

Australia. Progress report on cetacean research, January 2009 to December 2009, with statistical data for the calendar year 2009

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Note: Data presented here are compiled from federal and state agencies, research organizations, and individual researchers who respond to a request for information. It is based upon submissions received, and as such, is not a complete record of research undertaken in Australia, and data that are reported are often based upon unpublished records.

1. SPECIES AND STOCKS STUDIED

| IWC common name | IWC recommended scientific name | Area/stock(s) | Items referred to |
|---|---|--|--|
| <u>MYSTICETES</u> | | | |
| Blue whale (Antarctic and/or pygmy forms) | <i>Balaenoptera musculus (brevicauda)</i> | SA; WA; VIC | 2.1.1; 2.1.2; 2.2; 3.1.1; 4.1; 4.3; 6.3.1, 6.3.2; 8; 9 |
| Bryde's whale | <i>Balaenoptera edeni</i> | East Coast | 8 |
| Fin whale | <i>Balaenoptera physalus</i> | SA | 4.2; 6.3.1; 8 |
| Humpback whale | <i>Megaptera novaeangliae</i> | Breeding Stock D & E; Group IV & V; NSW; NT; SA; VIC; WA | 2.1.1, 2.1.2, 2.2; 4.1; 4.3; 6.3; 6.3.1, 6.3.2; 7.3.2; 8, |
| Minke whale, Antarctic | <i>Balaenoptera bonaerensis</i> | East Antarctic | 2.11; 2.2; 8; 10; 11.2 |
| Minke whale, Dwarf | <i>Balaenoptera acutorostrata</i> | NSW; QLD; WA; Eastern Australia; Southern Ocean; TAS | 2.1.1, 2.1.2; 2.2; 3.1.1; 3.2; 4.1; 8; 9; 11.1; 11.2 |
| Right whale, Pygmy | <i>Caperea marginata</i> | SA; TAS; WA | 4.3, 8, 9 |
| Right whale, Southern | <i>Eubalaena australis</i> | NSW; SA; SE Australia; WA | 2.1.1, 2.1.2; 2.2, 3.1.1, 4.1; 6.3; 6.3.1; 6.3.2; 10, 11.1, 11.2 |
| Unid. baleen whale | Unidentified Mysticeti | TAS | 2.1.2 |
| <u>ODONTOCETES</u> | | | |
| Andrew's beaked whale | <i>Mesoplodon bowdoini</i> | NSW | 8 |
| Australian snubfin dolphin | <i>Orcaella heinsohni</i> | QLD; NT | 2.1.1, 2.2, 3.1, 8; 9 |
| Blainville's beaked whale | <i>Mesoplodon densirostris</i> | NSW | 4.3; 8 |
| Bottlenose dolphin, Common | <i>Tursiops truncatus</i> | Coral Sea; NSW; SA; TAS; VIC | 2.1.1; 4.3, 8, 9; 7.3.2, 8, |
| Bottlenose dolphin, Indo-pacific | <i>Tursiops aduncus</i> | QLD; NSW; SA | 3.1.1; 4.2; 4.3; 7.2; 7.3.1; 7.3.2; 8; 9 |
| Bottlenose dolphin | <i>Tursiops spp.</i> | NSW; NT; SA; VIC; WA; | 2.1.1; 2.2; 3; 3.1.1; 4.3; 4.4; 5; 7.3.2; 8; 9; 11.2 |
| Common dolphin, Short-beaked | <i>Delphinus delphis</i> | Australia; QLD; NSW; SA; Southern Ocean; TAS; VIC | 2.1.1; 2.2; 3.1.1; 4.2; 4.3; 7.3.2; 8; 11.2 |
| Cuvier's beaked whale | <i>Ziphius cavirostris</i> | NSW | 4.3; 8 |
| Dwarf sperm whale | <i>Kogia simus</i> | NSW; WA | 8 |
| False killer whale | <i>Pseudorca crassidens</i> | Coral Sea; QLD; NSW; NT; SA | 2.1.1, 2.2; 4.3; 8, 11 |
| Fraser's dolphin | <i>Lagenodelphis hosei</i> | Coral Sea | 2.1.1 |
| Ginkgo-toothed beaked whale | <i>Mesoplodon ginkgodens</i> | NSW | 4.3 |
| Gray's beaked whale | <i>Mesoplodon grayi</i> | TAS; WA | 4.3, 8 |
| Hector's beaked whale | <i>Mesoplodon hectori</i> | WA | 4.3, 8 |
| Indo-pacific humpback dolphin | <i>Sousa chinensis</i> | QLD; NT | 2.1.1, 2.2, 3.1, 4.3; 8; 9 |
| Killer whale | <i>Orcinus orca</i> | Australia; East Antarctic; SA; Southern Ocean; TAS; VIC | 2.1.1; 2.1.2; 2.2; 10; 11.2 |
| Melon headed whale | <i>Peponocephala electra</i> | Australia; Coral Sea; QLD | 2.1.1, 2.1.2, 2.2; 8 |
| Pantropical spotted dolphin | <i>Stenella attenuata</i> | Australia | 7.3.2; 8 |
| Pilot whale, Long-finned | <i>Globicephala melas</i> | Australia; Southern Ocean; TAS; VIC; WA | 2.1.1, 2.2, 3.1.2, 4.3, 6.3.2; 8 |
| Pilot whale, Short-finned | <i>Globicephala macrohynchus.</i> | Australia, NSW; QLD | 2.1.2; 6.3.2; 8; 4.3 |
| Pilot whale | <i>Gobicephala spp.</i> | Australia; Coral Sea | 2.1.1; 2.1.2; 2.2 |
| Pygmy killer whale | <i>Feresa attenuata</i> | NSW | 4.3; 8 |
| Pygmy sperm whale | <i>Kogia breviceps</i> | East Coast | 8 |
| Risso's dolphin | <i>Grampus griseus</i> | TAS; WA | 2.1.2; 4.3; 8 |

| | | | |
|----------------------------|-------------------------------|---|---|
| Sperm whale | <i>Physeter macrocephalus</i> | Australia; Coral Sea; QLD; SA; TAS; Southern Ocean; VIC; WA | 2.1.1; 2.1.2; 2.2; 4.1; 4.3; 8; 9; 11.2 |
| Spinner dolphin | <i>Stenella longirostris</i> | Coral Sea; QLD | 2.1.1; 7.3.2; 8 |
| Strap-toothed beaked whale | <i>Mesoplodon layardii</i> | WA | 8 |
| Striped dolphin | <i>Stenella coeruleoalba</i> | SA; TAS | 4.3 |
| Unid beaked whale | | Australia; Coral sea | 2.1.1; 2.1.2; 2.2 |
| Unid. cetacean | | TAS | 2.1.2 |
| Unid. dolphin | | SA | 7.3.2; 8 |
| Unid. large whale | | Australia | 6.3.2 |

2. SIGHTINGS DATA

2.1 Field work

2.1.1 Systematic

| Target species | Date | Area | No. of sightings | Contact person/institute and references |
|---|------------------------|--|---|--|
| Australian snubfin; Indo-pacific humpback; bottlenose dolphin | 2009 monthly (ongoing) | Alligator Rivers Region, Kakadu National Park, Darwin Harbour, Cobourg Peninsula, NT | | Carol Palmer/NRETAS |
| Australian snubfin; Indo-pacific humpback; bottlenose dolphin | Oct 2009 | Sir Edward Pellew Islands | 9 | Helene Marsh/JCU |
| Beaked whale | July 2009 | Coral Sea | 3 | R. Dunlop/UQ (in prep) |
| Blue whale | 17 Jan 2009 | Bonney Upwelling - Aerial surveys | 20 | Peter Gill/BWS |
| Blue whale | 1 Sep 09-14 Dec 09 | Geographe Bay | Approx 98 | Chris Burton/WWR –Land surveys |
| Blue whale | 10/11/09-12/12/09 | Geographe Bay | Approx 20 | Chris Burton & Luciana Moller/WWR –Small vessel biopsy surveys |
| Bottlenose dolphin | Jan-Nov 2009 | Bunbury, Western Australia | 196 individuals (238 group encounters) | Holly Smith/MUCRU |
| Bottlenose dolphin | 2009 | Bunbury (Preston-Binningup), Western Australia | | Valissa Buchanan/MUCRU |
| Bottlenose and Common dolphins (*1) | 7 Jan 09 – 19 Oct 09 | Port Phillip/Western Port | 29 | Kate Charlton-Robb/DRI&Monash; Sue Mason/DRI; David Donnelly/DRI |
| Bottlenose dolphin (*1) | 07 Jul 09-12 Nov 09 | Gippsland Lakes | 11 | Kate Charlton-Robb/DRI&Monash; Sue Mason/DRI; David Donnelly/DRI |
| Bottlenose dolphin, Common | July 2009 | Coral Sea | 45+ | R. Dunlop/UQ (in prep) |
| False killer whale | July 2009 | Coral Sea | 15 – 20 | R. Dunlop/UQ (in prep) |
| Humpback whale (*1) | 21 Sep 09 | Port Phillip | 1 | Sue Mason/DRI |
| Humpback whale (*2) | 2 Jun – 18 Oct 09 | Logan's Beach - whale viewing platform | Data compilation not yet complete (includes repeat sightings of same individuals) | M. Watson/DSE |
| Humpback whale (*4) | 24 May -31 Jul 09 | Cape Solander, NSW | 1908 | CSWMS |
| Humpback whale | July 2009 | Coral Sea | 10 | R. Dunlop/UQ (in prep) |
| Humpback whale | 1 Sep 09-14 Dec 09 | Geographe Bay | Approx 1000 | Chris Burton/WWR – Land and small vessel surveys |
| Humpback whale | 12 Oct 09 – 05 Nov 09 | Norfolk Island | 20 | A. Oosterman/NIWS (Oosterman, Whicker & Garbett 2010) |
| Humpback whale | 21 Jul - 25 Aug 2009 | Port Douglas/Cairns and the Whitsunday Islands | 127 | Greg Kaufman/PWF |
| Humpback whale (*5) | 6 Aug – 16 Oct 2009 | Hervey Bay | 883 | Trish and Wally Franklin/TOP |
| Killer whale | 16-31 Dec 2009 | Antarctica-Vincennes Bay and Davis Sea | 49 | N. Kelly/AMMC |

| | | | | |
|-----------------------------|--------------------|--|---|--|
| Minke whale | 1 Sep 09-14 Dec 09 | Geographe Bay | Approx 4 | Chris Burton/WWR – Land and small vessel surveys |
| Minke whale, Antarctic (*3) | 16-31 Dec 2009 | Antarctica-Vincennes Bay and Davis Sea | 14 | N. Kelly/AMMC |
| Pilot whale | July 2009 | Coral Sea | 77+ | R. Dunlop/UQ (in prep) |
| Right whale, Southern (*2) | 2 Jun – 18 Oct 09 | Logan's Beach - whale viewing platform | Data compilation not yet complete (includes repeat sightings of same individuals) | M. Watson/DSE |
| Right whale, Southern | September 2009 | Southern Australian coast between C Leeuwin (WA) and Ceduna (SA) | 782 animals (244 cow/calf pairs) | J Bannister/WAM (ref Bannister 2010) |
| Right whale, Southern | 1 Sep 09-14 Dec 09 | Geographe Bay | Approx 30 | Chris Burton/WWR – Land and small vessel surveys |
| Sperm whale | July 2009 | Coral Sea | 1 | R. Dunlop/UQ (in prep) |
| Spinner dolphin | July 2009 | Coral Sea | 80+ | R. Dunlop/UQ (in prep) |
| Various | 2009 | Southern Ocean west of Tasmania | Common dolphin (3); Killer whale (1); Minke whale (1); Pilot whale, long-finned (2); Sperm whale (2); | K.Evans/UTAS |

Notes

(*1) *Common and bottlenose dolphin population surveys (DRI & Monash)*. The DRI and Monash conducted surveys on the resident common and bottlenose dolphin populations in Port Phillip throughout 2009, on the bottlenose dolphin population in the Gippsland Lakes in July and November 2009 and the bottlenose dolphin population in Western Port during January and February of 2009. Dorsal fin photographs were collected for the purpose of identifying individuals, in addition other areas of the dolphins' bodies were deliberately photographed as a means of assessing gross health. Behavioural data was also collected during surveys. No biopsy samples were collected during 2009 (previously collected by Kate Charlton-Robb of Monash University). Researchers conducted 18 surveys from the DRI's research vessel. A total of 32 bottlenose dolphin pods, 8 common dolphin pods and 1 humpback sub-adult pair were observed during surveys completed in 2009.

