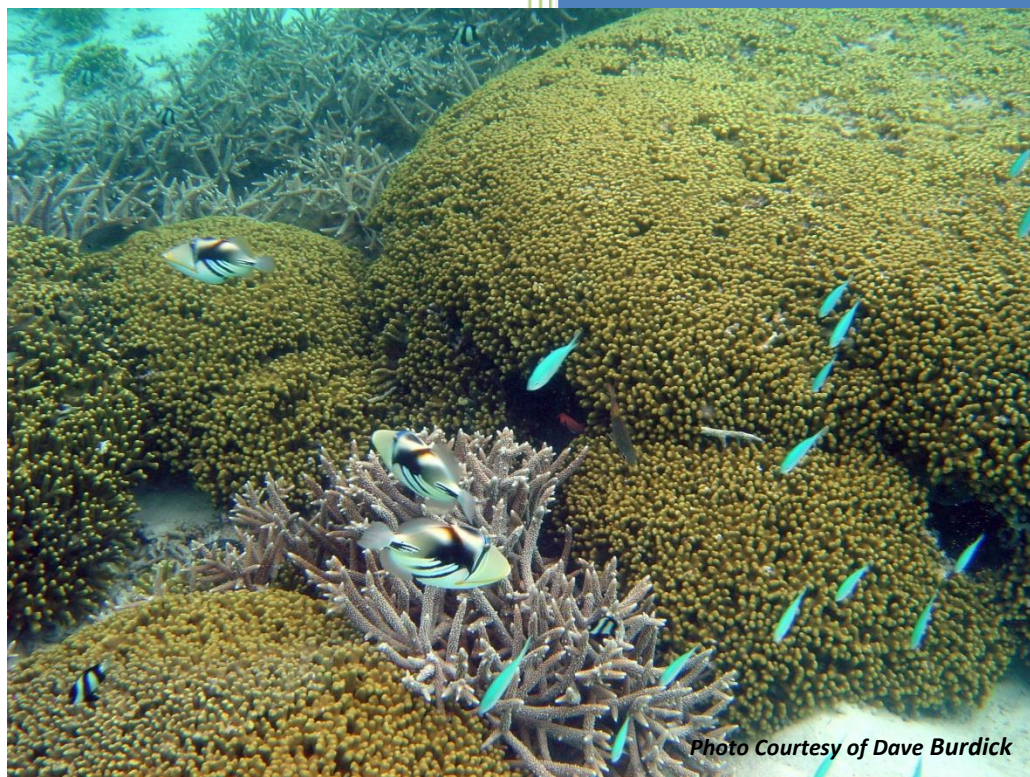




Guam's FY 2016 Coral Reef Initiative



Bureau of Statistics and Plans

April 2016

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g) Geographic Location: Guam

h) Federal funding requested: FY 2016 \$150,000

i) Award start date and award period: *October 1, 2016 to September 30, 2018*

Introduction

Guam's coral reef resources are both economically and culturally important to the residents of Guam. It provides numerous goods and services that support Guam's culture and traditions, tourism and recreation, fisheries, and shoreline and infrastructure protection. Approximately 108 km² of shallow coral reef area is found within 3 miles of Guam, with an additional 110 km² occurring between 3 and 200 miles. As a result of Guam's local law creating five Marine Preserves to combat fishery declines, the fish stocks in the preserves have increased significantly. Despite the critical importance of Guam's coral reefs to many aspects of life on Guam, the island's reef still remain under assault from sedimentation from upland soil erosion, stormwater runoff and associated pollutants, marine debris, coral bleaching, coral disease, recreational misuse, climate change or severe weather condition, and more¹.

The Bureau of Statistics and Plans, the Governor of Guam's Point of Contact agency for coral reef conservation activities, the Guam Visitor's Bureau, and Guam's Natural Resource Agencies continues to promote awareness to the importance of Guam's coral reef ecosystem to the island community and to work and collaborate with the public and private sectors, non-profit organizations, businesses, and educational institutes to encourage best management practices of coral reef conservation efforts. The project tasks being requested for funding will be used to promote sound management and protection of coral reefs in Guam.

1) Priority Project: Coral Reef Management and Coordination Support

Narrative Description

Funding is needed that will ensure Guam enhances its capacity and continues to address the need for continued resources for the health and protection of Guam's coral reefs, at Guam's attendance at the U.S. Coral Reef Task Force meetings, the All Islands Coral Reef Committee meetings, and other jurisdictional, regional and national trainings or workshops focusing on watershed, climate change, mitigation, and enforcement to coral reefs or the impacts to coral reefs and jurisdictional management resources. The funding for this priority project is primarily for travel allocation to address Guam's voice on coral reef initiatives. Travel activities will follow Government of Guam's travel regulations and policies that are in compliance to the federal grant standards and terms including seeking written travel participation approval from the Grantor prior to date of departure.

