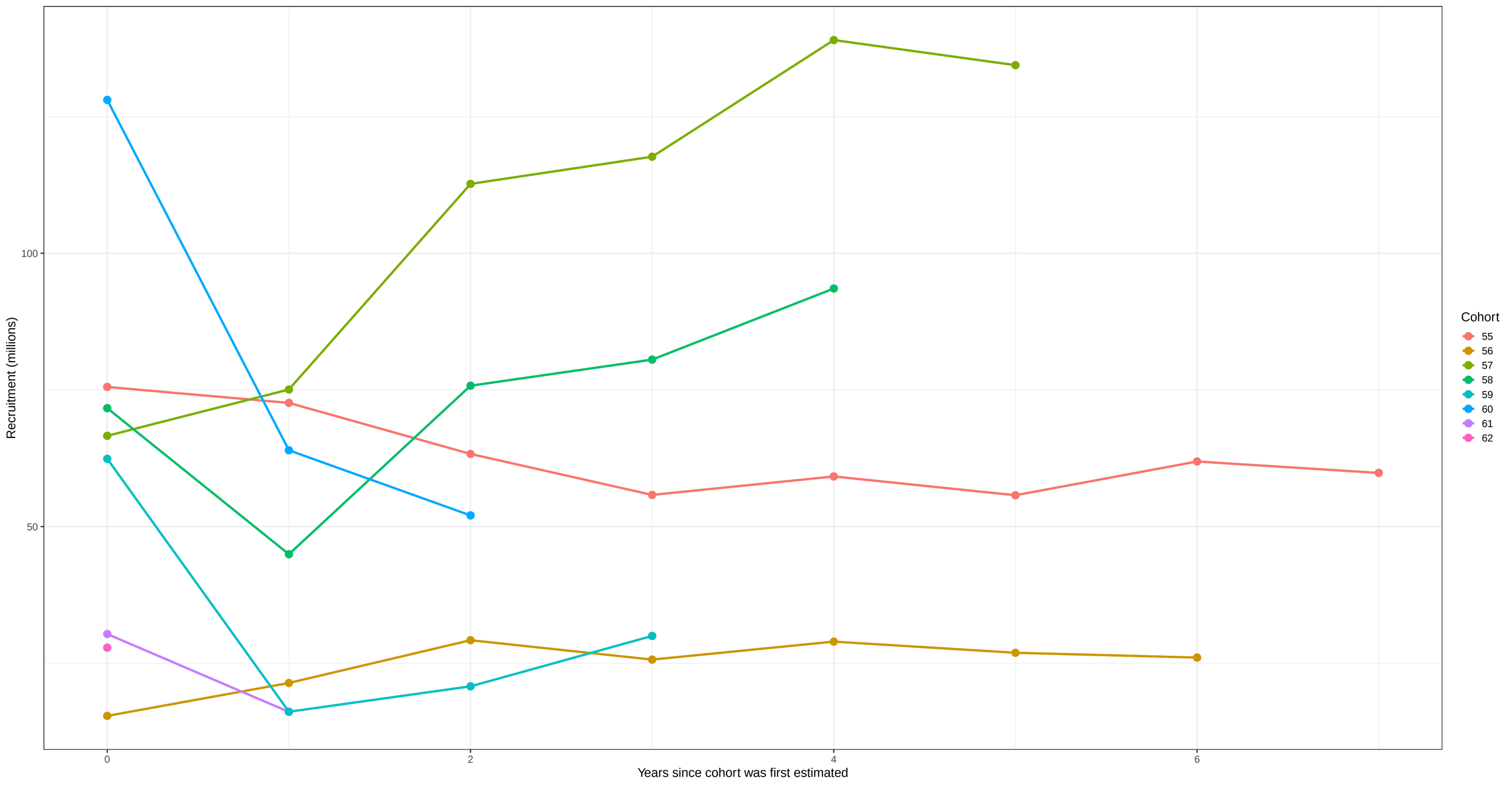
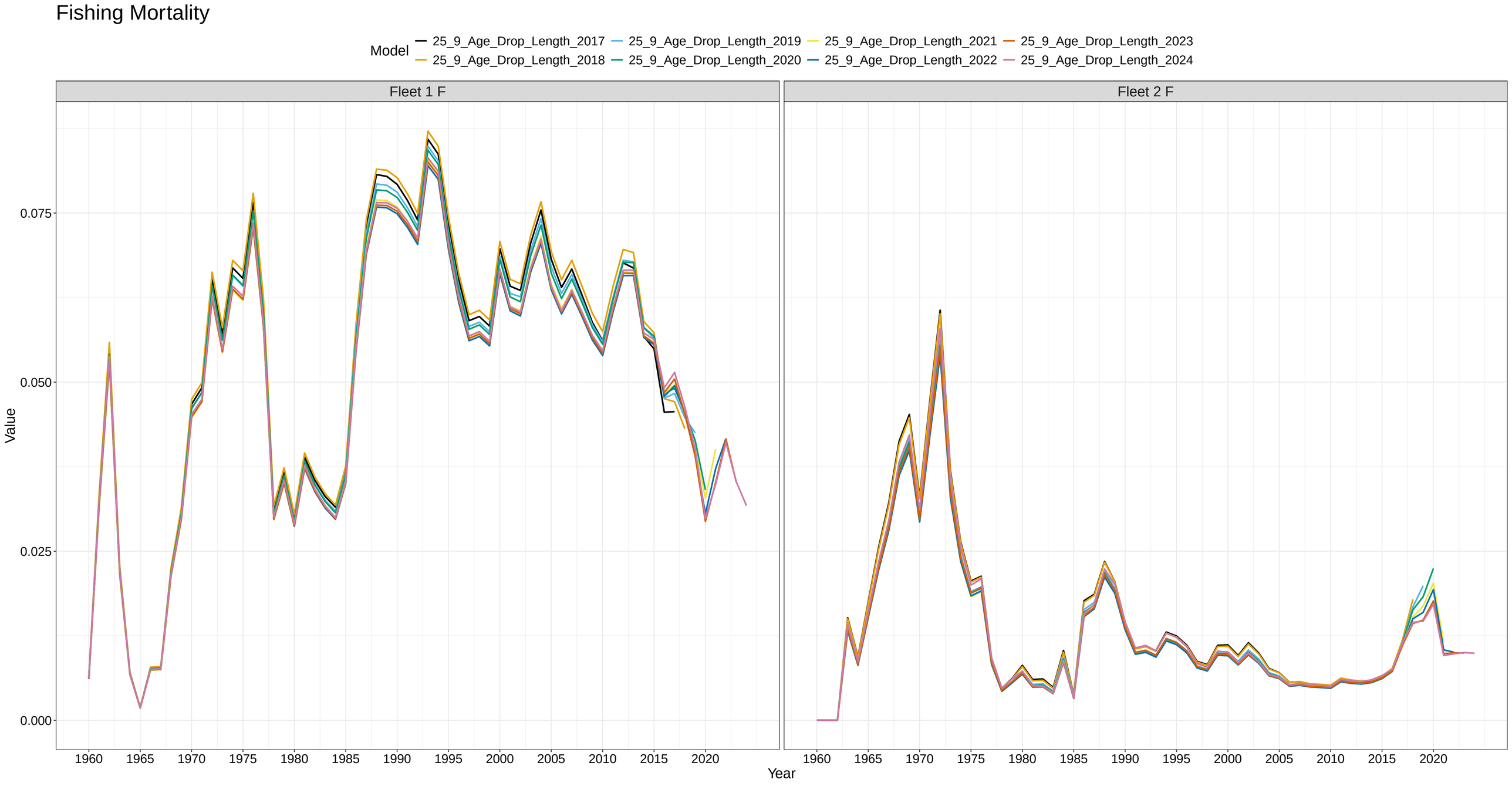
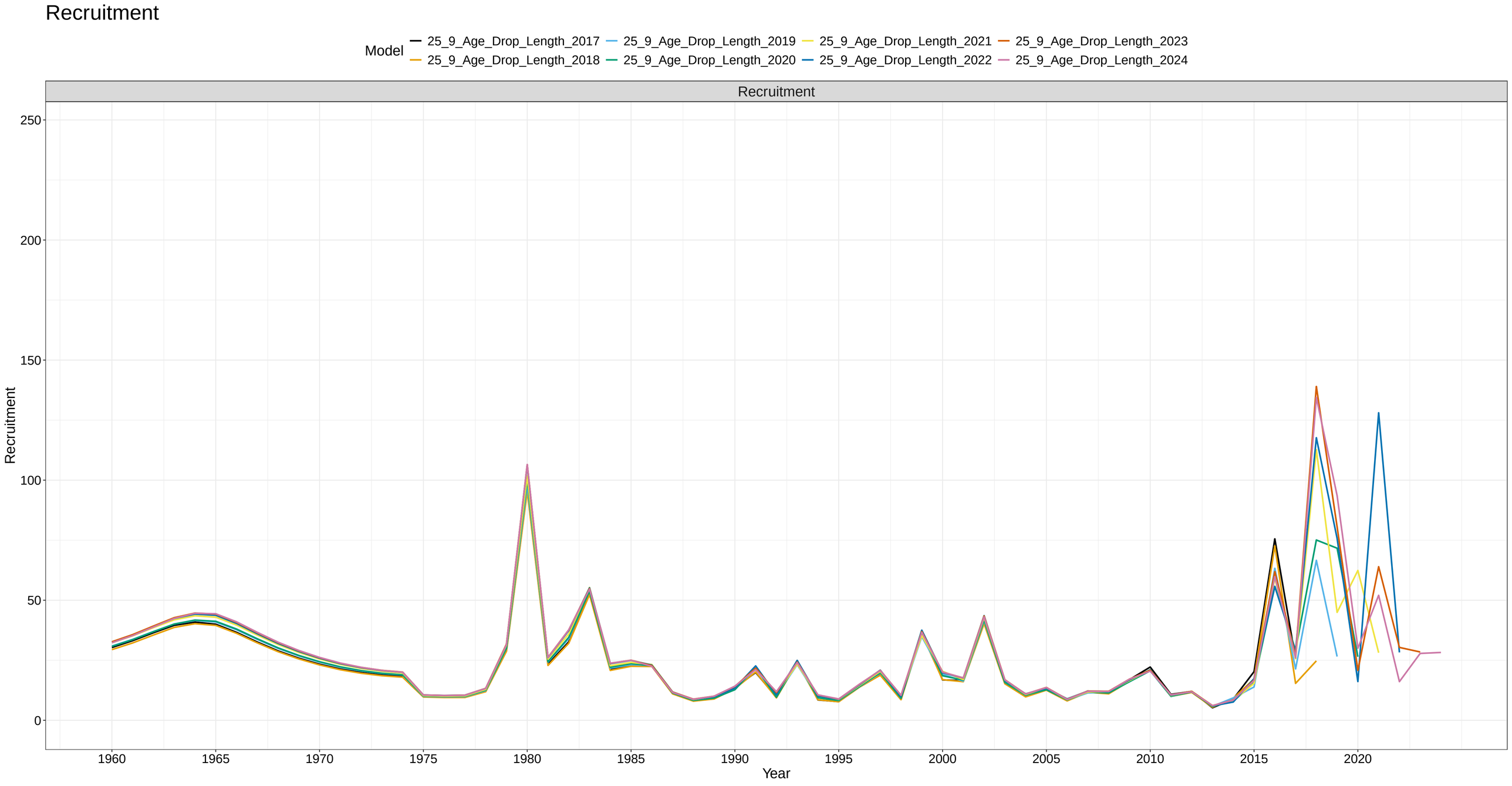
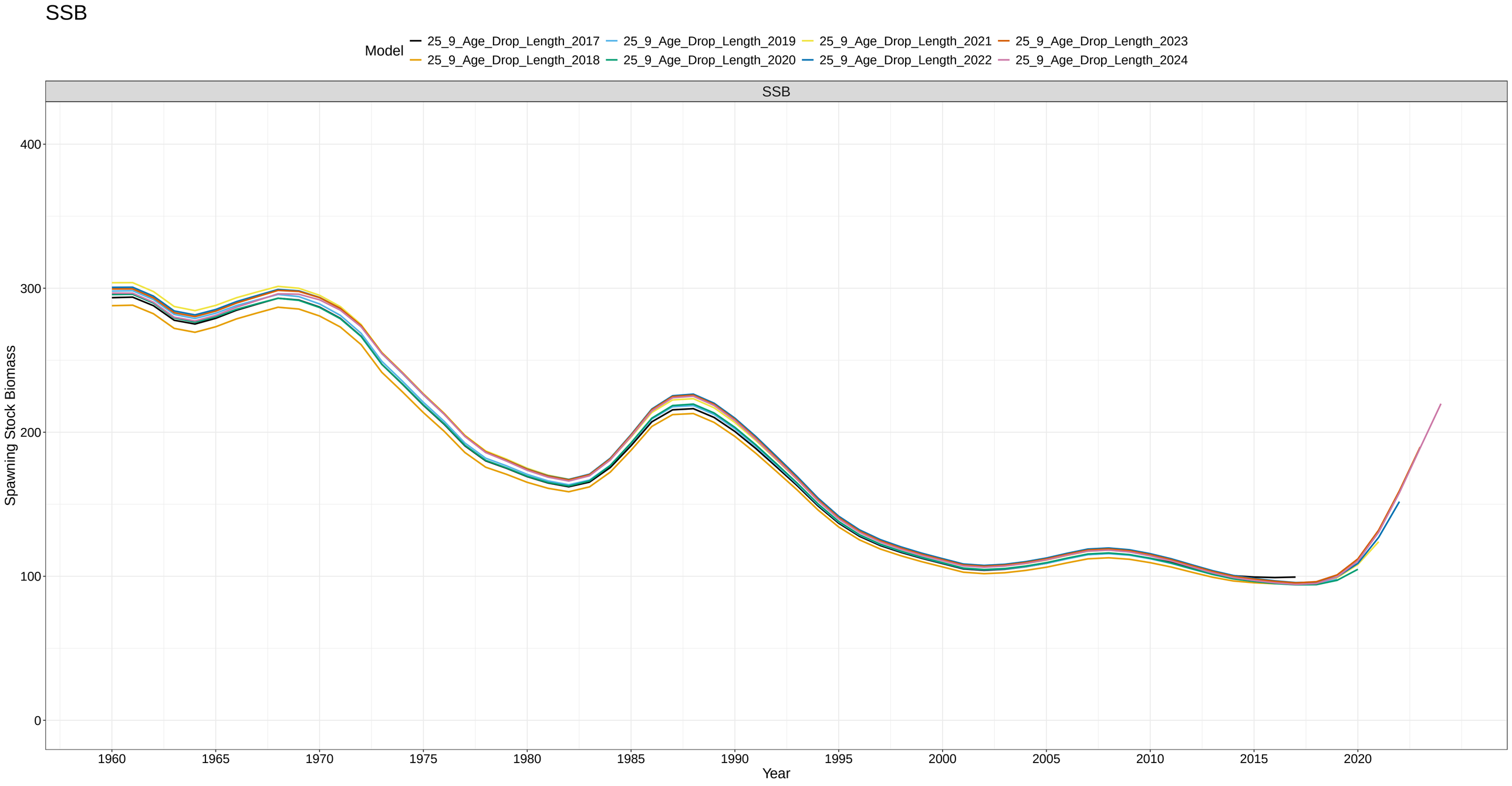

