

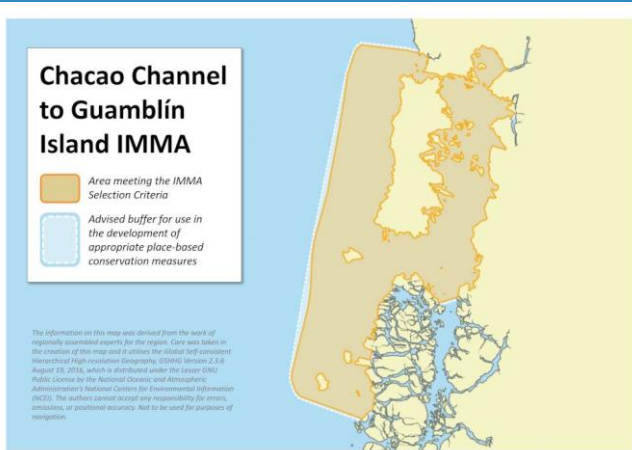
# Chacao Channel to Guablín Island IMMA

## Summary, continued.

pup production. These rookeries include two islets (Isla Doña Sebastiana and Isla Metalqui), two rocky islands (Isla Guafo and Isla Guablín), and one continental rookery (Punta Chaiguaco). Protection of these rookeries in the IMMA will be important for the conservation of both pinniped species at a regional and global level.

## Description:

The oceanography of the outer coast of Chiloé Island and the area of fjords and channels, is poorly studied. However, it is known to be the point where the trans-Pacific Current from New Zealand and Australia divides, with one branch flowing north to become the Humboldt Current, and the other branching south to form the Cape Horn Current. The strength of this phenomenon changes from year to year. In a long-term study, Strub et al. (2019) concluded that between 38°–46°S, winds and surface currents change direction seasonally, flowing toward the equator during summer upwelling, and towards the south pole during winter downwelling (Figure 1). The high surface chlorophyll-a concentrations next to the coast during upwelling, provide a highly productive ecosystem for top predators like pinnipeds and cetaceans. The main reproductive colonies in the whole distribution of South American sea lions *Otaria byronia* (SASL) and also an expanding zone for the population of South American fur seals, *Arctocephalus australis* (SAFS) occur in this habitat. The Management Plan for the SASL suggests the protection and monitoring of these five rookeries for conservation (Oliva et al., 2008; Crespo & Oliva, 2012).



## Area Size

46 010 km<sup>2</sup>

## Qualifying Species and Criteria

South American sea lion – *Otaria byronia*

Criterion B; C (1, 2)

South American fur seal – *Arctocephalus australis*

Criterion B; C (1)

## Marine Mammal Diversity

*Balaenoptera musculus*, *Megaptera novaeangliae*,

*Eubalaena australis*, *Balaenoptera physalus*,

*Balaenoptera borealis*, *Physeter macrocephalus*,

*Orcinus orca*, *Tursiops truncatus*,

*Lissodelphis peronii*, *Lagenorhynchus obscurus*,

*Lagenorhynchus australis*, *Cephalorhynchus*

*eutropia*, *Phocoena spinipinnis*, *Mirounga leonina*

## Summary

The west coast of Isla Grande de Chiloé represents a dynamic area where the trans-Pacific current of the West Drift splits into the northward flowing Humboldt Current and southward flowing Cape Horn Current. This highly productive habitat hosts breeding colonies of South American sea lions (*Otaria byronia*) and also is an expanding zone for a population of the South American fur seals (*Arctocephalus australis*). Five rookeries within the IMMA host 90% of all South American sea lions southern stock