Statement of Need

A need exist to provide support for the Governor's Legal Counsel, the Governor's Authorized Representative(s), the Bureau of Statistics and Plans Director, Deputy Director and staff involved in the Coral Reef grants and initiatives to attend, participate and provide jurisdictional input regarding coral reef resource management and protection, technical support, assistance from Subject Matter Interest at US Coral Reef Task Force meetings and workshops, All Islands Coral

¹ Guam, Bureau of Statistics and Plans. *Status of the Coral Reef Ecosystems of Guam*. No.1, December 2009.

Committee meetings, and other jurisdictional and regional meetings in relations to coral reef issues, impacts by climate change, and management workshops, conferences and meetings to increase Guam's capacity to promote sound management and conservation efforts to protect Guam's coral reef, to network and to learn from our counterparts on their coral reef conservation efforts, and to ensure Guam is heard at the AIC and US Coral Reef Task Force meetings.

Guam's attendance at coral resource management, climate change, watershed, and/or reef Resilience workshops, conferences and meetings will ensure Guam enhances its capacity and continues to address Local Action Strategies for the health and protection of Guam's coral reefs. By addressing these resources it will help sustain Guam's tourism industry and balance responsible development along Guam's shorelines.

Project Goals and Objectives

The goal of this project is to increase Guam's capacity to promote sound management and conservation efforts to protect Guam's coral reef, to network and to learn from our counterparts on their coral reef conservation efforts, and to ensure Guam is represented at the AIC and US Coral Reef Task Force meetings. The objectives of this project is to provide resources for Guam's attendance at coral workshops, trainings, conferences and meetings at the US Coral Reef Task Force, All Islands Coral Committee, and jurisdictional, regional, and national activities focusing on watershed, climate change, mitigation, enforcement, and other related matters impacting or benefitting coral reefs.

Task Outcome and Products

- Governor's Authorized Representative, Governor Legal Counsel, BSP Director, BSP Deputy Director and or staff and or Natural Resource Managers involved in Guam's Coral Reef Conservation efforts are represented at the US Coral Reef Task Force meeting.
- Coral Reef staff and Natural Resource Managers increase knowledge on coral reef conservation efforts, and increase networking with other Coral Reef Partners.

Budget and Justification

Task 1	Budget Item	Funding
Travel	(220) US Coral Reef Task Force Meeting (Airfare, Per Diem, & Transportation Cost) for 2	
	\$2800 airfare x 2 x (\$275 x 6 days) 2 x (\$100 x 2) = \$10500	\$10,500.00
	(220) Coral Resource Management, Climate Change, Resilience, Watershed Workshops, Training, Conferences and or Meetings (Airfare, Per Diem, Registration, Transportation Cost) for 2	
	\$2800 airfare x 2 + (\$275 x 5 days) x 2 + (\$100 x 2) + (\$600 x 2)= \$9550	\$9,950.00

Task 1	Budget Item	Funding
	(220) UOG Island Sustainability Conference	
	13 registration at \$110 per person + 4 site visits at \$30	\$1,550.00
	Total Budget:	\$22,000.00
<p>The Governor's Authorized Representative, Governor's Legal Counsel, the Bureau of Statistics and Plans Director, Deputy Director and staff involved in the Coral Reef grants, the Coral Reef Conservation Program grant funded staff and or Guam's natural resource managers to attend the U.S. Coral Reef Task Force meeting in February in Washington D.C. and the Jurisdictional meeting in one of the jurisdictions. One individual will attend the meeting in February and the meeting in the jurisdiction</p> <p>Governor's Authorized Representative, the Bureau of Statistics Director and staff involved in Coral Reef Conservation efforts and or Natural Resource Managers will attend coral resource management, coral reef conservation workshops, training and or conferences pertaining to watershed, reef resilience, climate change, etc. At this time, the workshops, training and or conferences have not been determined.</p> <p>BSP and or Natural Resource Agency Staff Registration to attend the Annual Island Sustainability Conference (13 x \$110) to include site visit (4 x \$30)</p> <p>Travel estimates are based on Guam's formal written travel policy.</p>		

Project Timeline

This project is expected to commence October 1, 2016 and to be completed by September 30, 2018.

Projects/Tasks	Oct Dec16	Jan Mar17	Apr Jun17	Jul Sep17	Oct Dec17	Jan Mar18	Apr Jun18	Jul Sep18
Establish Grant Award								
US Coral Reef Task Force Meeting in Washington D.C.								
US Coral Reef Task Force Meeting in one of the jurisdiction								
Identify coral reef management and protection workshops, conferences and meeting for staff professional development in collaboration with NOAA, DOI and coral reef task force networking partners								
Island Sustainability								

Projects/Tasks	Oct Dec16	Jan Mar17	Apr Jun17	Jul Sep17	Oct Dec17	Jan Mar18	Apr Jun18	Jul Sep18
Conference								
Coral Reef Management and Protection Workshops, Conferences, and Meetings								

Project Manager and Principal Investigators

Project Manager: Lola E. Leon Guerrero, Planner IV
 Bureau of Statistics and Plans
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2) Priority Project: Coral Reef Conservation Awareness, Public Outreach, Education and Workshops

Narrative Description

In order to manage the protection of Guam's coral reefs, engaging the community to be aware and to know how important coral reefs are to the island's culture and to Guam's striving economy must continue. Funding is needed to continue to support Guam existing coral reef public outreach and education activities and campaigns, to conduct coral reef response exercises with stakeholders, and to implement a coral reef application and online database that enables the community, volunteers, natural resource manager, recreational users, etc to collect and report information about Guam's reef health, marine animals and incidents to educate, engage and bring awareness to the community.

