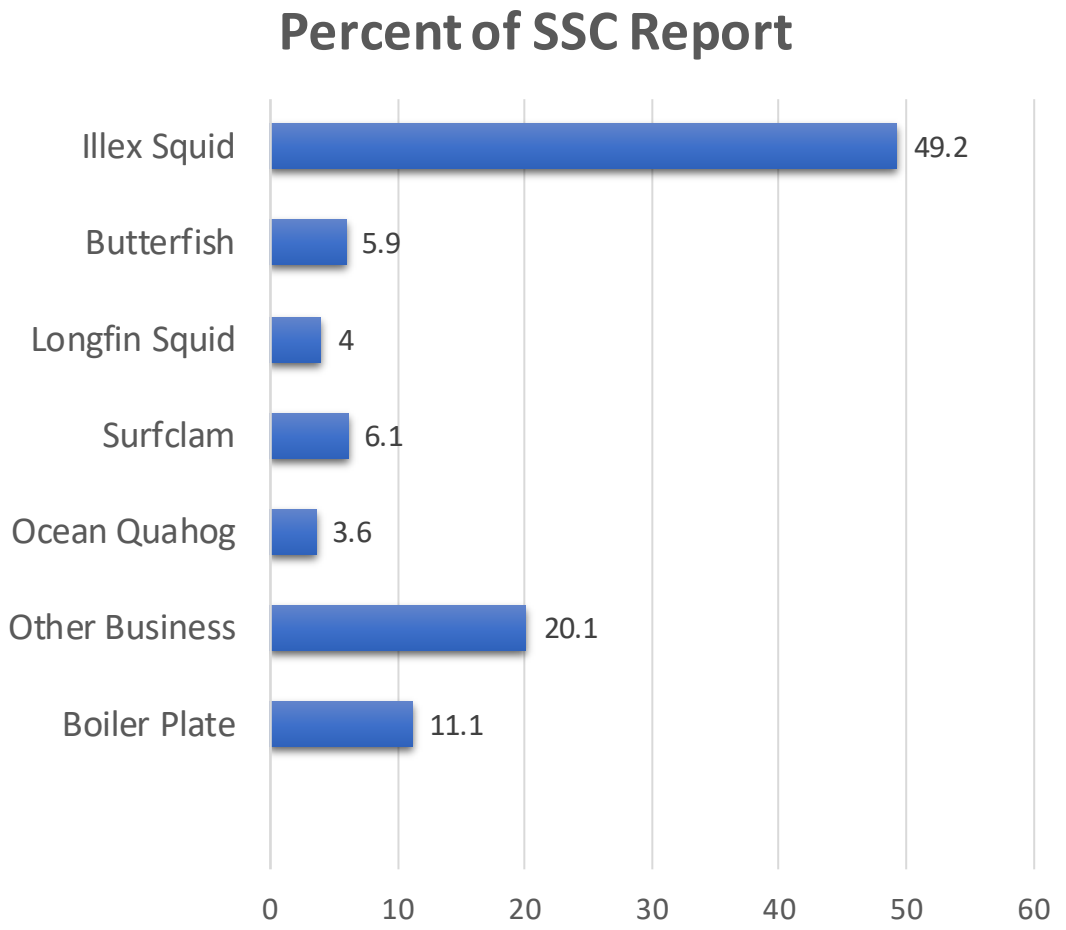
Scientific and Statistical Committee Report of March 9-10, 2021 Meeting

to

Mid-Atlantic Fishery Management Council
June 10, 2021
tab 11

Primary Topics (Word Count %)

- **Illex Squid**
- **Butterfish**
- **Longfin Squid**
- **Atlantic Surfclam**
- **Ocean Quahog**
- Other Business
- Boilerplate



Presentation Outline

- Other Business
  - Development of a Working Group to “Operationalize” Status of Ecosystem
  - Research Track Assessment Schedule
  - National SSC
  - Illex Process Discussion
- Post SSC Meeting Correspondence

