An aerial photograph of a tropical coastline. The ocean is a vibrant blue, transitioning to a lighter turquoise near the shore. White waves are breaking onto a dark, sandy beach. In the distance, a city skyline is visible under a blue sky with scattered white clouds.

Suitability Guidelines for Determining Optimal Locations for Submerged Cable Landings on Guam



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September 22, 2023

Hafa Adail

It is with great pleasure that the Bureau of Statistics and Plans, Guam Coastal Management Program (GCMP) present this guideline in accordance with Section 75A209 of Public Law 36-108. This document represents a pivotal movement based on a unified effort to steer Guam towards a responsible and balanced approach in the development and protection of our coastal waters and the resources they contain. The information you will find in this document titled, *Suitability Guidelines for Determining Optimal Locations for Submerged Cable Landings on Guam*, is to serve as a guidance for siting approval(s) as well as an agency decision reference that is meant to assist with developing the appropriate project design and or potential mitigation based on the unique and specific project(s) being reviewed at the planning and permitting stages. For planning purposes, the update interval for this guidance is estimated to be every two years. This document is not to be substituted for permitting requirements imposed by various local and federal regulatory agencies.

The guidelines contained in this document is not merely a checklist of environmental factors that should be looked at expeditiously, but rather this is a testament to policy makers, advocates, regulatory agencies, and the community's shared vision and commitment to fostering a thriving, resilient, and harmonious approach to the management of our territorial waters and life below the sea.

We extend our deepest gratitude to the dedication, expertise, and passion of our partners and communities that help to inform this document. Your commitment to Guam's well-being is a testament to our shared love for this island and its people.

Si Yu'os Ma'ase

Edwin J.C. Reyes
 GCMP Coastal Program Administrator

Lola E. Leon Guerrero
 BSP Director

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The Bureau of Statistics and Plans Guam Coastal Management Program would like to thank all who contributed to developing this guideline.

Introduction

Pursuant to Public Law 36-108, the Bureau of Statistics and Plans (BSP), Guam Coastal Management Program (GCMP) has developed this guideline in order to provide a process that ensures the siting and construction of submerged cable landing(s) on Guam is conducted in a well planned and responsible manner that does not have detrimental impacts on the marine ecosystem, aesthetic quality, beach accessibility, accessibility for fishing and recreation, and public access of Guam's territorial waters. This document represents a collective effort of Government of Guam Agencies who have a mutual interest in the submerged lands and resources of Guam resources. Stakeholders were engaged through a gathering of community, academic, and resource managers at Guam's first Submerged Lands Partnership Summit held in 2023.

There are two parts to this guideline. The first part is GCMP's initial review of what would constitute optimal areas for landing of submarine cables. This is achieved through the *Suitability Guidelines for Determining Optimal Locations for Submerged Cable Landings on Guam*. This section is to serve as a policy standard for siting approval(s) as well as an agency decision reference document that is meant to assist with developing the appropriate mitigation based on project(s) being reviewed at the planning and permitting stages in addition to any appropriate assessment supporting material required by the reviewing authority. The second part to this guideline is the record of GCMP's planning formulation and public participation which consist of a compendium of attachments that capture BSP GCMP's due process of engaging the network local and federal agencies through meetings and the public, and other stakeholders during the Submerged Lands' Summit through a fair and transparent process.

PART I. GUIDELINES, STANDARDS, AND SUITABILITY ORDERS FOR SUBMERGED CABLE LANDING SITES ON GUAM

The purpose of this section is to provide a description for the suitability classes, whose function is to provide information on a set of existing conditions within or related to a geographic area in which the cumulative traits, features, aesthetic values, recreational use, and/or quantity of resources make up the ranking structure which differentiates the components within each of the categories. Each of the class ranking is an indicator as to the degree of suitability orders of compatibility of cable land sites as it relates to Public Law No. 36-108 Bill No. 277-36 (COR) Underseas Access for Homes Act. The descriptions in this document were synthesized from two agency and stakeholder planning meetings. The scale consists of four categories that provide a description of features that can be used to determine the suitability of an area being considered for landing cables in Guam's submerged lands, whereas Highly Suitable is an area that would be most suitable due to its minimal impact to natural, historical, cultural, and recreational resources whereas, at the opposite end of the scale, the classification of unsuitable would be an area to avoid/or not site cable landings.

Highly Suitable	Moderately Suitable	Marginally Suitable	Not Suitable
S1	S2	S3	NS

<p>The following description of conditions shall make an area highly suitable for cable landings.</p> <p style="text-align: center;">S1</p>	HIGHLY SUITABLE DESCRIPTION
	<p>Resource: Area has no sensitive benthic habitat (i.e. area has loose rocks and predominantly made up of sediment, sand and/or turf algae), no coral reefs, and or historic resources. Area will not result in take or incidental take of endangered species act (ESA) species. Benthic habitat consist of uncolonized substrate or aggregate 90% - <100% and or macroalgae 90% - 100%</p>
	<p>Use: There is no direct or downcurrent impact on long-term monitoring sites, coral restoration nurseries, or coral restoration sites, dive sites, historic sites. The area is not known for fishing or critical breeding grounds for biological marine species.</p>
<p>Constraints: The area has little flushing and is frequently impacted by sedimentation and resuspension of sedimentation. Site is located in an area with a high number of freshwater seepage or hydrological drainage. Areas using the same footprint that has been previously used for current landing infrastructure provided that no impact is made outside of the existing footprint and to opportunistic species within the existing footprint.</p>	

	GEPA Water Quality Classification: M-3 waters based on established designated use.
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<p>The following Descriptions of conditions shall make an area moderately suitable for cable landings.</p> <p style="text-align: center;">S2</p>	MODERATELY SUITABLE DESCRIPTION
	<p>Resource: Area has some sensitive benthic habitat (i.e. area has loose rocks and predominantly made up of sediment, sand and/or turf algae), some coral cover of at least 10% cover, and or historic resources. Area will not result in the take of ESA species. Benthic habitat consist of Coralline algae 10% - <50%, Uncolonized Substrate or aggregate 50% - <90%, Turf algae 50% - <90% , Macroalgae 50% - <90%, and or Seagrass 10% - <50%</p>
	<p>Use: The action shall not cause more than minimal and incidental sediment suspension and no adverse impacts long-term monitoring sites, coral restoration nurseries, or coral restoration sites, dive sites, historic sites.</p>
	<p>Constraints: The area has frequent flushing and is moderately impacted by sedimentation and resuspension of sedimentation. Site is located in an area with a moderate number of freshwater seepage or hydrological drainage.</p>
	GEPA Water Quality Classification: M2 waters based on established designated use.

<p>The following description of conditions shall make an area marginally suitable for cable landings.</p> <p style="text-align: center;">S3</p>	MARGINALLY SUITABLE - DESCRIPTION
	<p>Resource: Has some coral cover of at least 15% in the area, which is made up of mostly hardier and more resilient species. The area has some smaller, faster-growing seagrasses and will not exceed incidental take standards. . Benthic habitat consist of Coral 10% - <50%, Macroalgae 10% - <50%, Seagrass 20%-<50%, and or Coralline algae 50% - <90%</p>
	<p>Use: The action shall not cause more than incidental sediment suspension and no adverse impacts on long-term monitoring sites, coral restoration nurseries, or coral restoration sites, dive sites, historic sites.</p>
	<p>Constraints: The area has frequent flushing and acceptable water quality. Site is located in an area with a minimal number of freshwater seepage or hydrological drainage.</p>
	GEPA Water Quality Classification: M2 waters based on established designated use.

<p>The following description of conditions shall make an area unsuitable for cable landings.</p> <p style="text-align: center;">NS</p>	<p>NOT SUITABLE DESCRIPTION</p>
	<p>Resource: Has large areas of sensitive or valuable marine species such as seagrass, coral reefs, and mangroves. Area has a high density of listed endangered species. Area is known for turtle foraging/breeding/nesting grounds. Area contains historic sites. Benthic habitat consist of Coral 50% - <90% and or Seagrass 50% - <90%</p>
	<p>Use: Is in close proximity to long-term monitoring sites, coral restoration nurseries, or coral restoration sites, dive sites, historic sites.</p>
	<p>Constraints/marine conditions: Area with high flushing. Areas where potential pollutant releases are minimal. Area with hard bottom substrate and or optimal depth suitable for coral recruitment. In close proximity to seamounts, vents or fracture zones and or areas with high flushing rates.</p>
	<p>GEPA Water Quality Classification: M1 waters based on established designated use and waters designated as an "Outstanding Resource."</p>

This document is to serve as a guideline for siting approval(s) as well as an agency decision reference document that is meant to assist with developing the appropriate mitigation based on project(s) being reviewed at the planning and permitting stages in addition to any appropriate assessment supporting material required by the reviewing authority. An Environmental Assessment or Environmental Impact Statement are standard characterizations tools useful for understanding the benthic resources impacts caused by Cut and Cover and Horizontal Directional Drilling cable landing methods. This document is not to be substituted for permitting requirements imposed by various local and federal regulatory agencies. The following links can be used as planning tools.

The Water and Environmental Research Institute hosts a Digital Atlas of Northern and Southern Guam. WERI's website is a digital resource center for data related to the physical and environmental characteristics of Guam. Its purpose is to provide accurate and easily accessible baseline information to government agencies, environmental specialists, educators, students, and all interested parties.

https://south.hydroguam.net/gis_download.php

https://north.hydroguamDownload GIS data.net/gis_download.php

The US Army Corps of Engineers produce a Guam Shoreline Atlas which can be used to describe the physical characteristics of the Guam shoreline, with emphasis on shorelines experiencing erosional problems, containing at-risk infrastructure, or needing shore protection. This Atlas comprehensively documents current shoreline conditions throughout Guam, providing shoreline managers with baseline information and a tool for future planning efforts.

<https://bsp.guam.gov/quam-shoreline-atlas/>

PART II: GUIDELINE DEVELOPMENT PROCESS

This guideline represents the Bureau of Statistics and Plans (BSP), Guam Coastal Management Program (GCMP) response to meeting the mandates of Section 75A209 of Public Law 36-108. This document is a pivotal movement based on a unified effort to steer Guam towards a responsible and balanced approach in the development and protection of our coastal waters and the resources they contain. The information you will find in this document was developed by Subject Matter Experts (SME) from local and federal agencies who have a regulatory, research, or stewardship interest in the submerged lands on Guam through two agency meetings on Feb 28, 2023 and March 28, 2023.

The approach used to develop this guideline was predicated on garnering a consensus among SMEs on agreeing to a set of criteria that would make an area optimal for landing telecommunication cables on Guam based on the impacts that would occur during the installation and construction process. The first meeting on February 28, 2023 provided an overview of the intent of PL 36-108 and discussed the best way to identify optimal sites for landing cables. The agencies agreed that establishing suitability orders that specify the criteria in which an area is optimal would be a reasonable approach to meeting the spirit of the law. The second meeting on March 28, 2023 provided an opportunity for agencies to go over the updated suitability orders and criteria as well as prepare for the Submerged Lands Summit. The construction methods that were identified were those that could have an impact on marine ecosystem functions. The two methods consist of Cut and Cover and Horizontal Directional Drilling. Cut and Cover is the most destructive method and poses the most environmental impacts to marine resources. This practice is discouraged. Horizontal Directional Drilling also has a risk of inadvertent release of drilling fluid if the drill path strikes a fisher that connects upward to the sea floor. After a consensus was reached on the criteria for suitable areas, GCMP worked with the SME's to engage the public at Guam's 1st Submerged Lands Summit in which attendees participated in identifying areas along the range of suitability classes.

The guideline and standards contained in this document is not merely a checklist of environmental factors that should be looked at expeditiously, but a reference document to help the Chamorro Land Trust work toward the rulemaking process of requiring applicants to provide information on the existing state of resources of the proposed lease areas and to discourage approving lease in the NS and S3 categories.

For planning purposes, the update interval for this guidance is estimated to be every two years. The program will also explore the creation of suitability maps based on the availability of updated benthic hi-resolution mapping. This document is not to be substituted for permitting requirements imposed by various local and federal regulatory agencies.

APPENDICES

APPENDIX I: Agency Meeting February 28, 2023

AGENDA

SUBMERGED LANDS PARTNERSHIP CONFERENCE (SLPC) - PRE-PLANNING MEETING AGENDA | February 28, 2023 | 9:00 AM - 10:00 AM | Virtual Google Meet

Goal to identify marine area suitability classes for cable landing sites based on avoidance and or minimal impact(s) to the (biological, physical, historical, recreational) environment.

Introductions and Welcome:

Objectives:

- Gather key stakeholders during pre-planning meetings to develop the agenda for the SLPC.
 - Key stakeholders and their roles: Identify the key stakeholders who will be involved in the planning and regulation of the Submerged Lands.
 - Who will provide a Submarine Cable Landing overview (what is it and where are they now) - what level of engagement do we want landing proponents to participate in the forum/process?
- Discussion on existing Geographic Information System (GIS) data relevant to the planning area and to identify additional data needed
 - Existing data
 - Submerged Lands: CHamoru Land Trust Commission (CLTC) and Federal
 - Marine Preserve Areas (MPAs)
 - Defacto MPAs
 - Benthic Habitat Maps
 - Existing Cable Landing Sites
 - Updated Bathymetry
 - Areas of Particular Concern
 - Surface Danger Zones and Danger Zones
 - Federal Parks
 - Historical Areas of Significance
 - Discussion on additional needed data
- Discussion on criteria to classify the divisions of suitability orders that indicate the degree of suitability.
 - Highly suitable (S1)
 - Moderately suitable (S2)
 - Marginally suitable (S3)
 - Unsuitable for environmental reasons (N2)
- Discussion on the process for stakeholder engagement (need input from stakeholders).
 - Participatory mapping
 - Guided questions:
 - Identify fishing areas

- Identify recreational areas
- **Meeting wrap-up & Q&As:** Summarize the key points discussed and confirm the date and time for the next meeting.
- **Next Steps**

Other topics: (PacIOOS Buoys Community Meeting)

MEETING MINUTES

SUBMERGED LANDS PARTNERSHIP CONFERENCE VIRTUAL PRE-PLANNING MEETING MINUTES February 28, 2023 | 9:00 AM - 10:00 AM | Google Meet

Goal to identify marine area suitability classes for cable landing sites based on avoidance and or minimal impact(s) to the (biological, physical, historical, recreational) environment.

Introductions and Welcome

Ed Reyes, GCMP Administrator: Welcome remarks, meeting is recorded.

GCMP Role - Land use planning, implementing and developing the Comprehensive Development Plan. Tasked to identify cable landings. How can we bring institutions together and inform CLTC in cable landing decisions? Call to use scientific information to make better management decisions as it relates to the common practice of cable landings in Guam.

How: Recognize we depend on the network to provide information. This is the kick-off to that information. Create and refine the SLS agenda and identify classes through a range of suitable through unsuitable.

Bill 277 calls for collaboration among institutions to use scientific information, resource characterization information, and best practices to make better management decisions. The discussion document attached to the email was referred to, which aimed to identify marine area suitability classes for cable landing sites based on minimal impact.

Look at the areas spatially and hopefully identify specific mappable areas that we can then narrow down the locations of where these preferred cable landing sites could possibly be suggested.

New Stakeholders:

Joseph M. Borja, DLM Director: Add *Guam Ancestral Lands Commission*.

Summit Day

Panels List

Ed Reyes, GCMP Administrator: It would be beneficial if we request a panel for the private sector that prevents them from co-locating.

- Economic
- Environmental
- Planning

Morning: Plenary

Afternoon: Participatory Mapping with Trained Facilitator

Discussions

Permitting discussion: Permits are reviewed for environmental impacts during the application process. Different pathways for cable landing permits or through a fully reviewed permit from the Core (USACE), identification of who reviews depending on the permit engaged, and the overview of the nationwide permit presented to the group. General overview of permitting team: GEPA, DOAG, USACE, GCMP.

Participatory mapping: Capture relevant spatial information, identify data gaps, classify nearshore areas of Guam into unsuitable, highly suitable, or anywhere in between, and recommend preferred cable landing sites. Identification of data gaps: Discussions to identify data gaps, such as nursery habitats for certain fish species, to understand the full impact of cable landing activities.

Maria K., GIS: Hardcopy maps and compute zoom into all the layers. Will use a bathymetry layer.

Approval process: Preliminary to the permitting and approval process through BSP, current approval through federal consistency based on the review structure, and legal clarification needed. Proactive in the regulatory system of preferred sites. Approval is required by BSP and the establishment of fees to cover the approval process.

Best Practices:

Engage with USACE Regulatory and EPA. Look at other jurisdictions and the long-term operations maintenance decommissioning and recommissioning certain sites.

Data/Sites/Maps List

1. Long-term monitoring sites to collect more data.
2. Turtle nesting sites.
3. Utilizing military land for landing sites.
4. Map: Limited hard bottom and high rates of sedimentation for placement of cable.
5. Submerged ancient Chamoru artifacts and monolithic structures need to be identified and protected. No policy regarding those areas.
6. 2020 lidar bathymetry data available for near-shore waters to map out areas of concern.
7. Coral, Mangroves, Seagrass, Research Sites, Restoration Sites, Nurseries.
8. Data gaps: Soft bottom habitats and certain fish species.
9. Wetlands.
10. Existing and new CLS.
11. MPAs, Defacto MPAs.
12. Hazardous areas.

13. Recreational areas.

Existing Cable Landing Sites/Infrastructure:

Matt Giger:

Existing cable landing sites were suggested as potential priority areas for retrofitting and reuse to minimize costs and environmental impact. Biological considerations were discussed, and it was suggested that existing sites would have less impact on the environment as they have already undergone biological events.

The impact of logistics and anchoring on the environment would have to be looked at by an environmental group.

Challenges with Current and New CL Sites:

Jesse Cruz, EPA:

The meeting discussed the challenges of establishing new cable landings and the advantages of using existing ones. Key points:

- The need to minimize the environmental impact when establishing new cable landings.
- It is difficult to regulate because private companies own the land portion of the landing sites.
- The issues with the current operators of the existing cable sites, who have already maxed out the number of usable lines they have. Currently, it is 6 tubes per site. It is hard to regulate 6 tubes.
- The difficulties in negotiating co-location of land-based sources infrastructure among different providers, co-locating lines together, or renting out space in existing conduits.
- The preferred practice for proposed cable landings is horizontal directional drilling to minimize the environmental impact.
- The need to consider zoning certain areas that would only allow environmentally safe cable landings.
- The challenges are deciding on the best location and regulating proposed cable landings.
- The need to find ways to accommodate new cable lines at existing landing sites.
- The need to maintain Guam EPA 401 water quality certification for cable landings.
- The importance of complying with guidelines and having mitigation plans to clean things up.

Andrea, Speaker Terlaje's Office:

Noted that the law allows for the designation of cable landing zones and suggested that the experts consider this option.

Questions posed:

Senator Perez:

1. Can more tubes be added?
2. Has NOAA weighed in on the conversation?

Additional Comments and Data Mentioned:

- *Joseph M. Borja, DLM Director*: Recommend new legislation to have GCMP be the “Adminstrator” of the Guam Territorial Seashore Protection Commission.
- Need for an overriding plan to address erosion and degradation of the coastline.
- *Jason Biggs, DOAG, DAWR* recommended - Dr. King et al.'s high-res nearshore Drone-GIS layers (unsure if available) but these might get finer resolution in terms of bottom types, including relative percent coral cover
- *Dave Burdick, UOG*: We have long-term coral reef monitoring data for parts of the forereef in Tumon Bay, East Agana Bay, Tepungan Bay, Fouha Bay, Achang Bay, and the east side of the Cocos barrier reef. We also have 20 shallow sites distributed around the island--we survey those during coral bleaching events, and are ramping up to survey them in between events as well, to track recovery. There's also the NOAA RAMP cruises data, which is island-wide in scope.

PACIOSS Buoy:

Schedule some time to talk about other marine spatial needs and ways that we can look at informing PACIOOS. Schedule some projects in the future to provide updates to marine wave data that could be useful to mariners and other folks. Jason is on the governing board here so that we can work that into the next topic.

DRAFT AGENDA

Objective:

- Gather key stakeholders during pre-planning meetings to develop the agenda for the SLS.
 - Key stakeholders and their roles: Identify the key stakeholders who will be involved in the planning and regulation of the Submerged Lands.
 - **Guam Ancestral Lands Commission**
 - **CLTC**
 - **BSP/GCMP**
 - **GEPA**
 - Who will provide a Submarine Cable Landing overview (what is it and where are they now) - what level of engagement do we want landing proponents to participate in the forum/process? **Need to identify a speaker.**
- Discussion on existing Geographic Information System (GIS) data relevant to the planning area and to identify additional data needed
 - Existing data
 - Submerged Lands: CHamoru Land Trust Commission (CLTC) and Federal
 - Marine Preserve Areas (MPAs)
 - Defacto MPAs
 - Benthic Habitat Maps
 - Existing Cable Landing Sites
 - Updated Bathymetry
 - Areas of Particular Concern

- Surface Danger Zones and Danger Zones
 - Federal Parks
 - Historical Areas of Significance
 - Discussion on additional needed data
- Discussion on criteria to classify the divisions of suitability orders that indicate the degree of suitability.
 - Highly suitable (S1)
 - Moderately suitable (S2)
 - Marginally suitable (S3)
 - Unsuitable for environmental reasons (N2).
- Discussion on the process for stakeholder engagement (need input from stakeholders).
 - Participatory mapping
 - Guided questions:
 - Identify fishing areas.
 - Identify recreational areas.
- **Meeting wrap-up & Q&As:** Summarize the key points discussed and confirm the date and time for the next meeting.
- **Next Steps**

Other topics: (PacIOOS Buoys Community Meeting)

End Meeting

APPENDIX II: Agency Meeting March 28, 2023

AGENDA

SUBMERGED LANDS PARTNERSHIP CONFERENCE (SLPC) - FINAL PLANNING MEETING

AGENDA | March 28, 2023 | 9:00 AM | Google Meet

Goal to finalize the Agenda for the Submerged Lands Summit

Morning Session: Cable Landing Sites

Objective #1 to identify marine area suitability classes for cable landing sites based on avoidance and or minimal impact(s) to the (biological, physical, historical, recreational) environment. **DONE**

Objective # 2, Develop policy and standards that define each suitability order (Please work on drafts ahead of the meeting.

Highly Suitable	Moderately Suitable	Marginally Suitable	Unsuitable for environmental reasons
S1	S2	S3	N2

Objective # 3, Identify Speakers for Plenary One. Existing conditions of Cable Landings on Guam.

The purpose of this plenary is to provide the audience with a general understanding of the context of what is involved with the siting, construction, and landing of cables on Guam. The general overview can include examples and/or comparisons of existing landing sites and as well as discuss the evolution of drilling technology and lessons learned from prior landings.

Objective # 2, Identify Speakers for Plenary Two Marine Spatial Data

The purpose of this plenary is to provide an overview using local scientific data regarding the existing condition of Guam's marine area. Topics can include an overview of data on the array of benthic resources that could be used as a basis for establishing suitability classes. Discussion on climate change can also provide information useful for long-term planning.

