

University of Puerto Rico Sea Grant College Program



Annual Progress Report

2003-
2004

**Annual Progress Report
University of Puerto Rico
Sea Grant College Program**

**November 1, 2003
to October 31, 2004**

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Introduction

This annual report presents the University of Puerto Rico key accomplishments for the period between November 1, 2003 and October 31, 2004. Accomplishments are presented according to three functional areas of the program: Program administration, marine outreach (including communications and education) and research. Within MOP, accomplishments are further identified according to thematic areas: water quality, seafood quality and safety, fisheries and mariculture, tourism and recreation, coastal hazards and coastal community economic development.

This year Dr. Manuel Valdés expressed his intention to step down as director after a nine year tenure. Dr. Aixa Rodríguez was appointed associate director in charge of the transition process. The search for a new director proved difficult given that the position of director was not a full time position and had been traditionally occupied by a faculty member with a course load reduction to assume the directorship with a monetary compensation. The National Sea Grant Office offered monetary help to transform the position of director into a full time position. Final negotiations between the University of Puerto Rico and the National Sea Grant Program were completed and Mr. Ruperto Chaparro who has been with Sea Grant for 17 years was appointed new director. He will officially assume his position on January 2, 2005.

A fulltime director represents a tremendous accomplishment for our program, because for the first time we will have a director who could give his undivided attention to UPR Sea Grant. Chaparro has worked as marine advisor, marine outreach program coordinator and associate director during his seventeen years with UPRSGCP. His is a natural transition into the highest position of the program which will guarantee continuity and stability. Finally, Mr. Chaparro is committed to the UPR Sea Grant vision and mission as presented in UPR Sea Grant Strategic Plan 2000-2010 in which he played a key role.

The following is a selected number of overall accomplishments for:

Program Administration

- Ruperto Chaparro was appointed director of UPR Sea Grant. For the first time in the history of our program this will be a fulltime position. He is scheduled to start in his new position January 2, 2005.
- In November 2003 doctor Aixa Rodríguez, UPR Sea Grant Communicator since 2002, was appointed Associate Director and she has been giving continuity to the program during the transition from the former director to the new one.
- Funding continues to be one of our limitations restricting the development of new initiatives. This year our staff has been active looking for additional sources of funding. Those funds are used by our program to develop activities, projects, publications and educational materials not included in our omnibus proposal. For 2003-2004 our staff of marine advisors, our communications and publications division and our director brought into the program a total of \$325,000 in funds. This amount represents an additional \$100,000 over the previous year.

- Our Marine Outreach Program (MOP) received \$240, 000 for 2004-2006, from U.S Fish and Wildlife Services to establish a UPR Sea Grant MOP Coastal Community Development project to develop an extension and capacity building program for the people of the island municipality of Vieques. This is a three year program.
- Our program received \$98,102 from the Puerto Rican Department of Natural and Environmental Resources for the extension project “Development of a Clean Marina Program in Puerto Rico” under the guidance of Dr. Ana Navarro. This on going project’s main objective is to create awareness about non point source pollution among resource users groups.
- Program Development Funds also known as seed money funds were used to support 19 projects. The amount of the awards varied from \$2,000 to \$5,050.
See Appendix A.
- In October 22, 2004 UPR Sea Grant Program had a very successful open house to inaugurate our new facilities at the Center for Research and Development. Program Officer Nikola Garber participated in the activities of the day.
- The open house received excellent media coverage by on campus as well as regional and national media.
- During Dr. Nikola Garber’s visit our research coordinator organized a series of presentations from principal investigators and researchers who received money for the 2002-2004 grant period.
- Doctor Yasmín Detréz was appointed Assistant to the Director in Program planning and development matters as of October 15, 2004. Dr. Detréz will be in charge of assisting the director in the development of program strategies for the short and long term.
- The communication and Publications division completed the manuscript and graphic design for the textbook “Puerto Rican Coral Reefs” to be printed in January 2005.
- “The future of coral reefs in Puerto Rico” research symposium organized by UPR Sea Grant as the main event for UPR-RUM Library Week. April 13, 2004.

Marine Outreach Program

The workshop Ciguatera Epidemiology and General Aspects was coordinated by Mrs. María Beatriz Riesco, UPRM Sea Food Safety Specialist for doctors and other emergency technicians from the Puerto Rico Department of Health.

Dr. Edgardo Ojeda coordinated the conference, Puerto Rico: Meeting a New Aquaculture Challenge.

Dr. Ana Navarro received funding from the Department of Natural and Environmental Resources (DNER) Coastal Zone Management Program to develop and implement a Non-Point Source Pollution Program in Puerto Rico.

Dr. Ana Navarro completed the project Household Practices for Non-Point Source Pollution Control in Río La Plata Watershed funded by the DNER.

Mrs. Sandra Lebrón, our Education Specialist developed a South East Center for Ocean Sciences Education Excellence (SECOSEE) project in Puerto Rico. One activity has already been successfully conducted and the second one is scheduled for January 2005.

Our agents participated in 37 TV and Radio Programs.

As part of our efforts to establish a continued education effort our agents benefited from the participation in 56 trainings on topics related to the conservation, management and education of our coastal and marine resources.

Our agents were requested to offer 151 presentations or talks in workshops, exhibitions, field trips, symposia, schools and other educational activities.

Aurelio Mercado our Coastal Hazards Specialist coordinated the National Science Foundation Caribbean Tsunami Workshop with co-sponsors: Puerto Rico Emergency Management Agency and the UPR Department of Marine Sciences.

