Draft SSC Report December 2020

Balance of SSC Report

B1 Plan Team Nomination

- The SSC *finds* Tyler Jackson (ADF&G) to be well-qualified and *recommends* the Council approve his nomination to the Scallop Plan Team.

C4 GOA – Ecosystem Status Report

- This was a scheduled 'off' year for Gulf of Alaska surveys. The SSC *commends* the extraordinary efforts of NOAA and partners to mitigate data loss due to COVID-19 through collaborations and data integration.

- The GOA ESR was incorporated into the Risk Tables for 8 stock assessments. For 7, the recommended ecosystem risk level was 1, and only sablefish (statewide) had an ecosystem risk level of 2.

- The SSC commends and *supports* continued efforts to coordinate these efforts with ESPs and to provide transparency on how these data are incorporated into management decisions.

C4 GOA – Ecosystem Status Report

The SSC *notes* three items in the GOA ESR for the attention of the council:

- Following the 2019 Marine Heat Wave, sea-surface temperatures in winter and spring 2020 returned to near normal, long-term mean across the Gulf, and there were positive to average trends for forage conditions. Predictions are for moderate to cooler temperatures across the GOA this winter.

- Salmon commercial harvest was low across most of GOA, and lowest in SEAK since 1976. **This poses a social and economic concern.** Juvenile abundance since 2017 is increasing suggesting harvest will increase in coming years. The SSC *supports* the need for additional research on survival and salmon growth after the first marine year and survival during later marine stages.

C4 GOA – Ecosystem Status Report

- Toxins associated with Harmful Algal Blooms were detected in bivalves at levels over the regulatory limit for human consumption around Kodiak Island and in southeast AK in 2020. The SSC *supports* continued efforts to monitor these toxins across all ecoregions, as it poses a considerable concern for human health.

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C4 GOA Groundfish Harvest Specifications

GOA Plan Team Report

- SSC received a report regarding the need to ensure biological data are available for stocks that have fisheries covered by electronic monitoring

- SSC *supports* efforts by the agency to have appropriate experts available to communicate data collection needs to Council committees (FMAC, Trawl EM, Partial Coverage Monitoring Committee)

- For GOA stocks that use VAST modeling of survey data, SSC *recommends* using a depth covariate or indicator variable for sparse species observations in depths >700m rather than excluding observations to avoid a biased estimator

C4 GOA Groundfish Harvest Specifications

- No GOA stocks were subject to overfishing in 2020

- No GOA stocks with reliable biomass reference points (all Tier 3 and above stocks and rex sole) were overfished or approaching an overfished condition

- Multiple GOA stocks had no assessment in 2020 and therefore, harvest specifications were rolled over. These include: shortraker rockfish, other rockfish, skates, Atka mackerel and octopus.

- The only stocks where the SSC recommended OFLs or ABCs that differed from the GOA GPT were:

  o Dusky rockfish – reduction from maxABC for 2021/2022

C4 GOA Groundfish Harvest Specifications

Walleye Pollock

- Full assessment in 2020 with several new 2020 data sources (winter Shelikof Strait acoustic survey, ADF&G trawl survey). No model changes.
- Shelikof Strait survey biomass estimate was 64% lower than in 2019, more consistent with trawl surveys compare to unusually high 2017-19 values
- The projected 2021 biomass for W/C/WYAK region is lower than projected last year and results in 12% reductions in OFL and maxABC from 2020.
- Projected 2021 Female Spawning Biomass is 4% above $B_{40\%}$.
- The stock is in Tier 3a
- The SSC *supports* continued use of author and PT recommended model 19.1 for setting OFL and ABC (at maxABC) under Tier 3a

C4 GOA Groundfish Harvest Specifications

Walleye Pollock

- The SSC *supports* the author and PT determination that no additional reduction from maxABC is needed based on the risk table (level 1)
- For 2021 OFL = 123,455 t and ABC =105,722 t (w/o EYAK/SEO)
- The SSC *supports* the updated area apportionments for the W/C/WYAK regions and the unchanged OFL and ABC for E Yakutat & Southeast, as there was no new survey data
- The SSC *recommends* further research on the apparent and unusual disappearance of the 2018 year class from the winter trawl survey
- The SSC *recommends* research on including covariates related to the timing of the winter acoustic survey to inform catchability and size selectivity in the survey

