

Watershed Working Group (WWG)

November 15, 2021
Quarterly Meeting





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Watershed Working Group

Watershed Working Group (WWG) is a partnership between local and federal government agencies, environmental non-profits and other concerned groups which gathers to provide technical expertise and project support on watershed initiatives in the CNMI. The group typically meets every two months to discuss ongoing projects and request review or recommendations on specific issues.

Please check the [CRM calendar for the next WWG meeting](#). Please contact our Watershed Coordinator, Zachary Williams (zwilliams@dcrm.gov.mp) for any further information or to be added to the email list.

MEETING MATERIALS AND RESOURCES

Keep up to date with presentations, materials and other group updates! Open "Notes & Updates" for further details and links relevant to CNMI's watersheds.

August 3, 2021

- [August 3, 2021. Notes & Updates](#)
- **Presentations:** Zak Williams (DCRM Watershed Coordinator): Watershed Updates; Mary Fem Urena (DCRM Coastal Planner): Better Buildings Update;

<https://dcrm.gov.mp/our-programs/water-quality-and-watershed-management/watershed-working-group/>



The Watershed Working Group is a network of partners involved in watersheds planning, project implementation, research, and education.

Includes members from local and federal government agencies, NGOs, community groups, and other interested parties.

Typically meets quarterly to discuss issues relating to watersheds, in order to pool knowledge and networks towards better management and collaboration.



Meeting Agenda

Zak Williams (DCRM)

- Watershed Updates
 - Watershed Management Plans (WMP)

Robbie Green (Pacific Coastal Research & Planning)

- Achugao Watershed Community Workshop

Anne Kitchell (Horsley Witten Group)

- Laolao Bay Watershed Draft Action Plan

Zak Williams (DCRM)

- Watershed Updates, cont.
 - DOI CRNR
 - NOAA CRCP
- Raingarden Planning

Mary Fem Urena (DCRM)

- Living Shorelines & Nature-Based Solutions Guidebook

Olivia Tenorio (DEQ)

- Storm Drain Guards – Pilot Project

Roundtable Discussion

- Member updates, concerns, opportunities, etc.

Closing



Watershed Management Plans



Continuing process of updating watershed planning, transitioning from Conservation Action Plans (CAP) to integrated Watershed Management Plans (WMP).

➤ Intended to guide watershed management over the next 10-years.

- ✓ Garapan Watershed Management Plan (GWMP) — Completed 2021
- ✓ Talakhaya Watershed Management Plan (TWMP) — Completed 2020
- Laolao Bay Watershed Management Plan (LWMP) — Ongoing
- Achugao Watershed Management Plan (AWMP) — Ongoing

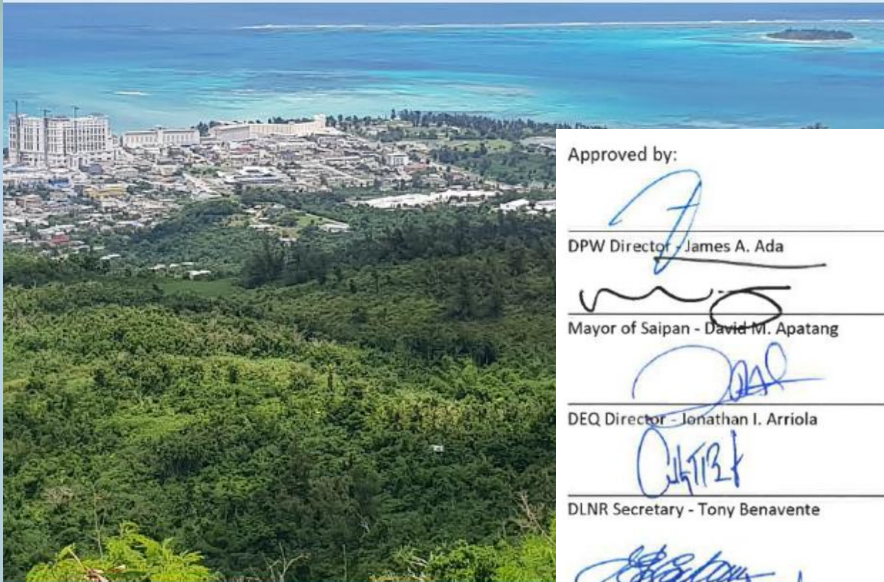
Garapan Watershed Management Plan (GWMP)



Garapan Integrated Watershed Management Plan – 2020



SAIPAN, CNMI




Prepared for the CNMI Division of Coastal Resources Management by the authors under contract for The Nature Conservancy under the cooperative agreement award #NA16NOS4820106 from the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Conservation Program, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA, the NOAA Coral Reef Conservation Program, or the U.S. Department of Commerce.

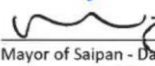
Authors: Meghan Gombos of Sea Change Consulting and Becky Skeele of Koa Consulting, with support from Horsley Witten Group, Inc.



Approved by:


DPW Director - James A. Ada

7/26/21
Date


Mayor of Saipan - David M. Apatang


7/26/21
Date


DEQ Director - Jonathan I. Arriola

6/23/2021
Date


DLNR Secretary - Tony Benavente

8/09/2021
Date


BECQ Administrator - Eli D. Cabrera


6/11/2021
Date


CUC Director - Gary P. Camacho

9/17/2021
Date


DCRM Director - Janice E. Castro

5/6/2021
Date


OPD Director - Kodep Ogomoro-Uludong

9/21/21
Date


CNMI Chief Executive Officer - Esther L. Muna

9/29/2021
Date

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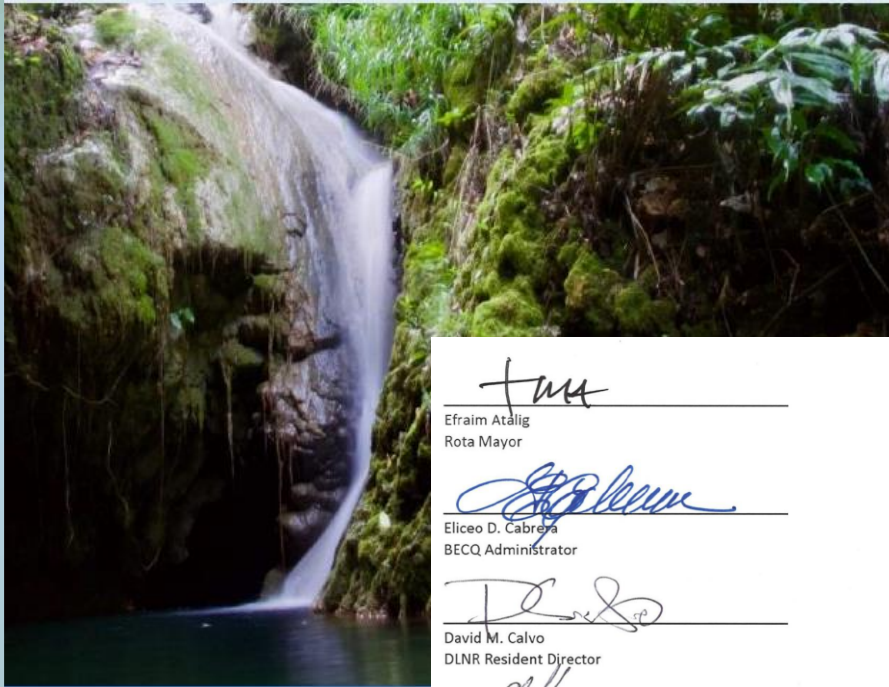
Talakhaya Watershed Management Plan (TWMP)



Talakhaya Integrated Watershed Management Plan – 2020





ROTA, CNMI

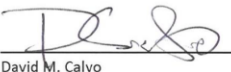



Prepared for the CNMI Division of Coastal Resources Management
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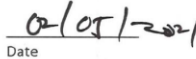




Efraim Atalig
Rota Mayor

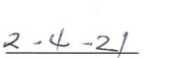

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David M. Calvo
DLNR Resident Director


James Manglona
DLNR Rota Forester


Date 02/05/2021


Date 02/04/2021


Date 2-4-21



Date 2-4-2021

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Achugao Watershed Management Plan (AWMP)



Development ongoing → ETA 2022

Draft later this month?

