

# Marine Mammal Recording SOP074

Protocol for mitigation of marine mammal disturbance and injury at EMEC test sites

## 1 Purpose

To provide a consistent methodology for mitigating against disturbance and injury, including observing and recording marine mammals, when undertaking site operations at the EMEC test facilities. This method requires clear communication channels to be maintained between the observer and the marine operations lead.

## 2 Guidance Notes

Please read this before completing the marine mammal observations forms. If you are unclear about any aspect of using the process, please seek advice from EMEC. This method is designed to be used by an appropriately trained and experienced Marine Mammal Observer (MMO)<sup>1</sup>. If a suitably experienced member of the vessel's company is nominated they must not simultaneously carry out any other duties. Evidence of training and/or experience will be sought prior to observations commencing.

In addition to familiarity with this method, it is essential that the observer and developer have defined, agreed and tested the communication procedure in advance of the commencement of the works.

There are two forms to be completed by the observer, returned to the developer, and copied to EMEC:

- 1) **Record of Operations, Effort & Environment**<sup>2</sup> (basic information about the survey and meteorological conditions plus a summary of observations).
- 2) **Record of Sighting** (explained below).

These forms are designed to provide, in a standard format, the minimum information that is needed. Please do not alter the forms, but do feel free to provide any additional information that you think would be of benefit. The methodology has been adapted from the JNCC guidelines (JNCC, 2010a; b).

If use of an MMO has been required as a licence condition and/or detailed on the Project-specific Environmental Monitoring Plan (PEMP), the licensee should provide reporting forms and any commentary to Marine Scotland by the agreed reporting schedule.

### 2.1 Observation and Mitigation Methodology

The aim is to observe and record marine mammals and large or unusual fish species (e.g. basking sharks, sunfish) in the area around the works and prevent them from being disturbed

<sup>1</sup> Please refer to the following page on the JNCC website regarding Marine Mammal Observer courses: <http://jncc.defra.gov.uk/page-4703>

<sup>2</sup> Even if no marine mammals (or basking sharks) are observed during the entire survey, the Record of Operations and Effort & Environment form must still be completed and returned to EMEC.

or injured by not commencing works while they are in the vicinity. The key stages that must be followed are:

**i) Pre-Operation Phase** - Begin at least 30 minutes before commencement of the relevant works (e.g., drilling/piling) and continue throughout the period of operation. From a suitably high observation platform, with a clear, unobstructed view. Undertake a careful visual inspection of the area within 500 metres (or another distance previously agreed with the Regulator) of the works and record any target species observed.

**ii) Delay Phase** - If target species are seen within 500 metres of the works area (or within an alternative area defined by the Regulator), the start of the operational phase (e.g., drilling) must be delayed. At least 20 minutes, after the last sighting, must be allowed for the animals to move away before the operations begin. This time period may need to be extended if a basking shark is observed due to their slower swimming speed.

**iii) Soft Start Phase** - If no target species are sighted, marine works (e.g. drilling/piling) should be built up slowly from a low energy start-up to give adequate time for any animals that may be present but not visible to leave the vicinity. This build-up of power should occur in uniform stages to provide a constant increase in output (taking no less than 20 minutes). If animals are sighted within the soft start phase, then the works must be delayed until they have moved away (at least 20 minutes after the last sighting). The soft start then begins again.

**iv) Operation Phase** - During the operational phase, observations should continue at regular intervals throughout the works. Animal sightings should continue to be recorded, but marine works need not be halted when the operational phase is already underway. The specific periods when marine animals were being searched for should be recorded. If there is a break of 10 minutes or more in the operational phase, the works should return to step (i).

**Working at Night:** If the licence conditions state that marine operations should only occur (or commence) during daylight hours, then it is the licensee's responsibility to ensure that this information is passed on to any contractors and that they comply with licence requirements.

The Marine Mammal Observer Association is a useful information resource for further information on observing and recording marine mammals (<http://www.mmo-association.org/>).

### **3 Associated EMEC documentation**

Two forms should be completed when conducting Marine Mammal Observations, these are namely:

- Marine Mammal Recording – Operations, Effort & Environment FORM079
- Marine Mammal Recording – Sighting FORM077

Guidance for the completion of the Marine Mammal Recording – Sighting FORM077 is provided in Section 5.

### **4 Records**

Hardcopies of all completed forms should be retained by the licensee, in case evidence is requested by the Regulator, Marine Scotland.

## 5 Guidance for FORM077

The sighting form need only be completed when marine mammals or other target species (e.g., basking sharks) are observed. Most of the details requested to record are self-explanatory, but notes on some items are given below for clarification.

### 5.1 Sighting number

To ensure all information is recorded accurately, use numbers in sequence to record each sighting. Begin at 1 for the first sighting of the survey. Where more than one species are observed together, these should be recorded on separate forms with different sighting numbers. Towards the end of the form there is an opportunity to provide further information, such information should be recorded here

### 5.2 Time

The start and end time of the sightings should both be recorded if the animals are present for some time.

### 5.3 How did this sighting occur?

It is necessary to indicate whether the marine animal was sighted whilst conducting a continuous lookout. In some incidences, someone else may call your attention to an animal that you would otherwise not have seen, in which case you should select 'sighted incidentally'.

