

RESEARCH

at the UNIVERSITY OF GUAM



2018



TABLE OF CONTENTS

3	Graduate Studies, Research & Sponsored Programs
3	Research Corporation of UOG
4	Message from the President
4	Message from the AVP
5	Marine Laboratory
6	Established Program to Stimulate Competitive Research (EPSCoR)
7	Guam Open Research And Education Exchange Concept (GOREX)
8	Water Environmental Research Institute (WERI)
10	Cancer Research Center
11	Cooperative Extension & Outreach
14	Western Pacific Tropical Research Center (WPTRC)
16	Sea Grant
18	Micronesia Area Research Center (MARC)
20	Center for Excellence in Developmental Disabilities Education, Research & Service (CEDDERS)
22	Center for Island Sustainability (CIS)
Back Cover	Research Consultant Directory

Office of Research & Sponsored Programs

Research Mission: The University of Guam's institutional mission addresses three primary foci: teaching, research, and outreach pertinent to the western Pacific region.

The major priorities of the Office of Research and Sponsored Programs are to:

- Support faculty members and University personnel to conduct research activities and to successfully manage existing research and sponsored projects
- Select public and private agencies locally, nationally, and internationally.
- Seek external funding and engage in projects related to the mission and goals of the University
- Coordinating research and management studies for the Cooperative Ecosystem Studies units on agreements with Department of Navy, NPS, and other federal agencies. Currently 2.5 million in natural resources agreement studies.

For more information, contact:

Janet Dirige, Grants Officer, Office of Research & Sponsored Programs Tel: (671) 735-3037

Research Corporation of the University of Guam (RCUOG)

The Research Corporation of the University of Guam was established in February 2014 by Public Law 32-114 and is governed by a Board of Directors. The mission of RCUOG is to create an efficient managerial environment to compete for and manage grants.

For more information contact: Cathleen Moore-Linn, Executive Director Tel: (671) 735-0250

MESSAGE FROM THE PRESIDENT



I am pleased to announce the 2018 update of the Research Projects prospectus at the University of Guam. UOG's research capabilities have expanded dramatically over the past decade. Whether it is in the natural sciences, protection and management of resources, the social sciences, economic trends or health disparities, UOG leads the way in the conduct of research for and about Guam and Micronesia. In recent years, we have arranged for the establishment of CESU's with our federal partners and created the Research Corporation of the University of Guam (RCUOG). As part of our Good to Great (G2G) plan, the UOG has also increased our ability to be responsive to the demands of researchers, grantors, and both public and private partners in the community.

We hope that the information presented here will highlight the many facets of UOG's research activities and will help you gain a greater understanding of what UOG has to offer. Please feel free to contact me directly with any ideas or suggestions. *Ina, Deskubre, Setbe* (to enlighten, to discover and to serve) is our trifold mission. This is manifest in all our academic activities, especially research.

Biba UOG!

Robert A. Underwood, Ed.D.
President

MESSAGE FROM THE DIRECTOR

The University of Guam has a long and prestigious history of research based in Guam and the western Pacific region. UOG's Marine Lab and Water Environmental Research Institute (WERI) are among the world's best centers of their kind, as is

the Center for Excellence in Developmental Disabilities Education, Research, and Service (CEDDERS) in the area of disability support for the region.

New challenges for Guam and the region include the U.S. Military buildup and the looming impacts of global climate change. UOG is prepared to meet these with robust capacity in research facilities, programs, leadership, and resource scientists. We provide expertise in water resources, cancer health disparities, marine and coral reef studies, watershed conservation, and biosecurity and risks of invasive species.

UOG produced the only regional biosecurity plan in the world that now serves as a model, and that cooperative project with the Department of the Navy has now

expanded to eight current cooperative agreements ranging from sea turtle and bat

conservation to cycad and marine monitoring projects with a total investment of over \$2.5 million from Joint Navy Region Marianas. UOG is mid-way through a 5-year NSF EPSCoR award that is transforming the university in cyberinfrastructure, marine research, STEM education and workforce development. It has become a focal point for new programs with NASA-EPSCoR, INCLUDES STEM education with NSF, and a Cooperative Agreement with NASA for remote sensing and ocean science research in collaboration with JPL scientists.

Health Science grants have expanded from the National Cancer Institute U54 award in Cancer Health Disparities to programs with health data collaboration throughout Micronesia and student fellowship opportunities from the NIH BUILD, STEP=UP as well as U54 program. UOG was awarded AHEC and CHL grants to assist with nursing and children's health and nutrition in the region.

Our extramural funding has increased steadily since 2009 from \$3 million to over \$12 million in 2018.

Many of these have direct bearing on our regional challenges, while other areas address the need for leadership in public civility, reflection, and inafa'maolek around the paths ahead.

We welcome collaboration in the region and encourage agencies as well as investigators and consulting entities to explore partnering with UOG as a local base for offshore entities and as a supportive colleague for those either on or offshore from Guam and those within as well as outside the region. The challenges are frankly too serious and the stakes too high to allow the research field in our region to be fragmented and divisive

John. A. Peterson, Ph.D.
Director, Research & Sponsored Programs



MARINE LABORATORY

The University of Guam Marine Laboratory (UOGML) has served the greater Micronesian region, including the Territory of Guam, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia (Yap, Chuuk, Kosrae, and Pohnpei), the Republic of Palau, and the Republic of the Marshall Islands since it was established as a research unit in 1970.

Its mission is trifold:

1. To perform basic and applied research on the biology of tropical marine organisms, emphasizing conservation and management;
2. To share expertise through peer-reviewed publications, technical reports, educational materials, public lectures, and useful digests of relevant marine issues; and
3. To educate UOG students in the biological sciences program. Although small in size, UOGML plays a profound role in promoting the university as a focal point for discovering, understanding, and teaching others about Micronesia's coral-reef resources. UOGML's professional footprint is evidenced by the wealth of peer-reviewed publications, presentations to local and regional audiences, memberships on local and regional science advisory boards for numerous conservation efforts and grant funding passing through this research unit over the past four decades

The University of Guam Marine Lab has established research focus areas that range from understanding how gene expressions, diseases, coral symbiosis, and entire coral-reef assemblages are linked with natural environmental regimes, human stressors, and the predicted consequences of future climate change.

The following are a list of ongoing research programs offered at the UOG Marine Lab:

1. Conservation biology and reef management- Quantitative assessments of algal, coral, macro-invertebrate and fish species on reefs throughout the Pacific provide insights into the community structure of coral reefs and the biotic diversity found within these unique ecosystems. Studying the ecology of coral disease and developing novel methods of reef rehabilitation by stimulating natural recovery processes.



2. Chemical Ecology and Marine Natural Products Drug Discovery is the study of naturally occurring chemicals involved in structuring the interactions among living organisms, and how these bioactive compounds can be used to treat human diseases.
3. Systematics is the formal study of the diversity of life and how organisms are evolutionarily related. Coral reefs are the most diverse ecosystems in the marine realm. Studies at the marine lab on the phylogenetic systematics and taxonomy of coral-reef organisms have led to the discovery of many new species.
4. Coral Reef Ecology and Biology is the study of ecology, evolution, and physiology of coral reef organisms, and how changes in the environment could possibly drive a global redistribution of marine species.

