



AVEVAWORLD
PARIS

CALIBR8

CALBR8

Smart IOT: Coral Reef and Mangrove Monitoring

In Partnership with

ABS CBN
FOUNDATION

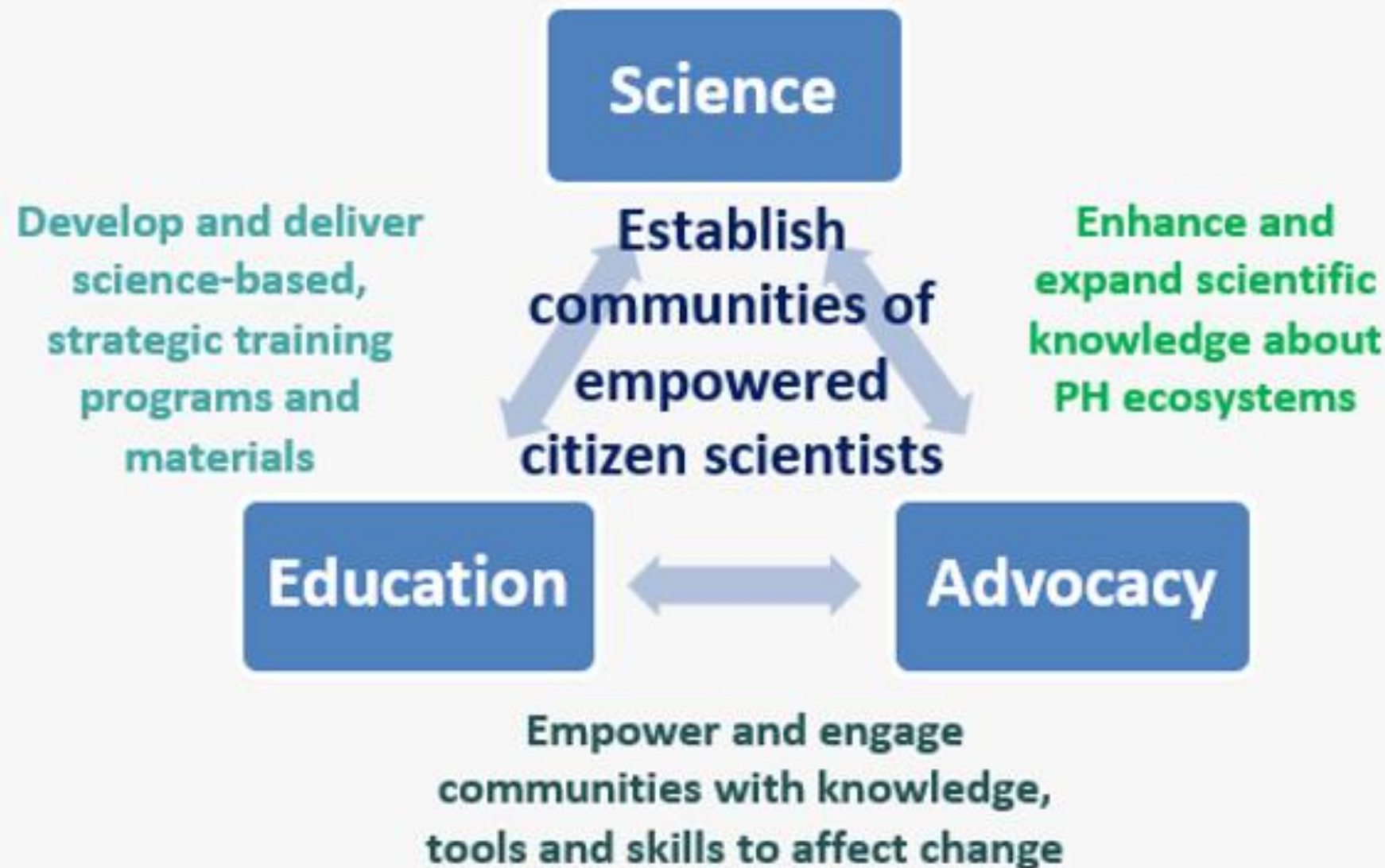
In the Service of the Filipino





AFI Vision

A Philippines where communities live harmoniously with the environment and citizens are highly involved and engaged in its protection and conservation.




Environment

To preserve and enhance the amazing Philippine biodiversity



Community

To uplift the quality of life of communities through prudent and sustainable utilization of natural resources



