

MINKE WHALE PROJECT



RESEARCH UPDATE, 15 DECEMBER 2006 (INFORMATION SHEET # 9)

Eleven years of minke research but many mysteries still remain

2006 has been a year of highs and lows for the Minke Whale Project (MWP) research team. We note the sad passing of our colleague and close friend Dr Peter Arnold in March this year (see Vale on p.2), however our research has continued and built upon his legacy and strong foundations from the first ten years of the MWP since 1996. Field research on *Undersea Explorer* over seven weeks in June-July 2006 yielded some truly remarkable discoveries, with at least 354 (and possibly as many as 376) whales encountered over seven weeks of standardised observations – the highest number of whales we've ever seen in one season. Some of our well-known friends returned to the northern GBR to interact with us again this year and several had a few surprises for us. 'Kinky Minke' (known for the kink in her tail), first identified in 2000 and seen in four of the seven years since, visited us again in 2006, this time with her new (and probably first) calf. This is all the more exciting for us as Kinky's sex was unknown until this very sighting! The calf was identified as male and we have named him 'Moby Dick'. In 2005 'Wiggly Nape Streak' (first ID'd in 1999 and seen in four of the seven years since), reappeared with her calf 'Little Wiggle'. On the 6th of July 2006, she visited us again and was photographed by passengers on *Nimrod Explorer*, accompanied by 'Little Wiggle 2'! Although long hypothesised, this is the first confirmed occurrence of dwarf minke whales reproducing in successive years. Other highlights include resightings of 'Pavlova' (first seen in 2005) who delighted us again with her prolonged and up-close vertical pirouetting behaviour, and through the core June-July season there were several observations of courtship and other interesting behavioural displays.



Photo courtesy of *Undersea Explorer*

'Pavlova' performs a spyhop close to passengers on the rope, attached to the moored *Undersea Explorer*.

While our research is continuing to make many new and exciting discoveries about our inquisitive winter visitors (see recent publications on p.4), there are still many gaps in our knowledge about dwarf minke whales, and many critical questions cannot yet be answered. Just what exactly are they doing here? (We suspect they're here to breed, but many juveniles are clearly present and more observations over the longer-term are needed to fully clarify this.) How large is this population? And where do they migrate to/from outside of their brief winter visit to the GBR? As the MWP research team continues to build upon our long-term biological, behavioural and social/experiential data collected since 1996, we hope to be able to shed light on some of these unknowns over the next few seasons. We recognise however that many of these unknowns will need to be addressed in the near future by expanded research efforts, to address information needs for managing potential threats outside the scope of the GBR permitted swim-with-dwarf minke whales tourism industry. An expanded Whale Sightings Network, radio and satellite tracking and DNA analyses are being explored, while potential funding sources are being investigated to support these significant future undertakings (see Update on funding, p.3 for some recent developments).

Industry data returns and support in 2006

Industry data returns in 2006 were exceptionally high. A total of 299 Whale Sighting Sheets were received, reporting 258 encounters with 826 dwarf minke whales (although some were re-sights), 34 humpback sightings, 2 sightings of false killer whales, 1 sighting of bottlenose dolphins, 2 sightings of Bryde's whales and 2 unidentified species by a total of 14 different vessels operating in the GBR and Coral Sea. 725 passenger questionnaires (MWQ), 112 Interaction Behaviour Diary entries, and more than ten hours of u/w video footage and 8500+ still photos donated by crew and passengers from six vessels. Seven of the nine permitted operators provided in-kind vessel berths to MWP researchers and trained volunteers to conduct fieldwork this season, enabling an impressive 167 researcher days at sea (with 108 of these provided by *Undersea Explorer* who allowed a minimum of two and sometimes three researchers on board each trip over the core seven weeks of field studies!). This represents a very significant financial commitment and a huge contribution to dwarf minke whale research, and we are overwhelmed with the fantastic support the industry continues to show us. We thank all vessels that have contributed to our data collection and given in-kind support to the MWP in 2006. We extend special thanks to Louise Bernstein & John Rumney (*Undersea Explorer*), Molly Goldie & Hidemi Yokota (*Explorer Ventures*), Craig Stephen & Laurence Buckingham (*Mike Ball Dive Expeditions*) and Pam Fischer & Jack Brosnan (*Taka Dive*) for their outstanding individual contributions and support of the Minke Whale Project over many years.

