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Cetaceans of Central Patagonia, Argentina

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Abstract

The aim of this study was to produce the first annotated checklist of cetaceans found in the coastal waters of central Patagonia, Argentina, in the Southwestern Atlantic, encompassing approximately 700 km of coastline. Personal records of sightings and strandings, personal communications with trained individuals, photographs, unpublished abstracts from meetings, scientific publications, newspaper articles, and specimen collections from academic institutions were considered. Thirteen species were reported in the area, including ten odontocetes and three mysticetes. Reports of eight species had been published previously, including *Cephalorhynchus commersonii*, *Lagenorhynchus obscurus*, *L. australis*, *Orcinus orca*, *Globicephala melas*, *Physeter macrocephalus*, *Mesoplodon layardii*, and *Ziphius cavirostris*. Five species were formally documented for the first time in this coastal area, including *Grampus griseus*, *M. grayi*, *Eubalaena australis*, *Balaenoptera bonaerensis*, and *B. musculus*. The number of odontocete species and the presence of three species of pinnipeds breeding or moulting on several islands (*Otaria flavescens*, *Arctocephalus australis*, and *Mirounga leonina*) highlight the importance of the area in terms of biodiversity of top predators and the need for the creation of a new Marine Protected Area, considering present uses and trends in coastal development.

Key Words: cetacean, Patagonia, Argentina, Southwestern Atlantic, strandings

Introduction

The central coast of Patagonia on the Southwestern Atlantic is a highly productive coastal sector, where Golfo San Jorge has been considered a high conservation priority (Anonymous, 1996). Its dominant oceanographic feature is the northbound, cold, nutrient-rich water mass from the Falklands/Malvinas Current. The high productivity also results from strong fronts that enhance vertical mixing (Podestá, 1990; Olson et al., 1994), promoting the concentration of many prey species for marine animals, including cephalopods, shrimp, and pelagic fishes (Angelescu & Prenski, 1987; Glorioso, 1987; Podestá, 1990). The climate is dry temperate, and strong winds are a main feature, often making navigation difficult and hazardous. This fact, and the scarce and isolated coastal human population, explains the lack of information about cetaceans in the area.

Intense fisheries since the 1970s have produced incidental mortality of marine mammals (Crespo et al., 1997b; Dans et al., 1997; Reyes, 2000) and have led to the collapse of the Argentinian hake (*Merluccius hubbsi*) fishery (FAO, 2000), which is the prey of several marine mammal species (Crespo et al., 1997b; Koen Alonso et al., 1998, 2000). The threat from growing commercial fisheries adds to the current problems with oil extraction and transport from two petroleum harbors located 5 km offshore at Comodoro Rivadavia (45° 47' S, 67° 30' W) and Caleta Olivia (46° 06' S, 67° 37' W) (Figure 1) in Golfo San Jorge. Despite their relevance and present threats, very few studies on cetaceans have been conducted in the area, and even a species checklist is lacking. The aim of this study was to produce the first annotated checklist of cetaceans found in Central Patagonia, Argentina, encompassing approximately 700 km of coastline.

Materials and Methods

The study area was the central coast and waters of Patagonia, from Punta Tombo (44° 02' S, 65° 11' W) in Chubut Province to Caleta Olivia (46° 06' S, 67° 37' W) in Santa Cruz Province (Figure 1).

Records were compiled from several sources, including personal records of sightings and strandings, personal communications with trained individuals, review of photographs, conference abstracts, scientific articles, newspaper articles, books, and specimen collections from regional museums and other academic institutions. Sightings were made incidentally at sea and from shore, or during field surveys for seabirds and marine mammals that were

carried out between 1993 and 2004 by the author and colleagues during the spring or summer (October to March). Surveys at sea were conducted in 5-m semi-rigid boats in the northern Golfo San Jorge between Cabo Dos Bahías and Caleta Malaspina (Figure 1). Only substantiated identifications were included.

Results

There are published, authenticated reports of eight cetacean species in the region (Table 1), and I report five additional species here (Table 2).

