

A vibrant underwater photograph of a coral reef. In the foreground, a large, textured rock is covered in various corals, including branching and fan-like species. A large, mottled grey fish swims towards the left. Several smaller, striped fish are visible near the coral. The background shows a deep blue ocean with more fish swimming near the surface.

MAR+INVEST

Business Development and Finance Facility of the Mesoamerican Reef



The Mesoamerican Reef

- Includes the largest barrier reef in the Atlantic Ocean.
- Largest transboundary reef – 4 countries with over 1000 km of coastline.
- Biologically diverse, with endangered and charismatic species (manatees, whale sharks, *Acropora* sp., groupers).
- MAR reefs are “upstream” and ecologically connected to Florida, Cuba, and Bahamas.
- Cultural diversity (Q'eqchi', Mopan, Yucatec Maya, Garifuna, Miskito).
- Reef-dependent population nearly 3M.

The Reef: A Global Public Good Facing a Range of Threats

- Climate change
- Coastal development
- Local pollution: Incomplete sewage treatment and poor solid waste management
- Overfishing
- Agricultural run-off: Northern Honduras, Guatemala and Southern Belize, where higher rainfall and sloped terrain leads to increased runoff

Stony Coral Tissue Loss Disease (SCTLD) - 17 countries in Caribbean

- Mexico, Northern and Central Belize and the Bay Islands are affected
- Southern Belize, Glovers Reef, Honduran Coast and Guatemala are not yet affected
- Latest findings show that healthy corals are coexisting with corals with SCTLD in Mexico

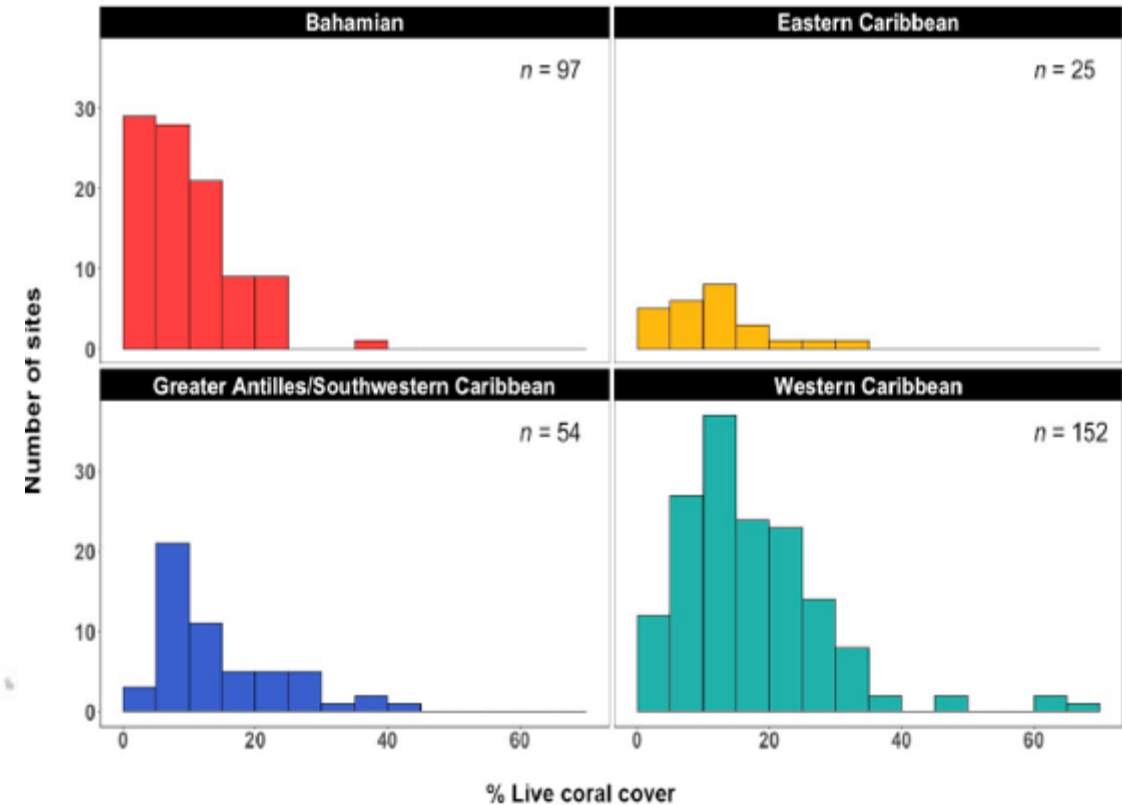


The Mesoamerican Reef: What's at risk

- If the MAR continues to decline, by 2030 the per annum value of the system could fall by US\$ 3.1 Billion (tourism, fisheries, coastal development). Conversely, a shift towards healthy reefs by 2030 could unlock an additional US\$ 2.5 Billion annually across the three sectors¹.
- As per the 2021 economic valuation supported by the Interamerican Development Bank, the annual value of the MAR is US\$ 4.5 Billion, integrated by reef-related tourism (US\$ 3.9 B), reef-related fisheries (US\$ 183 M), and shoreline protection (between US\$ 320 and US\$ 438 M).

