Final Evaluation Report

Your Details	
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Project Title	Effective involvement of local fishermen in the conservation of sea turtles along the Northern Coastline of Cameroon.
Application ID	41783-B
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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
Assess sea turtle bycatch, nesting activities and map feeding sites				Among the 80 active fishermen in our SIREN citizen science network, 25 operate along the northern coast of Cameroon. These fishermen consistently use the SIREN mobile app to report marine turtle data, including nesting events and bycatch. Beyond the citizen science data, we conducted interviews with 90 fishermen. They reported an average of five turtles accidentally captured per fisherman each month — a figure that has remained stable. However, our analysis reveals a concerning trend: overall turtle bycatch has doubled over the past five years, driven by the doubling of the fishing fleet. Markets, which are also the fish landing sites (as fishermen land directly in the markets) were surveyed four times par week. These market surveys recorded fewer than 30 turtles brought to market throughout the year. Encouragingly, many fishermen now rescue and release turtles, thanks to

				ongoing awareness efforts. However, in areas like Debunsha, a significant number of turtles are still sold on the black market or consumed locally — highlighting the urgent need to intensify behavior change campaigns. We also conducted boat-based survey onboard of fishing boats twice a month to assess the catches, the fishing zone as well as the fishing gears. While we did not report any bycatch activity, we noticed a high concentration of fishing around Mabeta (3.974, 9.285) and Djangassa, towards Idenau (4.290, 8.912). All the boats that we boarded were equipped with gillnets, which are known to be the most involved in bycatch. Additionally, we identified key feeding grounds in Bakingili and Debunsha using a combination of underwater drones, GoPro cameras mounted on volunteer fishermen's gear, and scuba diving explorations.
Educate and sensitize the local fishers and their children on ways to limit sea turtle bycatch and habitat pollution				In five villages within the project zone, including Batoke, Bakingili, Debunsha, Idenau, and Limbe, we worked with 12 primary and secondary schools to raise awareness among over 800 children on

				the threats faced by marine turtles, with a focus on bycatch, as well as mitigation measures and how they can contribute and influence their fisherman parents. During the summer holidays, we conducted holiday clubs in three villages, including Limbola, Batoke, and Bakingili. These were interactive sessions with kids consisting of virtual reality workshops, games, movie watching, storytelling, and drawing. These activities gathered over 200 kids as well as at least 50 adults (their parents). At the end of the year, we partnered with the Limbe Wildlife Center to organize the school outreach festival with over 2,500 children. At the beginning of each academic year in September, as we launch the environmental education programme in schools, we administer a pre-test. This test includes a series of questions covering the key topics and skills we aim for students to acquire. It also assesses their initial attitudes toward marine turtle conservation issues. Throughout the year, we conduct short post-tests to monitor their progress in acquiring knowledge and shifting perspectives, as well as to adjust our plans. The final

				post-test is conducted at the end of the academic year, just before the festival. The assessment of the change revealed an increase of 68% among the children in terms of their engagement to help sea turtle conservation, while 74% felt well informed about the impact of bycatch. Similarly to children, we organized monthly campaigns in each village to inform fishers. The innovation in this activity was the engagement of Prince, who is also a fisherman and who joined our team to support community outreach on a voluntary basis. He helped by talking to fishers in a language they easily understand — a fisherman sharing sea turtle conservation messages with over 100 fishermen from the fishermen's perspective.
Develop and implement a plan to mitigate sea turtle bycatch mitigation				Through the SIREN Citizen Science network (a network of fishers using our SIREN mobile app to document marine wildlife), we recorded reported sightings, strandings, and bycatch of over 100 marine turtles. Among the bycatch cases, 56 were found alive with minor injuries, while 44 were unfortunately dead (or killed). Our collaboration with the rehab center provided us with

