



INTERNATIONAL WHALING COMMISSION

135 Station Road, Impington, Cambridge, UK, CB24 9NP;
Tel: +44 1223 2333971 Fax: +44 1223 232876 E-mail: secretariat@iwcoffice.org

RESEARCH PROPOSAL REQUEST

1. RELEVANT AGENDA ITEM (NO. AND TITLE)

This item addresses agenda item 12.2 Pollution (including POLLUTION 2020) and builds on the work undertaken by Pollution 2000+

2. PROJECT TITLE

POLLUTION 2020

3. BRIEF DESCRIPTION OF PROJECT AND WHY IT IS NECESSARY TO SUB-COMMITTEE

Pollution 2020 builds on the earlier initiatives of Pollution and Pollution 2000+ to determine the impact of chemical pollutants on cetacean populations worldwide. These initiatives and their associated research projects have led to a number of important outputs highly relevant to the conservation and management of cetaceans and the work of IWC. Notably the three phases of Pollution 2000+ have resulted in a web-based model for investigating the effect of contaminant exposure on potential population growth rates (The effect of Pollutants on Cetacean Populations or sPOCk). Here we propose to continue to improve the reliability of this model with empirical data on the transfer of pollutants from female to calf; enlist international expert opinion on the prioritization of chemical contaminants of concern to cetaceans globally; and provide an accessible dataset of available dose-response functions that could be used to determine the impact of the additional priority compounds identified.

The work clearly addresses the IWC Resolution 2012-1, adopted at the 64th meeting (“Resolution on the importance of continued scientific research with regard to the impact of the degradation of the marine environment on the health of cetaceans and related human health effects”). The Pollution 2020 Steering Group met in March 2014 to assess the findings of the work to date and to prioritize options for future work. These options were developed further at the standing working group meeting and adoption of the workplan was recommended. The three objectives for this study are:-

1. To prioritize a list of “contaminants of concern” for cetaceans. The initial list of questions and background documents was developed through funding by the US. A survey questionnaire (designed and endorsed by the steering group) will be circulated to a range of acknowledged experts in the field to identify which contaminants are of highest priority and should thus be the focus of future modelling efforts. The list includes for example, the POPs, current use pesticides, flame retardants, PAHs, TBT, pharmaceuticals, plasticizers etc. **The output will be the collated results of the survey, with a prioritized tabulation of the listed contaminants. For 2015**
2. To carry out a literature review and construct a database of appropriate dose-response relationships for the priority chemicals identified in 1) above. This will enable us to provide users with additional options in the sPOCk model for new contaminants where data on dose-response relationships exist. **The output will be a database of dose-response relationships (in the form of a set of concentration-**

response functions with associated variability estimates) for the highest priority contaminants, where appropriate data are available. For 2015

3. One of the areas of uncertainty in the sPOCK model is the amount of contaminants transferred from the female to the foetus *in utero*. A dataset of paired samples exists at the Marine Mammal Center in Sausalito, collected from harbour porpoise and additional samples from Bowhead whales in the Arctic will be analysed for a suite of POPs allowing the *in utero* transfer proportion estimate to be updated. The US will provide funding for these analyses. **The output will be an estimate, with uncertainty, of the proportion of contaminants transferred to the offspring in utero. This would replace the current single point estimate of 0.6. For 2016**

4. TIMETABLE

These three tasks will be completed in the intersessional period and will be reported on at SC/66

5. RESEARCHERS' NAME(S)

Ailsa Hall, Sea Mammal Research Unit, University of St Andrews, UK and Gina Ylitalo, NMFS, NOAA, Northwest Fisheries Science Center, USA

6. ESTIMATED TOTAL COST (WITH BREAKDOWN AS NEEDED, E.G. SALARY, EQUIPMENT)

Objective	Task	Support in kind	Amount in kind	Requested budget	Total requested
Prioritising contaminants of concern	Distribute and collate survey results	Dr Stephanie Venn Watson (National Marine Mammal Foundation US) to assist with interpretation of results	2 days	Research assistant to construct online survey, distribute to experts and provide online support where required	Salary costs, £2,000
	2015	Dr Ailsa Hall, (Sea Mammal Research Unit, UK) supervision and guidance	£6,000		
Dose response database	Carry out literature review and construct	Dr Ailsa Hall (Sea Mammal Research Unit, UK) supervision,	£7,000	Research assistant to carry out literature	Salary costs, £2,000

	database 2015	guidance and Access database construction		review, collate concentration- response functions and enter into database	
In utero transfer	Analyse pairs of blubber samples from female cetaceans and their foetuses for a suite of POPs including PCB congeners, pesticides, and DDT and its metabolites. 2016	Analytical costs covered by US National Marine Fisheries Service Clean-up, analysis, quantification and QA/QC carried out at the US Northwest Fisheries Science Center		Research assistant to carry out statistical analysis of the results, write up and publication	Salary costs, £2,000
				Grand Total	£6,000

The outcomes of this study are listed under the objectives in section 3.