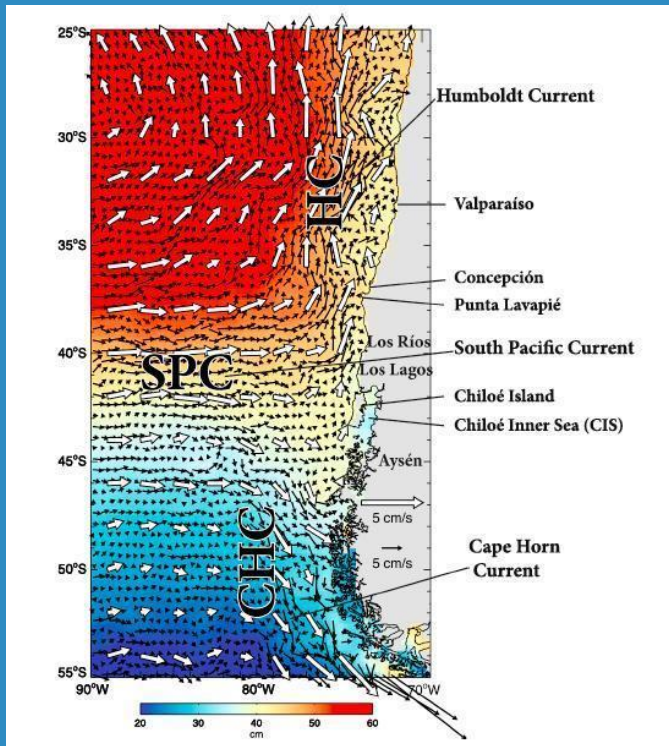


Figure 1: South Pacific Current (SPC) contacting the Chiloé area and generating two branches, the Humboldt Current (HC) and Cape Horn Current (CHC). Reproduced from Strub et al. (2019).

## Criterion B: Distribution and Abundance

### Sub-criterion B2: Aggregations

The South American sea lion (*Otaria byronia*) (Figure 2) has a wide distribution in South America, from northern Perú to Tierra del Fuego in the Pacific and from southern Brazil to Tierra del Fuego in the Atlantic Ocean (Dans et al., 2012). The species has an estimated global abundance of about 500,000 individuals, 130,000 of which inhabit the Chilean Coast (between 17°30'S and 55°58'S). Populations in Chile are divided among northern (40,000), central (23,000), southern (65,000) Chile and Magallanes (2,000) (Oliva, 2020). Using genetic data Feijoo et al. (2012) proposed the existence of three metapopulations; northern, central, and southern-Magallanes stocks. There is also a genetic discontinuity at 40°S (Chacao Channel) that can be explained by glacial-interglacial dynamics (Weinberger et al., 2021). In southern Chile, 90% of the Chilean South American sea lion new born pups are concentrated in five rookeries (between 39°15' S –

49°16'S) (Oliva et al., 2008, 2020). These areas include: two islets (Isla Doña Sebastiana and Isla Metalqui, Figure 3 and 4) two rocky islands (Isla Guafo and Isla Guamblín, Figure 5 and 6) and one continental rookery (Punta Chaiguaco, Figure 7) within the boundaries of this IMMA. Isla Metalqui, located in the Chiloé National Park, is the largest South American sea lion breeding ground throughout the species' range, with 56% of the southern population observed in 2013, including 14,331±68 newborn pups (Oliva, 2020). Guafo Island is located in the Guafo Channel southwest of Chiloé Island. The island has extensive areas with rocky platforms and beaches, and in the summer of 2019, 4000 SASL were recorded. Guamblín Island has an area of 156 km<sup>2</sup> where South American sea lions inhabit rocky platforms with a summer 2019 population estimate of 8000 individuals with 3200 pups (Oliva et al., 2020).



Figure 2: South American sea lion (*Otaria byronia*). Photo credit: L. René Durán.

The IMMA also hosts a significant aggregation of South American fur seals (*Arctocephalus australis*) (Figure 8). Guafo represents the northernmost distribution of the southern population of South American fur seals in Chile (Seguel & Pavés, 2018; Cárcamo et al., 2021). During a 2019 survey a total of 2000 South American fur seals were recorded in this island and another and larger South American fur seals colony on Isla Quilán was documented for the first time with a population of 7000 individuals, of which 2700 were pups (Oliva, 2020).



Figure 3: South American sea lion (*Otaria byronia*) colonies at Isla Doña Sebastiana. Photo credit: L. René Durán.

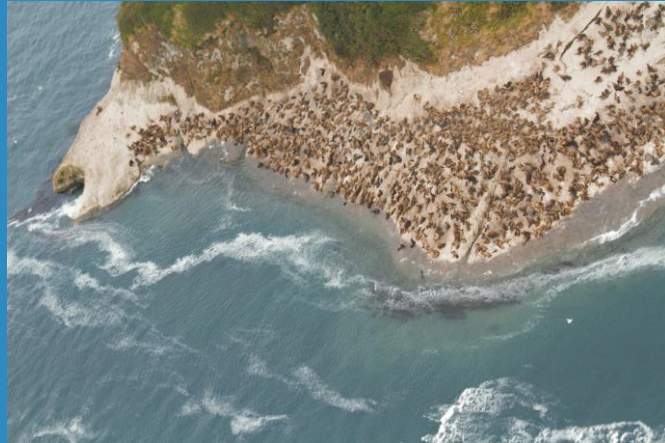


Figure 6: South American sea lion (*Otaria byronia*) colonies at Isla Guamblin. Photo credit: L. René Durán.

