

Northern Ireland Habitat Action Plan
Sublittoral Sands and Gravels
March 2005

1. Current Status

1.1 Physical and biological status

- 1.1.1 Sublittoral sand and gravel sediments occur in a wide variety of environments and are the most common habitats found below the level of the lowest low tide around the coast of the United Kingdom and Ireland. This plan encompasses both the inshore and offshore environments within the limit of Northern Ireland waters.
- 1.1.2 This habitat takes in a range of physical environments, from sheltered gravels to mobile sandbanks. The sediments range from mainly sand, through to gravel, including combinations of the two. The sediments may be very thick but in large areas they may form only small deposits overlying bedrock.
- 1.1.3 On exposed coasts, where well sorted medium and fine sands occur, which are subject to frequent wave action or tidal currents, the community is often typified by polychaete worms such as *Nephtys cirrosa* and isopods such as *Bathyporeia* spp. Where coarse sand occurs, it can develop into sand-wave formations which normally supports a highly impoverished infauna typified by small opportunistic capitellid and spionid polychaete worms and isopods (*Pontocrates arenarius*, *Haustorius arenarius* and *Eurydice pulchra*) which are adapted to living in a highly perturbed environment. The epifauna in these locations is characterised by mobile predators such as crabs (*Carcinus maenas* and *Liocarcinus* spp.), hermit crabs (*Pagurus bernhardus*), whelks (*Buccinum undatum*) and occasionally sand eels (*Ammodytes* spp.).
- 1.1.4 A wide range of biological communities, or biotopes, are associated with sublittoral sands and gravels. The presence of these communities is influenced by a range of factors including tidal currents, wave action, salinity, larval supply and stability of the seabed and particle size. The variation in sediment structure and extensive range of this key habitat type means that it is included in a total of 17 sublittoral biotopes as defined in the JNCC Marine Nature Conservation Review (MNCR) biotope classification scheme (version 97.06). Presented below is a summary of the main types of communities which occur within the habitat.
- 1.1.5 The conservation value of sublittoral sands and gravels can be determined by the condition of the habitat. Favourable condition is defined by setting targets or ranges for a series of different attributes. These are components or characteristics of the habitat which are relatively easy to measure, but which are reliable indicators of the health of the habitat.
- 1.1.6 Where loose, coarse sand is present and is fully exposed to wave action and swept by strong tidal streams, the habitat is normally dominated by small or highly mobile polychaetes, thick shelled and rapidly burrowing bivalves and mobile amphipods. This assemblage is comparable with the 'Shallow *Venus* community', the 'Boreal off-shore Sand Association' and the *Goniadella-Spisula* Association' described by Thorson (1957).

