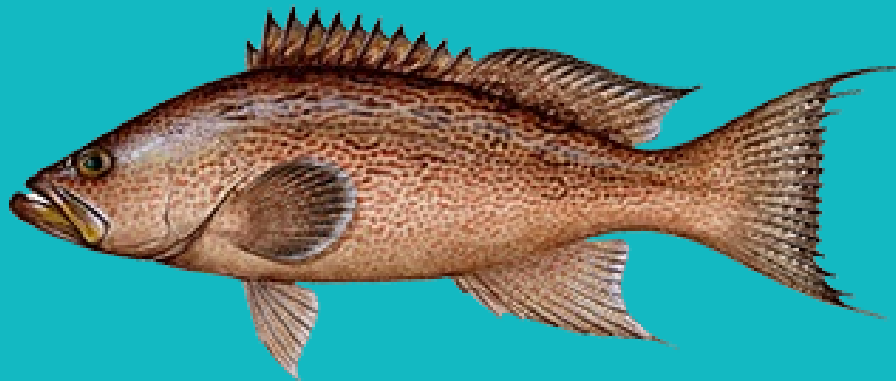




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# SEDAR 68 – U.S. South Atlantic Scamp Research Track



SAFMC Meeting  
December, 2021

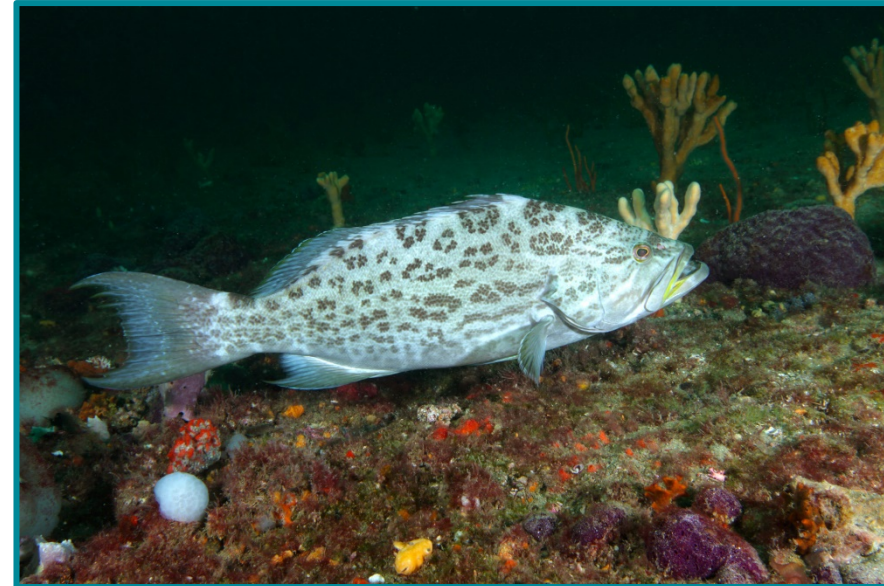
# Outline

## Research Track Assessment Data Workshop

- Life history
- Removals
- Surveys

## Catch-age model

- Assessment and Review Workshop
- Diagnostics
- Uncertainty analysis
- Sensitivities



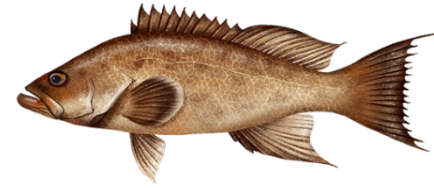
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# Research Track Assessment

- Scamp represents first ever Research Track Assessment and the first formal assessment of scamp and yellowmouth grouper under SEDAR
- Research Track Assessments:
  - Not used for providing management advice
  - Do not rely on most recent data
    - Terminal year for S68 is 2017

## Timeline (altered due to Covid):

- June – Sept 2019 Stock ID Workshop
- April - Sept 2020 Data Workshop Webinars
  - Originally scheduled for March 16-20, 2020...
- Dec - May 2021 Assessment Webinars
- September 2021 Review Workshop