Our Program was instrumental in the efforts to designate the Tres Palmas Marine Reserve in coordination with Surf Rider, the Municipal Government of Rincón and other NGO's of Puerto Rico.

The UPRSGCP was selected as a participant in the panel to select the beaches to be included in the European beach certification program Blue Flag. Four beaches were selected for this program which is expected to benefit the tourism industry.

MOP continued its participation in the selection process of the proposals submitted to the Ford Motor Company Environmental Awards. Seven NGO's were awarded a total of \$40,000.

Three thousand five hundred seventy two (3572) students, two hundred and ninety (290) teachers from sixty three (63) schools of 40 municipalities benefited from the workshops offered by Sea Grant's Marine Education Center.

Ms. Lesbia Montero, UPRSGCP Education Specialist was selected as WIDECAST Coordinator for Puerto Rico in the Caribbean Sea Turtle Monitoring and Conservation Program.

The Continental Beach Resort in Río Grande funded the Sea Grant publication Sea Turtle Conservation in Puerto Rico: A practice Guide for Coastal Communities and Beach Users.

More than 1,000 visitors benefited of the Beach Users Center developed by our Education Component in Luquillo's Monserrate Beach Park funded by the Puerto Rico National Park Company.

Communications and Publications

During this year the communications and publications division received \$45,000 in funds from local and federal agencies to develop educational and promotional materials. Among our partners is the Puerto Rican Office of NOAA's National Marine Fisheries Service for whom we developed fishing regulations booklets, full color handouts and educational posters. As of October 2004 the final manuscript and graphic design for the book "Los arrecifes de coral de Puerto Rico" otherwise known as "The Wonderful and frail life of coral reefs in Puerto Rico". A companion teacher's manual and interactive CR-ROM will be developed between November 2004 and January 2005. The final printing of the book is scheduled for late January 2005.

The following is a selected list of accomplishments from the Communication and Publications division of MOP:

- Implementation Plan 2004 - 2006 (English)
- Progress Report Biennium 2002-2004
- UPR Sea Grant Program Guide 2004-2006 (English)
- Prácticas sencillas para mejorar la disposición de aguas usadas en los sistemas sépticos residenciales (Simple measures to improve disposal of waste water in residential septic systems)
- Coordination of Caribbean Natural Resources Institute (CANARI) meeting November 6-7, 2003 Hotel Normandie in San Juan, Puerto Rico.
- "Finding Common ground between Marine Protected Area managers and fishing Communities workshop" sponsored by CANARI, Sea Grant and Negril Coral Reef Preservation Society, June 23-25, 2004 Negril, Jamaica
- Participation in CANARI' "Research Meeting" August 18-19, 2004, Trinidad-Tobago- to help develop communication strategy to disseminate research agenda throughout the Caribbean region
- Coordination of the re-print of Coral Ref. Poster with Department of Natural and Environmental Resources
- Developed an educational pin on endangered marine species: created a new pin with an image of a manatee. Previous pins included pelicans and sea turtles.
- Coordinated, organized and produced promotional materials for conference "Puerto Rico: Meeting a New Aquaculture Challenge", February 2004.
- Develop educational materials for Workshop for U.S. Virgin Islands Fishers: Partnership with NMFS.
- Produced T-shirts for "NSF Caribbean Tsunami Workshop", March 2004.

- Designed poster and program for the UPR-RUM Library Week, March 2004.
- Coordinated photo exposition “The work and culture of fishing” in collaboration with the Institute of Puerto Rican Culture and the House of Representatives of Puerto Rico. July 6-August 29, 2004.
- Produced materials for Talleres para pescadores Recreativos y Comerciales de Puerto Rico 2004 NMFS.
 - Diving Flyers
 - Booklet: Regulations for recreational
 - Handouts for comercial, recreational and ornamental fishersHojas informativas para pescadores comerciales
- Develop promotional material to be distributed as part of the UPR Sea Grant Open House in October
- Coordinated local television coverage of the open house as well as regional and national newspaper coverage. The university featured an article and a picture of the open house in its web page. La Gaceta, RUM’s newspaper also covered the event.

Research

Update of Recent Competitive Research

During the week of October 18-22, 2004, UPR Sea Grant received a visit from our program officer, Nikola Garber. As part of the activities, a series of presentations were arranged with PI's from grants ending and active during the period 2000-2004. Researchers presented reports on their project productivity (findings, student thesis, presentations and publications). Although these reports brought us up to date, they also established a baseline to put us on track for the 2006 program assessment.

Two meetings were held. One was at the Medical Sciences Campus (Wed., Oct 20) with PI's from the San Juan area and the other in Mayagüez (Thurs., Oct. 21) at the UPR R&D Center. At present Dr. Richard Nemeth is our only PI at the UVI. He, as UPR Sea Grant advisory services leader, met with Nikola Garber and Ruperto Chaparro and changed roles during the meeting to talk about his research projects.

Research Reprints and Reports

The following is a list of research reprints and reports produced by our researchers during 2003-2004.

PRU-R-03-(3) *Mycological survey of Río camuy Caves Park, Puerto Rico* by Angel M. Nieves-Rivera

PRU-R-03-(4) *Annual Migrations and spawning of Coenobita clypeatus (herbst) on Mona Island (Puerto Rico) and Notes on Inland Crustaceans* by Ángel M. Nieves-Rivera and Ernest H. Williams, Jr.

