ARRAS

Automated Rapid Reef Assessment System

2010-2014
Automated Rapid Reef Assessment System

DOST-GIA and PCIEERD funded project from 2010-2014.

Objective: Develop easy-to-use tools for creating permanent visual records of coral reefs

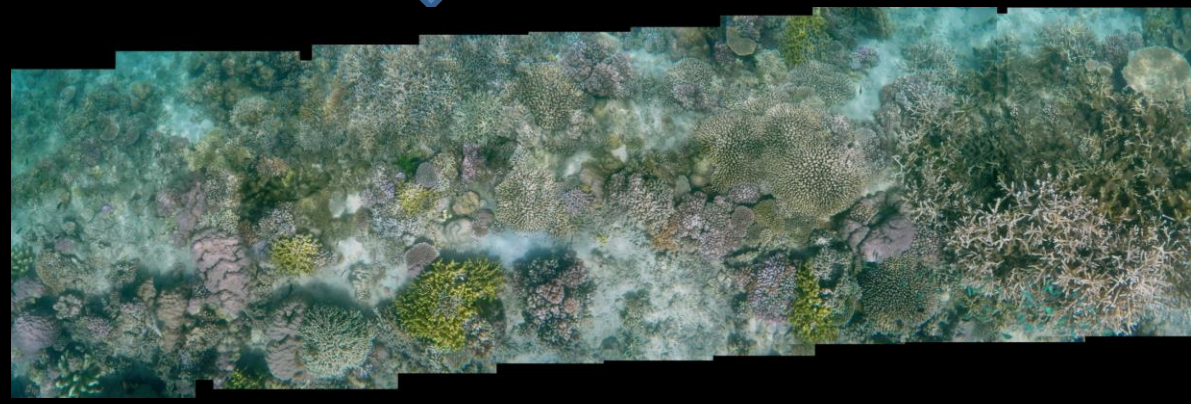
Partners : UP National Institute of Physics, UP Marine Science Institute, UP Department of Computer Science, Mapua Institute of Technology School of Mechanical Engineering

