

Volume I
National Ocean Service

Social Science Plan



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service



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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

NOV 15 2005

To All Interested Parties:

I am pleased to present the first ever National Ocean Service (NOS) Social Science Plan for your review. The genesis of this Plan was a recommendation to the National Oceanic and Atmospheric Administration (NOAA) Science Advisory Board from the Social Science Review Panel in 2003 that all NOAA Line Offices should produce a comprehensive characterization of their current socioeconomic activities and their future needs. NOAA's NOS has responded by conducting an 18-month effort to inventory and analyze the resources and activities supporting the NOS mission, and to develop a set of recommendations for improving our approach to social science.

As the NOS mission has expanded and become more diverse, an integrated vision of social science has become essential and needs to be a coordinated body of work that addresses the overall NOS mission in a holistic manner. This plan for social science is a significant step toward this objective, but it is by no means the final step. Rather, it is part of an ongoing effort to ensure that social science within NOS is integrated with physical science, is integrated across NOS, and is part of a broader integrated NOAA social science initiative.

I want to take this opportunity to thank the members of the NOS Social Science Team for their excellent work in developing this Plan. They have demonstrated the type of collaboration and thoughtful assessment that sets a precedent for taking a more integrated approach to social science in the future.

Charles W. Challstrom
Acting Assistant Administrator



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Executive Summary

National Ocean Service

Social Science Plan

Vision

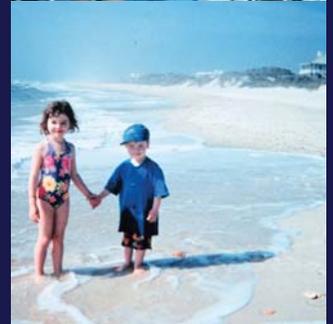
Strengthen program planning and management, decision making, and performance measures throughout the agency to improve NOAA integration of physical and social sciences within NOS, across NOAA, and with outside organizations.

Goals

- ◆ *Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.*
- ◆ *Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.*
- ◆ *Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.*
- ◆ *Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.*

Guiding Principle

Help NOAA/NOS achieve its Mission Goals.



Purpose

The purpose of the National Ocean Service (NOS) Social Science Plan is to initiate a coordinated effort to build social science capacity in NOS, in order to help NOAA/NOS achieve its Mission Goals. The social science plan vision statement represents a one-NOAA (shared by all NOAA Line Offices) vision on the role of the social sciences in the agency. This vision is based on a one-NOAA definition of the social sciences and consistent criteria for determining who is a social scientist within the agency. This one-NOAA approach to the social sciences will support the vision of integrating efforts across NOAA and will allow NOAA to track progress on building social science capacity within the agency.

The social science goals are based on areas within the NOAA Strategic Plan where social science could contribute. These goals are designed to provide a general framework for NOS social science and, because of their close connection to the NOAA Strategic Plan, achievement of the social science goals should help NOAA to achieve its Mission Goals.

Social Science: *The process of describing, explaining, and predicting human behavior and institutional structure and change in interaction with their environments. Includes the fields of economics, anthropology, sociology, geography, political science, social psychology, and history.*

Goal Teams/PPBES Programs¹

- ◆ *Ecosystems*
 - *Coastal & Marine Resource Management*
 - *Habitat*
 - *Corals*
 - *Ecosystem Research*
- ◆ *Weather & Water*
 - *Coasts, Estuaries, and Oceans*
- ◆ *Commerce & Transportation*
 - *Geodesy*
 - *Marine Transportation Systems*
 - *Emergency Response*
- ◆ *Mission Support*
 - *NOS Partnership Program*

1. There are four Goal Teams (plus Mission Support) and 40 PPBES Programs in NOAA. NOS has activities in three of the Goal Teams, plus Mission Support (Climate not included in NOS). The NOS Social Science Plan has recommendations for the eight PPBES Programs listed above, plus the NOS Partnership Program.

The guiding principle of this plan is quite simple, and was the key screening criterion for any recommendation included in this plan. In working with NOS Program Offices and NOAA Planning, Programming, Budgeting, and Execution System (PPBES) Programs, the Social Science Team (SST) had to convince NOAA/NOS Leadership that a recommended social science project would help NOAA achieve its Mission Goals in order for the project to be included in the plan. Thus, this plan does not represent a “wish list” of projects developed by social scientists, but rather a comprehensive set of recommendations as to how NOS social science can help NOAA succeed.

The plan is organized following the four Mission Goals identified in the NOAA Strategic Plan (e.g., Ecosystems, Climate, Weather and Water, and Commerce and Transportation) and following the NOS Strategic Plan, using the PPBES Programs as organizing themes. NOS currently contributes to three of NOAA’s Mission Goals, including Ecosystems, Weather and Water, and Commerce and Transportation. This Social Science Plan only addresses eight of NOAA’s 40 PPBES Programs, plus elements in the Mission Support Goal (see inset box). Mission Support includes the NOS Partnership Program, which is designed to foster integration across different elements of NOS.

Summary of Social Science Capacity

In FY 2004, NOS had 11 permanent full-time equivalent (FTE) social scientists on staff, at a cost of approximately \$1.0 million (see Table E1). A recent trend has been to hire contract personnel and treat them like staff; in FY 2004, NOS had seven social scientists hired as contract personnel, at a cost of \$0.5 million. In FY 2004, social science investments were made by NOS in four NOAA Programs, for a total NOS investment of approximately \$1.1 million. NOS also received \$0.4 million from outside sources, for a \$1.5 million investment in project costs and a total FY 2004 social science investment of approximately \$2.6 million. All investments in FY 2004 were made in the Ecosystems Mission Goal, with the largest amount of funding going to the Coastal and Marine Resources Program (CMRP).

In FY 2005, NOS made a significant increase in its social science investment. Social science investments expanded into the Commerce and Transportation Mission Goal, including the Geodesy and Marine Transportation Systems Programs. One permanent social scientist and two contract personnel were added as NOS staff and the total investment in social sciences doubled, bringing the direct NOS contribution to social science from \$2.6 million in FY 2004 to over \$5.2 million in FY 2005. Including outside sources, the total investment in NOS social science increased from \$3.0 million to almost \$5.9 million. Since FY 2005 is almost over, these costs reflect known costs.

In the main body of Volume I of the NOS Social Science Plan, broader plan details are presented for each of the eight NOAA Programs for which social science recommendations are made. Descriptions are provided on the roles that each NOS Program Office plays in each of the NOAA PPBES Programs. Volume II to this plan includes details on each proposed social science project.

Conclusion

One of the biggest challenges facing NOS in the near future is the integration of various NOAA/NOS social science components. Gathering information for the NOS Social Science Plan and examining the social science issues and needs required the application of social science across NOS offices and NOAA programs and the SST became increasingly aware of the level of diversity that exists across NOS social science activities. Although the mission of NOS can be succinctly stated, it is also true that the various elements within NOS are varied so that any cross-cutting element, such as social science, must be fundamentally organized to obtain a basic level of coordination. The diversity of social science within NOS is also due to the history of how social science has been conducted in NOS. In the past, the need for social science had never been examined from an NOS-wide perspective, but was implemented according to individual office needs. This led to redundancies and similar social science activities occurring in different ways, according to the specific needs of an office.

The Social Science Plan represents the first step toward a coordinated social science effort. However, it must be kept in mind that coordination cannot take place over the course of planning and writing a report. The Social Science Plan must be used as a reference point for future social science planning in order to ensure that redundancies in social science activities taking place across NOS are eliminated and coordination is maximized. This plan is a snap shot of current and future social science activities and, in order to ensure an efficient, coordinated, and integrated NOS social science element, evaluation of social science within NOS must continue on an ongoing basis. If NOS continues to evaluate and adapt social science activities, the SST believes this effort will sustain the NOS commitment of helping NOAA serve the nation as a global leader in integrated management of the ocean.

| PPBES Program | FY '04 | | FY '05 | |
|--|--------------|--------------|--------------|--------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Ecosystems: CMRP | 860 | 425 | 2,336 | 1,740 |
| Ecosystems: Corals | 320 | 320 | 564 | 544 |
| Ecosystems: Ecosystem Research | 336 | 336 | 697 | 697 |
| Ecosystems: Habitat Restoration | 50 | 50 | 69 | 69 |
| Commerce & Transportation: Geodesy | 0 | 0 | 135 | 135 |
| Commerce & Transportation: Emergency Response | 0 | 0 | 0 | 0 |
| Commerce & Transportation: Marine Transportation Systems | 0 | 0 | 350 | 350 |
| Weather & Water: Coasts, Estuaries & Oceans | 0 | 0 | 0 | 0 |
| Total Project Costs (Non-Personnel) | 1,566 | 1,131 | 4,151 | 3,534 |
| NOAA FTE Costs | 1,002 | 1,002 | 1,114 | 1,114 |
| Number of NOAA FTEs | 11 | 11 | 12 | 12 |
| NOAA Contract Personnel Costs | 506 | 506 | 612 | 612 |
| Number of NOAA Contract Personnel | 7 | 7 | 9 | 9 |
| Total Costs | 3,073 | 2,638 | 5,877 | 5,261 |

Table E1. Summary of social science capacity for fiscal years 2004 and 2005 for the eight PPBES Programs referenced in the NOS Social Science Plan. Dollar values expressed in thousands of dollars.

Table of Contents

| | |
|--|-----|
| Executive Summary..... | i |
| List of Tables..... | vii |
| Acknowledgments..... | ix |
| List of Acronyms..... | xi |
| Introduction..... | 1 |
| Summary: Current and Future Social Science Capacity and Needs..... | 11 |
| Coastal and Marine Resources Program..... | 13 |
| Corals Program..... | 21 |
| Ecosystem Research Program..... | 31 |
| Habitat Restoration Program..... | 41 |
| Emergency Response Program..... | 49 |
| Geodesy Program..... | 53 |
| Marine Transportation Systems Program..... | 57 |
| Coasts, Estuaries, and Oceans Program..... | 61 |
| Impacts and Performance..... | 69 |
| Conclusion..... | 71 |
| Appendix A: Social Science Team Assignments and Contacts..... | 75 |
| Appendix B: Important References and Web Sites..... | 81 |

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List of Tables

| | |
|---|-----|
| Table E1: Summary of current and future social science capacity and needs..... | vii |
| Table 1: Summary of current and future social science capacity and needs..... | 12 |
| Table 2: Existing and proposed Coastal and Marine Resources Program projects..... | 19 |
| Table 3: Coastal and Marine Resources Program funding and personnel needs..... | 20 |
| Table 4: Existing and proposed Corals Program projects..... | 28 |
| Table 5: Corals Program funding and personnel needs..... | 30 |
| Table 6: Existing and proposed Ecosystem Research Program projects..... | 38 |
| Table 7: Ecosystem Research Program funding and personnel needs..... | 40 |
| Table 8: Existing and proposed Habitat Restoration Program projects..... | 46 |
| Table 9: Habitat Restoration Program funding and personnel needs..... | 48 |
| Table 10: Existing and proposed Emergency Response Program projects..... | 52 |
| Table 11: Existing and proposed Geodesy Program projects..... | 55 |
| Table 12: Geodesy Program funding and personnel needs..... | 56 |
| Table 13: Existing and proposed Marine Transportation Systems Program projects..... | 59 |
| Table 14: Marine Transportation Systems Program funding and personnel needs..... | 60 |
| Table 15: Existing Coasts, Estuaries, and Oceans Program project..... | 67 |
| Table 16: Social Science Team members and assignments..... | 75 |

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Acknowledgments

First and foremost, I would like to thank all the members of the NOS Social Science Team (SST). Since many NOS Offices currently do not have a social scientist, several SST members had to represent NOS Offices other than the one they work for, which required investing time to understand the needs of the programs and to develop recommendations that would help the NOS Offices achieve their Mission Goals. SST members had to do this in addition to their normal duties. So again, a very special thank you to all the SST members for a job well done.

I would also like to extend a very special thank you to all the Special Projects staff that assisted us throughout the plan development process. Tom Culliton did his usual excellent job of facilitating the SST design of the NOS Plan Development Process and report outline. The Database Team of Nipa Parikh, Sarah O'Connor and Fay Tang did an outstanding job on the NOS Social Science Plan databases, which contributed greatly to the SST's ability to organize and report plan recommendations. These databases will also be an invaluable tool to help the SST keep the plan current. And finally, I would like to thank Emily Crum for an outstanding job in editing and formatting this plan report.

I would also like to thank Dr. Richard Spinrad and the NOS Senior Management Council for their support throughout the plan development process. Without their leadership, we would not have been successful in creating this plan.

Finally, I would like to thank all of the NOS Program Office Directors/Liaisons and the NOAA Budget Program Directors and their staffs for working with the SST members in developing, reviewing, and prioritizing the plan recommendations and incorporating these recommendations into the fiscal year 2008 budget process. I firmly believe that implementation of recommendations in the NOS Social Science Plan will help NOAA/NOS achieve its Mission Goals.

Dr. Vernon R. (Bob) Leeworthy
Coordinator, NOS Social Science Plan and
Leader, Coastal & Ocean Resource
Economics Program

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List of Acronyms Used in this Plan

| | |
|--------|---|
| CEO | Coast, Estuaries, and Oceans Program |
| CINMS | Channel Islands National Marine Sanctuary |
| CMRP | Coastal and Marine Resources Program |
| CNMI | Commonwealth of the Northern Mariana Islands |
| CO-OPS | Center for Operational Oceanographic Products and Services |
| CORE | Coastal and Ocean Resource Economics Program |
| CP | Corals Program |
| CRCP | Coral Reef Conservation Program |
| CSC | Coastal Services Center |
| CSCOR | Center for Sponsored Coastal Ocean Research |
| C&T | Commerce and Transportation Goal Team |
| CZM | Coastal Zone Management (Program) |
| CZMA | Coastal Zone Management Act |
| DAC | Damage Assessment Center |
| DARP | Damage Assessment and Restoration Program |
| ERP | Ecosystem Research Program |
| FEMA | Federal Emergency Management Agency |
| FGBNMS | Flower Gardens Bank National Marine Sanctuary |
| FKNMS | Florida Keys National Marine Sanctuary |
| FTE | Full-Time Equivalent |
| FY | Fiscal year |
| GDP | Gross domestic product |
| GIS | Geographic Information Systems |
| GLIMO | Global Leader in Integrated Management of the Ocean |
| HAB | Harmful Algal Blooms |
| HCRI | Hawaiian Coral Reef Initiative |
| IOOS | Integrated Ocean Observing System |
| IPO | International Programs Office |
| LAS | Local Action Strategies |
| LU-CES | Land Use – Coastal Ecosystem Study |
| LMEs | Large Marine Ecosystems |
| M&B | Office of Money and Budget |
| MBNMS | Monterrey Bay National Marine Sanctuary |
| MPA | Marine Protected Area (Center) |
| MTS | Marine Transportation Systems |
| NCCOS | National Centers for Coastal and Ocean Science |
| NEEA | National Estuarine Eutrophication Assessment |
| NESDIS | National Environmental Satellite, Data, and Information Service |
| NERRS | National Estuarine Research Reserve System |
| NGS | National Geodetic Survey |
| NMFS | National Marine Fisheries Service |
| NMSP | National Marine Sanctuaries Program |
| NOAA | National Oceanic and Atmospheric Administration |

| | |
|-------|---|
| NOEP | National Ocean Economics Project |
| NOS | National Ocean Service |
| NRDA | Natural Resource Damage Assessment |
| NSRE | National Survey on Recreation and the Environment |
| NWS | National Weather Service |
| OAR | Office of Oceanic and Atmospheric Research |
| OCRM | Office of Ocean and Coastal Resource Management |
| OCS | Office of Coast Survey |
| OMB | Office of Management and Budget |
| OR&R | Office of Response and Restoration |
| PPBES | Planning, Programming, Budgeting and Execution System |
| PORTS | Physical Oceanographic Real-time System |
| RC | Restoration Center |
| SAB | Science Advisory Board |
| SBNMS | Stellwagen Bank National Marine Sanctuary |
| SMC | Senior Management Council |
| SP | Special Projects |
| SSP | Social Science Plan |
| SST | Social Science Team |
| USACE | U.S. Army Corps of Engineers |
| USES | Urbanization of Southeastern Estuarine Systems |
| USGS | U.S. Geological Survey |
| WFOs | Weather Forecast Offices |
| W&W | Weather and Water Goal Team |

Introduction: The NOS Social Science Plan

Social Science Plan Vision

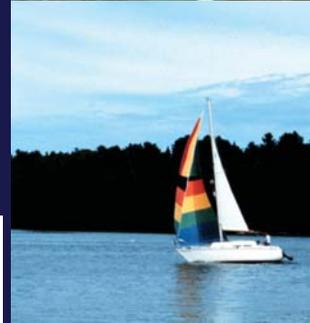
Strengthen program planning and management, decision making, and performance measures throughout the agency to improve NOAA integration of physical and social sciences within NOS, across NOAA, and with outside organizations.

Social Science Plan Goals

- ◆ Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.
- ◆ Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.
- ◆ Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.
- ◆ Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

Social Science Plan Guiding Principle

Help NOAA/NOS achieve its Mission Goals.



NOS Social Science Plan Purpose

The purpose of the National Ocean Service (NOS) Social Science Plan is to initiate a coordinated effort to build the social science capacity in NOS, in order to help the National Oceanic and Atmospheric Administration (NOAA) achieve its Mission Goals. The social science plan vision statement represents a one-NOAA (shared by all NOAA Line Offices) vision on the role of the social sciences in the agency. This vision is based on a one-NOAA definition of the social sciences (see inset box below) and consistent criteria for determining who is a social scientist within the agency. This one-NOAA approach to the social sciences will support the vision of integrating efforts across NOAA and will allow NOAA to track progress on building the social science capacity within the agency.

The identified social science goals are based on areas within the NOAA Strategic Plan where social science could contribute. These goals are designed to provide a general framework for NOS social science and, because of their close connection to the NOAA Strategic Plan, achievement of the social science goals should help NOAA to achieve its Mission Goals.

The guiding principle of the NOS Social Science Plan is quite simple, and was the key screening criterion for any recommendation included in this plan. In working with NOS Program Offices and NOAA Planning, Programming, Budgeting, and Execution System (PPBES) Programs, the Social

Social Science: *The process of describing, explaining, and predicting human behavior and institutional structure and change in interaction with their environments. Includes the fields of economics, anthropology, sociology, geography, political science, social psychology, and history.*

Science Team (SST; see Appendix A for SST member assignments and contact information) had to convince NOAA/NOS Leadership that a recommended social science project would help NOAA achieve its Mission Goals in order for the project to be included in the plan. Thus, the NOS Social Science Plan does not represent a “wish list” of projects developed by social scientists, but rather is a comprehensive set of recommendations as to how NOS social science can help NOAA succeed.

The NOS Social Science Plan is organized following the four Mission Goals identified in the NOAA Strategic Plan (e.g., Ecosystems, Climate, Weather and Water, and Commerce and Transportation) and following the NOS Strategic Plan, using the PPBES Programs as organizing themes. NOS currently contributes to three of NOAA’s Mission Goals, including Ecosystems, Weather and Water, and Commerce and Transportation. This Social Science Plan only addresses eight of NOAA’s 40 PPBES Programs, plus elements in the Mission Support Goal (see inset box to the right). Mission Support includes the NOS Partnership Program, which is designed to foster integration across different elements of NOS.

Why a Social Science Plan?

In 1999, NOAA’s Office of Sustainable Development and Intergovernmental Affairs conducted an assessment of the social sciences in the agency (Hendricks, 2000). The main concern at the time was over court rulings against NOAA’s National Marine Fisheries Service (NMFS) that found inadequacies in the economic analyses supporting rulemaking. The agency was also interested in using economics to promote effective implementation of scientifically-sound natural resource management and improving the efficiency of NOAA operations through collaborations

Goal Teams/PPBES Programs¹

- ◆ *Ecosystems*
 - o *Coastal & Marine Resource Management*
 - o *Habitat*
 - o *Corals*
 - o *Ecosystem Research*

- ◆ *Weather & Water*
 - o *Coasts, Estuaries, and Oceans*

- ◆ *Commerce & Transportation*
 - o *Geodesy*
 - o *Marine Transportation Systems*
 - o *Emergency Response*

- ◆ *Mission Support*
 - o *NOS Partnership Program*

1. There are four Goal Teams (plus Mission Support) and 40 PPBES Programs in NOAA. NOS has activities in three of the Goal Teams, plus Mission Support (Climate not included in NOS). The NOS Social Science Plan has recommendations for the eight PPBES Programs listed above, plus the NOS Partnership Program.

and resource sharing across the U.S. Department of Commerce. The first directive from this review was for NMFS to develop a social science plan to build its social science capacity.

In 2002 – 2003, NOAA's Science Advisory Board (SAB) assembled a committee comprised of social science experts (most from outside NOAA) to review the status of social sciences in NOAA. The committee delivered its final report with 21 recommendations in March 2003. Two key conclusions from the review were that NOAA was seriously underinvested in the social sciences and that NOAA Leadership did not understand how the social

sciences could help NOAA achieve its Mission Goals. The committee recommended that each NOAA Line Offices and Headquarters develop social science plans, that NOAA conduct a series of seminars to train NOAA Leadership on how social sciences could help them achieve their mission goals, and that NOAA invest \$20 million more per year in the social sciences.

