

Tor Bay, from high-water mark out to the boundary of the Harbour limit, is one of 28 Sensitive Marine Areas in England. Its sheltered aspect, unusual geology and warm climate mean that underwater, just as on land, the area is host to an exceptionally diverse range of habitats and species.

Approximately 70% of the coastline adjoining the sea is designated as a protected wildlife site (these include the National Nature Reserve and candidate Special Area of Conservation at Berry Head to Sharkham Point, 6 coastal Sites of Special Scientific Interest, several County Wildlife Sites and, at Saltern Cove, an underwater Local Nature Reserve).

Torbay's marine location and the waters of the Bay are central to the life and identity of the community. Its tourist industry relies almost entirely on its coastal location and the quality of the coastal environment. Intensive recreational use of the Bay places its natural resources under considerable pressure and this is added to by the fishing industry.

This Marine Biodiversity Action Plan aims to:

- Identify the most important of the marine habitats and species in Tor Bay
- Assist organisations and agencies with an interest in or impact on marine nature conservation in planning their work
- Generate useful, functional partnerships
- Agree priorities for conservation action
- Agree a set of targets and related actions
- Contribute towards the development of a wider-ranging Integrated Coastal Zone Management Plan for Torbay

This plan has been drawn up by a partnership of organisations concerned with marine conservation in Tor Bay but it draws upon important work carried out by several different groups over the last decade to survey habitats, identify issues and agree priorities.

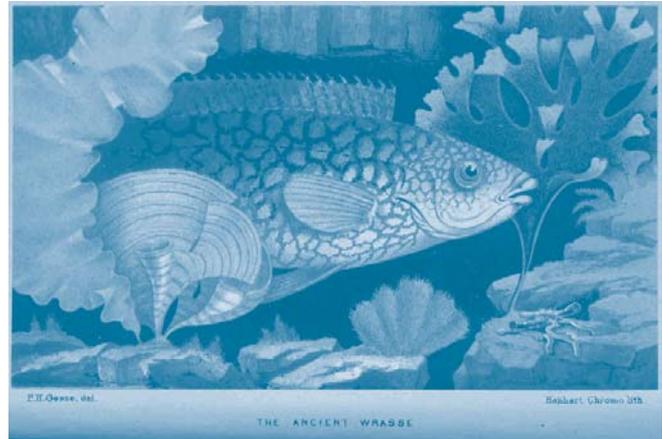
The plan consists of a description of the marine wildlife of Tor Bay, so far as it is known and a series of Action Plans covering a variety of different species and habitats. There are some common themes to these actions, which can be summarised as follows:

### Common Actions Recommended for Species and Habitats across Tor Bay

1. Establish and promote voluntary codes of conduct
2. Use existing byelaws and regulations to control damaging activities
3. Create voluntary zones to protect sensitive habitats and species from disturbance
4. Carry out further research into marine wildlife and impacts upon it
5. Raise public awareness of marine wildlife
6. Establish partnerships to integrate effort and deliver actions

## 2 BACKGROUND

This document has had a lengthy genesis. It is based on work that was begun by eminent Victorian naturalists, who discovered that Tor Bay was home to an unusual diversity of marine life. Philip Goss and Amelia Griffiths made the Bay famous through their pioneering work on sea anemones and seaweeds in the late 1800's. Subsequent generations continued their work of recording but this was largely confined to the inter-tidal zone.



It was not until the mid-1990's that serious scientific research extended beyond the low water mark, when Devon Wildlife Trust carried out a number of dive surveys, the results of which were published in 1995<sup>1</sup>. The report identified Tor Bay as one of the most important marine nature conservation areas in the region, described the locations of important habitats and species, assessed the range of human impacts upon these and suggested actions to protect them. Partly as a result of this work English Nature subsequently designated Tor Bay as a Sensitive Marine Area, one of 28 in England.

In the 1990's the importance of marine conservation and the need to co-ordinate resources much more effectively in the coastal zone was increasingly recognised. In 1995 Torbay Council established The Seashore Centre at Goodrington Sands to act as a focus for marine conservation in the Bay, and employed a Coastal Zone Manager to co-ordinate a programme of awareness-raising and policy development.

This work resulted in the year 2000 in Torbay Council together with the newly-formed Torbay Coast and Countryside Trust participating in a EU-funded research project into Marine Ecotourism<sup>2</sup>. The Tor Bay element of this project brought together a wide range of interest groups, organisations and agencies with an interest in the coastal zone of the Bay, to identify the main coastal zone management issues and agree a vision and action plan for the future.

The Tor Bay Coastal Forum 2000, which was formed by the marine ecotourism project, established a number of Working Groups to assess the situation on and under the waters of the Bay. These groups looked in detail at water recreational use, infrastructure, nature conservation, tourism and fisheries. The Forum ultimately agreed and produced an Issues Report in 2001 and many of the policy recommendations made in that report are relevant to this Marine Biodiversity Action Plan.

One of the key findings of the Coastal Forum was the need for more data on Tor Bay's marine nature conservation resource so that action could be planned in future on a stronger scientific base. As a result several nature conservation organisations joined forces in 2001 to carry out further survey work and to produce this Biodiversity Action Plan.

<sup>1</sup> *The Great West Bay Marine Wildlife Survey, Devon Wildlife Trust 1995*

<sup>2</sup> *"Marine Ecotourism in the Atlantic Area", Interreg II project, led by the University of the West of England, 2001*

"The purpose of Local Biodiversity Action Plans (LBAP) is to focus resources to conserve and enhance biodiversity by means of local partnerships, taking account of both national and local priorities." (*Meeting the Rio Challenge*)

Biodiversity Action Planning is the methodology followed by national government, local authorities, statutory agencies and voluntary organisations concerned with nature conservation across the UK. A Biodiversity Action Plan (BAP) is a way of focusing action and resources on the most important habitats and species in an area. It can be at a national, regional or local level - whatever is most appropriate.

Following the Earth Summit in Rio in 1991, the Government published Biodiversity: The UK Action Plan (1994) and formed an advisory Steering Group to put together detailed targets and priorities for the conservation of biodiversity in the UK. The Steering Group set a framework of national priorities that includes 38 key habitats and around 1250 individual species of conservation concern. In the South West region an audit of the area's biodiversity was published in 1996 and from this a number of Regional Action Plans have been developed (Action for Biodiversity in the South West, 1997). These draw upon the national priorities and supplement them with detail from across the region. Finally, in 1999, a Devon BAP was published, setting priorities at a county level.

