

## Final Evaluation Report

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Your Details	
Full Name	Camila Eugenia Calderón Quirgas
Project Title	From whaling to whale-watching: The return of the endangered sei whale ( <i>Balaenoptera borealis</i> ) to the ex-whaling site of Caleta Chome, Central Chile.
Application ID	32858-1
Date of this Report	03/08/2022

**1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Sei Whale Acoustic Identification, during the 12 navigations				Fin whale songs were also identified.
Photo identification of 3 new individuals, during the 12 navigations.				Fig. 1
48 days of field observation. Therefore, we were only able to carry out 24 days in the field.				We made fewer observations in the field for the following reasons: 1) We were unable to make sightings in March and April 2022, since the wind at the observation point was too strong; 2) We were able to make observations at a single point, which has a visibility of the entire bay, since the other points are located in a private place; 3) Due to the pandemic that still continues in Chile with many sanitary restrictions, we could not invite more volunteers to make the sightings.
Poster of the cetaceans that pass through Chome				
School visits				In total, 180 students participated (Fig. 2).
Workshop with the fishermen				The fishermen, due to COVID-19, have not yet accepted group workshops, therefore we decided to do a door-to-door visit and visit all the houses, providing information about our project (Fig. 5 and Fig. 9).

**2. Describe the three most important outcomes of your project.**

**a).** It was possible to identify and characterise the vocalisations of sei and fin whales in the area; this had never been done before.

**b).** It was possible to photo-identify three new animals, one of which stayed for approximately 2 weeks in the area (Fig. 1).

**c).** This is the first systematic monitoring of sei whales in the area and possibly in Chile.

**3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

The main difficulties that occurred during the execution of the project were: (1) Since we did not have our own vehicle and as there is no public transportation, we depended on vehicles that could be provided for us and sometimes we had to pay for a transfer service. Therefore in the future it is important that we buy our own vehicle; (2) Of course the Covid-19 pandemic had an impact, since during the 2021-2022 period there has been a significant increase in the value of food, benzine and others - also in Chile there are still many sanitary restrictions and that prevented us from being able to carry out the workshops with the fishermen, however, visits were made to the home of the cove, and other open air events such as the Festival "Soplo a la Vista".

**4. Describe the involvement of local communities and how they have benefitted from the project.**

This project was carried out door to door, throughout the community house by house talking about the research we are doing. We delivered educational material and made a small guide of good sighting practices for the people of the local community who carry out whale watching tourism as a source of employment. All our lands and navigations were carried out with the fishermen of the community and with Fernanda Silva, adventure tourism guide in this area.

**5. Are there any plans to continue this work?**

Yes, this work is designed to be carried out every year over a long period of time, the objective is to obtain a time series of sightings that allows us to better understand the presence of this species and other species in the area, to see if it varies according to the phenomenon El Niño and La Niña or other mesoscale oceanographic processes that need to have a larger time series. This will allow us to receive volunteers each year and generate undergraduate and postgraduate thesis topics.

**6. How do you plan to share the results of your work with others?**

The results of our work have been disclosed in different instances:

- Talk at a school in the city of Concepción and Hualpén (Fig. 1).
- Free distribution of a poster about the project (Fig. 2).
- Talk to the general public in a city bar.
- Final video of the project.
- Scientific manuscript in preparation.
- The preliminary results have already been presented at the Congress of Marine Sciences, Concepción, Chile 2022 (<https://congresocienciasdelmar.cl/>).

**7. Looking ahead, what do you feel are the important next steps?**

The next most important steps are to have the manuscript ready with the results obtained to be published in a scientific journal by the end of this year. Start with the second sei whale monitoring season in Caleta Chome and in the future achieve a time series of the presence of sei whales in the area. This will require a long period of monitoring time.

In addition to this, it is planned to continue with outreach activities with the local community and in schools, generating educational and didactic material, as well as activities with the target audience (games, talks, etc.).

**8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

Yes, in all outreach activities, such as talks, posters and the responsible whale watching guide in Caleta Chome, the logo was used, and it was indicated that the project is financed by The Rufford Foundation. In addition, the social networks associated with this project were used to advertise.

**9. Provide a full list of all the members of your team and their role in the project.**

**Andrea Cisterna-Concha, Co-researcher:** She has supported the organization of the land, transfer of volunteers and land materials during the field work. In addition to training for volunteers in handling equipment. I have also participated in monitoring from land and by boat.

**Richard Muñoz Herrera:** He has provided supported with the collection of oceanographic data (T °, S °, dissolved oxygen) and subsequent analysis.

**Daniela Calderón Quirgas:** She has designed all the printed educational material and the material for social media too.

**Felipe Oyarzún:** Felipe actively participated in the field work, where he carried out monitoring from land and photo-ID work from a boat. During this period, Felipe also learned the use of hydrophones and protocols for the observation and monitoring of marine mammals, both from land and from a boat, as well as the basics of bioacoustics as a tool for studying cetaceans.