In 2003, NOAA's Research Council responded to the SAB-sponsored review and directed NOAA Line Offices to develop social science plans for fiscal years 2005 through 2010, to begin designing and implementing training seminars for NOAA Leadership, and to start initiating social science projects to demonstrate the value of social sciences to the agency.

About NOS Social Science. NOS has a more diverse mission than NMFS, but like NMFS, has rulemaking responsibility in the management of the 13 current National Marine Sanctuaries. (Currently the Northwest Hawaiian Island Ecosystem Reserve is also being managed by the National Marine Sanctuary Program, while the reserve is going through the process of being evaluated to become the fourteenth National Marine Sanctuary.)

NOS also houses the Damage Assessment Center, which serves as the public's federal trustee for marine resources to recover economic damages from responsible parties when marine resources are damaged or injured; recovered funds are used to restore or replace damaged or injured resources. Restoration efforts are also coordinated with the Restoration Center located in NMFS. The standard of quality for social sciences to support damage assessment cases, or "litigation quality," is generally higher than for most rulemaking. To date, the National Marine Sanctuaries Program has not had one rule or regulation set aside by the courts, nor has the Damage Assessment Center lost a case due to inadequacies in their social sciences. Recommendations in this plan are designed to ensure that this record of success remains intact.

NOS also contains the Office of Ocean and Coastal Resource Management (OCRM), which includes the Coastal Zone Management Program (CZM) and the National Estuarine Research Reserves (NERR). The States have primary management responsibility for coastal and ocean resources within State territorial waters and funding is transferred to the States under legislative formulas. OCRM, along with NOS's National Centers for Coastal and Ocean Science (NCCOS), Coastal Services Center (CSC), and the Special Projects Office (SP), provide extensive technical assistance to the States to support management of coastal and ocean resources. To date, there has been a serious underinvestment in the social sciences to support the activities of these offices, and the recommendations contained in this plan go a long way to rectifying this under funding.

Three NOS Offices, including the Office of Coast Survey (OCS), the National Geodetic Survey (NGS), and the Center for Operational Oceanographic Products and Services (CO-OPS), combine to provide world-class products, information, tools, and services for safe, efficient, and environmentally-sound flow of goods and people through the U.S. transportation system. Several recommendations in this plan will document the value of this information and evaluate the products and services that help maintain and continually improve the quality of NOAA/NOS products and services.

Economic Importance of NOAA/NOS

Programs. The overall NOAA/NOS vision and mission recognize the importance of the social and economic value of coastal and ocean resources and the importance of these resources to the nation's economy, as is captured in the following quote:

“NOAA is where science gains value and this is evident when you consider that each day NOAA services touch at least \$3 trillion of America's economy, that's about 30 percent of our nation's gross domestic product.”

—Conrad C. Lautenbacher, NOAA Administrator

Although there are currently no comprehensive estimates of the economic value of our nation's coastal and ocean resources or direct connections of the various uses and the economy, NOAA's Office of Program Planning and Integration, Chief Economist's Office, has compiled a set of statistics that highlight the economic importance of NOAA/NOS Programs; some of these statistics are summarized below.

National Marine Sanctuaries. The Florida Keys National Marine Sanctuary (FKNMS) is the most highly used and economically important National Marine Sanctuary. In 1995-1996, economic impacts of coastal recreation in Monroe County, home to the FKNMS, included \$1.33 billion in sales/output, \$506.0 million in income, and 21,850 jobs, which all together amounted to between 50 and 70 percent of the total county economy. In addition, it was estimated that visitors alone received an annual nonmarket economic use value of \$1.2 billion; \$910.0 million of this value was attributed to natural resource-based activities. The total asset value, or amount someone would be willing to pay if they could own the natural resources of the FKNMS, was estimated at \$30.4 billion, using a three percent discount rate.

Damage Assessment/Restoration. The NOS Office of Response and Restoration (OR&R), Damage Assessment Center has successfully recovered compensation for restoration at over 100 hazardous waste and oil spill sites around the nation. Since 1990, NOAA has recovered over \$300.0 million for restoration of coastal and marine resources injured from chemical releases and oil spills. Through innovative approaches to spill preparedness, response, damage assessments, and restoration, NOAA contributes approximately \$75.0 million annually to the U.S. economy.

Coastal Zone Management. Economic activity in coastal regions is very large. Seventy-five percent of the nation's gross state product came from the coastal states in 2000. Almost half of the national economy came from the coastal watershed counties, and more than one-third of the economy came from those counties in which states operate their Coastal Zone Management programs. The near shore area, which is four percent of the nation's land, produces more than 11 percent of the nation's economic output.

Travel and tourism is the nation's largest employer and second largest contributor to the gross domestic product (GDP), generating over \$700.0 billion annually. Beaches are the leading tourist destination in the United States, with coastal states earning 85 percent of all U.S. tourism revenues. In 1999-2000, over 43 percent of the civilian population 16 years and older participated in at least one of 19 marine outdoor recreation activities, which translated into over 89 million participants. Over 30 percent of civilians participated in beach visitation, which translates into about 62 million participants that engaged in over 853 million person-days of beach visitation. In 1989, for three southern California beaches alone, it was estimated that recreational beach visitation had an annual net user value of \$360.0 million, with an asset value of \$12.0 billion.

Artificial and natural reefs have also been estimated to have enormous economic value. In 1997-1998, artificial reef use by recreational fishermen and divers (visitors and residents) of a five-county area of northwest Florida, had an estimated annual nonmarket economic use value of \$24.0 million and an asset value of \$801.0 million. In 2000-2001, annual nonmarket recreation values for the artificial and natural reefs of southeast Florida by both residents and visitors was estimated at \$256.0 million, with an asset value of \$8.5 billion. And, in 2000, Hawaii's coral reefs around the Main Islands had an annual nonmarket economic value for recreation and tourist reef-related use of \$133.3 million; amenity value (measured as reef-related property value) was estimated at \$40.05 million. Biodiversity value was measured by expenditures for all scientific research

related to the Main Islands (a proxy for scientific value) and non-use or passive economic use value was based on a benefits transfer. Biodiversity value was estimated to have an annual value of \$17.84 million. Total annual nonmarket value was estimated to be about \$191.0 million, with an asset value of about \$6.4 billion using a three percent discount rate.

Marine Transportation. More than 78 percent of U.S. overseas trade by volume and 38 percent by value comes and goes by ship, including nine million barrels of oil imported daily. In addition, 26,000 miles of commercial waterways serve 361 ports, which have more than 5,000 waterfront facilities. A total of 3.3 billion barrels of oil are imported through U.S. ports annually, and 8,000 foreign vessels make 50,000 port calls annually. Waterborne cargo alone contributes more than \$742.0 billion to the U.S. GDP and creates employment for more than 13 million citizens.

Coastal Ocean Observing Systems. Preliminary estimates of the potential economic benefits from new investments in regional coastal ocean observing systems in U.S. waters range from \$500.0 million to \$1.0 billion per year, estimated largely in terms of increased economic activity and social surplus realized as a result of improved information about coastal marine conditions. These estimates are constructed for 10 geographic regions encompassing all coastal waters of the United States, and cover a wide range of industrial and recreational activities, including recreational fishing and boating, beach recreation, maritime transportation, search and rescue operations, spill response, marine hazards prediction, offshore energy, power generation, and commercial fishing.

How the Social Science Plan was Developed

The NOS Social Science Plan was developed in seven phases, over the period from January 2005 through July 2005 (see Figure 1).

Phase 1 (Social Science Team Planning).

During this initial phase, the NOS Social Science Team (SST) was formed. Each SST member was assigned to represent and work with an NOS Program Office and a PPBES Program (see Appendix A for SST member assignments and contact information) and NOS Program Offices assigned liaisons to work with SST members. Also during this phase, the SST developed an outline for the NOS Social Science Plan, which was submitted to the NOS Senior Management Council (SMC) for review and approval.

Phase 2 (Issue and Information Need

Development). In Phase 2, the SST met with NOS Office Directors/Liaisons and reviewed and clarified the plan process. The team discussed NOS Office products and services and identified issues and needs where the social sciences could help in achieving office mission goals.

Phase 3 (Strategy Development with NOS

Program Offices). During this phase, SST members conducted a gap analysis on the issues and needs from Phase 2 and formulated projects and recommendations to fill the identified gaps. SST members then met with NOS Office Directors/Liaisons to report preliminary social science strategies to meet priority issues and needs.

Phase 4 (Strategy Development with NOAA

PPBES Programs). During this phase, the process described for Phase 3 was repeated with NOAA Mission Goal Teams and PPBES Program Directors/Staff.

Phase 5 (Prioritize Strategies and Develop

Draft Plan). After developing detailed strategies,

SST members summarized the strategies and worked with NOS Program Office Directors to prioritize each recommendation. All recommendations were rated either “High,” “Medium,” or “Low.” Some recommendations were deleted during this rating process. It is important to remember that the ratings are relative rankings. All recommendations were screened through a process where the SST members worked with NOS Program Offices and NOAA PPBES Program staffs to determine how each recommendation would help NOAA achieve its Mission Goals. Recommendations receiving a “Low” priority rating are still considered important in helping NOAA achieve its Mission Goals.

Phase 6 (SMC Presentation). After incorporating priority rankings, SST members compiled summaries by NOAA Mission Goal Teams, PPBES Programs, and NOS Program Offices for fiscal years (FY) 2004 through 2010, where FY 2004 is the baseline year. These summaries were presented to the NOS SMC.

Phase 7 (Produce Final Plan). SST members developed summary tables of recommended changes for each of the eight PPBES Programs/Themes and wrote descriptions identifying FY 2004 (baseline year) accomplishments, issues and needs, gaps and concerns, and strategies to achieve the NOS social science goals, thus generating the information presented in this document.

Database Approach. The SST understood that the NOS Social Science Plan could not simply be a “static” paper document, as contained herein, because issues and needs are constantly changing and NOAA must evolve to face new challenges. Such evolution requires a “dynamic” approach. The SST, with the assistance of the Special Projects Database Team, designed two databases to manage the NOS social science recommendations. The first database, the “Projects” database, contains detailed information on proposed social science projects,

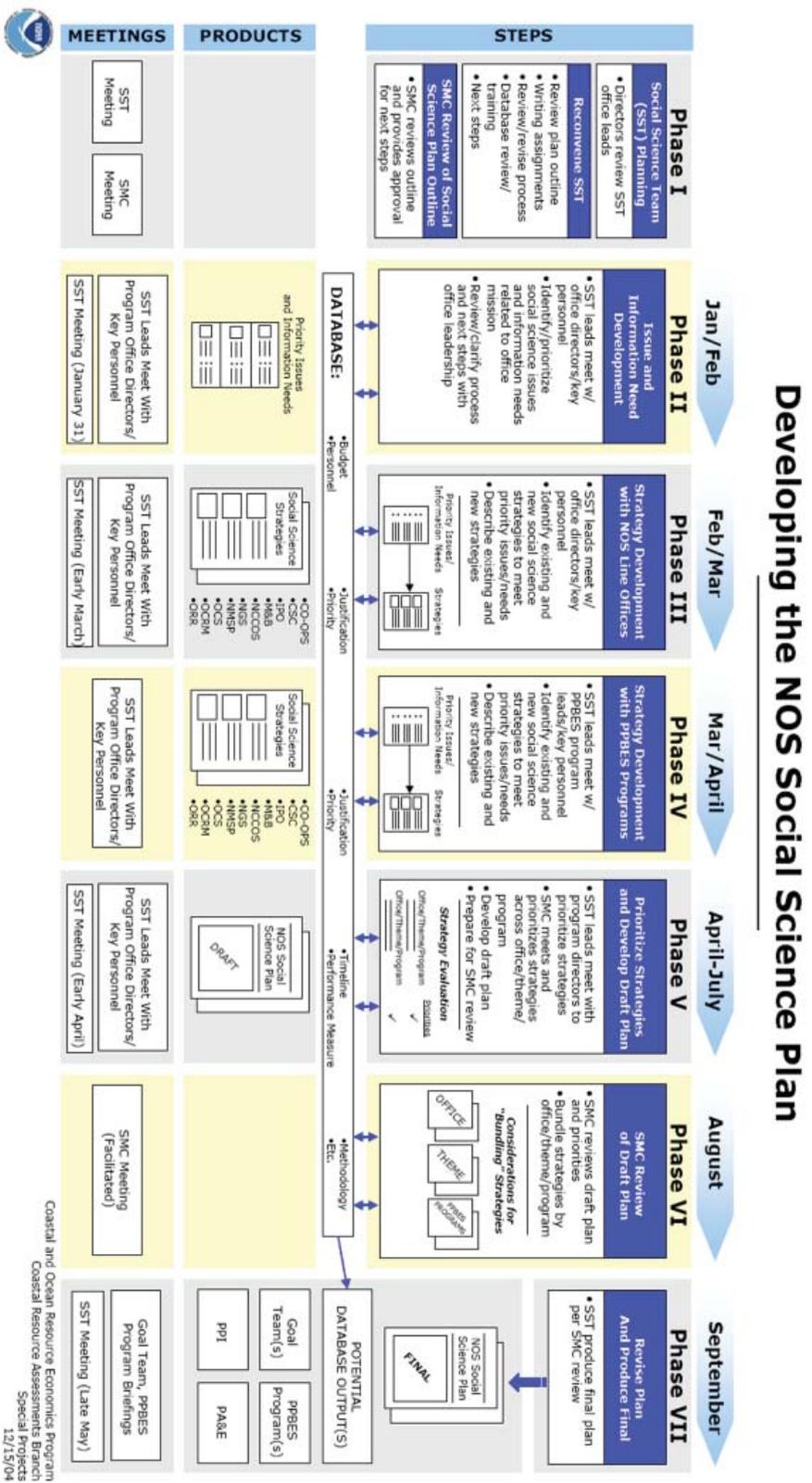


Figure 1. The Social Science Plan development process.

including justifications, methodologies, expected outcomes, products (outputs), estimated costs and staff requirements (including staff requirements across Offices to support internal planning), project time requirements, and fiscal years for which project funding is required. The database also contains information on potential partnerships (both within and outside NOS), sources of possible funding, type of information to be obtained, type of application (e.g., Resource Management/Conservation, Damage Assessment/Restoration, Product Evaluation, Program Evaluation, Basic Research/Methods Development, and Capacity Building) and region of application. Regions were specified as either “domestic” or “international” and within these two categories, the NOAA Large Marine Ecosystem (LME) regions were used.

The second database, the “FTE” database, contains the number of full-time equivalent (FTE) social scientists required to implement all the recommendations in the Projects database. Information in the Projects database is used to assess the need for additional social science personnel, whether these personnel are permanent NOAA FTEs or contract personnel. It is extremely important to note that implementation of the recommendations in the Projects database are contingent on fulfilling the personnel recommendations from the FTE database; if FTEs are not provided, there will be a need to reduce the number of projects implemented. Thus, both of the databases are important tools for plan implementation.

Both of the databases can be sorted and summed by NOAA Mission Goal, PPBES Program, NOS Program Office, and fiscal year of funding request. In addition, information can be summed and reported by type of application and region of application. These capabilities have already proven useful in the FY 2008 NOAA budget process.

NOAA’s FY 2008 Budget Process. SST members worked with NOAA PPBES Program staff to incorporate plan recommendations into the NOAA

FY 2008 budget process. Each PPBES Program has its own budget process, so all social science recommendations were re-packaged into different formats, as required for each PPBES Program. All social science recommendations included in this plan were incorporated into NOAA’s FY 2008 budget process; outcomes from that budget process will not be known until actual appropriations are received in FY 2008.

What the Social Science Plan Represents

The NOS Social Science Plan is more than the “typical” strategic plan, which contains a vision, goals, and objectives and broad issues, needs, and strategies to address goals. Rather, this plan goes a step further and specifies, especially over the near-term, individual projects (see Volume II of the NOS Social Science Plan for detailed project descriptions). As the SST moved to the longer-term, projects could not be specified in great detail, and recommendations morphed into broader themes addressing broader issues, as in most strategic plans.

Underinvestment. As mentioned earlier, for future years, the SST often found it very difficult to identify specific projects, as it is quite challenging to forecast the specific social science issues and needs that may arise in coming years. The SST knew that as soon as the paper plan was published, it would be out of date, which is why the SST created the databases discussed above to allow rapidly response to changing needs.

Besides the inability to forecast future needs, there is another reason that the plan represents an underinvestment. As the NOAA Science Advisory Board (SAB) review of NOAA’s social sciences noted, currently NOAA is under investing in social sciences, and consequently, many NOAA/NOS Program Offices have little experience with how social sciences can help achieve their Mission

Goals. Gaining experience will require “learning-by-doing,” which naturally leads to a “go-slow” approach by some offices. The result is that the plan may appear out-of-balance across different NOS Program Offices; however, this is to be expected, since those NOS Program Offices with extensive experience know the value of the social sciences in helping them achieve their Mission Goals and thus took full advantage of the opportunity, while those offices with less experience were more cautious. It is expected that, over time, the plan will become more balanced as NOS Program Offices gain more experience with the use of the social sciences.

How to use the Social Science Plan

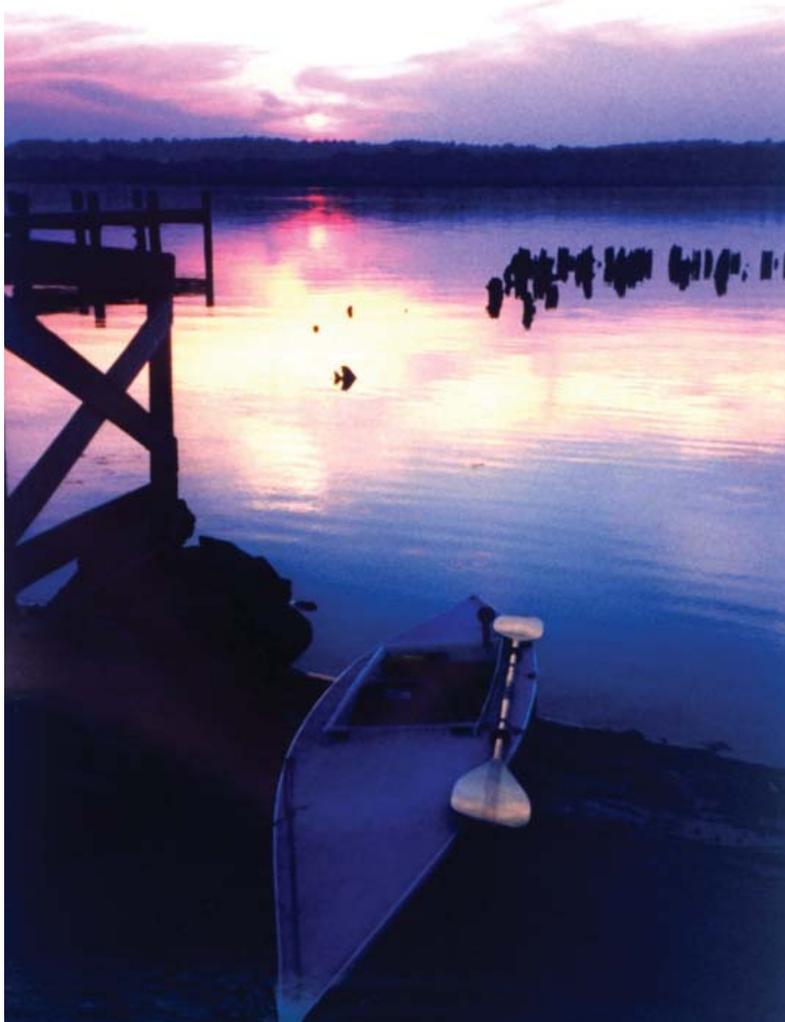
The remainder of Volume I of the NOS Social Science Plan contains summaries of the social science activities—current and future—for eight PPBES Programs. Also for each program, a general discussion of how social science activities within the program connect to the NOS social science goals is provided. Again, because it is recognized that needs and issues evolve quickly, providing general social science initiatives, as opposed to specific project descriptions, allows this paper version of the plan to be a much more long-term document.

In Volume II of the Social Science Plan, specific details are provided on currently proposed projects. The SST hopes that making proposed projects more concrete will help organizations outside NOS identify potential partnership areas, which will allow NOS and outside organizations to leverage their funds and talents to achieve what each agency or organization may not be able to achieve alone.

As mentioned, this plan has already been used in the NOAA FY 2008 budget process; the plan also helped in developing a draft of NOAA’s

Coral Reef Conservation Program FY 2006-2008 Spend Plan. Generally, the SST hopes this plan will serve as a driver for other NOAA Programs, especially to the many grant programs in NOS.

This paper version of the Social Science Plan, as noted above, is a “static” document. The SST hopes users will use this document with the knowledge that the NOS SST has database tools that will be used to respond to changes in issues and needs. Also, there is a Web site that lists SST membership and contact information, so that all users can access members of the SST (<http://marineeconomics.noaa.gov/SSP/welcome.html>).



