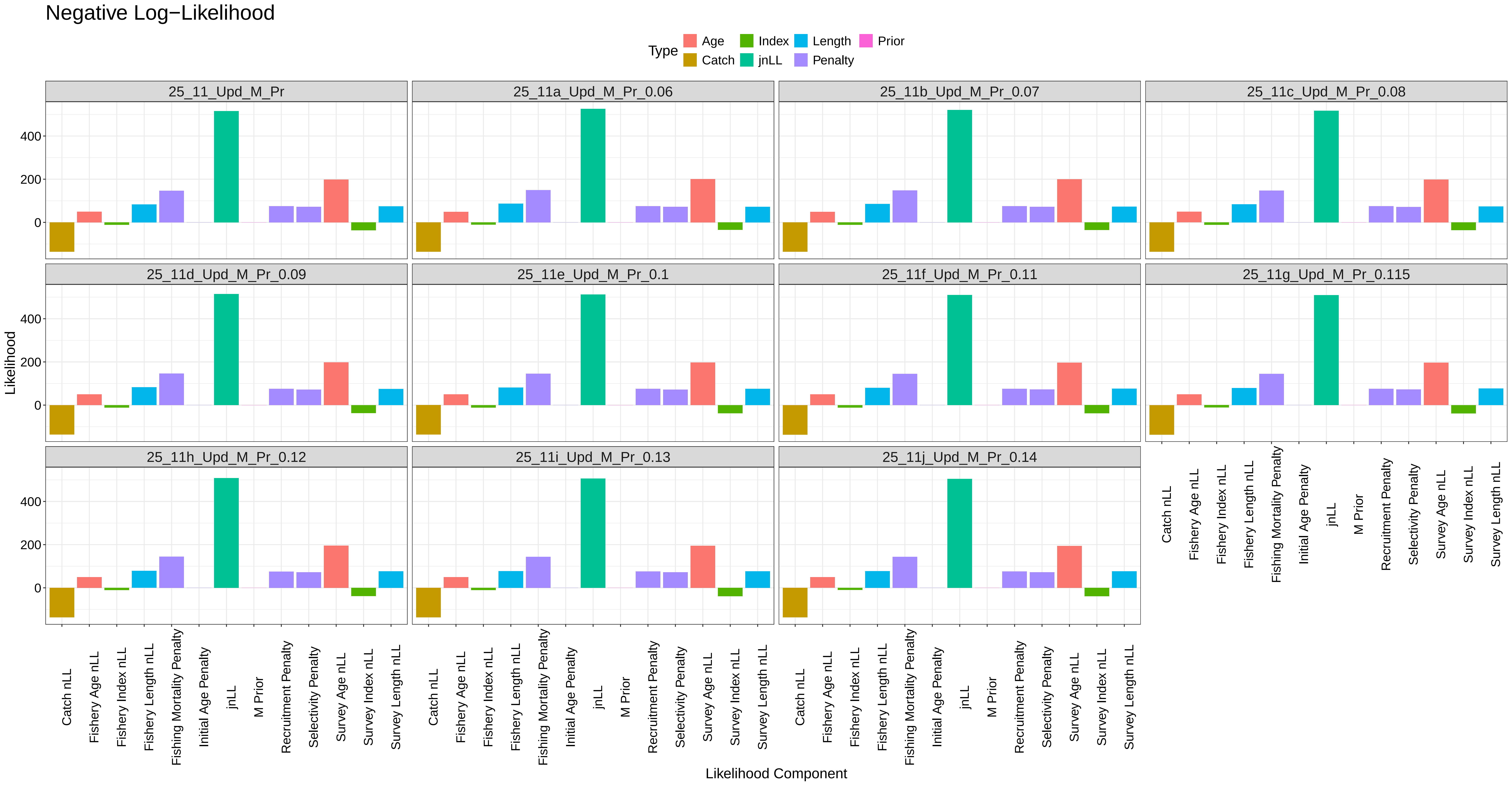
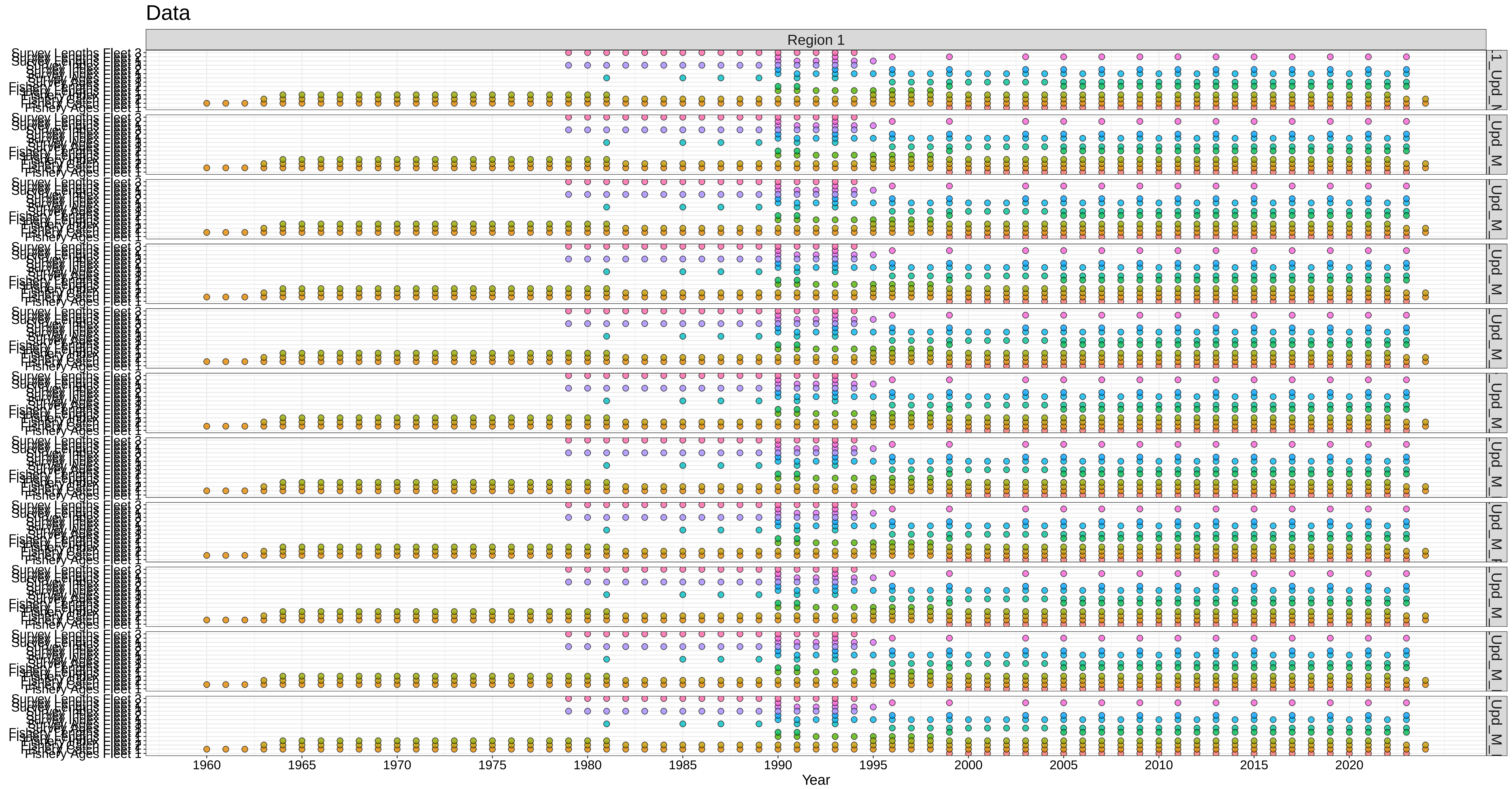
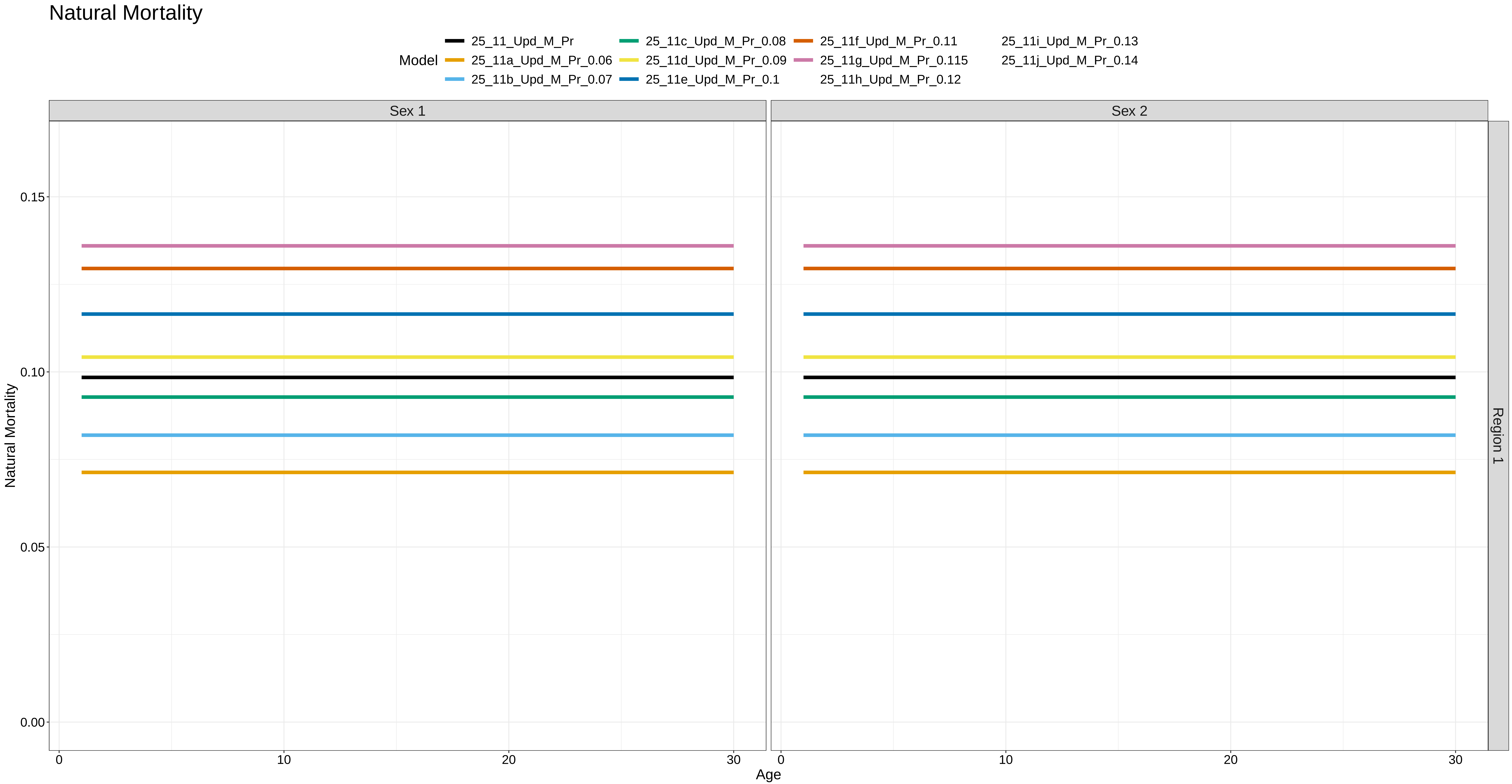
	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	25_11_Upd_M_Pr	1	178.3803	0.05147170	37.28203	123.4346	0.08281	1.44514	0.62155
2	25_11a_Upd_M_Pr_0.06	1	134.1069	0.06825657	22.43653	139.4829	0.06740	0.96146	1.01277
3	25_11b_Upd_M_Pr_0.07	1	148.7207	0.06172415	28.06634	129.9411	0.07388	1.14452	0.83545
4	25_11c_Upd_M_Pr_0.08	1	167.1043	0.05497411	33.81507	124.6392	0.07992	1.34070	0.68786
5	25_11d_Upd_M_Pr_0.09	1	191.6432	0.04785636	41.32218	123.2479	0.08565	1.55494	0.55874
6	25_11e_Upd_M_Pr_0.1	1	227.3000	0.04022474	52.04808	126.6370	0.09133	1.79489	0.44045
7	25_11f_Upd_M_Pr_0.11	1	283.0122	0.03222845	68.58336	137.3426	0.09713	2.06063	0.33181
8	25_11g_Upd_M_Pr_0.115	1	322.2427	0.02828492	80.15346	146.6618	0.10000	2.19718	0.28286
9	25_11h_Upd_M_Pr_0.12	1	371.8133	0.02450344	94.73748	159.4849	0.10276	2.33134	0.23846
10	25_11i_Upd_M_Pr_0.13	1	516.0917	0.01764780	137.11539	199.8919	0.10782	2.58185	0.16367
11	25_11j_Upd_M_Pr_0.14	1	773.4120	0.01177704	212.67415	275.9456	0.11225	2.80277	0.10492

