

# MARINE ENVIRONMENT

## DEFINITION

The seabed habitats of the south west support some of the richest plant and animal communities in the country. The area is a zone where the colder waters of the north Atlantic meet warmer southern waters resulting in the presence of several species living at the limit of their distribution. The range of seabed substrates, from finest sediment to exposed bedrock, results in a corresponding range of seabed communities, each with their own distinct assemblage of plant and animal species. The marine biodiversity of the waters above these seabed habitats are equally rich and varied, including a number of commercially important species as well as the highly visible and charismatic marine mammals. The Generic Marine Plan addresses the range of marine habitats and species off the northern Devon coast. The area covered by the plan covers the whole of the inshore waters off northern Devon, from Marsland Mouth in the west to just east of Foreland Point in the east and out to 12 nm. The Generic Marine Plan does not cover areas below Mean Low Water Springs (MLWS) in estuaries. These, and the issues affecting them, are addressed in the 'Estuaries' habitat plan.

## DISTRIBUTION

Seabed substrate data collated by the Finding Sanctuary project suggests that the seabed off the northern Devon coast is mostly made up of different grades of sediment, ranging from fine, through mixed to coarse. This data suggests that, apart from areas immediately adjacent to rocky coasts there are only small areas of rocky seabed of northern Devon. These are limited to an area around Lundy and the westernmost edge of a larger area of bedrock which runs from a point around 10 nm north of Heddon's Mouth up the Bristol Channel, most of which lies outside Devon waters. A more complete description of the area's geology can be found in the appropriate Coastal Directory<sup>1</sup>.

## LOCATIONS

From county boundaries at Marsland Mouth to just east of Foreland Point and from MLWS out to 12 nm. Excludes areas within Taw-Torrige Estuary below MLWS.

## CHARACTERISTIC WILDLIFE

The mix of species found is strongly linked to physical conditions including substrate, water movement, light availability and salinity. As a result there is a huge range of animal and – in shallower waters – plant species in the waters off northern Devon. Our understanding of

---

<sup>1</sup> Barne, J.H., Robsons, C.F., Kaznowska, S.S., Doody, J.P., Davidson, N.C., & Buck, A.L., eds. 1996. *Coasts and Seas of the United Kingdom. Region 11 The Western Approaches: Falmouth Bay to Kenfig*. Peterborough, Joint Nature Conservation Committee. (Coastal Directory Series.)  
Marine Environment

the areas seabed communities is significantly greater for rocky substrates than sediment and more work is required before we can fully understand the full range of characteristic wildlife. The range of rocky seabed species is spectacular, including a number of rarities and species restricted to the SW of Britain, with a number of commercial value. Life in the water column above the seabed is equally rich and varied, including summer visitors such as sunfish and basking shark as well as year-round residents such as harbour porpoise and grey seal. The following list provides an overview of some of the most typical or important species. A more detailed description of the area's wildlife can be found in the relevant Coastal Directory and Marine Natural Area Profile<sup>2</sup>.

Fish	Wrasse, pollack, bass, basking shark
Crustaceans	Edible crab, spider crab, common lobster
Molluscs	Mussel beds
Corals	Pink sea fan, Devonshire cup coral
Anemones	<i>Epizoanthus couchii</i> , <i>Isozoanthus sulcatus</i>
Sponges	Yellow branching sponges
Mammals	Harbour porpoise, bottlenose dolphin, grey seal



## THREATS

The following list provides a useful summary of threats to marine ecosystems<sup>3</sup>:

- Over-exploitation of living marine resources – e.g. depletion of fish stocks and extinction or near-extinction of marine mammals
- Damage to seabed habitats and communities – e.g. from fishing, aggregate extraction and minerals dredging
- Increased sea temperatures and acidification – climate change effects resulting in e.g. changes in species distribution
- Poisoning of marine food webs – new threats, such as micro-plastics, are adding to long list of existing contaminants
- Globalisation of species – e.g. slipper limpets and wire weed. Long term ecological impacts not always understood

<sup>2</sup> Jones, L.A. \*, Irving, R. \*, Cork, M., Coyle, M.D., Evans, D., Gilliland, P.M., & Murray, A.R. 2004. *South Western Peninsula Marine Natural Area Profile: A contribution to regional planning and management of the seas around England*. Peterborough: Natural England. \* Joint first authors.

<sup>3</sup> Jeremy Jackson, Scripps Oceanographic Institute e.g.

