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A Social Science Plan
for South Florida
National Park
Service Units



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The Superintendents of Big Cypress National Preserve, Biscayne National Park, Dry Tortugas National Park, and Everglades National Park, in recognition of the link between people and parks present *A Social Science Plan for South Florida's National Park Service Units*. Each decision made in the management of parks and preserves affects the people who are part of the ecosystem, as well as its more traditionally understood physical and biological components. To understand how people are affected we must look to the social sciences, that is, those sciences that explore the human condition. This plan provides park managers with a cost effective way to tap these sciences. The insights gained will allow us to better meet the charge of The 1916 Organic Act:

. . . to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. sec 1).

The plan is modeled on that developed for the National Park Service, *Usable Knowledge: A Plan for Furthering Social Science and the National Parks*. Like its national companion, this plan provides an organized, cost-effective way to collect and develop the social science information that will help us to ensure that the decisions we make are good for people and parks.

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Big Cypress National Preserve

Richard W. Frost
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**A Social Science Plan
for South Florida
National Park Service Units**

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A Social Science Plan for South Florida National Park Service Units



Summary

Introduction

This report provides a plan for social science research for South Florida's National Park Service (NPS) parks and preserve: Big Cypress National Preserve, Biscayne National Park, Dry Tortugas National Park, and Everglades National Park. It was prepared by the NPS Social Science Program in cooperation with the Florida Atlantic University/Florida International University Joint Center for Environmental and Urban Problems. The objectives are to:

1. identify the needs for NPS social science research in South Florida,
2. propose a research agenda and specific research projects for the South Florida NPS units (sometimes described as the "South Florida NPS Group"), and
3. propose a strategy, schedule and budget for implementing the research.



While the plan emphasizes the need for an ecosystem and regional perspective, and collaboration with NPS partners, it is not a research plan for the entire South Florida ecosystem restoration effort. Its scope is research critical to the NPS mission in the region.

Background

The research needs and priorities for NPS social science in South Florida are derived from three key sources. The first is a policy analysis of the NPS mission, the enabling legislation and management plans for each NPS unit, and the objectives and priorities of several groups in which the NPS participates as a partner agency. The second source is a review of the existing literature. The third source of information is from a series of six workshops conducted in the region with NPS managers, scientists, agency partners, local officials, and interested citizens. The results are used to develop a research agenda.

A Research Agenda

A social science research agenda is proposed that includes Regional Interdependent Research Projects (IRP's), Group Interdependent Research Projects, and Park and Preserve Research Projects.

Regional Interdependent Research Projects

Many of the social science research needs facing the South Florida NPS units are interdependent, have regional implications that extend beyond NPS unit boundaries, and are important to other stakeholders in South Florida. Four IRP's are proposed.

South Florida General Population Survey

Critical to the NPS is an accurate understanding of the general population of South Florida. A general survey of the regional population is proposed to provide information on:

- visitation (for each NPS unit) among South Florida residents, including expenditure data,
- knowledge and awareness of NPS issues among South Florida residents, and
- values, attitudes and opinions of South Florida residents regarding general environmental issues, federal land issues, and South Florida NPS issues.

South Florida NPS Economic Impact Study

Economic issues are central to key decisions being made regarding South Florida ecological restoration, management of South Florida federal lands, and NPS provision of services. An accurate and comprehensive assessment of the economic impact of South Florida NPS units is critical. A South Florida NPS economic impact study is proposed to provide information on:

- traditional costs and benefits (such as income generation, jobs, lost tax revenues), and
- non-commodity costs and benefits (such as habitat preservation and water quality).

South Florida Socioeconomic Indicators Project

The ecological restoration and effective ecosystem management of South Florida NPS resources, and the provision of efficient and effective visitor services, require a sound and systematic monitoring effort. A South Florida socioeconomic indicators project is proposed to:

- select and develop key socioeconomic indicators relevant to important trends in South Florida,
- collect necessary data on these indicators,
- develop and maintain a GIS database,
- report and display the indicators in a brief annual report, and
- conduct a series of training workshops for managers, planners, local governments, interest groups and citizens.



South Florida NPS Futures Project

South Florida is undergoing rapid socioeconomic and land use change. Sound prediction of trends and assessment of likely future conditions impacting South Florida NPS units is a necessity. A South Florida NPS Futures Project is proposed to:

- develop realistic future scenarios for South Florida, and
- examine the implications of these scenarios for the management of South Florida NPS resources.

Group Interdependent Research Projects

Group projects combine a set of research questions and issues of specialized concern to the South Florida NPS Group. Three such projects are proposed.

General Visitor Profile

NPS managers in South Florida require accurate understanding of who their visitors are, what they do, and their expectations and evaluations of services. A general visitor profile is proposed to provide:

- basic demographic information on visitors,
- behavioral data on visitors, including visitor expenditure data, and
- visitor evaluation of services (to meet Government Performance and Results Act and National Performance Review requirements, as well as improve visitor services).

NPS Stakeholders Inventory Project

For South Florida, with its complex mix of governments, federal agencies, Indian tribes, ethnic groups, inholders, industry and special interest groups, an accurate understanding of stakeholders is necessary for effective public participation and successful management and planning. A stakeholders inventory project is proposed to:

- develop a comprehensive inventory of all stakeholders in South Florida NPS management, decision-making and planning,
- survey the stakeholder groups to better understand their positions, interests and preferences for participation and communication, and
- develop more effective ways to educate, inform and cooperate with stakeholder groups.

NPS Neighbors Project

The effective and sustainable management of the NPS South Florida units requires an effective working relationship with NPS neighbors — communities, county governments, private landowners, and other management agencies. A detailed understanding of socioeconomic and land use change is necessary. An NPS neighbors project is proposed to provide socioeconomic and land use trend data focused on the following four subregions:

- Homestead/Florida City/South Dade County,
- the Florida Keys,
- Everglades City, and
- Southwest Florida.

Park and Preserve Research

In addition to regional and group research, each of the four South Florida NPS units has specific social science research needs. Some research needs will require specific projects at each unit, including:

- at Big Cypress National Preserve, studies of user groups (e.g., hunters and other backcountry users),
- at Biscayne National Park, research on commercial fishery and proposed changes at Stiltsville,
- at Dry Tortugas National Park, research on anglers/recreational fishing, and
- at Everglades National Park, research on foreign visitors and carrying capacity.



An Action Plan

Implementing a social science research program for the South Florida NPS units will require several specific actions. These actions can be accomplished in four stages.

Stage 1. Organizing for Social Science

- appoint a social science coordinator for South Florida NPS group,
- establish a social science Cooperative Park Studies Unit (CPSU) in South Florida,
- convene a conference on South Florida NPS social science,
- develop a social science research plan for the South Florida Federal Interest Lands, and
- include social science in the existing South Florida Science Subgroup, and place a social scientist on that Subgroup.

Stage 2. Building a Research Base

- initiate the South Florida General Population Survey and South Florida NPS Economic Impact Study,
- initiate the NPS Stakeholders Inventory, and
- initiate critical park and preserve projects.

Stage 3. Diversifying the Research

- expand the social science CPSU to include additional partner institutions,
- continue coordination and direction by NPS social science coordinator and the CPSU project leader,
- initiate the South Florida Socioeconomic Indicators Project and the South Florida NPS Futures Project,
- initiate the South Florida General Visitor Profile and NPS Neighbors Project, and
- initiate additional park and preserve research projects.

Stage 4. Completing the Research Program

- complete all of the IRP's described above,
- initiate remaining projects as most critical park and preserve research projects are completed,
- complete development of social science CPSU and diversify research, training and graduate education program for NPS,
- carefully evaluate the South Florida NPS social science program, and
- extend the South Florida NPS social science program (based on a favorable review).

Estimated Budget

The estimated budget to complete all four stages of the Action Plan is \$546,000 (\$521,000 from the South Florida NPS Group and \$25,000 from the Washington Office). NPS partners would provide offsetting contributions.

Appendices

Six appendices are included:

- I) a detailed review of NPS policy and planning documents,
- II) a summary of existing social science studies,
- III) results of the public workshops,
- IV) a description of the proposed social science CPSU,
- V) a list of South Florida universities and colleges with social science degree programs, and
- VI) selected references.

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I

Introduction

The purpose of this report is to provide a plan for social science research for South Florida's National Park Service parks and preserve. The National Park Service (NPS) manages four units in South Florida: Big Cypress National Preserve, Biscayne National Park, Dry Tortugas National Park, and Everglades National Park. The parks and preserve are critical components of South Florida's ecosystem, economy, culture and quality of life. The parks and preserve are also key units in the National Park System, with national and global significance.

Effective management of these areas requires an understanding of the relationship between people — visitors, local communities, employees, Indian tribes, other government agencies, interest groups, citizens — and protected areas. This understanding requires a sound scientific basis. Hence, social science is a necessary and important function of the NPS in South Florida. A plan for social science can identify and prioritize research needs,



increase the usefulness of research results, improve the delivery of information, and reduce costs.

The objectives of this plan are to:

1. identify the needs for NPS social science research in South Florida,
2. propose a research agenda and specific research projects for the South Florida NPS units, and
3. propose a strategy, schedule and budget for implementing the research.

In this report, "South Florida" includes the lands and waters from the Kissimmee-Lake Okeechobee area to the Florida Keys, following the general boundaries of the South Florida Water Management District (see Map 1). In this report, the four NPS units in South Florida are sometimes described as the "South Florida NPS group."

Extraordinary Challenges for South Florida and the NPS

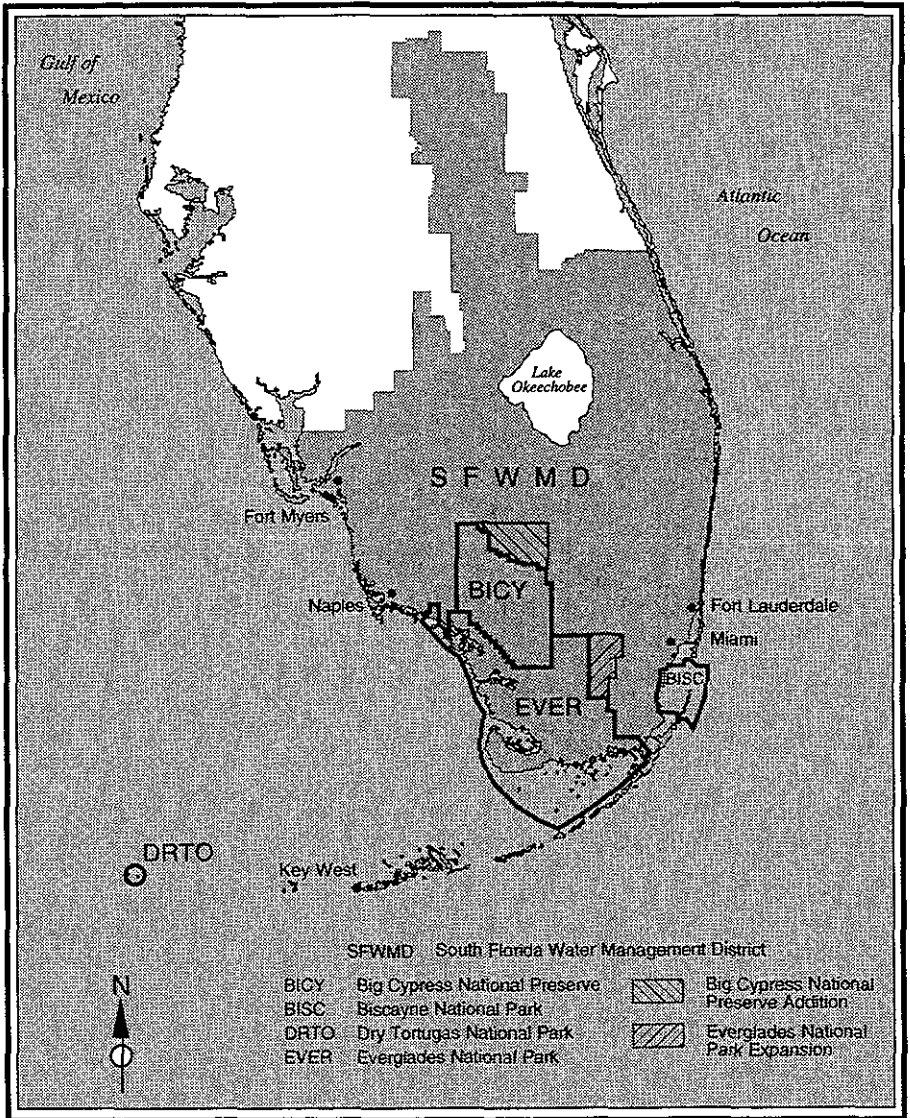
This is a critical period in the history of South Florida, and in the management of Big Cypress National Preserve, Biscayne National Park, Dry Tortugas National Park and Everglades National Park.

The South Florida region and its people face extraordinary challenges. These include:

- a human population expected to triple within 50 years,
- intense competition for water supplies among residential, agricultural and preservation uses,
- cumulative and severe ecological stresses that are the result of urban growth and agricultural activity, and
- the need for sustainable economic development simultaneous with restoration of the South Florida ecosystem.

The South Florida NPS group also faces extraordinary challenges:

- an 81% increase in park visitors since 1980, including dramatic increases at Biscayne and Dry Tortugas National Parks,



Map 1: South Florida NPS Group



- significant resource impacts, from exotic species to water quality concerns,
- complex resource management issues, from ORV use to commercial fishing,
- reorganization of the NPS, and
- limited financial and human resources.

South Florida can be considered a “human ecosystem” — a complex, bounded ecosystem that includes socioeconomic as well as biophysical systems. The South Florida NPS units are critical elements in this human ecosystem. Perhaps nowhere else in the nation is the long-term future of NPS units and a geographical region so intertwined. Hydrological flows, weather patterns, ecological cycles, urban growth, local and regional economies, government jurisdictions, an agricultural heritage, diverse cultural values and the presence of the Miccosukee Tribe and the Seminole Tribe — all link the NPS parks and preserve to the larger region.

Hence, the NPS is a partner in efforts such as the South Florida Ecosystem Restoration Task Force and The Governor’s Commission for a Sustainable South Florida. An effective social science plan for the NPS can contribute to the scientific research programs of these partnerships, as well as provide the NPS with research needed to carry out its own specific mission.

Overview of the Plan

In this introductory chapter, the purpose and scope of the social science plan are outlined. The social sciences included in the plan are briefly defined and described.

As stated above, the objective of this plan is to identify the needs for NPS social science research in South Florida. While the plan emphasizes the need for an ecosystem and regional perspective, and collaboration with NPS partners, it is not a research plan for the entire South Florida ecosystem restoration effort. Its scope is limited to research critical to the NPS mission in the region.

Chapter 2 provides necessary background for developing a research agenda of NPS social science in South Florida. Three sources are examined. The first are policy and planning documents of the NPS and several regional task forces of which the NPS is a partner. These reveal a formal mandate and specific responsibilities for conducting social science in support of NPS management. The second source is a review of the existing literature. The third source of information includes a series of public and employee workshops conducted in the region. These workshops identified critical social science research questions for the region, the South Florida NPS group and the individual parks and preserve.

In Chapter 3, a social science research agenda for the South Florida NPS units is presented. A series of specific research projects is proposed. There are three levels of research. The first are regional research projects. These projects deal with the wider human ecosystem of South Florida, and are necessary to both the NPS and its regional partners (including local and county governments). The second are South Florida Group research projects. These projects are necessary and relevant to all of the NPS units in South Florida, and for the group as a whole. The third are park and preserve research projects important to the individual NPS units. For each project, a description, purpose, estimated cost and schedule are presented.

In Chapter 4, a comprehensive action plan for accomplishing this program of research is presented. The plan describes how the work can be accomplished in four stages: 1) organizing for social science, 2) building a research base, 3) diversifying the research, and 4) completing the research program. For each stage, specific and practical actions are recommended. Also included is a detailed budget for each stage of the proposed research program.

The report includes several appendices. These present the complete results of the public workshops, a detailed analysis of NPS policy and planning documents, summaries of existing social science studies, and more.



The Social Sciences Defined and Described

The social sciences are those disciplines of science that study humankind in relation to its cultural, social and physical environment. They are one of the three main divisions of knowledge, the others being the natural sciences and the humanities. There is considerable overlap. History, for example, involves elements of both humanities and social sciences, geography includes both physical geography (a natural science) and human geography (a social science).

While formal listings and opinions vary, several disciplines are commonly considered as social sciences: anthropology (and closely related ethnography), archeology, economics, geography (human rather than physical), psychology, political science and sociology.

The NPS currently has programs in anthropological and historical archeological research, as well as an established Applied Ethnography Program. Much work is conducted by these programs in support of NPS cultural resource management, and in response to legal requirements such as the National Historic Preservation Act (1966, amended 1992) and the Native American Graves Protection and Repatriation Act (1990). The above programs are essential to the NPS; however, their research agenda and organization are beyond the scope of this plan.

Hence, this plan for social science in South Florida NPS units focuses on the following social sciences: economics, geography, psychology, political science and sociology. While these disciplines interact, each focuses upon certain units of study and driving forces important to understanding human behavior. Each has usefulness to NPS managers in South Florida.

Economics (both macro- and micro-economics) treats markets, industries and economies as key units of study; the driving force of change is economic value broadly defined. Economics can aid NPS managers through studies of park economic impacts, the costs and

benefits of park policies, and the role of parks in the tourism industry and national economy.

Geography (specifically human geography) treats regions, landscapes and other spatial units (governmental, ecological and so forth) as critical. The central concern is the spatial distribution of people, resources and culture. Geography can aid NPS managers through studies of tourist travel patterns, regional development, land use trends and projections, and human impacts upon park resources, both natural and cultural.

Psychology has the individual as its key unit, and communication is a central driving force. Psychology can assist NPS managers through studies of residents' expectations and visitor experiences, interpretive media and other forms of park communication.

Political science focuses upon institutions of the state (at many levels); the central engine of change to many political scientists is power and its use. Political science can benefit NPS managers through studies of public participation in land use planning, the role of local communities and interest groups, and by improving organizational effectiveness.

Sociology treats social groups, organizations and communities as key units of study, with human behavior its central concern. Sociology can aid NPS managers through studies of demographic trends, cultural values, visitor behavior and public opinion regarding park policies.

These social sciences also are important partners in **interdisciplinary research**. Disciplines such as environmental economics, conservation biology and human ecology have emerged as important scientific fields relevant to the NPS. Interdisciplinary research, such as studies of visitor impacts upon wildlife or the economic impacts of management policies, requires the social sciences.

