

Guam Community Coral Reef Monitoring Program

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CRCP Project ID#:

20737 (FY11) F055 Community Monitoring Program Coordination for Guam

Principal Investigator: Valerie Brown

Abstract:

The Guam Community Coral Reef Monitoring Program is a project under NMFS PIRO Habitat Conservation Division in Guam. This project is designed to establish a sustainable community monitoring program to facilitate community involvement in coral reef management through completion of benthic and macroinvertebrate monitoring surveys on Guam's coral reefs. This program status report updates local and federal resource managers on program's accomplishments since late FY2012 and coordinator's current projects. Program accomplishments are organized by project deliverables that correspond with project contract. It includes project summary, listed accomplishments, training materials, feedback from past community monitoring training events, monitoring data, information dissemination to stakeholders, and media coverage on the program. In addition, the status report includes revisions and goals of the program to improve effectiveness of program's engagement with stakeholders and ensure accuracy of monitoring data collection.

Project Summary:

This project was developed in direct response to discussions held during the Guam Priority Setting workshop and subsequent coral reef initiative meetings in Guam. In addition, local resource managers recognized an urgent need to facilitate community involvement in marine resource management. The Guam Community Coral Reef Monitoring Program was developed to address the need to engage Guam's communities in coral reef management with an initial focus on Marine Preserves and Priority Sites, Piti-Asan and Manell-Geus watersheds. The program coordinator, Marybelle Quinata, was hired in late FY 2012. Coordinator has developed field guides, training presentations, and adapted datasheets for monitoring trainings and events. Program staff has acquired necessary monitoring supplies and technical equipment in order to conduct monitoring training events at various locations around Guam.

Program staff has piloted monitoring training in Piti and Asan with local university students to test effectiveness of methods and training materials. Program coordinator facilitated and coordinated two community monitoring training events in Piti. Data collected by volunteers have been archived, but are limited. Program staff facilitated discussion on data-based monitoring results with pilot group and determined effective template for data dissemination to community. Program staff will systematically review datasheets completed by volunteers to ensure accuracy and reliability. Coordinator will continue to refine training procedure and materials to ensure quality of training and reliable data collected by volunteers.

Coordinator's collaborations with local agencies have resulted in partner support during monitoring training events, program exposure among stakeholders, and opportunities to liaise between local resource managers and

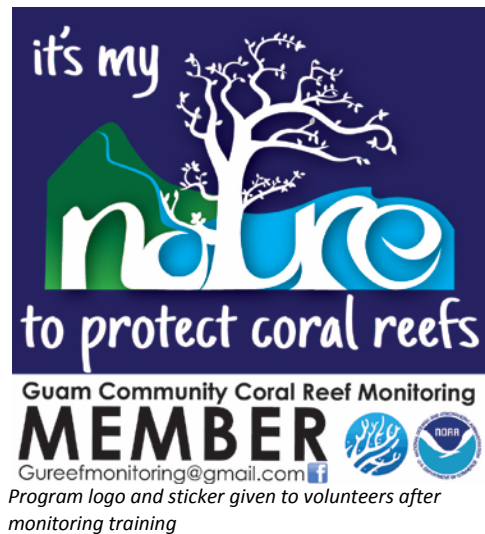
stakeholders. Once approved, informational pamphlets and community newsletter featuring program details, contact information, and program updates will be distributed to the community. The program's website will include program mission and objectives, monitoring methods, and access to monitoring data and reports. Program's Facebook page launched early FY 2013 and will be used to announce program events and communicate with local residents. The program has received some media coverage by the Micronesia Challenge's newsletter, GCMP's Land Man & Sea supplemental newsletter, and Guam's Pacific Daily News. Program coordinator will continue to refine program in order to improve the management capacity of stakeholders through education outreach and monitoring surveys with support from partner agencies to ensure program's sustainability. The Guam Community Coral Reef Monitoring Program is taking necessary steps to build a solid foundation necessary for a long-term sustainable community program.

