



**NOAA
FISHERIES**

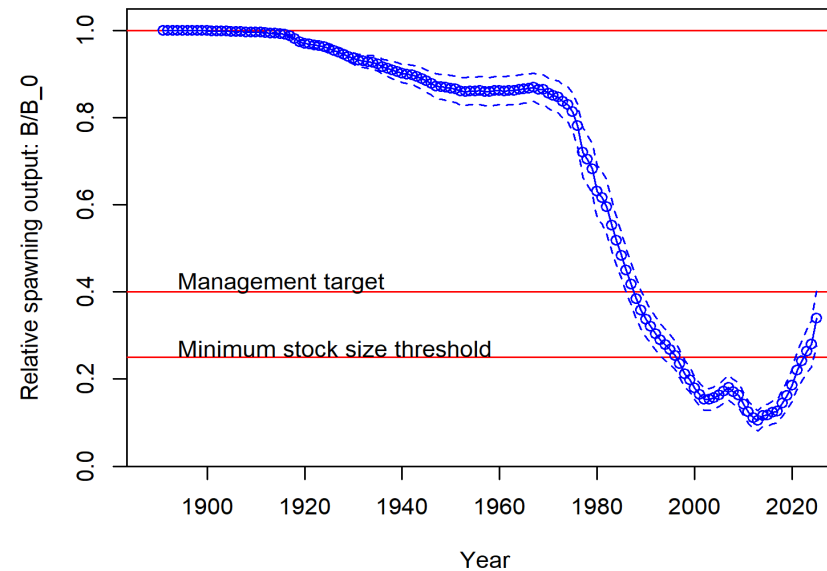
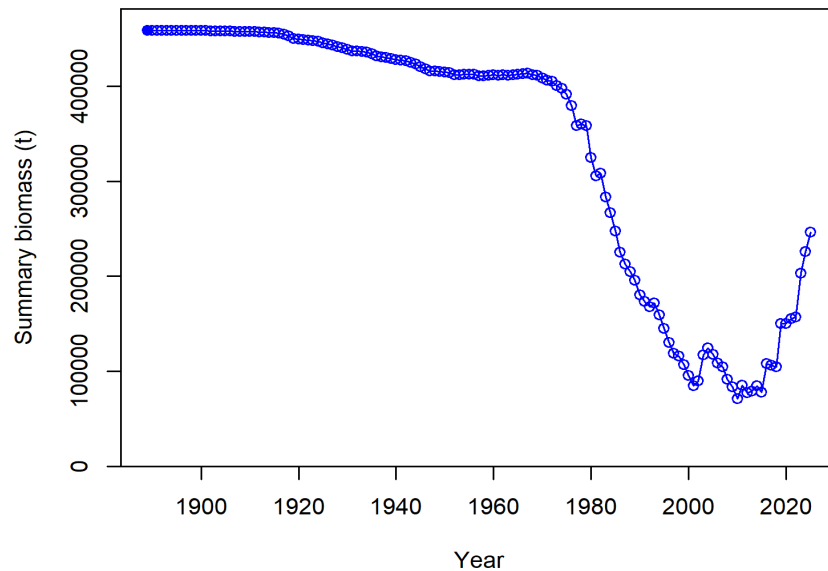
Status of sablefish (*Anoplopoma fimbria*) off the U.S. West Coast in 2025

Sablefish Stock Assessment Team

August 13, 2025

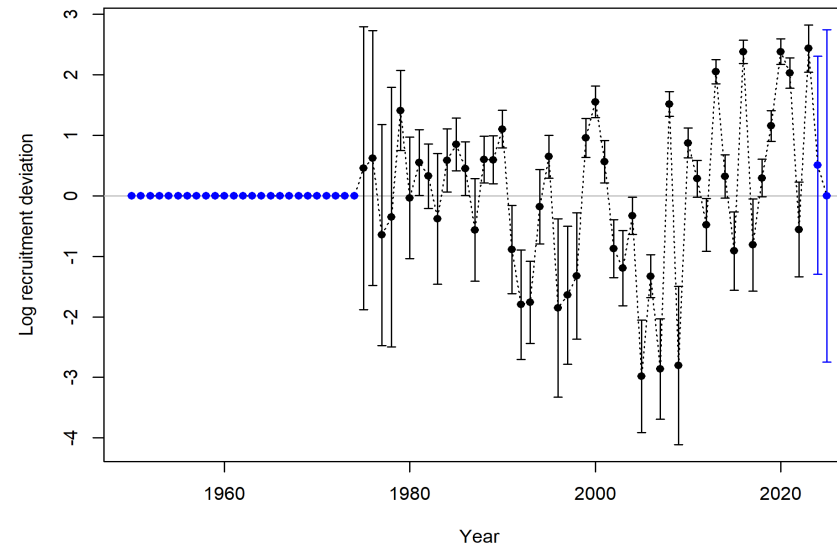
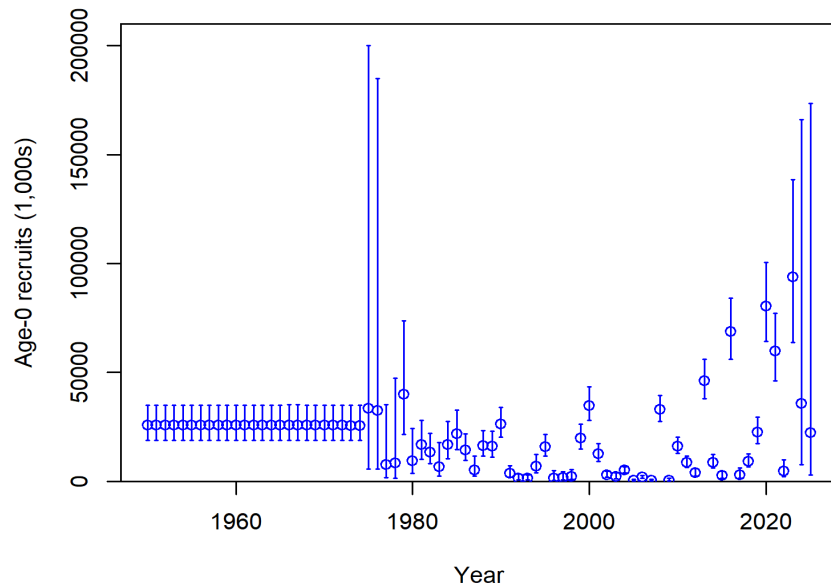
Stock Size and Status

