



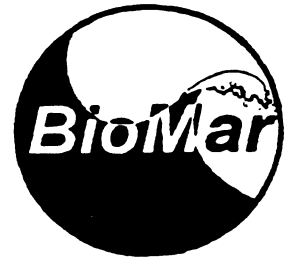
# Marine conservation management

A pilot study on the Northumberland coast

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No. 92

**Marine Conservation Management:  
a pilot study on the  
Northumberland coast.**

**R.L. Foster-Smith, J.L. Foster-Smith  
& S. Gubbay**



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# **MARINE CONSERVATION MANAGEMENT: A PILOT STUDY ON THE NORTHUMBERLAND COAST**

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**March 1994**

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# MARINE CONSERVATION MANAGEMENT: A PILOT STUDY ON THE NORTHUMBERLAND COAST

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## INTRODUCTION

There has been a long history of interest in coastal conservation in the UK which goes back to a report published by the Council for the Protection of Rural England in 1936 highlighting pressures on the coast. Important initiatives since then include the coastal surveys of England and Wales carried out by Steers between 1943 and 1955, the launch of Enterprise Neptune by the National Trust in 1966, the establishment of the Countryside Commission's Heritage Coast Programme in 1972, and the Commons Environment Select Committee inquiry into coastal zone protection and planning (HMSO, 1992).

Conservation in the marine environment has lagged behind terrestrial, ornithological and geological components of the coastal zone. Pressure on UK territorial waters has grown over the last 30 years and the need for management in the marine environment has become increasingly apparent. Much concern is of a general nature affecting large areas of the sea, such as that caused by pollution and marine litter, and can only really be tackled by the development of general policies and strategies at the national and international level. Conflicts between activities has increased and this has pointed up the problems caused by the large number of organisations whose authority covers the coastal waters. The need to bring these different organisations together to formulate integrated policies and plans for coastal zone management (CZM) has attracted growing attention (Gubbay, 1990). National policy on CZM has been developing in the last three years and there are at least 46 initiatives preparing regional coastal strategies and local coastal zone plans (*e.g.* HMSO, 1992; SERPLAN, 1993; Atkins, 1993; MCS, 1993) as well as Heritage Coast plans and more specialised plans covering water quality, coast protection and nature conservation (*e.g.*, RSPB, 1993). The success of these plans will depend upon the voluntary co-operation between a wide variety of organisations.

There is a valuable role for site-based conservation measures to protect habitats and areas of special marine interest within a broad conservation framework (English Nature, 1993a). The options for marine site protection are summarised in Table 1 and include statutory Marine Nature Reserves (under the provisions of the Wildlife & Countryside Act, 1981) and more recently the EC Habitats and Species Directive (92/43/EEC) which requires that member states establish a network of 'Special Areas for Conservation' which will include marine areas. In addition, Table 1 indicates that there are a number of voluntary initiatives.

There has been a shift towards voluntary site protection for marine areas since 1981, and an emphasis on local involvement. In part this is due to difficulties in putting into practise the existing legislation for Marine Nature Reserves (Gubbay, 1986) but it is also because of the recognition that initiatives taken and/or supported by local communities and local interest groups will stand a far greater chance of success than initiatives taken at a distance.

**TABLE 1. FRAMEWORK FOR MANAGEMENT OF SEA AREAS FOR NATURE CONSERVATION IN THE UK**

TITLE	YEAR (of introduction or proposal)	STATUS	RESPONSIBLE BODY	NUMBER OF SITES
VOLUNTARY MARINE CONSERVATION AREAS	1970	Voluntary	Locally based management groups	9
MARINE NATURE RESERVES	1981	Statutory (Wildlife & Countryside Act, 1981)	Government conservation agencies*	2
MARINE CONSULTATION AREAS (Scotland)	1986	Voluntary	Scottish Natural Heritage	29 (Scotland only)
MARINE PROTECTED AREAS (Type 1 & Type 2)	1991	Proposal (Statutory)	Marine Protected Areas Working Group**	-
MARINE CONSULTATION AREAS (England and Wales)	1992	Proposal (Voluntary) (withdrawn 1993)	Department of the Environment/Welsh Office	16 proposed (England & Wales)
SPECIAL AREAS FOR CONSERVATION (EC Habitats & Species Directive (92/43/EEC))	1992	Statutory Regulation expected 1994	Government Agencies	-
SENSITIVE MARINE AREAS	1993	Proposal (Voluntary)	English Nature	27 proposed

\* Scottish Natural Heritage, English Nature, Countryside Council for Wales, Department of the Environment (N. Ireland).  
 \*\* Group of conservation organisations and individuals working on Marine Protected Areas. (Updated from Gubbay, 1993).

English Nature plans to promote the wider management of marine areas through voluntary means and have identified 27 Sensitive Marine Areas around the English coast (English Nature, 1993a) where they wish to work collaboratively with interested parties to develop management plans. Indeed, the Government's proposals for the implementation of the EC Habitats and Species Directive also rely on voluntary co-operation to a large extent.

To support such initiatives English Nature has set up a grant scheme to assist with voluntary conservation measures, largely by encouraging the establishment of voluntary marine conservation areas. There are also likely to be further funds from the Department of the Environment to assist with the implementation of the EC Habitats and Species Directive. English Nature's 'Managing England's marine wildlife' (English Nature, 1993b) is designed to contribute to marine conservation by:-

- \* providing an immediate recognition of nationally important subtidal marine wildlife areas, and enabling this importance to be recognised and managed;*
- \*providing information to ensure consideration is given to the sensitivity of particular marine areas in the formation of estuary and coastal management plans;*
- \*providing a focus for local community action through grants and advice from English Nature, and through the development of management plans and consultation procedures;*
- \*responding to local needs to ensure that we use the best means of protecting these key areas, which can be drawn from a range of voluntary and statutory measures;*

*\*starting a process for considering the problems and possible solutions of managing marine areas that are central to coastal zone management and that will need to be addressed for the management of Special Areas of Conservation.*

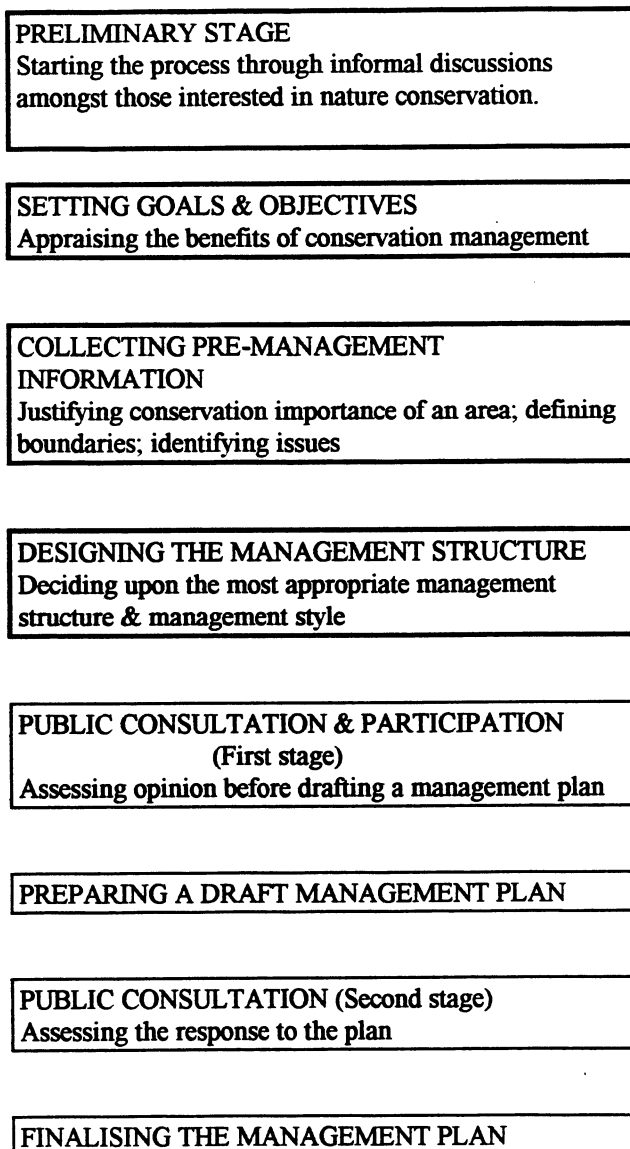
The present report has been commissioned by the National Trust with funds from English Nature to investigate the scope for voluntary conservation measures for the coastal waters of north Northumberland. The first part, '**Designing marine conservation management plans**', sets out some of the general principles involved in initiating, designing and promoting conservation management plans. The second part, '**Options for conservation management of the marine environment of the north Northumberland coast**', applies these principles to the situation in Northumberland, and the APPENDIX gives detailed information on aspects of the north Northumberland coast which would be needed in the initial stages of the development of a marine conservation management plan. The companion study 'Survey of the marine environment of north Northumberland: an assessment of the conservation interest of the marine biotopes' (Foster-Smith and Davies, 1994) presents information on the diversity and distribution of the habitats and biota of the sea floor, which is also necessary background information for marine management plans.

# **PART ONE: DESIGNING MARINE CONSERVATION MANAGEMENT PLANS**

## **1. INTRODUCTION**

Despite the variety of marine conservation management plans it is possible to identify common stages in their development. The following stages, summarised in FIGURE 1 are based on those set out by Kenchington (1990). This report is primarily concerned with the initial stages up until the point when public consultation can take place. The stages are illustrated where appropriate by examples taken from the UK or from other countries.

FIGURE 1. Stages in the development of a management plan for a marine area. The present report concentrates on the initial stages indicated by the boxes with a thick outline.



## **2. THE PRELIMINARY ASSESSMENT OF THE NEED FOR MARINE CONSERVATION MANAGEMENT**

The requirement for conservation measures to protect an area usually comes from the perception people have of its value. The views might be based on unstructured information or centred around an established interest (such as a geological site) and extended to other aspects of conservation. The views might be widely held or they may be those of a small number of individuals. Thus, a vital preliminary stage before any plans can be formulated is to mobilise enough interest to examine the scope for conservation management. The process will probably start with an *ad hoc* group of representatives from interested organisations and develop into a steering group or more formally constituted body. The sorts of questions that need to be asked centre around the following points:-

**1. Conservation importance:** What is the informed view of the area? Who has been asked? Do they represent a wide range of conservation interests? Does it seem that the perception is justified?

**2. The need for management:** What is the need for management? What are the benefits? If management is thought to be required, what could the aims and objectives be?

**3. Management structure:** Will management of the marine environment be incorporated into existing management structures for the coastal zone, or warrant new arrangements?

**4. Development of a management plan and organisation:** How will the initial *ad hoc* group develop? Who will take the lead? Or should a new organisation be established for this purpose? Who else will need to be included or consulted? At what stage and on what basis?

## **3. SETTING GOALS**

If the decision is made that a management plan is desirable and that enough support exists to promote the idea, then many of the questions raised above will need to be revisited in a more critical light. Those advocating some form of management of the marine environment must have a clear idea of the benefits they expect.

### **3.1. The Mission Statement**

The major goal of any conservation plan should be clearly established and stated in a way that will be widely accepted (the mission statement). Many possible goals might be considered important enough to be included in such a mission statement:-

1. To protect endangered species or habitats from a specific threat, or to preserve examples that are generally threatened.
2. To preserve areas of outstanding conservation interest.

3. To preserve good examples of natural ecosystems or habitats that are important nationally or regionally.
4. To promote the wise management of a natural resource for which there are conflicting demands.
5. To raise awareness of the special importance of the area amongst visitors, the local community, local industry and decision-makers.
6. To use the area to change public attitudes towards the marine environment and promote a greater understanding of it.

### 3.2. Aims

The mission statement then needs to be translated into more specific aims that relate to each case individually. A list of possible aims is given below and an example from Strangford Lough, Northern Ireland, is shown in BOX 1.

1. To encourage active involvement in caring for the coast from a wide range of people within the local community and from visitors.
2. To prevent the deterioration of the area by identifying potential threats and co-ordinating an effective response.
3. To create an opportunity for open discussion between interested parties and improve communication between users and managers.
4. To identify gaps in responsibility for the marine environment.
5. To use the area for education.
6. To make the natural history of the marine environment more accessible to the public.

**BOX 1: MISSION STATEMENT AND MANAGEMENT OBJECTIVES FOR STRANGFORD LOUGH (DoE Northern Ireland, 1991)**

**To conserve the special features of the Strangford Lough area, and to further the sustainable use of its resources for the continuing benefit and enjoyment of the people of Northern Ireland.**

This is to be achieved through meeting the following objectives:

- (1) To maintain and, where possible, enhance the marine and terrestrial environments in order to conserve:
  - the native flora and fauna
  - the richness and diversity of natural habitats, communities and species
  - the scenic quality of the landscape and man-made heritage
- (2) To provide opportunities for study, research, education and interpretation of a maritime ecosystem.
- (3) To monitor the environment for signs of deterioration and for damage; to identify the causes and take corrective action.
- (4) To meet the needs and enhance the surroundings of those who live and work in the area and to provide continuing opportunities for employment and recreation.
- (5) To integrate new developments into the countryside in a manner which does not compromise the beauty of the area or its natural or man-made heritage.



### 3.3. Objectives

Objectives to achieve these aims may be short or longer term and will change during development and implementation of the management plan. The first objectives will be determined by the next stages in developing the management plan and others will follow. Below is a list of some important objectives that might be considered:-

1. To establish a forum for the exchange of information and ideas about the management of the coastal environment.
2. To justify the need for conservation management over the chosen area through the commission of studies to gather background information on the natural history of the area and the existing management framework.
5. To establish a monitoring programme that will enable some assessment of the effect of management plans on the area.
3. To promote awareness of the management plan through publicity material, interpretation and educational programmes.
4. To try to change the use of the area through voluntary arrangements with user groups.
6. To draw up contingency plans for specific threats.

## 4. COLLECTING PRE-MANAGEMENT INFORMATION

### 4.1. Conservation Assessment:

Before any progress can be made with management plans information identifying the conservation interest of the area and map the distribution of key habitats and biota (jointly referred to as biotopes) needs to be gathered. This is necessary to justify the case for special conservation management.

The maintainance of biological diversity and the natural processes of ecosystems is the fundamental basis upon which conservation management rests. The following statement of English Nature's strategy towards the marine environment is taken from their document 'Marine Strategy' (English Nature, 1993c):-

- (To) conserve marine flora, fauna and natural features by maintaining and, where possible, enhancing:*
- *the viability and regional variety of populations of flora and fauna over their natural range*
  - *the full range of marine habitats*
  - *populations of marine species*
  - *active and fossil sedimentary process sites*
  - *important submarine and coastal geological exposures and deposits*

The protection of some areas are especially important for the conservation of biological diversity and the maintainance of ecosystems because they show some of the following characteristics (Norse, 1993):-

- *areas of high diversity*
- *areas of high endemism*
- *areas of high productivity*
- *spawning areas that serve as sources of recruits*
- *nursery grounds*
- *migration stopover points and bottlenecks*

These general statements need to be translated into criteria that can be used to assess the conservation importance of specific areas. Conservation assessment procedures for the marine environment are not as well established as those for the terrestrial environment. Although the criteria are essentially the same, their relative importance reflects the differences between the terrestrial and the marine environment. In particular, the distribution of species is very dependant on broad biogeographical regions, the substratum type, depth and water energy (waves and tidal currents). The terrestrial environment is more complex, with changes in soil chemistry, rainfall, drainage, temperature, and humidity occurring over small distances. Also, importantly, a terrestrial habitat reflects its past history to a far greater extent than its marine counterpart. Thus, it is more relevant to select areas which show good examples of a diverse range of habitats that are typical for a biogeographic region than to justify site selection in terms of rare species and habitats .

Existing knowledge of the marine environment is often very sketchy, although the Marine Nature Conservation Review (MNCR), a major resource survey of the shore and nearshore subtidal biotopes undertaken by the Joint Nature Conservation Committee (JNCC) has greatly increased our knowledge base for the UK (e.g. Bennett, 1991; Downie & Davies, 1991). This type of information is needed to assess the conservation interest of an area in its international, national and regional context. Suggested criteria for assessment are shown in BOX 2.

**BOX 2: CRITERIA FOR ASSESSMENT OF MARINE AREAS**

A. (taken from 'Managing England's Marine Wildlife (English Nature, 1993b)):-

- (1) The presence of habitats, communities and species that are outstanding examples of their type (nationally or regionally). (This may be assessed on the basis of species and/or biotope diversity and naturalness).
- (2) The presence of rare or unusual marine habitats.
- (3) The presence of species subject to any deterioration in environmental quality.
- (4) Habitats and communities vulnerable to human impacts such as sand flats or eelgrass beds.
- (5) The presence of breeding, feeding or resting areas for particular concentrations of seabirds, sea mammals or other species.

B. In addition to the above criteria the following may be added :-

- (6) The preference for large areas of biotopes and
- (7) Uniqueness of a physiographic feature.

It is likely that some form of survey would need to be commissioned to provide an adequate assessment of the resources of an area. However, marine survey work is usually more time consuming and costly than for terrestrial surveys. For example the maps produced for the Leigh Marine Reserve in New Zealand (Ayling, 1978; Ayling, Cummings & Ballantine, 1981) is based on extensive diving surveys over a two-year period and extends over a few square kilometres. An alternative approach to sea-bed mapping is to use specialist remote survey equipment which are suitable for covering larger areas more rapidly, as utilised in the companion survey to this report (Foster-Smith & Davies, 1994).

#### 4.2. Review of activities affecting the area

A considerable number of issues are likely to emerge from this review which may make the identification of management priorities difficult (BOX 3). It is important to differentiate between those which are central to the main aims and objectives of the management plan and those which are of lesser importance. In any case, it is impossible to tackle all issues and a system for monitoring issues needs to be established so that appropriate responses can be taken should the need arise.