Vale Dr Peter Arnold

Dr Peter Arnold, Senior Curator of Tropical Natural History at the Museum of Tropical Queensland and Chief Investigator and co-founder of the Minke Whale Project, passed away suddenly on the 7th of March 2006. Peter began documenting the very first sightings records of dwarf minke whales on the GBR in the early 1990s, and undertook the first dedicated dwarf minke whale field studies alongside Dr Alastair Birtles, John Rumney and Andy Dunstan on the *Undersea Explorer* in 1996. A dedicated and widely respected marine mammal scientist, Peter co-authored the current Code of Practice for swimming-with-dwarf minke whales and has been a leading author of many scientific papers, national and international conference presentations (including to the Whalewatching Sub-Committee of the International Whaling Commission Scientific Committee) on dwarf minke whale biology and management. His research into Australia's coastal dolphins also led to the discovery (with JCU PhD student Isabel Beasley) of the newly described Australian snubfin dolphin species. Peter co-supervised many JCU postgraduate students involved in the MWP and in other areas over the years, and was always generous in sharing his time and immense knowledge of the natural world and scientific literature. He was a great friend to the MWP research team and much of the scientific community who knew him, and his cheerful presence (especially when on *Undersea's* top deck searching for minke whales) is greatly missed. As the dwarf minke whale has yet to be formally described in the scientific literature, it has been suggested by several world-leading researchers that when it eventually is named, it might be after Peter Arnold. We certainly hope that this does eventuate.



Dr Peter Arnold (1949-2006) on dedicated watch for minke whales until the very last light of the day and enjoying every minute.

Public comment sought on whale & dolphin conservation in the GBR

The Great Barrier Reef Marine Park Authority (GBRMPA) is revising its policy on whale and dolphin conservation to ensure consistency with the Australian Government's Australian National Guidelines for Whale and Dolphin Watching 2005 and Humpback Whale Recovery Plan 2005-2010. The review aims to ensure that an appropriate management framework for the conservation of whales and dolphins exists in the Great Barrier Reef Marine Park. The Draft Operational Policy can be accessed at http://www.gbrmpa.gov.au/corp_site/about_us/policies and comments can be emailed to species@gbrmpa.gov.au. The period for public comments closes on 14 January 2007. The MWP research team encourages all industry members and stakeholders to review and have their input into this important policy document, which establishes the framework for management of swim-with-dwarf minke whales tourism in the GBRMP.

Update on funding

2006 has been a busy year for members of the MWP research team, who collectively have submitted 15 applications and tenders for funding a range of research activities involving dwarf minke whales, including operational expenses for the PhD projects by Susan Sobotzick, Arnold Mangott and Matt Curnock. In early 2006 we applied to the Marine and Tropical Sciences Research Facility (MTSRF) under two programs: *Marine Species of Conservation Concern*, and *Analysis for Sustainable Tourism Involving Key GBR Marine Wildlife Species*. We are pleased to announce we were successful in being awarded funds under the latter program, which will enable an analysis of the social and economic values of dwarf minke whales (and other iconic species) to the regional community (see p.3 for further details). Susan, Matt and Arnold were each successful in their applications to the JCU Graduate Research Scheme, covering basic equipment and operational expenses for their PhDs in the latter half of 2006. They are currently awaiting the outcomes of applications to the Queensland Government *Growing the Smart State PhD Fund* to assist their research over 2007-09.