Accomplishments:

- Project coordinator hired early CY2012
- Piloted monitoring training and survey methods with local university students
- Developed field guides, datasheets, and presentations for monitoring events
- Facebook page created to update volunteers and residents on program events
- Program website is under development and expected to launch in January 2013
- Conducted first Community Monitoring training at Santos Memorial Park in July 2012
- Conducted second Community Monitoring training at Adelup in November 2012
- Monitoring data collected and archived, but limited for reporting results
- Next Community Monitoring Training will be December 2012 with high school students
- Need final approval for informational program pamphlet and community newsletter



Val Brown, marine biologist, briefs teams on monitoring equipment and water safety at Adelup



Coordinator

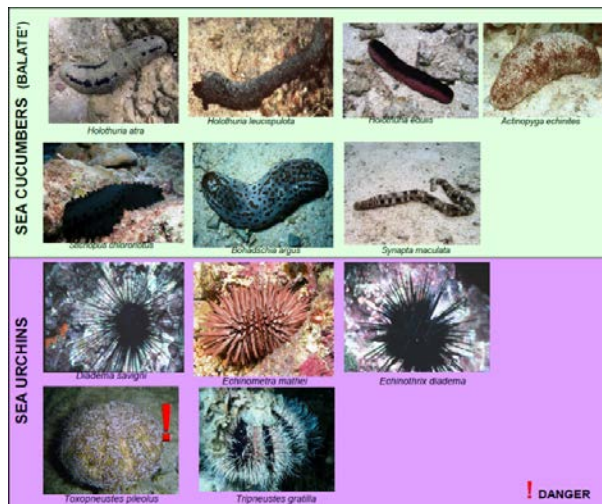
Program coordinator, Marybelle Quinata, was hired early in CY 2012. The coordination of project's funding is secure and current contract has been extended until February 2013. Program supervisor applied for continued funding of coordinator position. Coordinator needs to identify sustainable funding sources and potential home for program. Coordinator developed field guides, data sheets, and presentations used for community monitoring training events; however, continual refine of training materials will keep them updated and relevant resources. Coordinator organized and assisted with procurement of program's monitoring supplies and technical equipment. Coordinator collaborates and networks with local agencies and stakeholders through participation in the Guam Environmental Education Committee. Coordinator has assisted with education and community outreach initiatives

and has gained invaluable experience as a liaison between local resource managers and stakeholders. Coordinator continues to attend meetings with local and federal agencies on government monitoring and assessment programs. Coordinator attended meeting on Coral Reef Monitoring Program facilitated by Jon Christiansen to discuss local and federal agencies accomplishments of CRCP's monitoring program. Coordinator networks with educators, local and federal natural resource agency staff, and community for further refinement of Guam Community Coral Reef Monitoring Program. Coordinator participated and provided support for educational outreach at public and private schools on Guam. Coordinator introduced program to educators at Water Quality Monitoring and professional development workshops.

Monitoring Activities

Training Materials

Program coordinator created field guides, adapted data sheets, and training presentation on Piti-Asan watershed. Program coordinator created PowerPoint for training that discusses context of Marine Preserves, basic reef ecology, Piti-Asan watershed, human impacts that threaten marine resources, and marine species that will be monitored. Field guide is organized into groups that is user-friendly and a good reference for volunteers doing monitoring surveys. Two datasheets were created for benthic and macro-invertebrate monitoring. Species listed on datasheets are also grouped by family to help volunteers gain proficient species identification skills. Program staff designed program logo and printed it on stickers. Stickers with program logo and e-mail address were given to participants upon completion of monitoring training at Adelup. Monitoring supplies acquired and organized by coordinator include projector, projector screen, PA system, materials to construct belts and quadrats for surveys, and general office supplies for coordinator and participants needed at training.



Sample of field guide

Guam Community Coral Reef Monitoring Program - Benthic Data Survey																									
Observers:	Date:					Location:																			
Benthic Cover:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Sand																									
Turf Algae																									
Rubble																									
Rock																									
Schizothrix sp.																									
CHLOROPHYTA																									
Cladonia sp.																									
Cladonia sp.																									
Halimeda sp.																									
PHAEOPHYTA																									
Clypeaster sp.																									
Clavosium sp.																									
Turbinaria ornata																									
Fadina sp.																									
RHODOPHYTA																									
Ceramium																									
Acanthophora																									
Crustose coralline algae																									
SEA ANEMONES																									
Entalasia acuminata																									
Halysidota uncinata																									
Polysiphonia minor																									
COMARSA																									
Actinoptera sp.																									
Porites cylindrica																									
Porites lobata																									
Porites sp.																									
Pocillopora damicornis																									
Pocillopora meandrina																									
Favia sp.																									
Cladopeltis sp.																									
Pisochia sp.																									
Favosia frondifera																									
Leptaria sp.																									
Leptaria bipinnata																									