Economics, geography, psychology, political science and sociology form the core social sciences described and discussed in this plan.



II

Background

The research needs and priorities for NPS social science in South Florida are derived from three key sources. The first is a policy analysis of the NPS mission, the enabling legislation and management plans for each NPS unit, and the objectives and priorities of several groups (such as the South Florida Ecosystem Restoration Task Force) in which the NPS participates as a partner agency.

The second source of information is a review of existing social science literature relevant to the four NPS units in the region. The review was conducted by the Florida Atlantic University/Florida International University (FAU/FIU) Joint Center for Environmental and Urban Problems.

The third source is a series of public and NPS employee workshops held in South Florida during 1995. These workshops provided NPS managers and partners, as well as interested citizens, with the opportunity to suggest critical research questions.



The results of each are discussed below and presented in more detail in the appendices.

Policy Rationale for NPS Social Science in South Florida

National Mandate and NPS Mission

A viable mandate for the NPS to conduct social science exists; it emerges from the NPS Organic Act and its mission for the NPS, management policies of the agency, and the enabling legislation and formal planning documents of individual park units.

The Organic Act of 1916 states as the NPS mission:

...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. sec. 1).

The social sciences are clearly mandated by the NPS mission statement, as they are necessary tools for both protecting resources (such as studies of visitor impacts) and providing for enjoyment (such as studies of visitor experiences).

The NPS Management Policies manual contains specific guidelines regarding the role of science in fulfilling this mission. The agency is to collect and use "social, economic and demographic data relevant to planning and management at each park." To do so, "a program of natural and social science research will be conducted..."

The agency has recently approved a social science plan that calls for the agency to "conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public." This plan includes a national research agenda organized around several critical questions, including:

1. Who are national park visitors?

2. What are the impacts of visitor use of park resources?
3. What is the relationship between national parks and their surrounding communities and region?
4. What is the relationship between national parks and local, regional and national economies?
5. How can threats to parks be mitigated?
6. How can natural and cultural resource management be made more effective?

In addition, the Social Science Program Office is to provide park managers with technical assistance, such as this plan for South Florida NPS Social Science.

Enabling Legislation

The enabling legislation of the four South Florida NPS units provides additional rationale for conducting social science. Big Cypress National Preserve was established in 1974. Its legislation includes detailed management requirements for regulating human activities, allowing members of the Miccosukee Tribe and the Seminole Tribe to continue certain subsistence activities, and providing Congress with a detailed visitor use report. Biscayne National Park was established (first as a monument) in 1968. The legislative history of its establishment and expansion in 1980 includes Congress' concern with management to maintain the quality of visitor experiences.

Dry Tortugas National Park was first established as Fort Jefferson National Monument in 1935 to preserve Fort Jefferson; its mission was expanded in 1980 and the national park was created in 1992. Its enabling legislation refers to preserving the values of the park, providing opportunities for scientific research, and conducting long-term monitoring. Everglades National Park was authorized in 1934. The authorizing legislation required balancing visitor "entertainment" with preservation. The park was established in 1947.



Management Plans

Units of the National Park System are required to follow a formal planning process in carrying out their mandates. Primary planning documents are the Statements for Management and the General Management Plans (which are replacing the older Master Plans). Other "implementation" plans — resource management plans, development concept plans, and so forth — are also required. These documents provide further rationale for social science activities in the South Florida NPS units.

Seven plans were reviewed for Big Cypress National Preserve. Many activities (such as hunting) are allowed in Big Cypress National Preserve that generally do not occur in national parks. Research is needed in three broad areas: a) balancing preservation and special uses of the preserve, b) understanding visitors, and c) regional cooperation. For example, the 1992 Statement for Management calls for addressing "management concerns at the preserve related to visitor use," such as determining hunting and fishing levels compatible with protection of resources, recreation activities compatible with the purpose of the preserve, and monitoring impacts of these activities. The Statement for Management also includes explicit objectives that require social science, such as "establish a complete research program on the impacts of ORV's," "conduct a full range visitor survey," and "collect basic visitor use statistics."

Six plans were reviewed for Biscayne National Park. Research is needed in three broad areas: a) balancing preservation and use, b) understanding visitors, and c) regional cooperation. For example, the 1990 Statement for Management directs the NPS to "encourage and participate in natural and social scientific research" for monitoring changes in park resources. It calls for an "evaluation of visitor use and expectations" and efforts to "anticipate, avoid and resolve conflicts" with other agencies.

Three plans were reviewed for Dry Tortugas National Park. Research is needed in two broad areas: a) balancing preservation

and use, and b) employee and organizational concerns related to isolation. For example, the 1995 Resource Management Plan calls for a "visitor profile study to determine attitudes and expectations of park visitors," followed by a "carrying capacity study to determine tolerances of visitors and resources to certain use levels."

Fifteen separate plans were reviewed for Everglades National Park. Several of these plans call for social science research. Research is needed in four broad areas: a) balancing preservation and use, b) visitor carrying capacity, c) understanding visitors, and d) regional cooperation. For example, the 1991 Statement for Management explicitly calls for interdisciplinary research on the effects of "man-induced environmental conditions." It also calls for the "psychological carrying capacity" of the park to be determined, and that "research should be initiated to evaluate the relationships between the park and its visitors."

The two federally recognized tribes in South Florida, the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida, have certain rights and privileges in Big Cypress National Preserve and Everglades National Park. The NPS must accurately understand how park and preserve management may impact tribal rights. Hence, the NPS has a distinct responsibility, established by enabling legislation and formal management plans, to conduct social science research necessary to accurately understand the needs of the Tribes and how such needs can be incorporated into park and preserve management. Such research must be carried out in cooperation with the Tribes, on a government-to-government basis, and with sensitivity to tribal culture.

Partnership Mandates

The NPS is an active participant in several national and state initiatives relevant to South Florida. These efforts provide additional rationale for NPS social science in the region. Five reports and plans were examined.



In 1993, the Interagency Ecosystem Management Task Force was formed to improve the ability of federal agencies to conduct ecosystem management. The National Park Service is a member. The working group of this Task Force conducted seven case studies to learn about ecosystem management efforts around the country, including but not limited to South Florida.

The report of this Task Force, adopted by participating agencies, included several recommendations concerning social science. For example, it calls for regional science planning that should “incorporate a wide range of natural and social scientists, address both ecological and socioeconomic issues, and incorporate an explicit goal of fostering integration among disciplines.” It also recommends research that would characterize “the present economic, environmental and social conditions and trends for the ecosystem.”

The South Florida Ecosystem Restoration Task Force was also established in 1993 (this Task Force is separate from the Interagency Ecosystem Management described above). The National Park Service is a member. This Task Force is assisted by its Management and Coordination Working Group and four subgroups. The Science Subgroup (one of the four subgroups) identified specific science objectives that call for social science, including the development of an “interdisciplinary science program,” research on “the tangible and intangible connections between natural and human systems,” and the ability “to reliably forecast natural resource, ecological, economic and social consequences.” Several of its identified research questions require social science contributions. Examples are:

1. What are the critical feedbacks of the natural system to urban and agricultural systems and vice versa?
2. How will the natural system and its support functions for humans be affected by different population levels and land use configurations?

3. What landscape combinations will allow healthy natural systems and urban and agricultural systems to coexist?

The Science Subgroup also identified research needs for each of 10 subregions of the South Florida ecosystem. Several deal explicitly with social science, including determining “alternative scenarios of future land use,” and conducting “research on the attitudes of the region’s diverse groups of urban residents, private land owners, and tourists.”

The Governor’s Commission for a Sustainable South Florida was established in 1994. The National Park Service is a non-voting member. Its purpose is to “make recommendations for achieving a healthy Everglades ecosystem that can coexist and be mutually supportive of a sustainable South Florida economy and quality communities.” Social science is a critical foundation for many of its recommendations. Several of the commission’s objectives include the social sciences, such as the development of a “comprehensive GIS that will provide for a common data pool” and “monitoring programs needed to support South Florida restoration efforts.”

A detailed analysis of these policy and planning documents is presented in Appendix I.

Literature Review

The second source of information used to develop research priorities for the NPS South Florida units was a literature review performed by the FAU/FTU Joint Center. It covered the period 1950 to the present; most studies were conducted in the 1980’s and 90’s. (Summaries of each study are included in Appendix II.)

Over 30 studies were identified. Most of the existing social science research involves visitor studies, some dealing with general park visitors, others focusing on special visitor uses. After visitor studies, the next most common research area is economic impacts — primarily of special resource uses. Most studies were conducted



at the park level; an exception is an economic benefit analysis currently underway for both the individual parks and the South Florida NPS Group as a whole.

At Big Cypress National Preserve, several visitor studies have been conducted, focusing on special user groups. An environmental assessment was conducted in 1980 that dealt with visitor use and development. A study of ORV users is underway.

At Biscayne National Park, several visitor studies were conducted between 1973 and 1993. Some were general, dealing with visitor demographics and perceptions. Others were specific, focusing on backcountry users, public awareness and recreational use of coral reefs. An economic impact assessment was conducted in 1968 prior to the park's establishment.

At Dry Tortugas National Park, a general visitor survey was completed in 1996. It provides basic visitor demographics, a description of recreation activity and visitor perceptions.

At Everglades National Park, several general descriptions of visitors have been prepared; the most recent in 1989. Special studies have been made of recreational boaters, personal watercraft users, bicycle trail use and backcountry users. Economic studies have focused on fisheries, both recreational and commercial. Studies of water policy have been conducted. Research funded by the US Man and the Biosphere program is currently underway.

Table 1 summarizes the available research.

Table 1. Summary of Available Research

Author	Date	Title
Big Cypress National Preserve		
Fogg, G.	1990	<i>A Study of South Florida Recreational Patterns</i>
Jansen, D.K.	1983-1986	Big Cypress Public Use Study
U.S. National Park Service	1980	Environmental Assessment of BCNP Visitor Use and General Development Plan and ENP, Shark Valley/Tamiami Development Concept Plan
Duever, M.J.	1979	Resource Inventory and Analysis of Big Cypress National Preserve
Robinson, S.D.	1971	Tortious Water and Land Use in the Big Cypress Swamp
Biscayne National Park		
Marion, J.L. et al.	1993	Problems and Practices in Backcountry Recreation Management: A Survey of National Park Service Managers
Fabbri, P. (editor)	1990	Formulating Polices Using Visitor Perceptions of Biscayne National Park and Seashore
Snow, R.E.	1989	Recreation Resource Management and Planning Study for Biscayne National Park
Survey Research Center, Center for Urban Policy Research, Georgia State University	1989	Biscayne National Park Communications Survey
Tilmant, J.T. et al.	1977	An Ecological Assessment of Biscayne National Monument's Coral Reefs in Relation to Recreational Use
Menke, C.R.	1968	Economic Study of the Biscayne National Monument
Everglades National Park		
Correia, M.E.	1995	An Economic Benefit Study of Federal Interest Lands in South Florida (Draft)
Hershman, K.L.	1994	Water for the Everglades: The Evolution of Water Policy in South Florida
U.S. Man and the Biosphere Program	1994	Encroachment and Land Use Change in Biosphere Reserve Regions
U.S. Man and the Biosphere Program	1994	Isle au Haut Principles: Ecosystem Management and the Case of South Florida



Hamann, R.	1993	Assessment of Water Rights, Uses, Laws and Regulations, Everglades National Park
Harwell, M. and J. Long	1992	U.S. Man and the Biosphere Program Human Dominated Systems Directorate: Workshop on Ecological Endpoints and Sustainability Goals
Everglades National Park	1991	A Draft Assessment of Recreational Boating and Its Potential Impact on Resources within the Crocodile Sanctuary of Everglades National Park
U.S. Department of the Interior	1991	An Assessment of Recreational Boating and its Potential Impact on Resources within the Crocodile Sanctuary of Everglades National Park
Stewart, W.P. and M.I. Ivy	1990	A Sociologic Study of Wintertime Backcountry Users at Everglades National Park
Dolson, D.E. and G.E. Machlis	1989	Visitor Services Project, Everglades National Park
Tilman, J.T.	1989	A History and Overview of Recent Trends in the Fisheries of Florida Bay
Snow, S.	1988	A Review of Personal Watercraft and their Potential Impact on the Natural Resources of Everglades National Park
Centaur Associates, Inc.	1986	Socio-Economic Analysis of Commercial and Recreational Fisheries in Everglades National Park: Final Report
Tilman, J.T. et al.	1986	An Analysis of the Recreational and Commercial Estuarine Fisheries Harvest within Everglades National Park (draft report)
Ross, D.M.	1985	Report on Everglades National Park Visitor Survey
Rogier, C.	1983	The Comprehensive Development Master Plan: A Study of Environmental Politics
Centaur Associates, Inc.	1978	Socio-Economic Assessment of Fishery Management in Everglades National Park: Final Report
Schemnitz, S.D.	1972, 1973	The Influence of Vehicles on Florida Everglades Vegetation
Everglades National Park	n.d.	Everglades Bike Trail System Study

Social Science Research Workshops

A series of workshops was conducted to obtain input from the NPS managers, scientists, agency partners, local officials, and interested citizens. Six workshops were held throughout the region.

Participants identified critical social science research questions. The full results of each workshop are included in Appendix III.

A wide range of research questions was proposed. Several questions were suggested at more than one workshop. The questions revealed several key research topics, described below.

Population

Workshop participants developed research questions that deal with understanding the characteristics, trends, behavior, opinions, and values of the South Florida general population. Examples include:

1. What is the demographic profile of South Florida's population, particularly new residents? What are their opinions and attitudes regarding federal land management in the region?
2. What role do the NPS units play in South Floridians' perceptions of their quality of life?
3. How will the cultural diversity of South Florida impact the NPS units?

Economic Impacts

Workshop participants developed research questions that deal with understanding the economic impacts of the South Florida NPS units. Examples include:

1. What is the economic and social value of the Everglades?
2. What economic data are needed to best manage the addition lands of Big Cypress National Preserve?
3. What are the economic and social impacts of alternative management strategies for the commercial fisheries in



Biscayne National Park?

4. What are the direct and indirect economic impacts of the NPS units on the South Florida economy?

Socioeconomic Change

Workshop participants developed research questions that deal with identifying critical socioeconomic changes in South Florida.

Examples include:

1. What are the implications of economic development in South Florida for the Everglades ecosystem and quality of life in the region?
2. What future trends can be expected in visitor needs and activities?
3. What are the trends in land use surrounding the NPS units?

Visitors and Tourism

Workshop participants developed research questions that deal with understanding visitors to NPS units, and the relationship of the parks and preserve to the regional tourism industry. Examples include:

1. What kinds of uses are each of the NPS units receiving, and how are these uses distributed over space and time?
2. What are the impacts of visitors on park and preserve resources?
3. What are the conflicts among Big Cypress users, and how best can these conflicts be managed?
4. What are the impacts of the deterioration and loss of natural resources upon the South Florida tourism industry?

Stakeholders

Workshop participants developed research questions that deal with identifying key stakeholders in South Florida, and how the NPS

should effectively work with these groups. Examples include:

1. What is the relationship between the NPS units and local communities, including Indian tribes, and how can this relationship be improved?
2. What are the values held by cultural groups in South Florida, and how can they be applied to the management of South Florida NPS units?
3. How can public participation in NPS decision-making be improved?

The Human Ecosystem

Workshop participants developed research questions that deal with understanding the relationship between natural and social systems in South Florida. Examples include:

1. What is the relationship between visitor experiences and their attitudes toward ecosystem restoration in South Florida?
2. What are the impacts of current land and natural resource use trends on the South Florida ecosystem restoration?
3. What are the economic and social costs and benefits of South Florida ecosystem restoration efforts?
4. How will ecosystem restoration efforts affect visitation to South Florida NPS units, and the region's tourism economy?

Park and Preserve Research Questions

Workshop participants also developed many questions that are specific to each of the South Florida NPS units. Examples include:

1. What would be the economic and social impacts of closing the fisheries at Dry Tortugas National Park?



2. What are the social and economic impacts of the 1999 deadline for removal of Stiltsville in Biscayne National Park?
3. How can Everglades National Park better manage and educate about jet ski use?
4. What are the socioeconomic impacts of mineral rights and activities at Big Cypress National Preserve and Everglades National Park?
5. What does the local population value about Big Cypress National Preserve, and what is culturally significant to them?
6. What technological and demographic trends may affect recreational boating in Biscayne National Park?

Summary

There is a significant mandate for the NPS in South Florida to conduct social science research: The mandate emerges from its agency mission, its national program for social science, the management plans for the individual South Florida NPS units, and its partnership activities.

The literature review reveals a modest and fragmented research literature. Most studies have been focused on visitors and specialized economic impacts; there is little integration of the existing studies, and several critical research topics (such as local communities and their relationships to the NPS units) have not been researched.

The public and employee workshops developed a significant and extensive set of social science research questions relevant to the South Florida NPS units. Key topic areas include population levels, economic impact, socioeconomic change, visitors and tourism, stakeholders, and the human ecosystem of South Florida.

There are three critical scales for NPS social science in South

Florida: 1) research dealing with regional-scale issues that impact the NPS units and the broader South Florida ecosystem restoration effort, 2) research that deals with NPS management of the four units in the South Florida group, and is relevant to all of the units, and 3) research that deals with management of NPS resources, and is relevant to the specialized needs and issues at each of the NPS units. This hierarchical approach guided the preparation of a formal research agenda for the South Florida NPS units.



III

A Research Agenda

In this chapter, a social science research agenda for the South Florida NPS units is proposed. It is based on the policy analysis, literature review and public workshops described in the previous chapter. It is organized around a series of specific research projects. For each project, a general description, scope of work, estimated budget and schedule are provided. The projects are organized hierarchically, from regional-scale research to park and preserve studies.

Regional Interdependent Research Projects

While the South Florida NPS units have national and global significance, their relationship to the South Florida region requires a specialized understanding and specific research. Many of the social science research needs facing the South Florida NPS units are interdependent, have regional implications that extend beyond NPS unit boundaries, and are important to other stakeholders in South Florida. Hence, research projects that are interdependent and



regional in scope are necessary and appropriate.

Interdependent research projects (IRP's) have several important characteristics. They address numerous park management issues, study more than one research question or problem, use results from other studies, develop data critical for additional research as well as management, and can be implemented through research partnerships with other South Florida governments and agencies.

Interdependent research projects have several benefits:

- they provide a wide range of needed research results in a relatively short amount of time,
- they save research dollars and public burden by combining research and data collection efforts to solve numerous problems,
- they maximize the value, application and usefulness of research, and
- they allow increased coordination among research partners, scientists and disciplines.