For more information contact:

Dr. Tom Schils,
Director and Associate Professor of
Marine Biology
Tel: (671) 735-2185
Email: tschils@triton.uog.edu
Web: www.guammarinelab.com

ESTABLISHED PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR)

The Guam Ecosystems Collaboratorium (GEC), funded by a \$6M Established Program to Stimulate Competitive Research (EPSCoR) grant from the National Science Foundation, was formed in 2015 following the aftermath of the island's largest coral bleaching event on record. During the bleaching event, University of Guam Marine Laboratory scientists noted a difference in bleaching susceptibility among the affected coral species and populations. Today, GEC researchers seek to understand what accounts for the differences by studying the genetics of Guam's coral species and the physical oceanography of the island's marine habitats. This insight will ultimately inform local, regional, and global coral research.

GEC not only focuses upon building knowledge, but also ensuring that knowledge is well- documented and accessible both now and in the future. GEC aims to share the collected results through the development of a biorepository which will preserve and archive examples of Guam's marine biodiversity. Cyberinfrastructure enhancements will support the biorepository serving as a global resource capable of fostering international collaborations and establishing Guam as a destination for marine ecosystems research.

The results of GEC research will have important implications across the globe by better informing

scientists of coral species that are resistant to the effects of climate change. Locally, all of GEC's basic research activities and outcomes are connected to Guam's economic development. In addition, the research is linked with GEC's Education Outreach and Diversity (EOD) initiatives which seek to strengthen the STEM educational pipeline in the region, increase participation of women and underrepresented minorities in STEM opportunities, and build local capacity by developing a community of life-long learners engaged in science.



For more Information contact:

Dr. Terry J. Donaldson,
Director and Professor of Ichthyology

Tel: (671) 735-2176

Email: tdonaldson@triton.uog.edu

Web: www.epscor.uog.edu



GUAM OPEN RESEARCH AND EDUCATION EXCHANGE CONCEPT (GOREX)

The Guam Open Research and Education eXchange ("GOREX") will leverage the strategic geographic location of Guam and the major new fiber optic systems landing there by establishing an open R&E exchange to interconnect the existing, funded and planned high capacity R&E transPacific circuits in a planned manner. Specific purposes are to improve Pacific-wide transport diversity and resilience in support of global R&E networks and facilitate greater access to global R&E networks by Pacific Island nations and communities, including Guam itself, by leveraging the multiple regional fiber systems that terminate on Guam. The overarching goal is to promote increased growth and effectiveness of data-intensive and highly collaborative research and education activities engaging the Asia-Pacific region with the global R&E community.

The initial participants in the GOREX consortium will include the Australia Academic and Research Network (AARNet), the University of Hawaii (UH) and Pacific Wave (PWave), Internet2/SingAREN and the University of Guam (UOG). Additional participation will likely extend to Japan, Hong Kong, and multiple Pacific Islands.

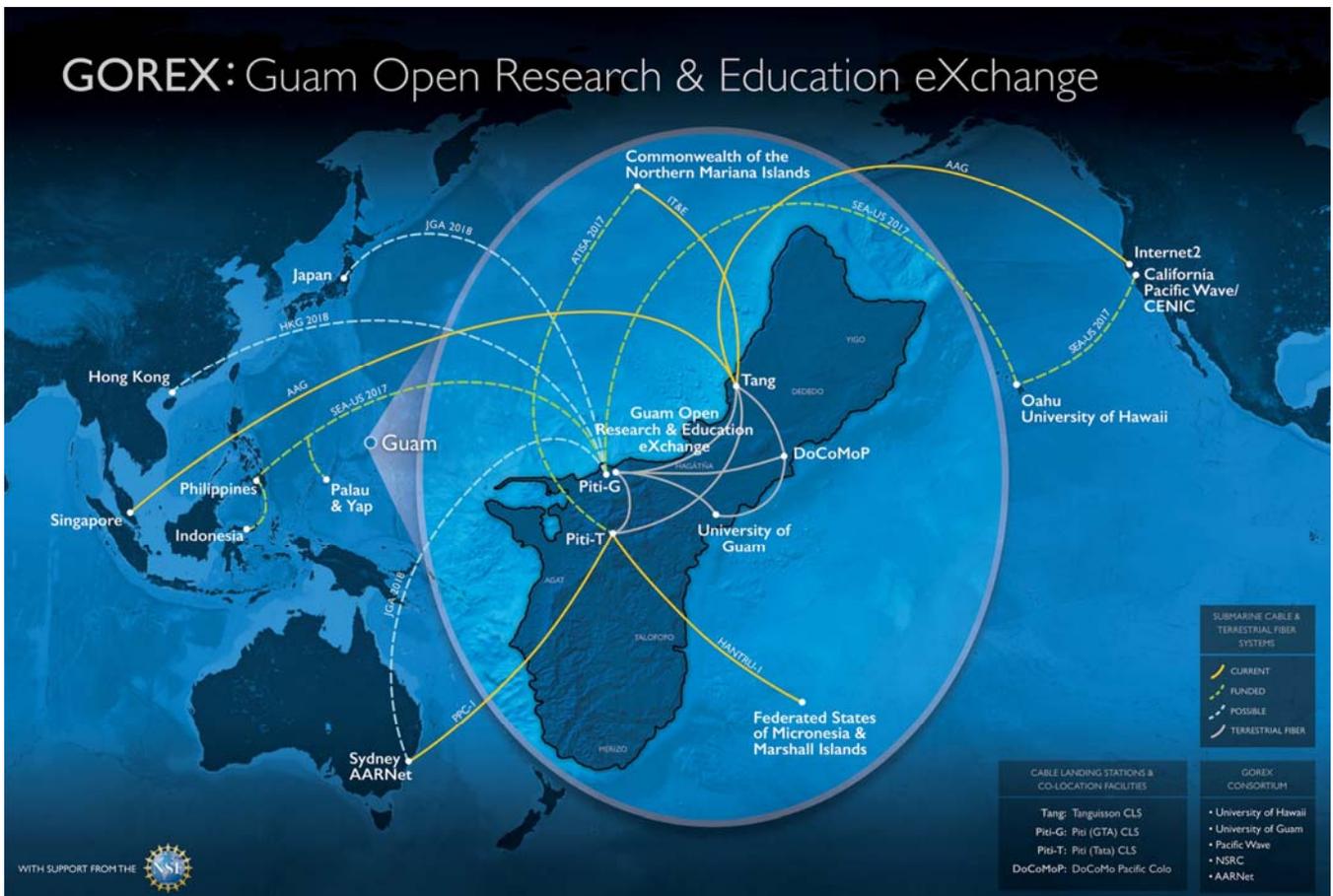
For more Information contact:

Rommel Hidalgo,
Chief Information Officer

Tel: (671) 735-2645

Email: rommel@uog.edu

Web: gorex.uog.edu



WATER & ENVIRONMENTAL RESEARCH INSTITUTE OF THE WESTERN PACIFIC (WERI)

WERI is one of 54 similar water research institutes set up by U.S. Congressional legislation at each Land Grant University in the United States and in several territories.

WERI carries several federal and local mandates. In 1998, WERI was given local mandates by the 24th Guam Legislature to administer the Guam Hydrologic Survey (GHS) and the Comprehensive Water Monitoring Program (CWMP). WERI's current mission under its national charters and local mandates is to consolidate, foster, retain and make available expert knowledge on local and regional water resources and to seek solutions to problems associated with location, production, distribution, and management of freshwater in Guam, the CNMI, and the FSM.

