
Dolphin and orca behaviour studies and individual identification



Blue Marine Foundation and Patagonia Projects

Project overview - June 2020



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Dolphin and orca behaviour studies and individual identification

Headlines

- Toothed whales include dolphins, whales and belugas.
- Chile has an endemic dolphin species, the Chilean dolphin (*Cephalorhynchus eutropia*), and there are thought to be less than 5000 left in the wild.
- Each dolphin or orca has a unique pattern of notches and marks on their dorsal fins.
- Patagonia Projects started their orca ID catalogue in 2018 and have 14 individuals documented.
- The ability to identify individuals allows site fidelity to be studied: which species live in the Golfo de Penas, and how often do they return to the area?

Story

Very little is known about which odontocete species – toothed whales – frequent the waters of Chilean Patagonia around the Golfo de Penas. In addition, there are past observations of orca hunting sei whales (to the point where they strand on beaches and die) in this area. This prompted the Patagonia Projects team to more closely investigate and document orca behaviour, as well as any other dolphin species encountered.

In November 2018, Patagonia Projects collaborated with Dr Isabella Clegg and set up a protocol for on-effort sightings, recording cetacean behaviour and taking photoID data. The aim was to better understand which cetaceans inhabit the area, whether they are residents and whether there is high site fidelity (do they return each year?), and what they are using the area for. For this project, Patagonia Projects started using drones to monitor the animal's distinct markings, group sizes and behaviours. The first killer whale photo ID catalogue was established. This catalogue compiles photographic data of the orcas encountered, where each one can be identified by the unique pattern of notches, scars and other marks on their dorsal fins, similar to a fingerprint. Other dolphin species that the Patagonia Projects team will be monitoring in the area include Dusky dolphins, Peale's dolphins, and Chilean dolphins.

- (Also linked in the "Media & Art" project summary) Short film of the November 2018 trip by Will Darwin was presented at the World Marine Mammal Conference in Barcelona, in December 2019 <https://www.youtube.com/watch?v=qcnlqWjqSEM>
- This film was also selected to be shown at the World Whale Film Festival, Hawaii, February 2020



Top image: A researcher launching the drone. Credit: Isabella Clegg
 This image: A killer whale playing with sea lion intestines. Credit: Keri-Lee Pashuk
 Front cover: A pod of orcas, which can be identified using their dorsal fins. Credit: Isabella Clegg

Papers

Directly from Patagonia Projects expeditions:

- A scientific poster was presented at the Ciencias del Mar Conference, from 27th-31st May 2019 in Iquique, Chile. The poster was called "Learning more about the killer whales of Chilean Patagonia: ID catalogue for Golfo de Penas region and documented hunting behaviours" (Clegg, I. L. K., Pashuk, K., Landreth, G., Moore, R. & Haussermann, V.)

From Patagonia Projects scientists on the same topic:

- Häussermann, V., Acevedo, J., Försterra, G., Bailey, M., & Aguayo-Lobo, A. (2013). Killer whales in Chilean Patagonia: additional sightings, behavioural observations, and individual identifications. *Revista de Biología Marina y Oceanografía*, 48(1), 73-85.
- Pérez-Alvarez, M. J., Olavarría, C., Moraga, R., Baker, C. S., Hamner, R. M., & Poulin, E. (2015). Microsatellite markers reveal strong genetic structure in the endemic Chilean dolphin. *PLoS One*, 10(4), e0123956.

Activities

- Document the species and location of all cetacean species encountered on-effort or opportunistically.
- Conduct "on-effort" observations where at least one observer is following a standardised visual transect.
- Take photo ID data (dorsal, eye patch and markings) for orcas.

Targets

- Collect data on species, abundance and seasonality for the Golfo de Penas.
- Develop standardised transects to follow when in-transit as part of on-effort observations.
- Establish photo ID catalogues of individual orcas.

Outcomes

- Publish the first data on cetacean species and abundance in the inner Golfo de Penas.
- Use the orca photo ID catalogue to reveal their "site fidelity" to the area.
- Understand the frequency of orcas hunting sei whales in the area, to establish whether this may be a conservation concern.



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