- 1.1.7 In contrast, where sand occurs mixed with cobbles and pebbles and is exposed to strong tidal streams, the community is often characterised by conspicuous hydroids (*Sertularia compressina* and *Hydrallmania falcata*) and bryozoans (*Flustra foliacea* and *Alycyonidium diaphanum*). These fauna increase the structural complexity of this habitat and may provide an important microhabitat for smaller fauna such as amphipods and shrimps. Examples of this community are found in Lough Foyle.
- 1.1.8 In places where sands or gravels occur in sheltered or deeper waters which are relatively stable, diverse marine habitats are found. These may support a wide range of anemones, polychaetes, bivalves, amphipods and both mobile and sessile epifauna. Clean stone gravel habitats are recorded from Strangford Narrows and Church Bay (Rathlin Island) which are characterised by the sea anemones *Halcampa chrysanthellum* and *Edwardsia timida*, associated with hydroid/bryozoan turfs and red seaweeds.
- 1.1.9 Circalittoral gravels, sands and shell gravel support high levels of diversity and are commonly split into three biotopes. These habitats are dominated by thick-shelled bivalve and echinoderms species e.g. *Pecten maximus*, *Circomphalus casina*, *Ensis arcuatus* and *Clausinella fasciata*, sessile sea cucumbers e.g. *Neopentadactyla mixta*, and sea urchins e.g. *Psammechinus miliaris* and *Spatangus purpureus*. These biotopes have been described as the 'Boreal Off-Shore Gravel Association' and the 'Deep Venus Community' (Thorson, 1957) and can be found in Shetland, the western coasts, Irish Sea and English Channel.
- 1.1.10 Extensive beds of gravel are found in a number of areas off the Northern Ireland coast. They tend to occur in places where strong tidal currents or wave action prevent the deposition of finer material. Most gravel beds are in water deeper than 10m, where boulder slopes inshore give way to gravel plains. In many cases these beds are circalittoral and animal dominated. Where they occur in the infralittoral, the communities present vary considerably depending on the composition of the gravel, the strength of the tide and the level of wave exposure (Erwin *et al.*, 1986).
- 1.1.11 During the Northern Ireland Sublittoral Survey (NISS) (Erwin *et al.*, 1986), the most interesting areas of gravel habitats were recorded from the north-east coast, north of Garron Point. The gravel beds here are generally in 15 to 20m of water and are clean, with little mud. Gravel is also present in Strangford Lough with an extensive area of coarse sand at the entrance to the Lough. Infralittoral beds of gravel are concentrated at the north end of the Narrows, in Marlfield and Ballyhenry bays and south of Dunnyneil Island. These are mostly muddy gravel with some cobble and pebble and shell debris and are dominated by the red algae *Stenogramme interrupta* (Erwin *et al.*, 1986).
- 1.1.12 A variety of sublittoral sand habitats are found in Northern Ireland ranging from clean mobile sand to fine muddy sand (Erwin *et al.*, 1986). There are two significant areas of near-shore deposits, one along the northern coast and the other along the coast of County Down. The north-coast deposit extends eastwards from Lough Foyle along the Antrim coast and includes the Magilligan Foreland beach-ridge plain, on the north-east shore of the Lough. This is a classic Holocene coastal site, formed between the period of high sea level about 7,000-6,500 years ago and the return to present sea level approximately 2,000-1,500 years ago.

- 1.1.13 One of the most important areas of sand habitat is reported to be in Outer Church Bay, Rathlin Island. This area has been recorded as being very stable and undisturbed and supports some of the most important sand communities in Northern Ireland (B. Picton, pers. comm.). However, there is concern that scallop dredging may now have affected this area.
- 1.1.14 A second area of significant sand deposits is across Dundrum Bay. From this, extensive dune systems have formed, overlying shingle ridges and separating the Inner Bay from the Outer Bay. Offshore there is some evidence that the sand is extending over the present muddy sediments (Barne *et al*, 1997).
- 1.1.15 Plains of highly mobile, soft, clean, well-sorted sand are present on the north coast. They are often thrown into megaripples in deep water, but are usually more gently rippled in shallow water. The sand is inhabited by shoals of the sand eel *Ammodytes*, and it has been suggested that it supports very little other life. The Hermit Crab *Pagurus bernhardus* and juvenile flatfish are the only other conspicuous species present. Large areas of rippled sand are found extending from the shore into deep water on the northern coast off Magilligan Strand and around the Skerries at Portrush. Much of the north Antrim coast and parts of Lough Foyle - especially the main channel where the currents are strong - also contain this habitat (Erwin *et al.*, 1997).
- 1.1.16 Clean, firm, rippled sand with Sea Potatoe *Echinocardium cordatum* is present in a number of bays around the coast and is most frequent on the north coast and in Dundrum Bay. Associated with *E. cordatum*, though not so frequently recorded, are the burrowing brittlestar *Amphiura brachiata* and the crab *Corystes cassivelaunus*. A number of bays and sea loughs also contain clean, fine sand with characteristic worm piles of *Arenicola marina*. *A. marina* is most common in shallow water above 10m and is most abundant in very shallow bays in fairly firm rippled sand (Erwin *et al.* 1986).
- 1.1.17 Sand is also present as muddy, fine sand, which can support beds of the sea pen *Virgularia mirabilis* in association with the burrowing brittle stars *Amphiura chiajei* and *Amphiura filiformis*. Muddy fine sand also supports extensive Common Mussel *Mytilus edulis* beds in Lough Foyle and Dublin Bay prawn *Nephrops novvegicus* populations in the deep water off Kilkeel and Newcastle. It should be noted that this habitat blends into a mud in deep water habitat, for which a separate habitat action plan exists.
- 1.1.18 Many of the inshore sublittoral sand and gravel habitats are likely to be important nursery grounds for juvenile commercial species such as flatfish and bass. Offshore, sand and gravel habitats can support internationally important fish and shellfish fisheries.
- 1.1.19 Within the Republic of Ireland, limited information exists on the distribution of sublittoral sands and gravels, compared to Northern Ireland. There is currently no comprehensive map of the extent of sand and gravel resources (Gerry Sutton, *pers. comm.*) however, studies are currently being undertaken by the Marine Institute to identify the extent of these resources using resource mapping techniques.

