Proposed Guidelines for Dealing with Cetaceans in the Event of an Oil Spill in the Moray Firth, Scotland

Report to
Talisman Energy (UK) Limited &
Scottish Natural Heritage

Prepared by S.Gubbay & R.Earll

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PROPOSED GUIDELINES FOR DEALING WITH CETACEANS IN THE EVENT OF AN OIL SPILL IN THE MORAY FIRTH

PREFACE

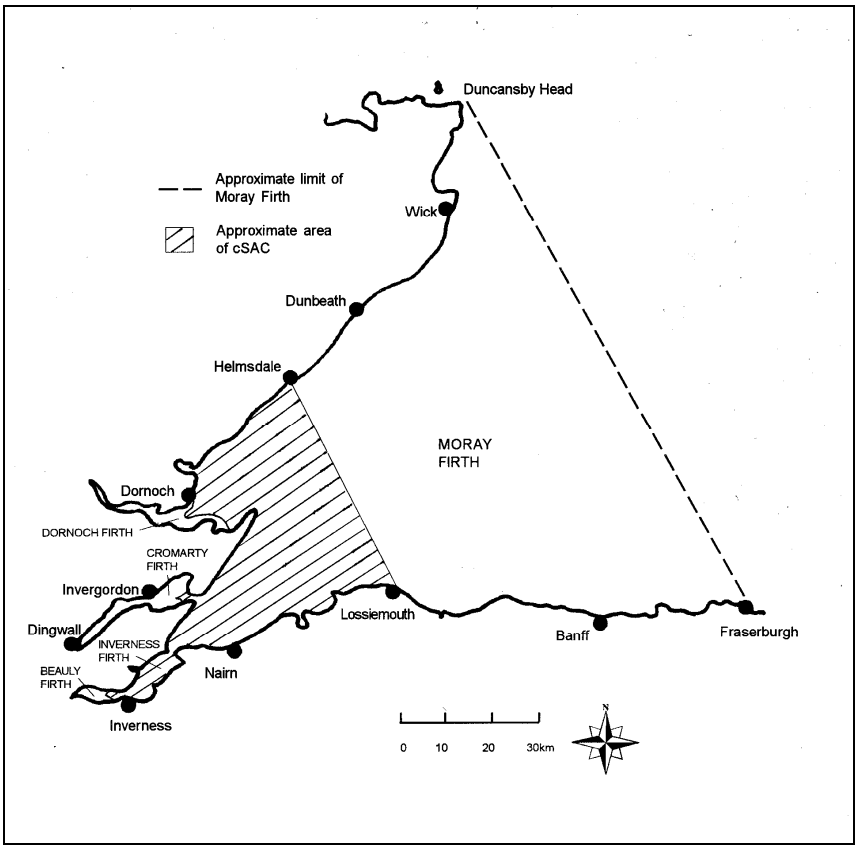
The following proposals are based on a literature review[1] on the effects of oil spills on cetaceans and on a workshop held in Inverness in May 1999. The review and workshop cover ways in which cetaceans might be addressed during the oil spill contingency planning process and the clean-up response. This document therefore provides the best current advice for dealing with cetaceans in the event of an oil spill in the Moray Firth. The guidance covers a range of scenarios involving cetaceans and oil, such as dealing with stranded cetaceans, cetaceans surrounded by oil in confined areas, and circumstances where cetaceans may need to be treated in locations which are also easily accessible to the general public.

The guidelines recognise that cetaceans are only one of a number of factors that need to be taken into account during the contingency planning process and oil spill clean-up response. It is hoped that they will provide a useful reference for those charged with developing Oil Spill Contingency Plans for the Moray Firth by highlighting issues that may need to be considered in such Plans. This is particularly important given that the Moray Firth is a focus for oil industry activity and shipping as well as being frequented by one of the few known resident populations of bottlenose dolphins in UK waters. It should be noted that the procedures of the National Contingency Plan will take precedence in the case that its use is invoked.

