Australia. Progress report on cetacean research, January 2008 to December 2008, with statistical data for the calendar year 2008

Compiled by Jason Gedamke, Milena Rafic, Gavin Hinten*

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*Compilers of state/territory data (in bold on table below): New South Wales (NSW)-G.Ross; Northern Territory (NT)-S. Whiting; South Australia (SA)-C. Kemper, T. Segawa; Tasmania (TAS)-R. Gales; Victoria (VIC)-S. Hadden; Western Australia (WA)-P. Mawson, C. Freegard.

This report summarises information obtained from:

<table>
<thead>
<tr>
<th>Name of agency/institute</th>
<th>Abbreviation (use in rest of report)</th>
<th>Contact e-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Marine Mammal Centre</td>
<td>AMMC</td>
<td><a href="mailto:Nick.Gales@aad.gov.au">Nick.Gales@aad.gov.au</a></td>
</tr>
<tr>
<td>Australian Fisheries Management Authority</td>
<td>AFMA</td>
<td><a href="mailto:Justine.Johnston@afma.gov.au">Justine.Johnston@afma.gov.au</a></td>
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<tr>
<td>Australian Registry of Wildlife Health</td>
<td>ARWH</td>
<td><a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a></td>
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<tr>
<td>Blue Planet Maine</td>
<td>BPM</td>
<td><a href="mailto:dave@blueplanetmarine.com">dave@blueplanetmarine.com</a></td>
</tr>
<tr>
<td>Blue Whale Study Inc.</td>
<td>BWS</td>
<td><a href="mailto:petegill@bigpond.com">petegill@bigpond.com</a></td>
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<td>Cape Solander Whale Migration Study</td>
<td>CSWMS; North Head</td>
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<tr>
<td>Centre for Whale Research (WA) Inc.</td>
<td>CWR</td>
<td><a href="mailto:whalesong2@bigpond.com">whalesong2@bigpond.com</a></td>
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<tr>
<td>Department for Environment and Heritage</td>
<td>DEH SA</td>
<td><a href="mailto:Laver.Robert@saugov.sa.gov.au">Laver.Robert@saugov.sa.gov.au</a></td>
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<td>Department of Environment and Climate Change-NW</td>
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<td>Department of Environment and Conservation-WA</td>
<td>DEC-WA</td>
<td><a href="mailto:peter.mawson@dec.wa.gov.au">peter.mawson@dec.wa.gov.au</a> or</td>
</tr>
<tr>
<td></td>
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<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
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<tr>
<td>Department of Environment and Resource Management</td>
<td>DERM</td>
<td><a href="mailto:col.limpus@epa.qld.gov.au">col.limpus@epa.qld.gov.au</a></td>
</tr>
<tr>
<td>Department of Primary Industries and Water</td>
<td>DPIW</td>
<td><a href="mailto:Rosemary.Gales@dpiw.tas.gov.au">Rosemary.Gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Department of Sustainability and Environment, Victoria</td>
<td>DSE-VIC</td>
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<tr>
<td>Department Sustainability and Environment</td>
<td>DSE</td>
<td><a href="mailto:mandy.watson@dse.vic.gov.au">mandy.watson@dse.vic.gov.au</a></td>
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<tr>
<td>Dept Natural Resources, Environment, Arts and Sport</td>
<td>NRETAS</td>
<td><a href="mailto:Scott.whitng@nt.gov.au">Scott.whitng@nt.gov.au</a>; Carol <a href="mailto:Palmer@nt.gov.au">Palmer@nt.gov.au</a></td>
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<tr>
<td>Dolphin Research Institute</td>
<td>DRI</td>
<td><a href="mailto:research@dolphinresearch.org.au">research@dolphinresearch.org.au</a></td>
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<tr>
<td>Environmental Protection Agency-QLD</td>
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<td>Georgetown University</td>
<td>GU</td>
<td><a href="mailto:mannj2@georgetown.edu">mannj2@georgetown.edu</a></td>
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<tr>
<td>Great Barrier Reef Marine Park Authority</td>
<td>GBRMPA</td>
<td><a href="mailto:mark.read@gbrcmap.gov.au">mark.read@gbrcmap.gov.au</a></td>
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<td>Kimberley Whale Watching</td>
<td>KWW</td>
<td><a href="mailto:kwhales@bigpond.com">kwhales@bigpond.com</a></td>
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<td>Marine Mammal Research Group, Macquarie University</td>
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<td>Monash University</td>
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<tr>
<td>Murdoch University Cetacean Research Unit</td>
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<td><a href="mailto:l.bedjer@murdoch.edu.au">l.bedjer@murdoch.edu.au</a>; <a href="mailto:h.smith@murdoch.edu.au">h.smith@murdoch.edu.au</a>; <a href="mailto:h.finn@murdoch.edu.au">h.finn@murdoch.edu.au</a>; <a href="mailto:k.wenziker@murdoch.edu.au">k.wenziker@murdoch.edu.au</a></td>
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<td>Museum Victoria</td>
<td>NMV</td>
<td><a href="mailto:robrien@museum.vic.gov.au">robrien@museum.vic.gov.au</a></td>
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<td>Norfolk Island Whale Survey</td>
<td>NIWS</td>
<td><a href="mailto:carmel_adrian@hotmail.com">carmel_adrian@hotmail.com</a></td>
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<td>Pacific Whale Foundation</td>
<td>PWF</td>
<td><a href="mailto:quincy@pacificwhale.org">quincy@pacificwhale.org</a></td>
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<td><a href="mailto:quincy@pacificwhale.org">quincy@pacificwhale.org</a></td>
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<tr>
<td>South Australian Museum</td>
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<tr>
<td>Southern Cross University</td>
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<td><a href="mailto:Dcagna10@scu.edu.au">Dcagna10@scu.edu.au</a></td>
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### 1. SPECIES AND STOCKS STUDIED

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## 2. SIGHTINGS DATA

### 2.1 Field work

#### 2.1.1 Systematic—

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<th>Target species</th>
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<td>Southern Great Barrier Reef</td>
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<td>Daniele Cagnazzi SCUWRC</td>
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<td>Australian Snubfin; Indo-Pacific Humpback; Bottle-nosed dolphin</td>
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<td>Alligator Rivers Region, Kakadu National Park, Darwin Harbour, Cobourg Peninsula, Northern Territory Australia</td>
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<td>1/9/08-14/12/08</td>
<td>Geographe Bay</td>
<td>Approx 140</td>
<td>Chris Burton –land and small vessel surveys</td>
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<td>Bottlenose &amp; Common dolphins (*1)</td>
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<td>Ningaloo, Western Australia</td>
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<td>Cockburn Sound</td>
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<td>Humpback Whale, P. Blue Whale (*4)</td>
<td>03/08 – 05/10, 2008</td>
<td>Scott Reef- Aerial Surveys</td>
<td>233, 2</td>
<td>C. Jenner/CWR , Jenner and Jenner 2009a</td>
</tr>
<tr>
<td>Species</td>
<td>Dates</td>
<td>Location</td>
<td>Surveys</td>
<td>References</td>
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<tr>
<td>----------------------------------------</td>
<td>------------------------</td>
<td>----------------------------------------------------</td>
<td>---------</td>
<td>------------------------------------------------</td>
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<tr>
<td>Humpback Whale, P. Blue Whale (*4)</td>
<td>09/06 – 23/07/08; 17/10 – 30/11/08</td>
<td>Browse Basin-Vessel surveys</td>
<td>1150</td>
<td>C.Jenner/CWR, Jenner and Jenner 2009c</td>
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<tr>
<td>Humpback Whale, S. Right Whale (*4)</td>
<td>05/09 – 17/10</td>
<td>Exmouth Gulf-Vessel surveys</td>
<td>325, 4</td>
<td>C.Jenner, W.Osborn/CWR, unpub. data</td>
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<tr>
<td>Indo-pacific dolphin</td>
<td>26 Nov 2008 – 22 Dec 2008</td>
<td>Ningaloo, Western Australia</td>
<td>3 groups (7 individuals)</td>
<td>Kristel Wenziker/MUCRU</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>4/11/2008</td>
<td>Southern Great Barrier Reef</td>
<td>123</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>11/07-11/09/08</td>
<td>Moreton Bay, QLD</td>
<td>20</td>
<td>I. C. Ansmann (UQ)</td>
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<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>01/05/08-31/08/08</td>
<td>Cardwell-Townsville region, QLD</td>
<td>50</td>
<td>G. J. Parra (UQ)</td>
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<tr>
<td>Killer whale (*7)</td>
<td>11/31/12/2008</td>
<td>Antarctica-Vincennes Bay</td>
<td>300</td>
<td>N. Kelly (AMMC)</td>
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<tr>
<td>Minke whale</td>
<td>23/08/08-13/11/08</td>
<td>Norfolk Island</td>
<td>13</td>
<td>A. Oosterman (NIWS); Oosterman (2009)</td>
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<tr>
<td>Minke whale, Antarctic (*7)</td>
<td>11-31/12/2008</td>
<td>Antarctica-Vincennes Bay</td>
<td>68</td>
<td>N. Kelly (AMMC)</td>
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<tr>
<td>Multi-species (*8)</td>
<td>2008</td>
<td>Southern Ocean west of Tasmania</td>
<td></td>
<td>K.Evans (UTAS)</td>
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<tr>
<td>P. Blue Whale, Sperm Whale (*4)</td>
<td>03/05 – 22/05/08</td>
<td>Kangaroo Trough-Vessel Surveys</td>
<td>2, 27</td>
<td>C.Jenner/CWR, Jenner and Jenner 2009e</td>
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<tr>
<td>Snubfin dolphin</td>
<td>1/05/2008</td>
<td>Cardwell-Townsville region, North Queensland</td>
<td>70</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>Aug-08</td>
<td>C Leeuwin (WA) to Ceduna (SA)</td>
<td>702 animals, 236 cow/calf pairs</td>
<td>J Bannister/WAM</td>
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<td>Southern right whale</td>
<td>1/08-14/12/08</td>
<td>Geographe Bay</td>
<td>Approx 4</td>
<td>Chris Burton – land and small vessel surveys</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>23 June – 30 September</td>
<td>Logans Beach whale viewing platform</td>
<td>Approx 350 (includes repeat sightings)</td>
<td>Mandy Watson, DSE</td>
</tr>
</tbody>
</table>

Notes

(*1) Common and bottlenose dolphin populations surveys (DRI & MU). During 2008, DRI collected dorsal fin photographs for use in photo-identification of individuals, and collected behavioural data, while our Monash University researcher collected biopsy samples. Researchers conducted 35 surveys from the DRI’s research vessel. A total of 59 sightings of dolphins were made over this period.

(*2) 2008 Whale and Dolphin survey undertaken in the Lomaiviti Island Group, Fiji. (BPM). During August and September of 2008 a systematic land and vessel-based whale and dolphin survey was undertaken of the Lomaiviti Island group, Fiji. This survey was the third systematic cetacean survey as part of the South Pacific Island Whale and Dolphin survey undertaken in Fiji. The major aim of the work was to compare the current status of humpback whales in the Lomaiviti Group of Fiji with that recorded by Dawbin in the 1950’s.

A total of 19 days of surveys were conducted, with a mean of 10 hours survey effort per day. There were a total of 27 cetacean sightings comprising five different species. The species recorded included: humpback whales (10 pods), Short finned pilot whales (3 pods), false killer whales (1 pod), long snouted spinner dolphins (8 pods), bottlenose dolphins (1 pod). This is the first recent record of a confirmed sighting of bottlenose dolphin in Fijian waters.

