

NOAA
FISHERIES
SERVICE



Manell-Geus Habitat Blueprint Focus Area Site

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Science Sunday
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D. Burdick



A framework to improve habitat for fisheries, marine life, and coastal communities

VISION:

Healthy habitats that sustain resilient and thriving marine resources and communities

PURPOSE:

Framework for NOAA to think and act strategically across programs and with partner organizations to address the growing challenge of coastal and marine **habitat loss and degradation**

OUTCOMES:

- Sustainable and abundant fish populations
- Recovered threatened and endangered species
- Protected coastal and marine areas and habitats at risk
- Resilient coastal communities
- Increased coastal/marine tourism, access, and recreation




A framework to improve habitat for fisheries, marine life, and coastal communities

Focus Area Criteria:

1. Potential to demonstrate long-term impact
2. Feasibility of making measureable progress in 3-5 years.
3. Cross NOAA Collaboration
4. External Partnerships and potential to link resources
5. Improves our scientific understanding of habitat function
6. Builds social and cultural attributes into ecosystem or watershed management.



A satellite map of the island of Guam, showing its green terrain and surrounding blue ocean. A yellow arrow points from the text label to a specific area in the southern part of the island, which is outlined in white. The area is identified as the Manell-Geus Watershed.

**Manell - Geus
Watershed
Merizo, Guam**

Data LDEO-Columbia, NSF, NOAA
Image Landsat
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



