

Committee on Economics and Social Sciences Spring 2025 Meeting Summary

April 22, 2025

Members in Attendance: S. Lovell, D. Georgiana, J. Holzer, S. Ebbin, B. Murphy, J. Walsh, M. Russell, T. Scott, T. Guilfoos, Jose Montanez, A. Scheld Staff: J. Patel, C. Starks, E. Franke Presenters: Y. Yang

Probability Weights and Angler Behavior

This project develops an economic model to simulate angler behavior, particularly focusing on recreational saltwater fishing along the West Coast of the United States, specifically in Washington and Oregon. Recreational fishing plays a significant economic role in the U.S., generating \$138 billion in sales and supporting approximately 692,000 jobs in 2022. U.S. anglers took around 201 million fishing trips, catching an estimated 1.1 billion fish, of which about 60% were released. Fishing involves considerable uncertainty, and anglers' decisions are influenced not only by expected catch outcomes but also by the variability and distribution of those outcomes, making it important to understand their preferences and behaviors.

Previous literature has demonstrated that anglers exhibit risk aversion and are influenced by cognitive biases, particularly when facing uncertain or probabilistic outcomes. Anglers tend to overweight rare events, a behavioral trait that affects their fishing choices. The study draws on data from a 2018 survey targeting licensed saltwater anglers who had taken a trip in the past year. The survey was stratified by region—excluding Southern California due to differences in targeted species—and used a mixed-mode approach with mail and web options, along with a \$2 incentive to encourage participation. It achieved a 44% response rate from 13,500 contacts and gathered detailed data on angler behavior, demographics, expenditures, and fishing activity across 25 spatially varied regions.

The analytical approach used a generalized expected utility framework incorporating stochastic catch outcomes, income, and cost, applying a rank-dependent utility model with a probability weighting function. The study found that willingness to pay for species like king salmon, silver salmon, and halibut depended heavily on where the catch fell within the probability distribution. There was heterogeneity in how anglers distorted probabilities, with older, more experienced anglers typically overweighting their perceived likelihood of success. This behavior reflects an inverse S-shaped probability weighting, where anglers give undue importance to low-probability events. The findings highlight the importance of survey design and fisheries management must consider the diversity in angler demographics and experience.

The group was interested in understanding unionization or groupings of fishers and fishing modes (e.g., charter vs. private).

Striped Bass PDT and Amendment 3 Update

Addendum III for striped bass management addresses the ongoing challenge of rebuilding an overfished stock by the 2029 deadline. Recent management actions, including emergency measures in 2023 and the implementation of Addendum II in 2024 (with a 7% quota reduction), reflect the urgency of recovery

efforts. Addendum III will consider additional changes to both commercial and recreational measures for 2026. These include further commercial quota reductions, recreational season closures, adjusted size limits, and potential recreational mode splits (e.g., wider slots for the for-hire sector). Additional issues under review include coastwide standardization of total length definitions and the implementation of commercial tagging programs.

The socioeconomics section of this addendum highlights the striped bass fishery's complexity and diversity across states, angler preferences, and fishing modes. It provides a high-level qualitative assessment of socioeconomic considerations. For the commercial sector, quota reductions may reduce profits, but the impact will vary by individual harvester. In the recreational sector, new regulations could reduce angler effort, with potential negative repercussions for regional economies. However, these short-term losses must be balanced against long-term benefits tied to stock sustainability.

Angler behavior in response to regulatory changes—such as seasonal closures or narrower slot limits—is difficult to predict. Anglers may opt to fish for other species, shift to catch-and-release, or stop fishing altogether. Shore-based anglers may be disproportionately affected by narrower size limits if larger fish are inaccessible. A future bioeconomic model is proposed to better evaluate the trade-offs of different management options, drawing from existing tools used for other species.

Recreational data from MRIP shows a spike in striped bass removals in 2022 due to a large year class. The Chesapeake Bay (CB) region has seen declining angler effort since 2015, whereas ocean fisheries experienced a notable increase in 2022. Participation in the commercial fishery is more difficult to analyze due to variability in state-level data and the diverse nature of fisheries across the coast. In the CB, for example, the number of for-hire trips has declined since 2020 based on Maryland logbook data.

Seasonal closures raise important equity and regional timing concerns, as the impact may vary based on when and where closures occur. Data on harvest by state and wave show potential for species substitution; anglers may shift to targeting other commonly caught fish, like bluefish, mackerel (in Massachusetts), or tautog (in New Jersey). These substitution patterns are especially important in northern states, where no individual transferable quota (ITQ) system exists, such as in Massachusetts

Eel PRT Recommended Projects

The American Eel TC has asked the CESS to look into the market demand for all life stages of eel, focusing on both the food and bait markets, as well as international trade patterns. Since the 1980s, there has been a significant decline in eel landings, with yellow eel abundance indices continuing to drop. While recent landings have remained low, they appear relatively stable. According to the Advisory Panel, this trend is primarily driven by shifts in market demand rather than biological factors. Demand for wild-caught American eels from the U.S. for European food markets has diminished due to the expansion of aquaculture operations in Europe. Additionally, domestic bait market demand decreased during the COVID-19 pandemic, and historically, only a small proportion of landings have gone to bait. A rebound in landings is not expected in the near future.

The Eel TC has raised a few questions for the CESS to explore: To what extent has aquaculture replaced demand for wild-caught eels? What are the price thresholds below which fishing becomes economically unviable? Is a drop in landings due to reduced stock, or a decrease in fishing effort driven by market conditions? The committee is also interested in bait availability and pricing, both in terms of harvest and end-use. Additional questions pertain to tribal harvest levels in the U.S. and Canada, the volume of domestic versus exported harvest, and how much product flows through various U.S. ports.

From a trade perspective, the CESS was asked to provide input on the net exports of wild eel products, including exports from Haiti and the Dominican Republic, and the countries through which American eels are routed. The Committee was asked if it was possible to identify changes in trade routes, examine

food versus bait market shifts, and determine whether most eels are leaving directly from U.S. states or via interstate shipment.

The CESS advised that it would be beneficial to contact buyers and sellers to better understand market forces. Habitat destruction was acknowledged as a contributing factor to depletion of the fishery. The species is currently being considered to be added to ESA or CITES.

Next steps: J. Patel to send list of questions to J. Montanez, who may have contacts to help answer these questions, S. Lovell for data that is being bought to answer some trade questions, and S. Ebbin for her PhD student to look into the Asian import/export market for this species.

Other Business

Risk and Uncertainty

Once Red Drum projections are complete for the most recent stock assessment, J. Patel will reach out to J. Walsh to complete the risk and uncertainty tool.