



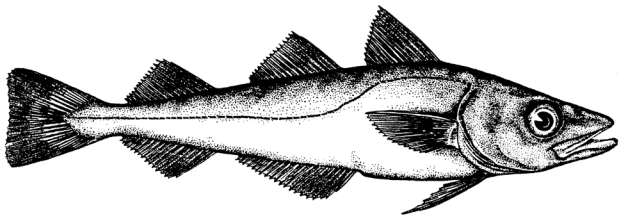
**NOAA
FISHERIES**



GOA Pollock

Cole Monnahan
December 2021 SSC





Gulf of Alaska pollock

Overview of results

Changes to the assessment model

- None in 2020 or 2021 (model 19.1)

Author's 2022 ABC 133,081 t

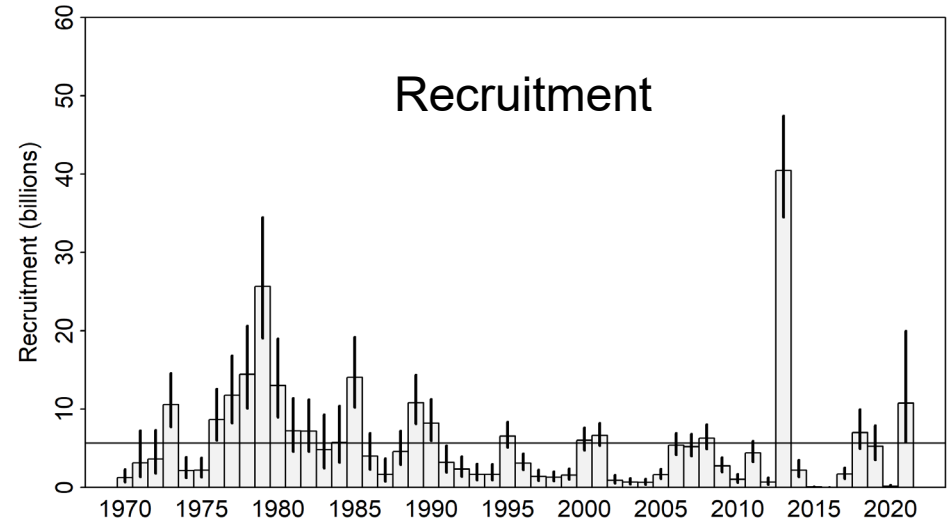
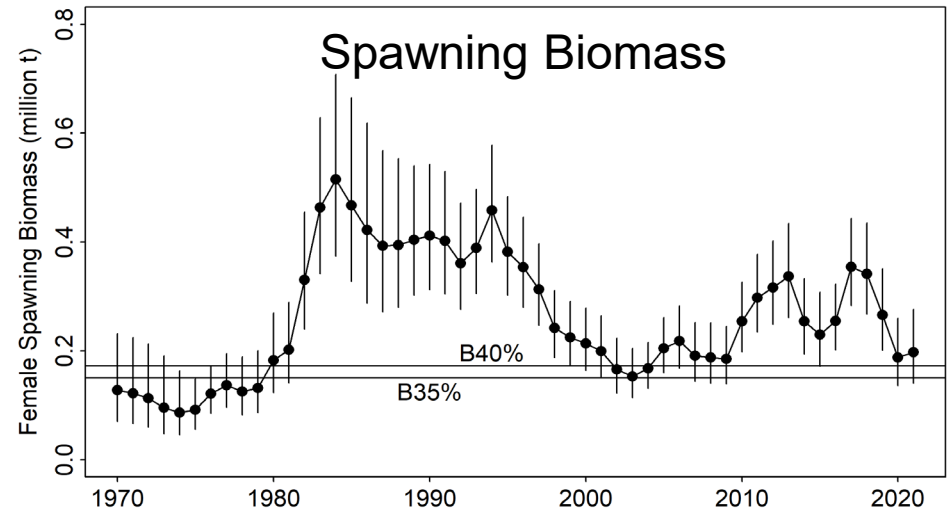
- Increase of 26% from 2021
- 2023 ABC decreases to 131,912 t
- No reduction from max ABC

Concerns:

- Conflict in size of 2018 year class
- Unusual increase in spawning WAA after long decline
- Absolute stock scale driven by NMFS BT Q prior

