SEDAR 76 Operational Assessment Black Sea Bass

SAFMC

July 2023

Terms of Reference

SEDAR 76
Black Sea Bass
Operational Assessment
Terms of Reference

1. Update the South Atlantic Black Sea Bass SEDAR 56 assessment from a terminal year of 2015 with data through 2020. Provide a model consistent with the previous assessment configuration and revised models as necessary to incorporate and evaluate any changes allowed for this update. Apply the current BAM configuration incorporating approved improvements developed since SEDAR 56.

2. Evaluate and document the following specific changes in input data or deviations from the benchmark model.

   - Include any newly available information on steepness for similar species.
   - Include any new and updated information on discard mortality and life history.
   - Calculate different F metrics (in addition to apical F) (to address shifts in the age of apical F towards the end of the assessment time series).
   - Consider sensitivity analyses to address SSC concerns with selectivity differences between Chevron traps and cameras used to create the CVID index addressed at the selectivity workshop .

3. Document any changes or corrections made to model and input datasets and provide updated input data tables. Provide commercial and recreational landings and discards in pounds and numbers.

4. Update model parameter estimates and their variances, model uncertainties, estimates of stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels.

5. Convene a working group including SSC representatives to meet via webinar, as needed to review model development relative to terms of reference 1 through 4

6. Develop a stock assessment report to address these TORs and fully document the input data, methods, and results.
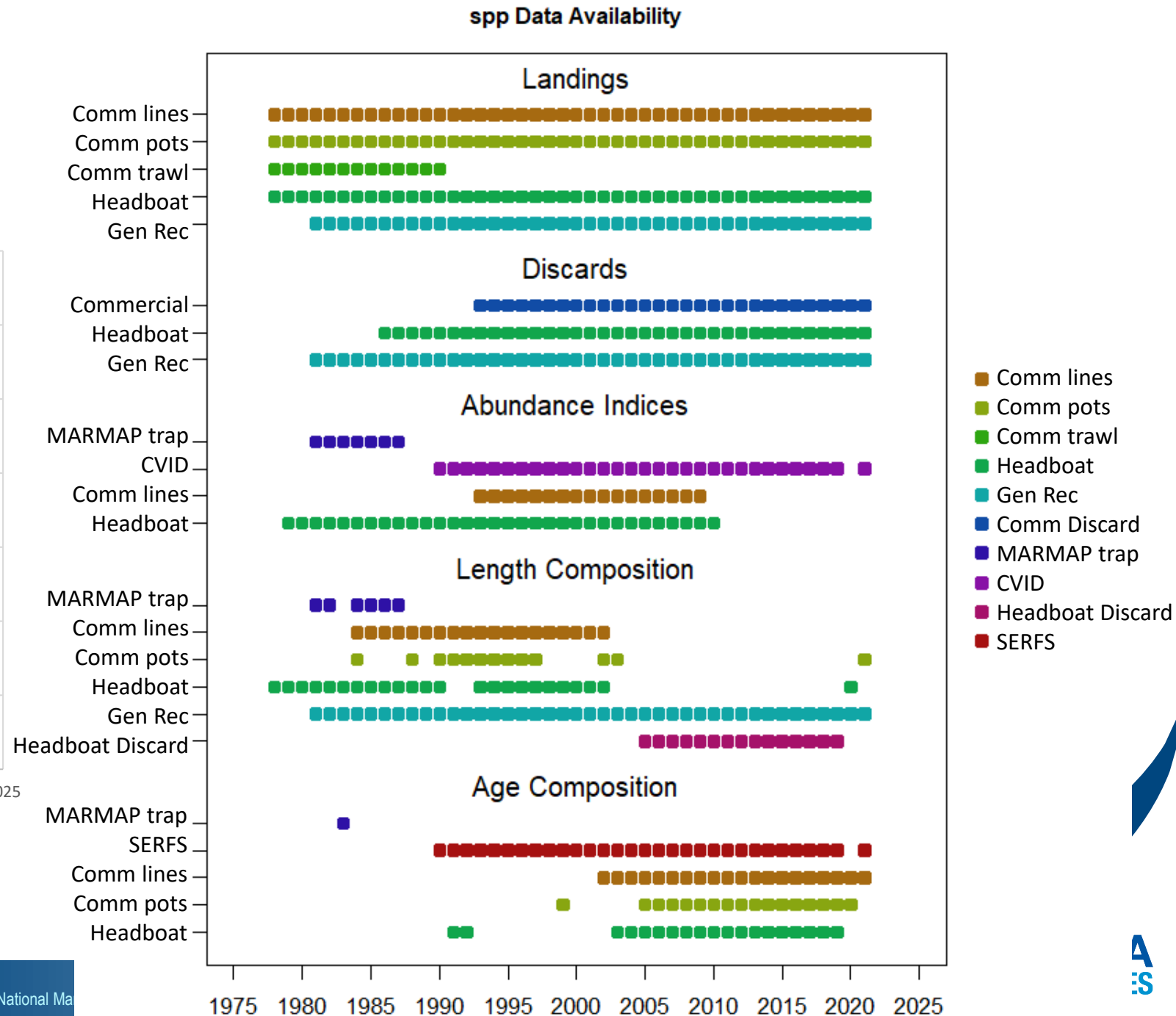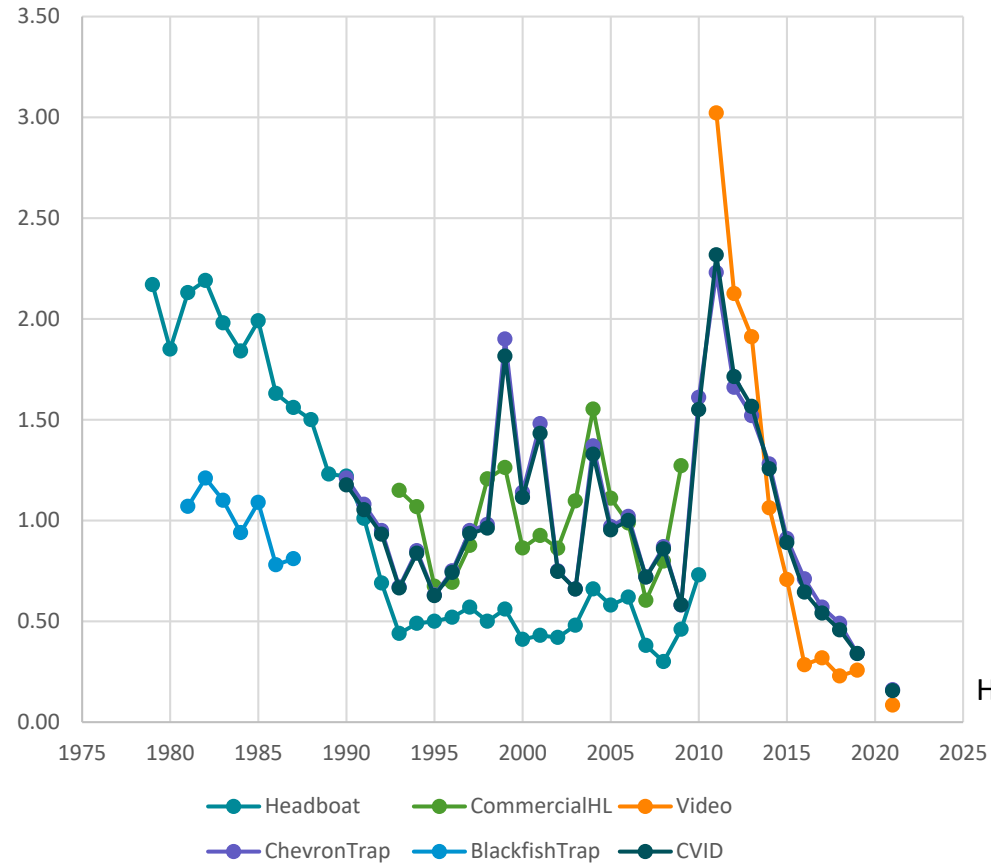
TOR 1: Update SEDAR 56 with data through 2021. Apply approved improvements to BAM

