

GUIDE TO USING MARINE MAMMAL RECORDING FORMS

Please read this before completing the marine mammal recording forms. If you are unclear about any aspect of using the recording forms, please seek advice from JNCC (contact details at end).

There are three forms to be completed:

- 1) 'Record of Operations' - summary of seismic operations
- 2) 'Location and Effort Data' - basic information on where you looked for marine mammals, how long you looked for, and what the weather conditions were
- 3) 'Record of Sighting' - information on each sighting of marine mammals.

Each of the three forms is explained in more detail below. Even if you see no marine mammals during the entire survey 'Record of Operations' and 'Location and Effort' forms should be completed and returned to JNCC. These forms are designed so that you can 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.

Each form asks for a JNCC SS ref. no. (JNCC seismic survey reference number). This should be obtained from JNCC before the survey.

Record of Operations

This form asks for basic information on all uses of the airguns throughout the survey. JNCC will use this form to see how well your survey followed the *Guidelines for minimising acoustic disturbance to marine mammals from seismic surveys*. You should complete one line on this form each time the airguns are used, whether for shooting a line, for testing, or for any other purpose (seismic crews do not routinely record test firing, so you will need to ask them to make a note of any times when they are testing the guns).

Airgun activity You should record all airgun activity at any time of day, including times when the airguns are firing overnight. You are asked to record the times of three key stages of airgun activity: a) when the soft-start began; b) when the airguns reached full power (this is not necessarily the same time as the start of line, as the airguns may reach full power before the start of line); and c) when they stopped firing. You should record this information for any uses of the guns, including testing - you may need to remind the seismic crew of the need for a soft-start when testing the guns. If the guns stop before reaching full power, put "No full power" (or "NFP") in the column headed 'Time when the airguns reached full power' and record the time the airguns stopped as usual.

Pre-shooting search You are also asked to record the time you started looking for marine mammals before the airguns started firing (the pre-shooting search), and the time you stopped watching. You should record the times of all pre-shooting searches, but you do not have to provide details of other watches on this form (but include these if you are not sure whether they are relevant). A pre-shooting search should be carried out prior to all uses of the airguns during daylight hours (including test firing). You may leave the times of the pre-shooting search blank if you did not watch because it was dark, but the airgun activity should still be recorded. You are asked if there was any reason why marine mammals may have been missed (e.g. it was dark, or there was a large swell/ fog/ rough seas, etc.).

Action necessary You should record whether marine mammals were present in the 30 minutes prior to the airguns starting firing, and if they were, the time at which they were last seen. If they were present you will need to record what action was taken if necessary under the guidelines (e.g. delay shooting), or indicate a reason why no action was necessary (e.g. animals were more than 500 m away or were last seen more than 20 minutes before firing commenced).

Location and Effort Data

The 'Location and Effort' form should be completed for every day of the survey, regardless of whether you actually see any marine mammals or not, and regardless of whether there is any seismic activity. You may fill in as many lines per day of this form as you wish.

This form includes basic information e.g. ship's name, survey type, date, observer's name, time of watch, duration of watch and duration of shooting, blocks transited and weather conditions during the watch. Further notes on some of these are given below.

Duration of watch You will need to record how long you spent looking for marine mammals, in hours and minutes. This should only include periods when you were actually concentrating on looking for marine mammals.

Length of time airguns were shooting while you were looking for marine mammals This information is important to assess the effects of seismic activity on marine mammal abundance. You should record how long the airguns were firing during each watch for marine mammals (not during a whole 24 hour period). The length of time the guns were shooting during the watch should include any uses of the guns (i.e. should include any run-in to a line, soft-start or test firing, as well as the time spent shooting a line). You must not include time spent firing when you were not watching for marine mammals (e.g. during hours of darkness).

Blocks transited while looking for marine mammals You should record the blocks passed through during each watch - block numbers are preferred, but if you are not sure of them you may give start and end positions in latitude and longitude instead (but please try to avoid giving just a prospect name in this column). You may find a map of quadrants and blocks somewhere on board the ship e.g. in the instrument room.