Under the "Habitats Directive", Council Directive 92/43/EEC, a large part of the inner Moray Firth has been proposed as a candidate Special Area of Conservation (cSAC) on account of the international importance of the resident bottlenose dolphin population (Figure 1). The status of part of the Moray Firth as a cSAC ensures that all local and national authorities with responsibilities in the marine environment must exercise their duties to secure the favourable condition of the bottlenose dolphin population.

[1] Scottish Natural Heritage, 1999. The effects of oil spills on cetaceans : A literature Review. Review Series (unpublished). Final report expected in January 2000.

FIGURE 1. The Moray Firth, including the area of the candidate Special Area of Conservation.



1. FORWARD PLANNING

Oil spill contingency plans should include up to date information on the occurrence and usage of the Moray Firth by cetaceans.

Main organisations with information about cetaceans in the Moray Firth:

Scottish Natural Heritage
Joint Nature Conservation Committee
University of Aberdeen, Zoology Department
Sea Mammal Research Unit
Seawatch Foundation
UK Mammal Society (Cetacean Group)

Useful references on cetacean sightings and distribution in the Moray Firth:

Curran, S., Wilson, B. & Thompson, P. (1996) Recommendations for the sustainable management of the bottlenose dolphin population in the Moray Firth. Scottish Natural Heritage Review. No.56.
Harding-Hill, R. (1993) The Moray Firth Review. Scottish Natural Heritage.
Joint Nature Conservation Committee (1995) Coasts and seas of the United Kingdom. Region 3. North-east Scotland (Cape Wrath to St.Cyrus). JNCC.

Wilson, B., Thompson, P.M. & Hammond, P.S. (1997) Habitat use by bottlenose dolphins: seasonal distribution and stratified movement patterns in the Moray Firth, Scotland. Journal of Applied Ecology. 34:1365-1374.

Information relevant to the management of the cSAC for its bottlenose dolphins is available from:

Scottish Natural Heritage
Moray Firth Partnership

Useful references relevant to the cSAC:

Scottish Natural Heritage, 1995. *Natura* 2000. A guide to the 1992 EC Habitats Directive in Scotland's marine environment.

Scottish Natural Heritage, 1997. *Natura 2000.* European marine sites: an introduction to management.

EN, SNH, EHS(DoE(NI)), CCW, JNCC & SAMS, 1998. *Natura* 2000. European marine Sites: Guidance relating to the statutory conservation objectives and operations which may cause deterioration or disturbance.

The Conservation (Natural Habitats, &c.) Regulations 1994.

NB. Advice on the conservation objectives and list of operations which may cause disturbance to the dolphins or cause deterioration of their habitat is being prepared and a scheme of management for the cSAC is under development.

LOCATION	EXPERTISE	ORGANISATIONS
L, S,	Cetacean conservation	Scottish Natural Heritage University of Aberdeen
S, UK	Cetacean conservation	Joint Nature Conservation Committee Sea Mammal Research Unit
L	Sightings network	Friends of Moray Firth Dolphins
L, S, UK	Welfare	Scottish Society for the Prevention of Cruelty to Animals British Divers Marine Life Rescue
S	Veterinary	SAC Veterinary Services

L - local to Moray Firth, S - bases in Scotland, UK - based in UK

The following actions which require forward planning are also recommended:

- Clarifying roles for an emergency sightings network
- Identification of good land-based sightings survey points
- Development of risk assessment methodology
- Availability of equipment (eg. sonar buoys)
- Any training needs for personnel likely to be involved in spill response

There are a number of references about seeking specialist advice in these guidelines. As part of any forward planning, <u>it will be essential for contingency planners to identify in advance those groups or individuals who are qualified and likely to be available to provide specialist advice in the event of an incident. Contingency plans should also aim to prioritise the listing of specialists so that key individuals and groups are contacted first. Contact and release arrangements for specialists will need to be agreed in</u>

advance. Voluntary groups (eg. sightings networks, animal welfare groups) can also assist in any response involving cetaceans. Those groups with relevant expertise should be identified in advance and arrangements for their participation agreed.