The Institute provides its regional stakeholders (Guam, CNMI, and FSM) with technical expertise in water resources related fields spanning the entire natural water cycle and spectrum of human water use, including tropical climatology, surface water hydrology, rainfall catchment systems, groundwater modeling and management, water distribution systems, soil erosion and mitigation strategies, watershed management, and various aspects of water quality. Faculty members contribute significantly to both undergraduate and graduate teaching programs at the University of Guam (UOG) and conduct vigorous research aimed at improving economic conditions and the quality of life for citizens of Guam and the regional island nations.

The specialties of WERI faculty are meant to address the elements of the natural hydrologic cycle and human water use such as:

1. Precipitation,
2. Surface stream flow,
3. Groundwater recharge and flow,
4. Drinking water production, and water quality management,
5. Storm water management,
6. Wastewater treatment and discharges of surface,
7. Ground and wastewaters into the coastal zone.



Dr. Joseph Rouse, Wastewater Engineer at the University of Guam Water and Environmental Research Institute (WERI) conducts a field inspection.

WERI Highlights:

1. WERI was recently evaluated and praised from the U.S. geological for its "Significant Research Accomplishments" and "Impact on public policy and water management throughout the region."
2. WERI Guam recently ranked in the top eight of the nation's 54 water resource research institutes in 2014 and its faculty and students have recently received national recognition for high- quality research relevant to local needs
3. WERI team conducted research that explored the feasibility of developing a separate surface water supply system for agricultural use in Southern Guam.



WERI WINS NATIONAL AWARD

The University of Guam Water and Environmental Research Institute (WERI) was recently awarded the 2013 National Institutes for Water Resources (NIWR) National Impact Award for the project entitled "Comprehensive Analysis of Salinity Trends in the Northern Guam Lens Aquifer" written by WERI's Dr. John Jenson, and Mark Lander, who served as Principal Investigators and Ms. Christine Simard, M.S. Environmental Science.

From left to right: Jenson, Simard and Dr. Shahram Khosrowpanah, WERI Director.

4. With the anticipated military build-up, the Northern Guam Lens Aquifer will require additional production, while the ongoing economic growth will increase demand. This study aims to estimate the maximum natural capacity of the Northern Guam Lens Aquifer.
5. WERI developed a program, "teaching teachers" about Guam's Water Resources and "Guam Water Kids" in water related subjects
6. The Expansion of the "Guam Water kids" prepares High School student for Service-learning Opportunities that are beneficial to freshwater resources. The program provides five service-learning modules.
7. After the WWII Japanese invasion in 1944, there were remnants of chronic environmental mercury contamination that was encountered in an urban run-off. The WERI team examined mercury levels in fish that was found from storm water discharges from the southern part of the Saipan lagoon
8. WERI team created a digital resource website, <http://www.hydroguam.net/> that entails data related to the physical and environmental characteristics of northern and southern Guam. The purpose of the website is to provide accurate and readily available information to the public.
9. Under the guidance of Section 6217, the watershed restoration action is a strategic move that should include assessment and identification of opportunities to reduce nonpoint sources pollution. This project will assess the Turbidity in the Geus River Watershed in Southern Guam.

For more Information contact:

Dr. John Jenson, Director

Tel: (671) 735-2689

Email: jjenson@triton.uog.edu

CANCER RESEARCH CENTER

The fight against cancer.

The UOG Guam Cancer Research Center was established in 2009 and has an NCI-funded partnership with the University of Hawaii Cancer Center (UHCC).

Together they focus on Pacific Islanders because they are a highly underserved minority with a significant amount of health disparities.

The cancer center focuses its efforts on enhancing awareness and prevention of cancer, and strives to ultimately reduce the impact of cancer on the population in the Territory of Guam.

Through the Partnership grant with the University of Hawaii Cancer Center, the University of Guam Cancer Center aims to:

1. Increase the cancer research activities and the number of faculty engaged in cancer research at UOG.
2. Increase the number of minority scientists of Pacific Islander ancestry engaged in cancer research pertinent to students
3. Further strengthening the research focus at UHCC on cancer health disparities with particular emphasis on aspects of particular relevance from people of Hawaii and the Pacific.
4. Enhance the awareness of cancer and prevention, ultimately, to reduce the impact of cancer on the population in the territory of Guam, neighboring
5. U.S. –associated Pacific Island jurisdictions, and Hawaii.

The following list of research publications are a sample of the types of studies being conducted at the University of Guam Cancer Research Center:

1. Hernandez B, Zhu X, Goodman M, Gatewood R, Mendiola P, Quinata K, Paulino Y. Betel nut chewing, oral premalignant lesions and the oral microbiome. *PLoS One*. 2017; 12(2); e0172196. doi:10.1371/journal.pone.0172196
2. Leon Guerrero RT, Chong M, Novotny R, Wilkens LR, Badowski G, Blas M, Murphy S. Validity and reliability of a quantitative food frequency questionnaire (ffq) for use in Guam. *Food & Nutrition Research*. 2015;59:26276;DOI:10.3402/fnr.v59.26276.
3. David A, Haddock RL, Bordallo R, Dirige JT, Mery L. The Use of Tobacco Tax Revenues to Fund the Guam Cancer Registry: A Double Win for Cancer Control. *Journal of Cancer Policy*. 2017; 12:34-35. doi.org/10.1016/j.jcpro.2017.03.006
4. Somera L, Lee H-R, Badowski G, Cassel K. (2016). Health Information Seeking, Source Trust, and Culture: A Comparative Analysis of Health Information Trends and Needs Between Guam and the United States. *J of Health Commun*. 2016; Apr;21 (4):469-478.
5. Haddock RL. Shining light on cancer in the Pacific. *Hawaii J Med Public Health*. 2013;72(3):107-108. PMID: PMC3602951.
6. Paulino YC, Novotny R, Miller MJ, Murphy SP. Areca (betel) nut chewing practices in Micronesian Populations. *Hawaii J Pub Health*. 2011;3(1):19-29. PMID: PMC4322768.
7. Leon Guerrero RT, Novotny R, Wilkens LR, Chong M, White KK, Shvetsov YB, Buyum A, Badowski G, Blas-Laguana M. Risk Factors for Breast Cancer in the Breast Cancer Risk Model study of Guam and Saipan. *Cancer Epidemiology*. 2017; 50PB:221-223. DOI: 10.1016/j.canep.2017.04.008
8. David AM, Lew R, Lyman AK, Otto C, Robles R, Cruz GJ. Eliminating tobacco-related disparities among Pacific islanders through leadership and capacity building: promising practices and lessons learned. *Health Promot Pract*. 2013;14 (Suppl 6):10S-7S. PMID: PMC3846162.
9. Paulino YC, Hurwitz EL, Warnakulasuriya S, Gatewood RR, Pierson KP, Tenorio LF, Novotny R, Palafox,N, Wilkens LR, Badowski G. Screening for oral potentially malignant disorders among areca (betel) nut chewers in Guam and Saipan. *BMC Oral Health*. 2014;11(14):151. PMID: PMC4292829.
10. Leon Guerrero RT, Badowski G, Yamanaka A, Blas-Laguana M, Bordallo R, et al. University of Hawai'i Cancer Center connection: The vital role of cancer registries in the recruitment of an understudied minority population into a breast cancer study: Breast Cancer Risk Model for the Pacific. *Hawaii J Med Public Health*. 2014 Oct;73(10):335-40. PMID: PMC4203456.