¹UN Environment, ISU, ICRI and Trucost 2018. The Coral Reef Economy: The business case for investment in the protection, preservation and enhancement of coral reef health. 36pp

The MAR has the highest coral cover in the Caribbean - a cornerstone of reef resilience



Coral cover (%) is the amount of reef surface covered by live stony corals, contributing to its three-dimensional framework.

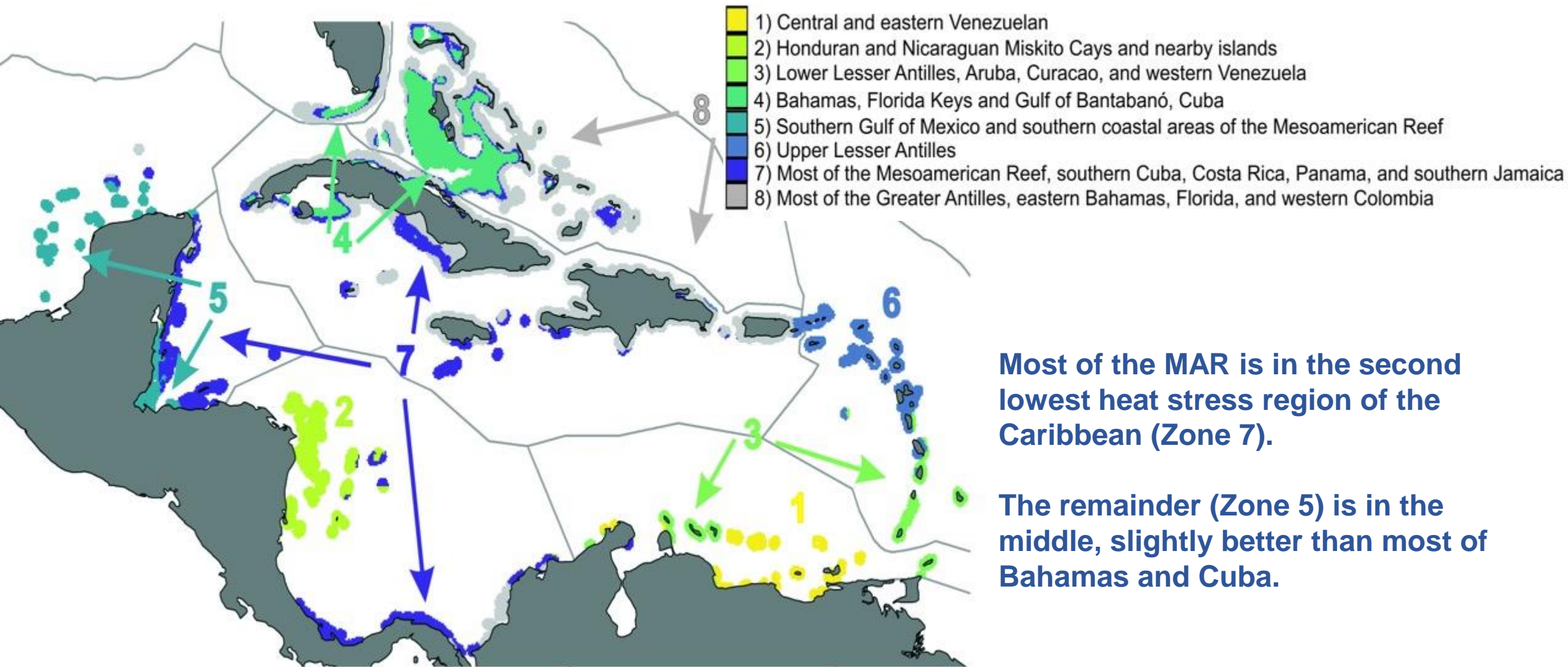
2018 Subregions: Coral Cover (%)



Resilient reefs maintain live coral cover despite bleaching, disease and hurricanes

- Out of 17 subregions, 8 are good and 9 are fair for live coral cover.
- This greatly enhances resiliency to bleaching, hurricanes and diseases.
- No subregions are poor or critical.
- Connectivity also supports resiliency.

