

# Gulf of Penas IMMA

## Summary, continued.

pairs during the 2017, 2020, and 2021 winter seasons. In contrast, sei whales are more commonly recorded in the area during the austral summer season, which also coincided with mass mortality events involving sei whales in the area in recent years.

## Description:

The Golfo de Penas is situated in a remote region of the Patagonian system between 47°S and 48°S. With the exception of two Chilean Navy lighthouses, the closest human settlements are more than 200 km away. Chilean Patagonia is influenced by the West Wind Drift, a large-scale eastward (onshore) flow, which diverges at the coast to form the northward Humboldt Current and the southward Cape Horn Current. High productivity in these coastal waters is driven by the availability of both terrestrial nutrients, carried by large rivers originating at the Northern and Southern Patagonian Ice Fields, and marine nutrients.

The "Tortel Multiple Use Marine and Coastal Area" was proposed in 2009, which included a portion of Golfo de Penas. This area is not currently the object of an official MPA proposal, despite studies from several organisations showing high endemism of different taxa in the area, with glaciers, upwellings, fjords (deepest fjord in Chile) and hundreds of islands.



Figure 1: A southern right whale (*Eubalaena australis*) cow-calf pair at the Gulf of Penas. Photo: Daniel Torres.

## Gulf of Penas IMMA

Area meeting the IMMA  
Selection Criteria

Advised buffer for use in  
the development of  
appropriate place-based  
conservation measures



The information on this map was derived from the work of regionally assembled experts for the region. Care was taken in the creation of this map and it reflects the Global Safeguard Hierarchical High-resolution Geographic Coding version 2.0 (August 20, 2018), which is distributed under the Lesser GPL Public License by the National Council and Atmospheric Administration's National Center for Environmental Information (NCEI). The authors cannot accept any responsibility for errors, omissions, or positional accuracy. Not to be used for purposes of navigation.

## Area Size

11 251 km<sup>2</sup>

## Qualifying Species and Criteria

Southern right whale – *Eubalaena australis*

Criterion A; C (1)

Sei whale – *Balaenoptera borealis*

[Southern – *B. b. schlegelii*]

Criterion A

## Marine Mammal Diversity

*Cephalorhynchus eutropia*,

*Lagenorhynchus australis*, *Phocoena spinipinnis*

## Summary

The Gulf of Penas is a remote area situated in the Chilean Patagonia system, which is not formally protected. This area is used by two baleen whale species, southern right whales (*Eubalaena australis*) and southern sei whales (*Balaenoptera borealis schlegelii*). The Chile-Peru subpopulation of the southern right whale experienced a decline due to intense commercial whaling which led to its near extirpation. Currently this subpopulation is considered to have fewer than 50 mature individuals. Until recently, no breeding reproductive areas had been identified. The Gulf of Penas has recently been proposed as a calving ground given the number of sightings of cow-calf



Figure 2: Aerial view of southern right whale (*Eubalaena australis*) cow-calf pair at the Gulf of Penas. Photo: Angela Hernandez / CIEP.

## Criterion A: Species or Population Vulnerability

The 'Chilean-Peru' subpopulation of the southern right whale (*Eubalaena australis*) experienced a decline due to intense commercial whaling conducted between 1789 and 1976 with around 9,000 individuals hunted (Clarke, 1965; Aguayo-Lobo et al., 1998; Aguayo-Lobo et al., 2008; Pastene & Quiroz, 2010). This exploitation led them to near extinction and currently this subpopulation is considered to have fewer than 50 mature individuals (Reilly et al., 2008; Cooke, 2018a). The Chile-Peru subpopulation of southern right whales is listed as Critically Endangered (CR) on the IUCN Red List (Cooke, 2018a), and as 'Critically Endangered' at the national level under the Chilean government classification (clasificacionespecies.mma.gob.cl). Sei whales (*Balaenoptera borealis*) are listed as Endangered under IUCN Red List status (Cooke, 2018b), and as 'Critically Endangered' for the country by the Chilean government

(clasificacionespecies.mma.gob.cl). Sei whales are more commonly recorded in the area during the austral summer season, which also coincided with mass mortality events involving sei whales in the area in recent years (Häussermann et al., 2017).

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

Until recently, feeding or breeding areas had not yet been identified for the Chile-Peru subpopulation of southern right whales, despite a few cow-calf pairs having been observed along the Peruvian and Chilean coasts on several occasions (see García-Cegarra et al., 2021 for a review of these sightings). However, the Gulf of Penas area has recently been proposed as a calving ground for the 'Chilean-Peru' subpopulation of the southern right whale, based on the number of sightings of cow-calf pairs during the 2017, 2020, and 2021 winter seasons, particularly close to the shores of San Quintin Bay (Olavarria, unpublished data).



