Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF format**. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Omar Sánchez Becerril
Project Title	Assessment of biological and socioeconomic effects in a Fishery Refuge Zone in Yucatan, Mexico
Application ID	45329-2
Date of this Report	27 February 2026

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
Underwater monitoring of marine biodiversity in the Fishery Refuge Zone				The objective was fully achieved. Biannual underwater monitoring surveys were conducted consistently throughout the project period, resulting in nearly three years of standardized biodiversity data across refuge and adjacent control sites, thereby consolidating a robust baseline for long-term ecological assessment. Although spatial heterogeneity remains high and clear temporal abundance trends are still emerging, monitoring efforts have documented consistent juvenile presence of commercially important species and, in the most recent census, the observation of larger size classes, suggesting potential improvements in population structure. Additionally, surveys recorded what may represent the first documented observation of the brown sea cucumber (*Isostichopus badionotus*) within the monitored area, a species that was among the primary conservation targets at the time of the refuge's establishment. The monitoring process was co-implemented with trained local fishers and community divers, strengthening scientific rigor, transparency, and local ownership of conservation outcomes.
Assessing perceptions of Equity in the Fishery Refuge Zone				All planned data collection activities, including structured surveys and in-depth interviews, were completed successfully. Building on established equity frameworks, the project developed and applied a holistic assessment model integrating the three core dimensions of social equity—recognition, procedural, and distributive equity—with a complementary quantitative analysis of economic distribution derived from the first Rufford grant (40426-1). This integrated approach

				allowed for a more comprehensive evaluation of conservation outcomes within the Fishery Refuge Zone. Findings were presented in regional fisheries forums with participation from government authorities, NGOs, and, most importantly, members of the local fishing community, generating dialogue and practical management recommendations. As a major outcome, the research has been consolidated into a peer-reviewed manuscript currently under review in a high-impact international journal (*Frontiers in Marine Science*), strengthening the scientific and policy relevance of the project's results. A total of 88 fishers participated in structured surveys, while five stakeholders participated in semi-structured interviews. These data are also reported in our published manuscript.
Evaluating governance in the Fishery Refuge Zone through Social Network Analysis				The objective was fully achieved. Governance information was collected through stakeholder interviews and structured mapping exercises, allowing the identification of key actors, communication channels, leadership roles, and coordination patterns within the Fishery Refuge Zone. The assessment clarified decision-making dynamics and highlighted areas where communication and institutional coordination could be strengthened. Importantly, these findings informed the development and interpretation of the project's equity framework, particularly the procedural dimension, by providing practical insight into participation structures and power distribution within the refuge. The results were shared with local stakeholders and supported practical recommendations aimed at improving transparency, collaboration, and management effectiveness. A total of 10 stakeholder interviews and four participatory workshops were conducted during the project. These activities supported the governance assessment and stakeholder mapping process.

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

a) Consolidation of long-term ecological monitoring and early ecological signals: The project successfully consolidated nearly three years of standardized underwater biodiversity monitoring within the Fishery Refuge Zone, establishing one of the most consistent ecological datasets available for this area-based fisheries management tool. Although clear long-term abundance trends are still emerging due to spatial heterogeneity, recent surveys have documented consistent juvenile presence and the observation of larger size classes of commercially important species. Notably, what may represent the first documented reappearance of the brown sea cucumber (*Isostichopus badionotus*) after more than a decade of absence was recorded. While continued monitoring remains essential, these findings have generated cautious optimism among fishers, who increasingly perceive tangible ecological signals linked to their participation in the refuge.

b) Development and submission of a holistic equity assessment framework for community-based conservation: A principal outcome of the project was the development and empirical application of a multidimensional equity assessment framework for community-based conservation strategies within small-scale fisheries. The framework integrates recognition, procedural, and distributive equity dimensions with quantitative economic inequality metrics derived from the previous Rufford grant (40426-1), allowing for a structurally integrated evaluation of social performance. By combining perception-based indicators with distributive economic analysis, the project advanced an operational model that links governance processes, stakeholder participation, and material benefit distribution within an area-based fisheries and conservation tool. The results were consolidated into a peer-reviewed manuscript currently under review in Frontiers in Marine Science. The study provides empirical evidence from a community-managed Fishery Refuge Zone in Mexico and contributes to the emerging literature on equity-centred evaluation of community-based conservation strategies.