*Mycteroperca phenax*



*Mycteroperca interstitialis*

## Stock ID Workshop:

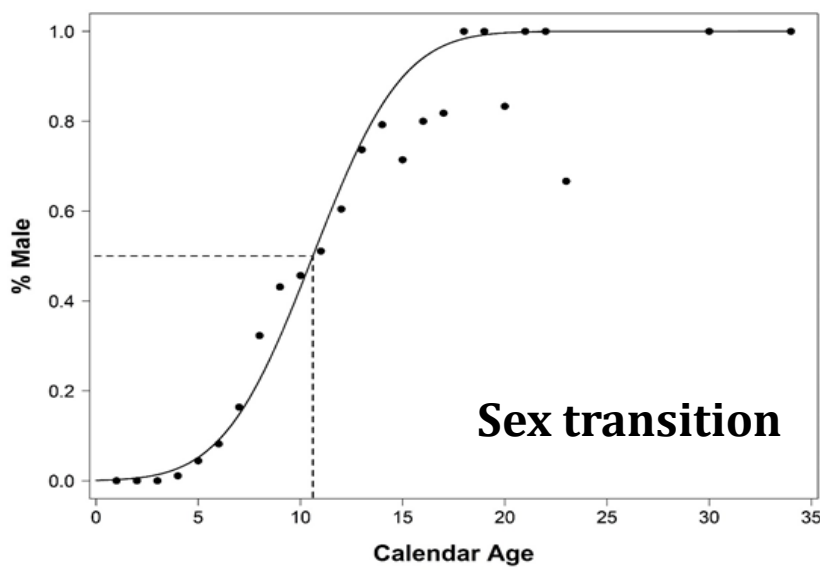
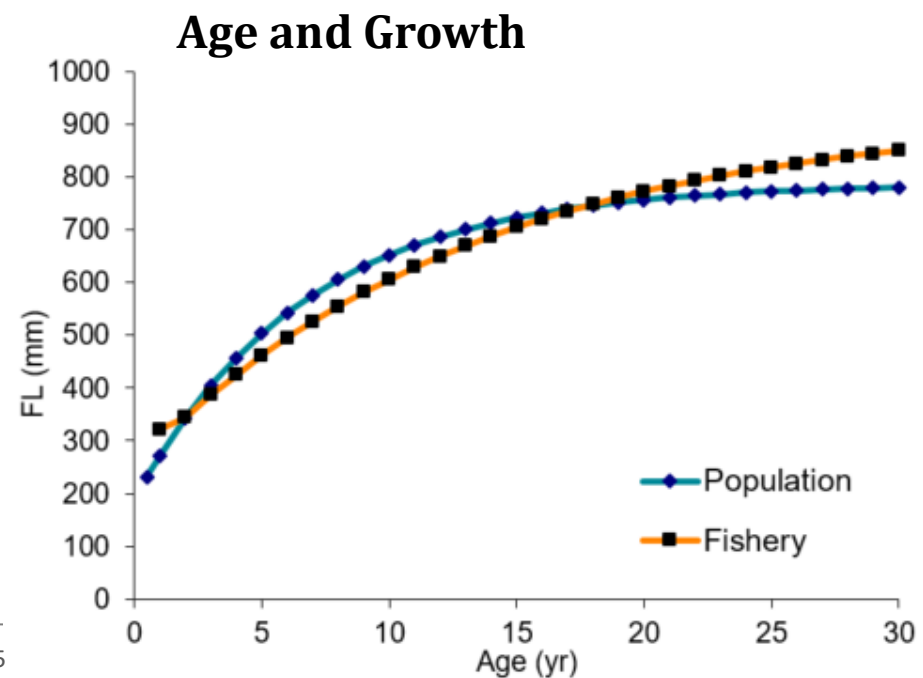
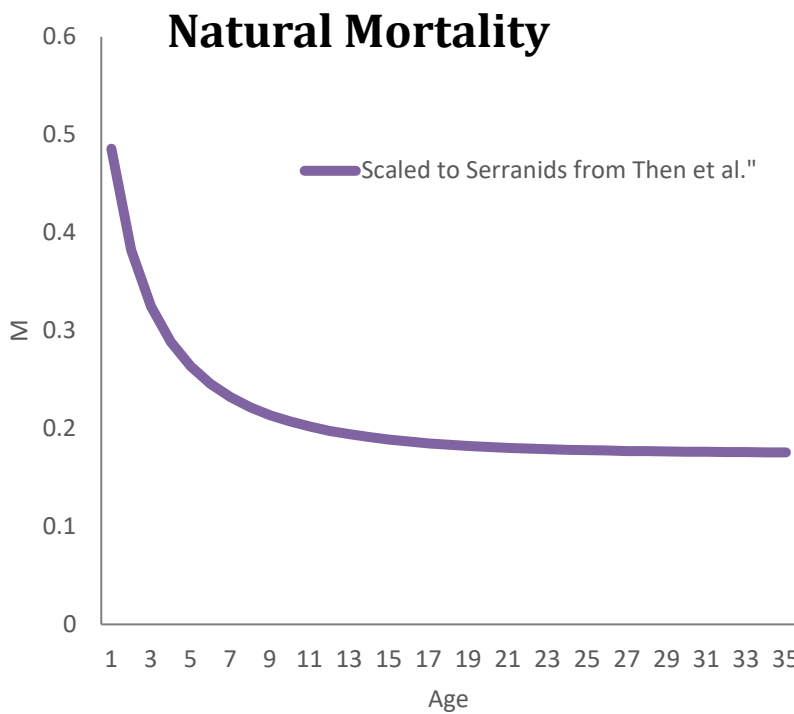
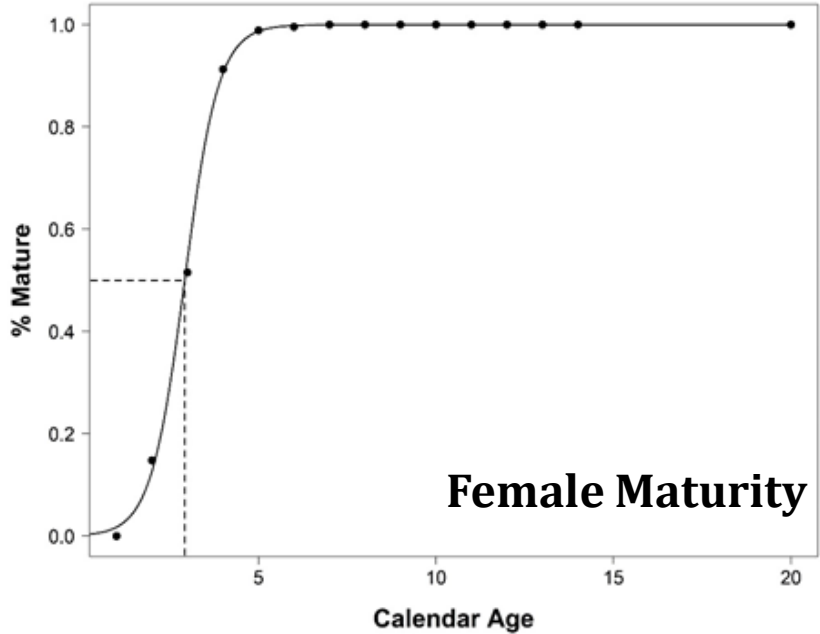
- Scamp and yellowmouth grouper are differentiated
  - Very similar morphometrics and life history characteristics
- Differentiation seen in gill raker counts, lateral line scales, and pectoral fin rays
- Recommendation by the Life History WG to combine all data (landings, indices, comps etc.) for two species
- Scamp and yellowmouth treated as scamp complex, though Scamp represent the vast majority of the data



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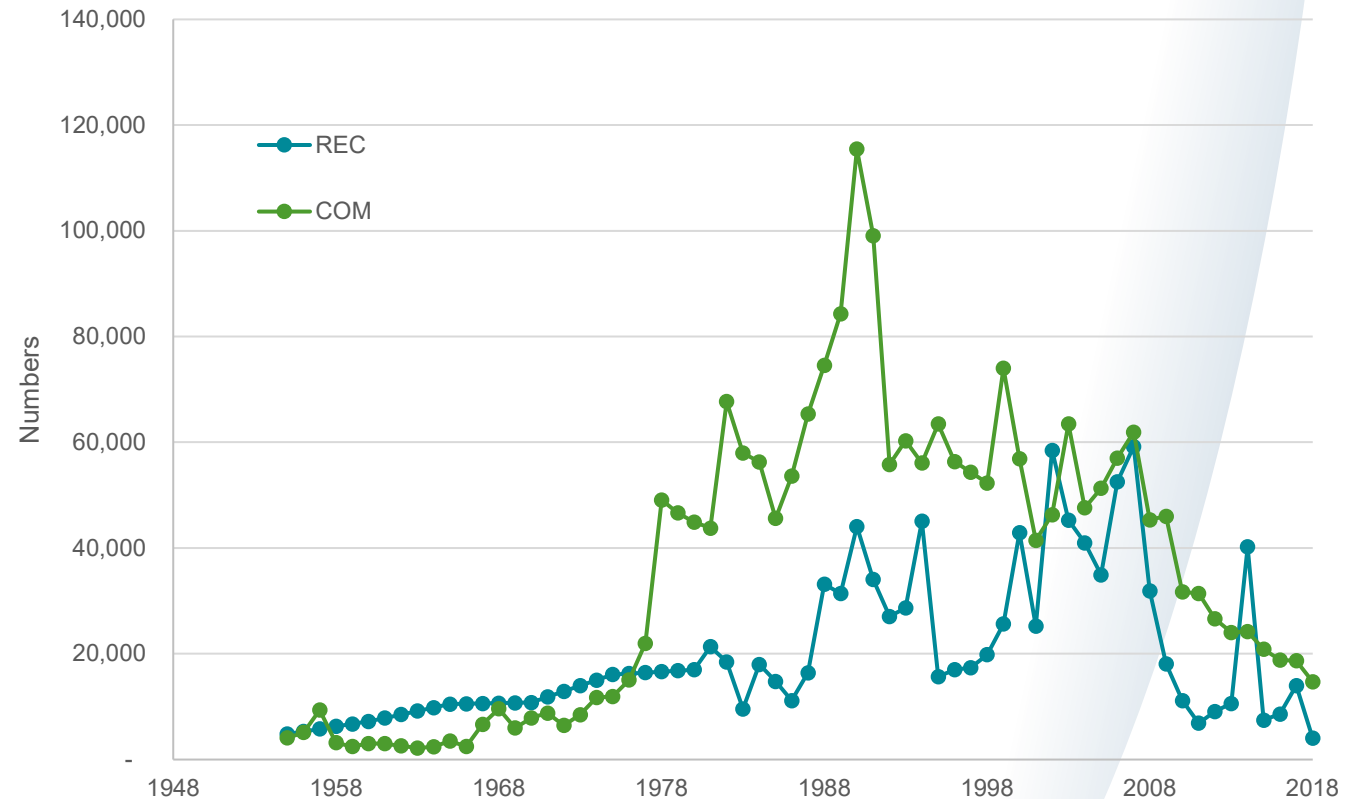
# Life History Data