Individual

To make every Filipino a vigilant steward of the environment

Environmental Initiatives



Save La Mesa Watershed Project



INSPIRE: Protecting Verde Island Passage and Sibuyan Coral Reef Ecosystem



Citizen Science: Mangrove and Seagrass



Bantay Baterya, Langis, and Waste Electrical and Electronic Project

Verde Island Passage

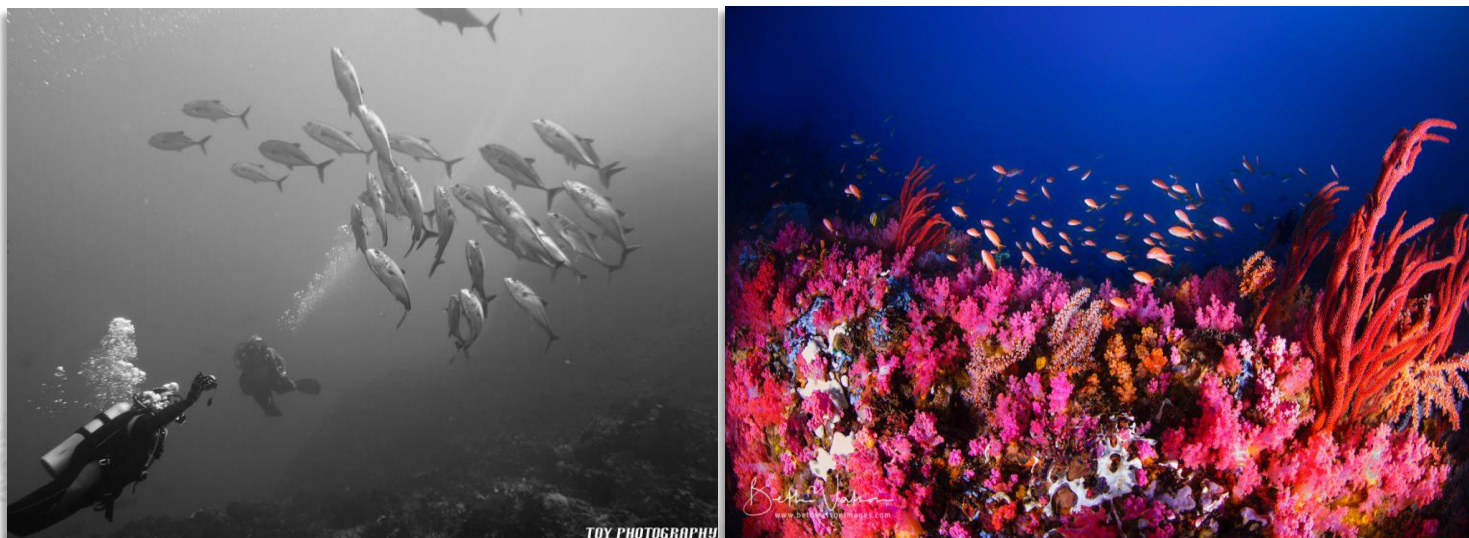
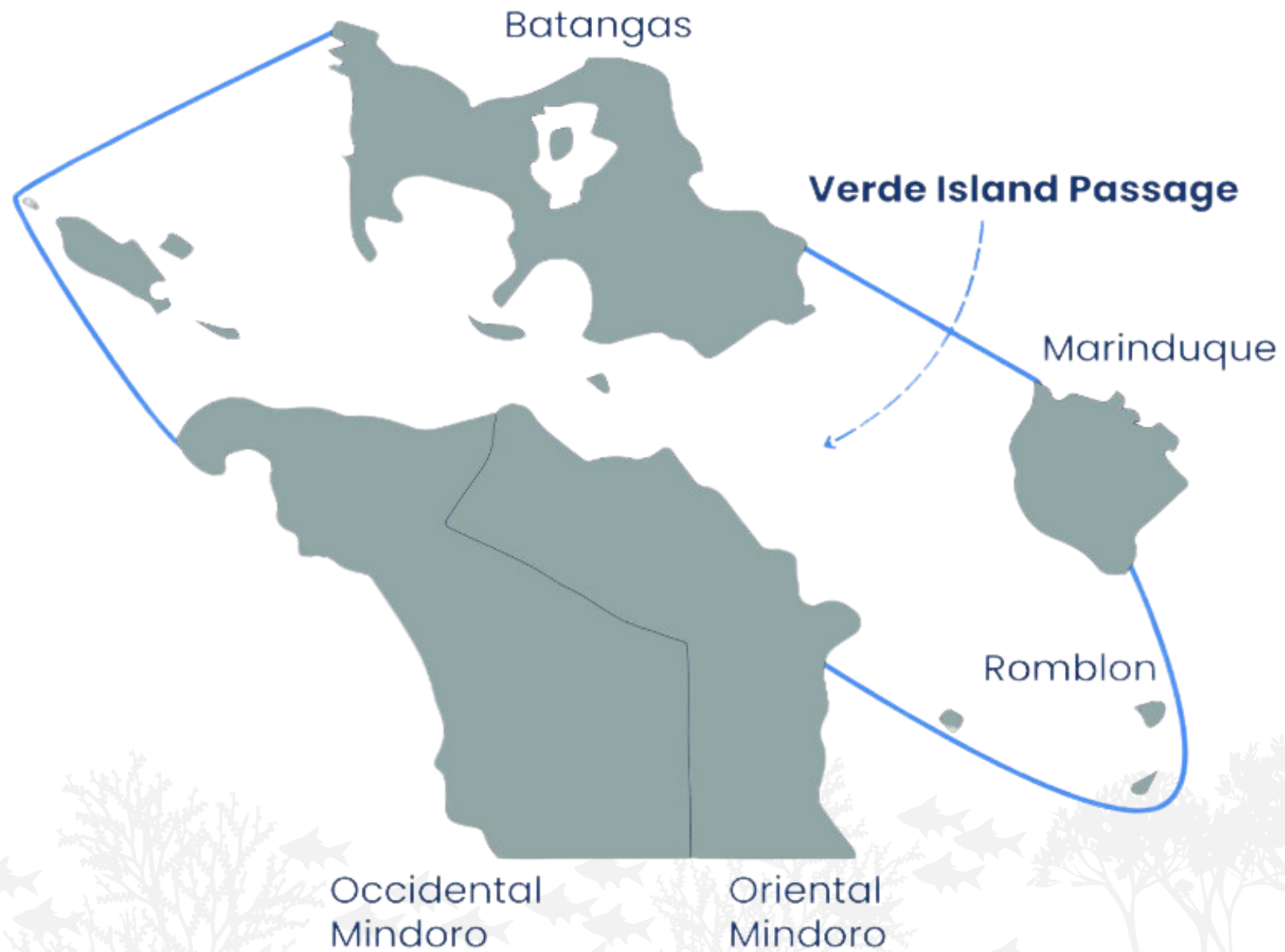
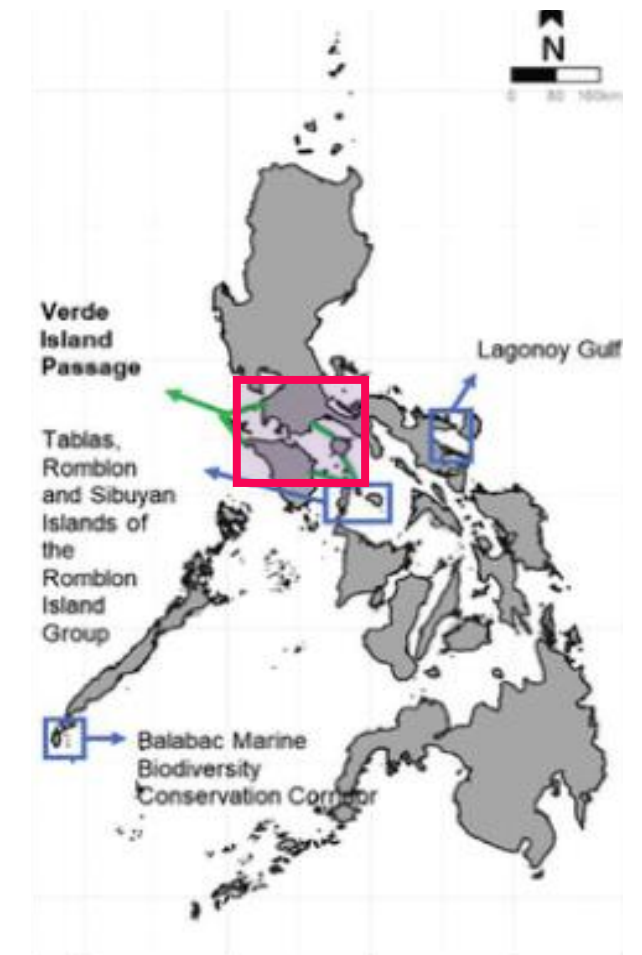




photo by: Maritime Fairtrade



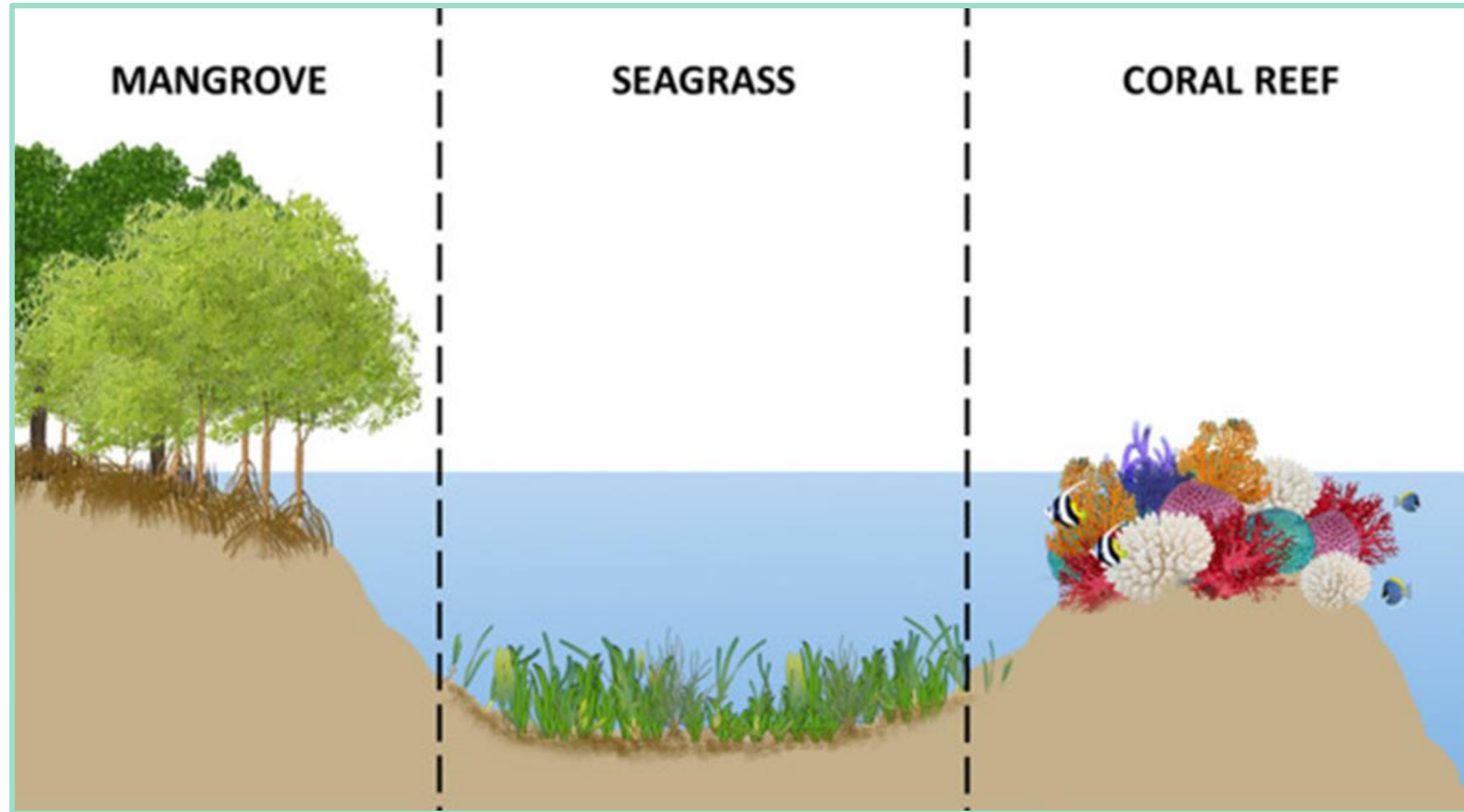
“Part of the coral triangle, the world’s center of marine biodiversity, the **Verde Island Passage** has the highest concentration of marine fish species per unit area.”

