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FISHERIES

2025 Groundfish Stock Assessment Summaries

Northwest and Southwest Fisheries Science Centers

September 20, 2025

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Overview

- Benchmark Assessments
 - Yellowtail Rockfish North of 40°10' N. latitude
 - California Quillback Rockfish
 - Chilipepper Rockfish
 - Sablefish
 - Rougheyeye/Blackspotted Rockfishes
- Update Assessments
 - Yelloweye Rockfish
 - Widow Rockfish (in progress)



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Yellowtail Rockfish North of 40°10' N.

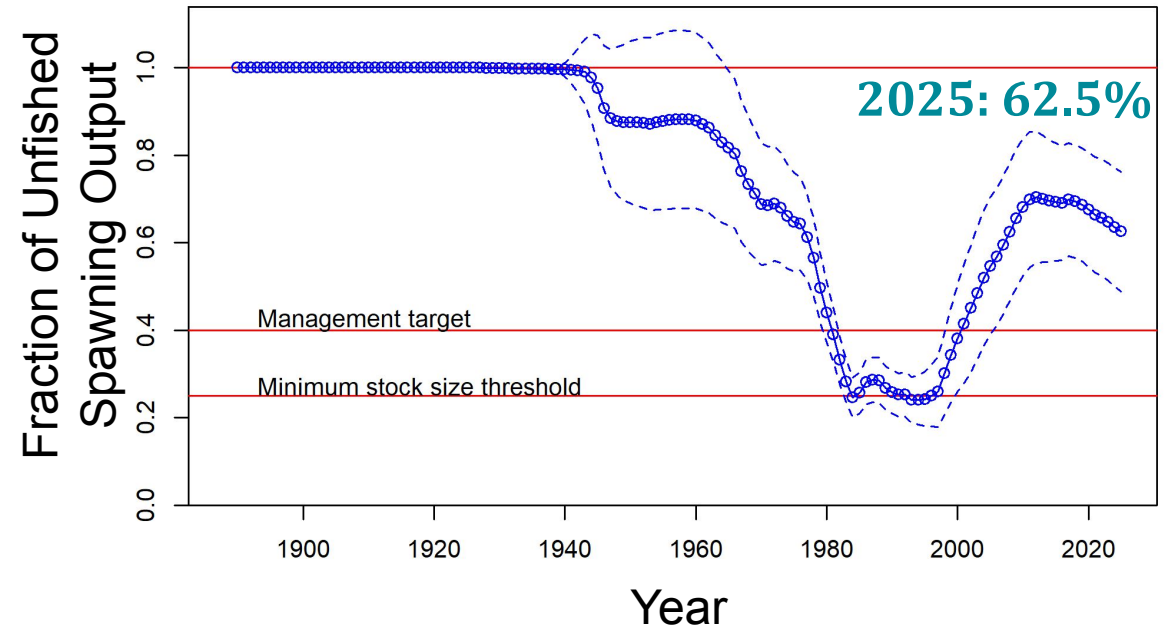
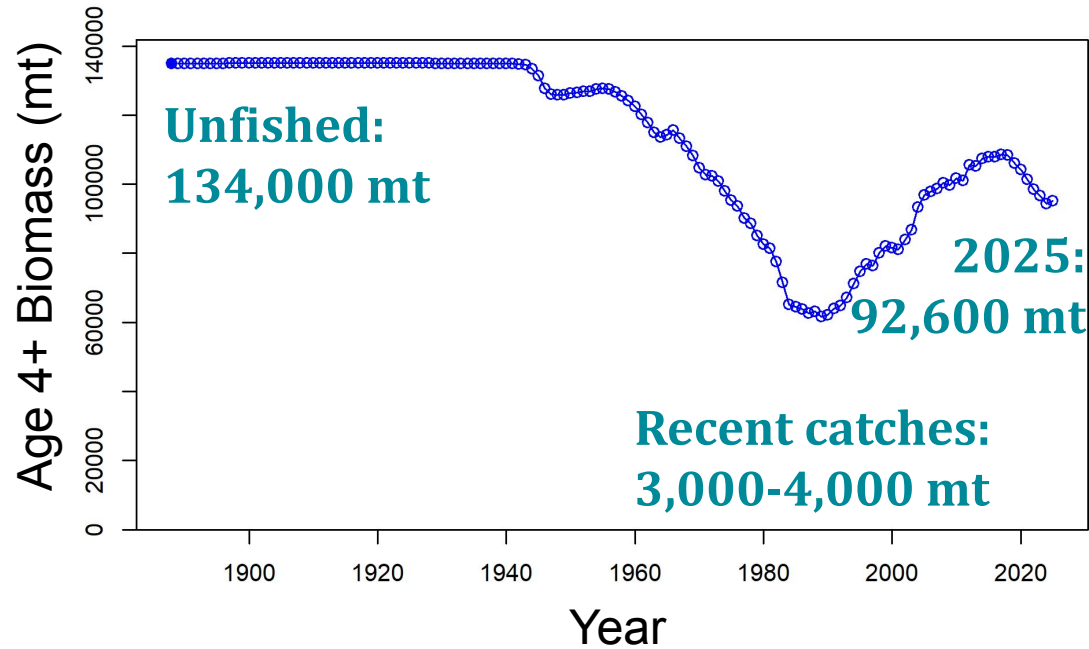
Kiva L. Oken¹, Ian G. Taylor¹, Megan L. Feddern¹,
Alison D. Whitman², Fabio P. Caltabellotta³

¹NOAA Fisheries, Northwest Fisheries Science Center, Seattle, WA

²Oregon Department of Fish and Wildlife

³Washington Department of Fish and Wildlife

Key assessment outputs

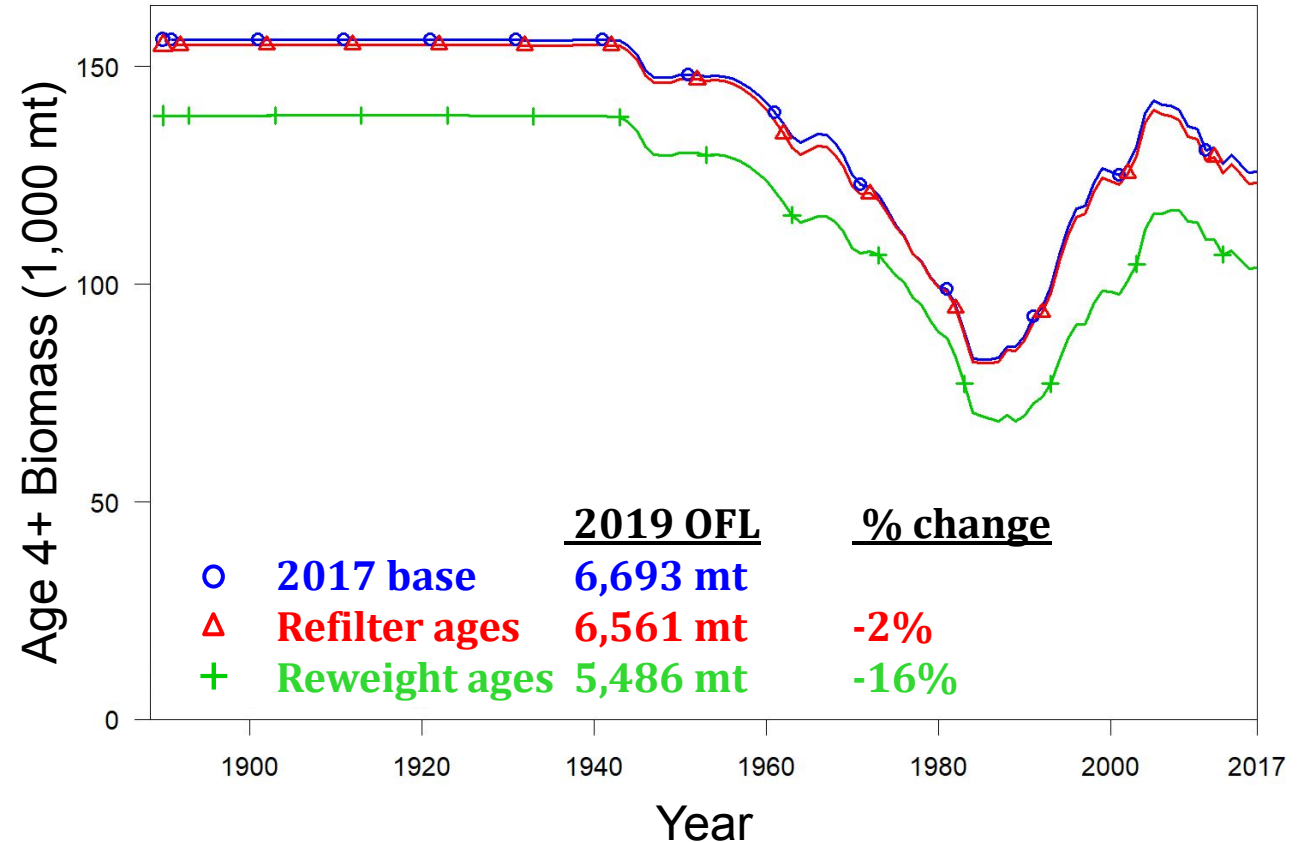


- Catches have increased since 2017 with the growing midwater trawl fishery, but have been sustainable
- 2027 OFLs are 13% lower than 2024, 26% lower than 2025

Why are OFLs going down?

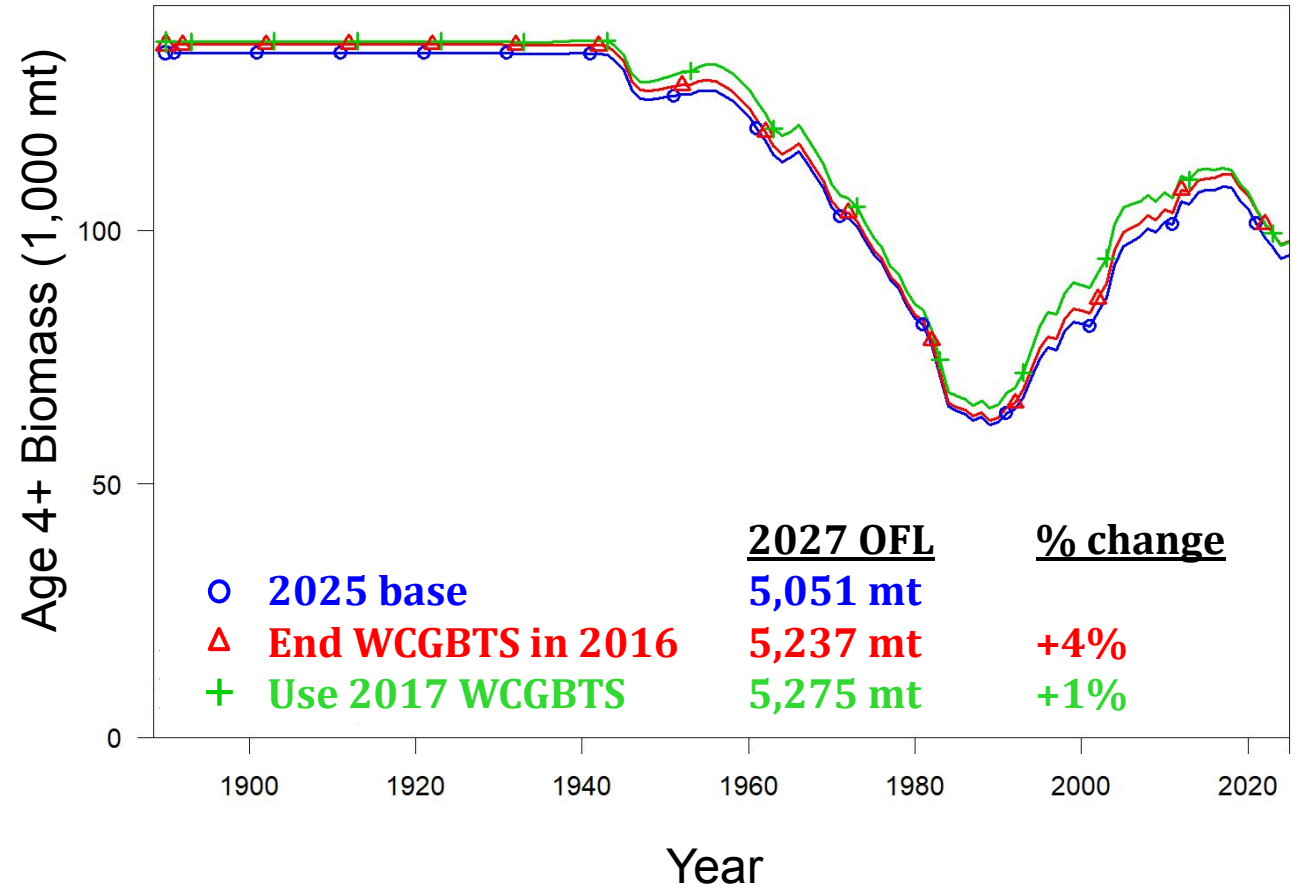
- **Reprocessing of commercial age data** used methods recommended by the SSC GFSC that weight an individual sample based on the amount of catch it represents.

- Samples from a trip that collected many samples but had little catch will be weighted less than samples from a trip that caught a lot of fish but collected few samples.
- This led to relatively **more older fish and fewer younger fish** in the age frequencies, resulting in a decrease in natural mortality and stock size.



Why are OFLs going down?

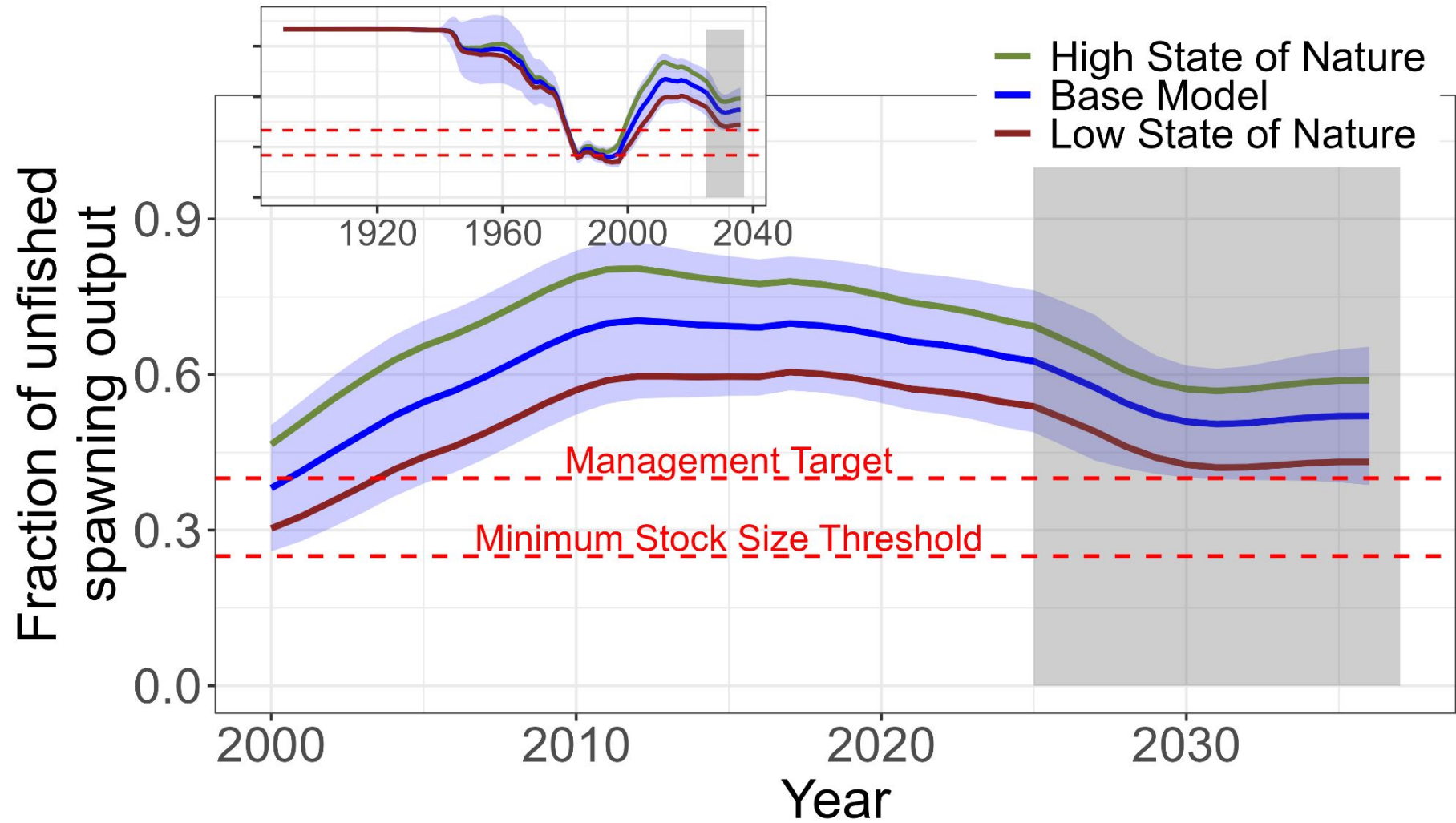
- Extending the WCGBTS from 2016 to 2024 also **led to a more moderate decrease in OFLs**
 - Longer survey index pulls natural mortality down
 - Model struggles to fit elevated index from 2014-2019



Other model changes with less influence

- **Catches:** Added foreign catches from 1966-1976, new OR recreational reconstruction, more accurate representation of discards
- **Indices:** New combined OR/WA hook and line index + length data, new recruitment index
- **Structure:** One recreational fleet instead of separate fleets for WA and OR/CA, Recreational selectivity curves
- **Biology:** Additional ovaries analyzed, changed from length-based to age-based maturity

Model uncertainty and projections



Questions?

Key Takeaways

- At the start of 2025, the estimated stock status is 63%, which is **above the target**.
- The **stock is not overfished** and overfishing is not occurring.
- Catches increased substantially beginning in 2017 with the rapid development of the midwater trawl fishery, but have been sustainable.
- A new recruitment index was elevated in 2021, indicating the possibility of a strong year class entering the fishery soon. This potential is included in the assessment forecast.

