Agenda Item 5

Review of New Information on Threats to Small Cetaceans (reporting cycle 2016 only)

Disturbance

Underwater Noise

Document Inf.5.1.1.f

Contribution to the noise section of the ASCOBANS national reporting format

Action Requested

- Take note
- Comment

Submitted by

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NOTE:
DELEGATES ARE KINDLY REMINDED
TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING

Secretariat's Note

The Rules of Procedure adopted at the 19th Meeting of the ASCOBANS Advisory Committee remain in force until and unless an amendment is called for and adopted.

This document proposes a method for collecting quantitative data on noise generating activities from ASCOBANS Parties. The intention is to design a form that will reduce reporting burden, but maximise the quality of data. As such, this presumes that the reporting will be electronic/online, and that a database can be developed that will report the cumulative noise in specific areas and/or over specific time frames.

1. Activity type

The first selection is the high level noise-generating activity type (as articulated in the draft CMS Noise Guidelines)

Parties reporting would select one of the following activity types:

1. Military sonar (low frequency, mid frequency, continuous, mine counter measures)
2. Seismic surveys (air guns, boomers, sparkers, chirps)
3. Civil high power sonar (single beam, sidescan, multibeam echosounder)
4. Coastal and offshore construction (explosions, pile driving, dredging)
5. Offshore platforms (drilling, positioning transponders, related production activities and maintenance)
6. Playback and sound exposure experiments
7. Shipping and vessel traffic (small, medium and large vessels)
8. Pingers (acoustic navigation and positioning beacons, acoustic deterrent devices, acoustic harassment devices)
9. Other noise generating activities (acoustic data transmission, tidal and wave energy turbines, wind turbines)

2. Data and details for each activity type

Once selected, the components to be reported for that activity type will include some of the following details. Each activity type will have a pre-determined set of details that need to be completed. Three hypothetical, but realistic, examples have been given on the following pages.

Depending on the activity type selected above, Parties reporting would provide some of the following details:

1. Sound intensity level (SIL)
    a. dB rms (root mean squared)
        i. Dredging (rms)
        ii. Drilling (rms)
        iii. Sea Floor Machinery
        iv. Repair & Maintenance Noise
        v. Boomers (rms)
        vi. Sparkers (rms)
        vii. Non-plosive/Non-plosive Sound Exposure Experiments (rms)
        viii. Positioning Transponders (rms)
        ix. Wind Turbines (rms)
        x. Wave Energy Turbines (rms)
        xi. Acoustic Data Transmission (rms)
    b. dB 0 to peak
        i. Military Low Frequency Sonar (0 to peak)
        ii. Military Mid Frequency Sonar (0 to peak)
        iii. Military High Frequency Sonar (0 to peak)
        iv. Continuous Active Sonar (0 to peak)
        v. Echo Sounders (0 to peak)
        vi. Air Guns (0 to peak)
        vii. Chirps (0 to peak)
        viii. Explosions (0 to peak)
        ix. Pile Driving

x. Sea Floor Machinery
xi. Repair & Maintenance Noise
xii. Plosive/Plosive Sound Exposure Experiments (0 to peak)
xiii. Acoustic Navigation Beacons (0 to peak)
xiv. Acoustic Positioning Beacons (0 to peak)
xv. Acoustic Deterrent Devices (0 to peak)
xvi. Acoustic Harassment Devices (0 to peak)

c. Shipping
    i. Small Vessel (rms)
    ii. Medium Vessel (rms)
    iii. Large Vessel (rms)

2. Duration
    a. Start and finish date for each activity being reported
3. Location
    a. Position of the noise point source. The noise point source can be defined as the source of the noise generation (typically $1m^2$ area)
4. Dispersion
    a. Radial distance from the point source out to the ambient noise floor. Ambient noise floor can be defined as the average levels of all non-anthropogenic sounds for each region or area.
5. Certainty of data
    a. Indication of the data being provided has been derived from prior acoustic modelling including seafloor topography and SOFAR, or is assumptive (dead reckoning).

Presentation

To illustrate how this might work, and to demonstrate that this does not need to be a reporting burden, three tables have been developed (following pages), that include realistic data of three noise-generating activities that could be operating consecutively in any given region. Other combinations are equally as likely.

The secondary purpose of this illustration is to highlight the importance of gathering this data to assess levels of cumulative impact in any given region or timeframe. This would be retrospective reporting, but would assist Parties to identify modifications that might be needed for future planning and activity approvals.

The following examples illustrate realistic data for three noise-generating activities that could be operating in an area at the same time. The purpose of this is to demonstrate why appropriate levels of data gathering are important. The table presents all the components to be reported, but have greyed out the fields that would not appear in the reporting once an activity type is selected.

