

Area Size

44 582 km²

Qualifying Species and Criteria

South American sea lion – *Otaria byronia*

Criterion B (1); C (1)

Southern elephant seal – *Mirounga leonina*

Criterion B (1); C (1, 2)

Southern right whale – *Eubalaena australis*

Criterion B (1); C (1)

Dusky dolphin – *Lagenorhynchus obscurus*

Criterion C (2)

Common dolphin – *Delphinus delphis*

Criterion C (2)

Killer whale – *Orcinus orca*

Criterion B (1); C (2)

Common bottlenose dolphin –

Tursiops truncatus truncatus

Criterion B (1); C (2)

Lahille's Bottlenose dolphin –

Tursiops truncatus gephyreus

Criterion A; B (1); C (2)

South American fur seal – *Arctocephalus australis*

Criterion C (2)

Northern Patagonian Gulfs and Valdes Front IMMA

Marine Mammal Diversity

Criterion D (2)

Otaria byronia, *Mirounga leonina*, *Eubalaena*

australis, *Lagenorhynchus obscurus*, *Delphinus*

delphis, *Orcinus orca*, *Tursiops truncatus truncatus*,

Tursiops truncatus gephyreus, *Arctocephalus australis*

Summary:

This IMMA includes habitat that supports at least 11 marine mammal species, including both pinnipeds and cetaceans. In the austral winter and spring, it serves as an important area for mating, calving and nursing for southern right whales (*Eubalaena australis*). The IMMA is also home to resident populations of fewer than 250 Lahille's bottlenose dolphins (*Tursiops truncatus gephyreus*) and 30 Killer whales (*Orcinus orca*). Northern Patagonian coastal areas host over 20 South American sea lion (*Otaria byronia*) colonies, with an estimated population of 63,000 and pupping occurring between mid-December and February each year. The IMMA also contains important rookeries for Southern elephant seals (*Mirounga leonina*), with around 15-16,000 pups born every year.

Description:

The IMMA includes the shoreline and the southwestern Atlantic waters surrounding the Península Valdés, Argentina, a nature reserve on the northern coast of Patagonia. The IMMA boundaries include three northern Patagonian gulfs surrounding Península Valdés and the Valdes front. From north to

south these are the Golfo San Matías (17,000 km²); Golfo San José (814 km²) and Golfo Nuevo (2,500 km²). As a whole, the northern Patagonian gulfs and the Valdés front support a high diversity and abundance of species. The eastern limit of the IMMA is defined by the presence of the Península Valdés tidal front (Pisoni, 2012).

The IMMA is under the influence of the Falkland (Malvinas) current. From the biogeographical point of view, Península Valdés is the limit of the confluence with the Brazilian current. It constitutes a large marine ecosystem, where a rich and diverse community of species lives, attracted by high concentrations of plankton (Pisoni, 2012). This front is caused by tidal energy, which propels the lower nutrient-rich waters towards the well-illuminated upper layer, generating optimal conditions for phytoplankton to thrive. The tides generate a frontal region defined by the meeting of water masses of different densities, producing a circulation pattern that helps the concentration of planktonic organisms.

Península Valdés was declared a World Heritage Site by UNESCO in 1999 based on the following criterion: "It contains the most important and significant natural habitats for the *in situ* conservation of biological diversity, including those containing species Threatened of Outstanding Universal Value from the point of view of science or conservation" (UNESCO's World Heritage Convention, 1999).

The Ramsar Convention (UNESCO) declared the Wetlands of the Península Valdés as a Ramsar Site on 07/20/2012, which includes two subsites: Golfo San José and Golfo Nuevo. The importance of these is based on their value for different species of seabirds (both resident and migratory) and migratory shorebirds, which stop here during their annual migrations (Ramsar Sites Information Service, 2012).

Criterion A: Species and Population Vulnerability

The IMMA hosts a resident population of Lahille's bottlenose dolphins (*Tursiops truncatus gephyreus*), which are classified as Vulnerable on the IUCN Red List (Vermeulen et al., 2019). Fewer than 250 are thought to be present in the IMMA based on average numbers of sightings since the 1970's (Coscarella et al., 2012). The estimated abundance of Lahille's bottlenose dolphins in Argentine waters is less than 1000 mature individuals, across at least two genetically distinct subpopulations (Vermeulen et al., 2017; Vermeulen et al., 2019; Loizaga et al., 2020). The cause of this decline is unknown (Coscarella et al., 2012).

Criterion B: Distribution and Abundance Sub-criterion B1: Small and Resident Populations

There are small and resident populations of both common bottlenose dolphins (*Tursiops truncatus truncatus*) and Lahille's dolphins (*T. t. gephyreus*) in Golfo San Matías, with the latter proven to be genetically isolated from other neighbouring populations (Fruet et al., 2014).