Objective # 3, Determine context of regulatory session

Objective # 4, Finalize afternoon session(s)

DRAFT Agenda Overview

7:30 am - 8:30 am - Registration

8:25 am - 8:30 am - Introductory Remarks. Edwin Reyes, GCMP Administrator

8:30 am - 8:40 am - Welcoming Remarks TBD (BSP Director/Lt. Gov)

8:40 am - 8:50 am - Opening Remarks (Request Speaker Terlaje)

9:00 am -10:00 am - Plenary One: Existing conditions of Cable Landings on Guam

- GTA, NMFS, EPA, BSP USACE, UOG ML

10:00-- am - 10:15 am - Break

10:15 - 11:00 am - Plenary Two: Marine Spatial Data Matt Santos, Maria Kottermire, Romina King, Dr. Camacho, UOG, Dave Burdick

- What does the existing data tell us about the condition of Guam's Marine Area
- What climate conditions should we be concerned with

11:00 am - 12:00 pm - Regulatory agency report out
CLTC, TSPC, DLM, GALC

12:00 pm - Lunch - Marine Spatial Planning Overview - GCMP

1:00 pm - 2:00 pm - Marine Spatial Planning (MSP) and Participatory Mapping

- Discussion on the process for stakeholder engagement (need input from stakeholders).
- Mapping exercise.

2:00 pm - 2:30 pm - Group or individual report out on MSP

2:30 pm - Discussion on Afternoon Session

PacIOOS Buoys Community Meeting

Other topics

LIST OF ATTENDEES

	First name	Last name	Email
1	Margaret	Aguilar	margaret.aguilar@epa.guam.gov
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MEETING MINUTES

SUBMERGED LANDS PARTNERSHIP CONFERENCE VIRTUAL PRE-PLANNING MEETING MINUTES March 28, 2023 | 9:00 AM - 10:00 AM | Google Meet

Goal to finalize the Agenda for the Submerged Lands Summit.

Edwin R. GCMP: Introductions and agenda overview.

Matt G., Royal Sustainable Investments: Discussed existing cable landing sites and living reefs. Talked to Pat Lujan about what he does and what to do if you come across places that might be of historical value?

Edwin R. GCMP: Develop a narrative or script to help define suitability class S1.

Joseph B., Director DLM: Suggests to change summit to partnership conference. The summit is for government officials, government policymakers, BSP, and private companies to reach common ground. DLM cannot provide information to make a policy. DLM doesn't have much in the matter until the development of the cable landing site. Change the name so that everyone can benefit from the outcome of the conference. There is confusion between the Submerged Land Summit and the upcoming Land Summit. Suggested adding Speaker Terlaje as a presenter or speaker on the bill she proposed.

Edwin R. GCMP: Asked the group to vote to change the name from Submerged Land Summit to Submerged Land Partnership Conference.

Group: Unanimously agreed to vote to change the name from Submerged Land Summit to Submerged Land Partnership Conference.

Edwin R. GCMP: Discussed the narrative for Highly Suitable.

Matt G., Royal Sustainable Investments: Highly Suitable should take into consideration the submerged archaeological sites and the coastline down to 1000 ft.

Patrick L., Guam State Historic Preservation Office: Have to do underwater archaeological surveys as part of the planning process. Out of the entire areas that have been surveyed little has been done on land based on WWII remnants like ships. Make sure those are properly surveyed prior to any of that happening.

Edwin R. GCMP: Develop standards before development happens. Advocate for early coordination. Try to identify spatial and try to have a process to make sure those resources are protected.

Edwin R. GCMP: Develop a script to define what is moderately suitable in this class.

Julian J., GCMP: Missing is data on the slopes, that a good developable site should have low to moderate slopes as it goes from the sea to the shore. Not have a cliff face because you can't install cable landings on a cliff. Also avoid coastal erosion that will harm the natural resources in the water.

Edwin R. GCMP: We'll capture that and see how we can further clarify that.

Jess Cruz, GEPA: One of the things Julian triggered was the slope. Should we consider depth ranges for the sea as well? Highly suitable should have a depth range, moderately suitable will have a depth range.

Edwin R. GCMP: Identify the threshold to identify them along a gradient. It can also be further research we can get answers for.

Matt G., Royal Sustainable Investments: An example would be a tension cable at the end to end. The greater the slope, the greater the tension and the more impact it has on the sea floor.

Edwin R. GCMP: Develop Marginally Suitable class.

Jess Cruz, GEPA: Suggested adding similar to terrestrial species the same should be said for marine species, recently listed coral species, fisheries habitat breeding areas, and essential fish habitat.

Edwin R. GCMP: Discussed unsuitable for environmental reasons.

Romina K., UOG: Were mangroves considered under the suitability categories?

Edwin R. GCMP: Right now, we're considering it.

Romina K., UOG: Consider mangroves into marginally and unsuitable categories.

Jess Cruz, GEPA: It occurred to me, too, GEPA has a water quality classification map where the island has tiers, Those tiers are based on designated uses; just a comment to incorporate GEPA water quality classification system into the designation of these areas.

Edwin R. GCMP: This will help us to script and provide good examples for the suitability classes. The Agenda for Plenary One, did reach out to GTA to be part of the partnership event. Have them comment on what goes into cable landings and lessons learned. We spoke about having (agencies listed) want input from people who can provide CLS decisions.

Any thoughts on the first plenary session? DOAG? Who would the group like to see in the first plenary? Are we missing anyone or should we proceed to request anyone? 1 hr, 10-15 mins per presenter with time for Q&A, so four people at the most.

Jess Cruz, GEPA: Discussed existing conditions - GEPA or DOAG they are tasked with reviewing those applications as they come in. Keep USACE because they issue the nationwide permit, depending on the scope, scale, and methodology of the landing that would dictate our local responses to the permit that would be a good way for them to provide a presentation on nationwide permitting.

Edwin R. GCMP: Discussed adding the context of how the 2050 sustainability plan can be covered.

Margaret A., GEPA: Agrees with the idea of GTA adding a positive experience in getting approval or other successful applicants to share their experience. What allowed them to lay their cable successfully and would be good info for anyone in the crowd participating? What do they need to avoid?

Edwin R. GCMP: Work to secure plenary listed and commitment from folks. Plenary 2: What is science telling us about the priorities within our marine resources? We would like these people to participate. Anyone in the group commit from UOG or other research arms?

Romina K., UOG: - Dave Burdick will be a good opener since he is the coordinator for the long-term. I hope he is able to. I have no problem talking about some of the coral reef mapping we've been doing We're presenting that at a different preconference session. It's easy to bring that presentation over to this after. Other things consider also providing a list of atlases and tools that are already existing that help with the submerged lands partnership so people are aware of geospatial resources.

Edwin R. GCMP: We did a call out for GIS data to populate a list of resources and created a repository of inventory that can serve as a portal to help manage the SRP, inform our goals and objectives, and inform the CLS.

Frank C., UOG: Recommends adding more information about permit application, construction, monitoring, and compliance. Who are the agencies involved in the permit application, who do we file reports to for compliance and monitoring after the fact? It will be useful to the public.

Edwin R. GCMP: We can provide a 10-15 min overview of the agencies involved and what roles they play in the permitting and development process.

Warren P., DPR: Has there been any consideration in the use of Horizontal drilling, (Ref: PUAG sewer Island project) from Cable Landing facility, underground to a depth of 200', cable(s) would enter there. This method would limit the impact on marine and environment.

Edwin R. GCMP: We'll take it back and see if we can get an answer for you. SLPC Mapping Exercise will use spatial information about areas we need to know about and use Romina's comment to collect GIS info to build inventory, a useful tool to identify existing conditions for multiple uses, not just cable landings. Build a map to inform the future planning processes. It will be hands-on.

Chris H., Lynker: Before President Trump killed coastal marine spatial planning nationwide, I finished the American Samoa Ocean Shore Action Plan. Reach out to us and we can provide access to all info and notes from initial Guam meetings on high level marine spatial planning and issues. We can help.

Edwin R. GCMP: Last session on PACIOOS session. Have a list of research capabilities for Guam. Hear from the group what their needs are and discuss community moderating system projects and high-resolution information at less deep waters. Discuss info can be helpful for the marine recreational community. Thanked everyone for their participation. Discuss issues and what we need to know about. The wealth of info will also help to help inform our Seashore Reserve Planning, which we continue to work on. Mark calendars, April 11th.

End Meeting

APPENDIX III: Submerged Lands Partnership Proceedings

PRESS RELEASE



BUREAU OF STATISTICS AND PLANS

Guam Coastal Management Program



FOR IMMEDIATE RELEASE - April 4, 2023

Guam Coastal Management Program (GCMP) Announces the Submerged Lands Partnership Conference

Hagåtña, Guam - The Guam Coastal Management Program (GCMP) proudly announces the Submerged Lands Conference (Conference), scheduled for Tuesday, April 11, 2023, from 8:00 am to 5:00 pm at the Hyatt Regency Guam. The Conference serves as a platform to identify preferred sites for cable landings in compliance with the Guam Undersea Access for Homes Act (GUAHA), as outlined in Guam Public Law 36-108, Section 75A209, as well as capture data and information that will help better manage our submerged lands and coastal waters.

The framework for this partnership will include a data collection phase which will be used to analyze existing baseline conditions and constraints, which will produce information to guide future preferred alternatives to guide in the management of our submerged lands and coastal waters. In addition to panels on data and best practices and lessons learned from existing cable landings, the Conference will delve into identifying short-term and long-term impacts on marine environments, public access issues, impacts on recreational activities, and other important topics.

The first half of the Conference will kick off with Plenary Sessions to provide a general understanding of the context of what is involved with the permitting sitting, construction, and landing of cables on Guam. The second half will contain an overview of marine spatial planning, a discussion on the suitability of various marine spatial planning classes, and a mapping exercise for stakeholder engagement. Lastly, a Pacific Islands Ocean Observing System (PacIOOS) Buoys Community Meeting with Dr. Jordan Watson will foster Guam boaters' participation in deploying buoys to collect high-resolution ocean data for local uses.

GCMP invites stakeholders to attend the Submerged Lands Partnership Conference and engage in discussions shaping the future of Guam's undersea access and cable landing sites. Seats are limited, so please register at <https://tinyurl.com/SLPguam> if planning on attending. For more information on the Submerged Lands Partnership Conference, please email the Guam Coastal Management Program at gcmp@bsp.guam.gov or visit www.bsp.guam.gov.

BUREAU OF STATISTICS & PLANS - GOVERNMENT OF GUAM
Mail: P.O. Box 2950 Hagåtña, Guam 96932 Tel: (671) 472-4201/3 Fax: (671) 477-1812 Web: www.BSP.Guam.Gov

There is no cost to attend this event. This event is funded by a grant from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) through the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management and the Guam Coastal Management Program (GCMP) of the Bureau of Statistics and Plans, Government of Guam through the Cooperative Agreement Award NA22NOS4190193.

About the Guam Coastal Management Program - The Guam Coastal Management Program is a government agency responsible for implementing the Coastal Management Act and is responsible for implementing the development and natural resource planning function of BSP. The GCMP promotes responsible and sustainable coastal and ocean management through partnerships, education, and outreach.

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BUREAU OF STATISTICS & PLANS - GOVERNMENT OF GUAM

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NEWS: Guam Coastal Management Program (GCMP) Announces the Submerged Lands Partnership Conference

1 message

Krystal Paco-San Agustin <krystal.paco@guam.gov>
Bcc: yvonne.manglona-juaneza@bsp.guam.gov

Tue, Apr 4, 2023 at 4:46 PM

Håfa adai, Media Partners.

Sending on behalf of the Bureau of Statistics and Plans.

FOR IMMEDIATE RELEASE - April 4, 2023

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Krystal Paco-San Agustin, MPA, CM


Director of Communications

Office of the Governor of Guam

Ricardo J. Bordallo Governor's Complex

Hagåtña, Guam 96910

Phone: 671.472.8931

 **Guam Coastal Management Program (GCMP) Announces the Submerged Lands Partnership Conference.docx.pdf**
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https://www.postguam.com/news/local/undersea-access-summit-to-be-held-tuesday/article_06cb7110-d434-11ed-9909-2373f73a5694.html

Undersea access summit to be held Tuesday

DAILY POST STAFF

APR 9, 2023



SUBMERGED LANDS CONFERENCE: GTA's undersea cable station facility as seen in October 2022 in Piti. Stakeholders are invited to the Submerged Lands Partnership Conference where the importance of undersea cables, their placement, their impact, and how they can be beneficial to Guam will be discussed. David Castro/The Guam Daily Post

DAVID R. CASTRO

The future of Guam's undersea access and cable landing sites will be discussed this week at a summit held by the Guam Coastal Management Program, in which submarine cables play a critical role in global communications, according to the National Oceanic and Atmospheric Administration.

Stakeholders are invited to the Submerged Lands Partnership Conference where experts will dive into the importance of underwater sea cables, where they might be best placed in Guam's waters, their impact, and how they can be beneficial to the island.

"A cable landing point is the location where a submarine or other underwater cable makes landfall. The term is most often used for the landfall points of submarine telecommunications cables and submarine power cables. The landing will either be direct or via a branch from a main cable using a submarine branching unit," according to a release from the Bureau of Statistics and Plans Guam Coastal Management Program.

According to the GCMP, the key goals and objectives of the conference are:

- To provide a general understanding of the context of what is involved with the permitting, siting, construction, and landing of cables on Guam.
- To discuss the existing conditions of cable landings on Guam and what they mean for the marine area.
- To engage regulatory agencies in discussions related to submerged lands and how they impact Guam's marine area.
- To provide an overview of marine spatial planning and facilitate a mapping exercise for stakeholder engagement.

- To engage stakeholders in a discussion on the suitability of various marine spatial planning classes.
- To engage recreational and commercial boaters about shallow water data needs.

According to BSP, the conference will address topics such as analyzing existing baseline conditions, a list of constraints, and future preferred alternatives.

It will also allow for discussion of short-term and long-term impacts on marine environments, public access issues, and impacts on recreational activities.

Seats for the conference are limited.

MORE INFORMATION

Register at <https://tinyurl.com/SLPguam>

For more information on the Submerged Lands Partnership Conference, email the Guam Coastal Management Program at gcmp@bsp.guam.gov or visit www.bsp.guam.gov.

The Submerged Lands Conference will be held Tuesday, April 11 from 8 a.m. to 5 p.m. at the Hyatt Regency Guam.

FLYER

THE GUAM COASTAL MANAGEMENT PROGRAM PRESENTS:



APRIL 11, 2023
HYATT REGENCY GUAM

Join us for the Submerged Lands Partnership conference on Tuesday, April 11, 2023, from 8:00 am to 5:00 pm at the Hyatt Regency Guam, Ballroom A/B. This preconference, organized by the Guam Coastal Management Program and held in conjunction with the Center of Island Sustainability conference, aims to provide a platform for stakeholders to identify optimal sites for cable landings around Guam in compliance with the Guam Undersea Access for Homes Act (GUAHA) as outlined in Guam Public Law 36-108, Section 75A209.

The framework includes analyzing existing baseline conditions, a list of constraints, and future preferred alternatives. Furthermore, the partnership conference will delve into the identification of short-term and long-term impacts on marine environments, public access issues, and impacts on recreational activities.

The key goals and objectives of the conference are:

- To provide a general understanding of the context of what is involved with the permitting, siting, construction, and landing of cables on Guam.
- To discuss the existing conditions of cable landings on Guam and what they mean for the marine area.
- To engage regulatory agencies in discussions related to submerged lands and how they impact Guam's marine area.
- To provide an overview of marine spatial planning and facilitate a mapping exercise for stakeholder engagement.
- To engage stakeholders in a discussion on the suitability of various marine spatial planning classes.
- To engage recreational and commercial boaters on shallow water data needs.

**Please bring a laptop to view GIS mapping information.*



REGISTER HERE

*No charge for attendance.
Reserve your seat now.
Limited in-person seats available.*

For more information, please contact
Yvonne Manglona-Juaneza at
yvonne.manglona-juaneza@bsp.guam.gov
or visit our website at www.bsp.guam.gov

This event is funded by a grant from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) through the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management and the Guam Coastal Management Program (GCMP) of the Bureau of Statistics and Plans, Government of Guam through Cooperative Agreement Award NA22NOS4190193.



AGENDA

APRIL 11, 2023		HYATT REGENCY GUAM	
			
7:30 am - 8:30 am	Registration		
8:30 am - 8:35 am	Introductory Remarks		
	Edwin Reyes, Administrator, Guam Coastal Management Program		
8:30 am - 8:40 am	Welcoming Remarks		
	Lola Leon Guerrero, Director, Bureau of Statistics and Plans		
8:40 am - 8:50 am	Opening Remarks		
	Honorable Therese Terlaje, Speaker, 37th Guam Legislature		
9:00 am - 10:00 am	Plenary I: Current Practice and Regulatory Framework of Cable Landings on Guam		
	Dan Tydingco, Executive Vice President, GTA Teleguam Rajesh Kurian, General Manager, California Pacific Technical Services LLC (CalPac) Margaret Aguilar, Program Coordinator IV, Environmental Monitoring and Analytical Services Division, Guam Environmental Protection Agency Jeff Quitugua, Biologist, Guam Department of Agriculture		
	The purpose of this plenary is to provide the audience with a general understanding of the context of what is involved with the permitting, siting, construction, and landing of cables on Guam as well as foster discussion on technology, best practices, and policy improvements that can create "win-wins" in public and private missions.		
10:00 am - 10:15 am	Break		
10:15 am - 11:15 am	Plenary II: Existing Conditions Marine Spatial Data		
	Matt Santos, Deputy Director, Bureau of Statistics and Plans Dr. Peter Houk, Professor of Marine Ecology, University of Guam Marine Laboratory Maria Kottermaire, Geographic Information Systems Specialist, Bureau of Statistics and Plans, Guam Coastal Management Program		
	The plenary will provide context on the use of existing and baseline data in planning and development of decision support tools as well as potential application in permitting. This panel will also provide context on emerging scientific data regarding stressors in our marine environment related to land-based sources of pollution. This panel will also provide examples of our current approach to building a Geospatial Database and Marine Spatial Data framework to identify and classify features of our marine area in order to provide the best guidance on site suitability for cable landings on Guam.		
11:15 am - 12:00 pm	Plenary III: Administering and Stewardship Agency Report Out		
	Celine Cruz, Territorial Chief Planner, Guam Department of Land Management (Territorial Seashore Protection Commission) Joey G. Leon Guerrero, Land Agent III Guam Ancestral Lands Commission Alice Tajeron, Executive Director, Chamoru Land Trust Commission		
	The objective of this session is to engage administering and stewardship agencies to provide an overview of the process of discussions related to informing the public on processes and interests in Guam's Submerged lands as it relates to agency mandates.		
12:00 pm - 1:00 pm	Lunch - Marine Spatial Planning Overview - Guam Coastal Management Program		
1:00 pm - 2:00 pm	Suitability Class Discussion Marine Spatial Planning (MSP) and Participatory Mapping		
	<ul style="list-style-type: none"> • 20 Min - Discussion on the process for stakeholder engagement, see notes (need input from stakeholders) • 40 min Mapping exercise • Identify key resources that will be used to define/ create/ cluster/ nest features that will connect (align, inform, support, conform, translate into) to the Suitability Classes. 		
2:00 pm - 2:30 pm	Group or Individual Report Out on MSP		
	Summary of discussion		
2:30 pm - 3:00 pm	Break		
3:00 pm - 4:30 pm	Pacific Islands Ocean Observing System Overview and Backyard Buoys Community Workshop		
	Dr. Jordan Watson, Deputy Director Pacific Islands Ocean Observing System		
4:30 pm - 4:40 pm	Closing Remarks		
	Matthew Santos, Deputy Director Bureau of Statistics and Plans		
			

SPEAKER PRESENTATIONS

Dan Tydingco, Executive Vice President, GTA Teleguam

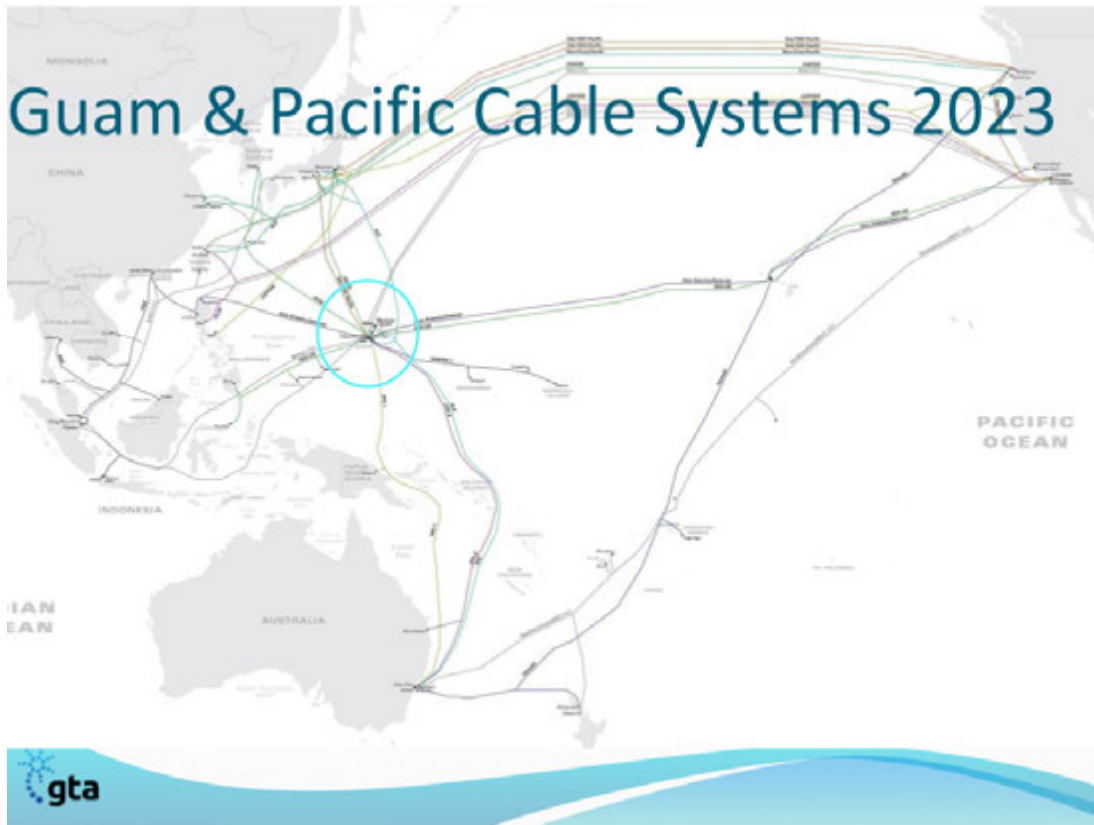
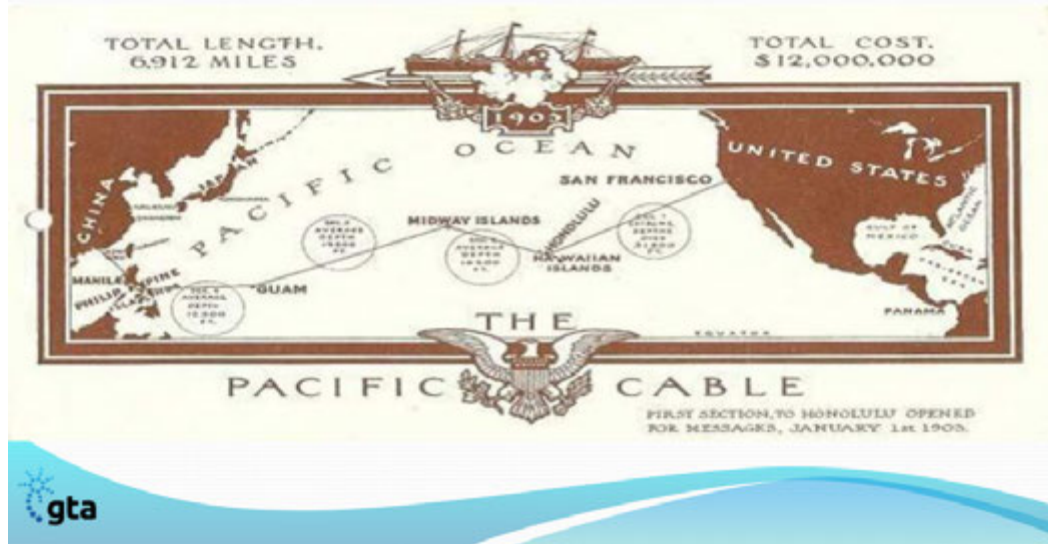
Current Practice and Regulatory Framework of Cable Landings on Guam



Undated US Navy Photo of the Commercial Pacific Cable Company in Sumay established on island in 1901.