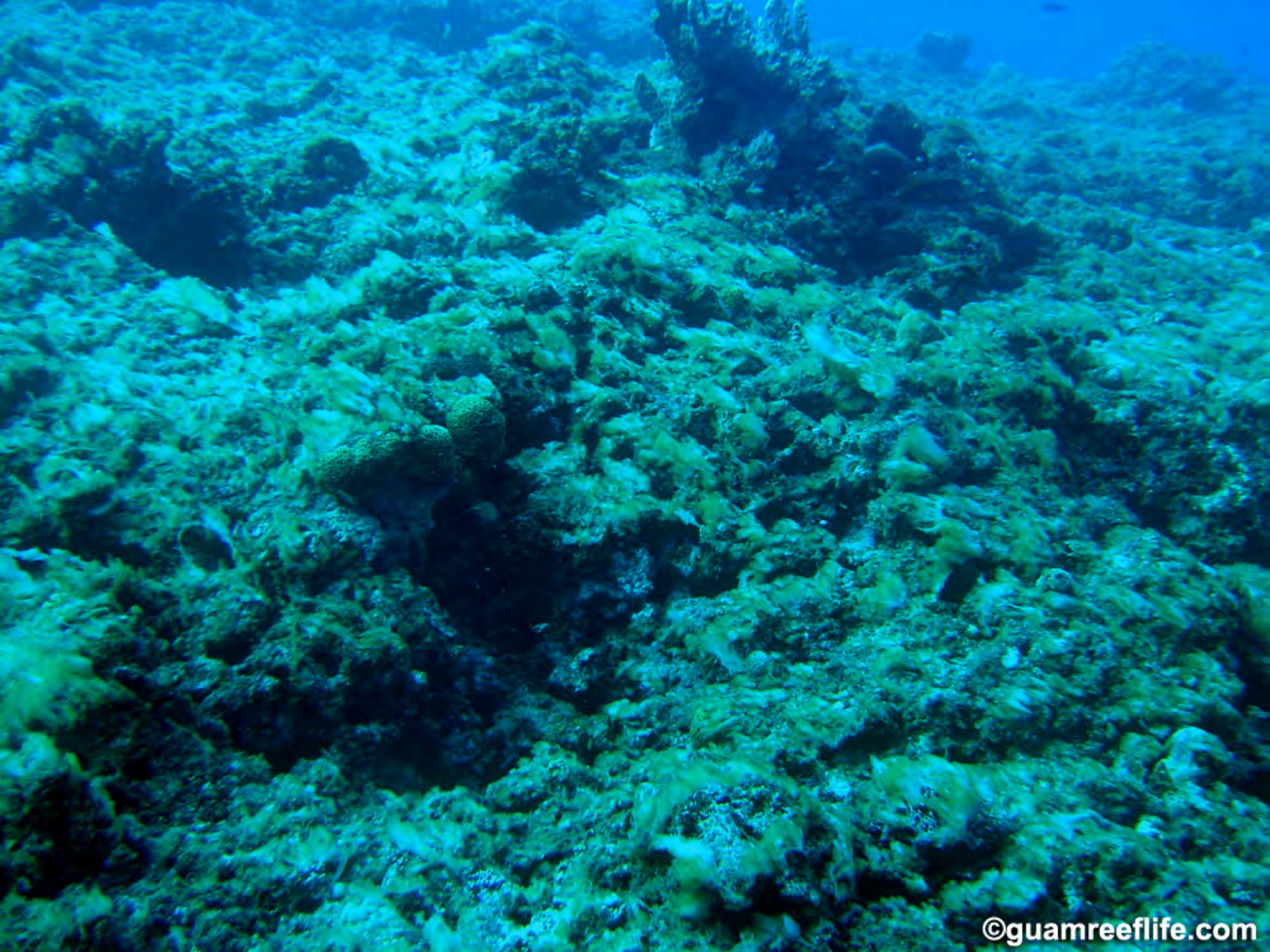


Geus

Manell

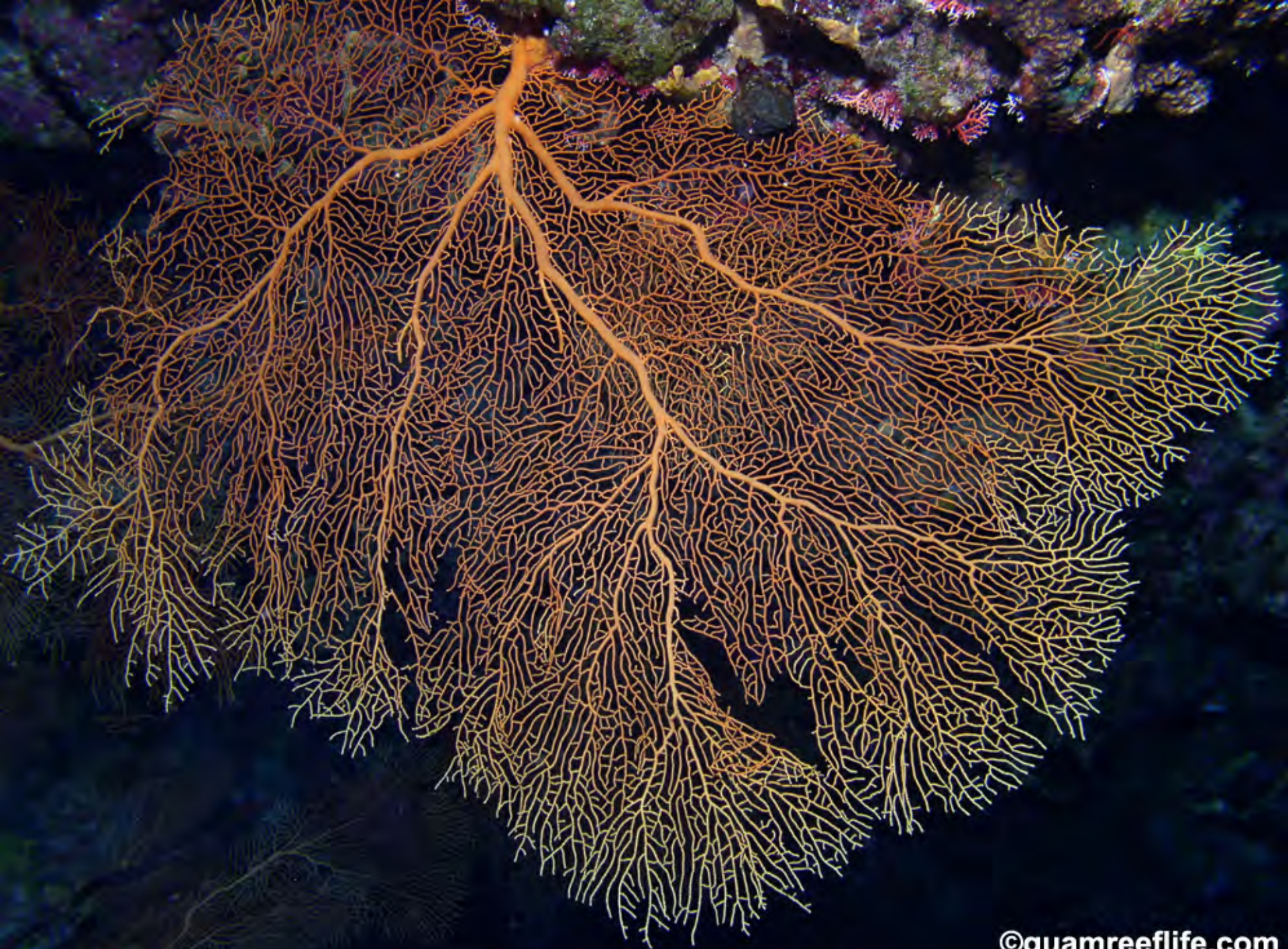
Cocos Lagoon

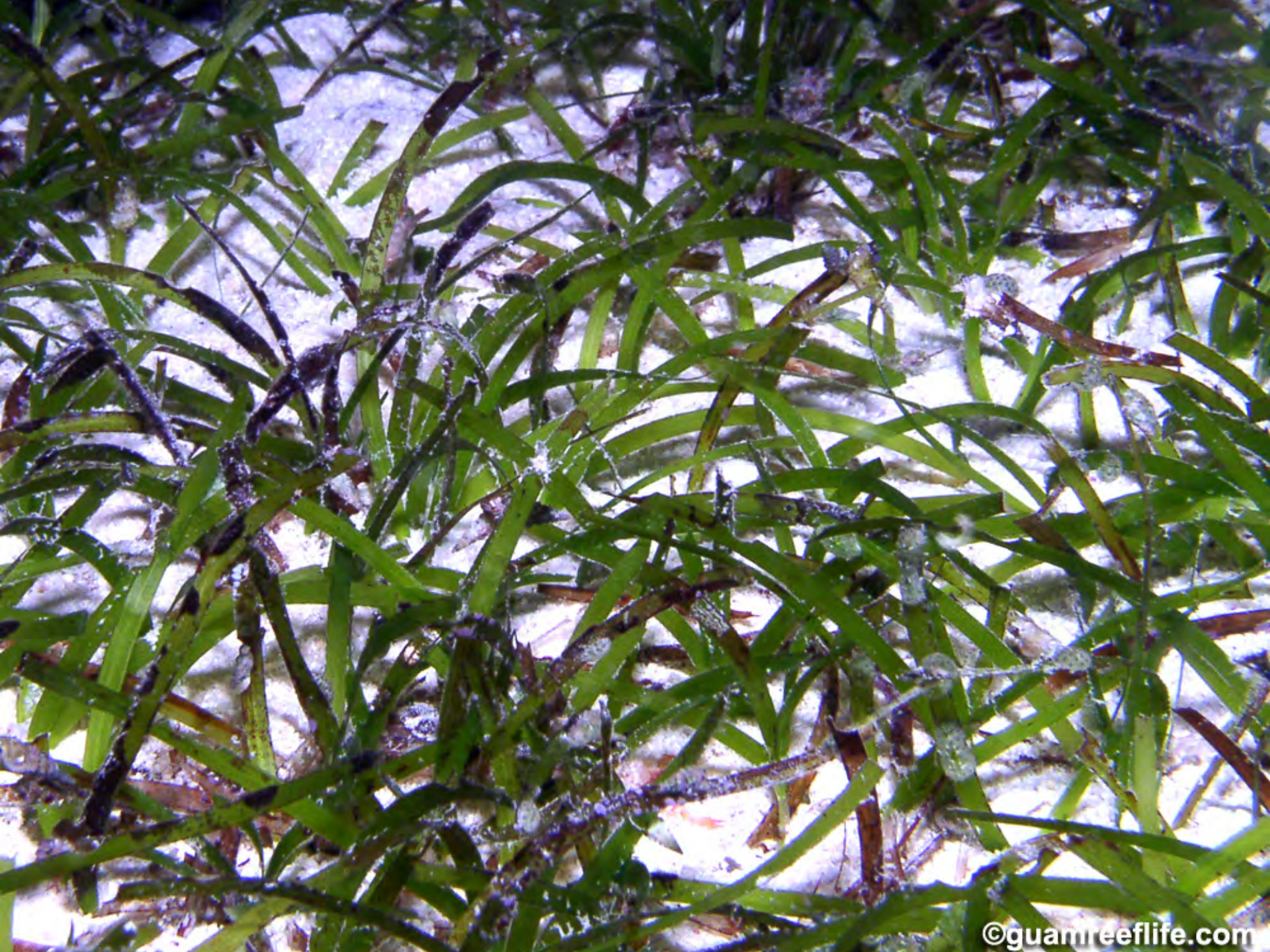
Achang Reef Flat
Marine Preserve



















Geus

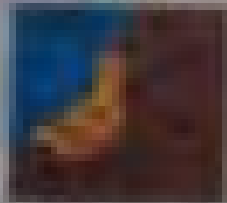
Manell

Cocos Lagoon

Achang Reef Flat
Marine Preserve

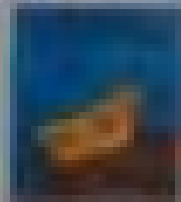
GUAM'S MARINE PRESERVES

TUMON BAY



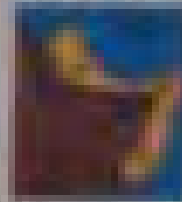
1975
1,000 sq. ft.
100 ft. deep
100 ft. wide
100 ft. long

PITI BOMB HOLES



1975
1,000 sq. ft.
100 ft. deep
100 ft. wide
100 ft. long

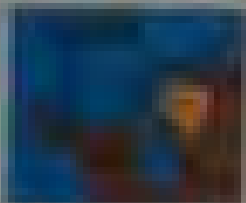
FATI POINT



1975
1,000 sq. ft.
100 ft. deep
100 ft. wide
100 ft. long

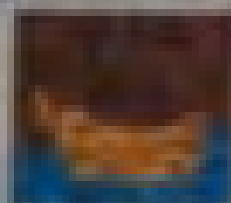


SASA BAY



