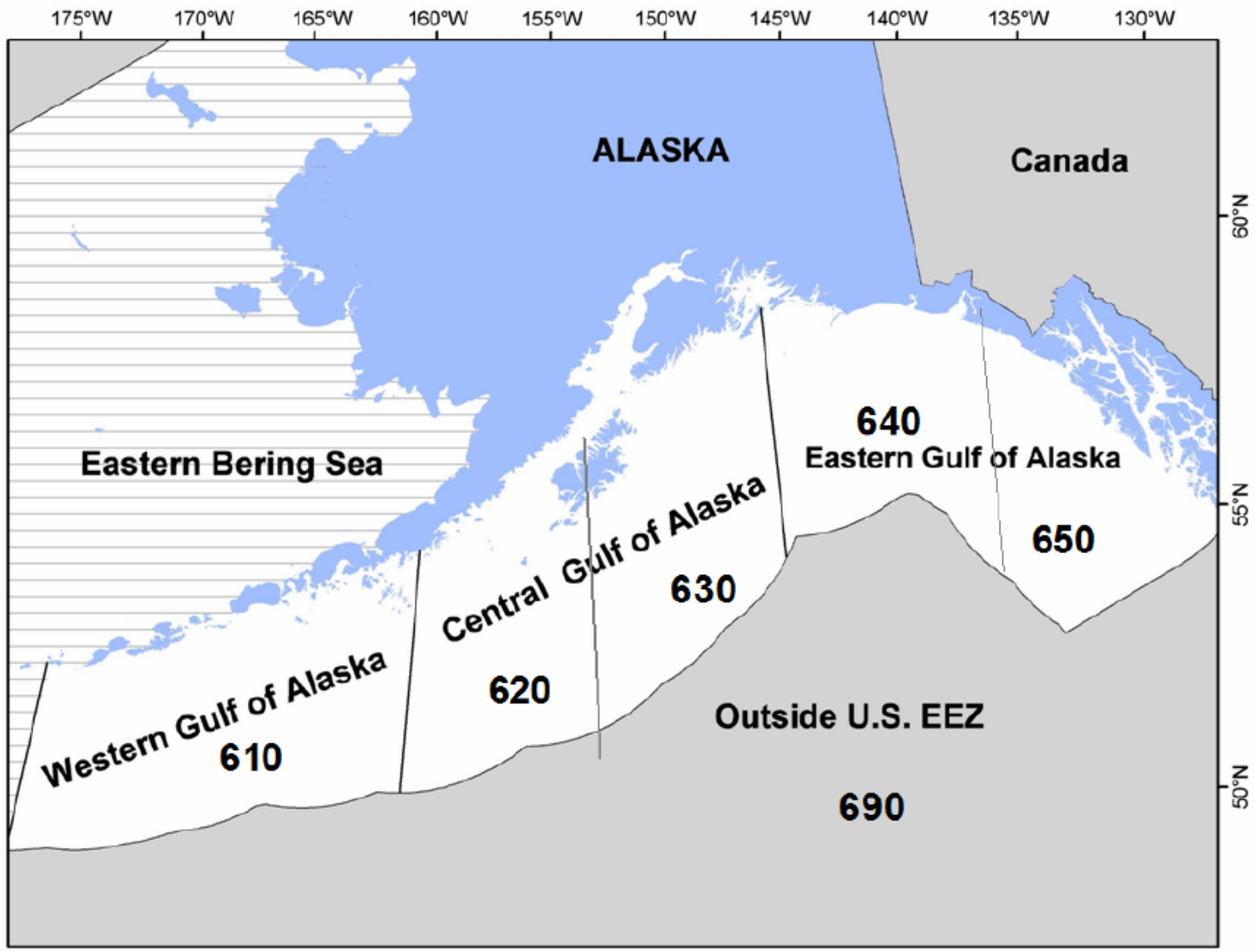
SCIENTIFIC AND STATISTICAL COMMITTEE DRAFT REPORT for the NORTH PACIFIC FISHERIES MANAGEMENT COUNCIL

