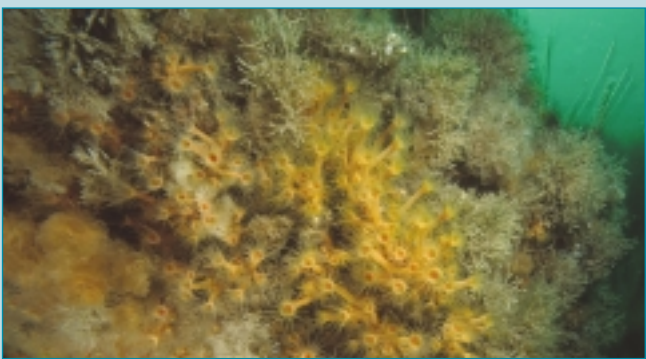
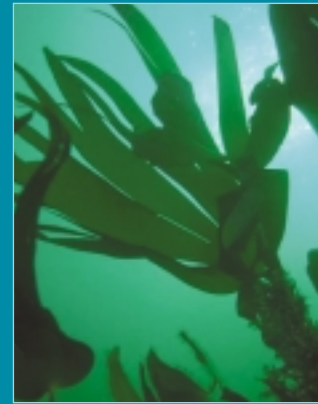
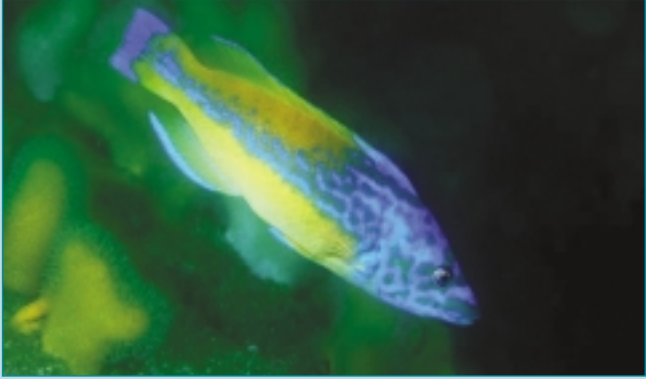


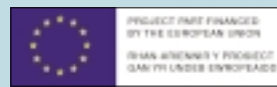
Issues for the Pembrokeshire Marine
Candidate Special Area of Conservation
Draft for consultation



Pembrokeshire Marine cSAC
Relevant Authorities Group

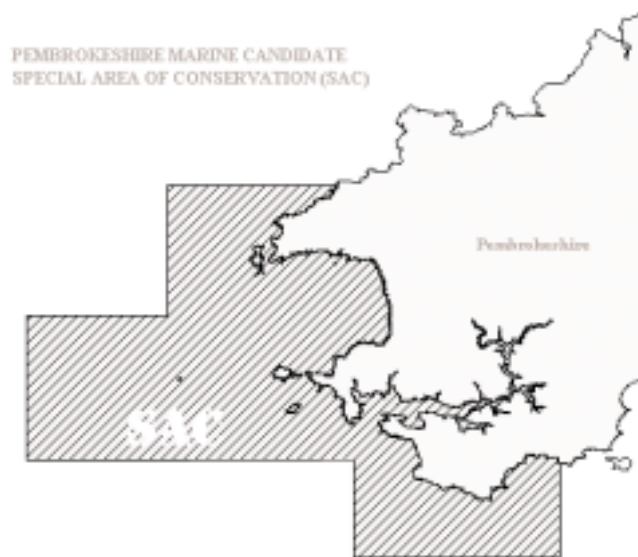


This document has been produced by the
Pembrokeshire Marine Candidate Special Area of
Conservation Relevant Authorities Group
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Introduction to the Pembrokeshire Marine candidate Special Area of Conservation:



The candidate marine Special Area of Conservation (cSAC) is recognition that the rich marine life found around the Pembrokeshire coast and islands and within the Milford Haven Waterway is of European importance.

The Pembrokeshire Marine site was proposed in 1997 (then called Pembrokeshire Islands) for its reefs, estuaries, shallow inlets and bays and for its seal population. In 2000 the proposed boundary was extended and more habitats and species (conservation 'features') were added to the list. Some modifications were also proposed in 2002. The cSAC is considered to be one of the best areas in the UK for:

- Reefs
- Large shallow inlets and bays
- Estuaries
- Grey seals

and to support a significant presence of:

- Coastal lagoons
- Mudflats and sandflats not covered by seawater at low tide
- Atlantic salt meadows
- Sandbanks which are slightly covered by seawater all the time
- Submerged or partially submerged sea caves
- Allis and Twait shads (migratory fish)
- Sea and River lampreys (migratory fish)
- Otters
- Shore dock (maritime plant)

Further information on the Pembrokeshire Marine cSAC can be found on the website www.pembrokeshiremarinesac.org.uk or obtained by contacting the SAC Officer. (see contact information on page 3).

Introduction to this document:

The Pembrokeshire Marine cSAC contains marine habitats and species of European importance that are required by law to be protected and maintained for the future. Human activities within the site must be managed so as not to adversely affect the marine habitats and species for which the site has been chosen.

Many activities are unlikely to impact the features; but others might. The activities or topics described in this document have been identified as being of *potential* concern to the conservation of the features of the Pembrokeshire Marine cSAC, either currently or in the future. They have been identified by the Relevant Authorities Group for the site and by interested stakeholders.

This list is neither exhaustive nor definitive; some issues may have been overlooked and additional issues may well arise in the future and need to be considered. It may be that further information will show that some, or indeed many of the issues listed are not likely to present significant risks to the features.

It is important to stress that although many issues for the site have been raised, the overall quality of the site remains good. The environment is very important to Pembrokeshire, as is the presence of one of the UK's largest ports, European important oil refineries and a major tourist industry. The cSAC also co-exists with the only coastal National Park in the UK, and several large settlements on its shores with their associated businesses, homes and recreational demands.

The 'vision' for the Pembrokeshire Marine cSAC is one of a quality environment (where the site features are in a condition as good as, or better than when the site was selected) where sustainable use of that environment is an important and integral part of local socio-economics.

By reading and commenting on this document, you, and other interested organisations and individuals, are actively involved in the future management of the site. The identification of issues that require management action, and the subsequent steps taken to address them, are fundamental stages in the development of site management.



Format of this document: Activities/topics are listed, *not* in any priority order, under six headings:

- Use of Living Resources
- Use of Non-living Resources
- Waste Disposal
- Vessel related Activity
- Non-vessel related Activity
- General

Each activity or topic is named, defined where necessary and its status described.

The issues - risk or possible risk presented – relevant to the cSAC features are briefly explained (the Countryside Council for Wales will provide further detail on the actual and potential effects of activities on the marine wildlife). The authorities, government bodies and agencies with statutory management responsibility for each issue are listed; those primarily responsible are printed in bold, followed in normal type by others who have a secondary or geographically limited involvement. Management is briefly explained, and possible options for future action identified.

The future management options are just that, *options*. Some are likely, after much discussion and consultation by all stakeholders, to become the management actions for the site. Agreed management actions will be incorporated into the Draft Pembrokeshire Marine SAC Management Scheme by the end of 2003. A public consultation on the draft management scheme will take place, after which the agreed management actions will be presented in the final management scheme document – currently timetabled for the end of 2004.

Background to Special Areas of Conservation:

The primary legislation behind Special Areas of Conservation (SACs) is the European Union Council Directive 92/43/EEC on the "Conservation of Natural Habitats and of Wild Fauna and Flora" (known as the "Habitats Directive"), which came into force on 21 May 1992. The central aim of the Directive is to conserve biodiversity (the diversity of life) across the area of the European Union. One of the ways in which it seeks to achieve this is through the creation of a 'coherent ecological network of sites' (Natura 2000) across the European Union, composed of SACs and Special Protection Areas (bird conservation sites). Thus, individual sites are selected both on their intrinsic value for nature conservation, and the contribution they make to the conservation of specific habitats and species across the European Union as a whole.

The Habitats Directive is implemented in the UK through the "Conservation (Natural Habitats &c) Regulations 1994" (known as the "Habitats Regulations"). The Regulations provide for management schemes for SACs to be established jointly by the statutory bodies with functions relevant to the site, termed 'relevant authorities'. The only definitive requirement for a management scheme is that it helps meet the aims of the Habitats Directive by conserving the conservation features of a site.

