BSAI other rockfish

Jane Sullivan

September 2022 Joint Groundfish Plan Team Meeting

Shortspine thornyhead (SST), dusky, and at least 11 other *Sebastes* and *Sebastolobus* spp.








Photos courtesy of Aaron Baldwin

Outline for today's presentation

1. Background and motivation
2. Bridging from ADMB to TMB using *rema*
3. Adding the EBS slope longline survey (LLS) relative population weights (RPWs) for shortspine thornyhead (SST)
4. Results: total biomass, ABCs, OFLs, apportionment
5. Considerations for November

Link to Plan Team report (Appendix C)

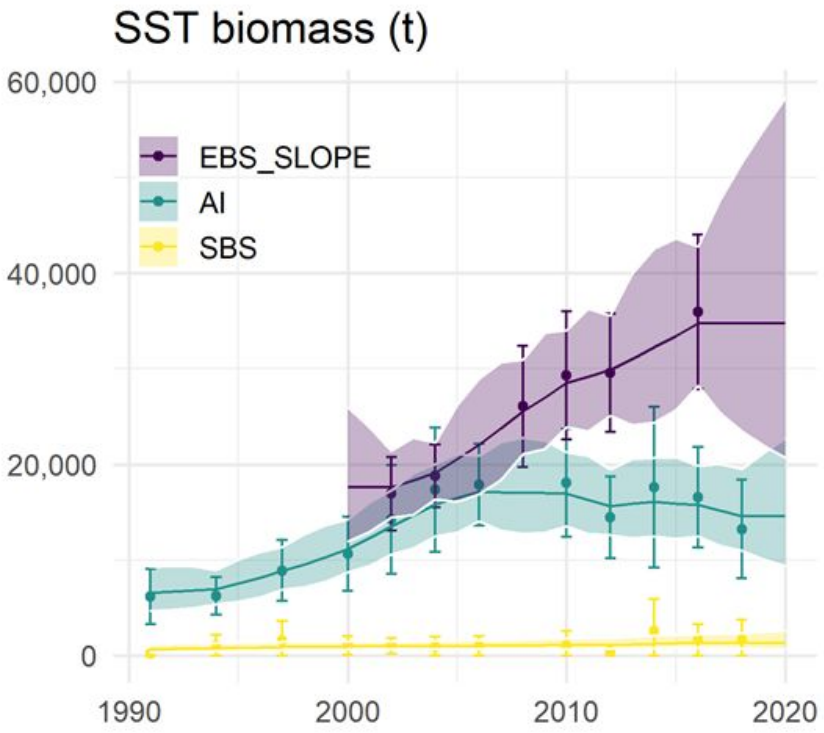
Current assessment (p. 41)

1. Current assessment uses multivariate version of the random effects (REM) model (Tier 5)
2. SST (95%) and non-SST (5%) fit separately
   a. SST (3 strata): AI BTS (SBS and AI), EBS slope BTS
   b. non-SST (4 strata): AI BTS (SBS and AI), EBS shelf BTS, EBS slope BTS
3. Pooled process error for both SST and non-SST

