Fal & Helford
Special Area of Conservation
Management Scheme

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Executive Summary

Introduction

This management scheme has been developed to help deliver the requirements of the UK Habitats Regulations for the **Fal & Helford Special Area of Conservation (SAC).** It is not designed to guide every aspect of the management of this area but is tightly focused on specific issues. Production of this **management scheme** is based on voluntary co-operation and a partnership arising from the work of the Falmouth Bay & Estuaries Initiative. This work was supported by several key organisations responsible for the management of this area and has provided the basis for the development of this new management scheme.

1. Background to the Habitats Directive and the Habitats Regulations

The Habitats Directive

The Habitats Directive[1] is a piece of legislation that was adopted by the European Community in 1992 as a major contribution to the Rio Biodiversity Convention. Its main aim is to highlight the need to maintain biodiversity, the range of plant and animal life and the habitats in which they are found, throughout all Member States. There is special emphasis on rare or threatened habitats and species, which are listed as part of the Directive.

Special Areas of Conservation (SAC)

The main mechanism used to protect these listed habitats and species is the selection and subsequent designation of **Special Areas of Conservation (SAC).** Each SAC will contain one or more examples of rare habitats or species, referred to as the site's **interest features**. Together, across Europe, the sites form a network called Natura 2000.

One crucial aspect of the Habitats Directive is that it covers both the terrestrial and the marine environment. Where sites include the sea or the foreshore, they can also be referred to as **European marine sites.**

The main aim of SACs is to provide a stronghold for the habitats and species they contain, through appropriate management measures achieved by co-operation between the regulating relevant authorities, landowners, industry and the public who use these areas. They are not intended to be "no go" areas, particularly as many sites, including the Fal & Helford, are extensively used for industry and recreation.

The Habitats Regulations

The Habitats Directive was incorporated into UK legislation in 1994 by the Habitats Regulations[2]. With respect to marine SACs, the Regulations have several important features. Responsibility for the management of the site falls to **relevant authorities**, those organisations which have statutory powers and duties on the marine environment, within, or adjacent to a European marine site. For the Fal & Helford SAC, the relevant authorities are Falmouth Docks & Engineering Co (which is currently administered by A&P Falmouth Ltd), Carrick and Kerrier District Councils, Cornwall County Council, Cornwall Sea Fisheries Committee, English Nature, Environment Agency, Falmouth Harbour

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna.
[2] The Conservation (Natural Habitats, &c.) Regulations, Statutory Instrument No. 2716.

Commissioners, Falmouth & Truro Port Health Authority, Ports of Truro & Penryn, St. Mawes Pier & Harbour Company and South West Water. These organisations are all equal members of the **Fal & Helford SAC Management Forum (FHMF)**, which elects a Chair in line with Cornwall County Council elections and has secretariat support from the County Council.

An **advisory group** has also been established to reflect the views of local communities and user groups.

The Regulations also suggest that a **management scheme** is established for each site, which has been prepared and agreed by all the relevant authorities. This approach is seen as the best way to direct the future management of the Fal & Helford SAC site. The main aim of the management scheme is to publicly set out the commitments of the relevant authorities to achieve **favourable condition** of the site. It is essential that this management scheme is actively implemented and supported by the relevant authorities responsible for the site and that any management measures established take into consideration the views and needs of the users of this area.

The management scheme takes account of the advice given under Regulation 33 of the Conservation (Natural Habitats &c) Regulations 1994, issued by English Nature in January 2000 and included as Appendix 2 in this document.

The Regulations do not affect the existing statutory powers of relevant authorities, but require that they apply them to ensure the protection of the site. They also require planning issues to be included in this process, and the review of extant permissions, licenses and consents and the granting of new ones.

2. Reasons for designation as a Special Area of Conservation

The Fal & Helford has been selected as a SAC for the following interest features:

- **saltmarsh** e.g. top of Fal & Ruan Creeks at Ruan Lanihorne.
- **intertidal mudflats** e.g. upper reaches of Polwheveral and Frenchman's Creeks.
- **subtidal sandbanks** e.g. maerl beds in the Fal Estuary, particularly the live bed on St. Mawes Bank.
- **large shallow inlets and bays** e.g. the whole bay from Manacle Point to Zone Point, within this area are habitats such as reefs and rocky shores.
- **estuaries** e.g. the Fal Estuary and the Helford Estuary.
- **reefs** e.g. St Anthony's Head and inshore around Manacle Point.

The Fal & Helford site encompasses the two rias (drowned river valleys) of the Fal Estuary and the Helford River and the inner part of Falmouth Bay between Zone Point on the Roseland Peninsula and Manacle Point on the Lizard Peninsula. For a site boundary map see Figure 1.

The Fal and Helford SAC also qualifies for the Annex II species (rare, endangered or vulnerable species) shore dock *Rumex rupestris*. However as this only occurs above Highest Astronomical Tide, and not within the European marine site, it is not dealt with by this management scheme. Objectives to maintain shore dock in favourable condition are found within English Nature's conservation objectives for the relevant SSSI within the SAC boundary and will be dealt with through procedures outlined in the Conservation (Natural Habitats, &c.) Regulations 1994. Relevant authorities need to have regard to such adjacent European interest, as they might be affected by activities taking place within or adjacent to the European marine site.

3. Human activities

In common with other estuaries, the Fal & Helford SAC site has a long history of human activity and use, both around its shores and on its waters. It is important that this wide range of activities continues to be accommodated within the overall management of the SAC whilst ensuring that the quality of the site and its habitats does not deteriorate. Uses of this area are both commercial, for example shipping and ship repair, bunkering, lay-ups, scalloping, oyster dredging, sewage discharges and moorings, and

recreational, for example diving, canoeing, sailing and water skiing. Not all activities occur across the site and most tend to be focused within the harbour areas.

4. Conservation objectives

English Nature, as the Government's nature conservation adviser in England, has a statutory responsibility for developing **conservation objectives** to guide the management of the Fal & Helford SAC. The role of these conservation objectives is to set targets for what needs to be achieved by all the relevant authorities in order to protect the site's interest features. These objectives act as a starting point around which the management scheme can be developed. They also provide the basis for assessing what types of activities are likely to have a significant effect upon the interest features of the site, including new planning or license applications.

In order to establish whether or not the conservation objectives are being met, a monitoring programme needs to be established and carried out. The scope of the monitoring must be sufficient that it covers all the different habitats of importance but wherever possible it builds on existing monitoring work to reduce costs. The responsibilities for this condition monitoring will predominantly fall to English Nature, but a key aspect of ensuring that the objectives are met will be to incorporate results of compliance monitoring, whose responsibilities will fall to the relevant authorities.

5. Operations list and site management

In section 3, there is an overview of the range of commercial and recreational activities taking place within and around the SAC. This does not however address the potential impact that these activities may have upon the interest features of the site. The Habitats Regulations require English Nature to advise relevant authorities as to any **operations** that may cause deterioration of the habitats or disturbance to the species for which the site has been selected and designated. The operations list in this management scheme includes activities referred to as **plans and projects** as the relevant authorities felt that this provided a more complete picture of the situation within the site. Plans and projects are those requiring any licenses or consents alongside the commercial and recreational activities that occur on or adjacent to the site

The list of operations identified in the management scheme is not a list of prohibitions. It is designed to be a checklist of activities which may need to be subject to some form of management if none already exists, or further measures where actions are already in force. In some cases activities are listed as a precautionary measure to highlight the need to consider their potential impact in the event of a failure of existing practices or changes in management policy, for example fuel bunkering, transfer of chemical cargoes or future increases in moorings. For each operation, its current management has been assessed and future options identified to reduce any potential or actual impacts upon the SAC. After agreement within the Management Forum, some or all of the options for each operation have been put forward into the Action Plan.

6. Action plan

This section details the actions to be undertaken by the individual relevant authorities, either working alone or in partnership, to manage the Fal & Helford SAC. As far as possible, these actions link to existing activities and plans, both to avoid duplication of effort and to emphasise the linkages that already exist between the relevant authorities.

The table is arranged as follows:

ACTIVITY	ACTION	☺	RESPONSIBILITY	TIMEFRAME
1.	**1.1.**			
	1.2.			

ACTIVITY
Activities 1-15 are derived from the operations list, which comprises all operations identified by the relevant authorities that may cause deterioration of the habitats or disturbance to the species, for which the site was designated. Some of these have been amalgamated, for example water quality, which includes several different operations. Also included as an activity is the actual process of running the management scheme and the actions necessary to support that process. Planning is also included as an activity to indicate how it fits in with the rest of the scheme.

The activities covered by the Action Plan, and numbers of actions planned for each, are as follows:

1. **Water quality (8 actions)**
2. **Bulk chemical transfer in Carrick Roads (3 actions)** ***see e.g. below***
3. **Bunkering of fuel within Carrick Roads and Falmouth Bay (3 actions)** ***see e.g. below***
4. **Discharge of fish wastes from factory ships in Carrick Roads (2 actions)**
5. **Anchoring of oil rigs on St. Mawes Bank (4 actions)**
6. **Laying of new moorings (5 actions)**
7. **Anchoring in the Fal & Helford Estuaries (4 actions)**
8. **Recreational Activities (2 actions)**
9. **Oyster dredging on St. Mawes Bank live maerl bed (4 actions)**
10. **Scalloping in Falmouth Bay, inshore from Rosemullion Head to Manacle Point (4 actions)**
11. **Commercial bait-digging and shore collection of molluscs (1 action)**
12. **Maintenance dredging and seabed levelling (6 actions)**
13. **Planning and development control (2 actions)**
14. **SAC management scheme (6 actions)**
15. **Management of ship repair and laid up shipping (2 actions)**

☺ "SMILE"
This column indicates the type of action proposed; these fall into one of the following **five** categories:

S = **S**URVEY & RESEARCH	e.g. new surveys, new research work or studies required to fill in information gaps.
M = **M**ONITORING & REVIEW	e.g. monitoring the condition of the site or the extent of activities; reviewing existing plans.
I = **I**NFORMATION & TRAINING	e.g. provision of information to other relevant authorities or public; training of staff.
L = **L**IAISON	e.g. communicating with other partners, Management Forum meetings.
E = **E**NFORCEMENT & ENABLING	e.g. enforcing bylaws, undertaking projects.

RESPONSIBILITY
For each action one or more relevant authorities may be responsible, in addition to other partner organisations.

TIMEFRAME
The timeframe shown covers from designation until the financial years 2007/2008. The Habitats Directive requires that each member state report back to the EC every 6 years. The timeframe used for the Fal & Helford SAC covers the reporting cycle up to 2006, and then leads up to the following cycle in 2012. Many of the actions listed are only timetabled to happen at certain points within this 6 year period although others may occur annually (this is in Table 1).

REPORTING AND REVIEW

It is proposed that all relevant authorities report to the Management Forum on a **3-year cycle**, at which point the plan is also reviewed to assess its effectiveness with possible revisions of the contents. The responsibility for gathering together the reported information and revising the management scheme will have to be agreed by the Management Forum at that point in the process.

The following example in Table 1 shows how the Action Plan has addressed an activity; actions dates are indicated by a ●, whilst those actions completed since designation are given a tick.

Table 1. Management Actions (example)

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)				
				**	04/05	05/06	06/07	07/08
2. Bulk chemical transfer in Carrick Roads	**2.1.** Update information provided to visiting ships to include SAC.	**I**	Falmouth Harbour Commissioners	✓				
	2.3. Maintain record of spills.	**M**	Falmouth Harbour Commissioners	●	●	●	●	●
3. Bunkering of fuel within Carrick Roads, King Harry Reach and Falmouth Bay	**3.1.** Update information provided to visiting ships to include SAC.	**I**	Falmouth Harbour Commissioners Falmouth Oil Services Ports of Truro & Penryn	✓				
	3.2. Update Oil Spill Contingency Plans to meet OPRC Regulations and include SAC. Undertake periodic testing of plan.	**I / L**	Oil Spill Contingency Plan partners	●	●	●	●	●
	3.3. Maintain record of spills.	**M**	Falmouth Harbour Commissioners Falmouth Oil Services	●	●	●	●	●

Fal & Helford
Special Area of Conservation
Management Scheme

1. INTRODUCTION

This management scheme has been developed to help deliver the requirements of the UK Habitats Regulations[1] for the **Fal & Helford Special Area of Conservation.** It is not designed to guide every aspect of the management of this area but is tightly focused on specific issues. Whilst it is the responsibility of the relevant statutory organisations to implement this scheme, all users of this area can play a part in making this management scheme a success.

Production of this m**anagement scheme** is based on voluntary co-operation and a partnership arising from the work of the Falmouth Bay & Estuaries Initiative. In 1997, the Falmouth Bay & Estuaries Initiative published a set of Strategic Guidelines[2] for the voluntary management of the marine and coastal waters of Falmouth Bay. This work was supported by several key organisations responsible for the management of this area and has provided the basis for the development of this new management scheme. There is also a wide range of other plans, both statutory and non-statutory, covering this area and those relevant to this management scheme are listed in Appendix 1.

1.1. Background to the Habitats Directive and the Habitats Regulations

The Habitats Directive

The Habitats Directive[3] is a piece of legislation that was adopted by the European Community in 1992 as a major contribution to the Biodiversity Convention signed at the Rio Earth Summit. Its main aim is to highlight the need to maintain biodiversity, the range of plant and animal life and the habitats in which they are found, throughout all Member States. Good representative examples of the range of habitats found in the area are selected and therefore encompass rare or threatened habitats and species, which are listed as Annexes within the Directive. Bird species are covered by complementary legislation under the Birds Directive[4].

The main mechanism used to protect the habitats and species listed in the Habitats Directive is the selection and subsequent designation of **Special Areas of Conservation (SAC).** Sites classified under the Birds Directive are **Special Protection Areas (SPA).** Sites designated under these two Directives collectively form a network across the EC called Natura 2000. The term Natura 2000 comes from the Habitats Directive and symbolises the conservation of precious natural resources for the year 2000 and beyond. Site selection and designation are explained further in section 1.2.

One crucial aspect of this Directive is that it covers both the terrestrial and the marine environment, which is particularly important to the UK with its extensive coastline and inshore waters. As this management scheme covers a marine site, it will focus on the way in which the Directive operates within the UK's marine environment and the particular issues this raises with regard to its implementation.

Another important feature of the Habitats Directive is that it mentions the need to take account of the economic, cultural, social and recreational needs of local people when managing the site. A majority of the sites already chosen have been subject to human use for hundreds or thousands of years and their

[1] The Conservation (Natural Habitats, &c.) Regulations, Statutory Instrument No. 2716.
[2] Falmouth Bay & Estuaries Initiative Strategic Guidelines.
[3] Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna.
[4] Council Directive 79/409/EEC on the conservation of wild birds

selection as SACs has occurred against this background of human use. The implications of the Directive on those patterns of use have to be considered as part of the whole management process.

The Habitats Regulations: Regulatory and policy framework

The Habitats Directive was incorporated into UK legislation in 1994 by the Habitats Regulations. These Regulations are designed to translate the requirements of the Directive into what needs to be achieved in the UK and the mechanisms required to make it work at both an administrative and a practical level.

With respect to marine SACs, the Regulations contain the following important features:

1. Responsibility for the development and implementation of a management scheme for the site falls to **relevant authorities**, those organisations which have statutory powers and duties on the marine environment, within, or adjacent to, a European marine site. For a more detailed explanation, see Regulations 5 & 6 or the DETR/WO Guidance for European marine sites in England & Wales[1].
   The relevant authorities for the Fal & Helford SAC are listed in section 1.4 & Appendix 3.

2. Relevant authorities should work together, ideally in a **management group**, with a lead organisation if appropriate. An **advisory group** should also be established to reflect the views of local communities and user groups.
   Both of the above groups have been established in the Fal & Helford SAC as it was thought to be the best way forward.

3. The establishment of a **management scheme** for each site if thought appropriate, which has been prepared and agreed by all the relevant authorities (Regulation 34). For a more detailed explanation, see section 1.3.
   A management scheme was seen as the most practical option to direct the future management of this site.

4. The Regulations do not affect the existing statutory powers of relevant authorities, but require that they apply them to ensure the protection of the site.

5. Sites that include substantial areas of sea or foreshore can be referred to as European marine sites.
   This term is sometimes used to describe the Fal & Helford SAC.

The Regulations also require planning issues to be included in this process, in particular the review of extant permissions, licenses and consents and the granting of new ones (Regulations 48 - 50). For more information please refer to Appendix 3. This process is not strictly part of the management scheme but will be mentioned further in Section 3 relating to human use of the site.

1.2. Special Areas of Conservation (SAC)

Special Areas of Conservation (SAC) are selected initially by each Member State on the basis of the habitats and species listed in Annexes 1 and 2 to the Habitats Directive. The habitats and/or species found on each site are referred to as **interest features**. The best examples in each country, once agreed locally and nationally through consultation, are then submitted to the EC for consideration. At this stage, they are referred to as **candidate** sites. After adoption by the EC, these candidate sites are formally designated by their Member States to become **Special Areas of Conservation (SAC)**. The reasons for selection of this site are given in section 2.1.

In addition to its SAC status, parts of the Fal & Helford are also designated and subject to agreements under other conservation legislation. Sites of Special Scientific Interest (SSSI) are designated under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and cover the intertidal areas to mean low water.

[1] European marine sites in England & Wales: A guide to the Conservation (Natural Habitats, &c.) Regulations 1994 and to the Preparation and Application of Management Schemes, DETR London 1998.

Marine sites vary in size, from the Wash and North Norfolk at over 62 200 ha to the Fal & Helford which covers 3800 ha. Sites may be chosen for just one interest feature, for example Cardigan Bay (bottlenose dolphins) or for several features, for example, Fal & Helford (subtidal sandbanks, shallow bays and inlets, mudflats, salt marsh, estuaries, reefs and shore dock).

The main aim of SACs is to provide a stronghold for the habitats and species they contain through appropriate management measures achieved by co-operation between the regulating relevant authorities, landowners, industry and the public who use these areas. They are not intended to be "no go" areas, particularly as many sites, including the Fal & Helford, are extensively used for industry and recreation.

1.3. Aims of the management scheme

The main aim of the management scheme is to protect the site's **interest features**, those habitats and species for which it is an important area. The Directive specifically mentions the need to avoid the deterioration of habitats and the disturbance to species by whatever means necessary, including the establishment of management schemes. The actual style and content of a management scheme is up to the relevant authorities to decide.