- SEDAR 25 (2011)
  - Not overfished but not fully rebuilt
    - $SSB_{2020}/MSST=1.13$ but $SB_{2010}/SSB_{MSY}=0.7$
  - Overfishing occurring
    - $F_{2009-2010}/F_{MSY}=1.07$
- SEDAR 25 Update (2013)
  - Not overfished ($SSB_{2012}/MSST=1.66$)
  - Not overfishing
- SEDAR 56 Standard assessment (2018)
  - Not overfished ($SSB_{2016}/MSST=1.15$)
  - Not overfishing ($F_{2014-2016}/F_{MSY}=0.64$)
  - ($F_{2011-2012}/F_{MSY}=0.66$)

- SEDAR 76 Operational Assessment
  - Data submissions completed August 2022
  - 1 data scoping call Sept 2022
  - 5 assessment webinars Sept 2022 – Feb 2023 (**TOR 5**)
  - Panel input and approval of all decisions (**TOR 5**)
  - SSC review April 2023
  - Updated data through terminal year 2021

Data Used

TOR 2a: Include any newly available information on steepness for similar species

- Used a mean recruitment model (Steepness =1)
  - No new information on steepness
  - Steepness not well estimated by model
  - Following precedent of red snapper and scamp

- Mean recruitment model is a default assumption when there is little evidence of a stock recruitment function
  - This model change does not change current stock status conclusions

TOR 2b:Include any new and updated information on discard mortality and life history
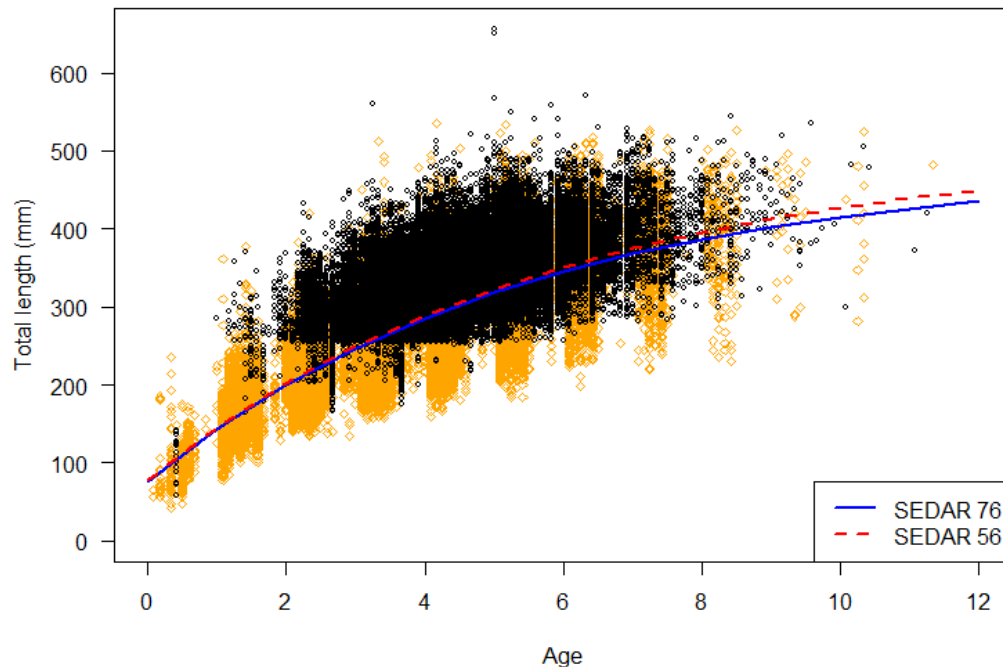
- New studies estimate higher discard mortality
  - Schweitzer et al 2020: 47.1% mortality from 1.5" commercial trap
  - Zemeckis et al 2020: 50.4% mortality non vented, 21.9% vented headboat
- Retained base levels from SEDAR 56 but expanded uncertainty scenarios
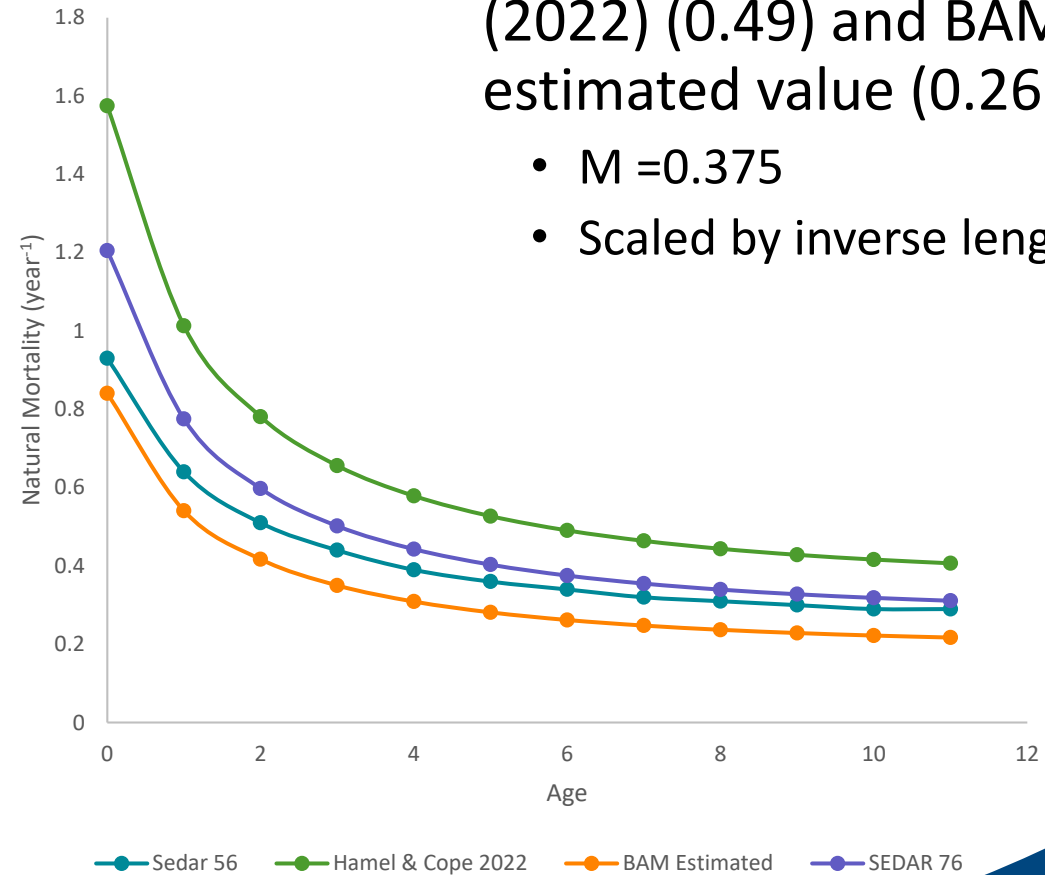- Limited impact on overfished status estimate but impacted overfishing status estimate

