SCANS-II Workshop on Monitoring and Management of European Small Cetaceans

Monday 11th April 2005, 13:00 – 17:00
Brest, France.

1. Background and Objectives

The SCANS-II project aims to estimate small cetacean abundance in European Atlantic continental shelf waters, allowing the assessment and management of bycatch through the development of improved methods for monitoring and a robust management framework. The EU Life-Nature programme and 12 European governments fund the project, which is coordinated by the Sea Mammal Research Unit (SMRU) of the University of St Andrews.

The aim of the workshop was to provide an opportunity for competent authorities and project partners from around Europe to contribute to how the monitoring and management objectives of the SCANS-II project will be achieved. SCANS-II plans to recommend best practice for monitoring small cetacean populations and a framework for setting safe bycatch limits for the harbour porpoise. The preliminary recommendations for monitoring and management will be drafted in June 2006, allowing 6 months until the end of the project for consultation and to get results and recommendations adopted at policy level. For this to happen, it is critical that government input is received at an early stage.

Representatives of nine European countries (Annex I) attended the workshop. The project coordinator, Phil Hammond and Kelly Macleod, assistant coordinator, gave a series of short presentations throughout the afternoon to stimulate discussion.

2. Monitoring cetacean populations

2.1. Project objectives

The main objective of the monitoring work of SCANS-II is to develop recommendations for the best methods to be used for a particular species of small cetacean in a particular area, so that spatial and temporal trends in abundance can be determined between major decadal surveys. The focal species are the harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncates*) and common dolphin (*Delphinus delphis*). Other species may also be considered, in particular the white-beaked dolphin.

2.2 Overview of methods

The methods available to monitor cetaceans can be broadly divided into visual and acoustic techniques. Monitoring can be conducted from dedicated or opportunistic platforms, which include ships or aircrafts. Monitoring data can also be collected through land-based surveys.

The acoustic methods of SCANS-II are primarily designed for the harbour porpoise and all ships will tow hydrophones during the July surveys. SCANS-II will use these data to investigate how acoustic detection rates compare to visual rates, and to assess the value of acoustic monitoring methods. The advantage of towed hydrophones is that they can readily be deployed from vessels of

opportunity by a single trained person, thus potentially allowing the collection of data over large areas. SCANS-II is also developing bow-mounted hydrophones.

Acoustic methods for monitoring the group-living cetacean species, such as *Delphinus delphis*, are currently ineffective and pose numerous challenges to the development of an automated system. SCANS-II will not dedicate resources to this problem *per se* but this will be an important task for offshore surveys. Some data will be available from comparison of duplicated acoustic and visual detections to look at how group sizes can be estimated using acoustics. The data will also contribute to improving identification of delphinid species acoustically.

SCANS-II will not compare estimates generated from aircraft and ship surveys because there are no survey areas where these methods overlap.

2.3 Monitoring in the Baltic Sea

SCANS-II is conducting a visual and acoustic survey using the Hel Marine Station's vessel, *Oceanograf II* during July 2005. The survey will cover all Polish coastal waters to within 20nm of the coast. How these data are analysed will depend on the amount of data collected but it is hoped that a comparison between the Swedish data from 1995 can be made.

SCANS-II will also coordinate and contribute to the deployment of passive porpoise acoustic detectors (PODs) to investigate longitudinal and latitudinal gradients in porpoise occurrence. The importance of collaborating and pooling datasets is recognized.

2.4 Evaluating monitoring methods

Evaluating which monitoring method is best depends on a number of factors: i) the magnitude of population change to be detected, ii) the precision of the data collected, and iii) the amount of survey effort possible. A power analysis will be carried out to assess the level of monitoring required to achieve given objectives. This analysis can show what level of population change can be detected given the resources available or what resources are needed to detect a population change of a given magnitude. In maximise the usefulness of recommendations, the project requires input from governments with regard to the resources that are likely to be available for monitoring work in the future.

2.5 Expected outcomes

SCANS-II monitoring work has three main aims:

- A suite of "best practice" monitoring protocols tailored by species and area, based on a power analysis.
- Recommendations for alternative methods suited to the resources available for the monitoring programme.
- Adoption and implementation of the scientific results by European governments.