Three years after the Spanish-American War, Guam's history with submarine cables began in 1901 with the Commercial Pacific Cable Company, a privately owned venture, laying a cable between the mainland U.S. and Guam via Hawaii. The Guam Cable Station in Sumay marked complete global encirclement with communications cables. The Sumay station also became a major communications hub housing cables to China and Yap; primarily as a center for typhoon warnings. By the way, the first message ever to travel around the globe traversed our island with a 4th of July message by President Teddy Roosevelt which took nine minutes to travel worldwide.



Guam & Pacific Cable Systems

12 Active Cable Systems

- TGN-P
- JGA-S
- JGA-N
- SEAUS West/East
- AIC
- AAG
- PPC-1
- GOKI
- ATISA
- Hantru-1
- Mariana Guam

Economic Impact

- **Attracts tech giants to increase presence in Guam**
- **Brings Advanced Technologies to Guam**
- **Grows demand for High Tech jobs on Guam**
- **Efficient Operations align with a Clean Industry**

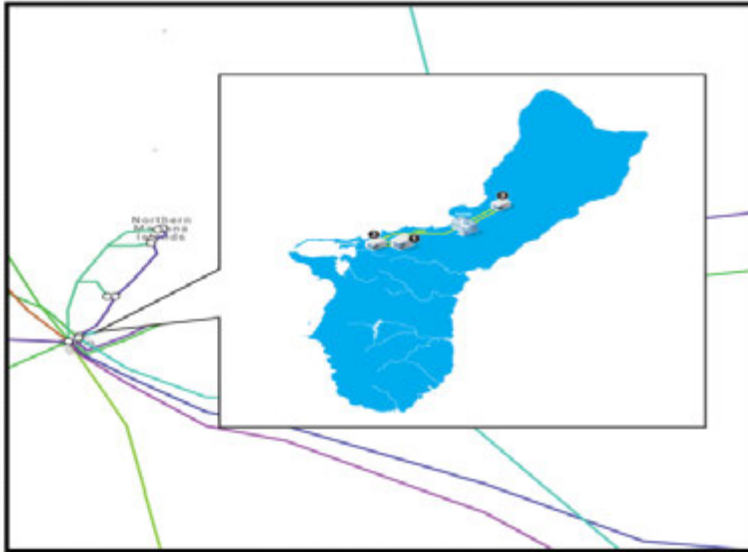
Cable System Age and Landing Points

Cable System	Landing Point	Cable Station	Year Installed	Areas Served
MGC	Tanguisson	AT&T Tanguisson	1997	Guam - CNMI
AJC	Tumon & Tanguisson	AT&T Tumon Bay & AT&T Tanguisson	2001	Australia - Guam - Japan
TGN-P	Piti	Tata Piti	2002	Guam-Japan - US
PPC-1	Agat	Tata Piti	2009	Guam-Australia
AAG	Tanguisson	AT&T Tanguisson	2009	Singapore, Malaysia, Brunei, Vietnam, Thailand, Hong Kong, Guam, Hawaii, US
Hantru-1	Piti	Tata Piti	2010	Guam-FSM-Marshalls
GOKI	Tumon	AT&T Tumon Bay	2013	Guam - Okinawa
SEAUS East and West	Piti	GTA	2017	Guam - Hawaii - US-Philippines-Indonesia
ATISA	Piti	Tata Piti	2017	Guam - CNMI
JGAN	Piti	GTA	2019	Guam - Japan
JGAS	Piti	GNC	2019	Guam - Australia
Echo	Agat & Piti	Tata Piti	planned	Singapore, Indonesia, Guam, US
Apricot	Agat	Tata Piti	planned	Singapore, Indonesia, Philippines, Taiwan, Japan
Bifrost			planned	
ACC-1			planned	

Balancing Regulation and Critical Infrastructure Development



Piti, GNC and Alupang



GTA submarine cable systems and landing stations located on western side of the island.



Federal and Local Project Compliance



2007 Nationwide Permit Program

- Published in the March 2007 Federal Register
- Effective March 19, 2007
- Expire March 18, 2012
- Available online at: <http://www.rfb.usace.army.mil/regulators/nwpp/hd>

Note: since affirmed by USACE, absent any changes to the current Nationwide Permits, re-verification of the applicability of your project under the Nationwide Permit is not required if work is completed by March 18, 2010.



Federal and Local Project Compliance



2007 Nationwide Permit Program

- Published in the March 2007 Federal Register
- Effective March 19, 2007
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- Available online at:
<http://www.frb.usace.army.mil/regulatory/nep/nd>

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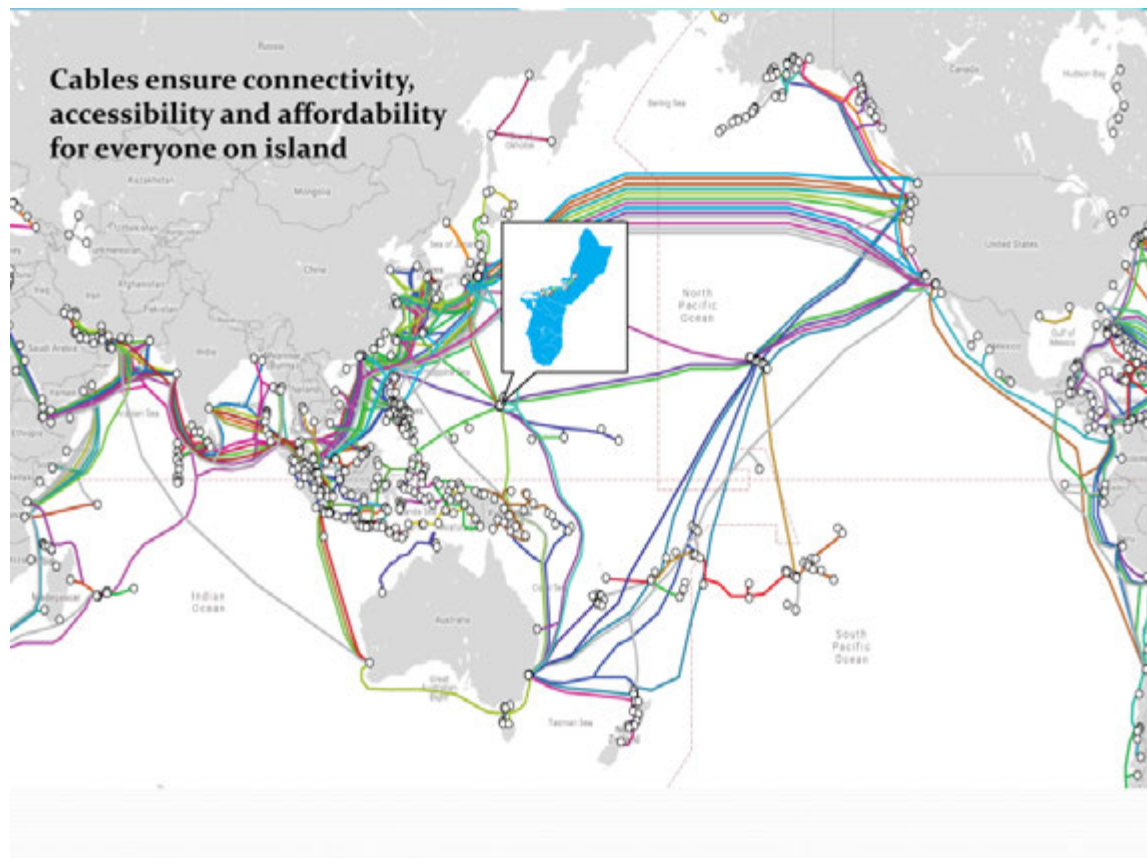


Landing in the Right Spot Doing the Right Thing



Suggested P.L. 36-108 Amendment

- §75A203. (b) The submerged lands to be licensed (Licensed Properties) shall extend from the line of mean high tide and seaward to a line three (3) geographical miles distant from the coastline and include an approximate ten (10+/-) feet wide corridor starting from the mean high tide watermark to the exit offshore for underground conduit infrastructure that would consist of such number of submerged cable ducts and landing pipes as necessary to operate its cable landing station; provided that the licensee shall not locate more than six (6) submarine cables and landing pipes within the Licensed Property. The landing pipes ~~may~~ **shall** be installed using the Horizontal Directional Drilling construction method, if required permits and approvals, and concurrence allow. Cut and cover methods on the reef crest and forereef are discouraged.



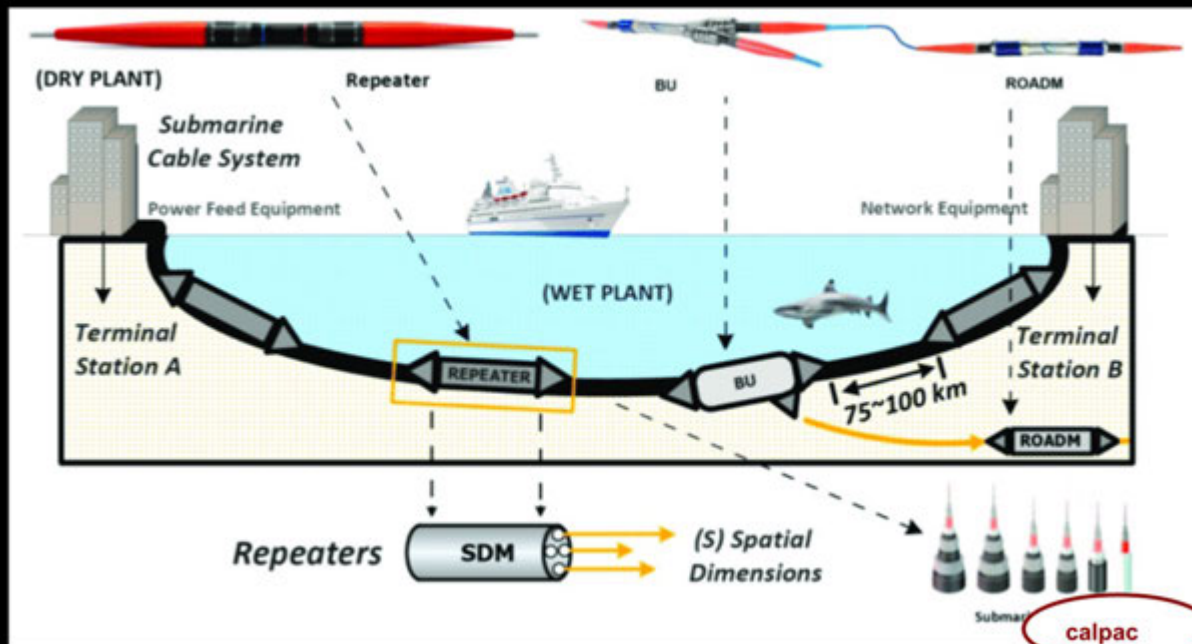
Attachment 3: Submerged Lands Partnership Proceedings
SPEAKER PRESENTATIONS

Rajesh Kurian, General Manager, California Pacific Technical Services LLC (CalPac)

Submarine Cable Direct Shore End Landing

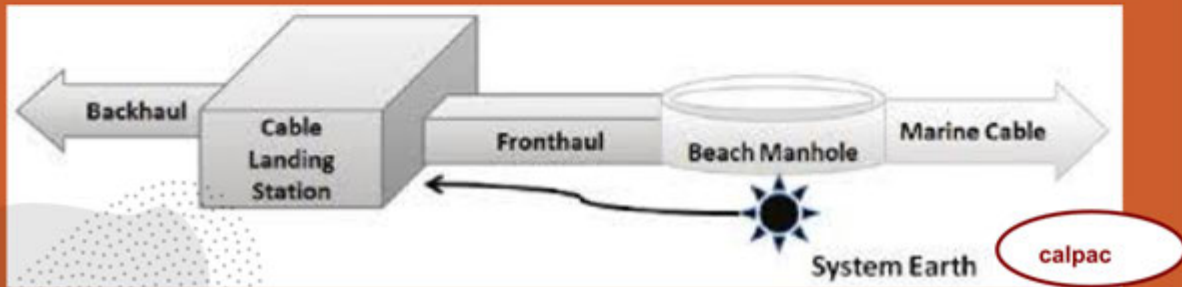
Prepared By : Rajesh Kurian
General Manager
California Pacific Technical Services LLC (CalPac)

calpac

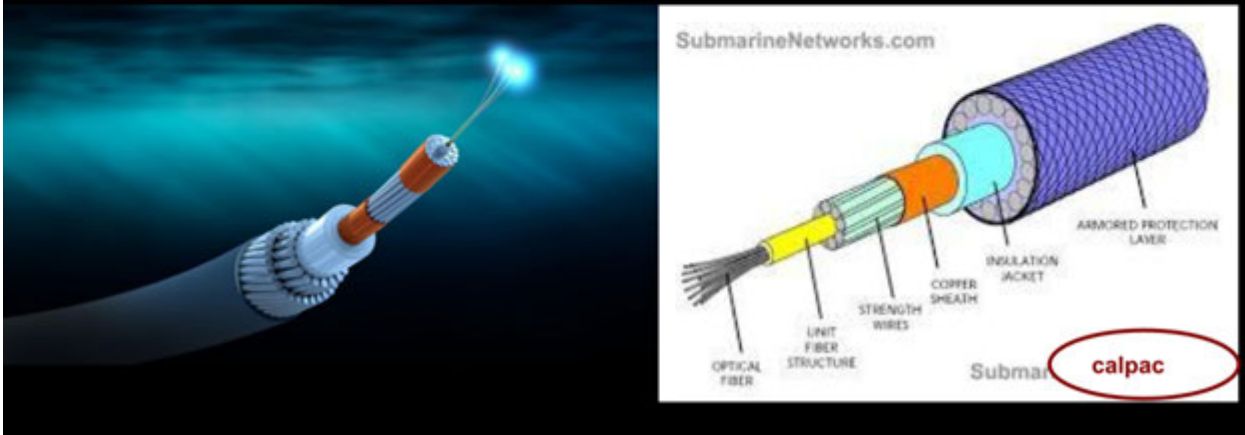


calpac

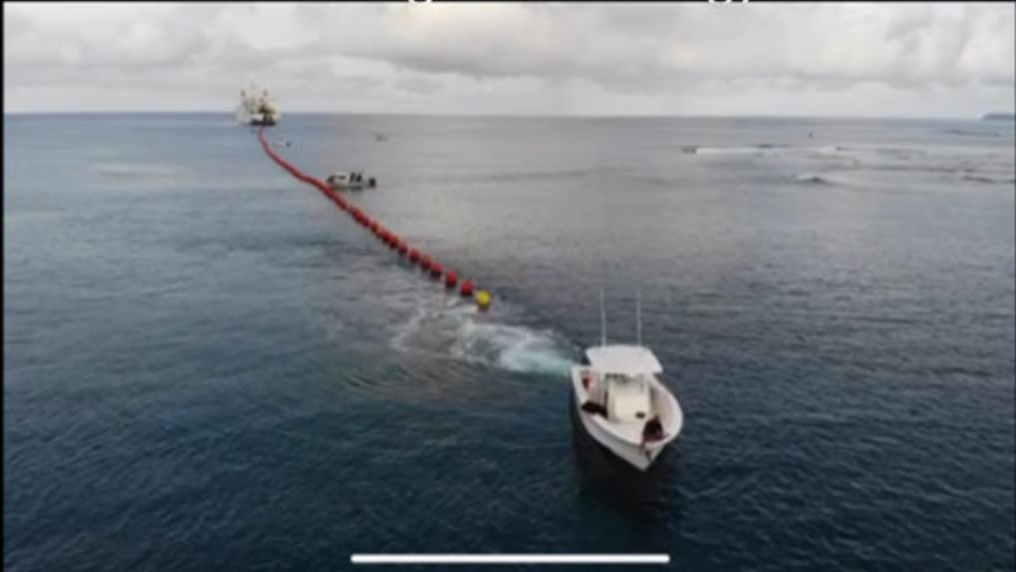
Marine Raceway , BMH & Terrestrial Raceway



Submarine Cable Structure



Landing Methodology



Landing Method



Winch Truck used for pulling Cable

Cable
Laid on the
seabed



calpac



Marine Raceway Installation



Articulated Pipes to Protect Cables

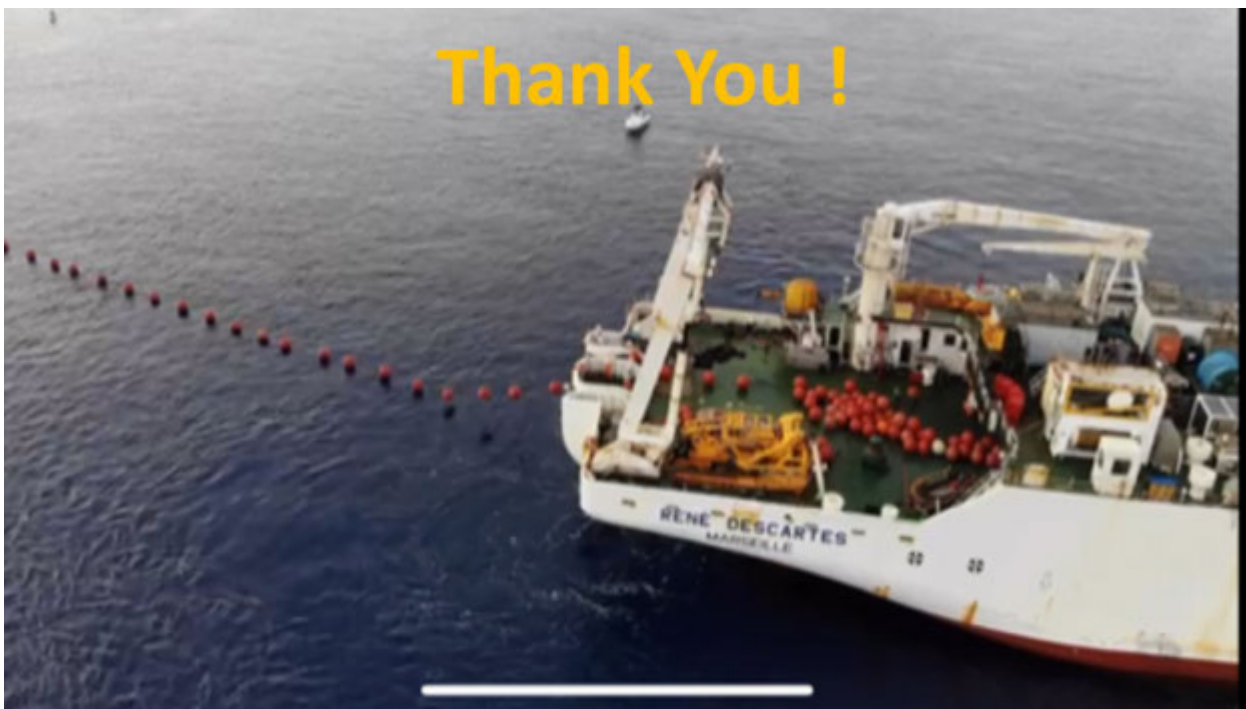


BMH & Marine Raceway



calpac

Thank You !



SPEAKER PRESENTATIONS

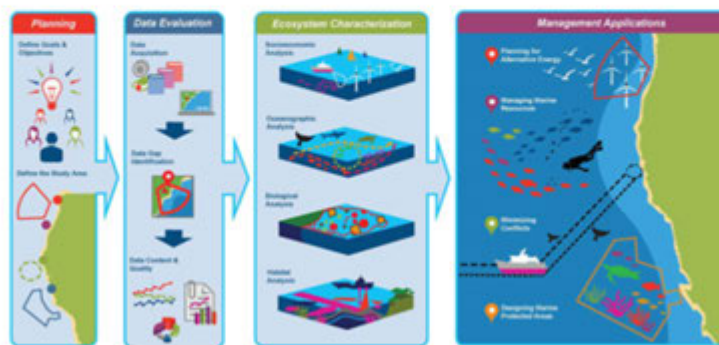
Matthew Santos, Deputy Director, Bureau of Statistics and Plans



Marine Spatial Planning and Geo-Spatial Data



The multi-step process for MSP starts with defining the study area, goals, and objectives for the project. Next, stakeholders are identified, data is collected, gaps in data are identified, and data undergoes quality control. The study area's socioeconomic, oceanographic, biological, and habitat data are then analyzed. These analyses are then used to prioritize projects and provide a baseline for the goals and objectives for those projects to be measured. This may mean planning for managing marine resources, minimizing use conflicts, or proposing new marine protected areas.



Marine Managed Areas



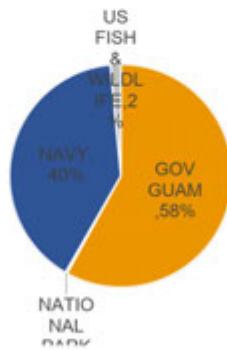
Site_Label	Mgmt_Plan	Mgmt_Agen	Fish_Retr	Pri_Con_Fo	Vessel	Anchor
Pati Point	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production	Unrestricted	
Sasa Bay	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial and Recreational Fishing Prohibited	Sustainable Production	Restricted	
Tumon Bay	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production		
Piti Bomb Holes	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production		Unrestricted
Achang Reef Flat	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production	Unrestricted	Unrestricted
Tokai Maru	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Cormoran	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Aratama Maru	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Haputo Ecological Reserve Area	Site-Specific Management Plan	US Naval Station, Guam	Restrictions Unknown	Natural Heritage		
Orote Ecological Reserve Area	Site-Specific Management Plan	US Naval Station, Guam	Restrictions Unknown	Natural Heritage		

Submerged Lands



Submerged lands refer to areas in coastal waters extending from the Guam coastline (median high water mark) into the ocean 3 nautical miles (nm) (5.6 kilometers [km]), which is the limit of territorial jurisdiction.

