Project Update: September 2021

First sampling campaign and other activities
In September, we started fieldwork along the Ajuruteua Peninsula, Bragança, Pará, Brazil, with the team properly vaccinated with 2 doses of the COVID-19 vaccine (Figure 1).

Activities to date:
- Identification of sampling areas.
- Field trips to collect water and sediment samples.
- Environmental Education Actions.

Water samples
At each sampling station, water samples were collected through horizontal drags carried out in the sub-surface layer of the water column (20 cm), using a conical-cylindrical net (300 µm mesh opening and 30 cm diameter mouth) equipped with a mechanical flowmeter (to calculate the volume of water sampled) (Figure 2). At each station, 3 drags were performed, each drag lasting approximately three minutes. For these samples, an aluminium boat equipped with an outboard motor was used, moving at a speed of 1.5 knots. Then, the collection cup from the net was carefully removed and its contents were transferred to a previously sterilized glass flask covered with aluminium foil (Figure 3) and stored at a temperature of 4 °C for further analysis at the Mangrove Ecology Laboratory (LAMA). At each sampling station, vertical profiles of physicochemical water parameters such as salinity (PSU), water temperature (°C), dissolved oxygen concentration (mg/L), pH, and turbidity (NTU) were performed with a probe multiparameter (Figure 4).

Figure 1. The team that will accompany all field trips in the Ajuruteua Peninsula, Bragança, Pará - Brazil. © Diego Carneiro.

Figure 2. Horizontal drags were performed in the sub-surface layer of the water column, using a conical-cylindrical network. © Emylle Paixão.

Figure 3. Water sample in glass flask covered with aluminium foil. © Dayene Mendes.