This management scheme has the following aim:

To maintain the features of the site: salt marsh, mudflats, subtidal sandbanks, and large, shallow bays and inlets, estuaries and reefs, whilst enabling its continued and diverse human use.

The objectives of the management scheme are based on the conservation objectives provided in English Nature's Regulation 33 advice. These conservation objectives will be explained in greater detail in section 4; see also Appendix 2.

In addition to these the following, more general, principles are proposed:

Guiding Principle 1.
Integration of the management of the SAC wherever possible with both existing and future plans and initiatives, to avoid duplication of effort.

Guiding Principle 2.
Ensure that the users of the area are kept informed and where possible involved in the management of the SAC through the Advisory Group, public consultation and the wider provision of information.

Guiding Principle 3.
Undertake monitoring and periodic review of the management scheme to ensure its successful implementation.

It is essential that this management scheme is actively implemented and supported by the relevant authorities responsible for the site and that any management measures established take into consideration the views and needs of the users of this area.

1.4. Relevant authorities responsible for this site

Section 1.1., Regulation 5 of the Habitats Regulations identifies the statutory organisations who "*...have functions in relation to land or waters within or adjacent to the site"*. Regulation 34 enables these organisations to establish and implement a management scheme in order to fulfil the requirements of the Habitats Directive for the site, as guided by English Nature's conservation objectives. Falmouth & Truro Port Health Authority is not identified as a relevant authority but plays an important role in this area so has been included in the Management Forum.

Table 2. Fal & Helford SAC Management Forum

Relevant authority	***Responsibilities***	***Area covered***
Falmouth Docks & Engineering Company (currently administered by A & P Falmouth)	Operate Falmouth Docks, harbour authority	Immediate area around Falmouth Docks.
Carrick District Council	Local planning authority	Carrick District down to mean low water (also operate beach safety). Includes Fal and coast east from Maenporth beach.
Cornwall County Council	County planning authority	County of Cornwall down to mean low water.
Cornwall Sea Fisheries Committee	Fisheries regulation and enforcement	County of Cornwall's water out to 6 miles, excluding estuaries.
English Nature	Conservation agency for England	England - out to 12 mile limit of territorial sea.
Environment Agency www.environment-agency.gov.uk	Environmental Regulation; The Environment Agency is the fisheries authority in Cornish estuaries.	England & Wales - out to 3 miles.
Falmouth Harbour Commissioners	Harbour authority	Mid to lower Fal estuary and part of Falmouth Bay.
Falmouth & Truro Port Health Authority	Environmental health	All port areas and waters within the SAC up to mean high water.
Kerrier District Council	Local planning authority	Kerrier District down to mean low water. Helford river and coast west from Maenporth Beach.
Ports of Truro & Penryn	Harbour authority	Truro River, upper to mid Fal estuary and upper Penryn River.
St. Mawes Pier & Harbour Co.	Harbour authority	Lower Percuil River.
South West Water Ltd.	Water and sewerage undertaker	Southwest region.

These 12 organisations are all equal members of the **Fal & Helford SAC Management Forum (FHMF)**, which elects a Chair in line with Cornwall County Council elections. This group has Terms of Reference (see Appendix 3) but no powers, as it is purely a representative body to involve all relevant authorities in the ongoing management of the SAC. Each relevant authority has to undertake its powers and duties with respect to the Habitats Directive and will need to act accordingly on an individual basis. However, it has been agreed within the Management Forum that each relevant authority will inform all

members of the group as to their organisation's position on any issue. Appendix 3 has further details and responsibilities of all relevant authorities for the SAC, including those not represented on the Management Forum.

In addition to this group there is an **Advisory Group**, comprising representatives from other non-statutory interests in the area. Further details can be found in section 3.4.

2. REASONS FOR DESIGNATION AS A SPECIAL AREA OF CONSERVATION (SAC)

As outlined in section 1.2 SACs are selected as candidate sites by individual Member States on the basis that they support rare, endangered or vulnerable habitats and/or species, as listed in Annexes I and II of the Habitats Directive. In addition, some sites may be selected because they support outstanding examples of habitats characteristic of that particular region. The habitats or species that a site has been selected for are referred to as its **interest features**. Whilst some sites are only selected for one habitat or species, others are multi-interest and represent extremely valuable wildlife areas.

The Fal & Helford has been selected as a SAC for the following habitats or interest features:

- **large shallow inlets and bays**
- **estuaries**
- **subtidal sandbanks**
- **intertidal mudflats**
- **saltmarsh (this includes 'Atlantic Salt Meadows')**
- **reefs**

The Fal & Helford SAC also qualifies for the Annex II species shore dock *Rumex rupestris***.** However as this only occurs above Highest Astronomical Tide, and not within the European marine site, it is not dealt with by this management scheme. Objectives to maintain shore dock in 'favourable condition' are found within English Nature's conservation objectives for the relevant SSSI within the SAC boundary and will be dealt with through procedures outlined in the Conservation (Natural Habitats, &c.) Regulations 1994.

In section 2.1. there is a series of descriptions and examples of the main habitat types that make up these interest features and their locations are shown in Figures 2 & 3.

The Fal & Helford SAC encompasses the two rias (drowned river valleys) of the Fal Estuary and the Helford River and the inner part of Falmouth Bay between Zone Point on the Roseland Peninsula and Manacle Point on the Lizard Peninsula. For an overall site boundary map see Figure 1, section 2.2.

2.1. Description of main features of site

Falmouth Bay is a relatively shallow and exposed section of the South Cornwall coast, although it is protected from prevailing southwesterly winds. Both the estuaries are examples of drowned river valleys or rias, which explains their general sinuous shape. Whilst the Helford is quite shallow, with a depth of only 8 - 10 m at its mouth, the Fal is well known as a deep-water anchorage, with up to 33 m in the central channel.

Rias are important areas for marine life because of the range of habitats found along their length, from extremely sheltered mudflats, for example upper Fal; to the wave-exposed, rocky open coasts, for example Mawnan Shear to Rosemullion Head in the mouth of the Helford River. Unusually, all these habitats are fully marine as there is very little freshwater input into either estuary. The rocky coastline of Falmouth Bay, particularly where reefs are always covered by the tide, and the rare rocky areas within the estuaries are also valuable sites for marine life. Sections 2.1.1 to 2.1.6 outline the most important of these habitat.

2.1.1. Large shallow inlets and bays

Natura 2000 Definition – Large shallow inlets and bays

Large indentations of the coast where, in contrast to estuaries, the influence of freshwater is generally limited. These shallow indentations are generally sheltered from wave action and contain a great diversity of sediments and substrates with a well developed zonation of benthic communities. These communities generally have a high biodiversity. The limit of shallow water is sometimes defined by the distribution of the *Zostheretea* and *Potametea* associations. Several physiographic types may be included under this category provided the water is shallow over a major part of the area: embayments, fjords, rias and voes.

The rias of the Fal and Helford have a low freshwater input and as a result the area contains an unusual range of fully marine habitats. Large shallow inlets and bays are a physiographic habitat as well as being an interest feature and as such support a wide diversity of habitats and species. Key sub-features are identified below, and in most cases expanded upon under the relevant interest feature habitat.

(i) Rocky shore communities
A description of this sub-feature is given under the interest feature 'Reefs', covered in section 2.1.6.

(ii) Subtidal rock and boulder communities
A description of this sub-feature is given under the interest feature 'Reefs', covered in section 2.1.6.

(iii) Subtidal sandbank communities
The extensive subtidal sediments form a significant proportion of the shallow inlet and bay; they are also integral to maintaining the intertidal areas and are important feeding grounds for fish.

(iv) Kelp forest communities
A description of this sub-feature is given under the interest feature 'Reefs', covered in section 2.1.6.

(v) Intertidal mudflats
A description of this sub-feature is given under the interest feature 'Intertidal Mudflats', covered in section 2.1.4.

(vi) Saltmarsh
A description of this sub-feature is given under the interest feature 'Atlantic Salt Meadows', covered in section 2.1.5.

***Example sites for rocky shores*: St. Anthony Head, Trefusis Point to Penarrow Point, Toll Point to Rosemullion Head.**

***Example sites for subtidal rock*: Nare Point to Manacle Point, Carrick Carlys Rock (off Restronguet Point), lower Percuil River.**

2.1.2. Estuaries

Natura 2000 Definition - Estuaries

Downstream part of a river valley, subject to the tide and extending from the limit of brackish waters. River estuaries are coastal inlets where, unlike 'large shallow inlets and bays', there is generally a substantial freshwater influence. The mixing of freshwater and sea water and the reduced current flows in the shelter of the estuary lead to deposition of fine sediments, often forming extensive Intertidal sand and mud flats. Where the tidal currents are faster than flood tides, most sediments deposit to form a delta at the mouth of the estuary.

In reality estuaries, and the wildlife they support, are amongst our most threatened maritime habitats. Where they are relatively undeveloped, as in the Fal & Helford, they are often seen as the last remaining source of development land, and can have pressures from land-claim and from cumulative

effects of numerous small scale projects. Even though the estuaries have been extensively changed by human activities, they still remain productive habitats, with a diverse range of wildlife. Estuaries are a physiographic habitat as well as being an interest feature and as such supports a wide diversity of habitats and species. Key sub-features are identified below, and in most cases expanded upon under the relevant interest feature habitat.

(i) Intertidal mud communities

A description of this sub-feature is given under the interest feature 'Intertidal mudflats', covered in section 2.1.4.

(ii) Subtidal mud communities

In the subtidal, muddy sediments are important as feeding grounds for fish such as juvenile sole *Solea solea*. These muddy sediments are even more productive than intertidal mud communities and contribute significantly to the overall functioning of the system. They are also integral to maintaining the intertidal areas

(iii) Intertidal mixed muddy sediment communities

A description of this sub-feature is given under the interest feature 'Intertidal mudflats', covered in section 2.1.4.

(iv) Subtidal mixed muddy sediment communities

Filamentous algae, including some rarities, are abundant on cobbles, shells and muddy sediments. The structures of these subtidal communities are different to the intertidal communities outlined above, due primarily to the more mixed substrate providing niches for different plants and animals.

(v) Estuarine bedrock, boulder and cobble communities

A description of this sub-feature is given under the interest feature 'Reefs', covered in section 2.1.6.

(vi) Subtidal sandbank communities

As an interest feature in its own right, this feature is described in more detail in section 2.1.3.

(vii) Saltmarsh communities

As an interest feature in its own right, this feature is described in more detail in section 2.1.5.

(viii) Reedbed communities

Reedbeds are nationally scarce, with many of these sites being small. The reedbeds are inundated at high water providing nursery areas for fish. These habitats are of great importance to the structure and function of the estuaries and their dynamic nature; they are heavily interdependent with the intertidal mudflat communities. The benefit they provide in the form of natural sea defences should also not be overlooked.

Example sites for estuaries: Upper parts of the Fal Estuary and Truro River and upper parts of the Helford Estuary and associated creeks.

2.1.3. Subtidal sandbanks

Natura 2000 Definition – Sandbanks which are slightly covered by sea water all the time

Sublittoral sandbanks, permanently submerged. Water depth is seldom more than 20m below Chart Datum. Non-vegetated sandbanks or sandbanks with vegetaition belonging to the *Zosteretum marinae* and *Cymodoceion nodosae*.

These cover a large part of the lower Carrick Roads and extend across Falmouth Bay and into the mouth of the Helford. Subtidal sandbanks are habitats included within the Cornwall Biodiversity Action Plan. Key sub-features are listed below:

(i) Maerl bed communities

Maerl beds are composed of accumulations of living and dead unattached coralline algae. Live maerl is pink and is found in the largest quantities in England and Wales on St Mawes Bank and offers shelter to a large number of other species of plants and animals. There are also extensive areas of dead maerl and these sediments are also species rich and provide an important habitat for deep burrowing species, attached seaweed and large areas of brittle stars.

(ii) Eelgrass beds

Eelgrass is important in its own right, as a habitat for invertebrates, sea slugs and cuttlefish, and also as nursery areas for various fish species, including seahorses. Eelgrass beds are included within the Cornwall Biodiversity Action Plan (BAP).

(iii) Gravel and sand communities

Fine sand and gravel support large numbers of invertebrates, bivalves, molluscs and other sand dwelling species such as polychaetes.

(iv) Mixed sediment communities

These contain a range of invertebrates and may support surface dwelling animals and plants.

Example sites for sandbanks: St. Mawes (Vilt) Bank, Falmouth Bank, inner Falmouth Bay (off Maenporth).

Example sites for mud/shell/gravel: The Bar, Helford and Place Cove, Percuil.

Example sites for eelgrass: between Durgan and Toll Point (Helford), in St. Mawes Harbour particularly between Carricknath Point and Amsterdam Point, and on the inside of St. Mawes Bank (Fal).

2.1.4. Intertidal mudflats

Natura 2000 Definition – Mudflats and sandflats not covered by sea water at low tide

Sands and muds of the coasts of the oceans, their connected seas and associated lagoons, not covered by sea water at low tide, devoid of vascular plants, usually coated by blue algae and diatoms. They are of particular importance as feeding grounds for wildfowl and waders.

Mudflats are exposed at low water in the majority of side creeks of both estuaries. They support a rich and diverse range of invertebrate species including molluscs and worms, and also many larger species such as bass and heron and nationally important populations of waterfowl. Mudflats are identified as a priority habitat within the Cornwall BAP. Key sub-features are identified below:

(i) Intertidal sand and gravel

The sheltered sandy shores at the mouth of the Fal are rich in species such as certain amphipods and polychaete worms, and some bivalve molluscs.

(ii) Intertidal muddy sand communities

Dense beds of the sand mason worm *Lanice conchilega* are found in the lower shore muddy sand at Amsterdam Point and at Treath on the Helford. In Place Cove the muddy sand is dominated by the lugworm *Arenicola marina*. These areas are extensive and highly productive, supporting nationally important bird species.

(iii) Intertidal mud communities

The extensive mudflats present throughout the complex are a highly productive system forming a critical part of the food chain. The mudflats contain extensive and varied infaunal communities (comprising species living within the sediment), rich in bivalves and other invertebrates, and provide important feeding grounds for internationally important numbers of waterfowl.

(iv) Intertidal mixed muddy sediment communities

The mixed intertidal muddy sediments of the estuaries provide a habitat for a variety of species, primarily bivalves such as cockles *Cerastoderma edule* and native oysters *Ostrea edulis.* These can be found on the substrata containing more gravel and slates. The native oyster is also the subject of a UK BAP species action plan.

Example site for mudflats: upper Fal around Ardevora Veor; Place Cove in the Percuil, Polwheveral Creek in the Helford River.

2.1.5 Saltmarsh (Atlantic Salt Meadows)

Natura 2000 Definition – Atlantic Salt Meadows
Salt meadows of Baltic, North Sea, English Channel and Atlantic shores. *Aster tripolium* can be present or abundant in most subdivisions.

Saltmarshes are found fringing the upper creeks of the Fal and Helford and offer important feeding, roosting and nesting areas for wading birds, as well as providing a natural form of sea defence. The more open edges of the saltmarsh are ideal nursery areas for young bass and other fish. There are also areas of transition from new saltmarsh through established saltmarsh to scrub and finally oak woodland, for example at Sett Bridge, an unusual and rare habitat in the UK. Typical plant species in saltmarshes include saltmarsh and red fescue grasses, thrift and sea aster. Saltmarshes are another priority habitat with action included in the Cornwall BAP. The key sub-features are listed below:

(i) Low and low-mid marsh communities

This area experiences the greatest number of tidal inundations and is often species poor, composed of halophytes (salt tolerant plants) that can withstand such conditions.

(ii) Mid and mid-upper marsh communities

Transition zone between lower and upper marsh; as tidal inundations become less frequent, the vegetation becomes more diverse.

Example sites for saltmarsh: head of Fal & Ruan creeks near Sett Bridge, Calenick Creek, Tresillian river and the upper portion of Restronguet Creek, and Perranarworthal Creek. The latter two sites are not within the SAC boundary, however the Management Forum is committed to supporting the voluntary inclusion of these areas within the management scheme to enhance their conservation and protection..

2.1.6 Reefs

Natura 2000 Defintion – Reefs

Submarine, or exposed at low tide, rocky substrates and biogenic concretions, which arise from the seafloor in the sublittoral zone but may extend into the littoral zone where there is an uninterrupted zonation of benthic communities of algae and animal species including concretions, encrustations and corallogenic concretions.

This includes underwater and intertidal rock which typically fringes the coastline and extends offshore to varying degrees. Usually subtidal, or exposed at low tide, rocky substrates may extend into the littoral zone where there is an uninterrupted zonation of plant and animal communities. These reefs generally support a zonation of benthic communities (bottom-living) of algae and animals. Although rocky reefs can appear robust and resilient, the communities which live on them can be delicate, particularly in areas which are sheltered from strong wave action. Typically, rock surfaces in shallow water are dominated by leafy seaweeds such as kelps. In deeper water there are fewer seaweeds and rock surfaces are covered by encrusting animals such as anemones, sponges and hydroids. The presence and continued well-being of species such as the pink seafan are important indicators of the general health of the rocky seabed. The pink seafan is large and easily damaged by modern

commercial fishing gear, breaking down the reef structure and reducing habitat diversity. This in turn can reduce the suitability of the reef for commercial species such as crabs and lobsters. The key sub-features are listed below:

(i) Rocky shore communities

The majority of the open coast including both the mouths of both the Fal and Helford are rocky, with a wide range of habitats such as overhangs and rocky platforms, rock pools and boulder shores. These habitats are important for their high diversity of communities and species richness, as well as their high productivity, they support a wide range of both common and rare plant and animal species, including the rare Giant Goby in shallow pools near Rosemullion Head.

(ii) Kelp forest communities

Kelp forests are highly productive ecosystems, found in the shallow subtidal and are the major primary producers in the coastal waters of the UK. They have been compared with rainforests in terms of their productivity and species richness. Kelp forests have considerable conservation value because they harbour a very high diversity of organisms, confined to a narrow coastal fringe. For example, a single kelp holdfast may be home to several thousand small animals and the habitat plays a significant role as nursery areas for a wide variety of species, including commercial species such as crab and lobster. They are therefore key structural and functional components of this embayment (bay).

