

Department of Environmental Science and Policy

Seminar Series

Discretion versus control in multiple-species fisheries

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DATE: Friday, 4/27/2023 TIME: 3:00 pm ROOM: SLAB103

Zoom: <https://bit.ly/3GQ6ZGn>



Abstract: This paper evaluates the bioeconomic performance of an individual fishing quota (IFQ) regulation in a multiple-species fishery. In our model, fisheries managers face uncertainty over the population sizes and growth characteristics of multiple cohabiting fish species. Fishers control all aspects of harvest operations under full knowledge of the species-specific productivities of their fishing gear. We derive a rational equilibrium mapping from bioeconomic fundamentals and the IFQ regulation to the private profit maximizing mortality and rent outcomes that are implemented by fishers. Conditional on this mapping, we solve the second-best problem of designing the regulation to maximize fishery value. Performance of a design that allows discretion over the mix of harvested species is contrasted against behavior control, via a discard ban. Both designs eliminate discards. Discretion diminishes information asymmetry between the manager and fishers and raises fishery value. Incorporating discretion into regulatory designs provides new prospects for improving fisheries management.

Bio: Quinn's research uses microeconomic theory and econometric method to address problems that arise in the management of renewable natural resources. He develops and empirically calibrates economic models to evaluate and improve the bioeconomic performance of alternate management approaches and competing regulatory designs. A significant component of his work deals with property rights-based regulation of marine commercial fisheries.

His recent research studies implications of quantity-based regulations in firm entry and exit behavior, the exercise of market power, production decisions under uncertainty, and regulatory designs. Recent empirical projects seek to advance methods used to measure causal relations in coupled human natural systems. Recent efforts apply the new methods to fisheries in the Gulf of Mexico and along west coast of the United States. Quinn Weninger is a Professor of Economics in the Department of Economics at Iowa State University.

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