- Age 3+ summary biomass in 2025: 246,677 mt
- Stock status in 2025: 33.9%
- Stock status is projected to be above 40% in 2027



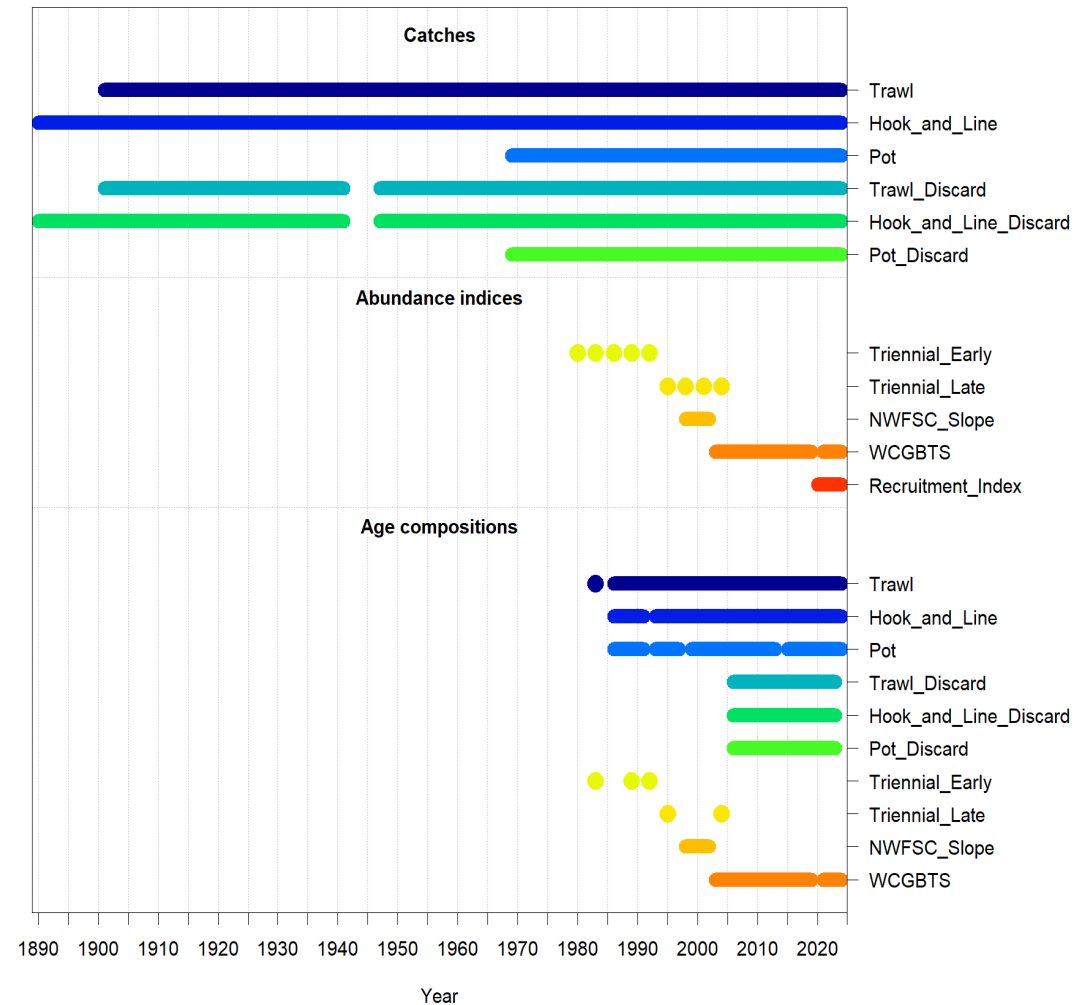
Recruitment

- Years with highest positive recruitment deviation: 2023, 2020, and 2016
- Years with lowest negative recruitment deviation: 2005, 2007, and 2009
- Strong recruitment at the end of the time series driving the stock up



