



# Annual Report of the Southern Ocean Research Partnership 2009/10

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## ABSTRACT

The Southern Ocean Research Partnership (SORP) was proposed by the Australian Government to the IWC in 2008 with the aim of developing a multi-lateral, non-lethal scientific research program that will improve the coordinated and cooperative delivery of science to the IWC. A framework and set of objectives for SORP were presented to the IWC in 2009 where they were endorsed. This paper reports on progress on the SORP since the IWC meeting in 2009.

KEYWORDS: SOUTHERN OCEAN RESEARCH PARTNERSHIP, IWC, SORP, ANTARCTICA

## INTRODUCTION

In 2008 Australia proposed to the International Whaling Commission (IWC) the development of regional non-lethal cetacean research partnerships. These research partnerships would use modern, non-lethal, scientific methods to provide the information necessary to best conserve and manage cetacean species. The proposal was received very positively by IWC member nations. The Australian Government is now supporting the development of a Southern Ocean Research Partnership (SORP) using non-lethal methods. The aim of SORP is to develop a multi-lateral, non-lethal scientific research program that will improve the coordinated and cooperative delivery of science to the IWC.

In March 2009, the SORP was established to enhance cetacean conservation and the delivery of non-lethal whale research to the International Whaling Commission (IWC). The objectives, research plan, and procedural framework for the partnership were developed through a workshop attended by 50 participants representing 12 countries (Australia, Argentina, Brazil, Chile, Costa Rica, France, Italy, Mexico, New Zealand, South Africa, Uruguay and USA) and several research and environment consortiums.

A framework and set of objectives for SORP were presented to the IWC Scientific Committee at its Annual Meeting in June 2009 and where they were endorsed. This paper reports on progress on the SORP since the IWC meeting in 2009.

## SUMMARY OF PROGRESS

The following items detail the major progress that has been made by SORP since the last SC meeting. Further details of this work can be found on the SORP website presently hosted by the Australian Antarctic Division at <http://www.marinemammals.gov.au/southern-ocean-research-partnerships-sorp>.

### *SORP Steering Group*

The SORP Steering Group (SSG) was set up to support and oversee the development of the SORP. The SSG presently has ten members from eight countries (Appendix 1). Terms of reference for the SSG

were discussed and agreed. The SSG presently has two vacant positions; one for New Zealand/South Pacific and one from an International, multi-disciplinary research program representation. The work of the SSG was conducted primarily via email but also with most members attending the SORP Workshop in Seattle.

#### *SORP Seattle Workshop*

The main aims of the SORP Workshop were to continue developing the mechanism by which SORP would conduct its business and also to develop research projects that were consistent with the agreed SORP objectives and also consistent with priority science questions identified by the IWC Scientific Committee. To address this latter issue, a summary document of recommendations relevant to the Southern Ocean was compiled to assist in developing appropriate research projects. The workshop was hosted and supported by the USA Government and attended by 15 people from five nations. A full report from the meeting is available as SC/62/O8.

#### *Development of SORP projects*

During the Seattle SORP Workshop, six projects were broadly identified and agreed for inclusion in the SORP. After the meeting, these projects were further developed by Project Steering Groups and more advanced project descriptions provided. Short summaries of these projects are included in Appendix 3 and more detailed descriptions for four are provided in SC/62/O10.

#### *Development of IWC funding process*

The Australian Government has contributed AUD\$500,000 to the support of the SORP. These funds are held by the IWC and will be allocated to SORP projects following an agreed process, similar to that used for allocating funds from the IWC Small Cetacean fund. Additional detail on this process is available upon request.

#### *AWE*

The Governments of Australia and New Zealand supported the Antarctic Whale Expedition to conduct non-lethal research into large whales in the Ross Sea area and the adjacent Southern Ocean. This was the first major voyage SORP. A full report of the cruise is available as SC/62/O12.

#### LIST OF SORP RELATED PAPERS AT SC 62

SC/62/O8. Report of the Southern Ocean Research Partnership Seattle workshop 2009.

SC/62/O10. Southern Ocean Research Partnership project plans.

SC/62/O12. Preliminary Report of the joint Australian-New Zealand Antarctic Whale Expedition 2010.