1975
1,000 sq. ft.
100 ft. deep
100 ft. wide
100 ft. long

ACHANG REEF FLAT



1975
1,000 sq. ft.
100 ft. deep
100 ft. wide
100 ft. long

GENERAL RESTRICTIONS

- 1. No fishing, hunting, or gathering of marine resources within the preserve.
- 2. No collection of marine life for personal or commercial use.
- 3. No collection of marine life for scientific or educational purposes.
- 4. No collection of marine life for medicinal or religious purposes.
- 5. No collection of marine life for food or other purposes.
- 6. No collection of marine life for any other purpose.
- 7. No collection of marine life for any other purpose.
- 8. No collection of marine life for any other purpose.
- 9. No collection of marine life for any other purpose.
- 10. No collection of marine life for any other purpose.











Topics
(oral) Reports
Projects
Freshwater
(water, pool)
Humans
(water, lake)
Water (water)
Lake Field
October 1st
October 2nd
October 3rd



	Poor	Fair
Turtles		
Coral Reefs		
Forests		
Freshwater		
Humans (Healthy & Safe)		
Native		
Reef		
Octo		
Seagrass		



	Poor	Fair	Good
Turtles		✓✓	
Coral Reefs		✓✓	
Forests		✓✓	
Freshwater (Rivers, pools)	✓✓		
Humans (Healthy & Safe)	✓✓		
Native Crabs			✓✓
Reef Fish			✓✓
Octopus, squid, & shellfish			✓✓
Seagrass	✓✓✓		

	Poor	Fair	Good
Turtles		✓✓	
Coral Reefs		✓✓	
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Native Crabs	✓		✓✓
Reef Fish			✓✓
Octopus, squid, & shellfish			✓✓
Seagrass	✓✓✓		

