

# Chiloé Interior IMMA

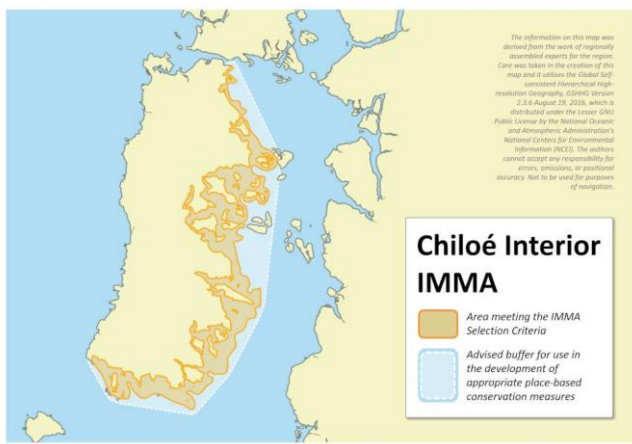
## Summary, continued.

*australis*) and Burmeister's porpoises (*Phocoena spinipinnis*) are more widely distributed in the inner seas but consistently occupy the same areas between years. All three species use the IMMA for reproduction, feeding and socialising. South American sea lions also abound, in particular in proximity to aquaculture installations. Marine otters and river otters are seen regularly off the southern Chiloé coastline.

## Description:

The Chiloé archipelago consists of Isla Chiloé Grande and a series of islands on the eastern side separated by channels between 50 and 150 m deep. It opens east- and southward into the Corcovado Gulf and is separated from mainland Chile by the Chacao Channel to the north. This area is known as an important biogeographic boundary (Camus, 2001). The eastern and western sides of Isla Chiloé Grande differ substantially in their environmental characteristics and exposure to human activities. The eastern side of Isla Chiloé Grande features several large estuaries and shallow bays and is protected from the ocean swells of the South Pacific. All human settlements are concentrated along the eastern coast with Castro and Quellón being the largest towns. The eastern inshore waters of Chiloé also host extensive shellfish and open-pen salmon farming operations.

The Chiloé archipelago is located inside the Westwind Drift EBSA established mostly for large baleen whales but also for its diversity in marine mammal species.



## Area Size

2 794 km<sup>2</sup>

## Qualifying Species and Criteria

Chilean dolphin – *Cephalorhynchus eutropia*

Criterion A; B (1)

Peale's dolphin – *Lagenorhynchus australis*

Criterion C (1)

Burmeister's porpoise – *Phocoena spinipinnis*

Criterion C (1)

## Marine Mammal Diversity

*Otaria byronia*, *Lontra felina*, *Lontra provocax*

## Summary

The Chiloé Interior IMMA includes the east coast of Isla Chiloé Grande and the islands to the east extending to approximately the 100 m depth contour. The archipelago is home to three small cetacean species that differ in their fine scale habitat use. Cetacean habitat overlaps extensively with areas used for shellfish and salmon farming. Chilean dolphins (*Cephalorhynchus eutropia*) inhabit shallow waters (less than 30m deep), close to shore in sheltered bays and estuaries. Chilean dolphins seem to form resident populations of 40-120 individuals with no evidence of regular movements between adjacent areas. Peale's dolphins (*Lagenorhynchus*