OWNER	ACRES
GOV GUAM	122,145,93170
NATIONAL PARKS SERVICE	577,17445
NAVY	84,576,37709
US FISH & WILDLIFE	3,191,65035
Grand Total	210,491,13358



Marine Managed Areas



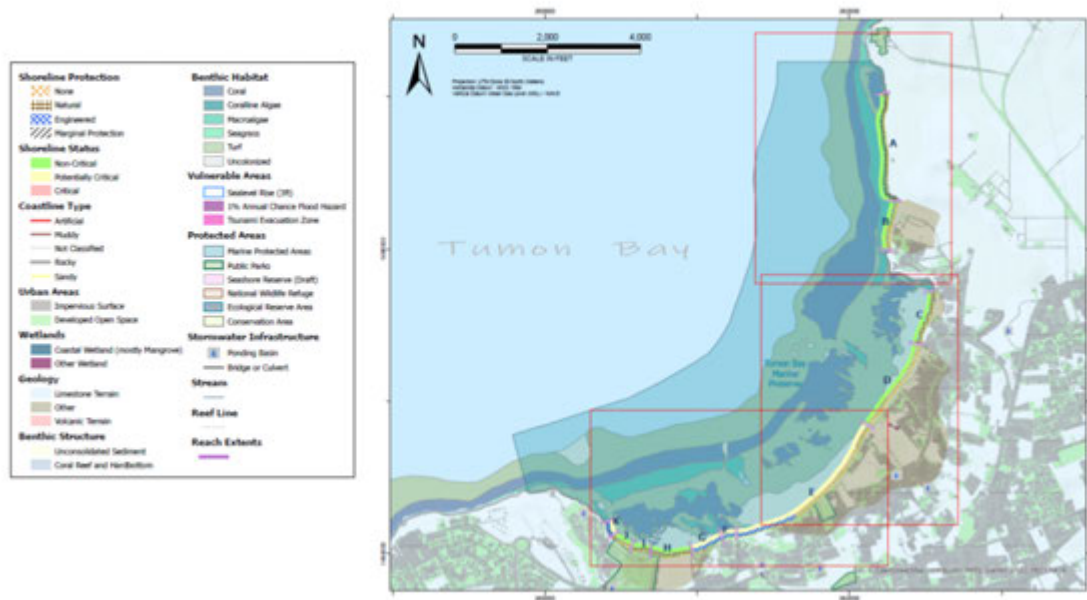
Site_Label	Mgmt_Plan	Mgmt_Agen	Fish_Retr	Pri_Con_Fo	Vessel	Anchor
Pati Point	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production	Unrestricted	
Sasa Bay	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial and Recreational Fishing Prohibited	Sustainable Production	Restricted	
Tumon Bay	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production		
Pis Bomb Holes	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production		Unrestricted
Achang Reef Flat	MPA Programmatic Management Plan	Guam Department of Agriculture	Commercial Fishing Restricted and Recreational Fishing Prohibited	Sustainable Production	Unrestricted	Unrestricted
Tokai Maru	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Cormoran	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Aratama Maru	No Management Plan	US Navy	Commercial Fishing Restricted	Cultural Heritage	Restricted	Restricted
Haguto Ecological Reserve Area	Site-Specific Management Plan	US Naval Station, Guam	Restrictions Unknown	Natural Heritage		
Orote Ecological Reserve Area	Site-Specific Management Plan	US Naval Station, Guam	Restrictions Unknown	Natural Heritage		

Guam Coastal Atlas



[BSP HOME](#) |
 [SCMP HOME](#) |
 [LAND USE PLANNING](#) |
 [COASTAL OUTREACH](#) |
 [NATURAL RESOURCE PROJECTS](#)

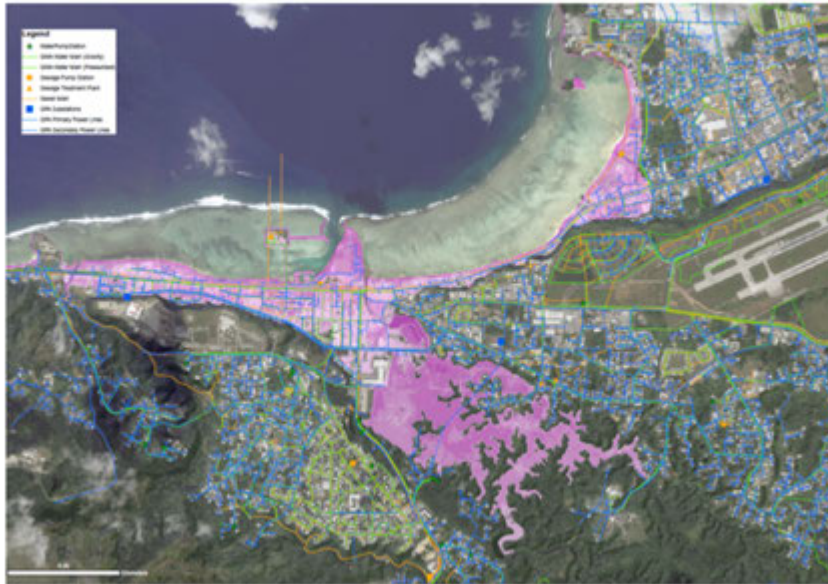
Guam Coastal Atlas



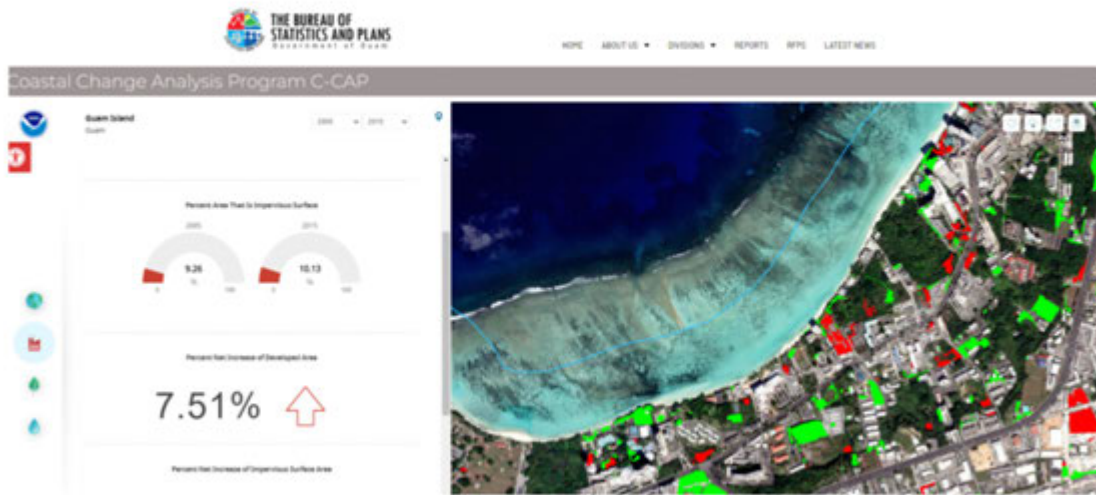
Flood and Watershed Mapping



Climate Change



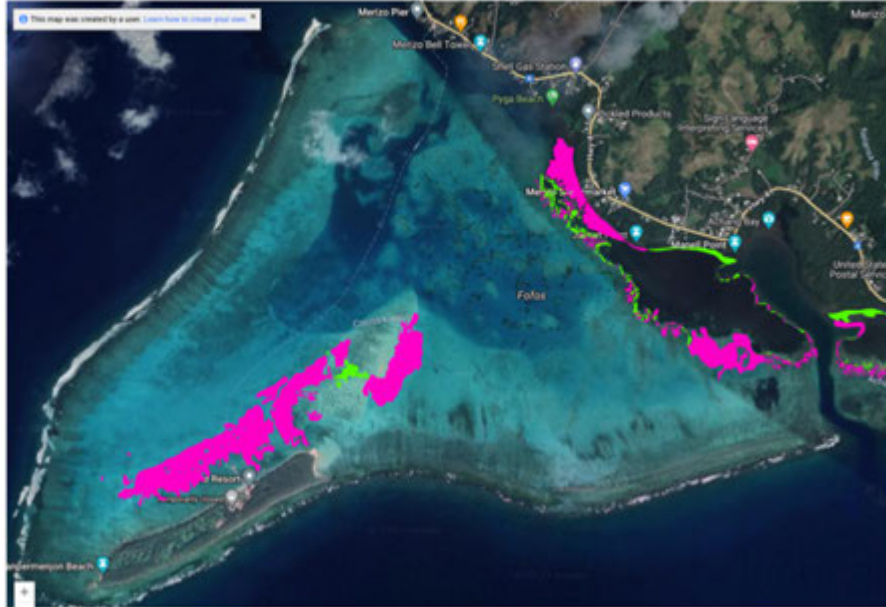
Guam Coastal Change Analysis



Monitoring Marine Habitats and Species in a time



- Seagrass loss from 2004 to 2015
 - 1
 - 2
 - 3
 - 4
 - ... 183 more
- Seagrass gain from 2004 to 2015
 - < -1
 - 1
 - 1
 - 1
 - ... 14 more



Guam Parcel Data – Zoning, Land Use, and



- Zone
- AGRICULTURAL ZONE
 - ONE FAMILY DWELLING ZONE
 - MULTIPLE DWELLING ZONE
 - PLANNED UNIT DEVELOPMENT ZONE
 - COMMERCIAL ZONE
 - LOW
 - MODERATE
 - LIMITED INDUSTRIAL ZONE
 - MILITARY LANDS
 - HOTEL RESORT ZONE
 - Other



Next Steps for GIS in the Marine Space



Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 187 gigabytes of high-resolution elevation data covering Guam's entire coastal zone are available. These types of data are critical for all types of modeling, including those that predict flooding potential.

OpenNSPECT

coast.noaa.gov/digitalcoast/tools/opennspect

This tool is being used to investigate potential water quality impacts from development, other land uses, and climate change. The tool simulates erosion, pollution, and their accumulation from overland flow. Uses include helping communities identify areas for restorable wetlands and riparian buffers to reduce pollution and flooding in watersheds.

Land Cover Atlas

coast.noaa.gov/digitalcoast/tools/lca

This tool makes land cover data easier to access and understand by eliminating the need for desktop GIS software. General trends in land cover change (such as forest losses or new development) are summarized, and specific changes (salt marsh losses to open water, for instance) can be documented. This type of information is useful for planning purposes. Guam's managers have found it particularly helpful while analyzing water quality, land use, and more.

Next Steps for GIS in the Marine Space



Next Steps:

- Create a full versioned catalog of marine and coastal geospatial data – Available on BSP Website 4/11/2023
- Survey stakeholders, federal partners and subject matter experts on available data and GIS layers or web maps 6/2023
- Add new maps or layers to online catalog 6/2023
- Work with stakeholders on building maps useful to marine use, planning, and conservation 7/2023

Future opportunities for GIS in Marine Spatial Planning

- BIL and IRA funded GIS capacity building funding
- Request for technical support and GIS products from NOAA Digital Coast



Marine Spatial Planning



- Provides a process to create and establish best uses of marine space and the interactions among its uses;
- To balance demands for development with the need to protect the marine environment; and;
- To achieve social and economic outcomes in a planned and meaningful way.

Why MSP

- Increased ocean uses result in increased stresses on the ocean environment.
- Development pressures in coastal waters
- Impacts of climate change



Importance of MSP



- Brings together diverse ocean users
- Creates a comprehensive picture of the ocean
- Provides a forum for proactive discussion and informed decision making
- Provides a coordinated way to allocate marine spaces to achieve ecological, economic; and social goals

Guiding Principles



- Adaptive
- Integrated
- Ecosystem-based
- Public Trust
- Participatory
- Precautionary
- Transparent
- Knowledge-based

Economic Benefits



- Creates greater understanding between private sector and government in planning new developments/investments
- Identifies compatible uses within the same area for development
- Reduces conflicts among incompatible uses

Ecological Benefits



- Identification of areas of biological or ecological importance
- Allocation of space for biodiversity and conservation
- Reduces cumulative impacts of human activities on marine ecosystems

Social Benefits



- Improved opportunities for community participation
- Identification and protection of cultural heritage
- Identification and preservation of social and cultural values related to ocean use

**Marine spatial planning
creates a blueprint for
ocean use and
conservation.**


**Attachment 3: Submerged Lands Partnership Proceedings
SPEAKER PRESENTATIONS**

Peter Houk, Ph.D., Professor of Marine Ecology, University of Guam Marine Laboratory


Watershed-to-reef framework for southern Guam

USEPA Wetlands Program Development Grant

August 2022





**MARINE
LABORATORY**
UNIVERSITY OF GUAM



Sea Grant
University of Guam



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY



**GUAM ENVIRONMENTAL
PROTECTION AGENCY**
1973

Project staff:
Peter Houk*, Fran Castro*, Dalia Hernandez-Ortiz, Mike Rucinski, Christy Starsinic, Andrew McInnis

Sampling team:
Bob Salas, Teddy Concepcion, Natasha Hagans, Storm Manglona, Leilani Sablan, William Naden, Javier Custos-Bueno, Rachael Keighan

Project guidance:
Carl Goldstein, Hudson Slay, Gary Denton, Brent Tibbatts, Jesse Cruz, Annie Leon Guerrero, Ernie Matson

<https://www.uog.edu/ml/labs/houk.php>

Objectives

- **Identify** watershed pollution and **classify** waterbodies
- Nutrient **standards** for **water quality**, coral **reefs**, and nearshore **fisheries**
- Evaluate pollution, fishing pressure, and fisheries management (**MPA**) on reefs



Science to support regulations and permitting

- Which waterbodies should have allowable high/low pollution?
- What specific criteria should be set for projects and development?
- How can we prioritize our actions to improve impaired waters?



Tolofofo Bay photo by Tam Schils before and after rain event

Watersheds-to-reefs

- **26** watershed-river systems
 - Monthly, **383** samples across year
- Calibrated teams
 - Sample **simultaneously**
- **Nitrogen (DIN-NO₃/NH₄)**, orthophosphate, and suite of basic parameters
- Coral-reef surveys
 - Coral, benthic substrates, fish

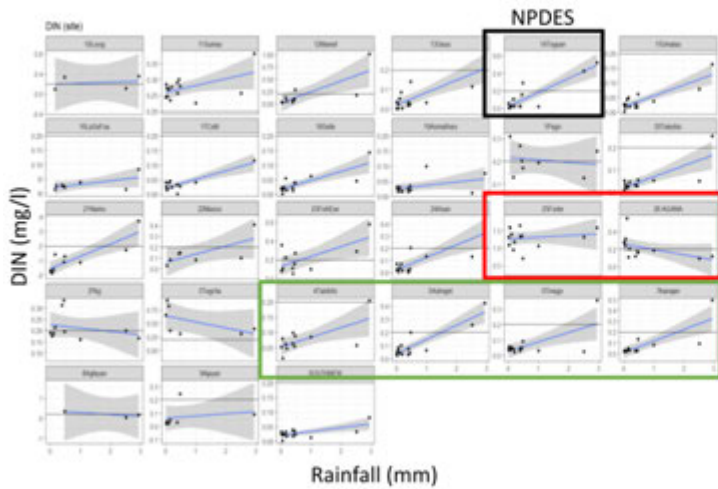


Goal 1: Classify watersheds for regulations and permitting



Talafofo Bay photo by Tom Schils before and after rain event

DIN ~ rainfall relationships

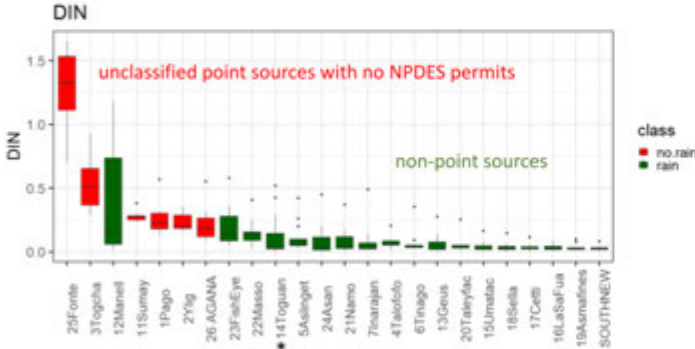


No or weak relationship with rainfall, high DIN - point

Relationship with rainfall, variable DIN – nonpoint



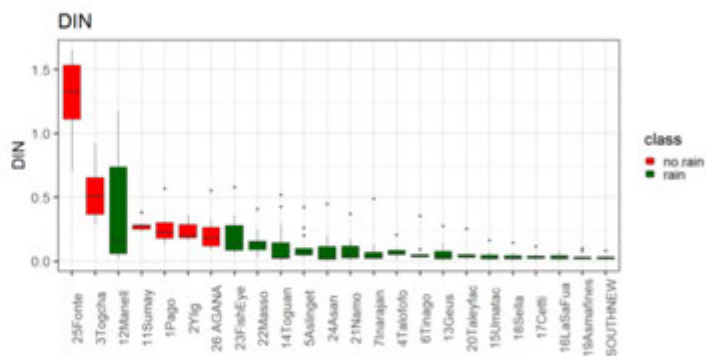
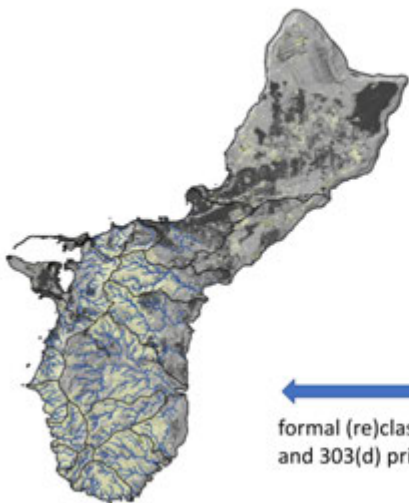
Spotlight on unclassified, suspected point sources



Ideally: permitting *less stringent* in red waterbodies/areas

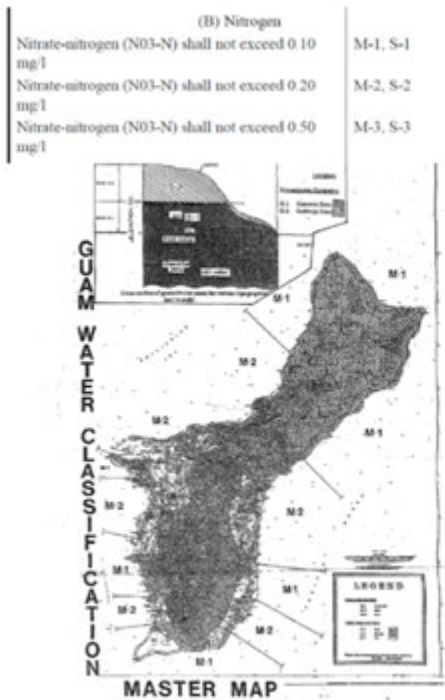
Outcomes of classification process

Classify and prioritize watersheds



formal (re)classifications and 303(d) priority

- Class S2-3, high DIN, unclassified point-sources suspect, priority
- Class S1, variable, often low DIN, non-point strategies



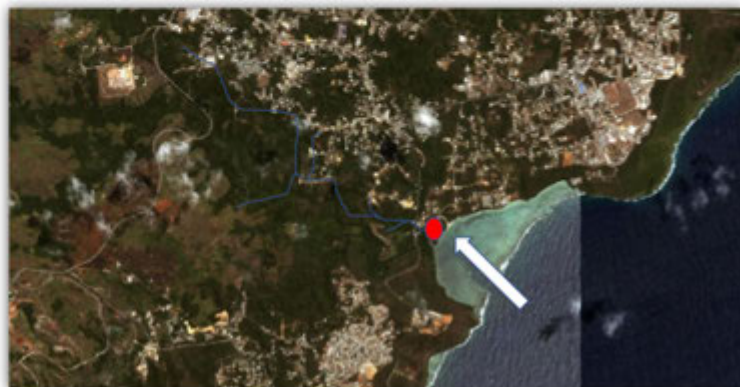
Some areas allowed to "get worse"
Some areas not meeting classification

Part 2: What DIN concentrations to place in regulations?

What criteria would any project be held accountable for?

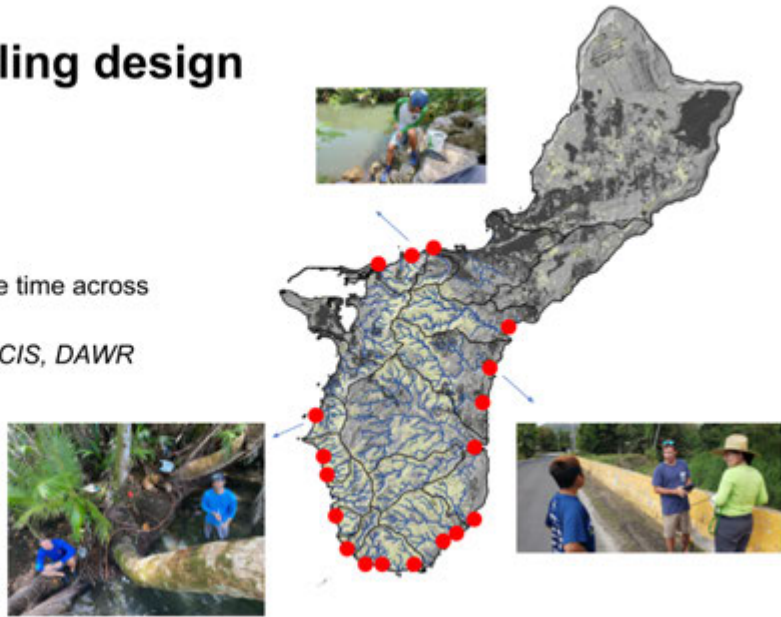
Statistical models to predict daily DIN (TMDL)

- Rain increase DIN?
 - Transport from non-point pollution
- Wind decrease DIN?
 - Flushing with waves
- Cooler SST/temp increase DIN?
 - Mineralization rates/process

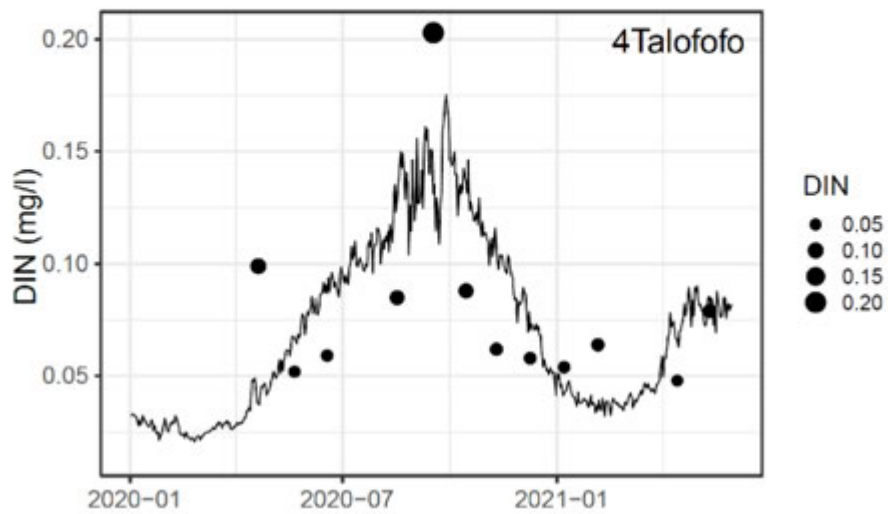


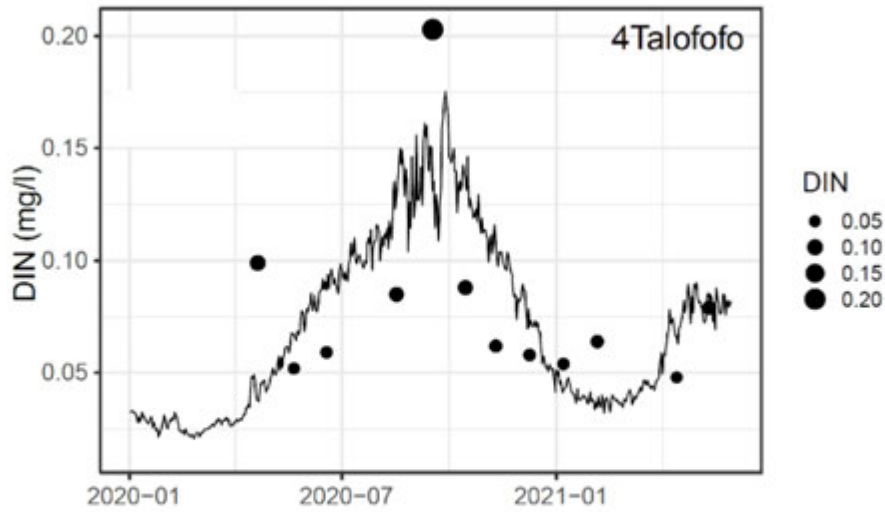
Benefit of sampling design

- Sites all sampled at the same time across year (n>300)
- UOGML, GEPA, Sea Grant, CIS, DAWR



