

Final Evaluation Report

Your Details	
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Project Title	Assessment of bycatch impact on sea turtle hatchlings in nesting sites in Peru
Application ID	37761-1
Date of this Report	October 5th, 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
Collect baseline information on bycatch of sea turtles' hatchlings in northern Peru through the application of Rapid assessment (RA) surveys to artisanal fishers.				Based on the application of the RA to 78 artisanal fishers (Cancas = 53, Lobitos = 25), the team was able to register five bycatch events of 16 hatchlings of green turtle (<i>Chelonia mydas</i>) and olive ridley turtle (<i>Lepidochelys olivacea</i>) during the last 3 years. Notably, this marks the first written documentation of such events in Peru. Furthermore, the areas where these interactions occurred were marked on maps by the local fishers and were subsequently digitised.
Educational workshops for fishers in Cancas and Lobitos				A total of five workshops were conducted in each community. These workshops served as a platform for fishers to enhance their knowledge of sea turtle identification and biology, as well as to reinforce their skills in handling and releasing sea turtles. Additionally, towards the project's conclusion, both fishers and team members collaborated in generating local conservation recommendations for sea turtle hatchlings based on the insights gathered from the surveys and discussions during the workshops.

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

a). Generation of novel baseline information on bycatch of hatchlings of sea turtles in a potential emerging nesting area

Rapid assessments (RA) were applied to 78 fishers to collect data about bycatch of hatchlings of sea turtles in two communities in northern Peru: Cancas and Lobitos. These RA surveys included maps enabling fishers to indicate the points of interaction. Additionally, the team designed a photographic identification guide of sea turtles and hatchlings, so fishers could accurately report the species encountered during their activities.

RA survey contained 57 questions and it was divided into three sections: 1) General description of the fishers (e.g., years as a fisher, fishing activities description, fishing gear description, etc.), 2) Bycatch and nesting activity (e.g., species composition, interaction zones, seasons, etc.), 3) Perception (e.g., the importance of sea turtles to the community). RA surveys were voluntary and anonymous, and prior to each survey, fishers verbally consented to participate. It is worth mentioning that only one fisher per vessel was surveyed to prevent duplicate information.

This project reports for the first time the interaction between fisheries and sea turtle hatchlings in Peru. Over the past 3 years (2020-2023), a total of 16 accidentally caught hatchlings were reported in five separate events by five different artisanal fishers. It is worth mentioning that all the reports belong to individuals caught within a single set of the overall sets made by fishers during a fishing trip.

Four out of these five bycatch events were reported by fishers from Cancas, where 53 people were surveyed. Therefore, the estimated hatchling bycatch event frequency in that community is 0.08 individuals per vessel in the last 3 years, which means an annual event frequency of 0.025 individuals per vessel.

Table 1. Hatchling bycatch events reported by five different fishers. Note: NI = non-identified.

Bycatch event	Locality	Species	Fishing gear	Total number of sets per fishing trip	Number of hatchlings caught in a set	Date
1	Cancas	<i>L. olivacea</i>	Surface nets	3-5	10	Feb-23
2	Cancas	<i>C. mydas</i>	Bottom set nets	1	1	Nov-22
3	Cancas	<i>C. mydas</i>	Surface nets	3-4	3	Feb-21
4	Cancas	NI	Surface nets	2	1	Sep-20
5	Lobitos	<i>C. mydas</i>	Bottom set nets	1	1	Feb-23

The interactions reported in Cancas were between hatchlings of green turtle (*C. mydas*) and olive ridley turtle (*L. olivacea*) and two fishing gears, surface nets and bottom set nets (Table 1). The surface nets were 3-inch monofilament nets for the capture of Paloma pompano (*Trachinotus paitensis*), Chiri (*Peprilus medius*), and flathead grey mullet (*Mugil cephalus*). The bottom set nets were 3.5-inch monofilament nets at a depth of 12 m for the capture of lobster. The areas where these interactions occurred according to the interviewed fishers from Cancas are shown in Figure 1.

For Lobitos, only one fisher reported bycatch of hatchlings out of a total of 25 fishers surveyed. Therefore, the estimated hatchling bycatch event frequency is 0.04 hatchlings per vessel in the last year (February 2023). In one set, one green turtle hatchling (*C. mydas*) was accidentally caught in a bottom set net. This fishing gear was 3.5-inch monofilament nets at a depth of 91 m for the capture of peje blanco (*Caulolatilus affinis*) and southern rock bass (*Paralabrax callaensis*).

It is worth emphasising that all five bycatch reports indicated the safe and unharmed release of the hatchlings.