Automation of data collection

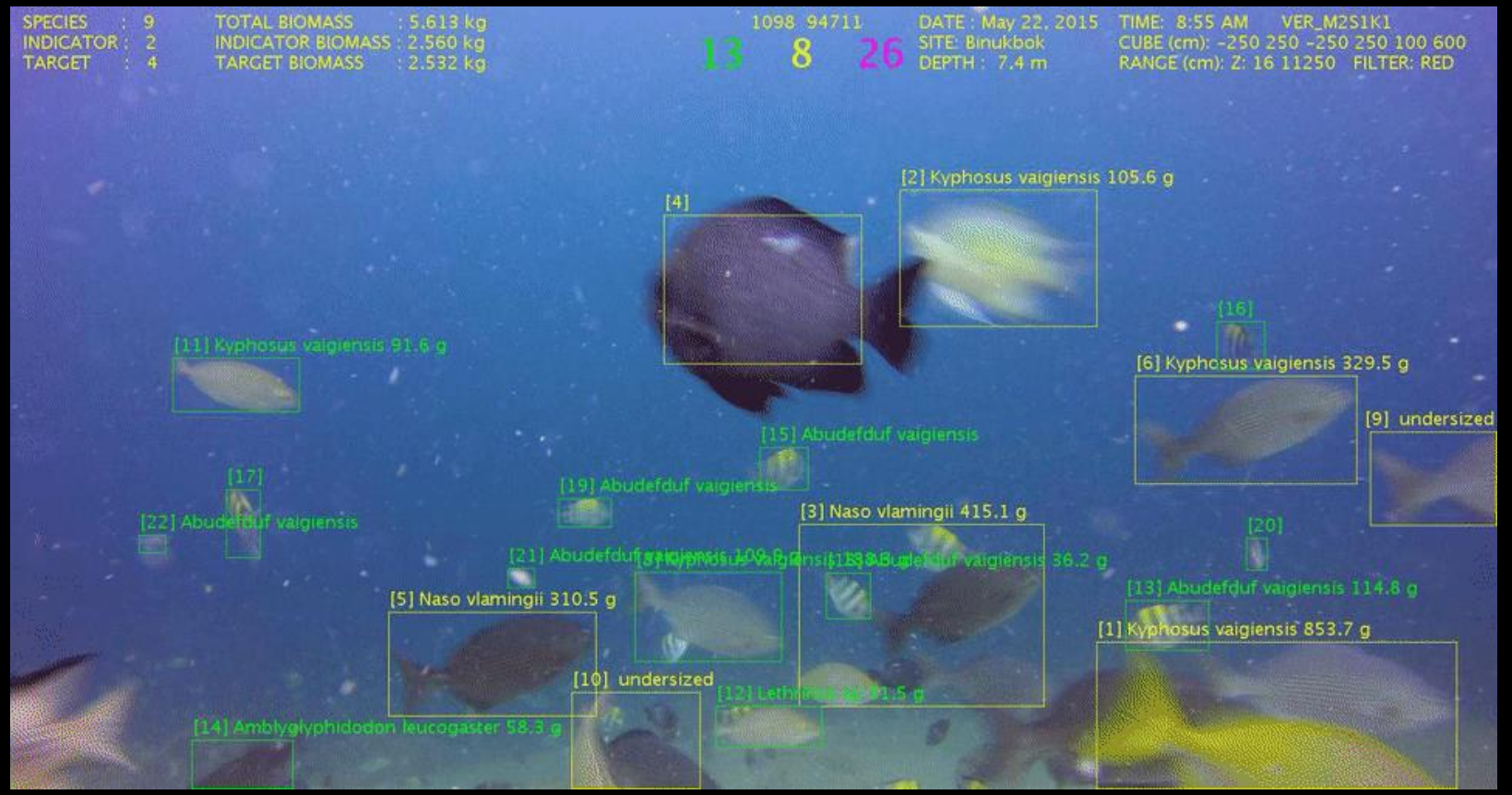
We use cameras to truthfully capture what is there.

Automated Rapid Reef Assessment System

TEARDROP



KIKO&STITCH



Analysis and assessment

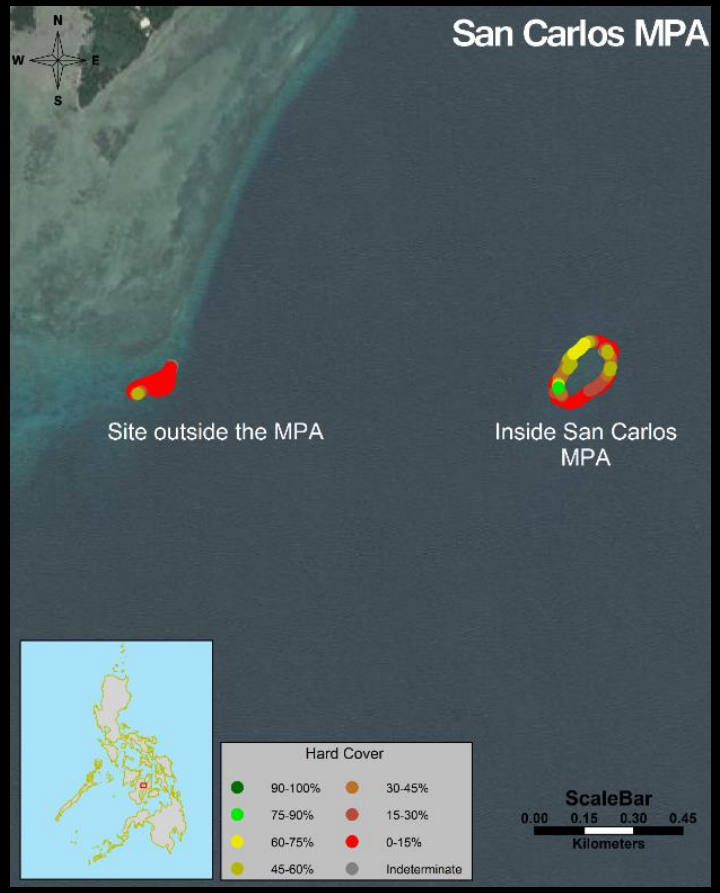
Scientific, reliable, unbiased, scalable, better.