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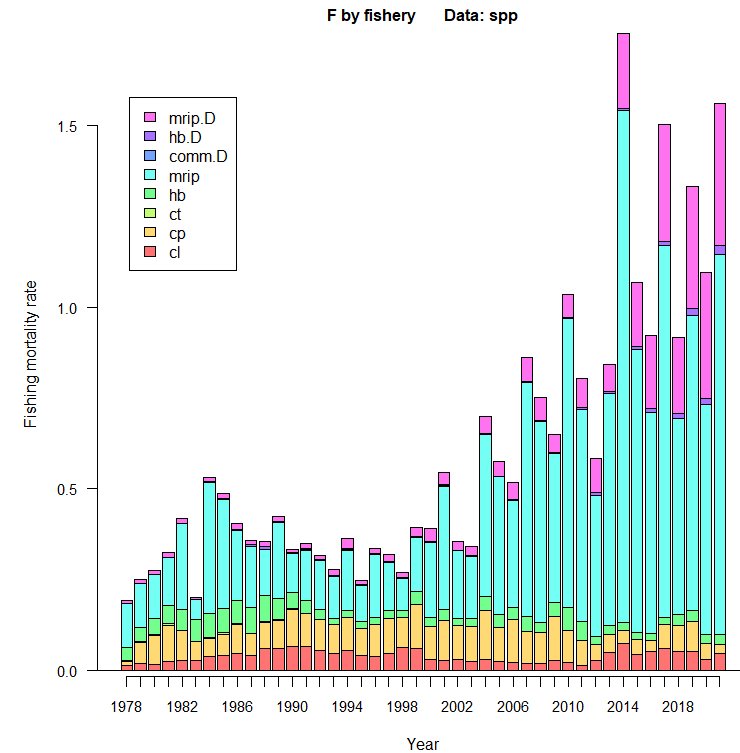
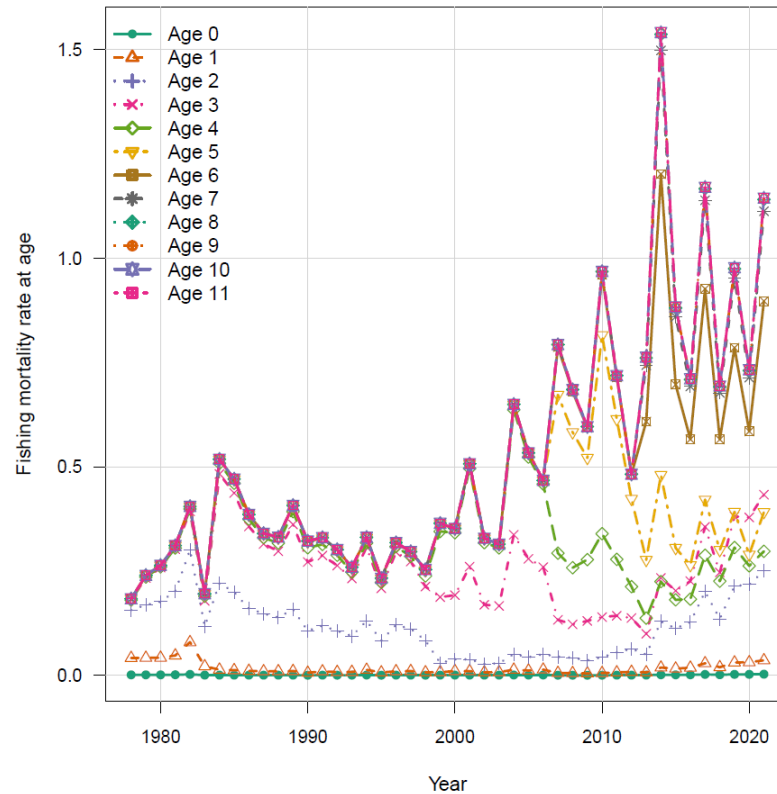# TOR 2b: Updated Growth and M

