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The Non-Market Value of Private Recreational Boating in the Channel Islands National Marine Sanctuary, A 2012-2013 Group Project

Background

The Channel Islands National Marine Sanctuary (CINMS) provides environmental, economic, and social value to a variety of users. A lack of information on private recreational boaters limits the ability of managers to represent their interests within policy. The CINMS Socioeconomic Research and Monitoring Plan identified a particular gap in understanding how much boaters value their experience in the Sanctuary and the natural resource characteristics associated with this experience. This study addresses this gap and was conducted by Master's students from the Bren School of Environmental Science & Management at the University of California, Santa Barbara.

Methods

Using an economic Random Utility Model, the activity and site choice of boaters was linked to the cost of accessing a site and the natural resource characteristics of the site. The model inputs included: individual site and activity choice (from LaFranchi and Pendleton's 2007 Private Boater Survey), individual travel cost, and site-specific characteristics (wind exposure, biological quality, and kelp cover). Wind exposure was measured by the angle of the coastline in relation to the prevailing Northwest wind. Biological quality was measured through a biological index that combined PISCO survey data on fish richness (total number of species of fish), fish abundance (total number of fish), invertebrate richness, and invertebrate abundance. Kelp was measured as a percent cover for each site using California Department of Fish and Wildlife (CDFW) aerial survey data.

With these inputs, the model estimated the dollar value an individual boater associates with a trip to the Sanctuary as well as the willingness to pay for an additional amount of each site characteristic. The value of a trip represents the consumer surplus boaters receive, which is the monetary benefit they gain over and above out-of-pocket expenses for gas, supplies, and other necessities. These individual values were extrapolated using the total number of recreational boat

Table 1. The influence of natural resource characteristics on boater site choice.

Site Characteristic	Amount boaters are willing to pay for an increase of one unit	Impact on Boaters' Site Choices
Biological Index	$10.11 - $16.78	Boaters prefer sites with higher biological quality
Wind Exposure	- $0.91 to -$1.32	Boaters prefer sites with lower exposure
Kelp Cover	N/A	Not statistically significant; boaters are not affected by kelp cover

trips that year (from the Sanctuary Aerial Monitoring and Spatial Analysis Program, SAMSAP) to determine the annual value of private recreational boating in the Sanctuary.

Results

The model showed that private boaters receive a positive consumer surplus of **$53.60** per trip to the Sanctuary. Considering the number of trips taken per year, the total non-market value of private recreational boating is conservatively estimated to be at least **$86,642**. These numbers represent non-consumptive boating activities, such as snorkeling or diving. As illustrated in Table 1, boaters value a recreational experience with an abundance and variety of wildlife and tend to avoid sites that are more exposed.

These numbers should be considered conservative estimates or lower bounds for several reasons:

- The model does not capture the following: 1) extra benefits boaters associate with doing more than one activity; 2) the full benefits other boat passengers receive from the experience, as the model only accounts for the time value to the captain; 3) food and gear expenditures are not included.
- The total value does not include boaters who participate in consumptive (i.e. fishing) activities
- The model could not include the participation decision, so as the attributes change; the model cannot include the number of increased trips boaters might take.

How can these estimates be used?

These findings can be referenced in policy discussions that affect this stakeholder group. In addition, the results can be used in damage assessment cases (e.g. oil spills or overexploitation) to determine the cost of lost wildlife. They can also be used to estimate the value of biological improvements. Finally, the study is relevant to coastal and marine recreation worldwide as managers can use this methodology to determine how changes in biological resources result in changes in dollar values.

How to obtain the full report

The full report can be obtained from the following url:

http://sanctuaries.noaa.gov/science/socioeconomic/channelislands/boating.html

or contact

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