**Constanza Alarcón Vera:** During the time that the Rufford Constanza Alarcón Vera Project was carried out, she participated in the surveys carried out from terrestrial and maritime areas in order to obtain information on the presence of sei whales in the coastal area of Caleta Chome, Chile. She learned mainly about the technical use of hydrophones during sailing trips as well as the necessary tools for the study of cetacean acoustics. He participated in the analysis and taking pictures of the dorsal fin of sei whales to carry out the photo identification of individuals and additionally

the work carried out in the field helped to improve the ability to observe and identify whales.

**Constanza Loncon Santana:** The role that Constanza Loncón Santana, fulfilled during the development of the Rufford Project was the support on the ground for the sighting of Ballena sei from land as well as during the navigations in Caleta Chome; using tools such as binoculars, theodolite, echo sounder, hydrophone, GPS, chronometer and CTD to obtain oceanographic and environmental data; and for the identification and observation of the sei whale. He also did desk work transferring the data obtained from spreadsheets during the field trips to digital spreadsheets in Excel.

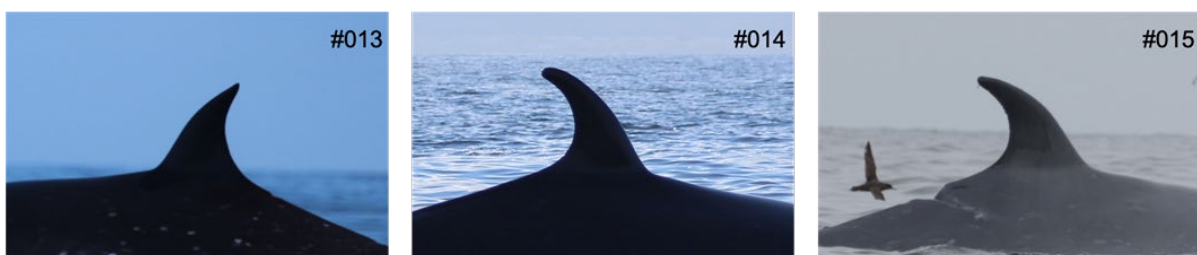
**Daniel Lagos Alister:** The role that Daniela has played in the project is the participation in the land and sea, including the use of the hydrophone for acoustic sampling. I work from home on a computer to transfer the data obtained during the sightings to digital spreadsheets in the Excel program.

**Julie Patris and Franck Malige:** They have supported the analysis of acoustic data, describing and detecting sei whale and fin whale vocalizations in this area.

**Fernanda Silva:** She has supported throughout the project, making the link with the local community.

## 10. Any other comments?

This project was an incredible experience, it is unprecedented in this area that after the whaling, whale monitoring is being carried out for conservation purposes. The work group that we have created has been very good, not only in the labour aspect, but also in the human aspect. We are very excited to be able to continue monitoring the sei whales in this area every year, and to have enough data to start with a national plan for the conservation of this species in Chile.

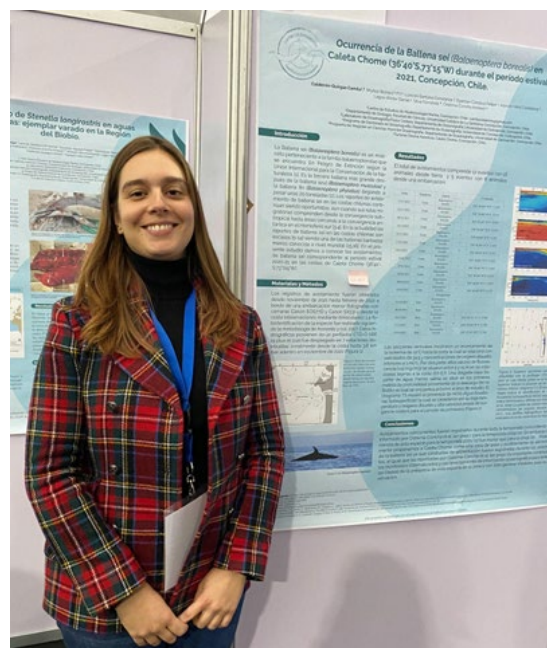


**Figure 1.** Identification of 3 new individuals.





**Figure 2.** Socialization and education activities of the project in two schools in the city.



**Figure 3.** Presentation of the results of the project at the Congress of Marine Sciences, Catholic University of the Santísima Concepción, May 2022, Concepción Chile.



**Figure 4.** Presentation by Camila Calderón Quirgas at TEDx Puente Llacolén, May 2022.



**Figure 5.** Visiting each of the houses in Caleta Chome, delivering information about our project.





**Figure 6.** Socialization and education about our project at the third Soplo a la Vista Festival, Caleta Chome, February 2022.