Impact of our service

Tubbataha Reef, Jan 2013

UNNESCO World Heritage Site

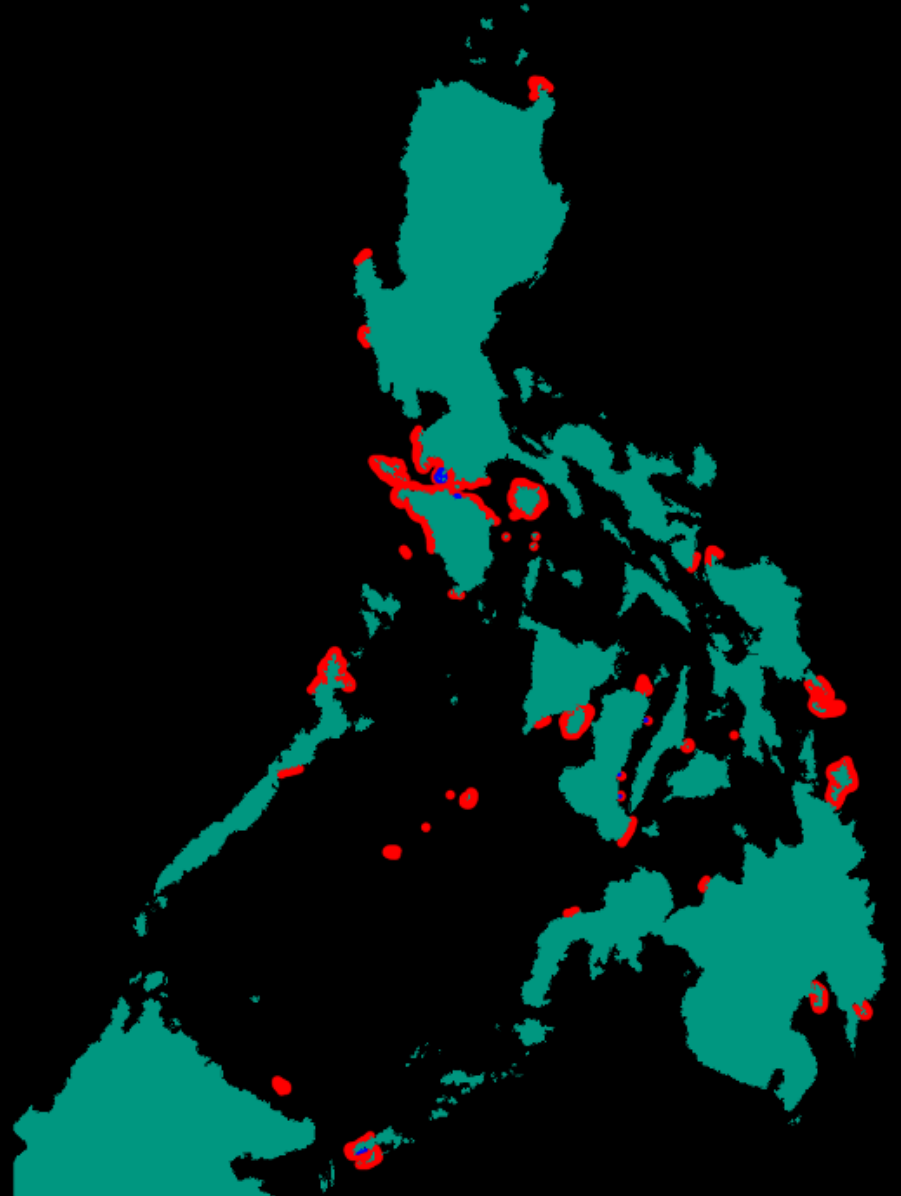
Impact of our service



▲ Marine Protected Area management

▲ Tubbataha annual monitoring

2014-2016 DOST and DENR Projects



◀ National Coral Reef Assessment

DENR DOST

2015 – Leaders in Innovation Fellowship

- UK Newton Fund
- Asian Institute of Management

2016 – Runway and Incubation

-PCIEERD funded project – Nov 2016-Nov 2017 for market validation and product development of ARRAS technologies

-Incubation with UP Enterprise

-Potential Clients met:

- Marco Vincent (Puerto Galera)
- RARE Philippines (37 sites around the Philippines)