Mesoamerican Reef: Lower Heat Stress than Most of the Caribbean



Most of the MAR is in the second lowest heat stress region of the Caribbean (Zone 7).

The remainder (Zone 5) is in the middle, slightly better than most of Bahamas and Cuba.

An aerial photograph of a tropical coastline. In the foreground, a sandy beach is dotted with palm trees and small wooden huts. A cluster of buildings with colorful roofs (blue, green, red) forms a small village. The water is a vibrant turquoise, showing the intricate patterns of a coral reef. White waves are breaking against the shore. The overall scene is lush and scenic, representing a coastal community in a sensitive marine environment.

MAR+Invest Goal

To unlock private capital for investment in reef conservation in the MAR ecoregion

The MAR+Invest Solution

A multi-stakeholder approach that develops and finances enterprises that generate coral positive outcomes **and** market returns.

A new blended finance model for the MAR that brings together:

Expertise in conservation, entrepreneurship, investment and evaluation of coral ecosystems, and **different types of capital** (commercial, philanthropic, development, public)

Designed to unlock private investment by overcoming the barriers that lead to the systemic lack of funding and development support for projects delivering MAR positive outcomes.

Outcomes

Outcome 1

Generation of coral positive market solutions for CMPA

Outcome 2

Livelihoods of coral reef-dependent communities are reef positive and have increased resilience to climate change

Outcome 3

The MAR Emergency Fund³ effectively responds to major shocks

Operational Structure



MAR+INVEST

BUILD & CONNECT: ENABLING CONDITIONS & INNOVATION

- Foster nature-based solutions for public policy decision makers.
- Generation of ocean oriented portfolios for investors and incubators in MAR.
- Market-based leadership for CMPAs in the MAR.

FINANCING SOLUTIONS FACILITY

- Map potential solutions.
- Business acceleration.
- Structure financing solutions for different stages of development.
- Investment banking.
- Impact milestones.

IMPACT MONITORING & EVALUATION

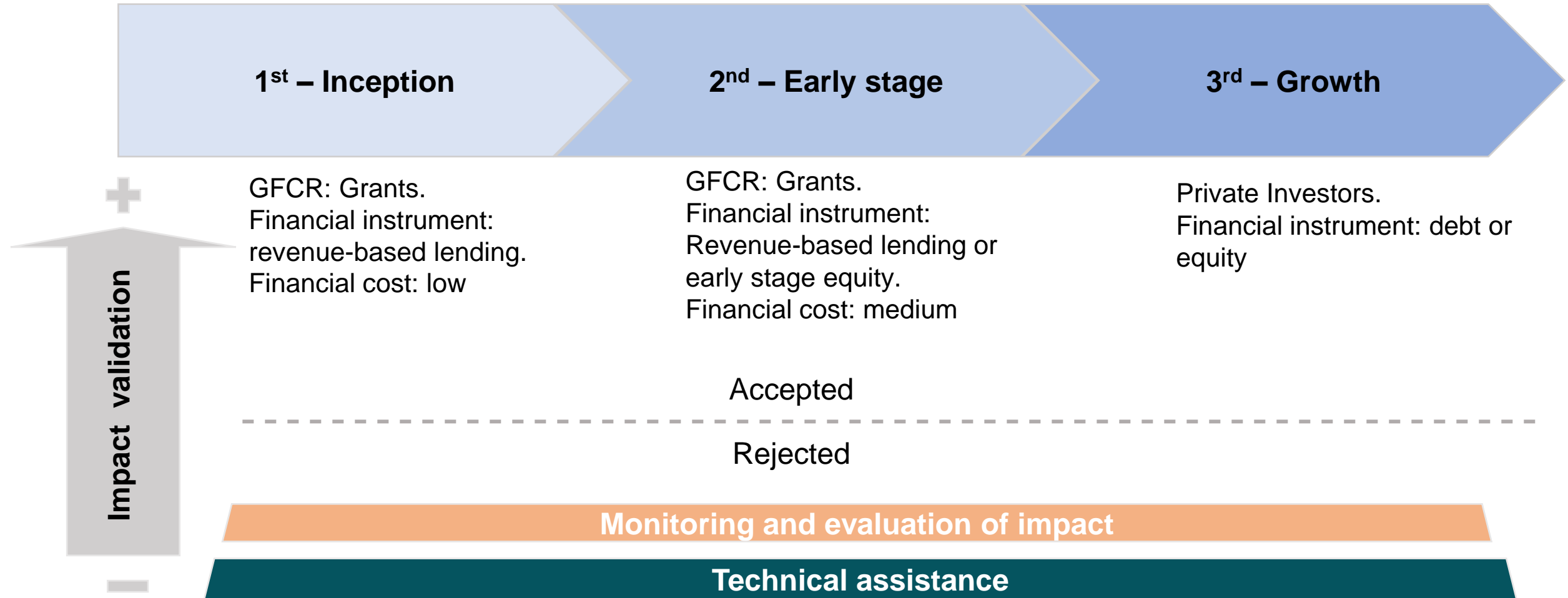
- Generation of environmental criteria and baselines for portfolio.
- Co-design impact assessment tools & impact evaluation (due diligence).
- Monitoring for impact.

