

**Site Review Team's
Review of the
Puerto Rico Sea Grant College Program
March 15-16, 2011**

Nikola Garber

Nikola Garber, Chair, Federal Program Officer

3/16/2011

Date

G. Ross Heath

G. Ross Heath, Co-Chair, National Sea Grant Advisory Board

3/16/2011

Date



INTRODUCTION

The Site review team (SRT) review of the Puerto Rico Sea Grant (PRSG) College Program took place from March 15-16, 2011.

The SRT members included:

Dr. Nikola Garber, Chair NOAA Sea Grant Federal Program Officer Silver Spring, MD	Dr. G. Ross Heath, Co-Chair (Advisory Board) Dean and Professor Emeritus, University of Washington, WA
Dr. Jonathan Pennock New Hampshire Sea Grant Director Durham, New Hampshire	Judith Gray Acting Deputy Assistant Administrator, NOAA Research Silver Spring, MD
Dr. Joshua Brown, Observer NOAA Sea Grant Silver Spring, MD	

Prior to the beginning of the SRT visit, and in conformance with National Sea Grant Office and College Program guidelines, the PRSG issued a public notice of the upcoming SRT visit by inviting interested parties to send written comments to the SRT Chair. The public notice was distributed by means of email and by notice on the PRSG website. The SRT Chair received 38 letters in response to the public notice from: personnel at Universities on and off island; Federal agencies including NOAA, NASA, and FEMA; industry; private sector; non-governmental organizations; and Commonwealth and municipality departments/agencies in Puerto Rico and the Virgin Islands. Most of the letters were highly supportive of the PR SG Program. A few letters raised ideas, which were covered in the course of the review.

The SRT review took place at the University of Puerto Rico Mayagüez Campus (UPRM), Business Administration Building.

During the review, the SRT met with stakeholders, university administrators, researchers, Advisory Council members, PRSG staff including numerous students, and the PRSG management staff (see Appendix A for a complete listing of guests).

The report of the SRT follows the guidelines of the Site Review Team Procedures Manual. The SRT reviewed and discussed broad issues related to the PRSG Program's: 1) Organization and Management of the Program; 2) Stakeholder Engagement; and 3) Collaborative Network Activities. Within each of these areas, the SRT report presents the findings and suggestions. The SRT did not have any recommendations.

I. ORGANIZING AND MANAGING THE PROGRAM

The experienced leadership of Ruperto Chaparro and Manuel Valdés-Pizzini, with the strong support of the Acting Chancellor (Dr. Jorge Rivera Santos) and Acting Director of the Research and Development Center (RDC; Dr. Walter Silva) at the University of Puerto Rico, Mayagüez has created an energetic and enthusiastic Sea Grant Program that is deeply embedded in all aspects of coastal management and is appreciated throughout the Commonwealth. The close collaboration of all members of the Sea Grant team (extending from the Director to the most junior student assistant) has allowed PRSG to respond in a coordinated and constructive way to needs and opportunities that span the full range of Sea Grant responsibilities. These range from productive and high quality research programs that are well connected to user areas of interest and concern, to the development of tools to facilitate response to natural disasters (such as tsunamis and hurricane-related storm surge) to educational programs that impact all age groups and have influenced the flow of students into marine-related degree programs.

It is clear that PRSG has made enormous contributions to the recognition of and solutions for coastal issues that have faced and continue to face the Commonwealth of Puerto Rico. We suspect that neither the PRSG program, nor the University, nor the Commonwealth is fully aware of the extent of these contributions.

Suggestion: It may be worthwhile for the program to assemble an annotated list of such contributions to help explain PRSG's value to both its supporters and to those involved in determining its budget allocations.

The PRSG receives support from the Research and Development Center, as well as from many other sources. This has allowed PRSG to provide the required match for the Federal award. Unlike many state Sea Grant programs, however, PRSG does not receive a direct appropriation from the Legislature, which would provide a level of financial stability that is currently missing.

We strongly urge the Commonwealth to provide such an appropriation at a level of at least \$500,000 per year to enable the PRSG Program to continue and enhance its outstanding work.

