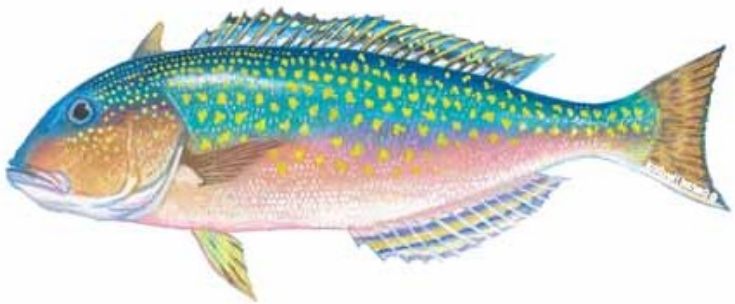
SEDAR 66 South Atlantic Tilefish

SAFMC meeting

Nikolai Klibansky

National Oceanic and Atmospheric Administration

June 14 – 18, 2021



Assessment history

- SEDAR 04 2004 Benchmark Assessment
- SEDAR 25 2011 Standard Assessment
- SEDAR 25 2016 Update Assessment (used for management)
- SEDAR 25 2017 Update Assessment (model)
- SEDAR 66 2021 Operational Assessment

Assessment history

- The 2016 Update assessment indicated that the South Atlantic Tilefish stock was not overfished ($\text{SSB}_{2014}/\text{MSST} = 1.13$) but was undergoing overfishing ($F_{2012-2014}/F_{\text{MSY}} = 2.42$)

Assessment	M	Steepness	MSY (klb)	F_{MSY}	MSST (mt)	F/F_{MSY}	SSB/MSST
Benchmark (S04), 2004	0.07	0.72	335	0.043	659[a]	1.53	1.27
Standard (S25), 2011	0.1083	0.84	638	0.185	19.0[b]	0.360	2.42
Update (S25), 2016	0.1083	0.84	560	0.236	16.4[c]	2.42	1.13

[a] SSB = mature female biomass and $\text{MSST} = 0.75\text{SSB}_{\text{MSY}}$

[b] SSB = mature female gonad weight and $\text{MSST} = (1-M)\text{SSB}_{\text{MSY}}$

[c] SSB = mature female gonad weight and $\text{MSST} = 0.75\text{SSB}_{\text{MSY}}$

SEDAR 66 assessment process

- Data Scoping Webinar (Apr 27, 2020)
- Data/Assessment Workshop (Nov 16 – 19, 2020)
- Assessment Webinars I – III (Dec 1, 2020; Jan 27, Feb 18, 2021)
- SSC Review (Apr 28, 2021)

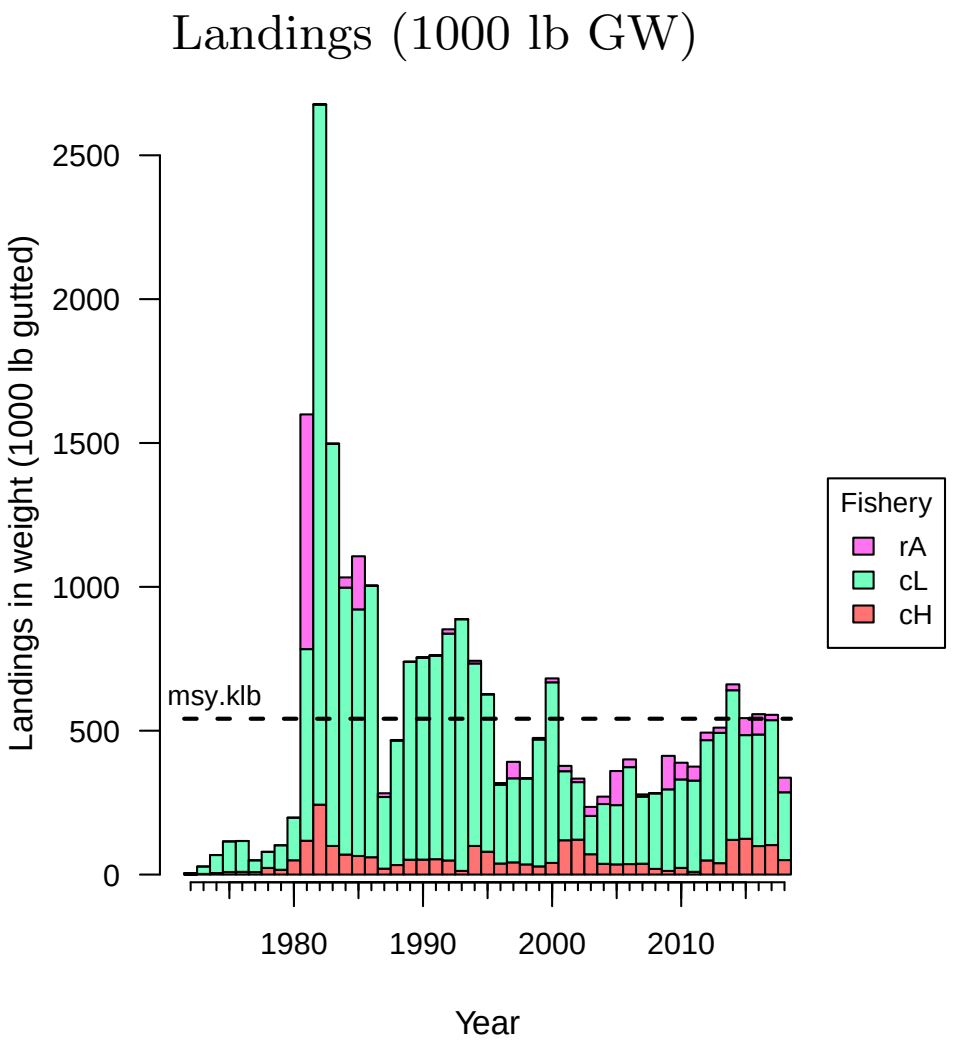
Report revision (May 14, 2021)

- Recently, while developing interim landings for projections the analytical team found a mismatch between recreational landings from SEDAR 66 and the original source data.
- Recreational landings from SEDAR 66 were found to have been provided to the analyst in incorrect units (numbers instead of pounds).
- Although quality control measures were in place to avoid such errors, variability in this data source obscured the difference.
- The assessment, all further analyses, and the report, have been revised with the correct data.
- Status did not change and overall effects were minor.
- Recreational landings make up a small percentage (7%) of total landings for this stock over the assessment period.
- This presentation is based on the revised assessment.