Achugao Watershed Existing Conditions and Opportunities Interim Report



December 2020
DRAFT

Prepared for:
CNMI Bureau of Environmental and Coastal Quality
Division of Coastal Resource Management

Prepared by:
Horsley Witten Group, Inc.
KOA Consulting, Inc.
Sea Change Consulting



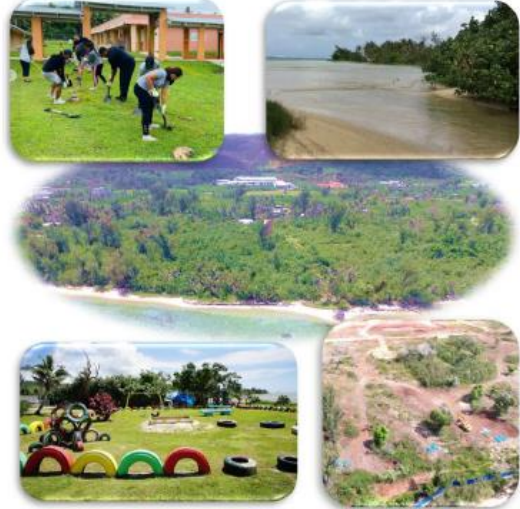
Achugao Watershed Management Plan (AWMP)



Development ongoing → ETA 2022

Upcoming workshop for community stakeholder input.

➤ Nov. 23, 4:30–7pm



Open to the whole community!

Help create a vision for the Achugao Watershed!

What places would you like to see improved or restored in Tanapag & San Roque?

What types of projects would enhance your village environment?



TUESDAY, NOV. 23, 4:30 – 7:00 PM
TANAPAG MIDDLE SCHOOL CAFETERIA
ACHUGAO WATERSHED
COMMUNITY WORKSHOP

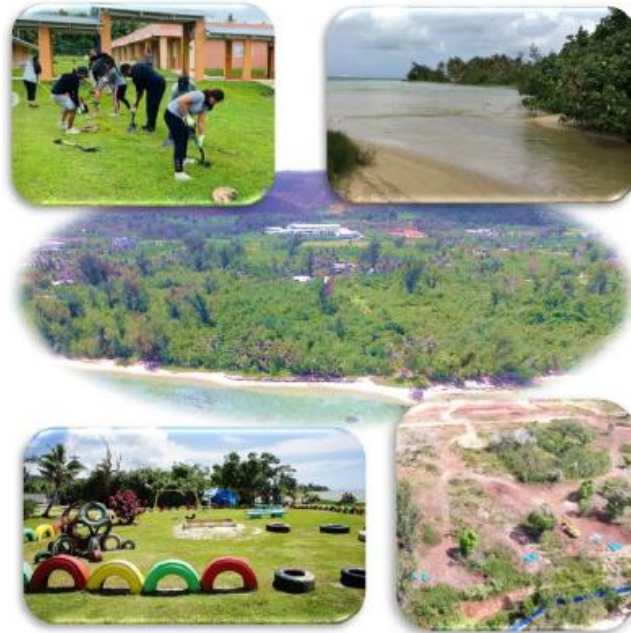
How can we enhance the natural, cultural, and built features in Tanapag and San Roque?

For the past year the NOAA Coral Reef Conservation Program, in partnership with Horsley-Witten Group, Koa Consulting, and CNMI Government partners have been developing watershed and community improvement options for the Achugao Watershed. We want to hear from you! What's your vision for a healthy environment in your village? Come tell us at Tanapag Middle School Cafeteria on Tuesday, 11/23, from 4:30 – 7:00 PM.

Contact:
info@koaconsultingllc.com

LEARN MORE ABOUT THE ACHUGAO PROJECT





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Contact:

info@koaconsultingllc.com

LEARN MORE ABOUT THE ACHUGAO PROJECT



Laolao Bay Watershed Management Plan (LWMP)



Development ongoing → ETA 2022

Laolao Bay Watershed Existing Conditions and Opportunities Interim Report



August 2020 DRAFT

Prepared for:
CNMI Bureau of Environmental and Coastal Quality
Division of Coastal Resource Management

Prepared by:
Horsley Witten Group, Inc.
KOA Consulting, Inc.
Sea Change Consulting



Laolao Bay Watershed Management Plan (LWMP)