MARTAF (TECHNICAL ASSISTANCE FACILITY) CONVENING AGENT

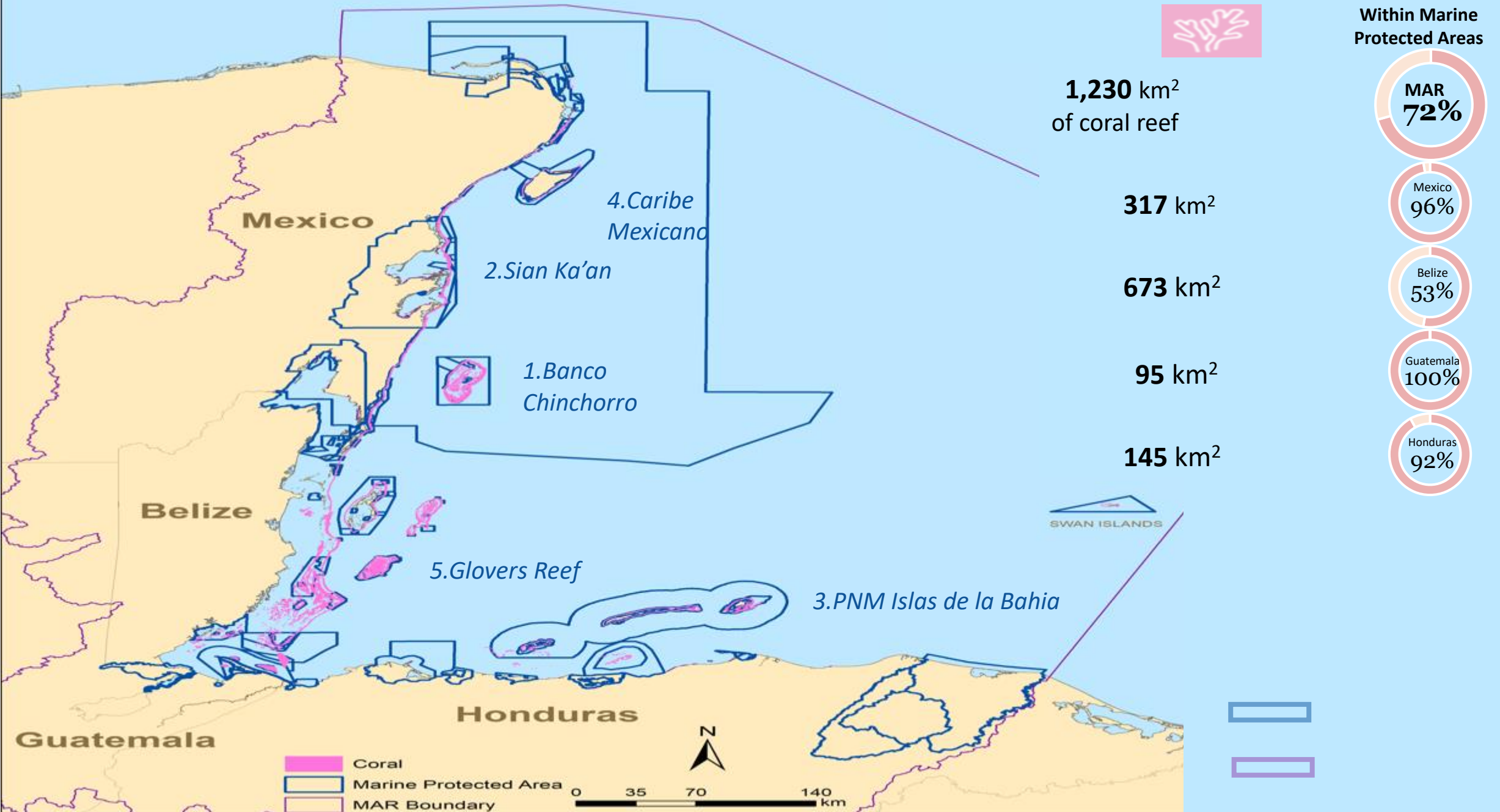
- Technical assistance for portfolio and pipeline.
- Attraction of catalytic capital.
- MAR+Invest coordination and communications.