PRU-Q-03-(5) *Developing and Initiating a Coastal Compartment Management Plan in Puerto Rico* by David M. Bush

PRU-R-03-(6) *A survey of the epibiota of Eretmochelys imbricata (Testudines: Cheloniidae) of Mona Island, Puerto Rico* by Michelle T. Schärer

PRU-R-03-(7) *Taxonomy of the caribbean excavating sponge species complex Cliona caribbaea – C. Langae (Porifera, Hadromerida, Clonaidae)* by Sven Zea and Ernesto Weil

PRU-R-03-(8) *Benthic cyanobacterial, Microcoleus lyngbyaceus, blooms in shallow, inshore Puerto Rican Seagrass habitats, Caribbean sea* by Stefanie Stielow, David L. Ballantine

PRU-R-04-(1) *Juvenile coral population dynamics track rising seawater temperatures an a Caribbean reef* by Peter J. Edmunds

PRU-R-04-(2) *Size-Dependent differences in the Photophysiology of the Reef Coral Porites asterooides* by Peter J. Edmunds and Ruth D. Gates

Appendix A

Program Development 2003-2004

From the beginning of the University of Puerto Rico Sea Grant College Program (UPRSGCP) until now, seedmoney (program development) has been used as a quick response to research, outreach and to help resolve administrative problems, or needs that occur during the course of program activities. The first use of program development funds for seedmoney was in 1981. Since then, over 250 projects have been funded for amounts ranging from several hundred to five thousand dollars. The current requested project maximum is \$3,500. These funds have supported conferences, workshops, research presentations, and small research projects including student theses. For the most part, program development funds are used to support research related to local Puerto Rico/US Virgin Island marine resource utilization, student training and thesis work. However, a number of researchers from other US universities have used UPRSGCP funds to support their research in our waters. The funds have also been used to support the work of students from Puerto Rico enrolled at other US universities. Table 1 summarizes our support of small (PD) grants in 2003-2004.

During the above mentioned period, 19 projects have been approved using program development (PD) funds for a total of \$63,581. Among those 19 projects eight were students projects. Due to recent start dates 13 students are active and have theses pending.

Table 1. Student seedmoney support and thesis productivity (2003-2004)

| Last Name | Name | PD #'s | MPRD #'s | Thesis Title | Defense | Degree/Inst | Reports, presentations and publications |
|------------------|------------|--------|----------|--|-----------|---------------|---|
| Cepeda | Evelyn | 167 | | Induced Spawning Behavior and Larval Development of the Hard clam <i>Mercenaria mercenaria</i> (Linné 1758) in Puerto Rico | 6/12/2004 | PhD/UPRM-CIMA | |
| Villanueva Mayor | Violeta | 228 | | Orientation of Leatherback Turtle Hatchlings, <i>Dermochelys coriacea</i> (Vandelli, 1961), at Sandy point National Wildlife Refuge, US Virgin Islands | 2003 | MS/UPR-CIMA | |
| Lynett | Patrick J. | | 9 | A multi-layer approach to modeling generation, propagation, and interaction of water waves | 3/1/2003 | PhD/Cornell | |

Table 2. Seedmoney for March to October 2004

| | | | | |
|--|---|-------------|------|--------------|
| David Bush | Quantitive ranking of Geomorfic and Development ParametersControlling Hurricane Damage in PR | March, 2004 | 3000 | Just started |
| Sean P.Griffin | Comparison of Molecular Biomarkers Within and AcrossScleractinian Corals Exposed to Elevated Temperatures | March, 2004 | 3000 | Just started |
| Alfonso Aguilar-Perera, Richard Appeldoorn and Edgardo Ojeda | Reef Fish Spawning Aggregations of the Puerto Rican Shelf | March, 2004 | 3232 | Just started |
| Ana E. Perez-Matos and William Rosado | Bacterial Flora Associated With the Biomedically RelevantTunicate <i>Ecteinascidia turbinata</i> | March, 2004 | 3500 | Just started |
| Beltran Diana, Mejia Nazaria, and Morales-Nunez Andres G. | Preliminary Evaluation of the Environmental Impact(water and Sediments) of an open ocean cage culture with spiny lobster (<i>Panulirus Argus</i> , Latreille, 1804) in Rincon PR | March, 2004 | 3500 | Just started |
| Ramirez-Ochoa, Luisa F. and Otero Ernesto | Propagation and Establishment of <i>Avicennia germinans</i> Seedlings in the Disturbed Sub-tropical Coast of Jobos Bay, National Estuarine Research Reserve | March, 2004 | 3250 | Just started |

Table 2. Seedmoney for March to October 2004

| | | | | |
|------------------------------|---|-------------|------|--------------|
| Sandra Lebron | Eliminacion de Cu de los tejidos del bioindicador <i>Crassostera rhizophorae</i> (ostion de mangle) en ambientescosteros tropicales | March, 2004 | 3500 | |
| Manoj Shivlani | Ethnographic Interviews with Trap Fishers in the Caribbean | March, 2004 | 3800 | |
| Edwin Hernandez Delgado, PhD | Coral Reef Long-term Ecological Monitoring , Culebra PR(2004); Water Quality, benthic and fish communities | June, 2004 | 4600 | Just started |
| Nikolas Schizas, PhD | Cellular Mitochondrial and Microarray Probes as tools for Toxicity Assessment in the Flat Tree Oyster <i>Isognomon alatus</i> | June, 2004 | 3500 | Just started |
| Sandra Romano, PhD | Marine Freshwater Linkages: Community Composition and Diet of Estuarine Fish in Two Puerto Rican Estuaries | June, 2004 | 3499 | Just started |
| Katherine L. Smith | Marine Freshwater Linkages: Community Composition and Diet of Estuarine Fish in Two Puerto Rican Estuaries | June, 2004 | 2500 | Just started |
| Arturo Massol, PhD | BacterioPlankton community structure of Aquaculture Impacted Seawaters by Fluorescence in situ Hybridization | June, 2004 | 3500 | Just started |
| Michelle T. Scharer | Coral Reef Fish Assemblage and Habitat Connectivity for MPA Design Criteria | June, 2004 | 3400 | Just started |