In October 2006 the MWP research team applied to the new Australian Centre for Applied Marine Mammal Science for funding to expand the current Whale Sightings Network and improve records of dwarf minke sightings south of Cairns and establish links for the collection of Western Australian sightings of dwarf minke whales. This proposal, entitled '*Temporal and spatial patterns of dwarf minke whales in Australia: filling in the gaps*' also included the analyses of the long-term archival data set of minke whale images for identification, and standardised behavioural observation records, collected by Peter Arnold and Alastair Birtles since 1999. Funding has not previously been available to allow analyses of the >10,000 u/w still images, >70 hours of video footage and several 100s of hours of observational records of dwarf minke whale behaviour. These long-term data sets will enable the identification of potential cumulative effects of minke interactions over more than seven years prior to the PhD studies that began in 2006. Sadly we have just heard that this application was unsuccessful. We will be making every endeavour to ensure this vital work is funded from other sources. Collaborating Organisations in this application included the GBRMPA, *Undersea Explorer*, the Cod Hole and Ribbon Reef Operators Association, the Whale and Dolphin Conservation Society (WDCS), the International Fund for Animal Welfare (IFAW), the Centre for Whale Research (Western Australia) Inc. and Western Whale Research Pty Ltd.

We are pleased to announce that we have been awarded \$15,000 from the GBRMPA to analyse and report on the Minke Whale Questionnaires (MWQ) collected over 2002-2005. Funding has not previously been available for this, however operators collected an extraordinary total of 2299 MWQs from passengers over these three years to contribute to the monitoring of passenger experiences, perceptions of impacts, management of encounters and educational tools. We look forward to producing a GBRMPA report on these data and a paper by the end of June next year.

New research project studying the values of iconic marine species

Towards the end of 2006 a new research project began, partially funded for four years under the Marine and Tropical Sciences Research Facility (MTSRF) under Program 8 (led by Prof. Bruce Prideaux, JCU Cairns; Project 4.8.6), which will investigate the social and economic values of key marine species on the Great Barrier Reef. Led by Chief Investigators Dr Alastair Birtles, A/Prof Peter Valentine and Dr Natalie Stoeckl (JCU), the new project is examining tourism interactions with iconic Reef species, including sharks, rays, turtles, large fishes (e.g. potato cod, Maori wrasse) and dwarf minke whales, and will assess the value of these species to the tourism industry and the regional economy. The first survey for this project began in Oct 2006, involving passenger questionnaires on board *Undersea Explorer* and *Nimrod Explorer* during expeditions to the Far Northern GBR, where passengers are encountering large numbers of marine turtles, sharks and other iconic species. We hope to be interviewing many of you early in 2007 about a range of economic aspects of your businesses as background to understanding the socio-economic values of GBR marine wildlife.

PhD update: Arnold Mangott (dwarf minke whale behaviour)



Photo courtesy of Undersea Explorer

The 2006 minke whale season was the first of three field seasons for my PhD research into minke whale behaviour and was a great success. Thanks to the support from the industry, I was able to spend 40 days at sea (24 days on *Undersea Explorer*, 10 days on *Nimrod Explorer* and 6 days on *Taka*). During this time I observed and recorded 69 minke whale encounters of which 29 were in-water interactions. I also recorded 80 hours of underwater audio including minke whale vocalisations whilst recording my surface observations, with the aim of comparing the occurrence of vocalisations within the context of different behaviours. Another success of this season was the collection of 110 Interaction Behaviour Diaries (IBD2006) over the season. The IBD allows crew and passengers to become involved in minke behaviour research by reporting their observations and experiences from minke encounters. I'd like to thank all of the permitted operators, crews and passengers for having me on board and for their great support and I look forward to watching the minkes with your help again in 2007.

PhD update: Susan Sobotzick (dwarf minke whale biology)



Photo by Dirk Lutrop

This minke season was a very exciting one for me, with many memorable encounters with some old friends including 'Kinky Minke' (with her new calf), 'Pavlova' and 'Skeletora'. Thanks to *Undersea Explorer* I was able to spend seven successive weeks at sea and shot more than ten hours of video footage from 42 in-water interactions. The number of still and video images donated by the industry and passengers towards my research this year exceeded all previous years, and I am now busily working on coding each of the 8500+ images for ID analyses. This contribution from the industry is extremely valuable for increasing potential re-sightings of known individual whales and will help improve our understanding of

dwarf minke whale movement patterns, site fidelity, social structure and other important biological aspects whilst they are in the Great Barrier Reef. I'd like to thank everybody that donated copies of their underwater minke images this year and I look forward to your contributions again in the 2007 minke season!

