

# Australia. Progress report on cetacean research, January 2011 to December 2011, with statistical data for the calendar year 2011

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<u>Notes:</u>		
Data presented here are compiled from federal and state agencies, research organisations, 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as such, is not a complete record of research undertaken in Australia, and data that are reported are often based upon unpublished records.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) On March 26, 2012, DERM was restructured into five new departments. The data in this report was compiled by DERM before the restructure. Justin Meager is now with the Department of Environment and Heritage Protection.		

## 1. SPECIES AND STOCKS STUDIED

IWC common name	IWC recommended scientific name	Area/stock(s)	Items referred to
<b><u>MYSTICETI</u></b>			
Blue whale	<i>Balaenoptera musculus</i>	Geographe Bay, Western Australia, SW Victoria	2.1.1, 2.12, 3.1.1
Dwarf minke whale	<i>Balaenoptera acutorostrata</i>	Geographe Bay, Western Australia, Tasmania, East Coast NSW, Northern GBR	2.1.1, 2.1.2, 2.2, 3.1.1, 3.2, 4.1, 4.3, 8, 9, 11.1, 11.2
Fin whale	<i>Balaenoptera physalus</i>	Tasmania	2.1.2
Humpback whale	<i>Megaptera novaeangliae</i>	Geographe Bay, Western Australia/ Abrolhos Islands/ Fremantle, East Australia, GroupE/SW Victoria, Port Phillip, Bass Strait, Tallebudgera, Qld, NSW, Group E, NSW/ Groups B and C, South Australia, Groups EI, Group V, East Coast, Group B, Group C, Area V	2.1, 2.1.1, 2.1.2, 2.2, 3.1.1, 3.1.3, 3.2, 4.1, 4.3,4.4, 6.3, 6.3.1, 6.3.2, 8, 9, 10, 11.1
Pygmy blue whale	<i>Balaenoptera musculus brevicauda</i>	Tasmania, Southern Australia	2.1.1, 2.2, 3.1.1
Pygmy right whale	<i>Caperea marginata</i>	South Australia	4.3, 8
Southern right whale	<i>Eubalaena australis</i>	Geographe Bay, Western Australia, SE Australia, South Australia	2.1, 2.1.1, 2.1.2, 2.2, 3.1.1, 4.1, 4.2, 4.4, 6.3.1, 6.3.2, 8, 10, 11.2
<b><u>ODONTOCETI</u></b>			
Australian snubfin dolphin	<i>Orcaella heinsohni</i>	Prince Regent River, WA, Central Queensland, QLD	2.1, 2.11, 2.1.2, 2.2, 3.1.1, 4.1, 4.2, 4.3, 4.4, 5, 8, 9
Blainville's beaked whale	<i>Mesoplodon densirostris</i>	East Coast NSW	4.3, 8

Bottlenose dolphin	<i>Tursiops sp.</i>	Tasmania, SW Victoria, Western Australia, South Australia, Moreton Bay QLD, Southern Australia	2.1.1, 2.1.2, 3.1.2, 3.2, 4.1, 4.3, 4.4, 8
Bottlenose dolphin (*1)	<i>Tursiops sp.</i>	Port Phillip, Gippsland Lakes	2.1.1, 2.2, 3.1, 3.1.1, 4.1
Bottlenose dolphin	<i>Tursiops aduncus</i>	Southern Queensland, Northern New South Wales, Western Australia, East Coast NSW, South Australia, Queensland	2.1, 2.1.1, 2.1.2, 2.2, 3.1, 3.1.1, 4.1, 4.2, 4.3, 4.4, 5, 7.3.1, 8, 9, 11.1, 11.2
Bottlenose dolphin	<i>Tursiops truncatus</i>	Western Australia, East coast NSW	2.1, 2.1.2, 3.1.1, 4.1, 4.3, 8
Common dolphin	<i>Delphinus delphis</i>	Western Australia, Tasmania, SW Victoria, Port Phillip, Bass Strait, Southern Queensland, East Coast NSW, Northern New South Wales, Southern Australia, South Australia	2.1, 2.1.1, 2.2, 2.1.2, 3.1, 3.1.1, 4.1, 4.2, 4.3, 4.4, 7.3.1, 7.3.2, 8, 11.2
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	Queensland	8
Dwarf sperm whale	<i>Kogia sima</i>	East Coast NSW	8
Dusky dolphin	<i>Lagenorhynchus obscurus</i>	Tasmania	2.1.2
False killer whale	<i>Pseudorca crassidens</i>	SW Victoria	2.1.2, 8
Indo-Pacific humpback dolphin	<i>Sousa chinensis</i>	Southern Queensland, Northern New South Wales, Queensland	2.1, 2.1.1, 2.2, 3.1, 3.1.1, 4.1, 4.2, 4.3, 4.4, 5, 8, 9, 11.2
Killer whale	<i>Orcinus orca</i>	Tasmania	2.1.1, 2.1.2
Long-finned pilot whale	<i>Globicephala melas</i>	Tasmania	2.1.1, 2.1.2, 4.3, 5, 8
Melon-headed whale	<i>Peponocephala electra</i>	Queensland	8
Pantropical spotted dolphin	<i>Stenella attenuata</i>	East Coast NSW, Queensland	8
Pilot whale	<i>Globicephala sp</i>	SW Victoria	8
Pygmy killer whale	<i>Feresa attenuata</i>	East coast, NSW	4.3, 8
Pygmy sperm whale	<i>Kogia breviceps</i>	East Coast NSW, QLD	8
Risso's dolphin	<i>Grampus griseus</i>	Western Australia, East Coast NSW	8
Short-finned pilot whale	<i>Globicephala macrohynchus.</i>	Queensland, Australia	2.1.2, 6.3.2, 8
Southern right whale dolphin	<i>Lissodelphis peronii</i>	South Australia	8
Sperm whale	<i>Physeter macrocephalus</i>	Tasmania, East coast NSW, South Australia	2.1.1, 4.3, 8
Spinner dolphin	<i>Stenella longirostris</i>	Western Australia, Queensland	8
Striped dolphin	<i>Stenella coeruleoalba</i>	Western Australia, East coast NSW	4.3, 8
Unidentified cetacean	Unidentified Cetacean	Tasmania, South Australia	2.1.1, 2.1.2, 8
Unidentified dolphin	Unidentified Delphinidae	Tasmania, Bass Strait, South Australia, Great Australian Bight, NSW	2.1.2, 7.3.2, 8
Unidentified pilot whale	<i>Globicephala sp.</i>	Australia	2.1.2
Unidentified whale	<i>Baeleoptera sp.</i>	East Coast NSW	8

(\*1) Submitted as *Tursiops australis*, however, the taxonomy of this classification is not yet confirmed so has been entered as *Tursiops sp.*

## 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 dolphin	August 2011	Prince Regent River, WA	4	Deborah Thiele, ANU

Australian snubfin dolphin	5/2011 to 11/2011	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay and Port Curtis	124	Daniele Cagnazzi, SCU
Australian snubfin dolphin	May-September	Central Great Barrier Reef, Queensland	~ 50	G. Parra, CEBEL
Blue whale	1/9/11-12/12/11	Geographe Bay	Approx 70	Chris Burton –land surveys; WWR
Blue whale	29/09/11-16/12/11	Geographe Bay	Approx 12	Chris Burton–small vessel surveys: WWR
Bottlenose dolphin	Approx July-Oct 2011	Shark Bay – off East side of Peron Peninsula	2053	Richard Connor – boat based surveys, focal follows; and photo-identification (from DEC fauna database)
Bottlenose dolphin	April 2011	Pilbara Trawl Fishery management Areas: 1-4	Approx. 90 group sightings; Grp size ranges from 1 to 55 individuals	Simon Allen, MUCRU
Bottlenose dolphin	22/06/2011 – 21/12/2011	Perth, Swan-Canning Estuary	38	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	21/06/2011 – 20/12/2011	Perth, Cockburn Sound	14	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	21/06/2011 – 20/12/2011	Perth, Owen Anchorage	13	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	22/06/2011 – 21/12/2011	Perth, Gage Roads	10	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	11/01/2011 – 24/12/2011	Bunbury, Backbeach, Buffalo Beach, Inshore	241	D.Chabanne, K. Sprogis, MUCRU
Bottlenose dolphin (*1)	01/06/2011-24/12/2011	Bunbury, Backbeach offshore	2	K.Sprogis, MUCRU
Bottlenose dolphin (*1)	01/06/2011-24/12/2011	Bunbury, Buffalo Beach offshore	0	K.Sprogis, MUCRU
Bottlenose dolphin (*1)	01/06/2011-24/12/2011	Busselton	6	K.Sprogis, MUCRU
Bottlenose dolphin (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (12)	K. Evans, CSIRO
Bottlenose dolphin	October to December	Northern Spencer Gulf	149	Kennedy, Moller, Parra (CEBEL)
Bottlenose dolphin	May-Dec 2011	Shark Bay- Eastern Gulf	1693	Janet Mann, GU
Bottlenose dolphin	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	111	E.R. Hawkins (SCU)
Bottlenose dolphin	5/2011 to 11/2011	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay and Port Curtis	55	Daniele Cagnazzi, SCU
Bottlenose dolphin (*7)	23/02/2011	Port Phillip	1	Sue Mason- DRI
Bottlenose dolphin (*7)	06/04/2011	Port Phillip	5	Sue Mason DRI
Bottlenose dolphin (*7)	07/04/2011	Port Phillip	2	Sue Mason DRI
Bottlenose dolphin (*7)	17/04/2011	Port Phillip	1 Mixed pod - southern Australian bottlenose	Sue Mason DRI

			dolphin & short-beaked common dolphins	
Bottlenose dolphin (*7)	25/04/2011	Port Phillip	2	Sue Mason / David Donnelly - DRI
Bottlenose dolphin (*7)	29/05/2011	Port Phillip	1	Sue Mason – DRI
Bottlenose dolphin (*7)	13/06/2011	Port Phillip	1	Sue Mason / David Donnelly - DRI
Bottlenose dolphin (*7)	30/07/2011	Gippsland Lakes	1	Sue Mason / David Donnelly - DRI
Bottlenose dolphin (*8)	28-31/5/2011	Port Phillip	2	K. Charlton-Robb (MU)
Common dolphin (*7)	17/04/2011	Port Phillip	1 Mixed pod - southern Australian bottlenose dolphin & short-beaked common dolphins	Sue Mason DRI
Common dolphin (*7)	29/05/2011	Port Phillip	2	Sue Mason – DRI
Common dolphin (*7)	13/06/2011	Port Phillip	2	Sue Mason – DRI
Common dolphin (*7)	24/07/2011	Bass Strait	1	Sue Mason – DRI
Common dolphin (*7)	29/07/2011	Bass Strait	1	Sue Mason – DRI
Common dolphin (*7)	13/08/2011	Port Phillip	2	Sue Mason – DRI
Common dolphin	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	9	E.R. Hawkins (SCU)
Common dolphin	January to September	South Australia	551	Parra, Bilgmann, Moller (CEBEL)
Humpback whale	1/9/11-16/12/11	Geographe Bay	Approx 1400+100	Chris Burton – land and vessel surveys WWR
Humpback whale	18/07/2011	Shark Bay – off East side of Peron Peninsula	2	Richard Connor DOSBRF– boat based surveys, focal follows; and photo-identification (information from DEC fauna database)
Humpback whale	15/09/2011	Shark Bay – off East side of Peron Peninsula	2	Richard Connor DOSBRF– boat based surveys, focal follows; and photo-identification (information from DEC fauna database)
Humpback whale	29/09/2011	Shark Bay – off East side of Peron Peninsula	2	Richard Connor DOSBRF– boat based surveys, focal follows; and photo-identification (information from DEC fauna database)
Humpback whale (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (1)	K. Evans, CSIRO
Humpback whale (*2)	14 May 2011 – 4 Sept 2011	Logan’s Beach whale viewing platform	Not yet tallied (includes duplicate sightings of same individuals)	Mandy Watson, DSE
Humpback whale (*7)	24/07/2011	Bass Strait	1	Sue Mason – DRI
Humpback whale (*7)	30/07/2011	Bass Strait	1	Sue Mason – DRI
Humpback	13/08/2011	Port Phillip	1	Sue Mason – DRI

