

# CHILE. Progress report on cetacean research, january 2009 to april 2010, with statistical data for the season 2009/10

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## 1. SPECIES AND STOCKS STUDIED

IWC common name	IWC recommended scientific	Area/stock(s)	Items referred to
Southern right whale	<i>Eubalaena australis</i>	Magallanes region	2.1.1
Humpback whale	<i>Megaptera novaeangliae</i>	Area I, Stock G, Magallanes region	2.1, 9
Antarctic Minke Whale	<i>Balaenoptera bonaerensis</i>	Area I	2.1
Killer whale	<i>Orcinus orca</i>	Area I	2.1
Peale's dolphin	<i>Lagenorhynchus australis</i>	Magallanes region	2.1
Hourglass dolphin	<i>Lagenorhynchus cruciger</i>	Area I	2.1
Chilean dolphin	<i>Cephalorhynchus eutropia</i>	Magallanes region	2.1
Commerson's dolphin	<i>Cephalorhynchus commersonii</i>	Magallanes region	2.1
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	Area I	2.1

## 2. SIGHTINGS DATA

### 2.1 Field work

#### 2.1.1 Systematic

#### CEQUA

From January 19 to March 27, 2010 CEQUA (Carlos Olavarría and Jorge Acevedo) undertook a 50 day cetacean survey in the Bernardo O'Higgins National Park and adjacent waters, Magallanes region. Sighting data was collected for humpback whales, Peale's dolphins, Chilean dolphins and a possible sighting of a Burmeister porpoise. Peale's dolphin was the most common species, which is in agreement of previous surveys in the Chilean Patagonian and Fuegian channels.

Since April 2009 CEQUA has been undertaking systematic land-based surveys in Punta Dungeness, Magellan Strait for southern right whales. Sighting effort has been supplemented by Chilean Navy personnel from the Dungeness lighthouse and by workers from nearby oil platforms (ENAP). Sightings during 2009 were concentrated between April and August.

During December 2010 Centro Eutropia and CEQUA and undertook a systematic survey for dolphins in Fitzroy channel, Magallanes region. Sighting data of Chilean and Commerson's dolphins was collected. Photo-ID data and biopsy samples were collected.

Target species	Date	Area	No. of sightings	Contact person/institute and references
Humpback whale	19/01/10 to 02/02/10 and 20/02/10 to 27/03/2010	Bernardo O'Higgins National Park. Magallanes region	15	Carlos Olavarría-Jorge Acevedo/CEQUA
Peale's dolphin	19/01/10 to 02/02/10 and 20/02/10 to 27/03/2010	Bernardo O'Higgins National Park. Magallanes region	102	Carlos Olavarría-Jorge Acevedo/CEQUA
Chilean dolphin	19/01/10 to 02/02/10 and 20/02/10 to 27/03/2010	Bernardo O'Higgins National Park. Magallanes region	22	Carlos Olavarría-Jorge Acevedo/CEQUA
Southern right whale	April 2009 to April 2010	Punta Dungeness, Magellan Strait, Magallanes region	40+	Carlos Olavarría/CEQUA
Commerson's dolphin	December 2010	Canal Fitzroy, Magallanes region	~10	María José Pérez/Centro Eutropia
Chilean dolphin	December 2010	Canal Fitzroy, Magallanes region	~10	María José Pérez/Centro Eutropia

### CCC

Under the Alfaguara Project, CCC conducted from 01 February to 26 April 2009, twelve marine surveys on board of Alfaguara research vessel; and two aerial surveys on board of Chilean Marine Navy aircrafts.

Marine surveys were oriented to photoidentification of blue whales and conducted during one day, thus cetacean groups were approached after detection. Sightings included blue whales, sei whale, fin whale, peale's dolphins and orcas. Feeding behaviour and defecation was recorded for blue and fin whales.

Aerial surveys covered about 1.500 km from 36° S to 39° S and from 40.5°S to 44°S. Sightings included blue whales, humpback whales, southern right whales and sperm whales.