Recruitment (millions)
100
50
0
2
4
6
Years since cohort was first estimated
Cohort
55
56
57
58
59
60
61
62

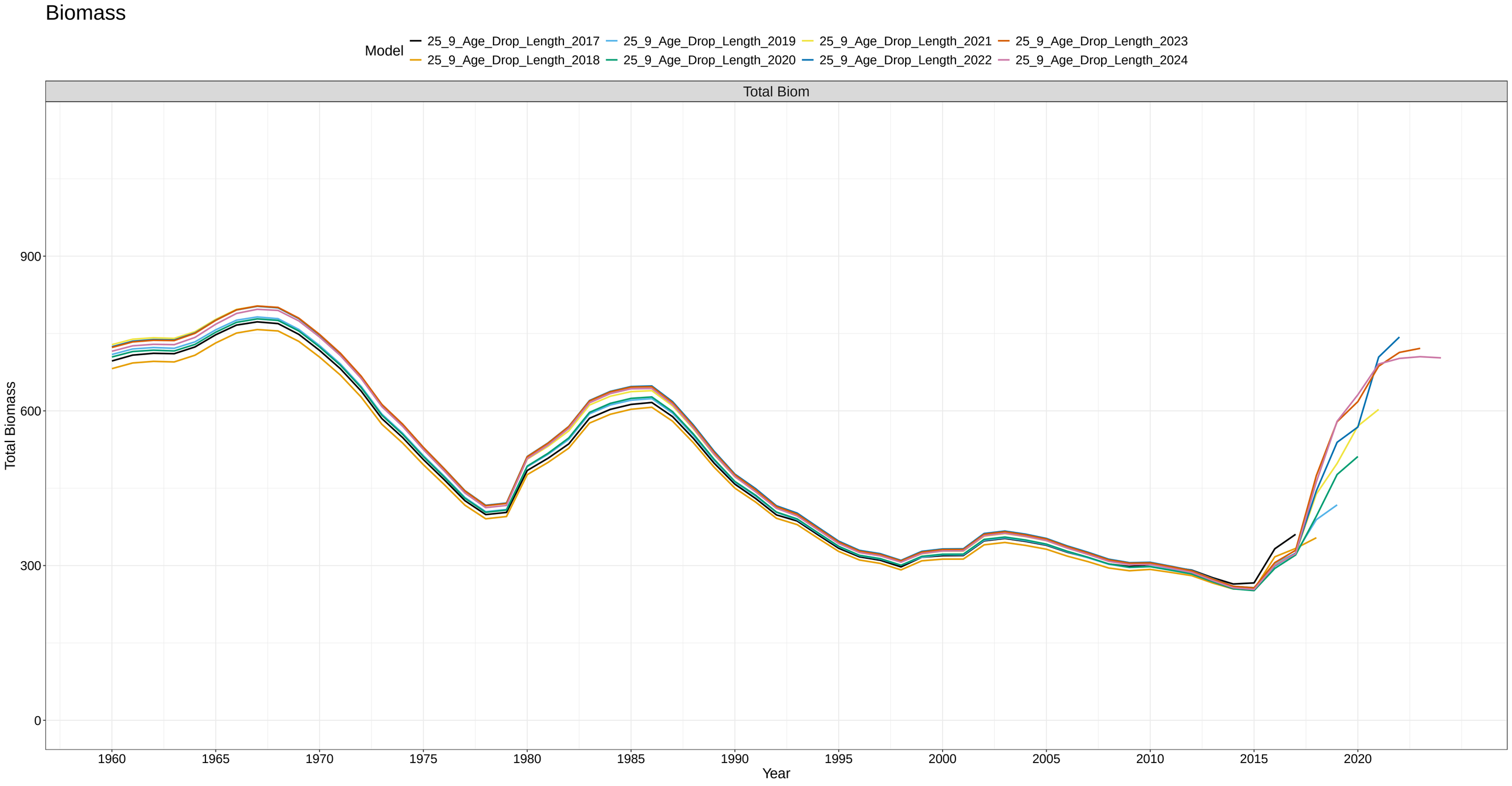

Fishing Mortality
Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Fleet 1 F
Fleet 2 F
Value
0.000
0.025
0.050
0.075
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Recruitment