The Torbay LBAP translates the national, regional and county priorities into local action and also promotes the conservation of species and habitats that are important on a local level to Torbay. In 1996 a partnership of nature conservation organisations came together to assess the priority habitats and species of Torbay and agreed a framework to focus future work on biodiversity in the Bay in both terrestrial and marine environments. The agreed marine habitats and species are as follows:

## TOR BAY MARINE CONSERVATION PRIORITIES

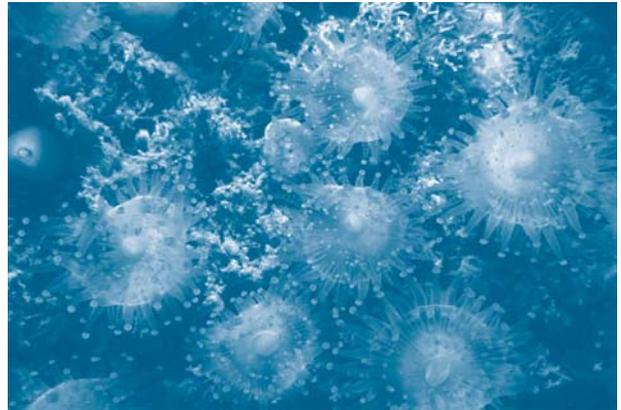
	National priority	Regional priority	County priority	Tor Bay priority
<b>Habitats:</b>				
Seagrass beds	●	●		●
Littoral Rock	●		●	●
Littoral Sediment				●
Sublittoral Rock	●	●	●	●
Sublittoral Sediment	●			●
<b>Species:</b>				
Dolphin species	●			●
Harbour porpoise	●	●		●
Basking shark	●			●
Grey seal				●
Seabirds				●

## 4 TOR BAY'S MARINE NATURE CONSERVATION RESOURCE

The following description is adapted from The Great West Bay Marine Wildlife Survey 1995:

For marine wildlife Torbay is the jewel in South Devon's crown. Its sheltered limestone and sandstone shores are rich in animals, whilst below the low water mark the Bay is outstanding.

The majority of the Bay consists of soft muddy sands. The muddier areas hold moderately rich communities characterised by the heart urchin and brittle stars, whilst the cleaner sands closer inshore hold dense populations of the razor shell, heart urchins and eel grass. Burrowing anemones are common, and large colonies of rafting brittlestars are known to wander the sediments of outer Torbay forming dense carpets of tens of thousands per square metre.



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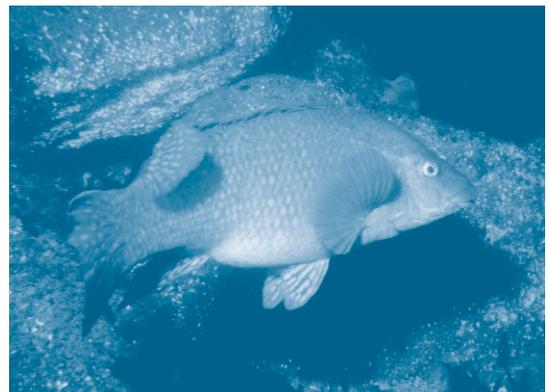


3.

The most striking sublittoral communities found in Tor Bay are those on limestone, particularly from Sharkham Point to Churston Cove and Princess Pier to Petit Tor Point. Animals dominate here; the rock, riddled by abundant piddocks, is covered in a colourful and diverse array of sea squirts, anemones and sponges. The many islets and rocks in the bay are clothed in mussels - off the Ore Stone a mat of mussels and carpet anemones dominates the sea bed, and here is found the locally rare sea slug, *Okenia elegans*.

The highest density of marine caves in the Great West Bay occurs between Sharkham Point and Watcombe. With little or no light and subjected to the constant surge of sea water the communities, when illuminated, form a colourful animal patchwork of tube-worms, barnacles, sponges, anemones and sea squirts. Many of the animals such as the Devonshire cup coral and plumose anemone manage to survive above low water in the damp and shady conditions of the caves.

Torbay contains the largest area of eelgrass beds in the whole of the Great West Bay, other lesser sites being the Exe estuary and the Fleet. These beds are an important habitat for a large number of species including hydroids, crustaceans, polychaete worms, heart urchins, and gastropod molluscs, and as a nursery ground for juvenile fish.



4.

In the intertidal zone, sponges in particular are abundant and many of the rocky shores hold over a dozen species. One of the most important inter-tidal sites is found on the limestone wall of Princess Pier, which has the richest aggregation of sublittoral species so far found within the Bay.

Torbay contains the largest number of rich underboulder sites in the Great West Bay. Boulder areas, especially on sandstone, are occasionally consolidated by reefs of the Honeycomb worm and these areas have a particularly rich and varied underboulder fauna. Hollicombe holds probably the densest population of the green sea urchin *Psammechinus miliaris* on the south west coast of Britain.

Rocky ledges and boulders on the lower shore are heavily bored by piddocks and frequently possess a rich algal turf containing several rare or scarce species. The area still retains its reputation for rare algae.

This huge diversity of marine life attracts animals from further up the food chain, most dramatically dolphins, porpoises and seals, gannets, scoters, divers and grebes. Eelgrass beds and rocky seabed zones are particularly attractive to these groups. The Bay is also regularly visited by Basking sharks in the summer months and the coast between Torbay and Plymouth is of international importance for this species.



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6.



7.

## 5 ISSUES REPORT - SUMMARY

The Coastal Forum 2000 Issues Report reached some useful conclusions concerning a wide variety of issues. Specifically relating to nature conservation, the report first identifies the key issues:

- there are many instances of disturbance of habitats and / or harassment of wildlife by recreational water users, eg dolphins, birds, eelgrass beds, rockpools
- there is insufficient information about the natural resource
- there is not enough information available for the public
- the fishing industry can have a high impact on wildlife
- enforcement of existing rules is inadequate and the byelaws are outdated
- wildlife is under pressure from the expansion of built development
- the Bay has only limited capacity to accommodate many different uses
- pollution, especially poor water quality and litter, damages marine wildlife
- there is limited co-operation between nature conservation groups

The report identifies some agreed underlying principles for all forms of policy-making affecting Tor Bay:

- A flexible approach to regulation is necessary, using a mixture of existing legislation, new legislation, codes of practice, voluntary compliance and enforcement as appropriate to each situation.
- The conservation of the environment of Torbay is critical to its economic success, because the tourism industry depends upon a high-quality environment.
- The creation of a prosperous economy will benefit the environment through re-investment and proper management.
- People have the undisputed right to enjoy leisure activities, or to make their living, in whatever way they choose, providing that they do not materially damage other people's, or future generations', leisure or working lives.
- Co-operation, partnership, involvement in decision-making and a shared vision are essential if any progress is to be made.