				basic knowledge to assess injuries. Unfortunately, no marine turtle bycatch cases were transferred to the rehab center — largely due to the rapid release of captured turtles back into the wild by fishers, which is encouraging, however, some turtles were sadly found dead or killed. The fishers who contributed to the documentary were compensated in several meaningful ways. In December 2024, we invited them to participate in our annual Street Whale event in Kribi, where they had the opportunity to connect with fellow fishers from São Tomé (supported through our National Geographic project) and Brazil (supported by our Bycatch Mitigation Initiative under the Consortium for the Conservation of the Atlantic Humpback Dolphin). They enjoyed environmental performances, exchanged knowledge and experiences with one another, and actively participated in conferences where they voiced their opinions. In addition, we supported them by facilitating and covering the costs of their fishing permits—a legal requirement in Cameroon that is often difficult and costly to obtain due to bureaucratic delays. This support not only

				empowered them but also helped reduce their vulnerability to illegal payments on the field. Finally, we are working with them to develop greenhouse agriculture as a sustainable alternative livelihood, reducing pressure on marine resources while enhancing food security and resilience. The findings from this research, along with the challenges faced during the project and lessons learned, were shared during *Street Whale 2024*. Street Whale is Cameroon's annual symposium on marine wildlife conservation, where culture and science are combined to promote marine awareness and develop strategies for the sustainable management of marine and coastal resources. Although discussions were initiated on Other Effective Conservation Measures (OECMs) among various stakeholders — including fishermen, local leaders, civil society organizations, and government representatives — the plan has not yet been fully developed. We are committed to continuing these discussions to promote the establishment of *LMMAs* (Locally Managed Marine

				Areas).

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

a). Corals and sea grasses spot identified in Limbe

From focus group discussions, fishermen revealed that coral reefs existed along the northern coast of Cameroon before 1998. However, the eruption of Mount Cameroon released toxic materials that, combined with bottom trawling, destroyed a large portion of the reefs. In recent years, fishermen have started noticing signs of natural coral regeneration.

Our citizen science approach involved equipping spearfishing practitioners with GoPro cameras to record videos of seagrass while fishing. We combined this data with five underwater drone expeditions and two diving expeditions, which included five dives and five snorkeling sessions.

These combined methodologies helped us identify and map several coral and seagrass sites across a 30 km stretch from Limbe to Debunsha. Corals and seagrass were not continuously distributed, but areas of high concentration were found in Batoke, Bakingili, and Debunsha. These zones were also characterized by high water transparency, ranging from 6 to 13 meters.

b). Prince became a turtle hero

Prince is a fisherman from the Batoke community who was formerly a poacher. He used to capture female turtles during the nesting season, eat turtle eggs, and kill or sell turtles accidentally caught in his nets at the local market.

We first worked with his father, the late Papa Mensah, who was also a poacher. Through our collaboration, Papa Mensah came to understand the importance of sea turtles and decided to stop eating them. He took the initiative to train other fishermen, including his son Prince.

It wasn't easy for Prince to follow in his father's footsteps — but when his father passed away, Prince was asked to continue his work. As we began collaborating with him, Prince gradually realized how vital sea turtle conservation is.

Today, Prince has become the main sea turtle conservation focal point in his community. He has inspired and engaged over 10 fellow fishers and personally rescued 20 turtles within just six months.

Thanks to people like Prince and Papa Mensah, the fishers are no longer part of the problem — they are part of the solution.

c). Number of observations reported through SIREN

The SIREN network documented 10,244 observations in Cameroon in 2024, mainly covering fish diversity (over 6,000 observations), along with rays (1,030), sharks (304), sea turtles, cetaceans (whales and dolphins), and the African manatee.

By the end of 2024, the SIREN database for the AMMCO project recorded 31,914 observations, including 444 sea turtle reports. The network has also expanded to 10 countries across Africa.
In November, the program received the Low-Cost Science Award at the Society for Marine Mammalogy conference in Australia — a significant recognition of its impact on marine conservation in Africa.

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

One unforeseen difficulty during the project was the reluctance of some fishermen to consistently report data through the SIREN app, fearing it might expose their fishing practices. To tackle this, we strengthened trust by involving respected community members — like Prince, a former poacher turned conservation advocate — to lead outreach efforts and engage his fellow fishers. His firsthand experience and transformation helped shift perceptions, making fishermen more comfortable participating.

