

**BRAZIL PROGRESS REPORT ON CETACEAN RESEARCH, MARCH 2002 TO FEBRUARY 2003, WITH
STATISTICAL DATA FOR THE CALENDAR YEAR 2002 OR SEASON 2002/2003**

Compiled by Jesuina M. da Rocha¹ and Paulo H. Ott^{2,3}

¹*Coordenação Geral de Fauna / IBAMA, Av L4 Norte Ed Sede do IBAMA, 70800-200 Brasília DF, Brazil email:
jesuina.rocha@ibama.gov.br*

²*Grupo de Estudos de Mamíferos Aquáticos do Rio Grande do Sul, Rua Felipe Néri, 382/203, 90440-150 Porto Alegre RS,
Brazil & ³Centro de Estudos Costeiros, Limnológicos e Marinhos/Universidade Federal do Rio Grande do Sul
(CECLIMAR/UFRGS). Av Tramandaí, 976, 95625-000, Imbé RS, Brazil. email: gemars@terra.com.br*

This report summarises information obtained from the following institutions/organizations:

1. Instituto Nacional de Pesquisas da Amazonia, Laboratório de Mamíferos Aquáticos (INPA/LMA), Manaus, Amazonia;
2. Associação de Pesquisa e Preservação de Ecossistemas Aquáticos (AQUASIS), Caucaia, Ceará;
3. Universidade Federal do Rio Grande do Norte, Projeto Pequenos Cetáceos do Rio Grande do Norte (PPC-RN/UFRN), Rio Grande do Norte, Rio Grande do Norte;
4. Centro Mamíferos Aquáticos/IBAMA (CMA/IBAMA), Itamaracá, Pernambuco;
5. Sociedade Pesquisa e Conservação dos Mamíferos Aquáticos, Projeto Mamíferos Marinhos e Centro de Resgate de Mamíferos Aquáticos, Salvador, Bahia;
6. Instituto Baleia Jubarte, Caravelas, Bahia;
7. Universidade do Estado do Rio de Janeiro (UERJ), Projeto MAQUA, Rio de Janeiro, Rio de Janeiro;
8. Faculdade de Medicina Veterinária, Universidade de São Paulo (USP), São Paulo, São Paulo;
9. Museu de Zoologia da Universidade de São Paulo (MUZUSP), São Paulo, São Paulo;
10. Projeto Atlantis, Universidade de São Paulo (USP), São Paulo, São Paulo;
11. Centro de Estudos de Mamíferos Marinhos (CEEMAM), Santos, São Paulo;
12. Projeto BioPesca, Praia Grande, São Paulo;
13. Universidade Monte Serrat, Santos, São Paulo;
14. Universidade do Vale do Itajaí, Itajaí, Santa Catarina;
15. Universidade da Região de Joinville (UNIVILLE), Joinville, Santa Catarina;
16. International Wildlife Coalition/Brazil (IWC/Brazil), Florianópolis, Santa Catarina;
17. Centro de Estudos Costeiros, Limnológicos e Marinhos (CECLIMAR), Imbé, Rio Grande do Sul;
18. Grupo de Estudos de Mamíferos Aquáticos do Rio Grande do Sul (GEMARS), Porto Alegre, Rio Grande do Sul;
19. Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Rio Grande do Sul;
20. Museu Oceanográfico “Prof. Eliézer C. Rios”/Fundação Universidade Federal do Rio Grande (MOFURG), Rio Grande, Rio Grande do Sul;

The following persons kindly contributed with information for this report: Adolfo Hubner de Jesus, Alessandra Higa, Alexandre de Freitas Azevedo, Ana Carolina Oliveira de Meirelles, André Fabiano de Castro Vicente, André S. Barreto, Carolina Mattosinho de Carvalho Alvite, Carolina Pacheco Bertozzi, Cristiane A. Martins, Daniel Danilewicz, Eduardo Secchi, Emerson Zampiroli, Fábila de Oliveira Luna, Fernanda Scarano Camargo, Fernando S. Alvarenga, Ignacio Benites Moreno, Jociery Vergara-Parente, José Lailson Brito Jr., Juliana Marigo, Karina R. Groch, Kleber G. da Silva, Larissa Rosa de Oliveira, Lilian Sander Hoffmann, Luciano Dalla Rosa, Marcia H. Engel, Márcio Borges Martins, Marcos César de Olivera Santos, Maria do Socorro Santos dos Reis, Mario Manuel Rollo Jr., Marta Cremer, Milton César C. Marcondes, Paulo A.C. Flores, Priscila Medeiros, Rodrigo Maia-Nogueira, Thales R. O. Freitas, Vera M. F. da Silva.