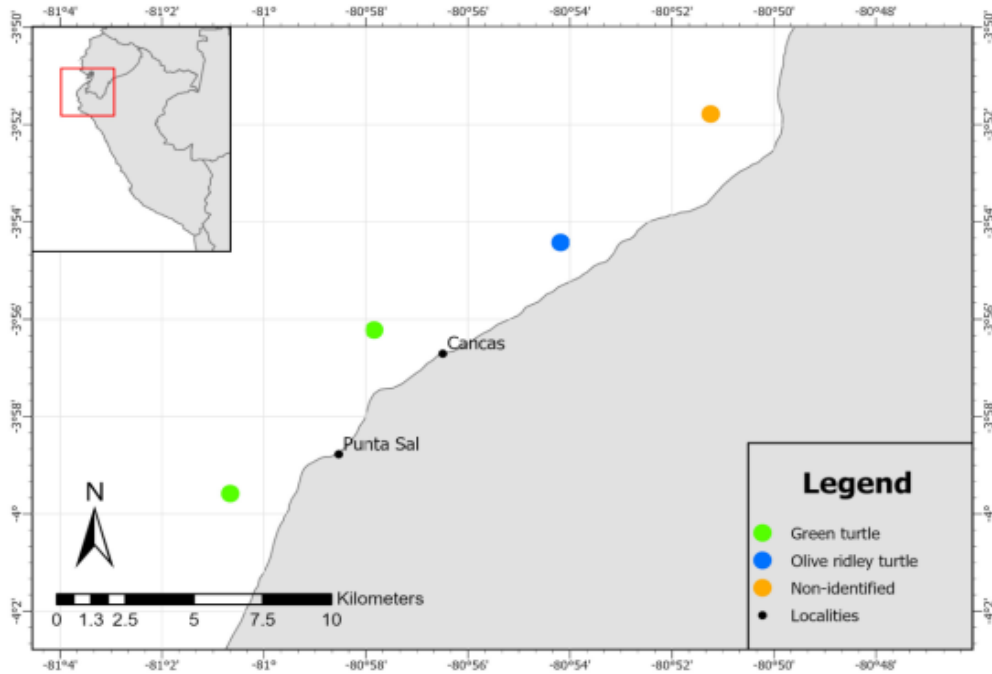


Figure 1. Bycatch points of sea turtle hatchlings reported by artisanal fishers from the port of Cancas.

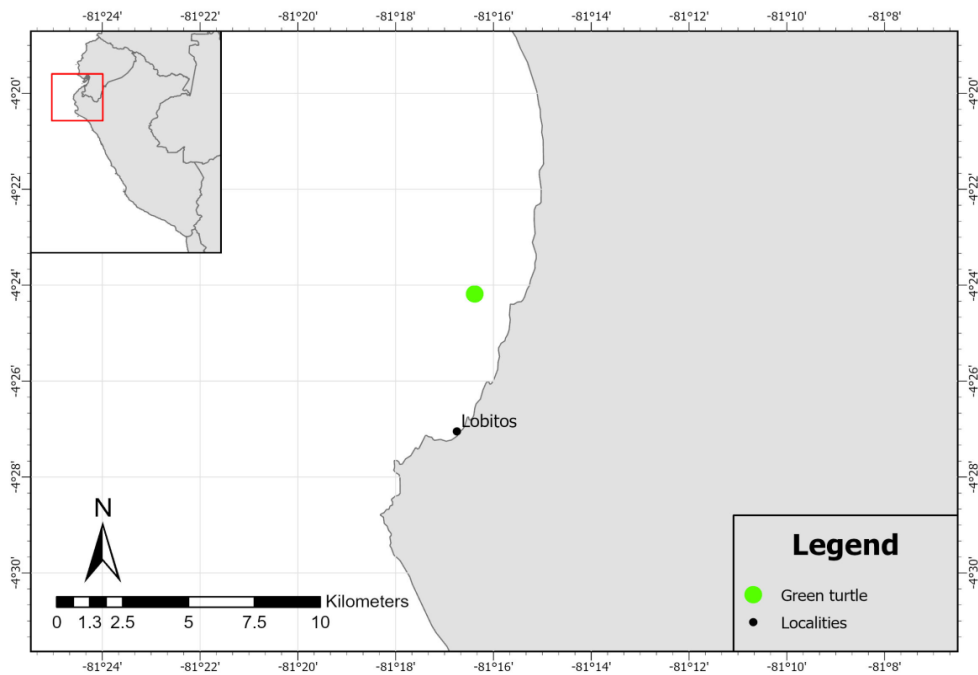


Figure 2. Bycatch point of a sea turtle hatchling reported by a fisher from the port of Lobitos.

b). Documentation of threats that sea turtle hatchlings face in northern Peru

The artisanal fishers who participated in the RA (Cancas = 53, Lobitos = 25) consistently highlighted three prevalent threats to nests and hatchlings (Figure 3). These threats included motorised vehicles, the presence of feral dogs and other pets, as well as pollution from plastics, petroleum, and vessel oil, which were reported in both study locations.