**Attachment 1: Members of the SORP Steering Group**

The following is a list of the current members of the SORP Steering Group:

*South American Representation:*

Barbara Galletti (Chile)

Miguel Iniguez (Argentina)

Fabia Luna (Brazil)

*North American Representation:*

Bob Brownell (USA)

*European Representation:*

Jean-Benoit Charrassin (France)

Karl-Hermann Kock (Germany)

*African Representation:*

Herman Oosthuizen (South Africa)

*Oceania Representation:*

Simon Childerhouse (Australia – and co-ordinator role)

Nick Gales (Australia)

Vacant position (New Zealand or South West Pacific)

*IWC Representation:*

Alex Zerbini (Chair of the Southern Hemisphere whales sub-committee)

*International, multi-disciplinary research program representation:*

Vacant position (e.g. from ICED; the Ice, Climate and Ecosystem Dynamics Program)

## Appendix 2: Short summary of proposed SORP projects

### 1. *Distribution, relative abundance, migration patterns and foraging ecology of three ecotypes of killer whales in the Southern Ocean*

There are three ecotypes of killer whales described from Antarctic waters that comprise at least three separate species. Little is known about these ecotypes and it is important to understand these populations as killer whales play a key role in the Antarctic marine ecosystem. This is especially true with respect to the impacts that they have on prey populations including marine mammals, fish and penguins. This project will investigate the factors relative to the ecosystem impact of three species killer whales that occur in Antarctic and adjacent waters, by focusing on their systematic relationships, abundance, distribution, movement patterns and prey preferences. Collaborators are from USA, Brazil, France and Canada.

### 2. *Foraging ecology and predator-prey interactions between baleen whales and krill: a multi-scale comparative study across Antarctic regions*

Little is known about the dynamics of predator-prey interactions and the response of baleen whales to the distribution of their prey in the Antarctic. As a particularly important marine ecosystem (e.g. climate change impacts and international management of marine living resources) research focused on cetacean foraging ecology in the Antarctic represents a critical data gap. We propose to use novel tagging technologies combined with traditional scientific hydro-acoustic methods to quantify the types and frequency of prey consumed and daily consumption rates of poorly understood yet ecologically integral and recovering krill predators in the Antarctic, the humpback and minke whale. Collaborators are from USA and Australia for phase 1 and potentially Brazil, South Africa and Germany for phase 2.

### 3. *Acoustic trends in abundance, distribution, and seasonal presence of Antarctic blue whales and fin whales in the Southern Ocean*

This initiative aims to implement a long term acoustic research program that will examine trends in Southern Ocean blue and fin whale population growth, distribution, and seasonal presence through the use of passive acoustic monitoring techniques. Current understanding of blue and fin whale life history characteristics, population abundance, and any post-whaling recovery is extremely limited. While obtaining accurate absolute abundance estimates is currently beyond the reach of passive acoustic methods, measures of relative abundance are easily obtainable and can be conducted in a consistent manner. Comparison of relative abundance estimates from individual locations across many years collected by acoustic surveys can provide a precise measure of population growth. Comparison of relative abundance estimates within and between locations and years can further be used to assess trends in distribution and seasonal presence over time. Collaborators are from Australia, France, USA and Germany.

### 4. *What is the distribution and extent of mixing of Southern Hemisphere humpback whale populations around Antarctica? Phase 1: East Australia and Oceania*

An improved understanding of the movements and mixing of humpback whales around Antarctica has been identified as a priority for the IWC. This information is integral to assessing the recovery of depleted populations. A key step in assessing recovery is estimating pre-exploitation size which requires knowledge of stock identity and appropriate allocation of historic catches to correct stocks. An improved understanding of the migratory and feeding behaviour of humpback whales would allow the more appropriate allocation of catches made in this region which would improve the accuracy of recovery assessments and estimates of pre-whaling population sizes. Collaborators include New Zealand, Australia, USA, France, Samoa, Tonga and Chile.

### 5. *Living whales in the Southern Hemisphere*

This project entails the undertaking of a technical conference/workshop to review the strengths and weaknesses of available non-lethal research methods for studies of living whale in the Southern Ocean and their ecological roles in the Southern Hemisphere. The objectives are to advance the synergies of non-lethal methods for investigations addressing five broad themes:

- 1) Population dynamics of recovering whales
- 2) Life history parameters of whales
- 3) Resource partitioning/competition of whales
- 4) The role of whales and their predators in the ecosystem
- 5) The response of whales to Climate change

Presentations should focus on methodological or technological advances to non-lethal methods, including those that are still under development, or with specific applications to populations in the Southern Hemisphere. Preliminary planning has been undertaken and this workshop is likely to be held in Valparaiso, Chile in late 2011. Collaborators include USA, Australian and Chile.

6. *2013/14 The SORP Year of the Whale*

This project is still in its early stages of development but will represent a coordinated circumpolar research programme focusing on understanding the recovery of the great whales and understanding their important role in the Southern Ocean Ecosystem. Potential collaborators are all of the nations that have expressed support for SORP.