Approximately, 30 killer whales (*Orcinus orca*) inhabit this IMMA year-round, and the matrilineal lines of the different pods had been identified by means of photo identification (for more information see Punta Norte Research), as well as the individuals that perform the intentional stranding while hunting for southern sea lions. (López & López, 1985; Iñíguez, 1990, 2001; Hoelzel, 1991; Reyes & García-Borboroglu, 2004; Sironi et al., 2008; Vila et al., 2008; Coscarella et al., 2015).



Figure 1: South American sea lions (*Otaria byronia*). Photo credit: Darío Podestá (CONICET - CENPAT)

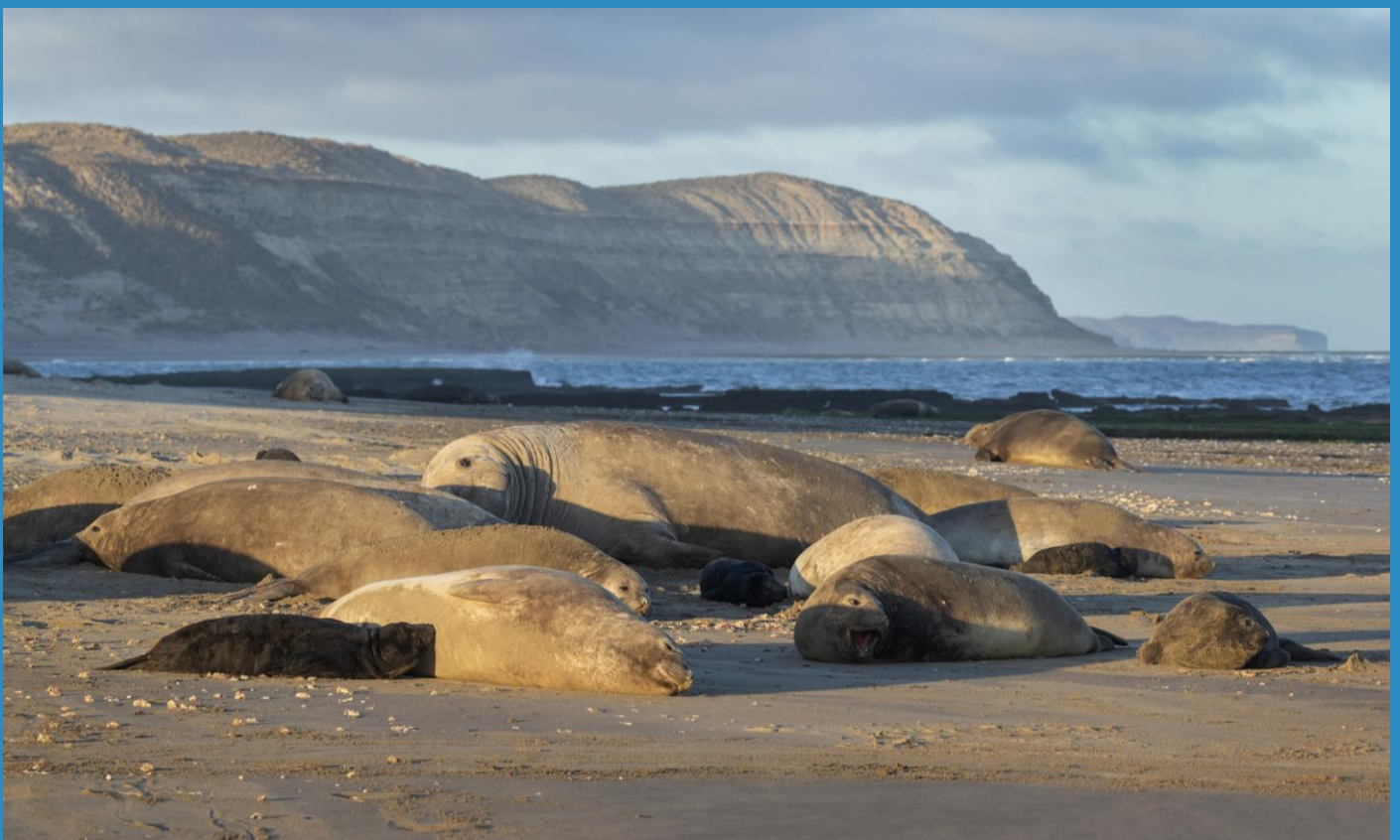


Figure 2: Southern elephant seal (*Mirounga leonina*) colony. Photo credit: Darío Podestá (CONICET - CENPAT)



Figure 3: Mother and calf of southern right whale (*Eubalaena australis*) in the Golfo Nuevo, Peninsula Valdés, Argentina. Photo credit: Nicolás Lewin, Instituto de Conservación de Ballenas

