



**NOAA
FISHERIES**

Chilipepper 2025

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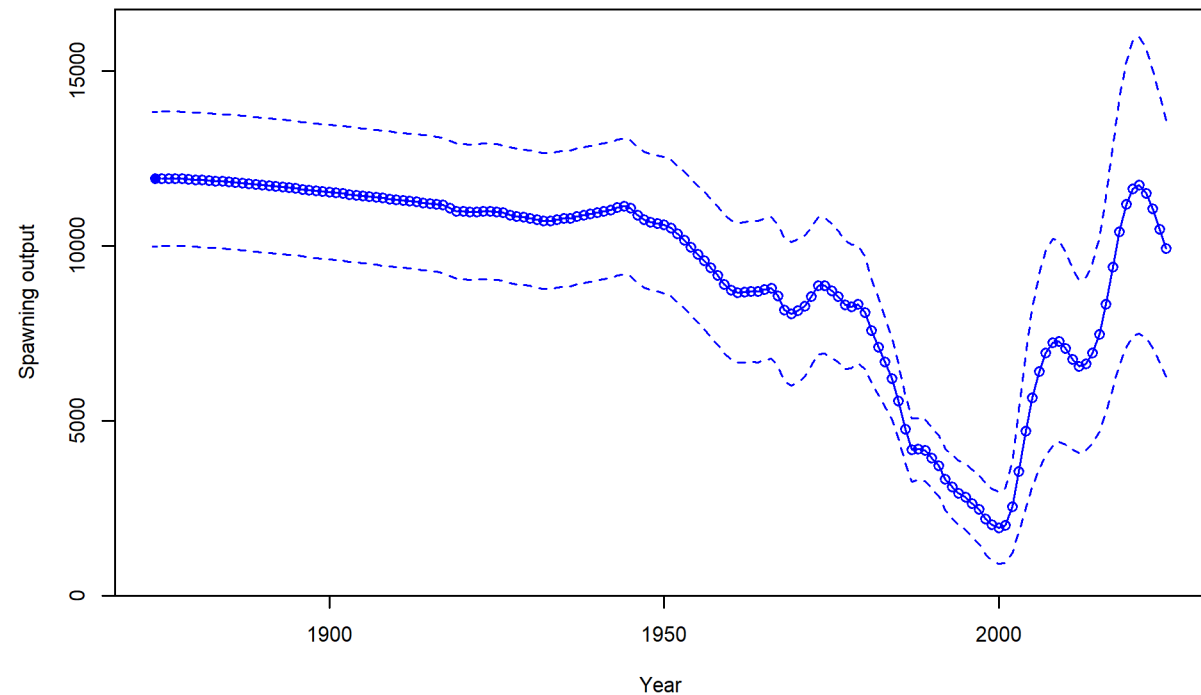
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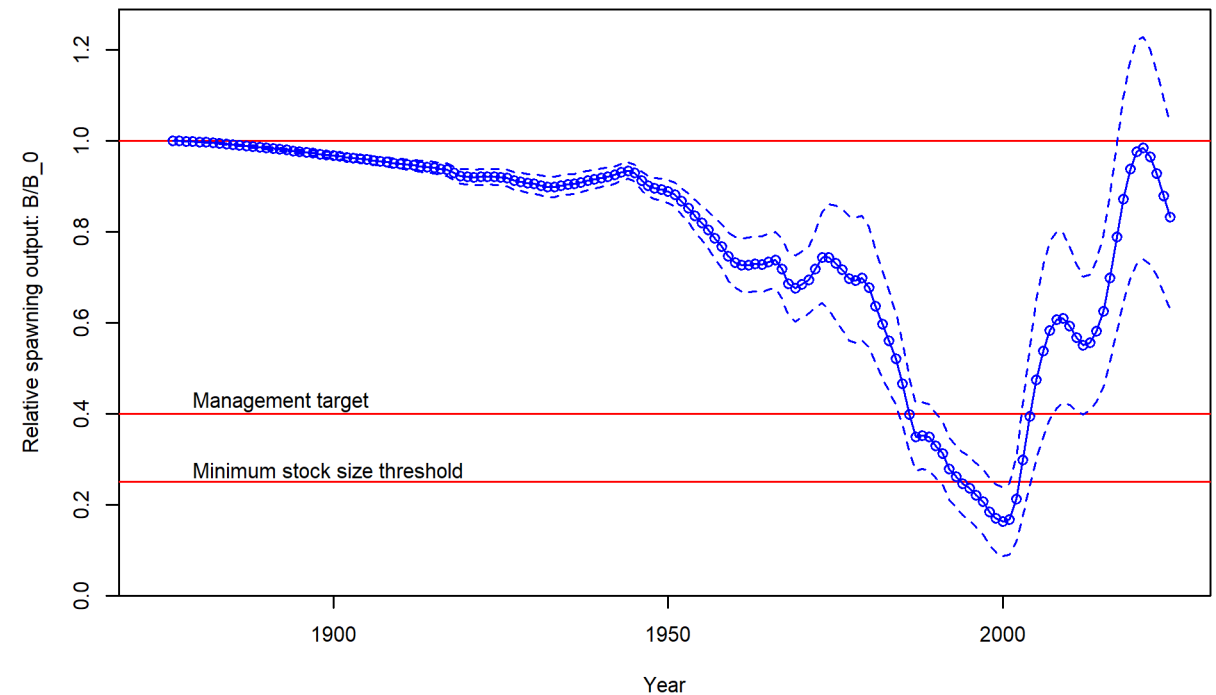
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Key assessment outputs