(*3) Cape Solander Whale Migration Study (CSWMS). Cape Solander: Between the 24th of May and the 31st of July 2008, trained volunteers recorded the species, pod size, time sighted, bearing, distance from shore and behaviour of all marine mammals observed passing Cape Solander in Botany Bay National Park, Sydney during daylight hours. A total of 63 days were surveyed during the 2008 northern migration season. In addition to humpback whales (1493), common and bottlenose dolphins (856) and minke whales (5) were sighted.

North Head: This new whale watching program seeks to extend the CSWMS to include volunteers at North Head and include the southern migration. Between the 26th of May and the 26th of November 2008, new volunteers recorded the species, pod size, time sighted, bearing, distance from shore and behaviour of all marine mammals observed passing North Head, Sydney between 9am and 3pm. A total of 112 days were surveyed during the 2008 migration season.

(*4) Centre for Whale Research (CWR) Surveys. The Kangaroo Trough region (centred at S19.4, E114.5 to the north and west of the Monte Bellow Islands) in NW Australia was systematically searched for evidence of a
pygmy blue whale migratory paths or feeding grounds during May, 2008. Two pygmy blue whales were sighted as well as 27 sperm whales and nine other species of cetaceans over a 20 day period. Oceanographic variables (biological and physical to 600m depth), seabird, fish and marine reptile sightings were recorded continuously during daylight hours across a 23,000 km² grid area (25 km resolution) for future correlation and modelling with cetacean distribution and abundance.

A continuation of the above grid survey technique, focussed temporally on the expected northern and southern pygmy blue whale migrations (predicted by acoustic loggers in 2006 and 2007) was carried out at the Scott Reef and Browse Basin areas (centred at S14 E122.5) across 31,000 km². A forty day period during the anticipated northern migration resulted in 1 pygmy blue whale sighting and a further 82 sightings involving 11 other species of cetaceans (approx. 512 individual cetaceans). The predicted southern migratory period resulted in 6 sightings of pygmy blue whales and 104 sightings of 9 other cetacean species (approx. 3,219 individual cetaceans).

Aerial surveys were carried out at NW Cape for the fifth season. Double-blind, “Distance-style”, line transect methodology was used to sample northbound humpback whales. In fourteen flights flown at five day intervals, a total of 1172 whales were sighted. The data will be used to calculate an absolute estimate of abundance for Breeding Population D humpback whales and to contribute to a long term spatial analysis of humpback whale migratory reaction to oil and gas infrastructure.

*(5) Logans Beach, Warrnambool VIC surveys (DSE). DSE undertook dedicated survey carried out by trained volunteers 4 hours per day (2 hrs AM, 2hrs PM) every day between June and October at Logans Beach, Warrnambool.

*(6) Long-term humpback whale study, Hervey Bay 1992-2008 (TOP). The Oceania Project conducted the 17th year of fieldwork of a long-term survey of humpback whales in Hervey Bay. The 2008 survey was undertaken from a 12-metre vessel for 60 days between August 10th and October 17th 2008 involving a total 480 hours of effort. Observations were made on 1218 individual Humpbacks in 494 pods. A total of approximately 7000 Photo-id photographs were obtained, 15 hours of behavioural DV-CAM video. A total of 148 x 15 min systematic samples of humpback song and social sounds were recorded. In addition 56 sloughed skin samples were obtained.


*(7) Aerial survey for Antarctic minke whales(AMMC). This aerial survey programme aims to discover whether Antarctic minke whales are in fact in the sea ice in east Antarctica (in waters where non-ice strengthened ships cannot access) in significant enough numbers to explain the overall population decline detected over the last few decades. A secondary motivation for this research is to provide a foundation for a habitat model for minke whales based on sea ice distribution and dynamics. Field work for this aerial survey programme has been running now for two summer seasons. The 2007/08 season tested the concept of flying aerial surveys using the CASA-212 aircraft from an Australian Antarctic station. In the second season (2008/09) a full survey was conducted over Vincennes Bay near Casey station in eastern Antarctica (66° 17′ S 110° 32′ E). During full aerial survey, in the 2008/09 season, a systematic survey design with north-south orientated transects was implemented, covering a wide range of sea ice concentrations and habitats. Although this aerial survey was targeting Antarctic minke whales, many killer whales were also observed (ecotype undecided). Analyses are ongoing.

*(8) Aerial surveys of Southern Ocean west of Tasmania (UTAS). The results presented are preliminary results from two projects focused on establishing the species assemblage, distribution and habitat preferences of cetaceans in the region of the Southern Ocean west of Tasmania. A final report summarising the results and analyses of data from these projects is due to be complete in March 2009. These projects involve regular aerial surveys utilising line transect methods throughout the area west of Tasmania from 40°S to 43°S and 143°E to 145°E predominantly throughout Commonwealth waters. In 2008, the species followed by the number of sightings are as follows: sperm whale (5), pygmy blue whale (6), fin whale (1), Shepherds beaked whale (4), pygmy right whale (1), long finned pilot whale (4), common dolphin (7), and bottlenose dolphin (1).

### 2.1.2 Opportunistic, platforms of opportunity

<table>
<thead>
<tr>
<th>Primary species</th>
<th>Area</th>
<th>Data type/method</th>
<th>Collected by</th>
<th>Platform</th>
<th>Location of archive (if applicable)</th>
<th>Contact person/institute and refs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue whale</td>
<td>Bonney Upwelling</td>
<td>Photo-ID</td>
<td>SA Fisheries</td>
<td>Fisheries patrol vessel</td>
<td>BWS, Portland</td>
<td>Peter Gill/Margie Morrice, BWS</td>
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</table>

5
<table>
<thead>
<tr>
<th>Humpback whale</th>
<th>N=9 Australia-wide</th>
<th>Whale sighting form</th>
<th>Fishery observers</th>
<th>Commercial Fishing Vessel</th>
<th>Justine Johnston, AFMA (*1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humpback whale</td>
<td>Ballina / Byron Bay</td>
<td>Sightings &amp; photo-ID data</td>
<td>Scientists</td>
<td>University research vessel</td>
<td>SCUWRC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Byron Bay</td>
<td>Sightings &amp; photo-ID data</td>
<td>Scientists</td>
<td>Whale watching vessel</td>
<td>SCUWRC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Tweed Heads</td>
<td>Photo-ID data</td>
<td>Professional photographer</td>
<td>Whale watching vessel</td>
<td>SCUWRC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Western Victoria</td>
<td>Sightings (count, date, time, location, behaviour)</td>
<td>DSE staff, trained volunteers, other reliable sources</td>
<td>Loans Beach whale viewing platform, other locations along Victorian coast</td>
<td>DSE, Warrnambool</td>
</tr>
<tr>
<td>Humpback Whale (*2)</td>
<td>Sydney, NSW</td>
<td>Photo-ID; sightings, animal behaviour</td>
<td>Dedicated observer</td>
<td>Whale watching vessel</td>
<td>MQ</td>
</tr>
<tr>
<td>Humpback whale (*3)</td>
<td>Eden, NSW</td>
<td>Photo-ID; sightings</td>
<td>Scientists</td>
<td>Whale watching vessel</td>
<td>PWF (Hawaii) Q. Gibson (PWF)</td>
</tr>
<tr>
<td>Humpback whale (*6)</td>
<td>Hervey Bay, QLD</td>
<td>Photo-ID*; sightings</td>
<td>Scientists</td>
<td>Research vessel</td>
<td>*PWF (Hawaii) Q. Gibson (PWF)</td>
</tr>
<tr>
<td>Humpback whales</td>
<td>Kimberley Western Australia</td>
<td>Visual &amp; acoustic from boat &amp; shore</td>
<td>crew</td>
<td>Kimberley Quest whale watching vessel</td>
<td>R Costin and A Sandes/KWW</td>
</tr>
<tr>
<td>Humpback Whales (*4)</td>
<td>NW Shelf</td>
<td>Visual sightings with effort</td>
<td>crew</td>
<td>FPSO vessel</td>
<td>C.Jenner/CWR, CWR website oil and gas link</td>
</tr>
<tr>
<td>Pilot whale</td>
<td>N= 26, Australia-wide</td>
<td>Whale sighting form</td>
<td>Fishery observer</td>
<td>Commercial Fishing Vessel</td>
<td>Justine Johnston, AFMA (*1)</td>
</tr>
<tr>
<td>Southern Right whale</td>
<td>Western Victoria</td>
<td>Sightings (count, date, time, location, behaviour) photo-identifications*</td>
<td>DSE staff, trained volunteers, other reliable sources</td>
<td>Loans Beach whale viewing platform, other locations along Victorian coast</td>
<td>DSE, Warrnambool</td>
</tr>
<tr>
<td>Various species (*7)</td>
<td>SA</td>
<td>Opportunistic</td>
<td>Public</td>
<td>various</td>
<td>SAM</td>
</tr>
<tr>
<td>Various species (*8)</td>
<td>TAS</td>
<td>Sightings</td>
<td>Public/Staff</td>
<td>Biopsy vessel, shore, whale watching vessel</td>
<td>DPIW-TAS</td>
</tr>
</tbody>
</table>

Notes

(*1) Australian Fisheries Management Authority. In 2008, AFMA fisheries observers were present on board a total of 267 trips to a variety of fisheries including: the Great Australian Bight Trawl Fishery (5), South East Trawl Fishery (47), Torres Strait Prawn Fishery (2), Northern Prawn Fishery (10), Eastern Tuna and Billfish Fishery (156), Western Tuna and Billfish Fishery (3), Southern Bluefin Tuna Fishery (purse seine) (5), Gillnet Hook and Trap fishery (longline) (15), Gillnet Hook and Trap Fishery (gillnet) (4), Coral Sea Fishery (trap & Autoline) (2), Small Pelagic Fishery (6), the Bass Strait Central Zone Scallop Fishery (3), Macquarie Island Fishery (1), and and McDonald Island Fisheries (8).

(*2) Watching Migrating Whales: Ensuring the sustainability of a growing whale-watch industry (MQ). The Sydney whale watching vessel Ocean Dreaming (Bass & Flinders Cruises) was used as a platform of opportunity to record behaviour of humpback whales around whale watching vessels as they migrated past Sydney. Experimental approaches of whales were also undertaken with different numbers of vessels and different approach distances. Data collection will continue in 2009 with the aim of the project to determine with the current Australian approach distances are the most appropriate. Passengers aboard whale watching vessels and whale watchers at three shore based locations were surveyed using a willingness-to-pay method that considered the different aspects of whale watching, including vessel size, price and approach distance.

(*3) Pacific Whale Foundation (PWF). PWF conducted vessel-based research onboard the Cat Balou, Eden, NSW from 21 September - 13 November 2008. Data was collected opportunistically in the form of digital photographs, digital audio recordings, and real time observations recorded on pre-formatted data sheets. In addition to photo-IDs reported here, we also received fluke photographs from Ros Butt, owner of Cat Balou, for the Eden whalewatch season, Sept. – Nov. 2008.
(*4) *Center for Whale Research (CWR)*. This is the 4th year of a programme involving BHP Billiton employees on their FPSO Griffin Venture near NW Cape, Western Australia. The programme aims to stimulate interest in the environment for oil and gas workers and won an industry award in 2006.