Statement of Need

Due to a lack of local resources, a need continues to exist to build upon Guam's educational and outreach efforts to raise public awareness and appreciation for Guam's coral reef ecosystems, to promote and support local education and outreach activities on coral reefs, and to engage the communities involvement on coral reef issues in partnership with the Government of Guam's natural resource managers, the local educational institutions, the Federal natural resource managers, and the Guam Nature Alliance. This is important because education and outreach plays a crucial role in protecting our coral reefs.

In addition, a huge gap exists in inreach activities occurring amongst the local and federal government in responding to coral reef impacts such as coral bleaching events, coral disease outbreaks, invasive species, vessel groundings, oils spills, and outbreaks of nuisance species such as the crown of thorns. Thus, a need exist to collaborate more with are local and federal partners through meetings, trainings, drills, and workshop to be able to clarify roles and responsibilities, and to identify additional mitigation and preparedness needs in responding to coral reef impacts.

Furthermore, a need exist to develop an interactive educational tool and database to collect and report information about Guam's reef health, marine animals and incidents aimed at restoring and protecting our coral reefs and affected habitats. The tool can also be a useful mechanism to educate the community on Guam's coral reef ecosystem, and to provide information to engage community participation on outreach events to include coastal cleanup, tree planting, and marine debris cleanup to name a few.

The funding will support the following public outreach and educational activities and workshops:

- Launch several media campaigns to educate residents and visitors about Guam's coral reef ecosystem and coral reef conservation efforts through print, TV and or radio campaigns;
- Assist in the coordination of the Guardians of the Reef Program which aims at educating third and fourth grade students on topics related to Guam's coral reef ecosystems to include a review and evaluation of the Guardians (11th and 12th grade high school students);
- Support for the University of Guam's Island Sustainability Conference that has been a venue to highlight Guam's coral reef grant funded projects;
- Support for the Guam Nature Alliance (GNA) outreach, education, and awareness activities that promote environmental education on land resources, ocean resources and water resources that engages the community to learn more about Guam's environment;
- Support for Guam's Coral Fellow to conduct one coral reef response exercise on one of following standard operating procedures: coral bleaching events, nuisance species, vessel groundings, invasive species, and or coral disease outbreaks;
- Conduct and support coral reef conservation efforts, reef resilience outreach and education efforts;
- Support for the development of "Cool Coral" outreach, education, and awareness application and online database to engage and inform the community of the outreach events taking place in Guam and a reporting of incidents on Guam's reef aimed at restoring and protecting our coral reefs and affected habitats; and
- Support for coral reef public outreach events such as the Micronesia Challenge activities, Guam's Pig Hunting Derby and Pork in the Park Cook-Off, and public outreach campaigns to include "Munga ma Songge Guahan", "Eyes on the Reef", "Beauty and Basula", and "Ridge to Reef."

Project Goal and Objectives

The goal of this project is to enhance Guam's educational and outreach efforts to raise public awareness and appreciation for Guam's coral reef ecosystems. The objectives of this project are to provide support for public outreach and education activities through the coordination of the Guardians of the Reef Program, Guam Nature Alliance outreach events, launch media campaigns on Guam's coral reef ecosystem, and support other related activities that promote coral reefs.

Task Outcome and Products

- Printed, TV and or Radio Educational Media Campaigns.
- Successful implementation of the Guardians of the Reef Program Review and Evaluation.

- Successful support provided to Guam Natural Alliance to engage and educate the community about Guam's land, water, and ocean resources.
- Successful support and implementation of coral reef conservation outreach and education efforts, reef resilience outreach and education efforts, and environmental education outreach efforts.
- Successful coral reef response training exercise with positive evaluations from participants.
- Successful implementation of the coral reef outreach and education application and online database.