c) Strengthened community engagement, public visibility, and evidence-based dialogue: The project contributed to community engagement by presenting ecological and equity findings in fisheries forums and community meetings that included fishers, government authorities, NGOs, and other sector stakeholders. These presentations created structured spaces for discussing monitoring results and their management implications within participatory settings, facilitating dialogue across different stakeholder groups. The exchange of findings contributed to transparency in ongoing monitoring and management processes within the Fishery Refuge Zone and reinforced local awareness of research activities and conservation actions. In addition, the project received national media coverage through an interview broadcast on a major Mexican television network, increasing public visibility of the

refuge and drawing attention to community-based conservation efforts. The project also generated outreach materials, including publicly accessible videos shared via digital platforms such as YouTube, further supporting knowledge dissemination and public engagement.

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

A principal challenge encountered during the project was the high spatial variability in species abundance and biomass across sampling sites within and adjacent to the Fishery Refuge Zone. This heterogeneity increased data variance and constrained the early identification of consistent temporal patterns. Rather than attributing ecological significance to short-term fluctuations, the research team maintained a standardised sampling design and prioritised methodological consistency, recognising that more robust statistical interpretation requires extended time series and continued data accumulation.

This challenge was addressed through sustained collaboration with trained local fishers and community divers, whose participation ensured continuity in field implementation and adherence to sampling protocols. Despite inherent ecological variability, the documentation of new species records and the possible reappearance of previously unobserved taxa generated renewed engagement among participants and reinforced the importance of maintaining long-term monitoring efforts.

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

Local fishers and community members were actively involved throughout the project. Trained fishers, including six divers from the community (three men and three women), participated directly in underwater monitoring activities, contributing to data collection and field implementation under a standardised sampling design. This collaboration strengthened local technical capacity in ecological monitoring and reinforced shared ownership of long-term data generation within the Fishery Refuge Zone.

Community members also participated in structured surveys and interviews as part of the equity assessment, contributing experiential knowledge that informed the development and empirical application of the multidimensional equity framework. Their involvement ensured that recognition, procedural, and distributive dimensions reflected local realities and diverse perspectives within the fishing sector.

Project findings were presented in fisheries forums and community meetings, creating opportunities for multi-stakeholder dialogue on ecological performance and social outcomes. Through access to systematic monitoring data and analytical results, participants gained a clearer understanding of ecological variability, management processes, and equity dynamics within the refuge. This evidence-based engagement

strengthened informed participation and reinforced the community's role in ongoing conservation and management processes.

5. Are there any plans to continue this work?

Yes. The project has established a sustained research trajectory that integrates long-term ecological monitoring with recognition equity as an analytical dimension of community-based conservation strategies. Continued biodiversity monitoring within the Fishery Refuge Zone will extend the temporal dataset and strengthen the robustness of ecological interpretation over time.

Building on the multidimensional equity framework already implemented, the next phase will further develop recognition equity within the scientific process itself by formalising mutual epistemic reflexivity and deepening the co-production of ecological knowledge. This includes examining how site selection, sampling effort, interpretation of ecological patterns, and decision-making processes reflect or redistribute epistemic legitimacy within monitoring practices.

Future work will incorporate participatory GIS mapping to spatially document local ecological knowledge, species observations, and perceived ecological change. Integrating participatory spatial data with ecological monitoring will allow recognition dynamics to be examined through both analytical indicators and observable contributions to data generation.

A further step involves formalising shared scientific authorship with participating fishers and women divers in future publications, recognising their substantive contributions to data generation, interpretation, and knowledge production. This approach seeks to document how authorship itself can function as an empirical expression of recognition within community-based conservation research.

