidity and remobilisation of contaminants

Sources of data and information

Bathing Water classifications can be found on the [Bathing Water Explorer website](#). Further general information on Bathing Waters can be found on our [website](#) and the data underpinning the classifications can be obtained from NRW.

WFD classifications can be found on [Water Watch Wales \(naturalresourceswales.gov.uk\)](#); the data can be obtained from NRW.

[Shellfish Water classifications can be found on the CEFAS website](#) and the [data can also be obtained from CEFAS](#).

UWWTR sensitive area GIS shapefiles can be obtained from [Welsh Government data portal: Datamap Wales](#).

CEFAS action levels, as defined on our [CEFAS Action Levels](#) are used in a weight of evidence approach to determine whether sediment can be released to the marine environment. These action levels consist of a lower and upper tier for various metals and contaminants such as TBT and PAHs. NRW should be consulted on appropriate action levels prior to sampling.

Part C. Advice relating to other NRW functions

NRW has responsibilities for other functions than those mentioned above, such as for freshwater fisheries and navigation within the Dee Conservancy, which may have implications for cabling activity and that should be addressed within assessments.

These include but are not limited to:

- **fisheries managed by NRW:** recreational rod and line fisheries for Atlantic salmon, sea trout and European eel, and commercial and heritage net fisheries for salmon, sea trout, and eel.
- **Cockle fisheries in the Dee Estuary and the Burry Inlet (until June 2025):** managed by NRW through the Burry Inlet Cockle Fishery Order 1965 (transfers to Welsh Government from June 2025) and the Dee Estuary Cockle Fishery Order 2008.
- **The Dee Conservancy:** NRW is the conservancy, harbour and local lighthouse authority for much of the Dee estuary.

NRW's [Development Planning and Marine Service](#) should be contacted to discuss the implications of your development for each of these functions.

Sources of data and information

Stock assessments for Wales:

- [Salmon and sea trout stocks in Wales](#)
- [Assessment of Salmon Stocks and Fisheries in England and Wales in 2020](#)
- [Assessment of Salmon Stocks and Fisheries in England and Wales: Background Report 2020](#)

These are updated annually.

Rod and Net Catch Data:

- [Salmonid and fisheries statistics for England and Wales 2020](#)
- [Environment Agency Science Report: Method for Assessing the Heritage Value of Net Fisheries](#)
- [A Review of the Economic Value of Angling in Welsh Rivers \(2018\)](#)
- [An Economic Evaluation of Inland Fisheries. Science project SC050026/SR2](#)
- Burry Inlet: [Welsh Government's cockle order 2024](#)
- [Dee Estuary Cockle Fishery Order \(2008\) management plan](#)
- [COCKLES PROJECT | \(cockles-project.eu\)](#)

NRW has published [Marine Safety in the Dee Conservancy](#) which describes the Conservancy functions, the role of NRW and the features and uses of the Conservancy that might be affected by cabling activity.

Additional [background information about the Conservancy](#) about the Conservancy is available on NRW's website.

Glossary

Adverse Effect on Site Integrity (AEoSI) – Referred to in Article 6(3) of the Habitats Regulations to describe a negative effect upon site integrity. The integrity of a site is defined in Managing Natura 2000 guidance as: “the coherence of the site’s ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified”.

Annex I Habitats – Habitats identified in Annex I of the Habitats Regulations as in need of conservation and listed in Annex I of the Directive.

Annex II Species – Species identified in Annex II of the Habitats Regulations as in need of conservation and listed in Annex II of the Regulations.

Annex IV Species – European Protected Species (EPS) identified in Annex IV of the Habitats Regulations as subject to strict protection across their entire natural range.

Appropriate Assessment – An assessment required by the Habitats Regulations where a plan or project would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects.

Cumulative and In-combination Effect – the effects of an activity that are amplified by other effects or that combine with the effects of other developments or activities.

Ecosystem Resilience – The capacity of ecosystems to deal with disturbances, either by resisting them, recovering from them, or adapting to them, whilst retaining their ability to deliver services and benefits now and in the future.