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Minke whale	<i>Balaenoptera acutorostrata</i>	Bahia; São Paulo; Santa Catarina	2.1.1; 8
Bryde's whale	<i>Balaenoptera edeni</i>	São Paulo	4.3; 8
Fin whale	<i>Balaenoptera physalus</i>	Rio Grande do Sul	4.3; 8
Rorqual	<i>Balaenoptera sp.</i>	Santa Catarina	2.1.2
Common dolphin	<i>Delphinus sp.</i>	Rio de Janeiro; São Paulo; Santa Catarina	2.1.2; 4.3; 5; 8
Southern right whale	<i>Eubalaena australis</i>	Bahia; Santa Catarina; Rio Grande do Sul	2.1.1; 2.1.2; 2.2; 3.1.1; 3.2; 4.1; 4.3; 4.4; 5; 8; 9; 10; 11.1; 11.2
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Ceará ; Pernambuco; Bahia	4.3; 8
Pilot whale	<i>Globicephala sp.</i>	Santa Catarina	2.1.2
Amazon river dolphin or boto	<i>Inia geoffrensis</i>	Central Amazon	2.1.1; 2.2; 3.1.1; 3.1.2; 3.2; 4.2; 4.4; 7.1; 9;
Dwarf sperm whale	<i>Kogia simus</i>	Bahia; Sergipe	4.3; 8
Humpback whale	<i>Megaptera novaeangliae</i>	Rio Grande do Norte; Pernambuco; Bahia; Rio de Janeiro; São Paulo; Santa Catarina; Rio Grande do Sul; Antarctic Peninsula.	2.1.1; 2.1.2; 2.2; 3.1.1; 3.2; 4.1; 4.3; 4.4; 5; 6.2; 8; 9; 10; 11.1; 11.2.
Gervais' beaked whale	<i>Mesoplodon europaeus</i>	Ceará	8
Killer whale	<i>Orcinus orca</i>	Rio de Janeiro; Santa Catarina; Rio Grande do Sul	2.1.1; 2.1.2; 4.3; 5; 8
Melon-headed whale	<i>Peponocephala electra</i>	Bahia	4.3; 8
Sperm whale	<i>Physeter macrocephalus</i>	Pernambuco; Bahia; Sergipe; Santa Catarina; Rio Grande do Sul	2.1.2; 4.3; 8
Franciscana	<i>Pontoporia blainvillei</i>	Espírito Santo, Rio de Janeiro, São Paulo; Paraná, Santa Catarina, Rio Grande do Sul.	2.1.1; 2.1.2; 2.2; 4.2; 4.3; 4.4; 5; 7.1; 7.2; 8; 9; 10; 11.1; 11.2.
Tucuxi	<i>Sotalia fluviatilis</i>	Central Amazon; Ceará; Rio Grande do Norte; Pernambuco; Bahia; Sergipe; Rio de Janeiro; São Paulo; Santa Catarina.	2.1.1; 2.2; 3.1.1; 3.2; 4.1; 4.2; 4.3; 4.4; 5; 7.1; 8; 9; 11.2
Pantropical spotted dolphin	<i>Stenella attenuata</i>	Bahia; Rio de Janeiro; Santa Catarina	2.1.1; 2.1.2; 2.2; 7.1; 8
Clymene dolphin	<i>Stenella clymene</i>	Ceará; Rio Grande do Norte; Pernambuco; Bahia; Sergipe	4.1; 4.3; 7.1; 8
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Rio de Janeiro; São Paulo; Santa Catarina; Rio Grande do Sul	2.1.1; 2.1.2; 4.3; 4.4; 5; 8; 9
Striped dolphin	<i>Stenella coeruleoalba</i>	Santa Catarina	2.1.2
Spinner dolphin	<i>Stenella longirostris</i>	Ceará; Fernando de Noronha;	4.3; 8; 9
Rough-toothed dolphin	<i>Steno bredanensis</i>	Rio Grande do Norte; Bahia; São Paulo; Rio Grande do Sul	4.2; 4.3; 7.1; 8
Bottlenose dolphin	<i>Tursiops Truncatus</i>	Pernambuco; Bahia; Espírito Santo; Rio de Janeiro; Santa Catarina; Rio Grande do Sul.	2.1.1; 2.1.2; 2.2; 3.1.1; 3.2; 4.3; 5; 8; 9; 10; 11.1; 11.2

Cuvier's beaked whale	<i>Ziphius cavirostris</i>	Bahia	8
Beaked whale	<i>Mesoplodon spp</i>	Bahia	8

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

Amazon river dolphin – Studies on abundance estimation and habitat use of the species have been conducted in the Central Amazon.

Project 1 – A series of monthly surveys along 30 km route in várzea habitat of Central Amazon between March 2002 to Feb 2003 was performed as part of a larger project to study the Amazon river dolphin in the Amazon river (da Silva & Martin, 2000). These surveys started in December 1994 and were analysed up to September 2002. The objective of these surveys was a 'minimum count' of the Amazon river dolphin along the seasonal variation of the water level of the Amazon river and to identify the habitat used by the species. A 4m aluminium boat with an outboard engine of 15 Hp was used and the boat speed during survey was 1-15 km.h-1. Two observers, a recorder and a driver were involved on the survey. One observer looked forward, using binoculars as much as possible to detect dolphins far ahead, and another to the rear. The driver and the recorder assisted as observers, especially in maintaining awareness of the spatial distribution of dolphin groups. This same methodology has been applied to sympatric populations of tucuxi (see Tucuxi - Project 8). Detailed methodology and results can be found in Martin & da Silva (submitted). (**Contact Person:** Vera Maria F. da Silva / INPA).

Bottlenose dolphin – Coastal bottlenose dolphins have been systematically studied in estuarine zones along the Rio Grande do Sul state, southern Brazil (Tramandaí river and Patos Lagoon). The studies include photo-identification (see item 3.1.1), habitat use, site fidelity, social behavior, association pattern, population estimates and acoustic recording.

Project 1 – Coastal bottlenose dolphins have been studied in the estuarine system of Tramandaí, in the north coast of Rio Grande do Sul, southern Brazil. From March 2002 to February 2003, more than 400h of observation were accomplished from land points (sighting rate *per* individual and total is on going analysis). The acoustic record of the dolphins has made with a C53 hydrophone (Cetacean Research Tech.) connected to a digital audiotape Sony TCD-D8, in order to characterize the signature whistles and vocal patterns shared by this group (Hoffmann *et al.*, 2000b). Concomitantly with this acoustic recording, following characteristics were recorded: dolphin identification, precise occupation area, and specific behaviors and contexts, like reproductive, feeding or social behavior, presence of vessels, interaction with mullet (*Mugil* sp.) fishermen. The individualized dolphins are monitored by the photo identification technique, by the difference in natural markings on the dorsal fin. (**Contact Person:** Lilian Sander Hoffman/UFRGS).

Project 2 – Coastal bottlenose dolphins have been studied inside the Patos Lagoon, Rio Grande do Sul. (**Contact Person:** Luciano Dalla Rosa/MOFURG).

Franciscana – Studies on behavior, habitat use and abundance estimation of franciscana are being conducted inside an estuary (Babitonga Bay) in southern Brazil.