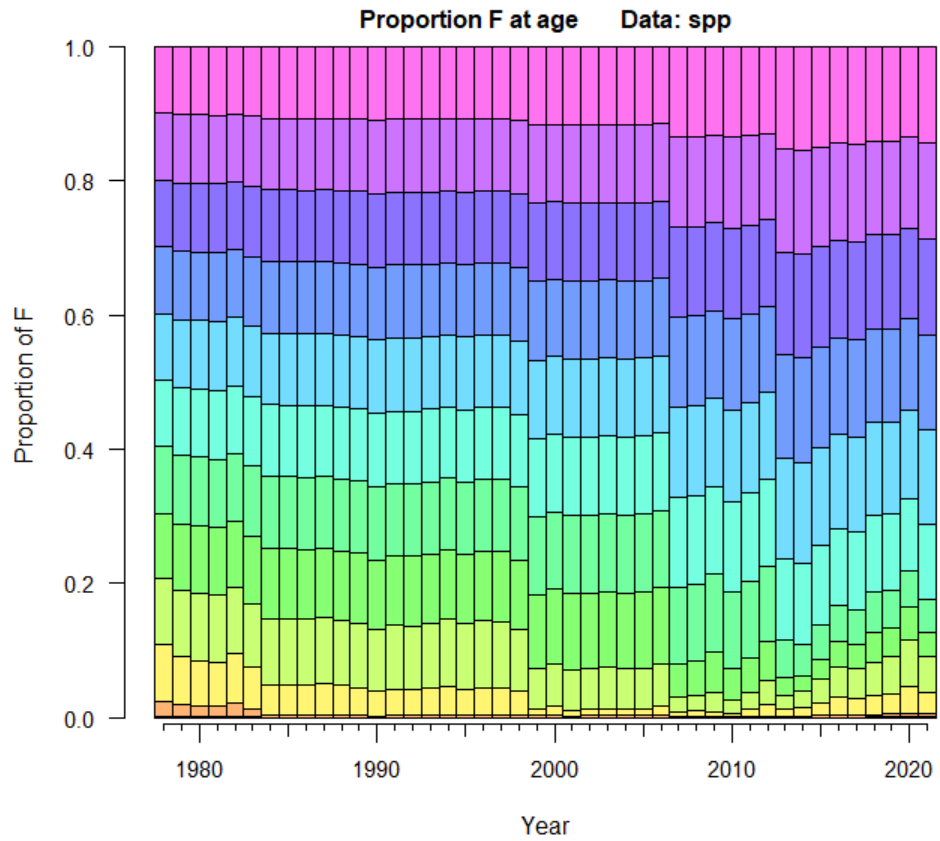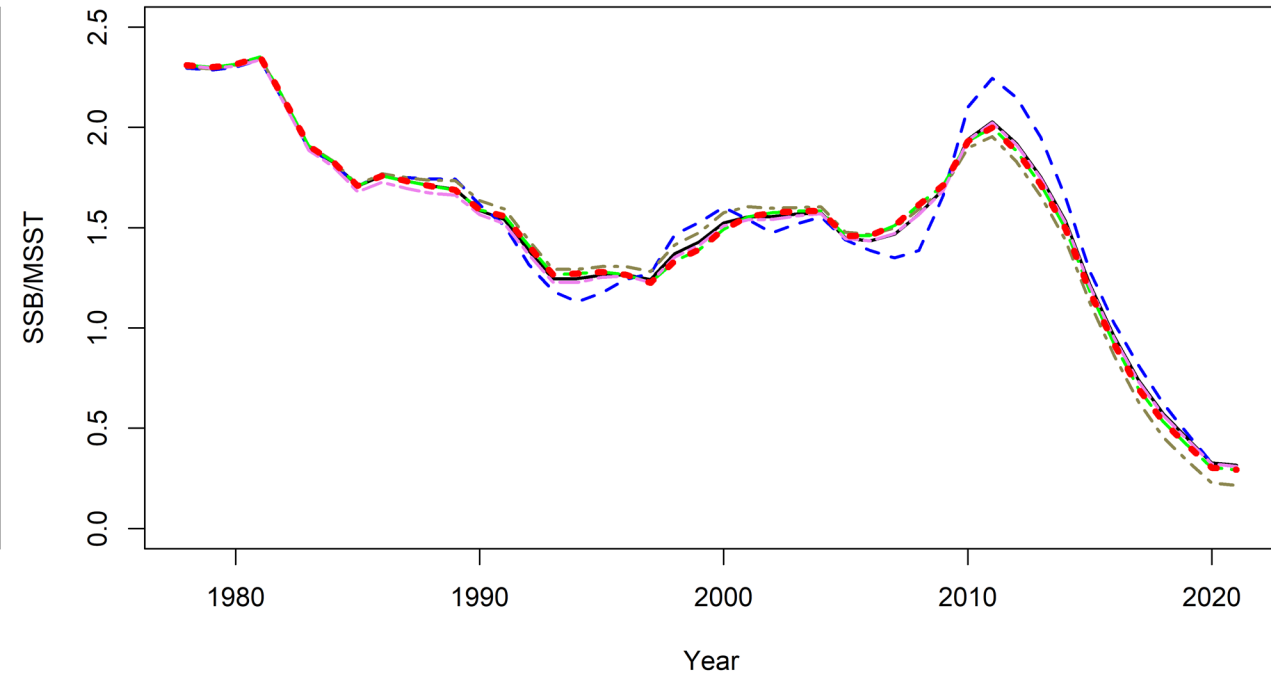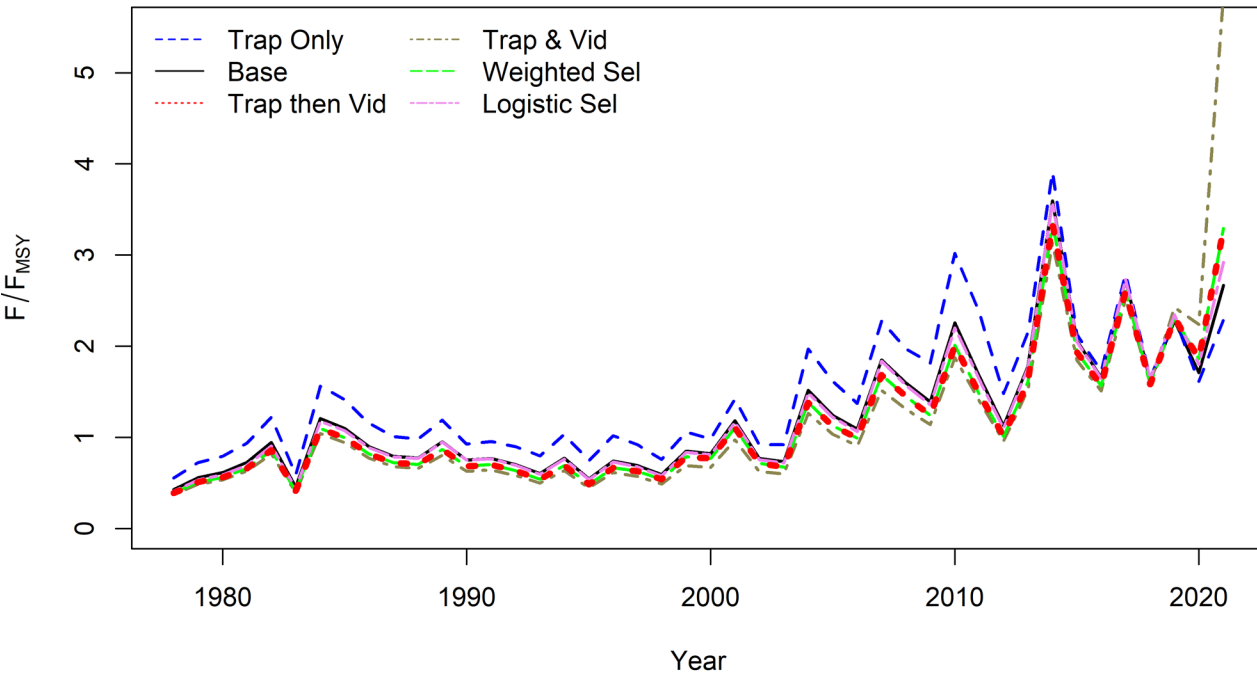- Updated growth with new age/length composition data