Summary of Threats from MG CAP

	CORAL REEF ECOSYSTEM	FOREST ECOSYSTEM	FRESHWATER ECOSYSTEM	HEALTHY & SAFE HUMAN COMMUNITIES	NATIVE WILDLIFE	REEF FISH & EDIBLE INVERTS	SEAGRASS ECOSYSTEM	TURTLES	MANGROVE ECOSYSTEM	SUMMARY THREAT RATING
OVER-HARVESTING	MEDIUM			LOW	MEDIUM	HIGH		VERY HIGH		HIGH
SEDIMENTATION	HIGH		HIGH	LOW			MEDIUM			HIGH
INVASIVE SPECIES		HIGH	LOW	MEDIUM	VERY HIGH					HIGH
EROSION		HIGH	HIGH	MEDIUM						HIGH
FIRE		HIGH		MEDIUM	LOW					MEDIUM
FLOODING	LOW		LOW	HIGH			LOW			MEDIUM
PCB				MEDIUM						LOW
CROWN OF THORNS STARFISH	MEDIUM									LOW
PHYSICAL DAMAGE	LOW	LOW	LOW				LOW		LOW	LOW
SUMMARY TARGET RATINGS:	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	HIGH	LOW	HIGH



Upper reaches of the
Geus River



Upper reaches of the Geus River









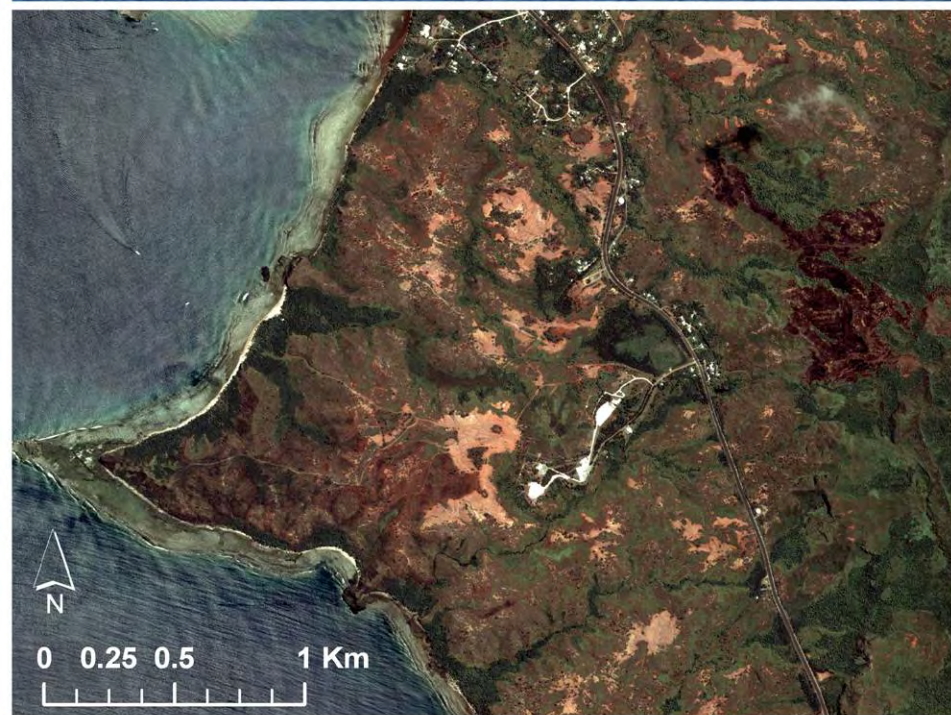


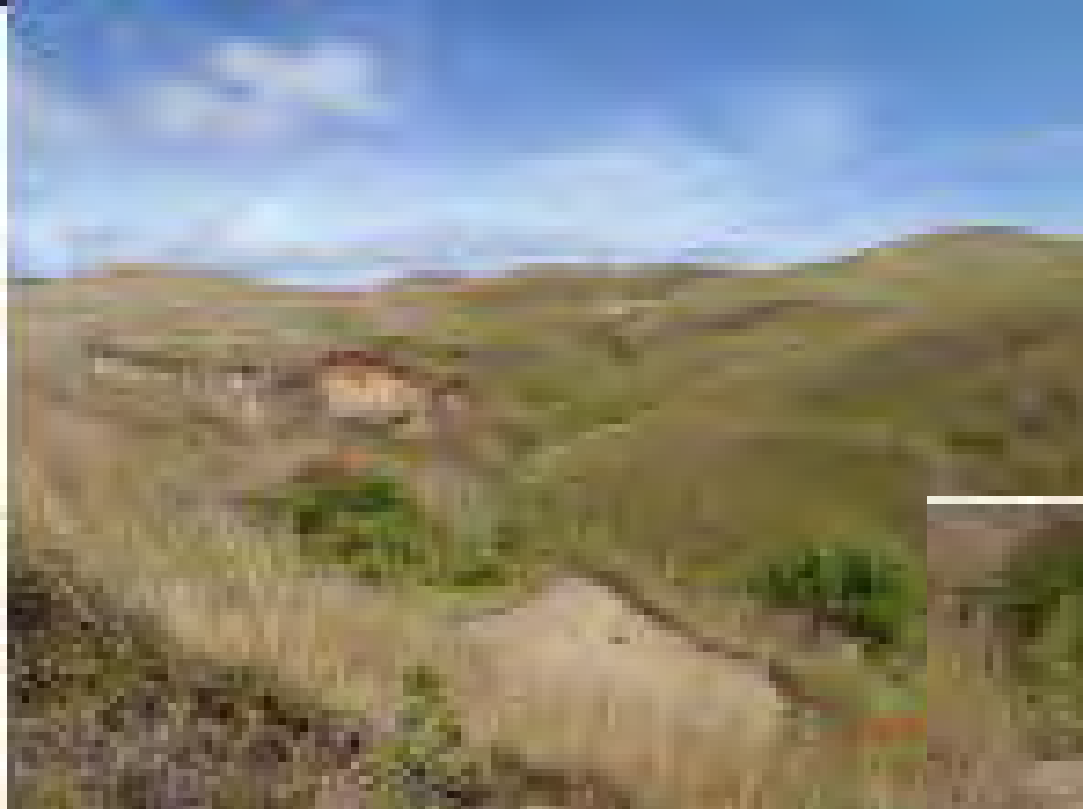




Threats

- Erosion
 - Fire, Streambank Erosion, Shoreline Erosion, Off-roading, and Invasive Species
- Sedimentation
- Flooding
- Climate Change
- Marine Debris
- Crown of Thorns Starfish
- Over-harvesting
- Lack of Public Awareness

