

**CHILE. PROGRESS REPORT ON CETACEAN RESEARCH, APRIL 2004 TO MARCH 2005,
WITH STATISTICAL DATA FOR THE SEASON 2004/05**

Compiled by

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1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Southern right whale	<i>Eubalaena australis</i>	II to XII Region	2.1; 2.2; 3.1.1
Pygmy right whale	<i>Caperea marginata</i>	X Region	8
Blue whale	<i>Balaenoptera musculus</i>	X and XI Region	2.1.1; 2.2; 3.1.1;4.1;4.3;4.4; 8
Sei whale	<i>Balaenoptera borealis</i>	VIII, X and XII Region	2.1; 2.2; 3.1.1; 4.3; 8
Humpback whale	<i>Megaptera novaeangliae</i>	XI and XII Region	2.1; 3.1.1;4.1;4.4;9
Fin whale	<i>Balaenoptera physalus</i>	II Region and V Region	2.1.1; 4.3; 8
Minke whale	<i>Balaenoptera acutorostrata</i>	VIII, XI and XII Region	2.1; 4.2; 4.3; 6.2.1; 8
Sperm whale	<i>Physeter macrocephalus</i>	V, VIII and X Region	2.1.2; 4.3; 8
Chilean dolphin	<i>Cephalorhynchus eutropia</i>	X Region	2.1.2
Commerson's dolphin	<i>Cephalorhynchus comersonii</i>	XII Region	2.1.1; 3.1.1; 4.1
Risso's dolphin	<i>Grampus griseus</i>	I and II Region	2.1.2
Peale's dolphin	<i>Lagenorhynchus australis</i>	X, XI and XII Region	2.1; 3.1.1; 3.2; 4.1
Orca	<i>Orcinus orca</i>	XI Region	2.1.2
Bottlenose dolphin	<i>Tursiops truncatus</i>	I and X Region	2.1.2; 8

2. Sighting data

2.1 Field work

2.1.1 SYSTEMATIC

INACH/CEQUA

Six marine surveys were conducted in Magellan, XII Region, on board a 16 m long sailboat with 17 days of autonomy. Photo-identification and biopsy samples were taken of the species sighted. The first survey was developed in October 2004 and covered the east area of the Magellan Strait during four days. Peale's and Commerson's dolphin were sighted.

The second survey was carried out in November 2004 for four days and covered the central waters of the Magellan Strait and Tierra del Fuego. The only specie sighted was Peale's dolphin.

The third survey covered the central and western waters of the Magellan Strait and other marine channels, between 48° 00'S and 54° 00' S, during 14 days in December 2004. Humpback whale, sei whale, Peale's dolphin and Chilean dolphin were sighted.

The other three surveys covered the central waters of Magellan Strait and the southern channels. Humpback whale, sei whale and Peale's dolphin were sighted.

CCC

Systematic surveys from land, marine and aerial platforms have been carried out by CCC in different regions of Chile since 2003, as part of a long term project oriented to identify the geographical and seasonal distribution of great whale species along the coastline and develop photo-identification activities.

Marine surveys were basically oriented to photo-identification and cetacean groups were approached after sighting the animals.

In September 2004, a marine survey was carried out in a Chilean Marine Navy Vessel at Mejillones Peninsula, II Region. A fin whale was sighted near shore.

In October 2004, the first aerial photo-identification of a cow-calf pair of southern right whale was taken in San Antonio, V Region, on board a Chilean Marine Navy helicopter.

On November 2004, a marine survey was carried out on board a Chilean Marine Navy Vessel at Arauco Gulf, VIII Region. Two groups of sei whales comprising four individuals were recorded.

From 31 January to 15 March 2005, CCC conducted land based observations for 28 days, eight marine surveys on board fishing vessels and two aerial surveys on board Chilean Marine Navy aircrafts. A total of 79 groups of whales, comprising 151 individuals, were positively identified as blue whale; and 20 groups of whales, comprising 42 individuals were positively identified as sei whale.

Centro Ballena Azul

Blue whales research in the Western Chiloé, the Corcovado Gulf and Chonos Archipelago has been undertaken since 2003 and from 2004; efforts have been concentrated in the Gulf of Corcovado. Between 26 January and 8 April 2005, 16 boat based surveys oriented to photo-identification and biopsy sampling registered a total of 20 groups of blue whales comprising 30 animals, four were mother-calf pairs.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

INACH/CEQUA

In December 2004 a cow-calf pair of sei whale was sighted near Charles Island, Magellan Strait, in feeding behavior. In January 2005 two sei whale (juveniles or adults) were sighted near Punta Arenas swimming near shore in east direction. Photo-identification of their dorsal fin was taken in both opportunities.

CCC

Many sightings have been reported by members of the Chilean Marine Mammal Sighting Network (MMSN) established by CCC in February 2003. Additionally, during 2004 CCC conducted non-systematic coastal monitoring and five marine surveys on board fishermen boats and commercial vessels.

As a result, CCC was able to registers 88 additional sightings comprising at least 130 great whales and 512 individuals of several small cetacean species. Of the total number of sightings, 19 positively identified the species from photographs and included humpback whale (n=2), southern right whale (n=5), Chilean dolphin (n=2), Peale's dolphin (n=5), orca (n=1), bottlenose dolphin (n=1) and Risso's dolphin (n=3).

As an official supporter of the Marine Mammal Sighting Network, the Chilean Marine Navy has been essential in collecting cetacean sighting information while navigating Chilean waters. From March 2005 to May 2005, the Chilean Marine Navy reported the following sightings: 11 orcas and 1 humpback whale (XII Region); 1 humpback whale (II Region); and 1 sperm whale (V Region).

Centro Ballena Azul

During an opportunistic aerial inspection undertaken on 8 April 2005, 11 blue whales were observed in 5 groups while surveying the coasts of Chiloé Island and the Corcovado Gulf.

2.2 analyses/development of techniques

CCC

Blue whale sightings made in the Northwestern Chiloé Island during summer 2004 were reported to IWC56 (Cabrera *et al.*, 2004).

Centro Ballena Azul

Geographic Information System (GIS) was used to integrate blue whale sightings and satellite locations with physical and biological features of the area. Blue whale distribution was mapped against chlorophyll-*a* concentration values obtained from satellite-derived images (SeaWiFS [L1A]) for the austral summer of 2004 in cooperation with Dr. Victor Marín's lab at the Universidad de Chile in Santiago, Chile.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Species	Feature	Area/stock	Calendar year/season /no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Humpback whale	Tail, dorsal fin	XII Region	57	Y	74	INACH/CEQUA
Sei whale	Dorsal fin	XII Region	4	Y	4	INACH/CEQUA
Peale's dolphin	Dorsal fin, flipper and body	XII Region	51	In process	43	INACH/CEQUA
Chilean dolphin	Dorsal and body	XII Region	10	Y	17	INACH/CEQUA
Blue whale	Dorsal fin and side pattern	X Region	2005/43	In process	3	CCC
Sei whale	Flank, chevron, dorsal fin	VIII and X Region	2005/12	In process	4	CCC
Southern right whale	Pattern of callosities in the head	V Region	2004/2	Y	2	CCC
Blue whale	Head, dorsal fin, flanks, flukes.	XI Region	2005/21	Y	42	Centro Ballena Azul

3.1.2. ARTIFICIAL MARKING DATA**3.1.3 TELEMETRY DATA***3.2 Analyses/development of techniques*INACH/CEQUA

Photo-identification of Peale's dolphin was made using an underwater mini camera on the front of the vessel. Because natural marking in Peale's dolphin are difficult to observe from the surface, this methodology increased in 90% the effectiveness of traditional methods such as boat based photo-identification.

CCC

A cow-calf pair of southern right whale was photo-identified following the Southern Right Whale Project/Brazil protocol for helicopter photo-ID of the specie. The pictures were analyzed using the Hiby-Lovell software for individual identification of southern right whales and were compared with other Southern Hemisphere catalogues of the specie.

Centro Ballena Azul

Standard photographic-id techniques for blue whales were put into practice time-synchronized to a GPS. Digital photographic database (catalogue) containing a formal description of the animal and additional information such as geographic location, group composition, calf presence/absence and behavior has been developed.

4. Tissue/biological samples collected*4.1 Biopsy samples*

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Humpback whale	XII Region	27	Y	0	58	INACH/CEQUA
Peale's dolphin	XII Region	6	Y	0	50	INACH/CEQUA
Chilean dolphin	XII Region	3	Y	0	17	INACH/CEQUA
Blue whale	XI Region	12	Y	Y	16	Centro Ballena Azul

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Minke whale	VIII Region	1	Y	Complete skeleton plus baleens, skin and kidneys	CEMM

4.3 Samples from stranded animals

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Minke whale	XII Region	2004/3	Y	Skin, baleen plates.	INACH/CEQUA
Sperm whale	V and X Region	2004/2	Y	Skin, blubber, tooth.	CCC
Minke whale	VIII Region	2004/1	Y	Baleen plates.	CCC
Fin whale	V Region	2004/1	Y	Skin, blubber.	CCC
Blue whale	X Region	2005/1	Y	Skin, blubber, baleen plates.	CCC

Sperm whale	VIII Region	2	Y	Skeleton and baleens	CEMM
Sei whale	VIII Region	1	Y	Skin, ovaries	CEMM

4.4 Analyses/development of techniques

INACH/CEQUA

Genetic analysis (nuclear and Mitochondrial DNA) of 27 biopsy samples of humpback whale, collected between march 2003 and march 2004, are being conducted. Additionally 44 biopsy samples of Peale's dolphin and 14 of Chilean dolphin collected during the same period are currently being genetically analyzed.

Centro Ballena Azul

Biopsy sampling was undertaken by a simple crossbow equipped with standard modified arrows. If the animals became distressed with the vessel approaching the researchers moved to another group. When obtaining a sample, types of reaction were also recorded. Through a collaborative study with Dr. Howard Rosenbaum (WCS & AMNH, U.S.A.) skin samples will be analyzed using genetic markers such as microsatellites and mtDNA.

5. Pollution studies

CCC

Samples of blubber from dead stranded animals are routinely collected. The samples have not yet been analyzed.

CEMM

Pesticide analyses of minke whale tissue are being currently conducted.

6. Statistics for large cetaceans

6.1 Direct catches (commercial, aboriginal and scientific permits)

6.2 Non-natural mortality for the season 2004/05

Species	Area/stock	Males	Females	Total	Cause	Methodology
Minke whale	VIII Region	1	0	1	Net entanglement	Post mortem

6.2.1 STRANDINGS OR DEAD WHALES ENCOUNTERED AT SEA (Between 24/04/2004 to 8/04/2005)

Whale species	Sex	Location	Cause of death	Det.	Date	Source or contact institution, contact name and telephone and/or e-mail
Minke whale	U	Bahía honda, Navarino, XII Región	May be Killer whale attack	V	13/04/2004	Sernapesca
Minke whale	U	Caleta Róbalo, XII Región	May be Killer whale attack	V	17/04/2004	Sernapesca
Fina whale	U	Quintero, V Región	U		09/07/2004	Sernapesca
Fina whale	U	Algarrobo, V Región	U		19/07/2004	Sernapesca
Minke whale	U	San Vicente, VII Región	U		24/08/2004	Sernapesca
Minke whale	M	Talcahuano, VIII Región	U		13/09/2004	Sernapesca
Sperm whale	F	Tirúa, VIII Región	U		21/10/2004	Sernapesca
Sei whale	M	Tomé, VIII Región	U		06/02/2005	Sernapesca

The National Fishery Service of Chile (Sernapesca) mantine the details of the files of strandings happened in the country, and determines the use and the final destination of the rest of each animal.

6.2.2 OBSERVED OR REPORTED SHIP STRIKES

6.2.3 FISHERY BYCATCH

6.3 Earlier years' statistics

7. Statistics for small cetaceans

8. Strandings

Fourteen stranded events, comprising 15 dead cetaceans were reported during this period. Stranded species included minke whale (n=5), blue whale (n=1), sperm whale (n=3), fin whale (n=1), sei whale (n=1), pygmy right whale (n=1), bottlenose dolphin (n=1, 2 individuals) and one non-identified baleen whale.

Contacts for strandings information:

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- Centro de Estudios de Mamíferos Marinos (CEMM). Derek Corcoran. dcorcora@udec.cl

9. Other studies and analyses

INACH/CEQUA

Studies of photo-identification, migration patterns, fidelity and permanence, and genetic analysis are being conducted on humpback whales, in the recently discovered feeding ground in Magellan (XII Region). The research is oriented to determine if these whales belong to the population that feeds in Antarctic waters and reproduce in Ecuador and Colombia (G stock).

UNIVERSITY OF MAGELLAN

The University of Magellan is developing several research studies related to the conservation of humpback whales in the East Pacific. A Strategy for the conservation of this population is being developed in cooperation with Colombia and Ecuador and the University is also conducting humpback whale monitoring at Francisco Coloane Marine Park (XII Region).

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