Table 2. Seedmoney for March to October 2004

| | | | | |
|-----------------------|---|-----------------|------|--------------|
| Jennifer Carroll | Exploring Caribbean Sponges for New Pharmacological Leads | June, 2004 | 2000 | Just started |
| Samuel Garcia-Vazquez | Distribution and population density of exotic australian redclaw, <i>Cherax quadricarinatus</i> in Puerto Rico | Octubre, 2004 | 3500 | Just started |
| John Uscian, PhD | Fluorescence-based assessment of trypsin activity as a function of three development stages in cultured Cobia, <i>Rachycentron canadum</i> : A view towards Identifying Feeds that Promote High protein Production and are environmentally friendly | August, 2004 | 3500 | Just started |
| Bryan DeAngelis | Assessment of the Status of Shark populations and the Identification of Shark Nursery Habitat in the U.S. Virgin Islands | September, 2004 | 5000 | Just started |
| George Maul, PhD | Atlantic Tsunami Run-up Modeling | November, 2004 | 5050 | Just started |

Appendix B

Partnerships and Collaborating Institutions

This is a selection of our partner institutions with a description of our collaboration and/or the activities UPR Sea Grant has developed with or for them.

Caribbean Natural Resources Institute (CANARI), a regional environmental organization: (i) The organization and structuring of the communications' strategy for five coastal projects in St. Lucia, Trinidad, and Jamaica; (ii) Preparation of a case study for the Panos Institute on the Casa Pueblo project, for the conservation of the forest and watershed area of Adjuntas. Casa Pueblo is perhaps the most important conservation and co-management effort in Puerto Rico.

CANARI co-sponsorship of the "Finding common ground: workshop for marine protected area managers and fishers" held in Negril, Jamaica on June 23-25, 2004.

DNER: Our water quality specialist Dr. Ana Navarro is actively involved in the Commonwealth's Non Point Source Committee, and her intervention is already yielding important projects, adding funding to the program.

U.S. Fish and Wildlife Service: Design of a marine education program, and a co-management process to entice public participation in the conservation and sustainable use of the recently acquired lands and reserves (from the U.S. Navy) in the island municipality of Vieques. This assistance led to a proposal that has been funded for the next two years, and will be part of the core activities of the CCD initiative.

National Marine Fisheries Service / Caribbean Field Office, National Marine Fisheries Service / Caribbean Field Office, Habitat Conservation Division: Collaboration in the design and carrying out of a series of workshops for fishermen, on habitat conservation, throughout the island and in St. Thomas and St. Croix. Our program also collaborated in the logistics, preparation of posters, programs and other materials. Manuel Valdés Pizzini and Ruperto Chaparro participated in this process as part of the required expanded commitment in fisheries, by the NSGCP and Congress.

Collaboration with the International Institute of Tropical Forestry on the development of the Sustainable Forestry Project (November, 2003)

Collaboration with the Institute for the Communities. Approaches to Interdisciplinary Work (January, 2004).

Development of the area for the study of marine mammals in collaboration with Cetológica of Puerto Rico, as a new area of concern. Cetológica is an education and research organization established in 2002 to study marine mammals in Puerto Rico. UPR Sea Grant has a cooperative agreement with Cetológica to assist them in their research in Western Puerto Rico, and with the production of education material. Cetológica in turn, will offer training and workshops to Sea Grant staff and students regarding monitoring techniques used with marine mammals, and articles for our magazines on the same topic.

Support to NOAA / NMFS Profile of Fishing Communities in Puerto Rico (all year long).

Support to the Puerto Rico Conservation Trust effort to manage and protect the lands of the Roosevelt Roads Naval Station (Summer, 2004). UPRSG to be a partner.

Technical support to the Blue Flag Beaches Program. Report on the socio-economic characteristics of visitors. Tourism Development Company (Spring 2004).

Participation in the White Water to Blue Water Initiative. February, 2004.

Collaboration with the Center for Applied Social Research. Workshop on Writing Proposals for the faculty. (Spring 2004).

COSTAS (coasts, in Spanish): Capacity- building for Oceanic Sustainability via Training Aimed at Students. NOAA funds COSTAS through the Minority Serving Institutions' Environmental Entrepreneurship Program (EEP) and provides training, mentorship, and support to undergraduate students (Sociology, Biotechnology, Geography, and Marine Biology) from UPR-M, UPR-Rio Piedras, and UPR-Humacao. This is collaboration among UPR Sea Grant, The Center for Applied Social Research (CISA), the Center for Internet Enhanced Teaching, both at UPR-M, and the Puerto Rico Conservation Trust,

COSTAS Program collaboration with the Geography Department, in the Undergraduate Research Symposium (Spring 2004).

Collaboration with the PR Conservation Trust in an NSF proposal for a program on "Citizen Science" at the La Esperanza Reserve in Manatí. Sea Grant to be partner in the project. (Summer 2004).

Continued coordination of NMFS SEAMAP: Dr. Edgardo Ojeda, our fisheries specialist, coordinates this fisheries-independent monitoring program.

Appendix C

Publications and communication materials and activities

What follows is a detailed list of the Communications Publications component accomplishments.