Finally, a series of key actions are set out - these relate to all aspects of the Forum's discussion:

### **A1 - Reduce conflicts between user groups**

- Improve the enforcement of existing regulations
- Agree a common code of practice for the coastal zone that balances the needs of the fishing industry, recreational water users and nature conservation interests
- Establish zoning or seasonal restriction areas for commercial and recreational activities to reduce disturbance of sensitive species and habitats
- Encourage the provision of effective training for powercraft users

### **A2 - Increase public awareness of the issues**

- Improve information on and interpretation of environmental and coastal zone issues to the general public
- Publicise the code of practice
- Carry out a marketing campaign to advertise the wildlife and leisure opportunities available in Torbay 's coastal zone
- Provide training to commercial operators in specific skills to improve management of the coastal zone
- Introduce coastal and marine issues into the school agenda

## A3 - Research

- Share existing information in order to establish a good baseline for future reference and to identify gaps in research
- Carry out ongoing surveys of wildlife resources, public opinion, business activity and other relevant factors

## A4 - Pollution

- Reduce pollution levels, especially of sewage, litter and diesel
- Review waste disposal facilities for all coastal zone users

## A5 - Access

- Improve public access to ports, land, water and views
- Create additional / improved mooring facilities for pleasure craft at locations on the coast where appropriate services can be provided

## A6 - Business environment

- Encourage investment in the water recreation and fishing industries
- Develop responsibly-managed niche markets such as wildlife tourism, scuba diving and heritage boats



8.

## A7 - Fishing industry

- Review the impact of gill netting and trawling on other water users and the natural environment
- Work for better enforcement of current regulations
- Improve facilities for the fishing industry and sport fishing

## A8 - Partnership

- Establish a long-term, formal partnership to bring the many interest groups in Torbay's coastal zone together
- Produce a detailed management strategy and co-ordinate work to sustain the Bay in the future

This Marine Biodiversity Action Plan takes as its cue those actions that are relevant to marine nature conservation issues and adds detail as necessary.

## 6 HABITAT AND SPECIES ACTION PLANS

### Habitat I: Littoral Rock and Sediment (including Honeycomb worm reefs)

#### Description

The littoral zone lies between tide marks and so is immersed during high tides and exposed during low tides. In general littoral rock tends to be colonised by algae in wave-sheltered conditions, and by limpets, barnacles and mussels as wave-exposure increases. Apart from wave exposure and position relative to the tide, the topography of the shore has an important influence on the communities present. Boulders, gullies, pools, and overhangs provide a variety of micro-habitats as do areas of mixed substrate.

Littoral sediments consist of features such as beaches, sand banks, and intertidal mudflats. Mobile gravels and sands tend to be highly impoverished, whereas sheltered areas with mixed sediments can support very rich communities. There is also a zonation of species down the shore which principally reflects the degree of immersion and emersion by the tide. In general tidal flats are low in species diversity but they often support very dense populations of invertebrates so that the overall biomass of the area can be extremely high.

#### Status

Littoral rock and sediment habitats are widespread around the UK.  
Devon Priority Habitat

#### Associated Species

Honeycomb worm reefs, edible mussel beds

#### Current Status in Torbay

Torbay has large areas of rocky foreshore. The geology of Torbay, consisting of soft sandstones and limestones, means that rocky areas are very diverse offering many opportunities for colonisation.

Some of the rocky foreshore is already protected by site designation (eg Saltern Cove SSSI and LNR; Meadfoot Beach SSSI).

Torbay also has large areas of littoral sediment, including most obviously its many beaches. At the very sheltered Torre Abbey Sands an area of muddy sand supports seagrass beds that are exposed at very low tides.

#### Problems/ threats in Torbay

The main threat to littoral rock in Torbay is from intense recreational pressure (eg rock-pooling) that causes disturbance to substrates and the species dependent upon them. Finally pollution, eg from tributyl tin associated with anti-fouling paints, can damage mollusc populations.

Extensive bait digging can cause local depletion of the target species and alter the sediment structure. Other potential effects include uprooting eel grass *Zostera* spp and loosening mussel beds *Mytilus edulis*. These effects can be short term or long term depending on factors such as the sediment type, timing and method of bait collection.

Development pressures, eg coastal defences, extending onto the littoral zone may also have an impact.

#### Current Positive Initiatives in Torbay

The creation of the Seashore Centre at Goodrington was in response to the damage being caused to the rocky foreshore at Saltern Cove, a SSSI and LNR. This, together with a programme of events to raise awareness, has been effective in

reducing pressure on this site and others in Torbay. Voluntary Marine Rangers work with the public to reduce impacts.

## Habitat Objectives

- Maintain the extent and quality of littoral habitats in Torbay, including the full diversity of communities.
- Protect sites of conservation importance from damage through contamination, physical disturbance or excessive use (eg maritime accidents, trampling and collection, shellfish dredging and marina/harbour development)
- Minimise the risk of the introduction of non-native species
- Ensure that EIAs for coastal developments, including developments above high water mark, examine potential effects on intertidal and nearshore areas
- Promote the management of littoral sediment habitats within strategies (eg MAFF Shoreline Management Plans which permit the natural functioning of sediment systems).

## Habitat 2: Inshore Sublittoral Rock and Sediment

### Description

The seabed of inshore areas is dominated by soft sediment. Areas of soft sediment may be relatively flat featureless plains or worked into forms such as ripples, waves, furrows, and banks. The activities of infauna and epifauna add another dimension by creating smaller-scale features such as burrows, mounds, and tracks. The communities found on, and in, these areas are determined mainly by the sediment type and its mobility. In general, coarse clean sediments tend to occur off exposed coasts, and muddy sediments off sheltered coasts. Soft sediments tend to be important fish breeding areas.

Where sublittoral rock habitats occur they tend to be immediately adjacent to the shore, fringing islands, headlands, open coast and rocky inlets such as rias and sea lochs. Further offshore, rocky sublittoral habitats may be present as submerged reefs, pinnacles and ledges, and are often surrounded by areas of soft sediment. Well-lit areas of rock are plant dominated, typically by kelp forests and foliose red algae, whereas deeper rock is animal dominated with ascidians, sponges, sea anemones and hydroids the typical colonisers of the rock surfaces. In areas of severe wave action kelp is often sparse and the littoral fringe communities extend into deeper waters.

### Status

National Priority Habitats. Linked to Commercial Marine Fish Species Action Plan. Devon Priority Habitat.

### Associated Species

Cuckoo wrasse, pollack, bass, leopard-spotted goby  
Devonshire cup coral, common lobster, common spider crab

### Current Status in Torbay

No protection at present

### Problems/threats in Torbay

- Physical disturbance by fishing activities - areas of sandy seabed in Tor Bay may be subjected to intensive perturbation by bottom fishing gears (such as beam trawling). Gravel substrata may also be disturbed by scallop dredging. Biogenic reefs and

## 6 HABITAT AND SPECIES ACTION PLANS

sedentary worm beds may be particularly vulnerable to trawling activity.

