

Greater Farallones National Marine Sanctuary

Human Dimensions/Socioeconomics

Management Issue

Human activities clearly influence the quantity and quality of Greater Farallones National Marine Sanctuary (GFNMS or sanctuary) resources, including water quality, habitat, living resources, and maritime archaeological resources. However, more data on the spatial distribution and intensity of human activities and how those activities change through time are necessary to assess the level of these impacts. In addition, it is important to understand how people benefit or suffer costs from changes in natural and cultural resource conditions to assess ecosystem services provided by the sanctuary.

Description

The Sanctuary and surrounding communities are inherently linked. Many human activities influence the condition of sanctuary resources, with some activities having a positive impact, and others having a negative impact. Because it is not feasible to manage natural or ecological processes, management of human uses is vital to the protection of sanctuary resources. As such, good data regarding human uses and activities is critical to understanding anthropogenic effects to the sanctuary as well as benefits gained from the utilization of marine and coastal resources. In addition, data are needed to gauge the effectiveness of management activity, and investigate the costs and benefits of sanctuary regulations being considered, such as MPAs. To better understand the relationship between human activities, the condition of sanctuary resources, and the effectiveness of sanctuary regulations, we need additional data on the level and location of various human activities that occur in and adjacent to the sanctuary.



Questions and Information Needs

- 1) What is the geographic distribution of human activities that influence the condition of sanctuary resources? Are there hot spots?
- 2) What are the past, current, and projected future levels of these human activities? What are the projected impacts on Sanctuary resources?
- 3) How have sanctuary regulations impacted human activities in and around the Sanctuary?
- 4) How do we determine the overall impact of multiple human activities (some with negative and some with positive influence) on sanctuary resources?
- 5) What is the socioeconomic and demographic background of the affected area?
- 6) What businesses are affected by the sanctuary and how?
- 7) How is human well-being affected by changes in the ecological status and trends in the sanctuary?

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Scientific Approach and Actions

- Analyze existing demographic [e.g., Current Population Surveys (CPSs, see Study Area Profiles)] and socioeconomic data for North Central California area communities to determine the extent that these coastal communities are affected by sanctuary activities and regulations
- Identify gaps in available data and methods to collect these data
- Understand and predict the level of human activity through space and time through programs such as the System-Wide Monitoring (SWiM) Program, which is designed to track natural and anthropogenic impacts on the sanctuary at specific spatial and temporal scales through collaborative monitoring efforts
- Implement priorities of West Coast Region Socioeconomic Research Plan.
- Facilitate graduate student seminars to better gauge the sanctuary's effectiveness at dealing with the negative and positive effects of human activity
- Conduct online surveys regarding coastal and marine resource usage in order to gather data such as the economic impact and social significance of various human activities, and connect those activities to ecological and biological attributes of the marine environment
- Conduct surveys of commercial fishers on their demographic/socioeconomic profiles; costs-and-earnings and knowledge, attitudes & perceptions of sanctuary management strategies and regulations.
- Conduct surveys to obtain information on all recreational users spending and estimate the associated economic impact of these activities on local economies and estimate the non-market economic values and how those values change with changes in natural and cultural resource attribute conditions.
- Collect information from marine transportation industry to assess the socioeconomic impact of reducing risks of whale strikes by moving shipping lanes and/or slowing down traffic speeds.

Key Partners and Information Sources

Partnership for Interdisciplinary Studies of Coastal Oceans, Monterey Bay Aquarium Research Institute, California Sea Grant, National Center for Ecological Analysis and Synthesis, California State University Monterey Bay, Natural Equity, Monterey Institute of International Studies, Humboldt State University, University of California – Santa Cruz, California Ocean Science Trust, National Marine Fisheries Service, Pacific Fisheries Management Council, Pacific States Marine Fisheries Commission, California Department of Fish and Wildlife, U.S. Department of Commerce bureaus of the Census and Economic Analysis, U.S. Department of Labor, Beach Watch.