Four Interdependent Research Projects are proposed.

South Florida General Population Survey

The population of South Florida is growing rapidly, and experiencing significant shifts in age, ethnic composition, and economic class. Of critical concern to the NPS is an accurate understanding of the general population of South Florida. Research questions suggested during the planning workshops included, for example:

- What do people (visitors, residents, stakeholders, etc.) expect from the South Florida NPS units?
- How can the NPS units work more effectively with the South Florida tourism industry toward a common, positive experience for the visitor?
- How will cultural diversity in South Florida impact the NPS units?

- How do the local population and visitors feel about resource management changes that might restrict recreational uses, e.g. spear-fishing, lobstering, recreational fishing and jet skis?

A general survey of the regional population (not just visitors to NPS units) is proposed. It should be stratified to fully represent the key ethnic and economic groups of the region. The survey should be designed to provide information on:

- visitation (for each NPS unit) among South Florida residents, including expenditure data,
- knowledge and awareness of NPS issues among South Florida residents, and
- values, attitudes and opinions of South Florida residents regarding general environmental issues, South Florida federal land issues, and South Florida NPS issues.

The results of this survey are critical to:

- describing current park use among South Florida residents,
- projecting future visitation patterns among South Florida residents,
- estimating the economic impact of South Florida NPS units,
- improving visitor services, educational outreach efforts and concession activities in the individual NPS units,
- improving coordination of NPS activities with the South Florida tourism industry and other recreation agencies (state, county and local),
- developing more effective public participation and environmental education techniques, and
- assessing and understanding public support for park policies, regulations and long-term activities, both for individual NPS units and for the region (such as South Florida ecosystem restoration).

The project could be implemented as a research partnership with other South Florida government agencies and institutions. The



research should be conducted by an independent university (public or private) or a nationally-recognized polling firm. The survey instrument (the list of questions and possible answers) may need to be bilingual. It should undergo careful peer-review, as should the draft report of the results. Analysis should include in-depth examination of park and preserve users and non-users, specific demographic categories (age, gender, ethnicity, income and so forth) and the general South Florida population. Survey results should be made widely available throughout South Florida upon completion of the project. The survey should be repeated every 4-5 years.

Approximate Cost: \$45,000

Duration: 9 months

South Florida NPS Economic Impact Study

Economic issues are central to the key decisions being made regarding South Florida ecological restoration, management of South Florida federal lands, and NPS provision of services. Research questions suggested during the planning workshops included, for example:

- What is the economic impact (broadly defined) of the South Florida NPS units, individually and collectively?
- What are the social and economic impacts of various park management decisions and alternatives regarding commercial fisherman using Biscayne National Park?
- What are the local economic impacts of federal land acquisition in South Florida?

Hence, an accurate and comprehensive assessment of the economic impact of South Florida NPS units is critical. This assessment should include not only traditional costs and benefits (such as income generation, jobs, lost tax revenues and so forth) but non-commodity costs and benefits (such as habitat preservation and water quality). Such comprehensive economic accounting requires

state-of-the-art economic analysis, and a blending of neo-classical economics and newer environmental accounting techniques.

A South Florida NPS economic impact study is proposed. Because of the importance and complexity of the South Florida economic system, this study of South Florida NPS units should be a model for other parks in the National Park System. The study would develop state-of-the-art economic accounting techniques, and apply them to the four South Florida NPS units. It would utilize data from several of the other IRP's proposed in this plan. Costs and benefits would be estimated — in dollars, capital accumulation, wealth creation, jobs, and other economic measures. Data should be made available at the county level.

The results of the study are critical to:

- understanding the role of NPS units in the South Florida economy,
- communicating to the public the best available estimates of the costs and benefits of South Florida NPS units, and
- making sound economic decisions regarding NPS policies and ecological restoration efforts.

This project could be implemented as a research partnership with other South Florida government agencies and institutions. Because the research must be “cutting edge,” the study design should undergo careful peer review, and a science advisory panel should provide advice and guidance to the principal investigators. Results should be publicly presented after significant peer review, and a public symposium should be held to discuss the results. The analysis should be updated after 5 years.

Approximate Cost: \$65,000

Duration: 18 months

South Florida Socioeconomic Indicators Project

The ecological restoration of South Florida, effective ecosystem management of South Florida NPS resources, and provision of



efficient and effective visitor services all require a sound and systematic monitoring effort. Research questions suggested during the planning workshops included, for example:

- What social and economic facts need to be known to best manage the Big Cypress National Preserve addition lands?
- What are the land use trends surrounding the NPS units at the watershed and sub-basin scales?
- How does the NPS proactively keep up with sociodemographic trends in South Florida, particularly in Homestead/Florida City/South Dade County?

Tracking important socioeconomic trends in South Florida (such as population growth, land use change and so forth) is a critical component of a comprehensive and useful monitoring program. Such monitoring requires that a set of socioeconomic indicators be developed, collected and tracked over time.

A South Florida socioeconomic indicators project is proposed. The purpose of this project is to:

- select and develop key socioeconomic indicators relevant to important trends in South Florida,
- collect necessary data on these indicators, primarily from existing sources and the other NPS IRP's,
- develop and maintain a GIS database that spatially displays the indicator data, for use by NPS managers, scientists involved in South Florida ecological restoration efforts, and other government agencies and organizations,
- report and display the indicators in a brief annual report that presents changes in key indicators and the implications for South Florida NPS management activities,
- conduct a series of training workshops for managers, planners, local governments, interest groups and citizens, to assist them in the use of the socioeconomic indicators.

Such information is critical for:

- understanding contemporary users and communities adjacent to South Florida NPS units,
- understanding and predicting socioeconomic trends in South Florida (see Futures Project below), including trends in use of South Florida NPS units,
- assessing the impact of land use change on NPS resources in the region,
- assessing the impact of NPS management policies on local communities and the region,
- periodically updating the South Florida Economic Impact study, and
- providing managers of the individual South Florida NPS units with local as well as regional data on critical socioeconomic trends.

The project could be implemented as a research partnership with other South Florida governments, universities and agencies. It should result in a scientific monitoring effort, a sophisticated database combining regionally available data, and a public report useful to citizens and decision-makers. The indicators should be updated (at very little cost) every year.

Approximate Cost: \$25,000

Duration: 12 months

South Florida NPS Futures Project

South Florida is undergoing rapid socioeconomic and land use change. Sound prediction of trends and assessment of likely future conditions impacting South Florida NPS units is a necessity. The purpose is to provide managers with information useful to managing proactively, and to anticipate management needs before they become critical concerns. Research questions suggested during the planning workshops included, for example:



- What are the impacts likely to be of marine sanctuary regulations on the NPS units adjacent to the sanctuary?
- What are the potential long-term impacts on the South Florida NPS units of radical change in Cuba, linked to long-term trends?
- How will cultural diversity in South Florida impact the South Florida NPS units (short and long-term)?

A South Florida NPS Futures Project is proposed. The objective of the project is to develop realistic future scenarios for South Florida, and examine their implications for management of South Florida NPS resources. A variety of research techniques should be employed, using data collected through several of the above IRP's. Techniques may include trend projections, modeling, expert opinion assessments and other methods. It is important that specific ecosystem restoration futures be explicitly used when conducting the analysis.

Information from the project will be important for:

- predicting future use of NPS units and resource conflicts arising from those uses,
- developing proactive management strategies that allow the NPS to effectively manage resources,
- making effective decisions concerning ecological restoration efforts,
- prioritizing ecological research and public outreach programs, to reflect critical future needs, and
- improving the NPS' ability to work with partners in South Florida for effective management of South Florida federal lands.

This project could be implemented as a research partnership with other South Florida government agencies and institutions. Involvement of NPS stakeholders, regional educational institutions, local industry and non-governmental organizations would expand

the usefulness of the project.

Approximate Cost: \$18,000

Duration: 9 months

Group Interdependent Research Projects

Group IRP's have similar benefits as the regional IRP's described above. Unlike the regional research projects, group projects tend to combine a set of research questions and issues of specialized concern to the South Florida NPS units. While research partnerships are possible, these IRP's are primarily for NPS concerns at the group level.

General Visitor Profile

The management of visitors and provision of visitor services is a central obligation of the NPS. In addition to understanding the general South Florida population, NPS managers in South Florida require accurate understanding of who their visitors are, what they do, and their expectations and evaluations of services. Visitors also have potentially significant impacts upon park resources, and understanding their expectations and behavior is critical to establishing effective management alternatives (such as estimates of carrying capacity) and educational programs. Research questions suggested during the planning workshops included, for example:

- What are the impacts (both positive and negative) of agency regulations on visitors' experiences?
- Where and how is recreational fishing conducted in Biscayne National Park?
- How can directions and access to the South Florida NPS units be improved?
- What is the spatial and temporal distribution of visitors to the South Florida NPS units?



As each of the South Florida NPS units needs an understanding of their visitors (and the relationship of visitation in one unit to another), a general visitor profile is proposed. The objective of this project would be to develop a systematic description of visitors to each of the South Florida NPS units.

The general visitor profile would include:

- basic demographic information on visitors by park and for the South Florida NPS group,
- behavioral data on visitors, including visitor expenditure data (to be used in conjunction with the IRP's discussed earlier), and
- visitor evaluation of services (to meet Government Performance and Results Act and National Performance Review requirements, as well as improve visitor services).

Several of the South Florida NPS units have recently completed visitor profiles (Dry Tortugas National Park, for example, completed a visitor study in 1996). Hence, the first step in constructing a general visitor profile for the group is to assemble all available information (see literature review for an inventory) and prepare a comprehensive report and database. The second step is to develop and conduct a systematic survey of park visitors to all four South Florida NPS units, including a core set of questions and specific questions tailored to each individual unit.

While this project could be implemented in a research partnership with other government agencies and institutions, it is also possible for the NPS to conduct the work independently, assuming coordination with other agencies regarding the methods used and data collected. The General Visitor Profile should be periodically repeated to track changes over time.

Approximate Cost: \$45,000

Duration: 12 months

NPS Stakeholders Inventory Project

Ecosystem management of South Florida NPS units, like ecosystem management elsewhere in the United States, is effective to the degree that key stakeholders are participants in the process of decision-making. For South Florida, with its complex mix of governments, federal agencies, Indian tribes, ethnic groups, inholders (large and small), industry and special interest groups, an accurate understanding of stakeholders is a necessary foundation for effective public participation and successful management and planning. In addition, the stakeholders for South Florida NPS units include groups beyond South Florida. While some needed information is available from regional planning councils and the Governor's Commission for a Sustainable South Florida, a comprehensive inventory is critical. Research questions suggested during the research planning workshops included, for example:

- How can the different restoration values of cultural groups in South Florida be identified and described for the South Florida NPS units?
- How can public participation in NPS decision-making be improved?
- How can the NPS inventory the value of interagency and other partnerships? What other kinds of information do we need to improve these partnerships?

Hence, a stakeholders inventory project is proposed. The purpose of this project is to:

- develop a comprehensive inventory of all stakeholders in South Florida NPS management, decision-making and planning,
- survey the stakeholder groups to better understand their positions, interests, and preferences for participation and communication, and
- develop more effective ways to educate, inform and cooperate with stakeholder groups.



The inventory would include developing a contact database useful for public participation and communication activities. It would include a survey of stakeholder groups, designed to gain information about their values, attitudes, and opinions regarding South Florida NPS issues. The stakeholder inventory should be updated every 3-4 years.

Approximate Cost: \$30,000

Duration: 9 months

NPS Neighbors Project

The effective and sustainable management of the NPS South Florida units requires an effective working relationship with NPS neighbors — communities, county governments, private landowners, and other management agencies. A detailed understanding of socioeconomic and land use change is necessary. Research questions suggested during the planning workshops included, for example:

- What are the land use trends surrounding the NPS units at the watershed and sub-basin scales?
- How does the NPS proactively cooperate and manage to keep up with sociodemographic trends in South Florida?

A NPS neighbors project is proposed. The purpose of the project is similar to the regional South Florida Socioeconomic Indicators Project proposed earlier (see page 29), but at a more detailed resolution and focused on four subregions:

- the Homestead/Florida City/South Dade County area, impacting Biscayne and Everglades National Parks,
- the Florida Keys area, impacting Biscayne, Dry Tortugas and Everglades National Parks,
- the Everglades City area, impacting Big Cypress National Preserve and Everglades National Park, and
- the Southwest Florida area, impacting Big Cypress National

Preserve and Everglades National Park.

The research should be carefully designed to provide socioeconomic and land use trend data for each of the subregions, and across the subregions for each park and preserve. NPS stakeholders should be involved in selecting the socioeconomic indicators, and the work could be contracted as a specific component of the broader regional socioeconomic indicators research.

Approximate Cost: \$55,000

Duration: 12 months

Park and Preserve Research

In addition to regional and group research, each of the four South Florida NPS units has specific social science research needs. Many of these specific needs can be met through the above IRP's. For example, each of the units has a need to better understand local users and communities — and the proposed stakeholders inventory project (see above) can assist in providing necessary information. There are some research needs that will require specific projects at each unit. These are summarized below in two categories — special visitor studies and special topics research. Each unit is discussed separately.

Big Cypress National Preserve

Big Cypress National Preserve has several special visitor research needs. This is partly a function of its unique status in the region as a national preserve. Several special populations require attention, including hunters, ORV users, and other backcountry users. Currently, research is underway on several of these groups. A sustained effort to describe each group, document their use of the preserve and their values, attitudes and opinions, will be extremely useful to preserve managers. Different methodologies are appropriate for each group. These projects are appropriate for skilled graduate students under close supervision. The work should



follow and build upon the South Florida NPS stakeholders inventory described above.

Approximate Cost: \$45,000 total for five projects

Duration: 9-12 months

Biscayne National Park

While the regional and group IRP's will provide much of the needed information on visitors to Biscayne National Park, a special research need is to understand the commercial fishery operating within park boundaries. A descriptive research project focusing on the fishery is proposed. It would describe the extent of commercial use (in jobs, boats, take by species, and so forth), the relationship between the commercial fishery and recreational anglers, and the impact of park management alternatives upon the commercial fishery.

One important special research topic requires work at Biscayne National Park. It deals with the proposed changes at Stiltsville. The general population survey IRP can provide important information about Dade County residents and their opinions regarding the removal. Specific understanding of local residents, inholders, and the socioeconomic impact of the removal is necessary. Results will be useful in planning and critical to designing an effective removal effort. This work should be completed soon, so that results can be used in preparing for the 1999 deadline.

Approximate Cost: \$25,000 total for two projects

Duration: 9-12 months

Dry Tortugas National Park

Dry Tortugas National Park is the most isolated of the South Florida NPS units. It is experiencing rapid growth in visitation, and patterns are significantly different from the other units. Hence, the general visitor profile described above will need to be complemented by special research. This work should focus on

anglers in Dry Tortugas National Park, and provide detailed information on the amount of recreational fishing, the demographic background of Dry Tortugas National Park anglers, and the potential social and economic impacts of changing or closing the fishery.

Dry Tortugas National Park faces a unique situation in that radical changes in Cuba's political and economic system may have significant impact upon park resources, services and visitor experiences. The regional NPS futures project can address much of these concerns, yet additional analysis may be required. Such research (in the form of trend projections, modeling or expert opinion) should be conducted after the futures project is completed.

Approximate Cost: \$20,000 total for two projects

Duration: 9-12 months

Everglades National Park

For Everglades National Park, many of the visitor research needs raised in the planning workshops can be dealt with through the IRP's described above. One special visitor group requiring additional attention are foreign visitors. A relatively small research project, appropriate as a graduate student thesis, is proposed. The project should include a survey and interviews with foreign visitors, and focus on describing the demographic background of Everglades National Park foreign visitors, their expectations and special needs.

A second project has to do with establishing carrying capacity estimates for Everglades National Park. Because of the unique mix of resource impacts and visitor services provided at Everglades National Park, establishing seasonal or annual carrying capacity estimates is both critical to park management, and complex and controversial. A research effort that combines state-of-the-art techniques (such as the newly developed Visitor Experience and Resource Preservation, or VERP technique) and interdisciplinary



work with Everglades National Park natural scientists is recommended. The objective would be to create defensible estimates of visitor carrying capacity, using several alternative methods. Such research at Everglades National Park could also serve as a model for the group and the national park system.

Approximate Cost: \$18,000 total for two projects

Duration: 9-12 months

To conduct the social science research needed to meet this agenda requires a significant and sustained effort by the NPS and its partners. In the next chapter, a specific action plan for implementing the proposed research is described.



IV

An Action Plan

Implementing a social science research program for the South Florida NPS units will require several specific actions. These actions can be accomplished in four stages, described below.

Stage 1. Organizing for Social Science

1. *A social science coordinator for the South Florida NPS group should be appointed from existing staff.* Initially, this is a 0.25 FTE assignment. The coordinator's responsibilities should include:
 - coordinating existing social science activities within the group, including contracting, technical assistance, peer review, archiving, training and application of research results,
 - serving as NPS representative for external partnership activities related to social science,
 - serving as liaison with the NPS WASO Social Science Program,



- coordinating social science activities with natural and physical science research underway in the parks and preserve, and
- implementing this South Florida social science plan.

Training and assistance from the NPS WASO Social Science Program should be sought.

2. *A social science CPSU should be established in South Florida, and a 0.5 FTE social scientist from a cooperating university should be contracted to serve as project leader.* Under the new social science program being developed by the NPS, a system of "virtual CPSU's" will be created to serve the needs of NPS units. Each CPSU will have a host university, partner universities, a mission statement, four year plan and NPS managers committee (see Appendix IV for a description). The mission of the CPSU should include research, technical assistance and education (including both information transfer and training).

More specifically, the South Florida social science CPSU should:

- provide research capabilities for conducting the IRP's and special projects proposed in this plan,
- offer technical training, short courses and graduate education in the social sciences for NPS employees in the South Florida NPS group,
- provide technical assistance to the group on issues related to social science (such as technical review of EIS and other documents), and
- develop and maintain an archive of social science research results, reports and databases for use by NPS managers and other scientists.

The 0.5 FTE social scientist should:

- coordinate the activities of the social science CPSU,
- serve as liaison between the CPSU institutions and the NPS,
- conduct portions of the IRP's and special research projects, and assist in other portions as needed,

- provide technical assistance and training to the South Florida parks and preserve, and
- work with natural and physical scientists in conducting interdisciplinary research needed by the South Florida NPS group and individual units.