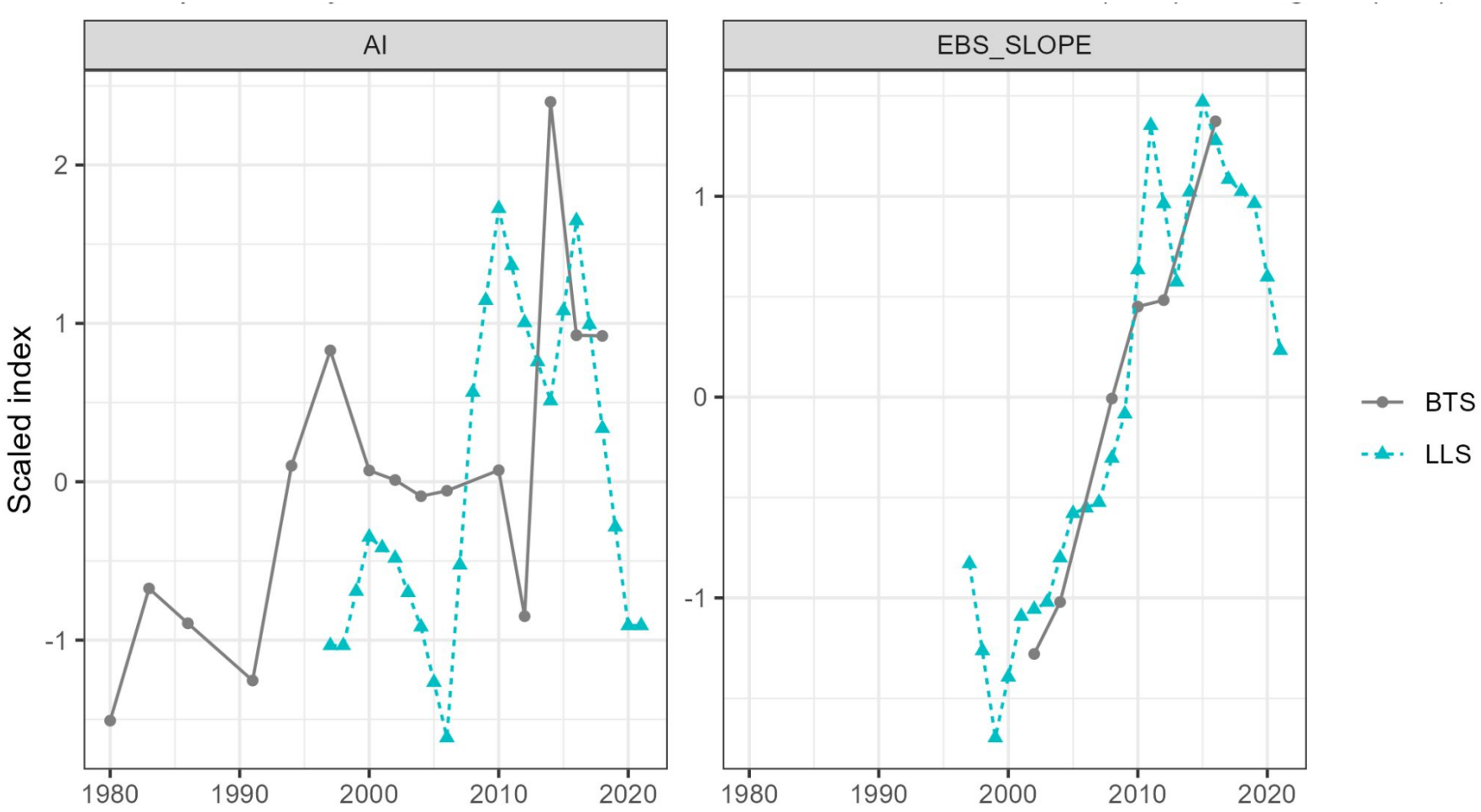
Why include the longline survey (LLS)?

Assessment-related considerations	*Population dynamics considerations*	*Environmental/ ecosystem considerations*	*Fishery Performance considerations*
Level 2: Substantially increased concerns	Level 1: No apparent concern	Level 1: No apparent concern	Level 1: No apparent concern

