INTRODUCTION AND BACKGROUND

This report outlines the Strangford Lough Management Committee's recommendations to Government with regard to common seals as part of its ongoing role to advise on the strategic management of Strangford Lough.

In June 1998 the Strangford Lough Management Committee formed a working group to address concerns over the decline in the common seal (Phoca vitulina) population of Strangford Lough since the late 80's. The Common Seal Research and Management Working Group was asked to produce a report which would give an overview of the status of common seals in the Lough, examine concerns raised in some detail and if appropriate, make recommendations for a programme of action to address the situation.

The Report and Working Group Activities

The Working Group met six times. The first three meetings were used to review information provided in Dr Susan Wilson's report to EHS - Investigation into the status quo of the harbour seals of Co Down 1996, EHS Seal Count data for Strangford Lough and the County Down Coast, and a selection of research papers from the UK and elsewhere.

The Working Group’s initial conclusion was that common seal numbers in the Lough had declined and that efforts should be made to understand the factors underlying the decline as part of the Lough’s overall management. The Group therefore instigated and organised a Common Seal Research and Management workshop to bring together relevant experts to lend their knowledge and experience to the strategic overview and assess what steps should (or should not) be taken in relation to monitoring, research and other management initiatives. Invites included people with local knowledge as well as those with a more global and / or scientific understanding of the subject. Thirty delegates, including staff from EHS and DANI - Fisheries Division, attended the Workshop.

A copy of the Workshop Proceedings accompanies this report.

On behalf of SLMC, the Working Group thanks all of those who gave of their time and expertise to arrange and / or participate in the workshop. Particular thanks go to EHS for financial support, the National Trust for the free use of their facilities and the support of their staff, the RSPB whose Director chaired the Workshop, Queen's University for providing the rapporteur, members of the Working Group and SLMC staff. Most of all thanks go to all of the Speakers for their hard work in different aspects of research, their enthusiasm, and the excellence of their presentations.

Common seal research and management, workshop held in February 1999

The aim of the Workshop was to address concerns at the decline in Strangford Lough common seal numbers. It brought together relevant experts to discuss the most up to date information on seal population movements and the factors affecting these movements. The workshop also provided an opportunity to consider the growing interest in seal watching as a leisure activity and how this might be managed in the future.

Objectives:

- Assess if there is real cause for concern at the decline in the Strangford Lough common seal population
- Clarify what factors are likely to affect common seal movements in and around Strangford Lough
- Assess major issues in relation to food type and availability
- Assess issues in relation to studying seal movements, particularly with regard to human disturbance
- If appropriate recommend a programme of research, monitoring and / or other management activity.

Main themes:

- population trends
- population movements in relation to food stocks available to seals
- human disturbance factors
- techniques used to study seal populations
- techniques used to monitor fish stocks and other food sources
CONCLUSIONS AND RECOMMENDATIONS

These conclusions and recommendations have been formulated following discussion based on the Working Group's own expertise, the findings of the Workshop, and consideration of relevant research papers. The Working Group's Recommendations were adopted by the Committee at a meeting held in June 1999.

SLMC will work with Environment and Heritage Service and others to prioritise these recommendations. SLMC recognises that any action resulting from these recommendations will have to be assessed in the context of other priorities for the Lough's management. In order to make best use of limited resources work may be scheduled and adapted in line with other initiatives.

The SLMC Working Group will continue to meet to introduce and establish initiatives to reduce the impact of human activity on seals in the Lough. This will involve, for example, working with Lough users and Environment and Heritage Service to draw up a code of practice and to find ways of ensuring that the code is widely adopted.

1. REASONS WHY IT IS IMPORTANT TO MAINTAIN COMMON SEAL NUMBERS IN STRANGFORD LOUGH

There are a number of reasons why common seals are important to Strangford Lough even though numbers in the Lough are not significant in terms of the overall European population

Government's aim is to maintain the abundance and distribution of major biodiversity species that they regard as priorities. The list of species has been rationalised and is being finalised for NI as elsewhere in the UK. Common seals are on that list and Strangford Lough is part of their range. In fact being near the southwest edge of the range may make them of particular interest for study.

Seal numbers may be indicators of the health of the Lough and are therefore of interest in terms of its overall management. A decline in seals may reflect an underlying problem with environmental conditions.

Tourism potential. A report produced in 1998, Seal Watching in the UK and the Republic of Ireland, (International Fund for Animal Welfare) shows a general increase in seal watching in the UK and Ireland. Already organised boat trips occur on the Lough, which include views of seal haul-outs and many visitors go to shore sites such as Cloghy Rocks. Seals appear on tourist literature and are part of the overall tourism product. They are perceived as reflecting the high quality of the environment.