(iii) Subtidal rock and boulder communities

These are important areas for soft and hard corals (including pink sea fans), particularly between Nare Point and Manacle Point, also rich sponge and sea squirt communities and kelp forests. Rare patches of subtidal rock occur in Percuil and King Harry Passage which are unusual within ria systems and are important for sponges, sea mats and seaweeds.

(iv) Estuarine bedrock, boulder and cobble communities

Subtidal rock communities are typical of sheltered estuarine areas. The animal communities are dominated by the breadcrumb sponge *Halichondria panacea*, with a high abundance of the barnacle *Balanus crenatus* and abundant shore crabs *Carcinus maenas*.

Example sites for reefs: St. Anthony's Head; inshore round Manacle Point, fringing reefs round Falmouth Bay and the Helford.

2.2. Maps showing site details

Fig. 1a. SAC Boundary: Fal Estuary
Fig. 1b. SAC Boundary: Helford River and Falmouth Bay
Fig. 2. Location of key interest features: Helford River and Falmouth Bay
Fig. 3. Location of key interest features: Fal Estuary

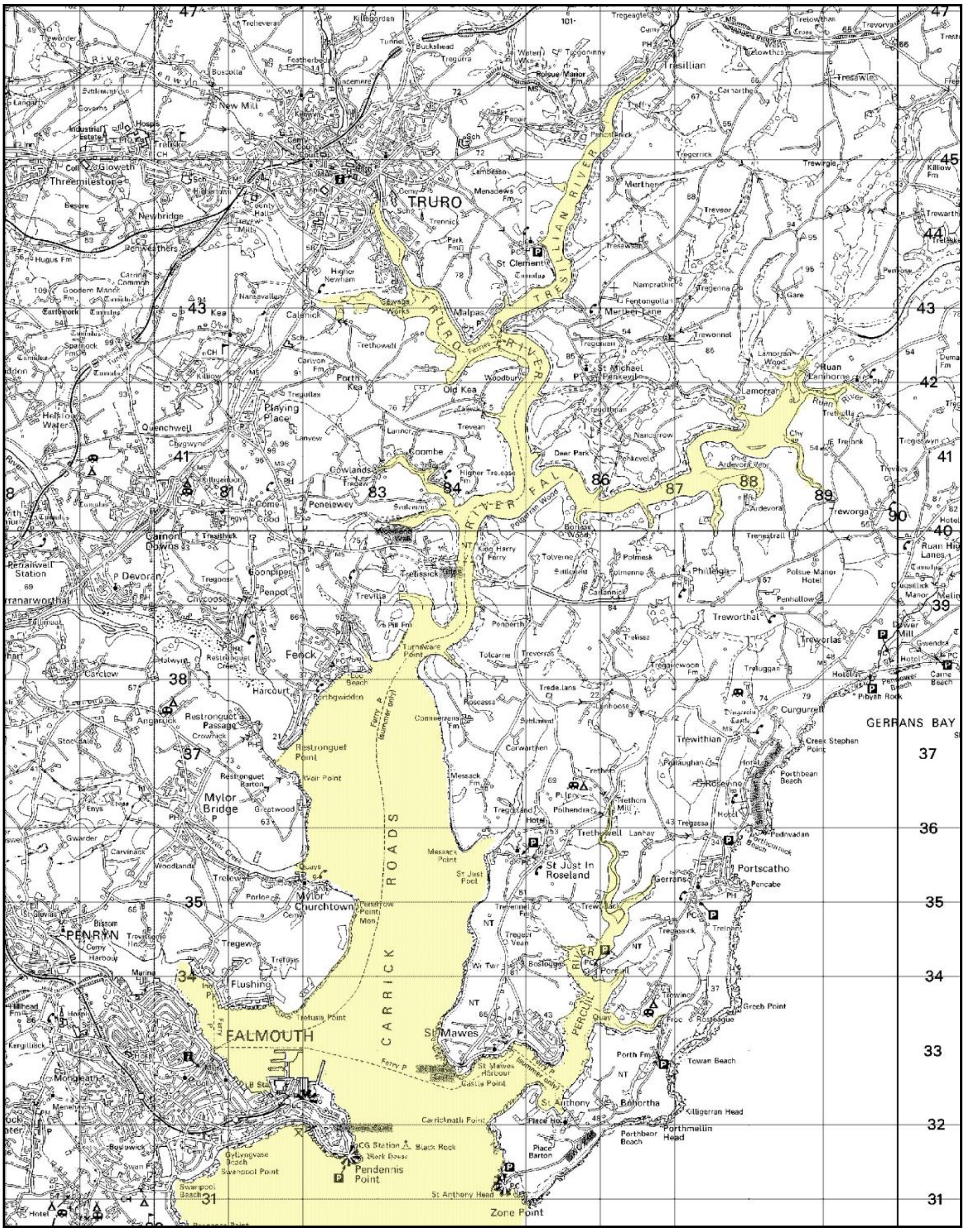
Fig. 1a&b is consistent with existing citation maps and the planning map already supplied to FHMF members. The location of the interest features and key sub-features are mapped at **Figs. 2** and **3** which show their distribution and extent. They are based upon existing survey information collated and mapped by the Joint Nature Conservation Committee (JNCC).

2.3. Current condition of interest features

The term 'condition' refers to the 'health' of these habitats and species and whether or not they are capable of sustaining themselves on a long-term basis. The assessment of current condition has to be based upon existing knowledge of the site. Due to the huge costs associated with marine surveys, especially subtidal work, there are gaps in current information on particular habitats and even where records exist, these may require updating. As further survey work is undertaken, these gaps will be filled and older work updated, with priority wherever feasible, given to the most sensitive or threatened habitats.

English Nature is undertaking 'condition assessment monitoring' which will improve our understanding of the current condition of the site. Current scientific evidence suggests that many of the habitats present are in **'**favourable condition' although specific areas are showing signs of measurable damage, for example the eelgrass beds off Durgan. Areas believed to be in unfavourable condition when assessed will then be the subject of management efforts to improve their status to favourable condition. See section 4.5.3 and Table 5. for more details on what constitutes 'favourable condition'.

Fal & Helford SAC boundary
Fig. 1a: Fal Estuary



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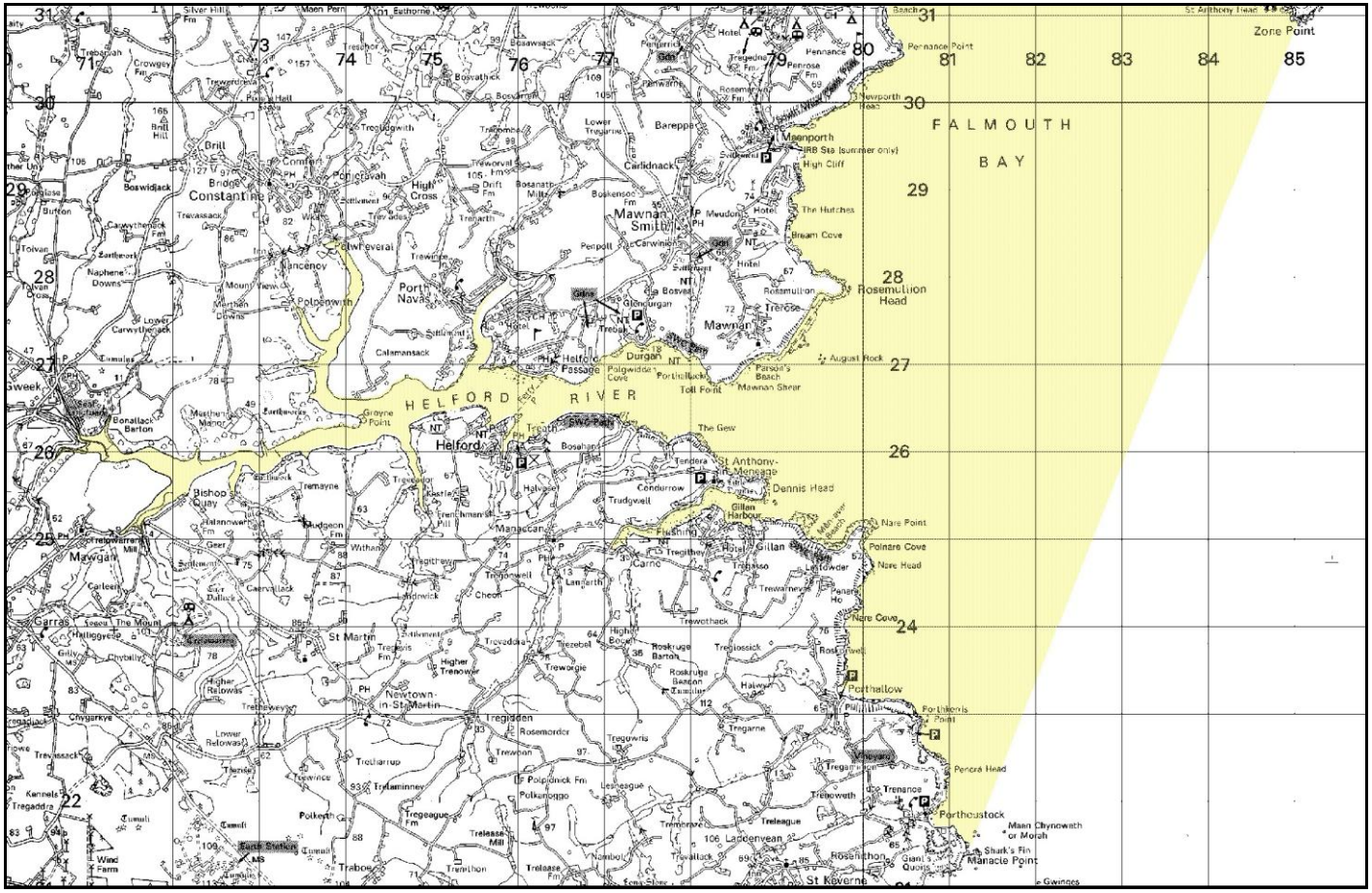
Fal & Helford SAC boundary
Fig. 1b: Helford River and Falmouth Bay



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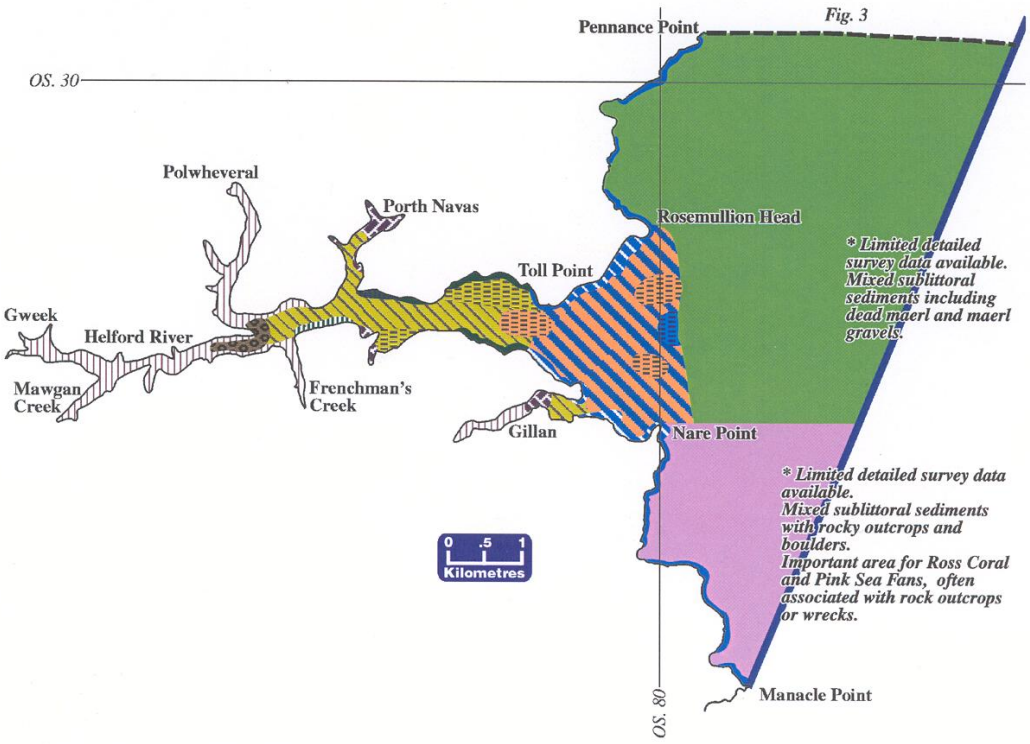
Fal & Helford European Marine Site: *location of interest features*
Fig. 2: Helford River and Falmouth Bay

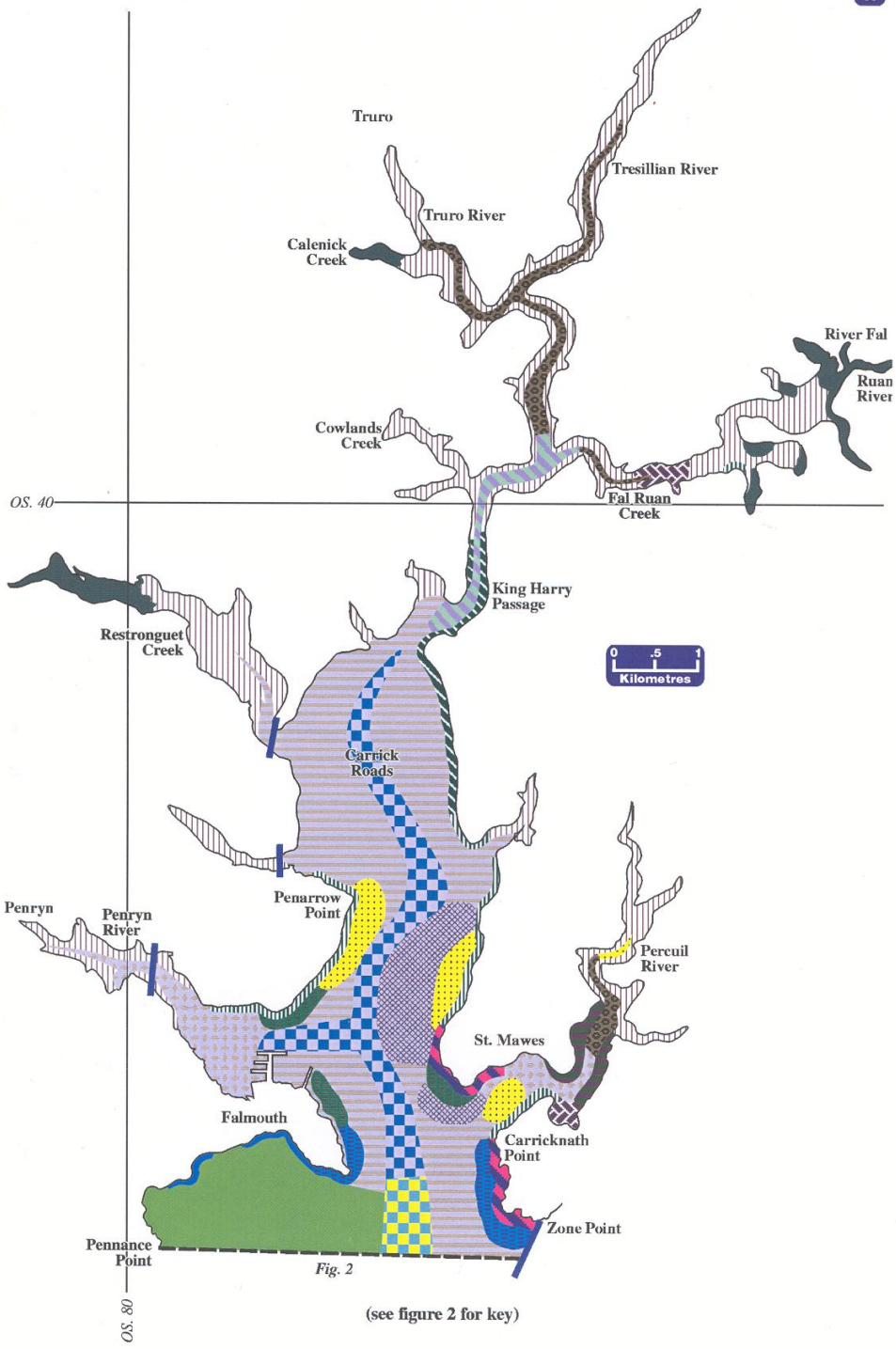


KEY (for figure's 2 and 3): ***based upon MNCR Phase I biotopes***

- European marine site boundary
- # Exposed / moderately exposed bedrock shore with fucoids and barnacees
- Littoral sandy mud
- Littoral soft mud
- Lower shore or sublittoral sediment with Zostera marina beds (eelgrass)
- Mixed sublittoral sediments with dead maerl and maerl gravels
- Mixed substrata shores
- Moderately expopsed littoral rock
- Moderately expopsed littoral rock with barnacles, fucoids and red algal turfs
- # Saltmarsh
- Shallow sublittoral rock with kelps and sponges
- Sheltered littoral rock
- Sheltered littoral rock with fucoids (seaweeds)
- Steep upper shore bedrock and sheltered lower shore substrata with fucoids
- Sublittoral estuarine mud
- Sublittoral estuarine mud with kelp on available hard substrata
- Sublittoral gravel/sand with maerl beds (live maerl)
- Sublittoral maerl beds (live)
- Sublittoral marine mixed sediments with sponges and ascidans (sea squirts)
- Sublittoral moderately exposed rock with Laminaria hyperborea (kelp)
- Sublittoral muddy sand
- Sublittoral muddy gravel
- Sublittoral mud with bedrock outcrops
- Sublittoral rock with kelp beds and sublittoral sand and gravel
- Sublittoral sediment with Zostera marina (eelgrass)
- Tide-swept sheltered sublittoral rock with Laminaria saccharina (kelp)

 # not MNCR biotype

Fal & Helford European Marine Site: *location of interest features*
Fig. 3: Fal Estuary



(see figure 2 for key)

3. HUMAN ACTIVITIES IN AND AROUND THE SAC

In common with other estuaries, the Fal & Helford SAC site has a long history of human activity and use, both around its shores and on its waters. Whilst the dominance of different activities has shifted, from mining and the transport of goods and people, to ship repair and leisure, the area is still vitally important to the economy of west Cornwall. In addition it provides a valuable recreational resource both for local residents and visitors alike. It is important that this wide range of activities continues to be accommodated within the overall management of the SAC whilst ensuring that the quality of the site does not deteriorate.