Source: At-a-Glance



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California Quillback Rockfish

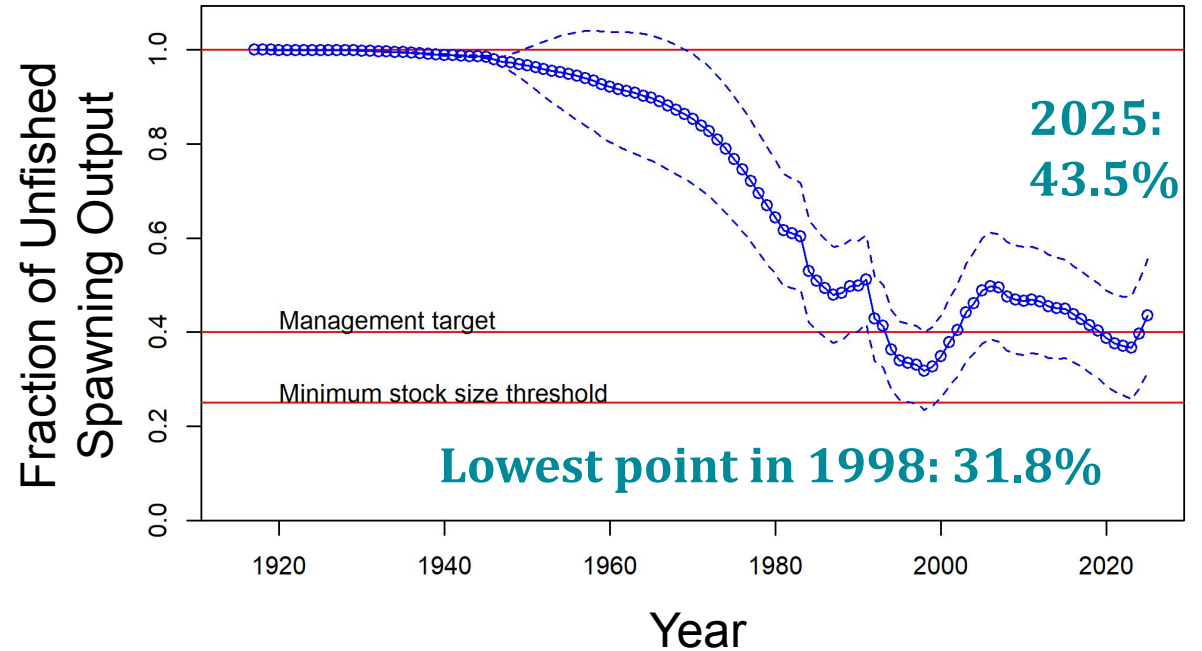
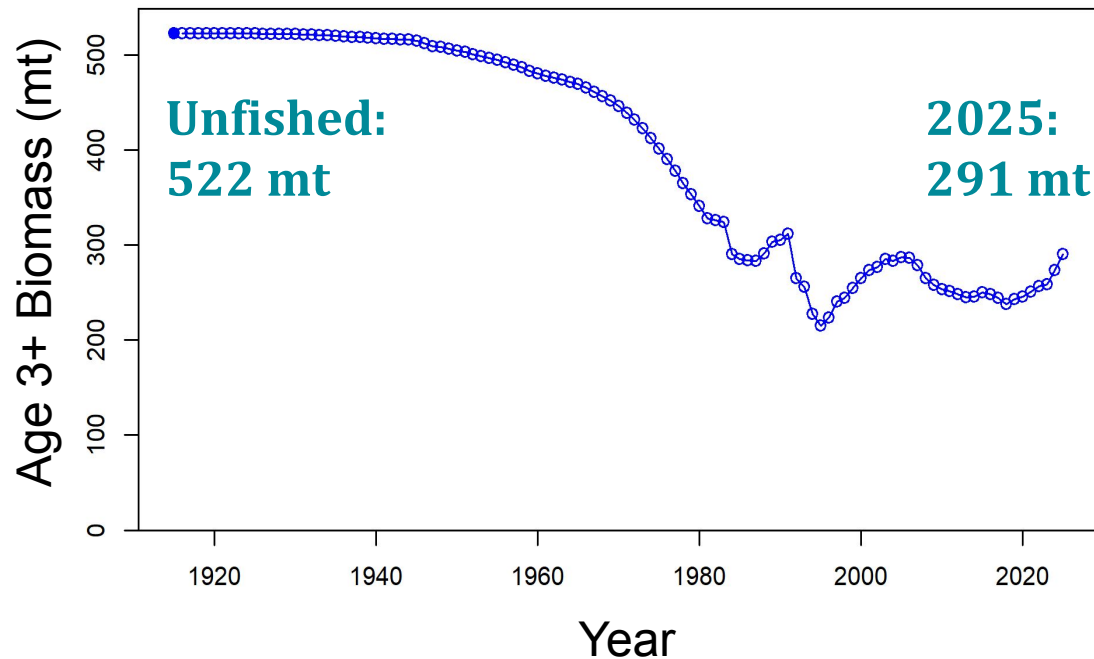
Brian J. Langseth¹, Melissa M. Monk², Julia Coates³

¹NOAA Fisheries, Northwest Fisheries Science Center, Seattle, WA

²NOAA Fisheries, Southwest Fisheries Science Center, Santa Cruz, CA

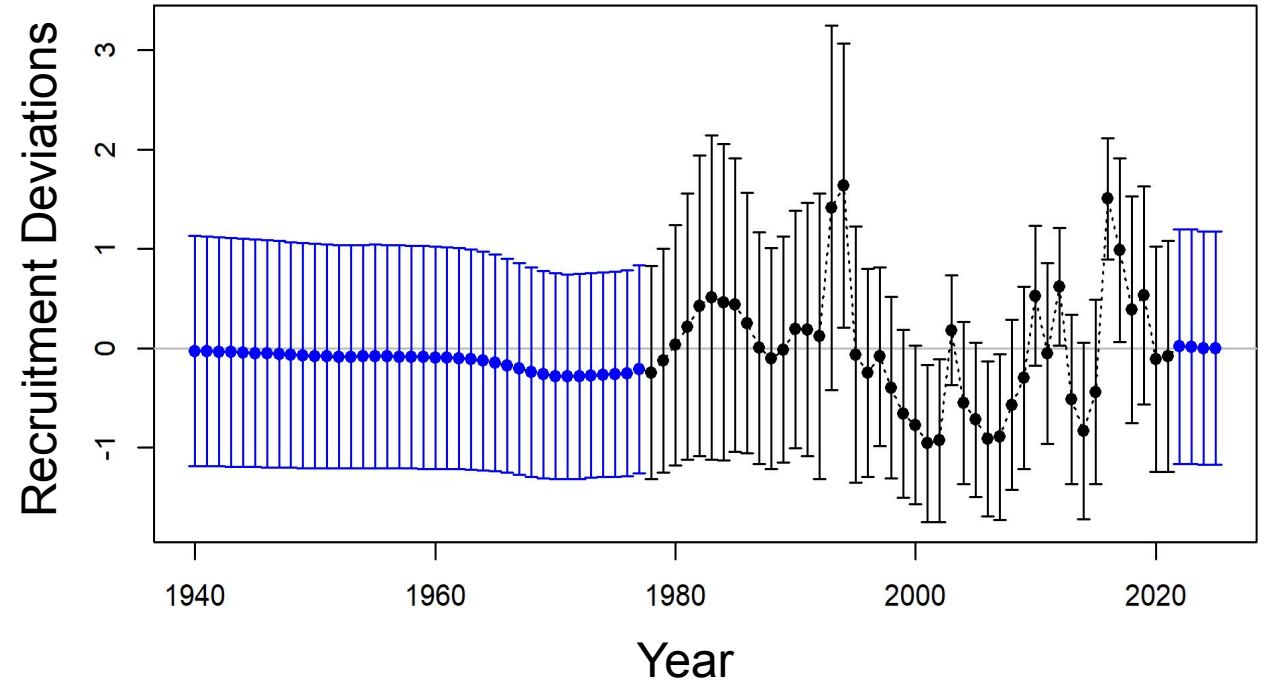
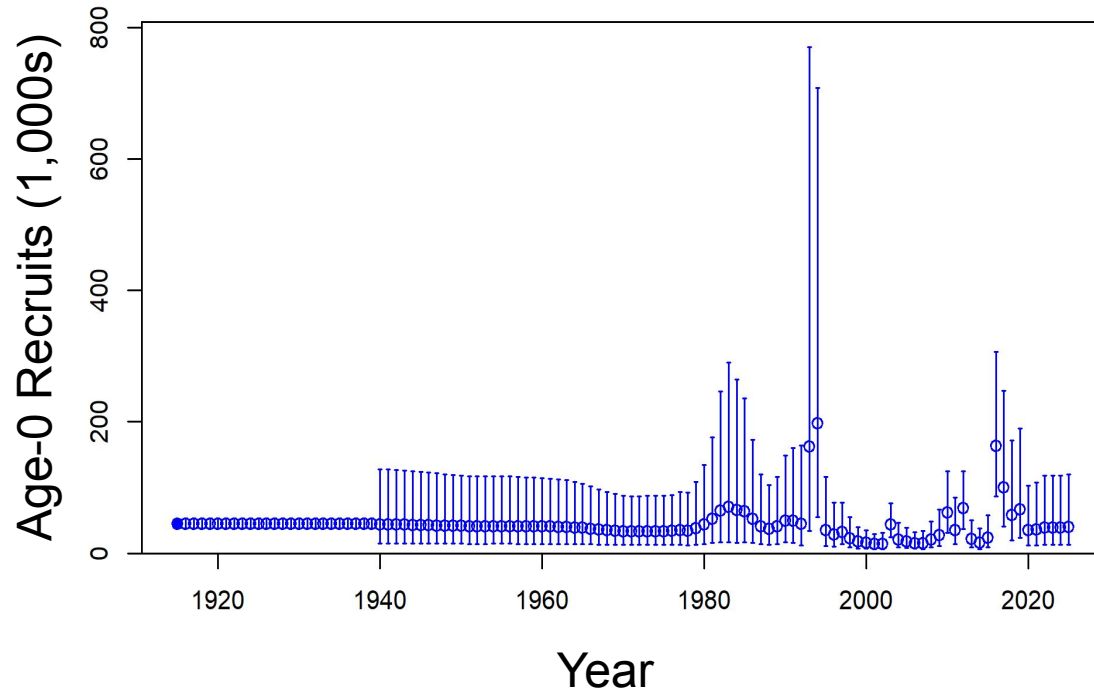
³California Department of Fish and Wildlife Marine Region, Santa Barbara, CA

Key assessment outputs



- Catch + length + age + index integrated model
- New biological information updated our understanding of quillback rockfish dynamics, leading to higher estimates of population size compared to 2021 assessment

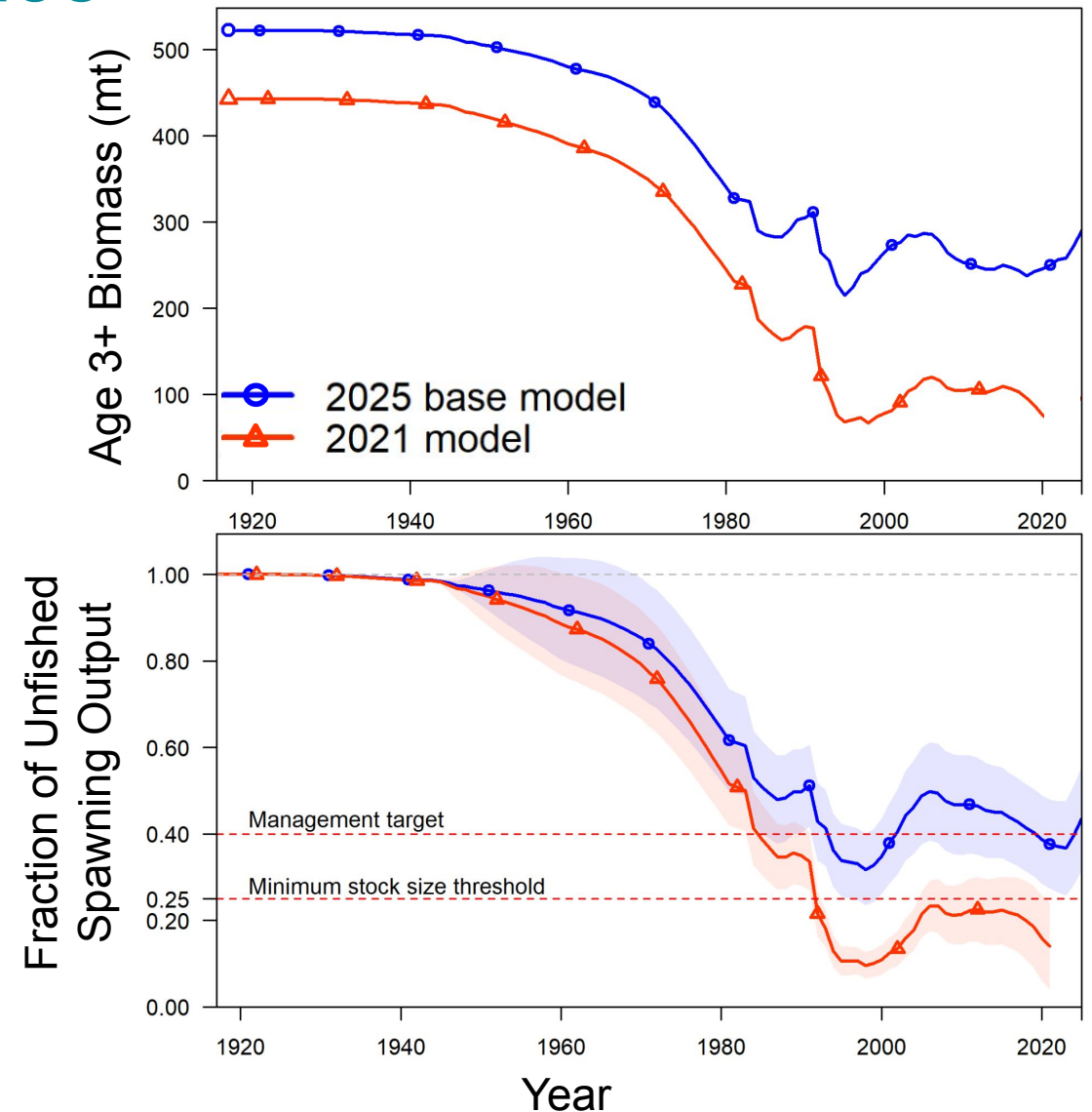
Key assessment outputs



- Recruitments in 1993-1994 and 2016-2019 contribute to population increases

Trajectory has changed since last assessment. **Why?**

- Changes to productivity (growth, natural mortality) were key drivers of change from 2021 assessment
- Assumptions about productivity (use of age data and natural mortality) were key uncertainties in 2025 assessment



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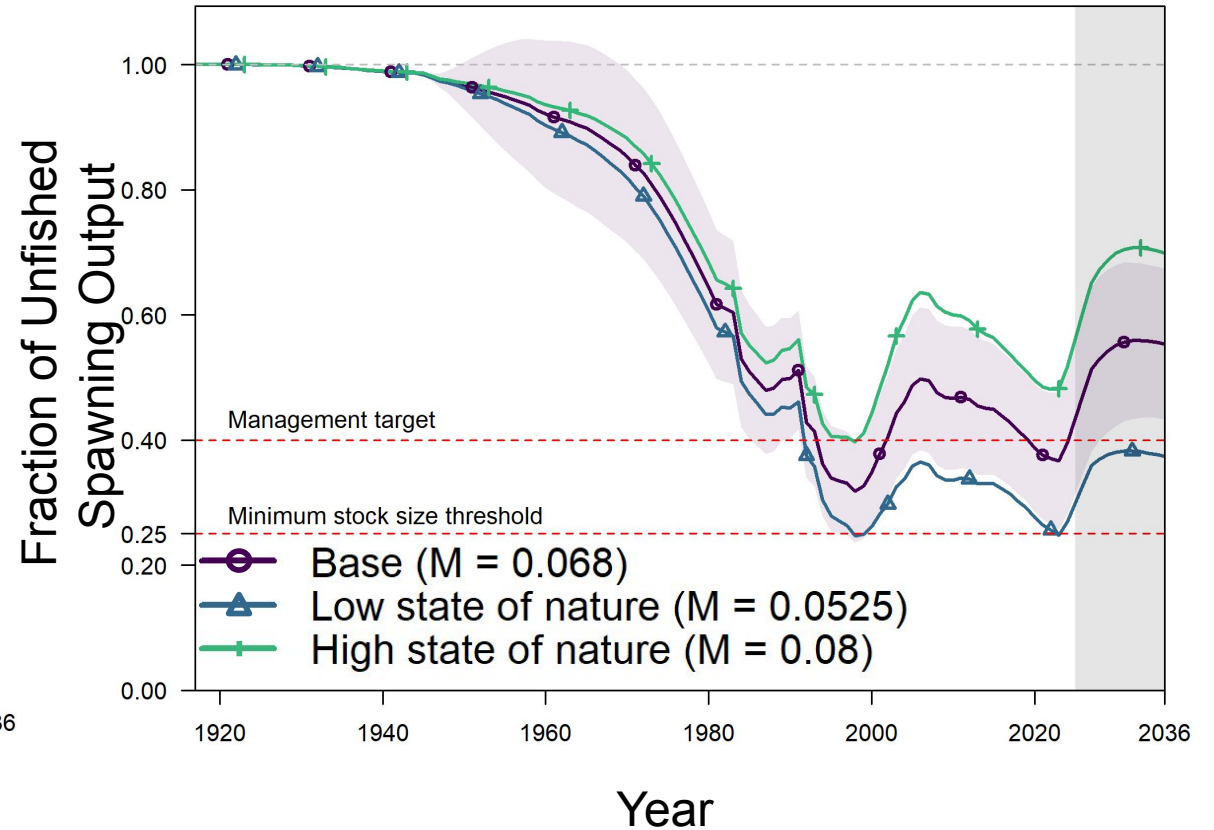
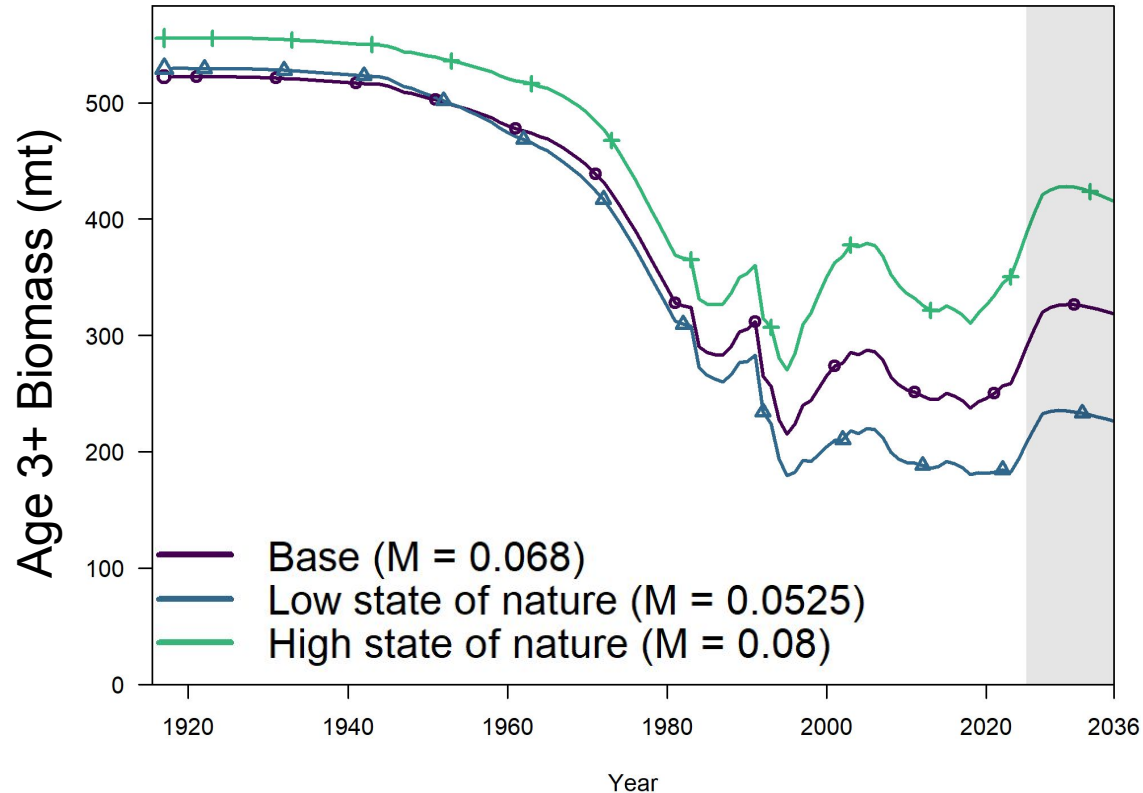
- Changes to productivity (growth, natural mortality) were key drivers of change from 2021 assessment
 - Growth estimated from many new California age samples
 - Natural mortality fixed at value from new synthesis of max ages across species range
- Assumptions about productivity (use of age data and natural mortality) were key uncertainties in 2025 assessment

Trajectory has changed since last assessment. **Why?**

- Changes to productivity (growth, natural mortality) were key drivers of change from 2021 assessment
 - Growth estimated from many new California age samples
 - Natural mortality fixed at value from new synthesis of max ages across species range
- Assumptions about productivity (use of age data and natural mortality) were key uncertainties in 2025 assessment
 - Age data influence recruitment patterns and model estimates more than new index data
 - Continued representative collection of age and length samples is needed
 - Estimating natural mortality increases population size in recent years

Model uncertainty and projections

- States of nature based on natural mortality (M)



Questions?

