



**NOAA
FISHERIES**

Atlantic Menhaden Assessment Model and Results

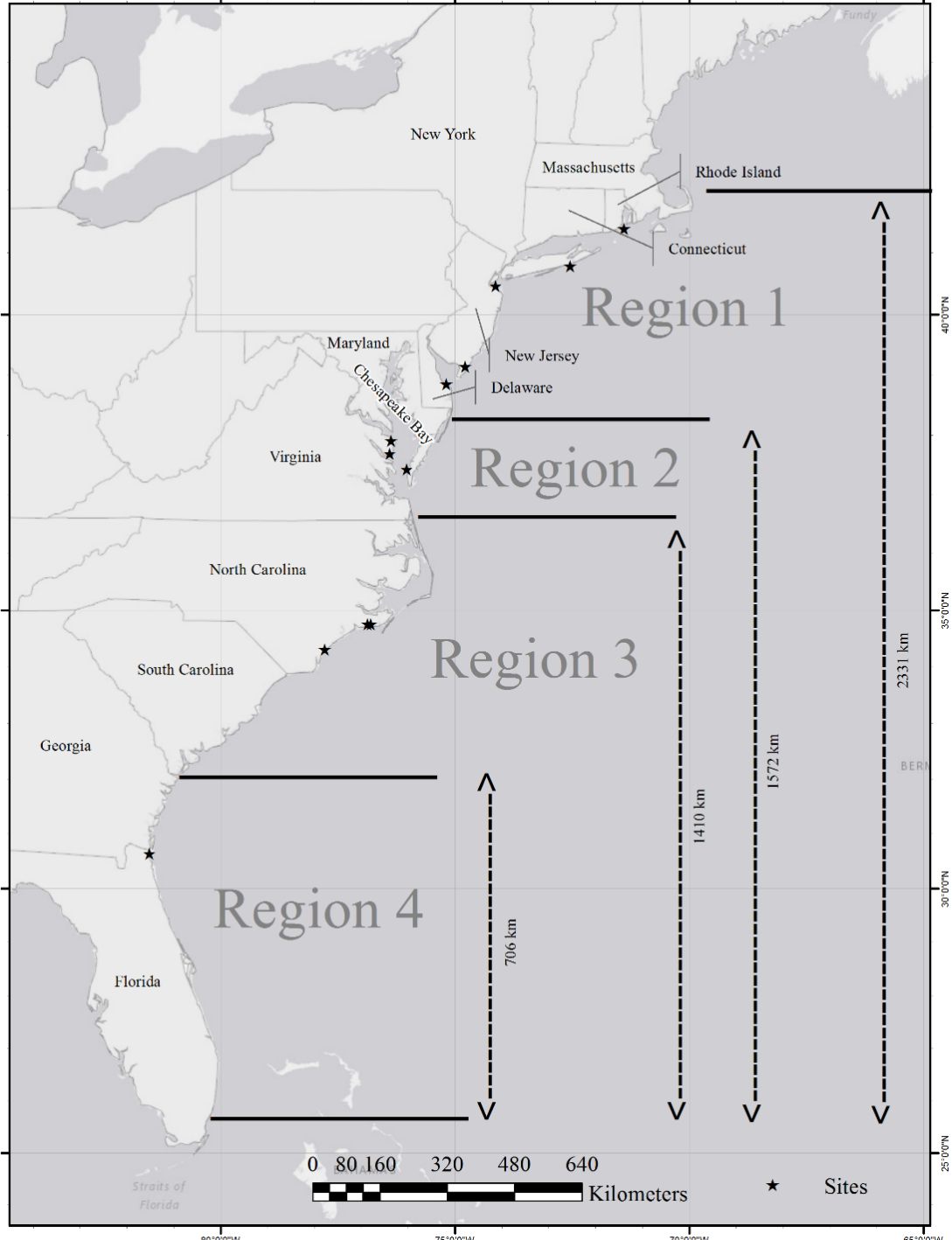
Tuesday, August 12, 2025

Outline

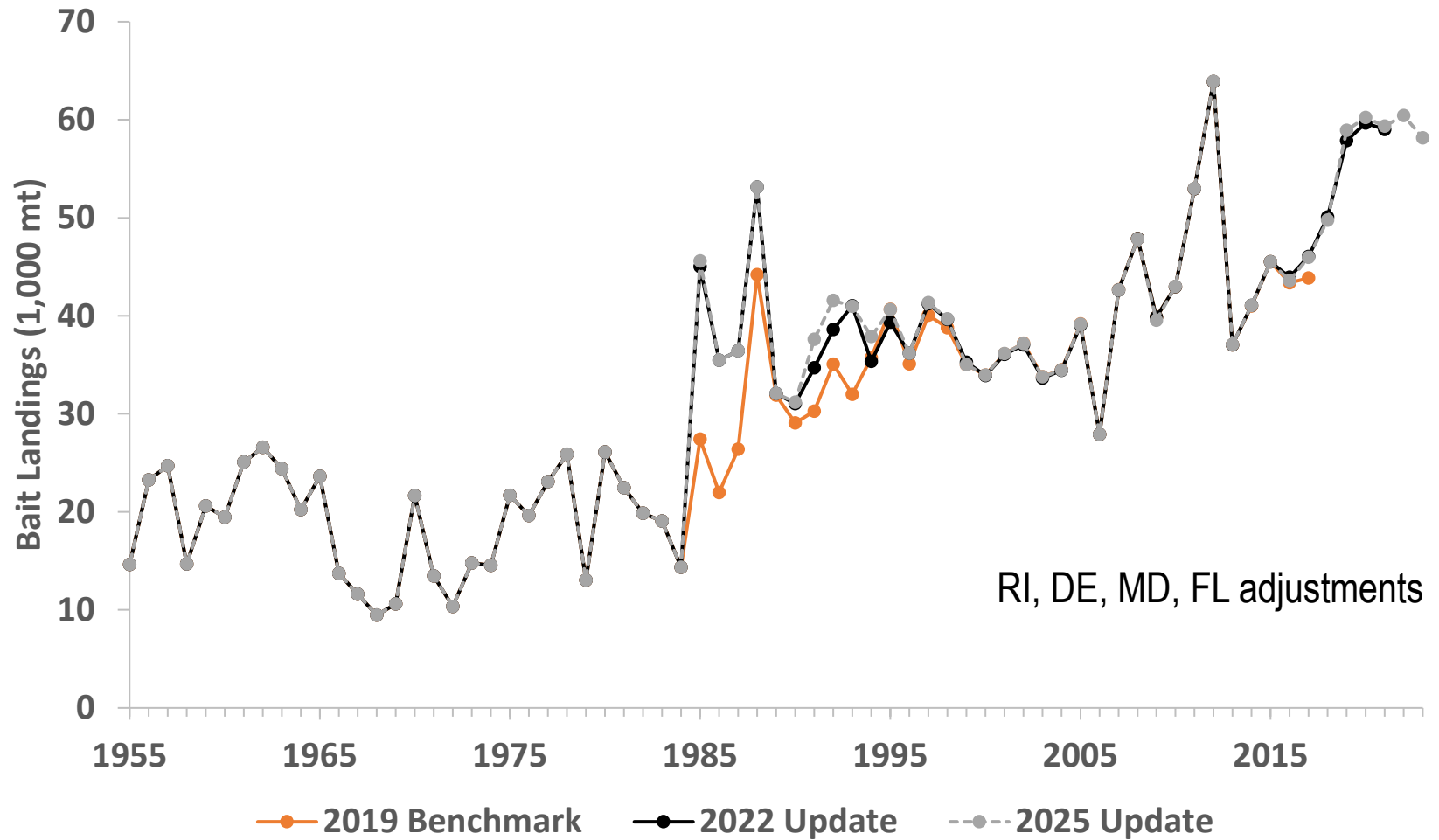
- Data updates
- Updated base run
- Sensitivity analyses
- Retrospective analysis
- MCB uncertainty analyses

Outline

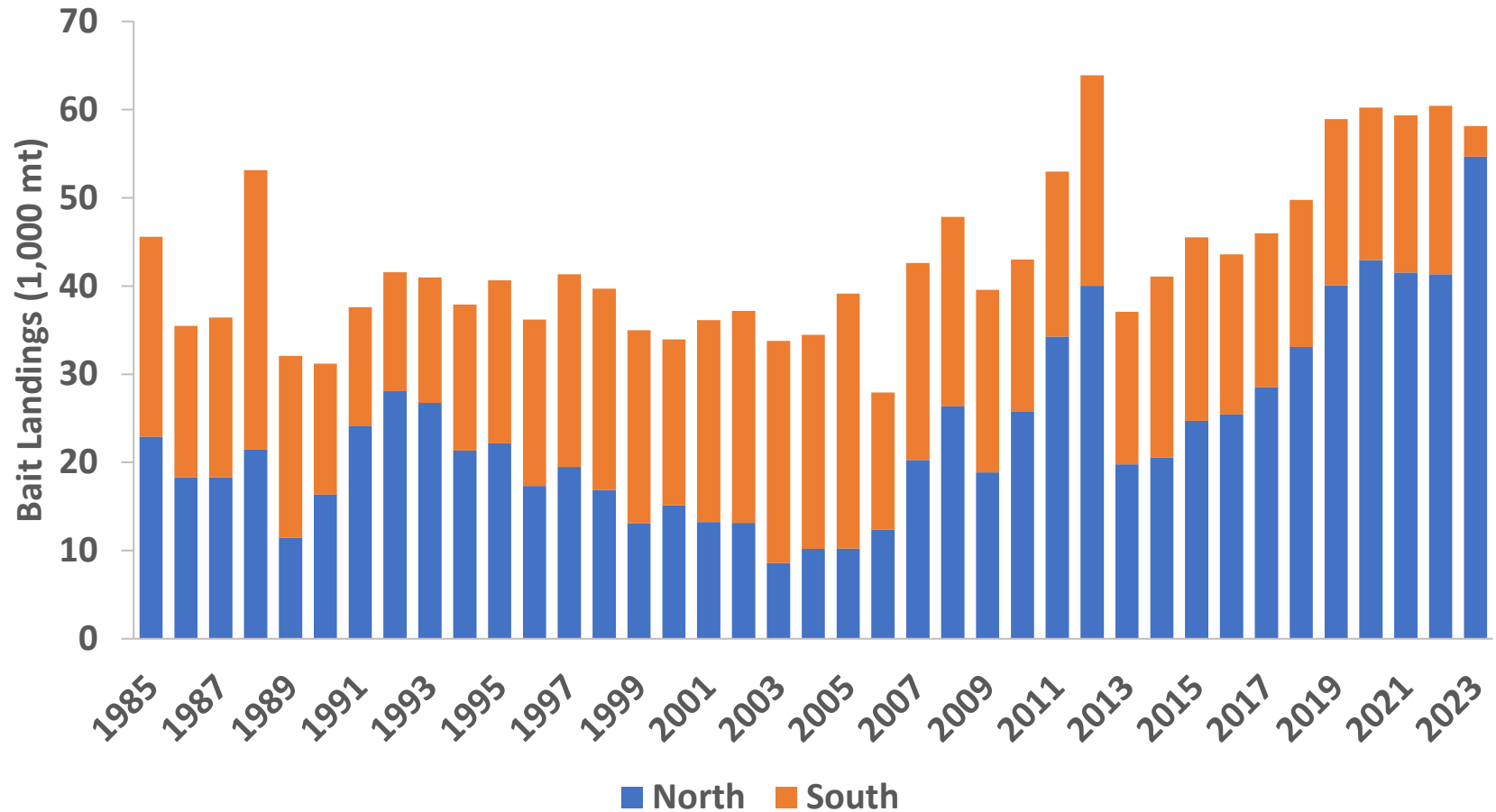
- Data updates



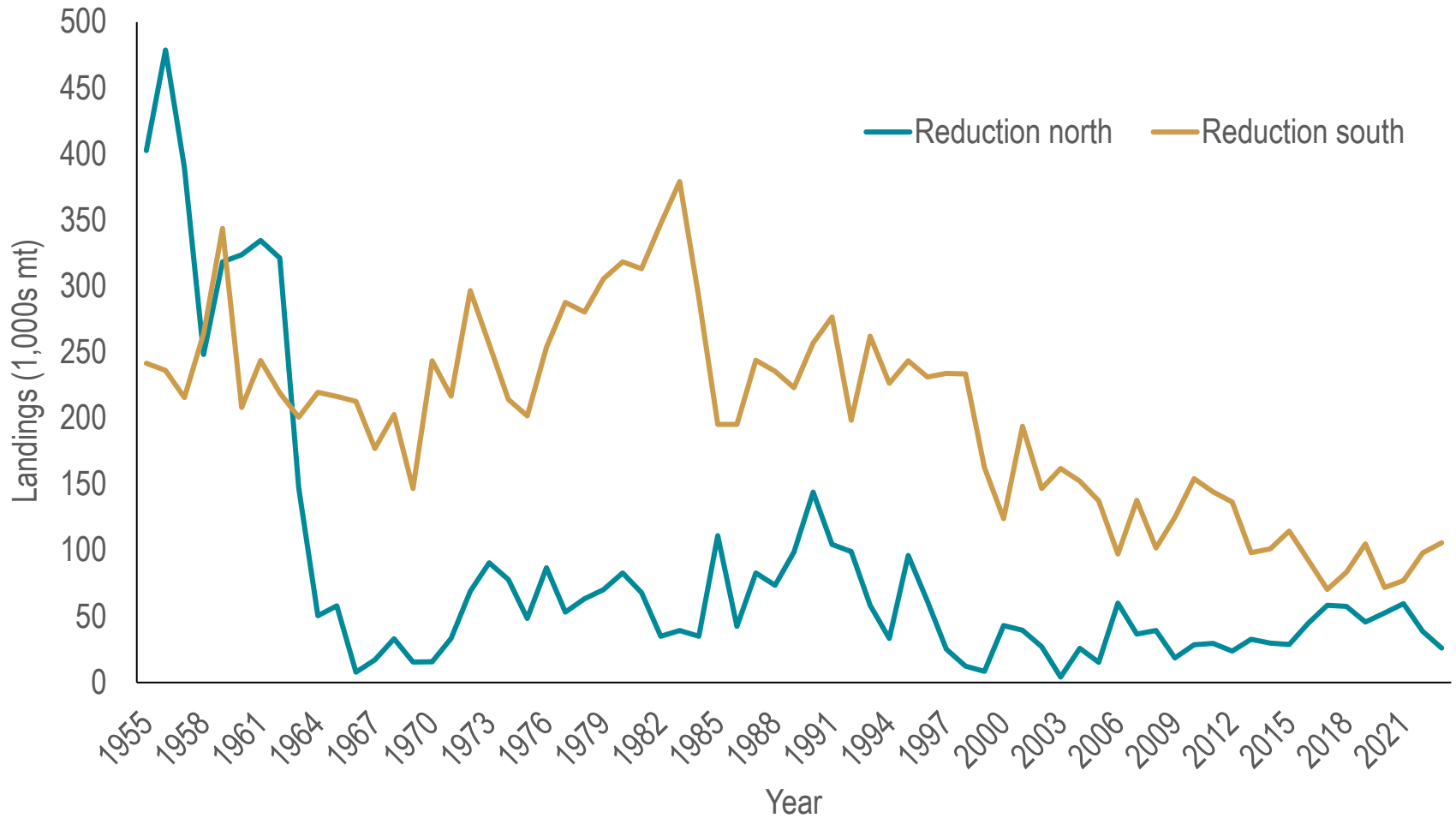
Total Bait Harvest



Total Bait Harvest by region



Total Reduction Harvest by region

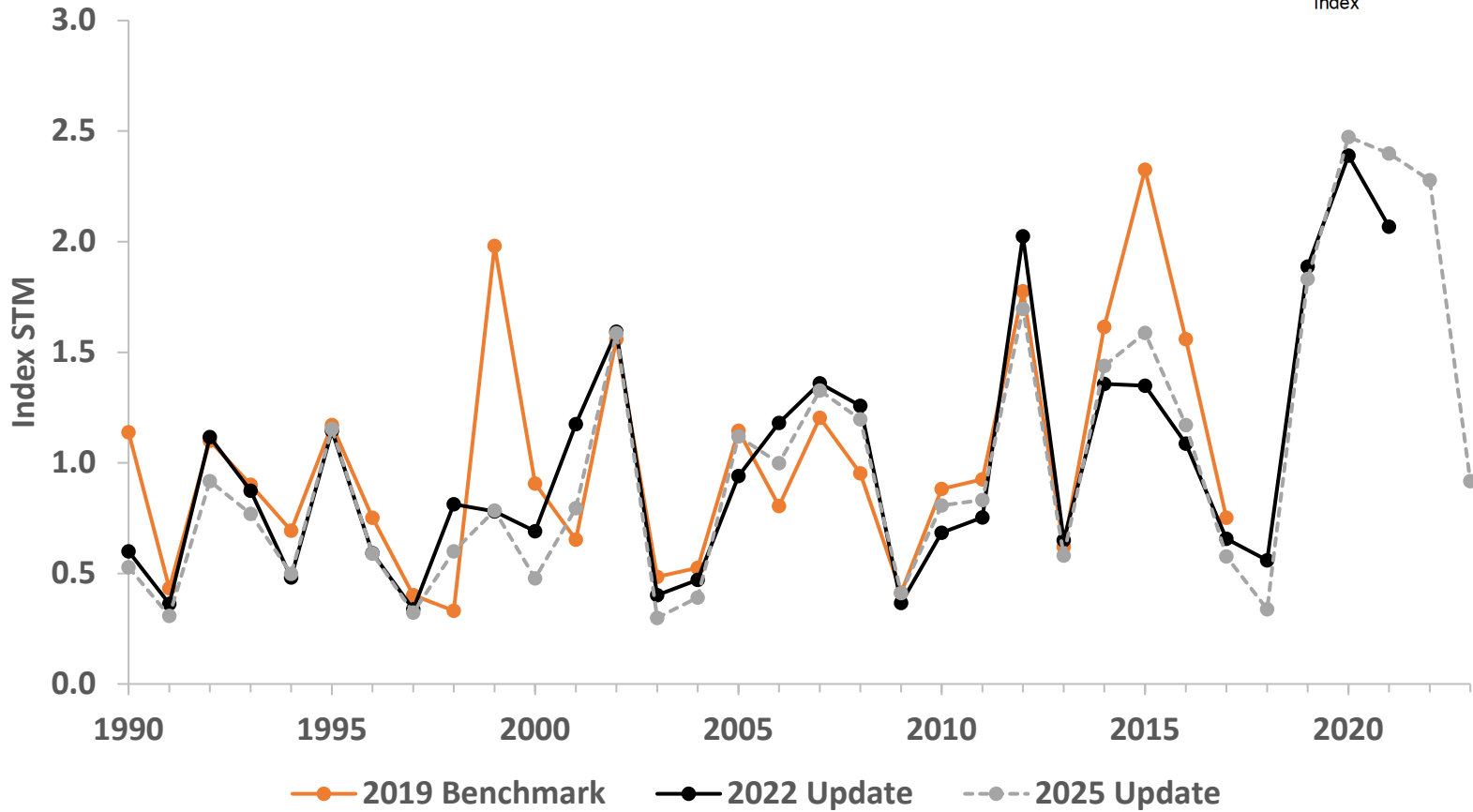
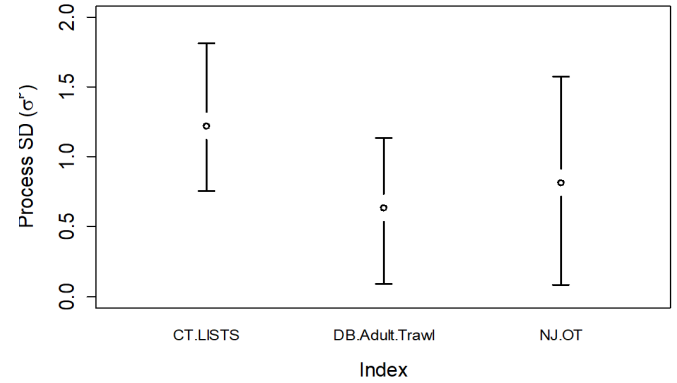
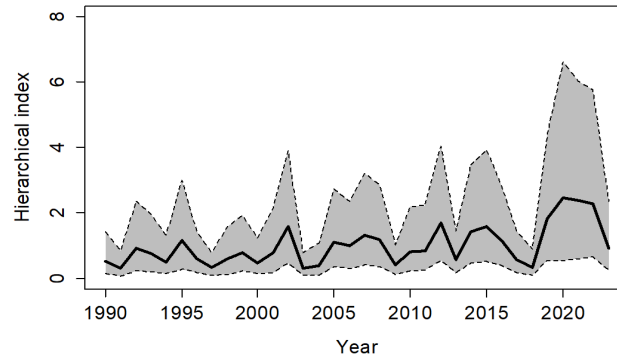


Surveys

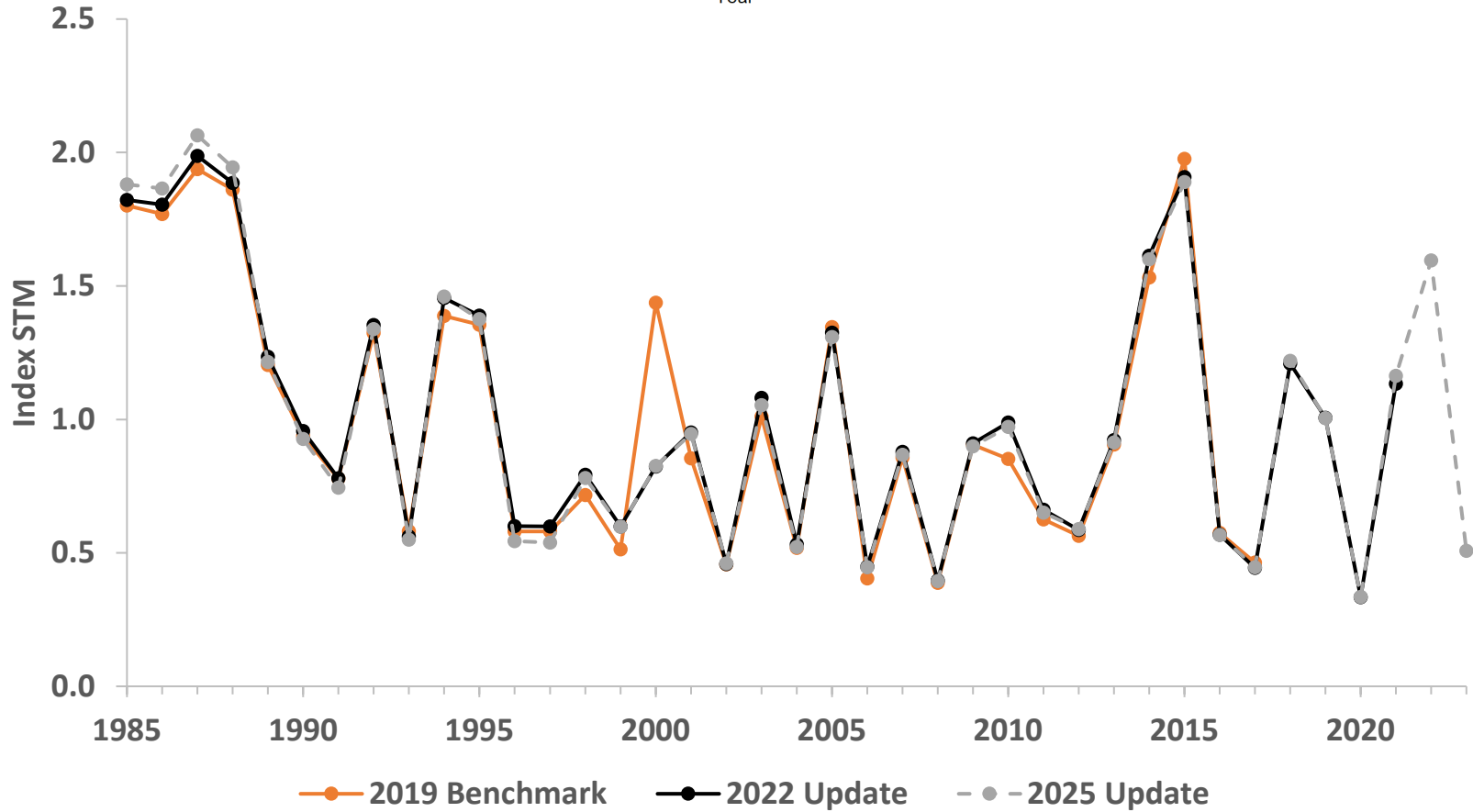
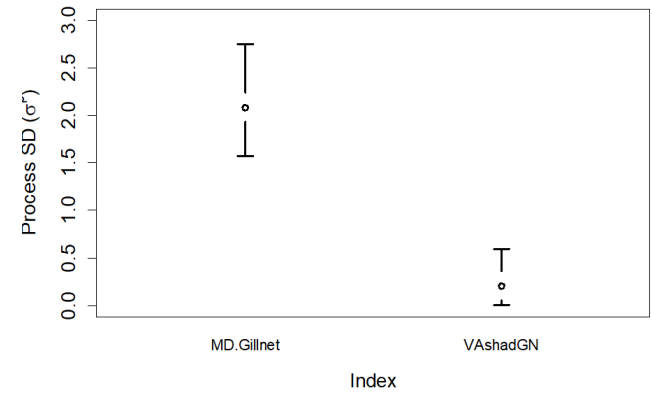
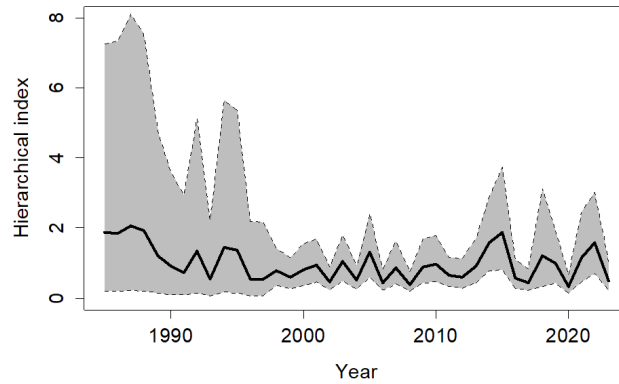
Conn	Fishery-Independent Survey (years of data)	Months	Length
NAD	CT LISTS (1996-2009, 2011-2019, 2021-2023)	Sept-lagged Jan	1990-2023
	DB Adult Trawl (1990-2023)		
	NJ Ocean Trawl (1990-1997, 1999-2019)		
MAD	MD Gill Net (1985-1995, 1998-2002, 2005-2023)	March-May	1985-2023
	VA Shad Gill Net (1998-2023)		
SAD	NC p915 (2008-2019, 2021-2023)	April-July	1990-2023
	SEAMAP (1990-2019, 2022-2023)		
	GA EMTS (2003-2023)		
YOY	RI Trawl (1990-2023)	Varies by survey	1959-2023
	CT LISTS (1996-2009, 2011-2019, 2021-2023)		
	CT River Alosine (1987-2023)		
	CT Thames River Alosine (1998-2016)		
	NY Juvenile Striped Bass Seine (2000-2023)		
	NY Peconic Bay Trawl (1987-1988, 1990-1992, 1994-2007, 2009-2023)		
	NY WLIS Seine (1986-2023)		
	NJ Ocean Trawl (1990-2019)		
	NJ Striped Bass YOY Seine (1986-2019, 2021-2023)		
	DB Inner Bays (1986-2023)		
	MD Coastal Trawl (1972-1992, 1994, 1998-2023)		
	MD Juv Striped Bass (1959-2023)		
	VA Juvenile Trawl (1990-2023)		
	VA Striped Bass Seine (1968-1972, 1980, 1982, 1985-2023)		
	NC p120 (1989-2023)		
SC Electrofishing (2001-2023)			



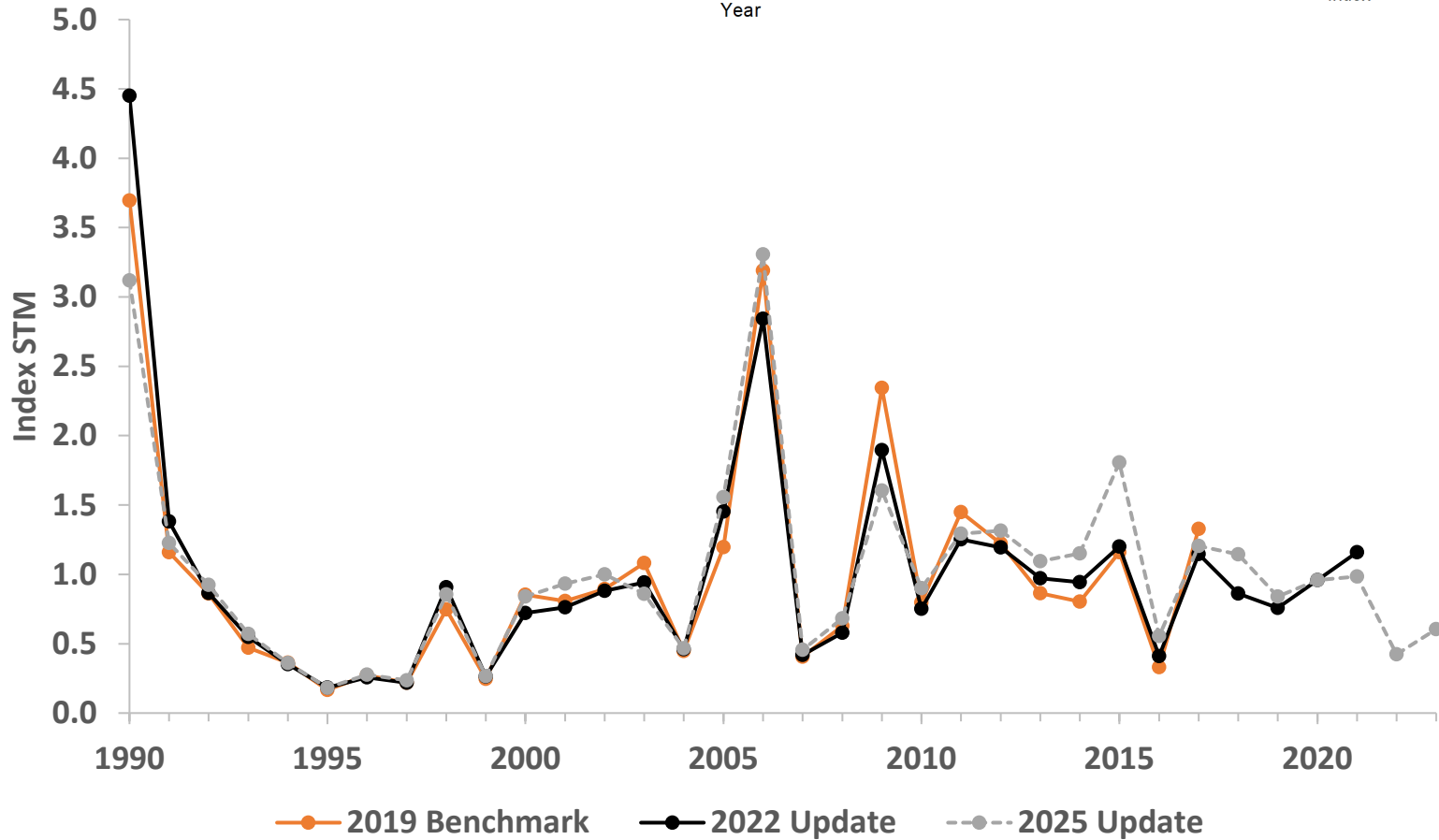
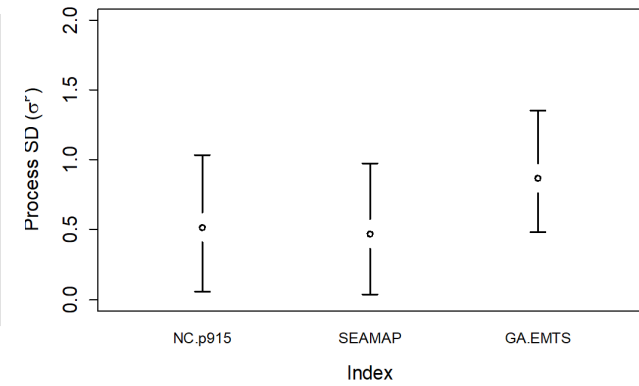
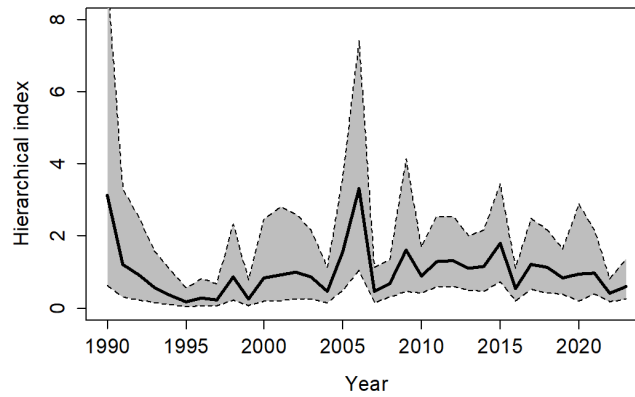
NAD



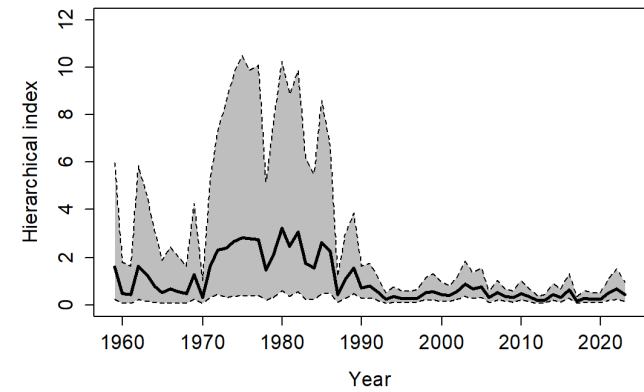
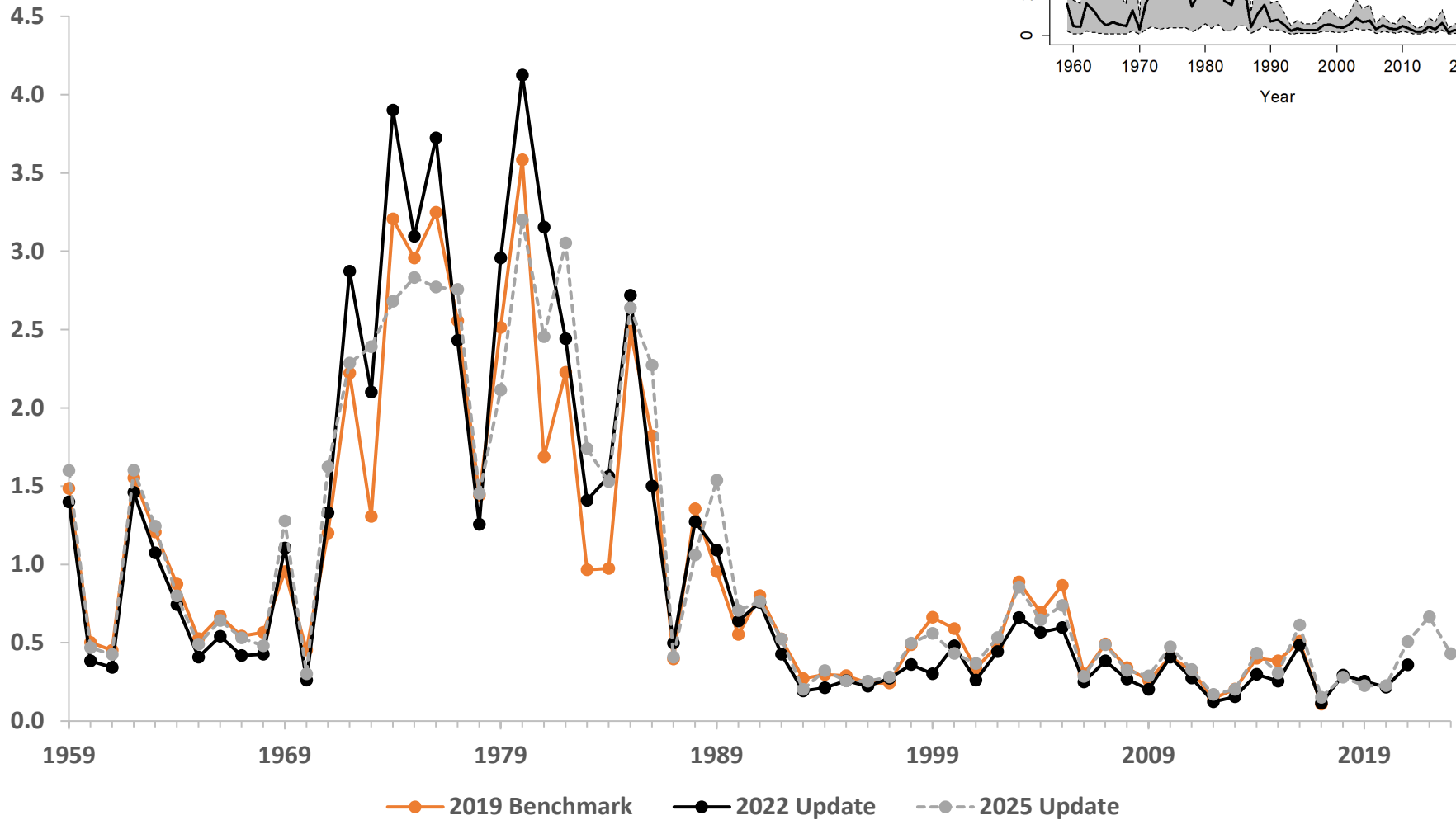
MAD



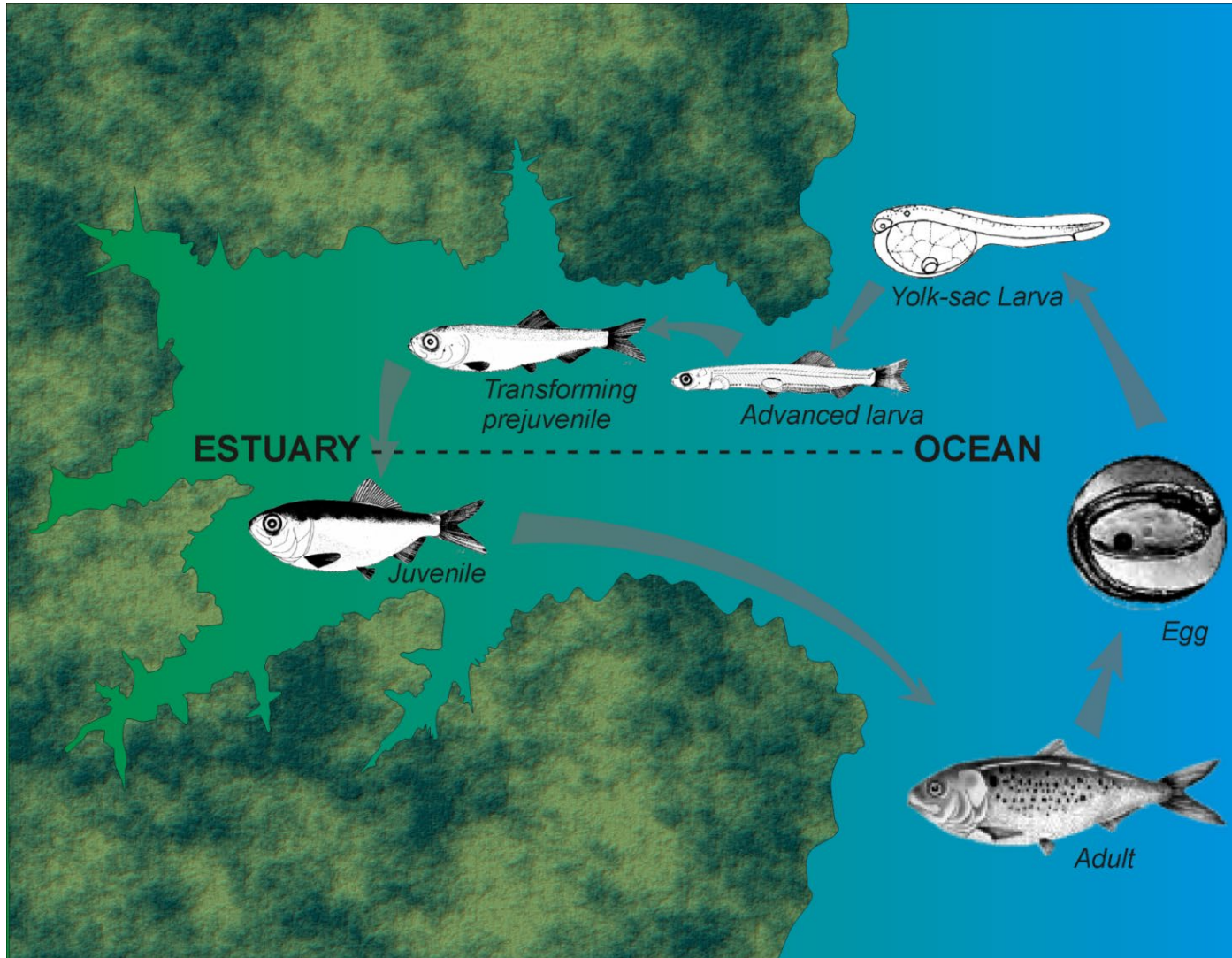
SAD



YOY



Atlantic menhaden life cycle



Data updates

- Life history matrices are age and time varying based on updated bias corrected, cohort based growth curves and an overall weight-length relationship
 - Length at age
 - Weight at start
 - Weight at middle

Data updates

- Maturity – age and time varying; based on mean length at age and formula estimated from maturity data from the reduction fishery [similar to NEAMAP]
- Fecundity – age and time varying; based on Latour et al (2023); indeterminate batch spawners; spawning every several days
- Natural mortality – age varying, time invariant; Lorenzen curve scaled to updated natural mortality estimate

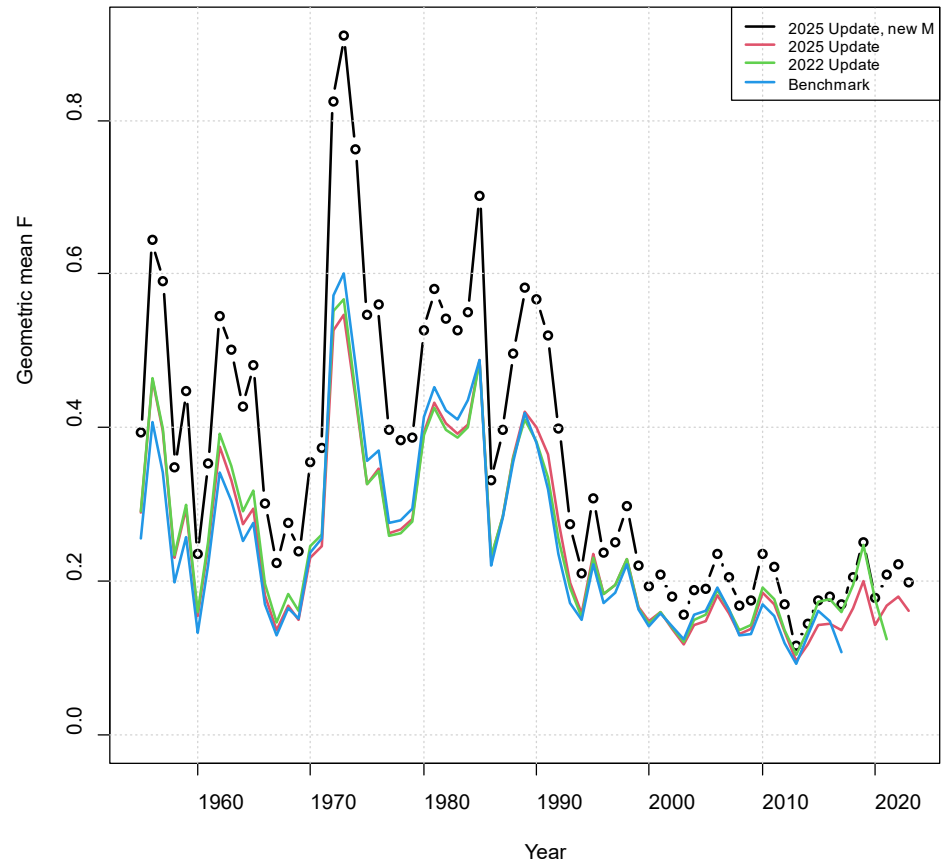
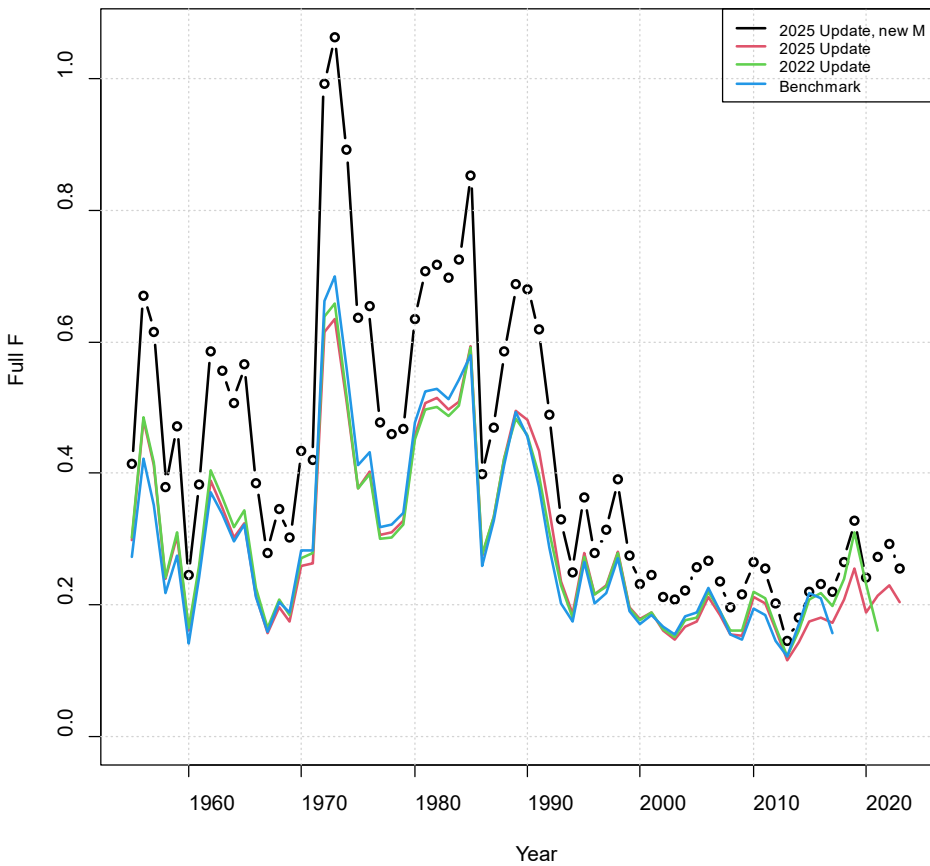
Outline

- Data updates
- Updated base run

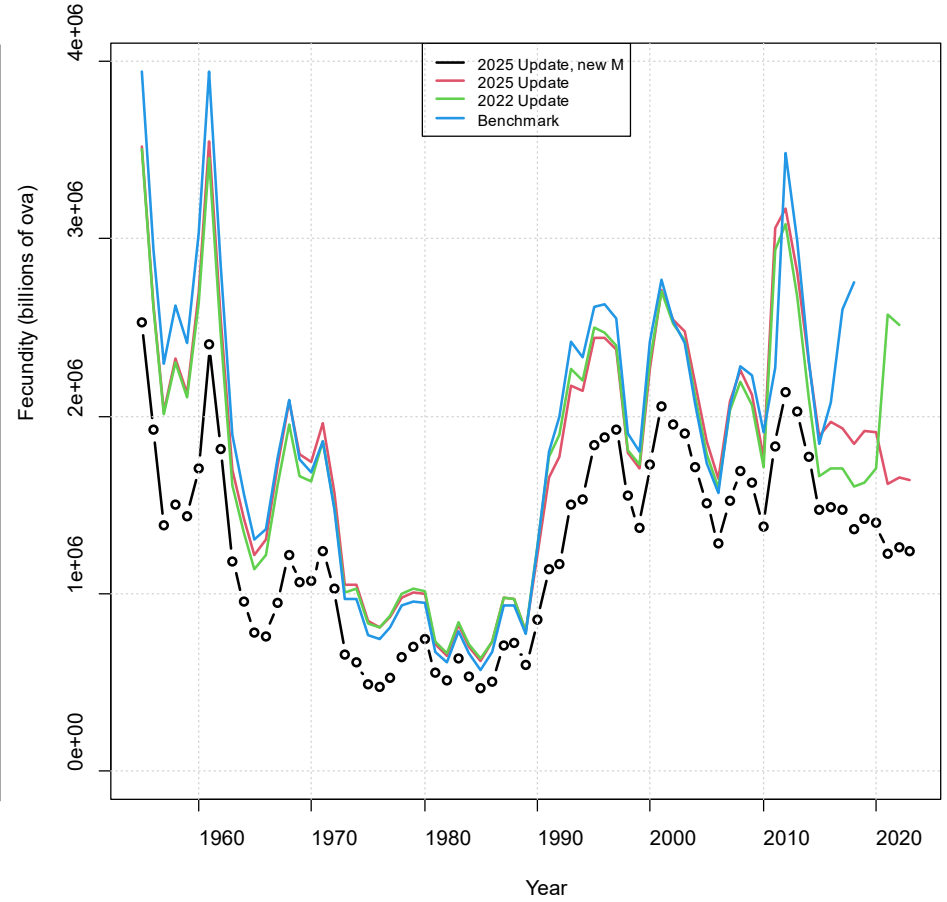
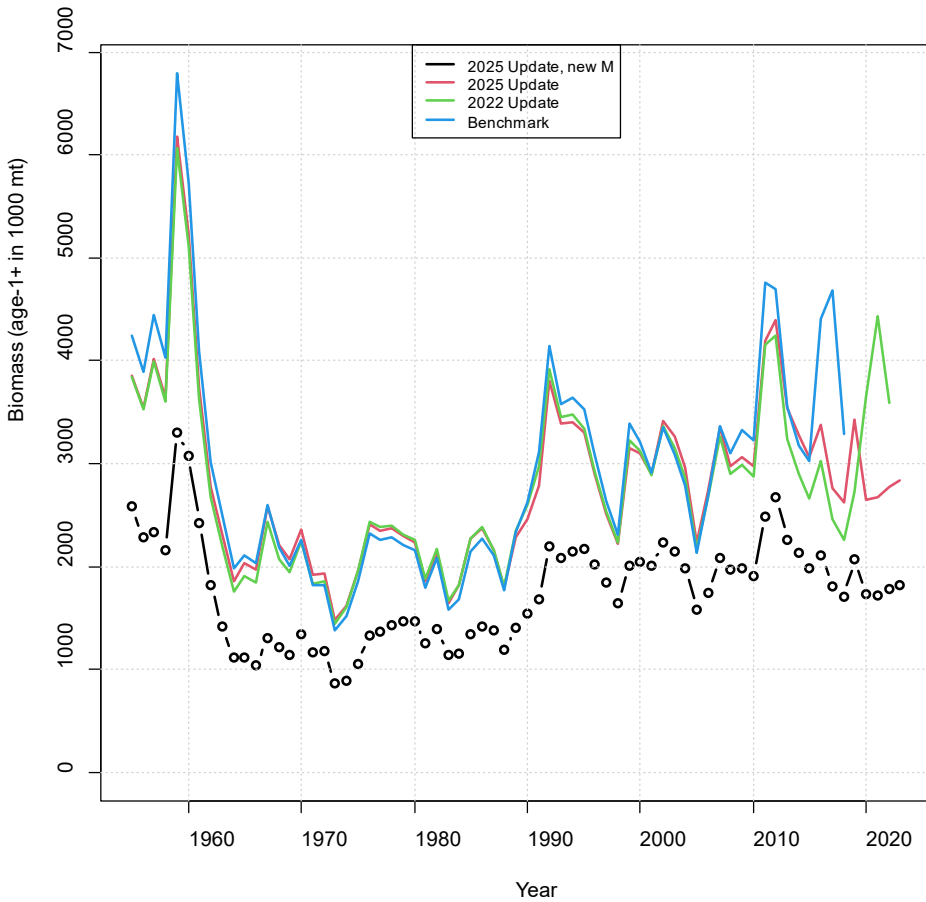
Base run specifications

- 1955-2023
- March 1 to February 28/29
- Ages 0 to 6+
- 4 fleets, Fleets as areas model, age comps
- 4 indices, 2 sets of length comps
- Mean recruitment with annually estimated deviations

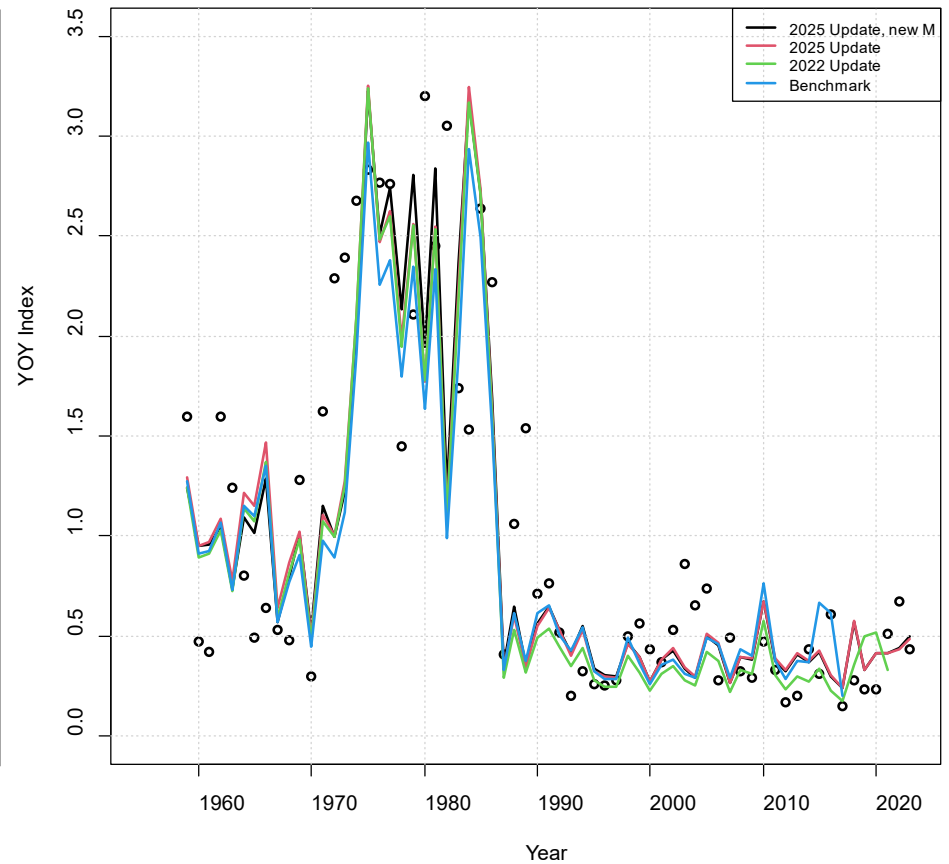
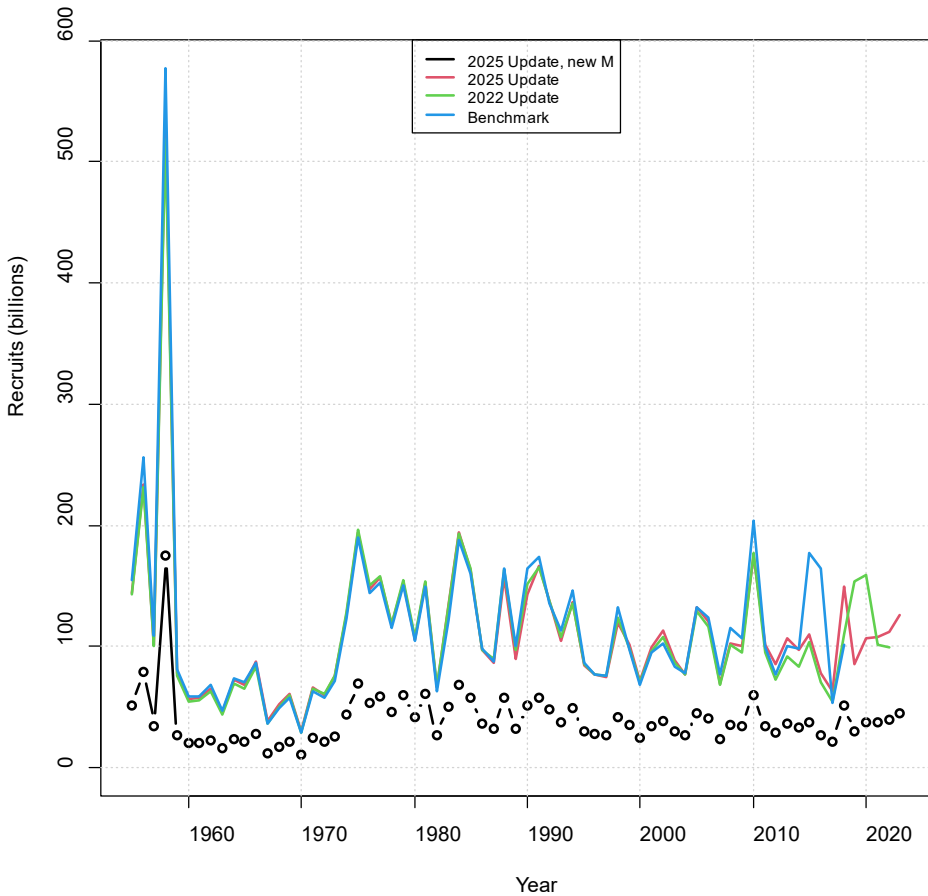
Base run update



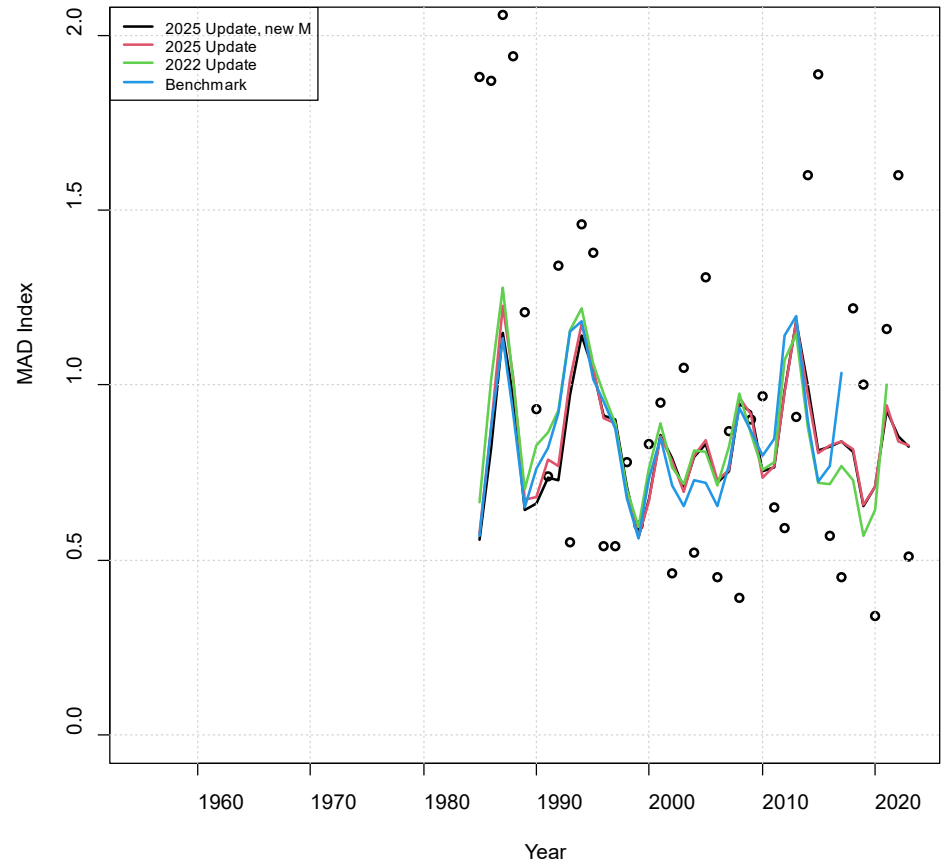
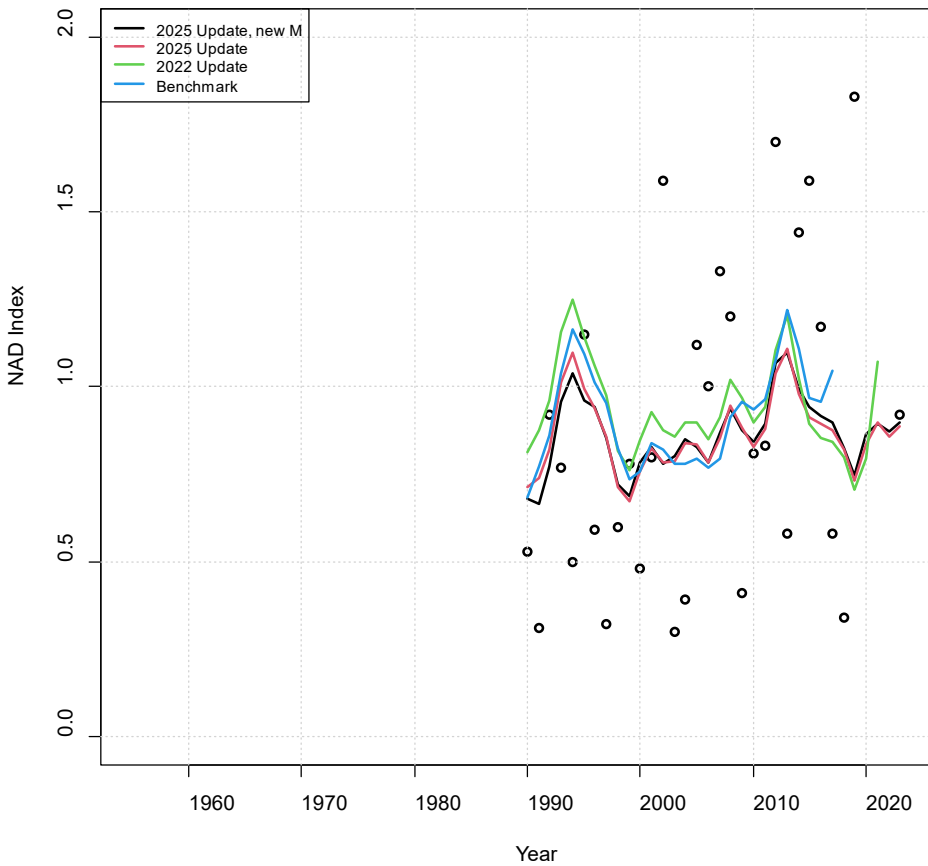
Base run update



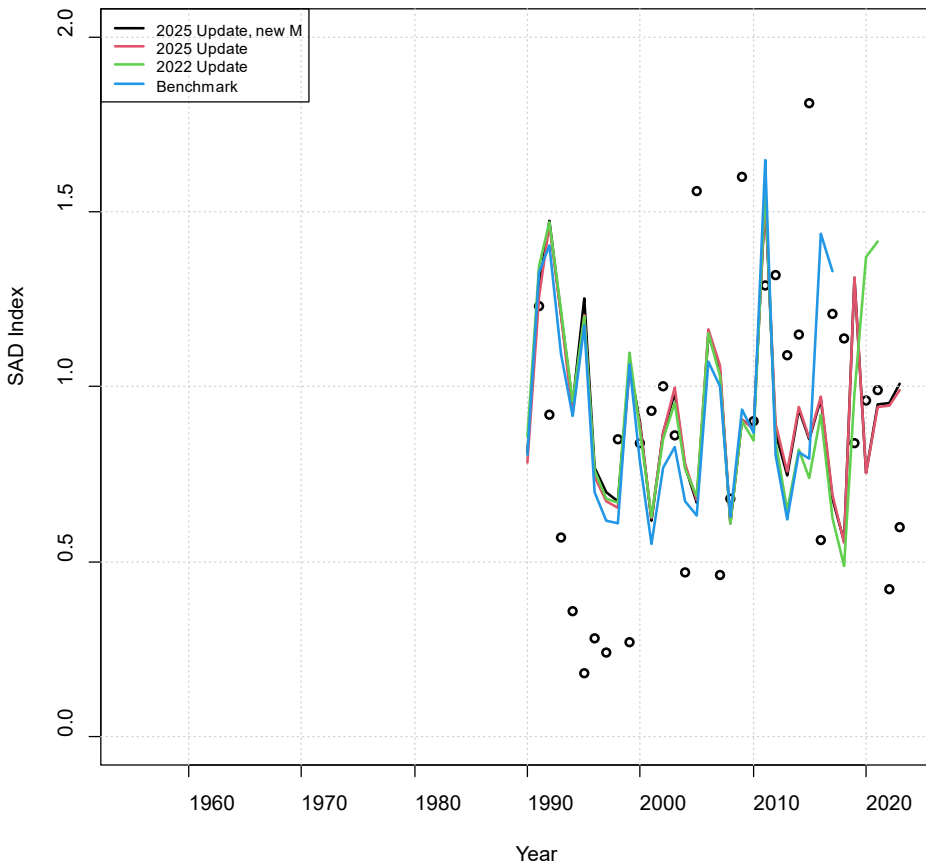
Base run update



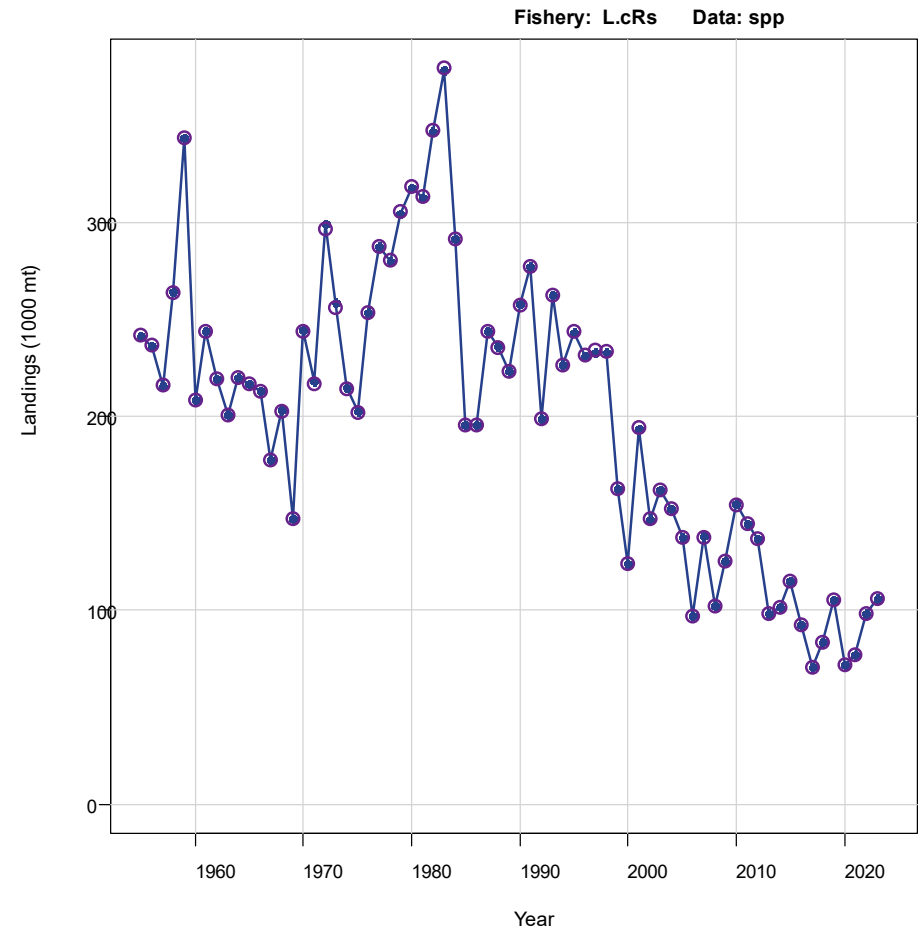
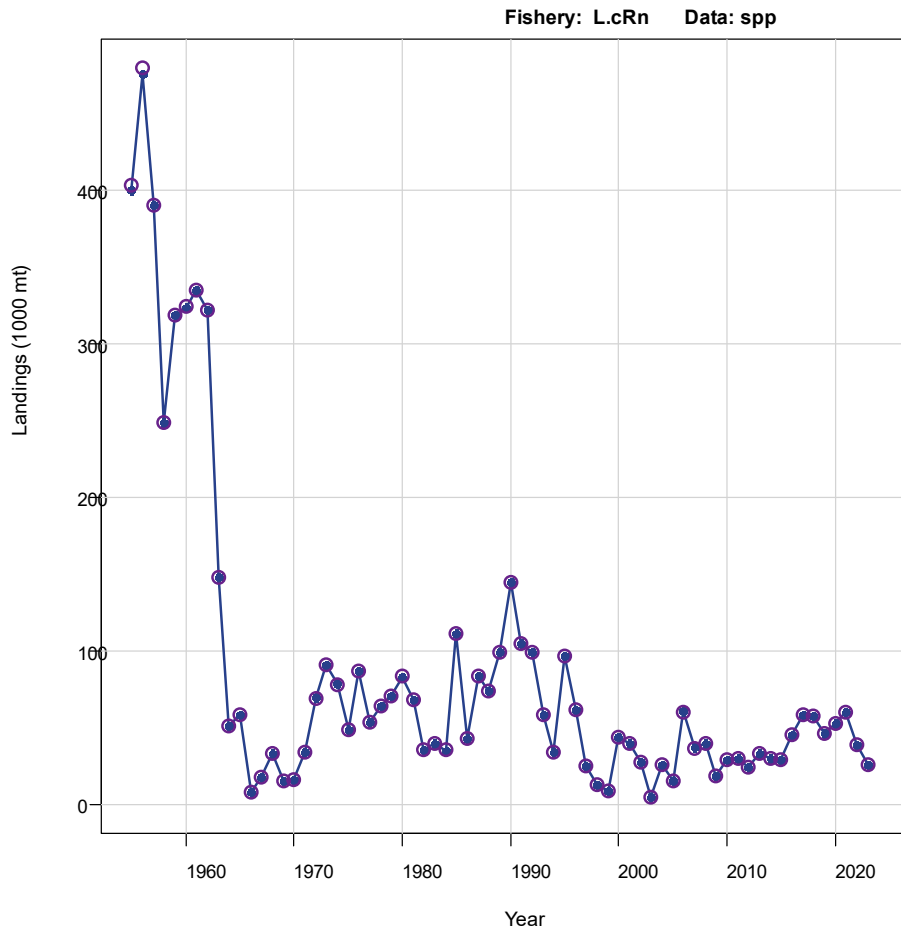
Base run update



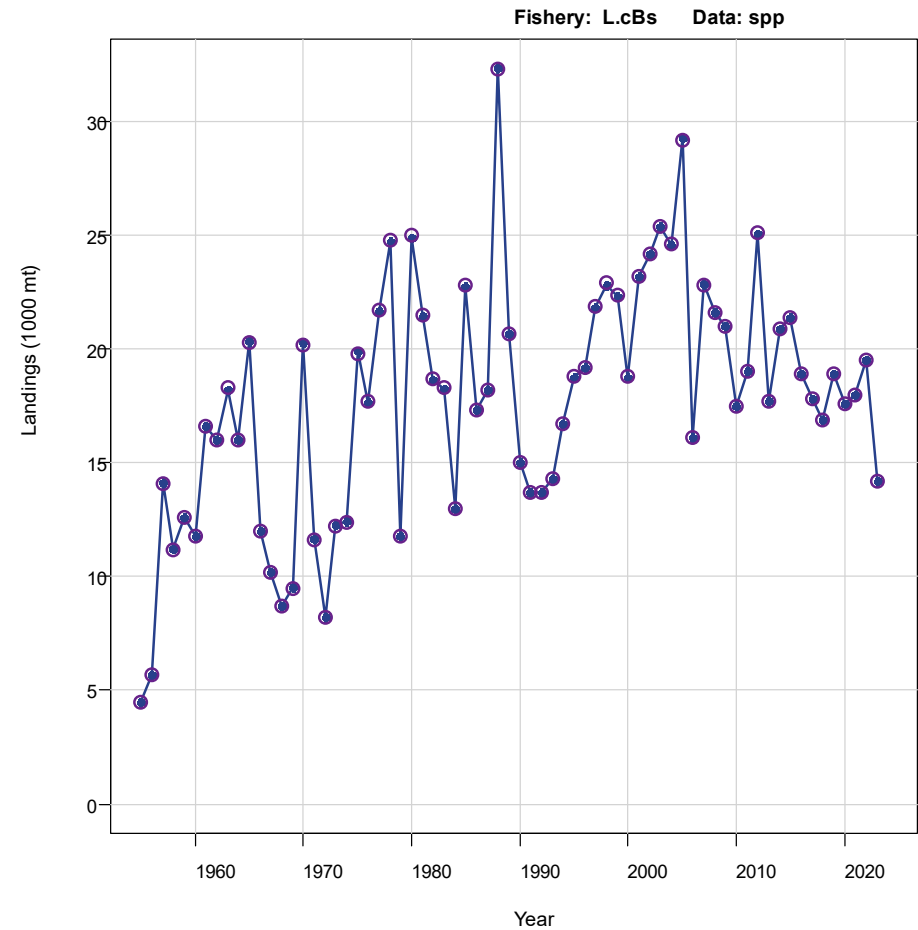
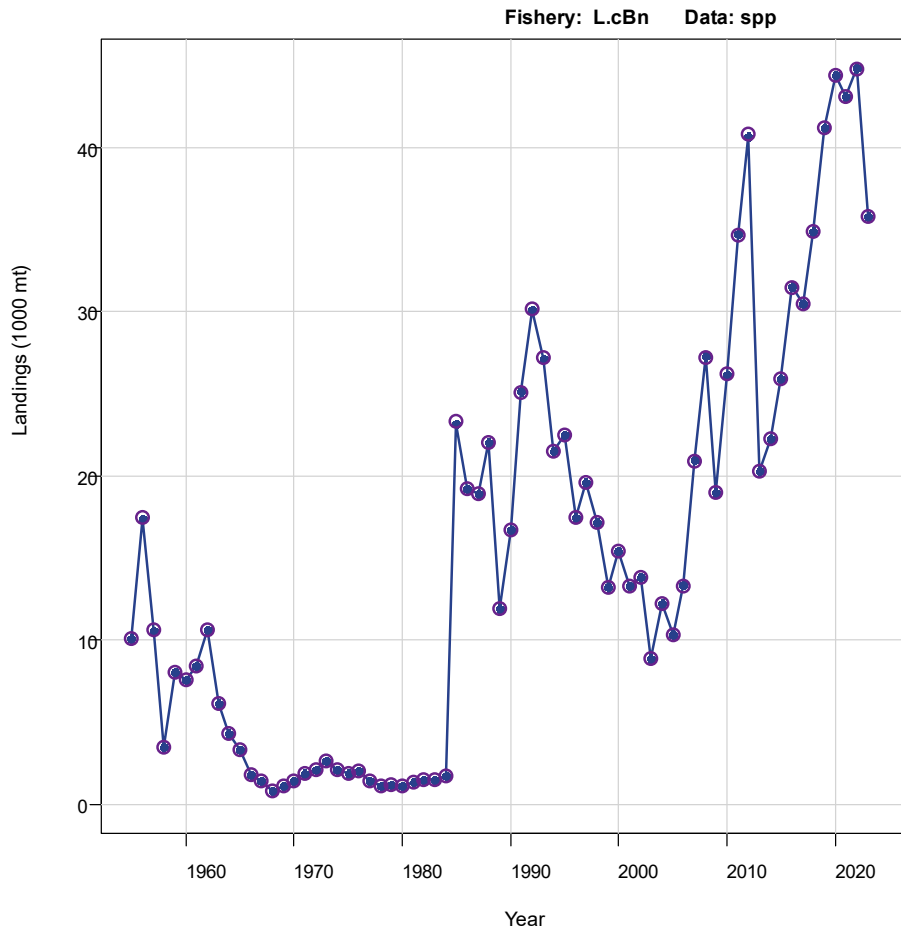
Base run update



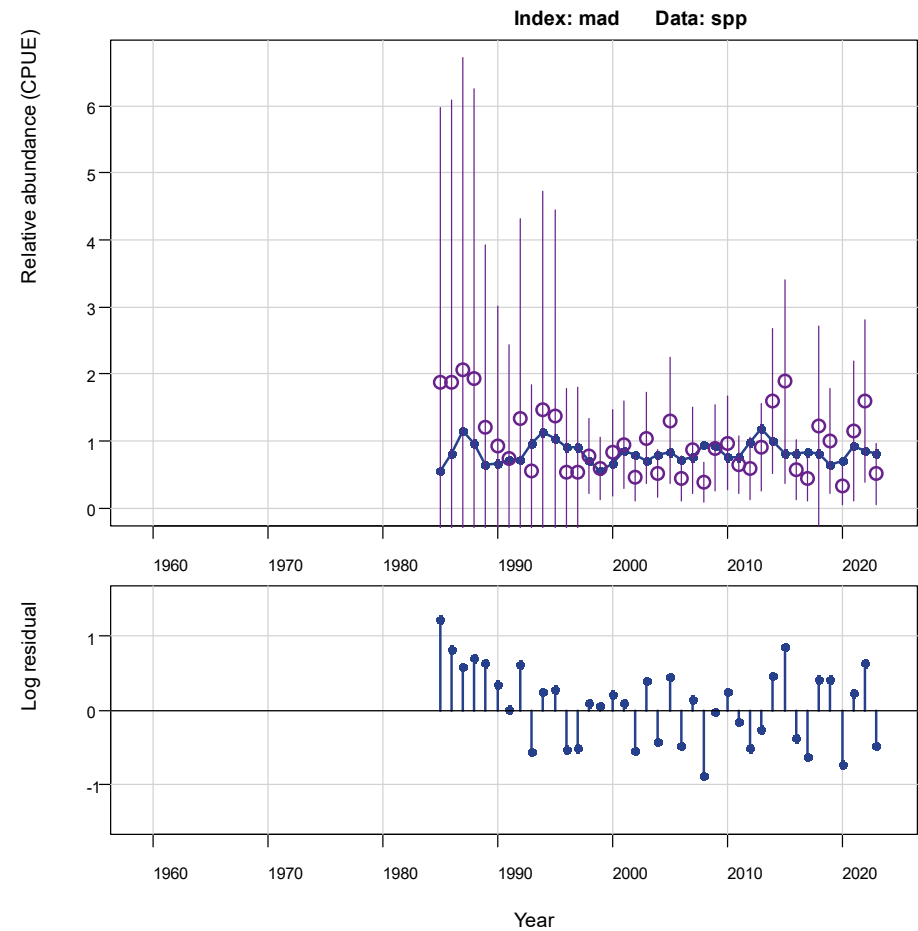
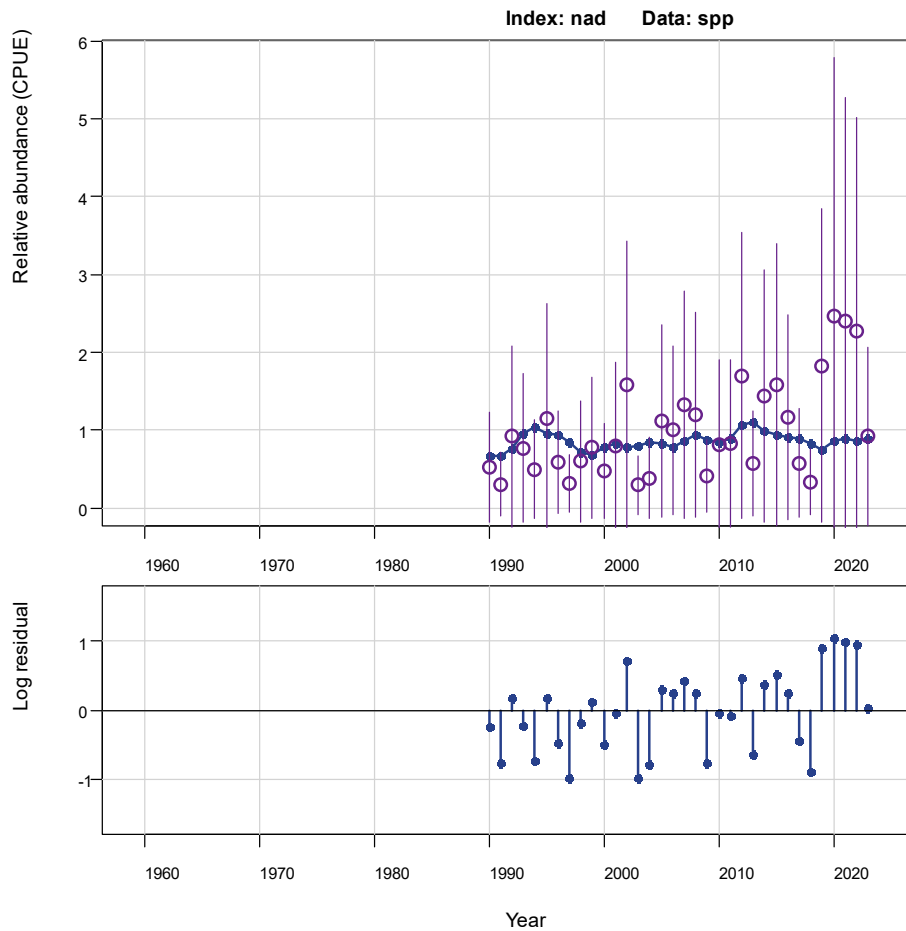
Base run update



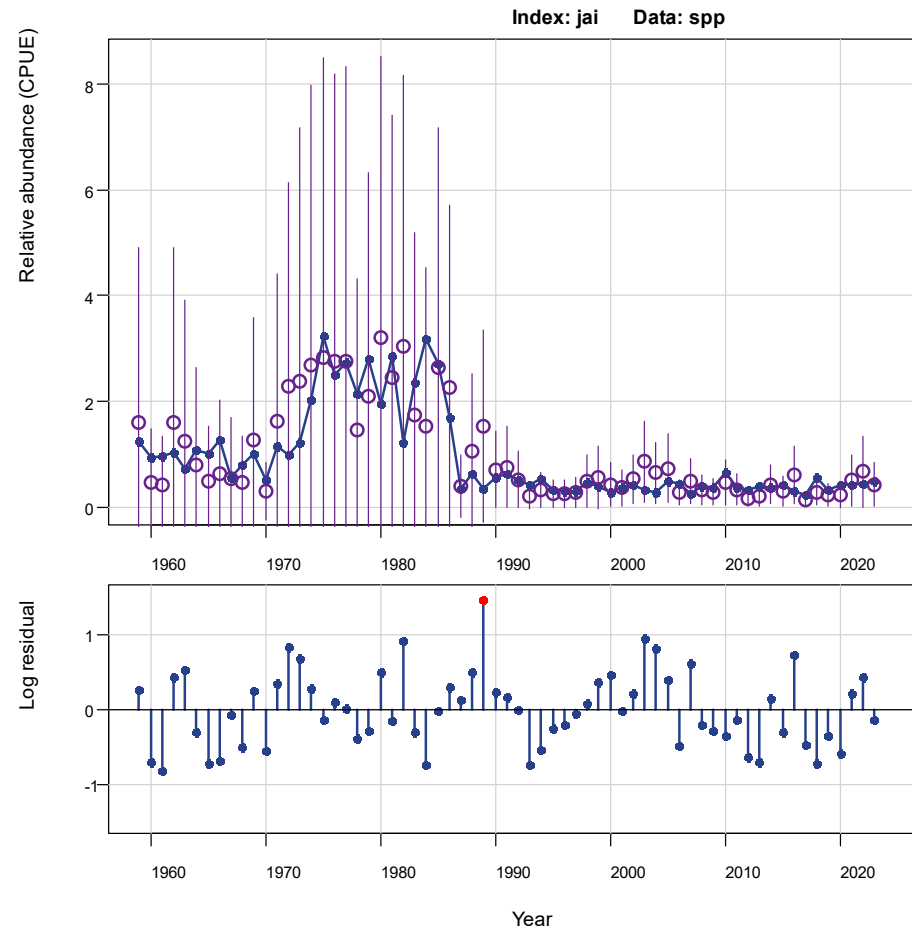
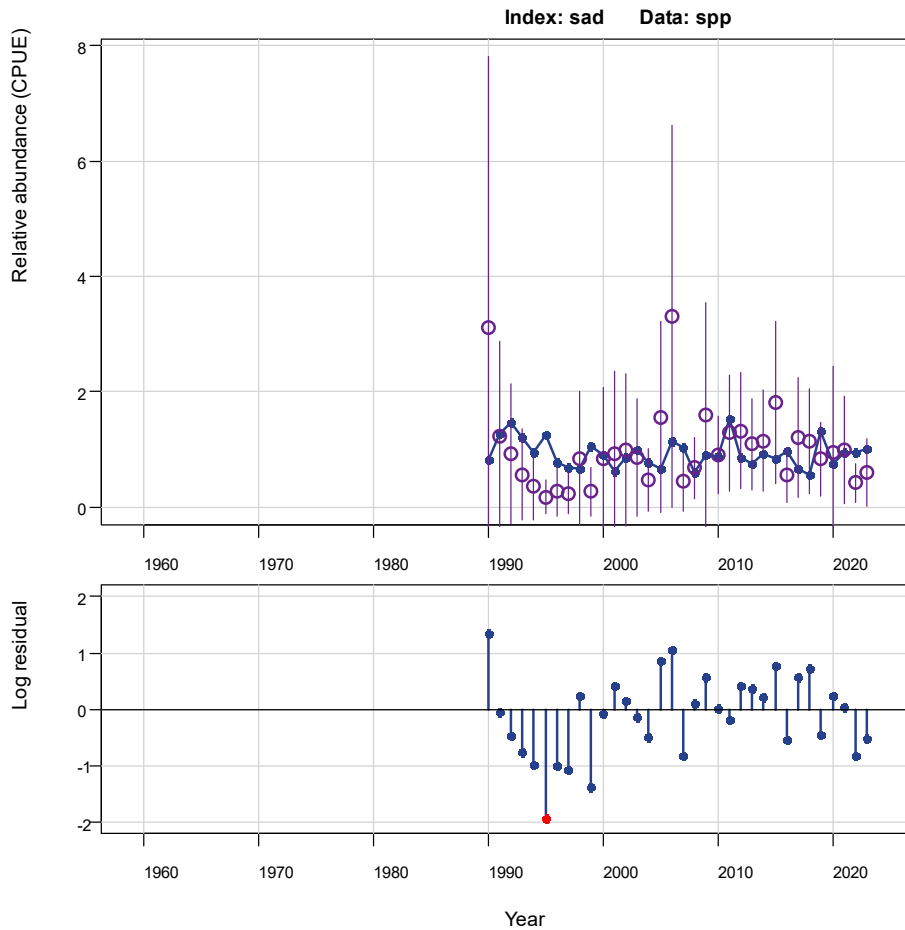
Base run update



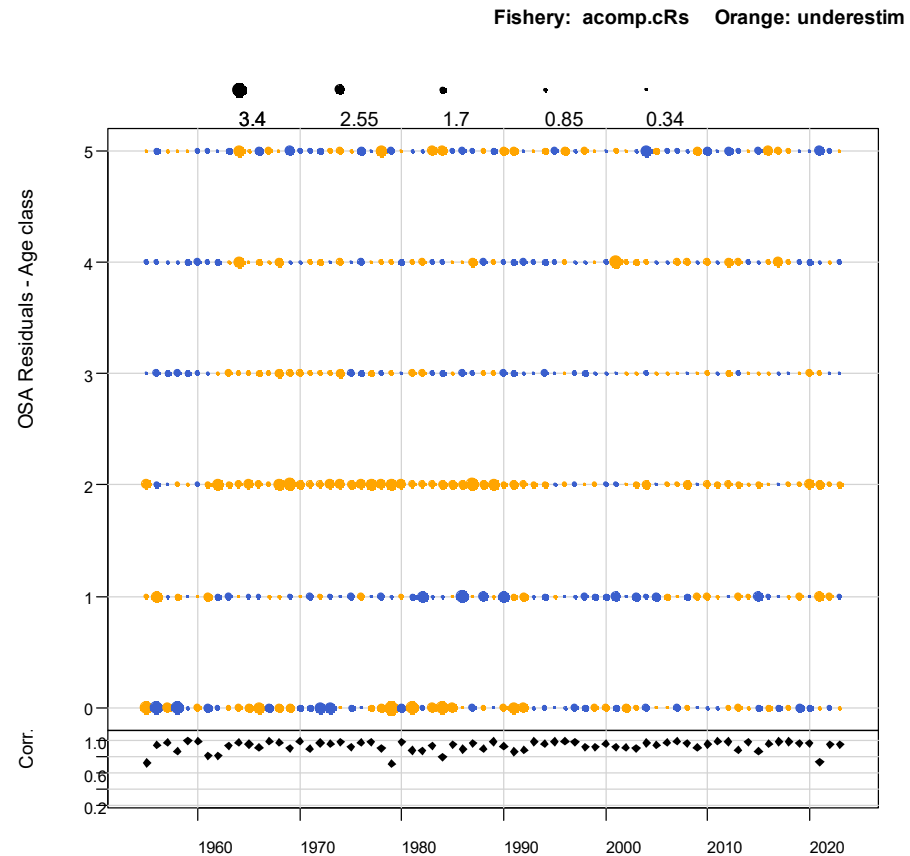
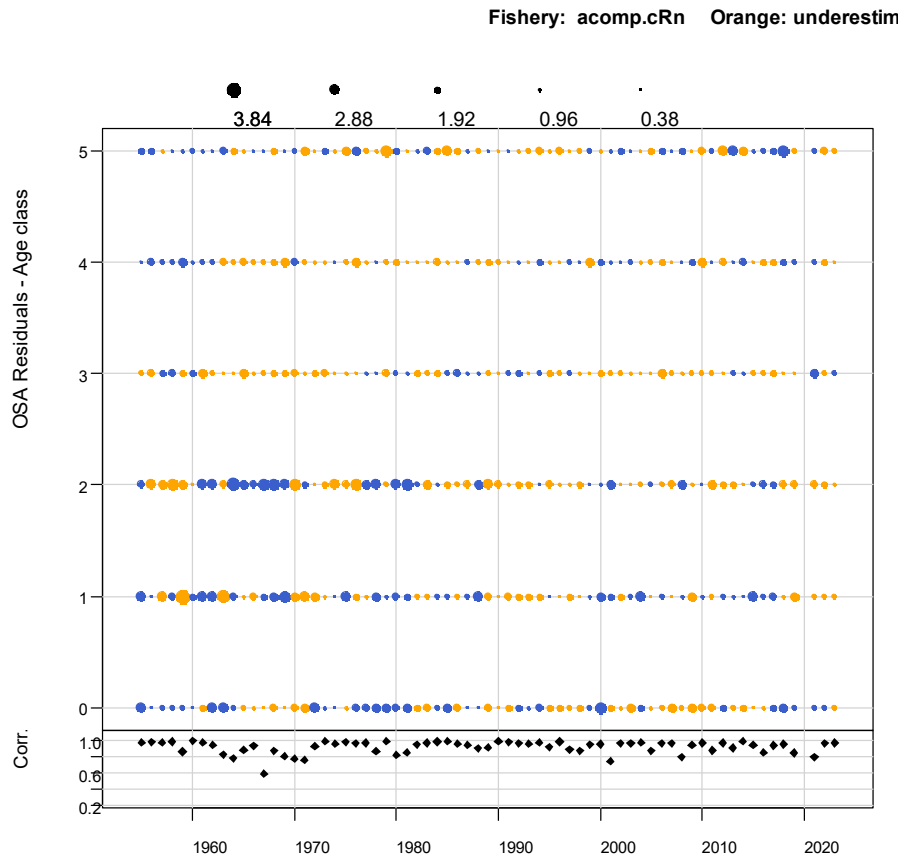
Base run update



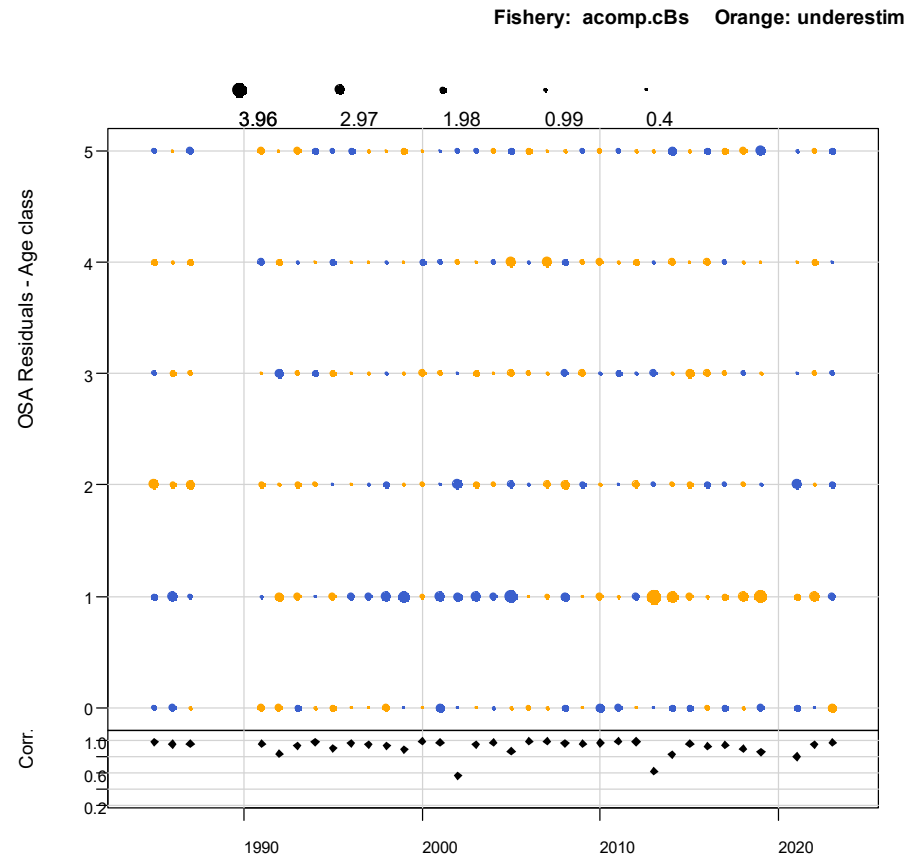
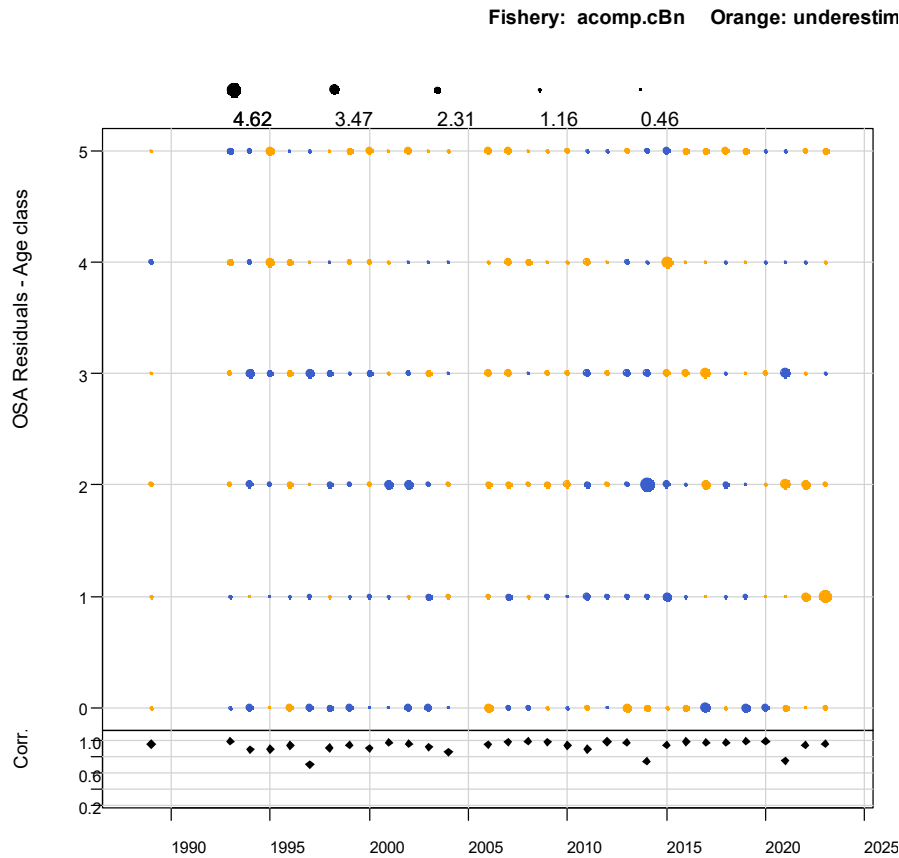
Base run update



Base run update

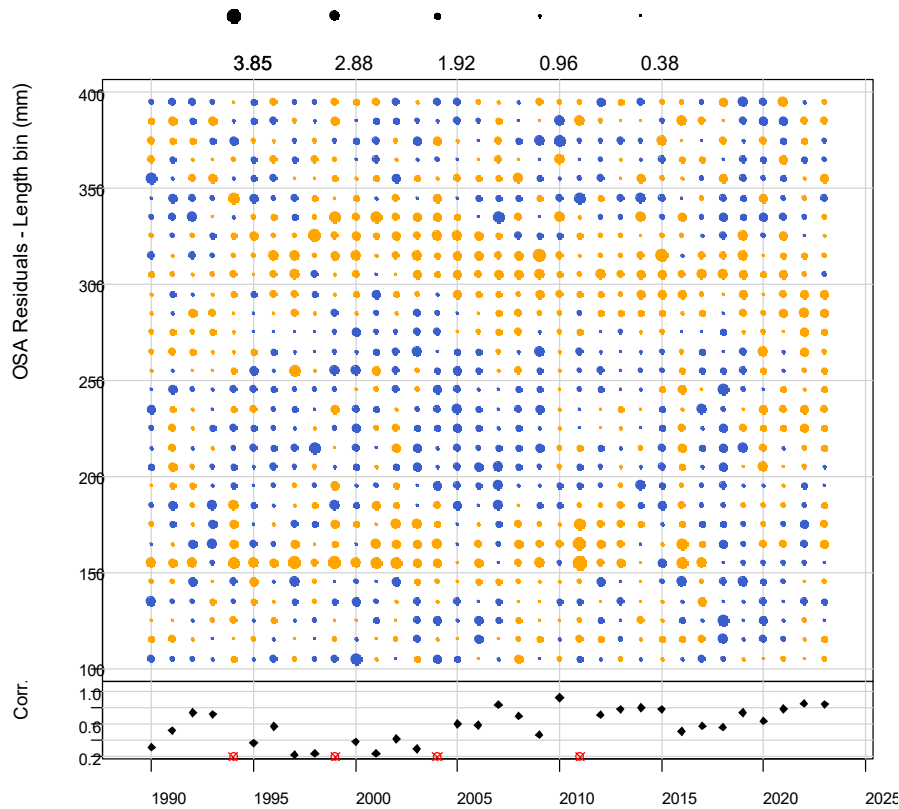


Base run update

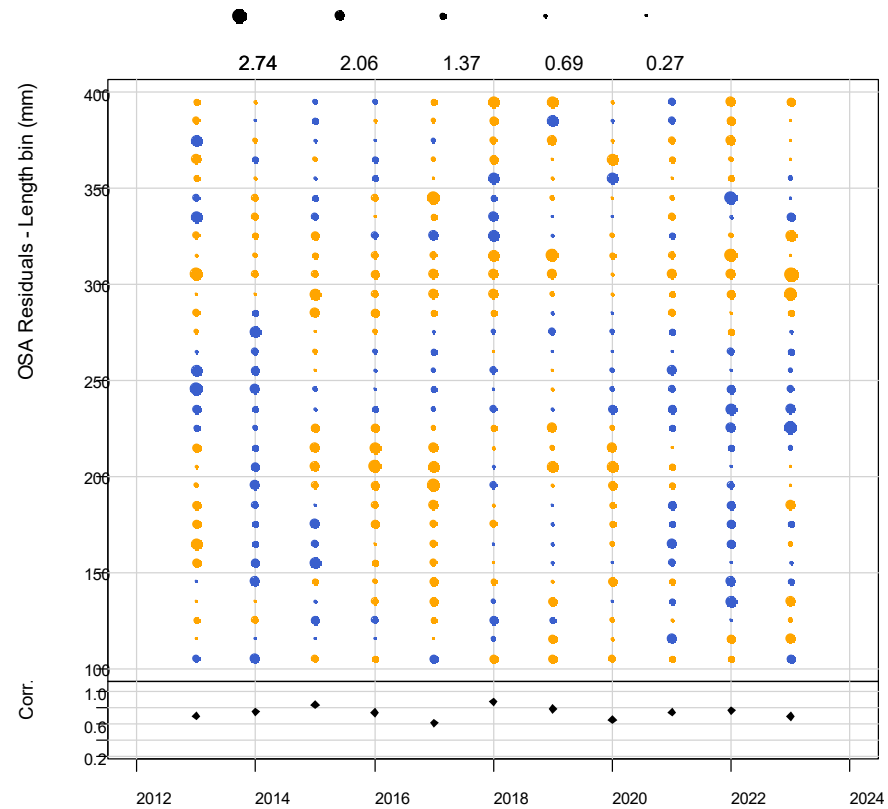


Base run update

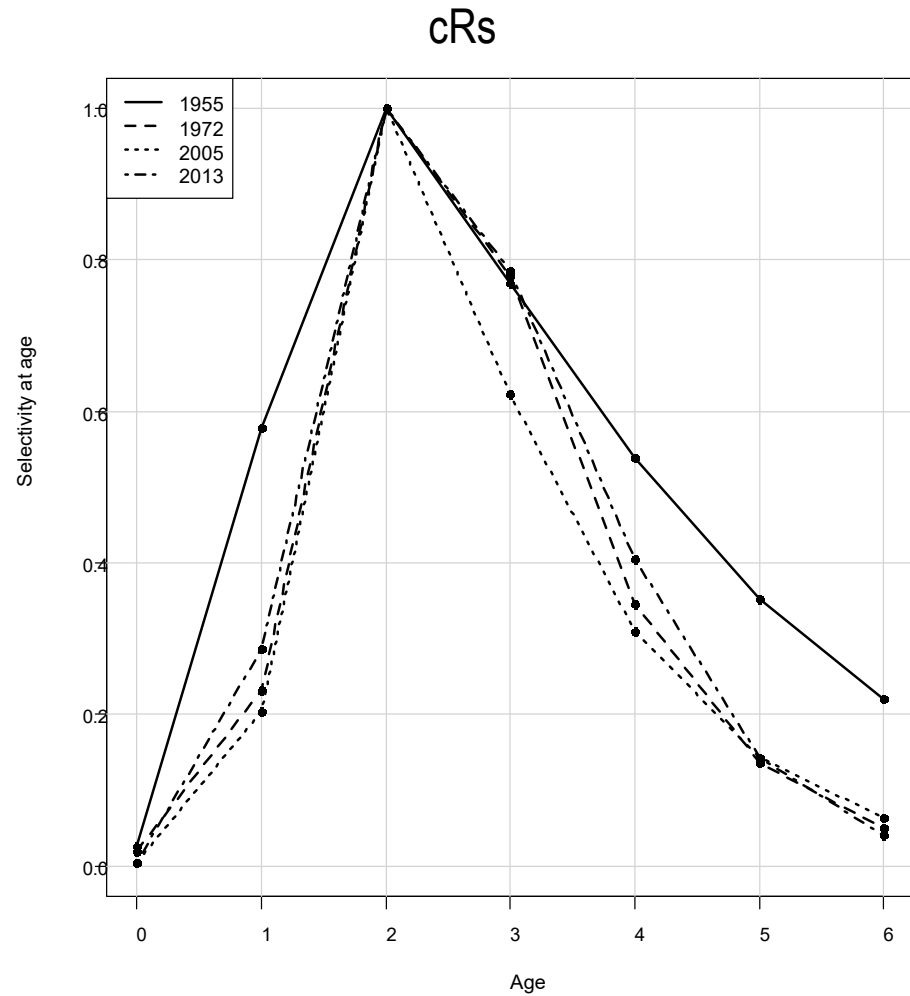
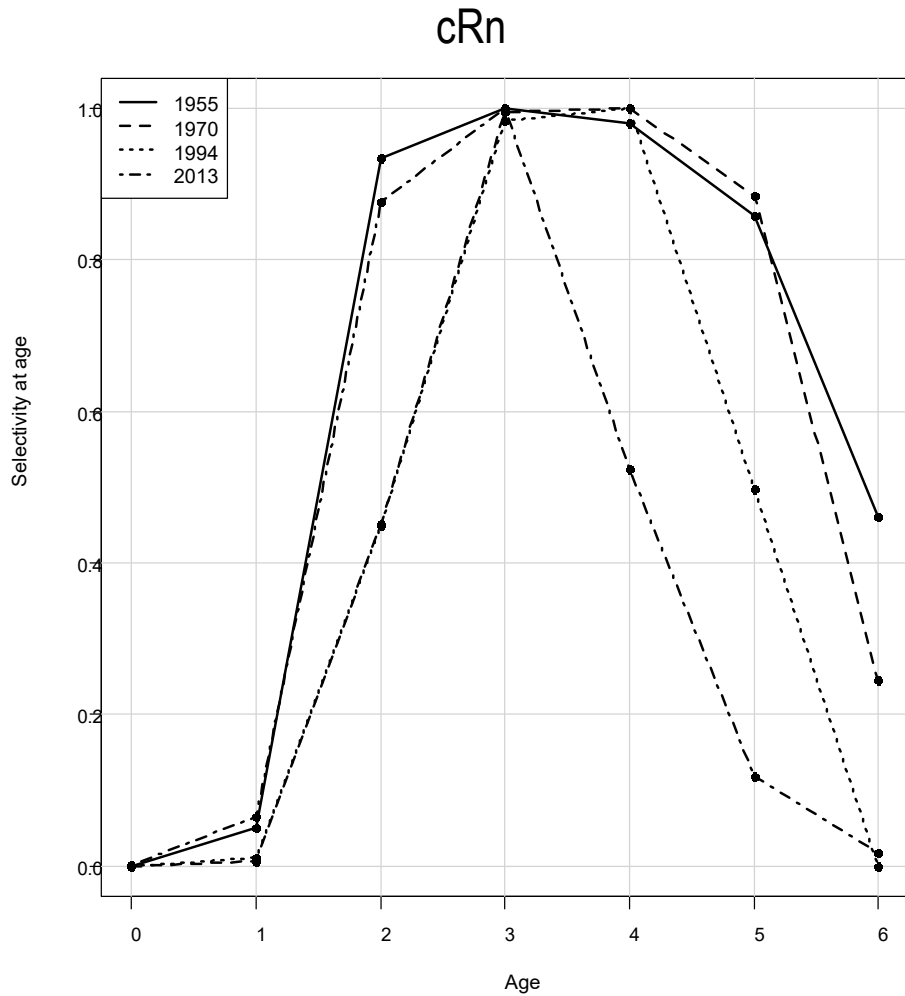
NAD



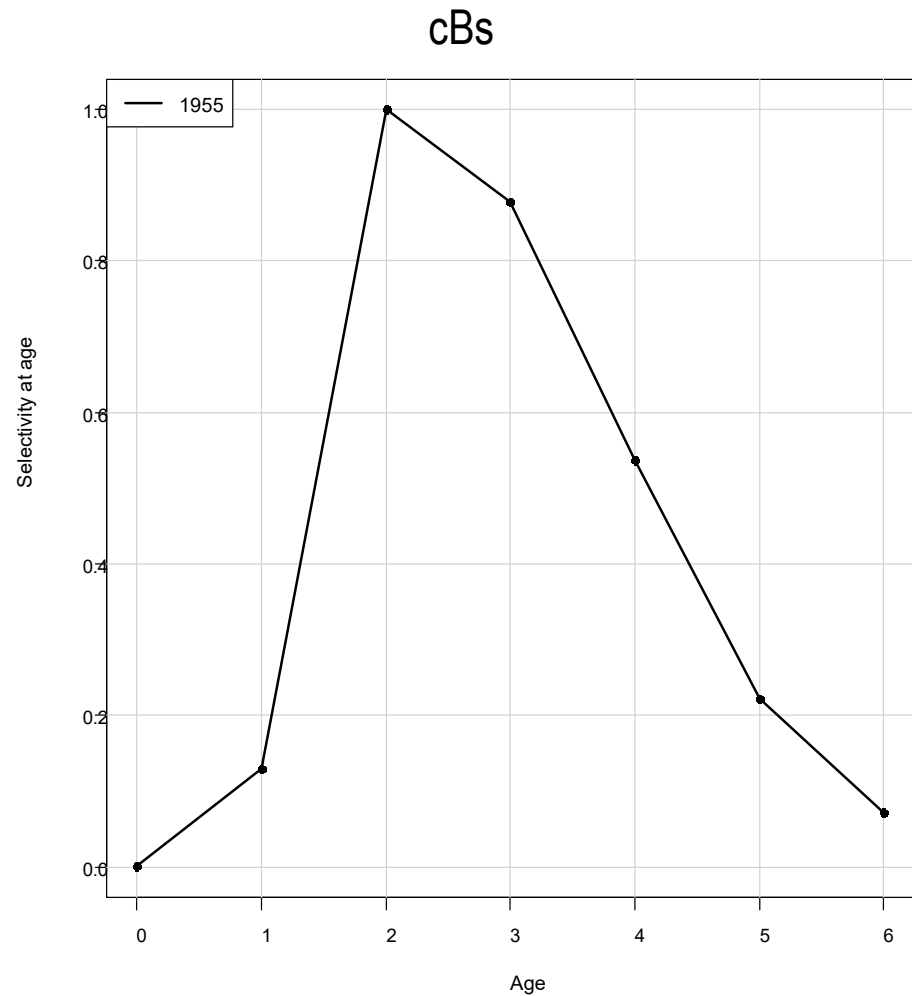
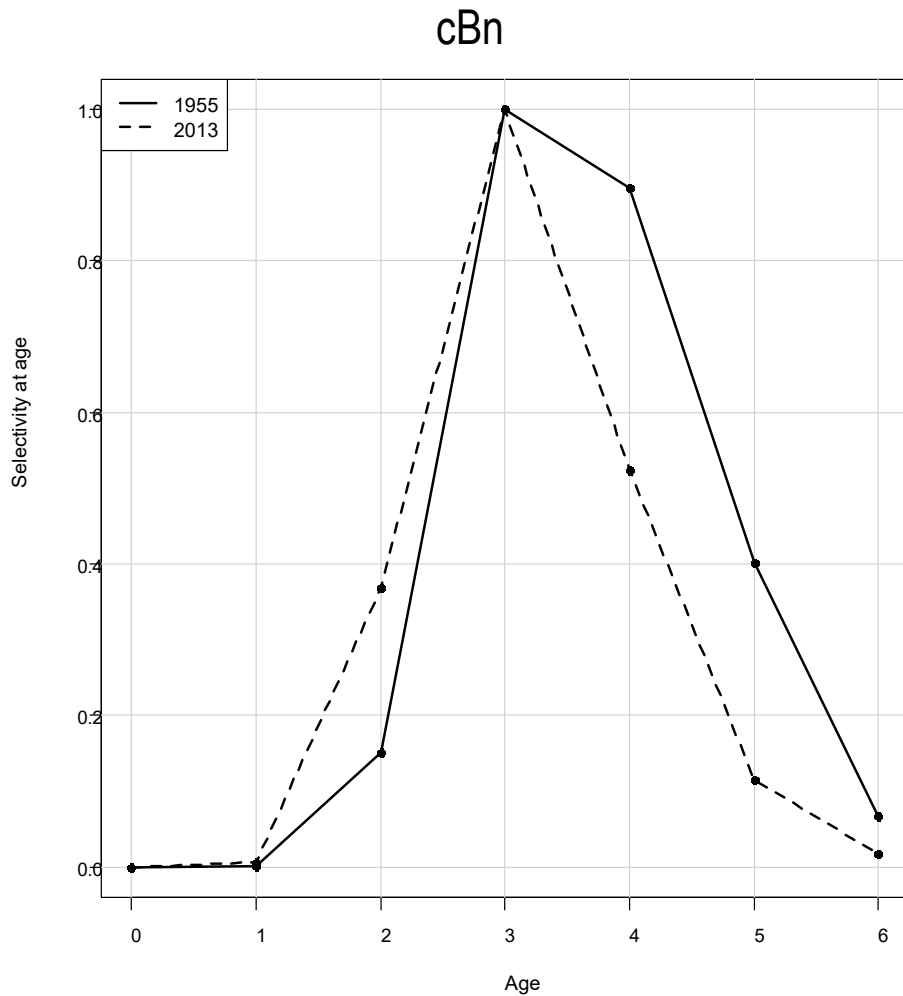
MAD



Base run update

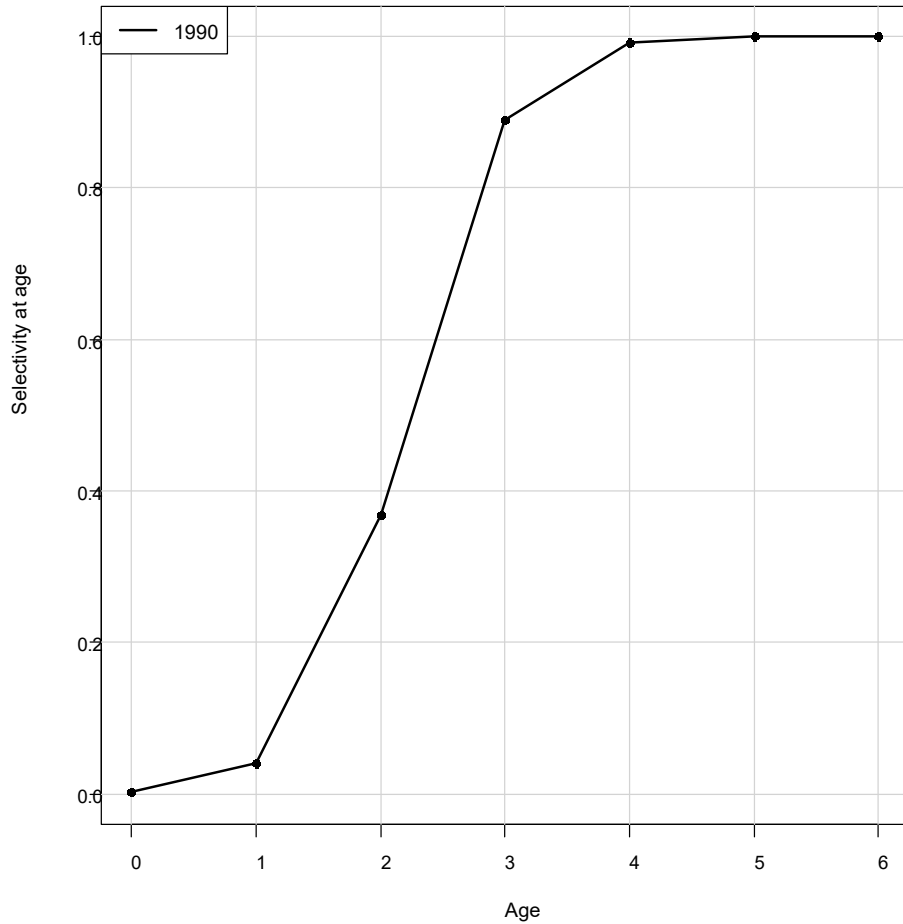


Base run update

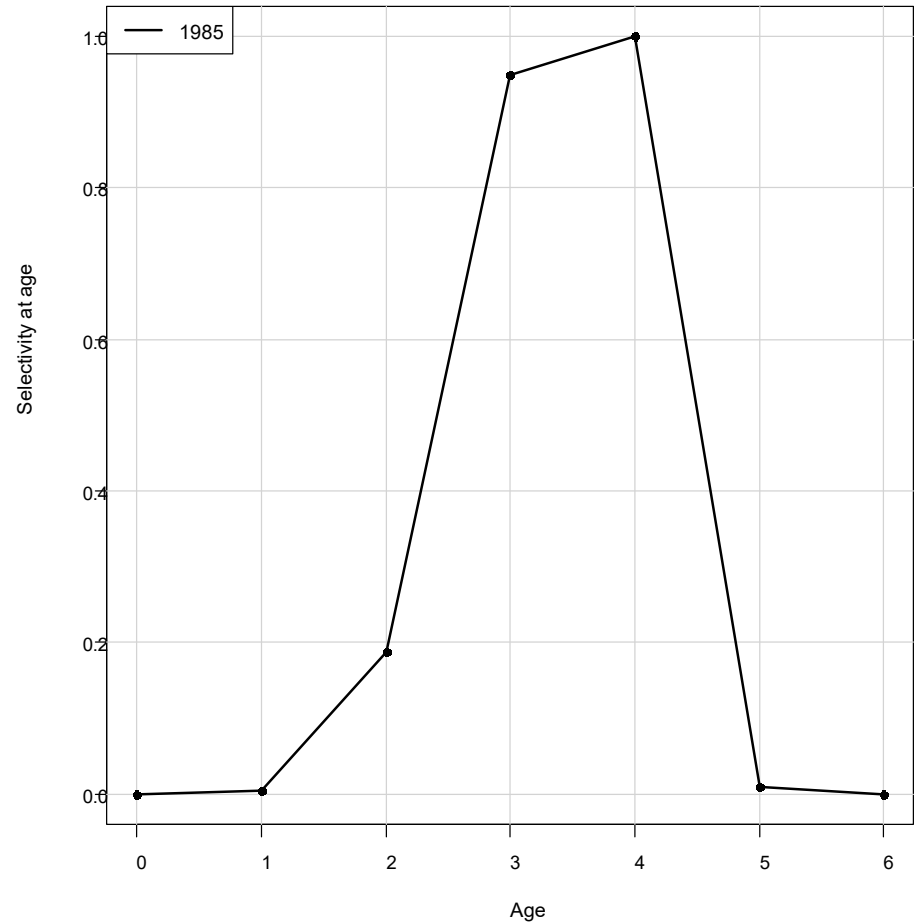


Base run update

NAD



MAD



Outline

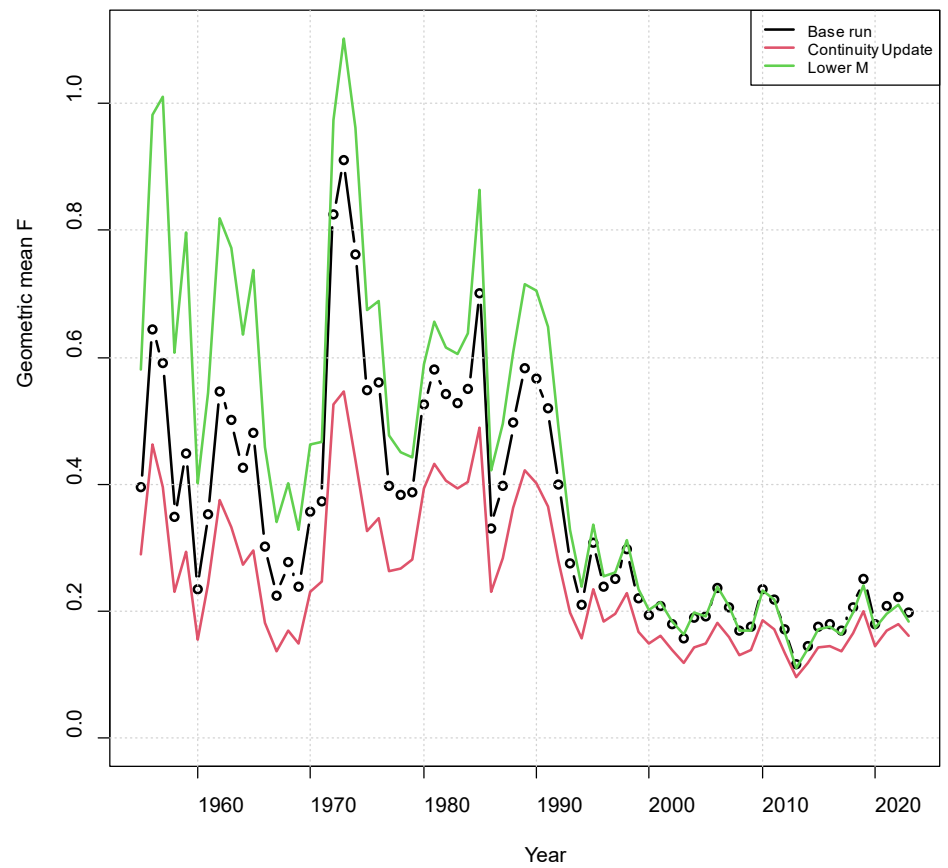
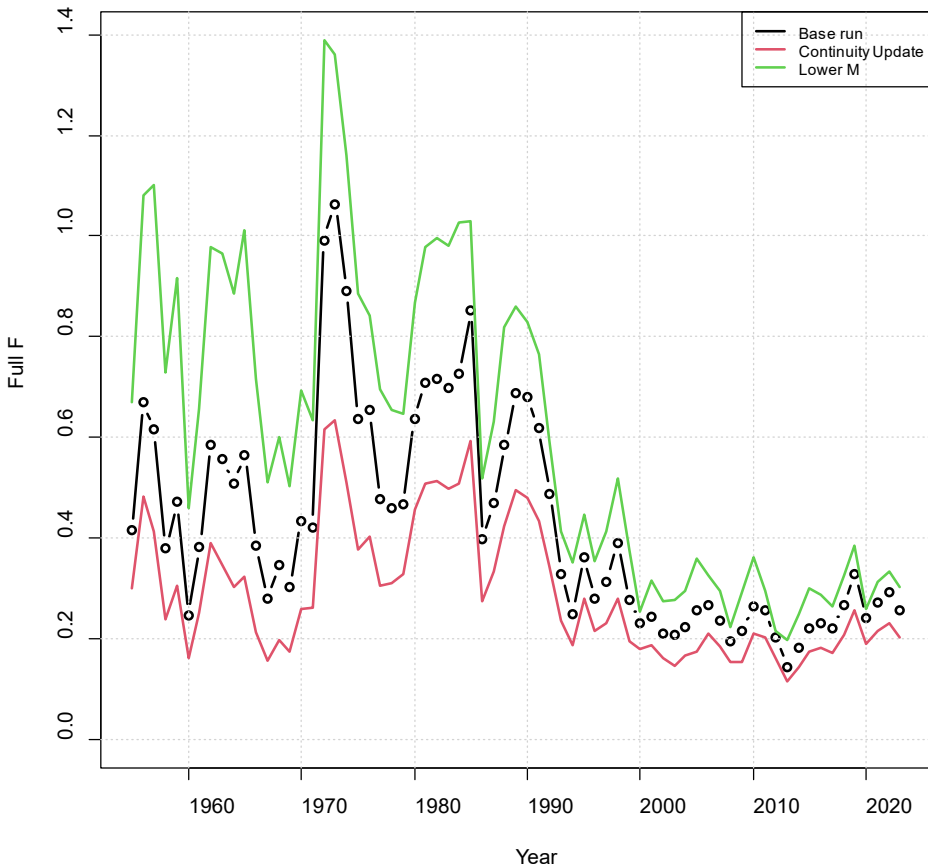
- Data updates
- Updated base run
- Sensitivity analyses

Sensitivity Runs

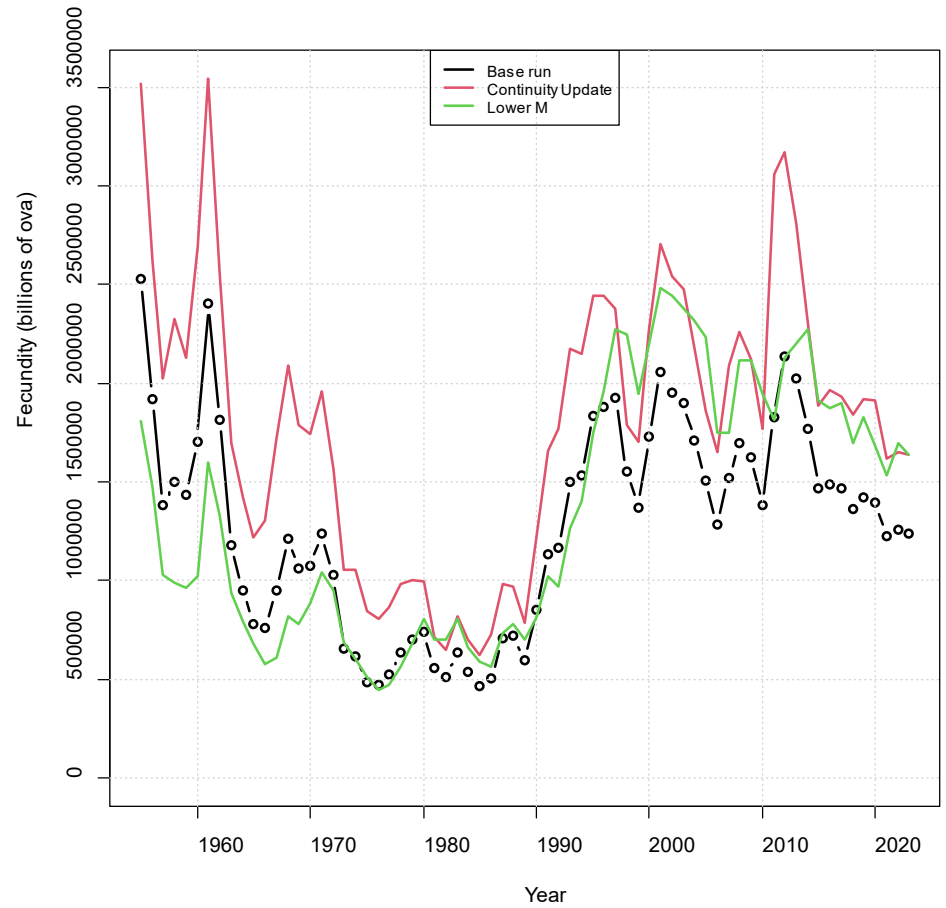
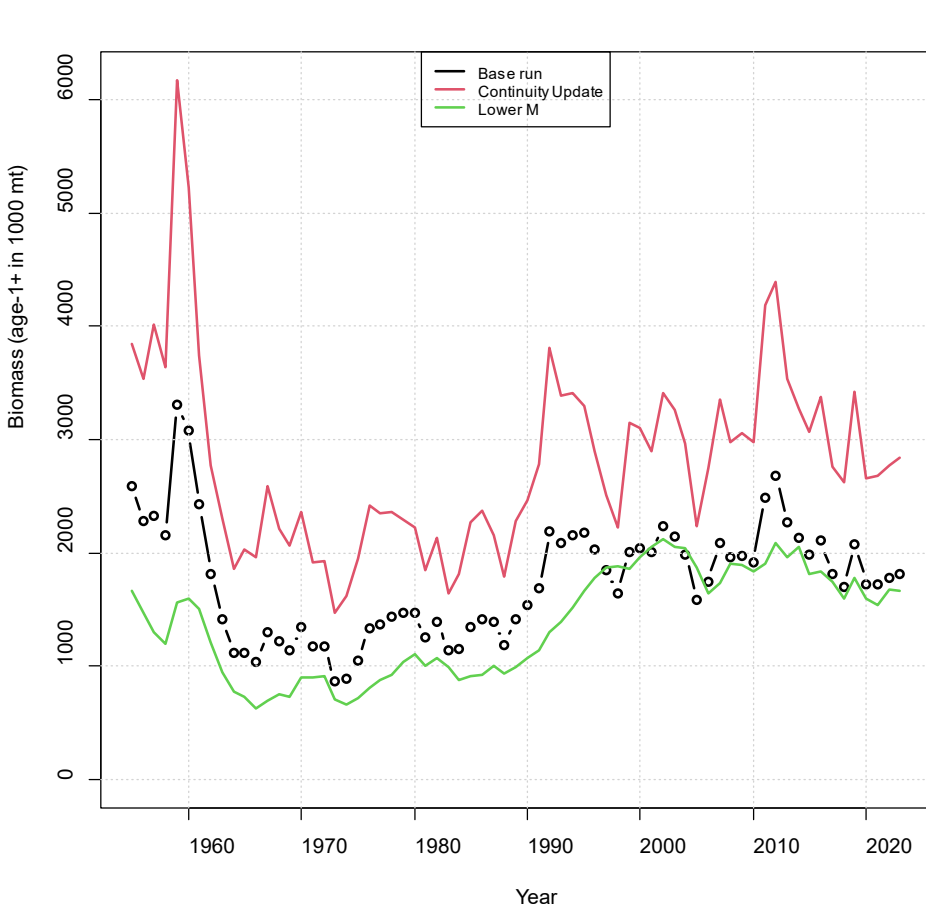
- Continuity update (1.17)
- Base run with new M (0.92)
- Lower M (0.47)

Run	Age-0	Age-1	Age-2	Age-3	Age-4	Age-5	Age-6+
Continuity	1.76	1.31	1.03	0.90	0.81	0.76	0.72
Base	1.39	1.03	0.82	0.71	0.64	0.60	0.57
Lower M	0.71	0.52	0.42	0.36	0.33	0.30	0.29

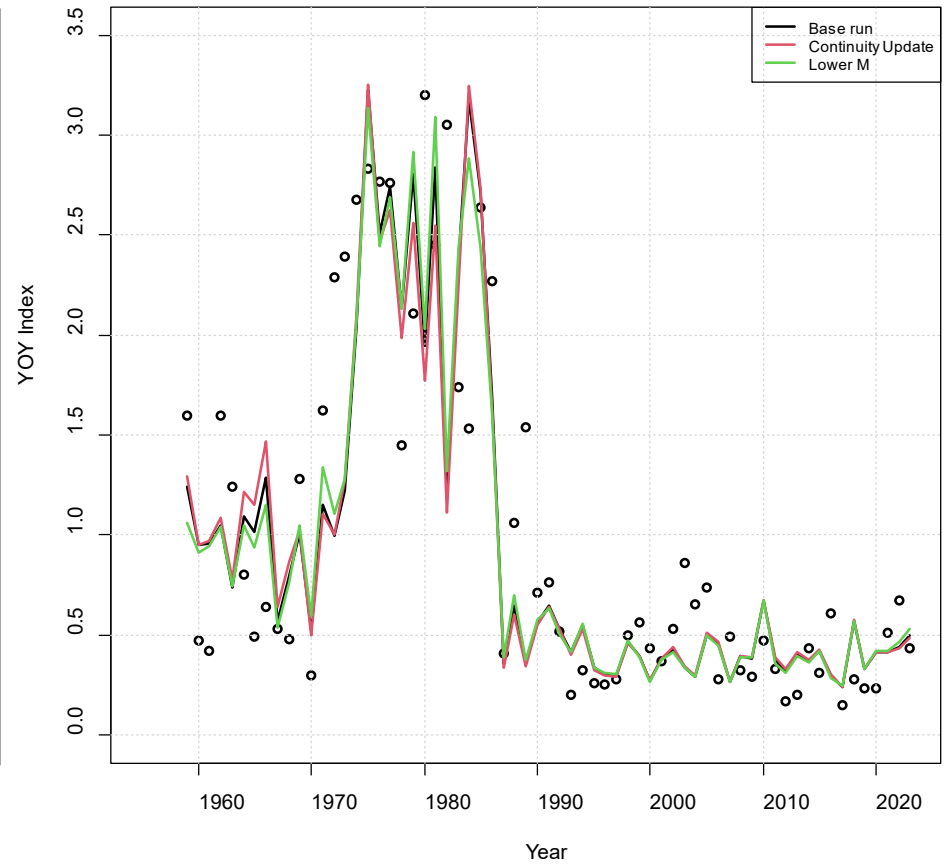
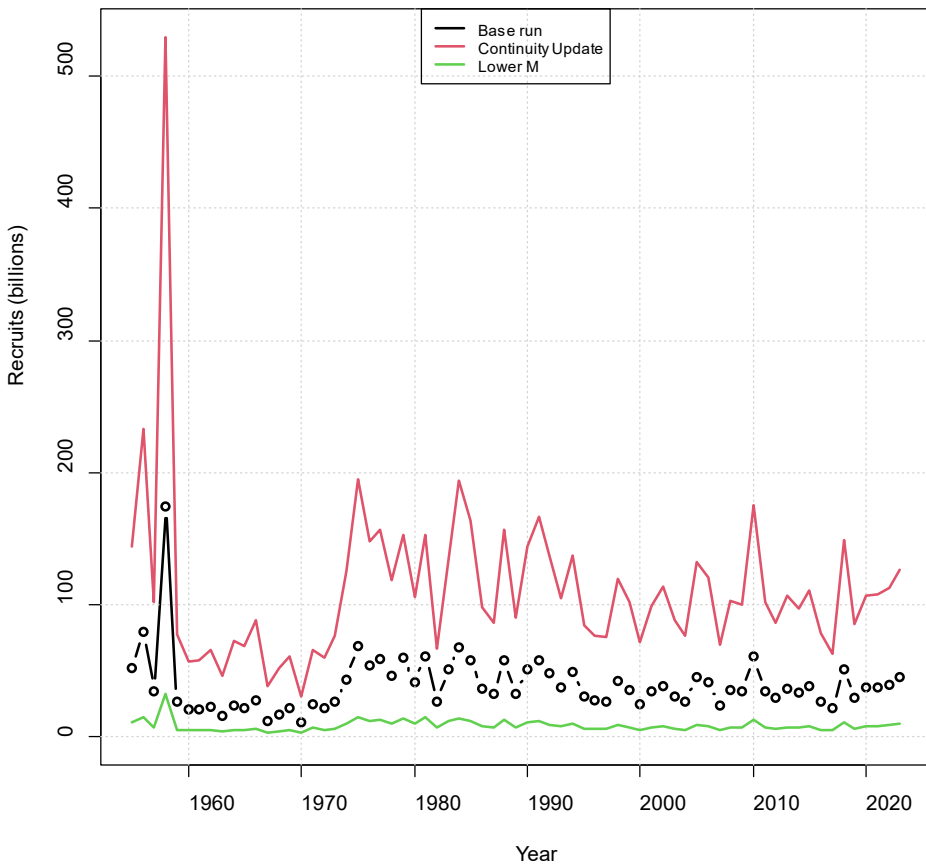
Base run update



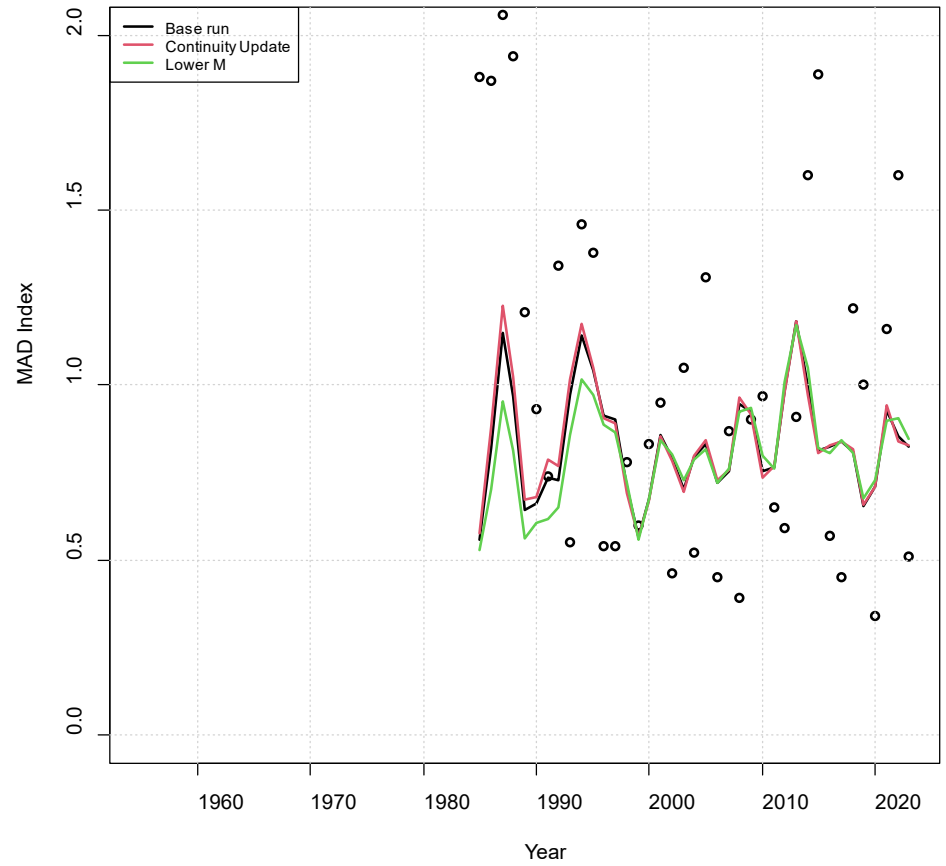
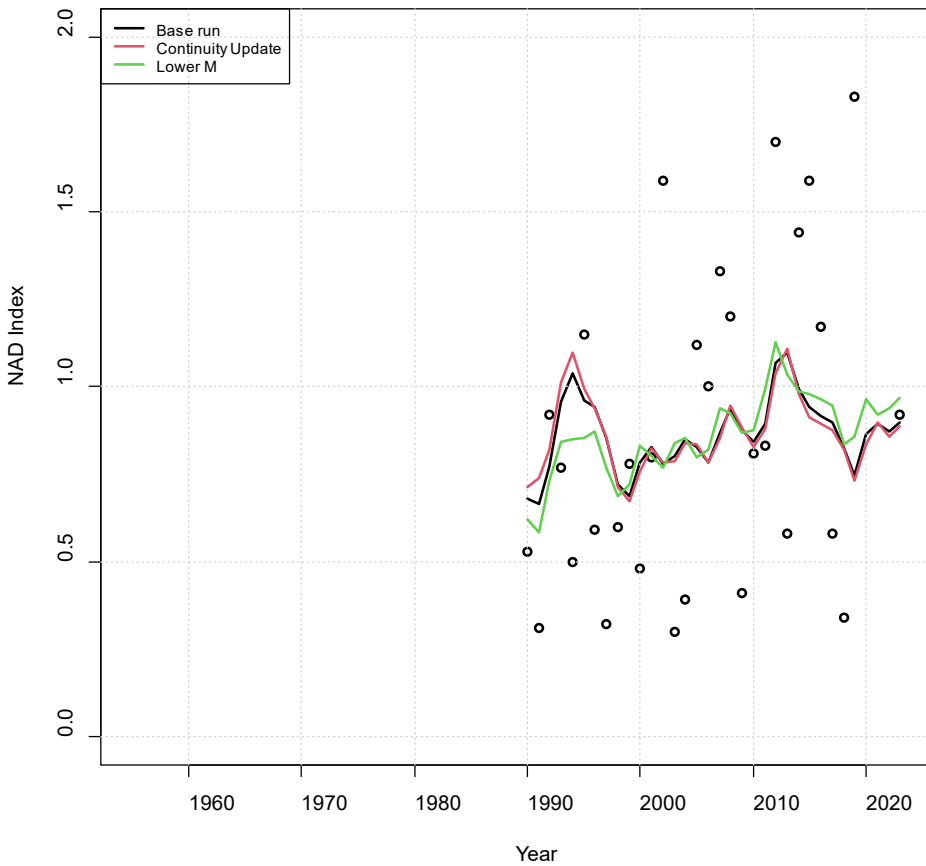
Base run update



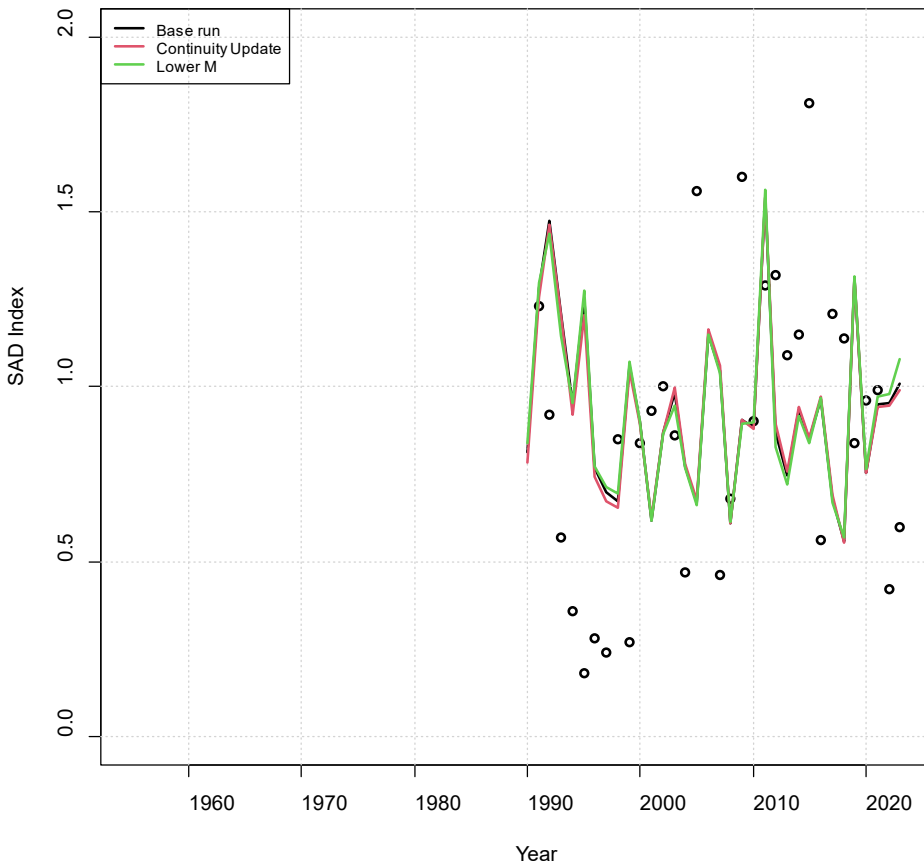
Base run update



Base run update



Base run update



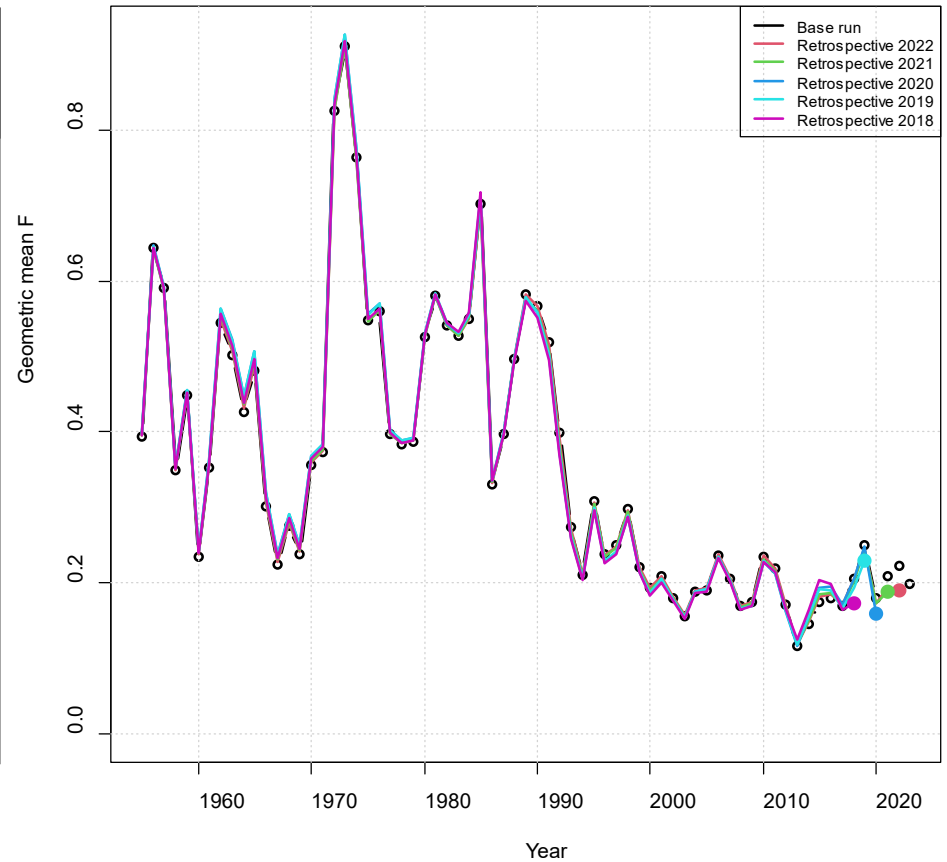
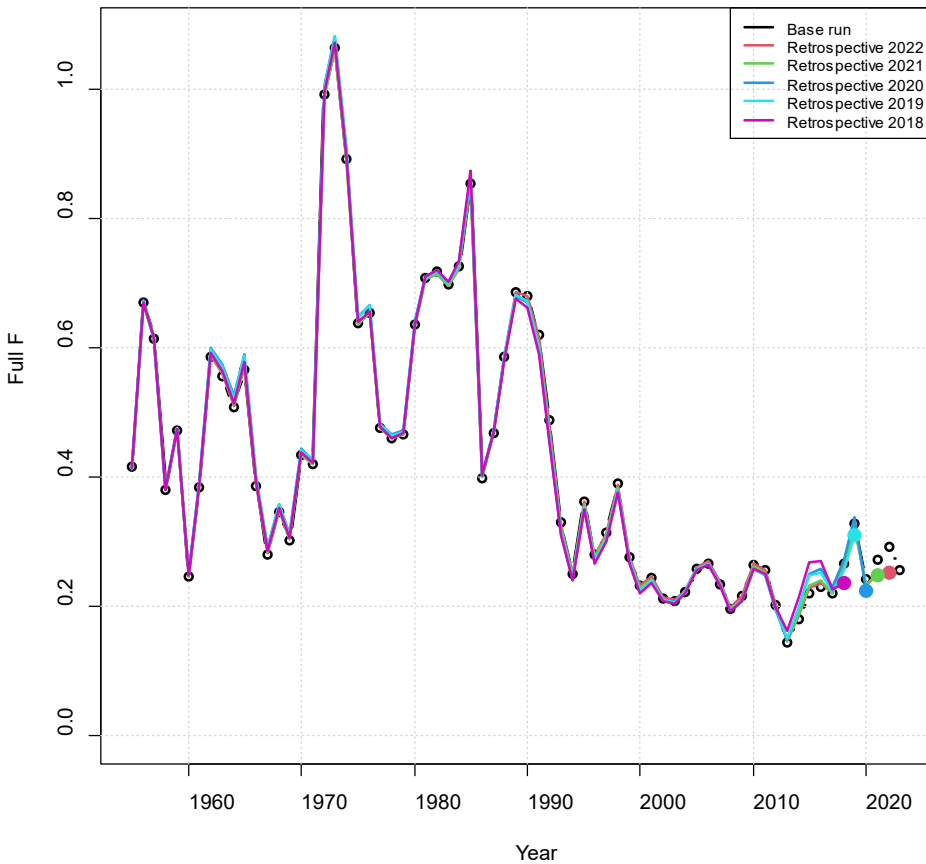
Outline

- Data updates
- Updated base run
- Sensitivity analyses
- Retrospective analysis

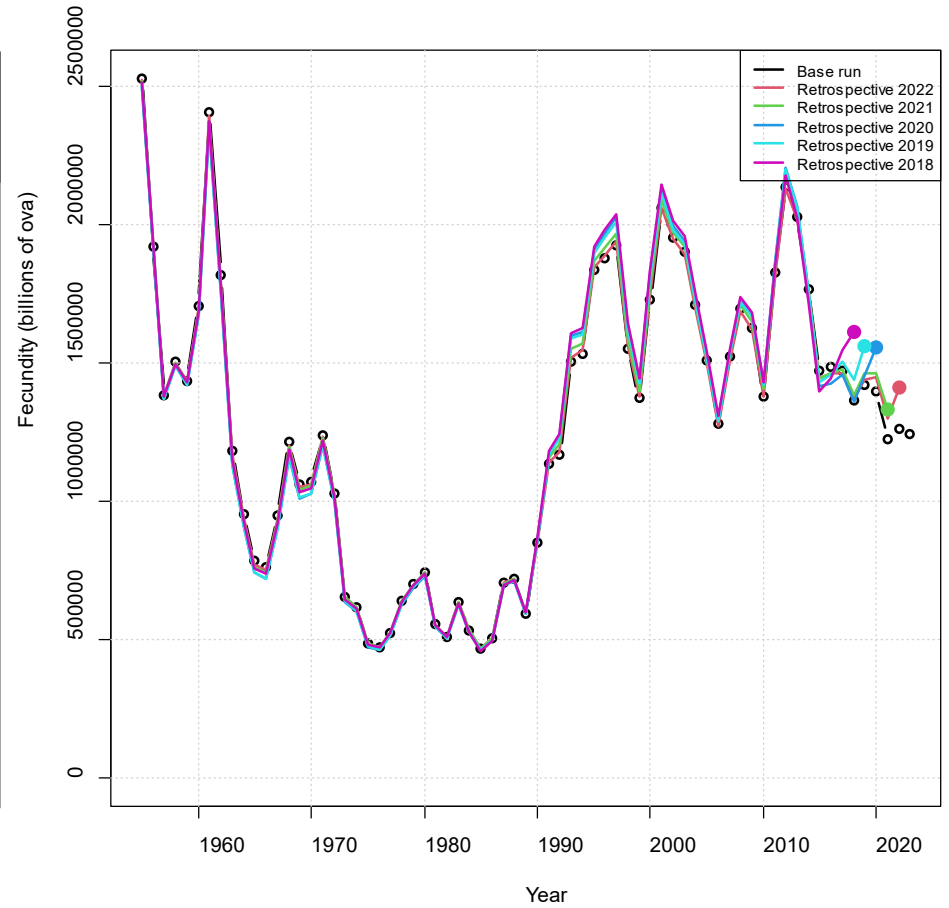
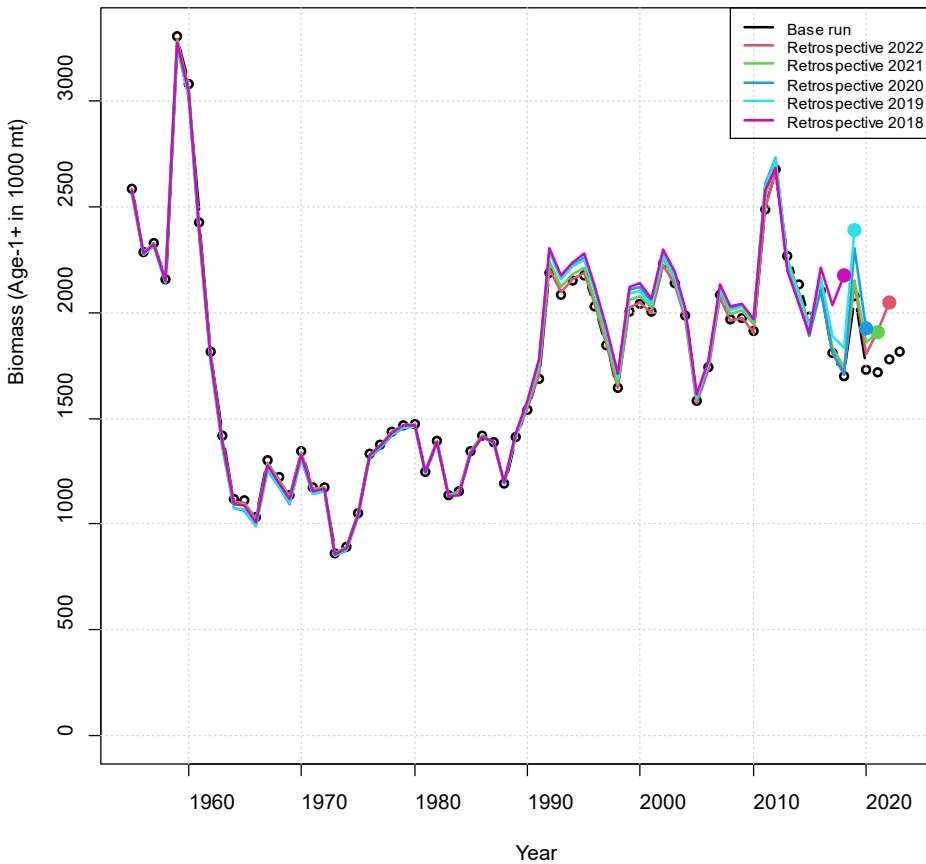
Retrospective analysis

- Series of runs with terminal years from 2022 to 2018

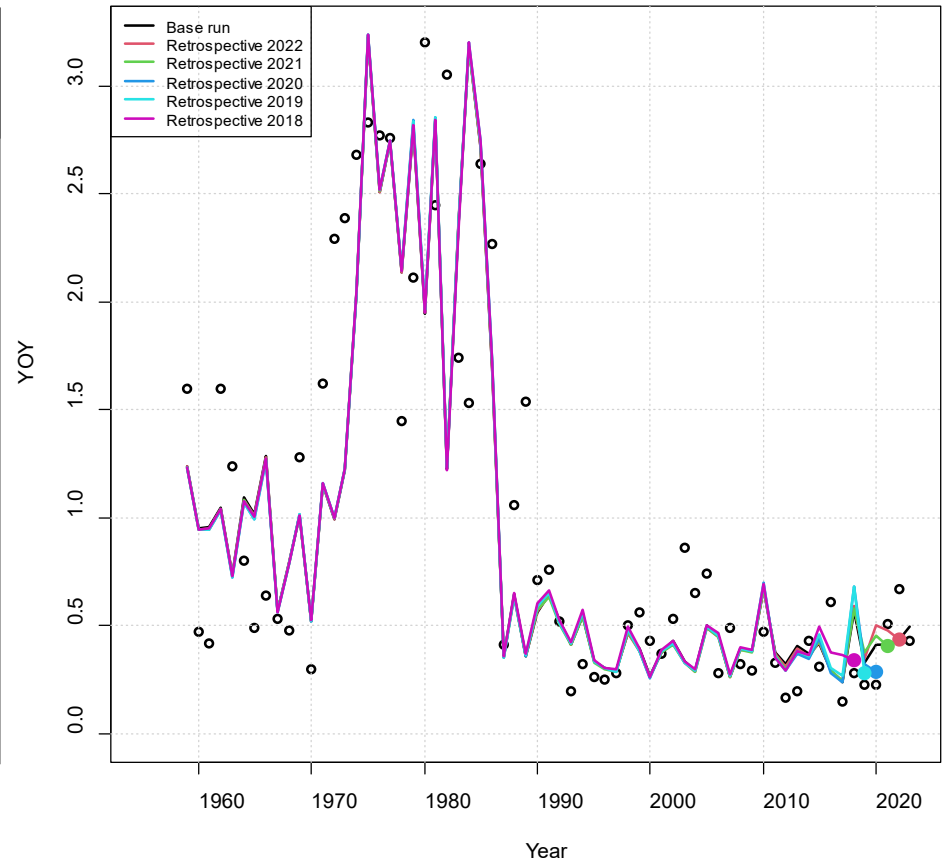
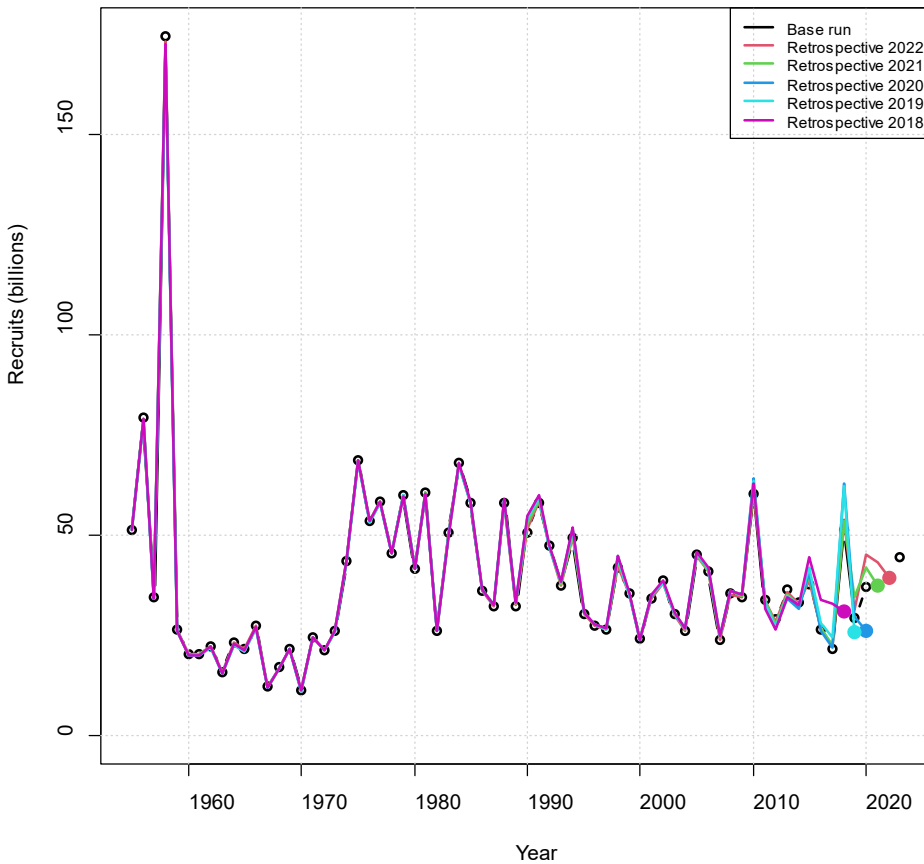
Retrospective analysis



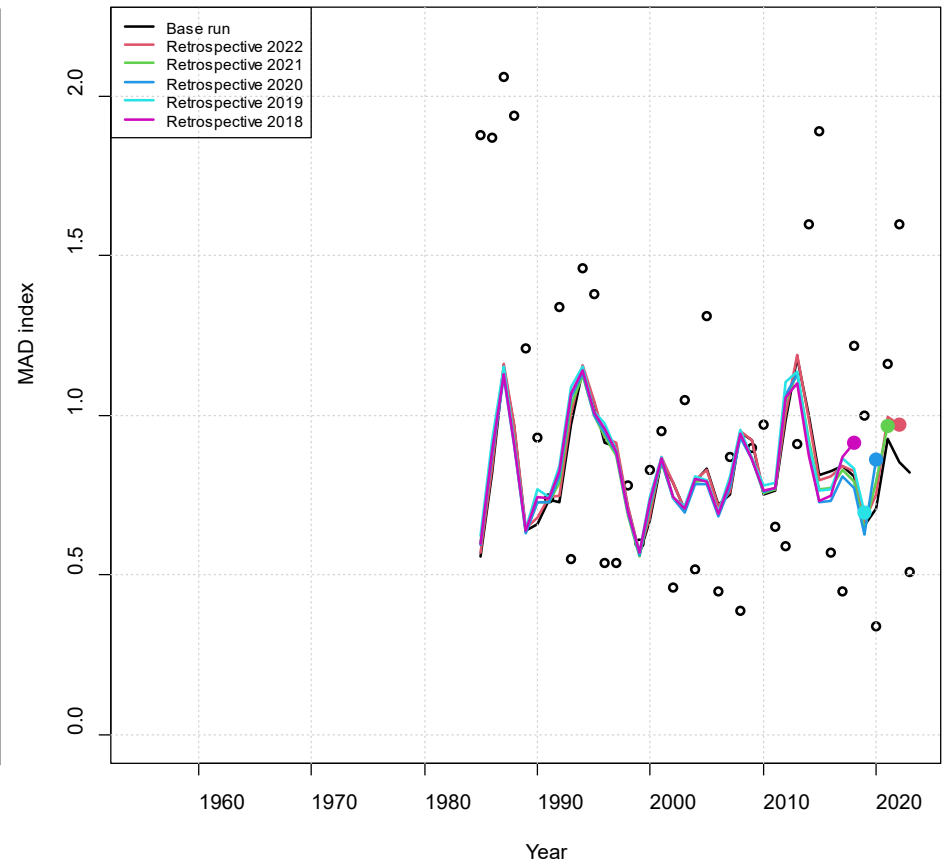
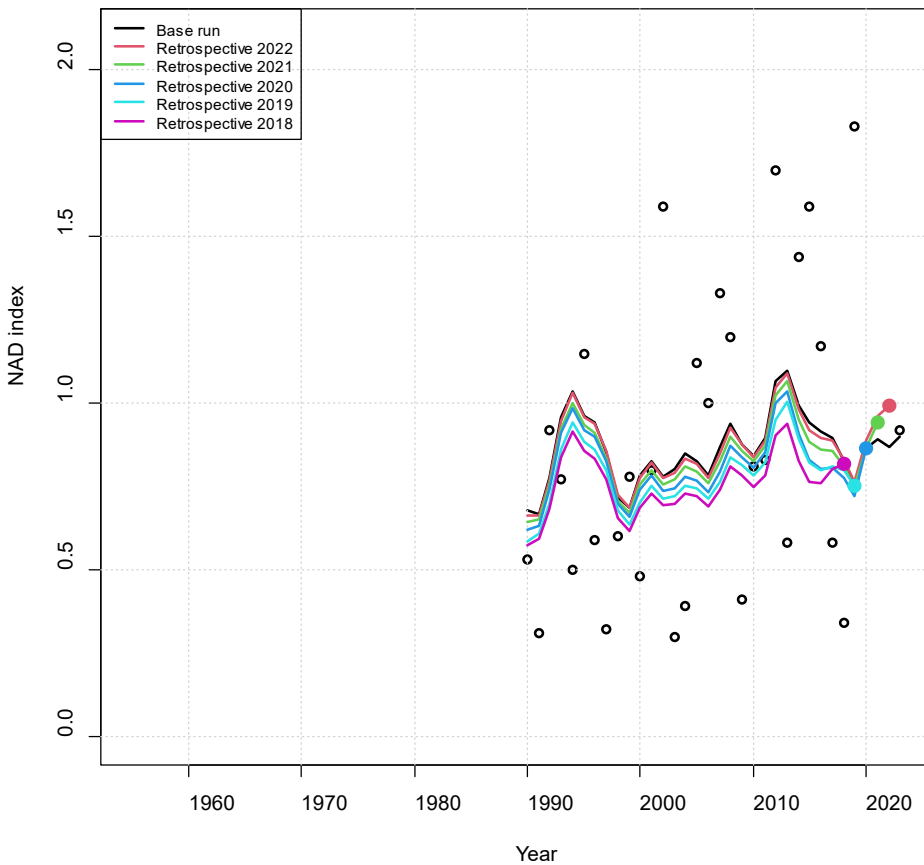
Retrospective analysis



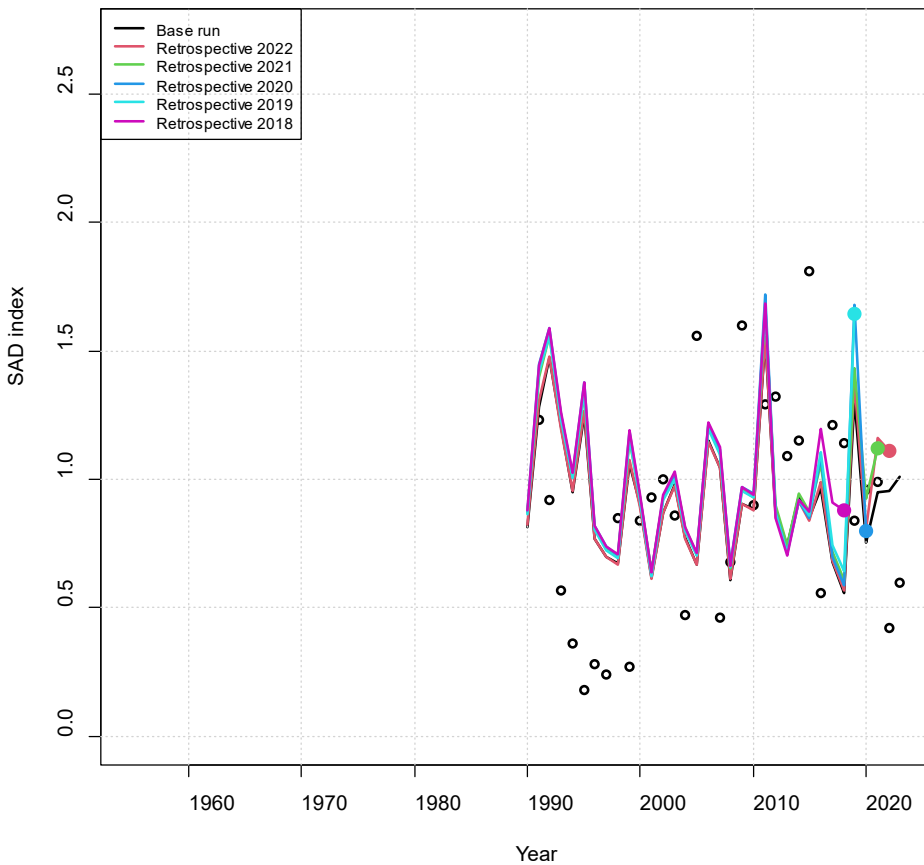
Retrospective analysis



Retrospective analysis



Retrospective analysis



Outline

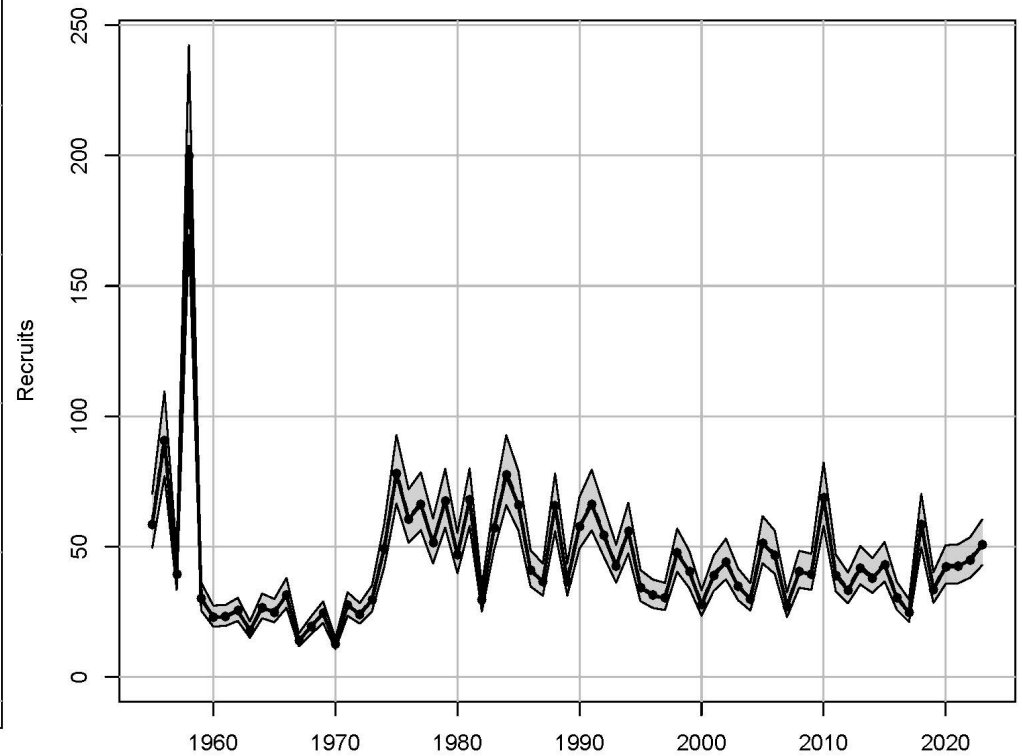
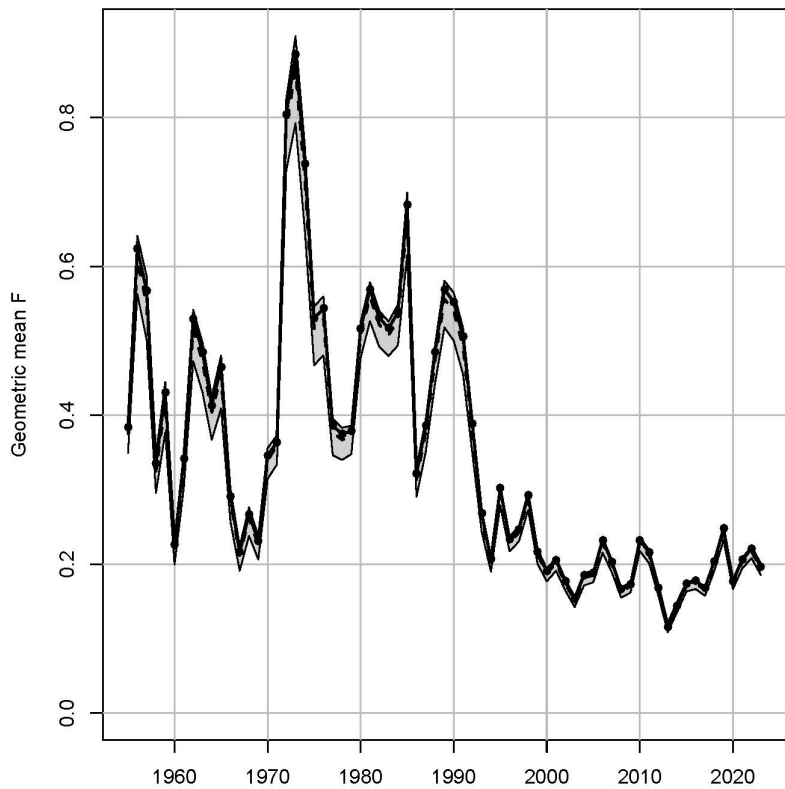
- Data updates
- Updated base run
- Sensitivity analyses
- Retrospective analysis
- MCB uncertainty analyses

Monte Carlo Bootstrap runs

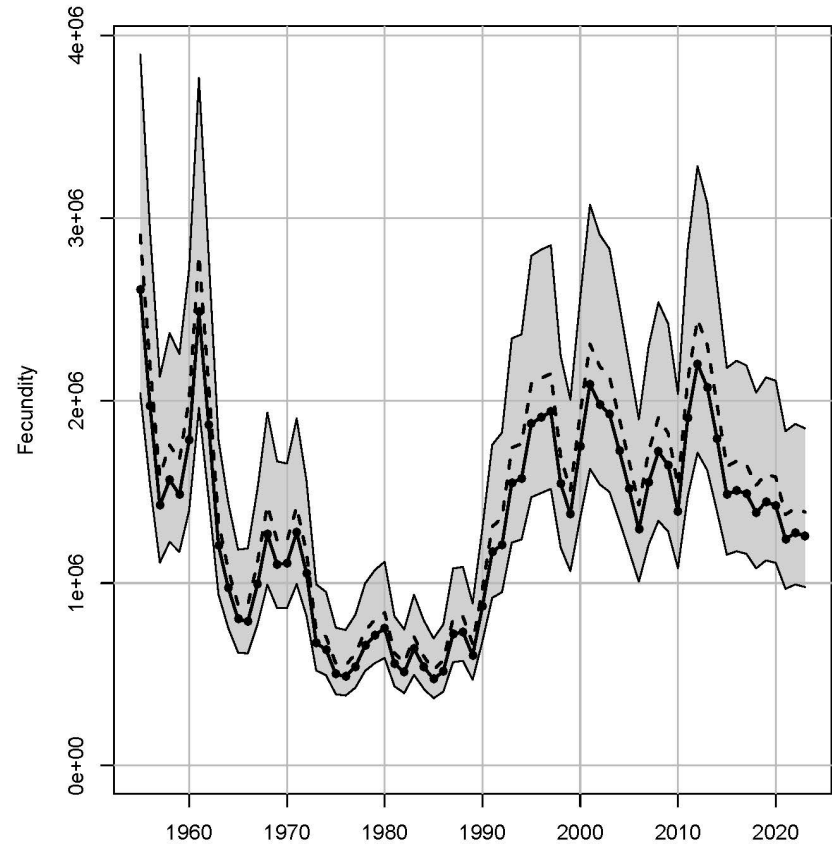
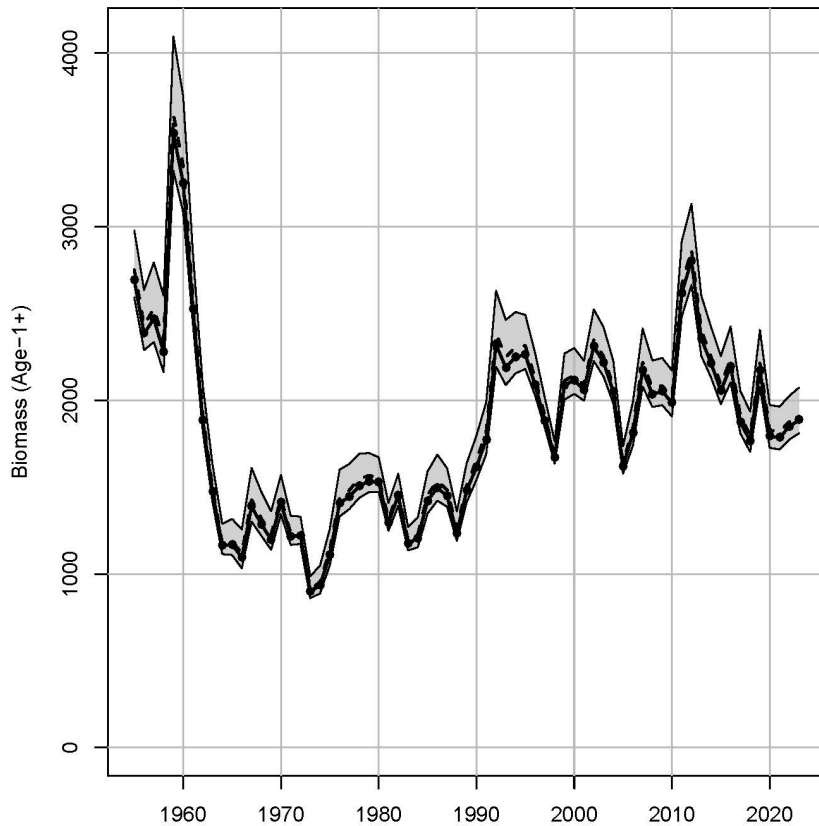
- Uncertainty in natural mortality and fecundity
 - Natural mortality [0.88, 0.97]
 - Fecundity – uncertainty in RBF and number of spawns per year (Latour et al 2023)

- 5,000 runs, 4,734 retained

Monte Carlo Bootstrap runs



Monte Carlo Bootstrap runs



Discussion

- Stock status, projections, and quota setting later in week
- Questions?