

SCOTT COLE

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Economic Consulting Projects

While completing my Master Degree in Economics at Umeå University, I started my own consulting firm called **EnviroEconomics Sweden**. Prior to that, I worked as an Economist at **Northwest Economic Associates** in Vancouver, Washington (www.nwecon.com) from 2004 to 2005. For the five years preceding that, I worked as a Research Analyst at **Industrial Economics Inc.**, in Cambridge, Massachusetts (www.indecon.com). Both of these positions required the application of analytic skills to assess the economic impacts of proposed government regulations and the valuation of natural resources for a range of clients including federal, state, and local agencies. These assessments and valuations formed the basis for the economic impact studies drafted for our clients.

Below is a summary of six consulting projects and one academic research paper.

Estimated Recreational Boating Impacts Associated with Oil Spill Contamination

For the National Park Service, assisted in the development of a natural resource damage claim associated with a diminished recreational experience, following an oil spill in a pristine section of the Obed River in Tennessee. The oil spill closed a section of river to recreational activities, including whitewater boating. The Park Service used the results of our analysis to quantify the magnitude of potential damages in preparation of a possible damage claim (“environmental liability”) against the polluter.

Specific Responsibilities:

- Conducted a site visit to collect primary data on whitewater boating and fishing activity. Contacted key recreational users to develop reasonable estimates of boating visitation during a normal summer period.
- Conducted literature search to identify potential consumer surplus loss associated with reduced boating opportunities and/or a diminished recreational experience.
- Assisted in development of a conjoint boater survey (e.g., attribute-based stated-preference) to assess the variety of recreational boating options available to visitors. The approach provided information (1) to understand how recreational boaters trade-off (e.g., substitute) different attributes in selecting a boating experience (e.g., difficulty of rapids, flow, scenery, length, etc.) and (2) to help scale possible future restoration activities (e.g., improved river access) based on high-value attributes.
- Drafted on-site survey mechanism to assess potential consumer surplus loss from river closure. My research identified key river attributes and reasonable levels to include in the questionnaire.
- Following extensive research, concluded that the subsequent re-opening of the river prior to the peak boating season had little impact on boaters.

Estimated Recreational Fishing Losses Associated with PCB Contamination

For Natural Resource Trustees in the Southeastern U.S., estimated recreational fishing damages associated with fish consumption advisories resulting from PCB contamination at a popular lake. This information was used to support settlement negotiations with the responsible polluter, pending a formal litigation claim for natural resources damages (i.e., “environmental liability”).

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Specific Responsibilities:

- Conducted GIS analysis to identify populations in surrounding counties likely to contribute to fishing pressure on the affected lake.
- Analyzed creel survey and other data to support estimation of baseline recreational fishing pressure.
- Assisted in the collection and review of literature related to consumer surplus losses associated with recreational fishing.
- To better approximate losses associated with *future* fishing levels, analyzed historic trends in fish license sales by county and demonstrated likely population growth based on county-level projections.
- Assisted in adapting an existing random utility model of angler site choice to the studied lake for purposes of estimating damages associated with the fish consumption advisory.
- Estimated total discounted dollar value of fishing damages (i.e., reduced consumer surplus) over a 20-year time frame.

Conducted Literature Review of Contingent Valuation Studies for Benefits Transfer

For the U.S. Fish and Wildlife Service, conducted an analysis of the costs and benefits of species protection efforts. As discussed in my “Personal Statement,” these studies focused primarily on the costs of wildlife protection. However, in the early stages of designing the studies, we considered a benefits transfer approach to measure values associated with wildlife protection. My work focused on assessing and, where possible, quantifying benefits through an exhaustive literature review of relevant contingent valuation studies. In the case of one species – the Topeka shiner (fish species) – we found comparable studies in the literature to apply a benefits transfer approach. The attached work product example under Tab 4 (*Potential Benefits of Proposed Critical Habitat*) details the methodology I applied. The work was in conjunction with my direct supervisor, who provided minimal edits to my draft.

Specific Responsibilities:

- Conducted review of stated-preference literature and summarized willingness-to-pay estimates for the protection of threatened and endangered species.
- In cases where studies provided limited information, contacted authors to obtain information on key attributes for the purpose of comparing study methodology.
- In the case where the species examined as part of a stated-preference study demonstrated similar attributes to the species for which habitat was being protected, detailed the steps for a benefits-transfer approach as a mechanism for highlighting the potential magnitude of economic benefits associated with habitat protection.