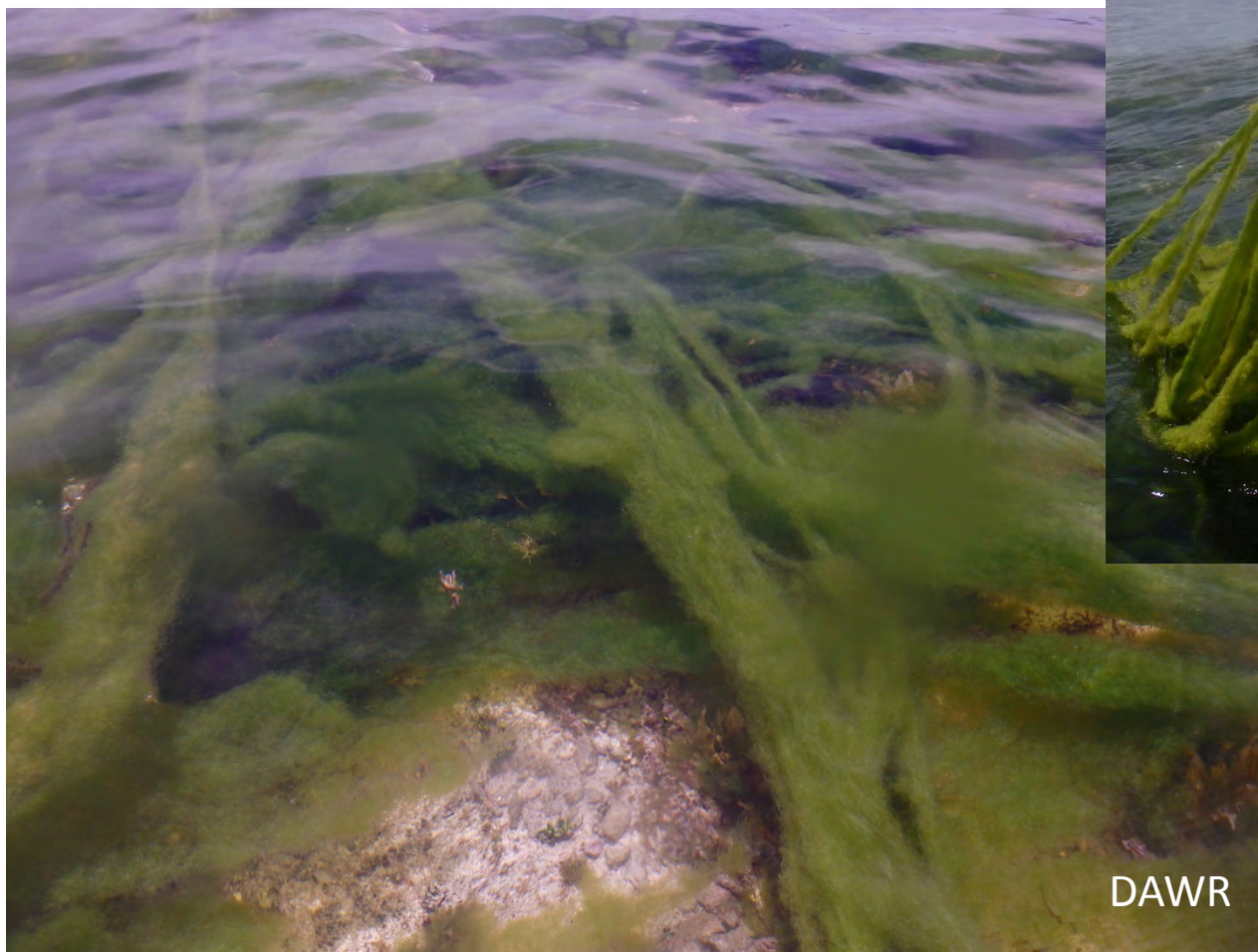








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SERVICE**



DAWR

DAWR



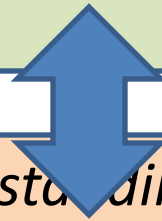






Draft Habitat Focus Area Objectives

- Prevent and reduce discharge of land-based pollutants, such as sediment and nutrients, to coral reef ecosystems.
- Identify and implement management actions to increase coral reef health and resilience and mitigate localized climate change effects to coastal communities, coral reefs, and marine resources.
- Support community and local capacity to manage coral reefs and coastal and marine resources.

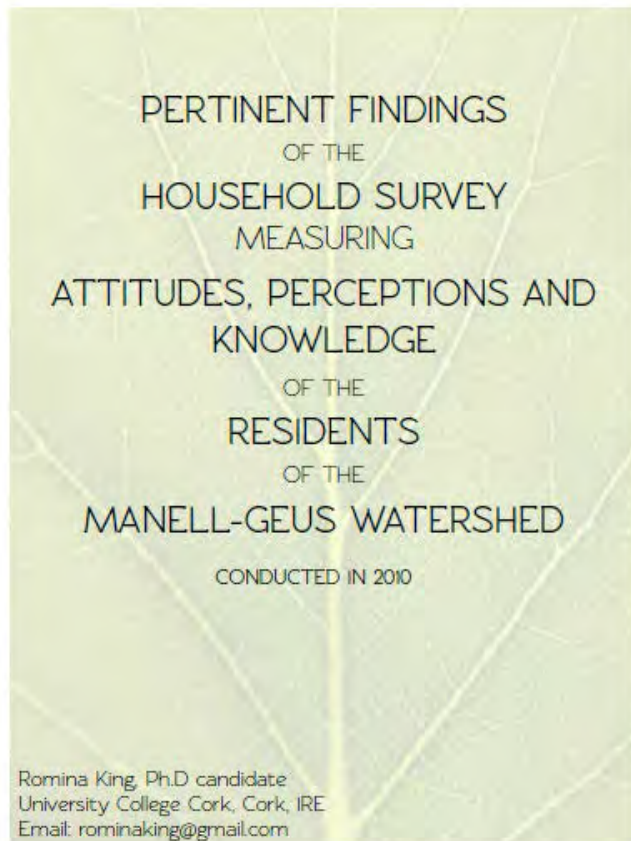


Build and expand the understanding of biological, physical, and climate related factors to habitat condition through improved data collection and modeling, and provide the necessary tools and information to communities and local resource managers.