C-5 GOA Specifications



Specifications

SSC concurs with all other Plan Team ABC/OFL and apportionments not mentioned in the SSC Report. (partial, none, updates assessments)

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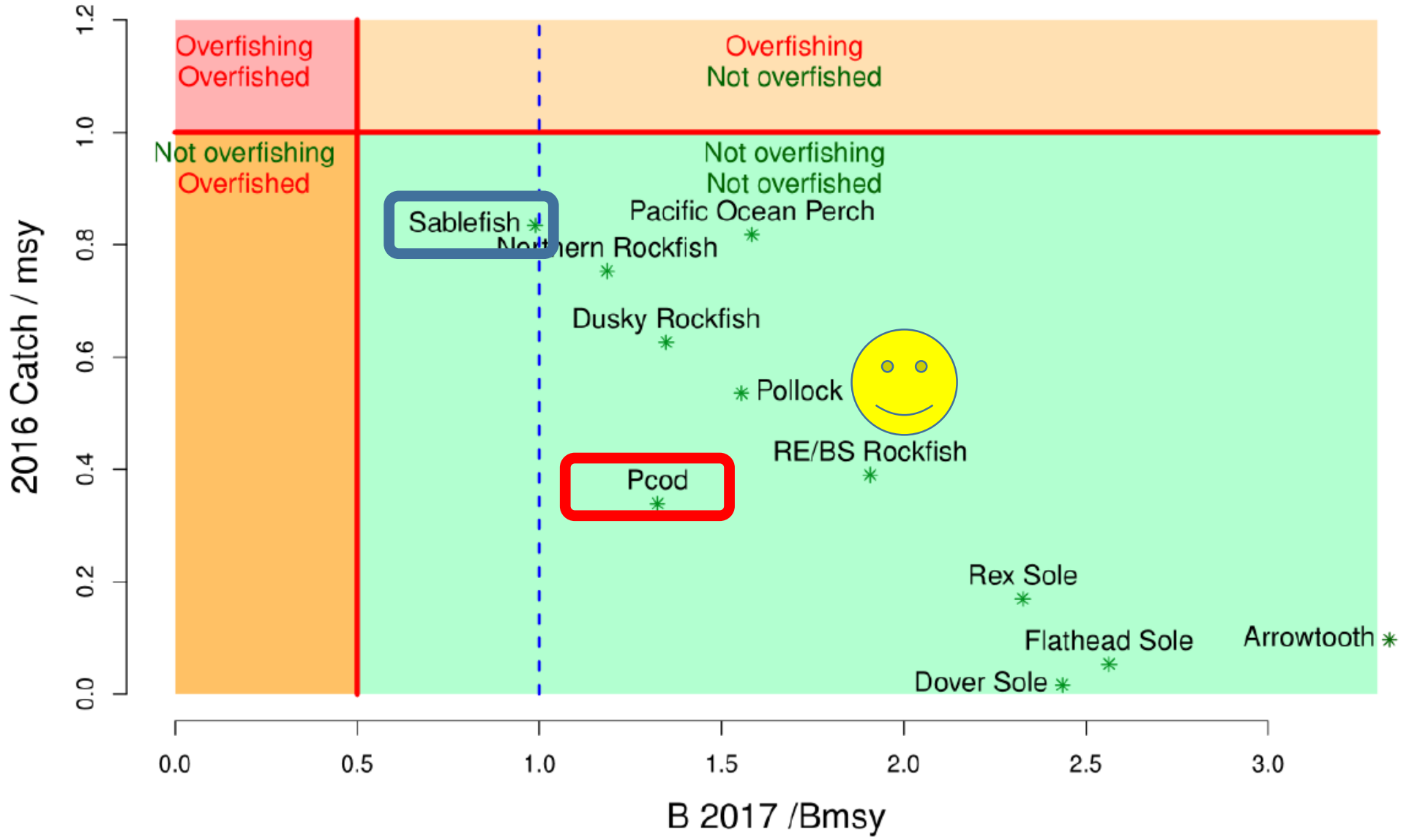