(*5) *Department of Sustainability and Environment (DSE)*. DSE also collected sightings data from across Victoria via network of volunteers.

(*6) *Pacific Whale Foundation (PWF)*. PWF annually conducts vessel-based research in Hervey Bay to document the use of Hervey Bay Marine Park by humpback whale mothers with calf. Observations were conducted from a 6.2 m XL Naiad (rigid hull inflatable) from 5 August - 15 October 2008. Data was collected opportunistically in the form of digital photographs, digital audio recordings, and real time observations recorded on pre-formatted data sheets.

(*7) *South Australia Museum (SAM)*. Public reports include S. right, blue, humpback, killer, and pilot whales, and common dolphins.

(*8) *Department of Primary Industry and Water Whale Hotline (DPIW-TAS)*. DPIW manages a comprehensive sightings database facilitated by the Whale Hotline (0427 whales). The hotline provides a single point of call to report whale sightings and strandings within Tasmania. Due to the variety of sources (agency staff undertaking dedicated cetacean work, whale-watching and eco-tour operators, maritime professionals and the general public), sightings are scored for their reliability based on key criteria such as experience of observer, features described and the availability of images relating to the sighting. Sighting events are an aggregate of sightings from multiple observers that relate to the same discrete individuals, considering the time between sightings, pod size, direction of travel and the presence of identifying features. Reported sightings include: minke (1 sighting, 2 animals), pygmy right (1,2), southern right (49, 93), humpback (92, 252), killer (10, 64), sperm (1,1), and unidentified baleen whales (8,29), common (9, 369), bottlenose (14, 258) and unidentified dolphins (9, 87).

### 2.2 Analyses/development of techniques

<table>
<thead>
<tr>
<th>Target species</th>
<th>Date</th>
<th>Area</th>
<th>Methods/effort</th>
<th>Parameters/ factors measured</th>
<th>Contact person/institute; refs</th>
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<tbody>
<tr>
<td>Bottlenose dolphin</td>
<td>Jan 08 – Dec 2008</td>
<td>Bunbury, Western Australia</td>
<td>Line transect survey/ Photo identification</td>
<td>Population estimate; sighting frequency; habitat use</td>
<td>Holly Smith/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>26 Nov 2008 – 22 Dec 2008</td>
<td>Ningaloo, Western Australia</td>
<td>Line transect survey/ Photo identification</td>
<td>Population estimate; sighting frequency; habitat use</td>
<td>Kristel Wenziker/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>July-Nov 2008</td>
<td>Cockburn Sound</td>
<td>Photo-identification surveys</td>
<td>Distribution/sighting frequency</td>
<td>Hugh Finn/MUCRU</td>
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<td>Humpback whale</td>
<td>23/08/08-13/11/08</td>
<td>Norfolk Island</td>
<td>Land-based survey; vessel survey</td>
<td>Numbers observed, behaviour, weather statistics</td>
<td>A. Oosterman (NIWS); Oosterman (2009)</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>23/08/08-13/11/08</td>
<td>Norfolk Island</td>
<td>Land-based survey; vessel survey</td>
<td>Numbers observed, behaviour, weather statistics</td>
<td>A. Oosterman (NIWS); Oosterman (2009)</td>
</tr>
<tr>
<td>Humpback whale (*1)</td>
<td>21/9/08-13/11/08</td>
<td>East Australia- Eden</td>
<td>Photo-ID surveys</td>
<td>Distribution; Abundance; Calving rates/intervals</td>
<td>Q. Gibson, PWF</td>
</tr>
<tr>
<td>Humpback whale (*1)</td>
<td>5/8/08-15/10/08</td>
<td>East Australia- Hervey Bay</td>
<td>Photo-ID surveys</td>
<td>Distribution; Abundance; Calving rates/intervals</td>
<td>Q. Gibson, PWF</td>
</tr>
<tr>
<td>Humpback Whale (*2)</td>
<td>2007</td>
<td>Kimberley</td>
<td>Aerial Line transect survey Distance modelling</td>
<td>Relative and Absolute population estimates</td>
<td>Jenner et al., 2008b</td>
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<tr>
<td>Indo-pacific dolphin</td>
<td>26 Nov 2008 – 22 Dec 2008</td>
<td>Ningaloo, Western Australia</td>
<td>Line transect survey/ Photo identification</td>
<td>Population estimate; sighting frequency; habitat use</td>
<td>Kristel Wenziker/MUCRU</td>
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<tr>
<td>Inshore bottlenose dolphin</td>
<td>5/09/2008</td>
<td>Shoalwater Military Area</td>
<td>Line transect survey</td>
<td>Distribution; sighting frequency</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Killer whales</td>
<td>11-31/12/20 08</td>
<td>Antarctica— Vincennes Bay</td>
<td>Line transect survey; double-platform</td>
<td>Distribution; sighting frequency; school size; sea ice concentrations; habitat</td>
<td>N. Kelly/AMMC; Hedley et al. (2007a), Kelly et al. (2008)</td>
</tr>
<tr>
<td>Minke whale</td>
<td>23/08/08-13/11/08</td>
<td>Norfolk Island</td>
<td>Land-based survey; vessel survey</td>
<td>Numbers observed, behaviour, weather statistics</td>
<td>A. Oosterman (NIWS); Oosterman (2009)</td>
</tr>
<tr>
<td>Minke whale, Antarctic</td>
<td>11-31/12/20 08</td>
<td>Antarctica— Vincennes Bay</td>
<td>Line transect survey; double-platform</td>
<td>Distribution; sighting frequency; school size; sea ice concentrations; habitat</td>
<td>N. Kelly/AMMC; Hedley et al. (2007a), Kelly et al. (2008)</td>
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</tbody>
</table>
**3. MARKING DATA**

### 3.1 Field work

#### 3.1.1 Natural marking data (e.g. photo-id)

Provide this in the form of a table, e.g.

<table>
<thead>
<tr>
<th>Species</th>
<th>Feature</th>
<th>Area/stock</th>
<th>No. photo-id’d</th>
<th>Catalogue (Y/N)</th>
<th>Catalogue total</th>
<th>Contact person/institute; refs</th>
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</thead>
<tbody>
<tr>
<td>Australian Snubfin dolphin</td>
<td>Dorsal fin</td>
<td>Southern Great Barrier Reef</td>
<td>58</td>
<td>Y</td>
<td>58</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Australian Snubfin dolphin</td>
<td>Dorsal fin</td>
<td>N QLD</td>
<td>20+</td>
<td>Y</td>
<td>100</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>Blue whale</td>
<td>Lateral/dorsal fin</td>
<td>Southern Australia</td>
<td>4</td>
<td>Y</td>
<td>57</td>
<td>Peter Gill/Margie Morrice, BWS</td>
</tr>
<tr>
<td>Blue whale</td>
<td>lateral</td>
<td>Geographe Bay, Western Australia</td>
<td>14</td>
<td>Y</td>
<td>170</td>
<td>Chris Burton – land and small vessel surveys</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal fin</td>
<td>Port Phillip</td>
<td>Analysis underway</td>
<td>Y</td>
<td>110</td>
<td>Sue Mason/DRI, Kate Charlton-Robb /Monash</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal fin/body scarring</td>
<td>Bunbury</td>
<td>191</td>
<td>Y</td>
<td>191</td>
<td>Holly Smith/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal</td>
<td>Ningaloo, Western</td>
<td>48</td>
<td>Y</td>
<td>48</td>
<td>Kristel</td>
</tr>
</tbody>
</table>

Notes

(*1) Pacific Whale Foundation (PWF). PWF conducted vessel-based research onboard the Cat Balou, Eden, NSW from 21 September - 13 November 2008. For the 2008 season, 217.3 hours were spent on the water in Eden during 51 days of field effort. A total of 318 groups (including affiliations and disaffiliations) of whales were observed comprised of 909 animals (769 non-calves and 140 calves). Mean pod size was 2.9 whales. 88.7 hours were spent observing whales (40.8% of field effort), with approximately 18 (total) animals observed each day. Using photographic identification techniques, 399 unique whales were identified.

For the 2008 season, 584.3 hours were spent on the water in Hervey Bay during 67 days of field effort. A total of 663 groups (including affiliations and disaffiliations) of whales were observed comprised of 1,632 animals (1385 non-calves and 247 calves). Mean pod size was 2.5 whales. 269.7 hours were spent observing whales (46% of field effort), with approximately 16 (total) animals observed each day. Using photographic identification techniques, 686 unique whales were identified.

(*2) Centre for Whale Research. Between January and April over six consecutive years (2000 to 2005) photographs of the dorsal fin and lateral bodies of pygmy blue whales were collected at the Perth Canyon, Western Australia. The morphology was sufficiently variable to enable individual recognition and from 1600 survey hours (mean = 266 hours each year) 208 individuals were identified from the 271 photographed sightings. Twenty-three individuals were resighted between years but only two whales were resighted in three or more of the six years. A POPAN open population model estimated the population size to be between 569 and 1,147 individuals. A closed, time-dependent, model with individual heterogeneity yielded a population size estimate of 712 to 1,754 individuals. We consider additional photo-ID data from Geographe Bay (WA) and the Bonney Upwelling (southern Australia) to assess the likelihood that these population size estimates relate to the proposed pygmy blue whale population in the eastern Indian Ocean and Australian waters.