In Cancas, other threats were also identified, such as bycatch, eggs sale and/or consumption, harassment of nesting female turtles and hatchlings, and hatchling retention for sale or as a pet (less than 5% of the answers). One interviewee indicated that a hatchling could cost 50 nuevos soles, equivalent to almost 14 USD. Also, one of them mentioned that some hatchlings are retained in buckets filled with water to be shown to the tourists visiting the area.

Ten of the fishers surveyed indicated that they either believed hatchlings faced no threats or were uncertain about potential threats (Figure 4).



Figure 3. Team member conducting the rapid assessment (RA) in Lobitos.

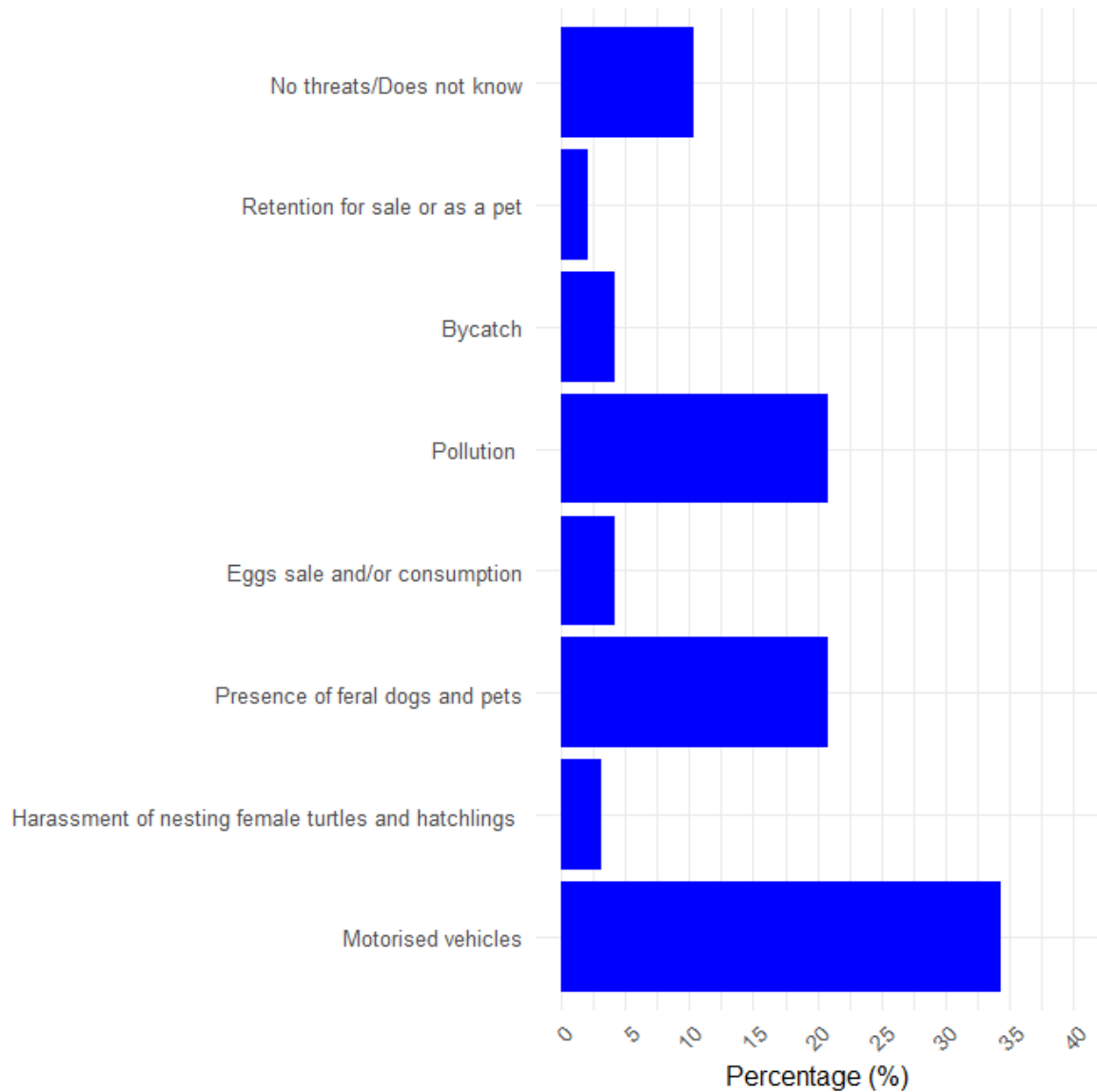


Figure 4. Threats to sea turtle hatchlings identified by fishers from Cancas. Note: Some participants mentioned more than one threat.

In Lobitos, other threats were also identified such as the consumption of eggs, harassment of nesting female turtles and hatchlings, housing and hotel buildings on the beach, and bycatch (less than 7%). It is worth noting that 100% (n=25) of participants identified at least one threat in the area.