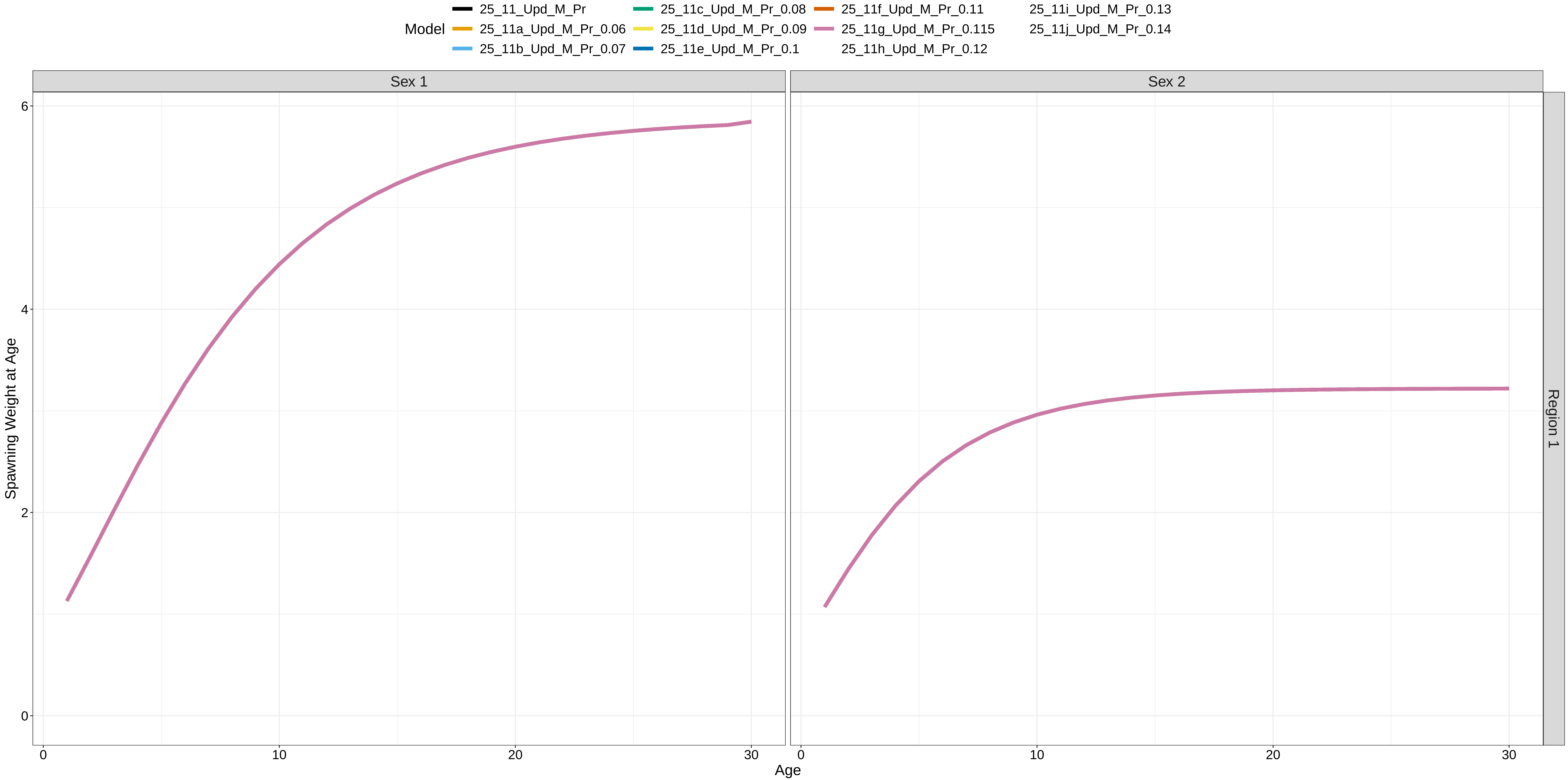
	Model	jnLL	M Prior	Recruitment Penalty	Selectivity Penalty	Catch nLL	Fishing Mortality Penalty	Survey Index nLL	Fishery Index nLL	Initial Age Penalty	Survey Age nLL	Fishery Age nLL	Survey Length nLL	Fishery Length nLL
1	25_11_Upd_M_Pr	515.6982	−0.30818739	75.25098	72.00785	−136.1671	146.9464	−36.65904	−11.54096	0.2849454	198.4586	49.73668	74.45816	83.22979
2	25_11a_Upd_M_Pr_0.06	525.9021	0.10534605	75.35096	72.10807	−135.7357	149.6193	−34.58817	−10.92249	0.5211898	200.6924	48.88470	72.58611	87.28040
3	25_11b_Upd_M_Pr_0.07	520.8668	−0.14598109	75.29073	72.02882	−135.9205	148.4395	−35.53400	−11.31912	0.4173551	199.6228	49.24686	73.32260	85.41772
4	25_11c_Upd_M_Pr_0.08	517.1544	−0.28106166	75.25906	72.00284	−136.0888	147.4117	−36.32367	−11.51010	0.3255686	198.8142	49.58912	74.07244	83.88307
5	25_11d_Upd_M_Pr_0.09	514.4613	−0.30715274	75.25060	72.02532	−136.2416	146.5085	−36.96011	−11.53376	0.2481119	198.1081	49.86169	74.85415	82.64747
6	25_11e_Upd_M_Pr_0.1	512.3676	−0.21553412	75.28624	72.09742	−136.3791	145.7126	−37.50708	−11.41162	0.1875556	197.3920	50.03435	75.65630	81.51453
7	25_11f_Upd_M_Pr_0.11	510.3349	−0.04841531	75.38505	72.20591	−136.4953	145.0496	−38.02446	−11.15315	0.1505292	196.6853	50.08597	76.35649	80.13731
8	25_11g_Upd_M_Pr_0.115	509.3064	0.02265351	75.45796	72.26712	−136.5418	144.7762	−38.25729	−10.98453	0.1426626	196.3277	50.05678	76.62290	79.41608
9	25_11h_Upd_M_Pr_0.12	508.2993	0.06124012	75.54315	72.32986	−136.5798	144.5412	−38.46151	−10.80226	0.1415229	195.9536	49.99187	76.82403	78.75640
10	25_11i_Upd_M_Pr_0.13	506.4652	0.01136351	75.73649	72.45368	−136.6324	144.1730	−38.77590	−10.43537	0.1544857	195.1290	49.78641	77.05346	77.81098
11	25_11j_Upd_M_Pr_0.14	505.0103	−0.18059589	75.94233	72.57048	−136.6622	143.9090	−38.98243	−10.10414	0.1787029	194.1957	49.54142	77.12375	77.47825


Negative Log−Likelihood
Type
Age
Catch
Index
jnLL
Length
Penalty
Prior
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Likelihood
400
200
0
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