- Target M determined using data from other fish in the same family (Serranidae, Then et al. 2015) and a maximum age of 34
- Natural mortality based on the Lorenzen curve, assuming mortality is age/size dependent



# Landings data – fleet structure

- **Commercial Fleet:**
  - Handline, longline, spear/diving and other
  - Prior to 1980, all groupers reported as Unclassified groupers
  - Proportioning required, consistent with previous SEDARs
- **Recreational Fleet:**
  - Marine Recreational Information Program (MRIP) – private and charter ~37% landings
  - Headboat ~ 63% landings



# Discard data

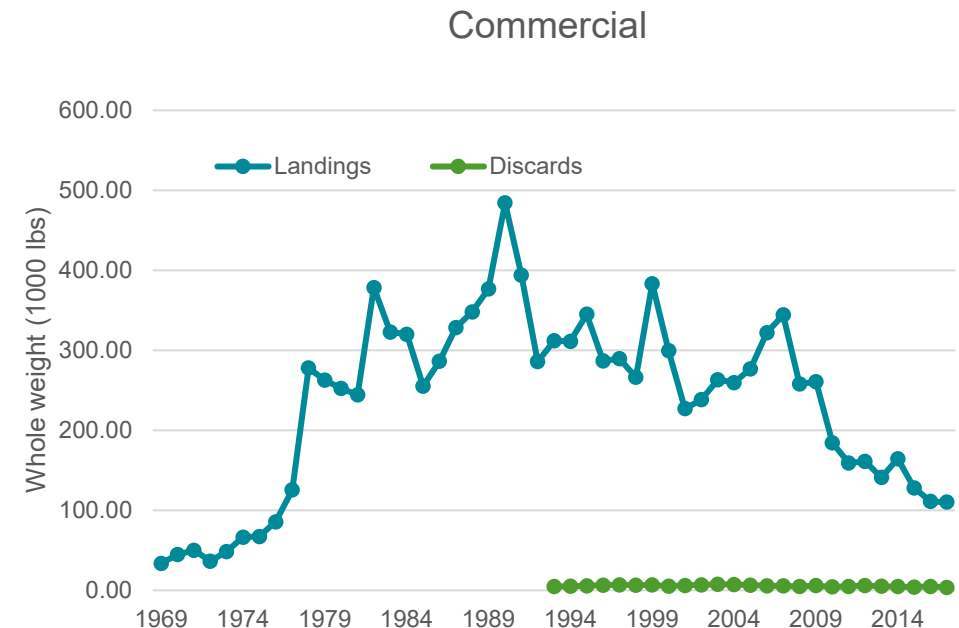
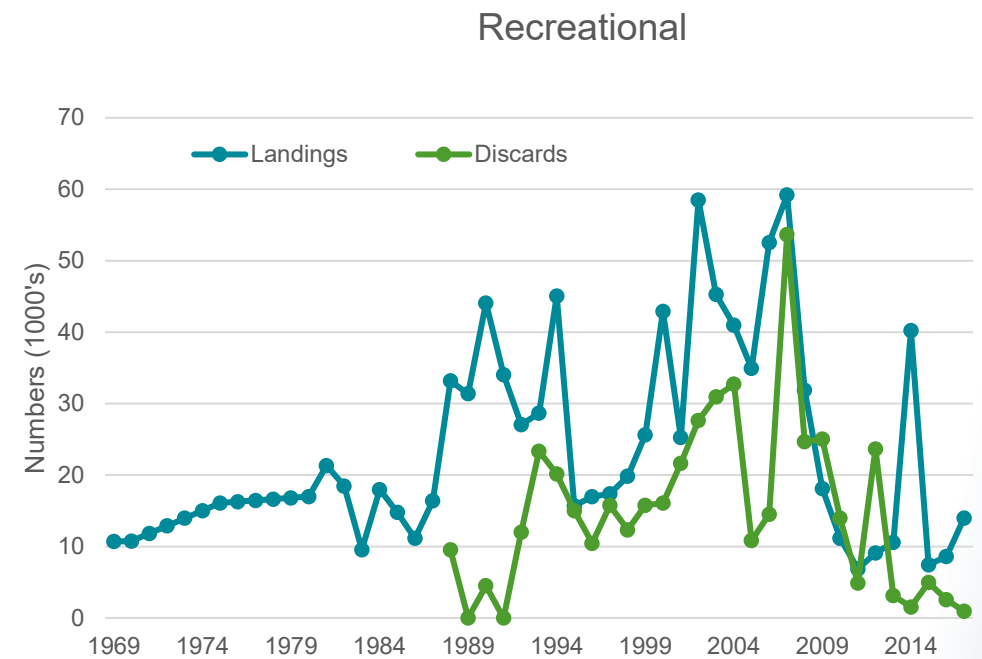
**Commercial:** Data available from two sources:

- Discard logbook (rate data)
- Coastal logbook (effort data)
- Observer data are insufficient to calculate discards
- Logbook discards generally higher than what observers report