Periodicals

Boletín Marino - Spanish language marine issues magazine

Boletín Marino October-December 2002. Conservación costera en Puerto Rico: desarrollo, educación, política pública y sustentabilidad (Coastal conservation in Puerto Rico: development, education, public policy and sustainability); Propuesta para Marina de Mayagüez (Proposal for a Marina at Mayagüez); Propuesta para el establecimiento de un Observatorio Marino en La Parguera, Puerto Rico (Proposal for the establishment of a Marine Observatory at La Parguera, Puerto Rico); Sentando las bases para el desarrollo acuícola en el sureste de Puerto Rico (Anchoring the bases for the development of aquaculture in Southeastern Puerto Rico); Taller sobre manejo de pesquerías de arrecife de coral en San Juan (Workshop on fisheries management of coral reefs in San Juan); Discuten ambigua definición de Zona Marítimo Terrestre (Discussion on the ambiguous definition of the Maritime Zone); Ponencia sobre el establecimiento de la “Ley de la ReservaNatural Marina Tres Palmas de Rincón” (Conference on the establishment of a Law that creates “a Natural Marine Reserve at “Tres Palmas de Rincón P.R.”).

Boletín Marino January-March 2003. 2003: Año Internacional del Agua Dulce; La Contaminación de las Aguas en Puerto Rico; capacitan a jefa(e)s de familia de la Cuenca del Río La Plata en el control de la contaminación del Agua; Jacques Cousteau y su Mundo Silencioso; Sea Grant traduce Guía de Maestros para educar sobre el agua.

Sea Grant in the Caribbean - English language newsletter

Sea Grant in the Caribbean July-September 2002. Caribbean Coral Disease: Charting the Course in Young Science – Part 1; Upland Sources of Marine Debris on the Shorelines of Puerto Rico; 7th Annual Virgin Islands Non Point Source Pollution Conference: Water quality depends on land use; EPA recognizes VIMAS-Sea Grant Marine Advisor.

Sea Grant in the Caribbean October-December 2002. Caribbean Coral Disease: Charting the Course in Young Science – Part 2; Puerto Rico at the Cutting Edge of Offshore Aquaculture; Successful Coral Reef Workshop in Puerto Rico; Glimpses of the Blue Caribbean: An Environmental Education Handbook for the Artist in All of Us; UPR Sea Grant and DNER Train Volunteers to Monitor Coral Reefs; Experts to discuss ambiguous maritime zone definition; Sea Grant Catalog.

Sea Grant in the Caribbean January-March 2003. The building blocks of coastal

conservation in Puerto Rico: Development, Education, Policies and Sustainability; The Impact of Unplanned Development on Puerto Rico's Coastal Areas; Caribbean Marine Protected Areas: What they are and how they are managed; Sea Grant catalog.

Publications

Books and Pamphlets

All publications are printed in Spanish unless otherwise specified.

Los Quitones de El Salvador

Los Quitones de Puerto Rico: in partnership with Cedar García and UPR Humacao

Up to date edition of "Guía Ambiental Para Puerto Rico" (Environmental guide for Puerto Rico)

Implementation Plan 2002 - 2004 (English)

Coral Reef Workshop Proceedings 2003(English)

Implementation Plan 2004 - 2006 (English)

Progress Report Biennium 2002-2004

UPR Sea Grant Program Guide 2004-2006 (English)

Prácticas sencillas para mejorar la disposición de aguas usadas en los sistemas sépticos residenciales (Simple practices to improve disposal of waste water in residential septic systems)

Research Reprints and Reports

PRU-R-03-(3) *Mycological survey of Río camuy Caves Park, Puerto Rico* by Angel M. Nieves-Rivera

PRU-R-03-(4) *Annual Migrations and spawning of Coenobita clypeatus (herbst) on Mona Island (Puerto Rico) and Notes on Inland Crustaceans* by Ángel M. Nieves-Rivera and Ernest H. Williams, Jr.

PRU-Q-03-(5) *Developing and Initiating a Coastal Compartment Management Plan in Puerto Rico* by David M. Bush

PRU-R-03-(6) *A survey of the epibiota of Eretmochelys imbricata (Testudines: Cheloniidae) of Mona Island, Puerto Rico* by Michelle T. Schärer

PRU-R-03-(7) *Taxonomy of the caribbean excavating sponge species complex Cliona caribbaea – C. Langae (Porifera, Hadromerida, Clonaidae)* by Sven Zea and Ernesto Weil

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|--------------|--|
| PRU-R-03-(8) | <i>Benthic cyanobacterial, <u>Microcoleus lyngbyaceus</u>, blooms in shallow, inshore Puerto Rican Seagrass habitats, Caribbean sea</i> by Stefanie Stielow, David L. Ballantine |
| PRU-R-04-(1) | <i>Juvenile coral population dynamics track rising seawater temperatures an a Caribbean reef</i> by Peter J. Edmunds |
| PRU-R-04-(2) | <i>Size-Dependent differences in the Photophysiology of the Reef Coral Porites astroides</i> by Peter J. Edmunds and Ruth D. Gates |

Brochures

Critical Aspects in Sea Food Quality and Safety Workshop 2003
 Fishermen Meeting 2003
 Fishing Regulations of Atlantic Sharks
 Prácticas sencillas para mejorar el funcionamiento de los sistemas sépticos (*Simple practices to improve disposal of waste water in residential septic systems*)

Posters

Poster: Coral Reef (Re-printing)

Marine Fact Sheets ("Datos Marinos ")

¿Qué es Sea Grant? (What is Sea Grant?)
 Up to date edition of ¿Qué es Sea Grant? (What is Sea Grant?)

