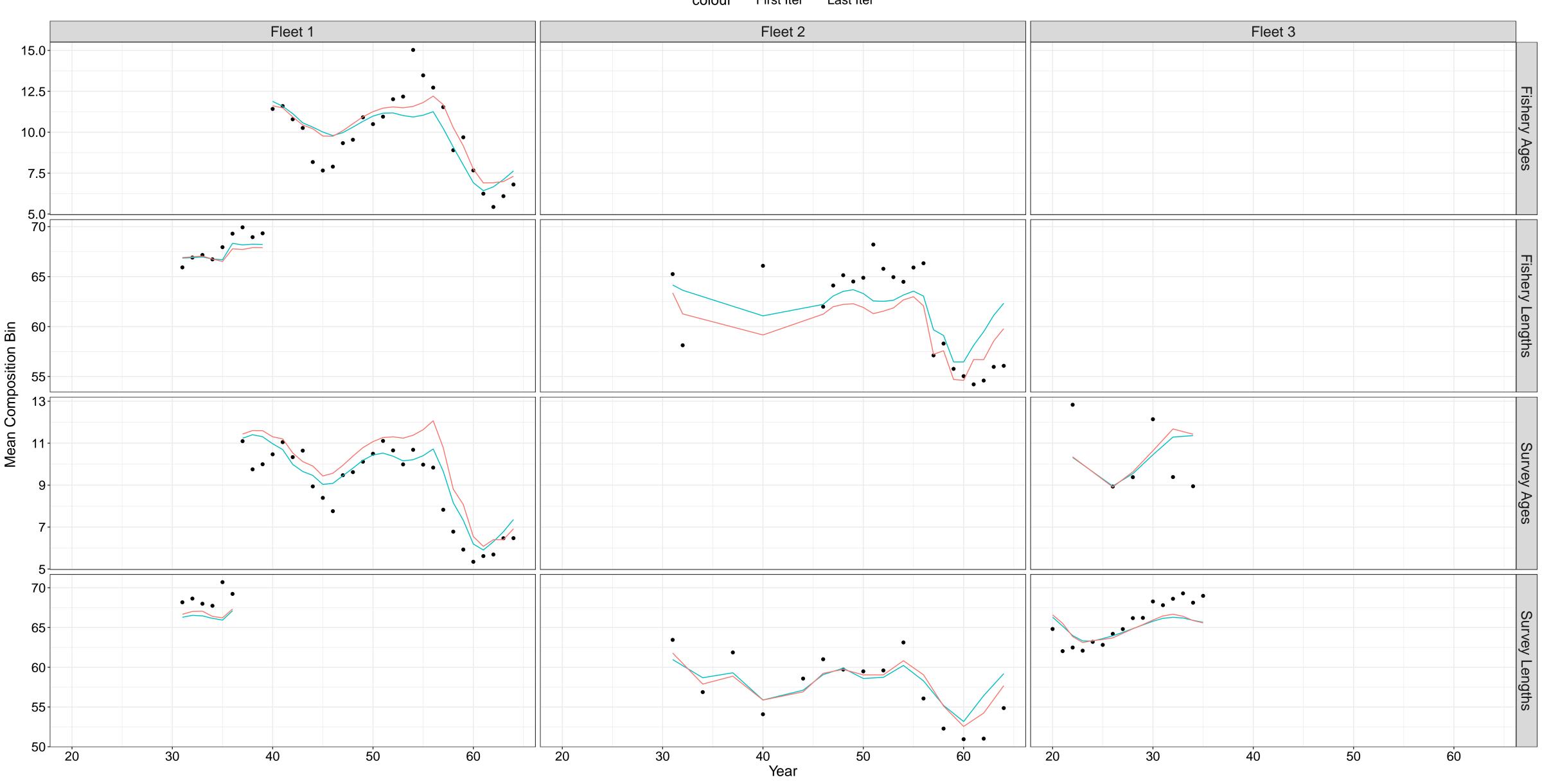
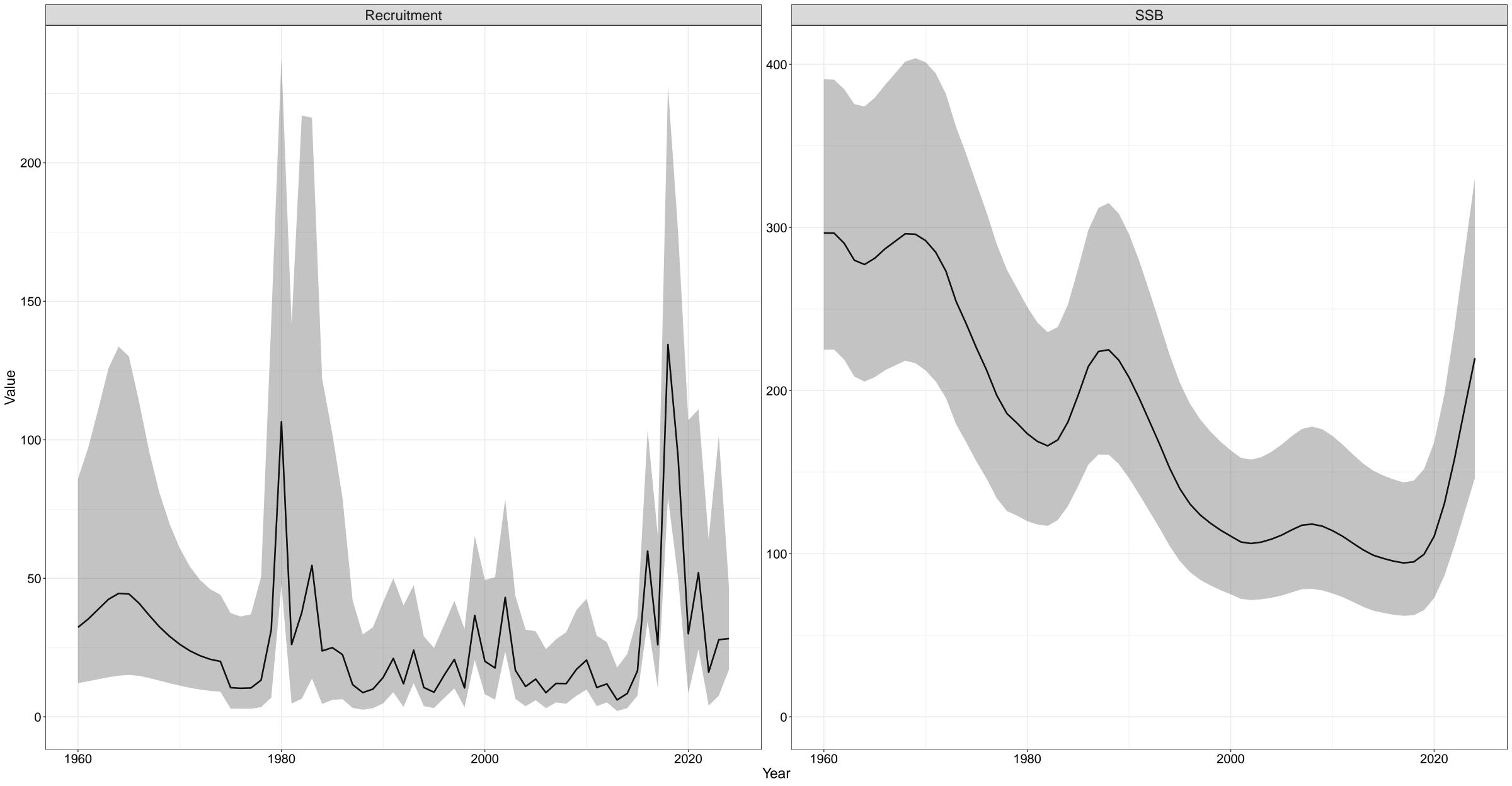
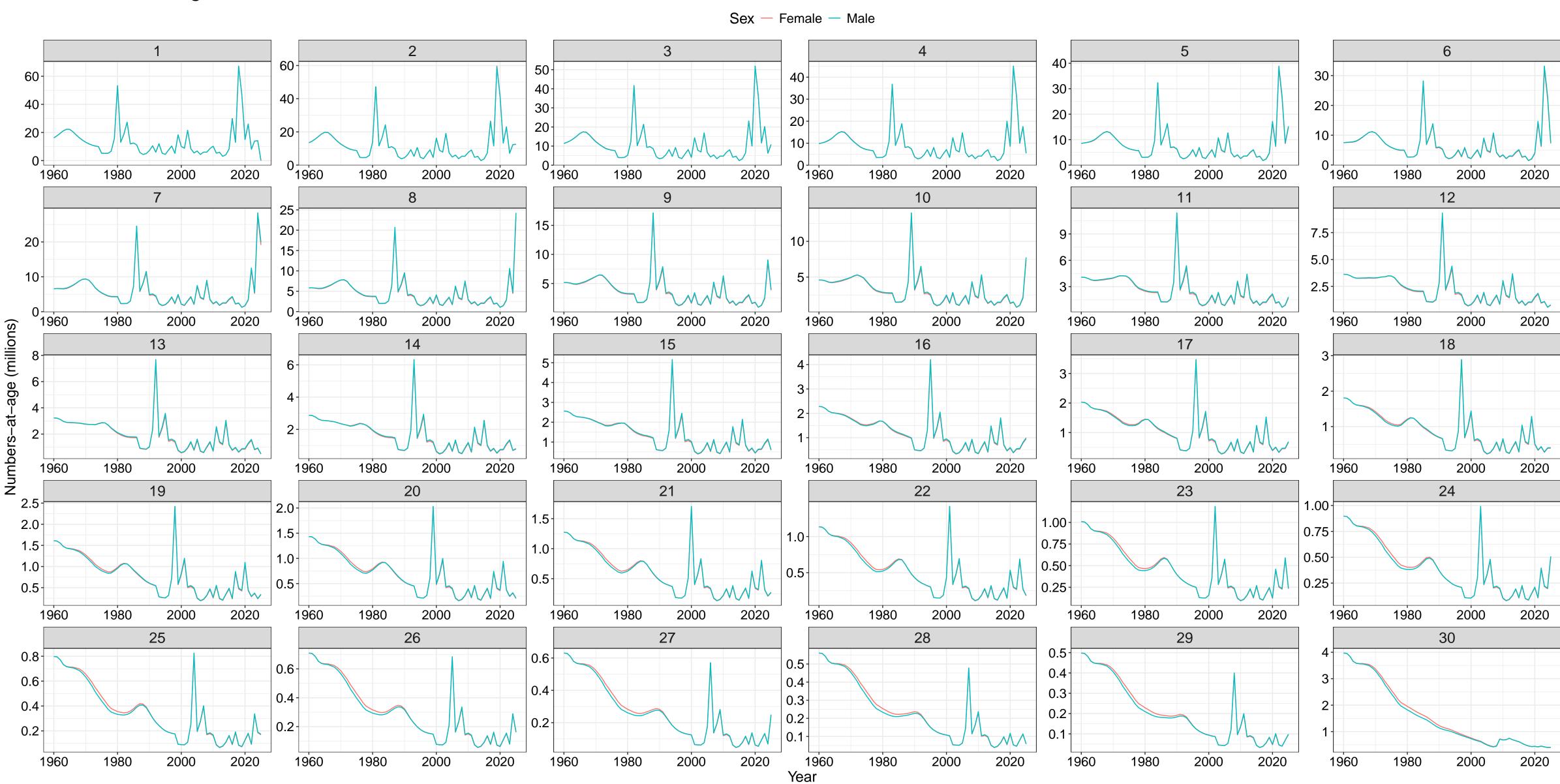
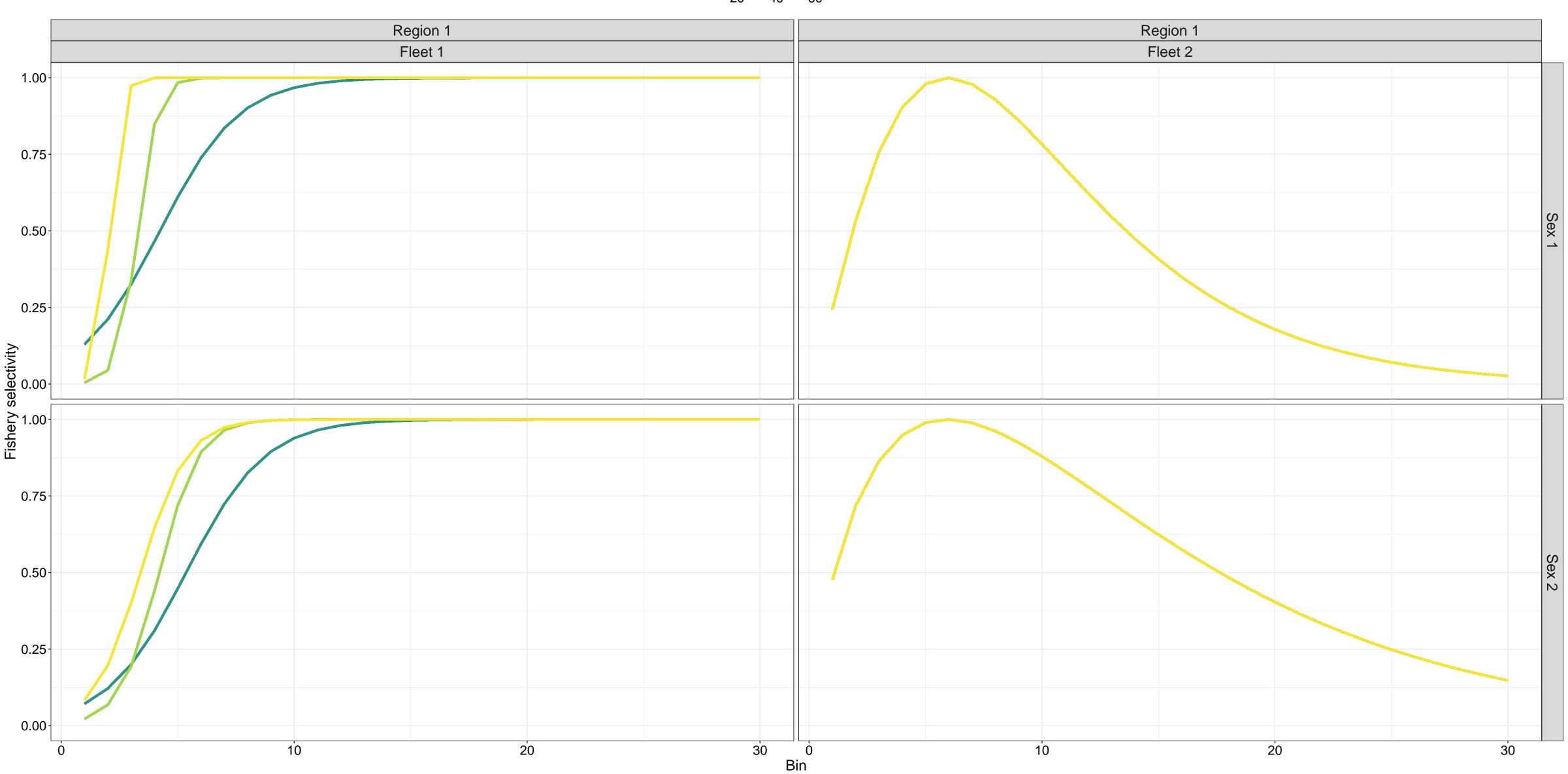
	Comp_Type	Init_Weight	Final_Weight		
1	LLF_Age_F	0.8261073	0.8341791		
2	LLF_Age_M	NA	NA		
3	LLS_Age_F	3.7922454	3.5671937		
4	LLS_Age_M	NA	NA		
5	JPN_LLS_Age_F	1.3168111	0.5526887		
6	JPN_LLS_Age_M	NA	NA		
7	LLF_Len_F	4.1837057	5.5984795		
8	LLF_Len_M	4.2696935	NA		
9	TF_Len_F	0.3164859	0.2933904		
10	TF_Len_M	0.2293966	NA		
11	LLS_Len_F	1.4379202	2.5694648		
12	LLS_Len_M	1.0705376	NA		
13	TS_Len_F	0.6708833	0.4056932		
14	TS_Len_M	0.4652071	NA		
15	JPN_LLS_Len_F	1.2777281	1.0890768		
16	JPN_LLS_Len_M	0.8575195	NA		