"Operationalize" State of Ecosystem Report

- Motivation
  - SSC report to the Council in April--"more focused effort on how broader ecosystem indices might transfer into uncertainty of OFL estimates to derive ABCs could be a valuable advance".
  - Ideally, the linkage of SOE with the appropriate level of OFL CV could become a regular part of future analyses.
  - There was broad support by the SSC for "establishing a working group to identify information and trends in the SOE that can be used in the setting of ABCs."
- How it might work
  - Short-term objectives ensure that the SOE is relevant to upcoming assessments
  - Longer term items would include a process for integrating results of the SOE into the SSC's decisions on ABCs
  - Potential management benefits for strategic planning by the Council and their funding of research priorities.
  - Similar to the Ecosystem and Socio-economic Profile (ESP) Reports
  - Such considerations may require broadening the bases used to determine the CV of the OFL for ABC determination.
  - Volunteers available!

"Operationalize" SOE: Cautionary Notes

- Identifying causal links between indicators and effects on yields is difficult.
- Major gaps in our understanding persist.
- Simply increasing the uncertainty of the OFL estimate to reduce the ABC may be inappropriate if a reduction in the OFL *per se* is more scientifically justified.
- Need case studies to test competing approaches to evaluate how a given factor or index would affect the uncertainty in development of catch advice.
- If an assessment model had no explicit consideration of an ecosystem component how do you superimpose the potential effects on that species/ assessment?
  - Stock assessments generally include the cumulative effects of changes in life history parameters.
  - Need to avoid "double counting" of effects for instances where ***effects*** of ecosystem factor responsible for a given change is already in the assessment.
- Need to include stock assessment scientists in this discussion.

Research Track Assessment Schedule

- ***Understanding the Process***
  - Collaborations between the NEFSC staff and a subcommittee of the NRCC.
  - Longer planning horizon is designed to ensure sufficient time for research on the topic or species.
    - BUT Critical research gaps may preclude a particular species, monkfish ageing
  - Tighter link between SSC research recommendations and RTA planning, e.g., expected effects of wind energy development create greater needs for spatial methods of stock assessment.
  - Avoid duplication of effort such as dynamic reference points.
- ***Options for 2026***
  - {Winter flounder Complex} {Longfin Squid, Monkfish}
  - Or {Winter flounder Complex} {Ecosystem info in stock assessment}
  - Strike a balance between value of long range planning vs ability to respond to emerging needs (flexibility).

National SSC Meeting

- The 7th meeting of the Scientific Coordination Subcommittee (SCS) was originally scheduled for August 2020 in Sitka, AK.
- Due to Covid rescheduled to be a virtual meeting in 2021.
- Now, SCS Steering Committee is recommending an in-person meeting in 2022
- CCC is considering.

Illex Process: Concerns (1 of 2)

- Process of identifying potential ABCs in advance and restricting the analyses to limited number of options.
  - Transparency was obscured by the wording of the Terms of Reference which appeared to constrain the options of the SSC.
  - Ideally, the SSC considers a full range of factors before deciding upon the basis for a particular ABC value. In this instance, the SSC began with consideration of a particular value, followed by the justification.
- Current Process—Council staff prepare a candidate ABC based on an earlier decision by the SSC– a starting point but not binding.
- Importance transparency and trust in the derivation of ABCs.
  - One option, SSC species lead make a specific recommendation for an ABC.
  - Several options should be analyzed prior to such discussions. These recommendations are consistent with the Council's Standard Operating Procedures for the SSC.

Illex Process: Recommendations (2 of 2)

- Improved specification of scenarios and necessary computations for presentation,
- Improvements on wording of ToRs
- Clarification of the process for considering staff and external recommendations and boundaries about what the SSC is allowed to do.
  - Deviations from staff recommendations have occurred in the past even in instances where no analyses have been done.
- Can decisions about data poor species be done in a more rigorous and consistent fashion?