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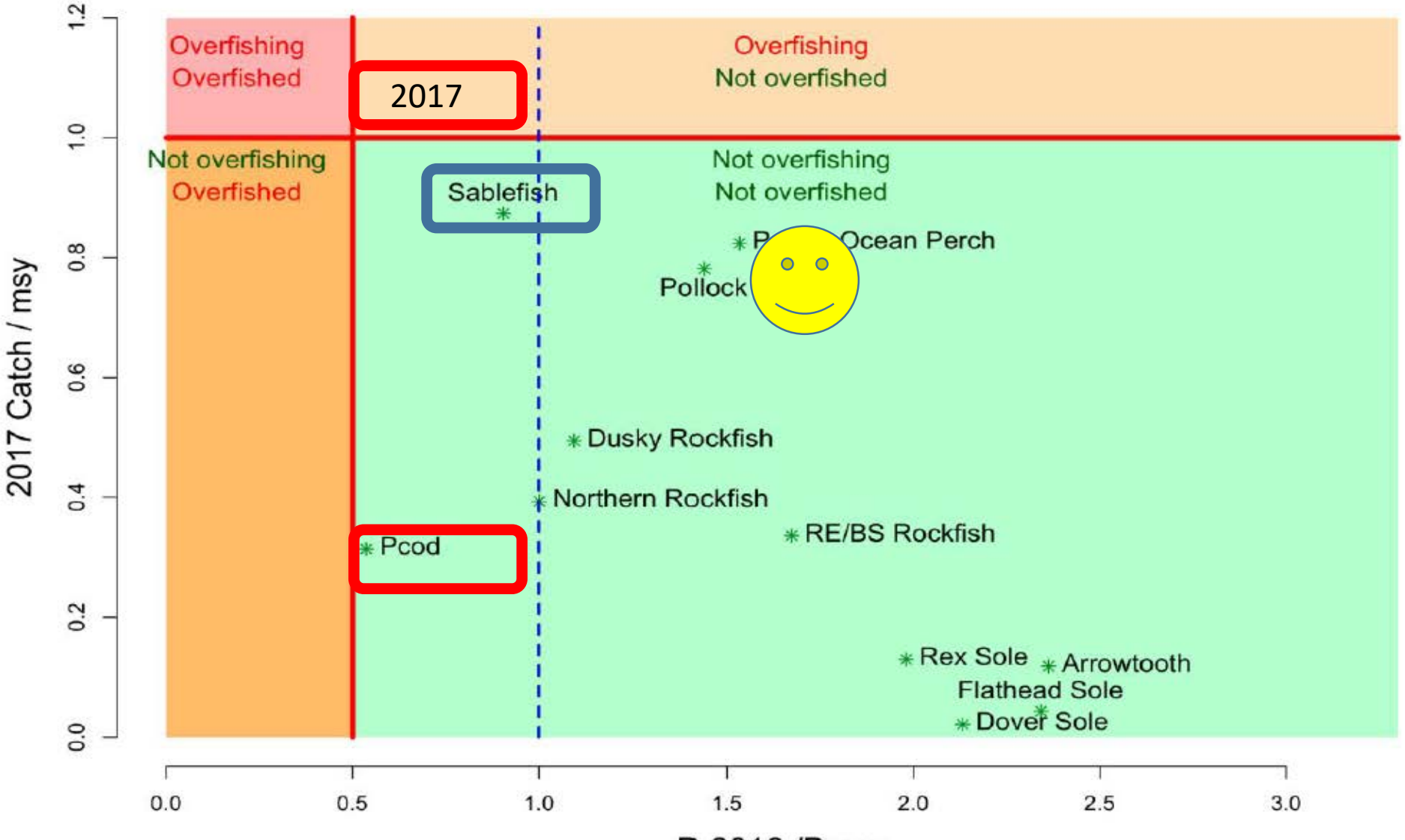

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SSC Recommendations that differed from Plan Team