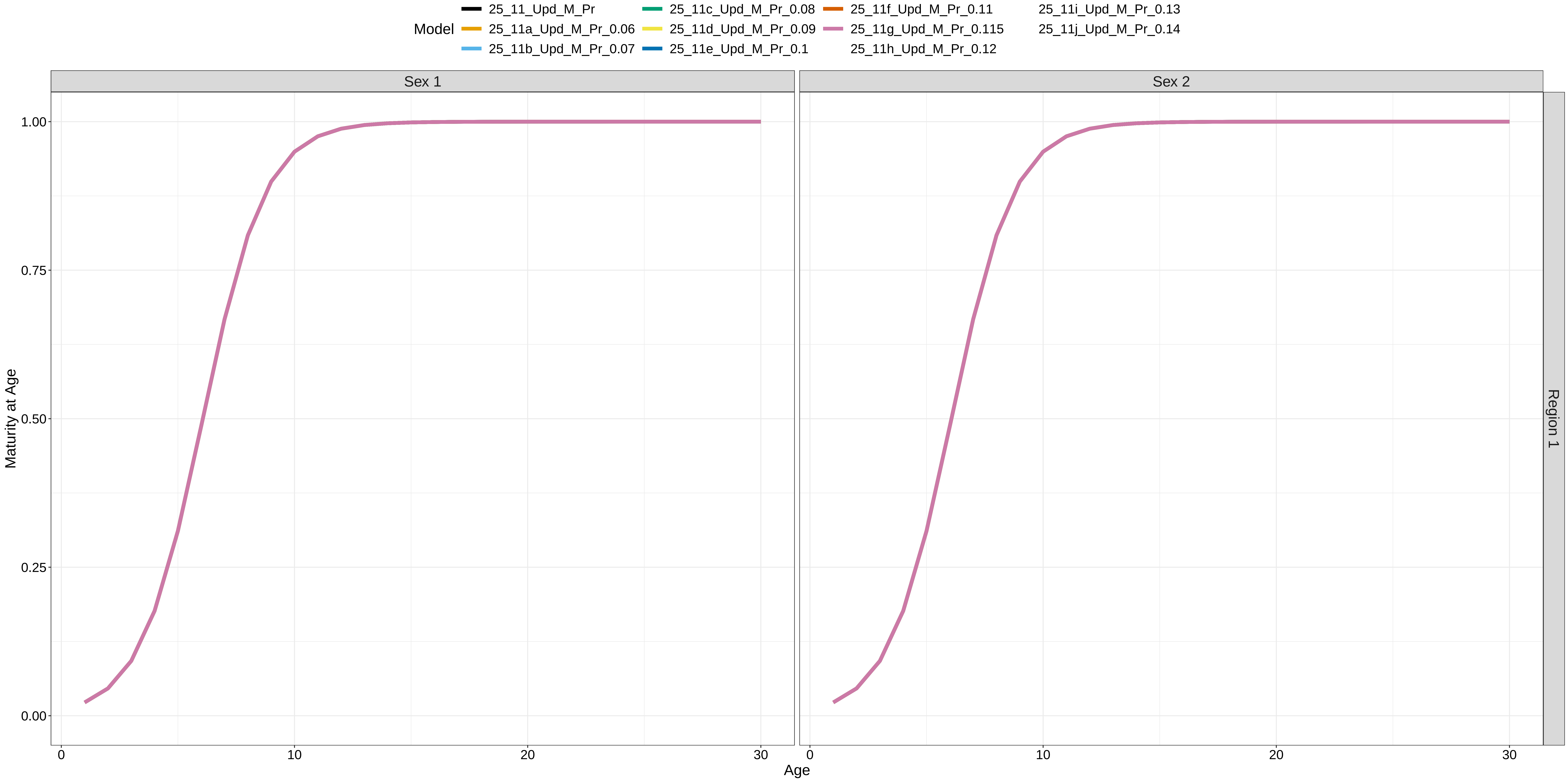

Data
Region 1
Survey Lengths Fleet 3
Survey Lengths Fleet 2
Survey Index Fleet 3
Survey Index Fleet 2
Survey Ages Fleet 3
Survey Ages Fleet 2
Fishery Lengths Fleet 2
Fishery Lengths Fleet 1
Fishery Index Fleet 1
Fishery Catch Fleet 2
Fishery Catch Fleet 1
Fishery Ages Fleet 1
1_Upd_M
Upd_M_
1960
1965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

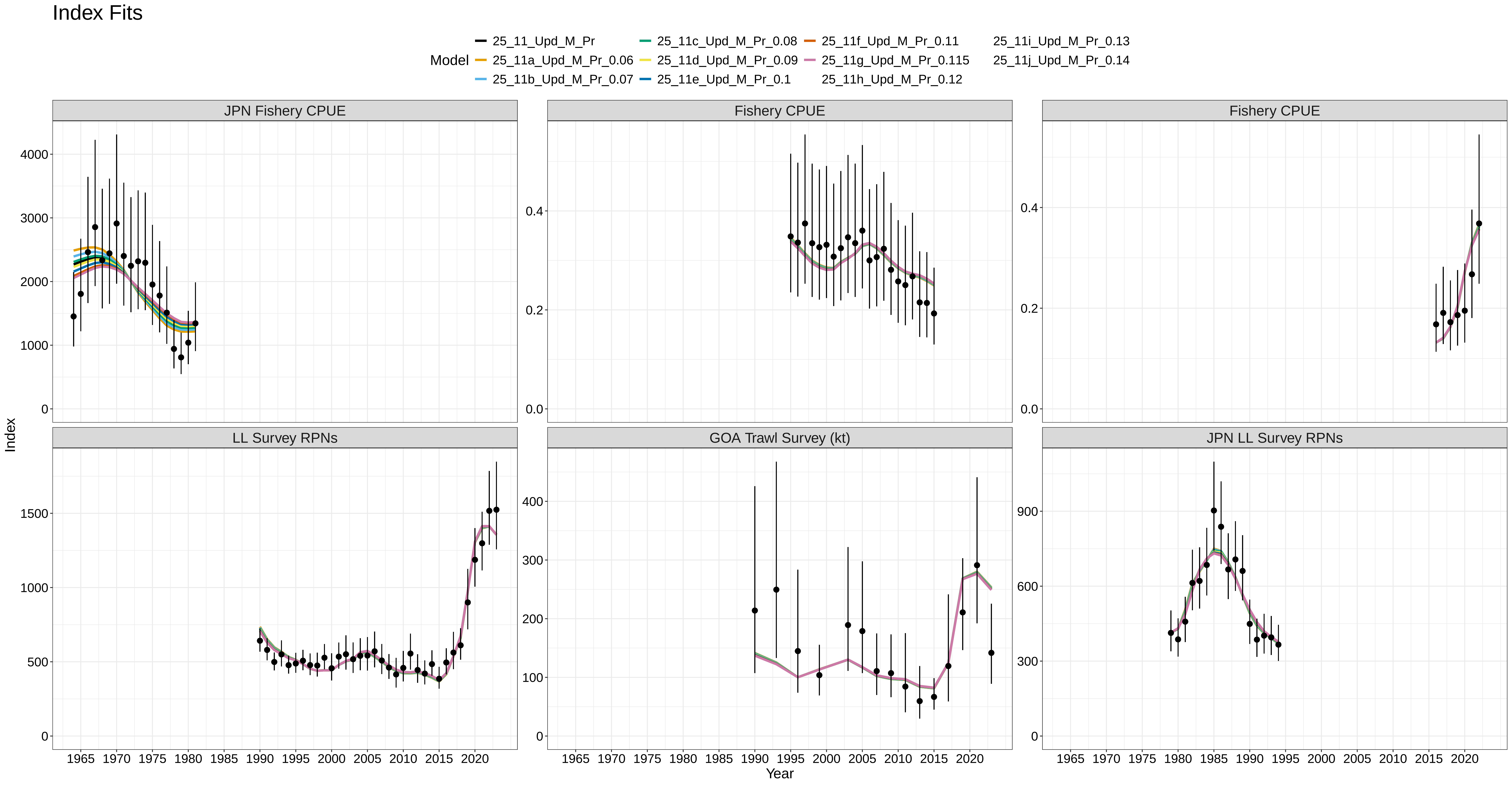

Natural Mortality
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Sex 1
Sex 2
Region 1
Natural Mortality
0.15
0.10
0.05
0.00
0
10
20
30
Age

