ROCKY INTERTIDAL

DEFINITION

The term 'rocky intertidal' covers areas of bedrock (and man-made hard structures such as piers and breakwaters) and their associated fauna and flora found between the mean high water and mean low water marks. It also includes the 'splash zone' immediately above the high water mark which harbours marine organisms at the upper limit of their existence on the shore.

The marine 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 their limit of distribution.

DISTRIBUTION

The rocky foreshore habitats of the northern Devon coast, many of which are inaccessible by foot, are among the richest in Britain and are home to a diverse and fascinating range of plants and animals. There are no figures currently available for the area of rocky foreshore in northern Devon although the coastline is 195 miles (312km) long, a large part of which is rocky. A more detailed description of the physical aspects of the northern Devon shore – including geology – can be found in the relevant Coastal Directory[1] and Maritime Natural Area Profile[2].

LOCATIONS

The rocky intertidal plan covers all of the rocky intertidal habitats to be found along the northern Devon coast, from county boundary at Marsland Mouth to just east of Foreland Point, and from the break of cliff slope to MLWS. The plan excludes any rocky intertidal areas within the Taw-Torridge Estuary. These are covered in the 'Estuaries' plan.

The major expanses of rocky intertidal habitat on the northern Devon coast are to be found at:

- Combe Martin to Barricane Beach
- Woolacombe
- Baggy Point to Croyde

[1] 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.)

[2] English Nature, Land's End to Minehead Maritime Natural Area: a Nature Conservation Profile

- Saunton Down
- Westward Ho! to Clovelly
- Hartland Point to Marsland Mouth

though smaller areas of rocky intertidal habitat can be found elsewhere.

CHARACTERISTIC WILDLIFE

The mix of species found on any shore is strongly linked to physical conditions including substrate, water movement, light availability and salinity. These conditions vary on the shores of northern Devon and as a result there is a huge range of animal and plant species to be found in the rocky intertidal habitats of northern Devon. 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[1] and Maritime Natural Area[2] Profile.

Algae	seaweeds, oarweed, wracks, Irish moss, coral weed
Fish	leopard spotted goby
Anemones	beadlet anemone, snakelocks anemone
Sponges	breadcrumb sponge
Bryozoans	sea mats
Crustaceans	shore crab, acorn barnacle
Molluscs	limpets, painted topshell
Worms	tubeworms, honeycomb worm
Birds	oystercatcher, shag, rock pipit

THREATS

Rocky intertidal communities exist at the boundary between land and sea, and as such are influenced by both environments. The following list provides a useful summary of threats to marine ecosystems[3]:

- 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

[3] Jeremy Jackson, Scripps Oceanographic Institute e.g. http://progressive.atl.playstream.com/nakfi/progressive/Sackler/sackler_12_07_07/jeremy_jackson/jeremy_jackson.html

- 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
- Rise of slime – disruption of marine ecosystems combined with excessive nutrient input leads to anoxic 'dead zones'

While these are global threats and focussed on wider marine ecosystems, most have some degree of relevance to local marine habitats and to rocky intertidal communities.

In more local terms, although the rocky foreshore is a largely immutable resource (other than in the very long term, where the effects of natural erosion may be detected), changes to the quality of its habitat can occur, either naturally, as a result of storms or changes in sedimentation patterns, or by threats resulting from human activity. Such threats include oil spills and aggregate extraction that can cause extensive medium to long term or permanent damage to foreshore communities. Shoreline management of various kinds (piers, jetties, outfall pipes) including coastal protection can also affect the natural processes of the foreshore. Other areas may suffer due to a high level of recreation.

Intertidal areas, especially rocky intertidal habitats, provide a good opportunity to bring people into close contact with marine creatures and local educational and awareness activities can raise the profile of global marine conservation issues as well as address local management concerns. There is therefore a strong link between education activities that take place on rocky intertidal areas as part of this plan and the raising of public awareness of wider marine issues as part of the Generic Marine Plan.

