

Final Report of the Project: Developing a Socio-economic Monitoring Agenda for Marine Protected Areas in Puerto Rico: Application of the SOCMON Protocol

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Introduction

The main goal of this project was to raise awareness of the human dimension of MPA management and to foster a greater understanding of the need for sound research on socioeconomic indicators. It aimed to improve the capacity of management leaders to address socioeconomic trends and incorporate human dimensions data for improved conservation management.

The key objectives of the project were, to: (1) Enhance the capacity of MPA managers in Puerto Rico to plan, manage, and evaluate the success of MPAs and build stakeholder support through participatory research and civic engagement; (2) Facilitate the development of networks among MPA managers in the U.S. and abroad for the collection and use of comparable data on human dimensions; (3) Develop teams to engage in a SocMon data collection and analysis process for five marine reserves in Puerto Rico; (4) Disseminate the information among all the stakeholders, and (5) Integrate the SocMon data into the management of the reserves.

The original project proposed taking the following operational and methodological steps: (1) Selection of SocMon Teams for each Marine Reserve, (2) Preparatory Activities: identification of stakeholders, identification of objectives and parameters for each reserve, (3) Reconnaissance and planning: secondary data collection, a cursory survey of the communities and the planning of the process, (4) Field data Collection: field observations, focus groups, interviews and surveys of resource users, (5) Data Analysis, (6) Report Writing, (7) Presentation of Results in the Community, (8) Design and Implementation of a Workshop for the Incorporation of Results into Management, and (9) Publication and Dissemination of Results

The plan was ambitious, however, the budget was reduced, and therefore, the activities reorganized and the scope of the project simplified. The following MPAs were originally selected for the SocMon process: Jobos Bay National Estuarine Research Reserve, Mona Island Natural Reserve, Tortuguero Lagoon Natural Reserve, Boquerón Wildlife Refuge and the Mosquito Bay (Vieques) Natural Reserve. For logistic and budget reasons we dropped the Mona Island Natural Reserve.

Most of our effort was devoted to the data collection and analysis process, and the writing of the reports. Our team will continue with the outreach component in the upcoming months, disseminating the results of the project. Since we were able to collaborate and work with the MPA managers from day one, they have been active in the SocMon process, and incorporating the information into their management activities. That is perhaps, the most important accomplishment of the project.

Accomplishments of the project

The following is a summary of the project's most important accomplishments:

- a. The project incorporated the resource management and their staff in the process of design and implementation of SocMon, as well as in the preparation of the reports: Lillian Ramírez (Coastal Training Program Coordinator for JBNERR), Idelfonso Ruíz (Manager, Boquerón Refuge), Eileen Ortíz (Manager, Tortuguero), Edgardo Belardo (Manager, Vieques), and Robert Matos, Director of the Division of Reserves and Refuges of the DNER.
- b. The SocMon Team (including the managers) engaged a number of communities into the data gathering process in Tortuguero, Jobos Bay and Boquerón.
- c. Two graduate students in environmental planning participated in the project and produced master's thesis on management strategies, tourism and recreational opportunities, and economic potential at Tortuguero and Jobos Bay.
- d. SocMon data and results were used to expand the socioeconomic monitoring activities at Jobos Bay and Boquerón.
- e. The Boquerón Wildlife Refuge (now, the Iris Alameda Wildlife Refuge), jointly with CIEL and the Center for Applied Social Research (CISA) from UPR-Mayagüez, expanded its social research agenda with surveys and focus groups with hunters. Currently, the refuge is implementing the Conservation Area Planning (CAP) process from The Nature Conservancy, through the incorporation of stakeholders in the identification of conservation targets, threats and strategies. These activities, sparked by SocMon will lead to the development of an in-house management plan.
- f. SocMon data has been incorporated into the Jobos Bay Management Plan.
- g. At Tortuguero Natural Reserve, the manager was able to make changes in the implementation of management strategies and actions, based on the information provided by the SocMon process.

Overall, there is a cultural change leading to Adaptive Management at the DNER, as per the incorporation of socioeconomic information by managers and the collaboration with stakeholders and communities. In synthesis, SocMon incorporated stakeholders in a dialogue with managers on MPA, the methodology contributed to the identification of critical management issues and potential solutions, and more important, it empowered managers through the knowledge of social and economic processes at their sites

- h. The project trained resource managers, undergraduate and graduate students on the SocMon methodology. The following graduate and undergraduate students were trained and participated in the process: Luis Cintrón, Yahaira Hernández, Gema Adrover, Fabían Chaparro, Jenny Maldonado, Krystina Scott, Cristina Canals, Sofia Espinel, Eilis Bracero, and Juliann Rosado.