Common seals are part of the Lough's identity. They have probably been present in Co. Down for thousands of years, evident in the number of pladdies and rocky islands which bear the name “Selk”.

Seals and their welfare attract considerable public interest. Members of the public and the media have highlighted concerns for seals in the Lough.

Recommendation (1): Relevant authorities and organisations should take reasonable measures to maintain seal numbers in Strangford Lough.

2. CURRENT TRENDS IN SEAL NUMBERS

Common Seals in Strangford Lough have declined.

This finding is supported by data from July seal counts conducted by EHS and the National Trust since 1976. Numbers of adults recorded gradually rose in the late 1970’s to early 1980’s. A peak in numbers in 1987 has been followed by a steady decrease through the 1990s so that levels in 1997 were below those recorded in the 1970’s. The sharp increase in the 1980s may have been due to a migration of seals from other populations of non-breeding or immature seals - this theory is supported by the fact that there was no significant increase in the recorded numbers of pups born.

The morbillivirus (Phocine distemper, which struck in 1988) alone may not be responsible for this continued decline, as other populations affected have now recovered to numbers higher than pre-virus levels.
The trend in Strangford Lough is markedly different to that elsewhere, where numbers are stable or increasing. This raises concern that the changes in seal numbers may reflect an underlying problem with environmental conditions in the Lough.

It is also possible that the decline in Strangford Lough is indicative of fluctuations associated with species found at the edge of their natural range. Common seals in Ireland are at the south western edge of the Eastern Atlantic population. If, however seal are leaving Strangford Lough but are stable or increasing elsewhere along other Irish coasts, then this hypothesis is unlikely to hold true.

Recommendation (2): SLMC should encourage EHS to address this issue. EHS should continue to monitor seal numbers and movements, try to find out what is causing the decline through further research, and develop a clearer comparison with the situation in coasts adjacent to Strangford Lough.

3. CARRYING CAPACITY OF THE LOUGH

It is not possible to determine the carrying capacity of the Lough or ideal seal population level. However regular counts of 200-300 could be considered favourable status.

It is possible that the 1987 peak count of 800 common seals (adults and pups) was too high to be sustained. Overcrowding may have accentuated the spread of the morbillivirus in 1988. On the other hand a count of 200 is less than when counts began two decades ago. We do not know if these peaks and troughs reflect cyclical fluctuations of a species close to the edge of its range or are due to a change in conditions in Strangford Lough, or some combination of the two.

If numbers were stabilised at 200-300 this could be considered the favourable status until further information is available.

Recommendation (3): 200-300 adult common seals in July counts should be taken as favourable status for Strangford Lough until and unless new factors or information emerge which may have a bearing on seal numbers.

4. BIOLOGY, ECOLOGY AND SOCIAL BEHAVIOUR

While count data is available from the 1970s to the present, the biology, ecology, and social behaviour of common seals is poorly understood.

Are we dealing with a discrete population or are seals mixing between locations? There is no data on turnover in the Lough ie are the same seals counted from month to month and is there a “resident” population?

It has been postulated that when numbers decline in Strangford Lough they relocate elsewhere but there is no evidence to support this. The 1996 count of more than 6,000 seals in the Strathclyde Region, which is the nearest to Strangford Lough, were 19% higher than comparable counts obtained between 1988 and 1992. Although seals moving from Strangford Lough could have caused some of this change, it is much greater than the observed decrease at Strangford Lough between 1988 and 1996. It could be speculated that there was migration from the Irish Sea as a whole.

Recommendation (4a): EHS should continue seal counts in the Lough and on the County Down Coast. The use of helicopter surveys should be considered as a complementary method of conducting and / or cross checking counts. Seals are currently counted from boats and from land. This method can be disrupted if seals move from one site to another as they are being counted. More detailed information should be gathered on individual seal movements and attempts should be made to identify individuals eg using photo identification. This finding is strongly supported by the Sea Mammal Research Unit, which has conducted numerous studies of seals throughout the world.

Need to study seal haulouts over a long period of time

The distribution of seals varies seasonally and from year to year. The Narrows is considered to be consistently the most important area for hauling out in Strangford Lough. This is the most immediate sheltered area relative to the Irish Sea and may indicate the influence of food supply on choice of haul-outs. In summer and autumn breeding and moulting seals move further into the Lough where shelter and calm waters become more important.
Recommendation (4b): EHS should continue to gather data on distribution and use of seal-haul sites. This would help to focus any required management efforts towards those sites that are most important to maintaining seals in the Lough. Data on seal haul-outs should be mapped using a Geographic Information System (Arcview) and trends monitored over a number of years.