Datasheet for benthic monitoring

Pilot Group

Before the formal launch of the Guam Community Coral Reef Monitoring program to the public, program staff piloted the monitoring training and survey methods with UOG marine biology students. Monitoring training commenced with Piti-Asan watershed PowerPoint presentation followed by in-water exercises to practice monitoring survey methods behind UOG Marine Lab (Pago Bay). Program coordinator conducted monitoring surveys with students at Asan Beach Park and Fish Eye. Two benthic techniques were tested, quadrat and line-intercept. Program coordinator collected and archived data into a database and generated charts and graphs of monitoring survey results. To follow up with piloted monitoring surveys, program staff presented results to pilot group and facilitated discussion on how results relate to threats associated with the Piti-Asan watershed, such as high rates of erosion and sedimentation. We hope to have these types of discussions monitoring volunteers to reinforce a comprehensive understanding of coral reef ecosystems in context to marine resource management. From this pilot group, program coordinator revised and refined training presentation, field guides, and created additional organization tools to standardize monitoring training sessions and events with some changes to make training location-specific. Program staff finalized quadrat as benthic monitoring technique and 1m belts for macroinvertebrate monitoring technique.

Community Monitoring Training

Before training begins, participants sign in. The Community Monitoring training begins with introductions of participants and staff, then program coordinator presents PowerPoint followed by demonstration of survey

methods. Program staff then conducts on-land monitoring exercises followed by in-water training. In-water training entails two monitoring sites: one easy site with low adversity and one difficult site with more benthic diversity. Program staff emphasizes the need for volunteers to be familiar with survey methods and checked for accuracy for data to be used. The Guam Community Coral Reef Monitoring Program launched with its first formal event on July 24, 2012 at Santos Memorial Park. For the first event in Piti, program staff wanted a small group with ties to the watershed. Participants were recruited from National Park Service's Reef Rangers and participants in Masso watershed restoration events. During in-water training, the four participants learned monitoring survey methods and procedures fairly easily and each team completed one transect. A monitoring event was done the following day on July 25, 2012 at Piti Channel. Participants explored the waters and looked for macro-invertebrates, algae, and corals to practice identification, then completed a full survey. Their data was then compared to professional data collection and the differences explored and discussed. Program staff worked with participants to further refine their monitoring skills.



Val Brown, marine biologist, explains roles of macro-invertebrates in coral reef ecosystems at Santos Memorial Park



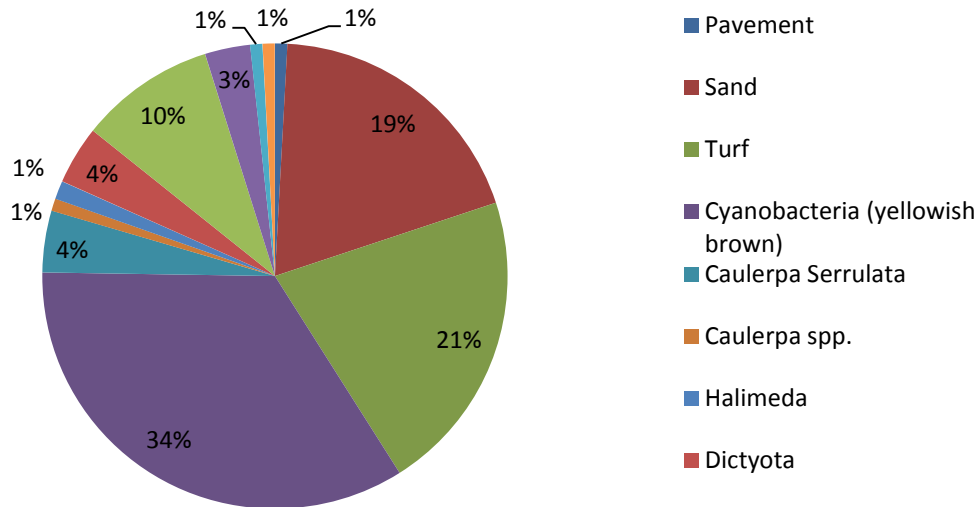
Val Brown reviews brown algae species with volunteers