Budget and Justification

Task 2	Budget Item	Funding
Supplies and Materials	240 Printing of Outreach and Inreach, Educational and Training Materials to include posters, brochures, fact sheets, training materials, and handouts	\$1,000.00
Contractual	230 Outreach and Educational Items to include coral reef application and online database, and printing of outreach materials to include water bottles, recycled reuse bags, pencils, book markers, coloring books, folders, stickers with educational message on coral conservation efforts, protect our corals, do not step on the corals and public outreach campaign on "Munga ma Songge Guahan", "Eyes on the Reef", "Beauty and Basula", "Ridge to Reef"	\$10,235.00
Contractual	230 Coral Reef Response Exercise 40 - 50 people (Workshop venue for two days (\$2500), Workshop Materials (\$500). Contract an Expert in Nuisance Species, Vessel Grounding, Invasive Species and or Coral Disease Outbreaks to include airfare, per diem and ground transportation (\$4000)	\$7,000.00
Contractual	230 Guardian of the Reef Review and Evaluation: Entrance Fee to Under Waterworld for Guardians \$25 per person x 70 Guardians and 10 Chaperone (4 teachers and 6 former Guardians)	\$2,000.00
Contractual	230 UoG Center for Island Sustainability Annual Conference - Highlight of Coral Project	\$5,000.00
Contractual	230 Print, TV and or Radio Media Campaign "Munga ma Songge Guahan", "Eyes on the Reef", "Beauty and Basula", "Ridge to Reef"	\$2,000.00
Total Budget:		\$27,235.00

Supplies and Materials for outreach, inreach and training materials, and educational supplies are needed for the program to develop and to maintain outreach and education materials for events to educate the community, to conduct coral reef response exercises on one of the following: nuisance species, vessel groundings, invasive species, and or coral disease outbreaks led by the Coral Fellow and to contract and expert to guide in the response exercise. The supplies will include printing of "ready artwork" posters, brochures, fact sheets, training materials, handouts, laminate paper, poster boards, colored paper, markers

Contractual support for outreach and educational items are needed to enhance, to develop and to maintain existing outreach and educational materials that will be utilized to educate and to increase public awareness, appreciation and community support for Guam's coral reef conservation efforts. The contractual items will have educational message displayed and campaigns to promote the protection and conservation of Guam's coral reef that will be utilized to engage and bring awareness to the community. The contractual support will include water bottles, recycled reuse bags, pencils, book markers, coloring books, folders, stickers with educational message on coral conservation efforts, protect our corals, do not step on the corals and public outreach campaign on "Munga ma Songge Guahan", "Eyes on the Reef", "Beauty and Basula", "Ridge to Reef", and development of a coral reef application and online database.

Contractual support is needed to implement a Coral Reef Response Exercise that will engage our local and federal partners in simulating and exercise on one of the following response to coral reef impacts such as coral bleaching events, coral disease outbreaks, invasive species, vessel groundings, oils spills, and outbreaks of nuisance species such as the crown of thorns. The contractual support will include venue, workshop materials, contractual services to bring an expert to Guam to conduct the exercise on one of the coral reef impacts stated.

Contractual support is needed to provide support for the Guardian of the Reef Review and Evaluation that will allow for the exchange and dissemination of information from the Guardians and teachers of the program. The funds will be used to cover the entrance fee at "Underwater World" for 70 guardians and 10 chaperones.

Contractual support is needed for the UOG Center for Island Sustainability Conference as this is a venue used to highlight and educate the community on Guam's coral reef grant funded projects.

Contractual support is needed for print, TV and or Radio Media Campaign on "Munga ma Songge Guahan", "Eyes on the Reef", "Beauty and Basula", "Ridge to Reef" to bring awareness to the community.

Project Timeline

This project is expected to commence October 1, 2016 and to be completed by September 30, 2018.

Projects/Tasks	Oct Dec16	Jan Mar17	Apr Jun17	Jul Sep17	Oct Dec17	Jan Mar18	Apr Jun18	Jul Sep18
Establish Grant Award								
Obtain price quotations, encumber funds for supplies and contractual services and contractual items								
Receive and implement supplies and contractual services and contractual items								
Coral Reef Response Team Table Top Exercise								
Implement public outreach and education activities								

3) Priority Project: Building Reef Resilience through Environmental Education

Narrative Description

The University of Guam (UOG) Center for Island Sustainability (CIS) has been in existence for over 5 years and has hired and trained students and staff to conduct outreach to the community about coral reefs, recycling, energy conservation, and other topics on sustainability. CIS is seeking the support from OIA to continue its outreach efforts to educate the public about the importance of our coral reefs to our island communities and the devastating effects that climate change has on our reefs. This grant will fund the salaries of the associate project coordinator and four student interns to work together to create and conduct outreach presentations to the community at different levels.

Statement of Need

In order to provide the necessary outreach to give our coral reefs their best chance to survive in the midst of climate change, CIS needs funds to support one associate project coordinator and four UOG Green Interns to educate the community about this imperative issue. In addition to teaching our community about how climate change is affecting our coral reefs, CIS will assist local organizations by conducting outreach during upland restoration efforts in Guam's watersheds. This outreach will support Guam's ridge to reef concept in collaboration and partnership with the Bureau of Statistics and Plans.

Project Goals and Objectives

The goals of this project are (1) to raise awareness to island residents about the effect of climate change on our coral reefs, and (2) to empower the island residents with the knowledge on how to minimize their impacts to our reefs.

Objectives include, but are not limited to the following:

1. Provide outreach focusing on the effects of climate change on our coral reefs.
2. Support local upland restoration projects by promoting the ridge to reef approach through outreach.