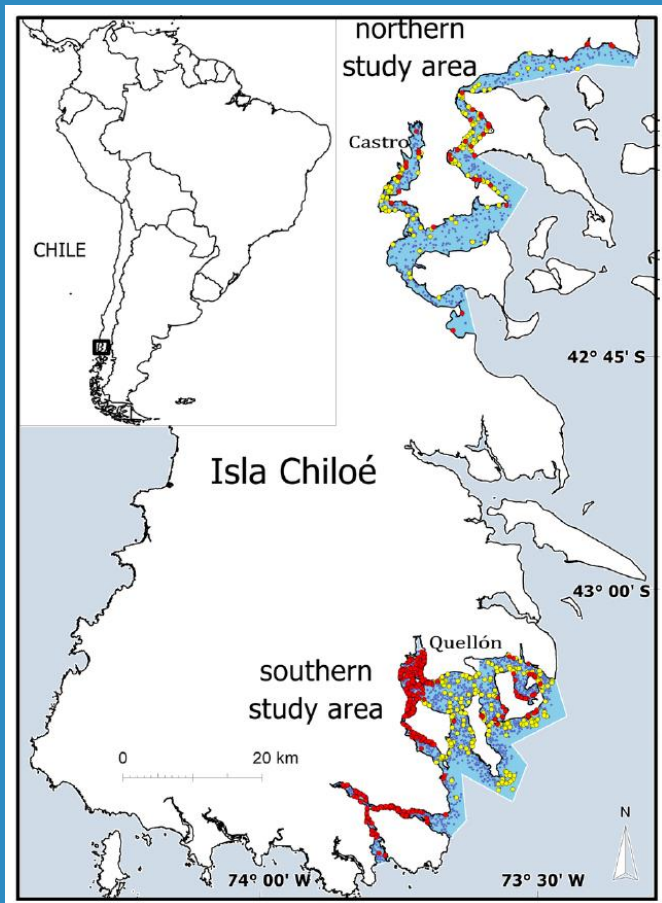


Figure 1: Distribution of sightings and absence sampling points in the northern and southern study area in the Chiloé archipelago, southern Chile. Red points, Chilean dolphins; yellow points, Peale's dolphins; small blue points, sampling locations without dolphins (absences); light blue area, extent of the coastal survey areas. Inset: location of Chiloé archipelago in South America. Replicated from Heinrich et al. (2019).

## Criterion A: Species or Population Vulnerability

Chilean dolphins (*Cephalorhynchus eutropia*) are endemic to south-central and southern Chile and are listed as Near Threatened (NT) on the IUCN Red List (Heinrich & Reeves, 2017). The range-wide abundance is not known but the species is thought to number in the low thousands which, if confirmed, would meet the criteria for Vulnerable (VU) status (Heinrich & Reeves, 2017). An up-listing of the species' conservation status to Vulnerable would reflect the ongoing concerns about bycatch affecting the dolphins along the open coast as well as in the Tenth (Xth) Region which includes Chiloé (Pérez-Alvarez et al., 2021). Chilean dolphins along the open coast to the north of Chiloé are considered genetically distinct

from those of the southern fjord region (Pérez-Alvarez et al., 2015). The exact genetic boundary is not clear as samples have not been analysed from Chiloé but this area most likely constitutes the transition zone between northern and southern populations.

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

Chilean dolphins inhabit discrete nearshore habitat that is characterised by shallow depth (less than 30m), very near to shore (within 1 km), often with estuarine conditions and areas of strong tidal flow (Heinrich et al., 2019). Mother-calf pairs including neonates are observed during the spring to autumn period with dolphins breeding and feeding across the area they occupy (Heinrich, 2006; Heinrich et al., 2019). The populations of Quellón and Castro/Dalcahue have been studied since 2001 (Heinrich, 2006) and habitat preference has remained stable for decades with the same channels and bay occupied over years (Heinrich et al., 2019). Passive acoustic monitoring also indicates that Chilean dolphins also occupy the same channels and bays year-round (Filun, 2015; Hack et al., in prep) as do photo-identification studies (Heinrich, 2006; Heinrich & Espinosa-Miranda, 2019; Heinrich et al., in prep). In the Quellón area, where photo-ID effort spans 20 years, individuals show clear small-scale site fidelity (Heinrich, 2006) with one individual resighted in 2019 within 1,000 m of the 2001 sighting location (Heinrich, unpublished data). Chilean dolphins seem to form discrete local populations along the coast with no confirmed individual movement even between adjacent study areas (Heinrich et al., in prep). Local population size in Quellón seems to have remained stable at around 60 adult individuals (Heinrich, 2006; Heinrich and Espinosa-Miranda, 2019; Heinrich et al., in prep). For other areas within the IMMA population

