2021 Fishery Management Plan Review for Atlantic Menhaden

Atlantic Menhaden Management Board

August 2022

Overview

- Status of the FMP
- ~~Status of the stock~~
- Status of the fishery
- Compliance requirements for 2021
  - Quota, biological sampling, Bay Cap
- PRT Recommendations
  - Bio-sampling requirement
- Validated Landings

Status of FMP

2021 fishery operated under Amendment 3 (Nov 2017)

Changes from previous years:

- Chesapeake Bay reduction fishery cap returned to 51,000 mt
- Board set TAC for 2021-2022 at 194,400 mt
  - Based on approved ERPs

Status of the Fishery, 2021

Total landings: 195,092 mt (430.1 mil pounds)

- 6% increase from 2020
- 0.36% over TAC

TAC: 194,400 MT (428.6 mil pounds)

- Directed harvest = 189,343 mt (417.4 mil pounds)
  - 6% increase from 2020
  - 3% under the TAC

Incidental Catch: 5,750 mt (12.7 million pounds)

- 9% decrease from 2020
- Does not count towards TAC

Status of the Fishery, 2021 (cont.)

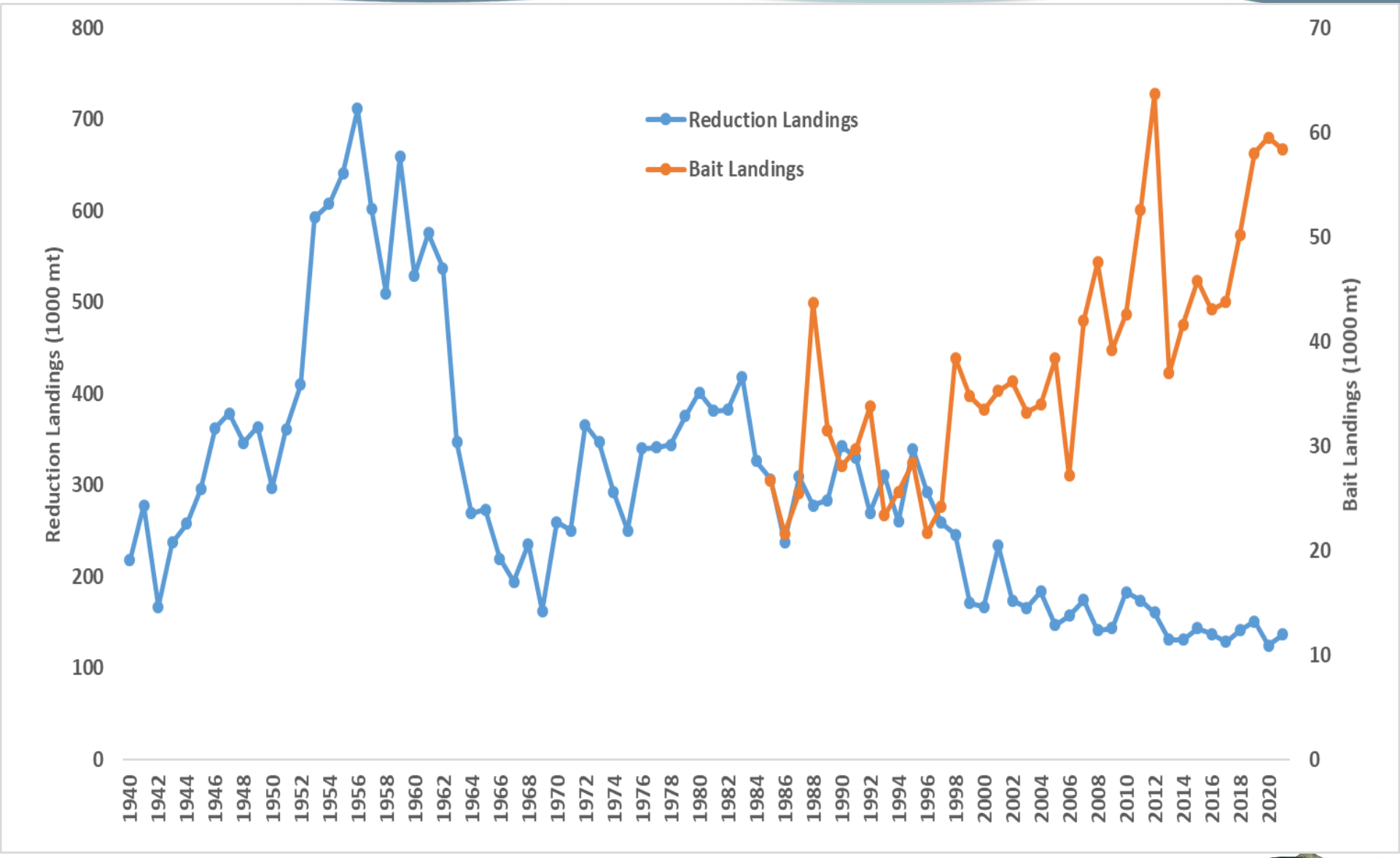
Reduction fishery: 136,690 mt (301.3 million pounds)

- 10% increase from 2020 (274.7 million pounds)
- <200,000 pounds above the previous 5-year average

Chesapeake Bay Reduction Harvest and Cap

- 2021 Cap = 51,000 mt
- 2020 harvest= ~50,000 mt

Atlantic Menhaden Landings



2021 Incidental Fishery

Incidental fishery landings, 2013-2021

Year	Landings (pounds)	Trips	Number of States
2013	4,376,741	2,783	6
2014	6,831,462	5,275	8
2015	5,991,612	4,498	9
2016	2,075,127	2,222	9
2017	7,407,441	2,108	7
2018	3,309,666	1,224	3
2019	10,750,929	3,113	1
2020	13,957,206	3,565	4
2021	12,675,882	3,155	6

Episodic Events Set Aside

- 2021 EESA = 2,213 mt (4.88 million pounds)
- 2020 EESA landings = 2,080 mt (4.6 million pounds)
  - ME, MA, RI were the only participating states
  - 223 mt (491,237 pounds) donated in Fall 2021
  - Final overage = 101,013 pounds

Year	States Declared Participation	EESA Quota (1% of TAC) (mt)	Landed (mt)	% EESA Quota Used
2014	RI	1,708	134	7.8%
2015	RI	1,879	854	45.5%
2016	ME, RI, NY	1,879	1,728	92.0%
2017	ME, RI, NY	2,000	2,129	106.5%
2018	ME	2,031	2,103	103.6%
2019	ME	2,160	1,995	92.4%
2020	ME, MA	2,160	2,080	96.3%
2021	ME, MA, RI	1,944	2,213	113.8%

State	#10- samples required	#10 samples collected	Age samples collected	Length samples collected	Gear/Comments
ME	33	38	380	380	36 from PS; 2 from gillnets
NH	7	7	70	70	Purse Seine
MA	15	13	130	130	all purse seine
RI	5	4	55	55	Otter Trawl, Floating Fish Trap
CT	1	0	103	302	LIS Trawl: 139 tows in '21
NY	5	14	127	147	cast net, seine net
NJ	67	109	Processing	1090	Purse Seine
	3	0	Processing	0	Other Gears
DE	1	1	10	10	Gill net
MD	6	30	417	1323	Pound net
PRFC	6	13	130	130	pound net
VA	7	55	55	55	Pound Net
	5	200	200	200	Gill Net
	0	20	20	20	Haul Seine
NC	1	6	55	92	gillnet
Total	163	510	1752	4004	

De minimis

- To be eligible for *de minimis* status, a state's bait landings must be less than 1% of the total coastwide bait landings for the most recent two years

- The states of Pennsylvania, South Carolina, Georgia, and Florida requested and qualify for *de minimis* status for the 2022 fishing season

PRT Comments & Recommendations

- Biological Sampling Requirement
  - Massachusetts, Rhode Island, and Connecticut fell short in 2021
  - PRT notes that substituting samples from fishery-independent sources may not be appropriate
  - PRT recommends this requirement be evaluated either in next management document or during next stock assessment*

Board Actions for consideration

- Approve the 2021 FMP Review and state compliance

- Approve *de minimis* status for Pennsylvania, South Carolina, Georgia, and Florida

Validated Landings

Validated

Total landings: 195,481 mt (430.96 mil pounds)

- 6.2% increase from 2020
- 0.56% over TAC

TAC: 194,400 MT (428.6 mil pounds)

- Directed harvest = 189,500 mt (417.8 mil pounds)
  - 6.6% increase from 2020
  - 2.5% under the TAC

Incidental Catch: 5,981 mt (13.2 million pounds)

- 5.5% decrease from 2020

Compliance Report

Total landings: 195,092 mt (430.1 mil pounds)

- 6% increase from 2020
- 0.36% over TAC

TAC: 194,400 MT (428.6 mil pounds)

- Directed harvest = 189,343 mt (417.4 mil pounds)
  - 6% increase from 2020
  - 3% under the TAC

Incidental Catch: 5,750 mt (12.7 million pounds)

- 9% decrease from 2020

Questions?

Draft Addendum I to Amendment 3
For Board Review

Atlantic Menhaden Management Board

August 2022

Outline

- Overview and Timeline
- Review Draft Options with PDT recommendations
  - Commercial Allocation
  - Episodic Event Set-Aside (EESA)
  - Incidental Catch and Small-Scale Fisheries (IC/SSF)
- **Board action for consideration today:**
  - **Remove options from the addendum**
  - **Consider amending payback provision language**
  - **Consider approval of Draft Addendum I for public comment**

Draft Addendum I Timeline

August 2021	Board initiates development of Addendum I
August 2021-January 2022	PDT develops Draft Addendum I for Board review
January and May 2022	Board provides PDT additional guidance
Feb-April and May-July 2022	PDT continues edits to Draft
August 2022	**Board reviews Draft and considers its approval for public comment**
August-October 2022	Public Comment/Hearings
November 2022	Board reviews public comment, selects management options and considers final approval of Addendum I

Review of Draft Addendum

- Total options in the Draft Addendum **33**
  - **16** Allocation Options
  - **3** EESA Options
  - **14** IC/SSF Options Take questions
- PDT recommends removing one additional allocation option
- Any further removals will improve public understanding

3.1 Commercial Allocation

Objective: Allocations should be adjusted to:

1) Align with recent availability of the resource
2) Enable states to maintain current directed fisheries with minimal interruptions during the season
3) Reduce the need for quota transfers and;
4) Fully use the annual TAC without overage

3.1 Commercial Allocation

3.1.1 Step 1: Allocation options for addressing minimum allocation (pg 13-14)

3.1.2 Step 2: Timeframes to base allocating the remaining TAC (pg 14-22)

Allocation: Step 1 Fixed Minimum

- **Option A. Status Quo:** All states get .50% fixed minimum allocation

- **Option B. Three-tiered Fixed Minimum**
  - 1st Tier of .01%: PA, SC, GA
  - 2nd Tier of .25%: CT, DE, NC, FL
  - 3rd Tier of .50%: ME, NH, MA, RI, NY, NJ, MD, PRFC, and VA

Allocation: Step 2 Timeframe of Landings

Option 1. Status Quo (2009-2011)

Option 2. (2018, 2019, and 2021)

– Reflects recent landings, stock distribution, but not the past

Option 3. Weighted Allocation (25/75, 50/50)

– **Option 3A: 2009-2011/2018, 2019, 2021**

- **Sub-Option 1 25% 2009-2011/75% 2018, 2019, 2021**
- **Sub-Option 2 50% 2009-2011/50% 2018, 2019, 2021**

– **Option 3B: 2009-2012/2017-2020 PDT Removal**

- **Sub-Option 1 25% 2009-2012/75% 2017-2019, 2021**
- **Sub-Option 2 50% 2009-2012/50% 2017-2019, 2021**

Allocation: Step 2 Timeframe of Landings

Option 4. Moving Average

- **4A. Use the most recent 3 year moving average to annually adjust allocations as the stock and fishery dynamics change**

- **4B. Provisions to limit shifts in the moving average: All landings <= the TAC for the most recent 3 years regardless of source. If the TAC is exceeded then only a portion of the landings will count**

Table 6. A1-3 0.5% + Options 1-3

State	Time Frame		2009-2011/2018,2019 & 2021		2009-2012/2017-2019 & 2021	
	A1 Status Quo 2009-2011	A2 2018, 2019, and 2021	A3: A-1 25%/75%	A3: A-2 50%/50%	A3: B-1 25%/75%	A3: B-2 50%/50%
ME	0.52%	4.71%	3.66%	2.61%	3.30%	2.37%
NH	0.50%	1.17%	1.00%	0.84%	0.89%	0.76%
MA	1.27%	2.09%	1.88%	1.68%	1.73%	1.54%
RI	0.52%	0.81%	0.73%	0.66%	0.75%	0.67%
CT	0.52%	0.58%	0.56%	0.55%	0.56%	0.54%
NY	0.69%	0.85%	0.81%	0.77%	0.81%	0.77%
NJ	10.87%	10.77%	10.81%	10.85%	11.32%	11.67%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.52%	0.52%	0.52%
MD	1.89%	1.15%	1.34%	1.53%	1.42%	1.68%
PRFC	1.07%	1.07%	1.07%	1.07%	1.10%	1.13%
VA	78.66%	73.62%	74.86%	76.11%	74.86%	75.56%
NC	0.96%	0.62%	0.70%	0.79%	0.69%	0.75%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.54%	0.54%	0.53%	0.54%	0.53%

Table 7. A4A 0.5% + Three Year Moving Average

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019, & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.97%	1.64%	2.76%	3.85%	4.71%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.85%	1.17%
MA	1.27%	0.91%	0.77%	0.95%	1.09%	1.13%	1.24%	1.46%	1.69%	2.09%
RI	0.52%	0.52%	0.52%	0.55%	0.71%	0.72%	0.82%	0.71%	0.69%	0.81%
CT	0.52%	0.51%	0.51%	0.51%	0.51%	0.51%	0.53%	0.59%	0.59%	0.58%
NY	0.69%	0.67%	0.68%	0.70%	0.77%	0.79%	0.85%	0.77%	0.72%	0.85%
NJ	10.93%	13.45%	13.94%	12.81%	10.67%	10.89%	11.25%	11.41%	11.23%	10.77%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.53%	0.53%	0.53%	0.52%	0.52%	0.52%	0.52%
MD	1.90%	2.18%	2.33%	2.52%	2.16%	2.02%	1.71%	1.38%	1.18%	1.15%
PRFC	1.07%	1.20%	1.30%	1.41%	1.23%	1.15%	1.06%	1.11%	1.06%	1.07%
VA	78.60%	76.18%	75.57%	76.30%	78.57%	78.04%	77.15%	76.08%	74.92%	73.62%
NC	0.96%	0.83%	0.80%	0.64%	0.68%	0.67%	0.66%	0.64%	0.65%	0.62%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.52%	0.54%	0.55%	0.57%	0.57%	0.57%	0.56%	0.55%	0.54%
Year in Use	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021/2022**	**2023**

Table 8. A4B 0.5% + 3 Yr Moving Avg w/ IC/SSF Limits

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.97%	1.64%	2.76%	3.85%	4.56%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.85%	1.17%
MA	1.27%	0.91%	0.77%	0.95%	1.09%	1.13%	1.24%	1.46%	1.69%	2.09%
RI	0.52%	0.52%	0.52%	0.55%	0.71%	0.72%	0.82%	0.71%	0.69%	0.81%
CT	0.52%	0.51%	0.51%	0.51%	0.51%	0.51%	0.53%	0.59%	0.59%	0.58%
NY	0.69%	0.67%	0.68%	0.70%	0.77%	0.79%	0.85%	0.77%	0.72%	0.83%
NJ	10.93%	13.45%	13.94%	12.81%	10.67%	10.89%	11.25%	11.41%	11.23%	10.79%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.53%	0.53%	0.53%	0.52%	0.52%	0.52%	0.52%
MD	1.90%	2.18%	2.33%	2.52%	2.16%	2.02%	1.71%	1.38%	1.18%	1.15%
PRFC	1.07%	1.20%	1.30%	1.41%	1.23%	1.15%	1.06%	1.11%	1.06%	1.08%
VA	78.60%	76.18%	75.57%	76.30%	78.57%	78.04%	77.15%	76.08%	74.92%	73.76%
NC	0.96%	0.83%	0.80%	0.64%	0.68%	0.67%	0.66%	0.64%	0.65%	0.62%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.52%	0.54%	0.55%	0.57%	0.57%	0.57%	0.56%	0.55%	0.54%
Year in Use	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021/2022**	**2023**

