

**MORAY FIRTH PARTNERSHIP**  
**NATURAL HERITAGE TOPIC GROUP**

**Report on Vision**  
**Information Base**  
**Issues and Opportunities**

## CONTENTS

- 1 Executive Summary
- 2 General Introduction
- 3 Agreed Vision
- 4 Review of Information
- 5 Review of Issues and Opportunities
  - Introduction
  - Issues
    - 1 Impact of fisheries on wildlife
    - 2 Impact of marine mammals on fisheries, particularly salmon
    - 3 Effect of dredging to lower seabed or remove minerals
    - 4 Increased shipping movements - ballast discharges
    - 5 Impact of offshore oil and gas operations and oil pollution contingency measures
    - 6 Impacts of coastal development
    - 7 Land claim from the intertidal zone
    - 8 Coastal defences
    - 9 Need to retain land/sea transitions free from artificial barriers
    - 10 Impact of tourism and recreational activities on coastal wildlife and habitats
    - 11 Disturbance of mammals and birds by boat traffic
    - 12 Shooting seals or birds
    - 13 Greater understanding of functioning of marine system and impacts on it
    - 14 Need to determine historical conditions and predict the limits to new carrying capacity/population levels
    - 15 Influence of catchment management on the Moray Firth system
    - 16 Protection mechanisms for natural heritage interests
    - 17 Planning system
    - 18 Integration of smaller strategies (eg Cromarty Firth) across the Moray Firth
    - 19 Obligations under the Biodiversity Convention including Local Agenda 21
    - 20 Control of non-native species
    - 21 Impacts of litter and other waste dumping
    - 22 More effective communication of natural heritage value
    - 23 Water quality
    - 24 Disturbance or physical damage from seismic testing or underwater explosions
  - Opportunities
    - 1 Integrated - co-ordinated management
    - 2 Tourism potential
    - 3 Educational potential
    - 4 Research potential
    - 5 Industrial development and wildlife
    - 6 Restoration of a marine/coastal system
- 6 Annexes - Annex 1 NHTG members

Supplement (separate document) - Review of Information - details

## **1 Executive Summary**

- 1.1 The Natural Heritage Topic Group of the Moray Firth Partnership consisted of 10 people and met three times to produce this report on its vision, the state of the information base and current issues and opportunities.
- 1.2 The vision highlights the value of the natural heritage of the Moray Firth and the need not only to maintain this but to restore it to greater productivity for the benefit of all who live from it or around it.
- 1.3 Although some progress has been made over the last five years in improving the natural heritage information base, there are still many gaps. Some of these, particularly on the marine system proper, must be filled or the desired holistic approach and full sustainable management will be impossible to achieve.
- 1.4 It was unanimously agreed that the Moray Firth is a spectacular area with many diverse features of natural heritage value exemplified by the high proportion of national and international designations. Nevertheless, it is also clear that many aspects of the system are damaged or degraded and that it will take some major changes in management to bring them back to health and develop sustainable management.
- 1.5 Twenty-four issues were identified which need to be addressed in order to move towards restoration and a fulfilment of the long term vision. Each of these is described in some detail and suggestions made as to the priority for tackling them, with some ideas on how this might be done and who should be involved.
- 1.6 Six opportunities to capitalise on the natural heritage are also described and the Topic Group feel very positive that if both opportunities are grasped and issues tackled with the co-operative enthusiasm which underlies the whole Moray Firth Partnership initiative, then the future could be bright indeed, not only for the natural heritage but for the economic status and quality of life for those communities living off and around it.

## 2 General Introduction

The Natural Heritage Topic Group (NHTG) was set up as one of a number of such groups established by the Management Group of the Moray Firth Partnership (MFP) to progress its objectives. A Chairman was appointed for each Topic Group and he/she asked to convene a small group of relevant individuals including any members of the MFP Management Group who had expressed an interest in participating.

The members of this Natural Heritage Topic Group are given in Annex 1.

The Terms of Reference for Topic Groups was set out by the Management Group. Each was asked to produce a report examining 3 aspects:-

1. A Vision for their topic in accordance with the aims of the Partnership.
2. The Information available on that topic by reviewing reports etc and make recommendations as to the needs and priorities.
3. Issues impinging on that topic and the Opportunities for positive development which it offers. Also to suggest mechanisms by which these might be pursued.

The NHTG met on 3 occasions to discuss matters under the above 3 headings and individual members contributed written material to help compile this report.

The timetable has been a tight one and the TG has not been able to give the content as much attention as it deserves so there are still gaps and inconsistencies of coverage of some items. There has also not been time for extensive feedback from a wider group of interested consultees. Nevertheless, a draft of this report was circulated to 15 individuals and some of these provided comments which have been incorporated into this final document.

The report is presented according to the format requested with main sections dealing with the 3 aspects mentioned above.

## 3 Agreed Vision

The TG agreed on the following vision for the natural heritage of the Moray Firth:

"That the Moray Firth should be managed to maintain its existing biodiversity and scenic quality, where possible to restore any lost biodiversity, to increase the productivity of the marine ecosystem, to raise awareness of its importance and foster enjoyment of its natural heritage, and, in partnership with communities, businesses and other users, to ensure that all its resources are only used in a sustainable way."

#### 4 Review of Information

This proved the most difficult aspect of the NHTG's remit to fulfil. Each specialist member of the TG was asked to review the information base in their own field and to update the relevant section in the earlier 'Moray Firth Review' (MFR).

The 'MFR' still provides a valuable and relevant source of descriptive information. Sections 4, 6-12, parts 13 and 15 and Appendices C and parts of E and F all deal with the natural heritage as defined for this exercise. Thus, some 100 pages of often concentrated information are involved.

There was general agreement within the TG that it is desirable to bring this database up-to-date by incorporating information obtained during the past 5 years. The natural heritage, after all, constitutes a large element of the environmental resource on which the Partnership's objectives are focused. It is therefore critical that an up-to-date record of its key components are available and accessible to all users of the MF and particularly to enable meaningful management guidelines to be drawn up. However, this proved to be too onerous a request for most members and so few aspects have been tackled fully.

Because of this it is not possible to deal with this section in the format suggested. Only the 'Birds' section has been comprehensively revised and this new, stand alone account can now be used instead of the MFR entry. The only other major information update concerns the marine mammals (Pinnipeds and Cetaceans) and this should be read in conjunction with the MFR. Further information is provided for protection mechanisms and there are some notes under the headings for other relevant sections from the MFR. All this detailed information is provided as a supplement to this report and the following table summarises the state of the information base:-

**Table 1: Information situation and needs**

<b>Natural Heritage Subject (using MFR headings)</b>	<b>Progress since MFR</b>	<b>Needs</b>
Landscape	Major inventory work complete or in progress.	Further more detailed work required but likely to be stimulated by individual casework.
Coastal and Intertidal habitats	Some additional surveys of habitats and species/communities undertaken.	Significant gaps exist, particularly covering some hard coast and intertidal habitats and terrestrial/intertidal invertebrates. Not a high priority.
Subtidal habitats and communities (including plankton)	Further work has been very limited except for those ongoing studies of commercial species or their food supplies.	It is a major need and high priority to gather the information currently available and undertake further survey work to fill key gaps.
Birds	Fairly comprehensive and systematic monitoring has continued.	Continued monitoring and filling some gaps such as low tide counts.
Pinnipeds and Cetaceans	Considerable detailed data now available.	Still important gaps in distribution and biology of several species. High priority.
Otters	Some additional information from limited studies	More reliable and systematic survey data required - high priority
Protective mechanisms	Significant changes have occurred.	Simple summaries and explanations of existing mechanisms required. Adequate protection for the marine environment still required.

The clear message emerging from this re-evaluation of information on the natural heritage of the Moray Firth is that it is very deficient in many key aspects.