Post Meeting Correspondence with Industry

- Key question—Why isn't there a list of "Certainties"
- Email of May 21 from Greg DiDomenico, on behalf of industry
- Response from Paul Rago to distribution list + Council
- Distribution to SSC
- Exchange is part of Council Record.
  - https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/60b7cd5e1b7c4d7e9febc61b/1622658398645/S1_Illex+Industry+email+to+Dr.+Rago_+SSC.pdf
  - https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/60b7cd6daf17a60e036a6543/1622658414144/S2_Dr.+Rago+response+to+Illex+industry+regarding+SSC+discussions.pdf

Outline of Response to Industry

- Cannot generate "sources of certainty" unilaterally. Must be part of TOR.
- Key points from Manderson and Rago presentations:
  - Small overlap between fishery and habitat area
  - Fisheries are driven by interannual fluctuations in availability
  - Suite of modeling approaches using surveys, catches and VMS all point to high stock size, low fishing mortality, and high post fishery escapement
  - Inclusion of harvesters' inputs
- Key Science Questions
  - Research Track Assessment: Ageing, Statolith chemistry, oceanographic data, new models
  - Complex life history +Open populations➔Not too many success stories worldwide
  - Real-time management may prove useful

Questions?

Additional Slides for Each Species Session

Species Slides
SSC Comments
June 8-10, 2021 Council Mtg

Atlantic Surfclam

- No surveys were conducted in 2020 but only minor consequences for future assessments.
- Spatial analyses of fishing activity by 10-minute squares reveals a shift in landings from south to north over time. Overall LPUE has been declining but remains high in Southern New England and on Georges Bank.
- Other Sources of Concern
  - Apparent conversion of high fishing success areas into average density areas (economic thresholds).
  - Consequences of these serial reductions in density for recruitment are not known
  - Wind energy development will reduce access to traditional fishing areas and concentrate effort elsewhere.
  - Surfclams are highly sensitive to climate change.
  - Stock size is beginning to approach Bmsy.
  - Updated perception—Georges Bank population is not as large as previously thought
- Therefore, close monitoring of changes is recommended.
- **None of these concerns were sufficient at this time for the SSC to recommend changes in previously agreed ABCs for 2022.**

Ocean Quahog

- Landings have been declining in southern areas but the overall pattern of LPUE is much flatter than for Atlantic Surfclam.
- SSC expressed concerns about exploitation of this long-lived species given climate changes and wind energy development, but
    - Concerns are not as acute as for Atlantic Surfclam.
        - Georges Bank stock is large and relatively untouched
        - Recruitment appears to be consistent over time.
- Wind energy development could create refugia beneficial to maintaining population stability, but this aspect would be hard to quantify because relatively few 10-minute squares now being fished heavily.
- **None of these concerns were sufficient at this time for the SSC to recommend changes in previously agreed Ocean Quahog ABC for 2022.**

Longfin Squid

- The assessment model for Longfin squid might be improved by considering the intra-year and spatial biological features of the stock:
  - Cohorts with differing productivity and
  - Variations in seasonal harvest rates,
  - Trimester management indirectly addresses the linkages between inshore and offshore production differences
- Ongoing NEFSC research on maturity and migration (via statolith microchemistry) could improve assessment, but next benchmark is 2026.
- Concerns of the SSC included the potential impacts of offshore wind energy development on squid fishing areas and the presence of fishing in known spawning areas.
- SSC urged consideration of benchmark assessment before 2026.
- No compelling evidence to change the recommendations from the 2020 Management Track Assessment.
- **SSC recommended continuing with the previously approved ABC of 23,400 mt for 2022.**