- Pipe and cable laying and the construction of sea defences
- Organic pollution from sewage discharge and aquaculture activities leading to anoxic conditions and a decrease in benthic diversity.
- Sublittoral rock communities are vulnerable to disturbance and damage from activities such as coast protection works, discharge of contaminants, and nutrient enrichment.
- Bottom fishing gears, especially towed gear, although generally not deployed in rocky areas, are used close inshore on occasions and can damage fragile species and communities in such areas

### Current Positive Initiatives in Torbay

Environment Agency / Devon Sea Fisheries Regs re: nursery habitats?  
Clean Sweep  
Shoreline Management Plan

### Habitat Objectives

- Ensure that the best examples of sublittoral sand and gravel habitats are protected from the adverse effects of fishing, dumping and disturbance
- Assess future significant changes (if any) in the level of biodiversity within sand and gravel habitats
- Liaise with fishing organisations and other users to promote environmental awareness
- Require EIAs for coastal developments to examine potential effects on intertidal and nearshore areas;
- Monitor any impact of dump sites on inshore sublittoral rock habitats, communities and wildlife, and take action as appropriate

### Habitat 3: Seagrass Beds

#### Description

Seagrass beds develop in intertidal and shallow subtidal areas on sands and muds. The principal species of *Zostera* found in Tor Bay is eelgrass *Zostera marina*, found predominantly in the sublittoral zone. Fragments of the other species *Z. angustifolia* and *Z. noltii* have been found on the tidal stream.

The plants stabilise the substratum, are an important source of organic matter, and provide shelter and a surface for attachment by other species. This shelter makes them important nursery areas for flatfish and, in some areas, for cephalopods.

#### Status

No specific protection  
National Priority Habitat  
Regional Priority Habitat

#### Associated Species

The most well known associated species are sea horses (*Hippocampus hippocampus* and *Hippocampus guttulatus*). Breeding ground for cuttlefish and many other fish species.

#### Current Status in Torbay

There are 6 documented sites of eelgrass beds in Torbay, all of which were initially surveyed in 1998. The most extensive beds are found at Torre Abbey Sands and Elberry Cove.

**Problems/ threats in Torbay**

- Disease. A wasting disease was responsible for die-back of large areas of seagrass in the UK in the 1930s. The fungus and slime mould which colonised the weakened seagrass have recently reappeared in seagrass beds around the Isles of Scilly.
- Natural cycles. The extent of seagrass beds may change as a result of natural factors such as severe storms, exposure to air, and freshwater pulses. Warm sea temperatures coupled with low level of sunlight may cause significant stress and die back of seagrass.
- Physical disturbance, for example by trampling, dredging, anchor drag and use of mobile bottom fishing gear, land claim and adjacent coastal development through the construction of sea defences and potential for changes in the hydrological regime. Motor boats may also damage shallow-water eelgrass.
- Increased turbidity reducing photosynthesis.
- Nutrient enrichment, at low levels, may increase production in *Zostera* while high nitrate concentrations have been implicated in the decline of mature *Z. marina*.
- Marine pollution. Eelgrass is known to accumulate Tributyl tin and possibly other metals and organic pollutants. Accumulated pollutants may become concentrated through food chains.

**Current Positive Initiatives in Torbay**

Environment Agency / Devon Sea Fisheries Regs re: nursery habitats?  
Clean Sweep  
Shoreline Management Plan

**Habitat Objectives**

- Maintain the extent, quality and distribution of seagrass beds in Tor Bay
- Ensure that development schemes, dredging operations and fishing activities do not affect the integrity or the conservation interest of intertidal and subtidal seagrass beds.
- Explore options for using statutory measures, aside from those specifically designed for nature conservation, to protect seagrass beds. Particular consideration should be given to fisheries legislation and port and harbour regulations.
- Protect all beds as nursery grounds for fish species.
- Promote awareness among coastal users of the conservation importance of seagrass beds and how to avoid impact on these habitats.

**Species I: Dolphins, Porpoises and Basking Sharks****Description**

Along the Atlantic seaboard of Europe, the bottlenose dolphin is locally frequent nearshore off the coasts of Spain, Portugal, north-west France, western Ireland, north-east Scotland, in the Irish Sea (particularly Cardigan Bay and south-east Ireland), and in the English Channel. Numbers at most UK sites are greatest between July and October (with a secondary peak in some localities in March-April).

There is some evidence of a decline in numbers of harbour porpoise in UK waters since the 1940s, especially in the southern North Sea and English Channel.

A very large, plankton-feeding pelagic shark, the basking shark is the largest fish in UK waters (ca. 10-11 m maximum length), and the second largest in the world.

Although widely distributed in both hemispheres, basking sharks appear to be most regularly recorded in coastal areas of the UK

## 6 HABITAT AND SPECIES ACTION PLANS

### Status

All species of cetaceans are given protection under the Wildlife and Countryside Act 1981. The bottlenose dolphin is listed in Annex II and IV of the EC Habitats Directive.

The harbour porpoise is listed on Appendix II of CITES, Appendix II of the Bern Convention and Annexes II and IV of the EC Habitats Directive. It is also on Appendix 2 of the Bonn Convention and is covered by the terms of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), a regional agreement under the Bonn Convention. It is protected under Schedule 5 of the WCA 1981.

The basking shark is protected under Schedule 5 of the Wildlife and Countryside Act 1981. The global status is assessed as Vulnerable (A1a,d, A2d) in the 1996 IUCN Red List.

### Associated Species

Other large mammal visitors include Grey seal, Risso's dolphin, Common dolphin, Pilot whale

### Current Status in Torbay

A pod of up to 50 bottlenose dolphins ranges along the south Devon and Dorset coast and members of this group regularly visit Tor Bay. However this group suffers quite high levels of disturbance from leisure craft.

Groups of harbour porpoise are frequent visitors.

Basking sharks and seals are also frequently seen.

### Problems/ threats in Torbay

There is evidence of substantial numbers of dolphins (mainly common and Atlantic white-sided dolphins) caught in pelagic trawls (targeting tuna, hake, bass, horse mackerel, mackerel and herring) in the south-west approaches to the English Channel and Celtic Sea. Post-mortem studies of 138 common dolphins washed ashore on UK coasts (mainly south-west England) between 1990 and 1995 revealed at least 62% of animals died as a result of by-catch.

- Boat activities (merchant shipping, seismic, military and recreational) in coastal waters pose threats to dolphins by direct physical damage (collisions, and propeller damage) and by the sounds introduced into the environment, where potential harm may be caused by direct auditory damage at close distances and interference with navigation, food-finding, and communication further away.
- Direct harassment of dolphins by boat operators is a major threat to the use of the Bay by these species as they are readily disturbed.
- Contaminants, including organochlorines, may impact the reproductive potential or cause immune suppression in marine mammals, including dolphins.