Table 9. B1-3 Three-Tiered Min + Options 1-3

State	Time Frame		2009-2011/2018,2019 & 2021		2009-2012/2017-2019 & 2021	
	B1 2009-2011	B2 2018, 2019 and 2021	B3: A-1 25%/75%	B3: A-2 50%/50%	B3: B-1 25%/75%	B3: B-2 50%/50%
ME	0.52%	4.82%	3.74%	2.67%	3.38%	2.42%
NH	0.50%	1.19%	1.02%	0.84%	0.90%	0.77%
MA	1.29%	2.13%	1.92%	1.71%	1.77%	1.57%
RI	0.52%	0.81%	0.74%	0.67%	0.76%	0.68%
CT	0.27%	0.33%	0.32%	0.30%	0.31%	0.29%
NY	0.70%	0.86%	0.82%	0.78%	0.82%	0.77%
NJ	11.21%	11.05%	11.09%	11.13%	11.61%	11.96%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.27%	0.27%	0.27%
MD	1.94%	1.17%	1.36%	1.55%	1.45%	1.71%
PRFC	1.09%	1.09%	1.09%	1.09%	1.11%	1.15%
VA	80.70%	75.58%	76.86%	78.14%	76.86%	77.58%
NC	0.72%	0.37%	0.46%	0.54%	0.45%	0.50%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.29%	0.29%	0.28%	0.29%	0.28%

Table 10. B4A Three-Tiered Min + Moving Avg

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.98%	1.67%	2.82%	3.94%	4.82%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.86%	1.19%
MA	1.29%	0.92%	0.78%	0.97%	1.10%	1.15%	1.26%	1.48%	1.73%	2.13%
RI	0.52%	0.52%	0.52%	0.55%	0.72%	0.73%	0.82%	0.72%	0.69%	0.81%
CT	0.27%	0.26%	0.26%	0.26%	0.26%	0.26%	0.28%	0.34%	0.34%	0.33%
NY	0.70%	0.67%	0.69%	0.71%	0.78%	0.80%	0.85%	0.77%	0.72%	0.86%
NJ	11.21%	13.80%	14.30%	13.14%	10.94%	11.17%	11.54%	11.71%	11.52%	11.05%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.28%	0.29%	0.28%	0.27%	0.28%	0.27%	0.27%
MD	1.94%	2.23%	2.38%	2.58%	2.20%	2.06%	1.74%	1.41%	1.20%	1.17%
PRFC	1.09%	1.22%	1.33%	1.44%	1.25%	1.17%	1.08%	1.12%	1.08%	1.09%
VA	80.70%	78.22%	77.59%	78.34%	80.67%	80.12%	79.21%	78.11%	76.91%	75.58%
NC	0.72%	0.59%	0.56%	0.40%	0.43%	0.42%	0.41%	0.40%	0.40%	0.37%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.27%	0.29%	0.30%	0.32%	0.32%	0.32%	0.31%	0.31%	0.29%
Year in Use	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021/2022**	**2023**

Table 11. B4B Three-Tiered Min + 3 Yr Moving Avg w/ IC/SSF Limits

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.98%	1.67%	2.82%	3.94%	4.67%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.86%	1.19%
MA	1.29%	0.92%	0.78%	0.97%	1.10%	1.15%	1.26%	1.48%	1.73%	2.13%
RI	0.52%	0.52%	0.52%	0.55%	0.72%	0.73%	0.82%	0.72%	0.69%	0.82%
CT	0.27%	0.26%	0.26%	0.26%	0.26%	0.26%	0.28%	0.34%	0.34%	0.33%
NY	0.70%	0.67%	0.69%	0.71%	0.78%	0.80%	0.85%	0.77%	0.72%	0.83%
NJ	11.21%	13.80%	14.30%	13.14%	10.94%	11.17%	11.54%	11.71%	11.52%	11.07%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.28%	0.29%	0.28%	0.27%	0.28%	0.27%	0.27%
MD	1.94%	2.23%	2.38%	2.58%	2.20%	2.06%	1.74%	1.41%	1.20%	1.17%
PRFC	1.09%	1.22%	1.33%	1.44%	1.25%	1.17%	1.08%	1.12%	1.08%	1.09%
VA	80.70%	78.22%	77.59%	78.34%	80.67%	80.12%	79.21%	78.11%	76.91%	75.73%
NC	0.72%	0.59%	0.56%	0.40%	0.43%	0.42%	0.41%	0.40%	0.40%	0.37%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.27%	0.29%	0.30%	0.32%	0.32%	0.32%	0.31%	0.31%	0.29%
Year in Use	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021/2022**	**2023**

Questions?

3.2 : Episodic Event Set-Aside Program

Objective: Ensure sufficient access to episodic changes in regional availability in order to minimize in-season disruptions and reduce the need for quota transfers and IC/SSF landings.

EESA Management Options

3.2.1 Increase the Set-Aside

- Option 1. Status Quo (1%)
- Option 2. Increase up to 5%
  - Sub Option 1. EESA is set as a static amount 1-5%.
  - Sub Option 2. Set EESA between 1-5% during Specifications. Can be an annual or multi year spec.

Questions?

3.3 Incidental Catch & Small-Scale Fisheries (IC/SSF)

Objective: Sufficiently constrain landings to achieve overall management goals of:

1) meeting the needs of existing fisheries,
2) reducing discards, and
3) indicating when landings can occur and if those landings are part of the directed fishery.

3.3 IC/SSF Sections

3.3.1 Timing of IC/SSF Provision

- Option 2. Sector/fishery/gear type allocation met within a state
- Option 3. Entire state's allocation met

3.3.2 Permitted Gear Types of the IC/SSF

- Option 2. No purse seines, all other small-scale and non-directed gears maintained
- Option 3. Non-directed gears only

3.3.3 Trip Limit for Directed Small-Scale Fisheries of IC/SSF

- Option 2. 4,500 lbs for directed gear types
- Option 3. 3,000 lbs for directed gear types

3.3.4 Catch Accounting of IC/SSF Provision

- Option 2. IC/SSF Landings are evaluated against the annual TAC
  - Option 2A. Modify Trip Limit for Permitted Gear Tyoes
  - Option 2B. Modify Permitted Gear Types

IC/SSF Management Options

3.3.1 Timing of IC/SSF Provision

Option 1. Status Quo (no change)

Option 2. Sector/fishery/gear type allocation met within a state

Option 3. Entire state's allocation met

IC/SSF Management Options Cont'd

3.3.2 Permitted Gear Types of the IC/SSF

Option 1. Status Quo (no change)

i. Sub-Option 1. Status Quo

ii. Sub-Option 2. Fyke nets removed from small-scale directed gear type category

iii. Sub-Option 3. Fyke nets removed from small-scale directed gear type category and trammel nets reclassified as non-directed gear type

Option 2. No purse seines, all other small-scale and non-directed gears maintained

Option 3. Non-directed gears only

IC/SSF Management Options Cont'd

3.3.3 Trip Limit for Directed Small-Scale Fisheries of IC/SSF

Option 1. Status Quo (no change to trip limit):
6,000 lbs for all eligible gear types

Option 2. 4,500 lbs for directed gear types

Option 3. 3,000 lbs for directed gear types

IC/SSF Management Options Cont'd

3.3.4 Catch Accounting of IC/SSF

Option 1. Status Quo (no change): landings do not count against state quota or the TAC

Option 2. IC/SSF landings are evaluated against the annual TAC

Option 2A. Modify the Trip Limit for Permitted Gear Types in the IC/SSF Provision.

Sub-Option 1. The trip limit will be adjusted for one or more permitted gear types in the IC/SSF provision via Board action.

Option 2B. Modify Permitted Gear Types in the IC/SSF Provision: The Board will evaluate the permitted gear types in the IC/SSF provision and take action to eliminate one or more gear types from the IC/SSF provision.

Sub-Option 1. Permitted gear types in the IC/SSF provision will be adjusted via Board action.

Thank you to the PDT

- Melissa Smith (ME DMR)
- Micah Dean (MA DMF)
- Nicole Lengyel Costa (RI DEM)
- Jeff Brust (NJ DEP)
- Harry Rickabaugh (MD DNR)
- Shanna Madsen (VMRC)
- Toni Kerns (ASMFC)

Board Actions to Consider

- Consider amending language regarding overage paybacks
- Consider approving Addendum I to Amendment 3 as modified today.

Questions?

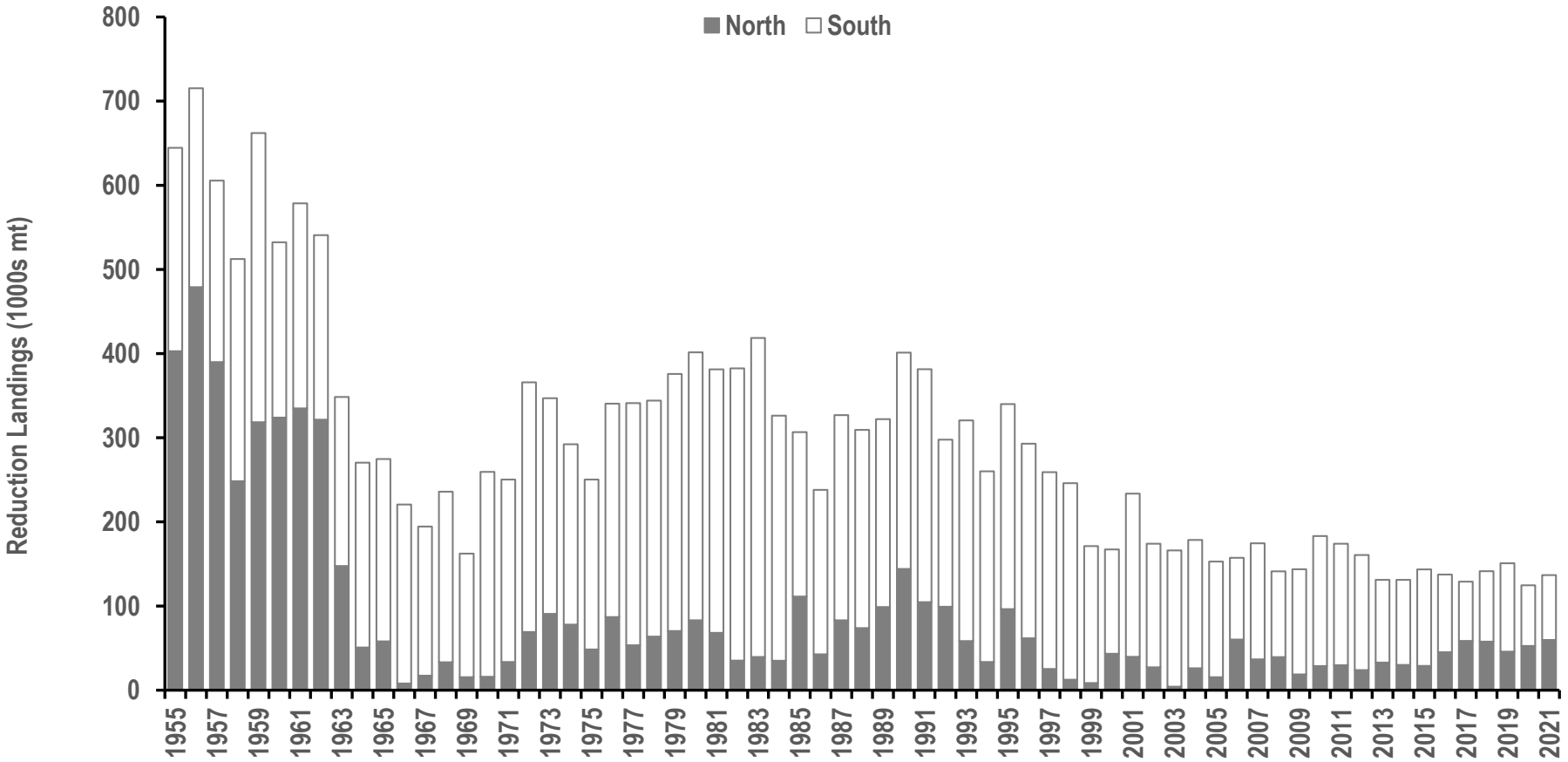
Atlantic menhaden stock assessment update

August 3, 2022

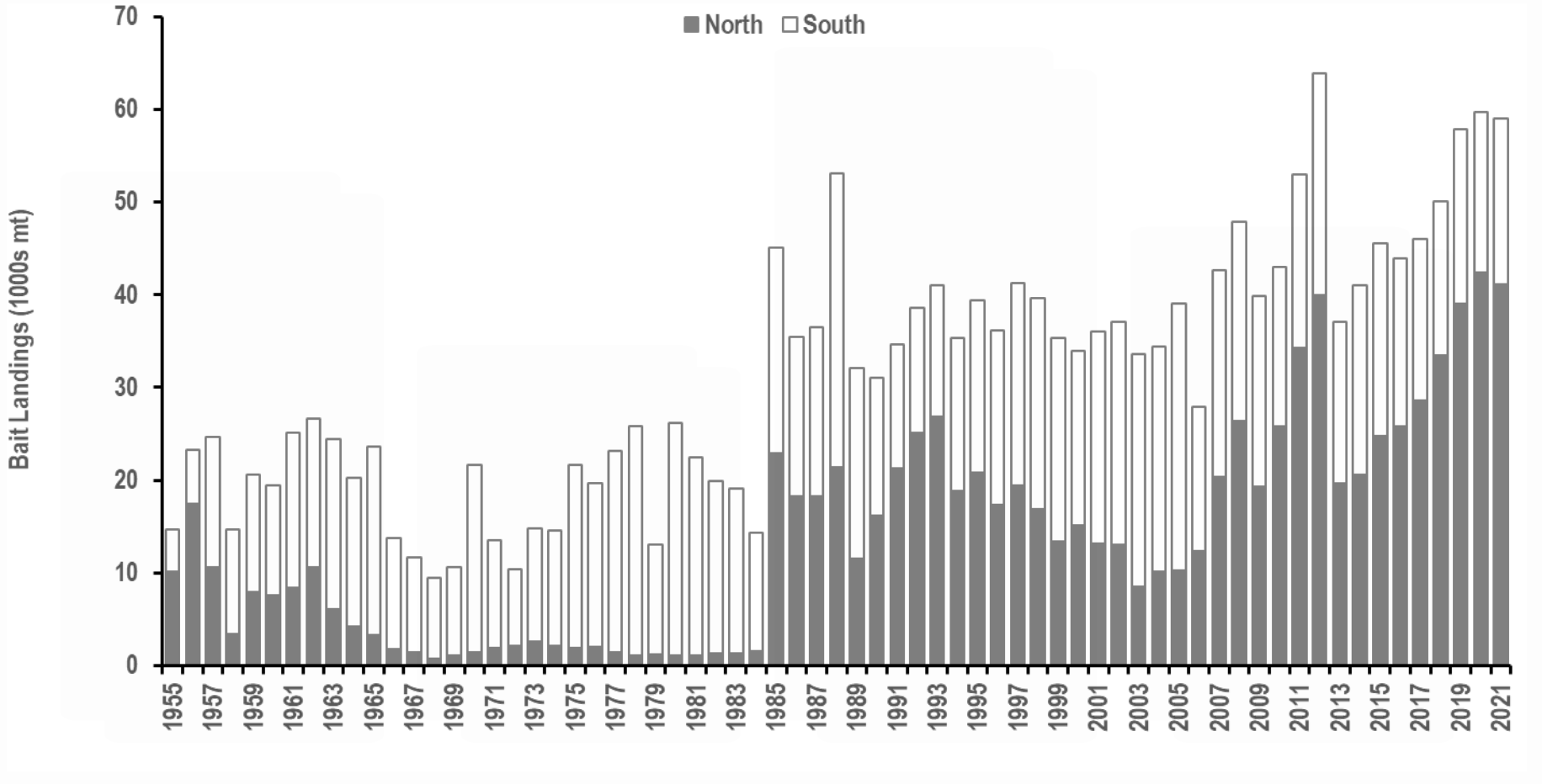
TOR 1:

- Update fishery-dependent data (landings, discards, catch-at-age, etc.) that were used in the previous peer-reviewed and accepted benchmark stock assessment

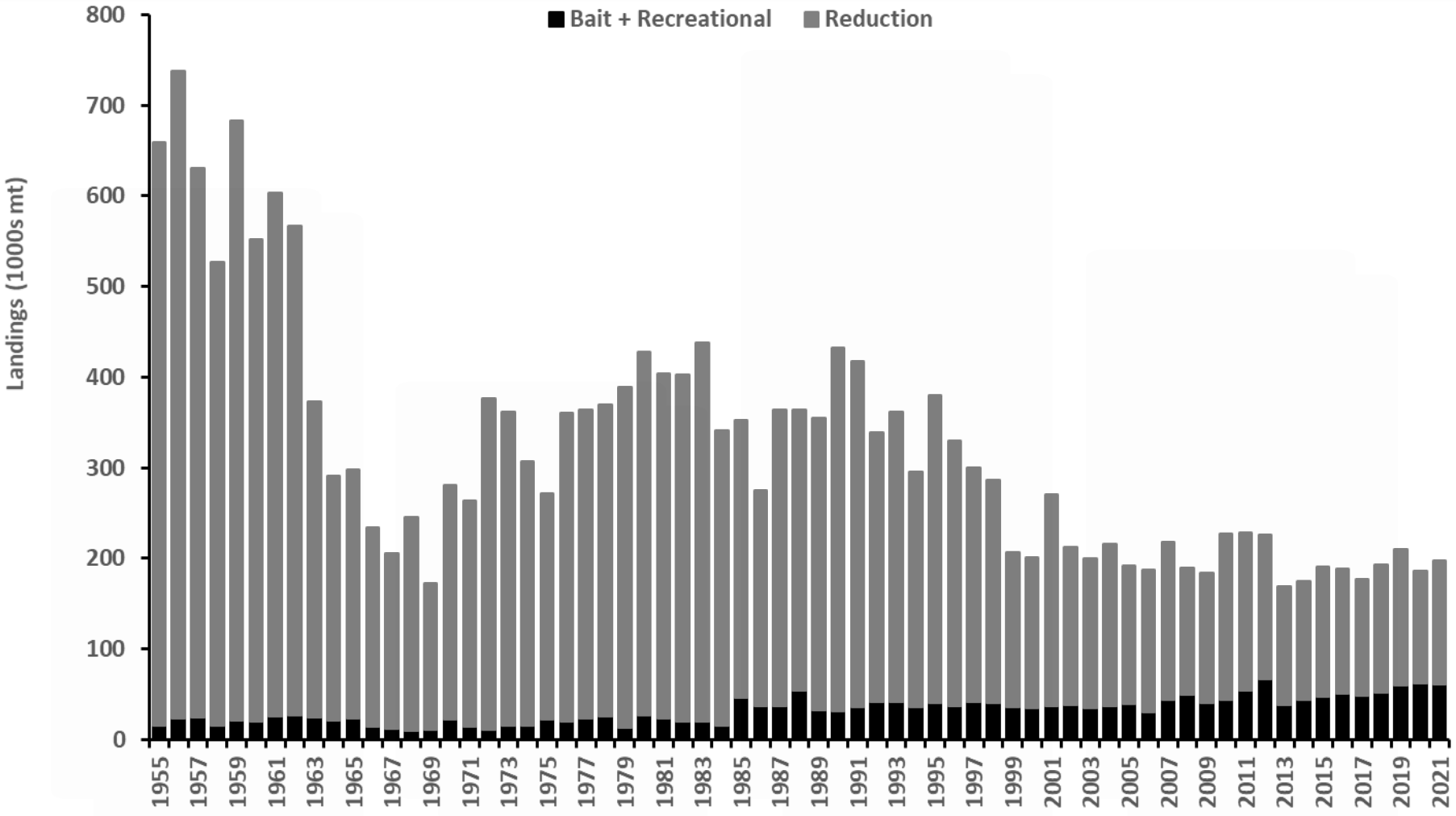
TOR 1:


North
South
Reduction Landings (1000s mt)
800
700
600
500
400
300
200
100
0
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021

TOR 1:


North
South
Bait Landings (1000s mt)
70
60
50
40
30
20
10
0
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021

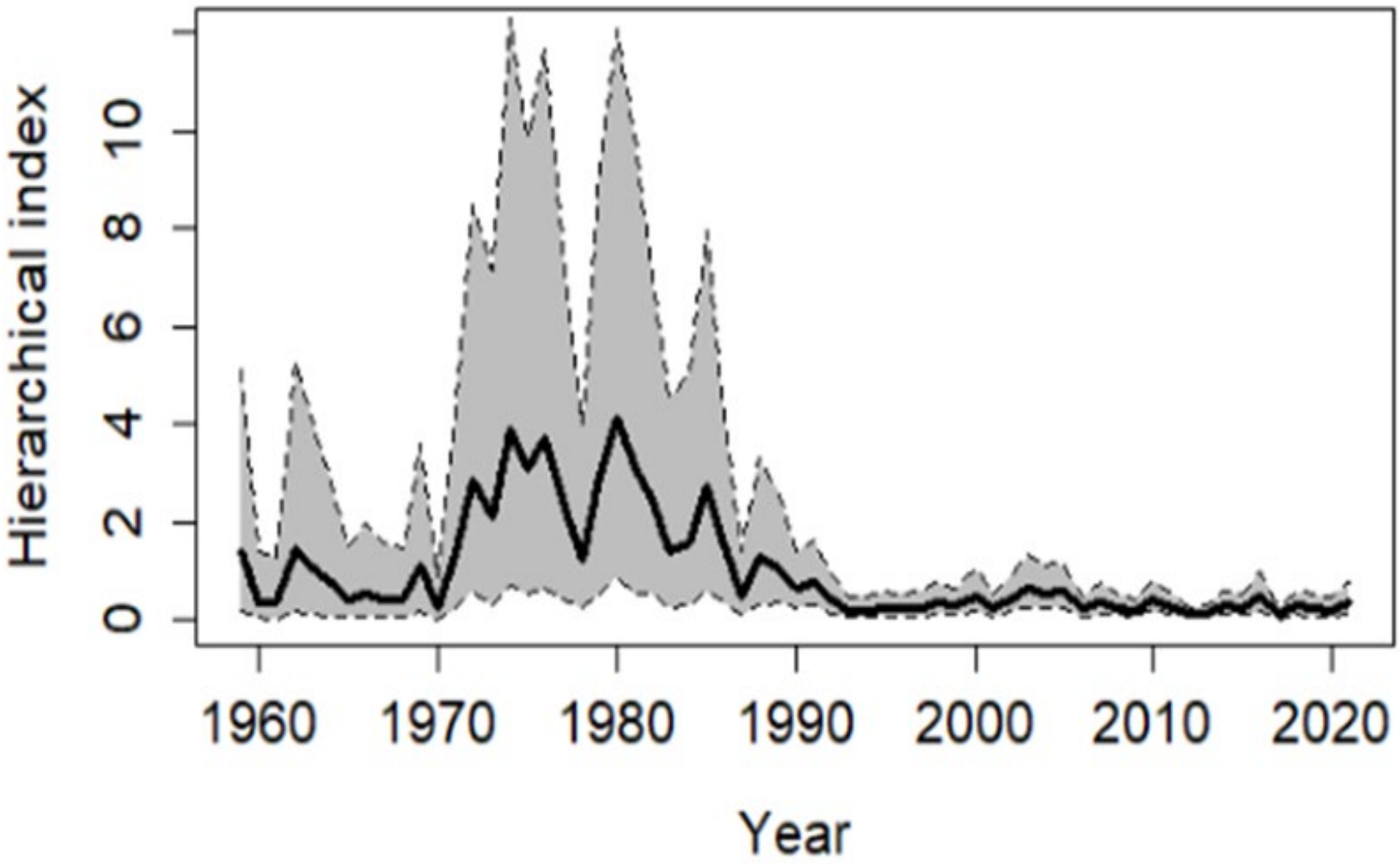
TOR 1:


Bait + Recreational
Reduction
Landings (1000s mt)
800
700
600
500
400
300
200
100
0
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021

TOR 2:

- Update fishery-independent data (abundance indices, age-length data, etc.) that were used in the previous peer-reviewed and accepted benchmark stock assessment

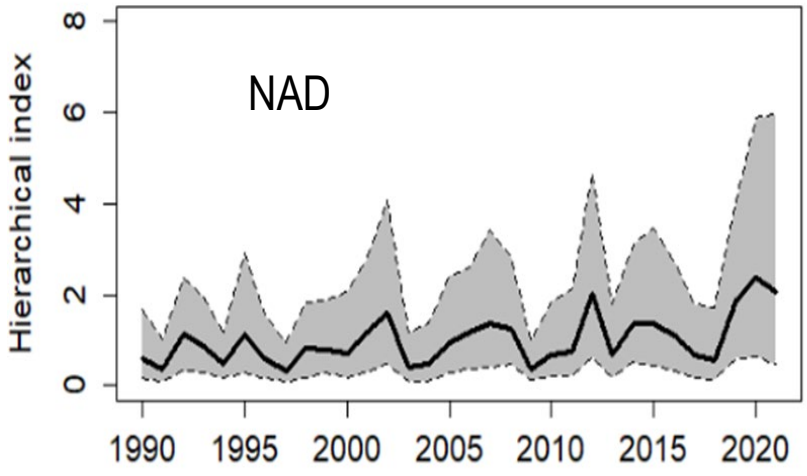
TOR 2:

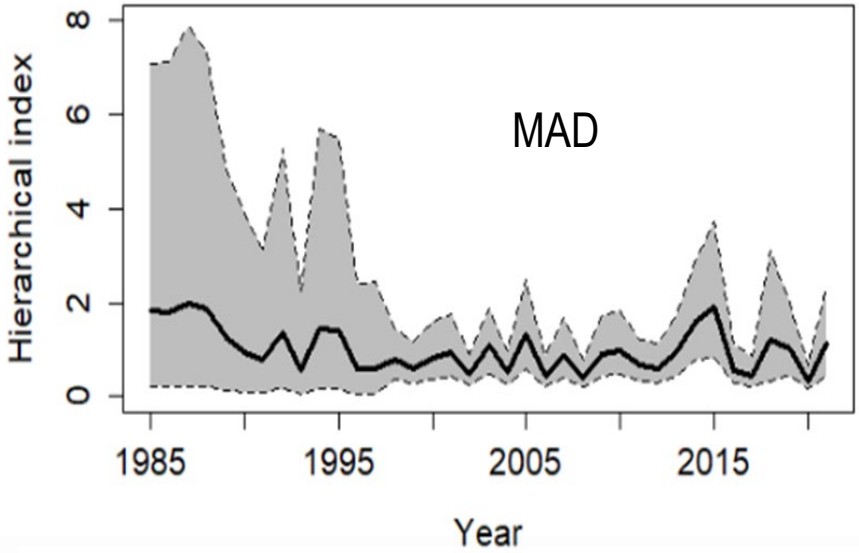

Hierarchical index
0
2
4
6
8
10
1960
1970
1980
1990
2000
2010
2020
Year

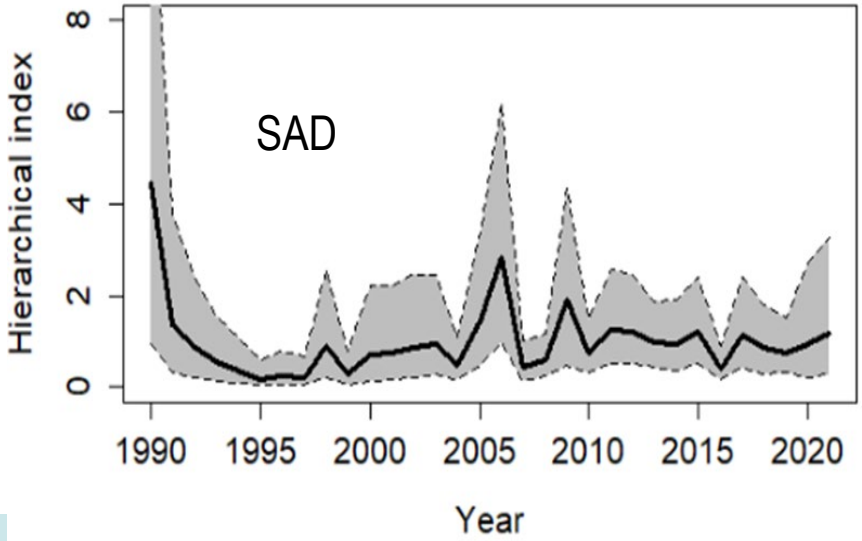
TOR 2:

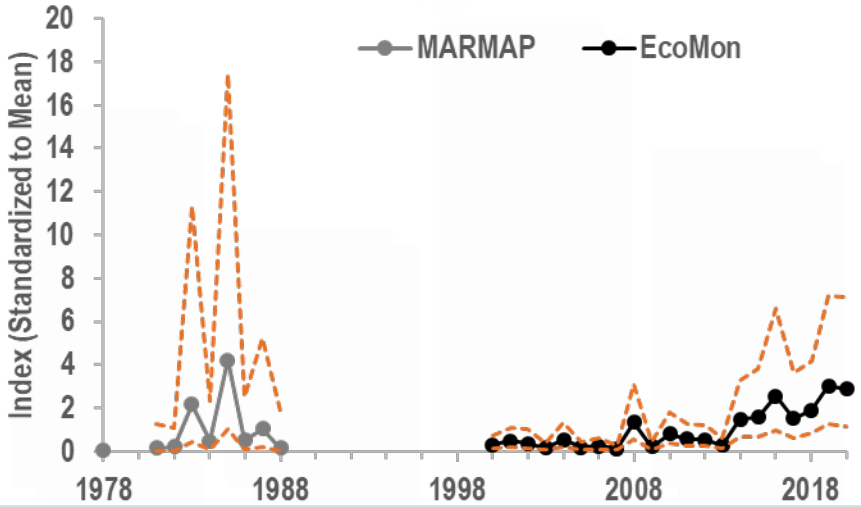
Conn Index	Fishery-Independent Survey (years of data)	Months	Length
NAD Age 2+	CT LISTS (1996-2009, 2011-2019, 2021)	Sept-lagged Jan	1990-2021
	DB Adult Trawl (1990-2021)		
	NJ Ocean Trawl (1990-1997, 1999-2019)		
MAD Age 1+	MD Gill Net (1985-1995, 1998-2002, 2005-2021)	March-May	1985-2021
	VIMS Shad Gill Net (1998-2021)		
SAD Age 1	NC p915 (2008-2019)	April-July	1990-2021
	SEAMAP (1990-2019)		
	GA EMTS (2003-2021)		

TOR 2:


NAD
Hierarchical index
0
2
4
6
8
1990
1995
2000
2005
2010
2015
2020


MAD
Hierarchical index
0
2
4
6
8
1985
1995
2005
2015
Year


SAD
Hierarchical index
0
2
4
6
8
1990
1995
2000
2005
2010
2015
2020
Year


MARMAP
EcoMon
Index (Standardized to Mean)
0
2
4
6
8
10
12
14
16
18
20
1978
1988
1998
2008
2018

TOR 3:

- Tabulate or list the life history information used in the assessment and/or model parameterization (M, age plus group, start year, maturity, sex ratio, etc.) and note any differences (e.g., new selectivity block, revised M value) from benchmark

