

WRITTEN TESTIMONY OF

Trevor A. Branch, Ph.D.
Assistant Professor, School of Aquatic and Fishery Sciences
College of the Environment, University of Washington

HEARING ON:

West Coast and Western Pacific Perspectives on Magnuson-Stevens Act Reauthorization

Before the United States Senate

Committee on Commerce, Science, and Transportation

Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard

January 30, 2014

Good morning Chairman Begich, Ranking Member Rubio, and members of the subcommittee. I am very grateful for the invitation to speak about the progress made to date, and ongoing challenges in moving to sustainable fisheries management under the most recent reauthorization of the Magnuson-Stevens Act. I will address key elements of the Act and their impact on fisheries on the West Coast of the United States. My name is Trevor Branch and I am an Assistant Professor at the School of Aquatic and Fishery Sciences, part of the College of the Environment at the University of Washington.

Background: fisheries status and trends

Globally, we have reached the limits of what it is possible to catch from the ocean. FAO data show that marine catches peaked at 86 million tons in the mid-1990s and have since declined by 5%. Of the fisheries that produce most of the world's catch, 30% are overfished, 57% sustainably fished, and only 13% are still developing^{1,2}.

American fisheries are doing somewhat better than the rest of the world. According to the latest NOAA status report, 21% of fisheries are overfished (low abundance), while overfishing (high harvest rates) is still occurring in 12% of U.S. fisheries. These encouraging biological signs arise directly from the most recent reauthorizations of the Magnuson-Stevens Act, which requires strict rebuilding time periods for overfished stocks. However, in some fisheries these regulations have resulted in substantial economic hardship and social change.

West Coast status and trends

On the West Coast, the biological status of fisheries managed by the Pacific Council is better still. Only 11% of assessed stocks are currently overfished, while overfishing is occurring in none of 32 assessed stocks. More than 90 species of groundfish are managed by the Pacific Council, but fishing regulations are driven by eight species that are under rebuilding plans (four are still overfished): seven species of long-lived rockfish, and one flatfish, petrale sole. A full suite of regulations has been imposed to rebuild these species including closing the formerly most productive fishing areas, gear restrictions, vessel buybacks, highly restrictive annual catch limits, and most recently, catch shares.

Under catch shares, each individual is allocated quota for every species, and can trade or lease that quota to others in the fishery. In the West Coast groundfish fishery, catch shares also include 100% on-board observer coverage and 100% monitoring of landings. The rationale behind catch shares is to allow maximum fishing flexibility, allow year-round fishing, and provide strong individual incentives to avoid

overfished species. Early indications are that discards have declined for most species, revenues have increased from \$38 million to \$54 million, and catches are greatly reduced for the overfished species. One of the key issues in the fishery is the legitimate fear of a “disaster tow”, where a single large catch would put an individual out of business. In particular, the quota for both yelloweye rockfish and for cowcod is just 2,205 pounds, implying that each vessel is allocated about 20 pounds of yelloweye and cowcod for the whole year. If these quotas are exceeded, pounds must be bought or leased from others before they can continue fishing. Staying with these limits seemed unlikely, yet remarkably, the fleet only caught 6% of the yelloweye rockfish and 22% of the cowcod in 2013.

Overfishing, underfishing and “weakest-link” management

In the groundfish fishery, management has successfully focused on ending overfishing, and on rebuilding overfished stocks. The net result, however, is that rebuilding the weakest links in the fishery has led to substantial under-catching of the total allowable catches (TACs). Out of 26 stocks under catch shares, catches are within 10% of TACs for only three species: sablefish, Pacific whiting, and petrale sole; while for 11 stocks, catches are less than 20% of their respective TACs. For the average stock under catch shares, only 27% of the TAC is caught.

Therefore, although average biomass is rebuilding rapidly, and is on average above maximum sustainable levels, harvest rates are just 1% of the available biomass³. This is a much lower harvest rate than in almost any other fishery in the world. Our previous calculations suggest that catch lost due to overfishing amounts to about 3% of total sustainable yield, while lost yield from under-catching TACs amounts to about 30% of total sustainable yield³.

For this fishery, focus on rebuilding the eight overfished species has been biologically successful: rebuilding is underway, but will take many years because most of these species are extremely long-lived and slow-growing species. The tradeoff of meeting these biological targets is substantial lost revenues and profits.

The key take-home message is that **greater flexibility in mandatory rebuilding timelines** and rebuilding rates would allow for greater profits in this fishery, while overall harvest rates would still remain low.

Effects of catch-shares

Catch shares have already had a major impact on all aspects of the West Coast groundfish fishery. Discards have declined, catches are a smaller fraction of TACs, fleet sizes are likely to shrink, and profits have increased. Most of the major issues are likely to involve questions of fairness, equitability, and control. Based on many other catch share fisheries, the relative balance of power will shift towards quota owners, and away from processors, deckhands, and coastal communities. In addition, the original recipients of quota shares will benefit far more than those who buy in at a later stage.

It is inevitable that allocation issues will arise among different sectors: trawlers, fixed-gear fishers, recreational fishers, charter boats, and tribal groups. One benefit of catch shares is that they provide a market-based method of shifting quota among these groups, that should be allowed in the reauthorization of the Magnuson-Stevens Act. For example, charter boats might be willing to pay handsomely to buy quota from commercial fishers, in order to increase bag limits and fishing experiences for their clients.

Therefore, in revising the Act, consideration should be given to **whether leases and sales of quota should be allowed among commercial, recreational, charter boats, and tribal groups.**

Academic training

The 2006 Magnuson-Stevens Act requires Councils to specify annual catch limits for all managed fisheries. This has led to an increased demand for trained stock assessment scientists to conduct these basic assessments. In 2009 it was estimated that NMFS employs about 90 stock assessment scientists, but given retirements and anticipated future needs, 135-146 new hires would be needed in this field within 10 years⁴. As a result, a number of new academic posts, including my own, were created to train more PhD-level graduates. Together with my colleagues at the School of Aquatic and Fishery Sciences, we teach a sequence of seven courses aimed at training graduate students in the programming, statistical, and modeling skills required to conduct stock assessments.

However, funding for graduate students has lagged behind. The NMFS-Sea Grant fellowship program in Population and Ecosystem Dynamics funds only 2-4 students a year, and with rising tuition costs, now covers less than half of a typical four-year PhD program. In addition, academics working on relevant fisheries research rarely receive funding from the National Science Foundation (NSF), which is not allowed to overlap NOAA's mission. There used to be a joint NOAA-NSF program that funded fisheries research, and was highly successful, but this program (the Comparative Analysis of Marine Ecosystem Organization, or CAMEO) fell victim to budget delays.

This reauthorization of the Magnuson-Stevens Act should include **dedicated funds for graduate students through Sea Grant, NOAA and NSF to train and hire a new generation of stock assessment scientists** to meet NOAA's current and anticipated needs.

Data requirements

A key requirement for management of these fisheries is a long time series of fisheries-independent data. Without regular (annual) fisheries-independent surveys, stock assessments will be inaccurate and imprecise, and the science available will not be the best possible available science. Of **crucial importance is the continuation of the annual bottom trawl survey** and other surveys such as pot surveys or hook-and-line surveys that are able to sample fish in the rocky habitats that are inaccessible to the bottom trawl survey.

Summary

Compared to the world as a whole, and the rest of the U.S., fisheries managed by the Pacific Council are in better biological shape and are lightly fished. However, rebuilding plans for eight species seriously constrain catches of other species in the region, resulting in substantial lost revenue. Increased flexibility is needed in rebuilding times and in quota transfers if economics and social impacts are to be reduced. Of critical importance is continued funding for fishery-independent surveys producing the key data underlying management decisions, and increased funding to train stock assessment scientists to meet NOAA's needs.

Endnotes

- 1 FAO. *The state of world fisheries and aquaculture 2012*. (Food and Agriculture Organization of the United Nations, 2012).
- 2 Branch, T. A., Jensen, O. P., Ricard, D., Ye, Y. & Hilborn, R. Contrasting global trends in marine fishery status obtained from catches and from stock assessments. *Cons. Biol.* **25**, 777-786 (2011).

- 3 Hilborn, R., Stewart, I. J., Branch, T. A. & Jensen, O. P. Defining trade-offs among conservation, profitability, and food security in the California Current bottom-trawl fishery. *Cons. Biol.* **26**, 257-266 (2012).
- 4 Berkson, J. *et al.* Is there a shortage of fisheries stock assessment scientists? *Fisheries* **34(5)**, 217-219 (2009).