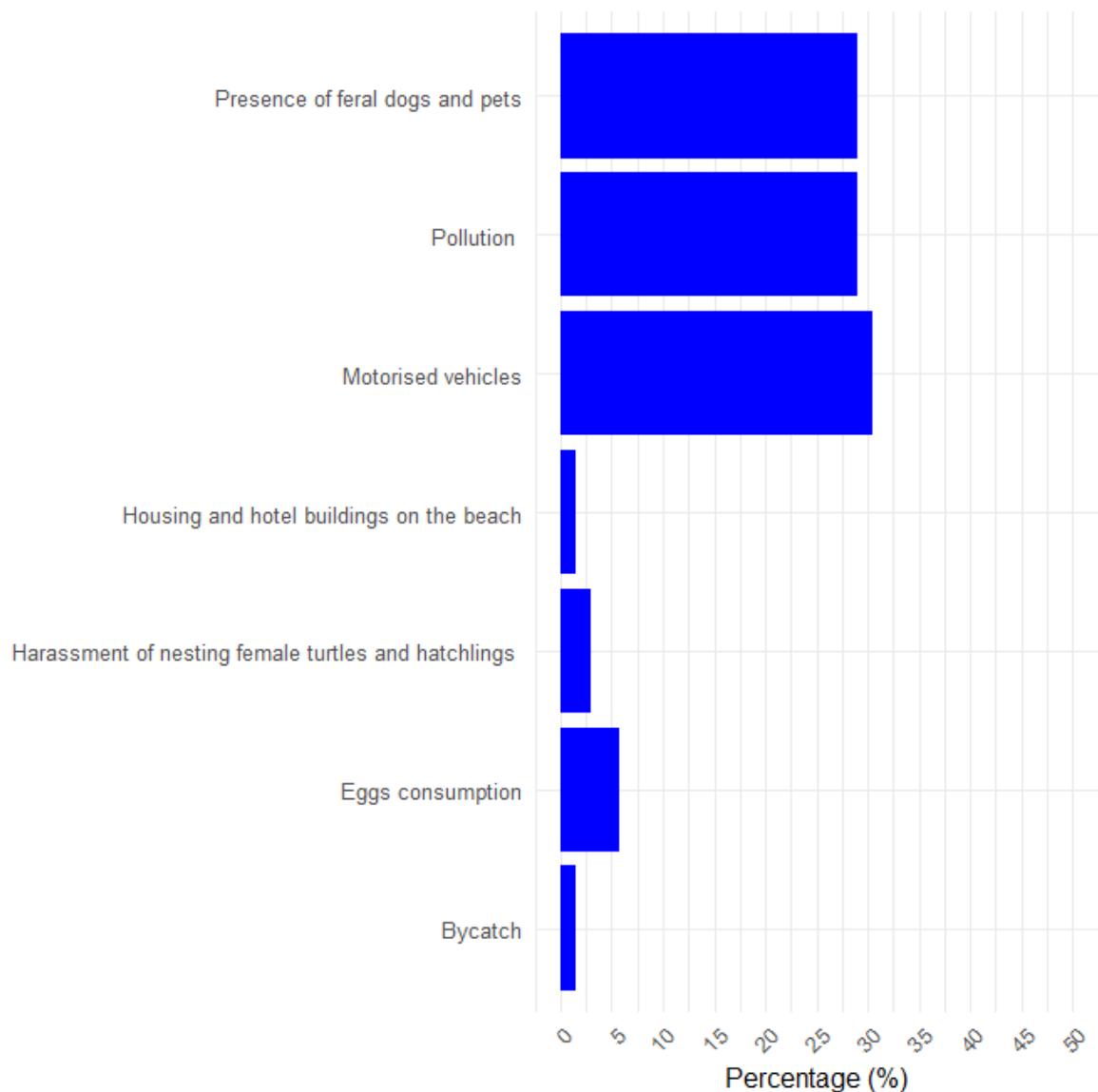


Figure 5. Threats to sea turtle hatchlings identified by fishers from Lobitos. Note: Some participants mentioned more than one threat.

c). Engagement of community members as active actors of change (citizen science)

Over the course of the project, we conducted a total of four workshops per community which encompassed both the presentation of the project and the presentation of its results. The specific topics covered in these workshops included:

1. Identification of sea turtles distributed in Peru.
2. Bycatch and data collection
3. Handling and release techniques of non-objective species

T-shirts, buffs, waterproof notebooks, identification guides, stickers, leaflets and other materials produced during this project was given to the participants of the

workshops and to the leaders of the fishers associations for distribution among others who did not have the chance to attend these workshops. It is important to mention that this material was also given to those fishers who were surveyed as a gesture of gratitude for their participation.

The workshops primarily targeted fishers, although invitations were extended to a broader audience. Some tour operators also participated. The number of attendees is shown in Table 1. The lower than anticipated involvement of the communities in the project was influenced by the ongoing socio-economic and political crises in Peru, along with the repercussions of severe weather events. In response to these challenges, our team developed innovative strategies, including leveraging social media platforms to disseminate workshop information through videos, digital infographics, and other digital means.