The SRT was impressed at PRSG's comprehensive and constructive response to the recommendations of the 2006 Performance Assessment Team's review of the program. We believe that the issues raised have been addressed and the PRSG has adapted well to the new planning and assessment strategy adopted by the national SG program. We will follow, with interest, the development of the new strategic and implementation plans under this strategy. The involvement and enthusiasm of the new Senior Advisory Council and the steady turnover of PIs of research programs bodes well for the future vitality of the research program, as does the greatly increased output of peer reviewed papers since the 2006 PAT review.

The procedures followed in developing and managing the solicitation for research proposals and the review and selection of these proposals are in full compliance with NSGO requirements. The inclusion of resource managers in the development of research proposals, suggested in the current RFP, is an innovative experiment with the potential to facilitate the transfer of research results to first-tier users of these results.

The SRT congratulates the PRSG program on the breadth, and quality of its program, and its forward-thinking response to new opportunities provided by Federal and Commonwealth initiatives in areas such as marine protected areas, climate change research and education, and disaster preparedness.

II. STAKEHOLDER ENGAGEMENT

The PRSG has an exceptionally strong extension/advisory program that benefits from the effective and long-standing leadership of the Director, Ruperto Chaparro, and Associate Director and Marine Outreach Program Director, Manuel Valdés-Pizzini. The extension/advisory program is integrally connected to the PRSG Communications program and collectively they form a diverse engagement program.

Extension/Advisory Services: The SRT was impressed with the degree to which extension activities are fully and effectively integrated into the culture of PRSG. The PRSG Senior Advisory Council is actively engaged in developing priorities for the program at all levels and clearly has a strong commitment to ‘applied science’ and extension outreach to the stakeholders. PRSG extension capabilities and expertise are strong in the areas of coastal communities, hazard resilience and coastal ecosystem health, the key focus areas for the program. Extension personnel are located at different facilities both on Puerto Rico and in the Virgin Islands leading to strong connections with local stakeholders. The Communications program is superior and an important and effective part of extension/advisory activities. The SRT was particularly impressed with the degree to which high school, undergraduate and graduate students from different disciplines (e.g. English translation, illustration, graphic design, photography, etc.) enrich the extension and communications program under the mentorship of PRSG leadership and staff.

The extension efforts of PRSG have been enhanced significantly by partnership with TV Producer, Maria Falcón, who, through her GeoAmbiente program has a 10-year relationship with PRSG, with whom she has produced many of her 235 TV programs addressing coastal and environmental issues.

Relevance: PRSG is clearly the ‘go-to’ entity for stakeholders in the coastal management community in the Commonwealth, particularly as a result of strong program leadership and the success of the Extension/Advisory program in extending results addressing critical issues facing the coastal environment. While it is clear that PRSG partners with numerous Federal and Commonwealth agencies, local governments and non-governmental organizations, the SRT was

particularly impressed with the degree to which PRSG was viewed as the leader and ‘first stop’ for high priority management issues. The SRT feels this is a role that PRSG plays as effectively as any program in the Sea Grant network (partially as a result of the political structure of the Commonwealth), and that this role is essential to the fragile coastal policy and management structure in Puerto Rico.

As noted above, the SRT was particularly impressed with the role the communications program plays in conveying information to the general public. As noted by many SRT guests, the stories/information disseminated in Spanish through publications and the news media play a particularly important role in Puerto Rico. As a result of their extension/communications effort, PRSG is very effective in educating the public about the most important issues facing the coastal communities and ecosystems of Puerto Rico.

Relationships: PRSG is clearly engaged with the management and stakeholder communities and, in fact, appears to have to play a role in management beyond that of most Sea Grant programs as a result of weak coastal environmental practices. The SRT was impressed by leveraged partnerships between PRSG and numerous partners including, in particular, the US Fish & Wildlife Service, Environmental Protection Agency, NOAA, and the Puerto Rico Department of Natural and Environmental Resources. Representatives from these agencies all provided valuable examples of the role PRSG extension has played as a link with stakeholder communities throughout the Commonwealth. The SRT was particularly impressed to learn that many of these agencies have chosen to use PRSG to carry out their stakeholder engagement. This has been achieved through one-on-one interactions (particularly with the Director), stakeholder forums, and regional meetings. It is clear to the SRT these partnerships are deep and significant.

