

# **Strategic Plan**

## **Coastal Training Program**

**Jobos Bay National Estuarine Research Reserve  
Department of Natural and Environmental  
Resources  
Commonwealth of Puerto Rico**

**CTP Advisory Committee**

**Jobos Bay National Estuarine Research Reserve**

**Puerto Rico Coastal Zone Management Program, Department of  
Natural and Environmental Resources**

**Bureau of Coasts, Reserves and Refuges, Department of Natural and  
Environmental Resources**

**The University of Puerto Rico Sea Grant College Program**

**April 2003**



## **Jobos Bay CTP Training Strengths**

The Jobos Bay National Estuarine Research Reserve (JBNERR), originally known as the Jobos Bay National Estuarine Sanctuary (JBNES), was designated in September 1981 by agreement between the Commonwealth of Puerto Rico Department of Natural Resources (DNR) and the National Oceanic and Atmospheric Administration (NOAA). Designation established Jobos Bay as the eleventh site in the National Estuarine Research Reserve System, as defined in Section 315 of the Coastal Zone Management Act of 1972 (CZMA), as amended.

Jobos Bay is the second largest estuarine area in Puerto Rico, with three times as much shoreline as any other estuarine zone on the Island. The Bay has a total surface area of 11 square kilometers and depths of up to 8 meters. The Reserve comprises an area of 2,800 acres located at the west end of Jobos Bay, while the Aguirre State Forest (total area, 2,393 acres) borders the north shore and the east end of the Bay. With this designation, Puerto Rico reaffirmed its commitment to develop an estuarine research, and education program, preserving valuable coastal mangrove forests and associated habitats for the benefit of the general public and ensuring their long-term availability as natural field laboratories to provide information for coastal decision-making.<sup>1</sup>

The National Estuarine Research Reserve System (NERRS) from the National Oceanic and Atmospheric Administration (NOAA) has developed a Coastal Training Program for the development of a comprehensive training and capacity building program for resource management professionals, decision makers, and community organizations, among others. The main goal of the CTP is to improve the decision-making process related to coastal resources management at local and regional levels.

The inventory of capacity building activities and training activities suggest that most of the training services related to coastal issues are either provided by university programs or by the DNER, and the Federal and Commonwealth agencies. In those thematic areas considered as relevant by the providers and the experts consulted, JBNERR was already assessed as a key provider of training activities. Thus, the development of a CTP will enhance the potential of JBNERR in the field of coastal capacity building.

The process of developing a CTP is well entrenched into the work plan of the Jobos Bay (JBNERR), since under NERRS each Reserve may develop an education and interpretation plan tailored to its site and region, and to its region's educational system. The Jobos Bay CTP also enhances one of NERRS' goals: to "design and implement a comprehensive program of education and interpretation based on solid scientific

---

<sup>1</sup> Information excerpted from JBNERR's Management Plan, 2000.

principles to strengthen the understanding, appreciation, and stewardship of estuaries, coastal habitats, and associated watersheds.”<sup>2</sup>

The JBNERR has developed over the years a scope of work that reaches communities throughout the Commonwealth of Puerto Rico, and the reserve has a heuristic value for coastal decision makers throughout the archipelago. JBNERR is also an important research and learning center for forest and protected area managers from the Department of Natural and Environmental Resources.

However, except for few exceptions (such as Sea Grant and Cooperative Extension Service activities) and continued education courses provided by private and public universities, most of the supply of information and education for coastal decision makers regarding coastal resources management issues consist of formal courses under academic programs exclusively geared toward a degree. A good portion of the supply is in the form of symposia and conferences that target some of the key issues identified in the Market Analysis and Needs Assessment Reports, but that do not necessarily constitute a formal training activity.

That is a weakness of the supply side, since most coastal decision makers, and potential target audiences prefer short courses that address their interests and deficiencies. Universities seldom provide those courses, and the topics are presented in the form of debates and conferences; not necessarily in the form of short training courses with clear pedagogical objectives.