How the Rest of Volume I of the Social Science Plan is Organized

The remainder of Volume I of the plan includes the following information:

- ◆ Summaries of budget and FTE requirements, presented for the whole Social Science Plan for fiscal years 2004 and 2005, where FY 2004 is the baseline year.
- ◆ Summaries for eight NOAA PPBES Programs (Themes), which address the following topics:
 - NOAA Program description
 - Priority social science topics and themes
 - Current social science capacity and effort
 - Needs and issues related to social science
 - Strategies to achieve social science goals
 - Summary of funding and personnel levels

Two summary tables are provided for each PPBES Program (Theme). The first table lists existing and proposed projects and identifies for each project, the lead NOS Program Office, other NOS Offices involved, whether potential partners were identified, NOAA region of application, and the relative project priority. The second table details total project costs for FY 2004 and FY 2005, and splits the costs between the NOS contribution and the contribution from NOAA and external funding partners for each project. At the bottom of the table are the NOAA FTE requirements and costs for implementing the listed projects. Again, FY 2004 is the baseline year for which all costs and capabilities are known. Additional resource requirements for FY 2005 are equal to the total requested for FY 2005, minus the amount received in FY 2004. Details for each project can be found in Volume II of the NOS Social Science Plan.

- ◆ Impacts and performance details, including plan outputs, outcomes, performance measures, and future Social Science Plan review and evaluation.
- ◆ Conclusions
- ◆ Appendices, including SST assignments and contact information and references and Web sites relevant to NOAA/NOS social science.

Summary: Social Science Capacity and Needs

This section provides a general overview of the FY 2004 and FY 2005 social science capacity and needs.

Social Science Capacity

In FY 2004, NOS had 11 permanent full-time equivalent (FTE) social scientists on staff, at a cost of approximately \$1.0 million (Table 1). A recent trend has been to hire contract personnel and treat them like staff; in FY 2004, NOS had seven social scientists hired as contract personnel, at a cost of \$0.5 million. In FY 2004, social science investments were made by NOS in four NOAA Programs, for a total NOS investment of approximately \$1.1 million. NOS also received \$0.4 million from outside sources, for a \$1.5 million investment in project costs and a total FY 2004 social science investment of approximately \$2.6 million. All investments in FY 2004 were made in the Ecosystems Mission Goal, with the largest amount of funding going to the Coastal and Marine Resources Program (CMRP).

In FY 2005, NOS made a significant increase in its investment in the social sciences. Social science investments expanded into the Commerce and Transportation Mission Goal, including the Marine Transportation Systems Program and the Geodesy Program. One permanent social scientist and two contract personnel were added as NOS staff and the total investment in social sciences doubled, bringing the direct NOS contribution to social science from \$2.6 million in FY 2004, to over \$5.2 million in FY 2005. Including outside sources, the total investment in NOS social science increased from \$3.0 million to almost \$5.9 million.

In the sections that follow, greater plan details are presented for each of the eight NOAA Programs for which social science recommendations are made. Descriptions are provided of the roles that each NOS Program Office plays in each of the NOAA Programs and discussions are included on social capacity and needs—current and future—for each program. Volume II of the Social Science Plan includes details on each proposed project.



| PPBES Program | FY '04 | | FY '05 | |
|--|--------------|--------------|--------------|--------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Ecosystems: CMRP | 860 | 425 | 2,336 | 1,740 |
| Ecosystems: Corals | 320 | 320 | 564 | 544 |
| Ecosystems: Ecosystem Research | 336 | 336 | 697 | 697 |
| Ecosystems: Habitat Restoration | 50 | 50 | 69 | 69 |
| Commerce & Transportation: Geodesy | 0 | 0 | 135 | 135 |
| Commerce & Transportation: Emergency Response | 0 | 0 | 0 | 0 |
| Commerce & Transportation: Marine Transportation Systems | 0 | 0 | 350 | 350 |
| Weather & Water: Coasts, Estuaries & Oceans | 0 | 0 | 0 | 0 |
| Total Project Costs (Non-Personnel) | 1,566 | 1,131 | 4,151 | 3,534 |
| NOAA FTE Costs | 1,002 | 1,002 | 1,114 | 1,114 |
| Number of NOAA FTEs | 11 | 11 | 12 | 12 |
| NOAA Contract Personnel Costs | 506 | 506 | 612 | 612 |
| Number of NOAA Contract Personnel | 7 | 7 | 9 | 9 |
| Total Costs | 3,073 | 2,638 | 5,877 | 5,261 |

Table 1. Summary of social science capacity and needs for fiscal years 2004 and 2005, for the eight PPBES Programs referenced in the NOS Social Science Plan. Dollar values expressed in thousands of dollars.

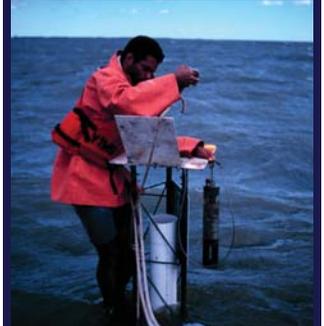
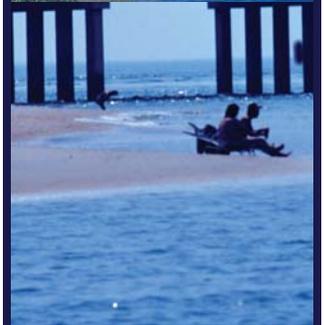
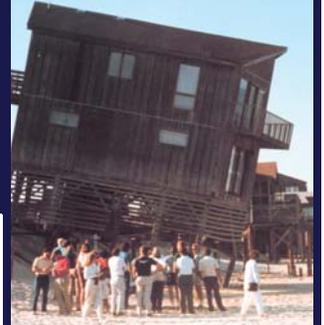
Coastal and Marine Resources Program

The Coastal and Marine Resources Program (CMRP) supports NOAA's Ecosystems Mission Goal. NOAA's Ecosystems Mission is to "protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach" to management.

CMRP consists of NOS activities that demonstrate the following capabilities:

- ◆ applied research, technology development, and observations;
- ◆ ecosystem approaches to managing coastal and marine resources;
- ◆ capacity building for managing coastal and marine resources;
- ◆ outreach and education; and
- ◆ regional ecosystem integration.

CMRP contains place-based activities that use ecosystem approaches to protect, study, and manage coastal and marine habitats and also contains programs that work to develop new tools, technologies, and science to inform coastal decision making. As a program that depends on hundreds of academic, state, local, and federal agencies to achieve successful resource protection, CMRP is uniquely positioned to generate and disseminate NOAA information and services.



Priority Social Science Topics & Themes

CMRP activities focus on the promotion of healthy and productive ecosystems, which can be fostered through the identification of, and research on, the human dimensions of ecosystems that influence how ecosystems function. Social science is necessary to determine how people understand and use their environments, as well as the factors that aid or hamper efforts to protect habitats. Social science can also be applied to the long-term effort to improve water quality; for example, social science can be used to specify the social and economic costs and benefits of pollution mitigation plans. The management of coastal development requires social science for investigating longitudinal socioeconomic and demographic factors that influence trends in coastal development. Finally, social science methods can be used to determine baseline knowledge, attitudes, and beliefs about coastal and marine ecosystems for the development of targeted outreach and education tools that increase public knowledge and increase awareness of environmental issues.

Several activities implemented by CMRP benefit from social science research and data. For example, restoration, protection, and acquisition priorities and goals must be informed by local cultural, economic, and historic values. Monitoring the success of habitat restoration, invasive species removal, and protective zoning requires analyzing the natural and social science data trends before and after a project, to determine if the project has met natural resource objectives as well as social and economic goals. Decisions to implement non-point pollution prevention programs and restricted coastal and marine uses must include solid public participation efforts that identify costs and benefits to natural systems and human communities. Demographic information about the people that live in coastal areas and use marine resources is particularly important in hazard mitigation. Primary language spoken, concentration of children or elderly citizens, population density, and other demographic information can be critical to saving lives and property.

CMRP is particularly well suited to deliver tools and information that incorporate social science because CMRP works directly with state, local, and interagency partners. Within NOS, Coastal Programs, the National Estuarine Research Reserve System (NERRS), National Marine Sanctuaries Program (NMSP), the Coastal Services Center (CSC), the Special Projects (SP) Division, and the National Marine Protected Areas Center MPAC, all work to inform local managers and to provide the tools needed to make balanced decisions about the public trust. In addition to working directly with resource managers, CMRP is also responsible for working with the general public.

Two of the three mandated NOAA education programs are within CMRP. Therefore, it is essential that CMRP monitor what people know about coastal and marine resources and what will motivate people to act as stewards of coastal and marine resources. The design, delivery, and evaluation of education and outreach programs requires tracking what people know, how they learn, and what they do with knowledge. By implementing ecosystem-based management approaches at site and local levels, CMRP works directly with the human element of the Large Marine Ecosystems (LMEs) that NOAA is trying to improve.

Four long-term outcomes that contribute directly to NOAA Ecosystem Goal objectives have been identified by CMRP. These outcomes include:

- ◆ Priority coastal land and water habitats are protected, restored, or enhanced to promote healthy and productive coastal ecosystems;
- ◆ Ocean, coastal, and Great Lakes water quality benefits from reduced polluted runoff from land-based sources and vessels;
- ◆ Coastal development is managed to promote ecosystem health and provide economic and societal benefits; and
- ◆ The coastal population has increased knowledge about coastal and marine ecosystems to make informed decisions.

The existing and proposed projects described in this chapter fill information gaps must be filled to reach these outcomes.

Current Social Science Capacity & Efforts

Eleven full-time employees currently work as social scientists within CMRP; this number includes economists, anthropologists, a geographer, and staff members trained in coastal policy but currently spending most of their time on social science. Many policy analysts, lawyers, and archeologists that work for CMRP are not included in the above total because they do not directly contribute to the current social science efforts referenced in this plan, and/or their job duties are not aligned with the NOAA-approved definition of a social scientist. Coastal and marine protection requires setting priorities by balancing competing demands among a diversity of coastal and marine dependent user groups and communities. Most staff within CMRP work on marine and coastal resource issues that have a direct impact on coastal communities, despite the fact that these staff member are not social scientists.

Current CMRP social science efforts to collect and organize socioeconomic data and indicators for coastal and marine management are supported by efforts within the following NOS Offices: MPAC, CSC, SP, and NMSP. MPAC has developed a National Social Science Research Strategy for Marine Protected Areas (MPAs) and is identifying regional social science priorities to facilitate the use of science in the planning, management, and evaluation of MPAs. CSC has developed indicators and performance measures to support the evaluation of coastal management efforts; designed new training programs to help the coastal management community use socioeconomic data for decision making; is designing integrated environmental characterizations that incorporate socioeconomic data; and is the leader for the National Ocean Economic Project (NOEP), which will provide an innovative approach for characterizing the coastal and ocean economy.

SP has been the co-leader on the National Survey on Recreation and the Environment, created a Web site that supports a georeferenced tool for analyzing coastal demographic data from the U.S. Census Bureau and the Bureau of Economic Analysis, and conducted socioeconomic analyses for the NMSP. The NMSP analyzes socioeconomic factors such as commercial fishing records, public recreation data, and resource user type, to support sanctuary management plan reviews and new site designations.

In FY 2004, CMRP invested approximately \$1.5 million in NOS social science projects. This investment supported seventeen projects in SP, the NMSP, CSC, and the Marine Protected Areas Center. Specific projects are listed in Tables 2 and 3 and in Volume II of the NOS Social Science Plan.

Needs & Issues Related to Social Science

CMRP has identified several general needs that are important in expanding the program's social science efforts and meeting the NOS social science goals. General CMRP needs relative to social science include the following:

- ♦ **A greater number of trained, full-time social scientists.** Currently, CMRP does not have a diverse set of social scientists and most social science activities done within CMRP deal with economics. Additionally, CMRP programs that are directly responsible for implementing the federal Coastal Zone Management Act (CZMA), including the Coastal Programs Division and the Estuarine Reserve Division, do not have any social scientists on staff. CMRP does not have sufficient expertise and staff to accomplish the biological and social assessments needed to support protected area designations and characterizations in all CMRP programs.

- ◆ **An interagency and academic network for social scientists** within CMRP to review proposals, collaborate on projects and to support the achievement of social science goals.

- ◆ **Additional reliable baseline data on key socioeconomic indicators** for coastal and marine management applications.



Strategy to Achieve Social Science Goals

CMRP is made up of a diverse collection of programs that share a set of common goals. While the social science needs within CMRP are equally diverse, there is great potential for integration of social science under CMRP and across other programs. Specific projects that address one or more of the social science goals are listed in Table 2, and complete descriptions of the projects are contained in Volume II of the Social Science Plan.

Goal: Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Provide MPA managers, coastal managers, policy makers, researchers, and interested stakeholders with the data needed to: enhance the process of MPA design and management; identify gaps in understanding of the human dimensions of MPAs; develop regional social science research needs that address these gaps; and build partnerships for pursuing the regional research priorities.

Goal: Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.

- ◆ Expand upon current activities and build capacity to integrate socioeconomic outputs with information from the natural and physical sciences, as needed to support goal development for, and the implementation of, ecosystem-based management.
- ◆ Fund fellowship programs that place and train new coastal social scientists, thus aiding in the development of NOAA social science capacity and building knowledge of the critical social, economic, and cultural variables that affect resource use and are impacted by management.
- ◆ Develop select tools that can be used locally to inform the coastal zone management program and to teach National Estuarine Research Reserve managers about the socioeconomic trade offs involved in coastal development, coastal acquisition, and shoreline management decisions.
- ◆ Provide the coastal stewardship community with socioeconomic data aggregated at a variety of watershed and political levels and provide the necessary tools for data analysis in order to increase awareness of, and improve access to, socioeconomic information.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Design and employ broadly-applicable methods for identifying the patterns and intensities of human uses of the marine environment, analyze the compatibility among uses, and assess the potential impact of uses on key resource variables. This information will be used to aid in identifying locations where use patterns pose a potential threat to resources, the categories of user groups that need to be engaged through participatory management processes, and user conflicts and equity issues that may need to be addressed.
- ◆ Develop region-specific socioeconomic indicators and provide coastal and ocean managers with guidance, training, and tools that will allow effective measurement of trends in socioeconomic conditions that relate to the health and sustainability of coastal resources and marine ecosystems.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Use a regional approach to identify the area-specific information needs that are relevant to local MPA managers, policy makers, researchers, and interested stakeholders.
- ◆ Conduct audience assessments and ongoing monitoring (through surveys, interviews, etc.) to increase NOAA's understanding of baseline knowledge, attitudes, and behaviors among key stakeholders relative to ocean and coastal resource issues, environmental observations, and challenges being confronted by ecosystem managers. Such information can provide the basis for consistent messaging and content for educational and outreach product development and collecting this information is necessary to establish if (and how well) NOAA's education and outreach efforts are influencing attitudes, knowledge, and behavior.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|--|------------|-----------------------|--------------------|--------------------------|----------|--------|
| National Survey on Recreation & the Environment (NSRE) 2000 | SP | CSC | Y | National | Existing | High |
| National Survey on Recreation & the Environment (NSRE) 2005 | SP | CSC, MPA, OCS, CO-OPS | Y | National | Existing | High |
| National Survey on Recreation & the Environment (NSRE) 2010 | SP | CSC, MPA, OCS, CO-OPS | Y | National | Proposed | High |
| FKNMS: Commercial Fishing Panels - Year 6 | NMSP | SP | Y | Southeast U.S. | Existing | High |
| FKNMS: Importance-Satisfaction & No-Take Area Use | NMSP | SP | Y | Southeast U.S. | Existing | Medium |
| FKNMS: Recreational Spiny Lobster | NMSP | SP | Y | Southeast U.S. | Existing | Medium |
| FKNMS: Spiegel Grove | NMSP | SP | Y | Southeast U.S. | Existing | Medium |
| FKNMS: Tortugas Pre-Post Evaluation, Commercial Fishermen | NMSP | SP | Y | Southeast U.S. | Existing | Medium |
| CINMS: Marine Reserves - Federal Process | NMSP | SP | Y | California Current | Existing | High |
| CINMS: Nonconsumptive Recreation Use and Value | NMSP | SP, MPA | Y | California Current | Existing | High |
| CINMS: Social Science Coordinator | NMSP | SP | Y | California Current | Existing | High |
| MBNMS: Nonconsumptive Recreation Use and Value | NMSP | SP | Y | California Current | Proposed | High |
| Recreation and Tourism: NSRE | CSC | | Y | National | Existing | High |
| Identifying and Implementing Regional Strategies for Social Science Research on Marine Protected Areas | MPA | | Y | National | Existing | High |
| Human Use Patterns & Impacts | MPA | | Y | National | Existing | High |
| CINMS: Socioeconomic Research & Monitoring Plan | NMSP | SP | Y | California Current | Proposed | High |
| Spatial Trends in Coastal Socioeconomics (STICS) Web site | SP | | Y | National | Existing | High |
| SBNMS Recreational Fishing Use and Value | NMSP | | Y | Northeast U.S. | Existing | High |
| Socioeconomic Assessment of NWHI Commercial Bottomfishing | NMSP | | Y | Insular Pacific-Hawaiian | Existing | Low |
| History of Marine Animal Population in SBNMS (HMAP) | NMSP | NCCOS | Y | Northeast U.S. | Existing | High |
| Socioeconomic Characterization of 4 NMS Sites | NMSP | | N | National | Existing | High |
| Socioeconomic Monitoring Initiative - Regional | IPO | OR&R | Y | International | Existing | High |
| NMSP Management Plan Review & Site Designation Related Data Collection & Studies | NMSP | | Y | National | Proposed | High |
| Integrated Socioeconomic, Biological & Physical Science to Support Ecosystem-Based Coastal Management | CSC | | Y | National | Existing | High |
| CSC Customer Survey | CSC | | Y | National | Existing | High |
| National Ocean Economics Project (NOEP) | CSC | | Y | National | Existing | High |
| Regional Socioeconomic Monitoring Program | MPA | | Y | National | Proposed | High |

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|---|------------|-------------------|--------------------|------------|----------|--------|
| Social Science Graduate Research Fellowship | OCRM | | Y | National | Proposed | High |
| Knowledge, Attitudes & Behavior | OCRM | SP, MPA, CSC | Y | National | Proposed | High |
| ERD Social Science Coordination | NERRS | | Y | National | Proposed | High |
| Social Science Research Fellowship Program | MPA | | Y | National | Proposed | High |
| Coastal Development & Shoreline Change Decision Support Tools | OCRM | CSC | Y | National | Proposed | High |
| Applied Social Science Coastal Management Fellowship | CSC | | Y | National | Proposed | High |
| Best Practices for Public Involvement Handbook | OCRM | | Y | National | Proposed | Medium |
| Economic Analysis of Coastal Conservation | OCRM | | Y | National | Existing | High |

Table 2. Existing and proposed CMRP projects.

Summary of Funding & Personnel Levels

This section provides information on the current funding and personnel. Details on future funding and personnel needs had to be removed from this public version of the document. NOS personnel have access to the document with full information. In identifying particular projects, the SST members working with CMRP have indicated the potential for partnerships with other NOAA offices or external organizations. Developing partnerships can, in itself constitute, a strategy to disseminate information and achieve social science goals. Furthermore, partnerships can allow social science staff to leverage NOS funding. The overwhelming majority of CMRP projects have potential partners already identified, and significant leveraging of NOS funds on these projects is reflected in the budget numbers in Table 3.

CMRP had a significant investment in social science in baseline year FY 2004, with nine social science FTEs, four social science contract personnel, and NOS non-personnel project costs of \$425,000. Including personnel costs, the total NOS portion of the CMRP baseline social science investment was \$1.46 million in FY 2004. Accounting for the leveraging of NOS funds through external partners, baseline non-personnel costs were \$860,000 and total costs were nearly \$1.9 million in FY 2004.

Social science investment within CMRP increased substantially from FY 2004 to FY 2005, with the addition of one FTE and one social science contractor and the expansion of social science activities. This expansion translated into NOS non-personnel costs of \$1.74 million (leveraged non-personnel costs of \$2.34 million) and total NOS costs of \$2.95 million (leveraged total costs of \$3.54 million).