The TG felt strongly that these deficiencies should be addressed if future integrated management of the Firth is to be adequately informed. They also recognised that because such work will be time consuming and costly, the order in which it is tackled should be driven by priorities emerging from the Issues and Opportunities.

## **5 Review of Issues and Opportunities**

### Introduction

The TG drew up a list of the major issues and opportunities which should be addressed to assist achievement of the vision for the natural heritage of the Moray Firth. This took account of points raised by others who responded to the request for input to the MFP matrix of issues.

After some refinement, 24 issues and 6 opportunities have been expanded on under a standard format. These are now presented (in no particular order). The format used is essentially self explanatory but it should be emphasised that 'Steps to Progress' is not intended to be systematic or comprehensive but simply a few ideas for possible action.

Clearly the issues dealt with are not all of the same scale, with a few, such as fisheries, being multifaceted.

Those issues raised but not elaborated on in this list, in order to reduce the length of this document, included:-

- Decommissioning of oil rigs
- Effects of military activity
- Impacts of noise and artificial light

## **ISSUES**

### **Issue 1 - Impact of fisheries on wildlife**

#### *Description*

Fishing can have adverse effects on marine wildlife as well as the target fish or shellfish stocks. Overfishing affects food supplies for marine birds, mammals and commercial fish species, and alters the size structure of fish and shellfish populations. Bottom trawling, dredging and suction dredging are damaging to other seabed life, and to fish spawning grounds. By-catch levels are a concern with many fishing methods. Salmon and sea trout can be affected by human activities both at sea and far inland.

#### *Reason for inclusion*

Although levels of fishing in the Moray Firth have dropped enormously since the 1960s and 1970s, they would no doubt increase again if stocks recovered sufficiently. There is also the possibility that previously unexploited species, such as sandeels, could be targeted in the future. In the past, stocks of certain fish species (herring, sprats) in the Moray Firth have collapsed, and although the reasons for this are undoubtedly complex, overfishing has played a part. The sprat fishery in the inner Moray Firth was closed because more than 10% of the by-catch was of juvenile herring.

Gill net fishing in the Moray Firth has declined with the decrease in salmon stocks. However, as recently as 1992 an estimated 1700 guillemots and 700 razorbills drowned in fixed salmon

nets. The mortality of seabirds and other marine wildlife in discarded netting is also an issue, with nets continuing unseen 'ghost' fishing for many years on the seabed before they finally disintegrate.

Salmon and sea trout stocks have declined in recent years. Angling is an important source of revenue in the Moray Firth area, and the various livelihoods built up around these fish are an important part of the area's heritage. The fish are also carriers for the larvae of the freshwater pearl mussel, now a scheduled and Habitats Directive species.

The mean size of *Nephrops* landed has decreased since the fishery began, and the fishery is now probably fully exploited. Because the nets are small mesh, *Nephrops* trawls can take a considerable by-catch of other bottom-living animals.

There is an expanding fishery for scallops on the deeper sediments of the northwest coast of the Moray Firth and the Smith Bank. Scallop dredges are highly destructive of other marine life on and in the sediments, and intensive dredging for scallops can be expected to have drastic effects on the benthos locally. Herring and sprat spawn off the northwest coast and plaice on the Smith Bank, the same areas as those dredged for scallops.

Suction dredging for cockles destroys beds of eelgrass (*Zostera* spp) and reduces the density and biomass of animals in the sediments. This could have a negative impact on the food available for birds as well as remobilising heavy metals in estuarine sediments. Human exploitation of shellfish species such as cockles and mussels provides direct competition for seaducks. Various mechanised methods for harvesting cockles, razorshells and mussels have been employed in the Moray Firth in recent years, resulting in Nature Conservation Orders being placed at key intertidal sites.

Winkles are collected from the shores around the Moray Firth. There has been concern this year on Skye where populations have been depleted by increasing numbers of travellers and tourists collecting winkles in summer, before the animals breed. The Moray Firth could be targeted for heavier exploitation in the future.

### ***Priority***

Overall - high; major effects on the Moray Firth marine ecosystem. Progress is only likely if fishing interests can see an advantage for them.

Pelagic fisheries - low at present, but could easily become high. the possibility of the Moray Firth being targeted for other species, eg sandeels, at short notice is also a concern.

Gill/tangle netting - potentially high; although at low levels at present, this issue is potentially serious.

Salmon and sea trout - high because of intrinsic interest in these fish as wildlife but also because of spin-offs for other wildlife in recovering habitat, and importance to local economy.

*Nephrops* trawling - high/medium depending on levels. Not likely to change because of high commercial value of catch (but see below).

Scallop dredging - high; destructive to both wildlife and spawning grounds.

Cockle, mussel and razorshell dredging - high because of adverse effects. Already partly tackled by placing of NCOs at sensitive sites.

Winkle picking - low at present.

***Other groups/activities involved***

SOAEFD, fishing industry, angling interests, riparian landowners, food producers, education, sub-aqua clubs.

***Other Topic Group involvement***

Fisheries, Land Use, Environmental Quality, Economic Development, Tourism Sport and Recreation, Education and Interpretation.

***Further survey, research, monitoring required***

Baseline surveys of the Moray Firth shallow subtidal habitats and communities are urgently needed. Although there have been surveys of fish stocks, there is virtually no information on the effects of fisheries on wildlife in the Firth.

***Steps to progress***

Carry out baseline descriptive surveys of shallow subtidal habitats.

Collate information on marine life from local diving clubs and individuals.

Previous efforts at fish 'conservation' have been directed towards commercial fish stocks, not broader natural heritage interests. An opportunity exists for fisheries management and natural heritage interests to work in the same direction in establishing non-damaging fisheries, with benefits for both sustainable fisheries and wildlife. Discussion between cross-sectoral groups within the MFP would be very valuable.

Encourage moves towards sustainable fisheries through more local control (eg moves by Highland Council to establish Regulating Orders for large sections of the coast).

Encourage adoption of the precautionary principle in Government fishery departments and planning and regulatory authorities.

Encourage co-ordinated planning between sea, coast and inland authorities to improve conditions for salmon and sea trout.

Encourage change from trawling to creeling for *Nephrops*.

## **Issue 2 - Impact of marine mammals on fisheries, particularly salmon**

### ***Description***

Marine mammals and humans eat fish. During the last century, there have been marked declines in many commercial fisheries. Over the same period, some marine mammal species (notably grey seals) have increased in abundance. Thus, there is potential for competition between marine mammal populations and commercial fisheries. This has probably been of most concern in relation to salmon and whitefish fisheries.

### ***Reason for inclusion***

Coastal salmon fishermen shoot seals around netting stations and estuaries. Furthermore, together with other fisheries interests, they frequently call on Government to take action to limit UK seal populations. Public sympathy for marine mammals has made the issue of culling more controversial in recent years. Furthermore, these wildlife species have themselves become an important economic resource in the Highlands. The result - a highly polarised issue.

### ***Priority***

This is a high profile issue which is often fuelled by a lack of understanding about the underlying facts and uncertainties. Arguably MFP could play an important role in increasing understanding of this issue,. However, whilst this may help different parties recognise the complexity of this issue, it is unlikely to be a process which results in a clear consensus.

### ***Other groups/activities involved***

SOAEFD; SNH; District Fisheries Boards; Riparian Owners; Angling Clubs; SeaFish Industry Authority; Fishermen's organisations, Wildlife tour operators; Environmental Groups; Researchers.

### ***Other Topic Group involvement***

Fisheries; Community Involvement; Information, Research & GIS; Economic Development.

### ***Further survey, research, monitoring required***

There is clear scientific evidence that seals eat fish, some of which are those of commercial interest. Uncertainty remains over the question of whether a reduction in the abundance of seals would result in increased catches for fishermen (eg as opposed to other predators). Furthermore, if there were such beneficial effects resulting from a cull, would they be sufficient to repay the economic costs of a cull? Better information on the nature and extent of interactions between salmon and different predators might permit more novel approaches to managing predation.