Development ongoing → ETA 2022

Draft action plan submitted → Nov. 2021

November 2021



LaoLao Bay Watershed

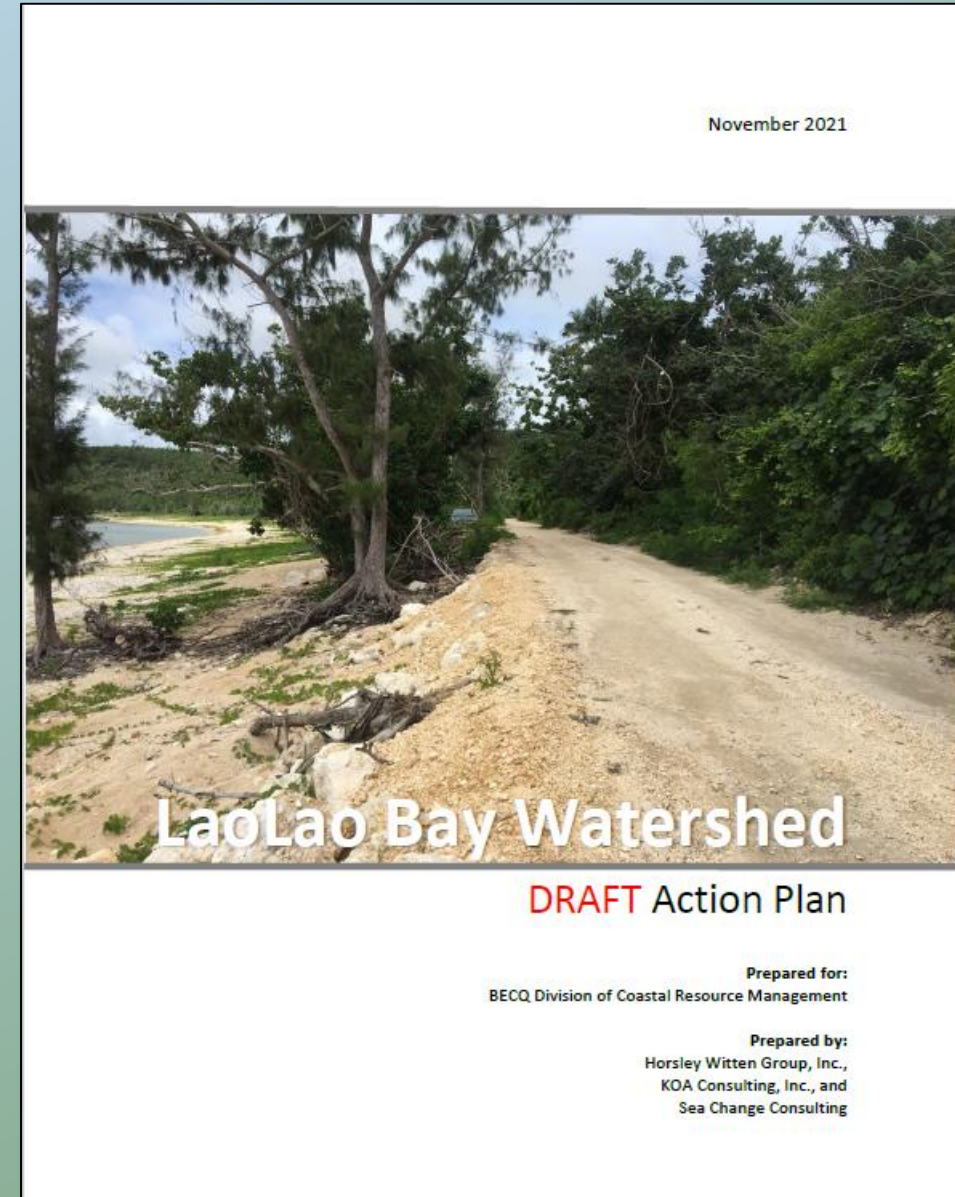
DRAFT Action Plan

Prepared for:
BECQ Division of Coastal Resource Management

Prepared by:
Horsley Witten Group, Inc.,
KOA Consulting, Inc., and
Sea Change Consulting

DRAFT Action Plan

- Structured like recent Garapan update
- Incorporates 2012 CAP progress review
- Derived from watershed workshop input, field observations, characterization report findings
- Framework for WMP implementation strategy



LaoLao Bay Watershed Action Plan

10-yr goals



Adopt a **sustainable eco-tourism and recreation** approach that protects natural resources and fosters a conservation-minded partnership between public and private landowners



Maintain or improve **water quality** to meet CNMI standards for the protection and propagation of fish, shellfish, and wildlife and for recreational uses



Enhance ecosystem capacity to provide critical **watershed services** such as habitat, recreation, erosion control, and protection against extreme events



Create **educational opportunities** for residents and visitors to learn and experience the cultural, historical, and natural resources of the watershed

LaoLao Bay Watershed Action Plan

sustainable eco-tourism and recreation



- Exploring sustainable financing alternatives for management and maintenance of infrastructure and natural resources.
- Reviewing environmental enforcement powers, responsibilities, and policies and improving compliance and enforcement.
- Identifying feasible land conservation tools to resolve management conflicts with public activities on private land and to prioritize upland areas for acquisition.

5-YR Objectives & Actions



Relevant Goal	Objective/Action	5-yr Cost Estimate	Lead Agent (Other partner)
	1.1 By 2025, a management and sustainable financing plan has been developed for LaoLao bay addressing eco-tourism and recreation.		
	i. Conduct a feasibility study for establishing user fees (or other), controlled visitor access, and corresponding facility upgrades to dive site, cultural/historic sites, and other beach access points (i.e., bathrooms, parking, visitor information, enforcement).	\$25,000	DCRM (NPS)
	ii. Submit Land and Water Conservation Fund (LWCF) grant application to NPS for improvement project implementation funding (e.g., for bathroom facilities per Jeffery's Beach).	\$5,000	DLNR/Office of Grants Management (NPS)
	1.2 By 2025, environmental regulations, policies, and enforcement mechanisms have been reviewed and updated.		
	i. Utilize NOAA CRCP Cooperative Agreement to conduct regulatory review and enforcement trainings. Include Tasi-Watch in training program. *	\$50,000	BECQ, DFW (NOAA, DOJ)
	ii. Evaluate the benefit of continued Cucumber moratorium and/or designation of locally managed marine protected area (LLMA). *	\$10,000	BECQ
	iii. Hire community conservation coordinator and provide additional volunteer Tasi-Watch rangers to support enforcement, maintenance, and educational objectives. *	\$250,000	MINA
	iv. Track and report # and type of violations, enforcement actions taken, and remediation actions implemented annually. *	\$5,000	DCRM
	v. Define "unsustainable" beach activities and repair or replace vehicular barriers, signage, and other features at strategic locations on Laulau Bay Drive to discourage bad behaviors. *	\$10,000	DCRM
	1.3 By 2025, a plan has been developed for conserving priority parcels (public and private) that have a potential role in enhancing watershed services and/or climate resiliency.		
	i. Identify feasible legal and financial mechanisms to formally protect existing undeveloped lands that are deemed critical for habitat and water resource management.	\$25,000	OPD/DLNR (DPL)
	ii. Evaluate upland habitat quality and identify critical parcels for protection and restoration (e.g., sensitive species, connectivity, stabilization, recharge).	\$25,000	Forestry/DFW
	iii. Identify private properties adjacent to road ROW where easements or purchase could enhance opportunities for infrastructure protection, access, or other improvements.	\$5,000	DCRM













LaoLao Bay Watershed Action Plan

water quality



- a. Expanding current monitoring programs to include groundwater, stream, and BMP performance measures.
- b. Investing in long-term inspection and maintenance of drainage improvements and other watershed restoration projects.
- c. Advancing wastewater, stormwater green infrastructure, and unpaved road stabilization projects to reduce land-based sources of pollution and improve resiliency to future storms.
- d. Promoting sustainable agricultural and aquaculture practices.