Detailed funding and personnel information for FY 2004 and FY 2005 is provided in Table 3. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.

| Project Name | FY '04 | | FY '05 | |
|--|--------|--------|--------|--------|
| | \$ | NOS \$ | \$ | NOS \$ |
| National Survey on Recreation & the Environment (NSRE) 2000 | 0 | 0 | 40 | 40 |
| National Survey on Recreation & the Environment (NSRE) 2005 | 650 | 325 | 500 | 73.84 |
| FKNMS: Commercial Fishing Panels - Year 6 | 50 | 0 | 0 | 0 |
| FKNMS: Importance-Satisfaction & No-Take Area Use | * | * | * | * |
| FKNMS: Recreational Spiny Lobster | * | * | * | * |
| FKNMS: Spiegel Grove | 1.5 | 1.5 | 0 | 0 |
| FKNMS: Tortugas Pre-Post Evaluation, Commercial Fishermen | 60 | 0 | 0 | 0 |
| CINMS: Marine Reserves - Federal Process | 3 | 3 | 3 | 3 |
| CINMS: Nonconsumptive Recreation Use and Value | 0 | 0 | 73.5 | 73.5 |
| CINMS: Social Science Coordinator | 0 | 0 | 93 | 93 |
| MBNMS: Nonconsumptive Recreation Use and Value | 0 | 0 | 170 | 0 |
| Identifying and Implementing Regional Strategies for Social Science Research on Marine Protected Areas | 60 | 60 | 0 | 0 |
| Human Use Patterns & Impacts | 35 | 35 | 0 | 0 |
| CINMS: Socioeconomic Research & Monitoring Plan | 0 | 0 | 30 | 30 |
| Spatial Trends in Coastal Socioeconomics (STICS) Web site | 0 | 0 | 5 | 5 |

| Project Name | FY '04 | | FY '05 | |
|--|--------------|--------------|--------------|--------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| SBNMS Recreational Fishing Use and Value | 0 | 0 | 65 | 65 |
| Socioeconomic Assessment of NWHI Commercial Bottomfishing | 0 | 0 | 10 | 10 |
| History of Marine Animal Population in SBNMS (HMAP) | 0 | 0 | 276.7 | 276.7 |
| Socioeconomic Characterization of 4 NMS Sites | * | * | * | * |
| Socioeconomic Monitoring Initiative - Regional | 0 | 0 | 70 | 70 |
| NMSP Management Plan Review & Site Designation Related Data Collection & Studies | 0 | 0 | 400 | 400 |
| Integrated Socioeconomic, Biological & Physical Science to Support Ecosystem-Based Coastal Mgmt. | 0 | 0 | 300 | 300 |
| CSC Customer Survey | 0 | 0 | 50 | 50 |
| National Ocean Economics Project (NOEP) | 0 | 0 | 250 | 250 |
| ERD Social Science Coordination | * | * | * | * |
| Total Project Costs (Non-Personnel) | 860 | 425 | 2,336 | 1,740 |
| NOAA FTE Costs | 793 | 793 | 905 | 905 |
| Number of NOAA FTEs | 9 | 9 | 10 | 10 |
| NOAA Contract Personnel Costs | 244 | 244 | 300 | 300 |
| Number of NOAA Contract Personnel | 4 | 4 | 5 | 5 |
| Total Costs | 1,896 | 1,461 | 3,541 | 2,945 |

Table 3. CMRP funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars.

* Projects with no project-related costs reported are funded entirely through personnel costs.

For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

Corals Program

The Corals Program (CP) supports effective management and sound science to preserve, sustain, and restore coral reef ecosystems and falls under the NOAA Ecosystems Mission Goal. The CP conducts integrated observations and assessments of coral reefs; provides predictions, early warnings, and response programs to minimize impacts to reefs; conducts targeted research to understand the causes and consequences of coral reef decline; and conducts targeted outreach to educate the public on reef conservation and preservation. Additionally, NOAA is co-chair of the U.S. Coral Reef Task Force, which includes 12 federal agencies and seven state and territory partners working to coordinate national coral reef conservation and management activities.

Coral reef conservation provides economic benefits to industries such as tourism and fishing, offers potential new discoveries in medicine, and benefits coastal communities by preventing coastal erosion. Coral reef preservation provides nonuse or passive economic use values to people who have never directly used or plan to use coral reefs; these values include the willingness to pay to ensure future generations will have the opportunity to experience coral reefs in a certain protected state (bequest value) and the willingness to pay to ensure that coral reefs simply exist in a certain protected condition (existence value). NOAA is engaging in efforts to quantify these various values.

The CP is a cross-NOAA program that includes the National Marine Fisheries Service (NMFS); the Office of Oceanic and Atmospheric Research (OAR); and the National Environmental Satellite, Data, and Information Service (NESDIS). Within NOS, the Office of Response and Restoration (OR&R) leads the CP. For social sciences within NOS, the following offices are key CP contributors: OR&R's Damage Assessment Center (DAC); the Special Projects (SP) Coastal and Ocean Resource Economics (CORE) Program; the Office of Coastal and Ocean Resources Management's (OCRM) Marine Protected Areas Center and National Marine Sanctuary Program; the National Centers for Coastal and Ocean Science (NCCOS); the Coastal Services Center (CSC); and the International Programs Office (IPO).



Priority Social Science Topics & Themes

The CP is organized around several threat themes, which include: land-based pollution, coral disease, fishing impacts and overfishing, recreational overuse, coastal development, habitat destruction, lack of awareness, climate change, and coral bleaching. Cross-cutting priorities include international activities, outreach and education, socioeconomics, Marine Protected Areas (MPAs), capacity-building, observing systems, and ecosystem approaches to management. Socioeconomics is a cross-cutting priority in addressing all the threat themes in the CP.

Local Action Strategies (LAS) are a major driver of the CP. In his FY 2006 budget request, the President specifically increased the amount of the CP budget allocated to LAS. Also, there is broad participation of NOS Program Offices in coral reef ecosystem social science research; however, not all of that research is listed under the CP, as additional social science research is being funded by the Ecosystem Research Program through NCCOS and by the Coastal and Marine Resources Program through the National Marine Sanctuaries Program.

The majority of past and future planned social science efforts within the CP have been devoted to the management of the Florida Keys National Marine Sanctuary (FKNMS). The FKNMS

contains the largest coral reef ecosystem in the United States, has the highest level of use of all National Marine Sanctuaries, and faces all of the threats addressed in the CP. The Socioeconomic Research and Monitoring Program, which focuses on economic valuation and socioeconomic impacts of sanctuary management strategies and regulations, was implemented starting in 1998. SP's CORE Program has led implementation of the program since its inception. Significant efforts have been devoted to developing decision-support tools that incorporate spatial socioeconomic information to help both design and evaluate no-take areas.

Socioeconomic monitoring of coral reefs is also being conducted internationally. NOS's IPO has both regional and global initiatives and has produced a socioeconomic manual for coral reef management and guidelines for socioeconomic monitoring of reefs in the Caribbean and Southeast Asia. In addition, IPO has led the development of a process to help managers evaluate the effectiveness of MPAs.

OR&R's DAC and SP's CORE Program are currently leading an effort to quantify nonuse or passive economic use values for Hawaii's coral reef ecosystems. Values will be estimated for the use of no-take areas as a management tool in both high-use areas, such as the Main Hawaiian Islands, and remote, low-use areas such as the northwest Hawaiian Islands. Values are also being estimated to support damage assessments and restorations for reefs. Economic valuation has been a high priority of the CP and a current priority is to go beyond estimation of direct use values, to include both market (e.g., sales/output, income, and employment) and nonmarket (e.g., consumer's surplus or the value over and above what people have to pay for goods and services from coral reef ecosystems) values.

SP's CORE Program is also working with an Australian economist to address the impact of



climate change on coral bleaching and the associated socioeconomic impacts. Similar work was done for Australia's Great Barrier Reef and the CP has focused this effort on the FKNMS. Additionally, there is a broader need to assess a variety of larger threats from outside forces that cannot be controlled by local management and the socioeconomic impacts of these outside forces. Such information is needed to inform national and international policies.

Current Social Science Capacity & Efforts

As mentioned above, there is broad participation by NOS Program Office social scientists in the CP. The CP is different from some other NOAA Programs because it is "matrix managed," meaning that there are not separate "pots" of funds for each NOAA Line Office involved in the CP. Thus, social science "capacity" for the CP is different than for other programs discussed in this plan. SST members of NOS Program Offices devote their time to CP projects and office FTEs and costs are counted in the NOAA Programs where the office is binned for budget purposes. The NOS Social Science Plan projects database does contain details on how NOS SST members and other support personnel are allocated to CP projects, but these details are not reported in the summary tables presented in this plan. The detailed information in the "Projects" database is used for internal planning processes.

While the CP currently does not have a social scientist on staff, several SST members in NOS provide support for CP planning processes.

Social science accomplishments

This section summarizes accomplishments for the NOS offices involved in CP social science activities.

OR&R and SP. In FY 2003, OR&R's DAC and SP's CORE Program received CP funding to begin designing a study to estimate the nonuse of passive economic use value for Hawaii's coral reefs. This

work was designed to complement the work on estimating the direct use values of Hawaii's coral reefs funded through a grant from NCCOS to the Hawaiian Coral Reef Initiative (HCRI); HCRI entered contracts with Dutch economist, Herman Cesar, to conduct economic valuation studies.

In fiscal years 2003 and 2004, Stratus Consulting, Inc., was selected as the contractor to conduct the study on passive economic use value for Hawaii's coral reefs. In addition, NOAA hired reviewers to provide peer review throughout each stage of the project. The NOAA team worked with coral reef managers to develop the priority management strategies they wanted evaluated. The reviewers decided that the main issues for evaluation included MPAs (specifically no-take areas) and the ability to assess damages to coral reefs to support damage assessment and restoration efforts. A science panel was also formed to provide scientific information on what ecological services coral reef ecosystems produce, the status of the coral reef ecosystems, and how different management actions would change the ecological services. The primary activity in FY 2003 through FY 2004 was the design of questionnaires and sample designs; this process is scheduled to continue through FY 2005, with submittal to the Office of Management and Budget for approval to conduct a large-scale pretest.

International Programs Office. From fiscal years 2000 to 2004, IPO's social science activities focused on leading the Global Socioeconomic Monitoring Initiative, the goal of which was to increase coastal managers' capacity to understand and incorporate socioeconomic context into their management programs; this initiative has both global and regional components. In FY 2000, a global guidebook for conducting socioeconomic monitoring was released at the International Coral Reef Symposium. From fiscal years 2000 through 2004, eight regional and national workshops to train managers to use the guidebook were held in East Africa, the Caribbean, and South Asia. Site monitoring has been initiated at over 25 sites as a result of these training efforts.

During FY 2004, the Global Socioeconomic Monitoring Initiative was focused on regional components, particularly in the Caribbean. During FY 2004, the Socioeconomic Monitoring Guidelines for the Coastal Managers in the Caribbean was released through a collaborative effort with the University of the West Indies. In addition, socioeconomic training workshops were held in Belize and Trinidad based on these guidelines.

OCRM. OCRM has been leading an effort to provide technical assistance to local jurisdictions in developing economic valuations of coral reef ecosystems. The primary focus of these efforts has been on the Pacific and Caribbean Islands. In FY 2004, a request for proposal (RFP) was developed for American Samoa. A contract was awarded to Jacobs International in late FY 2004, and a draft report was received in early FY 2005, with the final report due in late FY 2005. In FY 2005, RFPs were developed for Guam and the Commonwealth of the Northern Mariana Islands (CNMI). Each of these efforts did not involve “new” data collections; however, instead efforts were focused on review of the literature and compilation of existing data on coral reef ecosystem uses and values. In FY 2004, OCRM also sent two NOAA economists to the U.S. Virgin Islands, St. Croix, to scope out a possible economic valuation effort there.

NMSP. In FY 2004, there were no projects supported by the CP in the NMSP; however, in FY 2005, several efforts in the FKNMS were supported by the CP.

NCCOS. In FY 2004, there were no NCCOS projects supported by the CP. NCCOS does have several projects directed at coral reef ecosystems, and some of these projects may be partially funded through the CP in FY 2005 and beyond; however, currently these projects are listed under the Ecosystem Research Program.

CSC. In FY 2004, there were no CSC projects supported by the CP. The first CP-funded project

involving CSC, the Rapid Transboundary Watershed Assessment of the Mesoamerican Barrier Reef System, is a joint effort with IPO, and was funded in FY 2005.

Needs & Issues Related to Social Science

The CP, as with most NOAA programs, got off to a slow start in addressing social science needs and issues. While a fair amount of work has already been done or is underway through other NOAA Programs, some gaps in addressing CP social science still exist.

There are still many gaps in economic valuation. Although many jurisdictions still require baseline estimates of use and value, a greater need is to determine how those uses and values change with management strategies that address pollution, coastal development, habitat destruction, fishing impacts and overfishing, and MPAs (especially no-take areas). This determination requires more sophisticated and expensive methods of data collection and analysis. When economic valuation is extended to include more than direct use values (i.e., nonuse or passive economic use values), the methods of data collection and analysis become even more expensive and applications will most likely be restricted to a few high priority areas.

Going beyond economic valuation to capture the social side of the socioeconomic needs is also important to the CP. Several efforts have been completed and several more are underway to address these needs. What is currently missing for the social side is a literature review and on-line annotated bibliography to assist in gap analyses. On the social side of socioeconomics, most of the needs are in understanding the social impacts of different management strategies and regulations. Understanding people’s knowledge, attitudes, and perceptions is important for both understanding and predicting human behavior, and also to support education and outreach efforts to

change behaviors that are harmful to coral reef ecosystems. No-take areas are increasingly being used by coral reef ecosystem managers; these areas displace consumptive users and have “potential” socioeconomic impacts and a priority is to gain a better understanding of these socioeconomic impacts.

The use of no-take areas as a management tool for coral reef ecosystems has also raised a challenge to gather information and perform analyses spatially. A major challenge is the development of spatial decision-making models, especially bioeconomic or ecological-economic models. Currently, there is an inability to make predictions of ecological and socioeconomic outcomes, given the complex nature of the interaction between human and biophysical systems, and how both systems respond

to changes in management strategies. More work is needed in both developing bioeconomic models and in metapopulation modeling, which uses structural bioeconomic models and use ranges of model parameters in sensitivity analysis to predict ecological and socioeconomic outcomes of different management strategies. Some of this work is being proposed through NCCOS in the Ecosystems Research Program section of the NOS Social Science Plan.

Because many socioeconomic impact assessments of management strategies and regulations involve great uncertainty, following “adaptive management” leads to the need for socioeconomic monitoring. Again, the use of no-take areas as a management tool has been the primary driver of many current and planned efforts in socioeconomic monitoring.



Strategy to Achieve Social Science Goals

This section outlines general strategies for the CP to help NOAA/NOS achieve the previously stated cross-cutting social science goals. Specific proposed projects to address one or more of the goals are listed in Table 3 and are described in detail in Volume II of the Social Science Plan.

Goal: Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Conduct economic valuation analyses to determine direct use values and nonuse or passive economic use values. The economic direct use valuation efforts will attempt to cover all jurisdictions, while the nonuse or passive economic use valuations will be limited to completion of the work in Hawaii and then a follow-up study comparing valuations of Hawaii's coral reef ecosystems with either Florida's or Puerto Rico's coral reef ecosystems.
- ◆ Complete a literature review of all social impact and monitoring analyses done on coral reef ecosystems and develop an on-line annotated bibliography using the results of this review. This bibliography will be a companion to the current on-line annotated bibliography for economic valuations, which will be updated. These bibliographies will not only support better planning but will also improve communication of NOAA/NOS information products and services.
- ◆ Evaluate the effectiveness of MPAs through socioeconomic monitoring. Additional efforts are focused on assisting those displaced by management strategies through alternative livelihood programs.

Goal: Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science and monitoring results.

- ◆ Develop spatial information and spatial decision-making models and tools and integrate social and natural science information, models, and tools in order to support management. This effort will include development of a tool with the ability to model and predict final ecological and socioeconomic outcomes with greater quantitative certainty. Efforts are being proposed to expand the use of metapopulation modeling and developing bioeconomic models with spatial predictive capabilities to evaluate alternative management strategies. Results of socioeconomic monitoring can be used to calibrate metapopulation model and bioeconomic model parameters.
- ◆ Develop the first global socioeconomic database for coastal management. The database will be populated by data from over 25 sites from around the world. An interactive Web site will present quantitative analyses of the global, regional, and site-level trends in threat to coastal resources, governance of resources, people's perceptions of resource conditions, people's dependence on resources, and the importance of resources and community standards of living.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Improve various models for decision-support tools and improve economic valuation methods for evaluating different threats to coral reef ecosystems. The Hawaii coral reef valuation work is the first effort to develop methods to allow for the estimation of nonuse or passive economic use value for coral reef ecosystems and to allow for evaluation of no-take areas and inclusion of passive economic use values in damage assessment and restoration cases.
- ◆ Address the impacts of global warming on coral bleaching and the associated socioeconomic impacts. A scoping exercise is underway to determine if work completed to determine climate change impacts to Australia's Great Barrier Reef can be done for the FKNMS.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Conduct surveys of coral reef ecosystem users' knowledge, attitudes, and perceptions of management strategies and regulations. Such surveys are used to more effectively conduct education and outreach efforts and to better identify the users, how they use reefs, and how much they value different natural resource attributes, facilities, and services.
- ◆ Develop guidebooks and training on how to conduct coral reef monitoring.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|--|------------|-------------------|--------------------|----------------------------|----------|----------|
| Methods Development: Coral Valuation Study | OR&R | | Y | Insular Pacific - Hawaiian | High | Existing |
| Socioeconomic Monitoring Initiative - Regional | IPO | OR&R | Y | International | High | Existing |
| Socioeconomic Monitoring Initiative - Global | IPO | OR&R | Y | International | High | Existing |
| FKNMS: Commercial Fishing Panels - Years 7-10 | NMSP | OR&R,SP | Y | Southeast U.S. | High | Existing |
| FKNMS: Knowledge, Attitudes & Perceptions of Management Strategies & Regulations | NMSP | OR&R,SP | Y | Southeast U.S. | High | Proposed |
| Rapid Transboundary Watershed Assessment of the Mesoamerican Barrier Reef Systems (MBRS) Project | IPO | CSC | Y | International | High | Existing |
| CRCP Social Scientist/Economist FTE | OR&R | | N | National | High | Proposed |
| Recreation & Tourism FKNMS 10-yr Replication | NMSP | OR&R,SP | Y | Southeast U.S. | High | Proposed |
| Recreational Fishing FKNMS: Spatial Bioeconomic Modelling | NMSP | OR&R,SP | Y | Southeast U.S. | High | Proposed |
| Alternative Livelihood Programs | OR&R | | Y | National | Medium | Proposed |
| Review of Literature – On-line Annotated Bibliography | OR&R | IPO,SP | Y | International | Medium | Proposed |
| Technical Assistance: Socioeconomic Monitoring of Impacts of Coral Reef Mangement Measures | OR&R | | Y | Southeast U.S. | High | Proposed |
| Reef Permit Evaluation Tool: SE FL & FKNMS | NMSP | OR&R,SP | Y | Southeast U.S. | High | Proposed |
| Non-use Coral Reef Valuation: Comparative Study | OR&R | SP | N | Southeast U.S. | High | Proposed |
| Use Valuations of Coral Reef Jurisdictions | OR&R | | Y | Regions with Coral Reefs | High | Proposed |

Table 4. Existing and proposed CP projects.

Summary of Funding & Personnel Levels

In FY 2004, the CP invested \$320,000 in two NOS-led social science projects. In FY 2005, the CP significantly increased its investment expanding to five projects with a total cost of \$614,000, of which \$594,000 included direct NOS funds. The Hawaii Coral Reef Valuation Project was fully funded during fiscal years 2003 through 2005. As noted previously, in terms of social science staffing, the CP relies on the social scientists throughout NOS and other NOAA Line Offices.

As noted previously, in terms of social science staffing, the CP relies on the social scientists throughout NOS and other NOAA Line Offices. Only one social scientist is needed on the CP staff to help coordinate social science planning and reporting.

Detailed funding and personnel information for FY 2004 and FY 2005 is provided in Table 5. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.



| Project Name | FY '04 | | FY '05 | |
|--|------------|------------|------------|------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Methods Development: Coral Valuation Study | 290 | 290 | 275 | 275 |
| Socioeconomic Monitoring Initiative - Regional | 30 | 30 | 0 | 0 |
| Socioeconomic Monitoring Initiative - Global | 0 | 0 | 30 | 30 |
| FKNMS: Commercial Fishing Panels - Years 7-10 | 0 | 0 | 52.31 | 52.31 |
| FKNMS: Knowledge, Attitudes & Perceptions of Management Strategies & Regulations | 0 | 0 | 83.25 | 83.25 |
| Rapid Transboundary Watershed Assessment of the Mesoamerican Barrier Reef Systems (MBRS) Project | 0 | 0 | 123 | 103 |
| Alternative Livelihood Programs | * | * | * | * |
| Total Project Costs (Non-Personnel) | 320 | 320 | 564 | 544 |
| NOAA FTE Costs | 0 | 0 | 0 | 0 |
| Number of NOAA FTEs | 0 | 0 | 0 | 0 |
| NOAA Contract Personnel Costs | 0 | 0 | 0 | 0 |
| Number of NOAA Contract Personnel | 0 | 0 | 0 | 0 |
| Total Costs | 320 | 320 | 564 | 544 |

Table 5. CP funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars. For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

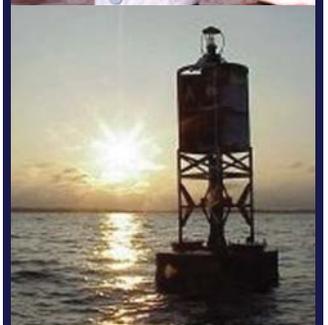
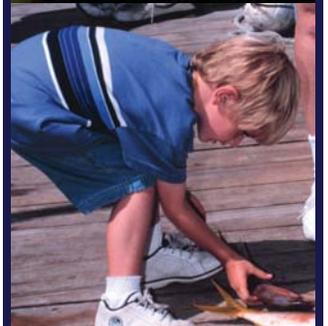
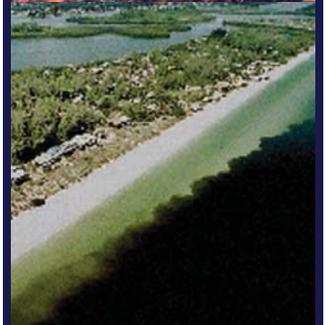
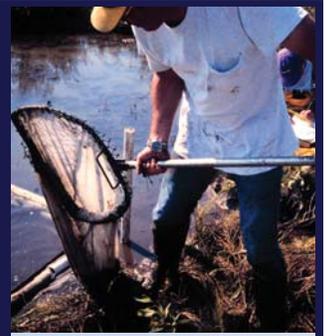
* Projects with no project-related costs reported are funded entirely through personnel costs.