C4 GOA Groundfish Harvest Specifications

Pacific Cod

- Full assessment in 2020, with new data (2019/20 fishery catch and size comps, 2020 AFSC longline RPNs, 2019 AFSC BTS length-at-age)
  - 2020 AFSC longline survey showed 30% increase in RPN over 2019, but index remains 2nd lowest in time series
- Spawning biomass is projected to increase in 2021/22 due to strong 2018 recruitment and reduced fishing mortality
  - Projected 2021 SSB of 39,977 t is below $B_{40\%}$ (72,045 t), but above $B_{20\%}$ (at approx. $B_{22\%}$)
- With spawning biomass projected to remain below $B_{40\%}$ in 2021, this stock falls under Tier 3b

C4 GOA Groundfish Harvest Specifications

Pacific Cod

- The SSC *supports* continued use of the author and PT recommended Model 19.1

  - Authors highlight that temperature relationships in Model 20.1 are not sufficiently established

- The SSC supports the author and PT recommendation to set ABC and OFL for 2021 and 2022 at the maximum permissible level under Tier 3b

  - For 2021 the OFL = 28,977 t and the ABC = 23,627 t

- The SSC *supports* the author and PT recommendation to base apportionment on 2017/2019 average

  - But encourages authors to consider whether inclusion of IPHC setline and NMFS longline survey data could inform apportionment

C4 GOA Groundfish Harvest Specifications

Pacific Cod

- The SSC *recommends*
  - If Model 20.1 is brought forward again, a bridging model that estimates steepness but without the temperature link should be brought forward for comparison
  - In the 2021 assessment, greater detail should be provided on the time blocks for natural mortality and recruitment used in projections
- The SSC highlights the newly-developed ESP for this stock and thanks the authors and contributors, but *recommends*
  - Continued exploration of habitat, biological, and environmental indicators
  - Attempting to separate fishery engagement from fishery dependency in socioeconomic considerations

C4 GOA Groundfish Harvest Specifications

Shallow-water flatfish complex

- 4 year cycle, eight species, next full assessment in 2021.

- Catch is well below maxABC, exploitation rate is low for all species (butter flounder highest ~0.10)

- N & S rock sole: Tier 3a, projection model updated with catch.

- Other species: Tier 5 (no change)

- Catch is well below ABC and overfishing is not a concern

- The SSC *concurs* with author and Plan Team recommended OFL and ABC and area apportionment.

- For 2021 OFL = 68,841 and ABC = 56,164 (maxABC)

C4 GOA Groundfish Harvest Specifications

Deepwater flatfish complex

- 4 year cycle, 3 species Dover sole, Greenland turbot and deepsea sole

- Dover sole: Tier 3a

- Greenland turbot and deepsea sole: Tier 6,

- Overfishing not a concern (catch well below ABC)

- The SSC *concurs* with author and Plan Team recommended OFL and ABC

- For 2021 and 2022 the OFL = 7,040 and ABC = 5,926 (maxABC)

C4 GOA Groundfish Harvest Specifications

Deepwater flatfish complex

- Although catch of Kamchatka flounder have been recorded as part of the deepwater flatfish complex, the species has not been assigned a Tier.

- The SSC *recommends* a Tier 6 OFL and ABC for Kamchatka flounder in the combined GOA deepwater flatfish complex OFL and ABC and examination of the area apportionment relative to Kamchatka flounder during the next partial assessment year.

C4 GOA Groundfish Harvest Specifications

Rex sole

- Partial assessment (rollover of specifications from 2019)

- Catches are well below maxABC

- Tier 3a

- The SSC *concurs* with author and Plan Team recommended OFL and ABC

- For 2021 and 2022 the OFL = 18,779 and ABC = 15,416 (maxABC)

C4 GOA Groundfish Harvest Specifications

Arrowtooth flounder

- Partial assessment
- Catch is well below maxABC, exploitation rate is trending upward but remains low, < 3%
- Tier 3a
- The SSC *concurs* with author and Plan Team recommended OFL and ABC
- For 2021 the OFL = 151,723 and ABC = 126,970 (maxABC)

C4 GOA Groundfish Harvest Specifications

Arrowtooth flounder

- The SSC *requests* that the authors investigate including IPHC survey data in this assessment, and whether fishery catch-at-age information is available for inclusion in the model.

C4 GOA Groundfish Harvest Specifications

Flathead sole

- Partial assessment

- Catches are well below maxABC

- Tier 3a

- The SSC *concurs* with author and Plan Team recommended OFL and ABC

- For 2021 the OFL = 47,982 and the ABC = 39,377 (maxABC)

C4 GOA Groundfish Harvest Specifications

Pacific Ocean Perch

- A full assessment was conducted, though initially scheduled as partial

    - No change in model structure; updated catch and survey data

    - Revised ageing error matrix, fishery age compositions, prior on trawl survey catchability, and prior on natural mortality

    - An intermediate step to next full assessment in 2021

- The SSC *accepts* the 2020 model for managements

- Tier 3a stock

- The SSC *concurs* with author's and Plan Team's recommended OFL, ABC, and area apportionment.