Environmental Impact Assessment (EIA) – An assessment of a project's likely significant environmental effects required for certain projects by the EIA Regulations. This helps to ensure that the predicted effects, and the scope for reducing them, are understood by the public and the relevant authority before it makes its decision.

European Protected Species (EPS) – species that are [protected](#) under the Habitats Regulations

Habitat – An ecological or environmental space/area that is inhabited by a particular organism or ecological community. It is characterised primarily by its physical features and secondarily by the species of plants and animals that live there.

Habitats Regulations Assessment – the process of considering the effects of developments or other activities upon European sites (SACs and SPAs, but also including Ramsar Sites) in accordance with Article 6(3) and Article 6(4) of the Habitats Regulations.

Invasive Non-Native Species (INNS) – Plants, animals, fungi and microorganisms whose introduction and/or spread outside their natural past or present ranges pose a risk to biodiversity or have other unforeseen negative consequences.

Marine Conservation Zone (MCZ) – MCZs are designated under the Marine and Coastal Access Act 2009 to protect any marine species, habitats, or geological feature of interest.

Marine Protected Area (MPA) – Defined geographical areas of the sea identified for the protection of marine habitats and species. They cover a wide range of marine wildlife, including rare and sensitive habitats and species that have been designated under EU and/or UK legislation for specific biological or geological features. SACs, SPAs, SSSIs, MCZs and Ramsar Sites that have marine features are all categorized as MPAs.

OSPAR – The OSPAR Convention (1992) concerns itself primarily with strategies to control pollution in order to protect marine ecosystems and biodiversity. Decisions adopted by OSPAR are legally binding for the contracted parties. OSPAR has produced a List of Threatened and/or Declining Species and Habitats. Wales lies in OSPAR region III.

Pressure – Activities that have the potential to have adverse effects on the environment.

Ramsar – A wetland area designated for its conservation value under the 1971 Convention on Wetlands of International Importance, especially as Waterfowl Habitat. The Ramsar Convention promotes the conservation of listed wetlands and their wise use.

Section 7 Habitat/Species – the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales and are identified in lists of priority habitats and species in Wales as required by Section 7 of the Environment (Wales) Act (2016).

Sensitivity – a measure of the ability of a species or habitat to withstand or recover from change resulting from a pressure.

Site of Special Scientific Interest (SSSI) – SSSIs are notified under the Wildlife and Countryside Act for certain species and habitats and are legally protected from damage through development, unsuitable management or other activities. SSSIs now legally form part of the marine protected area network where they are considered to protect marine features.

Special Area of Conservation (SAC) – Areas designated under the Habitats Regulations for habitats and species listed in Annex I and II of the Regulations.

Special Protection Area (SPA) – areas designated under the Birds Directive for birds listed in Annex I of the Directive also providing special conservation measures to protect habitats for vulnerable species and to regularly occurring migratory species.

Sustainable Management of Natural Resources – Using natural resources in a way and at a rate that maintains and enhances the resilience of ecosystems and the benefits they provide, in doing so, meet the needs of current generations without compromising the ability of future generations to meet their needs, and contribute to the achievement of the well-being goals set out in the Well-being of Future Generations Act. Also referred to as sustainable management.

Water Framework Directive Compliance Assessment – An assessment carried out on any new project or activity to determine whether it will prevent achievement of the management objectives of waterbodies.

Welsh Waters – Welsh inshore waters and estuaries (landward boundary at Mean High Water Spring tide out to 12 nautical miles) and Welsh offshore waters (12-200 nm, or to the median line between countries).

Zone of Influence – the area of the seabed or foreshore that could be affected by the proposed development or activity, during both construction and/or operation.

Annex 1: Policy and legislation relevant to the consent and environmental assessment of marine developments

What is this document about?

This guidance has been produced by Natural Resources Wales (NRW) to provide guidance to developers about NRW's roles and responsibilities and the legislation and policy that is relevant to consenting and environmental assessments of marine infrastructure in Welsh waters.