Spawning output [billions of eggs]

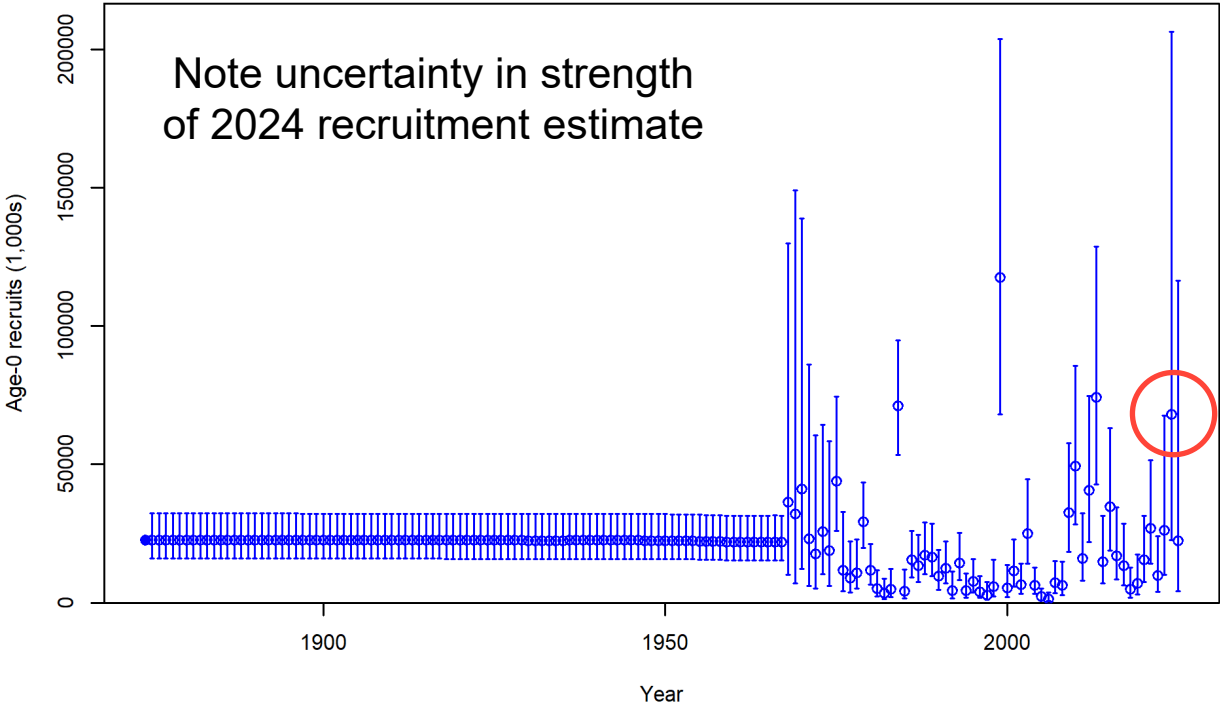


Fraction of unfished spawning output



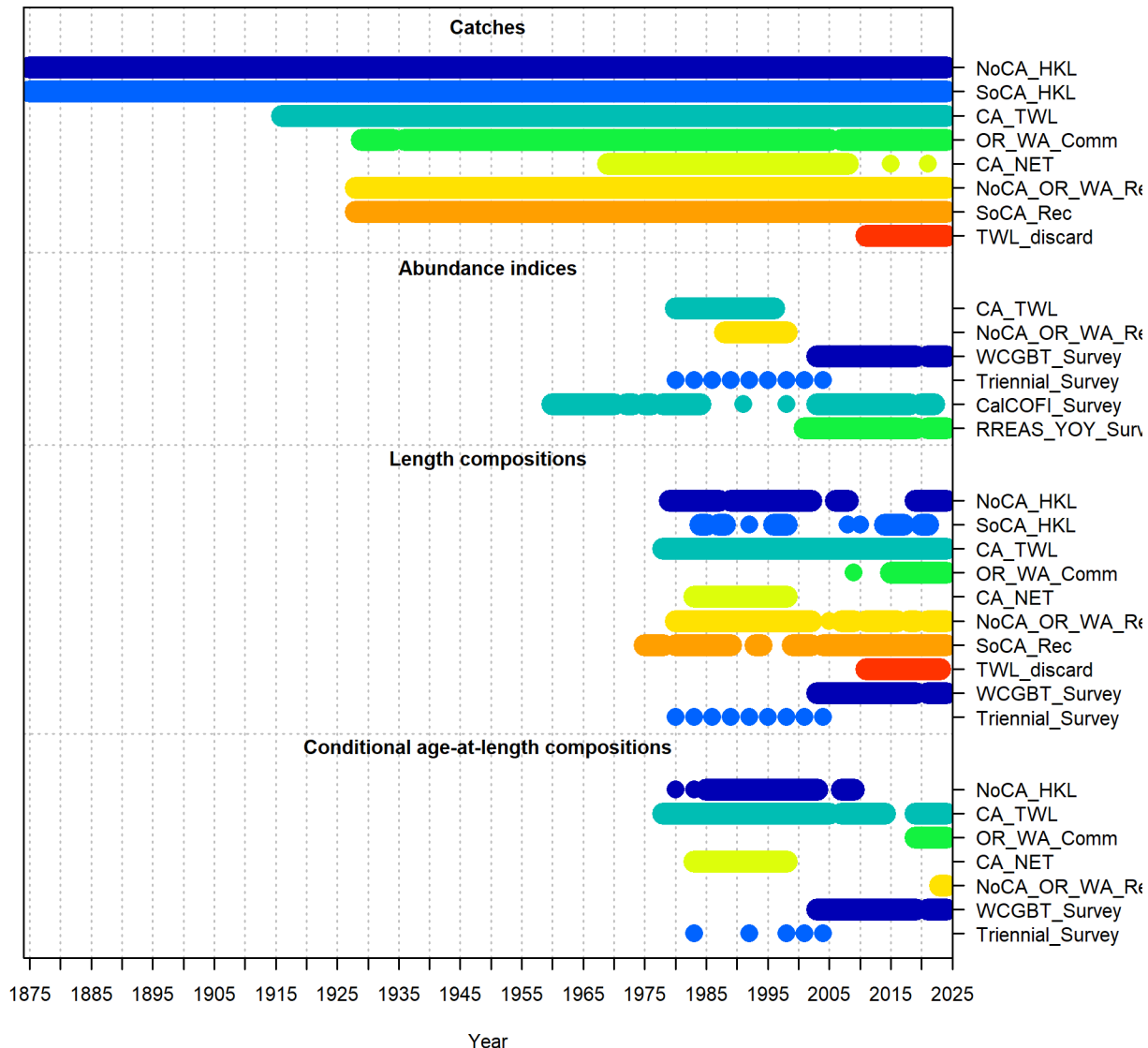
Key assessment outputs

- Estimated status is above target
- 2024 recruitment est. > average
- Short-term, potential yields are above MSY, and will decline under either requested catch stream (catch=ABC=ACL or catch=MSY)



