

## ■ Planning Powers

In the short term, local planning authorities have what is arguably a crucial role to play in enabling the option of retreat for nature conservation benefit to be accepted and implemented into the future. Managed retreat, in some cases, might require planning permission. S.55(1) of the Town and County Planning Act 1990 states that "development" means the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any material change of use. Further, under S.57(1), planning permission is required for the carrying out of any development on land.

The following are examples of managed retreat options which may involve operations constituting development, and may therefore require planning permission:-

- The deposition of dredged material to vary the elevation of the land (see also Section 3.4.7).
- The excavation of lagoons and wetland areas, which may also involve construction of weirs and sluices.
- The construction of retaining walls.
- The use of bulldozers, etc. to alter the land elevation in the case of saltmarsh regeneration for example.

Under the General Development Order 1988, certain operations undertaken by water authorities (the NRA) are exempt from planning permission. Part 15 Class A(H) stipulates that any [other] development in, on over or under **their operational land** is permitted development. If, however, the operations involved erection of plant or machinery exceeding 15 metres in height, the development would require planning permission. Finally, if the operation constitutes land drainage works, planning permission would be exempt. Part 15 Class A stipulates that "development in connection with the improvement or maintenance or repair of land drainage works" is permitted development.

The possibility of **refusing** planning permission for private flood defence works has been considered in Section 5.2.6, but potentially more importance is the issue of granting planning permission for "flood plain" or "cliff top" development. At the present time, the retreat option could, in theory, be implemented relatively easily because many areas of the English and Welsh coast remain comparatively undeveloped. If, however, proposed new developments in low-lying coastal areas are granted planning permission, not only might there be a direct impact on sensitive coastal habitats, but future potential sites for retreat will be lost because flood defences are then more likely to be improved than abandoned. Similarly, if cliff top developments are granted planning permission and increased rates of sea level rise lead to exacerbated erosion of cliffs, a source of sediment for existing and new coastal habitats might be lost if coast protection works are subsequently undertaken to protect that development. Although individually many of these developments might be considered insignificant, the collective impact of incremental decision making is potentially severe.

## ■ Coastal Zone Management

The various powers discussed above mean that LPAs are ideally placed to play an important and positive role in developing a long-term strategic approach to coastal planning. In Section 2.3, the interdependence of the various coastal ecosystems was discussed, along with the likely impacts of sea level rise on the coastal resource. The setting up of groups such as SCOPAC (Standing Conference on Problems Associated with the Coastline) and ACAG (Anglian Coastal Authorities Group) demonstrate the high level of awareness of coastal issues among the Maritime District Councils and others. Other initiatives, such as the development of an Estuary Management Plan for the Exe Estuary being undertaken by Devon County Council, support this view, and it appears that LPAs could therefore play a leading role in developing and promoting Coastal Zone Management (CZM) at a strategic or even national level. Given the relevance of the various LPA responsibilities to the retreat issue, an important component of such an initiative would be the designation of sites, identified using the criteria discussed in Section 4.1, as offering significant future opportunities for habitat creation or restoration.

## ■ Planning Gain

Opportunities exist for incorporating nature conservation objectives into new development proposals through planning agreements under S.106 of the Town and County Planning Act (TCPA) 1990. Such agreements are often used by local planning authorities when certain objectives cannot be effectively organised through planning conditions - for example the safeguard of valued habitats, amelioration for damage caused, and habitat creation.

Government circular 22/83, Planning Gain, makes it clear that agreements should cover only matters which relate directly to the development. However, "planning gain" often arises where something is demanded by the local authority which is **not** directly related to the development. A few examples do exist where the old S.52 TCPA (HMSO, 1971) agreements were used for nature conservation purposes, notably at Watermead, Aylesbury, where a waterside village of 800 houses bordered a newly created lake. Facilities here include a small wildlife reserve, interpretation centre and a wildlife hospital.

Whereas it is generally accepted that conventional planning gain should be on site, opportunities do exist for "trade-offs" whereby degradation to one site could be ameliorated by funding habitat creation, and/or other conservation objectives elsewhere in the country. The MCA developers proposing a theme park on Rainham Marshes, Essex, for example, have offered a package to establish a nature reserve within the SSSI, to provide money for its management in perpetuity; and also to purchase grazing marsh to be run as a nature reserve (Dane et al., 1991). This offer is commonly referred to as planning gain. Similarly, the developers of the Cardiff Bay Barrage have proposed the creation of an area of mudflats to compensate for a much larger area which will be destroyed if the development goes ahead.

The question must be asked about whether these examples really offer any gain or whether they merely reduce a loss. Care must be taken when applying the term "planning gain" to conservation issues that there is, in fact, a net gain (i.e. the proposals do not simply represent an attempt at mitigating anticipated damage). There is nevertheless a pressing need to discover ways of combining conservation and development at the local level in an attempt to build in conservation principles from the start, and any formal requirement for environmental planning gain or mitigation in Great Britain must be very carefully controlled. The mitigation issue is discussed further in Sections 5.5 and 5.6.