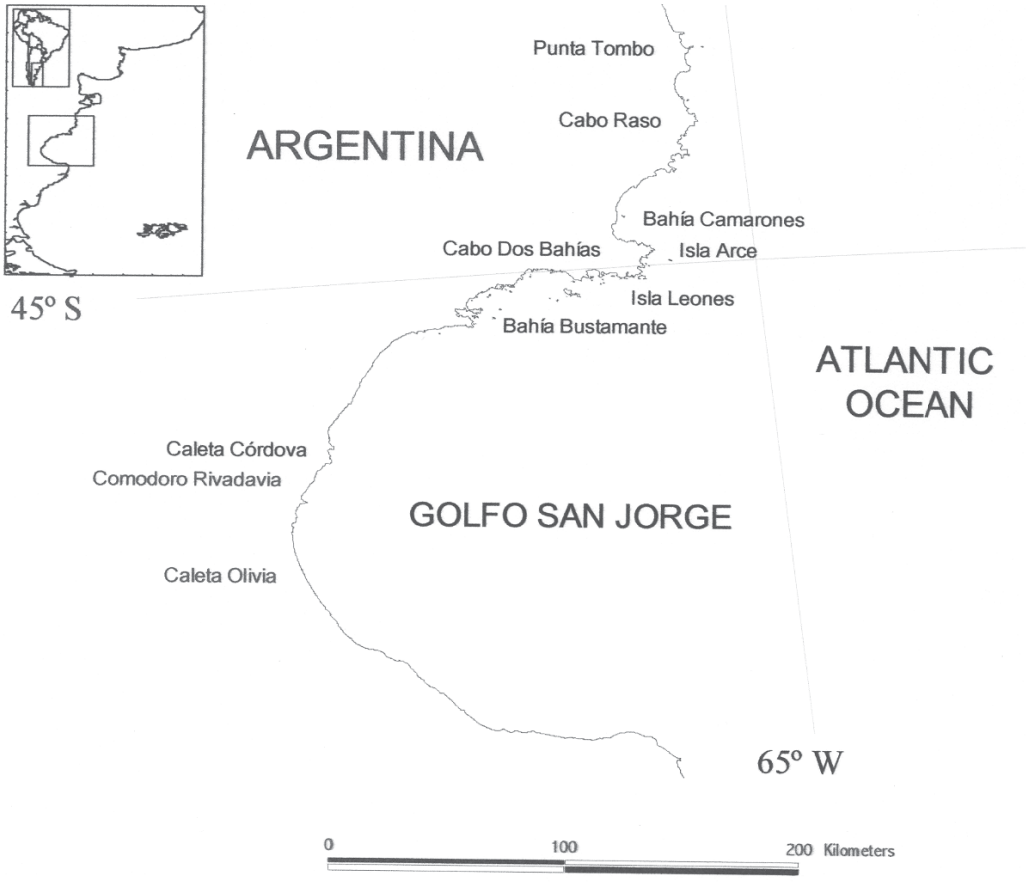

Figure 1. Map of Central Patagonia coastal sector, Southwestern Atlantic

Table 1. Cetacean species previously reported in the Central Patagonia study area

Species	Common name	Previous published records off Central Patagonia
Cephalorhynchus commersonii	Commerson's dolphin	Gewalt, 1979; Mermoz, 1980; Goodall et al., 1988b; Pedraza et al., 1996; Crespo et al., 1997b
Lagenorhynchus obscurus	Dusky dolphin	Crespo et al., 1997a, 1997b; Dans et al., 1997; Schiavini et al., 1999
Lagenorhynchus australis	Peale's dolphin	Goodall et al., 1997
Globicephala melas	Long finned pilot whale	Crespo et al., 1985
Orcinus orca	Killer whale	Reyes & García-Borboroglu, 2004
Physeter macrocephalus	Sperm whale	Pascoe et al., 1990
Mesoplodon layardii	Layard's beaked whale	Lichter, 1986
Ziphius cavirostris	Cuvier's beaked whale	Purgue, 1986