### ***Steps to progress***

A forum for exploring the complexity of the issue and the scientific and management issues underlying the problem?

### **Issue 3 - Effect of dredging to lower seabed or remove minerals**

#### ***Description***

The Moray Firth has extensive deposits of marine and coastal sand and gravel including carbonate (shell) deposits off the Caithness coast. Some of these deposits have commercial value, and offshore extraction has been encouraged by the Government as an alternative to using land-based sites. Dredging to lower the seabed for shipping is carried out in ports.

#### ***Reason for inclusion***

As well as direct destruction of marine habitats, concerns over the effects of seabed extraction on marine wildlife include increased sedimentation and smothering; increased turbidity affecting algal and plankton production; resuspension of toxic materials, particularly in areas where there has been industrial pollution; and effects on the supply of materials to mobile coastal geomorphological features of which there are several important examples around the Moray Firth. At a site in Spey Bay where a licence for aggregate extraction has been granted, concerns expressed include the possible destruction and smothering of feeding habitat for birds, and the disruption of migratory movements of salmon and trout.

The dumping of material dredged to lower the seabed is also of concern. For example, material dredged from the Cromarty Firth is at present dumped between the Sutors, a current-swept area likely to be of importance for marine seabed communities.

#### ***Priority***

High - in relation to raising awareness of the issues. For extraction, licences must be obtained from the Crown Estate Commissioners, who consult with interested parties first, including nature conservation bodies, so concerns can, in theory, be addressed. However, because of the lack of information on important seabed communities in the area, these are still potentially vulnerable to the adverse effects of dumping.

#### ***Other groups/activities involved***

Industry, Crown Estate Commissioners, SNH, diving clubs.

#### ***Other Topic Group involvement***

Fisheries, Economic Development Environmental Quality, Geomorphology and Coastal Defence, Education and Interpretation.

#### ***Further survey, research, monitoring required***

Marine biological surveys of commercially important sediments in the Moray Firth, and at dump sites, where feasible - eg the channel between the Sutors.

#### ***Steps to progress***

Provision of information to relevant authorities on the effects of extraction on marine wildlife and coastal landforms.

Improve consultation process over extraction and dumping. In particular by extending the consultation period.

Monitor existing activities to better inform future decisions.

Marine biological surveys as above.

## **Issue 4 - Increased shipping movements - ballast discharges**

### ***Description***

The main marine traffic routes run parallel to each coastline and across the approaches of the Moray Firth. The main shipping activities are port trading vessels, including those transporting oil, offshore oil installation support craft and fishing vessels.

Ports range in size from those which can take commercial and oil related traffic such as the Cromarty Firth, Inverness, Wick and to some extent Fraserburgh and Burghead, to those of mainly fishing importance such as Buckie, Macduff and Lossiemouth. In addition, there are a number of smaller harbours which are used for both fishing and recreation. It is likely that there will be a considerable increase in the use of some of these facilities in the future, eg at Invergordon where there is a proposed West Pier development to enlarge the existing facility for cruise ships, cargo vessels etc. In addition, the oil terminal at Nigg in the Cromarty Firth has now been adapted for the transshipment of oil and consequently there is an increasing amount of tanker traffic in the Moray Firth. There is also the possibility of a further terminal being proposed at the mouth of the Cromarty Firth.

### ***Reason for inclusion***

The international and national importance of the Moray Firth for breeding seabirds, seabirds at sea, wintering seaducks, passage and wintering wildfowl and waders, and sensitive habitats is well documented. The quality of the marine environment in the Moray Firth is dependent on many things, not least the adverse effects of both catastrophic and chronic oil pollution associated with shipping. The deliberate and accidental release of non oil pollutants and garbage is also of concern. The indirect threats of habitat deterioration resulting from pollution from shipping is also of cause for concern.

### ***Priority***

The maintenance of a high quality marine environment in the Moray Firth is a high priority. Reducing illegal discharges etc is also a high priority despite difficulties over monitoring the levels and effects of such discharges.

### ***Other groups involved in issue***

SNH, SEPA, SOAEFD, RSPB, SWT, HC/MC/AC, CFPA, Inverness Harbour Trust, Talisman Energy, Scottish Fisherman's Federation, Marine Pollution Control Unit

### ***Other Topic Group involvement***

Economic development, Environmental Quality, Fisheries.

### ***Further survey, research, monitoring required***

The effects of chronic oil pollution on birds and marine mammals are not clear and further research may be required. The effects of heavy metals, PCBs, etc are even less clear and again further research is required. Better detection monitoring of 'incidents' is required.

### ***Steps to progress***

A 'special' code of conduct targeting vessel owners/operators in the Moray Firth, highlighting natural heritage importance, issues and concerns, could assist progress. Ensuring all port facilities and harbours have up-to-date facilities for dealing with waste from shipping. More resources for MPCU and stricter law enforcement with stronger penalties. Basically, improved monitoring is needed to establish the highest standards in pollution prevention.

## **Issue 5 - Impact of offshore oil and gas operations and oil pollution contingency measures**

### ***Description***

The Moray Firth has an established offshore and onshore oil industry and further development of both is anticipated particularly as in the 1997 licensing round all the remaining areas will be open to bids. The Beatrice field is the nearest inshore oilfield in Britain and is predicted to remain operational for a further 20 years. While there has never been a major oil pollution disaster in the Moray Firth, there have been a number of minor spillages involving both onshore and offshore oil facilities, tankers and other shipping, which have resulted in localised but significant damage to important wildlife populations, sensitive habitats and important amenity beaches.

It is important that the international and national wildlife features are protected and the 'clean image' of the Moray Firth maintained, so it is essential that appropriate and effective oil pollution contingency measures are in place.

### ***Reason for inclusion***

With the current and likely increased activity in the oil and gas sector it is vital that strict controls are in place over the location of installations, their operating procedures and contingency plans in the event of accident.

### ***Priority***

A high priority with the urgency highlighted by recent spills from the Captain field and deficiencies experienced during the Highland Chieftain exercise. Progress should be achievable given the strong commitment by oil companies to protect the marine environment and work closely with conservation bodies.

### ***Other groups/activities involved***

SNH, SEPA, SOAEFD, DTI, RSPB, SWT, HC/MC/AC, CFPA, SFF, MPCU, JNCC, HM Coastguard, International Tanker Owners Pollution Federation, Briggs Marine Environmental Services, Talisman Energy, TEXACO

### ***Other Topic Group involvement***

Economic Development, Environmental Quality, Fisheries

### ***Further survey, research, monitoring required***

Further survey will need to be carried out in relation to some of the blocks in the current round if adequate oil pollution contingency plans are to be put in place. Environmental Assessment should be carried out in all sensitive areas. Research required into effects of chronic oil pollution.

### ***Steps to progress***

Review the national and international legislation designed to protect the marine and coastal environment from oil pollution. Ensure that contingency plans are produced and followed by all companies undertaking exploratory drilling and operation.

Code of practice, under the Petroleum (Production) Regulations may require reviewing. MPCU to improve its monitoring. Ensure that there is strong law enforcement, strict penalties and that polluter pays principles is accepted.

## **Issue 6 - Impacts of coastal development**

### ***Description***

Expansion and modes of operation of industry, agriculture, forestry, coastal settlements, golf courses and communications infrastructure such as roads have an effect on the natural heritage of the coast. Most often in the recent past, this has involved direct loss of coastal habitats. Activities taking place some distance from the sea's edge (eg run-off) can also affect coastal margin. The visual impact and effects on wildlife of fish farming can also be significant.

### ***Reason for inclusion***

Around the shores of the inner Moray Firth in particular, pressure to develop areas of inter-tidal land has increased in recent years. Expansion of coastal landfill and road construction on foreshore beside Inverness are two examples, as are proposals within the Cromarty Firth. These developments or proposals have tended to generate heated debate and have polarised people's views about coastal management. Progress towards a locally agreed framework for sustainable development in the Moray Firth would necessarily have to address the question of coastal development impacts to be successful.

