

Appendix 3

POLLUTION 2000+ PHASE II: STEERING GROUP AND TERMS OF REFERENCE

Preliminary plans are described for establishing Phase II of the Pollution 2000+ program. This includes assembling a new Steering Group (SG) for Pollution 2000+ Phase II, based on recommendations from the recent workshop held in Barcelona, Spain in April 2007 (SC/59/Rep 6). The new SG for Phase II will consist of a toxicologist, cetacean biologist, modeller/epidemiologist, cetacean species or stock expert(s), IWC Secretariat scientific representative, analytical chemist and other IWC SC members as appropriate. Phase I SG members nominated to be retained includes Aguilar, Donovan, Hall, O'Hara, and Rowles. Dr. Peter Reijnders will assist in the transition but will not take a formal position in the SG due to other commitments. Other scientists have been nominated to the new SG and will be contacted, after the IWC SC is concluded, to determine their interest and availability. O'Hara is proposed to be Chair, and Aguilar as Deputy Chair.

The Chair of ESWG asked for terms of reference (see above), a work plan and a budget for Phase II and these issues will be fully addressed at an intersessional workshop where we propose to focus on modelling/risk assessment approaches. Reijnders et al. (1999) developed a terms of reference for Phase I that will be modified for Phase II. In addition, the full field and analytical programs developed in Phase I to address contaminants in cetaceans will be supported by two major new Phase II efforts: (1) a modelling/risk assessment framework (see 3.1.2.3. of SC/59/Rep 6); and (2) validation and critical assessment of biopsy techniques (see 3.1.2.3. of SC/59/Rep 6) with application to large whale species selected for study during Phase II. We will address (1) a modelling/risk assessment framework at the proposed intersessional workshop.

Work Plan (2007-2008)

The Work Plan (2007-2008) for Pollution 2000+ will focus on an intersessional workshop (proposed for March 2008) and financial assistance for the new Chair and Deputy Chair of the Steering Group allowing them to set up the workshop and to form the new SG.

The proposed budget is \$30,000 (US) (approximately 15,000 £) for the workshop and \$6,000 (US) for administration/coordination (approximately 3,000 £) of Pollution 2000+ Phase II. Total request is approximately 18,000 £.

Proposed Workshop Agenda (annotated, details are in SC/59/Rep 6).

Phase II Proposed Agenda for Modelling Workshop (Pollution 2000+ Phase II), ideally in March 2008 (venue in Mexico being considered)

1. Brief review of Phase I of Pollution 2000+ (for new SG members)
2. Clarify and discuss objectives of Phase II as outlined in SC/59/Rep 6
3. Develop a modelling/risk assessment framework for pollutants in cetaceans (focus of this workshop)
 - a. Assure expertise is on SG (recruit if needed)
 - b. Discuss key IPs contributed papers for this topic with SG & develop for Phase II
 - c. Three goals of this effort are outlined in section 3.1.2.3. 2nd paragraph of SC/59/rep 6 (presented by Aguilar)
 - d. Figure 1 of SC/59/rep 6 supports the conceptual model derived at the workshop in Barcelona in April 2007 and should be further discussed, refined and then applied.
4. Report writing

Appendix 4

PROPOSAL FOR AN IWC WORKSHOP: CLIMATE CHANGE IMPLICATIONS FOR CETACEANS

Overview: a four day expert workshop of some 30 participants intended to better inform cetacean conservation and management efforts. Outputs would include a meeting report, including advice to the IWC and papers to form a special edition of the Journal of Cetacean Conservation and Management.

RATIONALE: The IWC last convened a workshop focused on impacts of climate change on cetaceans in 1995 (IWC 1996). Since then, much has been learnt about both how climate change is manifesting its impacts in the oceans and how to extrapolate those impacts at temporal and spatial scales relevant to cetaceans.

With the release of the latest IPCC report in March 2007 and growing evidence of changes to cetacean habitats, particularly at high latitudes, it is now timely to revisit and review this important matter.

AIM: The workshop would bring together experts in cetacean biology, marine ecosystems and climate changes to provide

- i. an expert statement of the current understanding of the impacts of climate change on cetaceans;
- ii. advice related to cetacean conservation and the aims of the IWC; and
- iii. advice for future research.