- Cavite Provincial Planning

COMPARE: ARRAS

	ARRAS	Underwater Transect
Survey Type	Coral/habitat	Coral/habitat
Survey Price	350,000 PHP	10,000,000 PHP
Survey Area	30 ha	30 ha
Survey Time	4 days	60 days
Trained Divers	No	Yes
Key capabilities	Area measure	Line measure
	No observer bias	Observer bias
	With GIS	No GIS

COMPARE: ARRAS

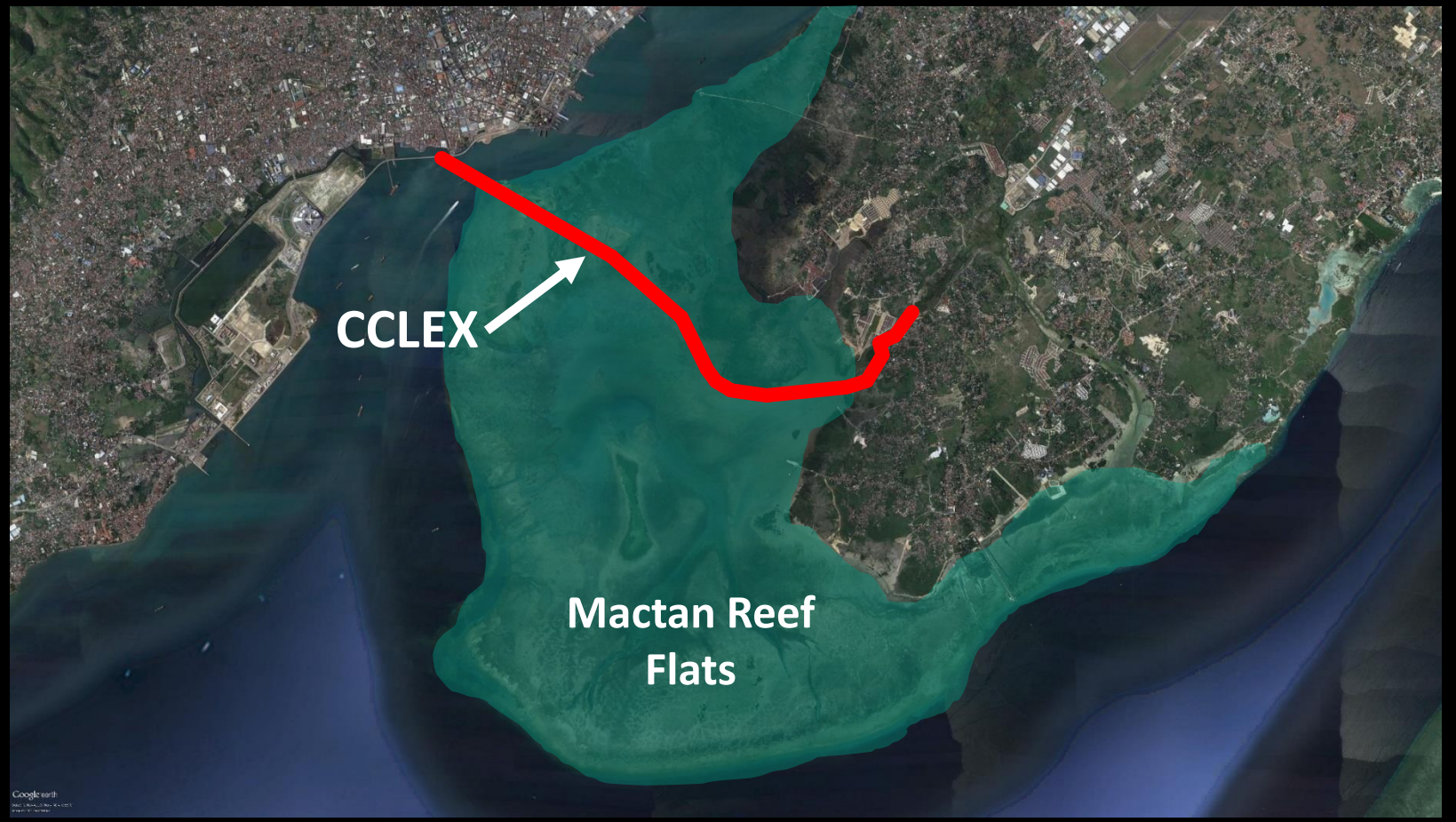
	 Fish-i	 Underwater Transect
Survey Type	Reef fish	Reef fish
Survey Price	400,000 PHP	700,000 PHP
Survey Area	1 ha	1 ha
Divers	Novice	FVC trained**
Key capabilities	Automated	Manual
	No observer bias	Observer bias
	Video record	Written record