#### ■ Land Acquisition

Under S.226 of the Town and County Planning Act 1990, a LPA, on being authorised to do so by the Secretary of State, has the power to acquire compulsorily any land in their area which is suitable for and required in order to secure the carrying out of development, redevelopment or improvement. It is immaterial who undertakes the activity and in particular the LPA need not propose to undertake the activity or achieve the purpose themselves. S.227 of the Act also provides that a LPA may acquire by agreement any land which they require for any purpose under S.226.

#### 5.3.6 Crown Estate Commissioners

The Crown Estate is a landed estate which includes more than 250,000 acres of agricultural land in England, Scotland and Wales together with substantial urban estates. Of particular relevance to this study, however, is the fact that the Crown owns over 50% of the UK foreshore (including Northern Ireland) and nearly all the seabed out to the 12 mile limit (around 20km).

The Crown Estate Commissioners (CEC) are a statutory body charged with the management of the Crown Estate. Their duties are to maintain and enhance the estate's value and the return obtained from it, with due regard to the requirements of good management. A major part of the estate's marine activities are involved with the extraction of marine sand and gravel for which the Commissioners issue licences and collect revenues. In 1989 the "Government View Procedure" for determining applications to extract marine aggregates was revised by the Department of Environment, Welsh Office and Crown Estate. The procedure now incorporates, in principle, the requirements of the EC Directive on Environmental Assessment. The Commissioners collate the available information for presentation to the Department of Environment, who in turn refer to these procedures to determine a positive or negative Government view for the activity in relation to the coastline, sea fisheries and the marine environment.

The Commissioner's commitment to environmental protection is further demonstrated by the leasing of around 340 miles of foreshore (550km, 20% of the total length) to conservation bodies at minimal rent. CEC's foreshore management programme also extends to ensuring the public's rights and, in recent years, to the management of fish farming.

The role of the Crown Estate Commissioners under a retreat scenario will be important primarily because, as indicated above, the Crown owns all land between Mean High Water (MHW) and Mean Low Water (MLW) subject to admitted claims only. In cases where, as a result of erosion, subsidence or sea level rise for example, additional areas gradually and almost imperceptibly become "intertidal", these areas will automatically be taken over by the Crown. If, however, the "movement" in MHW and MLW (e.g. an increased or new area is inundated during part or all of the tidal cycle) is achieved deliberately through the actions of the NRA, District Council or other body, the situation in respect of ownership is, as yet, untested in law.

There is a provision in the Crown Estate Act (1961) for the Commissioners to issue consent for environmentally beneficial uses of the foreshore. Similarly, the Countryside Act 1968 allows an interest in Crown land, other than one held by or on behalf of the Crown, to be acquired compulsorily (S.47(2)) if the Crown Estate Commissioners consent. Their interests cannot be compulsorily acquired.

These factors demonstrate that close consultation will be required with CEC, on a site-specific basis, when managed retreat is being considered in areas outside the statutory control of bodies such as Harbour Authorities (e.g. areas on the open coast).

#### 5.4 Role of Voluntary Agencies

5.4.1 As well as the statutory authorities discussed in Sections 5.2 and 5.3, many other agencies have an active interest in the coastal zone. Most are registered charities which depend on membership subscriptions for income. Groups such as the Royal Society for the Protection of Birds and the National Trust have nearly three quarters of a million and over 1.7 million members respectively (Pearce et al, 1989). Other groups such as the Wildfowl and Wetlands Trust and the British Association for Shooting and Conservation, however, cater for more specialist interests. The main activities of these agencies which are of direct relevance to this study are summarised below, along with information relating to opportunities for funding retreat as an option and, if the information is available, the agency's land acquisition policy. Table 5.3.1 meanwhile summarised the level and type of support for the managed retreat option from the voluntary bodies alongside the same information for the statutory agencies.

#### 5.4.2 **Royal Society for the Protection of Birds (RSPB)**

The RSPB, Europe's largest voluntary wildlife conservation body, is supported by a subscribing membership of approximately 700,000. It is a charity which takes action to protect wild birds, together with their environment.

Within this broad remit, the RSPB's main aim is to maintain the richness of Britain's heritage of wild birds, including bird numbers, diversity and geographical distribution, and to increase this richness where desirable. The RSPB consider that conserving habitats is the most important means of protecting wild birds. They achieve this by both acquiring and managing land as nature reserves, and by influencing what happens to the rest of the countryside (RSPB, 1990b). The RSPB currently owns or manages 118 reserves.

The RSPB has a substantial income derived from membership fees, reserve admission fees, campaign fund raising, income from farm licences on certain reserves and from government grant-aid.

#### ■ Land Acquisition/Funding Abilities

The RSPB criteria for choosing potential reserves include (not in any order of priority):-

- i. Number of species present.
- ii. Species abundance or rarity.
- iii. Presence of nationally or internationally important populations of breeding or wintering birds.
- iv. Status of bird protection elsewhere in its range.