The forward planning process needs to clearly identify how marine mammal specialists and others involved in dealing with cetaceans will be integrated into the oil pollution clean up response, whether it be through the Shoreline/Marine Response Centre for Tier 3 oil spills or for Tier 2 spills, where a Response Centre may not be established.

2. IMMEDIATE RESPONSE

A tiered response is recommended depending on the size of the spill and the importance of the area for cetaceans (Box 1,). Notification and advice on implications for cetaceans will need to be sought for all spills within the cSAC.

BOX 1: Tiered Response

OIL

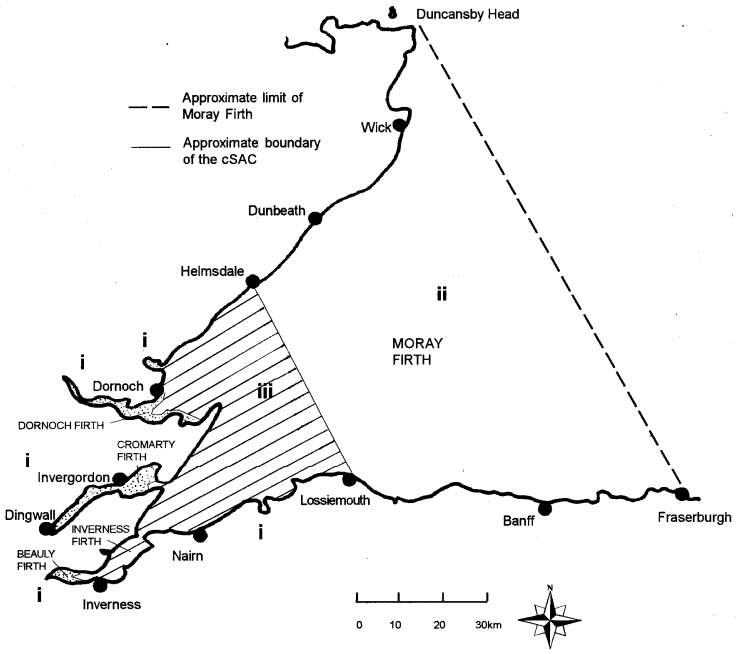
1. Small operational spills at jetties or terminals. Reported but managed and cleaned up by operator.
2. Medium sized spills, either at or in the vicinity of a facility , which cannot be handled by the facility operator alone. Personnel and equipment support will be required either from other port users or from a local or regional oil spill co-operative.
3. Large spills, either at or remote from a facility that are beyond the capability of local and regional resources. They will require the National Contingency Plan to be invoked and national resources to be mobilised.

CETACEANS

I. Areas for which there have been occasional sightings of cetaceans (ie. once or twice a year)
II. Areas with regular sightings of cetaceans for the time of year (ie. once or twice a month)
III. Areas used intensively by cetaceans or which are designated for cetaceans.

		Cetacean presence		
		i	ii	iii
Spill Size	1	N	A	A
	2	A	C	C
	3	C	C	C

N	Notify
A	Seek advice
C	Call out



i Inner parts of the Dornoch Firth, Cromarty Firth, Beauly Firth, also Loch Fleet and Findhorn Bay

ii Outer Moray Firth where harbour porpoise is regularly sighted. Most frequent during summer, observations in all months but sightings scarce in the January-March period.

iii Area of the cSAC which has been designated for bottlenose dolphin. Zones within this are known to be intensively used by bottlenose dolphin.

