Draft SSC Report
December 2022

C4 GOA Groundfish Harvest Specifications

C5 GOA Groundfish Harvest Specifications

- For all GOA assessments, the SSC *supported* GOA Plan Team recommended models, OFLs, ABCs (with no reductions from maxABC) and area apportionments

C5 GOA Groundfish Harvest Specifications

<u>Walleye pollock</u>

- Annual full assessment

- Spawning biomass is higher than last year and above $B_{40\%}$

- Tier 3a for in W/C/WYAK, Tier 5 in SEO

- The SSC *recommends* 19.1a, in agreement with authors and PT

  o Minor changes to selectivity, recruitment and data weights

- The SSC *supports* author and PT recommended OFL and ABC for W/C/WYAK and SEO, with no reduction from max ABC

- The SSC *agrees* with the previously accepted methodology for apportioning the ABC between areas and between the new A (formerly A&B) and B (formerly C&D) seasons.

C5 GOA Groundfish Harvest Specifications

<u>Walleye pollock</u>

- The SSC *recommends*
  - Further exploration of biomass scale changes and potentially constraining catchability
  - Further exploration of recruitment variability

C5 GOA Groundfish Harvest Specifications

Pacific cod

- Annual full update assessment

- Spawning biomass slightly lower than last year and below $B_{35\%}$ ($B_{26\%}$)

- Spawning biomass projections for 2023 and 2024 above $B_{20\%}$

- Tier 3b

- The SSC *recommends* 19.1, in agreement with authors and PT

  o No changes in model, only new data updates

- The SSC *supports* authors and GOA GPT OFL and ABC, with no reduction from maxABC

- The SSC *supports* authors and GOA GPT apportionments (no change because off-year for GOA trawl survey)

C5 GOA Groundfish Harvest Specifications

Pacific cod

- The SSC *recommends*:
  - Evaluating changes in growth and updating length-weight relationships
  - Along with other cod authors, explore the viability of a larger scale cod model to account for movement and stock structure
  - Evaluating the use of in-year fishery dependent data (lengths)

C5 GOA Groundfish Harvest Specifications

<u>Shallow-water flatfish complex</u>

- Partial assessment
- Catch is well below maxABC, exploitation rate is low for all species (butter flounder highest ~0.10)
- N & S rock sole: Tier 3a
- Other species: Tier 5
- The SSC *concurs* with author and Plan Team recommended OFL and ABC (no reduction from maxABC)
- The SSC *agrees* with the area apportionments of ABC

C5 GOA Groundfish Harvest Specifications

Deepwater flatfish complex

- Partial assessment

- Dover sole: Tier 3a

- Greenland turbot and deepsea sole: Tier 6

- The SSC *concurs* with author and Plan Team recommended OFL and ABC (no reduction from maxABC)

- The SSC *agrees* with the area apportionments of ABC

C5 GOA Groundfish Harvest Specifications

Rex sole

- Partial assessment

- Catches are well below maxABC

- Tier 3a

- The SSC *concurs* with author and Plan Team recommended OFL and ABC (no reduction from maxABC)

- The SSC *agrees* with the area apportionments of ABC

C5 GOA Groundfish Harvest Specifications

Arrowtooth Flounder

- Partial assessment

- 2023 spawning biomass above B35%

- Tier 3a species

- The SSC *concurs* with author and Plan Team recommended OFL and ABC (no reduction from maxABC)

- The SSC *agrees* with the area apportionments of ABC

C5 GOA Groundfish Harvest Specifications

Flathead sole

- Full assessment, spawning biomass and total biomass increasing

- SSB above $B_{40\%}$

- Tier 3b

- The SSC *recommends* 17.1a (2022), in agreement with authors and GPT

  - Performs similarly to previous model, new data had minimal effect

  - Although, recent two years of survey biomass data not fit well

- The SSC *agrees* with author and Plan Team recommended OFL and ABC (no reduction from maxABC)

- The SSC *agrees* with author and Plan Team recommended area apportionment

C5 GOA Groundfish Harvest Specifications

Flathead sole

- The SSC **supports** authors' plans to
  - examine interaction between data weights and catchability
  - explore priors on catchability and natural mortality
  - revisit/investigate selectivity curves
- The SSC **encourages** the authors to carefully consider risk table score assignment in future if survey data fits and retrospective patterns do not improve with next full assessment

C5 GOA Groundfish Harvest Specifications

Pacific Ocean Perch

- Partial assessment, biomass relatively stable

- Tier 3a stock

- 2022 spawning stock biomass is roughly 1.9 times $B_{35\%}$

- Exploitation rate has been steadily increasing since 2013, but remains relatively low

- The SSC *recommends* the ABC and OFL in agreement with the authors and Plan Team, with no reduction from maxABC

- The SSC *agrees* with author and Plan Team recommended area apportionment (not updated from 2021)

C5 GOA Groundfish Harvest Specifications

Northern Rockfish

- Full assessment
- Tier 3a
- The SSC *supports* the author and GPT recommended model 22.1
  - Updated with recent fishery and survey length and age compositions, catch, and trawl survey biomass
  - Addresses length compositional binning issue
  - Removes pre-1990 survey information due to issues with 1980s survey information
  - Uses VAST estimate on trawl survey indices