Draft workshop programme (this programme will be revised, updated and expanded as appropriate by the Climate Change Workshop Steering Group (see below).

1. Establishing the current state of knowledge and predictive powers/Platform of information.

This first introductory section of the workshop will be delivered through a short series of expert reviews covering *inter alia* the following:

- 1.1 Changes in the oceans – observations and predictions (IPCC overview)
 - Observations of atmospheric-forcing variability
 - Model predictions – sea ice and ocean circulations
 - Ocean acidification implications
 - Incorporation of observations of climate change local knowledge
- 1.2 Responses within food webs
 - Observed and potential shifts in trophic cascades and competitive interactions
 - Effects on prey: krill, other zooplankton, cephalopods and fish (whale and dolphin prey)

- 1.3 Non-prey mediated responses – physiological limits, thermal preferences, disease, synergistic effects etc.
- 1.4 Responses seen in cetacean populations
 - 1.4.1 High latitudes
 - Arctic (e.g., recent summaries: EA Special Volume)
 - Antarctic (e.g., recent summaries: Ainley et al.; Nicol et al.; Reilly et al.)
 - 1.4.2 Temperate and tropical latitudes
 - Variability in ENSO cycles (e.g., right whales in NATL; blue whales in NPAC)
 - Variability in meso-scale features (e.g. Sperm whales & eddies in NATL)
 - 1.4.3 Socio-economic responses with potential to impact cetaceans
 - Implications of anticipated changes to marine transport
 - Implications of anticipated changes to marine resource extraction

2. Review of case studies

This second introductory section looks in more detail at responses in certain regions and populations (the final selection will reflect availability of relevant experts with relevant datasets).

- 2.1 Baleen whales in the Arctic (bowheads),
- 2.2 baleen whales in the Antarctic,
- 2.3 Toothed whales from the Arctic (belugas),
- 2.4 Temperate zone dolphins or porpoises, wide-ranging, deep-diving cephalopod feeders (pilot whales, beaked whales, etc).
- 2.5 Whales in the Mediterranean
- 2.6 Others
- 3. Proposed future investigations
 - 3.1 Investigations into marine food web alterations coincident with climate change
 - 3.2 Identification of vulnerable cetacean species and populations.
 - 3.3 Development of modelling approaches that include cumulative and synergistic and threshold parameters
- 4. Implications for the work of the IWC and other conservation implications
 - Including identifying priorities for the future work of the SWG and other sub-committees of the IWC SC and incorporation of climate change effects into IWC models and stock assessments.
- 5. Mitigations and management responses

STEERING COMMITTEE: Simmonds, Moore, Reilly, Rojas-Bracho, Gales, Leaper (Rebecca), Suydam, Fossi, Krahn

CONVENER: M Simmonds

CHAIRMAN: to be appointed.

DATE AND LOCATION: early spring, 2008; university of Siena

PARTICIPANTS: IPCC authors, modellers, cetacean biologists, marine food web specialists, climatologists (authors of EA special issue) etc. Names and invited papers to be identified by Steering Group.

OUTPUTS: Report to the SWG/SC and expert reviews and other papers for a special edition of the JCRM.

COSTS:

30 participants for 4 day workshop
 Accommodation at the University of Sienna field station (subsidised by university)
 Technical and administrative support provided by the University – zero cost
 Travel for participants – e.g. 6 from US; 4 from Asia; 3 from Australasia; 7 from Europe etc.
 Subsistence for 30 participants

BUDGET: £38,000

Accommodation:	£10,500
Subsistence:	£5,250
Facilities:	£2,000
Travel:	£16,220
Contingency/Misc.	£4,000

50% funding sought from IWC.

References.

IWC (1996) Report of the International Whaling Commission Workshop on Climate Change and Cetaceans. Report of the International Whaling Commission, 47, 291–320.

See also:

Cotton, P.A. 2004 Proc. Nat. Acad. Sci. USA 100: 12219-12222.

Harvell et al., 2002 Science 296: 2158-2162

Mathews-Amos et al. 2002 WWF publication

Root et al. 2003, Nature 421: 57-60