Data and Model Structure

- Six fishery fleets
 - Removals, retention and discard fleets
 - Age compositions
- Four survey fleets
 - Abundance indices
 - Age compositions
- One recruitment index
- Empirical weight-at-age (2003–2024)

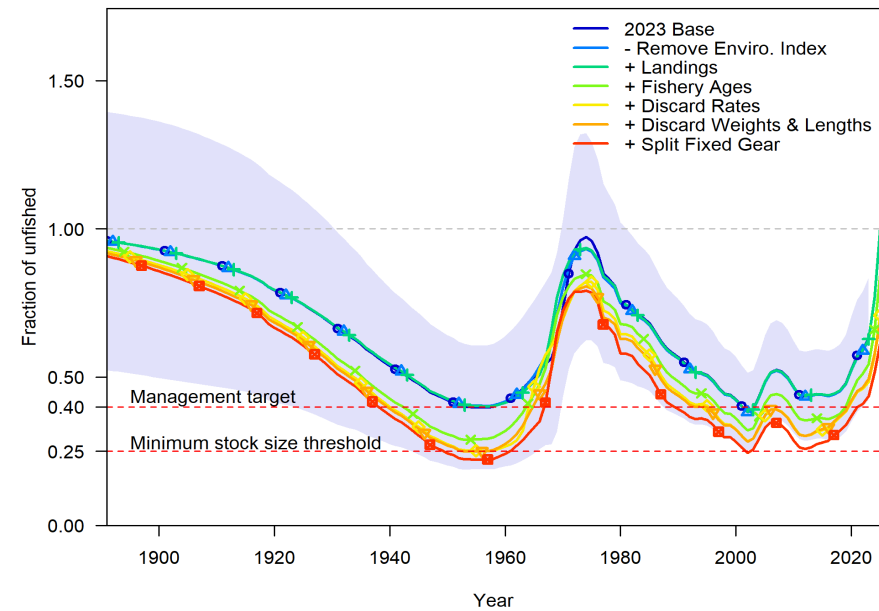
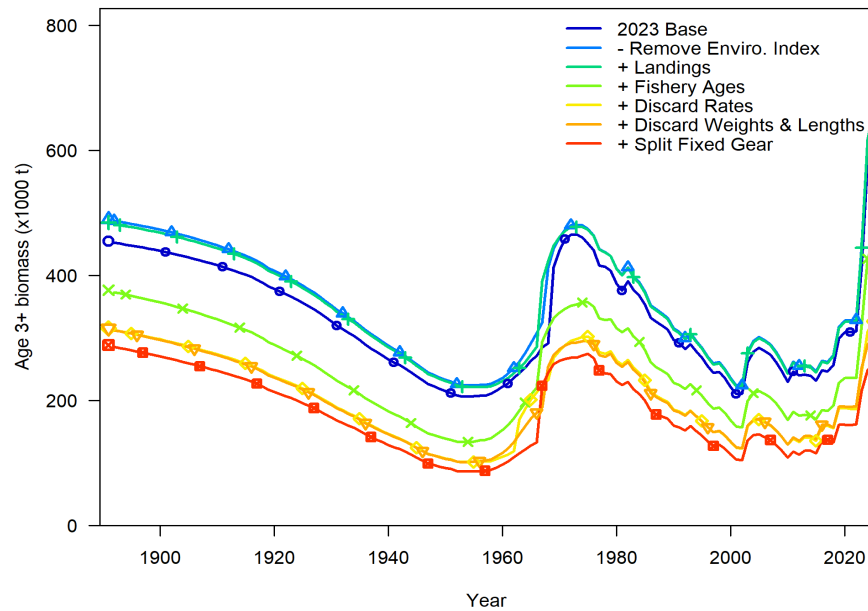