- 1.1.20 Littoral and sublittoral sites around the Republic of Ireland have been surveyed as part of the BioMar project, which identified habitats and associated communities (BioMar–LIFE, 1996). In addition, a more comprehensive sublittoral survey has been conducted, principally around the south–east of Ireland, where sublittoral biotopes have been mapped (EcoServe, 2001).
- 1.1.21 The EcoServe survey (2001) recorded infralittoral and circalittoral gravel and sand along the open coast from Dalkey to Kilcoole, in an area subject to a high level of wave exposure. Very little fauna was recorded during these surveys at sites to the east of the Muglins and Bray Harbour. However, to the east of Bray Head, surveys identified *Sertularia cupressina* and *Hydrallmania falcata*. This community was also recorded at Arklow and east of Kilmichael Point and from east of Ballynamona Hill to south of Rosslare Harbour. The surveys also recorded that infralittoral sand and gravel is present at the outskirts of Wexford Harbour where small pockets of exposed circalittoral rock and infralittoral muddy sand are present.

1.2 Links with other action plans

- 1.2.1 This sublittoral sands and gravels habitat action plan identifies targets and actions required to deliver Northern Ireland’s contribution to the UK action plan (UK Biodiversity Steering Group, 1999).
- 1.2.2 Reference should be made to other habitat action plans that concern sublittoral sediment, in particular those for maerl beds, *Sabellaria spinulosa* reefs and mud habitats in deep water.
- 1.2.3 The actions and objectives of this habitat action plan are also of relevance to the commercial marine fish , the fan shell *Atrina fragilis* and native oyster *Ostrea edulis* UK species action plans.
- 1.2.4 Sub-littoral sands and gravels beds are used by a large number of Northern Ireland priority species, including the including the sea cucumber *Leptosynapta bergensis* the burrowing anemones *Anemonactis mazeli* and *Edwardsia timida*, the sea pen *Virgularia mirabilis*, the starfish *Anseropoda placenta* and *Astropecten irregularis* and the rugose squat lobster *Munida rugosa*. The requirements of these species should be taken into account during the implementation of this plan

2 Current Factors Affecting the Habitat

- 2.1 Fisheries - sand and gravels are sometimes subject to significant fishing effort, for species such as the scallop *Pecten maximus* and queenies *Chlamys opercularis*. Fishing may cause physical disturbance to the seabed and alter trophic interactions within these habitats, by removing predators and competitors.
- 2.2 Aggregate extraction - extraction of marine aggregates can have a major localised impact on sedimentary environments. However, no licences have been granted for marine aggregate extraction in Northern Ireland, as there is generally considered to be an oversupply of both sand and gravel from onshore sources. A small number of

licences were offered for tender in 1995, but no licences were issued (Barne *et al.*, 1997).