Carpenter et al, 2005



“Identified as a **‘Hope Spot’** critical to the ocean’s health due to the abundance and diversity of its marine species.”

<https://missionblue.org/hot-spots/>



Serves as **feeding, and nursery grounds and refuge** for fish and other organisms.



Provides **50%** of the animal protein in the Philippines.





Citizen Science for Communities and Ecosystems

Scientific research with amateur scientists, students and citizens using participatory monitoring, action research, and scientific discovery.

Stakeholders
and Partners

Strengthen
Advocacy

Growing Citizen Science

Integration
with
Programs

Scale
through
Platform



Citizen Science



Coral Reef



Seagrass

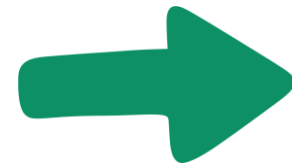


Mangroves

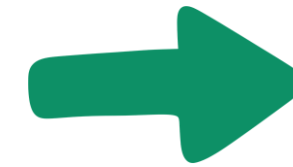


ALWAN Method for Coral Reefs

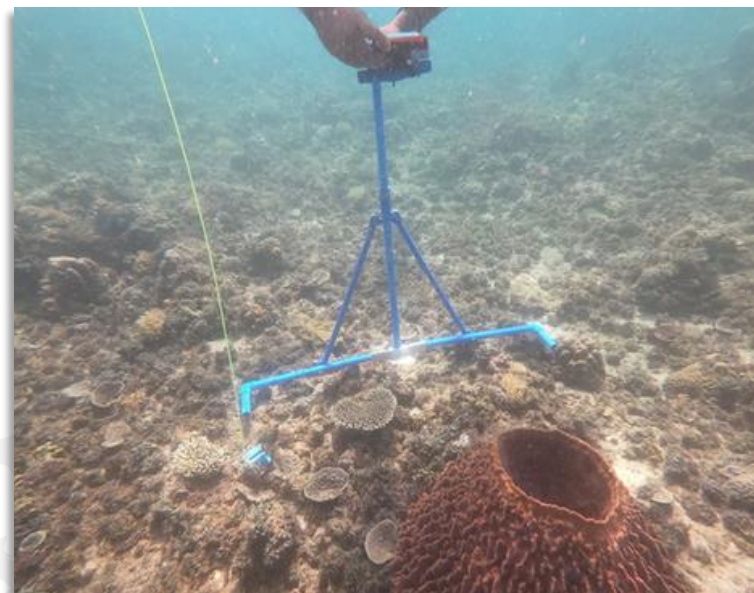
Train



Survey



Score



STATION NAME **STATION 1**

TEAM NAME **TEAM 1**

SCORECARD

BARANGAY, MUNICIPALITY & PROVINCE

COLOR LEGEND

REEF QUALITY

Hard Coral Cover (N or percent cover)

- CATEGORY A >44%
- CATEGORY B >33 - 44%
- CATEGORY C >22 - 44%
- CATEGORY D 0 - 22%

Butterflyfish Abundance (average number of individuals observed)

- CATEGORY A >80
- CATEGORY B 41 - 80
- CATEGORY C 21 - 40
- CATEGORY D 0 - 20

Butterflyfish Species Richness (average number of species observed)

- CATEGORY A >8
- CATEGORY B 5 - 8
- CATEGORY C 1 - 4
- CATEGORY D 0

THREATS

Crown-of-Thorns Starfish (average number of individuals observed)

- CATEGORY A 0 - 3
- CATEGORY B 4 - 6
- CATEGORY C 7 - 10
- CATEGORY D >10

LEVEL OF COMPLIANCE

Giant Clams (average number of individuals observed)

- CATEGORY A >8
- CATEGORY B 5 - 8
- CATEGORY C 3 - 4
- CATEGORY D 0 - 2

CURRENTS & WATER QUALITY

Feather Star Abundance (average number of Crinoid individuals observed)

- CATEGORY A >100
- CATEGORY B 50 - 100
- CATEGORY C 1 - 49
- CATEGORY D 0

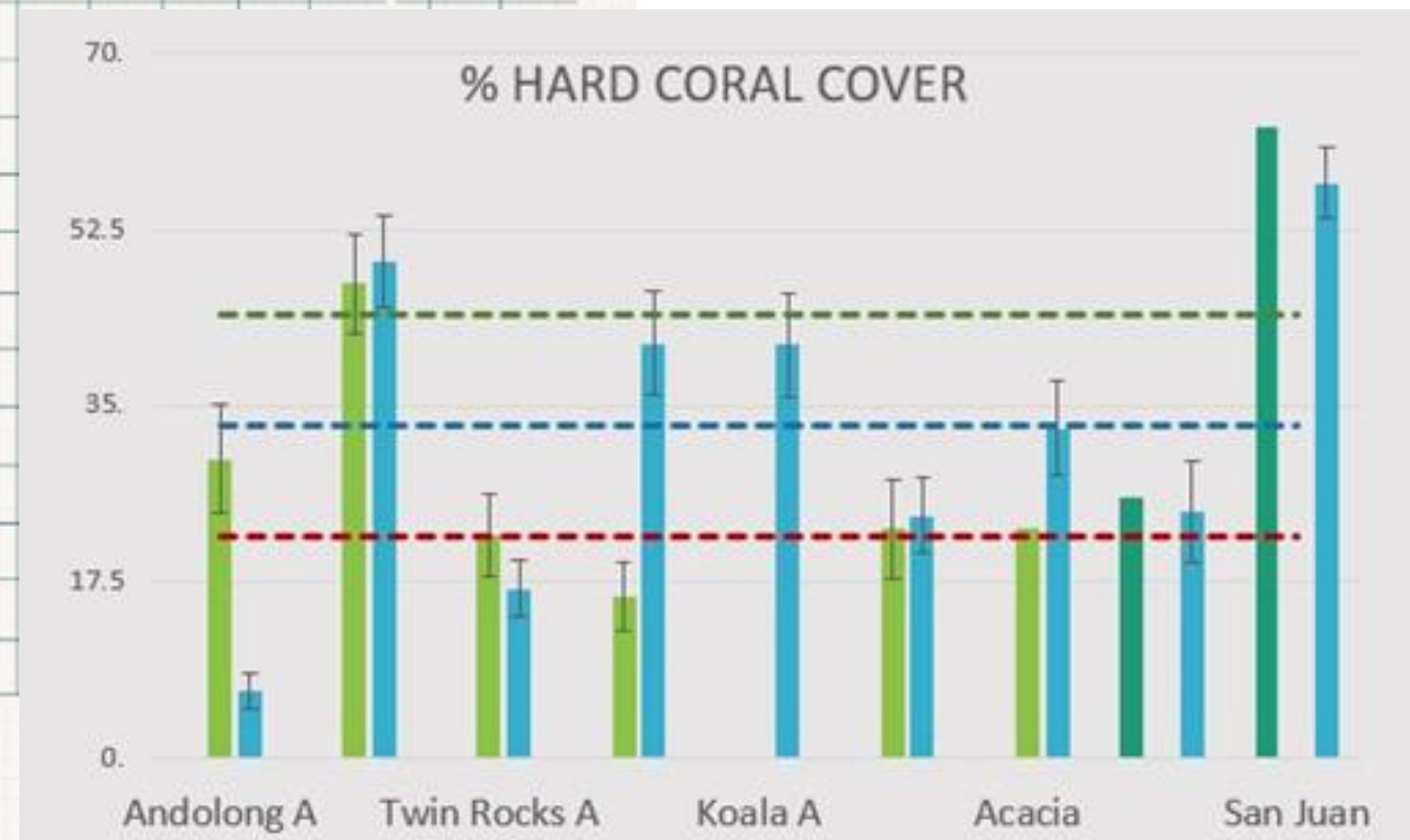
SUITABILITY FOR BABY CORALS

Linckia (Blue Starfish) Abundance (average number of Linckia individuals observed)