5-YR Objectives & Actions

Relevant Goal	Objective/Action	5-yr Cost Estimate	Lead Agent (Other partner)
	2.1 By 2025, water turbidity continues to be below 50% of 1997 ambient levels as measured through a more comprehensive water quality and biological monitoring program.		
	i. Conduct wet weather stream monitoring to measure flow and turbidity, nutrients, and bacteria at least (3) key crossings along LauLau bay Rd., (1) in DanDan, and (1) at the stream discharge in Kagman subwatersheds.	\$50,000	BECQ (MINA, NMC)
	ii. Expand on preliminary nutrient study by Dr. Kiho Kim with a more focused effort on Laolao Bay and Kagman watersheds, additional, seasonal sampling, and nutrient source tracking.	\$50,000	American University/BECQ
	iii. Conduct addition fisheries surveys needed to establish trends in the abundance of a) carnivorous, surgeon and adult parrot fish; b) sea urchins and sea cucumbers; and c) the coral density per unit area and mean colony size. *	\$250,000	DFW
	iv. Conduct two Creel (shoreline) surveys with new data collection employees. *	\$25,000	DFW (NOAA)
	v. Conduct household septic system surveys (including DanDan) to evaluate condition and potential wastewater loads to groundwater.	\$125,000	BECQ
	vi. Evaluate performance of wastewater treatment plant and fertilizer management plan at Laolao Bay Resort and Golf.	\$10,000	BECQ
	2.2 Past road improvements and other watershed BMPs are being maintained. *		
	i. Develop a comprehensive infrastructure maintenance plan that includes location, procedures, frequency, responsible parties, and reporting requirements for road drainage infrastructure, BMPs, revegetation areas, historic sites, trash removal, etc.	\$5,000	MINA (BECQ, DPW, MOS)
	ii. Adopt and implement a formal agreement for infrastructure maintenance between DPW, MOS, DCRM, and MINA with annual schedule, division of labor, and dedicated 5-yr maintenance budget.	\$50,000	Office of the Governor
	2.3 By 2025, new BMPs are implemented to further reduce sediment loads, other land-based sources of pollution, and vulnerability to storms.		
	i. Design and permit Gap Gap Rd. stabilization project to reduce erosion and sedimentation and to provide reliable secondary access to properties on LauLau Bay Rd.	\$75,000	BECQ, (DPW, MOS)
	ii. Conduct a more thorough watershed inventory in DanDan and Kagman subwatersheds as part of a general watershed assessment training for agency staff.	\$10,000	DCRM (NOAA)
	iii. Implement demonstration green infrastructure improvements at another location in the watershed, such as Dive Site, San Vicente, on an unpaved residential road, or other sites identified during subsequent watershed inventory.	\$250,000	BECQ
	iv. By 2025 demonstrate sustainable agriculture and/or aquaculture practices at two operations.	\$50,000	Division of Agriculture (NRCS)

LaoLao Bay Watershed Action Plan








watershed services



- a. Protecting vulnerable coastal infrastructure through nature-based, shoreline stabilization.
- b. Improving forest habitats through invasive species management and revegetation of native species.
- c. Continuing in-water restoration efforts such as coral nursery (out planting) and fisheries management.
- d. Eliminating illegal dumping.

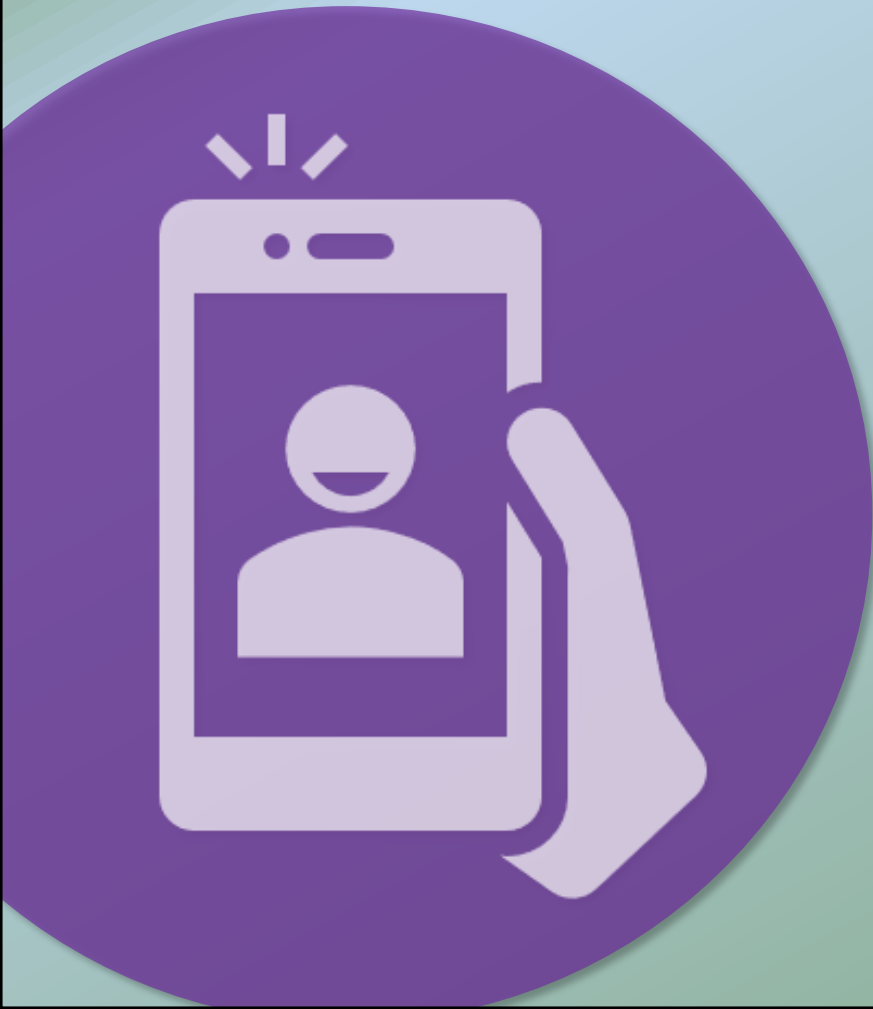
5-YR Objectives & Actions



Relevant Goal	Objective/Action	5-yr Cost Estimate	Lead Agent (Other partner)
	3.1 By 2025, evaluate forest habitat quality and develop an approach to invasives management.		
	i. Develop revegetation, invasives species management, and plant monitoring plan (maps, designs, procedures, and costs) for public lands (e.g., near quarry in DanDan). *	\$25,000	Forestry/DFW (MINA, DCRM)
	ii. Contact private landowners in the watershed and identify those interested in an assessment of habitat quality and preparation of an invasives management on their property	\$25,000	Forestry/DFW (MINA, DCRM)
	iii. Coordinate with Forestry to plant 1,000 native trees in the Laolao watershed.	\$35,000	MINA
	iv. Conduct at least three separate field demonstration trainings on invasive removal for volunteers at priority locations. *	\$15,000	Forestry/DFW (MINA, DCRM)
	v. Conduct stream assessment to identify bank stabilization, in stream habitat restoration, and buffer revegetation locations.	\$10,000	BECQ
	3.2 By 2025, implement shoreline stabilization and Lau Lau Bay Rd. protection measures using a combination of structural and living shoreline techniques.		
	i. Develop a shoreline revegetation, invasives species management, and plant monitoring plan (maps, designs, procedures, and costs) for Laulau Bay Rd. *	\$50,000	DFW/BECQ (NRCS)
	ii. Design and permit shoreline stabilization measures at locations severely impacted by typhoon Yutu (e.g., Laulau Bay Rd., parking, and boat ramp).	\$275,000	BECQ (DFW)

LaoLao Bay Watershed Action Plan

educational opportunities



- a. Supporting organizations and volunteer programs that engage and inform stakeholders on watershed stewardship activities.
- b. Finding opportunities to preserve historic and cultural sites.
- c. Conducting multi-media community outreach in DanDan, Papago, and Kagman to raise awareness of past and future watershed management activities.