Within this framework, the RSPB currently aims to establish wildlife refuges on the 50 estuaries with highest bird populations, acquiring land as necessary to achieve this objective.

The RSPB has been at the forefront of highlighting habitat loss and the consequent damage to birdlife in the coastal zone. It is therefore keen to support managed retreat as a means of reinstating lost habitat. The reserve programme of the RSPB does not currently include specific plans for purchasing or managing new sites in low lying coastal areas. Given their commitment to managed retreat, however, combined with their long term aim to establish estuarine wildlife refuges, the RSPB is likely to actively participate in retreat projects in the near future.

#### 5.4.3 The National Trust (NT)

The National Trust is a charitable organisation whose income is derived from the subscriptions of over 1.7 million members, admission fees, donations, legacies, endowments, and also rents from its properties (National Trust, 1988).

Founded in 1895, the National Trust is the largest conservation (as opposed to wildlife conservation) society and private landowner in Britain (Gubbay, 1988). Its aims are to protect landscape and cultural heritage through the acquisition and management of property. It does not generally lease properties (except in a few instances from the Crown Estate Commissioners and Duchy of Cornwall), nor manage the property of other organisations or individuals. Rather the Trust seeks to buy property outright, to enable it to take full advantage of its powers to declare its land and buildings inalienable under the National Trust Act (1907).

The Trust has a substantial agricultural holding, controlling over 1100 farm tenancies. Approximately half of the Trust's land is let in this way. As landlord, the Trust has certain controls on farming practices, and is therefore in a position to promote environmentally sensitive land management. As leases come up for renewal, conservation clauses can be inserted to promote those practices which enhance landscape or wildlife interest. Currently, such leases account for only a small proportion of the National Trust's farm holdings, but the retreat option could be appropriate as a new type of conservation clause providing a means for the Trust to improve the "conservation portfolio" of its low-lying coastal agricultural properties.

#### ■ Land Acquisition/Funding Abilities

The National Trust obtains land through bequests, covenants, and purchase. As a result, acquisition opportunities are, to a large extent, responded to on an ad hoc basis. This makes prioritisation of acquisition difficult, and therefore each property has to be considered on its own merits.

The Trust has, however, formulated a broad 'statement of principles' to govern property acquisitions (National Trust, 1985):

- i. The property must be of national importance because it is outstanding for its natural beauty or historic interest.
- ii. There must be adequate benefit to the nation, including public access subject to constraints which may be necessary for the conservation or management of the property.
- iii. Property will not normally be acquired for preservation unless the Trust is the most appropriate owner and, without the Trust's protection, it would be in danger of deterioration, demolition, alteration or development in a way which would be harmful to its character or environment.
- iv. In certain instances, land of a slightly lower standard may be accepted if it adjoins or is near existing Trust land and its preservation would contribute to the preservation of the existing property.
- v. In highly developed areas where there is little unspoilt countryside a property may be accepted which, although it is of a high standard, may be of slightly lower merit than would normally justify preservation by the Trust.
- vi. Unspoilt coastal property which falls within the description in (i) above will continue to be acquired under Enterprise Neptune.
- vii. Property acquired by the Trust should be and should be expected to remain, financially self-supporting.

- viii. The Trust should continue to be highly selective when acquiring further properties. It should include in its financial and staffing forecasts adequate and realistic provision for new properties within the resources expected to be available.

The only attempt by the National Trust to target acquisition more specifically has been through the Enterprise Neptune campaign (guideline (vi)). This appeal was launched in 1965 to raise funds for the purchase of attractive unspoilt coastal areas, after growing concern about the despoliation of the coast by development (Gubbay, 1988). As a result, by September 1990, 839 km of coast had been purchased under Enterprise Neptune, protecting 45,973 ha of coastal land.

The emphasis of Enterprise Neptune and the principles governing the acquisition of other new properties both highlight the National Trust's main objective - the acquisition of land of national importance because of its natural beauty. The extent to which low lying agricultural areas meet this standard is relatively limited according to the Trust and, in consequence, they do not expect to play a major role in land acquisition relating to the managed retreat opportunities. Any exceptions to this general rule are likely to fall under guidelines (iv) and (v).

A review of the conservation management of the National Trust's existing coastal properties suggests a preference for non-interventionist approaches. This would tend to be in conflict with sites where engineering works might be necessary to implement some of the retreat options discussed in this report. It would, however, be entirely in line with requirements at those sites where feasibility studies indicate that the habitat which will develop without engineering works following bank failure would be of significant nature conservation value. In these cases, the only management requirements are likely to be site surveys, monitoring, and possibly the control of access, etc.

#### 5.4.4 Wildfowl and Wetlands Trust (WWT)

The WWT is a charitable organisation with a membership of nearly 34,000 (WWT, 1990). Its income is comprised of subscriptions, legacies, grants (from local authorities, tourist boards, the NCC, etc.), visitor fees, donations, and trading, supplemented by income from its consultancy arm, the Wetlands Advisory Service. The WWT is the only major voluntary conservation body to receive a substantial proportion of its income from visitor fees.