- CATEGORY A >20
- CATEGORY B 11 - 20
- CATEGORY C 6 - 10
- CATEGORY D 0 - 5

CRITERIA	STATE
YEAR	2021
MONTH	DEC
REEF QUALITY	
Hard Coral Cover	A
Butterflyfish Abundance	C
Butterflyfish Species Richness	B
THREATS	
Crown-of-Thorns Starfish	A
LEVEL OF COMPLIANCE	
Giant Clams	D
CURRENTS & WATER QUALITY	
Feather Star Abundance	C
SUITABILITY FOR BABY CORALS	
Linckia (Blue starfish) Abundance	C
SHINE NUMBER	

Result of the manual monitoring



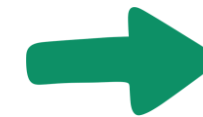
Mobile Phone Application for Mangrove and Seagrass



Workshop



Survey

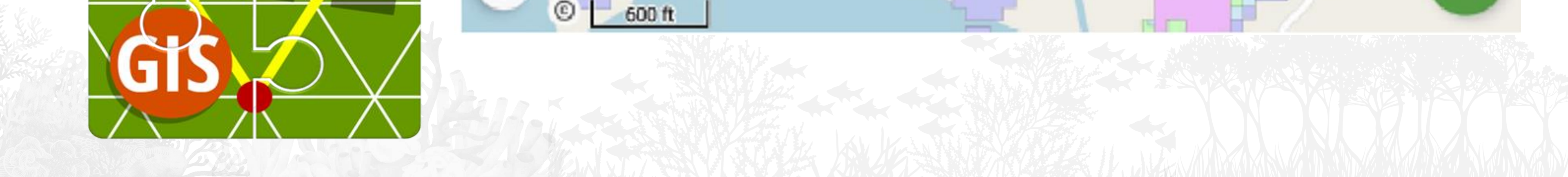
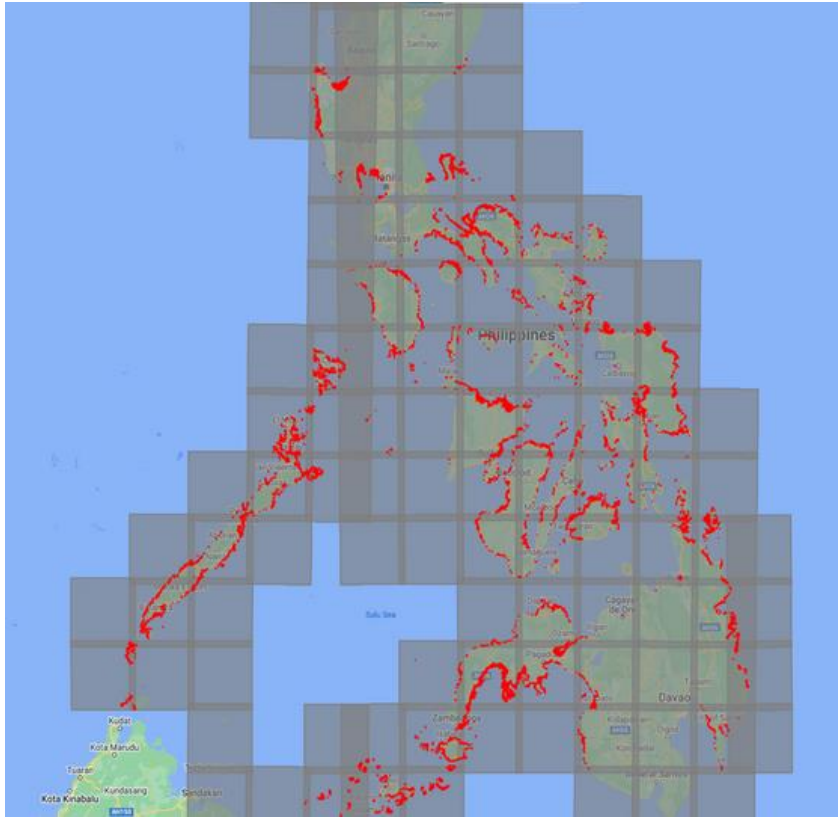


Uploading



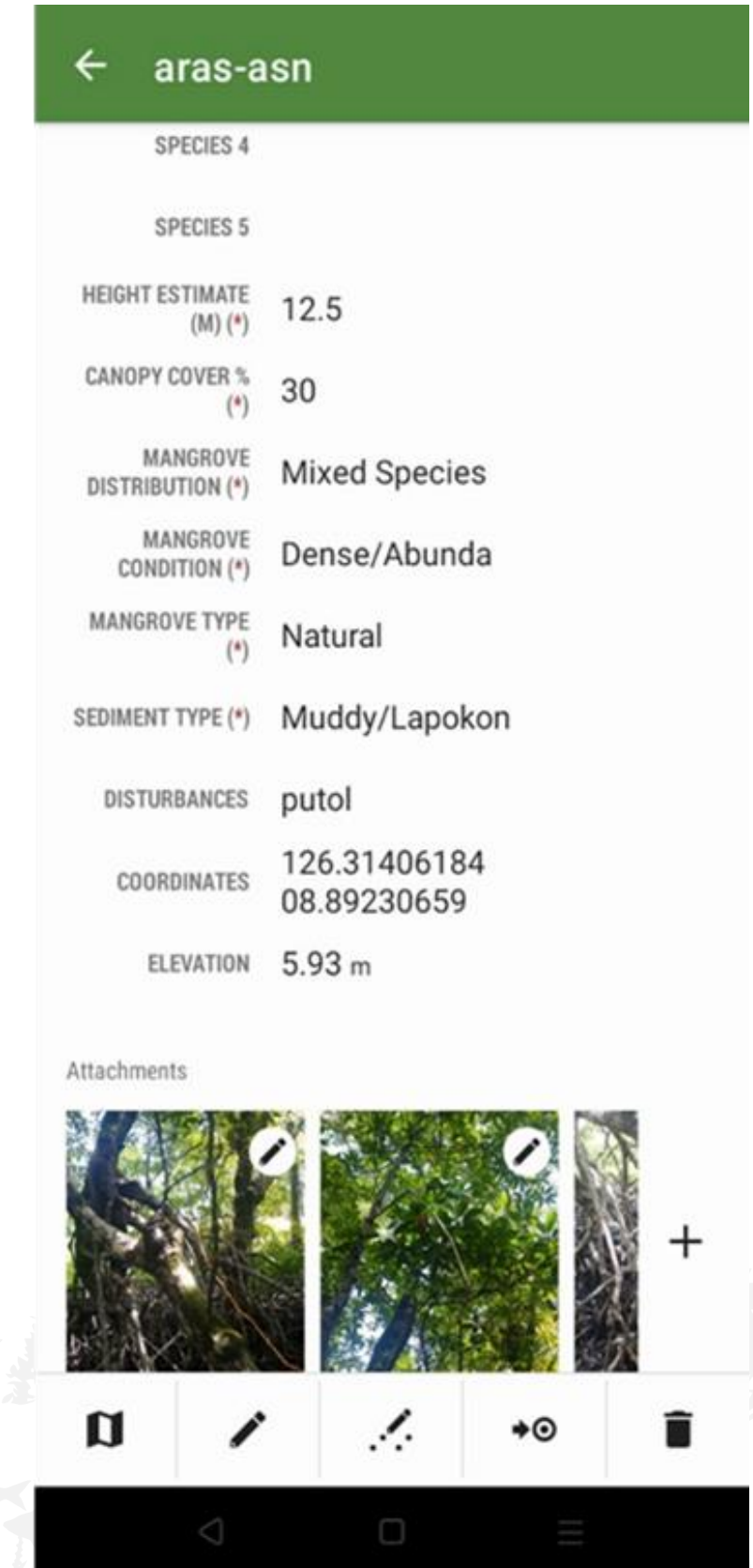
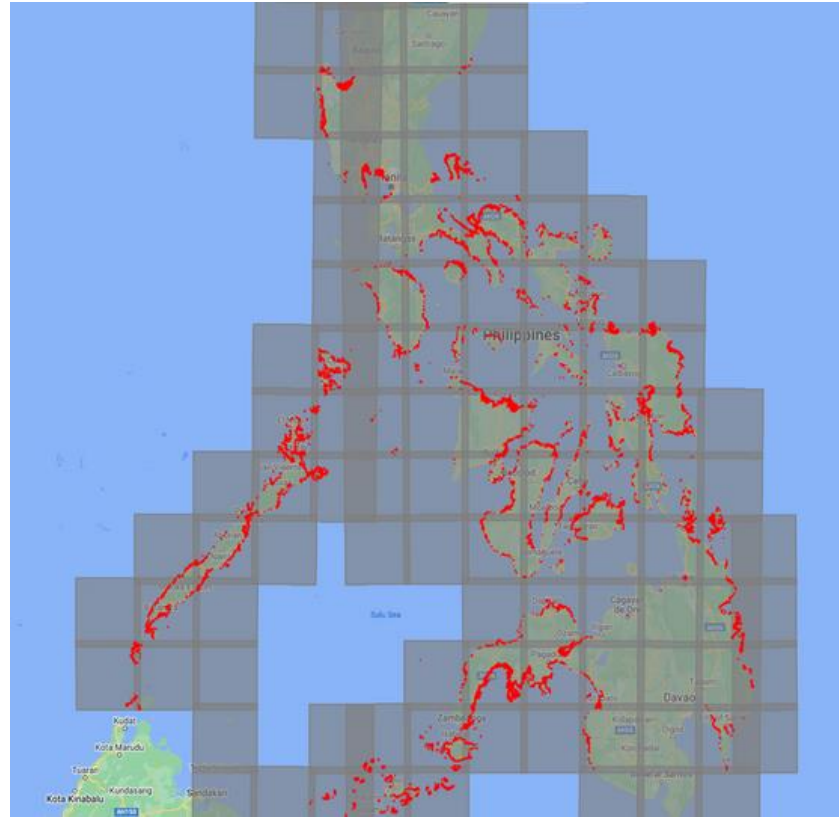
Mangrove Data