### ***Priority***

Given its relevance to the local sustainability question and to international commitments made at Rio and through the EU, this issue is high priority for action in the future.

### ***Other groups/activities involved***

Scottish Coastal Forum, Local Authorities (National Planning Policy Guidance exists or will soon do so), NGOs, coastal communities.

### ***Other Topic Group involvement***

Land Use, Coastal Defence, Landscape, Economic Development.

### ***Further survey, research, monitoring required***

Maintenance of Firth-wide databases on coastal wildlife, mapped information on habitat distribution, monitors of coastal changes, monitors of impacts of existing development.

### ***Steps to progress***

Liaise with Scottish Coastal Forum over their refinement of the Scottish coastal divisions and draw on Coastal Zone Management experience elsewhere in the UK and abroad.  
Contribute to the HC Structure Plan and follow up.

## **Issue 7 - Land claim from the intertidal zone**

### ***Description***

Land claim has taken place historically on several sites within the Moray Firth resulting in the loss of intertidal habitats. In recent times the largest examples are at Nigg Bay for oil-related activities and in Longman Bay in the Inverness Firth for a rubbish disposal landfill site. This is currently being extended into the remaining intertidal area of Longman Bay, which has recently been designated as SSSI. Additional losses of intertidal areas have occurred recently at Ness Mouth, Longman Bay following the construction of the new road to the Caledonian Thistle FC Stadium which itself was built on claimed land. The Cromarty Firth Port Authority proposed extension to the West Pier at Invergordon involves some further loss of intertidal mudflats which are a part of the Cromarty Firth SSSI and pSPA. The effects of dredging are often felt elsewhere in the Firth system.

### ***Reason for inclusion***

The intertidal areas of the inner Moray Firth are of international or national importance for migrating waders and wildfowl. Most of the important areas have been designated as SSSI, Special Protection Area or are pSPA. Conservation bodies have expressed serious concerns about ongoing land claim in Longman Bay and potential land claim in the Cromarty Firth. Concerns have also been expressed regarding the adverse impacts of toxic leachate from the Longman rubbish dump. The loss of such habitat around the rest of the UK puts a special obligation on the Moray Firth.

### ***Priority***

This is a high priority issue due to the importance of intertidal areas in the inner Moray Firth which are potentially at risk from land claim and it is urgent in the light of various current proposals such as in Longman Bay.

Progress is possible despite some conflicts with Highland Council's current waste disposal strategy and economic development interests in the Cromarty Firth.

### ***Other groups/activities involved***

SNH, SEPA, HC, CFPA, RSPB, SWT

### ***Other Topic Group involvement***

Economic Development, Environmental Quality

### ***Further survey, research, monitoring required***

Low tide counts of wader/wildfowl numbers in intertidal areas are required to assess their importance. This information is currently available for only a few sites in the inner Moray Firth as all existing WeBS count data based on high tide counts. The proportion of birds potential lost is not directly related to the area of habitat destroyed.

### ***Steps to progress***

Ensure Highland Council, as part of the current review of their Waste Disposal Strategy, are fully aware of the importance of intertidal mudflats, and urge them to seek alternative methods of waste disposal other than landfill at Longman Bay.

Contribute to the Highland Council Structure Plan Review of land available for reclamation stressing the importance of intertidal areas in the inner Moray Firth including those previously outlined for planning development.

## **Issue 8 - Coastal defences**

### ***Description***

Many sections of the Moray Firth are characterised by coastal processes which are of interest and value in their own rights, whether it is the dramatic high energy cliff scenery of the outer Firth or the more mobile soft shores of the inner firths. The Firth contains some of Europe's most important coastal geomorphological resources.

However, the presence of high energy or mobile coastal systems also represents a real or potential threat to infrastructure and property. This has led to a long history of installing coastal defences and management (eg fixing Culbin Sands, cutting through bars and shore armouring at Spey Bay, erection of seawalls and groynes at numerous places and ad hoc dumping).

Many of these defences need continued maintenance and management for which resources are becoming increasingly scarce, particularly given anticipated changes in relative sea-level and limits to sediment supply. Existing defences are also often inappropriate, having been developed in an ad hoc manner.

The main issues are, therefore, how to encourage strategic approaches to future coastal defence management which take full account of the importance of working with natural processes and systems;

and whether there is scope to remove or modify coastal defences which are no longer considered appropriate and where there might be benefits to the natural heritage.

### ***Reasons for inclusion***

The management and maintenance of existing defences is both expensive and sometimes can be damaging to the natural heritage value of these areas. There are regular calls for action at many locations around the Firth and these need to be addressed in a strategically planned way. Techniques for managing coastal systems have become increasingly sophisticated and based on a better understanding of coastal cell processes. Approaches are now available which are more sympathetic to natural processes and conservation interest.

### ***Priority***

The issue is very important to the conservation of some key coastal locations and to those individuals/communities which feel threatened. It requires addressing in the medium to long term when a generally acceptable strategic approach is achievable. However, in the long term some hard and unpopular choices may have to be made.

### ***Other groups/activities involved***

Recreation, amenity, maintenance of infrastructure, waste disposal. These involve Local Authorities, SNH and communities in particular.

### ***Other Topic Group involvement***

Coastal Geomorphology, Economic Development, Land Use

### ***Further survey, research, monitoring required***

### ***Steps to progress***

Promote wider adoption of shoreline management plans and identify site specific practices and programmes which cause least disruption to natural processes and other resources (including managed retreat).

## **Issue 9 - Need to retain land/sea transitions free from artificial barriers**

### ***Description***

Transitions between different habitat types are important ecologically as they represent niches in their own right. Also, many animals require access to habitats on both sides of the transition, needing to move between them diurnally or less frequently during their life cycles. The need for such a 'natural' transition applies particularly at the coastal margin between land and sea. In other words, it is desirable to maintain a good representation of terrestrial coastal habitats (eg sand, dune, saltmarsh, woodland, grassland, cliffs) free from disturbance where they drop down to high water mark and into a similar variety of inshore marine habitats.

### ***Reason for inclusion***

A significant proportion of the British coastline has already had that marine/terrestrial transition obstructed by a range of barriers, such as sea defences, reclamation, buildings and roads. All these examples are present around the Moray Firth and there is continued pressure for more disturbance at this land/sea interface. This applies particularly at sheltered areas where the land/sea transition is on a gradual slope as this is where settlements and other developments have already occurred and where demand for further 'development' is often focused.

### ***Priority***

It is not a high priority issue at this time though it becomes progressively more important as the undisturbed lengths of coast diminish. While not urgent, the situation could be prevented from getting worse by relatively easy planning zonation.

### ***Other groups/activities involved***

As suggested, a variety of activities, mostly land-based, cause this fracturing of a natural environmental transition so interaction with all of them would be desirably at least for educational purposes. The main interactions, however, should be with the national (Scottish Office) and local (Councils) authorities responsible for planning.

### ***Other Topic Group involvement***

The main relevant Topic Groups are Land Use, Economic Development and Community Involvement.

### ***Further research, survey, monitoring required***

A survey of the types of land/sea interface which are found around the Moray Firth is needed together with what proportion of each is already subject to an artificial barrier. An assessment is also required of those naturally occurring species of plants and animals which rely on this transitional zone or undisturbed passage across it.

### ***Steps to progress***

Opportunities should be sought to carry out the studies mentioned under (7) perhaps through university contacts, before embarking on dialogue with National and Local Planning Authorities and a wider education process.

## **Issue 10 - Impact of tourism and recreational activities on coastal wildlife and habitats**

### ***Description***

There are a number of tourist/recreational activities that can cause disturbance if not done sensitively, eg walking, cycling, horse-riding, bird watching, wildfowling, tourist boats coming too close to sea bird colonies, jet skiing etc. Coastal erosion can be caused by motor bikes or climbing and bait digging can disrupt intertidal communities.