(*2) *DSE surveys*. Surveys carried out by DSE and trained volunteers up to 4 hrs per day (2 hrs AM, 2 hrs PM) every day between June and October at Logan's Beach viewing platform, Warrnambool, VIC.

(*3) *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 run for three 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 small-scale survey was conducted over Vincennes Bay near Casey station in eastern Antarctica (66° 17' S 110° 32' E). During the third (and currently final) season (2009/10) a full-scale aerial survey was conducted across Vincennes Bay in the east and stretching to seas/polynyas around Shackleton Ice Shelf (centred around 66° S 100° E) and the east sections of the Davis Sea (centred around 66° S and 90° E) in the west. During both the small-scale and full-scale aerial surveys, a systematic survey design with north-south orientated transects was implemented, covering a wide range of sea ice concentrations and habitats. Around the Shackleton Ice Shelf and the Davis Sea, zigzag transects were implemented. Although this aerial survey was targeting Antarctic minke whales, many killer whales were also observed (ecotype undecided). Analyses are on-going. It should be noted that the aerial survey for the 2009/10 continued into 2010. All survey effort and sightings encountered after 31 December, 2009 are not included here and will be reported in next year's Progress report.

(*4) *Cape Solander Whale Migration Study (CSWMS)*. Between the 24th of May and the 31st of July 2009, 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 68 days were surveyed during the 2009 northern migration season. Weather data was also recorded on an hourly basis. A total of 1908 humpback whales were sighted. The data collected by community volunteers provides a baseline to the species and numbers of cetaceans that migrate past the coast, the approximate preferred distance offshore, and average pod size. It also provides information on the peak periods of migration and the percentage annual increase/decrease in the recovering population numbers.

(*5) *The Oceania Research Project – Long-term humpback whale study, Hervey Bay 1992-2009*. The Oceania Project conducted the 20th year of fieldwork of a long-term survey of humpback whales in Hervey Bay. Boundaries of the survey area are Rooney's Point, Fairway Buoy, Coongul Creek and west coast of Fraser Island

within the Whale Management & Monitoring Area of the Great Sandy Marine Park. The survey is being conducted under scientific permit WITK01192903.

The 2009 survey was undertaken from a 12-metre vessel for 60 days between August 6th and October 16th 2009 involving a total 480 hours of effort. Observations were made on 883 individual Humpbacks in 386 pods. A total of approximately 7000 Photo-id photographs were obtained, 15 hours of behavioural DV-CAM video. A total of 69 x 15 min systematic samples of humpback song and social sounds were recorded between 6th August and 16th October. In addition 13 sloughed skin samples were obtained. Systematic observational data of humpback pods included date, time, GPS positions, number of individuals, composition & behaviour. Photography of ventral flukes, lateral body colouration patterns and left and right dorsals were obtained as well as behavioural video and systematic samples of whale song and social sounds.

2.1.2 Opportunistic, platforms of opportunity

| Primary species | Area | Data type/method | Collected by | Platform | Location of archive (if applicable) | Contact person/institute and refs |
|-------------------------|--------------------------|--|---|---|-------------------------------------|---|
| Blue whale | Victoria | Opportunistic (15 recorded sightings) | Mandy Watson, DSE staff, other reliable sources | Aircraft during search for entangled Blue whale SW Victoria | DSE, Warrnambool | Mandy Watson/DSE |
| Humpback whale (*1) | Port Phillip, VIC | Photo-ID*; sightings | crew | Coxswain training vessel | *DRI | David Donnelly/DRI |
| Humpback whale (*2) | Port Douglas/Cairns, QLD | Photo-ID*; sightings | Scientists | Research vessel & whalewatching vessel | *PWF (Hawaii) | G. Kaufman/PWF |
| Humpback whale | Whitsunday Islands, QLD | Photo-ID*; sightings | Scientists | Research vessel | *PWF (Hawaii) | G. Kaufman/PWF |
| Humpback whale | Hervey Bay, QLD | Photo-ID*; sightings | Scientists | Research vessel & whalewatching vessel | *PWF (Hawaii) | G. Kaufman/PWF |
| Humpback whale | Eden, NSW | Photo-ID*; sightings | Scientists | Research vessel & Whalewatching vessel | *PWF (Hawaii) | G. Kaufman/PWF |
| Humpback whale | Norfolk Island | Sightings | A.Oosterman and volunteers | land stations and charter vessel | NIWS | A.Oosterman/NIWS; Oosterman, Whicker & Garbett (2010) |
| Humpback Whale | SA | Opportunistic | public | various | SAM | Catherine.Kemper/SAM |
| Humpback whale | Victoria | Opportunistic (19 recorded sightings) | Mandy Watson, DSE staff, other reliable sources | Land based eg: Logans Beach viewing platform and other locations along Victorian coast | DSE, Warrnambool | Mandy Watson/DSE |
| Humpback whale | Byron Bay | Photo-ID; | Dedicated observer | Whale watching vessel | SCUWRC | P Beeman/SCUWRC |
| Humpback whale | Tweed Heads | Photo-ID | Pro. photographer | Whale watching vessel | SCUWRC | P Beeman/SCUWRC |
| Killer Whale | SA | Opportunistic | public | various | SAM | Catherine.Kemper/SAM |
| Killer whale | Victoria | Opportunistic (2 recorded sightings) | Mandy Watson, DSE staff, other reliable sources | Land based – Logans Beach viewing platform, Warrnambool, Victoria | DSE, Warrnambool | Mandy Watson/DSE |
| Minke whale, Dwarf (*3) | Northern GBR | Photo-ID; behavioural observation; sightings | Primarily scientists + vessel crew | whalewatching vessel | JCU | Dr A. Birtles/JCU |
| Right whale, Southern | Victoria | Opportunistic (176 recorded sightings) | Mandy Watson, DSE staff, other reliable sources | Aircraft, and land based eg: Logans Beach viewing platform, and other locations along Victorian coast | DSE, Warrnambool | Mandy Watson/DSE * South-east Australian Southern Right Whale Photo-identification Catalogue |
| Right whale, Southern | SA | Opportunistic | public | various | SAM | Catherine.Kemper/SAM |

| | | | | | | |
|----------------------|-----------|------------------------------|-------------------|--|---------------|-----------------------|
| Various species (*4) | Australia | Logbook comment | Skipper | Commercial Fishing Vessel | AFMA database | Justine Johnston/AFMA |
| Various species (*4) | Australia | Observer Whale Sighting Form | Observer | Commercial Fishing Vessel | AFMA database | Justine Johnston/AFMA |
| Various species (*5) | TAS | Sightings | staff public crew | Light plane, shore, whalewatching vessel | N/A | R. Gales/DPIPWE |

Notes

(*1) Common and bottlenose dolphin population surveys (DRI & Monash). During 2009 no opportunistic data was collected by DRI on resident the bottlenose or common dolphins of Port Phillip, the resident bottlenose dolphins of Western Port or the Gippsland Lakes. Fluke identification photos of humpbacks briefly visiting Port Phillip were taken opportunistically on one occasion while a researcher was onboard a training vessel. DRI continues to build its community dolphin-sighting network, which has resulted in the regular recording of dolphin sightings within most of Victoria's coastal waters including Port Phillip, Western Port and the Gippsland Lakes. The number of sightings being contributed by the public has been lower in this past year when compared to previous years. It is believed that this is due to fewer contributions by members of the public not the decrease in dolphin abundance.

(*2) Pacific Whale Foundation (PWF). PWF annually conducts vessel-based research along the East Coast of Australia to document the locations of humpback whales, primarily mothers with a calf. Observations were conducted from a 6.2 m XL ARIB (rigid hull inflatable) or from a whale watch vessel when indicated. Data was collected opportunistically in the form of digital photographs, digital audio recordings, and real time observations recorded on pre-formatted data sheets.

(*3) James Cook University Dwarf Minke Whale Project. Observations were recorded by researchers who were provided space on five tourist dive vessels (live-boards: *Undersea Explorer, Taka, Spoil Sport; SeaFever and Phoenix*). Days on an individual vessel ranged from 12 to 36 (total of 74 researcher days at sea). Additional whales seen when researchers were not on board were reported on Whale Sighting Sheets.

Over 200 Whale Sighting Sheets were received from more than 10 tourism vessels operating in the northern and central Great Barrier Reef. All day and live-aboard dive vessels running swim-with whale programs have submitted WSS (return of these has been a GBRMPA permit requirement since 2003 season). Analyses of those returns are still ongoing.

(*4) Australian Fisheries Management Authority (AFMA). Opportunistic reports from skippers include: killer whale (21), humpback whale (n=1), unidentified pilot whale (6), common dolphin (1), and unidentified whale (28). Opportunistic reports from observers include: humpback whale (46), killer whale (2), long-finned pilot whale (12), melon-headed whale (3), minke whale (5), short-finned pilot whale (6), and sperm whale (4). Note: Some sightings may have been reported by both skipper and observer.

(*5) Department of Primary Industries, Parks and Water Whale Hotline (DPIPWE-TAS). DPIPWE 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, the sightings data presented encapsulates reports from agency staff undertaking dedicated cetacean work (e.g. attending strandings or sighting events), 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. Only reliable data are reported. 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. If doubt occurs over species identification, species are allocated as unidentified and classified with the following, dependent on the information available (Unidentified Cetacean, Unidentified Mysticeti, Unidentified Delphinidae, Unidentified Ziphiidae, Unidentified Phocoenidae, Unidentified Odontoceti). The numbers of whales sighted presented in this table may not represent the number of discrete individuals due to lack of photo-ID for all individuals, chances of multiple sightings of the same individuals over large spatial scales and return on migratory paths. Please see section 3.1.1 for references to the agencies photo ID program for southern right whales and humpback whales. Staff refers to agency staff, public relates to sightings provided by members of the public from shore based vantage points, whilst crew refers to either fisherman or to one of a number eco-tour operators that call in sightings on a regular basis. Reported sightings include: minke (1 sighting, 2 animals), southern right whales (25 sightings, 42 animals), humpback whales (62 sightings, 146 animals), killer whales (15 sightings, 37 animals), risso's dolphin (1 sighting, 1 animal), unidentified cetacean (1 sighting, 1 animal), unidentified baleen whale (2 sightings, 2 animals).