Weight−at−Age



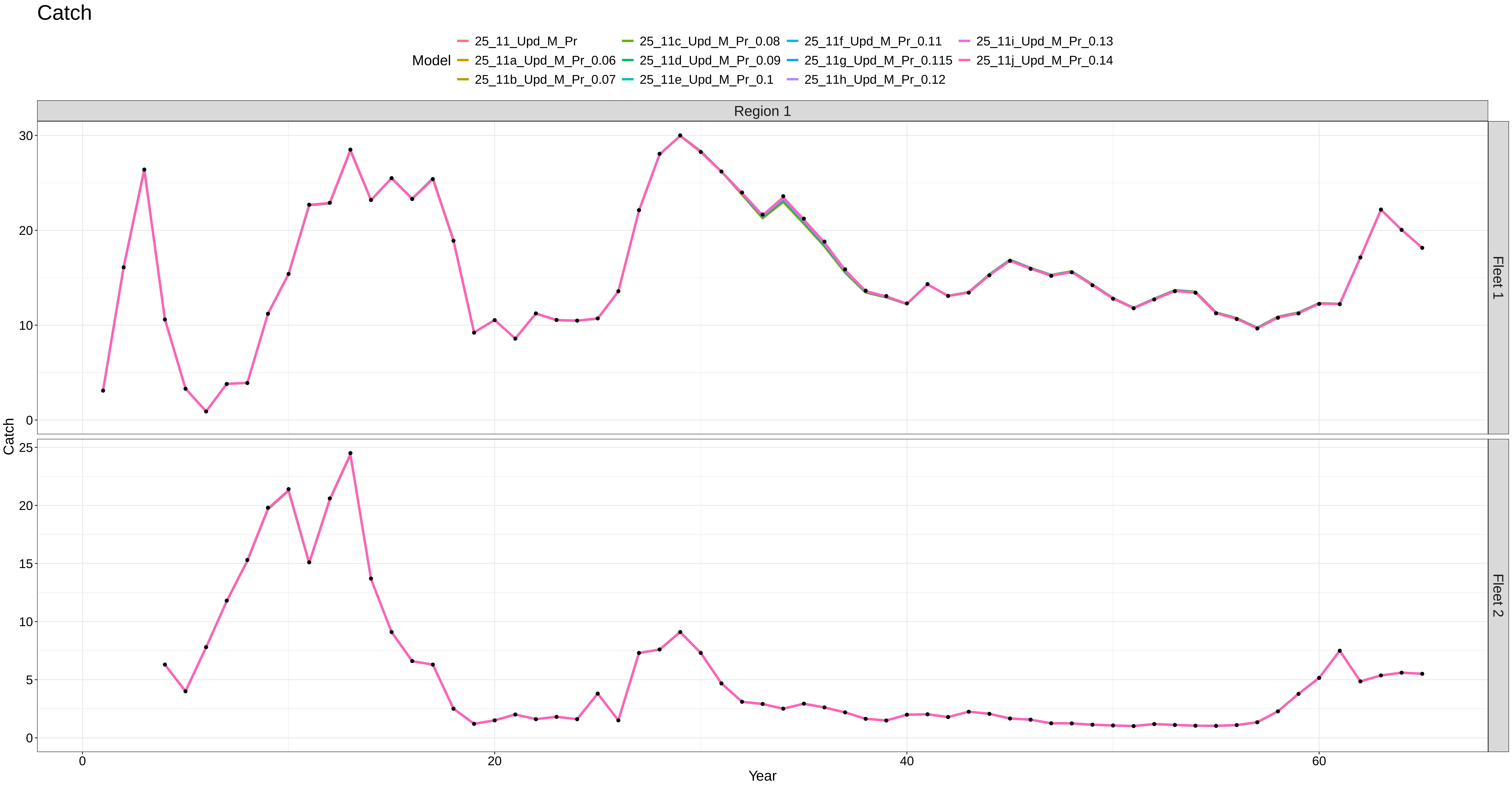
Maturity

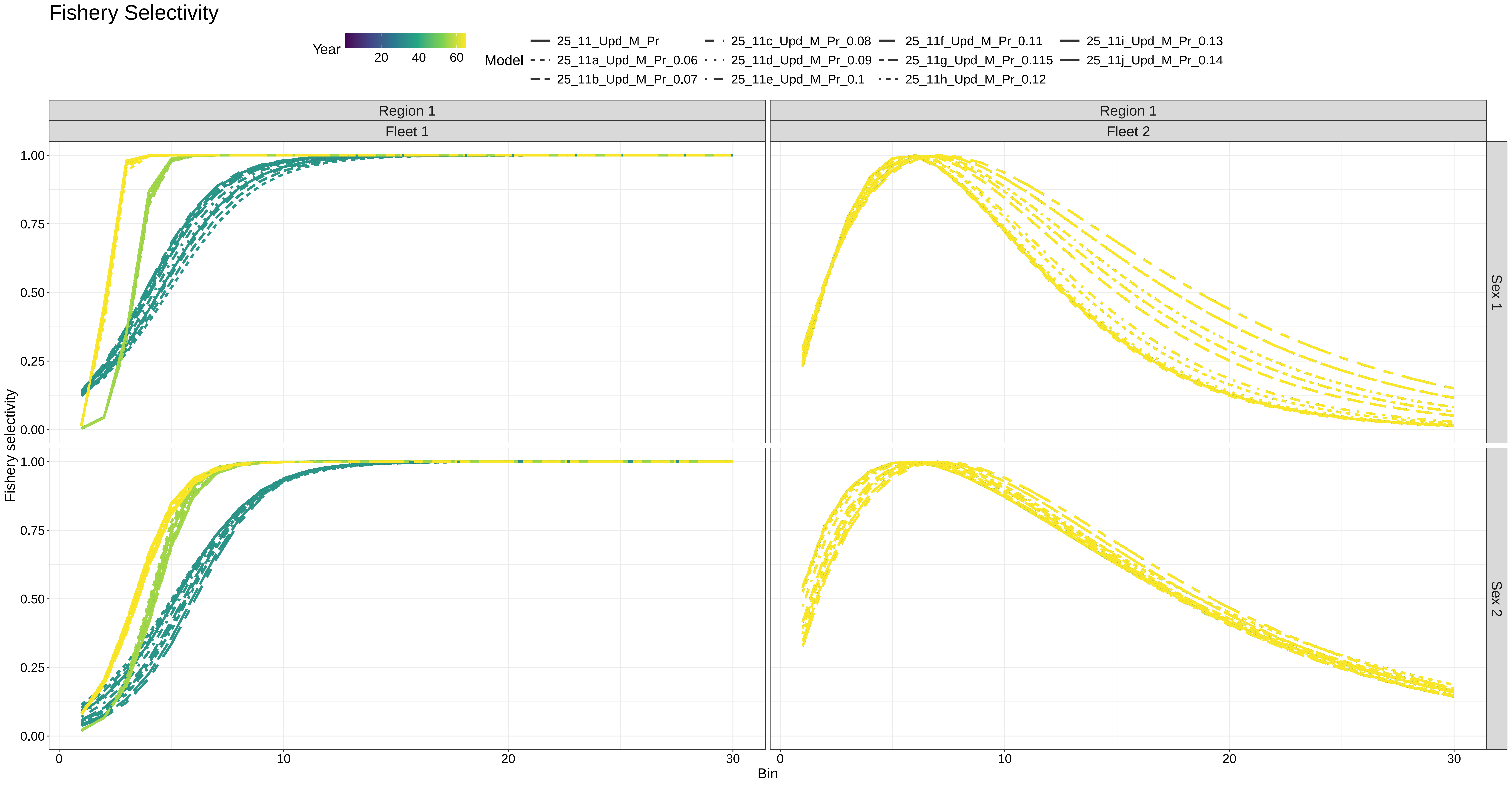

Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Sex 1
Sex 2
Region 1
Maturity at Age
1.00
0.75
0.50
0.25
0.00
0
10
20
30
Age



