Australian Marine Mammal Centre
Final Report
(subclause 9 and Schedule Item 5 of the Funding Agreement)

- **Project No**. – 0809/2
- **Title -** Developing a decision process based on expert knowledge to inform the management of dugongs and coastal dolphins in Northern Australia: the Yanyuwa sea country in the Northern Territory as a case study.
- **Chief Investigator** – Professor Helene Marsh et al.
- **Organisation** – James Cook University

Activity Period – 29 April 2009 - 31 March 2010

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1. Activity Summary

The inshore waters of northern Australia support globally significant populations of three species of marine mammals of conservation concern: the endemic Australian snubfin dolphin, a likely new endemic species of humpback dolphin, and the dugong. The Australian ranges of these coastal dolphins and the dugong extend along ~32,000 km of coastline in Northern Australia; ~80% of this region is in or adjacent to Sea Country over which Traditional Owners have significant legal rights and burgeoning logistical capacity through the development of Sea Ranger groups.

We developed a decision process based on expert (qualitative) knowledge using the Yanyuwa Sea Country of the Northern Territory as a case study. We designed a *Community Engagement Tool for Sea Country Planning* to collect information from the Traditional Owners, Sea Rangers that were not Traditional Owners, local Northern Territory Parks and Wildlife Rangers, representatives of the local (non-Indigenous) Fishing Club, and the field notebooks of Bradley, an anthropologist who has worked with Yanyuwa Traditional Owners for 30 years. We combined all this information with sightings obtained on a dedicated vessel survey conducted by scientists in collaboration with the li-Anthawirriyarra Sea Rangers in a Community GIS. The combined approach provided more information on the distribution of the coastal dolphins than either the expert informants or the scientific survey could have provided alone.

The study further substantiated the importance of Yanyuwa Sea Country for dugongs and sea turtles, species of great cultural importance to the Yanyuwa. The project also confirmed the presence of all three species of coastal dolphins in the Sea Country of

the Yanyuwa. Three dolphin species (snubfin, humpback and bottlenose) are well known to the Traditional Owners and have Yanyuwa names. The coastal, shallow estuarine waters of the Yanyuwa Sea country (which includes the fifth largest river system in the Northern Territory) should be prime habitat for these species. The qualitative information from expert informants indicated that dolphins are widely distributed, particularly in shallow inshore waters. Nonetheless, the vessel surveys indicated that the numbers of each of the three species of dolphin using Yanyuwa Sea Country were too small in November 2010 to calculate population estimates. Further vessel surveys are required to determine if there are seasonal patterns in the distribution and abundance of the coastal dolphins. If the low number of dolphins sighted is consistent across seasons, it will be impossible to monitor trends in their abundance in a management time frame because precise estimates of abundance will be unattainable. The survey also confirmed the value of the TDS Nomad handheld computer, the CyberTracker-based GPS software (http://www.cybertracker.co.za/**)** and the dedicated data recording sequence as a data-logging tool suitable for use by trained Sea Rangers. The *Sea Ranger Marine Wildlife Tracker* software sequence developed during this project will enable Sea Rangers to systematically collect whale, dolphin, dugong and turtle sightings. Long-term standardized collection of these data will be critical to determine the spatial and temporal patterns of occurrence of the coastal dolphins in the remote coastal waters of northern Australia and to guide future research effort. Use of the CyberTracker will also allow the data to be incorporated into I-Tracker, the NAILSMA-organised network of Indigenous land and sea managers across remote north Australia. To be successful, this approach will require high standards of observer training and data management, and expert assistance with data analysis.

Australian governments are increasing investment in programs such as Working on Country to provide more resources Indigenous peoples to continue to manage their country. In most of the remote range of coastal dolphins and dugongs in Northern Australia, the Indigenous Sea Ranger effort ‘on-country’ now far surpasses that of non-Indigenous officers and scientists and has considerable potential to provide the data required to inform the planning and management of inshore waters in remote regions using the techniques developed in this project.

2. The Outcomes/Objectives

The degree to which the Activity has achieved the objectives
The objectives of this project have been achieved in full. A full report with appendices including the manuals and extension material has been completed and will be circulated to government agencies when written approval has been obtained from the Traditional Owners.

3. Appropriateness

The appropriateness of the approaches used in the development and implementation of the Activity
We believe that the approaches used in the development and implementation of this project were appropriate and establish a protocol for future research on the coastal dolphins in Indigenous Sea Country. Our approaches received strong endorsement from the Yanyuwa Sea Rangers and li-Anthawirriyarra Sea Rangers. JCU is using the research agreement developed in this project as a model for projects involving Indigenous peoples. In retrospect, we should have asked for funding to repeat the survey in winter to determine if the distribution of the coastal dolphins changed by season. We have requested ACMM funding to do this in the 2010 round.

4. Effectiveness

The degree to which the Activity has effectively met its stated objectives
We consider that the project met its objectives in full.