2.2 Analyses/development of techniques

| Target species | Date | Area | Methods/effort | Parameters/ factors measured | Contact person/institute; refs |
|---|-------------------|---|--|---|---|
| Australian snubfin, Indo-pacific humpback, bottlenose dolphin | 2008 | Western NT | Boast-based surveys, genetic samples, photo-ID | Population estimate, genetic analysis | Carol Palmer/NRETAS |
| Australian snubfin, Indo-pacific humpback, bottlenose dolphin | 2008 | Gulf of Carpentaria, Sir Edward Pellew Islands, NT | Boast-based surveys, genetic samples, photo-ID | | Helene Marsh/JCU, Guido Parra/SARDI |
| Blue whale | 2002-07 | Bonney Upwelling & adjacent waters | Habitat modeling (GLM) & within-season movement (density kernel estimation) from 69 aerial surveys | Depth, SST, chl- <i>a</i> , SST gradient, chl- <i>a</i> gradient, dist to 200m, dist to shore | Peter Gill/BWP; Paper in prep. |
| Bottlenose dolphin | 2007-2009 | Bunbury (Peppermint Beach-Binningup) | Line transect/photo-identification | Population estimate; sighting frequency; habitat use | Holly Smith/MUCRU |
| Humpback whale | 12/10/09-05/11/09 | Norfolk Island | land-based and vessel-based surveys | numbers observed, behaviour, weather statistics | A. Oosterman/NIWS; Oosterman, Whicker & Garbett (2010) |
| Humpback whale | 2010 | Entire GBRMP | Analysis of previous sighting data from the Eye on the Reef Database and interviews with skippers who work in the GBRMP. | Determining the extent to which humpback whales utilise the waters of the Great Barrier Reef Marine Park | Dr Mike Noad/UQ |
| Humpback whale (*1) | 21/7/09-16/8/09 | Port Douglas/Cairns, QLD | Photo-ID surveys | Distribution; Population estimate; Calving rates and intervals | G. Kaufman/PWF |
| Humpback whale (*1) | 21-25/8/09 | Whitsunday Islands, QLD | Photo-ID surveys | Distribution; Population estimate; Calving rates and intervals | G. Kaufman/PWF |
| Humpback whale (*1) | 27/8/09-19/9/09 | Hervey Bay, QLD | Photo-ID surveys | Distribution; Population estimate; Calving rates and intervals | G. Kaufman/PWF |
| Humpback whale (*1) | 23/9/09-22/10/09 | Eden, NSW | Photo-ID surveys | Distribution; Population estimate; Calving rates and intervals | G. Kaufman/PWF |
| Killer whale | 16-31/12/2009 | Antarctica-Vincennes Bay and Davis Sea | Line transect survey; double-platform | Distribution; sighting frequency; school size; sea ice concentrations; habitat | N. Kelly/AMMC; Hedley et al. (2007a), Kelly et al. (2008), Kelly et al. (2009b) |
| Minke whale, Antarctic | 16-31/12/2009 | Antarctica-Vincennes Bay and Davis Sea | Line transect survey; double-platform | Distribution; sighting frequency; school size; sea ice concentrations; habitat | N. Kelly/AMMC; Hedley et al. (2007a), Kelly et al. (2008), Kelly et al. (2009) |
| Minke whale, Dwarf - other species on opportunistic basis | 2003-present | Northern GBR (primarily offshore from Cairns, Port Douglas, Cooktown, Lizard Is.) | GBR Minke Whale Sightings Network (Whale Sighting Sheets) | Species, location, date, time, type and duration of encounter, weather & sea conditions, behaviours observed | Dr A. Birtles/JCU; Mark Read/GBRMPA |
| Minke whale, Dwarf | 2010 | Northern GBR/Ribbon Reef area | Summary report produced from the previous six years of whale watching datasheets and targeted research | Whale behaviour; population demographics including size, sex ratio and descriptors of population size | Dr Alastair Birtles/JCU |
| Right whale, Southern | 09/09 | Southern Australia, Cape Leeuwin (WA) –Ceduna (SA) | Aerial survey | Annual percentage increase rate 1993-2009: All animals 7.17 (95% CI 3.92, 10.54), cow/calf pairs 7.51 (3.18, 12.02). Est. pop size for area surveyed 2530, 'Australian' population ca 3000. | J Bannister/WAM; Bannister 2010 |

| | | | | | |
|---|-------|---------------------------------|---|---|---------------|
| Various species (beaked, sperm, pilot, false killer whale/other blackfish) | 07/09 | Coral Sea | Line transect survey/ visual and acoustic (towed array and drift loggers) | Distribution; sighting frequency, click frequency | R. Dunlop/UQ |
| Various species (sperm, minke, killer, long-finned pilot whale, common dolphin) | 2009 | Southern Ocean west of Tasmania | Line transect survey | Distribution; sighting frequency | K. Evans/UTAS |

Notes

(*1) *Pacific Whale Foundation (PWF)*. For the 2009 season, there was a total research effort of 441.3 hours on the water and 7122.72 km distance travelled. Sites were located along the east coast of Australia (Port Douglas/Cairns, QLD; Whitsunday Islands, QLD; Hervey Bay, QLD; Eden, NSW), and included areas in Queensland and New South Wales (Please contact PWF for detailed breakdown of each individual site) see below for a breakdown of each individual site). In 68 days of field effort there was a total of 314 pods of whales sighted (including affiliations and disaffiliations), which were comprised of 756 animals. Mean pod size was 2.4 whales. 135.84 hours were spent observing whales (31% of field effort), with approximately 11 (total) animals observed each day. Using photographic identification techniques, 307 unique whales were identified. To date, 274 of these animals have been reconciled to the catalogue, 46 were re-sights to the catalogue and 228 were new animals added to the catalogue.

(*2) *The Oceania Project (TOP)*. TOP's photography in Hervey Bay for 2009 has been recorded in the field notes log, and archived on CD. The Hervey Bay Fluke catalogue, reconciled within and between seasons, for the period 1992-2006 consists of 20751 flukes. The photo-id analysis and intra-, inter-season reconciliation for 2007, 2008 and 2009 will be completed by late-2010. Statistical analysis of the 1992-2005 dataset has been completed for group characteristics and group behaviour. The 1992-2009 re-sight dataset will be completed and ready for CMR analysis by late-2010.

3. MARKING DATA

3.1 Field work

3.1.1 Natural marking data

| Species | Feature | Area/stock | No. photo-id'd | Catalogue (Y/N) | Catalogue total | Contact person/institute; refs |
|---|------------------------------|--|---|-----------------|-----------------|--|
| Australian snubfin; Indo-Pacific humpback; bottlenose dolphin | 2008 | Western NT | Boat-based surveys, genetic samples; Photo-ID | | | Carol Palmer/NRETAS |
| Australian snubfin, Indo-Pacific humpback, bottlenose dolphin | 2008 | Gulf of Carpentaria, Sir Edward Pellew Islands, NT | Boat-based surveys, genetic samples, photo-ID | | | Helene Marsh/JCU, Guido Parra/SARDI |
| Blue whale | Lateral markings/ dorsal fin | Southern Australia | 25 | Y | ~70 | Margie Morrice/BWS |
| Blue whale | lateral | Geographe Bay, WA | 13 | N | 170 | Chris Burton/WWR – land and small vessel surveys |
| Bottlenose dolphin | Dorsal fin | Bunbury (Peppermint Beach-Binningup) | 196 | Y | 196 | Holly Smith/MUCRU |
| Bottlenose dolphin | Dorsal fin | Bunbury (Preston-Binningup) | | | | Valissa Buchanan/MUCRU |
| Bottlenose dolphin | Dorsal fin | Port Phillip | Analysis continuing | Y | 110 | Sue Mason/DRI |

| | | | | | | |
|----------------------------------|--|---|--|---|--|--|
| Bottlenose dolphin | Dorsal fin | Gippsland Lakes | Analysis underway | Y | 30 | Kate Charlton-Robb – Monash/DRI; Sue Mason/DRI |
| Bottlenose dolphin, Indo-pacific | Dorsal fin | SA | | | | Mike Bossley/WDCS |
| Common dolphin | Dorsal fin | Port Phillip | Analysis underway | Y | 12 | Sue Mason/DRI |
| Humpback whale | Flukes | Port Douglas/Cairns, QLD (Group V/B.S. E) | 24 | Y | 4,854 | G. Kaufman/PWF |
| Humpback whale | Flukes | Whitsunday Islands, QLD (Group V/B.S. E) | 21 | Y | 4,854 | G. Kaufman/PWF |
| Humpback whale | Flukes | Hervey Bay, QLD (Group V/B.S. E) | 100 | Y | 4,854 | G. Kaufman/PWF |
| Humpback whale | Flukes | Eden, NSW (Group V/B.S. E) | 161 | Y | 4,854 | G. Kaufman/PWF |
| Humpback Whale | Flukes | Perth, Exmouth, Shark Bay, WA (Group IV/BS D) | 0 | Y | 765 | G. Kaufman/PWF |
| Humpback whale | Flukes; L&R Dorsal fin/Lateral Body marks | Area V/Hervey Bay | 833 | Y | 2075 (1992-2006); Approx 28251 (1992-2009) | Trish & Wally Franklin/ TOP |
| Humpback whale | Fluke | Geographe Bay, Western Australia | 20 | N | 2000 | Chris Burton/WWR – land and small vessel surveys |
| Humpback whale | Lateral | Geographe Bay, Western Australia | 25 | N | 2500 | Chris Burton/WWR – land and small vessel surveys |
| Humpback whale | Fluke | Group E (i) | 110 | Y | 322 | P Beeman/SCUWRC |
| Minke whale | Lateral | Geographe Bay, Western Australia | 1 | N | | Chris Burton/WWR – land and small vessel surveys |
| Minke whale, Dwarf | L&R thorax region; plus scar; other unique features. | Northern GBR | For 2009: 12 whales identified; analysis ongoing | Y | So far (seasons 2006, 2007 and 2008); 383 complete ID's | Alastair Birtles/JCU; S. Soltzick/JCU. |
| Right whale, Southern | Head callosity pattern | Southern Australia, Cape Leeuwin (WA) – Ceduna (SA) | 488 digital photos selected for matching to existing catalogue | N | 5826 images 1976-2009, with ca 1300 individuals recognised so far (mainly to 2005) | J Bannister/WAM; Bannister 2010 |
| Right whale, Southern | Head callosity | SE Australia | 36 individuals | Y | 130min | Mandy Watson/DSE |
| Right whale, Southern | Callosity aerial | SE Aus | 7 | Y | 91 | R. Gales/DPIPWE |

3.1.2. Artificial marking data

DPIPWE-TAS attach approved floy “spaghetti” tags on individuals (5 bottlenose dolphin and 27 long-finned pilot whale) released alive at a stranding event on King Island 01/03/2009.