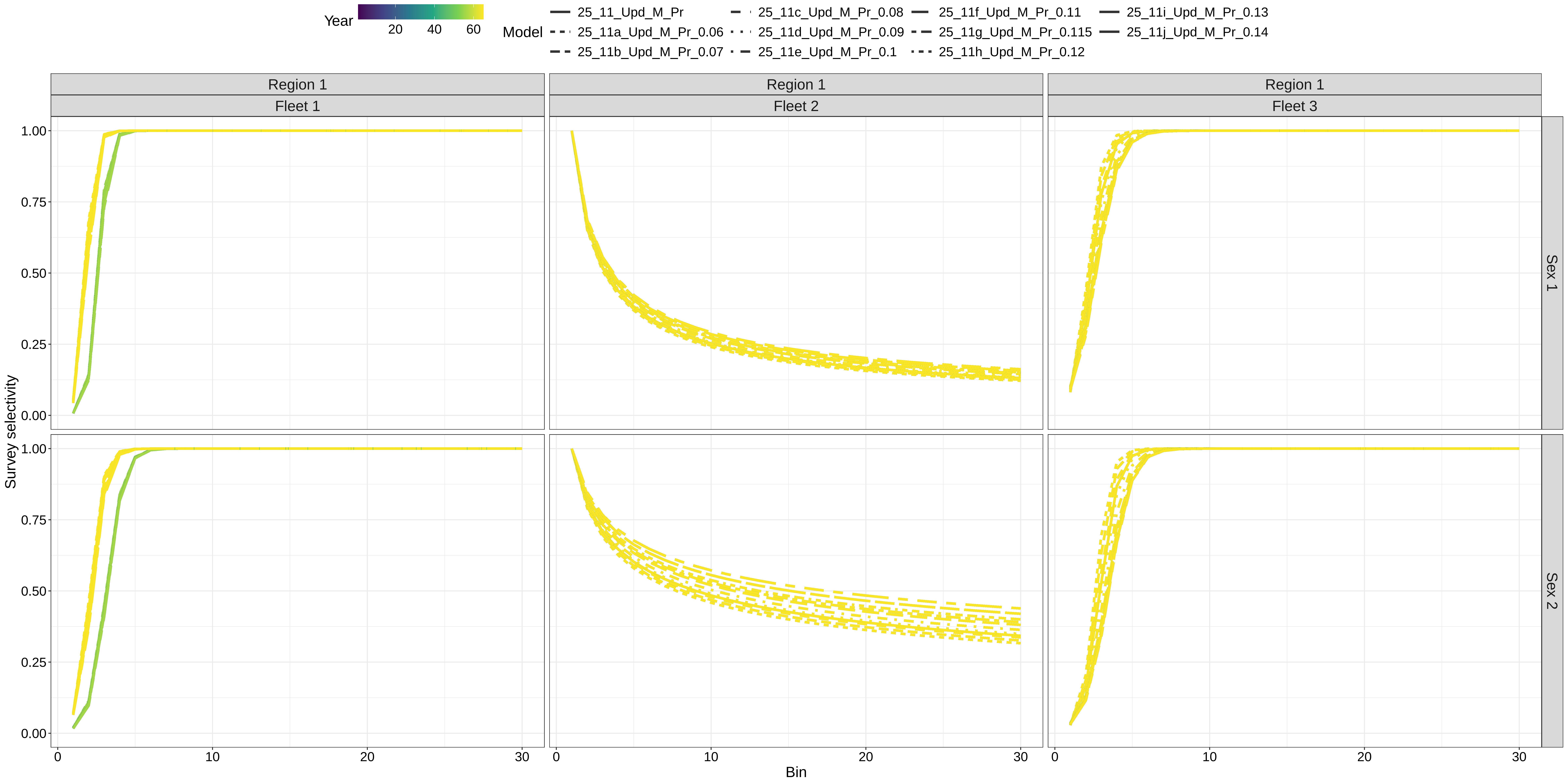
Index Fits

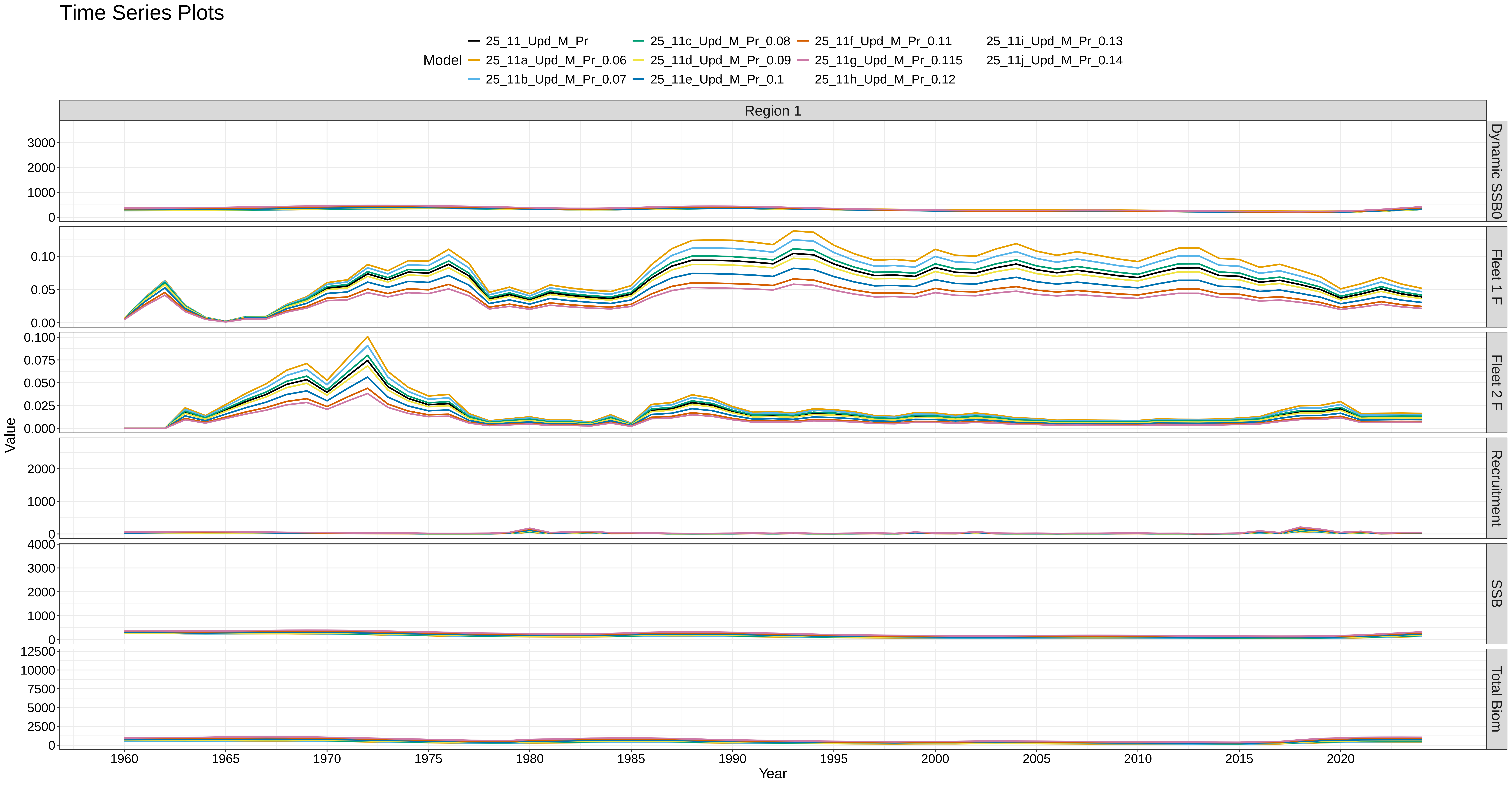
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
JPN Fishery CPUE
Fishery CPUE
Fishery CPUE
LL Survey RPNs
GOA Trawl Survey (kt)
JPN LL Survey RPNs
Index
Year
0
1000
2000
3000
4000
0.0
0.2
0.4
0
500
1000
1500
0
100
200
300
400
0
300
600
900
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

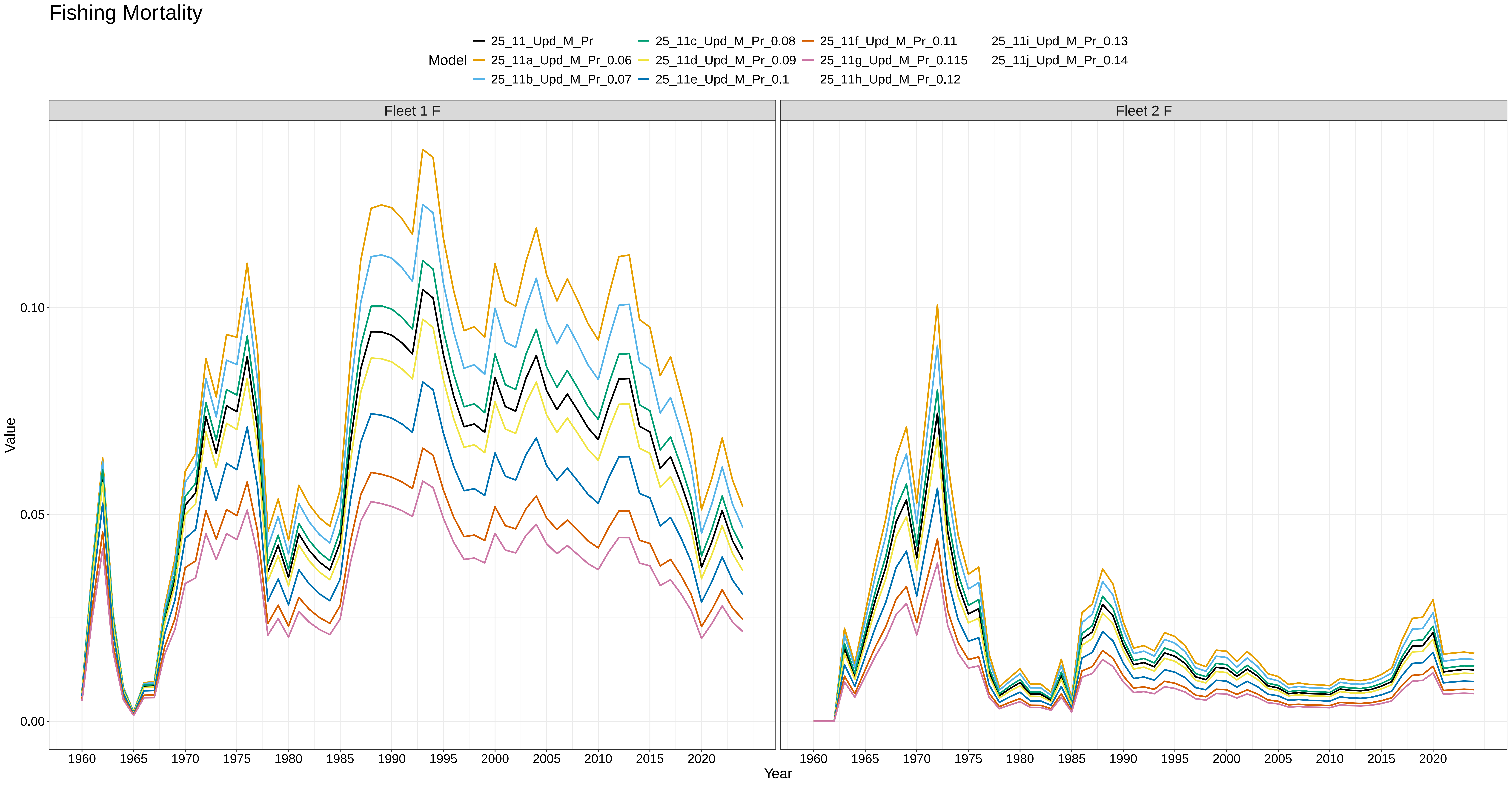

Catch
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Region 1
Fleet 1
Fleet 2
Catch
30
20
10
0
25
20
15
10
5
0
0
20
40
60
Year


Fishery Selectivity
Year
20
40
60
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
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