Ecosystem Research Program

NOAA's Ecosystem Research Program (ERP) provides scientific information and decision-support tools to promote NOAA's Ecosystem Mission Goal. NOAA's ecosystem mission is to "protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach" to management. As defined in NOAA's Strategic Plan, an ecosystem approach to management is "adaptive, specified geographically, takes into account ecosystem knowledge and uncertainties, considers multiple external influences, and strives to balance diverse social objectives." Balancing diverse social objectives means achieving an optimal integration of "the concerns, priorities and expertise of all citizens and sectors" in view of the dual role of humans as cumulative stressors and beneficiaries of environmental systems.

Optimally, management decisions would minimize the role of current and future generations as "stressors" and thereby maximize their role as "beneficiaries" of ecosystem services that support diverse cultural, economic, recreational, public health, and other social objectives. However, given the complexity and dynamism of interactions among human and biophysical components of ecosystems, sustaining the capacity of managed areas to support a diverse set of objectives typically requires trade-offs—decisions that compromise or forgo the achievement of one or more objectives in order to secure others.

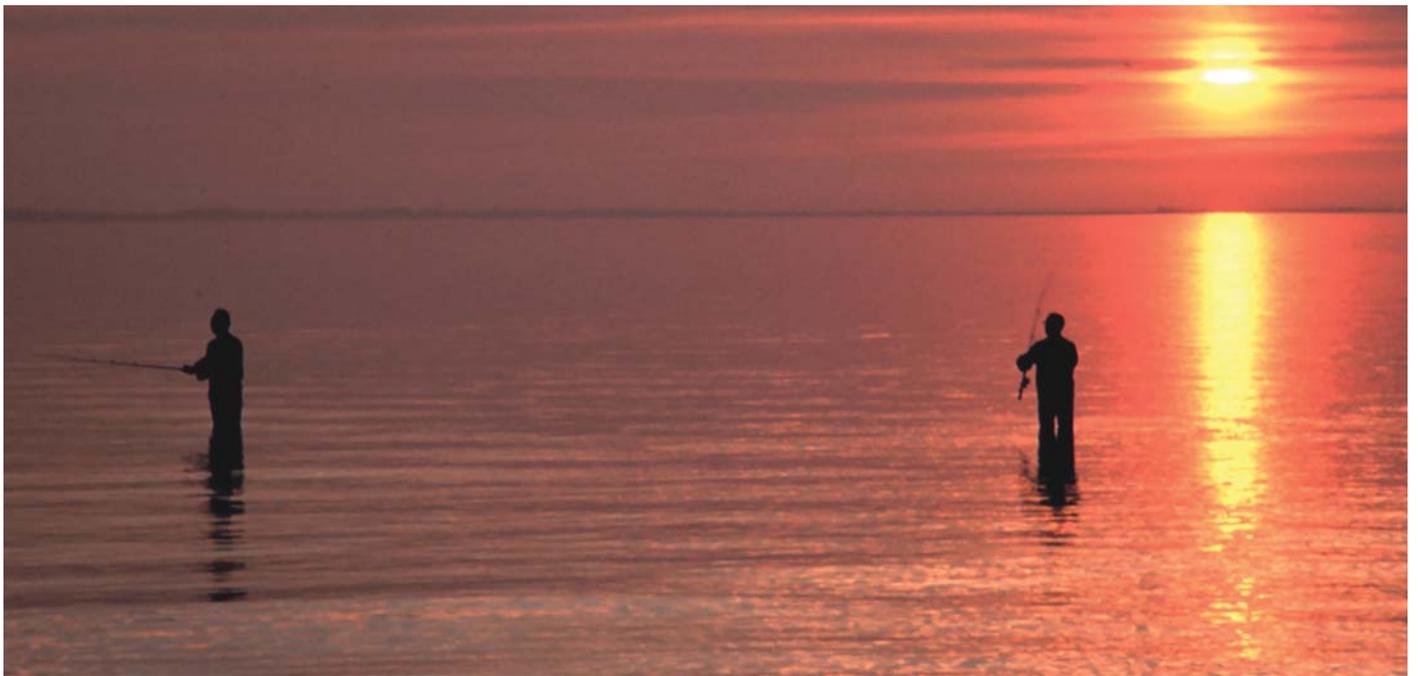
An ecosystem approach to management is thus an enterprise in defining and achieving an *acceptable*, rather than optimal, integration of objectives. Given the centrality of trade-offs to coastal and ocean management, the fundamental challenge of successfully implementing an ecosystem approach is both scientifically complex and socially visionary.



The challenge to ERP is one of research integration and application:

- (1) *Research Integration.* To develop research programs that advance understanding of terrestrial, coastal, and open ocean systems as they influence and are influenced by cultural, economic, political, and other human dimensions.
- (2) *Research Application.* To facilitate the application of such understanding by federal, state, local, and tribal management agencies, and their constituents, to:
 - (a) Understand conflicts among social objectives at stake in specific management decisions; and
 - (b) Envision and implement regulatory, participatory, technological, educational, and other management strategies to sustain the fullest integration of social objectives possible, establish priorities among competing social objectives, and resolve conflict among social groups.

ERP, as defined in the program charter, meets this multi-faceted challenge through broad-based ecosystem research and research applications that (1) characterize ecosystems, including biophysical and human dimensions; (2) identify the causes and consequences of anthropogenic and natural stressors; (3) provide forecasting tools to predict ecological and socioeconomic impacts of management decisions; (4) provide technologies and decision-support tools for coastal managers and constituents; and (5) strengthen stewardship through outreach and education. ERP research priorities are established by statutes, executive orders, and international agreements that require NOAA to provide coastal managers with scientific knowledge, financial assistance, and other support to manage the coastal zone for diverse social objectives.



Priority Social Science Topics & Themes

NOS ERP activities are concentrated in the National Centers for Coastal Ocean Science (NCCOS). NCCOS includes five centers that support and conduct research, monitoring, assessment, and technical assistance focusing on the individual and interactive impacts of five stressors (climate change; pollution; invasive species; land and resource use; and extreme natural events such as storms, diseases, and harmful algal blooms) on coral reefs, national marine sanctuaries, estuaries, and open oceans.

Following the recommendations of the Social Science Review Panel to the NOAA Science Advisory Board, in fiscal year (FY) 2006, NCCOS will “develop a social science research plan and ensure that it is integrated into the NOAA Strategic Plan through explicit as well as implicit social science goals, plans, and outcomes.” The NCCOS plan will chart a course for integrating the first-rate biophysical research supported and conducted by its five centers with human dimensions research and for applying research outcomes to achieve NOAA’s Ecosystem Mission Goal. Essential steps toward research integration and application include:

- ♦ *Assessing the information needs of coastal managers.* Drawing on federal, state, local, and tribal authorities and collaborating with NOAA’s Coastal and Marine Resources Program, Corals Program, and other mission programs, NCCOS will identify integrated biophysical and socioeconomic research needed to address specific management questions in the context of an ecosystem approach.
- ♦ *Coordinating biophysical and social science research, both institutionally and scientifically, to inform management decisions.* Institutionally, the NCCOS plan will emphasize strategies for coordinating biophysical and socioeconomic research projects within the ERP, among other NOAA mission programs, and with external partners to support the information needs of coastal

managers on multiple scales. Scientifically, NCCOS will utilize geographic information systems (GIS), dynamic modeling, an “integrated assessment” framework described in the NCCOS Strategic Plan, and other approaches for integrating biophysical and socioeconomic information.

- ♦ *Facilitating the use of integrated biophysical-socioeconomic research by coastal managers.* The NCCOS plan will emphasize translation of research results into services and products that inform specific management questions by, for example, providing decision-support tools such as forecasting models, early warning systems, and socioeconomic and biogeographic characterizations of managed areas and use patterns impacting these areas.
- ♦ *Building capacity.* Building NOAA research capacity to support an ecosystem approach requires building capacity for socioeconomic and biophysical research, to be sure. But providing scientific support for an ecosystem approach requires more than either of these skill sets individually. It requires skills in thinking, planning, and communicating *at the interface* of socioeconomic and biophysical information. To build NOAA’s capacity in such skills, NCCOS envisions developing a competitive fellowship program to support graduate-level work in integrative biophysical-socioeconomic research.
- ♦ *Promoting environmental literacy.* NOAA’s Strategic Plan includes environmental literacy as a cross-cutting priority. The plan defines environmental literacy in terms of developing a “public better able to make informed decisions and take appropriate action on environmental and ecological matters” and requires improving “public understanding of ... the effect [air and water] systems have on all aspects of people’s lives.” Toward this end, NCCOS

envisions partnering with NOAA's Educational Cooperative Science Centers, the Centers for Ocean Science Education Excellence, and others to develop K-12 curricula that cultivate awareness and appreciation of diverse values supported by ecosystems and skills in critical decision making when values come into conflict.

Current Social Science Capacity & Efforts

As mentioned previously, social science in the ERP is concentrated in NCCOS. Current social science efforts in NCCOS encompass a broad range of topics such as socioeconomic indicators of estuary restoration success, use of traditional knowledge in ecosystem management, integrated biogeographic and socioeconomic study of the Tortugas Ecological Reserve, cumulative costs of shoreline modification, socioeconomic studies to inform coral reef management in Puerto Rico, and indicators of socioeconomic impacts from eutrophication.

In FY 2005, NCCOS launched plans for significant development of their human dimensions program through the following efforts:

- ◆ NCCOS hired a human dimensions program leader tasked with developing and implementing the NCCOS Strategic Plan;
- ◆ The NCCOS Center for Sponsored Coastal Ocean Research began planning a Coral Reef Ecosystem Study-Human Dimensions program (CRES-Human Dimensions) supporting extramural sociocultural studies integrated with ongoing biophysical coral reef research;
- ◆ NCCOS partnered with the University of Massachusetts to hold a workshop for NCCOS center directors on the value of social science research for supporting an ecosystem approach to coastal management.

- ◆ NCCOS planned a workshop to generate a plan for social and economic research following the goals of Harmful Algal Research and Response: A National Environmental Science Strategy (HARRNESS). The resulting research plan will guide programmatic development in NCCOS and will also be made available for use by the NOAA Oceans and Human Health Initiative (OHHI) and the Joint Subcommittee on Ocean Science and Technology (JSOST) Interagency Working Group on Harmful Algal Blooms, Hypoxia and Human Health to support their efforts in implementing the Harmful Algal Bloom and Hypoxia Research Control Act (HABHRCA). The workshop was informed by a survey of a broader social science community conducted by researchers at the University of New Hampshire and took place in September of FY 2005.

Social science accomplishments

In FY 2004, four ERP social science projects received funding. Reported accomplishments for these projects include:

- ◆ A chapter entitled "Human Dimensions of Coastal Restoration," published by Dr. David Loomis (University of Massachusetts-Amherst) and Dr. Ronald Salz (NOAA Fisheries, formerly with the University of Massachusetts-Amherst) in the NOAA Coastal Ocean Program Decision Analysis Series publication, *Science-Based Restoration Monitoring of Coastal Habitats*. The chapter includes a matrix of socioeconomic indicators for estuary restoration success. NCCOS is building on this work by developing a guidebook that will provide operational guidance for managers using these indicators to monitor human dimensions goals for coastal restoration projects.
- ◆ A conceptual model for conducting a landscape-scale assessment of the changing nature of cultural, ecological, and economic

relationships in the region surrounding the Cape Romain National Wildlife Refuge was developed by researchers at the NCCOS Center for Coastal Environmental Health and Biomolecular Research. This project provides necessary information for managers to design strategies to protect sweet grass habitats, a culturally important resource for the local Gullah community, from development pressures.

- ◆ Pilot work to develop socioeconomic indicators for the North Atlantic region and the Chesapeake Bay was completed as part of the National Estuarine Eutrophication Assessment (NEEA) Update Program, which is a collaborative effort among the NCCOS Center for Coastal Monitoring and Assessment, the Office of Coastal Resource Management, the U.S. Environmental Protection Agency, state management agencies, and university researchers.
- ◆ Socioeconomic profiles of fishing communities of western Puerto Rico were developed as part of a continued collaborative effort between the NCCOS Center for Sponsored Coastal Ocean Research Coral Reef Ecosystems Study project and NOAA's National Marine Fisheries Service. The profiles will inform efforts to establish a Marine Protected Area (MPA) at Turrumote Reef. Also as part of this project, methodologies (including informal interviews; formal, in-depth interviews; and a survey) were tested for systematically documenting fishers' experience-based knowledge of marine ecosystems and participant observations were recorded for various fishing activities throughout the region. This ongoing study will provide information on the social distribution of knowledge and perceptions of environmental continuity and change in a large sample of fishers in the southern region.

Needs & Issues Related to Social Science

The NCCOS plan, currently in development, will systematically identify goals and needs (including social science staffing) and establish strategies that improve overall NOS social science capacity and enhance ERP success. Proposed projects include the development of socioeconomic indicators of ecosystem health in Texas bays and estuaries; socioeconomic studies to understand, assess, and minimize the impacts of harmful algal blooms; socioeconomic impacts of the invasive IndoPacific lionfish; and metapopulation modeling incorporating spatial, ecological, and socioeconomic data.

In addition, the NCCOS Center for Coastal Environmental Health and Biomolecular Research has identified a need for social science research supporting the objectives of the Land Use – Coastal Ecosystem Study (LU-CES) and Urbanization of Southeastern Estuarine Systems (USES) projects. LU-CES and USES provide scientific support for land-use management decision making in the rapidly developing coastal areas of the southeast. Research may include acquisition of data characterizing land, coastal, and open ocean uses in the southeast. In addition to informing the development of models to envision and evaluate alternative minimal impact regional planning scenarios, such data would support the National Marine Protected Area's Human Use Patterns and Impacts project.

Finally, NCCOS will develop and apply its “integrated assessment” approach as a framework for coupling biophysical and social information to identify research needs and provide coastal managers with a baseline assessment of ecosystem health—where ecosystem health is understood relative to social objectives articulated by federal, state, local, and tribal authorities.

Strategy to Achieve Social Science Goals

This section outlines general strategies for ERP to help NOS achieve the previously stated cross-cutting social science goals and thereby promote NOAA's Ecosystem and other mission goals. Specific projects to address one or more of the social science goals are listed in Table 6 and are described in detail in Volume II of the NOS Social Science Plan.

Goal: Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Develop ecological and socioeconomic indicators of NOAA efforts. For example, NCCOS will continue to lead the development of ecological and socioeconomic indicators of estuary restoration success, including the development of a guidebook to help operationalize implementation of socioeconomic indicators in the field.
- ◆ Use value of information and cost-benefit methods to evaluate the net benefits of NOAA science in managing coastal resources and in mitigating extreme natural events, which can cause many disruptions in activities and result in economic losses.
- ◆ Conduct integrated assessments to evaluate socioeconomic impacts of management decisions. For example, NCCOS will use an integrated assessment to evaluate the success of no-take area regulations as a management tool and to help to design no-take areas.

Goal: Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.

- ◆ Use social science techniques to capture traditional knowledge to better understand how ecosystems work, in order to ultimately improve ecosystem-management tools.
- ◆ Use integrated assessments that incorporate socioeconomic and ecological information to support management decisions involving trade-offs among values such as economic growth, cultural vitality, and health.
- ◆ Integrate socioeconomic and ecological indicators to monitor environmental health of coastal ecosystems such as estuaries. Socioeconomic indicators that account for both the negative impact of economic activities and the benefits associated with uses that depend upon the environmental health of the ecosystems are important in supporting integrated assessments of environmental health of those ecosystems and in delivering information to policy and decision makers.
- ◆ Design management strategies and justify investments to protect natural resources from development pressures by establishing links between development pressures, ecosystem functions, and services that ecosystems deliver that are valued and used by humans.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Develop and implement methodologies to assess current tools and policies in the management of ecosystems such as coral reefs, with respect to how these tools and policies meet societal values and preferences.
- ◆ Use cost-benefit and cost-effectiveness analyses to evaluate changes in ecosystems functions as they relate to economic valuation of commercial fisheries, recreational use, water supply, and storm protection. For example, NCCOS will employ integrated assessment techniques to evaluate different management options for ecosystems such as the Barataria estuarine system in Louisiana.
- ◆ Document economic and societal costs of extreme natural events, such as harmful algal blooms, to provide guidance in investments in research needed to better understand, predict, and mitigate natural hazard impacts. Information will be collected on who is impacted, what they know about the event, and how they get their information—all of which can be used to develop tools to help avoid consequences of similar future events.

Goal: Increase the relevance of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Conduct surveys on knowledge, attitudes, perceptions, and beliefs about natural hazard events and ecosystem resources, such as coral reefs. Answers to survey questions will guide policy makers, managers, and education and outreach personnel in making better management choices.
- ◆ Conduct in-depth interviews and focus groups with coastal resource users (e.g., fishermen) to gauge the attitudes, perceptions, and beliefs, and to estimate trends in policies, actions, events, potential for MPA development, and the potential effects of MPAs (i.e., displacement of fishermen and other users into other areas, changes in gear, and changes in target species).



| Project Name | NOS Office | Other NOS Offices | Potential Partnerships | NOS Region | Priority | Status |
|--|------------|-------------------|------------------------|------------|----------|----------|
| Socioeconomic Indicators of Restoration Success | NCCOS | SP | Y | National | High | Existing |
| Eutrophication: Socioeconomic Indicator Development and Application | NCCOS | | Y | NE | Medium | Existing |
| Economic Impacts of HAB Events and the Value of Scientific Information | NCCOS | | Y | National | High | Existing |
| Barataria Multiple Stressor Program | NCCOS | | Y | GOM | High | Existing |
| Scientific-Sociocultural Study in Cape Romain NWR: Gullah Community | NCCOS | | Y | SE | Low | Existing |
| CRES 2000: Integrating Science & Management in the Caribbean | NCCOS | | Y | Caribbean | High | Existing |
| Tortugas Ecological Reserve: Integrated Assessment | NCCOS | NMSP, SP | Y | SE & GOM | High | Existing |
| Use of Traditional Knowledge in Ecosystem Management: Port Graham, AK | NCCOS | | Y | Gulf of AK | High | Existing |
| National Coastal Conditions Report: Socioeconomic Indicators of Environmental Health, Texas Bays and Estuaries | NCCOS | | Y | GOM | High | Proposed |
| Coral Reef Ecosystem: Societal Values, Preferences and Policy/Management | NCCOS | NMSP, SP | Y | SE & GOM | Medium | Existing |
| Socioeconomic Impact of Harmful Algal Blooms: Alaska | NCCOS | | Y | Gulf of AK | High | Proposed |
| Socioeconomic Impact of Harmful Algal Blooms: Florida | NCCOS | NMSP | Y | SE & GOM | High | Proposed |
| Invasive Indopacific Lionfish - Socioeconomic Impact of the Invasion | NCCOS | | Y | SE | High | Proposed |
| Socioeconomic Valuation of Shoreline Stabilization Projects in NC | NCCOS | NERR | Y | SE | Low | Proposed |
| Metapopulation Modeling Incorporating Spatial Ecological and Socioeconomic Data | NCCOS | NMSP | Y | TBD | Low | Proposed |

Table 6. Existing and proposed ERP projects.

Summary of Funding & Personnel Levels

This section provides information on current ERP social science funding and personnel. All included ERP projects have potential partners, and though the leveraging of partnership funds is not reflected in the budget numbers reported in Table 7, financial support from partners will be pursued in the future.

In baseline FY 2004, NCCOS made an investment of \$336,000, which supported six social science projects. In FY 2005, ERP social science investment more than doubled to approximately \$697,000. In the baseline year of FY 2004, NCCOS did not have any staff social scientists. However, in FY 2005, NCCOS hired a contractor to work as the Human Dimensions Program lead on social science projects supporting the Ecosystem Research Program.

Detailed funding and personnel information for FY 2004 and FY 2005 is provided in Table 7, and project descriptions can be found in Volume II of the NOS Social Science Plan. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.

| Project Name | FY '04 | | FY '05 | |
|--|------------|------------|------------|------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Socioeconomic Indicators of Restoration Success | 26 | 26 | 20 | 20 |
| Eutrophication: Socioeconomic Indicator Development and Application | 20 | 20 | 0 | 0 |
| Economic Impacts of HAB Events and the Value of Scientific Information | 114 | 114 | 118 | 118 |
| Barataria Multiple Stressor Program | 50 | 50 | 50 | 50 |
| Scientific-Sociocultural Study in Cape Romain NWR: Gullah Community | 62.1 | 62.1 | 120 | 120 |
| CRES 2000: Integrating Science & Management in the Caribbean | 64 | 64 | 64 | 64 |
| Tortugas Ecological Reserve: Integrated Assessment | 0 | 0 | 90 | 90 |
| Use of Traditional Knowledge in Ecosystem Management: Port Graham, AK | * | * | * | * |
| National Coastal Conditions Report: Socioeconomic Indicators of Environmental Health, Texas Bays and Estuaries | 0 | 0 | 120 | 120 |
| Coral Reef Ecosystem: Societal Values, Preferences and Policy/Management | 0 | 0 | 65 | 65 |
| Socioeconomic Impact of Harmful Algal Blooms: Alaska | 0 | 0 | 50 | 50 |
| Total Project Costs (Non-Personnel) | 336 | 336 | 697 | 697 |
| NOAA FTE Costs | 0 | 0 | 0 | 0 |
| Number of NOAA FTEs | 0 | 0 | 0 | 0 |
| NOAA Contract Personnel Costs | 0 | 0 | 50 | 50 |
| Number of NOAA Contract Personnel | 0 | 0 | 1 | 1 |
| Total Costs | 336 | 336 | 747 | 747 |

Table 7. ERP funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars. For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

* Projects with no project-related costs reported are funded entirely through personnel costs.