A list of NRW's roles and responsibilities can be found on our website: [Natural Resources Wales / Our roles and responsibilities](#). We have two main functions in relation to marine developments:

- The determination of Marine Licence applications in inshore and offshore Welsh waters by our Permitting Service. In doing so NRW consults its own technical advisors and a range of other organisations for advice on the potential implications of the proposal. More information about the marine licensing process is available on the NRW website: [Natural Resources Wales / Marine licensing](#).
- As a consultee to licensing authorities such as NRW (Marine Licence), the Secretary of State (DCO), Welsh Government (DNS, Welsh Infrastructure Consent) and local planning authorities (Town & Country Planning), providing advice on a wide range of environmental matters that will be relevant to the assessment of development proposals. Our role as an Appropriate Nature Conservation Body extends out to 12 nautical miles from the Welsh coast. JNCC fulfils that responsibility in the Welsh offshore marine area beyond 12 nautical miles.

In certain locations NRW has responsibilities for fisheries, flood risk management and is a Statutory Harbour Authority in the Dee estuary. NRW is also the landowner of parts of the coast and may need to issue leases for some activities in certain locations.

Before contacting us for advice about a project we strongly encourage you to review the information and guidance available on our website. You can contact the following teams for further information about the service and advice we are able to provide:

- [Development Planning and Marine Service](#) for advice from NRW as a consultee.
- [Marine Licensing Team](#) for advice about applying for a marine licence.

Welsh environmental legislation

The following two pieces of legislation and associated documents are useful to inform an EIA and help set the development proposal in the appropriate Welsh context.

[The Environment \(Wales\) Act 2016](#) is the framework for the Sustainable Management of Natural Resources (SMNR). It provides a statutory basis for implementing the ecosystem approach in Wales through the maintenance and enhancement of ecosystem resilience. It sets out the need for a [State of the Natural Resources Report](#), [Natural Resources Policy](#) and [Area Statements](#). The act also sets out duties and responsibilities for Welsh Ministers to meet targets for reducing emissions of greenhouse gases from Wales to mitigate the effect of climate change.

[The Well-being of Future Generations \(Wales\) Act 2015](#) outlines how Wales will improve social, economic, environmental and cultural well-being by setting out seven well-being goals. NRW, as a public body, needs work towards the goals. We do this by thinking of long-term impacts of the advice and decisions we make. The act defines sustainable development as the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the Sustainable Development Principle, to achieve the [wellbeing goals](#).

Policy and legislation relevant to marine consenting and assessment

Marine developments requiring EIA can have multiple sets of environmental legislation, policy and plans that apply to them, depending on the type, scale and location of development.

Planning Policy

Welsh National Marine Plan

The [Welsh National Marine Plan](#) (WNMP) provides an integrated set of objectives and policies for the sustainable development of Welsh seas. It provides the strategic policy framework to support integrated decision making that takes account of environmental, social and economic issues and therefore plays a key role in the delivery of the objectives of the Environment Act and Well-being of Future Generations Act in Welsh seas. Relevant public authorities must take the plan into account in their decision making. Any assessment needs to demonstrate how the WNMP policies have been complied with.

The WNMP contains general policies and sector-specific policies related to particular activities. Applicants are responsible for ensuring their proposals are in accordance with the WNMP although relevant authorities are responsible for assessing whether proposals are compliant with the WNMP.

The Plan sets out the mitigation hierarchy of avoid, minimise, mitigate impacts.

The UK Marine Policy Statement

The [UK Marine Policy Statement](#) sets out policies for decision making in the marine environment and the need to develop ecosystem approach marine plans.

National Policy Statements

[National Policy Statements](#) set out the UK Government objectives for the development of nationally significant (energy) infrastructure projects (NSIPs) via a Development Consent Order (DCO). DCOs are issued by the relevant UK Secretary of State under the Planning Act 2008 and the process is administered by the [National Infrastructure Planning](#) arm of the Planning Inspectorate.

The Planning Inspectorate publishes [advice notes](#) on a range of procedural matters relevant to applications for NSIP projects.

Under the reserved powers model, only developments above certain thresholds qualify as NSIPs in Wales, for example, only renewable energy projects that are above 350MW are determined as NSIPs by the UK Secretary of State.

Future Wales: The National Plan 2040, Planning Policy Wales and Technical Advice Notes

[Future Wales](#) is the national development framework for Wales. [Planning Policy Wales](#) is the land use planning policy document that establishes key planning principles for Wales that apply down to the mean low water spring tide mark.