- Used average of Hamel & Cope (2022) (0.49) and BAM estimated value (0.26)
  - M =0.375
  - Scaled by inverse length at age

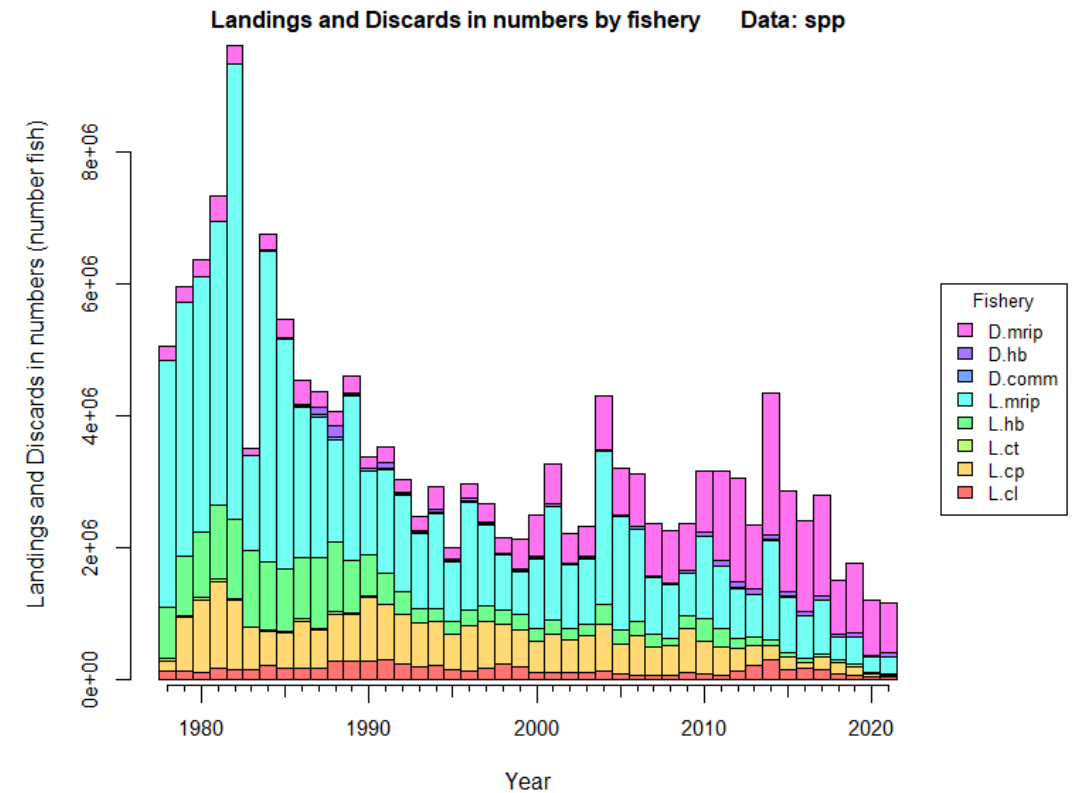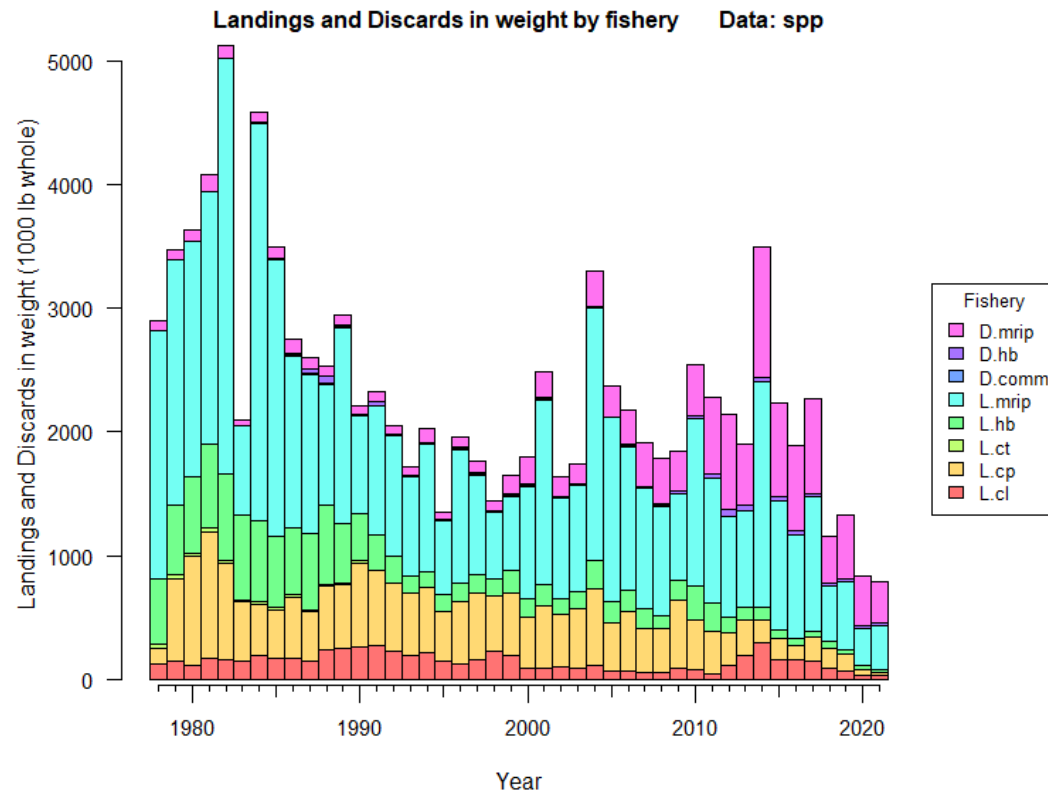# TOR 2c: Calculate different F metrics (to address shifts in apical F)