The objectives of the Wildfowl and Wetlands Trust are conservation, research, education and recreation as set out below. The main aims of its reserve management programme are the enhancement of habitats for wildfowl and the provision of education/interpretation facilities.

**Conservation** : The conservation of the world's wildfowl and wetlands, by providing reserves, managing habitats, studying needs, breeding in captivity, promoting protective measures, and enlightening people.

<b>Research</b>	:	The scientific study of ducks, geese and swans and of the wetlands which form their home, and making use of the results of such studies.
<b>Education</b>	:	The sharing of knowledge, understanding and appreciation of wildfowl, wetlands and nature conservation in general, both with visitors to WWT Centres and with the whole community.
<b>Recreation</b>	:	The provision of uplifting recreational opportunities, by bringing together in their wetland habitat wildfowl and people, young and old, fit and disabled.

In respect of the retreat option, the Trust is in a position to contribute to capital expenditure on land adjacent to its existing reserves, providing enhancement is of conservation benefit and does not upset the balance of on-site/off-site ornithological interest. A project of this kind is currently under consideration adjacent to the Trust's Slimbridge reserve, involving local land-owners, the WWT, and NRA Severn-Trent Region (see Table A3.5.3, Appendix A).

■ **Funding Abilities**

Where conservation benefit could be achieved away from WWT's present reserves, the Trust would consider entering into long-term management agreements with land owners, covering the costs of habitat enhancement works. This undertaking would only be made, however, if expenditure could be recouped by the Trust through visitor fees to that site. The Trust has extensive experience in market research for its reserves, assessing potential visitor numbers, incomes, etc, and would be in a strong position to assess whether such returns were feasible.

■ **Land Acquisition**

The Wildfowl and Wetlands Trust (WWT) acquires sites either of major importance for wildfowl, or habitats of less importance but with above average access for the public. It currently owns or leases a total of nine reserves in the UK, with advanced plans for a tenth site at Barn Elms in London. Involvement with one further London site at Rainham Marshes, Essex, awaits the outcome of negotiations with the local authority and developers (WWT, 1991). The only other site being actively considered is in the Central Belt of lowland Scotland.

The WWT does not currently propose to establish any further sites, but rather it aims to consolidate its present reserves network (WWT, 1988). Given this reserve acquisition policy, the scope for management agreements away from existing reserves is restricted. An important contribution which the WWT is nevertheless able to make to the concept of managed retreat is its experience in wetland habitat creation for wildfowl, the establishment of visitor facilities, and visitor supply/demand analysis.

#### 5.4.5 Worldwide Fund for Nature (WWF)

WWF UK is a charity established to raise funds for nature conservation purposes. It is involved with both habitat and issue campaigns, such as rainforest protection and transport policy respectively. It also has a major conservation education programme. The main role of WWF, however, is raising and distributing funds for projects of nature conservation benefit.

WWF's policies and their criteria for grant aiding projects are laid out in the Funding Information Pack for Voluntary Conservation Organisations (WWF, 1990). Twelve broad "themes" for grant-aid have been highlighted by WWF following consultation with other conservation organisations (see Appendix A5.4.1). The allocation of WWF funding is primarily restricted to projects which fall within one or more of these themes. The Site Safeguard theme is clearly relevant to the retreat option because of its reference to habitat creation.

##### ■ Land Acquisition/Funding Abilities

The WWF has, on many occasions, provided voluntary conservation bodies with grant aid to assist in land purchase. These grants are generally made to conservation organisations, but WWF policy does not prohibit the granting of awards to individuals, local authorities or others.

WWF entertain applications for purchase of both SSSI and non-SSSI land. Each application is assessed against a set of ecological and practical criteria including: habitat type, degree of threat, management requirements, the capabilities of the purchasing organisation to manage the land in the long term, and the site's educational potential.

Recently, WWF funding emphasis has shifted away from contributions for land purchase costs, towards providing resources for management. The retreat option would, in principle however, be eligible for WWF funding either through grant-aid for land acquisition or for management costs.

#### 5.4.6 Royal Society for Nature Conservation (RSNC)

RSNC is an umbrella organisation which oversees a network of 48 County Naturalist Trusts and Urban Wildlife Groups. Together, the Trusts and the RSNC form the largest voluntary organisation concerned with all aspects of wildlife conservation in the UK. RSNC has a total membership of more than 215,000, and owns or manages 1,814 reserves, 116 of which include coastal frontages (Gubbay 1988).

The RSNC has no central policy to guide land acquisition by the County Naturalist Trusts. Instead, local needs are responded to at the County Trust level.

#### 5.4.7 **British Association for Shooting and Conservation (BASC)**

The BASC is the national coordinating body for sporting shooting, including wildfowling. The Association seeks to promote a practical interest in the countryside among the shooting fraternity, and promotes wildlife management and conservation (Environment Council, 1990). It also supports and promotes the interests of local wildfowling groups and, in this respect, has shown an interest in the retreat option. BASC point out that demand for shooting amenities currently exceeds supply.