    - For 2021 the OFL= 42,997 t and the ABC=36,177 t

C4 GOA Groundfish Harvest Specifications

Northern Rockfish

- Tier 3 stock projected to be above B40% in 2021

- Full Assessment- last full assessment in 2018

  ○ No update to assessment model

  ○ Catch, trawl survey, and trawl/fishery composition data updated

  ○ The changes evaluated were:

    ■ VAST versus VAST GAP, and VAST GAP with updated aging error matrix.

- The SSC *agrees* with the GPT and authors recommend VAST GAP model (model 18.2b in assessment) because it had the best overall fit to the survey information

C4 GOA Groundfish Harvest Specifications

Northern Rockfish

- The SSC *supports* the authors' and GPT recommended OFL and ABC
  - 2021: OFL= 6,396 t , ABC=5,358 t (maxABC); 24% increase from the 2020 ABC
- The SSC *supports* the GPT and authors recommended apportionment

C4 GOA Groundfish Harvest Specifications

Northern Rockfish

- The SSC *recommends* the following:
  - Authors collaborate with the Dusky assessment authors on VAST GAP
  - Addition of VAST GAP fit diagnostic information to the assessment
  - Investigation of temporal autocorrelation for VAST
  - Continued investigation of data weighting in model and plus group binning
  - Investigation of the spatial overlap of older age classes in the survey and fishery, noting ongoing collaborative research with the A-80, Kodiak trawl fleets, and AFSC/APU-FAST Lab.

C4 GOA Groundfish Harvest Specifications

Dusky rockfish

- Full assessment; generally, the stock appears to be increasing with strong recruitment seen in the late 2000s

- The SSB is projected to be above $B_{40\%}$ in 2021

- Tier 3a

- The SSC *recommends* Model 15.5a, in agreement with authors and GOA-GPT

  o   Model includes updated data and generally fits the data well

- 2021 OFL = 8,655 t, 2021 maximum ABC = 7,101 t

- *Recommended ABC = 5,389 and differs from the PT*

C4 GOA Groundfish Harvest Specifications

Dusky rockfish

- The SSC *recommends* a reduction from the maxABC for 2021 – a 50% stairstep approach for 2021 and 2022
  - 24% reduction for 2021; 23% for 2022
  - Justification for the reduction includes:
    - Low variance of the VAST model, coupled with high 2019 survey biomass estimate resulted in a large increase in total and spawning biomass
    - An abrupt change in retrospective pattern with the new VAST parameterization
    - Accepted model has a large positive retrospective pattern (Mohn's rho = 0.51)

C4 GOA Groundfish Harvest Specifications

Dusky rockfish

- The SSC *recommends*:
  - The author prioritize investigation into the large retrospective pattern observed in the recommended model, including
    - Evaluating catchability across retrospective runs
    - Examining survey index and age composition weighting relative to the retrospective patterns
  - The author provide specific justification with respect to the VAST parameterization for dusky rockfish
    - With a consideration of the life history of the species
    - Noting the resultant increase in interannual variability in VAST biomass estimates
  - Diagnostics for the alternative configurations of the VAST model

C4 GOA Groundfish Harvest Specifications

Rougheye and blackspotted rockfish

- Partial assessment, projection model updated with catch

- Tier 3a

- For 2021 the OFL = 1,456 t and the ABC = 1,212 t

- SSC *recommended* no reduction from maximum ABC

- Apportionments are the same as 2019 full assessment model

- SSC *noted* the 2020 longline survey RPN (not used for the 2020 projection model during this off-year):

  o decreased 43% from the 2019 estimate,

  o is well below the long-term mean, and

  o authors suggested it could potentially be attributed to hook competition with sablefish

C4 GOA Groundfish Harvest Specifications

Demersal shelf rockfish complex

- Partial assessment; Declining stock trend since 1994

- Tier 4 (yelloweye) and Tier 6 (six other species)

- Same assessment methodology as last full assessment in 2018

- Updated data include ROV survey data from one of four management areas (EYKT) and catch

- For 2021 the OFL = 405 t and the ABC = 257 t

- OFL and ABC based on lower 90% CI of biomass estimate

- Decrease from Tier 4 maximum ABC for yelloweye, $F=M=0.02$ rather than $F_{OFL}=F_{35\%}$ as done in previous years due to declining stock trend