This section briefly describes the ranges of activities, both commercial and recreational, that are known to take place within the site and are relevant to the management and use of the SAC. More detail on all these activities can be found in the Issues Reports and Strategic Guidelines produced by the Falmouth Bay & Estuaries Initiative[1].

Some activities that occur outside the SAC boundary are also of relevance, for example the discharge of mine effluent from Wheal Jane into the Carnon River, and the potential eutrophication of waters receiving agricultural run-off from around the catchments of both estuaries. These issues are dealt with either through projects like Cycleau (www.cycleau.com) or through the ongoing work of the Environment Agency.

Development issues are mentioned as an activity within the SAC although as section 3.3 explains these do not form part of this plan as there are existing mechanisms for their resolution.

The role and composition of the Advisory Group, who represent the diverse range of both commercial and recreational interests in this area, is explained below in section 3.4. Section 3.5 endeavours to highlight the needs of users of this area, both recreational and commercial, and their aims for the SAC site.

3.1. Commercial activities

Table 3 lists the commercial activities occurring in and around the SAC. Commercial activities that support recreational or leisure pursuits, for example marinas and moorings, are also listed in this table.

3.2. Recreational activities

Table 4 lists the recreational activities occurring in and around the SAC in alphabetical order. As their potential impact is generally less than for commercial activities, an assessment of their significance for the SAC has not been made. However, an action has been included within Table 7 of this scheme to monitor the level and pattern of recreational activities to inform future management decisions as necessary. This list is not exhaustive but covers the main activities that occur on or adjacent to the water.

[1] Issues Report: Falmouth Bay & Estuaries Initiative 1995: Responses to Issues Report: Falmouth Bay & Estuaries Initiative 1995: Strategic Guidelines Final Report: Falmouth Bay & Estuaries Initiative 1997.

Table 3. Commercial activities in and around the SAC

Activity	Location	Comments
1. Port activities & shipping		
1.1. Bunkering (refuelling) and ship-to-ship transfer of oil	Mainly in Carrick Roads & Falmouth Bay, light fuels only in King Harry Passage.	One of largest bunkering facilities in W. Europe. Regulated by UK Regulations and local Oil Spill Contingency Plan.
1.2. Ship maintenance and repair	Falmouth Docks.	Mainly in FD&EC's dry docks which are subject to Integrated Pollution Control (IPC) Authorisation. Refit of luxury yachts and other boats by Pendennis Shipyard. Some work alongside wharves.
1.3. Shipping movements inc. anchoring of ships, and laying up of ships and oil rigs	Shipping movements and temporary anchoring mainly in Carrick Roads, Falmouth Bay and King Harry Reach with coasters visiting Truro. Ferries operate across Fal Estuary to St. Mawes and Flushing and from Feock to the Roseland Peninsula on the King Harry Ferry. Ferries also cross Helford River to Helford and through a new park and float scheme go to the National Maritime Museum and Trelissick National Trust Gardens. Lay-ups in King Harry Passage for shipping, Carrick Roads for oil rigs.	No oilrigs currently present, but there have been up to two. An Environmental Code of Conduct exists for laid up ships.
1.5. Dredging: maintenance and capital	Small amounts of maintenance dredging in Truro & Penryn Rivers, within Docks Basin and at Mylor Yacht Harbour. Capital dredging related to specific projects.	Disposal site in Falmouth Bay, approx. 6 km from SAC boundary. Only dredged material with low levels of contamination is licensed for sea disposal.
1.4. Cargo handling	Falmouth Docks. Lighterage & Newham Quays, Truro.	Variety of packaged and bulk cargoes. Transfer of bulk chemicals in Carrick Roads.
2. Fishing and mariculture		
2.1. Factory ships	Carrick Roads.	Occasional disposal of fish wastes from onboard processing activities
2.2. Scalloping	Falmouth Bay.	Trawling is illegal within the estuaries. A byelaw to ban the use of scallop dredges in the Fal & Helford Estuaries was introduced in 2005.

Activity	Location	Comments
2.3. Oyster dredging	Upper Fal Estuary, Carrick Roads, Helford River.	Licensed fishery for native oysters in Fal, dredging for re-laid oysters by owner of beds in Helford.
2.4. Trawling	Falmouth Bay.	Limited amounts of trawling takes place in Falmouth Bay, but the activity is banned within the estuaries.
2.5. Netting, potting, hand lining & long lining	Falmouth Bay with some potting within the estuaries.	Inshore boats mainly from Coverack, but also Mylor, St. Mawes, Flushing, Falmouth, Cadgwith & Helford. Most boats will alternate between these methods throughout the year.
2.6. Mariculture of oysters & mussels	Carrick Roads, upper Fal Estuary, Percuil and Helford Rivers.	Mussels grown on ropes off Truro Harbour pontoons, oysters relaid on foreshore in Carrick Roads & upper Fal in Restronguet Creek and on trestles in Percuil, subtidally in Helford. Mussel mariculture regulated by Port of Truro and Falmouth & Truro Port Health Authority.
2.7. Winkle, whelk, bait collection & crab tiling	Fal & Helford estuaries.	Ports of Truro & Penryn record bait digging in Truro area as part of their Environmental Management System (EMS). A watching brief should be kept on crab tiling developments.
3. Sewage/trade discharges	Throughout SAC and catchment.	Major discharges owned by SWWL but also from Falmouth Docks and other private discharges.
3.1 Sewage Treatment Works	Newham, Falmouth and St Mawes plus smaller works at Constantine and Gweek	New STW brought on line at Falmouth in August 2000.
3.2 Combined Storm overflow	Locations include Black Rock, Newham, Flushing, Falmouth & St Mawes plus others	Brought on line by Clean Sweep programme
3.3 Trade discharges	Throughout the catchment.	Regulated by the Environment Agency

Activity	Location	Comments
4. Maritime industries		
4.1. Marinas, pontoons & slipways	Falmouth Harbour, Penryn River, upper Truro River and lower Tresillian River and Mylor harbour	Numerous small pontoons and slipways also associated with yacht clubs, private dwellings and businesses in both estuaries, in addition to marinas.
4.2. Boat maintenance and repair	Boatyards in Truro, Falmouth, Penryn River, Mylor, Percuil, Gweek and Devoran.	The Waste Management Plan covers boatyard activities within the ports of Truro and Penryn. There may be potential, and funding, to improve facilities for waste minimisation.
4.3. Moorings	Both estuaries in upper reaches, concentrated in the lower reaches and in harbour areas.	Variety of owners/managers, mainly harbour authorities. Ports of Truro & Penryn have a moorings policy to maintain current moorings levels.
5. Agriculture	Widespread in catchments of both estuaries.	Dairy, beef, sheep, vegetables and arable farms can be found.
6. Quarrying – China Clay	Upper Fal Catchment	China Clay Industry relevant to upper Fal catchment

Table 4. Recreational activities in and around the SAC

Activity	Location	Comments
Angling	Both estuaries, Falmouth Bay (shore & boat).	Angling is covered by fisheries regulations, e.g. minimum landing sizes and bass nursery areas within both estuaries.
Boat maintenance, anchoring and beach berthing	Both estuaries.	Scrubbing off antifouling, general maintenance, often on slips or intertidal shore. Damage to seabed and species such as eelgrass by anchors and anchor chains. Many boats beach berthed in upper reaches of estuaries.
Camping	Turnaware Bar, Roundwood Quay (Fal Estuary), Tremayne Quay (Helford River).	Summer only. Tents pitched well above high water generally on quays but fires may be lit on foreshore at Turnaware and on other small beaches in outer Helford River. Camping often associated with anchoring of yachts or motorboats offshore.
Canoeing	Both estuaries, Falmouth Bay close to shore.	An increasing amount occurs within both estuaries.
Diving	Both estuaries but mainly Fal, Falmouth Bay.	Shore diving in Helford and off Pendennis, Maenporth & Porthkerris, otherwise boat diving mainly on wrecks and reefs.
Personal water craft "jet skiing"	Fal estuary, off Gyllyngvase Beach.	Limited to dedicated water ski zones on eastern side of Carrick Roads.
Power boating/motor boats/pleasure boat trips	Both estuaries especially Carrick Roads, Falmouth Bay for power boats, motor boats and pleasure boats throughout SAC.	Falmouth hosts powerboat races annually in Falmouth Bay.
Rowing	Both estuaries.	Regular gig and sliding seat boats racing.
Sailing	Both estuaries, Falmouth Bay	Predominant recreational activity in SAC, focused during spring to autumn.
Seashore searches/education/research	Mainly in Helford River	Usually involves Helford Voluntary Marine Conservation Area (HVMCA) Group.
Swimming	Both estuaries on beaches at lower end but largest numbers on main Falmouth beaches	Swimming/beaching on inaccessible beaches popular using access by boat.

Activity	Location	Comments
"Trigging"	Muddy shores of Helford River and Gillan.	Traditional Good Friday activity, involves collection of bivalves with rakes/forks, often by 200+ people. This is monitored by the HVMCA Group.
Walking / dog walking / bird watching	Around entire area where access possible, on shores also at low water.	Access limited in upper sections of both estuaries.
Water skiing / Jet Skiing	Carrick Roads, outer Helford River, off Gyllyngvase Beach and occasionally off Godrevy Beach near Manacle Point.	Limited to dedicated zones in Carrick Roads and off Gyllyngvase and seawards of the speed limit in Helford.
Wildfowling	Fal/Ruan Creek on Tregothnan Estate, around Pill Creek and on south side of Restronguet Creek.	Shooting takes place on private foreshores/land. 3-4 shoots per year.
Windsurfing	Both estuaries, mainly lower sections and off Falmouth and Loe beach.	St. Mawes to Falmouth and Helford Passage to Helford busiest areas.

3.3. Development

In addition to the above activities, the Fal and Helford estuaries in particular are subject to development pressure for new buildings, marinas, pontoons, land claim and slips, as well as development unrelated to maritime activities. The Habitats Regulations deals with development issues and planning in Part IV, in particular Regulations 48 -50. These Regulations are designed to ensure that any development, referred to by the Regulations as a **plan or project**, does not have a adverse effect upon the interest features of the site, through the undertaking of an **appropriate assessment**.

Under Regulation 48 (1), an appropriate assessment needs to be undertaken in respect of any plan or project which:

(i) either alone or in combination with other plans or projects would be likely to have a significant effect on the site; and
(ii) is not directly connected with the management of the site for nature conservation.

English Nature's guidance note is included as Appendix 2 for further information.

Regulation 50 requires competent authorities to undertake a review of all existing consents and permissions affecting SACs as soon as is reasonably practical.

Carrick District Council's Planning Department has produced a publication[1] to help their planning and development control officers respond to the requirements of this legislation. This was backed up with a seminar attended by officers from both Carrick and Kerrier to introduce the process and provide background on SACs in general. English Nature also provided further guidance[2] and an accompanying seminar to all interested relevant authorities. There have already been a number of successful planning applications within the SAC boundary, showing that this process will not necessarily prevent development, but will ensure that it does not damage the important wildlife features of the site.

Cumulative small scale land claim has led to significant loss of estuarine habitats in the past. English Nature, are currently producing a planning leaflet as guidance for developers on small intertidal developments, for example slipways and jetties, and their cumulative effects.

The Shoreline Management Plan (SMP, written by the coastal group consisting of all Cornwall's Local Planning Authorities – see bibliography) identifies the loss of intertidal and subtidal habitats to inappropriate developments as a major threat in the Fal and Helford estuaries. The SMP identifies few areas within the coastal zone appropriate for new defences and developments.

Development issues will be resolved on a case by case basis, and on their own merits relating to relevant planning policies and legislation. Many of the relevant authorities and other interested organisations will be consulted as part of normal planning procedures or as statutory consultees on FEPA[3] license and discharge consent applications.

3.4. Role of the Fal & Helford SAC Advisory Group

Both within the Habitats Directive and the 1998 DETR Guidance for marine sites, there is emphasis on the need to take account of socio-economic and cultural issues when considering the future management of the site. Decision-making should involve interested bodies other than the relevant authorities and the views of local communities and users of this area should be considered when developing and implementing any management measures.

In order to ensure that this happens an Advisory Group has been established. There are already a large number of groups in existence whose remits cover various aspects of the uses of this area, either

[1] Special Areas of Conservation: A Guide for Development Control, Carrick DC 1998.
[2] The Habitats Directive & the Habitats Regulations: Notes of a presentation to local and other competent authorities and English Nature, Truro, Nov. 1997.
[3] License applications made through the Food & Environmental Protection Act 1985 usually to regulate the disposal of dredged material or placing of structures below low water.

commercially or for recreation,. In many cases a group covers all uses of a specific part of the SAC, for example the Helford Voluntary Marine Conservation Area Group covers the Helford River. Other bodies, for example Carrick Harbour Sub-Committee, support the statutory management of, in this case, the harbours of Penryn & Truro. There are also organisations which represent one sector of activity, for example the Port of Truro Oystermen's Association. Historically there has not been one body, which encompasses all sectors of interest across the entire SAC area.

The Fal & Helford SAC Advisory Group was established in April 1997. Its membership consists of representatives from a range of interests including:

fishing & oyster fishing	conservation	recreation
commercial/shipping	maritime industry	landowners and residents
angling	coastal management	Parish & Town Councils

Further members may be co-opted onto the Advisory Group to ensure that the group is representative of all estuary users. A member of the Advisory Group is nominated as Chair on a yearly basis and this person attends the Management Forum meetings to represent the views of the Advisory Group and to feedback.

The role of the Advisory Group is as follows:

- to represent the interests of the users of the SAC within the development of the management scheme
- to represent the above interests in the ongoing management of the SAC
- to act as a forum for general discussion of issues relevant to the group
- to advise the Management Forum as necessary regarding issues relating to the SAC
- to report back to other groups within each area of interest.

4. CONSERVATION OBJECTIVES

4.1. Introduction

English Nature, as the Government's nature conservation adviser in England, has a statutory responsibility for developing conservation objectives to guide the management of the Fal & Helford SAC.

The role of the conservation objectives is to express what needs to be achieved by all the relevant authorities in order to maintain the 'favourable condition' of the site, including both the habitats and species it contains and thus deliver the aims of the Habitats Directive.

- They act as a starting point from which the management scheme can be developed.
- They provide the basis for assessing what types of activities are likely to have a significant effect upon the interest features of the site
- They form the basis for determining the scope of appropriate assessment for plans or projects proposed within the SAC.
- They provide a base for monitoring the condition of the site/features.

In addition to conservation objectives, English Nature, in collaboration with the other relevant authorities, must also provide advice on any operations or activities, which may cause deterioration or disturbance to the interest features of the site. Whilst these operations are listed in Section 5 of this management scheme, they have previously been published, along with the conservation objectives and supporting information within a stand alone document issued to the relevant authorities by English Nature as their statutory advice under Regulation 33 of the Habitats Regulations. The following sections are abbreviated from this advice, which is provided in full in Appendix 2.

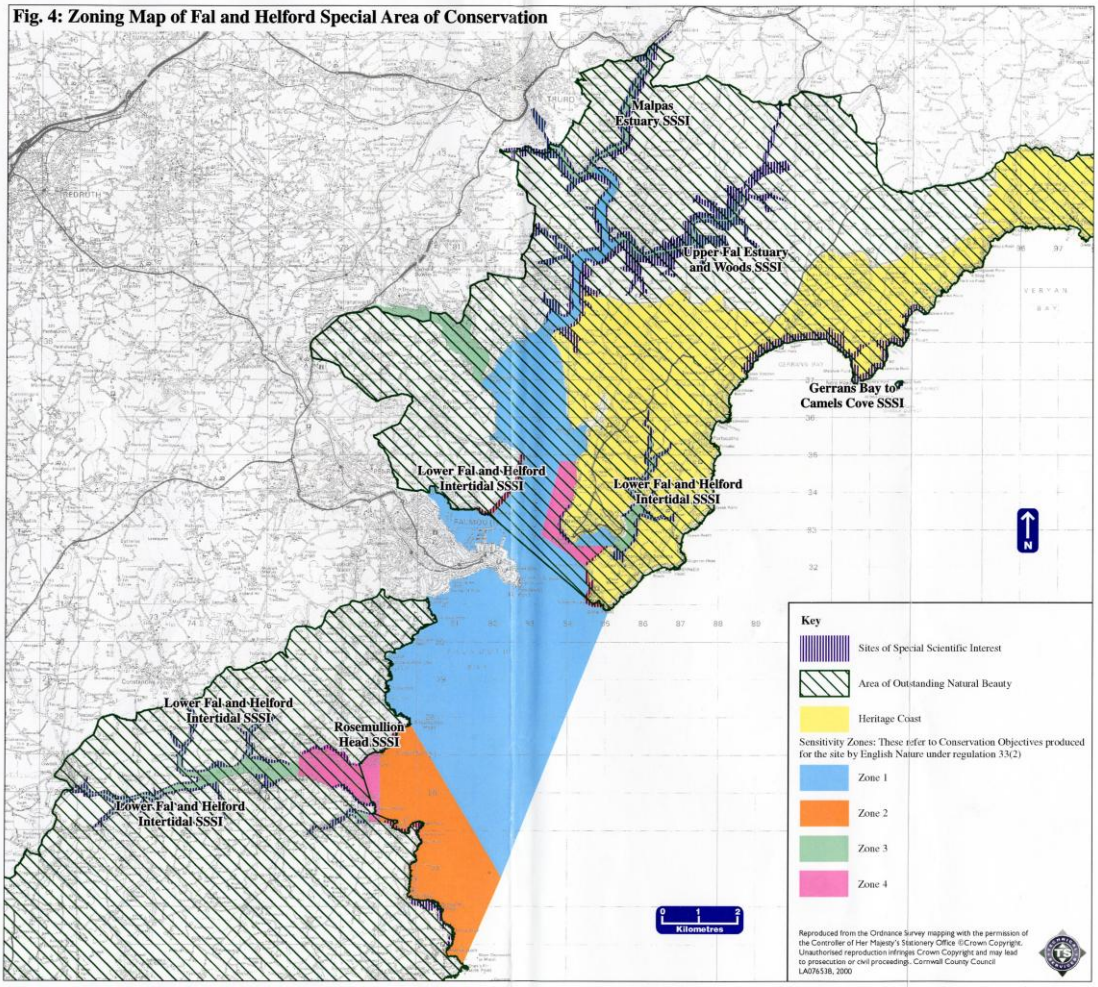
4.2. Zoning map

The following sensitivity zoning map, **Fig. 4**, has been developed in addition to the conservation objectives to provide a simple reference guide showing areas of differing sensitivity. The purpose of these zones is to support the management of the site by identifying areas with similar management needs and pressures.

