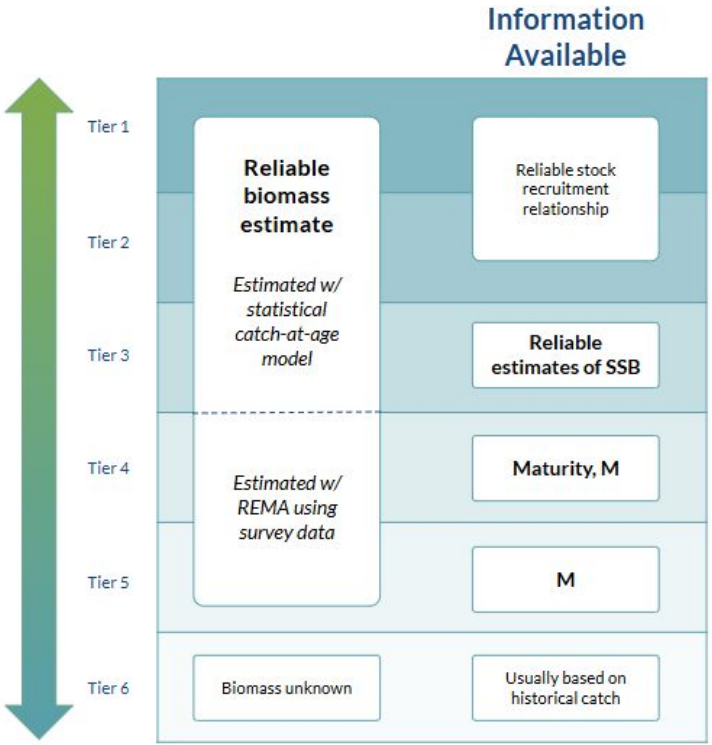
Slide from GOA rougheye/blackspotted

Standardized software: https://noaa-afsc.github.io/tier4tools/
Tech memo: Sullivan and Omori (2026)



Both Tiers 3 and 4 have SPR-based reference points ($F_{40\%}$, $F_{35\%}$)

Scaled using mean recruitment (so you can get spawning biomass reference points, e.g., $B_{100\%}$)

No scale information (initialized at 1) - therefore, we lose information on stock status and depletion

Only one current Tier 4 groundfish - shout out GOA sharpchin!

$F_{35\%}=F_{OFL}$ | $OFL=B_{REMA} \times F_{35\%}$
$F_{40\%}=F_{ABC}$ | $ABC=B_{REMA} \times F_{40\%}$

Note: perhaps should be $B_{REMA}(1-\exp(-F_{35\%}))$ but this is not how its been done previously and therefore not how we did it here

PROPOSED JOINT PLAN TEAM GENERAL COMMENT

The Plan Team requests SSC guidance on how to translate Tier 4 fishing mortality reference points into catch limits. The current approach for GOA sharpchin rockfish (the one Tier 4 groundfish) calculates max ABC as B*F40% and OFL as B*F35%, where B is the survey-based biomass estimate from the REMA model. The groundfish FMPs specify the F40% and F35% fishing mortality reference points. The Team seeks clarification on whether direct multiplication is the intended implementation or whether the instantaneous rates should first be converted to annual exploitation fractions.

If annual exploitation is preferred, the Team requests guidance on which conversion is appropriate given what the survey-based biomass estimate represents. In particular, the Team asks whether to use 1-exp(-F) or the catch equation. The current justification for direct multiplication is consistency with Tier 5, which also uses survey-based biomass estimates. The direct multiplication is also consistent with the interpretation that B represents mean biomass over the year, with constant F. Clarification would support consistent application of Tier 4 across assessments as additional stocks are considered for this tier.