3.1.3 Telemetry data

| Species | Tag type | No. successfully deployed | Maximum time transmitting | Contact person/institute; refs |
|------------|-----------|---------------------------|---------------------------|---|
| Blue whale | Satellite | 3 | 137 days | N. Gales, Australian Antarctic Division |

| | | | | |
|-----------------------|-----------|----|----------|--|
| Humpback whale | Satellite | 38 | 108 days | N. Gales, Australian Antarctic Division |
| Right whale, Southern | Satellite | 6 | 170 days | N. Gales, Simon Childerhouse Australian Antarctic Division |

3.2 Analyses/development of techniques

(*1) *Dolphin Research Institute (DRI)* - Processing of identification images and subsequent analyses is continuing.

(*2) *James Cook University Dwarf Minke Whale Project (JCU)*. Analyses of the 2009 photo-identification data are still ongoing. Based on initial results, there were at least 9 within-season re-sightings and 12 between season re-sightings.

(*3) *Pacific Whale Foundation (PWF)*. Fluke identification photographs are first matched within-season and the best photograph of each individual is selected and then matched to the overall catalogue. The photographs and accompanying data enable us to produce sighting histories of known individuals. All images are then scored according to the Cascadia Research Collective's fluke image screening criteria (Calambokidis et al. 2008). Data is used to generate capture-mark-recapture (CMR) history profiles for post-yearling individual humpback whales observed at each of our field sites. Maximum likelihood estimates of annual survival, recapture and movement probabilities are derived from these CMR data sets using the Cormack-Jolly-Seber (CJS) modeling approach (Lebreton et al. 1992). These capture probabilities are used to derive population abundance estimates via a Manly-Parr type maximum likelihood estimator (Manly & Parr 1968; Seber 1982). 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 and are currently being updated to include 2008 and 2009. Analyses of rates of interchange across several sites within eastern Australia, and between east Australia and west Latin America, and West Australia are currently underway.

(*4) *The Oceania Project (TOP)*. Trish and Wally Franklin as PhD Candidates at Southern Cross University have analysed photo-id data for fourteen-year period 1992-2005. The respective focus of their PhD work is the 'Social and ecological significance of Hervey Bay to the Area V humpback whales' and 'An investigation into genetic relatedness amongst humpback whales in Hervey Bay'. Emeritus Professor Peter Baverstock, Professor Peter Harrison, Director, Southern Cross University Whale Research Centre and Dr Phil Clapham, Adjunct Professor, Southern Cross University Whale Research Centre are supervising their PhD work (see refs).

4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

4.1 Biopsy samples (summary only)

| Species | Area/stock | Calendar year/ season - no. collected | Archived (Y/N) | No. analysed | Total holdings | Contact person/institute |
|--|-----------------------|---|-------------------|-----------------|----------------|---|
| Australian snubfin, Indo-pacific humpback, bottlenose dolphin | Western NT | 2008 | Y | ? | ? | Carol Palmer/NRETAS |
| Blue whale | Sthn Aust | 11 | Y | 11 | unsure | L. Möller/Flinders Uni |
| Bottlenose dolphin | Bunbury, WA | 2009 (23) | Y | Not yet | 91 | Simon Allen, Claire Daniels, Lars Bejder/MUCRU |
| Bottlenose dolphin | Albany, WA | 2009 (12) | Y | Not yet | Simon Allen | Simon Allen, Claire Daniels, Lars Bejder/MUCRU |
| Bottlenose dolphin | Mandurah, WA | 2009 (11) | Y | Not yet | 30 | Simon Allen, Claire Daniels, Lars Bejder/MUCRU |
| Bottlenose dolphin | Augusta, WA | 2009 (5) | Y | Not yet | 12 | Simon Allen, Claire Daniels, Lars Bejder/MUCRU |
| Bottlenose dolphin | Swan River, WA | 2009 (4) | Y | Not yet | 16 | Hugh Finn/MUCRU |
| Bottlenose dolphin | Exmouth, WA | 2009 (5) | Y | Not yet | 5 | Simon Allen & Lars Bejder/MUCRU |
| Bottlenose dolphin | Cockburn Sound, WA | 2009 (4) | Y | Not yet | 18 | Hugh Finn/MUCRU |

| | | | | | | |
|-----------------------|-------------------------------------|-----------|---|------------------------|------|---------------------------------------|
| Bottlenose dolphin | Pilbara, WA | 2009 (39) | Y | Not yet | 91 | Simon Allen/MUCRU |
| Humpback whale | Area V Hervey Bay | 13 | Y | 846 | 1464 | Wally Franklin/TOP |
| Humpback whale | Group V Breeding Stock E (ii) | pre-2009 | | | 7 | M. Anderson/SCU; W. Franklin/SCU |
| Minke whale, Dwarf | Northern GBR | 2 | Y | 0; sloughed skin | c.50 | Dr A. Birtles/JCU. |
| Right whale, Southern | Warmambool /SE Australia | 3 | Y | | | Rob Harcourt/MQ |
| Sperm whale | Southwest Pacific | 2009 - 3 | N | 3 | 3 | Luciana Moller/Flinders University |

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

| Species | Area/stock | Tissue type(s)* | No. collected | Archived (Y/N) | No. analysed | Contact person/institute |
|---------------------------------|------------|--|---------------|----------------|--------------|--------------------------|
| Common Dolphin, Short-beaked | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants | 8 | Y | 0 | C. Kemper/SAM (*1) |
| Fin Whale | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants | 1 | Y | 0 | C. Kemper/SAM (*1) |
| Indo-Pacific Bottlenose Dolphin | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants | 4 | Y | 0 | C. Kemper/SAM (*1) |

Notes

(*1) *South Australian Museum (SAM)*. The 'samples from directed catches' list includes: 1. Entanglement probable – for example, animals with net marks/injuries and/or that have had flippers or flukes removed, and full stomachs and sometimes food in the oesophagus, suggesting a sudden death; 2. Entangled in tuna farm anti-predator net; 3. Entanglement in other types of net or line; 4. Accidental or intentional injury by humans. Genetic tissues includes: blood, liver, kidney, muscle, skin; toxic contaminants include: liver, kidney, muscle, blubber. Complete sets of tissue samples were not collected from all animals because in some cases the state of decomposition made this inappropriate.

4.3 Samples from stranded animals

| Species | Area/stock | Tissue type(s)* | No. collected | Archived (Y/N) | No. analysed | Contact person/institute |
|---------------------------------|-------------------------------|---|---------------|----------------|---------------------------------|--|
| Australian snubfin dolphin | Sir Edward Pellew Islands, NT | skin | 1 | Y | | Ray Chatto/NRETAS ; Guido Parra /SARTI SA |
| Blainville's beaked whale | Birdie Beach, NSW | Skull, skeleton, muscle tissue | 1 | Y | | Sandy Ingleby/Australian Museum |
| Blue whale (washed up 08/04/09) | Bass Strait, VIC | Skin, blubber, eye, intestinal contents, muscle, bone fragment from injured area, sample from possible foetus | 2 | Y | 1 skin sample analysis underway | David Donnelly/DRI. Samples sent to and stored at Melbourne Museum Catherine Attard/MU (skin sample analysis) |
| Blue whale, Pygmy | Rye Back Beach, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |

| | | | | | | |
|---|--|---|----------------------------------|---------|--|---|
| Bottlenose dolphin, Indo-Pacific | Northern NSW | Skin, teeth | 1 | Y | 0 | Christine Fury/SCU |
| Bottlenose dolphin, Indo-pacific | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants (*I) | 9 | Y | 0 | C. Kemper/SAM |
| Bottlenose dolphin | Moreton Bay, QLD | Skin | 3 | | | Janet Lanyon/UQ |
| Bottlenose dolphin | Portland Harbour, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Bottlenose dolphin | Gippsland Lakes, Jubilee Head, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Bottlenose dolphin (Stranding 22/02/09) | Coastal Victoria (Apollo Bay), VIC | Skin, blubber, kidney, liver, melon | 2 | Y | sample analysis underway | Kate Charlton-Robb/DRI /Monash |
| Bottlenose dolphin (01/07/09) | Coastal Victoria (Portland), VIC | Brain, liver, kidney, teeth, blubber, skin. | 1 | Y | sample analysis underway | Alissa Monk/DRI/Monash |
| Bottlenose dolphin (Stranded 16/08/09) | Gippsland Lakes (Jubilee Pt) , VIC | Skin, blubber, left pectoral | 1 | Y | sample analysis underway | Kate Charlton-Robb – DRI / Monash |
| Bottlenose dolphin (Stranding 2/10/09) | Gippsland Lakes (Bunga Arm), VIC | Skin, blubber | unknown | Not yet | will be analysed once collected | Kate Charlton-Robb – DRI / Monash (Samples currently with DSE Barnesdale). |
| Bottlenose dolphin | Bunbury, WA | Skin, blubber (10), teeth (6) organs: liver, kidneys, lung, heart, gonads (3) stomach (5) | 10 | Y | 3 (PM) Histology & pathology complete Genetic analysis pending | Nahiid Stephens (pathology) Lars Bejder (genetics)/MU; Holly Smith (teeth histo)/MU |
| Bottlenose dolphin | Claisebrook Cove (Windan Brg) Swan River, WA | Pathology work undertaken | 1 | | | Doug Coughran/DEC |
| Bottlenose dolphin | Belvidere Conservation Park, WA | DNA | 1 | | | Doug Coughran/DEC |
| Bottlenose dolphin | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants (*I) | 1 | Y | 0 | C. Kemper/SAM |
| Bottlenose dolphin, Common | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants (*I) | 1 | Y | 0 | C. Kemper/SAM |
| Bottlenose dolphin (W2141) | Sunshine Coast, QLD | Necropsy conducted | 1 | | | Australian Wildlife Hospital |
| Bottlenose dolphin (W2171) | Moore Park, QLD | skin | 1 | | | Col Limpus/DERM, |
| Bottlenose dolphin | Bass Strait, TAS | Skin, blubber, teeth | Skin (2), blubber (2), teeth (2) | Y | | R. Gales/DPIPWE |
| Bottlenose dolphin | NSW | Skull and frozen muscle tissue | 1 | Y | | Sandy Ingleby/Australian Museum |

