Agenda Item 3.1.2

Review of New Information on Threats to Small Cetaceans

Bycatch

Reports from Parties

Document 3.1.2

Societal decisions required for the determination of safe bycatch limits for harbour porpoise, common dolphin and bottlenose dolphin

Action Requested

- Take note
- Comment

Submitted by

United Kingdom

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

Societal decisions required for the determination of safe bycatch limits for harbour porpoise, common dolphin and bottlenose dolphin

Introduction

The original work undertaken by the Sea Mammal Research Unit during the SCANS-II and CODA projects to develop management frameworks for determining safe limits of bycatch is now being further developed through a UK government funded project. A request for financial support through ASCOBANS Conservation Fund has been made (see paper AC20/Doc.6.2.b for further details). The project aims to generate robust, safe limits to bycatch that will enable specified conservation objectives to be met, which will allow the impact of bycatch in commercial fisheries on marine mammals to be assessed and managed. The results have direct relevance to ASCOBANS North Sea Conservation Plan for harbour porpoise. Additionally, the results will help enable Member States to assess whether or not Good Environmental Status has been achieved under the Marine Strategy Framework Directive, as well as meeting other international obligations such as those of Article 12 of the Habitats Directive (incidental killing and capture).

Legislative requirement

MSFD indicators and targets for cetacean bycatch have been submitted to the European Commission by many Member States as part of the implementation of the EC Marine Strategy Framework Directive (2008/56/EC). The indicators and targets proposed were largely based on internationally agreed obligations such as those of OSPAR, ASCOBANS and the European Commission through Fisheries Regulation 812/2004. Additionally, under the Habitats Directive (92/43/EEC), Member States are required to establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (which includes all cetaceans) and, where necessary, implement conservation measures to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

The indictor for cetaceans currently proposed by the OSPAR Inter-sessional Correspondence Group on the Co-ordination of Biodiversity Assessment and Monitoring (ICG-COBAM) expert group for Marine Mammals and Reptiles for development under the Marine Strategy Framework Directive (MSFD) is "*mortality rate due to bycatch*". The parameter or metric to be measured is '*numbers of individuals being bycaught in relation to population estimate set for each population range or Management Unit (MU)*' with the target of "*The annual bycatch rate of [marine mammal species] is reduced to below levels that are expected to allow conservation objectives to be met*". The ICG-COBAM expert group recognise that this may require different approaches for different species. They note that there is an explicit need to move away from using a simple fraction of the best population estimate. There is a very real danger that if this simplistic percentage approach continues to be utilised and is adopted to determine MSFD bycatch limits, the conservation status of some species could be negatively impacted in the long term.

Co-incidentally to these developments, in 2009, ICES advised the European Commission **'***that a Catch Limit Algorithm approach* [CLA] *is the most appropriate method to set limits on the bycatch of harbour porpoises or common dolphins. In order to use this (or any other) approach, specific conservation objectives must first be specified. In both species improved information on bycatch and the biology of the species would improve the procedure*.' In 2010, ICES again advised the European Commission that '*ICES advised in 2009 of the need for explicit conservation and management objectives for managing interactions between fisheries and marine mammal populations. This advice has not been acted upon. Lacking*

these objectives, ICES is unable to properly consider the impacts of these interactions in its management advice.'

In 2013, the European Commission requested that ICES '*propose effective ways to define limits or threshold reference points to bycatch that could be incorporated into management targets under the reformed CFP. Limits or threshold reference points should take account of uncertainty in existing bycatch estimates, should allow current conservation goals to be met, and should enable managers to identify fisheries that require further monitoring, and those where mitigation measures are most urgently required."* The ICES response was '*ICES has reviewed the existing procedures to establish limits and reference points (CLA, PBR and 1.7%) several times in the past decade (SGFEN, 2001, 2002, ICES 2012b). In all cases it was found that the choice of the most appropriate procedure depended on choices by managers in defining precisely the conservation objectives. These objectives essentially describe a societally-chosen balance between exploitation of resources and conservation of protected species. The most appropriate way of working is therefore jointly between managers and scientists to explore and define conservation objectives. Further than that, the choice of the most appropriate procedure to be adopted to achieve the conservation or management goal should be driven by the availability of suitable data*.' The European Commission have now to decide how to take such work forward.

Societal decisions required

The SCANS-II and CODA projects identified the need for societal decisions required from policy makers prior to the further development of the CLA approach for setting safe limits to bycatch. Three key issues need to be resolved:

1. the need for policy makers to define the conservation objectives to be used in the procedure;
2. the timeframe over which the procedure should be modelled to achieve the specified conservation objectives; and
3. delineation of the spatial areas to which the procedure is to be applied (i.e. appropriate management units).

UK suggests that ASCOBANS AC may wish to consider these and provide guidance on how they would prefer them to be taken forward. These considerations may then be used as part of the further developmental work that the European Commission has requested that ICES undertake to determine safe bycatch limits.

1. <u>Conservation Objectives</u>

A key step in generating safe limits to bycatch for marine mammals is the establishment of conservation/management objective(s) in quantitative terms. For the purposes of the SCANS-II and CODA studies, the conservation objective agreed by ASCOBANS was utilised in the absence of any specific conservation objectives being outlined in European legislation. The ASCOBANS conservation objective is 'to allow populations to recover to and/or maintain 80% of carrying capacity in the long term'. Carrying capacity was defined as the population size that would theoretically be reached by a population in the absence of bycatch, noting that it is not necessary to actually know what this carrying capacity is to determine safe limits to bycatch.

The management procedures developed must be "tuned" to achieve the specified conservation objectives. The procedures developed during SCANS-II and CODA used two tunings based on different interpretations of the ASCOBANS objective. The most obvious quantitative interpretation of "recovering to and/or maintaining 80% of carrying capacity" is

that this is an expected target that should be reached on average. Consequently, the first tuning ensured that the procedures reach or exceed the conservation objective target 50% of the time.