Table 2. Number of attendees to workshops per community, including the count of female (w) and male (m) participants.

Community	1st Workshop	2nd Workshop	3rd Workshop	4th Workshop	5th Workshop
Cancas	8w+ 1m = 9	8w+ 1m = 9	3m = 3	1m = 1	2w + 4m = 6
Lobitos	4w + 4m = 8	4w + 4m = 8	3w + 3m = 9	27m = 27	2w + 6m = 8

It is important to note that even though the workshop attendance was not always high, the genuine interest and commitment of those who did participate, coupled with the dedicated efforts of our team, were key to making these productive and successful events. For example, in Lobitos, a remarkable surge in engagement and active involvement was observed among local stakeholders, including the local community, the president of the fisher association, local artisanal fishers, and the local government.

During the initial project presentation workshop, the local community identified motorised vehicles and the presence of unleashed dogs as the primary threats to nesting beaches (Figure 6). In response to this feedback and as part of their proposed initiative, collaborative efforts were undertaken with these stakeholders to design and install two wooden signs on beaches frequented by sea turtles for nesting. We believe that this represents a tangible step towards the active conservation of sea turtles from communities that directly interact with them. It is worth noting that the beaches of Lobitos are frequently visited by national and foreign tourists because of their large waves - it is one of the main surfing destinations in Peru. In 2018, the Municipality established two municipal ordinances prohibiting the use of motorised vehicles (N.º 02-04-2018-MDL). Despite these regulations, the survey results and the testimonies of fishers during the workshops revealed a lack of awareness of this rule among residents and tourists who visit these coastal areas.



Figure 6. Project presentation in Lobitos.



Figure 7. Wooden sign installed on Piscinas beach, Lobitos to promote protection of nesting sea turtles and hatchlings.



Figure 8. Wooden sign installed at the boatyard, close to the port of Lobitos.



Figure 9. Fisher showing correct techniques to handle and release a juvenile/adult sea turtle.

In both communities, fishers enhanced their skills in safe handling and release techniques for sea turtles during the workshops (Figure 9), including the application of first aid techniques and how to distinguish between a dead turtle from a moribund one. They showed a strong commitment to protecting sea turtles by highlighting their importance in marine ecosystems and the socio-economic benefits they offer for their communities (e.g., tourism). Also, it is important to mention that the insights provided by fishers through the rapid assessments and during workshops regarding the threats to sea turtle hatchlings in northern Peru were compiled into a printed Sea Turtle Hatchlings Identification Guide (Figure 10). This guide was distributed among members of the respective fishing associations. The gathered information was also used collaboratively to formulate local recommendations aimed at protecting these species.