Year	Predicted OFL (mt)	ABC (mt)	Buffer	Spawning output	Fraction Unfished
2025	--	--	--	9925	0.832
2026	--	--	--	9369	0.786
2027	3434.3	3211.1	0.935	9133	0.766
2028	3318.1	3085.8	0.930	8778	0.736
2029	3250.8	3010.3	0.926	8597	0.721
2030	3210.7	2960.2	0.922	8437	0.708
2031	3163.1	2900.5	0.917	8242	0.691
2032	3090.3	2821.4	0.913	8006	0.672
2033	2997.8	2725.0	0.909	7746	0.650
2034	2899.1	2620.8	0.904	7483	0.628
2035	2805.2	2524.7	0.900	7235	0.607
2036	2721.5	2438.5	0.896	7014	0.588

Data & Model Structure



MODEL

- Stock Synthesis ver. 3.30.23.1
- U.S. waters from Mexico to Canada
- Estimated catches, 1875-2024
- Beverton-Holt SRR, estimated rec. deviations 1968-2024
- Estimated dimorphic adult growth
- Fleets-as-areas account for regional selectivity patterns, with time-blocking
- Additive variance estimated for CalCOFI; fixed for RREAS (based on σ_R)

List out major changes from previous assessment

- First benchmark assessment since 2007

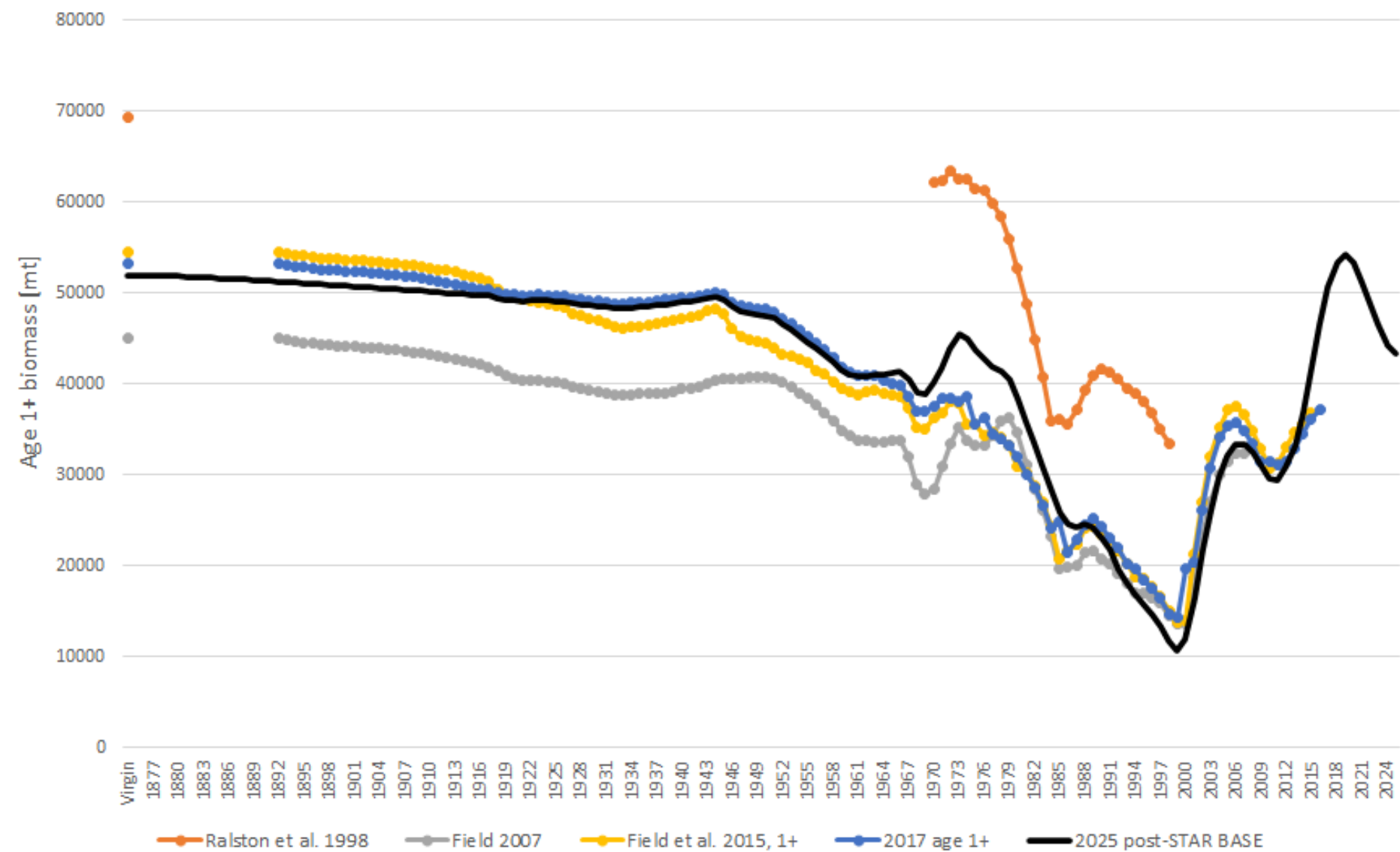
DATA:

- Marginal age compositions → Conditional Age at Length
- Removed fishery-dependent relative abundance indices
 - Trawl logbook CPUE
 - Recreational onboard observer CPUE
- Added CalCOFI ichthyoplankton index (relative spawning output)
- Trawl discard fleet (~9% of landings); bycatch from at-sea hake

MODEL:

- Steepness fixed at 0.72, previously fixed at 0.57; rec. bias adjustment
- Estimated sex-dependent natural mortality rates, previously fixed
- No time-varying growth parameters (for now)
- Fecundity-length relationship accounts for multiple-brooding

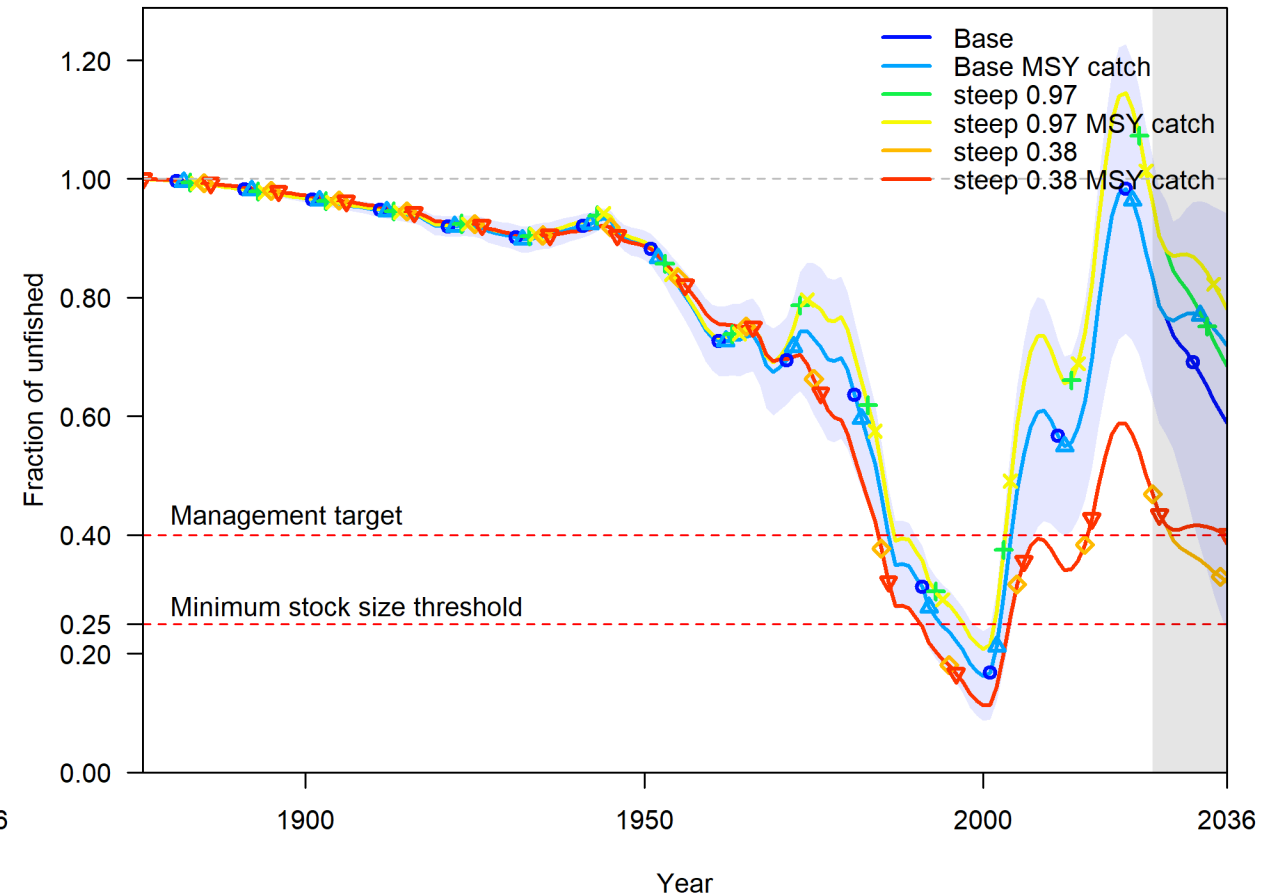
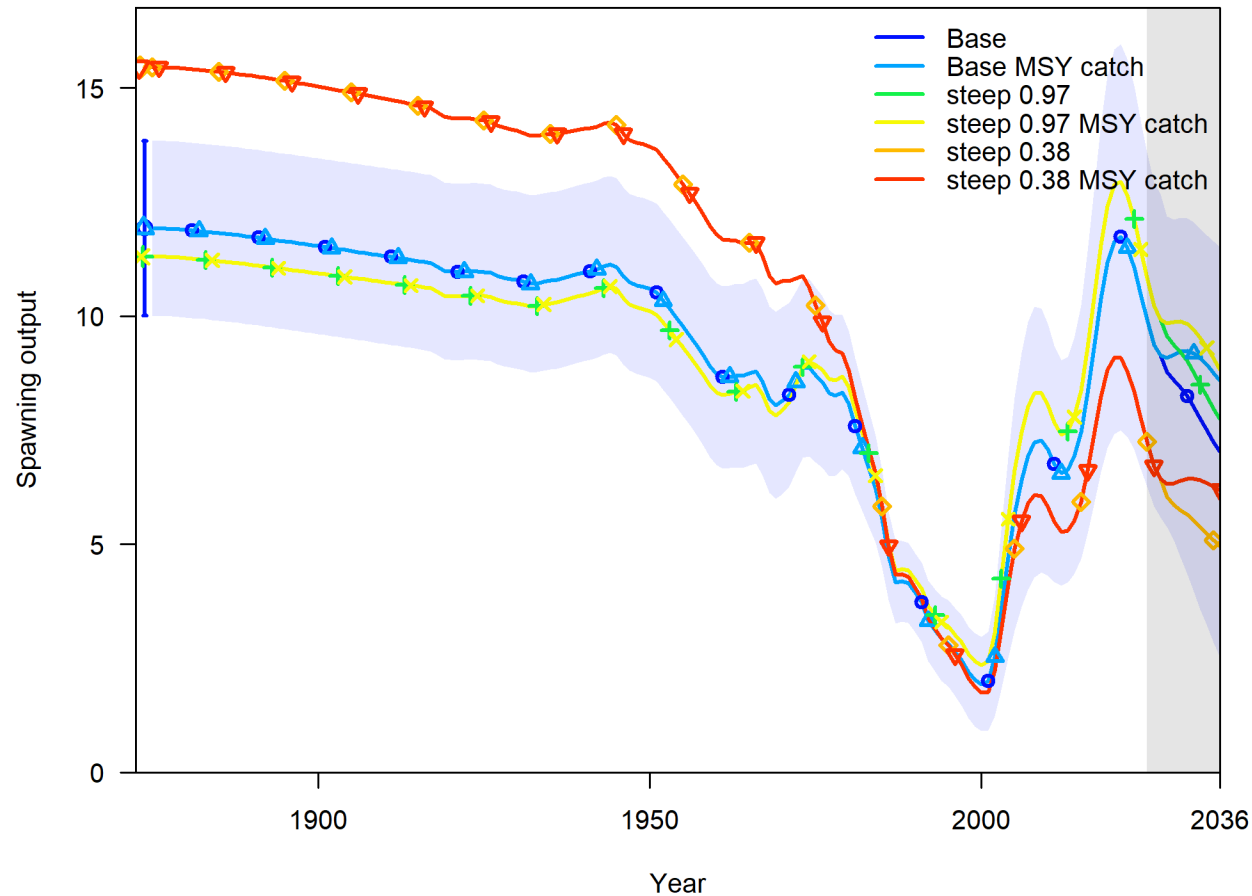
Comparison to Previous Stock Assessments