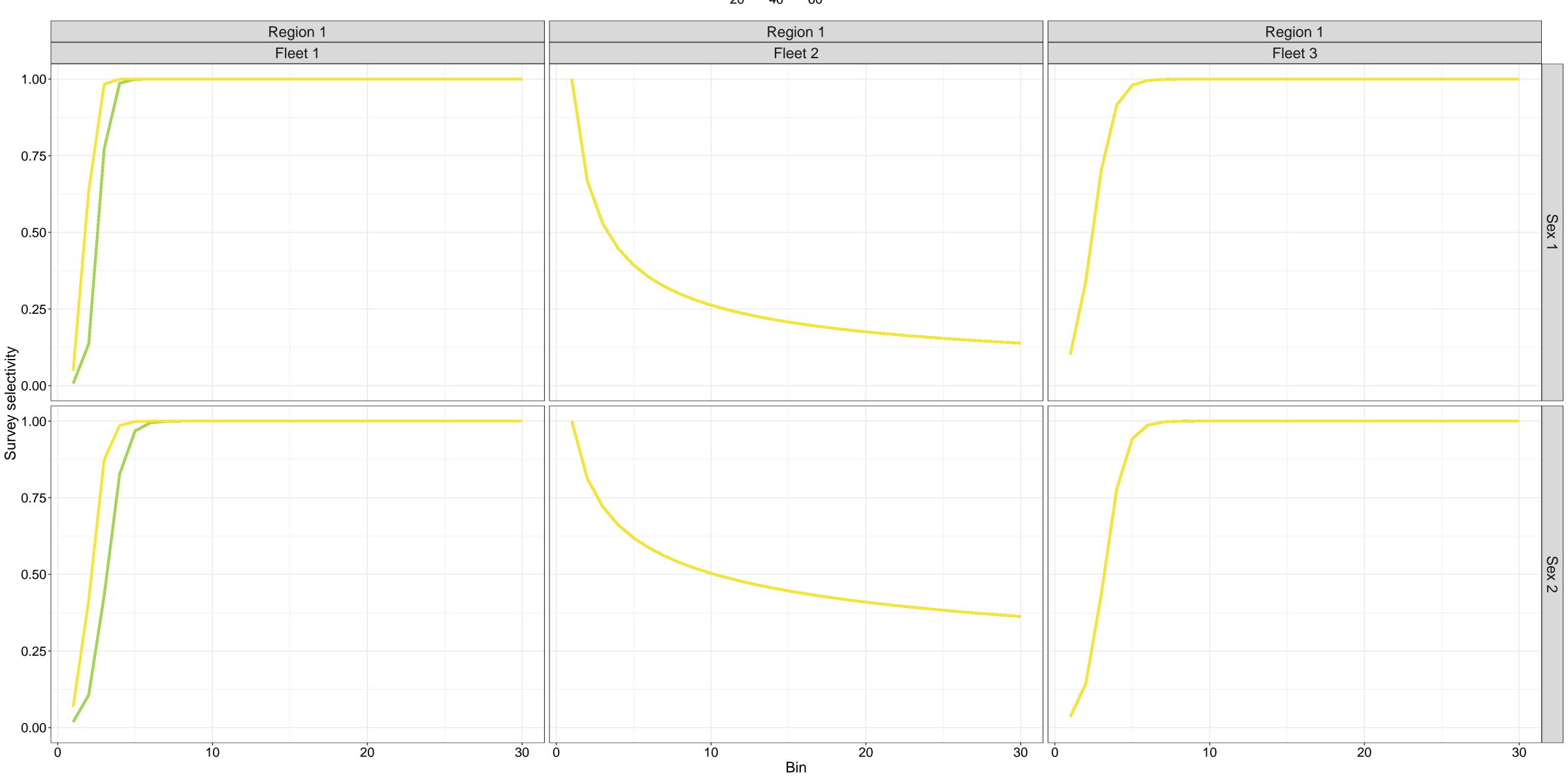


	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	1	1	219.79521	0.04162538830892	50.00421	125.19691	0.09062	1.7556	0.45932