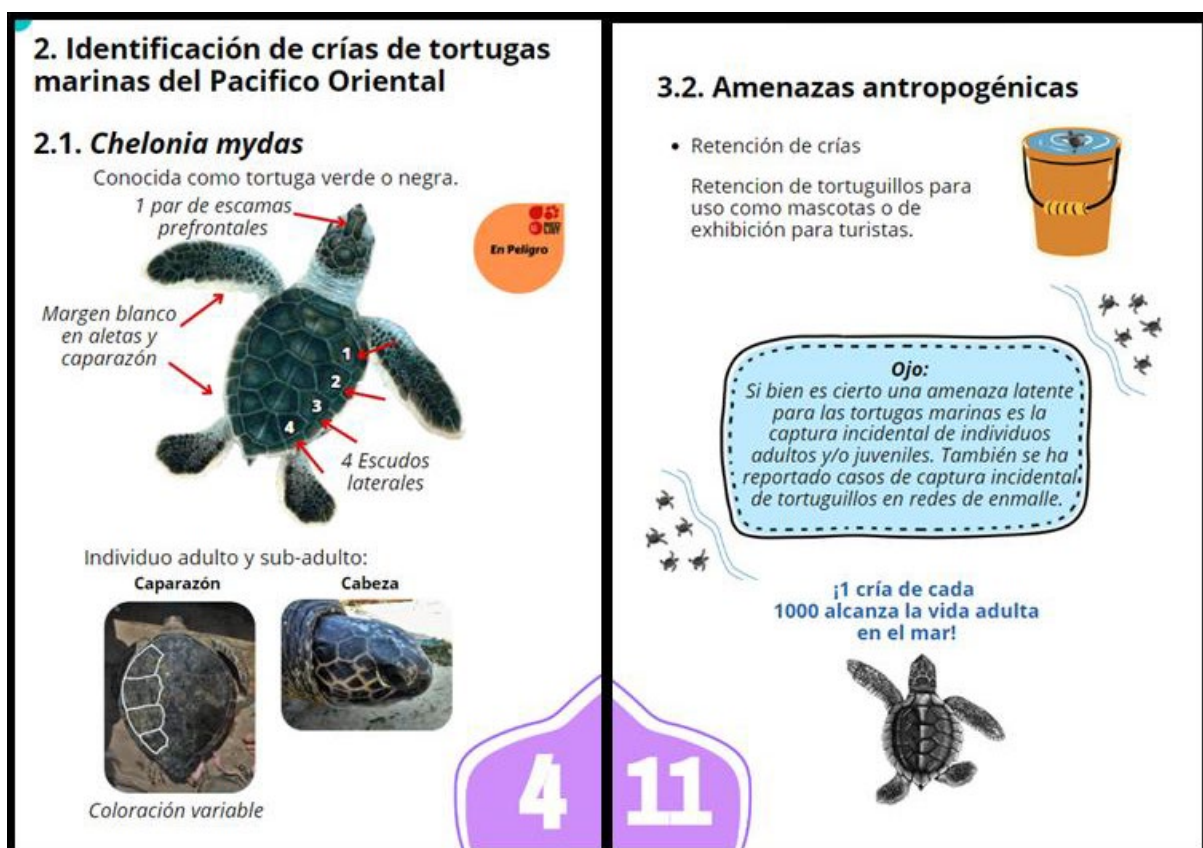


Figure 10. Sea Turtle Hatchlings Identification Guide.

Furthermore, during the development of the project, fishers started to voluntarily report nests in their communities. Fishers from Cancas reported some nests along the coast of the Canoas de Punta Sal District in the region of Tumbes. Meanwhile, fishers from Lobitos (region of Piura) reported nesting activity mainly on their beaches. Figures 11 and 12 provide a rough approximation of the nest locations based on the fisher's references.

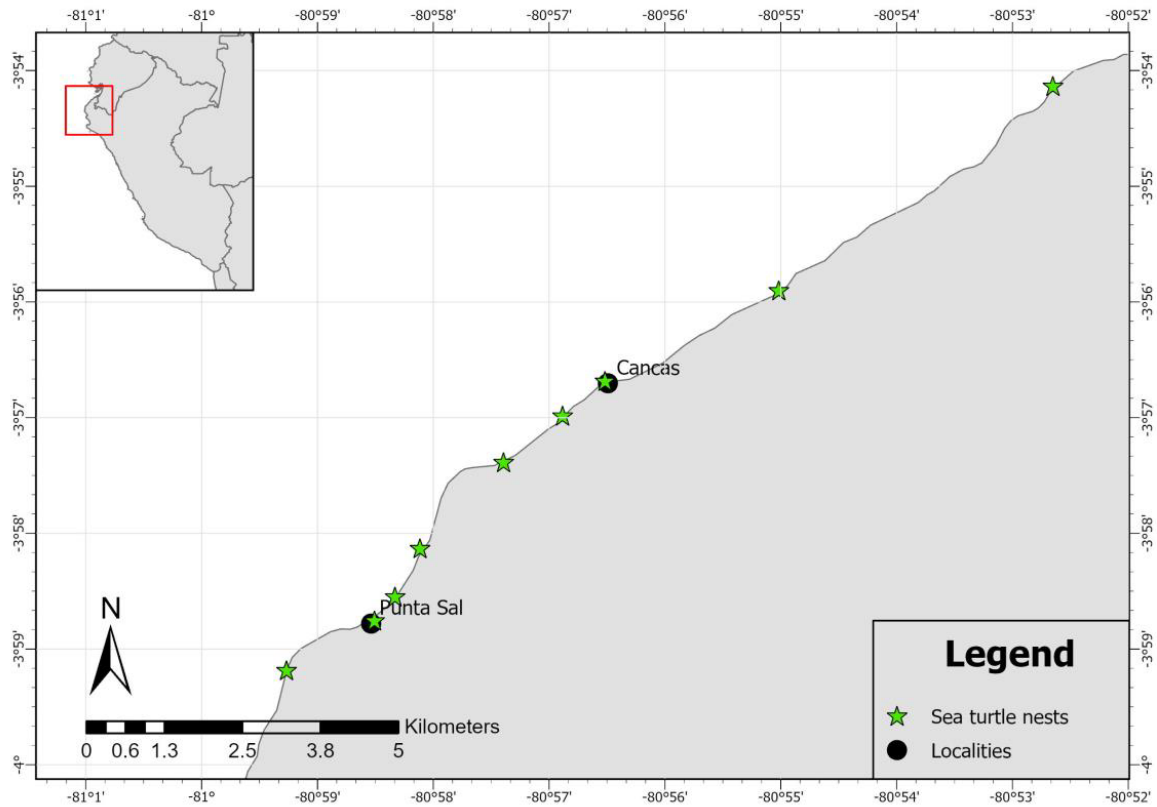


Figure 11. Approximate locations of sea turtle nests reported by fishers from Cancas.

