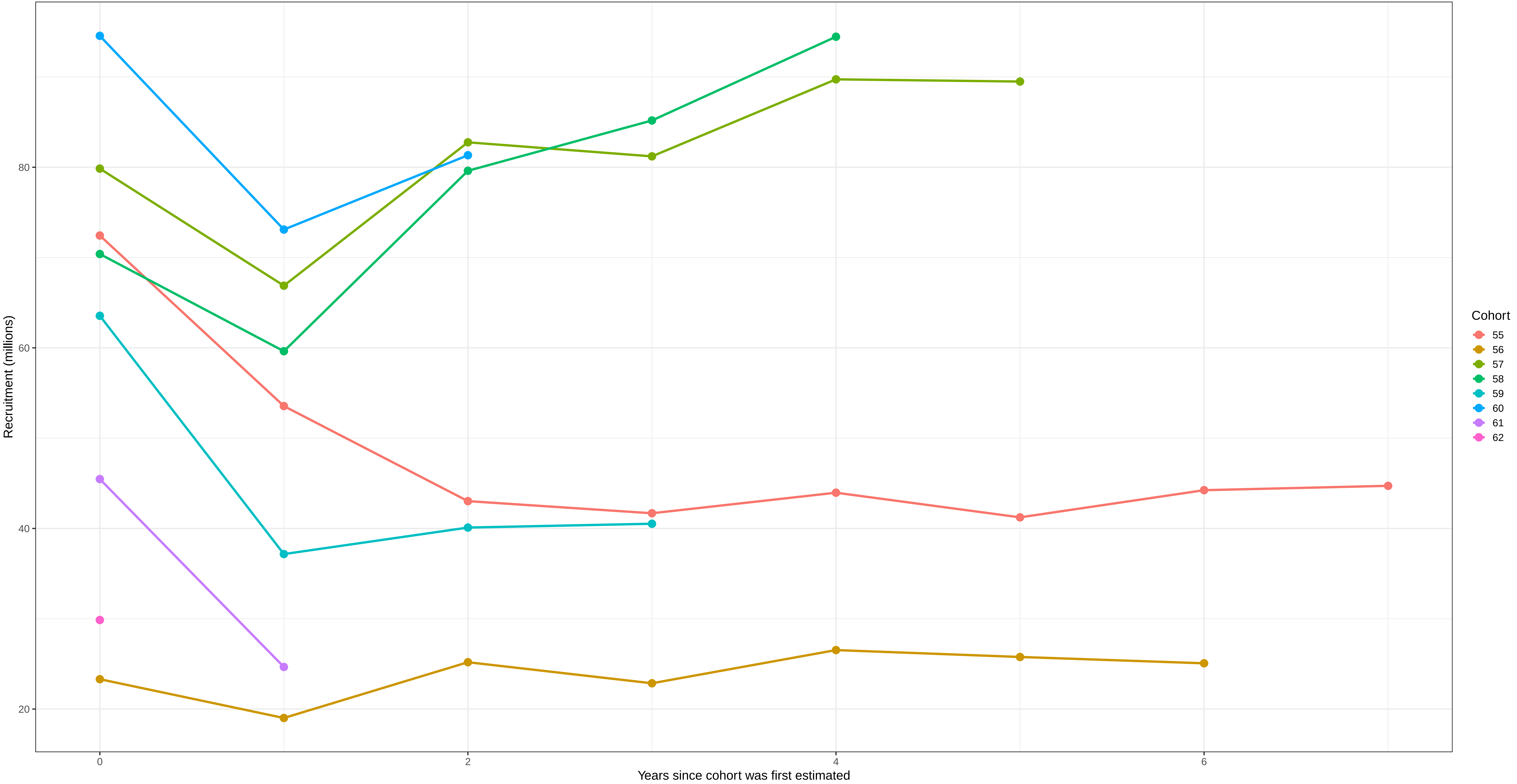
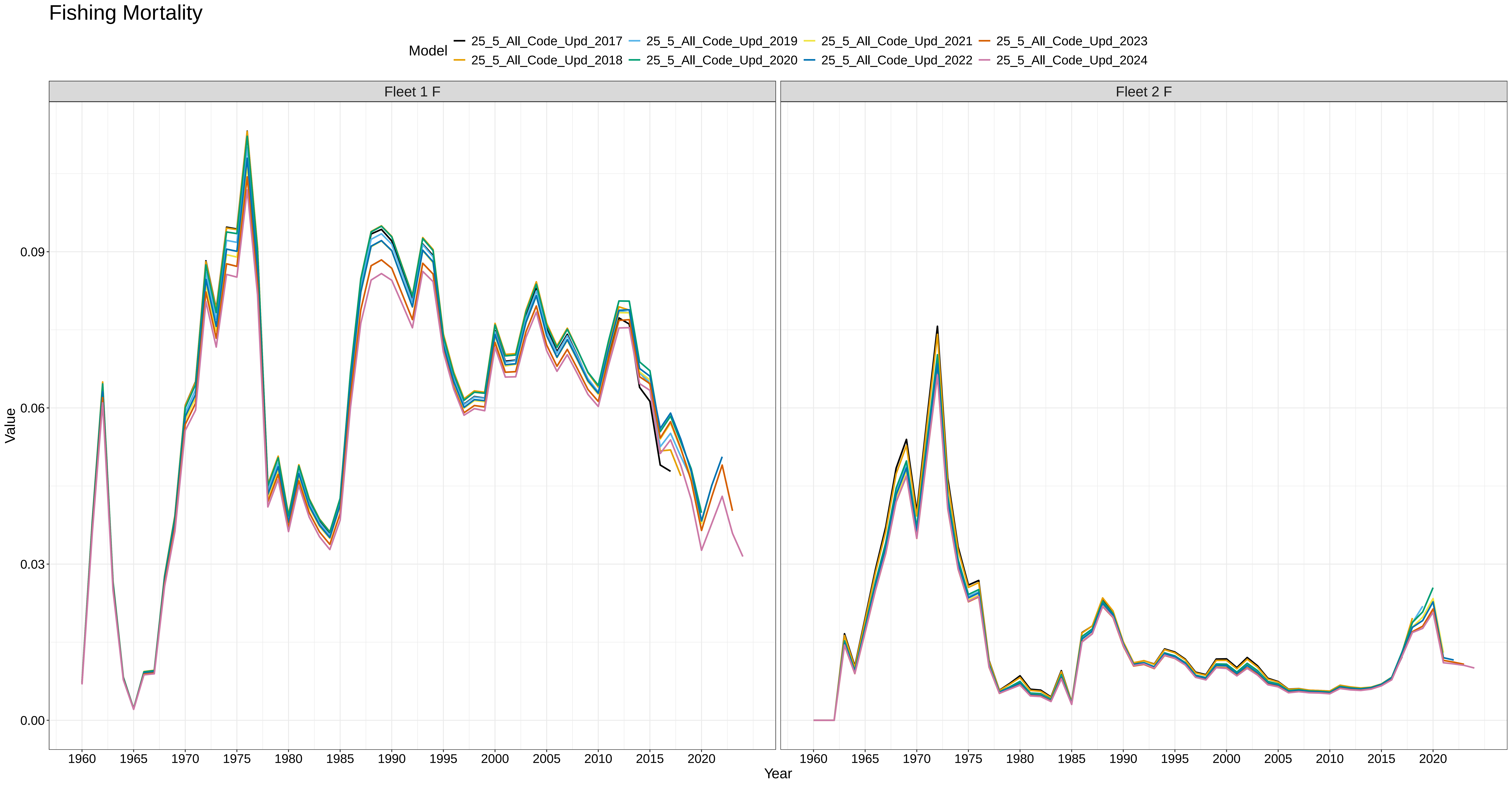
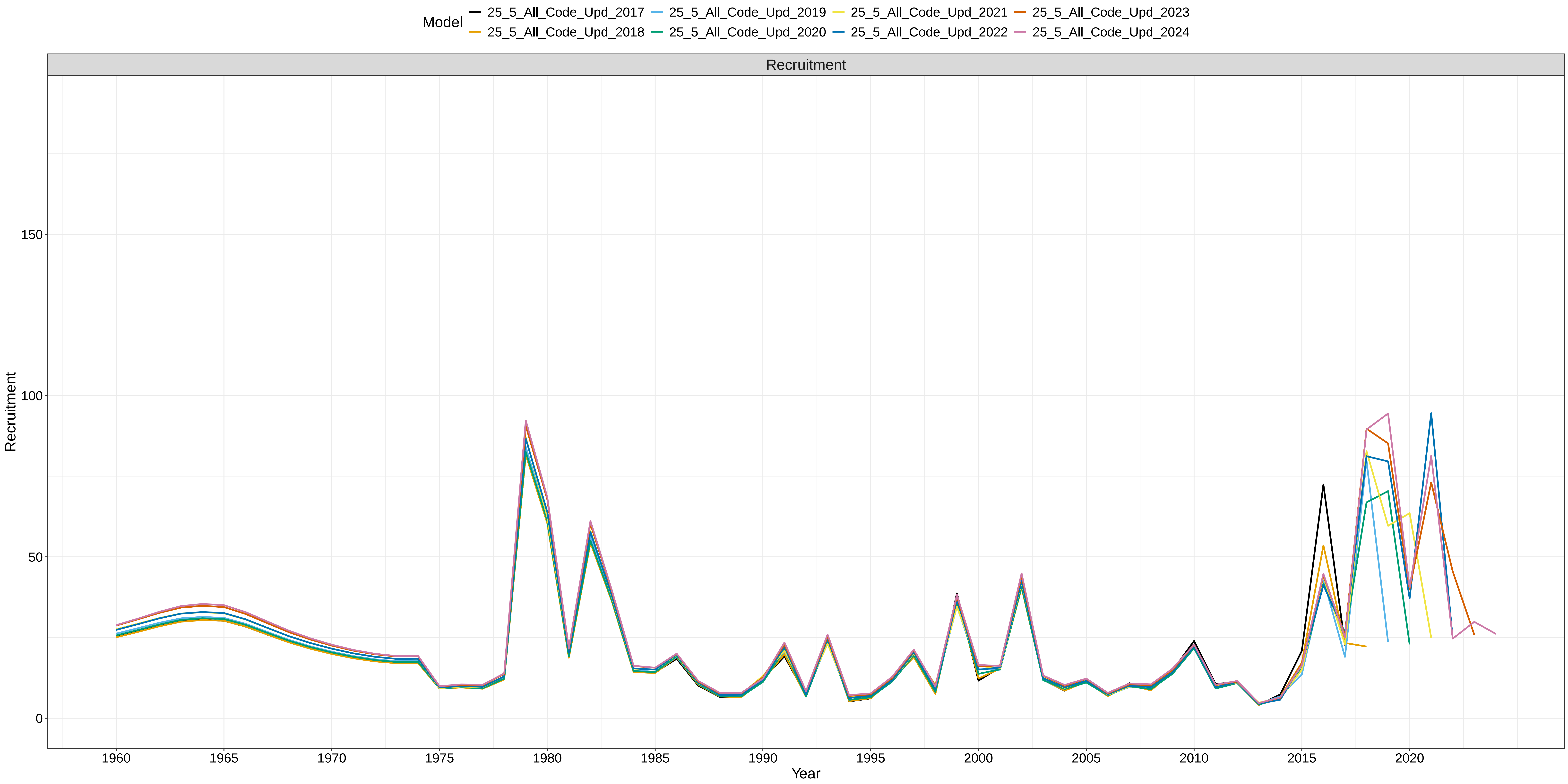
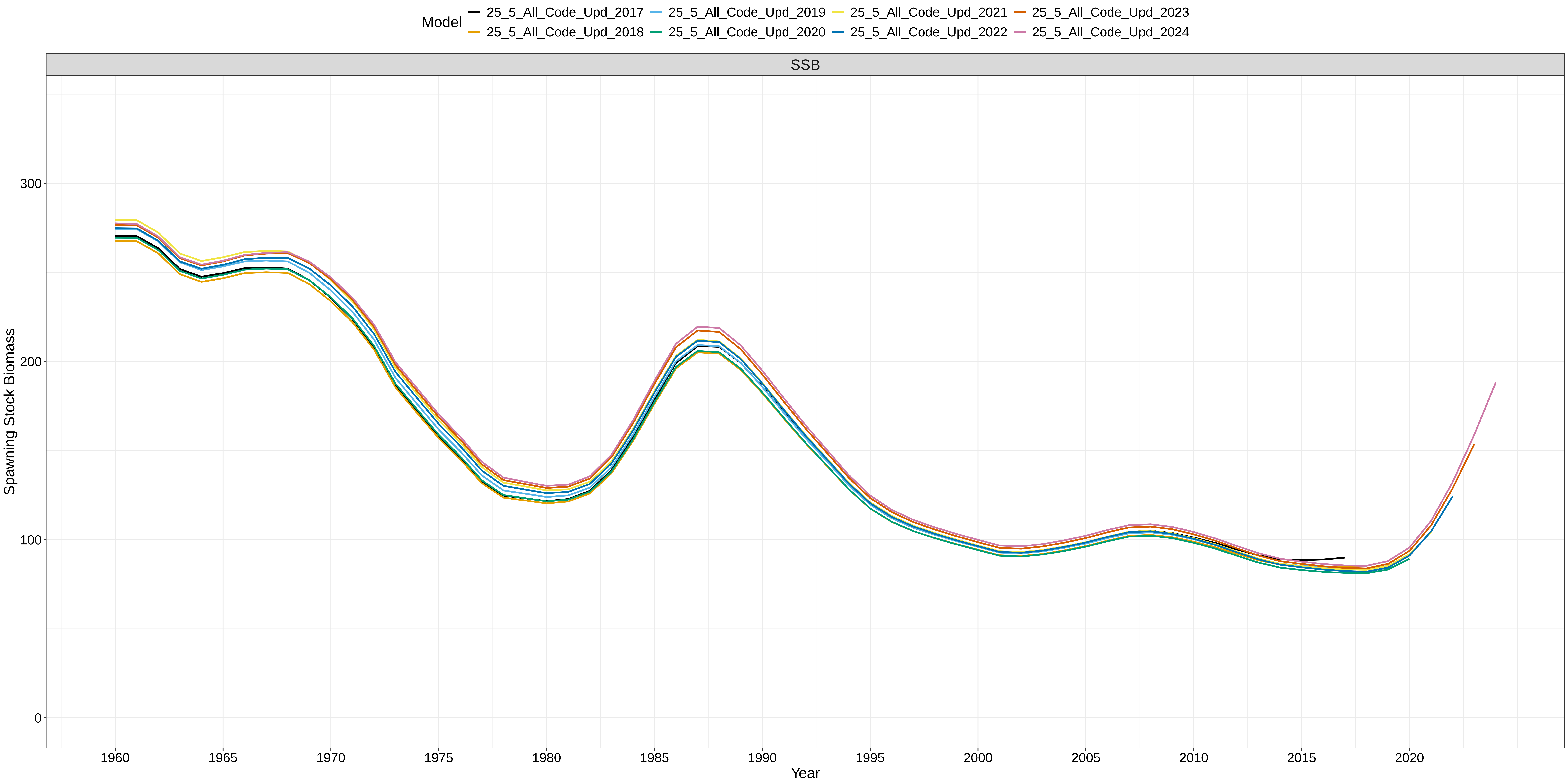