<b>BOX 3: ACTIVITIES WHICH HAVE IMPACTS ON THE MARINE ENVIRONMENT. THESE MAY CREATE LOCAL ISSUES WHICH COULD BE ADDRESSED BY A LOCAL MANAGEMENT PLAN.</b> (Compiled from the Marine Conservation Handbook, (Eno,1991 & updates))	
<b>EXPLOITATION OF LIVING RESOURCES</b> Commercial fishing methods Angling Bait collection	<b>USE OF LAND AND WATER SPACE</b> Land reclamation Recreation Docks and marinas Shipping and Navigation
<b>CULTIVATION OF LIVING RESOURCES</b> Finfish and shellfish farming Introduction of alien species	<b>WASTE DISPOSAL</b> Sewage Industrial waste Marine litter Spoil dumping Pesticides
<b>EXPLOITATION OF NON LIVING RESOURCES</b> Aggregate dredging Oil and gas industry Coastal quarries Alternative energy	<b>COASTAL PROTECTION AND SEA DEFENCES</b>
<b>SCIENTIFIC AND EDUCATIONAL USE</b> Sample collecting Trampling and disturbance	

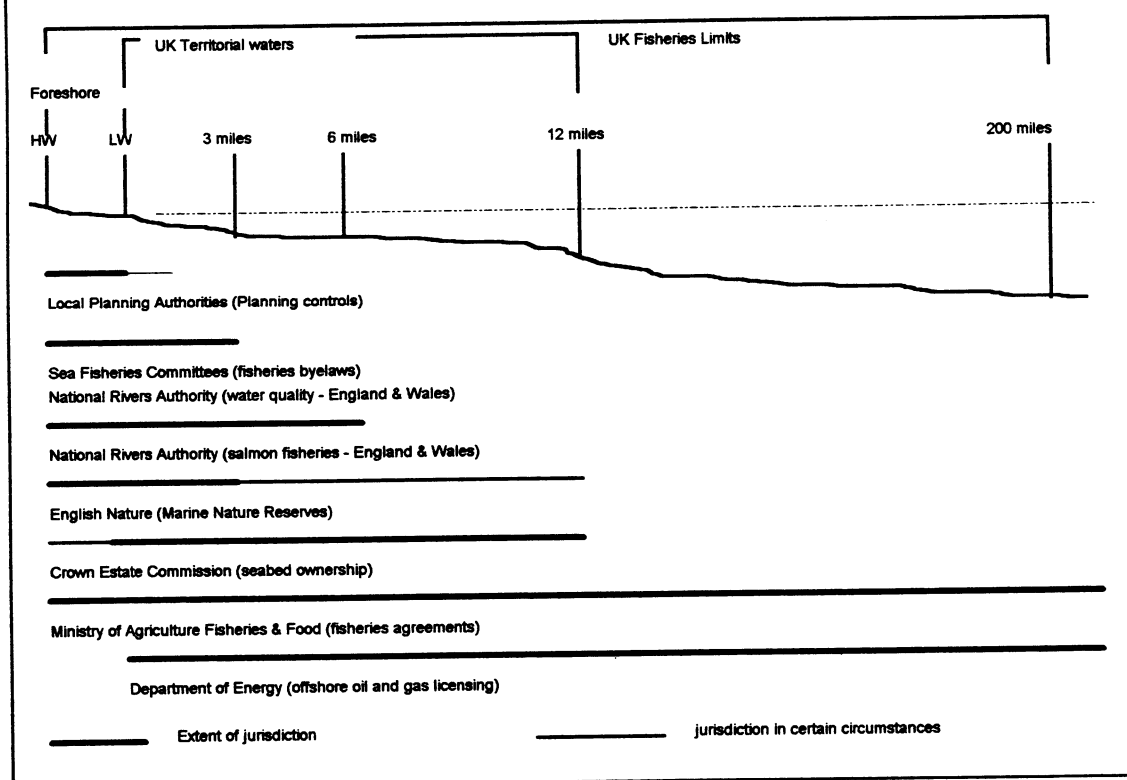
#### 4.3. Determining the area to be covered by the management plan

Although it is likely that the centres of conservation interest will be known at an early stage, defining boundaries to the area covered by the management plan (and also perhaps around particularly important sites within that area) require careful consideration.

In an ideal situation a management plan should extend over an area which is sufficient to ensure the conservation of the species or habitats of interest. This is difficult to define in the marine environment because of the wide dispersion of species and the impossibility of excluding threats to the environment from specific areas. For these reasons large areas are preferred if the protection of species and habitats is the primary aim of the management plan. A generous area may be chosen around a centre of conservation interest, such as an island or headland. Alternatively, boundaries could be set by geographical features such as bays, estuaries or a line joining two headlands.

Boundaries might be chosen to coincide with adjoining terrestrial reserves or the limits of legal jurisdiction of a management authority which may be used to set the offshore limit of a marine management area (see BOX 4).

**BOX 4: EXAMPLES OF THE JURISDICTION OF VARIOUS ORGANISATIONS IN THE COASTAL ZONE ON SPECIFIC ISSUES (Gubbay, 1990)**



#### 4.4. Boundaries and zoning

Not all of the area selected needs to be managed in the same way and zoning of activities is a well utilised technique of conservation management. The zones correspond with areas in which different regulations, voluntary agreements or management regimes apply. The UNESCO Man and the Biosphere programme advocates the use of core and buffer zones and this has been adopted by the Virgin Islands National Park and the Mer d'Iroise Biosphere Reserve in north west France (Price & Humphries, 1993).

The zones can be used to protect a strictly managed core site by creating a buffer zone between it and the surrounding area which has no special conservation management requirements. Zones can also be used to ensure that at least one example of each of the major habitat types in a region is carefully protected whilst others are available for more general use. Zoning of activities has been used to make conservation management acceptable to the local community and the general public at the Great Barrier Reef Marine Park (Keller, 1986).

## **5. DESIGNING THE MANAGEMENT STRUCTURE**

If, at this point, it is concluded that some form of management is justified and desirable, the next stage is to make key decisions about the future management structure and style. The style of management, in particular the balance between using legislation and regulation and relying on voluntary co-operation, will influence the success or otherwise of any plan. Conservation management of the marine environment cannot be imposed on people and legislation should be seen as providing only a certain level of safeguard for conservation interests.

### **5.1. The voluntary approach to protecting marine areas**

Voluntary marine protected areas (VMPPAs) are where some form of consultative/management group has been established to bring together organisations and individuals with an interest in the sea, whether for work or recreation. The emphasis placed on public consultation and participation should not necessarily be seen as a weakness of approach to conservation management. Indeed, management can be strengthened through voluntary co-operation. A detailed guide to the establishment of a VMPPA has been produced by the Marine Conservation Society and English Nature (Welton, 1994).

Management of the marine environment based on voluntary co-operation works on various levels:

1. The creation of a management group and/or forum representing a wide cross-section of interested parties is useful for the exchange of information, views and ideas.
2. Agreements reached between organisations with responsibility for aspects of coastal management to work co-operatively.
3. Public consultation during the formulation of the management plan to ensure widespread public support.
4. Dissemination of information about management aims and objectives to encourage co-operation from members of the public that use or visit the area on an individual level.

Several VMPAs have been established in the UK (see BOX 5 and Map 1).

**BOX 5: VOLUNTARY MARINE PROTECTED AREAS & COASTAL FORA (together with lead organisations) (From Welton, 1994)**

**ST ABBS AND EYEMOUTH VOLUNTARY MARINE RESERVE**

Scottish Wildlife Trust

**SEVEN SISTERS VOLUNTARY MARINE CONSERVATION AREA**

Seven Sisters Country Park

**PURBECK MARINE WILDLIFE RESERVE**

Dorset Trust for Nature Conservation

**WEMBURY MARINE CONSERVATION AREA**

Devon Wildlife Trust

**HELTFORD RIVER VOLUNTARY MARINE CONSERVATION AREA**

Cornish Biological Records Unit

**ISLES OF SCILLY MARINE PARK**

Isles of Scilly Environmental Trust

**BARDSEY ISLAND**

(Proposed statutory Marine Nature Reserve: Countryside Council for Wales)

**MENAI STRAITS**

(Proposed statutory Marine Nature Reserve: Countryside Council for Wales)

**STRANGFORD LOCH**

Royal Society for the Protection of Birds

**DORSET MARINE FORUM**

Dorset Trust for Nature Conservation

**CARDIGAN BAY FORUM**

Cardigan Bay Forum Committee: Friends of Cardigan Bay and Dyfed Wildlife Trust

**NORTH WALES FORUM**

North Wales Forum Committee

Some of the advantages of setting up a forum are given in BOX 6.

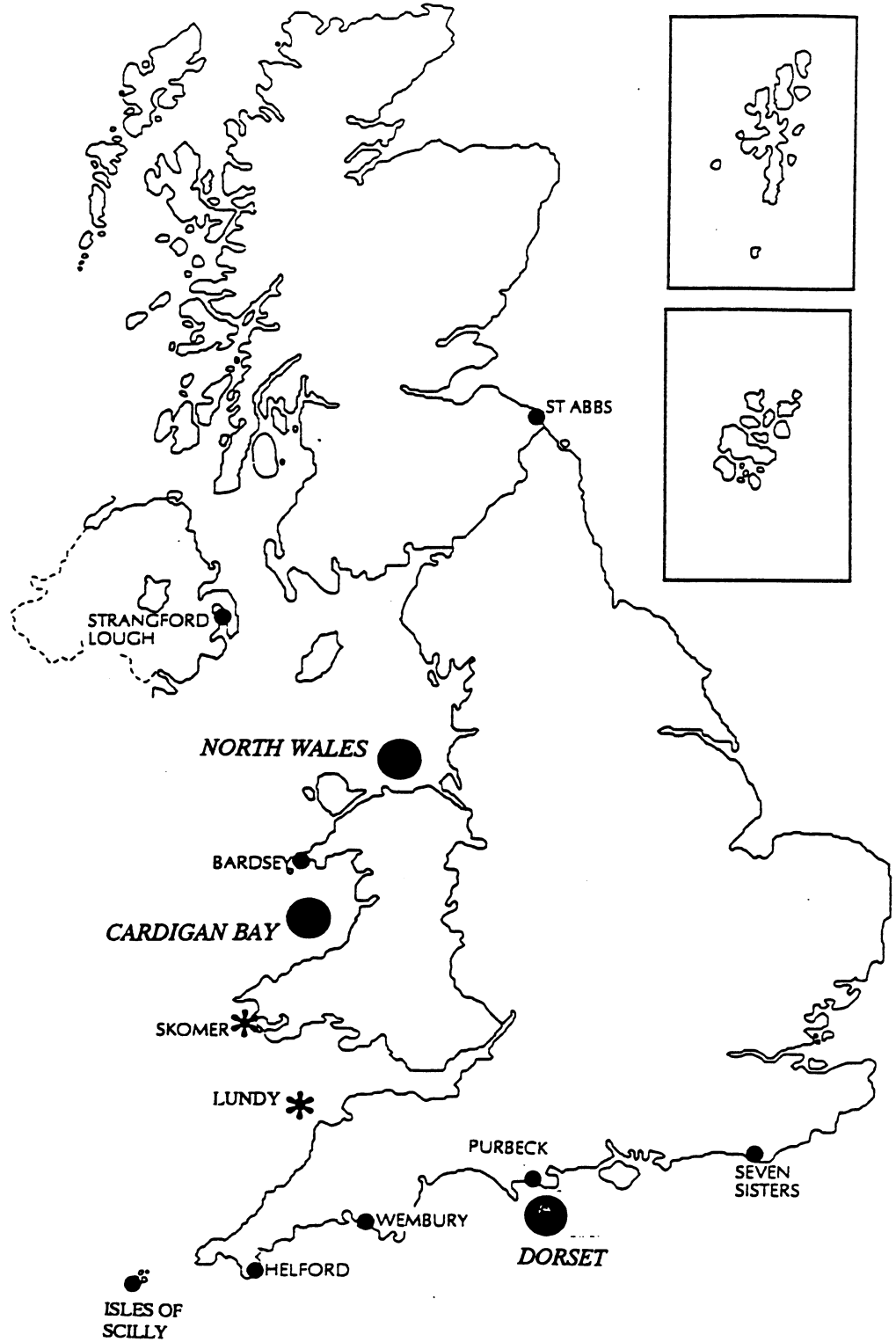
**BOX 6: A SUMMARY OF THE BENEFITS OF SETTING UP A FORUM (based on Heeps, 1992).**

- \* Encourages active involvement by local people in caring for their coast.
- \* Enables the identification of potential threats and the co-ordination of action to prevent damage before it becomes a major issue.
- \* Creates an opportunity for concerned and interested parties to meet for open discussion.
- \* Improves and maintains communication between users by providing a real focus for activity.
- \* Enables the identification of gaps in individual users' responsibilities.
- \* Allows for the expression of individual views and the voicing of concerns.
- \* Encourages harmonious and environmentally sensitive use of the coast.
- \* Brings the importance of the coast to wider public attention.
- \* Enables organisations and individuals to pool expertise to tackle problems in the most beneficial way.
- \* Provides a platform for sounding out ideas before they are put into practice.
- \* Provides a focus for education about the coast and the marine environment

Map 1.

# VOLUNTARY AND STATUTORY MARINE PROTECTED AREAS

- \* Marine Nature Reserves
- Voluntary Marine Conservation Area
- County Marine Committees or Fora



## 5.2. The composition of a management group and forum

In areas where there is already substantial conservation management on the coast by a few organisations, it is likely that one will take the leading role in a management committee. Clearly, much can be achieved by the organisations that are already well established on the ground and the main function of the committee will be to co-ordinate their approach to management of the marine environment through voluntary agreements. The committee would not, of course, have powers over the activities of its members!

The primary requirements for the lead organisation are that **(1) it should have a strong commitment to the promotion of the voluntary marine protected area and to the motivation of others; and (2) it should be capable of raising and administering funds.** In addition, it would be advantageous if the organisation had the ability to carry out management policies over coastal land that it controlled so that it was already in a strong position to influence marine conservation management.

However, the committee cannot manage in isolation from other organisations or without consultation with the local community. Consultation should take place on a wide basis at an early stage in the development of the management plan and should include those who might be thought to object to conservation management. There is little point in excluding their views early in the process only to encounter their opposition later. On the other hand, management groups should not be too large as to be unwieldy. BOX 7 gives suggestions for members of a forum.

**BOX 7: INTERESTS THAT SHOULD BE REPRESENTED ON A MANAGEMENT GROUP OR FORUM (Based on Welton, 1994).**

**ADMINISTRATIVE:** County, district and parish councils; water authorities; National Rivers Authorities; harbour authorities; MAFF; Sea Fisheries Committees.

**COMMERCIAL:** Local fishermen; oil companies; chambers of trade; tourist industry.

**CONSERVATION:** English Nature; National Trust; Wildlife Trusts; RSPB; Marine Conservation Society, Countryside Commission.

**LANDOWNERS (of the sea bed, foreshore, access areas and coastal land):** Crown Estates Commission; Private individuals; Ministry of Defense; District councils.

**LOCAL:** Individuals and residents associations.

**RECREATIONAL:** Representatives from boating, windsurfing, diving, angling and other sports societies; National Parks/Heritage Coast officers.

**SCIENTIFIC AND EDUCATIONAL:** Marine laboratories and universities; museums; field studies centres; local schools

A decision has to be made as to the status within the management structure of the various consultees. What will be the terms of reference of a forum? Will it be established purely to advise a management group? Who will be observers and who will have voting rights if this is appropriate?

## 5.3. Names for conservation areas and management groups

Not only must the mission statement be carefully worded, but any name given either to the area or the management group must also be carefully chosen. Statutory marine



conservation areas are called Marine Nature Reserves and in voluntary initiatives the term 'reserve' is most often given to small areas of high conservation importance.

However, care should be exercised in using this term as it suggests that people will be stopped from doing things whereas in reality the voluntary approach is about positive management. Alternative terms are 'Conservation Area' or 'Voluntary Conservation Area'. The area around the Isles of Scilly is called a 'Marine Park'.

#### **5.4. Support groups**

Many reserves have volunteer support groups that can carry out various management tasks and can help with fund raising.

#### **5.5. Utilising existing and creating new regulatory arrangements**

The area will be covered by many policies, byelaws and administrative arrangements covering such aspects as fisheries, controls in ports and harbours, or activities on local authority land. All these will need to be examined to see what is possible within the existing framework. Can improved conservation management be effected through consultation and liaison with other organisations? In some circumstances it may be possible for a conservation agency or other group to be given additional powers. However, many powers, such as those used to prevent bait digging or wildfowling on the shore, remain untested and problematic.

#### **5.6. Voluntary codes of conduct**

Codes of conduct can be useful for reminding people to consider others when visiting or making use of the coast.

##### **(a) Codes of practice agreed with governing bodies of sporting interests:**

Governing bodies of sporting associations have an interest in the good conduct of their members and most will co-operate in designing codes of conduct. The Scottish Sub-Aqua Club and the British Sub-Aqua Club have, for example, strongly supported the code of conduct at the St Abbs and Eyemouth Voluntary Marine Reserve (BOX 8). If sufficiently publicised, codes of conduct are usually enforced by members of the sporting associations concerned.

**(b) Codes of conduct for specialist groups:** Educational groups from schools and universities can use an area repeatedly for field work causing problems of over-collecting and trampling. However, most organisers of educational parties would co-operate with codes that guide their activities. Local schools may wish to become involved with the design of such codes of conduct.

**(3) Codes for guidance of the general public:** The majority of the public respond favourably to positive management if they are informed of the codes of conduct. These codes discourage the collection of living plants and animals, the disturbance of wildlife and the deposition of litter. Codes also promote consideration of others.

The Marine Conservation Society and the World Wide Fund for Nature have produced a Seashore Code which has been widely adopted and publicised.

**BOX 8 : CODE OF PRACTICE FROM THE ST ABBS & EYEMOUTH  
VOLUNTARY MARINE NATURE RESERVE**

**SAFETY**

- \* Boat-users must carry adequate safety equipment and ensure that someone reliable knows where they are going and when they will return.
- \* Divers must comply with the safety requirements of: SSAC, BSAC, SAA, etc. Boats with divers down must fly the 'A' flag.
- \* For advice and weather information contact H.M. Coastguard on: 0333 50666.