Such weakness also features a major opportunity in partnership between the CTP and the universities. Universities in the Commonwealth of Puerto Rico have the expertise, infrastructure, and research and teaching experience in many of the topics listed in the Market Analysis and the Needs Assessment. Thus, programs such as Sea Grant, the UPR-Río Piedras Geography Department, the Environmental Sciences Department (at UPR-Piedras) and School (at UMET), Inter-American University Center for Environmental Education (CECIA), and others could join forces with the JBNERR in developing courses.

In fact, JBNERR strategy for capacity building over the past four years has relied on partnerships with academic institutions, and private consultants and NGO to provide training and increase the capabilities of their staff, communities, clientele, and DNER staff on critical issues related to coastal and wetlands management. JBNERR, as well as other NOAA sponsored programs such as Sea Grant, are more flexible and responsive to the needs of the clientele, by designing and implementing training courses that are needed, without the trappings of semester-long courses.

In assessing the needs of the coastal decision makers and other relevant and potential clientel ,our team was able to identify various thematic areas of critical importance (refer

---

<sup>2</sup> Government of Puerto Rico, Management Plan for the Jobos Bay National Estuarine Research Reserve, December 29, 2000.

to Needs Assessment Report). We are using Table 23 (from Market Analysis Report) with the heuristic value of comparing the thematic areas or “fields” in demand, with the supply by key institutions and programs. Most of the courses and training activities were not in the same class as those recommended (in terms of the precise title, and the form and shape of the activity: i.e. workshops, conferences). However, the comparison provides an idea of the capacity building role that JBNERR has played over the years, the products supplied by its competitors (or better yet, potential partners), and the major gaps and opportunities. A quick look at Table 1 shows that most of the courses, workshops and activities held by JBNERR have addressed the key thematic areas needed by coastal decision makers over the last four years. (Not shown is the thematic area of ecotourism development: a fundamental need of the Jobos Bay estuary, and one area to which the administration of the reserve has invested time and effort in capacity building. The most clear opportunities for the CTP, according to this table, are in the fields of: Land Use Planning, Wetlands and Watershed Protection, Environmental Legislation, GIS Technology, Urban Sprawl, and Beach Management.

**Table 1**

<b>Top Topics for Coastal Decision Makers</b>	<b>JBNERR</b>	<b>UMET</b>	<b>DNER</b>	<b>Sea Grant</b>	<b>NGO</b>	<b>Federal</b>	<b>UPR</b>	<b>IAU</b>
Land Use Planning	X	X						
Coastal Zone Management	X	X	X	X				
Wetlands and Watershed Protection	X		X					
Beach Management				X				
Integrated Coastal Zone Management		X	X					
Environmental Legislation	X							
DNER Laws and Regulations			X	X		X		
GIS Technology	X						X	
Habitat Restoration	X					X		X
Endangered and Threatened Species						X		X
Wetland Ecology and Restoration	X	X			X		X	
Urban Sprawl		X					X	
Sustainable Use of Coastal Resources	X	X	X	X	X			

## **Mission, Vision, and Objectives of the JBNERR Coastal Training Program**

Based on the examination of the results and recommendations of the Market Analysis and the Needs Assessment, the Advisory Committee of the JBNERR Coastal Training Program engaged in a planning process that yielded the Strategic Plan, and the Market Plan for the program. The mission, vision, goal, and objectives of the CTP are the result of those discussions that integrated the data from the aforementioned documents, the commitment and future investments of the main partners, and a reflection on JBNERR's Management Plan.

### **Mission**

*The mission of the CTP is to improve coastal resource management at local and regional levels in the Commonwealth of Puerto Rico through the use of education and capacity building.*

### **Vision**

*The vision of the CTP is to become an essential provider of the appropriate training required for coastal decision makers to effectively and sustainably manage the coastal and estuarine areas in Puerto Rico and to improve the general awareness of environmental issues concerning the Island and its people. This vision requires the increased and effective collaboration and partnerships among existing organizations devoted to capacity building in this area.*

### **Goal**

*Our goal is to improve the overall understanding of coastal decision makers (law makers, government officials, upper and middle management of government agencies, key stakeholders, and volunteer advocacy groups) on a set of critical and key thematic areas (Land Use Planning, Environmental Legislation, Wetlands and Watershed Protection, Integrated Coastal Zone Management, and Sustainable Use of Coastal Resources), through improved education and capacity building.*