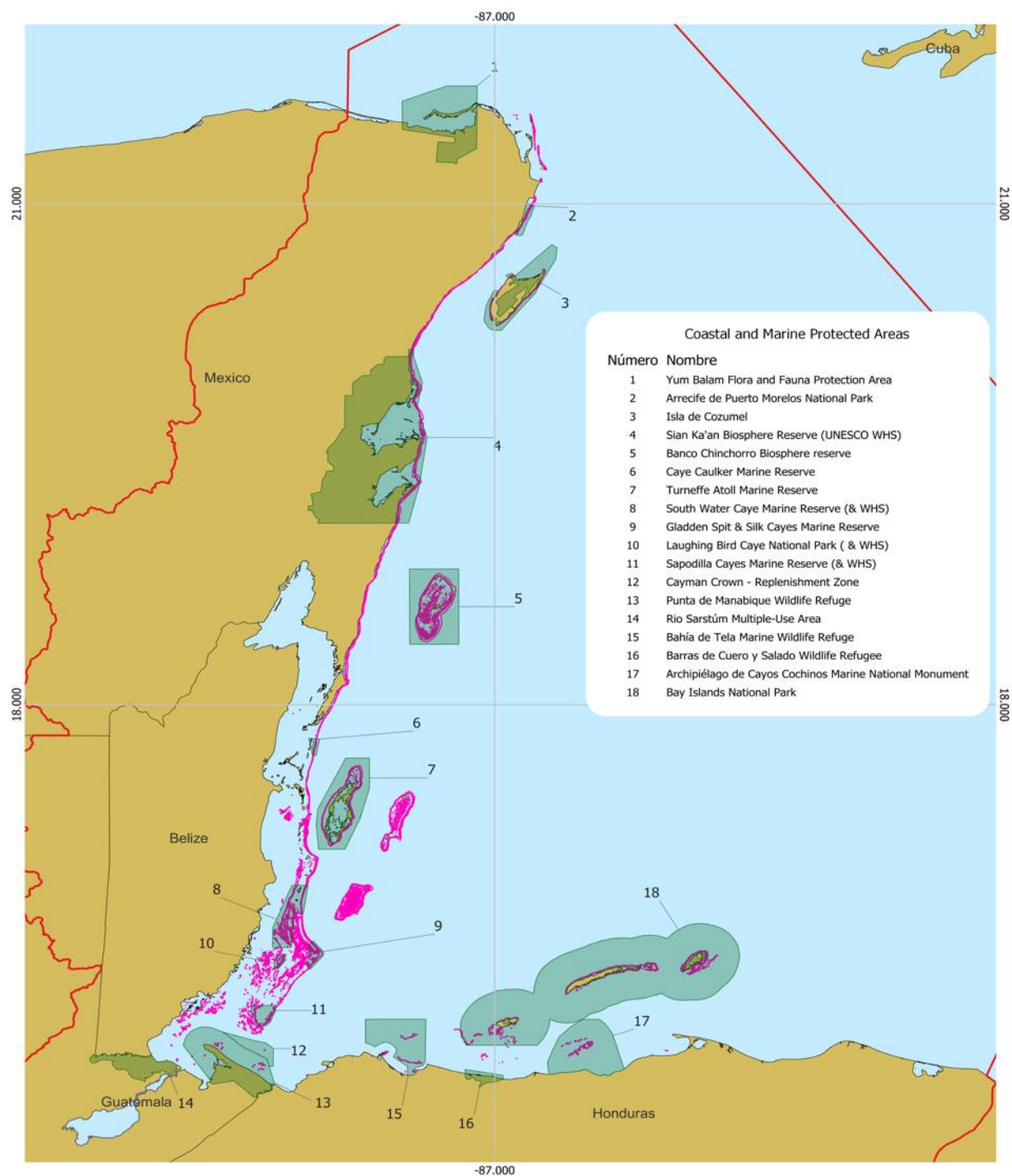
Portfolio

Solution development stages



Coral Reefs within CMPAs





- 18 Priority coastal and marine protected areas
- 62% of coral reefs in the MAR

The background of the entire image is an underwater photograph of a coral reef. The coral is primarily a light tan or beige color, with many branching, finger-like structures. Several small, yellowish fish are visible swimming among the coral. The water is a clear, deep blue, and the lighting suggests a bright, sunny day.