Shooting is promoted by BASC as a potential source of income for farmers. It clearly provides a possible means of farm diversification which would enable the landowner to retain control over his/her land by leasing it to wildfowling clubs. As well as these leasing options, land is also purchased by wildfowling groups using privately raised funds. Either of these policies could prove to be of direct relevance to the type of retreat option discussed in this report. On a site specific basis, however, care would have to be taken to ensure that BASC objectives were broadly in line with nature conservation aims in respect of habitat creation.

#### 5.4.8 **British Trust for Conservation Volunteers**

The British Trust for Conservation Volunteers (BTCV) is the leading organisation for carrying out practical conservation work in England and Wales. Each year the BTCV leads, trains or equips an estimated 50,000 volunteers to carry out conservation and amenity work on over 15,000 sites in urban and countryside settings.

The great majority of work is done by local groups of conservation volunteers, active in most towns and cities around the country. Over 600 local groups are affiliated to the BTCV, which acts as a central body to promote conservation volunteering at a national level.

The work carried out by the volunteers is necessarily restricted to manual tasks but, as a labour force, the conservation volunteers have substantial experience in habitat creation and restoration, including skills such as sand dune restoration and wetland creation which are of particular relevance to this study.

In return for their labour, the local groups make a charge to the land owner or contractee in the normal way. Rates are, however, significantly lower than for a more typical labour force and the BTCV role may therefore be important in assisting the voluntary agencies (and others) in implementing managed retreat at minimum cost.

#### 5.4.9 **Marine Conservation Society (MCS)**

The MCS, with a membership of over 4000 (Pearce et al, 1989), is involved with promoting the conservation of the coastal and marine environment in the UK. As an organisation it is not directly involved with reserve acquisition or management but it is, however, extremely active in researching means of implementing and enhancing coastal management. MCS would be likely to support the retreat option if conservation benefits could be demonstrated. They would, however, like to see retreat implemented within a coordinated framework of Coastal Zone Management.

#### 5.4.10 Council for the Protection of Rural England (CPRE)

CPRE seeks to enhance the beauty and variety of the countryside by influencing decision-makers in the EEC, Parliament, Government and local authorities. Its aims (CPRE, 1989) are to:-

- i. promote and encourage the improvement and protection of the English countryside and its towns and villages.
- ii. stimulate public awareness and enjoyment of the countryside.
- iii. act as a centre of advice and information on matters affecting the planning, improvement, and protection of the countryside.
- iv. undertake and commission research to enable a better understanding of the issues affecting the countryside.

In more specific terms, at the water's edge CPRE aims to "promote the wise management and use of water resources and adjacent land so that their beauty, character, wildlife and cleanliness are improved rather than damaged".

This policy in particular supports the type of habitat creation and restoration initiative which might result from the retreat option under a scenario of sea level rise. The CPRE do not, as yet, have defined policies on these aspects of climate change but are currently researching its potential impacts on the wider countryside.

#### 5.4.11 Council for the Protection of Rural Wales (CPRW)

In the context of climate change and sea level rise, the views of CPRW generally parallel those of CPRE. CPRW have indicated their full support for the principles of the managed retreat option as discussed in this report.

### 5.5 The United States Experience

#### 5.5.1 Coastal Habitat Loss

In the United States, coastal habitat loss and, in particular, the protection of wetlands are high profile issues. In Louisiana, saline intrusion into brackish estuaries, as land subsides and sea levels rise, is killing marsh grasses and converting more than 9,000 ha (35 square miles) of marsh into open water every year. As the marsh is lost, the natural buffering function which provides protection against storms and hurricanes is also lost. Improved flood protection structures mean that the natural ability of marsh to offset sea level rise by accretion as flood waters deposit layers of silt throughout the delta area has been very much impaired. Louisiana's mainland coastal marshes together with those of the barrier islands comprise 40% of the total US coastal marsh resource. At less than 1m above sea level, the area is potentially very vulnerable to any increase in the rate of sea level rise.

In California over 90% of the State's wetlands have been lost through fill and development. Of the existing area of wetlands, around half have been artificially created. Within the San Francisco Bay area dozens of habitat creation and restoration initiatives have been undertaken, mainly in the past 10-15 years. The San Francisco Bay Conservation and Development Commission (BCDC), who run a Federally approved State programme, have progressively tightened restrictions on permissible wetland loss and the number of permitted restoration (mitigation) projects is beginning to drop. A simple lack of land available for creation provides part of the explanation but, in California as in many other parts of the United States, George Bush's much publicised "no net loss of wetlands" statement is no longer proving adequate. Agencies such as BCDC are pushing for "no loss".

The loss of coastal wetlands is of particular concern in the States partly because of the critical role these sites play in the life cycle of a high proportion of the country's commercial fish species. The other potential functions and services provided by coastal wetlands (see Table 4.3.1) are similarly recognised and are also highly valued.