- 2.3 Pollution - poor water quality has the potential to affect this habitat, especially in sheltered semi-enclosed waters, such as sea loughs. The extent to which this impact occurs in Northern Ireland is not known. However, it is unlikely to occur offshore, where the habitat is a long distance away from potential contamination sources.
- 2.4 Physical disturbance - sand and gravel habitats can be subject to physical disturbance from activities other than fishing, such as land claim, dredging of navigational channels and cable laying. These activities can alter tidal flow regimes and wave exposure, or result in deposition of sediments that influence the structure of sedimentary habitats.
- 2.5 Renewable energy - using both wind and marine turbines is currently being proposed at a number of marine locations around Northern Ireland. Such developments may have the potential to impact on certain marine communities.

3 Current Action

3.1 Legal Status

- 3.1.1 In 1992, the EC adopted the *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*, known as the 'Habitats Directive'. The Habitats Directive requires member states to designate and manage Special Areas of Conservation (SACs) for habitats (listed in Annex 1 of the Directive) and species (listed in Annex 2). Sites designated under the Habitats Directive in addition to sites designated under the Birds Directive together form the European wide network of sites known as Natura 2000. A small proportion of these habitats and species, which are considered to be most in need of conservation at a European level, are given priority status. Annex 1 contains 'sandbanks which are slightly covered by sea water all the time'. Two candidate Special Areas of Conservation: Rathlin Island and Murlough both include areas of this Annex 1 habitat, which is included as part of this habitat.
- 3.1.2 The *Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995* and *The Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) 2004* (The Habitat Regulations) require competent authorities, when considering a plan or project not directly connected with the management of a European site e.g. an SAC or SPA, to undertake an Article 6 assessment. This assessment will determine if the plan or project, either alone or in combination with other plans or projects, is likely to have a significant impact on the site. In the case of a negative or undetermined assessment, a competent authority may only agree to the plan or project where it is satisfied that there are no alternative solutions and that the plan or project must be carried out for imperative reasons of overriding public interest, which may be of a social or economic nature. However, if the site hosts a priority habitat or species then the plan or project may only be approved for: a) reasons of human health, public safety, beneficial consequences of primary importance to the environment, or b) other reasons which the Department (DOE),

having considered the opinion of the European Commission (EC), determines are imperative reasons of overriding public interest.

- 3.1.3 Under the terms of the Habitat Regulations, the above Article 6 assessment by the competent authority is required for plans or projects e.g. oil and gas exploration, aggregate extraction, marine construction work, land reclamation and dumping of dredged material, which are outside European sites but may still have an impact on the site.
- 3.1.4 Guidance to help competent authorities and others to interpret the Habitat Regulations has been published (EHS, 2002).
- 3.1.5 Guidance on the completion of an Article 6 assessment has also been published (European Commission, 2000)
- 3.1.6 Discharges to the sea are controlled by a number of EC Directives, including the Dangerous substances, Shellfish (Waters), Integrated Pollution Control, Urban Waste Water Treatment and Bathing Waters Directives. The Oslo and Paris Convention (OSPAR) and North Sea Conference Declarations are also important. The Environment Acts provide powers to regulate discharges to the sea and have set targets and quality standards for marine waters. An extensive set of standards covering many metals, pesticides and other toxic, persistent and bioaccumulative substances, and nutrients have been set under UK` legislation.
- 3.1.7 Government departments are responsible for the assessment of the potential impacts of oil and gas exploration and production, aggregate extraction, marine construction work, land reclamation and dumping of dredged material prior to licensing. The conditions attached to these licenses can stipulate that measures are adopted to minimise environmental impacts. Environmental concerns can be used as grounds for the refusal of a license.
- 3.1.8 The Food and Environmental Protection Act 1985 (FEPA) protects the marine ecosystem, human health and the legitimate uses of the sea by controlling deposits in the sea , including construction works, through a licensing system.
- 3.1.9 *EC Directive 2000/60/EC, Establishing a Framework for Community Action in the Field of Water Policy* or the Water Framework Directive (WFD), was transposed into Northern Ireland law by the *Water Environment (WFD) Regulations (Northern Ireland) 2003*.
- 3.1.10 The WFD aims to rationalise much of the EC's water legislation with an overall purpose of providing a framework for the protection of surface waters including coastal waters. This aims at preventing the deterioration of aquatic ecosystems with a strong emphasis on ecological quality targets.
- 3.1.11 There is a requirement under Article 6 of the WFD to create a register of all areas which have been designated as requiring special protection under specific European Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water. Northern Ireland must achieve compliance with the WFD standards and objectives relating to

these protected areas by December 2015. There is an onus on the UK government under the WFD to ensure that any changes in water quantity and quality do not adversely affect sites of international importance.