PRSG Extension has also developed and initiated several important educational programs including: (1) the Sandwatch Program, which engages stakeholders in monitoring for sand/beach change, a significant limited (and over exploited) resource on the island; and (2) the Blue Flag Program that provides beachgoers with current information on Beach Water Quality (a significant challenge in coastal waters). PRSG Extension has also partnered with the G-Works, Inc. (a local NGO) to develop a Summer Scientific Institute for High School Students from the mountains of Puerto Rico, training them on the impacts of watershed contamination and development on coastal waters.

In regards to stakeholder engagement, PRSG has been an information broker from both: (1) the government and educators to the communities and (2) the communities to the government and educators.

III. COLLABORATIVE NETWORK/NOAA ACTIVITIES

Time and again, we heard from the stakeholders that PRSG is an honest broker, providing good science, regional education, and expertise. PRSG follows the mission and vision of the National Sea Grant College Program and is committed to the conservation of Puerto Rico’s natural

resources. The PRSG program has established a respected name for Sea Grant in the Caribbean. Via PRSG's collaboration with other management agencies in Puerto Rico, the Sea Grant mission and vision is incorporated into the approaches of these other agencies.

The leadership of PRSG has been in place for many years and we imagine that the strong capability resident within PRSG to build coalitions could also benefit the entire Sea Grant network. PRSG is open to increasing their communications and collaborations with other Sea Grant programs and the National office. PRSG has worked with Florida Sea Grant to develop a joint proposal on Lionfish and is currently working with Hawaii Sea Grant to identify joint issues given their similar geographic and climatic characters. As money has gotten tighter, however, the opportunities for in-person collaboration have decreased; the travel costs for a small and distant program are simply too high. As the current focus areas mature, we hope PRSG will have opportunities to increase collaborations. The SRT also noted that the quality, accessibility, and bilingual nature of PRSG's outreach and education materials could be especially beneficial to those Sea Grant programs in states with large Spanish-speaking populations.

Puerto Rico Sea Grant's participation and leadership in regional activities in the Caribbean are extremely strong. They are connected and leading in a wide variety of scientific areas. PRSG has played a leadership role in setting the research agenda on marine and ecosystem science in the region. While the region is technically PR & USVI, PRSG looks at the Caribbean region as a whole as it is connected and dealing with the same issues. This assists in leveraging opportunities and lessons learned. The regional research and information planning activity has resulted in a true regional assessment of needs.

With respect to assistance to other NOAA and Federal programs in Puerto Rico, Puerto Rico Sea Grant shines! As the SRT heard from numerous guests, other NOAA programs are known in Puerto Rico primarily for their regulatory activities, whereas PRSG is known as an honest broker for its neutral provision of environmental expertise. Thus, PRSG helps to improve the reputation of NOAA in Puerto Rico. Below are examples of PRSG's interaction with NOAA and other Federal Agencies:

- The Caribbean Fisheries Management Council (CFMC) works closely with PRSG and when appropriate PRSG is their education arm via funds from CFMC. For example, PRSG is helping to describe concepts like "catch shares" to the public. Knowledge is a two-way street, especially for fisheries, and PRSG does a commendable job facilitating this discussion.
- PRSG and CariCOOS collaborate closely. PRSG works as the experts to engage stakeholders in CariCOOS and identify the observing needs, CariCOOS deploys the assets, and PRSG then takes the data and information to the stakeholders to train them in how to use it.
- PRSG is working with NOAA in the Carolinas and is very interested in CIFlow, to couple river models to inundation models. This was an outgrowth of their participation in a SECART (NOAA's SouthEast and Caribbean Regional Team) meeting.
- EPA has done capacity building through PRSG to reach municipalities, NGOs, construction companies, and communities regarding water quality.
- At the request and funding of the US Fish and Wildlife Service, PRSG has conducted manager-specific focus groups with the people of Vieques. These were fundamental and critical to advancing how Vieques' is addressing environmental issues. As the SRT

heard, PRSG brought a neutral educational perspective to the discussion. The result was the development of “leaders” and “technicians” in the community who could interact effectively with the wildlife refuge.