**Objectives:**

The objectives of the CTP over the next three years are to:

1. Provide opportunities for continuous training for coastal managers, decision-makers and volunteer advocacy groups of the Commonwealth of Puerto Rico through the use of existing facilities and resources provided by the partners of the CTP, under the leadership of JBNERR.
2. Develop partnerships with a number of key programs and institutions in the Commonwealth to enhance the training capabilities of the CTP.
3. Provide coastal managers with education and capacity building opportunities, on the variety of technical and non-technical fields necessary for effective management of coastal and estuarine areas.
4. Provide relevant and appropriate training activities (workshops, conferences, laboratory and field activities, professional development and web-based activities) to educate and train coastal decision-makers.
5. Properly inform coastal decision makers of current issues pertaining to the coastal and estuarine areas of the Island, allowing for more informed choices to be made concerning these resources.

These objectives are the core of the Strategic Plan, which will guide our efforts for the next three years.

**Current Partnerships and Commitments**

Current partners of the CTP of the JBNERR are the members of the Advisory Committee: The Department of Natural and Environmental Resources (Puerto Rico Coastal Zone Management Program and the Bureau of Coasts, Reserves, and Refuges) and the University of Puerto Rico Sea Grant College Program. These organizations have committed their human and fiscal resources to engage in the training activities of the CTP, jointly with the staff of the JBNERR.

*Coastal Zone Management Program* will collaborate with staff and expertise in the areas and training activities related to Non Point Source Pollution and Cumulative Impacts to Coastal Ecosystems, and serve as liaison between other partners with expertise in Coastal Management and Water Quality issues.

*Bureau of Coasts, Reserves, and Refuges* will coordinate participation of managers and staff from the agency with training activities pertaining to the Coral Reef Initiative as part of our training activities on Wetlands and Watershed Protection, and Coastal Zone Management.

*The University of Puerto Rico Sea Grant College Program* will collaborate with the design and implementation of training activities, through the funding and staff of the Coastal Community Development project (for 2003-2004), and the Marine Outreach Program, (for 2004-2006). Sea Grant will provide its expertise in Beach Management, Water Quality in Watersheds, and Sustainable Uses of Coastal Resources.

## **Potential Partners**

The CTP Advisory Committee identified a number of potential partners from the current partners of JBNERR, and those providers of coastal training identified in the Market Analysis and the Needs Assessment Reports. Based on that information, and the key thematic areas identified in these documents, the Advisory Committee identified the following potential partners:

1. Water Resources Institute from the UPR-Mayagüez. (Añasco River and Mayagüez Bay Watershed Program)
2. Inter-American University of Puerto Rico, Center for Environmental Education (CECIA).
3. Metropolitan University (UMET), Fundación Ana G. Méndez, School of Environmental Sciences.
4. Center for Hemispheric Cooperation (CoHemis) from UPR-Mayagüez.
5. Agricultural Extension Service, from UPR-Mayagüez.
6. College of Agricultural Sciences, UPR-Mayagüez.
7. San Juan Bay Estuary Program (Environmental Protection Agency)
8. Environmental NGO (Fundación Martí Coll).
9. Natural Resources Conservation Service (U.S. Department of Agriculture).

## **Preferred Training Delivery Methods**

The following table summarizes preferred training results obtained from the Market Analysis and Needs Assessment Reports. The majority of the groups consulted in the study, selected workshops, laboratory/field activities, and conferences as the training methods of choice. Another training method with a high preference was professional development, but this applies only to certain professional groups and not all groups consulted could benefit from this training. More than half of the groups consulted agreed that Web-based activities are an asset as a training tool.