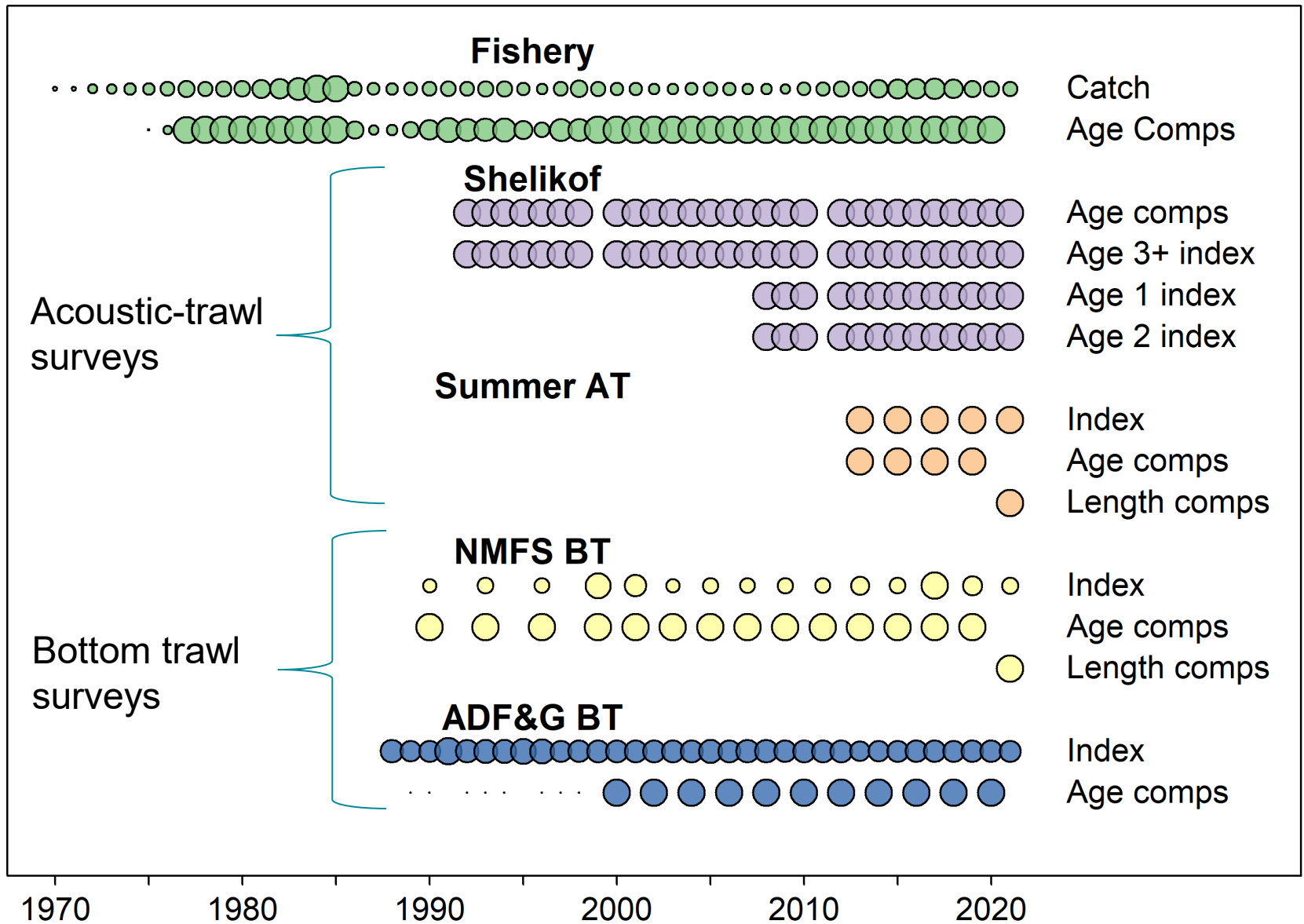
Positives:

- Return to normal age diversity w/ decline in 2012 cohort
- Large 2020 cohort
- Environmental conditions favorable



Model overview

- Single-sex, single-fleet, ages 1-10+
 - Fishery selectivity time-varying double-logistic
- Acoustic surveys: winter (Shelikof) & summer (coast wide)
- Summer bottom trawls: NMFS and ADF&G
(Time-varying catchability for Shelikof and ADF&G)
- Biology specified:
 - Annual weight-at-age estimates for fishery and surveys
 - Natural mortality (age-based)
 - Maturity (long-term average)
- Recruits freely estimated, except initial setup and last two years ($\sigma_R=1$)
- Francis tuning used for composition data



Survey overview

2021 is “on” year for surveys in the GOA.