Major Changes Since 2019

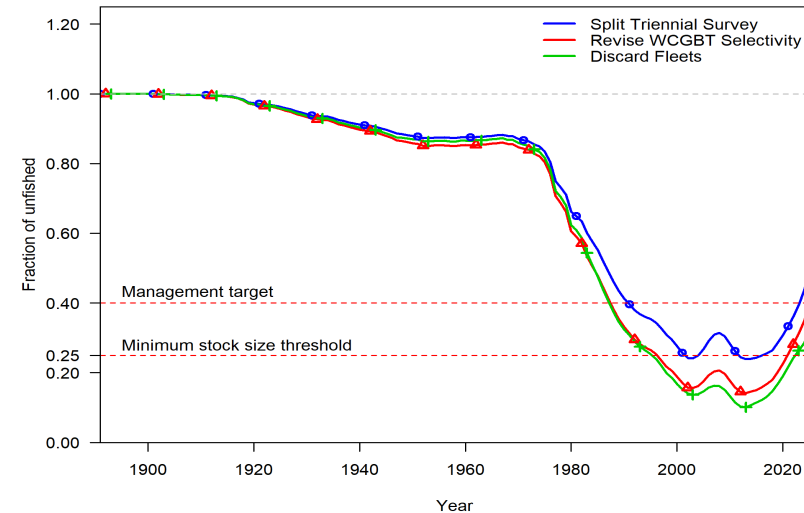
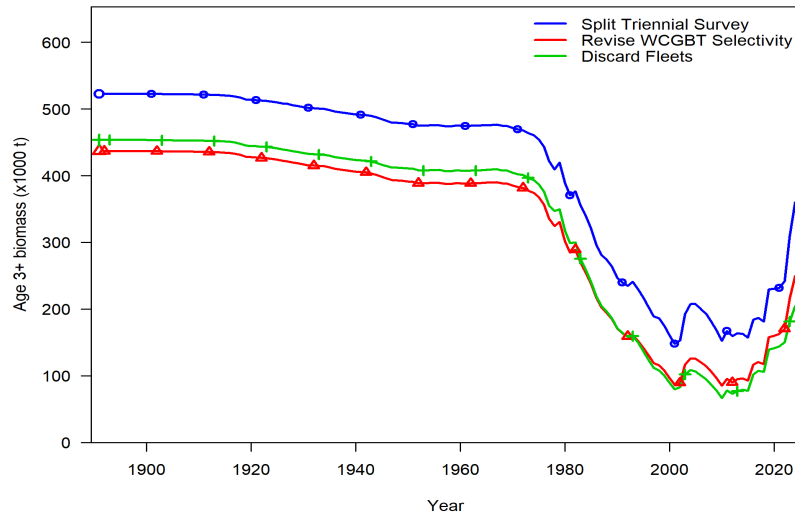
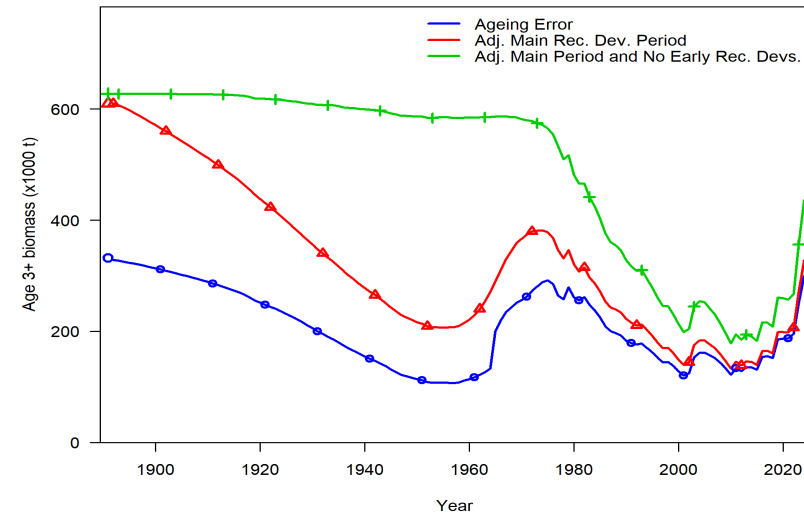
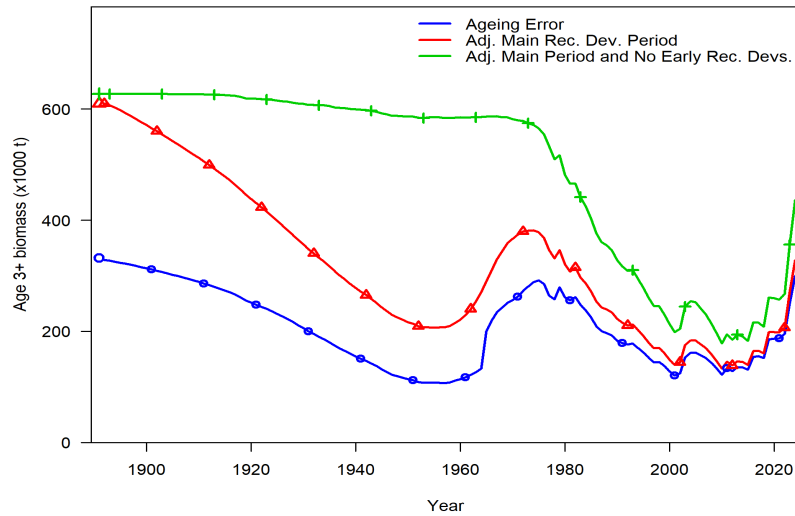
- Include retained and discard fleets to account for total mortality and improve model stability (i.e., do not estimate retention within the model)
- Improved estimates of removals: landing and discard mortality
- Inclusion of additional historical age data (1983-2010) primarily collected in Oregon from trawl gear
- Estimate annual recruitment deviations starting in 1975 with deterministic recruitment from 1890–1974
- New data for maturity-at-age, empirical weight-at-age (2003–2024), and environmental recruitment index from 2020–2024
- Modified data treatment by splitting the Triennial Survey into early and late and remove data from select years and removing the AFSC Slope Survey due to non-representative sampling of lengths for age data

Select Data Bridging

- Select data bridging steps - all bridging steps are shown on pages 166-173 in the report.
- Including additional historical ages resulted in a reduction in overall stock size and a more depleted population.