**COURTESY**

- \* Maintain a high standard of behaviour and decency in public places.
- \* Obey parking regulations and park tidily, using bays where provided.
- \* Obey any special regulations which might apply, for example at harbours where the harbourmaster must be obeyed.

**CONSERVATION**

- \* Fishing and sea-angling by traditional methods are permitted but obey fisheries regulations (details from DAFS (now SOAFD), Eyemouth). No sea-angling from St Abbs Head Nature Reserve.
- \* No spearguns, spears, hooks, gaffs, etc. to be used underwater.
- \* Don't tamper with fishing gear or lobster pots (this is illegal and dangerous).
- \* Do not collect plants and animals from within the reserve.
- \* Do not leave litter, fishing-line or chemicals (waste oil, paints, etc.).
- \* Boat-users, reduce speed close to cliffs at St Abbs Head to minimise disturbance to nesting sea-birds.

**REMEMBER**

This is one of Britain's last wilderness. Local people depend on it and thousands of visitors enjoy it and learn from it. Respect other users of the sea, and respect the wilderness.

### **5.7. Publicity**

The level of publicity given both to the developing management plan and the marine protected area itself needs to be carefully considered. Some publicity is a positive advantage to the implementation of a management plan as it alerts people to the reasons for the establishment of the protected area and the aims of the plan and gives positive guidance on how people can help.

On the other hand, over publicising the area may attract more visitors than are compatible with the sensitivity of the site or are beyond the capacity of the facilities. Should the area be widely publicised or should publicity be restricted to the site itself?

What forms of publicity might be considered? These vary from the sophisticated interpretive centre to simple leaflets and interpretive panels. There is no doubt that person-to-person contact is the most effective way of promoting management aims and the employment of wardens (full-time or summer only; voluntary or paid) has been utilised at many sites. Wardens can also be responsible for other aspects of management, such as liaison and monitoring.

Wardening and publicity at marine sites has been reviewed in a Marine Conservation Society handbook (Gubbay, 1988). The choice will not only depend upon the level of publicity required, but also on the funding available.

# **PART TWO: OPTIONS FOR CONSERVATION MANAGEMENT OF THE MARINE ENVIRONMENT OF THE NORTH NORTHUMBERLAND COAST.**

## **1. INTRODUCTION**

The general principles of the design of conservation management plans for the marine environment discussed in Part One are applied here to an area off the north Northumberland coast as a pilot study to promote the establishment of marine protected areas.

The primary aims of Part Two of the report are to present an overview of the conservation interests of the marine environment off the north Northumberland coast and to recommend options for conservation management, in order that the National Trust, Northumberland County Council and other organisations in the region can make a preliminary assessment of the scope for developing a voluntary marine conservation area.

The north Northumberland coast is covered by a wide variety of conservation designations and non-statutory definitions for both its landscape and nature conservation interest, which are summarised in Section A1 of the Appendix and Appendix Maps 2-5. Designations/notifications include areas of international importance (*e.g.* the Farne Islands Ramsar site), as well as those that are important at the national (*e.g.* the Northumberland Shore Site of Special Scientific Interest (SSSI)) and regional (*e.g.* Beadnell and Embleton Coast Site of Nature Conservation Importance (SNCI)) level. The whole of the coast of north Northumberland is a Heritage Coast and an Area of Outstanding Natural Beauty (AONB). Although Northumberland's coastal waters do not have any statutory nature conservation protection, English Nature identified an area off the north Northumberland coast as one of 27 'Sensitive Marine Areas' (English Nature, 1993a).

By way of these designations English Nature, Northumberland County Council and the Countryside Commission are all involved in the management of the Northumberland coast. The National Trust also has a major interest in conservation management because of the extent of its coastal properties in the area (Appendix Table 1; Appendix Map 5). There is the possibility, therefore, that English Nature, through its grant scheme to promote voluntary marine conservation management, and the National Trust, Northumberland County Council and the Countryside Commission could, together, explore ways of establishing some form of marine conservation management off the Northumberland coast. In 1993 the Northumberland County Council established a Northumberland Coastal Advisory Committee, including the coastal local authorities and the Countryside Commission, and this might be an appropriate forum.

For the purpose of Part Two of this report the study area centres around the section of coast between Bamburgh and Craster although no firm boundaries were set. This area is the subject of a separate exercise to map the distribution of biotopes as a basis for conservation assessment (see the companion report 'Survey of the marine environment of north Northumberland: an assessment of the conservation interest of the marine

biotopes' by Foster-Smith and Davies, 1994). The marine life is well documented for this section of the coast (Foster-Smith & Foster-Smith, 1987; Connor, 1989; DoE/Welsh Office, 1992) and would appear to be both rich and diverse in the context of habitats and biological communities (together described by the term 'biotopes') of the open coasts in the North Sea. In addition, the area encompasses the Farne Islands, a site of international importance for its breeding seabirds and grey seal population. The present report is not intended to give a thorough account and assessment of the area to be managed, but to present enough information to allow a preliminary appraisal of the need for management of the marine environment of north Northumberland (see Section 1.1. of Part One).

## **2. THE PRELIMINARY ASSESSMENT OF THE NEED FOR MARINE CONSERVATION MANAGEMENT**

It is recommended that informal discussions are held to assess the need for management **for which this report could form a discussion document**. Only those organisations which have an interest in conservation management of the marine environment need be involved at this stage. It is recommended that English Nature, the National Trust, Northumberland County Council, Alnwick District and Berwick upon Tweed Borough Councils and the Countryside Commission form the *ad hoc* group. Other organisations might also be involved at this stage, such as the Royal Society for the Protection of Birds (RSPB) and the Northumberland Wildlife Trust.

From these discussions it should be possible to gauge whether there would be enough support to progress with the development of a management plan, decide which organisation would take the lead role and find out if grant aid is likely to be forthcoming. The group might also explore the way forward by discussing appropriate aims and objectives for any plan and how the management structure might evolve.

## **3. SETTING GOALS**

Discussion by the steering group should produce a mission statement that summarises the main conservation and management issues. It is likely that the most appropriate conservation issue for the area of north Northumberland will be the preservation of an unspoilt, remote coastline and its associated waters. The main threat to wildlife and scenery is presented by increased numbers of visitors (Appendix Section A5.1). The mission statement could reflect this by stressing the desirability of reconciling the needs of both visitors and wildlife through the balanced use of the environment. The detailed aims and objectives can only be defined when more management information has been considered. Some options for objectives are, therefore, discussed in Section 5 of Part Two.

## 4. COLLECTING PRE-MANAGEMENT INFORMATION

### 4.1. Marine conservation assessment

The following assessment has been made based on the conservation interest of the marine environment as described in the companion report (Foster-Smith & Davies, 1994) and using the criteria in Box 2 (Part One):-

**(a) Typical biotopes:** The study area contains open coast biotopes that are typical of the region (south east Scotland and north east England). Because of the transitional position it occupies between the clearer waters of north Northumberland and the siltier waters found in mid and south Northumberland, habitats typical of both sub-regions are to be found within the study area. Thus the area is representative of the region as a whole.

**(b) Biotope diversity and extent:** The concentration of representative biotopes within the relatively compact study area adds to its conservation value. The mapping exercise carried out by Foster-Smith and Davies (1994) has shown that many of these biotopes are extensive within the study area and so constitute a viable unit.

**(c) Outstanding examples of biotopes:** The Farne Islands are an unusual physiographic feature for the north east coast of England providing wave-exposed sublittoral cliff faces of outstanding scenic value with excellent examples of soft coral biotopes. The tidal acceleration around the Farnes has also resulted in extensive areas of tide-swept cobble which are known to be highly diverse in terms of species content (Connor, 1989; Holt, 1993).

**(d) Biotope and species rarity:** No biotope in the area can be considered to be rare in either a regional or national context. Furthermore, few of the species present are rare, although the bryozoan *Smittina landsborovii* is regarded as rare. Species diversity in the study area is probably high in a regional context, but low in the national context (Holt, 1994).

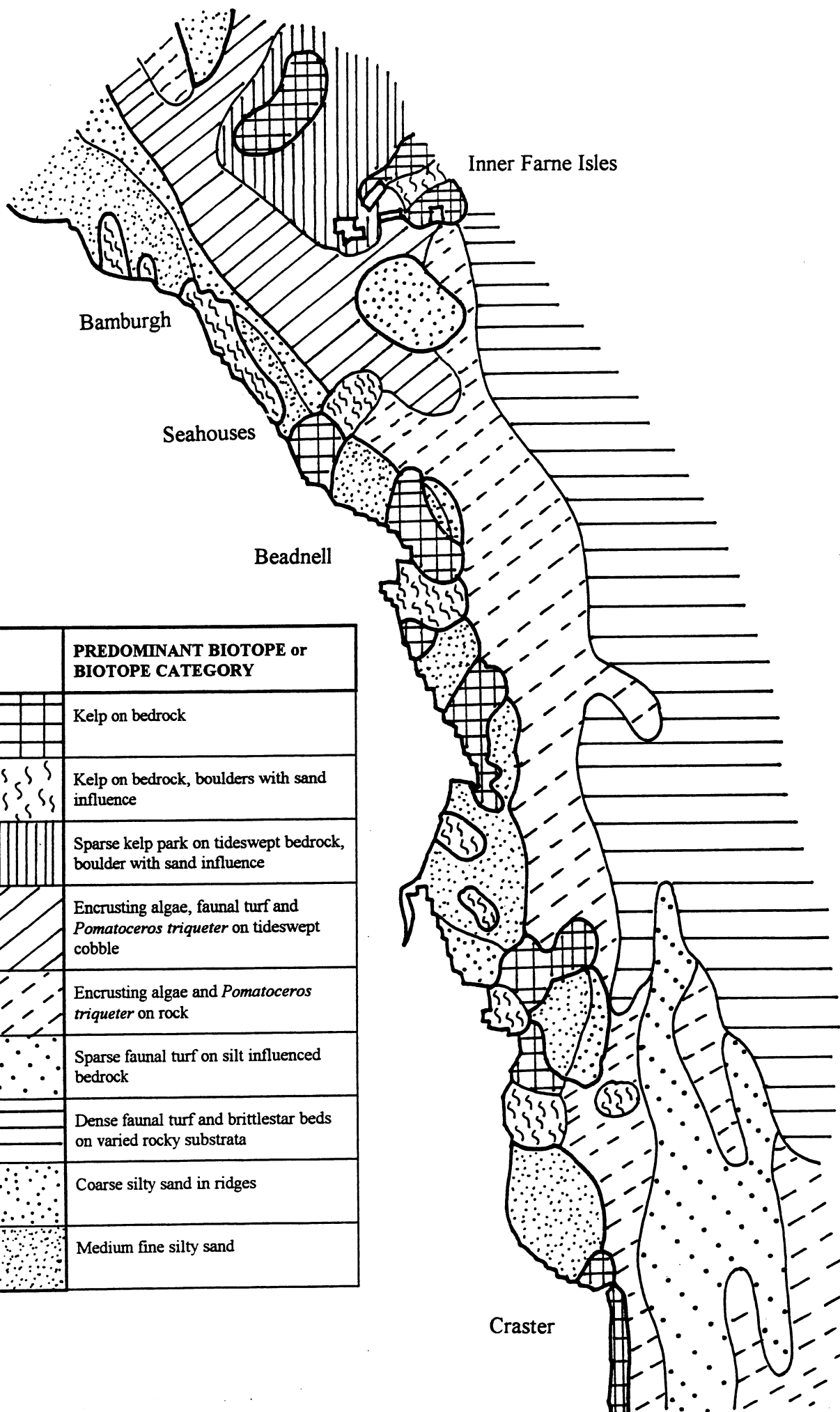
**(e) Biotopes or species vulnerable to human activities:** The delicate hydroid/bryozoan/ soft coral turf found in deeper water might be damaged by the use of large and heavy trawling gear.

**(f) Feeding areas:** The area is internationally important for breeding seabirds and the grey seal population. There are indications of populations of sand eels in the coarse sand in the study area which could be of great importance to these birds and mammals.

### 4.2. Defining the boundary of a management area

The linear extent of the coastline chosen for the mapping exercise has a wide range of typical biotopes (Map 2). The Farne Islands and the rocky headlands on the mainland are of greatest conservation interest and these are bounded by extensive areas of biotopes which are more typical of the region as a whole. It is recommended that the Farne Islands and rocky headlands form the centre of any managed area and that they should be surrounded by a sufficiently large area of sea floor to include representation

**MAP 2: MARINE BIOTOPES OF THE SURVEY AREA (Foster-Smith & Davies, 1994)**



of the other, more widespread biotopes. The study area should form the minimum area covered by any management plan. It should preferably be extended offshore to form a wide zone around the outer Farne Islands, and possibly north towards Holy Island from the northernmost limit of the mapping area.

#### **4.3. Key issues concerning the coastal marine environment**

There are three main issues emanating from the current uses of the coast and trends in usage (see Appendix Sections A.4 & A.5. and also Foster-Smith, 1988):-

1. Pollution caused by sewage, agricultural run-off and litter;
2. Conflicts between commercial fishing and nature conservation;
3. Recreational use of the coast and open sea.

The marine environment of the open coast in north Northumberland is presently relatively unaffected by chronic pollution. Nonetheless, there is always potential for pollution to degrade the local biotopes. The effect of fishing on the sea floor is unknown. A limited amount of trawling takes place within a few kilometres of shore and this could have a potentially damaging effect on the sublittoral turf communities. However, it is the recreational use of the coast which is likely to be of greatest management challenge for coastal managers. Issues connected with recreational use of the sea are listed in BOX 9 .

#### **BOX 9. Potential issues of concern arising from recreational use of the coast and open sea.**

- Disturbance to wildlife through
  - \* access to remote areas
  - \* use of the open water
  - \* bait digging and angling
- Conflicts of interests between user groups
  - \* intrusive water sports versus quiet enjoyment
  - \* between different water sports
- Conflicts between commercial interests and recreation
  - \* between tour boats and divers
  - \* between fishermen and divers
- Pollution, scenic value and beach quality
  - \* litter from shore and sea
  - \* oil from boats
  - \* offal from gutting fish

The need to achieve a balanced use of the sea becomes all the more important as demands placed upon the coast from recreation and tourism increase.



## 5. MANAGEMENT OBJECTIVES

The marine environment of north Northumberland is increasingly popular with visitors who come to participate in water sports and to enjoy the scenery. Whilst a watching brief should be kept on all issues, most of the aims and objectives of management are likely to be concerned with finding a working compromise between the demands of visitors and those whose livelihood depends upon tourism on the one hand, and the interests of wildlife and the preservation of the scenic value of the coast (which includes the sea!) on the other.

The issues associated with visitors to the coast fall into two main groups:-

**(a) Those associated with visitor numbers:** Increasing numbers of visitors place increasing demands upon the environment and the local facilities. Strategic decisions need to be made on whether visitor numbers can and should be influenced in the interests of conservation, and also whether the pattern of use of the coast by visitors can also be influenced so that sensitive sites are protected at the expense of less sensitive sites

**(b) Those associated with the activities and behaviour of visitors:** The impact of visitors on the environment and other users of the coast can be reduced if attempts are made to influence their behaviour.

Discussion by the *ad hoc* steering group should produce a list of provisional aims that address some of the topics outlined above. Such aims might include the following:-

(a) To minimise disturbance to marine life at sensitive sites by influencing the pattern of use of the coast by visitors through the provision of only those facilities which are appropriate and whose location has been carefully chosen.

(b) To encourage people to consider wildlife and other users of the coast through the use of wardening and publicity.

(c) To use the area for general education in such a way as to pose limited risks to conservation interests by carefully designed interpretation, educational material and codes of conduct for visiting educational groups.

(d) To encourage the active involvement of local people and organisations in caring for the marine environment.

(e) To have a watching brief on a range of issues which might adversely affect the wildlife interest of the area through the establishment of monitoring programmes and to develop contingency plans in case any threats are realised.

## 6. THE MANAGEMENT STRUCTURE

The National Trust and Northumberland County Council are already well established as conservation managers of the coast and it is likely that any committee established to manage the marine environment will evolve around them. Whilst it would undoubtedly make management stronger if one of these organisations were to take on the lead role, a new structure might be created which would have the support of the National Trust,

Northumberland County Council and the other main administrative organisations (*e.g.* Berwick-upon-Tweed Borough Council, Alnwick District Council, see Appendix Map 6) and conservation bodies (*e.g.* English Nature, the Northumberland Wildlife Trust, the RSPB) that operate in the region.

Existing policies and regulations (Appendix Sections A2 and A3) provide a framework within which a marine management plan can be developed. The policies and activities of individual organisations cannot, of course, be over-ridden by the management committee whose primary purpose should be to:-

- \* co-ordinate a common approach to management of the marine environment;
- \* produce a management plan for the marine environment which will be reviewed annually;
- \* take initiatives where activities cross boundaries between organisations, such as interpretation, education and publicity;
- \* instigate and oversee monitoring programmes;
- \* raise funds;
- \* listen to the concerns of others through the establishment of a public forum.

## 7. OPPORTUNITIES FOR MARINE CONSERVATION

Much of what has been reported so far has been of a general nature. Other more specific projects that might be considered by a management committee are outlined below.

**Marine interpretation at coastal locations:** There is little interpretation of the marine environment at present on the north Northumberland coast. There is scope for interpretive signs, leaflets for self-guided shore excursions and displays of marine life in existing information and interpretive centres. This interpretation could be a vehicle for promoting a marine conservation ethic.

**Sea-based interpretation:** Most of the public see marine life only from the perspective of the shore when the tide is out. With ingenuity and the co-operation of local boat operators, the public could have the opportunity to view the sea floor by the use of inexpensive video cameras that can be lowered onto the sea floor, similar to the system used in the mapping study (Foster-Smith & Davies, 1994). This could provide an additional source of income for boat operators.

**Maps of marine life:** A map could be prepared for the public on the distribution of the different types of marine life within the area.