There was discussion regarding the level of monitoring that countries could foresee. In recent years, sightings of harbour porpoise have been increasing in the southern North Sea, particularly in the winter and spring. Consequently, Belgium would pay less attention to summer absolute abundance estimates in their waters (and wider southern North Sea) and more attention to monitoring methods, especially for gathering seasonal information, that is internationally accepted. Belgium would like to collect data on migration and small-scale movements to complement this. The UK (Defra) was particularly interested in monitoring methods for determining population trends that did not rely on costly, large-scale abundance surveys.

Larger volumes of monitoring data will allow smaller population changes to be detected. This may be achievable by countries pooling resources rather than undertaking national monitoring schemes. This may also allow more systematic monitoring of larger areas. SCANS-II will investigate the spatial scale of monitoring needed to make inferences about populations. It was recognised that work on identifying sub-populations (stocks) of harbour porpoise was ongoing; it was important that monitoring methods could be tailored to small areas in the future. The management framework will explore this in more detail.

SCANS-II will compare the abundance estimates from the surveys in July 2005 with those from SCANS 1994. The difference between the two estimates and the precision of the 2005 estimates will determine whether a change in the population is detectable. However, estimates from just two major surveys will provide limited information on population trend; data collected from monitoring is geared towards this.

2.6 Putting recommendations into practice

It was noted that whilst governments are key to getting recommendations for monitoring into policy, it is also important that other stakeholders (e.g. oil and gas industry, fisheries, wind farm developers etc) have access to the SCANS-II recommendations. Whilst such groups may not collect data on relative abundance they can provide information on usage of areas by different cetacean species.

SCANS-II needs to consider the practicalities for managers implementing the recommendations. Seasonal weather conditions will restrict effectiveness of some methods e.g. visual monitoring during winter months. Many countries already have photo-identification projects for monitoring cetaceans, particularly for *Tursiops truncatus*. This technique will be considered in the project review of monitoring methods and will feature in the final recommendations.

SCANS-II does not plan to provide country-specific recommendations for monitoring but would welcome information from individual countries if they have specific obligations for monitoring.

In the long-term, there was an interest in expanding monitoring studies to assess habitat features (to investigate factors that influence cetacean distribution) as well as relative abundance. Some information on this will result from the spatial modelling component of the abundance estimation work of the project.

3. Management of bycatch

3.1 Project Objectives

The aim of SCANS-II management work is to develop a robust framework to generate safe bycatch limits for *P. phocoena* and other cetacean species, thus defining a clear course of action for management to allow populations to recover to and maintain favourable conservation status, and for the procedure for calculating the safe bycatch limits, and the limits themselves, to be incorporated in policy.

3.2 The concept of a management procedure

The foundation of a management procedure is one or more explicitly stated objectives, e.g. low risk of depleting populations, low impact on fisheries, etc. Other features include that it must be based

on realistic data requirements, it should include a feedback mechanism, it must be robust to uncertainty, and it must be rigorously tested.

In developing a management procedure for bycatch, SCANS-II will test, through computer simulation, a range of algorithms for setting safe bycatch limits. This will be achieved through the development of a detailed population model for harbour porpoises. The population model can first be subjected to historical bycatch over time to give an assessment of the current impact of bycatch. Simulations will then be run into the future, removing the number of bycatches determined by the "bycatch limit algorithm", and its performance on meeting the stated objectives evaluated. The procedure will be based on realistic data requirements (abundance, bycatch and relative abundance from monitoring) and will include a feedback mechanism.

The computer simulations will be used to rigorously test the model under a number of plausible scenarios that take into account our uncertainty about porpoise populations (e.g. its dynamics, population structure). The final management procedure model must be robust to uncertainty about the population and the level of bycatch. There is a wide range of environmental factors that can affect small cetacean populations. The effect of these on the ability to set safe bycatch limits will be explored via simulations by including scenarios that allow for catastrophic events, e.g. epizootics, changes in the carrying capacity of the ecosystem, e.g. as a result of global warming. The development process will be iterative, whereby the "bycatch limit algorithm" will be progressively modified so that it sets bycatch limits that allow objectives to be achieved under all plausible scenarios.