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

Project results are being disseminated through multiple academic, community, and public channels. A peer-reviewed manuscript presenting the multidimensional equity framework and ecological findings has been submitted to Frontiers in Marine Science and is currently under review. A review-stage version of the manuscript (including the journal watermark) is being shared with the Foundation for reference. The article will be made publicly accessible upon publication.

Findings have also been shared in fisheries forums and community meetings involving fishers, government authorities, and NGOs, facilitating direct discussion at the local level. In addition, results have been presented at academic conferences to engage the broader scientific community working on marine conservation and social equity.

Public dissemination has included interviews with national media outlets and the circulation of recorded segments through digital platforms. The project has also generated outreach materials, including publicly accessible videos shared via YouTube and social media, increasing accessibility beyond academic audiences.

Together, these dissemination pathways aim to ensure that results are accessible to scientific audiences, local stakeholders, and the broader public.

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

Looking ahead, the most important next steps involve consolidating long-term ecological monitoring to strengthen evidence-based conservation within the Fishery Refuge Zone. Continued biodiversity assessments will improve the capacity to distinguish structural ecological change from short-term variability, providing a stronger basis for adaptive management and conservation decision-making.

A second priority is to deepen the integration of recognition equity within conservation practice. Strengthening mutual epistemic reflexivity and structured co-production of ecological knowledge will enhance trust, transparency, and community-led stewardship, which are critical conditions for durable conservation outcomes. Incorporating participatory GIS mapping will further support spatially informed conservation planning by integrating local ecological knowledge with monitoring data.

An additional step involves formalising shared scientific authorship and clearer documentation of community contributions to data generation and interpretation. Recognising fishers and women divers as active contributors reinforces long-term engagement and strengthens local ownership of conservation processes.

Together, these next steps aim to improve the ecological effectiveness, social legitimacy, and long-term sustainability of the Fishery Refuge Zone, while generating a transferable framework that can inform conservation initiatives in other community-based fisheries contexts.

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. The Rufford Foundation logo was included in academic presentations, conference materials, and visual dissemination products generated as part of the project. The Foundation was acknowledged in slides, posters, and outreach materials to recognise its financial support.

The Foundation also received publicity through community meetings, fisheries forums, and media coverage related to the project. During interviews and public dissemination activities, Rufford's support was explicitly acknowledged as enabling the ecological monitoring and equity research conducted within the Fishery Refuge Zone.

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

Omar Sánchez Becerril – Principal Investigator (PI): Overall project coordination, research design, ecological fieldwork (diving surveys), logistical planning, data analysis, development of the equity assessment framework, and preparation of technical and scientific deliverables.

Raúl Villanueva Poot – Academic Supervisor: Scientific supervision, methodological guidance, participation in ecological fieldwork, data interpretation, and review of research outputs.
Leopoldo Palomo – Academic Supervisor: Scientific supervision, methodological guidance, participation in ecological fieldwork, data interpretation, and review of project deliverables.

10. Any other comments?
The work conducted under this grant contributes to ongoing discussions in conservation science regarding the relationship between ecological evidence, governance processes, and multidimensional equity assessment. By maintaining methodological consistency in ecological monitoring while implementing structured social evaluation, the project provides empirical material for examining how conservation outcomes are shaped not only by biological dynamics but also by institutional and epistemic conditions.
The continuity of this approach will allow future analyses to assess conservation performance with greater analytical depth and temporal resolution.