### 5.5.2 United States Coastal Conservation Policy

In order to try to redress the balance in terms of coastal habitat loss, many States have introduced policies designed to protect and restore the coast's natural resources. Thirty States have coastlines on the Atlantic or Pacific Oceans, the Gulf of Mexico or the Great Lakes. A National Research Council (NRC) Panel recently noted, however, that only one third of these States has a programme in place which includes what they consider to be a key requirement of sound coastal management: the establishment of erosion setback lines for new construction (NRC, 1990).

A prohibition on new development within a zone likely to be affected by erosion (E) within a defined period (e.g. E10, E30 or E60 years) is just one of a number of policies recently adopted within the US with the objectives of protecting beaches and allowing coastal ecosystems to migrate inland. The US National Parks Service have adopted a "no stabilisation" policy, becoming the first Federal agency to accept land loss. The State of Maine has implemented what is arguably the most far reaching policy on coastal retreat, adopting "presumed mobility" criteria on all post-1987 development in wetland areas. This approach allows development only on the condition that the property will not be protected from rising water levels, and property owners are also made aware that any future construction of sea defence is prohibited.

North Carolina has, among other measures, adopted a comprehensive setback policy, but difficulties are being encountered in establishing rates of erosion and hence the boundary of the E30 and E60 line. One of South Carolina's coastal policies is that no coastal structures should be replaced if they suffer storm damage in excess of a certain percentage of their value. Although no new sea walls were built after Hurricane Hugo, the policy of not replacing damaged structures proved more difficult to implement and more than a hundred badly damaged buildings were rebuilt in the wake of the hurricane. The Carolinas, together with New Jersey, are also among the States which have followed, or are now considering following, Maine's lead in prohibiting the building of new hard defence structures.

Maine's political strength in enforcing the "no new defences" policy is improved by the fact that more than 90% of beach front property owners live out-of-state. Other States, however, are experiencing different difficulties. These difficulties are caused partly by the uncertainty over whether or not prohibiting the construction of defences or otherwise evicting people from their property when resources are theoretically available is, in fact, constitutional (Titus, 1991). The fifth amendment of the US Constitution provides that no-one will be "deprived of life, liberty or property without due process of law nor should private property be taken for public use without just compensation". On the other hand, the intertidal zone in the United States is publicly owned. It could be counter-argued, therefore, that a landowner has no inherent right to construct defences at the expense of the environment. The potential British parallels to this discussion were explored in Sections 5.2.6 (the right-to-build issue) and 5.1.3 (compensation options). In the meantime, one way of diffusing the situation in the States appears to be the use of the presumed mobility policy discussed above. Under this policy the property owner would be given "reasonable" notice, say thirty or fifty years, that defences will be removed and/or no new defences will be built.

### 5.5.3

#### Mitigation

In addition to the coastal policies discussed in Section 5.5.2, a number of Federal and State laws have been introduced over the last 20 to 30 years specifically to protect the remaining American stock of wetlands. The "swampbuster" provision of the 1986 Food Security Act effectively halted the reclamation of wetlands for agricultural purposes. The 1972 Clean Water Act which discourages the dredging or filling of wetlands has, however, provided one of the most notable controls on development in these valuable habitats. S.404 of the Clean Water Act makes provision for a thorough review of proposals which are likely to have a significant detrimental impact on wetlands. S.404 requires that steps are first taken to see if the proposed project can be relocated, or if damage can be minimised to an acceptable level. If this fails, but it is thought that a habitat creation initiative would represent an acceptable alternative, compensation in the form of mitigation may be required to take one of the following forms:-

- In-kind (i.e. similar habitat to that being lost), on-site.
- In-kind, off-site (i.e. elsewhere).
- Out-of-kind (i.e. alternative habitat), on-site.
- Out-of-kind, off-site.

A fifth option has also emerged more recently - conservation banking. In California for example, a Trust Fund has been set up to ensure that, when no suitable site for immediate compensatory habitat creation can be found either on or off-site, the developer banks a sum of money to pay for future works at an appropriate site.

Mitigation, at least in California, does not simply involve wetland creation on a hectare for hectare basis. If the environmental damage associated with a proposed development cannot be reduced to an acceptable level, the objective of agencies such as BCDC is to ensure that maximum ecological value is gained from any new habitat creation works. In the San Francisco Bay area, for example, many past mitigation projects have extended over a much larger area, or created a rather more valuable habitat, than that which was under threat. In Sacramento, one mitigation option currently under consideration would involve the restoration/enhancement of more than 26,000 ha (65,000 acres) at just one site.