Six aerial surveys designed using Distance Sampling protocols were used to estimate the absolute number of humpback whales using the Kimberely calving grounds during the peak of season in 2007. A point estimate of 12376 whales (range 9978,15342) was considered the best estimate and included calculations of whales unavailable to the sighting aircraft for counting due to being submerged.
<table>
<thead>
<tr>
<th>Species</th>
<th>Body Part</th>
<th>Area/Group</th>
<th>Age</th>
<th># Individuals</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal fin/body scarring</td>
<td>Cockburn Sound</td>
<td>75</td>
<td>Y 100</td>
<td>Hugh Finn/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal fin/body scarring</td>
<td>Southern Great Barrier Reef</td>
<td>201</td>
<td>Y 189</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Dorsal fin/body scarring</td>
<td>Moreton Bay, QLD</td>
<td>146</td>
<td>Y 146</td>
<td>I. C. Ansmann (UQ)</td>
</tr>
<tr>
<td>Common dolphin</td>
<td>Dorsal fin</td>
<td>Port Phillip</td>
<td>30</td>
<td>Y 30</td>
<td>Sue Mason/DRI</td>
</tr>
<tr>
<td>Humpback whale (*1)</td>
<td>Fluke</td>
<td>Area/Group V Breading Stock E2/E3</td>
<td>9</td>
<td>Y 12</td>
<td>David Paton (BPM)/Fiji Fluke id Catalogue 2002-2008</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke</td>
<td>Norfolk Island</td>
<td>3</td>
<td>Y 8</td>
<td>A. Oosterman (NIWS); Oosterman (2009)</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke, Dorsal</td>
<td>WA – Pender Bay, Group D</td>
<td>To be estimated</td>
<td>Pending</td>
<td>S. McKay / WEG</td>
</tr>
<tr>
<td>Humpback Whale</td>
<td>Fluke</td>
<td>Group V, Sydney Coast</td>
<td>To be estimated</td>
<td>Pending</td>
<td>Megan Kessler (MQ)</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke</td>
<td>Group E (i)</td>
<td>6</td>
<td>Y 636</td>
<td>D. Burns, SCUWRC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke</td>
<td>Group E (i)</td>
<td>103</td>
<td>Y 103</td>
<td>P. Beeman, SCUWRC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke</td>
<td>Geographe Bay, Western Australia</td>
<td>20</td>
<td>N 2000</td>
<td>Chris Burton – land and small vessel surveys</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Lateral</td>
<td>Geographe Bay, Western Australia</td>
<td>30</td>
<td>N 2500</td>
<td>Chris Burton – land and small vessel surveys</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke and lateral body</td>
<td>Exmouth Gulf</td>
<td>325</td>
<td>Y 2099</td>
<td>C. Jenner/W. and P Osborn CWR</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Fluke</td>
<td>East coast TAS (V)</td>
<td>7</td>
<td>Y 96</td>
<td>R. Gales, DPIW</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Dorsal fin</td>
<td>East coast TAS (V)</td>
<td>7</td>
<td>Y 90</td>
<td>R. Gales, DPIW</td>
</tr>
<tr>
<td>Humpback whale (*2)</td>
<td>Flukes</td>
<td>Hervey Bay, QLD (Group V/B.S. E)</td>
<td>686</td>
<td>Y 4,591 (thru '07)</td>
<td>Q. Gibson, PWF</td>
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<tr>
<td>Humpback whale (*2)</td>
<td>Flukes</td>
<td>Eden, NSW (Group V/B.S. E)</td>
<td>399</td>
<td>Y 4,591 (thru '07)</td>
<td>Q. Gibson, PWF</td>
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<tr>
<td>Indo-Pacific Bottlenose Dolphin</td>
<td>Dorsal fin</td>
<td>SA</td>
<td></td>
<td>90</td>
<td>R. Gales, DPIW</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Dorsal fin/body scarring</td>
<td>Ningaloo</td>
<td>7</td>
<td>Y 7</td>
<td>Kristel Wenziker/MUCRU</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Dorsal fin</td>
<td>Southern Great Barrier Reef</td>
<td>71</td>
<td>Y 71</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Dorsal fin</td>
<td>Moreton Bay, QLD</td>
<td>40+</td>
<td>Y 60</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Dorsal fin</td>
<td>N QLD</td>
<td>20+</td>
<td>Y 100</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>P. Blue Whale</td>
<td>Dorsal fin</td>
<td>Perth Canyon/Browse Basin</td>
<td>7-Jun</td>
<td>Y 258</td>
<td>C. Jenner/CWR</td>
</tr>
<tr>
<td>S. Right Whale (*3)</td>
<td>Callosity</td>
<td>Exmouth Gulf</td>
<td>4</td>
<td>Y 5</td>
<td>C. Jenner/W. and P Osborn CWR</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>Callosity pattern</td>
<td>SE Australia</td>
<td>9</td>
<td>Y 100 + (catalogue being updated)</td>
<td>Mandy Watson, DSE</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>Head callosity pattern</td>
<td>Southern Australia - C Leeuwin (WA) to Ceduna (SA)</td>
<td>309 digital photos selected for matching to existing catalogue for individual id</td>
<td>N</td>
<td>Currently 5338 images from 1976-2008, with ca 1200 individuals identified to ca 2006</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>Callosity – aerial</td>
<td>SE Aus</td>
<td>8</td>
<td>Y 84</td>
<td>R. Gales, DPIW</td>
</tr>
<tr>
<td>Southern right whale</td>
<td>Callosity – lateral</td>
<td>SE Aus</td>
<td>4</td>
<td>Y 4</td>
<td>R. Gales, DPIW</td>
</tr>
</tbody>
</table>

(*1-3) See section 3.2 below
3.1.2. Artificial marking data

DPIW-TAS attach approved floy “spaghetti” tags on individuals released at stranding events. In 2008, tags were place on 1 minke whale (female released alive), 12 Long-finned pilot whales (7 female, 4 male released alive, 1 dead male), and 1 common dolphin (female released alive). Please contact R. Gales, DPIW for further information.

3.1.3 Telemetry data

<table>
<thead>
<tr>
<th>Species</th>
<th>Tag type</th>
<th>No. successfully deployed</th>
<th>Maximum time transmitting</th>
<th>Contact person/institute; refs</th>
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</thead>
<tbody>
<tr>
<td>Blue whale</td>
<td>Satellite</td>
<td>5</td>
<td>11 days</td>
<td>N. Gales, Australian Marine Mammal Centre</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Satellite</td>
<td>22</td>
<td>154 days</td>
<td>N. Gales, Australian Marine Mammal Centre</td>
</tr>
<tr>
<td>Long-finned Pilot Whale</td>
<td>Satellite</td>
<td>5</td>
<td>31 days</td>
<td>R. Gales – DPIW (*4)</td>
</tr>
</tbody>
</table>

(*4) See section 3.2 below

3.2 Analyses/development of techniques

(*1) Blue Planet Marine (BPM). The fluke id catalogue has been fully reconciled between years and no resights between years have been recorded. The 3 fluke ids from 2002, 2003 and 2005 have been matched against the other Oceania catalogues held by the South Pacific Whale Research Consortium members with no matches recorded. It is proposed that the 2008 fluke ids will also be matched against the Oceania catalogues.

(*2) Pacific Whale Foundation (Eden and Byron Bay). Fluke identification photograph matches are used to generate Capture-Mark-Recapture profiles for individuals across years and field sites. Reproductive parameters (i.e. calving rates and intervals) were calculated based upon mark-recapture data (obtained via photo-ID) from eastern Australia from 1984 – 2007. Analyses of rates of interchange across several sites within eastern Australia are currently underway.

(*3) Centre for Whale Research. Two different cow/calf southern right whale pairs were photo-identified inside Exmouth Gulf (S22°) in 2008. One cow had been sighted inside Exmouth Gulf in 2005 with another calf, and previously photo-identified by S. Burnell at the Head of the Bight in 1996 (Jenner et al., unpubl. data).

(*4) DPIW-TAS are currently developing further satellite tagging units for future deployment in consultation with AMMC. The results are currently being written up and will be reported in the following years IWC report.

4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

4.1 Biopsy samples (summary only)

<table>
<thead>
<tr>
<th>Species</th>
<th>Area/stock</th>
<th>Calendar year/ season - no. collected</th>
<th>Archived (Y/N)</th>
<th>No. analysed</th>
<th>Total holdings</th>
<th>Contact person/institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Snubfin dolphin</td>
<td>Southern GBR</td>
<td>2008</td>
<td>?</td>
<td></td>
<td></td>
<td>Carol Palmer NRETAÑ</td>
</tr>
<tr>
<td>Australian Snubfin dolphin</td>
<td>North QLD</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
<td>6</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>VIC</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
<td>112</td>
<td>Kate Charlton-Robb/ Monash University (*1)</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Mandurah</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
<td>19</td>
<td>Simon Allen/MUCRU, Lars Bejder/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Augusta</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
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</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Busselton</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
<td>6</td>
<td>Simon Allen/MUCRU, Lars Bejder/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Pilbara</td>
<td>2008</td>
<td>Y</td>
<td>47</td>
<td>47</td>
<td>Simon Allen/MUCRU, Lars Bejder/MUCRU</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Southern GBR &amp;</td>
<td>2008</td>
<td>Y</td>
<td>0</td>
<td>50</td>
<td>Daniele Cagnazzi SCUWRC</td>
</tr>
<tr>
<td>Species</td>
<td>Area/stock</td>
<td>Tissue type(s)</td>
<td>No. collected</td>
<td>Archived (Y/N)</td>
<td>No. analysed</td>
<td>Contact person/institute</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------</td>
<td>------------------------</td>
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<td>----------------</td>
<td>-------------</td>
<td>-------------------------------------</td>
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<tr>
<td>Bottlenose dolphin</td>
<td>Moreton Bay, QLD</td>
<td>Genetic tissues(*3)</td>
<td>18</td>
<td>Y</td>
<td>66</td>
<td>I. C. Ansmann (UQ)</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>TAS</td>
<td>Skin biopsy</td>
<td>13</td>
<td>Y</td>
<td>13</td>
<td>R. Gales - DPIW</td>
</tr>
<tr>
<td>Bottle-nosed dolphin</td>
<td>2008</td>
<td>Skin, skeleton</td>
<td></td>
<td></td>
<td></td>
<td>Carol Palmer, NRETAS</td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>TAS</td>
<td>Skin biopsy</td>
<td>8</td>
<td>Y</td>
<td>8</td>
<td>R. Gales - DPIW</td>
</tr>
<tr>
<td>Dwarf Sperm Whale</td>
<td>Scott Reef</td>
<td>Skin biopsy</td>
<td>2008</td>
<td>N</td>
<td>1</td>
<td>C. Jenner, CWR</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Group V Breeding Stock E (ii)</td>
<td>Skin biopsy</td>
<td>2008 - 1</td>
<td>N</td>
<td>0 (1 pending)</td>
<td>M. Anderson/SCU; W. Franklin/SCU</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>WA-Exmouth Gulf</td>
<td>Skin biopsy</td>
<td>2007/223</td>
<td>Y</td>
<td>223</td>
<td>Mike Double/AMMC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>NSW-Eden</td>
<td>Skin biopsy</td>
<td>2008/64</td>
<td>Y</td>
<td>57</td>
<td>Natalie Schmitt, AMMC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>TAS</td>
<td>Skin biopsy</td>
<td>2006/2007/63</td>
<td>Y</td>
<td>63</td>
<td>Mike Double/AMMC</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Stock E Hervey Bay</td>
<td>Skin biopsy</td>
<td>56</td>
<td>Y</td>
<td>846</td>
<td>Wally Franklin, TOP</td>
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<tr>
<td>Humpback whale</td>
<td>Group E</td>
<td>Skin biopsy</td>
<td>59</td>
<td>Y</td>
<td>59</td>
<td>C. Waugh, EnTox</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Group V</td>
<td>Skin biopsy</td>
<td>12</td>
<td>Y</td>
<td>0</td>
<td>R. Gales - DPIW</td>
</tr>
<tr>
<td>Humpback whale</td>
<td>Area/Group V Breading Stock E2/E3</td>
<td>Skin biopsy</td>
<td>2</td>
<td>Y</td>
<td>0</td>
<td>Debbie Steele, Molecular Ecology and Evolution Group, Auckland University</td>
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<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>2008</td>
<td>Skin biopsy</td>
<td></td>
<td></td>
<td></td>
<td>Carol Palmer, NRETAS</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Southern GBR &amp; Hervey Bay</td>
<td>Skin biopsy</td>
<td>71</td>
<td>Y</td>
<td>0</td>
<td>Daniele Cagnazzi, SCUWRC</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>Moreton Bay, QLD</td>
<td>Skin biopsy</td>
<td>3</td>
<td>Y</td>
<td>3</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>Indo-Pacific humpback dolphin</td>
<td>North QLD</td>
<td>Skin biopsy</td>
<td>9</td>
<td>Y</td>
<td>9</td>
<td>G. J. Parra (UQ)</td>
</tr>
<tr>
<td>S. right whale</td>
<td>Sydney</td>
<td>Skin biopsy</td>
<td>1</td>
<td>Y</td>
<td>0</td>
<td>Rob Harcourt, MQ</td>
</tr>
<tr>
<td>S. right whale</td>
<td>SE Aus</td>
<td>Skin biopsy</td>
<td>1</td>
<td>Y</td>
<td>0</td>
<td>R. Gales - DPIW</td>
</tr>
</tbody>
</table>