Project 1 – Linear transect method applied during a 2 years period (2001/2002) in Babitonga Bay, north coast of Santa Catarina State for density estimation of franciscana. This work is done with a motor boat, equipped with a 60 Hp motor. Bioacoustic, behavior and habitat use of the species are also being investigated. This same methodology has been applied to sympatric populations of marine tucuxi (see Tucuxi – Project 6). (**Contact Person:** Marta Cremer / UNIVILLE).

Tucuxi – Populations of marine tucuxi have been studied in many localities along the Brazilian coast. The studies include mainly photo-identification, abundance estimation, behavior and bioacoustic analyzes. Abundance estimation and habitat use of the species have also been studied in the Central Amazon.

Project 1 – Photo-identification and behavior studies of marine tucuxi have being conducted from an observation point in a cliff and from vessels in Pipa and Tabatinga beach in Rio Grande do Norte (northeastern Brazil). (**Contact Person:** Priscila Medeiros / PPC-RN).

Project 2 – Photo-identification and behavior studies of marine tucuxi have being conducted on a regular basis from

a land-base sightings and also through a monthly 4 day cruise in the estuary of Paraguaçu river (Baía de Todos os Santos), Bahia, northeastern Brazil. (**Contact Persons:** Adolfo Hubner de Jesus, Maria do Socorro Reis e Rodrigo Maia-Nogueira).

Project 3 – Studies on tucuxi are being conducted along a coastline of 135 km extension, between Nova Viçosa (17°54'S; 39°21'W) and Caraívas (16°55'S; 39°08'W), extreme southern of Bahia state coast. Surveys were carried out aboard small boat, following the dolphins, when sighted, using focal group sampling (Lehner, 1979) in blocks of 5 minutes, noting behavioral data and geographical position on specific field sheets. Environmental data, such as tidal state, wind direction and velocity, salinity and water temperature were also collected one time per hour during the survey. The survey routes as well as the dolphin movements were monitored using a GPS and later analysis at Arcview 3.2 software. Since April 2002 until the present (11 months) were totalized 509.58 hours of total effort (since start to end of each survey) and 82.99 hours of direct observation of the species. (**Contact Persons:** Milton César C. Marcondes & Marcia H. Engel / Projeto Baleia Jubarte).

Project 4 – Photo-identification, bioacoustic and behavior studies of marine tucuxi have been conducted on a regular basis on Guanabara Bay, Rio de Janeiro, southeastern Brazil. (**Contact Persons:** José Lailson Brito Jr. & Alexandre de Freitas Azevedo).

Project 5 – Photo-identification studies of tucuxi are being conducted since 1996 at the Cananéia estuary (25°00'S; 47°58'W), southeastern Brazil. Efforts extended to Guaraqueçaba and Pinheiros bays, Paraná state, southern Brazil, since 2000. Both land and boat-based investigations. A total of 28,000 analysed photographs and 161 catalogued individuals. (**Contact Person:** Marcos Santos / Projeto Atlantis).

Project 6 – Linear transect method applied during a 2 years period (2001/2002) in Babitonga Bay, north coast of Santa Catarina State for density estimation of *S. fluviatilis*. This work is done with a motor boat, equipped with a 60 Hp motor. Bioacoustic, behavior and habitat use of the species are also being investigated. This same methodology has been applied to sympatric populations of franciscana (see Franciscana – Project 1). (**Contact Person:** Marta Cremer / UNIVILLE).

Project 7 – Marine tucuxi dolphin have been studied through boat surveys in an area of ~250km² at Baía Norte, Santa Catarina, southern Brazil. Observations have been conducted year round without following a regular course. In 2002, seventy-five surveys were conducted every month yielding 75 sightings. Tucuxis are year round (Flores 1999; Flores and Wells 2001) and long term residents (Flores 2002). (**Contact Person:** Paulo A.C. Flores / IWC-Brazil).

Project 8 – A series of monthly surveys along 30 km route in várzea habitat of Central Amazon between March 2002 to Feb 2003 was performed as part of a larger project to study the tucuxi in the Amazon river (da Silva & Martin, 2000). These surveys started in December 1994 and were analysed up to September 2002. The objective of these surveys was a 'minimum count' of the tucuxi along the seasonal variation of the water level of the Amazon river and to identify the habitat used by the species. A 4m aluminium boat with an outboard engine of 15 Hp was used and the boat speed during survey was 1-15 km.h⁻¹. Two observers, a recorder and a driver were involved on the survey. One observer looked forward, using binoculars as much as possible to detect dolphins far ahead, and another to the rear. The driver and the recorder assisted as observers, especially in maintaining awareness of the spatial distribution of dolphin groups. This same methodology has been applied to sympatric populations of Amazon river dolphins (see Amazon river dolphins - Project 1). Detailed methodology and results can be found in Martin & da Silva (submitted). (**Contact Person:** Vera Maria F. da Silva / INPA).

Humpback whale - Humpback whales have been systematically studied in northeastern Brazil during the species breeding season (July to November). The species has also been studied in feeding grounds around the Antarctic Peninsula (Areas I and II according to IWC) during the austral summer (December to March). The studies include photo-identification (see item 3.1.1), habitat use, population estimates, biopsy sampling (see item 4.1) and genetic analysis.

Project 1 – Humpback whale surveys have been made from the highest point of Santa Barbara Island at Abrolhos Archipelago. One-hour scans, surveying 5 nautical miles around the observatory point, were made during mornings and afternoons. During 120 hours of observation, 1334 whales (262 calves) were sighted, including possible double counting. Composition, behavioural state and localization of all groups within this area were registered during the season. Continuous sampling (Mann, 1999) of humpback whales and their interaction with whale watching boats (see Project 7 - item 9) were made using theodolite tracking. Weekly 4 days cruise were also developed during the breeding season - July to November - in Abrolhos Bank region, Bahia - Brazil (16°40'-19°30'S; 38°00'-39°30'W). Daily cruise was also made from July to October - in Northern Bahia State - Brazil (12°20'-13°52'S; 37°36'-38°57'W). The main objectives of these cruises were humpback whale photo-identification, biopsy sampling and behavioral observations. The boat used was a 15 meter wooden research trawler. Aerial surveys were conducted between the northern limit of the Bahia State (12°10'S) and the southern limit of the Espírito

Santo State (20°42'S) at the peak of the breeding season (September 7-16). The data was collected following the methodology of linear transects (Burnham *et al.*, 1980; Hiby and Hammond, 1989; Buckland *et al.*, 1993). During 7 days of aerial surveys, 275 whales were counted in 2106.54 nautical miles. (**Contact Persons:** Milton C. Marcondes & Marcia H. Engel/Projeto Baleia Jubarte).