Offshore Drilling Platform						
	dB Sound Intensity Level (SIL)	Duration	Location	Noise Dispersion Km (distance from source)	Noise Dispersion (derived by modelling)	Noise Dispersion (derived by dead reckoning)
dB rms (root mean squared)						
Dredging (rms)						
Drilling (rms)	150	01/01/2016-02/02/2017	35.35S 137.89E	85	x	
Sea Floor Machinery	160	01/01/2016 - 02/02/2017	35.35S 137.89E	85	x	
Repair & Maintenance Noise	190	01/07/2016-31/07/2016	35.35S 137.89E	90		x
Boomers (rms)						
Sparkers (rms)						
Non-plosive/Non-plosive Sound Exposure Experiments (rms)						
Positioning Transponders (rms)	100	01/01/2016 - 02/02/2017	35.35S 137.89E	5	x	
Wind Turbines (rms)						
Wave Energy Turbines (rms)						
Acoustic Data Transmission (rms)						
dB 0 to peak						
Military Low Frequency Sonar (0 to peak)						
Military Mid Frequency Sonar (0 to peak)						
Military High Frequency Sonar (0 to peak)						
Continuous Active Sonar (0 to peak)						
Echo Sounders (0 to peak)	240	01/01/2016 - 02/02/2017	35.35S 137.89E	10	x	
Air Guns (0 to peak)						
Chirps (0 to peak)						
Explosions (0 to peak)						

Pile Driving						
Sea Floor Machinery						
Repair & Maintenance Noise	210	01/07/2016-31/07/2016	35.35S 137.89E	110		x
Plosive/Plosive Sound Exposure Experiments (0 to peak)						
Acoustic Navigation Beacons (0 to peak)						
Acoustic Positioning Beacons (0 to peak)						
Acoustic Deterrent Devices (0 to peak)						
Acoustic Harassment Devices (0 to peak)						
Shipping						
Small Vessel (rms)						
Medium Vessel (rms)	170	01/02/2016-31/03/2016 01/04/2016-31/05/2016	35.35S 137.89E	5		x
Large Vessel (rms)						

Seismic Survey						
	dB Sound Intensity Level (SIL)	Duration	Location	Noise Dispersion Km (distance from source)	Noise Dispersion (derived by modelling)	Noise Dispersion (derived by dead reckoning)
dB rms (root mean squared)						
Dredging (rms)						
Drilling (rms)						
Sea Floor Machinery						
Repair & Maintenance Noise						
Boomers (rms)						
Sparkers (rms)						
Non-plosive/Non-plosive Sound Exposure Experiments (rms)						
Positioning Transponders (rms)						
Wind Turbines (rms)						

Wave Energy Turbines (rms)						
Acoustic Data Transmission (rms)						
dB 0 to peak						
Military Low Frequency Sonar (0 to peak)						
Military Mid Frequency Sonar (0 to peak)						
Military High Frequency Sonar (0 to peak)						
Continuous Active Sonar (0 to peak)						
Echo Sounders (0 to peak)	180	01/09/2016 - 31/11/2016	Rectangle 35.35S-136.22E, 35.35S-137,72E, 35.53S-136.22E, 35.53S-137.22E	5		x
Air Guns (0 to peak)	230	01/09/2016 - 31/11/2016	Rectangle 35.35S-136.22E, 35.35S-137,72E, 35.53S-136.22E, 35.53S-137.22E	85	x	
Chirps (0 to peak)						
Explosions (0 to peak)						
Pile Driving						
Sea Floor Machinery						
Repair & Maintenance Noise						
Plosive/Plosive Sound Exposure Experiments (0 to peak)						
Acoustic Navigation Beacons (0 to peak)						
Acoustic Positioning Beacons (0 to peak)						
Acoustic Deterrent Devices (0 to peak)						

Acoustic Harassment Devices (0 to peak)						
Shipping						
Small Vessel (rms)						
Medium Vessel (rms)	176	01/09/2016 - 31/11/2016	Rectangle 35.35S-136.22E, 35.35S-137,72E, 35.53S-136.22E, 35.53S-137.22E	7		x
Large Vessel (rms)						

Shipping						
	dB Sound Intensity Level (SIL)	Duration	Location	Noise Dispersion Km (distance from source)	Noise Dispersion (derived by modelling)	Noise Dispersion (derived by dead reckoning)
dB rms (root mean squared)						
Dredging (rms)						
Drilling (rms)						
Sea Floor Machinery						
Repair & Maintenance Noise						
Boomers (rms)						
Sparkers (rms)						
Non-plosive/Non-plosive Sound Exposure Experiments (rms)						
Positioning Transponders (rms)						
Wind Turbines (rms)						
Wave Energy Turbines (rms)						
Acoustic Data Transmission (rms)						
dB 0 to peak						
Military Low Frequency Sonar (0 to peak)						

Military Mid Frequency Sonar (0 to peak)						
Military High Frequency Sonar (0 to peak)						
Continuous Active Sonar (0 to peak)						
Echo Sounders (0 to peak)						
Air Guns (0 to peak)						
Chirps (0 to peak)						
Explosions (0 to peak)						
Pile Driving						
Sea Floor Machinery						
Repair & Maintenance Noise						
Plosive/Plosive Sound Exposure Experiments (0 to peak)						
Acoustic Navigation Beacons (0 to peak)						
Acoustic Positioning Beacons (0 to peak)						
Acoustic Deterrent Devices (0 to peak)						
Acoustic Harassment Devices (0 to peak)						
Shipping						
Small Vessel (rms)						
Medium Vessel (rms)						
Large Vessel (rms)	185	Weekly	134.73S-138.49E, 34.69S-135.90E	10	x	