Dots – sample data; **line** – predicted daily concentration



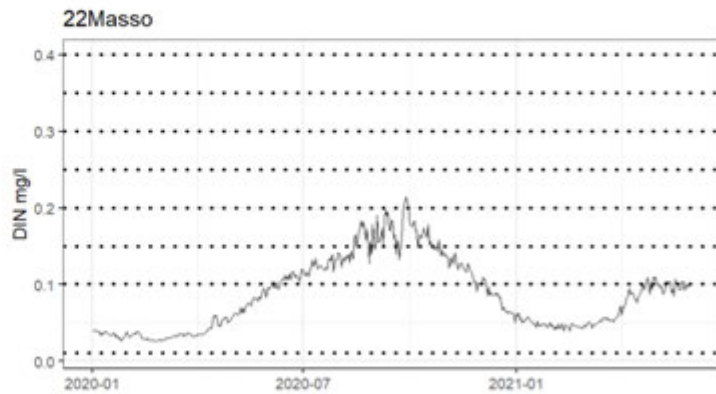


Outcome: to predict DIN in any watershed on any day, I only need environmental data from Guam airport station

Working with predictions to set standards

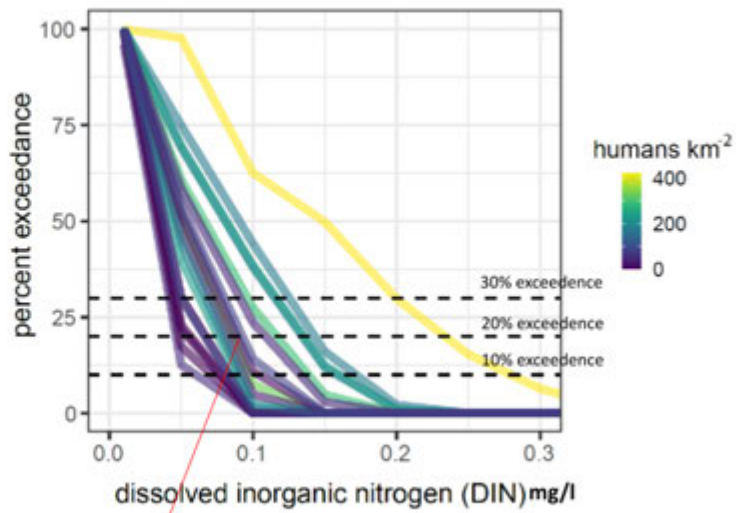
- What DIN will lead to 10%, 20%, and 30% exceedances?
- EPA guidance 10 to 30 % exceedance

SEPA Nutrient Criteria
 Technical Guidance Manual
 Estuarine and Coastal
 Marine Waters



DIN thresholds

- Each line is a watershed

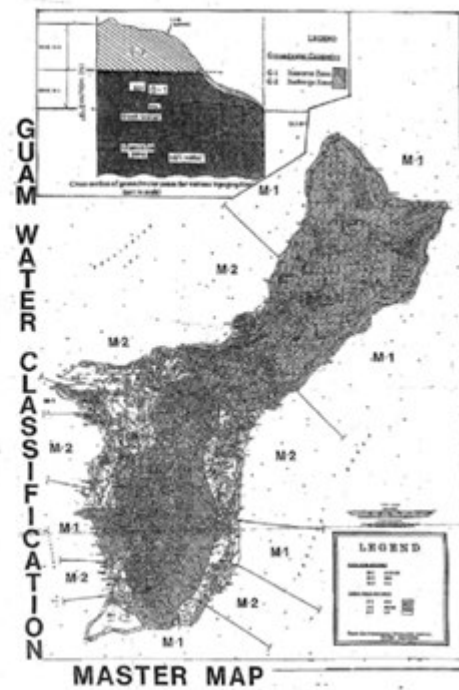


0.1 mg/l is a proposed criteria and threshold that aligned with low-moderate human presence

How compare to current Guam standards?

Guam water quality standards (2015 to present)

(3) Nutrients	Applicable to
(A) Phosphorus:	
Orthophosphate (P04-P) shall not exceed 0.025 mg/l	M-1, S-1
Orthophosphate (P04-P) shall exceed 0.05 mg/l	M-2, S-2
Orthophosphate (P04-P) shall not exceed 0.10 mg/l	M-3, S-3
(B) Nitrogen	
Nitrate-nitrogen (N03-N) shall not exceed 0.10 mg/l	M-1, S-1 ✔ but change locations
Nitrate-nitrogen (N03-N) shall not exceed 0.20 mg/l	M-2, S-2 ✘ need lower, also change locations
Nitrate-nitrogen (N03-N) shall not exceed 0.50 mg/l	M-3, S-3 ✘ need lower, identify new locations



Part 3: Water quality, corals reefs, and fisheries

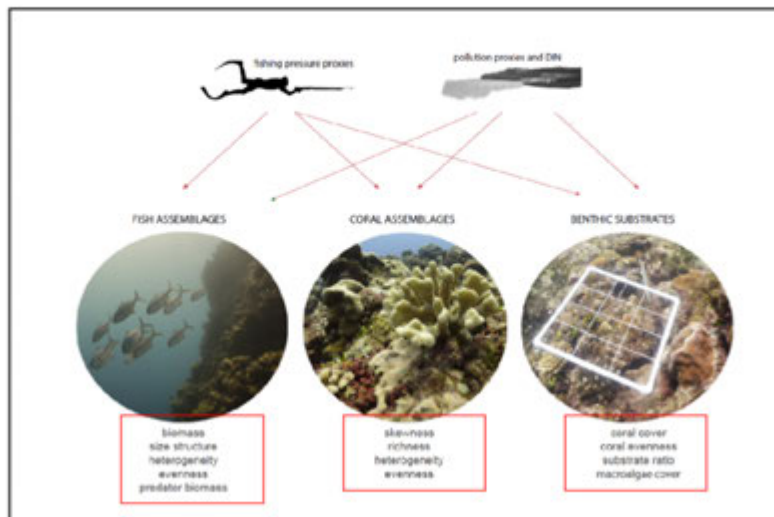
Does this DIN threshold make biological sense?

Biological data collection

sites at edge of channels

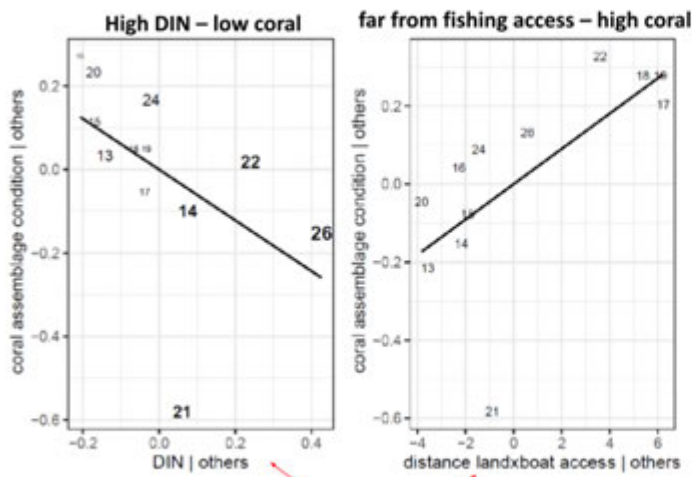


Approach – evaluate coral and fish assemblage condition, isolate upon stressors



Ecological "condition" scores

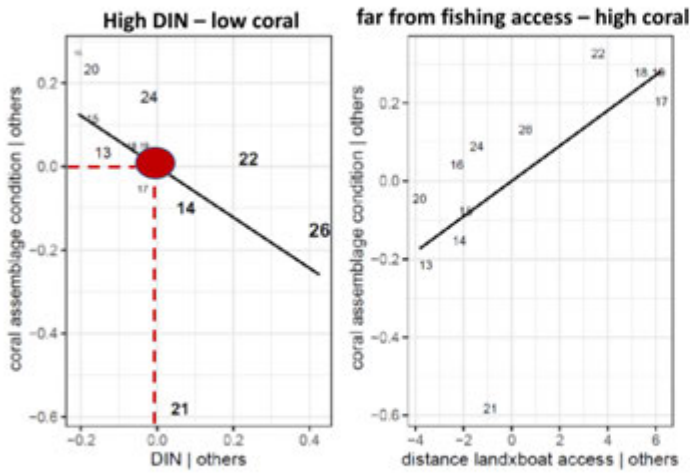
West Guam – coral condition
added variable regression plots



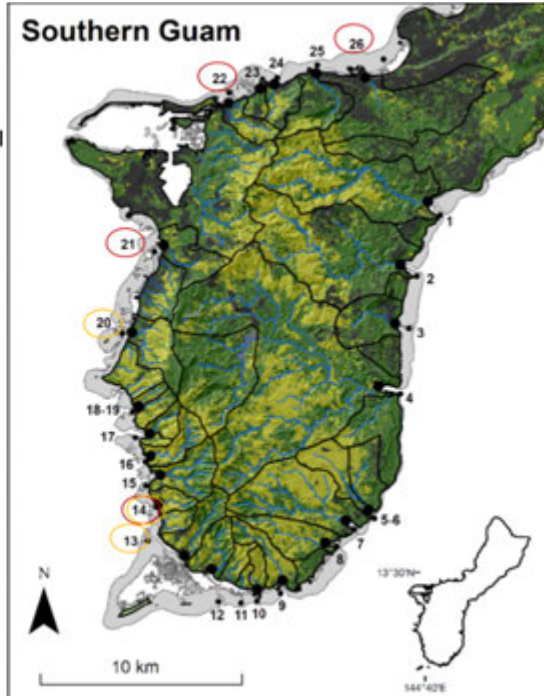
Coral assemblages ~ DIN + fishing access



West Guam – coral condition

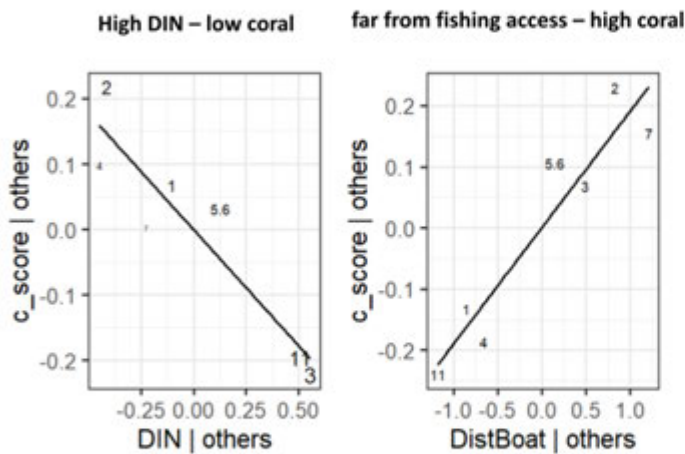


translates to 0.09 mg/l DIN, nearly identical to WQ approach



East Guam – coral condition

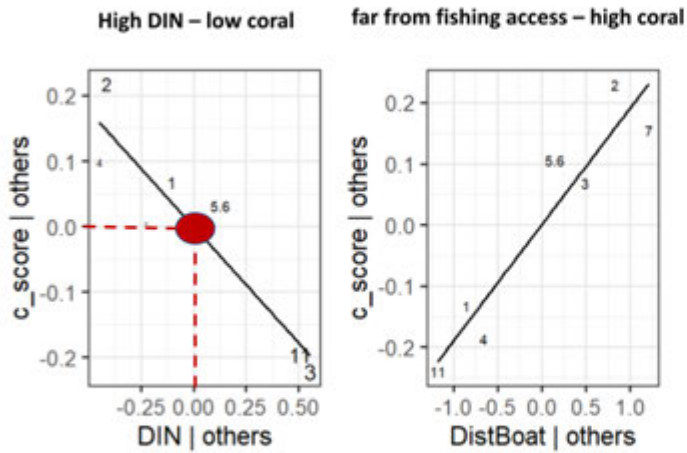
added variable regressions



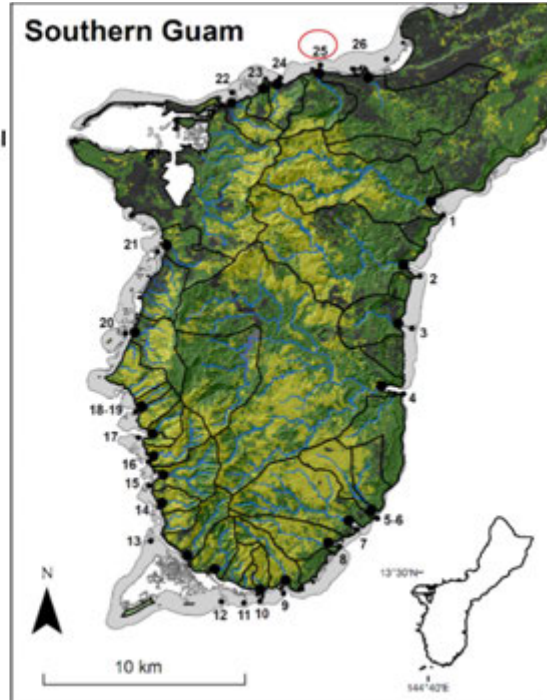
Coral assemblages ~ DIN + fishing access



East Guam – coral condition added variable regressions



translates to 0.10 mg/l DIN, nearly identical to WQ approach

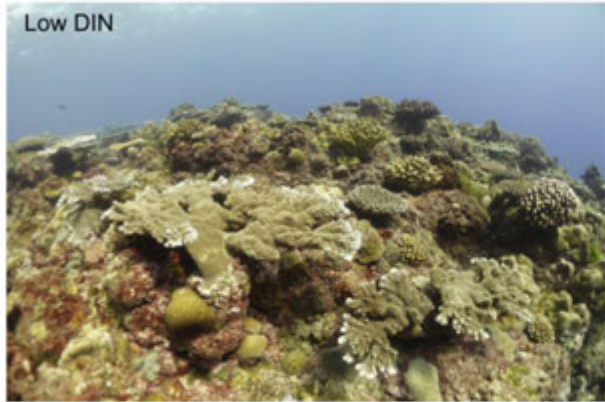


Biological summary of the ~0.1 mg/l threshold

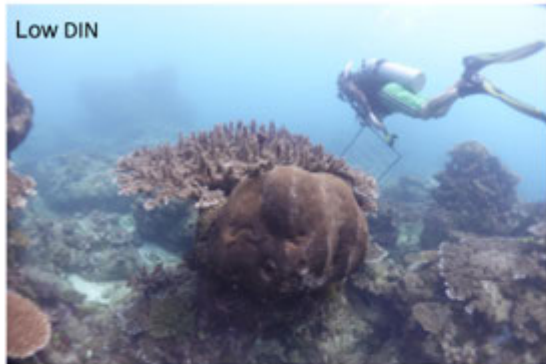
- Impacts to corals
 - size structure, diversity, evenness
- Impact to benthic substrates
 - Increase algal substrates
 - Harder for corals to recover
- Increase fish biomass and size structure
 - DIN fuels fish, however, **homogenized** assemblages of weedy species



Talofofo Bay photo by Tam Schills before and after rain event



Reduced coral diversity
Reduced coral evenness
Increased opportunistic algae



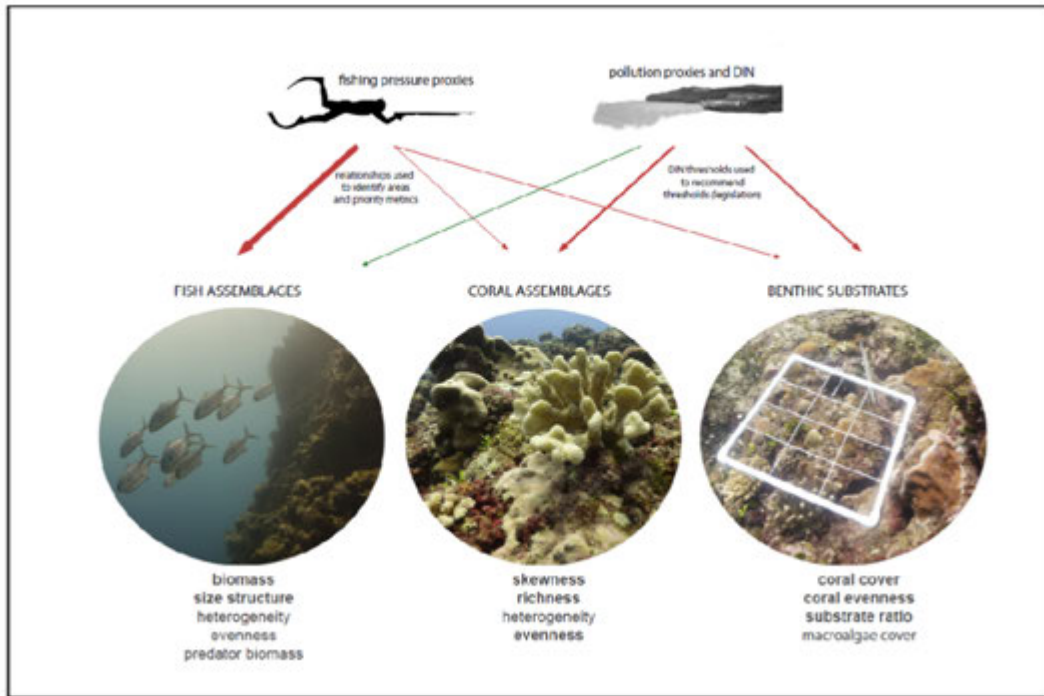
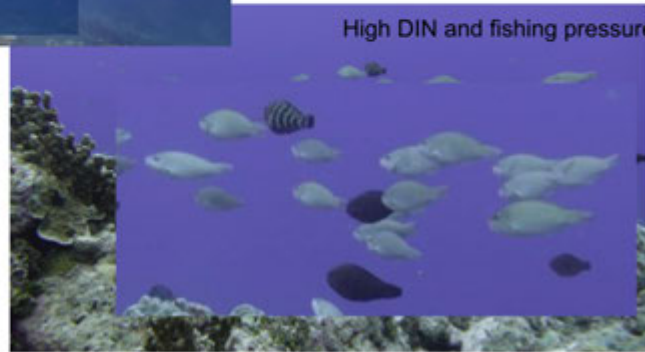
Reduced coral diversity
Reduced coral evenness
Increased opportunistic algae



Low DIN and low fishing pressure



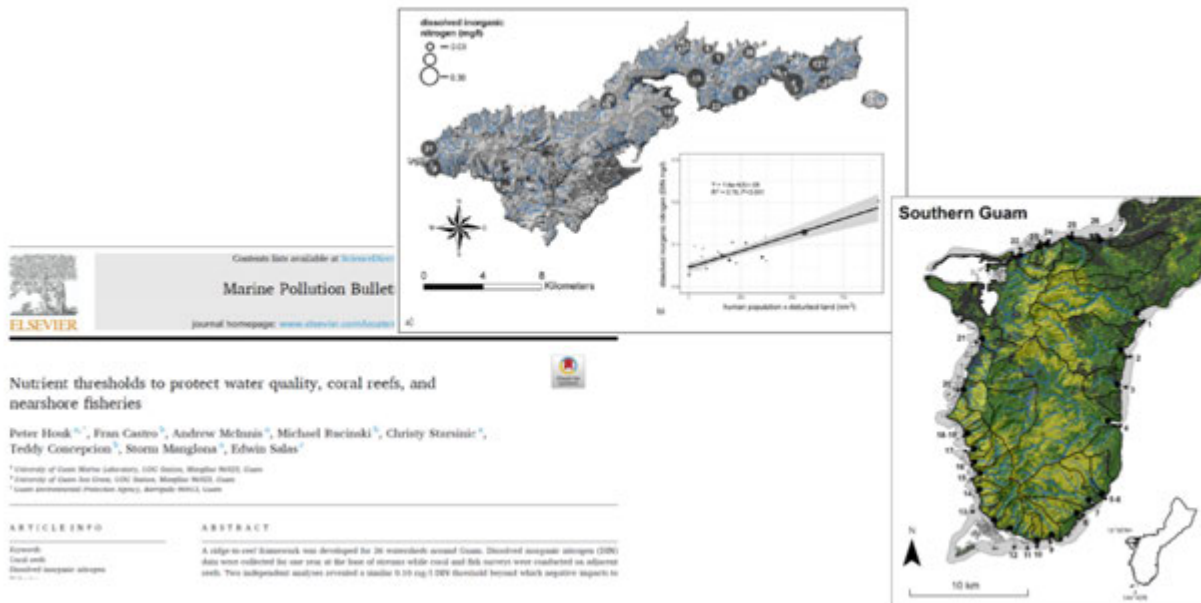
High DIN and fishing pressure



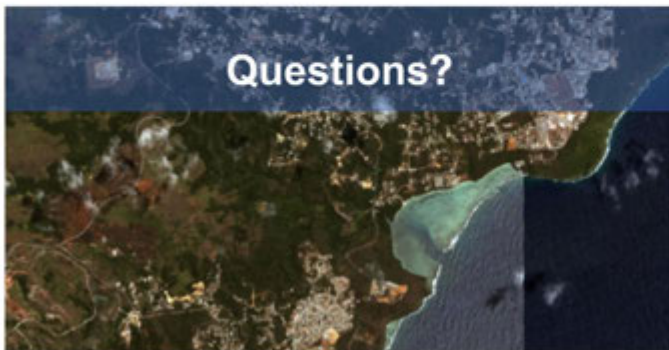
Collaboration with Guam
EPA and recently completed
policy brief to support
revised standards



Growing agreement across Pacific?



Si Yu'os Ma'ase and Thank You



Attachment 3: Submerged Lands Partnership Proceedings
SPEAKER PRESENTATIONS

Celine Cruz, Territorial Chief Planner, Guam Department of Land Management
(Territorial Seashore Protection Commission)



Seashore Reserve 21 GCA Ch 63

That land and water area of Guam extending seaward to the ten (10) fathom contour, including all islands within the Government's jurisdiction except Cabras Island and those Villages wherein residences have been constructed along the shoreline prior to the effective date of the Seashore Act, and extending inland to the nearer of the following points:

- (1) From the mean high water line for a distance on a horizontal plane of ten (10) meters.
- (2) From the mean high water line to the inland edge of the nearest public right-of-way.

Development 21 GCA Ch 63

On land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision of land and any other division of land including lot splits; change in the intensity of use of water, ecology related thereto, or of access thereto; construction or reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility, and the removal of major vegetation.

SEASHORE CLEARANCE	
TO: Executive Secretary, Guam Seashore Protection Commission c/o Land Planning Division, Department of Land Management Government of Guam, P.O. Box 2886, Hagatna, Guam 96932	
The Undersigned owner(s)/lessor(s) of the following described property, situated with the ten (10) meters inland from the Mean High Water Mark (MHW) or situated seaward to the ten (10) fathom contour, do hereby request consideration for a Seashore Clearance Permit.	
1. Information on Applicant:	
Name of Applicant _____ U.S. Citizen/Other <input type="checkbox"/> No	
Working Address _____	
Telephone No. Business _____ Home _____	
2. Location, Description and Ownership:	
Lot(s) _____ Block _____ Tract _____	
Lot Area (in Square Meters & Feet) _____	
Village _____ Municipality _____	
Registered Owner _____	
Certificate of Title No. _____ Recorded Document No. _____	
3. Current and Proposed Land Use:	
Current Use _____ Zoned _____	
Proposed Use _____	
Master Plan Designation _____	
4. Attach a one page typed, brief and concise justification (letter format) explaining the compatibility of the proposed project with adjacent and neighborhood developments as they exist and the nature of request in accordance with Guam Code Annotated 21 GCA, Chapter 63, Section 63102 (a) (2).	
a. That the development will not have any substantial adverse environmental or ecological effect.	
b. That the development is consistent with the purpose and objectives of this Chapter. The applicant shall have the burden of proof on all issues.	
c. That access to beaches, recreation and historical areas, and natural reserves is increased to the maximum extent possible by appropriate dedication.	
ATTACHMENT: Section 63108 (Antenna Permit Control), Chapter 63 (Territorial Seashore Protection Act of 1976, Title 21) GCA is attached for your information and guidance in the preparation of your application. For additional requirements, visit the Seashore Section, Land Planning Division.	
SSPC FORM 01, June 2019 Page 1 of 3	

Seashore Clearance Application Form

SEASHORE CLEARANCE

4. Continuation:

4. That there is no substantial interference with or detraction from the line of sight toward the sea from the territorial highway nearest the coast.