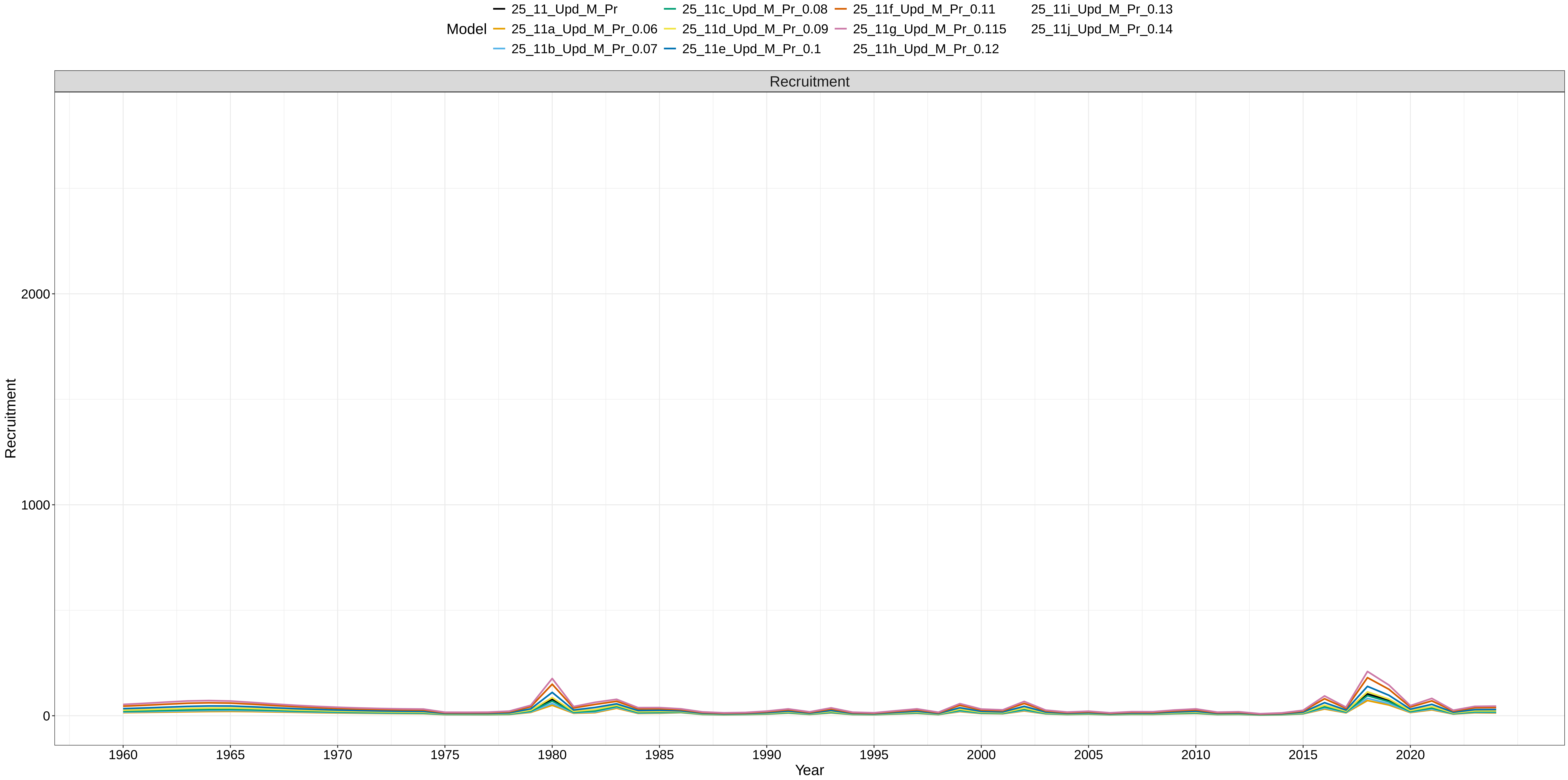
Survey Selectivity

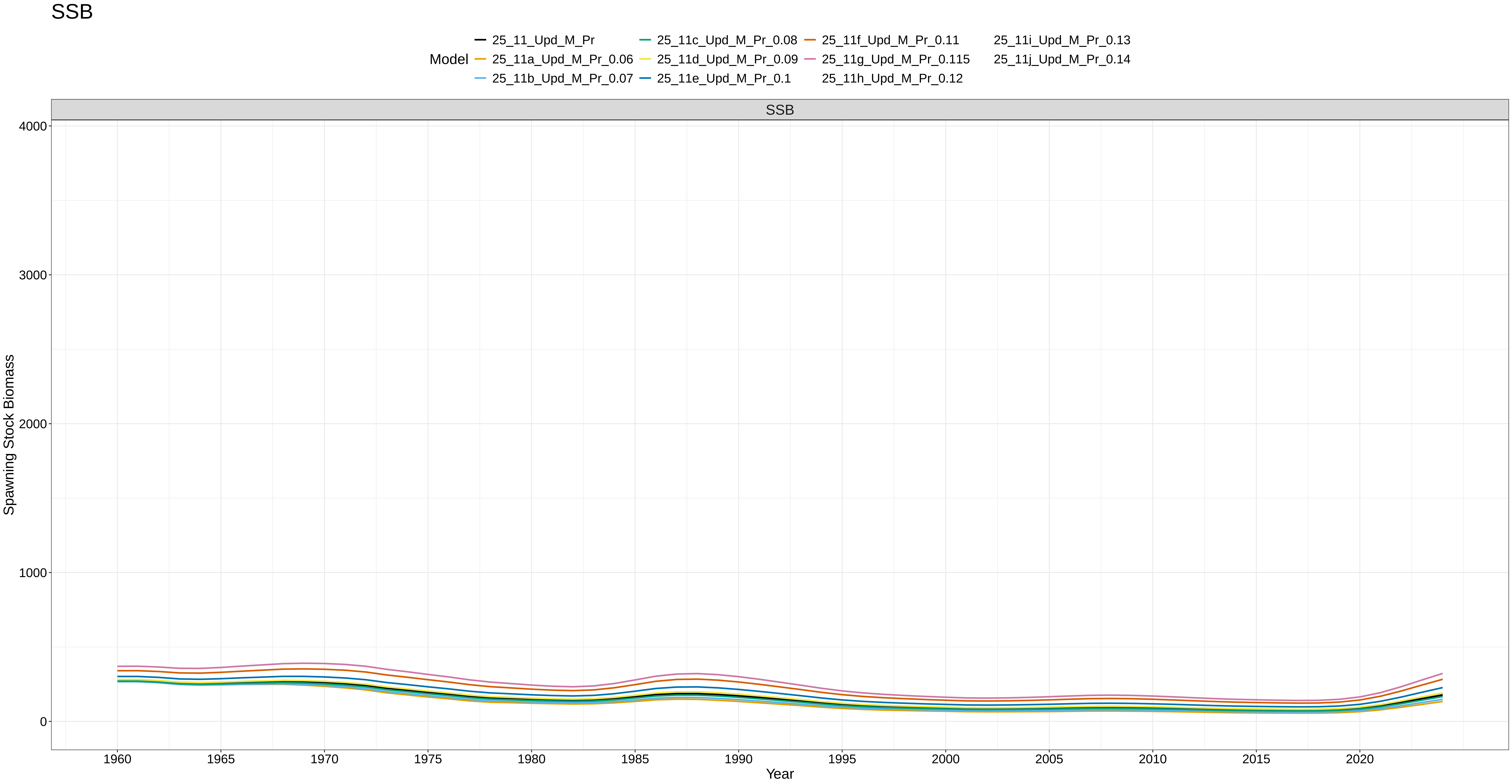



Time Series Plots
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Region 1
Dynamic SSB0
3000
2000
1000
0
Fleet 1 F
0.10
0.05
0.00
Fleet 2 F
0.100
0.075
0.050
0.025
0.000
Recruitment
2000
1000
0
SSB
4000
3000
2000
1000
0
Total Biom
12500
10000
7500
5000
2500
0
Value
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

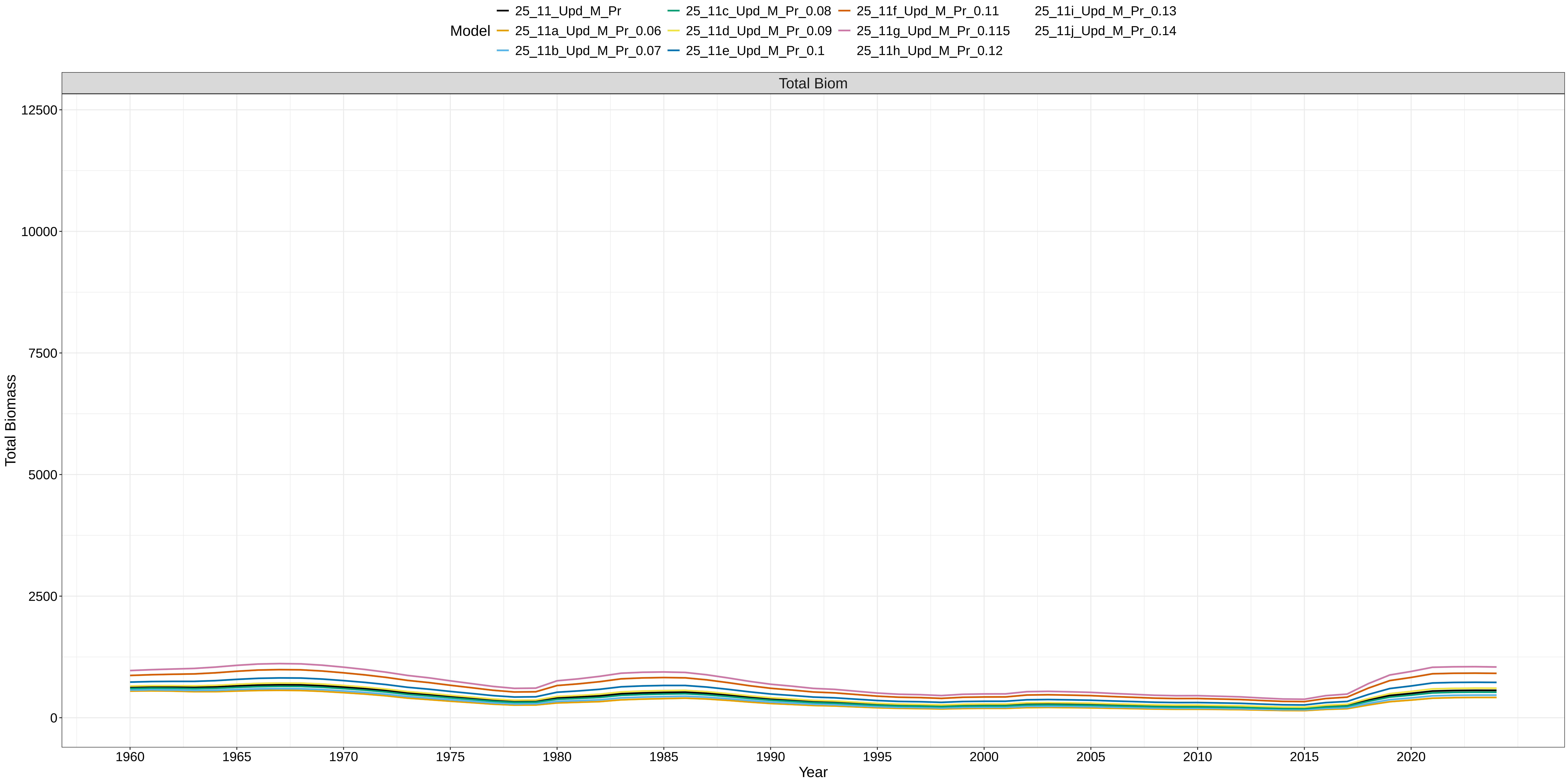

Fishing Mortality
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Fleet 1 F
Fleet 2 F
Value
0.00
0.05
0.10
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

