

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Maria Fernanda Urrutia Osorio
<b>Project Title</b>	Ecology and conservation of fin whales ( <i>Balaenoptera physalus</i> ) in the Gulf of California
<b>Application ID</b>	27000-B
<b>Date of this Report</b>	June 20 <sup>th</sup> 2023

**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
Monitor the cetacean populations around Bahia de los Angeles (BLA).				We successfully conducted 30 survey trips from March 2019 to October 2021. We spent over 200 hours at sea, covering around 2,500 km. We registered 65 sightings, observed around 30 large whales and more than 3,000 dolphins. The species of cetaceans that we encountered were common dolphins, bottlenose dolphins, fin whales, humpback whales, gray whales, sperm whales and orcas.
Continue developing the BLA fin whale catalogue.				We were able to expand our fin whale catalogue to 193 identified individuals. In addition, we also started an aerial fin whale catalogue from our drone photographs.
Evaluate the injuries present in photographed fin whales.				During surveys, we fortunately only observed that less than 10% of fin whales showed signs of injuries. In addition, none of these injuries appeared to be recent.
Evaluate the spatio-temporal distribution of fin whales in BLA.				We were able to develop maps with the location of sightings. In addition, we intersected our sighting locations with chlorophyll-a data for every year to see if there was any correlation between these two variables.
Continue environmental education activities in the area.				We were able to invite high school students to join us during our survey trips. Unfortunately, we were not able to visit the local schools.
Conduct two workshops on whale-watching best practices.				We were not able to conduct the two planned workshops (explanation below)
Collect fin whale biopsy samples for genetic analysis				We were not able to collect fin whale biopsy samples (explanation below)

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

- a) Our ongoing efforts to establish the cetacean baseline in Bahia de los Angeles have been successful. Over the course of 3 years, we conducted comprehensive surveys spanning various seasons, totaling 30 days of observations. As a result, we collected scientific information from 65 sightings, with data on location, species, group size, environmental conditions, and photographic evidence. This information is of great importance as it forms the foundation upon which future efforts can address issues and implement effective conservation measures for cetaceans in the area.
- b) Using photo-identification techniques, we expanded the catalogue of fin whales in the region. Through this method, we were able to document 193 individual whales and establish evidence of site fidelity among some members of this fin whale population. Furthermore, we initiated an aerial photo-identification catalog specifically.
- c) Our research programme has emerged as a significant presence in the area, fostering collaborations with universities, research institutions, and local stakeholders. We are in close communication with CICESE, a research institution at Ensenada. Notably, our data is currently being used by CICESE PhD student for his thesis project, underscoring the value of our findings. Additionally, an undergraduate student from Spain recently based her dissertation on the photo-identification data from this project. These collaborations and academic contributions highlight the growing recognition and impact of our research programme.

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

The project was scheduled for summer 2019, however, we were only able to go to the field for 3 days in August since our local partners mentioned that the fin whale season that year was offset. Therefore, we decided to wait and conduct our survey trips and our environmental activities/workshops in 2020 but little did we know about the upcoming pandemic. Fortunately, we were able to resume and successfully conclude our survey efforts in 2021, thanks to redirected funding that was entirely allocated to cover the expenses of the boat trips conducted.

Due to the impact of COVID-19, our genetic analysis was hindered as the closure of SWFSC/NOAA laboratory in San Diego prevented the examination of our samples. Furthermore, the closure of the MPA in Bahia de los Angeles impeded our ability to organise the planned workshops with the interested stakeholders.

I was unable to submit the final report on time and I apologise sincerely. It should be noted that my recent transition into motherhood, which occurred a year ago, has significantly impacted my ability to manage my responsibilities effectively.

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

We have maintained regular communication with the local Marine Protected Area (MPA) to keep them informed about our research. Furthermore, our collaboration with the designated local boat captains has been strengthened. Additionally, we had the opportunity to invite group of local high school students in our survey trips. Their enthusiastic participation and eagerness to engage in hands-on activities added an enjoyable element to our boat surveys.

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

Yes, as mentioned in previous reports, our objective is to establish ourselves as a long-term cetacean survey project in the region. To achieve this, we aim to expand our survey efforts to cover all seasons of the year, as there remains some uncertainty regarding the seasonality of fin whales in Bahia de los Angeles. Therefore, we intend to broaden our survey season to draw meaningful conclusions about the presence of fin whales and other cetaceans in the area, which is crucial for the area's conservation efforts.

To support our extended survey efforts, we plan to apply for the 2nd Booster Grant in 2024. This timing is chosen to ensure that our primary researcher is more available to conduct field trips and contribute to the project effectively. Furthermore, we have plans to maintain our collaboration with the Fisheries Ecology Laboratory at CICESE, as they have demonstrated a keen interest in aligning their objectives with ours. Together, we aim to develop a project that will bring tangible benefits to the local community.

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

The support provided by this grant has played a significant role in the collection of data for Edgar Flores' doctoral thesis. Edgar's research focuses on the spatial and temporal distribution of cetaceans in the northern Gulf of California. By analysing this data, he aims to develop ecological models that consider climate change as a major factor influencing the presence of cetaceans in the area. Furthermore, the grant facilitated Edgar's interaction with locals at the survey sites, providing him with valuable insights into how these resources can be protected by the local community and fostering opportunities for activities that contribute to species conservation. We plan to submit Edgar's research results to a peer-reviewed journal.

Our undergraduate student, Marta Montaña, is currently in the final stages of writing her dissertation. She utilised the photo-identification data from our project to conduct a site fidelity analysis. Additionally, Marta correlated sighting information with chlorophyll-a data to explore potential links between primary productivity and the presence of fin whales. Her findings will be published on the university portal, and we also intend to submit her work to a peer-reviewed journal.

Furthermore, we have plans to present our research at the upcoming Society of Marine Mammalogy conference next year. Additionally, we maintain an active

presence on social media, regularly sharing pictures and videos on our social media accounts and website to engage with a broader audience.

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

It is important for us to maintain consistent survey efforts throughout all seasons of the year. For instance, while there was a notable presence of fin whales in the area during the summers of 2015 and 2016, this pattern has not persisted in subsequent years. In both 2020 and 2021, we observed a considerable number of fin whales during the spring and fall seasons and not during the summer. This indicates that there might be variations in fin whale seasonality in Bahia de los Angeles. It is crucial for us to investigate further and determine the contributing factors to the presence of fin whales in the area. By acquiring this knowledge, we can identify optimal times for encountering whales and subsequently share this information, promoting sustainable whale-watching activities.

In addition, it is important for us to strengthen our collaboration with the Marine Protected Area (MPA) and continue our efforts towards establishing a sustainable whale-watching project. This includes conducting the planned workshops and actively engaging with the local community to establish this activity within the town. By working closely with the MPA and involving local stakeholders, we can foster a more sustainable approach to whale-watching while ensuring the long-term conservation of cetaceans in the area.

### **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, we use the Rufford logo during presentations and is displayed on our website. We also acknowledge the Rufford foundation in all our documents and publications.

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

**Fernanda Urrutia-Osorio** - project leader.

**Edgar Flores** - research assistant – logistics and fieldwork.

**Jose Arce-Smith** – boat captain.

**Angel Blanco** – boat captain.

**Erika Santacruz** – boat captain.

**Marta Montaña** – data analyst.

**Pablo Osorio** – drone pilot.

Volunteers – data collection.

**10. Any other comments?**

I would like to express my sincere gratitude to The Rufford Foundation for their continued support. The grant provided by Rufford serve as the primary source of funding for our project, and I deeply appreciate it. We look forward to keeping this project going!