Portfolio of potential of solutions

Fleshy Macroalgae is the main ecological problem in the MAR

Fleshy macroalgae cover (%) is the proportion of reef covered by fleshy algae.

2018 Subregions: Fleshy Macroalgae (%)

- Critical (>25%)
- Poor (>12 - 25%)
- Fair (>5 - 12%)
- Good (>1 - 5%)
- Very Good ($\leq 1\%$)
- No Data



- Fleshy macroalgae cover in the MAR has doubled in the past 10 years (percentage cover increased from 10% in 2006 to 20% in 2018).
- This reduces resiliency / health throughout the MAR.
- Increasing herbivory and decreasing nutrient pollution will address this problem.

King Crab restorative mariculture

Problem: There is a lack of restorative solutions in the MAR that can address fleshy macroalgae.

Solution: HRI advancing research and development for King Crab mariculture.

Coral First Impact: Fleshy macroalgae reduction.

Financial Return: Business model and plan to be designed during inception.

Co-benefits: Can generate revenue for coastal, reef dependent communities. Business model to be developed.

Potential for regional replication.

Organizations Involved

HRI and Smithsonian Institution: Research and Development.

MARTAF: Financing for business modeling and planning.

Seaweed farming

Problem: Overfishing, destructive fishing, climate change, are among the issues reducing fish populations and income for coastal communities.

Solution: Seaweed farming is a restorative solution that can represent an opportunity to decrease the pressure on reef resources while generating a number of ecosystem restorative functions.

Organizations Involved

Coral First Impact:

Regeneration of ecosystem functions, local reduction of acidification (in the farming area), increase in biodiversity (fish biomass and diversity), reduction of thermal stress and improved climate resilience.

Financial returns: To be evaluated during inception. *Potential for regional replication. To complete business plan during inception.

Co-benefits:

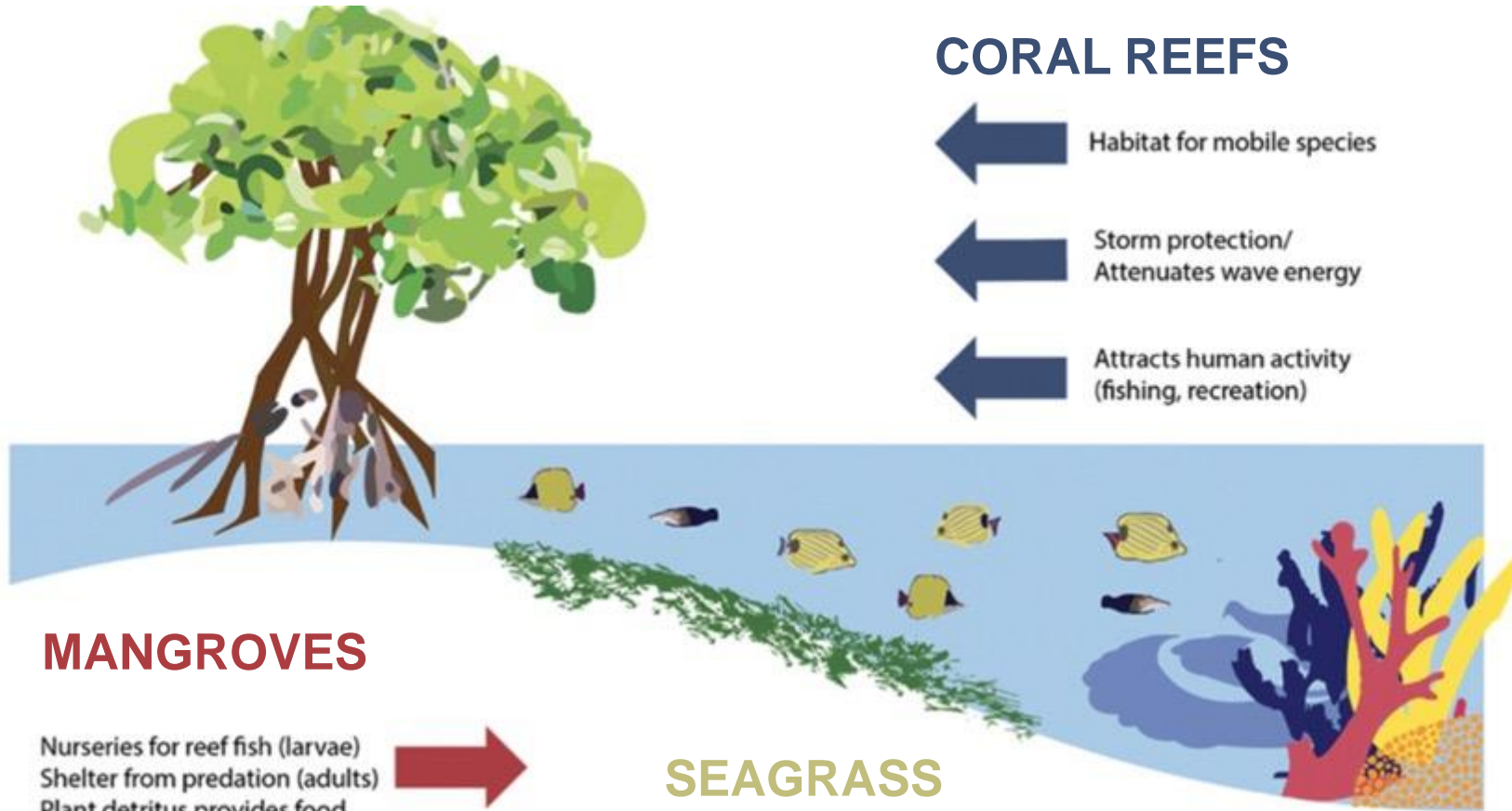
Financial and gender inclusion. Job creation and replication.