whale (*7)				
Humpback whale (*3)	24 May 2011 to 31 July 2011	Cape Solander, Botany Bay National Park	2202	Geoffrey Ross, OEH, NSW
Humpback whale (*4)	09 Sep 2011 - 03 Oct 2011	Eden, NSW	95	Kylie Owen/ CEAL
Humpback whale	26 Sep-1 Oct, 2011	Eden, NSW, Australia	72	Greg Kaufman, PWF
Humpback whale (*5)	14-24/06/2011 (Trip 1) 14-21/08/2011 (Trip 2)	Great Barrier Reef	20 pods, 31 individuals (Trip 1) 27 pods, 56 individuals (Trip 2)	David Paton, BPM, GBR2011
Humpback whale	7/08/2011 to 21/09/2011	Hervey Bay, Qld,	848	Greg Kaufman, PWF
Humpback whale	15/9/2011 to 29/10/2011	SE Qld	1922	Mike Noad, UQ
Indo-Pacific humpback dolphin	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	4	E.R. Hawkins (SCU)
Indo-Pacific humpback dolphin	5/2011 to 11/2011	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay and Port Curtis	72	Daniele Cagnazzi, SCU
Indo-Pacific humpback dolphin	May-September	Central Great Barrier Reef, Queensland	~ 50	G. Parra, CEBEL
Killer whale (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (4)	K. Evans, CSIRO
Killer whale (*2)	May 2011	West Coast, Tasmania (outside State waters)	1 (4)	K. Evans, CSIRO
Long-finned pilot whale (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (50)	K. Evans, CSIRO
Minke whale	1/9/11-16/12/11	Geographe Bay	Approx 2	Chris Burton – land and vessel surveys WWR
Minke whale (*3)	24 May 2011 to 31 July 2011	Cape Solander, Botany Bay National Park	4	Geoffrey Ross, OEH, NSW
Pygmy blue whale (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (1)	K. Evans, CSIRO
Pygmy blue whale (*2)	May 2011	West Coast, Tasmania (outside State waters)	1 (2)	K. Evans, CSIRO
Pygmy blue whale (*6)	8-25 Feb 2011	Otway Basin (west of Bass Strait)	51	M. Morrice/P.Gill, BWS; unpublished report to Origin Energy
Southern right whale	25-29 August 2011	Southern Australian coast between C Leeuwin (WA) and Ceduna (SA)	657 incl 236 cow/calf pairs	J L Bannister/WAM; Bannister 2012
Southern right	1/9/11-16/12/11	Geographe Bay	Approx 3	Chris Burton – land and vessel surveys WWR

whale				
Southern right whale	17/09/2011	Shark Bay – off East side of Peron Peninsula	2	Richard Connor DOSBRF– boat based surveys, focal follows; and photo-identification (information from DEC fauna database)
Southern right whale (*6)	14 May 2011 – 4 Sept 2011	Logan’s Beach whale viewing platform	Not yet tallied (includes duplicate sightings of same individuals)	Mandy Watson, DSE
Southern right whale (*3)	24 May 2011 to 31 July 2011	Cape Solander, Botany Bay National Park	5	Geoffrey Ross, OEH, NSW
Sperm whale (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (5)	K. Evans, CSIRO
Unidentified cetacean (*2)	April 2011	West Coast, Tasmania (outside State waters)	1 (1)	K. Evans, CSIRO
Unidentified cetacean (*2)	May 2011	West Coast, Tasmania (outside State waters)	1 (2)	K. Evans, CSIRO

Notes:

**(\*1) MUCRU**

Each area of the Perth metropolitan waters (Swan-Canning Estuary, Cockburn Sound, Own Anchorage, Gage Roads) are surveyed 5-6 times a season.

For the Bunbury area: Backbeach, Buffalo Beach and Inshore are surveyed 6 times per season. In addition, the following areas: Backbeach offshore, Buffalo offshore and Busselton are covered three times a season.

General Location	Area	No. of boat based photo-Id, line-transect surveys
Perth metropolitan waters (boat based photo-Id, line-transect surveys). Details in below table.	Swan-Canning Estuary	22
	Cockburn Sounds	12
	Owen Anchorage	12
	Gage roads	12
Bunbury waters boat based photo-Id, line-transect surveys). Details in below table.	Backbeach	24
	Buffalo beach	24
	Inshore	24
	Backbeach offshore	6
	Buffalo Beach offshore	6
Busselton		5-6

**(\*2) Dedicated aerial surveys conducted by Karen Evans, CSIRO**

**(\*3) OEH NSW**

Cape Solander Whale Migration Study (CSWMS)

Between the 24<sup>th</sup> of May and the 31<sup>st</sup> of July 2011, trained volunteers recorded the species, pod size, time sighted, bearing, distance from shore and behaviour of all marine mammals observed passing Cape Solander Botany Bay National Park, Sydney during daylight hours. A total of 66 days were surveyed during the 2011 northern migration season. Weather data was also recorded.

The data collected by community volunteers include observed distance offshore, numbers and average pod size of cetaceans that migrate along the coast. It also provides information on the peak periods of migration and the percentage annual increase/decrease in the recovering population numbers. Numbers for 2011 were higher than the previous year with the mean corrected number of humpbacks observed per day being 33.36 compared with 28.06 in 2010. Five southern right whales and four minke whales were also observed during the 2011 count.

**(\*4) CEAL**

**Humpback whale feeding and foraging behaviour study**

The Cetacean Ecology and Acoustics Laboratory conducted research on the feeding and foraging behaviour of humpback whales while on the southern migration off Eden, NSW. This research aims to determine how this krill specialist population of whales feed on by attaching D-tags to record underwater behaviour and completing focal follows. Additionally, it aims to determine what environmental and biological factors influence the feeding behaviour of humpback whales on migration. The role of vocal sound in coordinating feeding behaviour is also being investigated. In 2011, a total of 12 days on the water were achieved (limited due to weather conditions). In this time the boat based team achieved 4D-tags deployments (over 8 hours of data), 10 focal follows (20 hours of data), 19 biopsy samples (to determine sex), 25 CTD casts and 6 prey samples. During this time a land based team also collected data on whale behaviour and movement through the study area. A longer field season is planned to be completed in September/October 2012.

**(\*5) Identifying Humpback whale breeding grounds in the Great Barrier Reef**

**Dave Paton - Blue Planet Marine**

In winter, humpback whales (*Megaptera novaeangliae*) breed in the waters of the Great Barrier Reef Marine Park (GBRMP). Clearly defined breeding areas comparable to those seen in other parts of the world have not yet been identified in the Great Barrier Reef. Members of the research team recently applied a predictive spatial habitat model to identify areas important for mating and calving in the GBRMP (Smith et al 2012). This model identified two core areas, one of which is likely to be important to breeding that occurs between latitudes of 19.5°S to 22°S. Following this predictive spatial habitat modelling exercise, the research team undertook a preliminary vessel-based survey to validate this data and investigate the future potential for undertaking boat-based studies to examine humpback whale population dynamics in the GBR. Two boat based surveys were undertaken during 2011.

**(\*6) DSE**

Land based survey carried out by DSE and trained volunteers up to 2 hrs per day every day between May and September at Logan’s Beach viewing platform, Warrnambool.

One sighting was made by BWS.

**(\*7) DRI**

DRI conducted surveys on the resident southern Australian bottlenose dolphin populations and short-beaked common dolphins in Port Phillip sporadically during 2011 and on the bottlenose dolphin population in the Gippsland Lakes in July 2011. Dorsal fin photographs were collected for the purpose of identifying individuals. In addition, other areas of the dolphins’ bodies that were clearly visible were deliberately photographed as a means of assessing gross health. Behavioural data was also collected during surveys.

Researchers conducted a total of 11 surveys from the DRI’s research vessels during 2011. Bass Strait surveys were conducted in association with Flinders University and Dr Kerstin Bilgmann AAD funded research project. Humpbacks in Port Phillip were encountered opportunistically during a survey for the resident bottlenose dolphins and for the short-beaked common dolphins. Pod observed consisted of 5 animals and displayed competitive behaviours.

(\*8) Submitted as the Burrunan dolphin, *Tursiops australis*, however, the taxonomy of this classification is not yet confirmed so has been entered as Bottlenose dolphin, *Tursiops sp.*

**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 (*2)	Victoria	14 recorded sightings (count, date, time, location, behaviour,	Mandy Watson, DSE staff, other reliable sources	Land based – Logans Beach viewing platform, Warrnambool,	DSE, Warrnambool	Mandy Watson, DSE



		photo-identification*)		Victoria and other locations along Victorian coast		
Blue whale (*3)	Australia N=1	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Blue whale (*3)	Australia N=1	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Bottlenose dolphin	Perth metropolitan waters	Photo-ID, dorsal fin	D.Chabanne	Boat	Murdoch University	D.Chabanne, MUCRU
Bottlenose dolphin	Bunbury Backbeach, Buffalo Beach, Inshore	Photo-ID, dorsal fin	D.Chabanne K.Sprogis	Boat	Bunbury, Office for student Murdoch university based at the Dolphin Discovery Centre	D.Chabanne, MUCRU K.Sprogis, MUCRU
Bottlenose dolphin	Backbeach offshore, Buffalo Beach offshore	Photo-ID, dorsal fin	K.Sprogis	Boat	Bunbury, Office for student Murdoch university based at the Dolphin Discovery Centre	K.Sprogis, MUCRU
Bottlenose dolphin	Busselton	Photo-ID, dorsal fin	K.Sprogis	Boat	Bunbury, Office for student Murdoch university based at the Dolphin Discovery Centre	K.Sprogis, MUCRU
Bottlenose dolphin	Perth metropolitan waters	Photo-ID, dorsal fin	D.Chabanne	Boat	Murdoch University	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	Tasmanian coastal waters	Sightings	Staff Public	Vessel	N/A	R. Gales, DPIPWE
Common dolphin (*1)	Tasmanian coastal waters	Sightings	Staff Public	Shore	N/A	R. Gales, DPIPWE
Dusky dolphin (*1)	Tasmanian coastal waters	Sightings	Crew	Vessel	N/A	R. Gales, DPIPWE
Dwarf minke whale (*3)	Northern GBR	Photo-ID; sightings; behavioural observations	Primarily scientists and vessel crew; also passengers (Photo-ID data)	Whale-watching vessel	JCU	A. Birtles, JCU
False killer whale (*3)	Australia N=1	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Fin whale (*1)	Tasmanian coastal waters	Sightings	Crew	Vessel	N/A	R. Gales, DPIPWE
Humpback whale (*3)	Australia N=27	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA

Humpback whale (*3)	Australia N=1	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Humpback whale (*2)	Victoria	31 recorded sightings (count, date, time, location, behaviour)	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	Port Macquarie NSW	Images only	NPWS officer	Whale-watching vessel	Australian Registry of Wildlife Health	J Hall ARWH 8133/1
Humpback whale	Monkey Mia WA	Images only	NPWS officer	Whale-watching vessel	Australian Registry of Wildlife Health	J Hall ARWH 8135/1
Humpback whale	Hervey Bay, Qld	Blow sample collection – microbial analysis	UNSW staff/students	Whale-watching vessel	University of NSW	Tracey Rogers/UNSW
Humpback whale	Hervey Bay, Qld	Blow sample collection – microbial analysis	UNSW staff/students	Whale-watching vessel	University of NSW	Tracey Rogers, UNSW
Humpback whale	Gold Coast	Photo-ID; sightings	Volunteers	Whale watching vessel	Humpbacks & High-Rises Inc	Olaf Meynecke, GU
Humpback whale (*1)	Tasmanian coastal waters	Sightings	Staff Public Crew	Light plane, shore, vessel	DPIPWE	R. Gales, DPIPWE
Indo-Pacific humpback dolphin (*3)	Australia N=15	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Killer whale (*3)	Australia N=56	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Killer whale (*3)	Australia N=17	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Killer whale (*1)	Tasmanian coastal waters	Sightings	Staff Public Crew	shore, vessel	DPIPWE	R. Gales, DPIPWE
Long-finned pilot whale (*3)	Australia N=1	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Long-finned pilot whale (*1)	Tasmanian coastal waters	Sightings	Crew	Vessel	N/A	R. Gales, DPIPWE
Minke whale (*1)	Tasmanian coastal waters	Sightings	Crew	Vessel	N/A	R. Gales, DPIPWE
Pilot whale (*3)	Australia N=3	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Short-finned pilot whale (*3)	Australia N=3	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Southern right whale (*3)	Australia N=9	Observer Whale Sighting Form	Observer	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Southern right whale	Tasmanian coastal	Sightings Photo ID	Staff Public	Light plane, shore, vessel	DPIPWE	R. Gales, DPIPWE

(*1)	waters		Crew			
Southern right whale (*2)	Victoria	252 recorded sightings (count, date, time, location, behaviour, photo-identification if possible) may include repeat sightings of same individuals	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
Unidentified cetacean (*1)	Tasmanian coastal waters	Sightings	Public	Shore, vessel	N/A	R. Gales, DPIPWE
Unidentified dolphin (*1)	Tasmanian coastal waters	Sightings	Public	Shore	N/A	R. Gales, DPIPWE
Unidentified whale (*3)	Australia N=30	Logbook comment	Skipper	Commercial Fishing Vessel	AFMA database	Sally McCarthy AFMA
Incidental sightings of various species	Entire GBRMP	Incidental sighting data and photo ID	Crew and passengers	Tourist vessels	Eye on the Reef Database, GBRMPA	Chris Briggs, 07 47500777; Mark Read 07 47500725

Notes:

**(\*1) DPIPWE**

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 documented. A sighting event is 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 agency's 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.

**(\*2) DSE opportunistic data only.**

During 2011 no opportunistic data was collected by the DRI research team on resident the bottlenose or common dolphins of Port Phillip, the resident bottlenose dolphins of Western Port or the Gippsland Lakes.

DRI receives reports from members to the public community dolphin-sighting network, and a database kept of these sightings. This reporting form results 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 the past years. We continue to encourage our members and the general public to contribute sightings to our community dolphin watch database through our website and by directly contacting the institute.

**(\*3) AFMA**

Some sightings may have been reported by both skipper and observer.

## 2.2 Analyses/development of techniques

Target species	Date	Area	Methods/effort	Parameters/ factors measured	Contact person/institute; refs
Australian snubfin dolphin	11/7/2011 to 03/2012	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Genetic/toxicology	Mt-DNA, microsatellite, heavy metal, PCBs, DDTs, HPAs, CYP1A1, CYP2B	Daniele Cagnazzi, SCU
Bottlenose dolphin	May-Dec2011	Eastern Gulf of Shark Bay	Surveys and Focal follows	Association, behaviour, environmental data	Janet Mann, GU
Bottlenose dolphin	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	Random transect survey	Distribution; sighting frequency, habitat use/selection, abundance, movement patterns, social structure, tourism impacts	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Bottlenose dolphin	1/1/2011 to 6/3/2011 & 1/6/2011 to 8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	Random transect survey	Distribution; sighting frequency, habitat use/selection, abundance, movement patterns, social structure, tourism impacts	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Bottlenose dolphin	5/2011 to 11/2011	Central Qld : Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Genetic/toxicology	Mt-DNA, microsatellite, heavy metal, PCBs, DDTs, HPAs, CYP1A1, CYP2B	Daniele Cagnazzi, SCU
Bottlenose dolphin (*1)	On-going	Port Phillip	Opportunistic surveys	Sighting frequency, identification of individuals	Sue Mason-DRI
Bottlenose dolphin (*1)	On-going	Gippsland Lakes	Opportunistic surveys	Sighting frequency, identification of individuals	Sue Mason-DRI
Bottlenose dolphin (*3)	28-31/5/2011	Port Phillip	Line transect survey	Distribution; sighting frequency; photo identification; biopsy sampling	K. Charlton-Robb (MU)
Common dolphin (*1)	On-going	Port Phillip	Opportunistic surveys	Sighting frequency, identification of individuals	Sue Mason-DRI
Common dolphin (*2)	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	Random transect survey	Distribution; sighting frequency, habitat use/selection, abundance, movement patterns, social structure, tourism impacts	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Dwarf minke whale; 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	A. Birtles, JCU; Mark Read Great Barrier Reef Marine Park Authority (Project Manager, GBRMPA Dwarf Minke Whale Tourism Monitoring Program)
Humpback whale	Jan –Dec 2011	Hervey Bay, Qld Australia	454 analysis of blow samples (Lima et al. 2012)	microbial community analysis using next-generation pyro-sequencing (454 genetic analysis) to describe community structure	Tracey Rogers/UNSW
Humpback whale	26 Sep-1 Oct, 2011	Eden, NSW, Australia	Photo-Id	Resight rates; movement; Reproductive parameters	G. Kaufman/PWF
Humpback	1/2011 to	Hervey Bay, Qld	Collected 454 blow samples	Microbial composition of	Tracey Rogers,

whale	12/2011	Australia		blow samples	UNSW
Humpback whale	7/08/2011 to 9/2011	Hervey Bay, Qld, Australia	Photo-ID	Resight rates; movement; Reproductive parameters	G. Kaufman, PWF
Humpback whale	15/9/2011 to 29/10/2011	SE Qld	Behavioural responses	Behaviour, vocalisation	Mike Noad, UQ
Indo-Pacific humpback dolphin	1/1/2011-6/3/2011 & 1/6/2011-8/09/2011	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	Random transect survey	Distribution; sighting frequency, habitat use/selection, abundance, movement patterns, social structure, tourism impacts	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Indo-Pacific humpback dolphin	11/7/2011 to 03/2012	Central Qld : Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Genetic/toxicology	Mt-DNA, microsatellite, heavy metal, PCBs, DDTs, HPAs, CYP1A1, CYP2B	Daniele Cagnazzi, SCU
Pygmy blue whale	8-25 Feb 2011	Otway Basin (west of Bass Strait)	Line transect survey	Distribution; encounter rate	M. Morrice/P.Gill, BWS; unpublished report to Origin Energy
Southern right whale	25-29 August 2011	Southern Australian coast between C Leeuwin (WA) and Ceduna (SA)	Aerial survey (direct count)	Sighting numbers; localities	J L Bannister/WAM; Bannister 2012

#### Notes

#### (\*1) DRI

Population analyses are currently being undertaken utilising photo-identification data and mark-recapture programs.

#### (\*2) Southern Cross University.

##### Elizabeth Hawkins - Research in both Qld and NSW

Two different research projects were carried out in 2011 – one located in Southern Qld, Northern NSW that aimed to model the habitat selection and outline environmental parameters influencing habitat use, and assess the abundance of coastal dolphins within this region. These data are still being analysed, but there are extensive measurements of water quality throughout the study area. The photo-id catalogue for this population is also very extensive.

The second study is focused in Byron Bay, northern New South Wales. This study is a long-term study that assesses the levels of dolphin-human encounters, the habitat use, population trends, social structure and communication of the coastal dolphins in this region. The data have been collected since 2003 on this population. The data are still being compiled, but a recent unpublished report outlines some key findings on habitat use and human-dolphin encounters within the Bay.

(\*3) Submitted as the Burrunan dolphin, *Tursiops australis*, however, the taxonomy of this classification is not yet confirmed so has been entered as Bottlenose dolphin, *Tursiops sp.*

### 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 dolphin	dorsal fin and body markings	Kimberley Coast, WA	75	Y	75	Dr Deborah Thiele, ANU

Australian snubfin dolphin	dorsal fin and body markings	Prince Regent River, WA	5	Y	5	Dr Deborah Thiele, ANU
Australian snubfin dolphin	Dorsal fin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	12	Y	85	Daniele Cagnazzi, SCU
Blue whale	lateral	Geographe Bay, Western Australia	8	N	180	Chris Burton – land and small vessel surveys WWR
Bottlenose dolphin (*1)	Dorsal fin	Perth, Swan-Canning Estuary	39	Y	213	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	Dorsal fin	Perth, Cockburn Sound	75	Y	213	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	Dorsal fin	Perth, Owen Anchorage	81	Y	213	D.Chabanne, MUCRU
Bottlenose dolphin (*1)	Dorsal fin	Perth, Gage Roads	62	Y	213	D.Chabanne, MUCRU
Bottlenose dolphin (*2)	Dorsal fin	Bunbury, Backbeach	49	Y	250	D.Chabanne, MUCRU K.Sprogis, MUCRU
Bottlenose dolphin (*2)	Dorsal fin	Bunbury, Buffalo Beach	Data NA	Y	250	D.Chabanne, MUCRU K.Sprogis, MUCRU
Bottlenose dolphin (*2)	Dorsal fin	Bunbury, Inshore	99	Y	250	D.Chabanne, MUCRU K.Sprogis, MUCRU
Bottlenose dolphin	Dorsal fin	Bunbury, Backbeach offshore	data NA	data NA	data NA	K.Sprogis, MUCRU
Bottlenose dolphin	Dorsal fin	Bunbury, Buffalo Beach offshore	data NA	data NA	data NA	K.Sprogis, MUCRU
Bottlenose dolphin	Dorsal fin	Busselton	13 individuals were recorded - data NA	data NA	data NA	K.Sprogis, MUCRU
Bottlenose dolphin	Dorsal Fin	Shark Bay	372	Y	1132	Janet Mann, GU
Bottlenose dolphin	Dorsal Fin	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	900	Y	950	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Bottlenose dolphin	Dorsal fin	Central Queensland: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	NA	N	NA	Daniele Cagnazzi, SCU
Bottlenose dolphin	Dorsal fin	Port Phillip	Analysis continuing	Y	110	Sue Mason-DRI
Bottlenose dolphin	Dorsal fin	Gippsland Lakes	Analysis continuing	Y	30	Sue Mason-DRI
Bottlenose dolphin (*3)	Dorsal fin	Port Phillip	Analysis continuing	Y	110 (records also kept at Dolphin Research Institute)	K. Charlton-Robb (MU) Sue Mason (DRI)

