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Theme: Policy & Management

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Title: **Are We Missing the Boat? Recreational Fishing and the Benefits of Oyster Reef Restoration in the Chesapeake Bay.**

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Abstract: In many salt-water recreational settings an imprecise measure of site choice is often collected based upon the individual's launch-point. For anglers who continue on from the launch-point in a boat, this imprecise measure of site choice is likely missing important on-water trade-offs thereby affecting the accuracy of recreational benefit measures and the usefulness of such models for policy analysis. To investigate this special case, we proceed as follows. First, using revealed preference data collected on recreational angling in the Chesapeake Bay, we estimate a model that links aquatic habitat in the Chesapeake Bay to launch-points around the Bay. Like many other studies of recreational fishing, we couple a household production function to a random utility model. This household production model allows anglers to produce trip quality by combining time and fishing expertise with aquatic attributes at the site. Imprecise data on where anglers fish prevent us from formally modeling fishing sites as the unit of choice. Rather, like many other studies, we are forced to model choice based solely on the angler's launch-point. We use the model to assess the benefits from oyster reef restoration in the Bay. Second, we investigate whether benefit estimates are biased under the situation outlined above because of the measurement error. We conduct a monte carlo analysis over a variety of spatial configurations for on-water sites. The structure implemented in our monte carlo mimics that of the revealed preference study. We generate observations on fishing trips where the on-water choices and site attributes are known, estimate the household production model, the angler's preferences, and welfare measures associated with improvements in aquatic habitat. For these same trips, we construct a "measurement error" database by aggregate the data back to the launch-point and simulate a situation where on-water sites, travel costs, and site attributes are not known. Similar estimations are conducted using the "Measurement Error" data. Our findings show striking spatial patterns where the aggregate model both under and overestimates the economic value associated with the improvement of aquatic habitat. Our results call into question the applicability of existing data for the evaluation of spatially explicit environmental policy.