### Current Positive Initiatives in Torbay

- TCCT Dolphin and Marine Awareness Project
- Publication and distribution of Codes of Conduct
- Volunteers attending on boats to advise boat operators
- Surveys of boat activity whilst dolphins / porpoises are in the Bay

### Species Objectives

- Minimise disturbance of visiting megafauna by boat operators
- Minimise by-catch from fishing operations

## Species 2 : Seabirds

### Description

Tor Bay is used as a winter roost site by Red-throated diver, Black-throated diver, Great Northern diver, Great Crested grebe, Red-necked grebe, Slavonian grebe, Black-necked grebe, Common Scoter and Red-breasted merganser. The birds gather in small flocks to feed and roost on open water.

Berry Head is a breeding site for Common Guillemot which feeds largely out at sea but depends upon undisturbed cliffs for successful breeding.

### Status

The species listed above are all classified under the UK Birds of Conservation Concern schedule as either Red (Globally threatened, high conservation need) or Amber (Unfavourable conservation status in Europe, medium conservation need).

### Associated Species

Fulmar, Shag, Kittiwake

### Current Status in Torbay

Tor Bay is nationally important as a winter roost site for the bird species listed above, holding up to 40% of the national winter population of Black-necked grebes. Berry Head is nationally important for its Guillemot colony, with up to 450 pairs present in the spring, forming the largest breeding colony on the English Channel Coast. The cliffs and surrounding waters are as a result designated an Area of Special Protection (ASP).

### Problems / threats in Torbay

- Physical disturbance is the main threat to the wintering species, caused principally by boats, jet skis and windsurfers.
- Anglers are a threat either in accidentally hooking birds or in discarding lines and hooks which are a hazard to diving birds.
- Gill nets are also a threat to any diving bird.
- Marine pollution. Oil, discarded plastic and can holders are all life-threatening.
- Lack of awareness or compliance with the ASP at Berry Head.
- Extended dive season means that there is greater disturbance from divers at Berry Head.
- Increased turbidity.

### Current Positive Initiatives in Torbay

Anglers code of conduct  
 Controls on gill netting  
 DBWPS survey work / species recording

### Species Objectives

- Promote awareness amongst coastal users of these species and their importance.
- Create zones to protect sensitive sites.

# ACTION PLAN FOR PRIORITY MARINE HABITATS AND SPECIES

## 1. Policy, Legislation and Site Safeguard

	Delivery		Complete by				
	Lead	Partners	2004	2005	2006	2007	2012
P1: On designated sites (eg SSSI, LNR), observe and enforce relevant protocols.	TCCT	All	●	●	●	●	●
P2: Designate other sites, depending upon the results of further survey work.	EN	DWT		●	●		
P3: Outside designated sites draw up voluntary codes of conduct and promote widely.	TCCT	All		●	●	●	●
P4: Develop byelaws where necessary to control damaging activities.	TC DSF			●	●		
P5: Enforce protection laws (CROW Act 2002) regarding disturbance of megafauna.	EN	All	●	●	●	●	
P6: Introduce zoning measures to protect the most important habitats from disturbance	TC	DSF TCCT		●			
P7: Ensure that Environmental Impact Assessments are carried out where development proposals have a potential impact upon habitats and / or species.	TC	All	●	●	●	●	●

## 2. Monitoring and Research

	Delivery		Complete by				
	Lead	Partners	2004	2005	2006	2007	2012
M1: Monitor species distribution and abundance involving professional surveyors, dive clubs, schools and colleges, community groups and volunteers as appropriate	DWT TCCT	EN	●	●	●	●	●
M2: Carry out research to identify areas for designation for special protection for marine diversity.	DWT	EN TCCT	●	●	●	●	●
M3: Carry out long-term monitoring of specific "at-risk" sites to alert policy-makers of any problems.	TCCT	DWT	●	●	●	●	●
M4: Establish a standard recording format for megafauna sightings and / or harassment cases.	TCCT		●				
M5: Monitor cetacean visits to Torbay using sonar recording equipment and visual recording and investigate possible breeding grounds	TCCT		●	●	●	●	
M6: Contribute towards national megafauna stranding schemes and integrate with post mortem studies and analyses of important biological data.	TCCT		●	●	●	●	●
M7: Monitor seabird species distribution and numbers, food sources and feeding grounds within Torbay with DBWPS and RSPB.	DBWPS	RSPB	●	●	●	●	●

## ACTION PLAN FOR PRIORITY MARINE HABITATS AND SPECIES

3. Communication and Publicity	Delivery		Complete by				
	Lead	Partners	2004	2005	2006	2007	2012
C1: Carry out a broad-ranging programme of awareness-raising, including events, exhibitions, talks, advertising and leaflets, targeted on recreational users.	TCCT	All	●	●	●	●	●
C2: Maintain and develop the Seashore Centre at Goodrington Sands as a focus for marine nature conservation in Torbay.	TCCT		●	●			
C3: Publish and promote an integrated Code of Conduct for all users of the Bay.	TC	TCCT	●	●	●	●	●
C4: Identify littoral zones within the bay suitable for education visits and encourage schools to make use of them as part of the national curriculum.	TCCT		●	●	●	●	●
C5: Install signing at suitable sensitive littoral sites to encourage visitors to follow codes of conduct.	TC	TCCT		●			
C6: Carry out a targeted programme of awareness-raising with the fishing industry, including training events	DSF	ST		●			
C7: Publicise Tor Bay as a significant wintering seabird population site in the Southwest / UK.	DBWPS	TCCT	●	●	●	●	●

## APPENDIX A - MARINE SURVEY RECORDS FOR TORBAY

Site number  
(see map on p.21)