Project 2 – During the last five austral summers (1997/98 to 2001/2002), the Projeto Baleias/Brazilian Antarctic Program (PROANTAR) conducted ship surveys for biopsy and photo-identification of humpback whales as well as for cetacean distribution and abundance estimation in waters of the Antarctic Peninsula region, especially in the Gerlache Strait and South Shetland Islands (Areas I and II, according to IWC). In the last summer (2001/2002), approximately 480 nautical miles were surveyed, resulting in 201 sightings (including out of effort sightings and unidentified species) of five cetacean species. (**Contact Person:** Luciano Dalla Rosa/Projeto Baleias/PROANTAR & MOFURG).

Southern right whale – Southern right whales have been systematically studied in southern Brazil (Santa Catarina and Rio Grande do Sul states), during the species calving and nursing period from June to November. The studies, conducted from land, boat and aerial surveys, include photo-identification (see item 3.1.1), habitat use, behavior, population estimates, biopsy sampling (see item 4.1) and genetic analysis.

Project 1 – Southern right whales were surveyed from helicopter in a coastline of 400km from Santa Catarina Island (central coast of SC) to the northern coast of Rio Grande do Sul, from an inflatable boat, mostly during biopsy sampling efforts (Palazzo Jr. *et al.* 1999; P.A.C. Flores and P.H. Ott, unp. data) and from shore in 12 observation stations covering about 80km of coastline (Groch 2000, 2001, 2002). From four aerial surveys conducted from July to November (one per month, except October), on we had 122 sightings of 231 individuals, of which 77 were calves (including double counting) (P.A.C. Flores, K.R. Groch and J.T. Palazzo Jr., unp. data). 610 sightings of mother-calf pairs and 453 of non-calf whales (including double counting) were obtained from land (K.R. Groch, unp. data). A total of 104 different individuals were counted in the same day in September from the air in the study area (P.A.C. Flores, K.R. Groch and J.T. Palazzo Jr., unp. data) (**Contact persons:** Paulo A.C. Flores & Karina R. Groch/IWC-Brazil).

Project 2 – A shore-based survey of the northbound and southbound migration of southern right whales was initiated in 2002 in Torres (29°19'S; 49°43'W), Rio Grande do Sul, southern Brazil. The objectives of the survey were to estimate the abundance and study the seasonality, group characteristics and habitat use of the right whales in the region. From 15 June 2002 to 30 November 2002, a total of 2270 hours of observations were carried out. During this period, 84 groups of right whales were recorded, yielding a total of 131 animals (including possible double counting). Peak of sightings occurred in September and October. Concerning the group composition, 53% of the sightings were single animals, 25% were female-calf pairs and 22% were groups of adults (2-3 whales) (Danilewicz *et al.*, unp. data). (**Contact person:** Daniel Danilewicz/GEMARS-CECLIMAR)

Small cetaceans - Systematic surveys were conducted by our group in two areas: the estuary of the Itajaí River (Santa Catarina state) and around the oil rig P-XIV. The first is located at 26°55'S 48°40'W, and is the entrance to one of the most important harbours of southern Brazil. Research was conducted to study the occurrence of small cetaceans in the area and understand the impact of boat traffic on their activities. Only bottlenose dolphins, *Tursiops truncatus*, were observed in the area. For the second area, the Petrobras' oil rig P-XIV (26° 46'2.2''S; 46° 47'2.15''W) was used for monitoring cetaceans that occurred in the area around it (Cremer *et al.*, 2002; Mounayer *et al.*, 2002). Six species were positively identified around it (*Tursiops truncatus*, *Delphinus delphis*, *Orcinus orca*, *Balaenoptera acutorostrata* and *Megaptera novaeangliae*), being the bottlenose dolphin the most frequently seen. This project was part of a larger one that aimed studying the nektonic fauna around the oil rig (Hostim-Silva *et al.*, 2002) and was done in collaboration with Marta Cremer (UNIVILLE, SC, Brazil). (**Contact person:** A. Barreto/UNIVALI)

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

Project 1 - Opportunist sightings and behaviour studies of southern right whales have been made during the humpback whale study in the northeastern Brazil, especially around the Abrolhos Bank region (see Humpback whale – Project 1). Composition, behavioural state and localization of all groups within this area were registered during the season. Continuous sampling (Mann, 1999) of southern right whales and their interaction with whale watching boats (see Project 7 - item 9) were made using theodolite tracking. (**Contact persons:** Milton C. Marcondes & Marcia H. Engel/Projeto Baleia Jubarte)

Project 2 - Opportunist sightings and photo-identification of bottlenose dolphin have been made from boat surveys during the marine tucuxi dolphin study in Baía Norte (Flores 1999) and along Santa Catarina Island, southern Brazil (see

Tucuxi – Project 7), although tucuxis and bottlenose are parapatric (Bazzalo and Flores 2002). Data collected include distribution, group size, behavior, association patterns, residency, site fidelity and home ranges. Occasional sightings of franciscanas have also been recorded (Flores and Wells 2001). (**Contact person:** Paulo A.C. Flores / IWC-Brazil)

Project 3 - Opportunist sightings and photo-identification studies of bottlenose dolphin have been conducted in two estuaries along the Rio Grande do Sul state coast (Mampituba river and Tramandaí estuary). These efforts aim to contribute for the photo-id catalogue of the animals in the region as well as to the study of population size, residency, site fidelity and home range of these coastal populations. (**Contact person:** Paulo Ott / GEMARS-CECLIMAR)