	Workshops	Conferences	Professional Development	Lab / Field	Continued Education	Career Training	Distance Learning	Credit Courses	Web-based	Camps	Correspondence	In Service Training	Retreats
<b>Jobs Focus Group</b>	X	X		X									
<b>Experts Consulted</b>	X		X	X					X				
<b>Local Communities</b>	X			X									
<b>Stakeholders</b>	X	X	X	X	X				X				
<b>Potential Clientele</b>	X	X	X	X	X								
<b>Focus Groups</b>	X	X							X				
<b>Providers</b>	X	X	X	X	X				X				

### Key Coastal Issues

Despite their differences, there are similarities and areas of interest that all the groups consulted share. In order to visualize the differences and similarities, we constructed a table with the main thematic areas of interest that the groups identified as needs. The following table interprets and summarizes the data on the thematic needs presented the Needs Assessment Report:

	Planning	Sustainable	ICZM	Water	Waste	Pollution	Disasters	Regulations	Law	Conservation	Wetlands
Jobs Focus Group	X	X	X	X	X	X	X				
Experts Consulted	X	X	X	X			X				
Local Communities	X	X		X	X	X	X			X	
Stakeholders	X	X						X	X	X	X
Potential Clientele	X		X						X	X	X
Focus Groups		X	X			X		X	X		X

Almost all groups consulted in the study indicated that the most important thematic areas, for the development of a capacity building program were: (1) “Land use planning”, (2) “Sustainable uses of the coast”, and (3) “Integrated Coastal Zone Management”. These

were followed in their list of priorities by (4) “Laws and regulations” and (5) The “conservation” and “protection” of coastal areas, wetlands, and watersheds.

The local community has specific needs arising from their own socioeconomic, environmental and regional characteristics, namely: (i) Vulnerability to natural disasters, poverty, (ii) vulnerability to disasters caused by human actions (flooding due to development and construction in the middle of waterways), (iii) waste disposal and management (presence of waste management companies in the region, and difficulties with the disposal of tires), and (iv) contamination due to industrial development, thermo-electrical generation plants, and agriculture. In tending the needs of the local communities, the CTP must take these into consideration when designing training and capacity building activities.

Again, regardless of the minor differences among the various groups consulted for this study, there is a core of thematic areas that were considered as critical for the CTP. The following bullets underscore those major areas of interest that incorporate a number of topics and issues identified, according to their priority, by the experts and coastal decision makers consulted, as critical and needed for capacity building.

1. ***Land use planning:*** throughout this study, and specifically in the focus groups, our experts clearly identified the patterns of land utilization, and the planning process (or lack thereof) as a critical problem in the coastal areas.
2. ***Sustainable use of coastal resources:*** Sustainable development remains as one of the critical challenges for resource users and managers in Puerto Rico. While plenty has been said about sustainability, little is known in terms of practical applications and the design and implementation of sustainable practices in the coastal zone. This topic area is also linked to land use planning, policies and legislation, ICZM, habitat restoration, and urban sprawl. Although it permeates other areas, it does deserve special attention and emphasis, due to the critical role of sustainability in conservation and use, and its place in the mission of NOAA.
3. ***Integrated Coastal Zone Management:*** Not surprisingly, the ICZM was selected as one of the key topics for the workshops. This topic area is structurally linked to: watershed protection, land use planning and the monitoring of forest resources (and forest cover), which was in itself a highly rated topic. Beach management was also highly rated, but we consider that it is an essential component of the thematic areas under the ICZM.
4. ***Environmental legislation:*** there is an urgent need to understand the legal framework that determines the patterns of land use, and the conservation of coastal and marine resources. Throughout this study, the expert consulted as well as the potential clientele indicated that there is a need for gaining knowledge of environmental regulations, Commonwealth and federal regulations and the laws and regulations of the DNER.

5. ***Wetlands and watershed protection:*** protection and conservation of the coastal zone requires a holistic and regional approach that incorporates coastal ecosystems and the natural and anthropogenic processes in the watershed areas. This topic was constantly underscored throughout our study, as well as the need for an integrated approach to these topics.

The Coastal Training Program of JBNERR could safely choose any of the thematic areas described above to start the capacity building program, since each was identified as a critical need.

### **Audiences Targeted by the CTP**

Based on the information provided by the Market Analysis and the Needs Assessment, the JBNERR Advisory Committee identified the appropriate audiences to be targeted by the CTP over the next three years. These are:

- *Key decision makers:* Commonwealth and municipal law makers, and the upper and middle management from government conservation agencies.
- *Key stakeholders' groups:* farmers, engineers and contractors, and the local communities.
- *Staff from government agencies:* directly involved with coastal and estuarine resources.
- *Volunteer advocacy groups:* resource users.