Data

Removals

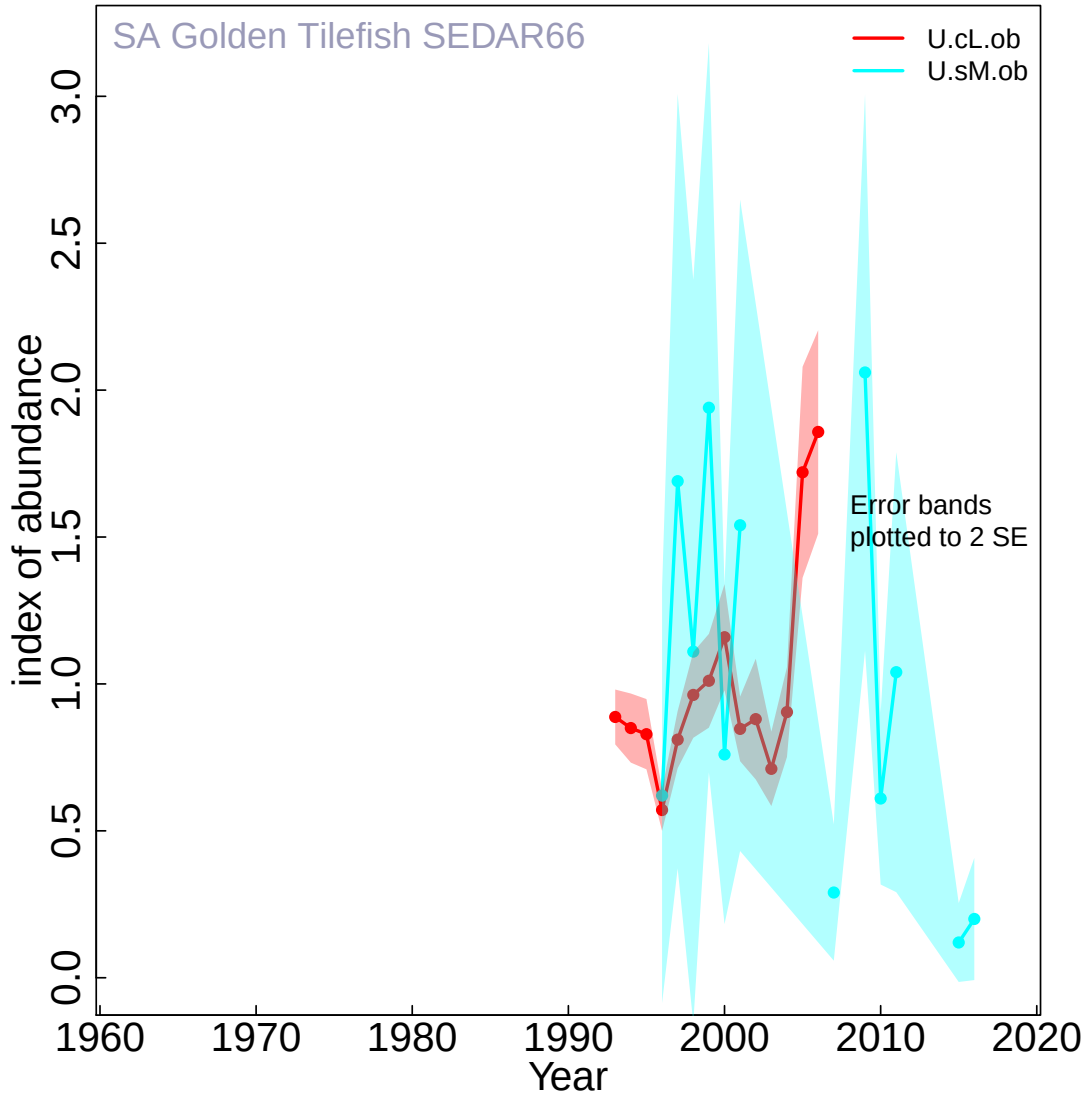
- Landings
  - recreational (rA)
  - commercial longline (cL)
  - commercial handline (cH)
- Discards were minimal and not modeled



Data

Indices of abundance

- commercial longline (cL)
- MARMAP longline survey (sM)

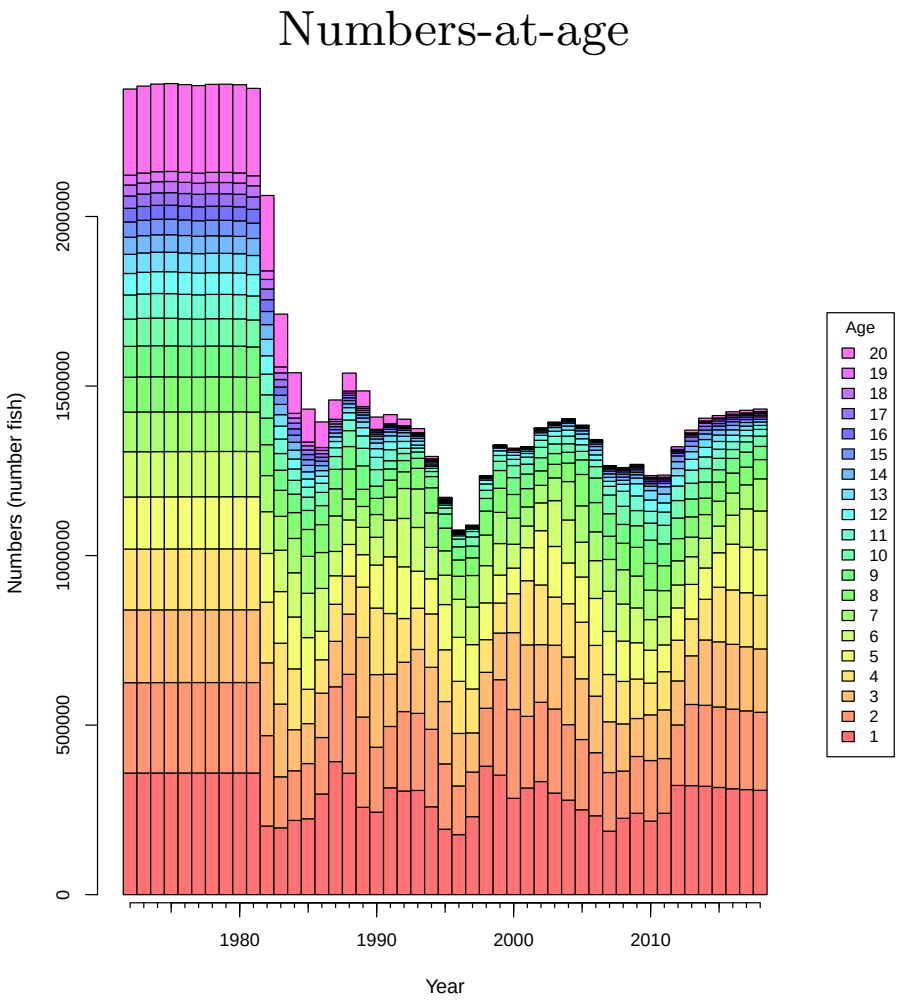


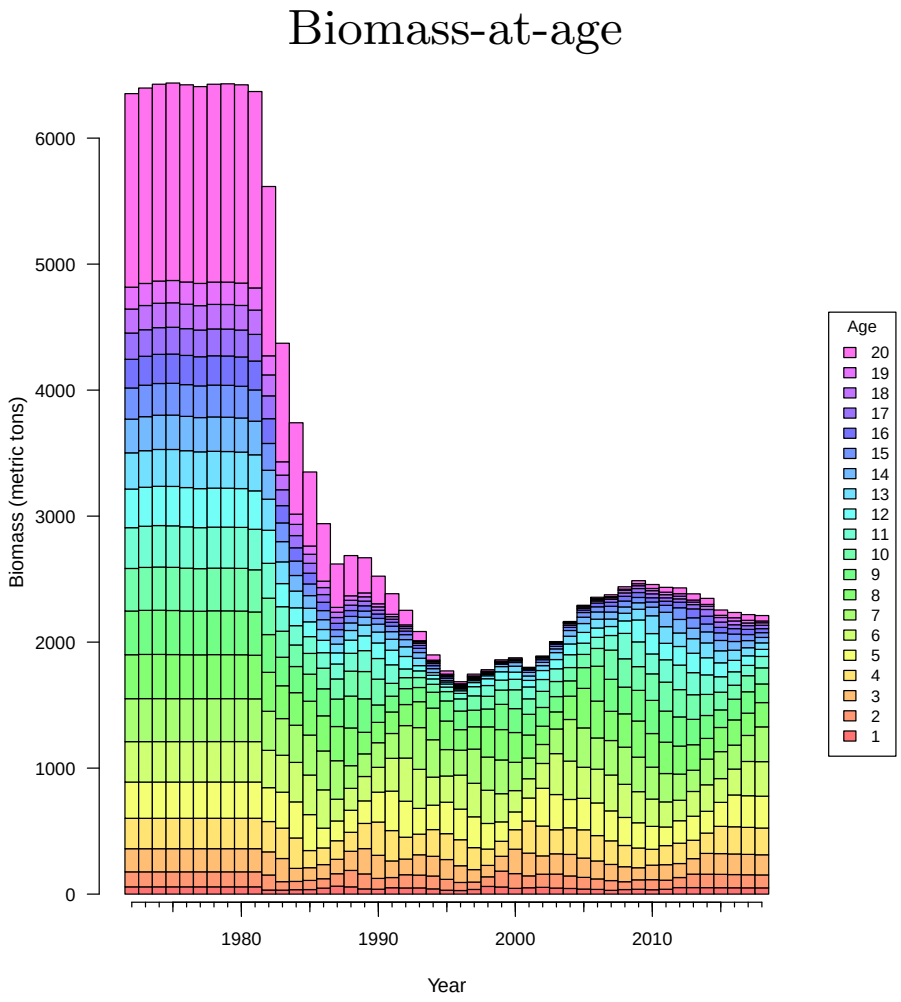
New data/information included in SEDAR 66

1. Addition of four recent years of data (2015-2018) to many data sources
2. Later start year of 1972 compared with 2016 Update which started in 1962
3. Recreational landings based on current MRIP methods
4. MARMAP longline index is now estimated for individual years as opposed to five year averages in 2016 Update (S66_WP02 Bubley and Smart 2020)
5. Commercial longline index truncated to end in 2006 due to changes in regulations that affected fishing behavior and catch rates (S66_WP03 Fitzpatrick 2020)
6. Excluded commercial length composition information data, which conflicted with age composition data
7. Use of ages 1-20 for commercial age comps and 1-16 for MARMAP age comps

Results

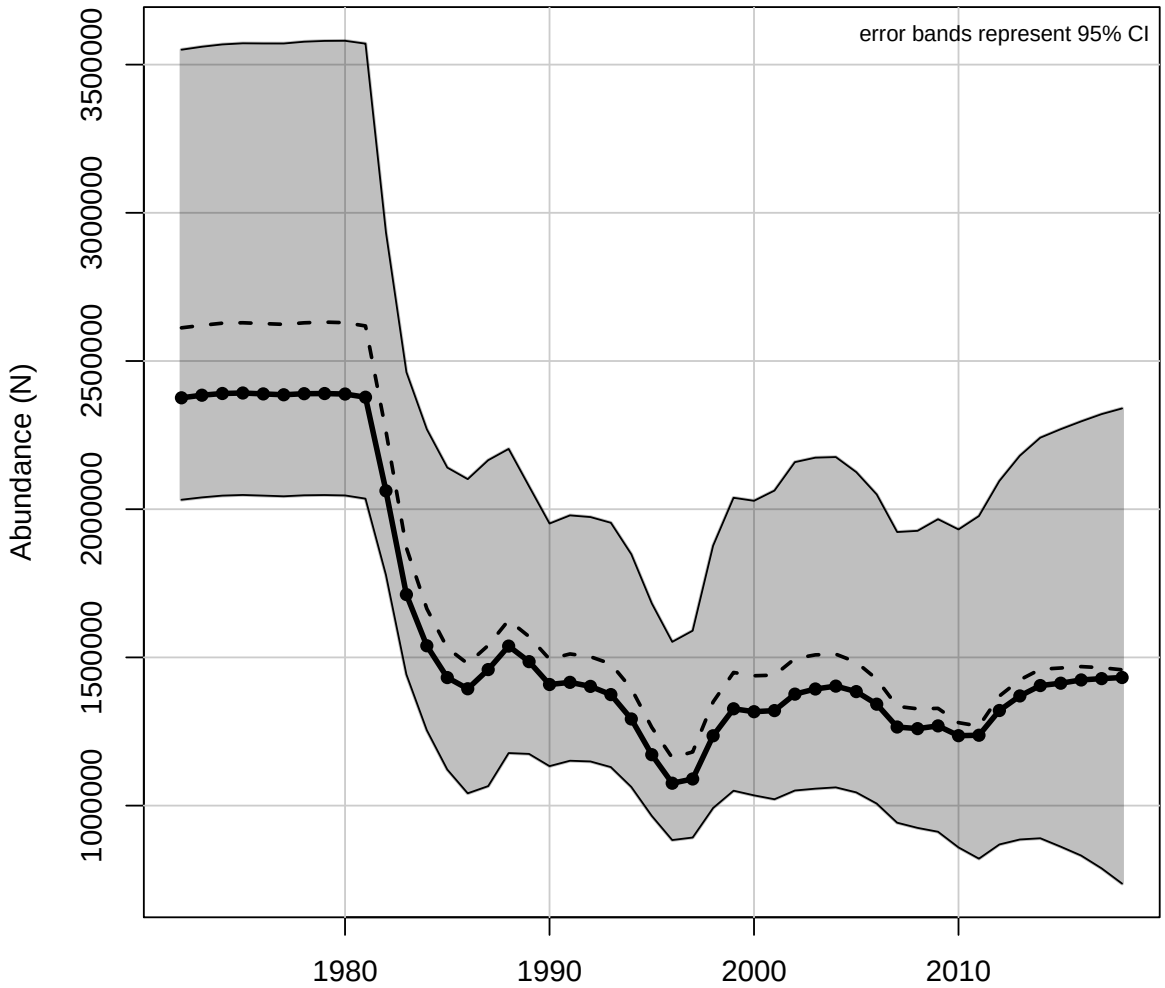
Numbers and biomass-at-age





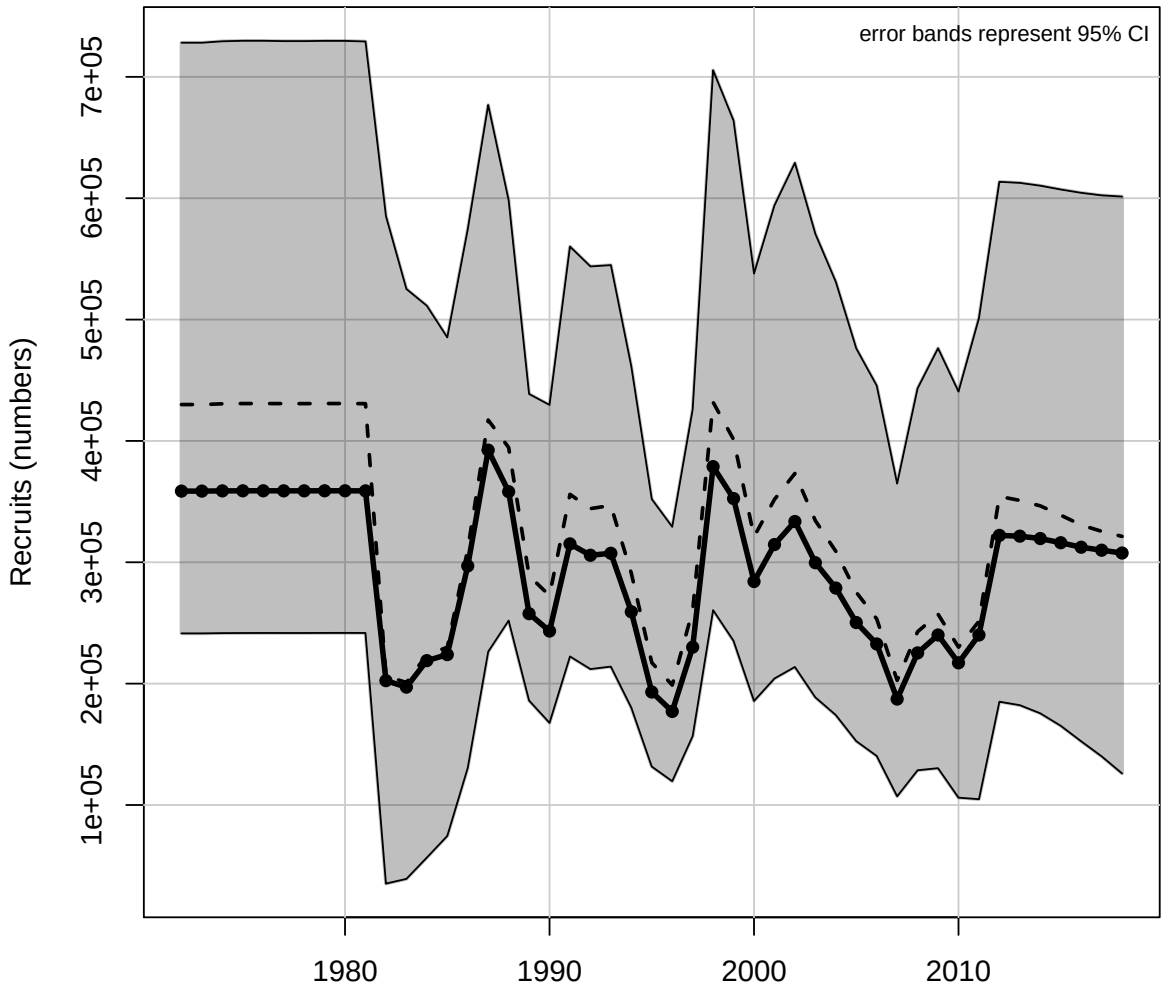
Results

Abundance



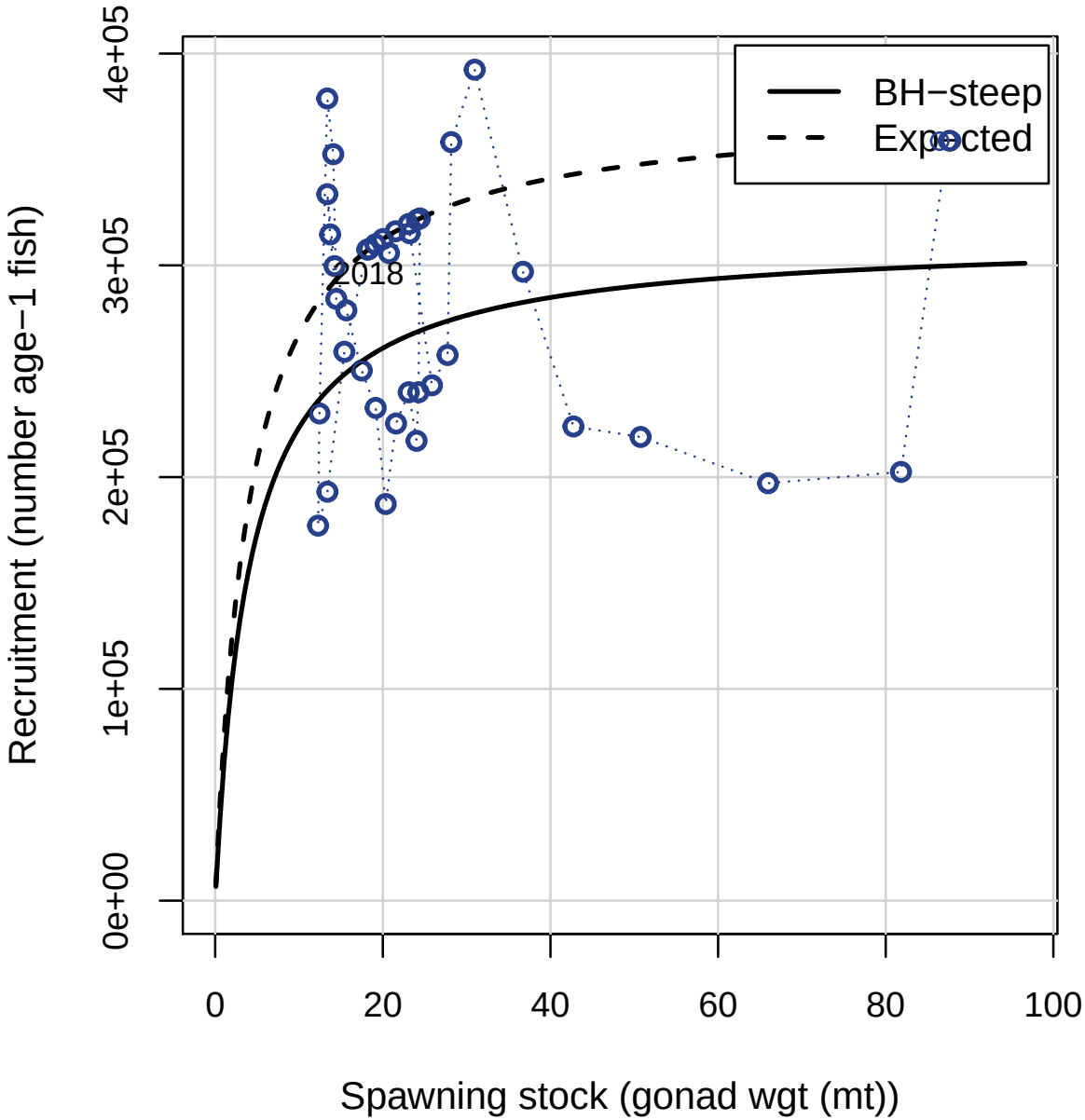
Results

Recruitment



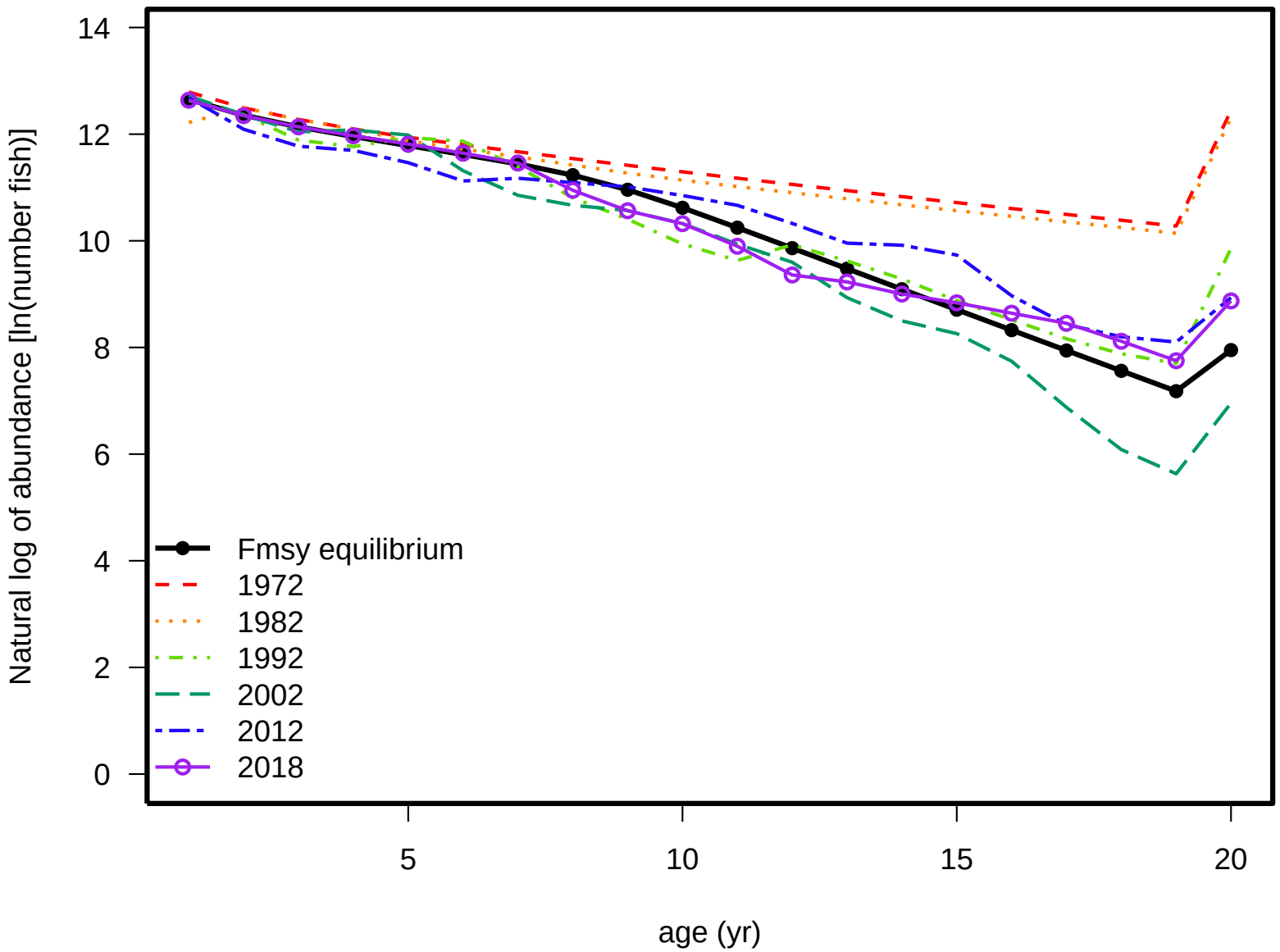
Results

Stock-Recruitment



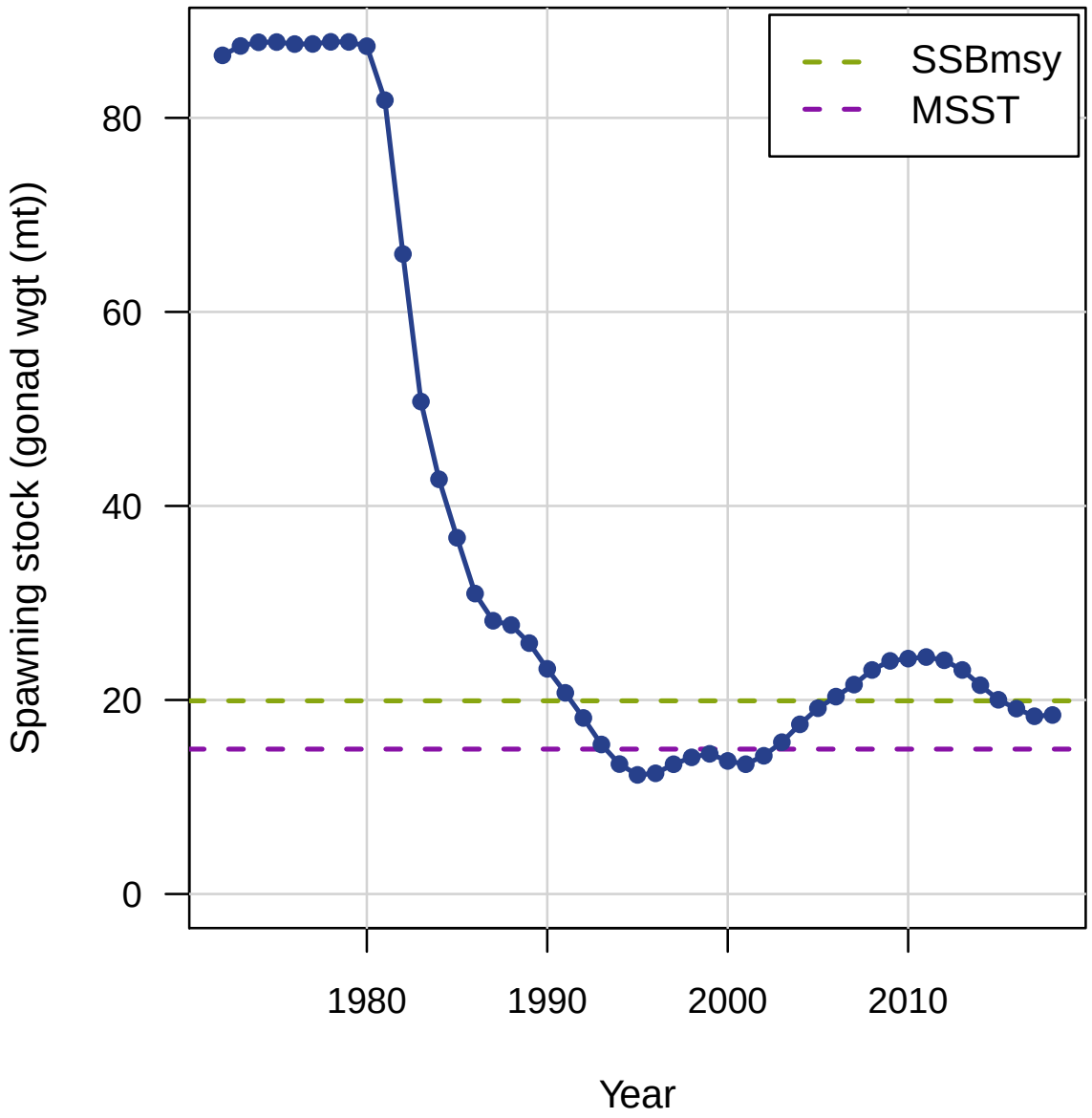
Results

Age structure



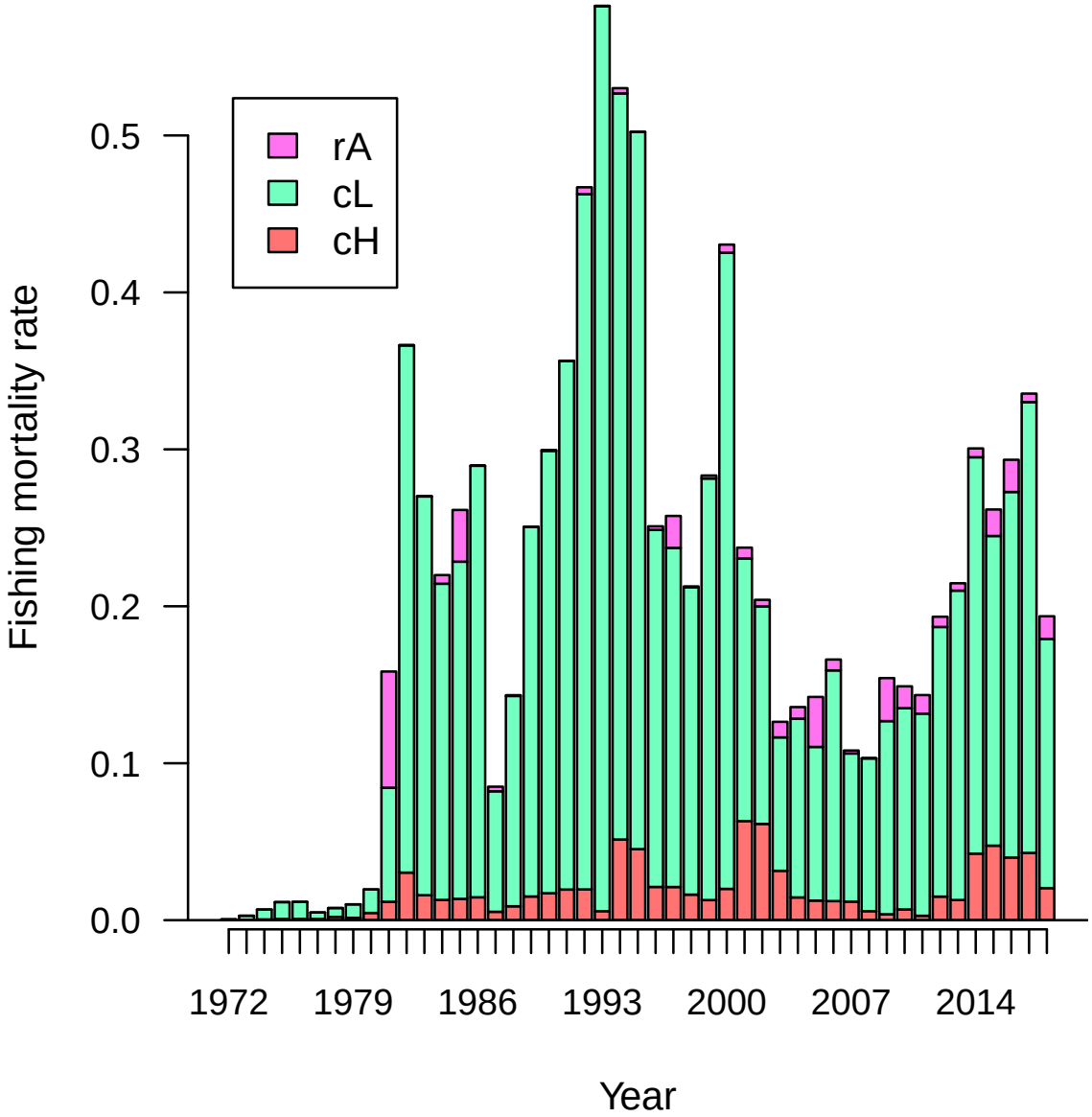
Results

Spawning-stock (gonad biomass)



Results

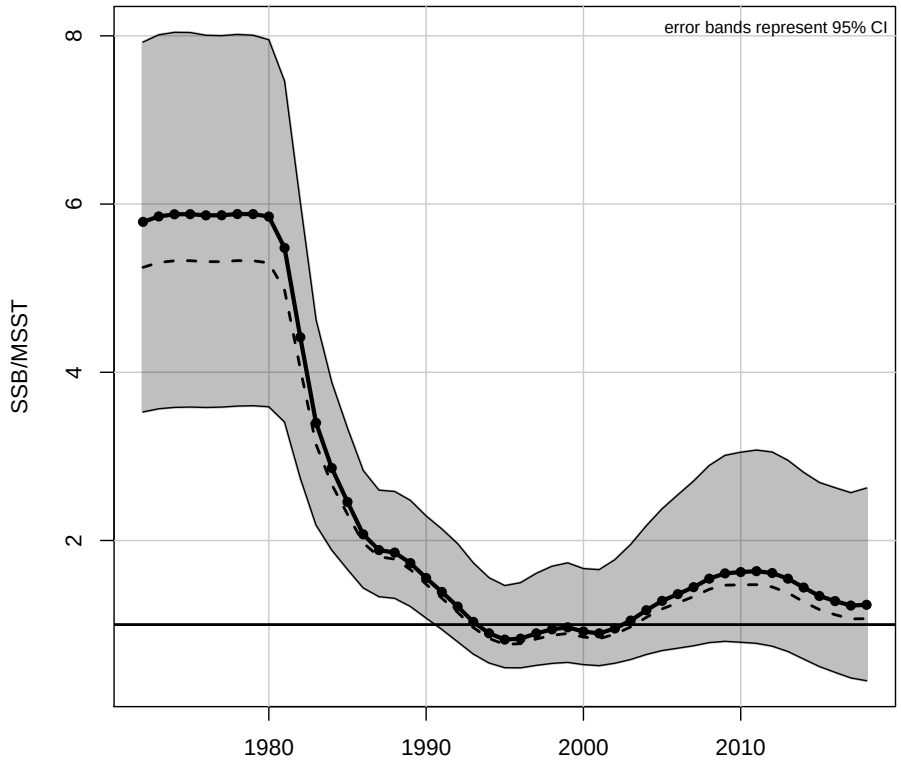
Fishing mortality (F)



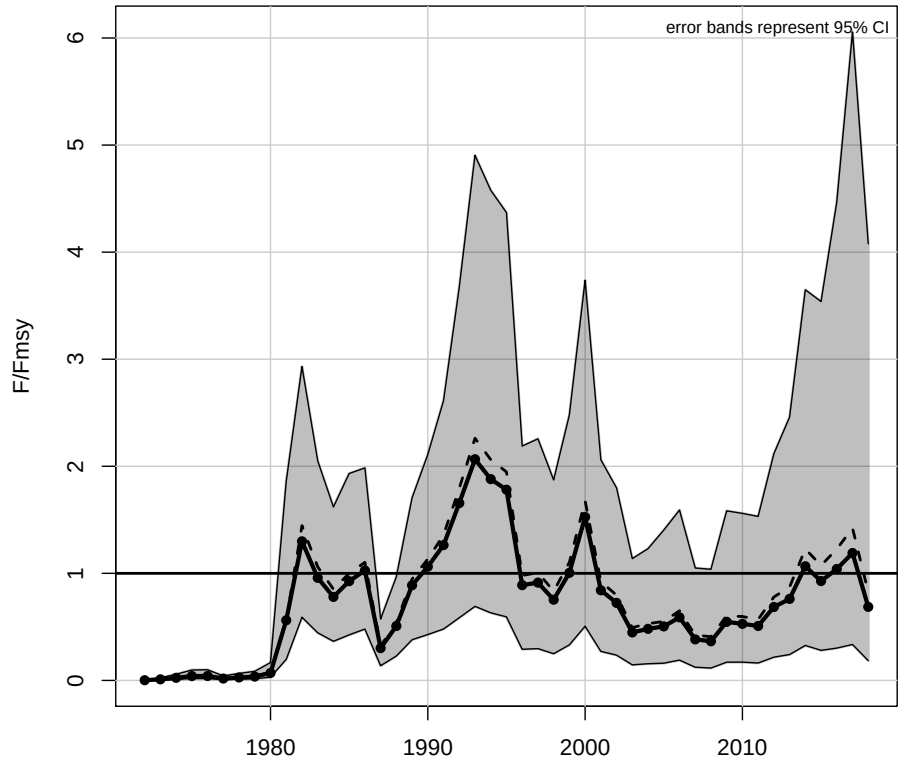
Results

Status uncertainty

Not overfished

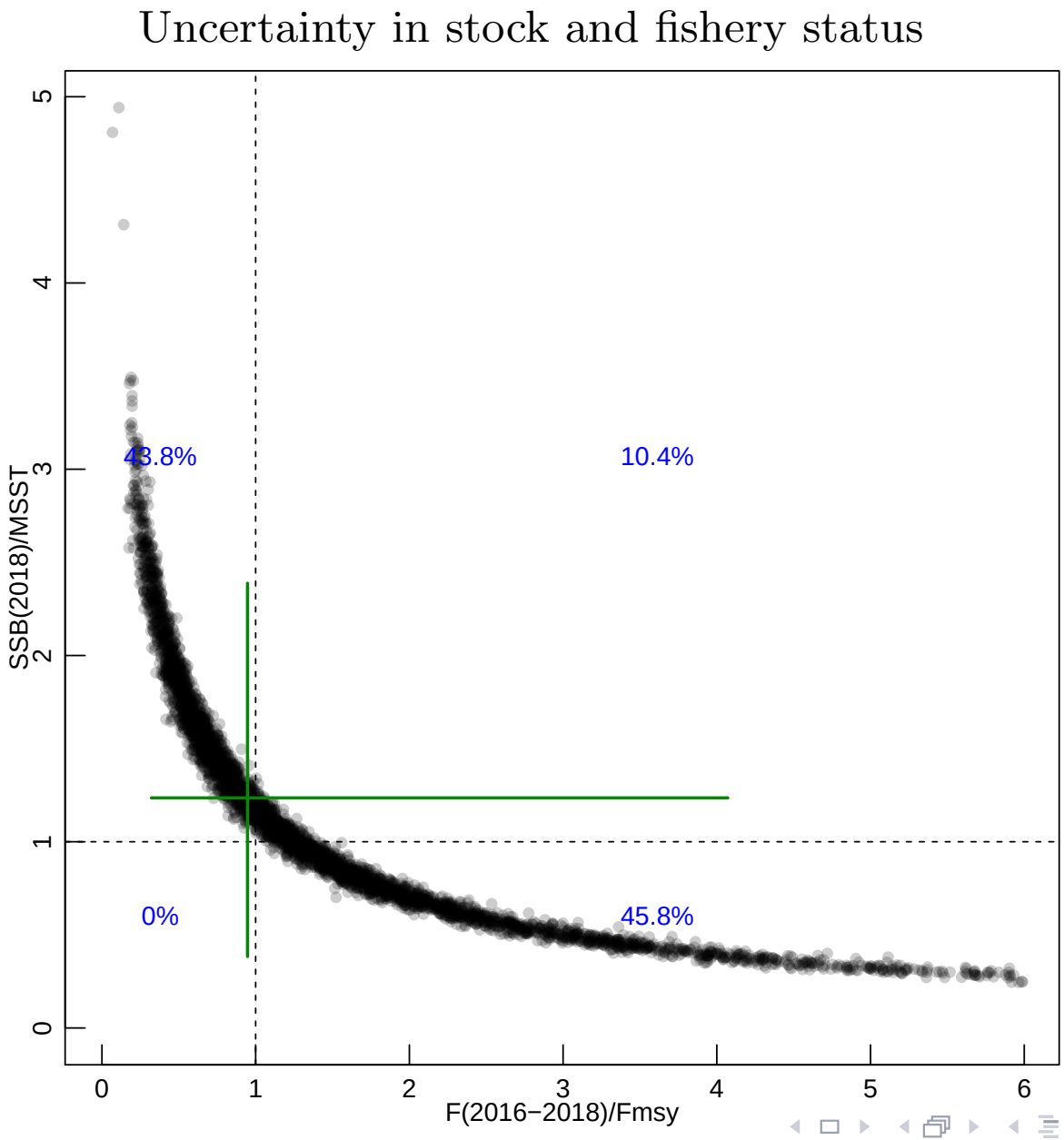


Not undergoing overfishing



Results

Status uncertainty



Summary of assessment results

- South Atlantic Tilefish is not overfished ($\text{SSB}_{2018}/\text{MSST} = 1.235$) and overfishing is not occurring ($F_{2016-2018}/F_{\text{MSY}} = 0.95$)
- However, status benchmarks are near reference points and there is considerable uncertainty in stock status.
- Uncertainty in status is primarily due to uncertainty in natural mortality and steepness of the stock-recruit relationship, though these parameters are not more uncertain than many other assessment
- Estimated recruitment was variable over the assessment period and relatively low in later years of the assessment but there is no clear long-term trend in recruitment
- Challenges for future assessments include limited indices of abundance after 2006 and limited knowledge of recruitment toward the end of the assessment since few young fish are caught.