Project 4 - Opportunistic observations of cetacean species have been made in southeastern Brazil from ships of the Brazilian Navy and others vessels. The species sighted include *Megaptera novaeangliae*, *Stenella attenuata* and *Tursiops truncatus*. (**Contact persons:** José Lailson Brito Jr. & Alexandre de Freitas Azevedo / MAQUA-UERJ)

Project 5 - Opportunistic sightings have been made by researchers and students in oceanographic cruises and observers assigned to chartered gillnet vessels (see also item 7.2). More than 450 sightings were registered in 2002. The area covered by these sightings spans from 15° to 38°S and from 21° to 55°W. Even though the quality of the identifications is less than ideal, the sightings obtained allow the identification of areas with higher cetacean densities, which should be further investigated in the future. (**Contact person:** A. Barreto / UNIVALI)

2.2 Analyses/development of techniques

Information given in 2.1.1 and 2.2.2.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Species	Feature	Area/stock	Calendar year/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Amazon river dolphin	Flank/ dorsal fin	Central Amazon	2002-03 / n = 3	Y	-	Vera da Silva/ INPA, Brazil & A.R. Martin / BAS, UK
Bottlenose dolphin	Dorsal fin	Florianópolis, Santa Catarina	2002-03 / n = ca 10	Y	35	Paulo A.C. Flores / IWC-Brazil
Bottlenose dolphin	Dorsal fin	Mampituba river, Rio Grande do Sul	2002-03 / n = 2	Y	4	Paulo Ott / GEMARS-CECLIMAR
Bottlenose dolphin	Dorsal fin	Tramandaí estuary, Rio Grande do Sul	2002-03 / n = 7	Y	10	Lilian Hoffman / UFRGS Paulo Ott / GEMARS-CECLIMAR
Bottlenose dolphin	Dorsal fin	Patos Lagoon, Rio Grande do Sul	2002-03 / n = ca 30	Y	43	Luciano Dalla Rosa / MOFURG
Humpback whale	Fluke	Abrolhos Bank, Bahia	2001-02 / n = 279	Y	1261	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte
Humpback whale	Fluke	Northern Bahia	2001-02 / n = 129	Y	On going analysis	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte
Humpback whale	Fluke	Antarctic (Areas I and II)	2002-03 / n = 120	Y	310	Luciano Dalla Rosa / MOFURG
Southern right whale	Head callosities	Santa Catarina, Rio Grande do Sul	2002-03 / n = ca 90 ^{b,d} , 9 ^{c,d}	On going analysis	ca 200 ^{b,d} 80 ^{c,d}	Karina R. Groch / IWC-Brazil
Tucuxi	Dorsal fin	Rio Grande do Norte	2002-2003/ n = 25-34	Y	34	Priscila Medeiros / PPC – RN / UFRN
Tucuxi	Dorsal fin	Baía de Todos os Santos, Bahia	2002-03 / n = 50	N	On going analysis	Maria do Socorro Reis / Projeto Mamíferos Marinhos

Tucuxi	Dorsal fin	Bahia	2002-03 / n = 64	Y	64	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte
Tucuxi	Dorsal fin	Guanabara Bay, Rio de Janeiro	2002-03 / n = 29	Y	60	José Lailson-Brito & Alexandre Azevedo / UERJ
Tucuxi	Dorsal fin	Cananéia estuary, São Paulo	2002-03 / n = ca.200-280 ^d	Y (40%)	161	Marcos Santos / Projeto Atlantis
Tucuxi	Dorsal fin	Babitonga Bay, Santa Catarina	2002-03 / n = 45	Y	45	Marta Cremer / UNIVILLE
Tucuxi	Dorsal fins and body marks ^a	Florianópolis, Santa Catarina	On going analysis	Y	~ 130	Paulo A.C. Flores / IWC-Brazil

^a Body marks are mostly additional/complementary features (Flores 1999).

^b Identifications from aerial surveys only.

^c These include only whales photo-identified from boat during biopsy sampling carried in southern Brazil since 1998 (see 2.1.1 – Southern right whale – Project 1, and 4.1)

^d Include possible double identifications.

3.1.2. ARTIFICIAL MARKING DATA

Species	Type of Mark	No.branded/ photographed	Catalogued (Y/N)	Catalogue Total	Contact person/institute
Amazon river dolphin	Freezing brand & Plastic tags	65	Y	294	Vera da Silva / INPA-Brazil & A.R. Martin / BAS-UK.

3.1.3 TELEMETRY DATA

No data available

3.2 Analyses/development of techniques

Information given in 2.1.1 and 2.2.2.

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
Amazon river dolphin	Central Amazon	2002-2003 / n = 60 ^a	Y	?	?	Vera da Silva/ INPA, Brazil & A.R. Martin / BAS, UK
Clymene dolphin	Bahia	2002-2003 / n = 1	Y	1	1	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos
Tucuxi	Cananéia estuary, São Paulo	2002-2003 / n = 11	Y	11	11	Marcos Santos / Projeto Atlantis
Tucuxi	Guanabara Bay, Rio de Janeiro	2002-2003 / n = 3	Y	3	-	José Lailson-Brito & Alexandre Azevedo / UERJ
Humpback whale	Bahia	2002-2003 / n = 15	Y	0	15	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte

Humpback whale	Antarctic (Areas I and II)	2002-2003 / n = 56	Y	--	185	Luciano Dalla Rosa / MOFURG
Southern right whale	Santa Catarina	2002-2003 / n = 28 skin + 10 blubber	Y	On going study	75 skin + 35 blubber	Paulo H. Ott / GEMARS-CECLIMAR

^a Samples (skin, blood and milk) collected from live animals caught for branding and release after manipulation in the same area. (see da Silva & Martin, 2000 for details).