Promotional materials:

- “Puerto Rico: Meeting a New Aquaculture Challenge”, February 2004.
 - Flyer, Maps, Program, Envelopes, Name tags, Notebooks, Handouts
 - Certificates
- Workshop for U.S. Virgin Islands Fishers: Partnership with NMFS.
 - Brochures, T-shirts
- NSF Caribbean Tsunami Workshop, March 2004.
 - T-shirts
- Library’s Week, March 2004.
 - Posters, Programs

Conferences and Workshops organized and sponsored by Sea Grant

Conferences:

- “Puerto Rico: Meting a New Aquaculture Challenge”, February 2004

Workshops:

- Background Note and Provisional Participants List for Coastal Zone Management Research Uptake Promotion Workshop, November 2003
- NSF Caribbean Tsunami Workshop, March 2004
- Prácticas sencillas para mejorar la disposición de aguas usadas en los sistemas sépticos residenciales, December 2004 (Simple practices to improve disposal of waste water in residential septic systems)

Activities, Fairs, Festivals and Exhibits

During the following events, UPR Sea Grant's Communications team offers free facts sheets, magazines and recipes as well as low-cost books and posters to the general public. We also inform the public of marine-related events and issues, and whenever necessary, refer inquiries to the appropriate marine advisors.

| | |
|----------------|--|
| September 2003 | Visit to Inmaculada Concepción Academy, Mayagüez/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| September 2003 | Visit to Dr. Carlos González, Aguada/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| September 2003 | Visit to Sagrado Corazón Collage-University Gardens, Río Piedras/Conferencia: Arrecifes de Coral (Conference: Coral Reefs) |
| September 2003 | Visit to Parcelas Vieques School, Loíza/Conferencia: Ecosistemas Marinos y Limpieza de Playas (Conference: Marine Ecosystems and Beach Cleaning) |
| October 2003 | Visit to Miradero II Elementary School, Mayagüez/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| October 2003 | Visit to Marcelino Rodríguez Román High School, Moca/Conferencia: Programa de Colegio Sea Grant (Conference: Sea Grant Collage Program) |
| October 2003 | Visit to 3ra Iglesia Presbiteriana, Mayagüez/Conferencia: Reciclaje (Conference: Recycling) |
| October 2003 | Visit to Sebastián Pabón Alves, Cabo Rojo/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| October 2003 | Visit to Pole Ojea Elementary School, Cabo Rojo/Conferencia: Animales Marinos en Peligro de Extinción (Conference: Endangered Marine Animals) |
| October 2003 | Visit to Refugio de Vida Silvestre/Voluntario Siembra de árboles (Volunteers: Trees planting) |
| October 2003 | Visit to Conrado Rodríguez Elementary School/Conferencia: Vida Marina/Peces (Conference: Marine life/fishes) |

| | |
|---------------|--|
| October 2003 | Visit to Mediania Alta Elementary School, Loíza/Conferencia: Basura Marina (Conference: Marine Debris) |
| October 2003 | Visit to Parcelas Vieques Elementary School, Loíza/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| October 2003 | Visit to La Milagrosa College, Mayagüez/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| November 2003 | Visit to Mediania Alta Elementary School, Loíza/Conferencia: Basura Marina (Conference: Marine Debris) |
| November 2003 | Visit to Felisa Gautier Middle School/Conferencia: Basura Marina (Conference: Marine Debris) |
| December 2003 | Visit to Escuela S.U. Botijas 1, Orocovis/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| December 2003 | Visit to Barinas School, Yauco/Conferencia: Reciclaje (Conference: Marine Debris and Recycling) |
| December 2003 | Visit to Miradero II Elementary School in Mayagüez/Conferencia: Basura Marina (Conference: Marine Debris) |
| January 2004 | Visit to SESO School in Mayagüez/Conferencia: Ecosistemas Marinos Conference: Marine Ecosystems |
| January 2004 | Visit to Interpretative Center, Salinas Cabo Rojo/Inauguración Centro Interpretativo (Inaguration of the Salinas Interpretative Center) |
| February 2004 | Visit to SESO School/Conferencia: Bosque Seco de Guánica, Salinas de Cabo Rojo y Contaminación (Conference: Guánica Dry Forest, Salt Flats and Pollution) |
| February 2004 | Visit to Esteban Rosado Báez School, Mayagüez/Evaluación Feria Científica (Science Fair Evaluation) |
| February 2004 | Visit to Luis Muñoz Rivera School, Yauco/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| February 2004 | Visit to Santísimo Rosario Collage, Yauco/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| February 2004 | Visit to Bartolomé Petrovitch School/Conferencia: Arrecifes de Coral (Conference: Coral Reef) |
| February 2004 | Visit to Eugenio María de Hostos High School, Mayagüez/Conferencia: Basura Marina (Conference: Marine Debris) |
| February 2004 | Visit to Urbana Nueva Elementary School, Lajas/Conferencia: Ballena Jorobada (Conference: Humpback Whale) |
| February 2004 | Visit to Ricardo Marty Font Elementary School, Lajas/Conferencia: Basura Marina (Conference: Marine Debris) |
| March 2004 | Visit to Campamento Exploradores Urbanos – Eugenio María de Hostos High School, Aguadilla/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| March 2004 | Visit to Pontificia Universidad Católica de Puerto Rico, Mayagüez/Evaluation of 11 scientific projects-Science Fair |
| March 2004 | Visit to S.U. Bartolomé Javier Petrovitch Elementary School, Cabo Rojo/Conferencia: El Manglar (Conference: Mangrove Ecosystems) |
| March 2004 | Visit to Carmen Casasús Martí Community School, Añasco/Conferencia: Animales marinos en peligro de extinction (Conference: Endangered Marine Animals) |
| March 2004 | Visit to Benito Medina Elementary School, Las Piedras/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |

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| March 2004 | Visit to Julio V. Guzmán Middle High School, San Germán/Conferencia: Especies marinas en peligro de extinción (Conference: Marine Engangered Species) |
| March 2004 | Visit to Eugenio María de Hostos Middle School, Cayey/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| March 2004 | Visit to CROEM School, Mayagüez/Conferencia: Ecosistemas Marinos (Conference: Marine Ecosystems) |
| March 2004 | Visit to Regional Bilingual Ramírez de Arellano-Hostos Middle School, Añasco/Conferencia: Ecosistemas Marinos y Especies Marinas en peligro de Extinción (Conference: Marine Ecosystems and Marine Endangered Species) |

Exhibits:

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| July 2004 | Exhibición sobre la pesca en el Instituto de Cultura (Photo exposition “The work and culture of fishing” in collaboration with the Puerto Rican cultura Institute and the House of Representatives of Puerto Rico. |
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Press Coverage and original articles reprinted in other publications

El Nuevo Día Newspaper

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| November 2, 2003 | Vigilantes de Mar y Tierra: Sea Grant y su compromiso ambiental (Ocean and Land stewards: Sea Grant and its environmental commitment). |
| January 17, 2004 | Voz para la coordinación en el manejo de aguas (Voice for the coordination of water management). |
| February 9, 2004 | Campaña organizada para defender el recurso costero (Campaign organized to defend coastal resources). |

Primera Hora Newspaper

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| January 27, 2004 | A discutir desarrollo de la región oeste (Development of the western region to be discussed). |
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El Vocero Newspaper

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| November 1, 2002 | Alertas ante proyecto AAA en el sur (Alert towards the ASA project in the South) |
| June 23, 2003 | Con visita se Cousteau: Culebra como meca ambiental (After Cousteau's visit, Culebra turns into an environmental mecca). |

La Estrella de Puerto Rico

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| February 12–8, 2004 | Menos tierra, más mar y sin política pública (Less land, more sea and lack of public policy). |
| Oct. 18-Nov. 3, 2004 | “Nueva instalación para Sea Grant” (New facilities for Sea Grant) |

Diálogo

March 2004 La contaminación circular de los cuerpos de agua (Circular pollution of water bodies).

La Gaceta Colegial

November 2004 Nueva casa para Sea Grant (New House for Sea Grant)

Appendix D

Research accomplishments

Two meetings were held during the week of October 18-22 UPR 2004, UPR Sea Grant received a visit from our program officer, Nikola Garber. One was at the Medical Sciences Campus (Wed., Oct 20) with PI's from the San Juan area and the other in Mayagüez (Thurs., Oct. 21) at the UPR R&D Center. At present Dr. Richard Nemeth is our only PI at the UVI. He, as UPR Sea Grant advisory services leader, met with Nikola and Ruperto Chaparro and changed roles during the meeting to talk about his research projects.

(see ProductivityallCompetitiveGrants1994on(withBarreto).xls posted on www.uprm.edu)

The San Juan meeting was hosted by Dr. Carlos Rodriguez at the main building for medical sciences (suite 486). The meeting started at 1:30 pm and went on till after 4:00pm. Present were;

Dr. Carlos Rodríguez
Dr. Miguel Sastre
Dr. Imar Mansilla-Rivera
Dr. Armando López-Tristani
Dr. Paul Bayman
Dr. Edwin Hernández-Delgado
Nikola Garber
Ruperto Chaparro
María Beatriz Riesco
Kurt Grove

Dr. Rodríguez summarized the productivity from an earlier grant with Dr. Braulio Jiménez; “Environmental Pollutants in Aquatic Organisms from the San Jose Lagoon 1998-2000” and reported along with Dr. Imar Mansilla-Rivera and Dr. Miguel Sastre on the Project “Heavy Metals and Biomarker Toxicity Assays in Jobos Bay National Estuarine Research Reserve”.

Dr. Edwin Hernandez, the Co PI, reported on the project “Effects of the Luis Pena Channel Marine Fishery Reserve in the Structure of Coral Reef Fish and Epibenthic Communities” representing the PI Dr. Alberto Sabat. This project partially supported the establishment of one of the first Marine Fishery Reserves (MFR) in Puerto Rico. The result of a longtime effort of the local community, the closure of the area to fishing has allowed wild fish stocks to improve. The project supported samplings which demonstrate significant recovery of reef fish populations.

Dr. Paul Bayman reported on the project Aspergillosis Disease of Sea Fans: Pathogens, Environment and Stress. This is a new project that started last march but has incorporated field work of Dr. Edwin Hernandez which adds continuity but the new project and older research. Presentations are being planned for several upcoming conferences.

Dr. Armando Lopez reported on the “Risk and Prevention of Dysbaric Osteonecrosis among Puerto Rican Seafood Divers”. Bone death is frequent in divers around Puerto Rico and education is expected to reduce the risk. The research findings from this project are being compiled into an educational package. Outreach and research activities are combined well in this project.