Funded projects/programs during the current U54 cycle include:

1. Full Project I: Identification of pro-inflammatory molecules involved in Areca nut carcinogenesis, by Jian Yang (UOG) and Reinhold Penner (UHCC). This project's aim is to identify the active chemical components of Areca that mediate calcium signals in immunocytes and determine the molecular mechanisms by which calcium is mobilized in these cells.



U54 PSC Presentations Year 4 were held at the University of Guam.

2. Full Project II: The Betel Nut Intervention Trial (BENIT), by Yvette Paulino (UOG), John Moss (UOG) and Thadd Herzog (UHCC). This behavioral research study aims to understand betel nut chewing behavior and test the efficacy of an intensive group-based betel nut cessation program.
3. Pilot Project I: An Intervention to Increase Cervical Cancer Screening among Pacific Islanders Living in Guam (GU) and Hawaii (HI), by Linlnabeth Somera (UOG), Ana Joy Mendez (UOG) and Neal Palofox (UHCC). This project's aim is to evaluate the effectiveness of community-based SMS strategies to increase cervical cancer screening rates in underserved Pacific Islander populations who have migrated to GU and HI within the last 5 years
4. Pilot Project II: Adolescent Betel Nut Use in Guam, by Frances Dalisay (UOG) and Pallav Pokhrel (UHCC). This study aims to determine betel nut use among middle school students on Guam and correlates related to its use.
5. Pilot Project III: Identification and Application of Improved Biomarkers reflecting Betel Consumption, by Laura Biggs (UOG) and Adrian Franke (UHCC). This project aims to extend the search for the most promising specific biomarkers of betel quid for several days after chewing studying contents of saliva.

Other Achievements:

- The establishment of the now fully operational Guam Cancer Registry, created with U56 & U54 support, represents an asset for both public health in Guam and research support for UOG investigators.
- Collectively, 63 investigators and students have authored 81 publications and presented 103 abstracts at national and international meetings since 2009.
- Under the leadership of Dr. Annette David (UOG), involved the passage of several pieces of important policy legislation by the Guam Legislature. The legislature passed Public Law 30-80 in February 2010, which increased the cigarette tax from \$1.00/pack to \$3.00/pack. A major portion of the tobacco tax revenue was devoted to the prevention and treatment of diseases caused by smoking. (The Healthy Futures Fund), as well as the creation of the Guam Cancer Trust Fund (GCTF), which is administered by UOG.
- Two additional laws passed were:
 - Public Law 31-102, which prohibits smoking in cars when a minor is present
 - Public Law 30-66, which prohibits smoking within 20 feet of building entrances and exits.



For more information contact:
Dr. Rachael Leon Guerrero,
Principal Investigator, Cancer Research Center
Tel: (671) 735-2004
Email: rachaeltlg@triton.uog.edu
www.guamcancerresearch.org

College of Natural & Applied Sciences

COOPERATIVE EXTENSION & OUTREACH

Like any place in the U.S., there is an opportunity for a college to help its surrounding communities thrive; after all, that is where our employees live. Guam is a small place just 212 sq miles and is a mix of rural and urban settings; mostly rural. The College of Natural & Applied Sciences' (CNAS) Cooperative Extension & Outreach (C-E&O) activities reach farmers, businesses, schools, families, and individuals in Guam's 19 villages. While smaller in manpower than in the past, with just seven faculty and about 50 others on various forms of soft and softer money, dedicated men and women serve a variety of needs in the community. These services and projects include:

Children's Healthy Living Program (CHL)

This \$25M consortium project, with the Pacific Rim Land Grants, aims to make a major impact on childhood health and obesity in the region. Guam-based initiatives include higher degree support for two Guam-based candidates, plus education of three Micronesian students at the University of Guam. Height and weight data is being collected on children in some villages, along with food prices, and that data is being submitted as part of a larger regional dataset. CHL's Healthy Weight Initiative is on-the-ground engagement with families and individuals in healthier living.

Coconut Rhinoceros Beetle Project

Coconut trees are important to Guam because of the food, building materials, and beauty that coconut trees provide. The coconut rhinoceros beetle, a large invasive species is killing coconut trees by boring into the crown of the tree for sustenance. The hole that the beetle makes eventually makes the palm fronds fall off and the tree dies. This soft money project has provided great support in developing the science of rhino-beetle management.

Food Product Development and Training

Our food scientists and educational specialists have worked with local businesses and evolving entrepreneurs to develop or improve foods they want to sell to the public. Much of the outreach is done through other programs, like the New Farmer Program, as we want to encourage the use of Guam-grown food ingredients. This effort also addresses the growing need to teach how to handle and prepare food more safely. Our Master Food Preserver program responds to community needs for more advanced training.

Ironwood Tree Survival

It may not be obvious, but one of Guam's traditional trees, the ironwood (*Casuarina eqisetifolia* ssp. *eqisetifolia*) is on the decline due to a still undefined pathogen or pathogens. Extension research work has been on going for a few years and there is a race against time to protect this important species. Collaborators from around the globe are helping our scientists to understand, and perhaps, solve this mystery.



Tomato Production Trials

Tomato viruses abound in tropical environments. Guam's humid climate and year-round pests can make growing tomatoes a real challenge. Yet, tomatoes are good for us and are a favored food in many dishes. Field trials on farmer's fields are being conducted to see which varieties are best suited for Guam's environment as well as the marketplace. Early results look promising for a few varieties.

For more information contact:
Jim Hollyer
Associate Director
Tel: (671) 735-2202
Email: hollyerj@triton.uog.edu



FISHING FOR RHINOS WITH TEKKEN

Roland Quitugua and Dr. Aubrey Moore from the University of Guam are currently developing the tekken trap as a novel, cost-effective tool for monitoring and managing rhino beetle populations. "As a barrier for potential or active breeding sites, the tekken trap is an affordable and easy to use method of reducing rhino beetle populations in residential areas," said Quitugua. The original idea was to cover compost piles being used as breeding sites to suppress the emergence of adults, which damage nearby palms.

College of Natural & Applied Sciences

WESTERN PACIFIC TROPICAL RESEARCH CENTER (WPTRC)

The University of Guam is the largest land-grant institution in the Western Pacific. As such, the University's mandate is to assist in safeguarding the region's environmental, social, and economic resources. The Western Pacific Tropical Research Center (WPTRC) is the research division within the College of Natural and Applied Sciences associated with the national land-grant system.

Scientists working at WPTRC are finding solutions to issues faced by the people and ecosystems

of Guam. Island residents benefit from this research in the form of new and improved foods and plants, a healthy and safe environment, and enriched lifestyles and communities. Research conducted through WPTRC underlies both academic and extension programs.

WPTRC specializes in research designed to:

- Enhance agricultural profitability
- Stimulate economic development using natural resources
- Improve the quality and safety of food products
- Sustain and protect the environment with ecologically sound practices
- Improve the quality of life for the people of Guam

Mission Statement

Excellence in research in support of the land-grant mission of discovery, learning and engagement. We excel in the areas of tropical agriculture, environmental and life sciences.