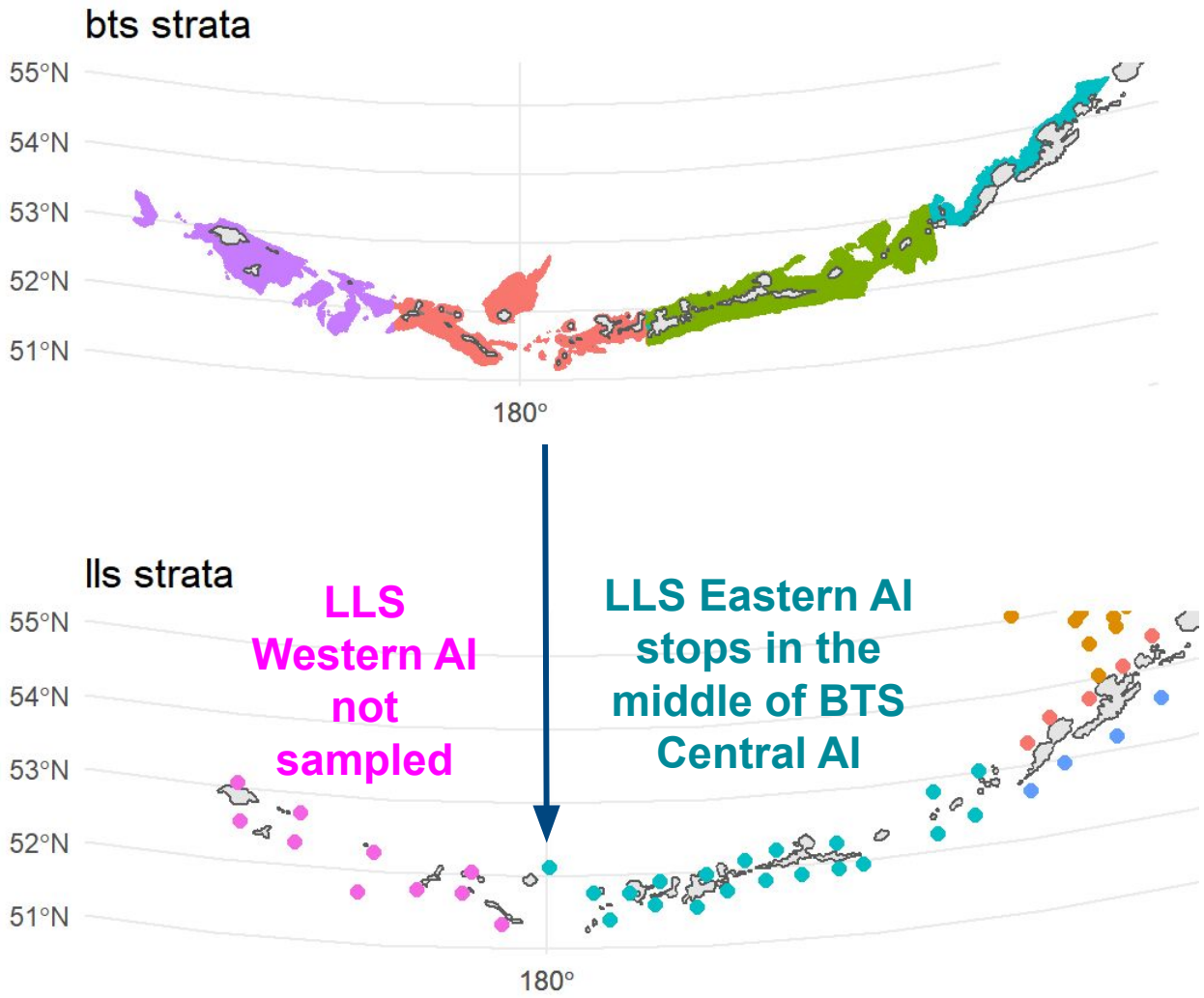
- SST on the EBS slope comprise ~65% of all BSAI other rockfish
- Last surveyed in 2016 (ended on a high)



SST in the bottom trawl (BTS) and longline surveys (LLS)



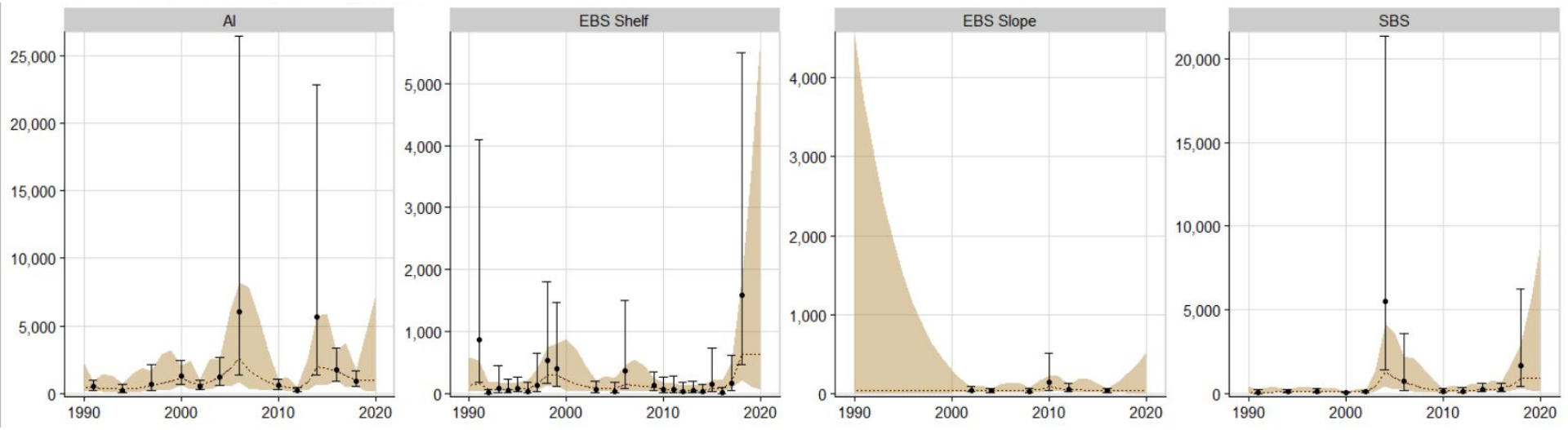
Spatial mismatch in the AI



Alternative models (p. 40)