Photographic evidence


Embarcaciones
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Monitoreo
C-N1
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C-N3
C-N2
R-N6
R-N4
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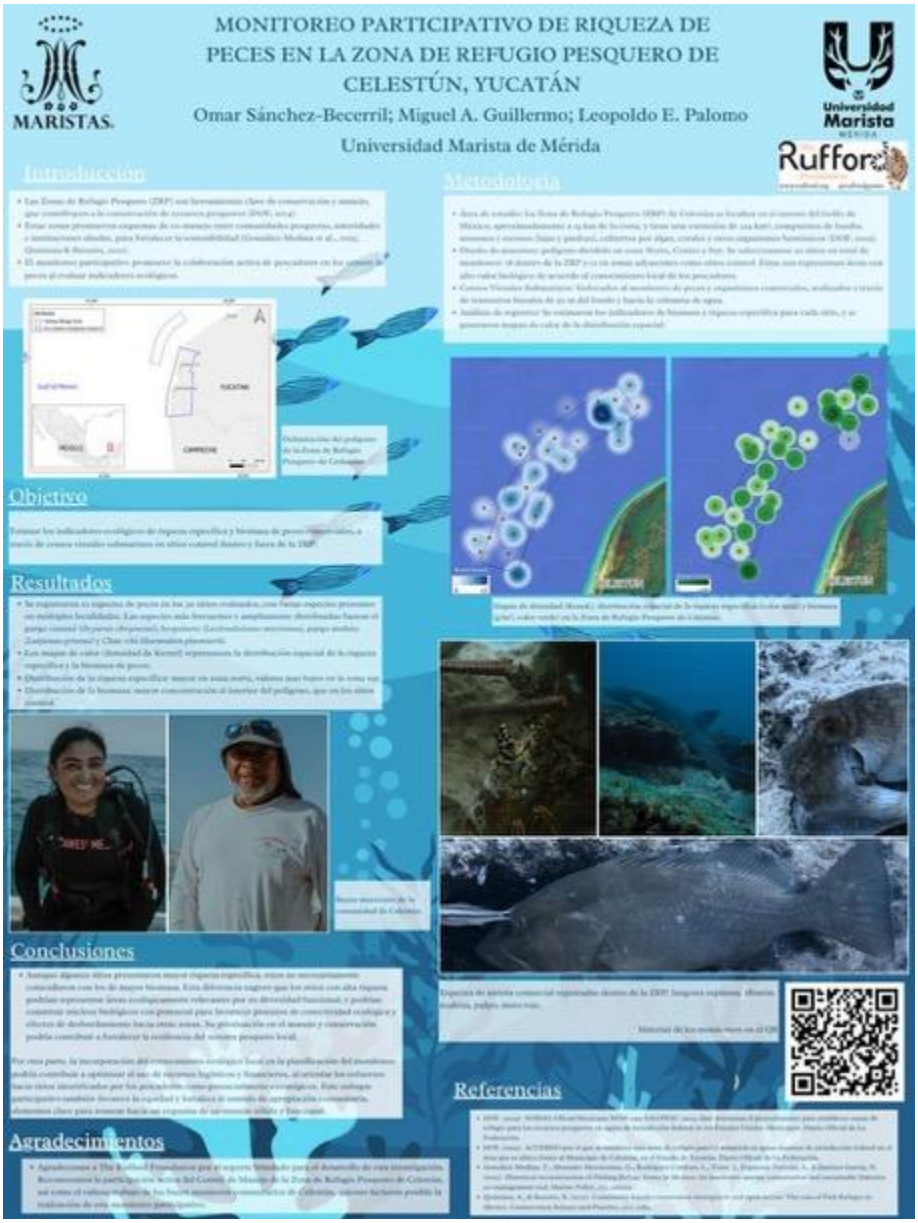
Candidato a Doctor en Bioeconomía Pesquera y Acuícola


PESCARIAN


TE INVITAMOS A LA PRESENTACIÓN
"Equidad social y desempeño distributivo en Reservas Marinas Comunitarias: El caso específico de las Zonas de Refugio Pesquero en México"
Omar Sánchez Becerril
VÍA ZOOM LINK AQUI
¡NO FALTES!
Fecha:
28 de marzo de 2025
Horario
12:00 a 13:30 hrs (CDMX)
IMPACTO COLECTIVO
POR LA PESCA Y LA ACUACULTURA MEXICANAS



Media interview link
https://www.facebook.com/share/v/1DvTw7bXMc/

YouTube outreach video link
https://youtu.be/tOwel06nWE8?si=CupQKxGM5yYUKm2F

ANNEX – Financial Report

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