Projections

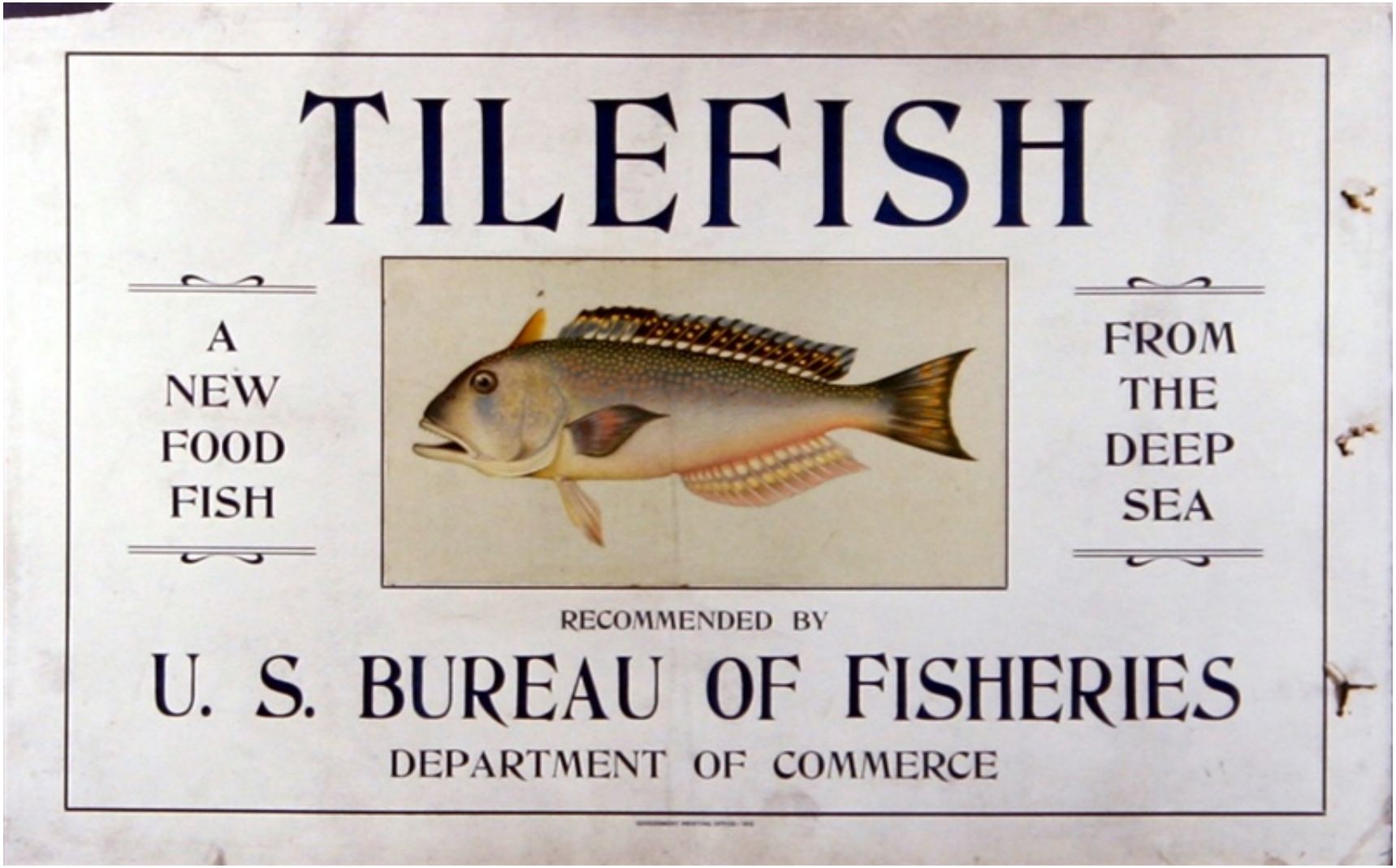
- Projections were constructed as requested by the Council May 4, 2021
- Projections were made from 2019 to 2026, with projected fishing level changes beginning in 2022.
- Interim landings for $2019 - 2021$ were estimated from data on at the SERO ACL Monitoring webpage
- Projections at fixed F from $2022 - 2026$
- To determine OFL:
  - $F = F_{\text{MSY}}$
- To determine ABC:
  - F based on $P* = 32.5\%$
  - $F = 75\% F_{\text{MSY}}$

Projections

- Projection tables for all scenarios requested May 4, 2021 have recently been provided to the Council in a stand alone document
- Projection of $F = F_{\text{MSY}}$ from 2022 to 2026 shown below

Year	R_b	R_{med}	F_b	F_{med}	S_b (mt)	S_{med} (mt)	L_b (n)	L_{med} (n)	L_b (GW)	L_{med} (GW)	$P(\geq \text{MSST})$
2019	294	245	0.27	0.29	19	18	56	57	457	457	0.602
2020	296	246	0.23	0.25	19	18	51	52	414	414	0.605
2021	297	246	0.21	0.23	20	19	50	50	403	403	0.614
2022	299	248	0.30	0.26	20	19	70	59	573	474	0.625
2023	300	248	0.30	0.26	20	18	69	59	562	478	0.641
2024	299	249	0.30	0.26	20	18	68	59	552	476	0.657
2025	298	252	0.30	0.26	19	18	67	58	543	474	0.668
2026	298	256	0.30	0.26	19	18	66	58	535	467	0.677

Questions?



NOAA Photo Library

Additional slides

Management quantities

Quantity	Units	Estimate	MCBE			
			Median	SE	25%	75%
F_{MSY}	y^{-1}	0.282	0.249	0.164	0.171	0.36
$85\%F_{\text{MSY}}$	y^{-1}	0.24	0.212	0.139	0.145	0.306
$75\%F_{\text{MSY}}$	y^{-1}	0.211	0.187	0.123	0.128	0.27
$65\%F_{\text{MSY}}$	y^{-1}	0.183	0.162	0.106	0.111	0.234
$F_{20\%}$	y^{-1}	0.36	0.411	0.121	0.318	0.522
$F_{30\%}$	y^{-1}	0.198	0.219	0.052	0.18	0.269
$F_{40\%}$	y^{-1}	0.126	0.138	0.029	0.114	0.165
B_{MSY}	metric tons	2398.3	2642.1	445.9	2371.3	2970.4
SSB_{MSY}	gonad wgt (mt)	19.9	22.4	6.9	17.9	27.8
MSST	gonad wgt (mt)	14.9	16.8	5.2	13.4	20.8
MSY	1000 lb gutted	541.6	531.6	78.8	478.2	589.1
R_{MSY}	1000 fish	312.1	357.1	112.2	272.3	460.4
$L_{85\%\text{MSY}}$	1000 lb gutted	539.4	528.6	79.4	475	586.3
$L_{75\%\text{MSY}}$	1000 lb gutted	534	522.7	80.7	468.1	581.7
$L_{65\%\text{MSY}}$	1000 lb gutted	525	512.9	82.6	455.9	572.9
$F_{2016-2018}/F_{\text{MSY}}$	—	0.947	1.122	1.173	0.662	1.975
$\text{SSB}_{2018}/\text{MSST}$	—	1.235	1.07	0.623	0.704	1.564
$\text{SSB}_{2018}/\text{SSB}_{\text{MSY}}$	—	0.927	0.803	0.467	0.528	1.173