Zone 1 contains generally the least sensitive habitats, whilst zone 4 identifies habitats that are generally very sensitive:

1. Wider bay environment: mixed sand through to cobbles with mobile fish species and scallops.
2. Reef areas: rocky reefs with associated species e.g. pink sea fans, ross coral and kelp.
3. Intertidal mud and sand: finer sediments with associated burrowing species e.g. cockles and lugworms.
4. Maerl and eelgrass beds on top of mixed shell and sandy sediments.

Fig. 4: Zoning Map of Fal and Helford Special Area of Conservation



4.3. Conservation objectives

For each of the interest features, which for this site are all broad habitat types, there is one over-arching conservation objective. In addition to the broad habitat type, there is a secondary list of sub-features found within that habitat, to which the conservation objective also applies. The purpose of this is to provide some reference points, against which the success of the conservation objectives and the management plan can be measured. For example by looking at the distribution of subtidal kelp forests within the large, shallow inlet and bay, or sand and muddy sand within intertidal sand and mudflats.

By monitoring the attributes of these features and sub-features, which have been identified to provide an indication of the condition of the feature, it should be possible to identify trends or changes in these habitats and whether or not these changes are natural or caused by human activities. This monitoring is essential in order to ensure that these habitats are being kept in 'favourable condition', the condition in which the habitat or species is capable of sustaining itself on a long-term basis.

The conservation objectives for the Fal and Helford SAC are:

Conservation Objective 1

To maintain the LARGE SHALLOW INLET AND BAY in 'favourable condition', taking account of natural change, with particular reference to:

- Rocky shore communities
- Subtidal rock and boulder communities
- Subtidal sandbank communities
- Kelp forest communities
- Intertidal mudflats
- Saltmarsh

Conservation Objective 2

To maintain the ESTUARIES in 'favourable condition', taking account of natural change, with particular reference to:

- Intertidal mud communities
- Subtidal mud communities
- Intertidal mixed muddy sediment communities
- Subtidal mixed muddy sediment communities
- Estuarine bedrock, boulder and cobble communities
- Subtidal sandbank communities
- Saltmarsh communities
- Reedbed communities

Conservation Objective 3

To maintain the SUBTIDAL SANDBANKS in 'favourable condition', taking account of natural change, with particular reference to:

- Eelgrass bed communities
- Maerl bed communities
- Gravel and sand communities
- Mixed sediment communities

Conservation Objective 4

To maintain the INTERTIDAL SAND AND MUDFLATS in 'favourable condition', taking account of natural change, with particular reference to:

- Intertidal sand and gravel communities
- Intertidal muddy sand communities
- Intertidal mud communities
- Intertidal mixed muddy sediment communities

Conservation Objective 5

To maintain the SALTMARSH (ATLANTIC SALT MEADOW) in 'favourable condition', taking account of natural change, with particular reference to:

- Low and low-mid marsh communities
- Mid and mid-upper marsh communities

Conservation Objective 6

To maintain the REEFS in 'favourable condition', taking account of natural change, with particular reference to:

- Rocky shore communities
- Kelp forest communities
- Subtidal rock and boulder communities
- Estuarine bedrock, boulder and cobble communities

4.4. Advice on management implications

This section is designed to expand upon the conservation objectives listed above by highlighting the major types of impact that may arise from operations or human activities that could affect the condition of its habitats and species. In many cases these impacts can be regarded as *processes*, for example smothering of the seabed, or changes in the tidal or wave regime, which may have resulted from one or more operations or activities.

For each group of potential impacts or processes there may already be a variety of management measures taking place to address these particular issues, for example contamination of waters and sediments by an oil spill will be dealt with by implementation of the local Oil Spill Contingency Plan. Section 5 on operations gives more detail in this respect, including the organisations involved in these existing management measures.

Summary of advice on operations

In order to meet the conservation objectives listed above the relevant and competent authorities are advised to manage activities within their remit to avoid significant loss, damage or change to the interest features of the site.

4.4.1. Large shallow inlets and bays

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal and/or smothering
- physical damage resulting from abrasion, siltation and/or selective extraction

- increased synthetic (e.g. TBT, PCBs) and/or non synthetic toxic contamination (e.g. heavy metals and oil)
- nutrient and/or organic enrichment
- increases in turbidity
- biological disturbance through introduction and/or translocation of non-native species

4.4.2. Estuaries

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal of habitat
- physical damage including siltation and abrasion
- toxic contamination of synthetic compounds (e.g. TBT, PCBs)
- toxic contamination of non-synthetic compounds (e.g. heavy metals, hydrocarbons)
- non-toxic contamination by nutrient or organic enrichment
- biological disturbance by selective extraction of species

4.4.3. Subtidal sandbanks

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal and/or smothering
- physical damage resulting from siltation, abrasion and/or selective extraction
- increased synthetic and/or non-synthetic toxic contamination
- nutrient and/or organic enrichment
- increases in turbidity

4.4.4. Intertidal mud and sandflats

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal of habitats
- physical damage resulting from selective extraction
- increased synthetic and/or non-synthetic toxic contamination
- nutrient and/or organic enrichment

4.4.5. Saltmarsh (Atlantic salt meadow)

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal of habitat
- increased synthetic and/or non-synthetic toxic contamination

4.4.6. Reefs

In order to meet the above objectives, relevant and competent authorities are advised to manage activities within their remit such that they do not result in:

- removal of habitat
- decrease to the extent, distribution, diversity and species richness of reef communities

Most of the above are likely to arise through development, coastal defence works or the siting of large offshore structures. Consequently most of these issues will be resolved through the assessment of plans and projects under the Habitats Regulations.

The remainder from above should be addressed by the following measures:

(i) Compliance with relevant EC Directives, UK Regulations and standards on water quality.
(ii) Updating and implementation of the Oil Spill Contingency Plans through enaction of the new Oil Pollution Preparedness, Response & Co-operation (OPRC) Regulations.
(iii) Implementation of the harbour authority environmental management systems and waste management plans, where they exist.

4.5. Outline of monitoring requirements

4.5.1. Introduction

In order to establish whether or not the above conservation objectives are being met, a monitoring programme needs to be established and executed. The scope of the monitoring must be sufficient that it covers all the conservation features and sub-features of interest, and wherever possible builds on existing monitoring work to reduce costs. As this is a complex task, only an outline of the monitoring requirements and approach are given in this management scheme.

The 'favourable condition' table in English Nature's Regulation 33 advice (see Appendix 2) supplements the conservation objectives and supports the identification of future monitoring requirements of the condition of the site and its features.

Other data such as results from compliance monitoring and appropriate assessments will also have an important role in assessing condition, and contribute to monitoring of the site.

4.5.2. SAC monitoring priorities

Monitoring will add to the existing baseline of information and where appropriate existing survey work will be repeated in order to ensure that it conforms to the agreed monitoring methods. The following areas or habitats are priorities for monitoring. Initial condition monitoring of subtidal interest features has been undertaken by English Nature and this, along with other existing data, will form the baseline against which future changes will be assessed.

Live maerl and eelgrass

For habitats like eelgrass or live maerl a survey of its distribution and species counts in sample areas will probably provide sufficient information. Information was collected in the mid 1980s on the St. Mawes Bank area, and eelgrass has been monitored for the last 3 years in the Helford River. Further work on establishing extent of eelgrass beds in the Percuil River and St. Mawes Harbour was carried out in August 1999, in addition to a survey of the live maerl beds in this area and on St. Mawes Bank. This monitoring of maerl habitats has been undertaken by English Nature.

Dead maerl

The survey by English Nature of dead maerl species (1997) provided information on species present in specific areas of dead maerl within the Fal Estuary. Complementary information of a reasonable quality is available from the RoxAnn (acoustic mapping) survey (1994) for the Fal Estuary and inner Falmouth Bay. Further work has been undertaken by Falmouth Harbour Commissioners.

Rocky shores

Rocky shores can be assessed for the types of species or groups of species (biotopes) using Marine Nature Conservation Review (MNCR) techniques. Survey work (September-November 1998) has established baseline information for all rocky shores around the SAC. Maps and digital outputs from this survey are available from English Nature.

Saltmarsh

Survey information on saltmarshes dates back to 1986 and has since been revisited by English Nature using well established techniques (National Vegetation Classification). Of all the habitats present within the SAC, this is the most straightforward to monitor.

Intertidal mudflats

The existing extent of intertidal mudflats has been documented using 1:10 000 aerial photographs flown in winter 2000/01. This will need supplementing by sediment cores to look at the structure of the mudflats and the species that they contain in order to provide information on the quality of the habitat.

Reefs

Little detailed information exists for the kelp beds and subtidal reef habitats in Falmouth Bay, however survey work undertaken in 2002 established baseline information for these areas, and defined areas for future monitoring.

Estuaries

Monitoring of estuarine interest will be undertaken during monitoring of other interest features (such as intertidal reefs, mudflats and subtidal sandbanks).

4.5.3. Monitoring for 'favourable condition'

Determining the level of detail required for monitoring the SAC is the responsibility of English Nature, who is also charged with leading on 'condition monitoring'. The following table (Table 5) outlines the various types of monitoring that English Nature feel are necessary in order to be able to assess the 'condition' of the SAC's interest features (habitats and species). 'Condition' is essentially a measure of the health of the habitats and species and whether or not they are capable of sustaining themselves on a long-term basis. It can show where existing strongholds are maintained, or where they are increasing or showing signs of damage and/or loss. By monitoring various aspects or 'attributes' of these features, it is possible to build up a picture of what is happening to the site and whether or not there needs to be changes made to the ways in which it is managed. The aim is to ensure that the interest features remain in a 'favourable condition', which can be said to occur when the target for each attribute is reached.

In addition to condition monitoring carried out by English Nature, compliance monitoring (where the relevant authorities are responsible for monitoring enforcement of those measures within the management scheme that fall within their functions) will also contribute to ongoing assessment of 'favourable condition'. Table 6, which identifies management actions for the site, identifies any actions required for compliance monitoring and the relevant authorities in each case.

Table 5. 'Favourable condition' table for the Fal and Helford SAC

Feature	Sub-feature	Attribute	Measure	Target	Comments
Large shallow inlet and bay		Extent	Area (ha) of the large shallow inlet and bay, measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. The extent of the large shallow inlet and bay will not change significantly over time unless due to some human activity but nevertheless needs to be measured periodically.
		Water clarity	Average light attenuation measured periodically throughout the reporting cycle (frequency to be determined).	Average light attenuation should not deviate significantly from the established baseline, subject to natural change.	Water clarity is important for maintaining extent and density of algal and plant dominated communities. Clarity decreases through increases in amounts of suspended organic/inorganic matter.
		Nutrient status - phytoplankton concentration	Average phytoplankton concentration in summer measured annually.	No significant increase in phytoplankton concentration from the established baseline, subject to natural change.	Nutrient enrichment stimulating excessive growth of phytoplankton is a common factor contributing to a reduction in water clarity. Single species-dominated phytoplankton blooms can also have harmful effects on shellfish and are known to occur in the Fal.
	Saltmarsh communities	Attributes and targets for this sub-feature are listed under the 'Atlantic Salt Meadows' interest feature covered in other sections of this table.			
	Intertidal mudflat and sandflat communities	Attributes and targets for this sub-feature are listed under the 'Intertidal mudflats and sandflats' interest feature covered in other sections of this table.			
	Rocky shore communities, Kelp forest communities, Subtidal rock + boulders	Attributes and targets for this sub-feature are listed under the 'Reefs' interest feature covered in other sections of this table.			

Feature	Sub-feature	Attribute	Measure	Target	Comments
Large shallow inlet and bay (cont.)	Subtidal sandbank communities	Attributes and targets for this sub-feature are listed under the 'Subtidal sandbanks' interest feature covered in other sections of this table.			
	Subtidal mud communities	Species composition of characteristic biotopes	Presence and occurrence of composite species from some or all of the biotopes. Measured during summer, once during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the biotopes within the sub-feature. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and change in composition may indicate cyclic change/trend in subtidal mud communities.
Subtidal sandbanks		Extent	Area (ha) of the subtidal sandbanks measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent of the feature is a reporting requirement of the Habitats Directive. Monitoring will need to take account of the dynamic nature of the feature but reduction in extent may indicate long term changes in the physical conditions influencing the feature.
		Sediment character	Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean & median grain size, and sorting coefficient, used to characterise sediment type. Sediment character to be measured during summer once during reporting cycle.	Average PSA parameters should not deviate significantly from an established baseline, subject to natural change.	Sediment character defined by PSA is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it.
		Topography	Depth distribution of sandbanks from selected sites, measured periodically (frequency to be determined).	Depth distribution should not deviate significantly from an established baseline, subject to natural change.	Depth and distribution of the sandbanks reflects the energy conditions and stability of the sediment, which is key to the structure of the feature. Depth of the feature is a major influence on the distribution of communities throughout.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Subtidal sandbanks (cont.)		Water density	Average temperature/ salinity in the subtidal measured periodically throughout the reporting cycle (frequency to be determined).	Average temperature/ salinity should not deviate significantly from an established baseline, subject to natural change.	Temperature and salinity are characteristic of the overall hydrography of the area. Changes in temperature and salinity influences the presence and distribution of species (along with recruitment processes and spawning behaviour) including those at the edge of their geographic ranges and non-natives.
	Eelgrass bed communities (*Zostera marina)*	Extent	Area (ha) of eelgrass beds measured during peak growth period twice during reporting cycle.	No decrease in extent from an established baseline, subject to natural change.	The extent and distribution of eelgrass beds provides a long-term integrated measure of environmental conditions.
		Characteristic epiphytic species - density of *Zostera marina*	Average density, measured during peak growth period twice during reporting cycle.	Average density should not deviate significantly from an established baseline, subject to natural change.	An early indicator of seagrass under stress is a reduction in biomass, i.e. the number and length of leaves. Density is preferred as a surrogate for biomass, being less destructive, based on baseline survey to establish the relationship between density and biomass at a site.
		Characteristic species - epiphytic community	Presence and abundance of epiphytic species measured during summer twice during reporting cycle.	Presence and abundance of epiphytic species should not deviate significantly from the established baseline, subject to natural change.	The occurrence and frequency of epiphytes is indicative of the structure of the eelgrass bed communities. It gives an indication of their quality and changes in epiphytic composition may indicate cyclic change/trend in the host biotope or the subtidal sandbank communities as a whole.
		Nutrient status - green algal mat	Extent across whole or parts of site, measured during peak growth period every 3 years during reporting cycle.	No increase in extent of green algal mats from an established baseline, subject to natural change.	Nutrient status is a key functional factor that influences the sub-feature as opportunistic macroalage compete with seagrass and affect the associated species. Increase in filamentous green algae may be a related natural phenomenon or may indicate eutrophication.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Subtidal sandbanks (cont.)	Maerl bed communities	Extent	Area (ha) of maerl (live & dead maerl), measured once during reporting cycle.	No decrease in extent of maerl as whole, or of either dead or live maerl, from an established baseline, subject to natural change.	The extent of maerl beds (and distribution of live and dead components within the beds) is key to their structural and functional importance. Extent provides a long-term integrated measure of environmental conditions and any loss is likely to be long-term.
		Distribution of maerl bed communities	Distribution of maerl bed communities. Measured once per reporting cycle.	Distribution of maerl bed communities should not deviate significantly from an established baseline, subject to natural change.	The relative distribution of the biotopes is an important structural aspect of the feature. Changes in relative extent and distribution may indicate long term changes in the physical conditions influencing the feature.
		Species composition of maerl bed communities	Presence and abundance of composite species of biotopes from maerl areas. Measured during summer, one during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the live maerl bed. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and change in composition may indicate cyclic change/trend in sediment communities. Live maerl is species rich and contains rare algal species which are relatively stable, making this habitat a good indicator of the condition of the subtidal sandbanks.
		Nutrient status - green algal mats	Extent measured during peak growth period. Measured once during reporting cycle.	No increase in extent of algal mats from an established baseline, subject to natural change.	Heavy overgrowth of filamentous green algae, in response to nutrient enrichment, will reduce light levels to maerl and is therefore likely to affect maerl growth rates and may affect associated algal diversity.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Subtidal sandbanks (cont.)	Gravel and sand communities	Species composition of characteristic biotopes	Presence and abundance of composite species from some or all of the biotopes. Measured during summer, once during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the biotopes within the sub-feature. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and change in composition may indicate cyclic change/trend in subtidal sandbank communities.
	Mixed sediment communities	Species composition of characteristic biotopes	Frequency and occurrence of composite species from some or all of the biotopes. Measured during summer, once during reporting cycle.	Presence and abundance of composite species from some or all of the biotopes. Measured during summer, once during reporting cycle.	Species composition is an important contributor to the structure of the biotopes within the sub-feature. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and change in composition may indicate cyclic change/trend in subtidal sandbank communities.
Intertidal mudflats and sandflats		Extent	Area of intertidal mudflats and sandflats measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of intertidal mud communities is likely to be detrimental to the structure of the feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the feature.
		Sediment character	1. Particle size analysis. Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Measured in summer once during reporting cycle.	Particle size parameters should not deviate significantly from an established baseline, subject to natural change.	Sediment character defined by particle size analysis is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Intertidal mudflats and sandflats (cont.)			2. Sediment penetrability. Degree of sinking.	Average measure should not deviate significantly from an established baseline, subject to natural change.	Penetrability is an indicator of sediment stability, degree of compaction indicates the shear strength of the sediment and thus the susceptibility of that sediment type to erosion. Compaction of the sediment influences the biological community within the sediment.
		Topography	Tidal elevation and shore slope, measured periodically (frequency to be determined).	Shore profile measurements should not deviate significantly from an established baseline, subject to natural change.	In the intertidal topography reflects the energy conditions and stability of the sediment, which is key to the structure of the feature. Topography is a major influence on the distribution of communities throughout the feature. Measuring topography may also indicate the position of channels through the feature, which is another important indicator of the processes influencing the feature.
		Nutrient status - green algal mats	Extent of green algal mats, measured during summer, annually throughout the summer.	Extent of green algal mats should not increase from an established baseline, subject to natural change.	Nutrient status is a key functional factor that influences biota associated with sediments including infauna as well as plants/algae at the surface. Green algae provide an indication of elevated nutrient levels since they respond by increased extent or abundance. Further, mats of green algae, where they increase, both directly and indirectly affect sediment structure and function, primarily through smothering and associated deoxygenation.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Intertidal mudflats and sandflats (cont.)	Sand and gravel communities	Extent and distribution of characteristic biotopes	Extent and distribution of biotopes. Measured during summer, once during reporting cycle.	Extent and distribution of the biotopes should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of biotopes are an important structural aspect of the sub-feature and therefore feature. Changes in extent and distribution may indicate long term changes in the physical conditions influencing the feature such as changes in sediment distribution.
	Muddy sand communities	Extent and distribution of characteristic biotopes	Extent and distribution of biotopes. Measured during summer, once during reporting cycle.	Extent and distribution of the biotopes should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of biotopes are an important structural aspect of the sub-feature and therefore feature. Changes in extent and distribution may indicate long term changes in the physical conditions influencing the feature such as changes in sediment distribution.
	Mud communities	Extent and distribution of characteristic biotopes	Extent and distribution of biotopes. Measured during summer, once during reporting cycle.	Extent and distribution of the biotopes should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of biotopes are an important structural aspect of the sub-feature. Changes in extent and distribution may indicate long term changes in the physical conditions influencing the feature such as changes in sediment distribution.
	Intertidal mixed muddy sediment communities	Extent	Area (ha) of intertidal mixed muddy sediment communities, measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of intertidal mixed muddy sediment communities is likely to be detrimental to the structure of the feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the feature.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Atlantic salt meadows*		Extent	Area (ha) of Atlantic salt meadows measured once during the reporting cycle.	No decrease in extent of Atlantic salt meadows from an established baseline, subject to natural change.	Monitoring will need to take account of the dynamic nature of some of these habitats. A reduction in extent could be further indicated by ground survey to assess for signs of erosion-toppled vegetated blocks; stepping of saltmarsh edge; signs of stress/damage to plants. Extent needs to be measured at low tide.
		Creek patterns	Creek density and morphology measured periodically during reporting cycle (frequency to be determined).	No significant alteration of creek patterns from an established baseline, subject to natural change.	Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. The efficiency of this process depends on creek pattern. Density is controlled by vegetation cover, suspended sediment load and tidal influence. Creeks allow pioneer vegetation to be established along their banks higher into the saltmarsh system.
		Range and distribution of characteristic NVC saltmarsh communities.	Presence and distribution of characteristic saltmarsh communities measured once during reporting cycle.	Range and distribution of characteristic saltmarsh communities should not deviate significantly from the established baseline, subject to natural change.	Sites with the greatest range of community types considered typical for the site from low, mid to upper saltmarsh and transition to other habitats are in most favourable condition. (NVC communities: SM8, SM10, SM11, SM13, SM15, SM16, SM18, SM24).
		Vegetation structure	Range and distribution of varying heights of vegetation measured periodically (frequency to be determined).	Vegetation structure should not deviate significantly from an established baseline, subject to natural change.	Vegetation structure is largely affected by the impact of grazing interacting with different vegetation communities. Not all saltmarshes are grazed; removal or introduction of grazing can result in changes to plant community composition.