### ***Reason for inclusion***

It is likely, and indeed desirable, that tourism and recreation will increase so it is important to take this early opportunity to make it sustainable.

### ***Priority***

This is an important issue and is urgent in that each activity needs to be addressed before behaviour patterns are too well established. Progress might be achieved quite easily by discussion between local interest, tourist and recreational groups.

### ***Main groups/activities involved***

Most activities causing disturbance are engaged in by individuals who may not be members of a body or group. They could be influenced by publicity in specialist magazines and local tourist offices. Some of the main activity groups involved are:-

Ramblers Association, field clubs, walking clubs, riding schools, long distance riding clubs, SOC, RSPB, SWT, Wildfowler Associations and local clubs, motor bike groups, ranger services, climbing clubs, wildlife tourism and field centres.

### ***Other Topic Group involvement***

Sport and Recreation and Tourism.

### ***Further survey, research, monitoring required***

The establishment of monitoring of those sensitive features at risk and the level of the activity concerned. For example monitoring should be carried out of vulnerable bird populations, such as to ascertain breeding success and level of human disturbance.

### ***Steps to progress***

Get consensus on the priority impacts together with the Tourist Board, Local Authority, SNH, RSPB and local interest groups. Tie any public funding of activities to the establishment of and adherence to codes of good practice.

## **Issue 11 - Disturbance of mammals and birds by boat traffic**

### ***Description***

There is concern that the behaviour and health of wildlife populations may be adversely affected by disturbance by boat traffic. This may be directly, through harassment, or indirectly by engine noise. The issue has been aired most often in relation to the rapid development of boat-based dolphin watching and its potential impact on the resident population of bottlenose dolphins.

### ***Reason for inclusion***

This issue has been given high profile in recent years, often being portrayed as a classic case of conservation versus development. It is of particular concern in the Moray Firth due to the bottlenose dolphin population's vulnerably small size and protected status. The Dolphin Space Programme and Accreditation Scheme needs to be strengthened if the voluntary approach is to work.

### ***Priority***

It could be argued that such disturbance to wildlife populations is unlikely to be a key issue unless these populations are already stressed for some other reason. However, in the case of bottlenose dolphins this may well be the case. Furthermore, even if this is not one of the greatest threats to these populations, it is probably one of the easiest to effectively manage. It should therefore be given a high priority overall.

### ***Other groups/activities involved***

Economic Development, Community Involvement, Information, Research & GIS.

### ***Further survey, research, monitoring required***

Short term effects of disturbance are well documented. Uncertainty remains over the extent to which these have longer term consequences for individual health or population status. Because of the many interacting factors which may affect the health of individual dolphins, it is IMPOSSIBLE to design a scientific study which will be able to determine whether disturbance from boats has long term population consequences. Research should focus on developing management strategies for minimising any potential impact of disturbance within this framework of scientific uncertainty.

### ***Steps to progress***

An acceptance of the precautionary approach. Development of strategic plans (a) for managing all boat activity in core dolphin areas (including evaluation of the effectiveness of the Dolphin Space Programme and Accreditation Scheme) and (b) maximising the economic and educational value of dolphin-based tourism in the Moray Firth within a framework of minimal environmental impact.

## **Issue 12 - Shooting seals or birds**

### ***Description***

Shooting of birds and seals is undertaken as a means of predator control by fishery interests and sport shooting of birds by wildfowlers and others.

### ***Reasons for inclusion***

Many people are concerned at seal shooting and uncontrolled wildfowling and scientific evidence suggests that much of the shooting is unnecessary and does not solve the perceived problem. There is a likelihood that the conflict could increase and there is also a public safety issue.

### ***Priority***

This is not a high priority issue and of no great urgency. Also, progress may not be easy although local wildfowling clubs could be approached as they do not agree with uncontrolled shooting.

### ***Other groups/activities involved***

District Fishery Boards, Fish Farming Associations, SOAEFD, RSPB, SMRU, local wildfowling clubs, fishery boards, angling groups.

### ***Other Topic Group involvement***

Community Involvement, Economic Development, Fishing, Sport and Recreation.

### ***Further survey, research, monitoring required***

Further monitoring is required involving many of the groups mentioned above to establish more accurately the scale of the problem.

### ***Steps to progress***

Liaison is necessary between relevant Topic Groups and the Aberdeen University Seal Monitoring Group at Cromarty Lighthouse over seal shooting, with SNH and RSPB over licensed and unlicensed sawbill shooting and with wildfowl clubs re uncontrolled wildfowling.

## **Issue 13 - Greater understanding of functioning of marine system and impact on it**

### ***Description***

A better understanding is required of the complex interactions that occur within the marine system, on it from adjacent land and between the many current uses of the area. This is probably best achieved by the development of a model of the Moray Firth system which can accommodate existing available data and provide an interactive response to a range of questions.

### ***Reason For Inclusion***

This is an issue which underpins much of the work of the Partnership in producing a forward looking strategy for the Moray Firth. It is not often raised as an immediate issue for resolution because it is the very opposite of a single issue approach and may seem unattainable or 'academic' to some. For the first time, the Moray Firth Partnership provides the overview body which could legitimately address this gap in our knowledge of more subtle causes and effects. Without such knowledge it is difficult to see how individual conflicts and problems can be properly addressed or how the necessary predictive element can be reliably introduced into management.

### ***Priority***

While it may not seem to be addressing a current 'conflict' issue, the reasons for inclusion above suggest that this is a very high priority which the Partnership should tackle urgently. The ease with which progress is achieved will depend to some extent on the level at which it is tackled and this will partly be dependent on the current development of models for such marine/coastal systems and the availability of the expertise.

### ***Other groups/activities involved***

There is already a good deal of expertise and experience available on the modelling of such marine systems and it will be important to draw on this. It will also be necessary to interact with many groups connected with the Moray Firth in order to collect relevant data and to ensure that appropriate activities and interests are incorporated in any model. Close involvement of a research or academic institute will be necessary. A number of universities, SEPA and the Aberdeen Marine Lab are probable contacts.

### ***Other Topic Group involvement***

All other Topic Groups will need to be involved in progressing this project but key ones are Information, Research and GIS, Environmental Quality and Fisheries.

### ***Further survey, research, monitoring required***

The proposed modelling solution to this issue is itself a development project and many gaps will quickly become obvious in the necessary information base to feed into such a model. These gaps will need to be filled by further survey/research/monitoring but such additional work will need to be carefully prioritised to ensure that the most immediate needs for sustainable use of the Firth are addressed.

### ***Steps to Progress***

If the MFP approves this project a small working group should be established to flesh out the project brief with options and costs.

## **Issue 14 - Need to determine historical conditions and predict the limits to new carrying capacity/population levels**

### ***Description***

This must not be seen in any way a purely academic exercise to document the past natural and human history of the Moray Firth, fascinating though this would be. It must be focused on the key components of the natural marine system with a view to using such information to restore it to optimal diversity and productivity.

### ***Reason for inclusion***

There is widespread agreement that many components of the Moray Firth marine system have changed over time. Some will have occurred due to natural environmental fluctuations or events and others will be as a result of human activity. These changes have rarely been properly documented, some are anecdotal and many will have occurred before records could have been kept. Nevertheless, it is important to draw together historical information on the key environmental variables, either from direct or extrapolated sources, in order to ensure that such information is available to inform decisions on restoration and sustainable utilisation.

### ***Priority***

This is a high priority as one of the general background building blocks for developing a long term strategy. It is therefore both important and urgent but the likely paucity of relevant data may mean that a comprehensive picture will be difficult to achieve. This should be recognised and progress may therefore be quite rapid in determining the scope of relevant information.

### ***Other groups/activities involved***

Most bodies involved with the past use of the Moray Firth marine and coastal system will need to be contacted, eg Government agencies, Local Authorities, fishery bodies, local communities (libraries and museums). Information sources from other similar firths or coastal areas should also be contacted.