3.3 Outline of the work planned

SMRU has a new full-time employee to work on the development of the management procedure, the first stage of which will be the development of the population model. Data will be acquired, analysed and incorporated into the model structure. Conservation/management objectives need to be explicitly considered at an early stage, which involves input from managers. The procedure will be tested, evaluated against performance criteria and modified as the work progresses. An international review group has been established with scientists that were involved with the development of the IWC's RMP and the USA's PBR approach to provide input to the development of the procedure.

3.4 Expected outcomes

The main outputs will be a fully tested management procedure and recommendations for safe bycatch limits for harbour porpoises by area and season. The procedure will thus be directly applied to harbour porpoises, but it will be generic and applicable (with some further work) to other species subject to bycatch, such as the common dolphin.

3.5 Conservation/management objectives

Conservation/management objectives are key to the development of any management procedure. Participants were asked for input on this. ASCOBANS has a long-term conservation objective that populations should be maintained/restored to 80% of carrying capacity, which could be used in the management procedure. It is not necessary to know carrying capacity; this is estimated by the population model. ASCOBANS has a short-term conservation objective to restrict removals from populations to 1.7% of population size. This percentage removal was based on calculations assuming (among other things) that the maximum annual rate of increase for harbour porpoise populations is 4%. This will be reevaluated as part of the work of SCANS-II. It was agreed that the reestablishment of the IWC/ASCOBANS harbour porpoise advisory group would be useful to guide the management-related work of the project.

Management objectives can be difficult to agree because conservation and management objectives are likely to be conflicting. Achieving a balance between conserving populations and maintaining fisheries is the ultimate aim. The UK stated that it wanted to avoid fishery closures and was more amenable to mitigation through area and time closures. The management procedure will be able to simulate the outcomes of enforcing certain types of mitigation, although information on which to base these scenarios is limited.

3.6 Putting recommendations into practice

Twelve European countries supported the idea of a management framework in principle but the project now has to work towards getting the framework adopted and putting it into practice.

The management procedure will not be useful for Baltic harbour porpoises because it is known that the population is very small and any bycatch limit generated by any robust procedure will be zero in this area.

There will be no problem taking account of situations where fisheries have introduced mitigation measures, including pingers or closed areas. These scenarios can be included in simulated testing.

The value of the SCANS-II project to the North Sea Recovery Plan was recognized.

Data from European observer programmes are vital to the SCANS-II management procedures and it is assumed that these will be forthcoming. The SCANS-II management procedure might inform the amount of observer effort required in a fishery to generate precise estimates of bycatch.

4. Offshore abundance surveys

The SMRU and collaborators aims to submit a follow-up proposal to the European Commission LIFE Nature programme in September 2005 for surveys of offshore waters to estimate cetacean abundance. The area includes European Atlantic waters beyond the continental shelf edge to the 200 nm fishing limit. One of the focal species will be the common dolphin because of the need to estimate abundance and for a management procedure for this species. Visual and acoustic surveys from ships will take place in summer 2007. A concept proposal will be circulated to all competent authorities supporting SCANS-II within the next 2 months.

Support and funding will also need to come from EU member states if the proposal is to be successful. Key countries will be those that are range states and those that have extensive fisheries in these waters. The proposal is highly relevant to the aims of ASCOBANS. Funding will also be sought from industry, including oil and gas companies and the military. NATO should have a strong interest in monitoring methods for cetaceans and the distribution of beaked whale species in the offshore area. It was recommended that the concept proposal be forwarded to OSPAR for their approval thus encouraging contracting departments to support it.

The UK (Defra) stated that it believes the information that will come from an offshore survey is very important and that it is committed to supporting it in principle and financially.

Participants were asked to supply the name and e-mail address of contacts within relevant departments and industry within their countries so that the concept proposal can be aimed at them directly. Contact details should be sent to Kelly Macleod, km53@st-andrews.ac.uk.

ANNEX I: WORKSHOP PARTICIPANTS

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