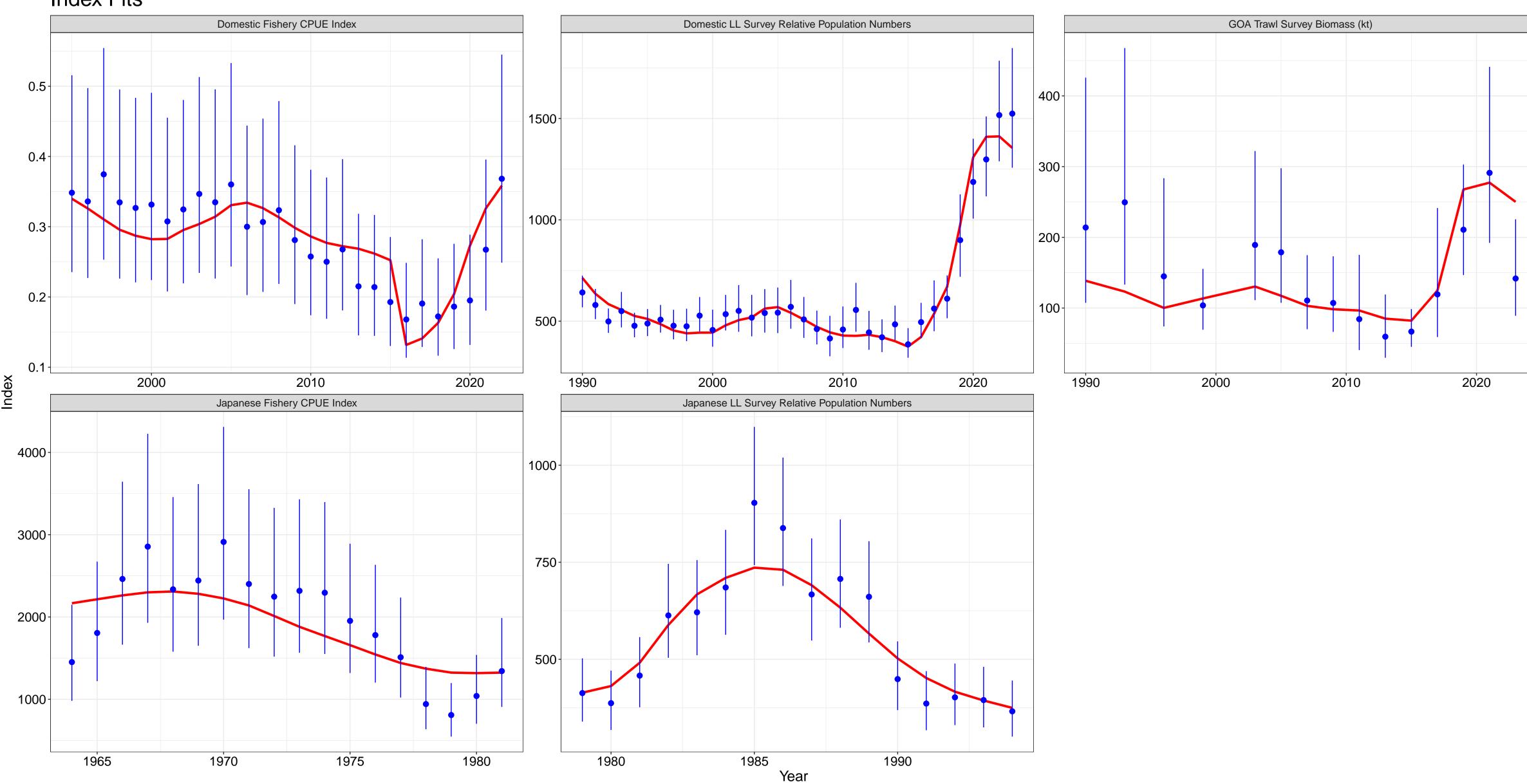




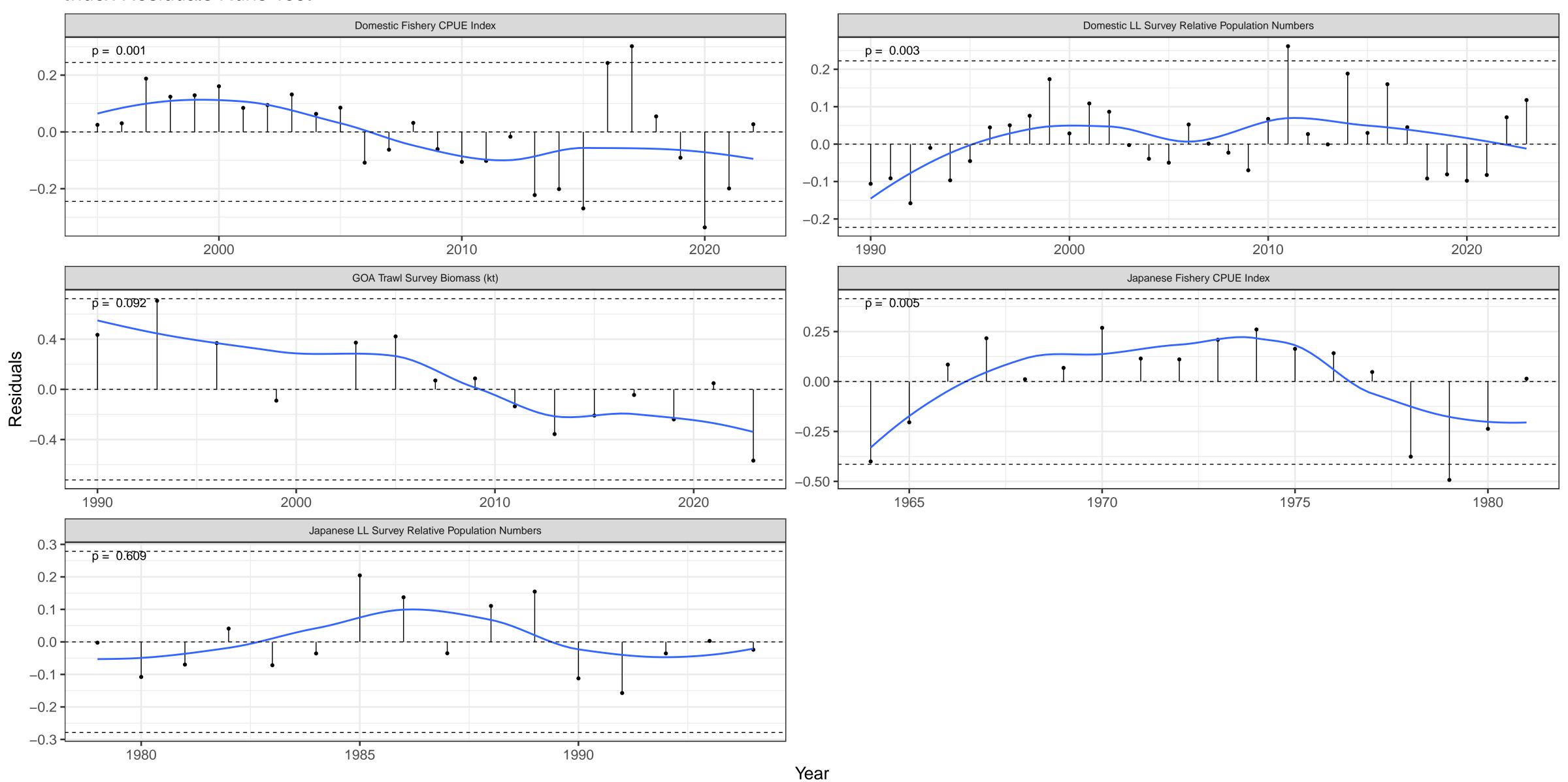


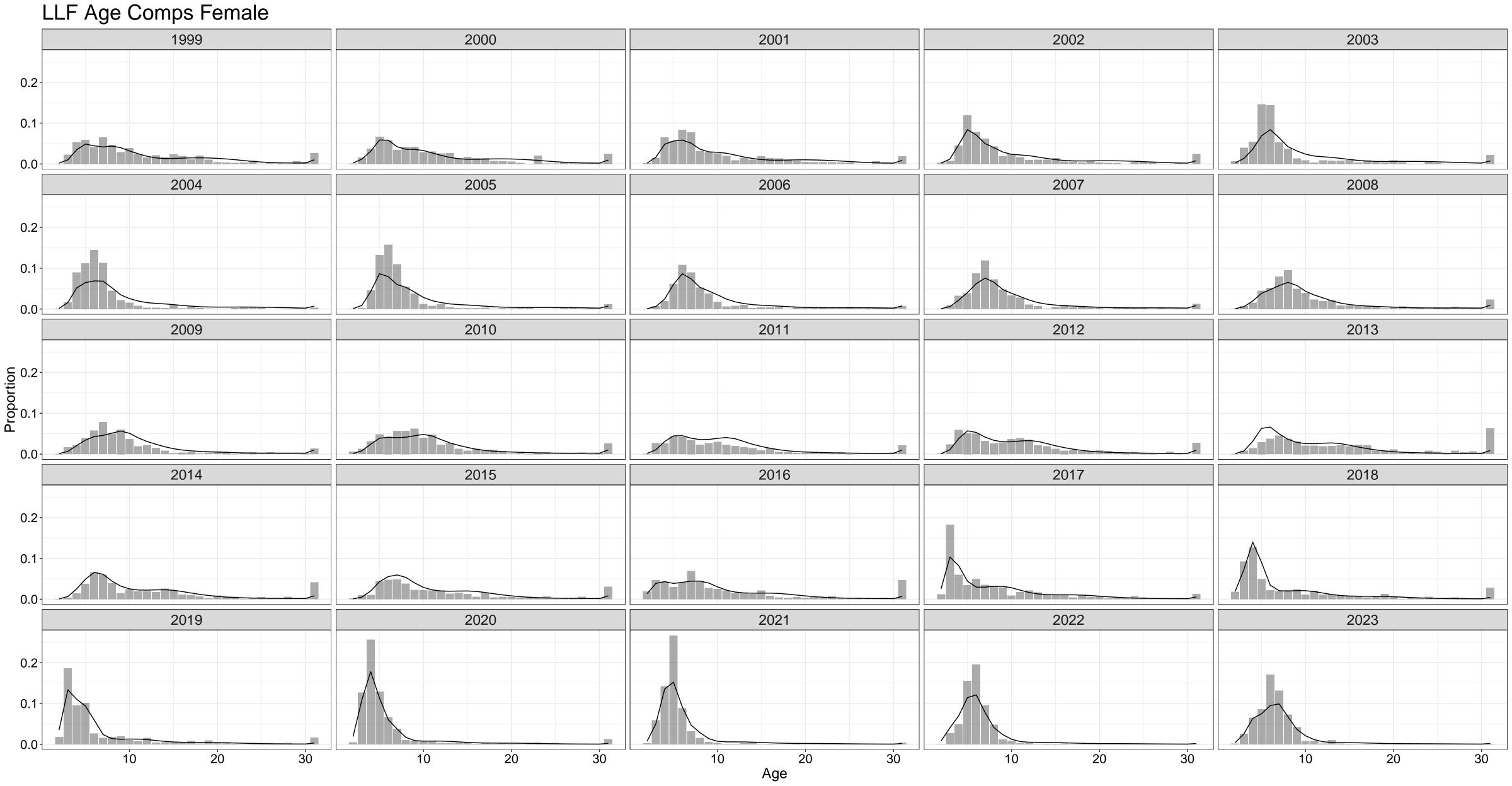