Business Model

	EXISTING MARKET		POTENTIAL MARKET
	NGO	LGU	Coastal Industries and Infrastructure
Concern	Food security & livelihood	Conservation & Management	Compliance & Public Relations

Cebu-Cordova Link Expressway

A multi-billion peso project to link Cebu and Mactan.



A big environmental risk

Thousand hectares of pristine coral reefs.

Market Size

Mining, ports, power plants, submarine cable landing

TAM	2,587	Southeast Asia
SAM	204	Philippines
SOM	20	Attainable

ARRAS service

Coral/Fish Survey

Price*	**700,000 PHP**
Area	**30 hectares**
Time	**4 survey days**

Note: * excludes logistics and transportation to survey site

Projections

700,000	PHP/job
3	New clients/year
plus	Repeating orders from established clients
18 months	Breakeven
3 years	Self-sustaining

Ideaspace, June 14, 2017

The ARRAS team

Engr. Aaron Hilomen

Co-Founder, CEO

Water and Environment Engineer

Project Manager

Dr. Maricor Soriano

Co-Founder, CTO

Professor of Physics

Cherry Murillon-Cubacub

Co-Founder, CFO

Financial and Business Development

We help you survey your seas

For more information, contact

Engr. Aaron T. Hilomen
ARRAS, National Institute of Physics
University of the Philippines Diliman
Quezon City, Philippines 1101

