



# North Pacific Fishery Management Council

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## SCIENTIFIC AND STATISTICAL COMMITTEE FINAL REPORT TO THE NORTH PACIFIC FISHERY MANAGEMENT COUNCIL April 5<sup>th</sup> – 8<sup>th</sup>, 2021

The SSC met remotely from April 5<sup>th</sup> – 8<sup>th</sup>.

Members present were:

Anne Hollowed, Co-Chair  
*NOAA Fisheries – AFSC*

Sherri Dressel, Co-Chair  
*Alaska Dept. of Fish and Game*

Alison Whitman, Vice Chair  
*Oregon Dept. of Fish and  
Wildlife*

Milo Adkison  
*University of Alaska Fairbanks*

Chris Anderson  
*University of Washington*

Amy Bishop  
*University of Alaska Fairbanks*

Curry Cunningham  
*University of Alaska Fairbanks*

Mike Downs  
*Wislow Research*

Jason Gasper  
*NOAA Fisheries—Alaska Region*

Dana Hanselman  
*NOAA Fisheries—AFSC*

Brad Harris  
*Alaska Pacific University*

George Hunt  
*University of Washington*

Andrew Munro  
*Alaska Dept. of Fish and Game*

Matt Reimer  
*University of California, Davis*

Chris Siddon  
*Alaska Dept. of Fish and Game*

Ian Stewart  
*Intl. Pacific Halibut  
Commission*

Patrick Sullivan  
*Cornell University*

Tien-Shui Tsou  
*Washington Dept. of Fish and  
Wildlife*

## EXCERPT OF C1 SECTION OF REPORT ONLY

## **C-1 Scallop SAFE**

The SSC received a presentation on the 2021 Executive Summary Scallop SAFE from Scallop Plan Team (SPT) co-chairs Jim Armstrong (NPFMC) and Tyler Jackson (ADF&G), and economist Scott Miller (NOAA-AKRO). During its June 2020 meeting, the SSC recommended an executive summary of the SAFE be prepared biennially. This is the first SSC review of the Executive Summary SAFE in this revised format. No public testimony was provided.

### **2021/2022 Harvest Specifications**

**The SSC supports the SPT's recommendation to set the OFL for the 2021/22 season equal to maximum OY (1.284 million lb; 582 t meat weight) as defined in the Scallop FMP, which applies a 20% mortality rate to discards. The SSC also supports the SPT's recommendation to set the 2021/22 ABC for scallops consistent with the maximum ABC control rule (90% of OFL), which is equal to 1.156 million lb (524 t meat weight).** Management of the scallop fishery appears to be conservative, and recent harvest has been less than 20% of the identified OFL based on the best available science, justifying these identified harvest maxima. **Overfishing did not occur in 2019/20 and overfishing cannot be assessed for 2020/21 because estimates of discards are not yet available.**

### **Assessment Schedule**

The OFL/ABC specifications for scallop have not changed since the 2011/12 season, and harvest amounts during this period have been well below the ABC. Given the low exploitation of scallops, slow development of new assessment methods, and stable harvest specifications, the SSC discussed whether further simplification of the SAFE review process is possible by replacing the current Executive Summary format with a multi-year specification with "off-years" (i.e., no SAFE produced). A decrease in assessment frequency would reduce burden on staff and review resources, noting that a multi-year assessment schedule would allow the SPT, SSC, and agency staff to focus on research and assessment development during the off-cycle rather than producing a SAFE. The off-cycle schedule would not preclude SPT or SSC review of important issues and research. However, during discussion, Council staff noted that the FMP requires that a SAFE report be produced annually and that an FMP amendment would be required to accommodate an off-year assessment cycle. The SSC supports such an amendment to the extent that it allows greater flexibility in scheduling the SAFE report cycle. Pending an FMP amendment, the SSC reiterates its past recommendation that the Executive Summary SAFE format be used every other year.

As this was the first use of the Executive Summary format, the SPT requested the SSC provide input on the format. **The SSC recommends that the Executive Summary should be as abbreviated as possible, and offers the following specific recommendations for content:**

- highlight important changes in ownership, community engagement, and general performance of the fishery relative to the GHL;
- highlight any social, economic, and biological issues that are of concern;
  - include a figure showing the time series of survey abundance and biomass indices, with associated uncertainty, by scallop bed. This should be included in addition to Table 2.

The SSC also received detailed responses by the SPT to SSC comments from its June 2020 meeting. The report was responsive to comments and the SSC offers the following recommendations and requests for the 2022 SAFE report.