Task Outcomes/Products

Objective 1: Provide outreach focusing on the effects of climate change on our coral reefs

- Update and improve sustainability presentations with an emphasis on the effects of climate change on the coral reef, targeted to secondary and post-secondary students. Presentation will be created using the Prezi software and will be flexible enough to present in 30 minutes to an hour (depending on time given to present).
- Create a sustainability presentation with emphasis on the effects of climate change on the coral reef, targeted to primary education students. Presentation will be created on Microsoft PowerPoint that will run for 20-30 minutes.
- Recruit and train four (4) student interns to present these presentations with their respective target audience in mind.
- Coordinate and schedule presentations with local schools to be presented throughout the grant period (public, private, DODEA, and home school).
- Conduct presentations with UOG Green Interns at local schools (at least 2 presenters at each presentation).
- Provide community outreach with emphasis on effects of climate change on coral reefs at local community events.

Objective 2: Support local upland restoration projects by promoting the ridge to reef (R2R) approach through outreach

- Create and maintain partnerships with local agencies (Department of Agriculture, Bureau of Statistics and Plans, Guam Environmental Protection Agency) and NGO's to promote R2R approach.
- Train interns on promoting the R2R approach to the community.
- Support and assist community events hosted by partners.

Objective	Percentage of Time Spent
Objective 1	70%
Objective 2	30%

Budget and Justification

Task 3	Budget Item		Funding
Personnel	111	Associate Director, CIS Salary [Part-time]	\$4,235.00
	111	Associate Project Coordinator, CIS Salary [Part-time]	\$16,120.00
	111	UOG Green Interns Salary [Part-time]	\$19,008.00

Task 3	Budget Item		Funding
Fringe Benefits	113	Associate Director, CIS [Part-time] Med/Dental, Retirement, Life Insurance, & Medicare at 41%	\$1,737.00
	113	Associate Project Coordinator, CIS [Part-time] Med/Dental, Retirement, Life Insurance, & Medicare at 41%	\$6,610.00
	113	UOG Green Interns Social Security Benefits at 7.65% [Part-time]	\$1,455.00
Supplies and Materials	240	Office supplies	\$500.00
	240	Fuel	\$500.00
Total Budget:			\$50,165.00
<p>Associate Director, CIS personnel and fringe benefits to oversee the project manager and provide support to the project for 2.75 hours per week at \$35 per hour for 44 weeks One (1) APC personnel and fringe benefits will manage the project, prepare the outreach materials and presentation in collaboration with natural resource partners, conduct community outreach, recruit and manage the interns, and provide project updates to BSP at \$15.50/hour for 20 hours per week for 44 weeks. Four (4) student interns will be hired to assist with conducting outreach, planting trees, and implementing zero waste plan at UOG at a rate of \$9/hour for 12 hours per week for 52 weeks. Office supplies (ink, paper, printer toner) to produce sign-in sheets, surveys, outreach materials Fuel reimbursement to travel to outreach events for Associate Project Coordinator and UOG Green Interns at the UOG mileage reimbursement rate</p>			

Project Timeline

The project will commence on January 1, 2017 and will be completed on December 31, 2017.

Projects/Tasks	Oct Dec16	Jan Mar17	Apr Jun17	Jul Sep17	Oct Dec17	Jan Mar18
Establish Grant Award						
Establish MOU between BSP and UOG CIS						
Conduct research and create presentations						
Obtain and implement three price quotations for supplies						
Recruit Interns						
Train Interns						
Coordinate, schedule and implement outreach and						

Projects/Tasks	Oct Dec16	Jan Mar17	Apr Jun17	Jul Sep17	Oct Dec17	Jan Mar18
presentations						
Submit programmatic and financial report to BSP						
Complete Final Report and submit final progress and financial report to BSP						

Project Manager and Principal Investigators

Project Manager: Phillip John R. Cruz
 Associate Project Coordinator
 Center for Island Sustainability

Principal Investigators:

Dr. John A. Peterson
 AVP, GSR&SP, Director CIS
 Center for Island Sustainability

Else Demeulenaere
 Associate Director CIS
 Center for Island Sustainability

4) Priority Project: Engaging Southern Guam Residents to Reduce Fire Hazards and Promote Habitat Restoration for Coral Health

Narrative Description

The Manell-Geus watershed in southern Guam has long been a priority site for coral reef conservation and restoration. This watershed management plan for this site, developed with significant input from the community and natural resource partners, is the basis for ongoing work to address threats such as sedimentation. Since no one funding source has a program large enough to fund landscape level efforts, resource partners have leveraged multiple funding streams to address the priority actions identified in the management plan. Currently, the National Oceanic and Atmospheric Administration, the Department of Interior, the U.S. Forest Service, USDA Natural Resource Conservation Service, and U.S. EPA are providing in-kind or direct funding support, while local partners include the Bureau of Statistics and Plans, the Department of Agriculture, Guam Environmental Protection Agency, the Department of Land Management, the Merizo Mayor's Office, the Umatac Mayor's Office, the Humatak Community Foundation, the Northern and Southern Soil and Water Conservation Districts, Ayuda Foundation and Island Girl Power, the University of Guam, and numerous other organizations.