An alternative interpretation of the ASCOBANS objective is that the population should recover to and/or be maintained at or above 80% of carrying capacity. The second tuning therefore ensured that the procedures reached or exceeded the conservation target 95% of the time. This is a much stricter target, producing a more conservative procedure.

A third situation was also modelled as an example of a worst case scenario. This used the second tuning, but in addition assumed that the bycatch used by the procedure was unknowingly underestimated by 50% (i.e. actual bycatch would be twice the estimated bycatch).

The choice of tuning has important consequences on the long term outcomes of the management procedures. In the first tuning, the population was maintained at 80% of carrying capacity, as expected, whilst in the second tuning, the population was maintained at between 85 and 90% of carrying capacity because of the requirement to achieve the conservation objective 95% of the time. The third tuning resulted in the population being maintained at an even higher percentage of carrying capacity (~95%).

Examples of the use of equivalent targets in other management frameworks include:

- the IWC's RMP aims for 72% carrying capacity on average (50% of the time; IWC, 2012);
- the Canadian Objective Based Fisheries Management approach for seals has a target to maintain populations at 70% of maximum abundance recorded 80% of the time (DFO, 2010).
- the USA's Marine Mammal Protection Act aims for stocks to equilibrate within Optimum Sustainable Population (OSP, defined as abundances above the point at which maximum sustainable yield would occur - 50% of carrying capacity if logistic density dependence is assumed) at least 95% of the time, assuming reasonable levels of imprecision in estimating population size, take levels, and population growth rates (Barlow et al, 1995).

Policy decision required: A decision is required on whether the conservation objective should be met on average or some other percentage of the time (>50%). This choice will have a significant influence on the population level as a percentage of carrying capacity achieved in the long term (if greater than 50% the population level achieved in the long term will exceed the specified target).

2. Timeframe and definition of 'in the long term'.

As currently written, the ASCOBANS conservation objective contains no quantitative specification for the timeframe over which it needs to be applied. The SCANS-II and CODA projects adopted a period of 200 years for the development of the management framework. This period was chosen to allow sufficient time for heavily depleted populations to recover to meet the conservation target under the second tuning above. More specifically, it was not possible for a depleted population with low rate of increase to recover to 80% of carrying capacity 95% of the time within 100 years, even in the absence of bycatch. However, because the status of populations in the shorter term is also of interest for conservation, it is also important to consider any delay in recovery of depleted populations due to continuing bycatch.

Other examples include:

- IWC uses 100 years as the time frame in the RMP (IWC, 2012).
- IUCN uses 100 years or 3 generations in many of its assessment criteria (IUCN 2010)
- The USA MMPA uses 100 years (Lerczak et al. (PBR/4) in Barlow et al, 1995)

Policy decision required: It is proposed that in the further development of the CLA approach for determining safe limits to bycatch that a timeframe of 100 years is used.

3. Management Units

In management procedure approaches, the operating (population) model can allow for simulations of multiple subpopulations and management areas. Structural or input parameters important to multi-subpopulation/management area scenarios include the number of subpopulations, the number of management areas, the proportion of each subpopulation in each area during surveys and bycatch, and dispersal rates between each subpopulation/management unit. This allows for flexibility in simulating a range of scenarios with respect to population structure and movement and spatial management.

WGMME (2008) recommended that further research on population structure in North Sea harbour porpoises with the aim of describing suitable management areas was required. Subsequently, there was an ASCOBANS-HELCOM workshop on small cetacean population structure which proposed management units for the more common species but did not propose boundaries (Evans and Teilmann, 2009). WGMME (2012) reviewed the MUs proposed by Evans & Teilmann (2009) and largely recommended that they be adopted for reporting purposes. There were, however, two notable exceptions:

- For harbour porpoises, WGMME (2012) recommended that there should only be a single MU for the North Sea and not two as proposed by Evans and Teilmann (2009). The reason for this was the lack of support from the data for the existence of two populations and the related impossibility to delineate boundaries.
- For white-sided dolphin, WGMME (2012) recommended that there should only be a single MU in European North Atlantic rather than the two proposed by Evans and Teilmann (2009). The reason for this was again the lack of support from available data.

In 2013, the ICG-COBAM expert group for Marine Mammals and Reptiles met through the auspices of the ICES WGMME where Management Units were proposed for harbour porpoise and common dolphin (Figures 1 and 2) as part of the indicator and target developments.

Policy decision required: The current debate regarding the number of MUs for harbour porpoise in the North Sea should be explored through the simulations as part of the development of the bycatch management procedures. It is recommended that the outputs of the simulations should be used as the basis for determining whether or not more than one MU is appropriate in the North Sea until further information becomes available. Until that time, the MUs outlined in Figures 1 and 2 should be utilised for the determination of safe bycatch limits for harbour porpoise and common dolphin, respectively.

Summary of Request from UK:

ASCOBANS AC decisions are requested on:

1. whether the ASCOBANS conservation objective ‘to allow populations to recover to and/or maintain 80% of carrying capacity in the long term’ should be met on average

or some other proportion (>50%). This choice will have a significant influence on the population level as a percentage of carrying capacity achieved in the long term (if greater than 50% the population level achieved in the long term will exceed the specified target).

2. the definition of 'long term'. It is proposed that in the further development of the CLA approach for determining safe limits to bycatch that a timeframe of 100 years is used.
3. The current debate regarding the number of MUs for harbour porpoise in the North Sea should be explored through simulations as part of the development of the bycatch management procedures. It is recommended that the outputs of the simulations should be used as the basis for determining whether or not more than one MU is appropriate until further information becomes available.

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