### ***Other Topic Group involvement***

Most other Topic Groups should be involved particularly Environmental Quality, Fisheries, Economic Development and Land Use.

### ***Further survey, research, monitoring required***

There should be a one-off project to gain a comprehensive picture of the historical situation in the Moray Firth. It is possible that a further project may be required to draw on other studies or provide data in an appropriate form for predictive use.

### ***Steps to progress***

Representatives from the most relevant Topic Groups could be asked to take this study forward.

## **Issue 15 - Influence of catchment management on the Moray Firth system**

### ***Description***

Many rivers flow into the Moray Firth. Their waters transport sediments, solids and dissolved materials downstream to the sea, thereby influencing salt water quality and seabed characteristics around and beyond the river mouths. These, in turn, influence marine life. The rivers are also vital as the upstream venues for spawning of salmon and sea trout.

It follows that some aspects of the functions of the Firth and the well-being of its wildlife cannot be considered solely within narrow, near coast boundaries. These may be influenced by activities and processes occurring far inland, within the catchment of the Firth's freshwater feeders. Coastal communities may also relate to a local river catchment as a socially meaningful community boundary (which also makes ecological sense)

### ***Reasons for inclusion***

One example of the relevance of the issue is the way (widely documented elsewhere) in which forestry and farmers' practices beside rivers can enhance or reduce the value of these waters for migrating fish and other wildlife, with consequent effects downstream. In the Moray Firth area, for example, channel management practices which aided spawning salmon could help coastal netting stations, seals and dolphins. Run-off actions against salmon would act against these interests.

### ***Priority***

This is a high priority but since the issue is largescale and cuts across many boundaries of sectoral interests, better access to catchment information is needed before progress can be made.

### ***Other groups/activities involved***

FE/FA, SOAFD, SEPA, District Fisheries Boards, Local Authorities.

### ***Other Topic Group involvement***

Environmental Quality, Land Use, Education and Interpretation.

### ***Further survey, research, monitoring required***

Too early to say but could include questionnaires.

### ***Steps to Progress***

Making catchment maps easily accessible could assist assessment of potential within catchment impacts.

## **Issue 16 - Protection mechanisms for natural heritage interests**

### ***Description***

There are many aspects to this broad heading. The establishment of the Natura 2000 network of sites in response to EU Directives has extended the scope of designated sites - notably in the intertidal and marine environments. The debate on National Parks continues and there is the prospect of a national designation for outstanding landscapes. This renewed emphasis on site-based designations raises issues of appropriateness where a more holistic approach may be required.

The manner in which designations have been introduced in North Scotland over recent decades has led to some hostility and lack of support for nature conservation. This threatens the effectiveness of designations themselves and the ability to progress constructive Partnership working relevant to nature conservation elsewhere.

There remains a lack of awareness and understanding of designations and further thinking is needed over how designations can provide positive and tangible benefits for local people. The use of Local Nature Reserves could be expanded. Also, how can those features be identified and safeguarded which are not of national or international importance but which are valued by local communities.

### ***Reason for inclusion***

Site protection is a major bone of contention in the area and could continue to put strains on the ability of some of the partnership's members to work together constructively.

The introduction of Natura 2000 sites (particularly in the marine environment) places increasing obligations on various agencies and expectations for greater co-operative working which the Partnership could well help promote.

### ***Priority***

This issue is a high priority which should be tackled urgently but one which could take many years to make significant progress.

### ***Other groups/activities involved***

All competent bodies under the EU Directives (LAs, SNH, SEPA, HIE, SOAEFD etc), voluntary conservation bodies, communities, elected members.

### ***Other Topic Group involvement***

All Topic Groups but particularly Community Involvement, Economic Development, Management Strategy, land Use, Education.

### ***Further survey, research, monitoring required***

### ***Steps to progress***

Make information on designated areas and their implications more available to the public in a positive and understandable form.

Establish a subgroup of the Partnership to consider management arrangements for the Moray Firth pSAC.

Consider what role the Partnership should have in 'conservation v development' conflicts - or perceived conflicts and whether it should have a role as consultee over new designations or contributor to debates on new designations (eg National Parks).

Stimulate the identification of appropriate incentive packages or economic opportunities based on the designations and wider natural heritage.

## **Issue 17 - Planning system**

### ***Description***

The main issue is the lack of any overarching and democratically controlling authority below LWM but this is a very broad matter and currently there is sensitivity between some partners, eg HC and CEC.

There is the need for all parties to get more familiar with the application of EAs in the marine environment and the duties/mechanisms associated with the Habitats Regulations - particularly as they affect the marine and coastal environments.

### ***Reason for inclusion***

The Habitat Regulations are new to us all and their implications need to be explored by all competent bodies. There are also other current opportunities, eg Structure Plan review, the newly established Scottish Coastal Forum, the new NPPG on the coast (how will HC, MC and AC apply them or feed into them?). Debates on National Parks and democratic accountability of quangoes (eg CEC) should also not forget the marine environment. All are likely to increase the role of the planning system as a basis for decisions and the partnership's steps towards a Management Strategy could be a key contribution. Current discussions relate to the extension of planning control below low water so the time is right for the MFP to make an input.

### ***Priority***

Some of the above reasons warrant urgent action otherwise key opportunities for the Partnership to influence future planning frameworks may be lost.

### ***Other groups/activities involved***

LAs, CEC, SNH.

### ***Other Topic Group involvement***

-

### ***Further survey, research, monitoring required***

-

### ***Steps to progress***

MFP should evaluate the problem further and clarify what role it could have over such matters in discussion with the relevant Local Planning Authorities. They should also make an input to the Scottish Coastal Forum on planning below LWM.

## **Issue 18 - Integration of smaller strategies (eg Cromarty Firth) across the Moray Firth**

### ***Description***

The main issue is the need to consider how strategic approaches involving a whole range of different scales, topics and origins can be co-ordinated to best effect. Partnership working and strategic thinking are popular and appropriate approaches but the range of issues and geographic remit of the partnership will be difficult to manage.

### ***Reason for inclusion***

There are good reasons for a whole variety of different strategies relating to the Firth to be developed. However, to be effective, all require contributions from a wide range of players - to draw them up, implement them and monitor them. This can be a major difficulty for players whether they are statutory bodies (with limited resources of time and money) or communities (often with limited resources of active individuals) or others.

The Partnership also needs to clarify what its relationship should be to the many other strategic initiatives that will continue to be generated.

### ***Priority***

It is very important and urgent that the partnership clarifies its thinking on the relationship and lines of communication between different strategic approaches.

### ***Other groups/activities involved***

LAs, Cromarty Firth Liaison Group.

### ***Other Topic Group involvement***

-

### ***Further survey, research, monitoring required***

-

### ***Steps to progress***

Identify existing strategic approaches and establish how these should relate to the work of the partnership. This could involve strategies ranging from community plans to the CFLG plans (ie different scales and origins), management arrangements for the SAC or interpretation (ie different subjects), Structure Plan to Agenda 21 initiatives (ie statutory v voluntary strategies) etc.

## **Issue 19 - Obligations under Biodiversity Convention including Local Agenda 21**

### ***Description***

In June 1992 the UK and some 150 other countries signed the Convention on Biological Diversity at Rio de Janeiro (the Earth Summit). One of the most compelling arguments for the conservation of biodiversity is that it is an integral part of long term sustainability. One of the other main products of the Earth Summit is Agenda 21, a comprehensive programme of action needed throughout the world to achieve a more sustainable pattern of development for the next century. Local Agenda 21 is the means by which the Rio principles and actions can be implemented at the local level.

