**Title:** Demand Heterogeneity for Southern California Sportfishing Trips

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**Abstract:** This study estimates the demand for saltwater recreational angling trips within the Southern California Commercial Passenger Fishing Vessel (CPFV) fishery. The CPFV fishery provides a variety of trip types to support recreational anglers targeting several species including, tuna, rockfish, yellowtail, and shark. Trips vary by fishing location, by length of trip, and by booking at an individual or charter basis. The demand for recreational trips is modeled using a travel cost framework within a utility theoretic semi-logarithmic incomplete demand system for an arbitrary number of goods. A multivariate compound Poisson estimator is applied to a trip level dataset which includes catch, spatial, temporal, environmental, and price characteristics, as well as recreator residence data. The empirical model handles correlation between goods and provides a systems approach to account for simultaneous changes in catch, environmental and price characteristics. Empirical results provide demand estimates for saltwater CPFV fishing trips across trip type and target species strata, and provide welfare estimates for changes in associated characteristics. Estimates of the multivariate compound Poisson estimator are compared to base model estimates. Results highlight the need for an approach that handles the dynamic behavioral and statistical interdependencies over goods and common covariates in the estimation of a demand system.