4.2 Samples from directed catches (commercial, aboriginal and scientific permits) or bycatches

<table>
<thead>
<tr>
<th>Species</th>
<th>Area/stock</th>
<th>Tissue type(s)</th>
<th>No. collected</th>
<th>Archived (Y/N)</th>
<th>No. analysed</th>
<th>Contact person/institute</th>
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</thead>
<tbody>
<tr>
<td>Bottlenose Dolphin</td>
<td>S.A.</td>
<td>Genetic tissues(*3)</td>
<td>1</td>
<td>1Y</td>
<td>0</td>
<td>C. Kemper/S.A. Museum (*2)</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Pilbara</td>
<td>Skin/blubber</td>
<td>2</td>
<td>Y</td>
<td>2</td>
<td>Simon Allen/MUCRU</td>
</tr>
<tr>
<td>Common dolphins</td>
<td>Sunshine Coast</td>
<td>Skin biopsy</td>
<td>4</td>
<td>y</td>
<td>0</td>
<td>QDPI&amp;F</td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>S.A.</td>
<td>Genetic tissues(*3)</td>
<td>9</td>
<td>9Y</td>
<td></td>
<td>C. Kemper/S.A. Museum (*2)</td>
</tr>
<tr>
<td>Pygmy Right Whale</td>
<td>S.A.</td>
<td>Genetic tissues(*3)</td>
<td>1</td>
<td>1Y</td>
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<td>C. Kemper/S.A. Museum (*2)</td>
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<tr>
<td>Straptooth Beaked Whale</td>
<td>S.A.</td>
<td>Genetic tissues(*3)</td>
<td>1</td>
<td>1Y</td>
<td></td>
<td>C. Kemper/S.A. Museum (*2)</td>
</tr>
</tbody>
</table>

(*1) DNA of these samples will be subject to mitochondrial DNA control region and cytochrome b region sequencing, along with genotyping at several microsatellite markers. New DNA regions are also being investigated.

(*2) This list includes: Entanglement in net or line, or entanglement probable, or accidental or intentional anthropogenic injury probable.

(*3) Genetic tissues, (blood, liver, kidney, muscle, skin) reproductives, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber). Complete sets of tissue samples were not collected from all animals because of the state of decomposition in some cases.

4.3 Samples from stranded animals

<table>
<thead>
<tr>
<th>Species</th>
<th>Area/stock</th>
<th>Tissue type(s)</th>
<th>No. collected</th>
<th>Archived (Y/N)</th>
<th>No. analysed</th>
<th>Contact person/institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew’s beaked whale</td>
<td>Vic: Warrnambool, Killarney Beach</td>
<td>Skin, skeleton</td>
<td>2 = adult and calf</td>
<td>Y</td>
<td>2</td>
<td>R. O’Brien/NMV</td>
</tr>
<tr>
<td>Andrew’s Beaked whales</td>
<td>SW Victoria</td>
<td>Entire specimen</td>
<td>2</td>
<td>Y</td>
<td>0</td>
<td>Mandy Watson, DSE</td>
</tr>
<tr>
<td>Beaked Whale (Mesoplodon sp.)</td>
<td>SA</td>
<td>Skin</td>
<td>1</td>
<td>1Y</td>
<td>0</td>
<td>C. Kemper, SAM (*3)</td>
</tr>
<tr>
<td>Blue whale</td>
<td>Townsville</td>
<td>Skin</td>
<td>1</td>
<td>Y</td>
<td>0</td>
<td>C. Waugh, EnTox</td>
</tr>
<tr>
<td>Blue whale</td>
<td>Townsville</td>
<td>Skeleton and</td>
<td>2</td>
<td>y</td>
<td>0</td>
<td>Col Limpus-DERM</td>
</tr>
<tr>
<td>Mammal Species</td>
<td>Location</td>
<td>Tissue Combinations</td>
<td>Yr</td>
<td>Y</td>
<td>Author/Institution</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>--------------------------------------------</td>
<td>----</td>
<td>---</td>
<td>-------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Bottlenose Dolphin</td>
<td>TAS</td>
<td>Skin, blubber, skull, muscle</td>
<td>2</td>
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<td>R. Gales. DPIW</td>
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</tr>
<tr>
<td>Bottlenose Dolphin</td>
<td>Curl Curl, NSW</td>
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<td>1</td>
<td>Y</td>
<td>Jane Hall, ARWH</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Bunbury</td>
<td>Skin, blubber, tooth, organs</td>
<td>3</td>
<td>Y</td>
<td>Lars Bejder/MUCRU</td>
<td></td>
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<tr>
<td>Bottlenose dolphin</td>
<td>Coastal Victoria</td>
<td>Skin, blubber, kidney, liver, melon</td>
<td>7</td>
<td>Y</td>
<td>Currently underway Kate Charlton-Robb/Monash University</td>
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<td>Coastal Victoria</td>
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<td>7</td>
<td>Y</td>
<td>Currently underway Kate Charlton-Robb/Monash University</td>
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<tr>
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<td>2</td>
<td>2Y</td>
<td>C. Kemper, SAM (*)</td>
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<tr>
<td>Common Dolphin</td>
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<td>Y</td>
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<td>Skin, blubber, liver, kidney, teeth, lung, internal and external parasites</td>
<td>1</td>
<td>Y</td>
<td><a href="mailto:cfury@scu.edu.au">cfury@scu.edu.au</a></td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>TAS</td>
<td>Skin, Blubber, Muscle, Liver, Kidney, Faeces, Stomach, Skull</td>
<td>4</td>
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<tr>
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<td>1 each</td>
<td>Y</td>
<td>Stan Williams, DSE</td>
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<td>Y</td>
<td>R. Gales. DPIW</td>
<td></td>
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<tr>
<td>Cuvier’s beaked whale</td>
<td>Vic: Warrnambool</td>
<td>Skin, blubber, muscle, skeleton</td>
<td>1 juv</td>
<td>Y</td>
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<tr>
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<td>1</td>
<td>N</td>
<td>C. Jenner/CWR</td>
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<td>Skin, blubber, umbilical cord</td>
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<td>Y</td>
<td><a href="mailto:cfury@scu.edu.au">cfury@scu.edu.au</a></td>
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<tr>
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<td>Group E</td>
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<td>C. Waugh, EnTox</td>
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<td>7</td>
<td>7Y</td>
<td>C. Kemper, SAM (*)</td>
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<tr>
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<td>1</td>
<td>1Y</td>
<td>C. Kemper, SAM (*)</td>
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<td>Y</td>
<td>R. Gales. DPIW</td>
<td></td>
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<td>Y</td>
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<td>Lars Bejder/MUCRU</td>
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<td>(+2)</td>
<td>7</td>
<td>7Y</td>
<td>C. Kemper, SAM (*)</td>
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<tr>
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<td>(+2)</td>
<td>1</td>
<td>1Y</td>
<td>C. Kemper, SAM (*)</td>
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<td>Y</td>
<td>R. Gales. DPIW</td>
<td></td>
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<tr>
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<td>Bunbury</td>
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<td>Y</td>
<td>0</td>
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<td>----------------</td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td>------------------</td>
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<td>Y</td>
<td>1</td>
<td>R.O’Brien/NMV</td>
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<td>Jane Hall, ARWH</td>
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<td>Y</td>
<td>Currently underway</td>
<td>Kate Charlton-Robb / Monash University</td>
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</tbody>
</table>

(*1) No. Collected refers to total number of animals sampled, but not all tissues were taken from each animal
(*2) Genetic tissues, (blood, liver, kidney, muscle, skin) reproductives, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)
(*3) Samples collected by C. Kemper/S.A. Museum includes strandings of the following types: Unknown; Diseased; Live stranding; Other natural causes.

4.4 Analyses/development of techniques

**Bottlenose dolphin genetic analyses (Monash University).** The samples collected during 2008 are currently being processed in the genetics laboratory at Monash University, as a part of the continuing PhD research conducted by Kate Charlton-Robb. DNA of these samples will be subject to mitochondrial DNA control region and cytochrome b region sequencing, along with genotyping at several microsatellite markers. New DNA regions are also being investigated.

**Ecology and population genetics of Australian humpback (Sousa chinensis) and bottlenose (Tursiops spp.) dolphins in Moreton Bay Marine Park. (UQ- Dr Guido Parra; Inna Ansmann).** This research aims to investigate: ecology and population genetics of Moreton Bay dolphin populations; information on population sizes, inter- and intra specific relationships; & information on delphinid diet compositions, feeding behaviours and trophic level. Research methods involve Taking biopsy samples for DNA analysis photographic identification

**Humpback whale DNA analysis (SCU).** DNA analysis of sloughed skin Samples being undertaken by Megan Anderson and Wally Franklin, at the Centre for Animal Conservation Genetics, Southern Cross University, under the Supervision of Professor Peter Baverstock. Analysis of total holdings will be completed and up to date by end of 2009. (Anderson et al. 2001; Elphinstone et al. 2003)

**Humpback whale population structure-AMMC.** Through the isolation and characterization of SNPs (Single Nucleotide Polymorphisms), and the application of microsatellite loci, population substructure within breeding stocks D & E and also the distribution of these breeding stocks in Antarctic waters will be investigated.

**Population genetics of provisioned and non provisioned bottlenose (Tursiops spp.) dolphins in Moreton Bay Marine Park.- Dr. David Neil (UQ).** The research aims to investigate the genetic relationships within the provisioned dolphin sub-population and the relationship of that sub population to the wider Moreton Bay dolphin population. Research methods involve taking of skin-swab genetic samples from provisioned dolphins at Tangalooma resort; taking of biopsy samples from non-provisioned dolphins using PAXARMS biopsy method and photographic identification

**Status of spinner and bottlenose dolphins in SE Qld waters.- Simon Allen (MUCRU).** The purpose of this research is to document the existence and range of spinner and bottlenose dolphins in coastal waters, and further knowledge of inter-specific associations of delphinids in the marine environment. Research methods involve taking biopsy samples for DNA extraction and photographic identification.

5. POLLUTION STUDIES

**Contaminant loads in bottlenose dolphins (Monash University- Alissa Monk).** During 2008, a range of contaminants were detected in beach cast dead and live dolphins from coastal Victoria. Of the contaminants detected, only mercury concentrations were at levels that were of concern. The total mercury in dead adult animals from coastal Victoria was on average 2.6 times higher than the values for the live animals (one factor ANOVA for a comparison between live and dead animals; F(1,24)=18.13 , p<0.001), giving evidence that mercury may be a major contributing factor to dolphin deaths. For the beach-cast animals, liver values ranged from 160 to 840 mg/kg, while in live animals the range was estimated between 124 and 346 mg/kg (combined data from this study and data from previous published studies to form a regression between liver and blubber levels, n=7, R2=0.194, p<0.05, liver level = 57.06 x blubber level + 106.0). This study has found that mercury levels fall within a range (between 100 to 400mg/kg) whereby there are negative health effects for small cetaceans and gives strong evidence that the concentrations of mercury could compromise the health and survival of these genetically unique coastal dolphin populations.
**Heavy metal and PCB levels in South Australia dolphins.** The study (reported in the 2007 report) conducted by Trish Lavery (Flinders University) and Ikuko Tomo (SAM) on PCBs, heavy metals, bone structure and lung nematode infections in SA dolphins did not reveal any conclusive relationships. This is likely due to the small sample sizes and complex nature of toxic contaminants and other variables.