Habitat Restoration Program

NOAA's Habitat Restoration Program addresses the restoration portion of the NOAA Ecosystem Mission Goal to "protect, restore, and manage the use of coastal and ocean resources."

NOAA's Habitat Restoration Program works to improve the quality, and increase the quantity of, coastal habitat restoration. In addition to planning, funding, and implementing "on-the-ground" restoration projects, the Habitat Restoration Program advances the science underlying coastal habitat restoration and develops improved technology with which to achieve successful restoration. The Program also transfers restoration technology and the results of research and monitoring to the private and public sectors through extension, outreach, and education efforts.

Within NOS, the Office of Response and Restoration (OR&R) is the primary player in the Habitat Restoration Program. OR&R's Damage Assessment Center (DAC) is the focal point for social science within OR&R; outside of NOS, the National Marine Fisheries Service Restoration Center (RC) plays a major role in the Habitat Restoration Program. DAC and RC, along with the NOAA Office of the General Counsel, together comprise the Damage Assessment and Restoration Program (DARP).



Priority Social Science Topics & Themes

The bulk of NOS social science activities within the Habitat Restoration Program are tied to assessing injuries resulting from ship groundings and spills of oil and hazardous substances. The natural resource damage assessment (NRDA) process involves determining the extent of natural resource injuries, recovering damages from responsible parties through negotiation or litigation, developing and evaluating restoration alternatives, and implementing restoration projects.

Successful NRDA requires understanding complex ecosystems, the services these ecosystems provide, and the injuries caused by oil and hazardous substances. The season the resource was injured, the type of oil or hazardous substance involved, and the amount and duration of the release are among the factors that affect how quickly resources are assessed and restoration and recovery occurs. Rigorous scientific studies are needed to prove injury to resources and services and to withstand scrutiny in a court of law.

The OR&R DAC, which is the primary NOS office involved in NRDA, is responsible for assessing the impact to NOAA trust resources from releases of oil and hazardous materials, to achieve the goal of restoration. DAC staff determine the extent of

natural resource injuries, the value of the affected resources, and the amount of restoration that is needed to compensate the public for interim losses that have occurred as a result of the injury.

Current Social Science Capacity & Efforts

DAC implements the U.S. Secretary of Commerce's responsibilities for natural resource damage assessment for releases of oil and hazardous substances. DAC scientists and economists provide the technical foundation for natural resource damage assessments and work with other trustees and responsible parties to restore resources injured by oil and hazardous substance releases, as well as injury to resources of National Marine Sanctuaries and National Estuarine Research Reserves. DAC collects data, conducts studies, and performs analyses needed to determine whether coastal resources have sustained injury from releases of oil or hazardous materials, how to restore injured resources, and the level of damages that must be recovered to accomplish restoration.

DAC develops and tests new approaches, techniques, and procedures for improved and cost-effective



damage assessment and restoration of trust resources and transfers this knowledge through training and technical assistance to other natural resource trustees, coastal managers, and other decision makers.

DAC has six social scientists, who are all economists. These social scientists are involved in natural resource damage assessments and economic methods development, as well as program development and coordination, and contract management for external research projects. DAC participates in partnerships on several projects, with Special Projects being a common NOS partner. Each partner contributes social science expertise and project management.

Social science accomplishments

Since their inception, OR&R and DAC have been very successful in their support of NRDA cases, which have resulted in the recovery of roughly \$300.0 million for the restoration of injured coastal resources. Furthermore, the quality and rigorous nature of DAC's economic analyses has prompted, in all but a few cases, out-of-court settlements between responsible parties and natural resource trustees, thus avoiding lengthy and expensive litigation.

Needs & Issues Related to Social Science

A lack of capacity, both among partners and within academia, for conducting economic analyses capable of withstanding legal challenges, results in less social science being conducted in DAC than would be desirable. As mentioned, DAC social scientists are charged with the task of assessing the natural resource damages resulting from ship groundings and oil and chemical spills, in addition to conducting methods development research and providing advice on policies and procedures of an economic nature. The nature and severity of the injuries in NRDA cases, their location, and the sorts of habitats and user groups affected vary on a case-by-case basis, meaning that the response team must prepare for a wide range of scenarios. Achieving an acceptable

level of preparedness is further complicated by the developing, precedent-setting nature of several of the economic methods used in the field, as well as the involvement and scrutiny by the courts and interested public that often accompanies high-profile natural resource damage events.

In order to continue to provide quality damage assessments and improve future economic and other social science analyses, NOS social scientists need sustained investments in basic research with studies covering a wide range of assessment methods, regions, habitats, and affected user groups. A growing database of completed studies would increase the likelihood that methods suitable to each individual case would be sufficiently developed and ready for rapid application. Tools for evaluating the effectiveness of damage assessments and restoration efforts are also needed, as are continuing investments in capacity building, as mentioned above.

In the process of collecting information for the NOS Social Science Plan, SST members identified gaps in NOS social science within the Habitat Restoration Program. In some cases, projects addressing these gaps were already in place while in other cases, the gaps drove the development of proposed project designs that will help the Habitat Restoration Program achieve its Mission Goals and meet the NOS social science goals. Generally, these gaps fall into three categories: 1) methods development to support future NRDA cases, 2) evaluation of the effectiveness of OR&R work, and 3) capacity building. The lines between these categories are often blurred, as there may be a need to develop a method of evaluating program effectiveness, or an effectiveness metric, used to inform capacity-building decisions. The strategy outlined below is intended to help in meeting these gaps, achieve the identified social science goals, and support NOAA in meeting its Mission Goals.

Strategy to Achieve Social Science Goals

This section outlines general strategies for the Habitat Restoration Program to help NOS achieve the NOS social science goals. Specific existing and proposed projects to address one or more of these goals are listed in Table 8 and are discussed in detail in Volume II of the Social Science Plan.

Goal: Enhance NOAA’s ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Collect and analyze information on the socioeconomic value and benefit of Habitat Restoration Program projects within NOS. Also in support of this goal, the Habitat Restoration Program will evaluate the effectiveness of its services and increase training in the use of developed economic methods.
- ◆ Collect information on: the economic value of restoration projects; information on the value of response and restoration services; and information on the benefits from remediation, restoration, and redevelopment of contaminated urban coastal areas and ports.
- ◆ Develop methods to evaluate response and restoration services. Evaluation methods, such as performance metrics, are needed to in order to ensure that NOS and NOAA are providing the most effective management of coastal resources, in order to optimize benefits to the environment, the economy, and the public. Evaluation of services will also enhance the ability of OR&R and NOS to respond to and assess natural resource damages. Relaying the results of these evaluations to the public will also help to increase public awareness and acceptance of emergency response actions.
- ◆ Provide guidance, training, and education to natural resource trustees on the economic methods used in NRDA cases. Such training will help to bridge the lack of capacity with state, local, and tribal NRDA partners, and allow NOAA/NOS to further engage and collaborate with partners in managing coastal and ocean resources.

Goal: Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.

- ◆ Increase the information base available for decision-support tools, to allow the Habitat Restoration Program to improve resource management and reduce human risk and environmental and economic damages caused by ship groundings and oil and chemical spills. For example, increasing the non-traditional information for use in hazardous materials response decision making can increase the efficiency in responding to hazardous material spills.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Improve models and methods for assessing the impact of human and natural disturbances. For example, one proposed project would enhance the ability of OR&R to value subsistence angling for NRDA cases and for general policy purposes.
- ◆ Analyze the application of indirect rates in NRDA case cost accounting, to ensure that the full costs of assessments are recouped.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Collect information on the attitudes and perceptions of the public towards recreation, habitats, and habitat services. This information will help NOAA to better understand the needs of its constituents and will inform decision making in order to more effectively meet those needs. Additionally, this type of information will prove important in assessing the value of restoration and habitat activities. Specific examples of information that the Habitat Restoration Program will seek to collect include the values that U.S. citizens place on recreational and conservation services of alternative management plans for coral reefs and tribal uses of natural resources. Knowledge of the public's perceptions of, and values for, different habitats and the services they provide will allow the Habitat Restoration Program to help NOAA/NOS to inform decisions on whether to restore a certain habitat type as a substitute for injury to a different habitat type.

The combination of the strategies discussed above will help ensure that NOAA's overall mission outcomes and objectives are achieved. The combination of issues being addressed and project outcomes met will go a long way toward the achievement of the Ecosystems Mission outcome of "healthy and productive coastal and marine ecosystems that benefit society" and "a well-informed public that acts as a steward of coastal and marine ecosystems." Additionally, the unique combination of assessing damages to the ecosystem, while striving to create more effective means of measuring the socioeconomic value of coastal and ocean resources, means that the Habitat Restoration Program contributes to the Ecosystem Mission strategy of "improving resource management by advancing our understanding of ecosystems through better simulation and predictive models" and "building and advancing the capabilities of an ecological component of the NOAA global environmental observing system to monitor, assess, and predict national and regional ecosystem health, as well as to gather information consistent with established social and economic indicators."



| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|--|------------|-------------------|--------------------|----------------------------------|----------|----------|
| Analysis of Indirect Rates Applied in NRDA Case Cost Accounting | OR&R | | N | National | High | Proposed |
| Benefits from Remediation, Restoration and Redevelopment of Contaminated Urban Coastal Areas | OR&R | | Y | National | High | Proposed |
| CRRC/UNH Research Assistant Professor | OR&R | | Y | National | High | Existing |
| Economic Analysis for NRDA Cases | OR&R | | Y | National | High | Existing |
| Economic Methods in NRDA - Education, Outreach, Training, and Policy | OR&R | | Y | National | High | Existing |
| Methods Development: California Recreation Valuation Study | OR&R | SP | Y | National | High | Existing |
| Support to the Association of Environmental and Resource Economists | OR&R | SP, NMSP | Y | National | High | Existing |
| Methods Development: The Cost of Time in Recreation Demand Models | OR&R | | Y | Northeast U.S., Southeast U.S. | High | Proposed |
| Methods Development: Cross Habitat HEA Valuation | OR&R | | N | Northeast U.S. Continental Shelf | High | Existing |
| Methods Development: Restoration Project Benefits Transfer | OR&R | | Y | National | Medium | Proposed |
| Methods Development: Subsistence Angling in NRDA | OR&R | | Y | National | High | Proposed |
| Methods Development: Valuation of Tribal Natural Resources in NRDA | OR&R | | Y | National | High | Proposed |

Table 8. Existing and proposed Habitat Restoration Program projects.

Summary of Funding & Personnel Levels

This section provides information on the funding and personnel currently dedicated to social science in the Habitat Restoration Program. It is important to note that many of the proposed projects will result in the development of partnerships, which will provide additional project funding and mitigate NOS costs.

The Habitat Restoration Program had a significant investment in social science in baseline year FY 2004, with two social science full-time equivalent (FTE) staff, three social science contract personnel, and non-personnel project costs of \$50,000; including personnel costs, the total Habitat Restoration Program baseline social science investment came to \$521,000 in FY 2004. Social science investment saw a modest increase from fiscal years 2004 to 2005, though personnel levels remain constant.

Detailed funding and personnel information for FY 2004 and FY 2005 is provided in Table 9. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.



| Project Name | FY '04 | | FY '05 | |
|--|------------|------------|------------|------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Economic Analysis for NRDA Cases | * | * | * | * |
| Economic Methods in NRDA - Education, Outreach, Training, and Policy | 5 | 5 | 5 | 5 |
| Support to the Association of Environmental and Resource Economists | 0 | 0 | 20 | 20 |
| Methods Development: California Recreation Valuation Study | 15 | 15 | 28.8 | 28.8 |
| Methods Development: Cross Habitat HEA Valuation | 30 | 30 | 15 | 15 |
| Total Project Costs (Non-Personnel) | 50 | 50 | 69 | 69 |
| NOAA FTE Costs | 209 | 209 | 209 | 209 |
| Number of NOAA FTEs | 2 | 2 | 2 | 2 |
| NOAA Contract Personnel Costs | 262 | 262 | 262 | 262 |
| Number of NOAA Contract Personnel | 3 | 3 | 3 | 3 |
| Total Costs | 521 | 521 | 540 | 540 |

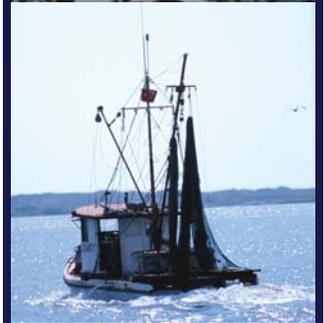
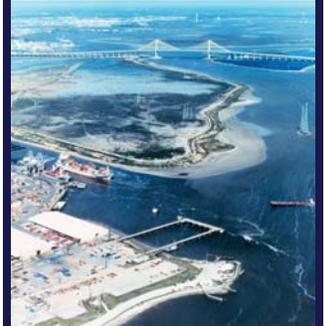
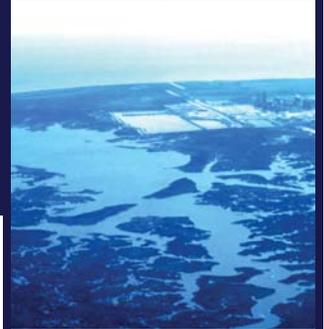
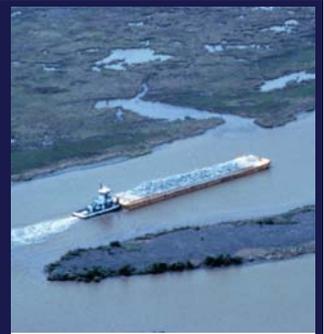
Table 9. Habitat Restoration Program funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars. For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

* Projects with no project-related costs reported are funded entirely through personnel costs.

Emergency Response Program

NOAA's Emergency Response Program is located within the Commerce and Transportation (C&T) Mission Goal. The C&T Mission is to "support the Nation's commerce with information for safe, efficient, and environmentally-sound transportation." To meet this goal, C&T provides information, services, and products for transportation safety and for increased commerce on roads, rails, and waterways. C&T works to improve the accuracy of its information for marine, aviation, and surface weather forecasts; the availability of accurate and advanced electronic navigational charts; and the delivery of real-time oceanographic information. C&T seeks to provide consistent, accurate, and timely positioning information that is critical for air, sea, and surface transportation and C&T responds to hazardous material spills and provides search and rescue to routinely save lives and money and to protect the coastal environment. Additionally, C&T works with port and coastal communities and with federal and state partners to ensure port operations and development proceed efficiently and in an environmentally-sound manner.

There are inherent risks posed to society and the environment by ever-growing marine commerce and transportation, and NOAA aims to meet the challenges posed by ever-larger vessels, hazardous cargoes and materials, aging landside facilities and infrastructure, oil and chemical spills, and threats to national security; however, the role of the Emergency Response Program is to minimize societal and environmental costs incurred when efforts to prevent marine transportation accidents fail. Through its contributions to the Emergency Response Program, NOS provides leadership in hazards preparedness and response.



Priority Social Science Topics & Themes

NOS Emergency Response Program activities with social science components are carried out by the Office of Response and Restoration (OR&R) and focus on the evaluation of various response alternatives. By developing a deeper understanding of the relative performance and value of response options, OR&R social scientists contribute to improve emergency response. An end goal of Emergency Response Program social science activities is a reduction in the societal costs incurred as a result of environmental damages caused by hazardous material spills or other emergency situations. Likewise, social science can be used to minimize the public and private costs of environmental damage mitigation and restoration efforts. There are also opportunities for social science to improve specific emergency response options and methods, as opposed to simply improving decision making given a set of available alternatives.

Current Social Science Capacity & Efforts

The Emergency Response Program was not engaged in social science activities in the baseline year (fiscal year (FY) 2004) or in FY 2005. However, as there is an increasing emphasis within NOAA on social

science and the potential to better understand the value and impact of NOAA information and activities.

Needs & Issues Related to Social Science

As there are no current NOS social science efforts under the Emergency Response Program, gaps in social science knowledge pertaining to Emergency Response Program activities are significant. There is a need for a better understanding of the relative value of Emergency Response Program alternatives as well as for improved performance measures, which could be useful not only internally, but also in clearly communicating the progress of Emergency Response Program activities to the public. Furthermore, social science could be used to identify and incorporate new sources of information into the development of emergency response methods. There is an opportunity for social science staff working with OR&R and the Emergency Response Program to identify further potential social science contributions and to develop a wider range of social science projects that support the Emergency Response Program and help in achieving its Mission Goals.



Strategy to Achieve Social Science Goals

This section outlines general strategies for the Emergency Response Program to help NOS achieve the NOS social science goals and thus help NOAA achieve its Mission Goals. Specific existing and proposed projects to address one or more of these social science goals are listed in Table 10.

Goal: Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Develop performance metrics for Emergency Response Program actions that would more appropriately describe the progress of response activities to the public and thus increase public awareness and acceptance of Emergency Response Program actions.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Collect relevant non-traditional resource information, for example, from local tribal groups, to improve response to hazardous material spills and hazardous material response decision making.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Enhance the ability of NOAA/NOS to place economic values on various Emergency Response Program alternatives, thus facilitating the evaluation of alternatives prior to their implementation. The Emergency Response Program will begin with preliminary cost-benefit analysis and move on to more advanced economic valuation techniques, where applicable and necessary.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|--|------------|-------------------|--------------------|------------|----------|----------|
| Incorporating Non-traditional Resource Information into Hazardous Materials Response Decision Making | OR&R | | N | National | High | Proposed |
| Performance Metrics for Emergency Response Actions | OR&R | | Y | National | High | Proposed |
| Value of Emergency Response Alternatives | OR&R | | Y | National | High | Proposed |

Table 10. Existing and proposed Emergency Response Program projects.

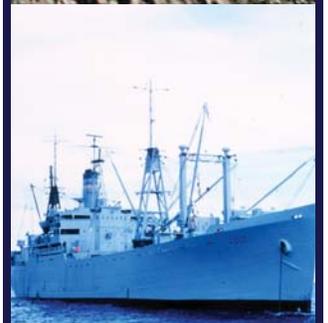
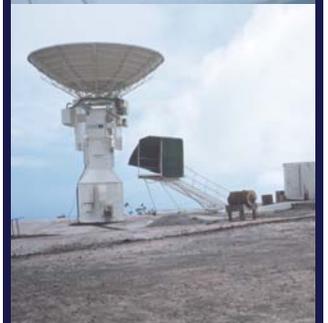
Summary of Funding & Personnel Levels

In the baseline year (FY 2004), as well as FY 2005, the Emergency Response Program had no investment in social science projects. The Emergency Response Program does not have its own social science staff; however, OR&R does have several social scientists and plans to expand social science staffing in the near-term. OR&R social scientists are counted under the Habitat Restoration Program for the purposes of the NOS Social Science Plan; however, OR&R social science staff will also conduct Emergency Response Program social science projects, as these projects are closely related to the damage assessment work conducted under the Habitat Restoration Program.

Geodesy Program

The Geodesy Program is located within NOAA's Commerce and Transportation (C&T) Mission Goal. As discussed in the Emergency Response Program section of this plan, the C&T Mission Goal focuses on making marine transportation safe and environmentally-sound, through services such as weather forecasts, navigational charting, and emergency response to hazardous spills.

In support of the C&T Mission Goal, the Geodesy Program develops and maintains a national system of positioning data needed for transportation, navigation, and communication systems; land-record systems; mapping and charting efforts; and defense operations. The Geodesy Program also maps our nation's coasts, conducts aerial photography surveys, and is involved in developing industry specifications and standards for conducting geodetic surveys.



Priority Social Science Topics & Themes

The Geodesy Program, in conjunction with the Emergency Response and Marine Transportation Systems Programs, are the funding sources for social science in the C&T Mission Goal. The mission of C&T, as it relates to social science, is to enhance economic productivity and performance across a wide range of private, public, and non-profit sectors and industries. Meeting this mission involves setting priorities and choosing among competing needs for new products and services and using existing resources to maximize net economic and social benefits. These activities support decision making by creating a better understanding of the user base and associated technologies, and informing evolving public and private issues.

C&T plans to implement an economic analysis program, including a series of scoping studies and footprint analyses to determine the scale of user sectors and pathways by which C&T information and products reach the user community. Analyses include the footprint analysis of parts of the transportation sector, costs and benefits of the Physical Oceanographic Real-time System (PORTS) installations, scope of costs and benefits of surface transportation weather information, costs and benefits of aviation weather, and benefits of Center for Operational Oceanographic Products and Services (CO-OPS) products and services. These programs will lead to a comprehensive analysis of land, marine, and aviation transportation sectors, forces and trends in the industry(s), and benefits of systematic environmental review of new port development. The Geodesy Program will play an important role in supporting future C&T social activities.