Management of the Pembrokeshire

Marine cSAC:

The relevant authorities for the Pembrokeshire Marine cSAC have formed a partnership – the Relevant Authorities Group – to develop and implement a management scheme to conserve the conservation features of the cSAC *which has the widest possible public understanding, agreement and ownership*.

The details of the relevant authorities are given below, along with other major 'competent authorities' (those statutory bodies or public offices exercising functions relevant to marine conservation) within Pembrokeshire.

The Countryside Council for Wales is the executive authority for the conservation of wildlife habitat and geological sites, and for the protection of wild animal and plant species, in the sea and on land in Wales. It is the agent for the Government's fulfilment of international obligations and advises the UK Government on these matters through the Joint Nature Conservation Committee. The Council is required to keep the countryside of Wales under constant review and to offer its independent advice to Government and others as necessary about the protection of its natural beauty and amenity and their enjoyment by the people of Wales and its visitors. The Council promotes that enjoyment in a way which encourages understanding of the environment, and sustains public support for the conservation of natural resources.

Dŵr Cymru/Welsh Water is appointed by the Secretary of State for Wales to be the water and sewerage undertaker for Wales under the Water Industry Act 1991. As such the Company is entrusted with supplying its customers with clean wholesome drinking water and disposing of their sewage waste, whilst furthering conservation in all of its activities.

The Environment Agency Wales was formed following Royal Assent to the 1995 Environment Act, and has a wide range of statutory duties and powers related to its functions. The Agency provides high quality environmental protection and improvement in Wales through an emphasis on prevention and education, and then vigorous enforcement where necessary. Principal functions are pollution prevention and control, water resources, flood defence, fisheries, conservation, navigation and recreation. Pollution control and fisheries responsibilities extend to 3 and 6 nautical miles from the coast respectively.

Milford Haven Port Authority - formerly the Milford Haven Conservancy Board - is a Trust Port set up as an independent statutory body by Act of Parliament in 1958. Its general duty is to promote and protect both local and national interests in the development of the Haven for public benefit. In particular it serves the navigational needs of the three major oil refineries/facilities in the Haven.

Pembrokeshire Coast National Park Authority is a special purpose authority set up in 1996, as part of local government re-organisation in Wales. The Environment Act 1992 sets out two purposes for National Parks in England and Wales. Conservation "to conserve and enhance the natural beauty, wildlife and cultural heritage of National Parks", and education and recreation "to promote opportunities for the understanding and enjoyment of the special qualities (of the Parks) by the public". The National Park Authority (NPA) also has a duty to foster the social and economic well being of communities within the National Park. The NPA is the sole local planning authority for the area within its boundaries. In addition, it leases much of the foreshore (between Low Water Mark and High Water Mark, ordinary tides) within its boundaries.



Pembrokeshire County Council is a multi-purpose authority with responsibilities covering the environment, transport, education, social services, housing and economic development. Duties and activities include town and country planning, coastal defence, economic development and tourism, coastal management, beach management, emergency planning, and water quality monitoring.

PCNPA and PCC are local planning authorities whose planning jurisdiction only extends to mean low water mark and not beyond. Where marine operations require some landward development, normal planning procedures can be implemented.

South Wales Sea Fisheries Committee is a statutory body constituted under the Sea Fisheries Regulation Act 1966 to regulate, protect and develop fisheries for shellfish and to regulate the fishing for or taking of seafish. Since 1992 SFCs have also been under a duty to have regard for the conservation of the wider marine environment, in addition to more specific responsibilities recently introduced arising from the EU Habitats and Birds Directives. The jurisdiction of SWSFC is currently between Cardiff and Cardigan, and to the 6 nautical mile offshore fishery limit which arising from outlying islands means up to 22 miles offshore in some areas.

Trinity House Lighthouse Service has a duty to deliver modern, reliable and economic aids to navigation service, to assist the safety of all classes of mariners in general navigation. Its principal activities include buoy laying, superintendence of and consent to local lights, wreck marking and/or dispersal, helicopter and lighthouse operations, and the provision of differential GPS.

The Crown Estate was established in its present form by the Crown Estate Act 1961. Under this Act, the Estate is managed by a Board of Commissioners who have a duty to 'maintain and enhance the value of the estate and the return obtained from it, but with due regard to the requirements of good management.' The Crown Estate is an estate in land which includes 55 % of the foreshore and all the seabed out to the 12 mile limit. The Crown Estate grants licences/leases for activities to take place on its land (it does not licence activities).

The Department for Environment, Food and Rural Affairs is the government department which deals with food, air, land, water and people. It plays an important role in co-ordinating marine environment policy. Its main aim is sustainable development, including a better environment and sustainable use of natural resources. DEFRA also aims to enhance opportunity in rural areas, improve enjoyment of the countryside and conserve and manage wildlife resources.

The Maritime and Coastguard Agency is the government agency with responsibility for maritime safety, responding to maritime emergencies and minimising the risk and impacts of pollution from ships to the marine environment and UK interests.

The Ministry of Defence provide the defence capabilities needed to ensure the security and defence of the United Kingdom and the Overseas Territories, including against terrorism, and to support the Government's foreign policy objectives, particularly in promoting international peace and

security. In Pembrokeshire the Ministry of Defence operate training establishments.

The National Assembly for Wales was established by the Government of Wales Act 1998 to take on the powers and responsibilities of the Secretary of State for Wales. The Assembly has the power and responsibility to develop and implement policy and make vital decisions in a range of areas including the environment.

Plans & Projects and Appropriate Assessments

The Habitats Directive and Regulations distinguish between 'activities', and developments which require some sort of consent or permission before they are allowed to proceed. Such developments are known as **plans or projects**. Issues identified in this document may be either activities or plans and projects, or sometimes a combination of both. Whilst the way they are managed will differ, they remain relevant topics for this consultation.

If any **plan or project** is likely to have a significant effect upon the conservation features of the site, either individually or in combination with other plans or projects, then it is subject to **appropriate assessment** of its implications for the conservation features of the site, in addition to any other environmental impact assessment. Where it is not clear that a plan or proposal will have significant effects or not, an appropriate assessment should be undertaken.

Abbreviations:

CCW	Countryside Council for Wales
CEC	Crown Estate Commissioners
CEFAS	The Centre for Environment, Fisheries and Aquaculture Science
DCWW	Dŵr Cymru Welsh Water
DEFRA	Department of the Environment, Food, and Rural Affairs
DfT	Department for Transport
DTI	Department of Trade and Industry
EAW	Environment Agency Wales
FEPA	Food and Environment Protection Act
IMO	International Maritime Organisation
MCA	Maritime Coastguard Agency
MHPA	Milford Haven Port Authority
MoD	Ministry of Defence
NAW	National Assembly for Wales
NT	National Trust
PCC	Pembrokeshire County Council
PCNPA	Pembrokeshire Coast National Park Authority
SWSFC	South Wales Sea Fisheries Committee
WAG	Welsh Assembly Government

Comments on this document are strongly encouraged and should be directed to the SAC Officer, Sue Burton.

Telephone 01646 696108, Fax 01646 696125, e-mail sburton@mhpa.co.uk, postal address c/o Milford Haven Port Authority, P.O.Box 14, Gorsewood Drive, Milford Haven, Pembrokeshire, SA73 3ER.

Comments should be received by 28th February 2003.



USE OF LIVING RESOURCES

Molluscan Farming: The use of trestles, ropes, cages etc. for culture of molluscan shellfish (e.g. mussels, oysters).

Status: *Current* – none. *Past* – Oyster farm, Carew River. *Future* – likely, especially within the sheltered Milford Haven Waterway.

Molluscan farming within the Haven would require flat areas in the intertidal, and subtidally would need to be out of the main navigation channel but in areas of moderate tidal flow.

Issues: Localised modification of seabed substrate; increased sedimentation; increased input of nutrients; physical impacts from foreshore access; physical disturbance; habitat/species loss and alteration. (See also Introduction of alien species, Hand gathering.)

Management: **NAW/DEFRA** (consenting procedure), **SWSFC** (byelaws). In addition, prior to commercial exploitation for public sale, molluscan fisheries require health classification from PCC. Permanent seabed structures must also have a licence from CEC. Within the Haven, approval on navigational and safety criteria is required from MHPA. Where applicable, owner/occupiers of the proposed site must be consulted.

Future Management Options: Review consenting process and ensure its effectiveness. Identify suitable locations. Zoning.