C5 GOA Groundfish Harvest Specifications

Northern Rockfish

- The SSC *recommends* the ABC and OFL in agreement with the authors and Plan Team, with no reduction from maxABC
- The SSC *supports* the GPT and authors recommended apportionment
- The SSC *recommends* the following:
  - The SSC agrees with the authors and GPT recommendation to explore alternative weighting methods
  - Exploration of proper variance attribution to VAST indices and investigation of a delta-lognormal VAST configuration
  - Investigate high values of catchability in the MCMC by fixing M
  - Research on maturity and skip spawning

C5 GOA Groundfish Harvest Specifications

Blackspotted/Rougheye Rockfish

- Partial assessment, declining trend in biomass in recent years

- Tier 3a stock

- 2022 spawning stock biomass is roughly 1.7 times $B_{35\%}$

- Exploitation rate remains low and relatively stable, and slightly below the long-term mean

- The SSC *recommends* the ABC and OFL in agreement with the authors and plan team, with no reduction from maxABC

- The SSC *agrees* with author and Plan Team recommended area apportionment (not updated from 2021)

C5 GOA Groundfish Harvest Specifications

Dusky Rockfish

- Full assessment
- Tier 3a
- Catch has been well below the TAC in recent years (e.g., 51% of the 2021 TAC was harvested)
- The SSC *supports* the author and GPT recommended model 22.3
  - Updated with recent fishery length and age compositions, trawl survey age compositions, catch, and trawl survey biomass
  - Addresses binning issue with length information (plus group)
  - Removes pre-1990 survey information due to issues with 1980s survey information
  - Evaluated and updated VAST methodology

C5 GOA Groundfish Harvest Specifications

<u>Dusky Rockfish</u>

- 2022 model greatly improved retrospective patterns and improved VAST fit to survey information

- The SSC **recommends** the ABC and OFL in agreement with the authors and plan team, with no reduction from maxABC

- The SSC **supports** the GPT and authors recommended apportionment

- The SSC **recommends** the following:

  - The SSC agrees with the authors and GPT recommendation to explore alternative weighting methods

  - Exploration of proper variance attribution to VAST indices and investigation of a delta-lognormal VAST configuration

C5 GOA Groundfish Harvest Specifications

Dusky Rockfish

- The SSC *recommends* the following (cont.):

    - The SSC recommends the authors investigate alternative apportionment methods that provide stability while also satisfying sub-area biological concerns

    - Research on maturity and skip spawning

C5 GOA Groundfish Harvest Specifications

- Full assessment
- SSC *agrees* with authors and GPT to move the yelloweye portion from Tier 4 to Tier 5
- The ABC and OFL for non-yelloweye DSR (canary, China, copper, quillback, rosethorn, and tiger rockfish) remain in Tier 6
- The SSC *recommends* Model 22.2 and OFL in agreement with the Plan Team and authors (random effects model with extra observation error term for biomass estimates)

- The SSC *recommends* maxABC in agreement with the Plan Team and disagreement with the authors

Demersal Shelf Rockfish (2 of 2)

- The SSC *recommends* a reassessment of M, continued work on yield per recruit, aggregation of data across the SEO sections, and further exploration of IPHC survey bycatch data

C5 GOA Rockfish Harvest Specifications

<u>Thornyhead rockfish</u>

- Full assessment for the thornyhead complex
- The GOA trawl survey was down 13% across areas. The GOA longline survey RPW increased by 23% across areas, but it is still below the mean
- Tier 5
- The SSC *agrees* with the GPT and author recommended Model 22 (*rema* model with additional observation error estimated for AFSC longline and trawl surveys)
- The SSC *supports* the authors' and GPT recommended OFL and ABC (no reduction from the max ABC)
- The SSC *agrees* with the GPT and author recommended apportionments
- The SSC *supports* GPT recommendation compare using a common process error across the GOA with the current approach that allows process error to vary by sub-region.

C5 GOA Groundfish Harvest Specifications

GOA sharks

- The SSC reviewed a combined BSAI/GOA shark assessment
- The SSC *concurs* with the Plan Team to use status quo approach to determine OFLs and ABCs for the complex (Tier 5 for spiny dogfish, Tier 6 with species-specific average catches from 1997-2007)
  - No reduction from maxABC for Pacific sleeper shark component in GOA
- The SSC *recommends* using the same approach for Pacific sleeper shark reference points across the GOA and BSAI in future years (consistent with author's intent)

C5 GOA Groundfish Harvest Specifications

Forage Report

- Overall most species appear to be showing signs of recovery after the marine heatwave in the Gulf, with increasing trends in 2021, though there remains a high degree of uncertainty in estimates of abundance and biomass.

- Incidental catches of GOA FMP forage group were low in 2022.

- Prohibited species catch of herring was higher than average in 2022; this trend was largely driven by the mid-water walleye pollock trawl fishery in the central GOA.

- The SSC *supports* and encourages efforts to explore more quantitative, model-based assessments of forage species, that include indices of biomass of predators, and/or incorporate multiple data sources to link spatiotemporal changes to environmental variables.