

# PROGRESS REPORT

1ST BOOSTER GRANT  
THE RUFFORD FOUNDATION

“SUBSIDIES AND MERCURY POLLUTION IN GREEN  
TURTLES (*CHELONIA MYDAS*) OF RAPA NUI: A ONE  
HEALTH APPROACH TO ENVIRONMENTAL AND ANIMAL  
HEALTH”

May 2026

In this report, we present the progress of the project entitled “*Subsidies and Mercury Pollution in Green Turtles (Chelonia mydas) of Rapa Nui: A One Health Approach to Environmental and Animal Health*”, funded by The Rufford Foundation through a 1st Booster Grant.

To date, two field campaigns have been conducted in Rapa Nui. Between 05 and 15 September 2025, an environmental education and awareness campaign was carried out, targeting local schools as well as public and private institutions. Subsequently, between March 6 and 16, 2026, a marine turtle monitoring campaign was conducted with the support and active participation of the local community.

Below, we present detailed information and supporting evidence of the activities associated with the expected outcomes:

Objective	Activity / Task	Status
1. Health assessment of the <i>C. mydas</i> foraging aggregation	Manage the Research Permits (SUBPESCA and Koro Nui o Te Vaikava, Rapa Nui) and the Ethics Committee Permit (PUCV).	COMPLETED
	Planning of Rapa Nui Fieldwork.	COMPLETED
	Perform a clinical examination on each monitored turtle, including signs of infection, lesions, or abnormalities.	COMPLETED
	Estimate the body condition index (BCI) of each monitored turtle based on straight carapace length notch to tip (SCLn-t) and body mass using the following formula: $BCI = [\text{body mass}/\text{SCLn-t}^3] * 10,000$ .	COMPLETED
	Analyze blood biomarkers related to immune, renal, and hepatic function in each monitored turtle in the laboratory, such as red and white blood cell counts, renal analytes, and liver enzymes.	COMPLETED
	Analyze blood mercury levels in each monitored turtle in the laboratory using thermal decomposition, amalgamation, and atomic absorption.	IN PROGRESS
2. Identification of local contamination sources	Perform environmental mercury monitoring, including measurements in the water column and sediments at three random sampling points within the turtle foraging area.	COMPLETED
	Perform biological mercury monitoring, including natural (most consumed algae)	COMPLETED

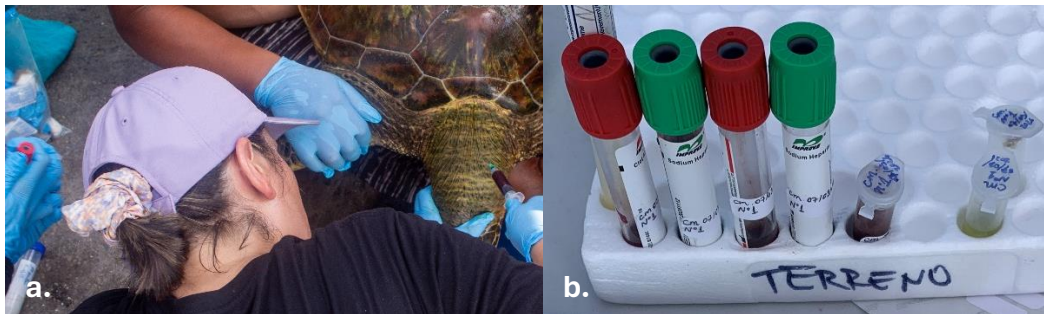
	and non-natural (fish provided by local fishermen) food sources of <i>C. mydas</i> at three random sampling points within the turtle foraging area.	
	Statistical analysis of collected data.	IN PROGRESS
3. Impact of mercury on <i>C. mydas</i> health	Compare the results of the clinical examination and BCI with the blood mercury levels to determine if there is a significant association between mercury levels and alterations in general health.	IN PROGRESS
	Evaluate whether alterations in biomarkers (immune, renal, and hepatic function) are related to detectable blood mercury levels.	IN PROGRESS
4. Dissemination of project advancements and results	Talk for local authorities and the Rapa Nui community.	IN PROGRESS
	Presentation of results to the PUCV community (Institute of Biology).	INCOMPLETE
	Presentation of results to the Regional Government of Valparaíso.	INCOMPLETE
	Preparation of a popular science article for the local Rapa Nui magazine (Moe Varua).	IN PROGRESS
	Preparation of manuscript for high-impact scientific journal (WoS Q1).	INCOMPLETE
5. Human Capital Development	Local training workshop for green turtle monitoring in Rapa Nui.	COMPLETED
	Preparation of a Bachelor's thesis in Biology (PUCV).	IN PROGRESS

## 1 Health assessment of the *C. mydas* foraging aggregation in Rapa Nui



**Figure 1.** Stages of the ecological and health monitoring process of green turtles in Rapa Nui, March 2026. a) Information roll-up banner of the monitoring program located at the study site; b) Manual capture performed by a specialized diver to transfer the specimen to the evaluation area; c) Recording of body measurements and clinical evaluation of the specimen on land; d) In-water verification of microchip presence using an electronic reader (this procedure allows the identification of previously marked individuals without the need to remove them from the water again).

## 2 Identification of local contamination sources for the *C. mydas* individuals in the Rapa Nui foraging aggregation



**Figure 2.** Blood sample collection and storage procedure in a green turtle specimen (March 2026). a) Sample collection from the dorsal cervical sinus of the specimen; b) Arrangement in field racks showing tubes with blood and skin samples intended for hematological, biochemical, genetic, and heavy metal analysis; all properly labeled to ensure the biological traceability of each monitored individual.

## 3 Impact of mercury on the health of the *C. mydas* foraging aggregation in Rapa Nui

## 4 Dissemination of project advancements and results



**Figure 3.** Dissemination of project advancements and results among local stakeholders. a) Technical presentation of milestones and preliminary findings of the monitoring program at the Katipare Center (September 2025); b) Results dissemination session and community dialogue at the Katipare Center, focused on knowledge transfer regarding green turtle health and the importance of their conservation (March 2026); c) Presentation of monitoring results at a fishermen's meeting (September 2025).

## 5 Human Capital Development



**Figure 4.** Human capital development and strengthening of local capacities. a) Technical instruction session for local dive center guides, focused on responsible sighting and safety for both divers and green turtle specimens (September 2025); b) **[Intentionally removed]** Environmental education activity with local school students, aimed at fostering scientific knowledge and promoting a sense of belonging (September 2025); c) Practical training on the use of green turtle monitoring equipment (March 2026).