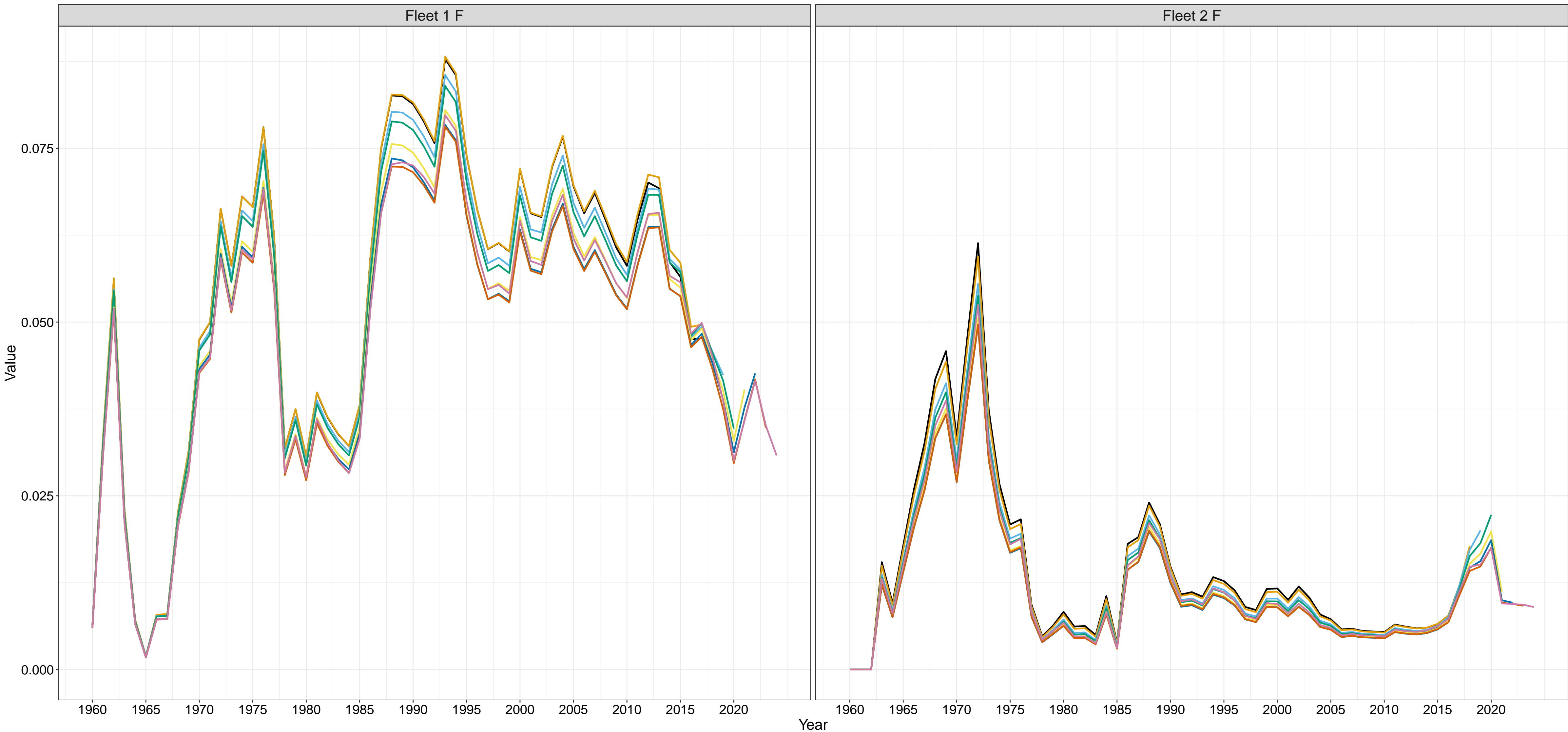


Fishing Mortality

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



Recruitment

Model

25_8_Age_Upd_Code_2017

25_8_Age_Upd_Code_2019

25_8_Age_Upd_Code_2021

25_8_Age_Upd_Code_2023

25_8_Age_Upd_Code_2018

25_8_Age_Upd_Code_2020

25_8_Age_Upd_Code_2022

25_8_Age_Upd_Code_2024

Recruitment

Recruitment

200

100

0

1960

1965

1970

1975

1980

1985

1990

1995

2000

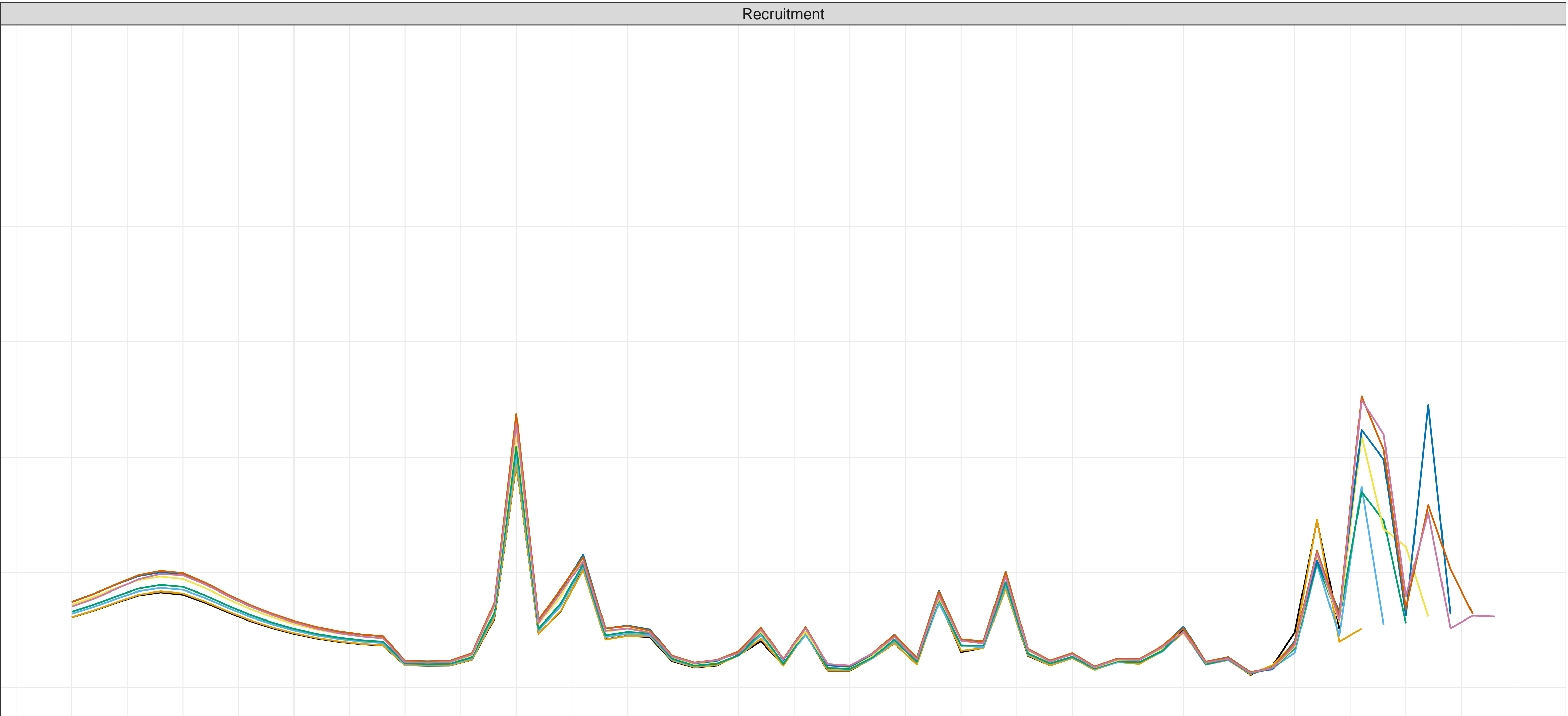
2005

2010

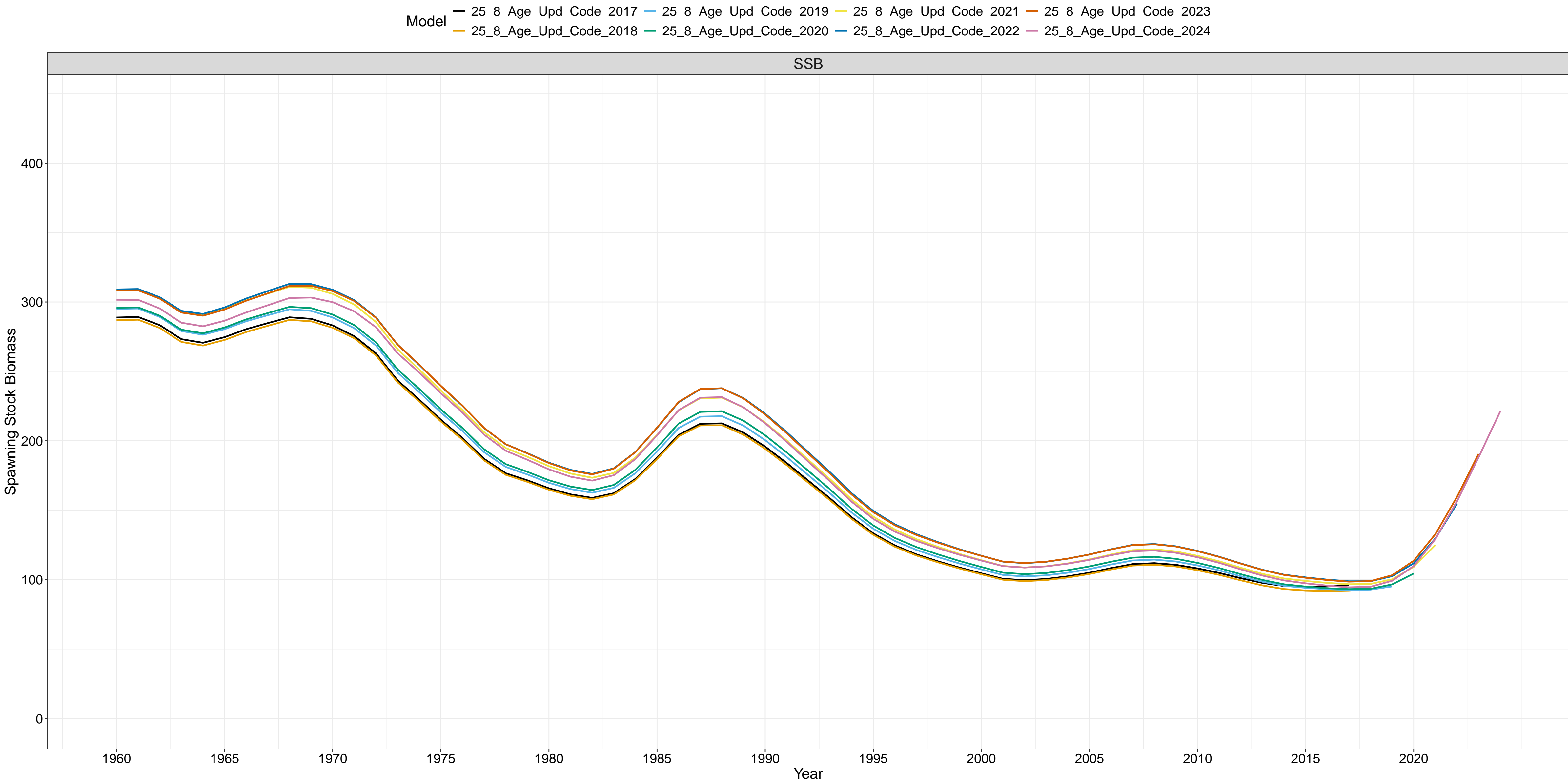
2015

2020

Year

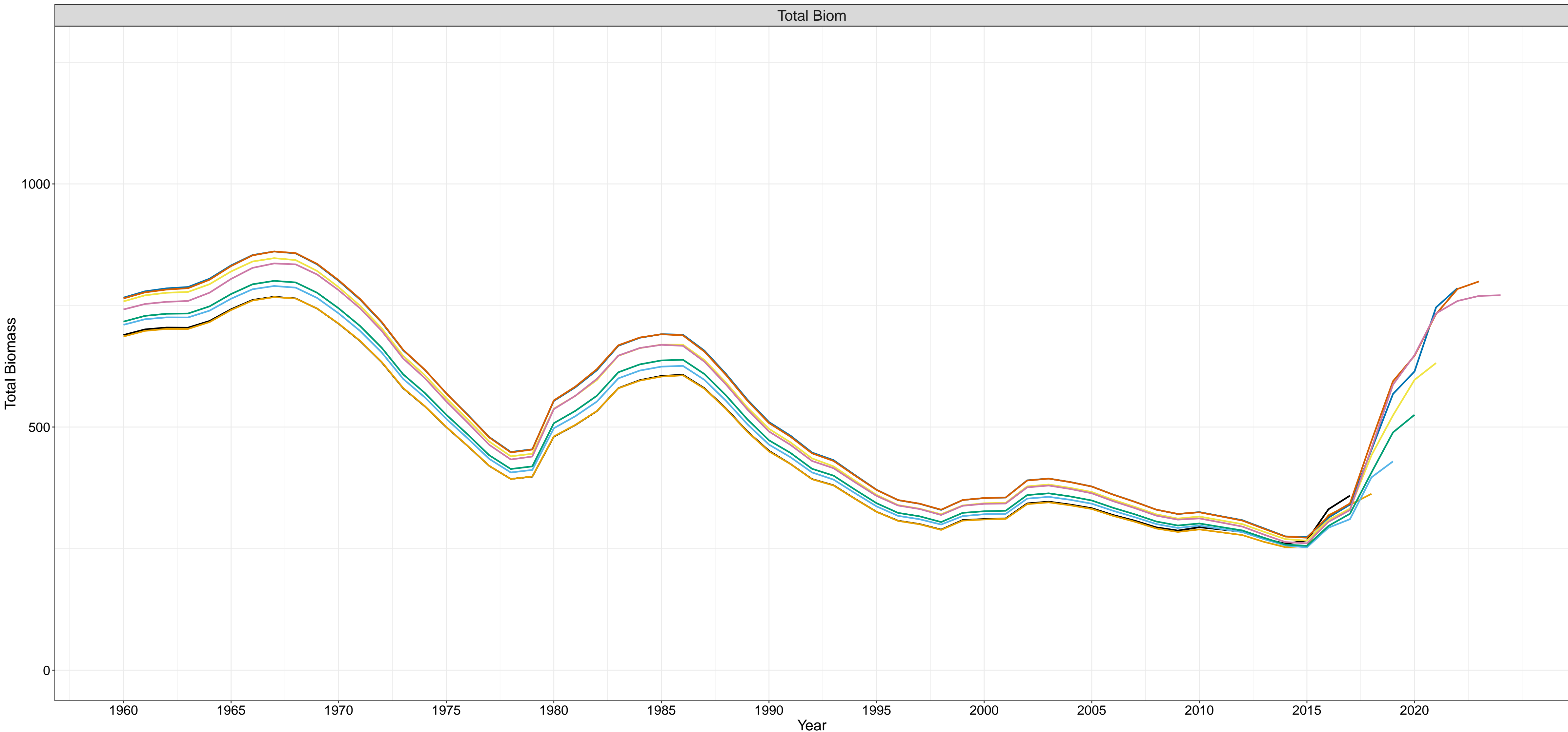


SSB



Biomass

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



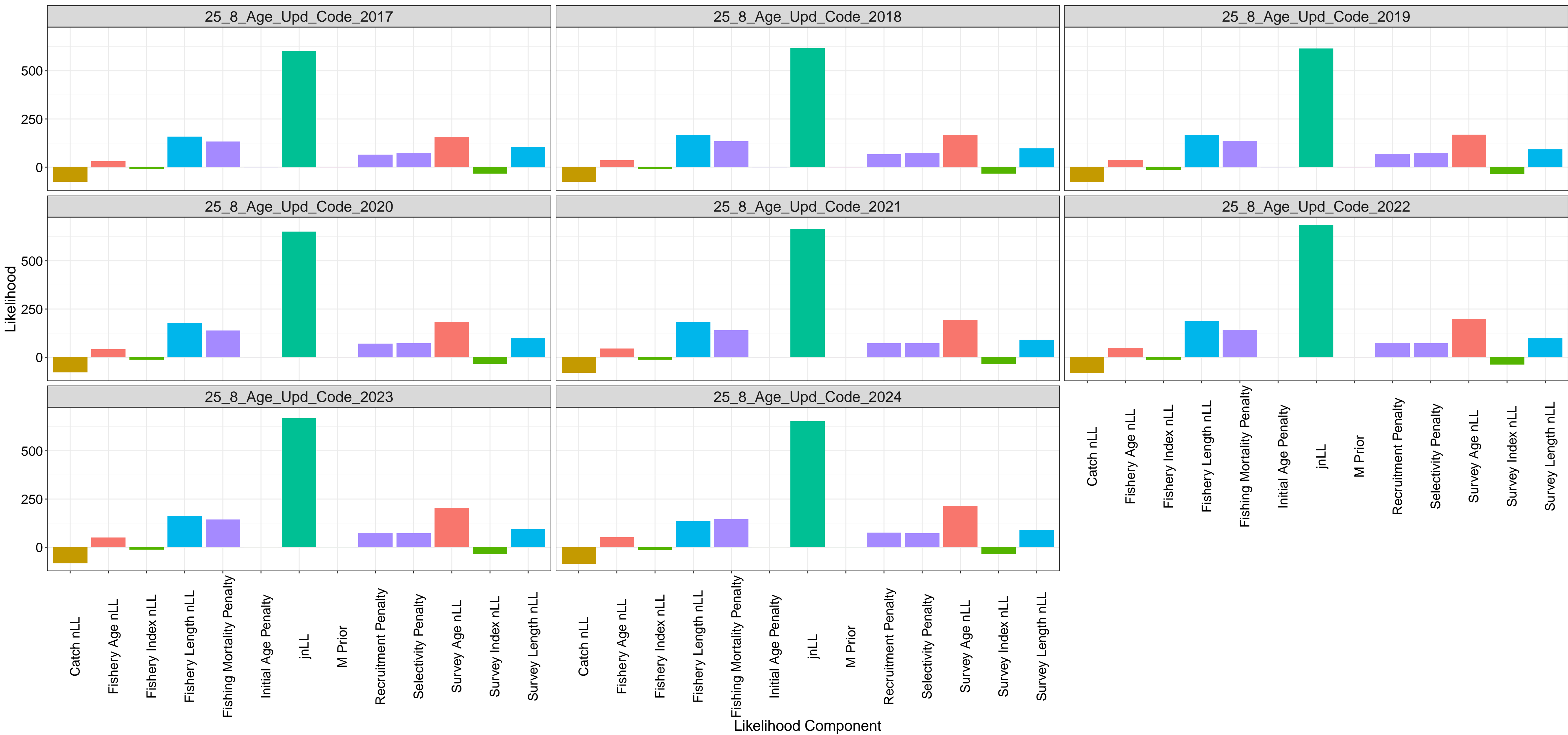
	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	25_8_Age_Upd_Code_2024	1	221.26322	0.03979598	53.31742	126.15733	0.09078	1.75387	0.43839
2	25_8_Age_Upd_Code_2023	1	190.66300	0.04392976	54.16168	126.65803	0.09073	1.50534	0.48419
3	25_8_Age_Upd_Code_2022	1	154.72912	0.05222608	50.91266	120.11736	0.08977	1.28815	0.58180
4	25_8_Age_Upd_Code_2021	1	124.95390	0.05142868	40.90236	116.31651	0.08938	1.07426	0.57542
5	25_8_Age_Upd_Code_2020	1	104.43922	0.05691347	32.92520	109.65958	0.09026	0.95239	0.63054
6	25_8_Age_Upd_Code_2019	1	95.15326	0.06240903	25.75426	101.53274	0.08836	0.93717	0.70633
7	25_8_Age_Upd_Code_2018	1	93.28138	0.06328771	20.16979	104.71797	0.08954	0.89079	0.70678
8	25_8_Age_Upd_Code_2017	1	95.93479	0.05963777	20.98568	99.45027	0.08852	0.96465	0.67370

	Model	jnLL	M Prior	Recruitment Penalty	Selectivity Penalty	Catch nLL	Fishing Mortality Penalty	Survey Index nLL	Fishery Index nLL	Initial Age Penalty	Survey Age nLL	Fishery Age nLL	Survey Length nLL	Fishery Length nLL
1	25_8_Age_Upd_Code_2024	653.9155	0.32444252	75.84462	72.23689	−84.33756	145.3653	−36.25234	−12.70699	0.1736375	215.7966	51.61723	90.02423	135.8293
2	25_8_Age_Upd_Code_2023	668.2654	0.53190182	74.77307	72.41464	−83.04235	143.3625	−36.12124	−12.62203	0.1708234	204.8542	49.80889	92.52532	161.6096
3	25_8_Age_Upd_Code_2022	687.6478	0.41398728	74.17941	72.51421	−81.68550	141.5036	−38.72245	−12.89851	0.1737497	198.8870	48.47914	98.55823	186.2449
4	25_8_Age_Upd_Code_2021	665.9603	0.08255489	71.50667	72.52847	−80.32264	139.8416	−36.99384	−12.58635	0.1796925	194.8281	45.06707	90.75802	181.0710
5	25_8_Age_Upd_Code_2020	652.4694	−0.45269787	70.11699	72.61809	−78.92656	138.1440	−35.36609	−12.21265	0.1780239	181.9628	41.51266	98.01850	176.8763
6	25_8_Age_Upd_Code_2019	615.0472	−0.63878592	67.78336	72.56450	−77.59966	136.1590	−34.92893	−12.41874	0.1860925	168.5491	37.11905	91.53142	166.7407
7	25_8_Age_Upd_Code_2018	616.1703	−0.87585517	66.22864	72.51353	−76.18310	134.1116	−33.67964	−11.83431	0.1860171	166.7445	35.20022	97.53585	166.2228
8	25_8_Age_Upd_Code_2017	602.2434	−0.93246879	65.40696	72.47472	−74.85239	132.2637	−32.81565	−10.91722	0.1944849	156.2190	31.11781	105.72220	158.3623

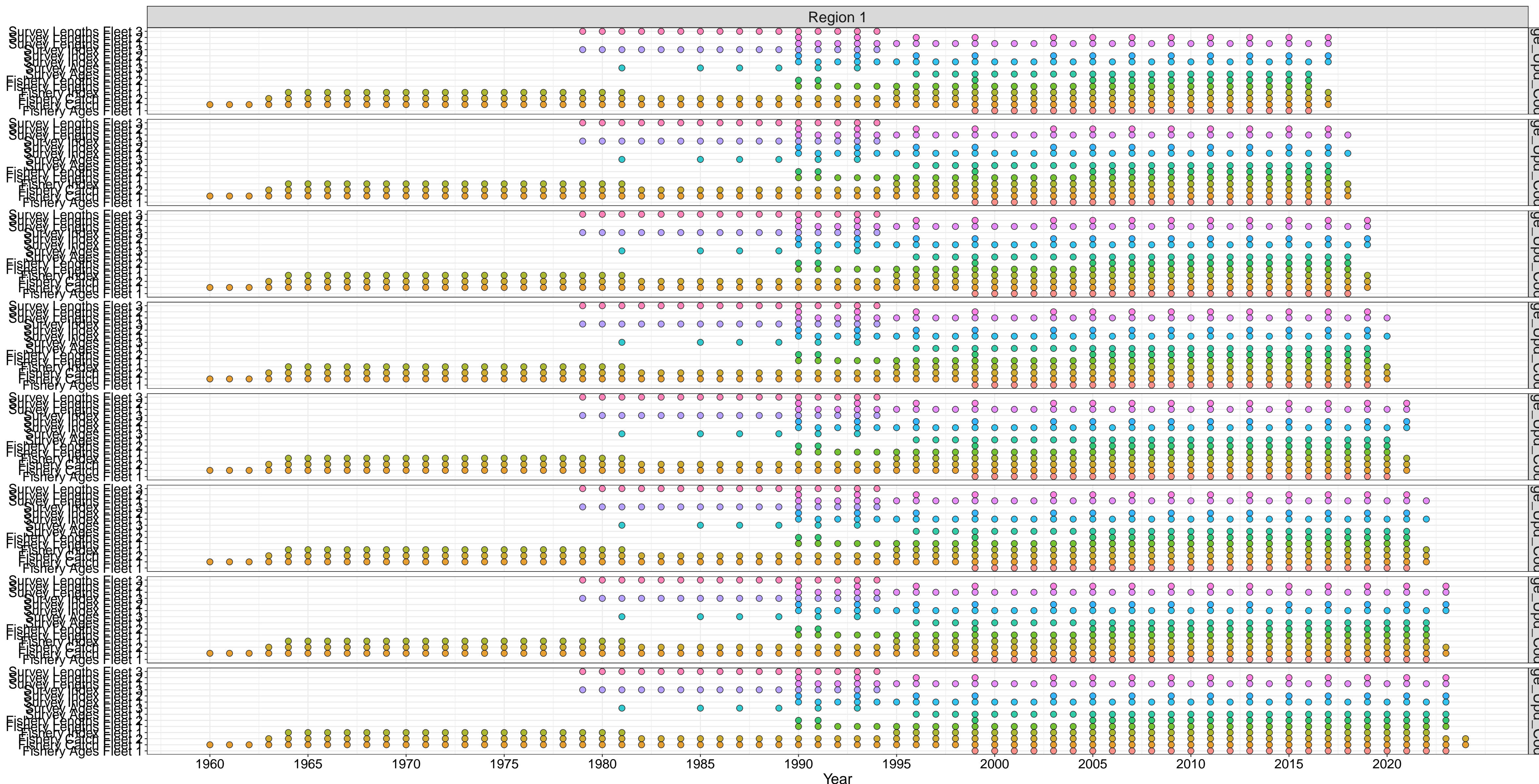
Negative Log-Likelihood

Type

Age	Index	Length	Prior
Catch	jnLL	Penalty	

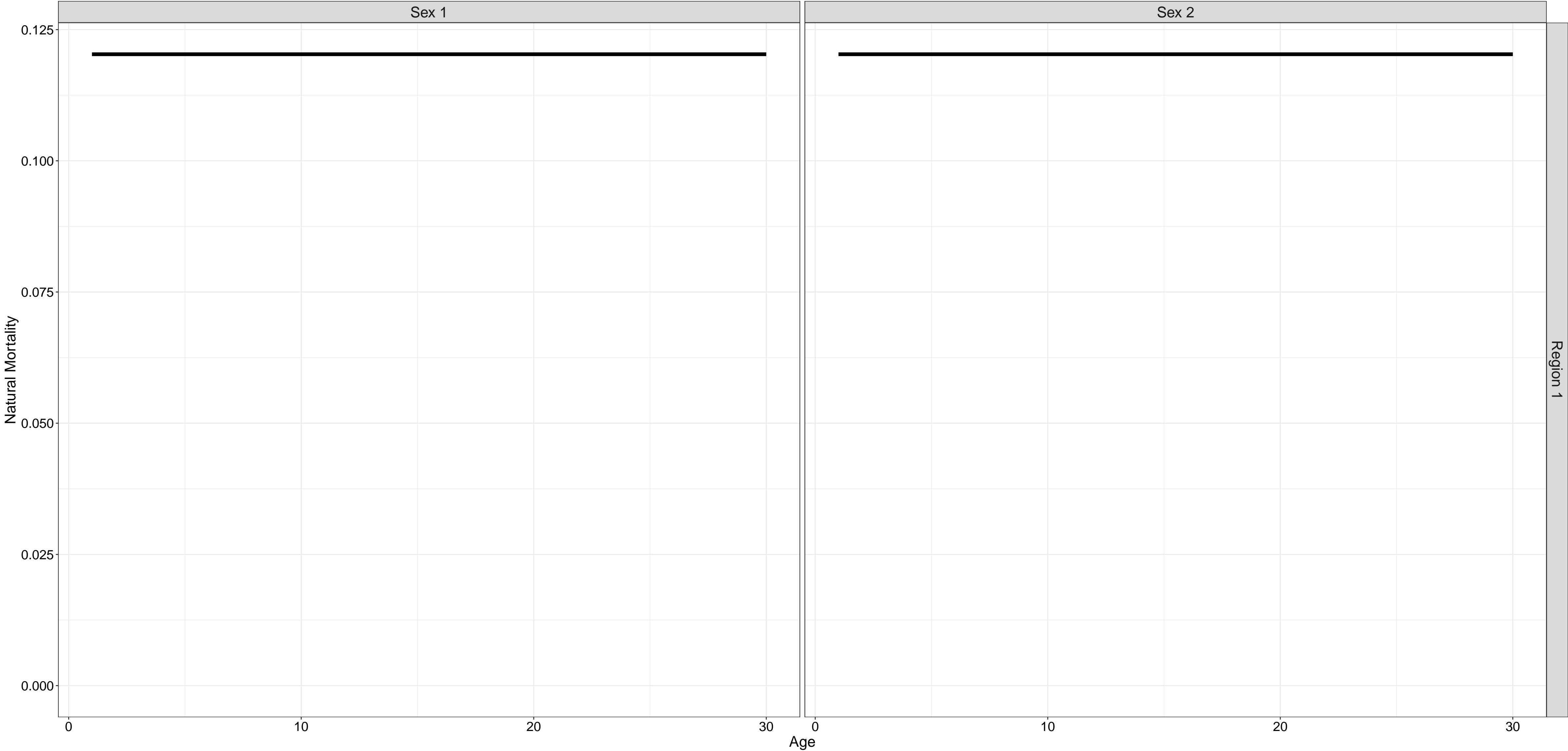


Data



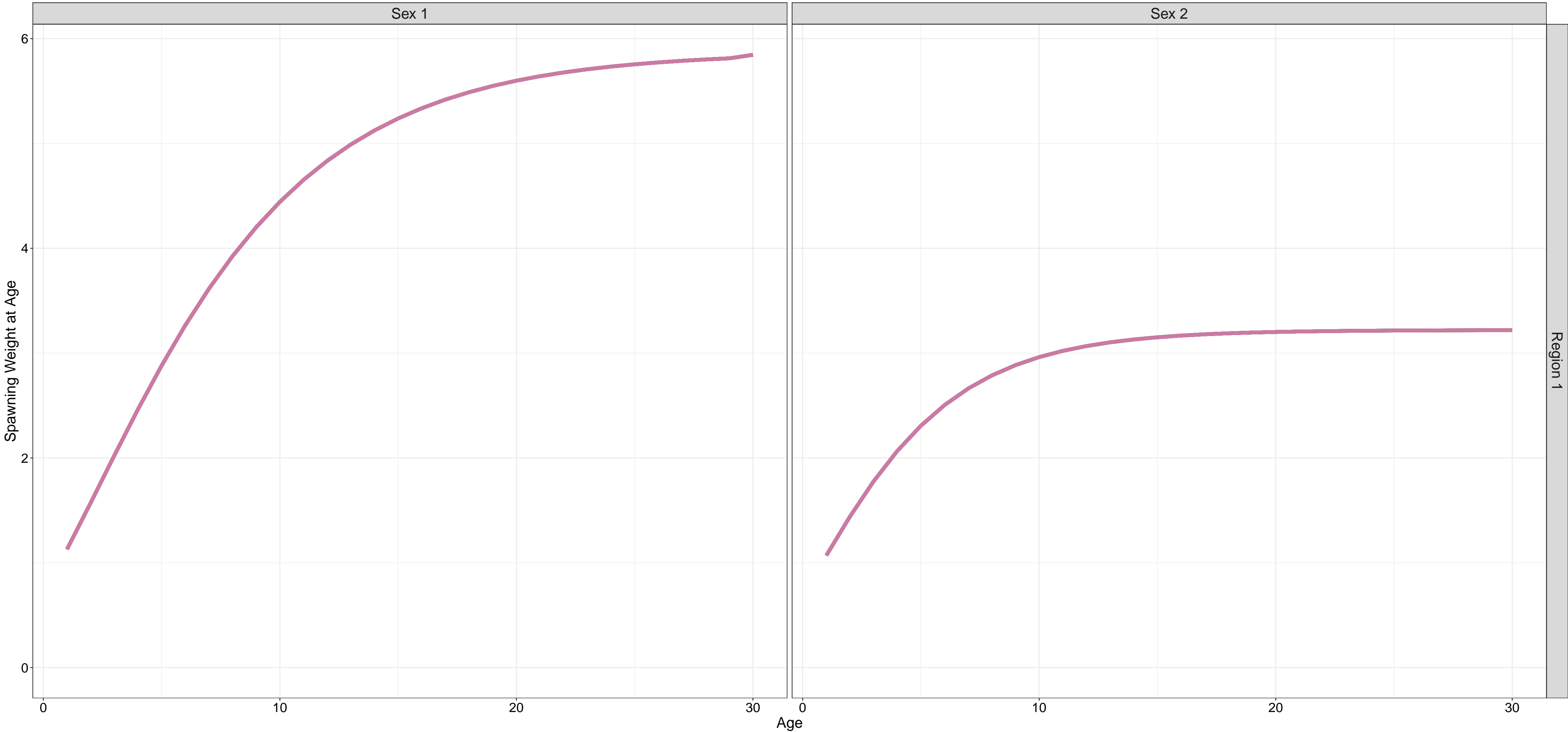
Natural Mortality

Model 25_8_Age_Upd_Code_2024



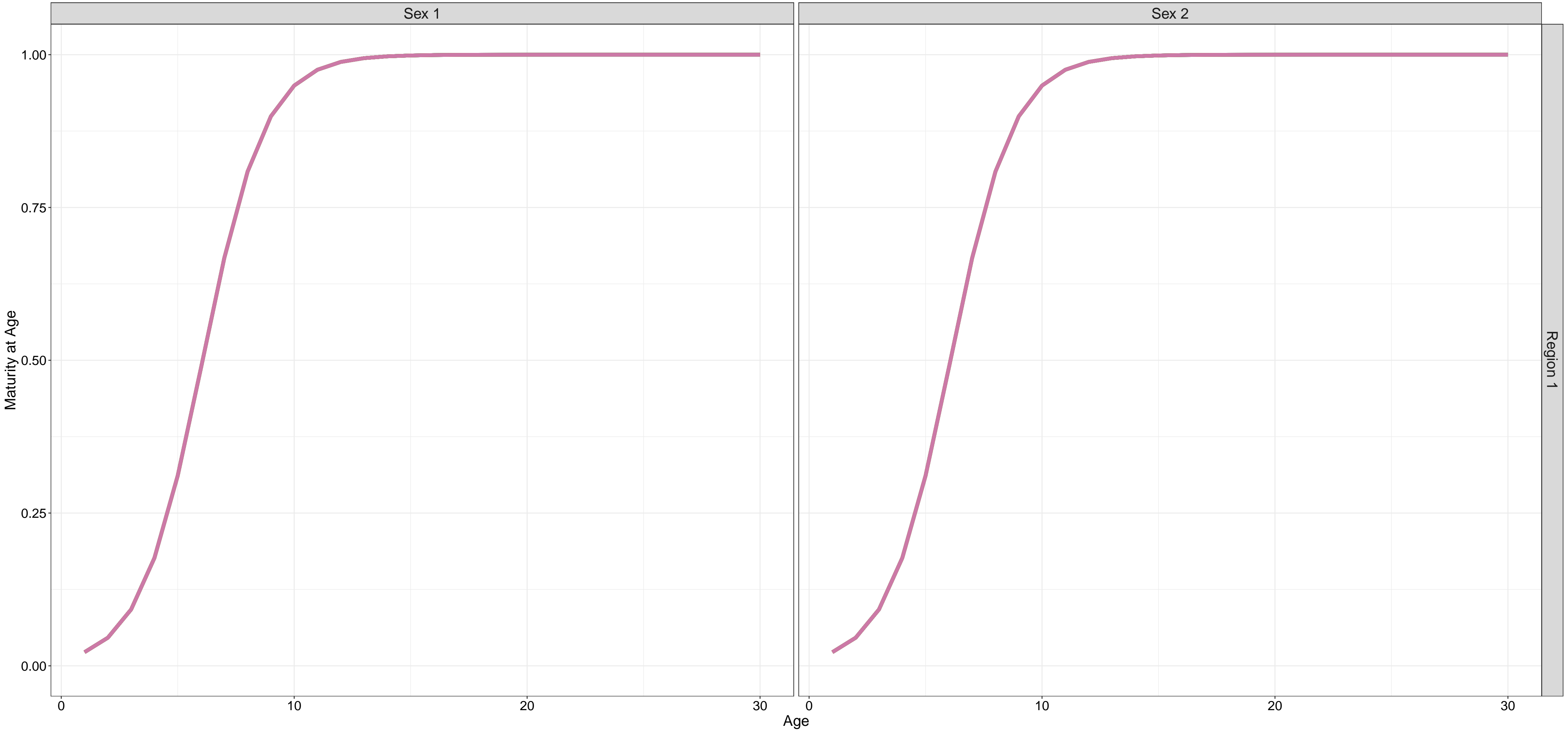
Weight-at-Age

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



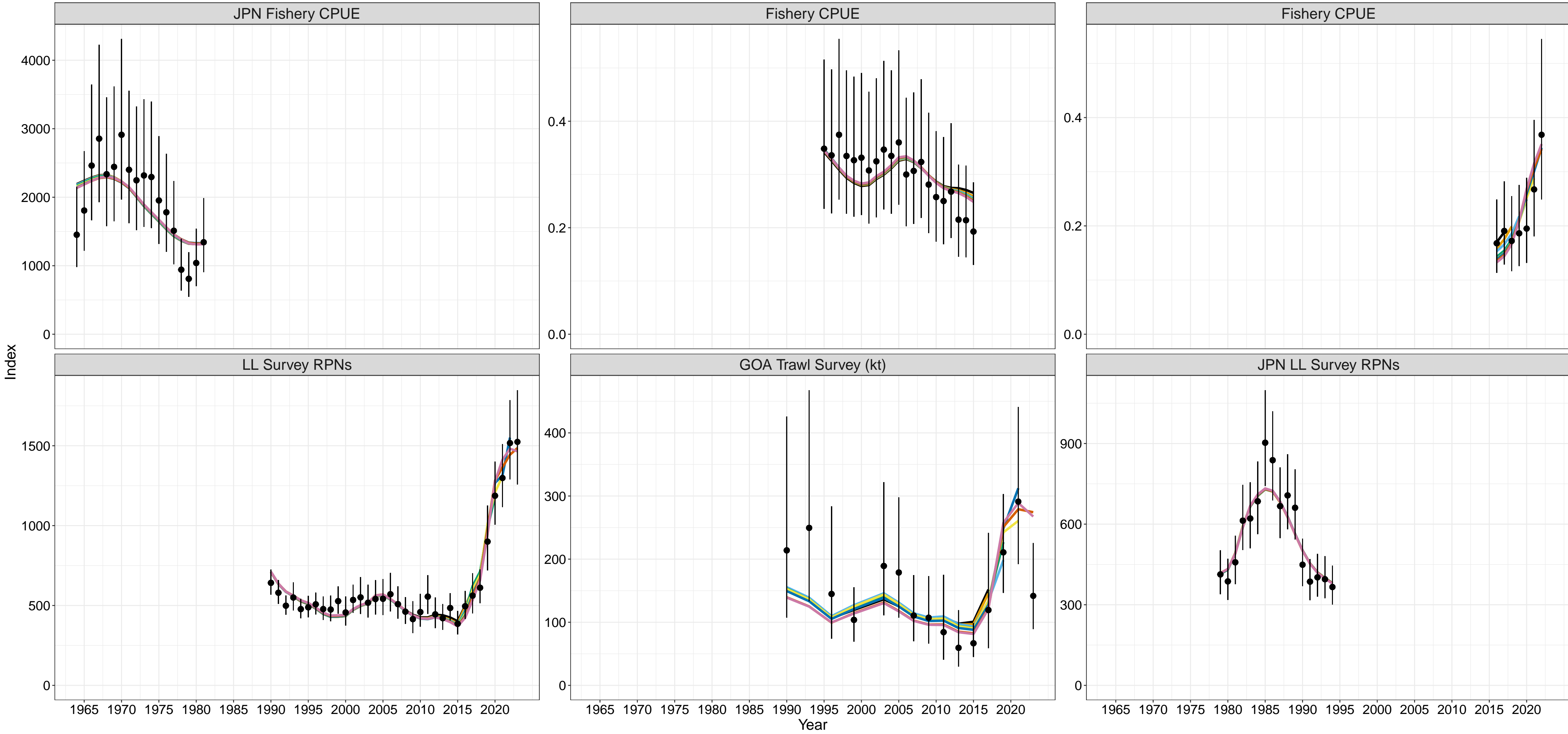
Maturity

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



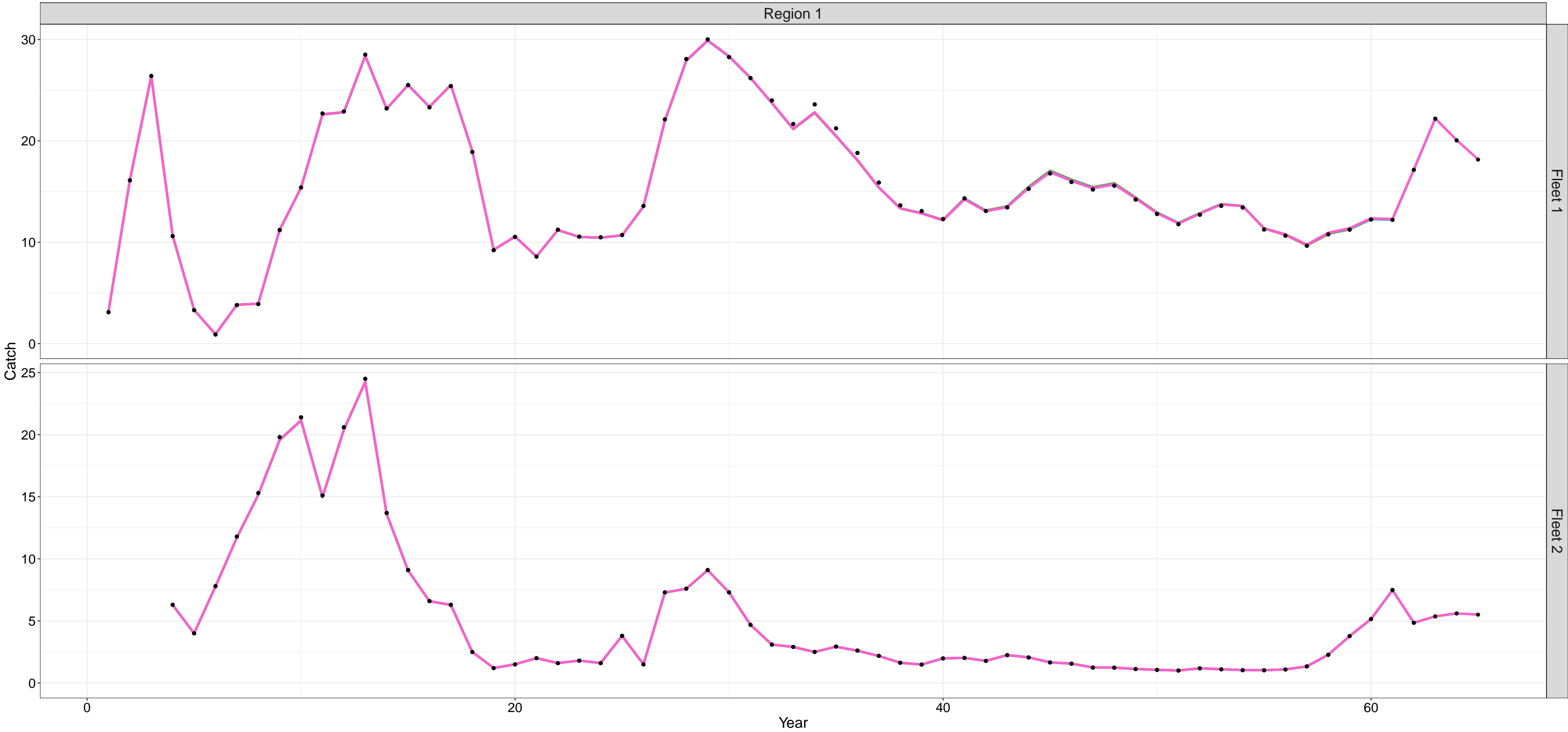
Index Fits

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024

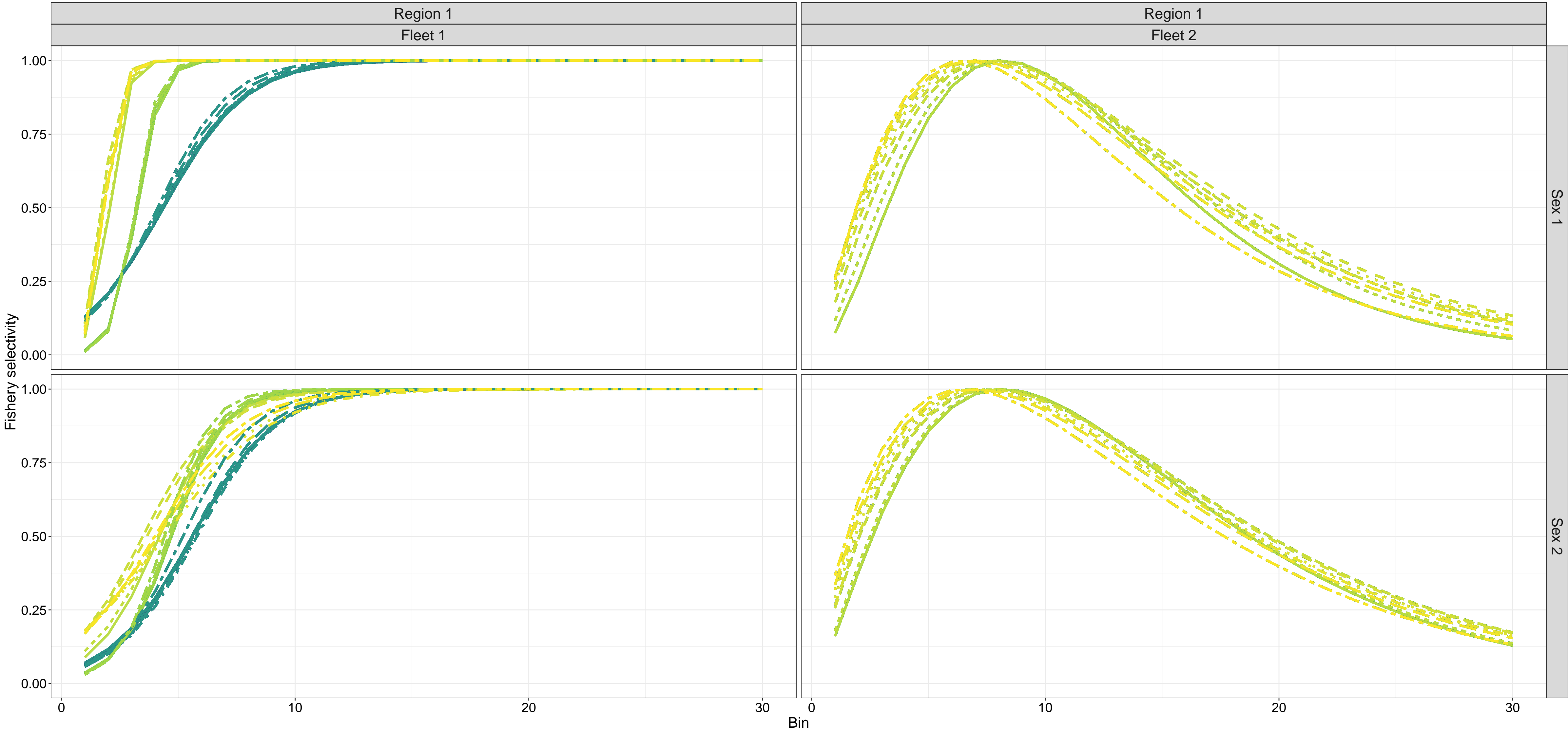
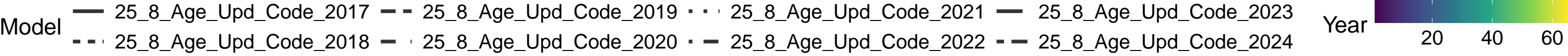


Catch

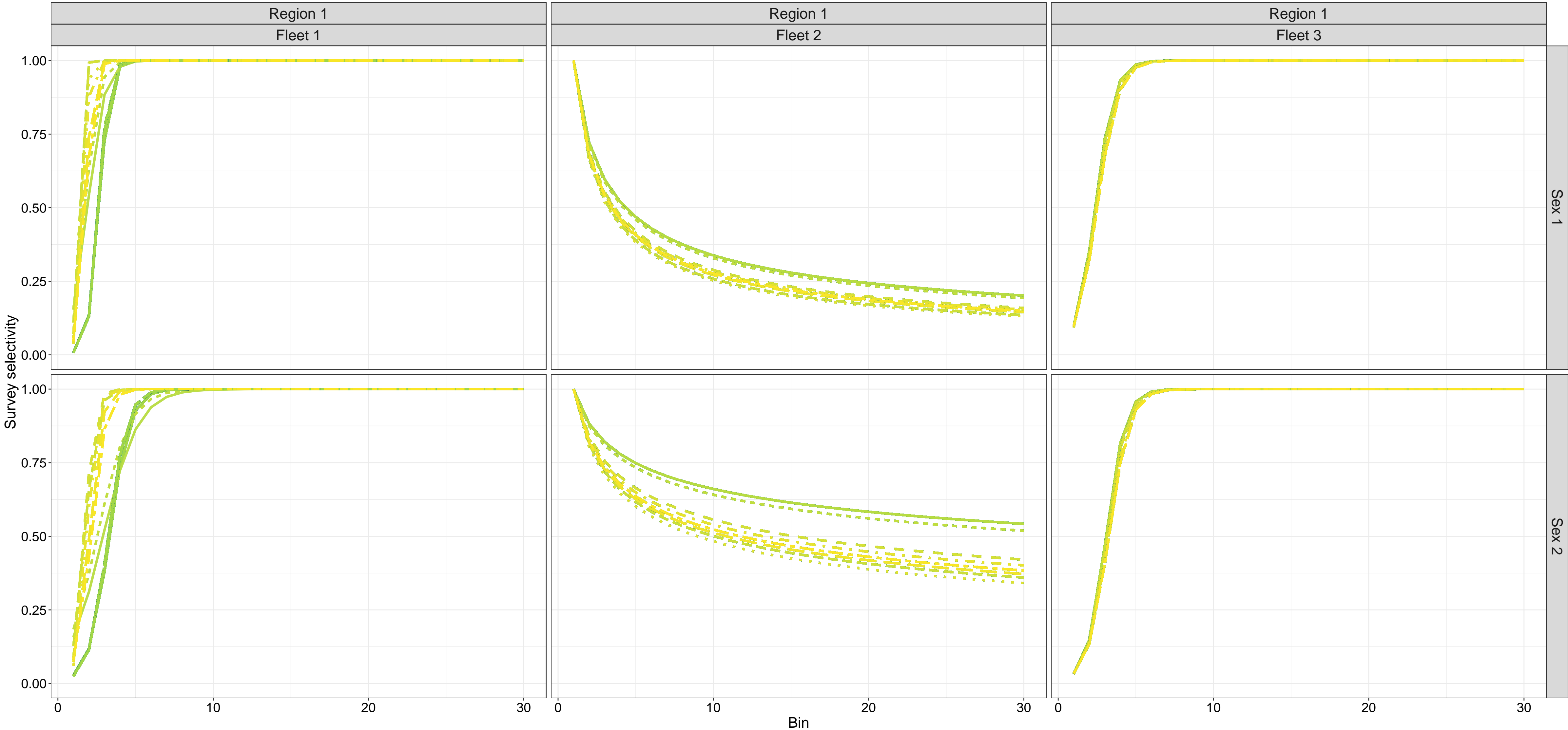
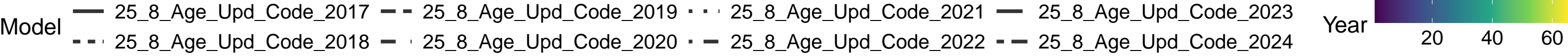
Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



Fishery Selectivity

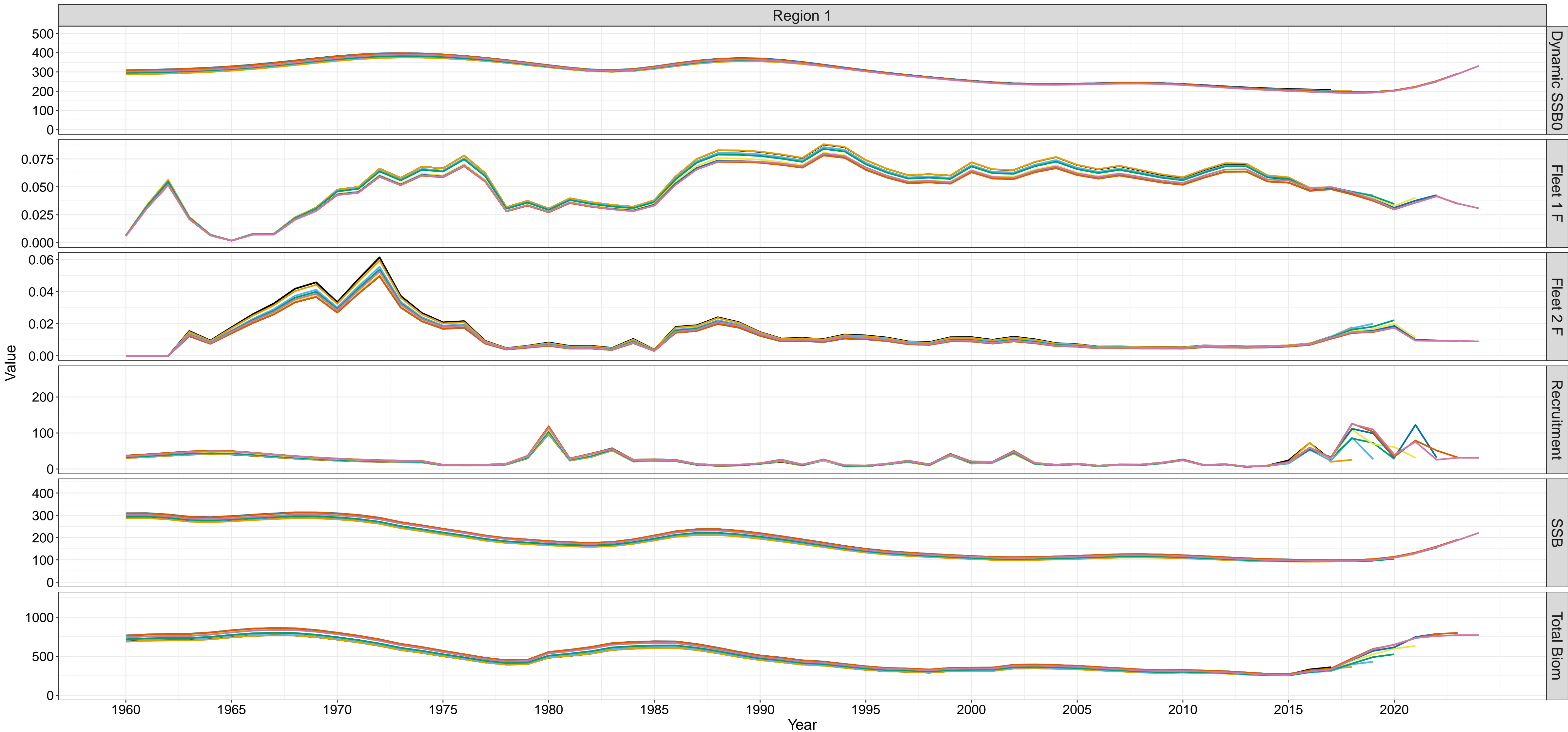


Survey Selectivity



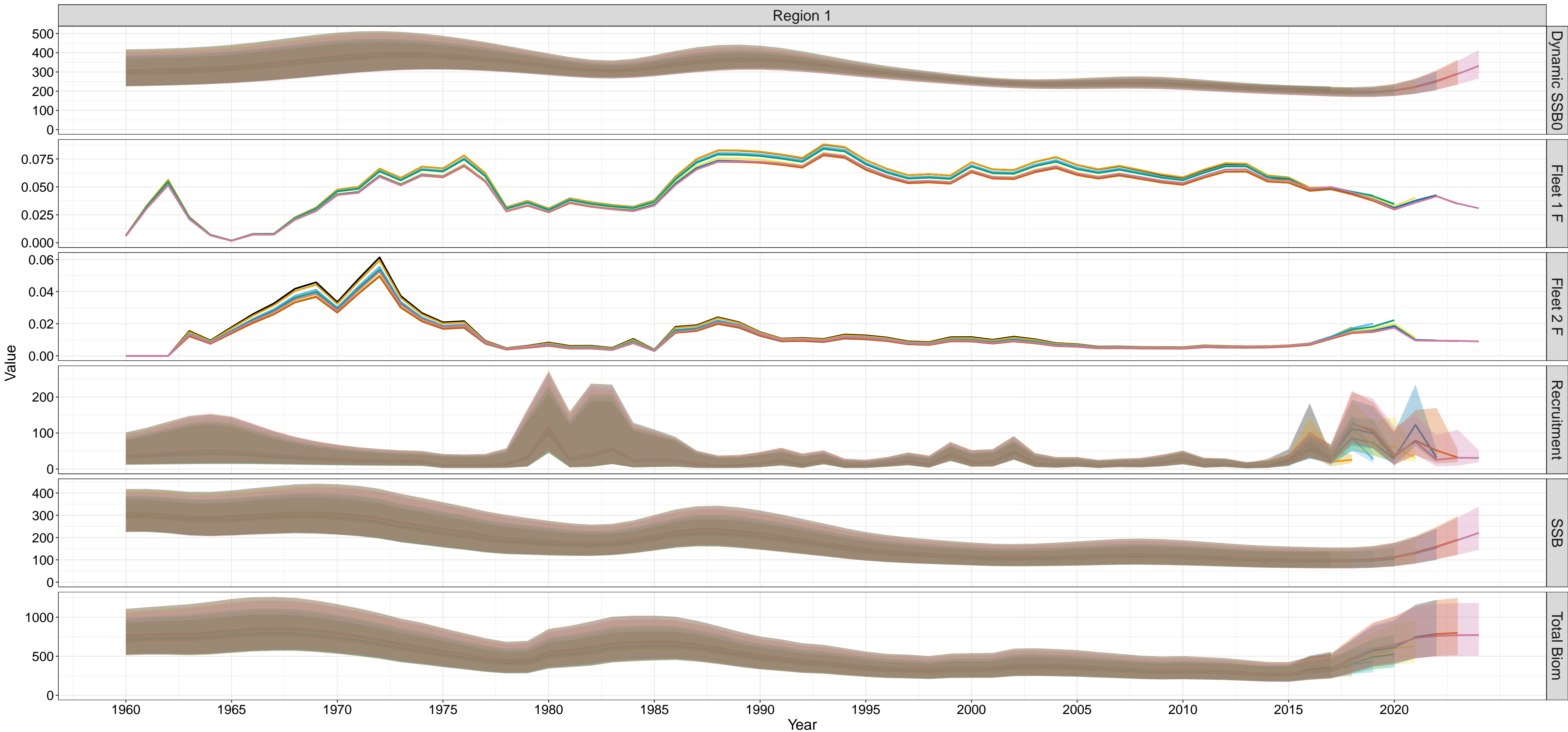
Time Series Plots

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



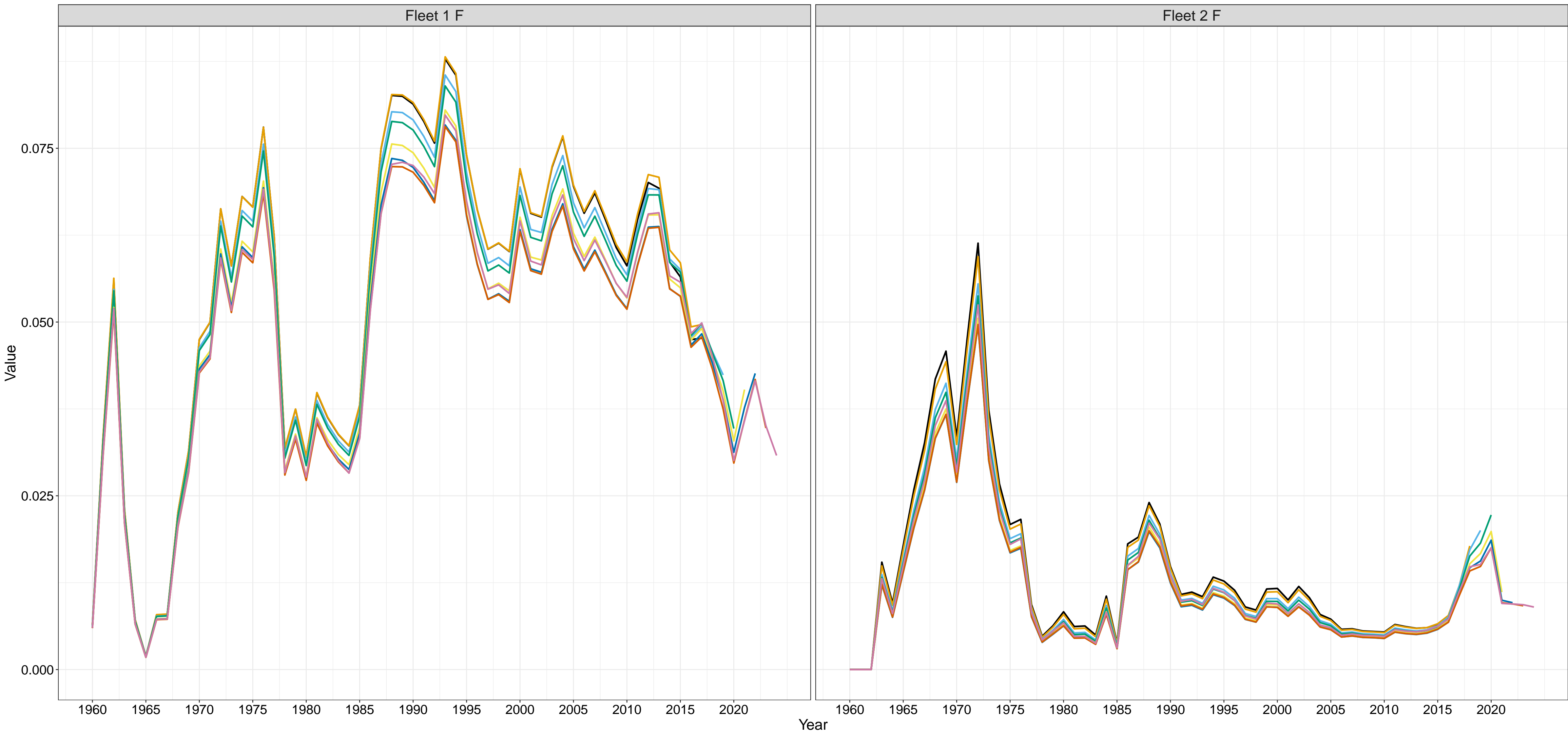
Time Series Plots

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024

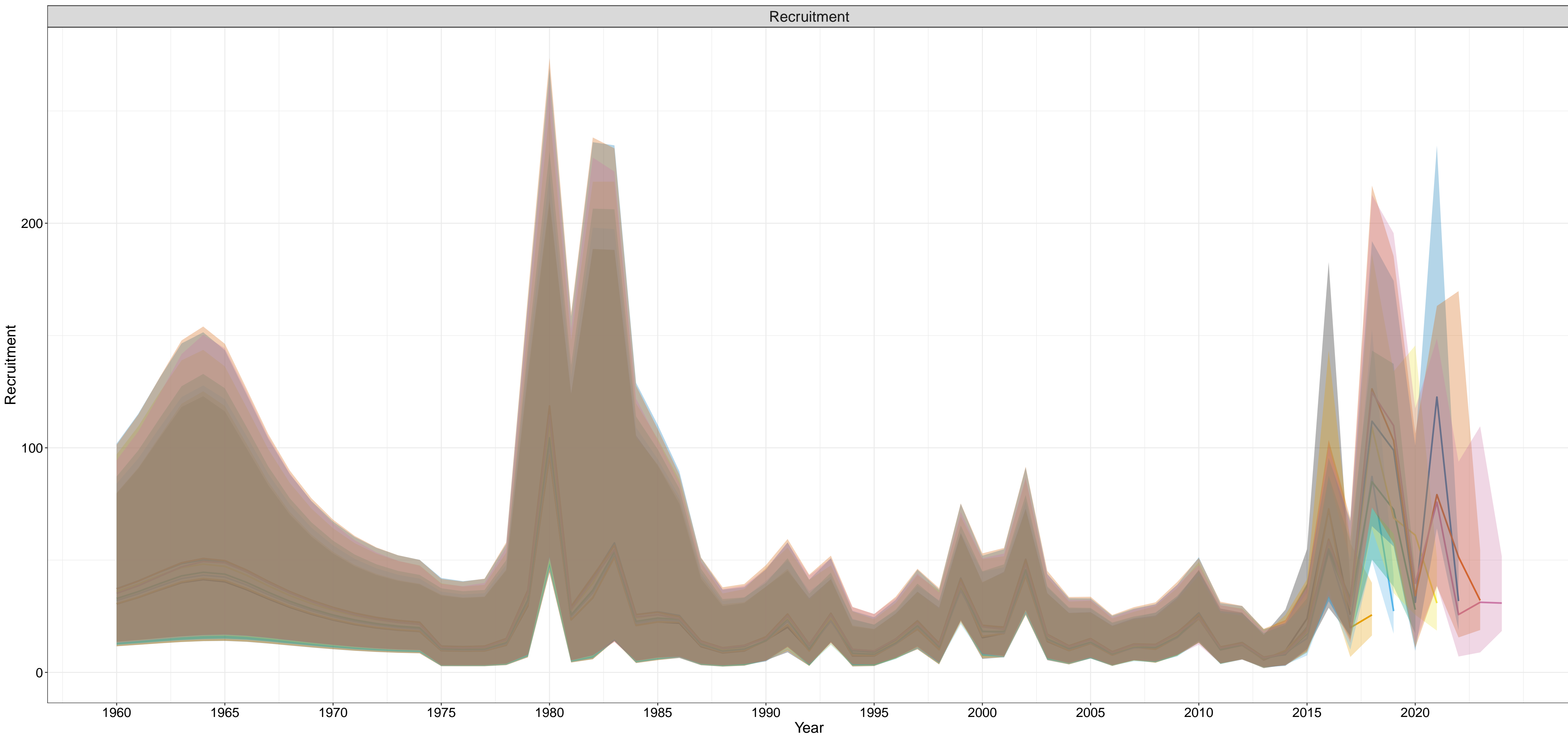
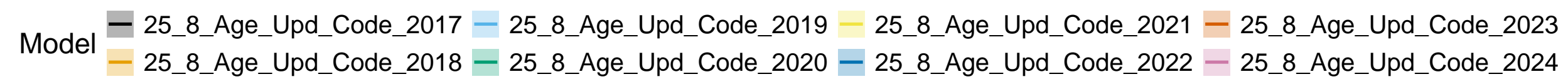


Fishing Mortality

Model 25_8_Age_Upd_Code_2017 25_8_Age_Upd_Code_2019 25_8_Age_Upd_Code_2021 25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018 25_8_Age_Upd_Code_2020 25_8_Age_Upd_Code_2022 25_8_Age_Upd_Code_2024



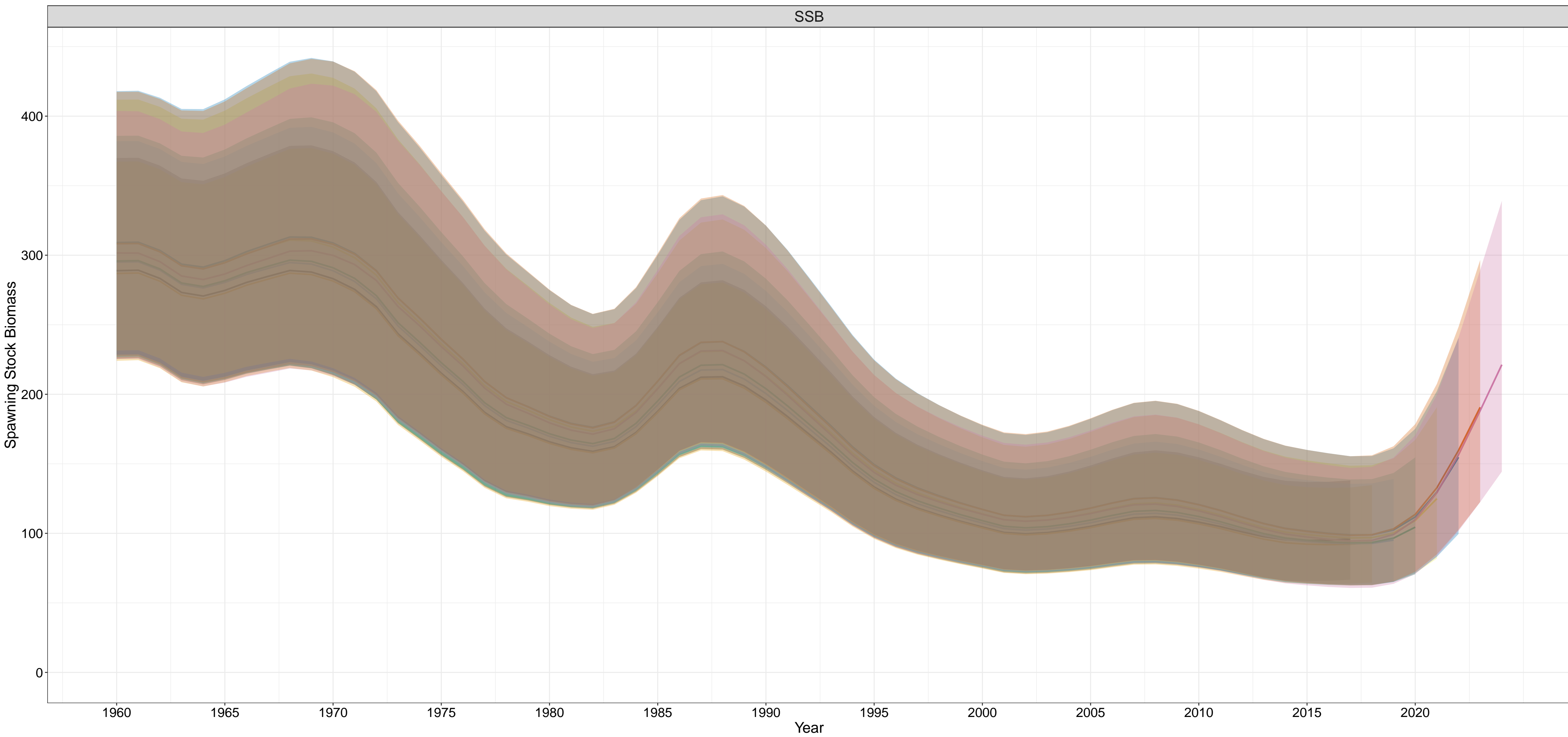
Recruitment



SSB

Model

25_8_Age_Upd_Code_2017	25_8_Age_Upd_Code_2019	25_8_Age_Upd_Code_2021	25_8_Age_Upd_Code_2023
25_8_Age_Upd_Code_2018	25_8_Age_Upd_Code_2020	25_8_Age_Upd_Code_2022	25_8_Age_Upd_Code_2024



Biomass