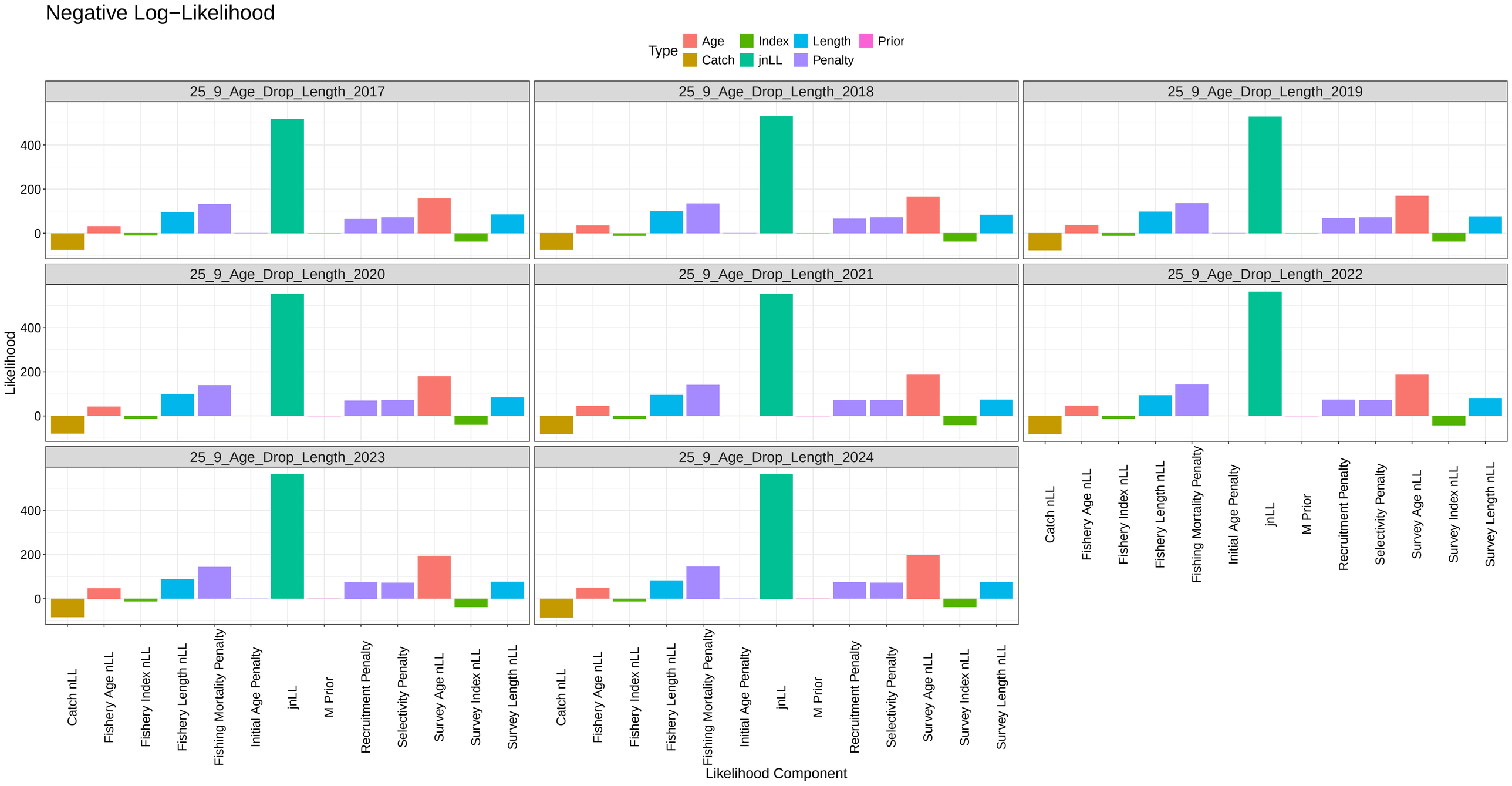

SSB
Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
SSB
Spawning Stock Biomass
0
100
200
300
400
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

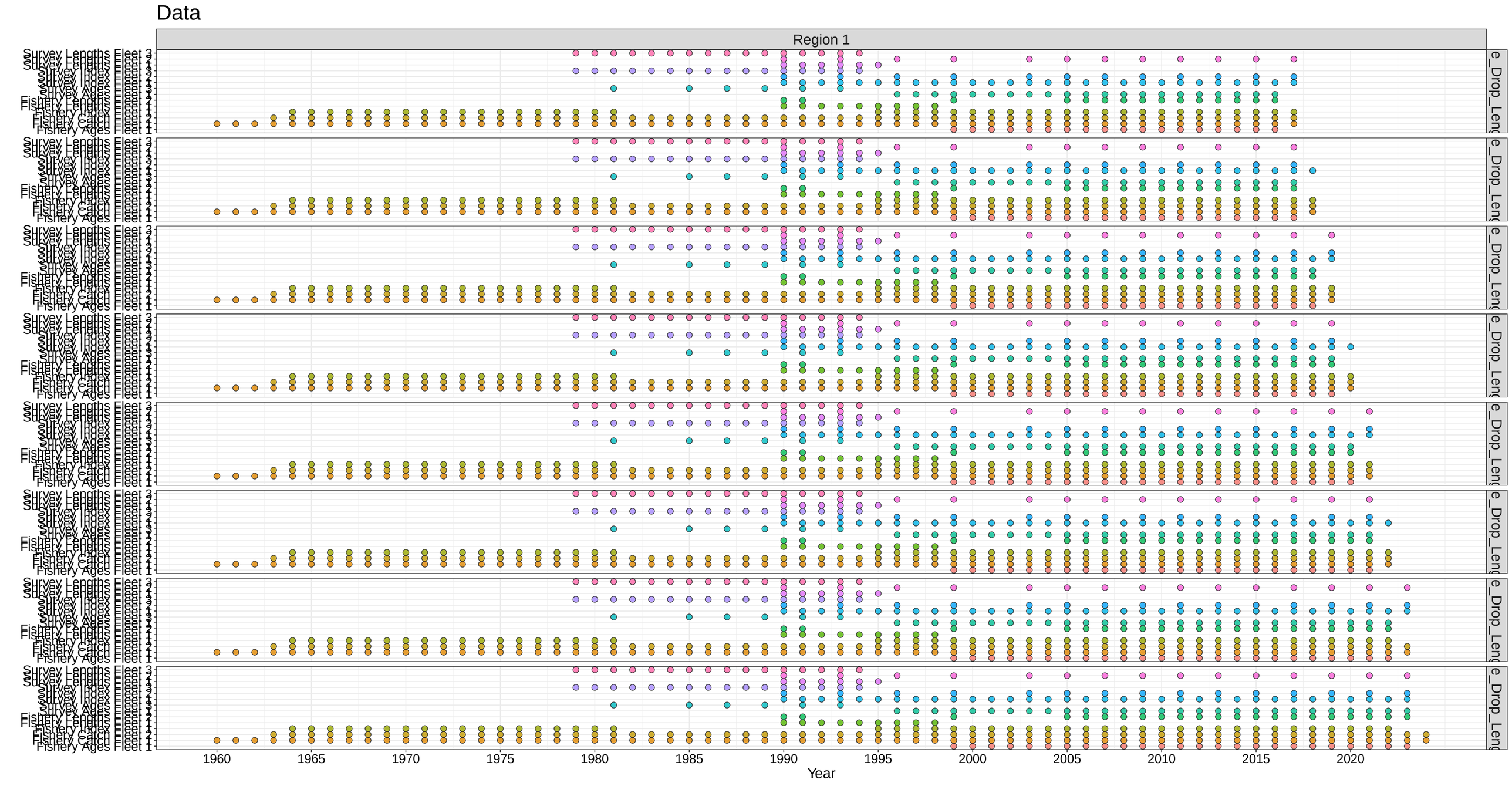
Biomass

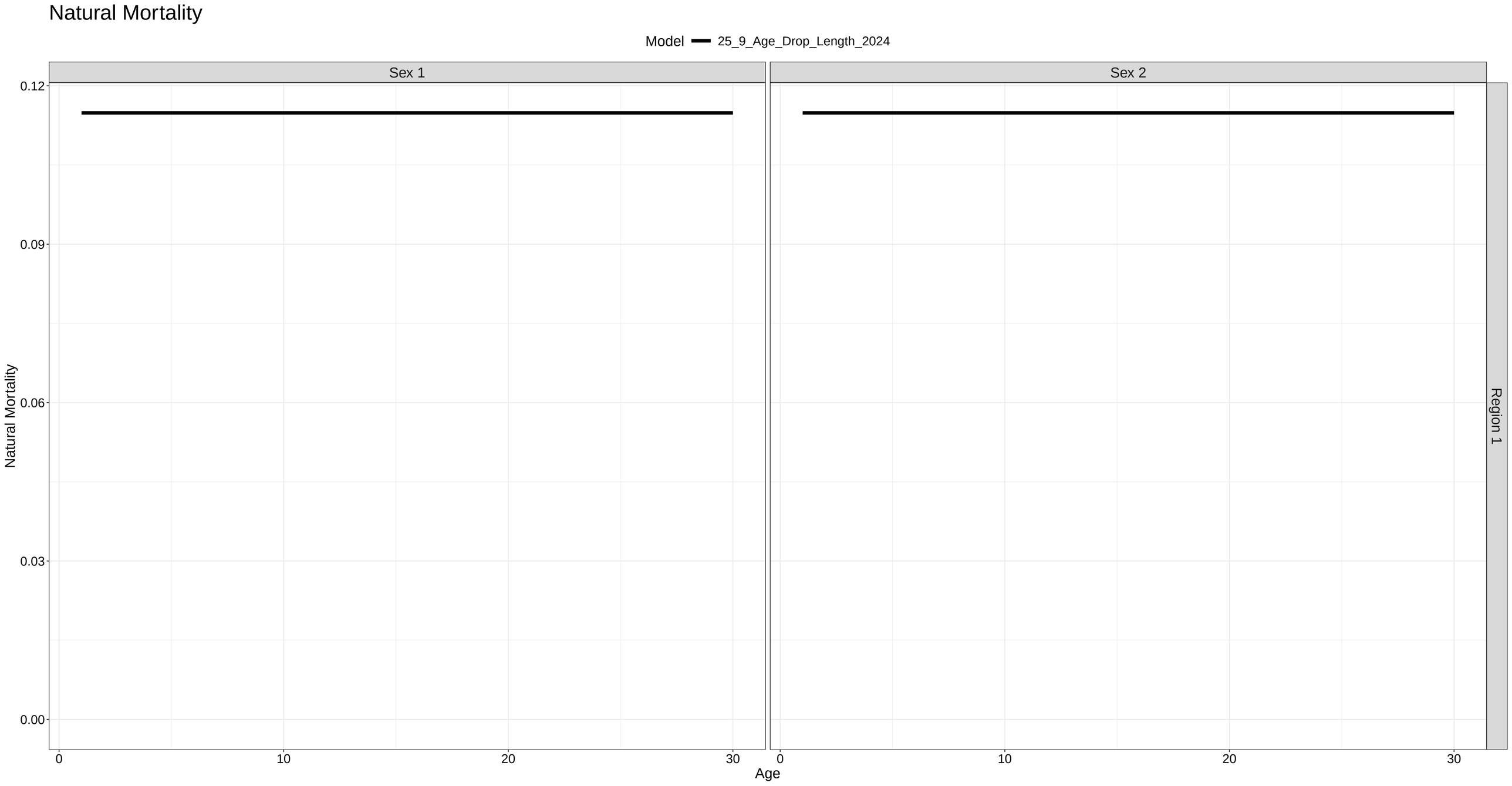

Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Total Biom
Total Biomass
900
600
300
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	25_9_Age_Drop_Length_2024	1	219.79521	0.04162539	50.00421	125.1969	0.09062	1.75560	0.45932
2	25_9_Age_Drop_Length_2023	1	189.75745	0.04518163	50.82739	126.5140	0.08945	1.49989	0.50508
3	25_9_Age_Drop_Length_2022	1	151.82211	0.05173542	50.90977	119.3564	0.08748	1.27201	0.59140
4	25_9_Age_Drop_Length_2021	1	123.98227	0.05155989	40.03844	116.6804	0.08701	1.06258	0.59257
5	25_9_Age_Drop_Length_2020	1	104.85077	0.05652911	32.10741	110.8244	0.08805	0.94610	0.64201
6	25_9_Age_Drop_Length_2019	1	98.09068	0.06237625	25.45460	104.3358	0.08782	0.94014	0.71027
7	25_9_Age_Drop_Length_2018	1	95.47853	0.06096593	20.61906	106.4695	0.08752	0.89677	0.69660
8	25_9_Age_Drop_Length_2017	1	99.44458	0.05739117	23.23986	100.6242	0.08813	0.98828	0.65123