Recruitment (millions)
80
60
40
20
0
2
4
6
Years since cohort was first estimated
Cohort
55
56
57
58
59
60
61
62


Fishing Mortality
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Fleet 1 F
Fleet 2 F
Value
0.00
0.03
0.06
0.09
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

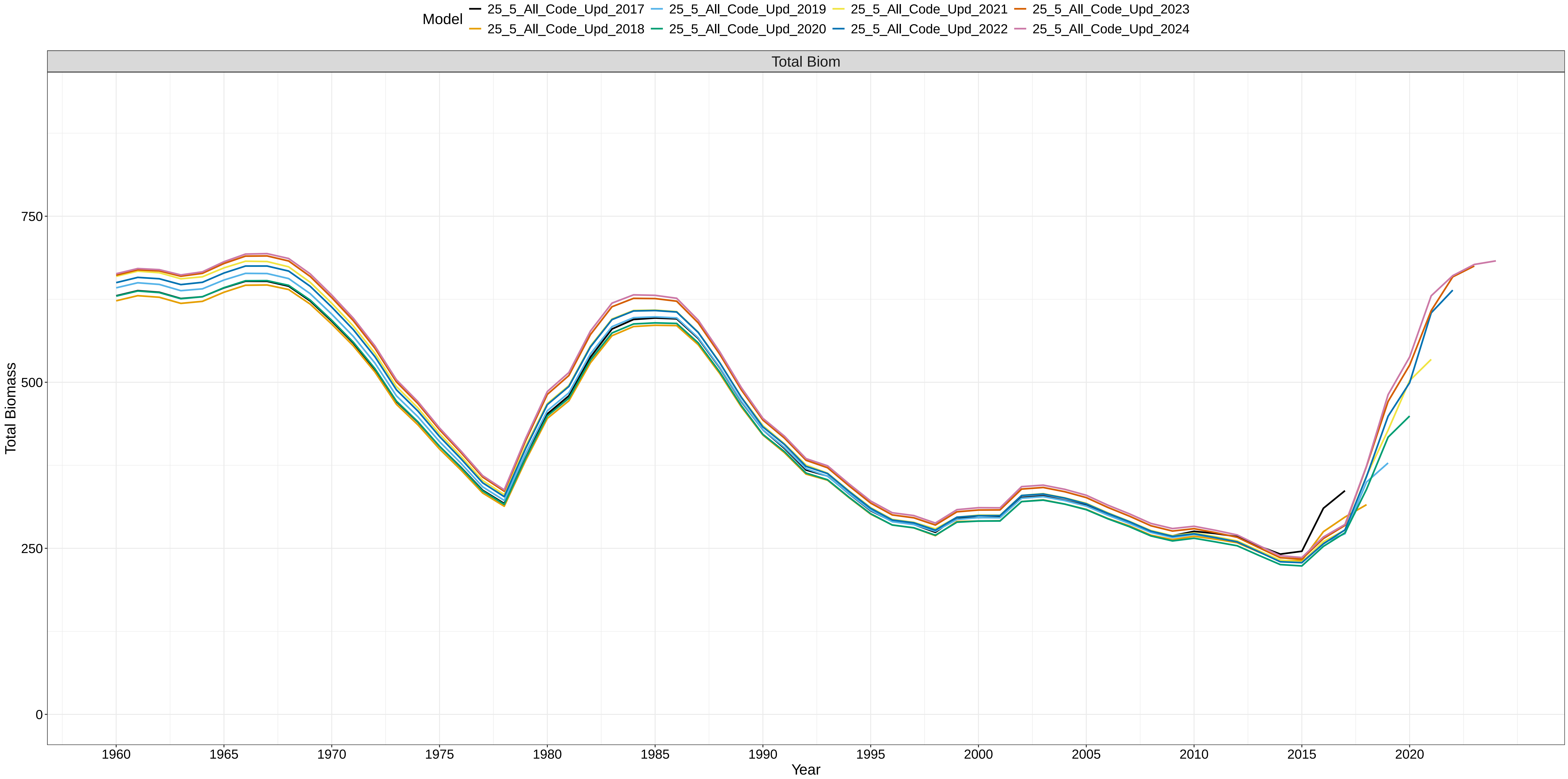
Recruitment



SSB

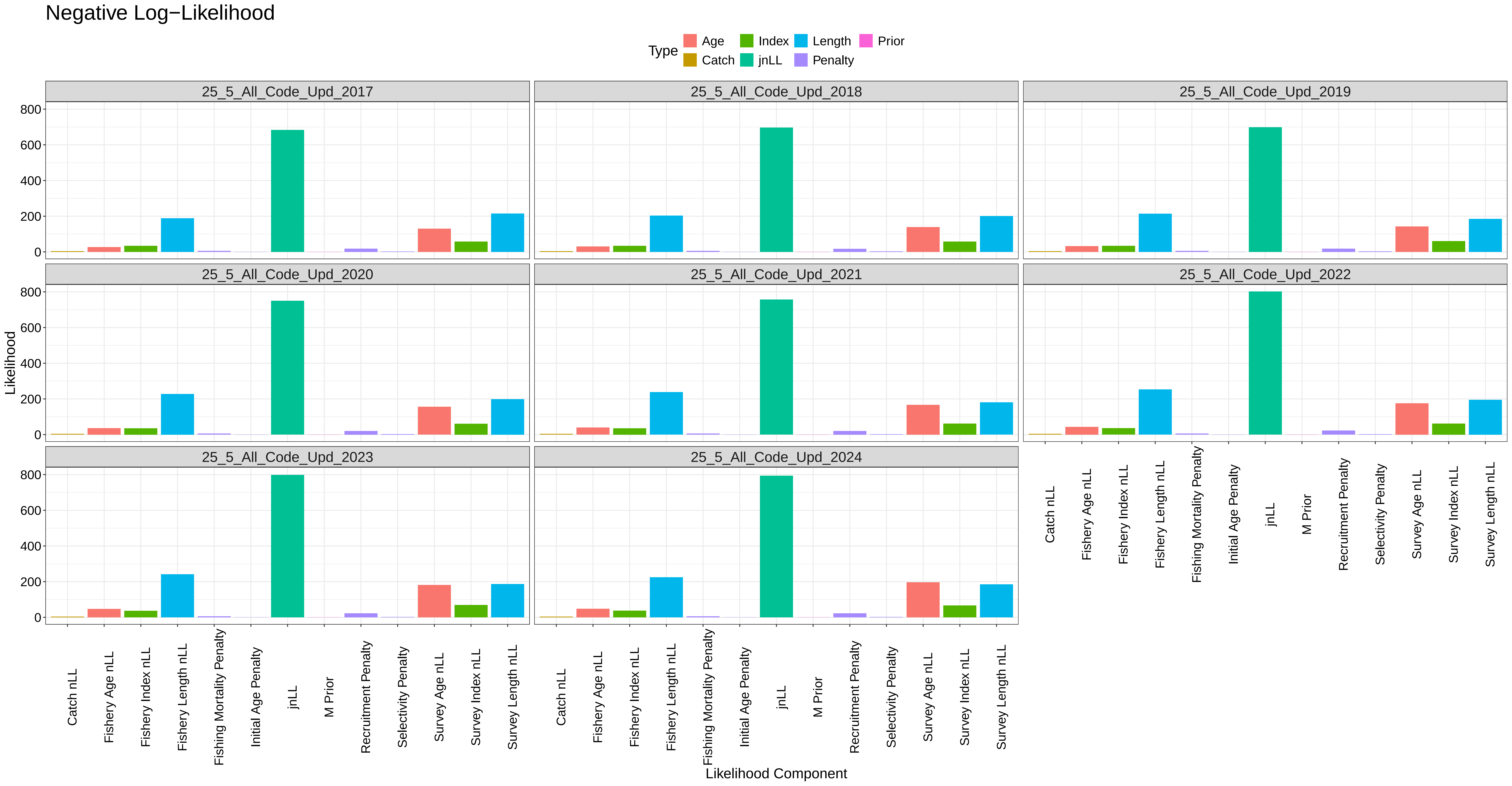

Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
SSB
Spawning Stock Biomass
0
100
200
300
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

Biomass

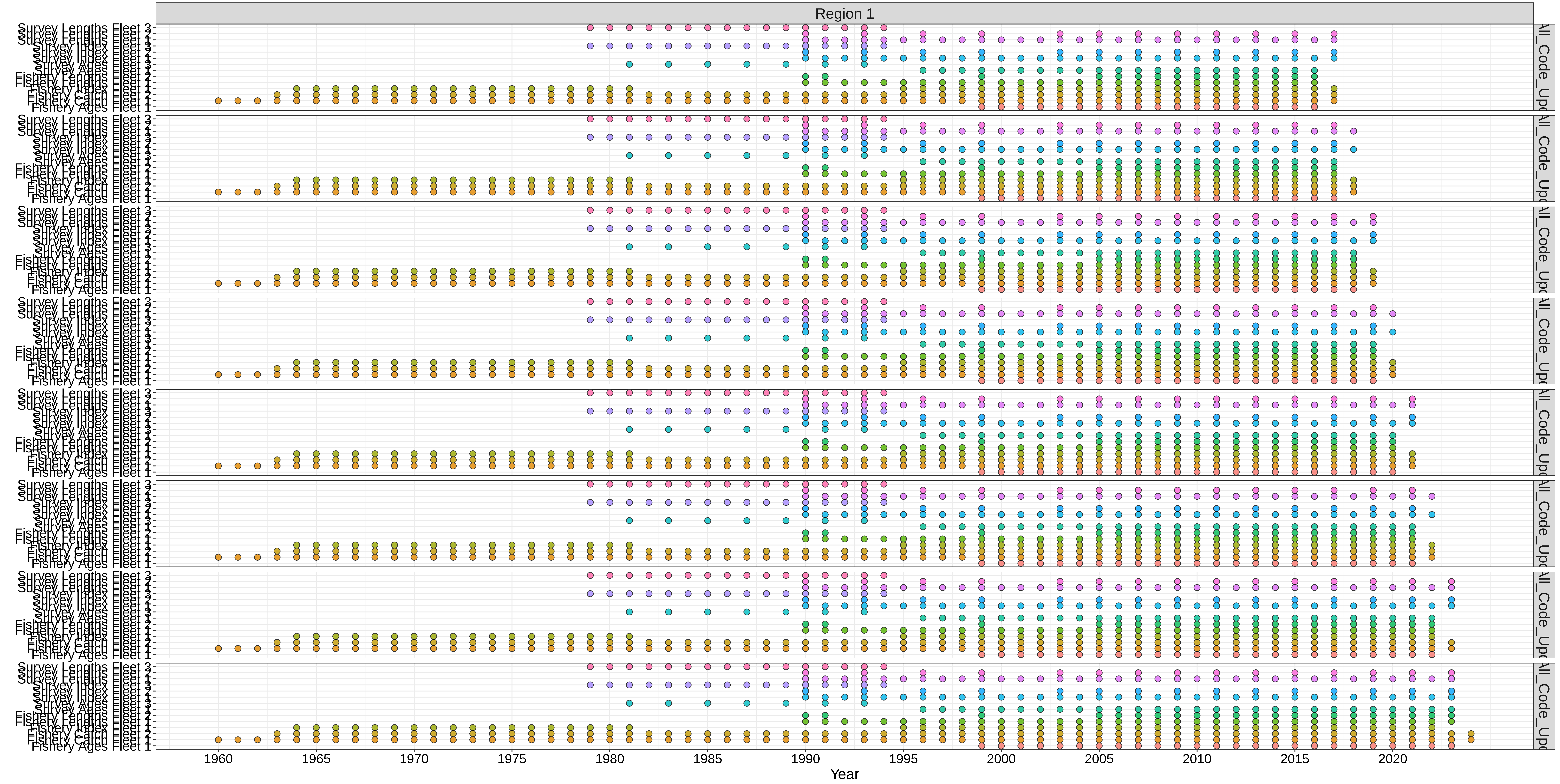

Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Total Biom
Total Biomass
0
250
500
750
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	25_5_All_Code_Upd_2024	1	188.28904	0.04149334	47.88420	125.8659	0.08504	1.49595	0.48794
2	25_5_All_Code_Upd_2023	1	153.65416	0.05100062	44.15528	124.4313	0.08460	1.23485	0.60284
3	25_5_All_Code_Upd_2022	1	124.32969	0.06220332	39.59830	118.8397	0.08253	1.04620	0.75367
4	25_5_All_Code_Upd_2021	1	104.27547	0.05824670	30.97584	114.9642	0.08295	0.90703	0.70223
5	25_5_All_Code_Upd_2020	1	89.24246	0.06533503	22.61310	109.9002	0.08254	0.81203	0.79160
6	25_5_All_Code_Upd_2019	1	85.18673	0.06833571	19.31238	103.1942	0.08175	0.82550	0.83588
7	25_5_All_Code_Upd_2018	1	85.21879	0.06657866	16.05270	106.2330	0.08259	0.80219	0.80618
8	25_5_All_Code_Upd_2017	1	89.90726	0.06004708	18.13489	103.0845	0.08268	0.87217	0.72624