2021 biomass estimates:

Shelikof acoustic: 527 kt, **15% increase** from 2020.

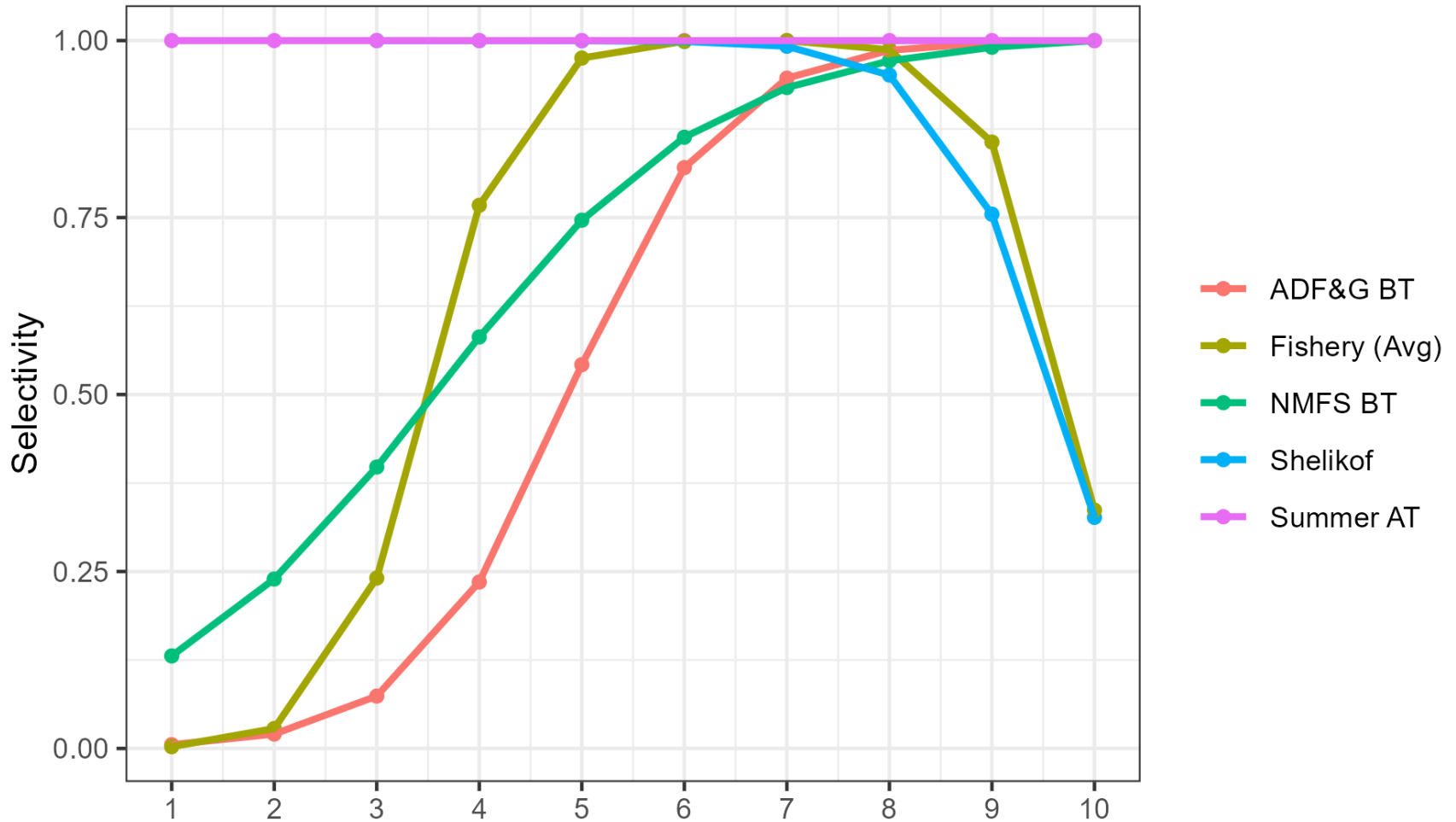
Summer acoustic: 431 kt, **26% decrease** from 2019