Molluscan “Ranching”: The direct deposition of juveniles (e.g. mussels, oysters) on the seabed, with collection later of the adults, usually by dredging.

Status: *Current* – none. *Past* – none. *Future* – likely as interest has been expressed within the sheltered Milford Haven Waterway. Ranching within the Haven would require flat areas in the intertidal, and subtidally would need to be out of the main navigation channel but in areas of moderate tidal flow.

Issues: Localised modification and loss of seabed substrate; increased turbidity; physical disturbance; habitat/species loss and alteration; removal of non-target species and substrate during recovery of adults. (See also Introduction of alien species, Hand gathering, Dredging (fisheries).)

Management: **NAW/DEFRA** (consenting procedure), **SWSFC** (byelaws). In addition, prior to commercial exploitation for public sale, molluscan fisheries require health classification from PCC. Within the Haven, approval on navigational and safety criteria is required from MHPA. Where applicable, owner/occupiers of the proposed site must be consulted.

Future Management Options: Review consenting process and ensure its effectiveness. Regulate all re-laying. Identify suitable locations. Zoning.

Fish Farming (land based): Semi-enclosed or closed systems allowing fish to be artificially reared for sale. Variable technologies, and therefore requirements, exist, allowing even tropical species to be produced from closed circulation plants.

Status: *Current* – none. *Past* – only a ragworm farm, Neyland. *Future* – likely, especially in the Haven where development land and infrastructure are available adjacent to the sea.

Issues: Discharge to the waterway of nutrients, pesticides/antibiotics/hormones and escapees; feed stock source; loss/modification of species and habitats and ecosystem effects. (See also Introduction of alien species, Effluent disposal (industrial).)

Management: **EAW** (water quality), **PCC/PCNPA** (local planning authorities), **NAW/DEFRA/CEFAS** (disease control).

Future Management Options: Appropriate assessment.

Fish Farming (caged, sea based): The use of cages to rear and/or store sea fish. Advancing technology now allows diversification into rearing new species such as cod, halibut and turbot.

Status: *Current* – salmonid farm, Daugleddau. *Past* – only one (for a short time) additional to present. *Future* – potentially, especially within the Haven in deep areas of moderate tidal stream, out of the main navigation channels.

Issues: Potential pollution from nutrients/pesticides/antibiotics/hormones; introduction of pests; genetic modification through escapees; feed stock source; predator (mostly grey seal) control. (See also Introduction of alien species, Effluent disposal (industrial). Toxic Antifoulant Use.)

Management: **EAW** (water quality) issue and enforce discharge consents. **CEC** licence, **PCC/PCNPA** (local planning authorities) where applicable. Within the Haven approval on navigational and safety criteria is required from MHPA. **MCA** (navigation and safety), **NAW/DEFRA/CEFAS** (disease control). Where applicable, owner/occupiers of the proposed site must be consulted.

Future Management Options: Appropriate assessment.

Hydraulic and suction dredging (fisheries): The removal, by hydraulic suction, of bivalve molluscs, particularly razorfish (*Ensis* spp.). The activity is focused on the low shore and subtidally in sediment areas, especially in St Brides Bay.

Status: *Current* – none known, although authorisations issued. *Past* – none. *Future* – likely interest.

Issues: Physical habitat disturbance; loss/modification of habitat; removal of biota; by-catch; ecosystem effects; modification of sediment processes.

Management: **SWSFC** (authorisations and byelaws). Authorisation is currently for deeper than 10m below chart datum with technical measures. Byelaw 27 prohibits the use of any fishing dredge within the Skomer Marine Nature Reserve. **NAW/DEFRA** (national measures). EU size restrictions apply. Within the Haven, approval on navigational and safety criteria is required from MHPA.

Future Management Options: Appropriate assessment. Zoning to safeguard sensitive locations.

Toothed/blade dredging (fisheries): The removal, by fishing dredge, of bivalve molluscs, particularly oysters which are found in subtidal areas of mixed sediment within the Haven, and scallops.

Status: *Current* – oyster dredging currently takes place upriver of the Cleddau Bridge, scallop dredging occurs occasionally in suitable areas widespread around the coast. *Past* – as current. *Future* – effort may possibly increase or move location.



Issues: Physical habitat disturbance; loss/modification of habitat and species (especially those limited in their extent for example in the estuary); removal of biota; ecosystem effects; by-catch, dependent on substrate, gear type and effort. In addition, native oysters (*Ostrea edulis*) are a Biodiversity Action Plan (BAP) species and stocks have declined in recent decades. (See also Molluscan Ranching.)

Management: **SWSFC** (authorisations and byelaws). A closed season (byelaw 45) exists for scallop (*Pecten maximus*) between 1 July and 31 October. Byelaw 27 prohibits any fishing dredge within the Skomer Marine Nature Reserve. **NAW/DEFRA** (national measures). EU size restrictions apply. Within the Haven, approval on navigational and safety criteria is required from MHPA.

Future Management Options: More comprehensive regulation for nature conservation requirements, specifically oyster dredging within the Haven. Pursue forms of management where possible that both encourage shellfish and benefit the environment as a whole. Zoning to safeguard sensitive locations.

Rod and Handline Fishing – both commercial & recreational: Angling (commercially mainly for bass/salmonids).

Status: *Current* – occasional commercial activity mainly in the Haven and on Turbot Bank. Widespread recreationally. *Past* – common. *Future* – recreational effort likely to increase.

Issues: By-catch; indirect impacts from lost / discarded gear. (See also Inorganic refuse & litter (marine sourced), Bait Collection.)

Management: For commercial vessels **SWSFC** byelaws/authorisations and **NAW/DEFRA** national measures. EU size restrictions apply. SWSFC Byelaw 29 restricts fishing from designated bass nursery areas. SWSFC Code of Practice refers to angling. **EAW** licence/byelaws for salmonids and freshwater fish. Codes of practice by PCNPA, CCW, EAW and Keep Wales Tidy (Tidy Tackle Campaign). NT byelaws.

Future Management Options: Promulgate and encourage observance of existing codes of practice. Education into 'green' gear (lead free weights, biodegradable line).

Netting – fixed: Usually bottom set nets for finfish (e.g. herring and bass) and crustaceans.

Status: *Current* – common and widespread in the shallow subtidal around inshore reef areas. *Past* – common. *Future* – continuing.

Issues: Physical damage to fragile species; by-catch of non-target species (especially fish); ecosystem effects of (heavy) stock exploitation; impacts potentially made greater by lost and discarded gear 'ghost fishing'; navigational and recreational conflicts. (See also Inorganic refuse & litter (marine sourced).)

Management: **SWSFC** (byelaws/authorisations, general code of practice). Byelaw 30 restricts use of fixed nets within areas of the cSAC. **NAW/DEFRA** (national measures). EU size restrictions apply. EAW (Cleddau Net Limitation Order for compass nets).

Future Management Options: Continue to monitor effort and activity in the context of nature conservation

requirements. Zoning to safeguard sensitive locations. More environmentally benign design and use of materials.

Netting – drift: Curtains or sheets of netting that hang in the water column either at the surface or lower down, in order to catch pelagic fish (e.g. herring and bass). Beach seines (encircling nets) are used in inshore waters, e.g. for sand eel.

Status: *Current* – common and widespread in inshore waters. *Past* – common. *Future* – continuing.

Issues: By-catch of non-target species (especially fish, seals); indirect impacts from physical damage to fragile species; potential 'ghost fishing' and physical effects to habitats/species due to lost gear; navigational and recreational conflicts. (See also Inorganic refuse & litter (marine sourced).)

Management: **SWSFC** (byelaws/authorisations, general code of practice). Byelaw 31 restricts use of drift nets within areas of the cSAC. **NAW/DEFRA** (national measures), EU size restrictions apply. Within the Haven, approval on navigational and safety criteria is required from MHPA.

Future Management Options: Continue to monitor effort and activity in the context of nature conservation requirements. Zoning to safeguard sensitive locations. More environmentally benign design and use of materials.

Potting: The use of different baited traps placed on the seabed to catch crustaceans such as crabs and lobsters (inkwell and parlour pots) or some molluscs such as whelks.

Status: *Current* – common and widespread in inshore shallow subtidal reef areas. *Past* – common. *Future* – continuing.

Issues: Physical damage to fragile species; by-catch of non-target species (territorial fish), ecosystem effects of (heavy) stock exploitation; impacts made greater by lost gear 'ghost fishing'. (See also Inorganic refuse & litter (marine sourced).)