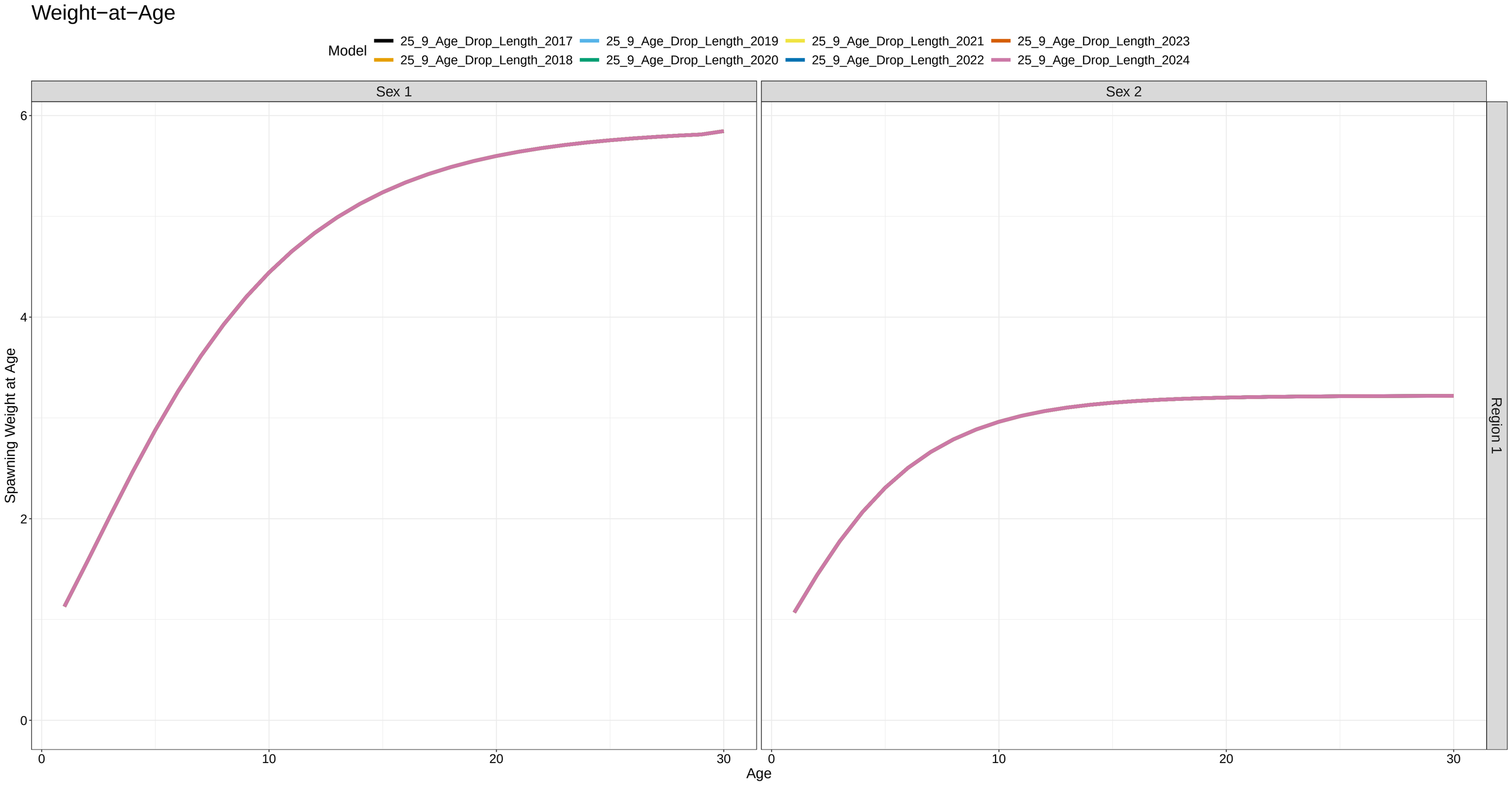
	Model	jnLL	M Prior	Recruitment Penalty	Selectivity Penalty	Catch nLL	Fishing Mortality Penalty	Survey Index nLL	Fishery Index nLL	Initial Age Penalty	Survey Age nLL	Fishery Age nLL	Survey Length nLL	Fishery Length nLL
1	25_9_Age_Drop_Length_2024	563.6117	−0.4228482	75.25805	72.08573	−84.40565	145.6160	−37.66538	−11.53491	0.1953826	197.1234	49.75360	75.57116	82.03714
2	25_9_Age_Drop_Length_2023	563.1078	−0.4294197	74.23092	72.28733	−83.08487	143.6846	−37.42995	−11.47982	0.1880114	193.5826	47.20207	76.56946	87.78687
3	25_9_Age_Drop_Length_2022	562.7763	−0.5001167	74.17862	72.45951	−81.77330	141.8714	−41.69918	−12.14904	0.1837715	189.3422	46.37832	80.93365	93.55056
4	25_9_Age_Drop_Length_2021	553.3556	−0.6343924	71.11874	72.50270	−80.43983	140.1435	−40.09505	−12.04819	0.1881569	189.5694	44.41148	73.13869	95.50044
5	25_9_Age_Drop_Length_2020	552.4022	−0.8525240	69.79014	72.63630	−79.07800	138.3917	−38.63905	−11.79800	0.1798707	178.4089	41.46324	83.04901	98.85052
6	25_9_Age_Drop_Length_2019	528.4601	−0.8946437	67.20268	72.54334	−77.75643	136.3546	−37.68132	−12.07011	0.1873190	168.7952	37.61509	76.40478	97.75960
7	25_9_Age_Drop_Length_2018	530.0655	−1.0752676	65.91068	72.49152	−76.36260	134.2978	−37.28967	−11.41976	0.1837855	166.6665	35.19132	82.87363	98.59761
8	25_9_Age_Drop_Length_2017	516.4563	−1.0236092	65.23414	72.45446	−75.07822	132.4020	−36.70529	−10.63504	0.1913389	157.6408	32.10524	85.21015	94.66036


Negative Log−Likelihood
Type
Age
Catch
Index
jnLL
Length
Penalty
Prior
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Likelihood
0
200
400
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

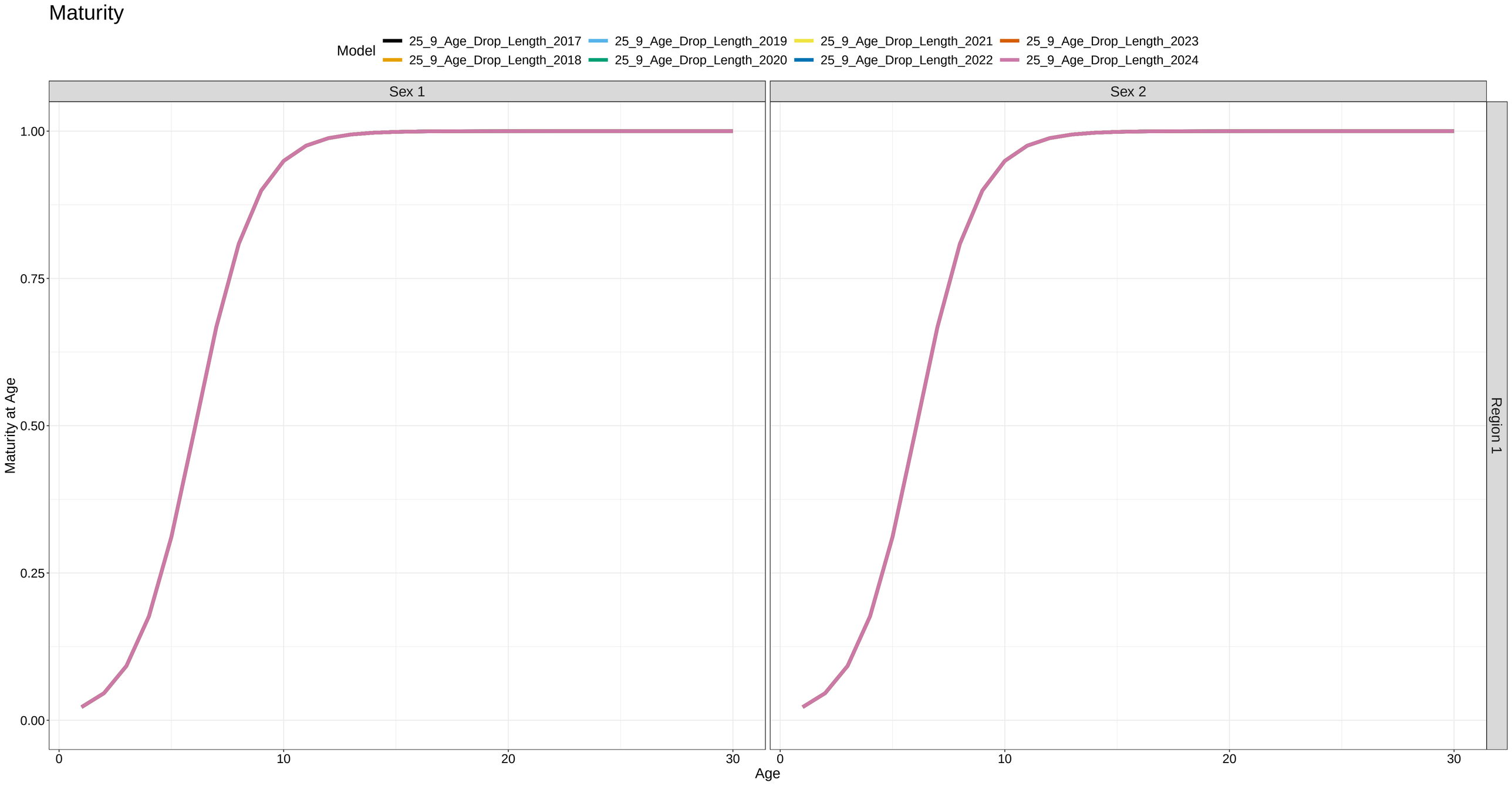

Data
Region 1
Survey Lengths Fleet 3
Survey Lengths Fleet 2
Survey Lengths Fleet 1
Survey Index Fleet 3
Survey Index Fleet 2
Survey Index Fleet 1
Survey Ages Fleet 3
Survey Ages Fleet 2
Survey Ages Fleet 1
Fishery Lengths Fleet 2
Fishery Lengths Fleet 1
Fishery Index Fleet 2
Fishery Index Fleet 1
Fishery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


