

Social Values of Ecosystem Services for Management Decision-Making

A Research Project to Assess Social Values and Perceptions of Attributes in the Olympic Coast National Marine Sanctuary conducted by the National Centers for Coastal Ocean Science (NCCOS)

We are exploring the connections between humans and the places they live, work, and play. Specifically, we are looking at how people use, value, and depend on the ecosystem services of coasts and the coastal ocean. Using established social science methods combined with the latest in geographic information systems research, we will be better able to understand these connections, and deliver to managers maps that describe the connections between humans and their environment. By incorporating a better understanding of how and why people value protected places into the decision-making process, managers can avoid potential conflicts between various user groups and plan for sustainable use by constituents.

To accomplish this we are surveying residents, visitors, and other users of marine areas to understand their attitudes, knowledge, and preferences regarding the current environmental condition and management actions within selected marine areas. Additionally, we are seeking to understand the relationship between the end-points of ecosystem services – the things people care about – and the environmental features present in marine protected areas; these end-points of ecosystem services are also known as social values. To explore these relationships, we are asking survey respondents to weight the social values they deem most important and to identify areas on a map that they associate with those social values.

Ecosystem services provide the means necessary for a full, healthy human life. These include provisioning services such as food and shelter, regulating services such as waste disposal and flood abeyance and cultural services such as recreation, aesthetics and spiritual settings.

The social values we are interested in are:

- Aesthetic
- Biodiversity
- Economic
- Legacy
- In and of itself
- Learning
- Human Needs
- Treaty Rights
- Recreation
- Spiritual
- Therapeutic
- Wilderness
- Inspiration
- Socializing

Once we obtain the respondents' weighted social values, we incorporate their spatial data (Figure 1) and analyze both with the geographic information system (GIS) application known as Social Values for Ecosystem Services (*SoIVES*) (Available at <http://solves.cr.usgs.gov/>). Outputs from the *SoIVES* application includes "heat" maps that describe the relationship between

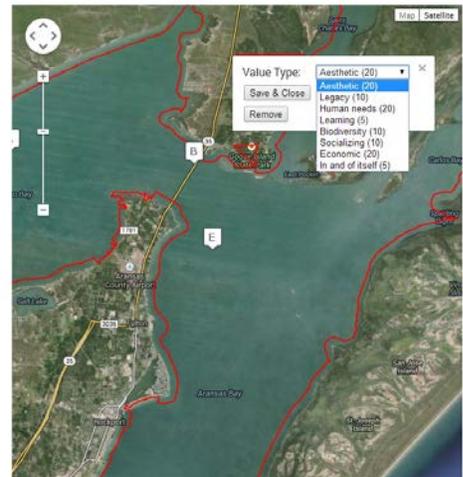


Figure 1. Example of mapping exercise conducted in the Mission-Aransas, TX study. Participants are asked to view a map and mark the locations that they value and select from a list to identify why they value the location.

social value intensity and explanatory natural environmental variables such as habitat and water depth and/or public infrastructure such as water access points. Previous coastal condition work conducted by NCCOS and others will be used to supply the environmental variables for the *SoIVES* analysis.

We will also ask questions about the perceptions people have for the condition and management of the sanctuary. Several questions are necessary for the *SoIVES* analysis and the rest will be selected from bank of questions pre-approved by the Office of Management and Budget. The approval is necessary for NOAA to conduct this type of research.

- Examples of Management Questions in the Mission-Aransas NERR**
- Opinions on changing conditions in the NERR
 - Agreement on statements about their attachment to the place
 - Views on Prioritizing Management Goals
 - Knowledge of the Environment
 - Opinions on adequacy of public access

A similar study was previously conducted for the ACE Basin National Estuarine Research Reserve (NERR) in South Carolina and we are currently collecting data in the Mission-Aransas NERR in Texas. This will be the first project in a national marine sanctuary. We are at the planning stage of the project and are working with OCNMS staff to determine the groups to be surveyed and management-related questions to be asked. We will be collecting information from residents and sanctuary users. During the next year residents of nearby counties may receive a request to complete the survey on either paper or using an Internet link. People using access points to the sanctuary may be interviewed during their visit and asked the questions that are on the survey. Lastly, people that have provided email addresses to organizations that use, monitor or appreciate the OCNMS may receive an email request to complete the on-line survey.

What are the Outcomes?

We hope to provide managers with a better understanding of how and where people value all that OCNMS provides them. The premiere product of the project will be a spatial analysis of the sanctuary (Figure 2) with the locations people map as particularly important and why. Using this information will assist managers in 1) avoiding potential conflicts between various user groups and 2) to plan for sustainable use by constituents.

Analysis of the management question responses will provide managers with a better understanding of the perceptions of sanctuary condition by users, as well as their attitudes toward management issues and activities. During the Sanctuary Advisory Council meeting March 21, I hope to get the Council members’ opinions of management issues facing OCNMS where managers could benefit from asking user groups their opinions.

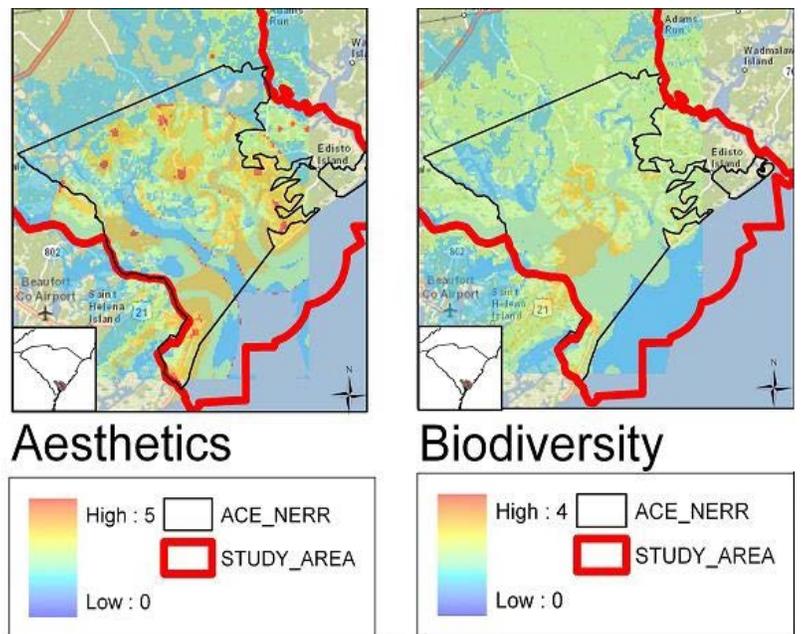


Figure 2 Heat maps of two social values, Aesthetics and Biodiversity, in the ACE Basin of SC. These maps offer information about why people use specific locations in the managed area.