3. ASSESSING PRESENCE & RISK TO CETACEANS FOLLOWING A SPILL

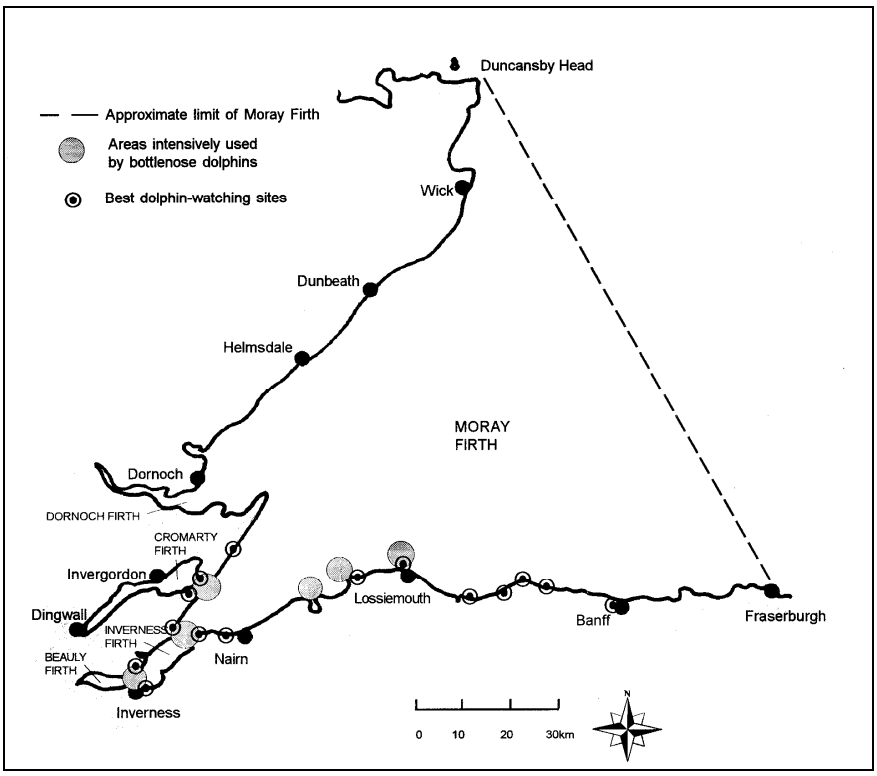
3.1. Reconnaissance

Areas where cetaceans are likely to be present, (eg. because of time of year or known resident groups) and good look out points with easy access are shown in Figure 2. A network of suitable sites for shore-based monitoring in the event of a spill needs to be identified (see Section 1). Early reconnaissance teams (land, aerial and water-based) investigating the nature of the incident should be requested to report any sightings of cetaceans. Dedicated cetacean reconnaissance teams are recommended for any spills in or likely to enter areas intensively used by cetaceans. Dedicated reconnaissance should only be carried out under the supervision and guidance of country agency staff or the marine mammal specialist(s) as poorly managed observation may miss the collection of some useful information and sea-based reconnaissance could cause unnecessary disturbance to the animals.

The contingency plan should clearly indicate how information gathered during reconnaissance will be conveyed to any clean-up teams and/or the Marine/Shoreline Response Centres. Remote methods, such as the deployment of sonar buoys or hydrophones in areas known to be well used by cetaceans should be considered. Sonar buoys are particularly useful to determine if cetaceans are present in an area when weather and sea conditions make sightings difficult. Hydrophones are already deployed in the area of the Kessock Bridge but may need to be switched on.

Information held by the clean-up teams and/or the Shoreline/Marine Response Centres on the spill (size, direction, condition etc.) should be passed to those assessing the risk to cetaceans. Good communication between cetacean reconnaissance and sightings teams and the clean-up teams and/or the Shoreline/Marine Response Centres is essential.

FIGURE 2. Areas intensively used by bottlenose dolphin and recommended visitor look-out points



Cetacean sightings in the Moray Firth (F- frequent, R- regular, O-occasional, RA - Rare)	
Bottlenose dolphin (F)	Killer whale (O)
Harbour porpoise (F)	Risso's dolphin (O)
White-beaked dolphin (R)	Common dolphin (O)
Minke whale (R)	Northern bottlenose whale (RA)
Atlantic white-side dolphin (O)	Humpback whale (RA)
Long-finned pilot whale (O)	