Key Takeaways

- At the start of 2025 the estimated stock status is 43.5%, which is **above the management target**.
- New California specific samples were collected to inform biological relationships.
- Newly collected age data provided updated information about productivity of the stock, **leading to a changed understanding** of stock status compared to the 2021 assessment.
- Collection of age and length data across the range of the fisheries **remain important data needs**.

Source: At-a-Glance



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Chilipepper Rockfish

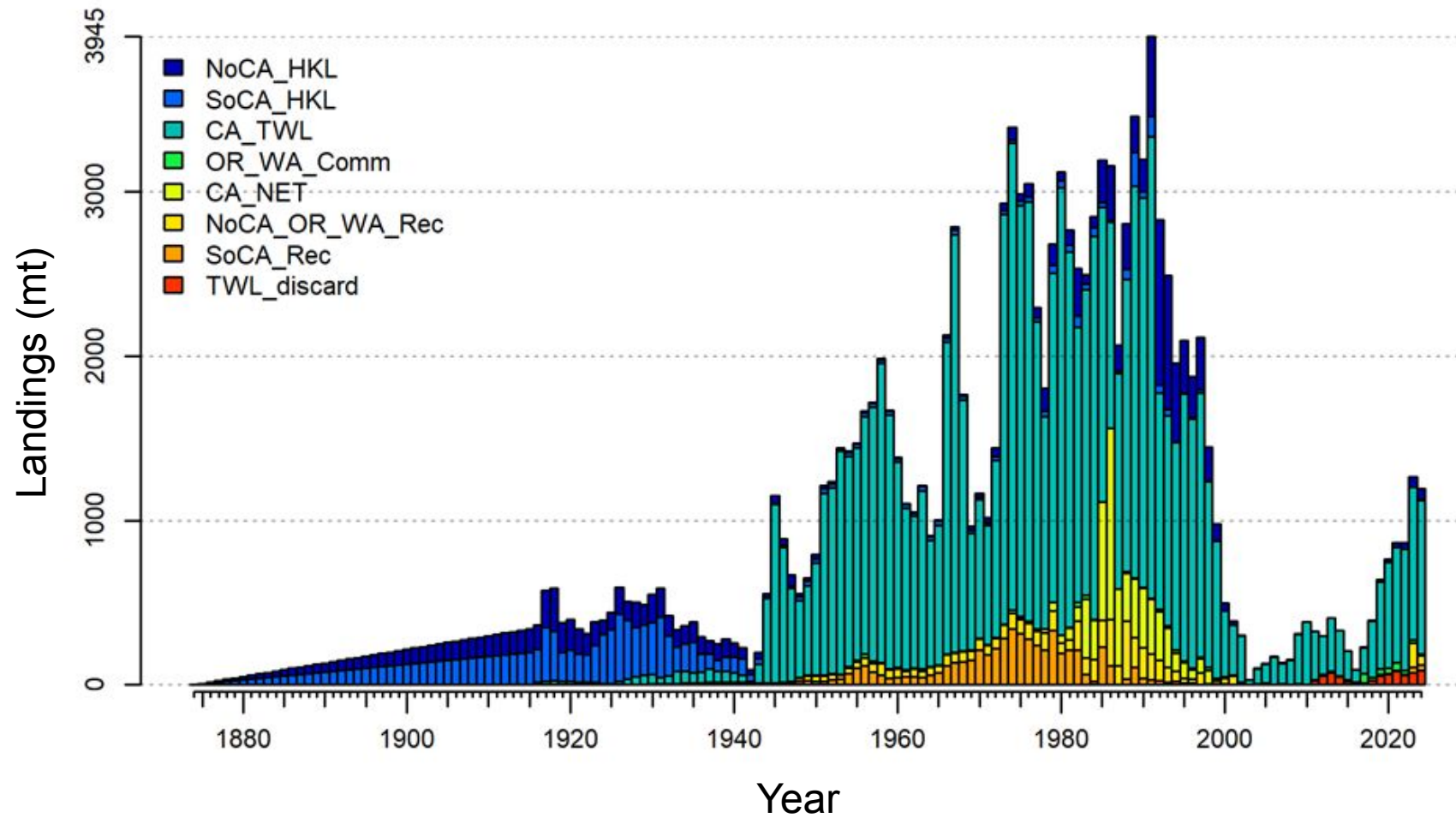
E.J. Dick^{1,*}, John C. Field¹, Nicholas Grunloh^{2,1}, and
Tanya L. Rogers¹

¹ NOAA Fisheries, Southwest Fisheries Science Center

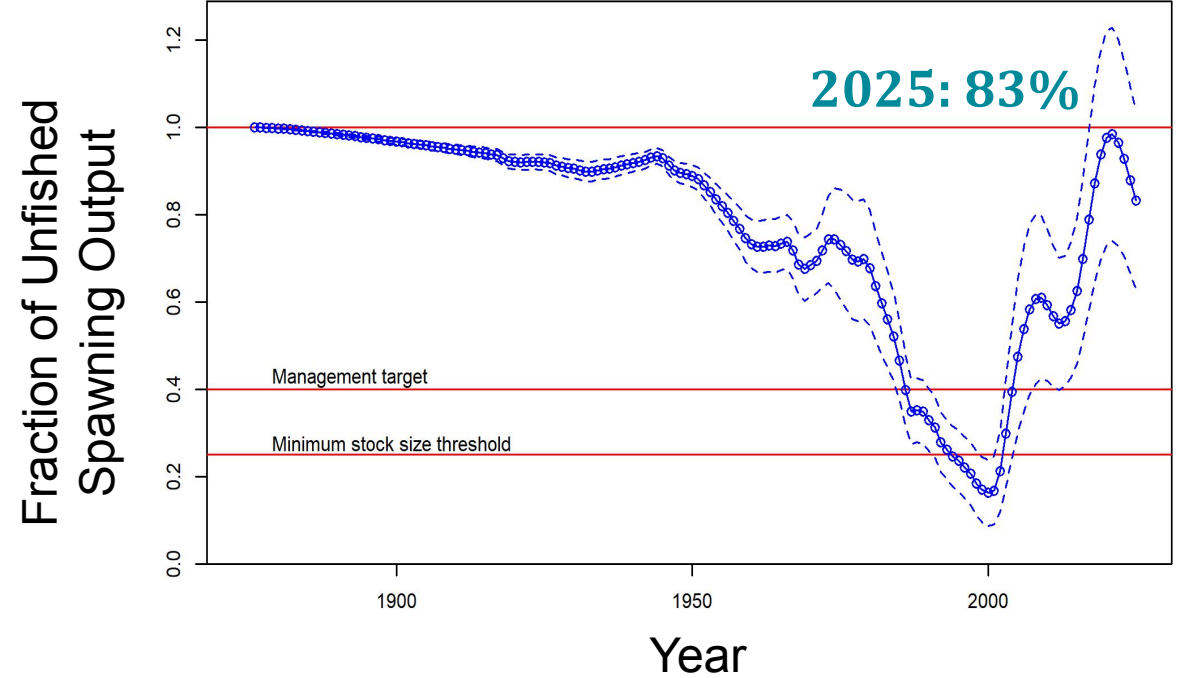
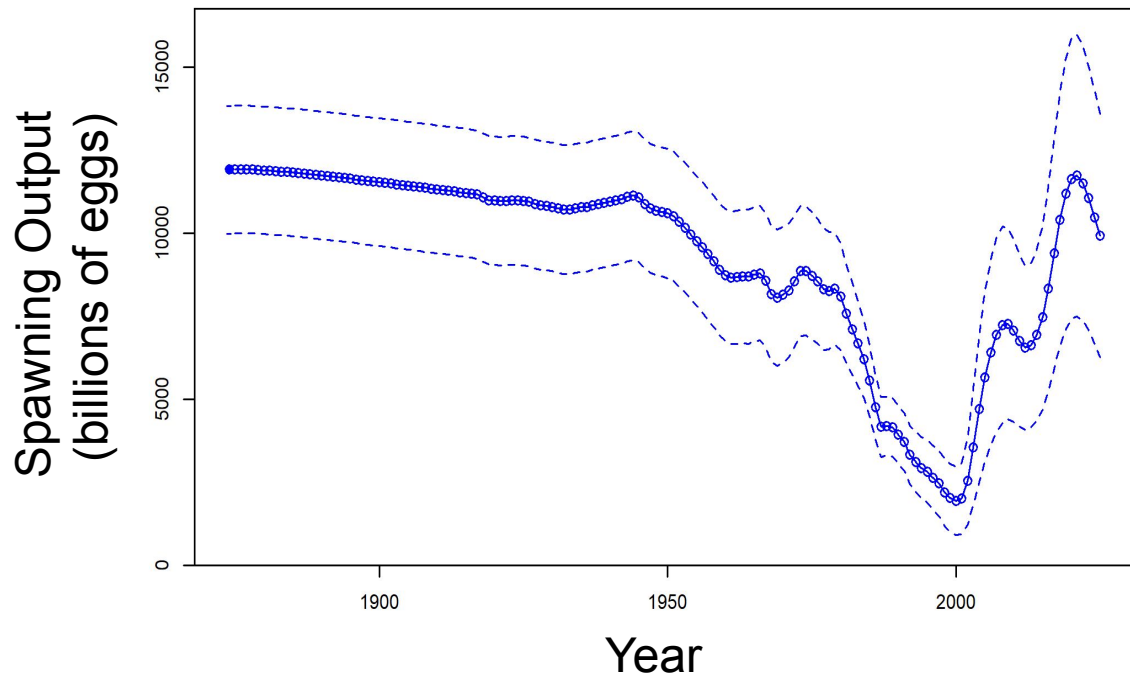
² University of California, Santa Cruz

* Corresponding author: edward.dick@noaa.gov

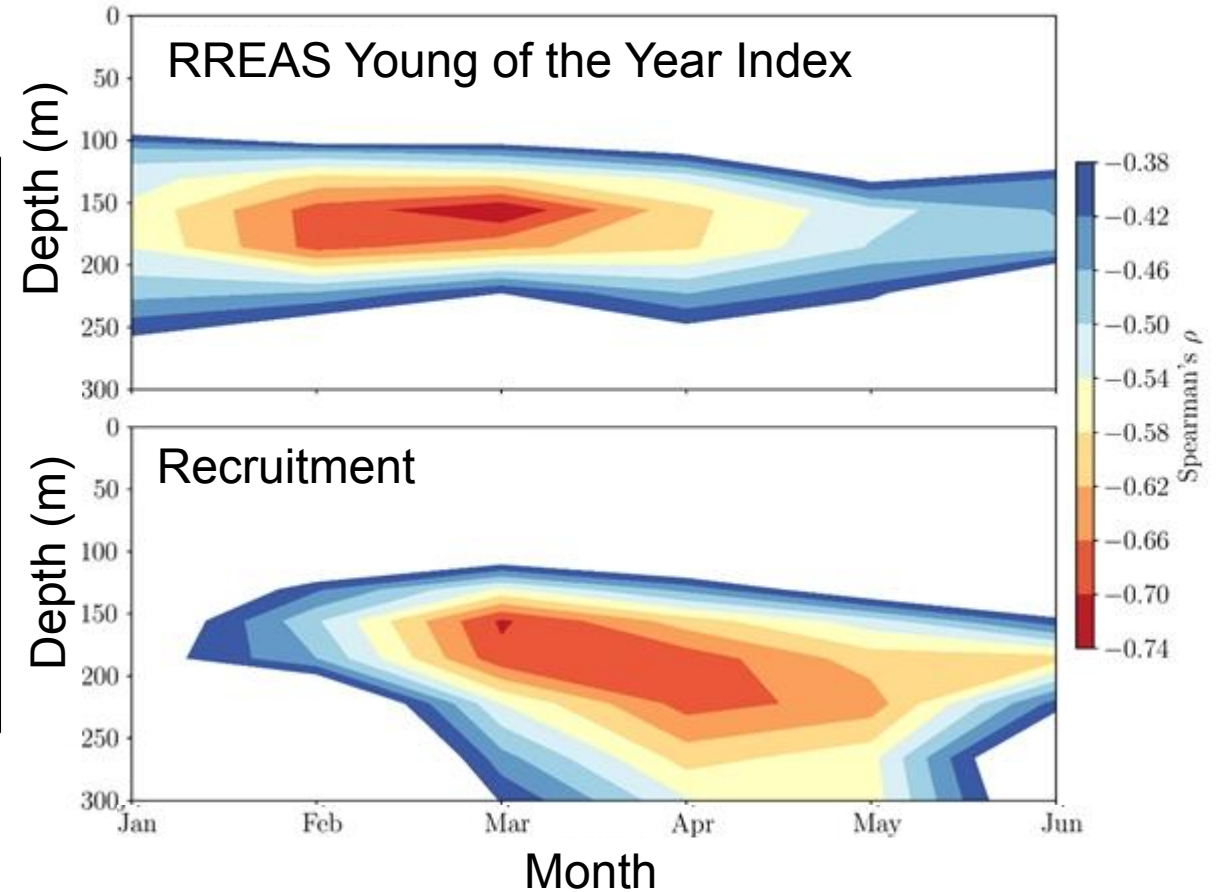
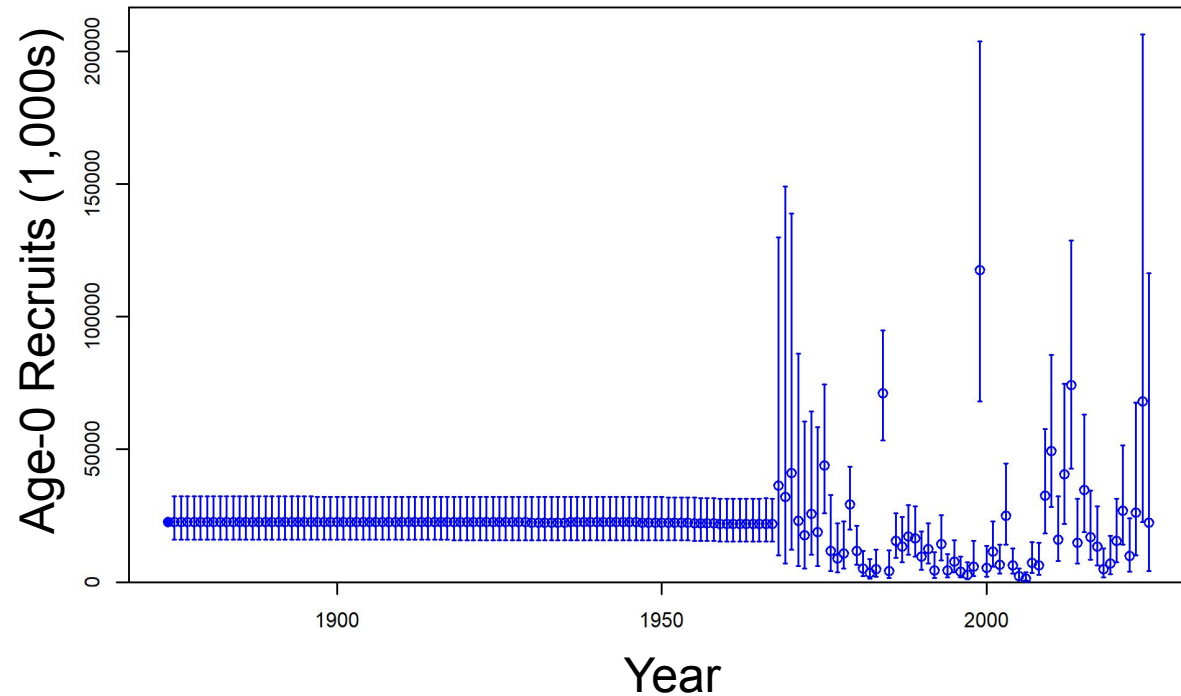
Catch history