**Reaching specific users:** Divers are frequently regarded as a nuisance by fishermen, tour boat operators and conservationists. However, they often bring a worthwhile revenue into the local community and support local harbours by way of landing fees. Furthermore, most divers have come to appreciate the underwater scenery as well as

the sport itself. Efforts could be made to improve relations between divers and other sections of the community by:-

- (a) providing interpretive material designed specifically for divers;
- (b) agreeing a code of conduct with the sport's governing bodies and then publicising it at local dive centres and launching sites;
- (c) enlisting divers to collect information about the marine environment through the SEASEARCH project on underwater observation run by the Marine Conservation Society for the Joint Nature Conservation Committee and English Nature (Foster-Smith, 1992).

Other user groups could also be targeted for interpretation and for enlisting their support for the aims of a management plan (such as powerboat and sailboat owners).

**Involving schools and clubs:** Schools and youth clubs could participate in activities that teach children about the marine environment and foster a caring approach towards the environment. These groups could suggest projects that they could carry out that would help improve the environment, such as beach litter-picks. Teachers and youth leaders could also provide support and advice for the design of a code of conduct for educational groups.

**Collecting information and monitoring use of the coast:** Much information could be collected on the use of the coast and open sea that would help in the formulation of appropriate measures for conservation management. How many boats are launched? How many anglers use the shore? How much bait digging takes place? How many divers visit sites within the area? Are visitors aware of the importance of the area in terms of its marine life? What is the level of commercial fishing activity and are fishing methods changing?

**Biological information and monitoring:** Although there is a general understanding of the distribution of marine biotopes within the area, mapping should be extended beyond the boundaries of the study carried out by Foster-Smith and Davies (1994). In addition, biological information should be collected on a regular basis from a small number of sites over time so that some idea can be gained as to changes that might take place in the marine environment. This information is necessary to assess the effectiveness of management policies (*e.g.* if educational groups were encouraged to use one site for field work in preference to another, more sensitive site). It would also be useful in alerting managers to unexplained changes and to respond to future threats to the environment.

**Workshops:** Workshops gathering together people with expertise and interested parties could be held on specific topics to review issues and design new ways of managing the marine environment.

**Wardening:** Many of the tasks of liaison between interested parties, interpretation to the public, monitoring sites and reporting to the management committee could form the job description of a marine warden. A committee could investigate the funds available for creating a post for a marine warden.

## 8. FUNDING

The management committee would need to raise funds to support the activities planned for the marine protected area. It is generally more difficult to raise sponsorship for salaries and expenses than for projects which have a higher public profile, such as the production of publications. Thus funding agencies, such as English Nature, might be approached for funding the employment of a marine warden and supporting core activities. Other organisations, including local industry, could be approached for sponsorship of publications and high-profile events.

Funding of a voluntary marine protected area at some location in the north east of England is likely to be regarded favourably by various funding agencies and conservation organisations since there are, at present, none in existence in this region.

### IN SUMMARY

**The marine biotopes within the study area are important in at least a regional context because they are good examples of their type. The study area as a whole is of conservation interest because of the diversity of biotope types found within it.**

**The area around the Farne Islands and headlands on the neighbouring mainland could form the centre for an area managed for marine conservation. The boundaries might be drawn so that these sites are enclosed by extensive areas of biotopes representative of the region.**

**It is likely that management will be primarily concerned with reconciling recreational use with nature conservation and achieving a balanced use of the sea between different interests.**

**It is recommended that preliminary discussions are held at an early stage involving organisations with an interest in the conservation management of the marine environment of north Northumberland. This would constitute an *ad hoc* steering group which could develop into a management committee whose main function would be to develop the marine conservation management plan and pursue opportunities for promoting marine conservation.**



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# **APPENDIX: BACKGROUND INFORMATION RELATING TO THE MANAGEMENT OF THE NORTHUMBERLAND COAST**

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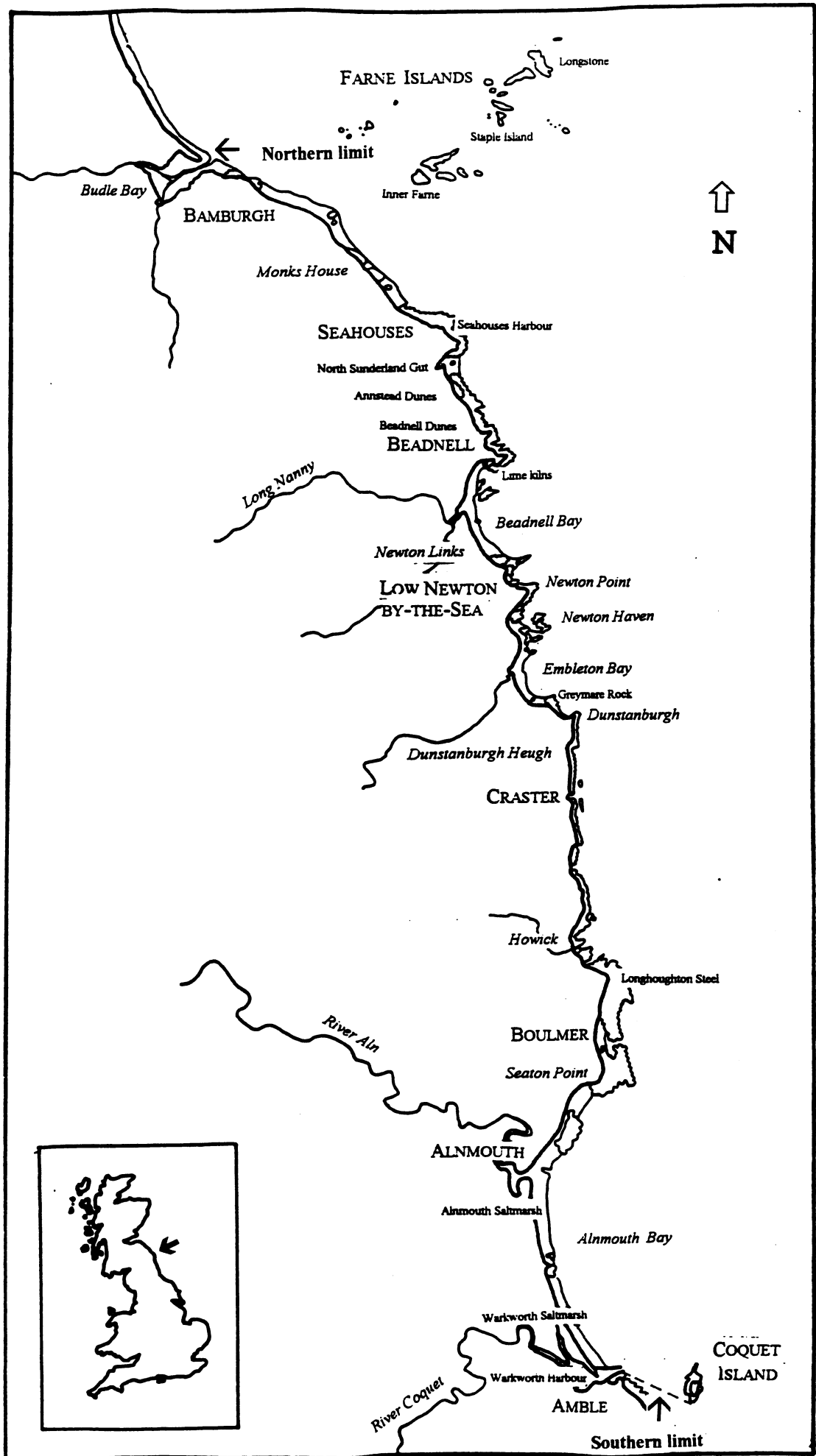
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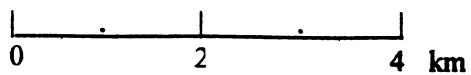
## **PREFACE**

The Appendix section of the present report stands on its own and provides regional information which is likely to be required during the early stages of the preparation of a marine conservation management plan. Although the survey area for which the biotope map has been prepared lay between Budle Bay and Craster (see Map 2 in Part Two of this report), the information presented here relates to a greater length of coast in order to include the interests of a wide variety of local organisations, and because many of the conservation issues pertaining to the study area have a wider significance. Details relating to the coast between the northern boundary of Budle Bay (in the north) and a line drawn between the south pier at Amble and the southernmost tip of Coquet Island (in the south) (see Appendix Map 1) are included. The information provided in this section has been used for the purpose of producing recommendations for establishing a marine conservation management plan specific to the north Northumberland coast.

Map 1. The Study Area



Scale



## **A1. CONSERVATION STATUS**

The section of coast between Budle Bay and Amble (Map 1) clearly has outstanding conservation value, and this is reflected by the high degree of protection with which it is already endowed both through statutory conservation designations and non-statutory nature reserve or other status. The natural environmental qualities of this region have been recognised at an international level as well as on a national and regional (Northumberland) basis. The conservation status of the study area is described below under these three categories of importance.

### **A1.1 Areas of International Conservation Importance**

#### RAMSAR Sites

Three sites are internationally acclaimed as 'Wetlands of International Importance' under the statutory RAMSAR Convention (1976) (Map 2). The objectives of the RAMSAR convention are to stem the progressive encroachment on, and loss of, wetlands now and in the future. A wetland is defined as being an area of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt. This includes areas of marine water, the depth of which, at low tide, does not exceed 6 metres. The UK Government signed the Convention in 1973 and ratified it in 1976. In so doing it accepted a commitment to promote both the conservation of selected sites and the wise use of wetlands within its territory. Criteria for selecting sites include the representativeness or uniqueness of the wetland, the numbers, quality or vulnerability of the flora and fauna present, and the numbers of waterfowl it regularly supports. UK policy is that a RAMSAR site must first be designated an SSSI (see below).

The three sites designated are:-

- (a) Budle Bay, in the north, which is part of the Lindisfarne National Nature Reserve (see page 6); it supports internationally important numbers of brent and greylag geese, widgeon, redshank and ringed and grey plover.
- (b) The Farne Islands which provide an internationally important habitat for breeding birds. On the Farnes the shag, sandwich tern, roseate tern and arctic tern are all present in internationally important numbers. The only lesser-crested tern ever to have reared young (hybrid with sandwich tern) in the British Isles has spent the summer on the Farnes every year since 1984 and fledged young twice, in 1989 and 1992.
- (c) Coquet Island which is also an internationally important habitat for breeding birds. The Island supports internationally important numbers of breeding sandwich and roseate terns.

#### Special Protection Areas

The same three sites are designated as a 'Special Protection Areas' (SPAs) under the EC Directive 79/409/EEC on the conservation of wild birds (European Communities Council, 1979). Under this Directive Member States are required by law to take special measures

to conserve the habitats of rare, vulnerable or regularly occurring migratory species of birds. The whole of the coastline considered in the present study also qualifies for designation as a Special Protection Area and it is anticipated that this will occur in the near future. The region forms part of a chain of internationally important sites for migratory birds. The Northumberland coast is a focal point on migration routes for birds which breed in arctic and sub-arctic areas from northern Canada and Siberia. A wide range of wildfowl and waders, including whooper swans, brent and greylag geese, widgeon, grey plover, dunlin and purple sandpiper rely on the coastal habitats for food and rest during the course of their journeys. Other birds, such as the terns and ringed plovers, migrate north in the spring to breed in this region and they require food and undisturbed conditions if they are to be successful.

## **A1.2 Areas of National Conservation Importance**

At a national level the area between Budle Bay and Amble has long been recognised as having a variety of valuable environmental attributes. As a result both statutory and non-statutory protection has been in existence, in some cases, for several decades.

### **A1.2.1 Statutory National Designations**

#### Area of Outstanding Natural Beauty

AONB designation is statutory and confers formal recognition that the natural beauty of the area is of national importance and its primary aim is to protect the beauty of the natural landscape (Countryside Commission, 1991). Responsibility for managing AONBs lies with the Countryside Commission. The study area forms part of the 'Northumberland Coast' Area of Outstanding Natural Beauty (AONB) which stretches from Bear's Rock, south of Spittal, in the north to Amble in the south (map 3). This was designated in 1958 by the National Parks Commission (now the Countryside Commission).

#### National Nature Reserve

National Nature Reserves (NNRs) are areas of high national conservation importance, designated under Section 19 of the National Parks and Access to the Countryside Act 1949. Two National Nature Reserves (NNRs) feature in the study area (map 3). Budle Bay is included in the Lindisfarne National Nature Reserve which was designated in 1964 on account of its valuable wetland habitat. In May 1993 the Farne Islands were given NNR status in recognition of the Islands' national importance for wildlife. The islands are famous as a breeding ground of the grey seal and for their seabird nesting colonies. The grey seal population currently numbers about 3,450, which represents about 1.5% of the world population of this species. Eighteen species of seabird are represented, including puffins, terns, cormorants, shags, guillemots and razorbills which are present in nationally important numbers. The islands are now one of the most important nature reserves in the British Isles and a Sanctuary Order (1980) gives complete protection to the bird life of the islands (National Trust [Northumbria Region], 1993).

### Site of Special Scientific Interest

This is a statutory notification which marks the quality of sites as assessed on a national scale by English Nature. SSSIs are generally regarded as being foremost examples of natural habitats, or containing rare species or geological exposures of scientific interest. On the coast they extend seaward as far as mean low water. Seven sites on the coastal strip of the study area have 'Site of Special Scientific Interest' (SSSI) status. In addition, the whole of the Northumberland shore was notified as an SSSI in December 1992 (map 3). These sites have been notified because of their geological, botanical or ornithological interest. They nonetheless provide some form of protection for the intertidal marine organisms down to the mean low water mark. Owners and occupiers of SSSIs must, by law, give written notice to English Nature of any proposed operations which have been listed in the SSSI notification as being potentially damaging to the flora and fauna or geological or physiographical features which give the site its SSSI status.

### **A1.2.2 Non-statutory National Designations**

#### Heritage Coast

The study area falls entirely within the 'Northumberland Heritage Coast' which extends from the Scottish border south to the Coquet estuary (map 3). This was designated in 1973 by the Countryside Commission. This non-statutory designation signifies the quality of this undeveloped coastline as one of the finest in Britain. One of the main objectives of Heritage Coast designation is to conserve, protect and enhance the natural beauty of the coast, including its terrestrial, littoral and marine flora and fauna (Countryside Commission, 1992).

#### Proposed Marine Consultation Area

The designation 'Marine Consultation Area' (MCA) was introduced in Scotland in 1986. The Department of the Environment and The Welsh Office proposed a similar idea for England and Wales in early 1992 (Department of the Environment and the Welsh Office, 1992), circulating a list of 16 sites for consultation. MCAs were considered to be "of particular distinction in respect of the quality and sensitivity of their marine environment" and carried a strong presumption for consultation over activities within them. The present study area falls within the proposed 'Holy Island and the Farne Islands' MCA (map 3) which was selected for a number of reasons, including its habitat diversity, varied marine communities and interesting species distributions. However, the Government have recently decided not to proceed with the concept of MCAs in England as more appropriate new initiatives, such as the 'Sensitive Marine Areas' initiative from English Nature (see the following section), and the recent spread of coastal management plans, have superseded their purpose (Department of the Environment and the Welsh Office, 1993).

#### Sensitive Marine Area

In 1993 English Nature identified 27 nationally important subtidal marine wildlife areas through the 'Sensitive Marine Areas' (SMA) initiative (English Nature, 1993a). The



selection criteria for this non-statutory designation are outlined by English Nature (1993b). One of these areas occurs in part of the present study site (map 3). The seaward boundaries of the SMA are the same as those of the proposed MCA (above) while the landward boundary, along with all other SMAs, is set at the limit of highest astronomical tide (HAT), rather than the Mean High Water Mark (MHWM) as was the case for MCAs.

The reasons for selection of the 'Holy Island and the Farne Islands' SMA include those originally outlined for the MCA :-

(a) Habitat diversity : the varied topography and geology of the area creates an unusually high marine habitat diversity in comparison with the majority of English North Sea coasts (English Nature, 1993). The whole section of coast is subject to a wide range of wave exposures and tidal currents, particularly around the Farne Islands. The presence of sublittoral features including surge gullies, sublittoral tunnels and cliffs further enhances the overall habitat diversity around the islands.

(b) Varied marine communities : the wide range of marine habitats support a large variety of marine communities. The limestone lower shores, a comparatively rare marine habitat in Britain, provide substratum for the development of rich communities. Rich, current-swept areas offshore are extensive, particularly the sediment and cobble communities offshore from Budle Bay, around the Farne Islands and at Embleton Bay. Newton Haven is also considered to support rich and diverse sediment communities.

(c) Interesting species distributions: the area has a high proportion of species with a 'northern' distribution, characteristic of cold waters, e.g. the hydroid *Thuiara thuja*, the anemone *Bolocera tuediae* and the red alga *Callophyllis cristata* and represents the southern limit for a number of these species.

The fact that the Farne Islands, with their important numbers of seabirds, and the cliffs at Dunstanburgh which support one of the largest mainland seabird colonies in England, occur within the area, was also a reason for selection. These seabirds and the grey seals of the Farne Islands use the SMA as part of their feeding grounds.

In addition, the water quality of the region was taken into account. This is regarded as generally good within the area, being well-oxygenated with low levels of nitrates, phosphates, ammonia and copper. Budle Bay is a 'B classified' shellfish area (BEC, 1992).

#### Royal Society for the Protection of Birds (RSPB) Reserve

Apart from its SSSI designation, Coquet Island is also nationally recognised by its 'RSPB Reserve' status (map 5). It supports nationally important numbers of breeding eider, black-headed gull, common tern and puffin (as well as the internationally important numbers of sandwich tern and roseate tern mentioned above). The eider colony is the most southerly colony on the east coast. Grey seals commonly haul up on the island. The

reserve is managed by the RSPB to protect the bird colonies using Joint Nature Conservation Committee (JNCC) management plan guidelines.

### **A1.3 Areas of Regional Conservation Importance**

Although the large majority of the coastal section is classed as either of international or national conservation importance additional sites are recognised as of value in a regional context.