3.2 *Sightings*

Where sightings are made the species, numbers, direction of travel and any indications of condition of the animals should be recorded and information passed to marine mammal specialists to assess the risk to cetaceans. Standard recording forms used for sightings at sea may be available from the JNCC. Shore-based recording forms are available from the Sea Watch Foundation. Video footage will be useful if it can be obtained and may provide vital information for later determination of any effects of the spill on cetaceans. Rapid and intensive effort to collect data on any cetaceans in the area will be essential if such a determination is to be possible. If conditions allow, therefore, specialists survey teams should ideally be put together to go into the field to make a first-hand assessment. Dedicated aerial surveys will need to be undertaken in

the case of large spills where cetaceans are likely to be present and thought to be at risk. The local land based dolphin sightings network should be mobilised to provide sightings information. Good land-based vantage points which can be used by the sightings network are shown in Figure 2.

4. PUBLIC RELATIONS AND MEDIA ADVICE

4.1. Press Liaison

In the event of an oil spill in the Moray Firth, the media and general public will be seeking information about the presence of, and risk to cetaceans, and any actions being taken to minimise the risk or to treat affected animals. Where Marine/Shoreline Response Centres are established a primary press contact/office for the incident will be set up. It is recommended that a marine mammal specialist be appointed to liaise with the nominated press officer/press office and be available to give knowledgeable briefings on the subject. The principal message may be that no effective action can be taken and therefore knowledge of the issues will be all the more important in explaining the case in a situation where there can be considerable pressure to take action. Note that any comment needs to be fully integrated with other press briefings.

It will be helpful to have a pre-prepared press pack which could contain information on the importance of the area for cetaceans, policy and procedures for responding in the event of an oil spill, photographs of cetaceans, and vessel movement guidelines.

4.2. Press Briefings

For press briefings concerning cetacean issues during major incidents (Tier 3 spills), it is recommended that a panel with a range of expertise field questions rather than a single individual. Panel members could usefully comprise those with a background of the biology of the animals, animal welfare, conservation issues, the local conditions and the nature of the incident (eg. SSPCA, BDMLR, SNH, Coastguard). Dealing with the press as a group will reduce time spent on this issue but is not always possible.

4.3. Public and Press on location

As far as possible the media should be directed to land based observation points as this will reduce the potential for disturbance to cetaceans and avoid the risk of conflict with clean-up operations at sea. If land-based observation is unlikely to result in satisfactory coverage for the media then a specific vessel should be designated to take press representations on location.

Control of craft, including media craft, in the air and on the water may be required as part of the health and safety aspects of dealing with an incident. This will also be necessary if actions are being taken to treat stranded cetaceans or to encourage cetaceans to move from contaminated areas (see also Sections 6.2 and 7.5).

While it is possible to establish an exclusion zone around an incident it will be difficult to do the same around cetaceans because of their mobility. It must be made clear that it is an offence to deliberately disturb cetaceans in UK waters. In order to minimise disturbance to the dolphins, the "Dolphin Space Programme" code of conduct must be adhered to by water users seeking to observe the dolphins in the area.

Where possible, press on location should be escorted by police and a press liaison officer.

5. DEALING WITH LIVING CETACEANS

5.1. Relocation of threatened cetaceans

Capture and removal of live, healthy, cetaceans away from the contaminated area is prohibited without licence under UK law. Although potentially feasible such action would be dangerous and is undesirable because of the likelihood of causing stress to healthy animals and therefore risk ill-effects on animals the action is trying to protect.

5.2. Keeping cetaceans away from oil spills

Vessels and booms placed around an oil slick are unlikely to deter cetaceans from entering the contaminated zone. This approach is therefore not considered to be a useful deployment of personnel and vessels dealing with cetacean concerns. Attaching marine mammal deterrents, such as "seal scarers" and other acoustic devices to booms might however be an option to consider.

The physical presence of boats and associated noise have been used to drive cetaceans into open water away from locations where they are at risk of becoming stranded. If safety considerations permit, this may be a useful option to consider in situations where spills are concentrated and under control, particularly in enclosed areas where cetaceans may be at risk of getting trapped, within or behind oil slicks (eg. at the entrance to the Cromarty Firth and enclosed sections of the inner Moray Firth).