Management: **SWSFC** (byelaws/authorisations, general code of practice). **NAW/DEFRA** (national measures). EU size restrictions apply.

Future Management Options: Continue to monitor effort and activity in the context of nature conservation requirements. Zoning to safeguard most sensitive areas. More environmentally benign design and use of materials

Trawling: The use of a large funnel-shaped net to catch sea fish that is towed through the water by single or paired boats. Nets can be towed on the seabed (demersal trawls) or through mid water (pelagic trawls). Beam (often targeting flatfish and able to work on rougher ground), otter (mixed demersal fish), and pair trawls (mixed demersal fish such as bass) are used within the cSAC.

Status: *Current* – common and widespread offshore on mixed ground. *Past* – common. *Future* – continuing.

Issues: Physical habitat disturbance/loss/modification; damage to and removal of biota; reduction in biodiversity (especially in stable communities); ecosystem effects; by-catch/discards; poor gear selectivity. (See also Inorganic refuse & litter (marine sourced).)



Management: SWSFC (byelaws/authorisations, general code of practice). Byelaw 27 prohibits any beam trawl within the Skomer Marine Nature Reserve. NAW/DEFRA (national measures). EU size restrictions apply.
Future Management Options: Further regulation on nature conservation grounds. Zoning to exclude trawling from most sensitive areas.

Hand Gathering: The gathering of biota by hand (i.e. non-mechanical) typically occurs on all shore types, particularly in areas of easy access. The species most commonly gathered intertidally include winkles, mussels, seaweed (e.g. *Porphyra* spp. for laver bread) and kelp on rocky shores; cockles, oysters and razors on mixed sediment and boulder shores, and Glasswort (*Salicornia* sp.) from saltmarsh areas. Most collection is small scale for personal consumption, but large-scale operations and commercial sale (either directly or for 'seed' stock) does occur. Species are also collected subtidally – mainly with the aid of SCUBA equipment – and include mostly crustaceans (lobsters, crawfish, crabs) and scallops.

Status: *Current* – common and widespread, although with 'hot spots' of activity. *Past* – common (e.g. the drop in crawfish numbers in the 1970s/80s was attributed largely to diver collection - mainly commercially). *Future* – continuing.

Issues: Species depletion, ecosystem effects and physical disturbance. Commercial gathering, because of the increased level of intensity, is of particular concern in localised areas. (See also Bait collection, Trampling).

Management: SWSFC byelaws and size restrictions (size restrictions applicable only to sea fish). Prior to commercial exploitation for public sale, molluscan fisheries require health classification from PCC. CCW along with owner/occupiers have management agreements for SSSIs in the intertidal. Owner/occupiers also control access to the shore.

Future Management Options: Better regulation for nature conservation requirements, specifically commercial intertidal shellfish gathering within the Haven.

Bait Collection: Bait is collected for both commercial and recreational uses. Methods include boulder turning for peelers (crab) and winkles, manual digging for rag and lugworm, and the use of crab tiles and tyres. Hotspots include the Gann and other sediment and boulder shores within Haven

Status: *Current* – common on accessible mixed substrate shores, although with 'hot spots' of activity. *Past* – common. *Future* – continuing.

Issues: Species depletion; ecosystem effects; physical disturbance. Commercial gathering, because of the increased level of intensity, is of particular concern in localised areas. (See also Hand gathering, Rod and Handline Fishing.)

Management: Bait collection for personal use is ancillary to the public right to fish, but is currently unregulated by any sea fisheries or other legislation (SWSFC byelaws and size restrictions are applicable only to sea fish). However, it is illegal to take bait for commercial sale without the permission of the landowner (unless customary rights exist). CCW along with owner/occupiers have management agreements for SSSIs in the intertidal.

Owner/occupiers also control access to the shore. SWSFC have a general code of practice, which includes collection of bait.

Future Management Options: Monitor effort and activity. Regulation for nature conservation requirements, then implementation, enforcement and education. Encourage use of farmed bait from sustainable and environmentally benign farms.

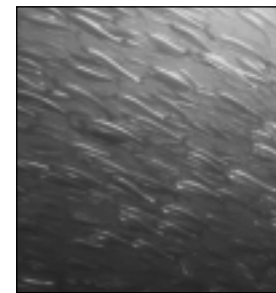
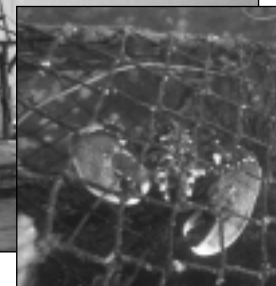
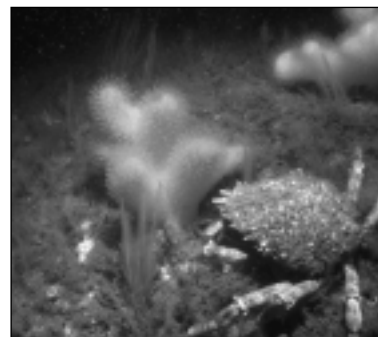
Collection for Aquarium & Curio Trade: The collection of marine species for the aquarium trade (temperate saltwater fish and invertebrates) or as curios (shells etc.), although not common within the cSAC, does occur.

Status: *Current* – occasional. *Past* – sea urchins have been frequently collected as curios. *Future* – continuing.

Issues: Removal of live biota and potential ecosystem effects. (See also Hand gathering.)

Management: SWSFC byelaws and size restrictions and national (DEFRA/NAW) and EU measures are applicable only to sea fish. CCW along with owner/occupiers have management agreements for SSSIs. Owner/occupiers also control access to the shore.

Future Management Options: Education



USE OF NON-LIVING RESOURCES

Aggregate Dredging - Sand & gravel: Aggregate dredging involves the removal of substrate from the seabed, usually subtidally. Under particular threat within the cSAC are subtidal sandbanks such as the Turbot Bank, Bais Bank, and banks found at The Knoll, Hats & Barrels reefs, and Grassholm Island.

Status: *Current* – none. *Past* – none. *Future* – potential due to possible restrictions in the Bristol Channel, which could direct attention further away to places such as Pembrokeshire.

Issues: Removal of habitat; increased turbidity; modification of sediment transport processes; loss/damage to species; ecosystem effects.

Management: DEFRA/NAW (applications) with advice from CCW. CEC (licensing)

Future Management Options: Appropriate assessment

Alternative Energy Production - Coastal wave & tidal current: Renewable energy is a new marine industry. Different wave and tidal power methods have been proposed and research is continuing into these. A permanent tidal current site would require a large flat area of seabed in moderate to high tidal flow below about 30m depth.

Status: *Current* – none. *Past* – none. *Future* – potential. Trials have already occurred within the cSAC for tidal current energy production.

Issues: Loss/modification of habitats/species due to having a permanent structure and associated cables on the seabed; potential contamination associated with materials used (antifoulants, hydraulic fluids); physical disturbance during both development and operation. (See also Toxic Antifoulant Use.)

Management: DTI/DfT/DEFRA/NAW (applications), CEC (licensing). PCC/PCNPA (local planning authorities) for landward implications.

Future Management Options: Appropriate assessment. Zoning.

Water Resources & Storage - Freshwater abstraction: Abstraction of fresh water (for irrigation, winter storage ponds, fish farms etc.) occurs mainly in the upper reaches of tributaries to the Milford Haven waterway.

Status: *Current* – 28 abstractions are licensed in the Afonydd Cleddau. *Past* – little change to present. *Future* – continuing.

Issues: Reduction of fresh water input to the estuary leading to potential loss/modification to estuarine habitats and species, and potential effects to otters, shads, and lampreys.

Management: EAW licence abstractions (except where exempt) taking into account the potential impact on the environment. All licences are currently being assessed to ensure that they do not impact on cSACs. EAW are currently developing Catchment Abstraction Management Strategies (CAMS). Work is due to start on the Cleddau and Pembrokeshire Coastal Rivers CAMS in 2004. Both EAW and DCWW promote efficient water usage.

Future Management Options: Link to Cleddau Rivers cSAC Management Scheme.

WASTE DISPOSAL

Agricultural run-off: Pembrokeshire is an intensively farmed area, with mainly dairy livestock, and arable crops dominated by potatoes. Run-off of soil, pesticides/herbicides, silage (in summer) and slurry (in winter) is widespread from rivers/streams and even cliff tops. The Milford Haven waterway has the greatest potential to be affected by agricultural run-off because of its large catchment area.