### 5.4 Position of works

This is the vessel's position at the time of the sighting. Please ensure the start and end position if the animals are around for some time is recorded. If National Grid co-ordinates are not available, give a verbal description of the location, making reference to the nearest landmasses.

### 5.5 Species

Marine mammals and large fish species (e.g. basking shark and sunfish) should be identified as accurately as possible - if it is not possible to identify them to species level, then clear morphological features should be noted down. Useful categories are "whale", "large whale", "medium whale", "small whale", "dolphin", "patterned dolphin", "unpatterned dolphin" or groups of species of similar appearance e.g. "blue/fin/sei whale", "white-beaked/white-sided dolphin", "common/white-sided dolphin" etc. It can also be useful to eliminate species that it certainly isn't, e.g., "medium whale but not killer whale".

### 5.6 Count

Often it is difficult to know exactly how many marine animals there are, this can be an estimate of the minimum and maximum number, e.g., 5 - 8.

### 5.7 Photograph or video

If the opportunity arises to photograph or video the animal this may be used later to help confirm identification. Any photographs or videos should be sent to EMEC, clearly labelled with the date and time of the survey, the vessel's name, the survey operator and contractor, and name of observer.

## 5.8 Description

It is useful to include a description of the animal, even if the species is known, e.g., "hourglass pattern on flanks" for common dolphin. Some features to describe are suggested on the form. A rough sketch may be useful (e.g., of the shape of fin, or pattern of colour).

## 5.9 Behaviour

If there is more than one sort of behaviour then record all behaviours seen. Examples of behaviour are:

- Normal swimming
- Fast swimming
- Slow swimming
- Breaching (animal launches itself out of the water and falls back in)
- Tail-slapping (animal slaps tail on the water surface)
- Feeding
- Resting
- Approaching the ship
- Bow-riding
- Sky-pointing/spy hopping (animal almost vertical in the sea with head pointing towards the sky)
- Or any other behaviour.

## 5.10 Direction of travel by animals

The direction of travel can be expressed in two ways - in relation to the boat (draw an arrow on the diagram), or using points of the compass

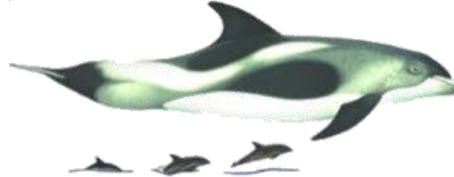
## 6 Marine Mammal Identification Chart

### Harbour Porpoise



**Description:** Small in size with a rounded head (no beak) and triangular dorsal fin. Dark grey/black colour with a lighter underside.  
**Size:** 1.4 to 1.9 m  
**Habitat:** Seen year-round in coastal areas.  
**Group size:** Usually 2 to 5.  
**Behaviour:** Seldom bow-rides and surfaces with a slow, rolling motion.

### White-Beaked Dolphin



**Description:** Robust body with a short beak and prominent dorsal fin. Beak colour varies from white to brown/grey. Black body with white patches along the sides and a pale area behind the dorsal fin and on the tail stock.  
**Size:** 2.5 to 2.8 m  
**Habitat:** Typically seen in open water.  
**Group size:** Usually small groups but larger groups are seen.  
**Behaviour:** May bow-ride and are fast, powerful swimmers.

### Common Dolphin



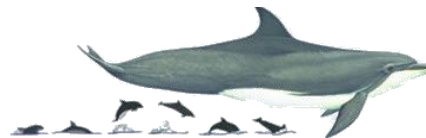
**Description:** Slender body with a long narrow beak and a distinctive hour-glass pattern on its side.  
**Size:** 1.7 to 2.4 m  
**Habitat:** Summer visitor to coastal and offshore waters.  
**Group size:** Usually 30 to 50.  
**Behaviour:** Keen bow-riders and often very active at the surface.

### Risso's Dolphins



**Description:** Silver-grey/cream or white in colour, due to large number of scars and scratches on the body. Tends to lighten in colour with age as scarring increases. Has a rounded head (no beak) and tall dorsal fin  
**Size:** 2.6 to 3.8 m  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** Small groups but can be up to 50  
**Behaviour:** May swim alongside boat. Young animals often breach.

### Bottlenose Dolphin



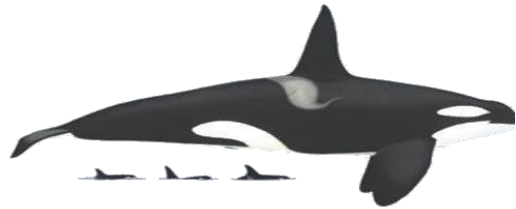
**Description:** Large dolphin with prominent dorsal fin and distinct beak. Grey in colour with a paler underside.  
**Size:** 1.9 to 3.9 m  
**Habitat:** Seen year-round in coastal areas, often inshore and close to land.  
**Group size:** Typically 3 to 10 but can be up to 30.  
**Behaviour:** Highly active and often bow-rides.

