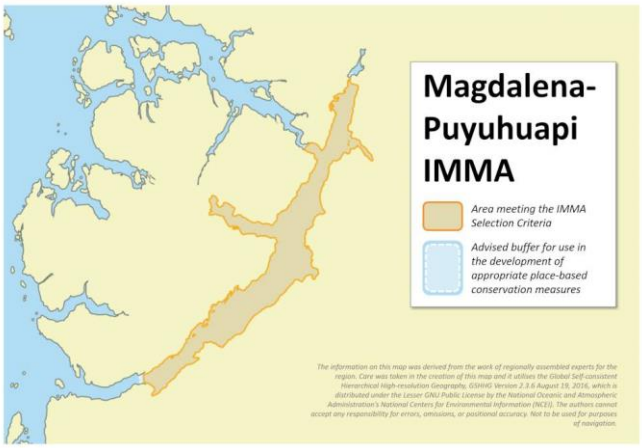

Area Size

440 km²

Qualifying Species and Criteria

Chilean dolphin – *Cephalorhynchus eutropia*

Criterion A; B (1)

Peale's dolphin – *Lagenorhynchus australis*

Criterion B (2)

Marine Mammal Diversity

Phocoena spinipinnis, Tursiops truncatus, Orcinus orca, Otaria byronia, Lontra provocax

Summary

The Puyuhuapi Channel is a deep, narrow fjord in northern Patagonia where shallow-water areas are limited to the upper parts of the channel, near the settlement of Puyuhuapi, and the river mouths near Puerto Cisnes, Queulat, and Magdalena Island. A small resident population of Chilean dolphins (*Cephalorhynchus eutropia*) occurs mostly off Magdalena Island and the upper channel with the overall population estimated to be fewer than 100 individuals. The shallow-water habitat of Chilean dolphins overlaps substantially with salmon farm concessions. Peale's dolphins (*Lagenorhynchus australis*) are sighted along the length of the channel with notable concentrations in the upper channel, off Queulat Inlet and north of Puerto

Magdalena-Puyuhuapi IMMA

Summary, continued.

Cisnes. Burmeister's porpoises (*Phocoena spinipinnis*) and South American sea lions (*Otaria byronia*) also use the channel. Common bottlenose dolphins (*Tursiops truncatus*) and killer whales (*Orcinus orca*) are regular visitors within the IMMA. River otters (*Lontra provocax*) are known to inhabit the shoreline of Magdalena Island.

Description:

The Puyuhuapi Channel is a deep, narrow fjord (up to 300 m deep, 3-7 km wide) that connects to the Moraleda channel at its mouth, and through the Jacaf channel near its head. Three main rivers provide substantial freshwater input which drives an estuarine type of circulation with a thin layer of fresh water from mainland Chile flowing on top of a thick layer of oceanic Sub-Antarctic Water (Daneri et al., 2012). Shallow areas are limited to the upper parts of the channel (near the settlement Puyuhuapi) and the river mouths near Puerto Cisnes, Queulat and Magdalena. The area has two towns (Puerto Cisnes and Puyuhuapi) and is situated along the main tourism route of the Carretera Austral – the southern Chilean highway. There are two nearby terrestrial national parks (Magdalena Island and Ventisquero Glacier) but these do not extend into the marine environment.

Magdalena-Puyuhuapi is located inside the Westwind Drift EBSA established mostly for large baleen whales but also for its diversity in marine mammal species.

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). Range-wide abundance is not known but the entire species is thought to number in the low thousands which, if confirmed, would meet the criteria for Vulnerable (VU) status (Heinrich & Reeves, 2017). Chilean dolphins in the southern fjord region are considered genetically distinct from those along the open coast to the north of Chiloé (Pérez-Alvarez et al., 2015). The exact genetic boundary remains unclear due to a 500 km gap in sampling locations. The Magdalena-Puyuhuapi population falls within this sampling gap. Chilean dolphins have become entangled and drowned in the nets of open-pen fish farms that abound in the Tenth (Xth) Region of Chile (in which this IMMA is located), and in Canal Puyuhuapi in particular (Espinosa-Miranda et al., 2019). Regular bycatch of only a few individuals could have negative effects on the small local dolphin population (estimated to be less than <100 individuals) (Pérez-Alvarez et al., 2021)..

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

There has been limited systematic marine mammal survey effort in Canal Puyuhuapi. However, sightings of Chilean dolphins have been recorded in the same locations near Puyuhuapi and off Isla Magdalena over several decades (Zamorano-Abramson et al., 2010; Boldt Corvalán, 2016; Heinrich, 2021; Pérez-Alvarez et al., 2021; Heinrich et al., in prep). Several tourism operators include the Magdalena Island coast in their half-day boat tours and report regular sightings of Chilean dolphins in the same area during the summer (Syndicate of Tour Operators in Puerto Cisnes, pers. comm; Boldt Corvalán, 2016). Chilean dolphin sightings are limited to the shallow waters within a few hundred meters, off the coast, the upper channel and river mouths (Zamorano-Abramson et al., 2010; Boldt Corvalán, 2016; Heinrich, 2021; Heinrich et al., in prep; Pérez-Alvarez et al., 2021). Dedicated photo-identification mark recapture surveys have yielded estimates of 42 adult Chilean dolphins in the upper Puyuhuapi Channel (Heinrich & Espinosa-Miranda, 2019; Heinrich, 2021; Heinrich et al., in prep) and 55 adult individuals in the Puerto Cisnes-Magdalena area (Pérez-Alvarez et al., 2021). Some individuals identified in the upper channel were resighted off Magdalena two years later, indicating some movement across the entire channel area. Mother-calf pairs were concentrated off Magdalena Island and particularly in the upper part of the Magdalena Inlet. There are intensive salmon farming operations in Canal Puyuhuapi overlapping substantially with the preferred shallow-water habitat of Chilean dolphins. At least one Chilean dolphin became entangled and drowned in a salmon farm net near Puyuhuapi (Espinosa-Miranda et al., 2019).