TOR 2d: Consider sensitivity analyses to address selectivity differences between chevron traps and cameras used to create CVID index

TOR 3: Document any changes or corrections made to model and input datasets and provide input data table. Provide commercial and recreational landings and discards in pounds and numbers

- 70% of commercial logbooks indicate no discards of any species resulting in lower estimates compared to SEDAR 56

- Estimated domed selectivity for SERFS survey

- Switch to mean stock-recruitment model

- Recruitment in last 2 years fixed at mean value from recent period (2014-2019)
  - Change point analysis determined recent recruitment period

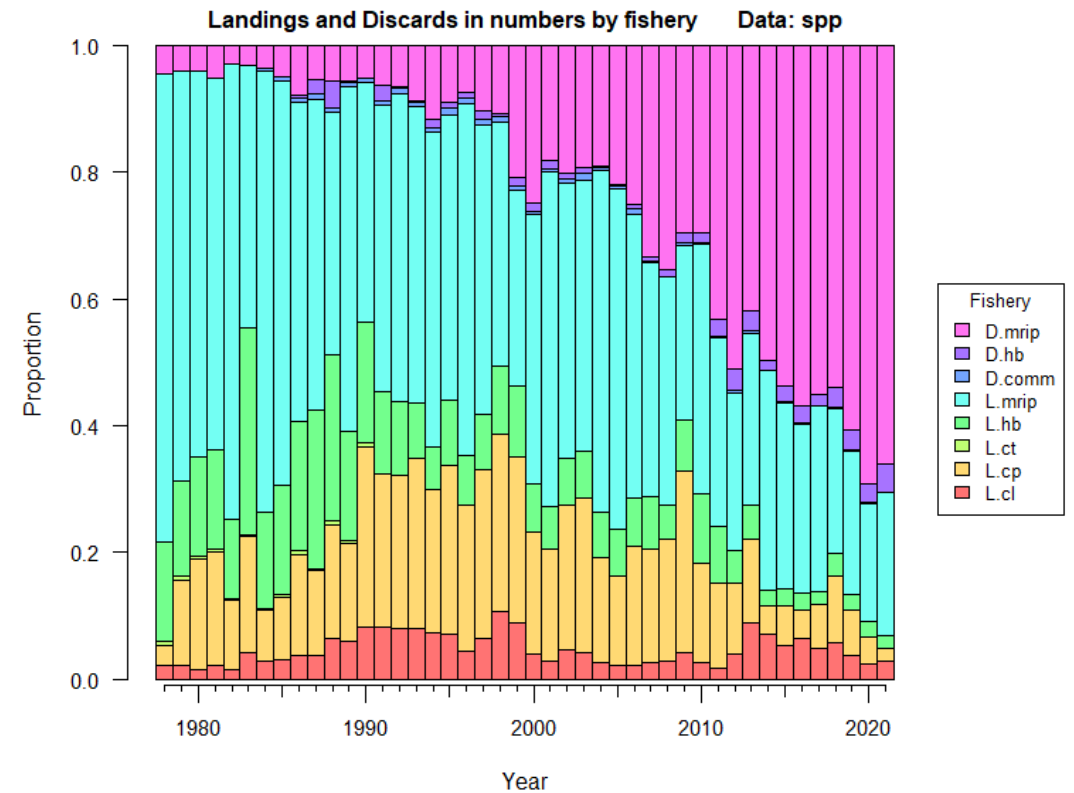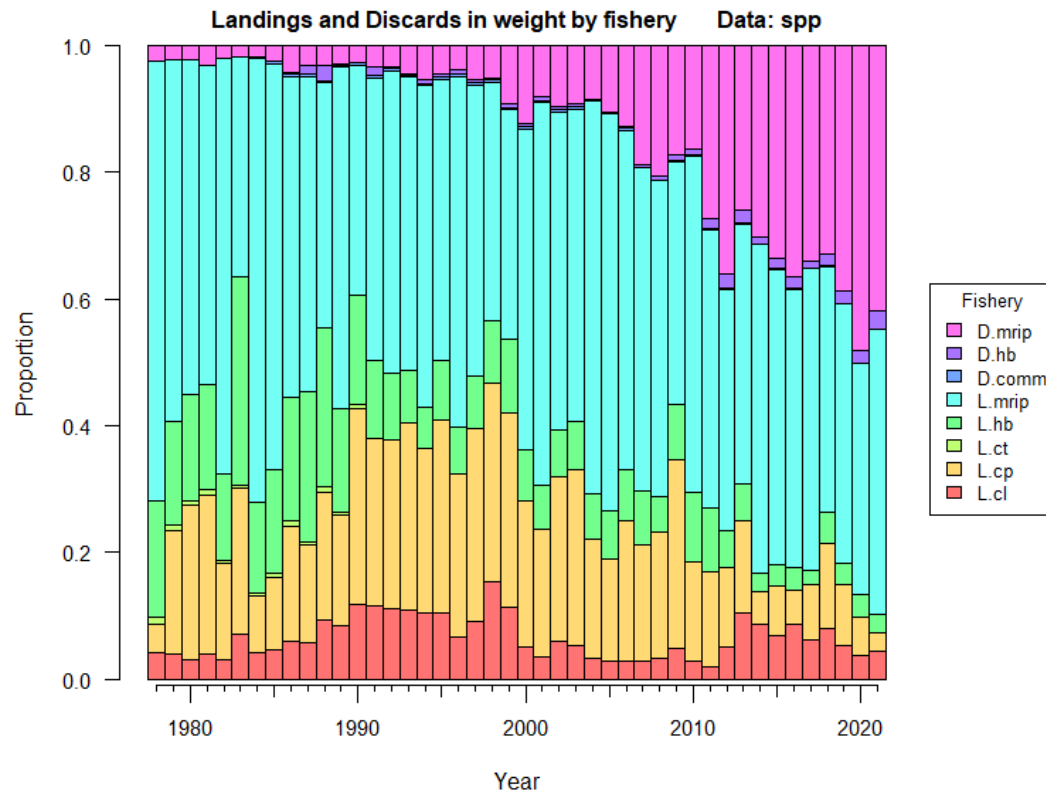- Other changes to assessment documented in report

