

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Iyari Janethzy Espinoza Rodríguez
<b>Project Title</b>	Banderas Bay, Mexico, as an important habitat for cetaceans
<b>Application ID</b>	36091-1
<b>Date of this Report</b>	01/05/2024

**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
1. Maps of areas with a major risk for cetacean diversity and distribution as a product by marine navigation will be generated.				Maps were generated regarding noise pollution, maritime traffic, floating marine debris, and observed cetaceans. These maps helped identify the characteristics of the bay, both natural and those caused by human activities. They will be used to analyse areas of potential overlap or risk.
2. Brochures with maps and suggestions aimed at improving bay navigation and promoting ecosystem conservation. They will be distributed to the owners, captains and crew of the vessels in the Bay.				<p>Brochure: "Navigate Safely in the Presence of Whales and Dolphins in Bahía de Banderas"</p> <p>Proposals for the conscious navigation of the bay to minimise the impact of human activities on marine fauna, with a particular focus on cetaceans, were included.</p>
3. Outreach the results in local and social media and marinas				<p>1. The creation of infographics and reels for social networks, which provide guidance on navigating in the presence of cetaceans, is recommended for both operational staff and tourists. Designed for sharing on social media platforms.</p> <p>2. Descriptive cards of commonly encountered cetaceans</p>

			<p>Information sheets detailing common cetaceans found during sampling. Aims to enhance knowledge and awareness of the bay's cetaceans.</p> <p>Outreach materials and project reports were disseminated through:</p> <ul style="list-style-type: none"> <li>- Training workshops and social media.</li> <li>- Marine Mammal Research Group (GRIMMA) website and social media. Newsletters were published on the GRIMMA website.</li> <li>- The annual GRIMMA conference cycle.</li> <li>- Radio broadcasts were utilised to share information about the project and its outcomes.</li> <li>- The NGO Group for Research and Education on Marine Mammals (GREMM) shared project results through a newsletter, facilitated by the link with our Canadian volunteer, Guylaine Marchand.</li> <li>- Environmental education activities in communities inside and outside the bay focused on threats and the presence of species and how to differentiate them.</li> <li>- Biology students participated in a scientific outreach activity, presenting a poster on the cetacean diversity of the bay using data obtained by the project.</li> </ul>
4. Reports to government agencies.			A technical report was prepared and delivered to regional authorities such as Comisión

			<p>Nacional de Áreas Naturales Protegidas / Secretaría de Medio Ambiente y Recursos Naturales (CONANP/SEMARNAT) and Administración del Sistema Portuario Nacional (ASIPONA). These reports will be instrumental in shaping new regulatory strategies in line with current conditions.</p> <p>Additionally, the project team received an invitation to participate in the "Workshop for Planning the Development of the Large Whales Protection Program for the Western and Central Pacific Region," led by the National Commission of Natural Protected Areas (CONANP). CONANP is the governmental entity responsible for developing management strategies for these species. The workshop aims to establish a protected area for cetaceans along the Pacific coast of Mexico in the Western and Central Pacific region. Participants included environmental authorities, tourism service providers, and other NGOs. This collaborative effort seeks to enhance protection measures and management strategies for cetaceans in the region.</p>
<p>5. Boat captains sensitized about the importance of bay cetaceans and habitat conservation.</p>			<p>Training workshops:</p> <ul style="list-style-type: none"> <li>- Winter 2022 - 2023. Five training workshops were organised and delivered for tour operators offering whale watching off the coasts of the states of Nayarit and Jalisco.</li> <li>- Winter 2023 - 2024. In response to the invitation by SEMARNAT, we</li> </ul>

			<p>participated in two training workshops (one in person and one online).</p> <p>In each season, around 511 captains, guides and operational personnel were trained. Regional environmental authorities such as SEMARNAT, CONANP, PROFEPA (Procuraduría Federal de Protección al Ambiente), and other NGOs collaborated in the workshops.</p> <p>Regional environmental authorities, including SEMARNAT, CONANP, PROFEPA, and other NGOs, collaborated in the workshops. The topics covered included the biology and diversity of cetacean species, the problems caused by humans, environmental regulations, and the main threats they face. As a result of the workshop, captains and boat guides now share with us photographs of cetaceans that they observe during their tours in the Bay.</p> <p>As an additional activity, the participants were introduced to the "Whales to the Sea, Rubbish to the Sack" campaign, which aims to raise awareness about the problem of floating rubbish and provides nets for the collection of rubbish found during the course.</p> <p>The training course was evaluated, and attendance certificates were handed out.</p>
6. Outreach to captains and guides			During two winter seasons, infographics of NOM-131-