5. That adequate and properly located public recreation areas and wildlife preserves are reserved.

6. That provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon coastal reserve resources, and

7. That alterations to existing land forms and vegetation, and construction of structures shall cause minimum danger of floods, landslides, erosion or siltation.

5. If applicant has submitted to the Guam Land Use Commission/Guam Seashore Protection Commission other request on subject property, applicant shall list them:

6. Support Information: The following supporting information shall be attached to this application:

a. Site plan required. Plans, drawn to scale, showing dimensions and shape of lot, lot area, size and location of existing buildings, location and dimensions of proposed building(s) or structures.

b. 8 1/2" x 11" map, drawn to scale, showing all land zones within 1000-foot radius of subject lot's boundaries.

c. 8 1/2" x 11" map, drawn to scale, showing all buildings or uses within 750 feet of the subject lot's boundaries. On the same map, applicant must also show any natural or topographic peculiarities of subject lot.

d. 8 1/2" x 11" map, drawn to scale, showing all parcels with correct lot number within 500-foot of subject's property boundaries.

e. The most recent recorded and certified Department of Land Management survey map showing the subject's property.

f. An initial comprehensive **Environmental Impact Assessment (EIA)** as required by the Guam Chief Planner.

g. An erosion control plan.

h. If leased, lease assignment and covenant, and

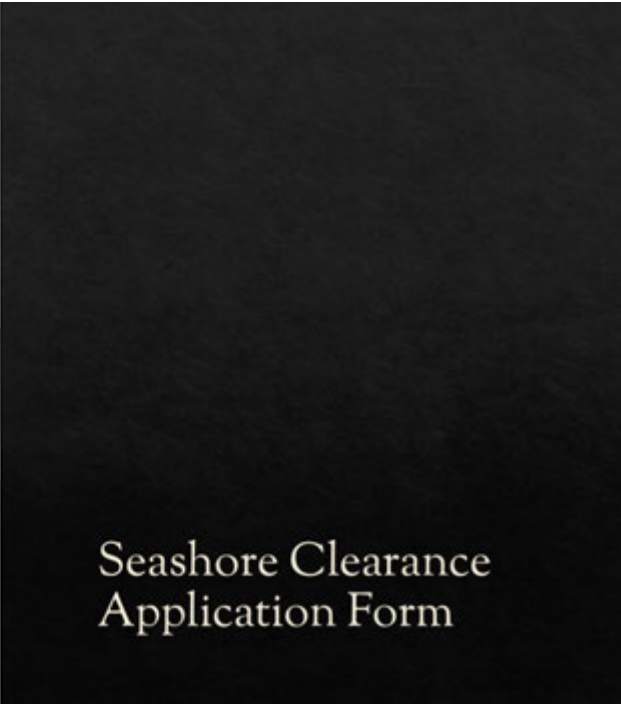
i. Additional information as required by the Guam Chief Planner.

In addition to providing the required number of hard copies of the Application, provide 3-copies of the Application File in Electronic Format (example: in CD format, flash drive or thumb drive, etc.)

7. Approval from the Commission does not constitute a waiver from permits required by other Government Agencies including the U.S. Army Corp of Engineers, nor does this approval imply that these permits will subsequently be granted.

8. Filing Fee: Seventy-Five Dollars (\$75.00) filing fee, under Public Law 29-02, Chapter V, Part II (Fees and Charges Assessed by the Department of Land Management).

GSFC FORM 01 - June 2019 **Page 2 of 3**



SEASHORE CLEARANCE

9. Required Signatures: All legal owners/lessees of designated parcel shall sign form with name(s) typed or handwritten, signed and dated.

"I hereby certify that all information contained in this application and its supplements is true and correct. I also understand that any misrepresentation in this application shall void the entire submission. Further, that thirty-two (32) sets of the above listed required information is provided."

(Owner(s) or Lessee(s) and Date)

(Representative, if any, and Date)

THIS FORM SHALL NOT BE MAILED. APPLICANT OR REPRESENTATIVE SHALL SUBMIT IN PERSON, BY APPOINTMENT ONLY, TO THE LAND PLANNING DIVISION, DEPARTMENT OF LAND MANAGEMENT.

FOR OFFICIAL USE ONLY

Date Accepted _____ Accepted By _____

Date of Notice in Newspaper(s) _____

Date of Notice to Adjacent Property Owners _____

Date of Public Hearing _____

Filing Fee(s) Paid (\$) Yes [] No [] Check [] Cash [] Other [] _____

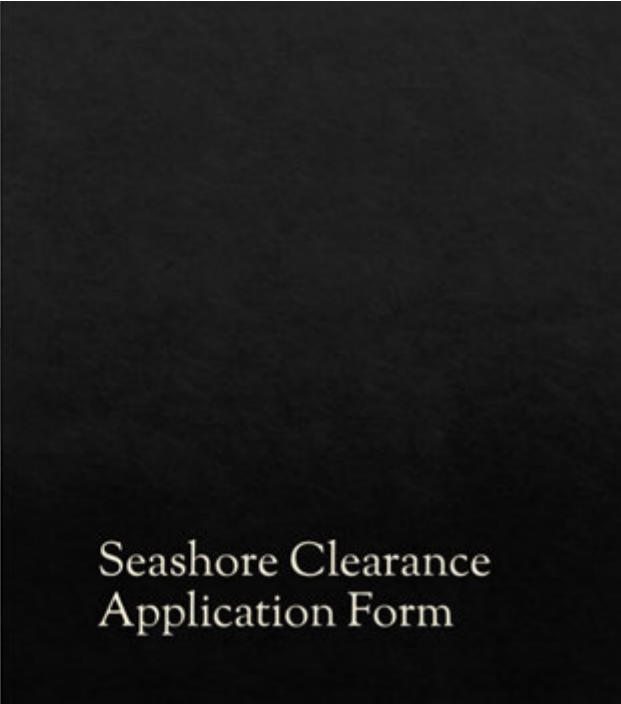
Receipt No. _____ Application Number _____

Date of GSFC Action _____ Conditions: Yes [] No [] (See Below)

Conditions of Approval _____

GSFC Resolution No. _____ Date of Notice of Action _____

GSFC FORM 01 - June 2019 **Page 3 of 3**



Permit Application Procedure

- ◆ Submit application
- ◆ Review by the Application Review Committee
- ◆ Review by the Seashore Protection Commission no less than 21 nor more than 90 days

Questions?

Frank Taitano

671-649-5263



Questions?

Department of Land Management

Land Planning Division

3rd Floor ITC Building

671-649-LAND

Attachment 3: Submerged Lands Partnership Proceedings
SPEAKER PRESENTATIONS

Jordan Watson Ph.D., Deputy Director, Pacific Islands Ocean Observing System (PacIOOS)

Improving access to wave buoys and wave data in Guam

PacIOOS to partner with UOG, USGS, NPS...
and you?

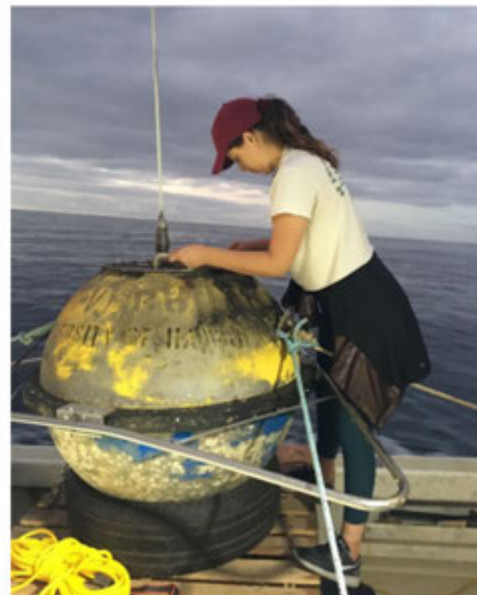


Existing wave buoys in Guam and the CNMI



Real-time wave data:

- ❖ Wave Height
- ❖ Wave Direction
- ❖ Wave Period



Existing Waverider (ie, big expensive) wave buoys in Guam and the CNMI

Tanapag Buoy



How many people here are familiar with these buoys?

Ritidian Point Buoy



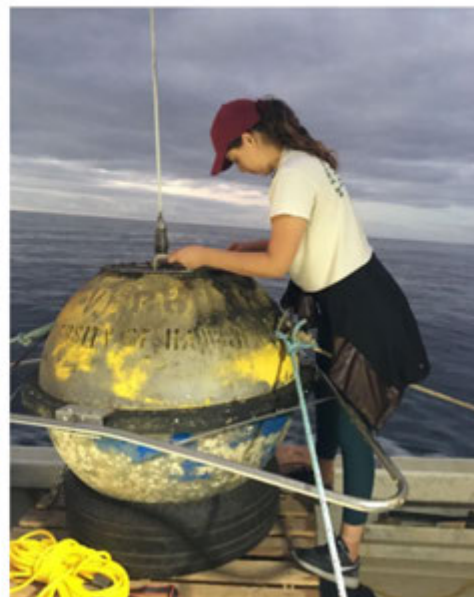
Ipan Buoy



These buoys cost ~\$70k.



created an alternative





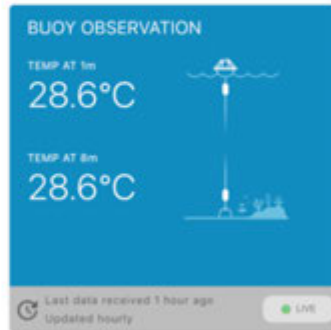
Spotter Buoy



- Wave height
- Wave period
- Sea surface temperature
- Air temperature
- Wind speed
- Wind direction



Smart Mooring



Existing Spotters in Guam



Pacific Coastal and Marine Science Center

Guam coastal imagery and waves

Provisional data subject to revision

This page shows coastal imagery and wave characteristics near Adelpup Point, Guam. Two fixed cameras were installed in January 2022 atop the Latta of Freedom, approximately 31 m above sea level. The cameras look roughly west-southwest; one is a wide-angle view of the reef west of Adelpup Point, within War In The Pacific National Historical Park. Images are collected hourly when sufficient daylight exists.

The wave buoy is located 200 m north of the reef crest in approximately 21 m water depth and records wave characteristics every half hour.

These data are collected as part of the USGS Coral Reef Project. Times shown are in the local Chamorro Time Zone (ChST). The image below shows the approximate fields of view of the cameras and the location of the wave buoy.



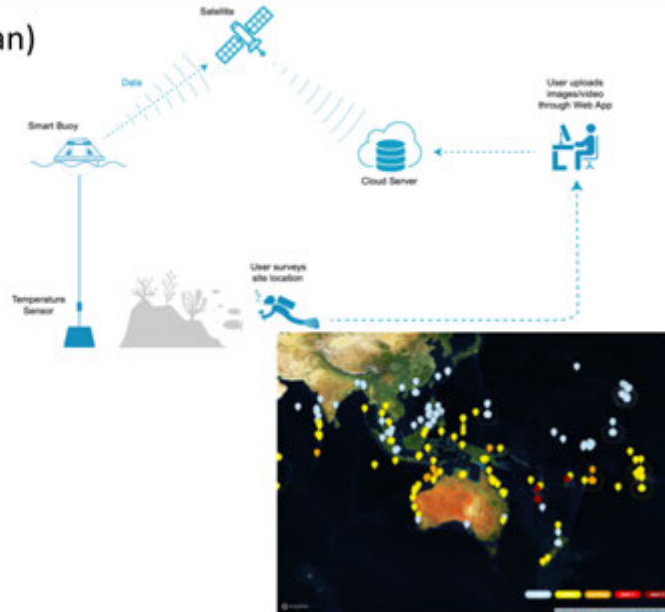
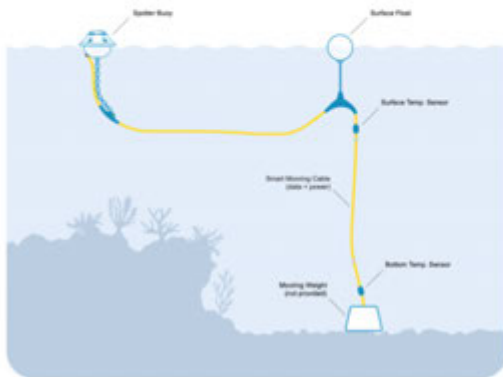
Contacts:
 Tim Clark (NPS Guam)
 Curt Storlazzi (USGS)
 Meg Palmsten (USGS)

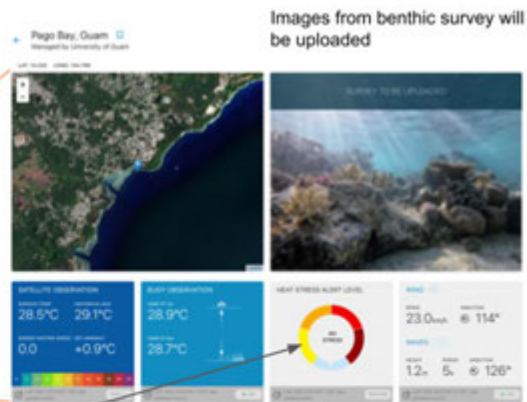
View images and data [here](#)

Existing Spotters in Guam – Atsushi Fujimura, UOG

Aqualink Buoy (made by Sofar Ocean)

Aqualink integrates data from sensors, models, satellite observations, surveys, images, and video to give you an instant view of your ecosystem.





- Wind-induced waves & Wave-derived wind
- Sea surface temperature are compared with water column temperature that benthic organisms experience
 - Other sensors such as water quality and current meters are also deployed (data not transmitted to satellite)
 - Selected locations are UOG Marine Lab's main study sites and/or long-term monitoring sites
 - With PacIOOS wave buoys at Ipan and Ritidian, waves coming from all directions will be covered



Data

Wave Data from the USGS and UOG Spotters will be merged into the PacIOOS wave data pages so that you can see all of the Guam buoys on one website.

And what about some new Spotters???



BACKYARD BUOYS

Locally owned, globally connected, building resilience.



NSF's Convergence Accelerator

The Convergence Team



Indigenous / Community Partners

Educational / Technical Partners

Ocean Observing Partners

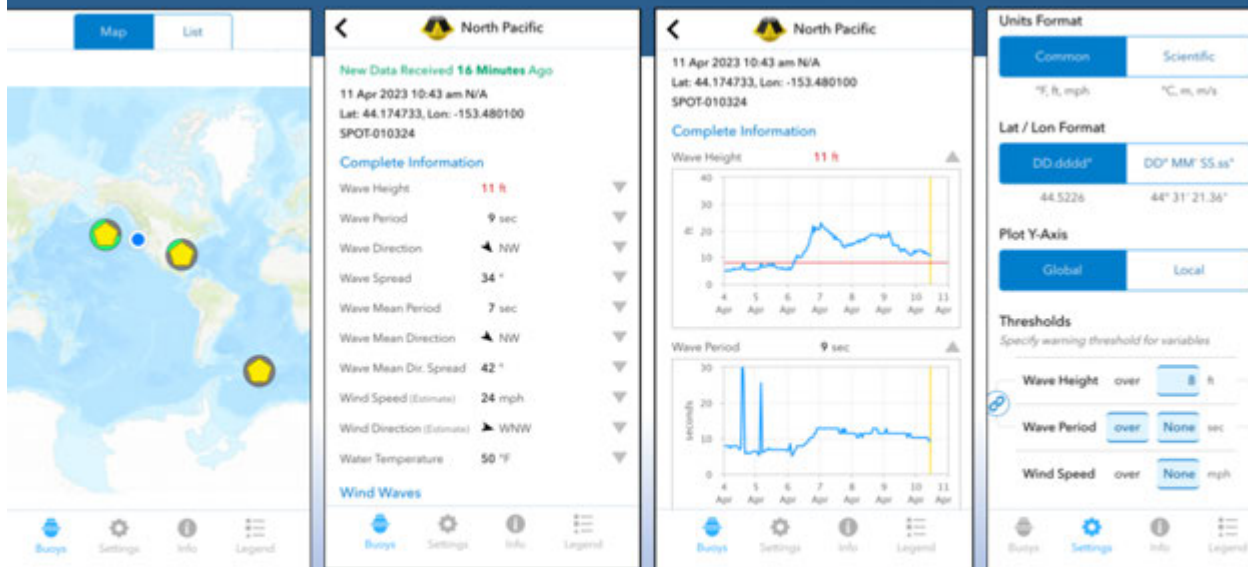


How does it work?

- We seek to empower local stakeholders with buoy data they need....so we give you a buoy!
- We work with you to figure out what types of information you need, where you need it, and whether we might be able to help.
- The community will own and maintain the buoy.
- We work with you to develop a community stewardship plan for the buoy
- We provide the buoy and help with the permitting and the data side.



Locally owned, globally connected, building resilience.



Locally owned, globally connected, building resilience.

Breakout sessions



<https://forms.gle/514b6CgGiYrAJVQb9>



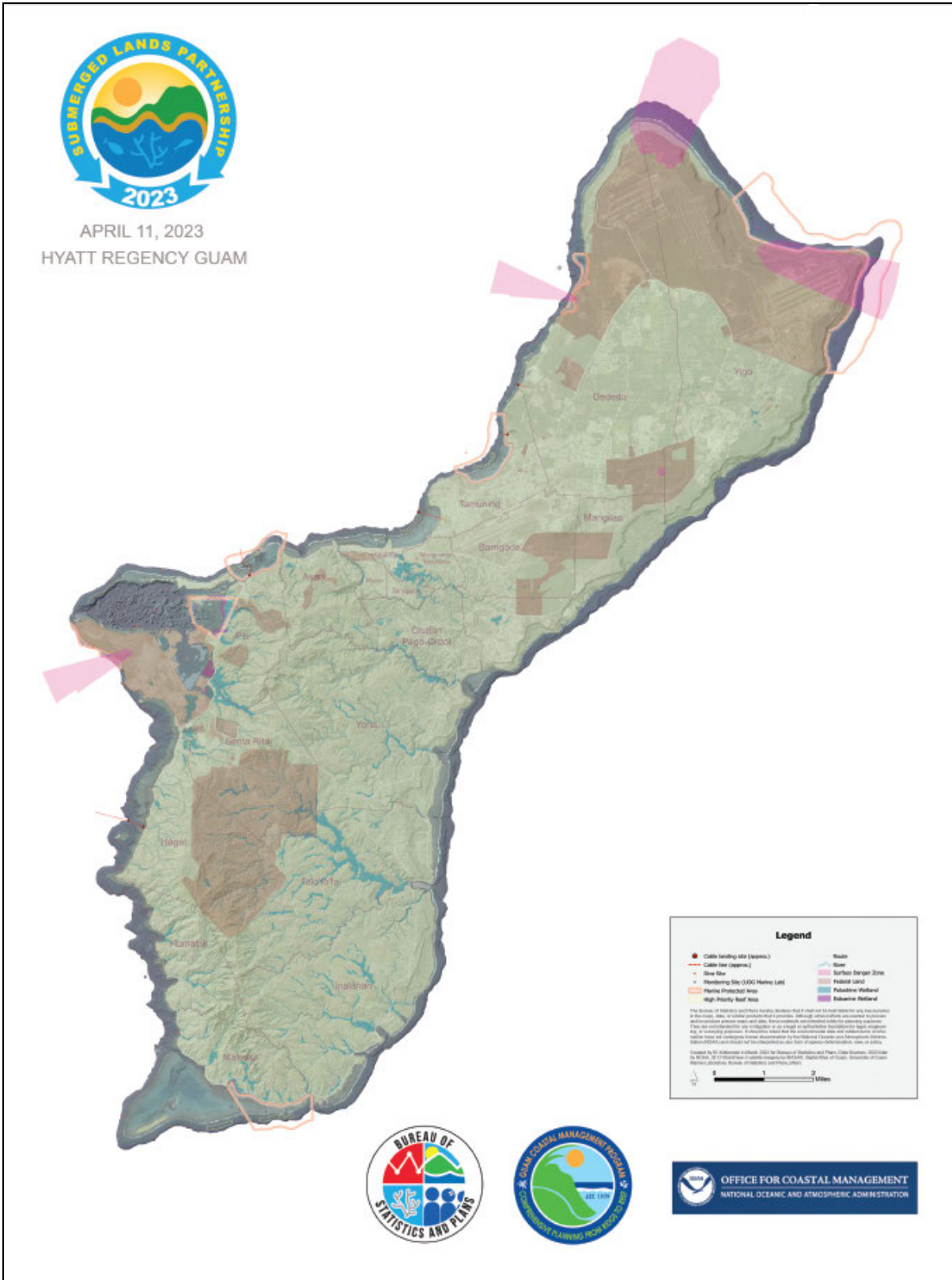
Locally owned, globally connected, building resilience.

End



Locally owned, globally connected, building resilience.