Another challenge emerged when turtles were released too quickly by well-meaning fishermen, preventing proper assessment or rehabilitation. We addressed this by providing training on basic injury evaluation and safe handling techniques, ensuring fishers could balance rapid release with recognizing when expert intervention was needed.

Lastly, poor underwater visibility complicated coral and seagrass mapping. To overcome this, we combined multiple methods — GoPro footage from spearfishers, underwater drones, and diving/snorkeling expeditions — to cover more ground and improve data accuracy. These adaptive strategies enhanced data collection and community engagement, driving project success.

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

Local communities were at the heart of this project, with fishermen, students, and community leaders actively involved. Over 80 fishermen became part of the SIREN Citizen Science Network, using the SIREN app to report sightings of marine turtles, dolphins, and other wildlife. This empowered them to become data collectors and conservation advocates. Former poachers, like Prince, transformed into local leaders, helping to train and inspire others to protect marine life — turning fishers from being part of the problem to part of the solution.
To strengthen relationships with local authorities, we conducted over 20 informal visits to the Chiefs of Batoke and Bakingili communities, providing both written and oral updates on the project's progress. We also invited them to the Street Whale event, where they had the chance to learn more about other marine conservation initiatives and engage with broader efforts.
Children also benefited through school outreach programs, where over 800 students learned about marine conservation. Interactive holiday clubs in three villages engaged 200 children and 50 parents with games, storytelling, and virtual reality workshops, fostering a new generation of ocean stewards.

Communities gained practical benefits too — safer fishing practices, better knowledge of marine ecosystems, and recognition at international platforms. The project also opened new opportunities, like collaborating with eco-tourism initiatives and promoting Locally Managed Marine Areas (LMMAs), ensuring long-term sustainability.

5. Are there any plans to continue this work?

Yes, the main problem this work aims to tackle is still bycatch, but with a more holistic approach that addresses its root causes and impacts on marine habitats.
Bycatch — the accidental capture of sea turtles and other marine species in fishing gear — remains a critical issue along the Cameroonian coast. Fishermen report catching an average of 5 turtles per month each, and data shows overall bycatch has doubled in the last five years due to the growing number of fishers. While many now release turtles thanks to awareness efforts, some still end up on black markets or are consumed locally, especially in areas like Debunsha.
The seagrass monitoring and Important Marine Turtle Area (IMTA) mapping will help tackle this by identifying key feeding zones and guiding efforts to reduce fishing activity in those sensitive areas. This protects turtles before they get caught.
Expanding education ensures children — often key influencers on their fisherman parents — continue pushing for safer practices, creating a cultural shift toward long-term conservation.
Finally, establishing a Locally Managed Marine Area (LMMA) empowers communities to enforce sustainable fishing rules and protect critical habitats like seagrasses and coral reefs. This not only reduces bycatch but also supports healthier fisheries, benefiting both marine life and local livelihoods.
So while bycatch is still the core problem, the next phase tackles the bigger picture — protecting habitats, reducing accidental captures, and securing sustainable fishing for future generations.

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

We have been sharing results through regular community updates with chiefs and fishermen, alongside school outreach and holiday clubs to educate children and families. Our findings have been presented at national events like Cameroon's Street Whale symposium, during local meetings such as the Cameroon Marine and Coastal network meeting. We have also shared results through formal presentations and informal discussions during regional conferences and with networks such as CCAHD (*Consortium for the Conservation of the Atlantic Humpback Dolphin*), VOCAL (*Voices for the Conservation of Action Leaders*). Internationally, we presented at conferences like the International Sea Turtle Symposium (ISTS, where we were giving three oral presentations on the findings on sea turtle nesting habitat, our environmental education, and sharing the story of the fisherman from poacher to conservation hero) and contribute to scientific publications, ensuring our work supports broader marine conservation efforts. Our talk on Siren citizen science has earned an award: the Grassroot Conservation Award.
At the end of each year, we usually compile a report of our activities that we share with the government as well as our local partners.

