



ACCESS MACQUARIE LIMITED
ABN 59 003 849 198

FINAL REPORT

GENETIC STOCK IDENTIFICATION OF SOUTHERN RIGHT WHALES OFF THE SOUTH COAST OF AUSTRALIA: PHASE TWO

PREPARED BY:

**A/PROF ROBERT HARCOURT
DR NATHALIE PATENAUDE**

NOVEMBER 2008



Activity Period – 2006-November 2008

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ACTIVITY SUMMARY

Delineation of stock boundaries is fundamental to management of protected species. For the southern right whale, determining the level of genetic interchange is essential to accurately assess population status and rates of change, to evaluate impact of anthropogenic threats eg entanglements or boat strikes, and to delineate critical habitat in Australian waters. The primary objective of this study was to ensure on-going collection of genetic samples from remnant populations.

Training in biopsy techniques was provided to Victorian collaborators (Ian Westhorpe DPI and Mandy Watson DSE) in Warrnambool, and Portland (Peter Gill Deakin Univesity) Victoria, the site of the largest calving ground of the remnant east coast population. A PAXARMS modified biopsy rifle and accessories has been provided for opportunistic sampling of new mothers that calve in the region. The Photo-Identification catalogue of Southern Right Whales is curated by Mandy Watson, ensuring double sampling of whales is unlikely. No biopsy samples were collected in Warrnambool during this project due to an absence of whales in 2007 and only photographs were collected due to bad weather or temporary absence of whales when conditions were suitable for boat use in 2008.

Within their distribution, the region for which the lowest number of southern right whales is reported, and from where the least number of biopsy samples have been collected, is the east coast of Australia, principally NSW waters. The total number of samples prior to this study was three. Two further skin samples were obtained from new mother southern right whales one present off Eden in November 2007 and the other that became resident in Sydney waters in July 2008.

These samples plus those collected in future years will be used to formulate a larger study that will be used to identify genetic stock structure and the level of gene flow between localities across southern Australia and New Zealand.

THE OUTCOMES/OBJECTIVES

-The degree to which the Activity has achieved the objectives

Training of Victorian personnel on site

Warrnambool and Portland

Training was provided to on site crew by Dr Kerstin Bilgmann under contract during the early part of 2007 (coincident with Blue Whale presence and a second ACAMMS funded project on blue whale genetics; project 41). Ian Westhorpe and Mandy Watson have participated in the south-eastern Australia southern right whale project for some years and following training show a high level of competency in approach of southern right whales, photo-identification and biopsy with minimum disturbance. Dr Peter Gill from Portland is now also trained for this work. Hence there are now on site personnel and this will provide a much more cost effective means of collecting biopsy samples from southern right whales in the region. Difficulties with coincidence of good weather and personnel availability have hampered the rate of collection of samples throughout this project; hence this capacity building should alleviate this problem.

Ongoing Collection of samples

Victoria

Planned field work during the whale breeding season in Warrnambool was postponed until 2008 due to a complete lack of resident mothers and calves in Warrnambool. Two mothers and calves were present in 2008. One most likely had been sampled in earlier years. Attempts were made to visit Warrnambool for sampling but frequent bad weather resulted in all field trips being postponed. Dr Peter Gill was added to the Victorian permit in order to facilitate rapid sampling for a good weather window, but no clear weather occurred before the animals left the area.

New South Wales

Efforts were made to collect samples in NSW following reports of continued residency of a mother and calf that had earlier been disentangled by DECC staff. Aerial photos of the mother and calf were obtained and a biopsy was collected on 19. October 2007. Local DECC staff participated in the activity and have the capability to appropriately manoeuvre in the vicinity of southern right whales for future sampling. Aerial surveys were undertaken by DECC staff a few days following the biopsy attempt and the mother calf pair were photographed in the same area. No other animals were sighted during these flights.

A field team was despatched following reports of the presence of a mother and calf at Malabar, Long Bay, Sydney in July 2008. Aerial photos of the mother and calf were obtained from news media and a left and right identifying photographs and a biopsy was collected in Long Bay on 30 July 2008 following extensive consultation with DECC and an information campaign to local media. This same pair were photo-id'd at Coogee beach, Sydney, on 16th August 2008.

The skin biopsy samples have been stored in 70% ethanol and with others from earlier years are awaiting further collections in the freezer at Macquarie University.

APPROPRIATENESS

-The appropriateness of the approaches used in the development and implementation of the Activity

This project has greatly increased the capability to undertake biopsy sampling for collection of DNA samples from southern right whales in one of the least understood remnant populations in Australian waters, that of south-eastern Australia. There are now trained, competent teams in Victoria at Warrnambool and Portland, in Sydney and DECC staff in the Eden / Merimbula area are now trained in boat approach for biopsy and in the importance of identifying stock structure for the region. There are at least 6 people now in Sydney with a high level of competency in whale biopsy. Total sample collection over the project was lower than hoped for due to poor weather and an absence of whales but the cost-effectiveness of the method is now significantly higher.

EFFECTIVENESS

-The degree to which the Activity has effectively met its stated objectives

There were three objectives of this project, training, sampling collection and preparation of a larger scale project.

The training objective was attained with a large increase in capability and support for the overall objective of the project.

Secondly, ongoing sampling was partially achieved. The number of samples from the remnant population of southern right whales that calve off the east coast of Australia is nearly double that collected prior to this project. The Warrnambool sample has not increased but the capacity to rapidly obtain samples is now present.

The final objective was to prepare a full proposal for the next phase of the study, which is to collect skin biopsy samples from southern right whales contemporaneously across the coast of southern Australia. The genetic data will form a comprehensive study of (i) the number of stocks present in Australian waters, (ii) the relationship of this stock(s) to others in the Southern Hemisphere, (iii) estimation of effective population size(s) for each stock and (iv) assess whether there is sufficient protection for individual stocks. The proposal has been prepared and a draft will be submitted for discussion at the AMMC Southern right Whale workshop planned for 2009.