



# SCANS-II: Small Cetaceans in the European Atlantic and North Sea

Issue 9: December 2006

This is the final newsletter for SCANS-II. The project officially drew to a close at the end of December, yet its results and recommendations will have long-lasting effects. In a nutshell, the main outcomes are:

1. Novel and precise estimates of absolute abundance for harbour porpoises, bottlenose dolphins, common dolphins, white-beaked dolphins and minke whales throughout the European Atlantic continental shelf waters,
2. Recommendations for monitoring temporal and spatial trends in relative abundance of small cetaceans, and
3. Tuneable management framework to set safe bycatch limits for harbour porpoises.

Project achievements were presented at the well-attended end of project conference in Edinburgh in early December. The final project report and detailed documentation of the outcomes are currently being compiled and will be available by spring 2007.

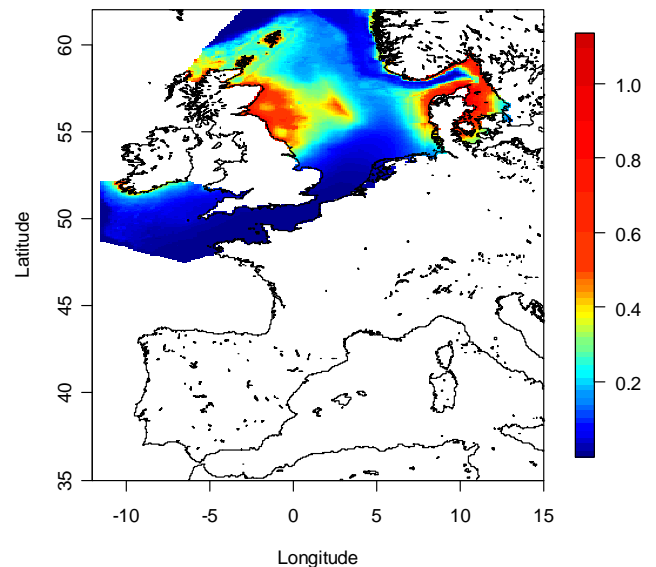
## D3: Density surface modelling of cetacean distribution and abundance

The stratified abundance estimates for five species of small cetaceans have been reported for the entire study region and the surveyed strata in previous newsletters (see Issues 7 & 8, June & September 2006). Density surface modelling has now added a more detailed picture for harbour porpoises, common dolphins and minke whales with density (and abundance) being estimated over a finer spatial scale, and for regions other than the pre-defined survey strata. However, such regional estimates are only valid for areas that are relatively large; of about the same size as survey strata. This approach has allowed a direct comparison to be made between estimates for harbour porpoises and minke whales for the SCANS-II and the first SCANS 1994 surveys.

Model-based abundance estimates did not differ significantly from the previously presented stratified estimates for any of the species considered. Predicted density surfaces, however, provide more detail on the broad-scale shift in abundance of harbour porpoises from north to south (see Issue 8, September 2006). In 1994, high density areas of porpoises were observed off SE Scotland and NE England, but had shifted further south in 2005 (Figure 1). Higher densities of porpoises were also observed in the Celtic Sea in 2005 compared to 1994. The high density of porpoises around the north and west coast of Denmark in 1994 occurred further offshore in 2005 (Figure 1).

Although supporting evidence is lacking at present, a change in the distribution and availability of prey species is considered the most likely, but not necessarily the only, explanation for the observed distributional shifts of harbour porpoises.

a) 1994



b) 2005

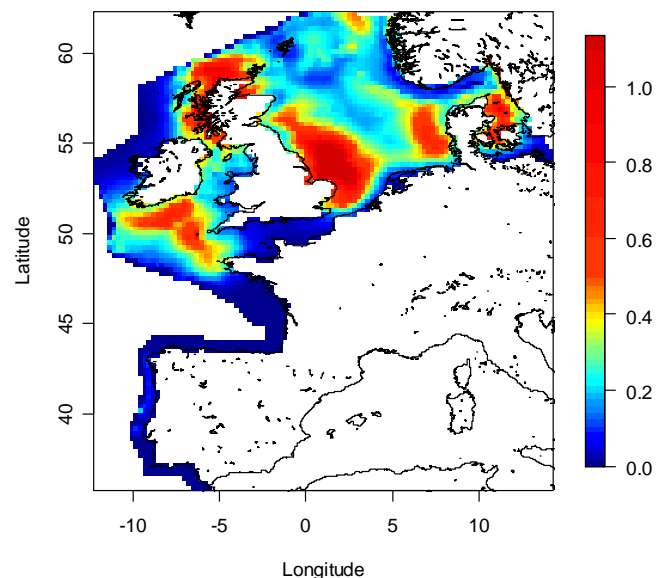


Figure 1: Estimated density surfaces for harbour porpoises (animals per km<sup>2</sup>) calculated from the SCANS 1994 (a) and the SCANS II (b) data.