5-YR Objectives & Actions



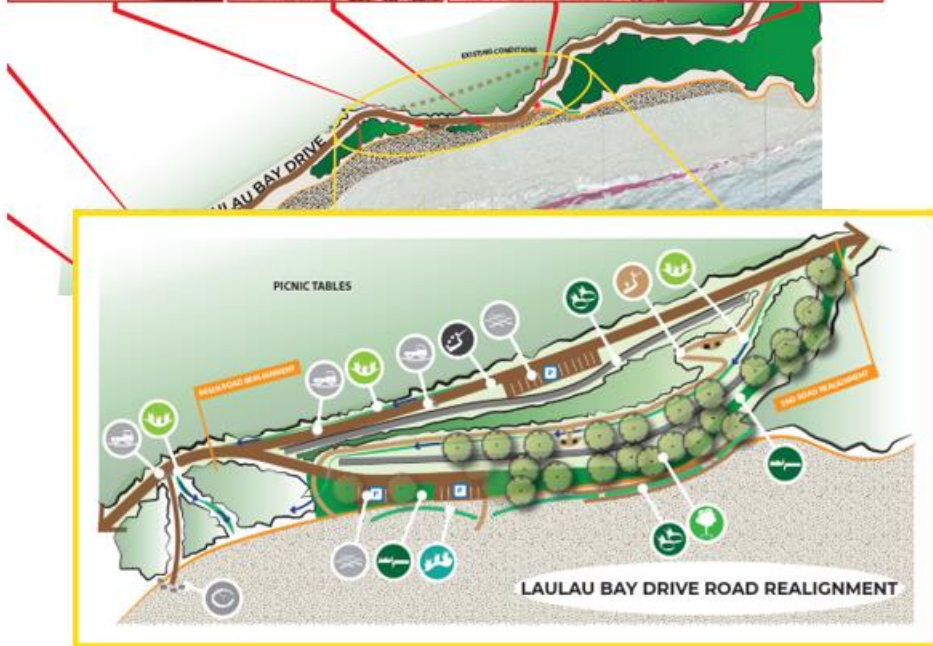
Relevant Goal	Objective/Action	5-yr Cost Estimate	Lead Agent (Other partner)
	4.1 By the end of 2025, develop a new Social Marketing Campaign to raise awareness and generate public support for Laolao management priorities (e.g., land conservation, habitat restoration, pollution reduction, and infrastructure resiliency).		
	i. Distribute targeted messages to residents in Laolao and DanDan on septic systems maintenance, native and invasive plants, and onsite runoff management options for unpaved roads and driveways.	\$15,000	MINA, DCRM
	ii. Watershed Warriors to coordinate with teachers and Tasi Watch to develop classroom and field trip activities for elementary, middle, and high schools related to watersheds and climate adaptation.	\$25,000	DCRM (Dept Education, MINA)
	iii. Install (or replace) signage for recreational users on best practices for marine, beach, and upland resource protection at entrance and 4 key access points along Lau Lau Bay Rd.*	\$15,000	DCRM
	4.2 Offer at least one opportunity a year for others to engage in watershed management activities.		
	i. Provide donation/sponsorship opportunities to dive operators, hotels, and MVA and volunteer activities (e.g., tree planting, invasives removal) to tourists.	\$5,000	MINA
	ii. Evaluate potential opportunities for formalizing an upland hiking trail to expand upland watershed and forest education opportunities.	\$10,000	DLNR, Forestry (NPS)

Concepts for Specific Actions

The following descriptions and concept snap shots are provided for several of the priority projects identified in the short-term actions. Additional detail will be provided in the final watershed plan to support next steps.

A. LauLau Bay Drive and Shoreline Resiliency Project (see 3.2(ii))

Typhoon Yutu took a bite out of the beach, parking lot, and a section of LauLau Bay Dr. Temporary boulder stabilization was put in place to keep the road open. Given that SLR projections show this section of road is highly vulnerable, a longer-term solution may include a combination of road realignment, revegetated/living shoreline, restructuring of parking, and beach access controls. The proposed concept extends from the “boat ramp” area east to the section of road that was hit hardest by the storm. It includes a focus on native vegetation, elevated vistas for picnic tables and hangout spots, and drainage control features to protect the road and beach pathways from erosive runoff. Boulders are also proposed at the terminus of the boat ramp road to prevent vehicles from driving on the beach. This location offers an opportunity for education signage. The biggest constraint to this project is that private land ownership on the north side of LauLau Bay Dr. may prohibit road realignment.

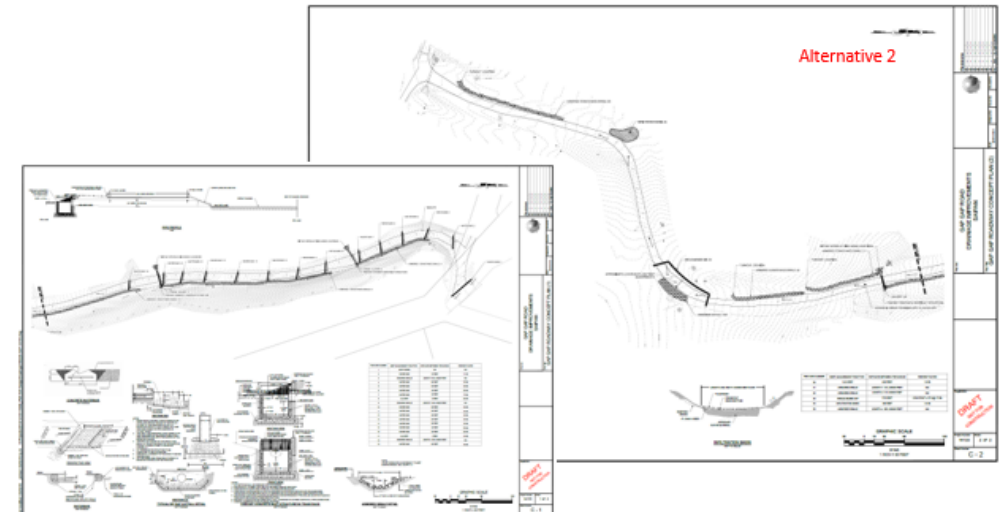
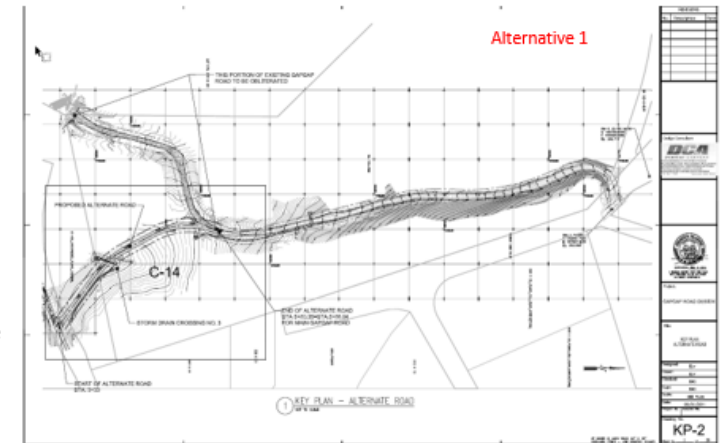


B. GapGap Road Stabilization Project (see 2.3(i))

GapGap Rd. provides alternative access to the eastern portion of LauLau Bay Rd. It is a steep, unpaved road running north to south that connects the paved road near the old detention center with LauLau Bay Dr. near the Dive Site parking lot. GapGap Rd. was built/has been maintained with few features to control drainage; thus, it is subject to significant and chronic erosion and surface degradation that is considered one of the most significant remaining sources of watershed sedimentation. In many cases, portions of GapGap Rd. are impassable to vehicles. Yutu-inflicted damage to LauLau Bay Rd. certainly highlighted the importance of having a reliable, secondary access road.