Natural Mortality
Model
25_9_Age_Drop_Length_2024
Sex 1
Sex 2
Region 1
Natural Mortality
0.12
0.09
0.06
0.03
0.00
0
10
20
30
Age

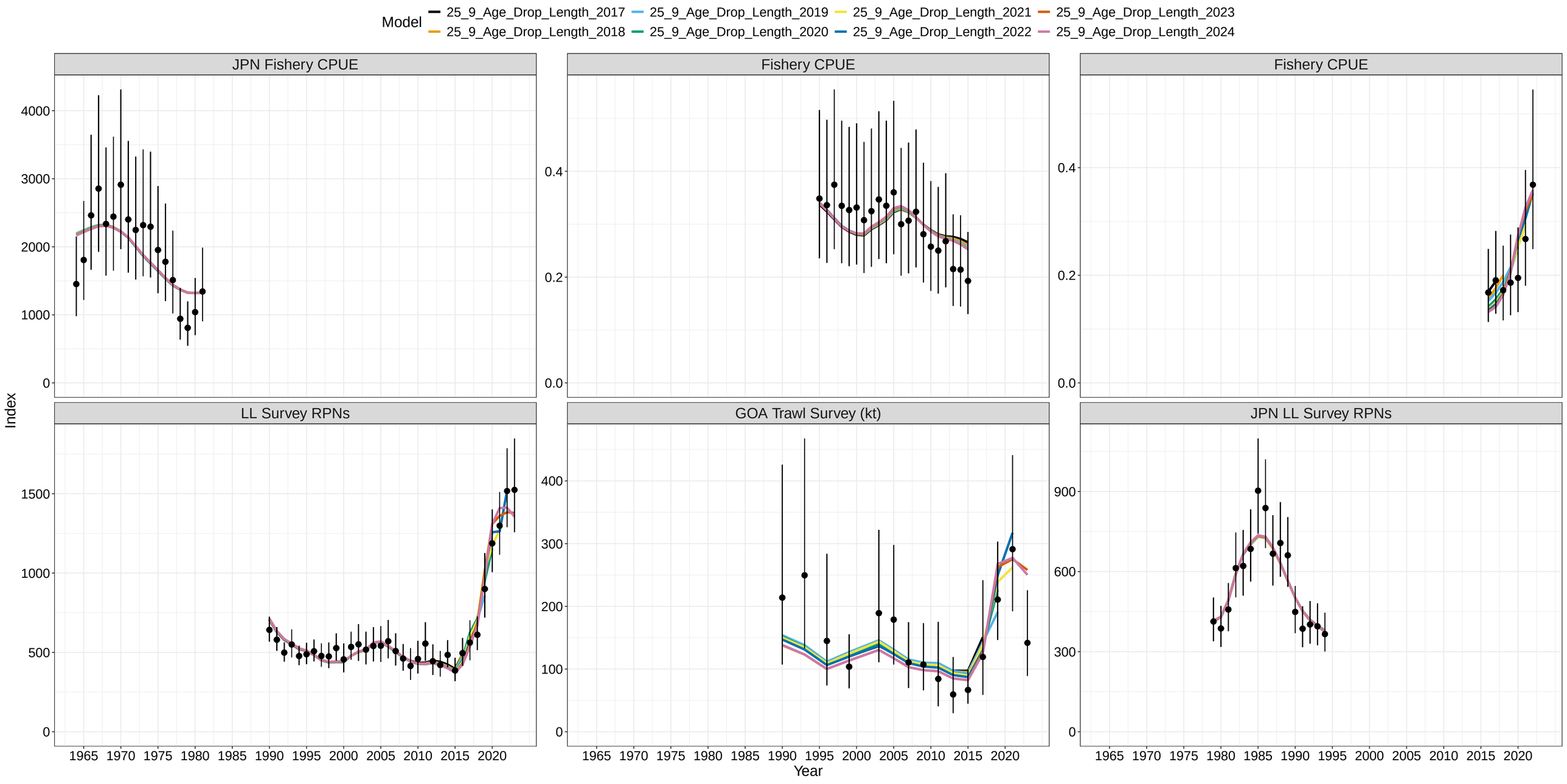
Weight−at−Age



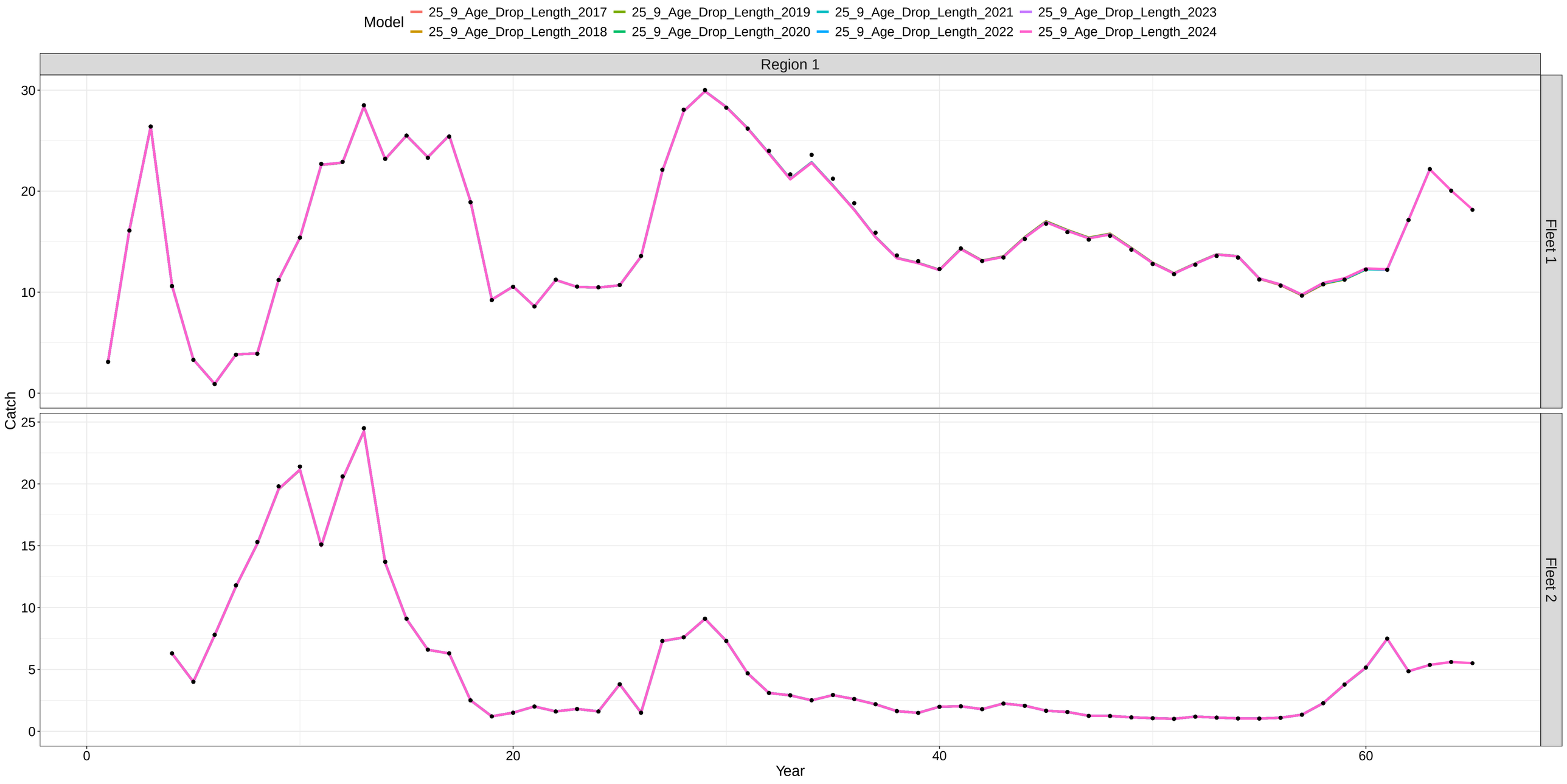
Maturity

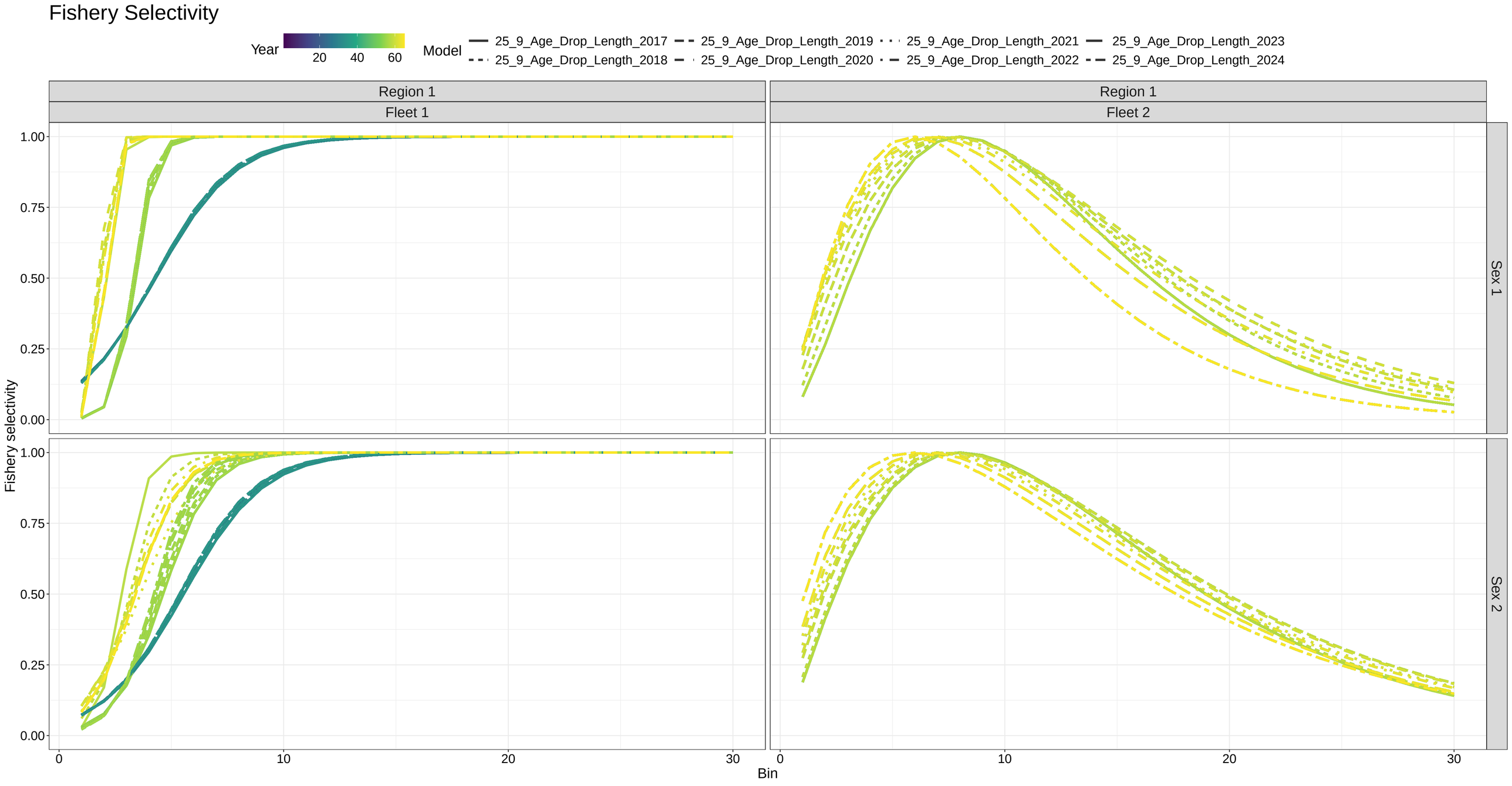

Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Sex 1
Sex 2
Region 1
Maturity at Age
1.00
0.75
0.50
0.25
0.00
0
10