This plan identifies sedimentation, fires, and invasive species as some of the most concerning threats to the area's ecology and village residents. The Guam Department of Agriculture's Forestry Division is best equipped to manage larger scale outplanting efforts, intended to reforest bare areas and reduce sediment entering rivers and the coastal areas below. The University of

Guam, through a number of funding sources such as NOAA's Coral Program, is performing baseline studies on the coastal ecosystems, including mangroves, seagrass beds, coral reefs, and streams. Further work to quantify chemical contaminants in Cocos Lagoon, characterize the health of river fauna in Geus River, and other work will be performed over the course of the 2016 field season.

With this wealth of baseline information and local support, the Department of Agriculture's Forestry and Soil Resource Division (FSRD) and NOAA have conducted multiple tree plantings in the Manell-Geus Watershed – both in the hills and the Geus River riparian areas. Although these reforestation projects are designed to reduce erosion and control sediment from reaching the surrounding reefs, success of these projects is limited by two main factors:

- Recurring fires create large areas of bare ground and prevent new and planted seedlings from establishing and stabilizing the soil. For example, in October 2015 the Department of Agriculture's Forestry and Soil Resource Division (FSRD) - along with multiple partners and student volunteers - planted more than 2000 trees over an eight-acre area on a highly visible hilltop of the Manell-Geus Watershed. Despite their best efforts to prevent or suppress fires, 75% of those trees have perished in multiple fires that have occurred there since early 2016.

FSRD includes a fire management program to address these wildland fires, but due to limited local resources the division cannot maintain adequate fire breaks for these watershed restoration areas. With adequate support to keep fire breaks clear of flammable material, the thousands of trees at these restoration sites would grow to provide the soil stabilization the Manell-Geus watershed desperately needs.

- Along the Geus River, the invasive bamboo *Bambusa vulgaris* threatens streambank stability and forest health. Although the bamboo clumps themselves form dense root structures, the roots do not reach beyond the diameter of the stand and the wide canopy created by the stand shades out other native forest plants. This results in large areas of bare ground without substantial root systems to stabilize the soil, causing large areas to be eroded during heavy rains. With nothing to keep the surrounding soil in place, the bamboo stands frequently topple into the river, causing dams which redirect the waters and further contribute to erosion and sediment pollution on the surrounding reefs.

A bamboo removal pilot project is currently underway to determine the easiest and most cost-effective way to kill bamboo and reforest the newly-opened canopy. The collaborative effort between FSRD and NOAA-funded BSP employees has support and input from the local community, the Mayor's office of Merizo, the Guam Southern Water Conservation District, and the Guam Nature Alliance. The results of the study – to be completed by the end of this year – will be used by FSRD and BSP to effectively remove the bamboo and replace it with native forest plants. However, government agencies cannot tackle this problem without assistance from the community. Additional support is needed to widely disseminate results and allow residents to be proactive about controlling and removing bamboo on private property

The project will occur in Merizo's Manell-Geus watershed, a long-time local coral priority site where bamboo causes forest degradation, and the neighboring village of Umatac, where fires have been documented as an ongoing threat to resource health.

The project activities will include the following:

1. The Humatak Community Foundation will sponsor a stipend program to recruit village residents to provide logistical support to the local government's FSRD forest fire and forest health teams. Residents will be expected to bring their own equipment (bush cutters, chain saws, machetes, etc.) to the work sites, where the foundation and forestry teams will supply consumables such as fuel, lubricants and bush cutter line. Residents accepted into the program will be trained in the installation and maintenance of fire breaks. After the training, they will maintain fire breaks to protect existing restorative planting sites right before and during the dry season when fires are most prevalent. After 25 hours of field work, or one training session and approximately 5 half-day sessions, participants will receive a \$500 stipend.
2. During the wet season when fires are less frequent, program residents will focus on replacing bamboo with native trees in key areas of the Geus River where bamboo causes dams and erosion. Residents will bring their own chainsaws and machetes, while the FSRD Forest Health team will provide fuel and other consumables. Participants will assist the FSRD Forest Health team in cutting bamboo stalks, transporting the cut bamboo to areas where they can be used or chipped, and replanting areas with native, ecologically helpful plants.
3. The Humatak Community Foundation and FSRD will create workshops for homeowners, businesses and interested residents to (1) learn how to create and maintain firebreaks to slow the spread of fires and (2) learn how to safely and permanently replace bamboo with more ecologically beneficial plants. At least 3 workshops will be held.

Statement of Need

Coral ecologists have identified sedimentation from river banks, large swaths of bare ground, and other areas with limited vegetation cover as a major cause of reef degradation around southern Guam and in the Manell-Geus priority watershed. Combined with the threat of climate change, the threats posed to Guam's reefs by sedimentation makes controlling sediment pollution essential for maintaining coral reef resilience and the success of future reef restoration activities.