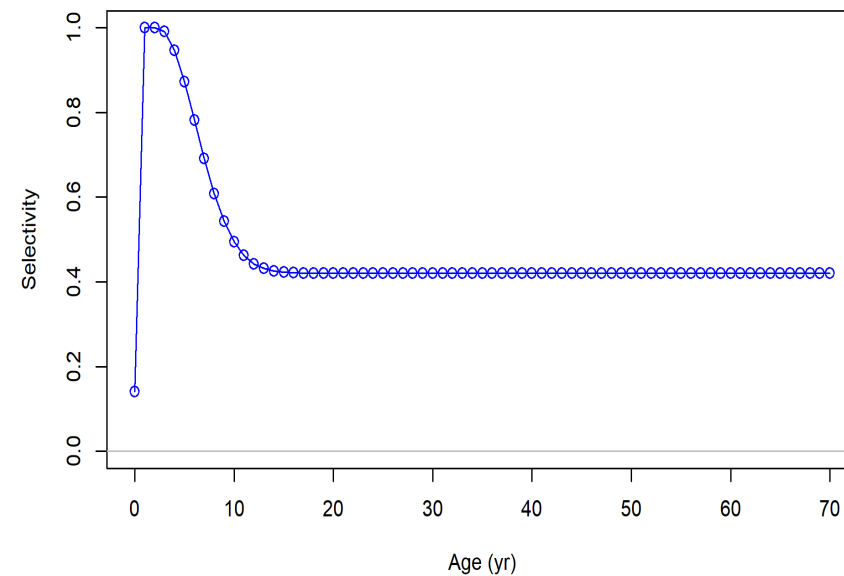
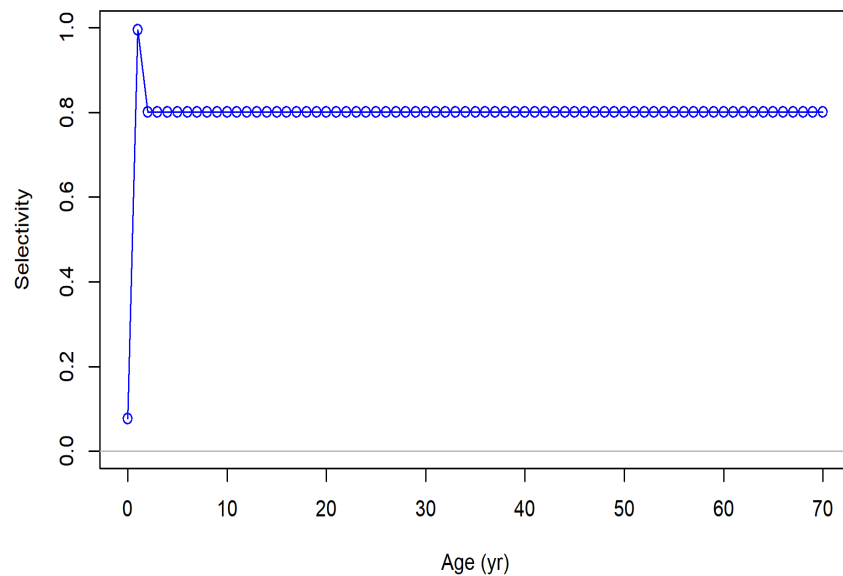