Management Support Products

- Scientific papers and reports
- Baseline social science data
- Incremental re-evaluation reports
- Web site for communicating human dimensions/socioeconomic information

Planned Use of Products and Actions

- The use of this information will be integral in developing management tools and strategies, in addition to assessing the applicability and effectiveness of current approaches
- Predict how people will be affected as the biological and ecological attributes of the marine environment change to evaluate management strategies and regulations
- Inform education and outreach programs issues important to stakeholders, help develop education and outreach materials, and more effectively communicate with stakeholders

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Program References

GFNMS Management Plan

- Conservation Science Action Plan
- Resource Protection Plan
- Education and Outreach Plan

GFNMS Condition Report

- What are the levels of human activities that may influence living resources quality and how are they changing?
- What are the levels of human activities that may influence maritime archaeological resource quality and how are they changing?
- What are the levels of human activities that may influence habitat quality and how are they changing?
- What are the levels of human activities that may influence water quality and how are they changing?
- Do sanctuary waters pose risks to human health and how are they changing?

Next Generation Condition Report – Evaluating Ecosystem Services

Cultural (non-material benefits)

- Sense of Place – aesthetic and spiritual attraction, and the level of recognition and appreciation given to efforts to protect a place’s iconic elements
- Tourism and Recreation – experiential opportunities that include recreation and community activities
- Science and Education – the capacity to provide intellectual enrichment, contributing information and knowledge
- Heritage – recognition of historical or heritage legacy
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Provisioning (products and supplies)

1. Food – the capacity to support market demands for nutrition-related commodities through various fisheries
2. Ornamentals – resources collected for decorative or aesthetic purposes
3. Biotechnology – medicine and other chemicals found in sanctuary animals or plants, or manufactured from them
4. Energy – use of non-renewable or renewable materials or processes to supply energy

Regulating (buffers to change)

5. Clean Water – minimizing pollution, including trash, nutrients, pathogens, and chemicals
6. Biodiversity – preserving species and critical habitats and life cycle events, and controlling invasives, pests, and diseases
7. Coastal Protection – flow regulation that protects habitats, property, coastlines and other features
8. Climate Stability – the important role of ocean ecosystems in sequestering carbon, regulating temperature, and controlling ocean acidity

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ONMS Performance Measures

- Human Uses quantified.
- Economic impact of human uses on local economies quantified.
- Non-market economic direct use values and how those values change with changes in natural and/or cultural resource conditions quantified.
- Ecological, Human Dimensions non-economic, and Human Dimensions economic indicators of Sanctuary ecosystem services quantified.
- Demographic/Socioeconomic profiles completed for each Sanctuary user group.
- Knowledge, Attitudes & perceptions of Sanctuary management strategies and regulations quantified in baseline and periodic updates (period of updates to be determined in consultation with management and user groups).

Other Documents

- Knowledge, Attitudes and Perceptions of Management Strategies and Regulations of the Florida Keys National Marine Sanctuary by Commercial Fishers, Dive Operators, and Environmental Group Members: A Baseline Characterization and 10-year Comparison. ONMS socioeconomics science page:
<http://sanctuaries.noaa.gov/science/socioeconomic/research.html>
- Guide for Developing Sanctuary Condition Reports, DRAFT (as of February 2014). Office of National Marine Sanctuaries, conservation Science Division.
- Johns, G., D.J. Lee, V. Leeworthy, J. Boyer and W. Nuttle. 2014. Developing Economic Indices to Assess the Human Dimensions of the South Florida Coastal Marine Ecosystem Services. Forthcoming in a special issue of the Journal of Economic Indicators.
- West Coast Region Socioeconomic Research Plan.
- Costello, Christopher. 2011. Reducing the risk of Vessel Strikes to Endangered Whales in the Santa Barbara Channel An Economic analysis and Risk Assessment of Potential Management Scenarios. Class Project Fact Sheet, University of California – Santa Barbara Bren School of Environmental Science and Management.
http://www.bren.ucsb.edu/research/documents/whales_report.pdf

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