Wildland fires and invasive bamboo are major contributors to erosion in the Manell-Geus Watershed. Illegally-set fires by poachers and farmers strip the land of trees and other plants whose roots stabilize top soil. During heavy rains, this now loosened soil has nothing to hold it in place and is washed away into the rivers and ocean. Bamboo, however, causes erosion through a different mechanism. When the invasive species *Bambusa vulgaris* grows, its dense canopy extends over a much larger area than its roots occupy. This cover shades out and kills other plants in the watershed, leaving large areas of bare ground with no roots to stabilize it. When it rains and the rivers swell, these areas erode and wash sediment into the streams. Additionally – when the bare ground surrounding bamboo erodes away – the entire bamboo stand will often

topple into the river, forcing the water to be diverted around it causing even more erosion of the shoreline. Even dead stalks of bamboo affect erosion; as stalks die and fall into the river, they dam up and also cause diversion of the river and increased sedimentation. Because of fires and unstable river banks caused by bamboo, thousands of tons of sediment washes from the land and flows through the rivers to the reef, where it smothers corals and threatens the resilience of Guam's coastal ecosystems.

Currently-available local and federal resources provide funding for baseline ecological studies and to tree plantings, but no funding source to date is able to support watershed restoration efforts that (1) actively protect resource-intensive planting sites against fires by clearing and maintaining fire breaks, and (2) remove invasive bamboo at a scale that allows for large-area plantings to succeed in the Manell-Geus riparian areas. This grant will provide the support Guam needs to effectively combat these problems by increasing the manpower available to protect and expand watershed restoration efforts.

Project Goals and Objectives

Goal: Support landscape level restoration efforts to reduce sedimentation in the coral reef systems and coastal areas adjacent to Manell-Geus watershed.

Objective 1: Provide short-term fire prevention and suppression support to Department of Agriculture's Forestry and Soil Resource Division with the implementation of "village fire teams" to help create and maintain fire breaks, to manage existing tree plantings to reduce fuel loads, and to undertake other projects to protect watershed planning sites from fires.

Objective 2: Provide support to Department of Agriculture's FSRD Forestry Health team by cutting invasive bamboo stalks, transporting stalks to staging areas, and replanting these areas with native vegetation.

Objective 3: Train village residents and interested community partners about actions that can reduce fire threats to restoration sites as well as individual homes and government infrastructure.

Task Outcomes and Products

- Increase in manpower (trained southern residents) will provide support to FSRD in fire prevention and bamboo removal to reduce erosion and sedimentation on reefs
- At least three workshops to train stipend recipients how to create fire breaks and safely remove bamboo
- Increase education of southern residents on how to reduce fire threats.
- Brochures specifying how to maintain fire breaks, remove bamboo, and replant areas will be disseminated to the community. These will also include information about why these practices are needed to protect the area's coral reefs and coastal areas.
- Comprehensive report detailing the areas replanted, fire breaks installed, and workshops held

Budget and Justification

Task 4	Budget Item		Funding
Personnel	111	Project Manager Salary (320 hours x \$20 per hour) for the life of the project	\$6,400.00
Fringe Benefits	113	Project Manager Fringe Benefits @ 18.5% (Social Security, Medicare, Life, Health)	\$1,200.00
Contractual	230	Fifty \$500 stipends (Each stipend will be given after an individual completes 25 hours of work with the FSRD forestry teams)	\$25,000.00
	230	Support for workshops (printing materials, venue cost, etc.)	\$3,000.00
Supplies	240	Fuel, gas, oil, gloves, bush cutter line, etc.	\$10,000.00
	240	Workshop supplies (office supplies as well as demonstration materials)	\$5,000.00
Total Budget:			\$50,600.00
<p>Project Manager will be responsible for coordinating and conducting the workshops with FSRD, conduct the training in partnership with FSRD, purchasing the supplies and contractual services, preparing the quarterly progress report and financial report, and preparing the final report.</p> <p>Contractual support for 50 x \$500 stipends is needed to engage the village residents to take part and ownership of this program by protecting forest restoration areas and removing problematic invasive bamboo. The village residents will have to complete 25 hours of field work with the FSRD forestry teams in order to receive the stipends.</p> <p>Consumable field work supplies such as fuel for vehicle, bush cutters, and chain saws, oil for bush cutters and chain saws, gloves, and bush cutter lines will be used by the village residents during the field work.</p> <p>Contractual support is needed for training and or workshop materials to include printing, venue cost, and audio visual equipment are necessary to ensure the implementation of a successful training and or workshop.</p> <p>Consumable workshop supplies to include office supplies, water paper, note pads as well as demonstration materials are necessary to ensure the implementation of a successful training and or workshop.</p>			

Project Timeline

This project is expected to commence January 1, 2017 to September 30, 2018

Projects/Tasks	Oct-Dec 17	Jan-Mar 17	Apr-Jun 17	Jul-Sep 17	Oct-Dec 17	Jan-Mar 18	Apr-Jun 18	Jul-Sep 18
Establish Grant Award								
Establish MOU between								