Index Fits



## Index Residuals Runs Test

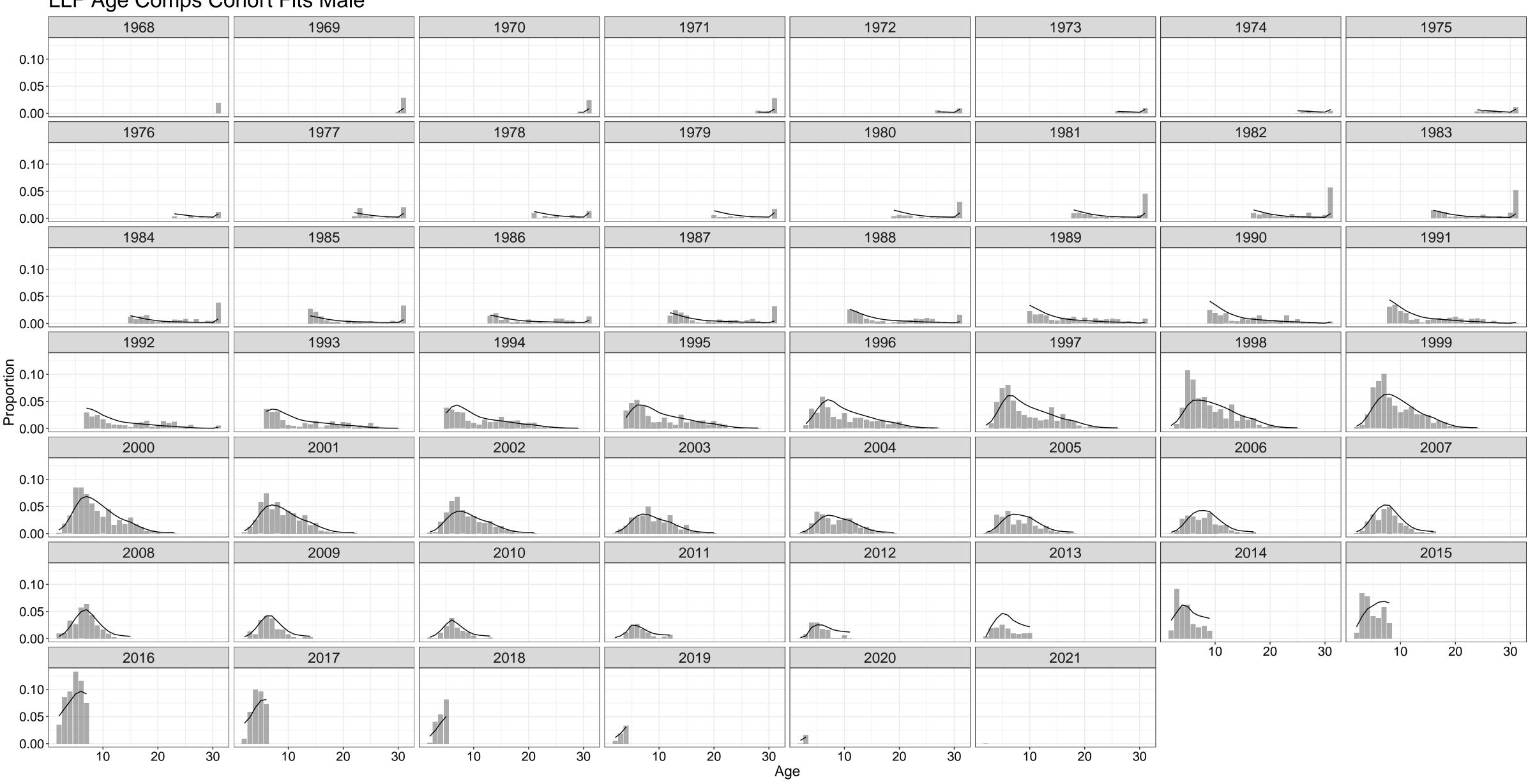




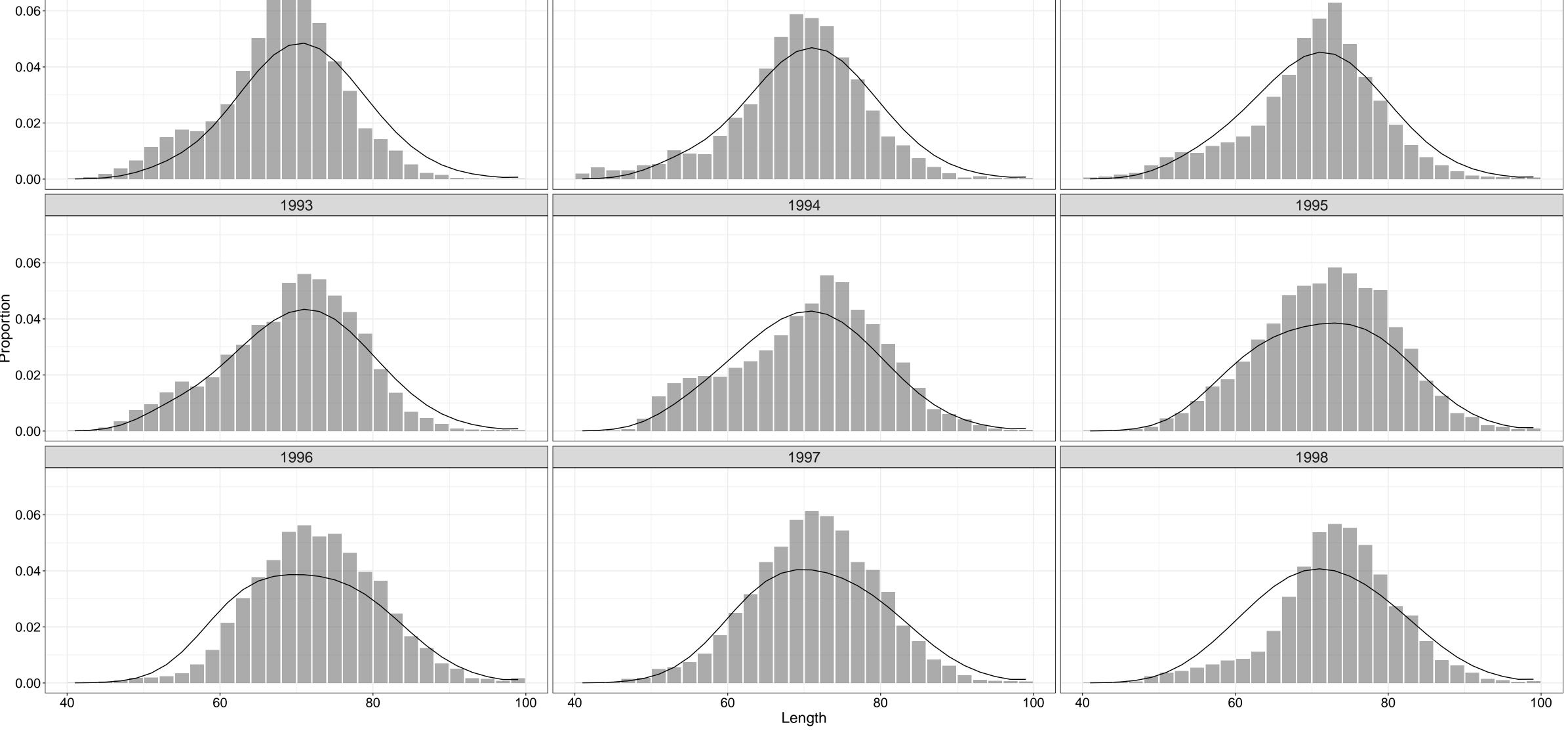
