



## Expedition: Discovering the Pearl Island's Endangered Treasure (Panama)

### Field Study: Conservation

**Summary:** Sea turtles are flagship species. By studying them and threats to their survival, we open doors to understanding the major threats facing our oceans. Of the seven subpopulations of the leatherback sea turtle, four are critically endangered, one is endangered, and two are data deficient. Marine conservation biologist Callie Veelenturf (Flag #29) led an expedition to the Pearl Islands Archipelago to study sea turtle nesting sites and their connection to the local human population. Collecting data on multiple sea turtle species, Callie worked with the Panamanian people to highlight the critical task of balancing nesting site preservation with understanding nutritional and medicinal uses for locals. Through research, records, education and community engagement, Callie facilitated sea turtle protection and documentation, encouraged local participation, and garnered the interest and support of crucial government groups.

### THE EXPEDITION

Unpublished reports identified up to 36 potential sea turtle nesting sites in the Pearl Islands Archipelago, but a majority of these sites and their associated sea turtle nesting populations have not been studied. From October 2019 to March 2020, we monitored seven sea turtle nesting beaches and opportunistically visited an additional 18 to present the first published study of sea turtle nesting ecology and evaluation of local threats in the Archipelago.

Fishermen and community surveys were conducted with 118 individuals in 4 ports to understand in-water presence of endangered turtle species and prevalence of fisheries interactions. Olive ridley turtle, green turtle, and potential hawksbill turtle nesting activity was documented on Isla del Rey and Isla Pedro Gonzalez in addition to the first published record of several rare development malformations in olive ridley nests in Panama. Hatching success was 76.83% for olive ridley turtles and 99.00% for green turtles, hindered by both predation and nest tidal inundation. Although



Callie Veelenturf with Flag #29, Pearls Islands, Panama



### Isla del Rey, Pearl Islands, Panama

leatherback nesting activity was not observed, interviews with local community members indicate that there are several (10) current or historical leatherback nesting sites on five islands throughout the archipelago.

Leatherback turtles in the East Pacific had their lowest nesting season ever recorded March 2019–October 2020, which could explain a lack of nesting activity observed in the Pearl Islands from 2019 to 2020. Through community and fishermen surveys and collaborations, we documented historical ecological knowledge, fisheries bycatch, and new foraging grounds for the two most endangered sea turtle species in the East Pacific: hawksbill and leatherback sea turtles. Illegal harvest of marine turtles and their eggs was observed with a 65% harvest rate of nests at one of the sites. Sea turtles were used for consumption, medicinal purposes and to create spurs for cock fighting. Consumption was of meat and eggs, and medicinal purposes included turtle oil for lung health and turtle blood for immune health.

Our findings will inform conservation management strategies currently being developed for sea turtle populations nesting in the Pearl Islands Archipelago Special Management Zone. Additionally, we used the compelling facts, imagery and stories from the field to make a case for a new Rights for Nature legislation that, after two years of debate in the National Assembly, Panama's President Laurentino Cortizo [signed into national law](#) .

## WHO

Callie Veelenturf

## WHAT

A five-month field research expedition to study local sea turtle populations.

## WHEN

October 2019 - March 2020

## WHERE

Pearl Islands Archipelago, Panama

## WHY

To study new sea turtle nesting sites, human uses of turtles, and fisheries bycatch.



Callie Veelenturf, Pearl Islands (Credit: Michael Ryan Clark)

## EXPEDITION GOALS

- Discover, quantify and document the presence of sea turtle nesting in previously unsurveyed nesting grounds in the East Pacific to aid in enhanced population estimation.
- Understand and document the history of sea turtle nesting, fisheries bycatch and human value, and use of sea turtles in the Pearl Islands through fishermen and community surveys.
- Discover previously undocumented foraging grounds for multiple sea turtle species throughout the Archipelago.
- Determine major threats to sea turtles in the Pearl Islands Archipelago.
- Inform regulatory action and conservation management strategies for the Pearl Islands.
- Support two early career conservationists in gaining experiences leading impactful conservation research in a remote field setting.
- Inspire support for endangered species research and other early career conservationists to propose impactful conservation projects through science communication of project results and experiences to the public.