- 3.1.12 WFD will eventually supersede many other EU Directives and will form the basis for the statutory monitoring of water quality in the future. Previous EU legislation has been directed at controlling specific discharges or activities in the marine environment (eg. Urban Waste Water Directive, Bathing Water Directive), whereas the WFD aims to take a holistic view of all activities in the aquatic environment. To facilitate this approach the emphasis has been put on measuring the biological status of organisms rather than physiochemical parameters in discharges or receiving waters. In marine waters the biological status for WFD is calculated by measuring the following elements: benthic invertebrate fauna, macroalgae and angiosperms, phytoplankton and fish fauna (transitional waters only).
- 3.1.13 Ecological status is composed of the biological elements, hydromorphology and physiochemical elements, and is classified as high, good, moderate, poor or bad. The aim of WFD is to achieve at least good ecological status by 2015 and ensure that there is no downward movement between classes. Ecological status is compared to reference conditions. Reference conditions are the status of water bodies that are considered to be ‘undisturbed’. The WFD also aims to link the ecological status back to anthropogenic pressures so that management and monitoring programs can be focused. Thus, the pressures on the marine environment are also monitored. To further aid the holistic approach to management under the WFD, emphasis is put on catchment management whereby the reporting and management is undertaken in River Basin Districts (RBDs). To facilitate this approach, the implementation of WFD in Northern Ireland has been completed in communication with colleagues in the Environmental Protection Agency (EPA) and the Marine Institute in the Republic of Ireland

3.2 Management, research and guidance

- 3.2.1 EHS, as part of the requirements of the Habitats Directive, has prepared conservation objectives for those sites submitted as cSACs. Common standards monitoring protocols are also being established across the UK to assess the condition of sublittoral sands and gravels (sandbanks which are slightly covered by sea water all the time) within designated sites, however standards for assessing favourable condition of the habitat have not yet been agreed.
- 3.2.2 Seven sedimentary sites around Northern Ireland are being monitored annually as part of the National Marine Monitoring Programme (NMMP). At least one of these sites is on sandy substrate (Breen *et al.*, undated).
- 3.2.3 A broadscale habitat mapping project has also been carried out by DARD, EHS and QUB. The mapping project used acoustic techniques to identify the nature of seabed habitats with supplementary diving and grab samples out to the 50m depth contour (Mitchell & Service, 2004).
- 3.2.4 The Fisheries Act (Northern Ireland) 1966 allows the regulation of fisheries activities in Northern Ireland including fish culture, shellfish fishery and marine fishery.

Fisheries regulation is primarily aimed at developing and sustaining commercial fisheries, and some regulations have benefited to marine habitats and non-target species. Of particular benefit in this respect are regulations which limit fishing effort for scallop and the Inshore Fishing (Prohibition of Fishing and Fishing Methods) Regulation (Northern Ireland) SR1993 which imposes vessel length restrictions and no-trawl zones in Northern Ireland sea loughs where immature fish are present. More recent legislation has banned the use of mobile gear in Strangford Lough, while from 2000 onwards, much of the Irish Sea has been closed to directed whitefish fisheries for 3 months during the spring, under European legislation reviewed each year at Fisheries Council.