Status: *Current* – common. *Past* – common. *Future* – continuing.

Issues: Effects to water quality due to increases in levels of chemicals and nutrients; increased sedimentation / turbidity; modification of habitats/species; ecosystem effects. (See also Global weather patterns & consequences.)

Management: Tir Gofal voluntary scheme (CCW/ NAW Agriculture Department). EAW run pollution prevention visits to farm properties to encourage best practice, offer advice, and enforce farm management plans. The creation of buffer strips (by fencing off river banks etc.) is particularly effective at reducing soil erosion, and EAW with the Pembrokeshire Rivers Trust may expand this work. Management agreements with owner/occupiers (e.g. PCC, NT).

Future Management Options: Link to Cleddau Rivers cSAC management scheme. The Water Frameworks Directive (once in place) will have its own monitoring requirements. Raise awareness.

Spoil dumping: The dumping of inert material both on the shore and subtidally.

The products of capital and maintenance dredgings from harbours and ports are most commonly taken out to sea and dumped offshore to dissipate naturally with current and tides to the deep sea bed. Fine sediments can be carried a long way due to natural processes, and so it is not only the dump site itself which can be affected by spoil but also sites much further away. Maintenance dredging is regularly required for the navigation channels within the Haven and also the berthing boxes for the refinery jetties. **Status:** *Current* – Maintenance dredging spoil from port operations within the Haven is dumped beyond the cSAC south of the Smalls, and research is being conducted into potential affects to the cSAC. Intertidally, material from maintenance dredging at Neyland Marina is being removed from ponds at Westfield Pill to Black Bridge. *Past* – Maintenance dredging spoil from port operations within the Haven was dumped within the current area of the cSAC, but effects on the Skomer Marine Nature Reserve led to research being conducted and alternative sites being located. Intertidally, material has been deposited at Ward's Yard, Burton and at Westfield Pill, Neyland. *Future* – continuing.

Issues: Physical disturbance; increased levels of turbidity in the water column; smothering of seabed habitats and species. (See also Capital and maintenance dredging.)

Management: A licence to dump is required. Below high water (springs) a FEPA licence is needed from DEFRA/NAW. The licensing procedure involves consultation with CCW. Above high water (springs) a



shore waste management licence is needed from the **EAW**. PCC/PCNPA (local planning authorities). MHPA have conducted several in-depth studies since the early 1990's to select alternative dredge spoil dumping grounds in order to minimise environmental effects.

Future Management Options: Appropriate assessment. Find ways to utilise dredge spoil in order to minimise dumping. Raise awareness. Seek change to FEPA licensing so as to include fisheries activities, as at present the dumping of fisheries waste etc. does not require a licence.

Effluent disposal (industrial): Point source disposal of industrial waste can involve various substances, for example organochlorines, heavy metals and petrochemicals in low concentrations. Point sources of persistent wastes distant from the site may also be relevant (eg elevated levels of Caesium137 originating from the nuclear industry are present in the Irish Sea).

Status: *Current* – widespread, but occurs mostly in the Haven in areas of high industry. *Past* – as present with the addition of the Pembroke Power Station. *Future* – continuing

Issues: Persistent contaminants; cumulative effects on habitats/species. (See also Effluent disposal (sewage), Air pollution, Hydrocarbon pollution.)

Management: All discharges are controlled through a statutory system of licences such as discharge consents and operational permits, issued and enforced by **EAW**. Limits of substances discharged are set by the EAW (there is currently in process a consents review procedure), and guided by national legislation/directives. **DCWW** use Asset Management Plans to ensure adequate facilities are in place.

Future Management Options: Ensure discharges meet requirements of directives (e.g. Bathing Water Directive, Shellfish Directive, Water Framework Directive when in place). Raise awareness.

Effluent disposal (sewage): Point source disposal of domestic waste includes not only human organic waste products, but also inorganic waste and chemicals (e.g. detergents emptied into sinks, oil poured down drains).

Status: *Current* – There are 19 domestic sewage discharge points within the cSAC, the majority of which discharge to the Haven. Almost half of these undergo tertiary treatment. *Past* – common. *Future* – continuing, but with increased treatment likely.

Issues: Contamination/loss/modification of habitats and species; ecosystem effects; physical disturbance; possible eutrophication due to enhanced nutrients in the water - particularly in the relatively enclosed Haven; public health and shellfish contamination. (See also Inorganic refuse & litter)

Management: All discharges are controlled through a statutory system of licences known as discharge consents, issued and enforced by **EAW**. Limits of substances discharged are set by the EAW consents review procedure, and guided by national legislation/directives. **DCWW** use Asset Management Plans to ensure adequate facilities are in place.

Future Management Options: Ensure discharges meet

requirements of directives (e.g. Bathing Water Directive, Shellfish Directive, Water Framework Directive when in place). Education in suitable disposal methods.

Effluent disposal (sewage) from vessels: Sewage disposal from vessels (both commercial and recreational users) is commonly discharged, either untreated or after primary treatment, at sea. Management facilities should be available at most ports and marinas to deal with waste. Status: *Current* – common. *Past* – universal. *Future* – improving with increased legislation.

Issues: Contamination/loss/modification of habitats and species; ecosystem effects; physical disturbance; possible eutrophication due to enhanced nutrients in the water - particularly in the relatively enclosed Haven; public health and shellfish contamination. (See also Inorganic refuse & litter (marine sourced).)

Management: **International Maritime Organisation, DfT/DTI, MCA** (Annex IV of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)). Harbour authorities (MHPA in Haven)/industry such as refineries and marinas (shore reception facilities for sewage). Pollution incidents should be reported to the MCA (or **EAW** if within 3 nautical miles of the coast).

Future Management Options: Extend port waste management plans to include sewage (MCA). Education. The possible designation of all or part of the cSAC area as a Marine Environmental High Risk Area (MEHRA) could aid management.

Inorganic refuse & litter: Inorganic refuse & litter of marine or land origin, accidental or deliberate.

Marine sources: commonly passing commercial shipping, fishing and recreational vessels. Lost/discarded fishing gear can lead to 'ghost fishing' where target and non-target species become involved in a cycle of continuously wasted catch, and seabed habitat communities and species potentially damaged. Fishing net and rope can also result in general entanglement of marine wildlife (including birds) and engine propellers. Lost/discarded cargo (e.g. wood, containers, fish boxes) can be hazardous to navigation, as well as potentially polluting (e.g. cargos of vegetable oil, leaking chemical drums etc.). Large cargo losses can lead to physical disturbance/trampling of the shore during salvage.

Land sources: mostly beach users (tourism) and farming. Persistent materials such as agricultural plastic wrappings used for forcing early crops can be blown from the land to the sea and end up on beaches. Fly-tipping also occurs, particularly in rivers where materials can then wash downstream.

Both marine and land sourced litter is widespread all round the coast, collecting on beaches and within the Haven due to the prevailing south-westerly winds. These winds and tides also bring debris from far out to sea, and also from across the seas.

Status: *Current* – Widespread, common. *Past* – Beachwatch 2000 data (Marine Conservation Society) for Wales showed that a third of beach litter was sourced from beach visitors. In comparison with the rest of the UK, Wales had the highest density of shipping litter and double the density of fishing debris than found elsewhere.



Future – The UK trend sees a slight decrease in the overall amount of litter, but persistent materials (particularly plastics), will continue to contribute to high levels of litter recorded.

Issues: Harm/loss of marine species; physical disturbance; contamination; aesthetics. (See also Effluent disposal (sewage).)

Management: **International Maritime Organisation, DfT/DTI, MCA** (international and national legislation including the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and The Merchant Shipping Regulations). Harbour authorities – MHPA in Haven – (port waste management plans). MHPA specifically have a litter byelaw and have prosecuted offenders within Haven limits. Pollution incidents should be reported to the MCA (or EAW if within 3 nautical miles of the coast). PCC carry out beach clean-ups of some beaches (regular cleans of blue flag beaches, occasional cleans of green award beaches), and Keep Wales Tidy Coastcare groups clean adopted beaches.

Future Management Options: Education (reduce, reuse, recycle), awareness raising, beach clean-ups, policing. Improved refuse management at sea. Good shipping practice. The possible designation of all or part of the cSAC area as a Marine Environmental High Risk Area (MEHRA) could aid management. Within the Haven, MHPA will continue to educate and prosecute where necessary.

Urban and industrial run-off: Urban and industrial run-off from diffuse or point sources.