LLF Age Comps Cohort Fits Female 0.2 0.1 0.0 0.2 0.1 0.0 0.2 0.1 0.0 Proportion 0.2 0.2 0.1 0.0 0.2 0.1 0.0 0.2 0.1 Age

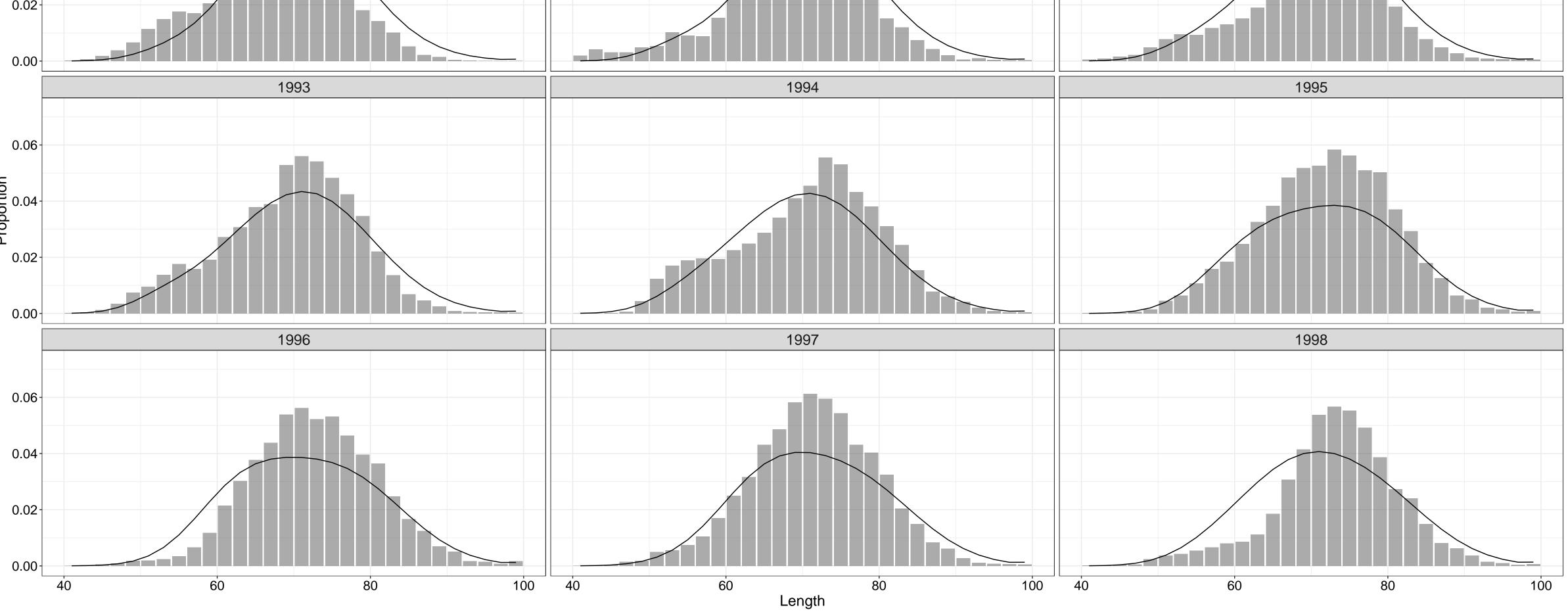
LLF Age Comps Male 0.10-0.05 0.10 0.05 0.00 Proportion 0.10-0.00 0.10-0.05-0.10 0.05 Age