An Honour’s student at Flinders University (Lailie Maloney) is undertaking a study of PCBs and bone structure in SA dolphins. The results of this are not yet known. The South Australian Museum and Trish Lavery would like to continue studies of PCBs on the hundreds of samples archived, provided sufficient funding is available. The results of Trish Lavery and the SAM’s research on bone structure and heavy metals in Indo-Pacific Bottlenose Dolphins were published during 2008 (Lavery et al., 2009).

**Persistent organic pollutants in southern ocean food webs-- Dr. Susan Bengtson Nash & Courtney Waugh (EnTox, UQ).** This research aims to: examine levels of a persistent and toxic organochlorine (OC) compound found in humpback whales; examine the relationship between OC compound levels and migration-based weight (blubber) loss and; & examine the relationship between OC compound concentrations throughout different layers of blubber. Research methods involve the taking of deep-core biopsy samples from the dorsal surface of humpback whales and tissue and muscle samples (approximately 10 cm x cm) from stranded whale carcasses.

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6. STATISTICS FOR LARGE CETACEANS

6.1 Corrections to earlier years’ statistics for large whales

Nil

6.2 Direct catches of large whales (commercial, aboriginal and scientific permits) for the calendar year 2008 or the season 2007/08

Nil

6.3 Anthropogenic mortality of large whales for the calendar year 2008 or the season 2007/08

6.3.1 Observed or reported ship strikes of large whales (including non-fatal events)

<table>
<thead>
<tr>
<th>Whale species</th>
<th>Sex</th>
<th>No.</th>
<th>Date</th>
<th>Location</th>
<th>Vessel type</th>
<th>Speed</th>
<th>Fate</th>
<th>How observed</th>
<th>Contact person/ institute and refs</th>
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</thead>
<tbody>
<tr>
<td>S. Right whale</td>
<td>F (&amp; calf)</td>
<td>1</td>
<td>21/8/08</td>
<td>34.18S 115.13E</td>
<td>U</td>
<td>U</td>
<td>X</td>
<td>M</td>
<td>D. Coughran DEC-WA</td>
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<tr>
<td>Pygmy Right Whale</td>
<td>M</td>
<td>1</td>
<td>12/1/08</td>
<td>Lincoln National Park. 34 48 27 S, 135 52 29 E</td>
<td>U</td>
<td>U</td>
<td>D</td>
<td>SAM post mortem</td>
<td>C. Kemper, SAM</td>
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<tr>
<td>Humpback Whale</td>
<td>M</td>
<td>1</td>
<td>20/09/08 8</td>
<td>20nm East Coffs Harbour</td>
<td>U</td>
<td>U</td>
<td>D</td>
<td>DA</td>
<td>Geoffrey Ross</td>
</tr>
<tr>
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<td>U</td>
<td>1</td>
<td>26/10/08 8</td>
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<td>U</td>
<td>U</td>
<td>D</td>
<td>DA</td>
<td>Geoffrey Ross</td>
</tr>
<tr>
<td>Humpback Whale</td>
<td>U</td>
<td>1</td>
<td>26/10/08 8</td>
<td>Richard River, NSW</td>
<td>U</td>
<td>U</td>
<td>D</td>
<td>DA</td>
<td>Geoffrey Ross</td>
</tr>
<tr>
<td>Sperm whale (*1)</td>
<td>U</td>
<td>1</td>
<td>&lt;6/10/08 8</td>
<td>12 Apostles, Great Ocean Rd, Western Victoria</td>
<td>U</td>
<td>U</td>
<td>D</td>
<td>O</td>
<td>Mandy Watson, DSE</td>
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<tr>
<td>Unid. whale (*2)</td>
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<td>1</td>
<td>16/08/2008</td>
<td>Between Hayman Island and mainland -20.0779 148.8903</td>
<td>Large commercial vessel ~30Kn</td>
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<td>Unid. whale</td>
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<td>2</td>
<td>17/08/2008</td>
<td>Fraser Island -24.6525 153.2515</td>
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<td>Col Limpus, Jenny Greenland, EPA-QLD</td>
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<tr>
<td>Unid. whale (*3)</td>
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<td>1</td>
<td>07/10/2008</td>
<td>Off Gladstone, -23.8871 151.5167</td>
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<td>U</td>
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<td>U</td>
<td>X</td>
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</table>

(*1) DSE reported a beach washed sperm whale believed to have died as result of ship strike based on photographs of injuries and discussions with Cath Kemper. Not possible to access whale due to location. Photographs available

(*2) Another whale was seen nudging the injured whale shortly after strike. A lot a blood in the water.

(*3) Not seen after collision

(*4) Vessel’s bow struck glancing blow to whale while vessel was coming down the face of a wave.
6.3.2 Fishery bycatch of large whales

Fate of whale: R = released alive, D = discarded dead or seriously injured, K = kept for sale or specimen. How observed: M = records collected as part of a planned cetacean monitoring programme, F = records collected by onboard fishery monitoring scheme, V = records collected by fishermen through vessel logbooks, A = anecdotal reports from any reliable source, with a further distinction of DA if the latter were documented (e.g. photos, rescue teams). Internationally recognised standard gear description codes from FAO are used where possible.

<table>
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<th>Fate</th>
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<th>Gear</th>
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<td>30.31S 114.45E</td>
<td>R</td>
<td>Lobster</td>
<td>FPO</td>
<td>M</td>
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<td>11/08/2008</td>
<td>Gold Coast</td>
<td>R*</td>
<td>U</td>
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<tr>
<td></td>
<td>Sub-adult</td>
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<td>27/09/2008</td>
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<td>FPO</td>
<td>M</td>
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<td>U</td>
<td>FIX</td>
<td>A</td>
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<td>U</td>
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<td>A</td>
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<td>U</td>
<td>FIX</td>
<td>DA</td>
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<td>18/10/2008</td>
<td>Point Plomer, NSW</td>
<td>U</td>
<td>U</td>
<td>FIX</td>
<td>DA</td>
<td>G. Ross DECC-NSW</td>
</tr>
<tr>
<td>Humpback Whale</td>
<td>U</td>
<td>1</td>
<td>08/11/2008</td>
<td>Green Cape, NSW</td>
<td>U</td>
<td>U</td>
<td>FIX</td>
<td>DA</td>
<td>G. Ross DECC-NSW</td>
</tr>
<tr>
<td>Humpback Whale</td>
<td>U</td>
<td>1</td>
<td>30/08/2008</td>
<td>Sydney South, NSW</td>
<td>U</td>
<td>U</td>
<td>FIX</td>
<td>DA</td>
<td>G. Ross DECC-NSW</td>
</tr>
<tr>
<td>Southern Right whale</td>
<td></td>
<td>1</td>
<td>2/6/08</td>
<td>31:49S 115:43</td>
<td>R</td>
<td>Amateur</td>
<td>FPO</td>
<td>M</td>
<td>D. Coughran DEC-WA</td>
</tr>
</tbody>
</table>

* Rope entangled around tail stock and right fluke. Fluke end had been severed off entirely, plus fluke was cut 90% thru a further ~30cm in toward stock. Rope was cut from whale. Freed whale headed north.

7. STATISTICS FOR SMALL CETACEANS

It was first agreed to include this information in a Commission resolution in 1976 (IWC, 1977, p.31)). Furthermore, in 2005 (IWC, 2006, Annex J) it was agreed that these data should be brought into line with those reported for large cetaceans. Therefore, this Section should be completed using the same guidelines as given in Section 6 above, Statistics for large cetaceans.

7.1 Corrections to earlier years’ statistics for small cetaceans

Nil

7.2 Direct catches of small cetaceans for the calendar year 2008 or the season 2007/08

Nil
### 7.3 Anthropogenic mortality of small cetaceans for the calendar year 2008 or the season 2007/08

#### 7.3.1 Observed or reported ship strikes of small cetaceans (including non fatal events)

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>No.</th>
<th>Date</th>
<th>Location</th>
<th>Vessel type</th>
<th>Speed</th>
<th>Fate</th>
<th>How observed</th>
<th>Contact person/ institute and refs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottlenose dolphin</td>
<td>U</td>
<td>1</td>
<td>30/10/08</td>
<td>Bunbury, WA</td>
<td>Small runabout, outboard motor</td>
<td>U</td>
<td>X</td>
<td>Boat survey during line transect</td>
<td>Holly Smith/MUCRU</td>
</tr>
</tbody>
</table>

#### 7.3.2 Fishery bycatch of small cetaceans

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>No.</th>
<th>Date</th>
<th>Location</th>
<th>Targeted fish species</th>
<th>Gear</th>
<th>How observed?</th>
<th>Source or contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Snubfin dolphin</td>
<td>U</td>
<td>1</td>
<td>23/12/08</td>
<td>-26.4237 153.0843</td>
<td>R Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Australian Snubfin dolphin</td>
<td>F</td>
<td>1</td>
<td>15/07/08</td>
<td>-26.3798 153.0626</td>
<td>R Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Australian Snubfin dolphin</td>
<td>M</td>
<td>1</td>
<td>28/07/08</td>
<td>-26.3992 153.0675</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>F</td>
<td>2</td>
<td>22/03/08</td>
<td>-28.0097 153.4382</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>U</td>
<td>1</td>
<td>24/01/08</td>
<td>-28.0017 153.4387</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>U</td>
<td>1</td>
<td>24/03/08</td>
<td>-28.0265 153.4411</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>M</td>
<td>1</td>
<td>20/05/08</td>
<td>-26.3923 153.0655</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>F</td>
<td>1</td>
<td>26/05/08</td>
<td>-26.3923 153.0655</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>F</td>
<td>1</td>
<td>25/04/08</td>
<td>-25.8949 153.0954</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>U</td>
<td>1</td>
<td>21/05/08</td>
<td>-25.8987 153.0977</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>M</td>
<td>1</td>
<td>26/02/08</td>
<td>Arno Bay, SA 33 55 S, 136 35E</td>
<td>D Kingfish aquaculture MIS (aquaculture cage) F, SAM post mortem</td>
<td>C. Kemper, SAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>1M/1F</td>
<td>2</td>
<td>Oct 08</td>
<td>Pilbara</td>
<td>D Large fish</td>
<td>Otter trawl</td>
<td>Observer/researcher Simon Allen/MUCRU</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>U</td>
<td>1</td>
<td>27/10/08</td>
<td>Sydney</td>
<td>D Sharks</td>
<td>NSC A</td>
<td>Geoffery Ross DEC-NSW</td>
<td></td>
</tr>
<tr>
<td>Pantropical spotted dolphin</td>
<td>U</td>
<td>3</td>
<td>24/01/08</td>
<td>-28.0017 153.4387</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>30/09/08</td>
<td>-27.9633 153.4357</td>
<td>R Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>11/10/08</td>
<td>-28.0564 153.4486</td>
<td>R Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>1XF 1XM</td>
<td>2</td>
<td>11/01/08</td>
<td>-26.3815 153.0891</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
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</tr>
<tr>
<td>Common Dolphin</td>
<td>U</td>
<td>1</td>
<td>06/03/08</td>
<td>-27.9734 153.4360</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>U</td>
<td>1</td>
<td>04/04/20 08</td>
<td>-26.3939 153.0657</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>M</td>
<td>1</td>
<td>04/04/08</td>
<td>-26.3505 153.0612</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>U</td>
<td>1</td>
<td>30/04/08/08</td>
<td>-25.8987 153.0977</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>01/05/05</td>
<td>-27.9734 153.4360</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>05/05/08</td>
<td>-28.0017 153.4387</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>2</td>
<td>22/09/08</td>
<td>-26.3939 153.0657</td>
<td>1XD 1XR Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>05/10/08</td>
<td>-26.3939 153.0657</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>F</td>
<td>1</td>
<td>13/11/08</td>
<td>-28.0498 153.2758</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>M</td>
<td>1</td>
<td>14/11/08</td>
<td>-27.9734 153.4360</td>
<td>D Shark</td>
<td>NSC F</td>
<td>QDPI&amp;F</td>
<td></td>
</tr>
</tbody>
</table>
8. STRANDINGS

New South Wales

Cetaceans are brought to the Australian Registry of Wildlife Health for post mortem at the discretion of the appropriate NSW Coordinator for the Department of Environment and Climate Change.