*Low, mid and upper saltmarsh and zonations between these are considered to be sub-features of **Atlantic salt meadows**. These may exhibit considerable variation, and NVC communities have been assigned to each sub-feature, according to The Saltmarsh Survey of Great Britain (Burd 1989). The presence of these on an individual site and their position within the saltmarsh zonation will need to be established by surveys which may also identify sub-communities typical of that site

Feature	Sub-feature	Attribute	Measure	Target	Comments
Atlantic salt meadows (cont.)	Low Marsh and Low-Mid Marsh communities	Characterising species of: 1.Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Sueda maritima* SM10. 2. *Aster tripolium var. discoides* saltmarsh SM11. 3. *Puccinellia maritima* saltmarsh SM13	Frequency and abundance of characterising species, particularly of: 1. *Puccinellia maritima*, annual *Salicornia* species and *Sueda maritima*. Measured once during reporting cycle. 2. *A.tripolium var. discoides*. 3. *P. maritima* with *Triglochin maritima*, *Plantago maritima*, *Armeria maritime.*	Frequency and abundance of characteristic species of low and low-mid marsh communities should not deviate significantly from an established baseline subject to natural change	1. Tends to be species -poor, with the three main species often co-dominant. Cover of vegetation can be quite variable and may have up to 50% cover of an algal mat. Grazing can affect stands by selective removal of some species and causing loss of structural diversity. 2. Occurs in extensive stands in low marsh or on creek sides throughout the marsh. Usually on ungrazed sites. 3. Most widespread type of saltmarsh vegetation in the UK. Grazing determines species composition and type of sub-community and structural variation. Can often develop after damage, turf -cutting etc. Also found in mid-upper marsh.
	Mid and Mid-Upper marsh	Characterising species of: 1. *Juncus maritimus-Triglochin maritima* saltmarsh SM15. 2 .*Festuca rubra* saltmarsh SM16	Frequency and abundance of characterising species, particularly of: 1. *Juncus maritimus* 2. *Festuca rubra* and *Juncus gerardii*	Frequency and abundance of characteristic species of low and low-mid marsh communities should not deviate significantly from an established baseline subject to natural change.	1. Can occur at all levels in a saltmarsh. Tussocky nature of *J. maritimus* discourages grazing by stock. Widespread in England. 2. Covers extensive areas of saltmarsh. Usually present on grazed marshes. Can be variable according to local conditions.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Atlantic salt meadows (cont.)		3. *Juncus maritimus* saltmarsh SM18	3. *Juncus maritimus*		3. Widespread on West coast but only local in SE England. Tends to be at upper levels of saltmarsh but can also be present in mid-upper marsh.
Estuaries		Extent	Area (ha) of the estuaries measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. The extent of the estuaries will not change significantly over time unless due to some human activity but nevertheless needs to be measured periodically.
		Morphological equilibrium	Intra- and inter-estuarine Tidal Prism/Cross- Section ratio (TP/CS ratio), measured periodically (frequency to be determined).	Intra- and inter- estuarine TP/CS ratio should not deviate significantly from an established baseline, subject to natural change.	TP = Tidal Prism = total volume of water crossing a given profile during the flood tide (m^3). CS = Cross-sectional area of a given profile (location) at high water springs in m^2. The relationship between TP & CS provides a measure of the hydrodynamics of the estuary which are fundamental to the way the estuary adjusts to tidal energy reflected in rates of deposition and erosion. Substantial changes in this relationship may indicate that anthropogenic factors are taking effect and this would trigger more detailed evaluation of potential problems.
		Morphological equilibrium	Long term trend in horizontal boundary of the saltmarsh/mudflat interface.	Horizontal boundary of the saltmarsh/mudflat interface should not deviate significantly from the long-term trend, subject to natural change.	Monitoring the saltmarsh boundary is a practical means of securing data which indicate changes in the TP/CS relationship. Deviation from long-term trends would act as a trigger for a second tier response involving detailed bathymetric survey and evaluation of changes in the TP/CS relationship. In the absence of saltmarsh, vertical change in mudflat position can act as a surrogate for saltmarsh (it may be used as well).

Feature	Sub-feature	Attribute	Measure	Target	Comments
Estuaries (cont.)		Nutrient status	Average phytoplankton concentration in summer, measured annually.	No significant deviation from an established baseline, subject to natural change.	Nutrient enrichment stimulating excessive growth of phytoplankton is a common factor contributing to a reduction in water clarity. Single species-dominated phytoplankton blooms can also have harmful effects on shellfish.
	Intertidal mud communities & intertidal mixed muddy sediment communities	Attributes and targets for this sub-feature are listed under the 'Intertidal mudflats' interest feature covered in other sections of this table.			
	Subtidal mud communities	Extent	Area (ha) of subtidal mud communities, measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of subtidal mud communities is likely to be detrimental to the structure of the feature, e.g. leading to associated loss of intertidal sediments, and may indicate long term changes in the physical conditions of the feature.
	Subtidal mixed muddy sediment communities	Extent	Area (ha) of subtidal mixed muddy sediment communities, measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of subtidal mixed sediment communities is likely to be detrimental to the structure of the feature, e.g. leading to associated loss of intertidal sediments, and may indicate long term changes in the physical conditions of the feature.
		Extent and distribution of characteristic biotopes (CuSH, HarCon)	Extent and distribution of biotopes (CuSH, HarCon), measured once during reporting cycle.	Extent and distribution of biotopes should not deviate significantly from an established baseline, subject to natural change.	The extent of these biotopes and their relative distribution is an important structural aspect of the feature. Changes in their extent and distribution may indicate long term changes in the physical conditions of the estuarine complex.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Estuaries (cont.)	Estuarine bedrock, boulder and cobble communities	Attributes and targets for this sub-feature are listed under the 'Reefs' interest feature covered in other sections of this table.			
	Subtidal sandbank communities	Attributes and targets for this sub-feature are listed under the 'Subtidal sandbanks' interest feature covered in other sections of this table.			
	Saltmarsh communities	Attributes and targets for this sub-feature are listed under the 'Atlantic saltmeadows' interest feature covered in other sections of this table.			
	Reedbed communities	Extent	Area (ha) of reedbed communities measured once every reporting cycle.	No decrease in extent of reedbed plant communities from an established baseline, subject to natural change.	Important transitional habitat, loss of which will have impacts on other species, including juvenile fish and birds such as the little egret.
Reefs		Extent	Area (ha) of the reefs, measured periodically (frequency to be determined)	No decrease in extent from an established baseline, subject to natural change.	Extent of reef is reporting requirement of the Habitats Directive. The extent of reef should not change significantly over time unless due to some human activity but needs to be measured periodically.
		Water density (salinity and temperature)	Average temperature and salinity measured periodically in the subtidal, throughout the reporting cycle.	Average density should not deviate significantly from an established baseline, subject to natural change.	Temperature and salinity are characteristic of the overall hydrography of the area. Temperature and salinity profiles can influence the presence and distribution of species (along with recruitment processes and spawning behaviour) including those at the edge of their geographic ranges and non-natives.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Reefs (cont.)		Water clarity	Average light attenuation measured periodically throughout the reporting cycle (frequency to be determined).	Average light attenuation should not deviate significantly from an established baseline, subject to natural change.	Water clarity is a key process influencing algal/plant growth, density and extent and hence, algal/plant dominated biotopes. Changes in water clarity may be caused by increases in suspended material due to a range of processes.
	Rocky shore communities	Distribution of rocky shore communities	Distribution of intertidal rocky shore biotopes measured using littoral extent during the summer, once during reporting cycle.	Distribution of intertidal rocky shore biotopes should not deviate significantly from an established baseline, subject to natural change.	The distribution of rocky shore biotopes is an important structural aspect of the site. Changes in extent and distribution may indicate long term changes in the physical conditions at the site.
		Species composition of low-shore boulder communities	Presence and abundance of composite species from biotope MLR.Fse.Bo. Measured during summer, twice during reporting cycle.	Presence and abundance of composite species should not deviate significantly from the established baseline, subject to natural change.	The presence and relative abundance of characterising species gives an indication of the quality of MLR.Fse.Bo *(Fucus serratus* and under-boulder fauna on lower eulittoral boulders) and change in composition may indicate cyclic change/trend in rocky shore communities. Change in composition may also indicate changes in hydrography, salinity and/or siltation.
		Species composition of rockpool communities	Presence and abundance of composite species and percentage cover of *Sargassum muticum* (Japweed) from a representative series of rockpools, measured during summer twice during reporting cycle.	Presence and abundance of composite species should not deviate significantly from the established baseline, subject to natural change. Average percentage cover of *Sargassum* should not increase from the established baseline**.**	Composite species of rockpools include many southwestern species, their relative abundance gives an indication of the quality of the rockpools and are key structural components of the intertidal rocky shores. Increased *Sargassum* is believed to compete with native species and would thus be detrimental to favourable condition.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Reefs (cont.)	Kelp forest communities	Distribution of characteristic communities	Distribution of kelp dominated biotopes measured once during reporting cycle.	Distribution of kelp dominated biotopes should not deviate significantly from an established baseline, subject to natural change.	The distribution of kelp biotopes is an important structural aspect of the feature. Changes in extent and distribution may indicate long term changes in the physical conditions at the site.
		Species composition of characteristic communities	Presence and abundance of composite species (in particular, red algal species, for example LhypR.Ft biotope), measured during summer, once during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the kelp forests and therefore the reef as a whole. The presence and relative abundance of characterising species gives an indication of the quality of the kelp forests and change in composition may indicate cyclic change/trend in reef communities.
		Characteristic species - *Laminaria hyperborea & L. ochroleuca* population size	Relative proportions and density of each species in kelp forests at representative series of sites. Measure during summer, twice during reporting cycle.	Average ratio of *Laminaria hyperborea: L. ochroleuca* should not deviate significantly from an established baseline, subject to natural change. Average density of each species should not deviate significantly from an established baseline, subject to natural change.	*L. ochroleuca* is a south-western species, the relative proportion of this species to *L. hyperborea*, may also be indicative of long-term changes in water temperature, clarity or wave exposure. Both species contribute to the productivity and structure of the feature.
		Characteristic species - *Distomus variolosus* population size	Average abundance on kelp stipes (percentage of stipe length over which present and density of cover) measured twice during reporting cycle.	Average percentage cover should not deviate significantly from an established baseline, subject to natural change.	This is a south-western species of colonial tunicate and is indicative of the supporting processes as it is sensitive to deviations in salinity and siltation.

Feature	Sub-feature	Attribute	Measure	Target	Comments
Reefs (cont.)	Subtidal rock and boulder communities	Species composition of characteristic biotopes MCR.ErSEun and ECR.AlcMas	Presence and abundance of composite species from biotopes MCR.ErSEun and ECR.AlcMas. Measured during summer, once during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the sub-feature and is indicative of the health of the feature as a whole. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and changes in composition may indicate cyclic change/trend in communities. One of the characterising species is *Eunicella*, which is a long-lived and nationally important species.
	Estuarine bedrock, boulder and cobble communities	Extent and distribution of characteristic biotopes SIR.Cor.Ele - LsacRS.FiR	Extent and distribution of biotopes SIR.Cor.Ele - LsacRS.FiR. Measured during summer, once during reporting cycle.	Extent and distribution of Cor.Ele and LSacRS.FiR should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of these biotopes contributes to the structure of the estuaries, and changes in distribution may indicate long term changes in the physical conditions of the estuarine complex, such as changes in salinity gradients or siltation patterns.

5. OPERATIONS LIST AND SITE MANAGEMENT

5.1. Introduction

In section 3 there is a brief overview of the range of commercial and recreational activities taking place within and around the SAC. However, this does not address the potential impact that these activities may have upon the interest features of the site. Regulation 33 of the Habitats Regulations requires English Nature to *'advise relevant authorities as to...any **operations** that may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated'*. This definition of operations strictly refers to activities, which are not subject to any licenses, consents or permissions, although the list shown in Table 4 (section 3) includes activities that fall into this latter category as the relevant authorities felt that this provided a more complete picture of the situation within the SAC.

This section does not include any reference to future development works that may be proposed for the site. These will be resolved through assessment of plans and projects under Regulations 48-50 of the Habitats Regulations, to ensure any new development does not have a significant effect upon the interest features of the site. English Nature has produced its package of statutory conservation advice under Regulation 33, issued January 2000. This management scheme's advice is consistent with the information in the Regulation 33 package, which can be viewed in full in Appendix 2.

In addition to management of the site as a SAC, parts of the Fal & Helford catchments and intertidal areas are subject to management under other conservation legislation, including designation as Sites of Special Scientific Interest (SSSI) under the Wildlife and Countryside Act 1981 (as amended).

Tables 3 and 4 (section 3) identify commercial and recreational activities around the Fal & Helford. From this list the relevant authorities have identified a priority list of activities which **may** need some form of management, if none already exists, or further measures where actions are already in force. In some cases activities are listed as a precautionary measure, to highlight the need to consider their potential impact in the event of a failure of existing practises or changes in management policy, for example, fuel bunkering, transfer of chemical cargoes or future increases in moorings. Table 6 on the following page shows the list of activities identified for this site. The activities list is **not** a list of **prohibitions,** merely a **checklist for future management.**

5.2. List of activities including location and potential impact

The following table showing a matrix of operations will need to be referred to together with the map in Figure 4, showing the location of the operations relative to the sensitivity zones 1-4.

The matrix of operations cross-references the following:

- the **operation** or activity and its location, ***with***
- the **potential impact** on the interest features of the site, ***with***
- the **control mechanism** for the operation, ***and***
- the **relevant authority** or other organisation responsible for that control mechanism.

If there is no impact from an operation on a zone, the box is shaded. Where an impact is either known to happen or has the potential to happen, there is a ✓, followed by a description of the nature of the impact on the habitats and species within that zone. The precautionary approach has been employed to highlight either an impact observed or where it is anticipated. Reference is also made to any control mechanism, e.g. licences, bylaws, commercial agreements or consents, where relevant, followed by the organisation responsible for their implementation.

Following the table, section 5.2 expands upon its detail in relation to the existing management of these operations. For each operation there is also a list of future management options, including potential monitoring needs.