Butterfish

- Several items of concern
  - Biomass has been declining for some time and recruitment has been down since 1999.
  - Stock biomass has remained above Bmsy due to low fishing mortality.
  - Following a 2/3 reduction in ABC between 2020 and 2021 the stock biomass is projected to increase in 2022.
  - Projections were based on the most recent 10 years of recruitment estimates reflecting a period of lower productivity.
- But, SSC concluded that a quota reduction was not necessary for 2022.
  - The projected total removals for 2020 are likely to be biased high suggesting a slightly lower F than used in the projections.
  - Industry members reported almost no chance that the quota in 2021 would be attained due to a weakened export market for butterfish and low domestic demand.
  - Results of the RTA for Butterfish will be available in 2021 for use by the SSC in 2022.
- **SSC urged that trends in abundance should be followed closely, but did not find any compelling evidence to reject the previously approved ABC of 17,854 mt for 2022.**

Illex Squid—Terms of Reference for ABC (#1)

1_Review the appropriateness of the staff recommendation to modify the Illex squid ABC from 30,000 MT to 33,000 MT for the 2021 fishing season and an ABC of 33,000 MT for the 2022 fishing season. If the staff recommendation of 33,000 MT is inappropriate, specify an alternative ABC for 2021, if needed, and for 2022 and provide any supporting information used to make this determination.

- *There is no OFL or F_{MSY} proxy. available for Illex squid but SSC reviewed and accepted an ad hoc approach to developing an ABC recommendation*
- *Based on evidence presented, including patterns that suggest an increase in abundance, low levels of exploitation, and catches that have been constrained by existing ABCs for the last four years, the SSC continues to believe that the Illex stock is at a high level of abundance and experiencing a low exploitation rate.*
- *Under its risk policy, the Council accepts a higher risk of overfishing when a stock is at a high level of abundance (i.e., $B/B_{MSY} > 1$).*
    - *While awaiting results of Research Track Assessment, Council staff recommended an incremental approach to establishing an ABC (33,000) that recognizes the high likelihood that Illex squid are at a high level of abundance and experiencing a low rate of exploitation.*
    - *Analyses indicated that an ABC of this level is likely not to be in conflict with the Council's risk policy.*
- ***The SSC recommends an ABC of 33,000 MT for 2021 and 2022 pending acceptance of results from the Research Track Assessment that is currently underway and may be available early in 2022.***

Illex Squid—Terms of Reference for ABC (#2)

2_If appropriate, specify any metrics the SSC could examine in late 2021 or 2022 to determine if any 2022 ABC modification might be appropriate;

- *In the short term, the SSC will consider:*
  - *Pattern and distribution of landings during the upcoming fishing season, and*
  - *Pattern and distribution of catches (if available) during the upcoming surveys.*

- *The SSC recommends further analyses including a wider range of ABC specifications be explored in the future. The SSC notes its discussions were constrained during the meeting because only analyses of a single ABC value were made available.*

- *The SSC notes it was not possible to evaluate whether ABCs higher than 33,000 MT were similarly compliant with the Council risk policy. Additional analyses that evaluate other possible ABCs may set the foundation for a continued incremental approach to increasing ABC.*

- *The SSC recommends including the approaches explored in the Research Track Assessment so that it receives more complete peer review. Currently, results are available for only two levels of ABC (30,000 MT and 33,000 MT), and these preclude an assessment of how risk changes as ABC varies.*

Illex Squid—Terms of Reference for ABC (#3, #5)

3_The most significant sources of scientific uncertainty associated with determination of the ABC;

- *The SSC notes the following important sources of scientific uncertainty:*
  - *The extent, distribution and magnitude of the Illex stock remains poorly defined.*
  - *The lack of biomass and exploitation rate estimates for this species.*
  - *The extent to which catch is driven by variation in availability to the fishery as opposed to variation in underlying abundance remains largely unknown.*
  - *Whether a 40% escapement B_{MSY} proxy is appropriate as a foundation for management of Illex is uncertain.*
  - *The level, extent and inter-annual variability in immigration into, emigration from and recruitment to the stock are poorly described.*
  - *Despite progress from the analyses presented, the relative catchability between fishing fleets and the survey remains poorly quantified.*

5_A conclusion that the recommendations provided by the SSC are based on scientific information the SSC believes meets the applicable National Standard guidelines for best scientific information available.

- *The SSC certifies the recommendations are based on the best scientific information available.*