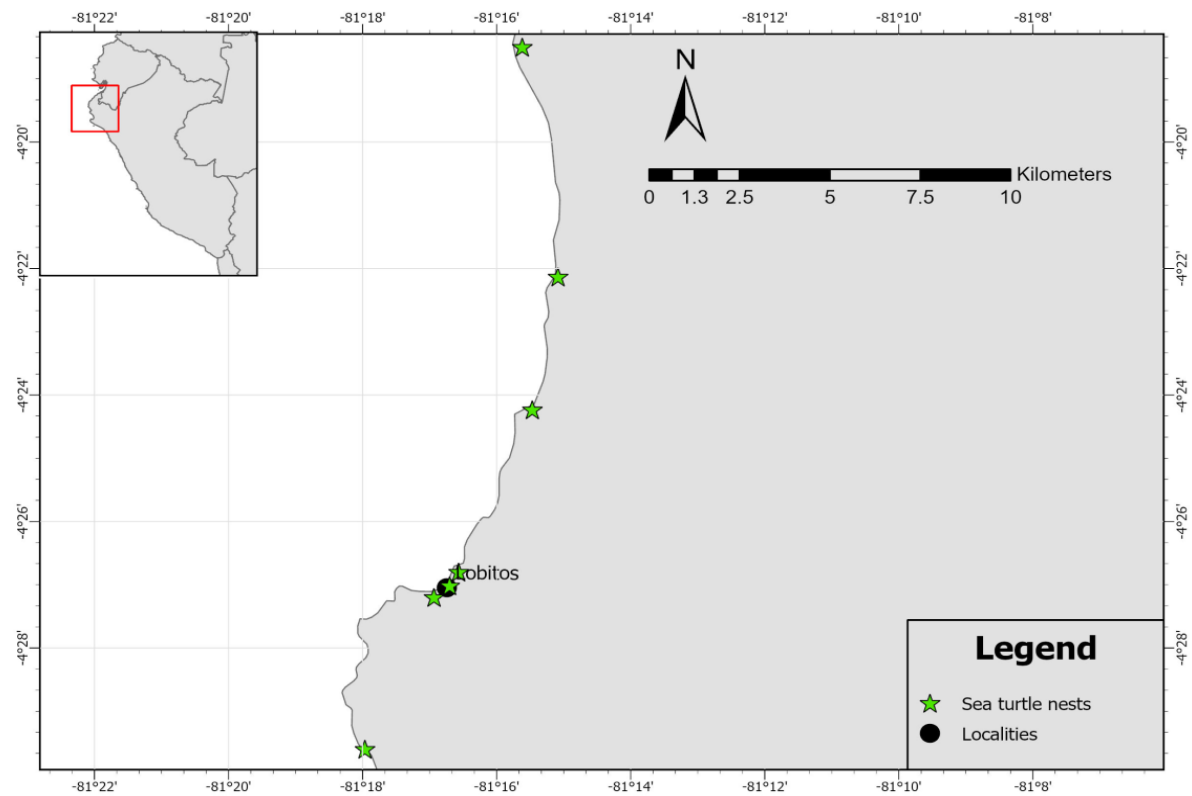


Figure 12. Approximate locations of sea turtle nests reported by fishers from Lobitos.

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

Social and Political Crisis: The ongoing political instability and social discontent in Peru led to protests, which resulted in strikes and highway closures. This made it difficult for team members to travel to the targeted communities at the beginning of the project (December 2022 - February 2023) where mobilisations and protests turned violent. Therefore, activities had to be rescheduled.

Climate-Related Challenges (Cyclone Yaku and ENSO): The project faced additional difficulties due to climate-related issues, such as the Cyclone Yaku and El Niño–Southern Oscillation (ENSO), which affected public health, transportation routes, and infrastructure in the target communities.

The Cyclone Yaku and El Niño–Southern Oscillation (ENSO) caused an increase in temperatures, heavy rains, and flooding, which led to the spread of diseases such as dengue, with a high number of cases in northern Peru (study area). The team recognised the importance of safety for both them and local participants. Consequently, they rescheduled their trips to avoid exposure to dangerous weather and public health conditions following weather forecasts, reports from the Health Ministry, and recommendations of the community members. The project members maintained open and regular communication with the leaders of the local fishing communities. As a result, this constant dialogue allowed the team to stay updated about the evolving local conditions, which in turn helped them adjust project timelines and expectations as needed.

Interaction with local people and fishermen: While ProDelphinus and their team had established relationships in Cancas and Lobitos over the past 3 years, the socio-political crisis and natural disasters hindered their efforts to engage the local community effectively. Despite making extensive efforts to invite the local fishers to participate in workshops and discussions, the attendance remained low due to the pressing concerns of the community such as securing their basic needs and livelihoods. The team demonstrated empathy by acknowledging these challenges and priorities, and they adjusted their activities while providing support to the affected communities. Despite the limited audience, the project team maintained constant communication with the local fishers. This allowed them to stay informed about the local situation and address their questions or concerns.

To overcome these challenges, the team implemented a social media strategy to reach the fishers. They created informative videos for each workshop topic and shared them with their established contacts, who, in turn, posted these videos on their social media platforms or shared them with others. As a result of these efforts, the final workshop, where the project results were presented, attracted a larger and more diverse audience compared to the previous ones. Also, fishers started to report turtle nests, and bycatch of adult/juvenile sea turtles through Whatsapp.