**Recreational:** available from MRIP and SRHS

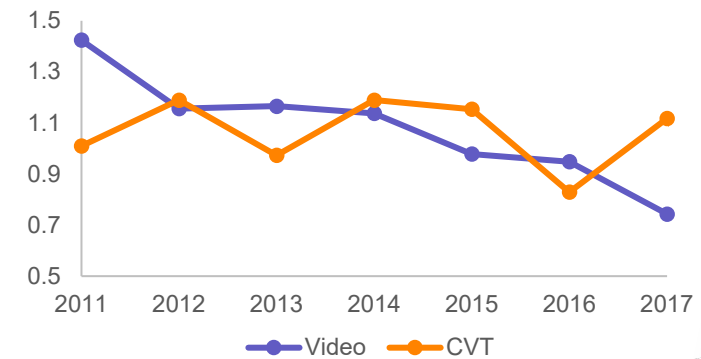
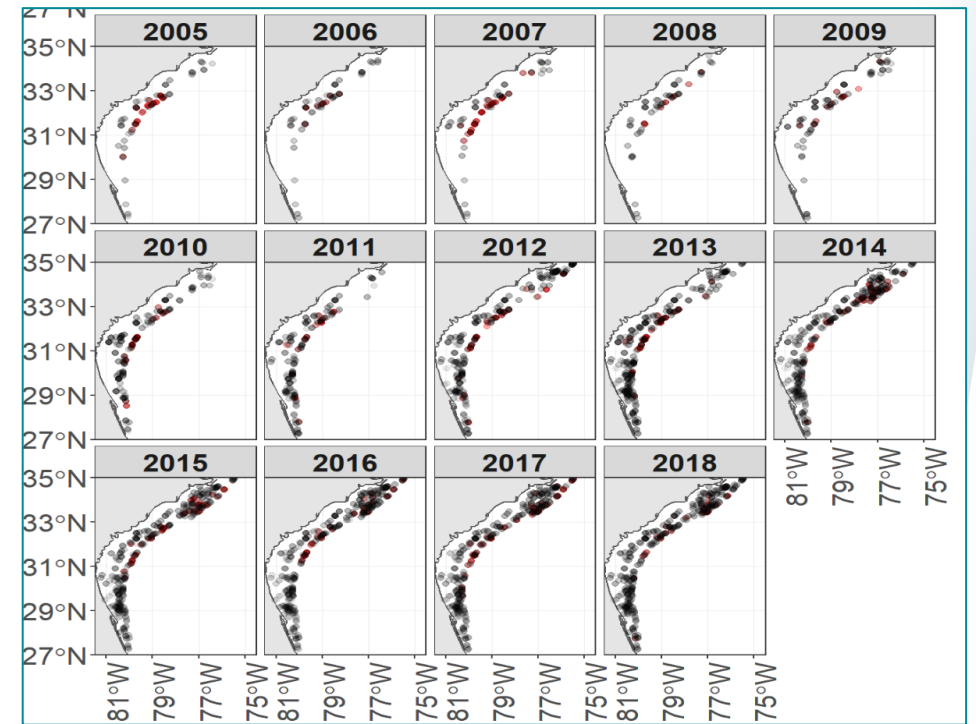
**Composition data:** limited for both commercial and recreational

**Discard mortality:** point estimate for total = immediate + delayed (26% REC and 39% COM)



# Survey data

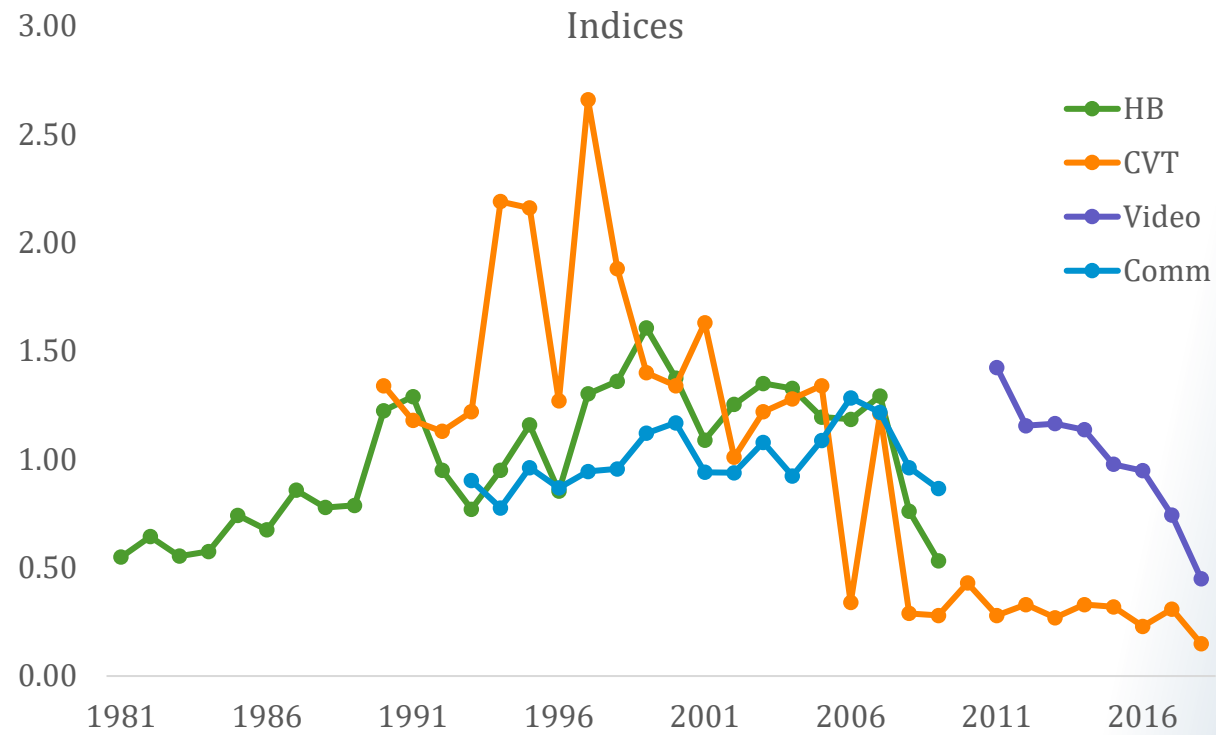
- SEFIS/SERFS Chevron Trap Survey 1990-2017
  - Age and length composition data
  - Index
  - Proportion of larger, older fish increased beginning in 2010
    - Expanded sampling coverage?
    - Decline in smaller fish?
- SEFIS/SERFS Video Survey 2011-2017
  - Index, no composition data available for S68
  - Similar abundance trend to Chevron trap survey
  - Two indices combined using Conn method





# Indices of Abundance

- Four recommended for use at Data Workshop
  - Commercial handline\*
  - Recreational headboat\*
  - SERFS chevron trap survey
  - SERFS Video Index



\*Truncated in 2009 due to changes in regulations that affected fishing behavior





# Assessment Workshop: Model Structure

- Years: 1969-2017
- Length composition available from 1978
- Age compositions available from 1990
- Catch-age model used (Beaufort Assessment Model)
- 1 area, 1 season
- Combined SSB, von Bertalanffy growth, Beverton-Holt SR relationship
- Two time blocks for age-based selectivities
  - block 1: 1969-1991
  - block 2: 1992-2017
- Three indices of abundance with Francis re-weighting
- Constant catchability