The Nature Conservancy Belize: Technical Assistance.

HRI: M&E. Spatial planning to avoid risks.

Viwala: Analysis and product design. Product management and attraction of co-investors.

MARTAF: Early stage capital. Partnerships for development (e.g. Alliga).



CORAL REEFS

- ← Habitat for mobile species
- ← Storm protection/
Attenuates wave energy
- ← Attracts human activity
(fishing, recreation)

MANGROVES

Nurseries for reef fish (larvae)
Shelter from predation (adults)
Plant detritus provides food

Source of nutrients and
Dissolved Organic Carbon (DOC)

Filter and trap sediment
Excess nutrient buffer
Retains heavy metals
Anti-acidification
Stabilizes reef salinity
Direct shading

Storm protection/
Attenuates wave energy

SEAGRASS

Large area for larval settlement
Grazing "halos" around reefs
Intermediate fish habitat

Source of nutrients and DOC

Filter and trap sediment
Excess nutrient buffer

Storm protection/
Attenuates wave energy

ECOSYSTEM CONNECTIVITY IS CRITICAL

MAR Carbon

The Problem: Mangrove loss in the MAR is 34%, 10% higher than loss in the Greater Caribbean (24%), and 8% higher than globally (26%). This affects the life cycles of commercial and coral species that need the critical interconnection between mangroves and coral reefs.

Solution: MAR Carbon

Organizations Involved

Coral First Impact: Maintain and restore critical connectivity between coral and mangrove.

Financial Return: Inception: baseline on CMPAs will inform financial plan and capital needs.

*** Potential to share profit with Emergency Fund.**

Co-benefits: Focus on CMPAs to generate solutions to close financial gaps and reduce reef dependence. Gender inclusion.

Resiliencia Azul: Local NGO advancing blue carbon projects in Mexico.