Our second community monitoring training took place on Saturday, November 17, 2012 at Adelup Point. The training was announced via e-mail, Facebook, and in community announcement in the Pacific Daily News. Twenty participants attended this training. Participants at the training included divers, staff from Guam Visitor's Bureau, Underwater World aquarists, high school students, and one elementary student. The monitoring training commenced with introductions by participants and staff, followed by a PowerPoint presentation that discussed. Participants were assembled into four teams and briefed on monitoring surveys and equipment to be used during in-water exercises. One group completed a more difficult transect while other teams worked on species identification and survey methods closer to shore. Participants were loaned cameras to take underwater photos of transects to be used as data. Partners for this event included Linda Tatreu, marine biology teacher at George Washington High School, JaneDia, Public Information and Education Officer for Department of Agriculture, and Roxanna Miller, marine biologist with Guam Coastal Management.

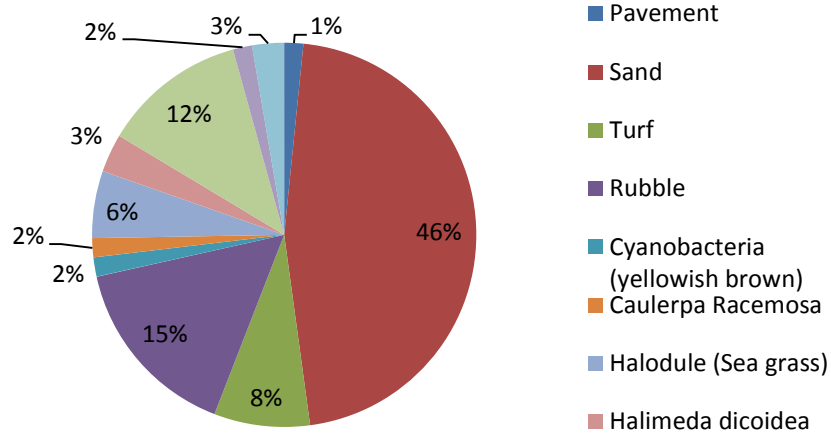
Data

Although program data is limited, the charts generated by pilot data prove an excellent template that will be used in program reports for the community. During facilitated discussion, students noted that 46% of benthic cover at Asan Beach Park was sand and 3% coral cover (*Leptastrea pupurea*). Students also observed that 34% of benthic cover was cyanobacteria at Fish Eye monitoring site. Students then made connections during facilitated discussion between results and threats to Piti-Asan watershed. This data template is a simple, yet effective way to relay monitoring results to the local community through periodic program reports. We hope that data results and reports will encourage increased stakeholder engagement in marine conservation activities and active support and input on decision-making process by local reef managers.

Benthic Cover Results – Fish Eye



Benthic Cover Results – Asan Beach Park



Information Dissemination

Program staff developed print and online media to introduce the program to the community. These products provide background on Guam Community Coral Reef Monitoring Program, the purpose of the program, and contact information to get involved. The program's Facebook page is up and running. The program's Facebook is used to advertise community monitoring training events, posts photos from monitoring training events, posts underwater photos taken by volunteers, and shares NOAA PIFSC's latest report on Guam's benthic cover. The program website will be launched in early January 2013. In addition to information about the program, the program website will publish monitoring data and reports, details on survey methods, and enable visitors to view datasheets and field guides. Publishing monitoring data and analyzed reports on program website will inform public about the health of Guam's coral reefs. Additionally, volunteers will be able see the results of their surveys. Program coordinator drafted an informational pamphlet on Guam Community Coral Reef Monitoring Program as well as a community newsletter. These materials will provide another method for communicating with local stakeholders, once they are finalized and approved for release. The program pamphlet and community newsletter will then be distributed to the Piti mayor's office, education administrators and teachers, and local resource agencies. Program coordinator will also send community newsletter directly to volunteers and partners via e-mail. Once sufficient data is collected and archived, coordinator will circulate program reports to update local residents and resource managers of program's accomplishments and summarize data results.



Program's Facebook page



Program's website

Media Coverage

The program has received some media coverage from various local media outlets. One Micronesia, campaign for the Micronesia Challenge, featured the program in their newsletter. The article included details about the first community monitoring event in Piti and discussed the program's purpose as a way of involving the local community in coral reef management. *Land Man & Sea*, a supplemental section in the *Pacific Daily News*, featured the program and its first community monitoring training in Piti. The article also provided details on benthic and macro-invertebrate monitoring and how data collected by volunteers can help support local resource agencies with coral reef management. (Reference Appendix A).