Interestingly, density surface plots for minke whales included a similar southward shift in distribution. In 2005, the highest concentrations of minke whales were predicted for the central North Sea, off Norway, around NE Scotland, off southern Ireland and off SW England, whereas in 1994 the highest densities were predicted off SE Scotland.

Density surface models for common dolphins could only be constructed for 2005, and predicted the highest concentrations along the edge of the continental shelf off NW Scotland, western Ireland, around Spain and Portugal, between Ireland and SW Britain, and in the western Channel. Because of its focus on harbour porpoise, SCANS-II surveyed only to the continental shelf edge. A new offshore survey, CODA (Cetacean Offshore Distribution & Abundance) is planned for summer 2007 to provide better coverage of the deep-water habitat for species such as common dolphins and deep-diving whales. CODA will aim to cover the western European Atlantic waters from the continental shelf to the 200 nm economic exclusion zone.

### D1: Management framework to determine bycatch limits

The development of robust scientific procedures for generating safe bycatch limits for harbour porpoises and other small cetaceans has progressed well (see Issue 8, Sept 06). As specific management objectives have not yet been established by policymakers, interim conservation objectives were chosen to allow the performance of the two candidate management procedures to be compared. These procedures (based on the USA's PBR and the IWC's CLA) take information about the population as input (e.g. time-series of estimates of population size, maximum population growth rate) and then output a bycatch limit. They explicitly incorporate uncertainty in the estimates of population size and can be tuned to account for directional bias in the estimation of bycatch.

The following example scenario starts off with a depleted population at 10% of its carrying capacity (i.e. the maximum size the population could reach in the absence of bycatch) (Figure 2).

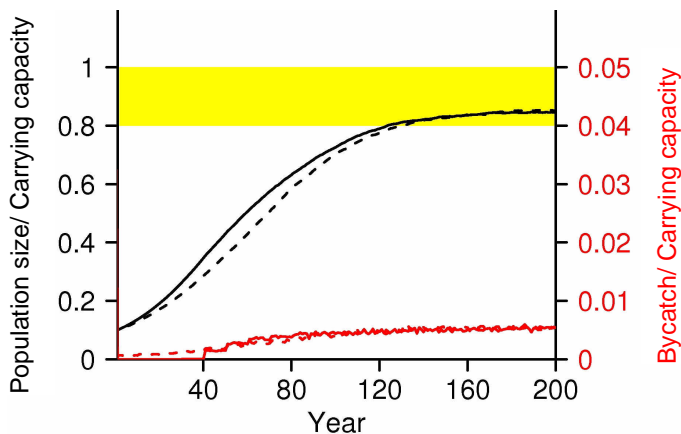


Figure 2: Performance of the two management procedures: PBR= dashed line, CLA = solid line, for a highly depleted population. Lines represent median predictions from 100 simulation trials of each procedure.

Bycatch limits were sought to allow recovery of this population to 80% of its carrying capacity within 200 years. Population size was assumed to be estimated via decadal SCANS-type surveys. After each survey, a new bycatch limit was calculated using the management procedure. The CLA procedure specified an initial period with a bycatch limit of zero, which aided short-term recovery. The overall timing of recovery, however, did not differ between procedures under this scenario (Figure 2).

### D2: Towards “best practice” monitoring

The monitoring working group met for a two-day workshop in St Andrews in October. Issues discussed included comparing visual and acoustic survey methods and undertaking a cost-benefit analysis for each method. Some results were presented at the end of project conference and further recommendations will be presented in the final report.

### E5: End of project conference

The SCANS-II end of project conference was held at the Edinburgh Conference Centre at Heriot Watt University on Friday, 8 December 2006. Sixty-one participants from 12 different countries attended this discussion-filled one-day event. Presentations focussed on SCANS-II methodology, results addressing the three major objectives and resulting implications for policy and were followed by stimulating round-room discussions among participants. All presentations are available for browsing on the SCANS-II website (see link below). Some of the visual and acoustic equipment used during the field surveys was on display along with informative posters. Thank you to all the participants for contributing to such an exciting project finale.

### F1: Second visit to St Andrews by UK LIFE-Nature Monitoring Team

Following a visit by the LIFE Monitoring Team earlier this year (see Issue 7, June 06) the beneficiaries met with another member of the Team, Jon Taylor, at the beginning of December for an update on progress. The meeting provided a good forum to present the latest results and discuss requirements for the final report and auditing of project accounts. Jon offered valuable feedback and many helpful suggestions. The project is considered a great success.

### F1: End of project and beyond

As this is the final newsletter for the SCANS-II project we would like to thank you for your continued interest in the SCANS-II outcomes. We hope that you found these quarterly dispatches useful. The final project report and further information will be posted on the website over the next months, so please check the link below for updates.

The SCANS-II team wishes you all the very best for 2007, and hopes that you will stay tuned into the future developments pertaining to small cetaceans in European waters!