BLANK MAP



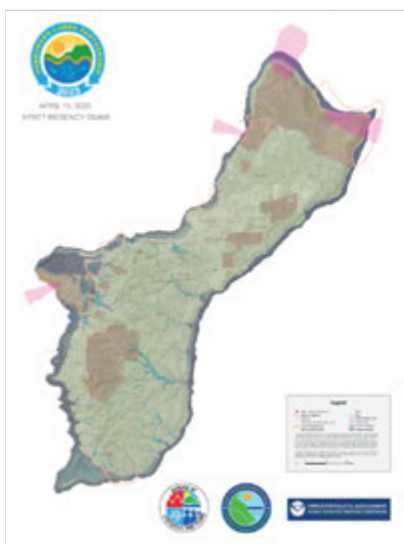
PARTICIPATORY MAPPING PROCESS

Maria Kottemair, Geographic Information Systems Specialist, Bureau of Statistics and Plans

Participatory Mapping Exercise



Participatory Mapping Exercise



TOOLS

- Paper map & markers
- Web map for reference:



Participatory Mapping Exercise



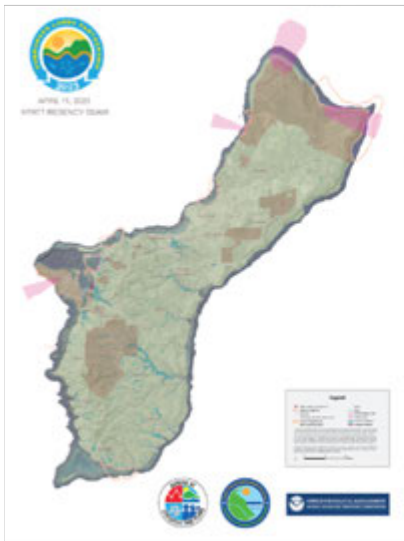
T A S K: Identify areas of concern and suitable areas

=> mark specific areas, OR

=> describe concern

=> Use a pen OR markers to color-code suitability class

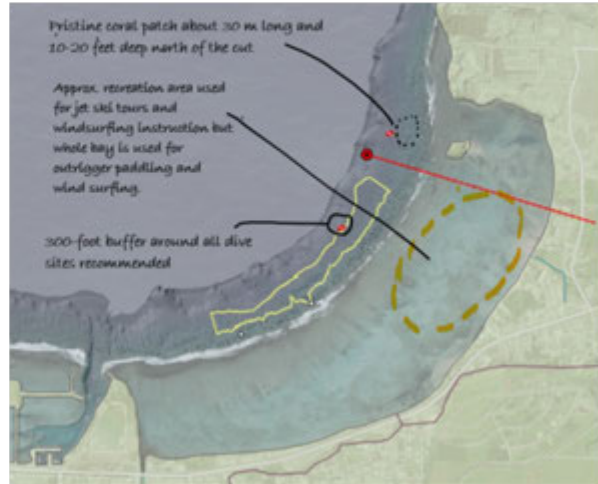
Participatory Mapping Exercise



Things to consider:

- Be as **PRECISE** as possible
- Better to mark an **area** than just a point
- Refer to **data source** (e.g., report) if known
- Use markers to indicate suitability class (optional)

Participatory Mapping Exercise



Participatory Mapping Exercise

Certainty of boundary

Solid – defined outline



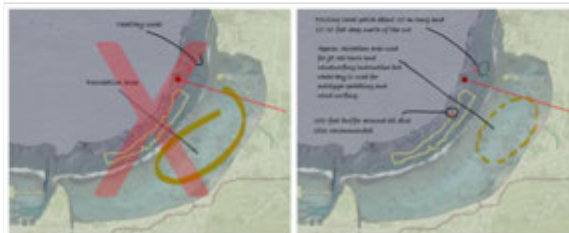
Dashed – uncertain



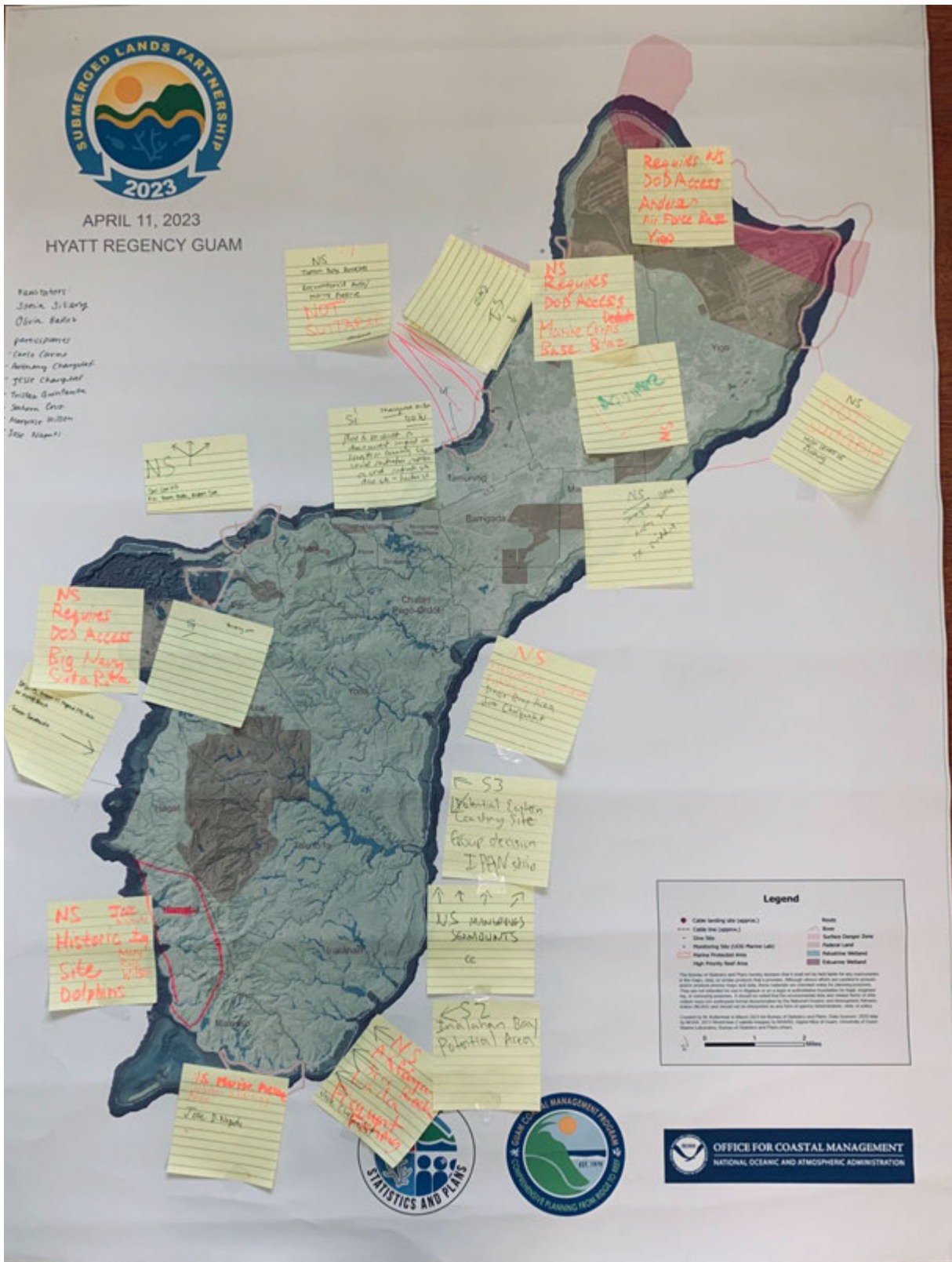
Color-code suitability class (optional)

Highly Suitable	S1
Moderately Suitable	S2
Marginally Suitable	S3
Not Suitable	NS

- Describe in detail **WHERE** and **WHY** area is suitable or not
- Be as **PRECISE** as possible
- Refer to **DATA SOURCE** (e.g., report) if known



COPY OF MARKED-UP PARTICIPATORY MAPS



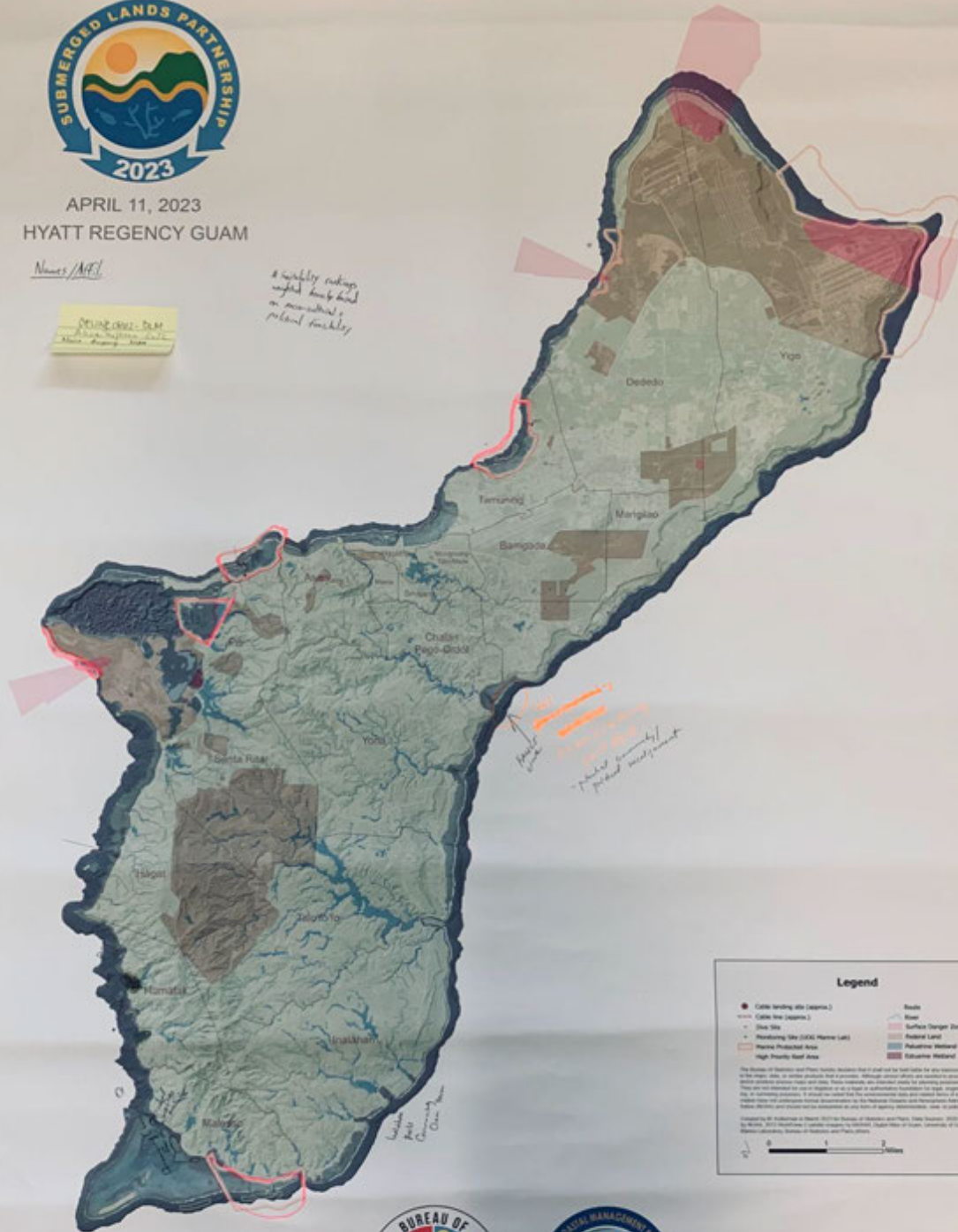


APRIL 11, 2023
HYATT REGENCY GUAM

Names/AFI

DEVELOPING PLAN
for the Hyatt Regency Guam
Marine Protected Area

significantly reducing
weight, but still
in accordance
with facility



Legend

- Cable landing site (Japan)
- Cable line (Japan)
- Sink site
- Resounding Site (USMC Marine Lab)
- Marine Protected Area
- High Priority Reef Area
- Beach
- Surf Zone Danger Zone
- Protected Land
- Palau National Wetland
- Estuarine Wetland

The Bureau of Statistics and Plans hereby certifies that this map shall not be held liable for any consequences arising therefrom. It is hereby provided that if possible, although minor errors are inevitable, the Government of Guam shall not be held liable for any consequences arising therefrom. This map is not intended for use in navigation or as a legal or authoritative source for planning or engineering. It should be noted that the information used and related hereof is of other nature than the comprehensive marine information in the National Oceanic and Atmospheric Administration (NOAA) charts and should not be substituted in any form of navigational information. Date: 11/20/2023

Scale: 0 1 2 Miles





APRIL 11, 2023
HYATT REGENCY GUAM

*DLW
Joseph Flores*

*DLW
Sandy Fogarty
Lizette
Alex*



Legend

- Cable landing site (optical)
- Cable line (optical)
- Cable line
- Working Site (SAC Marine Unit)
- Marine Protected Area
- High Priority Reef Area
- Reef
- Surface Danger Zone
- Pasture Land
- Pasture Wetland
- Estuarine Wetland

The information on this map was derived from the following sources: USGS, NOAA, and other agencies. The accuracy of the information is not guaranteed. The information is provided for informational purposes only. The information is not intended for use in any legal proceeding. The information is not intended for use in any legal proceeding. The information is not intended for use in any legal proceeding.

0 1 2 Miles

*DLW
Sandy Fogarty
Lizette
Alex
DLW
Sandy Fogarty
Lizette
Alex*

*DLW
GENE VERGARA*

*Richard Alvarez
DLW*

N/S



*Three Curved
Highway
bunch*

*DLW
Sandy Fogarty
Lizette
Alex*

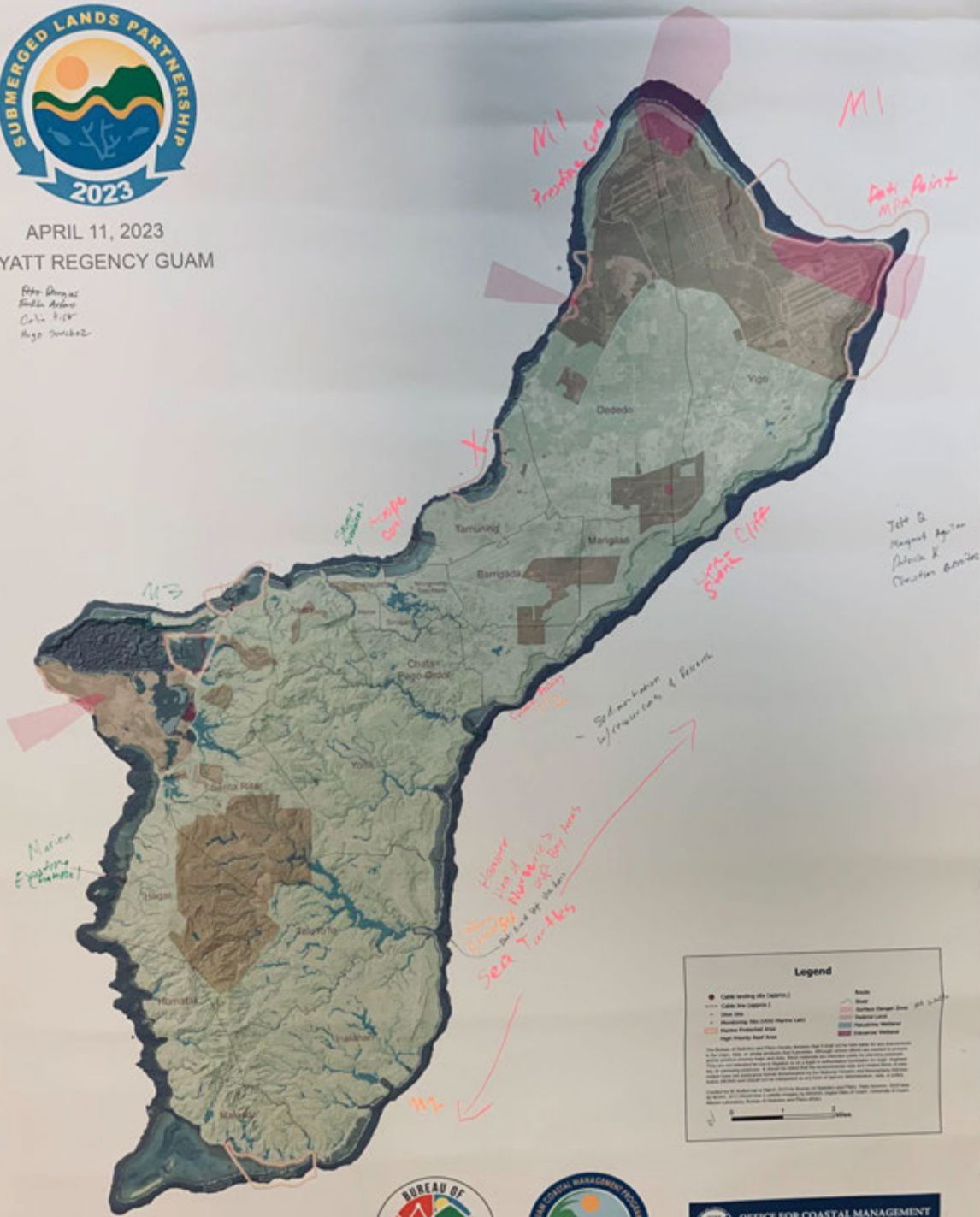
Ben Lopez

*DLW
Sandy Fogarty
Lizette
Alex*



APRIL 11, 2023
HYATT REGENCY GUAM

*Pete Dornat
Frankie Adams
Celia F. F. F.
Ryo Suzuki*



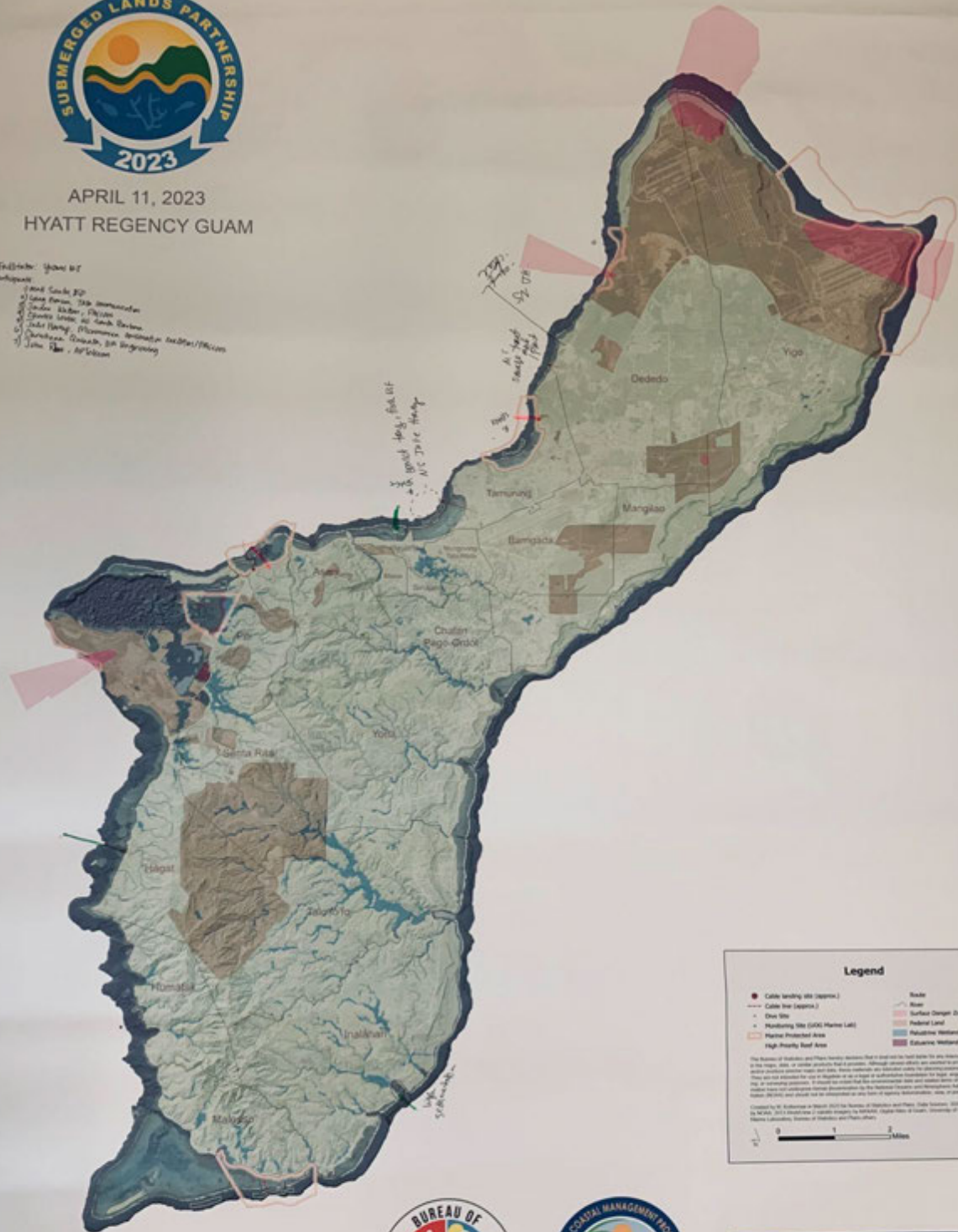
*John B.
Margaret Agustin
Patricia K.
Christine Amador*





APRIL 11, 2023
HYATT REGENCY GUAM

- Participants:
- 1. James Garcia, EPA
 - 2. James Garcia, EPA
 - 3. James Garcia, EPA
 - 4. James Garcia, EPA
 - 5. James Garcia, EPA
 - 6. James Garcia, EPA
 - 7. James Garcia, EPA
 - 8. James Garcia, EPA
 - 9. James Garcia, EPA
 - 10. James Garcia, EPA



Legend

- Cable landing site (approx.)
- Cable line (approx.)
- Dred site
- Monitoring site (DNR Marine Lab)
- Marine Protected Area
- High-Priority Reef Area
- River
- Surface Change Zone
- Federal Land
- Public Use Wetland
- Estuarine Wetland

The Bureau of Statistics and Plans hereby certifies that it is not liable for any misstatements or omissions in this report, or any other statements made therein, although every effort was made to ensure that the data are correct and complete. These statistics are prepared under the planning conditions that are in effect at the time of preparation and are subject to change without notice. The Bureau of Statistics and Plans is not responsible for any errors or omissions in this report, or any other statements made therein, or for any misstatements or omissions in this report, or any other statements made therein, or for any misstatements or omissions in this report, or any other statements made therein.