1	Maidencombe	SX 928 685	Moderately exposed sandstone conglomerate boulder slope and ledges. Good habitat diversity with rich algal and faunal communities in the lower eulittoral
2	Whitsand Beach	SX 927 675	Moderately exposed sandstone conglomerate boulder slope. Good zonation, Good habitat diversity.
3	Watcombe Cove (South Bay)	SX 926 674	A small cove north of Torbay and south of the Teign. A sandy bay with cliff headlands and boulder scree slopes beneath giving a significant difference in shade levels across the bay. Boulders with a typical though diverse red algae understory beneath <i>Fucus serratus</i> and kelp. Larger boulders in the lower eulittoral had a rich sessile fauna on shaded overhanging / vertical faces. Mid eulittoral and above showed excellent zonation with healthy populations of <i>Fucus spiralis</i> , Littorinids and dense <i>Verrucaria maura</i> on north facing slopes.
4	Petit Tor	SX 927 665	Limestone bedrock and boulders with submerged caves that are rich in encrusting life. Species include <i>Sagartia elegans</i> , <i>Sagartia troglodytes</i> , <i>Dendrodoa grossularia</i> , <i>Edwardsiella carnea</i> , <i>Phallusia mammillata</i> and <i>Alcyonium</i> species.
5	Oddicombe (North)	SX 9265 6615	Moderately exposed sandstone and limestone bedrock. Representative intertidal communities.
6	Oddicombe	SX 927 657	Moderately exposed broken slates and limestone boulders. Diverse red algal turf.
7	Redgate Beach	SX 937 648	Moderately exposed limestone reefs and boulders. Species diverse including <i>Gobiusculus flavescens</i> , <i>Cereus pedunculatus</i> , <i>Corynactis viridis</i> , <i>Caryophyllia smithii</i> and <i>Hymeniacion perleve</i> .
8	Anstey's Cove	SX 936 647	Moderately exposed limestone reefs and boulders. Diverse shaded faunal communities. <i>Zostera</i> beds reported in this area.
9	Lead Stone	SX 9515 6345	Moderately exposed limestone island. Diverse animal and algal communities present on vertical faces. Dense mussel beds.
10	Ore Stone	SX 956 629	Moderately exposed limestone island. Important animal and algal communities present on vertical faces. Marine Caves and tunnels present. Dense mussel beds present.
11	Hopes Nose	SX 948 634	Moderately exposed limestone ledge and cliff. High Anthozoa diversity.
12	Thatcher Boulder Slope	SX 940 632	Moderately exposed slate boulder slope with shaded faces. Lower eulittoral communities are of interest.
13	Thatcher Point	SX 943 631	Moderately exposed tideswept slate and limestone ledges. Important algal communities.
14	Thatcher Rock	SX 944 628	Moderately exposed limestone island. Important animal and algal communities present on abundant vertical faces. Marine caves present. Dense mussel beds.
15	Meadfoot Beach	SX 933 630	Transect dive off Meadfoot beach in North Torbay running from the easy end of the shore to the central reef. Muddy sand with ripples and typical fauna including <i>Lanice conchilega</i> , <i>Ensis</i> species, young flat fish and <i>Syngnathus acus</i> occasional <i>Sargatiogen undatus</i> . Reef scoured around base where it met sand, often overhung with deep fissures holding many <i>Cancer pagurus</i> and <i>Necora puber</i> . Overhangs with encrusting Bryozoa and upward faces had dense kelp with diverse red understory.

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16	East Shag Rock	SX 932 627	East Shag rocks off Meadfoot, North Torbay. Very steep limestone with few ledges and a 4m cliff down onto muddy sand and shelly gullies at 7.5m BCD. Upward surfaces with dense kelp and rich red algae flora. Bored cliff face with abundant <i>Alcyonium digitatum</i> and rich encrusting fauna including a variety of sponges ( <i>Dercitus bucklandi</i> , <i>Myxilla incrustans</i> ), Ascidians ( <i>Phallusia mammilata</i> , <i>Morchellium argus</i> , <i>Sydnium elegans</i> ) and Anthozoa ( <i>Urticina felina</i> ). <i>Calliostoma ziziphinum</i> were common particularly where shaded faces had a dense red algae turf often including <i>Phyllophora crispa</i> species. Gullies often full of <i>Mytilus edulis</i> shell debris.
17	Morris Rogue	SX 933 625	Limestone pinnacle to the south of Meadfoot beach in north Torbay. Limestone rising from 10 m BCD vertically with a dense turf of hydroids, bryozoans, anemones and sponges. Many piddock holes and <i>Hiatella arctica</i> abundant. One large horizontal step halfway up the north side similar to vertical faces but with increased red algae, <i>Antedon bifida</i> and anemones, particularly <i>Sagartia elegans</i> , <i>Sargartiogeton undatus</i> , <i>Cereus pedunculatus</i> and <i>Urticina felina</i> . The top of the reef was at 1 m BCD and dominated by dense kelp and a carpet of mussels. Red algae was sparse here. A rich site with an excellent diversity of animals.
18	West Shag Rock	SX 926 626	West Shag rock in north Torbay is dominated by <i>Mytilus edulis</i> in the mid and lower eulittoral, extending into the sublittoral fringe. The vertical limestone sides of the rocks, steeply sloping and overhanging in areas, reach muddy sand and shelly gullies at 7m BCD. Bedrock possesses a very rich sessile fauna with large numbers of Ascidians, including <i>Polycarpa rustica</i> , <i>Botryllus schlosseri</i> and <i>Distomes variolosu</i> . Anthozoa are well represented with many <i>Urticina felina</i> , <i>Sagartiogeton undatus</i> and <i>Cereus pedunculatus</i> . The rare anemone <i>Aiptaisia mutabilis</i> was recorded in large numbers. Rock heavily bored and pitted, a very rich site.
19	London Bridge	SX 924 627	Intertidal cliff extending into the infralittoral with occasional caves and reaching boulder seabed at 4m BCD. Rich sessile fauna, sponges dominated by <i>Pachymatisma johnstoni</i> , <i>Dercitus bucklandi</i> and <i>Cliona celata</i> . Ascidians common but not in high abundance. Anthozoa poorly represented. Varied red algae including <i>Phyllophora crispa</i> , <i>Callophyllis laciniata</i> , <i>Brogmatella byssoides</i> and <i>Cryptopleura ramosa</i> . Occasional browns including <i>Laminaria species</i> , <i>Dictyota dichotomas</i> and <i>Dictyopteris membranacea</i> .
20	Millstone Bay	SX 919 630	Two islets off peaked Tor cave in north Torbay. Bay of rippled muddy sand with typical burrowing fauna though not particularly rich. Limestone reefs around the milestone forming long, rounded finger reefs heavily bored and with rich algae flora and sessile fauna. Anthozoa and <i>Polycarpa rustica</i> particularly abundant. Kelp with underlying dense red algae.
21	Haldon Pier	SX 917 630	Pier outer wall is made up of large boulders. Low species diversity at the time of dive with few <i>Patella</i> species, <i>Pomatoceros</i> species, and <i>Balanus</i> species. Algal species include <i>Laminaria species</i> , <i>Saccorhiza polyschides</i> and <i>Lomentaria articulata</i> .
22	Princess Pier	SX 914 634	Sheltered limestone pier-wall and pilings with communities typical of overhangs and shaded vertical faces. Exceptionally rich fauna dominated community with many more commonly sublittoral species.
23	Torre Abbey Sands	SX 910 633	A snorkel dive covering the area of sands approximately 110m West of Harbreck Rock. This overlies a stiff brown clay full of fragments of twigs / rootlets, the Mesolithic 'forest bed' which is exposed in patches. Pengelly recorded a mesolithic tranchet axe here in the 19th Century. The clay has its surface planes flat, with striations perpendicular to the shore, and contains many old silted up piddock borings. <i>Ulva</i> and <i>Laminaria saccharina</i> was found on clay patches. <i>Zostera marina</i> was looked for but not seen. Fauna was dominated by <i>Ensis</i> species, <i>Arenicola</i> species and <i>Lanice conchilega</i> . <i>Echinocardium cordatum</i> was present. Mobile fauna was represented by decapods.