| | | | | | | |
|---------------------------------------|------------------------------------|---|--|---|---|-------------------------------------|
| Common dolphin, Short-beaked | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants (*I) | 8 | Y | 0 | C. Kemper/SAM |
| Cuvier's beaked whale | Resolute Beach near Pittwater, NSW | Skulls | 2 | Y | | Sandy Ingleby/Australian Museum |
| False killer whale (2228) | Sunshine Coast, QLD | Autopsy | 1 | | | Australian Wildlife Hospital |
| Ginko-toothed beaked whale | Wairo Beach, NSW | Skull, skeleton, frozen muscle tissue | 1 | Y | | Sandy Ingleby/Australian Museum |
| Gray's beaked whale | TAS | Blubber, muscle, skin, stomach, dorsal fin | Blubber (4), muscle (2), skin (6), stomach (2), dorsal fin (2) | Y | | R. Gales/DPIPWE |
| Hector's beaked whale | Walpole, WA | DNA | 1 | | | Doug Coughran/DEC |
| Humpback whale | WA | Skin | 1 | | | Doug Coughran/DEC |
| Humpback whale | SA | Some genetic issues (*I) | 1 | N | 0 | C. Kemper/SAM |
| Humpback whale | Gold Coast, QLD | Skin | 1 | | | Susan Bengton-Nash/UQ |
| Humpback whale (W2143) | Gold Coast, QLD | Blubber, baleen | 1 | | | David Blyde, Col Limpus/DERM, |
| Humpback whale (w2144) | Sunshine Coast, QLD | Blubber, skin, baleen | 1 | | | Col Limpus/DERM, |
| Humpback whale | TAS | Skin | 2 | Y | | R. Gales/DPIPWE |
| Indo-Pacific humpback dolphin (W2191) | Sunshine Coast, QLD | Necropsy conducted | 1 | | | Australian Wildlife Hospital |
| Indo-pacific humpback dolphin (W2175) | Moore Park, QLD | Skin, organs, brain, stomach contents | 1 | | | Col Limpus/DERM, |
| Indo-pacific humpback dolphin W2177 | Moreton Island, QLD | Skin, blubber | 1 | | | Col Limpus/DERM, |
| Indo-pacific humpback dolphin W2214 | Moreton Bay, QLD | Skin, blubber | 1 | | | Col Limpus/DERM, |
| Pilot whale, Long-finned | Victoria, Potter's Hill Beach | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Pilot whale, Long-finned | Victoria, Kilcunda Beach | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Pilot whale, Long-finned | Williamson's Beach, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Pilot whale, Long-finned | Express Point, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Pilot whale, Long-finned | Dimmick's Beach, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Pilot whale, Long-finned | Augusta, Hamelin Bay, WA | Skin, blubber | 50 dead, 11 alive, | Y | 0 | Doug Coughran/DEC; Peter Spencer/MU |
| Pilot whale, Long-finned | WA | DNA sample | | | | Doug Coughran |

| | | | | | | |
|---|--------------------------------------|---|--|---|---|--|
| Pilot whale, Long-finned (believed to be wash ups from King Island, TAS mass stranding) | Bass Strait, VIC | Blubber, skin, teeth | 3 | Y | 0 | Collected by David Donnelly/ – DRI. Samples sent to and stored at Melbourne Museum |
| Pilot whale, Long-finned | Bass Strait, TAS | Skin, blubber, teeth, stomach | Skin (5), blubber (116), teeth (101), stomach (7) | Y | | R. Gales/DPIPWE |
| Pilot whale, Short-finned (W2127) | Fraser Island, QLD | skin | 1 | | | Col Limpus/DERM |
| Pygmy killer whale | Racecourse Beach near Ulladulla, NSW | | 1 | Y | | Sandy Ingleby/Australian Museum |
| Pygmy right whale | SA | Genetic tissues, reproductives, stomach and intestines, toxic contaminants (*1) | 1 | Y | 0 | C. Kemper/SAM |
| Pygmy right whale | TAS | Blubber, skin, stomach, muscle | Blubber (1), skin (1), stomach (1), muscle (1) | Y | | R. Gales/DPIPWE |
| Risso's dolphin | Leschenault Estuary, Bunbury, WA | Skin, blubber | 1 | Y | 1 | Doug Coughran/DEC; Peter Spencer/MU |
| Risso's dolphin | WA | DNA sample | 1 | | | Doug Coughran/DEC |
| Sperm whale | Nelson, VIC | Muscle | 1 | Y | 0 | Rory O'Brien/MV |
| Sperm Whale (W2138) | Moreton Bay, QLD | Skin, vertebrae | 1 | | | Steve van Dyck/QM Col Limpus/DERM, |
| Sperm whale | TAS | Jaws, skin, blubber, muscle, stomach | Jaws (37), skin (47), blubber (39), muscle (30), stomach (5) | Y | | R. Gales/DPIPWE |
| Strap-toothed beaked whale | Warnbro Sound, WA | Skin | 1 | | | Doug Coughran/DEC |
| Striped dolphin | TAS | Skin, blubber, stomach | Skin (1), blubber (1), stomach (1) | Y | | R. Gales/DPIPWE |
| Striped dolphin | NSW | Skull and frozen muscle tissue | 1 | Y | | Sandy Ingleby/Australian Museum |

Notes

(*1) *South Australian Museum (SAM)*. The 'samples from stranded animals' list includes: 1. Unknown - no information, too decomposed, incomplete specimen; 2. Diseased – e.g. significant parasites, heart disease, infection; 3. Live stranding - put back to sea and died, euthanased, died after stranding; 4. Other natural – e.g. choked on shark, starved, neonatal death, predator (killer whale, shark). Genetic tissues includes: blood, liver, kidney, muscle, skin;; toxic contaminants include: liver, kidney, muscle, blubber. Complete sets of tissue samples were not collected from all animals because in some cases the state of decomposition made this inappropriate.

4.4 Analyses/development of techniques

Dolphin Research Institute (DRI). During 2009, no additional bottlenose dolphin biopsy samples were collected. The samples collected during 2006-2008 are in the final stages of being processed within the CESAR lab at Monash University, as a part of the 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.

The Oceania Project (TOP). 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 2010.

5. POLLUTION STUDIES

Dolphin Research Institute (DRI). During 2008, Alissa Monk's Honours study found that mercury levels in the bottlenose dolphins that stranded along the Victorian coastline were three times higher than that of the live, resident dolphins of Port Phillip and the Gippsland Lakes. She suggested that these elevated contaminate levels are high enough to negatively affect the health of small cetaceans and gives strong evidence that the concentrations of mercury could compromise the health and survival of these genetically unique coastal dolphin populations. Ms Monk is continuing her research at Monash University for her PhD. She aims to continue to monitor contaminants levels; investigate trophic transfer of contaminants and investigate the health effects of contaminants on dolphins. Tissue and organs samples collected from bottlenose dolphins stranded along the Victorian coastline during 2009 will be part of this continuing research. Further details can be obtained by emailing alissa.monk@sci.monash.edu.au.

South Australian Museum (SAM). The project conducted by Honour's student at Flinders University (Lailie Maloney) on PCBs and bone structure of SA dolphins was inconclusive because of difficulties in 1) methods at a commercial laboratory and 2) variable PCB concentrations from different parts of the blubber sample of the same animals. No further analysis of samples has been undertaken. The time has come to promote the collection of toxic contaminant tissues more widely within Australia. It would be beneficial for the SA Museum and federal agencies to discuss the collection's uses and future.

The Oceania Project – Long-term Water Quality Monitoring Program, Hervey Bay Marine Park 1993-2008
During the 2006 humpback season The Oceania Project undertook the 14th year of Chlorophyll A sampling for a long-term habitat and water quality monitoring program, in the Whale Management and Monitoring Area of the Hervey Bay Marine Park. The program is being conducted in conjunction with Andrew Moss, Environment Division, Queensland Environment Protection Agency. Weekly triplicate Chlorophyll A samples were obtained from 6 structured geographical areas within the Hervey Bay Marine Park between August 5th and October 15th 2006. Outcomes of the first five years of monitoring (1993/1997) and the eleven years of monitoring (1993-2003) are published in: "Queensland Department of Environment & Heritage, Environmental Technical Report No 23: Hervey Bay Report - Chlorophyll-a Sampling by The Oceania Project, Andrew Moss and Julie Kocovski, ISSN 1037-4671 RE271, July 1998". "Long-term monitoring of chlorophyll-a in Hervey Bay, Queensland (1993-2003) by The Oceania Project"; See: <http://www.epa.qld.gov.au/publications?id=1771>

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 2009 or the season 2008/09

Nil

6.3 Anthropogenic mortality of large whales for the calendar year 2009 or the season 2008/09

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

Type of vessel, e.g. High-speed Ferry (HSF), Large Cargo (LC), Military (M), Fishing Vessel (FV), Passenger Carrying Excursion (PC), Other (O). Fate: Indicate if the whale swam away (X), appeared seriously injured (I), killed (D). Example given.

| Whale species | Sex | No. | Date | Location | Vessel type | Speed | Fate | How observed | Contact person/ institute and refs |
|---------------------------------|-----|-----|----------|---------------------------------|-------------|---------|------|-------------------|------------------------------------|
| Blue whale | F | 1 | 08/4/09 | Rye Ocean Beach. | U | U | U | Washed up | Dave Donnelly/DRI |
| Fin whale (*1) | F | 1 | 2/10/09 | 34° 26' 80" S: 138°14' 50" E | U | U | D | SAM post mortem | C. Kemper/SAM |
| Humpback whale (*2) | U | 1 | 28/7/09 | -25°31'S, 154°06'E | FV | unknown | X,I | Skipper | Justine Johnston/AFMA |
| Humpback whale (*3) | U | 1 | 2/09/09 | Exmouth Gulf, Western Australia | FV | U | U | crew | Doug Coughran/DEC-WA |
| Humpback whale (*4) | U | 1 | 26/10/09 | Fremantle, WA | M | U | D | crew | Doug Coughran/DEC-WA |
| Right whale, Southern calf (*5) | U | 1 | 12/09/09 | Ulladulla NSW | PC | fast | D | Gross examination | Event #896 Geoff Ross/DECCW |

(*1) Post mortem indicated possible vessel collision
(*2) Whale swam away bleeding heavily.
(*3) private fishing recreation vessel struck the whale
(*4) Struck by HMAS Perth. Observed floating with blood and no movement afterwards. Presumed dead
(*5) Severely impacted upper jaw and cranium

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), targeted fish species (e.g. tuna, herring, etc.). 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 etc.). Internationally recognised standard gear description codes from FAO are used where possible.

| Whale species | Sex | No. | Date | Location | Fate | Targeted fish species | Gear | How observed? | Source or contact |
|-----------------|-----|-----|--------------|---|---------|-----------------------|------------------------------------|------------------|-------------------------------|
| Blue whale | U | 1 | 3 Feb 2009 | 3 nm SW of Petrified forest, Cape Bridgewater | Unknown | Southern Rock Lobster | Pot rope | A | Mandy Watson/DSE |
| Humpback whale | U | 1 | 27/9/09 | 28°03.917'S; 153° 27.063 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 1/9/09 | 28°09.518'S; 153° 31.993 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 3/10/09 | 28°09.518'S; 153° 31.993 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 8/10/09 | 28°02.353'S; 153° 26.692 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 13/10/09 | 28°04.984'S; 153° 27.580 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 7/11/09 | 28°02.353'S; 153° 26.692 | R | Shark Control Program | Net | V | QDPI&F |
| Humpback whale | U | 1 | 14/6/09 | -34°13'S; 113°36'E | R | Tuna | LLD | V | Justine Johnston/AFMA |
| Humpback whale | | 1 | 13/ 07/2009 | Flinders Bay, Augusta, WA | Alive | <i>Incidental</i> | MIS ¹ | Entanglement - A | Doug Coughran/DEC |
| Humpback whale | | | 25/ 06/ 2009 | Grey - 10km west in 20 fathoms, WA | Dead | <i>Incidental</i> | Derelict Fishing Gear ² | Entanglement - A | Doug Coughran/DEC |
| Humpback whale | | | 2/ 08/ 2009 | North West Cape, Light house, WA | Alive | <i>Incidental</i> | MIS ³ | Entanglement - A | Doug Coughran/DEC |
| Humpback whale | | | 20/10/2009 | Green Head, WA | Dead | <i>Incidental</i> | Derelict Fishing Gear ⁴ | Entanglement - A | Doug Coughran/DEC |
| Humpback whale* | U | 1 | 16 July 2009 | Off Blowholes, Cape Bridgewater | R | Southern Rock Lobster | Pot rope | A - DA | Mandy Watson/DSE |
| Humpback whale | U | 1 | 11/05/09 | SouthWest Rocks, NSW | NRA | <i>U</i> | FPO | DA | Geoff Ross/DECCW (Event #978) |