Existing social science cooperative agreements with South Florida institutions could be integrated into the CPSU. The CPSU host university and project leader should be selected through open competitive bidding. A list of South Florida universities and colleges with social science programs is provided in Appendix V. Technical assistance and development funds should be sought from the NPS WASO social science program.

3. *A conference on South Florida NPS social science should be convened.* Its purpose should be to:

- review existing and current social science research relevant to South Florida NPS units,
- explore linkages between social science and the natural and physical sciences in providing usable knowledge for South Florida ecosystem restoration activities,
- communicate this plan and its research agenda to potential NPS partners and other agencies, and
- develop opportunities for cooperation among NPS partners in conducting the IRP's.

Participants should include NPS scientists and managers, representatives of NPS partners, university scientists from South Florida and interested citizens.

4. *The NPS should encourage and participate in development of a social science research plan for the South Florida Federal Interest Lands.* Many of the NPS South Florida research needs are closely related to the needs of other federal agencies in the region (such as the Army Corps of Engineers and National Oceanic and Atmospheric Administration), and integral to the South Florida ecosystem restoration project. An interagency plan for conducting needed social science can improve



research, provide more useful results, save money and foster cooperation.

Such an interagency plan could build upon this NPS document, and involve all relevant federal agencies in South Florida, as well as organizations and institutions concerned with South Florida ecosystem restoration.

5. *The NPS should recommend that social science be included in the existing South Florida Science Subgroup, and a social scientist be placed on that Subgroup.* Many of the scientific issues surrounding ecosystem restoration in South Florida are interdisciplinary, and close coordination among all the sciences is necessary. In addition, coordination of data collection, GIS databases, report writing and technical review requires strong working relationships among the full complement of scientists involved in the South Florida ecosystem restoration. For the NPS social science program to be fully effective and for ecosystem restoration to succeed, social science must be treated as integral to the overall scientific activities in South Florida.

Stage 2. Building a Research Base

1. *The South Florida General Population Survey and South Florida NPS Economic Impact Study should be initiated.* Both of these IRP's are critical foundations for further NPS social science research in the region. These projects should be contracted through the South Florida Social Science CPSU, based on peer-review of thorough research proposals. The projects could be conducted in cooperation with NPS partners in the South Florida region.
2. *The NPS Stakeholders Inventory should be initiated.* This project is critical to many of the public participation, impact assessment and decision-making activities of the NPS in South Florida. The results are also important for dealing with critical issues at the individual NPS units — particularly at Everglades National Park and Big Cypress National Preserve. The project should be contracted through the South Florida Social Science

CPSU, based on peer-review of thorough research proposals.

3. *Critical park and preserve projects should be initiated.* These include studies of:
 - Stiltsville (Biscayne National Park),
 - commercial fishing (Biscayne National Park) and recreational fishing (Dry Tortugas National Park), and
 - hunters and backcountry users (Big Cypress National Preserve).

Stage 3. Diversifying the Research

1. *The social science CPSU should be expanded to include additional partner institutions.* As the research program progresses, additional partners with specialized capabilities (such as social impact analysis, conflict resolution and community studies) may need to be included through cooperative agreements.
2. *The NPS social science coordinator (a 0.25 NPS FTE) and the CPSU project leader (a 0.5 university FTE) should continue to provide coordination and direction to the research program.* The project leader should initiate activities to increase the research base of the program, and provide usable knowledge to NPS managers in the region. Such activities can include:
 - student thesis research on relevant topics,
 - workshops on research results,
 - a quarterly research newsletter,
 - training programs for NPS employees, including seasonal employees,
 - seminars for NPS managers and scientists, and
 - regular briefings for superintendents of the parks and preserve.
3. *The South Florida Socioeconomic Indicators Project and the South Florida NPS Futures Project should be initiated.* These



projects build on the IRP's completed in Stage 1, and require increased cooperation and coordination with NPS partners. The projects should be contracted through the South Florida CPSU, based on peer-review of thorough research proposals.

4. *The South Florida General Visitor Profile should be initiated.* This effort will update many of the independent visitor studies conducted during 1988-96, and replace them with a unified and detailed survey of visitors to the South Florida NPS units. Managers at each of the NPS units should be actively involved in survey design, so that the profile can provide usable knowledge for individual units as well as the South Florida NPS group.
5. *The NPS Neighbors Project should be initiated.* As described earlier, this project is similar to the broader regional socioeconomic indicators project, but at a finer scale and organized around four subregions surrounding the South Florida NPS units. It could be contracted as part of the regional project.
6. *Additional park and preserve research projects should be initiated.* These projects include (but are not limited to) studies of:
 - international visitors (Everglades National Park), and
 - carrying capacity issues (Everglades National Park).

The projects should be contracted through the South Florida CPSU, based on peer-review of thorough research proposals.

Stage 4. Completing the Research Program

1. *All of the IRP's described above should be completed.* These projects provide the research base for diversifying the kinds of social science research conducted for the South Florida NPS units.
2. *As the most critical park and preserve research projects are completed, the remaining projects should be initiated.* These include research related to:

- backcountry and ORV users (Big Cypress National Preserve),
 - long-term impacts of social and political change in Cuba (Dry Tortugas National Park), and
 - additional special projects that emerge as critical.
3. *The social science CPSU should complete its development, and fully diversify its research, training and graduate education program for the NPS. The social science newsletter should be continued. Training workshops related to completed research projects should be conducted for NPS managers and staff.*
 4. *The South Florida NPS social science program should undergo a careful evaluation. This evaluation should be conducted by the CPSU managers committee, along with the WASO Social Science Program. The review group should include NPS managers and external social scientists. The review should focus on identifying accomplishments during Stage 1 and 2, weaknesses and problems in the program, and constructive recommendations for improvement.*
 5. *Based on a favorable review, the South Florida NPS social science program should be extended. The cooperative agreements should be renewed, and a new research agenda should be prepared, focusing on emerging problems that require social science. In some cases, the IRP's should be revised — particularly the General Population Survey and the Socioeconomic Indicators Project.*



South Florida NPS Social Science Program Estimated Budget

Task	SF NPS Group	WASO	Partners
Stage 1. Organizing for science			
1.1 Appoint social science coordinator	0	0	0
1.2 Establish social science CPSU	10*	10	0
b. Contract .5 FTE social scientist	25*	0	0
1.3 SF social science conference	5	5	\$
1.4 Federal Interest Lands research plan	5	5	\$
1.5 Add social science to Science Subgroup	0	0	\$
Total for Stage 1	45	20	\$
Stage 2. Building a research base			
2.1 Regional Research Projects			
a. General Population Survey	45	0	\$
b. Economic Impact Study	65	0	\$
2.2 Park Cluster Research Projects			
a. Stakeholders Inventory	30	0	\$
2.3 Critical Park and Preserve Research Projects	30	0	0
Total for Stage 2	170	0	\$

Stage 3. Diversifying research

3.1 Add partners to CPSU	0	0	0
3.2 Maintain CPSU and .5 FTE scientist	40*	0	\$
3.3 Regional Research Projects			
a. Socioeconomic Indicators Project	25	0	\$
b. SF NPS Futures Project	18	0	\$
3.4 Park Cluster Research Projects			
a. General Visitor Profile	45	0	\$
b. NPS Neighbors Project	55	0	\$
3.5 Additional Park and Preserve Research Projects	23	0	\$
Total for Stage 3	206	0	\$

Stage 4. Completing the research program

4.1 Complete IRP's	0	0	0
4.2 Maintain CPSU and .5 FTE scientist	45*	0	\$
4.3 Park and Preserve Projects	55	0	\$
4.4 Evaluate Social Science Program	0	5	0
Total for Stage 4	100	5	\$

Overall Total	521	25	\$**
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* annual costs, ** offsetting contribution by partners



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Appendices

Appendix I. Review of NPS Policy and Planning Documents

The purpose of this appendix is to provide a detailed description of the mandates and other rationale for the NPS to conduct social science in South Florida. This appendix has three parts. First, national-level policies and mandates for social science are presented. Second, park and preserve-level mandates are described. These mandates are found in the enabling legislation of each South Florida NPS unit and in their management plans. Third, partnership mandates are presented. These mandates emerge from state and national ecosystem management initiatives in South Florida.

National Mandate for NPS Social Science

A viable mandate for scientific research in the NPS exists, and includes the social sciences. It emerges from the NPS Organic Act and mission, management policies, individual parks' enabling legislation and formal planning documents.

The Organic Act of 1916 states as the NPS mission:

...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. sec. 1).

The social sciences are clearly mandated by the mission statement, as they are necessary tools for both protecting resources (such as studies of visitor impacts) and providing for enjoyment (such as studies of visitor experiences).

The mandate for NPS scientific research (all disciplines, not just social science) also emerges from many additional federal laws. These include, for example, the:

- Lacey Act (1900)
- Historic Sites Act (1935)
- Wilderness Act (1964)



- Concessions Policy Act (1965)
- National Environmental Policy Act (1969)
- Endangered Species Act (1973)
- Clean Air Act (1977)
- National Parks and Recreation Act (1978)
- Archeological Resources Protection Act (1979)
- Native American Graves Protection Act (1990)

All require that affected agencies, including the NPS, engage in scientific research to meet regulatory commitments.

A general mandate for science also emerges from official NPS management policies. The NPS Management Policies manual contains specific guidelines regarding the role of science in fulfilling the NPS mission:

The Service will develop, gather, compile, store, analyze update and employ adequate natural, historic, social, economic and demographic data relevant to planning and management at each park (National Park Service, 1988: 11-12).

To gather such information, a systematic program of research is authorized:

A program of natural and social science research will be conducted to support NPS staff in carrying out the mission of the National Park Service by providing an accurate scientific basis for planning, development, and management decisions (National Park Service, 1988: iv-2).

Enabling Legislation for South Florida NPS Units

A mandate for social science research can be found in the enabling legislation (and related language) that created each of the four national park units in South Florida.

Big Cypress National Preserve was established on October 11, 1974, (Public Law 93-440) and expanded in 1988 (Public Law 100-301). The purpose of the preserve is:

to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big

Cypress Watershed in the State of Florida and to provide for the enhancement and public enjoyment thereof (see GMP 1991, p. 315).

The enabling legislation for the Preserve includes additional, detailed requirements for its management. Several requirements focus on the need to balance resource protection and use:

- developing rules and regulations for activities including motorized vehicles; oil and gas exploration and extraction; agriculture; hunting, fishing, and trapping.
- permitting, subject to reasonable regulations, members of the Miccosukee Tribe and the Seminole Tribe "...to continue their usual and customary use and occupancy, ...including hunting, fishing and trapping on a subsistence basis and traditional tribal ceremonials."
- establishing "recreational access points and roads, rest and recreation areas, wildlife protection, hunting, fishing, frogging, and other traditional recreational opportunities."
- providing Congress with a report on the public's use of the preserve and recommendations for future management of the preserve and the addition (Public Law 93-440, Public Law 100-301).

The House and Senate Reports accompanying the enabling legislation provide further guidance for Preserve management:

...National Preserves may accommodate significant recreational uses without impairing the natural values, but such public use and enjoyment would be limited to activities where, or periods when, such human visitation would not interfere with, or disrupt, the values the area is created to preserve (House Report 93-502, see SFM 1992, p. 8).

Social science research is required to achieve the legal provisions to protect the natural, scenic, hydrologic, floral and faunal, and recreational values of the Preserve.

Biscayne National Park was first established as Biscayne National Monument in 1968:

in order to preserve and protect for the education, inspiration, recreation, and enjoyment of present and future generations a rare combination of terrestrial, marine, and amphibious life in a tropical setting of great natural beauty (Public Law 90-606; see SFM 1990, p. 4).

The monument was expanded in 1974 (Public Law 93-477). In 1980, it was expanded again and redesignated Biscayne National Park (Public Law 96-287).



Congressional intent for park management exists in the legislative history of the 1980 act. Congress acknowledged “the unique and special values” of the park’s water-associated resources and their vulnerability to “destruction or damage due to easy human access by water, as well as the pollutant transmission ability of the water medium” (SFM 1990, p. 4).

Congress also commented on visitor use, stating that “It’s important that the resources of the area be made available to all the Nation’s visitors in terms of access and interpretation, and not to be operated merely as a local park or recreation area....” (House Report 96-693).

Social science research is required to achieve the legal provisions to protect the park’s natural values and to identify appropriate strategies for access and development.

Dry Tortugas National Park was first established as Fort Jefferson National Monument in 1935 “for the preservation of Fort Jefferson and the historical and educational interests in the area.” In 1980, legislation was passed to broaden the monument’s purpose “to emphasize the protection of the marine environment and its associated marine animals” (RMP 1995, p. 1). In 1992 Fort Jefferson became Dry Tortugas National Park, established

In order to preserve and protect for the education, inspiration and enjoyment of present and future generations, nationally significant natural, historic, scenic, marine, and scientific values in South Florida (Public Law 105-525; see RMP 1995, p. 2).

The 1992 legislation creating the national park included specific management guidelines related to research. For example, the park should “provide opportunities for scientific research.” Long-term resource monitoring is identified as a key research need (RMP 1995, p. 2).

Social science research is required to achieve the legal provisions to protect the park’s resources for the “education, inspiration, and enjoyment” of visitors and to contribute to the park’s specific research objectives.

Everglades National Park was authorized by Congress in 1934 (with land to be acquired by donation) and then formally dedicated in 1947. The 1934 act presents clear guidelines about the management of the park:

The said area or areas shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in the area (see Master Plan 1979, p. 59).

...nothing in this Act shall be construed to lessen any existing rights of the Seminole Indians which are not in conflict with the purposes for which the Everglades National Park is created (16 U.S.C. 410b).

Social science research is required to achieve the legal provisions of balancing visitor "entertainment," use and preservation.

Management Plans for South Florida NPS Units

Park unit management plans also provide a rationale for science. Each national park unit is legally required to follow a formal planning process to carry out national and individual park mandates:

Planning will be conducted as a dynamic, continuous process for making choices about how to accomplish the National Park Service's preservation and enjoyment mandates. This process will include the gathering and analysis of data, an assessment of existing conditions and future trends, the identification of issues that need to be addressed, an evaluation of alternative actions, and the selection of a preferred alternative. *Formal planning projects will generally result in the preparation of documents for use by NPS employees, the public, and the Congress* (<http://www.nps.gov>, December 1995).

The primary planning documents are the Statement for Management (SFM) and the General Management Plan (GMP).¹ The SFM describes:

the park's purpose, the nature and significance of its resources, the existing uses of its lands and waters, its regional context and adjacent

¹ Another planning document that some park units still use is the Master Plan. Master Plans have been replaced by General Management Plans. However, some park units that have not yet developed a GMP are using an existing Master Plan to help guide management.



land considerations, the legislative and administrative requirements for its management, the influences on park resources and the experience of park visitors, and nonrecreational park use by native Americans and others. This information [is] used to identify major issues and problems that need to be addressed, to determine needs for additional information, and to establish park management objectives, ... (<http://www.nps.gov>, December 1995).

The purpose of the GMP is to:

set forth a management concept for the park; establish a role for the unit within the context of regional trends and plans for conservation, recreation, transportation, economic development, and other regional issues; and identify strategies for resolving issues and achieving management objectives,.... (<http://www.nps.gov>, December 1995).

Other plans — called “implementation plans” — deal with specific issues only generally addressed in the GMP. Implementation plans include resource management plans, land protection plans, development concept plans, mineral management plans, concession management plans, backcountry management plans, interpretive prospectuses, special resource studies, collection management plans, historic structure reports, exhibit plans, and others.

Science information is a necessary component of management planning.

More than 25 selected planning documents were reviewed for the four South Florida national park units. Management objectives, issues and policies that require or could benefit from social science research were identified. In some cases, social science is mentioned explicitly; in other cases, implicitly. Some of the plans are more than 10 years old. Management objectives and issues from older plans are often still relevant; however, more recent concerns and issues that require social science research may be missing. The review is presented in the following section and represents the best information on needs and priorities from available plans.

Big Cypress National Preserve

The following planning documents were reviewed for Big Cypress National Preserve:

- Statement for Management, 1992
- General Management Plan/Final Environmental Impact Statement, 1991
- Interpretive Prospectus, 1984
- Addendum to the Land Protection Plan, 1994
- Resource Management Plan, 1989
- Hurricane Plan, 1995
- Environmental Statement (Proposed National Freshwater Reserve), 1975

Three key management issues that require social science research were identified:

- Balancing Preservation and Use
- Understanding Visitors
- Regional Cooperation

The need to *balance preservation and use* was identified in the Statement for Management, General Management Plan and Resource Management Plan. Social science research is required to meet specific objectives related to this balance.

The need to meet preservation and visitor use objectives is highlighted in the introduction to the General Management Plan:

The plan is needed to address problems and management concerns at the preserve that are related to visitor use (including hunting, off-road vehicle [ORV] driving, and on-site interpretive programs), the protection of plant and animal species listed as threatened or endangered (plus species of concern listed by the state), and the preservation of important natural and cultural resource values (for example, the hydrologic regime, critical vegetation types, and archeological sites).... (GMP/FEIS, Volume 1 1991, p. 3).

The Statement for Management describes objectives developed to manage hunting, fishing, and other recreational activities:

- (1) Determine the level of hunting and fishing use in relation to the conditions and populations of targeted species in order to allow hunting and fishing at a level compatible with protection of the resources.



(2) Monitor impacts of these activities on hydrologic, scenic, floral and faunal values and other natural and cultural resources of the preserve and enforce laws and regulations applicable to these topics.

(3) Determine what type of non-traditional non-consumptive recreational activities are compatible with the purpose of the preserve (SFM 1992, pp. 39-40).

The Statement for Management includes additional objectives that focus on ORVs and hunting:

Establish a complete research program on the impacts of ORVs and modify existing ORV management program where new data directs.

Develop a Wildlife Management Plan to administer the hunting program within the preserve. Preserve managers must look closely at hunting levels, both to assure a quality hunting experience, but also to afford protection for preserve resources (SFM 1992, p. 28).

The Resource Management Plan presents an important management need:

...to establish a baseline understanding of the nature, extent, and condition of the resources, then to identify those variables, whether natural or man-caused, that impact the future viability of the natural systems and cultural resources (RMP 1989, p. 11).

Social science research is required to fulfill the management objectives and mandates to balance preservation and use.

The need to better *understand visitors* was identified in the General Management Plan and Statement for Management. Social science activities are required to meet specific objectives related to understanding visitors. For example, the Statement for Management lists several objectives to undertake research related to visitors and other preserve users. These include:

Conduct a full range visitor use survey to assist management in determining and planning for development of the physical facilities and services needed by the park visitor. This survey should include the visitor's perceptions of a preserve and their management expectations.