- None

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GOA Pollock

- Results from the stock assessment show a moderate decline in female spawning biomass from 213,689 t in 2017 to 170,265 t in 2018. Consequently, there were moderate declines in ABC and OFL as well.
- On the positive side, the 2012 year-class appears to be very strong and is the largest in over 30 years. The stock is in Tier 3a as female spawning biomass is above B40%. **The SSC agrees with the authors' and PT's recommendations for OFL and ABC (see Table 2 above).**

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GOA Pacific Cod

- The Pacific cod stock in the Gulf of Alaska experienced a drastic decline in biomass and abundance since 2015, as first reported in October following the 2017 bottom trawl survey. As detailed in the ecosystem status report, the Gulf of Alaska experienced anomalous warm conditions throughout the water column starting in 2014 through at least 2016 (a warm event known as ‘The Blob’).

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GOA Pacific Cod

- This unusual warm event apparently affected the entire ecosystem and, in particular, affected prey availability for upper trophic level predators as was evident in a number of ecosystem indicators (groundfish condition, seabird die-offs and other unusual mortality events), including the poor condition of Pacific cod in recent years (negative weight-at-length anomalies)

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GOA Pacific Cod

- The observed decline in biomass was not captured by last year's accepted model (16.08.25), when updated with new data. Therefore, model explorations this year focused on model features that might help explain this large and unexpected decline, in addition to other improvements.

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GOA Pacific Cod

- While there is still a lot of uncertainty about the appropriate model structure, as in the EBS cod assessment, there is evidence that the higher rate of natural mortality, smaller absolute stock size, and higher productivity implied by the new model are very plausible

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GOA Pacific Cod

- Some evidence in support of the model structure cited by the author include recent studies suggesting fewer old cod in the population (both currently and historically) than was previously believed and the fact that the estimated population trajectory is more consistent with documented historical trends, specifically the ‘gadid outburst’ in the Gulf of Alaska in the late 1970s and early 1980s.

C-5 GOA Specifications

GOA Pacific Cod

- **The author and Plan Team recommended Model 17.08.35 and the SSC concurs with this recommendation**. This model fit the data well without obvious bias or apparent overfitting and had a reasonable retrospective pattern.

C-5 GOA Specifications

GOA Pacific Cod

- The author and Plan Team further reduced the ABC from maxABC because projections based on the maximum ABC suggested that the biomass could drop below $B_{20\%}$ by 2020. **The SSC supports this (minimal) reduction in ABC and highlights the substantial risk implied in these projections that Pacific cod biomass could drop below $B_{20\%}$ in the near future.**

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GOA Pacific Cod

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C-5 GOA Specifications

GOA Pacific Cod

- Finally, the SSC highlights the value and the extensive use of ecosystem information in both the EBS and GOA Pacific cod assessments and in our deliberations.
- In the GOA, ecosystem information was essential in informing model development, in particular in supporting a model that includes elevated mortality in two years based on the strong evidence for poor prey availability associated with an unusual warm event.
- In the EBS, ecosystem considerations were essential in setting the ABC.

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General Comment

Other Rockfish (Combination of Slope Rockfish and Pelagic Shelf Complex Species). **The SSC agrees with Plan Team assessment of stock structure (medium) and urges the Council to consider step 2 of the Stock Structure and Spatial Management Policy.** The SSC notes that there will likely be numerous management implications to consider if step 2 of the process is undertaken by the Council.

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Demersal Shelf Rockfish

Plan Team minutes indicate there are plans to survey the SSEO in 2018 (last surveyed in 2013), and hopefully survey the CSEO and NSEO (last surveyed in 2016) sub-districts as funding allows. The SSC strongly supports these survey efforts.

C-6 GOA Specifications

Octopus

Survey estimates for biomass in this year's assessment dropped precipitously from 13,008 t in 2015 to 1,049 t.

C-6 GOA Specifications

Octopus

In 2016, both the Plan Team and the SSC expressed concern that this approach might follow the survey data “too tightly” given the large amount of process error.

C-6 GOA Specifications

Octopus

The Plan Team judged the 2017 biomass based on the random-effects model to be a poor predictor for future octopus abundance and recommended using the Tier 6 maximum catch approach to set OFL. ABC is 75% of OFL and the SSC agreed.