

Title: **Understanding Rent Dissipation and Optimal Management in Recreational Fisheries: theory**

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Abstract: Recreational fisheries are severely understudied by fisheries economists, in spite of their growing importance in the context of fisheries management. While recreational demand models have been extensively applied to recreational fisheries, they have rarely been successfully integrated with bioeconomic models to evaluate policy changes. Furthermore, theoretical models of open access behavior have presumed a process of rent dissipation that closely mimics models of the commercial fishery this despite the fact that there is serious cause to doubt the hypothesized mechanisms for such dissipation and the consistency of the underlying models with received consumer theory. Addressing these shortcomings is important as interest in adapting instruments designed for commercial fisheries to the recreational context increases.

We remedy this gap by developing models of open access and optimal dynamic management of recreational fisheries that are consistent with current developments in recreational demand analysis. We incorporate a number of realistic aspects of the recreational context, namely: 1) the existence of multiple substitutable recreational sites of varying proximity and (endogenous) biological characteristics; 2) the ubiquity of (unobservable) angler heterogeneity in preferences; and 3) the potential for corner solutions (zero visitation) by some sub-population of potential anglers. Our model yields a number of insights concerning the nature of rent dissipation in recreational fisheries and how it is shaped (and limited) by factors such as the number of substitute sites and their spatial configuration and biological connectivity. Our modeling also calls into question the usefulness of a representative agent framework in bioeconomic models of optimal fishery management.