1. Transition REM model from ADMB (**Model 20**) to TMB (**Model 20.a**) using *rema* R library
    a. Summing total log biomass variance: Marlow vs. delta method (p. 4)
2. Add LLS RPWs for SST on the EBS slope (**Model 22**)

Bridge non-SST from ADMB to TMB



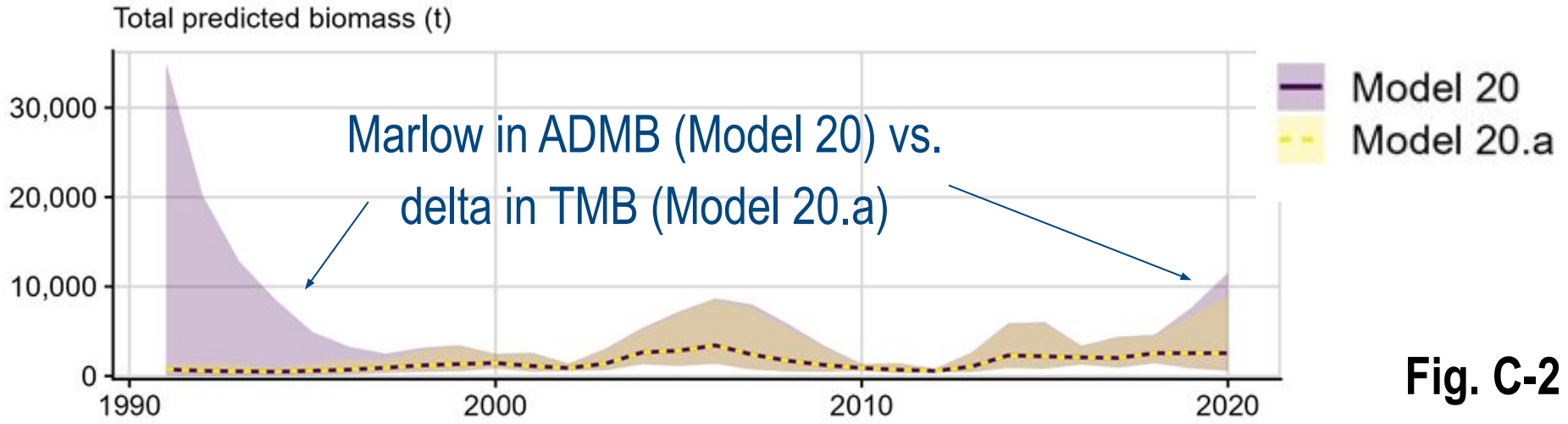
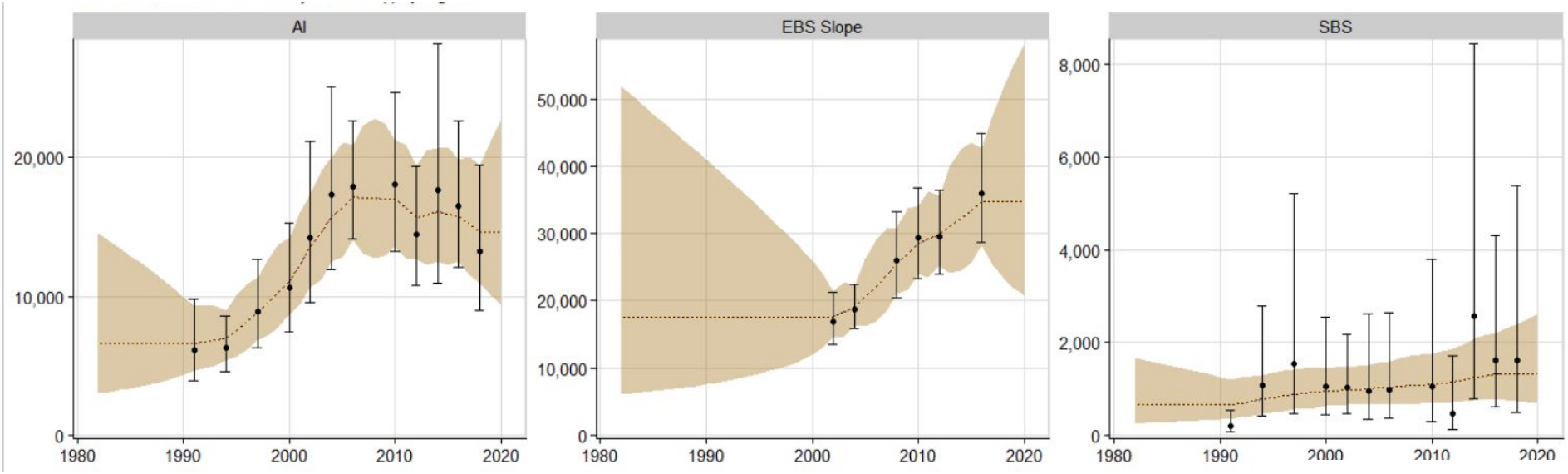