Major issues highlighted by the STAT

- Stock productivity not well estimated, model sensitive to sum-to-zero constraint on recruitment dev's; B-H steepness fixed at 0.72
- Poor fit to early years of WCGBTS (2004, 2005, 2007); catchability > 1 for both the WCGBT and Triennial surveys; adding depth effect improved fit and scaling, but issues remained
- Unresolved issues with ageing: outliers in both sexes across survey and fishery data, bias in FT-NIRS ages
- External analysis supports time-varying growth. Sensitivities focused on variation in k parameter, showing little change. Effect may be greater if both k and L_{∞} are allowed to (co)vary.

Axis of uncertainty / states of nature

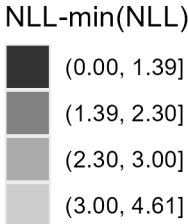
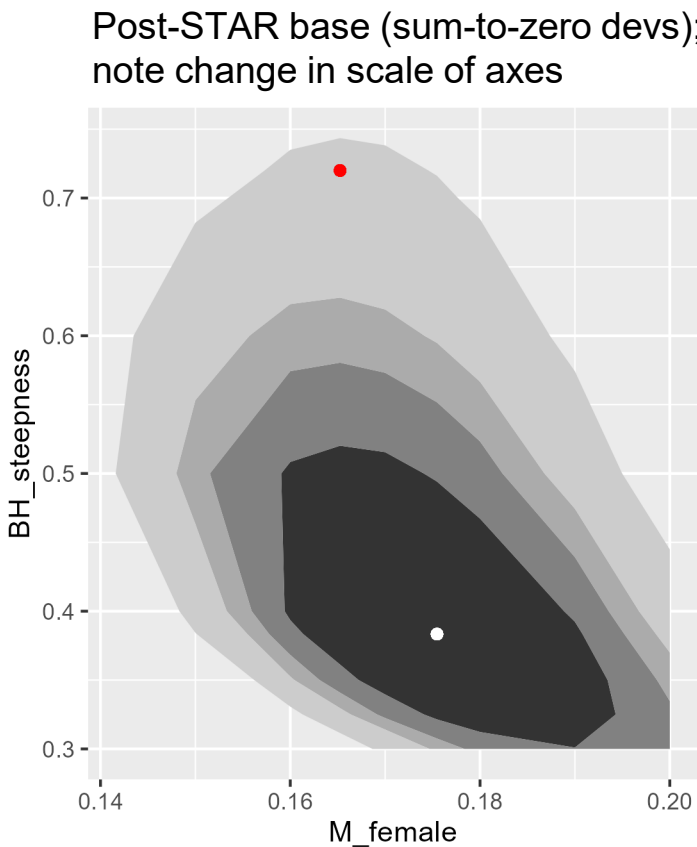
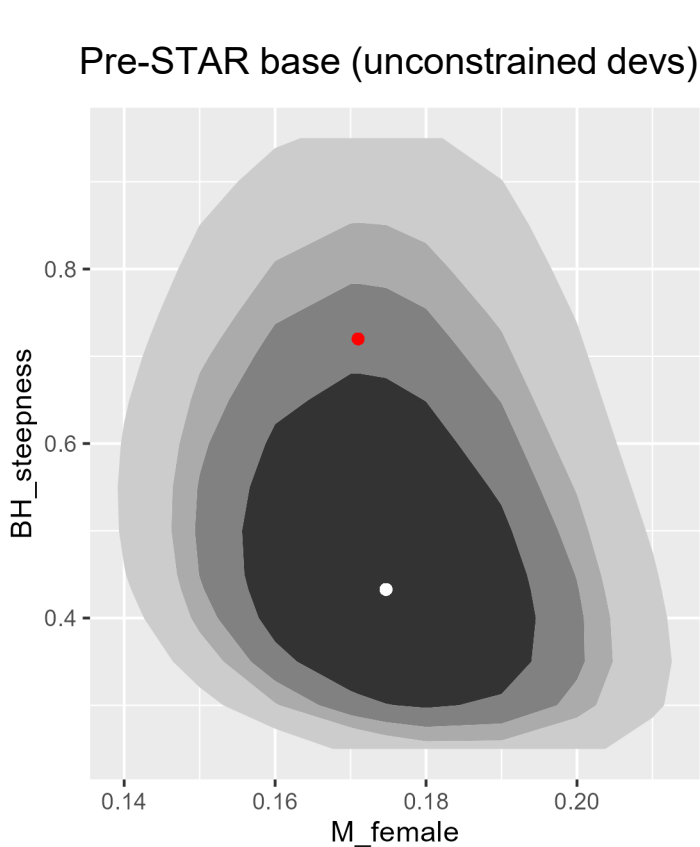