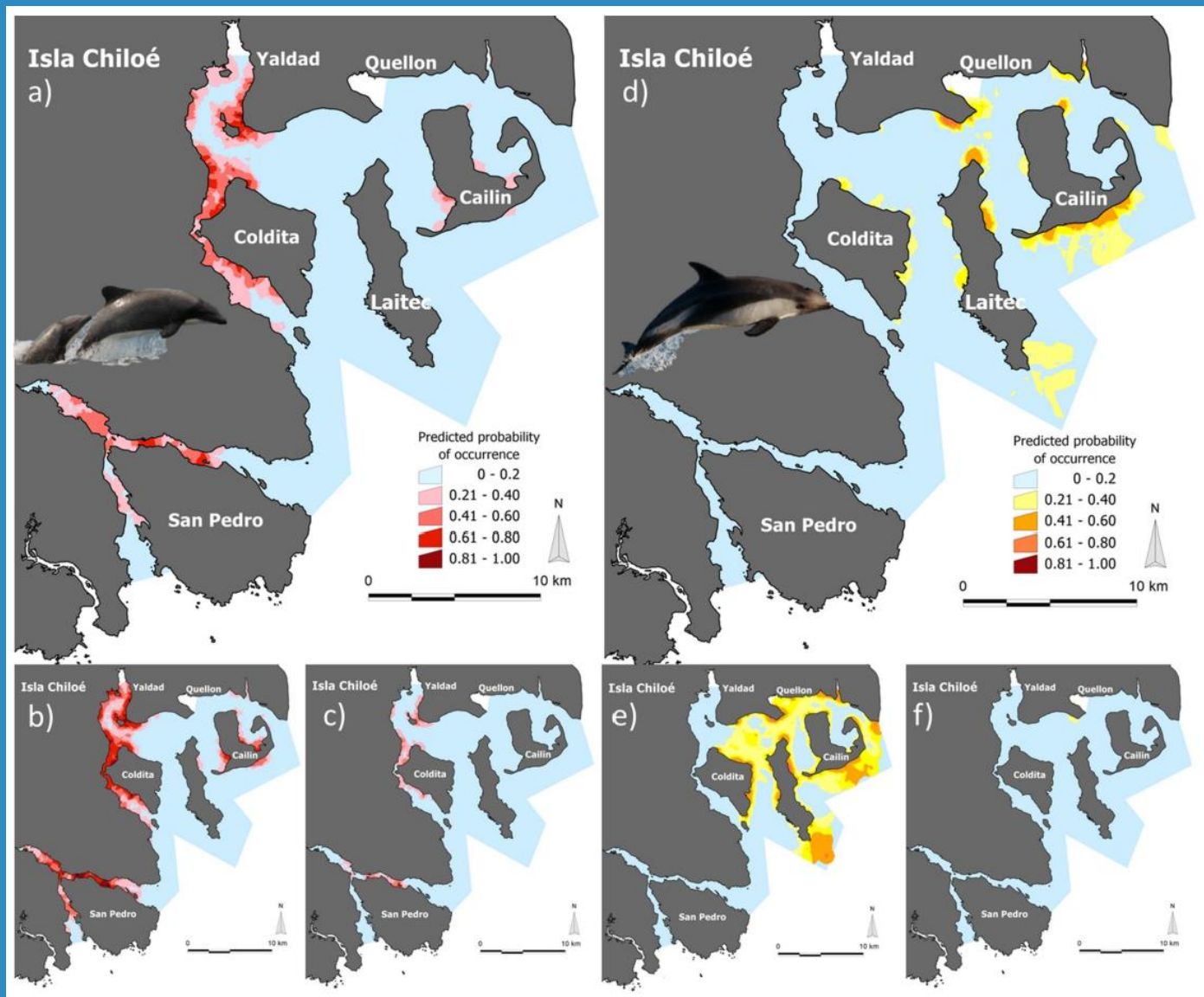


Figure 2: Predicted mean occurrence of Chilean dolphins (a) and Peale's dolphins (d) in the southern study area, together with upper (b, e) and lower (c, f) 95% CI. Replicated from Heinrich et al. (2019).

size estimates range from 40 to 120 individuals (Inio: 40; Quellón: 60, Queilen: 123, Castro/Dalcahue: 30-40, Quemchi: 44) giving a combined total of around 300 Chilean dolphins in the inner seas of Chiloé (Heinrich, 2021; Heinrich and Espinosa-Miranda, 2019; Heinrich et al., in prep). A compilation of sighting data from all other available sources further supports the discrete distribution patterns of Chilean dolphins in the inner seas of Chiloé with no sightings to the east into the Corcovado Gulf or in waters deeper than 100 m (Hucke-Gaete et al., 2022).

## Criterion C: Key Life Cycle Activities

### Sub-criterion C1: Reproductive Areas

Peale's dolphins and Burmeister's porpoises share the inshore waters of Chiloé with Chilean dolphins, and although all three species overlap, their preferred habitat differs. Peale's dolphins are more widely distributed, and use more exposed coastline with less reliance on estuarine characteristics than Chilean dolphins (Heinrich et al., 2019). Burmeister's porpoises are usually seen in slightly deeper waters from 30 to 100m depth (Heinrich, 2006; Genov, 2012). In all areas both Peale's dolphins and Burmeister's porpoises are observed regularly with neonates and

calves. There is no evidence for specific nursing areas but mother-neonate pairs of both species tend to be sighted along more sheltered coastline and closer to shore than groups without neonates. Both species also feed and socialise in the same area that they occupy regularly (Heinrich, 2006; Heinrich, unpublished data).

Population size estimates are not available for Peale's dolphins or Burmeister's porpoises. Both species are more frequently encountered in the central part of Chiloé. Photo-ID data indicated that Peale's dolphins tended to be more abundant than Chilean dolphins in the long-term study areas of Quellón and Castro respectively (Heinrich, 2006). Individually identified Peale's dolphins were resighted between months and years in the same areas indicating at least some degree of site fidelity (Heinrich, 2006). Peale's dolphins and Burmeister's porpoises seem to extend further into the deeper waters of Golfo Corcovado than Chilean dolphins. There are no data available on the year-round presence of either species as systematic surveys in winter are lacking. However, both species are seen regularly in the same species-specific areas indicating that their use of those areas has been stable over time (Heinrich et al., 2019).

## Supporting Information

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