Select Model Structure Bridging

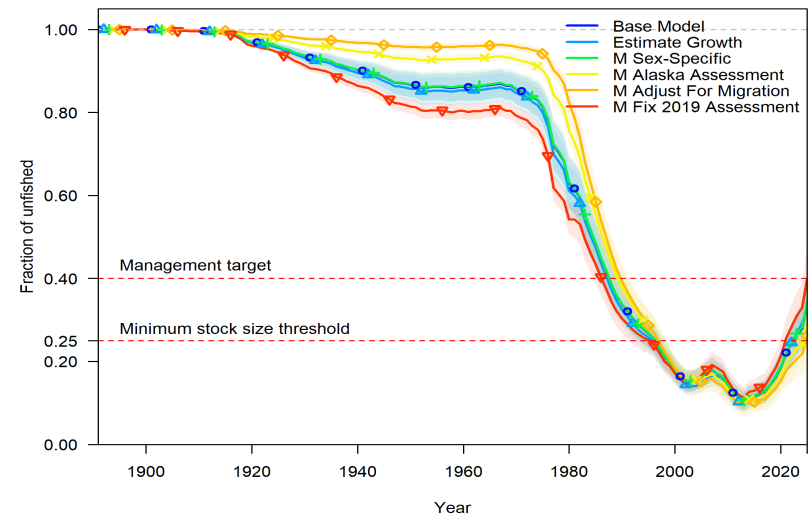
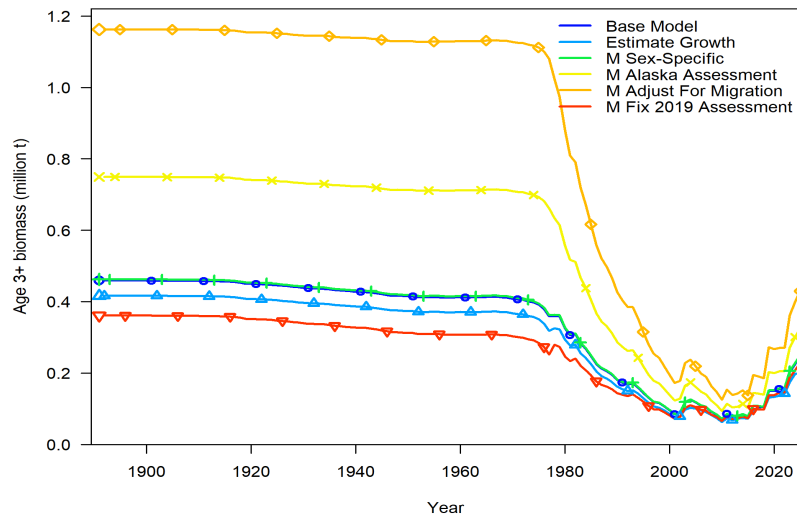
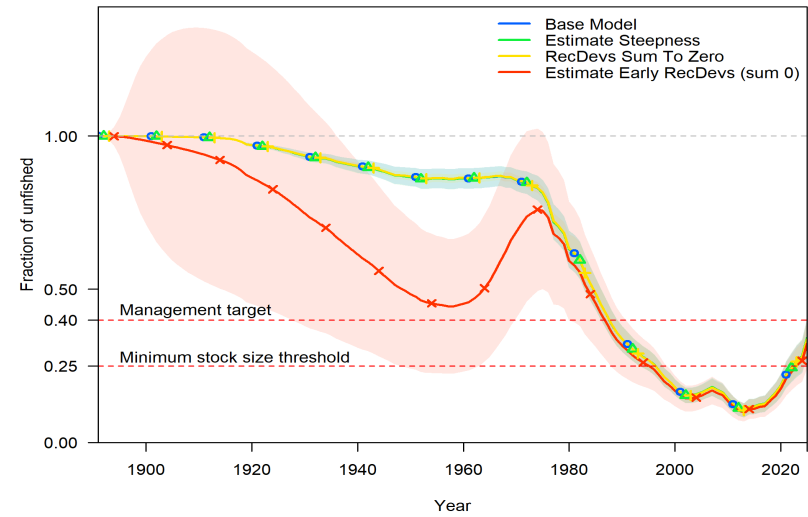
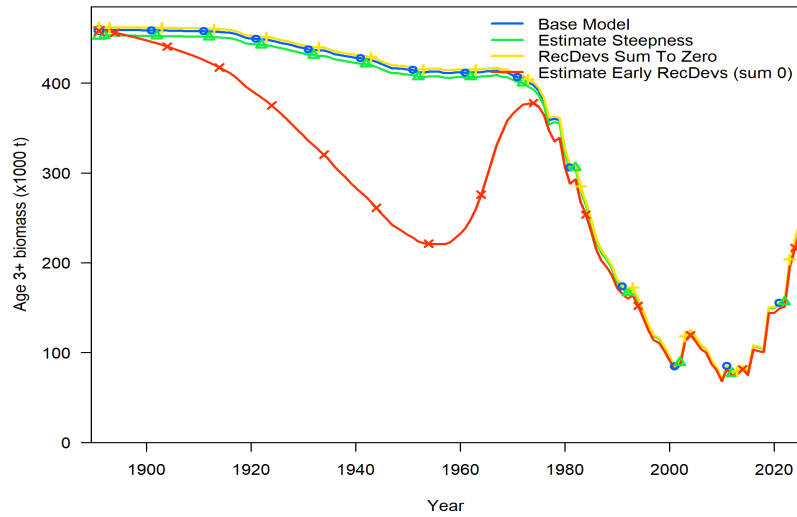


WCG BTS Selectivity

- Selectivity remains age-based and equal for both sexes
- Estimated selectivity from the 2025 assessment (left) compared to the selectivity from the 2023 assessment (right)