Table 2. Additional cetacean records in Central Patagonia, Argentina

Species	Date	Location	Position	Event
Cephalorhynchus commersonii	13 January 1988	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 3 individuals[a]
	15 May 1988	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 4 individuals[a]
	4 September 1988	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 6 individuals[a]
	November 1995	Cabo Dos Bahías	44°55'S, 65°32'W	Sighting of 4 individuals[a]
	November 2002	Cabo Dos Bahías	44°55'S, 65°32'W	Sighting of 1 individual[a]
	27 February 2003	Cabo Dos Bahías	44°57'S, 65°33'W	Sighting of 2 individuals[a]
	28 February 2003	Cabo Dos Bahías	44°57'S, 65°33'W	Sighting of 2 individuals[a]
	1 November 2003	Canal Leones	45°02'S, 65°37'W	Sighting of 2 individuals[a]
	16 December 2003	Bahía Bustamante	45°11'S, 66°29'W	Sighting of 2 individuals[a]
	20 February 2004	Canal Leones	45°03'S, 65°40'W	Sighting of 3 individuals[a]
	21 February 2004	Canal Leones	45°02'S, 65°37'W	Sighting of 2 individuals[a]
	21 February 2004	Punta del Marqués	45°58'S, 67°32'W	Sighting of 1 individual[a]
	22 February 2004	Punta del Marqués	45°58'S, 67°32'W	Sighting of 2 individuals[a]
	29 February 2004	Isla Moreno	44°54'S, 65°31'W	Sighting of 5 individuals[a]
	23 March 2004	Cabo Dos Bahías	44°56'S, 65°31'W	Sightings of 3 individuals[a]
	24 March 2004	Cabo Dos Bahías	44°57'S, 65°33'W	Sighting of 4 individuals[a]
Lagenorhynchus obscurus	27 January 1996	Cabo Dos Bahías	44°55'S, 65°32'W	Sighting of 2 individuals[a]
	4 November 2002	Isla Arce	45°00'S, 65°29'W	Sighting of ~50 individuals[b]
	4 December 2002	Isla Leones	45°03'S, 65°36'W	Sighting of 5 individuals[c]
	3 December 2002	Isla Arce	45°00'S, 65°29'W	Sighting of 20 to 30 individuals[c]
	21 March 2003	Golfo San Jorge	45°21'S, 66°46'W	Sighting of ~300 individuals[d]
	25 March 2003	Golfo San Jorge	45°24'S, 66°57'W	Sighting of >100 individuals[d]
Lagenorhynchus australis	January 1993	Caleta Olivia	46°06'S, 67°37'W	Sighting of 1 individual[a]
	27 January 1996	Caleta Sara	44°54'S, 65°34'W	Stranding of 1 individual[a]
	October 1993	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 2 individuals[a]
	January 1995	Cabo Dos Bahías	44°55'S, 65°32'W	Sighting of 3 individuals[a]
	November 1998	Caleta Malaspina	45°12'S, 66°31'W	Sighting of 2 individuals[a]
	February 2002	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 1 individual[a]
	2 December 2002	Isla Leones	45°03'S, 65°35'W	Sighting of 5 individuals[b, c]
	3 December 2002	Isla Arce	45°00'S, 65°29'W	Sighting of 3 individuals[c]
	3 December 2002	Isla Sola	44°58'S, 65°33'W	Sighting of 2 individuals[c]
	27 January 2003	Isla Arce	44°59'S, 65°29'W	Sighting of 2 individuals[c]
	27 January 2003	Isla Leones	45°03'S, 65°35'W	Sighting of 8 individuals[a]
	28 February 2003	Cabo Dos Bahías	44°59'S, 65°34'W	Sighting of 1 individual[a]
	14 October 2003	Bahía Gil	45°02'S, 65°41'W	Sighting of 3 individuals[a]
	1 December 2003	Canal Leones	45°02'S, 65°34'W	Sighting of 1 individual[a]
	3 December 2003	Canal Leones	45°02'S, 65°36'W	Sighting of 4 individuals[a]
	13 January 2004	Cabo Dos Bahías	44°59'S, 65°35'W	Sighting of 2 individuals[a]
	13 January 2004	Canal Leones	45°03'S, 65°38'W	Sighting of 3 individuals[a]
	13 January 2004	Caleta Sara	44°54'S, 65°34'W	Sighting of 10 individuals[a]
	14 January 2004	Bahía Camarones	44°53'S, 65°38'W	Sighting of 2 individuals[a]
	14 January 2004	Bahía Camarones	44°47'S, 65°41'W	Sighting of 3 individuals[a]
	31 January 2004	Isla Moreno	44°54'S, 65°32'W	Sighting of 1 individual[a]
	19 February 2004	Bahía Camarones	44°53'S, 65°39'W	Sighting of 2 individuals[a]
	20 February 2004	Canal Leones	45°01'S, 65°29'W	Sighting of 3 individuals[a]
	20 February 2004	Isla Moreno	44°54'S, 65°32'W	Sighting of 3 individuals[a]
	21 February 2004	Cabo Dos Bahías	44°56'S, 65°32'W	Sighting of 3 individuals[a]
	21 February 2004	Isla Moreno	44°54'S, 65°32'W	Sighting of 5 individuals[a]