Work Completed

- Manell-Geus Conservation Action Plan Updated
- Na Para I Guafi – RARE Pride Campaign about Wildfires Completed
- Household Survey on Attitudes, Perception and Knowledge of the Residents of the Manell-Geus Watershed (King 2013).
- Assessment of the publicly owned areas of the Geus, Liyog, and Asgadao Rivers in the Manell Watershed





Work In Progress

- NOAA testing streambank stabilization , bamboo removal, and riparian buffers in the Geus, Liyog and Asgadao Sub-Watersheds
- Center for Island Sustainability Community Rain Garden Program
- NOAA setting up small grants program to enhance propagation of native plants and availability of erosion control materials





Work In Progress

- Guam Long Term Monitoring Program to establish sites on the forereef of the Achang Reef Flat Marine Preserve and Cocos East
- Guam Community Coral Reef Monitoring Program to identify groups in Merizo and establish reef flat sites in the Achang Preserve
- NOAA CRED baseline fish surveys along fore reef in Achang MP, Cocos East, and Cocos Lagoon



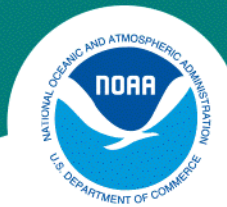
Work In Progress

- Department of Agriculture Forestry and Soil Resources Division Forest Stewardship Program
- USDA-NRCS private landowners Wetland Reserve Program
- Community coral ambassador program
- Guam Fire Department/UOG Extension - Fire prevention and safety education and outreach



Future Work

- Update the CAP for Habitat Blueprint
- Conduct Baseline Ecological Surveys of Reef Flats, Mangroves, and Streams
- Establish Socio-economic monitoring and baseline
- Additional plantings to prevent erosion and stabilize streambanks
- Cleanup of the Tire Reef in Cocos Lagoon and under Merizo Pier
- Satellite tracking of resident sea turtles in Cocos Lagoon
- WERI study: Assessment of turbidity in the Geus River Watershed in Southern Guam
- Leverage partnerships to encourage DPW and FHWA to help improve stormwater management in the village



Partners

Existing Partners:

Guam Coastal Management Program

Merizo Mayor's Office

Guam Department of Agriculture

- Division of Aquatic and Wildlife Resources

- Forestry and Soil Resources Division

The Nature Conservancy

Guam Environmental Protection Agency

University of Guam

- Water and Environmental Research Institute

- Center for Island Sustainability

- Marine Laboratory

USDA Natural Resource Conservation Service

Environmental Education Committee/ GNA

Humatak Community Foundation

Humatak Project

NMFS PIFSC

NMFS RC

Marianas Research and Development Council

Potential Partners:

UOG College of Natural and Applied Sciences

Guam Department of Public Works

Federal Highway Administration

Guam Community College

TASI

San Dimas Parish

Ayuda Foundation

Soil and Water Conservation Districts

Merizo business owners

Cocos Lagoon marine operators

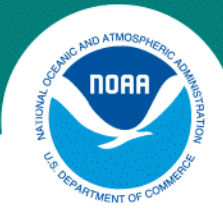
Guam Visitors Bureau



Challenges

- Reconciling the mission goals of the numerous partners
- Funding hard infrastructure improvements to address flooding and safety issues
- Continued fires may be difficult to address
- Concern about PCBs in fish in Cocos Lagoon
- Some of the work will have to take place on private land





Results in 3-5 Years

- **Coral Reefs** – Decrease sedimentation impacts in the next 5 years
- **Seagrass Beds** – Maintain or increase areal extent and density of beds over the next 5 years.
- **Mangroves** – Establish monitoring plan to detect changes in the health of the mangrove forests.
- **Stream Beds** – Improve stream habitat and increase presence of native fauna in at least 3 streams
- **Community** – Increase community engagement in conservation programs



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Long Term Results

- Resilient reefs and terrestrial habitats that will be able to sustain the people of Merizo well into the future.



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- A safer, more resilient and engaged human community



Si Yu'os Ma'ase!