PhD update: Matt Curnock (sustainable management)



Photo by Susan Sobotzick

G'day! 2006 has been a busy and productive year for my PhD research. I'm extremely grateful to all of the permitted operators for their contribution to the record data collection effort this year, in particular for collecting Minke Whale Questionnaires, which I will be analysing over the next few months before the 2007 minke season. In the 2006 season I was also able to collect GPS cruise track samples from seven permitted operators and I hope to expand the use of automated GPS loggers in the 2007 minke season to improve data collection of vessel search effort. I am currently preparing an interview survey of key stakeholders of the GBR swim-with-dwarf minke whales tourism industry, to identify Sustainability Objectives and screen potential Sustainability Indicators. I hope to begin interviewing owners and/or managers of the nine permitted vessels, some State and Commonwealth government management agency staff and representatives from conservation and wildlife NGOs in early 2007. Thanks for your support. Looking forward to another great minke season next year!

What to expect in 2007

In 2007 the MWP research team will continue our ongoing and long-term studies into the biology and behaviour of dwarf minke whales in the Great Barrier Reef and the sustainable management of swim-with interactions. We would like to engage the wider GBR tourism industry in reporting sightings of dwarf minkes that occur incidentally outside the Ribbon and Agincourt Reef complexes as part of an expanded Minke Whale Sightings Network. We are currently developing new interpretive tools to assist the industry in preparing their passengers for encounters in the 2007 season, including new colour posters and a trial DVD. We encourage all available staff and crews from the permitted vessels to attend the 2007 Pre-Season Workshop (date TBA) to help prepare for a successful 2007 minke season, and to ensure that all encounters are managed sustainably, that the quality and quantity of research data is maximised and that passengers' experiences swimming with dwarf minke whales continue to be wonderful!

MWP publications & conferences in 2006

Papers submitted in 2006:

Dunstan, A., Soltzick, S., Birtles, A. & Arnold, P. (under review). Size estimation and population demographics of dwarf minke whales in the northern Great Barrier Reef. *J.Cetacean Research & Management*.

Vales for Dr Peter William Arnold:

Memoirs of the Queensland Museum, Vol. 52 Part 1 (pp.7-12), 10 November 2006. Available online:

http://www.qm.qld.gov.au/organisation/e_prints/Vol52_1/52_1_Memorial.pdf

Marine Mammal Science, Vol 22 (2006) (Forthcoming).

New papers about to be submitted:

Birtles, A., Arnold, P., Valentine, P., Dunstan, A., Rumney, J. & Curnock, M. Development, evaluation and implementation of a Code of Practice for sustainable management of swim-with dwarf minke whales tourism on the Great Barrier Reef. *Tourism Management*.

Birtles, A., Valentine, P.S., Miller, D.K. & Curnock, M. A closer look at certified SCUBA diving activities on the Great Barrier Reef: Visitors and experiences. *Tourism Management*.

Mangott, A., Birtles, A., Valentine, P., Arnold, P. & Curnock, M. Management difficulties of low-probability wildlife interactions: a case study of the permitted day-boat operations among the swim-with-dwarf minke whale tourism industry in the Great Barrier Reef. *Tourism Management*.

Conference presentations & posters:

Birtles, A., Arnold, P., Valentine, P., Curnock, M., Mangott, A. & Soltzick, S. (2006). Research for sustainable management of Australian dwarf minke whales. *National Whale and Dolphin Research Conference*, Adelaide 21–22 February 2006. Commonwealth Department of the Environment and Heritage. Available online: <http://www.deh.gov.au/coasts/species/cetaceans/conference/presentations.html>

Birtles, A., Arnold, P., Valentine, P., Curnock, M., Mangott, A. & Soltzick, S. (2006). Research for sustainable management of Australian dwarf minke whales. *CRC Reef Forging Partnerships Workshop*, University Halls, James Cook University, Townsville, 25-26 July 2006.