Point sources include industrial sites such as oil refineries/facilities, and marinas and boat yards where maintenance work can lead to waste antifouling scrapings and chemicals entering the nearby watercourse. Also included are road accidents involving spillage of pollutants, for example tank transporters.

Diffuse sources include roads and other undetermined locations. It is estimated that around 90% total oil pollution is from discharges, seepages, and urban run-off. **Status:** *Current* – widespread, common. *Past* – widespread, common. *Future* – continuing.

Issues: Adverse effects to water quality in nearshore waters that are in close proximity to settlements leading to contamination/loss/modification of habitats and species and ecosystem effects. (See also Maritime hydrocarbon pollution (operational small spills), Toxic Antifoulant use.)

Management: **PCC** and **EAW** can influence but not regulate diffuse sources. EAW can request the placing of oil interceptors in order to minimise run-off from industrial sites and also roads (particularly junctions), and encourage developers to implement Sustainable Urban Drainage schemes (SUDS). PCC/PCNPA (local planning authorities).

Future Management Options: Need to minimise contaminants to sea. Education.

Air Pollution: Air pollution can potentially derive from point sources such as industrial sites (for example refinery stacks) as well as diffuse sources such as general motorised traffic.

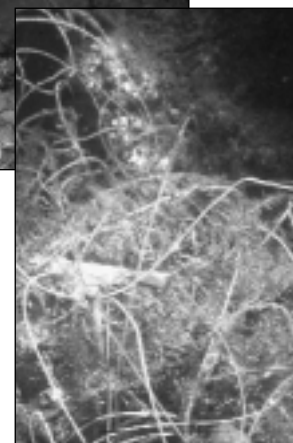
Status: *Current* – the Haven, as an area of concentrated

urbanisation and industry, potentially most affected. The refineries are publicly perceived to be the highest contributors. *Past* – More potential for pollution, with the addition of the power station, and generally less efficient technology available. *Future* – continuing

Issues: Adverse effects to water quality (notably watercourses) from acidic sulphur gaseous substances – ‘acid rain’ leading to potential contamination/loss/modification of habitats and species and ecosystem effects.

Management: **EAW**'s Process Industry Regulation team review information monitored at point sources such as the refineries; inspections are carried out regularly. **PCC** monitor air quality for environmental health reasons.

Future Management Options: Ensure stringent controls are maintained.



VESSEL RELATED ACTIVITY

Anchoring: The temporary securing of a vessel (both commercial and recreational) to the seabed by deployment of an anchor.

Status: *Current* – Anchoring of large commercial vessels is common in St Brides's Bay and allocated areas within the Haven. The anchoring of recreational vessels is widespread in near shore areas. *Past* – Recorded numbers of large commercial vessels anchoring in St Brides's Bay in the mid-1990s was half that of present. Recreational vessels were less than at present. *Future* – Commercial vessels should decrease, whilst recreational vessels are likely to increase.

Issues: Damage/loss to seabed habitats and species; physical disturbance, especially in rocky areas and eel grass beds (*Zostera* spp.); tankers in St Brides's Bay and the potential for an incident as a result of mechanical failure and/or strong prevailing winds. (See also Inorganic refuse & litter, Effluent disposal (sewage) from vessels.)

Management: **DfT/DfI, MCA** (regulation of shipping movements in the UK, Areas to be Avoided), MHPA (regulation of shipping movements in Haven, designated anchoring areas). In other small harbours, management may fall to PCC, PCNPA, Crown Estate, boat owners associations. The possible designation of all or part of the cSAC area as a Marine Environmental High Risk Area (MEHRA) could aid management. With regard to recreational vessels, Skomer Marine Nature Reserve maintains an anchoring free zone around the eel-grass bed in North Haven.

Future Management Options: Prevent/reduce anchoring in environmentally sensitive areas such as St Brides's Bay. Zoning. Encourage provision of Emergency Towing Vessel (ETV) for the area. The designation of the cSAC as a Marine Environmental High Risk Area (MEHRA) could ease the issue with regards to commercial vessels, as traffic will be restricted.

Moorings: Mooring of vessels requires a permanent structure on the seabed. Mooring areas are allocated within the Haven and smaller harbours for commercial and recreational vessels.

Status: *Current* – Most commercial mooring within the cSAC takes place within the Haven; recreational mooring is widespread in the Haven and smaller ports and sheltered bays. *Past* – as current. *Future* – continuing, likely to increase for recreational users.

Issues: Loss/modification of seabed habitats and species; physical disturbance, especially in near shore rocky areas and eel grass beds (*Zostera* spp.); potential chronic effects of pollution in the area immediately adjacent to the mooring (depending on usage). (See also Inorganic refuse & litter, Effluent disposal (sewage) from vessels.)

Management: In most areas, the **CEC** own the seabed and a lease must be obtained before any permanent structure can be placed upon it. **MHPA** within the Haven, and others where acting as a harbour authority often manage the leases. Voluntary Conservation Areas (VCAs) have been established in the Haven where boat owners' associations manage their own sites. Boat owners' associations also exist around the open coast.

Future Management Options: Zoning to prevent/reduce mooring in environmentally sensitive areas. Review and monitor (open coast)

Toxic Antifoulant use: Antifoulant use is needed on vessels and some other submerged structures in order to discourage marine growth. The Haven due to its heavy flow of vessel traffic and other smaller harbours are areas at particular risk, as are waters adjacent to marinas and boat yards where boat maintenance is carried out.

Status: *Current* – TBT is now banned on vessels under 25m. *Past* – Antifoulant coatings have traditionally used TBT, which has since been proven to cause sex change in some marine organisms. *Future* – TBT usage is to be completely phased out by 2008 if IMO recommendation ratified.

Issues: Contamination; loss/modification to habitats and species; ecosystem effects. (See also Urban and industrial run-off.)

Management: **IMO/DfT/DfI/MCA** (ongoing ship safety and pollution legislation, specifically the International Convention on the Control of Harmful Anti-fouling Systems on ships - Oct 2001). MHPA (Port waste management plans).

Future Management Options: Raise awareness. Improve waste management at marinas/ boat yards by preventing release of antifoulant washings/dust to watercourses.

Introduction of alien species: 'Alien' species are non-native species that have been deliberately, or more usually accidentally, introduced to an area. Common transportation means are via ship's ballast water, via fouling on vessel hulls, and also via aquaculture.

Status: *Current* – widespread. *Past* – widespread. *Future* – continuing.

Issues: Ecosystem effects to indigenous species and habitats. (See also Discharge of ballast water, Molluscan farming and ranching.)

Management: **IMO/DfT/DfI/MCA** (ongoing ship safety and pollution legislation). MHPA (port waste management for dirty ballast), DEFRA (deliberate introductions).

Future Management Options: Research and monitoring. International agreements required.

Capital & Maintenance dredging: Capital & Maintenance dredging is needed in order to create development areas and maintain navigation routes for vessels. Shipping berths, marinas, navigation channels, and harbour approaches need to be regularly dredged to prevent excessive build up of sediments.

Status: *Current* – in the Haven some capital projects have been proposed, and regular maintenance dredging carried out. *Past* – capital & maintenance dredging within Haven. *Future* – continuing

Issues: Increased turbidity; physical disturbance; smothering of species/habitats; modification/loss of substrate. In the case of capital dredging, potential re-suspension of persistent contaminants from the sediment can be an issue. (See also Spoil dumping.)

Management: Consent is required from **DEFRA/DfT (Marine Consents and Environment Unit)** for removal of substrate. The dredging operation itself is managed by



MHPA (within Haven) or others where acting as the harbour authority.

Future Management Options: Appropriate assessment of capital dredging projects. Investigate contaminants in sediments in Haven.

Discharge of ballast water: Ships require ballast in order to maintain their position in the water. The amount of water held as ballast is dependant on the amount and weight of cargo carried. Consequently ballast water often needs to be exchanged and loss to the surrounding environment occurs. Ballast water can carry marine species (often in planktonic form) from one area to another and thereby introduce non-native species. Contaminants such as antifouling compounds can also be present. The Haven is an area of particular concern due to the amount of visiting shipping, although due to the majority of ships bringing full cargoes into the Haven, ballast is usually taken out of the Haven rather than inputted.

Status: *Current* – widespread. *Past* – widespread. *Future* – continuing

Issues: Contamination and ecosystem effects to indigenous species and habitats. (See also Introduction of alien species, Toxic Antifoulant use.)