Monitor social/economic/demographic impacts of Indian use, occupancy and potential for resource impacts to allow management to identify their particular needs and possible mitigation strategies.

Develop methodology that would enable the preserve to routinely collect basic visitor use statistics, particularly in the vast backcountry areas, to include the Florida Trail, and along the high speed road corridors.

Develop trail, backcountry, recreational use management plans to guide future management decisions (SFM 1992, p. 30).

In the General Management Plan, the need to study visitor use and oil and gas development is presented:

No visitor survey about oil and gas development has been conducted for the preserve, and no data exist about visitor perceptions or how visitor use may be altered because of development...three major questions that need to be answered have been identified:

- (1) Why do visitors go to Big Cypress National Preserve?
- (2) What are the important values of the preserve?
- (3) How is visitor enjoyment of certain values affected by existing, proposed, or potential future oil and gas development (GMP/FEIS, Volume 1 1991, p. 336-337)?

Social science research is required to fulfill management objectives and mandates to better understand visitors and improve management planning and decision-making related to visitors.

The need to foster *regional cooperation* was identified in the General Management Plan and Statement for Management. Social science activities are required to meet specific objectives related to regional cooperation. For example, the General Management Plan describes the need for regional management strategies:

Park resources and visitor enjoyment are vulnerable to impairment by pollutants, visual intrusions, odors, noise, and other impacts associated with land development, mineral extraction, utility line construction, distant power plant operations, and aircraft overflights. It is the policy of the Department of the Interior and the National Park Service to take the initiative to work cooperatively with others to anticipate, avoid, and resolve potential threats. Such management requires long-range strategic planning, accurate scientific data, a sensitivity to cross-boundary effects of management decisions, as well as a commitment to cooperate in the identification and implementation of regionally coordinated management strategies (GMP/FEIS, Volume 1 1991, p. 15).



The Statement for Management includes the following long-term management objective:

Maintain good public relations with permanent residents within the preserve and foster public appreciation and understanding of the significance of the Big Cypress Watershed and its plant and animal communities within the South Florida ecosystem (SFM 1992, p. 37).

Social science research is critical to fulfill the management objectives and mandates to foster regional cooperation.

Biscayne National Park

The following planning documents were reviewed for Biscayne National Park:

- Statement for Management/Basic Operations Statement, 1990
- General Management Plan/Development Concept Plan/Wilderness Study/Environmental Assessment, 1983
- Master Plan, 1970
- Interpretive Prospectus, 1987
- Land Protection Plan, 1988
- Resource Protection Case Study, 1982

Three key management issues that require social science research were identified:

- Balancing Preservation and Use
- Understanding Visitors
- Regional Cooperation

The need to *balance preservation and use* was identified in Statement for Management, General Management Plan, Master Plan, Interpretive Prospectus, and Resource Protection Case Study. Social science research is required to meet specific objectives related to this balance. For example, the Statement for Management lists as a long-term management objective:

To encourage and participate in natural and social scientific research for the purpose of developing adequate baseline data and monitoring changes in Park resources (SFM, Basic Operations Statement 1990, p. 56).

The Statement for Management presents more detailed management objectives related to preservation and use. For example:

Appropriate controls need to be placed on recreational activities to minimize visitor use and resource damage (SFM, Basic Operations Statement 1990, p. 22).

To systematically and professionally monitor, document, and evaluate so appropriate recommendations for preservation and/or mitigation can be made of cultural resources subject to natural and human impacts (SFM, Basic Operations Statement 1990, p. 24).

To document through resource management monitoring and research programs the effect of canal discharges, fishing (commercial and sport), fish stocking, boat use, shoreline development, artificial reef placement, etc., on the resources of the Park; so that actions can be initiated to halt the damage in a rapidly growing urban area (SFM, Basic Operations Statement 1990, p. 55).

The Master Plan includes an objective related to preservation and use:

Encourage the broadest possible range of recreational pursuits throughout the Monument, wherever such activities do not interfere with or materially damage the natural values of the park (Master Plan 1970, p.46).

The Interpretive Prospectus includes a program objective to:

orient visitors to encourage their participation in a range of recreational activities within the park that do not adversely affect natural, cultural, or aesthetic values or unnecessarily duplicate programs, facilities, or opportunities available outside the park (Interpretive Prospectus 1987, p. 2).

Social science research is required to fulfill the management objectives and mandates to balance preservation and use.

The need to better *understand visitors* was identified in the Statement for Management. Social science activities are required to meet specific objectives related to understanding visitors. For example, the Statement for Management includes as one of its short-term management objectives:

To conduct and complete "An Evaluation of Visitor Use and Expectations at Biscayne National Park" and to use the findings to



better meet the needs of the Park users and to improve our interpretation to them of National Park Service policies and objectives in managing the resources of the Park (SFM, Basic Operations Statement 1990, p. 58).

Social science research is required to fulfill management objectives and mandates to better understand visitors and improve management planning and decision-making related to visitors.

The need to foster *regional cooperation* was identified in the Statement for Management, General Management Plan, Master Plan and Resource Protection Case Study. Social science activities are required to meet specific objectives related to regional cooperation. For example, the Statement for Management lists the following management objectives related to regional cooperation and development:

To manage natural resources through a flexible program designed to cope with the changing pressures on the Park from regional development and an expected increase in Park use (SFM, Basic Operations Statement 1990, p. 22).

To continue reviewing and commenting on adverse development proposals such as dredge and fill permits, which would negatively impact Park resources and cooperate with Federal, State, and local regulatory agencies in finding other alternatives that cause less damage or none at all (SFM, Basic Operations Statement 1990, p. 23).

To coordinate planning and management of Biscayne National Park with that of the State's Biscayne Bay Aquatic Preserve and the area covered by the County's Biscayne Bay Management Plan (SFM, Basic Operations Statement 1990, p. 57).

To prevent threats to Park resources, anticipate, avoid and resolve conflicts with Federal, State and local land management and regulatory agencies wherever possible, but elevate conflicts to higher decision levels when necessary to prevent resource impairment (SFM, Basic Operations Statement 1990, p. 58).

The Master Plan includes the following management objective:

Work very closely with the various county, state, and federal agencies to effectively express the interests of park management in any proposal for development or activity which could have impact on the park (Master Plan 1970, p. 48).

Social science research is critical to fulfill the management objectives and mandates to foster regional cooperation.

Dry Tortugas National Park

The following planning documents were reviewed for Dry Tortugas National Park:

- Draft Statement for Management, 1982 (Fort Jefferson National Monument)
- General Management Plan, 1983 (Fort Jefferson National Monument)
- Resource Management Plan, 1995

Two key management issues that require social science research were identified:

- Balancing Preservation and Use
- Employee and Organizational Concerns Related to Isolation

The need to *balance preservation and use* was identified in the Statement for Management, General Management Plan and Resource Management Plan. Social science activities are required to meet specific objectives related to this balance. For example, the Statement for Management presents long-term objectives that focus on carrying capacity:

To develop and implement appropriate public use carrying capacities, while allowing only minimum impact activities within the monument, in order to maintain its marine wilderness character and to ensure its lasting value for baseline environmental monitoring and research.

To monitor visitor use levels and patterns, as well as the monument's resources, so that appropriate management actions can be implemented if excessive visitor use impacts are identified (SFM 1992, p. 4).

The General Management Plan directs that:

The impacts of visitor uses on marine life will be monitored; if necessary, additional management actions, including new regulations, will be implemented to protect the integrity of the marine ecosystem (GMP 1983, p.15).

In the Resource Management Plan, a comprehensive plan is proposed to assess and manage the impacts of increasing visitation on park resources. Specific steps in this plan are presented:



Step one is to conduct a visitor profile study to determine attitudes and expectations of park visitors. A second part of the investigation should include a carrying capacity study to determine tolerances of visitors and resources to certain use levels... Without a solid knowledge of the park visitor, visitor trends, and the effects of increased visitation on natural and cultural resources, managers can not support regulations to control visitor use and behavior that are bound to be controversial (Draft RMP 1995, pp. 74, 0083).

Social science research is required to fulfill the management objectives and mandates to balance preservation and use.

The need to address *employee and organizational concerns* was identified in the Statement for Management. Social science activities can help deal with these concerns. For example, a long-term management objective related to employee isolation is:

To recognize the special needs associated with living and working at the monument's remote location and to implement appropriate personnel and management practices to facilitate employee productivity and satisfaction (SFM 1992, p. 3).

The Statement for Management also include objectives to improve its administrative relationship with Everglades National Park to promote the most "effective and efficient management" of the park:

Conduct a comprehensive, objective review of the administrative arrangements and management organization for the monument with the aim of implementing institutional changes that will improve long-term management continuity, promote increased efficiency and effectiveness, and that will enhance the development of an increased capability for management self-sufficiency (SFM 1992, p. 9).

Social science research is critical to fulfill the management objectives and mandates to address employee and organizational concerns related to the park's isolation.

Everglades National Park

The following planning documents were reviewed for Everglades National Park:

- Statement for Management, 1991
- Master Plan, 1979

- Final Environmental Statement/Master Plan, 1979
- Draft Environmental Statement/General Management Plan, 1976
- Management Objectives, 1993 (from planning workshop)
- Statement for Interpretation, (1993/1994)
- Backcountry Management Plan, 1981
- Wilderness Recommendation, 1974
- Final Environmental Statement/Wilderness Recommendation, 1978
- Draft Land Protection Plan, 1985
- Land Protection Plan, East Everglades Addition, 1991
- Fire Management and Environmental Assessment, 1991
- Bike Trail System Study (Phase One, Part One), n.d.
- Gulf Coast Development Concept Plan, 1990
- Historic Resource Study, 1986

Four key management issues that require social science research were identified:

- Balancing Preservation and Use
- Visitor Carrying Capacity
- Understanding Visitors
- Regional Cooperation

The need to *balance preservation and use* was identified in the Master Plan and the Statement for Management. Social science activities are required to meet specific objectives related to this balance. For example, in a discussion of Florida Bay the Master Plan states that:

What needs to be resolved here are the conflicts between recreation use and preservation of the natural resources. Of particular concern are the potential depletion of the fishery resource and disturbance and destruction of habitats and spawning areas that could be caused by boating and fishing activities (Master Plan 1979, p. 49).

The Statement for Management refers explicitly to the need for integrated research:

Research efforts must be integrated into a framework which documents ecosystem functions and dynamics, supports management decisions,



and monitors effects of both natural and man-induced environmental conditions (SFM 1991, p. 27).

Social science research is required to fulfill the management objectives and mandates to balance preservation and use.

The need to establish and monitor *visitor carrying capacity* was identified in the Statement for Management, Master Plan, General Management Plan, Wilderness Recommendation, and Backcountry Management Plan. Social science research is required to meet specific carrying capacity objectives. For example, the Master Plan describes the general need for this type of research:

The physical, ecological, and psychological carrying capacity of the park is unknown and needs to be determined (Master Plan 1979, p. 34).

The Statement for Management confirms the need for this type of research to help make decisions related to use limits:

The impacts of visitor access and recreational uses such as cycling, motorboats, backcountry camping, fishing, etc., need to be evaluated to provide a basis for management decisions involving visitor use limits, speed restrictions, road design, closures, etc. (SFM 1991, p. 11).

The Backcountry Management Plan provides a specific wilderness perspective on the need for carrying capacity:

Because of the unique quality of the experiences obtainable in the Everglades backcountry, and the physical limitations, both sociological and environmental to backcountry use, indications are that overuse, crowding, and use conflicts are imminent, not in the sense of individuals per acre, but rather at selected campsites and along popular routes... The purpose of setting use limits or defining carrying capacity is two-fold; resource preservation and ensuring the opportunity for solitude and a high quality wilderness experience (Backcountry Management Plan 1981, p. 4, 51).

The Statement for Management provides a more recent perspective on backcountry use and carrying capacity:

Backcountry use needs careful monitoring and evaluation to determine carrying capacity of current facilities, assess impacts on the resources, and plan for future needs. Special regulations such as no-wake zones and temporary closures to powerboats may be necessary for the protection of manatee and wading bird rookeries (SFM 1991, p. 20).

Social science research is required to fulfill management objectives and mandates to establish carrying capacity limits.

The need to better *understand visitors* was identified in the Master Plan, General Management Plan, Backcountry Management Plan, and Everglades Bike System Trail Study. Social science activities are required to meet specific objectives related to understanding visitors. For example, the Master Plan presents the following objective that focuses on visitors:

Research should be initiated to evaluate the relationships between the park and its visitors. Sociological and cultural characteristics of park visitors should be inventoried, along with visitor expectations and the degree to which the park fulfills them (Master Plan 1979, p. 34).

The Backcountry Management Plan describes the need for consistent information to guide planning and decision making for certain visitor uses:

...information regarding the numbers of individuals using the backcountry, where they go and when is incomplete at best. Visitor use figures are arrived at from a variety of sources...Each data source is incomplete and only covers a portion of the visitors present at any one time. In addition, the degree of overlap between data sources in [sic] uncertain...A coordinated means of synthesizing information still needs to be found (Backcountry Management Plan 1981, pp. 68-69).

A plan for a bike system trail refers to the lack of a "scientific user study" to provide information about bicycle user groups (Everglades Bike Trail System Study, n.d., p. 18).

Social science research is required to fulfill management objectives and mandates to better understand visitors and improve management planning and decision-making related to visitors.

The need to foster *regional cooperation* was identified in the Master Plan and General Management Plan. Social science activities are required to meet specific objectives related to regional cooperation. For example, the Master Plan includes the statement:

...No matter how well the park is planned and managed internally, it cannot survive alone. It will become increasingly important in the years ahead that a sophisticated and innovative park management continue to



actively pursue a regional partnership with other interests in South Florida (Master Plan 1979, p. 2).

The General Management Plan describes the importance of cooperative planning:

Everglades National Park is a microcosm that reflects changes throughout much of the South Florida region...Preservation of this delicate ecological balance requires cooperative planning by major private groups with an interest in regional development (Draft Env. Statement/GMP 1976, p. 101).

Specific regional issues related to cooperative planning are identified in the Master Plan. For example:

Encroaching peripheral developments to support residential, commercial, industrial, and agricultural activities must be carefully planned.

Tourist services must be adequately planned and situated to serve the increasing numbers of visitors to South Florida in a way that will enhance both the park and communities outside.

Environmental education and research must be encouraged and instituted cooperatively with local school and conservation groups (Master Plan 1979, pp. 30-31).

The Statement for Management has as one objective:

To cooperate with other agencies, private organizations, educational institutions, and the public to promote and perpetuate the protection of park resources and promote park values (SFM 1991, p. 31).

Social science research is important to fulfill the management objectives and mandates to foster regional cooperation.

Partnership Mandates

Several federal and state initiatives (through task forces, commissions) are underway to restore, protect and manage South Florida as an ecosystem. These initiatives include:

- The Interagency Ecosystem Management Task Force
- The South Florida Ecosystem Restoration Task Force
 - * Management and Coordination Working Group
 - * Four Subgroups:

1. Science
2. Management
3. Infrastructure
4. Public Information and Education

- The Governor's Commission for a Sustainable South Florida

The National Park Service is an active participant (through the Department of the Interior) in the task forces and Governor's Commission. The following reports and plans of these task forces and commission were reviewed:

- The Ecosystem Approach: Healthy Ecosystems *and* Sustainable Economies, 1995
- 1995 Annual Report, South Florida Ecosystem Restoration Working Group
- 1994 Annual Report, South Florida Ecosystem Restoration Working Group
- South Florida Ecosystem Restoration: Scientific Information Needs, 1994
- Initial Report of The Governor's Commission for a Sustainable South Florida, 1995

The research and management objectives described in the reports directly affect national park units in South Florida and provide additional rationale for social science research.

Interagency Ecosystem Management Task Force

In 1993, the Interagency Ecosystem Management Task Force was formed in response to the mandate from Vice President Gore's National Performance Review to adopt "a proactive approach to ensuring a sustainable economy and a sustainable environment through ecosystem management" (Ecosystem Approach 1995, p. 1). A working group was formed by the Task Force to help improve agencies' understanding of an ecosystem approach to management. The working group conducted seven case studies to learn about ecosystem management efforts around the country — Anacostia River watershed, Coastal Louisiana, Great Lakes Basin, Pacific Northwest forests, Prince William Sound, South Florida, and the Southern Appalachians.



The Task Force Report presents six recommendations related to the role of science. Two of these recommendations support the need for social science research in the "ecosystem approach."

Regional science planning bodies. Agencies should establish or support regional science planning bodies to: assess the current state of knowledge regarding a region or ecosystem; identify major gaps in understanding; and allocate responsibilities consistent with agency expertise, resources, and mandates...Regional science planning should incorporate a wide range of natural scientists and social scientists, address both ecological and socioeconomic issues, and incorporate an explicit goal of fostering integration among disciplines.

Standards for ecosystem studies. Agencies should develop standards for ecosystem studies emphasizing: studies applicable on several scales; interactions among species, groups of species, and habitat, and the impact of human activities; socioeconomic priorities and needs; monitoring as a science priority; protocols establishing ecological indicators for monitoring ecosystem sustainability; determining the range of natural variability; techniques for restoring damaged ecosystems; and models to link management activities with changes in selected ecological indicators (Ecosystem Approach 1995, p. 13).

The Task Force also presents a framework for applying an ecosystem approach that includes several critical steps. One key step is to:

Characterize the historical ecosystem and the present economic, environmental, and social conditions and trends for the ecosystem [where] the social environment can be described in terms of such factors as the location and distribution of communities, the human uses of resources, and the political and economic issues related to resource use. The economic environment can be characterized by such variables as local employment patterns, work force availability and skills, and the location and distribution of important economic centers...(Ecosystem Approach 1995, p. 50).

The critical importance of natural and social science research in ecosystem management efforts, such as South Florida, is acknowledged by the Interagency Ecosystem Management Task Force.

South Florida Ecosystem Restoration Task Force

In 1993, a five-year Interagency Agreement on South Florida Ecosystem Restoration was signed by six federal agencies: the Departments of the Interior, Commerce, Army, Justice and Agriculture and the Environmental Protection Agency. A South Florida Ecosystem Restoration Task Force was formed (separate from the Interagency Ecosystem Management Task Force described above). The task force, assisted by its Management and Coordination Working Group, develops policies, strategies and priorities for ecosystem restoration and maintenance. Four Subgroups were created to carry out efforts related to 1) science, 2) management, 3) infrastructure, and 4) public information and education. In 1995, membership on the interagency task force was broadened to include the Lieutenant Governor of the State of Florida and the chairmen of the Miccosokee Tribe of Indians of Florida and the Seminole Tribe of Florida.