#### 5.5.4 The Mitigation Option in the British Context

At the present time there is no parallel requirement for mitigation in Great Britain. If a site is designated a Site of Special Scientific Interest (SSSI), it is afforded some degree of protection under the terms of the 1981 Wildlife and Countryside Act. Even so, the last few decades have seen extensive development in and around SSSIs because NCC's powers are in fact relatively limited. Heritage Coasts and Areas of Outstanding Natural Beauty (AONB) are protected to some extent by the planning system. Elsewhere on the coast, however, the development of ports and harbours, marinas and other recreational facilities, residential and commercial complexes, and flood defence and coast protection structures has led to the unmitigated loss of features of significant nature conservation or landscape interest.

Notwithstanding this, recent years have also seen an increasing move towards environmental protection. S.8 of the 1989 Water Act, for example, places on the National Rivers Authority various duties in respect of conservation and environmental enhancement (see Section 5.2). Some marinas and other coastal developments have been subjected to Environmental Assessment in line with the requirements of the various Statutory Instruments which implemented EC Directive 85/337. Significant developments within the port and harbour industry have also led to habitat conservation and preservation initiatives which were virtually unprecedented just two years ago.

Much British environmental "protection", however, relies on a largely voluntary approach to conservation and the protection achieved by the initiatives discussed above must be set against the significant losses of natural habitat discussed in Section 2.3. In an ideal world, legislation such as a requirement for Environmental Assessment would lead to the uncompromised protection of all sites of environmental interest. The reality of the situation, in the short-term at least, is that there will continue to be developments, many of which will be deemed to be "in the national interest", which destroy valuable wildlife habitats. **A mandatory requirement to minimise the environmental damage caused by these developments and, if this cannot be achieved, the introduction of a requirement for mitigation measures might provide an opportunity for developers in the private sector to meet the capital costs of the type of habitat creation initiatives discussed in this report.** As stated earlier, however care should be taken to ensure that this is not regarded as planning gain; rather that it is seen as an opportunity to try to compensate for losses which sometimes appear inevitable.

5.5.6 There is also a rather more fundamental problem associated with the concept of habitat creation as mitigation: the risk factor. So far in this report, habitat creation has been discussed as representing a potential opportunity - a chance to create or manage a resource in order to optimise its "value". Once the concept of mitigation is introduced, there is a danger that a net gain might in fact be changed into a net loss because, as discussed throughout the report, habitat creation and restoration is not a precise science. The risks of a perceived failure at least in the short term, can be quite high and some scientists are now arguing that it is not possible to recreate all the characteristics of a natural wetland habitat (see Section 3.5.2). **It is therefore essential that a "no loss" policy is still pursued to try to protect Britain's most valuable habitats, and that habitat creation/restoration "experiments" are carried out, in the first instance, on sites with little or no existing nature conservation interest.**

## 5.6 New Funding for Coastal Habitat Creation Initiatives

5.6.1 One alternative to redirecting existing monies to meet the capital and/or management costs of habitat creation or restoration projects would be to set up a new budget from which the promoting agencies could draw. This concept is already being put into practice in both the United States and Canada, where the respective Federal Governments are providing funding for habitat creation initiatives. In Canada, one example is provided by the St. Lawrence Seaway Project administered by Environment Canada. Here, \$5.1 million (Canadian dollars; 1990 prices) out of a total five year budget of \$110 million has been earmarked for wetland creation and restoration schemes (Environment Canada, personal communication, 1990). In the United States, the U.S. Fish and Wildlife Service is spending money to acquire land and create or restore habitats: several such projects are currently underway in the northern parts of San Francisco Bay (San Francisco Bay Conservation and Development Commission, personal communication, 1990). In neither of these cases is there any formal requirement for cost benefit analysis (CBA), either to justify the existence of the budget or expenditure from the budget. The initial allocation of funds has been based on a national recognition (public and political) that wetland habitats are important. Within the budget, expenditure priorities are then determined as a result of environmental appraisals and economic cost-effectiveness analysis (e.g. minimising the cost of achieving a given environmental objective; see Section 4.1).

5.6.2 An example of an equivalent budget provision in Great Britain is that associated with the Environmentally Sensitive Areas scheme administered by the Ministry of Agriculture, Fisheries and Food (MAFF). Under this voluntary scheme, farmers can claim a fixed incentive payment if they agree to follow a strict set of management guidelines. These guidelines, which vary between ESAs, are designed to conserve and enhance the area's wildlife and landscape interest which has developed over many decades as a direct result of traditional farming practices, and which now depend on such practices.

The ESA concept was prompted by public debate about the compatibility of modern farming techniques with the protection of the countryside, and the need to integrate agricultural and environmental policies (HMSO, 1989a). The European Community accepted the initiative promoted by MAFF in March 1985 and the first six English and Welsh ESAs were designated under the terms of the Agriculture Act 1986. In January 1988, a second round of ESAs were designated in England and Wales, and since then further areas have been designated in Scotland and Northern Ireland. The 1990/91 budget for ESAs from Central Government is set at about £12 million per annum, with the EC providing an element of funding.