It is an offence under Section 9(4) of the Wildlife & Countryside Act 1981 and Regulation 39(1) of the Habitats Regulations 1994 to "deliberately disturb" cetaceans. To do so would require a licence from Scottish Natural Heritage who are able to issue a licence for the purpose of "conservation" within only a few hours if the following information is provided:

Name and address of proposed licence holder
Name of agents or assistants
Start and Finish date
List of all the activities and methods proposed
Areas in which the activities are to take place

Any such operation will be a major undertaking and must be tightly controlled with good communication during the operation if there is any chance of it succeeding. If used this approach will be most valuable if it can prevent cetaceans from inhaling the volatile fractions evaporating from the surface of the oil as it is these which present the most significant health risk to cetaceans following an oil spill. At the same time, for some species and in some locations, it must be weighed up against the risk of driving the cetaceans to strand themselves during such an operation.

The idea of playing cetacean or other sounds through hydrophones, as a deterrent or attractant, has been tried or considered as an option to encourage trapped or refloated animals to move out of an area. As very little is known about what is required to be successful with this technique and because background noise from vessel and aircraft traffic dealing with the spill might be considerable, the likelihood of success is difficult to gauge.

6. LIVE STRANDINGS

6.1. Treatment

Coastal watches and beach search parties should be asked to report any stranded animals. If live strandings are reported, specialist advice must be sought from Scottish Agricultural College Veterinary Services as soon as possible and the organisation/individuals leading the rescue effort should be clearly identified.

A variety of measures can be taken to treat and refloat live strandings. The likelihood of success will depend on the species, condition of the animal and speed of response. In-situ treatment is likely to be the only realistic option for large cetaceans. For small cetaceans rehabilitation may be an option. In some cases it may be necessary to hold animals in specially deployed temporary pools on site after administering first aid, until conditions are suitable for refloatation. Clean release areas will need to be identified and the teams caring for the cetaceans given regular updates on the condition and location of the spill so treated animals are not released into contaminated areas. In other cases euthanasia may be the most humane action.

Decisions on the best course of action must be taken by individuals with specialist expertise on this subject and any treatment or procedures under the guidance of individuals who are trained to deal with cetaceans in these circumstances.

6.2. Site management

The presence of cetaceans on the shore will elicit public interest. The attendance of the police at the scene is likely to be needed to keep the public away from animals being treated and enable veterinarians to do their work. There may also be a need to call out the fire brigade to assist with treatment of stranded animals (eg. hosing down animals to keep them cool).

It is important to avoid over flying an area with stranded cetaceans (as this is known to cause further distress to weakened and disoriented animals undergoing treatment) and to control vessel traffic (see Section 4.3).

7. OIL SPILL COUNTER-MEASURES

7.1. Chemical dispersants

The effects of the use of dispersants on cetaceans are not known therefore a precautionary approach is recommended. It may be necessary to give a risk assessment to the Scottish Executive Rural Affairs Department whose approval is required before any spraying is undertaken. Dispersants are least likely to be a problem in open sea environments. Spraying directly on to cetaceans should not be permitted and the observer present on craft undertaking dispersion should be notified of this. If there are likely to be significant numbers of cetaceans in an area to be sprayed then no spraying should be permitted.

7.2. Mechanical dispersal

Propeller action from standby vessels to disperse slicks could cause physical injury to nearby cetaceans if the animals are lethargic or suffering from other effects of inhaling volatiles. Operators should be alerted to look out for any such animals and propeller action should not be used if cetaceans are in the immediate vicinity.

7.3. In-situ burning

No information is available on the effects on cetaceans of in-situ burning of oil. In situ burning is not recommended in the Moray Firth.

7.4. Physical barriers

Deployment of physical barriers to contain oil are not likely to have any effects on cetaceans in the vicinity of an oil spill and are therefore not considered to be an issue of concern.