Key assessment outputs

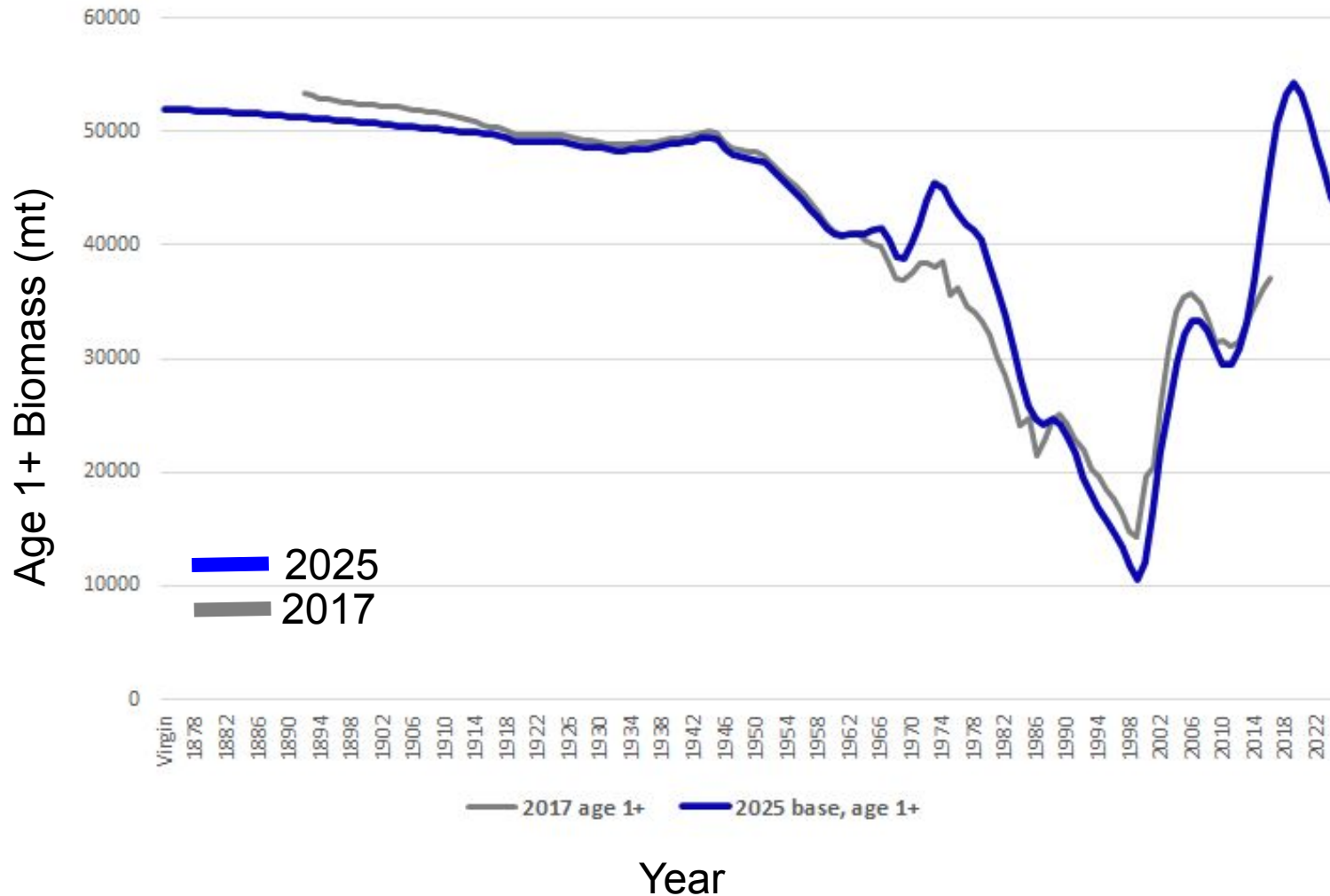


Recruitment

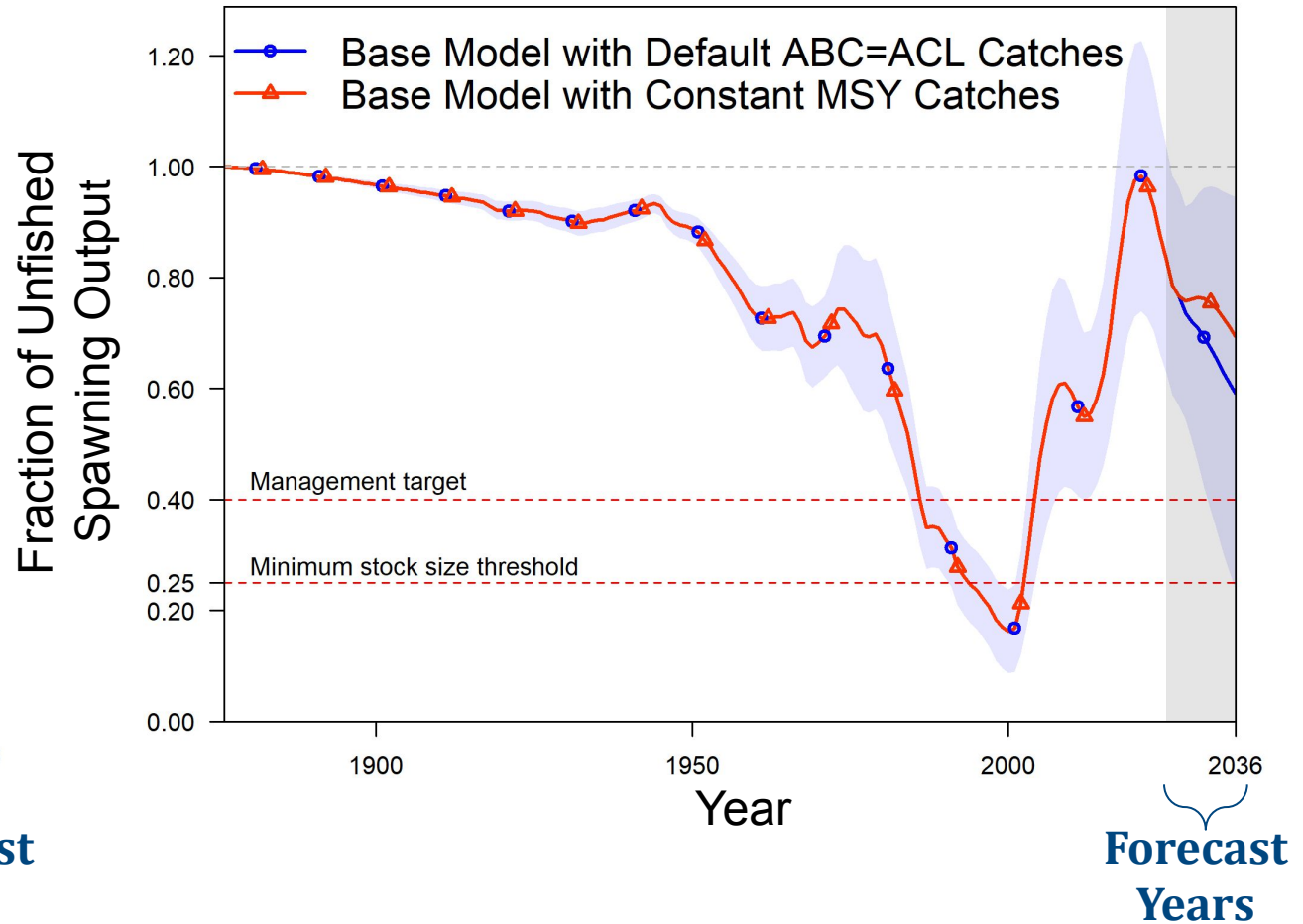
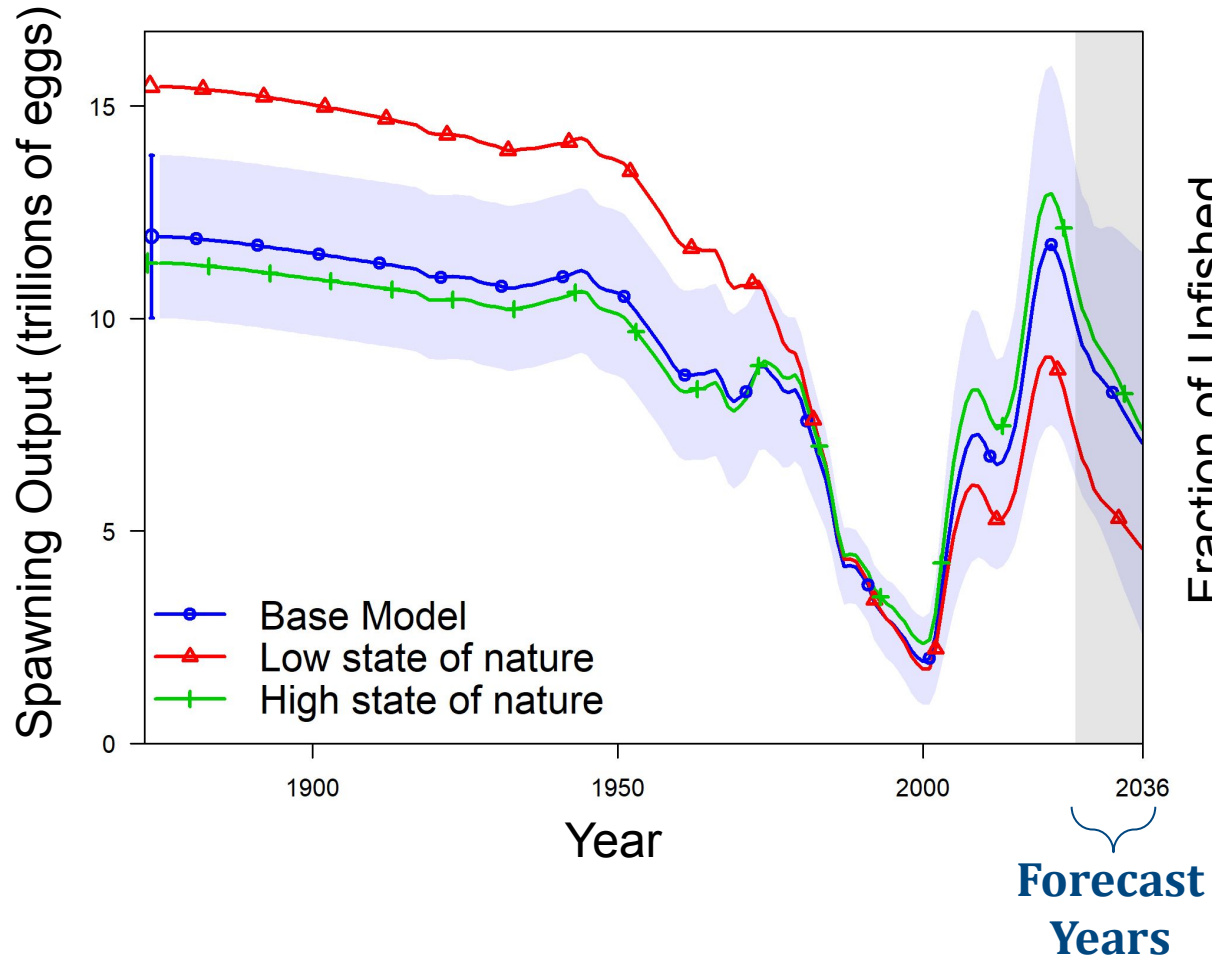


- Recruitment is highly variable for chilipepper rockfish, 2024 year class is very uncertain
- To better understand productivity of the stock we would like to understand the mechanisms for this variability; ongoing work indicate that large scale circulation patterns (“source waters”) are a key part of the story

Comparison to previous assessment (2017)



Model uncertainty and projections



Questions?

Key Takeaways

- At the start of 2025 the chilipepper rockfish stock was at 83% of unfished biomass. This stock status is **above target**, where the target is 40% of unfished biomass.
- Annual catch limits (ACLs) will **temporarily** exceed long-term maximum sustainable yield (estimated at roughly 2,100 mt per year) and **are expected to decline** as the stock is fished down to the target level.
- The stock is **not overfished** and **overfishing is not occurring**.
- The abundance of **recently recruited cohorts** is uncertain, and will be known with greater certainty as additional age and length data become available.

Source: At-a-Glance



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Sablefish

Chantel R. Wetzel¹, Aaron M. Berger², Cheryl Barnes³, Joshua A. Zahner⁴, Nick Tolimieri¹, Eric J. Ward¹, and Melissa Head¹

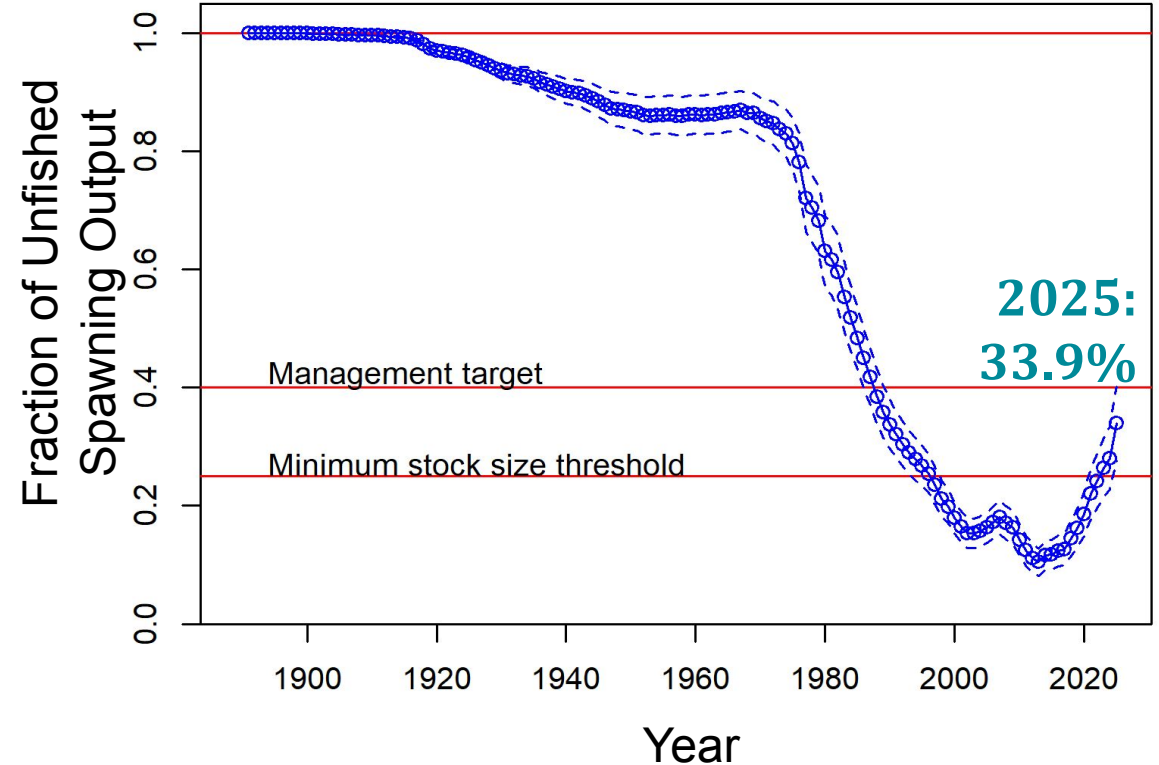
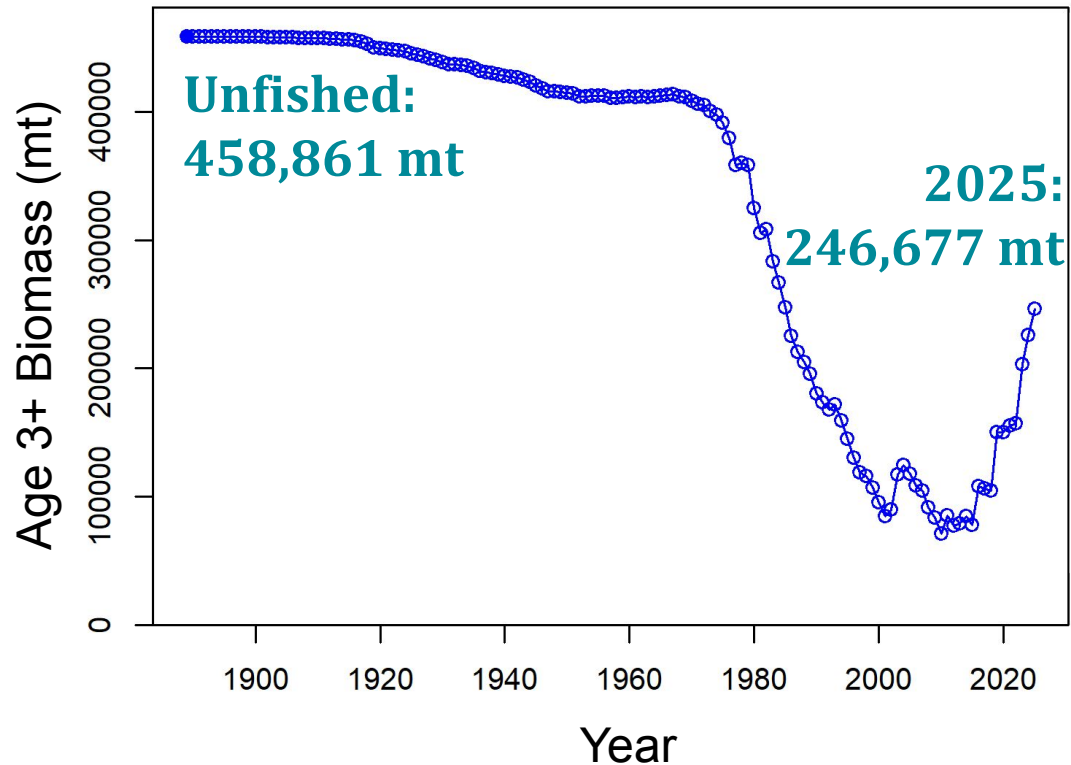
¹NOAA Fisheries, Northwest Fisheries Science Center, Seattle

²NOAA Fisheries, Northwest Fisheries Science Center, Newport

³Oregon State University

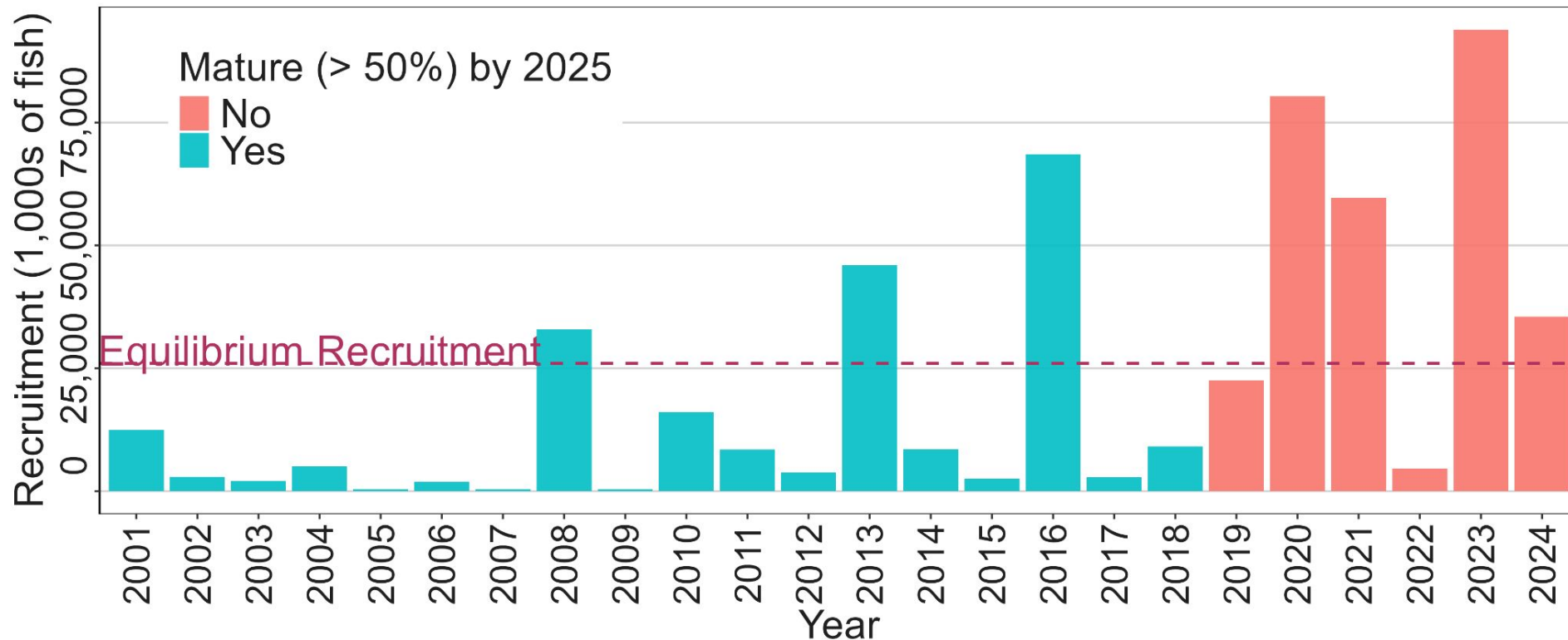
⁴University of Alaska Fairbanks

Key assessment outputs



- The 2016, 2020, and 2021 year classes are driving a steep increase in age 3+ biomass.
- Both stock size (scale) and status are expected to continue increasing over the next seven years, with **stock status reaching the management target by 2027**, even with projected catch considerably higher than recent average catch.