Target species	Date	Area	No. of sightings	Contact person/institute and references
Blue whale	01 February - 26 April 2009	Southern Chile – 36° to 44°S	107	B. Galletti (CCC); SC/61/SH21; SC/61/SH22
Sei whale	01 February - 26 April 2009	Southern Chile – 36° to 44°S	1	B. Galletti (CCC); SC/61/SH22
Fin whale	01 February - 26 April 2009	Southern Chile – 36° to 44°S	1	B. Galletti (CCC); SC/61/SH22
Humpback whale	01 February - 26 April 2009	Southern Chile – 36° to 44°S	1	B. Galletti (CCC)
Southern right whale	01 February - 26 April 2009	Southern Chile – 36° to 44°S	1	B. Galletti (CCC)
Sperm whale	April 2009	Southern Chile – 36°	1	B. Galletti (CCC)

		to 44°S		
Orca	01 February - 26 April 2009	Southern Chile – 36° to 44°S	1	B. Galletti (CCC); SC/61/SH22
Peale's dolphin	01 February - 26 April 2009	Southern Chile – 36° to 44°S	3	B. Galletti (CCC); SC/61/SH22

### 2.1.2 Opportunistic, platforms of opportunity

#### CEQUA

From February 15<sup>th</sup> to March 15<sup>th</sup> CEQUA (Jorge Acevedo) undertook an opportunistic cetacean survey onboard of the tourist yacht *Australis* to the Antarctic Peninsula (Gerlache strait), including transit in Fuegian channels and Drake Passage. This study was aimed as a continuation of previous studies in the area undertaken by INACH and CEQUA in past years. Six species were recorded: humpback whale, Antarctic minke whale, Cuvier's beaked whale, Peale's dolphin, hourglass dolphin and killer whale (Type B). The most common species was the humpback whale. Sighting data was collected, as well as behavioural data, photo-ID and biopsy samples.

During November-December 2009, and April and May 2010 CEQUA (Jorge Acevedo and Carlos Olavarría) undertook a three day survey for cetaceans onboard tourist vessel *Forrest and Delmar III*, to the Francisco Coloane Marine Park. Humpback whales were observed and photo-ID was collected.

During October 2009 CEQUA (Carlos Olavarría) undertook a one-week survey onboard tourist vessel *Mare Australis*. Due to poor conditions during most of the survey only a few sightings of Peale's dolphin and Chilean dolphin were recorded.

Primary species	Area	Data type/method	Collected by	Platform	Location of archive (if applicable)	Contact person/institute and refs
humpback whale, Antarctic minke whale, killer whale	Antarctic Peninsula . Area I	Photo-ID; sightings, biopsy samples	Jorge Acevedo	Tourist yacht <i>Australis</i>	CEQUA	Jorge Acevedo and Carlos Olavarría/CEQUA
Humpback whale	Magellan Strait	Sighting and photo-ID	Carlos Olavarría	Tourist vessel <i>Forrest and Delmar III</i>	CEQUA	Jorge Acevedo and Carlos Olavarría/CEQUA
Peale's dolphin and Chilean dolphin	Fuegian channels	Sighting data	Carlos Olavarría	Tourist vessel <i>Mare Australis</i>	CEQUA	Carlos Olavarría/CEQUA

#### CCC

Sightings reported by members of the CCC National Marine Mammal Sighting Network (MMSN) in 2009 along the Chilean coast included 216 additional sightings comprising at least 432 great whales and 283 small cetaceans. Of the total sightings, in 10 opportunities the species were positively identified from pictures and videos. Species included southern right whale (n=2), fin whale (n=1), humpback whale (n=1), Peale's dolphin (n=4), Orca (n=2). (Contact person: Barbara Galletti/CCC)

#### DIRECTEMAR (Chilean Navy)

Since 2005, the crew of different Navy vessels report date, hour, position, course and identification if possible, of cetaceans sightings along the Chilean coast. The reports for the season April 2009-2010 included 186 sightings comprising 541 cetaceans.

Of the total sightings, in 91 opportunities the species were positively identified and included blue whale, southern right whale, sperm whale, minke whale, humpback whale and killer whale.

## 2.2 Analyses/development of techniques

### CCC

Abundance estimates of blue whales through mark-recapture are under development.