Select Sensitivities

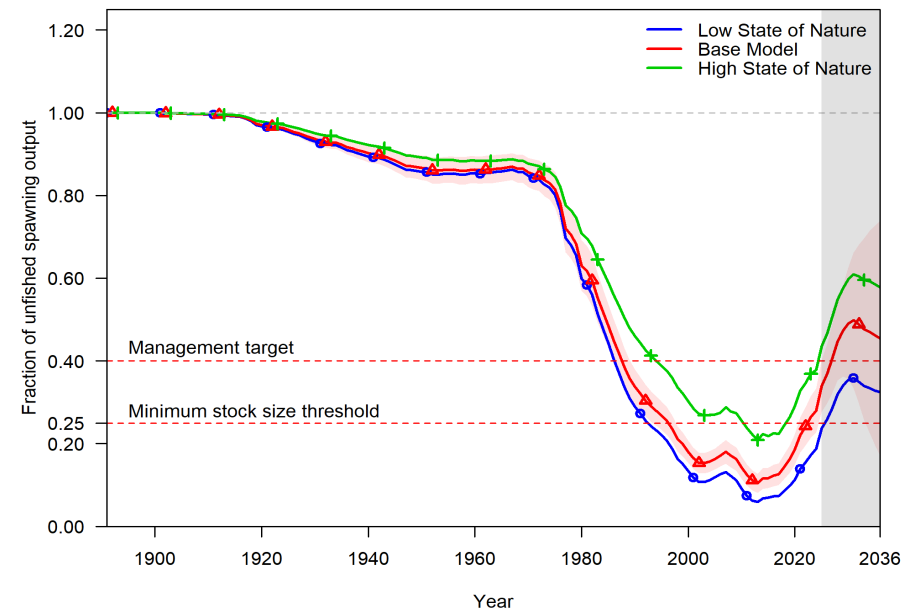
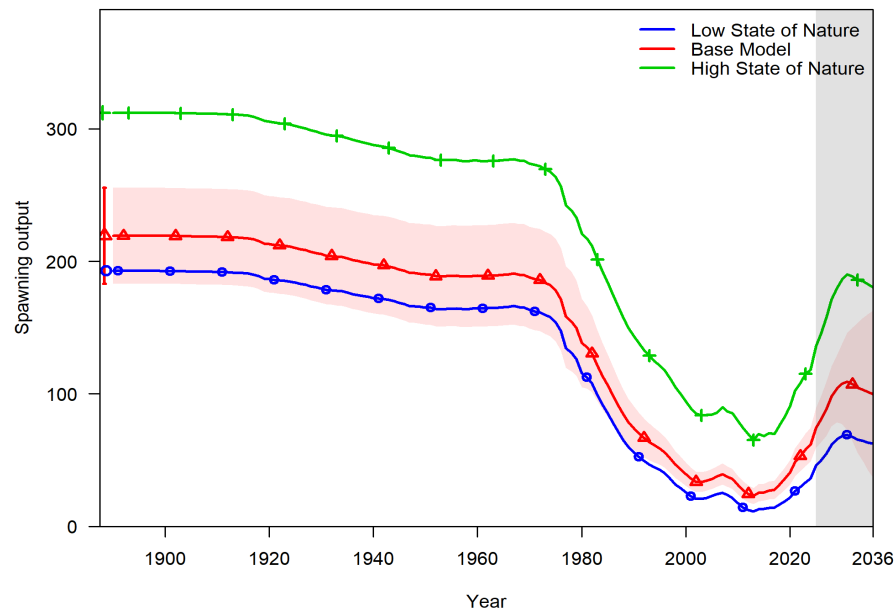


Major Issues

- Sablefish have latitudinal trends in biology across the U.S. West Coast. The assessment employs a biomass-weighted approach for maturity and weight-at-age to account for variation north and south. However, variable biology is still a source of uncertainty for the assessment.
- The assessment treats the portion of sablefish off the U.S. West Coast as a closed population. However, based upon tagging data sablefish are known to move across management regions, with recent research estimating that emigration rates to Canada likely exceed immigration rates for the U.S. West Coast.
- Moving to an age-based model resolves data conflict (lengths, ages), but results in a model that is heavily dependent upon future age data collections and understanding of ageing error and bias in age reading.

States of Nature

- States of nature run in a deterministic manner
- The base state of nature estimated a natural mortality of 0.088 yr^{-1} , the low state of nature assumed a natural mortality of 0.095 yr^{-1} , and the high state of nature assumed a natural mortality of 0.070 yr^{-1}



Risk Table

NEUTRAL: Ecosystem & Environmental Conditions	FAVORABLE: Stock Assessment Data Inputs	FAVORABLE: Stock Assessment Model Fits & Structural Uncertainty
<p>Recruitment: Index accounted for under assessment data. [Not Scored]</p>	<p>Catch: Reconstructions are generally reliable. [Neutral]</p>	<p>Ages: Fit well with realistic selectivity assumptions. Estimates of recent recruitment is based on age data and recruitment index. [Favorable]</p>
<p>Habitat: Sablefish distribution shifted 2° N, related to recruitment. [Unknown]</p>	<p>Survey: Confident in design of WCGBTS to monitor population well. [Favorable]</p>	<p>Life history: Natural mortality estimated, steepness fixed, and latitudinal variation in maturity, growth, and other biological processes partially captured. [Neutral]</p>
<p>Prey: Indicators for adequate forage for sablefish in recent years. [Favorable]</p>	<p>Recruitment: Informative but uncertain environmental index available for recent 5 years. [Neutral]</p>	<p>Spatial Structure: Uncertainty with biological stock boundaries, including movement across the Northeast Pacific. [Unfavorable]</p>
<p>Predators: Main groups not changing much (on average) but sea lions increasing in recent years. [Neutral]</p>	<p>Ages: Well sampled and data available beginning at age 0. Known challenges and uncertainty in ageing. [Favorable]</p>	<p>Model Stability: Improved with consistent performance across many data and structural changes. [Favorable]</p>
<p>Competitors: Some competition between Pacific hake and sablefish for euphausiids. Recent large recruitments increase the chance for competition among other sablefish cohorts. [Unfavorable]</p>	<p>Biology: Time-varying growth used with empirical weight-at-age data integrated across spatial domain of stock. New estimates of function maturity available. [Favorable]</p>	