Planning Policy Wales is supported by [Technical Advice Notes](#) (TANs) that deal with policy issues that planning needs to address to shape development to deliver the best outcomes.

These policy documents primarily focus on land use planning matters which are mostly outside the scope of this guidance, TAN 14 Coastal Planning and TAN 19 Telecommunications will be especially relevant.

Consenting

There are a number of existing statutory regimes for the consenting of marine infrastructure projects in Wales:

- [The Marine and Coastal Access Act 2009](#)
- [The Conservation of Habitats and Species Regulations 2017](#) (as amended) and the [Wildlife and Countryside Act 1981](#) (as amended) (protected species licences).
- Planning Act 2008 (Development Consent Order)
- Town and Country Planning Act 1990 (Town & Country Planning Consent)
- Electricity Act 1989 (Section 36 Electricity Act Consent)
- Harbours Act 1964 (Harbour Empowerment or Revision Orders)
- Transport and Works Act 1992. (Transport & Works Act Consent)

At the time of writing consenting requirements under the Town & Country Planning Act (1990), the Electricity Act (1989) and Harbours Act (1964) in Wales are about to be replaced by a requirement for a single Welsh Infrastructure Consent under the Infrastructure (Wales) Act 2024.

A Marine Licence is required for a deposit in the sea under the Marine and Coastal Access Act (2009); however, Section 81 states that laying submarine cables on the continental shelf are exempt from a marine licence and that the Licensing Authority must also grant any application made to it for a marine licence for the carrying on of a licensable marine activity in the course of laying any inshore stretch of these cables. Refer to [Marine and Coastal Access Act 2009](#) for full information.

Other permissions may be required for cabling activity. For example, cross-border development may require a Marine Licence from the Marine Management Organisation (MMO). The MMO have produced a Subsea Cables Desknote (2021) which is available in the [European Subsea Cables Association document library](#). A lease from The Crown Estate or other bodies may be required, including NRW where cables cross land managed or owned by NRW. Local authority permissions for land-based activities, or permissions from Welsh Government may also be necessary. These are not covered in this guidance and the relevant organisation should be contacted for more information.

Environmental Assessment

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a process for identifying the positive and negative environmental effects of a proposed development. It applies to projects which are likely to have a significant effect on the environment due to their nature, size or location. The [Marine Works \(Environmental Impact Assessment\) Regulations \(2007\)](#) (as amended) requires assessment of projects described by either Schedule 1 or 2 of the Regulations. Subsea cables do not require a formal EIA as they are not listed on either Schedule 1 or 2 of the Regulations. However, applicants for a marine licence for a subsea cable should consider the requirement for a proportional environmental assessment based upon the scale and specifications of their Project. Additionally, where cabling is required as part of a wider project e.g. from an offshore renewable energy generating station, then this would be assessed as part of the EIA for the energy Project as a whole. Applicants for a Marine Licence for subsea cables should consider the scale and nature of their projects and give consideration to the need for a proportional environmental assessment

The Applicant is responsible for carrying out the EIA and for presenting the findings of the EIA in an Environmental Statement to the licensing authority alongside their application.

The Schedules of the EIA Regulations set out developments requiring a mandatory EIA (Schedule 1) and developments which are subject to a screening process to determine if an EIA is necessary (Schedule 2).

The UK has different sets of Regulations for applying EIA to specific regulatory regimes. The most common ones for marine developments are:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended). The EIA appropriate authority is The Planning Inspectorate.
- The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) need consent from NRW Permitting Service (Wales) or MMO (England).
- The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (as amended) and The Harbour Works (Environmental Impact Assessment) Regulations 1999 (as amended) need consent from Welsh Government.
- The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003 (as amended) need consent from NRW Permitting Services.
- The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) needs consent from the local planning authority.

Where multiple EIA Regulations and consents apply, it is good practice to provide one ES addressing the requirements of each relevant consent, clearly signposted.