Recruitment

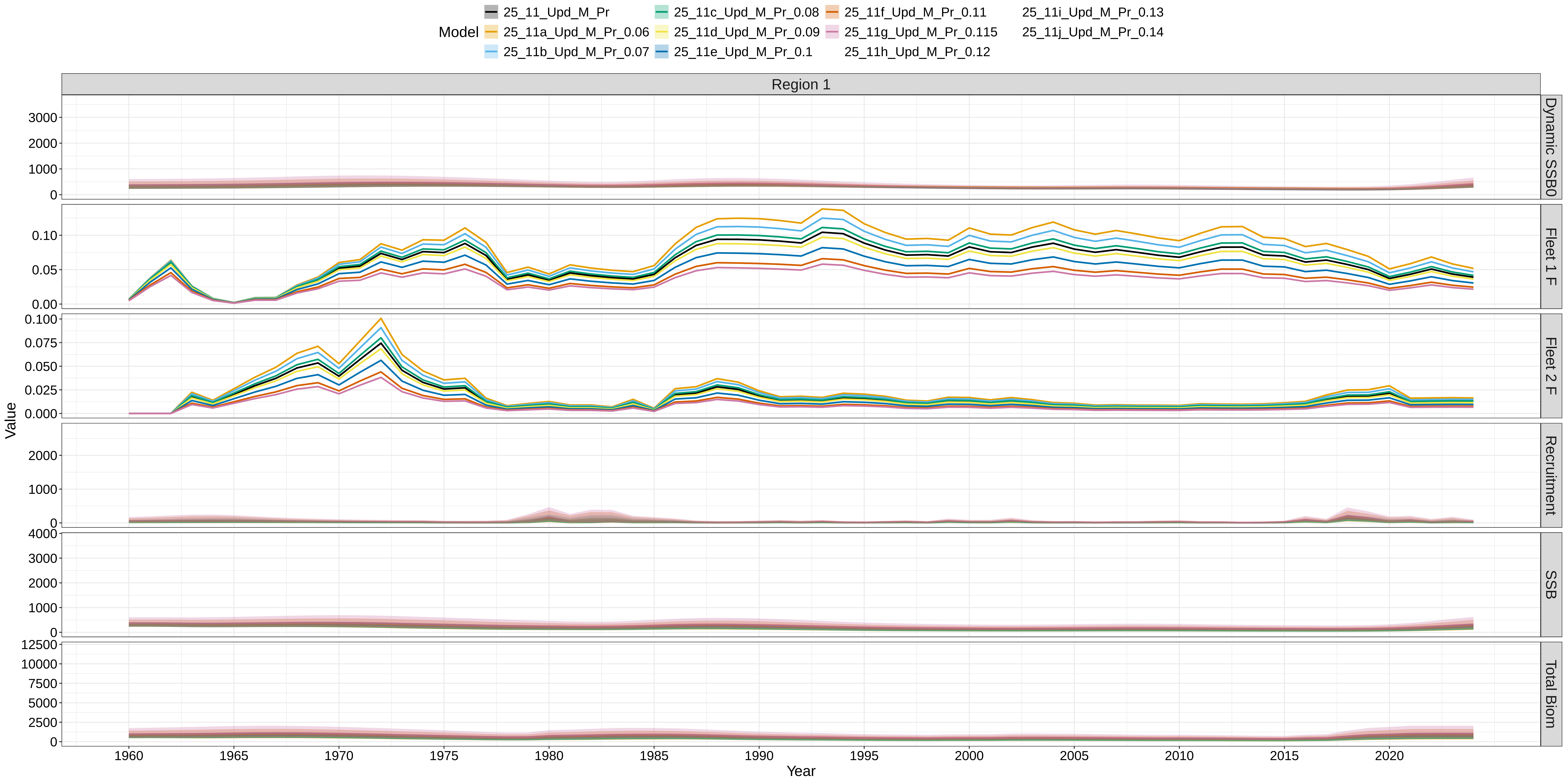


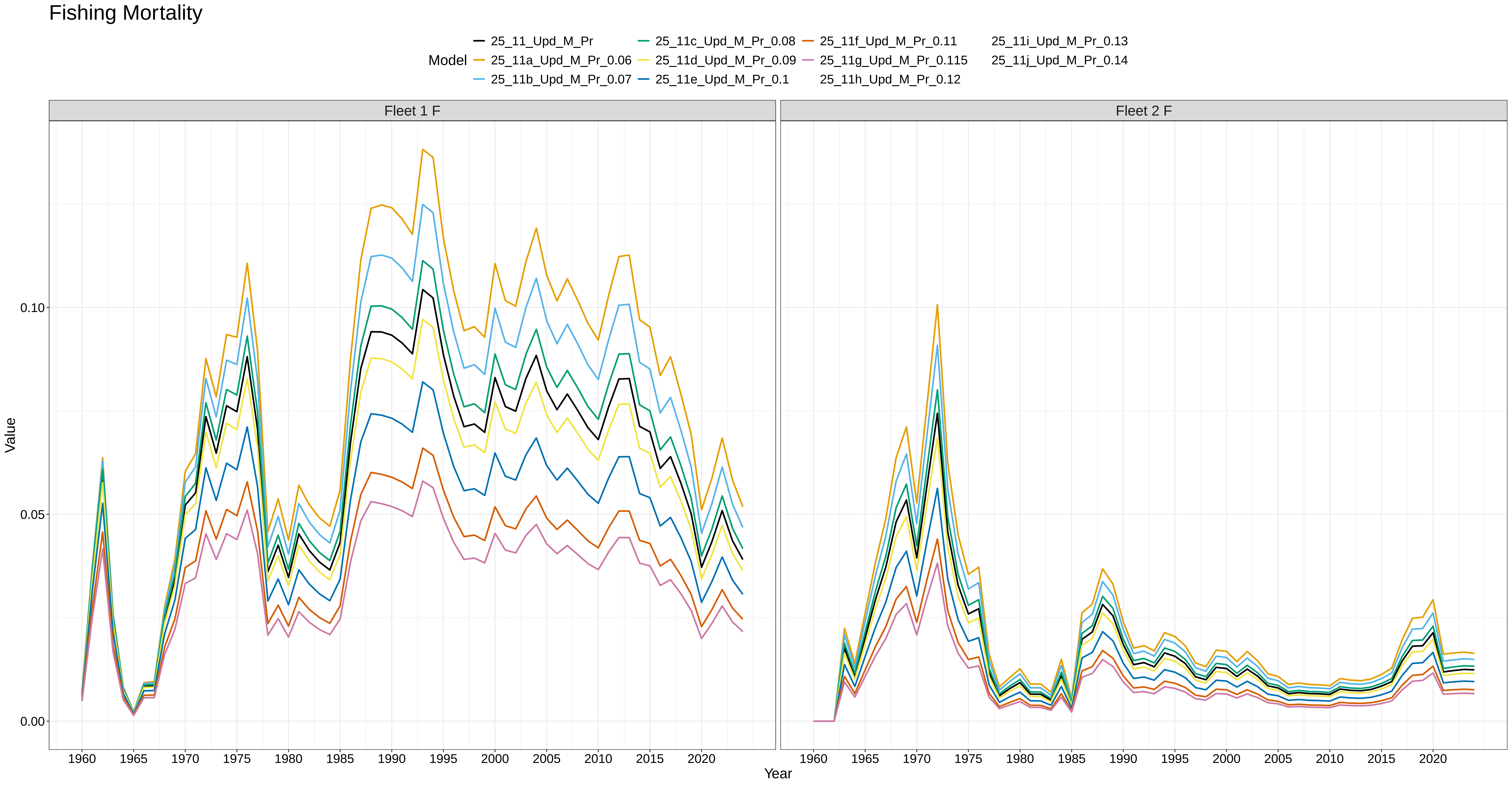

SSB
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
SSB
Spawning Stock Biomass
4000
3000
2000
1000
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Biomass