	22 February 2004	Bahía Camarones	44°53'S, 65°35'W	Sighting of 1 individual[a]
	29 February 2004	Cabo Dos Bahías	44°57'S, 65°34'W	Sighting of 10 individuals[a]
	29 February 2004	Cabo Dos Bahías	44°58'S, 65°36'W	Sighting of 8 individuals[a]
	22 March 2004	Bahía Camarones	44°53'S, 65°39'W	Sighting of 2 individuals[a]
	23 March 2004	Cabo Dos Bahías	44°59'S, 65°34'W	Sighting of 5 individuals[a]
Globicephala melas	Summer 1988	North of Golfo San Jorge	45°15'S, 66°00'W	Sighting of 35 to 40 individuals[e]
	January 1996	Isla Tova	45°06'S, 66°00'W	Stranding of 2 individuals[a]
	January 1996	Isla Tovita	45°07'S, 65°57'W	Stranding of 1 individual[a]
	January 1996	Punta Tafor	45°03'S, 66°17'W	Stranding of an adult male[a]
	22 March 2003	Golfo San Jorge	45°25'S, 66°57'W	Sighting of 1 individual[d]
Orcinus orca	1983	Bahía Melo	45°00'S, 65°54'W	Sighting of 3 individuals[f]
	November 1986	Punta del Marqués	46°00'S, 67°31'W	Sighting of 3 individuals[g]
	December 1988	Punta del Marqués	46°00'S, 67°31'W	Sighting of 3 individuals[a]
	September 1993	Caleta Malaspina	45°12'S, 66°31'W	Sighting of 5 individuals[c]
	January 1994	Isla Viana Mayor	45°11'S, 66°24'W	Stranding of 1 individual[a]
	November 1994	Isla Leones	45°03'S, 65°36'W	Sighting of 4 individuals[a]
	January 1996	Isla Tova	45°06'S, 66°00'W	Sighting of 6 individuals[a]
	November 1998	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 4 individuals[a]
	November 1998	Caleta Malaspina	45°12'S, 66°31'W	Sighting of 2 individuals[a]
	December 1998	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 4 individuals[a]
	16 January 2002	Punta del Marqués	46°00'S, 67°31'W	Sighting of 9 individuals[h]
	July 2002	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 3 individuals[i]
	17 January 2003	Golfo San Jorge	45°56'S, 67°20'W	Sighting of 2 individuals[d]
	1 April 2003	Golfo San Jorge	45°21'S, 66°43'W	Sighting of 1 individual[d]
	13 January 2004	Bahía Bustamante	45°07'S, 66°30'W	Sighting of 7 individuals and a calf[a]
	5 June 2004	Caleta Sara	44°54'S, 65°34'W	Sighting of 4 individuals[j]
	15 November 2004	Bahía Camarones	44°49'S, 65°35'W	Sighting of 2 individuals[a]
	Mid-January 2005	Cabo Dos Bahías	44°52'S, 65°31'W	Sighting of 4 individuals[j]
Grampus griseus	13 September 1991	Comodoro Rivadavia	45°52'S, 67°29'W	Stranding of 1 individual[a]
	3 November 1995	Isla Tovita	45°07'S, 65°56'W	Sighting of 4 individuals[c]
	30 December 1998	Isla Robredo	45°08'S, 66°03'W	Sighting of 4 individuals[l]
	7 December 1995	Punta Atlas	44°08'S, 65°13'W	Stranding of 1 individual (skull)[c]
	3 December 2002	Isla Arce	45°00'S, 65°29'W	Sighting of 3 individuals associated with 20 to 30 *L. obscurus*[b, c]
	November 2002	Cabo Raso	44°21'S, 65°15'W	Sighting of 2 individuals[b]
	October 2003	Punta Tafor	45°03'S, 66°17'W	Stranding of 1 individual (skull)[a]
	1 December 2003	Canal Leones	45°02'S, 65°37'W	Sighting of 50 to 60 individuals[a]
	2 December 2003	Canal Leones	45°00'S, 65°34'W	Sighting of 30 to 40 individuals[a]
Mesoplodon grayi	1976	Comodoro Rivadavia	45°52'S, 67°29'W	Stranding of 1 adult male[a, m]
	12 April 1992	Caleta Olivia	46°06'S, 67°37'W	Stranding of 1 individual[a, n]
Mesoplodon layardii	1991	Bahía Bustamante	45°07'S, 66°30'W	Stranding of 1 adult male[a, o]
	1991	Rocas Coloradas	45°42'S, 67°22'W	Stranding of 1 adult female[a, k, p]
Eubalaena australis	May 1987	Rada Tilly	45°56'S, 67°33'W	Sighting of 1 individual[a]
	May 1988	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 1 individual[a]
	July 1988	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 1 individual[a]

