

Economic Valuation of Marine Reserves in the Florida Keys as Measured by Diver Attitudes and Preferences: Implications for Valuation of Non-consumptive Uses of Marine Reserves

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Goals

This study, funded by the Marine Fisheries Initiative, seeks to determine the value of a non-consumptive activity, diving, in marine reserves, as measured by contingent valuation and user attitudes, and to identify the factors that either enhance or reduce marine reserve value by: 1) evaluating the monetary value (and willingness-to-pay for) that divers place on marine reserves in the Florida Keys, 2) ranking the attributes offered by the marine reserves that enhance diver visitation and satisfaction, and 3) developing a matrix that matches diver preferences for marine reserves.

Methodology

The research team developed a field survey questionnaire that was tailored for each dive operator participating in the study to administer periodically to divers and snorkelers visiting marine reserves and general-use areas in the Florida Keys National Marine Sanctuary. The questionnaire contained questions on the following: 1) demographic and dive-specific background, 2) reason and details of trip, 3) expected and observed conditions at the sites visited, 4) willingness-to-pay for site visited, and 5) comparison to other sites. Please refer to the web site: <http://www.rsmas.miami.edu/etc/dive-survey.cgi> for a copy of the questionnaire.

More than 20 sites, including those within and outside marine reserves, were identified as part of the survey design, and 12 dive operators were contracted to participate in the study. Dive operation personnel administered surveys to divers and snorkelers returning from trips four times a month (depending on weather conditions). The survey period commenced in late 2002 and will extend into early 2004.

Additionally, a dive operator questionnaire was developed and administered using Lower Keys dive operations prior to implementation of the diver survey session. This questionnaire probed operators on economic aspects of their industry, trip profiles (including the importance of marine reserves as dive trip destinations), and their views on marine resource management.

Findings to Date

Based on totals (n = 564) through August 2003, or month 8 of the project, results indicate that users value marine reserves and multiple-use dive sites as centers of marine resource management and recreation. Findings also demonstrate that respondents generally view all dive sites favorably, in terms of their ecological and social conditions, suggesting the efficacy of local area management, as it relates to this user group. Finally, most divers and snorkelers report congruence between expected conditions and personal experiences, which may explain the high trip satisfaction ratings.

Most divers and snorkelers visiting the sites were 40 years old or younger (58%), and they traveled to the Lower Keys and Key West for over four nights (67%) to engage in multiple activities. Almost 60% took only one dive/snorkel trip while in the region, although 77% reported making a multiple-day trip. Most respondents (83%) either only snorkeled or had limited diving experience, and over 72% had been diving for five years or less. Only a fifth of the divers reported choosing their dive site destination; 80% visited sites selected by the dive operation. Of the respondents who chose their dive site, 58% visited a single location: Looe Key Sanctuary Preservation Area (SPA) in the Lower Keys.

The most popular activities reported were nonconsumptive, including marine identification (47%) and underwater photography (42%); consumptive activities such as spearfishing (5%) and lobster diving (17%) were less popular. Highest expectations for sites, reported in ranked means (scale was 1-5), were water clarity (mean = 1.69), to see different kinds of fish (1.69), and to see other large animals (1.82). Viewing rare organisms (2.57) and invertebrates (2.37) was less important to the respondents. Most observed means were close to expectations, with the exceptions of water clarity (observed = 2.25, expected = 1.69) and seeing rare animals (observed = 3.1, expected = 2.57). That is, most divers and snorkelers reported having their expectations met for seeing large fish, different kinds of fish, and large animals.

Over 90% of the visitors reported diving in areas that afforded excellent or reasonable spacing conditions, and only 5% complained of overcrowding at the dive sites. Accordingly, 73% stated that they would likely return to the site(s) visited. Almost half of the divers and snorkelers (45%) had previously been to a dive site in the Florida Keys, and the average time between trips was 2.7 years. Of that total, almost two-thirds (62%) felt that the current trip was better than the previous one, and an equal percentage (63%) ranked the current site above other areas visited outside the Florida Keys. Only 40% of the respondents were willing to pay for additional protection and exclusive access to the dive site visited, and the average willingness-to-pay was \$9.61 (compared to \$10.56 for those who were not willing to pay).

The results suggest that divers and snorkelers who use Lower Keys dive sites do so as part of a larger, multiple-activity trip. They are generally inexperienced users who are interested in mostly nonconsumptive activities and who expect to see large and diverse fauna at a clear, high underwater visibility dive site. Whereas most are not motivated to visit a single site, Looe Key SPA does attract considerable use from persons who report having learned about it from a variety of personal and literature sources. Dive sites, regardless of whether they are marine reserves or not, generally meet resource expectations, with the exceptions of viewing rare organisms and encountering clear water conditions. The experience leads to a willingness-to-pay by 40% of the users, who are willing to pay an additional \$9.61 per person per year (ahead of operator fees, which can range between \$25 and \$60) for exclusive access to the site and its marine resources.