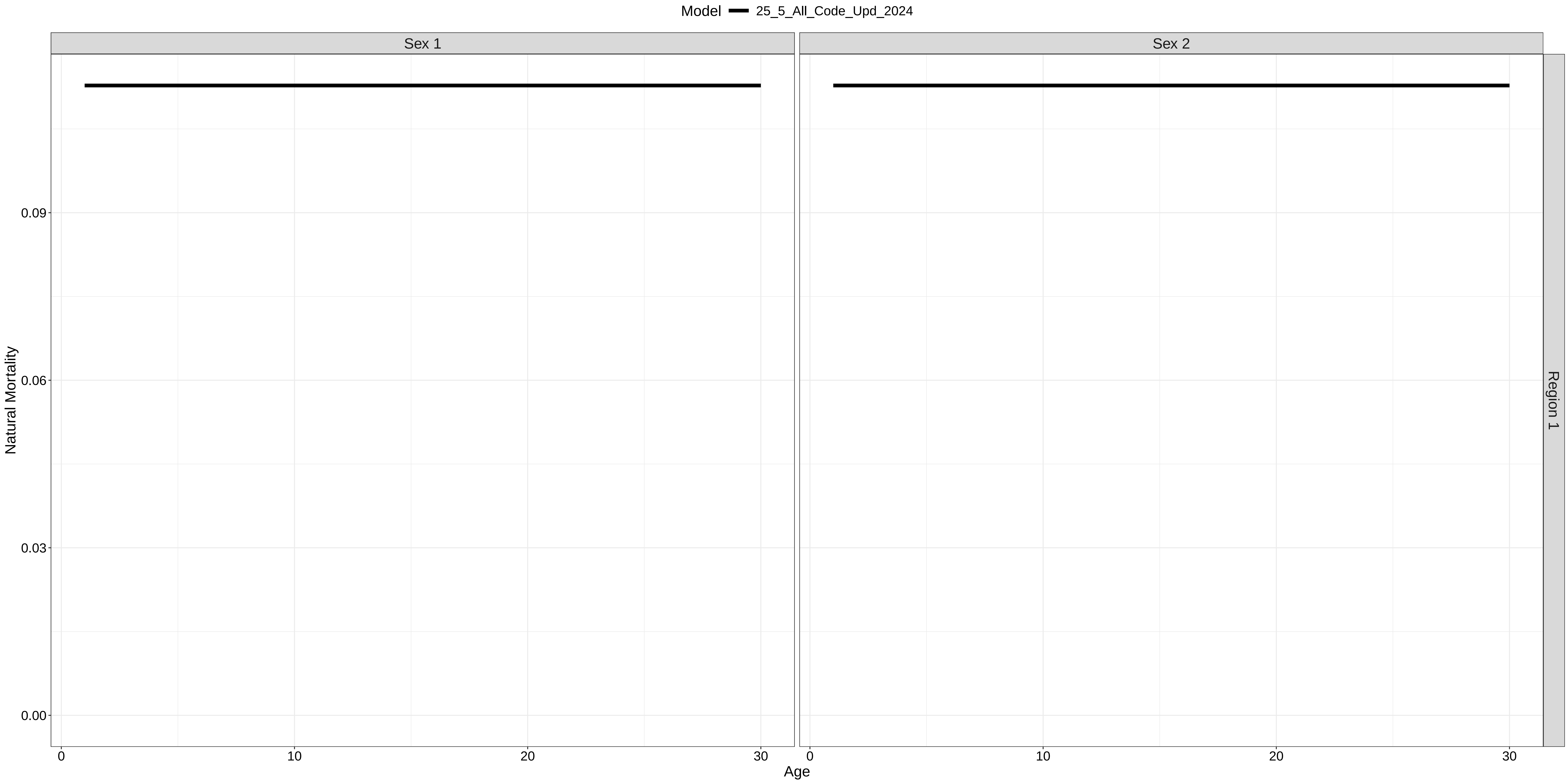
	Model	jnLL	M Prior	Recruitment Penalty	Selectivity Penalty	Catch nLL	Fishing Mortality Penalty	Survey Index nLL	Fishery Index nLL	Initial Age Penalty	Survey Age nLL	Fishery Age nLL	Survey Length nLL	Fishery Length nLL
1	25_5_All_Code_Upd_2024	793.4417	0.72284618	22.73811	2.456676	3.841723	6.151048	66.94600	37.15954	0.2449583	196.1705	47.84606	184.7620	224.4022
2	25_5_All_Code_Upd_2023	797.8433	0.64722596	22.67729	2.572609	4.083157	6.095577	68.90380	36.18594	0.2483669	181.3892	46.99079	186.5883	241.4610
3	25_5_All_Code_Upd_2022	801.7751	0.35352191	22.86905	2.617275	4.257220	6.109275	61.78597	36.08491	0.2607171	175.6712	43.47051	195.1911	253.1044
4	25_5_All_Code_Upd_2021	756.9666	0.33561166	20.63763	2.651713	4.086755	6.119721	61.84720	35.74708	0.2862074	167.0012	39.40626	180.8240	238.0232
5	25_5_All_Code_Upd_2020	749.9421	0.12804071	20.43322	2.781416	4.237698	6.121030	61.38341	35.34411	0.2569777	156.1287	36.35982	198.9464	227.8213
6	25_5_All_Code_Upd_2019	698.1406	0.16353895	18.01102	2.763160	3.895738	6.063949	60.05191	34.03527	0.2747371	142.2522	32.15481	184.8313	213.6430
7	25_5_All_Code_Upd_2018	696.2168	0.07207868	17.36238	2.670354	3.927232	6.029452	58.00229	34.04528	0.2436093	138.5799	30.47558	201.0515	203.7572
8	25_5_All_Code_Upd_2017	683.3747	0.08299143	17.67750	2.645975	3.927416	6.010535	58.09121	34.38779	0.2512308	129.8224	27.20225	214.8044	188.4709

