

TERMS OF REFERENCE
Subgroup on Acoustic Survey and Analysis Methods (SG-ASAM)

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(to be held close to the time and location of the 2009 WGFASST meeting which will be in Ancona, Italy, from 18 to 22 May 2009)

The Scientific Committee recommended the following terms of reference for the meeting of SG-ASAM in 2009.

The following are general tasks for the subgroup:

- (i) to develop, review and update as necessary, protocols on:
 - (a) the design of acoustic surveys to estimate the abundance index of nominated species, including surveys and data collection using commercial krill trawlers;
 - (b) the analysis of acoustic survey data to estimate the biomass of nominated species, including estimation of uncertainty (bias and variance) in those estimates;
 - (c) the archiving of acoustic data, including data collected during acoustic surveys, acoustic observations during trawl stations, and *in situ* target strength measurements;

The following specific tasks have also been identified by the Scientific Committee. Points (ii), (iii) and (iv) are considered to be of highest priority:

- (ii) to provide advice that will assist in quantifying uncertainties in krill B_0 estimates, including:
 - evaluate developments in target strength modelling and other new observations on krill (SC-CAMLR-XXVI, Annex 8, paragraph 84);
 - validate acoustic identification techniques – by collating a set of net-validated acoustic data and evaluating whether acoustic target identification methods are biased;
 - evaluate and consider available information and current methods for the measurement of krill orientation and material properties, and using analyses of tilt angle from recent research cruises;
 - develop a probability density function of the estimate of B_0 based on the current understanding of uncertainties in various parameter values.
- (iii) to document the current agreed protocols for krill B_0 assessment;

- (iv) to investigate the use of ancillary acoustic data (e.g. from finfish surveys, exploratory fisheries data and commercial fisheries echo sounders) and the required analytical methods with a view to:
- documenting protocols for and analysing data from exploratory fisheries acoustic data processing and interpretation;
 - providing krill biomass estimates from areas that are not regularly surveyed.
- (v) to evaluate acoustic results from IPY surveys in 2008, supported by a summary of all IPY acoustic data and related metadata submitted to CCAMLR to be prepared by the Secretariat (SC-CAMLR-XXVI, Annex 8, paragraph 84; SC-CAMLR-XXVI/BG/3, paragraph 22) and to provide specific advice to the Scientific Committee on the value of IPY acoustic data, and their analysis, for krill biomass estimation (SC-CAMLR-XXVI/BG/3, paragraph 22);
- (vi) to evaluate developments in target strength modelling and other new observations Antarctic fish species, including icefish and myctophids (SC-CAMLR-XXVI, Annex 8, paragraph 84);
- (vii) to resolve difficulties identified with the swept-area estimation of icefish abundance, including the application of the adjustment factor for trawl headline height used in surveys for *Champscephalus gunnari* (Annex 5, paragraphs 3.26 and 13.20).