	July 1994	Bahía Melo	45°01'S, 65°53'W	Sighting of 3 individuals[a]
	20 August 2000	Punta del Marqués	45°57'S, 67°31'W	Sighting of 1 individual[a]
	21 August 2000	Punta del Marqués	45°57'S, 67°31'W	Sighting of 6 individuals[a]
	30 August 2000	Punta del Marqués	45°57'S, 67°31'W	Sighting of 3 individuals[a]
	July 2003	La Lobería	46°04'S, 67°31'W	Sighting of 1 individual[a]
	13 August 2003	La Lobería	46°04'S, 67°31'W	Sighting of 3 individuals[a]
	1 August 2003	Caleta Olivia	46°06'S, 67°37'W	Sighting of 1 individual[a]
	4 August 2003	Puesto Ramón Santos	46°00'S, 67°31'W	Sighting of 2 individuals[a]
	14 August 2003	La Lobería	46°04'S, 67°37'W	Sighting of 3 individuals[a]
	17 September 2003	Caleta Córdova	45°44'S, 67°21'W	Sighting of 1 individual[a]
	20 June 2004	Comodoro Rivadavia	45°52'S, 67°29'W	Sighting of 1 individual[a]
	13 August 2004	Cabo Dos Bahías	44°53'S, 65°31'W	Sighting of 1 individual[a]
Balaenoptera bonaerensis	November 2001	Caleta Córdova	45°44'S, 67°21'W	Stranding of 1 individual[a]
	24 December 2001	Bajada de Los Palitos	45°58'S, 67°34'W	Stranding of 1 individual[a]
Balaenoptera musculus	October 1993	Isla Galiano "Ballena Azul"	45°06'S, 66°25'W	Stranding of 1 individual (mandible, vertebrae)[a]

[a] Personal sighting or finding
[b] Captain Jorge Owen, Marcos A. Zar 1716, 9120 Puerto Madryn, Chubut, Argentina
[c] Pablo García-Borboroglu, Centro Nacional Patagónico, 9120 Puerto Madryn, Chubut, Argentina
[d] Diego González Zeballos, Centro Nacional Patagónico, 9120 Puerto Madryn, Chubut, Argentina
[e] Captain Roberto Depino, M. Abasolo 989, 9000 Comodoro Rivadavia, Chubut, Argentina
[f] Mirtha Lewis, Centro Nacional Patagónico, 9120 Puerto Madryn, Chubut, Argentina
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[i] Matías Soriano, Soriano S.A. Evans 40, 9105 Gaiman, Chubut, Argentina
[j] Roberto Raffa, Dirección de Conservación, 9 de Julio 280, 9103 Rawson, Chubut, Argentina
[k] Mónica Abril, Facultad de Ciencias Naturales, Universidad Nacional de La Patagonia San Juan Bosco, Km 4, 9000 Comodoro Rivadavia, Chubut, Argentina
[l] Claudio Campagna, Centro Nacional Patagónico, 9120 Puerto Madryn, Chubut, Argentina
[m] Skull deposited at the Secondary School of Marine Biology, Km 3, 9000 Comodoro Rivadavia, Chubut, Argentina
[n] Deposited at the Museum of Caleta Olivia, 9011 Caleta Olivia, Santa Cruz, Argentina
[o] Héctor Hernández, Soriano S. A. Evans 40, 9105 Gaiman, Chubut, Argentina
[p] Deposited at the Universidad Nacional de la Patagonia San Juan Bosco, 9000 Comodoro Rivadavia, Chubut, Argentina