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0 1 2 Miles



COPY OF DATA SPREADSHEET OF GROUP PARTICIPATORY MAPS

GROUP #	Group Participants	NS - Not Suitable Locations	Justification	GIS Type (Line, Dot, Polygon)
GROUP 1	Sonega Gogue (Facilitator DLM)	Port Authority Beach	-	Polygon
	Joseph Flores (DLM)	Tepungan (Piti Bomb Holes) Marine Preserve	MPA	Polygon
	Jerome Okada (DLM)	Tumon Bay Marine Preserve	MPA	Polygon
	Grace Vergara (DLM)	Haputo Ecological Reserve Area	Federal Reserve/Surface Danger Zone	Polygon
	Richard Arroyo (DLM)	Pati Point Marine Preserve	MPA/High Priority Reef Area	Polygon
	Theresa Guevara (DLM)	Eastside Mangilao/Yigo Coastal	Cliff Side	Polygon
	Andrea Angeles (DLM)	Humatak Coast	-	Polygon
	Benjamin Limes (DLM)	Achang Reef Flat Marine Preserve	MPA	Polygon
	Edward Sanchez (DLM)	Pago Bay/Laguna Estate	Possible palm tree regulation	Polygon
GROUP 2	Celine Cruz (Facilitator DLM)	Malessso Southern Coast	MPA	Polygon
	Alice Tajeron (CLTC)	Malessso Southwestern Coast (Pier)	Community Clam Farm/Coral Nurseries/Marine Lab	Polygon
	Marie Auyong (NOAA Afl)	Orote Ecological Reserve Area	Federal Reserve	
	Note from Group: Suitability Rankings weighted heavily based on socio-cultural & political feasibility	Sasa Bay Marine Preserve	MPA	Polygon
		Tepungan (Piti Bomb Holes) Marine Preserve	MPA	Polygon
		Tumon Bay Marine Preserve	MPA	Polygon
GROUP 3	Christian Benitez (Facilitator BSP GCMP)	Tumon Bay Marine Preserve	MPA	Polygon
	Margaret Aguilar (GEPA)	East Hagatna	Acropora Coral	Polygon
	Patrick Keeler (BSP/CRP)	Haputo Ecological Reserve Area and Northward	Pristine Coral	Polygon
	Jeffrey Qutugua (DOAG)	Pati Point Marine Preserve	MPA/High Priority Reef Area	Polygon
		Eastside Mangilao/Yigo Coastal	Limestone Cliff	Polygon
		Chalan Pago Coast and Mangilao Coast	Cultural Fishing	Polygon
		Eastern Coast	Sea Turtles, Hammerhead Nurseries, esp. Bay Areas	Polygon
GROUP 4	Sonia Siliang (Facilitator BSP Socio)	Tumon Bay Marine Preserve	MPA/Recreational Area	Polygon
	Olivia Banez (Facilitator BSP CRP)	Tepungan (Piti Bomb Holes) Marine Preserve	MPA/Historic Site	Polygon
	Carlo Carino (Infrastructure/Policy Office)	Hila'an Beach/Haputo Ecological Reserve Area	Requires DOD Access, Marine Corps Camp Blaz	Polygon
	Anthony Chargualaf (Inalahan Mayor)	Northern Guam Coast	Requires DOD Access, Andersen Air Force Base, Yigo	Polygon
	Jesse Chargualaf (Office of Senator Sabina Perez)	Pago Bay Area	Frequented Manahak Fishing Area	Polygon
	Tristan Quintanilla (Office of Speaker Therese Terlaje)	South of Talofolo Ipan Strip	Mangroves, Seamounts	Polygon
	Seahara Cruz (Infrastructure/Policy Office)	Bear Rock Inalahan Bay	Frequent Fishing	Polygon
	Maryrose Wilson (DPW)	Achang Reef Flat Marine Preserve	MPA, Dolphin Watching Area (J. Naputi)	Polygon
Jose Naputi (Community Defense Liaison Office, Governor's Office)	All of Humatak Coast	Historic Site, Dolphins (J. Naputi/Mary Rose)	Polygon	
GROUP 5	Julian Janssen (Facilitator BSP GCMP)	Yigo Eastside Coast	High levels of flushing	Polygon
	Victor Torres			
	Dave Burdick (UOG)			
	Ron Obispo (GHS)			
	Frank Camacho (UOG)			
	Lola Leon Guerrero (BSP)			
	Mike Gaweil			
GROUP 6	Yvonne Manglona-Juaneza (Facilitator BSP GCMP)	Haputo Ecological Reserve Area and Northward	Coral	Polygon
	Matthew Santos (BSP)	East Hagatna	Convict Tang fish	Polygon
	Lang Benson (Tata Communications)	Hagat	Existing landing	Line
	Jordan Watson (PACIOOS)	Tepungan (Piti Bomb Holes) Marine Preserve	MPA	Polygon
	Charles Lester (UC Santa Barbara)			
	Julie Hartup (Micronesian Conservation Coalition /PACIOOS)			
	Christiana Quinata (EA Engineering)			
	John Thee (APTelecom)			

GROUP #	Group Participants	S1 - Highly Suitable Locations	Justification	GIS Type (Line, Dot, Polygon)
GROUP 1	Sonega Gogue (Facilitator DLM)	East Hagatna	Existing Cable Landings	Line
	Joseph Flores (DLM)	Inalahan Bay	(GTA Proposed Cable Landing)	Line
	Jerome Okada (DLM)			
	Grace Vergara (DLM)			
	Richard Arroyo (DLM)			
	Theresa Guevara (DLM)			
	Andrea Angeles (DLM)			
	Benjamin Limes (DLM) Edward Sanchez (DLM)			
GROUP 2	Celine Cruz (Facilitator DLM)			
	Alice Tajeron (CLTC)			
	Marie Auyong (NOAA Aff)			
	Note from Group: Suitability Rankings weighted heavily based on socio-cultural & political feasibility			
GROUP 3	Christian Benitez (Facilitator BSP GCMP)	Hagat	Marina Existing Channel	Polygon
	Margaret Aguilar (GEPA)	West Hagatna	Sewage Treatment	Polygon
	Patrick Keeler (BSP/CRP) Jeffrey Quitugua (DOAG)	PAG Southside	M3 (Good)- GEPA Guam Water Classification. Avoid Water Quality that is Excellent.	Polygon
GROUP 4	Sonia Siliang (Facilitator BSP Socio)	Tumon Bay Marine Preserve (section is lined on the printed map)	There is no adverse impact in long term monitoring sites and historic sites	Line
	Olivia Banez (Facilitator BSP CRP)			
	Carlo Carino (Infrastructure/Policy Office)			
	Anthony Chargualaf (Inalahan Mayor)			
	Jesse Chargualaf (Office of Senator Sabina Perez)			
	Tristan Quintanilla (Office of Speaker Therese Terlaje)			
	Seahara Cruz (Infrastructure/Policy Office)			
	Maryrose Wilson (DPW) Jose Naputi (Community Defense Liaison Office, Govenor's Office)			
GROUP 5	Julian Janssen (Facilitator BSP GCMP)	Talofofo Bay	Fairly sandy channel not with coral	Polygon
	Victor Torres	Hagatna Bay	Existing Infrastructure, channel, no coral, no anchoring	Line
	Dave Burdick (UOG)	Mangilao Golf Course	Close Vicinity to Waterline. and available property, HDD	
	Ron Obispo (GHS)			
	Frank Camacho (UOG)			
	Lola Leon Guerrero (BSP)			
	Mike Gawel			
GROUP 6	Yvonne Manglona-Juaneza (Facilitator BSP GCMP)	North of Tumon Bay Preserve (Tamuning/Dededo)	Sewage Treatment Plant	Polygon
	Matthew Santos (BSP)	Inalahan Bay	High Sedimentation	Polygon
	Lang Benson (Tata Communications)	Hagatna Sewage Area	Water Quality is not good	Line
	Jordan Watson (PACIOOS)			
	Charles Lester (UC Santa Barbara)			
	Julie Hartup (Micronesia Conservation Coalition /PACIOOS)			
	Christiana Quinata (EA Engineering)			
	John Thee (APTelecom)			

GROUP #	Group Participants	S2 - Moderately Suitable Locations	Justification	GIS Type (Line, Dot, Polygon)
GROUP 1	Sonega Gogue (Facilitator DLM)	Ipan Coast	By golf course Ipan/Talofofo, Relatively flat & accessible	Polygon
	Joseph Flores (DLM)			
	Jerome Okada (DLM)			
	Grace Vergara (DLM)			
	Richard Arroyo (DLM)			
	Theresa Guevara (DLM)			
	Andrea Angeles (DLM)			
	Benjamin Limes (DLM)			
Edward Sanchez (DLM)				
GROUP 2	Celine Cruz (Facilitator DLM)			
	Alice Tajeron (CLTC)			
	Marie Auyong (NOAA Aff)			
	Note from Group: Suitability Rankings weighted heavily based on socio-cultural & political feasibility			
GROUP 3	Christian Benitez (Facilitator BSP GCMP)			
	Margaret Aguilar (GEPA)			
	Patrick Keeler (BSP/CRP)			
	Jeffrey Quitugua (DOAG)			
GROUP 4	Sonia Siliang (Facilitator BSP Socio)	Inalahan Bay	Potential Area	Polygon
	Olivia Banez (Facilitator BSP CRP)			
	Carlo Carino (Infrastructure/Policy Office)			
	Anthony Chargualaf (Inalahan Mayor)			
	Jesse Chargualaf (Office of Senator Sabina Perez)			
	Tristan Quintanilla (Office of Speaker Therese Terlaje)			
	Seahara Cruz (Infrastructure/Policy Office)			
	Maryrose Wilson (DPW)			
Jose Naputi (Community Defense Liaison Office, Governor's Office)				
GROUP 5	Julian Janssen (Facilitator BSP GCMP)	Hagat (look up area on map)	Moderately suitable, disturbed channel with no anchoring allowed	Polygon
	Victor Torres			
	Dave Burdick (UOG)			
	Ron Obispo (GHS)			
	Frank Camacho (UOG)			
	Lola Leon Guerrero (BSP)			
	Mike Gawel			
GROUP 6	Yvonne Manglona-Juaneza (Facilitator BSP GCMP)			
	Matthew Santos (BSP)			
	Lang Benson (Tata Communications)			
	Jordan Watson (PACIOOS)			
	Charles Lester (UC Santa Barbara)			
	Julie Hartup (Micronesian Conservation Coalition /PACIOOS)			
	Christiana Quinata (EA Engineering)			
	John Thee (APTelecom)			

GROUP #	Group Participants	S3- Marginally Suitable Locations	Justification	GIS Type (Line, Dot, Polygon)
GROUP 1	Sonega Gogue (Facilitator DLM)	Pago Bay/Laguna Estate	Possible palm tree regulation	Polygon
	Joseph Flores (DLM)			
	Jerome Okada (DLM)			
	Grace Vergara (DLM)			
	Richard Arroyo (DLM)			
	Theresa Guevara (DLM)			
	Andrea Angeles (DLM)			
	Benjamin Limes (DLM)			
Edward Sanchez (DLM)				
GROUP 2	Celine Cruz (Facilitator DLM)	Pago Bay (Fault Line)	Potential Community/Political Misalignment	Polygon
	Alice Tajeron (CLTC)			
	Marie Auyong (NOAA Aff)			
	Note from Group: Suitability Rankings weighted heavily based on socio-cultural & political feasibility			
GROUP 3	Christian Benitez (Facilitator BSP GCMP)	Inalahan Coast	M2 Water Quality - Good	Polygon
	Margaret Aguilar (GEPA)	Talofofo Bay	Cultural Resources, Avoid High Use Areas	Polygon
	Patrick Keeler (BSP/CRP)			
	Jeffrey Quitugua (DOAG)			
GROUP 4	Sonia Siliang (Facilitator BSP Socio)	Talofofo/pan Coastal Strip	Potential Eastern Landing Site. Group decision	Polygon
	Olivia Banez (Facilitator BSP CRP)			
	Carlo Carino (Infrastructure/Policy Office)			
	Anthony Chargualaf (Inalahan Mayor)			
	Jesse Chargualaf (Office of Senator Sabina Perez)			
	Tristan Quintanilla (Office of Speaker Therese Terlaje)			
	Seahara Cruz (Infrastructure/Policy Office)			
	Maryrose Wilson (DPW)			
Jose Naputi (Community Defense Liaison Office, Governor's Office)				
GROUP 5	Julian Janssen (Facilitator BSP GCMP)			
	Victor Torres			
	Dave Burdick (UOG)			
	Ron Obispo (GHS)			
	Frank Camacho (UOG)			
	Lola Leon Guerrero (BSP)			
	Mike Gowel			
GROUP 6	Yvonne Manglona-Juaneza (Facilitator BSP GCMP)			
	Matthew Santos (BSP)			
	Lang Benson (Tata Communications)			
	Jordan Watson (PACIOOS)			
	Charles Lester (UC Santa Barbara)			
	Julie Hartup (Micronesian Conservation Coalition /PACIOOS)			
	Christiana Quinata (EA Engineering)			
	John Thee (APTelecom)			

GROUP #	Group Participants	No Order Specified in Location	Justification	Other Notes
GROUP 1	Sonega Gogue (Facilitator DLM)	Inalahan Pools	Community Clam Farm	
	Joseph Flores (DLM)			
	Jerome Okada (DLM)			
	Grace Vergara (DLM)			
	Richard Arroyo (DLM)			
	Theresa Guevara (DLM)			
	Andrea Angeles (DLM)			
	Benjamin Limes (DLM)			
	Edward Sanchez (DLM)			
GROUP 2	Celine Cruz (Facilitator DLM)			
	Alice Tajeron (CLTC)			
	Marie Auyong (NOAA AfI)			
	Note from Group: Suitability Rankings weighted heavily based on socio-cultural & political feasibility			
GROUP 3	Christian Benitez (Facilitator BSP GCMP)			
	Margaret Aguilar (GEPA)			
	Patrick Keeler (BSP/CRP)			
	Jeffrey Quitugua (DOAG)			
GROUP 4	Sonia Sillang (Facilitator BSP Socio)			Nimitz Beach - Dolphins known to frequent this area. (Tristan Quintanilla)
	Olivia Banez (Facilitator BSP CRP)			
	Carlo Carino (Infrastructure/Policy Office)			
	Anthony Chargualaf (Inalahan Mayor)			
	Jesse Chargualaf (Office of Senator Sabina Perez)			
	Tristan Quintanilla (Office of Speaker Therese Tertaje)			
	Seahara Cruz (Infrastructure/Policy Office)			
	Maryrose Wilson (DPW)			
Jose Napuli (Community Defense Liaison Office, Governor's Office)				
GROUP 5	Julian Janssen (Facilitator BSP GCMP)			Ron discussed taki island. D. Burdick said there were disturbed coral around that area.
	Victor Torres			Victor Torres said they will need to think about where to connect to. The further the land developed from the shore, the more impacts
	Dave Burdick (UOG)			Having in or near channels, less impact to corals, channels with silty areas, avoid coral areas (D. Burdick)
	Ron Obispo (GHS)			Burdick southwest have impacted corals, crown of thorns, high variability (D. Burdick)
	Frank Camacho (UOG)			Impacts have been avoided to some degree by using already developed sites (D. Burdick)
	Lola Leon Guerrero (BSP)			Likely to miss something from engineering side, etc.. (D. Burdick)
	Mike Gawel			
GROUP 6	Yvonne Manglona-Juaneza (Facilitator BSP GCMP)			
	Matthew Santos (BSP)			
	Lang Benson (Tata Communications)			
	Jordan Watson (PACIOOS)			
	Charles Lester (UC Santa Barbara)			
	Julie Hartup (Micronesian Conservation Coalition /PACIOOS)			
	Christiana Quinata (EA Engineering)			
	John Thee (APTelecom)			

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PHOTO MONTAGE











SUBMERGED LANDS REPORT

Guam Coastal Management Program Hosts Submerged Lands Partnership Conference for Cable Landings and Marine Management

By: Yvonne Manglona-Juaneza, Marine Conservation District Planner



The Guam Coastal Management Program (GCMP) hosted Guam's first Submerged Lands Partnership (SLP) Conference at the Hyatt Regency Guam Hotel in conjunction with the University of Guam's (UOG) Center for Island Sustainability 2023 Conference on April 11, 2023.

The SLP conference discussed sustainable management of submerged lands related to cable landings development through interdisciplinary plenary sessions, participatory geospatial marine mapping exercises of coastal site suitability, and robust stakeholder engagement. The conference was attended by over 100 public and private sector participants.

Edwin Reyes, Administrator of GCMP, opened the conference and spoke of the significance of GCMP's role in fostering discussion on best practices and policy improvements with the permitting and construction of cable landing sites on Guam. Lola Leon Guerrero, Director of the Bureau of Statistics and Plans (BSP) spoke on the importance of developing a collaborative effort of stakeholders in discussing marine spatial planning, best practices, and suitability sites for cable landings on Guam that contribute to the effective and sustainable management of the island's submerged lands, future development, and conservation of our island's valuable cultural and natural resources. Speaker Therese Terlaje, delivered opening remarks, highlighting the importance of the conference in complying with the Guam Undersea Access for Homes Act (GUAHA).

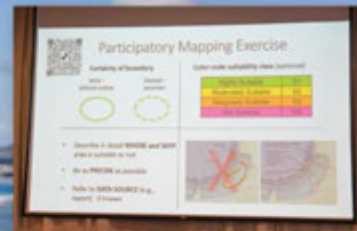


The first plenary sessions delved into the current practice and regulatory framework of cable landings on Guam, marine spatial data, and the administering, and stewardship agency reports. Industry professionals speaking in this session included Dan Tydingco, Executive Vice President of GTA Teleguam, Rajesh Kurian, General Manager of California Pacific Technical Services LLC (CalPac), Margaret Aguilar, Program Coordinator IV of the Environmental Monitoring and Analytical Services Division at Guam Environmental Protection Agency (GEPA), and Jeff Quitugua, Biologist at the Guam Department of Agriculture. "Certainly, horizontal drilling is the way to go, especially when it comes to minimizing impacts on our marine environment, especially our corals," suggests Margaret Aguilar, Guam EPA.

Matthew Santos, Deputy Director of BSP, Dr. Peter Houk, Professor of Marine Ecology at the UOG Marine Laboratory, and Maria Kottermaire, Geographic Information Systems Specialist, participated in the second plenary session presenting existing conditions of marine spatial data.

Celine Cruz, Territorial Chief Planner at the Guam Department of Land Management (Territorial Seashore Protection Commission) presented an overview of the process related to Guam's submerged lands as it relates to agency mandates and the application review process. Alice Tajjeron, Executive Director of the CHamoru Land Trust Commission, also discussed the important role of the CHamoru Land Trust Commission in connection with the submerged land leases.

The second half of the day involved participatory mapping exercises that allowed stakeholders to prioritize suitability orders for cable landings and identify key resources. The data generated from these exercises will help develop the optimal cable landing sites and help inform the ongoing Seashore Reserve Planning process, ensuring that decisions related to cable landings are based on sound scientific data and stakeholder input.



This conference was funded by a grant from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) through the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management and the Guam Coastal Management Program (GCMP) of the Bureau of Statistics and Plans, Government of Guam through Cooperative Agreement Award NA22NOS4190193.

For more information on the Submerged Lands Partnership Conference, contact gcmp@bsp.guam.gov or visit bsp.guam.gov.



GUAM PACIFIC DAILY NEWS ONLINE ARTICLE

https://www.guampdn.com/sponsored/guam-coastal-management-program-hosts-submerged-lands-partnership-conference-for-cable-landings-and-marine-management/article_a2f19fd2-e975-11ed-a722-1fc839734ef7.html

SPONSORED

Guam Coastal Management Program hosts submerged lands partnership conference for cable landings and marine management

May 3, 2023

The Guam Coastal Management Program (GCMP) hosted the Submerged Lands Partnership (SLP) Conference at the Hyatt Regency Guam Hotel in conjunction with the University of Guam's (UOG) Center for Island Sustainability 2023 Conference on April 11, 2023.

The SLP conference discussed sustainable management of submerged lands related to cable landings development through interdisciplinary plenary sessions, participatory geospatial marine mapping exercises of coastal site suitability, and robust stakeholder engagement.

The key topics and objectives of the conference were:

To provide a platform for stakeholders to identify optimal sites for cable landings around Guam in compliance with the Guam Undersea Access for Homes Act (GUAHA) as outlined in Guam Public Law 36-108, Section 75A209.

To provide a general understanding of the context of what is involved with the permitting sitting, construction, and landing of cables on Guam.

To discuss the existing conditions of cable landings on Guam and what they mean for the marine area.

To engage regulatory agencies in discussions related to submerged lands and how they impact Guam's marine area.

To provide an overview of marine spatial planning and facilitate a mapping exercise for stakeholder engagement.

To engage stakeholders in a discussion on the suitability of various marine spatial planning classes.



Participants at the Submerged Lands Partnership conference discussed sustainable management of submerged lands related to cable landings

development through interdisciplinary plenary sessions, participatory geospatial marine mapping exercises of coastal site suitability, and robust stakeholder engagement.

Guam Coastal Management Program

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Participants at the Submerged Lands Partnership Conference hosted by the Guam Coastal Management Program (at the Hyatt Regency Guam on April 11, 2023).

Guam Coastal Management Program

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Guam Coastal Management Program

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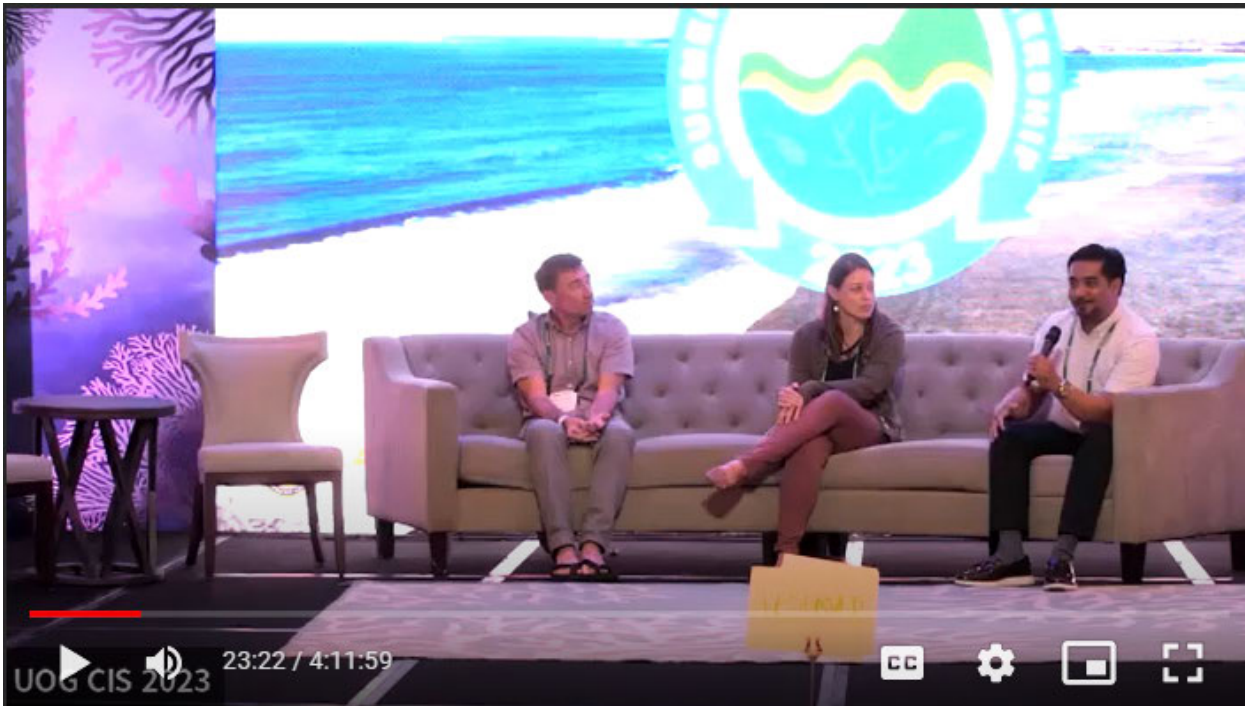
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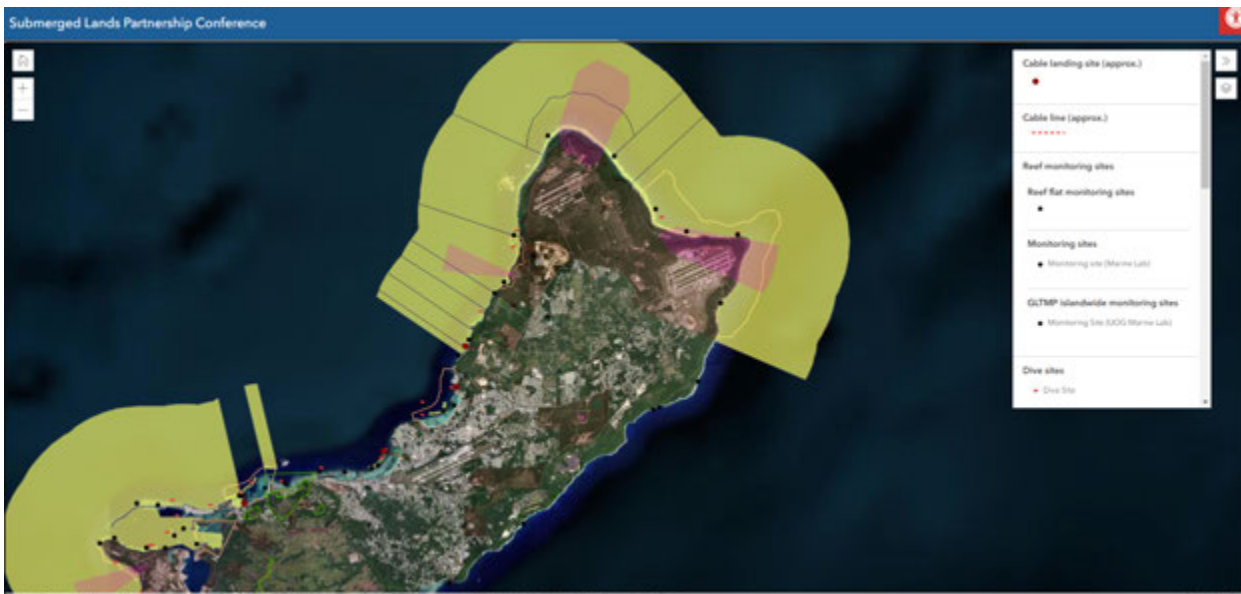
For more information on the Submerged Lands Partnership Conference, contact gcmp@bsp.guam.gov or visit bsp.guam.gov.

VIDEO RECORDING AUDIO WEBLINK



https://drive.google.com/file/d/1NQgFI--f2BN0G907Wtvn73Eb9HGP6sDj/view?usp=drive_link

WEBMAP WEBLINK



<https://bsp.guam.gov/submerged-land-map/>