At-a-Glance



NOAA FISHERIES

Northwest Fisheries Science Center

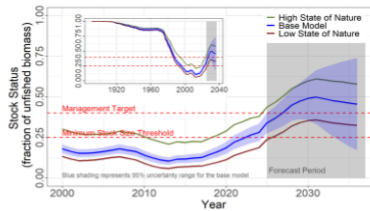
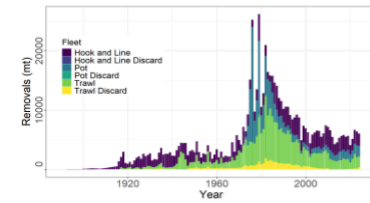
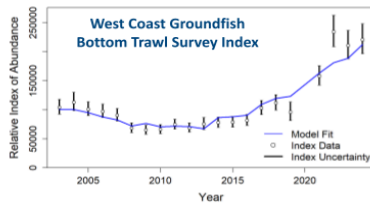
AT-A-GLANCE



U.S. West Coast Sablefish in 2025

Data and Stock Assessment Model

This assessment reports the status of the sablefish (*Anoplopoma fimbria*, or 'black cod') resource off the coast of the United States (U.S.) from southern California to the U.S. - Canadian border using data through 2024.



Key Takeaways

- At the start of 2025 the estimated stock status is 34%, the stock is in the **precautionary zone**.
- The **stock is not overfished** and overfishing is not occurring.
- Several very high **recent recruitment cohorts** are approaching maturity, but most are not yet contributing to spawning stock.
- Stock size and status is **projected to increase over the next seven years**, reaching the management target by 2027, even with projected catch considerably higher than recent average catch.

Base Model Removals & Stock Projections

Year	Removals (mt)	Spawning Output (mt)	Stock Status (target = 40%)
2024	6,030	61,505	28%
2025	19,114 ^a	74,409	34%
2026	13,964 ^a	80,877	37%
2027	13,964 ^b	88,838	41%
2028	15,103 ^b	98,185	45%
2029	14,720 ^b	103,869	47%
2030	14,094 ^b	107,603	49%
2031	13,437 ^b	109,277	50%

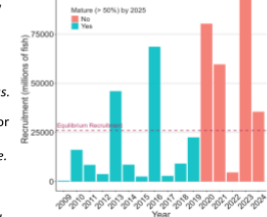
^a Based on Groundfish Management Team Recommendations for Forecasting
^b Annual Catch Limit (ACL) from the harvest control rule with P^* of 0.45

Major Changes From Recent Assessments

Despite the overall scale of the population increasing by 18% in this assessment compared to the 2023 assessment, estimates of stock status are lower than what was projected by the 2023 assessment. **Why?**

- The identification and use of many additional historical ages collected from the commercial fishery between 1983-2000, primarily collected in Oregon. *This changed the historical stock trajectory and resulted in a more depleted stock status.*
- Restricted the flexibility in the model to estimate annual recruitment strength prior to informative age data (pre-1975) and increased flexibility since then to estimate low and high recruitment years. *This resulted in an increase in estimated stock size.*
- Based upon additional data, the 2020 and 2021 recruitments are estimated to be large but smaller than the estimates from the 2023 assessment. This assessment also estimates a large but uncertain 2023 recruitment. *This reduced the projected harvest limits compared to the previous assessment.*
- Switched from estimating a single growth function by sex to the use of empirical weight-at-age data to directly account for variable growth by age, sex, year, and area across the West Coast. *This had only a negligible effect on stock size and status but improved model stability.*
- The ability of the West Coast Groundfish Bottom Trawl Survey to sample fish of different ages when present (i.e., selectivity) was updated with new data, suggesting 80% of age-2 and older sablefish are captured when encountered. *This resulted in a lower estimate of stock status.*

Recent Recruitment Strength (2009-2024)



The five largest recruitment events across the time series have occurred since 2013, three of which (2020, 2021, and 2023) have yet to reach spawning age.

View all groundfish stock assessments



Risk Table: ecosystem and assessment factors influencing scientific uncertainty

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Risk tables are a pilot effort to combine information about environmental and ecosystem conditions not included in the assessment with data and modeling considerations to inform scientific uncertainty decisions by the Council's Scientific and Statistical Committee. Score categories include unfavorable, neutral, or favorable for each column.