Developed Methodology to Estimate Economic Damages from Contaminated Groundwater

For a State government, assisted in the development of a unique approach for estimating natural resource damages from contaminated groundwater. The approach considered the replacement costs of groundwater by assessing the costs incurred by communities to *protect* existing sources of groundwater. Because the approach relies on the replacement cost of an equivalent resource, it avoids the complication of applying stated-preference methods to capture both use and nonuse values. Further, this approach represented the first time a State government has relied on a comprehensive and defensible approach to

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assessing monetary damages from hundreds of contaminated groundwater sites, thus avoiding costly and inefficient site-specific assessments. Our report and appendix describing the approach is currently being codified into existing state regulation. The attached work product example under Tab 5 (*Replacement Cost Estimates for Groundwater*) details the methodology I applied. The work was in conjunction with my direct supervisor, who provided minimal edits to my draft.

Specific Responsibilities:

- Collected primary data through telephone interviews with local communities. Researched groundwater protection measures undertaken (e.g., land acquisition, land development restrictions), the associated costs of protection, and the quantity of water protected (e.g., annual well yield).
- Developed a spreadsheet summarizing expenditures per quantity of water protected and estimated average replacement costs per annual capacity.
- Provided context for our estimates by comparing our groundwater replacement values to estimates found in other studies and generated through different approaches.
- Developed appendix detailing the approach (see Tab 5), summarizing results, and identifying specific steps to expand the scope of the analysis for future refinement.

Conducted Spatial Analysis of Housing Development Impacts of Wildlife Habitat Protection

For the U.S. Fish and Wildlife Service, assisted in an analysis of the impact of historic wildlife protection efforts on housing developments. The statistical and spatial analysis considered 13 years of historical housing permit data and existing wildlife habitat protection areas to assess whether land use restrictions were influencing housing development patterns. The Federal agency used the results of our analysis to respond to criticism that existing studies did not effectively capture the full economic impacts of wildlife protection. The results of this study were published in the *Journal of Regional Science* (Zabel and Paterson, 2006) with acknowledgment to Scott Cole for the GIS analysis.

Specific Responsibilities:

- Applied GIS analysis (ArcView) to analyze spatial datasets associated with residential development and wildlife protection zones to identify overlapping and adjacent landscapes.
- Developed a spreadsheet summarizing the extent of overlapping landscapes and other variables used as inputs to the statistical analysis of significance.
- Contributed to the development of a statistical approach comparing development lands with and without wildlife protection over time (i.e., all years), as well as individual year comparisons of adjacent development lands with and without wildlife protection.

Conducted Statistical Regression Analysis of Mercer Health Care Costs Survey

For Mercer Consulting, conducted a statistical analysis of a nationwide health care costs survey. Project required development of a regression model using 2004 survey cost data to (1) identify health care plan attributes that significantly affect average per employee cost and (2) develop a user-friendly spreadsheet model that predicts expected health care costs, given certain plan attributes. Mercer Consulting now uses this model as a tool to attract new customers (e.g., firms looking to reduce health care costs) by demonstrating potential savings of switching health care plans or altering key plan attributes.

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Specific Responsibilities:

- Reviewed current health care issues in the U.S., including difference between Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), and other health care plan options.
- Regressed various plan type attributes (e.g., number of employees covered, percent electing dependent coverage, amount of hospital copayments, etc.) using the Statistical Analysis Systems software (SAS) to determine variables that significantly affect average per employee costs.
- Utilized parameters of the “best fit” regression results in a “user-friendly” spreadsheet predictive model that estimates health care costs, given certain health care plan attributes.

Presented Paper at Western Forest Economists Conference, Wemme, Oregon (May 2005)

“Estimating Regional Economic Impact of Restricted Timber Harvests – An Application of IMPLAN”

May 2005

Scott Cole and Alan Fox, Ph.D.

As part of a larger economic analysis associated with protecting habitat for the endangered bull trout, I contributed to the estimation of direct and indirect regional economic impacts. I submitted a paper detailing the specifics of our estimates related to the indirect economic impacts. In addition, I presented the paper at the conference, attended by forest economics. Below is the abstract for the paper.

Abstract:

The economic effects associated with timber harvest restrictions on private timber lands related to bull trout (and salmon) fish conservation measures include direct effects (e.g., reductions in profit to timber land owners) and secondary or indirect impacts (e.g., effects on harvesters, processors, logging companies, mills, etc.). This paper uses estimated changes in Total Asset Value (e.g., the value of land and standing timber) associated with timber harvest restrictions in riparian areas to represent the direct effect to timber land owners. The direct effect is then used to highlight secondary impacts to the regional economy. The paper relies on the results from a previous economic study as well as an IMPLAN input/output model. Specifically, we consider the backward linkages calculated from IMPLAN to identify indirect impacts to timber industry producers and consumers.