The Task Force has as one objective to:

Establish research priorities and implement a process for coordinating research on the South Florida ecosystem, including Florida Bay, which includes development of a baseline scientific condition assessment and indicator monitoring program, and appropriate biological and hydrological modeling to evaluate ecosystem restoration objectives and programs (1995 Annual Report, South Florida Ecosystem Restoration Working Group, p. 7).

An indicator monitoring program could include socioeconomic indicators. Identifying and monitoring changes in significant social, economic, cultural and political indicators could contribute to a strong interdisciplinary research program on the South Florida ecosystem.

The Science Subgroup identified specific science objectives and needs. The overall objective of the Subgroup is:

...to develop an interagency, interdisciplinary science program that will guide restoration actions by determining the relationships between ecosystem function and hydrologic regime and describing the hydrologic conditions required to support the characteristic landscapes, biodiversity, and wildlife abundance of predrainage South Florida.



Other important objectives are to provide 1) a scientific basis for management decisions (e.g., regulatory actions, land use permitting) and 2) information that could lead to increased beneficial interactions between natural and human communities (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 12).

Specific needs for research at the ecosystem level are identified, including the need to understand connections between the human and natural environment:

...Both tangible and intangible connections between natural and human systems need to be quantified and widely communicated while reinstatement of a sustainable system is still possible.

Potential opportunities need to be explored for configurations of land and water that lead to ecosystem restoration and enhanced quality of life and economic sustainability in human communities (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 6).

The following questions are posed for research related to natural and human interactions:

What are the critical feedbacks of the natural system to urban and agricultural systems and vice versa?

How will the natural system and its support functions for humans be affected by different populations levels and land use configurations?

What landscape combinations will allow healthy natural systems and urban and agricultural systems to coexist? (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 14)

The Science Subgroup also identifies specific research needs for each of the 10 sub-regions into which the South Florida ecosystem is divided. In the needs outlined for the Upper East Coast-St. Lucie River Area, the importance of landscape planning and forecasting models is described. The interdisciplinary nature (natural/social science research) of the modeling is explicit:

...Landscape planning models should be developed with a capacity to reliably forecast natural resource, ecological, economic, and social consequences of engineering works, land use changes, and hydrologic management policies in the region (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 155).

For the Lower East Coast Urban Area, the following research recommendations are presented related to natural-human

environment interactions:

Conduct a short-term, quantitative analysis to determine, from a water supply and South Florida Ecosystem Restoration perspective, how various alternative scenarios of future land use and associated local water management in presently undeveloped wetlands between the urban east coast and the Water Conservation Areas and Everglades National Park... would affect water supply and waste management in support of ecosystem restoration (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 415).

Investigate the attitudes of homeowners, professional landscapers, and nurserymen to determine the most effective methods of promoting use of xeriscape landscaping with native plants (South Florida Ecosystem Restoration: Scientific Information Needs, 1994, p. 417).

Conduct and/or support research on the attitudes of the region's diverse groups of urban residents, private landowners, and tourists about wildlife, habitat, environmental protection, and water conservation and methods to influence those attitudes (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 420).

The Science Plan for Florida Bay includes several goals and objectives for research. One of the objectives focuses on:

Separating anthropogenically induced changes in Florida Bay from natural system variation. Both natural disturbances (e.g. hurricanes, freezes) and long-term climate processes (drought cycle, sea-level rise) have strongly influenced the structure and function of the Bay. These same processes may mask or exacerbate the effects of anthropogenic effects within the context of natural system function and variation (South Florida Ecosystem Restoration: Scientific Information Needs 1994, p. 369).

Social science research is critical to understand human-ecological interactions in the South Florida ecosystem, understand people's attitudes toward restoration, and address the corresponding research needs identified by the Science Subgroup.

The Governor's Commission for a Sustainable South Florida

In 1994, the Governor's Commission for a Sustainable South Florida was created by Executive Order to "make recommendations for achieving a healthy Everglades ecosystem that can coexist and be mutually supportive of a sustainable South



Florida economy and quality communities” (Initial Report 1995, p. 4). The Commission consists of 37 voting members, including representatives from the following government agencies and organizations:

- the business and economic community
- public interest and environmental organizations
- county and city officials
- the South Florida Water Management District
- regional planning councils
- the secretaries of the Florida Department of Environmental Protection, the Florida Game and Fresh Water Fish Commission, the Florida Department of Commerce, the Florida Department of Transportation, and the Florida Department of Community Affairs
- the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida
- the Florida House of Representatives and Florida Senate

The Commission also includes five non-voting members who represent federal agencies, including the Department of the Interior (Initial Report 1995, p. 25).

The Commission has outlined many objectives for sustainable development in South Florida, including the following:

To increase the use of better, more compact, and functional urban design.

To attract, support, protect, and retain industries critical to a balanced, quality economy such as: tourism, agriculture, and international trade.

To create an array of cultural and recreational opportunities that are affordable and available to all.

To improve regional governance and planning coordination, cooperation and effectiveness.

To develop a common scientific data pool (GIS) to be used for implementing ecosystem management in South Florida.

To establish and coordinate science and research priorities for the South Florida ecosystem (Initial Report 1995, pp. 7-11).

Social science research has an important role to play in achieving these objectives.

Appendix II. Summaries of Existing Social Science Studies

This appendix includes detailed summaries of social science studies relevant to the South Florida NPS units. It was prepared by the FAU/FIU Joint Center for Environmental and Urban Problems. The studies are organized by topic, e.g., economics, visitor studies for each NPS unit. Each study is described by: 1) author and title, 2) date of study, 3) key population studied, 4) methods, 5) key findings and 6) location.

Big Cypress National Preserve

Visitors Studies

1. Author and Title:

Jansen, Deborah K. *Big Cypress Public Use Study.*

2. Date of Study:

July 1983-June 1986

3. Key Population Studied:

A survey of recreationists

4. Methods:

Personal interviews

5. Key Findings:

The study determines that the most popular activity of park users is hunting. Fishing and frogging are other park uses. The survey gives demographic information and describes the activities of the average park user.

6. Location:

Big Cypress National Preserve

1. Author and Title:

Fogg, George. *A Study of South Florida Recreational Patterns.*

2. Date of Study:

1990

3. Key Population Studied:

Preserve users

4. Methods:

N/A

5. Key Findings:

The goal of this study was to develop an understanding of South Florida's multifaceted user groups, and relate this information in a useful manner to



the appropriate decision makers. The information generated will enable various participating resource oriented agencies and businesses to better understand the user needs they serve and where there is room and/or need for improvement and/or expansion. As part of the enabling legislation for the expansion of Big Cypress National Preserve (Public Law 100-301), the National Preserve is required to identify the users of the Preserve. This report addresses, in part, these legislative requirements. It explores who is using the park and surrounding areas. This seasonal study offers some assistance to the National Park Service in setting up the format of the necessary studies for a larger full year study of Big Cypress.

6. Location:

Big Cypress National Preserve

Land Use

1. Author and Title:

Duever, Michael J., *et al. Resource Inventory and Analysis of the Big Cypress National Preserve*. Gainesville, Florida: Center for Wetlands and the National Audobon Society.

2. Date of Study:

1979

3. Key Population Studied:

N/A

4. Methods:

N/A

5. Key Findings:

The report is a description of ecosystems, including some information on fire management, land use, and land use patterns.

6. Location:

Everglades National Park Library

1. Author and Title:

Robinson, Steven D. *Tortious Water and Land Use in the Big Cypress Swamp*. Miami Florida.

2. Date of Study:

1971

3. Key Population Studied:

N/A

4. Methods:

This article reviews scientific and policy literature related to the swamp and reviews Florida law decisions and the relationship between them.

5. Key Findings:

This article attempts to tie solutions to environmental problems to an existing common law system as in the case of Florida water law and the crisis in the Big Cypress Swamp. To prevent development in the Swamp,

government condemnation and zoning ordinances may be used. This article looks at a third possibility, injunctive relief.

6. Location:

Everglades National Park Library

1. Author and Title:

U.S. National Park Service. *Environmental Assessment for Big Cypress National Preserve Visitor Use and General Development Plan and Everglades National Park, Shark Valley/Tamiami Development Concept Plan.*

2. Date of Study:

May 1980

3. Key Population Studied:

Park Visitors

4. Methods:

N/A

5. Key Findings:

Alternatives formulated for visitor use and development are evaluated in terms of impacts on natural, cultural, and socioeconomic environments.

6. Location:

Everglades National Park Library

Biscayne National Park

Visitors Studies

1. Author and Title:

Tilmant, James T., George P. Schmahl, and Douglas Morrison. *An Ecological Assessment of Biscayne National Monument's Coral Reefs in Relation to Recreational Use.*

2. Date of Study:

Study initiated in 1977.

3. Key Population Studied:

Recreational reef users

4. Methods:

On each study reef, periodic observations are made of fish populations, coral communities, etc., and levels and types of visitor activities.

5. Key Findings:

Emphasis of this 1977 coral reef study has been to provide basic ecological data and to determine possible impacts of recreational reef use. Environmental conditions of four buoyed patch reefs are compared to four similar unmarked control reefs. Significant ecological impact from recreational use has not been evident.



6. Location:

Everglades National Park

1. Author and Title:

Biscayne National Park Communications Survey. Atlanta, GA: Survey Research Center, Center for Urban Policy Research, Georgia State University.

2. Date of Study:

1989

3. Key Population Studied:

Park Visitors

4. Methods:

A survey was conducted at Biscayne National Park during the summer of 1989 in order to develop, implement and evaluate mass media for increasing public awareness of the park and encouraging appropriate use of the park's resources. The survey was designed as a mailback instrument administered to visitors of the park during the week of July 26-30, 1989. Two reminder letters were sent over a period of approximately seven weeks. A response rate of 60.8 percent was obtained, with 295 visitors responding to the questionnaire.

5. Key Findings:

While previous research focused on the cultural and ethnic differences of visitors in their perceptions of the natural environment and their expectations of Biscayne National Park, this study sought to develop, implement and evaluate mass media for increasing public awareness of the park and encouraging appropriate use of the park's resources. This study used objective data collection methods to obtain information on specific types of users and their ratings of different management actions proposed for the park, their awareness of user impacts on the natural resources in Biscayne Bay, and their evaluation of communicative slogans and appeals. In addition, the study solicited information on the respondents' attitudes toward the environment. The study also attempted to determine whether environmental attitudes varied by ethnic heritage.

6. Location:

Georgia State University

1. Author and Title:

Division of Interpretive Planning, Harpers Ferry Center. *Interpretive Prospectus: Biscayne National Park, Florida*.

2. Date of Study:

October 1987 (amended 1993)

3. Key Population Studied:

Park Visitors

4. Methods:

A planning team made up of staff members from the park and region. Demographics and usage of parks are given from a 1989 visitors survey.

5. Key Findings:

This plan establishes the framework for developing a comprehensive interpretive program at BNP. It explains who Park users are according to a 1989 visitors study and what facilities improvements, exhibits, and outreach programs are planned.

6. Location:

Biscayne National Park

1. Author and Title:

Marion, Jeffrey L., Joseph W. Roggenbuck, and Roger E. Manning. *Problems and Practices in Backcountry Recreation Management: A Survey of National Park Service Managers.*

2. Date of Study:

1993

3. Key Population Studied:

Backcountry Users

4. Methods:

The mail-back questionnaire was sent to 106 National Park Service units which have substantial overnight visitation. Response rate was high (92 completed surveys, 93 percent).

5. Key Findings:

A survey of National Park Service managers was conducted, including Biscayne National Park and Fort Jefferson National Monument, designed to describe the nature and diversity of visitor-related backcountry management problems and practices in park areas.

6. Location:

Everglades National Park

1. Author and Title:

Snow, Robert E. *Recreation Resource Management and Planning Study for Biscayne National Park.* (BNP Visitor Survey: Final Report.) Atlanta, GA: Cooperative Park Studies Unit, Center for Public and Urban Research, Georgia State University.

2. Date of Study:

November 1989

3. Key Population Studied:

Park users, registered boat owners in Dade County, and general public

4. Methods:

Two survey methods were used: 1) Randomly selected park visitors were



selected in winter and summer and given surveys to mail back, and registered boat owners in Dade County were mailed questionnaires; 2) telephone surveys were conducted of the general population of Dade County. Comparisons between Hispanic and non-Hispanic residents were made.

5. Key Findings:

This report describes the results of a series of surveys among BNP visitors, registered boat owners in Dade County and the general population of Dade County, conducted in 1987. Surveys provide information on visitor use of the park, their evaluations of park facilities and programs, their recreational interests, the problems they encountered, and their demographic characteristics.

6. Location:

Biscayne National Park

1. Author and Title:

Fabbri, P., editor, "Formulating policies using visitor perceptions of Biscayne National Park and seashore." In *Recreational Uses of Coastal Areas*, p. 235-254.

2. Date of Study:

1990

3. Key Population Studied:

Park visitors focusing on different ethnic groups and recreational boaters

4. Methods:

Visitor surveys were handed to randomly selected visitors to the park in winter and summer and returned by mail. A mailback survey was sent to registered boat owners in Dade County.

5. Key Findings:

From a park management perspective, Biscayne's data suggest a need for sensitivity to expectations that different ethnic groups bring to the Park when designing services and programs offered within the Park. Data also suggest addressing issues of whether marina recreational areas should have increased development and formal control to maximize visitor satisfaction, or remain undeveloped natural areas.

6. Location:

Biscayne National Park

Economics

1. Author and Title:

Menke, Charlotte R. *Economic Study of the Biscayne National Monument*. Prepared under Order No. 14-10-910-15 for the NPS, U.S. Dept. of Interior. Gainesville, Florida: Bureau of Economic and Business Research, College of Business Administration, University of Florida.

2. Date of Study:
1968

3. Key Population Studied:
Dade County Economy

4. Methods:
The study uses average park user profiles, developed in past studies, to determine economic effects of the park on the Dade County area.

5. Key Findings:
The purpose of the study is to determine the effects which the establishment of the Biscayne National Monument might have upon Dade County and to develop other economic and environmental information to assist in a judgment of the Monument's feasibility. The Bureau's responsibility was to estimate the economic conditions which might result from introducing this new recreational and conservation resource in the Dade County area.

6. Location:
Everglades National Park

Everglades National Park

Economics

1. Author and Title:
Centaur Associates, Inc. *Socio-Economic Analysis of Commercial and Recreational Fisheries in Everglades National Park: Final Report*. Prepared for Everglades National Park. Washington, D.C.: Centaur Associates, Inc.

2. Date of Study:
September 1986

3. Key Population Studied:
Fishermen

4. Methods:
Commercial data were compiled on the ex-vessel value of landings for Everglades National Park, the State of Florida as a whole, and the counties of Dade, Collier, and Monroe, which surround the Park. Multipliers were used, and fish were broken into 12 species categories. Recreational expenditures were split into two categories: private boat and guide party recreational fisheries.

5. Key Findings:
This report examines the economic impact of fishing in Everglades National Park. It summarizes economic impact trends for various Park fisheries and compares the economic impact of fishing in the Park with the surrounding Florida areas.

6. Location:
Everglades National Park



1. Author and Title:
Centaur Associates, Inc. *Socio-Economic Assessment of Fishery Management in Everglades National Park: Final Report*. Prepared for Everglades National Park. Washington, D.C.: Centaur Associates, Inc.
 2. Date of Study:
December 1978
 3. Key Population Studied:
Commercial and Recreational Fishermen
 4. Methods:
Approaches for various alternatives vary somewhat, but all consider the incremental effect of the alternatives relative to current conditions.
 5. Key Findings:
This report provides the requisite socioeconomic impact assessments and unavoidable adverse effects associated with the commercial and recreational activity related to 24 fishery management alternatives, including prohibiting net fishing, imposing bag limits, permit restrictions, boat and motor restrictions, etc.
 6. Location:
Everglades National Park
-
1. Author and Date:
Tilmant, James T. "A History and an Overview of Recent Trends in the Fisheries of Florida Bay." From *Bulletin of Marine Science*, 44(1): 3-33, 1989.
 2. Date of Study:
1989
 3. Key Population Studied:
Fishermen
 4. Methods:
The University of Miami Marine Laboratory fishermen survey and the ENP fisheries harvest monitoring program both interviewed fishermen at boat launch sites. Data included: area fished, reported catch, species preference, and fish lengths. Estimates of number of fishing boats were obtained from ranger reports, boat trailer counts, and concessionaire reports. Aerial surveys were also used as verification.
 5. Key Findings:
A historical review and description of the fisheries of Florida Bay are given. It looks at National Park Service monitoring program and provides data on both commercial and recreational fisheries to describe fishing trends.
 6. Location:
Everglades National Park

1. Author and Title:

Tilmant, James T., Edward S. Rutherford, Richard Dawson, and Edith B. Thue. *An Analysis of the Recreational and Commercial Estuarine Fisheries Harvest within Everglades National Park, 1958-1985*. Report SFRC-86/08. Homestead, Florida: Everglades National Park.

2. Date of Study:

1986 (draft report; not published or in circulation)

3. Key Population Studied:

Recreational and Commercial Fishermen

4. Methods:

Recreational harvest and harvest rate data have been obtained through fishermen interviews at boat ramps.

5. Key Findings:

Fisheries data from 1958-1985 were analyzed and stock assessments conducted on the major species harvested.

6. Location:

Everglades National Park

1. Author and Title:

Correia, Michele Edwards. *An Economic Benefit Study of Federal Interest Lands in South Florida*.

2. Date of Study:

1995

3. Key Population Studied:

Local economies

4. Methods:

Money Generation Model, developed by National Park Service

5. Key Findings:

The study will use the Money Generation Model developed by the National Park Service's Socio-Economic Studies Division. The model is used to calculate how expenditures by tourists, the Federal government and other non-local parties result in sales benefits, tax benefits and new job benefits. The information generated from the study will be used to reinforce the need for restoration of the South Florida Ecosystem based on the economic benefits derived from the Federal Interest lands.

6. Location:

Everglades National Park



Visitor Studies

1. Author and Title:

Dolson, Dana E., and Gary E. Machlis. *Visitor Services Project Everglades National Park*. Report 21 (2 volumes). Moscow, Idaho: University of Idaho Cooperative Park Studies Unit.

2. Date of Study:

October 1989

3. Key Population Studied:

Park Visitors

4. Methods:

Front-end interviews were administered and questionnaires were distributed to a sample of selected visitors entering the park. Visitors completed the questionnaire during or after their trip and then returned it by mail.