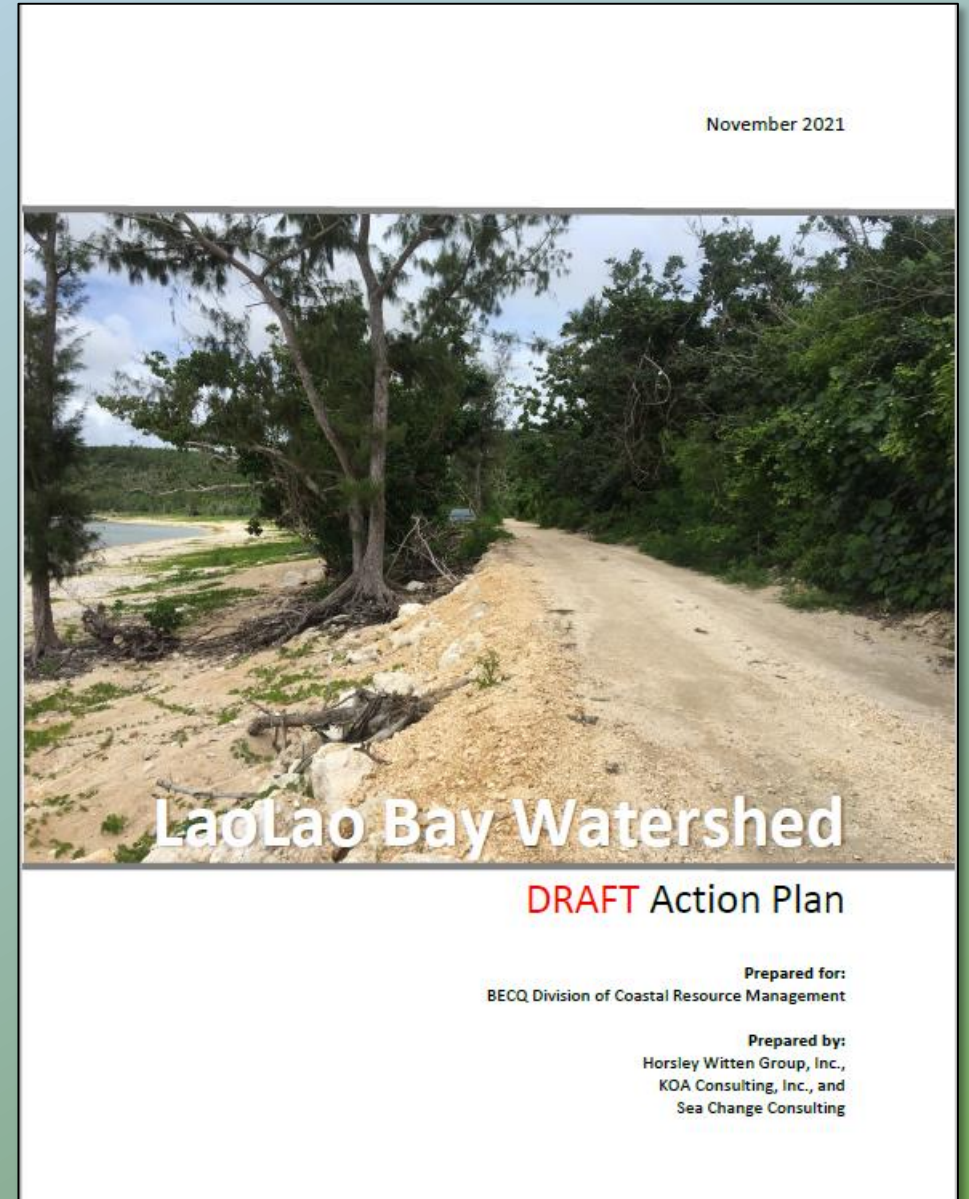
Over the years various design alternatives have been discussed from paving, to realignment, to a series of drainage features specifically for unpaved roadways. One or a combination of these options should be pursued.

Constraints to moving forward with a project like this appear to be related to private ownership of road corridor, lack of an agency champion, and reluctance to making it “easy” to access LaoLao beach.



Next steps

- Post draft action plan for comment
- Laolao Watershed Public Survey
- Monitoring Plan
- Education and Outreach Plan
- Final Characterization Report
- Watershed Management Plan





2020–23 DOI CRNR Grant



“The Coral Reef and Natural Resources (CRNR) Initiative provides grant funding for management and protection of coral reefs and to combat invasive species in the insular areas, contributing to the health of coral reef ecosystems and other natural resources for long-term economic and social benefit.”

2020–23 funding covers several projects, including:

- Watershed Surveillance & Monitoring
- Achugao Watershed Upland Reforestation
- Watershed Warriors
- Fire Prevention Information Programming