Mobile app

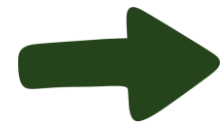


Mangrove Data

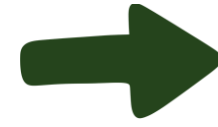
Mobile app



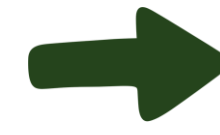
Input



Integrate



Report



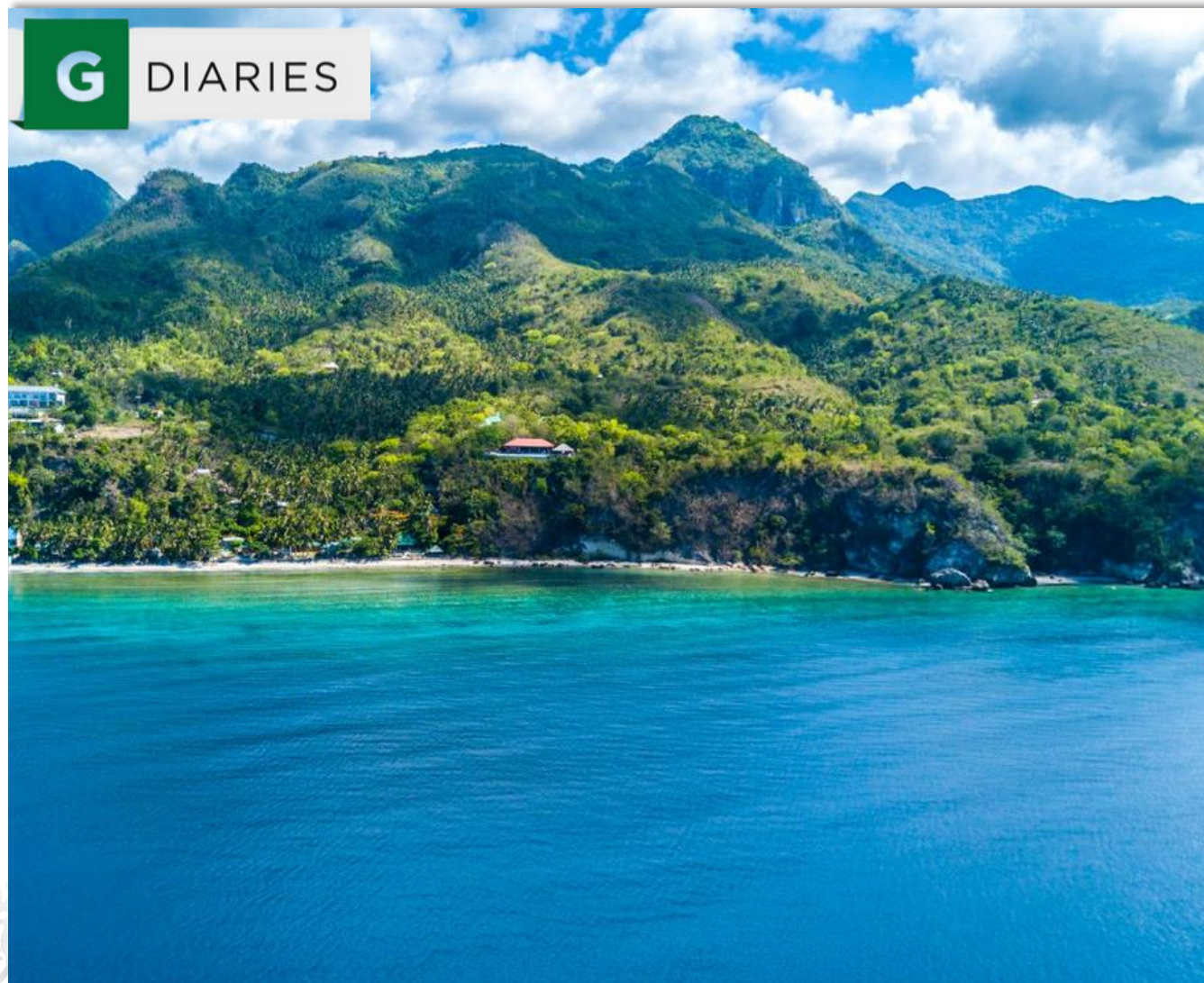
SUSTAIN



CALIBR8

OUR MISSION

We empower global communities by harnessing **data** for a **sustainable** future.





Collaborating with AFI and volunteers

Challenges



Siloed data repository



No data historization for trending and correlations

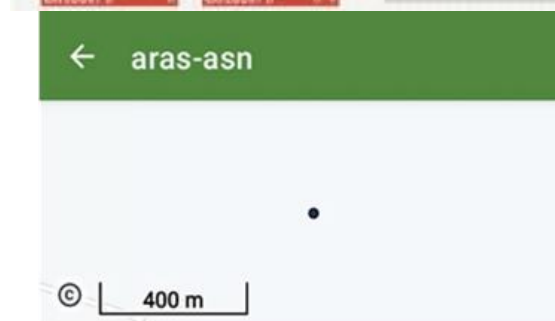


Unsafe manual data gathering

STATION NAME: STATION 1 TEAM NAME: TEAM 1 SCORECARD

BARANGAY, MUNICIPALITY & PROVINCE

CRITERIA	STATE
YEAR	2021
MONTH	DEC
REEF QUALITY	
Hard Coral Cover	A
Butterflyfish Abundance	C
Butterflyfish Species Richness	B
THREATS	
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LEVEL OF COMPLIANCE	
Giant Clams	D
CURRENTS & WATER QUALITY	
Feather Star Abundance	C
SUITABILITY FOR BABY CORALS	
Linckia (Blue starfish) Abundance	C
SHINE NUMBER	



← aras-asn

© 400 m

SITE (*) aras-asn

STATION (*) 4

SURVEYOR (*)