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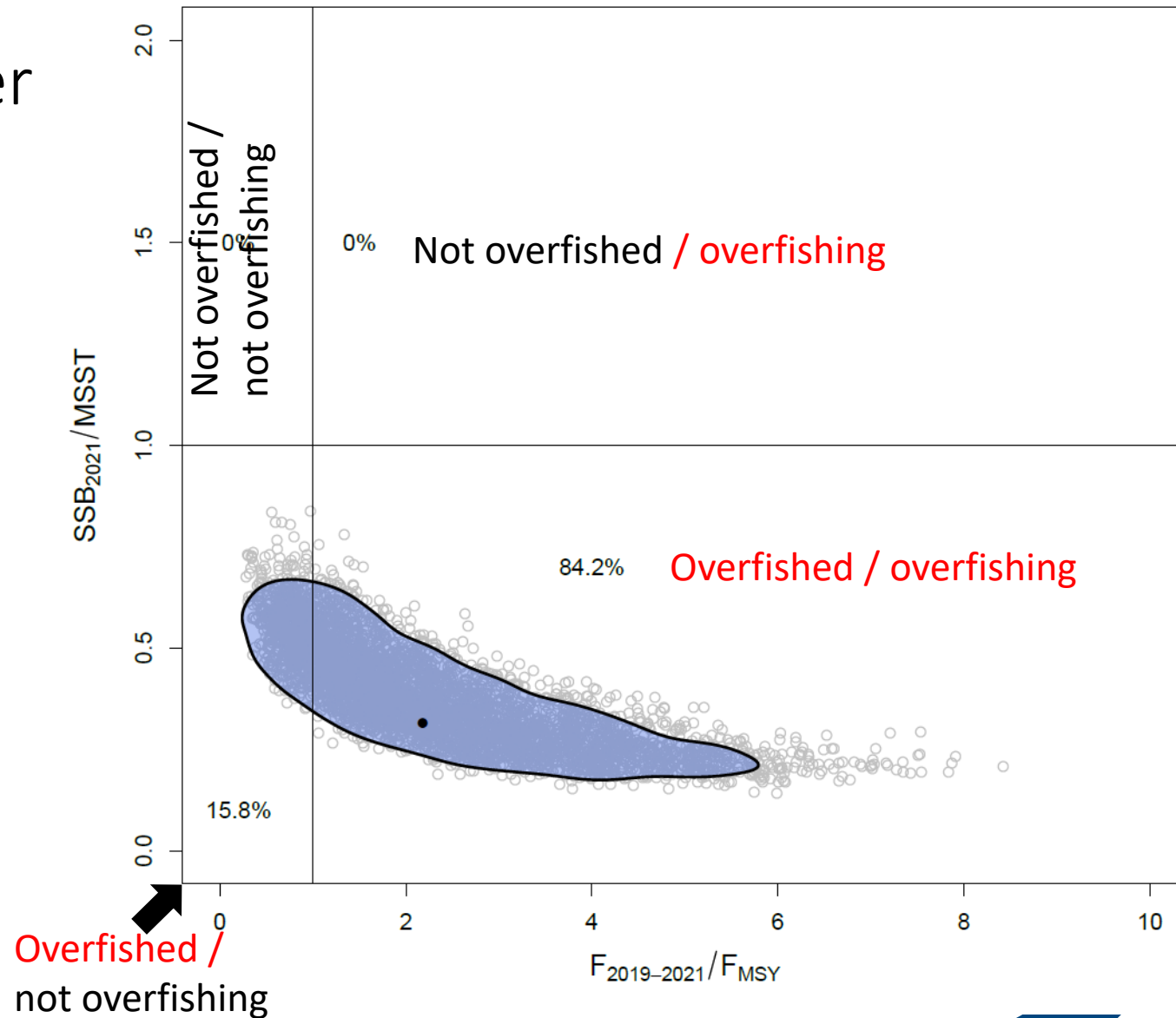# TOR 3: Document any changes or corrections made to model and input datasets and provide input data table. Provide commercial and recreational landings and discards in pounds and numbers
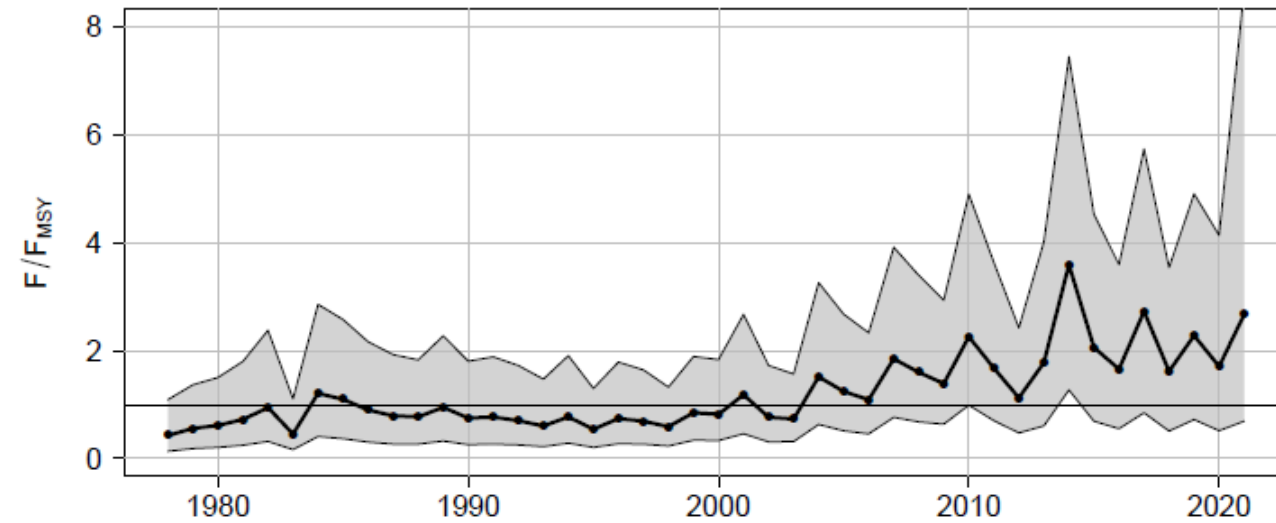
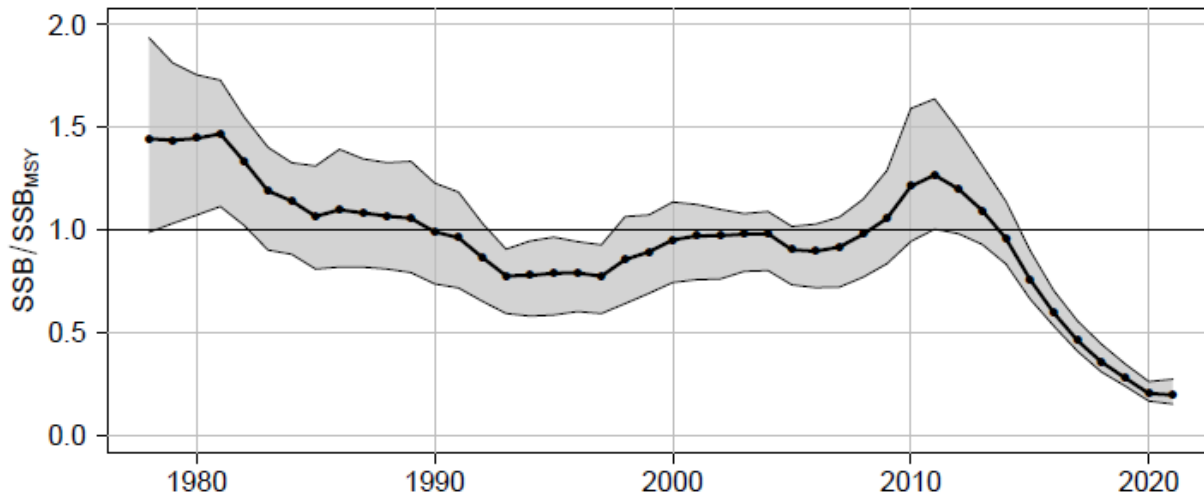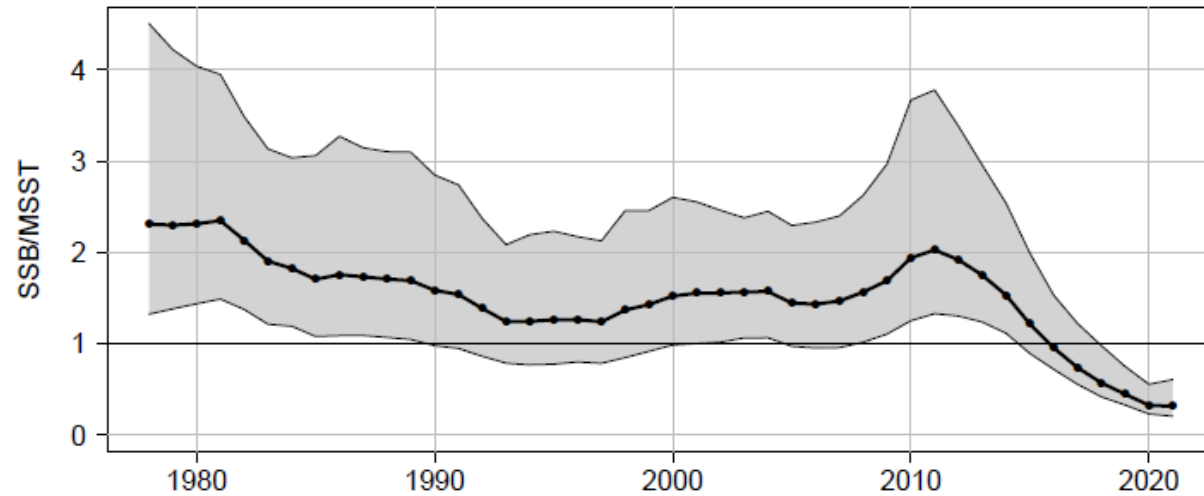TOR 4: Update model parameter estimates, model uncertainties, stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels

- Key uncertainties included: Natural mortality, discard mortality, index weighting

- Uncertainty characterized through the MCBE process

Stock status

- 100% overfished
- 84% overfishing

Summary of assessment results

- SA black seabass is overfished/depleted (100%)

- Overfishing is occurring in terminal years (84% of MCBE runs)
  - Recreational landings and discards are majority (>90%) of recent mortality

- Natural mortality and discard mortality are important sources of uncertainty in this assessment
  - Though stock status is robust to range used in this assessment

- Pattern of low recruitment since 2014 raises the question of a regime shift
  - Follows implementation of 13" recreational size limit and 11" commercial size limit in 2013
  - Fishing above F_{MSY} since mid-2000s
  - Mechanism explaining recruitment failure currently lacking

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Management Advice

- To inform catch recommendations, 4 projection scenarios were developed and are described in the stock assessment report

    1. $F=0$ with long-term average recruitment
    2. $F=0$ with recent average recruitment
    3. $F_{current}$ with recent average recruitment
    4. F_{MSY} with recent average recruitment

- Refined projection scenarios to be run based on recommendations from the SSC, then reviewed in July, 2023

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Questions

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