Habitats Regulations Assessment

The [Conservation of Habitats and Species Regulations \(2017\)](#) (hereafter referred to as the "Habitats Regulations") transpose the European Habitats Directive into UK law. Regulations 63 and 64 describe the process, known as Habitats Regulations Assessment (HRA), for assessing the implications of a plan or project for European sites and European

Offshore marine sites. This is a multi-stage process (screening for likely significant effects, detailed appropriate assessment and, potentially, derogation after assessing possible alternatives, overriding public interest and identification of suitable compensation).

HRA is carried out by the licensing authority as a Competent Authority under the Habitats Regulations. However, it is the responsibility of the applicant to provide the information that will be needed by the licensing authority to conclude these assessments. The information should be provided as a chapter of or annex to the Environmental Statement or as a separate report to inform appropriate assessment that must accompany the application.

Water Framework Directive Compliance Assessment

A Water Framework Directive (WFD) Compliance Assessment must be undertaken as part of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, as amended (hereafter referred to as 'WFD Regulations'). Water bodies are required to reach their objectives (Good ecological status / potential) and not deteriorate. WFD protected areas must also reach their objectives. A WFD Compliance Assessment must be carried out if the development interacts with any element of any water body, including hydrologically connected water bodies with biotic/migratory routes from the water body in which the development is located. If assessment shows there is a risk of deterioration, and/or the achievement of good status/potential could be jeopardised, then a project can only proceed if it meets the requirements of Regulation 19 of the WFD Regulations. Guidance on how to complete a WFD compliance assessment can be obtained from wfdwales@cyfoethnaturiolcymru.gov.uk; please ask for GN78.

A WFD Compliance Assessment is carried out by the licensing authority as a Competent Authority under the WFD Regulations. However, it is the responsibility of the applicant to provide the information that will be needed to conclude these assessments. This information is typically submitted as a chapter of, or annex to, the Environmental Statement that must accompany the application.

WFD data can be found on [Water Watch Wales](#).

[Welsh Government data portal: Datamap Wales](#) provides spatial data on WFD water bodies and River Basin Management Plans.

WFD protected areas can be found on the [Protected Area register](#).

Further information on WFD tools and other guidance can be found on the [UKTAG](#) website.

Derogations

Where certain effects cannot be mitigated, derogations under the Habitats and WFD Regulations may allow projects to proceed subject to legal tests and criteria.

Consideration of a derogation under the Habitats Regulations may only occur once a HRA has concluded that it is not possible to rule out an adverse effect on (a) site(s). A derogation under the Habitats Regulations may be considered where there are no alternative solutions if there are reasons of overriding public interest and where suitable compensation can be secured.

A derogation under the provisions of Regulation 19 of the WFD Regulations will be required if the WFD Compliance Assessment concludes there is a risk of deterioration for any element in any water body as a result of the project, or that the project may jeopardise the attainment of the WFD objectives for any water body. To determine if development can proceed a series of tests will need to be applied to understand if the conditions of Regulation 19 can be met. The tests cannot be applied until a full WFD Compliance Assessment has been carried out, all potential impacts have been quantified and the assessment concluded.

Although the requirements of derogations under the WFD and Habitats Regulations can only be established upon completion of impact assessments when the impacts of the project are confirmed, we strongly recommend discussion with licensing authorities and advisors about the potential requirement for a derogation early in the process. This will reduce the risk of the tests not being met through inadequate consideration of their requirements throughout the project, and insufficient information to apply them.

Evidence gaps

Development consent and Marine Licence determinations must be based on robust evidence and NRW can provide advice about any existing information and data that might be available (links to relevant information sources are provided in Part B).

However, there are often gaps in the evidence that is required to inform assessments. Information about the distribution, abundance, behaviour and impact sensitivity of many biodiversity receptors and physical processes (hydrodynamics, sediments and geology, and topography/morphology) is often incomplete or unavailable.

Existing information may also be out of date. Use of existing information is always the best first step, but environmental data may need to be collected to characterise or monitor the baseline status of the receptors that may be affected. Survey and assessment methodologies might also need to be developed and verified. Similarly, some mitigation techniques may not be well-established and might need to be evaluated before they can be adopted.

Early discussion with NRW about the evidence requirements is encouraged to confirm and agree data gathering and assessment methodologies.