The IWDG welcomed the introduction of the Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters and assisted in its development. At the time of publishing the NPWS committed to reviewing these guidelines after two years (August 2009).

In order to assist the NPWS in this review the IWDG have prepared this current document based on their experience of implementing the guidelines on a range of contracts delivered in Ireland.

**Introduction**

1. Acoustic surveys have been shown to affect sea turtles (McCauley et al., 2000) in perhaps less dramatic ways then cetaceans but given that 6 of the 7 species of marine turtle are designated as endangered or critically endangered (IUCN) it would seem prudent to take every precaution to protect these animals.

**Sound in the Marine Environment**

1. Turtles have been shown to exhibit an alarm response at distances of up to 2Km from an operating seismic vessel and avoidance up to 1km from such activity. Using a 20 cubic inch gun at a level of 166dB re 1μPa sea turtles were seen to noticeably increase swimming activity. Above 175 dB re 1μPa their behaviour becomes more erratic possibly indicating an agitated state. Airgun output of up to 179 dB re 1μPa has been shown to cause a temporary reduction in hearing capability. Seismic surveys typically operate using sound sources of 220 dB re 1μPa or greater.

**Code of Practice**

**General Planning**

1. MMO must be dedicated solely to MMO work and have no other responsibility. The MMO should in addition preferably not be an employee of the exploration company or the seismic operator.
2. MMO should have a demonstratable knowledge of the Irish Mitigation regulations and knowledge of the cetacean species encountered in Irish waters.
3. The use of two MMOs is advised when daylight hours exceed 12 hours per day between April 1st and October 1st. If for any reason the MMO is not required to work full-time or for a very short duration then this need not apply.
4. The use of Passive Acoustic Monitoring (PAM) may be accepted as a mitigation measure but agreement as to its’ use should be sought from the National Parks and Wildlife Service before commencement of the survey.
5. Surveys must commence in daylight hours with good visibility allowing for a visual check before operations begin for the first time.

**Soft start procedure**

1. Soft starts must occur during daylight hours with reasonable (1000m) visibility around power source when MMO’s can carry out the required pre soft start scan.
2. If, for any reason, firing of the sound source has stopped and not restarted for at least 5 minutes a full soft start for the appropriate depth should be carried out. If for any reason the airgun output is halted for more then five minutes airgun activity can recommence immediately, with a ramp up of sound source over a 20 to 40 minute period, if the MMO has been keeping a watch for marine mammals during the 30/60 minutes (as appropriate) previous and no mammals have been found within the mitigation zone.
3. Once the sound source has achieved its maximum output (post soft start) it is not necessary to stop the survey should cetaceans approach the vessel. However prior to reaching maximum output should an animal be seen within the 1000 metres exclusion zone then operations must cease until 30 minutes (in waters up to 200m) or 60 minutes (waters deeper then 200m) after the animal was last seen within the exclusion zone.

**Soft-starts and airgun testing**

Airgun tests may be required before a survey commences, or to test damaged or misfiring guns following repair, or to trial new arrays. Individual airguns, or the whole array may need testing, and the airguns may be tested at varying power levels. The following guidance is provided to clarify when a soft-start is required:

- If the intention is to test all airguns at full power then a 20 minute soft-start is required.
- If the intention is to test a single airgun on low power then a soft-start is not required.
- If the intention is to test a single airgun, or a number of guns on high power, the airgun or airguns should be fired at lower power first, and the power then increased to the level of the required test; this should be carried out over a time period proportional to the number of guns being tested and ideally not exceed 20 minutes in duration.
MMOs should maintain a watch as outlined in the pre-shooting search guidance before any instances of gun testing.

Line change

1. For seismic surveys line changes during night time or periods of poor visibility, when a visual check is not possible, it is preferable to reduce airgun output at the end of each line to an output of 150dB or to use the smallest airgun in the array (100 cubic inch gun or smaller). The increase from 150 dB to full power, prior to the start of the next line, should be undertaken in a stepped manner similar to a full soft start. The use of Passive Acoustic Monitoring should be considered when such visual checks are not possible.

Reference


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