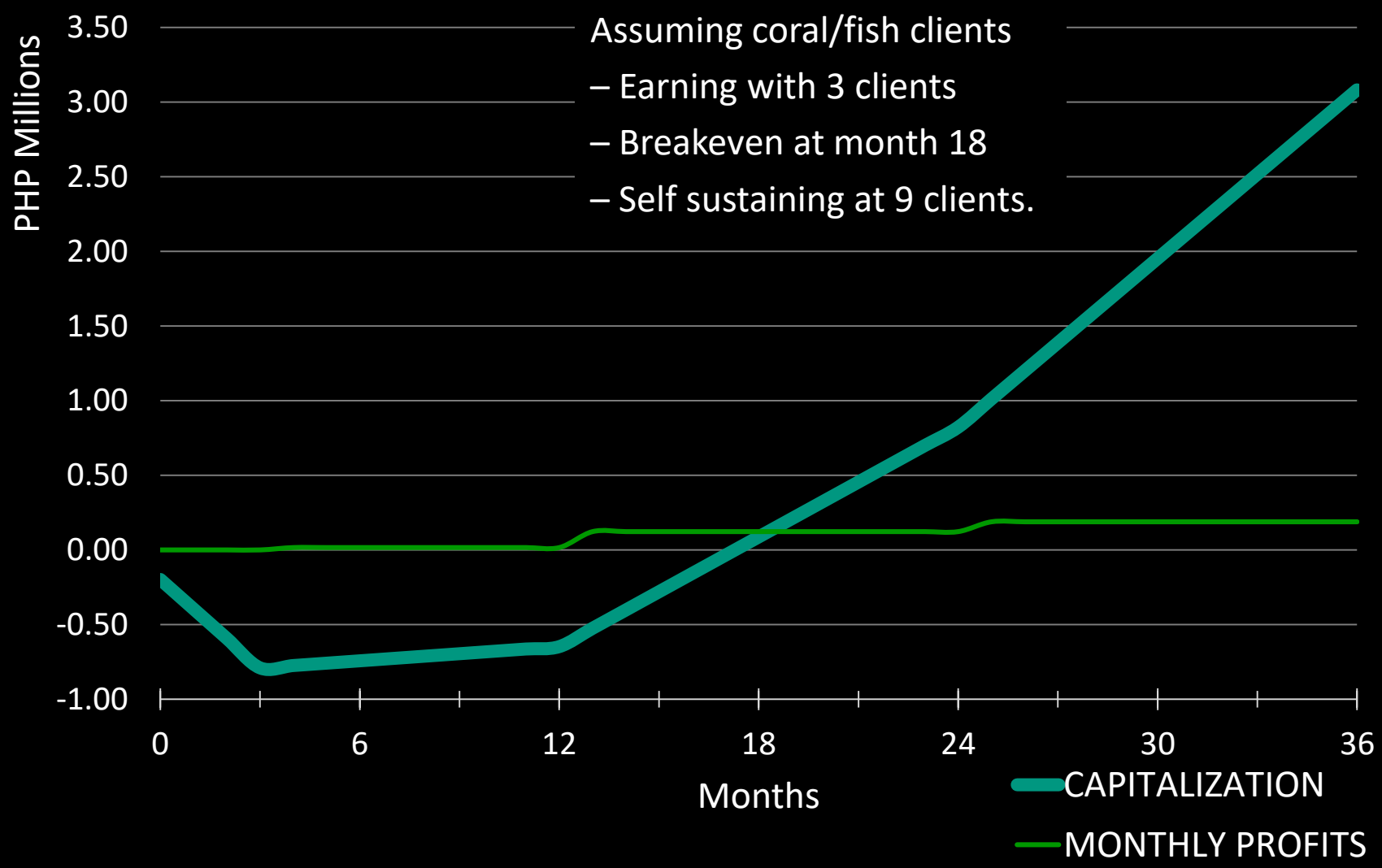
aaronhilomen@arrasph.com
+63 915 393 7300

ARRAS
Automated Rapid Reef Assessment System

www.arrasph.com

APPENDIX

Projections



Market Size Estimates

South East Asia

- 730 power plants (UN)
- 1720 Ports (UN)
- 137 Submarine Cable Landing (TeleGeography)
- **2587 Total**

Philippines

- 68 power plants (DOE 2016)
- 121 Major ports (PPA 2016)
- 25 submarine cable landing (TeleGeography)
- **204 TOTAL**

RARE Philippines

Manages 37 marine sites in the Philippines with the aim to improve fisheries and local economic activities.

Current data collection practice:

Relies on annual biophysical monitoring for each site.

Line Intercept Transect

Fish Visual Census

Elevator Pitch

[INTRO] I am _____.

For coastal managers who need to know the state of their marine resources, ARRAS is a service that automates reef assessment and unlike traditional manual monitoring, the service can image and assess 25km of coastline a day, letting you focus on the decision making.