

# **Draft SSC Report October 2018**



## **C2 Groundfish Specifications**

# C2 Groundfish Specifications: Reports

- Genetic study on northern Bering Sea Pacific Cod
- Northern Bering Sea Ecosystem Status Report
- Bering Sea Survey
- Joint Groundfish Plan Team Report
- BSAI Groundfish Plan Team Report
- GOA Groundfish Plan Team Report

# Genetic study on northern Bering Sea Pacific Cod

- Dr. Ingrid Spies (NMFS) reported on a newly completed genetic study of Pacific cod in the northern Bering Sea (NBS)
- Samples collected west of Norton Sound were compared with specimens from 6 other locations using a genetic method, called single nucleotide polymorphisms (SNPs)
- **Results suggested that cod sampled from the NBS are part of the EBS stock and differ from cod in the Aleutian Islands and Gulf of Alaska**
- A full genome analysis of Pacific cod will be completed in one year

# Preliminary Northern Bering Sea Ecosystem Status Report

- Dr. Elizabeth Siddon and Stephani Zador (NMFS) reported on a preliminary ecosystem status report (ESR) for the northern Bering Sea (NBS)
- Anomalous conditions existed in the NBS in 2018, including:
  - Little or no sea ice in winter 2017/2018
  - Water at depth was warmer than usual and there was no cold pool in the eastern Bering Sea
  - Lack of ice-algae in winter/early spring to support lipid-rich zooplankton, which are consumed by fish and seabirds
  - Ribbon seals were sparse and spotted seal pups had poor body condition
  - Huge numbers of starved seabirds washed ashore

# Preliminary Northern Bering Sea Ecosystem Status Report (Continued)

- Compared to 2017:
  - Pollock abundance increased, but pollock biomass decreased
  - Pacific cod increased in both abundance and biomass
- Forecast for winter 2018/2019:
  - Late formation of sea ice may be associated with rapid cooling
  - Rapid freeze-up poses some concern about mass fish mortality
- Large biomass of groundfish predators (pollock and cod) in the NBS may lead to ecosystem reorganization
- **The SSC emphasizes the critical importance of the NBS bottom trawl surveys, as well as the near-surface BASIS surveys, for the management of the Bering Sea fisheries**

# Bering Sea Survey Report

- Bob Lauth reported on bottom trawl surveys for the EBS and NBS
- Only EBS was scheduled; NBS was added due to anomalous conditions
- NBS survey covered the western 2/3 of area covered in 2010 and 2017
- Combined surveys suggest substantial connectivity among groundfish on the Bering Sea shelf
- Several sub-Arctic species expanding northward while Arctic species are becoming less prevalent in the south
- Changes in distribution have implications on stock assessments
- **SSC strongly supports the recommendation to survey the NBS in parallel with the EBS on an annual basis**

# C3 Groundfish Specs/Plan Teams

- Joint Groundfish Plan Team
  - Ensemble modeling
  - ABC reductions
  - ESPs, ESRs, stock OK-ness
  - Assessment prioritization
  - Model based estimates
- BSAI Stock assessments
- GOA Stock assessments

# Joint Team: Ensemble modeling

- Proceed (but cautiously)
- Initial time/effort may be high
- May help in the long run where extensive models are reviewed annually (e.g., BS Pacific cod)
- The SSC looks forward to seeing test cases brought forward for 2018: possibly Pacific cod and/or northern rock sole



# Joint Team: ABC Reductions

- Only for extraordinary circumstances not covered by our current buffers
- **SSC recommends that economic considerations should NOT contribute to ABC reductions, but should instead be considered during the TAC setting process**
- Qualitative risk framework should be used as a way to add transparency to process
- The SSC supports future consideration and development of distribution-based approaches ( $P^*$ ), but not as a priority for 2018

# Joint Team: ESP, ESR, and “OK-ness”

- The SSC supports the PT list of development avenues for the Ecosystem and Socioeconomic Profile (ESP) process and encourages continued work on these efforts. The SSC looks forward to the planned ESP workshops and hopes there may be some level of SSC participation.
- Ongoing discussion to consider Ecosystem Status Report (ESR) information and stock assessment information as “ok” or “not ok”
- Designations of current and future ecosystem and stock conditions may be better evaluated before beginning of stock assessment process

# Joint Team: Assessment Prioritization

- The SSC supports the PTs two primary criteria to trigger a new assessment: major changes in either catch (magnitude or distribution) or the survey biomass index, and the larger list of optional criteria (7 items).
- The SSC also noted that, in order to save resources, authors should not conduct additional assessments beyond the prioritized schedule unless they specifically trigger one or more of the criteria identified.

# Joint Team: Model-based survey estimates

- Models (such as VAST) for survey estimates should be evaluated on a stock-by-stock basis as needed (also see comments under GOA Groundfish Plan Team)
- Resulting higher precision of biomass estimates will have to be considered in context of other data

# BSAI Stock Assessments

- The SSC agreed with the Plan Team recommendations for most stocks
- Several stocks had additional discussion or requests
  - Sablefish (selectivity and natural mortality)
  - EBS Pollock (filling in missing area, using NBS results)
  - Yellowfin sole (catchability)
  - Rock sole (potential ensemble model)
  - Atka (selectivity and retrospectives)
  - Blackspotted/Rougheye rockfish (spatial issues)
  - Arrowtooth (ageing error)
  - Greenland turbot (no stock structure, model stability)
  - Alaska skates (catch estimation)

# Eastern Bering Sea Pacific Cod

- In 2018, more than half the biomass of the EBS Pacific cod stock was observed in the northern Bering Sea (NBS)
- Genetic analyses suggest that these cod are part of the EBS stock
- Assessment efforts and CPT/SSC discussions focused on developing a model that can adequately deal with incorporating the NBS survey results in the assessment
- The SSC made additional recommendations on how to deal with spatial redistribution in the future and highlights the importance of routinely extending the survey into the NBS
- Given the presence of this large biomass in the NBS and concerns over the potential for increased mortality, we encourage efforts to monitor the stock throughout the year (fishery, local observations)

# Flathead Sole Models

- Received assessment of flathead sole that switches assessment from AD Model Builder to Stock Synthesis
- Excellent progress made
- The Plan Team recommended bringing forward two models in December: the 2016 model and Model 18.0b
- SSC would also like Model 18.0 brought forward with additional comparison and elaboration of model differences

# GOA Assessments

- “Off-year” (no survey)
- SSC recommends further exploration of model-based approaches (VAST) to stock assessments; an ongoing simulation study will help evaluate the utility of VAST estimates of survey biomass as opposed to design-based estimators
- Sablefish
  - CIE review
  - SSC supports new method to estimate natural mortality
- Northern rockfish
  - SSC supports recommendation to explore alternative assessment approaches



# GOA Assessments

- Pollock (size-selectivity in winter acoustic survey, multi-species modeling, mortality estimation)
- Pacific cod (CIE review, marine heat wave effects on cod stock dynamics)
- Thornyheads (approach to combine longline and trawl surveys)
- Spiny dogfish (new approach to move stock from tier 6 to tier 5)