Recruitment

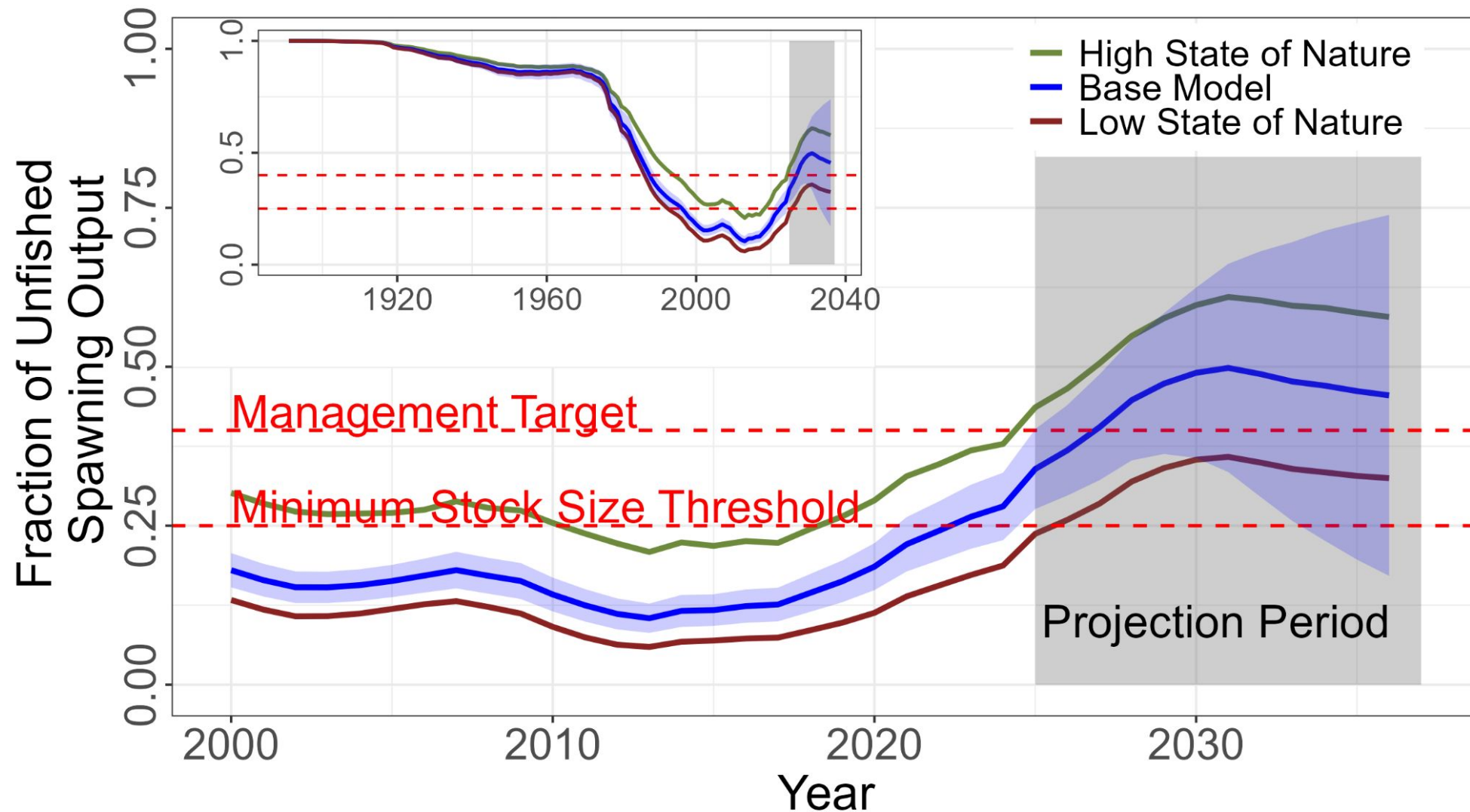


- Several very high recent recruitment cohorts are approaching maturity, but most are not yet contributing to the spawning output.
- The 2020, 2021, and 2023 year classes are well above equilibrium recruitment and are driving higher projected catch limits starting in 2027.

Key changes from the previous assessment

- **Historical data:** 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 lower estimate of stock status.*
- **Survey selectivity:** 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 approximately 80% of age-2 and older sablefish are captured when encountered. *This resulted in a lower estimate of stock status.*
- **Recruitment:** 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.*
- **Growth:** Moved to use an empirical weight-at-age data approach to account for time varying growth by age across the West Coast. *This had only a negligible effect on stock size and status but improved model stability.*

Model uncertainty and projections



Questions?

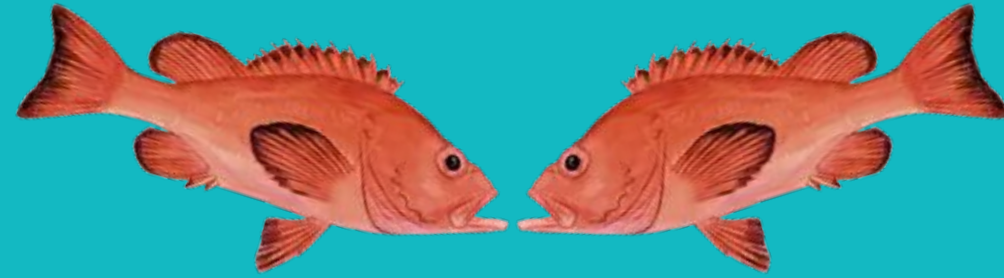
Key Takeaways

- 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.

Source: At-a-Glance



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Rougheye/Blackspotted Rockfishes

Jason M. Cope¹, Vladlena Gertseva¹, R. Claire
Rosemond², Alison D. Whitman³ and
Fabio P. Caltabellotta⁴

¹NOAA Fisheries, Northwest Fisheries Science Center, Seattle

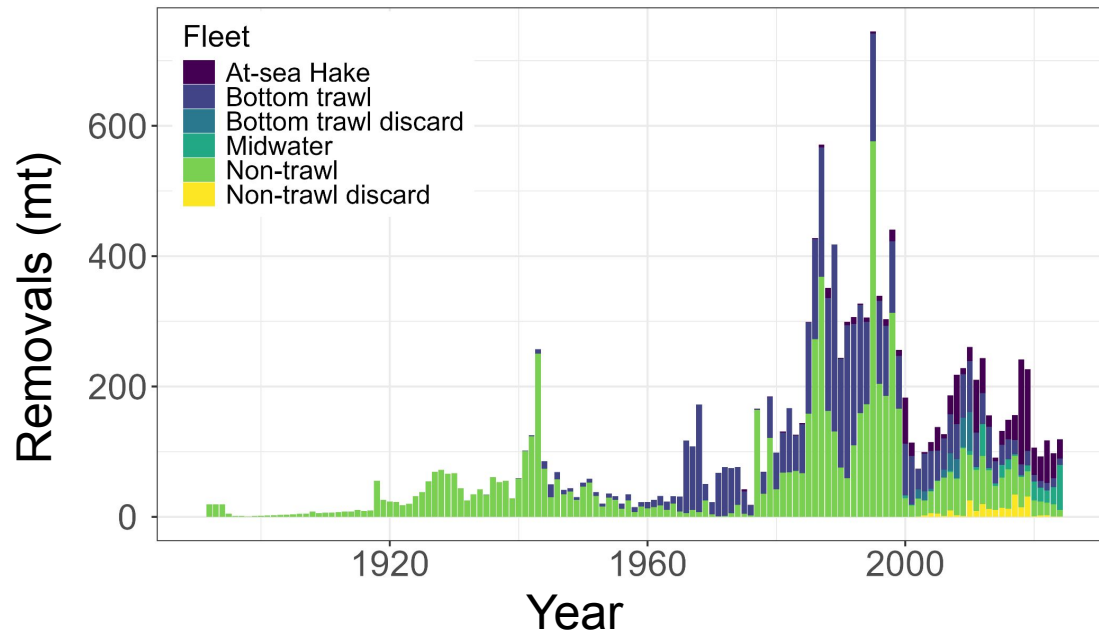
²NOAA Fisheries, Northwest Fisheries Science Center, Newport,

³Oregon Department of Fish and Wildlife,

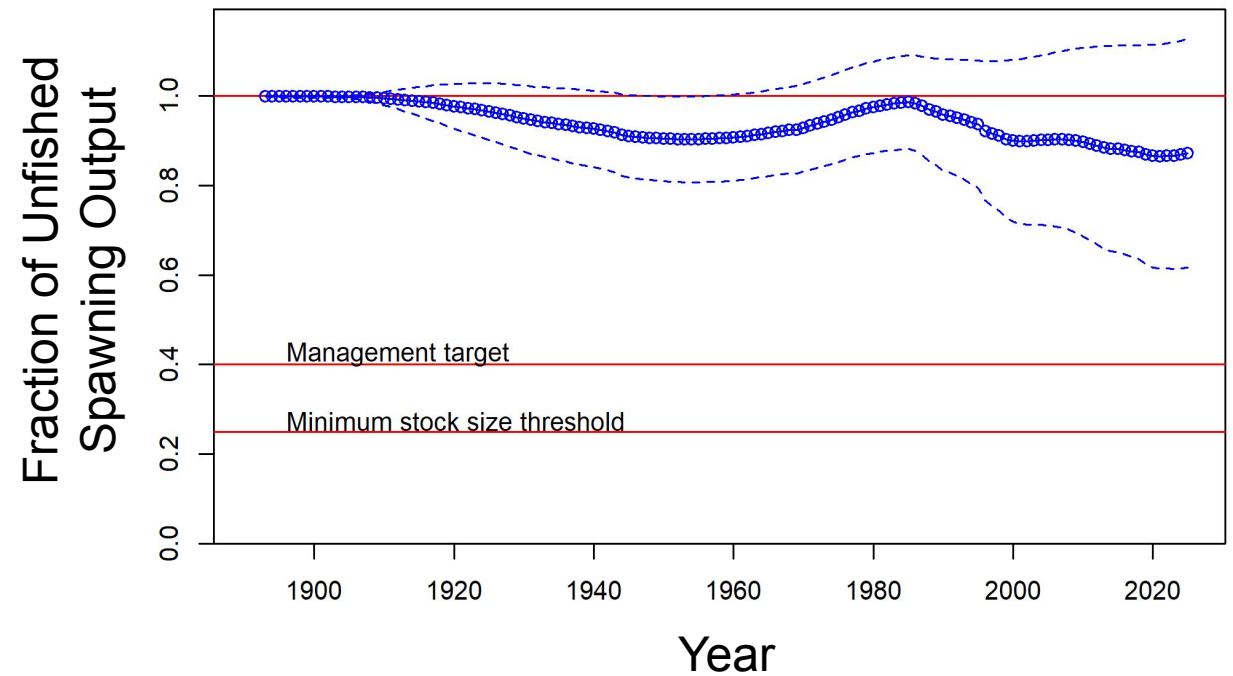
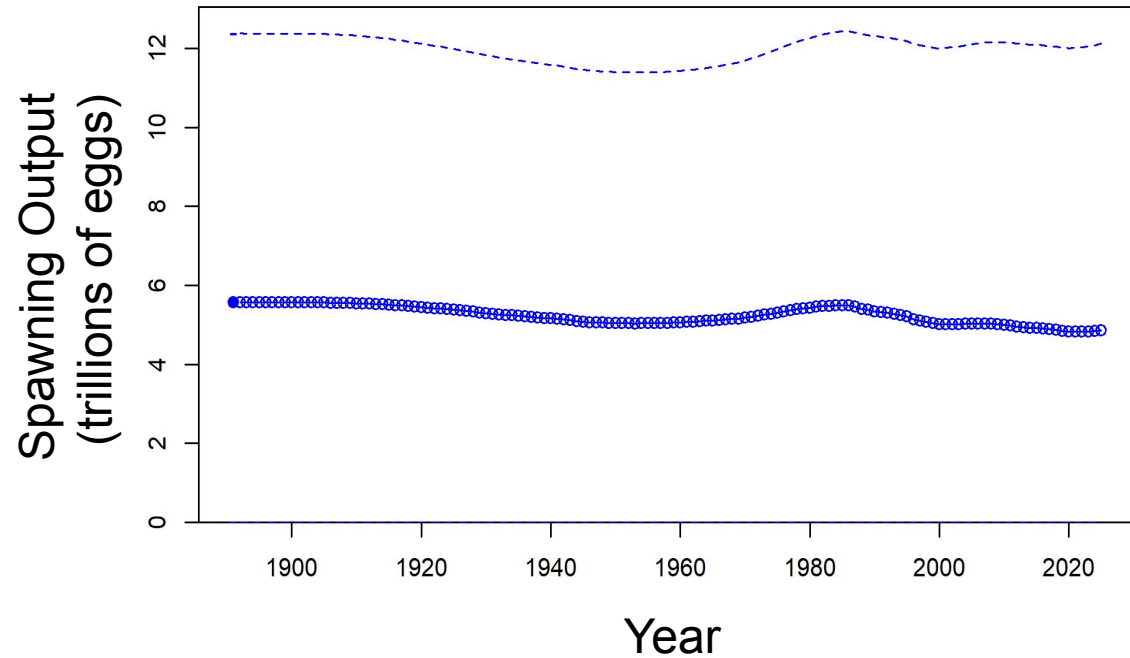
⁴Washington Department of Fish and Wildlife

Background

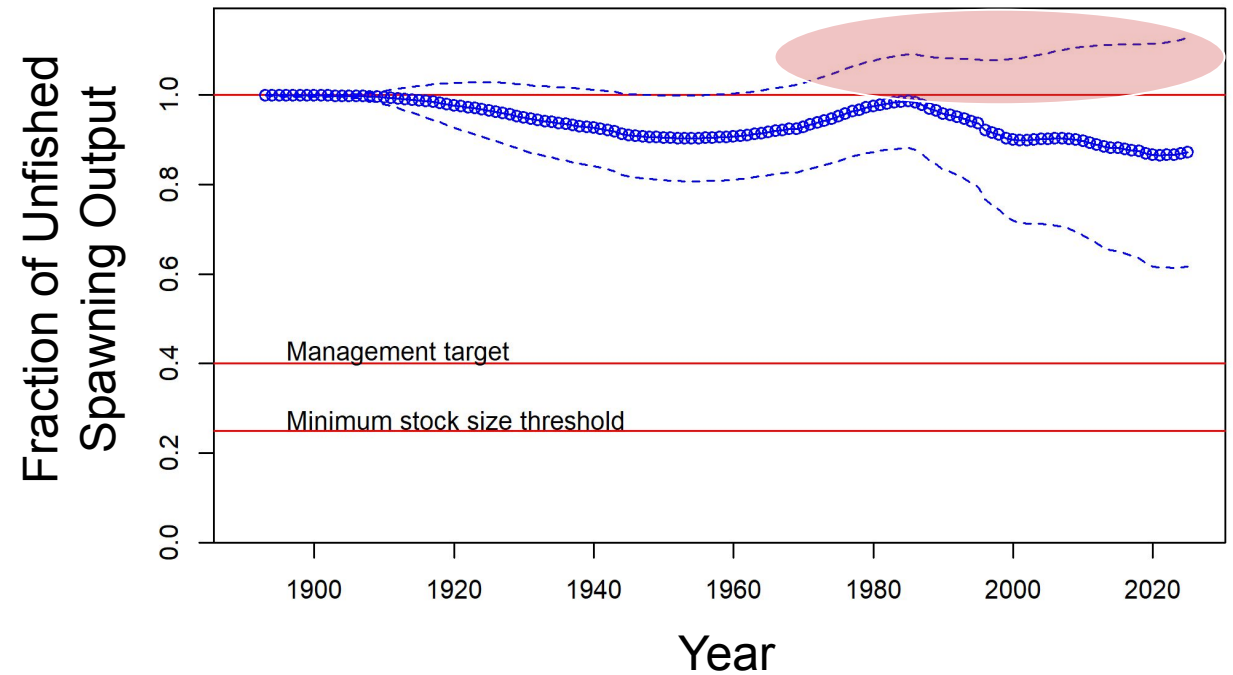
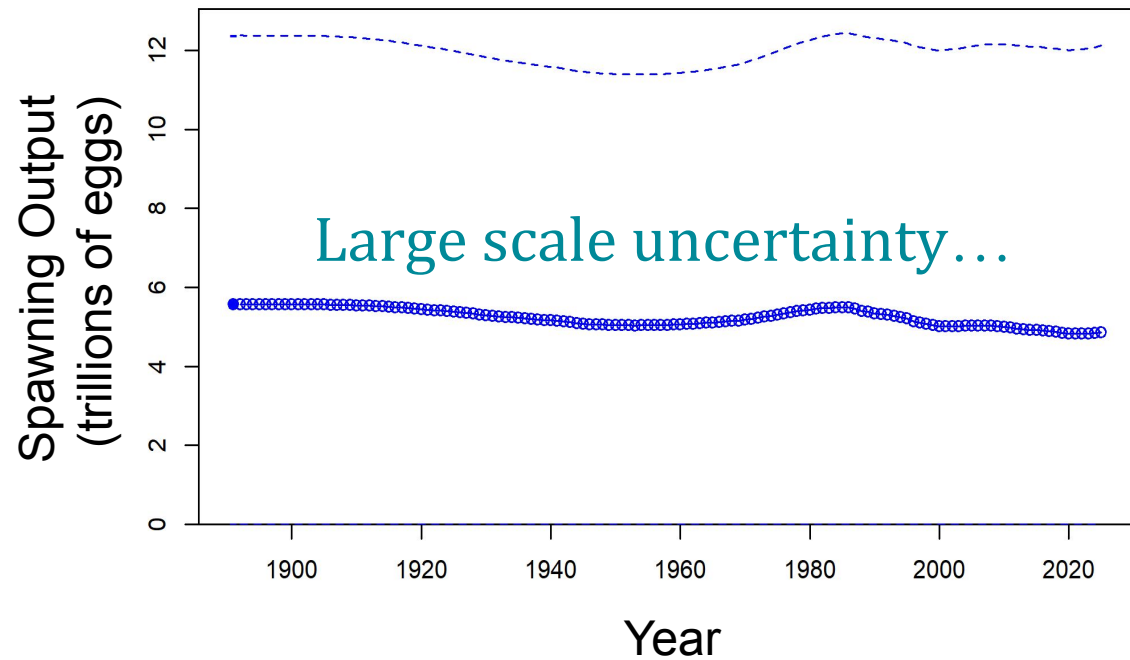
- Rougheye and Blackspotted - two genetically distinct species
 - Visual identification is imperfect
 - Historical data only available for complex
- Known for its longevity (>200 years reported)
- Non-targeted, but marketable – retained when caught
- Last assessed in 2013