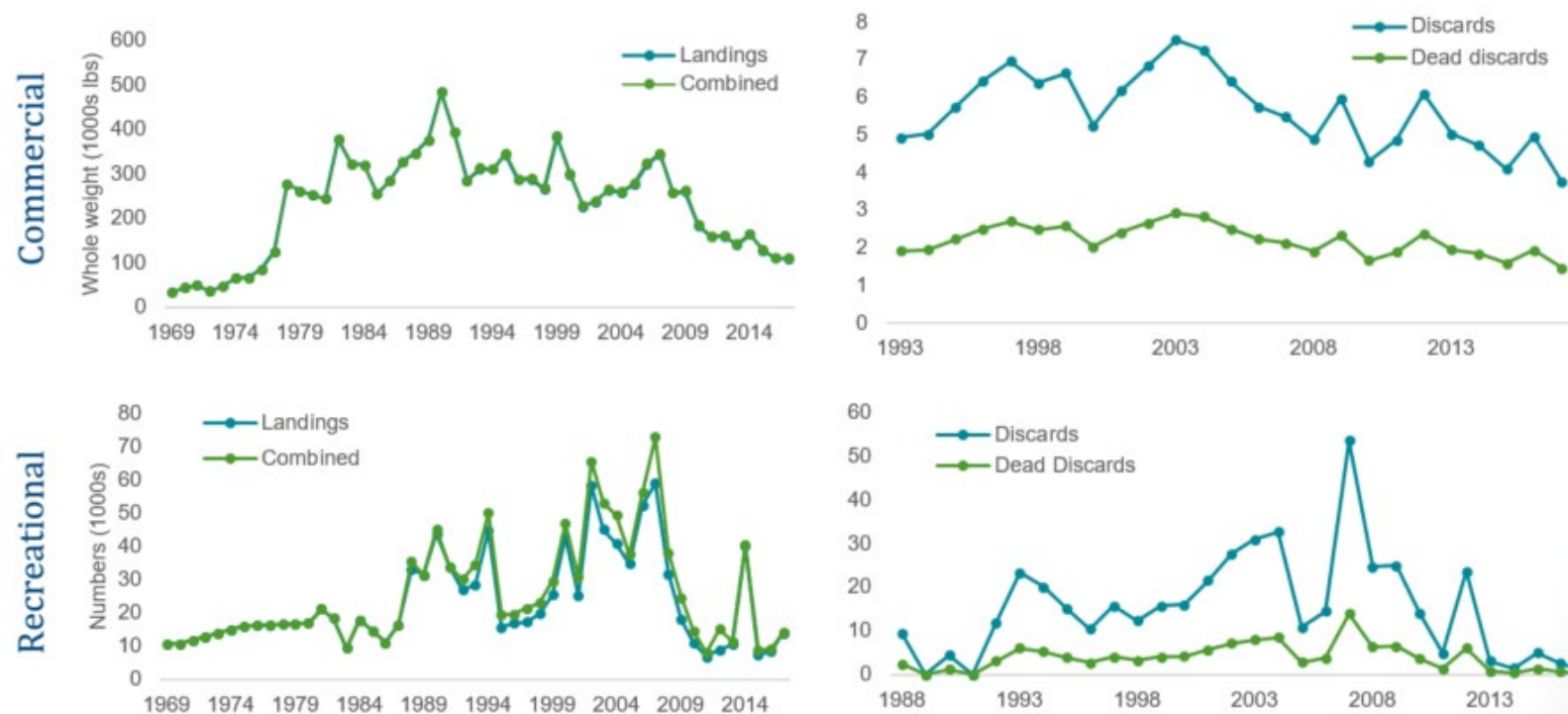


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# Review Workshop: Base Model

Assessment Webinar base run:

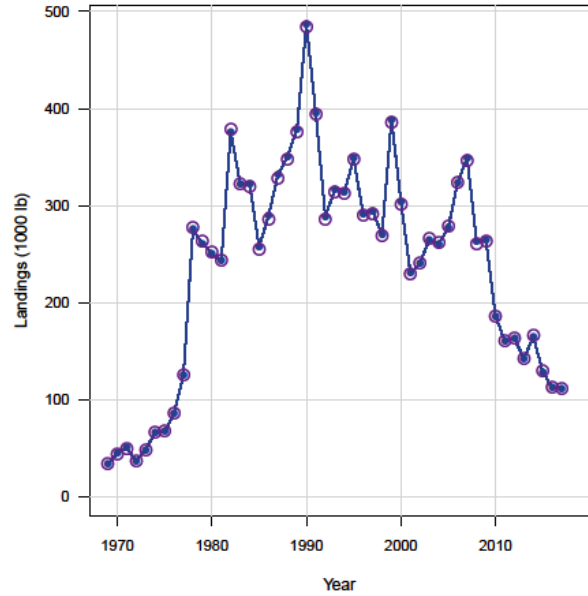
- Included two separate discard fleets, one for COM and one for REC
- Review Panel recommended combining dead discards with landings for COM and REC
  - Model parsimony
  - Currently no way to separate discard retention from landings in BAM
- Removed discards from model
- Added dead discards to landings: Applied discard mort. rate to discards (26% REC and 39% COM)