The second meeting was held at the Sea Grant conference room in Mayaguez. The meeting started at 10:30 am and continued until 3:00pm. Present were;

Julio Morell (PI)
Dr. Jorge Corredor (CoPI)
Dr. Juan González (PI)
Diana Marcela Beltrán (Student, Gilbes (PI))
Amarylis Anoato-Miranda (Student, Gilbes (PI))
Nazaria Mejia-Nino (Student, Gilbes (PI))
Dr. Patrick Rapp (PI)
Dr. Paul Yoshioka (PI)
Dr. Mildred Chaparro (PI)
Dr. John Kubaryk (CoPI)
Yaritza Fontanez-Barns (Student, Chaparro (PI))
Adlin R. Rodriguez Muñoz (Student, Chaparro (PI))
Dr. Juan C. Martínez-Cruzado (PI)
Dr. Ernesto Otero (PI)
Dr. Dallas Alston (PI)
Dr. Edgardo Ojeda-Serrano (UPRSG)
Dr. Aixa Rodríguez (UPRSG)
Ruperto Chaparro (UPRSG)
Sandra J. Lebrón (UPRSG)
Kurt Grove (UPRSG)

Julio Morell and Dr. Jorge Corredor presented an update on their project “Spatio-Temporal Reconstruction of Insular and Regional Climatic Oscillations in the Eastern Caribbean Using Fluorescent Coral Banding”. Publications are being prepared from the data of this project and will be ready shortly.

Dr. Juan González presented a brief summary of his project “Water Quality and Marine Ecosystem Health Indicators: Developments of Statistic Models for Integral Assessment”. The results of the project are being summarized in his final report and publications are being worked on.

Three students (Diana, Amarylis, and Nazaria) presented a summary of the project “Contaminant and Erosion Control Baseline Database for the Puerto Mosquito Watershed, Vieques, PR.”. The PI, Dr. Fernando Gilbes, is trying to show how coastal erosion is affecting the bioluminescence of Mosquito Bay. A significant element of this project was the purchase and use of innovative equipment “Glowtracka” from Chelsea Instruments. Not only did it take close to a year to get the equipment, it hasn’t been till recently that the equipment has been made to work. This equipment measures bioluminescence continuously through a towed sensor. It will also be used to ground truth light measured by satellite laser sensors.

Dr. Mildred Chaparro and Dr. John Kubaryk presented a summary of their project “To Determine the Microbiological Parameters that can be used to Classify Oyster and Clam Harvesting Waters and Develop Relaying or Purification Treatments from a Public Health Perspective.” Two of their students (Yaritza and Adlin) presented a poster at this meeting.

Dr. Juan Martínez Cruzado summarized the findings from the project “Mitochondrial DNA Analysis for Species Identification of Snappers (Pisces: Lutjanidae) from Caribbean Waters”.

The project finding were presented several years ago (2002) by his CoPI and student Aurea Rodriguez at the 5th Larval Biology Meeting held in Vigo Spain.

Although PI's with grants starting last March were invited, their presence wasn't required. Dr. Paul Yoshioka with project titled "Restoration of Gorgonian (Soft Coral) Populations" was present and talked a little about what he intended to do. Dr. Dallas Alston presented results of the extended an on going environmental evaluation of offshore mariculture, "Continuation with Reduced Sampling of Environmental Monitoring Research of Open Ocean Aquaculture in Culebra" and Dr. Ernesto Otero presented a summary of the proposed work on anti-fouling chemicals, "Island Wide (Puerto Rico) and U.S. and British Virgin Islands Distribution and Impact study of Triazine constituents in Anti-fouling paints on inshore marine communities, and the Development/Incorporation of Bioassays for Assessment of Marine Pollution".

Of the other grants awarded since 2000, PI's from the US mainland were absent and several local investigators had conflicts that couldn't be resolved. These included;

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| Zaidi, Baqar R., PhD | UPRM CIMA | Enumeration of Hydrocarbon Degrading Bacteria and Degrading Kinetics as indicators of Coastal Water Quality |
| Ortiz, Alida, PhD and Ortiz, Edgardo, PhD | UPRH Biol | Coastal and Marine Environmental education for Sustainable Development in the Caribbean region |
| Morelock, J., PhD | UPRM CIMA | Evaluation of the Effects of Sedimentation and Nutrients on Coral and the Long Term Monitoring of Recovery after Environmental Mediation |
| Mercado, Aurelio, MS | UPRM CIMA | GIS-based Coastal Flooding Mapping for Puerto Rico and the US Virgin Islands Using PC Arc/Info |
| Edmunds, Peter J., PhD | CSU Northridge | The Demographics of Changing Coral Community Structure in St. John, USVI. |
| Jansma, Pamela, PhD | UA Fayetteville | Strain Accumulation Along Offshore Faults of Puerto Rico and Implications for Tsunami Generation |

The work done by Dr. Zaidi was published and referenced as follows;

Zaidi, Baqar R., Lynne M. Hinkey, Nydia R. Rodríguez, Nadathur S. Govind, Syed H. Imam, 2003, Biodegradation of Toxic Chemicals in Guayanilla Bay, Puerto Rico. Marine Pollution Bulletin 46: 418-423.

The work by Dr. Jack Morelock who retired last May was published and referenced as;

Morelock, J., Wilson R. Ramirez, Andy W. Bruckner, Milton Carlo, 2001, Status of Coral Reefs, Southwest Puerto Rico. Caribbean Journal of Science Special Publication No. 4: <http://www.uprm.edu/biology/cjs/reefstatus.htm>.

Also published was the work by Peter Edmunds and has the following references;

Edmunds, Peter J., 2004, Juvenile coral population dynamics track rising seawater temperature on a Caribbean reef, Marine Ecology Progress Series, 269: 111-119

Edmunds, Peter J. and Ruth D. Gates, 2004, Size-dependent Differences in the Photophysiology of the Reef Coral *Porites astreoides*. Biol. Bull. 206: 61-64



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