#### Site of Nature Conservation Importance

Those sites which have been given regional conservation status include those first identified in 1978 in the Northumberland Wildlife Trust's 'Coasipec' Report (1978), and subsequently modified or confirmed in 1983 (Northumberland Wildlife Trust, 1983), as being worthy of the designation of 'Site of Nature Conservation Interest' (SNCI). The designation relates to those areas considered to be of considerable conservation importance within the (old) county of Northumberland. It relies on policies adopted by local planning authorities for protection and has no statutory backing. The coastal SNCIs occurring between Budle Bay and Amble (Map 4) are:-

1. North Sunderland Gut, a semi-saline channel running across the Seahouses golf course which contains plants rare in the north east of England.
2. Beadnell Bay (North), which is a combination of sand dunes, foreshore and small salt marsh at the mouth of the Long Nanny.
3. Beadnell and Embleton Coast, containing a combined interest of botanically rich dunes, outcrops of whin sill and great limestone, a pool which is important for wetland birds and invertebrates, and a stretch of sandy and rocky shore exhibiting a diverse marine fauna.
4. Alnmouth to Amble Coast, which includes two of the most valued saltmarshes in the county, mudflats supporting important numbers of wildfowl and waders, a bed of common reed, and one of the richest areas of dune in the region containing many plants uncommon in the north east.

#### Northumberland Coast Management Plan Area

The whole of the area under study has been afforded protection by the Northumberland County Council on account of its high environmental quality. The Council have taken on the responsibility of the protection and management of the Heritage coast area as recommended by the Countryside Commission. The Council has prepared a non-statutory 'Northumberland Coast Management Plan' (NCMP) (1993) "to provide a framework and

action proposals for the management of the coast which will protect areas of high environmental quality and bring about the improvement of those areas despoiled by man's activities while at the same time catering for the needs of residents and visitors in a sustainable way". The Northumberland coast as a whole is noted as being of wide ranging natural and scientific interest, and it is recognised that the interaction of sea and land has created a rich mixture of habitats throughout the area which support a varied wildlife. Inland coastal waters are regarded as "an environment of major sensitivity" and consequently the management plan boundary extends to the 10 fathom (=20m) contour to include the richest inshore waters and the majority of rock outcrops and islands along the coastline (map 4). The plan goes so far as to propose, despite the lack of precedent, that the Countryside Commission should give favourable consideration to defining an offshore boundary to the Heritage Coast on the 10 fathom contour'.

Features of interest, which are of particular relevance to the study area, which are highlighted in the Northumberland Coast Management Plan include the rocky reefs from Beadnell to Seaton Point which support a wide variety of marine life, the rock headlands at Newton-by-the-Sea which form important protected intertidal habitats, and the mudflats and saltmarshes at Budle Bay, Alnmouth and on the north side of the River Coquet which provide rich feeding grounds for wildfowl and waders.

#### **A1.4 National Trust Properties**

National Trust Properties feature highly in this region (map 5). Approximately 662 hectares of coastal land, stretching along about 14.5 km of coastline, is owned, leased or under covenant agreements (Table 1.) (National Trust Coastal Warden, 1987). The Properties cannot be categorised together into any one of the international, national or regional levels of conservation interest; they cover the spectrum. They have therefore been treated separately from other designations in the context of this section of the report.

International Importance : The Farne Islands are probably the most important National Trust Property in terms of conservation: in addition to the designations relating to the Farnes given below, they are also recognised under the international RAMSAR Convention and under the European Community Directive for wild birds as a site of international conservation importance.

National Importance : A large proportion of National Trust Property in the region has national conservation value. Some of the properties, for instance, have been selected as deserving of protection under the Trust's national 'Enterprise Neptune' campaign (National Trust, 1990). This includes the purchase of Newton Links in 1966, Newton Point in 1983, and Dunstanburgh Heugh in 1990. Furthermore, much of the National Trust land is also covered by the national SSSI notification (maps 3 and 5).

Of particular importance in the context of this report is the granting of leases by the Crown Commissioners to the National Trust of the foreshore from the south side of the

Long Nanny in Beadnell Bay to Greymare Rock at Dunstanburgh in 1979, and of the seabed at Newton Haven in 1987 (map 5). The current lease on the foreshore is due to terminate on 23rd May 2000 and that on the seabed is to run until 22nd May 2000. This enables the Trust to have some, even though limited, management control with respect to the marine environment. These marine areas are included in the SMA designation and therefore have national significance.

The national conservation interest of the Farne Islands has long been recognised by the Trust and they were the Trust's earliest acquisition (1925) on the Northumberland coastline. The islands are the only archipelago off north east Britain and apart from supporting an important grey seal colony, representing about 3.5% of the UK. population, they are the site of the main seabird colony on the north east coast of England. Of the 15 species of seabird which breed regularly on the islands, 9 are present in nationally important numbers. This National Trust Property, designated a 'National Trust Nature Reserve' is managed by a National Trust Warden with the support of a Local Management Committee.

The Farne Islands were one of the first SSSIs in the country (1951), they were declared a National Nature Reserve in 1993.

Recent marine biological surveys around the islands (Edwards, 1983; Connor 1989) have revealed rich marine communities with clearer, deeper water resulting in the presence of species rarely found on the mainland shores and reefs of Northumberland. A recent evaluation of the Farnes Property (Walton, 1993) considers the marine environment around the islands as 'very natural, although the human impact of inshore fishing has not been quantified'. The site is also regarded as of immense value in the future creation of a marine nature reserve around the islands as a natural extension of the NNR designation. One of the main management objectives is 'to examine the possibilities of declaring a Voluntary Marine Nature Reserve around the Islands, with the eventual goal of a Marine Nature Reserve and to assist in research and monitoring work which will provide a fuller understanding of the marine environment'. The islands and surrounding waters receive a large number of visitors (approximately 38,750 to the islands alone in 1993), including many divers, and therefore have potential for promoting marine nature conservation to a wide audience.

Regional Importance : Some of the National Trust coastal properties in this area have value only at a regional level. For instance, those which have been offered for purchase by local landowners, such as Beadnell Dunes, do not necessarily have significant conservation value in their own right. In some cases the reasons for designation are not always strictly for nature conservation (e.g. Beadnell Lime Kilns). Nonetheless, these Properties are part of the local coastal environment and are therefore important in enabling the Trust to provide more of a 'whole coast' approach to coastal conservation management in the region. One of the Trust's covenanted sites, Beadnell Bay North, has been recognised by

the Northumberland Wildlife Trust as specifically having regional conservation importance (see 'Site of Nature Conservation Importance' designations).

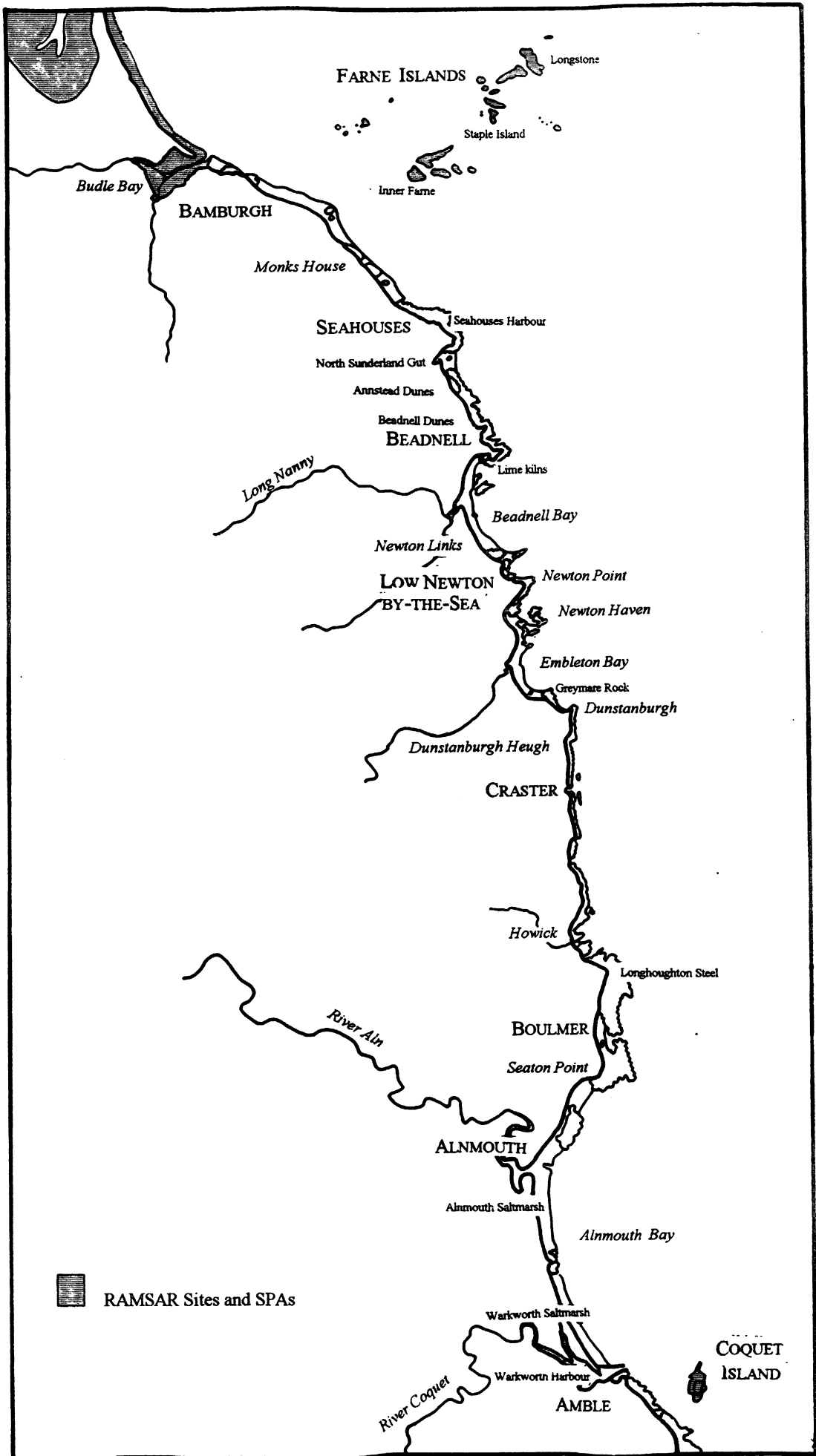
**Table 1. Summary of Conservation Assessment for the Study Area**

<b>Designation/ Status</b>	<b>Statutory/ Non- statutory</b>	<b>Organisation responsible for site protection</b>	<b>Site</b>	<b>Map</b>
<b>International</b>				
RAMSAR	S	UK Government through English Nature	Budle Bay Farne Islands Coquet Island	2
SPA	S	UK Government through English Nature	Budle Bay Farne Islands Coquet Island	2
<b>National</b>				
AONB	S	Countryside Commission	North Northumberland Bear's Rock - Amble	3
NNR	S	English Nature	Budle Bay (part of Lindisfarne NNR)	3
			Farne Islands	3

SSSI	S	English Nature	Budle Bay (part of Lindisfarne SSSI) Bamburgh Coast & Hills Newton Links Castle Point to Cullernose Point Howick to Seaton Point Alnmouth Saltmarsh and Dunes Warkworth Dunes and Saltmarsh Northumberland Shore	3
Heritage Coast	NS	Countryside Commission	Northumberland (Scottish Border - River Coquet estuary)	3
Proposed MCA (discontinued designation)	NS	Dept. Environment through English Nature	Holy Island & the Farne Islands	3
SMA	NS	English Nature	Holy Island & the Farne Islands	3
RSPB Reserve	NS	RSPB	Coquet Island	5
<b>Regional</b>				
SNCI	NS	Northumberland Wildlife Trust	North Sunderland Gut Beadnell Bay (North) Beadnell & Embleton Coast Alnmouth to Amble Coast	4
NCMP Area	NS	Northumberland County Council	Northumberland Coast	4

<b>National Trust Properties</b>	NS	National Trust	Farne Islands (O)* Monk's House (C)* St Aidan's Dunes (O) Beadnell & Annstead Dunes (O&C) Beadnell Lime Kilns (C) Newton Links (O) Newton Point (O) Low Newton Village (O) Newton Pool (O) Embleton Links (O & L)* Dunstanburgh Castle (O) Dunstanburgh Heughs (O) Howick (C) Alnmouth Links (C & L) Buston Links (O) Birling Links (C)	5
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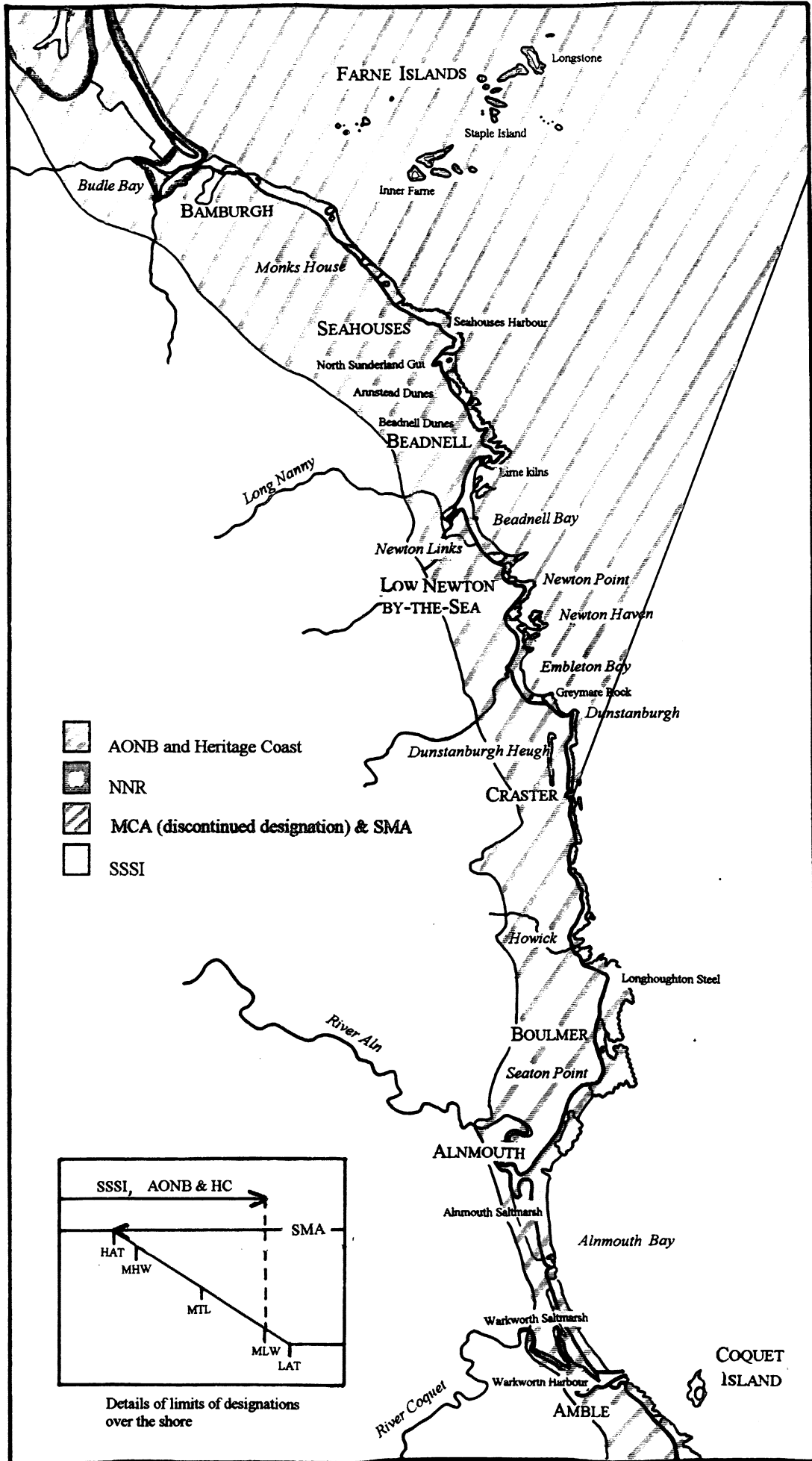
Map 2. Areas of International Conservation Importance