5. CAUSE(S) OF THE DECLINE

No individual cause has been attributed to the decline in seal numbers.

The decline may be the result of a combination of factors. Changing food supply is thought to be one likely factor. There are differing opinions on the effects of human activities on seal movements. Human activity on and around the Lough is increasing and it is possible that disturbance will be an increasingly important factor. Human activity is likely to have greatest impact during seal pupping and moulting periods. It has also been postulated that Strangford Lough may be reflecting fluctuations at the edge of the East Atlantic population of common seals. There is no evidence to show that interaction with grey seals is a factor but this might also be worth investigating.

Recommendation (5): Further investigation should focus on the most likely causes for the decline ie changes in food supply, the effects of human activities on seal movements. Advice should be sought from the Sea Mammal Research Unit with regard to the wider population dynamics. Grey seal / common seal interactions should be considered.

6. FOOD SUPPLY

Food supply may be an issue, but very little is known about food supply in Strangford Lough.

Data from DANI - Fisheries Division gives some indication of prey availability outside the Lough, however there is little or no data relating to food supply in very shallow water or within Strangford Lough. Fish prey appears to be abundant within the foraging range of seals on the eastern Irish coast, though pelagic species have declined or changed migratory route away from the Irish coast. The extent of migrations of fish of all ages between the Lough and the Irish Sea has not been studied. Data on Strangford Lough's food resources would be useful not only in relation to seal movements but also as part of the overall management scheme for the Lough.

Recommendation (6a): DANI - Fisheries Division and EHS should work together to obtain more information on seal food stocks in the Lough. This could be part of an overall monitoring programme for the Lough. Acoustic surveys should be considered to find out more about fish stocks in the Lough. Additional trawling is not favoured outside the existing fishery in view of the damage likely to be caused and the low value of the results from the small amount of sampling that might be acceptable. (This might be reviewed if other methods failed.) Data from by-catch of the trawl fishery should continue to be gathered. Information should be gathered from habitats where seals tend to forage, particularly the rocky shorelines where pollack and small saithe are likely to be abundant from early summer to autumn and where shellfish are plentiful.

It was noted during the workshop that the fish stock data from the Irish Sea relate to spring and autumn while the Seal Counts concentrate on July and August (pupping and moulting times). It would be helpful if data from the Irish Sea could be gathered in July to correlate with seal count data.

Even if it was known that food supply was a major factor there might be little we could do about it.

If food was found to be scarce this might be an indicator that the health of the Lough is in decline and might merit further examination. This might tie in with the SAC management scheme. An abundance of food would point towards other factors affecting seal numbers.

Recommendation (6b): Food availability should be researched / monitored.

7. CONCERN THAT MOTHER / PUP PAIRS ARE LEAVING THE LOUGH PREMATURELY

The movements of mother/pup pairs is of particular interest as they appear to be leaving the Lough earlier than normal - this may be associated with food supply.
Research indicates pups born inside the Lough in late June/early July have tended to leave the Lough before the natural time of weaning at 3-4 weeks of age, whereas at two sites outside Strangford Lough the pups have remained at their natal sites for considerably longer. Only about 15% and 11% of pups born in the Lough in 1995 and 1997 respectively were still in the Lough by the end of the 3rd week in July, although this figure improved to 62% in 1998. Some pupping groups in the Lough, particularly those north of the Narrows, have moved from their natal site after the first week (approximately ¾ in 1998).

Many common seal mothers require to feed by the third week of lactation. There is a hypothesis that if there is not enough food close to the haul-out site the mother may take her unweaned pup with her on foraging trips. This might account for the premature disappearance of mother-pup pairs from Strangford Lough since 1995.

**Recommendation (7):** Measure food stocks close to pupping sites. We would expect to find that where there is a lack of food close to the site the seals would leave two weeks into lactation, while at sites where there is food they will stay. If these seals could be identified their movements could then be tracked in relation to available food supply. If the seals were leaving even with food readily available, then another explanation for their movements would have to be explored.

8. **EFFECT OF HUMAN ACTIVITIES**

**Disturbance from humans could become critical during pupping and moulting in July and August.**

In some areas seals have become accustomed to a considerable amount of background activity and noise eg in the area of the Narrows. There are other areas of the Lough, however, where even at great distances the approach of a boat / human causes all seals to enter the water eg Rat Island (at certain times of year). While it is not conclusive that seals are leaving the Lough due to disturbance there is considerable concern regarding the possible effect of human activity on seals during pupping and moulting periods. Human activity has been observed to reduce the length of time pups spend suckling and could ultimately affect success rate.