5. Key Findings:

Summary: Results from a study of visitors to Everglades National Park during February 26 - March 4, 1989. Response rate was 80 percent (468 questionnaires returned out of 584 distributed). Visitor profiles, expenditures, and activities were analyzed, and general comments about their visits to the park were solicited.

Volume 2 contains a summary of comments to Question 12, made by visitors who participated in the study. Their unedited comments are also included.

6. Location:

FAU/FIU Joint Center for Environmental and Urban Problems

1. Author and Title:

Everglades National Park. *A Draft Assessment of Recreational Boating and Its Potential Impact on Resources within the Crocodile Sanctuary of Everglades National Park*. U.S. Department of the Interior.

2. Date of Study:

Approximate date 1991

3. Key Population Studied:

Recreational Boaters in Florida Bay Crocodile Sanctuary

4. Methods:

N/A

5. Key Findings:

The purpose of this document is to reevaluate the concept of the Florida Bay crocodile sanctuary. The objective is to incorporate visitor use (recreational boating) of the area, while minimizing known and possible adverse effects upon the endangered American crocodile.

6. Location:

Everglades National Park

1. Author and Title:

Ross, David M. *Report on Everglades National Park Visitor Survey*. (Draft).
Prepared for Everglades National Park.

2. Date of Study:

October 1985

3. Key Population Studied:

Park Visitors

4. Methods:

Mail-back surveys were used. Surveys were distributed at the Visitor Center.

5. Key Findings:

Primary purpose of this survey was to collect information to determine how important visibility and related attributes are compared to other attributes found at the park.

6. Location:

FAU/FIU Joint Center for Environmental and Urban Problems

1. Author and Title:

Snow, Skip. *A Review of Personal Watercraft and their Potential Impact on the Natural Resources of Everglades National Park*. Everglades National Park.

2. Date of Study:

November 1988 (Revised March 1989)

3. Key Population Studied:

Personal Watercraft Users

4. Methods:

Personal observations and communications with government departments and agencies, and watercraft associations and dealers. A literature search was also conducted.

5. Key Findings:

The summary opinion of the biologists and resource managers contacted, with respect to potential impacts on natural resources, is that they consider the use of personal watercraft as adding insult to injury. That is where disturbance to wildlife and vegetation was once localized in channels and some distance from shore, now can spread to areas generally avoided by conventional motorboats.

6. Location:

Everglades National Park



1. Author and Title:

Stewart, William P., and Mark I. Ivy. *A Sociologic Study of Wintertime Backcountry Users at Everglades National Park*. National Park Service Cooperative Park Studies Unit, Texas A&M University, Technical Report No. 14.

2. Date of Study:

February 1990

3. Key Population Studied:

Backcountry Users

4. Methods:

On-site surveys and mail-out surveys

5. Key Findings:

Study objectives: 1) identify overnight and day users of park's backcountry; 2) determine motivations, expectations, and preferences of users; 3) measure level of satisfaction; 4) evaluate users' reaction to permit system; 5) develop a sociological monitoring system; 6) provide database for backcountry travel simulation models; 7) suggest management actions that best meet social needs.

6. Location:

Everglades National Park

Water Use

1. Author and Title:

Hamann, Richard. *Assessment of Water Rights, Uses, Laws and Regulations, Everglades National Park*. Draft Final Report.

2. Date of Study:

1993

3. Key Population Studied:

Everglades National Park Water Rights

4. Methods:

A review and analysis of federal and Florida State water laws and regulations.

5. Key Findings:

This study was designed to assess the water rights of Everglades National Park. Section One examines the federal law of water rights, exploring the extent to which the federal government may have rights under federal law for delivery of water to the Park. Section Two focuses on state law governing water rights in Florida, the Water Resources Act of 1972, and the common law in effect before then. It discusses ways in which the water rights of the Everglades National Park can be protected under Florida law.

6. Location:

Everglades National Park

1. Author and Title:

Hershman, Karyn L. "Water for the Everglades: The Evolution of Water Policy in South Florida." M.A. Thesis, University of Virginia.

2. Date of Study:

May 1994

3. Key Population Studied:

Everglades water supply issues and policies

4. Methods:

Interviews with relevant experts and reviews of primary and secondary water policy documents were made and descriptions of the impacts of these policies on the Everglades ecosystem were given.

5. Key Findings:

This study gives a history of Everglades water supply issues and policies. It points out the often contradictory objectives of these policies. Over the years, policy regarding water for the Everglades has been one of crisis management rather than the development of policies to guide water management.

6. Location:

Everglades National Park

Recreation

1. Author and Title:

Everglades National Park. *Everglades Bike Trail System Study: Phase I - Corridor Study - part one - preliminary alternatives.*

2. Date of Study:

No date available. [maps used in the study date from January 1989]

3. Key Population Studied:

Bicyclists

4. Methods:

Selection will be based on an analysis of the opportunities and limitations inherent in the park environments as represented by the following attributes: existing visitor support and interpretive facilities; existing roads and trails; potential origin/destination points; natural diversity; sensitive resources; climatic factors/mosquitoes; and public safety.

5. Key Findings:

The purpose of this study is to identify and evaluate various alternative routes or combinations of route segments for bicycle use. Phase one was to conclude with the selection of a proposed bike trail system corridor. [Phase Two of this project was never conducted.]



6. Location:

Everglades National Park

1. Author and Title:

Schemnitz, Sanford D. *The Influence of Vehicles on Florida Everglades Vegetation*. Atlanta. (part of larger South Florida Environmental Study. Schemnitz, Sanford D. *The Impact of Halftracks and Airboats on the Florida Everglades Environment*. (reprinted from Proceedings of the 1973 Snowmobile and Off-road Vehicle Research Symposium. Technical Report 9.)

2. Date of Study:

1972 and 1973

3. Key Population Studied:

Airboat and halftrack users.

4. Methods:

Airboats and halftracks were run over vegetation segments, and vegetation was measured and collected. The study included a hunter-vehicle questionnaire.

5. Key Findings:

Both papers were based on a one year study to determine short-term influences on vegetation while providing a basis for long-term monitoring. The study considers beneficial and deleterious impacts on the Everglades environment.

6. Location:

Everglades National Park

1. Author and Title:

U.S. Department of Interior. *An Assessment of Recreational Boating and its Potential Impact on Resources within the Crocodile Sanctuary of Everglades National Park*. Everglades National Park.

2. Date of Study:

1991

3. Key Population Studied:

Recreational boaters in the Florida Bay Crocodile Sanctuary.

4. Methods:

A literature search for relevant studies was conducted, and park staff and others were consulted for their opinion on the proposed action.

5. Key Findings:

The purpose of this document is to reevaluate the concept of the Florida Bay crocodile sanctuary. The objective of this reevaluation is to incorporate visitor use (recreational boating) of the area, while minimizing known and possible adverse effects upon the endangered American crocodile. The study determined that providing limited and seasonal recreational access to the established sanctuary area would not adversely impact the endangered or threatened species in the area.

6. Location:
Everglades National Park

Environmental Studies

1. Author and Title:
Rogier, Constance M. *The Comprehensive Development Master Plan: A Study of Environmental Politics.*

2. Date of Study:
October 1983

3. Key Population Studied:
Citizens Advisory Task Force in South Dade

4. Methods:
Analyses were made of the minutes of Citizens Advisory Task Force meetings and public hearings to identify the interests and values being discussed. A stratified random sample of Citizens Advisory Task Force members, by interest, was chosen and interviewed. Planning Department staff were interviewed for an overview of the Comprehensive Development Master Plan. Analyses were made of county department memorandums, ordinances, letters to County Commissioners, organization newsletters, and Miami Herald articles and editorials.

5. Key Findings:
The study is an investigation of environmental politics in Dade County, Florida. Influence efforts of a small group of citizens in a growing urban community in a fragile tropical everglades setting are reviewed. When the County Commission made its final decisions on the Comprehensive Development Master Plan it formulated and legitimated a plan stating environmental values.

6. Location:
ProQuest Dissertation Abstracts

1. Author and Title:
Harwell, Mark A. (Chair), and John F. Long (Vice-Chair). *U.S. Man and the Biosphere Program Human-Dominated Systems Directorate: Workshop on Ecological Endpoints and Sustainability Goals.*

2. Date of Study:
1992

3. Key Population Studied:
Human impacts on the Everglades

4. Methods:
A workshop was held. GIS approaches were used to organize data.

5. Key Findings:
This report chronicles the results of the second U.S. Man and the Biosphere



workshop held in Easton, MD, in July 1993. The purpose of the workshop was to elaborate the major societal/ecological interactions in human-dominated ecological systems. The emphasis is on local and regional rather than global approaches. Three biosphere reserves were focused on: the Everglades, the New Jersey Pinelands, and the Virginia Coastal Reserve.

6. Location:

Everglades National Park

1. Author and Title:

U.S. Man and the Biosphere Program Human Dominated Systems Directorate. *Isle au Haut Principles: Ecosystem Management and the Case of South Florida*. Springfield, VA: National Technical Information Service, U.S. Department of Commerce.

2. Date of Study:

1994

3. Key Population Studied:

Everglades restoration issues

4. Methods:

The charette brought together a diverse group of over 40 natural and social scientists with expertise in South Florida ecosystem management to develop a new model of human/environment interactions to meet sustainability goals for the South Florida landscape.

5. Key Findings:

The U.S. Man and the Biosphere Program is conducting a five-year interdisciplinary study on ecosystem management for sustainability. In June 1994 at Isle au Haut, Maine, a charette was convened to apply these concepts to South Florida as a case study. The charette concluded that what is being done now for Everglades restoration will not achieve ecological sustainability.

6. Location:

Everglades National Park

1. Author and Title:

U.S. Man and the Biosphere Program Human Dominated Systems - GIS Specialty Group (Robert T. Walker and William D. Solecki). "Encroachment and Land Use Change in Biosphere Reserve Regions." (paper presented at Human Dominated Systems Directorate of the U.S. Man and the Biosphere Program workshop, January 5-7, 1994, Miami, Florida.)

2. Date of Study:

1994

3. Key Population Studied:

Biosphere Reserves

4. Methods:

The report discusses the initial stages of an analysis that integrates land use data, census information, and multiple Biosphere reserves. A methodology is outlined to address sustainability in its full complexity, involving ecological, anthropological, institutional, and socioeconomic circumstances and conditions.

5. Key Findings:

Section I elaborates on the Biosphere concept. Section II discusses sustainability and an analysis of the rationale for enabling cross-cutting assessments of Biosphere Reserves. Section III outlines GIS methodology. Section IV provides a brief conclusion and shows the steps ahead for implementing the approach across the Biosphere reserve sample.

6. Location:

Everglades National Park



Appendix III. Workshop Results

Workshops were conducted to obtain input from the public and NPS employees about social science research needs in South Florida. The purpose of this appendix is to present the social science research questions that were generated at these workshops. The appendix has two parts. First, the methods used to run the workshops and develop the research questions are described. Second, a list of all research questions generated at each workshop is presented.

Workshop Methods

Six workshops were held in South Florida between 18 – 25 October 1995. Three workshops were conducted for NPS employees; three workshops were conducted for other agency representatives, tribes, government officials, and interested citizens. Invitations and public notices announcing the workshops were distributed in advance. A total of 54 individuals participated. A list of participants is available from the NPS. The workshops were held at the following locations:

- Everglades National Park (13 participants)
- Big Cypress National Preserve (9)
- Biscayne National Park (5)
- Naples Public Library (7)
- South Dade Government Center (13)
- Key Largo Public Library (7)

Each workshop was conducted by a moderator and followed the same format. First, the purpose and rationale for developing a social science plan for South Florida's NPS units was presented. Second, the social sciences represented in the plan were listed (economics, geography, political science, psychology and sociology) with examples of potential research questions.

Third, each participant was asked to respond to the following question: "What are the most important social science research

questions facing this park or preserve?" Each participant wrote a list of important research questions on paper. Fourth, the participants presented their research questions to the group, one at a time for each participant. The moderator helped clarify each question, and they were recorded on flipcharts. Fifth, after all the questions were presented, the group reviewed each question and informally identified those that were most important.

The participants in each workshop identified many important social science research questions. Some questions were mentioned in more than one workshop. Other questions were raised at only one workshop. Some questions applied to the entire South Florida region; others focused collectively on the four park units, a subset of the four park units, or an individual park or preserve.

The following lists include all questions raised at the workshops. In some cases, they have been edited for conciseness. Acronyms used are BICY (Big Cypress National Preserve), BISC (Biscayne National Park), DRTO (Dry Tortugas National Park), EVER (Everglades National Park), and NPS (National Park Service).

Big Cypress National Preserve Employee Meeting

Wednesday, 18 October 1995

1. What are the motivations of key preserve users (consumptive)?
2. How can the park gain their trust (consumptive users)?
3. How can we make BICY more accessible to a variety of users?
4. Who are the visitors, where do they come from, and what are their interests?
5. What are the economic impacts of the preserve on local communities and geographically how far do the impacts extend?
6. What is the relationship between BICY and its community and region (broadly defined, including ecological)?
7. What is the BICY market?
8. What are the motivations of key preserve users (nonconsumptive)?
9. How is BICY viewed by the majority population of visitors (local and nonlocal)?
10. How can BICY best educate the public about its resource management



programs and issues (e.g., seniors and smoke — prescribed fire, etc.; seniors and hunters)?

11. What is the historic culture of Southwest Florida (ethnohistory)?
12. How can we get locals to be more acceptable of the NPS presence?
13. How would Native Americans like NPS to interpret their cultures?
14. Do local communities know we (BICY) exist as a NPS unit and what is their opinion (if they do know)?
15. What are the best communication methods and themes for Southwest Florida?
16. Why is BICY a destination for certain visitors/users (and why not for others)?
17. What do backcountry users want re: experience?
18. What are the experiences of backcountry users?
19. What are the conflicts among BICY users and how best can those conflicts be managed?
20. How can compliance be improved, e.g., ORV users?
21. What social and economic facts need to be known to best manage the “addition” lands (1996, 140,000 acres)?
22. What do Native Americans (local) value about BICY (natural and cultural resources) and what is culturally significant to them?
23. What does the local population value about BICY and what is culturally significant to them?
24. What cultural “common ground” themes might be used to effectively coordinate the diversity of Native American interests?
25. How can BICY improve its ability to manage interagency cooperative efforts?
- 25a. What are the potential conflicts between BICY management practices and user expectations?
26. Define “usual,” “customary,” and “traditional” related to the preserve’s legal mandates.
27. What are the implications to BICY of large-scale socio-economic trends affecting Florida?
28. What is the accurate count and what is an accurate method of counting visitors?
29. How do users evaluate BICY management?

30. How well are we (BICY) interacting with private property owners in and adjacent?
31. How will NPS restructuring impact BICY management?
32. What are the challenges of managing a preserve in a system of parks and how can they best be dealt with (local, cluster, Field Area, Washington Office)?

Biscayne National Park Employee Meeting

Tuesday, 24 October 1995

1. How many commercial fishermen are using the park — what kind (broadly), what kind of take (pounds, dollars, species, location and methods)? Where and how is recreational fishing conducted in the park?
2. What are the social and economic impacts of various park management decisions and alternatives re: commercial fisheries?
3. What is the impact of the full range of various agencies regulations on visitors' experiences and how can coordination and public education be improved?
4. Why do some visitors to EVER not visit BISC and what could be done to encourage them to do so?
5. What are the land use trends adjacent to BISC boundaries (3-4 miles)?
6. What is the economic impact (broadly defined) of the 4 NPS units (individually and collectively) on South Florida?
7. What alternatives are there for having "land-locked" visitors experience the marine part of BISC?
8. What does the Dade County general population know about Stiltsville and how do they feel about it and the 1999 deadline? How do inholders (affected population) feel about the 1999 deadline?
9. What are the social and economic impacts of the proposed removal at Stiltsville?
10. How do the local population and visitors feel about resource management changes that might restrict recreational uses, e.g., spear-fishing, lobstering, jet skis?
11. What is the social and economic impact (costs/benefits) of artificial reefs for the marine areas surrounding BISC?
12. What are the trends (technological, recreational, demographic, and regulatory) that may affect recreational boating in the park and how can they best be dealt with?



13. What does the general population of South Florida know and feel about BISC, and how can public education be improved (including best methods of communication)?
14. Who are BISC visitors and what do they expect from their park experience?
15. What is the spatial distribution of BISC visitors by use?
16. Where and how is recreational fishing conducted in the park?
17. Why do visitors visit BISC and what activities and services would they desire?
18. How do BISC visitors evaluate current activities and services?
19. Is there support for a BISC friends' group, who might be involved, and what might be its focus?
20. What is the public opinion of visitors to the 4 NPS units and the general population regarding the importance of environmental preservation versus development?
21. How do employees feel about the management (people and resources) of BISC and how can management techniques be improved?
22. What alternative employee management techniques might be employed at BISC?
23. Does the visiting public care whether NPS or concessioners provide interpretation on the glass-bottom boat tours?
24. What kind of user group conflicts can BISC anticipate and how best should they be managed?

Everglades National Park Employee Meeting

Tuesday, 24 October 1995

1. What is the relative amount of use by visitors of the front-country and back-country of EVER, by season?
2. What would be the social and economic impact of closing the fisheries at DRTO?
3. How can EVER work more effectively with the South Florida tourism industry toward a common, positive experience for visitors?
4. How can the NPS proactively cooperate and manage to keep up with socio-demographic trends in the South Florida region, especially in the Homestead area?
5. What are visitors' expectations concerning facilities, and how do their experiences compare with expectations?

6. How are the various government agencies that EVER and other South Florida NPS units deal with organized, and how can the NPS improve working relations with them?
7. What is the full range of growth management strategies which might be most effective in meeting the goals and objectives of South Florida ecosystem restoration?
8. Among the South Florida population, who does not use (nor is interested in or aware of) the South Florida NPS sites, and why?
9. What is the spatial and temporal distribution of visitors to the South Florida NPS sites?
10. What is the South Florida public's perception and expectation of flood control in South Florida? And, what is the best way to educate the public about the conflict between flood control and ecosystem restoration?
11. Are too many people attempting to live in South Florida and rely on local natural resources?
12. What proportion of visitors to one of the South Florida NPS units visit the other units?
13. What is the demographic profile of South Florida's population, particularly new residents? What are their opinions and attitudes concerning federal land management in South Florida?
14. How aware is the population of South Florida of the South Florida NPS units, and their role in the South Florida ecosystem and tourism industry?
15. What are the potential impacts of marine sanctuary regulations on the South Florida NPS units adjacent to the sanctuary?
16. What cultural (social) activities might be acceptable to local park neighbors? What kind of cultural activities would be attractive to visitors?
17. How can EVER improve its local public image?
18. What is the carrying capacity (physical, social, infrastructure) of EVER?
19. What are the visitor projections for all South Florida NPS units, both short and long term?
20. What is the relationship between visitor experiences and visitor attitudes toward ecosystem restoration in South Florida?
21. What role do South Florida NPS units play in South Floridians' perception of quality of life?
22. What role do South Florida NPS units play in South Floridians' quality of life?