Weather conditions Weather conditions during the watch should also be recorded. Wind force should be on the Beaufort scale (1-12), e.g. W5. If you record it as speed in knots please make this clear, e.g. W 9 knots, so that JNCC can convert it to Beaufort later. Sea state should be classed as glassy (sea like a mirror, or small ripples), slight (small wavelets with no or few white horses), choppy (small to moderate waves with frequent white horses) or rough (larger waves, extensive white foam crests, perhaps breaking, probably some spray). Those observers who are familiar with Beaufort sea states may record these if they wish, bearing in mind that the sea state at any given time may not correspond to the wind force at that time. Swell should be recorded as low (0-2 m), medium (2-4 m) or large (more than 4 m). Visibility should be recorded as poor, moderate or good (poor = less than 1 km [$\frac{1}{2}$ mile]; moderate = 1-5 km [$\frac{1}{2}$ - 3 miles]; good = more than 5 km [3 miles]).

Record of Sighting

The sighting form need only be filled out when you see marine mammals. Most of the details you are asked to record are self-explanatory, but notes on some items are given below for clarification.

Time There is sufficient space in this box to put both a start and end time of the sighting if the animals are present for some time.

JNCC SS ref. no. This should be the same reference number as on the 'Record of Operations' and 'Location and Effort' forms, and should be obtained from JNCC prior to the survey commencing.

Sighting no. Use numbers in sequence, starting at 1 for the first sighting of the survey. Where more than one species occur together, these should be recorded together on the same form or on separate forms sharing the same sighting number.

How did this sighting occur You should indicate whether you spotted the marine mammals while you were keeping a continuous lookout. Sometimes someone else may call your attention to a marine mammal that you would otherwise not have seen, in which case you should tick the second box ('spotted incidentally') - JNCC need to know this to make an accurate assessment of sighting rate.

Position This is the ship's position at the time of the sighting (please remember to include whether you are east or west of the Greenwich meridian). There is sufficient space in this box to enter a start and end position if the animals are around for some time.

Depth This is the depth of water at the position given, in metres.

Species Identify marine mammals as far as possible - if you cannot identify it to species level then put down what you can. For example, if you know it's a whale not a dolphin, but you can't tell what sort of whale, put down "whale". 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 you know it definitely isn't e.g. "medium-sized whale but not killer whale".

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

Number of adults / Number of juveniles If it is difficult to tell how many of each age there are this can be an estimate of the minimum e.g. at least 3 adults, at least 2 juveniles.

Description It is essential to include a description of the animal, even if you are certain which species it is. The identity of sightings without descriptions, or with poor descriptions, will be downgraded. If you are certain which species it is, describe the characteristic features you used to identify it e.g. "hourglass pattern on flanks" for common dolphin. If you are uncertain, then the more details you give, the better. 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).

Photograph or video taken If you have the opportunity to photograph or video the animal this may be used later to help confirm identification. Any photographs or videos should be sent to JNCC, clearly labelled with the date of the survey, the ship's name, the survey operator and seismic contractor. Where possible, use cameras where date and time can be recorded on the film so that photographs/video footage can be matched to the correct 'Record of Sighting' form.

Direction of travel of animals The direction of travel should be given in two ways - in relation to the boat (draw an arrow on the diagram), and in points of the compass.

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
- porpoising
- breaching (animal launches itself out of the water and falls back in)
- tail-slapping (animal slaps tail on the water surface)
- sky-pointing/ spy-hopping (animal almost vertical in the sea with head pointing towards the sky)
- feeding
- resting
- avoiding the ship
- approaching the ship
- bow-riding
- or any other behaviour you see.

Activity of ship e.g. steaming, on standby, deploying streamers, shooting a line, soft-start, etc.

Airguns firing This is important information - even if you think it's obvious from the activity of the ship, please fill in whether the airguns were firing or not when the marine mammals were first seen. If the animals were first seen during the soft-start, circle this option. If airgun activity changes while the animals are still present, add a note to say this.

Closest distance of animals from airguns This should be filled in whether or not the airguns are firing when marine mammals are seen. If the airguns are not out, then use the closest distance to the ship or to the normal position of the airguns (but please say which you are using).

If you have any queries regarding the use of these forms, please contact the JNCC (address below).

Completed forms should be returned to:

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Seabirds and Cetaceans Team,
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7 Thistle Place,
Aberdeen,
AB10 1UZ.

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