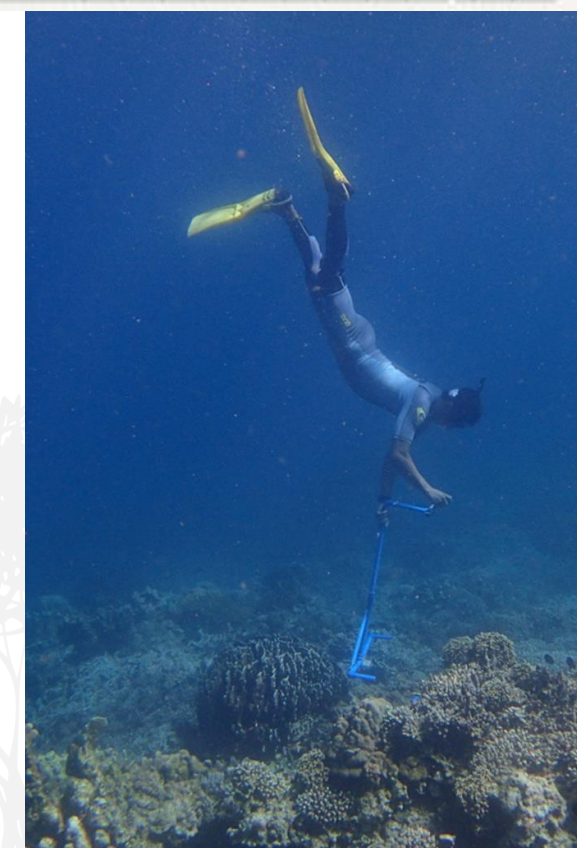
SPECIES 1 (*) pagatpat

SPECIES 2 bakawan lalake

SPECIES 3 piapi

SPECIES 4

SPECIES 5



Solution Approach

ABS CBN
FOUNDATION

In the Service of the Filipino

CALIBR8 **AVEVA**

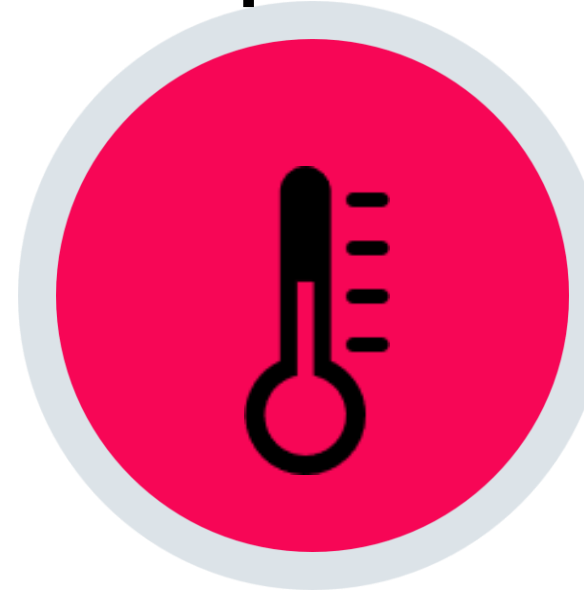
CONNECT



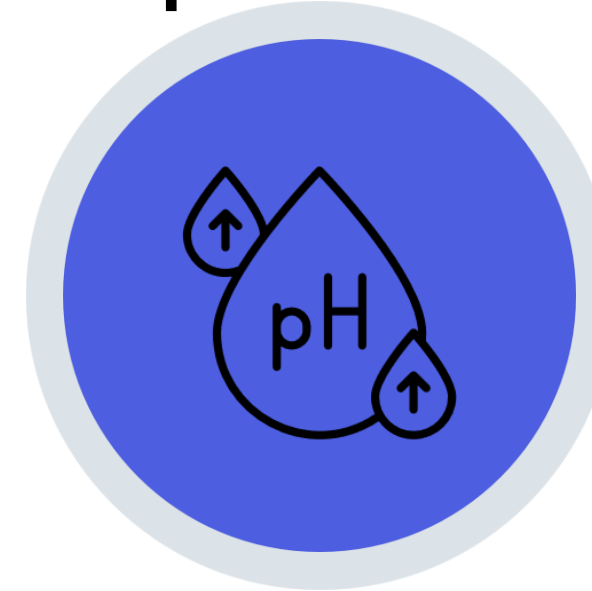


IOT Sensors

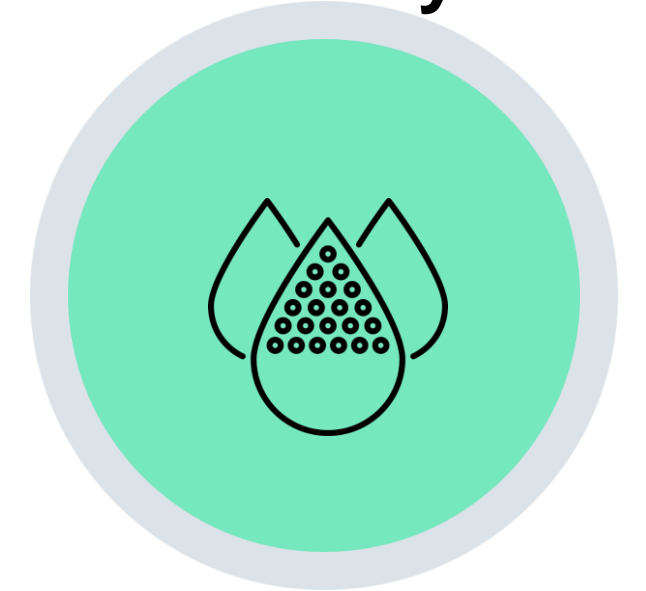
Temperature



pH Level



Salinity



Turbidity



GPS Location





08/06/2024

Location: Calapan, Harka Piloto

Coordinate: **13.44085 N, 121.22060 E**

Average pH Level: **10.37**

Average Total Dissolved Solids: **2441.23**

Average Temperature: **29.46**

Average Turbidity: **0.31**



09/06/2024

Location: Naujan