- 3.2.5 Management functions are also vested in the Loughs Agency which replaced the Foyle Fisheries Commission in 1999 and assumed the functions of the Foyle, Carlingford and Irish Lights Commission in relation to the Foyle and Carlingford Areas. Its functions include the conservation, protection and improvement of the fisheries of the Foyle area and to promote the development of Lough Foyle and Carlingford Lough for commercial and recreational purposes. This will include specific responsibilities for development and licensing of aquaculture in these areas.
- 3.2.6 Between March and November 2003, a review of options for a sustainable UK fishing industry in the medium to long term, was carried out by the Cabinet Office Strategy Unit and their 'Net Benefits' report was published for consultation in March 2004. This report provides 33 recommendations for the sustainable management of the UK's fishing industry. The report calls "for all the key players to come together to manage the UK's fish resources – whether their interest is in scientific and environmental matters, the catching and process industry, or in tourism and development". UK Fisheries Departments are collating a joint UK response to the report, in consultation and collaboration with key industry interests.
- 3.2.7 A broad scale habitat mapping project has been carried out by DARD on behalf of EHS. The mapping project uses acoustic techniques to identify the nature of seabed habitats with supplementary diving and grab samples out to the 50m depth contour (Mitchell & Service, 2004).
- 3.2.8 In 1990 the Inshore Marine Life of Northern Ireland (Erwin *et al.*, 1990) was published. This encompassed all the information derived from the Northern Ireland Sublittoral Survey (Erwin *et al.*, 1986) carried out by the Ulster Museum Diving team between 1980 and 1985.
- 3.2.9 Biological records of the NI marine environment are currently stored at the Museum and Galleries of Northern Ireland (MAGNI) at the Centre for Environmental Data and Recording (CEDaR). CEDaR was established in 1995 in partnership with EHS, MAGNI and the biological recording community. There are currently over 1.4 million records held by CEDaR and there are developments underway to make these records more accessible through the Internet. This will be achieved through the National Biodiversity Network, a union of organisations throughout the UK working together to create an information network of biological data to provide an accessible data source for biodiversity information.

4 Action Plan Targets

- 4.1** Maintain the extent of a representative range of sublittoral sands and gravel habitats and associated communities in Northern Ireland.
- 4.2** Maintain the condition of a representative range of sublittoral sands and gravel habitats and associated communities in Northern Ireland.

5 Proposed Action with Lead Agencies

5.1 Policy and legislation

- 5.1.1 Ensure that policy and legislation governing the use of the marine environment take appropriate account of affect on the favourable condition and conservation interest of sublittoral sands and gravel habitats.
(ACTION: Planning Service, DARD, Rivers Agency, EHS, DOE, DETI, Harbour Authorities, DCAL, DRD, Loughs Agency)
- 5.1.2 Assist fisheries ministers in pressing for greater account to be taken of marine biodiversity within the Common Fisheries Policy.
(ACTION: EHS, DARD)
- 5.1.3 By 2006/7 consider the implementation of fisheries by-laws, such as limitations on scallop dredging, to minimise the impact of molluscan fisheries on sensitive sand and gravel habitats within the six nautical mile limit of their jurisdiction.
(ACTION: DARD)
- 5.1.4 Ensure that the importance of sub-littoral sands and gravels is recognised and, where appropriate, site protection policies are included in appropriate strategies including Local Biodiversity Action Plans (LBAPs).
(ACTION: EHS, DARD, Loughs Agency, District Councils)
- 5.1.5 Continue to explore and maximise options for using statutory measures, aside from those specifically designed for nature conservation, to protect sublittoral sands and gravel habitats, where appropriate.
(ACTION: EHS, DARD, DCAL, DRD)
- 5.1.6 By 2009, ensure that sublittoral sands and gravel habitats are properly recognised within River Basin Management Plans as required by the Water Framework Directive.
(ACTION: EHS)

5.2 Site Safeguard and Management

- 5.2.1 By 2006, carry out and publish an up to date record of the extent, quality and distribution of sublittoral sands and gravels in Northern Ireland.
(ACTION: DARD, EHS)