SITE STATUS

Coastal SSSIs with significant areas of rocky intertidal habitat

- West Exmoor Coast and Woods
- Morte Point
- Barricane Beach
- Saunton to Baggy Point Coast
- Lundy
- Westward Ho! Cliffs
- Mermaid's Pool to Rowden Gut
- Hobby to Peppercombe
- Marsland to Clovelly Coast

Voluntary Marine Conservation Area

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

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

- Land's End to Minehead Maritime Natural Area

CURRENT ACTION

- In addition to the legal and voluntary site protection mentioned above some areas of rocky foreshore are also protected through **private ownership** of inter-tidal land, for example by The National Trust.
- **Shoreline Management Plans** (SMPs) 'provide a large-scale assessment of the risks associated with coastal processes and present a long term policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner.'[4] There are two SMPs covering the area addressed by the rocky intertidal plan:
    - Cornwall and Isles of Scilly Coastal Authorities Group – which includes the area from Marsland Mouth to Hartland Point
    - North Devon and Somerset Coastal Authorities Group – which includes the rest of the area
- **Marine awareness and education** – many of the authorities, organisations and businesses working on the northern Devon coast provide marine education and awareness activities for the general public. This work will continue to support the delivery of both the BR BAP Rocky Intertidal and Marine Environment sections of this plan.

LINKS TO OTHER BIODIVERSITY ACTION PLANS[5]

	UK BAP old priority habitats and species	UK BAP revised priority habitats and species[6]	SW BAP	Devon BAP
Habitat Action Plans	• *Sabellaria alveolata* reefs	• Intertidal underboulder communities • *Sabellaria alveolata* reefs	Rocky foreshore	Rocky foreshore
Species Action Plans		• *Lucernariopsis campanulata* (stalked jellyfish) • *Lucernariopsis cruxmelitensis* (stalked jellyfish)		

[4] Defra - http://www.defra.gov.uk/Environ/Fcd/guidance/smp.htm
[5] List based on current understanding and assumptions about a) scope of BAP habitats and b) coastal habitats and species in plan area. List to be revised.
[6] UK BAP priority species and habitats were updated in 2007. Some new habitats and species may not yet have associated action plans

ROCKY INTERTIDAL PLAN

OBJECTIVES

1 Improve understanding of northern Devon's rocky intertidal habitats in terms of their biodiversity, ecology and the processes which impact upon them

2 Ensure that coastal and marine management promotes the protection and enhancement of biodiversity

3 Raise awareness and understanding of northern Devon's rocky intertidal habitats – and through them of the wider marine environment – in terms of the value of the habitat, the threats it faces and the actions that individuals can take to reduce their own impacts

	ACTION	TARGET	LEAD DELIVERER	PARTNERS	Obj. No.
A	**Policy and Legislation**				
1	Co-ordinate strategies for delivery by Biosphere, North Devon AONB, LAs, Exmoor National Park etc. to support protection and enhancement of coastal biodiversity	Opportunities for influence identified	DWT		2
B	**Site Safeguard and Management**				
1	Engage with current and future development of Shoreline Management Plans to ensure that needs of rocky intertidal biodiversity are incorporated into the decision making process	Local biodiversity experts recognised as key stakeholders by those developing SMPs	EA		2
2	Review local oil spill contingency plans and other local policies relating to beach cleaning to ensure they are still ecologically benign and recommend any improvements	Local biodiversity experts recognised as key stakeholders by those reviewing oil spill contingency plan	DCC, NDC, TDC	NDABS	2
3	Promote local community action and marine conservation projects	Assess needs and develop programme of projects along the Biosphere Reserve coast	Coastwise		1, 2 & 3

	ACTION	TARGET	LEAD DELIVERER	PARTNERS	Obj. No.
C	**Advisory**				
1	Provide advice and information to support local interpretation initiatives.	Discussions held with local groups on development of awareness materials and events programmes	NDABS	Coastwise	2 & 3
2	Promote the Seashore Code at all marine awareness events and encourage local beach shops to display it.	Discussions held with local groups on development of promotion	NDABS	Coastwise, DWT	2 & 3
D	**Research and Monitoring**				
1	Establish marine monitoring initiatives in the context of the Devon Biodiversity Monitoring Framework, with special focus on supporting current and new groups to deliver MarLIN's Shore Thing Initiative	Programme of local marine monitoring developed and implemented	Coastwise	DWT – *Sabellaria* Monitoring Programme	1
2	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
E	**Communications and publicity**				
1	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	3
2	Devise new training for local people to become local environmental guides for schools and visitors.	Training event held each year	Coastwise, DWT		3