Coordinate: **13.23983 N, 121.42582 E**

Average pH Level: **8.36**

Average Total Dissolved Solids: **2405.156**

Average Temperature: **32.02**

Average Turbidity: **0.32**



10/06/2024

Location: Pola

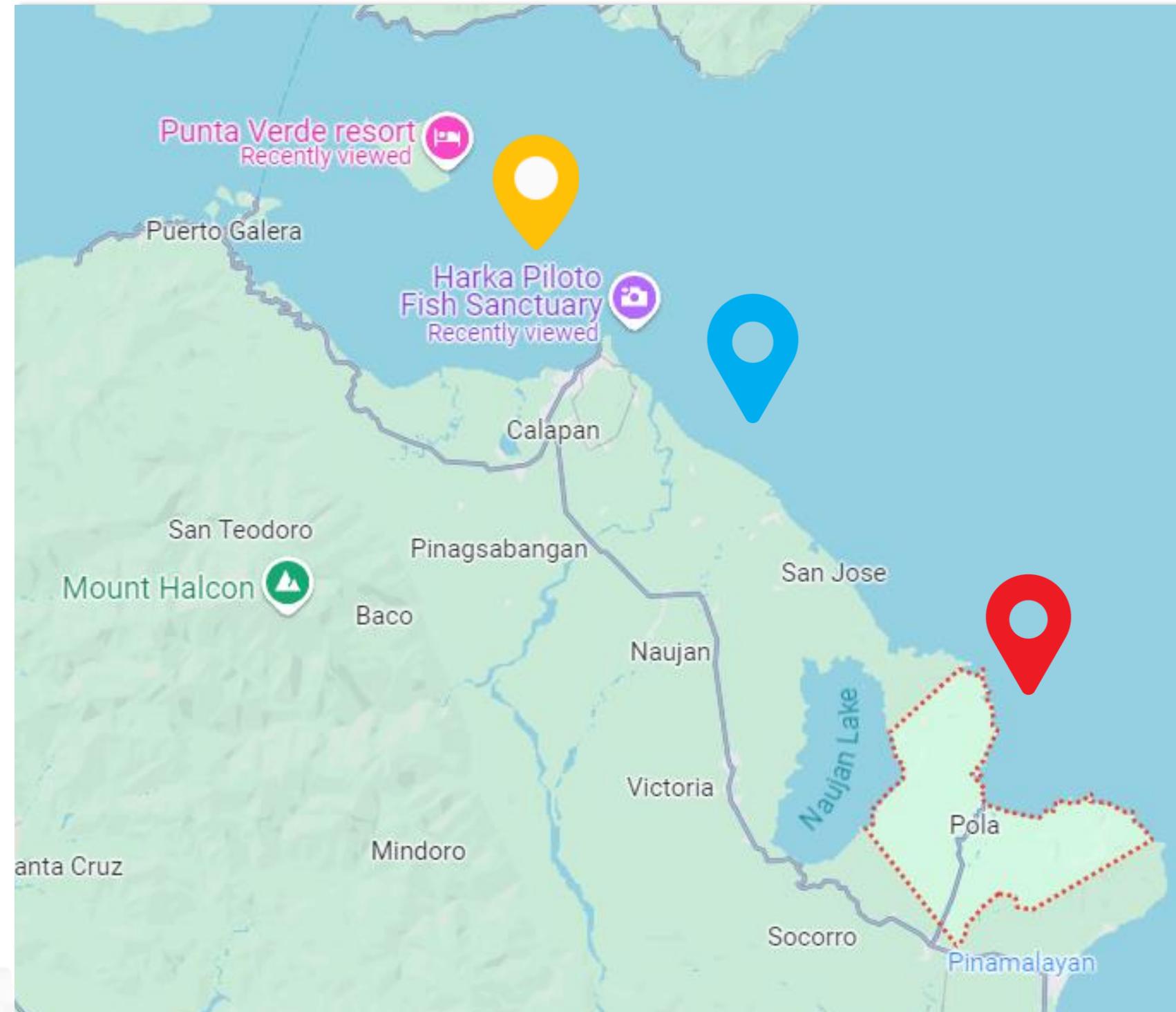
Coordinate: **13.22027 N, 121.44451 E**

Average pH Level: **8.41**

Average Total Dissolved Solids: **2394.36**

Average Temperature: **31.76**

Average Turbidity: **0.31**



C8 BOAT SEA WATER SAMPLING

CONNECT



TEMPERATURE

28.4 °C



PH LEVEL

7.41 pH



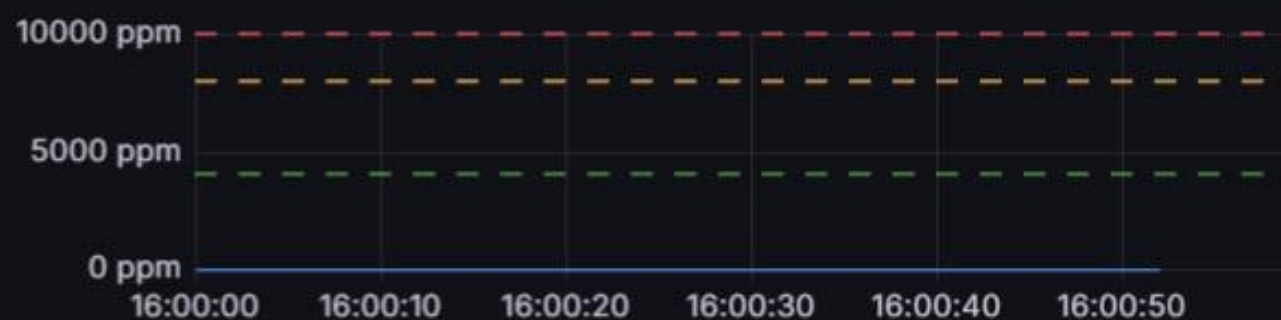
TURBIDITY

5.10 %

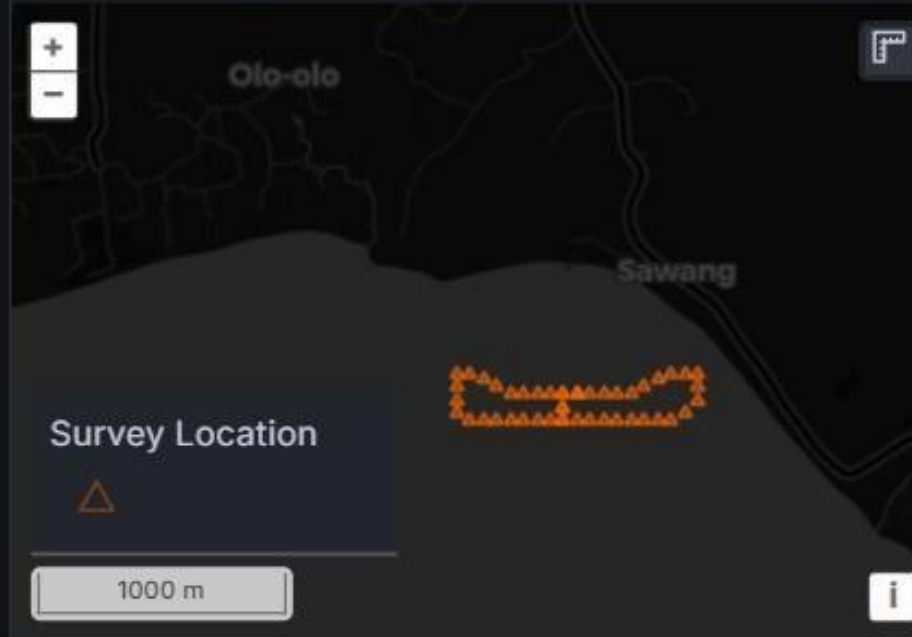


TDS

3.88 ppm

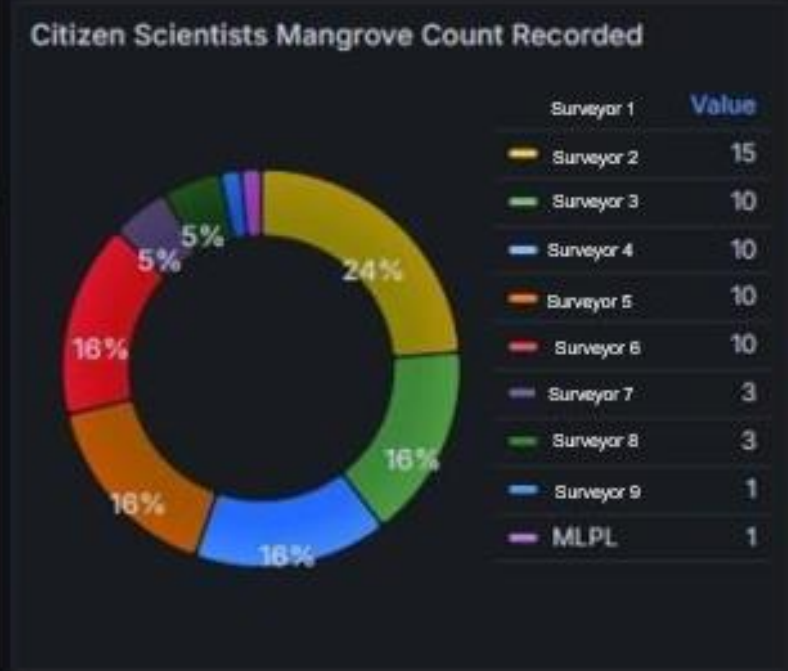
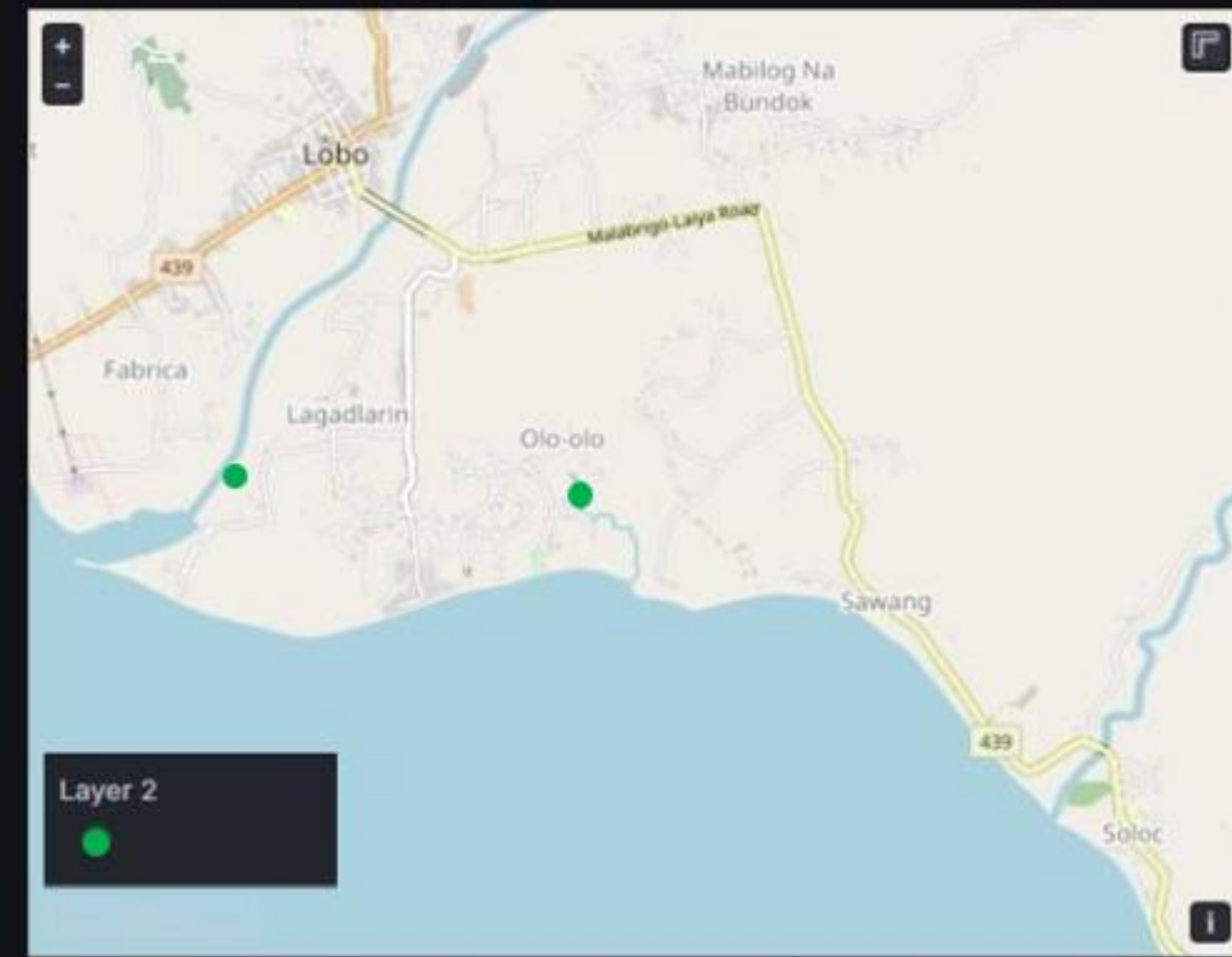