Sub-criterion B2: Aggregations

The IMMA harbours temporal aggregations of multiple marine mammal species. These include at least 21 permanent rookeries and haul-out colonies of South American sea lions (*Otaria byronia*), representing about 120,700 individuals in breeding and non-breeding colonies (Cardenas Alayza et al., 2015). Southern elephant seals (*Mirounga leonina*) occupy all of the coast of Peninsula Valdés and the area to the south of the mouth of Golfo Nuevo for their breeding and moulting seasons (Crespo et al., 2007). Over the past 10 years, this species has increased at a rate that appears to be reaching carrying capacity (Ferrari et al., 2013). An estimated, 2,200 southern right whales (*Eubalaena australis*) congregate in the IMMA between April and December to mate, calve and nurse their young (Crespo et al., 2019).

Criterion C: Key Life Cycle Activities Sub-criterion C1: Reproductive Areas

The IMMA is a significant breeding ground for Southern right whales, who use the nearshore waters of all three bays between April and December each year to mate, calve and nurse young. These waters are especially important for mothers and calves seeking protection and rest in shallow water (Arias et al., 2018; Crespo et al., 2019; Rowntree et al., 2020). When research on this population first began in 1999, roughly 150 calves were documented per year (Crespo et al., 2018). Between 2005 and 2011, recorded calves peaked at an average of 500 (Crespo et al., 2019). However, the number of calves born each year is variable. In 2018 the number of calves recorded in one season increased to 710, while in 2019 the number was 448 and in 2022 the number was 390 (Crespo et al., 2023).



Figure 4: Group of southern right whales (*Eubalaena australis*) mating in the Golfo Nuevo, Argentina.
Photo credit: Nicolás Lewin, Instituto de Conservación de Ballenas



Figure 5: Southern right whale (*Eubalaena australis*) skim feeding in the San José Gulf, Peninsula Valdés, Argentina.
Photo credit: Cristian Pérez Aagaard, Instituto de Conservación de Ballenas

South American sea lions inhabit northern Patagonia where they are concentrated in 21 colonies (Crespo et al., 2021) that hold an estimated 63,000 individuals. Males and females arrive to the breeding colonies in mid-December, with a maximum number of individuals on land during the second half of January. Females give birth to a single pup 2-3 days after their arrival at the rookeries and remain onshore to breed for approximately 7 days. Pups are born from mid-December to early February, with a peak in mid-January (Crespo et al., 2021).

A large proportion of the Península Valdés coastline is also occupied by approximately 20,000 southern elephant seals that give birth to 15-16,000 pups between September and October every year (Ferrari et al., 2013; Campagna et al., 2021; Lewis & Eder, 2021). They return back to moult between December and May (Crespo et al., 2007).

Sub-criterion C2: Feeding Areas

The Patagonian gulfs provide abundant prey for South American fur seals, Southern elephant seals and common (*Delphinus delphis*), dusky (*Lagenorhynchus obscurus*) and bottlenose dolphins (Koen Alonso et al. 1998, 2000). The most important fish prey species for sea lions, fur seals and dolphins are southern anchovy (*Engraulis anchoita*), hake (*Merluccius hubbs*), 'pampanito' (*Stromateus brasiliensis*), and southern cod (*Nothotenia* sp.). Cephalopods also make up important elements in these marine mammals' diets, and include the shortfin squid (*Illex argentinus*), the Patagonian squid (*Loligo gahi*), sepiolid *Semirossia tenera*, and octopus (*Octopus tehuelchus*). Elephant seals feed on deeper waters squid and fish (Daneri & Carlini, 2002).



Figure 6: Orcas in the southern elephant seal attack area. Photo credit: Darío Podestá (CONICET - CENPAT)

Killer whales also prey in this area on pinnipeds, cetaceans, sea birds and sharks (López & López 1985; Iñiguez 1990, 2001; Hoelzel, 1991; Reyes & García-Borboroglu, 2004; Sironi et al., 2008; Vila et al., 2008; Coscarella et al., 2015). The pods usually encountered in the area feed on sea lion and elephant seal pups by beaching themselves and returning into the sea during specific periods of the year (Lopez and Lopez, 1985; Hoelzel, 1991, Iñiguez 2001, Vila et al., 2008). Killer whales have been observed hunting dusky (*Lagenorhynchus obscurus*) and common dolphins (*Delphinus delphis*) in coordinated attacks where killer whales herd small groups of dolphins towards a 'catcher' placed in the path of the dolphins (Coscarella et al., 2015). The same killer whales have also been reported training juveniles in these hunting techniques and successfully attacking Southern right whales (Sironi et al., 2008).