| | | | | | | | | | |
|----------------------------|---|---|--------------|-----------------------------|------|-----------------------|----------|----|--------------------------------|
| Humpback whale | U | 1 | 16/06/09 | Forster, NSW | NRA | U | MIS | A | Geoff Ross/DECCW (Event #979) |
| Humpback whale | U | 1 | 23/06/09 | Jervis Bay, NSW | NRA | U | LX | DA | Geoff Ross/DECCW (Event #981) |
| Humpback whale | U | 1 | 1/07/09 | Byron Coast, NSW | NRA | U | LX | DA | Geoff Ross/DECCW (Event #1030) |
| Humpback whale | U | 1 | 10/07/09 | Cape Solander, NSW | NRA | U | LX | DA | Geoff Ross/DECCW (Event #982) |
| Humpback whale | U | 1 | 12/07/09 | Pacific Palms, NSW | R | U | FIX | DA | Geoff Ross/DECCW (Event #747) |
| Humpback whale | U | 1 | 19/07/09 | Tweed Heads, NSW | NRA | U | FIX | A | Geoff Ross/DECCW (Event #990) |
| Humpback whale | U | 1 | 4/08/09 | Coffs Harbour, NSW | NRA | U | FIX | DA | Geoff Ross/DECCW (Event #751) |
| Humpback whale | U | 1 | 26/08/09 | Port Macquarie, NSW | R | U | LX | DA | Geoff Ross/DECCW (Event #818) |
| Humpback whale | U | 1 | 26/08/09 | Jervis Bay, NSW | NRA | U | NK | A | Geoff Ross/DECCW (Event #991) |
| Humpback whale | U | 1 | 3/09/09 | Solitary Islands, NSW | R | U | FIX | DA | Geoff Ross/DECCW (Event #975) |
| Humpback whale | U | 1 | 12/09/09 | Arwarra Headland, NSW | R | U | FIX | DA | Geoff Ross/DECCW (Event #895) |
| Humpback whale | U | 1 | 14/09/09 | Brooms Head, NSW | NRA | U | NK | DA | Geoff Ross/DECCW (Event #898) |
| Humpback whale | U | 1 | 15/09/09 | North Solitary Islands, NSW | NRA | U | NK | DA | Geoff Ross/DECCW (Event #974) |
| Humpback whale | U | 1 | 29/09/09 | Urunga, NSW | NRA | U | NK | DA | Geoff Ross/DECCW (Event #992) |
| Humpback whale | U | 1 | 30/09/09 | Brooms Head, NSW | NRA | U | NK | DA | Geoff Ross/DECCW (Event #993) |
| Humpback whale | U | 1 | 11/10/09 | Cabbage Tree Island, NSW | R | U | FIX | DA | Geoff Ross/DECCW (Event #948) |
| Pilot whale, Short-finned | U | 1 | 14/10/09 | -18°71'S; 154°95'E | R | Tuna | LLD | V | Justine Johnston/ AFMA |
| Pilot whale, Short-finned | U | 1 | 1/12/09 | -20°10'S; 154°63'E | R | Tuna | LLD | V | Justine Johnston/ AFMA |
| Pilot whale, Short-finned | U | 1 | 9/12/09 | -18°23'S; 155°85'E | R | Tuna | LLD | V | Justine Johnston/ AFMA |
| Right whale, Southern | U | 1 | 24 July 2009 | Marlo, East Gippsland | R ** | Southern Rock Lobster | Rot rope | | Dave Burton/Parks Victoria |
| Unidentified beaked whale | U | 1 | 13/1/09 | -28°2'S; 156°21'E | R | Tuna | LLD | V | Justine Johnston/ AFMA |
| Unidentified toothed whale | U | 1 | 8/9/09 | -27°46'S; 155°41'E | R | Tuna | LLD | V | Justine Johnston/ AFMA |

7. STATISTICS FOR SMALL CETACEANS

7.1 Corrections to earlier years' statistics for small cetaceans

In the Australian Progress Report for IWC 61, the first line under item 4.3 *Samples from Stranded Animals* referred to samples taken from a stranded Andrew's beaked whale at Killarney, Victoria. This animal has now been identified by the Museum of Victoria as Blainville's beaked whale.

7.2 Direct catches of small cetaceans for the calendar year 2009 or the season 2008/09

N/A

7.3 Anthropogenic mortality of small cetaceans for the calendar year 2009 or the season 2008/09 (*I)

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

| Species | Sex | No. | Date | Location | Vessel type | Speed | Fate | How observed | Contact person/ institute and refs |
|----------------------------------|-----|-----|-------------|---|-------------|-------|------|--|------------------------------------|
| Bottlenose dolphin | F | 1 | 23 Jan 2010 | Bunbury, WA | U | U | D | On beach | Nahiid Stephens/MU |
| Bottlenose dolphin, Indo-Pacific | M | 1 | 25/8/09 | 8 km NNW Port Adelaide (PO) 34° 46' 28" S: 138° 29' 10" E | U | U | D | SAM post mortem (possible boat strike) | C. Kemper/SAM |
| Und. Tursiops spp | U | 1 | 27/12/09 | Old bar beach, NSW | U | U | D | Gross examination | Geoff Ross/DECCW (Event#1000) |

7.3.2 Fishery bycatch of small cetaceans

| Species | Ratio of male to female (if known) | No. | No. extrapolated to fleet total (point estimate) | Range, CI or CV | Date of bycatch | Location (description or lat/long) | FAO statistical area (if known) | FAO area | Fate | Targeted species | Gear | How observed? | Source or contact |
|----------------------------------|------------------------------------|-----|--|-----------------------|-----------------|---|---------------------------------|----------|-------------|-------------------------------|-------------------|--|----------------------------------|
| Bottlenose dolphin | | 1 | | | | Casuarina point, Bunbury, Western Australia | | | Dead | <i>Incidental</i> | Monofilament line | Stranded (subsequent PM) | Nahiid Stephens & Lars Bejder/MU |
| Bottlenose dolphin | | 1 | | | 5/6/09 & 7/6/09 | 25.89168;153.09798 (5/6/09) & 25.89637;153.10045 | V | | R | Shark Control Program | Drum | V | QDPI&F |
| Bottlenose dolphin. | | 1 | | | | Burswood, Swan River, Western Australia | | | Dead | <i>Incidental</i> | | Entanglement - A | Doug Coughran/DEC |
| Bottlenose dolphin | M | 1 | 12/10/09 | Harbord beach | D | <i>Shark</i> | NSC | Necropsy | Event # 963 | Bottlenose dolphin | M | 1 | 12/10/09 |
| Bottlenose dolphin | M | 1 | 2/02/09 | Crookhaven River, NSW | U | <i>Unknown</i> | NK | A | Event # 610 | Bottlenose dolphin | M | 1 | 2/02/09 |
| Bottlenose dolphin, Indo-Pacific | 0:1 | 1 | N/A | N/A | 9/1/09 | 1 km WNW Point Turton, 34° 55' 47" S 137° 20' 27" E | N/A | N/A | D | <i>Bather Protection Nets</i> | NSC | Known Entanglement, SAM post mortem | C. Kemper/SAM |
| Bottlenose dolphin, Indo-Pacific | 1:0 | 1 | N/A | N/A | 21/10/09 | Fitzgerald Bay, Point Lowly | N/A | N/A | D | <i>Unknown</i> | NK | Probable Entanglement, SAM post mortem | C. Kemper/SAM |
| Common dolphin, Short-beaked | | 1 | | | 18/10/09 | 27°58.406'S; 153° 26.161E | V | | D | Shark Control Program | Net | V | QDPI&F |

| | | | | | | | | | | | | | |
|------------------------------|----------|---|---------|------------------|-----------------------------------|-----------------------------|---------|----------|-------------|-----------------------|-------------|--|----------------------------------|
| Common dolphin, Short-beaked | F | 1 | | | 23/08/09 | 27°58.406'S; 153°26.161E | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 25/09/09 | 27°04.984'S; 153°27.580E | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | M | 1 | | | 10/06/09 | 28°08.067'S; 153°30.602E | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | F | 1 | | | 9/4/09 | 28°09.498'S; 153°32.284E | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 21/6/09 | 25.8942;153.0970 | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 8/5/09 | 25.8914;153.09677 | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 23/2/09 | 27.06415;153.20860 | V | | R | Shark Control Program | Drum | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 22/4/09 | 26.37250;153.10685 | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | | 1 | | | 21/4/09 | 26.75111;153.14078 | V | | D | Shark Control Program | Net | V | QDPI&F |
| Common dolphin, Short-beaked | 2:3 | 5 | N/A | N/A | 11/4/09 (3) 2009? (2) | Lower Spencer Gulf | N/A | N/A | D | SA Sardine Fishery | PS1/ PS2 | F, SAM post mortem | C. Kemper/SAM D. Hamer, SARDI |
| Common dolphin, Short-beaked | 2:1 | 3 | N/A | N/A | 16/1/09, 15/2/09, 27/10/09, | Fitzgerald Bay, Point Lowly | N/A | N/A | D | Unknown | NK | Probable entanglement, SAM post mortem | C. Kemper/SAM |
| Common dolphin | U | 1 | N/A | N/A | 05/05/09 | -33.78333'S; 134.03333'E | unknown | unknown | D | shark | GNS | V | Justine Johnston/ AFMA |
| Common dolphin | U | 1 | N/A | N/A | 08/05/09 | -33.1'S; 134.16667'E | unknown | unknown | D | shark | GNS | V | Justine Johnston/ AFMA |
| Common dolphin | U | 1 | N/A | N/A | 30/05/09 | -10.95'S; 131.08333'E | unknown | unknown | D | Prawns | PTB | V | Justine Johnston/ AFMA |
| Common dolphin | M | 1 | 4/11/09 | Wollongong beach | D | Shark | NSC | Necropsy | Event # 973 | Common dolphin | M | 1 | 4/11/09 |
| Pantropical spotted dolphin | 1xF, 1xM | 2 | | | 23/07/09 | 28°02.353'S; 153°26.692 | | | D | Shark Control Program | Net | V | QDPI&F |
| Pantropical spotted dolphin | M | 1 | | | 5/12/09 | 27°58.406'S; 153°26.161E | | | D | Shark Control Program | Net | V | QDPI&F |
| Spinner dolphin, Long-beaked | | 1 | | | 30/6/09 | 265.2286;153.0571 | V | | D | Shark Control Program | Net | V | QDPI&F |
| Spinner dolphin, Long-beaked | M | 1 | | | 13/12/09 | 28°08.067'S; 153°30.602E | V | | D | Shark Control Program | Net | V | QDPI&F |

| | | | | | | | | | | | | | |
|--------------|-----|---|-----|-----|----------|--|-----|-----|---|------------------------|------|--|---------------|
| Unid dolphin | N/A | 1 | N/A | N/A | 28/3/09 | Point Turton swimming pool, 34° 55' S, 137° 24' E | N/A | N/A | R | Bather Protection Nets | NSC | Known Entanglement, A | C. Kemper/SAM |
| Unid dolphin | N/A | 1 | N/A | N/A | 3/10/09 | Whyalla marina | N/A | N/A | R | Unknown | NK | Known Entanglement, A | C. Kemper/SAM |
| Unid dolphin | N/A | 1 | N/A | N/A | 7/8/09 | 2.5 km WSW Aldinga Beach (PO), 34° 17'22"S, 138° 26' 40" E | N/A | N/A | D | Unknown | NK* | Probable Entanglement, No post mortem, unconfirmed | C. Kemper/SAM |
| Unid dolphin | | 1 | | | 28/05/09 | 23.12996S; 150.75292 | | | R | Shark Control Program | Drum | V | QDPI&F |

*NOTES: (*1) There was one reported incident of an illegal killing (many shotgun pellets were found) of a female indo-pacific bottlenose dolphin in the SA region. Contact C. Kemper (SAM) for details.*

8. STRANDINGS

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.