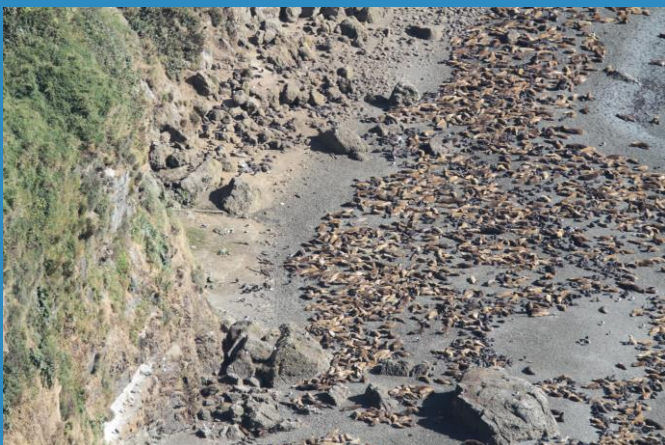


Figure 4: South American sea lion (*Otaria byronia*) colonies at Isla Metalqui. Photo credit: L. René Durán.



Figure 7: South American sea lion (*Otaria byronia*) colonies at Punta Chaiguaco. Photo credit: L. René Durán.

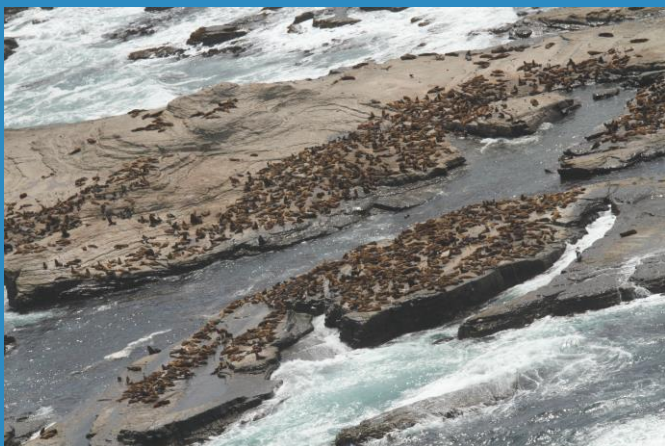


Figure 5: South American sea lion (*Otaria byronia*) colonies at Isla Guafo. Photo credit: L. René Durán.



Figure 8: South American fur seals (*Arctocephalus australis*). Photo credit: L. René Durán.

## Criterion C: Key Life Cycle Activities

### Sub-criterion C1: Reproductive Areas

The abundance of the South American sea lion in the five colonies within this IMMA during the years 1998, 2007 and 2012 (with available abundance data for the entire Chilean territory) accounted for 90%, 91%, 90% and 41%, 31%, 34% of the total pups born in southern Chile and in the entire country, respectively (Cárcamo, 2019).

In the case of the South American fur seals – the number of breeding colonies in southern Chile has increased from two in 1996 to 17 in 2019, with a subsequent increase in total and pup populations (Oliva et al., 2020). The total population for South American fur seal in northern, central, and southern Chile is 32,700. The IMMA hosts 37% of the southern population and 22% of the national population. However, the pup production in 2019 represents 65% of the southern population and 43% of the total Chilean population (Oliva et al., 2020).

### Sub-criterion C2: Feeding Areas

Sepúlveda et al. (2015) attached tracking instruments to 8 South American sea lions in the inner sea of Chiloé Island. Documented feeding trips (n=160) had a mean duration of  $2.5 \pm 1.4$  days, whereas haul-outs ranged between 0.48 and 1.67 days (N = 142 haul-out periods). Most foraging trips were concentrated between La Sebastiana breeding colony (41°45'S; 73°48'W) and the inner waters of Chiloe Island. The maximum distance travelled from La Sebastiana ranged between 74.6 and 127.1 km, with a mean value of 100 km (Sepúlveda et al., 2015). The diet of South American sea lions in southern Chile is principally composed of demersal fish species such as *Merluccius australis*, *Mustelus mento*, *Genypterus spp.*, *Callorhynchus callorhynchus*, farmed salmon and pelagic preys like *Sprattus fueguensis* (Muñoz et al.,

2013; Sepúlveda et al., 2017).

## Supporting Information

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## Acknowledgements

We would like to thank the participants of the 2022 hybrid IMMA Regional Expert Workshop for the identification of IMMAs in the South East Tropical and Temperate Pacific Ocean. Funding for the identification of this IMMA was provided by the Global Ocean Biodiversity Initiative funded by the German government's International Climate Initiative (IKI). Support was also provided by Whale and Dolphin Conservation, the Promar Foundation, and the Tethys Research Institute.



Suggested Citation: IUCN-MMPATF (2023) Chacao Channel to Guamblin Island IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2023.

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