Sub-criterion B2: Aggregations

Peale's dolphins (*Lagenorhynchus australis*) frequent the shallow nearshore environment along the entire Puyuhuapi Channel with notable concentrations of sightings in the upper channel, in the Queulat inlet as well off the south-western coast of Magdalena Island and north of Puerto Cisnes (Heinrich, 2021; Zamorano-Abramson et al., 2010). No photo-ID studies have been conducted to ascertain population size or individual movements. Tourism operators report regular sightings of Peale's dolphins off Queulat inlet and north of Puerto Cisnes (Syndicate of Tour Operators in Puerto Cisnes, pers. comm; Boldt Corvalán, 2016). During a short-term pilot study off Puerto Cisnes, Peale's dolphins were the most frequently observed cetacean species (Boldt

Corvalán, 2016). Observations from region-wide surveys indicate that Peale's dolphins are only seen occasionally in the channels outside the IMMA area (Zamorano-Abramson et al., 2010; Hucke-Gaete et al., 2021), which contrasts with the regular repeated observations of Peale's dolphins inside the IMMA area.

Supporting Information

Boldt Corvalán, J. 2016. 'Avistamientos no invasivos de pequeños cetáceos desde embarcaciones a motor. El caso de Puerto Cisnes, Región de Aysén.' Revista De Aysenologia 02: 47-54.

Daneri, G., Montero, P., Lizárraga, L., Torres, R., Iriarte, J.L., Jacob, B., González, H.E. and Tapia, F.J. 2012. 'Primary Productivity and heterotrophic activity in an enclosed marine area of central Patagonia (Puyuhuapi channel; 44° S, 73° W).' Biogeosciences Discuss. 2012:5929-5968.

Espinosa-Miranda, C., Cáceres, B., Blank, O., Fuentes Riquelme, M. and Heinrich, S. 2020. 'Entanglements and Mortality of Endemic Chilean Dolphins (*Cephalorhynchus eutropia*) in Salmon Farms in Southern Chile.' Aquatic Mammals 46:337-343.

Heinrich, S., 2021. First region-wide estimates of population size and status of endemic Chilean dolphins in southern Chile. IWC final report, https://iwc.int/population-endemic-chilean-dolphins-southern-chile.

Heinrich, S. and Espinosa-Miranda, C. 2019. Counting needles in a complex haystack – first abundance estimates for endemic Chilean dolphins in northern Patagonia, Chile. World Marine Mammal Conference (SMM & ECS), Barcelona, Spain. December 2019. (Oral presentation).

Heinrich, S. and Reeves, R. 2017. *Cephalorhynchus eutropia*. The IUCN Red List of Threatened Species 2017: e.T4160A50351955. https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T4160A50351955.en. Accessed on 10 June 2022.

Heinrich, S., Fuentes, M., Zuniga, N., Strange, S. and Espinosa-Miranda, C. in prep. Region-wide abundance estimates for local populations of Chilean dolphins in northern Patagonia, Chile.

Hucke-Gaete, R., Bedriñana-Romano, L., Acevedo, J., Viddi, F., Buchan, S., Sielfeld, W., Aguayo-Lobo, A., Zárate, P., Cari, I., Zerbini, A. and Redfern, J. 2022. Diseño para la estimación poblacional de cetáceos en aguas jurisdiccionales de Chile, FIPA 2021-18. Pre-Informe final. Fondo de Investigación Pesquera y de Acuicultura, Subsecretaría de Pesca y de Acuicultura. Unpublished report. 229 pp.

Pérez-Alvarez, M.J., Espinosa-Miranda, C., Santos-Carvalllo, M., Heinrich, S., Olavarría, C., Sepúlveda, M., Estévez, R. and Gelcich, S. 2018. "Evaluación de la interacción entre el delfín chileno (*Cephalorhynchus eutropia*) y actividades de pesca costera y acuicultura a lo largo de su distribución: Fase 1". FIPA 2018-41-PARTE 1. Pre-Informe final. Fondo de Investigación Pesquera y de Acuicultura, Subsecretaría de Pesca y de Acuicultura. Unpublished 264pp.

Zamorano-Abramson, J., Gibbons, J., and Capella, J. 2010. Diversity and summer distribution of cetaceans in inlet waters of Northern Aysén, Chile. Anales del Instituto de la Patagonia 38:151-157.

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