Guam's 2016 Coral Reef Initiative Program Proposal

Projects/Tasks	Oct-Dec 17	Jan-Mar 17	Apr-Jun 17	Jul-Sep 17	Oct-Dec 17	Jan-Mar 18	Apr-Jun 18	Jul-Sep 18
BSP and Humatak Community Foundation								
Develop and Implement Agreement between Humatak Community Foundation, Department of Agriculture Forestry Division, and BSP in the implementation of this project								
Obtain and implement three price quotations for supplies and contractual services								
Submit programmatic and financial report to BSP								
Coordinate and meet with stakeholders and plan training sessions								
Announce the applications for stipend program								
Creation of informational handouts and materials								
Training sessions held								
Field work for village residents in stipend program								
Complete Final Report and submit final progress and financial report to BSP								

Project Manager or Principle Investigator

Project Manager: Joe Quinata, Chief Program Officer, Guam Preservation Trust
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Overall FY 2016 Detailed Project Timeline

MONTH	ACTIVITIES
October to December 2016	<ul style="list-style-type: none"> ▪ Establish Grant Award (Parent). Anticipated establishment date (3 months) ▪ Prepare MOU between BSP and Humatak Community Foundation for Engaging Southern Guam residents to reduce fire hazards and promote habitat restoration for coral health ▪ Prepare MOU between BSP and UOG Center for Island Sustainability for Building Reef Resilience through Environmental Education ▪ Obtain price quotation and encumber funds for the Public Outreach and Education Support ▪ Identify professional development training, workshops and conferences that the watershed coordinator and reef Resilience coordinator can attend as it pertains to conservation and protection of coral reef ecosystem from climate change, watershed, land based sources of pollution in collaboration with NOAA and DOI as well as coral reef networking partners
January to March 2017	<ul style="list-style-type: none"> ▪ Prepare travel authorization for POC staff to attend U.S. Coral Reef Task Force meeting in Washington D.C. in February 2017 ▪ Implementation of public outreach and education supplies, and contractual services. ▪ MOU between BSP and Humatak Community Foundation UOG WERI for Engaging Southern Guam residents to reduce fire hazards and promote habitat restoration for coral health implemented ▪ MOU between BSP and UOG Center for Island Sustainability for Building Reef Resilience through Environmental Education implemented
April to June 2017	<ul style="list-style-type: none"> ▪ Prepare travel authorization for staff to attend professional development training, workshops, and conferences identified in collaboration with NOAA and DOI and coral reef networking partners ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners ▪ Highlight the coral reef grant funded project at the Island Sustainability Conference ▪ Implement the Guardians of the Reef Review and Evaluation
July to September 2017	<ul style="list-style-type: none"> ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners ▪ Implement Coral Reef Response Exercise

MONTH	ACTIVITIES
	<ul style="list-style-type: none"> ▪ Prepare travel authorization for staff to attend U.S. Coral Reef Task Force meeting scheduled for September 2017 in one of the jurisdictions ▪ BSP (SAA) prepares and submits the CRI semiannual progress report to DOI for January 2017 to June 2017 reporting period by the July 30, 2017 due date ▪ BSP Administrative Services Officer prepares and submits the CRI FFR 425 to DOI January 2017 to June 2017 reporting period by the July 30, 2017 due date
October to December 2017	<ul style="list-style-type: none"> ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners ▪ Island Sustainability for Building Reef Resilience through Environmental Education is complete. Prepare and finalize report for submission to BSP.
January to March 2018	<ul style="list-style-type: none"> ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners ▪ BSP (SAA) prepares and submits the CRI semiannual progress report to DOI for July 2017 to December 2017 reporting period by the January 30, 2017 due date ▪ BSP Administrative Services Officer prepares and submits the CRI FFR 425 to DOI for July 2017 to December 2017 reporting period by the January 30, 2017 due date
April to June 2018	<ul style="list-style-type: none"> ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners
July to September 2018	<ul style="list-style-type: none"> ▪ Continue to implement public outreach and education activities in collaboration with our NGO and natural resource partners ▪ Engaging Southern Guam Residents to Reduce Fire Hazards and Promote Habitat Restoration for Coral Health is complete. Prepare and finalize report for submission to BSP.
October to December 2018	<ul style="list-style-type: none"> ▪ Process grant project for closure, prepare final financial and close out narrative reports

Priority Listing for Multiple Projects

Priority 1	Coral Reef Management and Conservation Coordination and Support	\$22,000
Priority 2	Coral Reef Conservation Awareness, Public Outreach, Education and Workshops	\$27,235
Priority 4	Building Reef Resilience through Environmental Education	\$50,165
Priority 5	Engaging Southern Guam Residents to Reduce Fire Hazards and Promote Habitat Restoration for Coral Health	\$50,600
Total Request for Fiscal Year 2016		\$150,000