### ***Reason for inclusion***

As a result of these obligations the UK Government has drawn up a UK Action Plan to take each item forward. Many of the detailed plans are relevant to future management of the MF. The most obvious one (12) actually specifies that an integrated management plan and co-operative framework for its implementation will be prepared for the Moray Firth (amongst other estuaries around the UK) by 1998. Others relate to the preparation and implementation of management plans for all SSSIs (which would include those around the Moray Firth coast), effective protection and management of key marine wildlife areas, designation of marine SPAs and SACs under the European Birds and Habitats Directives, encouraging Local Nature Reserves, implement the agreements on small cetaceans in the North Sea and encourage the tourism industry to include more information about environmental conservation and biodiversity with promotional literature. Guidance has also been issued on the production of Local Biodiversity Action Plans.

### ***Priority***

This is a very important matter as it involves a Government commitment. The various elements should therefore be tackled urgently but progress is likely to be variable as many sub issues are fundamental and some intractable. Production of a Management Strategy by the MFP could be seen as enabling the implementation of LA21 within the MF.

### ***Other groups/activities involved***

Because of the all embracing nature of the objectives of the Biodiversity Convention and ensuing Action Plan many other bodies should be involved in pursuing the objectives. This applies particularly to other Government agencies and Local Authorities who are subject to the same Government exhortations.

### ***Other Topic Group involvement***

All other Topic Groups.

### ***Further research, survey, monitoring required***

Because of the diverse nature of the various elements of the Action Plan, this aspect will mostly be dealt with under other detailed 'issues' but monitoring of AP progress will be required.

### ***Steps to progress***

A small sub group of the Moray Firth Partnership should liaise with the UK/Scottish Steering/Advisory Groups over its programme to tie in its objectives with those of the national AP. Develop with local communities LBAPs.

## **Issue 20 - Control of non-native species**

### ***Description***

As with probably all other parts of the UK, the natural heritage of the Firth is characterised by the absence of certain species (which formerly occurred) due to the impacts of man and the presence of species which have been introduced by man - either accidentally or intentionally. In many cases these non-native species have no recognised major adverse impacts on our natural heritage or are too well established to consider long term control or eradication (at least with the likely resources available).

However, in some cases there may be benefits to be gained by co-ordinated and well planned actions. These will tend to be situations where a species is still localised (eg where only recently established), where there are clear indications of adverse impacts (from this area or elsewhere) and where there is a strong possibility of effective control.

### ***Reason for inclusion***

The possible dangers of introducing new spp to an area by ballast water has been an issue in Scotland recently and could become increasingly relevant to the Moray Firth with further commercial activities. The recent discovery of Magellan mussels in the Firth and the problems being encountered in other estuaries in the UK as a result of introduced marine algae and shellfish highlight the issue.

In addition there are already efforts to eradicate localised outbreaks of other spp - usually plants, eg *Spartina* in the Cromarty Firth, giant hogweed in several coastal communities. Well-meaning individuals have introduced other potentially harmful spp, eg sea buckthorn and possible problems may arise in future if feral populations develop from collections of non-native wildfowl such as Canada geese. Contingency plans may need to be made.

### ***Priority***

The ballast water issue is one that may need urgent action. Others are medium term.

### ***Other groups/activities involved***

Land owners and conservation bodies, LAs and communities (esp Giant hogweed and Japanese knotweed).

### ***Other Topic Group involvement***

Environmental Quality, Fisheries and Economic Development.

### ***Further survey, research monitoring required***

Identification of existing and potential spp that may require control, appropriate treatments and monitoring systems/contingency plans.

### ***Steps to progress***

MFP sub group to identify problems and rank in priority order.

## **Issue 21 - Impact of litter and other waste dumping**

### ***Description***

There is still a major problem of litter and waste accumulating around the shoreline of, and within, the Moray Firth. It is difficult to gauge the effect of this on the natural heritage or in many cases to determine its origin. There is clearly a major adverse visual impact which does great harm to the clean image of the Firth. There is also an inevitable chronic pollution effect within the water body.

### ***Reason for inclusion***

This is certainly a continuing, and probably an increasing, problem and impacts on the natural heritage, either directly on species and habitats or indirectly by effecting water quality and people's perception of the naturalness of the environment, and the care being taken of it.

### ***Priority***

Although not a high priority in terms of imminent environmental damage, it is urgent that this issue is tackled systematically as it can make a substantial difference to the way local communities view the Firth and, indeed, the value of the MFP initiative. Progress could be quite dramatic if the sources of dumping are tackled systematically and local community support can be achieved.

### ***Other groups/activities involved***

SEPA should be the lead body on this issue in conjunction with industry, user groups (including local communities) and special interest groups.

### ***Other Topic Group involvement***

Environmental Quality, Economic Development, Community Involvement.

### ***Further survey, research, monitoring required***

Comprehensive survey of the problem required in some places.

### ***Steps to progress***

Splitting into component issues and groups set-up to tackle each to be progressed by SEPA. Need to be clear on the legislative tools available and the degree to which these are adhered to. Identifiable targets should be set for sections of coast or types of waste, where improvements are achievable in the short or medium term.  
Raise public awareness of effects and benefits.

## **Issue 22 - More effective communication of natural heritage value**

### ***Description***

To many people the sea is simply a backdrop to the view from their window or possibly the basis for their recreational activities. That industry, agriculture and society at large use it and can have a negative effect on it, is not widely recognised. Similarly, whilst there is an appreciation of the Moray Firth as the home for widely publicised species such as dolphins, it is not translated into a broader understanding of natural heritage values.

### ***Reason for inclusion***

Those who live and work around the Moray Firth represent a major driving force through which the MFP can achieve its aims. If this group as a resource are 'under-motivated' the Partnership needs to understand more about the nature of the relationship between people and the Moray Firth to work out how best to exploit it.

### ***Priority***

This is very important and urgent as there is a need to make progress on the interdependence of all aspects of the Firth, such as livelihoods, quality of life, and natural heritage, its three dimensional qualities and its sensitivities.

### ***Other groups/activities involved***

The approach needs to be clearly thought through prior to identifying other groups, eg broad scatter gun approach would produce different results in terms of raising awareness from, for example, the targeting of education establishments.

### ***Other Topic Group involvement***

Education & Awareness and Community Involvement, plus input from others.

### ***Further survey, research, monitoring required***

Broad based public perception study/questionnaire survey to establish motivational links and be able to exploit these.

### ***Steps to progress***

As hinted at above there is a need to know more about the Moray Firth 'audience' in order to move them into a more participatory mode.

**Issue 23 - Water quality**

**Issue 24 - Disturbance or physical damage from seismic testing or underwater explosions**

These are both regarded as critical issues for the natural heritage of the MF but the NHTG is content that they are being covered adequately (from a natural heritage aspect) by the Environmental Quality Topic Group.

## **OPPORTUNITIES**

### **Opportunity 1 - Integrated-co-ordinated management**

#### ***Description***

There is a growing recognition that to derive the greatest benefits from an area of land requires fully integrated management which is sustainable in the long term. To achieve this ideally should involve all the interests relating to that land including the local communities associated with it. There are very few examples of such management on land and as yet none relating to areas of sea although the same principles and benefits apply.

The Moray Firth is specifically relevant to such a management concept in that the Government's approach to SACs in the marine environment is directed towards cross-sectoral co-operation and local community involvement. In the Moray Firth it is fortunate that the species (dolphin) which has led to the proposed marine SAC designation is one with widespread inherent appeal which has already established it as a symbol for the area's identity. Building on this there is considerable scope for developing the greater awareness and commitment required for the sustainable management of its whole environment. This is an opportunity other strategic approaches in the UK would die for!

#### ***Reason for inclusion***

The SAC provides a focus which has to be addressed over the next few years and one which the Partnership has already committed itself to in a facilitating role. The opportunity to build on this should be grasped now in order to demonstrate that an overall sustainable management approach with widespread support can be applied to a large coastal and marine area. The spin-off economic and marketing benefits of such an approach are enormous.

#### ***Priority***

High.

#### ***Other groups/activities involved***

All LAs, other bodies and communities concerned with the Moray Firth.

#### ***Other Topic Group involvement***

All.