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24	Corbyn's Head	SX 908 632	Sheltered sandstone conglomerate ledges with a high habitat diversity rich algal turf and a very diverse underboulder fauna.
25	Livermead Sands	SX 906 627	A sandy bay with sandstone ledges and headlands to the south of Torquay. Sandstone ledges with a rich intertidal red turf extended into the sublittoral fringe with kelp forests and a red algae understory dominated by Corallinacea and <i>Callophyllis laciniata</i> . Sandstone gives way to rippled sand at 2m BCD with deeply undercut bedrock at the sand / bedrock interface. Rippled sand held good populations of <i>Lanice conchilega</i> , <i>Corystes cassivelannus</i> , <i>Hinia reticulata</i> and <i>Pagurus bernhardus</i> . There were frequent <i>Arenicola marina</i> casts and patches of sparse diseased <i>Zostera marina</i> . A diatom film was conspicuous in shallow regions.
26	Oil Cove	SX 901 625	Moderately exposed sandstone conglomerate ledges. Rich underboulder and red algal turf communities. Super abundant reefs of the honeycomb reef worm <i>Sabellaria alveolata</i> .
27	Hollicombe Rocks/ Preston	SX 898 619 - SX 899 623	Moderately exposed sandstone conglomerate ledges with areas of sand scour. Abundant reefs of the honeycomb worm <i>Sabellaria alveolata</i> . Important underboulder communities.
28a	Paignton Harbour (Outer Wall)	SX 985 0 3065	Sheltered limestone boulders with many shaded surfaces. Diverse fauna with several more typically sublittoral species.
28b	Paignton Harbour	SX 895 603	Ultra sheltered sandstone slope and muddy sand. Representative flora and fauna.
29	Fairy Cove	SX 897 603	Moderately exposed sandstone conglomerate ledges and boulder fields. Mussel dominated communities, rockpools and bouldered areas of interest.
30	Roundham Head	SX 899 600	Roundham Head, mid west Torbay. Sandstone ledges and boulders meeting sand at 3.5-4.5m BCD. Boulders increased to the south. Many vertical faces and deep fissures with abundant <i>Phyllophora crispa</i> , <i>Brongniartella byssoides</i> and <i>Holothuroidea</i> . Also present <i>Thorogobius ephippiatus</i> and <i>Tripterygion atlanticus</i> . Upper surface of kelp forest with sparse red algae cover dominated by <i>Callophyllis laciniata</i> , but more varied in open areas on the edge of the reef. Rock adjacent to sand had tolerant algae such as <i>Furcellaria lumbricalis</i> and <i>Ahnfeltia plicata</i> . Adjacent sand varied considerably from clean coarse sand to fine muddy sand. The clean sand was impoverished and formed waves, the muddy sand was typical with abundant <i>Pomatoschistus</i> species, <i>Arenicola marina</i> and <i>Callionymus lyra</i> . Large patches of drift algae consisted mainly of <i>Ulva</i> species.
31a/b	Goodrington Sands (Middle)	SX 895 595	Meadfoot Slate littoral rocky reef extending approximately 180 m seaward from sandy beach. Abundant <i>Mytilus edulis</i> , acorn barnacles and <i>Patella vulgata</i> . Shallow pools with diverse communities the species include <i>Littorina littorea</i> , <i>Actinia equina</i> , <i>Aplysia punctata</i> , <i>Aeolidia papillosa</i> and <i>Nerophis lumbriciformis</i> . <i>Sabellaria alveolata</i> reefs are also present.
31c	Goodrington Sands (South)	SX 895 595	Sandstone ledges with conglomerate extending into muddy sand at about 2m BCD. Reef at southern end of Goodrington Sands, Torbay. Reef with 1m deep gullies running inland, cobble and boulder filled, whole area kelp dominated with a diverse red algae understory. Encrusting fauna representative for the area, though not in abundance other than large numbers of gastropods, bryozoa and <i>Botryllus schlosseri</i> . Rippled muddy sand overlying bedrock was low in diversity with typical burrowing and epifauna. Mysids abundant. Large recessed fissures were present with <i>Ctenolabrus rupestris</i> and <i>Conger conger</i> . Sandy rock on edge of reef had abundant sand tolerant species of algae.
32	SW Torbay muddy gully (East of Saltern Cove)	SX 895 590	Part of the central bay, east of Saltern Cove. Flat plain of very muddy sand with <i>Philine aperta</i> and <i>Turritella communis</i> and abundant <i>Echinocardium chordatum</i> shells. Diversity low with only a few macro invertebrates recorded though no sediment sample was taken.