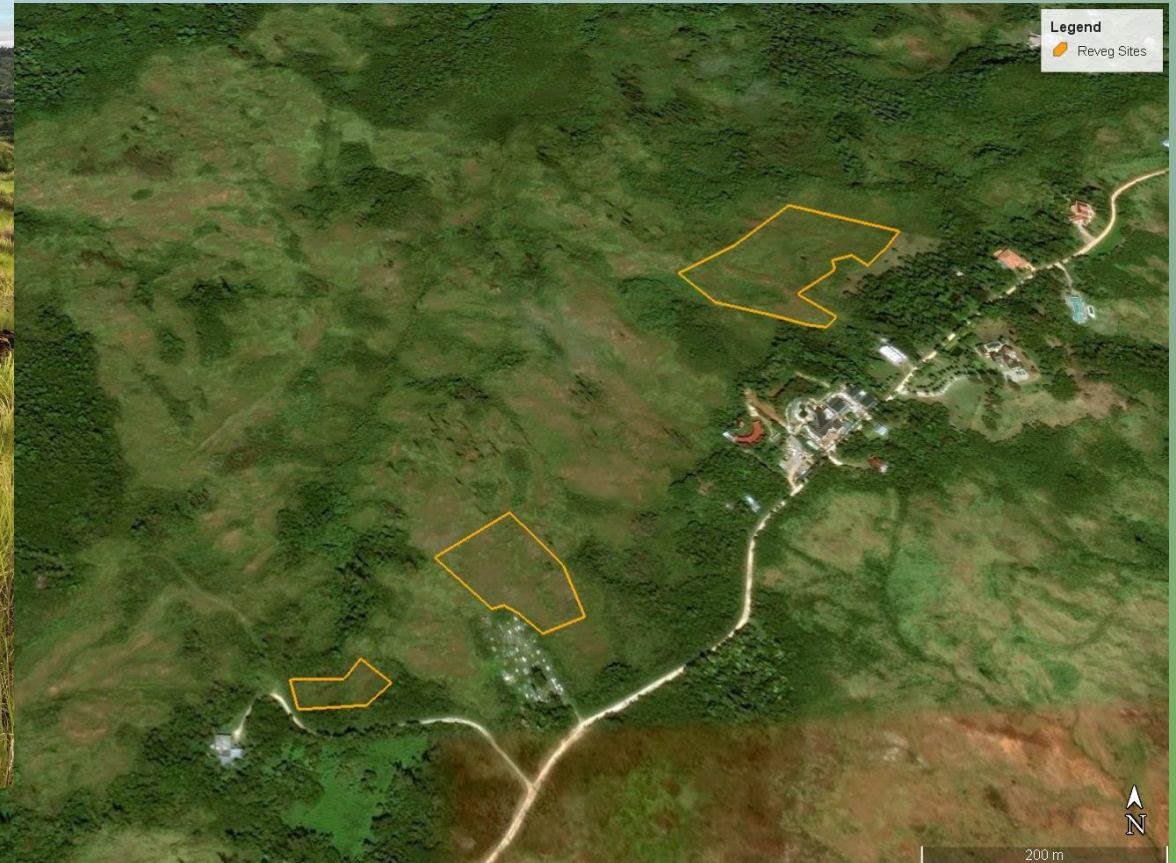


2020–23 DOI CRNR Grant



Final siting underway for “Achugao Watershed Upland Reforestation”.

➤ Sites selected along Wireless Ridge, permitting underway with DFW and HPO.



Google Earth

Image © 2021 Maxar Technologies

2020–23 DOI CRNR Grant



Final siting underway for “Achugao Watershed Upland Reforestation”.

➤ Sites selected along Wireless Ridge, permitting underway with DFW and HPO.



Propagation of native tree species to be conducted by Forestry.

➤ Awaiting completion of Kagman nursery repairs and renovations.

2020–23 DOI CRNR Grant



After a successful first year of Watershed Warriors with 4th-grade students at Gregorio T. Camacho (GTC) Elementary School, we hope to continue our programing into Year 2.

➤ Conversations with PSS ongoing.



2020–23 DOI CRNR Grant



Fire prevention programming ongoing. Wildfire signage to be installed at seven high-profile locations across Saipan.

➤ Awaiting NEPA clearance.

Stay tuned for New Year radio ads targeting firework safety!



2021–24 DOI CRNR Grant



“The Coral Reef and Natural Resources (CRNR) Initiative provides grant funding for management and protection of coral reefs and to combat invasive species in the insular areas, contributing to the health of coral reef ecosystems and other natural resources for long-term economic and social benefit.”

2021–24 funding covers several projects, including:

- DCRM Learning Center
- Post-Disturbance Environmental Change Assessments



More updates to come in 2022!



2021–22 NOAA CRCP Grant



“The Coral Reef Conservation Program provides financial awards (grants and cooperative agreements) to support conservation projects and scientific studies that benefit coral reef management across seven U.S. states and territories, the Caribbean, and the Pacific.”

2021–24 funding covers many projects, including:

- CRI Rota Watershed Technician
- Mangrove Nursery & Reintroduction
- Raingardens



NOAA
CORAL REEF
CONSERVATION PROGRAM



2021–22 NOAA CRCP Grant



Funding to hire additional CRI position: Talakhaya Watershed Technician.

Position will work closely with CRI Watershed Coordinator and Rota DLNR to oversee implementation of Talakhaya Watershed Management Plan (TWMP).

➤ Extended our efforts here to expand watershed activities on Rota, acting as a liaison between different Rota agencies and public groups.

Full-time position to be hiring soon, priority to qualified Rota residents.



2021–22 NOAA CRCP Grant



Funding to establish a mangrove nursery and import extirpated species of mangroves for eventual out-planting and restoration activities.

- Year 1: nursery siting
- Year 2: nursery establishment and propagation

In addition to *Bruguiera gymnorhiza*, import of *Lumnitzera littorea*, *Rhizophora apiculate* and *R. mucronata* is proposed (from Guam).

➤ Support so far from CNMI and Guam Agriculture Offices, BECQ, and NPS.

Siting ongoing, but we hope to have further updates in 2022.



2021–22 NOAA CRCP Grant

Funding maintain existing raingardens at NMI Museum, Tanapag Middle School, San Vicente Elementary School, and William S. Reyes (WSR) Elementary School.

Additional funding to install two raingardens in Garapan and/or Achugao watersheds.

- Year 1: siting and permitting
- Year 2: installation and maintenance



2021–22 NOAA CRCP Grant



Funding maintain existing raingardens at NMI Museum, Tanapag Middle School, San Vicente Elementary School, and William S. Reyes (WSR) Elementary School.

Additional funding to install two raingardens in **Garapan and/or Achugao watersheds.**

- Year 1: siting and permitting
- Year 2: installation and maintenance

Thoughts on potential installation sites?

- **Preferably in highly visible AND impactful locations, with landowner buy-in for maintenance**

2021–22 NOAA CRCP Grant



at NMI
/icente
(WSR)



➤ Preferably in highly visible location
landowner buy-in for maintenance

2021–22 NOAA CRCP Grant



Funding maintain existing raingardens at NMI Museum, Tanapag Middle School, San Vicente Elementary School, and William S. Reyes (WSR) Elementary School.

Additional funding to install two raingardens in **Garapan and/or Achugao watersheds.**

- Year 1: siting and permitting
- Year 2: installation and maintenance

Thoughts on potential installation sites?

- **Preferably in highly visible AND impactful locations, with landowner buy-in for maintenance**
- **Further discussions in 2022, or contact me at zwilliams@dcrm.gov.mp**





Parts of our shoreline are eroding. How can we address this issue while preventing hardening and unwanted consequences?

Living Shorelines and Nature-Based Solutions Guidebook for the CNMI

YOU ARE ENCOURAGED to solicit helpful input that feeds the development of the CNMI's first living shoreline and nature-based solutions guidebook

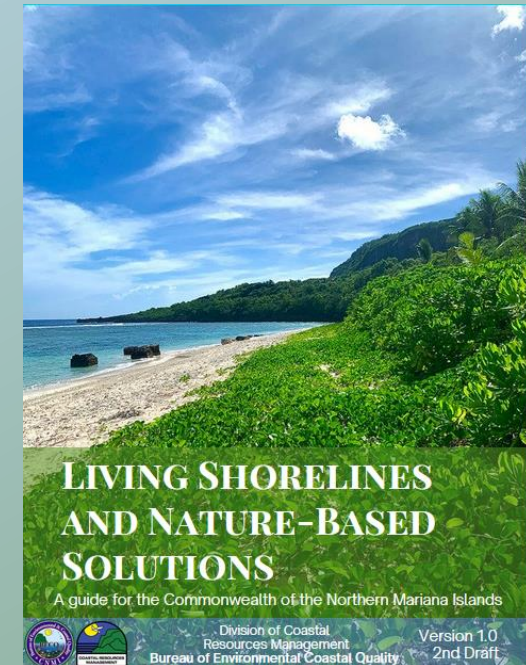
Why consider living shorelines and nature-based solutions for the CNMI?

What considerations should be made?

How do we go about properly executing one from start to finish?

What references and literature should be included?

What resources are needed to make these happen?



Living Shorelines and Nature-Based Solutions Guidebook - Pre-Engagement Survey

The Division of Coastal Resources Management (DCRM) is beginning to reach out to stakeholders for feedback on the Living Shorelines and Nature-Based Solutions Guidebook. This survey serves as a first step in this engagement. Your valuable insight would greatly contribute to this effort. This survey should take no more than 15 minutes of your time. Thank you!