Risk Table

Ecosystem and environmental conditions	Assessment data inputs	Assessment model fits and structural uncertainty
Larval production and condition: Based on 2024-2025 NPGO, may be neutral to unfavorable, but signals are somewhat mixed Recruitment: Index used in assessment. High diversity and abundance of the YOY groundfish assemblage community in 2024 consistent. Environmental conditions are favorable for 2025 (minty/subarctic), high preliminary survey catch rates. Overall, favorable for recruitment Prey: Most evidence suggests abundant forage, favorable conditions, positive Predators: Ongoing long-term increases in abundance, but no evidence of recent sharp increases, neutral Growth: Recent years potentially unfavorable in near term (based on autocorrelation in growth variability), neutral	Historically and currently among most important commercial species in California, catch reconstruction and recent catch data are reliable, favorable Robust age data to inform assessment, modest aging error concerns need resolution, neutral to favorable Robust information on reproductive ecology, but better data on functional maturity and role of multiple brooding would be helpful, neutral to favorable Several informative fishery independent indices that span life history stages, including larval production/spawning output (CalCOFI), settled juvenile and mature adult biomass (WCGBTS), and pelagic YOY abundance (RREAS), favorable	Good fits to age and length composition data. Generally good fits fishery-independent survey data, particularly in more recent years, favorable Several abundance indices help inform recent recruitment and population forecasts (e.g., WCGBTS, RREAS), favorable Selectivity functions are not always well behaved, unfavorable Evidence for time-varying growth in data, but growth assumed to be time-invariant within the model, neutral Likelihood profiles indicate that natural mortality is well informed, but steepness is not well informed. Steepness provides axis of uncertainty for decision table, neutral
Level 1, favorable (medium agreement, robust evidence)	Level 1, favorable (high agreement, robust evidence)	Level 2, neutral (medium agreement, medium evidence)

Productivity Details

(See STAR Panel report, requests #4 and #17)



If steepness is fixed without a sum-to-zero constraint, the mean of the recruitment deviations shifts to make productivity more consistent with the estimated value of steepness.