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|----------------------------------|----------------|------------------|--|---|
| Bottlenose dolphin | 12 | 2 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Common dolphin | 10 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| False killer whale | 1 | 1 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Humpback whale | 17 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Indo-Pacific humpback dolphin | 7 | 2 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Melon-headed whale | 2 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Minke whale | 2 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Pantropical spotted dolphin | 3 | 3 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Pilot whale, Short-finned | 2 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Sperm whale | 2 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Spinner dolphin, Long-snouted | 2 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |
| Unid dolphin – (unidentified sp) | 5 | 0 | Col Limpus, DERM Michelle Boyle, DERM | Col.limpus@derm.qld.gov.au; michelle.boyle@derm.qld.gov.au |

Victoria

DRI / MONASH UNI - Strandings along the Victorian coastline were attended by members of the Dolphin Research Institute (DRI), Monash University and members representing the Victorian Strandings Network, Zoos

Victoria and the Melbourne Museum. Specimens (skulls) collected will be incorporated into the Melbourne Museum IWC report.

DSE - Reports usually come in via opportunistic reports from local land manager, council or member of the public, either directly to DSE or to the Dolphin Research Institute who then reports it to DSE. A Whale and Dolphin Emergency Hotline (1300 136 017) was established in October 2009, through which reports will now be handled.

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|---|--------------------------------------|--|---|--|
| Blue Whale | 1 | 0 | David Donnelly/DRI | ddonnelly6@yahoo.com.au research@dolphinresearch.org.au |
| Blue whale, Pygmy (or sub adult Blue Whale)** | 1 | 0 | Kirsty Greengrass/DSE | kirsty.greengrass@dse.vic.gov.au |
| Monash Bottlenose dolphin | 4 | 2 (Portland/Apollo Bay), conducted by Padraig Duignan Melbourne University | Kate Charlton Robb (Apollo Bay stranding)/Monash Alissa Monk (Portland stranding)/Monash | kate.charlton@sci.monash.edu.au alissa.monk@sci.monash.edu.au |
| Bottlenose dolphin | 5 | 3 (1 full post mortem, 2 samples taken) | Kirsty Greengrass/DSE | kirsty.greengrass@dse.vic.gov.au |
| Pilot whale | 1 (King Island wash ups after storm) | 0 | David Donnelly/DRI | ddonnelly6@yahoo.com.au research@dolphinresearch.org.au |
| Pilot whale, Long-finned * | 8 | 3 (samples taken) | Kirsty Greengrass/DSE | kirsty.greengrass@dse.vic.gov.au |
| Sperm Whale | 1 | 1 (samples taken) | Kirsty Greengrass/DSE | kirsty.greengrass@dse.vic.gov.au |
| Unknown (unable to identify due to decomposition) | 4 | 0 | Kirsty Greengrass/DSE | kirsty.greengrass@dse.vic.gov.au |

Western Australia

Murdoch University and DEC worked together to respond to reported strandings. In most instances strandings were of dead bottlenose dolphins 10 of 11 strandings. One stranding of 2 live individual bottlenose dolphins (mother & calf) were stranded and successfully returned to the water in the Preston River 22 October 2009 by MUCRU staff. In all cases practicable samples were collected including full morphometric measurements and genetic samples. For 3 of the 10 bottlenose dolphin strandings post mortems were conducted by veterinarians at Murdoch University. There were more strandings of bottlenose dolphins than observed in previous 2 years (2007, 2008) by Murdoch University Cetacean Research Unit in the Bunbury area.

MUCRU assisted with strandings of other species where required, Risso's dolphin *Grampus griseus* 15 March 2009 and the mass stranding of long finned pilot whales *Globicephala melas* at Hamelin Bay 23 March 2009. MUCRU collected tissue samples on behalf of DEC at the mass pilot whale stranding. A single stranding of a dead striped dolphin *Stenella coeruleoalba* was handled by the local Bunbury Shire Council 14 June 2009. DEC has a more comprehensive list of strandings for multiple species of the area. This is held by head office in Perth and data custodian and contact person is Doug Coughran.

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|--------------------------|---------------------------|------------------|---|---|
| Bottlenose dolphin | 10 dead (2 live) 12 total | 3 | Nahiid Stephens; Lars Bejder; Holly Smith/MUCRU | n.stephens@murdoch.edu.au l.bejder@murdoch.edu.au h.smith@murdoch.edu.au c.holyoake@murdoch.edu.au |
| Bottlenose dolphin | 16 (6 of which died) | 0 | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Dwarf Sperm Whale | 1 | | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Hector's beaked whale | 1 | 0 | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Humpback Whale | 12 (10 dead) | | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Pilot Whale, Long-finned | 87 (7 died) | | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Pygmy Right Whale | 1 | | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |

| | | | | |
|----------------------------|----------|---|-----------------------|-----------------------------|
| Risso's dolphin | 1 (died) | | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Strap-toothed beaked whale | 5 (2) | 0 | Doug Coughran/DEC | Douglas.coughran@dec.gov.au |
| Striped dolphin | 1 | 0 | Bunbury Shire Council | cspencer@bunbury.wa.gov.au |

New South Wales

The stranding reporting process within NSW was updated in 2009 with an improved reporting process for Government and NGO. The State managed data base provides relatively robust datasets. Improved access to necropsy procedures has resulted in greater numbers of necropsies undertaken.

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|----------------------------------|----------------|------------------|---|-----------------------------------|
| Andrews' beaked whale | 1 | 0 | Event #719 | geoff.ross@environment.nsw.gov.au |
| Blainville's beaked whale | 2 | 1 | Event #624 & 931 | geoff.ross@environment.nsw.gov.au |
| Bottlenose dolphin | 11 | 2 | Event #596; 656;714;705;704;709;718;801;867; 933& 956 | geoff.ross@environment.nsw.gov.au |
| Bottlenose dolphin, Indo-pacific | 2 | 1 | Event #559 & 951 | geoff.ross@environment.nsw.gov.au |
| Bottlenose dolphin, Common | 1 | 0 | Event #976 | geoff.ross@environment.nsw.gov.au |
| Bryde's whale | 1 | 0 | Event # 960 | geoff.ross@environment.nsw.gov.au |
| Common dolphin, Short beaked | 4 | 1 | Event # 953; 957; 977 & 996 | geoff.ross@environment.nsw.gov.au |
| Cuvier's beaked whale | 1 | 1 | Event #932 | geoff.ross@environment.nsw.gov.au |
| Dwarf sperm whale | 1 | 0 | Event #712 | geoff.ross@environment.nsw.gov.au |
| False killer whale | 2 | 0 | Event #732 & 864 | geoff.ross@environment.nsw.gov.au |
| Humpback whale | 6 | 0 | Event #797; 930; 946; 961; 965; & 995 | geoff.ross@environment.nsw.gov.au |
| Minke whale | 1 | 0 | Event # 729 | geoff.ross@environment.nsw.gov.au |
| Pilot whale, Short-finned | 1 | 1 | Event # 954 | geoff.ross@environment.nsw.gov.au |
| Pygmy killer whale | 2 | 1 | Event #720 & 998 | geoff.ross@environment.nsw.gov.au |
| Pygmy sperm whale | 1 | 0 | Event #896 | geoff.ross@environment.nsw.gov.au |

Northern Territory

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|--|----------------|------------------|-----------------------------------|---------------------------|
| Bottlenose dolphin | 1 | 0 | Ray Chatto, NT Parks and Wildlife | ray.chatto@nt.gov.au |
| Humpback whale (section of blubber and bone) | 1 | 0 | Ray Chatto, NT Parks and Wildlife | ray.chatto@nt.gov.au |
| Indo-pacific humpback dolphin | 1 | 0 | Ray Chatto, NT Parks and Wildlife | ray.chatto@nt.gov.au |
| Snubfin dolphin | 1 | 0 | Ray Chatto, NT Parks and Wildlife | ray.chatto@nt.gov.au |

South Australia

A network for 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.

| Species | No. strandings | No. post mortems | Contact person(s)/ Institute(s) | Contact email address(es) |
|----------------------------------|----------------|------------------|---------------------------------|----------------------------------|
| Bottlenose Dolphin | 7 | 1 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Bottlenose Dolphin, Indo-Pacific | 15 | 13 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Bottlenose Dolphin, Common | 1 | 1 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Common Dolphin, Short-beaked | 21 | 16 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| False Killer Whale | 1 | 0 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Fin whale | 1 | 1 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Humpback whale | 1 | 0 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Pygmy right whale | 1 | 1 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |

| | | | | |
|--------------|----|---|---------------|----------------------------------|
| Sperm Whale | 3 | 0 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |
| Unid Dolphin | 12 | 0 | C. Kemper/SAM | Catherine.Kemper@samuseum.gov.au |

Tasmania

In Tasmania DPIPWE has a 24hr / 7days week marine mammal hotline number (0427WHALES) for the public to report strandings and sightings of cetaceans. Strandings are joint managed by the Tasmanian PWS (incident control and operational) and DPIPWE (specialist advice, animal management, rescue and research). The agencies are responsible for strandings throughout Tasmanian, covering 4,882 kms of coastline. For more information please contact Rosemary Gales, DPIPWE.

*Numbers for the purpose of post mortem include some or all of the following: morphometric measurement, sampling (DNA, teeth, blubber), stomach contents and/or ascertaining reproductive status.

| Species | No. Strandings (total animals) | No. post mortems* | Contact person(s)/ Institute(s) | Contact email address(es) |
|------------------------------|--------------------------------|-------------------|---------------------------------|----------------------------------|
| Bottlenose dolphin | 2 (8) | 2 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Common dolphin, Short beaked | 2 (3) | 0 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Gray's Beaked Whale | 3 (2) | 2 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Humpback Whale | 2 (2) | 0 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Pilot whale, Long-finned | 2 (170) | 117 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Pygmy right Whale | 1 (1) | 1 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Sperm whale | 2 (50) | 50 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |
| Striped Dolphin | 1 (?) | 1 | R.Gales / DPIPWE | Rosemary.Gales@dpipwe.tas.gov.au |

9. OTHER STUDIES AND ANALYSES-

Diet and Foraging Ecology of Bottlenose Dolphins (Dolphin Research Institute and Monash University).