- i. Preliminary results of the project, and a workshop on the application of the SocMon Methodology were presented at the Caribbean Coral Reef Task Force Meeting (<http://coralreef.gov/>) held in October 31, 2009. The workshop was coordinated by Manuel Valdés Pizzini (CIEL) and Christy Loper (NOAA). The presentations of the workshop can be downloaded at the following address and link: <http://www.box.net/shared/sdr9qrrxlo>
- j. There are two potential spin-offs of the SocMon project, requested by two local NGOs working with two coastal lagoons: (i) San José Lagoon in the north coast (Institute for Conservation Sciences and the community of Cantera), and (ii) Las Cucharas Lagoon (a natural reserve) in the municipality of Ponce, in the south coast.
- k. The SocMon project is providing material for other publications, such as *Cuentan las memorias de Don Rufi: Historias oral de los cambios en los usos de terreno del Barrio Boquerón* (an oral history account of resource use in Boquerón, a CIEL Working Paper, 2010) by Rosemarie Vásquez and Gema Adrover.
- l. The results of the SocMon, proper, are found in the reports for each marine and coastal protected area. Finalized reports for Boquerón and Tortuguero are available. Drafts of the reports for Vieques (65% completion) and Jobos Bays (35% completion) are also available for review. Our team will continue to review all the reports. All the reports may be downloaded from the following site: <http://www.box.net/shared/4m6l9t0caa>

The following sections of the report consist of a compilation of the activities and accomplishments by each report period.

The SocMon activities for the period of July 1, 2007 to March 30, 2008

1. Project funding was received in October of 2007. Account was open at the Research and Development Center of UPR late that month.
2. Final selection of Marine Reserves for the SocMon Exercise: Tortuguero Reserve, Jobos Bay (NERRS), Mosquito Bay in Vieques, Boquerón Wildlife Refuge and Mona Island. November, 2007.
3. Coordination meeting of CIEL staff (Manuel Valdés Pizzini, Marielba Rivera and Carlos Carrero) to develop the work plan. January 16, 2008.
4. Atlas.ti (qualitative methodology) workshop for faculty and students of CIEL and Social Sciences. February 23, 2004.
5. The team of SocMon's Research Assistants was selected through interviews with students in Mayaguez and Cayey. Four new students were recruited (Geology, Engineering, Humanities, and Marine Sciences majors.) February and March 2008.
6. Coordination meeting with CIEL (Manuel Valdés Pizzini, Marielba Rivera and Carlos Carrero), NOAA(Christie Loper) and the Department of Natural and Environmental Resources (Robert Matos, Director of Reserves and Refuges). February 4, 2008
7. Workshop for the research assistants on the SocMon methodology. Number of participants / research assistants: 12 (four new and eight CIEL students). Resources: Manuel Valdés Pizzini, Marielba Rivera, Carlos Carrero and Carlos García Quijano (from UPR Cayey, in charge of the Jobos Bay Reserve effort). March 1, 2008.
8. Identification of secondary sources and data for the SocMon effort: Census data, Shapefiles for census tracts, blocks and groups, and sequences of aerial photographs for each reserve. March 2008.

SocMon activities for the period of April 1, 2008 to March 31, 2009

This section of the final report summarizes the tasks and accomplishments of the SocMon Project from April 2008 to March 2009. In general terms, the tasks performed were as following:

1. Development of a template for the SocMon reports, serving as a guide for the data gathering and the presentation of standardized reports for each MPA.
2. Training of new students (research assistants) recruited for the project: 3 graduate and 4 undergraduate from three universities.
3. The incorporation of Dr. Carlos García Quijano to the field research and supervisory activities at the Jobos Bay NERR.
4. A Ph.D. candidate in history is working on the historical background of the reserves.
5. Trip for CIEL staff to Laguna Tortuguero & Boquerón Refuge on June 2008.
6. Data mining at the libraries of the University of Puerto Rico, Mayaguez and Río Piedras Campus, August, 2008 on the social and demographic processes at the MPA.
7. Workshop to the Boquerón Wildlife Refuge and the Jobos Bay staff on the theory and practice of social science research and analysis, under SocMon. August 19, 2008.
8. Data tabulation of visitors' log book from the Tortuguero and Boquerón reserves.
9. Secondary data mining for the Mosquito Bay and Mona Island reserves.
10. The SocMon team, jointly with the Center for Applied Social Research, and the DNER designed a proposal to gather data on the hunting activities at the Boquerón Wildlife Refuge. The proposal was approved, and the SocMon team gathered data on the hunting activities at the reserve through field observations, interviews (a census of hunters), and focus groups. The data collected will enhance the Boquerón report.
11. Field observations and interviews at the Boquerón (not related to the hunting project), Tortuguero and Jobos Bay reserves.
12. Trip for CIEL staff to Laguna Tortuguero & Boquerón Refuge on June 2008.
13. Data mining at the libraries of the University of Puerto Rico, Mayaguez and Río Piedras Campus, August, 2008.
14. Methodologies of Social Investigation and Data analysis for the staff of Boquerón Refuge & the JBNERR, August 19, 2008.