#### ***Further survey, research, monitoring required***

-

#### ***Steps to progress***

This needs to be taken forward as a full MFP initiative.

## **Opportunity 2 - Tourism potential**

### ***Description***

The Moray Firth offers major opportunities to increase the overall tourism value of the area through the development of wildlife tourism. This offers significant employment potential and major economic benefits while still being pursued in an environmentally sensitive and sustainable way.

The resident population of bottlenose dolphins are already a major attraction and dolphin boat trips are now a common feature. In addition, the dolphin visitor centre at North Kessock, near Inverness, attracts in the region of 25,000 visitors annually, highlighting the inner Moray Firth as the best place to see bottlenose dolphins in the UK. The RSPB/SNH project to reintroduce red kites to Scotland has created a major attraction in the Inverness/Black Isle area. In 1997 RSPB and the Scottish Tourist Board, through funding from the Highlands of Scotland Tourist Board, set up a live close circuit TV project to film red kites at the nest and pictures were relayed to the tourist information centre at North Kessock for public viewing. There are major opportunities for all year round bird watching. The spectacle of internationally and nationally important numbers of migratory wildfowl and waders in autumn, winter and spring, wintering seaducks and breeding seabirds in summer offer enormous opportunities for development. There is an existing network of nature reserves, birdwatching hides, walks etc, but visitor facilities in general are under-developed (although a centre is being developed at Foulis Ferry which will partly touch on the marine environment, particularly seals).

### ***Reason for inclusion***

The time is right for such positive initiatives.

### ***Priority***

These opportunities are a high priority and relatively easily achievable with the right development and funding package. The partnership approach is desirable and there are recent good examples of joint funding such as the RSPB CCTV red kite public viewing project and the dolphin visitor centre at North Kessock.

### ***Main group/activities involved***

LAs, HIE, STB, HOST, SNH, RSPB, SWT, Tourism & Environment Task Force.

### ***Other Topic Group involvement***

Tourism, Economic Development

### ***Further survey, research, monitoring required***

A review of sites and species suitable for wildlife tourism development would be useful for incorporation into an overall tourist development plan for the Moray Firth. There is clearly a need for more facilities, eg walks, trails, hides etc and there are major opportunities for CCTV viewing of wildlife.

There is also need to attract visitors by emphasising the link between industry and sustainable management of the basic natural heritage/environmental resource.

### ***Steps to progress***

-

### **Opportunity 3 - Educational potential**

#### ***Description***

The natural heritage of the Moray Firth is a resource of great potential for both formal and informal education.

#### ***Reason for inclusion***

Experience, and recognition by those involved in education.

#### ***Priority***

This is a high priority, particularly when viewed in conjunction with Issue 22. Progress could be achieved rapidly if resources are not overstretched.

#### ***Main groups/activities involved***

Teaching professionals (not just biology and geography sectors but also social science, art, outdoor activities) schools, colleges, universities (particularly the UHI), academics, parents, children, young adults etc.

#### ***Other Topic Group involvement***

Clearly led by Education & Interpretation Topic Group with input from Community Involvement and others.

#### ***Further survey, research, monitoring required***

Market research would be useful to determine the most effective and strategic programmes.

#### ***Steps to progress***

Active exploitation of the educational potential needs to be a dimension of the wider promotion and raising awareness of the Moray Firth. The Partnership may wish to progress as part of a promotion strategy.

## **Opportunity 4 - Research potential**

### ***Description***

The Moray Firth is an intensively studied coastal ecosystem, with a history of research into many areas from geomorphology and water quality to marine mammal ecology. This existing base of scientific research activity provides an opportunity to attract further research in the area.

### ***Reason for inclusion***

Encouraging additional research activity in the area would provide a number of benefits to the region. First, the additional information obtained could contribute to the information needs identified by the MFP. Second, locally-based research can have direct economic benefits to some communities and may result in the creation of some local jobs. Third, the presence of research activity on the natural environment can help underpin local education programmes, both within schools and colleges and in the wider community. With the development of the new UHI it would be particularly appropriate if this institute could participate in this important opportunity.

### ***Priority***

Priority should perhaps be given to finding ways of encouraging research which is of particular relevance to the Partnership.

### ***Other groups/activities involved***

Local Enterprise Companies, Industry, Universities (particularly UHI); Colleges, SOAEFD, SNH.

### ***Other Topic Group involvement***

All.

### ***Further survey, research monitoring required***

Review of previous and current research activity of interest to MFP.

### ***Steps to progress***

Carry out above review. Explore ways (a) of maximising local economic benefit from current and potential research activity (b) of encouraging research which directly meets

## **Opportunity 5 - Industrial development and wildlife**

### ***Description***

It is inevitable that more industrial developments will take place around the Firth. Although they can have negative impacts on wildlife they can also have positive ones, eg Nigg terminal where the fenced enclosure provides safe breeding areas for terns and safe roosting sites for waders.

### ***Reason for inclusion***

If an industrial development does get approval, plans could be made at an early stage to adapt the site to make it more suitable for wildlife, eg small lagoons, artificial roost sites, gravel breeding areas, nest shelters for terns, predator control (cats). There are also sometimes opportunities to create other new habitats. There is great value in demonstrating 'best practice'.

### ***Priority***

This could be high if there are new developments.

### ***Other groups/activities involved***

Private Industry, HIE, LECs, SNH, RSPB, SWT.

### ***Other Topic Group involvement***

Economic Development.

### ***Further survey, research monitoring required***

### ***Steps to progress***

A review of best practice at other industrial sites on estuaries (eg Felixstowe, Cardiff Bay).

## **Opportunity 6 - Restoration of a marine/coastal system**

### ***Description***

The Moray Firth is a large but fairly well demarcated marine area with a diverse and distinctive coastline. Much of this resource has been abused and damaged through past and current use but restoration of diversity and productivity is possible and if undertaken through a co-operative action by local communities and public-private-voluntary agencies and is properly documented it could provide a spectacular demonstration of the potential for marine ecosystem restoration with local economic benefits during the process itself and through subsequent sustainable use.

### ***Reason for inclusion***

This is proposed as a far sighted opportunity arising out of the work already carried out by the Moray Firth Partnership, in order to maximise the value of the initiative by promotion of the Moray Firth. Other marine and coastal areas around Britain and the world are also subject to zoning, protection and restoration but all are in their infancy and most are piecemeal efforts not offering the holistic approach of the Moray Firth Partnership. The opportunity is there to capitalise on this.

### ***Priority***

It is very important that this visionary, long term and far reaching opportunity is grasped and while demonstrating successful restoration might be slow, progress should be judged by how soon there can be unity of purpose and enthusiasm from the coastal communities and interests involved. To achieve this is urgent.

### ***Other group/activities involved***

Local communities around the Moray Firth and the Local Authorities, agencies and other interest groups representing Moray Firth users must be involved.

### ***Other Topic Group involvement***

All Topic Groups will play a part but Community Involvement and Development of the Management Strategy groups will be particularly important.

### ***Further survey, research, monitoring required***

It will be necessary to draw on the experience of other similar initiatives to ensure that the Moray Firth gains from these and is able to demonstrate the uniqueness of its own initiative in the wider context.

### ***Steps to progress***

It is for the Management Group of the Partnership to endorse this approach but a small sub group should take this forward.

## ANNEX 1

### Natural Heritage Topic Group Membership

Peter Tilbrook	Chair
John Carruthers	Representative for local FOE - naturalist involved with wildlife tourism
Colin Crooke	RSPB/MFP Management Group member
Alan Kennedy (Ian Williams)	MOD/MFP Management Group member
Stephen Moran	Inverness Museum (non active member)
Steve North	SNH Local Area
Sue Scott	Marine Biologist
Kenny Taylor	SWT Highland Officer
Frances Thin	SNH Landscape Officer
Paul Thompson	Marine mammal specialist, Head of Aberdeen University Cromarty Lighthouse Field Station