Species Previously Reported

Cephalorhynchus commersonii—Commerson´s dolphin is found in the cold temperate waters of South America, from Península Valdés (42°) to Cape Horn (55° 15' S), Drake Passage (61° 50' S), Falkland/Malvinas Islands, and south Chilean waters from 51° S, and Kerguelen Island in the Indian Ocean (Goodall et al., 1988b; Dawson, 2002). The species was previously reported in the area (see Table 1), and Goodall and co-authors (1988b) compiled several published and unpublished reports of this species in the western South Atlantic, including sightings and live captures at Golfo San Jorge. Live captures included six animals removed from this area in November/December 1978 (Gewalt, 1979; Goodall & Cameron, 1980; Goodall et al., 1988b), four in December 1978 at Puerto Deseado (47° 45' S, 65° 53' W) (Goodall & Cameron, 1980), and five more animals at Comodoro Rivadavia in 1981 (Figure 1) (Goodall et al., 1988b). Incidental mortality of this species in trawl fisheries has also been recorded in the area (Goodall et al., 1988a; Crespo et al., 1997b). An abundance estimation off northern and central Patagonia was carried out by Pedraza et al. (1996). I report herein 16 additional sightings in nearshore waters of Golfo San Jorge (Table 2).

Lagenorhynchus obscurus—The dusky dolphin inhabits temperate waters of the continental shelf and slope off Argentina, Peru, Chile, New Zealand, Australia, South Africa, and some offshore islands (Van Waerebeek, 1992; Van Waerebeek & Würsig, 2002). It is one of the most common cetacean species off northern and central Patagonia, seen throughout the year. Studies on the biology, abundance, ecology, and interactions with fisheries off central Patagonia have been conducted previously (Pedraza et al., 1996; Crespo et al., 1997a, 1997b; Dans et al., 1997; Schiavini et al., 1999) (Table 1). I report six additional sightings of the species in the area (Table 2).

Lagenorhynchus australis—The Peale's dolphin is commonly distributed in the coastal waters of South America, from 59° S northward to Valdivia, Chile (about 38° S), on the west coast, and from Golfo San Jorge to the Falkland/Malvinas Islands on the east, including the Strait of Magallanes (Goodall, 2002). The species has been previously reported in nearshore waters in central Patagonia, mainly at northern Golfo San Jorge (Goodall et al., 1997). I report herein 30 new sightings from boat and from land (Table 2).

Globicephala melas—The long-finned pilot whale is widely distributed in temperate and cold waters in the Southern Hemisphere (Olson & Reilly, 2002). Sightings off central Patagonia have not been reported yet; however, mass strandings occurred at Punta Tombo (Figure 1) in 1982, including 17 individuals (Crespo et al., 1985), and at Punta Tafor (northern Golfo San Jorge) in 1992, including at least 430 long-finned pilot whales (Reyes et al., unpubl. data[1]). I report four additional strandings on nearshore islands and on the continental coast of Golfo San Jorge and two sightings from fishing vessels (Table 2).

Orcinus orca—The killer whale has a cosmopolitan distribution. Individuals of the species are usually sighted off northern Patagonia mainly during February and March when they capture pinnipeds from the coast (López & López, 1985; Hoelzel, 1991; Iñiguez, 2001). Off central Patagonia, killer whales have been reported feeding on sharks at Caleta Malaspina (45° 12' S, 66° 31' W) in summer (Reyes & García-Borboroglu, 2004). I report an individual stranding and 17 sightings at sea and from shore (Table 2).

Physeter macrocephalus—Sperm whales are widely distributed, and their presence on the northern Argentinean coast has previously been reported by Castello & Piñeiro (1974). In northern Patagonia, two individual strandings were recorded approximately at 43° S, including an adult male and a pregnant female on the coast of Golfo Nuevo (Crespo et al., 1994). Pascoe et al. (1990) reported the stranding of an adult male (14.35 m in length) on 21 March 1986 on a beach located 30 km south of Comodoro Rivadavia (Figure 1). The stomach of the animal contained Antarctic cephalopod beaks, including *Kondakovia longimana, Allurotheuthis antarcticus*, and *Mesonychoteuthis hamiltoni*, suggesting that the whale had migrated north. This is the only published record of the species in the study area.