<p>about the Mexican regulation with the guidelines during the whale watching season by means of brochures and workshops.</p>				<p>SEMARNAT-2010 (whale watching regulation) were disseminated on social networks and presented in training courses. The infographic reached a national audience. Some captains without internet access received the infographic personally.</p> <p>Reels and publications with the most important points of the regulation were created in social networks.</p> <p>Reports were delivered to tour operators with suggestions to improve the operation of their tourism activities.</p> <p>A citizen science programme is currently being developed in collaboration with local businesses.</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.**

The timing of the funds' arrival in our account (late winter) forced us to decide to extend the sampling period by one additional winter season (2022-2023), to obtain the hydrophone and collect comprehensive marine sound data for a full season. This proved advantageous for the project, as we now have data from two consecutive seasons.

The objective of the awareness-raising activity (Objective 5) was to be carried out in a training workshop, which was usually organised by the government (SEMARNAT (a forum of 400 persons approx.)). However, since 2020, due to the pandemic caused by SARS-COV-2 and the lack of resources from the federal government, the courses were stopped. To address this challenge, the community was approached for assistance, and a community fund of 100,000 Mexican pesos was secured from CONANP to support the training course and cover the remaining field trips. To facilitate the workshop, a collaboration agreement was established with SEMARNAT, and the invitation specified that captains and guides would be in attendance. A total of five workshops were held, with three in Nayarit and two in Jalisco. A total of 511 individuals were trained.

Given the considerable quantity and variety of litter observed in the sea during the sampling, it was deemed inappropriate to print the material for objective 2. Instead, it was disseminated through social networks and websites. It was also presented at the training course.

### **3. Briefly describe the three most important outcomes of your Project.**

- I. Registration of four cetacean families in Bahía de Banderas, highlighting species from the Kogiidae and Ziphiidae families, as well as uncommon species from the Delphinidae family. The information will be published in peer-reviewed journals and will also serve to promote the conservation of ecosystems and species. Achievements derived from the sampling include:
  - a. Reports delivered to authorities.
  - b. Reports provided to tour companies operating in the bay.
  - c. Participation in the "Workshop for Planning the Development of the Large Whales Protection Program for the Western and Central Pacific Region".
  - d. Training of volunteers and students undertaking social service and internships from five national and three foreign universities.
  - e. Motivation and inspiration for numerous students.
- II. Promotional Materials: Infographics of species, an infographic of NOM-131-SEMARNAT-2010, and a brochure with suggestions.
- III. Training Workshops: Seven training courses were conducted with the participation of operational personnel from coastal communities, including Boca de Camichín, San Blas, La Peñita de Jaltemba, Guayabitos, Los Ayala, San Francisco, Sayulita, Punta de Mita, La Cruz de Huanacaxtle, Bucerías, Nuevo Nayarit, Puerto Vallarta, Mismaloya, Boca de Tomatlán, Yelapa, and Bahía de Tenacatitita.

This training course is considered one of the greatest achievements for the following reasons:

- a. The training courses were successfully reactivated.
- b. Partial results of the project were disseminated.
- c. Promotion was carried out for the generated promotional materials.

### **4. What do you consider to be the most significant achievement of this work?**

Undoubtedly, the most significant achievement is the information gathered during the two sampling seasons, which was processed and disseminated through training workshops and promotional materials.

The analysed data will provide insights into the distribution and abundance of marine mammals, their relationship with water column temperature, cetacean acoustic signals, noise pollution, floating marine debris, and the presence and absence of vessels. Efforts are also being made to build relationships between

stakeholders, especially in the search for agreements that benefit both cetaceans and resource users.

This generated information is being shared with local communities and will not only contribute to the conservation of cetaceans but will also be valuable for other species and processes in the bay.

**5. Briefly describe the involvement of local communities and how they have benefitted from the project.**

- 16 coastal communities in the states of Jalisco and Nayarit (seven of which are outside the bay) benefited from training courses where they learned about cetacean species and conservation.
- 511 people trained each winter (2022 - 2023 and 2023 - 2024).
- 192 boat captains and sailors from seven bay communities participated by providing information for surveys regarding their knowledge of cetaceans, their navigation routes, and the activities they engage at sea.
- 240 children from 12 public schools received educational workshops on the region's marine mammals and their threats.
- 39 volunteers, mostly biology students from two regional universities (the National Technological Institute of Mexico, Bahía de Banderas campus, and the University of Guadalajara's Coastal University Center), engaged as volunteers in various project activities after receiving prior training.
- 16 boat captains who participated in the surveys were instructed in the correct methodology for cetacean observation, with the aim to prevent disruption to the animals. This knowledge will hopefully be applied on their subsequent tourist tours.
- 11 people from three communities in the bay collaborated in the search for funds (community fund). CONANP's call for proposals focused on communities within the area of influence of the Islas Marietas National Park. The funds obtained from this call were used for the operational costs of the training workshop, for the purchase of nets and to co-finance marine sampling for the second season (2022 - 2023).
- Eight community volunteers and university students participated in training courses, assisting with registrations, organising the training room, certificate distribution, and other workshop details.
- Five tourism service providers (two cooperatives and three companies) supported the project by renting boats during marine samplings.
- Three biology students, two from the University of Guadalajara and one from the Technological Institute of Bahía de Banderas, completed their professional internships using data generated in the project.
- Three foreign students (USA and Germany) completed an internship at GRIMMA and collaborated in the project.