### 5.6.3

**This study recommends that the viability of setting up a similar budget to fund coastal habitat creation/restoration initiatives is further investigated.** Such an initiative might require EC approval to ensure that British farmers/landowners will not have an unfair advantage over their European counterparts. An estimate of the total amount of funding likely to be involved will be required, and the logistics of implementing and administering such an initiative must be examined.

The annual cost of a "coastal habitats" policy would depend to a limited extent on whether funding would be available only to meet scheme capital costs or whether ongoing maintenance, site management or management agreement costs would be included. Existing reserve management costs incurred by organisations such as the RSPB could be used to assess possible future management/maintenance costs but, if the objectives of sustainability set out in Section 3.1.4 are achieved, the costs of managing such sites should be relatively small. Similarly, when the number of landowners and land acreages likely to be involved in such an initiative, in the short term at least (see Tables 1.3.1 and 1.3.2 for example), is compared to the 5,200 farmers and 261,000 ha of land currently entered into the ESAs, it is likely that management agreement element will represent a fairly small proportion of any budget. Finally, it is anticipated that the administrative burden of such a scheme would also be minimal.

The bulk of any budget would, therefore, be required to meet the costs of land purchase, engineering works and/or biological inputs. Experience in the United States has demonstrated that the cost of creating a tidal marsh, for example, can range from £3,000 to £45,000 per hectare (1990 prices). British experience is rather limited, and documented costs even scarcer (see Table A3.5.2, Appendix A), but total scheme costs might be expected to range from a few hundred pounds to several hundred thousand pounds. Given the likely limited availability of land for such initiatives in the short term, total budget requirements can therefore be guesstimated to be in the order of £1 million to £2½ million per annum. Further work would, of course, be required to establish a more accurate budget requirement.

#### 5.6.4

#### **Implementation**

The question of who might administer such a budget hinges to a large extent on the decision-making process which will be used to ascertain the viability and desirability of any particular proposal or application for funding. It appears at this stage that three criteria will be of particular importance:-

- Is the proposal technically viable and well planned?
- Is the proposed habitat type of the greatest possible nature conservation value given both national desirability criteria and the local context of the particular site?
- Does the proposed method of creating the habitat appear to be the most cost-effective means of achieving the stated objectives?

Five agencies were initially considered as candidates to administer any budget. Although the ESA scheme does represent an example of conservation requirements being built into agricultural policy, MAFF has only a limited statutory nature conservation role. Similarly, both Countryside Commission and the National Rivers Authority have quite general powers and duties in respect of determining nature conservation priorities. The study team therefore felt that it might be most appropriate for the Department of the Environment to promote and administer any coastal habitat creation policy through the Nature Conservancy Council. Other agencies, such as the NRA, RSPB, County Wildlife Trusts, and others might then apply to NCC for partial or total funding for a project, and NCC could make a decision based both on the criteria set out above and those in Section 4.1.

A policy of the type set out above obviously requires further, more detailed investigation before it could be promoted to Treasury. The concept does, however, meet the joint criteria of mitigating against anticipated future coastal habitat losses, particularly under a scenario of climate change (see Section 2); compensating landowners (see Section 5.1); and the more general environmental objectives set out in the recent Government White Paper, *Our Common Inheritance* (HMSO, 1990a).

#### 5.6.5

#### **EC Funding**

Various European initiatives aimed at protecting and enhancing the natural environment are currently underway. Preliminary investigations suggest that some EC funding might be available for the implementation of experimental managed retreat projects under the guidance of DGXI. Site specific proposals would, however, have to be submitted before full or partial funding opportunities could be properly established.

### Fish Nursery Areas

As discussed earlier in the text, much of the concern in the United States over the loss of coastal wetlands has centred on the critical role these habitats play in the life cycle of many commercial fish species. In both the US and Great Britain, the seasonal abundance of food in estuaries makes them vital as nursery areas for fish and various invertebrates. Sea grass beds are among the most productive of the shallow sedimentary environments. Their high primary production supports a rich resident fauna and as a result, they are frequently used as nursery areas by nektonic (free-swimming, oceanic) species. Saltmarshes also play an important role in the life cycle of many fish and crustacean species (Boaden and Seed, 1985).

In comparison to the situation in the US, concern over wetlands loss in respect of the fisheries resource has a much lower profile in Great Britain, possibly because many British commercial fish species spawn at sea. Coastal and estuarine areas do, however, play an important role in the life cycle of species such as Bass, Flounder and Eel. Although there may be only limited scope under a retreat scenario for providing habitat for these species, it may be worth further investigating possible opportunities for developing shellfish cultivation and extensive fish farming in flooded low lying coastal areas. Such activities might be beneficial from the point of view of the landowner in that land would continue to be used "productively". In some cases, however, it is envisaged that there might be difficulties reconciling commercial fisheries and nature conservation objectives.

At the present time although MAFF provide grants for the development of fish farming, there are no schemes in existence whereby MAFF would be able to assist a conversion from "agriculture" to "mariculture" (MAFF, personal communication, 1991). It is therefore recommended that the possible appropriateness of introducing such funding be further investigated.