- The SPT response did not include responses to the SSC comments from April 2018, April 2019, and June 2020 on outstanding social and economic issues. Scott Miller noted these comments will be addressed in the 2022 full SAFE and the SSC looks forward to responses to its comments.
- The SSC notes the two-stage design equations provided by the SPT in response to comments did not include a gear efficiency term ( $q$ ), and there was general confusion about the equation notation and methods. Due to the abbreviated executive summary format used this year, the SSC did not have the benefit of receiving documentation describing the dredge survey methodology nor details on the new estimation methodology. Thus, for the next full SAFE presentation, **the SSC recommends the authors provide a detailed overview of the hierarchical sample design for the dredge survey and the new two-stage estimation methodology described in the response to comments.**
- **The SSC recommends the authors check the Executive Summary SAFE document to ensure units of meat weight versus round weight are consistently applied in the report and clearly defined.**
- The SSC encourages continued research on scallop stock structure to improve the understanding of the scallop metapopulation and its relationship to Alaska-wide specifications (i.e., MSST, OFL and ABC) and bed-specific GHL management. Consideration should be given to the fraction of the area or the population that is being exploited relative to the total area/population available. The SPT response to comments indicated that a fishery extent index has been developed that evaluates the spatial extent of the fishery. The SSC looks forward to seeing details and results in the upcoming SAFE, and is interested in whether this method could be adapted to quantify the area exploited versus the total population area.

### **Scallop Plan Team Report**

The SSC appreciates the overview of recent work provided in the SPT Report and offers the following comments:

- The SSC supports additional research to evaluate the current survey sample design and whether oceanographic and other environmental features are associated with scallop abundance, growth, and reproductive potential. The SPT report indicated that ADF&G is collecting in-situ environmental data at the scale of the survey. The SSC notes several existing data sources that may

also be of use: the Gulf of Alaska Regional Ocean Modeling System (ROMS, contact Al Hermann, University of Washington), GOA Integrated Ecosystem Program and GOA biennial surveys, satellite derived oceanographic information (available via the NOAA ERDDAP server-<https://coastwatch.pfeg.noaa.gov/erddap/index.html>), and 50 m resolution bathymetry GIS (contact Steve Lewis, NOAA-AKRO). The SSC notes that the ROMS output may provide information on oceanographic conditions that influence larval dispersal relative to scallop bed location and physical oceanographic processes. **The SSC requests future progress reports on this research as it becomes available.**

- The SSC appreciates ongoing research to explore the inclusion of the ADF&G bottom trawl survey data within the assessment. The SSC agrees with the SPT that incorporating large-mesh ADF&G bottom trawl data into the assessment is complicated by unknown selectivity of the survey gear with respect to scallops. However, the SSC notes that these data may still be useful as a relative abundance index and to provide an informative historical time series. **The SSC recommends inclusion of these data in the SAFE if available.** The SSC notes, however, prior to their use in a formal stock assessment (e.g., age- or length-based assessment), further research on selectivity and catchability, leveraging existing observations or side-by-side effort standardization studies, is required.
- Progress on assessment modelling remains a priority for this species. The SSC reiterates its request from June 2020 to review the age-structured model for Kamishak Bay and encourages the authors to bring forward draft models, even if early in development, to facilitate iterative model development with SSC input.
- The SSC is highly supportive of the work being done by ADF&G to error check and make fishery-dependent and -independent data electronically available for authors and all users. The SSC notes that in June 2019 it recommended the SPT *“elucidate a framework for the data and steps needed to improve the assessment and potentially move to an age- or length-based assessment model in the future”*. This effort by ADF&G will provide access to previously unavailable fishery-dependent and -independent data and is responsive to data needs identified by the authors response to the SSC comments in the 2020 SAFE report.
- Investigations of recent trends in meat weight using both fishery and survey data are underway, and the SSC looks forward to seeing that work in the future. The SSC discussed whether trends in meat weight could be driven by environmental factors, such as temperature, versus the timing of the survey. **The SSC recommends the authors consider including appropriate environmental, seasonal, and survey-timing variables in their analysis.**
- The SPT noted a change in the shell height definition from the ‘top shell’ to ‘outer shell’. The change is driven by new measuring board technology and would result in a consistent definition with federal regulations for Atlantic sea scallops. **The SSC looks forward to a report on this research, wherein the authors compare the measurements under the new and old definitions and historical data used in the assessment.**