- 5.2.2 By 2005, produce a Planning Policy Statement (PPS) on the coast to manage coastal development in a sustainable manner and protect the natural character and landscape of the coast.
(ACTION: DRD)
- 5.2.3 By 2006, identify sublittoral sands and gravels that have been damaged or degraded and likely contributing factors.
(ACTION: DARD, EHS)
- 5.2.4 By 2006, identify nationally important areas of sublittoral sands and gravels and associated communities within Northern Ireland.
(ACTION: EHS, DARD)
- 5.2.5 By 2007, where feasible, initiate remedial action to restore damaged or degraded sub-tidal sands and gravels to favourable condition.
(ACTION: EHS, DARD).
- 5.2.6 By 2006, determine the extent and quality of the sublittoral sands and gravels resource which falls within protected areas and notify further sites, if required, to fill significant gaps. In particular, ensure that there is adequate representation of the full range of variation in sub-tidal sands and gravel communities found around Northern Ireland.
(ACTION: EHS, DARD)
- 5.2.7 By 2006, implement measures to provide appropriate action to protect sublittoral sands and gravel habitats through the network of cSACs where such habitats are included within the site as an interest feature.
(ACTION: EHS, DARD)
- 5.2.8 Ensure the conservation requirements of sublittoral sands and gravels are included in the development and implementation of coastal zone management plans and that they are not managed in isolation from other habitats and communities in these areas.
(ACTION: EHS, DOE, DARD, Loughs Agency)
- 5.2.9 By 2006, define water quality objectives for coastal and estuarine waters that meet the requirements of healthy sublittoral sands and gravels communities.
(ACTION: EHS)

5.3 Advisory

- 5.3.1 By 2005, provide advice to key interests involved in the development of the marine environment, on minimising impacts of plans and operations on sublittoral sands and gravel communities.
(ACTION: EHS, DARD)
- 5.3.2 By 2005, develop specific guidance to yachting and mooring associations on best practice to avoid damage to high quality and sensitive sublittoral sands and gravel biotopes, and other Northern Ireland biodiversity interests, in deep water such as seapen beds.
(ACTION: EHS)

5.3.3 By 2005, develop guidance to sectoral managers and fishery managers concerning the importance of sublittoral sands and gravel habitats and their ecological requirements. This should form part of an integrated guidance and training programme to relevant regulators concerning the ecological requirements of Northern Ireland biodiversity interests interests.

(ACTION: EHS, DARD)

5.3.4 By 2005, provide general advice and information to planners, oil regulators, fisheries managers and policy-makers on the sensitivity, conservation importance and ecological requirements of sublittoral sands and gravel biotopes in deep water. Particular attention should be drawn to the seapen beds, in order to raise awareness and promote the protection of key sites.

(ACTION: EHS)

5.4 International

5.4.1 Further develop links with the Republic of Ireland and other European and international organisations and programmes to promote the exchange of information and experience in research, management techniques, education and conservation strategies.

(ACTION: EHS)

5.4.2 Liaise with research institutes in Europe and elsewhere to exchange data and information on the conservation of sublittoral sands and gravels.

(ACTION: EHS)

5.5 Monitoring and Research

5.5.1 By 2006, review the data on the extent of sublittoral sand and gravel habitats around the UK and Ireland to aid selection and management of representative examples in Northern Ireland.

(ACTION: EHS, DARD)

5.5.2 By 2006, identify criteria for assessing future significant changes (if any) in the level of biodiversity within sand and gravel habitats.

(ACTION: EHS)

5.5.3 By 2006 assess the ecological importance, vulnerability, function and environmental requirements of long-lived species that are sensitive to disturbance in sand and gravel habitats.

(ACTION: EHS)

5.5.4 By 2006, assess the status of sublittoral sand and gravel habitats as essential fish habitats for commercially important fish and shellfish species.

(ACTION: DARD)

5.5.5 By 2006, investigate and refine techniques for surveying and monitoring sublittoral sand and gravel habitats and biotopes.