**Recommendation (8a):** Research on disturbance should focus on key haul out sites during pupping and moulting periods and the lead up to these.

**Human activity on the Lough is increasing.**

It would be preferable to have management measures in place before any serious problems arise. Management will depend to a large extent on education and public relations activities to encourage people to carry out activities in a way that is compatible with wildlife areas. This will take some time to develop and attitudes will only change over time.

**Recommendation (8b):** Work on management activities eg developing codes of practice, should start this year and further research into disturbance (particularly at pupping and moulting times) should be given a high priority.

**There are variations in seal responses to different kinds of activities and at different haul-out locations.**

There are numerous patterns of boating activity on the Lough and seals have been observed to react very differently to a variety of activities. Traditional boat based activities include potting and sailing is an established recreational activity. The Narrows is a key seal haul-out area but it is also is one of the most important lobster potting areas, and is a busy channel for craft of all types coming into and leaving the Lough.

Increasing recreational use is likely to have an adverse effect, as seals will not necessarily habituate to this activity easily. Future boat based seal watching could lead to disturbance especially if visitors expect to see seals going into the water.

**Recommendation (8c):** Any strategy to manage disturbance should address variations in the kinds of human activity taking place and the response of wildlife to it. It was suggested that sensitive areas and what they are sensitive to could be identified. Codes of conduct could be applied separately to a range of different kinds of disturbance and possibly at different times of year.

**Any plan to reduce the impact of human activity on seals will require support from local people.**

Establishing a code of practice specific to the Lough, for example, is not just a matter of drawing up guidelines but also getting people to adopt them. It would be impractical and undesirable to try to protect all sites and management measures must have a sensible approach, taking into account the needs of Lough users as well as seals.
Recommendation (8d): Plans should be drawn up with the full involvement of interested parties and particularly boat operators. The SLMC Seal Working Group should lead this by bringing together relevant individuals and organisations to discuss possibilities. EHS should use this network to help draw up a code of practice for seal watching in Strangford Lough.

*Informal reports indicate that a very small number of individuals may physically harm seals that they perceive to be interfering with human activities.*

This is not thought to be a major problem to overall numbers of seal in the Lough. However, it is recommended that the protected status of seals be publicised.

9. **COMMUNICATION**

*Issues relating to Common Seals should be communicated to the general public and relevant bodies.*

There is huge public interest in seals. People's attitude when using the countryside is of increasing importance for environmental management. Local Councils and others have a key role through their tourism development activities.

*Recommendation (9):* The proceedings of the workshop and SLMC’s policy should be made widely available (mail-out to those who attended the workshop, wide range of government departments and NGOs) SLMC should issue a press release on the proceedings and its findings in June (in co-operation with EHS and others)

**SUMMARY**

Four themes have been identified in relation to the decline in common seals in Strangford Lough.

- **Range:** Common seals along Irish Coasts are at the southwestern edge of the range of the Eastern Atlantic population. Species at the edge of their range can experience wide fluctuations in numbers over long periods of time. There is, however, no evidence to indicate that the decline in Strangford Lough is mirrored on other Irish Coasts. Further data from around Irish coasts and County Down in particular would be useful in determining if population range is a factor. The UK Government has expressed interest in maintaining the extent of the range of sea lions along its coasts and the Sea Mammal Research Unit might therefore consider a study including Strangford Lough. At any rate the SMRU can provide data on the wider population movements which can be correlated against data from County Down.

- **Food supply** could be a factor affecting common seals in the Lough. It would be extremely difficult and expensive to provide detailed data on food stock availability, which would provide useful information in relation to seal movements generally. There is, however, the possibility of focussing specifically on the feeding habits of mother-pup pairs to try to establish why they leave the Lough before weaning.

The proposal is to develop a programme to monitor the movements of mother pup pairs and examine food stock availability around the main pupping haul-out sites. The work could involve a combination of faecal analysis, acoustic surveying, by-catch monitoring, seal radio tracking and photo-identification of mother seals. Any new research should be closely correlated to existing work ie EHS seal count data and DANI trawl / Roxanne surveys in Strangford Lough and the Irish Sea.

- **Disturbance** is most likely to be an issue at pupping and moultng times in July and August. The main concern is that human activity will interfere with pup sucking time and also the energy expended when forced into the water during molting. It would be possible to focus such a study on key pupping sites and restrict the study to a two-month period. Photo-identification would be a useful tool for such a study. Management measures introduced now could alleviate potential future problems with regard to human disturbance. SLMC should play a key role in this.

- **Grey seal** / common seal interaction is a possible issue but is likely to be less of a priority than the first three themes.

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