Table 6. Operations list *including operations that require consents/licenses/permissions*

KEY:

	NO IMPACT	✓	IMPACT OBSERVED OR ANTICIPATED

CSFC	Cornwall Sea Fisheries Committee	**FHC**	Falmouth Harbour Commissioners
EA	Environment Agency	**FOS**	Falmouth Oil Services
EN	English Nature	**PTOF**	Port of Truro Oyster Fishery (under jurisdiction of PT&P)
DEFRA/RDS	Department for Environment, Food & Rural Affairs/ Rural Development service (note: this is a competent, not relevant authority).	**PT&P**	Ports of Truro & Penryn
		St MP & H Co.	St. Mawes Pier & Harbour Company
FD&EC	Falmouth Docks & Engineering Company	**N/A**	Not applicable

	Zone of interest						
Operation and location	**ZONE 1**	**ZONE 2**	**ZONE 3**	**ZONE 4**	**Potential impact on interest features**	**Type of control mechanism**	**Relevant authority**
1. Discharge of trade effluent containing tributyltin to tidal waters: Falmouth Docks, Fal Estuary.	✓	✓	✓	✓	Disturbance to invertebrate species found in these zones e.g. whelks, oysters, by tributyl tin.	IPC Authorisation.	EA
2. Discharge of sewage effluent, including trade effluent and private discharges, to tidal waters.	✓	✓	✓	✓	Increase in sediment loading above natural variability, resulting in smothering of maerl and eelgrass beds and inhibition of growth. Increase in nutrient loading, leading to eutrophication. Excessive algal growth on maerl beds would result in deterioration of this habitat.	Consent under Water Resources Act. Compliance with Urban Waste Water Treatment Directive. Compliance with future requirements under Water Framework Directive.	EA
3. Diffuse inputs including agricultural run-off into water courses within the catchment.	✓	✓	✓	✓	Increase in sediment loading above natural variability, resulting in smothering of maerl and eelgrass beds and inhibition of growth.	Codes of practice issued to farmers, very little action taken Target advice on low input	DEFRA/ RDS

Operation and location	Zone of interest				Potential impact on interest features	Type of control mechanism	Relevant authority
	ZONE 1	ZONE 2	ZONE 3	ZONE 4			
					Increase in nutrient loading, leading to eutrophication. Excessive algal growth on maerl beds would result deterioration of this habitat.	farming and control of run-off.	
4. Ship to ship transfer of bulk chemicals: Carrick Roads, Fal Estuary.	✓	✓		✓	Potential lethal or sub-lethal effects of toxic chemicals in spillages on intertidal and subtidal species.	Procedures as laid down by competent authority, including contingency plans.	FHC FOS
5. Bunkering and ship to ship transfer of oil: Carrick Roads, Fal Estuary.	✓	✓	✓	✓	Potential deterioration of interest features caused by smothering of intertidal rocky and sediment shores and saltmarsh vegetation, eelgrass beds and maerl beds, as a result of oil from spillages. Additional impact of clean-up measures, e.g. removal of intertidal sediment; impact from dispersant use, if used.	Procedures as laid down by competent authority, including contingency plans.	FHC PT&P DEFRA EN
6. Discharge of fish wastes from factory ships: Carrick Roads.	✓	✓	✓	✓	Smothering of seabed and creation of anoxic conditions as a result of the decay of fish wastes. Possible localised nutrient enrichment of surrounding waters.	FHC bylaws 32, 37 & 53 prohibit or regulate the discharge, spilling and disposal of wastes into harbour. FEPA license required under the Waste Management Licensing Regulations 1994. Where licensing authority (DEFRA) believes the deposit could endanger human health or harm the environment, a FEPA license would be required.	FHC

Operation and location	Zone of interest				Potential impact on interest features	Type of control mechanism	Relevant authority
	ZONE 1	ZONE 2	ZONE 3	ZONE 4			
7. Anchoring of oil rigs: siting of anchor point on St. Mawes Bank, Fal Estuary.			✓		Disturbance to live maerl by crushing and scouring caused by siting of anchor point and subsequent movement of chain. This has been shown to leave bare patches within live bed.	None present.	N/A FHC (responsible for oil rigs as a harbour authority).
8. Laying of moorings in Fal and Helford estuaries. Particularly sensitive locations include between Toll Point and Durgan in the Helford River; on St. Mawes Bank and between Carricknath Point and Amsterdam Point in the Fal Estuary.	✓	✓	✓	✓	Disturbance to eelgrass beds by laying of mooring blocks and mowing effect of mooring chains. This has been shown to leave bare patches within eelgrass beds. Disturbance of live maerl by laying of mooring blocks and movement of chains. Disturbance to gravel communities.	Licences.	FHC, Helford moorings companies, St MP & H Co.
9. Anchoring in the Fal and Helford SAC, particularly sensitive locations include: between Toll Point and Durgan in the Helford River; on St. Mawes Bank and between Carricknath Point and Amsterdam Point in the Fal Estuary.				✓	Disturbance to eelgrass beds by laying and dragging of anchors and mowing effect of anchor chains. This has been shown to leave bare patches within eelgrass beds. Disturbance to live maerl by laying of anchors and movement of chains. Disturbance to subtidal sandbank habitats by heavy or large vessels anchoring in Falmouth Bay.	Voluntary Exclusion Zone in the Helford.	Port of Falmouth Sailing Association (for awareness raising only).
10. Oyster dredging: on St. Mawes Bank, Fal Estuary				✓	Disturbance to live maerl by action of dredges, although activity is infrequent and live maerl is returned to area of bed after dredging.	Licences.	PTOF

Operation and location	Zone of interest				Potential impact on interest features	Type of control mechanism	Relevant authority
	ZONE 1	ZONE 2	ZONE 3	ZONE 4			
11. Commercial bait digging: both Fal and Helford estuaries			✓		Deterioration of intertidal sediments through disruption of their structure and loss of associated species.	Bylaw covers Ports of Penryn & Truro only.	PT&P
12. Scalloping within SAC	✓	✓		✓	Disturbance to live maerl bed at mouth of Helford River. Disturbance by crushing to pink sea fans and ross corals found on rocky outcrops and boulders. Disturbance to dead maerl and associated habitats.	EU national and local legislation exists to govern the design and type of dredges used; the number per vessel (6 a side); and the minimum size of scallops. A new bylaw to ban scalloping within the estuaries of the SAC was passed in 2005.	CSFC EA
13. Maintenance dredging, including sea bed levelling: upper Truro River; Penryn River and in Falmouth Docks harbour area.	✓	✓	✓		Temporary disturbance to edge of mudflats adjacent to navigation channel in upper Truro River. Mobilisation of TBT contaminated sediments around Falmouth Docks area and impact of plume on surrounding intertidal and subtidal interest features. FEPA dumping at sea licences refused for area on ground of TBT contamination.	FEPA licence only required for dumping of dredge spoil. Seabed levelling does not require licence.	DEFRA
14. Ship repair and maintenance	✓			✓	Potential discharges (dealt with above in water quality). Potential sediment re-suspension during shipping movements and propeller testing.	Management by FD&EC.	FD&EC, PT&P, Independent Boatyards & Marinas.

5.3. Site management

This section expands upon the information in the Operations List in order to clarify the current management situation regarding these activities within the SAC. In many cases there are well-defined duties and responsibilities already established. For other operations there are currently no management mechanisms, either because there is no relevant authority whose remit covers this activity or because management of a particular operation has not been necessary prior to the area becoming a candidate SAC. In these instances, the Management Forum will need to decide how best to address these issues in order to fulfil the requirements of the legislation. For some operations that are already under management control, it may be necessary only to change minor details in order to ensure that there is no adverse impact on the site's interest features. For other operations, the changes in management are potentially larger in scale. For example changes in land use practices to alleviate diffuse input of contaminants to the site.

The following list of operations includes activities that may be dealt with under Regulations 48 - 50 of the Habitats Regulations as 'plans or projects'. These are identified within the text by 🗁 **Plans & Projects.**

In this management scheme, the Options for Change in this section are <u>suggestions</u> for how these issues could be addressed. It is the responsibility of the relevant authorities concerned to <u>discuss and resolve</u> these issues individually and within the Management Forum. In some instances, further research and survey work may be required before a conclusion can be reached.

After discussion, this section will form the basis of the required actions by the relevant authorities and will include reference to compliance monitoring requirements.

5.4. Existing management of operations and future management options

For each of the operations, information is provided on its location and frequency, the organisation(s) responsible for its management (if there are any), the management procedures and any gaps in the management used. Suggestions for new management measures or improvements to existing ones are shown under Management options.

Operation 1:	**Discharges of tributyl tin (TBT) (🗁Plans & Projects)**
Location:	Falmouth Docks
Feature affected:	All
Frequency:	Continuous
Organisation(s) responsible for management:	Falmouth Docks & Engineering Co. Environment Agency (EA)
Existing management:	Integrated Pollution Control consent issued by Environment Agency for dry dock discharges. Contaminated effluent from the docks is now being collected for treatment on site. EA have completed survey of TBT contamination of sediments within Fal estuary. Report available.
Gaps in management:	None with respect to Docks.
Management options:	**Consent to be reviewed by EA** • **1(a)** Comply with new consent regime through installation of new processes.

Operation 2:	**Discharge of sewage and trade effluent (🗁Plans & Projects)**
Location:	Throughout catchment of SAC and directly to SAC waters
Feature affected:	All
Frequency:	Continuous and intermittent
Organisation(s) responsible for management:	Environment Agency (EA) South West Water Ltd. Falmouth Docks & Engineering Co. Private dischargers
Existing management:	Consents issued by EA under Water Resources Act (WRA).
Gaps in management:	None.
Management options:	◆ **2(a)** Consents likely to have significant effects to be reviewed by EA by 2006 for Habitats Directive and end of 2000-2005 for Urban Waste Water Treatment Directive.

Operation 3:	**Diffuse and unregulated inputs including agricultural run-off and mine waste**
Location:	Throughout catchment of SAC and directly to SAC waters.
Feature affected:	All
Frequency:	Continuous and intermittent.
Organisation(s) responsible for management:	Environment Agency (EA) DEFRA ADAS
Existing management:	Highlighting of issues and relevant actions through the Cycleau Project and the work of the Environment Agency. DEFRA's agri-environment schemes as promoted by Farming and Wildlife Advisory Group and West Country Rivers Trust.
Gaps in management:	Few mechanisms to assess or address diffuse inputs.
Management options:	• **3(a)** DEFRA has confirmed Sensitive Area status for upper Fal estuary. Some of the catchments draining into the Upper Estuary are Nitrate Vulnerable Zones, which control the application of fertiliser. Nutrient reduction has been implemented at Truro Newham sewage treatment works in 2003. • **3(b)** Long-term mine water treatment plant (Wheal Jane) installed to reduce heavy metals. • **3(c)** EA & English Nature have undertaken site characterisation, to document known water quality information. • **3(d)** More active encouragement required for landowners to improve practises: slurry management, field margins. EA Environmental Protection Officers also visit farms and encourage use of DEFRA Codes of Conduct for Water,

	Soil & Air. The Cycleau Project and the West Country Rivers Trust are assisting this work in the Fal & Helford catchments. • **3(e)** EA reviewing waste spreading to land operations within catchment.

Operation 4:	**Ship to ship transfer of bulk chemicals, e.g. caustic soda, chloroform.**
Location:	Carrick Roads, Fal Estuary
Feature affected:	All
Frequency:	Infrequent
Organisation(s) responsible for management:	Falmouth Harbour Commissioners (FHC)
Existing management:	FHC have an agreement with each individual ship wishing to transfer cargoes, in addition to providing regulations governing this operation, including treatment of spillages during this operation. This cargo transfer is part of normal shipping operations within the port and does not require licensing or a permit. A Harbour Authority Permit is issues for chemical transfers.
Gaps in management:	No gaps perceived.
Management options:	• **4(a)** Update information provided for discharging ships (or provide info. if not present) on sensitivity of SAC and emphasise need for due diligence. • **4(b)** Periodically test emergency drills for dealing with spillage of hazardous cargo. • **4(c)** Record any spillages.

Operation 5:	**Ship to ship transfer of oil for bunkering**
Location:	Carrick Roads, Fal Estuary Inner Fal Bay (within FHC Boundary)
Feature affected:	All
Frequency	Daily
Organisation(s) responsible for management:	Falmouth Harbour Commissioners Falmouth Oil Services (FOS) DEFRA English Nature (as consultees on DEFRA Licence)
Existing management:	Oil Transfer Procedures and Contingency Plans in place. Contingency planning dealt with through national planning legislation. Only DERFA approved oil treatment products (dispersants) may be used to treat oil at sea. DEFRA must also approve any proposed use of dispersants in shallow waters and will consult EN before granting such an approval.

Gaps in management:	No gaps identified.
Management options:	• **5(a)** Update information on sensitivity of site within standard procedures guidance provided to ships and FOS staff. • **5(b)** Ensure that the Oil Spill Contingency Plans are maintained up to date with respect to sensitivity of SAC and adequately resourced and periodically tested by lead partners.

Operation 6:	**Anchoring of ships: siting of anchor points on maerl habitats**
Location:	Carrick Roads & Falmouth Bay
Feature affected:	Subtidal sandbanks
Frequency:	Ship anchoring frequent, depending on operations and weather.
Organisation(s) responsible for management:	Falmouth Harbour Commissioners (FHC)
Existing management:	Anchoring of ships takes place in Falmouth Bay and Carrick Roads.
Gaps in management:	No mechanism for assessment of the impact of anchoring on condition of maerl habitats.
Management options:	• **6(a)** Assessment of any impacts of anchoring should form part of EN Condition Assessment • **6(b)**. Explore alternative anchoring regime, if practicable and if demonstrable damage is noted.

Operation 7:	**Laying of additional/new moorings**
Location:	Throughout SAC but in particular between Toll Point and Durgan in Helford River. Between Polvart Point and Amsterdam Point in Percuil River.
Feature affected:	Subtidal sandbanks
Frequency:	Not applicable but moorings would be present all year.
Organisation (s) responsible for management:	Ports of Truro & Penryn (PT&P) Falmouth Harbour Commissioners (FHC) St. Mawes Pier & Harbour Company (St MP & HCo.) Percuil River Moorings Ltd. (PRM Ltd)
Existing management:	PT&P) have a moorings policy for their waters. Moorings laid in Falmouth Harbour Commissioners area are either under control of FHC or private fundus owners. Moorings laid and licensed in Helford by Helford River Moorings Ltd (HRML) on fundus leased from the Duchy Of Cornwall. Anchoring is an issue on the eelgrass bed off Durgan. Helford Voluntary Marine Conservation Area group

	taken voluntary action to restrict anchoring on Durgan. Moorings concentrated between Durgan and Grebe Point. Moorings in St. Mawes Harbour laid and licensed by St MP & HCo. up to a line between Amsterdam Point and Polvarth Point. Upstream of this line moorings are administered by PRMLtd. Currently only a few moorings present in area of eelgrass beds which are related to stored scalloping gear, as location is exposed to prevailing winds.
Gaps in management:	Lack of relevant authority control in Helford River. Duchy of Cornwall have no direct requirements under the Habitats Directive as they are not a relevant authority, however an agreement has been reached to co-operate with the relevant authorities within the Helford River.
Management options:	• **8(a)** Maintain close liaison between English Nature, HRML and the Duchy of Cornwall over siting of new moorings in eelgrass bed. • **8(b)** Survey eelgrass beds in St. Mawes Harbour and notify SMPHC of location and liase over new moorings proposals in this area. • **8(c)** Continue monitoring of Helford eelgrass beds through HVMCA Group. • **8(d)** Develop moorings strategy/policy to inform future management. • **8(e)** Report any additional laying or rationalisation of moorings.

Operation 8:	**Anchoring on eelgrass beds**
Location:	Between Toll Point and Durgan in Helford River Between Carricknath Point and Amsterdam Point in Percuil River. On landward side of St. Mawes Bank.
Feature affected:	Subtidal sandbanks
Frequency:	Dependant upon sea conditions and wind direction. Daily during summer months within Helford River with up to 10 boats; 1-3 boats weekly on inside of St. Mawes Bank; similar frequency in St. Mawes Harbour but probably up to 5 boats present.
Organisations responsible for management:	No organisation responsible for Helford River. St. Mawes Pier & Harbour Co. (St MP & HCo.) are responsible for St. Mawes Harbour. Falmouth Harbour Commisssioners are responsible for St. Mawes Bank.
Existing management:	Voluntary code of conduct publicised throughout both estuaries but needs wider and more active publicity. No other management known. Anchoring partially deterred on St. Mawes Bank due to water ski zone. Buoys laid to identify eelgrass beds in Helford River, accompanied by information leaflet.

Gaps in management:	Lack of relevant authority control in Helford River. Impact of anchoring in eelgrass beds in St. Mawes Harbour not known.
Management options	• **9(a)** Survey eelgrass beds in St. Mawes Harbour and notify St MP & HCo. of location and liaise over methods of reducing anchoring pressure if it is damaging the beds. St MP & HCo have offered to investigate laying visitor moorings if appropriate. • **9(b)** Continue monitoring of Helford eelgrass beds through Helford Voluntary Marine Conservation Area Group (HVMCA Group). • **9(c**) Ensure that the Duchy of Cornwall is fully involved in this issue in the Helford River. • **9(d)** Continue to promote voluntary code of practice through HVMCA Group, and Advisory Group/yacht clubs/sailing publications to reduce anchoring pressure. • **9(e)** Establish monitoring scheme to estimate numbers of boats anchoring in all 3 locations.

Operation 9:	**Oyster dredging on live maerl bed**
Location:	Northern edge of St. Mawes Bank
Feature affected:	Subtidal sandbanks
Frequency:	Infrequent and only within oyster dredging season (1 October - 31 March).
Organisation (s) responsible for management:	Port of Truro Oyster Fishery (administered by Carrick District Council's (CDC) Maritime department through the Ports of Truro & Penryn)
Existing management:	The Truro Port Fishery (Variation) Order, 1975, authorises CDC to regulate a mussel and oyster fishery within the Fal Estuary. Restrictions are placed upon the dredging, fishing for and taking of oysters and mussels. Oyster dredging is limited to boats powered by sail or oars only and each dredge used must have a license. Operation is monitored during the season by harbour staff to check number of dredges being employed and size of oysters retained. Oysters are native and arise from natural spat fall. The Falmouth & Truro Port Health Authority monitors the suitability of the oysters for human consumption.
Gaps in management:	The oyster fishery area includes St. Mawes Bank upon which the oysters appear to be slowly encroaching from the north, hence the occasional dredging. Any maerl retained in dredge is returned to vicinity of the bed causing minor disturbance.
Management options:	• **10(a)** Ongoing monitoring to assess condition of live maerl bed and ascertain the extent of oysters spreading onto the bed. • **10(b)** Voluntary agreement between CDC and oyster fishermen not to dredge this area if damage to the live maerl beds is shown. • **10(c)** Voluntary agreement not forthcoming, English

Nature to discuss regulation with CDC and oyster fishermen.
- **10(d)** Report on number of licenses issued annually.