Curnock, M., Birtles, A., Valentine, P., Arnold, P. & Dunstan, P. (2006). Mechanisms for assessing the sustainability of the swim-with-dwarf minke whales tourism industry in the northern Great Barrier Reef. Poster presentation: (1) *National Whale and Dolphin Research Conference*, Adelaide 21–22 February 2006; (2) *2006 Ecotourism Australia International Conference*, Townsville, 30 October – 3 November 2006.

Mangott, A., Birtles, A., Arnold, P. & Curnock, M. (2006). The management of day boat operations in the dwarf minke whale swim-with industry in the Great Barrier Reef. Poster presentation: (1) *National Whale and Dolphin Research Conference*, Adelaide 21–22 February 2006; (2) *2006 Ecotourism Australia International Conference*, Townsville, 30 October – 3 November 2006.

Soltzick, S., Birtles, A., Arnold, P. & Dunstan, A. (2006). Colour patterns and photo-identification of dwarf minke whales. Poster presentation: (1) *National Whale and Dolphin Research Conference*, Adelaide 21–22 February 2006; (2) *2006 Ecotourism Australia International Conference*, Townsville, 30 October – 3 November 2006.

Soltzick, S., Dunstan, A., Birtles, A. & Arnold, P. (2006). Size estimation and population demographics of dwarf minke whales in the northern Great Barrier Reef. Poster presentation: (1) *National Whale and Dolphin Research Conference*, Adelaide 21–22 February 2006; (2) *2006 Ecotourism Australia International Conference*, Townsville, 30 October – 3 November 2006.

In addition to the 2006 Dwarf Minke Whale Tourism Monitoring Workshops (26 May & 15 December), the MWP research team gave presentations to the industry at the GBRMPA 'Humpback and Dwarf Minke Whale Information Night' in Cairns (on 26 May) and at a Pre-Season Training Workshop in Port Douglas for the crews of permitted swim-with-minke day boats (on 27 May). During the June-July minke season, MWP researchers presented a total of 34 dwarf minke whale biology and research slideshows to passengers and crews whilst onboard *Undersea Explorer*, *Nimrod Explorer*, *Taka* and *Spoil Sport*.

Thanks for your support!

The Minke Whale Project research team would like to thank the managers, staff and crew of the permitted swim-with minke operators for their ongoing support of the Project. We are also especially grateful to the vessels who provided in-kind access for our researchers and volunteers during the 2006 minke season, including the live-aboard vessels *Undersea Explorer*, *Nimrod Explorer*, *Taka* and *Spoil Sport*, and the day boats *Poseidon III*, *Silver Sonic* and *Aristocat V*. We look forward to continuing this highly successful research collaboration in 2007 and beyond, to help improve our understanding of these inquisitive and charismatic little whales and promote sustainable interactions with them.

The Minke Whale Project research team

The MWP research team has been greatly strengthened by the inclusion of Prof. Helene Marsh, Dean of Postgraduate Studies and Professor of Environmental Sciences at JCU, who has kindly agreed to co-supervise Susan and Arnold following the passing of Dr Peter Arnold. We also welcome Dr Natalie Stoeckl, Program Head of Economics, JCU, and look forward to our collaborative research into the social and economic values of dwarf minke whales. Members of the MWP research team in 2006/07 include: Dr Alastair Birtles (Team Leader, JCU), A/Prof Peter Valentine (Head, School of Earth & Environmental Sciences), Prof Helene Marsh, Dr Natalie Stoeckl, PhD students Susan Soltzick, Arnold Mangott and Matt Curnock (JCU). We thank our 2006 MWP research volunteers Jessica Maddams, Jessica Nilsson, James Livingstone, Faith Foster, Robby McLeod, Silvia Figaro Morelli, Veronique Mocellin and Gloria Hidalgo Figueras, Nuri and Anna Taverna.

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Australian Government
Great Barrier Reef
Marine Park Authority



museum of tropical queensland
queensland museum

CRC Reef MWP website: www.reef.crc.org.au/discover/plantsanimals/minke/index.html

New Minke Whale Project website under construction: www.minkewhaleproject.org

The GBRMPA Dwarf Minke Whale Tourism Monitoring Programme:

http://www.gbrmpa.gov.au/corp_site/key_issues/conservation/natural_values/threatened_species/dwarf_minke_whales