[http://progressive.atl.playstream.com/nakfi/progressive/Sackler/sackler\\_12\\_07\\_07/jeremy\\_jackson/jeremy\\_jackson.html](http://progressive.atl.playstream.com/nakfi/progressive/Sackler/sackler_12_07_07/jeremy_jackson/jeremy_jackson.html)

- Rise of slime – disruption of marine ecosystems combined with excessive nutrient input leads to anoxic ‘dead zones’, 120 world-wide

While these are global threats, most, if not all, have some degree of local relevance. Complementing this synthesis is a study by Halpern et al<sup>4</sup>, which maps the cumulative impacts of a range of human activities, based on 17 global datasets, on 20 different seabed habitats. While narrowing the focus of this map from global to local can only ever result in a broad approximation, the broad conclusion is that much of the area off northern Devon is subject to high impact from a range of human activities.

In addition to the traditional human activities and their impacts – greater or lesser – on marine ecosystems there are a new range of potential impacts to consider from the development of offshore renewable energy projects. Currently these are extremely localised and small scale, consisting of a single open-sea tidal turbine off Lynmouth. However as part of the latest round of licensing the Crown Estate has identified a possible area for the development of offshore wind projects in the outer Bristol Channel, part of which falls within the plan area, and interest for developing a major offshore wind installation in this area has already been publicised. With climate change and its effects posing such a threat to marine ecosystems the need for developing renewable energy generating capacity needs to be balanced against impacts on local biodiversity.

Management of the marine environment is notoriously complex, with decisions affecting the seabed habitats off the northern Devon coast being made at local, regional, national and international levels. As a result the contribution of the LBAP process is limited, but important nevertheless. The value of local contributions will increase as the measures set out in the Marine and Coastal Access Act are implemented – especially with the development of a network of Marine Conservation Zones around the SW and a widening of the scope of local fisheries management, increasing their responsibility for minimising environmental impacts of fishing practices. Engagement with the Marine and Coastal Access Act will enable significant gains to be made for local marine biodiversity.

## **SITE STATUS**

Site based protection in the marine environment falls well behind that on land. As well as being the most significant protected area within the area covered by this plan, the seabed around Lundy is protected by the only Marine Nature Reserve in England.

Marine Nature Reserve and Special Area of Conservation

- Lundy

No-take zone

---

<sup>4</sup> A Global Map of Human Impacts on Marine Ecosystems (2008), Halpern et al, *Science*, Vol. 319. no. 5865, pp. 948 - 952  
Marine Environment

- Small area within Lundy MNR to east of the island

#### Voluntary Marine Conservation Area

- Combe Martin to Croyde, including seabed out to 20m depth contour

Marine Natural Area – a descriptive rather than protected area, the plan area is included within Natural England's:

- South Western Peninsula Marine Natural Area

### **CURRENT ACTION**

In addition to the legal and voluntary site protection mentioned above:

- Marine and Coastal Access Act – new measures to improve management of marine environment and protection and enhancement of marine biodiversity:
  - Marine Management Organisation
  - Marine Licensing
  - Spatial Planning
  - Marine Nature Conservation – including network of Marine Conservation Zones
  - Inshore Fisheries Management – replacement of Sea Fisheries Committees with Inshore Fisheries and Conservation Authorities; new bodies with new environmental responsibilities

However, the new legislation will only provide a toolkit for taking action. Success will rely on effective implementation at national, regional and local levels.

- European initiatives – there are emerging cross-cutting efforts to protect and enhance marine ecosystems through a variety of initiatives, including:
  - Marine Strategy Directive
  - Common Fisheries Policy review
  - Water Framework Directive
- Devon Sea Fisheries Committee – responsible for current management of inshore fisheries, with some environmental responsibilities

- The Devon Maritime Forum is a strategic county-wide partnership that acts a ‘champion of the sea’ for Devon and the South West through facilitating communication between a network of marine stakeholders.
- Coastwise aim to foster good relations and work with other similar organisations to champion the north Devon marine and coastal environment. They raise awareness of marine issues, run courses about marine natural history, organise beach surveys and carry out practical improvements such as beach cleanups.