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

During the project, the team developed more relations with local actors in the communities.

Through the workshops, local fishers and tourism operators gained a deeper understanding of sea turtles, their identification, and the threats they face. In both cases, this knowledge equips them to make better decisions regarding their interactions with sea turtles. It is important to note that sea turtles are classified as Endangered, as stipulated by Supreme Decree N° 004-2014-MINAGRI and are further protected by Ministerial Resolution N° 103-95-PE. Any activities that jeopardise their protection, such as hunting, capturing, collecting, extracting, or possessing sea turtles, are subject to fines or imprisonment. They also can continue to access this knowledge because all the materials created during this project were shared with the participants of workshops, surveys, and other activities.

At the same time, fishers from Lobitos became active stakeholders in the conservation of sea turtles. They actively contributed by proposing initiatives aimed at safeguarding nesting turtles and hatchlings. This proposal prompted the project team to organise new activities and coordinate them with the local municipality. One of these activities was the implementation of a campaign to place wooden signs on the beaches discouraging the use of motorised vehicles.

5. Are there any plans to continue this work?

Yes, we continue working in these communities. Communication with fishers and local people are ongoing. Communication by social media (WhatsApp, Facebook) persists since some fishers report their bycatch interactions by sending pictures or text messages with the information of the datasheets shared with them in one of the workshops.

Furthermore, we are looking to extend our efforts by applying this rapid assessment method to other communities in the northern area of Peru, including locations such as Los Órganos. This coastal community, situated between Lobitos and Cancas, has reported high nesting activity this year and it is a highly touristic area, not only because of its beautiful beaches but because of whale watching and swimming with sea turtles.

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

Currently, preliminary results have been presented to the local communities of Lobitos and Cancas. This information will be shared with the municipalities of each locality so that they can continue or start new initiatives to mitigate threats to sea turtles (hatchlings, juveniles, and adults). Additionally, a guide that summarises information on sea turtle hatchlings, the threats they face, and recommendations for their protection in Peru has been prepared and was delivered to the leaders of the fisher associations and attendees of the workshops in both localities.

We are also planning to submit the results of the project to government entities such as the National Forestry and Wildlife Service (Servicio Nacional Forestal y de Fauna Silvestre, SERFOR) which leads the National Plan for Conservation of Sea Turtles in Peru, period 2019-2029 (PAN-Tortugas) and the Peruvian Sea Institute (Instituto del Mar del Peru, IMARPE).

The team expects to submit a scientific paper on this project to an indexed peer-reviewed journal.

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

We consider that the next steps could involve the inclusion of this new identified threat in the National Plan for Conservation of Sea Turtles in Peru, period 2019-2029 (PAN-Tortugas), so a long-term assessment of bycatch of sea turtle hatchlings and other threats can be conducted within a wider geographical scope since the reports of nests in northern Peru are increasing. This assessment should include cooperation not only with government entities but also between non-profit organisations that operate in the same region assessing the nesting activity of olive ridley turtles and green turtles.

While cooperation among these organisations may currently be limited, it represents a significant opportunity to magnify the collective impact on sea turtle conservation efforts in Peru.

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 used the logo on outreach material such as printed material (i.e., identification guides, stickers, datasheets to report bycatch), t-shirts and buffs, digital material which includes the presentations on PowerPoint for workshops, as well as the social media posts about the project.

The foundation did not receive any type of publicity during the course of the project, except by the posts on social media in the account of ProDelphinus under the hashtag #seaturtlehatchlingsRuffordPeru

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

The team initially comprised six members, although two did not participate in the project's execution due to personal and professional reasons. A bachelor student joined the project to help in the activities. Here is the list of the core team members and their respective roles in the project:

Jannyna Mires: General Project Coordinator. She was responsible for overseeing the project's overall execution, formulation of the rapid assessment (RA), and data analysis.

Cristel Cordero: Fieldwork Coordinator. Cristel was in charge of scheduling field trip dates and ensuring the approval of materials used in each workshop. She also led the application of the rapid assessment (RA) in each community. She organised the information collected through the rapid assessment (RA) and conducted the data analysis.

Nelly Peña: Conducted workshops and dissemination of information/results. Nelly played an important role in executing workshops and preparing the necessary materials. She also contributed to the application of the rapid assessment (RA). She coordinated posts on social media and communication with fishers and local people.

Adrián Custodio: Logistics Assistant. Adrian's responsibilities included booking venues for workshop development and arranging flights and accommodations. He also participated in the application of RA.

Vania Arrese: Field assistant.

10. Any other comments?

We want to thank The Rufford Foundation for believing in our abilities and allowing us to develop this project. We also want to acknowledge the remarkable initiative shown by the fishers from Cancas and Lobitos throughout the project.