NMFS bottom trawl: 494 kt, **92% increase** from 2019

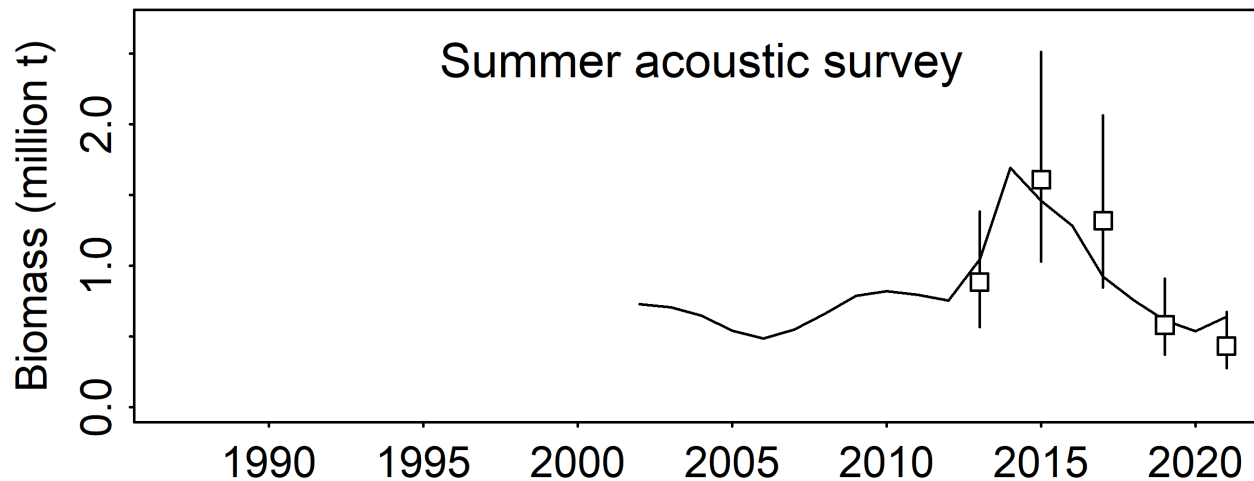
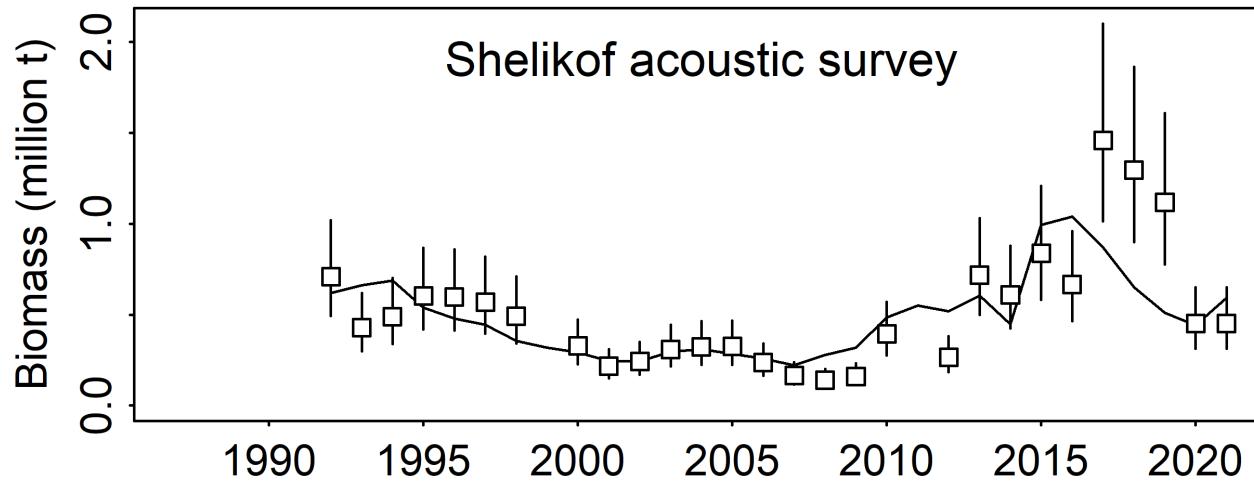
ADF&G bottom trawl: 65 kt, **9% increase** from 2020