Stable isotope analysis of teeth was completed to determine the foraging ecology and diet of two bottlenose dolphin species (common bottlenose dolphin and the southern Australian bottlenose dolphin) in Victoria. Results showed that the two species had distinctly different stable isotope signatures suggesting that the two species may be foraging in different areas and on different prey. Additionally, comparisons of the two populations of southern Australian bottlenose dolphins (one found in the Gippsland Lakes and the other in Port Phillip) suggest that the Port Phillip population may be feeding at a higher trophic level than the Gippsland Lakes dolphins, a theory which is supported by fish isotope data from the area as well as differences in the patterns of tooth wear and the active foraging strategies of the two populations.

Comparisons between male and female dolphins revealed no differences in stable isotope signatures for male and female common bottlenose dolphins. However, statistically significant differences were observed between male and female southern Australian bottlenose dolphins. The females displayed a higher $\delta^{13}\text{C}$ value in both the Gippsland Lakes and Port Phillip populations, suggesting that the males and females may have different diets or forage in different areas. The lower $\delta^{13}\text{C}$ of the males is more consistent with that of the common bottlenose dolphins found offshore and implies that the males may spend greater periods feeding in offshore waters than the females that may rely solely on coastal prey items.

When placed over basal resources available in Port Phillip, it appears as though the southern Australian bottlenose dolphin population in the bay may be relying on seagrass beds and phytoplankton based food chains. Seagrass beds appear to be particularly important for the female dolphins which are believed to be resident to the bay. This presents a potential problem for the local dolphin population as sea grass beds are currently under decline in Port Phillip.

Study completed as Honours research project by Kylie Owens, Monash University, 2008. Further details can be obtained by emailing research@dolphinresearch.org.au

Taxonomy of Tursiops spp. in Australasia (Kemper, SA Museum, Maria Jedensjo and associates). An Australian Marine Mammal Centre grant application has been lodged to study the taxonomy of bottlenose dolphins from around Australia. This is a PhD project to be undertaken by Maria Jedensjo with the primary supervisor being Michael Krutzen (University of Zurich) and the secondary supervisor Catherine Kemper. The project will combine morphological and genetic characters, and will compare with type specimens for both *T. truncatus* and *T. aduncus*. There are plans to include samples from New Zealand in the near future.

Cause/circumstance of death of SA cetaceans (Kemper, Tomo SAM, 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 Your Country grant to study marine debris in Gulf St Vincent. The project involves assessing recent strandings of marine mammals (about 20 since the project began in April 2009) and collating/archiving data and specimens collected by the SA Museum over the last 20 years. Life history data will be combined with pathology results provided by Ikuko Tomo to give an overall picture of diseases and circumstance of death of South Australian cetaceans.

Assessment of mortality of dolphins in North Spencer Gulf (Kemper, Warhurst and Parra (Flinders University)). An Honours student (Kathryn Warhurst) will soon begin a project relating to the problem of the high number of dolphin mortalities and interactions with fisheries and finfish aquaculture in North Spencer Gulf. The details of the research have not yet been finalized but are likely to include carcass evaluations and determining hotspots of interaction. There were four dolphin deaths in the Point Lowly, Fitzgerald Bay area during 2009 and several of these were suspected entanglements. It is likely that these dolphins died in the kingfish aquaculture pens. The project will aim to determine hotspots of mortality and advise government on actions needed.

Lung nematode epidemic in common dolphins (Tomo, Kemper SAM). A publication is in press on this research (see below). Another publication is anticipated on the details of the pathology of the infections. Although there are a few more cases being documented during necropsies, the outbreak of lung nematode infections subsided at the beginning of 2007.

Investigating dolphin mortality in the South Australian Sardine Fishery (Hamer, Tomo, Kemper and Gibbs, SARDI). This project has not advanced much further due to lack of funding. Teeth are being prepared for ageing at the SA Museum.

National Centre for Aging Marine Mammals (SA Museum). The results of Elena Trentin's study of age at sexual maturity male in *T. aduncus* are being prepared for publication. It appears that the regression of male testis function has not been previously described in bottlenose dolphins from Australia or elsewhere. A presentation was made to the Australian Mammal Society meeting in July 2009. Another international student (Mauro Talamonti, Istituto di Biologia e Genetica Università Politecnica delle Marche, Italy) has joined the Museum to conduct a study of female sexual maturity in *T. aduncus* from South Australia. In addition to the cetacean studies, there has been some use of the lab for pinniped ageing (e.g. USA fur seals by Jane McKenzie).

Oceanographic influences on the distribution of *Caperea marginata* (Kemper, Middleton and Van Ruth). This project has progressed to near-final manuscript stage.

Oceanographic influences on cetacean strandings in South Australia (Segawa, Kemper, Seuront, Flinders University). Tomoyo Segawa has completed her Honours degree on temporal trends in the stranding record for South Australia. The study focused on 856 events recorded between 1990 and 2008. The total number of stranding events increased (decreased) during La Nina (El Nino) years. In preparing data for the project, all outstanding non-specimen stranding records were entered into the KE Emu collections database.

South Australian cetacean sightings database (SA Museum). The South Australian Museum has been the primary repository for cetacean sighting records and in recent years has done this in partnership with the South Australian Whale Centre at Victor Harbour. There were many more southern right whale sightings in South Australia during 2009 and it has not been possible to enter all these into the Museum's database. Although there is some potential for a small amount of support from the Whale Centre, it is vital that the Museum enters into discussions with State and Commonwealth Governments as to how to fund the database and provide data for Australian and international distribution.

Dwarf minke whale biology (JCU). A PhD study by Ms. S. Soltzick (2006-2010; supervised by Dr Alastair Birtles & Prof Helene Marsh, JCU) is investigating dwarf minke whale population structure, site fidelity and social structure in the northern GBR using photo-identification and underwater videogrammetry.

Dwarf minke whale behaviour (JCU). A PhD study by Mr. A. Mangott (2005-2010; supervised by Dr Alastair Birtles, Prof Helene Marsh, JCU and A/Prof Peter Valentine Associate) is investigating behaviours of dwarf minke whale associated with human interactions in the northern GBR.

Whalewatching: swim-with-dwarf minke whales tourism (JCU). A PhD study by Mr. M. Curnock (2005-2010; supervised by Dr Alastair Birtles & A/Prof Peter Valentine) is investigating mechanisms for assessing the sustainability of the swim-with-dwarf minke whales tourism industry in the northern GBR.

Summary of cetacean permits current in 2009 (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. In 2009:

- The total number of dedicated tourism whale watching activities allowed to operate in the Far Northern Management Area of the Marine Park was 24.
- The total number of dedicated tourism whale watching activities allowed to operate in the Cairns Management Area of the Marine Park was 28.
- The total number of dedicated tourism whale watching activities allowed to operate in the Cairns Area of the Marine Park was 7.
- The total number of dedicated tourism whale watching activities allowed to operate in the Townsville/Whitsundays Management Area of the Marine Park was 64.
- The total number of dedicated tourism whale watching activities allowed to operate in the Whitsundays Area of the Marine Park was 32.
- No permits were issued for tourist programs that included the activity of dolphin watching.
- Four 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 31/07/2010.
 - Conservation genetics of three species of cetaceans: Australian snubfin, Indo-Pacific humpback dolphins and Bottlenose dolphins in northeast Queensland waters. Permit expires 28/02/2012.
 - The acoustic and surface behaviour of coastal dolphins (Indo-Pacific humpback and Australian Snubfin dolphin) in Queensland. Permit expires 31/07/2010.
 - Photographic identification of humpback whales (*Megaptera novaeangliae*) in the Whitsundays Island Region, Port Douglas and Cooktown. Permit expires 01/07/2011.

Distribution and population structure of Australian humpback whales (*Megaptera novaeangliae*) (N. Schmitt, Australian Antarctic Division). Using a combination of mitochondrial and microsatellite markers, the project aims to:

- Measure the degree of gene flow between Eastern and Western Australia.
- Determine the allocation of humpback breeding stocks to Antarctic feeding area V using mtDNA haplotypes and mixed stock analysis.
- Genetically assign humpback whale individuals from Antarctic feeding area V to low-latitude breeding grounds using genotype matching.
- Determine the population structure of humpback whales in the Antarctic feeding grounds between 150 deg East and 150 deg West.
- Estimate the minimum historical population size of stock D based on the diversity of mtDNA haplotypes, developed from an existing mathematical model.

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Appendix 1. FOA fishing descriptions and codes

| FAO FISHING GEAR CATEGORIES: | | FALLING GEAR | |
|-------------------------------------|-----|--|-----|
| SURROUNDING NETS | | Cast nets | FCN |
| With purse lines | PS | Falling gear (not specified) | FG |
| One-boat operated purse seines | PS1 | GILLNETS AND ENTANGLING GEAR | |
| Two-boat operated purse seines | PS2 | Set gillnets (anchored) | GNS |
| Without purse lines (lampara) | LA | Driftnets | GND |
| SEINE NETS | | Encircling gillnets | GNC |
| Beach seines | SB | Fixed gillnets (on stakes) | GNF |
| Boat seines | SV | Trammel nets | GTR |
| Danish seines | SDN | Combined gillnet-trammel nets | GTN |
| Scottish seines | SSC | Gillnets and entangling gillnets (not specified) | GEN |
| Pair seines | SPR | Gillnets (not specified) | GN |
| Seine nets (not specified) | SX | TRAPS | |
| TRAWLS | | Stationary uncovered pounds nets | FPN |
| Bottom trawls | TBB | Pots | FPO |
| Beam trawl | OTB | Fyke nets | FYK |
| Otter trawls (side or stern) | PTB | Stow nets | FSN |
| Pair trawls | TBN | Barriers, fences, weirs, etc | FWR |
| Nephrops trawls | TBS | Aerial traps | FAR |
| Shrimp trawls (not specified) | TM | Traps (not specified) | FIX |
| Midwater trawls | | HOOKS AND LINES | |
| Otter trawls (side or stern) | OTM | Handlines and pole-lines (hand operated) | LHP |
| Pair trawls | PTM | Handlines and pole-lines (mechanised) | LHM |
| Shrimp trawls | TMS | Set longlines | LLS |
| Midwater trawls (not specified) | TM | Drifting longlines | LLD |
| Otter twin trawls | OTT | Longlines (not specified) | LL |
| Otter trawls (not specified) | OT | Trolling lines | LTL |
| Pair trawls (not specified) | PT | Hooks and lines (not specified) | LX |
| Other trawls (not specified) | TX | GRAPPLING AND WOUNDING | |
| DREDGES | | Harpoons | HAR |
| Boat dredges | DRB | HARVESTING MACHINES | |
| Hand dredges | DRH | Pumps | HMP |
| LIFT NETS | | Mechanised dredges | HMD |
| Portable lift nets | LPN | Harvesting machines (not specified) | HMX |
| Boat-operated lift nets | LNB | MISCELLANEOUS GEAR | MIS |
| Shore operated stationary lift nets | LNS | RECREATIONAL FISHING GEAR | RG |
| Lift nets (not specified) | LN | GEAR NOT KNOWN OR NOT SPECIFIED | NK |
| | | SHARK CONTROL NETS | NSC |
| | | DERELICT FISHING GEAR | |