

Draft Responses to the PFMC Requests for the Widow Rockfish Stock Assessment

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At the November 2025 meeting, Pacific Fishery Management Council (the Council thereafter) developed several requests for the SSC and the STAT regarding the 2025 widow rockfish stock assessment. This document provides responses to two Council requests for the STAT (listed in <https://www.pcouncil.org/november-2025-decision-summary-document/#groundfish-management-toc-370a67df-853c-49f3-aa48-fa4e418d06e7>).

Council Request 2: The STAT use the best scientific information available to project a ramp-down that departs from the proxy harvest control rule while keeping the stock above B40% in 2029 (e.g. ACLs of 8,842 mt in 2027 and 7,958 mt in 2028, representing a 10% decrease in the “assumed catch” from Table 4 of F.2 Attachment 3 each year)

Response: Based on the January 2026 model, the suggested forecast catch would result in 2029 relative spawning output going below the B40% management target (see table below). A 20% decrease of that suggested catch would bring the 2029 relative spawning output to just below the 40% target, and a 25% decrease of the suggested catch would keep 2029 relative spawning output above B40% management target.

We also developed projections with ACLs calculated assuming OFLs to be equal to the SPR target (5931 mt) with standard constant buffer, based on $P^* = 0.45$, applied.

Label	Council "Request 2" forecast catch	5% decrease in forecast catch from Request 2	10% decrease in forecast catch from Request 2	20% decrease in forecast catch from Request 2	25% decrease in forecast catch from Request 2	ACL =buffer*SPR target equilibrium catch
Fraction unfished 2025	0.501	0.501	0.501	0.501	0.501	0.501
Equil. catch at MSY mt	6746	6746	6746	6746	6746	6746
Equil. catch at B40% mt	6239	6239	6239	6239	6239	6239
Equil. catch at SPR targ. mt	5931	5931	5931	5931	5931	5931
2027 ACL mt	8842	8400	7958	7074	6632	5569
2028 ACL mt	7958	7560	7162	6366	5969	5569
Fraction unfished 2029	0.378	0.382	0.387	0.397	0.402	0.410

Council Request 3: The STAT include a Bayesian projection to evaluate the probability that the stock would remain above B40% in 2029, if such a method is feasible to achieve within existing workload capacity and model structure.

Response to Council Request 3: A Bayesian projection was hindered by two software issues. These issues included:

1. The widow rockfish model, following the 2015 assessment, uses a zero-sum constraint on recruitment deviations for the main period, and this setting is incompatible with MCMC calculations in all ADMB models, including SS3. The ADMB issue is unlikely to be resolved in the future. Changing the treatment of recruitment deviations to remove the constraint only has a small impact on model output, but the resulting probability would not be based on the current base model.
2. SS3 currently has a technical issue with output of forecast quantities when used in MCMC mode. A solution to this issue will be included in the next release of SS3. Thus, even if the alternative approach to recruitment deviations were implemented to bypass the first issue, this second issue prevents using the current release of SS3 to get the required output.

As an alternative to the suggested Bayesian approach, the normal approximation to the posterior distribution was calculated from the maximum likelihood estimate of the ratio $B_{2029}/B_{40\%}$ and the associated asymptomatic standard error, where the 40% management target represents a ratio of 1.0 and the 25% minimum stock size threshold is at $0.25/0.4 = 0.625$.

We calculated the probability for the model using standard management (assuming full ACL attainment of the default harvest control rule catches, 4,596 and 4,810 mt for 2027 and 2028 respectively, The resulting probability of the stock remaining above B40% at the start of 2029 is 0.583. This probability is illustrated in the figure below, where the fraction of the distribution above the dashed “management target” line is 0.583. This calculation could be applied to any other projection which the Council is considering for management of widow rockfish.