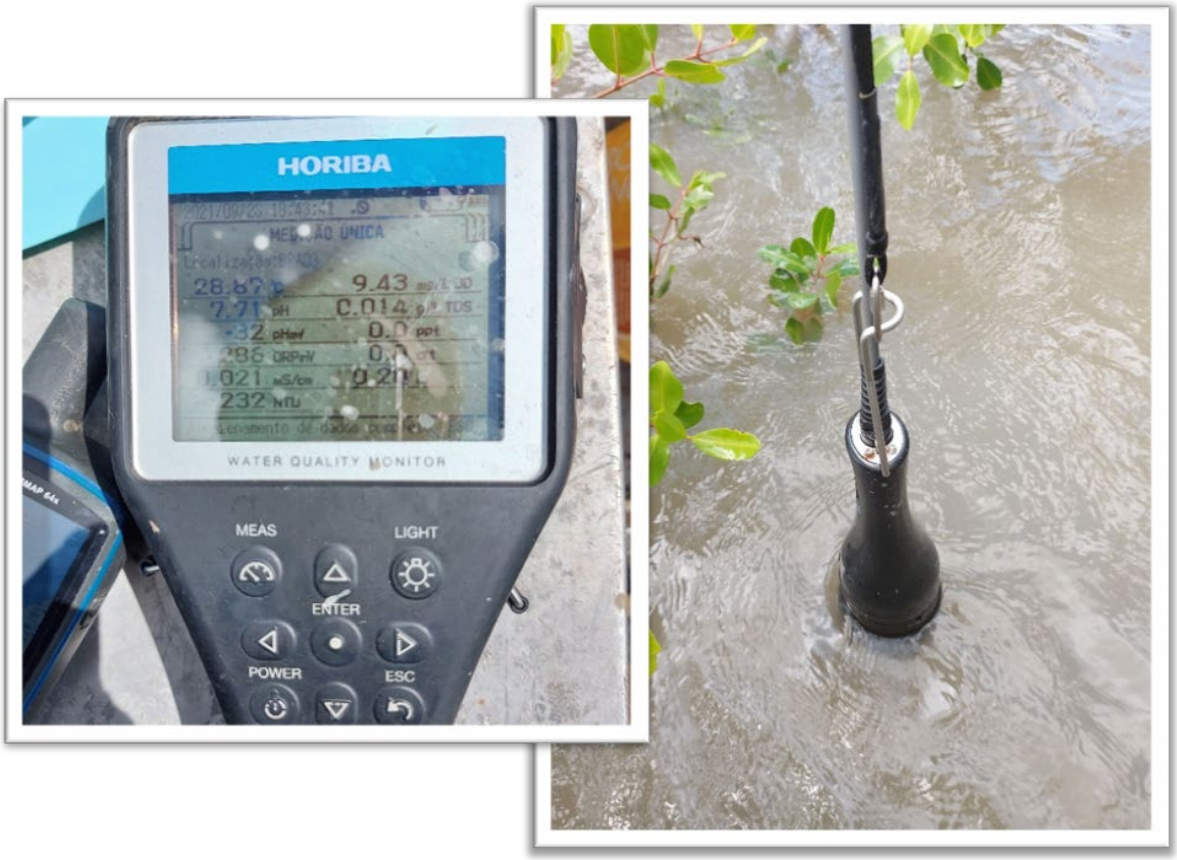

Figure 4. Vertical profiles of physicochemical water parameters using a multiparameter probe. © Dayene S Mendes.

Sediment samples

Samples of the sediment surface layer (from the bottom of the mangrove forest water bodies) were collected three times from the boat using a Van Veen claw at the same location (0.25 m2 sampling surface) (Figure 5). The collected sediment samples were grouped and mixed in a metal bucket (Figure 6) and then stored in aluminium containers. All collected samples were kept in containers prepared for storage and then transported to the Mangrove Ecology Laboratory (LAMA) and stored at a temperature of 4°C for further analysis.