Common dolphin	Dorsal fin	Port Phillip	Analysis continuing	Y	12	Sue Mason-DRI
Common dolphin	Dorsal Fin	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	37	Y	950	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Dwarf minke whale	L & R thorax region primarily; plus scar patterns and other unique features where present.	Northern GBR	For 2011: Approx. 100 different animals seen underwater and photographed. Analysis ongoing	Y	Photographs available since 1996. Full analysis completed for seasons 2006, 2007 and 2008 only - which has provided 384 complete ID's (images available for both sides of	A. Birtles & S. Soltzick, JCU.
Humpback whale	Fluke	Geographe Bay, Western Australia	20	N	2000	Chris Burton – land and small vessel surveys WWR
Humpback whale	Lateral	Geographe Bay, Western Australia	40	N	2500	Chris Burton – land and small vessel surveys WWR
Humpback whale	Flukes and/or dorsal fins – boat based	E Aust (Group E)	13	Y	97	R. Gales, DPIPWE
Humpback whale	Dorsal fin, fluke	Port Phillip /Bass Strait	Beginning catalogue	Y	5	Sue Mason-DRI
Humpback whale	Fluke	NSW, Group E	37	N	N/A	Kylie Owen/ CEAL
Humpback whale	Dorsal fin	NSW, Group E	68	N	N/A	Kylie Owen/ CEAL
Humpback whale	Fluke	Great Barrier Reef/ E1	To be confirmed	To be confirmed	To be confirmed	David Paton, BPM; GBR2011
Humpback whale (*1)	Fluke	East Australia/ Stock V	462	Y	6,285	G. Kaufman, PWF
Humpback whale	Fluke	East Australia E1	62	N	-	Mike Noad, UQ
Humpback whale	Dorsal lateral	East Australian E1	126	N	-	Mike Noad, UQ
Humpback whale	Fluke	East coast Australia/Group V	0	Y	~250	Olaf Meynecke, GU
Indo-Pacific humpback dolphin	Dorsal Fin	Southern Moreton Bay, Gold Coast, Tweed Heads, Byron Bay	13	Y	950	E.R. Hawkins, SCU, Hawkins (2011), Hawkins, Brooks & Peterson (2011)
Indo-Pacific humpback dolphin	Dorsal fin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	43	Y	162	Daniele Cagnazzi, SCU
Minke whale	Lateral	Geographe Bay, Western Australia	1	N		Chris Burton – land and small vessel surveys WWR
Pygmy blue whale	Lateral markings	Southern Australia/Indian	7	Y	207	M. Morrice/P.Gill; BWS
Southern right whale	Callosity pattern - aerial and boat based	SE Aus	1	Y	105	R. Gales, DPIPWE
Southern right whale	Head callosity	SE Australia	individuals	Y	183 min	Mandy Watson, DSE

Southern right whale	Head callosity pattern	'western' Australian	486 photos selected for subsequent 'matching'	N	1861 individually identified, mainly to 2010	J L Bannister/WAM; Bannister 2012
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#### Notes

(\*1) This catalogue includes dolphin IDs from the four areas covering the Perth metropolitan waters (Swan-Canning Estuary, Cockburn Sounds, Owen Anchorage, and Gage Roads)

(\*2) This catalogue regroups dolphins from Bunbury Backbeach, Inshore and Buffalo areas and was updated late 2010 by Delphine Chabanne. Since, the catalogue has been updated by Kate Sprogis. Unfortunately, this information is not available when completing the report. For more details, contact K.Sprogis.

(\*3) Submitted as the Burrunan dolphin, *Tursiops australis*, however, the taxonomy of this classification is not yet confirmed so has been entered as Bottlenose dolphin, *Tursiops sp.*

#### 3.1.2. Artificial marking data

DPIPWE aim to attach approved Floy "spaghetti" tags on individuals released at stranding events. Please contact R. Gales, DPIPWE, for further information.

N	Species	Floy Tag
1	<i>Tursiops truncatus</i> (Bottlenose dolphin)	WOO 040

#### 3.1.3 Telemetry data

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute; refs
Humpback whale (*1)	Satellite/VHF Entanglement Response	1	5 days 10 hours and 4 minutes (130 hours).	D. Coughran/DEC
Humpback whale (*2)	Satellite	28	47 days/ 28,893 km	C. Jenner/ CWR & AMMC N. Gales, M. Double/AAD
Humpback whale	D-tag	4	2.5 hours	Kylie Owen/ CEAL
Humpback whale	Detachable satellite	4	30h max attachment time	Mike Noad, UQ
Humpback whale	D-tag	19	8h max attachment time	Mike Noad, UQ
Humpback whale	Camera	0	2 days	Olaf Meynecke, GU
Pygmy blue whale (*2)	Satellite	12	43 days	N. Gales, M. Double/AAD C. Jenner/ CWR & AMMC

#### Notes:

##### (\*1) Department of Environment and Conservation, Western Australia

The buoy was tracked for 387.69 nautical miles (718 kilometres), for all but the last few miles the buoy was attached to the whale. The whale was followed using 79 Argos fixes that were tested as plausible over a period of 5 days 10 hours and 4 minutes (130 hours). It swam at speed, 120km south west without stopping initially, before turning north and making a line for the Abrolhos Islands. The decision to deploy a large whale disentanglement response team to Geraldton was based on the satellite data. It was at times over 200km west of the mainland in 5000 metres of water. The tracking buoy and all entanglement gear was recovered, it is known from collaboration with the Department of Fisheries and commercial fishery the type and length of gear involved, supported by observations at time of tagging. This was the first satellite tagged response to an entangled healthy whale in the southern hemisphere, successfully disentangles, gear and tracking equipment recovered.



## **(\*2) Australian Marine Mammal Centre, Australian Antarctic Division in collaboration with the Centre for Whale Research**

### **Humpback whales**

This study was the first large-scale deployment of satellite tags on northbound humpback whales and aimed to describe the migratory distribution and behaviour of these whales off north-western Australia. A total of 28 tags were successfully deployed on migrating humpback whales between the 8<sup>th</sup> and the 23rd July 2011. Of these tags, 15 performed poorly providing no uplinks, only Z class data or the tag ceased transmitting within the first six days of deployment. Whales were tracked from one to 47 days (mean = 16.04 days; SD = 15.1) for a total of 28,893 km (mean = 1,256 km; max: 3,612) and the total net distance moved from the first to the last location was 11,702 km (mean = 509 km; max: 1,283). The tagged whales revealed the consistently narrow, inshore distribution of migrating whales along the north-western coast of Australia. Surprisingly many whales terminated their northern migration well short of the recognised calving and breeding area for this population. Also while deploying tags many females with calves were sighted off North West Cape. These observations highlight the diversity of migration and calving behaviour that occurs through this region of Western Australia.

(Double *et al.*, 2011a).

### **Pygmy blue whales**

This study aimed to describe the migratory distribution and behaviour of pygmy blue whales that feed in the Perth Canyon region off the coast of Western Australia. A total of twelve tags were successfully deployed on blue whales between the 14<sup>th</sup> March and the 6<sup>th</sup> April although four performed poorly with no uplinks, only Z class data or the tag ceased transmitting within a few days of deployment. The 10 whales that provided some location data were tracked from 1 to 162 days (mean = 43.3 days; SD = 47.8) for a total of 20,621 km (mean = 2,291 km; max: 8,815) and the total net distance moved from the first to last location was 9,606 km (mean = 1,067 km; max: 3227 km). Following tagging several whales remained in the Perth Canyon/Naturaliste Plateau for over a month whereas others migrated north immediately. On their migration north the tagged whales were located offshore (usually between 40 and 100km) and showed distinct changes from high (~100km/day) to lower (<50km/day) travel distances. The lower rates of travel were seen in the Perth Canyon/Naturaliste Plateau, North West Cape/Ningaloo Reef and the Banda/Molucca Sea regions. Three whales were tracked through to North West Cape and each then took a similar bearing (approximately NE) to cross the Timor Sea as did a tracked whale from a previous study. Two whales provided locations from the northern terminus of their migration in the Banda and Molucca Seas. These observations confirm that the Banda and Molucca Seas is the northern destination for this population of pygmy blue whales and is therefore the likely calving area. These data also show that the greater Perth Canyon/Naturaliste Plateau region of Western Australia is a region of high and often prolonged activity for these whales. (Double *et al.*, 2011b).

## 3.2 Analyses/development of techniques

### **Victoria**

DRI processing of identification images and subsequent analyses is continuing.

### **New South Wales**

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. These sightings records are then 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 and are currently being updated to include 2008 to 2011. Analyses of rates of interchange across several sites within eastern Australia are currently underway.

### **Pacific Whale Foundation (research in NSW and Queensland)**

Fluke identification photographs were first matched within-season and the best photograph of each individual was selected and then matched to the overall catalogue. The photographs and accompanying data were used to produce sighting histories of known individuals. These sightings records were then 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 and are currently being updated to include 2008 to 2011. Analyses of rates of interchange across several sites across eastern Australia are currently underway.

Target species	Date	Area	Methods/effort	Parameters/ factors measured	Contact person/institute; refs
Bottlenose dolphin	2008-2011	Moreton Bay, QLD	Photo-ID (using data collected during boat surveys in 2008-10)	Social structure / association patterns; abundance estimates (mark-recapture)	I. C. Ansmann (UQ)

#### 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 dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	2011/Winter - 28 samples	Y	28	53	Daniele Cagnazzi, SCU
Australian snubfin dolphin	Queensland	2011	Y	20	103	G. Parra, CEBEL
Bottlenose dolphin	Pilbara	2011 - 29	Y		58	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Macquarie Harbour	2011 (1)	Y		14	R. Gales, DPIPWE
Bottlenose dolphin	WA Shark Bay and Bunbury					W Sherwin UNSW (Reported by L Bejder U Murdoch and M Krutzen U Zurich)
Bottlenose dolphin	Cockburn Sound	2011 - 21	Y		42	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Swan River	2011 - 3	Y		6	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Bunbury	2011 - 62	Y		124	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Augusta	2011 - 16	Y		32	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Coral Bay	2011 - 4	Y		8	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Broome	2011 - 9	Y		18	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Dampier	2011 - 1	Y		2	MUCRU (information from DEC fauna database)
Bottlenose dolphin	Shark Bay-Eastern Gulf	Oct 2011 – 11 blow samples	Y		22	Janet Mann GU
Bottlenose dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	2011/Winter – 28 samples	Y	10	10	Daniele Cagnazzi, SCU
Bottlenose dolphin (*1)	Port Phillip	9	Y	0	135	K. Charlton-Robb (MU)
Common dolphin (*2)	Southern Australia	2011	Y	111	111	Bilgmann, Moller, Parra, CEBEL
Dwarf minke whale	Northern GBR	2011 – 2 samples	Y	0	~50	A. Birtles, JCU.

Humpback whale	Off North West Cape	July 2011 - 18	Y	18		Curt Jenner CWR/ AMMC Nick Gales/ Mike Double – AAD/AMMC
Humpback whale	E Aus. Group E	2011 (1)	Y		79	R. Gales, DPIPWE
Humpback whale	NSW, Group E	19	Y	0	19	Kylie Owen/ CEAL
Humpback whale	Hervey Bay, Qld Australia	2011 - 10 individuals sampled	Y	10	10	Tracey Rogers/UNSW
Humpback whale	Group E1	2011	N	N	31 from GBR	David Paton, BPM
Humpback whale	Hervey Bay, Qld	2011	Y	10	10	Tracey Rogers, UNSW
Humpback whale	Group E1	36	Y	0	61	Mike Noad, UQ
Humpback whale	Group E1	26 samples	Y	26	26	Susan Bengston-Nash, GU
Indo-Pacific humpback dolphin	Dampier	2011 - 2	Y		4	MUCRU (information from DEC fauna database)
Indo-Pacific humpback dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	2011/Winter - 27 samples	Y	27	103	Daniele Cagnazzi, SCU
Indo-Pacific humpback dolphin	Queensland	2011	Y	7	108	G. Parra, CEBEL
Southern right whale	SE Australia	2	Y	0	2	Mandy Watson. DSE

**Notes:**

(\*1) Submitted as the Burruran dolphin, *Tursiops australis*, however, the taxonomy of this classification is not yet confirmed so has been entered as Bottlenose dolphin, *Tursiops sp.*

(\*2) During 2011, no dolphin biopsy samples were collected or analysed under DRI's research permit. However, assistance (vessel and staff) was provided to Flinders University (Dr Kerstin Bilgmann) to help obtain short-beaked common dolphin samples using pole biopsy methods.