Fig. C-2
(p. 48)

Bridge SST from ADMB to TMB



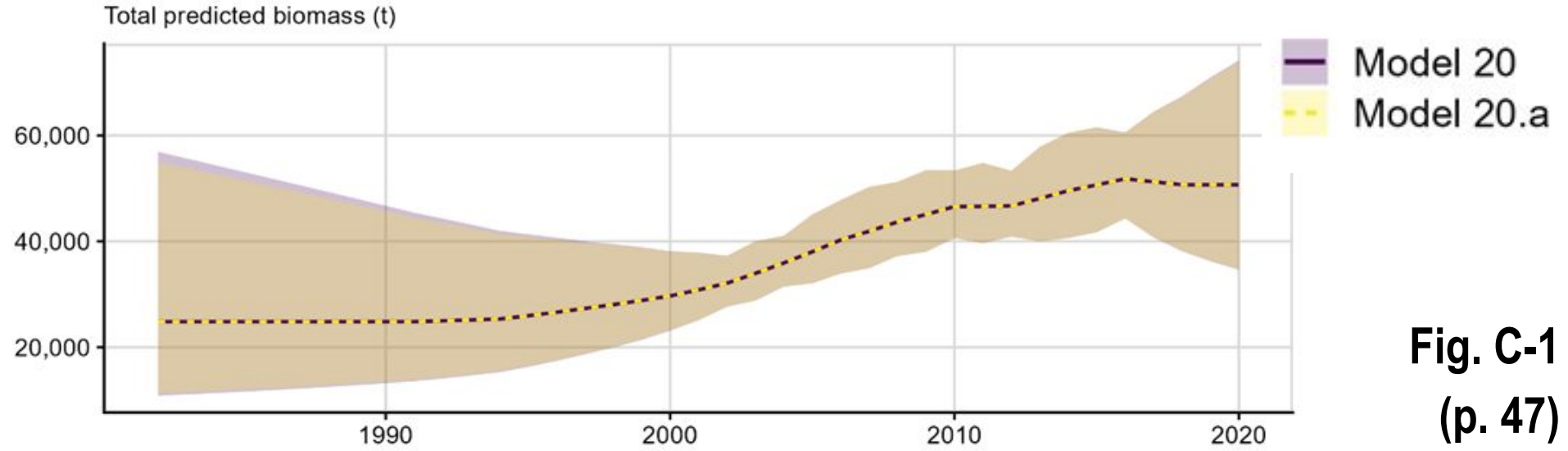


Fig. C-1 (p. 47)