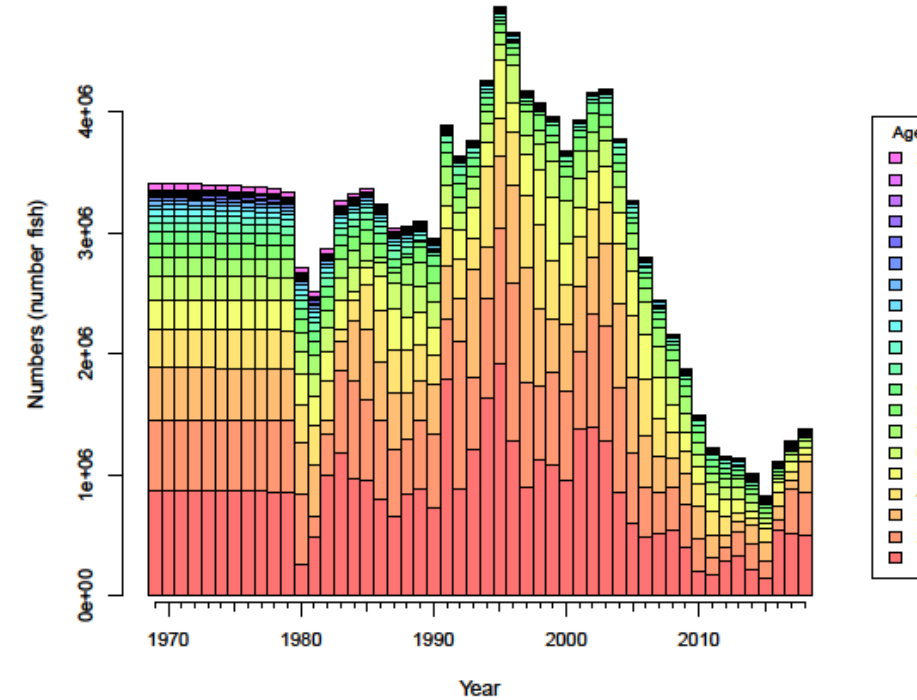
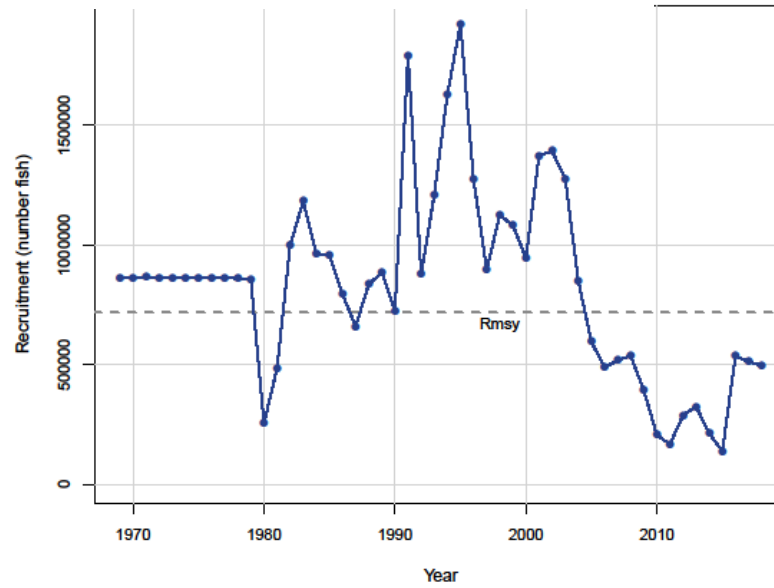
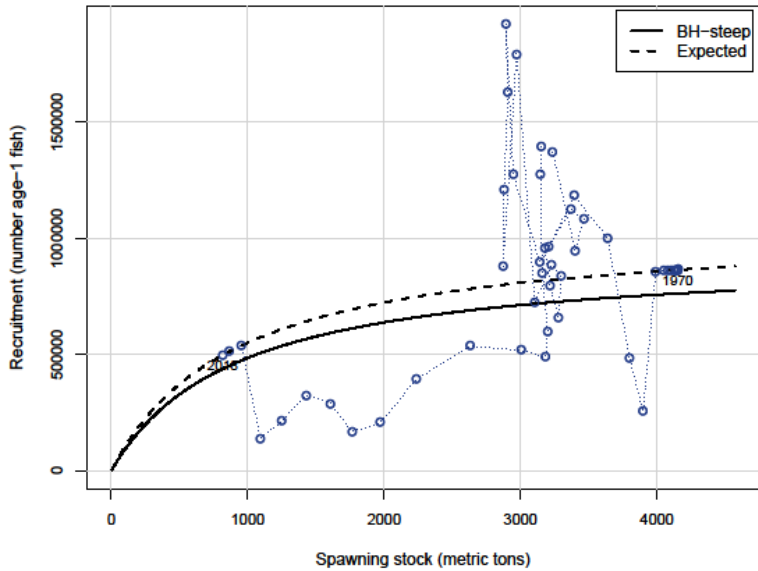
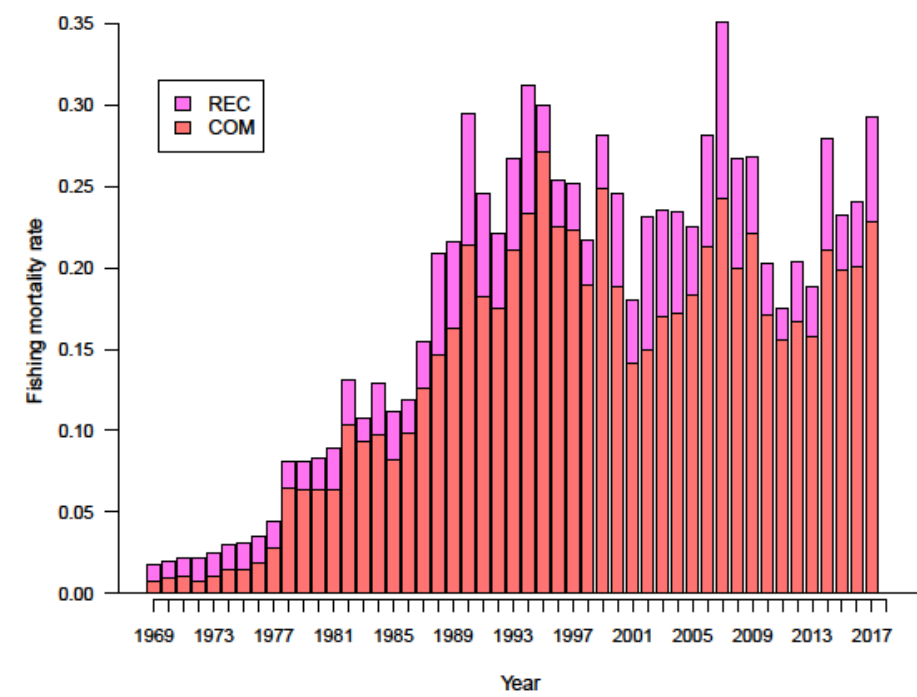
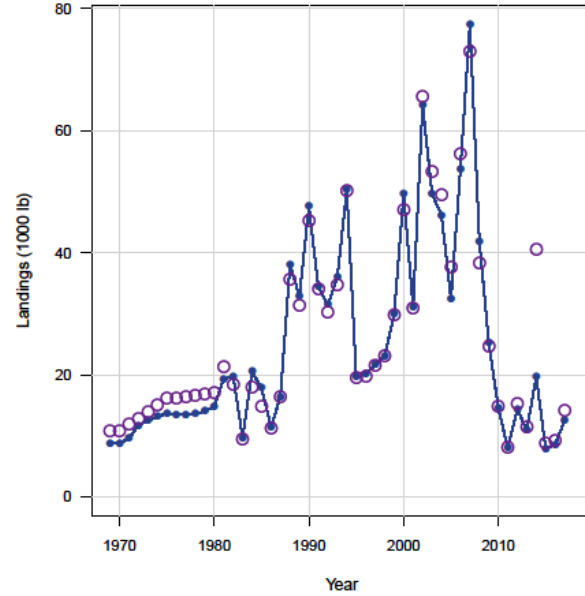
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# Model Fits

