

## Survey Design and Analysis Qualifications and Experience

Veritas Economic Consulting, LLC

1851 Evans Road

Cary, NC 27513

**Veritas Economic Consulting** is a privately held firm that specializes in natural resource economics. Its principal economists have more than 40 years of combined experience in applied environmental economics. Our experience includes survey design and analysis, natural resource damage assessments (NRDAs), exposure assessments, economic evaluations for compliance with Sections 316(a) and (b) of the Clean Water Act, statistical analyses of the impacts of environmental disamenities on private property values, and similar natural resource studies.

In many cases, the data necessary to evaluate complex environmental issues do not exist. Often, analysts need to design questionnaires and collect original data, surveying people about their use of, their preferences for, and their values for natural resource services. Veritas' Principals have worked on more than 30 environmental survey projects of all types. Our hands-on experience includes all phases of survey design, administration, and analysis. We are experienced at designing materials for and moderating focus groups as a first step in questionnaire development. This expertise includes experimental design and preference experiments that can be used to cost-effectively identify stakeholder preferences for environmental outcomes. Similarly, we are well versed in using verbal protocol techniques as a tool for pretesting and evaluating questionnaire effectiveness. We have supervised the administration of many surveys. Finally, analyzing survey data properly requires advanced statistical analysis skills, an area in which we have significant capabilities.

To address issues that arise in NRDAs, human health risk assessments, and other environmental topics, we have designed and implemented several surveys throughout the United States, including on-site, mail, and telephone modes. This experience ranges from a multi-month mail panel of more than 1,000 recreators, to a brief telephone survey on boating access in a northeastern state, to an on-site, year-long creel survey of anglers along an industrialized river. To address the nonuse values that arise in NRDAs, we have designed, analyzed, and critiqued several contingent valuation (CV) and stated preference (SP) surveys. SP studies require carefully constructed experimental designs in order to produce useful results. Recently, we have seen the use of CV and SP techniques arise in 316(b) applications and in property value litigations. Thus, our survey experience spans across all of our practice areas.

The following list highlights some of our relevant experience:

- Designed and implemented an SP survey to evaluate society's preferences for dam removal in the Pacific Northwest. The respondents expressed their preferences for preserving wild salmon versus maintaining employment in industries dependent on hydroelectricity.
- Designed and implemented a survey of nearly 2,000 recreational anglers for use in both the NRDA and human health risk assessment at a Superfund Site in Texas. Developed site-specific fish consumption rates for anglers. Designed and implemented a survey of commercial shrimpers to estimate consumption rates of by-catch.
- Designed and implemented a year-long, on-site creel survey of anglers using an industrialized waterway. Combined frequency data with recreational modeling techniques to statistically estimate fish consumption rates in light of recreator site-choice models.
- Surveyed urban recreators on their recreation decisions. Developed a statistical model that explicitly includes baseline disamenities in site choice decisions. Published the results in a peer-reviewed journal.
- Developed a detailed critique of the fish consumption survey used to support the proposed Total Maximum Daily Load (TMDL) rule for San Francisco Bay.
- Designed and implemented a count study of recreators in a floodplain. Used sophisticated techniques to estimate the frequency of visits during the times and days not sampled.
- Used statistical models that predict angler behavior to estimate how the number of fishing trips would change if the existing fish consumption advisory were removed.
- Conducted rigorous one-on-one interviews to dissect the limitations of the SP survey EPA proposed for its 316(b) rule, which resulted in the EPA withdrawing its study.
- Co-authored two chapters on stated preference techniques in a 2006 environmental economics textbook, designed for graduate students.
- Published more than 15 articles and book chapters on survey design and analysis topics.