TOR 3:

- Tabulated life history info & model inputs

	Value(s)
Years in Model	1955-2021
Age Plus Group	6+
Fleets	2 (north and south regions for bait and reduction fisheries)
Fecundity	Time-varying fecundity-at-age
Natural Mortality	Age-varying natural mortality
Maturity	Time-varying maturity-at-age based on length-at-age
Sex Ratio	Fixed at 1:1 for males:females

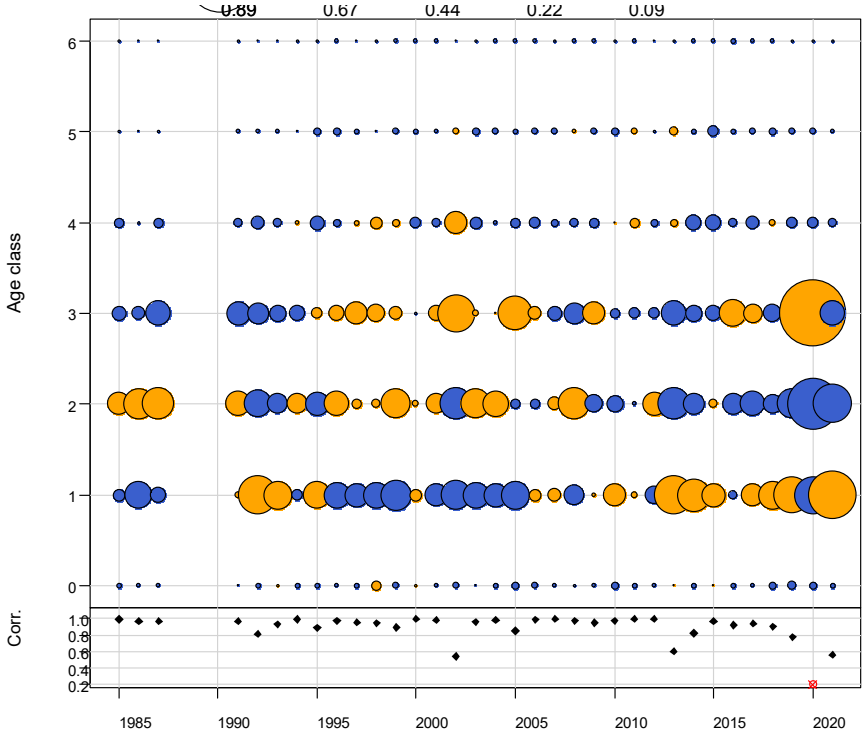
	Age Group						
	0	1	2	3	4	5	6+
Natural Mortality	1.76	1.31	1.03	0.90	0.81	0.76	0.72

TOR 4:

- Update accepted model(s) or trend analyses and estimate uncertainty. Include sensitivity runs and retrospective analysis if possible and compare with the benchmark assessment results. Include bridge runs to sequentially document each change from the previously accepted model to the updated model

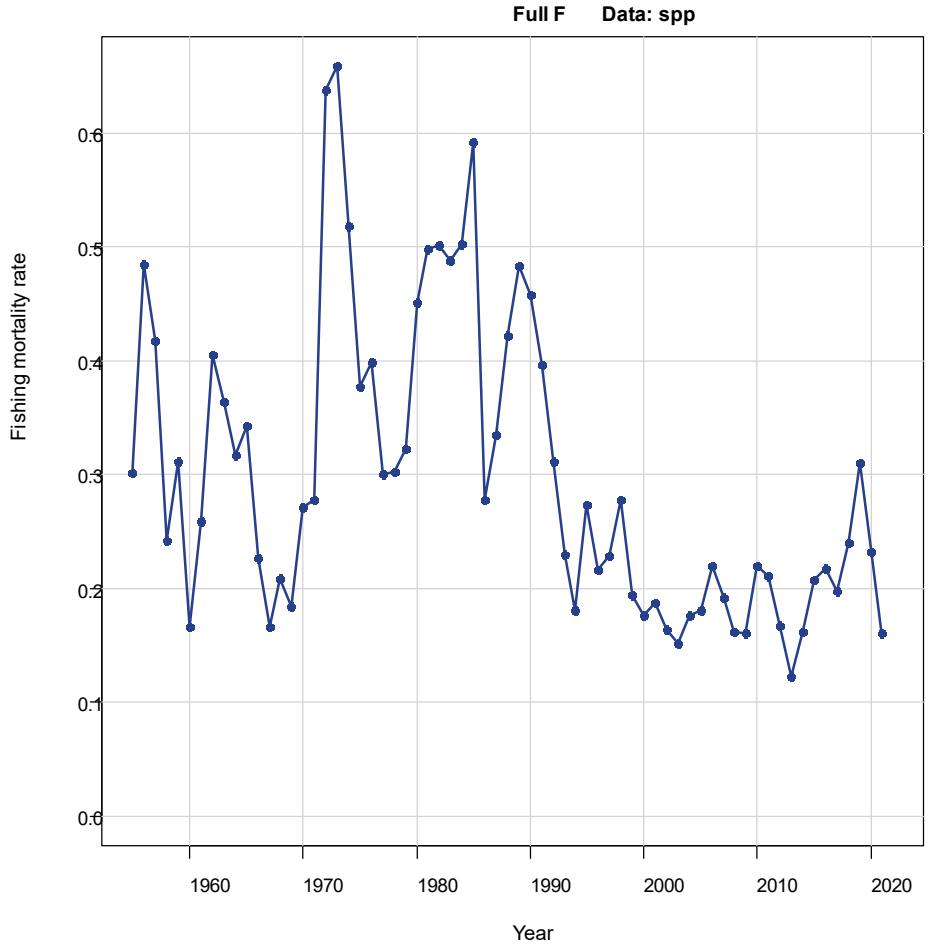
TOR 4:

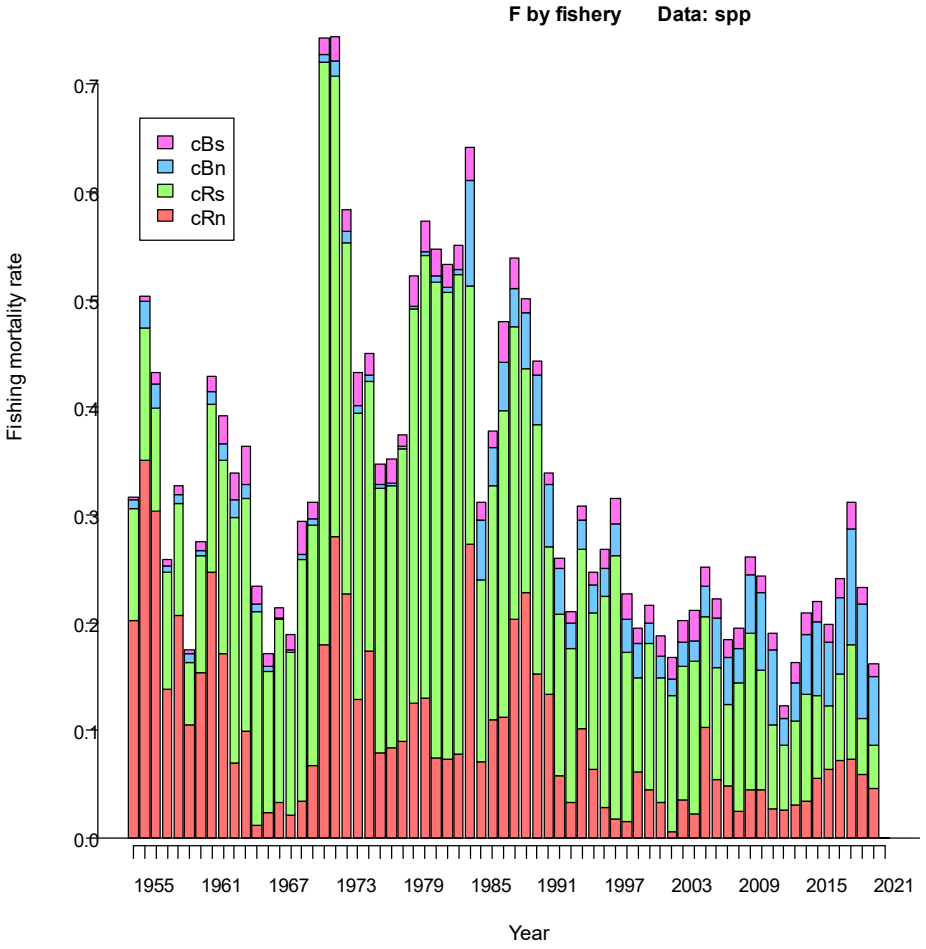
- All data updated through terminal year of 2021
  - Excluded 2020 southern commercial bait age comps
  - Exclusion of the MARMAP/ECOMON (MARECO) ichthyoplankton index
    - Hessian didn't invert and high gradient



TOR 4:

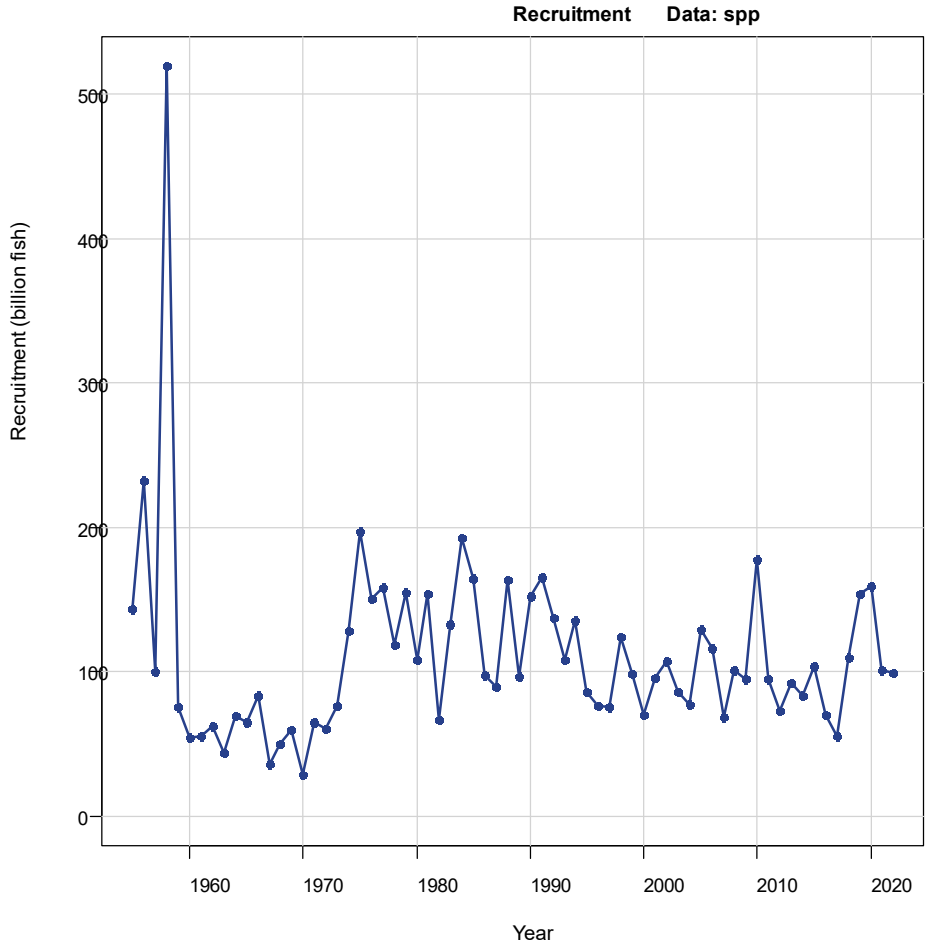
- Full F:

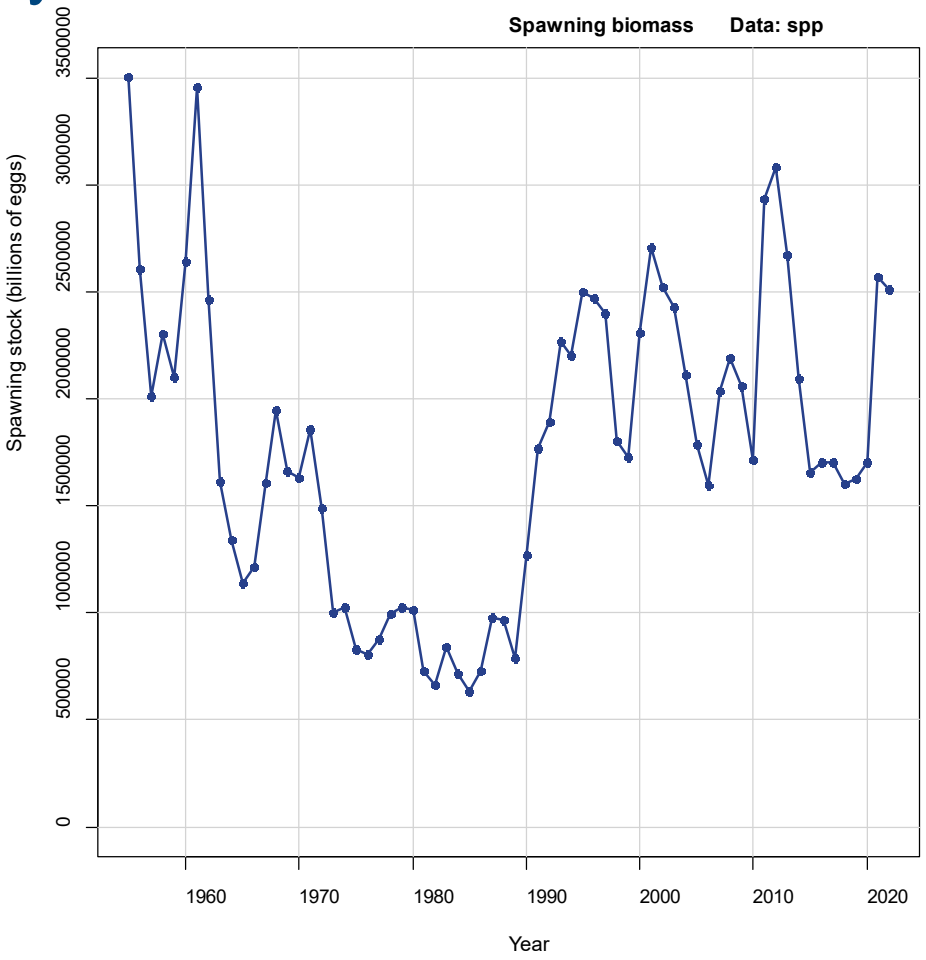

Full F Data: spp
Fishing mortality rate
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1960
1970
1980
1990
2000
2010
2020
Year


F by fishery Data: spp
Fishing mortality rate
cBs
cBn
cRs
cRn
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1955
1961
1967
1973
1979
1985
1991
1997
2003
2009
2015
2021
Year

TOR 4:

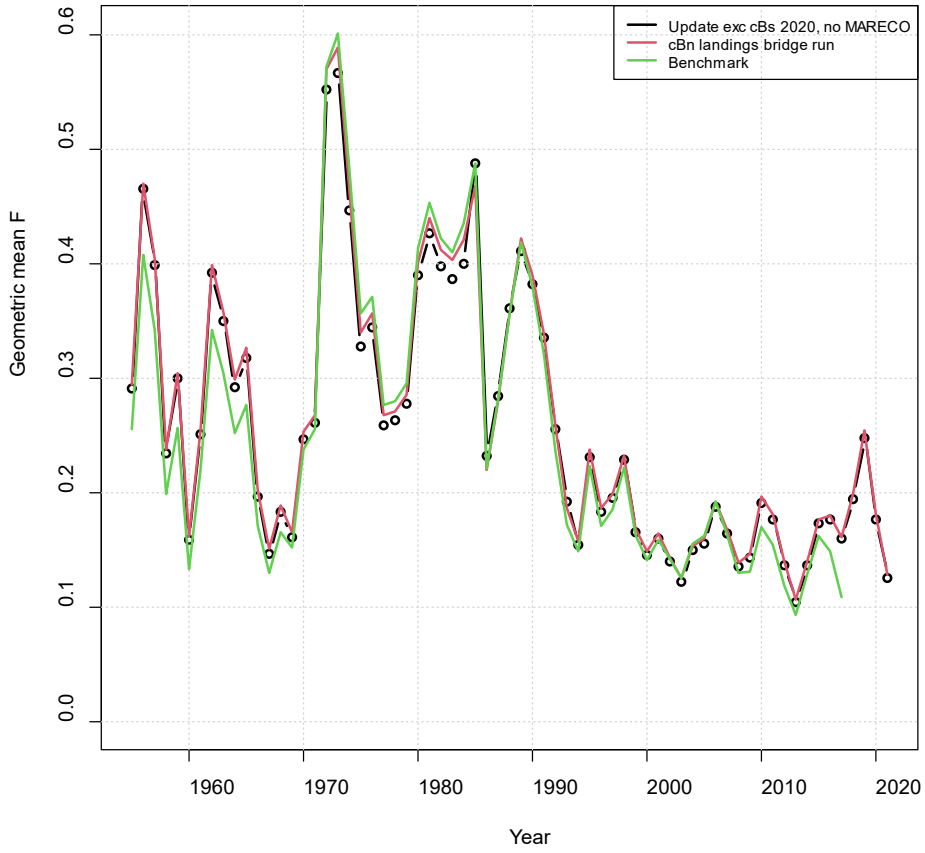
- Recruitment and Fecundity:

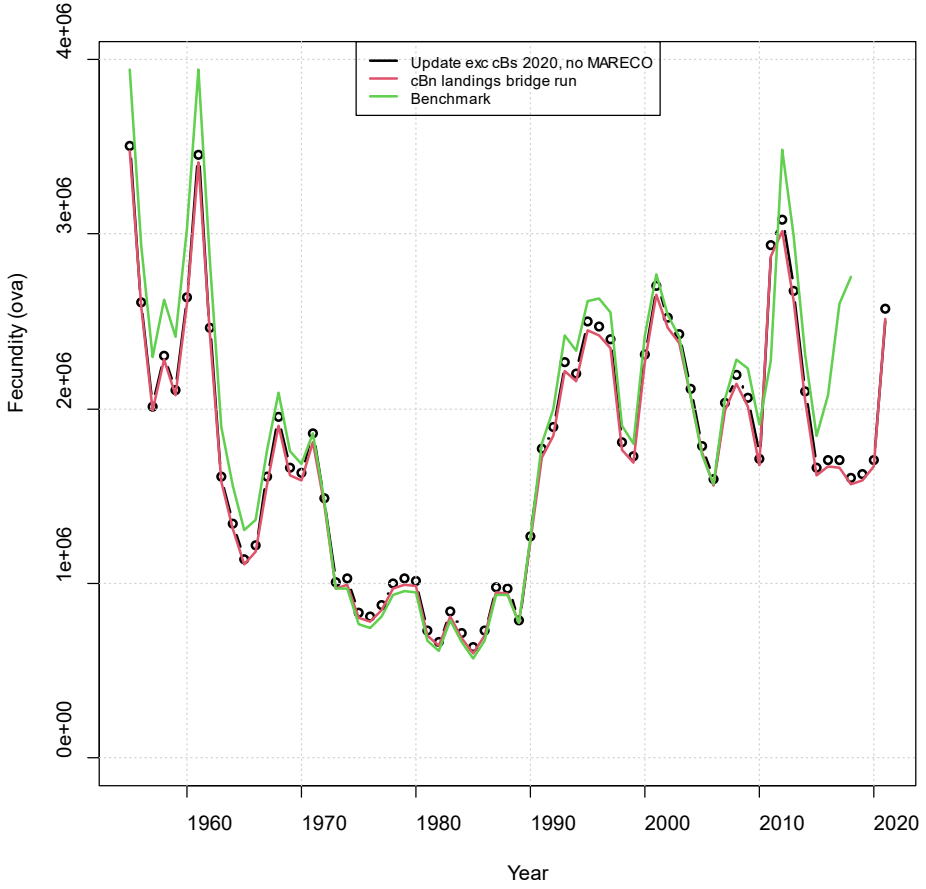




TOR 4:

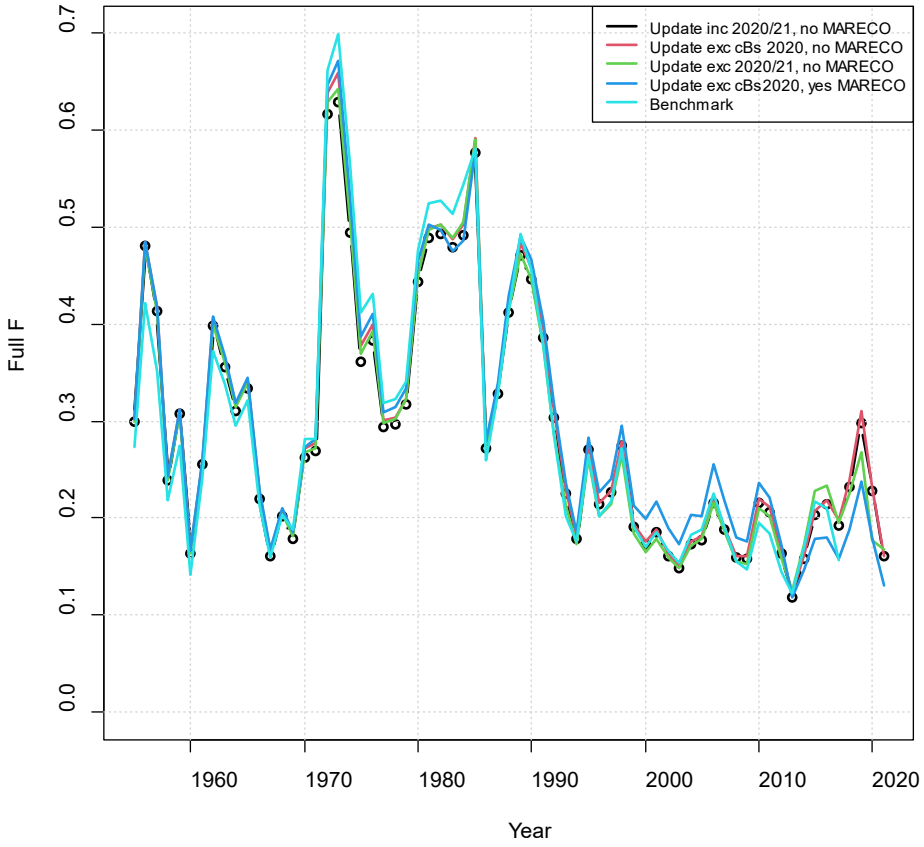
- Bridge run – northern commercial bait landings

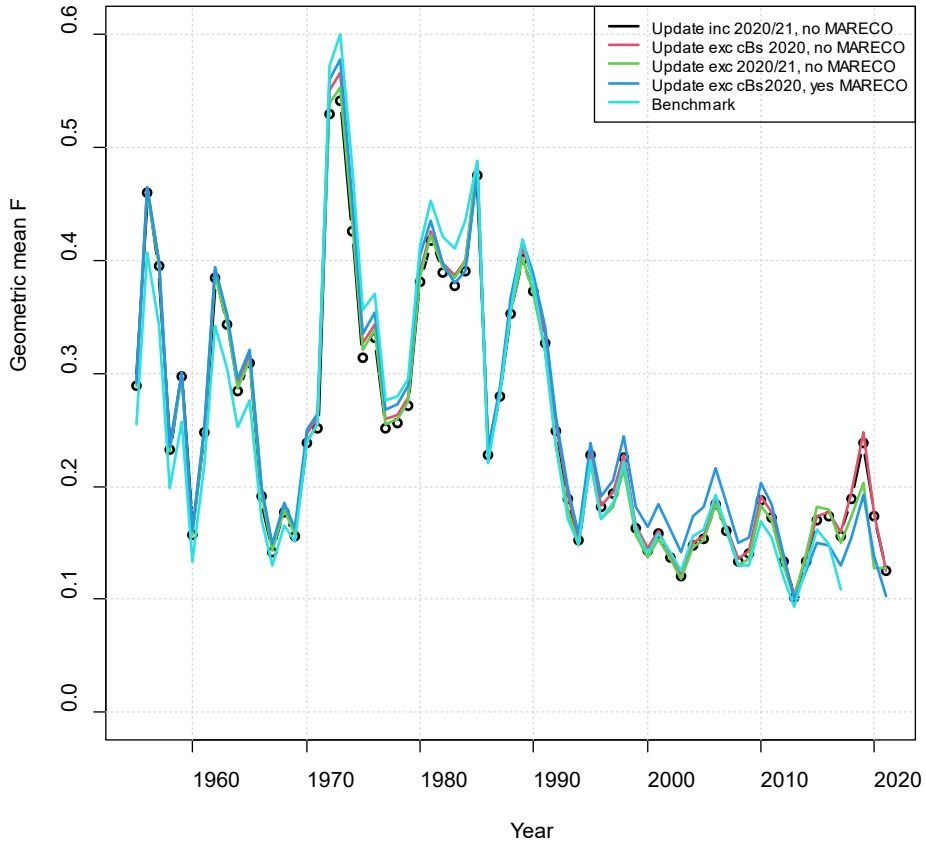




TOR 4:

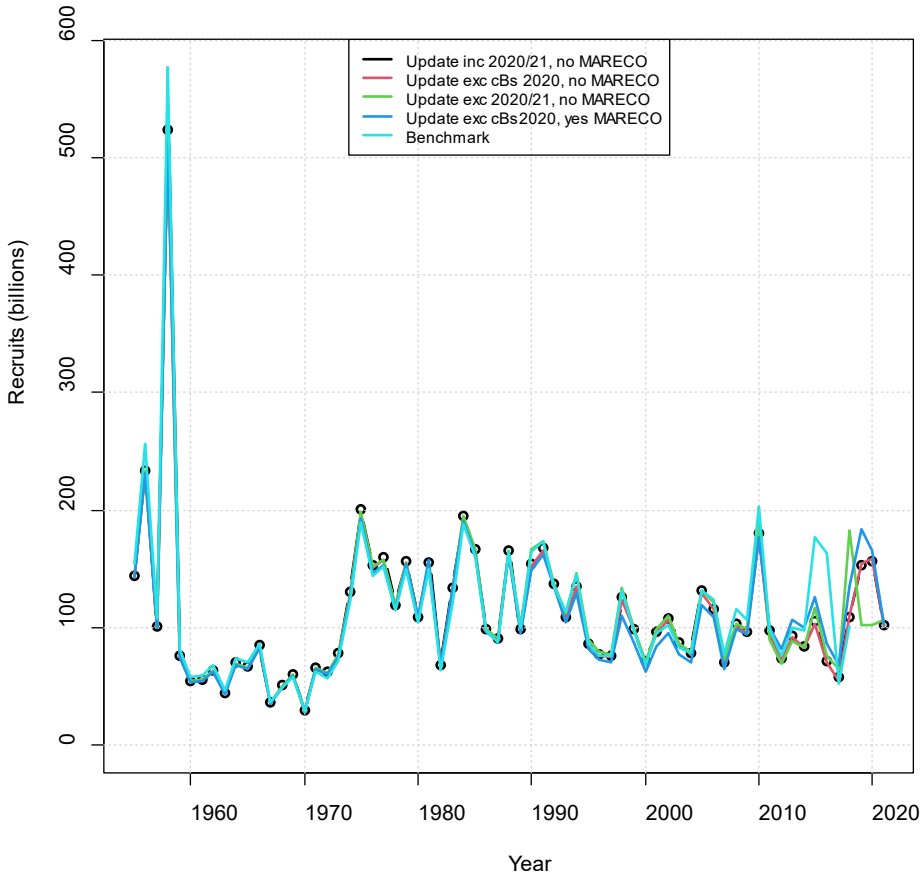
- Comparisons with benchmark and 2020/21 data

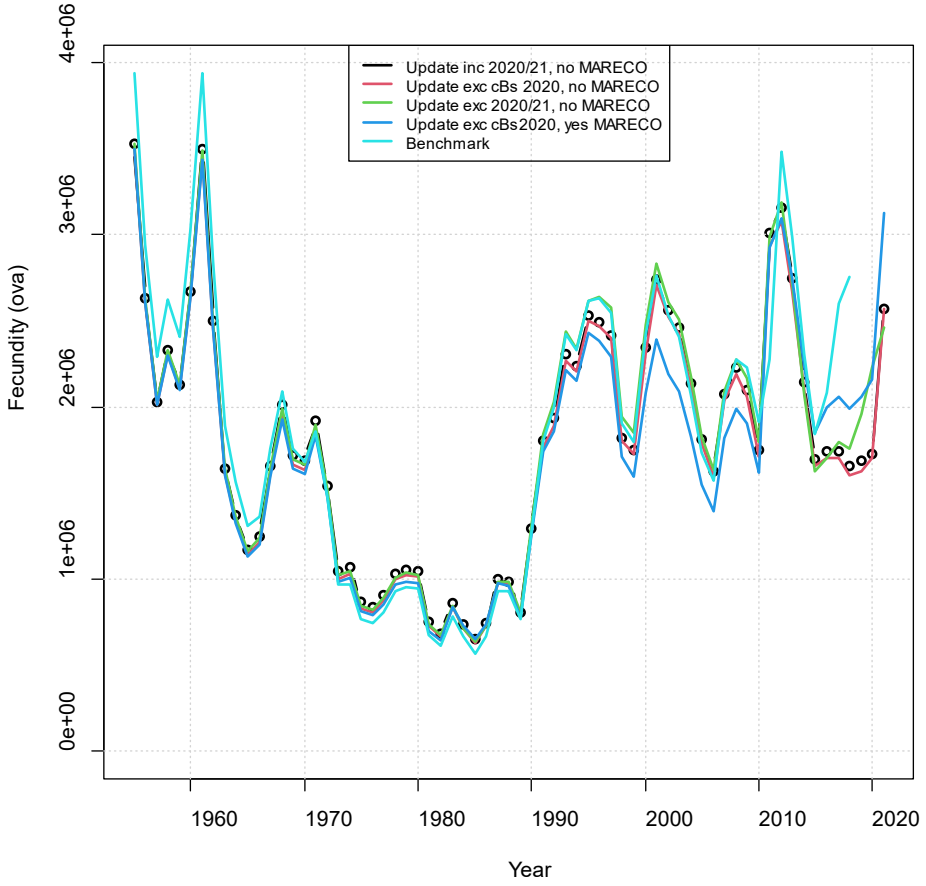




TOR 4:

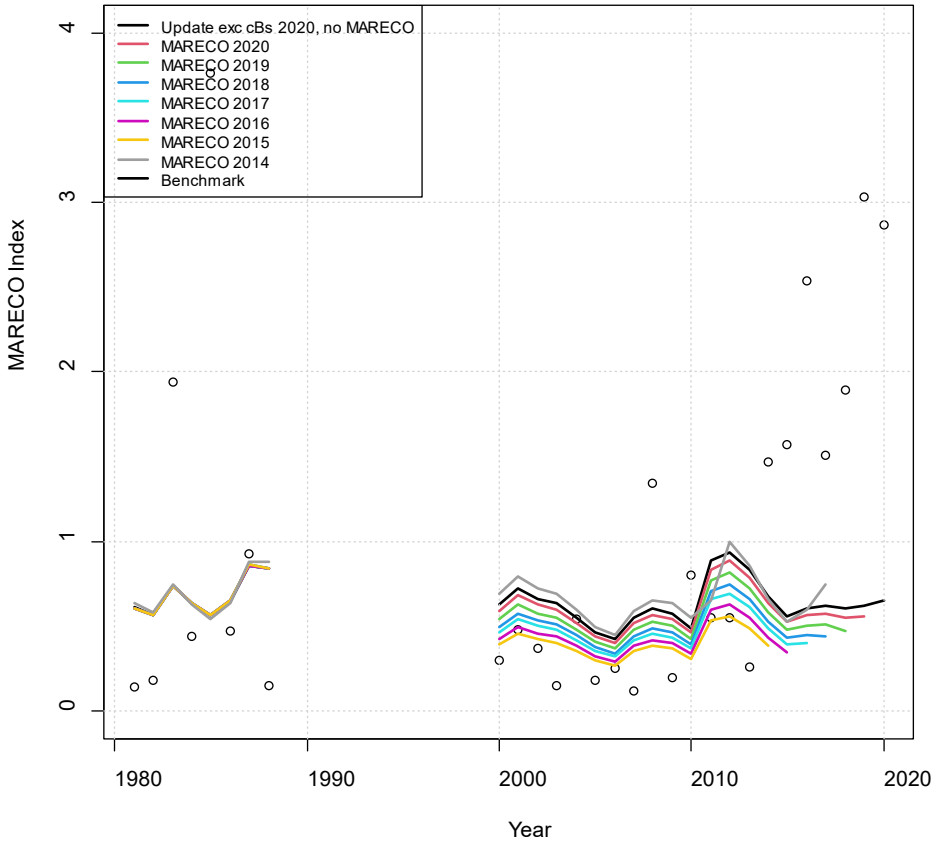
- Comparisons with benchmark and 2020/21 data

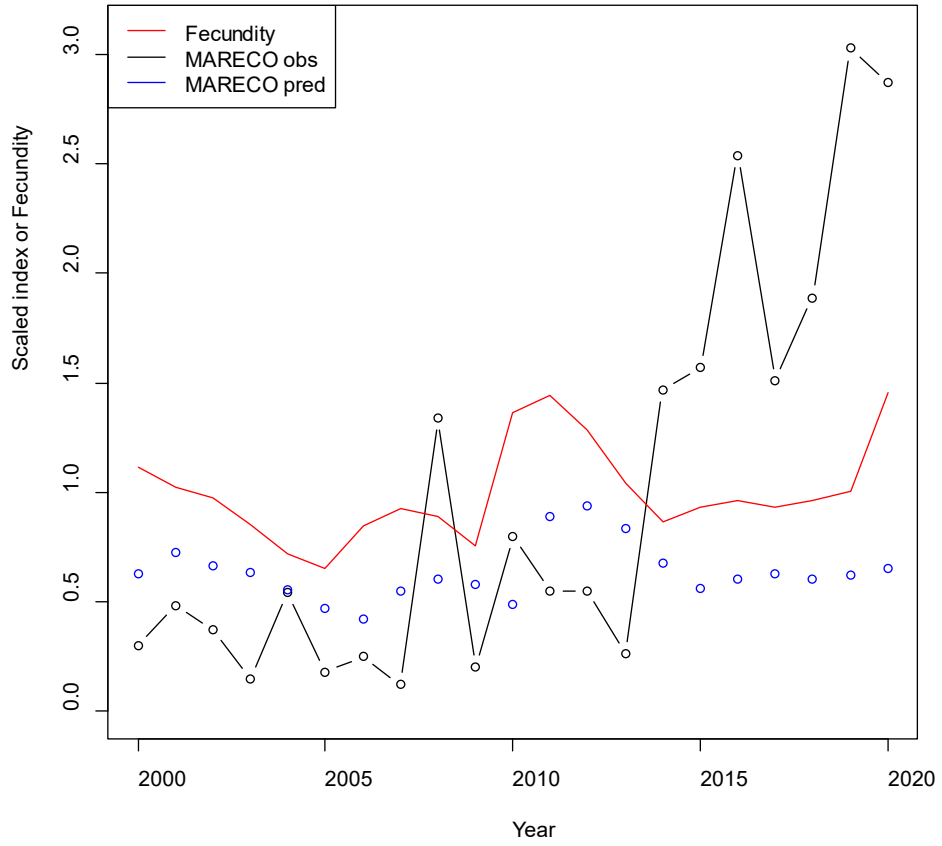




TOR 4:

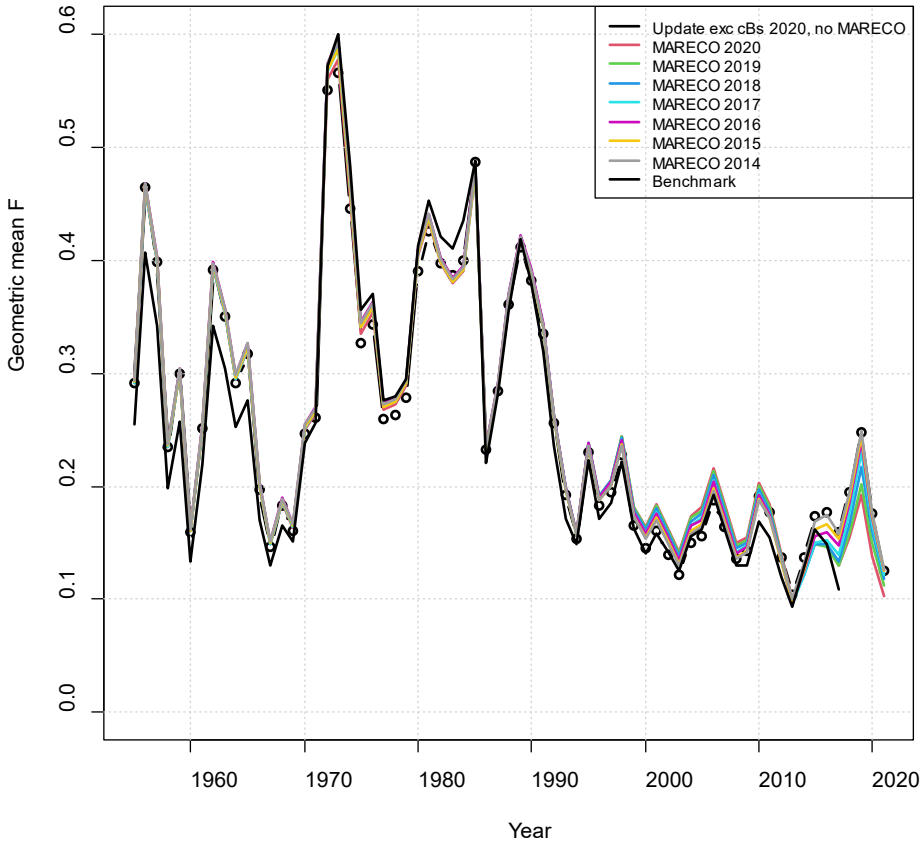
- Comparisons across MARECO terminal years

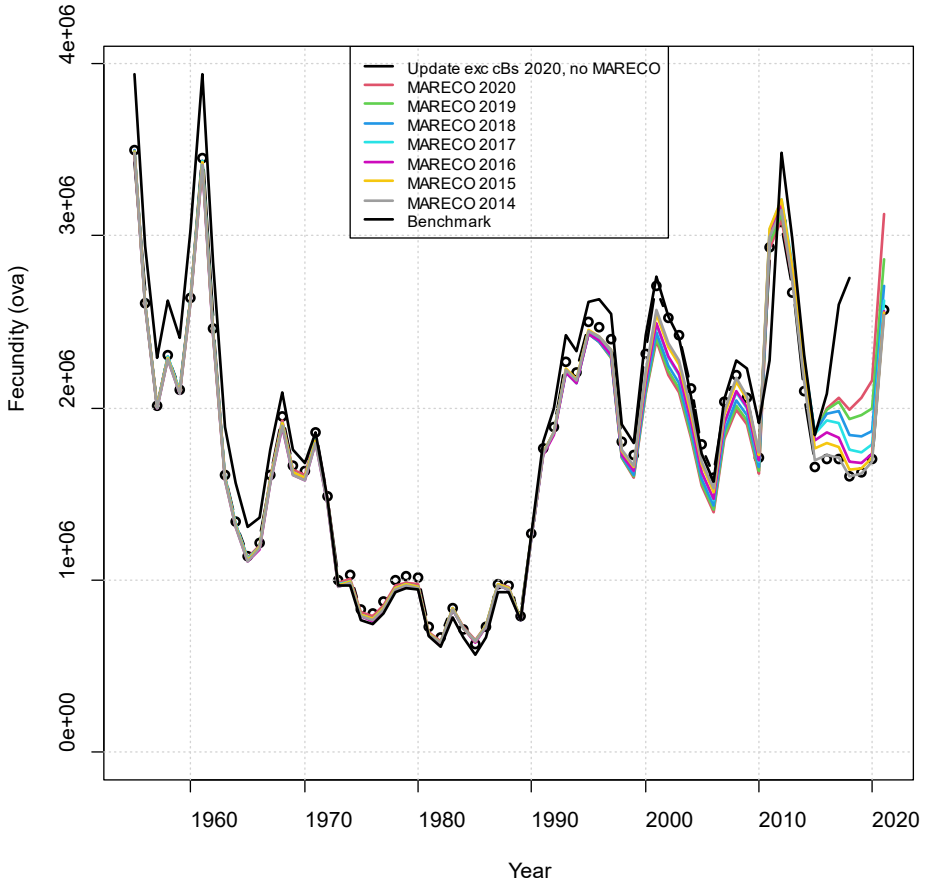




TOR 4:

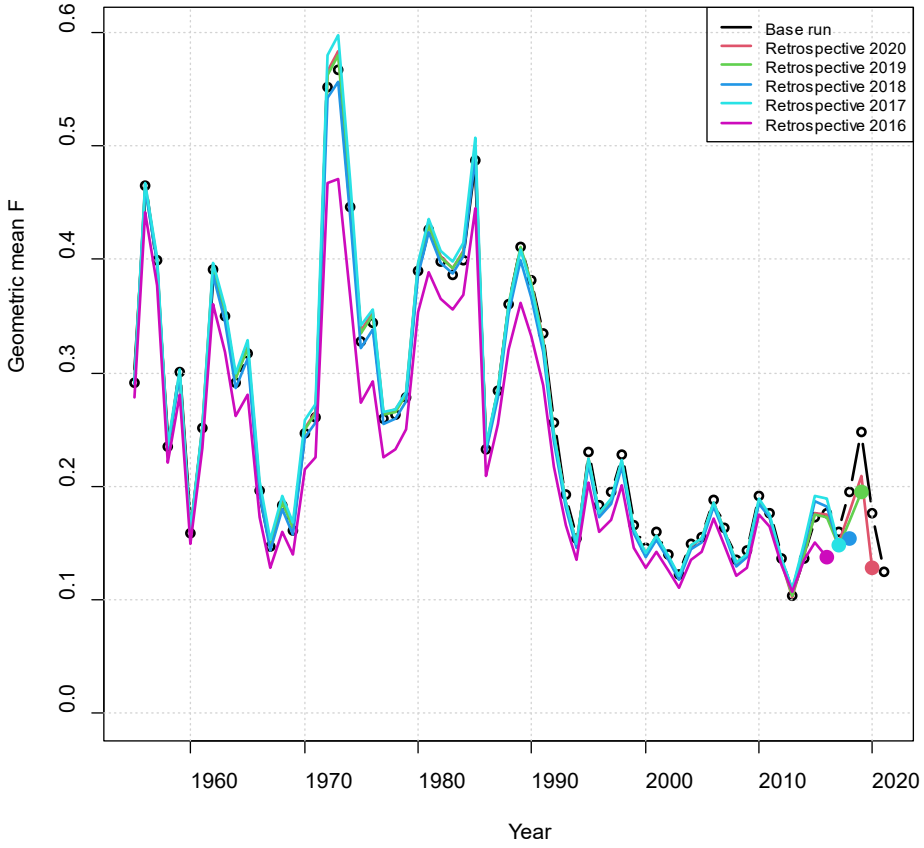
- Comparisons across MARECO terminal years

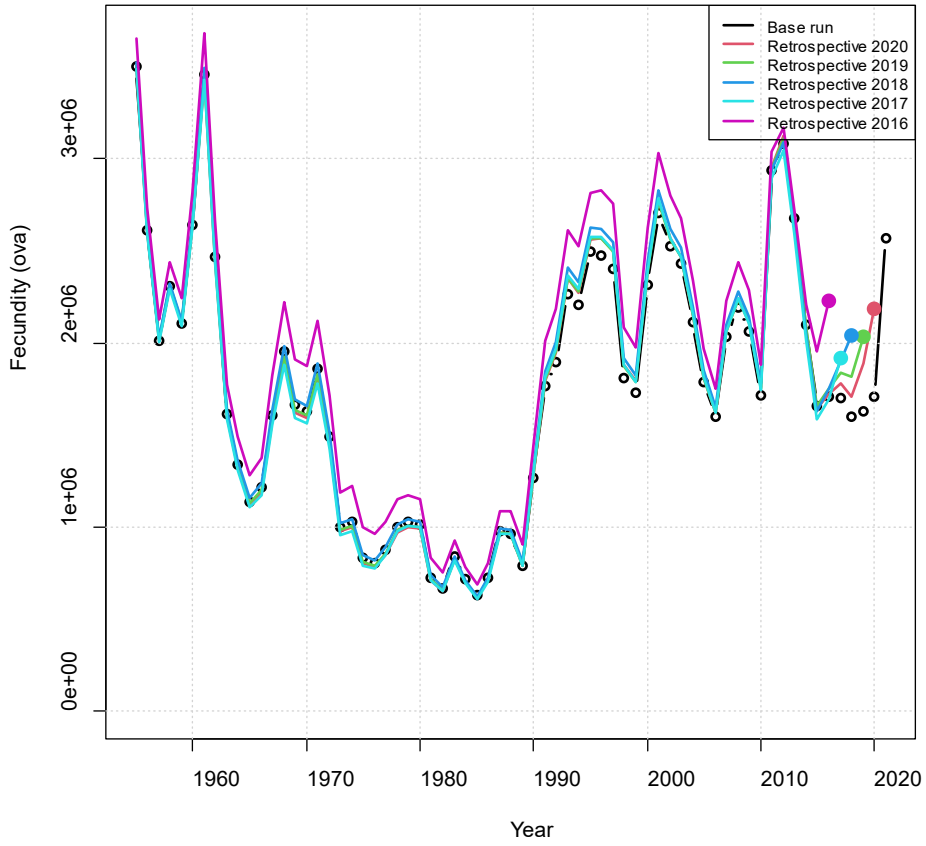




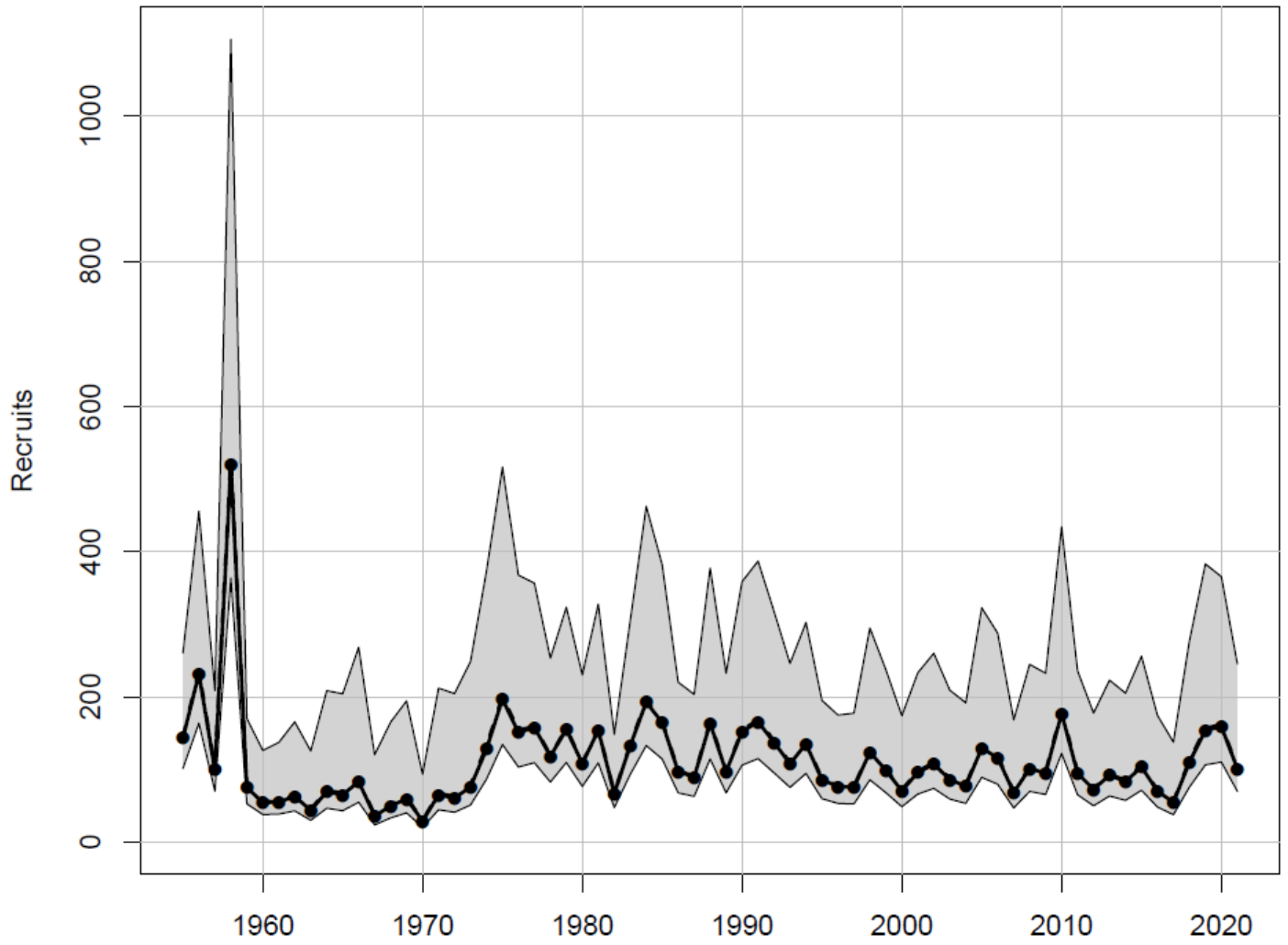
TOR 4:

- Retrospective analysis: Caveat 2020/21 data

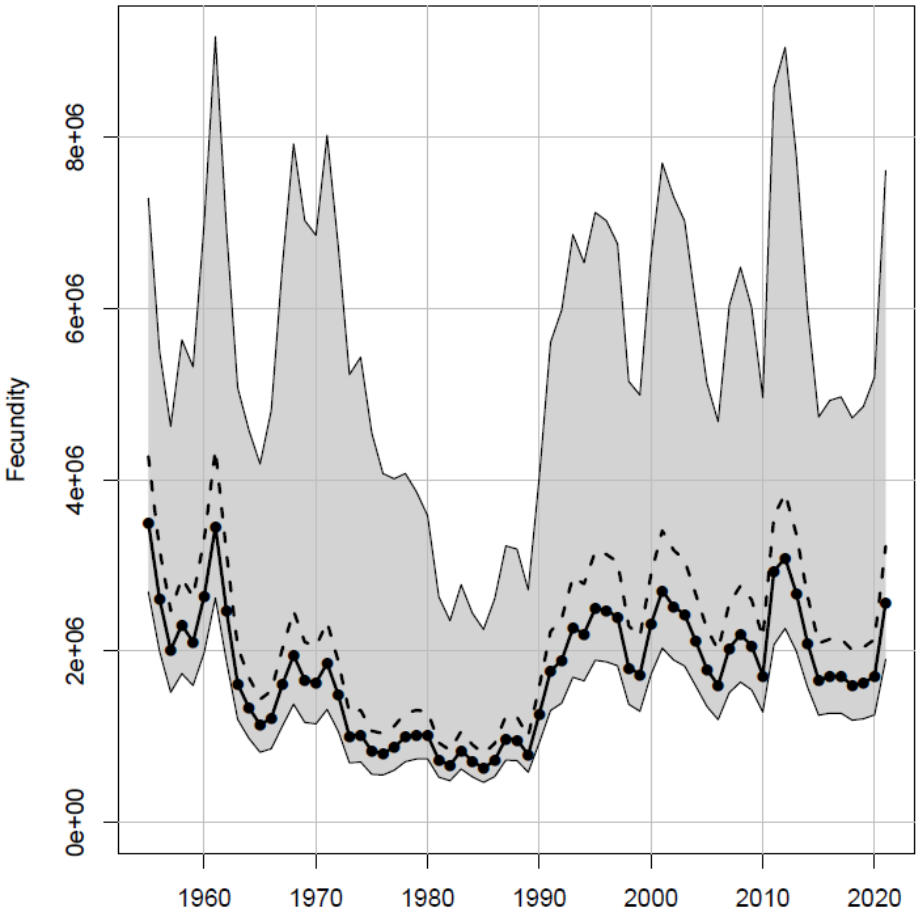


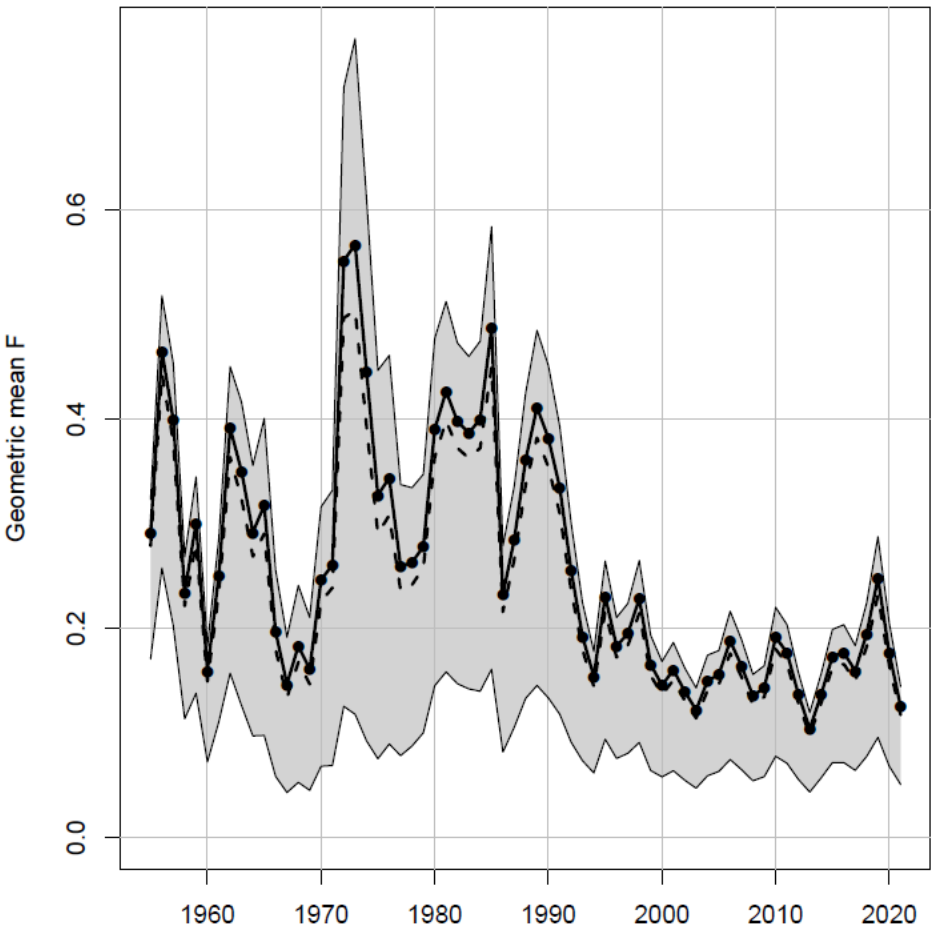


TOR 4: MCBE analysis



TOR 4: MCBE analysis

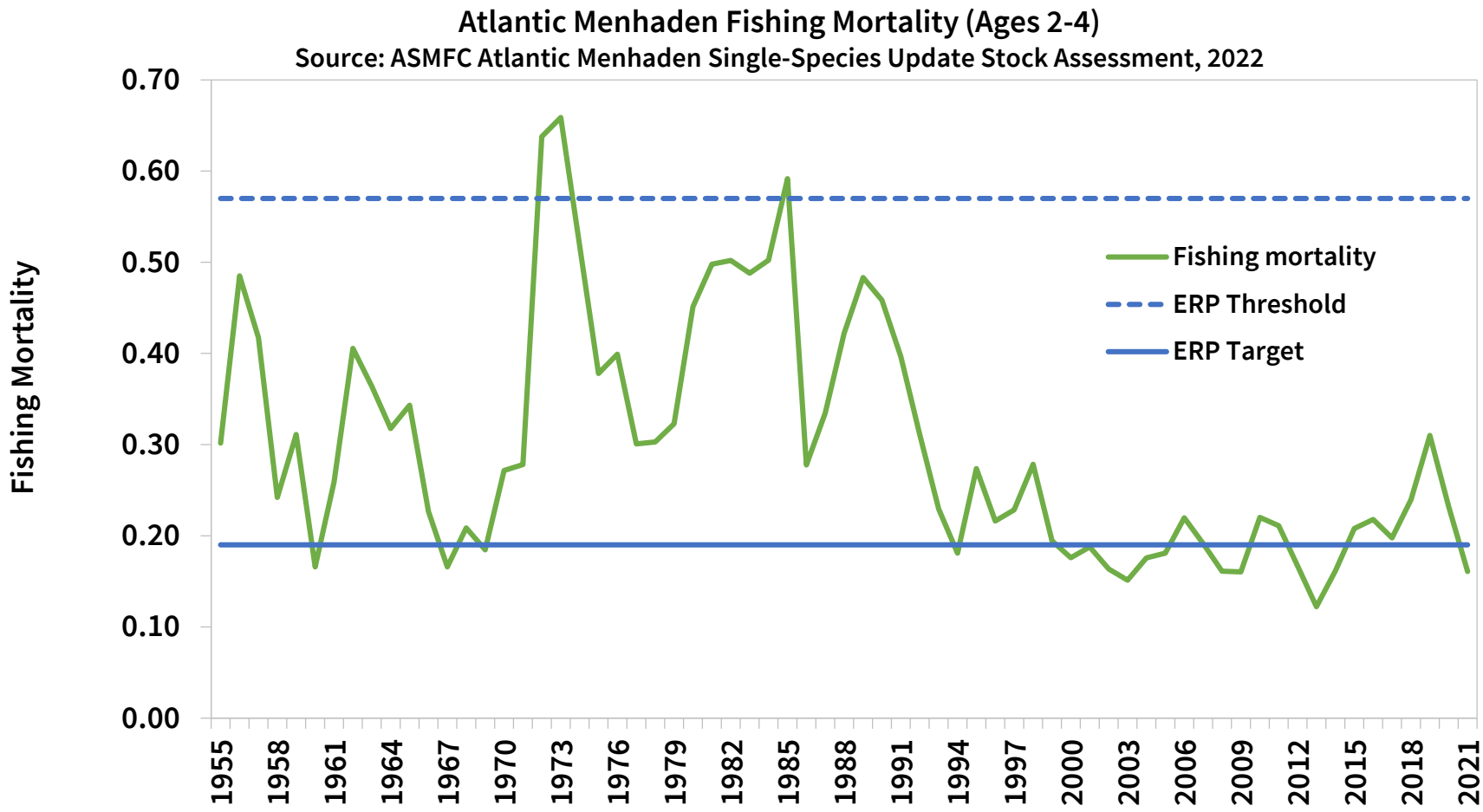




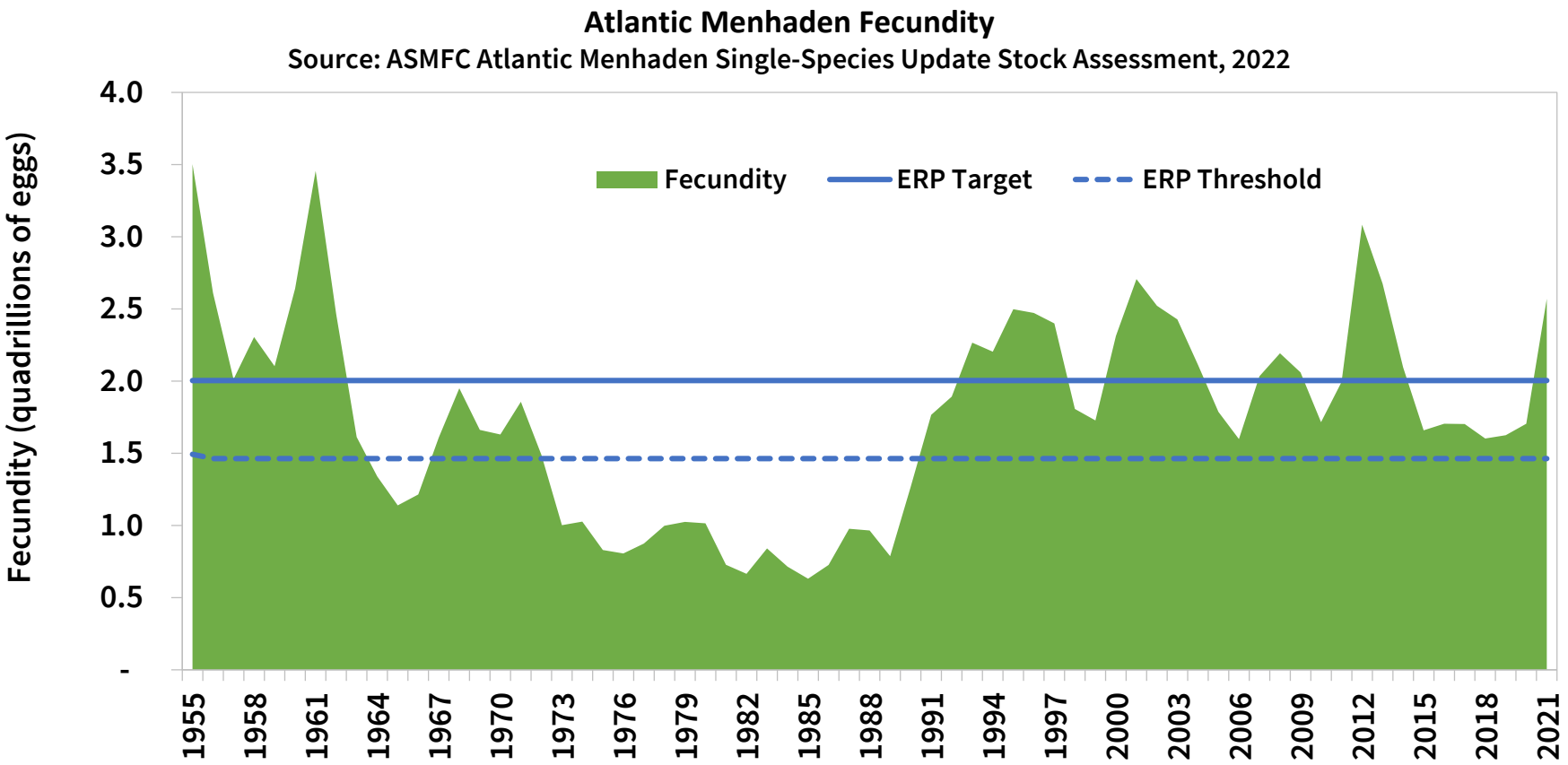
TOR 5:

- Update the biological reference points or trend-based indicators/metrics for the stock. Determine stock status