Fields of Study

Aquaculture

The Guam Aquaculture Development and Training Center (GADTC), also known as the Fadian Hatchery, is the largest and oldest aquaculture center in the Western Pacific region. GADTC serves as the vessel to accomplish UOG's mission

as the lead agency for aquaculture development on Guam. It strives to support aquaculture development through research, education, direct farmer support, and service. Genetic research on shrimp families, *Penaeus vannamei*, has been ongoing since 2007. Freshwater shrimp, *Macrobrachium rosenbergii*, are making a comeback as a focus of study at this bio-secure facility serving the Western Pacific region.

Child Obesity Prevention

Shaping a healthy lifestyle begins at an early age and ultimately can prevent obesity and chronic diseases. Current research on children's eating and physical activity on Guam has shown that 48% of children tested met the national recommendations for achieving 60 minutes of physical activity. Only 13% of children from various villages met the national recommendation of 2 hours or less screen time per day. The implementation of the program Food Friends, Get Movin' with Mighty Moves, is looking to make an impact on health-related issues in Guam villages and schools.

Entomology

The Entomology Laboratory scientists and research team are engaged in research with practical applications in controlling invasive species and pest management using integrated control methods. The laboratory receives insect specimens for identification from local farmers, government agencies and the general public.

In recent years, WPTRC entomologists have been working on the control of several invasive insects including the coconut rhinoceros beetle, *Oryctes rhinoceros*, which is threatening the island's coconut trees and the little fire ant, *Wasmannia auropunctata*. They have also been busy gathering data to determine the overall health of Guam's honeybees in a national survey funded by USDA-APHIS.

Plant Physiology

The Plant Physiology & Fruit Science Laboratory research team focuses on understanding the responses of plants to the typical abiotic stresses of



HONEY BEE SURVEY

Scientists have been concerned about the health of honeybees worldwide for years. In 2013, Dr. Ross Miller's Entomology Lab at the University of Guam Western Pacific Tropical Research Center (WPTRC) began the first honeybee health survey in the region with funding provided by USDA-APHIS.

the Mariana Islands. This work is primarily whole plant physiology. This horticultural research aims at improving production practices of tropical fruit species and native woody perennial tree species including Guam's only cycad, the endangered *Cycas Micronesia*.

Horticulture

Horticulture Laboratory researchers are energetically involved with the Guam Plant Extinction Prevention Program (GPEPP) collecting and managing wild plants and establishing new populations to reverse the trend toward extinction. Guam's rarest tree, *Serianthes nelsonii* is the focus of GPEPP outplanting efforts to establish seedlings in their native habitat.

Plant Pathology

The Plant Pathology Laboratory is engaged in research on the diseases of traditional Pacific Island plant crops as well as other plants currently used in agriculture in the islands. Research on diseases of coconut, taro, banana, papaya, and areca nut is of great importance to local farmers.

Soil Science

The Soil Science Laboratory is involved in research, instruction, soil quality improvement, and organic waste management. This lab has recently been involved in successfully employing vetiver grass as a sediment trap and documenting its effect on water quality improvement and as mitigation for coral reef degradation. The lab has also studied the application of organic waste

to different soil types on island to improve soil conditions and provide nutrients needed for plant production.

Turf Science

The primary role of the Turf Science Laboratory is to conduct research to serve the needs of Guam and the Western Pacific region and to generate information that is beneficial to the scientific community

outside of Guam. Most recently, the lab has been investigating the use of turf to create rooftop gardens, which have been shown to substantially reduce electric bills.

Research Infused Instruction

CNAS professors design experiments for their lab classes based on their research, which includes evaluating the effects of common pesticides on the reproductive function of fish and investigating the dynamics of litter decomposition among native and non-native tree species in southern Guam. Students gain research experience by gathering data and conducting experiments for these projects.

**For more information contact:
Dr. Rachael Leon Guerrero,
Associate Director
Tel: (671) 735-2004
Email: rachaeltlg@triton.uog.edu
www.wptrc.org**

UNIVERSITY OF GUAM SEA GRANT

The National Sea Grant College Program is a partnership between universities and the Federal Government's National Oceanic and Atmospheric Administration (NOAA), an agency within the Department of Commerce. The Sea Grant network includes more than 3,000 scientists, engineers, public outreach experts, educators, and students. The University of Guam Sea Grant Program brings the science of coastal resources to Guam's people as one of 33 programs Sea Grant across the nation.

UOG Sea Grant (UOGSG) faculty and extension associates enhance the understanding

of coastal processes in ways that promote sustainable human activities through extension and education. These activities include improved conservation, protection, and perpetuation of coastal resources and property. The UOGSG team provides scientifically accurate data and methods to inform management and policy. Additionally, the program helps empower businesses with knowledge so that they can make sustainable decisions that are socially, environmentally, and economically sound.

UOGSG established focus areas that model the National Sea Grant Program:

1. Healthy Coastal Ecosystems
2. Environmental Literacy and Workforce Developments

Island environments and communities are experiencing changing environmental conditions, such as the increasing frequency and intensity of storms, rising sea level, and increasing sea surface temperature. In order to build island resilience against these changing conditions, local environmental stressors must be reduced. On small high islands such as Guam, land-based pollutants need only travel short distances via storm water runoff to reach the ocean and harm marine life.

As such, UOGSG is taking a watershed approach (a.k.a Ridge to Reef approach) to improve the health of coastal ecosystems through the Guam Restoration of Watersheds (GROW) Initiative. The GROW Initiative was established in partnership with the UOG Center for Island Sustainability. The initiative takes an interdisciplinary approach to testing and developing novel tools to restore degraded watersheds, coral reefs, and fisheries.



UOGSG provides informal education workshops in response to stakeholder requests. Each workshop has four essential elements: 1) Scientific or scientifically informed expertise, 2) Interdisciplinary and culturally relevant information tied to science, 3) A hands-on or interactive activity to enhance learning, and 3) Accessibility, meaning that the language, location, and activities are culturally appropriate for the target audience. Demand has routinely exceeded expectations and attracted a cohort not otherwise connected to UOG.

UOGSG also implements competitive research fellowships at UOG on a yearly basis to support community coastal development. The following are a list of research priorities that are aligned with other governmental plans in an effort to support other ongoing management, education, and extension efforts through competitive Sea Grant Research Fellowship that is offered on a yearly basis to graduate students.

The University of Guam Sea Grant Program (UOGSG) was formally established as a program at UOG in August 2008 and became a Coherent Area Program in February 2012. Prior to that, UOGSG was a Project starting in October 2004 and had a Pre-Extension Program starting in October 2000. UOGSG aims to obtain Institutional Status in the near future and eventually College Program Status.

For more information contact:

**Austin J. Shelton III, Ph.D.,
Associate Director**

Office: (671) 686-2270

Email: shelton@triton.uog.edu



RICHARD F. TAITANO MICRONESIAN AREA RESEARCH CENTER (MARC)

Through preservation and education, MARC strives to acquire, preserve, and provide access to collections of archival maps, photographs, texts, and cultural materials. It is the premier center for social sciences and humanities research in the western pacific. It was established in 1967 and is one of the oldest research units within the university of Guam.

The collection constitutes one of the most extensive repositories of Guam and the Micronesia library materials in the world. The collection holds over 40,000 volumes, including 800 dissertations and theses, news clippings, brochures and transient material related to the geographical region of Micronesia.