Management: **IMO/DFT/DTI/MCA** (ongoing ship safety and pollution legislation, specifically the draft International Convention for the Control & Management of Ship's ballast water). **MHPA** (Port waste management plans for dirty ballast within the Haven)

Future Management Options: International agreement required (adoption of convention). Tighter local management (**MHPA**). Encourage mid ocean ballast exchange as more appropriate. The possible designation of all or part of the cSAC area as a Marine Environmental High Risk Area (**MEHRA**) could aid management.

Discharge of bilge water: Vessel bilge water is commonly contaminated with fuel and engine oil, grease and debris. Discharge into the Haven is of particular concern due to the amount of visiting shipping. In addition, the Irish Sea is busy with traffic, and vessels on passage have the potential to affect the cSAC, even if not passing through it, as any contaminants will likely be blown ashore.

Status: *Current* – widespread. *Past* – widespread. *Future* – continuing

Issues: Contamination; cumulative effects; loss/modification of species and habitats; ecosystem effects. (See also Toxic Antifoulant use, Maritime hydrocarbon pollution - operational small spills.)

Management: **IMO/DFT/DTI/MCA** (ongoing ship safety and pollution legislation). **MHPA** (Port waste management plans within the Haven, provision of dirty bilge facilities)

Future Management Options: Within the Haven, **MHPA** will continue to educate and prosecute where necessary. Raise awareness of the discharge of bilge water being a universal problem for all vessels (tankers, fishing boats, recreational craft).

Maritime hydrocarbon pollution - acute (medium to

large) accidental spills: 'Hydrocarbons' include crude oil and also refined oil and gas products. Hydrocarbons are routinely carried by tankers through the cSAC to and from the refineries around Milford Haven (benzene is the only petrochemical routinely transported in the Haven). Marine hydrocarbon pollution incidents, and their subsequent management, range in size and complexity. Factors that need to be taken into account include the size and location of spill, and the type(s), fate and behaviour of the pollutant(s) themselves. Large accidental oil spills are rare, but extensive in their effects if and when they occur. It should be noted that most oil pollution incidents involve discharges, seepages, and urban run-off.

The Haven, due to the intensity of shipping movements and sheltered intertidal areas, is the most sensitive location for an incident within the cSAC.

Status: *Current* – rare. *Past* – rare. The *Sea Empress* in 1996 ran aground and released 72,000 tonnes of crude oil and 480 tonnes of fuel oil into the sea resulting in contamination of 200km of coastline. *Future* – potential

Issues: Smothering; physical disturbance; toxic contamination; loss/modification of habitats and species; ecosystem effects; aesthetics; use of dispersants in sensitive areas; hot water power washing of sensitive shores. (See also Maritime hydrocarbon pollution – operational small spills, Effluent disposal (industrial), Urban & industrial runoff, Trampling.)

Management: **MCA** (implementation of pollution legislation, maritime safety regulations, marine pollution monitoring, National Contingency Plan for maritime pollution), **MHPA** (ship safety, pollution, navigation within port control, specifically implementation of Port Marine Safety Code and Milford Haven Port Authority Oil Pollution Contingency Plan). **PCC** (shoreline oil pollution plan, Emergency Response Information System, West Wales Oil Pollution Advisory Group – **WWOPAG** – contingency plan), **PCNPA/CCW/EAW/DEFRA** (West Wales Environment Group – **WWEG** – contingency plan).

Clean-up response is dependent on the location and size of the initial oil spill incident. For 'tier' 2 or 3 (medium to large) spills, water based response is the responsibility of the **MCA** (and **MHPA** in the Haven). Shore based clean up is the responsibility of **PCC**. Environmental advice will be provided to any/all response centres set up to respond to a marine pollution incident by the West Wales Environment Group (National Contingency Plan, **MCA** 2000).

Future Management Options: Minimise risk. Extend implementation of best shipping management practice to areas outside **MHPA** jurisdiction. Stationing of Emergency Towing Vessel (**ETV**) in the southern Irish Sea. The possible designation of all or part of the cSAC area as a Marine Environmental High Risk Area (**MEHRA**) could aid management. Ensure adequate local information and safeguards built into regional/local plans and advice to response centres. Regular review and exercising of contingency plans (maintenance of good state of preparedness). Support completion of single oil pollution database for Pembrokeshire (on GIS).

Maritime hydrocarbon pollution - small operational spills: Small operational spills inevitably occur from time



to time in large busy ports, especially one dealing with the oil industry. They usually occur during operations such as ship-to-shore (and *vice versa*) transfers of cargo, or tank washing, bilge water contamination, and bunkering. In addition, other commercial users such as fishermen, and recreational users are responsible for small pollutions particularly around marinas and berths. Spills arising from routine operations are (usually) small-scale and are the result of mechanical failure or human error. It should be noted that most oil pollution incidents involve discharges, seepages, and urban run-off.

Status: *Current* – common. *Past* – common. *Future* – continuing

Issues: Physical disturbance; contamination; loss / modification of habitats and species; ecosystem effects. (See also Discharge of bilge water, Maritime hydrocarbon pollution - acute (medium to large) accidental spills, Power craft (recreation), Effluent disposal (industrial), Urban & industrial runoff.)

Management: **MCA** (implementation of pollution legislation, maritime safety regulations, marine pollution monitoring, National Contingency Plan for maritime pollution), **MHPA** (ship safety, pollution, navigation within port control, specifically implementation of Port Marine Safety Code and Port waste management plans). Local and regional oil contingency plans (see acute (medium to large) accidental spills). Industry (e.g. marinas, boat yards) waste management and best practice. EAW (shore facilities)

Future Management Options: Good shipping practice. Continued development within the Haven of best practice at jetty heads, including maintenance and handling operations. Education/awareness raising for all users (industry, fishing and recreation). Within the Haven, MHPA will continue to educate and prosecute where necessary.

Cargo losses (non hydrocarbon)

See Inorganic refuse & litter (marine sourced)

Power craft (recreation): Water based recreation is very popular in Pembrokeshire and numbers, in the summer months particularly, are high. As well as privately owned vessels, boat trips and charters are also available. Wildlife boat trips are becoming increasingly popular. Those

however of potential concern to the cSAC are power craft which as well as creating potential conflict with other users (non motorised craft and coast path walkers), often cause physical disturbance.

Status: *Current* – common, widespread. *Past* – slightly less usage but still widespread. *Future* – likely to increase

Issues: Disturbance to grey seals around the offshore islands and inaccessible mainland beaches and caves, especially during the breeding season in late summer/early autumn; disturbance to sheltered habitats and otters in the quieter reaches of the Haven. Disturbance can include noise, visual, boat wash and physical contact. (See also Maritime hydrocarbon pollution - operational small spills.)

Management: Regulation of power craft only exists for commercial operators, for example passenger boats and charters. The **MCA** have overall responsibility for licensing of these craft, although PCC also act as a local licensing authority. MCA advise on recreational boat safety. PCC and PCNPA control the majority of access to the water via slipways. Within the Haven **MHPA** have developed, through a partnership of organisations, the Milford Haven Waterway Recreation Plan, which is supported by MHPA byelaws.

Future Management Options: Education/raise awareness of national legislation/codes. Consider support for a marine code for commercial operators.



NON-VESSEL RELATED ACTIVITY

Shooting (recreation): Recreational shooting of wildfowl occurs on intertidal shores mostly within the Haven.

Status: *Current* – occasional, regular use of favourite sites. *Past* – occasional. *Future* – continuing

Issues: Physical disturbance, particularly to otters; habitat modification; potential contamination from lead shot where still used. (See also Trampling.)

Management: **CCW** (SSSIs, Cleddau Bird sanctuary), owner/occupier (e.g. **CEC**, **NT**) authorisation. Pembrokeshire Wildfowling Association and Pembrokeshire Rod & Gun Club (management agreements and licences).

Future Management Options: Identify areas of otter activity and add to management agreements. Encourage best practice and membership of BASC (British Association for Shooting and Conservation), and BASC affiliated clubs.

Trampling: Trampling of the shore can occur through various means - repeated educational site visits by Field Study Council Centres, universities, colleges and schools, recreational activities including coasteering and shooting, and even during oil clean up operations. Effects obviously depend on the intensity, duration and frequency of visits.

Status: *Current* – occasional, regular use of favourite sites. *Past* – occasional. *Future* – continuing

Issues: Physical disturbance; loss/modification to species and habitats; ecosystem effects. (See also Maritime hydrocarbon pollution response & clean up.)