Criterion D: Special Attributes

Sub-criterion D2: Diversity

The area includes habitat that supports an important diversity of marine mammal species. At least 11 species, both pinnipeds and cetaceans are regularly documented in the area (Foro para la Conservación del Mar Patagónico y Áreas de Influencia, 2013; Falabella, 2014). Each year the Northern Patagonian Gulfs (Golfo Nuevo, Golfo San José and Golfo San Matías) are visited by 1000 to 2000 southern right whales (all age classes), out of a total estimated population of 5000 to 6000 individuals. This area is a key breeding and nursery ground for southern right whales, southern elephant seals and South American sea lions. In these waters the resident killer whales have developed intentional stranding, a hunting technique that has cultural transmission. The IMMA hosts a resident population of Lahille's bottlenose dolphins, which are classified as Vulnerable on the IUCN Red List.

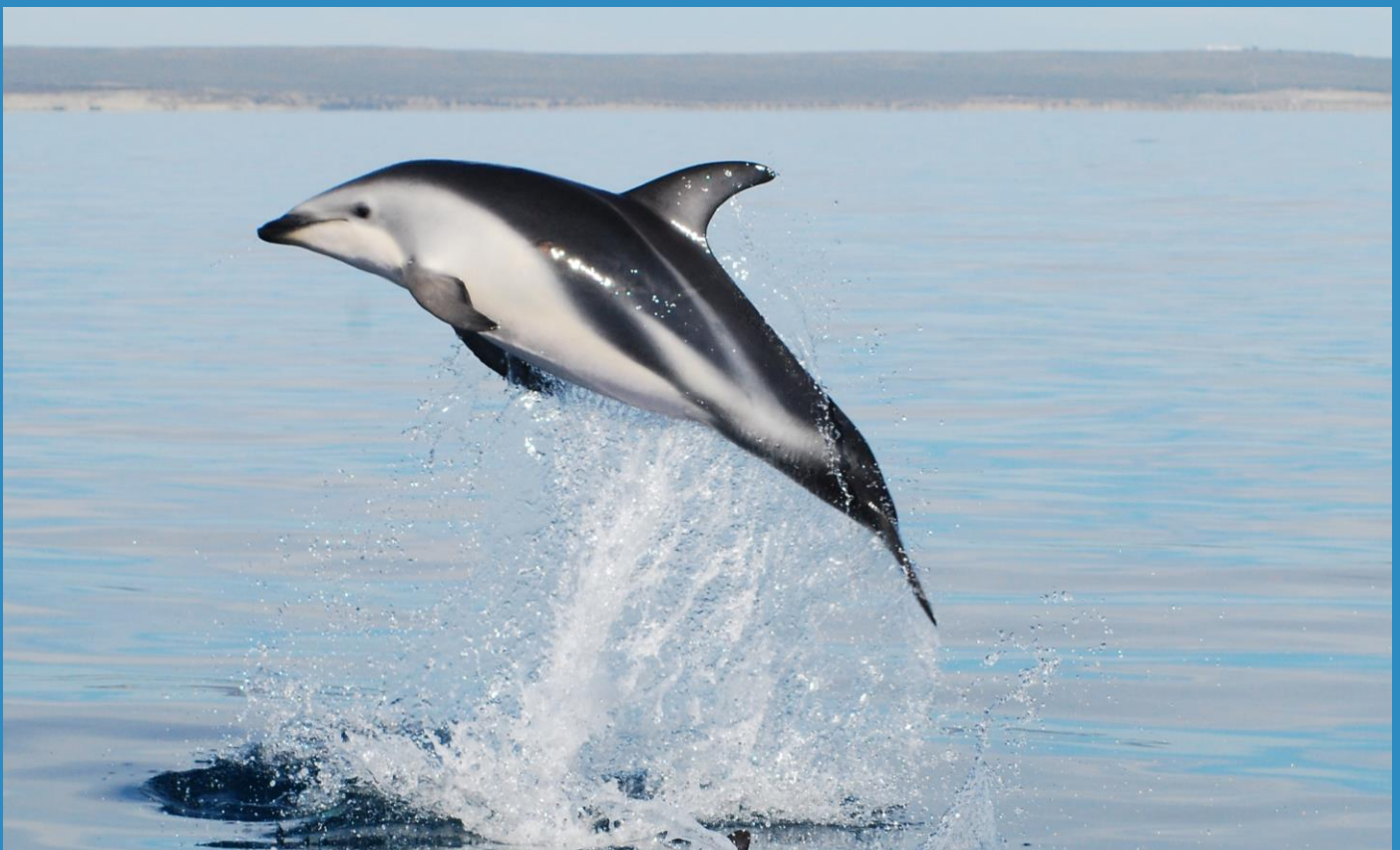


Figure 7: Dusky dolphin (*Lagenorhynchus obscurus*) in Golfo Nuevo. Photo credit: Mariana Degradi (Marine Mammal Lab-CESIMAR)

Supporting Information

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