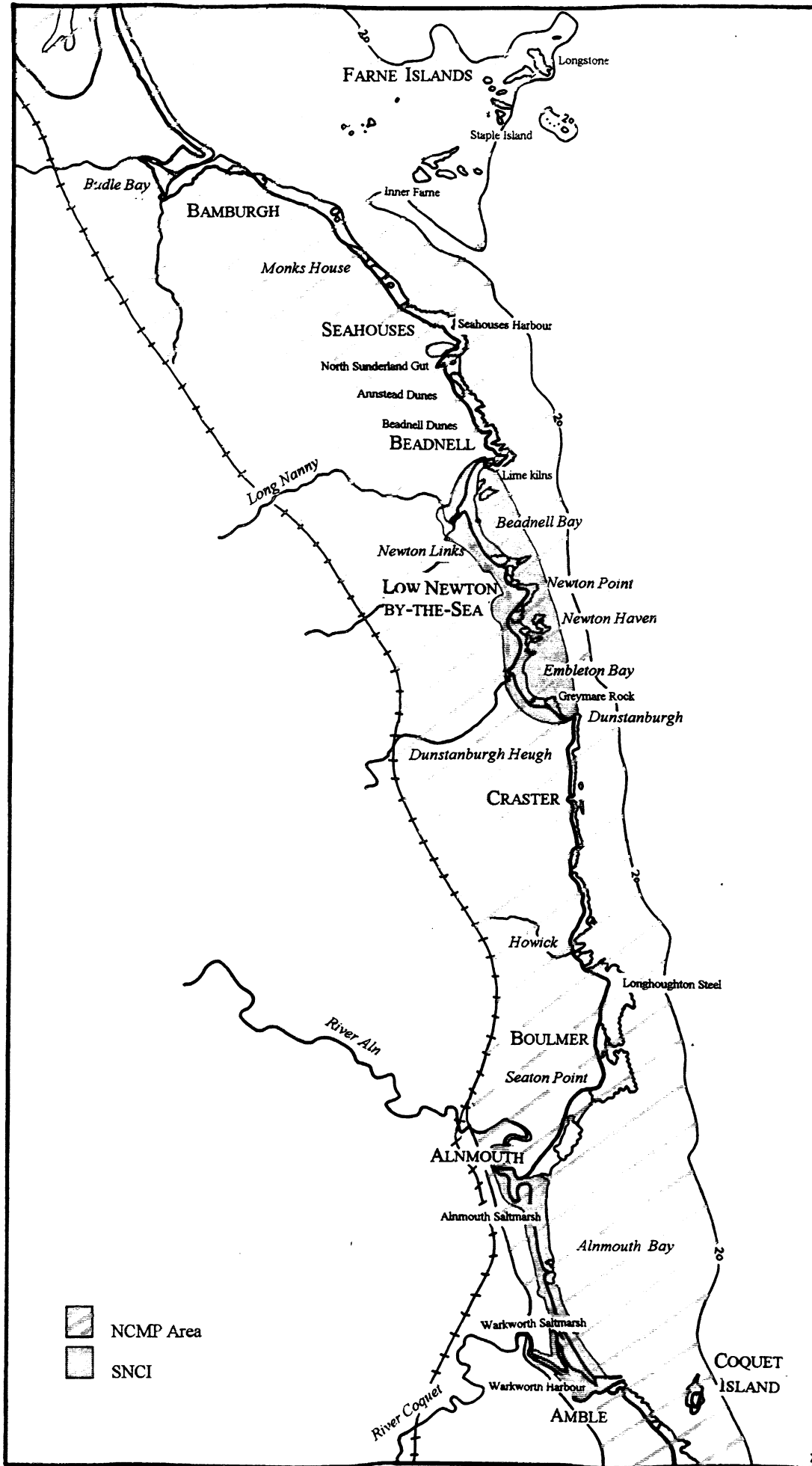


Map 3. Areas of National Conservation Importance



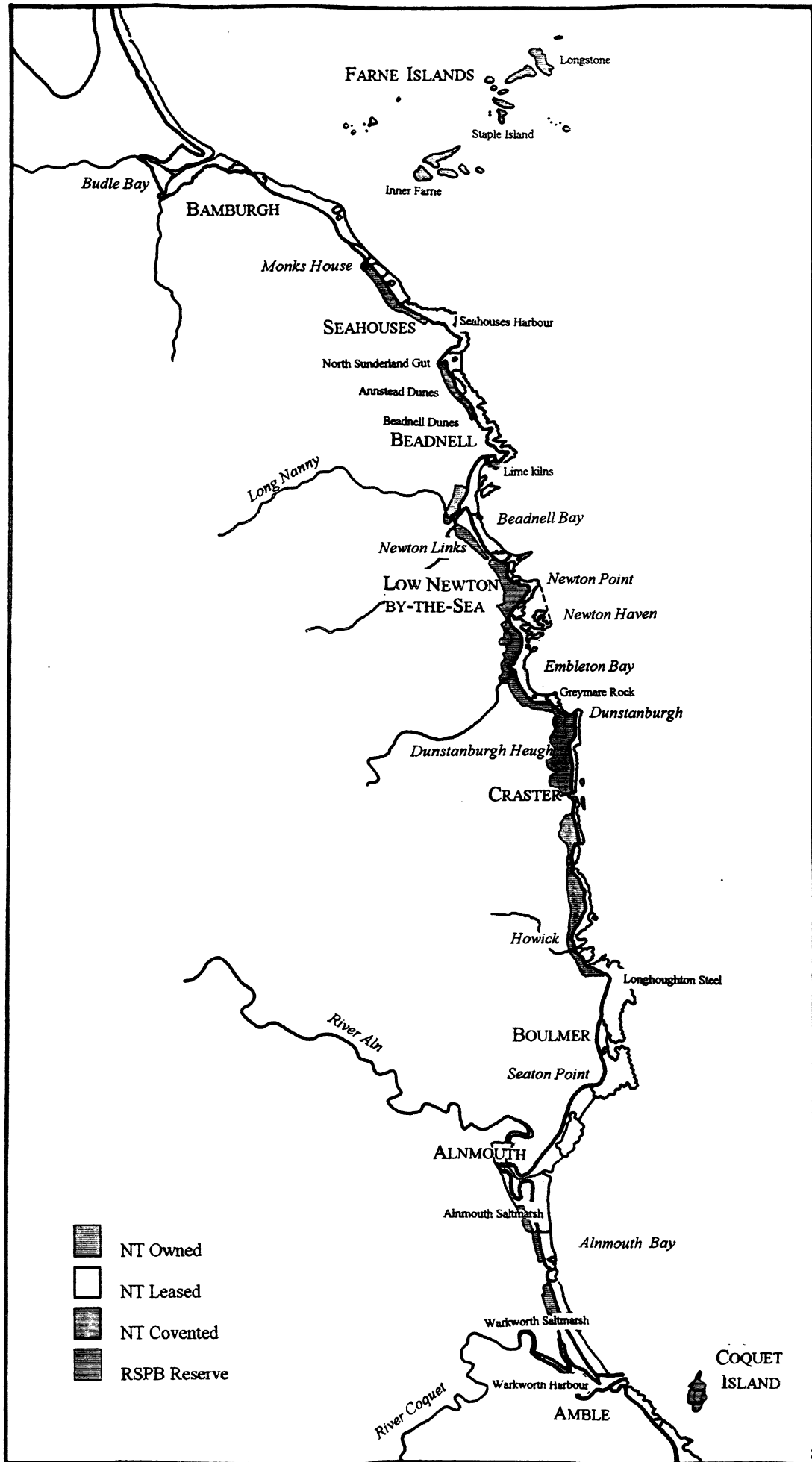


Map 4. Areas of Regional Conservation Importance





Map 5. National Trust and RSPB Properties





## **A2. COASTAL POLICIES**

Policies relating to the study area have been drawn from several documents. They form part of the background information which is required for the development of a marine management plan for the study area. Existing policies need to be examined as they provide a framework within which a marine management plan would need to work. Consideration of the policies already in place may also draw attention to aspects which have been neglected and which need additional action. The Policy Code Numbers quoted here (on the left of the Policies themselves) are the same Codes as those given in the documents from which they were extracted. Since only those policies thought to be relevant to the present report have been extracted, the Codes given here are not necessarily consecutive.

### **A2.1 Statutory Policies**

#### **A2.1.1 Countryside Commission (1991) Areas of Outstanding Natural Beauty : A Policy Statement 1991.**

##### The Purpose of Designation

1. The primary purpose of designation is to conserve and enhance natural beauty.
2. In pursuing the primary purpose of designation..... particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment.
3. ....the demand for recreation should be met so far as this is consistent with the conservation of natural beauty ..... and other uses.

##### Awareness

1. The policy of the Commission .....on awareness is to increase understanding among local authorities, government agencies and departments, and key decision makers, in order to encourage a greater commitment to the purpose of AONBs. To this end the Commission ..... will :  
  
encourage local authorities to organise joint meetings, also involving other key organisations, to foster better understanding and practise; .....



## Development Plans and Development Control

2. Development control policies for AONBs should promote the conservation of those features that contribute to their special character.
5. Applications for substantial mineral workings.....should be subject to the most rigorous examination to assess the need for the minerals and the environmental effects of the proposal.
6. An environmental assessment should accompany all proposals for major developments in AONBs.

## Management Action

3. To encourage a variety of approaches to achieving an enhanced level of management on the ground, including approaches involving the voluntary sector, charitable trusts and local communities.

## **A2.1.2 Northumberland County Council Structure Plan - Written Statement of Approved Policies 1988.**

### Structure Plan Strategy

- S8 When considering proposals for development, have regard to the need to ensure the conservation of the attractive quality and character of the undeveloped ..... coastal areas..... to ensure that development has regard to the inherent qualities of the environment.
- S9 Subject to policy S8, make appropriate provision for tourists and day visitors and also encourage and normally permit projects which create benefits for visitors and residents, particularly those related to the natural and historic assets of the county.
- S11 Maintain the town of Amble by the Sea as a main residential, employment and service centre and encourage its development as a tourist centre.

### Transport

- T30 Encourage the development of the ports of Amble, .....and Seahouses.

## The Countryside and Built Environment

- C1 Ensure that the character and quality of the .....rural coast are conserved and enhanced, with the highest priority given to..... the coastal Area of Outstanding Natural Beauty.....
- C4 Consider proposals for mineral workings, .....in the county in the light of the following criteria :- .....
- (v) the effect on features of .....natural interest.
- C4A Generally resist large scale mineral workings,.....in confirmed Areas of Outstanding Natural Beauty,.....; and consider proposals for small scale workings against the criteria included in policy C4.
- C5 Where mineral workings.....are acceptable, in principle to .....
- (v) permit extraction only in accordance with a phased scheme of working and normally after agreement of a scheme for restoration and aftercare which ensures beneficial use following working for.....nature conservation or outdoor recreation.
- (vii) require that the landscape of the site following restoration should maintain or enhance the general character of the countryside.
- C8 Remove and prevent as far as practicable the pollution of air and water in the county and to ensure that noise levels arising from development do not exceed acceptable limits.
- C9 Resist generally all proposals for development which would be detrimental to National Nature Reserves and Sites of Special Scientific Interest.
- C10 Take into account the interests of nature conservation in all planning decisions relating to urban and rural land use change.
- C16 Conserve and enhance the natural beauty of the North Northumberland Coast Area of Outstanding Natural Beauty.
- C16A Enhance the appearance of the rural coast by implementing landscape projects and schemes.
- C19 Resist generally all developments which conflict with the essentially open and undeveloped character of the rural coast.

## Outdoor Recreation and Tourism

- R2 Provide facilities for the enjoyment of the coast and countryside at suitable locations, while safeguarding areas of sensitive environment and minimising conflict with other land users and residents.
- R4A Encourage and give favourable consideration to proposals for outdoor activity and adventure centres in existing buildings suitably adapted in rural locations, provided local environmental conditions are not adversely affected.
- R8 Caravan and camping sites and extensions to existing sites will normally be permitted only where.....
- (ii) they do not have an adverse effect on areas of nature conservation.
- R9 Encourage active countryside recreations which are linked to the natural resources of the County while having regard to the need to safeguard the environment and other rural interests and land uses and also to allow active forms of outdoor recreation in suitable locations close to main centres of population.
- R10 Encourage the provision in suitable locations of facilities for water-based recreational activities whilst having regard to the quality of the environment and the interests of other land-users and residents.
- R17 Safeguard, and in selected cases improve, modify or extend the network of footpaths and bridleways in the County, including long distance footpaths.
- R20 Encourage and normally permit appropriate facilities for informal recreation in the coastal Area of Outstanding Natural Beauty and Heritage Coast which are consistent with the conservation of natural beauty, the safeguarding of environmental quality and historic character, whilst having regard to the interests of other land-users and residents.

### **A2.1.3 Alnwick District Council (1993) Alnwick District Wide Local Plan - Pre-deposit Consultation Document.**

#### Rural Environment : Wildlife and Nature Conservation

- RE1 Alnwick District Council will not normally permit developments which would adversely affect Coquet Island or the Northumberland Coast as a Special Protection Area or a RAMSAR site except in circumstances of over-riding national need.
- RE2 Alnwick District Council will not normally permit land based developments which will adversely affect the Voluntary Marine Consultation Area.

- RE3 Alnwick District Council will not normally permit development which may destroy or could adversely affect Sites of Special Scientific Interest, unless it can be proven that the development is of over-riding national importance and no alternative site is available. Where development is to be approved which could adversely affect any Site of Special Scientific Interest, Alnwick District Council will require the developer to include measures to conserve the nature conservation interest and where practical to provide replacement habitats and features where damage is unavoidable.
- RE4 Alnwick District Council will seek to protect Sites of Nature Conservation Importance and will not normally permit development which may destroy or could adversely affect these sites, unless it can be proven that the development is of over-riding local importance, and no alternative site is available. Where development is to be approved which could adversely affect any Site of Nature Conservation Importance, Alnwick District Council will require the developer to include measures to conserve the nature conservation interest and where practical to provide replacement habitats and features where damage is unavoidable.
- RE5 Alnwick District Council will seek to protect established Nature Reserves and encourage new Nature Reserves and will not normally permit development which may destroy or could adversely affect these sites, unless it can be proven that the development is of over-riding local importance, and no alternative site is available. Where development is to be approved which could adversely affect any Nature Reserve, Alnwick District Council will require the developer to include measures to conserve the nature conservation interest and where practical to provide replacement habitats and features where damage is unavoidable.
- RE11 Alnwick District Council will not normally permit developments which necessitate the removal, destruction or interruption of significant wildlife corridors and habitats known to support protected species. Where development is to be approved which could adversely affect any wildlife corridor or habitat, appropriate measures shall be required to conserve the nature conservation interest and where practical to provide replacement habitat features where damage is unavoidable.
- RE13 Alnwick District Council will seek to protect Regionally Important Geological/Geomorphological sites and will not normally permit development which could destroy or adversely affect these sites unless it can be proven that the development is of over-riding local importance, and no alternative site is available.

RE14 Within the coastal strip, as defined by the AONB.....Alnwick District Council will not normally permit developments which would be inconsistent with the aims of the AONB and Heritage Coast designations, by reason of scale, siting, design, noise, disturbance and traffic, or which adversely affect heritage features, flora, fauna, or remote stretches of coast or access to them.

#### Rural Environment : Landscape and Recreation

RE28 Alnwick District Council will require an Environmental Assessment in respect of all major developments where they may have an effect on a designated site of Wildlife and Nature Importance or Landscape Importance.

#### Traffic and Transport : Harbours

TT23 Alnwick District Council will normally permit new development at Warkworth Harbour providing the development compliments the existing fishing and recreational uses and does not adversely effect the designated areas on the northern bank of the estuary nor the amenity of nearby residential property.

#### Community Development : Sport and Recreation

CD24 Alnwick District Council will not normally permit new sports and recreational development where the proposals would be detrimental to areas of land identified as being of conservation, [or] wildlife.....value.

CD32 Alnwick District Council will normally permit new leisure development associated with the marina on the 7.2 Hectares (17.9 Acres) of land at Amble Braid providing the developments do not restrict access to the public launch or conflict with the use of the remainder as an area of public open space.

#### Community Development : Energy Conservation and Global Warming

CD39 Alnwick District Council will normally permit schemes for coastal defences where there is proven threat to residential property.

## **A2.2 Non-statutory Policies**

### **A2.2.1 Countryside Commission (1992) Heritage Coasts in England : Policies and Priorities 1992.**

#### Heritage Coast Objectives

1. To conserve, protect and enhance the natural beauty of the coasts, including their terrestrial, littoral and marine flora and fauna,..... and their heritage features of .....archaeological interest.
2. To facilitate and enhance their enjoyment, understanding and appreciation by the public by improving and extending opportunities for recreational, educational, sporting and tourist activities that draw on, and are consistent with, the conservation of their natural beauty and the protection of their heritage features.
3. To maintain, and improve (where necessary) the environmental health of inshore waters affecting Heritage Coasts and their beaches through appropriate works and management measures.
4. To take account of the needs of ..... fishing, and of the economic and social needs of the small communities on these coasts, by promoting sustainable forms of social and economic development, which in themselves conserve and enhance natural beauty and heritage features.

#### Definition Programme

2. ....while the Commission has no plans to extend the present coverage of Heritage Coasts, it will be prepared to review the position in the mid 1990s.

#### Control of Development

1. Rigorous control should be exercised to preclude all forms of development that are either incongruous in an area of fine natural beauty by reason of scale, siting, design, noise, disturbance and traffic, or which adversely affect heritage features, flora and fauna, or remote stretches of coast or access to them.
3. Environmental development procedures (as required under the various statutory environmental assessment regulations) should be used for all major projects with significant environmental effects on the sensitive landscapes of Heritage Coasts, including the inter-tidal strand and inshore waters.

4. All developments affecting the inter-tidal strand of Heritage Coasts and immediate inshore waters adjacent to Heritage Coasts, and having major impact on the environmental quality and health of these coastlines and their enjoyment by the public, should be subject to rigorous control by the appropriate authorities, including the local authorities, the Crown Estate Commissioners, the Department of Trade and Industry (offshore oil and gas), the National Rivers Authority, the Ministry of Agriculture, Fisheries and Food. Heritage Coast objectives should be adopted by all authorities and organisations with responsibilities for the inter-tidal strand or inshore waters of Heritage Coasts.

#### Heritage Coast Management Measures

1. Every Heritage Coast should have a management plan incorporating the targets set out below, suitably related to the character of the coast, and a timetable for their implementation by the year 2000. Many of the targets involve action by a range of organisations, reinforcing the need for all organisations with coastal responsibilities to embrace the objectives and targets set out here.

Target 1 : Natural Beauty The creation or retention of a strip of grassland or semi-natural vegetation along Heritage Coasts behind the beach or cliff edge, normally accommodating the coastal path, or where appropriate in the landscape, a field's width. The removal or amelioration of eyesores identified in the management plan.

Target 2.: Enjoyment by the public A continuous coast path along each Heritage Coast, and all rights of way in the Heritage Coast properly managed.

Target 3 : Environmental Health Litter clearance and collection to be related to the highest standards for amenity beaches, as set out in the Code of Practise issued by the Department of the Environment.

Target 4 : Environmental health All intensively used beaches on Heritage Coasts to be designated as 'bathing beaches' complying with the European Community directive on bathing water quality.

2. The Commission will continue to give high priority to assisting further protective ownership of Heritage Coast land by conservation bodies such as the National Trust, since such ownerships are the most effective means of protecting and managing stretches of fine, unspoilt coastline.