(ACTION: EHS, DARD)

- 5.5.6 By 2006, carry-out monitoring of selected sites of this habitat to monitor the ‘biological health’ of the community. If deterioration in the ‘health’ of the community is detected, identify and implement appropriate actions to prevent further deterioration and improve the condition of the habitat, where possible.
(ACTION: EHS)
- 5.5.7 By 2006, carry out research into the factors, both natural and anthropogenic, which adversely affect sublittoral sands and gravels to understand how these may be avoided or minimised.
(ACTION: EHS, DARD)
- 5.5.8 By 2006, carry out research into the “natural” variability of sublittoral sands and gravels in space and time so that monitoring parameters/standards can be set.
(ACTION: EHS, DARD)
- 5.5.9 By 2006 carry out research into the historical variation in extent and distribution of sublittoral sands and gravels in Northern Ireland.
(ACTION: EHS, DARD)
- 5.5.10 By 2006 establish standard sublittoral sands and gravels monitoring programmes and ensure they are compatible with UK, Republic of Ireland and others.
(ACTION: EHS, DARD)
- 5.5.11 By 2006 review the network of sublittoral sand and gravel habitats monitoring stations to provide a Northern Ireland contribution to the National Marine Monitoring Plan.. .
(ACTION: DARD, EHS)
- 5.5.12 Ensure that all relevant information gathered in surveys is passed to the Centre for Environmental Data and Recording (CEDaR) based at the Ulster Museum and to other relevant centres. Encourage access to, and exchange of these records, by contributing to the National Biodiversity Network www-based catalogue of environmental information.
(ACTION: EHS)
- 5.5.13 By 2006, set in place a reporting and monitoring structure to encourage progress towards the delivery of the targets and the completion of actions identified in this plan.
(ACTION: EHS)
- 5.5.14 By 2007, following completion of 5.5.7, review the HAP and identify new actions where appropriate and prioritise existing ones.
(ACTION: EHS, DARD)
- 5.6 Communications and publicity**
- 5.6.1 By 2006, prepare guidelines on the importance of this habitat, for the purpose of 5.6.1 Promote awareness among coastal users of the conservation importance of sublittoral sands and gravel habitats and how to avoid impact on these habitats.
(ACTION: EHS)

- 5.6.2 By 2006, implement at appropriate venues such as the Ulster Museum, the Exploris Aquarium and coastal EHS Countryside Centres 'flagship' programmes for achieving education, increased public awareness and appreciation of sublittoral sands and gravel habitats in Northern Ireland.
(ACTION: EHS)

6. Costing

- 6.1 A table showing the global costs for this and other HAPs is available on the EHS/Biodiversity web page.

7 References

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List of useful Acronyms

ASSI	Area of Special Scientific Interest
BTO	British Trust for Ornithology
CAP	Common Agricultural Policy
CEDaR	Centre for Environmental Data and Recording
CMD	Country side Management Division
CMS	Country side Management Scheme
DANI	Department of Agriculture for Northern Ireland
DARD	Department of Agriculture and Rural Development
DCAL	Department of Culture, Arts and Leisure
DETI	Department of Enterprise, Trade and Industry
DOE	Department of the Environment
DRD	Department of Regional Development
EC	European Commission
EHS	Environment and Heritage Service
EN	English Nature
ESA	Environmentally Sensitive Area
GFP	Good Farming Practice
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LFA	Less Favoured Area
MAGNI	Museums and Galleries of Northern Ireland
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
MOSS	Management of Sensitive Sites
NESA	New Environmentally Sensitive Area Scheme
NIBG	Northern Ireland Biodiversity Group
NICS	Northern Ireland Countryside Survey
NNR	National Nature Reserves
NT	National Trust
NVC	National Vegetation Classification
OSPAR	Convention for the Protection of the Marine Environment of the North East Atlantic
RSPB	Royal Society for the Protection of Birds
cSAC	candidate Special Area of Conservation
SAC	Special Area of Conservation
SLNCI	Site of Local Nature Conservation Interest
SNH	Scottish Natural Heritage
SoCC	Species of Conservation Concern
SPA	Special Protection Area
UWT	Ulster Wildlife Trust
WFD	Water Framework Directive
WWT	Wildfowl and Wetlands Trust