15. Data tabulation of books of visitors of the reserves of Tortuguero and Boquerón, September, 2008.
16. Meeting with Carlos García Quijano and the staff for JBNERR SocMon, January, 2009.
17. Interviews and observation trips in JBNRR, February and March.

The SocMon activities for the period of April, 2009 to December, 2009

This section of the report summarizes the activities and accomplishments of the SocMon Project from April 2008 to March 2009. For this period, the tasks carried out by our team were the following:

1. We continued with the collection of secondary data for the Tortuguero Lagoon Natural Reserve. Also it was begun to transcribe the data of the observations and interviews. Furthermore, we began to transfer the data into figures, and started the preparation of maps for the final document.
2. Our team participated in the First Symposium on Bioluminescence in Puerto Rico, held at the island-municipality of Vieques. During our visit, we engaged in interviews and made additional contacts with the stakeholders of the Mosquito Bay Reserve, such as the Vieques Conservation and Historical Trust and the local fishers. At CIEL we continue with the data mining of secondary data for Vieques.
3. Historical data (19th century maps and descriptions drawn and written by Spanish military personnel) was examined for all the sites. The information is available in digital form in the following document: *Documentación de Puerto Rico en el Archivo Cartográfico y de Estudios Geográficos del Centro Geográfico del Ejército*. Publicación del Centro Geográfico del Ejército de Tierra, 2007, Madrid. Mapas e itinerarios digitalizados.
4. The hunting season for water fowl at the Iris L. Alameda Martínez Wildlife Refuge started in December, 2009. Our team continued gathering information from hunters using an interview schedule. The hunting season ended in January, 2010. Also, our team finalized the interview process with users and visitors of the refuge. Furthermore, oral histories with residents of the nearby communities were done. Maps and graphs became of the data for the final document of the refuge. The first draft of the SocMon report of the Iris L. Alameda Martínez Wildlife Refuge was finished in October of 2009.
5. Work at the Jobos Bay continued with the master research of Yahaira Hernández, and the ethnographic data collection at the local communities. Data collected by Carlos García Quijano for his Ph.D. dissertation on the local fisheries is being incorporated into the document, as well as secondary data assembled by the CIEL team, for the review of the Jobos Bay Management Plan. Jointly with Sea Grant and NERRS (Lillian Ramírez, coastal training program), CIEL expanded the data collection process with a workshop on Coastal Oral History for the residents of La Mareas, in October 2009, one of the key communities. The presentation of the workshop can be downloaded at the following address and link: <http://www.box.net/shared/e1oxfjcsn5>
6. The reminder of the reports, are underway and will be finished by March 2010: Tortuguero, Jobos Bay, and Vieques.
7. The CIEL team, jointly with volunteers and reserve managers from the DNER, and the assistance of colleagues from NOAA, presented a workshop on the application of the SocMon methodology, as well as the preliminary results of the projects in Puerto Rico, at

the Caribbean Coral Reef Task Force Meeting (<http://coralreef.gov/>) held in October 31, 2009. The workshop was coordinated by Manuel Valdés Pizzini (CIEL) and Christy Loper (NOAA). The presentations of the workshop can be downloaded at the following address and link: <http://www.box.net/shared/sdr9qrrxlo>

The Workshop

The following section of the report contains the agenda for the workshop, as well as the report of the workshop presented to the Task Force. *Using socioeconomic information for management in the US Caribbean: A workshop of the US Coral Reef Task Force Meeting; Saturday, October 31, 2009*

Goal: Provide a forum for presenting results of socioeconomic assessments completed in Puerto Rico in 2008 and 2009. Hear from reserve managers how they are using the socioeconomic information collected for management decisions and how the information is being integrated with biological data. Provide opportunities for representatives from the community as well as from other jurisdictions to ask questions and learn more about the SocMon methodology.