### Heritage Coast Organisation

1. A local authority committee should be charged with the protection and management of the Heritage Coast (defined as including the inter-tidal strand and adjacent inshore waters), and an officer team should be responsible for the Heritage Coast and for the preparation of a Heritage Coast management plan in consultation with other bodies involved. Where relevant these committees and officer teams should be integrated with National Park and AONB structures.
2. Local communities should be involved in the protection and management of Heritage Coasts, through the encouragement of locally based societies and groups.

### Resources

1. To draw into Heritage Coast protection and management the resources of organisations with coastal responsibilities.

### **A2.2.2 Northumberland County Council (1993) Northumberland Coast Management Plan.**

#### The Coastal Landscape

1. To encourage and assist farmers and landowners to adopt land management practises and implement conservation schemes which will improve landscape and ecological quality.
3. To ensure the protection of coastal dune systems by :-
  - (i) excluding motorised recreational activities;
  - (ii) managing and controlling car parking and pedestrian access;
  - (iii) negotiating appropriate land use practises within duneland areas;
  - (iv) increasing awareness of the unique quality and fragility of sand dune areas through the provision of information and interpretative material and facilities;
  - (v) assisting dune systems to repair and renew themselves where damage occurs.



5. To ensure that high regard is paid to visual and environmental considerations in the design of coastal defence works and that schemes are prepared to ameliorate the visual impact of existing, intrusive works.
6. To ensure that sources of land and water pollution are controlled and progressively reduced through co-ordinated action by relevant agencies.
7. To seek early compliance with the EC Directive on water quality for all bathing beaches.
8. To achieve implementation of programmes to ensure amenity beaches are not disfigured by litter or other waste material.
9. To promote awareness of pollution issues and to stimulate good environmental practice.
- 11 To limit uncontrolled car parking within areas of landscape and conservation sensitivity.

#### Nature Conservation and Geological Interest

1. To support the designation and appropriate management of sites of recognised conservation importance.
2. To consider the actual or potential conservation of all sites in the coastal area when exploring options for their management.
4. To consider the relationship between habitats and their physical linkage in the development of management proposals.
5. To have regard to the international importance of the Northumberland coast as a resource for migratory wild birds.
6. To give a high priority to the protection and appropriate management of important feeding and breeding areas.
7. To promote the natural interest of the Northumberland coast as a tourism and educational asset, in a manner compatible with nature conservation interest.
8. To provide information and interpretation facilities which will explain the significance of geological exposures and promote awareness of best conservation practice.

### Historical and Archeological Interest

1. To formulate guidelines on correct conservation practice relating to underwater historic remains.

### Recreation and Tourism

4. To accord priority to the coastal area within the countywide programme to signpost and improve public rights of way.
7. To implement appropriate access management measures to minimise impact within environmentally sensitive areas.
8. To commence planning and consultation work preparatory to the designation of a coastal path along the entire length of the Northumberland coastline.
9. To provide a limited number of managed facilities and access points to permit appropriate controlled water sport activities within coastal waters.
10. To develop a co-ordinated and structured programme for high quality information and interpretation provision within the plan area which will promote the attractions of the coast and increase understanding of conservation needs.

### **A3. BYELAWS AND OTHER REGULATIONS**

Byelaws relevant to the management of the marine environment have been extracted from those sets of byelaws relating to the coastal section between Budle Bay and Amble. The majority of these have been produced by the administrative authorities responsible for the section of coast concerned (Map 6). The byelaws and other regulations help to provide the framework within which a marine management plan can be developed. The byelaw codes given here are the same as those given in the documents from which they are extracted. They are, therefore, not necessarily consecutively coded in the present report.

#### **A3.1 Alnwick District Council**

Byelaws made under Section 82 of the Public Health Acts (Amendment) Act 1907 for the prevention of danger, obstruction or annoyance to persons using the seashore. (In operation from 18th April 1986).

1. In these byelaws the expression "restricted area" means such parts of Boulmer Haven as lie above the low water line.
2. Without lawful right or authority no person shall in any part of the restricted area dig for rag worms or for any form of fishing bait.
3. Any person offending against any of the foregoing byelaws shall be liable on summary conviction to a fine not exceeding £100.

#### **A3.2 Berwick-upon-Tweed Borough Council**

Byelaws for the prevention of danger, obstruction or annoyance to persons bathing in the sea or using the seashore, made by the council of the Rural District of Belford in pursuance of section 76 of the Public Health Act, 1961. (In operation from 1st February 1969).

##### Seaside Pleasure Boats

1. These byelaws shall apply to the seashore within the Rural District of Belford, and for a distance seaward of 150 yards from low water mark of medium tides, between
  - (a) an imaginary straight line extending due east from Ebbe's Snook (Beadnell Point) and
  - (b) an imaginary straight line extending from the concrete pill box on Swinhoe links on a bearing of 120 degrees reckoned clockwise from the true North point of the compass (Map 7).

2. In these byelaws, 'navigator' means the person who, whether as owner or otherwise, has the charge or control of a pleasure boat and includes a person who, being present, is entitled to give orders to the person having charge or control.
3. No person, being navigator of a pleasure boat shall, during the months of May to September, inclusive, cause or suffer such a vessel to exceed a speed of eight nautical miles per hour through the water. Provided that this byelaw shall not apply to any person when taking part in an event which is organised by the Council or by any other person with the consent of the Council in writing.
4. No person, being navigator of a pleasure boat, shall cause or suffer such vessel to be driven or sailed in a dangerous manner or without due care and attention or without reasonable consideration for other persons.
5. No person, being the navigator of a pleasure boat propelled by an internal combustion engine, shall use the pleasure boat unless the engine is fitted with a silencer suitable and sufficient for reducing as far as may be reasonable the noise caused by the noise caused by the escape of the exhaust gases from the engine.
6. Any person offending against any of the foregoing byelaws shall be liable on summary conviction to a fine not exceeding twenty pounds.
7. Nothing contained in any of the foregoing byelaws shall be deemed to be, or shall operate as, a grant by or on behalf of the Crown as owner of the foreshore and seabed below high water mark, of any estate or interest in, or right over, such foreshore and seabed, or any part thereof, nor shall anything contained in, or done under any of the provisions of the foregoing byelaws, in any respect prejudice or injuriously affect the rights and interest of the Crown in such foreshore and seabed, or prevent the exercise thereon of any public rights, or prejudice or injuriously affect any right, power, or privilege legally exercisable in, over and in respect of the foreshore and seabed.

### **A3.3 Warkworth Harbour Byelaws and Regulations**

**Made on 15th June 1870 (and still current) by the Commissioners of Warkworth Harbour under and by virtue of the powers given to them in and by the Warkworth Harbour Act, 1847, and the Harbours, Docks and Piers Clauses Act, 1847.**

#### **Extracts from the Harbours, Docks and Piers Clauses Act, 1847**

73. Every person who shall throw or put any ballast, earth, ashes, stones, or other things into the Harbour or Dock shall for every offence be liable to a penalty not exceeding Five Pounds.

### **A3.4 National Trust Byelaws**

Byelaws made by the National Trust in pursuance of the powers vested in the National Trust by the National Trust Acts 1907-1953 with respect to land held for the benefit of the Nation. (In operation from 1st October 1965).

#### **Litter and Rubbish**

5. (a) No unauthorised person shall bring rubbish, scrap, or waste materials on to Trust Property for the purpose of abandoning or disposing of the same whether in the litter bins provided by the National Trust or otherwise.

(b) No person shall leave or abandon on Trust Property except in receptacles provided for the purpose any litter, refuse, waste materials or offensive matter including (but without prejudice to the generality of the foregoing) any metal, rubber, wooden or plastic articles and containers, bottles paper, glass china, dead animals, scrap, rubble and road-mending materials.

#### **Protection of Animals**

9. (a) No unauthorised person shall on Trust Property knowingly take, molest or wilfully disturb, injure, or destroy any living creature or the eggs of any living creature or spread or use any net or set or use any snare or other engine, instrument, lamp, lure or other means for the taking, injury, or destruction of any such living creature or its eggs whether in on or above Trust Property.

(b) No unauthorised person shall knowingly bring and leave on or in or knowingly permit to be brought on to and left on or in Trust Property any living creature in such circumstances that the same would be likely to reproduce or propagate itself or cause damage to Trust Property or plant or animal life thereon.

#### **Bathing and Skating**

10. (b) No unauthorised person shall water-ski on Trust Property nor use Trust Property for water-ski-ing in or on any lake, pond, river or canal adjacent thereto.

**Driving, Parking and Mooring of Conveyances** (Note: In the Byelaw "conveyance" includes any air, land or watercraft vehicle or machine other than wheelchairs or perambulators.)

11. (a) No unauthorised person shall :

(i) Moor, park or leave on Trust Property any conveyance except in mooring sites or parking places provided by the National Trust.

(iii) Ride or drive any conveyance over or upon Trust Property otherwise upon roads, tracks and waterways authorised for the use of such conveyance.

(iv) Use any part of Trust Property in connection with any race, .....regatta, or other similar function involving the use of any conveyance.

(b) No person shall ride or drive any conveyance to the danger or annoyance of or without due consideration for other persons resorting to Trust Property.

#### Water Abstraction

13. No unauthorised person shall take any water from Trust Property or pollute the same.

#### Penalties for infringement of Byelaws

26. Every person who shall offend against any of the foregoing Byelaws shall be liable on summary conviction to a fine not exceeding £20 and in the case of a continuing offence to a further fine not exceeding £2 for each day during which the offence continues, or such other maximum as may be specified from time to time by any Act of Parliament enacted after the date hereof.

#### **A3.5 Nature Conservancy Council Lindisfarne National Nature Reserve Byelaws.**

Byelaws made for the protection of the Nature Reserve at Lindisfarne by the Nature Conservancy Council, in exercise of the powers conferred upon them by sections 20 and 106 of the National Parks and Access to the Countryside Act, 1949, as amended by section 3 of the Science and Technology Act, 1965, and as further amended by sections 1 and 2 of the Nature Conservancy Act, 1973. (In operation from the 1st October 1968). (Under review, English Nature, September 1993).

2. (1) Within the Reserve, the following acts are hereby prohibited except in so far as they may be authorised by a permit issued by the Nature Conservancy Council in accordance with byelaw 3 and except in so far as they may be necessary to the proper execution of his duty by an officer of the Nature Conservancy Council, or by any person, or servant of any person, employed by the Nature Conservancy Council :

(a) subject to the provisions of paragraph (2) of this byelaw taking, molesting or wilfully disturbing, injuring or killing any living creature;

(b) subject to the provisions of paragraph (2) of this byelaw taking or wilfully disturbing, injuring or destroying the eggs of any living creature;

(c) subject to the provisions of paragraph (2) of this byelaw spreading or using any net, or setting or using any lamp or other instrument, or any snare or lure, for the taking, injury or destruction of any living creature;

(d) wilfully removing, cutting or damaging any plant or other vegetation, whether living or dead;

(e) wilfully removing any soil or rock, or defacing any rock;

(f) wilfully bringing, or permitting to be brought, into the Reserve any living creature, or the egg of any living creature, or any plant, or any seed or any other part of any plant, in such circumstances that is likely that such creature or plant will reproduce or propagate itself, or such egg will hatch, or seed will germinate;

(h) bringing into, or permitting to remain within the Reserve any dog or other animal unless it is kept under proper control and is effectually restrained from injuring or disturbing any animal or bird;

(k) any act which pollutes or is likely to pollute any water;

2. (2) Nothing in sub-paragraphs (a), (b) or (c) of paragraph 2. (1) of this byelaw shall prohibit fishing or shell-fishing.

3.(1) The Nature Conservancy Council may issue permits authorising of any person or persons to do any act or class of acts within the Reserve or part thereof which would otherwise be unlawful under these byelaws.

Footnote in the above byelaws : Attention is directed to the following offence under the general law. The maximum penalty on summary of conviction is stated in brackets : Litter : To deposit or leave litter while in any place in the open air to which public has access (£10), (Litter Act, 1958).

### **A3.6 The Northumberland Sea Fisheries Committee Byelaws (1993)**

Byelaws made under Section 5 of the Sea Fisheries Regulation Act, 1966 (as read with Section 37 of the Salmon Act, 1986). The following byelaws apply to the whole area of the Northumberland Sea Fisheries District (map 6).

#### Lobsters

1. No person shall remove from a fishery any lobster which has recently cast its shell and is still in "soft" condition whether known as "soft" lobster or by any other name.

Provided that nothing in this byelaw shall apply to any person fishing for sea fish for scientific or experimental purposes under the written authority in that behalf of the Committee signed by their Clerk or of the Minister of Agriculture Fisheries and Food and in accordance with the conditions contained in that authority.

2. Any person who takes any shellfish the removal of which from a fishery is prohibited by any byelaw in force in the district or the possession of which is prohibited by any Act of Parliament shall forthwith re-deposit the same without injury as nearly as possible in the place from which it was taken.

#### Purse Seine Net

3. No person shall within the district of Northumberland Sea Fisheries Committee use in fishing for sea fish any purse seine net or ring net or other similar net which is used for taking fish by encircling them Provided that this byelaw shall not apply to any person

(i) Using a seine net

(ii) Fishing for scientific purposes with the written authority in that behalf of the Northumberland Sea Fisheries Committee signed by their Clerk and in accordance with any conditions contained therein.

#### Trawling

4. Trawling is hereby prohibited within the limits of the Northumberland Sea Fisheries District

Provided that this byelaw shall not apply if the overall length of a registered fishing vessel (not being a vessel propelled by steam) from which trawling is carried out does not exceed 11.59m under the written authority in the behalf of the Local Fisheries Committee, signed by their Clerk and in accordance with any conditions contained in that authority.

Provided that any proceeding taken against the owner of a vessel in respect of an offence under this byelaw committed by the skipper it shall be a good defence for the owner to prove that he exercised all due diligence to prevent the commission of the offence.

Provided that this byelaw shall not apply to any person trawling for scientific purposes, under the written authority in that behalf of the Local Sea Fisheries Committee, signed by their Clerk, and in accordance with any conditions contained in that authority.

Provided further that this byelaw shall not apply to trawling carried out by a registered fishing vessel (not being a vessel propelled by steam) whose overall length does not exceed 12.81m but only



(a) if the written authority in that behalf of the Local Sea Fisheries Committee has been signed by their Clerk in the period of two months from the date of the confirmation of this amendment pursuant to any application made whether before the date of confirmation or in the ensuing two months period

(b) until the vessel is sold or the written authority surrendered whichever shall first happen and

(c) in accordance with any conditions contained in such authority.

### Fixed Engines

5. For the purpose of section 6 of the Salmon and Freshwater Fisheries Act 1975 the placing and use of any fixed engines is hereby authorised within the district of the Northumberland Sea Fisheries Committee excluding such part as lies within the River Tweed as defined in the Tweed Fisheries (Amendment) Act 1859 providing that, in relation to any fixed engine other than a trap for taking lobsters and crabs, the following conditions are complied with :-

(1) Subject as mentioned below at no time shall a fixed engine be placed or suspended unattended for taking salmon or trout.

(2) During the period 26 March - 31 October inclusive

(a) No fixed engine, other than a 'T' net authorised by the Northumbrian Water Authority ('T' Nets) (Northern Area) Order 1987 (SI 1987 No. 612), shall be placed or fished in a depth of water less than seven metres unless the position of any such fixed engine is on a rise in the sea bed separated from the shore by water deeper than seven metres at any state of the tide.

(b) The headline of any fixed engine, not being a 'T' net authorised by the Northumberland Water ('T' Nets) (Northern Area) Order 1987 (SI 1987 No. 612), shall be at least four metres below the surface of the water at any state of tide.

(3) During the period 1 November to 25 March inclusive no fixed engine shall be placed within the following area unless the headline shall be at least four metres below the water at any state of the tide :-

#### (C) Coquet Playground

Those tidal waters and parts of the sea within an area bounded as follows :-

(a) On the north by a line drawn due West to the high water mark on the shore from a position Coquet Lighthouse bearing 355° distance 3 nautical miles and 622 metres.

(b) On the south by ..... (the southern limit of the present study area, i.e. a line drawn from the southern tip of Coquet Island as exposed at mean low water to the outer end of the South Pier at Amble)

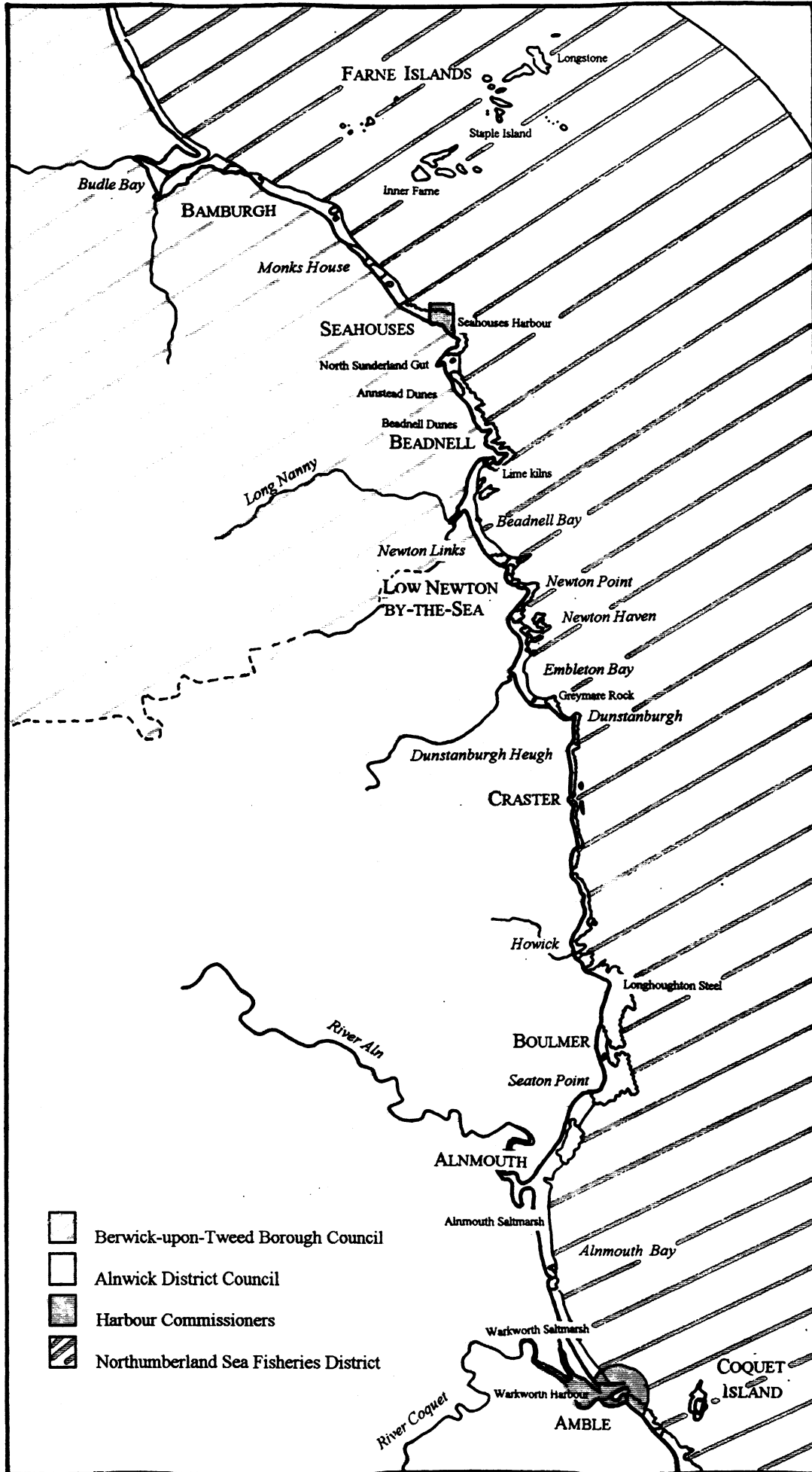
(c) On the east by a straight line joining the eastern extremities of the said northern boundary and ..... (the southern limit of the present study area given in (b) above).