Current Social Science Capacity & Efforts

The Geodesy Program was not engaged in social science in the baseline year (fiscal year (FY) 2004); however, the Geodesy Program has made significant

investments in social science in FY 2005, as reflected in Table 12.

The Geodesy Program does not currently have a social science capacity, as C&T Mission Goal social science activities are currently coordinated through the NOAA Chief Economist in the Office of Program Planning and Integration.

Needs & Issues Related to Social Science

In order to successfully develop social science activities within the Geodesy Program, several needs must be met. Because NOAA's performance-based management system requires the ability to measure and track economic benefits and outcomes of major C&T program elements, the Geodesy Program will need to develop databases to track users and uses, baseline estimates of benefits and changes over time, and cost benefit and cost-effectiveness analyses. Such databases are needed to establish investment priorities among different product and service elements. As mentioned previously, part of the C&T mission is to enhance economic productivity and performance across a wide range of private, public, and non-profit sectors and industries; to do this, priorities must be set to choose between competing needs for new products and services and the use of existing resources to maximize net economic and social benefits. Economic analysis supports this decision-making process by providing an understanding of the user base and available technologies and informing the evolving public and private issues that are driven by the "information revolution."

Strategy to Achieve Social Science Goals

Because social science within the Geodesy Program is relatively new, it is difficult to designate Geodesy Program social science activities under specific social science goals. As the Program builds its social science capacity and increases its social science activities, a clearer strategy for addressing each of the social science goals will likely emerge. In the interim, the Geodesy Program will provide economic support to the C&T economic analysis program discussed in the “Needs” section above. The C&T economic analysis program supports several of the social science goals, including providing more accurate and comprehensive decision-support tools and increasing the relevancy of NOAA efforts by understanding and better meeting user needs.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|---|------------|-------------------|--------------------|------------|----------|----------|
| Product & Service Evaluation: Detailed, Output-Specific Studies | OCS | | N | National | High | Existing |
| NGS Economic Analysis to Support Commerce and Transportation | NGS | | Y | National | High | Proposed |

Table 11. Existing and proposed Geodesy Program projects.

Summary of Funding & Personnel Levels

The funding and personnel resources for FY 2004 and FY 2005 may be found in Table 12. The Geodesy Program does not have any social science capacity with regards to full-time equivalent (FTE) staff, as social science is carried out on a contract basis. Proposed funding for social science has ramped up between fiscal years 2004 and 2005. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.



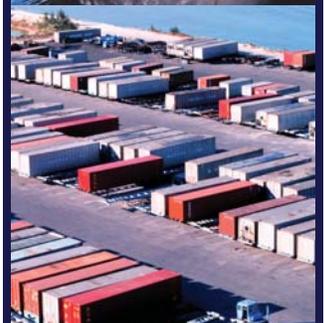
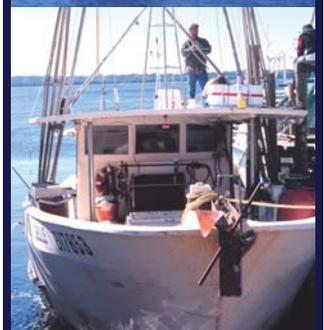
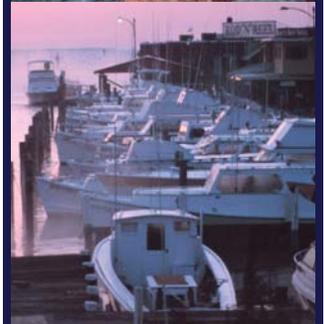
| Project Name | FY '04 | | FY '05 | |
|--|----------|-----------|------------|------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Product & Service Evaluation: Detailed, Output-Specific Studies | 0.00 | 0.00 | 10 | 10 |
| NGS Economic Analysis to Support Commerce and Transportation | 0.00 | 0.00 | 125 | 125 |
| Total Project Costs (Non- Personnel) | 0 | 0 | 135 | 135 |
| NOAA FTE Costs | 0 | 0 | 0 | 0 |
| Number of NOAA FTEs | 0 | 0 | 0 | 0 |
| NOAA Contract Personnel Costs | 0 | 0 | 0 | 0 |
| Number of NOAA Contract Personnel | 0 | 0 | 0 | 0 |
| Total Costs | 0 | 0 | 135 | 135 |

Table 12. Geodesy Program funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars. For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

Marine Transportation Systems Program

The Marine Transportation Systems (MTS) Program is located under the Commerce and Transportation (C&T) Mission Goal, which is discussed in the Emergency Response and Geodesy Program sections of this document.

MTS provides information to facilitate safe, efficient, and environmentally-sound marine transportation. The smooth operation of marine transportation is critical to our nation's security and economic health, as over 95 percent of goods (by tonnage) are imported or exported through U.S. ports, and the total volume of goods is expected to double over the next 20 years. The high-speed ferry, cruise ship, and recreational boating sectors are also experiencing rapid growth, further emphasizing the need for the services provided by MTS. Through its contributions to the MTS Program, NOS aims to reduce costs and risks to people, economies, and natural resources through access to better navigation products and services.



Priority Social Science Topics & Themes

MTS social science activities within NOS occur exclusively within the Center for Operational Oceanographic Products and Services (CO-OPS), which collects and distributes oceanographic observations and predictions to support the C&T Mission Goal, as well as other NOAA Mission Goals. CO-OPS provides water level and coastal current oceanographic products, measures and predicts tides throughout the nation, and is responsible for disseminating this information to the public.

Current Social Science Capacity & Efforts

While there is only one existing NOS social science project in the MTS Program, this project does fit into the larger social science theme of evaluating NOS products and services. Specifically, the project in question evaluates and, where possible, quantifies the benefits of CO-OPS activities at Tampa Bay-area ports.

Needs & Issues Related to Social Science

The NOS social scientists working with CO-OPS identified several areas where social science could contribute to the mission of the MTS Program. Social science work could help to achieve a better understanding of CO-OPS products, services, and customers. Building such an understanding would require the development of general tools and methods to evaluate CO-OPS work relating to the MTS Program, as well as the creation of evaluation procedures specific to individual products, projects, or services. Also involved would be studies of the impact of CO-OPS MTS work on different user groups, as well as an examination of which user groups do and do not use CO-OPS products and services. By addressing these social science

issues, CO-OPS could identify steps to improve the awareness and adoption of CO-OPS information by target user groups, thus furthering the MTS Program's pursuit of its Mission Goals.



Strategy to Achieve Social Science Goals

This section outlines general strategies for MTS to help NOS achieve the previously stated social science goals and thus to help NOAA achieve its Mission Goals. Specific proposed projects to address one or more of the goals are listed in Table 14.

Goal: Enhance NOAA’s ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Develop an evaluation tool for assessing the benefits and costs of CO-OPS products and services and to assess the impact of CO-OPS activities, including activities at ports.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Characterize the demographics of users and non-users of CO-OPS products and services, and develop profiles and projections for industries that benefit from CO-OPS products and services.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|--|------------|-------------------|--------------------|----------------|----------|----------|
| Footprint Analysis for CO-OPS Products and Services | CO-OPS | | N | Gulf of Mexico | High | Proposed |
| Benefits Estimation for CO-OPS Activities at Tampa Bay Ports | CO-OPS | | N | Gulf of Mexico | High | Existing |
| Benefits Estimation for CO-OPS Activities at Specific Ports | CO-OPS | | N | National | High | Proposed |
| Develop Framework for Characterizing Benefits and Costs for all CO-OPS Products and Services | CO-OPS | | N | National | High | Proposed |
| Develop Systematic Evaluation Protocol for CO-OPS Products and Services | CO-OPS | | N | National | High | Proposed |
| Characterize Demographics of Users and Non-Users of CO-OPS Products/Services | CO-OPS | | N | National | High | Proposed |
| Develop Profiles and Projections for Industries that Benefit from CO-OPS Products and Services | CO-OPS | | N | National | High | Proposed |

Table 13. Existing and proposed MTS Program projects.

Summary of Funding & Personnel Levels

This section provides information on the funding and personnel needed to implement the strategies identified above. In identifying particular projects, the social science staff working with MTS have found little potential for partnerships with other NOAA offices or external partners. Therefore, the probability of leveraging MTS funds for the identified social science projects is low.

In the baseline year (fiscal year (FY) 2004) MTS had no investment in social science; however, MTS began investing in social science in FY 2005, with three projects and a total budget of \$350,000.

CO-OPS, and therefore MTS, does not currently have any social science staff; rather, social science work is carried out by social scientists from other NOS offices acting on behalf of CO-OPS or through contracts and/or grants.

Detailed funding information for FY 2004 and FY 2005 is provided in Table 14. Funding and personnel requirements for years 2006 through 2010 are included in the internal NOAA version of this report.

| Project Name | FY '04 | | FY '05 | |
|--|----------|-----------|------------|------------|
| | \$ | NOS \$ | \$ | NOS \$ |
| Footprint Analysis for CO-OPS Products and Services | 0 | 0 | 50 | 50 |
| Benefits Estimation for CO-OPS Activities at Tampa Bay Ports | 0 | 0 | 150 | 150 |
| Develop Framework for Characterizing Benefits and Costs for all CO-OPS products and services | 0 | 0 | 150 | 150 |
| Total Project Costs (Non-Personnel) | 0 | 0 | 350 | 350 |
| NOAA FTE Costs | 0 | 0 | 0 | 0 |
| Number of NOAA FTEs | 0 | 0 | 0 | 0 |
| NOAA Contract Personnel Costs | 0 | 0 | 0 | 0 |
| Number of NOAA Contract Personnel | 0 | 0 | 0 | 0 |
| Total Costs | 0 | 0 | 350 | 350 |

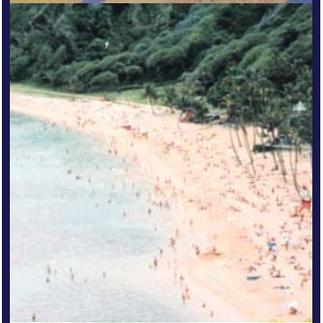
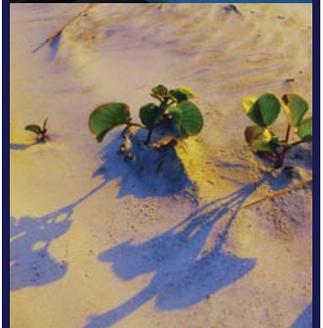
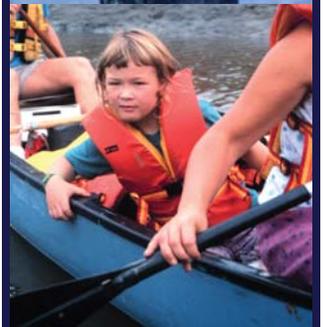
Table 14. MTS Program funding and personnel needs, presented for fiscal years 2004 and 2005. Dollar values expressed as thousands of dollars.

For more complete information, see the detailed project lists in Volume II of the NOS Social Science Plan.

Coasts, Estuaries, & Oceans Program

The Coasts, Estuaries, and Oceans (CEO) Program falls under NOAA's Weather and Water Mission Goal. The Weather and Water Mission is to "serve society's needs for weather and water information" and thus reduce loss of life, injury, and damage to the economy and provide decision-making support.

CEO provides coastal and ocean observations and predictions to plan for and respond to hazardous weather, water, and related environmental events. These activities are important in protecting our nation's economic, social, and ecological health. CEO aims to provide resource and emergency managers, decision makers, and the public with access to more comprehensive, accurate, timely, and accessible weather and water information and services to plan, make sound decisions, and respond effectively.



Priority Social Science Topics & Themes

CEO provides leadership for the nation's coastal communities and maritime users in risk and vulnerability mitigation from coastal natural phenomena and provides tools and data in support of coastal and ocean resource stewardship, usage, and health. CEO also connects coastal communities and local decision makers to national, state, and local weather and water information.

NOS contributions to CEO are focused on understanding the information needs of managers and the public, thus making social science inputs to wider CEO efforts critical for achieving broader CEO Program goals. Social science activities support two of the CEO's strategic areas of emphasis, including developing and delivering user-driven decision-support tools and building capacity of the nation's coastal communities through outreach, education, training, data access, and tool development.

CEO social science activities taking place within NOS focus on providing information to managers, decision makers, and the public, in order to allow these groups to make decisions that balance socioeconomic and environmental concerns. This type of information can increase awareness of coastal hazards risk and vulnerability, thus reducing loss of life and also increase state and local managers' understanding of, and capability to predict, water and other environmental conditions affecting the nation's coasts, estuaries, and oceans. Social science information collected through CEO is also used to help NOAA make coastal zone

management and stewardship decisions by providing a more complete understanding of ecosystems and impacts from weather and water events and trends.

Current Social Science Capacity & Efforts

NOS social science activities under CEO are an integral part of other science-driven efforts, as these activities help to increase understanding of inter-organizational dynamics, public attitudes and perceptions, social and economic benefits of weather and water information, and behavioral change. Socioeconomic indicators are also an important piece of CEO's effort to systematically monitor and measure the performance of different management activities and evaluate the effectiveness of the Program's initiatives. Currently, two NOS offices receive funding through CEO: the Center for Operational Oceanographic Products and Services (CO-OPS) and the Coastal Services Center (CSC).



CO-OPS social science activities related to CEO focus on assessing the use of CO-OPS products and services, such as the Physical Oceanographic Real-Time System (PORTS) and tide data, and analyzing the economic benefits of CO-OPS information resources and decision-support tools. Because the social science efforts in CEO are integrated with other disciplines, it is difficult to estimate current social science capacity devoted towards these efforts. Examples of social science currently taking place in CEO include vulnerability assessment, performance indicators to visualize risk and devise mitigation strategies, social science activities related to reducing the negative impacts of coastal storms, gathering baseline economic data about the ocean economy, and analysis of CEO products and services.

The CSC's CEO-related activities fall under the Center's Coastal Hazards Program, which has several initiatives with strong social science components. The CSC's Hazards Program integrates inputs from the social, natural, physical, and atmospheric sciences to develop comprehensive solutions to the hazards facing the nation's coastal communities. CSC social science activities are an integral piece of broader efforts to develop science-based decision-support tools for hazards planning and mitigation, as social science information and tools help to identify the information and technology needs of coastal and emergency managers and enable CSC to develop targeted tools and information resources. This comprehensive multidisciplinary approach may be a model for broader NOAA and NOS social science efforts.

Needs & Issues Related to Social Science

In order to effectively address the priority management concerns identified by CEO, there is a need to expand social science efforts in a number of strategic areas.

Through their activities under the CEO program, both the National Weather Service (NWS) and NOS provide critical information and technical assistance that coastal and emergency managers rely on to make informed decisions about severe weather and water-related events. Although NWS regularly surveys its customers about their satisfaction with NWS products and services, there has not been a systematic effort by NOS to use social science methods to collect data related to the information and decision-support tools that coastal and emergency managers need to address threats from coastal inundation (e.g., tsunamis, storm surge, and erosion hazards) and harmful algal blooms. CSC and CO-OPS social science-based product assessments are areas where NOS offices are beginning to fill this gap; however, additional investments are needed to ensure that NOAA has reliable information about the types of information and decision-support tools that are needed to mitigate the impacts of coastal storms and other natural hazards.

Understanding the vulnerability of different communities, individual perceptions of risks, and potential economic and social impacts has historically received less attention than the physical and ecological impacts of natural hazards, thus leaving a gap between the information available about the natural phenomena themselves and the human communities they affect. A better understanding of how the public perceives risk and where and how people access information on hazard events are needed to improve public education efforts and also to assess and improve the effectiveness of NOAA's management and mitigation efforts.

There is also a need to increase interagency coordination with the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers (USACE), and the U.S. Geological Survey (USGS), in order to better educate emergency managers, coastal resource managers, and the public on the differences, accuracies, limitations, and proper uses of each agency's coastal hazards products. CEO has also identified a gap in the graphical depiction of uncertainty associated with model inputs, results,

and mapping procedures and the ways in which emergency managers, coastal resource managers, and the public can understand and use NOAA tools to make effective decisions.

There are concerns and issues for CEO in meeting the needs discussed above and in successfully achieving the strategy outlined below. Amongst these issues are the small number of social scientists within NOS with knowledge of risk perception and vulnerability analysis and the insufficient staff with social science expertise available to develop initiatives

and foster links with existing CEO activities. In order to meet the needs listed above, NOS and NWS must coordinate efforts to strengthen social science within CEO-supported management activities. Additionally, the lack of familiarity within the modeling and natural science community regarding techniques for effectively incorporating social science inputs into forecasting and decision-support tools could present a barrier to moving forward with social science activities within CEO. The heterogeneity of state and local partners could also make national model programs difficult to implement.



Strategy to Achieve Social Science Goals

This section outlines general strategies for the CEO Program to help address the NOS social science goals and thus contribute to NOAA's strategic mission. A proposed project to address these goals is shown in Table 16.

Goal: Enhance NOAA's ability to monitor, understand, evaluate, and communicate socioeconomic benefits of NOAA/NOS information, services, and products.

- ◆ Create social and economic indicators for gauging effectiveness of CEO-supported weather and water decision-support tools and develop measures for assessing social and economic benefits and costs of different weather and water-related information and decision-support tools. Assessing the effectiveness of CEO support tools will allow NOAA to provide the most effective management of coastal resources and reduced uncertainty associated with weather and water decision tools and assessments and transferring assessment knowledge to the public will increase public awareness and support of NOAA tools.
- ◆ Assess the effectiveness of different types of information in changing behavior and reducing risk and vulnerability. Such information will enhance NOAA's ability to develop tools that are effective in reaching the public and thus reduce impacts associated with weather and water events, while also providing overall benefits to the economy and environment.
- ◆ Increase training for state and local managers regarding the collection, analysis, and application of social science information. Such training will help to bridge the lack of social science capacity with potential NOAA partners, and allow NOAA/NOS to further engage and collaborate with partners in managing coastal and ocean resources.

Goal: Provide more accurate and comprehensive decision-support tools for ecosystem management by integrating social science, natural science, and monitoring results.

- ◆ Address the current gap in information available about natural phenomena and the human communities that are affected by these phenomena. This type of social science information is an important input into the development of the forecasting and decision-support tools, and data of this type can also help NOAA to communicate technical and scientific information in ways that create an informed public.
- ◆ Play an integral role in helping NOAA plan for and implement the Integrated Ocean Observing System (IOOS), including the development of tools and training to help reduce the risk posed by natural hazards. New social science activities in this area will build on existing capabilities by integrating data about the human components of coastal and ocean systems as well as seeking to enhance end-user products derived from IOOS.

Goal: Improve models and methods for assessing the impact of human and natural disturbances to coastal and ocean resources and infrastructure.

- ◆ Develop additional methods for using geographic information systems (GIS) and other visualization tools to graphically depict social, economic, and biophysical components of hazards-related information. Graphical risk conveyance products tend to not include uncertainty associated with model inputs, results, and mapping procedures. This traditional approach often gives the perception of model and mapping confidence and can instill a false interpretation of risk or safety. Developing tools that display uncertainty in ways that emergency managers, coastal resource managers, and the public can understand and use to make effective decisions will increase the likelihood that NOAA tools are used correctly in order to reduce damages and loss of life associated with natural-hazard events.
- ◆ Develop a currently, non-existent mechanism for understanding and mitigating risk posed by natural-hazard inundation events. This product will be an interactive visualization tool that will help users estimate the impacts of flooding on humans and the social and other human factors needed for effective outreach. This visualization tool will also help to provide a link between physical observations and modeling efforts and a wide range of social, economic, and other information on the human dimensions of natural hazard-induced coastal inundation.

Goal: Increase the relevancy of NOAA efforts by improving understanding of the needs, knowledge, perceptions, and values of NOAA partners and constituents.

- ◆ Improve understanding of the way in which the general public perceives risk and determine the best methods to convey levels of vulnerability. This information should help both the public and governmental agencies minimize the impacts of hazards on life and property.
- ◆ Improve understanding of where and how people access information on hazard events, which can lead to better and more efficient distribution of those products by NWS weather forecast offices (WFOs) and others that make the information publicly available. By using social science methods to regularly monitor the public's understanding of extreme weather and ecological events, applied social science can play a central role in measuring the performance of NOAA's activities within the Weather and Water Mission Goal and generate indicators to evaluate the effectiveness of management and mitigation efforts.
- ◆ Understand the needs and concerns of different users and also help to ensure that mapping and forecasting tools are conveying information in ways that are understood and utilized to make better decisions related to coastal hazard mitigation. Institutional analysis of the relevant laws, policies, and mandates will help build a coordinated approach to hazards planning and reduce risks to, and vulnerabilities of, coastal communities.
- ◆ Collect socio-cultural information to inform the development of targeted outreach and education material; develop science and technology communication tools; and provide information about state and local managers and public understanding of weather and water products (e.g., forecasts, inundation data, HAB advisories, etc.). All of these types of information will allow NOAA to increase the application and accessibility of weather and water information, which can serve as the foundation for creating and leveraging public (i.e., federal, state, local, and tribal), private, and academic partnerships.

| Project Name | NOS Office | Other NOS Offices | Potential Partners | NOS Region | Priority | Status |
|---|------------|-------------------|--------------------|--------------------------|----------|----------|
| Increasing Awareness of Risks and Vulnerability to Coastal Inundation | CSC | | Y | Gulf of Mexico, National | High | Existing |

Table 15. Existing CEO project.