- PRSG helped to organize the first roundtable in PR on climate change in 2004. They continue to support forums on climate change. They are also working with university, communities, and schools to improve education on climate change. This effort is now being extended to the rest of the Caribbean, through COHEMIS, capitalizing on PRSG’s presence in every issue related to the ocean. COHEMIS is funded by UPR to operate and to collaborate around the Caribbean.

In summary, the SRT found PRSG to be a household name in Puerto Rico and the US Virgin Islands. As one guest stated, “If you are a student at UPR and do not know SG, you are living under a rock.” That is how relevant PRSG is to UPR.

IV. FINDINGS, RECOMMENDATIONS, and SUGGESTIONS

Findings

- PRSG is a household name in Puerto Rico and the US Virgin Islands
- PRSG utilizes students heavily throughout their program from working on a project to actually leading numerous efforts including the communications program, IT infrastructure, translations, and artwork and design.
- The close collaboration of all members of the Sea Grant team (extending from the Director to the most junior student assistant) has allowed PRSG to respond in a coordinated and constructive way to needs and opportunities that span the full range of Sea Grant responsibilities.
- The extension/advisory program is integrally connected to the PRSG Communications program and collectively they form a diverse engagement program.
- Both Federal and Commonwealth Agencies have chosen to use PRSG to carry out their stakeholder engagement.
- PRSG helps to improve the reputation of NOAA in Puerto Rico.

Recommendations

- None

Suggestions (ideas the Program may want to consider)

- It may be worthwhile for the program to assemble an annotated list of its contributions to help explain PRSG’s value to both its supporters and to those involved in determining its budget allocations.

V. BEST MANAGEMENT PRACTICES

Like many other SG programs, PRSG works with numerous students. The difference is that PRSG utilizes students heavily throughout their program from working on a project to actually leading numerous efforts including the communications program, IT infrastructure, translations, and artwork and design. The close mentoring provided by the PRSG staff helps the students mature as students and citizens, as well as become proficient at their professional activities.

As well, PRSG has accomplished so much with a limited budget through its commitment to provide seed money to start activities and leverage funds from other sources to build the activities into full research programs and resource management programs. For example, the Disaster Decision Support Tool (many GIS layers with physical, geographical, and social data layers) was started with PRSG funds and was then funded by NSF and others. It is now in the process of moving from research to operational for all of PR and is available to anyone on-line. New inundation maps for tsunamis and storm surge will be added, as will the upcoming 2010 Census data. While funding for the next several years is from the National Tsunami Inundation Program, PRSG started the creation of the infrastructure and interest for this tool in Puerto Rico.

Appendix A

Puerto Rico Sea Grant College Program

Site Visit Agenda

March 15

- 8:00-8:15 AM **Welcome to the University of Puerto Rico Mayagüez Campus**
(UPRM): Dr. Jorge Rivera Santos, Acting Chancellor UPRM, Dr. Walter Silva, Acting Director, Research and Development Center; Dr. Henry H. Smith, Vice Provost, Research and Public Service, University of Virgin Islands
- 8:15-8:45AM **Program Overview of Puerto Rico Sea Grant (PRSG):** Ruperto Chaparro, MA, Director; Yulissa García, MBA, Administrative Officer; Lesbia Montero, BMS, Education Coordinator; Dr. Manuel Valdés-Pizzini, Associate Director/Marine Outreach Program Director (MOP); Dr. Kurt Grove, Research Coordinator; Dr. Henry H. Smith, Vice Provost, Research and Public Service, University of Virgin Islands
- 8:45-9:00Am **Break**
- 9:00-10:30AM **Engagement of Stakeholders in Program Development, Service and Stewardship:** Dr. Manuel Valdés Pizzini, PhD, MOP Director PRSG/ Professor Interdisciplinary Center for Coastal Studies (CIEL)/UPRM
- Guests:** José Rafols, Marine Recreation Industry; Paúco Font, Commercial Fisherman; Miguel Rolón, Executive Director, Caribbean Fisheries Management Council (CFMC); Rina Hauptfeld, NOAA Fellow; Albert Morales, Board Member, Tres Palmas Marine Reserve; Miguel Acarón, Arquitect, Municipality of Mayagüez
- 10:30-10:45 **Break**
- 10:45-12:15 **Operations of the PRSG Senior Advisory Council**
- Guests:** María Falcón, TV Producer; Miguel Rolón, Executive Director, CFMC; Fernando Silva, Director, Institute for Conservation Sciences; Dr. Juan Gerardo González, Adjunct Professor, UPRM; José Rafols, Marine Recreation

Industry

12:15-1:30PM **Lunch: Open Discussion with PRSG Leadership Team and Senior Advisory Council Members**

1:30-2:00PM **Break**

2:00-3:30PM **Recruiting and Mentoring Ocean Stewards: Perpetuating the Manuel Hernández Ávila Legacy**

Guests: Cristina Olán, Communications Coordinator/MA Candidate, Department of Hispanic Studies; Jorge Casillas, Education Specialist/MS Candidate, Department of Marine Sciences; Daniel Irizarri, Scientific Illustrator/BA Candidate Department of Humanities; Alexis Rivera, Scientific Illustrator/BA Candidate Department of Humanities; Enrique Bird, Computer Specialist/BA Candidate, Computer Information Systems; Dr. Michelle Schärer, Researcher CIEL; Krystina Scott, Research Assistant/ BS Department of Geology; Berliz Morales, Research Assistant/MS Marine and Limnology Sciences, University of Costa Rica; Omar Ortiz, Video Editor/MA Atlantic College; Jasmine Seda, Research Associate/PhD Candidate, Department of Marine Sciences; Odette Ortiz, Translator/MA Candidate Department of English; César Del Valle, Trainee/Dr. Pedro Perea Fajardo High School; Miguel Figueroa, Trainee/Dr. Pedro Perea Fajardo High School; Dr. Robert Mayer, Professor Marine Biology, UPR Aguadilla (PR SG Senior Advisory Council)

3:30-5:00PM **Advancing Ocean Literacy and Capacity Building: Guardarenas/Sandwatch, National Strategy for Environmental Education (ENEA), Coastal Training Project, Resilient Coastal Communities, Sea Grant Education Component**

Guests: Dr. Álida Ortiz, Professor, Department of Environmental Sciences Metropolitan University; Sergio Bosque, Regional Storm Water Coordinator, Caribbean Environmental Division EPA; Edwin Más, Plant Materials Specialist, Natural Resources Conservation Services; Estela López, Coastal Community Leader; Mike Barandiaran, US Fish and Wildlife Service, Vieques Wildlife Refuge; Elliette D. Hernández, Teacher Antilles Military Academy; Gretchen Guzmán, Representative of G-Work an Environmental Education NGO; and students Angélica Medina Lara and Yashyra Cruz Rodríguez from G-Work.

5:00-5:30PM **Wrap up for the day with Program Management**

5:30PM **Travel to Hotel**

March 16

8:00-10:15AM **One Step Ahead: Leading Research Efforts**

Guests: Dr. Walter Díaz, Professor/Researcher, Department of Social Sciences, UPRM; Dr. Ernesto Otero, Professor/Researcher, Department of Marine Sciences, UPR Mayagüez; Dr. Alberto Sabat, Professor/ Researcher, UPR Río Piedras; Dr. Richard Appledoorn, Professor/Researcher, UPR Mayagüez

- 10:15-10:30AM **Break**
- 10:30-11:00AM **Climate Change Initiative: Coastal Hazards, Resilient Communities**
- Guests:** Aurelio Mercado, Director, Coastal Hazards Center; Dr. Fernando Gilbes, Director, Department of Geology UPRM/Center for Hemispherical Cooperation in Research and Education in Engineering and Applied Science (COHEMIS); Julio Morell, Director, Caribbean Regional Association (CaRA, IOOS) Miguel Canals, Professor Coastal Engineering, UPR, Mayagüez.
- 11:00-11:45AM **Closed Session: University Administrators**
- Guests:** Dr. Nilsa Velázquez, representing Dr. Jorge Rivera Santos, Acting Chancellor, UPRM; Dr. Walter Silva, Director, Research and Development Center, UPRM
- 11:45-12:00PM **Discussion with Management**
- 12:00-4:00PM **Visiting Team – Discussion and Writing**
- 4:00-5:00PM **Site Visit Team Report to Program Management**
- 5:00PM **Site Visit PRSG Concluded**