20
30
Age

Index Fits

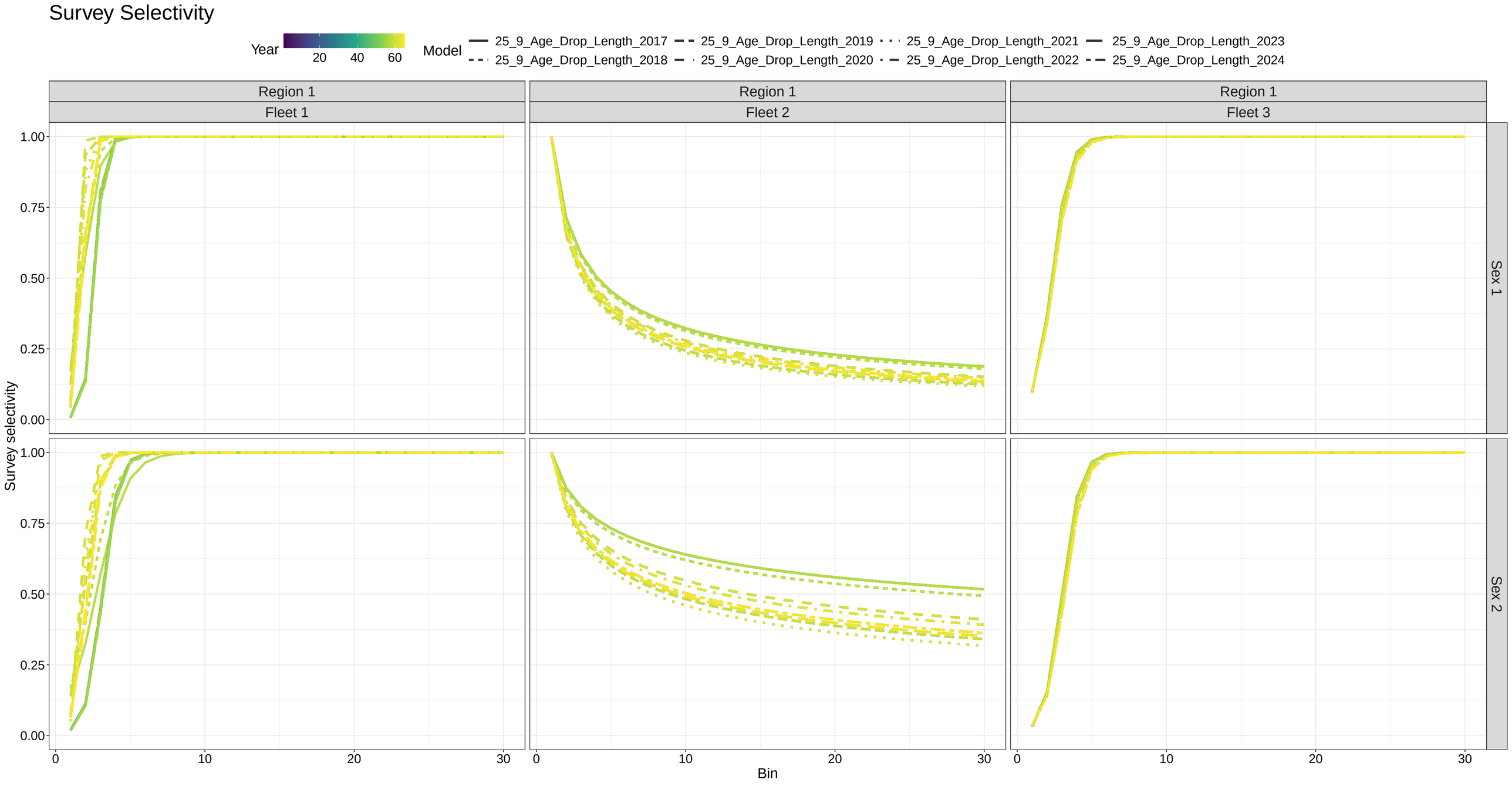

Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
JPN Fishery CPUE
Fishery CPUE
Fishery CPUE
LL Survey RPNs
GOA Trawl Survey (kt)
JPN LL Survey RPNs
Index
Year

Catch

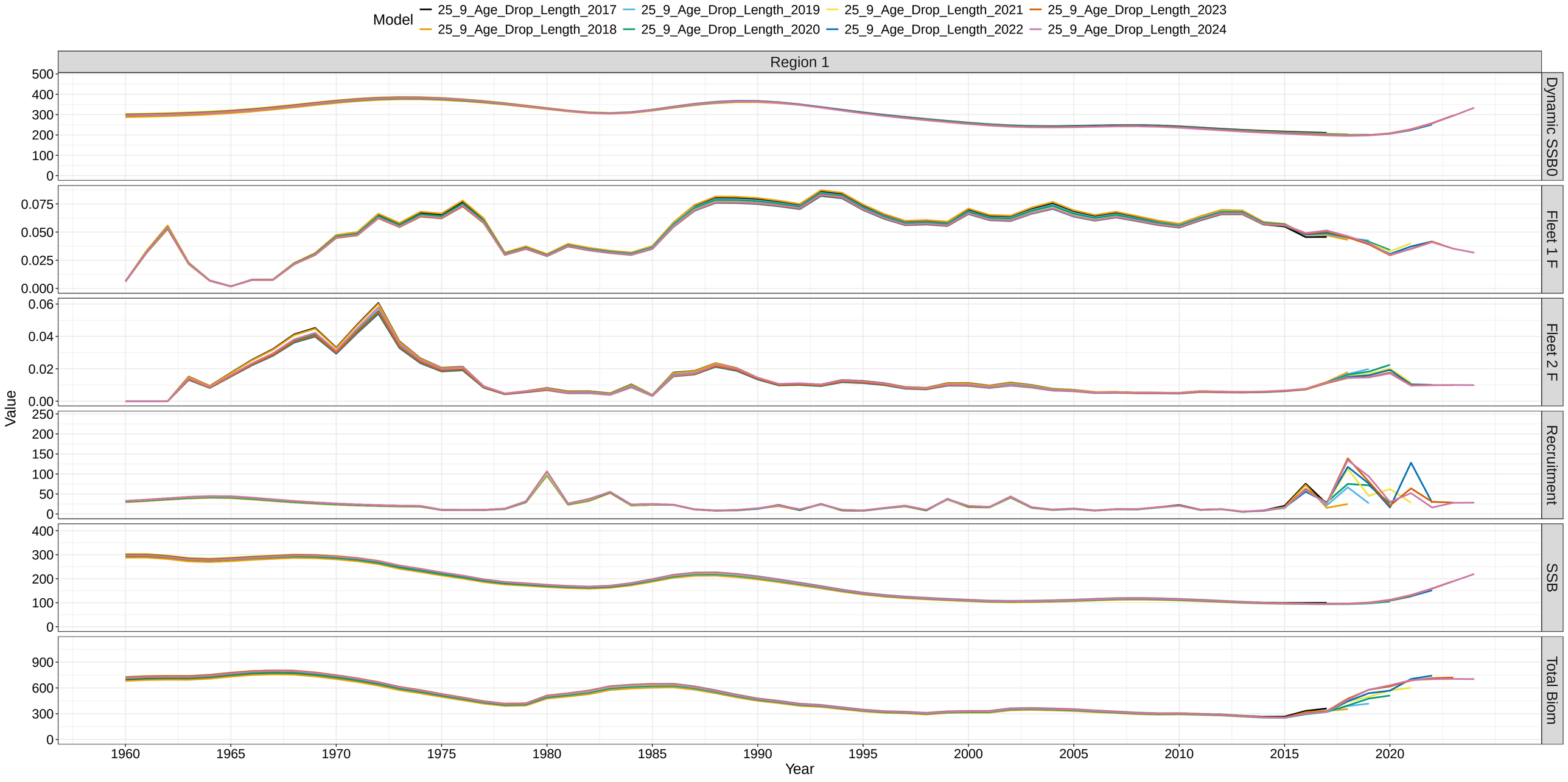

Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Region 1
Fleet 1
Fleet 2
Catch
Year
0
10
20
30
5
15
25
0
20
40
60


Fishery Selectivity
Year
20
40
60
Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_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

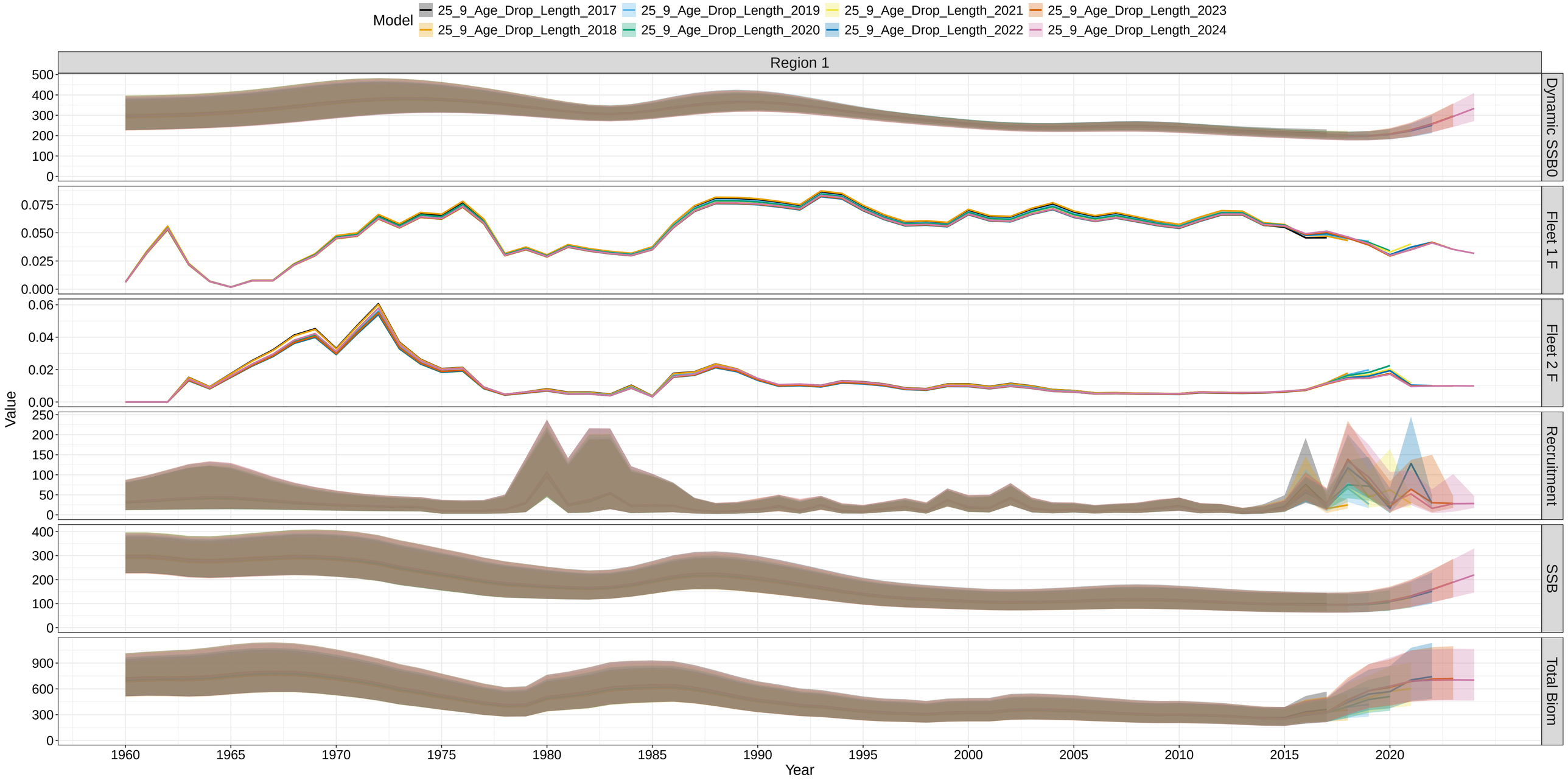
Survey Selectivity

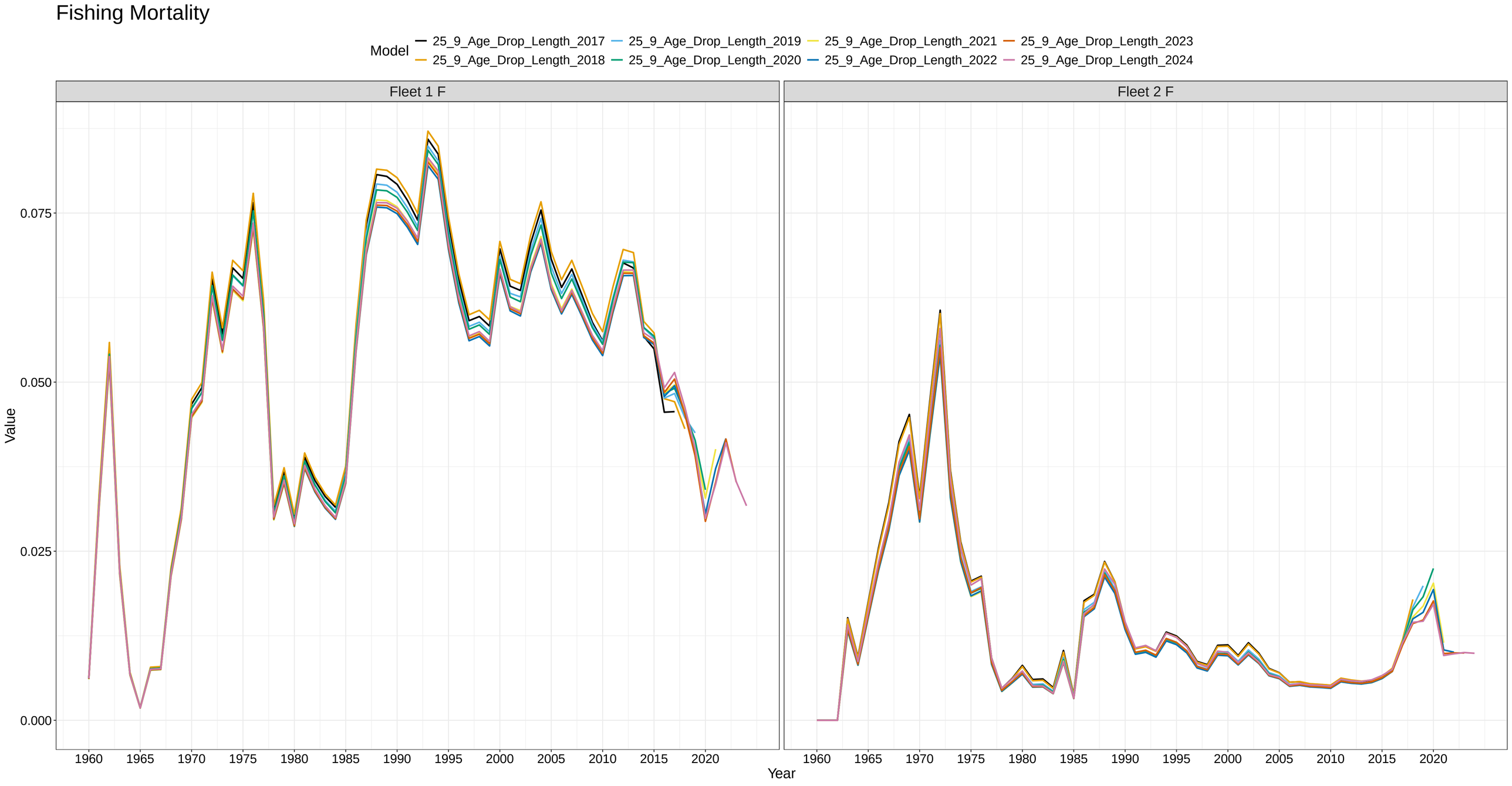


Time Series Plots

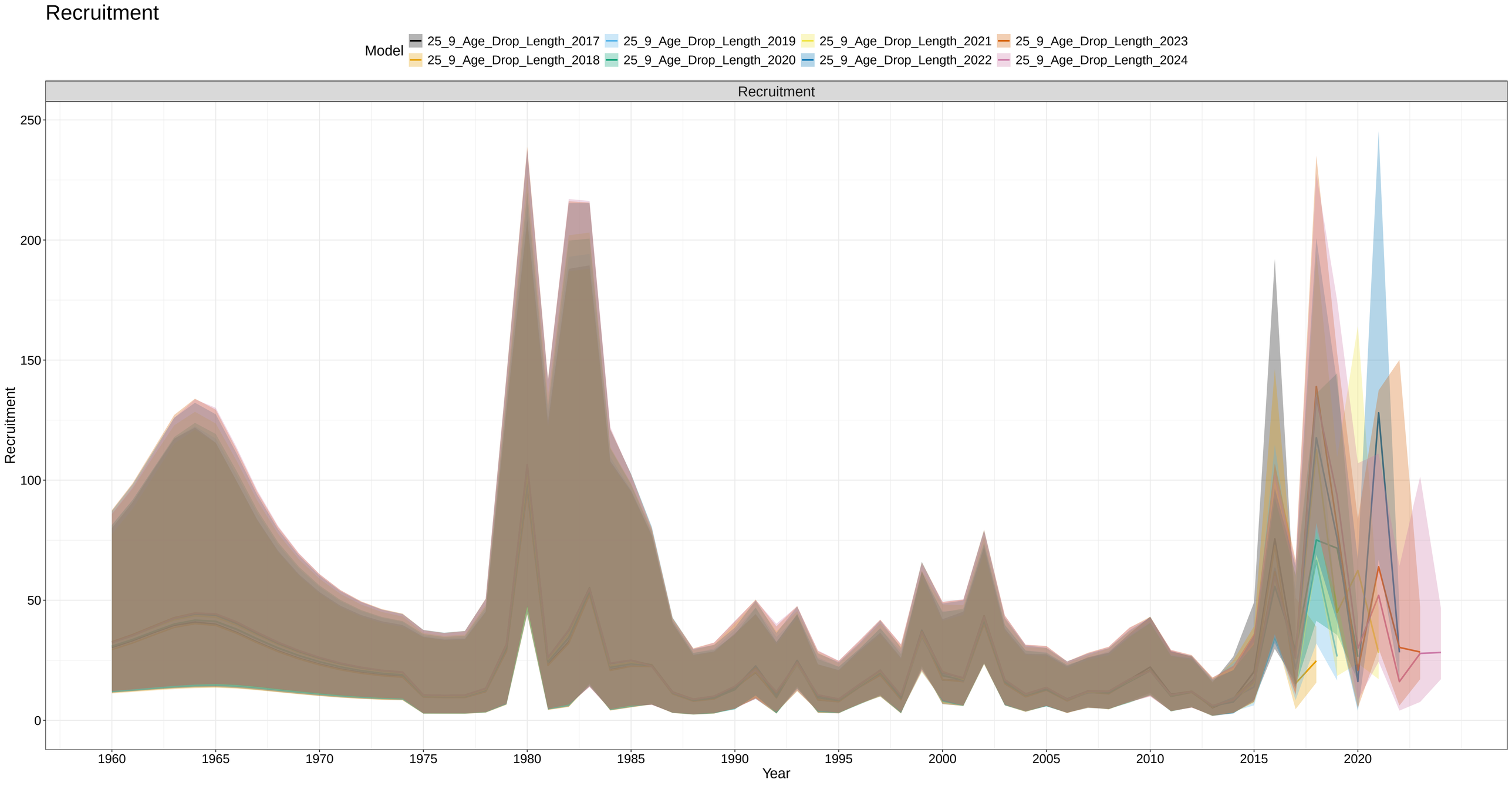


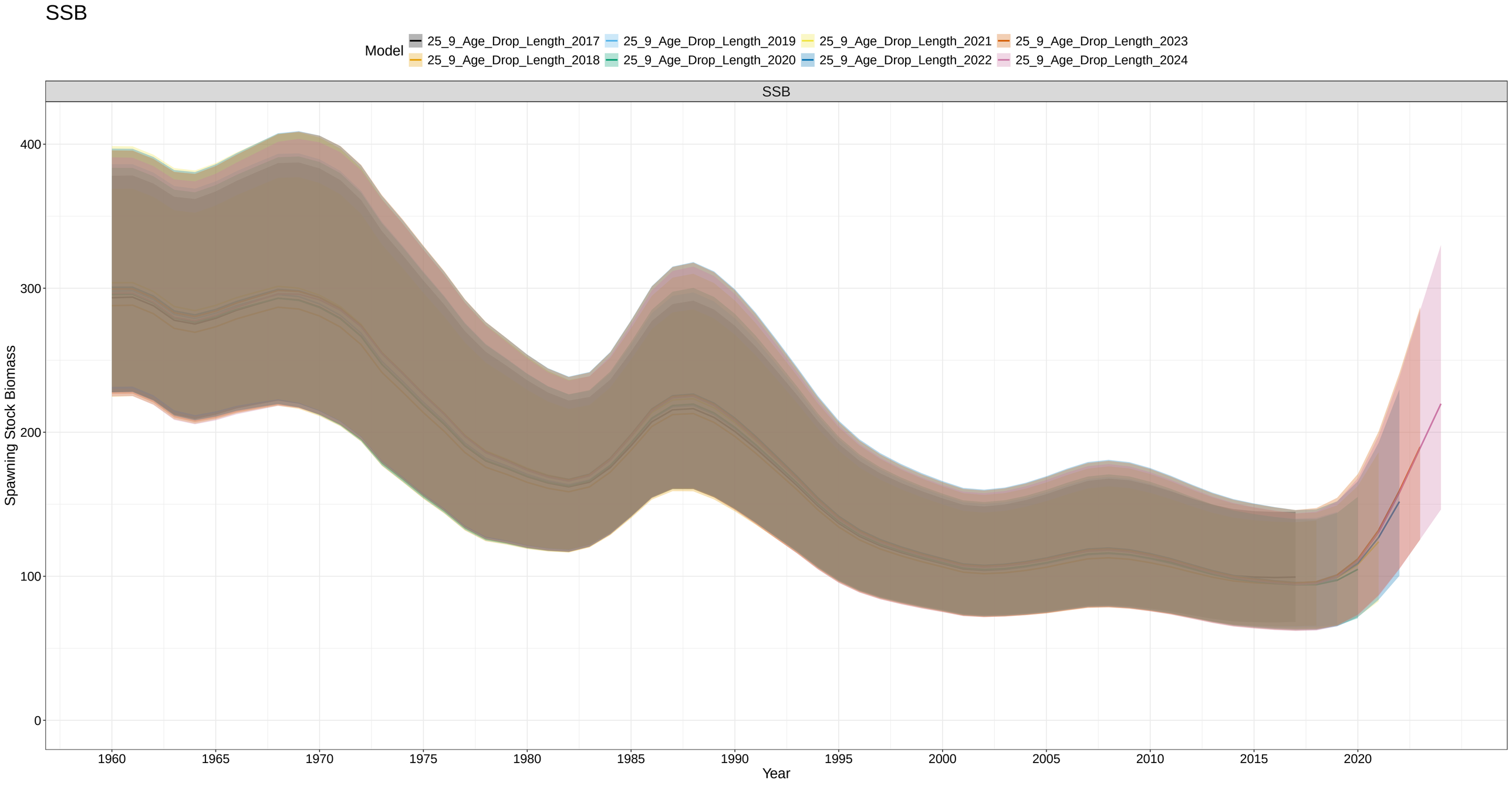
Time Series Plots



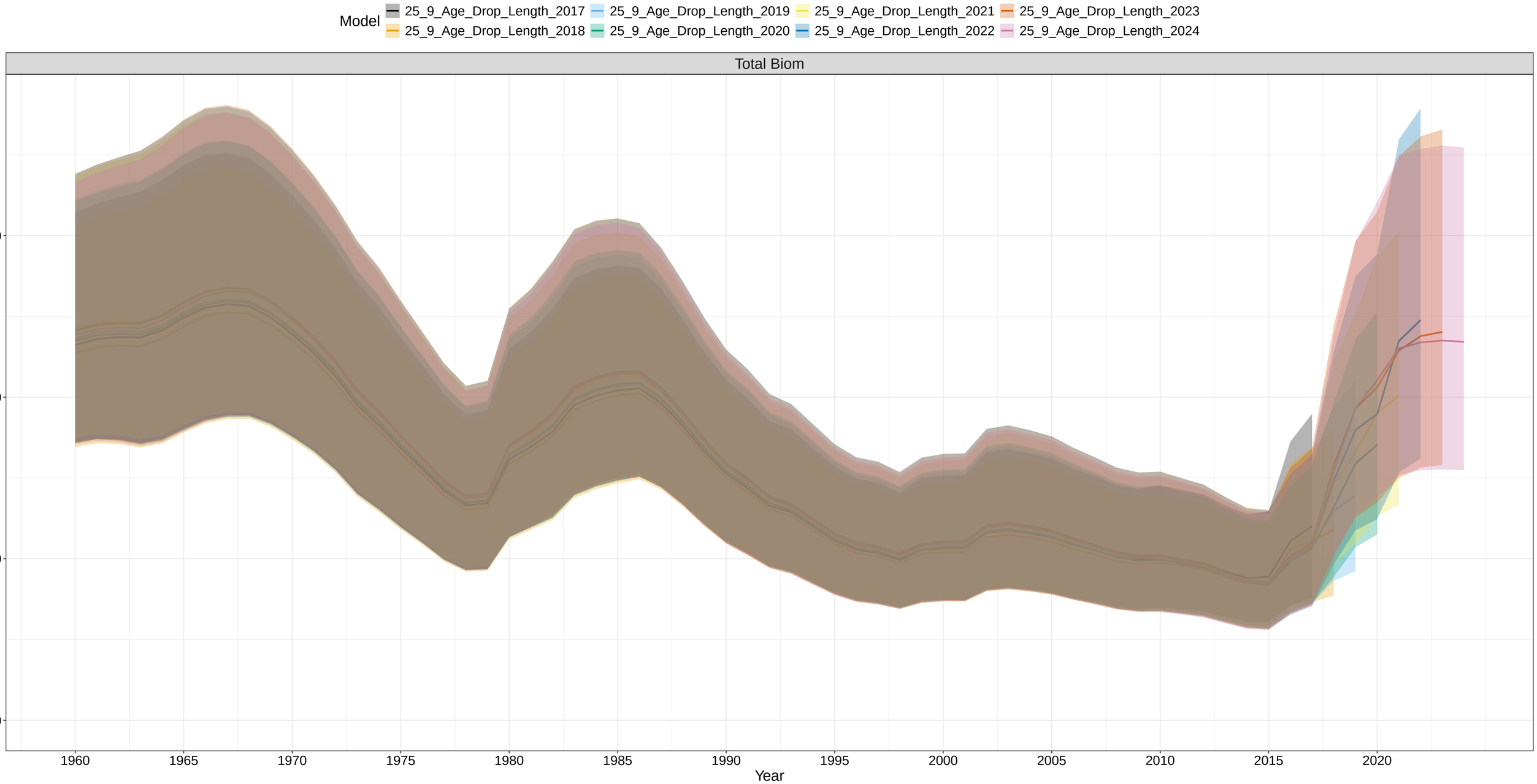

Fishing Mortality
Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Fleet 1 F
Fleet 2 F
Value
0.000
0.025
0.050
0.075
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Recruitment




SSB
Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
SSB
Spawning Stock Biomass
0
100
200
300
400
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year

Biomass


Model
25_9_Age_Drop_Length_2017
25_9_Age_Drop_Length_2018
25_9_Age_Drop_Length_2019
25_9_Age_Drop_Length_2020
25_9_Age_Drop_Length_2021
25_9_Age_Drop_Length_2022
25_9_Age_Drop_Length_2023
25_9_Age_Drop_Length_2024
Total Biom
Total Biomass
0
300
600
900
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year