C4 GOA Groundfish Harvest Specifications

Demersal shelf rockfish complex

- Directed commercial and recreational DSR fisheries closed to harvest in 2020 due to continuous general decline in relative abundance

- The SSC *recommends* exploring alternatives for setting OFLs and ABCs that are more in line with current practice (i.e., using point estimates instead of lower 90% CIs, incorporating uncertainty with the risk table rather than in biomass estimates)

- The SSC *notes* previous (2017, 2019) author-, PT-, and SSC-proposed changes to the composition of the DSR and OR complexes:
  - Moving DSR subgroup from OR in WGOA, CGOA, and WY to GOA-wide DSR, and moving
  - DSR sub-group of the OR assessment to Step 2 of Council's Stock Structure and Spatial Management Policy

C4 GOA Groundfish Harvest Specifications

Thornyhead complex

- Full assessment; generally increasing over last 30 yrs

- Tier 5

- The SSC **recommends** Model 18.1, random effects model fit to the GOA trawl and longline survey indices
  - There was no change in assessment methods since the 2018 assessment

- For 2021 OFL = 2,604 t and the ABC = 1,953 t

- Recommended maximum ABC, in agreement with author and PT

- GOA catch of thornyheads in 2019 was 39% of the TAC (set = ABC)

C4 GOA Groundfish Harvest Specifications

Thornyhead complex

- Apportionment with RE model fit to GOA trawl and longline survey indices

  - For 2021, WGOA increase 8%, CGOA ~ unchanged, EGOA decreases 11%

- Recent decrease in commercial catch and both longline and trawl surveys

- The SSC *supports* PT recommendations to:

  - Investigate hook competition with sablefish and develop correction factor

  - Investigate potential shifts in gear or fishing behavior

C4 GOA Groundfish Harvest Specifications

Thornyhead complex

- The SSC *notes* an unprecedented increase in biomass in EGOA 1-100m survey depth bin

- The SSC *recommends* investigation into length composition and spatial extent of the increase (IPHC may be useful for comparison to determine extent)

C4 GOA Groundfish Harvest Specifications

GOA Sharks

- Full assessment
- Shark catches well below OFL & ABC in 2019 and 2020
- Spiny dogfish biomass estimates from AFSC trawl survey declined from peak of 160,384 t in 2013 to 22,014 t in 2019; lowest biomass since 1990.
- The SSC accepts Tier 5: Spiny dogfish; Tier 6: Pacific sleeper shark, salmon shark, other sharks.
- The SSC *recommends* Model 15.3A for dogfish (GOA trawl survey biomass scaled by q=0.21) and Model 11.0 (ave. catch over 1997-2007) for other sharks in agreement with authors and GPT
  - Shark complex OFL = 5,006 t, ABC = 3,755 t for both 2021 & 2022; ABC declined 54% from 2020.

C4 GOA Groundfish Harvest Specifications

GOA Sharks

- The SSC *agrees* with authors and GPT that risk table does not indicate additional adjustment below maxABC at this time.

- The SSC *appreciates* new and proposed research and *recommends*:
  - Including samples from California Current and western North Pacific in sleeper shark genetic study
  - Attempt to include other surveys (e.g., IPHC survey) in new VAST models to estimate spiny dogfish biomass
  - Further progress to improve shark total catch estimates
  - Research into temperature-dependent survey q for dogfish
  - Research to improve estimates of discard mortality

C4 GOA Groundfish Harvest Specifications

<u>Forage fish</u>

- Informational report every 2 years

    - Primarily capelin, eulachon, herring, shrimp, and now squid

    - Ecosystem component

    - No specifications required

- Capelin were likely impacted by marine heat wave

- Herring were very abundant in the GOA in 2019

- Catches of shrimp increasing

- The SSC *appreciates* the continuing production of the report

- The SSC *recommends* reporting of combined shrimp biomass from AFSC bottom trawl survey

C6 BSAI Pacific Cod Pot CP Latency

- The proposed regulatory change would eliminate the LLP license endorsement for Pacific cod pot gear fishing if not credited with a minimum amount of directed landings during a specified period.

- The SSC *commends* the analysts on a clear, thorough, and thoughtful analysis.
  - The analysis assembles the available and relevant information on the BSAI Pacific cod pot CP sector.
  - Effects on latent LLP licenses holders and historically active LLP license holders are clearly differentiated and described.

C6 BSAI Pacific Cod Pot CP Latency

- The SSC *finds* the analysis adequate to allow the Council to understand the impacts of the alternatives.

- **The SSC recommends the draft be released for public review**, after the analysts address minor recommendations provided in the SSC Report.