Mesoplodon layardii—The strap-toothed whale is known mainly from strandings in cold temperate areas of the Southern Hemisphere southward of 30° S (Pitman, 2002), with 145 records of strandings compiled by Goodall and colleagues (1989). A specimen stranded in Comodoro Rivadavia in 1973 was cited by Lichter (1986) (Table 1). I report the strandings of an adult male and an adult female in the north and the center of Golfo San Jorge, respectively (Table 2). In both cases, the species determination was made on the basis of the typical strapped tooth of the animals and cranial features, taking into account the arrangement and shape of bones. To differentiate them from the similar, recently resurrected *Mesoplodon traversii* (= *M. bahamondi*) (Van Helden et al., 2002), special attention was paid regarding the width of the rostrum base relative to the zygomatic width, the distance between the premaxillary foramina, the maximum width of the premaxillary crest relative to the dorsal length of the right nasale, and other distinctive cranial characters described by Reyes et al. (1995).

Ziphius cavirostris—The distribution of Cuvier's beaked whale is known mainly from strandings. Stranding records indicate that it is the most cosmopolitan of the beaked whales (Heyning, 2002; Van Waerebeek et al., 2004). The only substantiated record in the study area is the live-stranding of a 6.35-m adult female in Bahía Bustamante (45° 05' S, 66° 30' W), northern Golfo San Jorge, in December 1984 (Purgue, 1986).

New Species Reported

Grampus griseus—Risso's dolphin is distributed worldwide in tropical and temperate waters (Baumgartner, 1997; Baird, 2002). In the Western Atlantic Ocean, it occurs from at least Newfoundland (approximately 50° N) to Cape Horn (approximately 53° N) (Leatherwood et al., 1980). Previous studies indicated that Risso's dolphin is an oceanic species, with an apparent preference for steep, shelf-edge habitats between about 400- and 1,000-m deep, and are only seen close to shore when the continental shelf is narrow (Leatherwood et al., 1980; Baumgartner, 1997; Kruse et al., 1999; Baird, 2002). There are no previously documented reports of the species in the study area (Baird, 2002). I confirm the presence of Risso's dolphins in shallower coastal waters off central Patagonia by reporting six sightings and three strandings (Table 2). In regards to the sightings, the individuals were readily identified as Risso's dolphins on account of their tall and falcate

[1] Reyes, L. M., Dans, S., Pedraza, S., Koen Alonso, M., Crespo, E., & García, N. (1992). *Descripción preliminar de un varamiento masivo de calderones* (Globicephala melaena) *en Punta Tafor, Chubut, Argentina.* V Reunión de Trabajo de Especialistas en Mamíferos Acuáticos de América del Sur. Buenos Aires, Argentina, 28/9-2/10 de 1992. Abstract available from Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Av. Ángel Gallardo 470 (1405) Buenos Aires, Argentina.

dorsal fin, blunt snout, and gray and scarred skin (Baird, 2002). In all cases, the groups spread out in a long line, two or three abreast, surfacing slowly in "echelon" formation, or milled.

Mesoplodon grayi—Gray's beaked whale has a circumglobal distribution in temperate waters of the Southern Hemisphere, mainly southward of 30° S (Pitman, 2002). Strandings of the species in the northern and southern coast of Argentina were reported by True (1910), Goodall (1978), Mermoz (1979), Lichter (1986) and Delhon et al. (1987). I report two strandings of adult males at the central coast of Golfo San Jorge (Table 2).

Eubalaena australis—The Southern right whale inhabits the Southern Hemisphere, 20° S and southward, including the Antarctic, southern South America, Australia, New Zealand, South Africa, and high latitudes in the Indian Ocean (Leatherwood & Reeves, 1983; Rice, 1998; Kenney, 2002). In Argentina, the main reproductive area is located around Península Valdés, centered at 42° 30' S, 63° 45' W (Payne & Rowntree, 1984; Payne, 1986). Exploitation of baleen whales was carried out between 1920 and 1930 in the Golfo San Jorge, but at a small scale (Reyes, 1990). Today, sightings of the Southern right whale in the area are occasional, occurring when the animals move towards the northern reproductive areas. I report 15 observations of this species from shore and from boat on coastal areas of Golfo San Jorge (Table 2).