Site Location - Lobo, Batangas



Timestamp	Latitude	Longitude
2024-04-18 16:00:00.000	121.22173	13.629618
2024-04-18 16:00:01.000	121.22181	13.629617
2024-04-18 16:00:02.000	121.22185	13.629618
2024-04-18 16:00:03.000	121.22185	13.629618
2024-04-18 16:00:04.000	121.231195	13.623254

1 - 5 of 52 rows



Avicennia marina

Mangrove tree native to the Philippines that is most notable for its pencil-like aerial roots. It is a pioneer species that helps stabilize coastlines by trapping sediments with its roots, making it ideal for reforestation in seaward areas.

Survey Data

Site	Zone	Sampling Point	Mangrove Distribution	Species 1	Sediment Type	Mangrove Condition	Disturbance	Height Estimate	Canopy Cover	Mangrove Type
Lagadlarin	1	1	Species Dominant	Avicennia sp	Sandy Mud/Mabuhangin putik	Sparse	basura	8	20%	natural
Lagadlarin	1	2	Mixed Species	Avicennia marina	Sandy Mud/Mabuhangin putik	Intermediate	basura	6	20%	natural
Lagadlarin	1	3	Mixed Species	Avicennia sp	Sandy Mud/Mabuhangin putik	Intermediate	aroma/basura	8	20%	Natural+Planted

AFI Future Looking



- **Incorporate seagrass data into the dashboard.**



- **Increase the collaboration among universities, SMEs, communities, sponsors and volunteers, through real time data.**



- **Inspire different sectors into creating programs and policies that will support and empower marine conservation.**



Solution Roadmap



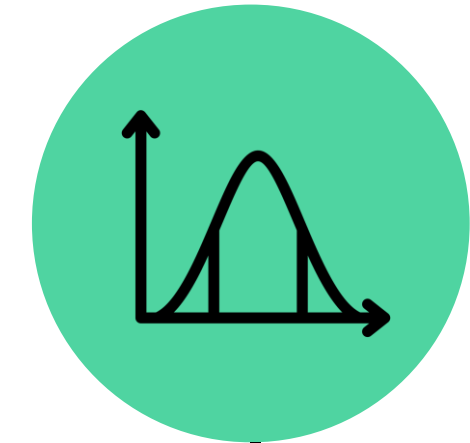
2024 Q2

- **Boat Version 1**
 - Temperature
 - pH Level
 - Salinity
 - Turbidity
 - GPS Location
- **Ingested / processed mangrove data**



2025 Q1

- **Boat Version 2**
 - dissolved oxygen
 - depth sensors
- **Incorporate seagrass and mangrove data**
- **Consolidate dashboards**



2025 Q3

- **Data Historization in CONNECT**
- **Complete dataset**
- **Calculation of rate of changes, degradation of abnormal patterns.**
- **Equipping the citizen science in operating the boat.**

Shaping a sustainable future with **DATA.**



ABS-CBN Foundation Inc. gets Real Time Data for Coral Reef and Mangrove Conservation

Challenge

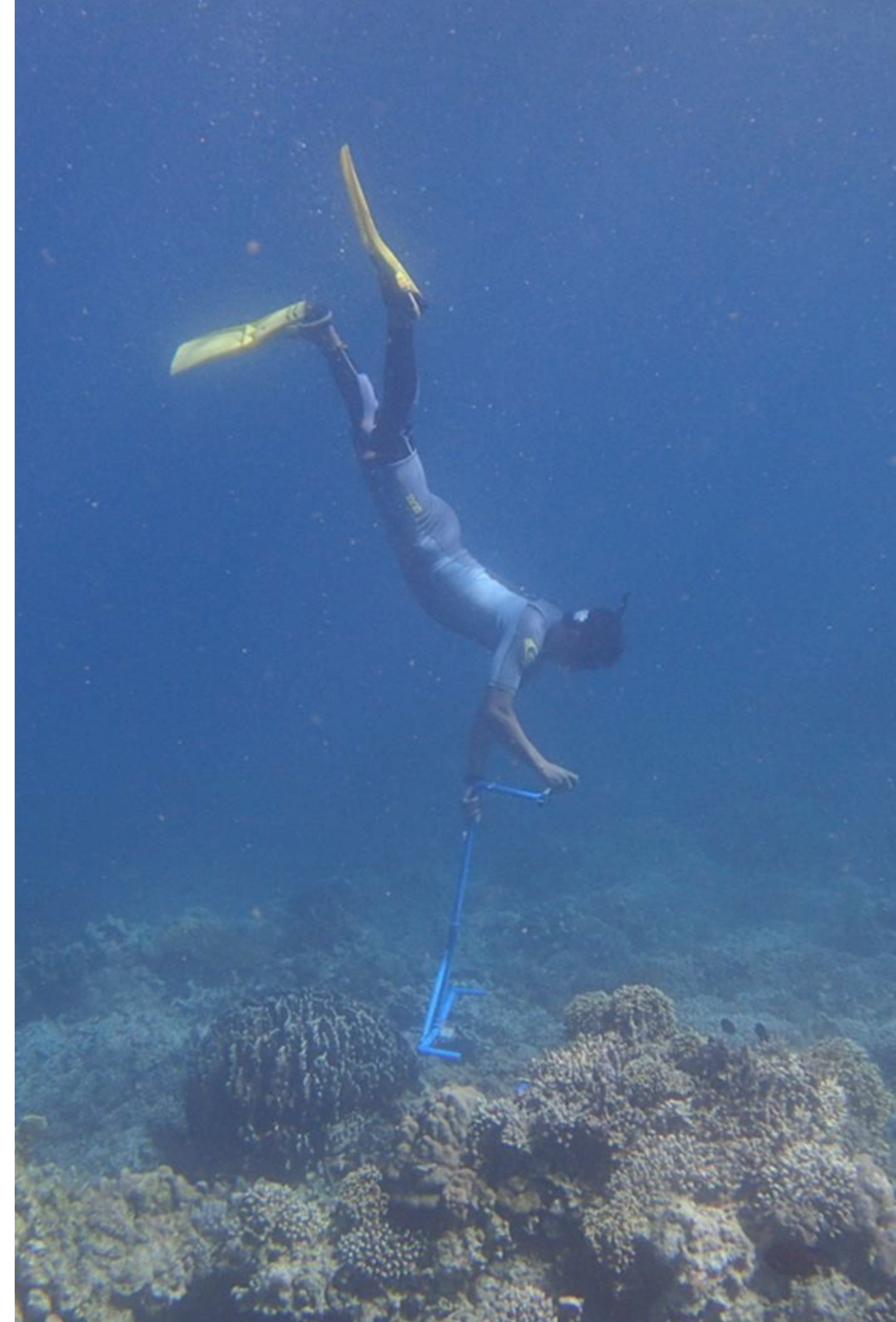
- Siloed data repository.
- No data historization for trending and correlation.
- Unsafe manual data logging (in times of calamity, oil spill).

Solution

- Automate real-time data gathering through RC Smart Boat.
- CONNECT Data Services provide a Real Time Dashboard making data accessible to all stakeholders to enable collaboration and make data driven decisions

Results

- **As a result of data sharing with stakeholders, 7 municipalities within the Verde Island Passage have access to baseline data for local policy making and comparisons in the event of human or natural disasters.**
- **Through this collaboration between AFI and Calibr8, we were able to get Special Funding from the private sector to support the needs of this project.**



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ABOUT AVEVA

AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

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