Valuation of Fishery Ecosystem Services of the Everglades Water Management

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Introduction and Background

The recreational fishing industry in the Everglades and Florida Bay is a direct beneficiary of improved and sustained fishery habitat; freshwater flow through the Everglades serves to maintain low salinity conditions essential to maintaining good habitat for certain fish and wildlife populations. With $1.2 billion in annual economic activity from recreational fishing in the Everglades, the recreational experience is one of the key ecosystem services (ES) of the hydro-ecological system of the Everglades.

These ES are not directly market-valued, so this research develops a conceptual methodology to determine the economic value to stakeholders of recreational fishery ES in response to changes in various fishery attributes, which could occur as a result of changes in freshwater management flows.

Expected Results and Application

Surveyed anglers’ preferences for changes in recreational attributes will be used to estimate their WTP for incremental changes in attributes which are dependent on changes in the freshwater flow (W). WTP values will be estimated for the baseline scenario with no changes in future economic conditions, as well as for various economic scenarios and risk perceptions.

Penalty Function

\[ P(W) = F \left[ \frac{WTP_{CR} \cdot CR(W) + WTP_{LK} \cdot LK(W) + WTP_{CC} \cdot CC(W)}{WTP_{FA} \cdot FA(W) + WTP_{PW} \cdot PW(W)} \right] \]

Where \( F \) is the total annual number of fishing trips by anglers, \( P \) is the penalty or lost monetary value of a certain reduction in freshwater flow \( W \). The penalty function will be simulated for different values of \( W \), generating a range of values for \( P \).

The figure above shows hypothetical penalty functions under three different economic scenarios: baseline (\( P(B) \)); if increase in fishing trips does not compensate for the reductions in per trip value of attributes (\( P(C) \)); and if the increase in fishing trips does offset the reductions in per trip values of attributes (\( P(D) \)).

Literature Cited


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