If you have any questions or would like to comment, please contact DCRM at shorelines@dcrm.gov.mp or call 664-8300.

What is the Living Shorelines and Nature-Based Solutions Guidebook?

On-going shoreline erosion plagues sections of Saipan's sandy western coastlines, increasing risk of nearby recreational and hotel infrastructure to wave damage. DCRM is developing the Living Shorelines and Nature-Based Solutions Guidebook to increase affected property owners and shoreline developers' awareness on the benefits of utilizing green stabilization measures for addressing coastal erosion. The guide will also provide an array of stabilization methods and a road map on how to plan, permit, and implement projects.

Well-
informed
Guidebook

Outreach to
shoreline
developers and
stakeholders

Shoreline
Improvements /
Shoreline erosion
mitigation

Aim to be complete
on February 2022

Aim to be complete
end of September
2022

<https://tinyurl.com/nbssurveydcrm>

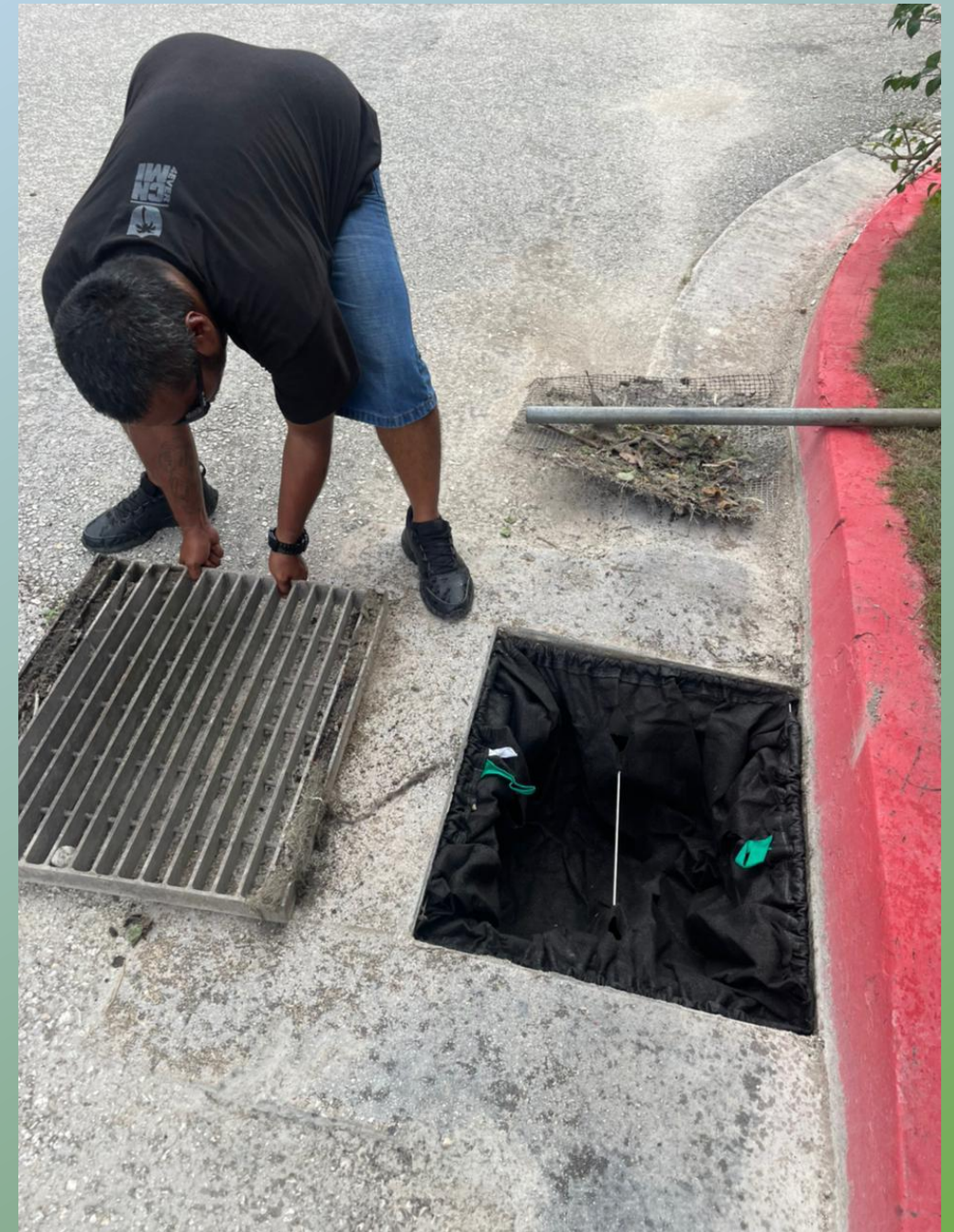
by Friday, Dec 3, 2021



Storm Drain Guard → Pilot Project

Three storm drain guards installed in Garapan at Coral Tree Ave. x Coconut St.

- Pilot project between DEQ and DPW.
- Capture sediment and debris before they can enter storm drain system and cause blockages.



Storm Drain Guard → Pilot Project



FREQUENCY CHECK RECOMMENDED

✓WEEKLY DURING RAINY SEASON AS NEEDED

✓MONTHLY DURING DRY SEASON

<input type="checkbox"/>	Practice safety first at all times → Use proper protective equipment *Gloves, boots, proper outdoor gear, traffic safety cones, etc.
<input type="checkbox"/>	Amount of sediment collected → # in buckets of sediment # in volume → _____
<input type="checkbox"/>	#of Trash and Debris → Trash and debris build-up in the storm drain.
<input type="checkbox"/>	Water Quality → Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing through area during dry or wet weather.
<input type="checkbox"/>	Photos taken → Other collection of any evidence of contaminants or other pollutants.
<input type="checkbox"/>	Mark weather conditions → Dry or wet?
<input type="checkbox"/>	Note → comments or suggestions? _____ _____ _____ _____
<input type="checkbox"/>	Time & Date of removal:

Storm Drain Guard → Pilot Project



Storm Drain Guard → Pilot Project





Updates, concerns, opportunities?

Roundtable

- Outreach: Society for Ecological Restoration (SER) Conference 2021, Virtual Tour – Marine & Terrestrial Conservation in the CNMI
 - Video link: <https://youtu.be/ocxNPTPtjBI>
- Grant: OIA Technical Assistance Program (CFDA 15.875)
 - “funding for short-term projects intended to meet the immediate needs of the insular areas.”

Top priorities: **climate change**, energy production, **natural and cultural resources**, health initiatives and health IT systems, public safety/emergencies, and **invasive species management**.
 - No award ceiling.
 - Applications due April 1, 2022
 - <https://www.grants.gov/web/grants/search-grants.html?keywords=15.875>
- Grant: CRCP Domestic Capacity-Building Partnerships (CFDA 11.482)
 - “Assist state and territorial agencies with **coral reef conservation and management responsibilities**.”
 - < \$90,000
 - Letters of intent due Dec. 10, 2021
 - <https://www.grants.gov/web/grants/view-opportunity.html?oppld=336225>

Thank you!



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