We have not yet published our work, but we are very interested in doing so. Currently, we are working on draft manuscripts related to marine turtle monitoring, following scientific article standards. The planned publications will align with the three abstracts we presented at the International Sea Turtle Symposium (ISTS), which include:

- SIREN: From Poachers to Heroes – highlighting the transformation of local fishers into conservation allies through citizen science. This presentation won the Grassroots award at the ISTS 2025 in Ghana.
- Nesting Monitoring – presenting our findings and methods from beach monitoring efforts.
- Cartoon-based Outreach – exploring the use of visual storytelling to engage communities in marine conservation.

We believe these topics could be of interest to journals such as *Oryx*, and we are open to guidance or collaboration to strengthen the scientific and conservation impact of these future publications.

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

The next steps focus on strengthening habitat protection, expanding community engagement, and promoting sustainable management.
First, we will identify and protect Important Marine Turtle Areas (IMTAs) by continuing seagrass and coral reef monitoring. This will help map key feeding and refuge zones, providing critical data to guide future conservation actions.
Next, expanding education efforts remains a priority. More school outreach, holiday clubs, and community events will ensure children and fishers stay engaged, fostering a new generation of conservation advocates who influence behavior change within their families and communities.
We will also develop a Locally Managed Marine Area (LMMA) by collaborating with fishermen, chiefs, local leaders, and government officials. This will empower communities to take ownership of their marine resources, creating sustainable management practices that protect vital habitats like seagrasses and coral reefs.
Strengthening regional collaboration is essential. Through networks like VOCAL and CAMNET (*Cameroon Marine and Costal Network*), we will share lessons learned and align conservation efforts across West and Central Africa.
Finally, we will advocate for policy change, using project data to push for stronger bycatch regulations and marine habitat protections. This ensures our work supports long-term benefits for both marine wildlife and local livelihoods.

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 featured across various materials throughout the project. The Rufford logo was used in presentation at ISTS 2025 in Accra. It appeared on social media posts, PowerPoint presentations (acknowledgements

section), project reports, and communication materials during the Street Whale event. This visibility helped highlight the Foundation's support to a broad audience, including local communities, fishers, scientists, conservationists, and policymakers. The logo's presence underscored The Rufford Foundation's role in making the project possible, reinforcing its commitment to marine conservation and community engagement in West and Central Africa.

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

Dr. Aristide Takoukam Kamla

Aristide is the President and Founder of AMMCO. In this project, he served as supervisor, insuring that the activities meet the global vision of the organisation, making the aquatic environment of Africa a threat free home for habitat while taking into consideration the interest of local people

Cedrick Fogwan Nguedia

Cedrick is the programme manager at AMMCO. He holds a Master degree in Oceanography and a Master degree in Natural Resources Management. In this project, he was in charge of coordinating all the activities, including the citizen science, diving and communication.

Karel Cyndi Ngnah

Cyndi holds a Master in Fisheries and Aquatic Sciences from the University of Douala in Cameroon. She joined AMMCO in 2020 as intern, then volunteer in charge of outreach. Currently she is the northern coast programme coordinator. In this project, Cyndi was in charge of community and school outreach.

Guy Mengoue

Guy holds a Master in Fisheries and Aquatic Sciences from the University of Douala in Cameroon. In this project, he was in charge of nesting beach monitoring and insuring effective collaboration with fishermen

Prince Kuko

Prince is a fisherman from Batoke community. In this project, he assisted us by facilitation the connexion with other fishermen. He was also involved in diving activities serving as local guide.

10. Any other comments?

This project has shown that community involvement is key to successful marine conservation. By empowering fishermen like Prince, once a poacher, now a conservation leader and diver, and engaging children through schools and holiday clubs, we've built a foundation for long-term behavior change.

The combination of citizen science, traditional knowledge, and modern technology (GoPros, underwater drones) proved highly effective for mapping habitats and documenting marine wildlife. This approach could serve as a model for other coastal regions facing similar challenges.

Finally, strengthening partnerships, from local chiefs to regional networks like VOCAL, and CAMNET remains crucial. Continued collaboration will help expand this work, ensuring marine turtles and other wildlife have a better chance of thriving alongside the communities that depend on the ocean.