

ECOSYSTEM MODELLING TOWARDS AN ECOSYSTEM BASED MANAGEMENT WITHIN NAMMCO

MARIO ACQUARONE,

NAMMCO, PO Box 6453, N-9294 Tromsø, Norway

Mario@nammco.no

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At its 17th meeting, in Sisimiut, Greenland 2-4th September 2008 the NAMMCO Council requested the NAMMCO Scientific Committee (SC):

- In addressing the standing requests on ecosystem modelling and marine mammal and fisheries interaction, to extend the focus to include all areas under NAMMCO jurisdiction. In the light of the distributional shifts (of species) seen under T-NASS 2007, the Scientific Committee should investigate dynamic changes in spatial distribution due to ecosystem changes and functional responses.

The SC considered that developments in modelling and other progress which had occurred in Norway, Canada and Japan warranted a review of the state of the art in this field and forwarded this task to the Working Group (WG) on Marine Mammal-Fisheries Interactions (MMFI). Multi-species modelling was considered appropriate for a general understanding of the ecological relations between species, but its present development does not allow for providing quantitative management advice, which is presently given by single species management. Additional research is required in order to develop ecosystem models to a point where it may become possible to use them to provide quantitative management advice.

Acknowledging the suggestions made by the WG on MMFI, the SC recommended, as the best way forward, to carry out a modelling exercise for comparing the results of different models on the same ecosystem(s) using a common dataset. Four modelling approaches were identified:

- Minimal realistic model implemented using GADGET: This approach will be headed by Gunnar Stefansson of the Institute of Marine Research (Iceland).
- *Ecopath* with *Ecosim*: This approach will be headed by Lyne Morissette of the University of Rimouski (Canada).
- Time series regression: This approach will be headed by Dag Hjermann of the University of Oslo (Norway).
- Bioenergetic-allometric Modelling of the Barents and Icelandic Sea Ecosystems: This approach will be headed by Garry Stenson and Mariano Koen-Alonso of the Department of Fisheries and Oceans (Canada) and Ulf Lindstrøm of the Norwegian Institute of Marine Research, Tromsø (Norway). This approach is also of the “minimal realistic” type; however the essence of the difference from the one implemented using GADGET is that the former considers only the biomass and does not include age structure.

The exercise is planned to be carried out for two areas: the Barents Sea and the region around Iceland.

The WG agreed that the primary objective of this exercise is to investigate if a variety of models presents robust predictions regarding the qualitative direction of the impact on major commercial fish species of reducing marine mammal numbers.

The overall coordinators of this modelling exercise will be Lars Walløe and Doug Butterworth.