## LINKS TO OTHER BIODIVERSITY ACTION PLANS<sup>5</sup>

	UK BAP old priority habitats and species	UK BAP revised priority habitats and species <sup>6</sup>	SW BAP	Devon BAP
Habitat Action Plans	<ul style="list-style-type: none"> <li>• Mud habitats in deep water</li> <li>• <i>Sabellaria spinulosa</i> reefs</li> <li>• Seagrass beds</li> <li>• Sheltered muddy gravels</li> <li>• Sublittoral sands and gravels</li> </ul>	<ul style="list-style-type: none"> <li>• Blue mussel beds (n)</li> <li>• Fragile sponge and anthozoan communities on subtidal rock habitats (n)</li> <li>• Mud habitats in deep water</li> <li>• <i>Sabellaria spinulosa</i> reefs</li> <li>• Seagrass beds</li> <li>• Sheltered muddy gravels</li> <li>• Subtidal sands and gravels (r)</li> <li>• Tide-swept channels<sup>7</sup></li> </ul>	Rocky seabed	Rocky seabed
Species Action Plans	<ul style="list-style-type: none"> <li>• Pink sea fan</li> <li>• Sea-fan anemone</li> <li>• Sunset cup coral</li> <li>• Basking shark</li> <li>• Harbour porpoise</li> </ul>	<ul style="list-style-type: none"> <li>• Pink sea fan</li> <li>• Sea-fan anemone</li> <li>• Sunset cup coral</li> <li>• Basking shark</li> <li>• Grouped plan for small dolphins</li> <li>• Grouped plan for commercial marine fish</li> </ul>	Pink sea fan Harbour porpoise	Pink sea fan

<sup>5</sup> List based on current understanding and assumptions about a) scope of BAP habitats and b) seabed habitats in plan area. List to be revised.

<sup>6</sup> UK BAP priority species and habitats were updated in 2007. Some new habitats and species may not yet have associated action plans

<sup>7</sup> Possible extension of scope and rename to ‘tide-swept communities’ may increase relevance to plan area

## OBJECTIVES

- 1 Identify and protect key areas for biodiversity
- 2 Integrate key areas into a ecologically coherent and representative network of marine protected areas
- 3 Ensure that management of wider marine environment supports marine ecosystem recovery
- 4 Gain public support for objectives 1-3

	<b>ACTION</b>	<b>TARGET</b>	<b>LEAD DELIVERER</b>	<b>PARTNERS</b>	<b>Obj. No.</b>
<b>A</b>	<b>Policy and Legislation</b>				
1	Integrate current plan objectives into strategies for Biosphere, ND AONB and other appropriate bodies	Opportunities for influence identified	DCC	NDABS, NDC, TDC	3
<b>B</b>	<b>Site Safeguard and Management</b>				
1	Engage with Finding Sanctuary project to ensure: a) all current data is made available to MCZ identification process b) Biosphere is represented on appropriate Finding Sanctuary stakeholder group	Local biodiversity needs represented in MPA network	DBRC, NDABS	DCC	1 & 2
2	Engage with management process for Lundy and other MCZs emerging from Finding Sanctuary project	Local biodiversity representatives on all MCZ management groups	NE	DWT	1 & 2
<b>C</b>	<b>Advisory</b>				
1	Engage with developers of offshore wind projects – providing access to local stakeholders through appropriate bodies and advice on minimising local impacts on biodiversity	Regular series of meetings organised between developers and local biodiversity expert as EIA studies carried out	NDC, TDC, DCC	DWT, NDABS	3

	<b>ACTION</b>	<b>TARGET</b>	<b>LEAD DELIVERER</b>	<b>PARTNERS</b>	<b>Obj. No.</b>
2	Engage with Devon SFC (and relevant IFCA) in order to minimise impacts of commercial fishing activities on marine habitats and species	Regular meetings briefings to local IFCA members highlighting biodiversity issues organised	DWT, DMF		3
3	Provide advice to local tourism businesses about reducing their impact on the marine environment and how they can interpret the marine environment to their visitors in a sustainable way.	Programme of workshops for local businesses developed – based on results from pilots in 2008 and 2009	DWT	Coastwise, NDABS	2 & 3
<b>D Research and Monitoring</b>					
1	Produce marine biotope map for waters off northern Devon coast	Costed plan for biotope mapping developed	DWT/DBRC		1,2 & 3
2	Establish marine monitoring initiatives in the context of the Devon Biodiversity Monitoring Framework	Programme of local marine monitoring developed and implemented	DWT/Devon BAP partnership		1,2 & 3
3	Promote and support one Masters research project along the north Devon coast each year.	Local support for student identified and provided on annual basis	NDABS		1,2 & 3
<b>E Communications and publicity</b>					
1	Produce or distribute information to local businesses and individuals about how they can reduce their impact on the marine environment	Development of awareness materials and events programmes	NDABS	Coastwise	3
2	Events held with local schools, local people and visitors to increase understanding of the marine environment and its relevance to all people.	One event held each year	Coastwise	NDABS, DWT, NT, ENPA	4
3	Devise new training for local people to become local environmental guides for schools and visitors.	Training event held each year	Coastwise, DWT		4
4	Provide training for local volunteers to enable participation in marine conservation projects.	One conservation training event held each year	Coastwise, NDABS	NT, ENPA	4