Figure 3: A recent stranded sei whale (*Balaenoptera borealis*) at the shores of the Gulf of Penas. Photo: Daniel Torres.



Figure 4: A sei whale (*Balaenoptera borealis*) surfacing further south in the Gulf of Penas, in the Patagonian archipelago. Photo: Carlos Olavarria.

## Supporting Information

Aguayo-Lobo, A., Torres, D. and Acevedo, J. 1998. Los mamíferos marinos de Chile: I. Cetacea. Serie Científica Instituto Antártico Chileno 48: 19-159.

Aguayo-Lobo, A., Acevedo, J., Brito, J.L., Olavarria, C., Moraga, R. and Olave, C. 2008. La ballena franca del sur, *Eubalaena australis* (Desmoulins, 1822) en aguas chilenas: análisis de sus registros desde 1976 a 2008. *Revista de Biología Marina y Oceanografía* 43(3): 653-668.

Clarke, P.J., Cubaynes, H.C., Stockin, K.A., Olavarria, C., de Vos, A., Fretwell, P.T. and Jackson, J.A. 2021.

Cetacean strandings from space: challenges and opportunities of Very High Resolution satellites for the remote monitoring of cetacean mass strandings. *Frontiers in Marine Science*, section Ocean Observation. DOI: 10.3389/fmars.2021.650735.

Cooke, J.G. 2018a. *Eubalaena australis* Chile-Peru subpopulation. The IUCN Red List of Threatened Species 2018.

<https://doi.org/10.2305/IUCN.UK.2018-1.RLTS.T133704A50385137.en>.

Cooke, J.G. 2018b. *Balaenoptera borealis*. The IUCN Red List of Threatened Species 2018:

e.T2475A130482064.

<https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T2475A130482064.en>. Accessed on 08

October 2022.

Fretwell, P.T., Jackson, J.A., Ulloa Encina, M.J., Häussermann, V., Perez Alvarez, M.J., Olavarria, C. and Gutstein, C.S. 2019. Using remote sensing to detect whale strandings in remote areas: The case of sei whales mass mortality in Chilean Patagonia. *PLoS ONE* 14(10): e0222498.

DOI: 10.1371/journal.pone.0222498.

García-Cegarra, A.M., Malebran, M. and Van Waerebeek, K. 2021. Antofagasta Region in northern Chile, a potential nursing ground for the Southern right whale *Eubalaena australis*. *Latin American Journal of Aquatic Mammals* 16(1): 40-45. Available at DOI 10.5597/lajam00270.

Häussermann, V., Gutstein, C.S., Beddington, M., Cassis, D., Olavarria, C., Dale, A.C., Valenzuela-Toro, A.M., Perez-Alvarez, M.J., Sepúlveda, H.H., McConnell, K.M., Horwitz, F.E. and Försterra, G. 2017. Largest baleen whale mass mortality during strong El Niño event is likely related to harmful toxic algal bloom. *PeerJ* 5: e3123. DOI: 10.7717/peerj.3123.

Olavarria, C., Flores, M. and Torres, D. 2018. Gulf of Penas: The last haven of the Southern Right Whale? Presented to the XII Congreso de la Sociedad Latinoamericana de especialistas en Mamíferos Acuáticos. 5 – 8 de November, Lima, Perú.

Olavarria, C., Pashuk, K.L., Landreth, G., Torres, D., et al (other 13 contributors). 2019. Preliminary report on a new baleen whale mortality at the Gulf of Penas, southern Chile, that occurred late 2019 summer. Unpublished.

Pastene, L. and Shimada, H. 1999. Report of a sighting survey in Chile's exclusive economic zone with comments on sei whale distribution. *Anales del Instituto de la Patagonia* 27: 51-62.

Pastene, L.A. and Quiroz, D. 2010. An outline of the history of whaling in Chile. Pages 73-98 in International Center for Folk Culture Studies, Human Culture from the perspective of traditional maritime communities. International Symposium Report No. 1. Kanagawa Shimbun Press, Kanagawa, Japan. Available at [https://www.academia.edu/1871805/An\\_Outline\\_of\\_the\\_History\\_of\\_Whaling\\_in\\_Chile](https://www.academia.edu/1871805/An_Outline_of_the_History_of_Whaling_in_Chile).

Reilly, S.B., Bannister, J.L., Best, P.B., Brown, M., Brownell Jr, R.L., Butterworth, D.S., Clapham, P.J., Cooke, J., Donovan, G.P., Urban, J. and Zerbini, A.N. 2008. *Eubalaena australis* (Chile-Peru subpopulation). In: IUCN Red List of Threatened Species Version 2012.2. Available <http://iucn.redlist.org>

## 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.