### **Tools and Techniques for Evaluating the CTP:**

- A continuous assessment of the training and education needs of the coastal decision-makers through short standardized questionnaires at the end of each “workshop”.
- Determine number of training hours (participants multiplied by length of training).
- Determine number of participants.
- Determine % of participants highly satisfied with content of training and delivery methods used.

- Number of coastal decision makers who request additional training information or materials.
- Assessing the effectiveness of our training through written evaluations by people attending the workshops, conferences, laboratories, field activities, on the advertisement methods, venue, human resources, topics, and other relevant activities.
- Determine number of participants who would recommend this training to a peer.
- Determine % of participants that self-report an increase in understanding or ability relevant to topics covered by the training.
- Determine % of participants who self-report the intent to use the information presented at the training event (do follow up six months later).
- Determine % of participants who self-report the intent to collaborate with new partners contacted through the CTP (follow up six months later).
- Assessing the implementation of the objectives of the capacity building activities and programs (changes in knowledge, in practices, outreach, research) through a detailed and structured assessment program. The CTP Advisory Committee identified the Planning and Evaluation Office of the Agricultural Extension Service as a potential partner for the evaluation process.
- Use of the JBNERR-CTP website as an important assessment and evaluation tool.
- JBNERR CTP annual progress reports of internal and external evaluations

## **Time Line**

### **Year 1:**

- Emphasis will be placed on conducting between 3-5 workshops. Subject material will focus mainly on key thematic areas.
- The development of the JBNERR- CTP website is already underway and will have the basic tools for the continuous assessment of needs (the capability for conducting on-line surveys and evaluations of the program and activities), and for contacting and informing partners, coastal decision makers and potential clientele of the activities of the program. This early investment will reduce the cost of the process of information dissemination, and the marketing of the program for the next three years.

- Produce a brochure, jointly with the current partners, detailing the goals and objectives of the program, website, training activities, and services available. The brochure will be distributed by mail, and electronically to Commonwealth and Federal government agencies, municipalities, newspapers, Senate and House of Representatives, and potential partners.

**Year 2:**

- Continue providing workshops and training to coastal decision makers.
- Conduct a workshop with potential partners to promote the program, to entice collaborative efforts, to identify funding sources, and to identify potential joint ventures in relation to the key thematic areas identified for training. This meeting will be held by the beginning of year two, when the program is in full thrust.
- Conduct a short workshop with members of media to promote the program, to disseminate information on the CTP, JBNERR, the threats and opportunities to the conservation of estuarine areas, and the key coastal issues identified for training.
- Continue with the development and enhancement of the CTP website capabilities for (a) the establishment of a database of providers, partners, audiences, (b) assess the current needs of the coastal decision makers through short, on-line surveys, and (c) informing the general public and the targeted audiences on the program's goals and objectives, active partners, training opportunities, links with other programs, and training opportunities from other providers.
- To develop a continuous assessment program of the CTP activities related to the marketing plan.
- Establish, with the collaboration of the current and potential partners, an evaluation program based on the continuous assessment of the needs of the target audiences, the use of the website for on-line evaluation surveys, and the evaluation of activities and marketing strategies through the assessment of the participants' opinions.
- Engage in the assessment of the effectiveness of our training activities, and market strategies through evaluation forms provided to the attendees to the activities.

**Year 3:**

- Continue with training and workshops

- To firmly establish a web presence with information on academic and non-academic programs, training opportunities, references, human resources, links to relevant sites, and the capability of informing the general public on the CTP, and provide on-line courses and training activities for the coastal decision makers.
- To use the CTP website as a place to provide services and training, through Internet Courses, on-line registration for courses, and information access capabilities.
- Assessment of the effectiveness of the CTP partners, measured by the increase in the interest and participation of the targeted audience in training and workshops, in other activities and services provided by the CTP, and through their implementation of learned skills and capacity building in agencies and other sectors of the CTP target audience.