Balaenoptera bonaerensis—The Antarctic minke whale described by Burmeister in 1867 and equivocally synonymized with *B. acutorostrata* for over a century, was resurrected as a separate species (see Rice, 1998; Perrin & Brownell, 2002). The species is found generally from about 55° S into the pack ice during the austral summer; and during the austral winter, most go to breeding grounds at mid latitudes, off the northeast coast of Brazil in the Western South Atlantic (Perrin & Brownell, 2002). The presence of the species has not been reported off the coast of central Patagonia. I report here two strandings at Golfo San Jorge (Table 2). Species determination was made on the basis of external features: total length; rostrum very narrow and pointed, with a single ridge on the head; dorsal fin falcate and relatively tall, located on the posterior one-third of the body; baleen plates, black on the left side beyond the first plates, and on the right white in the first third and black in the rest; and the lack of distinct white flipper marks characteristic of *B. acutorostrata*.

Balaenoptera musculus—In October 1993, I found two 5.40-m right and left mandibular bones, with evident coronoid process, and three dispersed cervical vertebrae on the nearshore island locally known as "Galiano Ballena Azul" (Blue Whale) in northern Golfo San Jorge. The coronoid process, typical in balaenopterids, and the huge size of the bones, indicate that it belongs to a great balaenopterid, probably an adult blue whale (*B. musculus*) or a fin whale (*B. physalus*). Blue whales are distributed worldwide, but they are very scarce in the Southern Hemisphere today (Sears, 2002). I found no previous records of the species off central Patagonia. The fin whale is a cosmopolitan species found in most oceans of the world (Aguilar, 2002). There is no record of the species in the study area (Table 2). After comparing the mandibular bones with photographs of mandibles of *B. physalus* (University Museum of Zoology, Cambridge) and consulting with colleagues (Long Marine Laboratory, California), more resemblance was found with *B. musculus*, taking into account the spine immediately before the coronoid process that is noticeable in this jaw, which is not evident in *B. physalus*.

Discussion

This is the first comprehensive checklist of cetaceans found on this scarcely studied coast of the western South Atlantic. At least 13 species have now been reported for central Patagonia, including three mysticetes and ten odontocetes. At least four species (*C. commersonii*, *L. australis*, *L. obscurus*, and *O. orca*) inhabit the coastal area, breeding and feeding there (Reyes, unpubl. data), while another three species (*Grampus griseus, G. melas*, and *B. australis*) seem to use the area less frequently, probably as temporal corridors for feeding or migration. Ziphids, balaenopterids, and the sperm whale seldomly occur in this coastal area, presumably because they are avoiding the shallow 200-nmi wide continental platform. Additional species have been reported in neighboring areas, and some of them are likely to be present in the area such as the spectacled porpoise (*Phocoena dioptrica*) (Pagnoni, 1989), Burmeister's porpoise (*P. spinnipinnis*) (Würsig et al., 1977; Goodall et al., 1995), and the pygmy right whale (*Caperea marginata*) (Kemper, 2002).

The most frequently sighted species in the area was the Peale's dolphin, which was found in small groups (modal group size = 3 individuals, range = 1 to 10) in shallow bays and channels in the northern Golfo San Jorge, including mother-calf groups (Reyes, unpubl. data). Peale's dolphin was strongly associated with kelp forests of *Macrocystis pyrifera*, as mentioned by other authors (de Haro & Iñiguez, 1997; Goodall et al., 1997). The presence of *G. griseus* is of remarkable interest because the habitat features of the area (shallow coastal waters, < 80 m) do not

fit the habitat requirements observed for the species in other regions (Baumgartner, 1997; Baird, 2002).

The number of odontocete species reported, and the presence of three pinniped species breeding or moulting in several islands, including the southern sea lion (*Otaria flavescens*), the South American fur seal (*Arctocephalus australis*), and the southern elephant seal (*Mirounga leonina*) (Reyes et al., 1999; Reyes, 2000), highlights the importance of the area in terms of biodiversity of top predators.

Current trends in coastal development, particularly in Golfo San Jorge, including new oil, fishing, and tourism development plans, indicate the urgent need of guidelines for marine habitat protection. Marine Protected Areas are a useful tool to achieve conservation goals, but success depends in great part on public support (Kelleher, 1999; Struhsaker et al., 2005). Raising awareness about marine conservation needs is vital, and it could be more easily achieved using cetaceans as flagship species. Cetaceans, due to their popularity and educational, scientific, and economic value, may provide a key to protecting marine habitats and to creating new Marine Protected Areas under ecosystem-based management (Hoyt, 2005). A first step towards that aim is the information presented here. Further studies on the temporal and spatial distribution and habitat requirements of the most representative cetaceans will also be helpful in both the identification of priority sites for breeding populations and the definition of spatial zoning schemes.

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