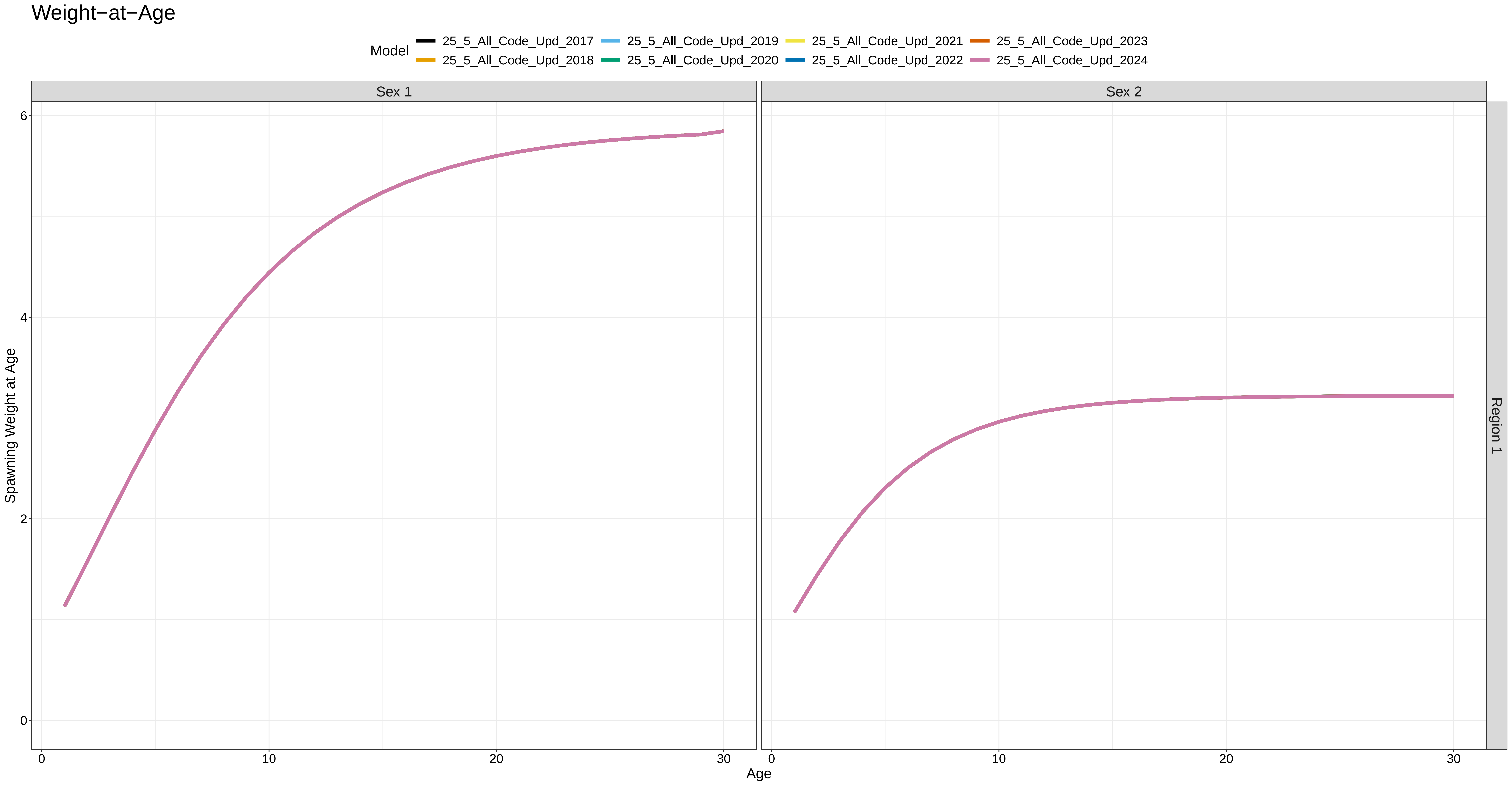

Negative Log−Likelihood
Type
Age
Catch
Index
jnLL
Length
Penalty
Prior
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Likelihood
0
200
400
600
800
Catch nLL
Fishery Age nLL
Fishery Index nLL
Fishery Length nLL
Fishing Mortality Penalty
Initial Age Penalty
jnLL
M Prior
Recruitment Penalty
Selectivity Penalty
Survey Age nLL
Survey Index nLL
Survey Length nLL
Likelihood Component

Data

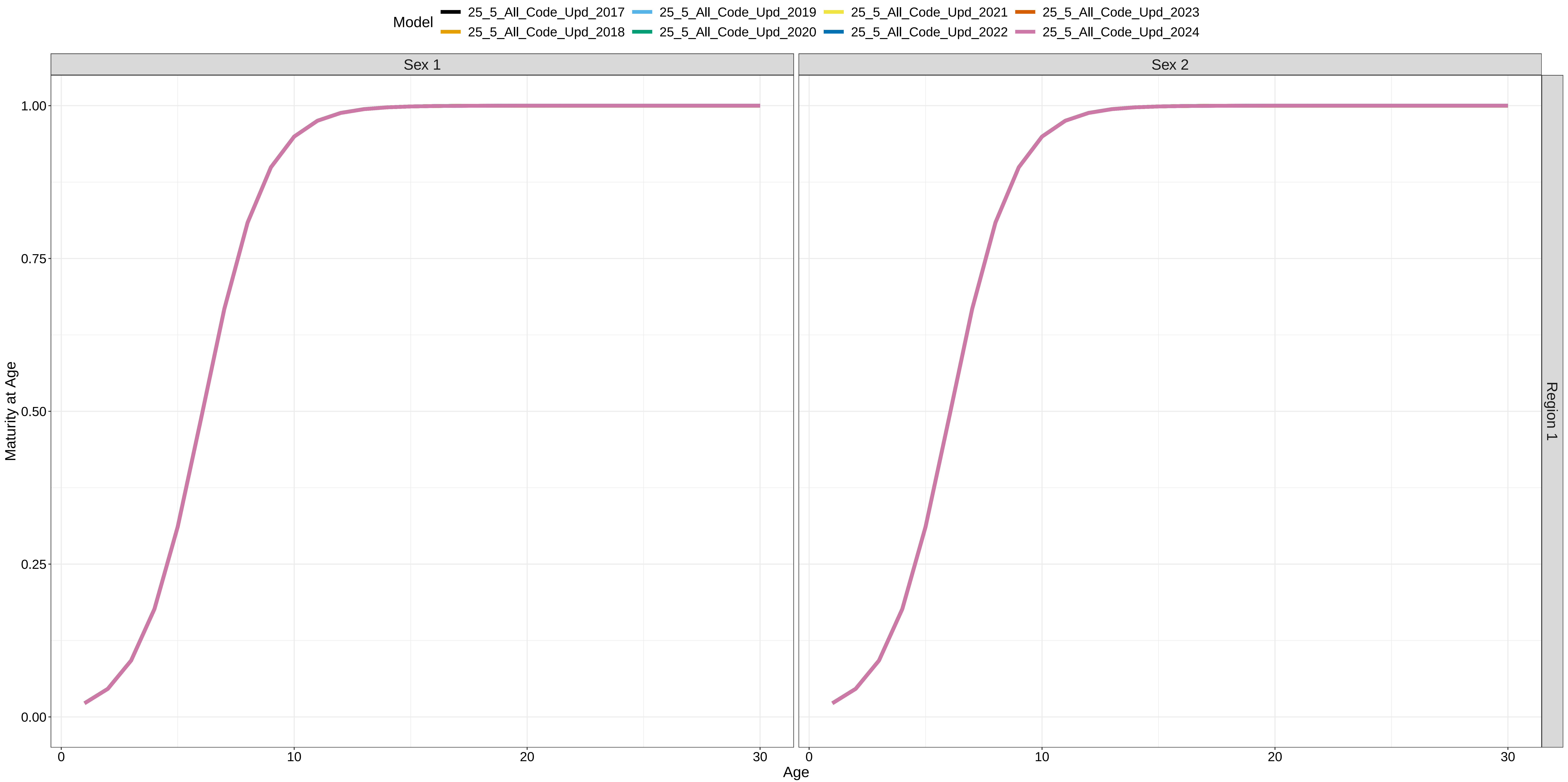

Region 1
Survey Lengths Fleet 3
Survey Lengths Fleet 2
Survey Lengths Fleet 1
Survey Index Fleet 3
Survey Index Fleet 2
Survey Index Fleet 1
Survey Ages Fleet 3
Survey Ages Fleet 1
Fishery Lengths Fleet 2
Fishery Lengths Fleet 1
Fishery Index Fleet 1
Fishery Catch Fleet 2
Fishery Catch Fleet 1
Fishery Ages Fleet 1
All_Code_Upd
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Natural Mortality

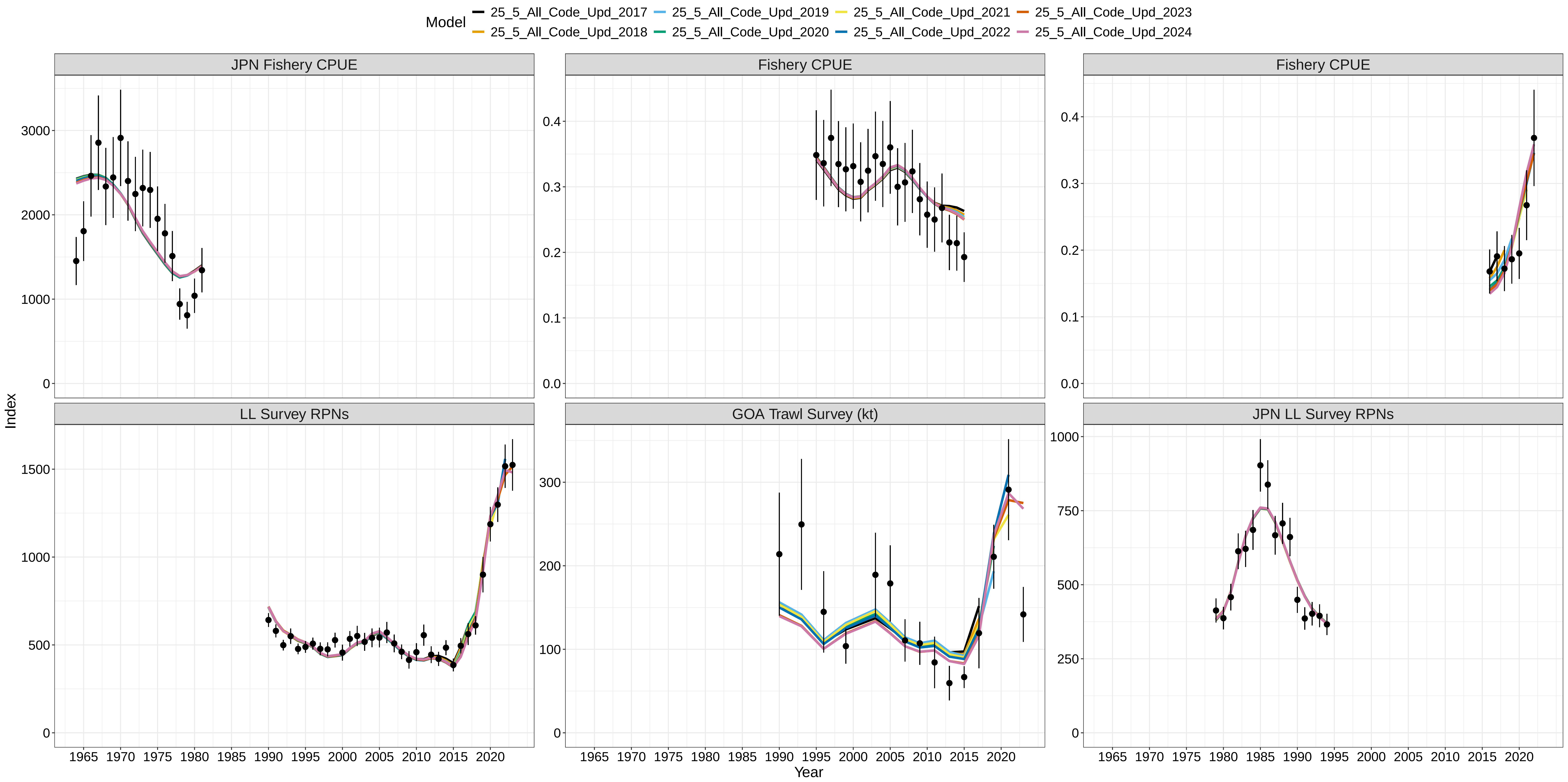


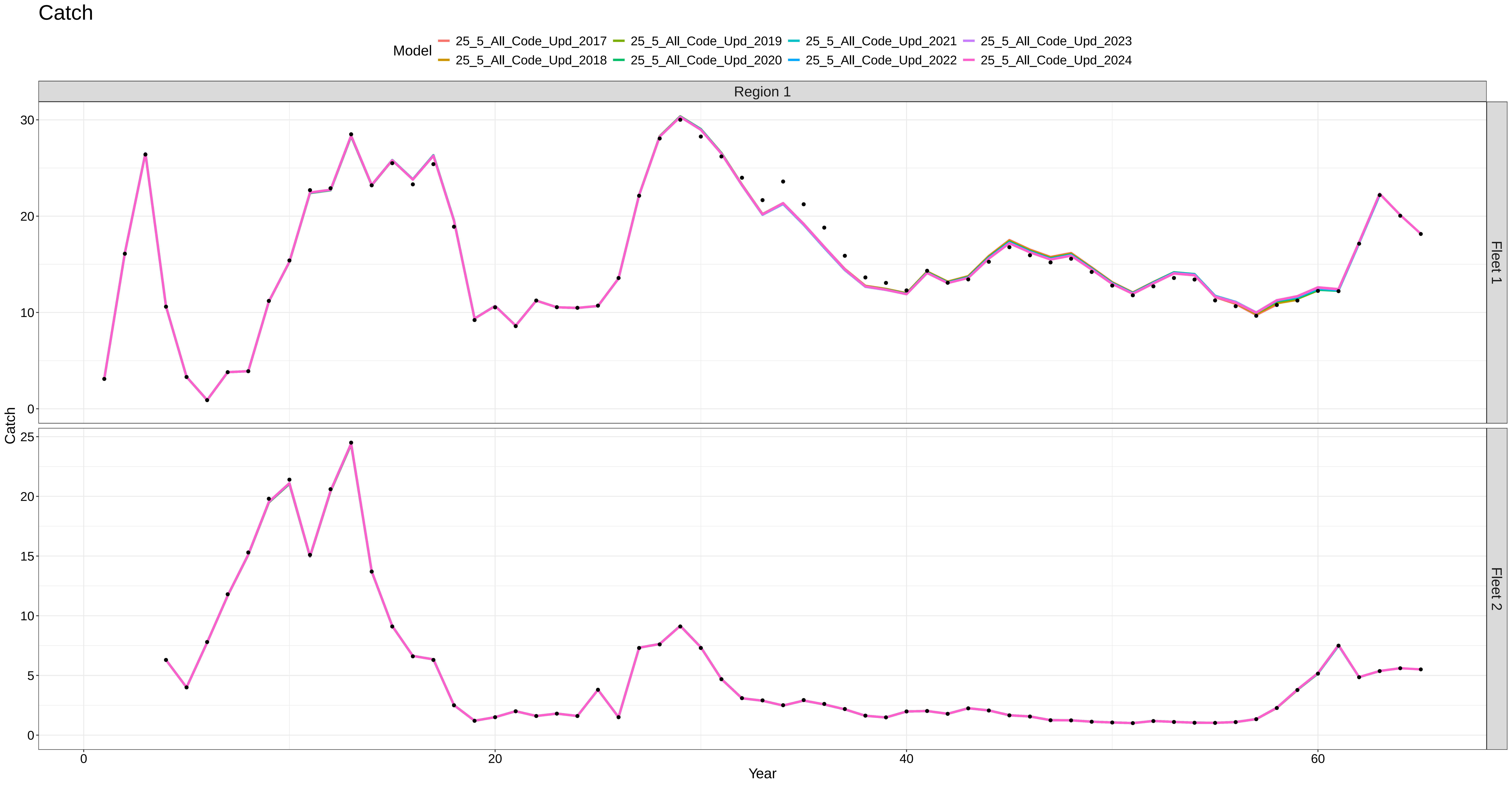

Weight−at−Age
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Sex 1
Sex 2
Region 1
Spawning Weight at Age
0
2
4
6
0
10
20
30
0
10
20
30
Age

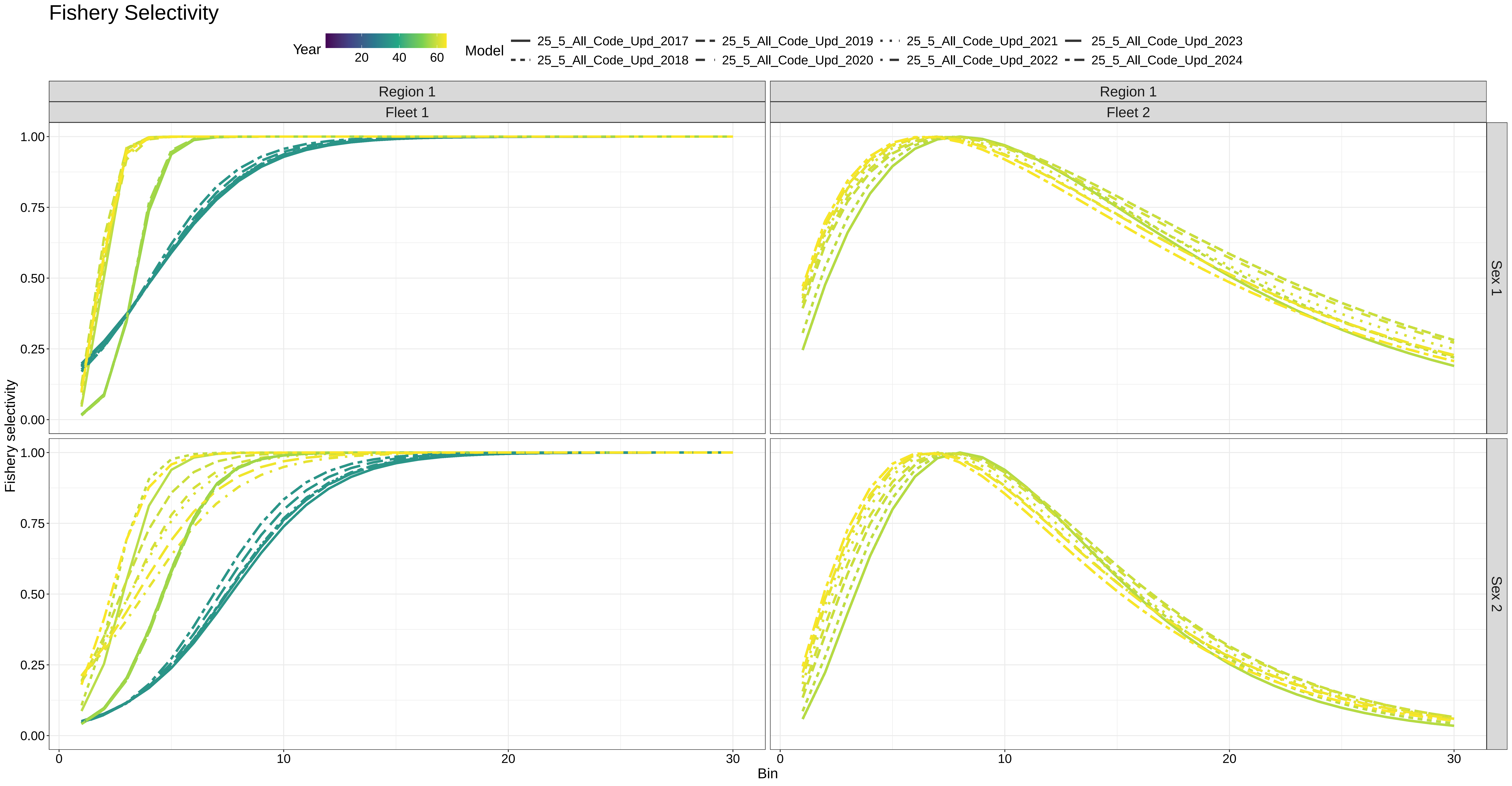
Maturity

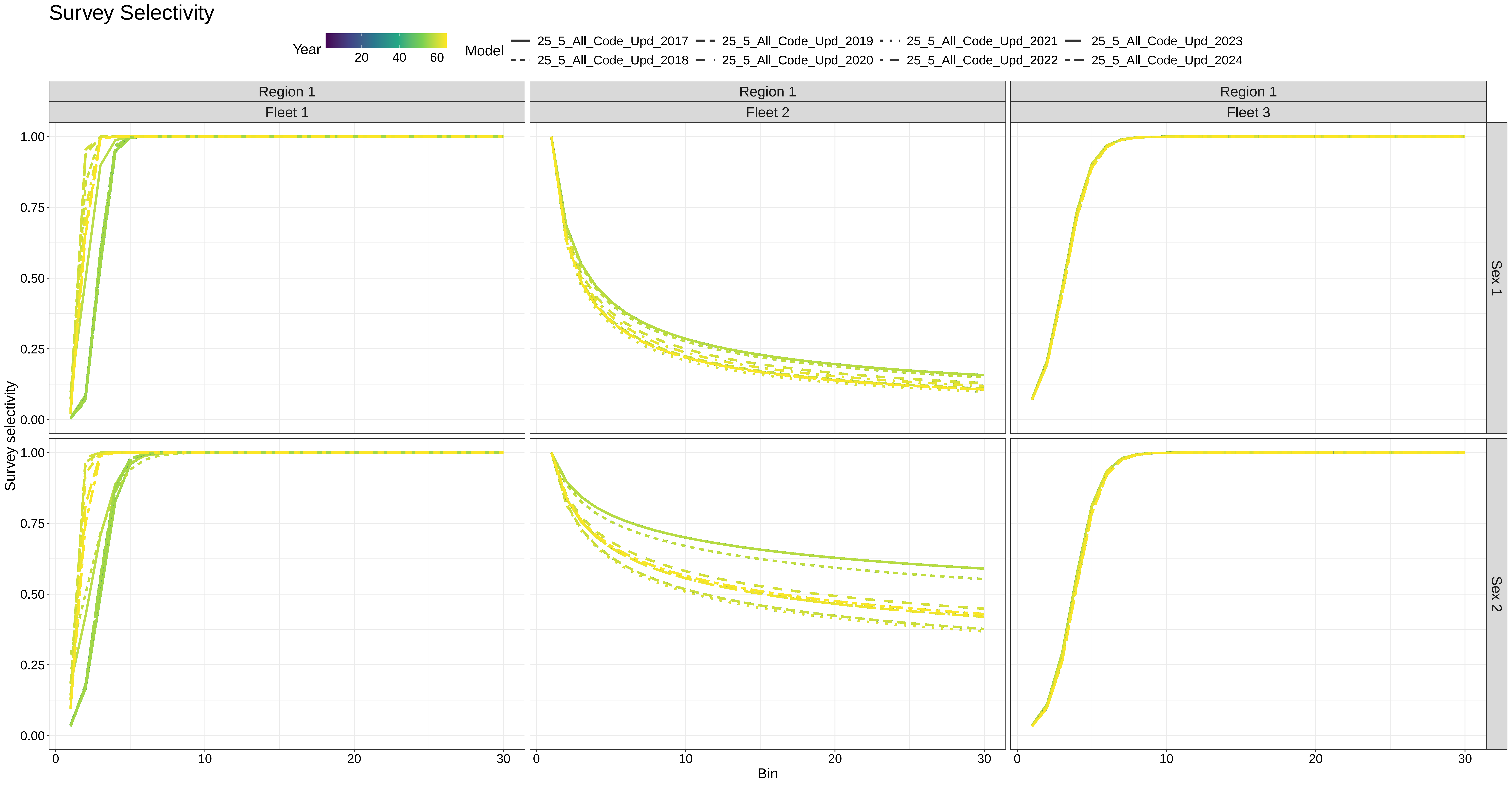

Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Sex 1
Sex 2
Region 1
Maturity at Age
1.00
0.75
0.50
0.25
0.00
0
10
20
30
Age

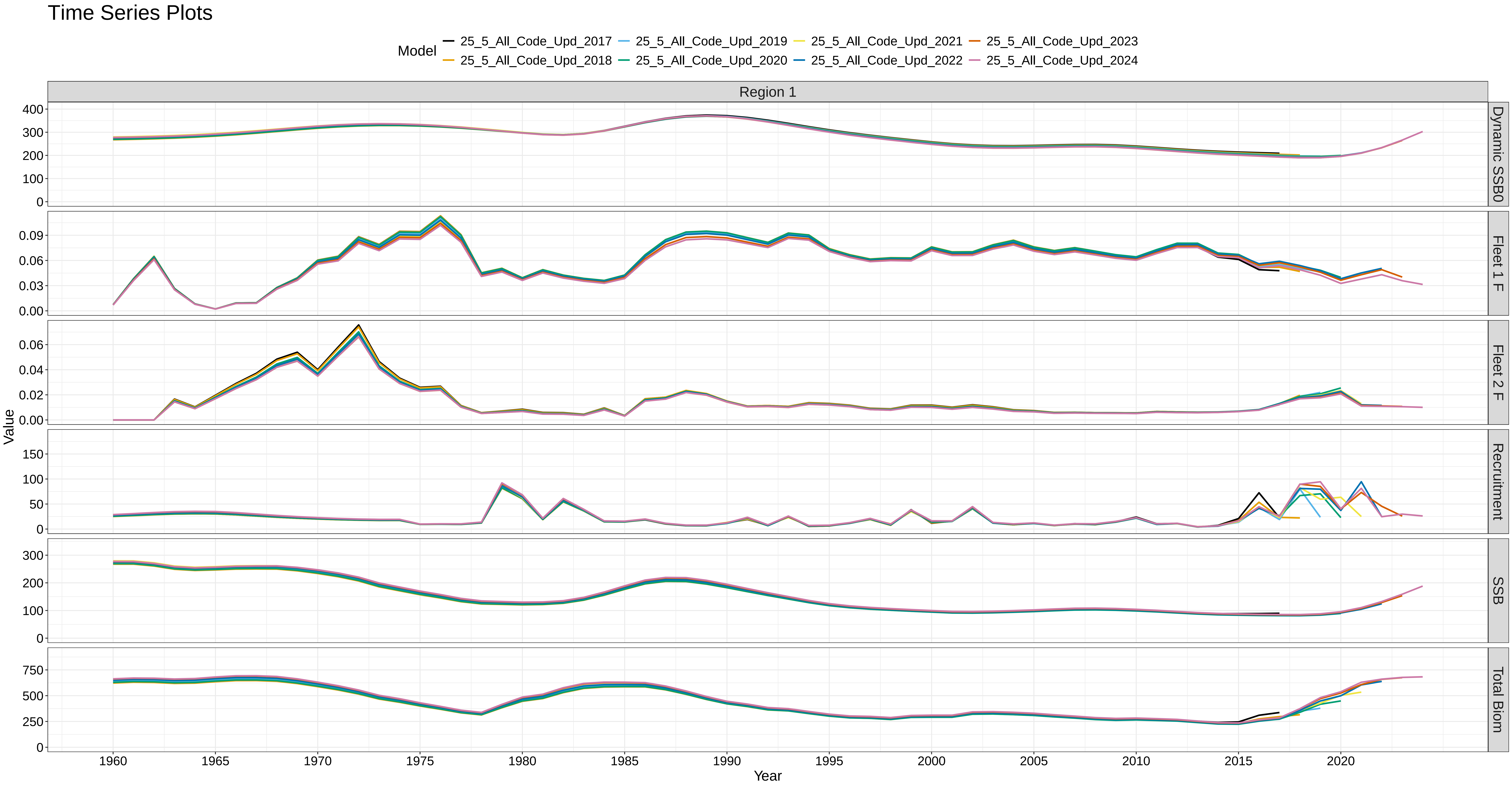
Index Fits


Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
JPN Fishery CPUE
Fishery CPUE
Fishery CPUE
LL Survey RPNs
GOA Trawl Survey (kt)
JPN LL Survey RPNs
Index
Year
3000
2000
1000
0
0.4
0.3
0.2
0.1
0.0
1500
1000
500
300
200
100
750
250
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

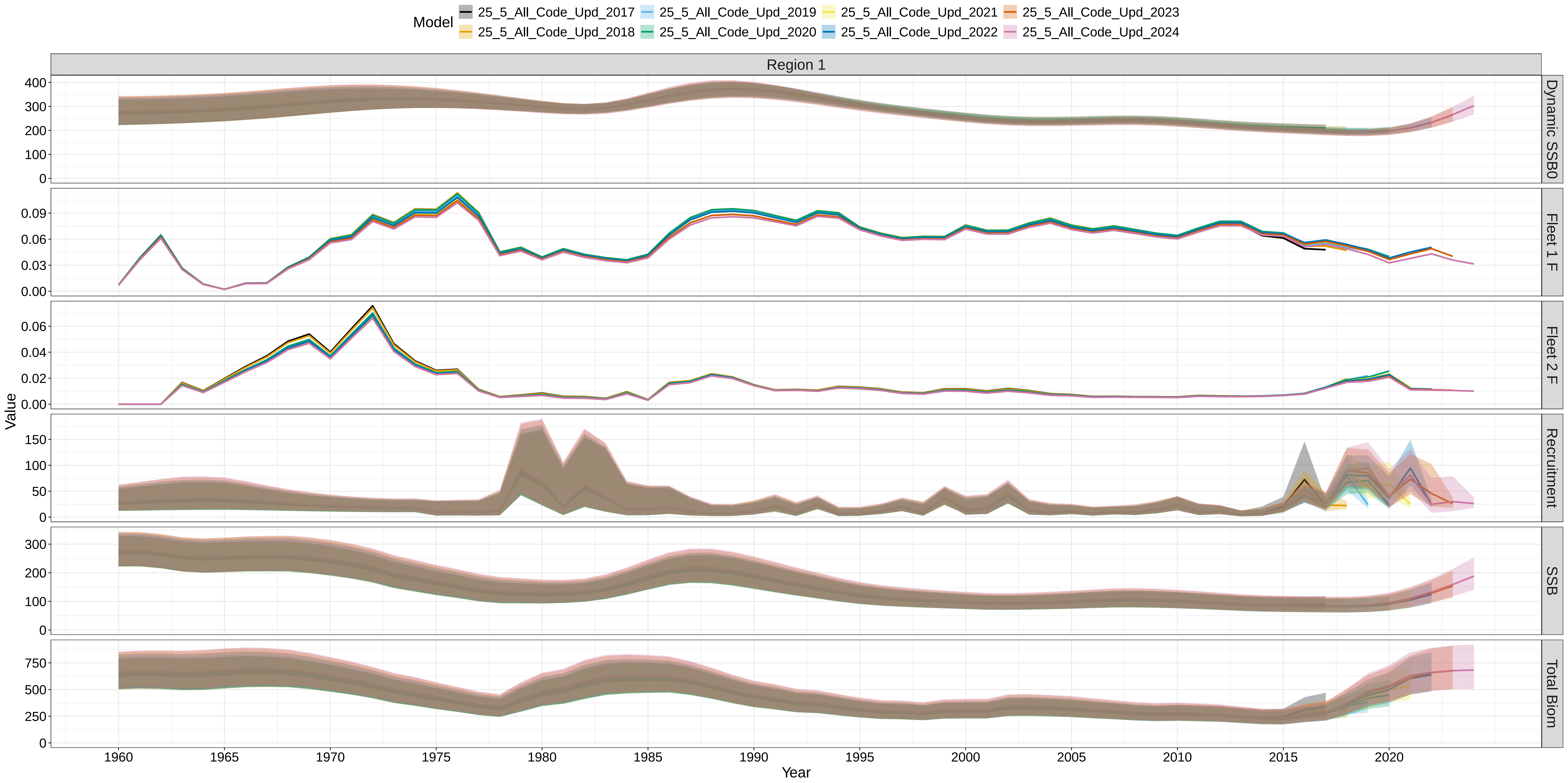

Catch
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Region 1
Fleet 1
Fleet 2
Catch
0
10
20
30
0
5
10
15
20
25
Year
0
20
40
60


Fishery Selectivity
Year
20
40
60
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Region 1
Fleet 1
Region 1
Fleet 2
Sex 1
Sex 2
Fishery selectivity
1.00
0.75
0.50
0.25
0.00
0
10
20
30
Bin

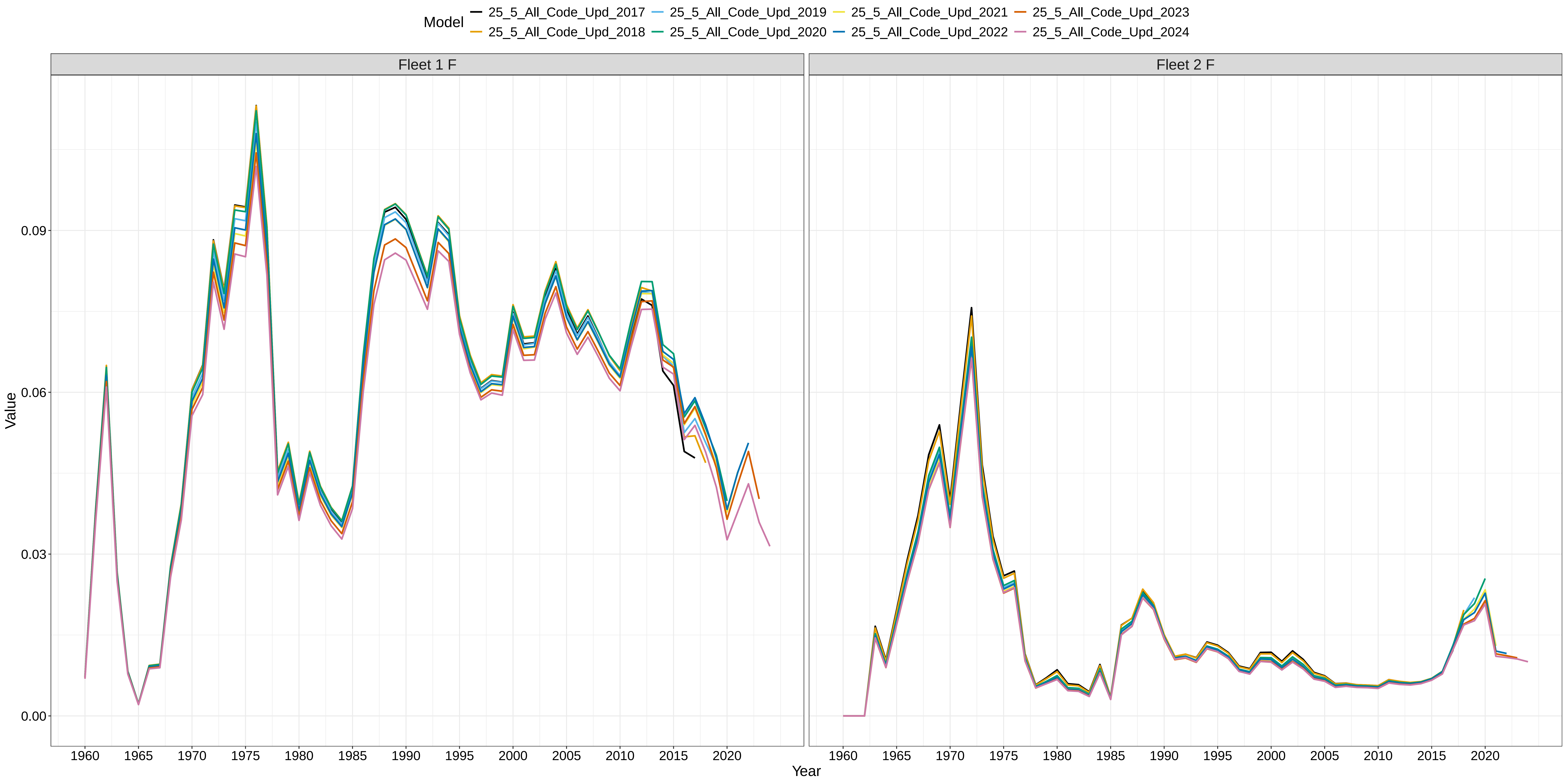

Survey Selectivity
Year
20
40
60
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Region 1
Fleet 1
Region 1
Fleet 2
Region 1
Fleet 3
Sex 1
Sex 2
Survey selectivity
0.00
0.25
0.50
0.75
1.00
0
10
20
30
Bin

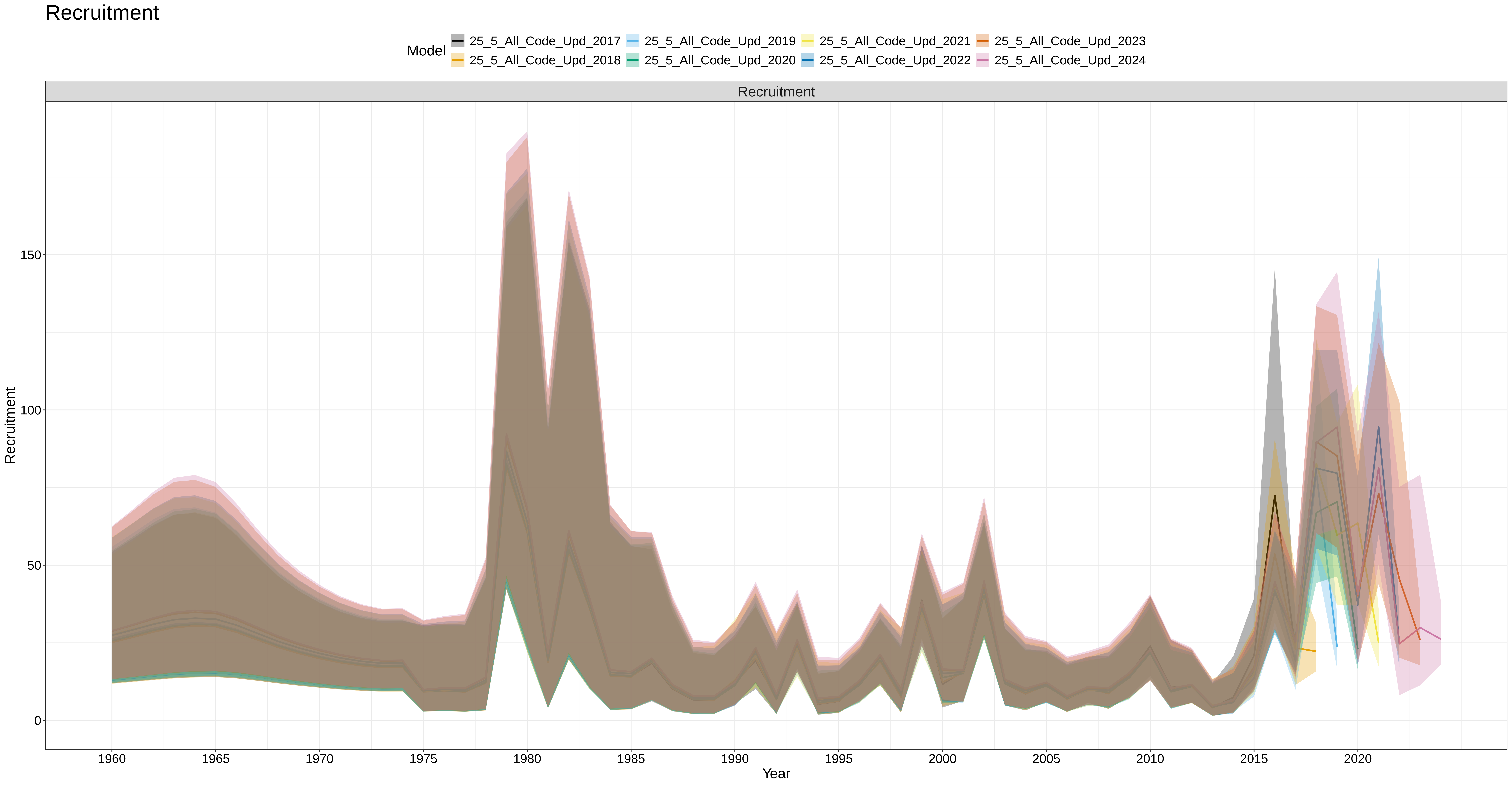

Time Series Plots
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Region 1
Dynamic SSB0
Fleet 1 F
Fleet 2 F
Recruitment
SSB
Total Biom
Value
Year
0
100
200
300
400
0.00
0.03
0.06
0.09
0.00
0.02
0.04
0.06
0
50
100
150
0
100
200
300
0
250
500
750
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

Time Series Plots

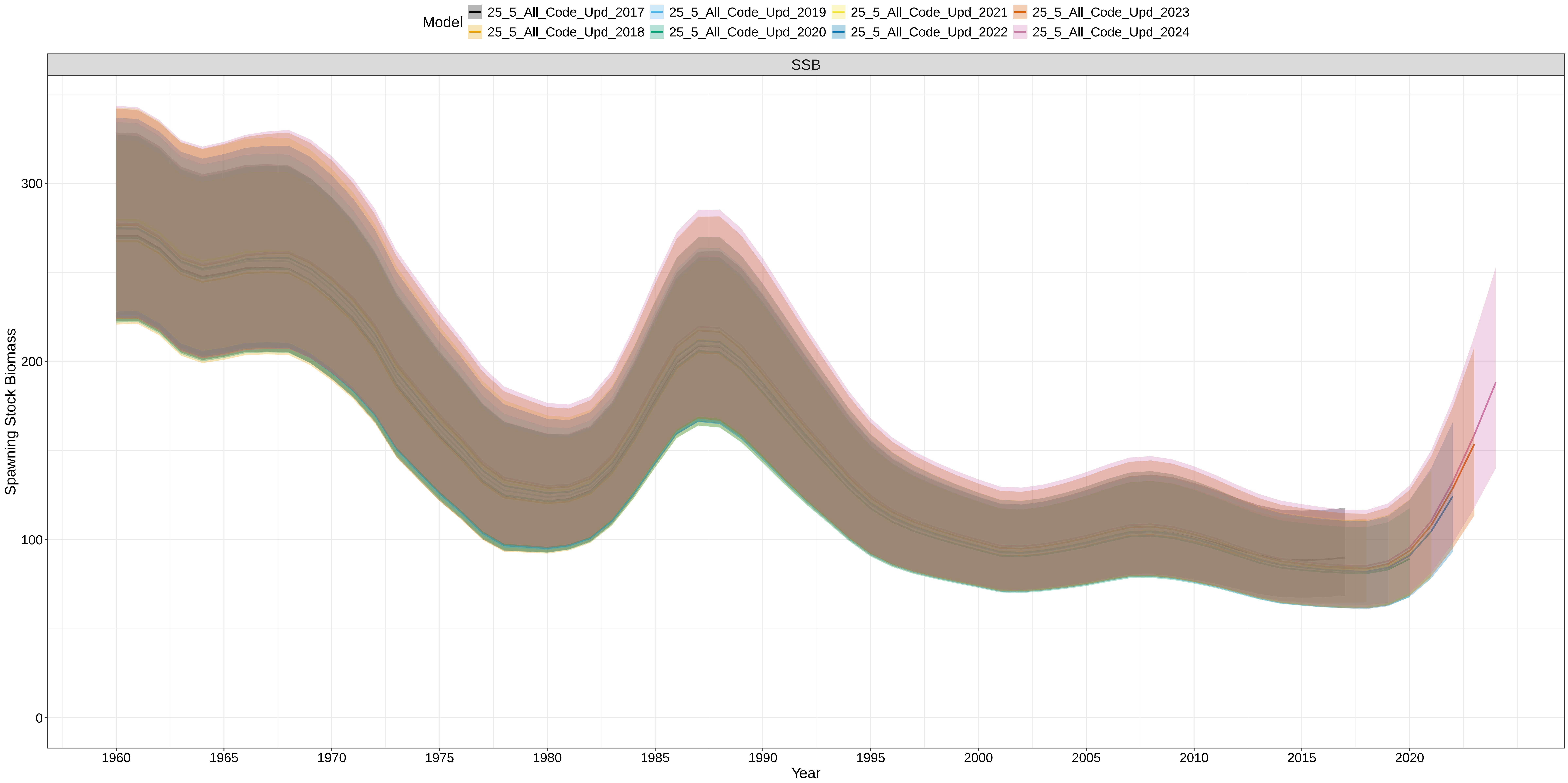


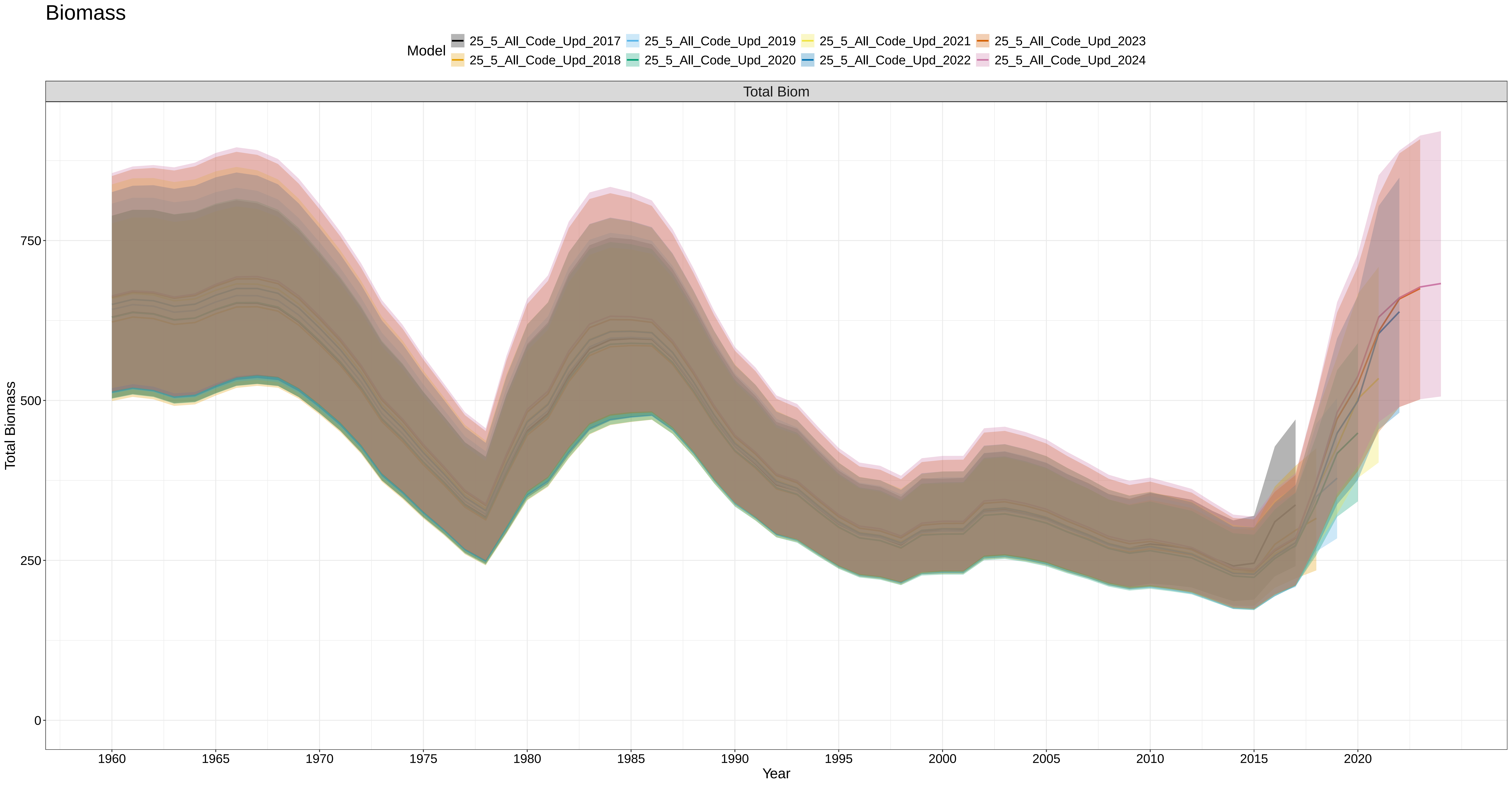
Fishing Mortality




Recruitment
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Recruitment
Recruitment
0
50
100
150
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

SSB


Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
SSB
Spawning Stock Biomass
0
100
200
300
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year


Biomass
Model
25_5_All_Code_Upd_2017
25_5_All_Code_Upd_2018
25_5_All_Code_Upd_2019
25_5_All_Code_Upd_2020
25_5_All_Code_Upd_2021
25_5_All_Code_Upd_2022
25_5_All_Code_Upd_2023
25_5_All_Code_Upd_2024
Total Biom
Total Biomass
750
500
250
0
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020