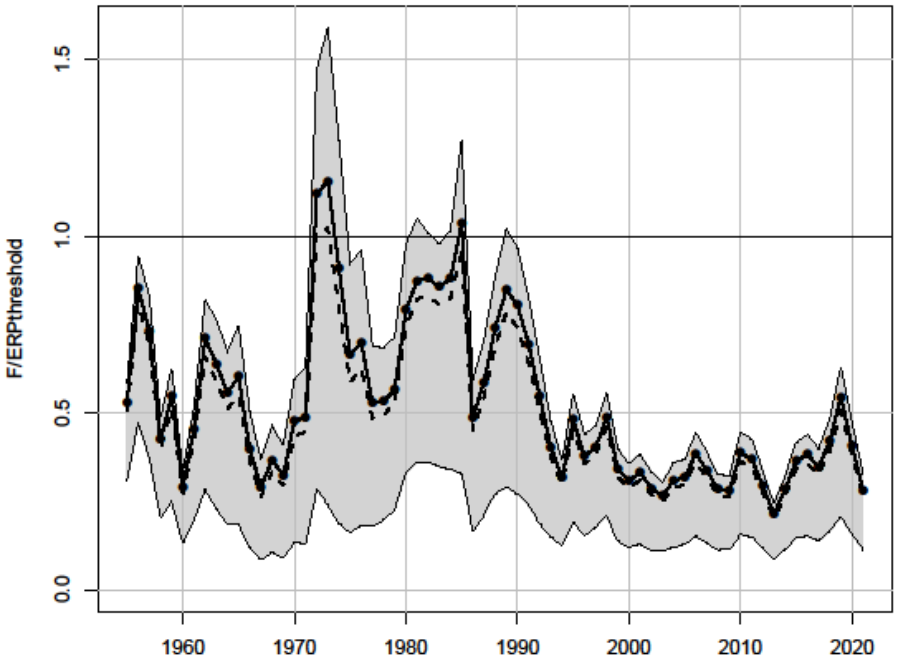
TOR 5:

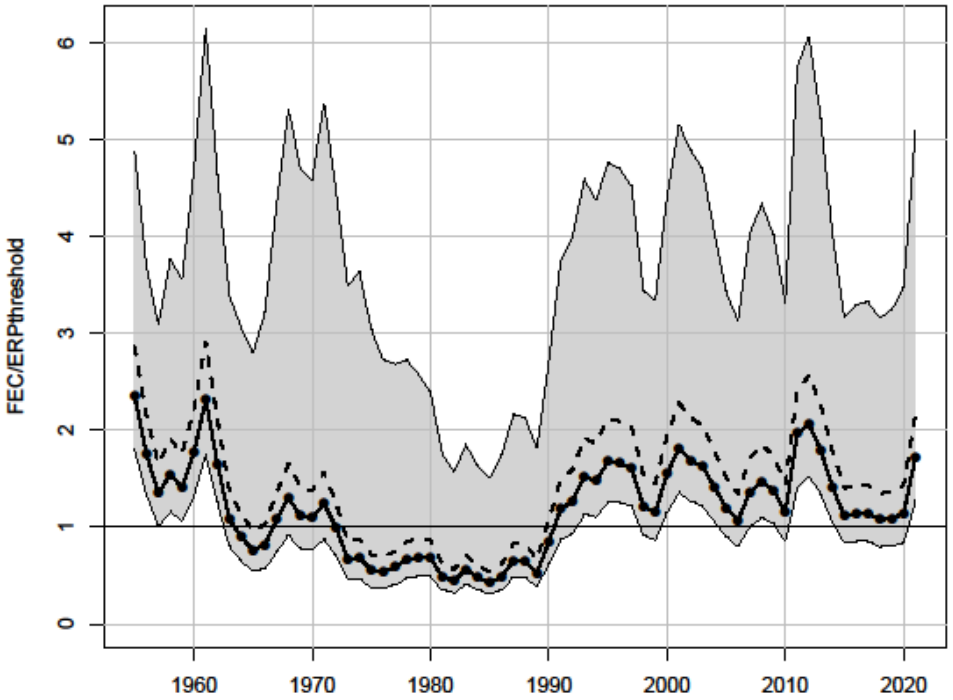

Atlantic Menhaden Fishing Mortality (Ages 2-4)
Source: ASMFC Atlantic Menhaden Single-Species Update Stock Assessment, 2022
Fishing Mortality
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1955
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
2015
2018
2021
Fishing mortality
ERP Threshold
ERP Target

TOR 5:


Atlantic Menhaden Fecundity
Source: ASMFC Atlantic Menhaden Single-Species Update Stock Assessment, 2022
Fecundity (quadrillions of eggs)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
-
Fecundity
ERP Target
ERP Threshold
1955
1958
1961
1964
1967
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009
2012
2015
2018
2021

TOR 5:


F/ERPthreshold
0.0
0.5
1.0
1.5
1960
1970
1980
1990
2000
2010
2020


FEC/ERPthreshold
0
1
2
3
4
5
6
1960
1970
1980
1990
2000
2010
2020

TOR 5:

- Fishing mortality rate
  - $F_{2021} / F_{Threshold} = 0.28$
  - $F_{2021} / F_{Target} = 0.85$
- Fecundity
  - $FEC_{2021} / FEC_{Threshold} = 1.76$
  - $FEC_{2021} / FEC_{Target} = 1.28$
- Not overfished and overfishing is not occurring

TOR 6:

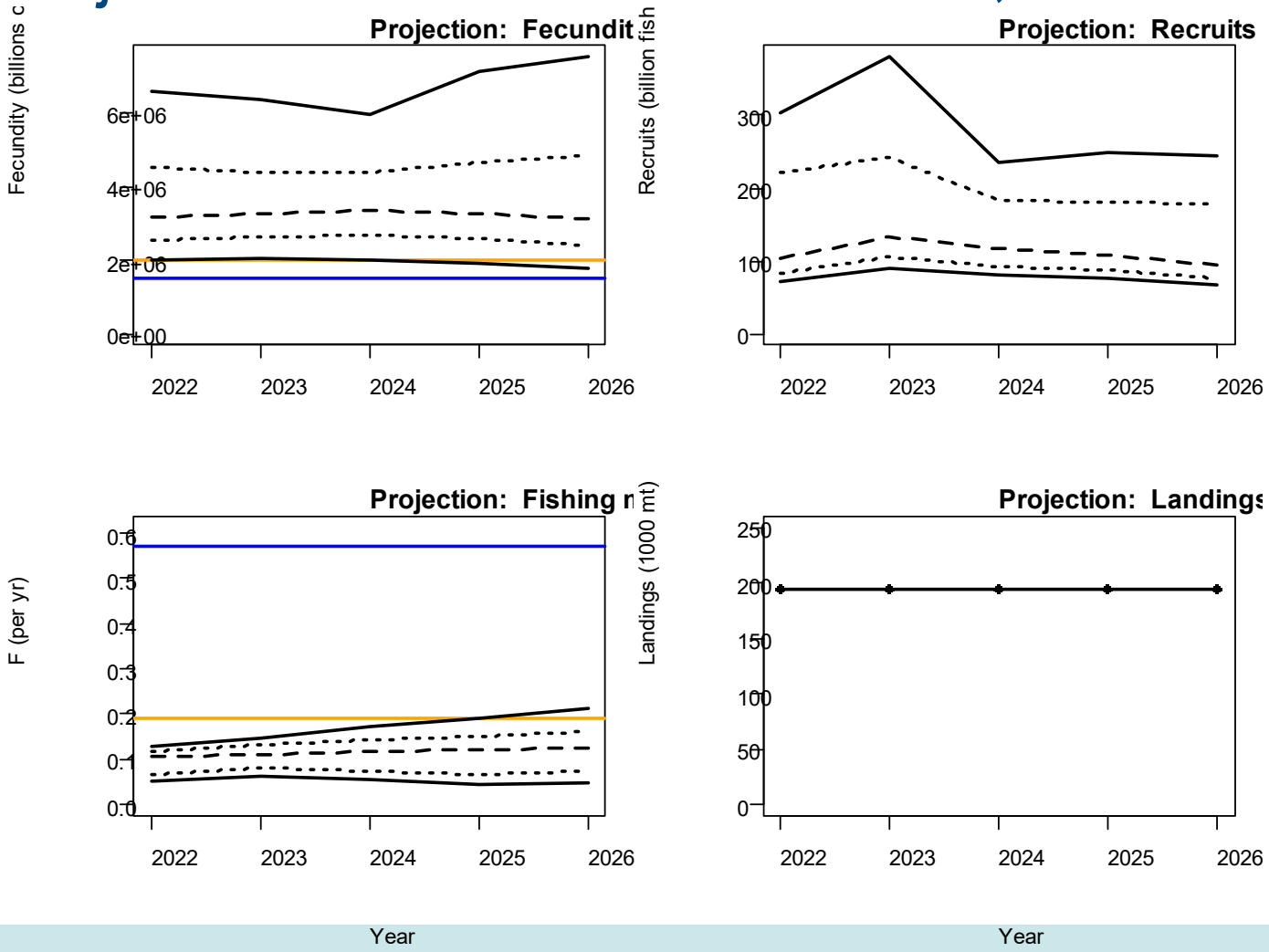
- Conduct short term projections when appropriate. Discuss assumptions if different from the benchmark and describe alternate runs

TOR 6:

- Same methods as in benchmark
  - Projected recruitment using NLTS
  - Projected TAC of 194,400 mt
    - Current TAC
    - Same allocations

TOR 6:

- Projections – at current TAC of 194,400 mt



TOR 7:

- Comment on research recommendations from the benchmark stock assessment and note which have been addressed or initiated. Indicate which improvements should be made before the stock undergoes a benchmark assessment

TOR 7:

- Develop and implement a coastwide menhaden-specific, multi-year fishery-independent index of adult abundance-at-age with ground-truthing for biological information
  - Congress included a CB Atlantic menhaden abundance provision in the FY 2022 Consolidated Appropriations Act
  - Wilberg et al. 2020 project to evaluate survey designs for aerial-hydroacoustic survey in CB
  - No funding attached to the project, remains unimplemented

TOR 7:

- Continue current level of sampling from bait fisheries, particularly in the Mid-Atlantic and New England
  - 2020 and 2021 reduced sampling, but no expectation for this to continue post-pandemic
- Conduct an ageing workshop to assess precision and error among readers with the intention of switching bait fishery age reading to state ageing labs
  - Workshop postponed
- Full list of research recommendations in report

Past projection runs and Requests:

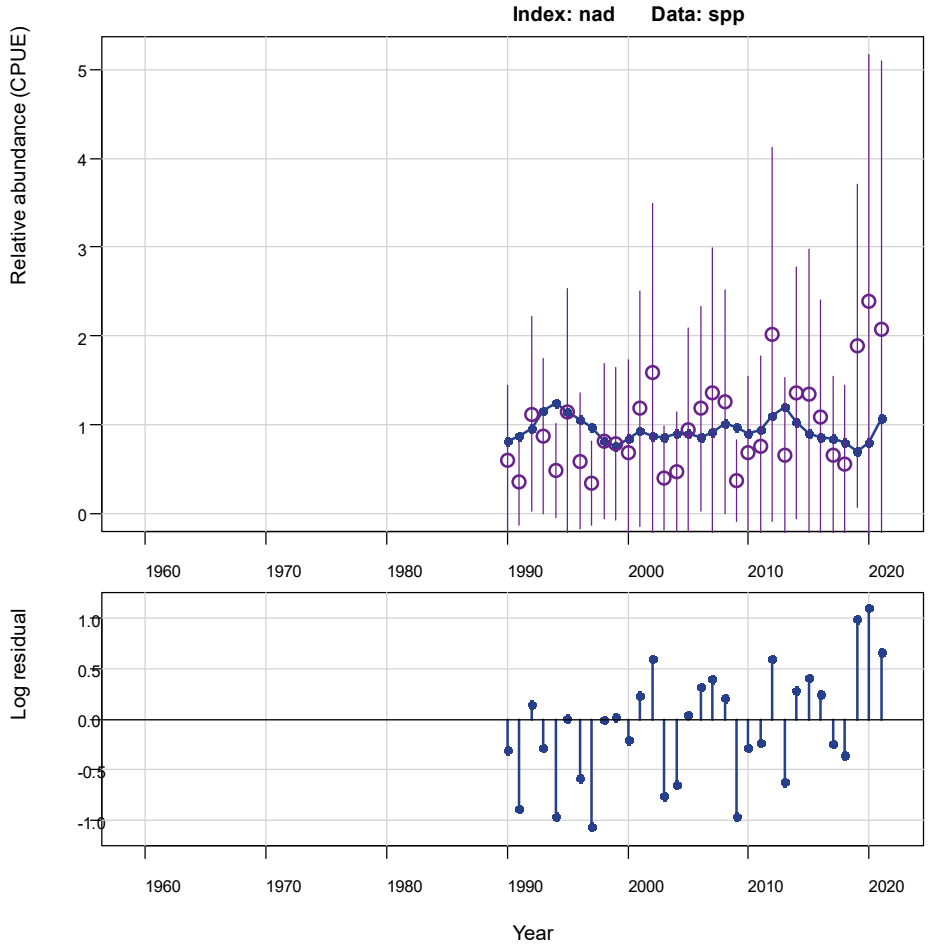
- Past:
  - Based on a percent increase to current TAC (10-40% increase)
  - Based on percent probability of exceeding the F target and F threshold (e.g., 50-60% probablility)

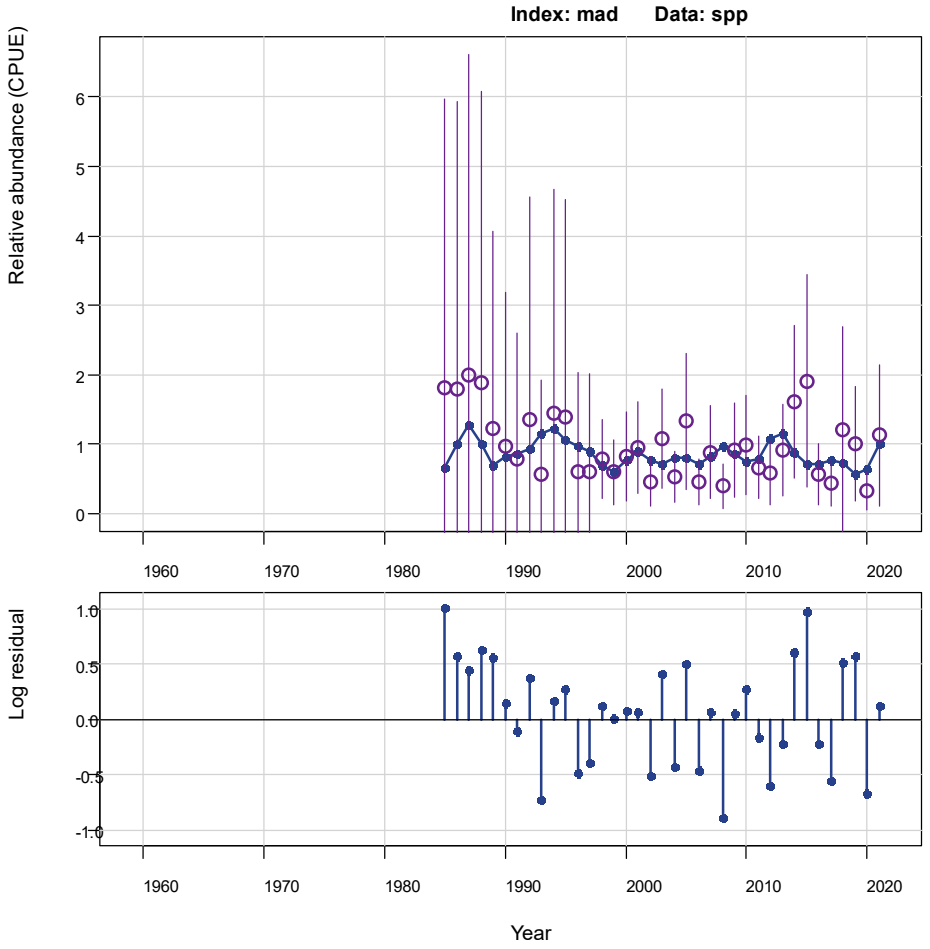
- Requests?

Questions?

TOR 4:

- Index fits:





TOR 4:

- Index fits: