

# EBS Pcod Fishery ISS Assessment Results

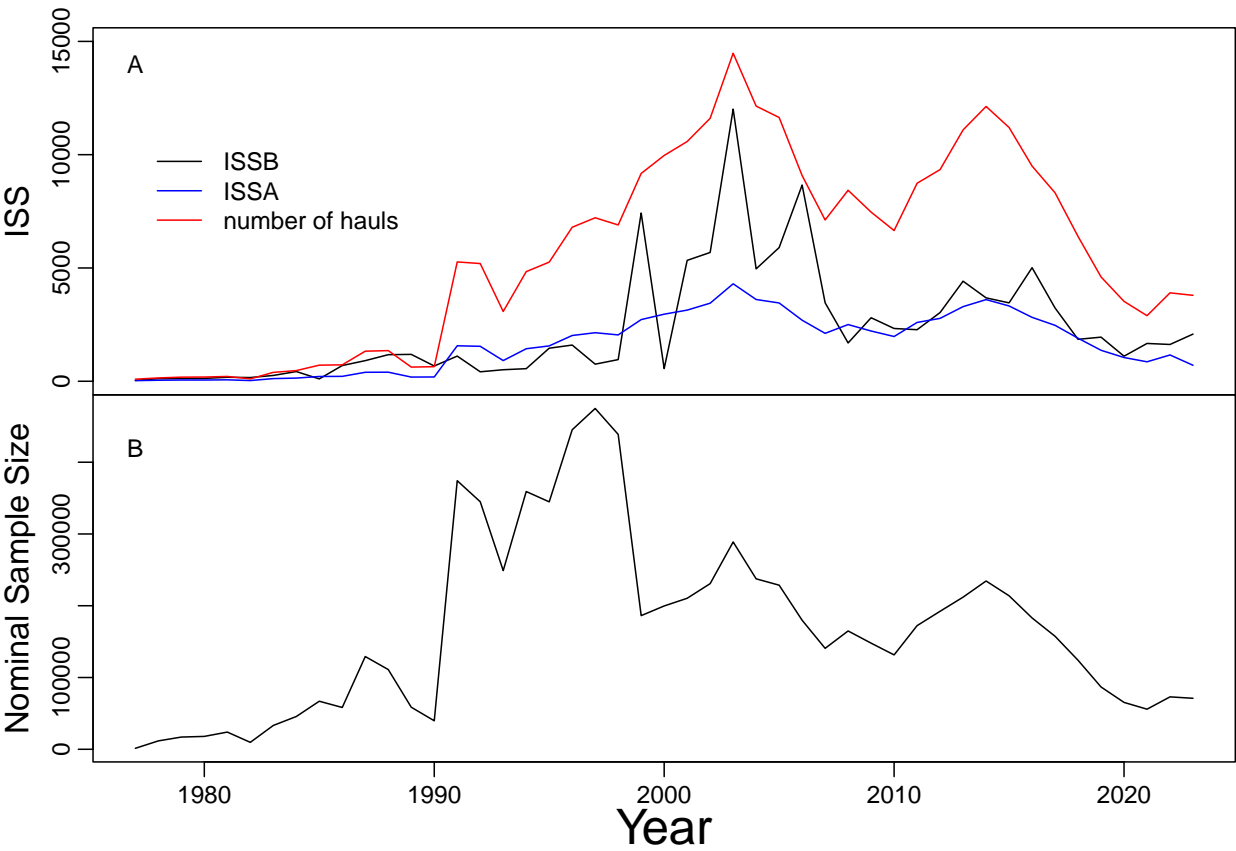
Brett Stacy

## Introduction

This document summarizes the impact of our bootstrap fishery composition ISS results on the 2023 EBS Pacific cod stock assessment.

## ISSB Results

ISSB stands for the fishery input sample size by bootstrapping. ISSB is the time series output from our bootstrap analysis. ISSA stands for the fishery input sample size traditionally used in the assessment.



## EBS Pcod Assessment Impact

Steve B. ran the published 2023 stock assessment version with ISSB to see if it impacted the assessment outcomes. The below results are from stock assessment runs with Francis tuning, although Steve also produced runs without tuning.

### Tables of parameters

These tables include the point estimates and standard deviations (SD) of selected parameters and quantities with the original 2023 assessment configuration using ISSA and the modified using ISSB. Both the untuned and tuned results are shown. The values highlighted in grey are the only values exceeding an absolute percent difference of 10%

	Point Estimate		SD	
	ISSA tuned	ISSB tuned	ISSA tuned	ISSB tuned
L_at_Amin_Fem_GP_1	14.87	14.84	0.3679	0.3717
L_at_Amax_Fem_GP_1	112.39	112.97	3.5082	3.7987
VonBert_K_Fem_GP_1	0.1155	0.1146	0.0132	0.0139
Richards_Fem_GP_1	1.4070	1.4122	0.0738	0.0772
SR_LN(R0)	13.41	13.40	0.0372	0.0380
LnQ_base_Survey(2)	-0.0763	-0.0664	0.0454	0.0471
Size_DblN_peak_Fishery(1)	74.82	74.68	0.9796	1.0681
Size_DblN_ascend_se_Fishery(1)	5.9624	5.9510	0.0439	0.0487
Size_DblN_peak_Survey(2)	22.00	21.87	0.5641	0.5863
Size_DblN_ascend_se_Survey(2)	3.8728	3.8440	0.1368	0.1427
SSB_2023	427,035	427,674	39,397	39,570
SSB_2038	470,184	468,587	20,879	15,571
SPRratio_2023	0.5533	0.5547	0.0257	0.0258
SPRratio_2038	0.5900	0.5939	0.0106	0.0041
Bratio_2023	0.3735	0.3724	0.0316	0.0313
Bratio_2038	0.4113	0.4080	0.0128	0.0079

**Tuned**

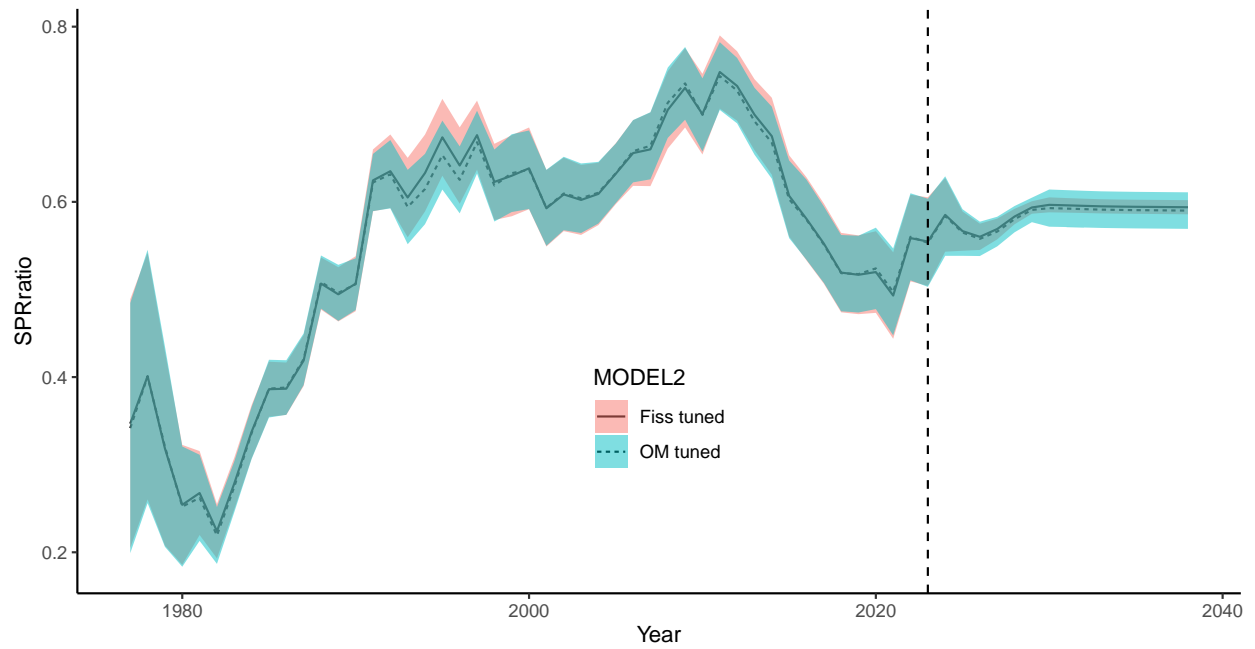
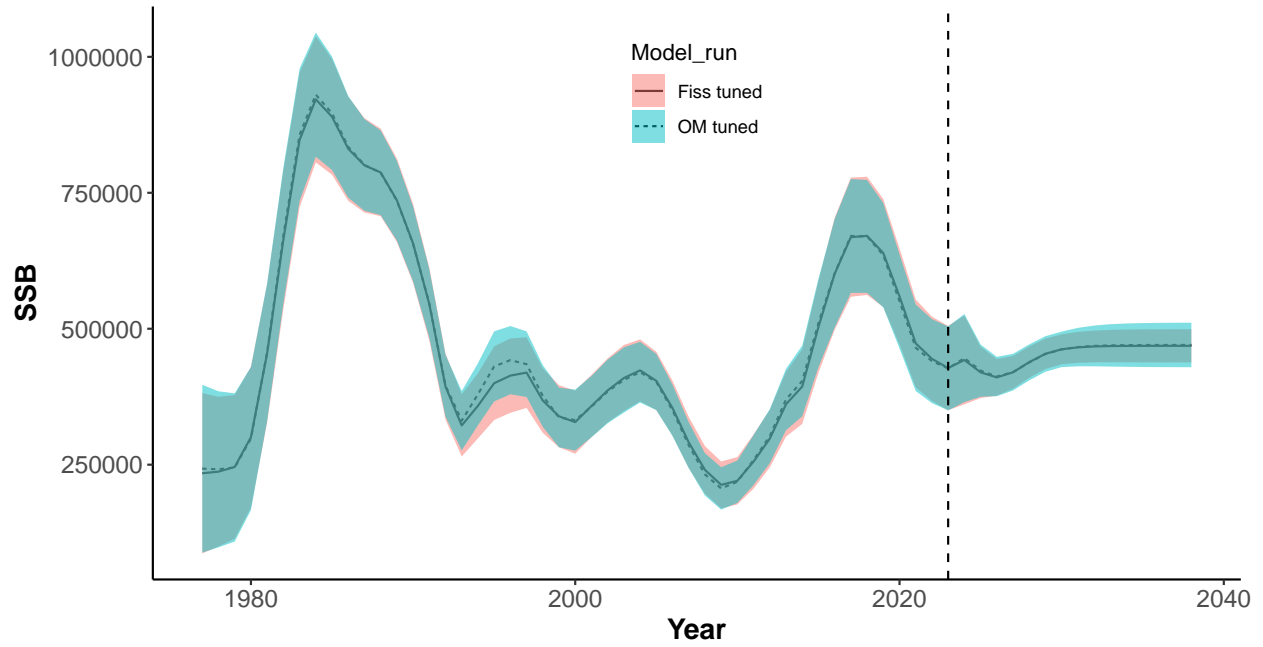
**Tuned with added params**

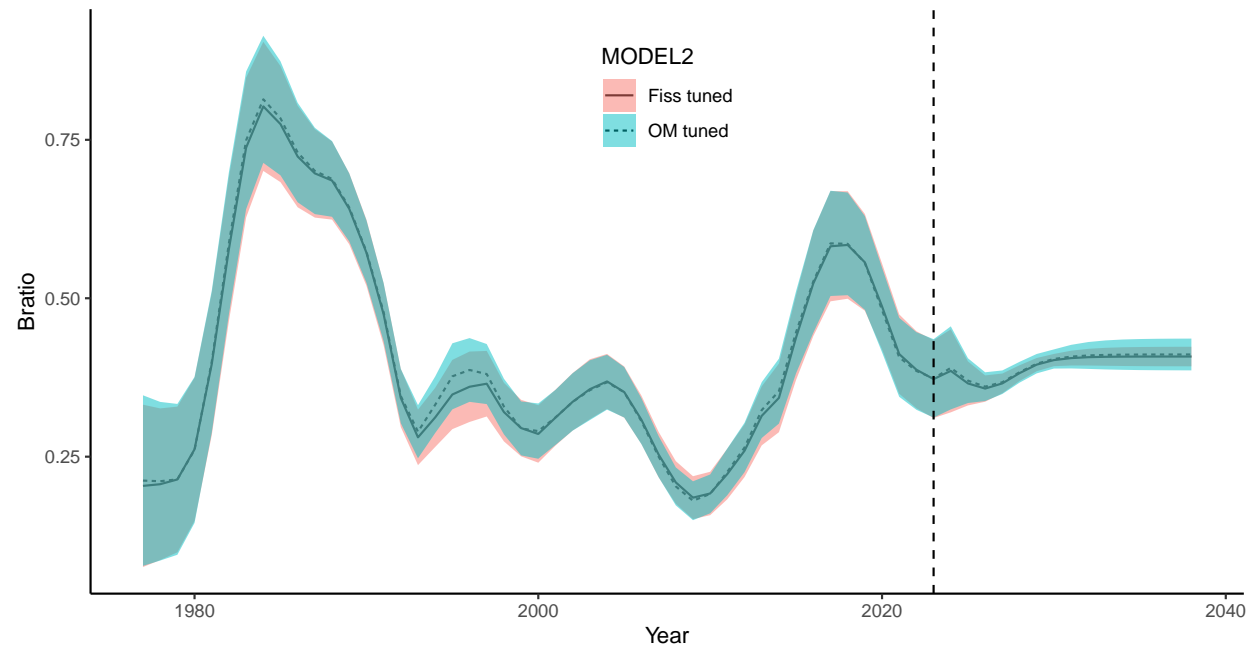
	Point Estimate		SD	
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Size_DblN_peak_Survey(2)	22.00	21.87	0.5641	0.5863
Size_DblN_ascend_se_Survey(2)	3.8728	3.8440	0.1368	0.1427
Size_DblN_peak_Fishery(1)_BLK4repl_1977	77.6051	79.9793	5.8828	0.6505
Size_DblN_ascend_se_Fishery(1)_BLK4repl_1977	6.5259	6.6270	0.2636	0.0774
SSB_2023	427,035	427,674	39,397	39,570
SSB_2038	470,184	468,587	20,879	15,571
SPRratio_2023	0.5533	0.5547	0.0257	0.0258
SPRratio_2038	0.5900	0.5939	0.0106	0.0041
Bratio_2023	0.3735	0.3724	0.0316	0.0313
Bratio_2038	0.4113	0.4080	0.0128	0.0079

	Point Estimate		SD	
	ISSA untuned	ISSB untuned	ISSA untuned	ISSB untuned
L_at_Amin_Fem_GP_1	14.80	14.73	0.3271	0.3350
L_at_Amax_Fem_GP_1	111.40	112.55	1.2349	1.1889
VonBert_K_Fem_GP_1	0.1162	0.1164	0.0054	0.0051
Richards_Fem_GP_1	1.3879	1.3818	0.0338	0.0324
SR_LN(R0)	13.46	13.42	0.0240	0.0247
LnQ_base_Survey(2)	-0.1736	-0.1308	0.0262	0.0276
Size_DblN_peak_Fishery(1)	74.11	73.88	0.3014	0.2705
Size_DblN_ascend_se_Fishery(1)	5.9386	5.9223	0.0134	0.0123
Size_DblN_peak_Survey(2)	23.07	23.21	0.3255	0.3244
Size_DblN_ascend_se_Survey(2)	4.1712	4.1821	0.0814	0.0823
SSB_2023	513,607	511,125	26,076	24,708
SSB_2038	468,837	462,078	12,681	12,759
SPRratio_2023	0.5060	0.5115	0.0145	0.0138
SPRratio_2038	0.5901	0.5979	0.0033	0.0024
Bratio_2023	0.4485	0.4457	0.0209	0.0198
Bratio_2038	0.4094	0.4029	0.0065	0.0064

**Untuned**

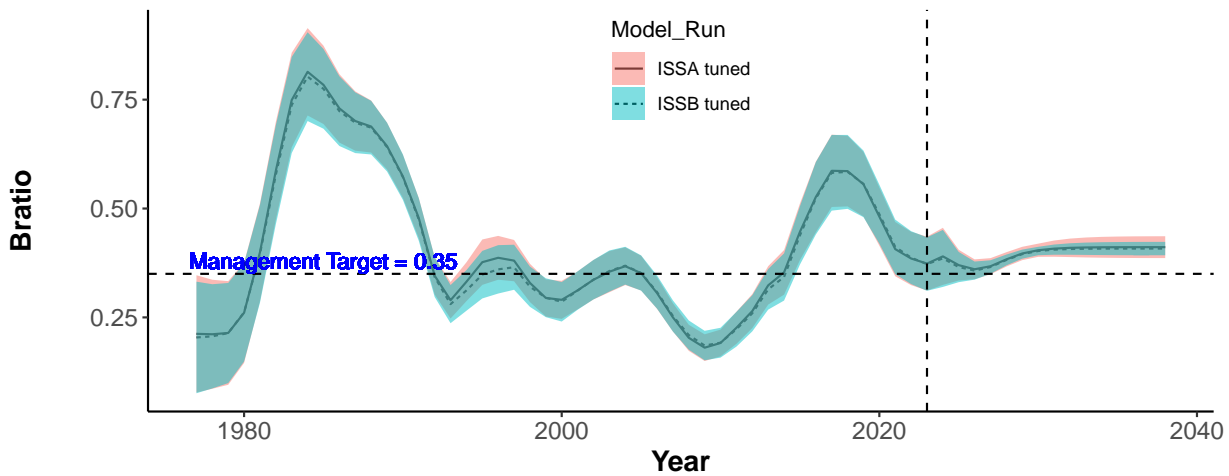
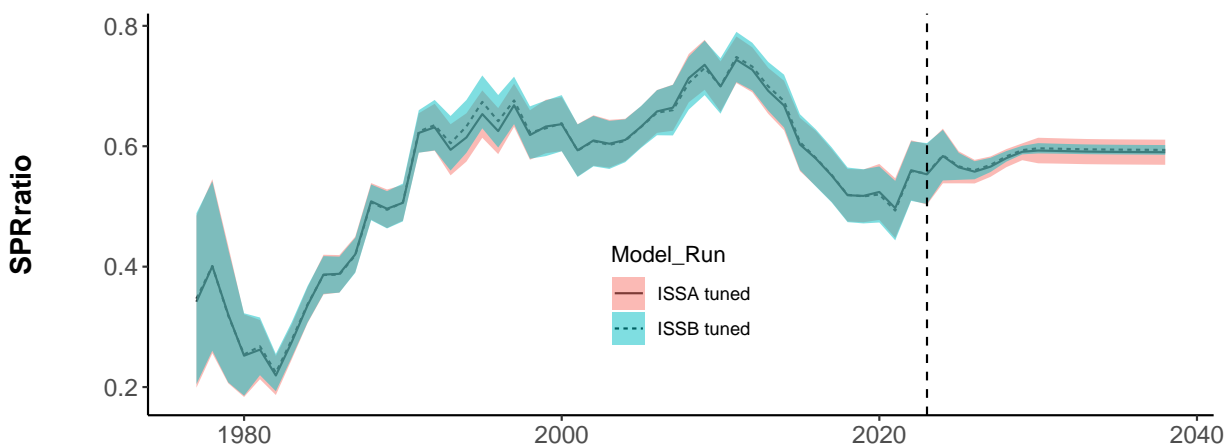
## Plots old

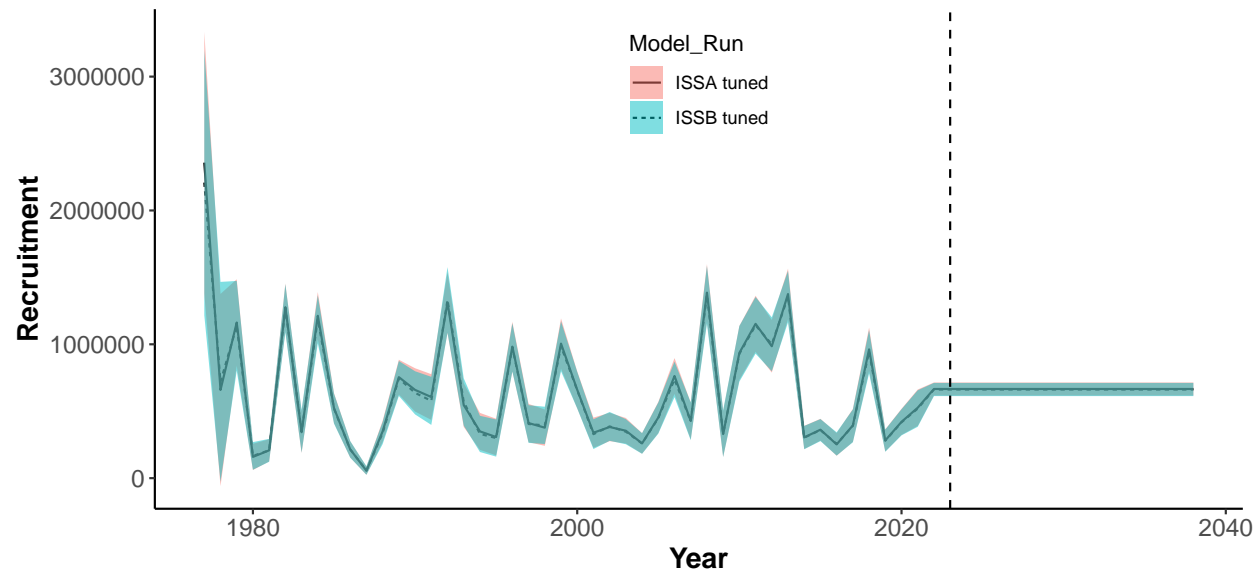


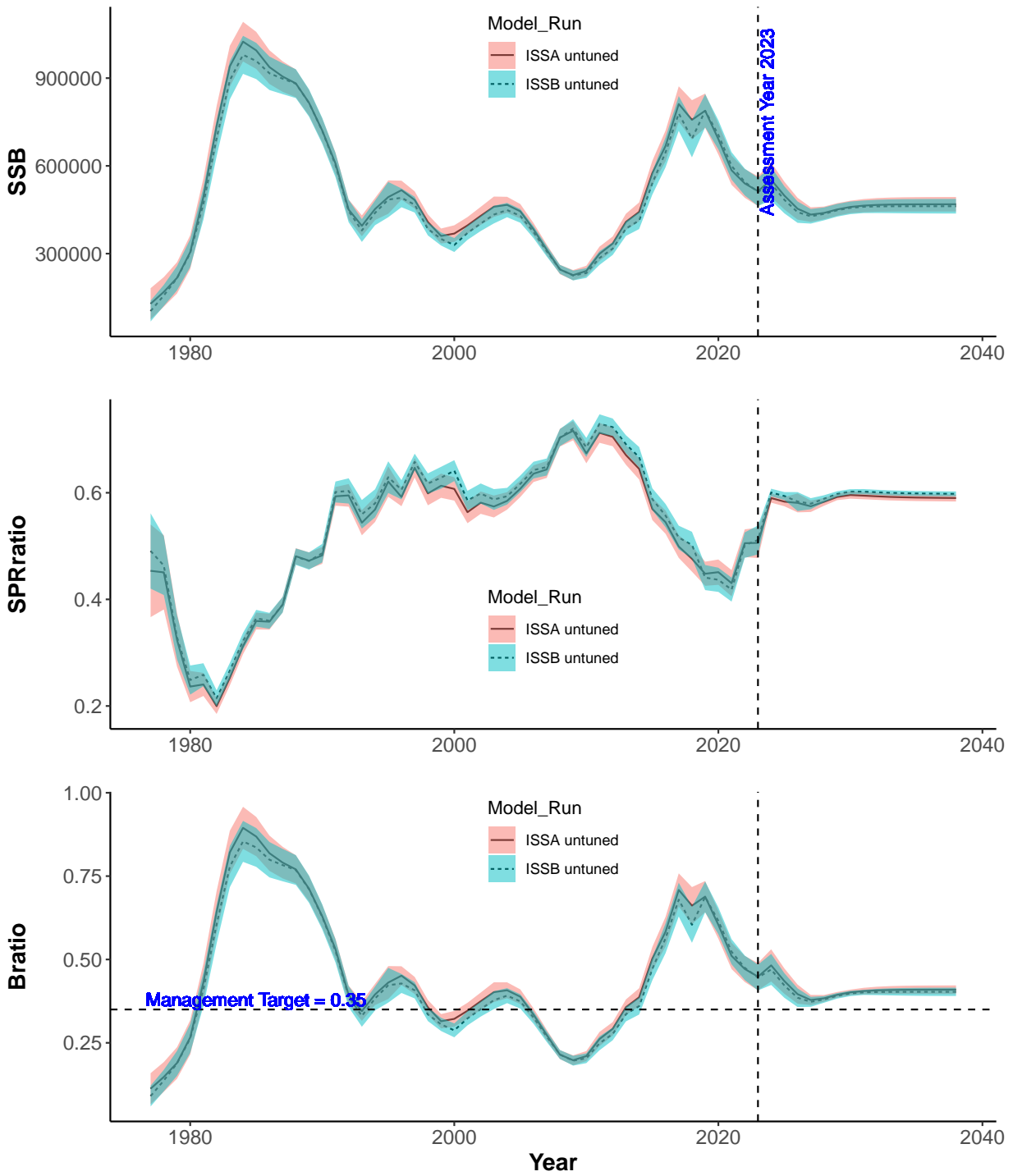


Plots









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