23. What is the demographic profile of visitors to the South Florida parks?
24. What is the social and economic value of 1 acre of Everglades wetlands?
25. How do foreign visitors learn about South Florida parks?
26. Who are the long-term local (South Florida) supporters of EVER, how can we improve their involvement?
27. What are the social and economic impacts, and administratively what will be demanded of DRTO replacing the permit system with a concession?
28. What impact has the EVER environmental program had on participants (long-term)?
29. Do visitors learn anything about the "specialness" of EVER?
30. What are the impacts of deteriorating (loss of) natural resources (particularly in the parks) upon the South Florida tourism industry and national park visitation?
31. How can EVER staff improve communications within and between divisions? How can all South Florida NPS park staffs communicate more effectively?
32. What potential long-term impacts would radical change in Cuba have on the South Florida ecosystem?
33. Where do visitors go after visiting EVER?
34. Are the South Florida NPS units providing visitors with sufficient cultural resource activities?
35. What are the direct and indirect subsidies underlying development in South Florida? What influence do the subsidies have on ecosystem restoration?
36. Would public outreach programs specific to EVER be effective?
37. Do visitors need more information before arriving at any of the South Florida NPS units?
38. What role could the NPS play in providing local, traditional recreation activities?
39. What impacts do current land and natural resource use trends have on South Florida ecosystem restoration?
40. How do local political processes impact ecosystem restoration (local, state, national)?

Key Largo Public Meeting

Wednesday, 25 October 1995

1. What is the relationship between EVER and the concessioners?
2. Why do many local (South Florida) people not visit EVER?
3. Do existing national park and preserve boundaries represent effective boundaries for human use compatible with long-term sustainability of the park units? Are the parks' boundaries effective for long term sustainability of the parks'?
4. What do people (visitors, residents, NGOs, non-visitors, and stakeholders) expect from the 4 NPS units?
5. What could be done to influence elected officials (local and national) to give higher priority to financing all 4 NPS units (individually and collectively)?
6. What are/were the traditional recreational uses of pre-acquisition (prior to NPS, recent history) lands in the Everglades expansion area (East Everglades)?
7. Do Keys' visitors and residents desire concession facilities and/or visitor center facilities at the Key Largo ranger station?
8. What are the costs and benefits (advantages and disadvantages) of privatization of services in all 4 of the NPS units (individually and collectively)?
9. What makes a "good" park experience for the 4 units (individually) by specific visitor types?
10. How can environmental education be accelerated to have an environmentally literate society (national) in relation to the 4 NPS units?
11. What recreational uses of EVER can be introduced or expanded to enhance the local economy (South Florida) and visitor enjoyment?
12. How can EVER better manage and educate about jet ski use (e.g., signs)?
13. How much would people (visitors, residents, NGOs, non-visitors, and stakeholders) pay (e.g., taxes and subsidies) to support the 4 NPS units individually and collectively?
14. What functions would people (visitors, residents, NGOs, non-visitors, and stakeholders) want these 4 NPS units to perform and what are their relative priorities (individually and collectively)?
15. What do the 4 park superintendents see as the needs to be met for the 4 park units (individually)?



16. What is the post-1900 cultural and recreational history of the Big Cypress region (and the regions surrounding the other 3 units)?
17. What are the visitor uses and economic benefits (to whom?) of enhancing the local culture related to the Big Cypress region (and the regions surrounding the other 3 units)?
18. What is the cultural significance and history of the Caloosa Indians (and other ancient tribes) in relation to the 4 NPS units?
19. What measures might be taken to educate students around the country about the 4 NPS units?
20. What are and what can be the direct and indirect economic impacts (e.g., income generation) of the 4 NPS units (individually and collectively)?
21. What are the formal and informal relationships between the 4 NPS units and other natural resource agencies and Florida universities?
22. What role do friends' groups play in providing assistance to the NPS units in meeting NPS objectives (negative and positive)?
23. What is the social and economic benefit of restoring and maintaining the ecological health of the Big Cypress/Everglades/Florida Bay ecosystem?
24. What are the social and economic impacts of special recognized rights for Native Americans in the 4 NPS units?
25. What do we already know about public understanding (broad) of the significance of NPS resources (4 units and nationally)?
26. Who are the visitors to DRTO and what do they want?
27. How can national park user fees be returned to the park that generates them?
28. Why is EVER policy re: commercial boat landings inconsistent?
29. What mechanisms could be put into place so that scientists, managers, concessioners and others are involved in research agendas?

Naples Public Meeting

Thursday, 19 October 1995

1. What kinds of uses are EVER and the other 3 NPS units receiving (broadly defined, by season, by day/night, etc.)?
2. What are the local economic impacts (cost/benefit) of federal land acquisition in South Florida (include county level analysis)?
3. How can directions and access to the 4 NPS units for visitors and locals be improved?
4. How will cultural diversity in South Florida impact (broadly defined) the 3 parks and 1 preserve (short-term and long-term)?

5. How can the 4 NPS units better coordinate their management to deal with their mutual problems—biological, physical, social?
6. How can the different restoration values of cultural groups in South Florida be identified and described for the 4 NPS units?
7. What are visitor (full-range) expectations and are they being met (4 units)?
8. What are the land-use trends surrounding the 4 park units at the watershed/sub-basin level?
9. Is it feasible to integrate the regional GIS information?
10. What is the best way and place to provide visitor information for Southwest Florida public lands?
11. What is the potential for ecosystem management of the 4 units to improve/impact quality of life in South Florida?
12. What are the administrative conflicts between NPS units in South Florida and how can they be minimized?
13. How can water allocation decisions be improved to include a full range of values (short/long term)?
14. How do local communities view the park units and their management?
15. How can the relationship between NPS units and local communities be improved?
16. What are the local/regional impacts (full range) of visitors to 4 NPS units? How far do impacts extend?
17. How can public education about Native American tribes in South Florida be improved?
18. How can public participation in NPS decision-making be improved (other related decisions as well)?
19. How can the NPS improve its relationship with visitors to improve visitors' sense of ownership?
20. How can the NPS and each individual unit in South Florida create a larger, more supportive constituency in South Florida?
21. What are the socio-economic impacts (long and short term) of mineral rights and activities in BICY and EVER?
22. How can we inventory the value of interagency and other partnerships? What other kinds of information do we need to improve these partnerships?
23. What is the feasibility, practicality and value of a science advisory committee for the 4 NPS units?



24. How can the social and economic values of public lands be estimated and what would they be for South Florida?

South Dade Government Center Public Meeting

Monday, 23 October 1995

1. What data do the parks need most, i.e. descriptive, explanation, prediction?
2. Do we have (need) a comprehensive inventory/plan of sacred sites (tribes)?
3. Is the relationship among the 4 South Florida parks and the local tribes working?
4. How do the parks influence land use decisions in adjacent jurisdictions?
How can it be improved?
5. What are the socio-economic factors that affect accessibility to natural areas, e.g., Dry Tortugas?
6. What are the socio-economic impacts of tourism to the parks on the surrounding areas and region?
7. How can the parks be used to create an identification with Florida among new residents?
8. What are the implications of the nature of population growth (may not know parks exist) — personal survival, outreach?
9. Benefit/cost analysis for all or any of the parks given advances in the science (should be done)?
10. What efforts are being made re: documentation and preservation (possibly interpretation) of numerous archeological sites within park boundaries?
11. What role should ecosystem management plan in the parks' management, i.e., are the parks sustainable? (Are the park ecosystems viable given the socioeconomics?) (Interfacing of mission statements with adjacent local parks?) (Are parks sustainable in a social sense?)
12. Who are the visitors/users? How would restoration efforts impact visitation?
13. How can the parks better integrate the community into restoration — outreach, education?
14. What representation do the parks have in local, state and federal government and how can they be better represented?
15. What are the impacts of visitors on parks resources?
16. Who are the allies/antagonists of the parks, now and in the future?
17. Does the Park Service need an efficiencies analysis (service provision) and how can coordination between state and national parks enhance efficiency?

18. How will the elimination of free entrance to the parks for senior citizens impact the usage by senior citizens as well as park revenue?
19. What is the interaction of parks with communities outside the park boundaries — how can we make this more effective?
20. What is the feasibility of creating a mechanism for individuals to donate money to each of the South Florida parks (tax checkoff (1040))?
21. How can the parks work collectively to advertise themselves as a network of parks?
22. Feasibility of creating bikeway to connect the mainland parks?
23. How should the South Florida parks be funded? Potential for privatization?
24. Is there a possibility that the number of visitors will be limited? Should they be? How? (carrying capacity for visitors)
25. How do the needs of the user groups vary between state, national, and local parks? *Is there a question of duplication of services? Do we know what visitors want/need? Are we providing what visitors need?*
26. How can coordination between parks and other agencies and local communities be improved?
27. How can the parks work with the business community to preserve the parks and ensure more compatible development?
28. What are the chronic site specific behavioral issues at each park, i.e., feeding wildlife, litterbug, visitor associated challenges?
29. How can communication and coordination be improved between departments within each park?
30. Is there a mission statement and associated implementation plan for each park (measurable behavior)?
31. Do the parks collectively contain sustainable (segments) of all ranges of pre-1900 South Florida — unique flora and fauna, geography. If not, how can you achieve it?
32. What trends in visitor service demands are being anticipated or prepared for?
33. How can we better serve the visitor given the changing and aging of South Florida?
34. How can the parks become more proactive (planners in the sense of park planners) given the changing demographics — international to local?
35. How satisfied are park visitors?
36. How will visitor needs be prioritized given budgetary allocation?



37. What are the park science staffs' perception of social science needs?
38. How can NPS incorporate these social science issues into parks' general management plans?

Appendix IV. A Cooperative Park Studies Unit for Social Science

The purpose of this appendix is to describe the general organization and management of a Cooperative Park Studies Unit (CPSU) for social science. It is adapted from the NPS national social science plan, *Usable Knowledge: A Plan for Furthering Social Science and the National Parks* (1996). First, the overall organization, and then the key elements of a CPSU are described. The model can be used to guide development of the proposed South Florida CPSU.

Introduction

A central mechanism for conducting NPS science and delivering scientific expertise to NPS managers has been Cooperative Park Studies Units (CPSUs). CPSUs operate under cooperative agreements between the National Park Service (and since 1994, the National Biological Service) and universities. Traditionally, the units have been:

- focused on conducting biological and social science research,
- housed within one university,
- administered by an NPS employee or faculty member,
- serving a specific NPS region, and
- supervised by regional administrators.

CPSUs have been a cost-effective mechanism for delivery of NPS science. With the restructuring of the NPS and the creation of the National Biological Service (NBS), a refined CPSU model is necessary. This model could be used in establishing a South Florida CPSU for social science. This appendix describes the organization of such a CPSU, in general terms.

The Organization of a CPSU

The objectives of establishing a CPSU are to:

- provide NPS managers with state-of-the art science and scholarship,
- ensure that research is applied to park management needs, independently conducted and subject to peer review,
- encourage professional development of NPS employees,
- take full advantage of university resources for NPS benefit,
- be flexible and adaptive to differences in field area needs, and
- reduce administrative costs.

Hence, the CPSU concept should be updated to reflect the “new” NPS. While the formal relationship between the NPS and NBS is currently uncertain regarding CPSUs, several objectives can be identified. CPSUs should:

- be capable of delivering science and scholarship in all fields of inquiry needed by NPS managers,
- offer professional development opportunities for NPS employees (including workshops, continuing education, specialized training, sabbaticals and graduate degree programs),
- allow for efficient and timely contracting, conduct and delivery of scientific research,
- provide the NPS access to valuable university resources, from laboratories to libraries,
- provide NPS managers with consulting, extension and technical assistance,
- have the flexibility to evolve and adapt to meet park, park cluster, field area and national needs, and
- operate efficiently and cooperatively, with minimal overhead and few full time equivalent positions (FTEs).

In this model, CPSUs are “virtual” in that they are not located in a single institution, but exist as a set of agreements, contracts, excepted appointments and other arrangements linking several institutions in order to better serve the NPS. A CPSU will have:

- a host university that serves as the contact point for the NPS,
- partner universities and other institutions that offer technical and professional services to the NPS,
- a role and mission statement that declares specific areas of social science research and service that the CPSU is especially qualified to pursue,



- a 4-year plan with specific performance goals, and
- a managers committee composed of NPS employees (such as field area staff and park superintendents).

Each element is described below.

Key Elements of a CPSU

1. The Host University

The host university will provide space and basic administrative support as part of its cooperative agreement (as is done now), and may house an NPS or NBS social scientist duty-stationed at the CPSU. The host university would:

- serve as the liaison with the field area, park cluster and Washington Office (WASO) Social Science Program,
- be responsible for administering the CPSU,
- develop CPSU plans and performance goals,
- coordinate the work of CPSU partners, and
- conduct research for the NPS.

2. Partner Institutions

Partner institutions can include other universities, community colleges and other research organizations. An NPS employee might be duty-stationed, even temporarily, at a partner institution. Partner institutions will be linked to the CPSU through formal agreements. The partner institutions will:

- provide specialized services needed by the NPS,
- conduct research in their areas of specialization needed by the NPS, and
- participate in developing CPSU plans and performance goals.

3. CPSU Managers Committee

Working with field area directors and park clusters, the CPSU will organize a managers committee, composed of NPS superintendents and other NPS staff. Members will be selected by the field area director responsible for the host university agreement. The specific relationship between the managers committee and the CPSU may vary from region to region.

The general purpose of the committee is to:

- provide advice and guidance to the CPSU in meeting NPS managers' needs,
- provide input on research agendas,
- serve as liaison with the park clusters, field areas and system support offices, and
- assist in evaluating CPSU performance.

Committees would meet and serve at the discretion of the field area director.

4. Role and Mission Statements

A CPSU will prepare a role and mission statement that explicitly identifies those social science research, technical assistance, extension, education and other services that it is especially qualified to pursue. The CPSU should be able to demonstrate its capability to provide state-of-the-art science related to research areas included in its role and mission statement. The role and mission statement will clearly identify services to be provided to system support offices and parks.

It will be used to:

- aid managers in contracting state-of-the-art science,
- guide research and service activities of the CPSU,
- ensure that the NPS has access to state-of-the-art science,
- avoid unnecessary duplication of effort, and
- provide accountability and evaluate performance of the CPSU.

CPSU partner institutions, representatives of the universities, field area directors and CPSU managers committees will participate in developing the role and mission statements.

5. 4-Year Plans and Performance Goals

A CPSU will prepare a 4-year plan for its social science research and service activities. The plan will describe the CPSU's ongoing and anticipated projects, as well as its planned improvements in delivering science and service to NPS managers. The plans will include general performance goals and provide for flexibility and



new opportunities that may emerge. The CPSU plans will be used to:

- guide the delivery of useful research to managers,
- justify CPSU and project budgets,
- coordinate the CPSUs to form an efficient network,
- support park planning efforts,
- coordinate research activities with the NBS, and
- evaluate CPSU performance.

CPSU partner institutions, representatives of the universities, field area director and the CPSU managers committee will participate in developing the plan. Program evaluations would be conducted every three years in cooperation with field offices, managers committees, the WASO Social Science Program Office and CPSU participants.

Appendix V. South Florida Universities and Colleges with Social Science Programs

This appendix presents a list of universities and colleges in South Florida with programs in one or more of the social science disciplines included in this plan. Colleges and universities with enrollments greater than 3,000 and that have either undergraduate or graduate level programs, or both are listed.

Barry University

Florida Atlantic University

Florida Gulf Coast University

(will open August 1997, Arts and Sciences, Environmental Science included in planned program areas)

Florida International University

Nova Southeastern University

University of Central Florida

University of Miami

University of South Florida

(Ft. Myers campus to be transferred to Florida Gulf Coast University in 1997)



Appendix VI. Selected Literature

Books

- Craighead, Frank C., Sr. 1971. *The Trees of South Florida*. University of Miami Press, Coral Gables, FL. Volume 1.
- Light, Stephen S., Lance H. Gunderson, and C.S. Holling. 1995. *The Everglades: Evolution of Management in a Turbulent Ecosystem*. Pp. 103-168 in Stephen S. Light, Lance H. Gunderson, and C.S. Holling, eds., *Barriers & Bridges to the Renewal of Ecosystems and Institutions*. Columbia University Press, New York, NY.
- Lodge, Thomas E. 1994. *The Everglades Handbook: Understanding the Ecosystem*. St. Lucie Press, Delray Beach, FL.
- Tebeau, Charlton W. 1968. *Man in the Everglades: 2000 Years of Human History in the Everglades National Park*, second revised edition. University of Miami Press, Coral Gables, FL.

Reports

- Boswell, Thomas D., ed. 1991. "South Florida: The Winds of Change." Prepared for the Annual Conference of the Association of American Geographers, Miami, FL.
- Correia, Michele Edwards, principal investigator. 1995. "Economic Impact Study of Federal Interest Lands in South Florida." Prepared by FAU/FIU Joint Center for Environmental and Urban Problems (Draft Report).
- Florida Department of Community Affairs, Florida Coastal Management Program. October 1995. "Initial Report of the Governor's Commission for a Sustainable South Florida" provided by the Dept. of Environmental Protection, Tallahassee, FL.
- Interagency Ecosystem Management Task Force. 1995. "The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies, Volume 1 - Overview."
- Interagency Working Group. 1994. "1994 Annual Report: South Florida Ecosystem Restoration Working Group."
- Interagency Working Group. 1995. "1995 Annual Report: South Florida Ecosystem Restoration Working Group."
- Machlis, Gary E. 1996. "Usable Knowledge: A Plan for Furthering Social Science and the National Parks." National Park Service, Washington, DC.
- "South Florida Ecosystem Restoration: FY 1996 Budget Cross-Cut Summary of Federal Projects Summary of State of Florida Projects." May 15, 1995. Prepared by the Federal South Florida Ecosystem Task Force.
- U.S. Water Resources Council. March 10, 1983. "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies."