



NOAA
FISHERIES

About

In response to changing biological conditions, a rapidly developing fishery, and the deliberate and participative process of updating fishery management plans (FMPs), the North Pacific Fishery Management Council adopted Amendment 1 to the Bering Sea and Aleutian Islands (BSAI) Groundfish in May 1982 to manage the groundfish resources as a complex instead of by individual groundfish species.

The original BSAI FMP optimum yield (OY) specifications for individual groundfish species were replaced by an OY range of 1.4 million to 2 million tons for the entire complex of groundfish species per year. The upper limit of the range, 2 million tons, is referred to as the cap.

The alternative adopted for the BSAI OY was conservative and based on a range (1.4 to 2 million tons) to allow for flexibility with changes in the ecosystem. Within the BSAI complex, each target species—and species included in the “other species” category—are given a total allowable catch limit. This limit is specified annually by the Council and approved by NOAA Fisheries. The limits are designed to:

- Maximize sustainable yield
- Consider socioeconomic impacts
- Reduce the risk of exceeding directed and incidental catch limits
- Consider ecosystem considerations and impacts
- Meet distributional objectives and mandates

Ecosystem-Based Management

Bering Sea and Aleutian Islands Optimum Yield Range for Groundfish Species



Groundfish in Alaska. Credit: NOAA Fisheries.

What Worked

This particular approach has worked well in Alaska for a few key reasons. When deciding whether to adopt this approach, consider the following:

- Portfolio-based approach (as opposed to single species OY) to management has required some species to be fished at lower harvest rates than could otherwise occur, which may create stability in the system as whole. Consider whether the region can support portfolio-based management: Alaska has a single state government and single Council to deal with, and most fish stay in the Alaska exclusive economic zone.
- The Bering Sea is data-rich for the major species that account for most of the biomass in the fishery (i.e., Pacific cod, flatfish, and pollock), which has helped in adjusting the total allowable catch for each stock within the cap.
- For regions that may implement a similar cap, it is important to consider the level of data available when allocating to complexes or stocks under that cap.

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What Worked Continued

Holsman et al. (2020) found that, without the 2 million ton cap, there were projected declines in all species of fished spawning stock biomass.

According to the 2016 FMP, “except in years of very low pollock abundance, catches have remained within the OY cap range. The total BSAI catch of all species has ranged from a low of 1.3 million tons in 1983 to 1.98 million tons in 2006.”

The cap greatly reduced the variability in the sum of groundfish total allowable catch limits. This provides extended planning horizons for the fleets, financiers, and regulators, which has resulted in increased stability due to the expected status of the resource. It may prevent declines in biomass and catch under climate change and provide fisheries and fishermen a critical window of opportunity to prepare for and adapt to change.



Pollock. Credit: NOAA Fisheries.

What Didn't Work

- The OY range is based on average catches from 1968 to 1977, was set in statute in 2005, and therefore lacks flexibility to adjust the cap based on new data.
- The total allowable catch limit set for some species has constrained the catch that may have been achieved if the cap was set higher.
- The OY range only applies to groundfish and not other targeted species within the ecosystem.
- Other constraints (e.g., halibut bycatch limits in flatfish fisheries) have hampered the flexibility to attain the OY range during periods of lower pollock abundance.



Amendment 80 vessels in the port of Dutch Harbor, Alaska. Credit: NOAA Fisheries.

Benefits

The OY range has:

- Constrained the total allowable catch limit in some years
- Provided stability in terms of catch, revenue, and regulatory demands
- Provided an additional buffer against any overfishing
- Resulted in increased overall fisheries value for this region
- Dealt with trade-offs across species targeted directly (versus letting them be implicit but never addressed)



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