Add LLS RPWs to SST on the EBS slope

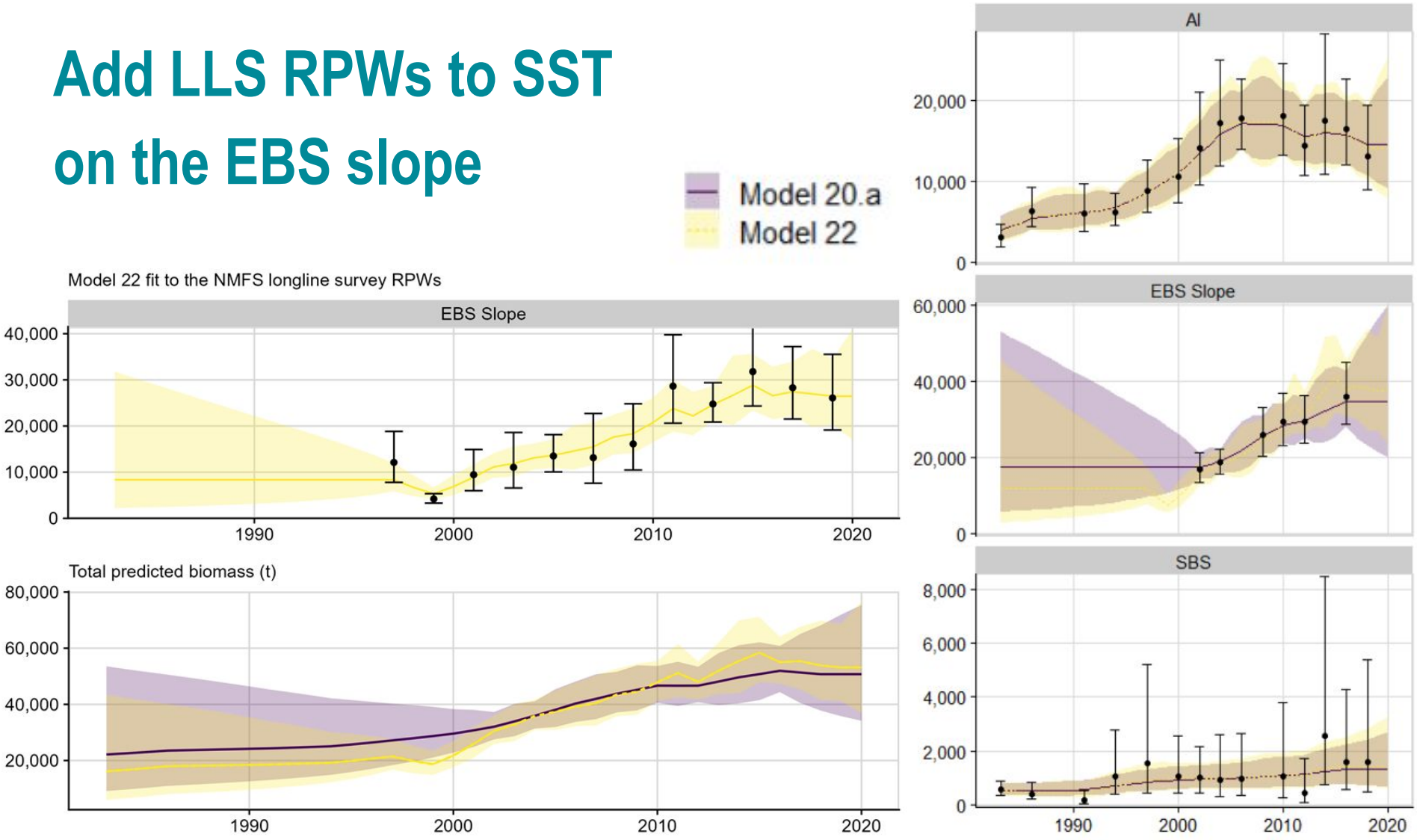


Fig. C-3 (p. 49)

Increase in process error

Species group	Model	Parameter	Estimate	SE
non-SST	Model 20.a	Process error	0.738	0.126
non-SST	Model 22	Process error	0.738	0.126
SST	Model 20.a	Process error	0.128	0.027
SST	Model 22	Process error	0.176	0.033
SST	Model 22	Scaling parameter (q)	0.705	0.064

Table. C-2 (p. 46)

Total biomass, ABC, and OFL

Model	Year	Biomass (t)	OFL (t)	max ABC (t)	Percent change in biomass from Model 20	Percent change in OFL/ABC from Model 20
Model 20	2020	53,248	1,751	1,313	--	--
Model 20.a	2020	53,364	1,758	1,318	0.22%	0.41%
Model 22	**2020**	**55,793**	**1,831**	**1,373**	**4.78%**	**4.58%**

Apportionment

Model	AI	EBS
Model 20	30.0%	70.0%
Model 20.a	29.8%	70.2%
Model 22	**28.0%**	**72.0%**

Author-preferred model in bold. p. 41

Recommendation:

Bring new Model 22 (with LLS RPWs for SST on the EBS slope) forward in November 2022

Questions for the Team:

I plan to bring forward LLS length comps for comparison. They don't match well, but neither do the fishery and BTS length data. **Are there other data or analysis the Team will need to assess the utility of the LLS data?**