### Penalties

The maximum penalty for breach of any of the Committee's byelaws is £2,000.

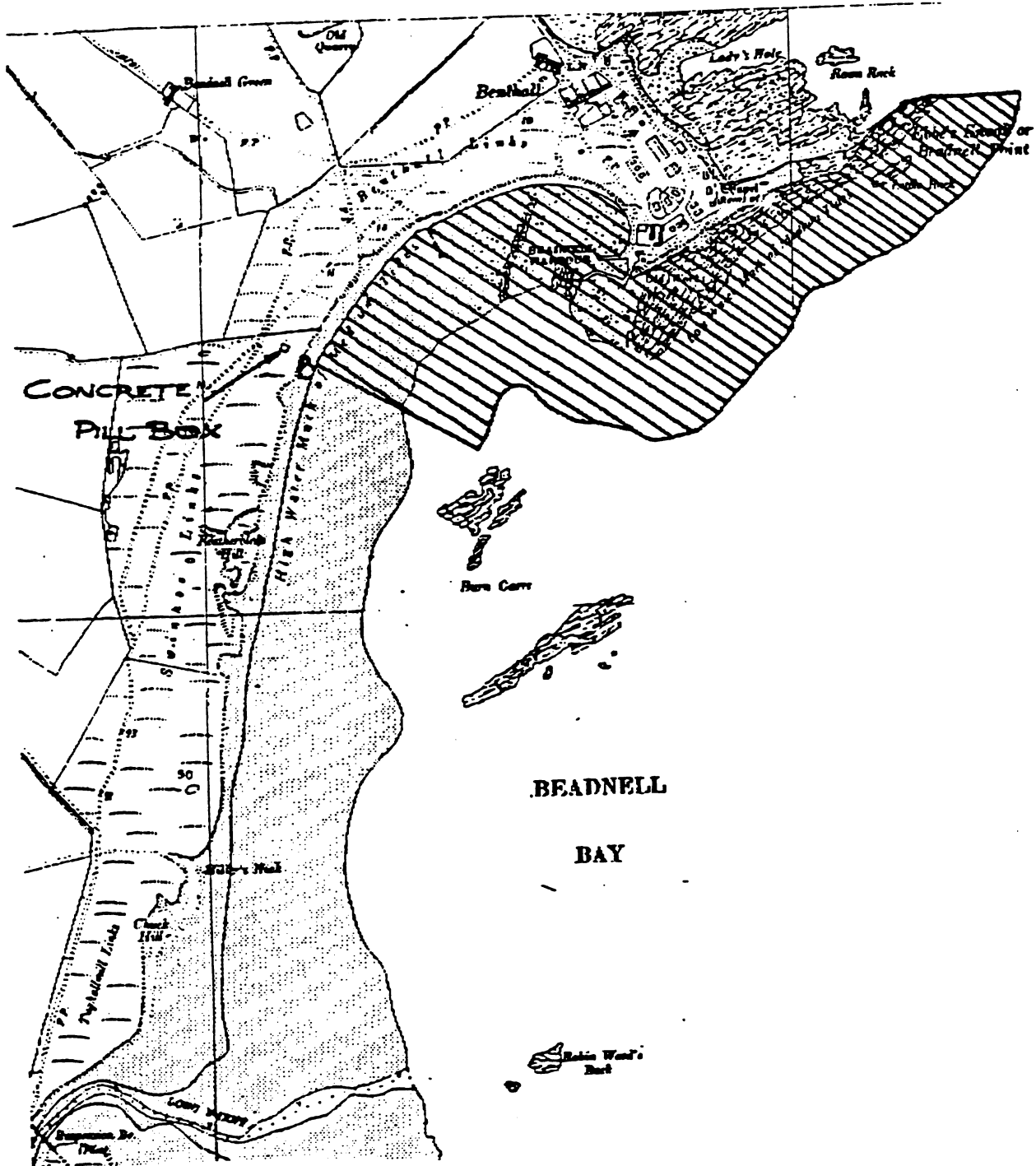


Map 6. Administrative Boundaries





Map 7. Beadnell Bvelaws Area



#### **A4. ACTIVITIES ON AND USES OF THE COASTAL MARINE ENVIRONMENT**

The way in which a particular environment is used has important implications for managers (or potential managers) of that environment. Some activities may detrimentally impinge on others; some may potentially be of benefit to one another. If a balanced use of the environment concerned is to be created and maintained for the greatest benefit to all then an overall view of the current usage is required. Details of the activities carried out within the study area are therefore given below. Only those activities which relate specifically to the marine environment from the top of the shore seaward have been included. Activities such as golfing, or horse riding which occur on the coast are not regarded as relevant to the context of the present report.

The marine part of the coastal area is used in a variety of different ways, although most of the activities relate to either fishing or recreation, and most are seasonal occurring predominantly during the summer months.

Fishing : Commercial fishing boats put out from seven different localities along the coast, ranging in approximate number as follows :-

<b>Locality</b>	<b>Trawlers</b>	<b>Cobles</b>	<b>Total</b>
Seahouses	7	9	16
Beadnell	0	2	2
Newton-by-the-sea	0	1	1
Craster	0	3	3
Boulmer	0	7	7
Amble	16	18	34

The main catch by trawler fishermen is *Nephrops*, whereas crabs and lobsters are the primary catch of the coble fishermen. White fish catches are also taken on both trawlers and cobles.

Angling : Both boat-based and shore-based angling occur between Budle Bay and Amble. Some boats take significant amounts of white fish. While these activities are on the increase, they remain a low key use of the coast. Angling competitions, however, can cause a simultaneous influx of anglers along continuous stretches of shoreline and this may have implications for the conservation of the area, such as widespread disturbance of waders and other inter-tidal organisms. Also competitive anglers are not always selective

in their catch. Inedible fish, such as wrasse, which are important inshore carnivores, are sometimes caught simply to increase the weight of the catch to be judged.

Watersports : A wide range of watersports are carried out within the study area, including sailing, windsurfing, canoeing, sports diving, water skiing and jetskiing. These tend to be very seasonal between May and September, peaking in July and August. While access requirements for these different activities vary, most tend to occur where boat launching facilities are available, *i.e.* at Seahouses, Beadnell, Low Newton-by-the-Sea, Craster, Boulmer, Alnmouth and Amble.

Water sport training centres are based at Beadnell and Amble and these sites have the greatest concentration of water sport activity. Interest in water sports in the area is increasing and at Beadnell access to the beach is in the process of being upgraded. At Amble the recent (1986) marina development (240 moorings) has encouraged increased numbers of pleasure craft.

Sports diving is extremely popular at certain localities, particularly at the Farne Islands and at Beadnell. Small boats are launched mainly from Seahouses and Beadnell and many visit the Farne Island area during the summer, particularly during July and August. Up to 30 diving boats have been present around the Farne Islands at any one time.

Bathing Beach Recreation : Increasing numbers of summer visitors are attracted to the extensive sandy stretches of coast, namely Bamburgh\*, Seahouses\*, Annstead, Beadnell\*, Low Newton-by-the-Sea\*, Embleton, Alnmouth\* and Warkworth\*. All of these sites are used for the typical family recreational activities, such as bathing, ball games, building sand castles etc. Those sites marked '\*' have been monitored by the Marine Conservation Society for inclusion in the Good Beach Guide and all are rated as 'good quality beaches' (Marine Conservation Society, 1991).

Sight-seeing : Sight-seeing trips to the Farne Islands have been occurring for many years. Access to the islands is by boat from Seahouses. Three islands are open to the public : Longstone Main, Inner Farne, and Staple. Landings on Longstone Main are the responsibility of Trinity House. Inner Farne and Staple landings are administered by the National Trust. Opening dates are from 1st April or Good Friday, whichever is the earlier, until the last day of September. After this time 'sail-arounds' continue until the October school holiday. 10 boats are currently involved in the Farne trade, 7 being licenced to land passengers on Inner Farne and Staple, while the other 3 tour around the islands. The licenced boats have a capacity for a total of 451 passengers. Licences are reviewed annually by the Farne Islands Local Committee. In the last decade annual visitor numbers have varied between 32,500 and 49,500. These figures are taken into consideration when issuing licences, although control of visitor numbers could also be achieved through variable opening hours of the islands, or the pricing policy if this were deemed necessary.

Wildfowling : Wildfowling under permit occurs during the winter at Budle Bay and at Newton-by-the-Sea.



Bait-collecting : Bait-digging for ragworm, *Nereis* spp., lugworm, *Arenicola marina*, and razor shells, *Ensis* spp. occurs in the more sheltered inter-tidal areas, notably at Boulmer and Low Newton-by-the-Sea inspite of byelaws prohibiting the activity at the two sites.

Winkle collecting occurs to a limited extent along most of the rocky shore areas during extreme low spring tide periods. This is not thought to occur on a scale large enough to be done on a commercial basis.

Quiet Enjoyment : The quiet enjoyment of the shore areas in the form of activities such as walking, bird watching and photography, is an important use of the coast throughout the year. While this is generally carried out by individuals, pairs or small groups of people, there are also many organised large group outings along the section of coast between Budle Bay and Amble.

Education : There are a number of accessible rocky shore areas, such as Seahouses, Low Newton-by-the-Sea, and Longhoughton Steel which are used by school parties for field studies. The Northumberland County Council provide an annual programme of walks and coastal events, such as rockpooling, for educating visitors to the shore. Locations for these activities include Bamburgh, Monk's House Rocks, Seahouses, Beadnell, Low Newton-by-the-Sea, Craster, Boulmer and Alnmouth. The Fishing Museum and Marine Life Centre at Seahouses also attracts many school and holiday visitors and provides a useful introduction to local marine fauna.

## **A5. KEY ISSUES CONCERNING THE COASTAL MARINE ENVIRONMENT**

### **A5.1 Increasing general disturbance to wildlife**

There has undoubtedly been an increase in the number of visitors to the north Northumberland coast in recent years and there is some concern that the level of general disturbance to the natural habitats of the coast and their various populations of flora and fauna may become damaging. The sand spit at the mouth of the Long Nanny in Beadnell Bay, for instance, provides one of the few nesting sites in the British Isles for the Little Tern. There is evidence of increasing disturbance by people and their dogs in this area and this is likely to lead to a reduced breeding success of this uncommon tern species. Similarly, inshore watersports activities are known to cause disturbance to birds resting on the shallow sea and in the Coquet estuary.

Questions which have been raised with respect to the disturbance aspect of recreation and tourism (Northumberland County Council, 1989) are :-

- (a) Should the nature conservation interest of the coast be seen as a positive asset for people's enjoyment and to attract more visitors, or as a constraint on further recreational and tourist development ?
- (b) Do the areas of national significance have any capacity to cater for growth or should the emphasis be placed on developing and interpreting the wildlife interest of other areas which may be less sensitive ?
- (c) Are there any areas where the natural history value is so sensitive that visitor access should be discouraged ?

The summary of responses to these questions from a mixture of 46 national, regional and local groups and individuals with responsibilities and interests on the coast states that "There was a general consensus of view that nature conservation should be seen as a positive asset for people's enjoyment and that with careful and skilful management many sites could accept a certain degree of visitor pressure. However, there are more sensitive wildlife areas on the coast that require protection. Appropriate visitor interpretation facilities would help to educate people into correct usage of such wildlife sites." (Northumberland County Council, 1989).

### **A5.2 Pollution of the Sea**

The quality of the inshore waters can have considerable impact both on the wildlife and on the visitor enjoyment of the coast. Inshore waters of the study area are subject to a range of pollution sources. These include the casual discarding of litter on beaches, seepage of farm fertilisers and the direct discharge of sewage into the sea, as well as seaborne effects of oil from motorised pleasurecraft and discharges at sea.

The cleanliness of beaches and bathing waters is a major factor influencing visitor enjoyment of the Northumberland coast (Northumberland County Council, 1993) .

Furthermore, pollution of the sea threatens the diversity and balance of biological communities. The discharge of sewage and run off from agricultural land, for example, cause the artificial enrichment of coastal waters, resulting in the unnatural expansion of population of some organisms and the suffocation of others. Seabirds are sensitive to changes in the quality of the marine environment, especially to changes in fish stocks and to oil pollution. Surface oil pollution also presents particular danger to plankton.

Responsibility for the control of pollution of the coastal waters in the study area rests with a number of agencies and authorities, *i.e.* the Northumberland County Council, the National Rivers Authority (Northumbria Region), and Northumbrian Water Ltd. . The Northumberland County Council have recognised both the need for improvement to the quality of beaches and offshore waters and the need for action to conserve marine wildlife (Northumberland County Council, 1989; 1993) and they have drawn up policies to assist the control and reduction of coastal pollution. However, their responsibilities are limited to the immediate coastal areas and do not extend seaward beyond the 10 fathom contour.

The local authorities undertake clearance of litter within the inter-tidal areas of popular beaches and have new duties in litter collection following the Environment Protection Act 1990. Northumbrian Water have responsibilities for the treatment and disposal of sewage including outfalls to the sea. Details of the various sewage treatment and discharge categories as of October 1993 are given below (Table 2.).

Table 2. Summary of sewage discharge details for the study area.

Consent date	Location	Discharge Pt. (Grid Ref)	Source	Discharge Type	Dry Weather Flow (m <sup>3</sup> /day)
-	Bamburgh	NU17263603	Harkness Rocks Outfall	Crude Sewage	12
21.07.67.	Bamburgh	NU17903540	Bamburgh Pumping station	Emergency overflow	
-	Bamburgh	NU19733498	Sea outfall	Crude Sewage	162
-	Seahouses	NU21563256	St. Aidan's (North) Outfall	Storm Sewage	
04.05.93.	Seahouses	NU21963226	Harbour Pumping station	Emergency overflow	
-	Seahouses	NU23043149	Snook Point outfall	Storm Sewage	
28.04.93.	Seahouses	NU24232880	Seahouses STW	Preliminary treatment	724
-	Beadnell	NU24232886	Sea outfall	Crude Sewage	330
28.07.93.	Craster	NU25902008	Dunstanburgh comminutor station	Crude Sewage	
13.07.93.	Craster	NU25931982	Heugh Road Pumping station	Emergency overflow	
28.07.93.	Craster	NU25931973	Heugh Road SSO	Storm Sewage	
02.08.93.	Craster	NU26001950	Craster communitor station	Crude Sewage	70
02.08.93.	Boulmer	NU26801564	Longhoughton Steel Prelim. treatment works	Preliminary treatment	470
-	Amble	NU27670499	Pan Rocks outfall	Screened Sewage	1109

13.07.93.	Amble	NU26160455	Amble	Septic tank	203
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The National Rivers Authority (Northumbria Region) have powers to control the volume and composition of discharges into coastal waters and so they are able to play a central role in combating pollution.

### **A5.3 Fishermen and Seals**

There has, for some time, been a controversy over the possibility that seals reduce the size and quality of the fishermen's catch around the area of the Farne islands. However, no specific studies have been carried out to resolve this issue.

### **A5.4 Bait-digging**

Digging for Lugworms on this part of the coast became a problem during the last decade. Bands of diggers appeared on beaches which had previously only been dug by a few locals. Investigation into the problem at Low Newton-by-the-Sea by the National Trust, who lease the foreshore at the site, resulted in the realisation that bait-digging occurring below the mean low water mark could not be controlled under the existing Trust byelaws prohibiting the taking and injuring of animals (Section A3.4 : Protection of Animals Byelaw 9a). Consequently, the National Trust sought and were granted lease of the seabed immediately adjacent to the shore they already leased. This extended the scope for controlling bait-digging since the byelaws became relevant to the whole of the intertidal region down to the extreme low water mark and beyond. Similar events took place at Boulmer involving Alnwick District Council and these resulted in the Alnwick District Council Byelaws detailed above (section A3.1). Furthermore, at the northern limit of the study area an Order has recently (October 1993) been made by the Secretary of State for the Environment under Section 29 of the Wildlife and Countryside Act 1981 prohibiting any bait-digging in the Budle Bay area of the Lindisfarne NNR. There is evidence that bait-digging disturbs the feeding of the bird populations (Fowler, 1982) and also releases heavy metals which have built up in the sediments and consequently become available to be taken up in the food chain (Howell, 1985).

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