No conflict in survey as in previous years

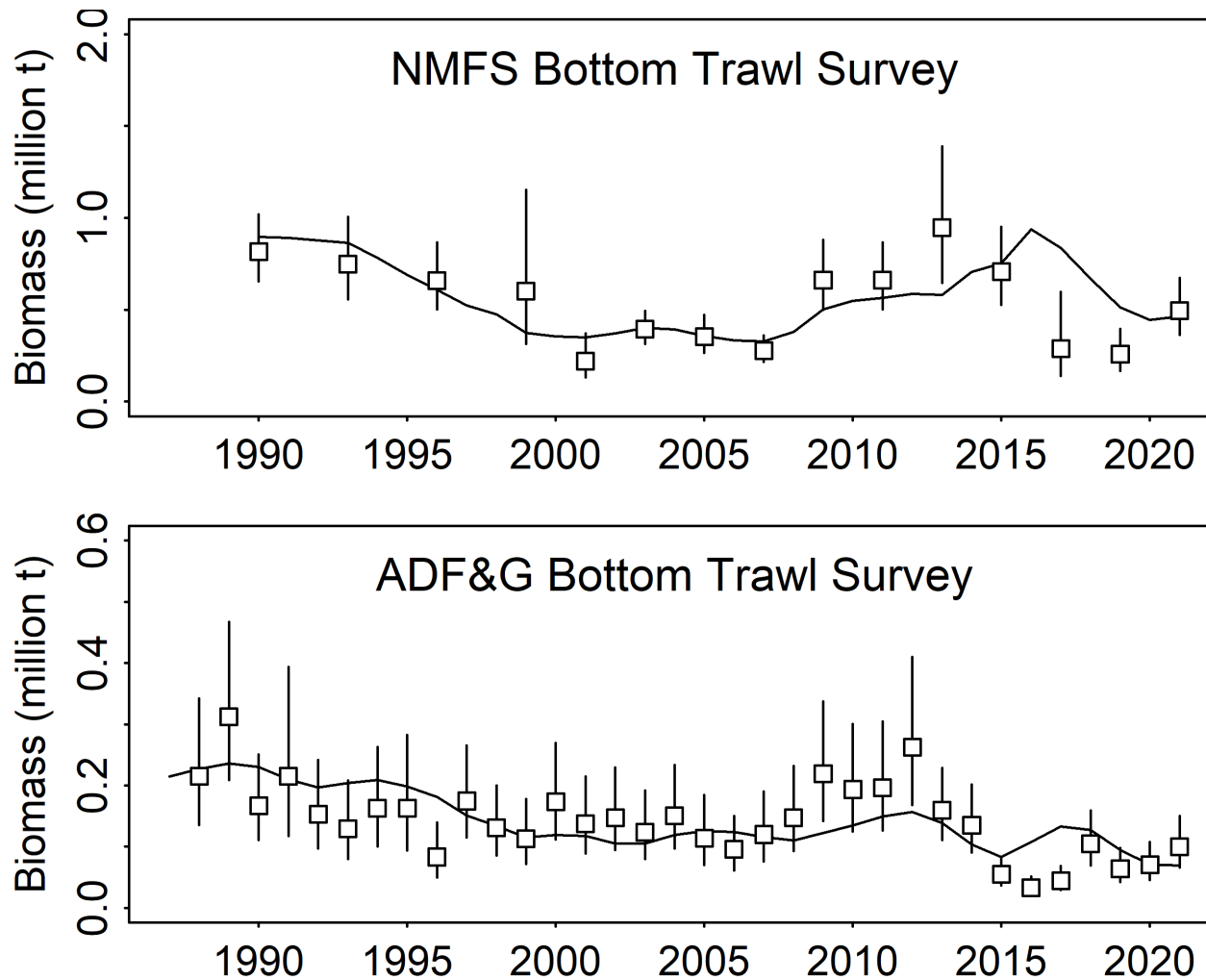
Estimated selectivities



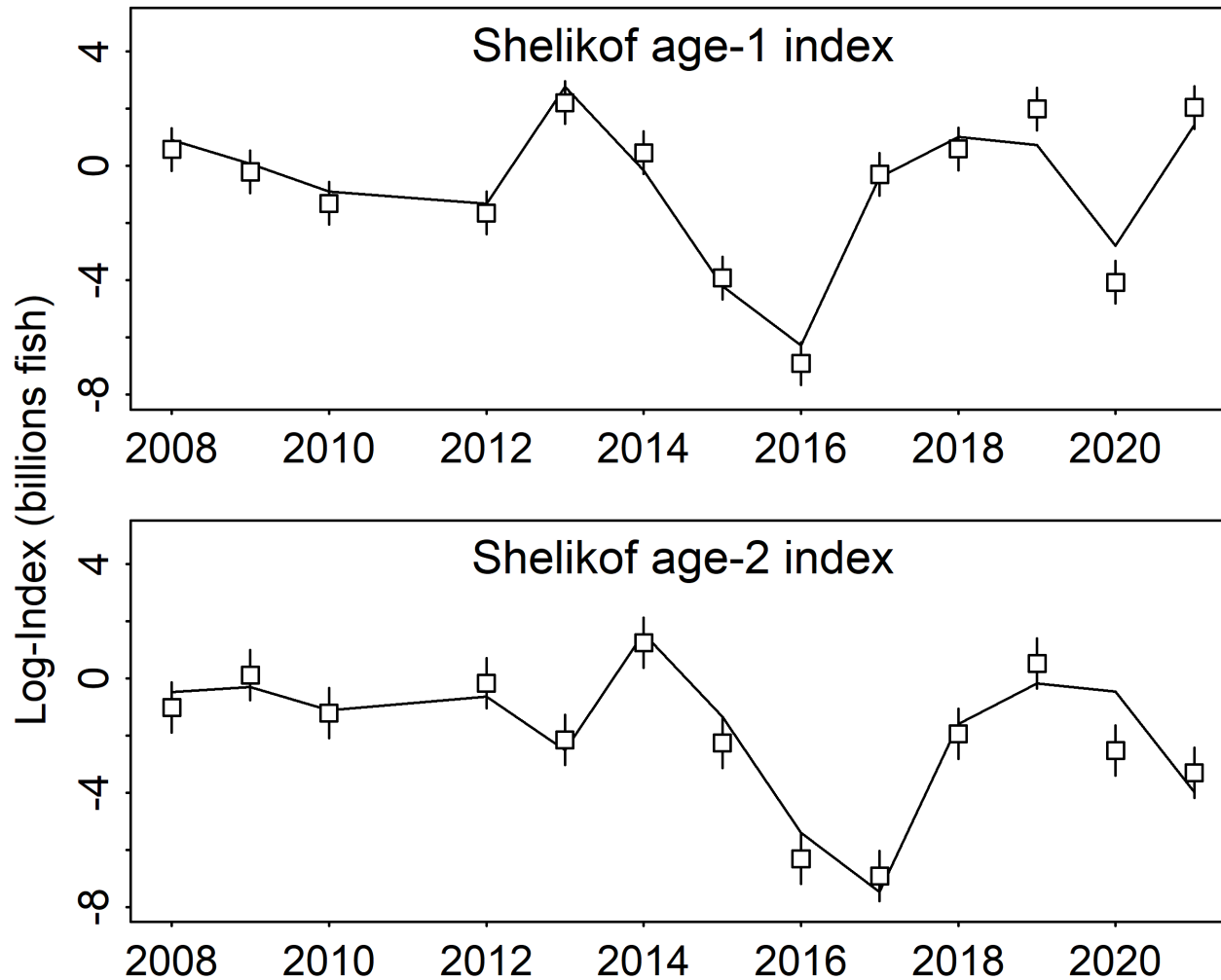
Fits to acoustic indices