- One retired Canadian volunteer, involved in marine sampling, project dissemination in Canada, logistical support and public relations.

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

Yes, we will seek to continue with the sampling, now with a dual focus: firstly, targeting aggregation zones of humpback whale mothers with calves, and secondly, investigating species from the Ziphiidae and Kogiidae families that have been observed. We will also continue investigating the issue of noise pollution, and undergraduate students will be sought to assist in data processing.

In the medium term we intend to purchase fixed hydrophones to record day and night sound in the sea, identify species and noise pollution.

The project will be repeated throughout the year and in years with climatic anomalies such as El Niño to compare the presence and abundance of species and the effects of human activities.

We also aim to record the behavior of cetaceans in the presence and absence of boats or other human activity.

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

### International Collaboration:

Happy Whale Platform: Photos from the sampling seasons are shared with the aim of identifying migration routes of photo-identified whales.

### Legislative Sector:

Results from the technical report were presented to environmental authorities in the region, including CONANP/SEMARNAT and ASIPONA.

The outcomes were also shared in the "Workshop for Planning the Development of the Large Whales Protection Program for the Western and Central Pacific Region" organized by CONANP. These results will contribute to the formulation of management strategies.

### Digital Media:

GRIMMA's social media platforms.

Newsletters on GRIMMA's website.

Outreach article on GREMM.

Participation in radio programs.

### Scientific Forums:

Efforts will be made to participate in national and international conferences, focusing on cetaceans, plastic pollution, oceanography, and marine sciences.

### Public Outreach Forums:

Environmental education activities.

Volunteer participation in science communication congress.

The annual GRIMMA conference cycle.

**8. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?**

From March 2022 to December 2023.

The duration of this undertaking was considerably longer than anticipated, particularly given the involvement of objectives that did not solely depend on my efforts. Nevertheless, the objectives were successfully accomplished, and we will continue to refine the project and enhance our planning strategies.

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

- Conduct sampling focused on marine sound (presence of cetaceans and noise pollution).
- Conduct sampling when climatic anomalies occur to determine if they affect changes in species abundance or diversity.
- Additionally, efforts will be made to document the behavior of cetaceans in the presence and absence of vessels or any other human activity.
- Involve the community in data collection (citizen science through collaboration with the national Blue Synergy project), as well as in decision-making for species conservation and sustainability of their economic activities related to cetaceans.

**10. 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 the following materials:

- Information pamphlet about NOM-131-SEMARNAT-2010.
- Brochure and QR code with suggestions for safe navigation in Bahía de Banderas in the presence of cetaceans.
- Species infographics.
- Mentioned in training workshops.
- Mentioned in the online conference series.
- Acknowledged on t-shirts.
- In past and future social media posts about the project results.
- Included in the final report on the GRIMMA website.

**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

**M. en C. Iyari J. Espinoza Rodríguez.** Conception and coordination of the project, planning and supervision of various activities, training of volunteers, data capture and analysis, presentation of results, report writing, and resource management.

**Dra. Rosa María Chávez Dagostino.** Support in the creation of the project idea, supervision of activities, assistance in data analysis, validation of the method, review of results, and oversight of promotional material.

**Dra. Gisela Heckel:** Support in the creation of the project idea, supervision of activities, assistance in data analysis, validation of the method, and review of results.

**Biol. Roberto Moncada Cooley:** Support in the conception and writing of the project, supervision of the methodology, fieldwork, training workshops, and report review; also responsible for agreements with educational and governmental institutions for the implementation of training workshops for service providers.

**M en C. Daniel Aguirre Ayala:** Responsible for designing some of the promotional materials, data capture and analyses, and field work and photography. Coordination of field trips, training of volunteers, and results processing.

**Volunteers:** They assisted in field data collection and served as on-board observers during marine sampling.

## **12. Any other comments?**

All objectives were achieved thanks to the support of the community, students, and, of course, the financial assistance from The Rufford Foundation.

In addition, we would like to emphasize our thanks for the support received. We also thank you for your understanding of the delay in the delivery of the report.