Presented by: The Interdisciplinary Center for Coastal Studies (CIEL) at University of Puerto Rico Mayagüez, NOAA Coral Reef Conservation Program, Department of Natural and Environmental Resources of Puerto Rico (DNER), University of Puerto Rico Sea Grant Program

Draft agenda:

- 1:00 Introduction: Dr. Manuel Valdés Pizzini
- 1:20 Applying SocMon in Puerto Rico: Robert Matos
 - a. Need for socioeconomic information for management
 - b. SocMon training
 - c. Site selection
 - d. Working collaboratively with MPA managers
- 1:40 SocMon implementation at Boquerón Wildlife Refuge: Idelfonso Ruíz Valentín
 - a. Need for socioeconomic monitoring at Boquerón
 - b. Monitoring results
 - c. How results will be used for management
- 2:05 SocMon implementation: Jobos Bay Estuarine Research Reserve: Luis Encarnación
 - a. Need for socioeconomic monitoring at Jobos Bay
 - b. Monitoring results
 - c. How results will be used for management
- 2:30 BREAK
- 2:40 SocMon implementation: Tortuguero Lagoon Natural Reserve: Eileen Ortiz
 - a. Need for socioeconomic monitoring at Tortuguero
 - b. Monitoring results
 - c. How results will be used for management
- 3:05 Future SocMon activities in Puerto Rico: Dr. Manuel Valdez-Pizzini
- 3:15 Panel discussion with presenters: time for questions and discussion with workshop participants
- 4:00 Adjourn

Partners: Robert Matos (DNER), Eileen Alicea (NOAA), Christy Loper (NOAA), Carlos del Valle (UPR-M), Carlos Carrero (CIEL), Manuel Valdés Pizzini (CIEL & Sea Grant), Lillian Ramírez (Sea Grant), Rosemary Vásquez (CIEL), Luis Encarnación (JBNERR), Juliann Rosado (NGO), Idelfonso Ruíz Valentín (DNER-Boquerón), Eileen Ortiz (DNER-Tortuguero).
Saturday, October 31, 2009 1:00 PM – 4:00 PM

Report to the CRTF: Using Socioeconomic Information for Management in the US Caribbean Public Workshop (SocMon), Manuel Valdés Pizzini (UPR-Mayagüez) and Christy Loper (NOAA)

The Socioeconomic Monitoring (SocMon) methodology developed by NOAA has been applied to a number of Caribbean sites. In Puerto Rico, NOAA sponsored a project to study at least three sites, all coastal or marine protected areas managed by the Department of Natural and Environmental Resources (DNER). The Interdisciplinary Center for Coastal Studies (CIEL), the University of Puerto Rico Sea Grant College Program, the DNER and NOAA formed a partnership to engage in SocMon at the Boquerón (Iris Alameda) Wildlife Refuge (Southwest Coast), Jobos Bay National Estuarine Research Reserve (South Coast) and the Tortuguero Lagoon Natural Reserve (North Coast).

The workshop presented the SocMon experience in Puerto Rico, and covered the following topics:

1. The historical trajectory of socioeconomic studies to understand resource use in Puerto Rico
2. NOAA's role in the development and funding of projects over the last 25 years
3. The role of the DNER, the UPR and other institutions and NGOs in the social analysis of resource utilization
4. The pathway of the SocMon methodology in the Caribbean since 2002
5. The testing of SocMon in the La Parguera Natural Reserve
6. SocMon training for DNER MPA managers, sponsored by NOAA
7. Site selection process by DNER
8. Research techniques used in the three sites
9. Results of the SocMon process

Key outcomes of the SocMon project:

- a. Identification of stakeholders
- b. Observation and documentation of resource uses in the MPAs
- c. Description of historical trends of land and resource utilization
- d. Socioeconomic information and documentation for management plans

Accomplishments of the SocMon project:

- a. Formed partnerships among between the university, the DNER and local NGOs to gather data
- b. Incorporated stakeholders in a dialogue with managers on MPA critical issues and potential solutions
- c. Identification of critical issues to management

- d. Empowered managers through the knowledge of social and economic processes at their sites
- e. Developed ancillary projects to expand the data base: research on the socioeconomic profile of hunters and the application of the Conservation Action Planning methodology to the Boquerón refuge
- f. Supported and assisted graduate students in the preparation of three master theses on resource management, land conservation (Jobos Bay) and ecotourism opportunities (Tortuguero Lagoon)

Accomplishments of the workshop:

- a. Thirty to forty participants throughout the event
- b. Opened a debate with the public on the benefit of the SocMon guidelines for the Caribbean
- c. Discussed, in a critical manner, the value of the research techniques applied to each case
- d. Offered the opportunity to share with DNER middle management the value and future potential of the SocMon partnership
- e. Received three formal requests to train NGOs and community based organizations to incorporate SocMon in their strategies to participate in the stewardship of the resources
- f. Underscored NOAA, DNER and UPR leadership in this area