Fits to BT indices

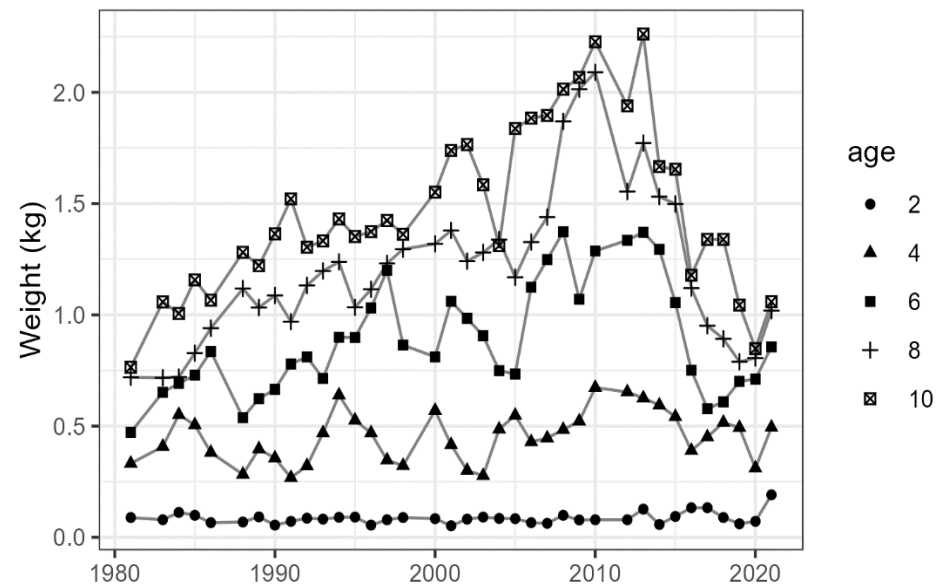
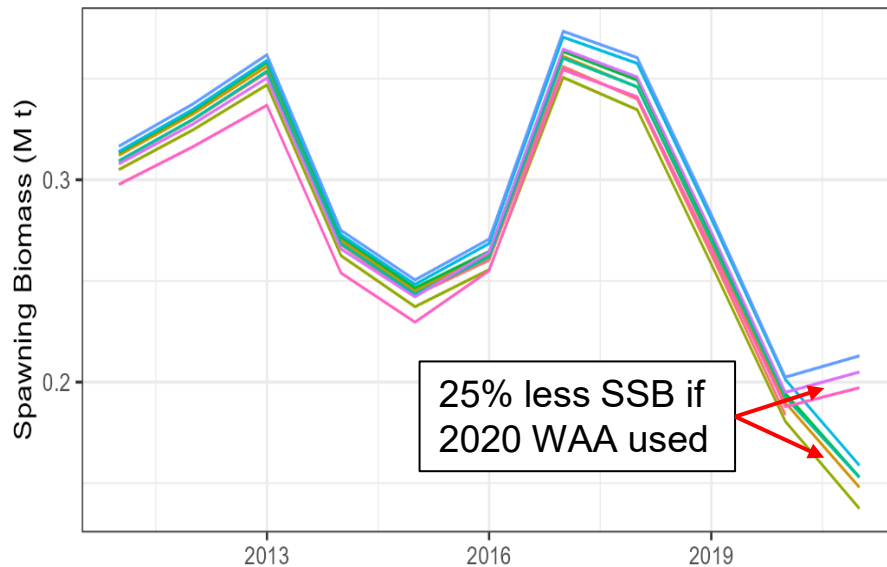


Fits to acoustic indices



Model concern: Unusual 2021 spawning WAA

- Largest age 2 fish to date, 4th largest age 3 fish
- Appears real: Nothing apparent in survey design, execution, or data processing



Advice on research topics?

Suggestions on how to prioritize these?