Key assessment outputs

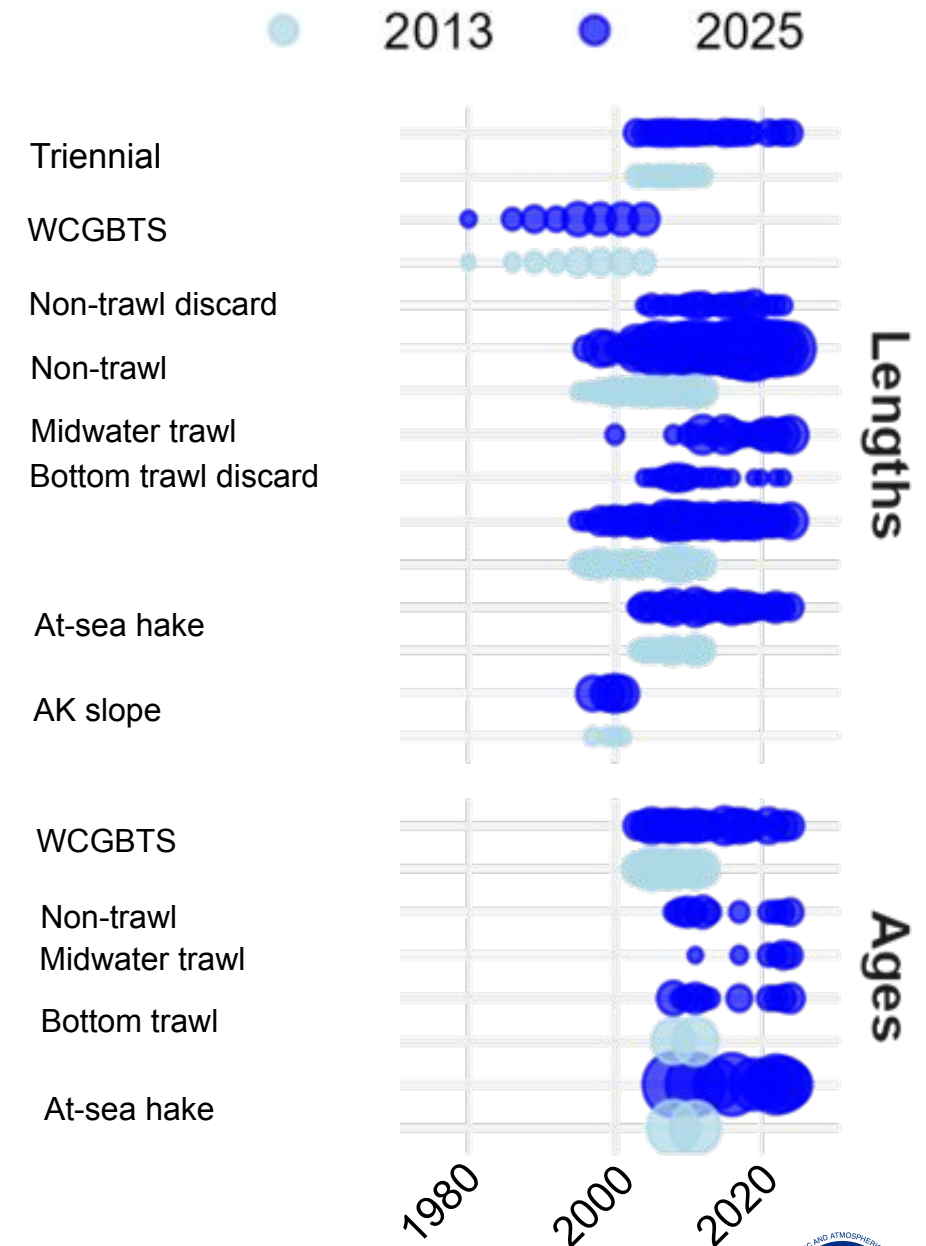


Key assessment outputs

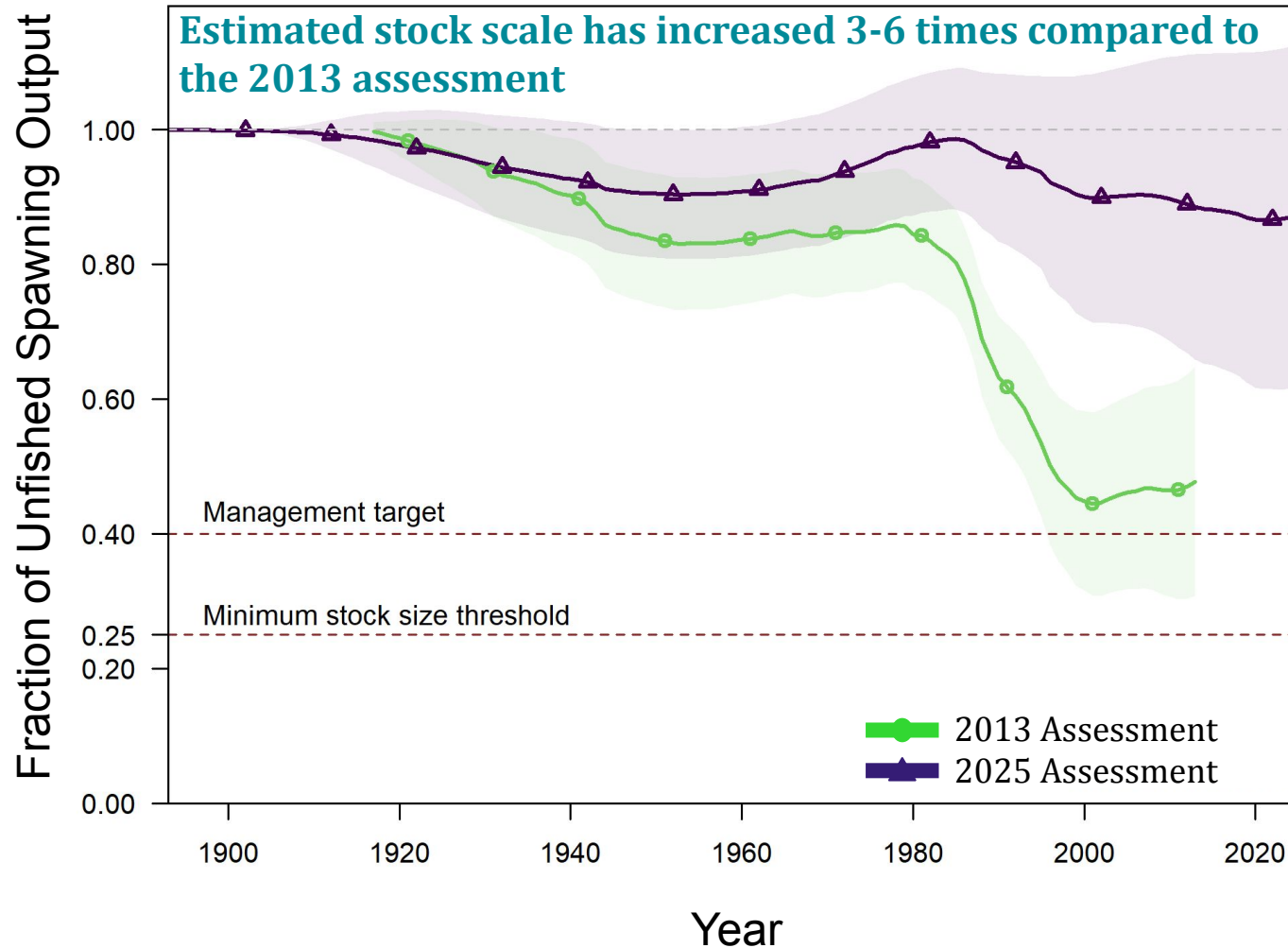


2025 Assessment: data and model structure

- Extended catch history; discards as fleets
- Dome-shaped selectivity for trawl fisheries; midwater fisheries were logistic
- Added ages updated stock status
- Length data important for updated selectivity and recruitment estimation
- Robust life history estimates, but sensitive to choice of male M .
- Ageing error and need for more ages increase uncertainty in status



Model output comparison with 2013 assessment



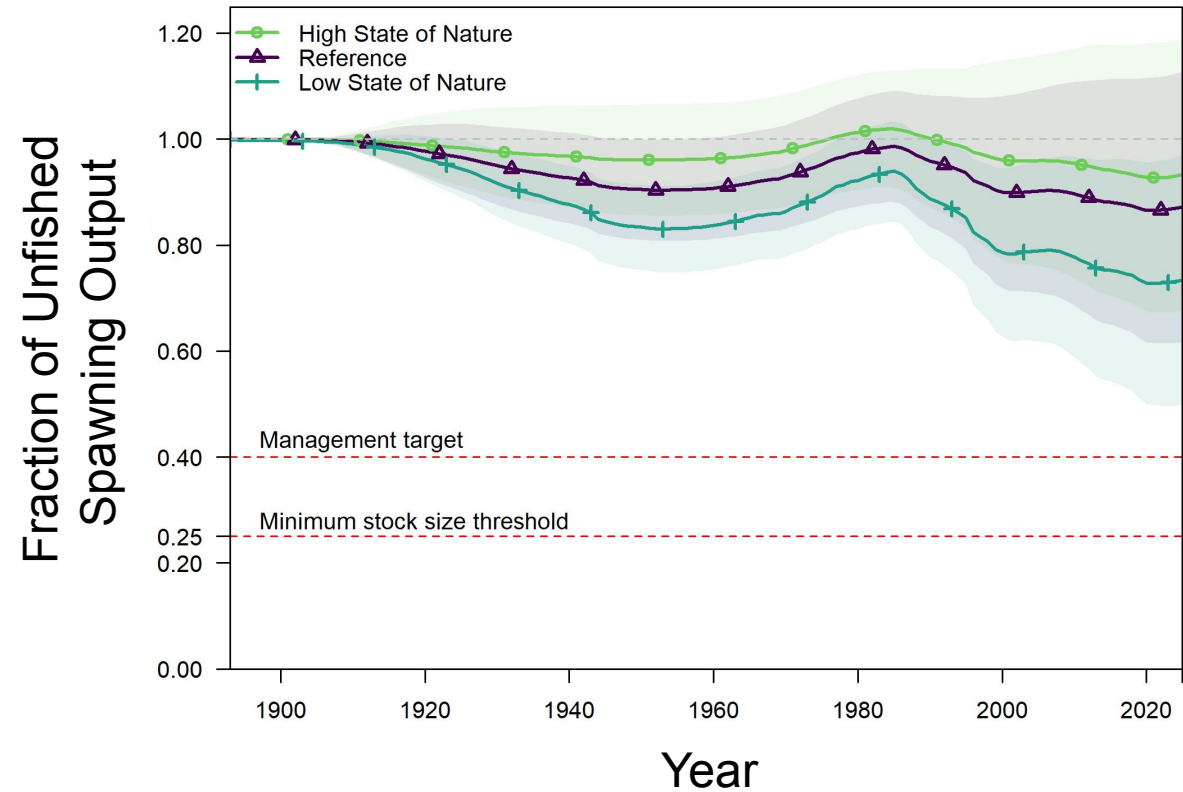
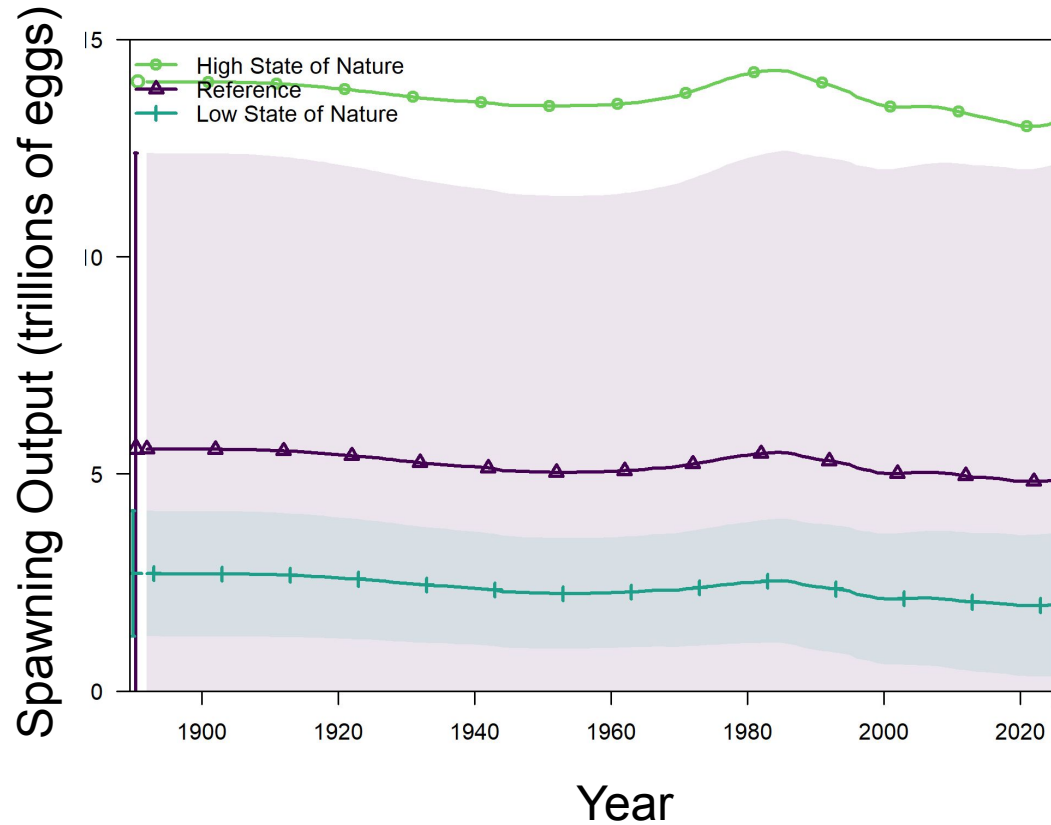
Major sources of model sensitivity

- Natural mortality
- Selectivity shape

Ways to reduce uncertainty

- Increase age samples
- Improve ageing error

Model uncertainty: natural mortality



Questions?

Key Takeaways

- At the start of 2025, the estimated status of the complex is 87% of unfished, which is **above the management target**.
- **Absolute scale of the stock is highly uncertain**, largely because stock status uncertainty includes status at or above the unfished size.
- Numerous simulations show no indication that stock is approaching the target of 40% unfished.
- More ages and reducing ageing error may help decrease uncertainty in stock scale.

Source: At-a-Glance



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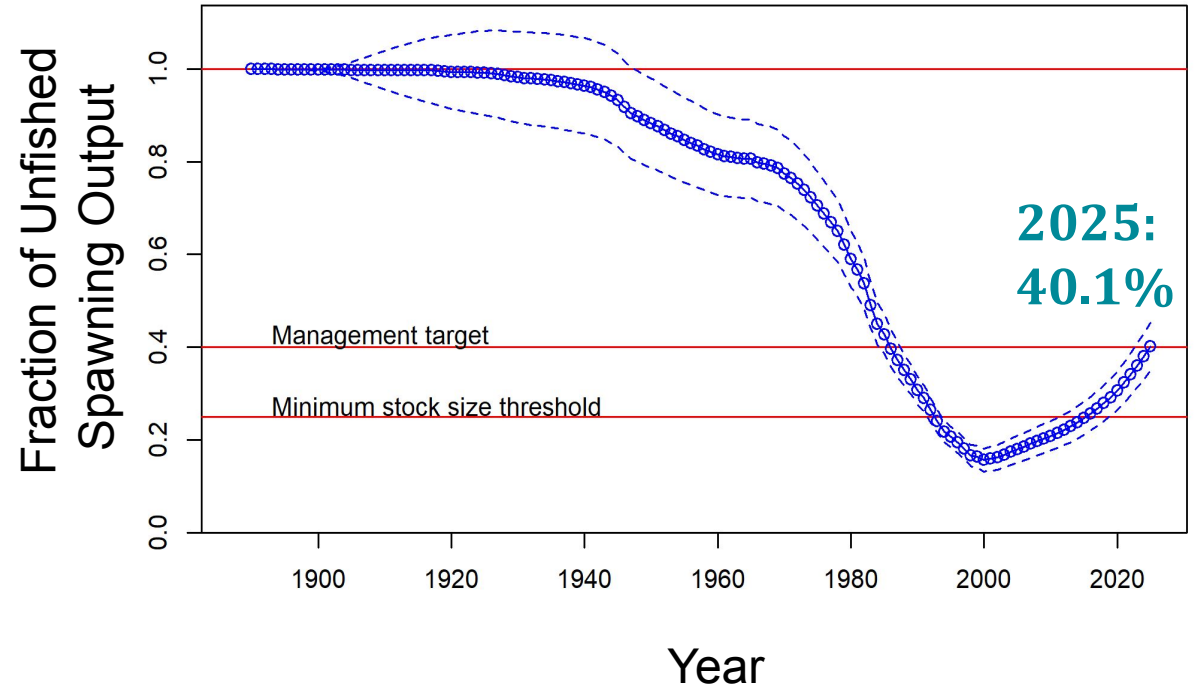
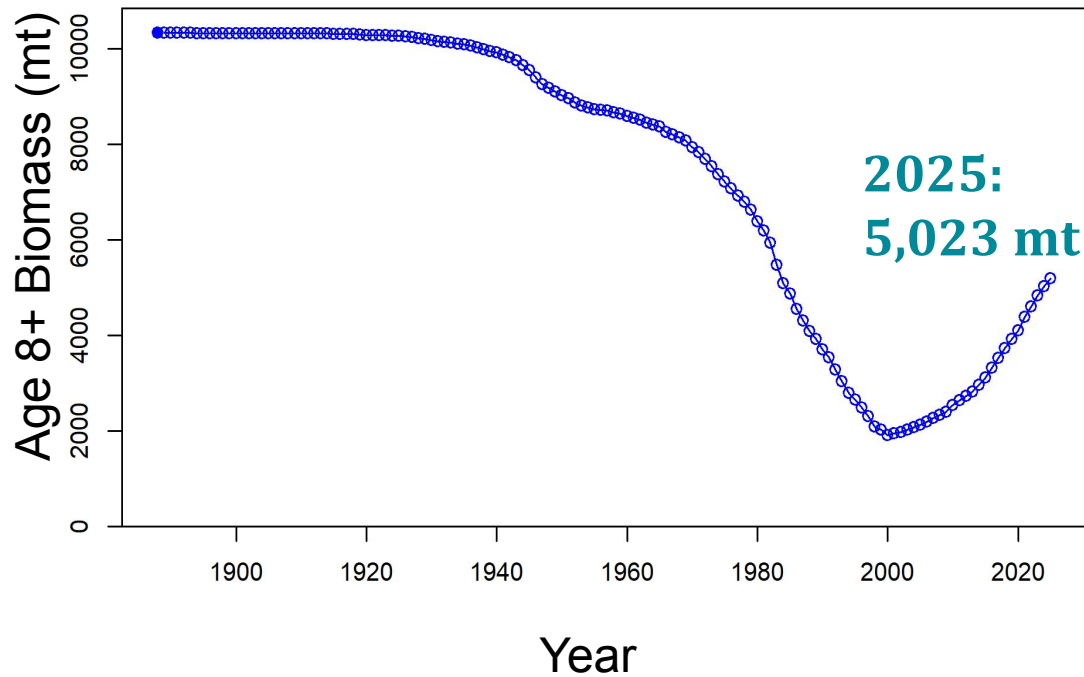


Yelloweye Rockfish

Morgan A. Johnston^{*1}, R. Claire Rosemond^{*2}, Alison Whitman³, Elizabeth Perl⁴, Matheus de Barros⁵, Juliette Champagnat⁵, Abby Schamp⁵, Samantha Schiano⁴, Fabio Prior Caltabellotta⁶, Vladlena Gertseva², Ian Taylor², Kiva Oken², Aaron Berger²