MARC has a variety of units such as:

1. Electronic Databases,
2. Chamorro Genealogies
3. Photograph & Map Collection
4. Spanish Documents Collection
5. Manuscript Collection
6. Archaeological & Historical Preservation studies in Cultural Resource Management

MARC Highlights

- MARC & Guampedia collaborate to continuously update MARC documents on the Guampedia website, an online encyclopedic resource about the history, culture and contemporary issues
- MARC renewed the archaeological and historical publications in the region with monographs and volumes on projects and sites in Guam and the Marianas, the Non Nok Tha site in Thailand, and America Samoa.
- Within the last five years, MARC has received ≈18,846 patrons, with 6,933 visitors
- MARC collaborated with regional and international researchers to study and document the Chamorro language.
- A blanket agreement with the NavFac Pacific to conduct various cultural resource management projects on Guam and in the region launched recent archaeological research by MARC. Projects included U.S. Navy construction and archaeological testing excavations at Futenma MCAS Okinawa and archaeological resource investigations for local, territorial, federal and grant-funded undertakings.

- MARC produced the first comprehensive traditional cultural properties studies for Guam, Tinian, Saipan, and Pagan Islands in the Northern Marianas
- MARC has conducted archaeological field schools at Ritidian Refuge, United States Fish and Wildlife Services (USFWS), since 2007 and is the leading center for archaeological studies in the region.



For more information contact:
Dr. Monique Storie, Acting Director
Tel: (671) 735-2333
Email: mstorie@ug Guam.uog.edu



FR. SOLORZANO SKULL AND MANUSCRIPTS

UOG anthropology professor Dr. David Atienza studies letters written by Jesuit priest Manuel Solorzano in the 17th century about his time in Guam.

UOG held *I Ilun Pâle': Discussions Before the Skull of Solorzano* at the College of Liberal Arts and Social Sciences (CLASS) Lecture Hall in January 2015 included the following academic presentations and discussions:

Introduction to Fr. Manuel de Solorzano by Professor Manuel Lopez Casquette, University of Loyola Andalucia (Sevilla-Cordoba) in Spain and heir to the skull of Manuel de Solorzano.

A 17th Century Missionary's Motivation by Father Francis Hezel, Jesuit Priest

The Cosmo-vision of a 17th Century Chamorro by Professor Michael Lujan Bevacqua, Chamorro Studies, UOG

Discussions Before the Skull Panel Discussion featuring Dr. Robert Underwood, UOG President, Dr. David Atienza, UOG Professor of Anthropology, Father Francis Hezel, Dr. Michael Lujan Bevacqua, Dr. Manuel Lopez Casquette and Dr. Andres Oyola Fabian, Member of the Real Academia de Extremadura de las Letras y las Artes Casquette presented documents written by Solorzano to the University of Guam for its historical archives.



Dr. Andres Oyola Fabian (left) and Manuel Lopez Casquette (right) with the skull of Fr. Manuel de Solorzano.

CENTER FOR EXCELLENCE IN DEVELOPMENTAL DISABILITIES EDUCATION, RESEARCH & SERVICE (CEDDERS)

Serving the island as the Center for Excellence in Developmental Disabilities Education, Research, and Service, CEDDERS provides training and technical assistance in the Pacific Basin Region. It is the largest training, service, and technical assistance center at the University of Guam.

CEDDERS supports targeted training for medical professionals, allied health providers, social service providers, employers, educators and a wide range of public and nonprofit organizations. CEDDERS' wide ranging impact is in keeping with the university's mission, and operationalizes UOG's role as a land grant institution of higher education.

Many of the top universities in the US have centers that focus on the area of disability and most also have Centers that also focus on young child development, the aging, minority issues, civil rights, civic engagement, and economic development for the poor.

CEDDERS was established at UOG in 1992 and has brought in more than 138 million in external funding to help UOG do what is best for the public good in the area of supporting individuals with disabilities. It is an exemplary model of community engagement given

CEDDERS role in needs assessment, evaluation, program development, training, technical assistance, grant writing, and policy development and research. This is in keeping with not only the university's mission, but also in actively meeting the challenges as a land grant institution of higher education.

CEDDERS has been at the forefront of developing data sharing and interoperability protocols on Guam; assistive technology demonstration and the development of loan program funding for devices and supports; cultural and linguistic competence in behavioral health and disability arenas; alternate assessment; the provision of services and supports to individuals with disabilities; the offering of much needed training programs in speech pathology, visual impairment, disability studies, integrated primary care and behavioral health supports, aging and disabilities; targeted research and policy development; and has been the leader in piloting tele-audiology in the Pacific.

Mandated by the Developmental Disabilities Assistance and Bill of Rights Act of 2000, Guam CEDDERS is committed to providing assistance and support to improve and enhance the quality of life of individuals with developmental disabilities and their families.

Guam CEDDERS Funded Grants and Subcontracts include:

- **Act Early Ambassador**
- **CDC: Guam Early Hearing Detection & Intervention – Information System Guam Child Link**
- **CEDDERS – CORE Grant**
- **CNMI PSS Special Education Technical Assistance (TA)**
- **Educating Pacific Island Clinicians in Speech-Language Pathology (EPICS Project)**
- **FSM Special Education TA & Training**
- **Get Guam Tele-working (GGT) Program**
- **Guam DOE Character Education Positive Behavioral Interventions and Supports**
- **Guam DOE Early Intervention TA & Training**
- **Guam DOE Special Education TA & Training**
- **Guam DOE State Systematic Improvement Project**
- **Guam's Early Childhood Home Visiting Program:**
- **Project Bisita I Familia**
- **Guam Options for Alternative Loans – Assistive Technology (GOAL-AT) Program**
- **Guam System for Assistive Technology (GSAT)**
- **Helen Keller National Center TA & Training**
- **HRSA – Guam Early Hearing Detection & Intervention (Guam EHDI) Project**
- **Learn the Signs. Act Early. Project**
- **Linking Actions for Unmet Needs in Children's Health Evaluation (Project LAUNCH)**
- **Palau Special Education TA & Training**



For more information contact:
Heidi E. San Nicolas, Ph.D. Director,
(671) 735-2481
heidi.sannicolas@guamcedders.org
www.guamcedders.org

September 2016

What's Happening

How current teachers in the Republic of Palau performed on a practice teacher certification examination

Novos Flores
University of Guam Center for Excellence in Developmental Disabilities Education, Research, and Service

Heidi San Nicolas
University of Guam Center for Excellence in Developmental Disabilities Education, Research, and Service

John S. Kordahl
S&C Consulting, Ltd.

Kate Stringer
MREI International

Louis F. Crockett
Crockett Consulting, Ltd.



ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

September 2016

Toolbox

Toolkit of Resources for Engaging Families and the Community as Partners in Education Part 3: Building trusting relationships with families and the community through effective communication

Heidi San Nicolas
Novos Flores
University of Guam Center for Excellence in Developmental Disabilities Education, Research, and Service

Maria Elena Garcia
Kat Fung
Carl R. Dase
MREI International

Novos Flores
Kirstin B. Miller
MREI International

Overview

The Toolkit of Resources for Engaging Families and the Community as Partners in Education is a four-part resource that brings together research, promising practices, and useful tools and resources to guide educators in strengthening partnerships with families and community members to support student learning. The toolkit defines family and community engagement as an overarching approach to support family well-being, strong parent-child relationships, and students' ongoing learning and development. The primary audiences for this toolkit are administrators, teachers, teacher leaders, and trainers in diverse schools and districts. Part 3 is designed to show how cross-cultural and two-way communication enhances family and community engagement.

ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

Academic achievement and classification of students from the Freely Associated States in Guam schools

Justin Stewart
Katie Stringer
Shelia A. Aron
MREI International
Luis F. Crockett
Crockett Consulting, Ltd.

Heidi San Nicolas
Novos Flores
University of Guam Center for Excellence in Developmental Disabilities Education, Research, and Service

Guam is home to the largest population of migrants from the Freely Associated States (FAS): the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. FAS students make up 22 percent of total student enrollment in Guam public schools in 2012. FAS students face a number of challenges when they enter Guam public schools, including low English language proficiency and low socioeconomic status. Using data from the 2013/14 administration of the Stanford Achievement Test 10th edition reading, math, and language arts subtests in Guam, this study sought to better understand how the characteristics and outcomes of FAS students compare with those of other students in Guam. The study found that low test takers (both FAS and non-FAS students) scored at proficient or advanced levels and that FAS students were more likely than non-FAS students to receive a below basic score and less likely to receive any other score. FAS students were more likely than non-FAS students to be classified as English learner students and less likely to be receiving special education services.

ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

SERVICES FOR PEOPLE WITH INTELLECTUAL AND/OR DEVELOPMENTAL DISABILITIES IN THE U.S. TERRITORIES

MICRONESIAN EDUCATOR

A Journal of Research & Practice on Education in Guam and Micronesia



Volume 16, 2012

A Publication of the School of Education, University of Guam

Facilitating Program Implementation for Students with Significant Cognitive Disabilities: Baseline Documentation of Instructional Programs in Six Pacific Islands

Heidi E. San Nicolas, Michael Reardon, Steve Lee, Lisa, Janet Torres, David Williams, Catherine Williams, David Lee, Pauline, and Andy Williams

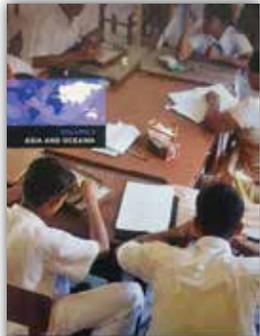
Background

Students with significant cognitive disabilities (SCD) are a diverse group of students who require specialized instructional programs to meet their unique learning needs. This report documents the baseline instructional programs for SCD students in six Pacific Islands: Guam, Palau, the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI), the Republic of Palau (RPL), and the Federated States of Micronesia (FSM). The report provides a detailed description of the instructional programs used in each of these countries, including the types of instructional materials, the instructional strategies used, and the roles of the various stakeholders involved in the implementation of these programs. The report also provides a summary of the findings from the baseline study and discusses the implications for future research and practice.

ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

THE PRAEGER INTERNATIONAL HANDBOOK OF SPECIAL EDUCATION

ASIA AND OCEANIA



MICHAEL L. WHEATLEY AND JAMES R. HATTON, EDITORS

CHAPTER TWENTY THREE Guam

Heidi E. San Nicolas, Jeffrey Linton, Jon R. De Leo, and Zohra S. Pejarang

Division of County
Political Administration

Guam is a U.S. territory that has been a part of the United States since 1898. The island of Guam was ceded to the United States following the Spanish-American War. Guam is a self-governing territory with a local government and a U.S. Governor. The handbook provides information on the political and administrative structure of Guam, as well as the roles of the various stakeholders involved in the implementation of special education services. The handbook also provides a summary of the findings from the baseline study and discusses the implications for future research and practice.

2017 Developmental Disabilities Tri-Agency Summit Proceedings

Nov. 9, 2017



ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

Guam Early Hearing Detection & Intervention Project (Guam EHD) Annual Report

Project Period: July 1, 2015 - June 30, 2017



ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

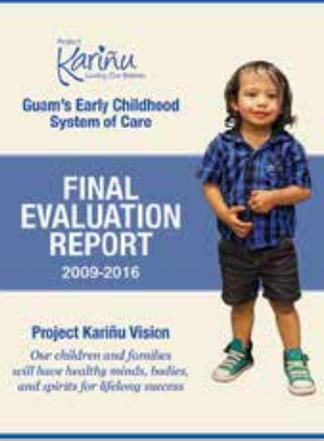
REL PACIFIC

Guam's Early Childhood System of Care

FINAL EVALUATION REPORT

2009-2016

Project Kariñu Vision
Our children and families will have healthy minds, bodies, and spirits for lifelong success



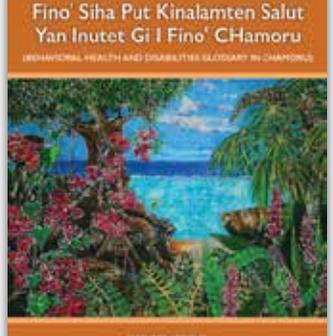
BEYOND MANDATES: Language Access Services In Guam

Report 2015



Fino' Siha Put Kinalamten Salut Yan Inutet Gi I Fino' CHamoru

(BIOMEDICAL HEALTH AND DISABILITIES LEGISLATION IN CHAMPORRO)



ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

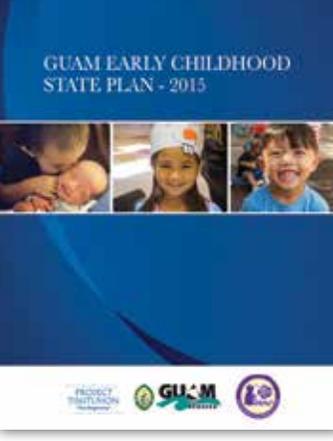
UPDATE FROM ADVOCATES ON GUAM'S DISABILITY AGENDA

May 2014

"It's best to try all possibilities, than not to try at all. Possibilities are endless."



GUAM EARLY CHILDHOOD STATE PLAN - 2015



ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Educational Sciences
U.S. Department of Education

REL PACIFIC

Sampling of publications by CEDDERS

CENTER FOR ISLAND SUSTAINABILITY

In 2009, under the leadership of UOG President Dr. Robert Underwood, the Center for Island Sustainability was established to tackle issues that the Pacific Islands are faced with such as global climate change, alternative renewable and sustainable energy solutions, peak oil, bio-security, and indigenous peoples rights.

It is the focal institute at the University of Guam for adapting and modeling sustainable technologies that meet the needs of island communities.

The Center for Island Sustainability is located at Dean Circle, House #32. House # 32 was originally built in the 1960's at the University of Guam and was retrofitted as a model for low-carbon emission and full island sustainability.

House #32 features:

- 6 Kilowatt (kW) Photovoltaic (PV)
- High "e" energy efficient windows and sliding doors
- Water Catchment System
- Kerosene Hybrid Refrigerator
- High 17 SEER AC Units
- LED Large Screen displays
- Permaculture Garden Models
- 1 kW Wind Turbine

The Center for Island Sustainability leads change through outreach, hands-on demonstrations, and alternate energy models designed to instruct and inform students, and others in the public arena and the Micronesian Region, about critical challenges and opportunities our island communities

House #32 Model Home



Green Dream Competition participants from John F. Kennedy High School presenting their sustainability model during the 2017 Regional Conference on Island Sustainability at the Hyatt Regency Guam.