<table>
<thead>
<tr>
<th>Species</th>
<th>No. strandings</th>
<th>No. post mortems</th>
<th>Contact person(s)/ Institute(s)</th>
<th>Contact email address(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey's Beaked Whale</td>
<td>2</td>
<td>0</td>
<td>Geoffrey Ross, NSW DECC</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a></td>
</tr>
<tr>
<td>Sperm Whale</td>
<td>1</td>
<td>1</td>
<td>Geoffrey Ross, NSW DECC</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a></td>
</tr>
<tr>
<td>Humpback Whale</td>
<td>5</td>
<td>2</td>
<td>Geoffrey Ross, NSW DECC</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a></td>
</tr>
<tr>
<td>Common Dolphin</td>
<td>6</td>
<td>4</td>
<td>Geoffrey Ross, NSW DECC, Jane Hall, ARWH/Mike Cannon, Cannon &amp; Ball Veterinary Clinic</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>; <a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a></td>
</tr>
<tr>
<td>Bottlenose Dolphin</td>
<td>5</td>
<td>1</td>
<td>Geoffrey Ross, NSW DECC, Jane Hall, ARWH</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>; <a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a></td>
</tr>
<tr>
<td>Indo Pacific Bottlenose Dolphin</td>
<td>1</td>
<td>0</td>
<td>Geoffrey Ross, NSW DECC</td>
<td><a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a></td>
</tr>
</tbody>
</table>

Queensland

The Queensland marine wildlife stranding and mortality database (“StrandNet”) summarises all records of sick, injured or dead marine wildlife reported to EPA.

Most records of individual strandings are supplied by EPA and Great Barrier Reef Marine Park Authority (GBRMPA) staff, including those reported via the statewide stranding hotline 1300 130 372. Other records are received directly via members of the public and organisations such as Sea World and Underwater World.

<table>
<thead>
<tr>
<th>Species</th>
<th>No. strandings</th>
<th>No. post mortems</th>
<th>Contact person(s)/ Institute(s)</th>
<th>Contact email address(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humpback whale</td>
<td>8</td>
<td>0</td>
<td>Col Limpus</td>
<td><a href="mailto:col.limpus@epa.qld.gov.au">col.limpus@epa.qld.gov.au</a>; <a href="mailto:jenny.greenland@epa.qld.gov.au">jenny.greenland@epa.qld.gov.au</a></td>
</tr>
<tr>
<td>Minke Whale</td>
<td>1</td>
<td>0</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
<tr>
<td>Blue Whale</td>
<td>1</td>
<td>0</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
<tr>
<td>Common dolphin</td>
<td>1</td>
<td>1</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
<tr>
<td>Unidentified dolphin</td>
<td>9</td>
<td>0</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
<tr>
<td>Short-Finned pilot whale</td>
<td>1</td>
<td>0</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
<tr>
<td>False killer whale</td>
<td>1</td>
<td>0</td>
<td>Col Limpus</td>
<td>As above</td>
</tr>
</tbody>
</table>
**South Australia**

The 2008 stranding list below does not include the records included in anthropogenic categories above. A network of DEH SA, PIRSA and community members report to SAM, even when carcasses are not collected. The contact person for this data is C. Kemper, SAM.

<table>
<thead>
<tr>
<th>Species</th>
<th>No. strandings</th>
<th>No. post mortems</th>
<th>Contact person(s)/ Institute(s)</th>
<th>Contact email address(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Pygmy Right Whale</td>
<td>1</td>
<td>1</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Dolphin</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Bottlenose Dolphin</td>
<td>8</td>
<td>3</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Indo-Pacific Bottlenose Dolphin</td>
<td>8</td>
<td>7</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Short-beaked Common Dolphin</td>
<td>11</td>
<td>7</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Pilot Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Short-finned Pilot Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Long-finned Pilot Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Pygmy Killer Whale</td>
<td>1</td>
<td>1</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Pygmy Sperm Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Sperm Whale</td>
<td>2</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
<tr>
<td>Beaked Whale</td>
<td>1</td>
<td>0</td>
<td>C. Kemper/S.A. Museum</td>
<td>Kemper.Cath@s augov.sa.gov.au</td>
</tr>
</tbody>
</table>

**Tasmania**

Due to the high incidences of strandings in Tasmania, DPIW have a 24hr / 7 days week marine mammal hotline number (0427WHALES) for the public to report strandings and sightings of cetaceans. Strandings are joint managed by the Tasmanian Parks and Wildlife Service (incident control and operational) and DPIW (animal management, rescue and sample collection). The agencies are responsible for strandings throughout Tasmanian, covering 4,882 kms of coastline. No other “networks” are involved with stranding management as with other states. For more information please contact Rosemary Gales, DPIW.

<table>
<thead>
<tr>
<th>Species</th>
<th>No. strandings</th>
<th>No. post mortems</th>
<th>Contact person(s)/ Institute(s)</th>
<th>Contact email address(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ziphius cavirostris (Cuvier's beaked whale)</td>
<td>1</td>
<td>1</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Unidentified dolphin</td>
<td>1</td>
<td>All released</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Tursiops truncatus (Bottlenose dolphin)</td>
<td>2</td>
<td>5</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Stenella coeruleoalba (Striped dolphin)</td>
<td>1</td>
<td>All released</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Balaenoptera acutorostrata (Minke whale)</td>
<td>2</td>
<td>1 (1 released)</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Delphinus delphis (Common dolphin)</td>
<td>5</td>
<td>4 (1 released)</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Globicephala melas (Long-finned pilot whale)</td>
<td>2</td>
<td>224 (43 released)</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Mesoplodon grayi (Gray's beaked whale)</td>
<td>1</td>
<td>1</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Physeter macrocephalus (Sperm whale)</td>
<td>1</td>
<td>1</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
<tr>
<td>Caperea marginata (Pygmy right whale)</td>
<td>1</td>
<td>1</td>
<td>R.Gales / DPIW</td>
<td><a href="mailto:Rosemary.gales@dpiw.tas.gov.au">Rosemary.gales@dpiw.tas.gov.au</a></td>
</tr>
</tbody>
</table>

**Victoria**

Strandings along the Victorian coastline were attended by Kate Charlton-Robb (Monash University), David Donnelly (DRI) and members representing Victorian Strandings Network, Zoos Victoria and the Melbourne Museum. Specimens (skulls) collected will be incorporated into the Melbourne Museum IWC report.

DSE provides opportunistic reports for Western Victoria during 2008. Photographs available.
### Western Australia

Opportunistically strandings are received by DEC-WA offices from staff members and members of the public. Wherever possible a site visit is arranged to assist the animal to return to sea, to confirm identification and to determine the cause of death (if applicable). Stranding reports are entered into a centralised database once identification has been confirmed. Identification is undertaken by experienced staff in person if possible. If not possible, then less experienced observers are requested to provide photographs, measurements, teeth counts and/or DNA.

#### Murdoch University Cetacean Research Unit

Response is opportunistic and when individuals are recovered necropsy is performed at Murdoch University Veterinary School. If carcass is fresh, gross internal examination with pathology and histology analyses are performed. If carcass has advanced decomposition, then only morphometrics and genetic samples (skin/blubber) are taken according to DEC-WA and DEWHA protocols.

<table>
<thead>
<tr>
<th>Species</th>
<th>No. strandings</th>
<th>No. post mortems</th>
<th>Contact person(s)/ Institute(s)</th>
<th>Contact email address(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottlenose dolphin</td>
<td>4</td>
<td>1</td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Dwarf Sperm whale</td>
<td>1</td>
<td></td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Humpback whale</td>
<td>13(*1)</td>
<td>1</td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Pygmy Sperm whale</td>
<td>2</td>
<td></td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Sperm whale</td>
<td>1</td>
<td></td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Spinner dolphin</td>
<td>1</td>
<td>1</td>
<td>D. Coughran, DEC-WA</td>
<td><a href="mailto:douglas.coughran@dec.wa.gov.au">douglas.coughran@dec.wa.gov.au</a></td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>4 (*2)</td>
<td>3</td>
<td>MUCRU</td>
<td><a href="mailto:h.smith@murdoch.edu.au">h.smith@murdoch.edu.au</a></td>
</tr>
<tr>
<td>Striped dolphin</td>
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<td>0</td>
<td>MUCRU</td>
<td><a href="mailto:h.smith@murdoch.edu.au">h.smith@murdoch.edu.au</a></td>
</tr>
<tr>
<td>Shepherd’s beaked</td>
<td>1</td>
<td>0</td>
<td>MUCRU</td>
<td><a href="mailto:l.bejder@murdoch.edu.au">l.bejder@murdoch.edu.au</a></td>
</tr>
</tbody>
</table>

(*1) Two of the 13 humpback whales stranded were euthanased

(*2) Details for 4 bottlenose dolphins as follows:

- January 4 year old calf was found Koombana Bay stranded with fatal shark bite wound, necropsy performed.
- April Adult female found Leschenault Estuary necropsy performed cause of death inconclusive, neonate found genetic sample taken no necropsy performed decomposition advanced.
- August juvenile/adult Male found Collie River necropsy performed death attributed to severe infection and lung abscess.
- December 2008 striped dolphin calf found Buffalo Beach north of Bunbury advanced decomposition, genetic samples and morphometrics taken no necropsy performed

### Northern Territory

A major activity in 2008 in the Northern Territory was the establishment of Wildlife Watch (1800 453 941) by NRETAS which is a combination of a stranding hotline, wildlife interactions (eg fisheries in NT waters) and wildlife sightings reporting system. Ray Chatto is the lead person and can be contacted on the above number.

### 9. OTHER STUDIES AND ANALYSES-

**Assessment of mortality of dolphins in North Spencer Gulf (Kemper, Tomo SAM, Hamer SARDI, Bossley and Warhurst WDCS, Miller Flinders University, Gibbs Macquarie University)**. The mortality of dolphins in North Spencer Gulf has been monitored since 1990. Since 2001 a substantial increase in deaths has been noted and some of these are known entanglements in kingfish aquaculture farms near Whyalla. A multidisciplinary research project is being planned that will involve assessing this mortality and the abundance of common and bottlenose dolphins in the region. The aquaculture industry will be approached to support this study.

**Beaked whale conservation genetics and molecular systematics- Dalebout/UNSW**. M. L. Dalebout (UNSW) continued her research on the molecular systematics and conservation genetics of beaked whales (Family
Ziphiidae). Sequences from seven non-coding nuclear genes (introns; 3348 base pairs) were used to construct a robust and highly resolved phylogeny for 13 of the 14 recognised *Mesoplodon* species (missing *M. traversii*), which was then used as a framework to test predictions from four hypotheses seeking to explain patterns of tusk morphology and/or the processes that have driven the diversification of this genus (Dalebout et al. 2008).

