

appropriate method for valuing nonmarket goods, and they pointed out that original travel cost analysis is one of the most appropriate approaches for estimating recreational use benefits. Most commenters agreed that nonuse values are difficult to estimate. Stated preference methods have been the most commonly used methods for estimating nonuse benefits. With these methods, people are asked through surveys to state their willingness to pay for particular ecological improvements, such as increased protection of aquatic species or habitats with particular attributes. According to these commenters, benefits transfer is the second best approach if conducting an original stated preference study is not feasible. Some commenters recommended that EPA use benefits transfer for valuing improved protection of threatened and endangered species.

EPA notes that there are advantages and disadvantages associated with using stated preference studies to value non-use benefits. On the one hand, there are no other generally accepted methods available for identifying and measuring non-use benefits for a non-market good or service. Benefit transfer methods used for estimating non-use benefits must ultimately rely on stated preference studies that independently assess non-use benefits. On the other hand, there is evidence that stated preference methods can over-estimate or misrepresent values because of a number of difficulties linked to the hypothetical nature of the survey instrument. These difficulties include (1) the absence of a real budget constraint (though survey respondents are often requested to think about their income constraints and purchases prior to stating their preferences), and (2) a frequent focus in the survey instrument on a limited number of resources or amenities to the exclusion of others. However, substantial research has been conducted to show that potential bias associated with hypothetical bids, lack of income constraint consideration, complex amenities, and whole/part complications is often manageable through careful survey design and pretesting, and/or may be accounted for through adjustments to utility-theoretic values derived from stated preference studies (see, e.g., Carson, *et al.*, 1996).

In order to address some of the sources of bias in stated preference studies, a number of "best practices" for conducting stated preferences surveys and using them in policy analysis have evolved over the past decade. In 1992, the National Oceanic and Atmospheric Administration convened a panel of economic and survey research experts,

who had no vested interest in stated preference methods, to conduct hearings on the validity of the contingent valuation (CV) method (form of stated preference) (FR 58:19, 4601–14, 1993). This panel issued proposed guidelines, consisting of a number of recommendations about survey design and implementation, "compliance with which would define an ideal CV survey."

The panel's general guidelines address the following issues: Sample type and size; minimizing nonresponses; use of personal interviews; pretesting for interviewer effects; reporting; careful pretesting of a CV questionnaire; conservative design; elicitation format; referendum format; accurate description of the program or policy; pretesting of photographs; reminder of undamaged substitute commodities; adequate time lapse from the accident; temporal averaging; "no-answer" option; yes/no follow-ups; cross-tabulations; checks on understanding and acceptance; alternative expenditure possibilities; deflection of transaction value; steady state or interim losses; present value calculations of interim losses; advance approval; burden of proof; and reliable reference surveys.

The NOAA panel concluded that (1) non-use (referred to by the panel as passive-use) losses are a meaningful component of environmental damages; (2) it is plausible that the results of CV surveys may be variable, sensitive to details of the survey instrument used, and vulnerable to upward bias; (3) under the suggested guidelines and conditions, CV studies convey reliable information—"the more closely the guidelines are followed, the more reliable the result will be. It is not necessary, however, that every single injunction be completely obeyed;" (4) "To the extent that the design of CV instruments makes conservative choices * * *, this intrinsic [upward] bias may be offset or even over-corrected;" and (5) a well-conducted CV survey "contains information that judges will wish to use, in combination with other evidence, including the testimony of expert witnesses."

In addition to the guidelines generated by the NOAA panel, The Office of Management and Budget (OMB), in its recent Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations (68 FR 5492, Feb. 3, 2003), comments on the use of stated preference studies as it relates to policy/regulatory analysis. OMB notes that "the contingent valuation instrument must portray a realistic choice situation for respondents—where the hypothetical

choice situation corresponds closely with the policy context to which estimates will be applied." (68 Fed. 5519.) OMB also provides specific guidelines for sampling, survey design, transparency and replicability of results, and benefit transfer.

In response to comments, EPA made the following changes to the analysis: (1) Developed original or used available region-specific recreational angler behavior models to estimate recreational fishing benefits from reduced impingement and entrainment; (2) refined its commercial fishery analysis; and (3) developed a revised benefit transfer approach to estimate total value (including nonuse values) of impingement and entrainment losses for commercial, recreational, and forage species. In addition, EPA also carefully examined available evidence concerning total benefits, including use and nonuse values from the surface water valuation studies that are potentially applicable to the section 316(b) regulation. Section E.2 of today's notice summarizes EPA's findings from the review of the surface water valuation studies and outlines further steps in developing an approach for analyzing nonuse value of the aquatic resources affected by impingement and entrainment for the final rule analysis.

In this NODA, EPA presents its regional methodology and use benefits estimates for two regions, Northern California and the North Atlantic. Regional definitions are provided in the following section, followed by a summary of methods and results for commercial and recreational fishing. Discussion of a possible methodology for estimating nonuse benefits and some preliminary results are presented in Section E.

2. Study Regions

The Agency identified eight study regions based on similarities in the physical characteristics of the affected water bodies, aquatic species present in the area, and characteristics of commercial and recreational fishing activities in the area. EPA used NMFS definitions of marine fishery regions to define the six coastal regions. Table X-1 presents these geographic areas and the number of facilities included in each marine fishery region. A total of 124 Phase II facilities are withdrawing water from the nation's estuaries and oceans. Facilities in the Great Lakes region include all those that withdraw water from Lakes Ontario, Erie, Michigan, Huron, and Superior or are located on a waterway with open passage of Great Lakes fishery species to a Great Lake and within 30 miles of the lake. There