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33	Saltern Cove	SX 895 585	Moderately exposed limestone and sandstone reefs with sand and boulder. Exceptionally diverse site possessing many species rich habitats. Rockpool, overhang and underboulder communities are of particular note. Healthy reefs of the honeycomb worm <i>Sabellaria alveolata</i> about sandy areas.
34	Armchair Rock	SX 897 584	Moderately exposed limestone headland with surge gullies and tunnels and heavily bored by piddocks. Rich shaded tunnel and gully communities. High algal diversity in deep sheltered rockpools. Many more typically sublittoral species present.
35	Shell Cove	SX 896 582	Moderately exposed sandstone conglomerate ledges with freshwater springs. Representative, with high algal diversity.
36	Broadsands Bay	SX 897 576	Reason for site selection. Previously unsurveyed and known for the wide variety of marine life washed ashore. A sandy beach situated between the Saltern Cove SSSI and Churston Point. The sand shelves gradually is fine, muddy and rippled. A sublittoral peat bed is reportedly present and pieces of this are often washed ashore bored by <i>Pholas dactylus</i> . A rich burrowing fauna is present dominated by <i>Arenicola marina</i> , <i>Cerianthus lloydii</i> , <i>Ensis</i> species and <i>Lanice conchilega</i> . <i>Hinia reticulata</i> are abundant on the sand surface. A stream running down the beach produces a halocline close to shore on a sheltered days.
37	Elberry Cove	SX 903 570	Sheltered sandy cove with shingle ridge. Dense tubeworm beds in the lower eulittoral. There is a very extensive bed of <i>Zostera</i> growing on the clean sand substrate here.
38	Ivy Cove and Silver Cove	SX 907 571	Sheltered limestone boulder shore- Rich red algal turf and underboulder communities. National rare species.
39	Fishcombe Quarry	SX 912 572	Sublittoral fringe and infralittoral boulder and muddy sand off Fishcombe quarry in south Torbay. Large algae covered boulders dominated by kelp and with loose gravel, pebbles and sand. Below this lies a region of pebble, gravel and muddy sand with an impoverished red algae turf. Under boulder poor with encrusting <i>Verruca stromia</i> , Anomiidae and <i>Pisidia longicornis</i> . Occasional fish, hermit crabs and large polychaetes.
39	Fishcombe Quarry (inter-tidal)	SX 913 573	Kelp forest at base of steep shore of an old quarry to the west of Fishcombe Cove. Cobble and boulder below vertical bedrock with a plain of mud and cobble. Vertical limestone faces very pitted with rich encrusting and boring marine life. Caves and tunnels present with <i>Pachymatisma johnstonia</i> and <i>Dercitus bucklandi</i> .
40	Churston Cove	SX 919 570	Central Churston Cove west of Brixham breakwater. Muddy sand with broken shell, gravel, pebbles and algae covered turf. Algae, red filamentous or green foliose mostly. Muddy sand with typical species including <i>Pomatoschistus pictus</i> , <i>Amphiura</i> species, <i>Ophiura</i> species, <i>Turitella communis</i> , <i>Pagurus bernhardus</i> and Polychaetes.
41	Fishcombe Cove	SX 919 569	Above low water mark spring tide is a boulder shore, with rocks to either side. Below LWST a stony bottom continues to -3.4m, with a varied weed cover, kelps etc, including dense <i>Chorda</i> beds in places. Beyond and covering the flat bottom of the cove, is muddy sand with a dense bed of <i>Zostera marina</i> with rich associated species. In particular, <i>Arenicola marina</i> , <i>Echinocardium chordatum</i> and big <i>Lanice conchilega</i> were frequent. Occasional large boulders and bedrock outcrops supported a dense covering of fine filamentous red algae ( <i>Antithamnion</i> species) and patches of dense kelp, <i>Laminaria saccharina</i> on small boulder and cobble, <i>L. Hyperborea</i> on bedrock and large boulders.
42	Joan's Rock	SX 919 572	Low lying rock reef of Brixham Harbour and Fishcombe Cove. The reefs are heavily silted in about 6m (BCD) of water and lie adjacent to mud plains. Usually the site is dominated by occasional large <i>Metridium senile</i> and large numbers of Opisthobranchs and <i>Pagurus bernhardus</i> . Algae growth is dense but low lying with virtually no kelp. Adjacent mud was well burrowed by a variety of species with large numbers of <i>Philine aperta</i> , <i>Aplysia punctata</i> and <i>Amphiura brachiata</i> .

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43a	Brixham Breakwater	SX 929 569	Outer face of Brixham Harbour breakwater. Boulder slope of concrete blocks eventually reaching muddy gravel at 7m BCD. Blocks to 3m with many boulder holes supporting numerous <i>Galathea strigosa</i> . Kelp down to about 3m BCD. Fish abundant especially <i>Ctenolabrus rupestris</i> , others including <i>Parablennius gattorugine</i> , <i>Thorogobius ephippiatus</i> and <i>Trisopterus minutus</i> . Rock with encrusting flora and fauna - poor diversity. Muddy gravel poorly colonised with a few burrows and occasional <i>Callionymus lyra</i> , <i>Hiatella arctica</i> abundant in rock.
43b	Brixham Breakwater	SX 925 572	A steep boulder slope at the end of Brixham breakwater in the south of Torbay. Many large boulder holes with <i>Galathea strigosa</i> , <i>Ascidia mentula</i> and <i>Trisopterus minutus</i> . <i>Ctenolabrus rupestris</i> common. Upper surfaces of boulders had abundant filamentous red algae. <i>Ulva</i> species increasing towards the kelp at 3m BCD. The boulder shape eventually reaches a plain of muddy sand at 8m BCD.
44	Brixham Beach	SX 932 567	Location was the beach on the East Side of the Brixham Breakwater. The area dived was straight out perpendicular to the steps. The shingle beach gives way below Low Water Spring Tide to a bottom of stones and boulders with a belt of <i>Chorda filum</i> and low algae cover beyond kelp on the larger blocks. This slopes down to muddy sand and a bed of <i>Zostera marina</i> . The dives also took in some ground to the east of the above mentioned line of dive. This was basically similar, but with more large blocks close to the beach.
45	Shoalstone	SX 935 568	Limestone reef with 2m deep gullies running offshore (N). Rich sessile fauna with several species of Porifera, Ascidian and notable <i>Antedon bifida</i> beds. Didemnids were common as were piddocks (undetermined species). <i>Alcyonium digitatum</i> and <i>Metridium senile</i> dominated the seascape with the occasional fish (notably the leopard spotted goby) and crustaceans. Interestingly <i>Aiptasia mutabilis</i> was found in clusters of several individuals, usually small, often on boulders or even attached to algae.
46	Berry Head Quarry Lagoon	SX 9415 5660	Ultra sheltered limestone saline lagoon fed by an intertidal cave system nationally rare habitat. Man made probably still undergoing species recruitment.
47	Berry Head	SX 932 554 to SX 940 568	Moderately exposed limestone cliffs, platforms and boulder with abundant surge gullies, caves and tunnels. Rich gullies vertical faces and rock pools hold many more commonly sublittoral species. Around thirty marine caves represent possibly the densest concentration of this nationally, the marine habitat in the UK.
48	Mew Stone	SX 943655 93	Moderately exposed tideswept limestone islet with a very rich animal dominated turf in the lower eulittoral and sublittoral fringe
49	Cod Rock	SX 9460 5594	Moderately exposed tideswept limestone islet with a very rich animal dominated turf in the lower eulittoral and sublittoral fringe. Dense mussel Beds
50	St Mary's Bay	SX 933 550	Mussel rock is situated at the southern end of St Mary's Bay and forms a rock island in the sand. The rock is kelp dominated with abundant <i>Mytilus spat</i> around its scoured base. Fish are common, especially large summer shoals of <i>Gobius flavescens</i> . The surrounding sand is species poor and varies in form considerably depending upon the degree of shelter.
51	Meadfoot Buoy	SX 931 606	Site in central Torbay. Muddy sand mostly mud with brittle stars, <i>Sagartiogeton</i> species and <i>Ensis</i> species. <i>Liocarcinus depurator</i> and there were many empty shells of <i>Ancathocardia achinata</i> . Other species included <i>Amphiuram filiformis</i> , <i>Ophiura ophiura</i> , <i>Astropecten irregularis</i> and <i>Pagurus bernhardus</i> . A diatom film covered the surface.
52	Paignton	SX 911 602	Central Torbay east of Paignton harbour. Sandy substrate abundant <i>Edwardsia claparedii</i> and many <i>Aporrhias pespelecani</i> . Infauna consisting of many polychaete tubes and <i>Ensis</i> species. <i>Sagartiogeton undatus</i> were frequent and attached to the <i>Ensis</i> species siphons. There were occasional burrows of <i>Goneplax rhomboides</i> . Whole area covered in diatom film.