Work is also ongoing regarding the divergent mtDNA lineage identified by Dalebout et al. (2007) from specimens in the tropical Indo-Pacific; related to *M. ginkgodens* (ginkgo-toothed beaked whale), this lineage may represent a previously-unrecognised species. Molecular and morphological work are in progress determine the taxonomic status of the specimens concerned (Dalebout et al. In prep.).

For *Ziphius cavirostris* (Cuvier’s beaked whale), a large-scale project expanding on the work of Dalebout et al. (2005) is in progress. Over 500 specimens have been sampled for the current study, representing populations throughout the worldwide distribution of this species (approx. 75% of samples are from museum collections). Mitochondrial DNA markers are being used to look at regional population structure with the aim of identifying appropriate units for conservation. DNA sequences have been obtained from the majority of samples and analyses are in progress (Dalebout et al. In prep.).

**Bottlenose dolphin studies, WA.**

- Dr J. Mann  
  Behaviour and communication in bottlenose dolphins in Shark Bay
- K. Wenziker  
  Ecology of Indo-pacific humpback dolphins and bottlenose dolphins in Ningaloo Marine Park. PhD project
- Dr. B. Sherwin  
  Genetic study of bottlenose dolphins.
- H. Smith  
  Behavioural variation in the bottlenose dolphin associated with managed eco-tourism interaction, Shark Bay and Bunbury, WA. PhD project

**Cause/circumstance of death of SA cetaceans (Kemper, Tomo SAM, Byard University of Adelaide, Adelaide Mount Lofty NRM).** The Dolphin Trauma Group continues to study dead dolphins from Gulf St Vincent Bioregion and has been awarded funding as part of a Caring For Our Country grant to study marine debris in Gulf St Vincent. This is due to start in mid 2009. The marine mammal component will be directed by C. Kemper, SAM and will entail studying the carcasses of dead cetaceans as well as summarizing samples and pathology collected during the last 18 years. Some toxic contaminant research may also be undertaken related to this project.

**Climate variability and southern right whale reproduction (Rebecca Pirzl).** Australian southern right whale annual calf output and anomalous (>3 year) calving intervals were analysed in relation to variability in summer and winter Southern Oscillation Index (SOI), Southern Annular Mode (SAM) and sea ice extent (SIE), with lags of up to 6 years. Warm (El Nino) events were associated with reduced calf production 2.5-3 years later and extended intervals between successful calving events were linked to variability in SAM.

**Development of the computer-based fluke-matching software ‘Fluke Matcher’.** Dr Eric Kniest (University of Newcastle), Daniel Burns and Prof. Peter Harrison continued the development of the computer-based fluke-matching software ‘Fluke Matcher’. This software increases the efficiency of matching humpback whale flukes and is based on the transformation of fluke images to scale and orientate each fluke using five standard control points. Each fluke is entered into the database and includes measurement of various characteristics of the fluke including the shape (angles and distances), percentage of black in various regions of the fluke, thickness of the black band along the trailing edge, and positions of various features on the fluke including spots, lines and scars to identify the individual. The database can be queried to search for matching flukes, with the results being displayed in order from most likely to least likely match. The system has been tested using 440 photographs of 194 whales collected in Hervey Bay (E Aust) from 1994-2006. Results showed the system greatly increases efficiency of matching humpback whale fluke photographs. The description and results of tests of the system have been included in a manuscript that has been submitted to a peer-reviewed journal for publication.

A grant from the Australian Marine Mammal Centre for 2009 to further increase efficiency and finalise the development of the program, as well as to produce a user manual, will result in ‘Fluke Matcher’ being made freely available to interested parties at the completion of the project.

**Dwarf minke whale project (JCU).** For details please contact Dr Alastair Birtles, Team Leader for the Minke Whale Project, James Cook University, Tourism Program, QLD 4811, tel: 07 4781 4736.

**Impacts of vessels on Humpback Whale behaviour – Cape Solander, Sydney, NSW.** Maryrose Gulessarian from the Marine Mammal Research Group, Macquarie University completed her third and final season of data collection, to assess the impacts of vessels on migratory humpback whale behaviour. Whales were tracked during their northern migration using a theodolite and real-time tracking software, Cyclopes®, from Cape Solander in Botany Bay National Park, Sydney. Whales are tracked before, during and after encounters with
vessels. In 2008, 174 pods were tracked over a sampling period of 49 days. Data such as direction of travel, speed and pod size were also recorded.

The 2008 season also saw the addition of an extra component, as the construction of Sydney’s desalination plant commenced within the study area. The positioning of the intake and outlet pipelines overlapped the main migratory corridor off the study site, raising concerns about the possible impacts that the underwater construction may have on the whales. Therefore, in addition to investigating whale-vessel interactions, all construction activities were monitored and tracked for separate analysis. The data will form the basis of a manuscript exploring the behavioural reactions of migrating humpback whales to underwater construction activities.

Investigating dolphin mortality in the South Australian Sardine Fishery (Hamer, Tomo, Kemper and Gibbs, SARDI). This project is assessing the injuries and biology of Short-beaked Common Dolphins that have died in the fishery and been collected for necropsy (n = 27). It will provide a forensic validation of known cause of death (e.g. entanglement in purse seine fishery) that can be used to establish cause of death for dolphin carcasses washed up in South Australia. This may give a more realistic minimum mortality rate associated with the industry. Carcasses are also being assessed for life history status, including aging by tooth structure. SARDI are also involved in monitoring the bycatch through an observer program.

Long term acoustic monitoring of South of Australia & Southern Ocean waters— J. Gedamke, AMMC; Long term acoustic records are being analysed to determine the seasonal presence of blue and fin whales. Data has been collected from acoustic recorders along a line of longitude south of Australia to offshore of Dumont D’Urville, on the Antarctic Continent, the Cape Leeuwin hydrophone array for Comprehensive Nuclear Test Ban Treaty Organization, and at locations off eastern Antarctica (Prydz Bay, Kerguelen Plateau). All instruments will allow assessment of seasonal presence of vocal whales and seals along large north-south and east-west ranges.

Long term humpback whale monitoring (CWR). A long term monitoring programme to determine the risk of displacing resting humpback whales in Exmouth Gulf was begun in 2000 (Jenner and Jenner, 2005). A population modelling component using genetic and photo-id data was added in 2007. An ACAAMS grant was secured in 2008 to use Distance modelling to estimate population size for Breeding Population D whales. Calculations will be completed by August 2009.

Lung nematode epidemic in common dolphins (Tomo, Kemper SAM). A publication is nearing completion that summarizes this event and the long-term dataset on carcass studies. The event lasted about 2 years and involved the death of many calf and juvenile Short-beaked Common Dolphins from South Australia. This study has been discussed in past reports to the IWC.

National Centre for Aging Marine Mammals- (SA Museum). An international student (Elena Trentin, Istituto di Biologia e Genetica Università Politecnica delle Marche, Italy) carried out a project that aged 76 T. aduncus from South Australia. All of the dolphins collected from the eastern side of Gulf St Vincent were aged, including 9 animals that had been individually identified in the study of the Port River dolphins by M. Bossley and one that was captive at Marineland of South Australia for 24 years. The oldest dolphins were 28 years, with many estimated to be 2 years or less. Elena also studied sexual maturity in males and concluded that males became mature after they reached 210 cm at 9 to 12 years of age. In general, testes greater than 170 mm long and 200 g were mature.

An Honour’s student from La Trobe University, Kylie Owen, was trained at the facility in January 2009 for her study of isotopes in bottlenose dolphins from Victoria and Tasmania.

Oceanographic influences on the distribution of Caperea marginata (Kemper, Middleton and Van Ruth). This project was described in last year’s report. It has progressed to draft manuscript stage.

Oceanographic influences on cetacean strandings and sightings in South Australia (Segawa, Kemper, Seuront, Flinders University). Tomo Segawa has commenced an Honours project that aims to analyse trends in the stranding and sighting record for South Australia and relate these to oceanographic variation. The Museum has about 1200 strandins records and 3000 sightings.

Optimising survey designs for Antarctic circumpolar cetacean abundance studies— (AMMC). This work builds on the survey design framework in Hedley et al. (2007b) and Peel et al. (2008), dealing with CVs of minke whale abundance that could potentially be obtained from future shipboard line transect surveys in the Antarctic (for example, but not restricted to, IDCR/SOWER). We use simplified spatial models to analyse the IDCR/SOWER CP2 and CP3 data, split by latitude band. We then use the results to infer what precision (CV) would be obtained from various modified survey designs in future, if the data were analysed using spatial
models. Improvements upon the analysis methods presented previous papers presented to the SCIWC (above) include more realistic representation of sea ice concentrations and edges and geometry of line transects upon a curved spherical surface.

**Report on depredation mitigation devices (AFMA).** Relevant research projects to which AFMA co-invested funds and administered include: PROJECT REPORT (R02/0923)-Testing of acoustic tracking system for toothed whales around longline and gillnet fishing gear, and preliminary trials of depredation mitigation devices for longline fisheries (September 2003). This Report was produced for the Eastern Tuna Management Advisory Committee, Southern and Western Tuna and Billfish Management Committee and Australian Fisheries Management Authority.

**Summary of cetacean permits current in 2008 (GBRMPA).** The maximum allowable number of 9 permits remains current (first issued in 2003) for tourist programs that include the swim-with-dwarf minke whale activity in the Ribbon Reef Sector and Offshore Port Douglas Sector of the Marine Park.

Six permits were current for the conduct of a research program involving whales or dolphins:

- The study of dwarf minke whales (*Balaenoptera acutorostrata*) in the northern Great Barrier Reef and opportunistic observation of other cetacean species – permit expires 31 July 2010.
- A six and final year of the Dwarf Minke Whale Tourism Monitoring Program Research Contract began in the 2008 dwarf minke whale season (June-August).

**Acoustic and surface behaviour of coastal dolphins in Queensland- Alvare Berg (UQ).** The research aims to investigate schooling dynamics, social structure and spatial-use patterns; the relationship between the acoustic and surface behaviour of each species; and the response of dolphins to acoustic stimuli including acoustic alarms (pingers) used to reduce by-catch in gill nets and acoustic modems used by marine scientists. Research methods involve land based photographic identification and video monitoring and deployment of acoustic alarms and acoustic modems.

**Taxonomy of *Turisiops spp.* in Australasia (Kemper, SA Museum).** This study began with a morphological description of South Australian bottlenose dolphin skulls during the late 1990s and early 2000s. Specimens have now been measured from all other states and New Zealand. It is envisaged that the data analysis will begin in late 2009. There is an urgent need to resolve the species boundaries of this difficult genus, at least in the Australasian region, in light of recent genetic publications.

**Whale Disentanglement workshop (DEC-WA & DEWHA).** Western Australia co-hosted the Australian Large Whale National Disentanglement workshop with DEHWA at Hillarys 14-15 April 2008. D. Coughran also ran a National large whale disentanglement accreditation course at Port Macquarie 29-30 July 2008 for NSW NPWS.

### 10. LITERATURE CITED


11.2 Unpublished literature

All activities undertaken by the Marine Mammal Conservation Unit are reported annually for the period of the financial year. Reports can be obtained on request from Rosemary Gales, DPIW-TAS.