



CSREES Southwest States & Pacific Islands Regional Water Quality Program

Applying knowledge to improve water quality

The CSREES Southwest States and Pacific Islands Regional Water Quality Program works to improve water quality management through educational knowledge and extension programming that emerges from a research base. The program builds on the strengths of the Extension Water Quality Programs at the Land Grant Universities throughout the Southwest and Pacific Islands.

Regional Framework

The Southwest States and Pacific Islands Water Quality Coordination Project represents a diverse group of 1862 Land Grant Institutions from the four states, and six Pacific Islands within EPA Region 9. The Project promotes regional collaboration, technology-sharing, and research and education programs that promulgate the protection and conservation of water resources. In recognition of our region's diversity, we support regional coordination on both regional and subregional bases.

In our first two years we have added four Land Grant institutions to our original partnership; Palau Community College, the College of Micronesia, College of Marshall Islands, and Northern Marianas College. A regional website has been developed that provides public access to water quality information, resources and local water quality professionals. Through strategic planning and our regional needs assessment survey, A Survey of Public Attitudes, we defined four regional focus areas; Rural Environmental Protection, Water Conservation, Watershed Management, and Animal Waste Management. Collaboration in research and education is occurring at all organizational levels across our region. Regional capacity development programs, technology transfer, and the

Regional Themes

Rural Environmental Protection

- Drinking and Human Health
- Onsite Wastewater Management
- Small Community Wastewater Treatment
- Isolated Community Education (Pacific Subregion)

Water Conservation

- Agricultural Water Conservation
- Homeowner Conservation

Watershed Management

- Agricultural Nutrient Management

Animal Waste Management (Pacific Islands Subregion)

- Best Management Practices and Appropriate Technologies
- Small Producer Education

confidence derived from a team effort, have helped us to touch communities that have been without the benefit of professional assistance.

Regional Contacts

Regional Coordinator

Dr. Kitt Farrell-Poe

The University of Arizona
Yuma Agricultural Center
6425 W. 8th St.
Yuma, AZ 85364
kittfp@ag.arizona.edu

Pacific Islands Subregion

Dr. Carl Evensen

University of Hawaii
Dept. of Natural Resources and
Environmental Mgt
1910 East-West Rd.
Honolulu, HI 96822
evenson@hawaii.edu

In our region, we encounter fundamental quality of life issues such as availability of clean drinking water and appropriate sanitation practices. In these underserved areas, the Region 9 water quality Program subscribes to the USDA-CSREES principle "Access to safe drinking water, or information to acquire safe drinking water, is a basic right of every citizen."



Selected Regional Impacts



- **A Network of Water Quality Professionals** ~ We have established unprecedented communication among water quality professionals in a region that spans 8 time zones and crosses the International Dateline. Productive communication within our regional network of 10 Land Grant institutions and their partners provides for cost-effective sharing of technology and resources. Public access to our regional network of water quality programs, professionals, and resources is facilitated through our regional website <http://ag.arizona.edu/region9wq/>



- **Coordinated Response to Education Needs Hawaii, the Marshall Islands, and Palau** – Extension personnel are providing water quality education to individuals and communities who rely upon rainwater cisterns to collect their drinking water.

Hawaii, Northern Marianas, Guam, and American Samoa – Extension personnel are introducing Animal Waste Management Best Management Practices and appropriate technologies to swine farmers throughout the Pacific Basin.

Nevada and Arizona - Extension personnel provide professional development opportunities that address rural wastewater treatment and drinking water treatment.

California –The Center for Water Resources and Extension cooperators are conducting nitrogen management seminars in the nation's largest vegetable production areas.



- **Regional Needs Assessment A Survey of Public Attitudes**
Through a collaborative effort with Region 10, statistical analysis of public opinion was employed in the identification of regional focus areas. **A Survey of Public Attitudes** effectively communicates public perceptions and concerns to our region's program planners and decision-makers.



- **Developing Capacity in Community College Land Grants**
Our first regional workshop devoted specifically to professional development was conducted in July of 2004 in Hawaii. Our Hawaii workshop focused on statistical interpretation and analysis of the Regional Survey. Professional development figures significantly in each regional meeting. Extension personnel have received training in organizational communication, partnership building strategies, strategic planning, logic models, and reporting. Capacity development has proven to be instrumental in providing professional assistance to the underserved areas of our region.



Highlighted Regional Effort

An Alternative Waste Management System to Swine Operations for Water Pollution Control Programs in the American Pacific

Principal Investigator: A. Sabaldica, Ph.D. Northern Marianas College

Situation: Piggeries in the Pacific Islands are a significant contributor of nitrates and fecal contaminants in surface water, groundwater, and even coastal waters. Unmanaged piggery effluent threatens watershed and coastal ecosystems throughout Micronesia and American Samoa.

The swine effluent problem in the Pacific has two points of contention. One issue is education; local farmers aren't familiar with principles of contaminant transport or the potential health hazards posed by the effluent. The other issue is an economic one. An alternative system for waste management, if it is to be utilized, must be affordable.

Action: Land Grant Extension Researchers from the University of Hawaii and Northern Marianas College, in conjunction with USDA-CSREES cooperators and EPA, have been addressing both of these issues in a recent series of education workshops in the Northern Marianas. These workshops foster stewardship of water resources and introduce two affordable solutions for responsible waste management; a dry-litter system and a portable pen system.

Impact - Outcomes: Three workshops have provided education to roughly 100 participants so far, with some participants choosing immediate adoption of these alternative management techniques. Future workshops will advocate the economic advantage of utilizing the nutrient-rich "wastes" in on-farm crop programs.

Contacts

Northern Marianas College
Dr. Allan Sabaldica
Principal Investigator
Northern Marianas
Cooperative Extension
AllanS@nmcnet.edu

Lawrence Duponcheel
Northern Marianas
Water Quality Coordinator
lawontinian@vzpacifica.net

University of Hawaii
Glenn Fukumoto
Cooperative Extension Researcher
gfukumoto@hawaii.edu

Dr. Carl Evensen
Hawaii
Water Quality Coordinator
evensen@hawaii.edu

U.S. Environmental Protection Agency
Patricia Young
CNMI & Palau Program
young.patricia@epa.gov



The Challenge: Unmanaged effluent streams typical of the region. Unmanaged streams of this volume will inevitably find their way to surface waters and groundwater.



The Solution: Portable Pen and Dry-Litter Systems; affordable environmental stewardship



This farmer immediately adopted the dry litter system after attending a workshop in the Northern Mariana Islands. He commented that he was very happy with the system, witnessing immediate reductions in water use and visible effluent. He and his wife prepared the system over the course of 5 days during their free time.