Callie Veelenturf with turtle, Pearl Islands (Credit: Michael Ryan Clark)

## CHALLENGES FACED AND LESSONS LEARNED

I learned that being entirely transparent about research objectives with local communities is key. It is important to personify a sponge and actively ensure that the community members know that the research team is there to learn. Being humble and vulnerable allows the team to have honest and open conversations about difficult topics. People trusted me, especially when I was alone. I felt honored to be welcomed and to have earned that trust. It was also a challenge to be working to protect the sea turtles nesting on the beaches while seeing firsthand the cause of their decline.

After arriving in Panama and having our first in-person meetings with local stakeholders, it was revealed that the area in which our study was planned is a red zone for drug trafficking, with an active presence of SENAN (equivalent to the US armed forces). The risk and danger associated with our work on Punta Coco, Isla del Rey, required additional planning with SENAN to arrange armed escorts for nighttime activities. We were able to overcome limitations associated with working in this area through collaborations with the local government and community members.

I developed a close relationship with SENAN, initially to increase the team's safety in the field. I first gave a presentation to the General Director and Division Directors to explain our project and request support. This expanded into giving presentations to groups of 30-50 SENAN cadets on our project, its importance, sea turtle presence in the Pearl Islands, data collection protocols, my observations of illegal activities and trade of sea turtle parts, and ways in which SENAN could collaborate through opportunistic data collection. The department directors from ARAP (Aquatic

Resources Authority of Panama) and MiAmbiente (Ministry of the Environment of Panama) attended so we could discuss law enforcement protocols and hypothetical scenarios relating to wildlife crime and illegal harvest. This collaboration revealed a gap in communication between the different government sectors in the execution of enforcement measures for existing environmental protection laws.

I learned to address conservation issues through different political lenses to appeal to diverse mindsets and exhibit a broad understanding of the complexity of managerial decision making. Shorter presentations that included audience engagement invoked a more emotional response.

This experience has confirmed the need, as a team leader, to conduct multiple face-to-face interviews and reference checks with prospective research assistants and the importance of a trustworthy team when conducting field research in remote and isolated environments. I learned that kindness can often be considered a weakness as a leader, but when you work to balance kindness with assertiveness and character, your strength is clear.

### EXPEDITION RESULTS

We completed the first study of sea turtles in the Pearl Islands and discovered new nesting habitat for olive ridley and green sea turtles and potential nesting habitat for hawksbill and leatherback turtles. Through community and fishermen surveys, we documented historical ecological knowledge, fisheries bycatch, and new foraging grounds for hawksbill and leatherback sea turtles. We reported the illegal use of sea turtles in the Pearl Islands Archipelago for the first time, which is important for understanding the community's impact on endangered marine turtles and its contribution to the illegal wildlife trade within Panama and globally. This project has inspired the Panamanian Ministry of the Environment to revise and approve the 2011 Pearl Islands management plan. We proposed and co-drafted a new Panamanian law recognizing the rights of nature, which was signed into national law in February 2022.

### ABOUT THE FLAG CARRIER

Callie Veelenturf is an early-career marine biologist and conservationist working to advance threatened species conservation. Her work has focused largely on sea turtles, one of the most endangered groups of animals globally, leveraging science to catalyze international policy efforts. She founded [The Leatherback Project](#), a nonprofit dedicated to the conservation of the leatherback sea turtle throughout its global range through research, education and advocacy initiatives aimed at mitigating fisheries bycatch, reducing plastic pollution and combating climate change. She founded an international nature advocacy campaign called Rights for Nature, which would provide a foundation for system change to directly address the way in which society interacts with nature.

#### EXPEDITION TEAM

Principal Investigator: Callie Veelenturf  
Research Assistant (University of Panama): Felipe Baker  
Videographer: Michael Ryan Clark

#### CONTACT INFORMATION

<https://www.leatherback-project.org>