### Atlantic White-sided Dolphin



**Description:** The key distinguishing feature is the white to pale yellow patch found behind the dorsal fin of the dolphin on each side.  
**Size:** 2.5 to 2.8 m  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** Congregates in large groups around 60.  
**Behaviour:** Acrobatic and keen to interact with boats.

**Orca/Killer Whale**



**Description:** Distinctive black and white colouring with a grey saddle patch behind eye. Males have very tall dorsal fins; females and immature animals have smaller, curved fins. Flippers are rounded and paddle-shaped.  
**Size:** 5.5 to 9.8 m  
**Habitat:** Seen in coastal waters.  
**Group size:** 2 to 10.  
**Behaviour:** Although the orca rarely bow-rides, it will approach boats, often breach, spy-hop or slap flippers/tail on surface.

**Humpback Whale**



**Description:** The humpback has a distinctive body shape, with unusually long pectoral fins and a knobby head.  
**Size:** 12 to 16 m  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** Does not usually congregate in large groups.  
**Behaviour:** It is an acrobatic animal, often breaching and slapping the water.

**Minke Whale**



**Description:** Slender and streamlined body with a narrow pointed head and a small, strongly curved dorsal fin. Dark grey/black with a white underside and a distinctive white band on each flipper.  
**Size:** 7 to 10 m  
**Habitat:** Summer visitor to coastal waters  
**Group size:** Tends to be solitary but can be seen feeding in groups of up to 10.  
**Behaviour:** Before a dive, a minke whale arches its back but does not raise the tail fluke out of the water, so it is most typically the back and dorsal fin that are seen.

**Fin Whale**



**Description:** Distinguished by its great length and slender build.  
**Size:** 19 to 27 m long  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** Often lives in small groups of 6 – 10.  
**Behaviour:** Often feeds by swimming at the surface on its sides, scooping up water and prey as it goes.

**Pilot Whale**



**Description:** Jet black or a very dark grey colour. The dorsal fin is set forward on the back and sweeps back.  
**Size:** 3.8 to 6 m  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** Lives in groups of about 10 to 30 in number on average but some groups may be 100 or more.  
**Behaviour:** Occasionally bow rides, tail-slaps and spy-hops, although the pilot whale is often encountered resting motionless at the surface.

**Sperm Whale**



**Description:** Has a large head that can be up to one-third of the animal's length. Greyish-brown in colour with a low dorsal fin.  
**Size:** 11 to 18 m  
**Habitat:** Prefers deep water but may be seen in coastal areas.  
**Group size:** 1 – 50.  
**Behaviour:** Deep diver. A sperm whale spouts 3-5 times per minute at rest, but the rate increases to 6-7 times per minute after a dive.

**Common Seal**



**Description:** Head has rounded profile and coloured brown, tan, or grey, with distinctive V-shaped nostrils.

**Size:** 1.2 to 1.9 m

**Habitat:** Common in coastal waters and often seen resting on rocks.

**Group size:** Congregates in large groups for breeding, pupping and moulting. Dives alone or in small groups.

**Behaviour:** Hauls out onto rocky shores, mud flats and sandy beaches. Does not tend to travel more than 20km from the shore.

**Northern Bottlenose Whale**



**Description:** The beak is long and is coloured white in males and grey in females.

**Size:** 8 to 10 m

**Habitat:** Prefers deep water but may be seen in coastal areas.

**Group size:** Often lives in small groups of 4 – 10.

**Behaviour:** Makes long, deep dives for up to 70 minutes.

**Basking Shark**



**Description:** Has a conical snout and large mouth, which contains bristle-like gill rakers for filter-feeding. Body is grey colour with a distinctive, large, triangular dorsal fin.

**Size:** 6.5 to 9 m

**Habitat:** Summer visitor to coastal areas.

**Group size:** Often solitary but can be seen in groups of 1 to 100.

**Behaviour:** Most easily recognised by the distinctive dorsal fin and tail tip, which are typically above the water surface as it swims in a slow sweeping motion while feeding.

**Grey Seal**



**Description:** Head has flat profile with 'Roman Nose'. Varies in colour from dark brown to grey or black, with blotches.

**Size:** 1.1 to 2.3 m

**Habitat:** Common in coastal waters and often seen resting on rocks.

**Group size:** Congregates in large groups for breeding, pupping and moulting. Dives alone or in small groups.

**Behaviour:** Hauls out onto rocky shores, mud flats and sandy beaches.

**Sunfish**



**Description:** The most striking features are the dorsal and anal fins, which are elongated.

**Size:** Average 1.8 m

**Habitat:** May be seen in coastal areas.

**Group size:** Solitary.

**Behaviour:** The sunfish is commonly seen 'basking' on its side at the surface.

**Recommended Identification Guides:**

Whales, dolphins and porpoises  
– Dorling Kindersley

Whales & dolphins of the European Atlantic  
– Walker & Cresswell

**Seal ID:**

[www.smru.standrews.ac.uk/documents/IdentifyingSeals.pdf](http://www.smru.standrews.ac.uk/documents/IdentifyingSeals.pdf)

**Cetacean ID:**

[www.seawatchfoundation.org.uk/speciesid.php](http://www.seawatchfoundation.org.uk/speciesid.php)