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

Species	Area/stock	Tissue type(s)*	No. collected	Archived (Y/N)	No. analysed	Contact person/institute
Australian snubfin dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Skin, blubber	26	Y	26	Daniele Cagnazzi, SCU
Common dolphin	Tasmania	Skin	4	Y		R. Gales, DPIPWE
Common dolphin	Tasmania	Blubber	4	Y		R. Gales, DPIPWE
Common dolphin	Tasmania	Stomach	2	Y		R. Gales, DPIPWE
Common dolphin	Tasmania	Tooth	2	Y		R. Gales, DPIPWE

Common dolphin	SA	Genetic tissues, (blood, liver, kidney, muscle, skin) reproductive's, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)	6	Y	0	C. Kemper, SAM
Bottlenose dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Skin, blubber	10	Y	10	Daniele Cagnazzi, SCU
Bottlenose dolphin	SA	Genetic tissues, (blood, liver, kidney, muscle, skin) reproductive's, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)	1	Y	0	C. Kemper, SAM
Indo-Pacific humpback dolphin	Central Qld: Repulse Bay, Shoalwater Bay, Keppel Bay, and Port Curtis	Skin, blubber	24	Y	24	Daniele Cagnazzi, SCU
Southern right whale	SA	Genetic tissues (skin)	1	Y	0	C. Kemper, SAM

#### 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	Central Qld	Skin, blubber	3	Y	3	Daniele Cagnazzi, SCU
Blainville's beaked whale	Lord Howe Island	Blubber sample	3	Y (M43481-3)		Australian Museum-Sandy Ingleby
Bottlenose dolphin	Perth, Mandurah, and Bunbury	Any lesions, skin, blubber, liver, kidney, spleen, lung, brain, stomach & stomach contents, gonads, lymph nodes, adrenal glands, thyroid, teeth bone, muscle, faeces, parasites	From 6 individuals	Y	6	Carly Holyoake and Nahiid Stephens, Murdoch University
Bottlenose dolphin	Tasmania	Skin	5	Y	1	R. Gales, DPIPWE
Bottlenose dolphin	Tasmania	Blubber	3	Y		R. Gales, DPIPWE
Bottlenose dolphin	Tasmania	Stomach	1	Y		R. Gales, DPIPWE
Bottlenose dolphin	Tasmania	Tooth	3	Y		R. Gales, DPIPWE
Bottlenose dolphin	Bass Strait	Skin, blubber	1	Y	0	Kirsty Greengrass
Bottlenose dolphin	Evans Head NSW	Images only	1	Y	0	ARWH

Bottlenose dolphin	SA	Genetic tissues, (blood, liver, kidney, muscle, skin), reproductives, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)	8	Y	0	C. Kemper, SAM
Indo-Pacific bottlenose dolphin	SA	Genetic tissues, (blood, liver, kidney, muscle, skin), reproductive's, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)	10	Y	0	C. Kemper, SAM
Indo-Pacific bottlenose dolphin	Fraser Island	Skin, blubber	1	Y	0	Dan Clifton, QPWS
Common dolphin	Tasmania	Skin	2	Y		R. Gales, DPIPWE
Common dolphin	Tasmania	Blubber	2	Y		R. Gales, DPIPWE
Common dolphin	Tasmania	Tooth	2	Y		R. Gales, DPIPWE
Common dolphin	Bass Strait	Skin, blubber, blood	5	Y	0	Kirsty Greengrass
Common dolphin (washed up 01/01/2011)	Bass Strait	Skin, blubber	unknown	Unknown	unknown	Kate Charlton-Robb Monash University
Common dolphin (washed up 12/01/2011)	Bass Strait	Skin, blubber	2	yes	0	David Donnelly - DRI
Common dolphin (washed up 04/11/2011)	Bass Strait	Skin, blubber	2	yes	0	Jeff Weir - DRI
Common dolphin (02/01/2011)	Bass Strait	Skin, blubber, kidney, liver, melon	1	Y	0	K. Charlton-Robb (MU)
Common dolphin (05/05/2011)	Port Phillip	Skin, blubber, kidney, liver, melon	1	Y	0	K. Charlton-Robb (MU)
Common dolphin	SA	Genetic tissues, (blood, liver, kidney, muscle, skin), reproductive's, stomach and intestines, toxic contaminants (liver, kidney, muscle, blubber)	1	Y	0	C. Kemper, SAM

Humpback whale		Any lesions, skin, blubber, liver, kidney, spleen, lung, brain, stomach & stomach contents, urine, gonads, lymph nodes, adrenal glands, eyes, thyroid, baleen bone, muscle, faeces, parasites	From 3 individuals	Y	3	Carly Holyoake and Nahiid Stephens, Murdoch University
Humpback whale		Skin, blubber, baleen, eye	From 4 individuals	Y	4	Carly Holyoake and Nahiid Stephens, Murdoch University
Humpback whale	E Aust (Group E)	Skin	7	Y		R. Gales, DPIPWE
Humpback whale	E Aust (Group E)	Blubber	4	Y		R. Gales, DPIPWE
Humpback whale	E Aust (Group E)	Baleen	2	Y		R. Gales, DPIPWE
Humpback whale	E Aust (Group E)	Bone	1	Y		R. Gales, DPIPWE
Humpback whale	Group E	Skin, blubber	4	Y	0	Kirsty Greengrass
Humpback whale (washed up 04/11/2011)	Bass Strait	Skin, blubber	2	yes	0	Jeff Weir - DRI
Humpback whale	Tallebudgera Qld	Multiple tissues	1	Y	1	ARWH
Humpback whale	Wollongong, NSW	Skin, blubber	1	Y	1	ARWH
Humpback whale	SA	Genetic tissues (skin)	1	Y	0	C. Kemper, SAM
Humpback whale	Hervey Bay	Skin, blubber	1	Y	0	Matt Lowry, QPWS
Humpback whale	GBRCMP	Skin, blubber	2	Y	0	Ben Geddes, QPWS
Humpback whale	Moreton Bay	Skin, blubber	2	Y	0	David Blyde, Sea World
Humpback whale	Group E1	Skin, blubber	5	Y	0	Susan Bengston-Nash, GU
Indo-Pacific humpback dolphin	Central Qld	Skin, blubber	2	Y	2	Daniele Cagnazzi, SCU
Long-finned pilot whale	Tasmania	Skin	18	Y		R. Gales, DPIPWE
Long-finned pilot whale	Tasmania	Blubber	18	Y	7	R. Gales, DPIPWE
Long-finned pilot whale	Tasmania	Tooth	15	Y		R. Gales, DPIPWE
Long-finned pilot whale	Tasmania	Dorsal fin	4	Y		R. Gales, DPIPWE
Melon-headed whale	Sunshine Coast	Skin, blubber	1	Y	0	Natalie Reed, QPWS
Minke whale	Tasmania	Skin	3	Y		R. Gales, DPIPWE
Pygmy killer whale	Cronulla NSW	Full set tissues	1	Y	1	ARWH

Pygmy killer whale	Elouera Beach NSW	Skull and flipper	1	Y (M43533)		Australian Museum-Sandy Ingleby
Pygmy right whale	SA	Genetic tissues, (blood, liver, kidney, muscle, skin), reproductive's, toxic contaminants (liver, kidney, muscle, blubber)	1	Y	0	C. Kemper, SAM
Striped dolphin	SW WA	Skin, blubber, lung	1 individual	N	0	Carly Holyoake, Murdoch University
Striped dolphin	Bellambi NSW	Full set tissues	1	Y	1	ARWH
Sperm whale	Tasmania	Skin	26	Y		R. Gales, DPIPWE
Sperm whale	Tasmania	Blubber	20	Y		R. Gales, DPIPWE
Sperm whale	Tasmania	Teeth and lower jaw	23	Y		R. Gales, DPIPWE
Sperm whale	Newport NSW	Blubber, muscle, liver	1	Y	1	ARWH
Sperm whale	Newport, NSW	Skin, blubber	1	Y	1	ARWH
Sperm whale	Newport Beach NSW	Mandible	1	Y (M43368)		Australian Museum-Sandy Ingleby
Sperm whale	SA	Genetic tissues (muscle)	1	Y	0	C. Kemper, SAM

#### 4.4 Analyses/development of techniques

##### (\*1) Western Australian Museum

###### Southern right whale

Increase rate, 1993-2011, calculated as 6.82% for all animals, CI 4.24-9.47), 7.21% for cow/calf pairs, CI 3.70-10.85; population size *ca* 2900 (total 'Australian' *ca* 3500); see Bannister 2012

##### (\*2) Victoria

During 2011, nine Burrunan dolphins from the resident population in Port Phillip Bay were successfully biopsied. The samples collected during 2011 will be processed in the genetics laboratory at Museum Victoria, as a part of the continuing 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.

##### (\*3) University of New South Wales

###### Tracey Rogers

Has developed techniques for detecting the minute quantities of hormones in blow (Hogg et al. 2005; 2009) and are now adapting this technique to examine the microbial flora in the blow or 'snot' of a whale. This is a much easier way to assess population health than getting blood from a free-swimming whale. We initially focused on using a captive model (dolphins) as a proof of concept and this has proven successful (Lima et al. 2012- description below in 9.).

Over the past two years blow samples from free-swimming humpback whales have been collected to identify microbial communities associated with respiratory system. Microbial communities are important for the immune system and may provide a proxy to follow population health as well as being a tool to look at social relationships between whales by examining the patterns of shared microbial communities between whales. In addition we are exploring whether blow samples provide enough DNA material for genetic analysis as this may provide a non-invasive alternative to biopsy sampling which may be possible in some circumstances. We are using next

generation pyrosequencing (454 analyses) as it is a powerful technique particularly as we have minute quantities of material.

#### **(\*4) SCU**

Two different research projects were carried out in 2011 – one located in Southern Qld, Northern New South Wales that aimed to model the habitat selection and outline environmental parameters influencing habitat use and assesses the abundance of coastal dolphins within this region. These data are still being analyzed, but there are extensive measurements of water quality throughout the study area. The photo-id catalogue for this population is also very extensive.

The second study is focused in Byron Bay, northern New South Wales. This study is a long-term study that assesses the levels of dolphin-human encounters, the habitat use, population trends, social structure and communication of the coastal dolphins in this region. The data have been collected since 2003 on this population. The data are still being compiled, but a recent unpublished report outlines some key findings on habitat use and human-dolphin encounters within the Bay.

#### **Daniele Cagnazzi, SCU**

1. To investigate the presence of polycyclic hydrocarbons (PAHs) in subcutaneous bubbler samples: Levels of PAHs and PAH fingerprint will be evaluated by High Performance Liquid Chromatography (Waters 600 HPLC) with Fluorescence Detector (Waters 474 Scanning Fluorescence Detector) and UV Detector (Waters 2487 Dual ÷ Absorbance Detector); PAH separation will be performed using a reversed phase column with an acetonitrile/water gradient (Marsili et al. 1997).

2. To assess levels of organochlorines (OCs) such as hexachlorobenzenes (HCBs), polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethane (DDTs) and their derivatives from blubber samples: The analytical method used for quantitative and qualitative analysis of HCB, DDT and PCB will be High Resolution Capillary Gaschromatograph (GC) equipped with an electron capture detector (63Ni ECD)(AGILENT 6890/N ), according a modification of the approach of U.S. Environmental Protection Agency 8081/8082 (Marsili et al. 1996). The GC has a SPB-5 bonded phase in a fused silica capillary column, 30 m long. Total PCBs will be quantified as the sum of 30 congeners. Total DDT will be calculated as the sum of the op' and pp' forms of DDT, DDD and DDE.

3. To determine concentrations of heavy metals from superficial skin samples: For heavy metal analysis, tissues will be lyophilised, homogenised, weighed and then digested with HNO<sub>3</sub> in high-pressure vessels. Metal concentrations in samples will be determined by atomic absorption spectrometry with graphite furnace (Pb, Cd, Cr) and flow injection mercury system (Hg) detection.

4. To develop and apply a set of sensitive non-lethal biomarkers in skin biopsies of inshore dolphins: A multidisciplinary approach is being used to explore the effects of the exposure of inshore dolphin species to anthropogenic contaminants, using skin biopsies as a diagnostic tool, and combining the analysis of molecular biomarkers (CYP1A1 and CYP2B). CYP1A1 and CYP2B have been detected in cetacean skin and induction of these isoforms was found after exposure to various contaminants such as OCs, PAHs and PBDE both in vitro and in field studies (Fossi et al., 2006; Fossi et al., 2008). Induction of CYP isoforms can thus be considered as a powerful biomarker of exposure to known or unknown contaminants. In Western Blot analysis, S9 fractions of tissue homogenates (biopsy and slice biopsies, in duplicate for each sample) will be separated by SDS-PAGE (10% polyacrylamide gels – Criterion XT Precast Gel-BioRad) and blotted onto nitrocellulose sheets for 1 hour at the constant voltage of 200 V. The membranes will be saturated by incubating them with a blocking solution for 1 hour at room temperature. Goat anti-rabbit CYP1A1 and anti CYP2B, diluted 1:5000 and 1:1000, respectively, in TTBS-1% gelatine, will be incubated overnight at room temperature with cetacean proteins. Incubation with anti-rabbit HRP-labelled secondary antibody (1:3000 final dilution) will be performed for 1.5 hours at room temperature and protein detection will be done according to the BioRad Immun-Star HRP Chemiluminescent Kit booklet, using standardized times (Fossi et al., 2008). Semi-quantitative analysis will be performed for each WB (in triplicate) with Quantity One software (BioRad, 1-D Analysis Software) using the methods proposed by Fossi et al. (2008). Contact Daniele Cagnazzi at SCU for further details.

#### **ARWH**

Pathology reports pertaining to all ARWH lodged cases can be retrieved by contacting the Australian Registry of Wildlife Health ([arwh@zoo.nsw.gov.au](mailto:arwh@zoo.nsw.gov.au)).

#### **University of Queensland. School of Veterinary Science**

##### **Michael Noad**

UQ researchers are currently developing methods for dealing with behavioural response study data collected during exposure of humpback whales to air guns off the east coast of Australia. This is part of the Behavioural Responses of Humpback whales to Seismic Surveys (BRAHSS) project being conducted from 2010 – 2014.



Data are being consolidated, checked and validated and initial data exploration within modelling and non-modelling frameworks initiated. Contact Mike Noad or Rebecca Dunlop at UQ for more information.

Target species	Date	Area	Methods/effort	Parameters/ factors measured	Contact person/institute; refs
Bottlenose dolphin	2008-2011	Moreton Bay, QLD	Genetics – microsatellites, mtDNA (using skin biopsy samples collected in 2008-10)  Stable isotope analysis (using skin biopsy samples collected in 2008-10)  Trace element analysis (using blubber biopsy samples collected in 2008-10)	Population Structure  Resource use patterns  Trace element concentrations	I. C. Ansmann (UQ)

## 5. POLLUTION STUDIES

### DPIPWE

Blubber samples from 114 individual long-finned pilot whales (from 3 stranding events in 2008; 2 stranding events in 2011) sent to staff at the Ecotoxicology and Environmental Contaminants Section, Office of Environment & Heritage NSW for analysis of persistent organic pollutants in collaboration with the University of Antwerp. Analysis is ongoing.

### Victoria

Ms Alissa Monk is continuing the research at Monash University investigating the contaminant loads of dolphins in south-eastern Australia. The PhD study aims to monitor levels of contaminants; investigate trophic transfer of contaminants and investigate the health effects of contaminants on dolphins. The blubber portion of the biopsy samples, along with samples collected from dead beach-cast dolphins will be used in the ongoing study.

### Southern Cross University

#### Daniele Cagnazzi

A total of 35 biopsy samples from *Sousa chinensis* = 13, *Orcaella heinsohni* = 12, *Tursiops aduncus* = 10 were analysed in 2011. The results presented in this summary are therefore based on the initial samples collected and analysed, and need to be evaluated accordingly. Due to the small sample size, for the purpose of this report samples of *Tursiops truncatus* from the Mediterranean Sea (MS), which is known for its high pollution level, were used for comparison.

- The cytochromes 1A1 and 2B were detected in 9 samples of *O. heinsohni*, 12 of *S. chinensis* and 7 of *T. aduncus*.
  1. *S. chinensis* had the highest CYP1A1 and CYP2B induction followed by *O. heinsohni*, *T. aduncus* and *T. truncatus*. A KW test showed an overall significant difference among species in CYP1A1 (KW=13.86, df = 3, p = 0.003) and CYP2B (KW=12.45, df = 3, p = 0.006) induction.
  2. A subsequent *post hoc* test, adjusted with Bonferroni correction, showed significant differences only when the three target species were compared to *T. truncatus*.
- PAHs were extracted from all samples but so far have only been quantified for three samples of humpback and snubfin dolphins and three for bottlenose dolphin.
  1. Mean levels of PAHs in Australian samples (Mean = 77,552 ng/g, 95% CI = 0-201,146) tended to be higher than Mediterranean samples (Mean 24,385, 95% CI =0-143,284), but a two-sample randomization test with Monte-Carlo simulation showed that PAHs levels in Australian samples did not significantly differ from Mediterranean samples (MCM: Mean = 0.99, Var. = 1.41 p = 0.05).
  2. Results from the analysis on carcinogenic HPAs were similar. Mean level of carcinogenic PAHs was higher in samples from Australia (Mean AU = 12,563, Mean MS = 3,095), however a randomisation test was not significant (MCM: Mean = 1, Var. = 0.3, p = 0.7).

- OCs were extracted from all samples and have been quantified from four humpback dolphins, three snubfin dolphins and five bottlenose dolphins.
  1. Overall OC levels in Qld samples were substantially lower than in MS samples. Within Qld samples, a simple visual comparison indicated that OCs levels were higher in *O. heinsolhi* than in *S. chinensis* and *T. aduncus*.
  2. Results from a two-sample randomization test showed that DDT levels in MS samples were higher than in Qld samples (DDT: Mean = 1.20, Var. = 1.99, p = 0). PCBs levels did not significantly differ between MS and Qld samples (Mean = 0.98, Var. = 1.18, p = 0.09).

Please contact Daniele Cagnazzi at SCU for further details in regards to these preliminary results.

## 6. STATISTICS FOR LARGE CETACEANS

### 6.1 Corrections to earlier years' statistics for large whales

### 6.2 Direct catches of large whales (commercial, aboriginal and scientific permits) for the calendar year 2009 or the season 2008/09

### 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)

Whale species	Sex	No.	Date	Location	Vessel type	Speed	Fate	How observed	Contact person/ institute and refs
Humpback whale	Mother & Calf	2	15/11/11	Fremantle	PC	High	XI	Public/ Photos	D. Coughran/ DEC - WA
Humpback whale (*3)	U	1	9/10/2011	Moreton Bay (27.21833° S; 153.3205° E)	HSF	U	X	Passengers	Natalie Reed, QPWS.
Humpback whale (*4)	U	1	19/06/2011	Moreton Bay, (27.4165° S; 153.3205° E)	U	U	I	From vessel	Mike Carr, QPWS.
Humpback whale (*2)	U	1	28/06/2011	Blue Pearl Bay, Hayman Island, Whitsundays, Qld	U	U	U	From research vessel	David Paton, BPM
Southern right whale	F	1	27/8/11	10 km ESE Border Village, SA  31° 41' 00" S, 129° 05' 46" E	U	U	D	Probable vessel collision (*1)	C. Kemper, SAM

High-speed ferry (HSF), Unknown (U), whale swam away (X), appeared seriously injured (I), Queensland Parks and Wildlife Service (QPWS).

Notes

(\*1) Large haematoma on right side of the body observed in the photos. Examined by C. Kemper and I. Tomo.

(\*2) Not reported to StrandNet, data have not been verified by DERM.

(\*3) Blood observed in water but whale never found.

(\*4) Vessel damaged. Blubber and skin removed from vessel.

#### 6.3.2 Fishery bycatch of large whales

Whale species	Sex	No.	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
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Humpback whale	U	1	17/5/11	N/E of Rottnest Island	R	Lobster	FPO	M	D Coughran / DEC - WA
Humpback whale	U	1	23/5/11	North West of Dongara	U	Lobster	FPO	M	D Coughran / DEC - WA
Humpback whale	U	1	26/5/11	Wedge Island	R	Lobster	FPO	M	D Coughran / DEC - WA
Humpback whale	U	1	12/6/11	Scarborough	U	U	Rope & float	M	D Coughran – /DEC -WA
Humpback whale	U	1	16/6/11	Ocean Reef	U	Lobster	FPO	M	D Coughran – /DEC -WA
Humpback whale	U	1	15/7/11	South Kalbarri	U	Lobster	FPO	M	D Coughran – /DEC -WA
Humpback whale	U	1	30/7/11	Passed under “Stag” Oil Platform	U	U	Rope & 3 floats	Rig worker	D Coughran – /DEC -WA
Humpback whale	U	1	26/8/11	Off Leeman	R	U	Rope & floats	M	D Coughran – /DEC -WA
Humpback whale	U	1	10/9/11	Lancelin	U	Octopus gear	Rope & 2 green floats	M	D Coughran – /DEC -WA
Humpback whale	M	1	8/08/2011	27.9991°S, 153.4316°E	D	TWW	NSC	V	QDPI&F
Humpback whale	I	1	30/09/2011	25.89417°S 153.097°E	R	TWW	NSC	V	QDPI&F
Short-finned pilot whale	U	1	18/02/11	-25.1S 156.1E	R	Tuna	LLD	V	Sally McCarthy, AFMA
Short-finned pilot whale	U	1	22/06/11	-25S 155.1E	R	Tuna	LLD	V	Sally McCarthy, AFMA
Southern right whale (*1)	U	1	25/7/11	Fowlers Bay, SA 31 ° 58' S 132 ° 32' E	R	<i>Unknown</i>	NK	DA	C. Kemper, SAM
Unidentified whale	I	1	14/08/2011	26.675S 153.1375°E	R	TWW	NSC	V	QDPI&F

Notes:

(\*1) Found with net wrapped around head. The net was collected and stored in the Great Australian Bight Marine Park office.

## 7. STATISTICS FOR SMALL CETACEANS

### 7.1 Corrections to earlier years' statistics for small cetaceans

### 7.2 Direct catches of small cetaceans for the calendar year 2011 or the season 2010/11

### 7.3 Anthropogenic mortality of small cetaceans for the calendar year 2011 or the season 2010/11

#### 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 (*1)	Unknown	1	6/1/2011	Lat -32.771219 Long. 152.119919 Tomaree NP One mile beach northern end.	Unknown	Unknown	Alive when washed up but subsequently died	Monitored on-site	Geoffrey Ross, OEH, NSW
Bottlenose Dolphin	F	1	17/4/11	4.3 km WSW Port Adelaide (PO), SA 34° 51' 38" S 138° 27' 43" E	U	U	D	Post-mortem by Byard et al. (propeller wounds) (*2)	C. Kemper, SAM
Common dolphin	F	1	7/1/11	Portsea back beach, Mornington Peninsular	Jetski or small vessel	U	D	Post mortem	Kirsty Greengrass, DSE
Common dolphin	M	1	16/1/11	Point Lonsdale	U large vessel	U	D	Post mortem	Kirsty Greengrass, DSE

Notes

(\*1) Suspected boat strike.

(\*2) Could not confirm pre or post-mortem.

#### 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
Australian snubfin dolphin	U	1			19/04/11	21.12154°S; 49.22629°E			D	TWW	NSC	V	QDPI&F (*2)
Australian snubfin dolphin	U	1			19/04/11	21.12154°S; 49.22629°E			D	TWW	NSC	V	QDPI&F (*2)
Australian snubfin dolphin	M	1			8/10/11	26.67088°S; 53.11353°E			D	TWW	NSC	V	QDPI&F (*2)

Bottlenose dolphin	F	1		23/11/11	28.1583°S; 53.53807°E		D	TWW	NSC	V	QDPI&F (*2)
Bottlenose dolphin	F	1		23/11/11	28.1583°S; 53.53807°E		D	TWW	NSC	V	QDPI&F (*2)
Bottlenose dolphin	U	1		27/09/11	25.89412°S; 53.097°E		R	TWW	Drumline	V	QDPI&F (*2)
Bottlenose dolphin	U	1		5/11/11	25.89998°S; 53.10002°E		R	tiger, white and whaler sharks	Drumline	V	QDPI&F (*2)
Bottlenose dolphin	M	1		23/11/11	28.00167°S; 53.43867°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Common dolphin	0:1	1		06/09/11	Dover, Tasmania		D	Salmonoid aquaculture	Farm pens		R. Gales, DPIPWE
Common dolphin	0:3	3		29/11/11	Dover, Tasmania		D	Salmonoid aquaculture	Farm pens		R. Gales, DPIPWE
Common dolphin (*1)		1	U	Approx 5/5/11	Queenscliff		D	unknown	net		Kirsty Greengrass, DSE
Common dolphin	U	1		21/01/2011	-36.47; 138.27		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	F	1		21/01/2011	-36.47; 138.27		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		22/01/2011	-36.52; 138.37		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	F	1		22/01/2011	-36.52; 138.32		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	F	1		24/01/2011	-36.47; 138.45		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	M	1		26/01/2011	-36.53; 138.58		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		28/01/2011	-36.46; 138.43		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	F	1		18/05/2011	-39.20; 148.65		D	Mixed species	OT	F,V	Sally McCarthy, AFMA
Common dolphin	F	1		21/05/2011	-39.67; 148.75		D	Mixed species	OT	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		6/08/2011	-36.65; 139.37		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		7/08/2011	-36.63; 139.38		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		7/08/2011	-36.63; 139.38		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		7/08/2011	-36.63; 139.38		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	U	1		21/08/2011	-35.92; 138.97		D	shark	GNS	F,V	Sally McCarthy, AFMA
Common dolphin	0:1	1		19/3/11	~4.5 km E Thistle Island, SA  34° 57' S 136° 10' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM

Common dolphin	1:0	1		22/3/11	~5.5 km SSE Port Neill (township), SA 34° 10' S 136° 22' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	0:1	1		15/4/11	~11.5 km E Spilsby Island, SA 34° 41' S 136° 28' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	0:1	1		30/4/11	Southern Spencer Gulf, SA 34° 33' S 136° 46' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	1:0	1		26/5/11	45 km WNW Adelaide (GPO), SA 34° 51' 37" S 138° 07' 10" E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	0:1	1		30/6/11	56 km E Port Lincoln (PO), SA 34° 37' 48" S 136° 27' 23" E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	0:1	1		19/3/11	~4.5 km E Thistle Island, SA 34° 57' S 136° 10' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	1:0	1		22/3/11	~5.5 km SSE Port Neill (township), SA 34° 10' S 136° 22' E		K	SA Sardine Fishery	PS1/PS2	F	C. Kemper, SAM
Common dolphin	F	1		20/01/11	26.74733°S; 53.14033°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Common dolphin	U	1		2/02/11	26.74733°S; 53.14033°E		D	tiger, white and whaler sharks	NSC	V	QDP&F (*2)
Common dolphin	M	1		2/02/11	26.74733°S; 53.14033°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Common dolphin	F	1		9/07/11	28.15783°S; 53.53283°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Common dolphin	M	1		15/07/11	28.1275°S; 53.49382°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Common dolphin	F	1		17/09/11	28.0951°S; 53.46862°E		R	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Indo-Pacific humpback dolphin	F	1		28/09/11	21.03133°S; 49.16716°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Spinner dolphin	M	1		10/05/11	26.3811°S; 53.09003°E		D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Unidentified dolphin	U	1		25/08/2011	-36.28; 137.33		D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		27/08/2011	-36.15; 137.53		D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		30/08/2011	-36.27; 138.5		D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		9/09/2011	-36.33; 139.17		D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		12/09/2011	-36.33; 139.3		D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		13/09/2011	-36.63; 139.52		D	shark	GNS	V	Sally McCarthy, AFMA

Unidentified dolphin	U	1		14/09/2011	-36.58; 139.55			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		18/09/2011	-35.95; 138.48			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	2		5/11/2011	-32.55; 133.63			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		13/11/2011	-33.6; 134.52			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		18/11/2011	-33.57; 134.47			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		1/12/2011	-33.48; 134.55			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		2/12/2011	-33.5; 134.45			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	2		3/12/2011	-34.32; 135.05			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		10/12/2011	-40.1; 147.83			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		14/08/2011	-36.37; 139.02			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	2		14/01/2011	-36.68; 139			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		10/02/2011	-36.35; 138.27			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		15/02/2011	-36.38; 138.67			R	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		12/03/2011	-36.2; 138.1			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		28/05/2011	-33.8; 134.62			R	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		30/05/2011	-36.9; 139.35			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		2/06/2011	-39.7; 148.58			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		7/06/2011	-33.9; 134.72			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		28/06/2011	-36.03; 139.4			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		28/06/2011	-36.1; 138.72			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	2		1/07/2011	-35.93; 138.48			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		11/07/2011	-35.93; 138.5			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		26/03/2011	-36.55; 139.32			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		28/03/2011	-36.85; 138.93			D	shark	OT	V	Sally McCarthy, AFMA
Unidentified dolphin	F	1		5/04/2011	-38.78; 148.3			D	shark	GNS	V	Sally McCarthy, AFMA

Unidentified dolphin	U	1		8/05/2011	-36.63; 138.87			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		10/02/2011	-36.35; 138.27			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	2		11/07/2011	-36; 138.55			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		15/07/2011	-35.97; 138.58			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		19/07/2011	-36; 138.47			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		25/07/2011	-36.55; 139.17			D	shark	GNS	V	Sally McCarthy, AFMA
Unidentified dolphin	U	1		6/08/2011	-36.12; 138.02			D	shark	GNS	V	Sally McCarthy, AFMA
Unknown	F	1		28/06/11	26.3939°S; 53.0657°E			D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Unknown	F	1		26/08/11	26.38099°S; 53.0951°E			D	tiger, white and whaler sharks	NSC	V	QDPI&F (*2)
Notes:												
(*1) Net marks on carcass.												
(*2) QDPI&F - Queensland Department of Primary Industries and Fisheries.												

## 8. STRANDINGS

### Queensland

The Queensland marine wildlife stranding and mortality database (StrandNet) summarises all records of sick, injured or dead marine wildlife reported to the DERM. Since 1996, this database has systematically recorded cetacean strandings and mortality south from Cairns to the Queensland–New South Wales border. There has been less comprehensive reporting of strandings and mortality from the less densely populated areas of Queensland throughout the Gulf of Carpentaria, Torres Strait and Eastern Cape York Peninsula. Most cetacean strandings are reported by the Queensland Parks and Wildlife Service (QPWS) and the Great Barrier Reef Marine Park Authority (GBRMPA) staff. Other records have been received directly from the public, including records reported via the state-wide stranding telephone hotline. Officers from DERM and GBRMPA inspect carcasses that are accessible. Records are also validated by the responsible Stranding Coordinator and expert DERM staff to ensure accuracy of reporting. In addition to general reports of strandings, the database contains all reported cetacean mortality within the Queensland Shark Control Program (SCP), which was managed by the Department of Employment, Economic Development and Innovation during the reporting period.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Australian snubfin dolphin	5	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Bottlenose dolphin	11	2	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Bottlenose dolphin	6	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Common dolphin	7	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Cuvier's beaked whale	1	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Humpback whale	18	4	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Indo-Pacific humpback dolphin	13	3	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Melon-headed whale	3	1	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Pantropical spotted dolphin	3	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Pygmy sperm whale	1	1	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>



Short-finned pilot whale	1	1	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Spinner dolphin	2	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Unidentified dolphin	8	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Unidentified whale	1	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>
Unidentified whale	1	0	Justin Meager, DERM	<a href="mailto:strand.data@derm.qld.gov.au">strand.data@derm.qld.gov.au</a>

### Victoria

Incidental opportunistic strandings records received by DSE

Strandings along the Victorian coastline are either directly reported to the Department of the Sustainability and Environment (DSE) or the Victorian Cetacean Strandings network. The appropriate DRI researchers / Victorian Cetacean Network members are contacted and suitable action taken. In 2011, strandings were attended by David Donnelly and Jeff Weir (DRI) and members of the Victorian Cetacean Network. Specimens are collected and distributed to the appropriate researcher, as well as a sample being collected and delivered to the Melbourne Museum for archival storage. The storage of samples at the Melbourne Museum is directed as condition of a DRI's research permit issued by DSE. The appropriate MU/DRI/DSE/Parks Victoria/Zoos Victoria personnel are contacted and suitable action taken.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Bottlenose dolphin	1		Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>
Common dolphin	7	1	Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>
Common dolphin	3	1	Sue Mason – DRI	<a href="mailto:research@dolphinresearch.org.au">research@dolphinresearch.org.au</a>
Common dolphin	2	2 (conducted by Dr Priscilla Hodge, Melbourne University; Michael Lynch, Zoos Victoria and Kate Charlton-Robb, MU)	Kate Charlton-Robb - MU	<a href="mailto:kate.charlton@monash.edu">kate.charlton@monash.edu</a>
False killer whale	1		Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>
Humpback whale	8		Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>
Humpback whale	1	0	Sue Mason – DRI	<a href="mailto:research@dolphinresearch.org.au">research@dolphinresearch.org.au</a>
Pilot whale	1		Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>
Unidentified dolphin	2		Kirsty Greengrass, DSE	<a href="mailto:Kirsty.greengrass@dse.vic.gov.au">Kirsty.greengrass@dse.vic.gov.au</a>

### Western Australia

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Bottlenose dolphin	7	4	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Common dolphin	1	Nil	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Humpback whale	17	3 PM & 8 only sampled	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Minke whale	2	Nil	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Risso's dolphin	1	Nil	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Spinner dolphin	1	Nil	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>
Striped dolphin	6	Nil	Douglas Coughran - DEC	<a href="mailto:Douglas.Coughran@dec.wa.gov.au">Douglas.Coughran@dec.wa.gov.au</a>

### New South Wales

A data base of stranding events is maintained by the NSW OEH for the entire NSW coast line. Sightings are reported year round by individuals, OEH and other agency officers and non government agencies.

Species	No.	No. post	Contact person(s)/ Institute(s)	Contact email address(es)
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	strandings	mortems		
Blanville's beaked whale	3	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Bottlenose dolphin	1	0	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Bottlenose dolphin	8	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Common dolphin	2	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Dwarf sperm whale	1	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Humpback whale	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Humpback whale	12	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Minke whale	2	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Pantropical spotted dolphin	1	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Pygmy killer whale	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Pygmy killer whale	1	1	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Pygmy sperm whale	1	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Risso's dolphin	1	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Sperm whale	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Sperm whale	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Sperm whale	2	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Striped dolphin	1	1	Jane Hall ARWH	<a href="mailto:jhall@zoo.nsw.gov.au">jhall@zoo.nsw.gov.au</a>
Striped dolphin	2	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Unidentified dolphin (*1)	3	0	Geoff Ross OEH	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Unknown species	6	1	Geoff Ross OEH	

Notes:

(\*1) Submitted as "inshore dolphins"

The above statistics include numbers of entrapments and entanglements in NSW. Details of these events are provided in the table below.

Species	Sex	No	Date	Location	Fate	Event Type/Gear	How observed	Source or contact
Blainville's beaked whale	F	3	12/8/11	Lord Howe island lagoon fringing reef	Live but subsequently died	Entrapment	NPWS officer	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Bottlenose dolphin		1	28/4/11	Stockton Beach Newcastle Lat. - 32.8068244 8 Long. 151.966773 8	Dead	Entanglement in shark net	Land Observer	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown - immature	1	6/7/11	Forster Booti Booti Seven Mile Beach Lat. -32.26025 Long. 152.540347	Released.	Entanglement - line rope	Commercial vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>

Humpback whale	Unknown	1	16/7/11	Stockton Beach Newcastle	Fit and coping	Entanglement – line rope	Recreational vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	19/7/11	Red Rock	Fit and coping	Entanglement – line rope	Recreational vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	19/7/11	Station Creek	Fit and coping	Entanglement – line rope	Recreational vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	29/7/11	Port Macquarie Queen's Head	Fit and coping	Entanglement/line rope/buoys	Commercial vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	30/7/11	Crescent Head	Fit and coping	Entanglement/line rope/buoys	Recreational vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	3/8/11	2nm off Manly Beach	Fit and coping	Entanglement – crab pot/fish trap	NSW Marine Rescue	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown - adult	1	18/8/11	Port Macquarie, Tacking Point	Released.	Entanglement – crab pot/fish trap	Commercial vessel	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	31/8/11	North Head, Eden	Fit and coping	Entanglement – line/monofilament	Commercial Whale Watch	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown - adult	1	20/9/11	2nm off Cape Byron 285374S and 15337411E	Coping but sluggish	Entanglement – rope/buoys	NPWS	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	Unknown	1	7/10/11	1 km off Lennox Head	Fit and coping	Entanglement – rope/buoys	Land observer	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	M	1	13/10/11	Port Kembla harbour	Debilitated – subsequently died	Entanglement – line rope/buoys	Land observer	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Humpback whale	M	1	17/10/11	Gerringong harbour	Dead	Entanglement – line rope	NPWS officer	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>
Unidentified dolphin	Unknown	1	25/10/11	Port Stephens	Debilitated	Entanglement – rope/buoys	Commercial whale watch	<a href="mailto:geoff.ross@environment.nsw.gov.au">geoff.ross@environment.nsw.gov.au</a>

### 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	12	10	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Bottlenose dolphin	14	8	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Common dolphin	12	7	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>

Cuvier's beaked whale	1	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Humpback whale	1	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Pygmy right whale	1	1	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Pygmy right whale	1	1	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Southern right whale	2	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Southern right whale	2	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Southern right whale dolphin (*1)	1	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Sperm whale	2	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Unidentified cetacean	2	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>
Unidentified dolphin	4	0	C. Kemper / S.A. Museum	<a href="mailto:Catherine.Kemper@samuseum.sa.gov.au">Catherine.Kemper@samuseum.sa.gov.au</a>

Notes:

(\*1) Species identification could not be confirmed due to no collected photos/specimen.

Tasmania

Stranding events are typically reported via the DPIPWE Marine Mammal Hotline. The hotline provides a single point of call to report whale sightings and strandings within Tasmania and is serviced 24 hours per day/365 days a year.

Species	No. Strandings (total animals)	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Bottlenose dolphin	4 (42)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>
Common dolphin	2 (8)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>
Humpback whale	8 (8)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>
Long-finned pilot whale	3 (35)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>
Minke whale	2 (3)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>
Sperm whale	4 (29)	0	R. Gales, DPIPWE	<a href="mailto:Rosemary.gales@dpipwe.tas.gov.au">Rosemary.gales@dpipwe.tas.gov.au</a>

## 9. OTHER STUDIES AND ANALYSES

### Woods Hole Oceanographic Institution

Following field research in 2007 in Bunbury, West Australia, two new studies have finally been published. In 2007, we recorded bottlenose dolphin (*Tursiops aduncus*) whistles using a calibrated and geo-synchronized array of hydrophones to calculate the source level and energetic content of whistles (Jensen *et al.* 2011). We also recorded the biosonar signals of *Tursiops aduncus* to estimate the source levels, frequency content, and directionality of on-axis biosonar signals (Wahlberg *et al.* 2012).

### Humpback whale orientation and navigation - Ann Allen

The research activities conducted under Queensland permit WISP07484410 formed an experimental investigation of navigation and orientation mechanisms in humpback whales. The research was conducted in the Moreton Bay Marine Park on Northward migrating humpback whales. Activities included observational and experimental methods to determine if whales are using either passive or active acoustic cues to navigate around obstacles, such as rocky islands.

During 2010, a hydrophone array was deployed 100 m south of a small rocky island, Boat Rock. The array continuously sampled the acoustic environment, with the objective of obtaining recordings of the sounds of waves breaking on the island, a cue that the whales may be able to use to navigate. During the time period of deployment the whales were visually monitored from shore in order to track their movements past the island.

In 2011, the recordings made of wave noise on the island were played back to the whales in an area where there was no island, in order to acoustically simulate an obstacle in their paths. The whales were monitored from shore in order to track their paths past the acoustic source.

Many whale tracks were collected during both years, and in 2011, 6 playbacks of noise were conducted. Analysis is still being conducted, but if the whales can be shown to use acoustic cues in navigation it would have broad implications for conservation. A study showing that the whales are using acoustics to navigate would be an important step in helping to regulate anthropogenic noise effects. If it is found that migrating whales react to an acoustically produced obstacle through avoidance it could aid in reducing entanglements in fishing gear and ship strikes in certain areas. Knowing how whales navigate can also be important in preventing strandings of otherwise healthy animals in high risk areas.

#### **Department of Environment and Conservation , WA**

Licensed commercial whale watching in Western Australia (for southern right and humpback whales) for the 2011 season involved 116 licensed vessels. Data collected from whale watching operators regarding the number of passengers and whales seen during the 2010 season are still being analysed. Commercial dolphin watching licences were also issued during 2011 with a total of 97 for the year.

It is anticipated that once released and published, information from Holyoake *et al.* will be reported in the 2012 progress report (see item 11.2).

#### **Australian National University**

##### Dr Deborah Thiele

Dedicated surveys, line transect sampling, mark recapture and habitat use modelling studies have been conducted on the Kimberley Coast, WA at a number of locations including Roebuck Bay, Buccaneer Archipelago, Talbot Bay, Deception Bay, Napier Broome Bay & other sites. An update on surveys, sightings, boat strikes and other data from these surveys will be included in the IWC progress report for the 2012 calendar year (IWC 2013).

#### **University of New South Wales**

##### Tracey Rogers

We used captive dolphins as a model for great whales and demonstrate that the exhaled breath condensate, or 'blow', from marine mammals can be used to examine respiratory associated microbial communities using non-invasive sampling methods. Blow samples from two species of bottlenose dolphin, *Tursiops truncatus* and *T. aduncus*, along with hybrid offspring, were examined using molecular microbial ecology methods. A temporal analysis revealed that microbial community structure of each individual remained distinct from other individuals over a two-month period, indicating strong host specificity. The taxonomic composition of samples, based on pyrosequencing of the V1–V3 regions of the 16S rRNA gene, from 24 healthy individuals was dominated by the Cardiobacteraceae lineage of Gammaproteobacteria, comprising on average 52% of sequences in all samples. Sequences in this taxa were associated with novel clades that contain only sequences from dolphin respiratory tracts. Other genera that likely form part of the core biota include the Saccharospirillaceae (Gammaproteobacteria), Arcobacter (Epsilonproteobacteria), Hydrogenimonaceae (Epsilonproteobacteria), Halotalea (Gammaproteobacteria), Aquimarina (Flavobacteria) and Helococcus (Clostridia). Significant differences between samples from different species were observed only at the species/ strain level, driven by the relative contributions of strains from the most common phylogenetic lineages. Analysis of communities associated with hybrid animals provides tentative evidence for a paternal role in community assembly. Clear overlap was observed with data collected by capture and swabbing of bottlenose dolphins blowholes, indicating this method provides a novel non-invasive alternative to monitoring marine mammal population health.

#### **Queensland**

In October 2011, a new T-QUAL project "*Implementing sustainable and World's Best Practice swim-with-whales tourism in Tropical North Queensland*" commenced, partially funded by the Commonwealth Department of Resources, Energy & Tourism. The project aims to enhance the sustainability of the unique swim-with-dwarf minke whales tourism industry in Tropical North Queensland and enrich the swimming-with-whales (SWW) tourist experience.

#### **University of Queensland - School of Veterinary Science**

##### Michael Noad

UQ researchers have recently been developing a simple framework for looking at relatedness of humpback populations using songs as an indicator of stock relatedness in the context of east Australia and the South Pacific (Populations E & F). Garland *et al.* (2011) showed that humpback songs throughout this region are related with songs from eastern Australia propagating across the South Pacific basin over two to three years.

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## Appendix 1. FOA fishing descriptions and codes

<b>FAO FISHING GEAR CATEGORIES:</b>		<b>FALLING GEAR</b>	
<b>SURROUNDING NETS</b>		Cast nets	FCN
With purse lines	PS	Falling gear (not specified)	FG
One-boat operated purse seines	PS1	<b>GILLNETS AND ENTANGLING GEAR</b>	
Two-boat operated purse seines	PS2	Set gillnets (anchored)	GNS
Without purse lines (lampara)	LA	Driftnets	GND
<b>SEINE NETS</b>		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	<b>TRAPS</b>	
<b>TRAWLS</b>		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		<b>HOOKS AND LINES</b>	
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	<b>GRAPPLING AND WOUNDING</b>	
<b>DREDGES</b>		Harpoons	HAR
Boat dredges	DRB	<b>HARVESTING MACHINES</b>	
Hand dredges	DRH	Pumps	HMP
<b>LIFT NETS</b>		Mechanised dredges	HMD
Portable lift nets	LPN	Harvesting machines (not specified)	HMX
Boat-operated lift nets	LNB	<b>MISCELLANEOUS GEAR</b>	MIS
Shore operated stationary lift nets	LNS	<b>RECREATIONAL FISHING GEAR</b>	RG
Lift nets (not specified)	LN	<b>GEAR NOT KNOWN OR NOT SPECIFIED</b>	NK
		<b>SHARK CONTROL NETS</b>	NSC
		<b>DERELICT FISHING GEAR</b>	