Operation 10:	**Scalloping**
Location:	Falmouth Bay from Pennance Point down to Manacle Point;
Feature affected:	Subtidal sandbanks, and Large shallow inlets and bays
Frequency:	Occasionally, depending upon sea conditions. Generally only 2-3 scallopers within SAC during poor weather; effort usually outside SAC boundary.
Organisation(s) responsible for management:	Cornwall Sea Fisheries Committee (CSFC) EA within the estuaries
Existing management:	Bylaws for number and dimensions of scallop dredges used per vessel within CSFC jurisdiction and on landing of whole scallops to ensure minimum landing size. EU national and local legislation exists to govern the design and type of dredges used; the number per vessel (6 a side); and the minimum size of scallops. The Falmouth & Truro Port Health Authority monitors the suitability of the scallops for human consumption. New Byelaw (2005) in place to ban the use of scallop dredges within the Fal & Helford estuaries.
Gaps in management:	No restrictions on use of scalloping gear within sensitive parts of the SAC outside the estuaries, particularly close to the shore between Nare Point and Manacle Point.
Management options:	• **11(a)** Monitor number of vessels and frequency of activity as practicable outside of the estuaries within Falmouth Bay.

Operation 11:	**Commercial bait digging**
Location:	Carne/Gillan Creek in Helford River. Shores of Penryn River.
Feature affected:	Intertidal mudflats
Frequency:	Infrequent but heavy pressure experienced in Gillan in 1992/3. Other estuaries are experiencing a sharp increase in this activity which may lead to a resurgence of bait digging within the SAC.
Organisation(s) responsible for management:	No relevant authority for Gillan/Helford River. Harbour authorities if within harbour areas.
Existing management:	Bylaws within Ports of Truro & Penryn to prevent bait digging within 20 ft. of moorings, jetties and other structures. No other management measures known. Voluntary code of conduct publicised around Helford River.
Gaps in management:	No relevant authority for Helford River foreshores or for Percuil River foreshores above St. Mawes Harbour area.

Management options:	• **12(a)** Duchy of Cornwall is not a relevant or competent authority for the Helford River but is willing to participate in resolving this issue. • **12(b)** Continue to promote voluntary codes of conduct throughout SAC. • **12(c)** Maintain watching brief on resurgence of commercial bait digging throughout SAC. • **12(d)** Undertake survey of current levels of activity to inform future management decisions.

Operation 12:	**Maintenance dredging & sea bed levelling Capital dredging (🗁Plans & Projects)**
Location:	Channel in upper Truro River between Sunny Corner and Lighterage Quay. Main channel in Penryn River and around sill of Falmouth Marina. Depth of main channel into Falmouth Harbour maintained by shipping activity. Sea bed levelling around mouth of No. 2 dry dock in Falmouth Docks and inside Eastern Breakwater by Falmouth Oil Services (FOS). St Mawes harbour. Plans and projects as and where they arise.
Feature affected:	All
Frequency:	Biennially in upper Truro River (approx. 5 000 tonnes, now disposed to land for soil manufacture) Every 3-4 years in Penryn River, in addition to dredging undertaken by Falmouth Marina. Frequency of seabed levelling approximately annual. Plans and projects as and where they arise.
Organisation(s) responsible for management:	Ports of Truro & Penryn (PT&P) Falmouth Docks & Engineering Co. (FD&EC) Falmouth Harbour Commissioners As appropriate for location of any plans & projects.
Existing management:	DEFRA issue licences required for dredge spoil dumping only. PTP have surveyed bathymetry in upper Truro River and record amounts dredged. Regular liaison with English Nature regarding dredging activity resulting in production of Maintenance Dredging Protocol in 2005.
Gaps in management:	Assessment of environmental impact of sea bed levelling activity now being addressed through the trial of Maintenance Dredging Protocol (2005). Assessment of environmental impact of dumping at disposal site in Falmouth Bay, undertaken by CEFAS.
Management options:	• **13(a)** Continue liaison regarding dredging issues between Harbour Authorities and English Nature/DEFRA/Environment Agency. • **13(b)** Establish formal monitoring of silt movement resulting from seabed levelling activity by FD&EC and establish recognised procedure through liaison with EN and via the trial of Maintenance Dredging Protocol (2004). • **13(c)** DEFRA have issued consultation paper to industry on inclusion of ploughing activities within remit of FEPA licensing process.

- **13(d)** Update the Maintenance Dredging Protocol (2004) as necessary, to report on frequency, quantity and methods used for maintenance dredging.

Operation 13:	**Ship Repair & Maintenance**
Location:	Falmouth Docks & smaller marinas / boatyards around Fal & Helford
Feature affected:	All through water quality
Frequency:	Ongoing
Organisation(s) responsible for management:	Falmouth Docks & Engineering Co. (FD&EC) Ports of Truro & Penryn (PT&P) Independent Boatyards & Marinas
Existing management:	Environmental Management System for PT&P, and FD&EC.
Gaps in management:	The need to spread good practice to smaller marinas & boatyards around the Fal & Helford Estuaries.
Management options:	• **14(a)** Continue liaison regarding environmental management issues between Harbour Authorities and English Nature/DEFRA/Environment Agency.

6. ACTION PLAN FOR THE FAL & HELFORD SAC

6.1. Introduction

This section details the actions to be undertaken by the individual relevant authorities, either working alone or in partnership, to manage the Fal & Helford SAC. As far as possible these actions link to existing activities and plans, both to avoid duplication of effort and to emphasise the linkages that already exist between the relevant authorities.

The contents of the Action Plan are derived from a consideration of the existing management of the area in relation to its interest features (described in more detail in section 5.3.). The Management Forum, as part of the planning process, should review actions for the forthcoming year.

6.2. Action plan structure

The following tables list the management actions for the relevant authorities and where appropriate, other partners. They are grouped into activities to reflect the order shown in the previous Operations Table (Table 5 in section 5.1). Many activities may only involve action to be taken by one relevant authority whilst others may involve some or all members of the Management Forum.

The table is arranged as follows:

ACTIVITY	ACTION	☺	RESPONSIBILITY	TIMEFRAME
1.	**1.1.**			
	1.2.			

ACTIVITY
Activities 1 to 12 are derived from the Operations Table (Table 5 in section 5.1), with some being amalgamated, for example water quality, which includes several different operations listed in section 5.1.

Also included as an activity is the actual process of running the management scheme, and the actions necessary to support that process. Planning is also included as an activity to indicate how it fits in with the rest of the scheme, although strictly speaking, it is a separate process from the management scheme as it is covered by different parts of the Habitats Regulations.

ACTION
The actions listed have arisen from detailed discussions about the existing management of the operations listed in section 5.1. and their current management as detailed in section 5.2. In many cases, particularly for **Activity 1: Water quality**, several of these actions have been copied from existing plans, where these actions are appropriate to management of the SAC's interest features. Where other plans have differing timescales to the management scheme, the Management Forum will input to other plans to ensure delivery of the objectives.

☺ "SMILE"
This column indicates the type of action proposed; these fall into one of the following **five** categories:

S = **S**URVEY & RESEARCH	e.g. new surveys, new research work or studies required to fill in information gaps
M = **M**ONITORING & REVIEW	e.g. monitoring the condition of the site or the extent of activities; reviewing existing plans.
I = **I**NFORMATION & TRAINING	e.g. provision of information to other relevant authorities or public; training of staff.

L = **L**IAISON	e.g. communicating with other partners, Management Forum meetings.
E = **E**NFORCEMENT & ENABLING	e.g. enforcing bylaws, undertaking projects.
*** =** New activity	Any new research/training/liaison activities that have arisen from the SAC designation.

RESPONSIBILITY
For each action one or more relevant authorities may be responsible, in addition to other partner organisations. Relevant authorities titles have been abbreviated in Table 7 as follows:

CCC	Cornwall County Council
CSFC	Cornwall Sea Fisheries Committee
DEFRA	Department of the Environment Food and Rural Affairs
EN	English Nature
EA	Environment Agency
FD&EC	Falmouth Docks & Engineering Company
F&TPHA	Falmouth & Truro Port Health Authority
FHC	Falmouth Harbour Commissioners
HVMCA	Helford Voluntary Marine Conservation Area Group
PT&P	Ports of Truro & Penryn
St MP & HCo.	St. Mawes Pier & Harbour Company
SWW	South West Water Ltd

TIMEFRAME
The timeframe shown covers from designation until the financial years 2007/2008. The Habitats Directive requires that each Member State report back to the EC every 6 years. The last reporting cycle was in 2001, with the following cycle in 2006.

Many of the actions listed are only timetabled to happen at certain points within the next 6 years although others may occur annually. The frequency is indicated by the **dots** (●). If an action is ongoing a **dash** (–) is used to indicate this. A tick (✓) in the **two stars** (******) column is used to indicate that the activity has been completed since designation; where there is a dot in this column this means that the activity is ongoing.

6.3. Reporting and review

The frequency of reviewing the management scheme is indicated within the timetable. It is proposed that all relevant authorities report to the Management Forum on a **3-year cycle**, at which point the plan will also be reviewed to assess its effectiveness with possible revisions of the contents. The responsibility for gathering together the reported information and revising the management scheme will need to be agreed by the Management Forum at that point in the process.

Distinction has been made between condition and compliance monitoring and identified within Table 7. Condition monitoring will be lead by English Nature, whereas compliance monitoring is the responsibility of the relevant authority licensing the activity.

Table 7. Management actions including timetable and responsibilities for implementing new management measures

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
1. Water quality	**1.1.** Review discharge consents, licences and operations that may impact on SAC, including cumulative effects of small scale discharges.	**E**	EA		●	●	●
	1.2. Ongoing monitoring and assessment of catchment inputs.	**S**	EA	●	●	●	●
	1.3. Installation of nutrient stripping at Truro Newham STW by 2004.	**E**	SWW	✓			
	1.4. Compliance monitoring of nutrient status of upper Fal.	**M**	EA	●	●	●	●
	1.5. Implementation of long term solution for mine waste water treatment for Wheal Jane.	**E**	EA DEFRA United Mines	✓			
	1.6. Implementation and monitoring of TBT treatment system Falmouth Docks & Engineering Co.	**E**	FD&EC EA	●	●	●	●
	1.7. Ongoing trend compliance monitoring of TBT contamination in sediments within the Fal Estuary. Baseline survey complete, next survey planned 2005.	**M**	EA	✓	●		
	1.8. Monitor bacteriological water quality as required under the Shellfish Waters Directive and the Bathing Waters Directive.	**M**	EA F&TPHO	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
2. Bulk chemical transfer in Carrick Roads	**2.1.** Update information provided to visiting ships to include SAC.	**I**	FHC	✓			
	2.2. Periodic testing of emergency response.	**I**	FHC FD&EC CCC Emergency Planning	●	●	●	●
	2.3. Compliance monitoring to maintain record of spills.	**M**	FHC FD&EC	●	●	●	●
3. Bunkering of fuel within Carrick Roads, King Harry Reach and Falmouth Bay	**3.1.** Update information provided to visiting ships to include SAC.	**I**	FHC Falmouth Oil Services PT&P	✓			
	3.2. Update Oil Spill Contingency Plan to meet OPRC Regulations & include SAC. Undertake periodic testing of plan.	**I / L**	Oil Spill Contingency Plan partners	●	●	●	●
	3.3. Maintain record of spills.	**M**	FHC Falmouth Oil Services	●	●	●	●
4. Discharge of fish wastes from factory ships in Carrick Roads	**4.1.** Ensure management procedures are adhered to.	**E**	FHC	●	●	●	●
	4.2. Compliance monitoring to monitor numbers of factory ships.	**M**	FHC	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
5. Anchoring of oil rigs & ships on St. Mawes Bank & in Bay. ***Plans & Projects*** 🗁	**5.1.** Establish consultation mechanism in event of new proposal. Scope environmental assessment as required.	**L** *****	FHC EN EA	-	-	-	-
	5.2. Undertake survey work as required to assess impact.	**S** *****	FHC EN EA	-	-	-	-
	5.3. Investigate alternative anchoring regimes, if required.	**S** *****	FHC EN EA	-	-	-	-
	5.4. Compliance monitoring of the number of rigs and duration of stay.	**M**	FHC	✓			
6. Laying of new moorings	**6.1.** Ongoing liaison between harbour authorities, fundus owners and EN particularly in areas with eelgrass beds.	**L**	EN FHC PT&P St MP & HCo. Duchy of Cornwall	●	●	●	●
	6.2. Undertake survey of eelgrass beds in Percuil River.	**S** *****	EN St MP & HCo.	✓			
	6.3. Continue voluntary condition monitoring of eelgrass bed in Helford River as basis for formal monitoring scheme.	**M**	EN HVMCA	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
6. Laying of new moorings (contd.)	**6.4.** Develop moorings strategy for all harbour authority areas, to also include Helford River.	**S / I**	PT&P FHC St MP & HCo. Duchy of Cornwall Helford moorings companies	✓			
	6.5. Compliance monitoring of the numbers of moorings and any rationalisation.	**M**	PT&P FHC St MP & HCo. Duchy of Cornwall Helford moorings companies	●	●	●	●
7. Anchoring in the Fal & Helford estuaries	**7.1.** Investigate need for additional moorings in areas to prevent anchor damage, if required.	**E/L**	PT&P FHC St MP & HCo. Duchy of Cornwall Helford moorings companies EN		●		
	7.2. Maintain liaison between EN, HVMCA Group, Duchy of Cornwall and moorings companies in Helford River.	**L**	EN HVMCA Duchy of Cornwall Helford moorings companies.	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
7. Anchoring in the Fal & Helford estuaries (contd.)	**7.3.** Promote voluntary code of conduct for mooring near eelgrass.	**I**	All partners as appropriate	✓			
	7.4. Continue voluntary condition monitoring of eelgrass bed in Helford River as basis for formal monitoring scheme. Establish monitoring scheme in St. Mawes Harbour and St. Mawes Bank.	**M**	EN HVMCA	✓	●		●
8. Recreational activities	**8.1** Monitor levels of recreational activities to provide necessary management information.	**M**	Planning Authorities FHC PT&P St MP & HCo.	●	●	●	●
	8.2 Provide information to various user groups, as required.	**I**	As above	●	●	●	●
9. Oyster dredging on St. Mawes Bank live maerl bed	**9.1.** Condition monitoring to survey live maerl bed and extent of oysters on St. Mawes Bank and assess potential impact of dredging.	**S/ M** *****	EN	✓	●		●
	9.2. Investigate need and feasibility for voluntary exclusion zone on St. Mawes Bank, if required.	**S/ L** *	PT&P Oyster fishermen EN				
	9.3. If voluntary agreement not forthcoming, investigate need for regulation.	**L/ E** *	PT&P Oyster fishermen				
	9.4. Compliance monitoring of the number of licences issued.	**M**	PT&P	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
10. Scalloping inshore in Falmouth Bay (outside estuaries)	**10.1.** Investigate potential impacts of scalloping on subtidal habitats.	**S** *****	CSFC EN	●			
	10.2. Investigate need and feasibility for voluntary exclusion zone in this area, if required.	**S/ L** *****	CSFC EN fishermen	●			
	10.3. If voluntary agreement not forthcoming, investigate need for regulation.	**S/ L** *****	CSFC fishermen				
	10.4. Compliance monitoring of the number of scallopers working and areas worked.	**M**	CSFC	●	●	●	●
11. Commercial bait-digging	**11.1.** Promote voluntary codes of conduct for bait digging.	**I**	All relevant partners	●			
12. Maintenance dredging and sea bed levelling. **(Capital dredging = *Plans & Projects* 🗁)**	**12.1.** Maintain liaison between harbour authorities, EN and EA on dredging issues. Capital dredging will be dealt with on a case-by-case basis.	**L**	Harbour authorities EN EA	●	●	●	●
	12.2. Compliance monitoring to survey of dredge spoil disposal site in Falmouth Bay, including fate of disposed contaminants.	**S/ M** *****	DEFRA	✓			

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
12. Maintenance dredging and sea bed levelling (contd.) **(Capital dredging = *Plans & Projects* 🗁)**	**12.3.** Compliance monitoring of the frequency of dredging and quantities dredged.	**M**	All relevant partners	●	●	●	●
	12.4. Assess the impact of dredging on the mobilisation of contaminants on a case by case basis.	**M**	Developers DEFRA (MCEU) EA EN				
	12.5. Maintain maintenance dredging baseline document.	**M**	PT&P	●	●	●	●
13. Planning and development	**13.1.** New planning applications.	**L/ E ***	All relevant authorities as appropriate	-	-	-	-
	13.2. Develop policy to combat effects from cumulative small land claim proposals on water access e.g. for slipways and jetties.	**M**	EN Planning Authorities DEFRA (MCEU) & Office of the Deputy Prime Minister Cornwall AONB Partners EA	●	●	●	●
14. SAC management scheme	**14.1** Revision of English Nature's Regulation 33 Advice package, following addition of interest features.	**I**	EN			●	
	14.2. Development of condition monitoring scheme for condition of interest features.	**M/I/ L**	EN	✓			●
	14.3. Management Forum meetings (4 per year).	**I/ L**	All relevant authorities to attend + 1 rep. from Advisory Group.	●	●	●	●

ACTIVITY	ACTION (not in priority order)	☺	RESPONSIBILITY	TIMEFRAME (Financial Years)			
				**	05/06	06/07	07/08
14. SAC management scheme (contd.)	**14.4.** Advisory Group meetings (4 per year).	**I/ L**	EN All Advisory Group members to attend	●	●	●	●
	14.5. Reporting of condition and compliance monitoring to Management Forum	**M/ I/ L**	All relevant authorities				●
	14.6. Review of management scheme	**M**	All relevant authorities				●
15. Ship Maintenance & Repair	**15.1.** Update and maintain Environmental Management System already in place at Falmouth Docks & Engineering Co.	**M**	FD&EC	●	●	●	●

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