Blue whale sightings made in Isla de Chiloe from 2004 to 2008 have been analyzed for distribution, relative abundance and sighting frequency and reported to IWC in 2008 (Galletti Vernazzani *et al.*, 2008a).

Abundance estimates of blue whales in summer feeding ground from aerial platforms have been reported to IWC in 2009 (Galletti Vernazzani *et al.*, 2009)

Target species	Date	Area	Methods/effort	Parameters/ factors measured	Contact person/institute; refs
Blue whale	2007 & 2009	Regions of Los Rios, Los Lagos and Aysen	Line transect survey	Abundance estimates	B. Galletti / CCC; SC/61/SH21

## 3. MARKING DATA

### 3.1 Field work

#### 3.1.1 Natural marking data

### CEQUA

Photo-ID fieldwork was undertaken during this period by CEQUA during most of the surveys informed in 2.1. The humpback whale data will contribute to the ongoing collaborative project with INACH in the Antarctic Peninsula and Magellan Strait.

Species	Feature	Area/stock	No. photo-id'd	Catalogue (Y/N)	Catalogue total	Contact person/institute; refs
Humpback whale	Fluke	Magellan strait	9	Y	113	Jorge Acevedo/CEQUA
Humpback whale	Fluke	Bernardo O'Higgins National Park	4	Y	4	Jorge Acevedo/CEQUA
Humpback whale	Fluke	Antarctic Peninsula	38	Y	339	Jorge Acevedo/CEQUA-INACH
Antarctic minke whale	Dorsal fin	Antarctic Peninsula	7	Y	7	Jorge Acevedo/CEQUA
Killer whale	Dorsal fin	Antarctic Peninsula	7	Y	43	Jorge Acevedo/CEQUA
Chilean dolphin	Dorsal fin	Bernardo O'Higgins National Park	21	Y	21	Carlos Olavarria/CEQUA
Peale's dolphin	Dorsal fin	Bernardo O'Higgins National Park	underway	Y	underway	Carlos Olavarria/CEQUA

### CCC

Species	Feature	Area/stock	No. photo-id'd	Catalogue (Y/N)	Catalogue total	Contact person/institute; refs
Blue whale	Left flank	Los Lagos Region	126	Y	292	B. Galletti (CCC); SC/60/SH24; SC/61/SH21
	Right flank	Los Lagos Region	126	Y	301	B. Galletti (CCC); SC/60/SH24; SC/61/SH21
Fin whale	Chevron, blaze,	Los Lagos Region	3	Y	3	B. Galletti (CCC);

	dorsal fin, flank					SC/61/SH22
Sei whale	Chevron, dorsal fin, flank	Los Lagos Region	1	N	In process	B. Galletti (CCC); SC/61/SH22
Orca	Saddle , dorsal fin	Los Lagos Region	2	N	0	B. Galletti (CCC)

### 3.2 Analyses/development of techniques

#### CEQUA

A comparison of the Antarctic Peninsula humpback whales showed a match with a whale photographed in French Polynesia.

A comparison of Chilean dolphin photo-ID data collected by Steve Dawson and Liz Slooten in 2006 in the Patagonian channels (Dawson and Slooten 2008, SC/60/SM11) with the data collected by CEQUA in 2010 will be undertaken. A preliminary comparison showed a match of an individual, and now a full comparison is underway.

## 4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

### 4.1 Biopsy samples (summary only)

#### CEQUA

Species	Area/stock	Calendar year/season - no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Humpback whale	Area I	2010 - 12	Y	0	106	Carlos Olavarria/CEQUA-INACH
Humpback whale	Bernardo O'Higgins National Park and Magellan Strait, Stock G	2010 - 1	Y	0	95	Carlos Olavarria/CEQUA-INACH
Chilean dolphin	Bernardo O'Higgins National Park,	2010 - 8	Y	0	13	Carlos Olavarria/CEQUA Maria Jose Perez/ CENTRO EUTROPIA
Peale's dolphin	Bernardo O'Higgins National Park,	2010 -	Y	45	104	Carlos Olavarria/CEQUA

\*e.g. liver, skin, blubber ovaries, etc.

#### CCC

Species	Area/stock	Calendar year/season - no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Blue whale	Los Lagos Region	2009/12	Y	0	12	B. Galletti / CCC
Sei whale	Los Lagos Region	2009/1	Y	0	1	B. Galletti / CCC

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

Species	Area/stock	Tissue type(s)*	No. collected	Archived (Y/N)	No. analysed	Contact person/institute
Antarctic minke whale	O'Higgins Region	Baleens, blubber, skin.	7	Y	0	B. Galletti / CCC

\*e.g. liver, skin, blubber ovaries, etc.

#### 4.3 Samples from stranded animals

Species	Area/stock	Tissue type(s)*	No. collected	Archived (Y/N)	No. analysed	Contact person/institute
Commerson's dolphin	Magellan strait	Skin	2	Y	0	Carlos Olavarria/CEQUA

\*e.g. liver, skin, blubber etc.

### 6.3 Anthropogenic mortality of large whales for the calendar year 20XX or the season 20XX/XX

#### 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
Sei whale	F	1	30/01/09	Puerto Montt, Los Lagos Region	PC	U	D	Docked in Puerto Montt	B. Galletti (CCC) / R.L. Brownell (NOAA); SC/61/BC7
Southern right whale	U	1	02/07/09	Magellan Straits	U	U	D	Pictures at sea	B. Galletti / CCC

#### 6.3.2 Fishery bycatch of large whales

Whale species	Sex	No.	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Antarctic minke whale <sup>1</sup>	F	1	19/1/09	Coast of Pichilemu, O'Higgins Region	D	Unknown	NK	M	B. Galletti / CCC
Comments: (1) Entangled in fishing nets and transported to Capitania de Puerto de Pichilemu, from the Chilean Navy.									

## 8. STRANDINGS

### CCC

Strandings are reported opportunistically by members of the National Marine Mammal Sighting Network established by CCC in 2003. In 2009, 6 strandings have been reported.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Antarctic minke whale	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>

Southern right whale	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>
Humpback whale	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>
Sperm whale	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>
Pilot whale	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>
Unidentified rorqual	1	1	B. Galletti / CCC	<a href="mailto:info@ccc-chile.org">info@ccc-chile.org</a>

## 9. OTHER STUDIES AND ANALYSES

During December 2010, CEQUA and Whalesound undertook a land-based pilot survey for tracking movements of humpback whales in the Francisco Coloane Marine Park and the effect of vessels in the behaviour of whales.

## 10. LITERATURE CITED

Brownell, Jr., R.L, Galletti Vernazzani, B. and Carlson, C.A. 2009. Vessel collision with a large whale off southern Chile. Paper SC/61/BC7 presented to the IWC Scientific Committee, June 2009 (unpublished). 6pp. [Available from the authors]

Dawson S, Slooten E (2008) A platform-of-opportunity survey for cetaceans, especially Chilean dolphins, *Cephalorhynchus eutropia*, in the Chilean fiords, Report SC/60/SM11 to the Scientific Committee of the International Whaling Commission. Santiago 1 – 13 June

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## 11. PUBLICATIONS

### 11.1 Published or 'In Press' papers only

Capella, J., Galletti Vernazzani B, Gibbons, J. & Cabrera E. 2008. Coastal migratory connections of humpback whales, *Megaptera novaeangliae* borowski, 1781, in southern Chile. *Anales Instituto Patagonia (Chile)*. 36(2):13-18

Pastene L., J. Acevedo, M. Goto, A. Zerbini, P. Acuña & A. Aguayo-Lobo. **Online**. Population structure and possible migratory links of common minke whale *Balaenoptera acutorostrata* in the Southern Hemisphere. *Conservation Genetic*. DOI: 10.1007/s10592-009-9944-7

Tezanos-Pinto G, CS Baker, K Russell, K Martien, RW Baird, A Hutt, G Stone, AA Mignucci-Giannoni, S Caballero, T Endo, S Lavery, M Oremus, C Olavarría and C Garrigue. 2009. A worldwide perspective on the population structure and genetic diversity of bottlenose dolphins (*Tursiops truncatus*) in New Zealand. *Journal of Heredity* 100 (1): 11–24.

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