Summary of Funding & Personnel Levels

CEO currently carries out its sole social science project using full-time equivalent (FTE) and contract resources found in other programs and through integrated activities.



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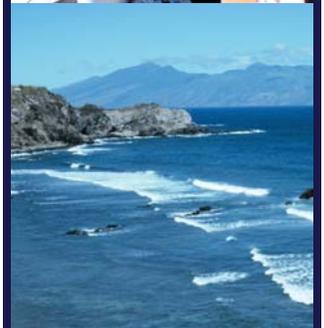
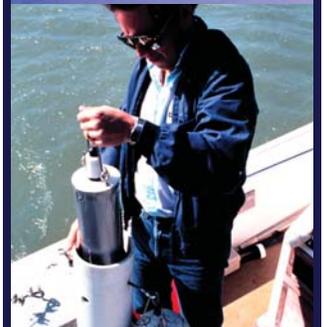
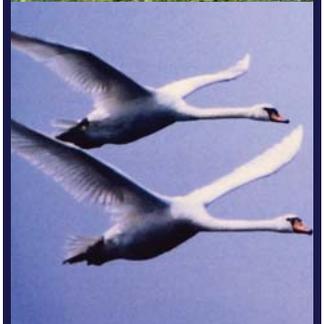
Impacts & Performance

For each project in the NOS Social Science Plan, information was compiled on expected outputs and outcomes. Outputs include items such as data, reports, Web sites, workshops, training sessions, manuals, and guidebooks. For the broader Social Science Plan, outputs include information to support NOAA budget processes and information to support and leverage partnerships both within and outside of NOS. Social Science Plan outputs are also the fundamental inputs into NOAA Programs and support management and education and outreach efforts.

Outcomes for projects described in the NOS Social Science Plan are defined in terms of how the projects are expected to help NOAA achieve its Mission Goals and to what extent outcomes were achieved will require the development of an evaluation metric (i.e., performance measures). Therefore, each detailed project description (in Volume II of the Social Science Plan) contains sections addressing expected outcomes and performance measures that will be used to evaluate the achievement of outcomes.

Development of performance measures to evaluate NOAA's various programs is an area where the social sciences can be of some help and as such, several projects are identified in the Social Science Plan that involve helping NOAA Programs develop performance measures. NOAA's Office of Policy, Planning, and Integration, Chief Economist's Office, is coordinating efforts across all NOAA Line Office social scientists, with assistance from outside contractors from both academia and private consulting firms, to help design performance measures for NOAA's Programs.

Plan Review and Evaluation. The NOS SST vision of the future of the Social Science Plan databases discussed in the Introduction is that the databases will evolve into a tool to review and evaluate the Social Science Plan. The SST will be developing reports summarizing annual social science accomplishments. Periodic surveys of NOAA Leadership and Management and NOS product, services, customers, and partners will be conducted to evaluate the effectiveness of the Social Science Plan in helping NOAA/NOS achieve its Mission Goals.

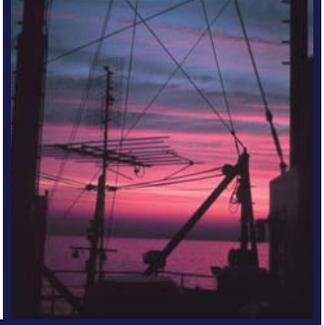
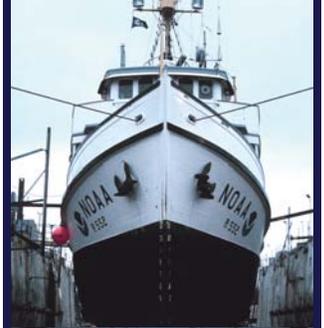
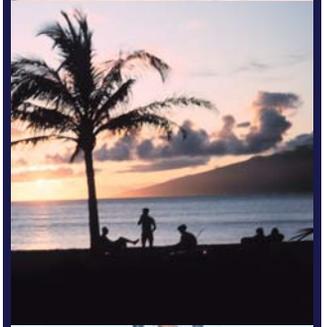
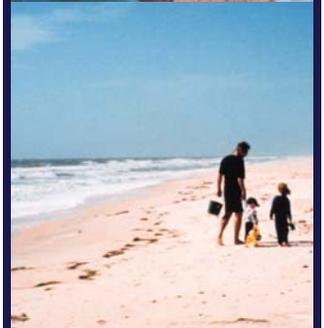
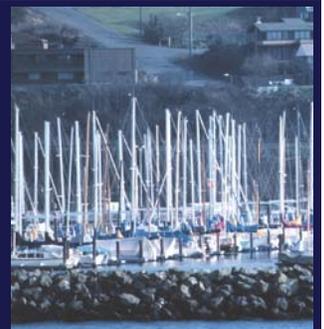


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Conclusion

One of the biggest challenges facing NOS in the near future is the integration of various NOAA/NOS social science components. In gathering information for the NOS Social Science Plan and examining the social science issues and needs required the application of social science across NOS offices and NOAA programs, the SST became increasingly aware of the level of diversity that exists across NOS social science activities. Although the mission of NOS can be succinctly stated, it is also true that the various elements within NOS are varied so that any cross-cutting element, such as social science, must be fundamentally organized to obtain a basic level of coordination. The diversity of social science within NOS is also due to the history of how social science has been conducted in NOS. In the past, the need for social science had never been examined from an NOS-wide perspective, but was implemented according to individual office needs. This led to redundancies and similar social science activities occurring in different ways, according to the specific needs of an office.

The Social Science Plan represents the first step toward a coordinated social science effort. However, it must be kept in mind that coordination cannot take place over the course of planning and writing a report. The Social Science Plan must be used as a reference point for future social science planning in order to ensure that redundancies in social science activities taking place across NOS are eliminated and coordination is maximized. This Plan is a snap shot of current and future social science activities and in order to ensure an efficient, coordinated, and integrated NOS social science element, evaluation of social science within NOS must continue on an ongoing basis. If NOS continues to evaluate and adapt social science activities, the SST believes this effort will sustain the NOS commitment of helping NOAA serve the nation as a global leader in integrated management of the ocean.



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Appendices

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Appendix A: Social Science Team Assignments & Contacts

| SST Member | NOS Office | PPBES Program |
|------------------------|-------------------------|---|
| Jeff Adkins (CSC) | OCS | Ecosystems: Habitat; C&T: Marine Transportation Systems |
| Marybeth Bauer (NCCOS) | NCCOS | Ecosystems: Ecosystem Research |
| Leah Bunce (IPO) | IPO | Ecosystems: Corals |
| Rod Ehler (NMSP) | NMSP | Ecosystems: Coastal & Marine Resources, Enforcement |
| Tom Fish (CSC) | CSC, CO-OPS | C&T: Marine Transportation Systems; W&W: Environmental Modeling |
| Bob Leeworthy (SP) | M&B, NCCOS | Ecosystems: Corals, Research, Observations Systems |
| Bryan Oles (MPAC) | MPA Center | Ecosystems: Coastal & Marine Resources |
| Norman Meade (OR&R) | OR&R | Ecosystems: Habitat Restoration, Corals; C&T: NOAA Emergency Response |
| John Parks (IPO) | IPO | |
| Cory Riley (OCRM) | OCRM (except MPA Cntr.) | Ecosystems: Coastal & Marine Resources |
| Tom Safford (CSC) | CSC | W&W: Coasts, Estuaries and Oceans |
| Pete Wiley (SP) | NGS | C&T: Geodesy |

Table 16. Social Science Team members and assignments.

1. NOS Social Scientists

Adkins, Jeffery E.

NOS EASC Route: N/CSC2

BLDG: RM: 238A

2234 South Hobson Avenue

Charleston, SC 29405-2413

PH: (843) 740-1244

FAX:(843) 740-1315

Internet Address: Jeffery.Adkins@noaa.gov

Barba, Kate

NOS HQTR Route: N/ORM5

BLDG: SSMC4 RM: 10414

1305 East West Highway

Silver Spring, MD 20910-3281

PH: (301)713-3155 x182

FAX:(301)713-4363

Internet Address: kate.barba@noaa.gov

Bauer, Mary Beth

NOS HQTR Route: N/SCI

BLDG: SSMC4 RM:

1305 East West Highway

Silver Spring, MD 20910-3281

PH: (301)713-3020 x108

FAX:(301)713-4353

Internet Address: marybeth.bauer@noaa.gov

Bunce, Leah

NOS HQTR Route: N/IP

BLDG: SSMC3 RM: 5839

1315 East West Highway

Silver Spring, MD 20910—3282

PH: (301) 713-3078 x222

FAX:(301) 713-4263

Internet Address: Leah.Bunce@noaa.gov

Ehler, Roderick B.

NOS HQTR Route: N/ORM62

BLDG: SSMC4 RM: 11622

1305 East West Highway

Silver Spring, MD 20910-3281

PH: (301) 713-3125 x123

FAX:(301) 713-0404

Internet Address: Rod.Ehler@noaa.gov

Fish, Thomas E.

NOS EASC Route: N/CSC1

BLDG: RM: 128

2234 South Hobson Avenue

Charleston, SC 29405-2413

PH: (843) 740-1271

FAX:(843) 740-1313

Internet Address: Tom.Fish@noaa.gov

Grigelis, Peter

NOS HQTR Route: N/ORR3

BLDG: SSMC4 RM:

1305 East West Highway

Silver Spring, MD 20910-3281

PH: (301) 713-3038 x124

FAX:(301) 713-4387

Internet Address: peter.grigelis@noaa.gov

Note: Now works at U.S. Fish & Wildlife Service

Jackson, Russell

NOS EASC Route: N/CSC2

BLDG: RM: 237A

2234 South Hobson Avenue

Charleston, SC 29405-2413

PH: (843) 740-1188

FAX:(843) 740-1315

Internet Address: Russell.Jackson@noaa.gov

Leeworthy, Vernon

NOS HQTR Route: N/MB7

BLDG: SSMC4 RM: 9124

1305 East West Highway

Silver Spring, MD 20910-3281

PH: (301) 713-3000 x138

FAX:(301) 713-4384

Internet Address: Bob.Leeworthy@noaa.gov

Lyons, Sarah

NOS WASC Route: N/CSC

BLDG: RM:

99 Pacific Street, Suite 100

Monterey, CA 93940

PH: (831) 242-2054

FAX:(831) 242-2051

Internet Address: Sarah.Lyons@noaa.gov

Meade, Norman F.
NOS HQTR Route: N/ORR32
BLDG: SSMC4 RM: 10357
1305 East West Highway
Silver Spring, MD 20910-3281
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FAX:(301) 713-4387
Internet Address: Norman.Meade@noaa.gov

Morrison, Stephen
NOS HQTR Route: N/IP
BLDG: SSMC3 RM: 5825
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-3078 x216
FAX:(301) 713-4263
Internet Address: Steve.Morrison@noaa.gov

Oles, Bryan
NOS HQTR Route: N/ORM
BLDG: SSMC4 RM: 12255
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-3100 x113
FAX: (301) 713-3110
Internet Address: Bryan.Oles@noaa.gov

Parks, John Emory
NOS HQTR Route: N/IP
BLDG: SSMC3 RM: 5838
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-3078 x172
FAX: (301) 713-4263
Internet Address: John.Parks@noaa.gov

Penn, Tony Martin
NOS HQTR Route: N/ORR33
BLDG: SSMC4 RM: 10334
1305 East West Highway
Silver Spring, MD 20910-3281
PH: (301) 713-3038 x197
FAX:(301) 713-4387
Internet Address: Tony.Penn@noaa.gov

Recksiek, Heidi E.
NOS EASC Route: N/CSC
BLDG: RM: 127
2234 South Hobson Avenue
Charleston, SC 29405-2413
PH: (843) 740-1194
FAX:(843) 740-1313
Internet Address: Heidi.Recksiek@noaa.gov

Riley, Cory Anne
NOS HQTR Route: N/ORM5
BLDG: SSMC4 RM: 10613
1305 East West Highway
Silver Spring, MD 20910-3281
PH: (301)713-3155 x222
FAX:(301)713-4363
Internet Address: cory.riley@noaa.gov

Safford, Thomas G.
NOS EASC Route: N/CSC
BLDG: 2 RM:
2234 South Hobson Avenue
Charleston, SC 29405-2413
PH: (843)740-1158
FAX:(843)740-1224
Internet Address: tom.safford@noaa.gov

Wiley, Peter
NOS HQTR Route: N/MB7
BLDG: SSMC4 RM: 9420
1305 East West Highway
Silver Spring, MD 20910-3281
PH: (301) 713-3000 x139
FAX:(301) 713-4384
Internet Address: Peter.Wiley@noaa.gov

Wusinich-Mendez, Dana
NOS HQTR Route: N/ORM
BLDG: SSMC4 RM: 11237
1305 East West Highway
Silver Spring, MD 20910-3281
PH: (301) 713-3155 x159
FAX:(301) 713-4367
Internet Address: Dana.Wusinich-Mendez@noaa.gov

2. NOAA Social Scientists – Possible Support to NOS Program Office

Weiher, Rodney F.
PPI EXEC Route: PPI/SP
BLDG: SSMC3 RM: 15618
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-3322 x182
FAX:(301) 713-0585
Internet Address: Rodney.F.Weiher@noaa.gov

Gautam, Amy Buss
NMFS HQTR Route: F/ST5
BLDG: SSMC3 RM: 12406
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2328 x102
FAX:(301) 713-4137
Internet Address: Amy.Buss.Gautam@noaa.gov

3. Other NOAA Line Office Social Scientists – Cross-cutting Efforts

National Marine Fisheries Service (NMFS)

Abbott Jamieson, Susan
NMFS HQTR Route: F/ST5
BLDG: SSMC3 RM: 12609
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2328 x101
Internet Address: Susan.Abbott-Jamieson@noaa.gov

Curtis, Rita Elizabeth
NMFS HQTR Route: F/ST5
BLDG: SSMC3 RM: 12752
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2328 x110
FAX:(301) 713-4137
Internet Address: Rita.Curtis@noaa.gov

Fricke, Peter
NMFS HQTR Route: F/SF5
BLDG: SSMC3 RM: 13221
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2337 x171
FAX:(301) 713-0596
Internet Address: Peter.Fricke@noaa.gov

National Weather Service

Fowke, Margaret
NWS HQTR Route: W/SP
BLDG: SSMC2 RM: 11413
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-0258 x189
FAX:(301) 713-1002
Internet Address: Margaret.Fowke@noaa.gov

Office of Atmospheric Research (OAR)/Sea Grant

Hinkey, Lynne
OAR EASC Route: R/SG
BLDG: RM: 133
2234 South Hobson Avenue
Charleston, SC 29405-2413
PH: (843) 740-1191
FAX:(843) 740-1313
Internet Address: Lynne.Hinkey@noaa.gov

Murray, James Donald
OAR HQTR Route: R/SG
BLDG: SSMC3 RM: 11708
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2431 x152
FAX:(301) 713-0799
Internet Address: Jim.D.Murray@noaa.gov

Schuler, Francis M.
OAR HQTR Route: R/SG
BLDG: SSMC3 RM: 11837
1315 East West Highway
Silver Spring, MD 20910-3282
PH: (301) 713-2445 x158
FAX:(301) 713-1031
Internet Address: Fritz.Schuler@noaa.gov

Office of Global Programs (OGP)

Beller-Simms, Nancy
OAR HQTR Route: R/OGP
BLDG: WAYNE RM: 1210
1100 Wayne Avenue
Silver Spring, MD 20910-5603
PH: (301) 427-2089 x180
FAX:(301) 427-2082
Internet Address: Nancy.Beller-Simms@noaa.gov

Nierenberg, Claudia
OAR HQTR Route: R/OGP
BLDG: WAYNE RM: 1255M
1100 Wayne Avenue
Silver Spring, MD 20910-5603
PH: (301) 427-2089 x151
FAX:(301) 427-2082
Internet Address: Claudia.Nierenberg@noaa.gov

Simpson, Caitlin
OAR HQTR Route: R/OGP
BLDG: WAYNE RM: 1225B
1100 Wayne Avenue
Silver Spring, MD 20910-5603
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FAX:(301)427-2082
Internet Address: Caitlin.Simpson@noaa.gov

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Appendix B: Important References & Web Sites

References

NOAA's Strategic Plan for FY 2005 – FY 2010: New Priorities for the 21st Century. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, September, 2004.

<http://www.spo.noaa.gov/pdfs/NOAA%20Strategic%20Plan.pdf>

NOAA's 20-Year Research Vision: Understanding Global Ecosystems to Support Informed Decision-Making. U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

http://nrc.noaa.gov/Docs/Final_20-Year_Research_Vision.pdf

Research in NOAA: Toward Understanding and Predicting Earth's Environment, A Five Year Plan: Fiscal Years 2005 – 2009. U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

http://nrc.noaa.gov/Docs/NOAA_5-Year_Research_Plan_010605.pdf

Strategic Plan of the National Ocean Service 2005-2010. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, October, 2004.

http://marineeconomics.noaa.gov/ssp/NOS/NOS_StrategicPlan.pdf

National Centers for Coastal Ocean Science: NCCOS Strategic Plan FY 2005 - 2009. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, NCCOS.

<http://coastalscience.noaa.gov/documents/strategicplan.pdf>

Social Science Research within NOAA: Review and Recommendations. Final Report to the NOAA Science Advisory Board by the Social Science Review Panel, Washington, D. C., March 18, 2003.

<http://www.economics.noaa.gov/>

Economic Statistics for NOAA, May 2005 – Fourth Edition. U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

http://www.economics.noaa.gov/library/documents/economic_statistics_and_methodology/NOAAEconomicStatistics-May2005.pdf

An Ocean Blueprint for the 21st Century, Final Report. U.S. Commission on Ocean Policy, Washington, D.C., September 2004.

http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf

U.S. Ocean Action Plan. The Bush Administration's Response to the U.S. Commission on Ocean Policy.

<http://ocean.ceq.gov/actionplan.pdf>

NOAA Social Science Web Sites

NOAA's Economics and Social Sciences. NOAA's Office of Policy Planning and Integration, Chief Economist's Office. Provides links to other NOAA economics and social science Web sites.

<http://www.economics.noaa.gov/>

Coastal and Ocean Resource Economics (CORE) Program. National Ocean Service, Special Projects. Provides information on economic valuation, socioeconomic impacts of marine reserves (no-take areas), socioeconomic research and monitoring for the Florida Keys National Marine Sanctuary and the Channel Islands National Marine Sanctuary and on-line searchable bibliographies and benefits transfer databases. Also includes information on marine recreation (National Survey on Recreation and the Environment).

<http://marineeconomics.noaa.gov/>

Spatial Trends in Coastal Socioeconomics (STICS). Coastal and Ocean Resource Economics (CORE) Program, National Ocean Service, Special Projects. Offers socioeconomic data from the U.S. Census Bureau and the Bureau of Economic Analysis (BEA) in time series, aggregated by political and watershed boundaries. Additionally, this Web site provides a set of Web-based data analysis and display tools to analyze and retrieve data by individual or multiple geographic areas.

<http://marineeconomics.noaa.gov/socioeconomics/welcome.html>

Global Socioeconomic Monitoring Initiative. National Ocean Service, International Programs Office in partnership with IUCN's World Commission on Protection Areas, The Global Reef Monitoring Network, and NOAA. Provides socioeconomic tools, socioeconomic monitoring examples, and descriptions of regional and global socioeconomic initiatives.

<http://international.nos.noaa.gov/socioeconomic/>

Social Science Methods for Marine Protected Areas. National Ocean Service, Coastal Services Center, for the Marine Protected Areas (MPA) Center. Designed to help MPA managers use social science to accomplish their goals by providing basic information about social science concepts and methods, and guides managers in determining the appropriate tools, such as surveys and cost-benefit analyses, to address their specific issues. Managers can also learn how to be informed users of social science research.

<http://www.csc.noaa.gov/mpass/>

NOAA's Damage Assessment and Restoration Program (DARP). Damage Assessment Center, the Restoration Center, and the Office of General Counsel for Natural Resources. Provides program information on the permanent expertise within NOAA to assess and restore natural resources injured by oil and hazardous substance releases, as well as physical impacts, such as ship groundings.

<http://www.darp.noaa.gov/>

Fisheries Economics and Social Sciences Program. NOAA Fisheries, Office of Science and Technology. Provides information on commercial and recreational fisheries.

<http://www.st.nmfs.gov/st1/econ/index.html>

Human Dimensions of Global Change Research (HDGCR). NOAA Office of Global Programs. Provides information on socioeconomic impacts of global climate change.

<http://www.ogp.noaa.gov/mpe/csi/econhd/index.htm>

Relevant Non-NOAA Web Sites

National Ocean Economics Program. California State University-Monterey. Provides information on market and non market economic values of coastal and ocean resources.

<http://noep.csumb.edu/>

National Center for Environmental Economics (NCEE). U.S. Environmental Protection Agency. Reviews NCEE activities, which include analyzing relationships between the economy, environmental health, and environmental pollution control.

<http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/homepage>

H. John Heinz III Center for Science, Economics, and the Environment.

<http://www.heinzctr.org>