

**Statement for 16 July 2008 press conference on
Cost of ship-caused invasive species in the North American Great Lakes**

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I am David Finnoff, an assistant professor in the Department of Economics and Finance at the University of Wyoming.

The preliminary results David and John discussed today are exciting because they extend the current state of knowledge in two major ways. First, they quantify effects on Great Lakes ecosystem services like the fisheries and wildlife watching that have not been quantified up to this point. Second, the methodologies employed are consistent with economic theory and are not replacement cost estimates that are often seen in reports.

Our consideration of the effects of invasive species on Great Lakes sport fishing and wildlife watching are important advances given the economic importance of these activities to the region. In the 8 US Great Lakes states alone, expenditures on sport fishing are 1.5 billion dollars a year, and expenditures on wildlife watching of 9.3 billion. Most previous research has been concentrated on Great Lakes raw water users, but it appears likely that recreational ecosystem services have been significantly impacted by invasions and provide the bulk of the impacts we find.

We also present a methodological advance as we apply a more specific economic approach to capturing the economic consequences of ship-borne invasive species on the Great Lakes region. From an economic viewpoint, if invaders affect ecosystem services, they can result in lost consumer and producer surplus (where the losses are opportunity costs to society). Consumer surplus is determined by the difference between what consumers pay for goods and their maximum willingness to pay for each unit of the good. An example might be of a consumer going to their local fish market and paying \$5 for a pound of Walleye, knowing that the maximum they would be willing to pay for that pound were \$10. The \$5 difference is a measure of the benefits to the consumer from the exchange.

Producer surplus is determined by measuring the difference between what producers are paid when they sell goods and their minimum willingness to accept for each unit sold. In much the same fashion, if a producer receives \$5 for a pound of Walleye and they were willing to accept a minimum of \$3 for that pound, the \$2 difference is a measure of the benefit to the producer from the exchange.

Market prices capture the relative rate at which the market is willing to exchange one good for another. The often employed replacement cost method simply takes the

product of market price and whatever the change in quantity might be to calculate lost revenues. These tend to be rejected as they have no relationship to surplus measures.

However, applying this economic approach can be a challenge because it requires measuring these surplus measures, which requires more information than just market prices and quantities. In our work we performed a sensitivity analysis over several critical parameters that provide some of this missing information, and focused our preliminary results only on changes in benefits to consumers.

The numbers David Lodge reported earlier thus represent simple calculations of the changes in consumer surplus for each of our economic activities. The calculations were made using the median results of the expert elicitation and for what we believe are a set of conservative parameter combinations. For less conservative parameter combinations our estimates rise in magnitude, and they fall for more stringent parameter combinations. Within the distribution of our estimates, what is striking is the relative importance of losses in sport fishing and wildlife watching, which appear to bear the brunt of the losses.

Of course it is important to remember these results are preliminary and the focus of a continuing research agenda. Each of our estimates is calculated in isolation of the other (neglecting any interaction effects) and presumes that everything else imaginable (such as environmental and economic conditions) would have remained exactly the same with and without the invaders. We intend to refine our models and findings as we move forward with our research.

Thank you very much, and that concludes my statement.