Project Goals

A. Separate training into Two Phases

Based on feedback from training, revisions will be made on the PowerPoint. The program will conduct trainings in two separate sessions. First phase of the training will consist of the PowerPoint presentation, discussion, and monitoring exercises on land at an indoor venue. The second phase of the training will be in-water monitoring exercises scheduled on a separate date. This arrangement will help with logistical coordination and weather will be less of a factor for technical equipment at outdoor venues. Separating community monitoring training will allow more flexibility with setting convenient times for potential monitoring volunteers. During in-water monitoring exercises, staff will have more time to verify data collected by volunteers so data is sufficient and valid. Breaking up the monitoring training will ensure the quality of the training and education for program volunteers and more reliable monitoring data.

B. Group Trainings

The Community Monitoring program is also working with partners in marine conservation to coordinate trainings with established community and school groups. As a cohesive group, volunteers will relatively be at the same level when learning monitoring survey methods. Training participants will have an established comfort level in working with their peers, which may accelerate their proficiency in learning monitoring survey methods.

C. Species ID Snorkel event

Hosting a "Species ID Snorkel" will allow participants to enhance and maintain proficiency of their species identification skills. This event will emphasize the importance of accurately identifying marine species when volunteers complete monitoring survey to maintain validity of program's data and analysis. This event is also a means for the program to stay in contact with monitoring volunteers and encourage friendship among members as group cohesiveness will be a factor in keeping the program sustainable by community members.

D. Monitoring Events

The program aims to host a monitoring event every month or every other month for one location. Monitoring site locations will correspond with Guam's Priority Watershed sites, marine preserves, and upland watershed conservation projects. By completing monitoring surveys within MPAs and outside of MPAs, volunteers will be able to visually compare Guam's reef flats and understand the significance of Guam's established MPAs.

Appendix A – Media coverage of program



A message from the Director



Hafa Adai and thank you for reading Man, Land and Sea this month.

We wish to extend a sincere thank you to the thousands of people who volunteered at the International Coastal Cleanup this month.

Your dedication will help keep plastics and other types of marine debris out of the ocean. This effort helps

protect corals, fish, our tourism industry and everything connected to our resources.

We hope to see you at future cleanup events and once again, thanks for getting up early and coming out to the International Coastal Cleanup.

Si Yu'us Ma'ase,
TOMMY A. MORRISON
Director, Bureau of Statistics and Plans

Community monitoring program starts in Piti

HAGATNA - A new coral reef monitoring initiative will be starting this month.

Marybelle Quinata, program coordinator for the Guam Community Coral Reef Monitoring Program (GCCRMP), will be leading this community outreach program in which community members are trained to do monitoring surveys on Guam's coral reefs.



MONITORING CORALS - Volunteers learn how to monitor corals in Piti.

The program not only educates about the importance of coral reefs to the island and teaches about the different marine species that call Guam home, it also provides an avenue for communities to provide support to, and communicate with, local reef managers.

Like other agencies' monitoring programs, data will be collected regarding what is found on the ocean floor (benthic cover) and

how many invertebrates (animals without a backbone) are present in Guam's waters (macro-invertebrate abundance). Those organisms which are included in benthic cover are corals, algae, and any other living organism found on the ocean floor. Benthic cover also includes non-living surfaces of the ocean floor, like

sand, rock, and old dead coral. Macro-invertebrates include sea urchins, sea cucumbers (balate), sea stars, and sponges, just to name a few. Quinata and her team will be providing coral reef monitoring training for all volunteers, all the snorkeling gear, and the monitoring equipment needed to collect the data.



BUREAU OF STATISTICS AND PLANS
Thomas A. Morrison
Director



GUAM COASTAL MGT. PROGRAM
Evangeline D. Lujan
Administrator
vangelukjan@yahoo.com



GCMP STAFF

- Tom Quinata
- Dave Burdick
- Amelia De Leon
- Esther G. Taitague
- Terry M. Perez
- Christine Camacho
- Raymond Caseres
- Victor Torres
- Timothy Semuda
- Nydia Llarenas
- Roxanne Miller



CONTACT US
P.O. Box 2950
Hagatna, GU 96932
(671) 472-4201

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