## Commercial

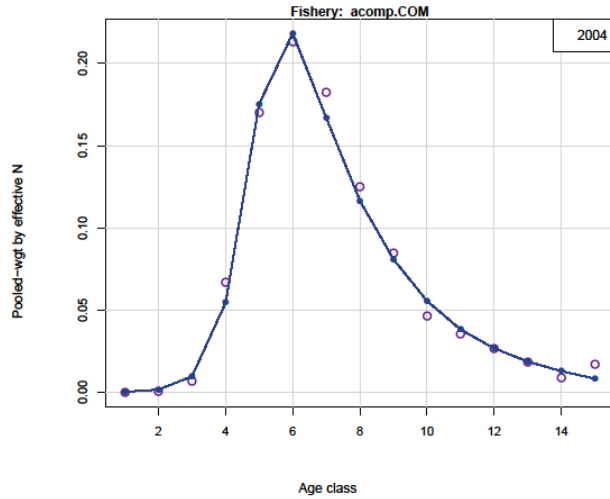


## Recreational

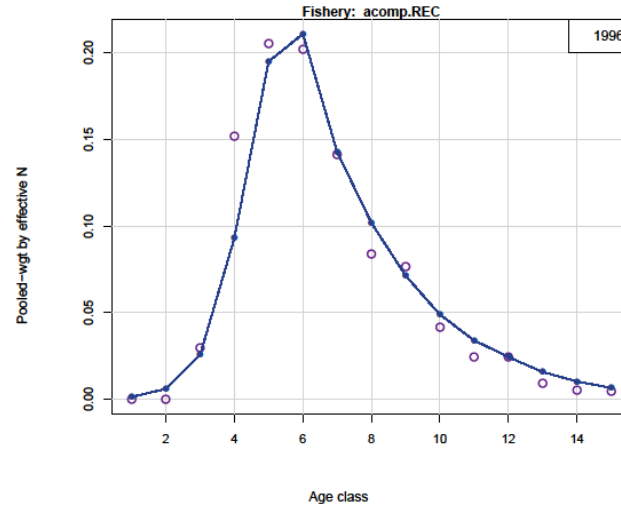


# Model Fits

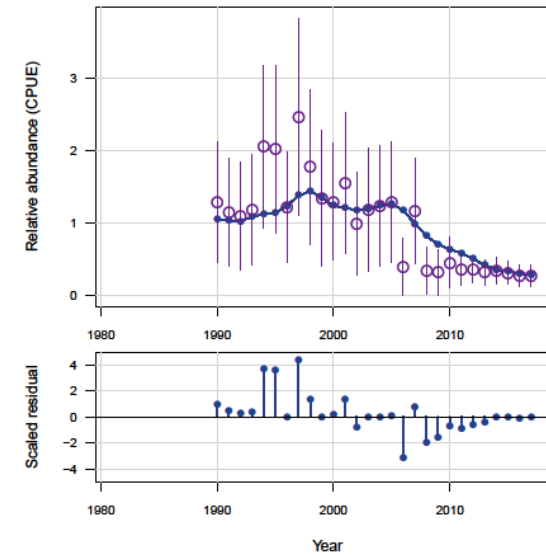
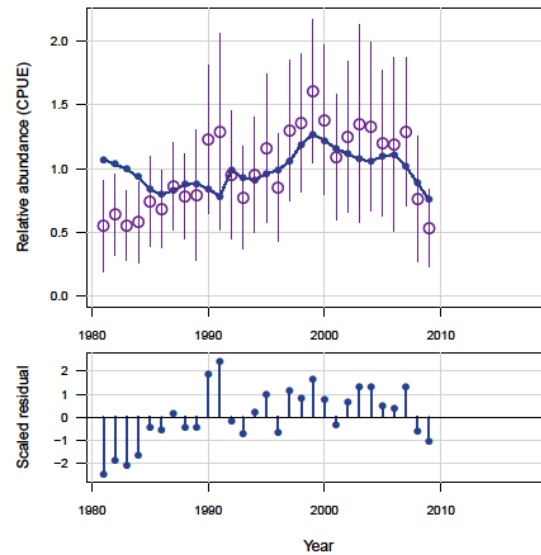
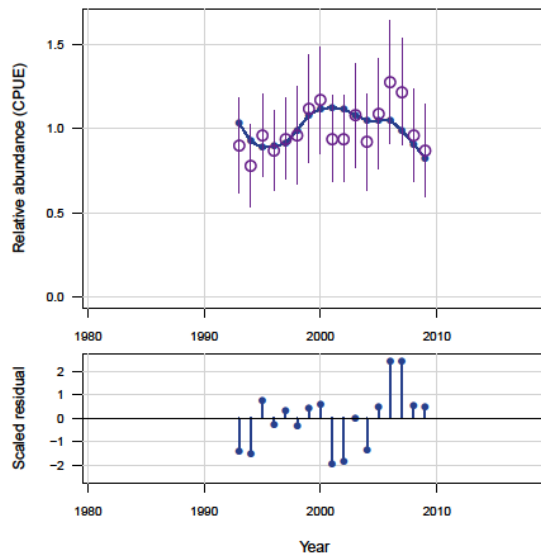
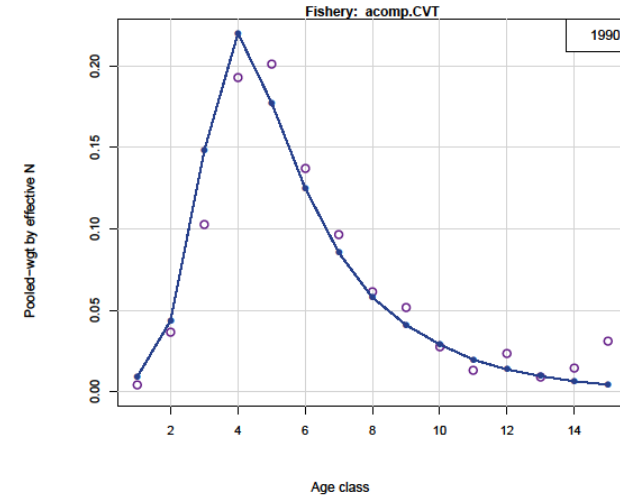
## Commercial