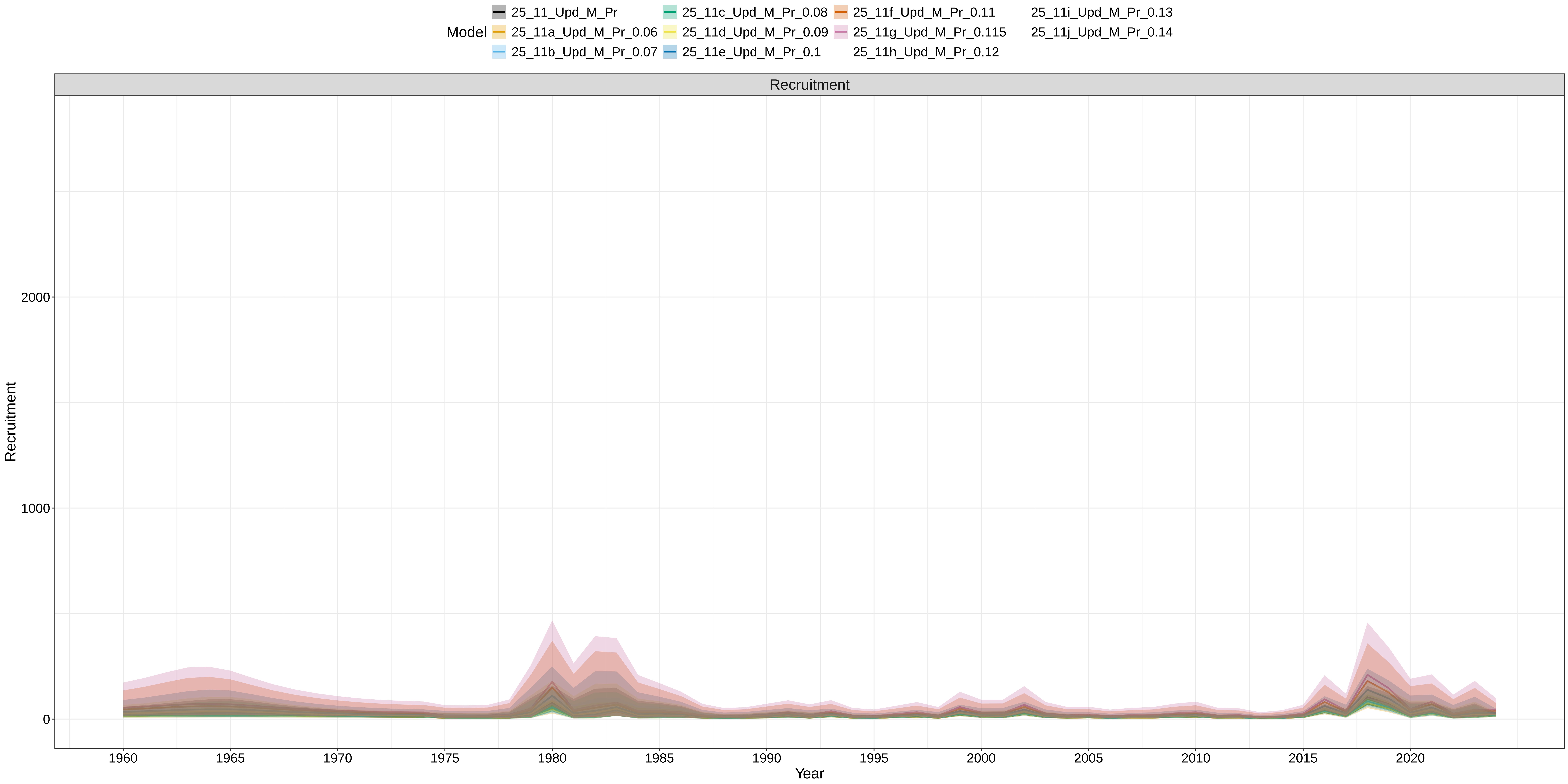

Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Total Biom
Total Biomass
12500
10000
7500
5000
2500
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Time Series Plots

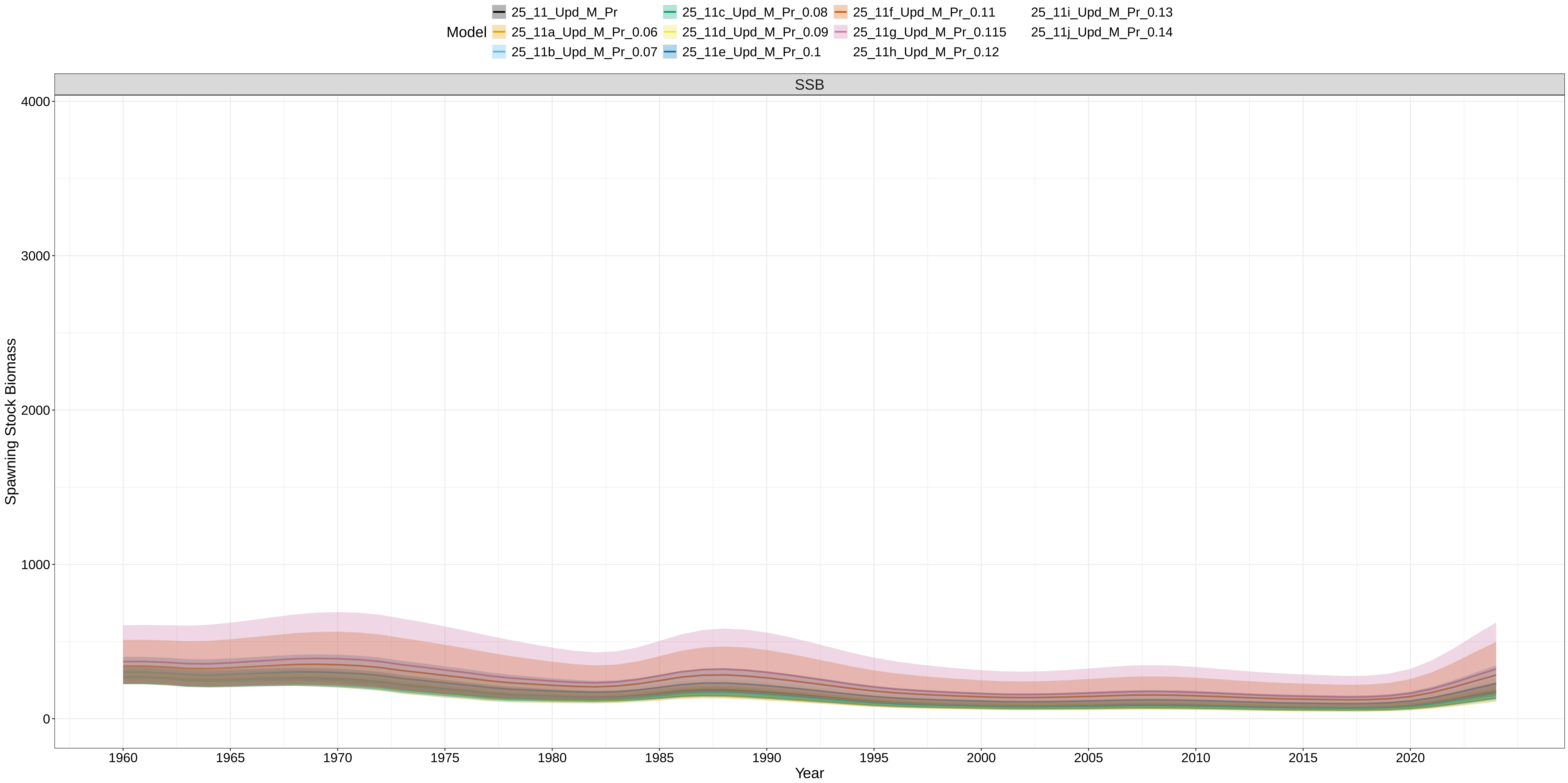


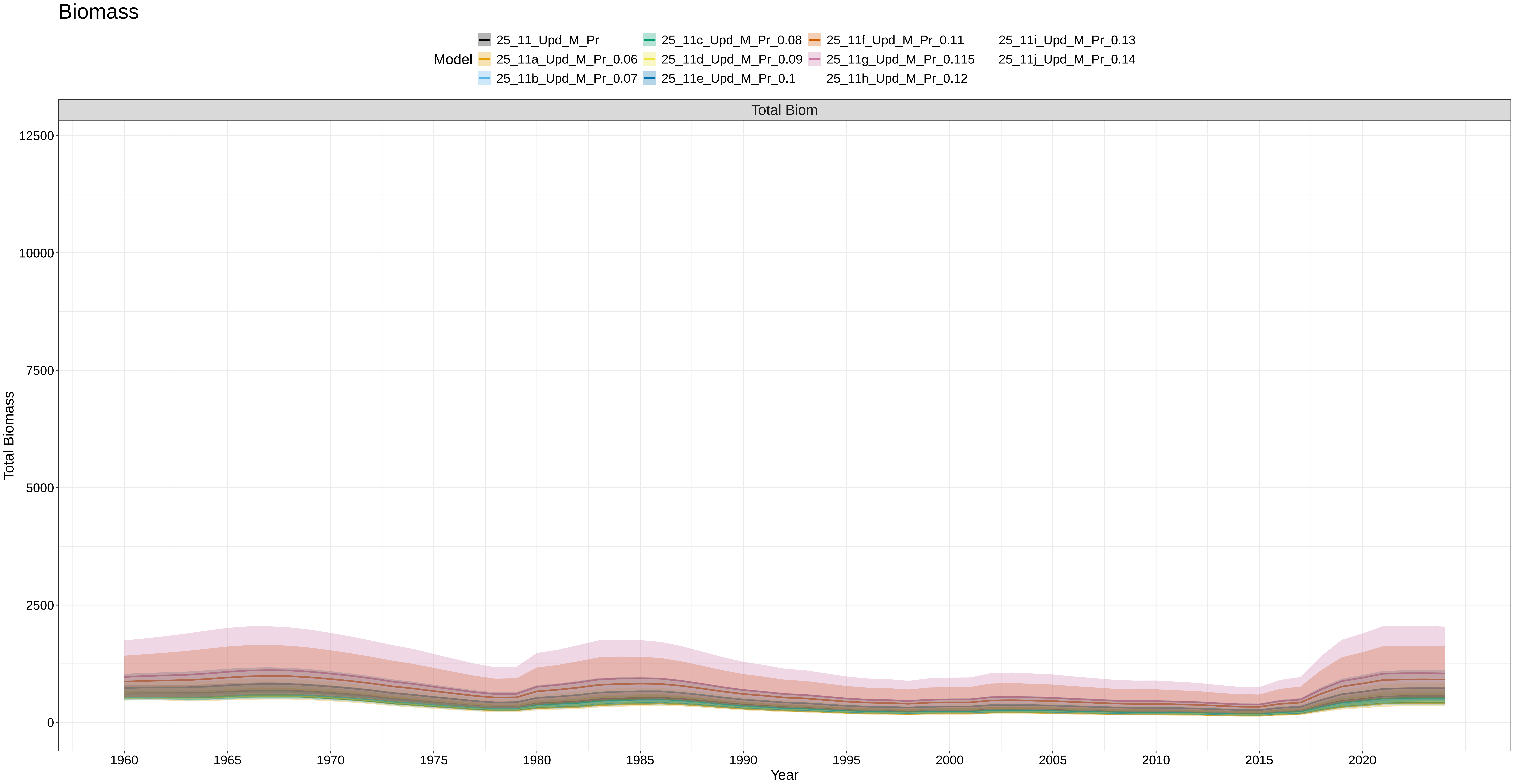

Fishing Mortality
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Fleet 1 F
Fleet 2 F
Value
0.00
0.05
0.10
Year
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

Recruitment



SSB


Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
SSB
Spawning Stock Biomass
4000
3000
2000
1000
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year


Biomass
Model
25_11_Upd_M_Pr
25_11a_Upd_M_Pr_0.06
25_11b_Upd_M_Pr_0.07
25_11c_Upd_M_Pr_0.08
25_11d_Upd_M_Pr_0.09
25_11e_Upd_M_Pr_0.1
25_11f_Upd_M_Pr_0.11
25_11g_Upd_M_Pr_0.115
25_11h_Upd_M_Pr_0.12
25_11i_Upd_M_Pr_0.13
25_11j_Upd_M_Pr_0.14
Total Biom
Total Biomass
12500
10000
7500
5000
2500
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year