Management: **CCW** (SSSIs), owner/occupier authorisation.

Educational establishments (best practice).

Future Management Options: Ensure best practice minimises any long-term effects of disturbance (implemented via Pembrokeshire Outdoor Charter.)

Artificial Reef Construction: Initial investigations have taken place locally over the potential for an artificial surf break for recreational purposes. Effects are obviously dependent on the material used and location for the reef.

Status: *Current* – none. *Past* – none. *Future* – potential

Issues: Modification to the hydrodynamic regime; loss/modification to species and habitats; physical disturbance during the development phase; increased vulnerability resulting from potential exploitation by commercial diving and angling.

Management: Any design would need the consent of **DEFRA/DfT (Marine Consents and Environment Unit)**, and then a licence from the **CEC** for a permanent structure on the seabed. FEPA licence. PCC/PCNPA (local planning authorities) where applicable. MCA are responsible for the safety of vessels at sea - an artificial reef constituting a navigational hazard.

Future Management Options: Appropriate assessment.

Civil Engineering: Civil engineering can cover a multitude of activities including the construction (and maintenance) of slips, harbours (involving possible impoundment), jetties and sea defence, as well as underwater cables and pipelines. Each specific development or maintenance activity has its own

associated issues. Urban areas are the primary locations. Many marine developments could result in increased boat activity, with consequential problems such as pollution and user conflict. There are management differences depending on whether the civil engineering activity takes place within or outside local planning jurisdiction.

Status: *Current* – regular maintenance. *Past* – common. An impoundment was proposed for the Pembroke River. *Future* – continuing. Potential for a fossil fuel power station and LNG facilities within the Haven.

Issues: Physical disturbance; possible modification to the hydrodynamic regime; potential contamination (from development and also maintenance e.g. paints); loss/modification to species and habitats; obstruction of migratory fish; decommissioning of structures. (See also Urban run-off, Power craft (recreation).)

Management: **DfT/DfI/DEFRA/NAW** (consent process, FEPA licence). PCC/PCNPA (local planning authorities) where applicable. **CEC** control seabed licences. CCW and EAW have an advisory role. MHPA consulted within Haven.

Future Management Options: Appropriate assessment. Ensure cSAC needs are addressed below low water, beyond planning jurisdiction.

Nuclear Power

See Effluent disposal (industrial)

Military Activities - Dumping/Dumps: The disposal of used ammunitions in designated areas on the seabed.

Status: *Current* – Disused explosives dumping grounds 15km west of Freshwater West, and off Castlemartin range. *Past* – significant dumping but little information. *Future* – unlikely.

Issues: Physical disturbance; potential contamination; loss/modification to species and habitats (See also Military Activities - Ordnance ranges.)

Management: **MoD** (Memorandum of Understanding between Welsh Office and Ministry of Defence (1995) in respect of the Habitats Directive).

Future Management Options: Gather information on past dumping.

Military Activities - Ordnance ranges: Deliberate/accidental release of missiles to the sea in the course of armed forces training.

Status: *Current* – MoD sea danger areas exist off both the Castlemartin and Manorbier ranges. *Past* – as current. *Future* – continuing

Issues: Physical disturbance; loss/modification to species and habitats (See also Military Activities - Dumping/Dumps.)

Management: **MoD** (Memorandum of Understanding between Welsh Office and Ministry of Defence (1995) in respect of the Habitats Directive).

Future Management Options: Monitor effort and activity.



GENERAL

Global weather patterns & consequences: Changes are occurring to global weather patterns. Consequences of this for the Pembrokeshire Marine cSAC include temperature change (both air and sea), current/tidal changes, sea level rise, and increase in storm events.

Issues: Change in abundance and /or distribution of species and communities. (See also Urban & Industrial Runoff, Air Pollution)

Management: Management is currently both reactive (e.g. coastal defence) and proactive (e.g. controlling air emissions).

Future Management Options: Whilst global action is needed to address a global problem, relevant local action will make its own small contribution to addressing that global problem. Raise awareness that a healthy sea can help to address the balance needed in global weather systems (e.g. planktonic uptake of CO₂). Emphasise proactive management, raise awareness of renewable energy usage (e.g. NAW/WAG renewables policy).

Animal welfare: The welfare of animals, particularly wild animals such as seals, is an emotive subject, and one to which many people are devoted. Wild animals are taken in, cared for, and then – released back into their own environment. Reasons for intervention include sickness, injury and disablement. Commonly, human activities are the cause, for example oil pollution, marine litter or interactions with fisheries (fish farms, nets etc.). In addition there is the threat to UK seals of disease (the phocine distemper virus – PDV).

Issues: Physical disturbance of healthy animals; displacement and removal of species; introduction of disease to wild populations; habituation of wild animals to humans. (See also Inorganic refuse and litter.)

Management: The International Fund for Animal Welfare (IFAW) campaign internationally to reduce commercial exploitation and trade, save animals in distress, and preserve habitat for animals. The Partnership for Action Against Wildlife Crime (PAW) brings together the Police, HM Customs and Excise, and representatives of Government Departments and voluntary bodies, with an interest in wildlife law enforcement. It supports the networks of Police Wildlife Liaison Officers and Customs Wildlife and Endangered Species Officers and raises awareness of wildlife crime and the need for tough enforcement action. The RSPCA and locally the Welsh Marine Life Rescue Centre take in injured animals and respond to public reports. PCC license establishments that are classed as 'zoos'.

Future Management Options: Ensure best practice within animal welfare establishments and encourage good communication and local partnerships with nature conservation bodies through a memorandum of understanding relating to seal conservation and welfare intervention. Raise awareness of wild animal needs and practical welfare potential.

Restricted SAC management ability of Relevant Authorities: Although required by law to manage the Pembrokeshire Marine cSAC and protect the habitats and species for which it was chosen, the Relevant Authorities for the site have no additional powers for implementation of SAC management.

Issues: Lack of appropriate legislative powers could

weaken any management proposed for the cSAC and potentially result in deterioration and even loss of marine species and communities. (See also Funding).

Management: Current management falls under existing powers and duties of the Relevant and Competent Authorities for the site, which in many cases for the marine environment is missing, weak, or logistically difficult to enforce (often due to the cost as the cSAC is large and complex, and mostly out of sight).

Future Management Options: Maximise value of existing management powers by the formation of management partnerships, voluntary schemes and codes of conduct, and implementation of byelaw making powers. Seek or encourage relevant legislative change where appropriate. Raise awareness at local, regional and especially national level of the importance of adequate management legislation for the marine environment and current shortcomings. The proposed Marine Wildlife Conservation Bill (2002) did help to raise awareness, at least politically, of this problem, although no solution was reached.

Human awareness and perception: Awareness is very poor, both nationally and locally, of marine wildlife in general, the economic value of a healthy marine environment, what an SAC is and means, and personal consequences of living nearby and/or using a marine SAC.

Issues: Lack of understanding of how human activities can adversely affect marine wildlife, can result in deterioration and even loss of marine species and communities.

Management: A range of non governmental organisations (NGOs) including the Marine Conservation Society, World Wildlife Fund, The Wildlife Trusts and RSPB work to raise national awareness of marine wildlife and issues, as do many statutory bodies. Locally, the Skomer Marine Nature Reserve has an interpretation centre. The SAC website seeks to provide relevant background information, and the SAC officer works to expand liaison networks and increase awareness of the SAC.

Future Management Options: Work locally to raise awareness (using visual means such as a video) of marine life and the SAC. Raise the priority of marine issues and education with local organisations.

Funding: Although required by law to manage the Pembrokeshire Marine SAC and protect the habitats and species for which it was chosen, the Relevant Authorities for the site have generally had no additional funding support to specifically carry out this duty.

Issues: Lack of funding to implement appropriate cSAC management could result in deterioration and even loss of marine species and communities. (See also Restricted SAC management ability of Relevant Authorities.)

Management: **UK Government/NAW** (allocate funding to relevant authorities). By joining forces, the Relevant Authorities for the Pembrokeshire Marine cSAC have been able to raise enough money to match European Regional Development Fund Objective One money and fund the development of a management scheme, including an SAC officer post, until 31st March 2004.

Future Management Options: Seek long-term funding support for SACs from within Relevant Authorities and continue to raise awareness of the issue with NAW. Look for funding opportunities. Seek a long-term solution to include implementation of SAC management.