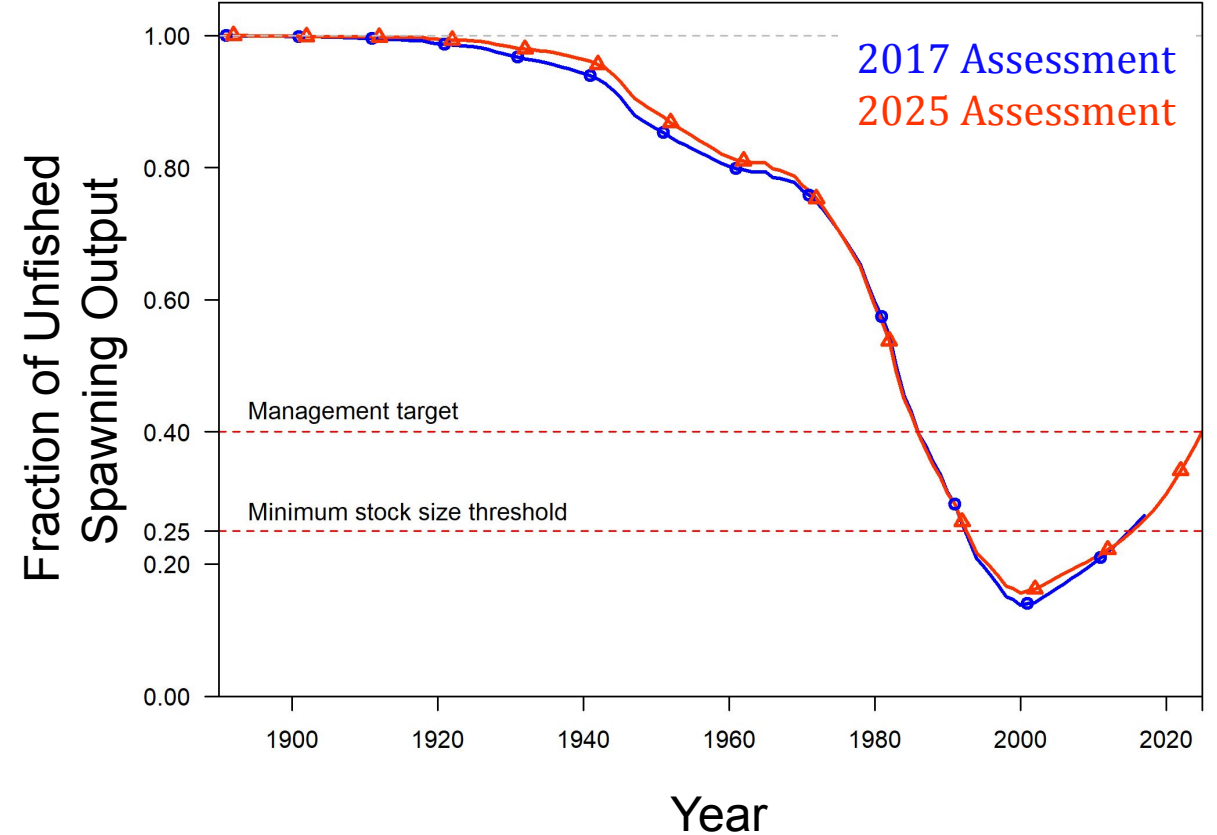
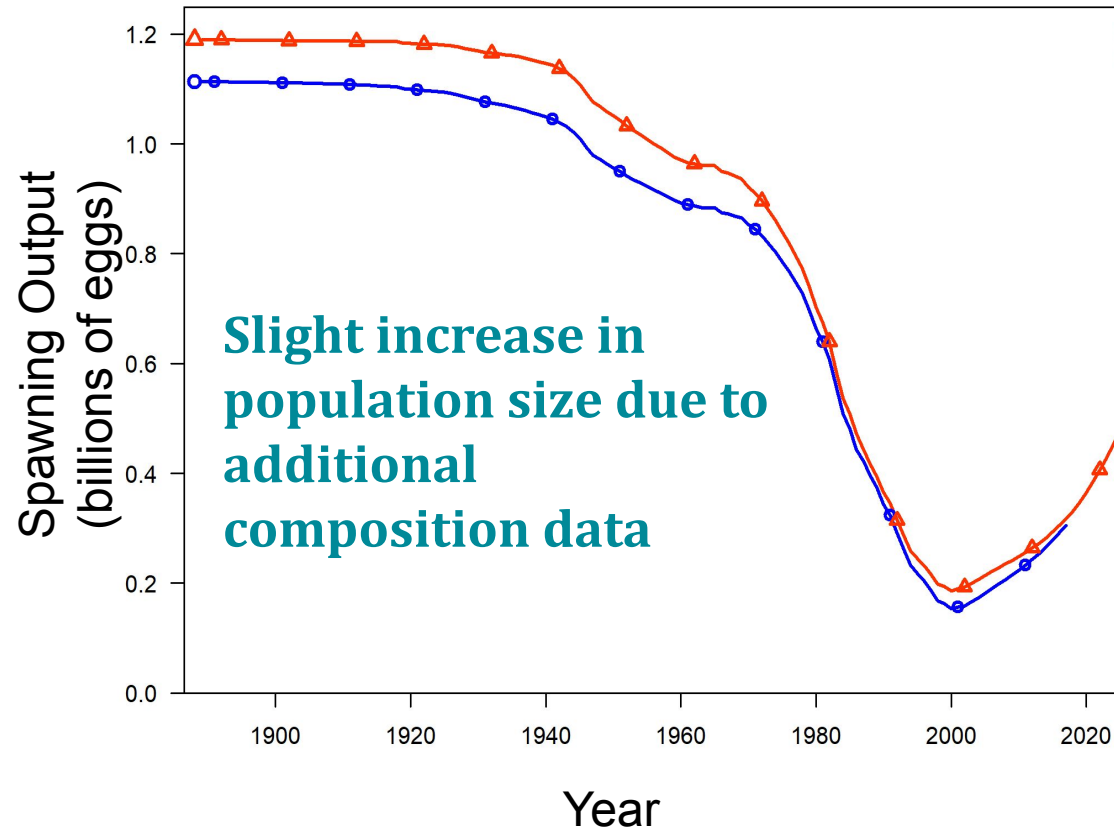
¹OSU, ²NWFSC, ³ODFW, ⁴ECS Federal, ⁵UW, ⁶WDFW

Key assessment outputs

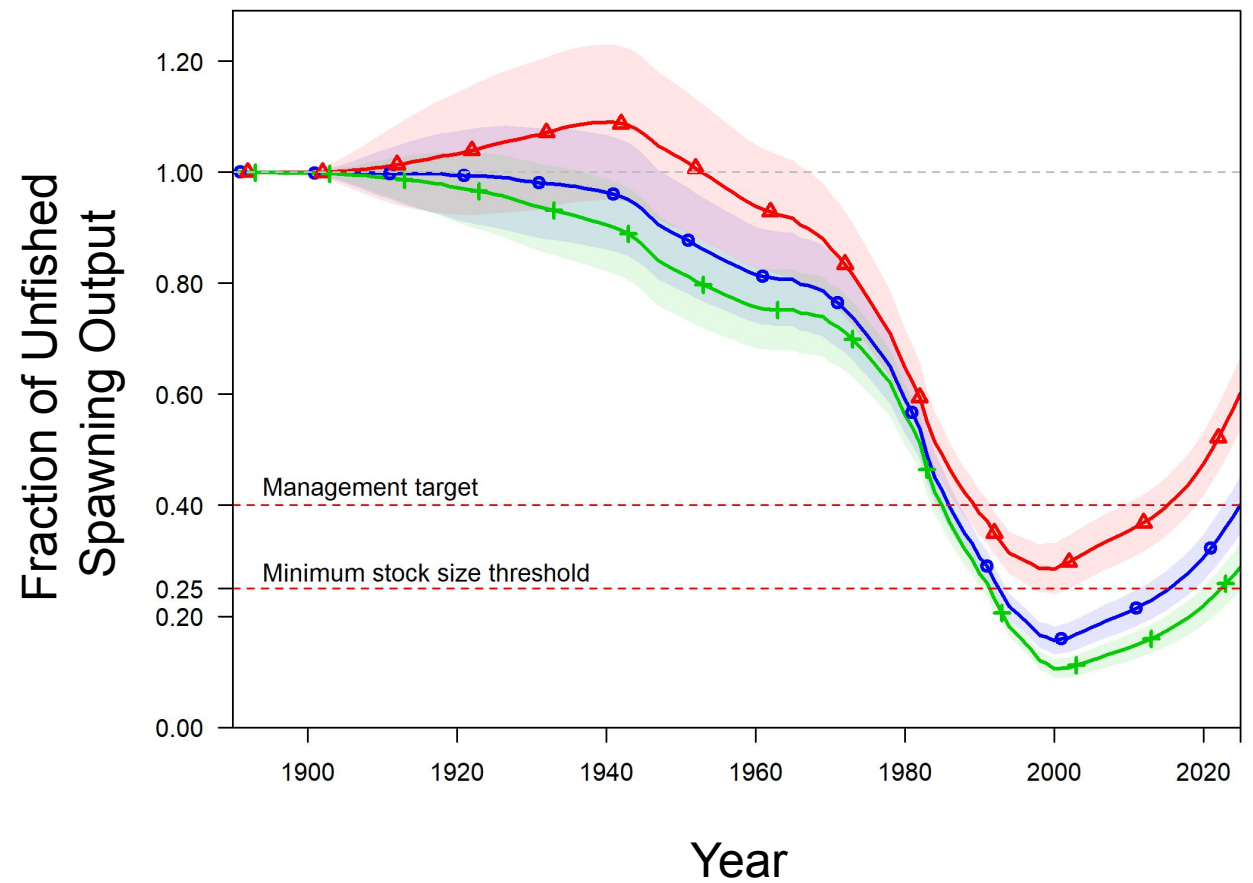
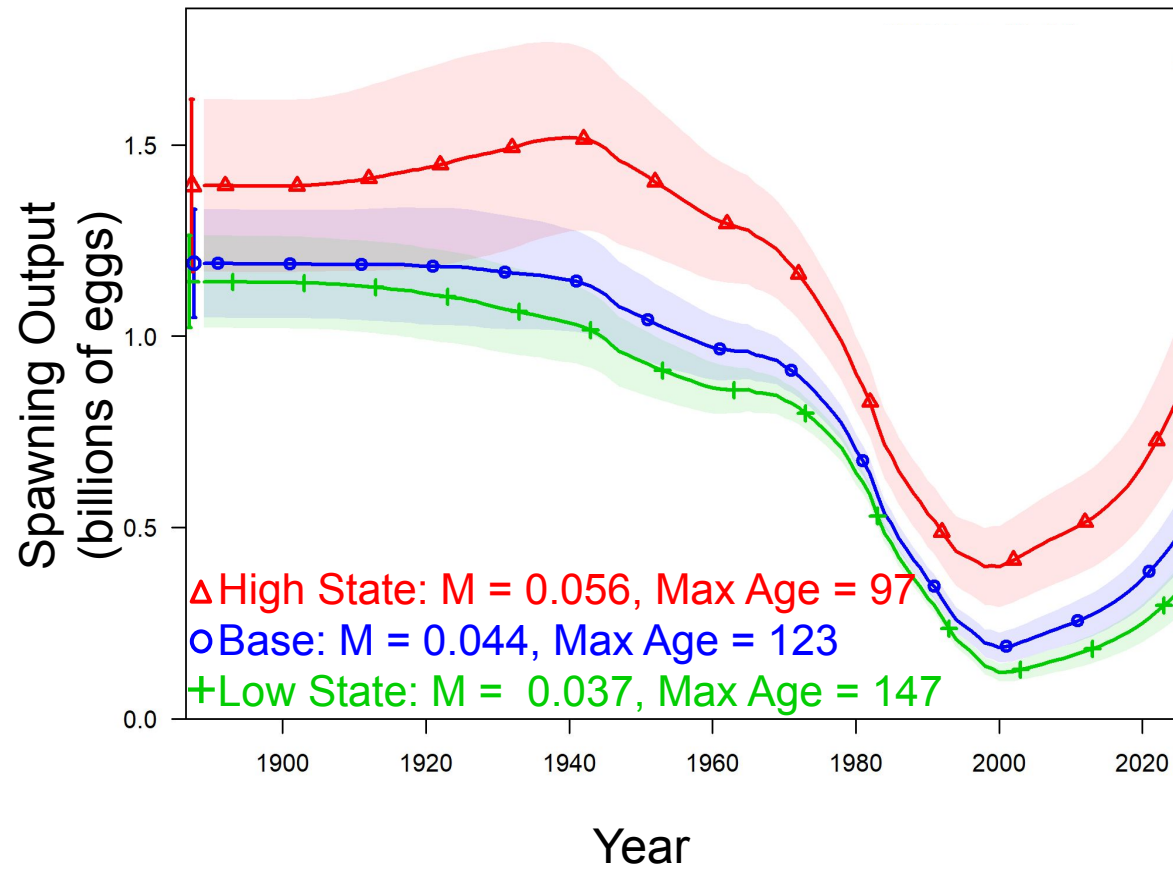


- Update of 2017 benchmark assessment
- Catches have increased modestly providing additional composition data

Comparison with previous assessment



Model uncertainty: natural mortality



Questions?

Key Takeaways

- At the start of 2025, the estimated stock status is 40.1%, **at the target of 40%** of its unfished condition.
- Stock trend is consistent with 2017 benchmark assessment and rebuilding analysis.
- **Assessment model is sensitive to natural mortality**, with alternative states of nature estimating 2025 fraction unfished between 29% and 60%, for low and high state respectively.

Source: At-a-Glance



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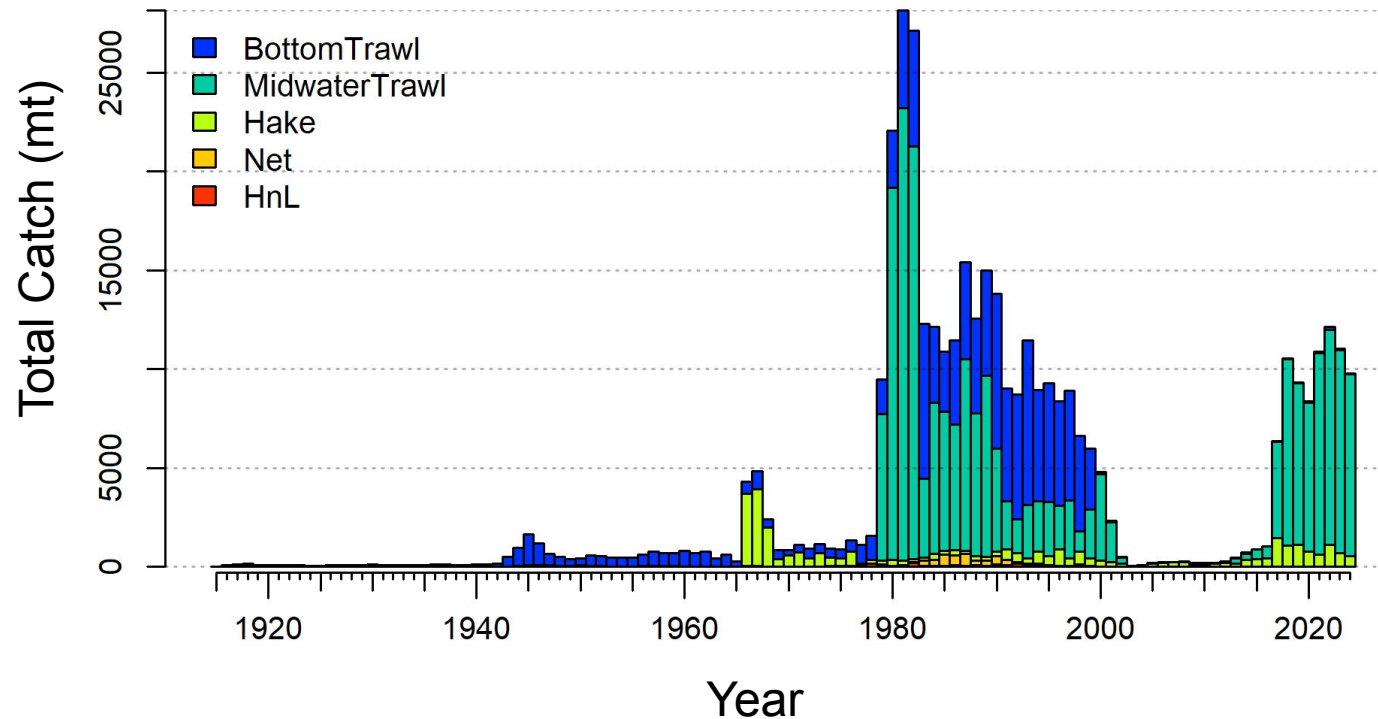
Widow Rockfish (still under review)

Michael Kinneen¹, Maurice C. Goodman¹, Anna Sulc¹,
Laurinne Balstad², Raquel Ruiz Diaz¹, Kristina
Randrup¹, William Patrone¹, Laura Spencer¹, Alaia
Morell³, Alberto Rovellini¹, Allison Dedrick⁴, Nick
Grunloh⁵, Madison Bargas⁶, Stephanie Hopkins⁷,
Vladlena Gertseva⁸, Kiva L. Oken⁸, Ian G. Taylor⁸,
Melissa A. Haltuch⁹, Owen Hamel⁸

¹UW, ²UC Davis, ³UW-Tacoma, ⁴CDFW, ⁵SWFSC, ⁶OSU, ⁷UC Santa Cruz, ⁸NWFSC, ⁹AFSC

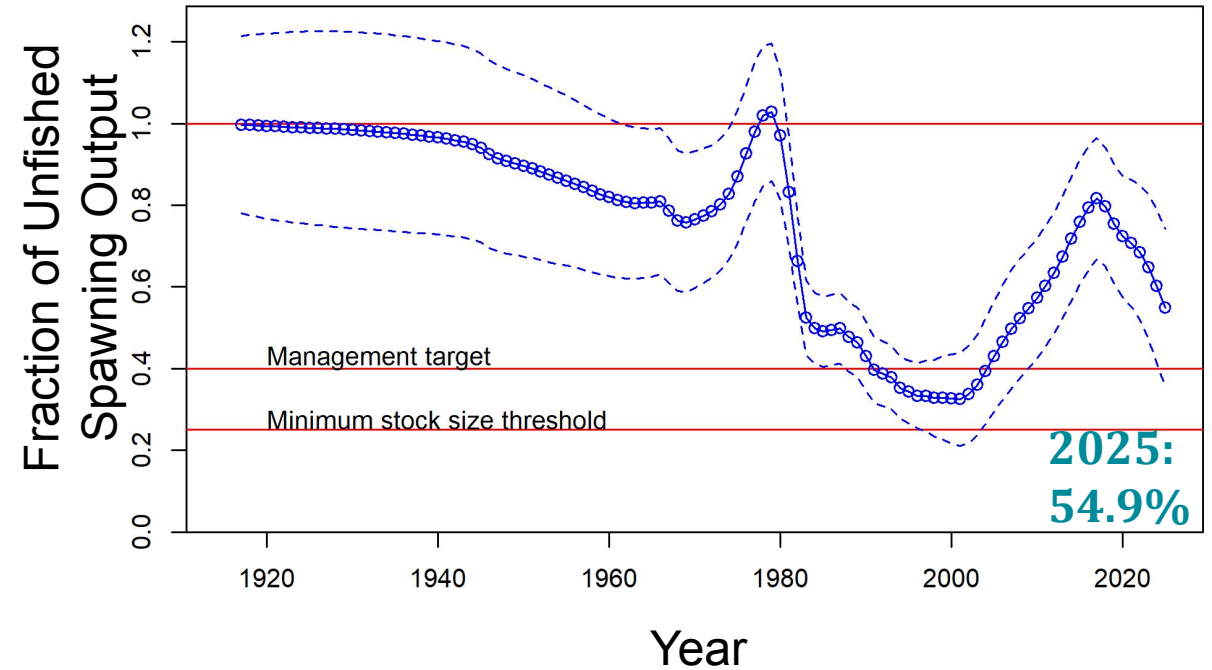
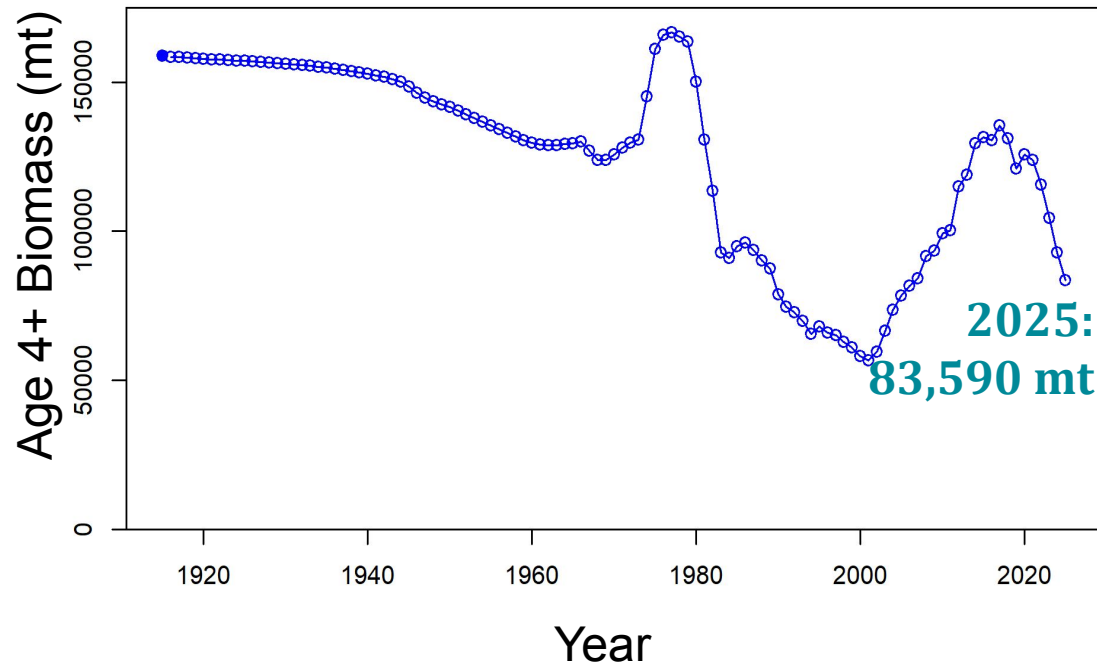
Background