## Recreational

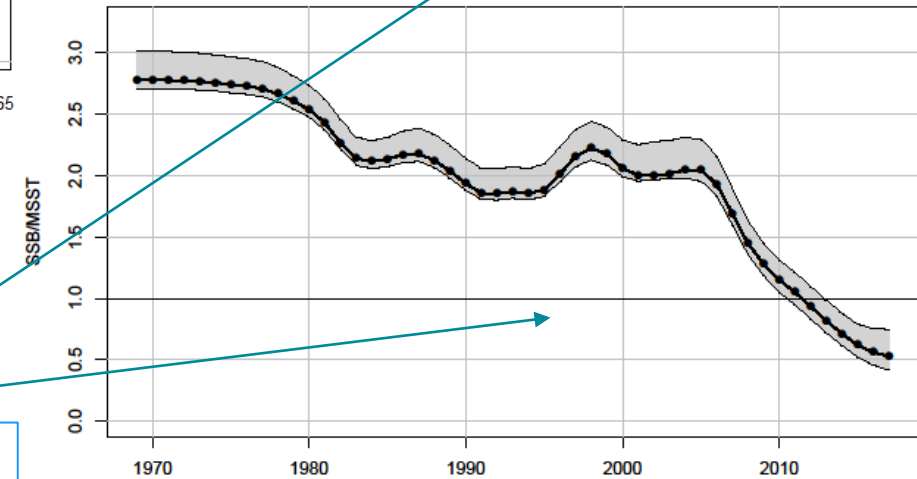
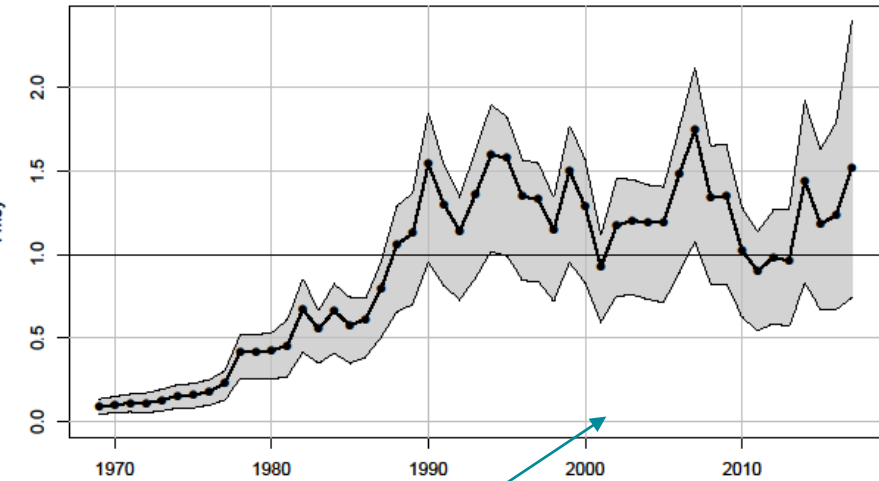
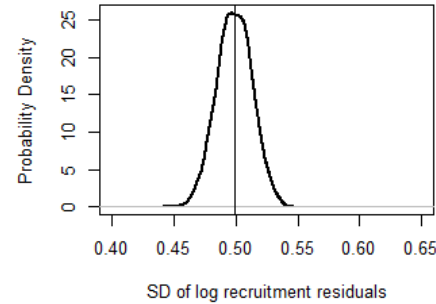
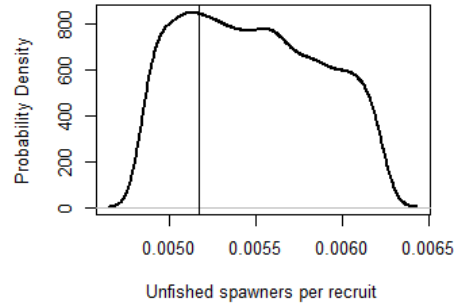
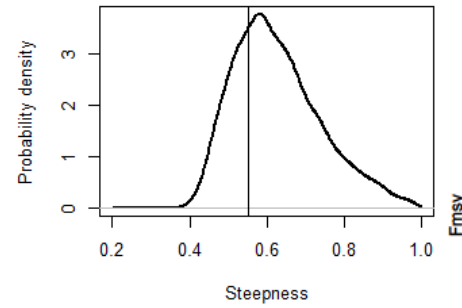
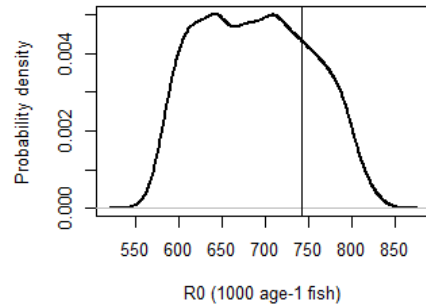


## Chevron Trap



# Uncertainty

- Bootstrapping:
  - Indices
  - Landings
  - Age & length comps
- Monte Carlo:
  - M: uniform draw from low to high max age (32-36 yrs)
- Runs culled from ensemble modeling when R0, Fmsy, steepness and R sigma hit upper bound



Important to note: the Research Track doesn't determine status or provide management advice. These plots are only provided to show uncertainty

# Sensitivity Runs

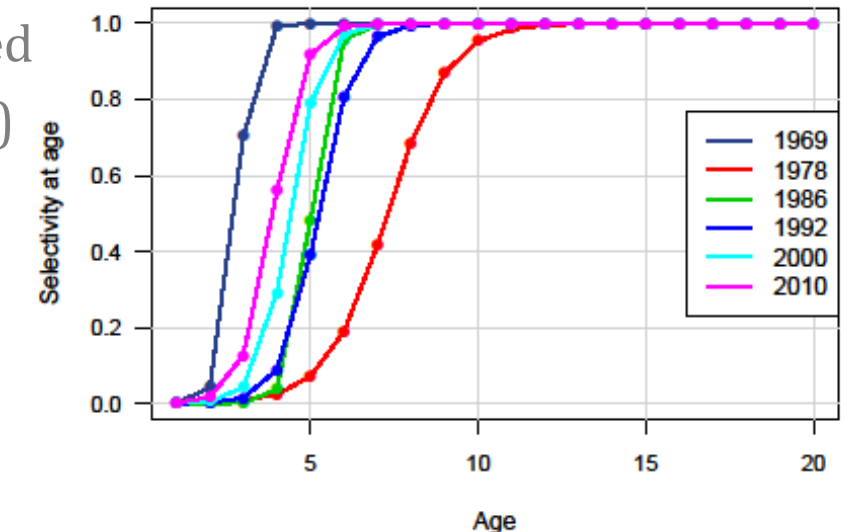
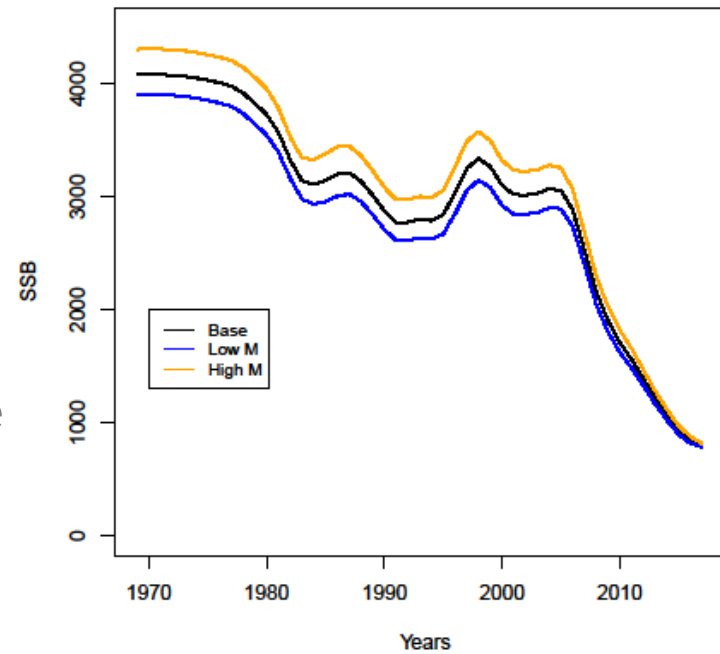
## Assessment Webinars

1. Retrospective analysis
2. Low M, high M
3. Beta prior on steepness estimate
4. Male contribution
5. Aging error matrix included

## Review Workshop

Selectivity mismatch between time blocks was the main issue discussed

1. Combined dead discards with landings (accepted RW Base Model)
2. Dome shaped selectivity for REC and COM (explored)
3. Time blocks removed from Run 2 (explored)
4. Time blocks removed from AW base run (explored)
5. 6 time blocks on AW base run (explored)



Age



# CIE Recommended Changes for Operational Assessment

- Explore random walk on A50 parameter for Commercial and Recreational selectivity

or

- Increase time blocks after likelihood analysis to determine best years to place additional block
- Include Commercial landings uncertainty in ensemble modeling



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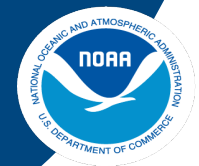
# Next Step: Operational Assessment

- Incorporate all recent data – no topical work group(s) needed.
- Determine status.
- Provide management advice through projections.
- All final data are due the end of July 2022, and the assessment and report will be completed the end of November 2022.



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# Thank you



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