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Amazon river dolphin	Central Amazon	2002-2003 / n = 3	Y	Skin, bones, teeth	Vera da Silva / INPA-Brazil & A.R. Martin / BAS-UK
Bottlenose dolphin	Santa Catarina	2002-2003 / n = 1	Y	Skin, blubber, muscle, liver, kidneys	André S. Barreto (CTTMar/UNIVALI)
Franciscana	São Paulo	2002-2003 / n = 9	Y	Brain, lung, heart, stomach, intestine, liver, kidney, pancreas, adrenals, gonads, muscle, blubber, skin, teeth	Bertozi, C. P.; Marigo, J. and Ruoppolo, V. / Projeto BioPesca and Faculdade de Medicina Veterinária - USP
Franciscana	Santa Catarina	2002-2003 / n = 1	Y	Skin, blubber, kidneys, lungs, stomach, liver, intestines, skeleton.	Marta Cremer / UNIVILLE
Franciscana	Santa Catarina	2002-2003 / n = 4	Y	Skin, blubber, muscle, liver, kidneys	André S. Barreto (CTTMar/UNIVALI)
Franciscana	Rio Grande do Sul	2002-2003 / n = 10	Y	Gonads, liver, kidney, blubber, muscle, stomach, teeth and skull.	Ignacio Moreno / GEMARS
Rough-toothed dolphin	Rio Grande do Norte	2002-2003 / n = 1	Y	Heart, liver	Priscila Medeiros / PPC-RN/UFRN
Tucuxi	Ceará	2002-2003 / n = 2	Y	Lung, liver, kidney, gonads	Cristine Negrão / AQUASIS
Tucuxi	Santa Catarina	2002-2003 / n = 1	Y	Skin, blubber, kidneys, lungs, stomach, liver, intestines, skeleton.	Marta Cremer / UNIVILLE

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

4.3 Samples from stranded animals

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)*	Contact person/Institute
Atlantic spotted dolphin	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Atlantic spotted dolphin	Rio Grande do Sul	2002-2003 / n = 1	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Bottlenose dolphin	Bahia	2002-2003 / n = 1	Y	Skin	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos

Bottlenose dolphin	Rio de Janeiro	2002-2003 / n = 1	Y	Kidney, liver, lung, muscle, stomach, intestine, heart, blubber.	José Lailson-Brito & Alexandre Azevedo / UERJ
Bottlenose dolphin	Rio Grande do Sul	2002-2003 / n = 7	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Bryde's whale	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Clymene dolphin	Ceará	2002-2003 / n = 1	Y	Lung, heart, ovaries.	Cristine Negrão, AQUASIS
Clymene dolphin	Rio Grande do Norte	2002-2003 / n = 1	Y	Skin	Priscila Medeiros / UFRN
Clymene dolphin	Pernambuco	2002-2003 / n = 1	Y	Lung, liver, muscle, parasites.	Jociery Vergara-Parente, Fábila Luna, Carolina Alvite / CMA
Clymene dolphin	Sergipe	2002-2003 / n = 2	Y	Tongue, heart, stomach.	Maria do Socorro Reis / Projeto Mamíferos Marinhos
Clymene dolphin	Bahia	2002-2003 / n = 3	Y	Liver, kidney, bladder, lymph nodes, lung, blood, stomach.	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos
Common dolphin	Rio de Janeiro	2002-2003 / n = 1	Y	Kidney, liver, lung, muscle, stomach, intestine, heart, blubber.	José Lailson-Brito & Alexandre Azevedo / UERJ
Common dolphin	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Dwarf sperm whale	Sergipe	2002-2003 / n = 1	Y	Stomach	Maria do Socorro Reis / Projeto Mamíferos Marinhos
Fin whale	Rio Grande do Sul	2002-2003 / n = 1	Y	Skull, skin, blubber, muscle.	Ignacio Moreno / GEMARS
Franciscana	Rio de Janeiro	2002-2003 / n = 1	Y	Kidney, liver, lung, muscle, stomach, intestine, heart, blubber.	José Lailson-Brito & Alexandre Azevedo / UERJ
Franciscana	São Paulo	2002-2003 / n = 15	Y	Skull	André Vicente / CEEMAM
Franciscana	São Paulo	2002-2003 / n = 2	Y	Skin, muscle, stomach.	Marcos Santos / Projeto Atlantis
Franciscana	Santa Catarina	2002-2003 / n = 1	Y	Skin, blubber, kidneys, lungs, stomach, liver, intestines, skeleton.	Marta Cremer / UNIVILLE
Franciscana	Rio Grande do Sul	2002-2003 / n = 51	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Humpback whale	Rio Grande do Norte	2002-2003 / n = 1	Y	Skin, baleen.	Priscila Medeiros / UFRN
Humpback whale	Pernambuco	2002-2003 / n = 1	Y	Skin, blubber, liver, heart, bones, intestine.	Jociery Vergara-Parente, Fábila Luna, Carolina Alvite/ CMA