- Last full assessment in 2015, previous update assessment in 2019
- Medium longevity for a rockfish
- Midwater trawl catches increased substantially starting in 2017



Key assessment outputs

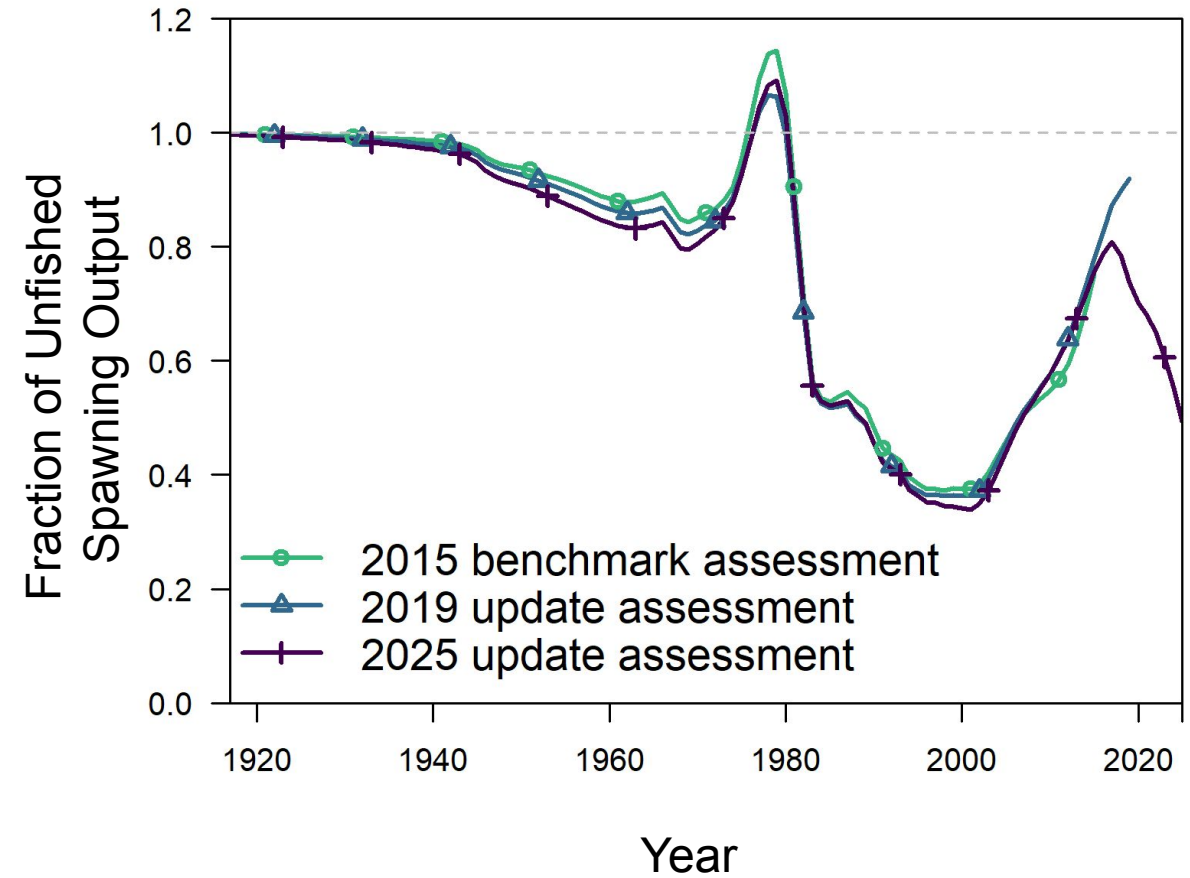
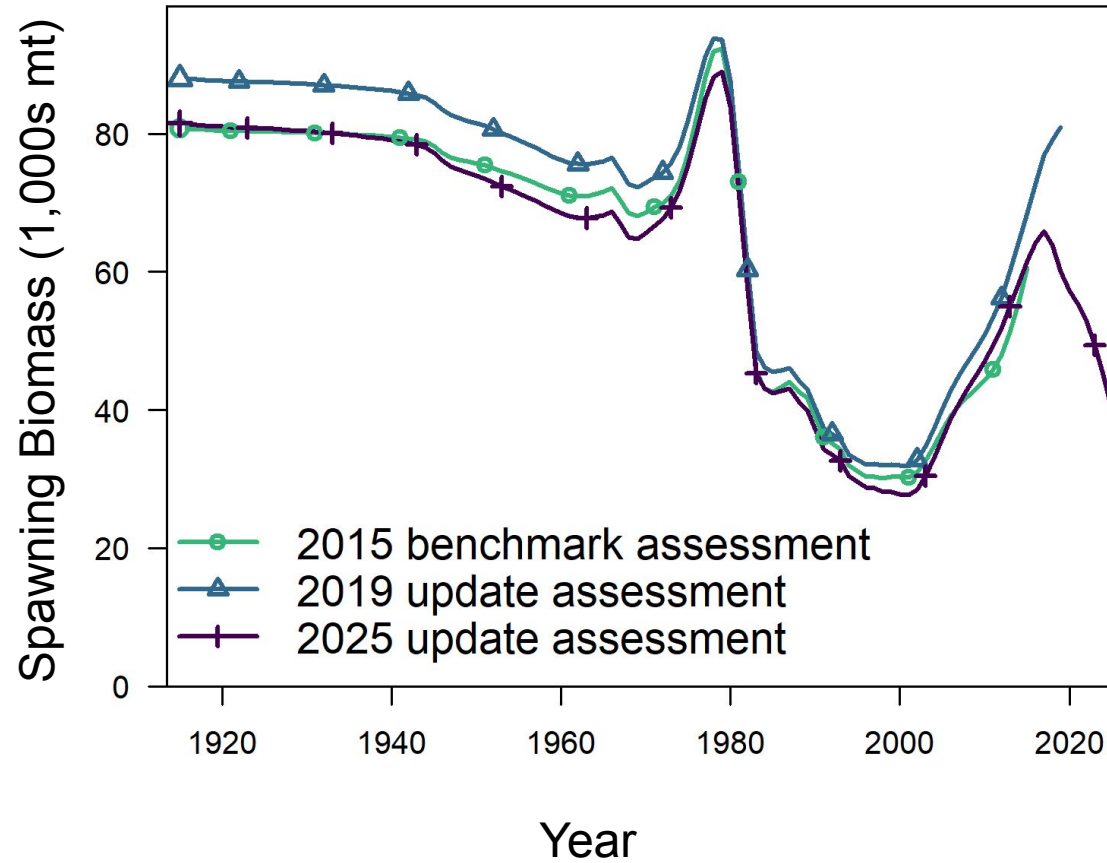
Still in review



Note: these results are current as of August 2025. Additional research on the widow rockfish data and assessment model are ongoing in preparation for a supplemental review meeting in October 2025.

Comparison with previous assessments

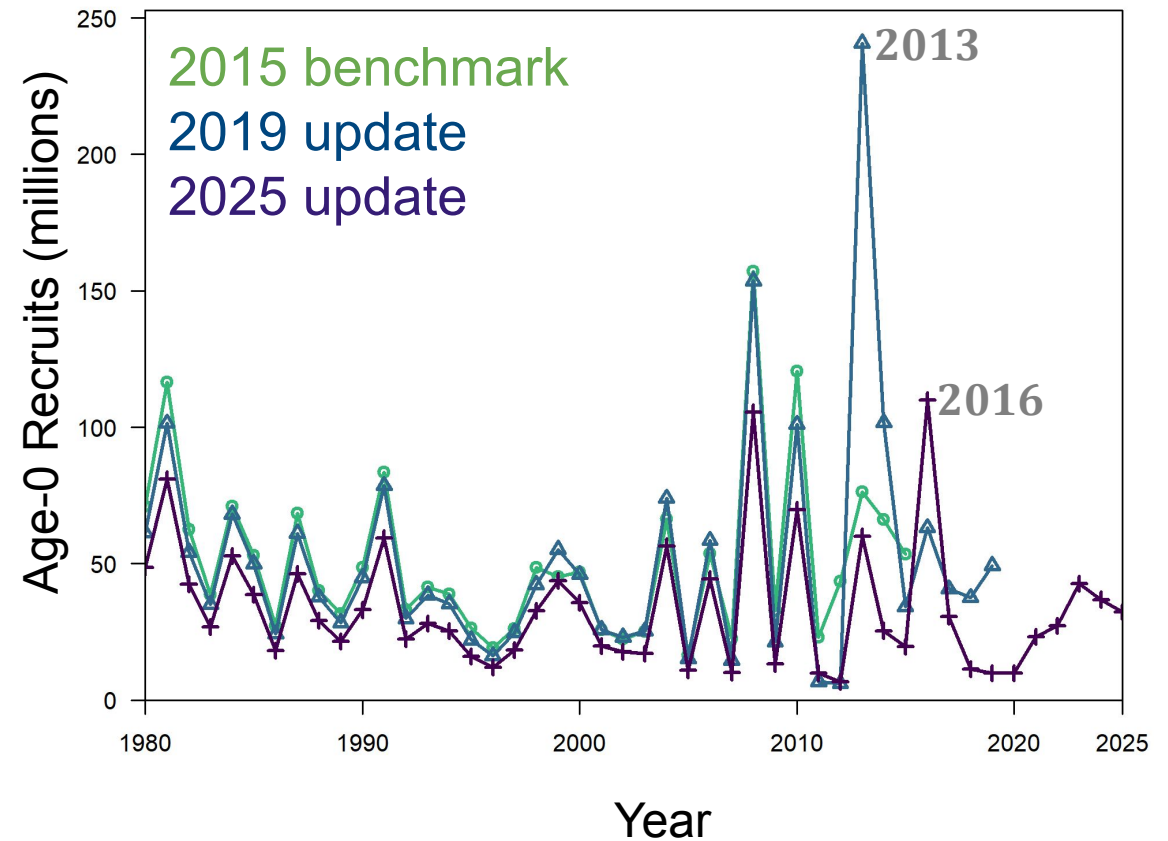
Still in review



Catch limits from the 2025 assessment are substantially lower than previous estimates. Why?

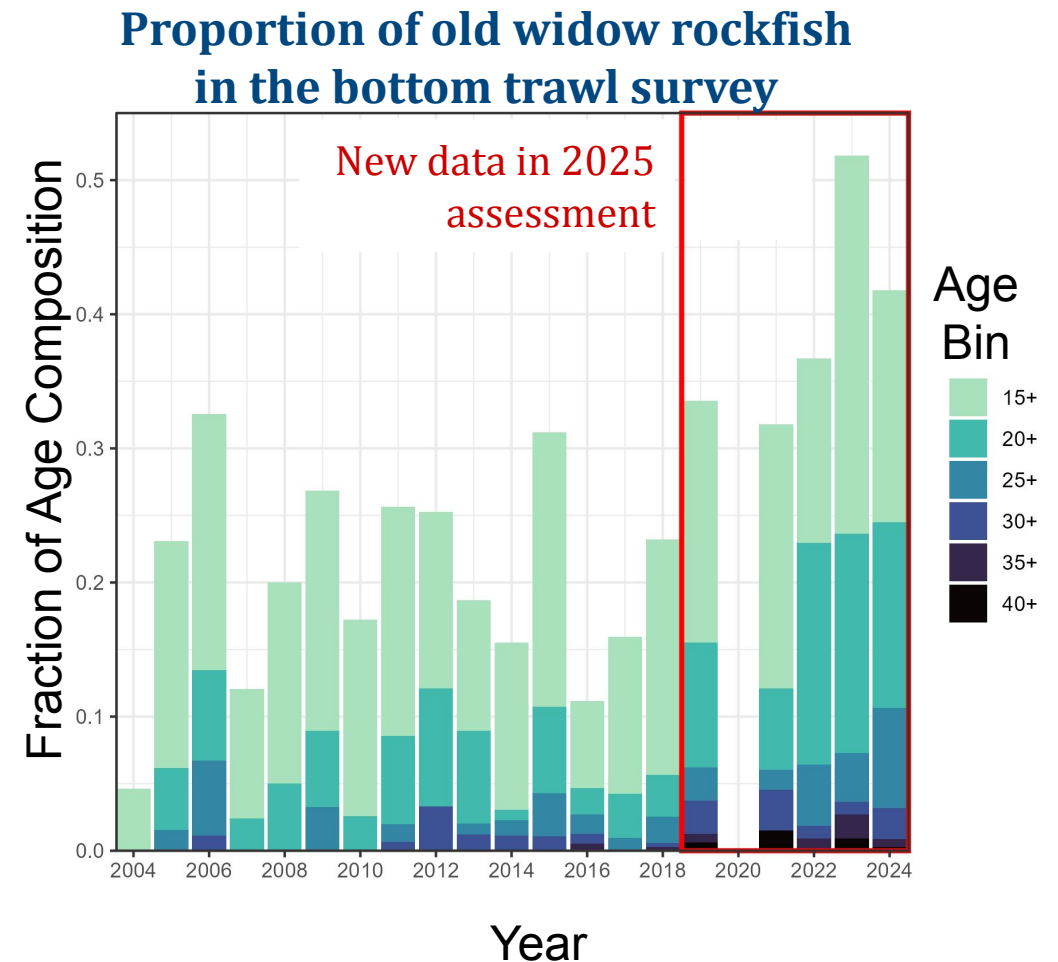
Still in review

1. Recent data from multiple sources do not support the very high 2013 recruitment estimates in the 2019 update. That estimate was disproportionately influenced by limited hook-and-line discard length data.



Catch limits from the 2025 assessment are substantially lower than previous estimates. Why?

2. The bottom trawl survey observed more old fish from 2019 to 2024 than ever seen before, providing new information about longevity of the species, leading to the lower estimates of natural mortality.
3. The combination of lower estimates of natural mortality, lower estimates of recent recruitment, and large recent catches lead to lower estimates of productivity and stock status, which translates to lower projected catch limits.



Projected catch limits

Removals & stock projections based on default harvest control rule ($P^* = 0.45$)

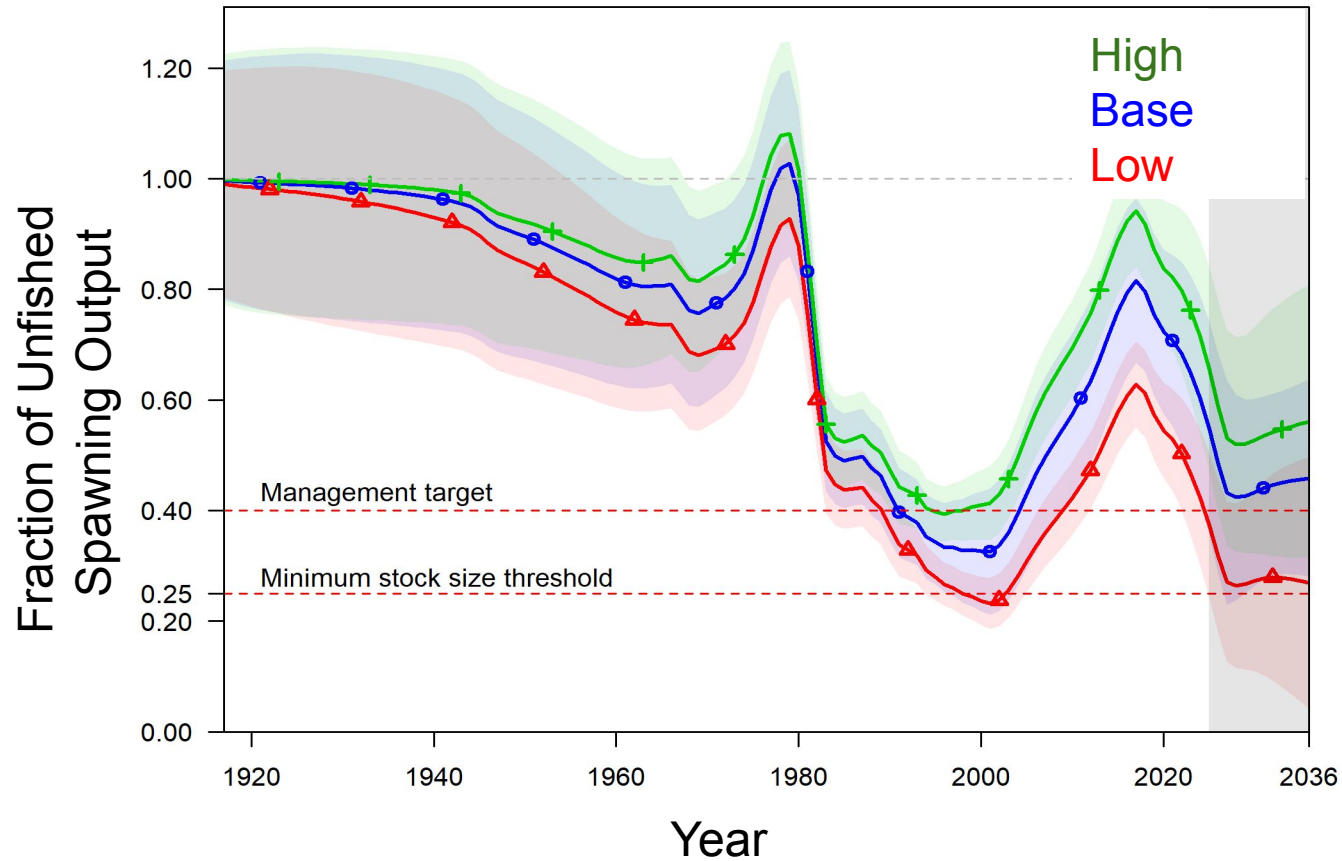
Year	Removals (mt)	Spawning Output (mt)	Stock Status (target = 40%)
2024	9,764	51,498	60%
2025	10,669*	46,934	55%
2026	9,824*	41,475	49%
2027	4,238	36,918	43%
2028	4,349	36,217	42%
2029	4,677	36,388	43%
2030	5,004	36,993	43%
2031	5,213	37,635	44%

* GMT estimated removals

- Estimated fishing intensity exceeds the new estimated targets in recent years, suggesting catch limits could be too high.
- The SSC Groundfish Subcommittee recommended a supplemental review in October “Given the substantial change in the projections of stock status and the estimated stock productivity, ...”

Model uncertainty and projections

Still in review



- Projections of fraction of unfished spawning output show large uncertainty within and among states of nature

Questions?

Key Takeaways

- At the start of 2025 the relative stock status is estimated at 55%, which is **above the management target**.
- **Catches increased** since 2017 to a similar level as the 1980s and 1990s, **resulting in a decrease of the stock biomass** in recent years.
- Biomass estimates over time are similar to past results **but catch limits are significantly lower** due to new estimates of natural mortality and recent recruitment.
- Estimated fishing intensity exceeds the new estimated target in recent years, suggesting catch limits could be too high.

Source: At-a-Glance

Thank you!

Contact us:

Kiva Oken kiva.oken@noaa.gov

Brian Langseth brian.langseth@noaa.gov

John Field john.field@noaa.gov

Chantel Wetzel chantel.wetzel@noaa.gov

Jason Cope jason.cope@noaa.gov

Owen Hamel owen.hamel.noaa.gov

Kristin Marshall kristin.marshall@noaa.gov



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