7.5. Disturbance

Vessel and air traffic noise will be detected by nearby cetaceans however this type of noise is likely to have short term effects so should not be a major issue during clean-up operations. Taking no action, in order to avoid noise disturbance, is likely to be more of a problem to wildlife in the long run (but see exception above for stranded cetaceans).

8. REPORTING & DEALING WITH CETACEAN CARCASSES

8.1. Strandings information

There are legal reporting requirements for dead stranded cetaceans. In Scotland, any stranded cetacean over 7.5m in length (excluding pilot or bottlenose whales) must be reported to the Receiver of Wreck. Post-mortem and tissue sampling of cetaceans should be carried out if possible but must only be undertaken by Scottish Agricultural College Veterinary Services. Their main consideration will be to try and identify the cause of death as well as record general information about the animal. Post-mortem identification may involve taking tissue samples for toxicology, skin for DNA analysis, teeth for ageing, gonads for reproductive condition, photographs to compare with existing identifiable individuals.

The carcasses of stranded cetaceans will need to be cordoned off to minimise the public health risk. If certain drugs are to be used to humanely kill cetaceans the police should be present to ensure the public are kept well away and it is also recommended that until the carcass is disposed of it should be guarded to prevent any risk of poisoning to scavenging animals.

8.2. Recovery

Cetacean carcasses are most likely to sink to the seabed however if any are observed floating in the water they should be recovered so that basic information about the animal is recorded and a post-mortem can be carried out (see section 8.1).

8.3. Pathology

Tests are available to determine whether hydrocarbons might be a contributory factor in the cause of death. They need to be carried out on fresh carcasses (within an hour of death) making it is very important for any strandings observed in the area to be reported as soon as possible.

Because of the need for a rapid response, the relatively few incidences of strandings, and the need to maintain standby sampling equipment (eg. cryogens), this type of testing has not been viable up to now and it may not be possible to locate equipment in time to able to reach recently stranded animals and carry out such tests.

8.4. Disposal

Options for disposal of cetacean carcasses will depend on the size of the animal. Small animals (up to around 5.5m) will be disposed of by veterinary services following post-mortem examination in their laboratory. In the case of larger animals post-mortems are most likely to take place *in-situ*. Carcasses should not be buried in the intertidal zone. The local council Environmental Health Officer will need to be contacted to arrange disposal of the carcasses of large animals.

9. LONGER TERM CONSIDERATIONS

9.1. Information needs

Information collected prior to, during, and after an oil spill will improve understanding of how cetaceans are affected by oil. Regular monitoring is essential to understand natural patterns of change and distinguish these from any changes following unusual events such as an oil spill. It would be particularly useful to look for any changes in the behaviour of animals in the vicinity of a spill as well as pathology following a spill. Continued careful and consistent documentation of marine mammal strandings will be important as well as checking whether these were animals seen in the vicinity of the spill, and data on tissue hydrocarbon levels. This should be obtained from stranded animals wherever possible as background reference points so that pathological and toxicological findings in marine mammals recovered in or near a spill can by interpreted more meaningfully.

Follow up research programmes will need to be instigated in areas known to be important for cetaceans or where animals were seen near spills during the incident. This may include follow up observations of particular animals, changes in abundance and behaviour of cetaceans in the area, and analysis of archived tissues taken from stranded animals.

9.2. Dissemination of information

A briefing on the information collected and methods deployed to deal with cetaceans during an oil spill incident could usefully be passed to other organisations and groups via groups such as the Moray Firth Partnership and the Marine Animal Rescue Coalition once work in the affected locality has ceased. It will also be valuable for scientists undertaking studies to publish their findings and for those involved in any oil spill response involving cetaceans to pass on any lessons learnt to organisations in other parts of the world. This will help spread and improve knowledge on how cetaceans are affected by oil spills, what can be done to minimise the risk under incident scenarios, and what treatment is likely to be most successful for animals in poor health as a consequence of an oil spill incident.