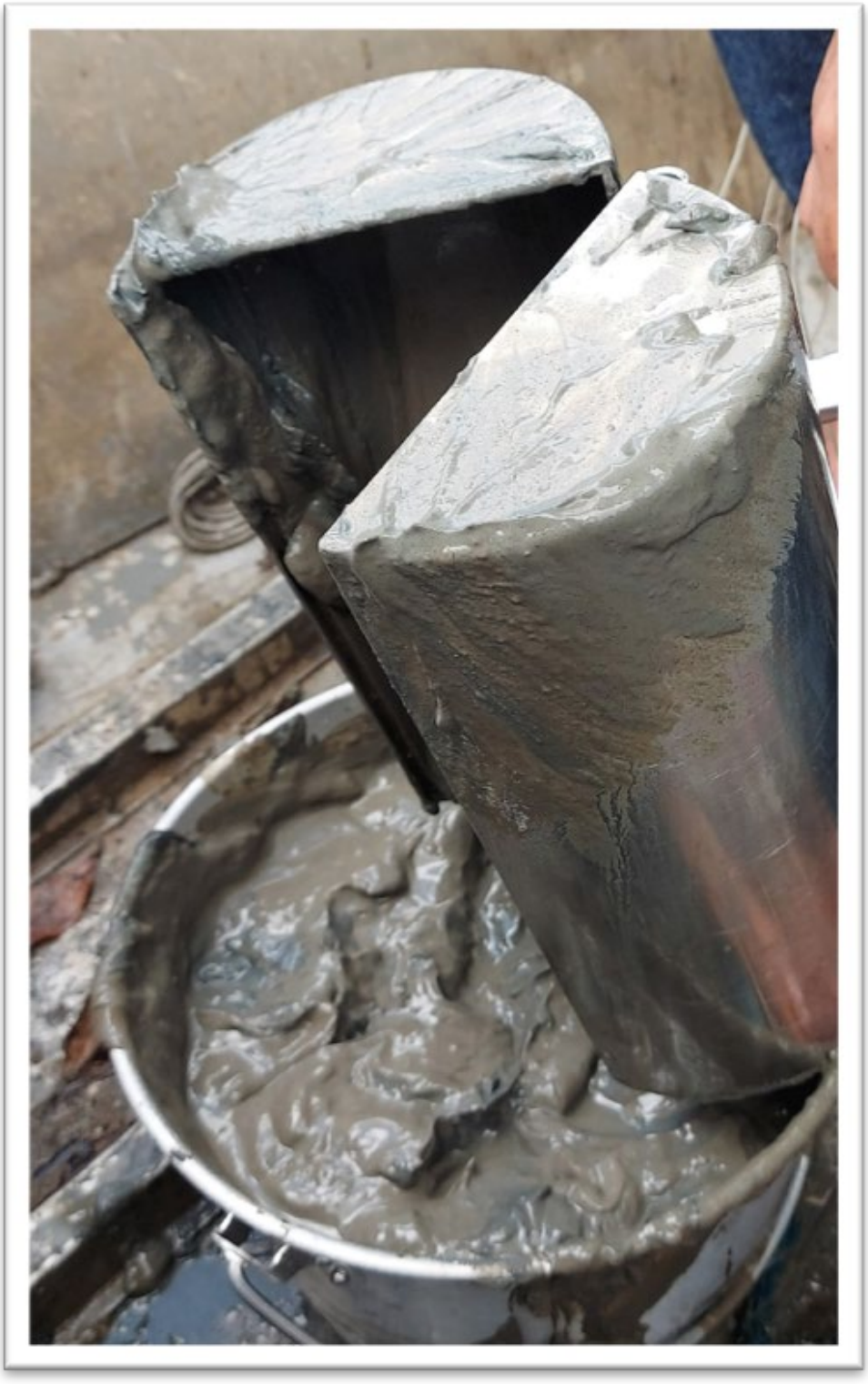

Figure 5. Van Veen claw for sediment collection at sampling stations. © Dayene S Mendes.

Figure 6. Sediment samples in an aluminium bucket. © Dayene S Mendes.

Other activities

The World Clean-up Day aims to sensitize and make the population aware of the impacts of solid waste in the ocean and encourage selective collection and recycling.

Concerned about the amount of waste found in the municipality of Bragança, Pará, Brazil, the Mangues da Amazônia Project once again organized a cleaning task force called the Mangues da Amazônia Cleanup Day (Figure 7) on September 18, 2021, with several partners, including the Rufford Foundation, through my participation in the organization of this event. This time, the joint effort was carried out on Ajuruteua beach (Figure 8The concentration took place at 7:00 am at Praça da Aldeia, and was attended by 55 participants. A total area of 195,035 m² was covered by the Mangues da Amazônia project team and partners removing waste in a joint effort.

In all, 577.90 kg of waste were recovered from the environment, including plastic, metal, rubber, and other materials (See the amount removed from each material in the table at the end of the text). In addition to the makers of the Mangues da Amazônia project, the action had the support and participation of the Mangrove Ecology Laboratory (LAMA), Bragança City Hall, ICMBio Bragança, Demutran, Instituto Inã, Rufford Foundation, Praia Limpa, Pérolas do Pedal, EcoSolux, UFPA, in addition to the partnership with the COOMARCA cooperative, the local organization responsible for recycling the waste removed from the Ajuruteua beach. A total of 55

people participated directly in the action, which at this time was restricted to partners due to the Covid-19 pandemic.

Waste		Volume (unit)	Weight (Kg)
Plastic	White	29	131,50
	Colourful	14	85,20
	packaging	7	65,50
Fishing material	Oil containers	2	12,20
	Rope	6	49,50
	Styrofoam	10	33,90
	Buoys	1	15,00
Glass		9	156,80
rubber		1	13,00
Metal		1	10,20
Cardboard		1	5,10
Total		81	577,90

Figure 7. Mangues da Amazônia Clean-up Day 2021, © Dayene S Mendes.

All collected waste was quantified, separated, and sent to the Cooperative Recyclable Material Collectors – COOMARCA (Figures 9 and 10), where waste is segregated and resold, generating socioeconomic benefits for the cooperative

members. Waste that is not recyclable and that is already in the process of decomposition is sent to the Bragança Landfill, where it receives an environmentally correct destination.

Figure 8. Waste found along Ajuruteua Beach, Bragança, Pará, Brazil. © Dayene S Mendes.

Figure 9. Waste separation. Fishing material. © San Marcelo.

Figure 10. Separated and packaged material for the final destination. © San Marcelo.