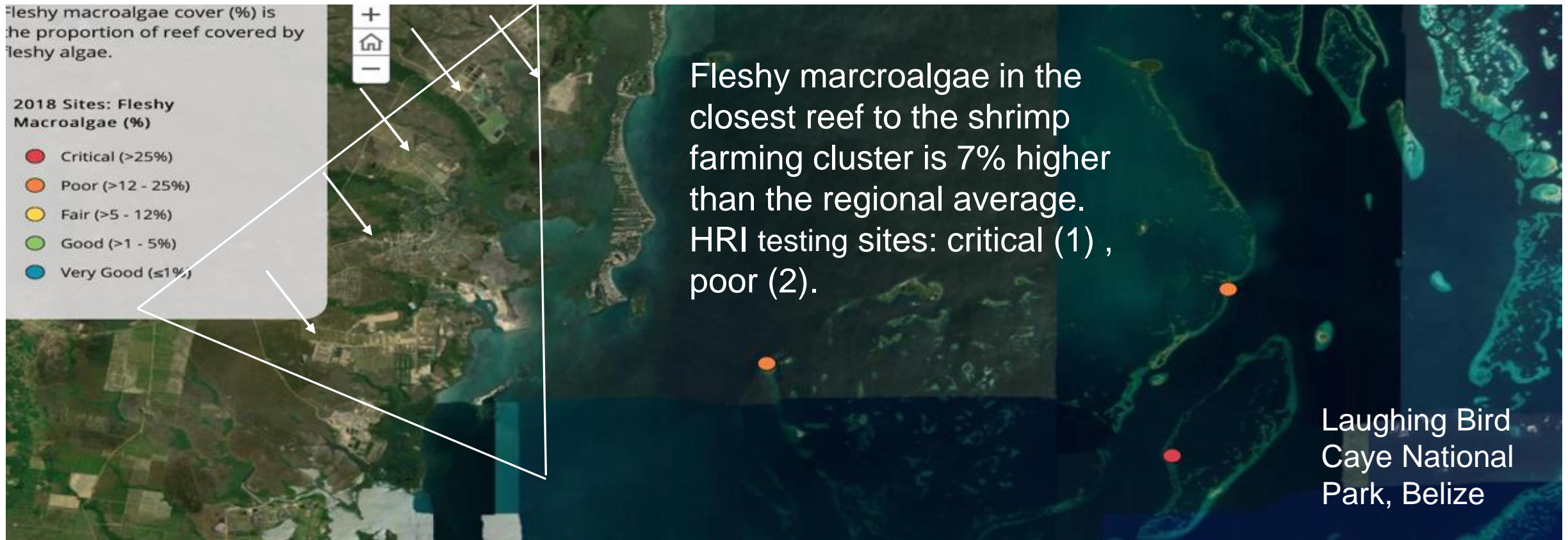
Mexican Carbon Program: Coordinates at the national level research efforts related to the physical, geochemical, biological, and social aspects of the carbon cycle. **CINVESTAV** and **ENES – UNAM**

Financing: **MAR Fund, FMCN, TOF** (pilot project that will issue bonds in 2023). MARTAF will provide grant financing for MAR Carbon (design and baseline).

Smithsonian Institution assisting Belize national assessment and NDC.

Aquaculture: Shrimp farming impacts

HRI has several monitoring sites on reefs in close proximity to shrimp farming. All have high fleshy macroalgae cover which reduces reef resiliency.



Aquaculture - Shrimp farming

Problem: Runoff from aquaculture is impacting the interconnected ecosystems of mangrove, seagrass and corals.

Solution: Provide financing to adopt zero effluent technology (intensive circulation system for shrimp farming).

Organizations Involved

Coral First Impact:

Zero aquaculture runoff in every farm that adopts the new technology. The change will help to reduce nutrient pollution which has reduced coverage of threatened seagrass in Placencia lagoon and contributes to high fleshy macroalgae cover in southern reefs.

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- **Placencia Lagoon: Potential declaration as protected area.**
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Financial return: To be determined. Viwala designed a loan product.

Co-benefits: Recovery of at least 1,000 jobs (mostly women).

A baseline will be established in inception. Phases will be established.

BSGA: Shrimp growers association. Client information and coordination.

HRI: M&E. Co-design environmental tools.

WWF Centra America: Technical Assistance. Over a decade of work in certification of shrimp industry and development of better practices.

Viwala: Credit analysis. Product management. Attraction of additional capital.

Waste water treatment plants

Problem: Non-existent and incomplete sewage treatment.

Solution: During the project preparation period, MAR+Invest partners approached key actors to explore the possibilities for the generation of a portfolio of waste water treatment plants.

Coral First Impact:

Roatan – Caye Caulker (priority areas); Reduction of pathogens - causing disease.

Reduction of nutrient pollution causing macroalgae overgrowth.

Financial returns: To be established.

Co-benefits: To be established.

Organizations Involved

CORAL and Polo's Water Board: preparation of financial report for implementation and operations of water boards in Roatan.

Ministry of the Blue Economy and Civil Aviation in Belize.

BWSL: Belize Water and Services Company.



Proposed operation

Core Structure

Impact monitoring and evaluation
Build & Connect
Financing Facility
MARTAF

HRI
FMCN
New Ventures
MAR Fund

Search for initiatives

Calls for proposals

Support to be provided

Technical Assistance
Pipeline and portfolio development

- **Grants**
 - **Concessional** - Loans
 - **Blending** - Impact incentives
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THANK YOU!