Grant-Funded Projects:

1. NSF INCLUDES Pilot: Growing STEM Engagement in Native Pacific Islander Communities
2. Guam Restoration of Watersheds (GROW) Initiative reduces land-based sources of pollution in improve the health of downstream coral reefs
3. Energy Analysis and Certification Team – Energy Auditing Program (USDA Rural Energy for America Program)
4. Phylogenetic Study of the *Serianthes* genus, with an emphasis on the recovery of *Serianthes nelsonii* (US Fish & Wildlife Service)
5. Tasi Beach Guides is a Community Education and Outreach Program supporting Guam's coral reefs.
6. Pacific Island Climate Science Center (PICSC) Support for the Coordination of Climate Change Strategic Science Research & Capacity Building in the US-Affiliated Pacific Islands
7. Pacific Islands Cooperative Ecosystems Studies Unit
 - Cetti Bay Watershed Monitoring
 - Vegetation Restoration for the Habitat Management Restoration Unit, Andersen Airforce Base
 - Biomonitor Support for Natural Resource Management Surveys
 - Conservation Management of the Mariana Eight Spot Butterfly
 - Plant Surveys

For more information contact:

Dr. Austin Shelton, Director

Tel: (671) 735-2142

shelton@triton.uog.edu



UNIVERSITY OF GUAM SCHOLARS AND RESEARCH CENTERS

UOG scholars and research centers provide consulting support as well as academic research and teaching. These are coordinated through each center and the Graduate Studies, Research and Sponsored Programs.

For more information, please contact the following research centers:

CEDDERS Tel: (671) 735-2481

1. Heidi San Nicolas, Ph.D. (Developmental Disabilities Education, Research and Service)

CIS Tel: (671) 735-2918

1. Austin Shelton, Ph.D., Executive Director
2. Else Demeulenaere, Associate Director
3. Maria Kottermair, M.S. (GIS Specialist)
4. Richard Randall (Professor Emeritus of Marine Biology)
5. John Peterson Director of Research & Sponsored Programs

College of Liberal Arts & Social Sciences

Tel: (671) 735-2850

1. Romina King, Ph.D. (Geography)
2. Iain Twaddle, Ph.D. (Clinical Psychology)
3. Todd Aames, Ph.D. (Sociology)
4. Angeline Aames, Ph.D. (Sociology)

College of Natural & Applied Sciences

Tel: (671) 735-2176

1. L. Robert Barber, Jr., Ph.D. (Agricultural Economics)
2. James R. Hollyer, M.S. (Agriculture & Resource Economics)
3. Hui Gong, Ph.D. (Aquaculture)
4. Rachael T. Leon Guerrero, Ph.D. (Nutrition)
5. George Curt Fielder, Ph.D. (Zoology)
6. Mohammed H. Golabi, Ph.D. (Soil Science)
7. Gena A. Rojas, M.P.A. (Community)
8. Jian Yang, Ph.D. (Food Science)
9. Robert L. Schlub, Ph.D. (Plant Pathology)
10. Alicia C. Aguon, Ph.D. (Mathematics)
11. Grazyna Badowski, Ph.D. (Mathematics)
12. Han-Tower Chen, M.S. (Mathematics)
13. Martin K. Debeer, M.S. (Mathematics)
14. Anatole F. Grishin, Ph.D. (Mathematics)
15. Aurora S. Trance, Ph.D. (Mathematics)
16. Zoltan Szekely, Ph.D. (Mathematics)
17. Peter Barcinas, M.S. (Community Systems)
18. Christopher J. Rivers, LTC, U.S. Army, M.A. (Military Science)

19. Frank Camacho, Ph.D. (Biology)
20. Subir Ghosh, Ph.D. (Biology)
21. Christopher S. Lobban, Ph.D. (Biology)
22. Katharine L. Lofdahl, Ph.D. (Biology)
23. Kathleen A. Moots, Ph.D. (Biology)
24. Laura Biggs, Ph.D. (Biology)
25. Wei Xiao, Ph.D. (Biology-Terrestrial Botany)
26. Daniel Lindstrom, Ph.D. (Zoology-Freshwater Biology)
27. George Curt Fielder, Ph.D. (Zoology)
28. Fenglien Lee, Ph.D. (Computer Science)
29. Carl T. Swanson, JR., Ph.D. (Computer Science)
30. Yousuo Joseph Zou, Ph.D. (Computer Science)
31. Mari Marutani, Ph.D. (Horticulture)
32. James McConnell Ph.D. (Horticulture)
33. Timothy L. Righetti, Ph.D. (Horticulture)
34. Naushadalli Suleman, Ph.D. (Chemistry)
35. Maika Vuki, Ph.D. (Chemistry)
36. Lee S. Yudin, Ph.D. (Entomology)
37. Ross Miller, Ph.D. (Entomology)
38. Aubrey Moore, Ph.D. (Entomology)

School of Nursing & Health Sciences

Tel: (671) 735-2650

1. Yvette Paulino, Ph.D. (Health Sciences)
2. Margaret Hattori-Uchima, Ph.D. (Nursing)

Office of Information Technology

Tel: (671) 735-2645

1. Rommel Hidalgo - Chief Information Officer

Marine Lab Tel: (671) 735-2176

1. Terry Donaldson, Ph.D. (Ichthyology-Behavior, Ecology, Biogeography, historical ecology, evolution, systematic, conservation biology, and fisheries biology of marine and insular freshwater fishes)
2. Jason S. Biggs, Ph.D. (Toxicology-Biochemical ecology and pharmacological potential of Venomous marine mollusks)
3. Peter Houk, Ph.D. (Spatial and temporal dynamics of coral-reef assemblages)

4. Alex Kerr, Ph.D. (Marine Biology-Evolution and Systematic of invertebrates)
5. Richard H. Randall, M.S. (Systematic of scleractinian corals)
6. Laurie Raymundo, Ph.D. (Marine Biology-Conservation biology and diseases of coral)
7. Tom Schilis, Ph.D. (Marine Biology-Biogeography and systematic of marine algae)
8. Bastian Bentlage - Co-Principal Investigator, Bioinformatics
9. Sarah Lemer - Senior Research Faculty (Genomics)
10. David Burdick - Repository Manager
11. Daniel Lindstrom - Associate Professor (Biology)
12. Atsushi Fujimura - Assistant Professor (Oceanography)

MARC Tel: (671) 735-2150

1. Dr. Monique C. Storie, Director
2. Dr. Donald Rubinstein, Professor Anthropology, Micronesian Studies Program
3. Omaira Brunal Perry, Associate Professor/Curator Spanish Documents Collection
4. Dr. Michael Carson, Cultural Preservation/Archaeology
5. Sinot Joey Franquez, Instructor, Chamorro Language and Culture (SOE)

WERI Tel: (671) 735-2685

1. Mark Lander, Ph.D. (Meteorology-Tropical meteorologist)
2. John Jenson, Ph.D. (Geology-Groundwater Geologist, GIS Specialist)
3. Gary Denton, Ph.D. (Marine Zoology-Aquatic Toxicology & Environmental Toxicology)
4. Joseph D. Rouse, Ph.D., P.E. (Civil Engineering- Wastewater engineer)
5. Yuming Wen, Ph.D., (GIS- GIS Specialist)
6. Yongsang (Barry) Kim, Ph. D. (Research Affiliate, Hydrology)