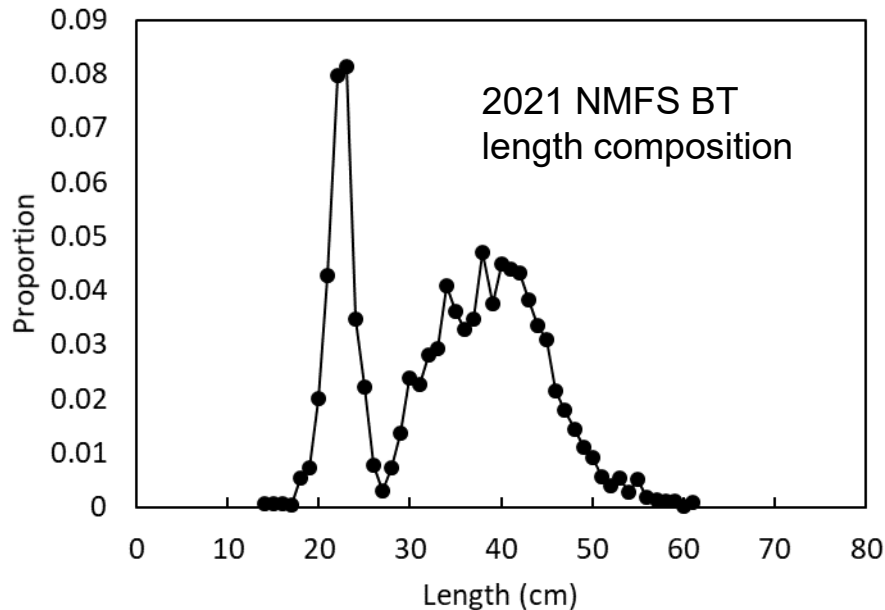
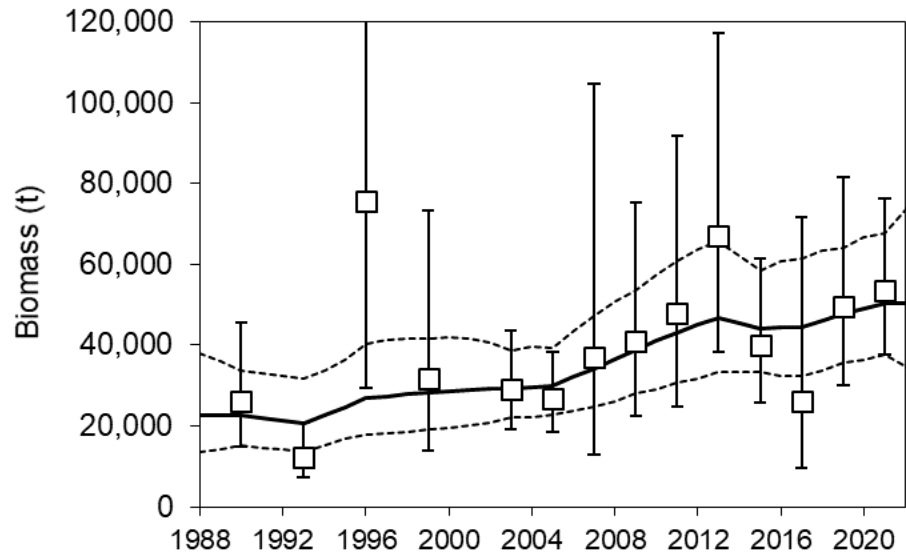
- Constrained catchabilities (logistic) and priors
- Investigate trends in weight at age
- Shelikof survey timing effects on catchability, maturity, selectivity
- General investigation of scale
- Data weighting and input CVs
- Combining BT and AT to estimate vertical availability (long-term)
- New selectivity forms

Final 2022 apportionment if TAC=133,081 t

Area	TAC (t)		Percent	
	Season A	Season B	Season A	Season B
610	1,138	22,582	0.9%	17.4%
620	52,313	16,946	40.3%	13.1%
630	8,065	21,988	6.2%	16.9%
640	6,722		5.2%	

Minimal change in % season and area apportionment from 2020

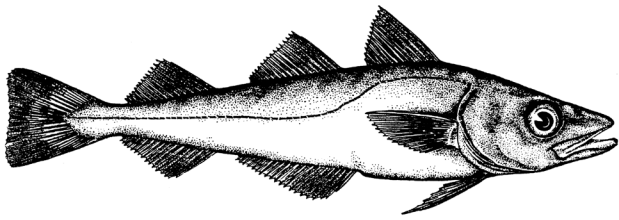
Southeast Alaska Assessment



- Tier 5 model used for East Yakutat and SE.
- RE model fitted to biomass estimates from NMFS BT.
- $M=0.3$ assumed.
- $ABC=11,363$ t for 2022 and 2023

Questions/comments?

- **Thanks!**
- **Coauthors:**
Martin Dorn, Alison Deary, Bridget Ferriss, Benjamin Fissel, Taina Honkalehto, Darin Jones, Mike Levine, Lauren Rogers, Kalei Shotwell, Abigail Tyrell, Stephani Zador
- Thanks to Kally Springer and Wayne Palsson for providing data
- Thanks to ESP contributors



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