Humpback whale	Bahia	2002-2003 / n = 11	Y	Skin, blubber, bones.	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte
Humpback whale	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Humpback whale	Rio Grande do Sul	2002-2003 / n = 1	Y	Skull, skin, muscle, blubber, stomach, parasites.	Ignacio Moreno / GEMARS
Killer whale	Rio Grande do Sul	2002-2003 / n = 1	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Melon headed whale	Bahia	2002-2003 / n = 1	N	Stomach contents, blood.	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos
Rough-toothed dolphin	Bahia	2002-2003 / n = 1	N	Blood	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos
Rough-toothed dolphin	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Bottlenose dolphin	Rio Grande do Sul	2002-2003 / n = 2	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Short-finned pilot whale	Pernambuco	2002-2003 / n = 1	Y	Skin, muscle.	Jociery Vergara-Parente, Fábila Luna, Carolina Alvite/ CMA
Sperm whale	Rio Grande do Sul	2002-2003 / n = 1	Y	Skull, teeth, skin, blubber, muscle, stomach.	Ignacio Moreno / GEMARS
Spinner dolphin	Ceará	2002-2003 / n = 1	Y	Lung, liver, kidney, ovaries.	Cristine Negrão / AQUASIS
Southern right whale	Rio Grande do Sul	2002-2003 / n = 1	Y	Skin, blubber, muscle.	Ignacio Moreno / GEMARS
Tucuxi	Ceará	2002-2003 / n = 1	Y	Ovaries	Cristine Negrão / AQUASIS
Tucuxi	Rio Grande do Norte	2002-2003 / n = 2	Y	Skin, liver	Priscila Medeiros / UFRN
Tucuxi	Bahia	2002-2003 / n = 3	Y	Bones, teeth	Milton Marcondes & Márcia Engel / Instituto Baleia Jubarte
Tucuxi	Bahia	2002-2003 / n = 3	Y	Stomach content	Rodrigo Maia Nogueira / Centro de Resgate de Mamíferos Aquáticos
Tucuxi	Rio de Janeiro	2002-2003 / n = 7	Y	Kidney, liver, lung, muscle, stomach,, intestine, heart, blubber.	José Lailson-Brito & Alexandre Azevedo / UERJ
Tucuxi	São Paulo	2002-2003 / n = 1	Y	Skull	André Vicente / CEEMAM
Tucuxi	Santa Catarina	2002-2003 / n = 1	Y	Skin, blubber, kidneys, lungs, stomach, liver, intestines, skeleton	Marta Cremer / UNIVILLE

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

4.4 Analyses/development of techniques

Project 1 – Investigations on pathology occurring in incidentally caught franciscanas have being made (see Pathology in Danilewicz et al., 2002). Intestines are being analysed for metazoan parasites that can be used for franciscana

stock identity studies (Marigo et al., 2002a and b; Secchi et al., 2002). (**Contact persons:** Carolina Bertozzi & Juliana Marigo / Projeto BioPescas)

Project 2 – Stomach contents of stranded bottlenose dolphin, rough-toothed dolphin and Atlantic spotted dolphin are being analysed as part of a larger project of natural history of delphinid species in southern Brazil. (**Contact person:** Ignacio Moreno / GEMARS-CECLIMAR)

Project 3 – Analyses of the age and reproductive status of franciscana dolphin incidentally caught in southern Brazil are being conducted as part of a larger project to study the impact of the fishery activities on the franciscana populations. (**Contact person:** Daniel Danilewicz / GEMARS-CECLIMAR)

Other projects concerned with population structure and stock identity are listed under the item 9.

5. Pollution studies

Project 1 - Blubber samples from southern right whales have been collected to be analysed. (**Contact persons:** P.A.C. Flores/IWC-Brazil & P.H. Ott / GEMARS-CECLIMAR)

Project 2 - Blubber and muscle samples from dead stranded marine tucuxis available. (**Contact person:** P.A.C. Flores/IWC-Brazil)

Project 3 - Analysis of 7 trace metals (Cu, Cd, Pb, Ni, Zn, Cr e Mn) will be carried out using blubber, kidney and liver samples of franciscana and tucuxi (**Contact Person:** Marta Cremer / UNIVILLE)

Project 4 - Trace metals and organochlorines determinations in cetaceans tissues of the Brazilian coast. Species: *Megaptera novaeangliae*, *Sotalia fluviatilis*, *Pontoporia blainvillei*, *Orcinus orca*, *Tursiops truncatus*, *Delphinus sp.* and *Stenella frontalis*. (**Contact Persons:** José Lailson Brito Jr. & Alexandre de Freitas Azevedo / MAQUA-UERJ)

Project 5 - Chlorinated pesticides and polychlorinated biphenyls in marine tucuxi dolphins (*Sotalia fluviatilis*) from the Cananéia estuary, southeastern Brazil. (**Contact Person:** Rosalinda Carmela Montone, IO/USP).

Project 6 – Samples collected by UNIVALI were sent to the Marine Mammal Tissue Bank (Fillmann *et al*, 2001), located at FURG, where they are being analysed for different contaminants. (**Contact person:** Gilberto Fillmann at docgfil@super.furg.br)

Project 7 – Organochlorines determinations in franciscana blubber samples. (**Contract person:** C. Bertozzi)

6. Statistics for large cetaceans

6.1 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2002 or the season 2002/2003

6.2 Other non-natural mortality for the year 2002 or the season 2002/2003

Species	Area/stock	Males	Females	Total	Cause	Methodology
Humpback whale	Rio Grande do Norte	1	-	1	Fishery interaction or collision with ship	Post mortem
Humpback whale*	Rio Grande do Sul	-	1	1	Gillnet	Fishery interview and post mortem

* See Danilewicz *et al.* (2002).

6.3 Earlier years' statistics

7. Statistics for small cetaceans

7.1 For the calendar year 2002-2003

Species	Area/stock	Directed catch		Incidental mortality			Live-capture
		Reported	Est. total	Reported	Est. total	Source	Reported

Amazon river dolphin	Central and High Amazon	> 50 ^a	?	Y	?	?	0
Clymene dolphin	Bahia	0	0	1	?	Gillnet	0
Franciscana	Rio Grande do Sul	0	0	39	?	Gillnet	0
Franciscana	São Paulo	0	0	12	?	Gillnet	0
Franciscana	Santa Catarina	0	0	9	9	Gillnet	0
Pantropical spotted dolphin	Bahia	0	0	1	?	Gillnet	0
Rough-toothed dolphin	Rio Grande do Norte	0	0	1	?	Gillnet	0
Tucuxi	Bahia	0	0	13	?	?	0
Tucuxi	Ceará	0	0	5	?	Trawl net (2); gillnet (3)	0

^a Reports of more than 50 Amazon river dolphins being caught during the month of October/November, to be used as bait to catch one species of catfish, to export to Colombia and Peru.

7.2 Earlier years' statistics

A summary of the knowledge about franciscana's incidental mortality along the Brazilian coast can be found at Ott *et al.* (2002).

Perez *et al.* (2002) and Perez and Wahrlich (*in prep*) analyzing data from the monkfish (*Lophius gastrophysus*) fisheries estimated that 248 cetaceans (*Stenella coeruleoalba*, *Stenella sp.*, *Delphinus sp.* and *Globicephala melas*) were captured in 2001.

8. Strandings

Information on strandings of cetacean in different provinces along the Brazilian coast can be obtained upon request from the following person/institution:

Region/Province	Contact Person	Institution
Northeastern Brazil / Ceará	Carolina Oliveira de Meirelles	AQUASIS
Northeastern Brazil / Rio Grande do Norte	Priscila Medeiros	PPC-RN– UFRN
Northeastern Brazil / Pernambuco	Jociery Vergara-Parente; Fábila de Oliveira Luna, Carolina Mattosinho de Carvalho Alvite	CMA-IBAMA
Northeastern Brazil / Bahia	Adolfo Hubner de Jesus, Maria do Socorro Reis, Rodrigo Maia-Nogueira	Sociedade Pesquisa e Conservação dos Mamíferos Aquáticos
Northeastern Brazil / Bahia	Milton César C. Marcondes & Marcia H. Engel	Projeto Baleia Jubarte
Southeastern Brazil / Rio de Janeiro	José Lailson Brito Jr. & Alexandre de Freitas Azevedo	Projeto MAQUA - UERJ
Southeastern Brazil / São Paulo	Marcos César de Oliveira Santos	Projeto Atlantis – USP
Southeastern Brazil / São Paulo	Alessandra Higa	MZUSP

Southeastern Brazil / São Paulo	André Fabiano de Castro Vicente; Emerson Zampiroli and Fernando S. Alvarenga	CEEMAM
Southern Brazil / Santa Catarina	Marta Cremer	UNIVILLE
Southern Brazil / Santa Catarina	Paulo André de Carvalho Flores & Karina Groch	IWC-Brazil
Southern Brazil / Rio Grande do Sul	Ignacio Moreno	GEMARS/CECLIMAR

9. Other studies and analyses

Project 1 – Comparative investigations between two potential populations of Atlantic spotted dolphins (*Stenella frontalis*) collected in (1) Southern and Southeastern Brazil and in (2) the North Atlantic Ocean and Caribbean are currently being carried out. Morphometrics and genetics approaches are being employed. Preliminary results of both traditional and geometrics morphometrics revealed statistically significant differences between the two regions (Moreno 2002). (**Contact person:** Ignacio Moreno/GEMARS-CECLIMAR)

Project 2 – Taxonomy and geographic variation of franciscana (*Pontoporia blainvillei*) based on qualitative and biometric characters of the skull. (**Contact person:** Alessandra Higa / MZUSP).

Project 3 – Population structure of franciscana (*Pontoporia blainvillei*) is being studied based on nuclear (microsatellites) and mitochondrial genetic markers. Samples from different localities of Brazil, Uruguay and Argentina have been analyzed. The results from both genetic markers show that at least three distinct franciscana population units can be recognized: 1) Rio de Janeiro, 2) São Paulo and Paraná, and 3) south of Santa Catarina, Rio Grande do Sul, Uruguay and Argentina. Another small genetic differentiation was also found within the third unit, splitting Argentina from the other populations (Ott 2002). (**Contact person:** Paulo Ott/GEMARS-CECLIMAR).

Project 4 – Population structure of southern right whales along the Southwest Atlantic Ocean was investigated based on nuclear (microsatellites) and mitochondrial DNA. A high level of gene flow was detected between the Brazilian and Argentinean populations. These results, in conjunction with previous photo-identification studies, indicate that the whales that migrate to these breeding grounds belong to a single population. (Ott 2002). (**Contact person:** Paulo Ott/GEMARS-CECLIMAR).

Project 5 – Description of vocal repertoire of the spinner dolphins population found in Fernando de Noronha Archipelago area. Sound emissions are being correlated with ecological, biological and behavioral variables. The data are being collected using a mobile video/acoustic system described by Dudzinski *et al.* (1995) and modified by Dudzinski (1999). A preliminary data collection were conducted between October and December/2002. (**Contact person:** Mario Manuel Rollo Jr. / MZUSP).

Project 6 – Development of a method for analysis of the effect in using pingers as a strategy for reducing accidental mortality of marine tucuxi and franciscana in fishing nets in Babitonga Bay, north coast of Santa Catarina State, southern Brazil. (**Contact Person:** Marta Cremer / UNIVILLE).

Project 7 – Interactions of humpback whales and southern right whales with whalewatching boats were observed at Santa Barbara Island at Abrolhos Archipelago, by means of continuous sampling (Mann, 1999) and theodolite tracking. (**Contact person:** Milton César C. Marcondes & Marcia H. Engel / Projeto Baleia Jubarte).

Project 8 - Behavioural responses of tucuxi dolphin to tourism boats in Baía Norte and the Environmental Protection Area of Anhatomirim, southern Brazil, is on going analysis. This area is a federal reserve created in 1992 to protect this dolphin population. (**Contact person:** P.A.C. Flores / IWC-Brazil).

Project 9 - Interactions of southern right whales with whalewatching boats are being investigated in southern Brazil. This study is part of one on going PhD. Thesis with data from 2000 to 2003. (**Contact person:** Karina Groch / IWC-Brazil).

Project 10 - The Projeto Baleias/PROANTAR is conducting, in cooperation with other institutions, mitochondrial and nuclear DNA analyses of the skin samples and organochlorine analyses of the blubber samples of humpback whales collected during the austral summer around the Antarctic Peninsula (Areas I and II according to IWC) (see item 2.1.1, Humpback whale – Project 2). (**Contact person:** Luciano Dalla Rosa / Projeto Baleias/PROANTAR & MOFURG).

Project 11 - Analysis of mitochondrial DNA to study population and social structure of the population of Amazon river dolphin in the Mamirauá Sustainable Development Reserve and Central Amazon. (**Contact Person:** Vera Maria F. da Silva / INPA).

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