LLF Age Comps Cohort Fits Male



LLF Length Comps Female 1990 1991 1992 0.06 0.04 0.02 0.00 1993 1994 1995 0.06 Proportion 6.0 0.02





LLF Length Comps Male 1990 1991 1992 0.075 0.050 0.025 0.000 1993 1994 1995 0.075 Proportion 0.020-0.025 0.000 1996 1997 1998 0.075 0.050 0.025 0.000

60

80

Length

100

60

40

80

100

40

100

80

60

TF Length Comps Female 0.09 0.06 0.03 0.00 0.09-0.06-0.03 0.00 Proportion 0.09-0.00 0.09-0.06 0.03-0.00 100 40 100 40 0.09 0.06-0.03 0.00 100 40 Length

TF Length Comps Male 0.15 0.10-0.05 0.00 0.15-0.10 0.05 0.00 Proportion 0.10-0.05-0.00 0.15 0.10 0.05 0.00 100 40 100 40 0.15 0.10-0.05 0.00 100 40 

Length

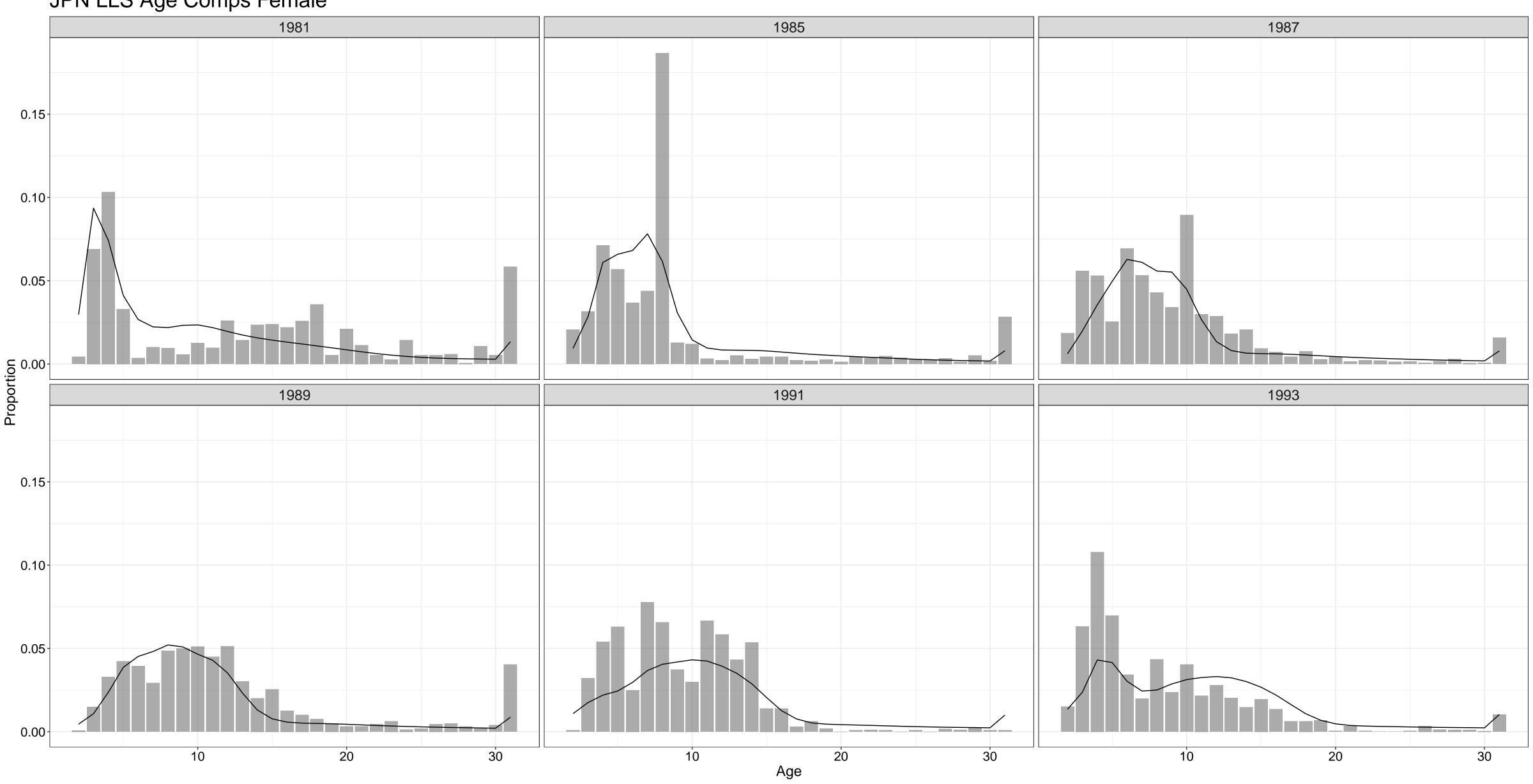
LLS Age Comps Female 0.25 0.20 0.15 0.10-0.05 0.00 0.25 0.20-0.15 0.10 0.05 0.00 0.25 O.20-0.15-0.10-0.05-0.00 0.25 0.20-0.15-0.10 0.05 0.00 0.25 0.20 0.15 0.10 0.05 0.00 Age

## LLS Age Comps Cohort Fit Female 0.25 0.20 0.15 0.10 0.05 0.00 0.25 0.20 0.15 0.10 0.05 0.00 0.25-0.20-0.15-0.10-0.05-0.00-0.25-0.20-0.15-0.00-0.00-0.25-0.20-0.15-0.10-0.05-0.00-0.25 0.20 0.15 0.10 0.05 0.00 0.25-0.20-0.15-0.10-0.05-0.00-0.25-0.20-0.15-0.10-0.05-0.00-Age

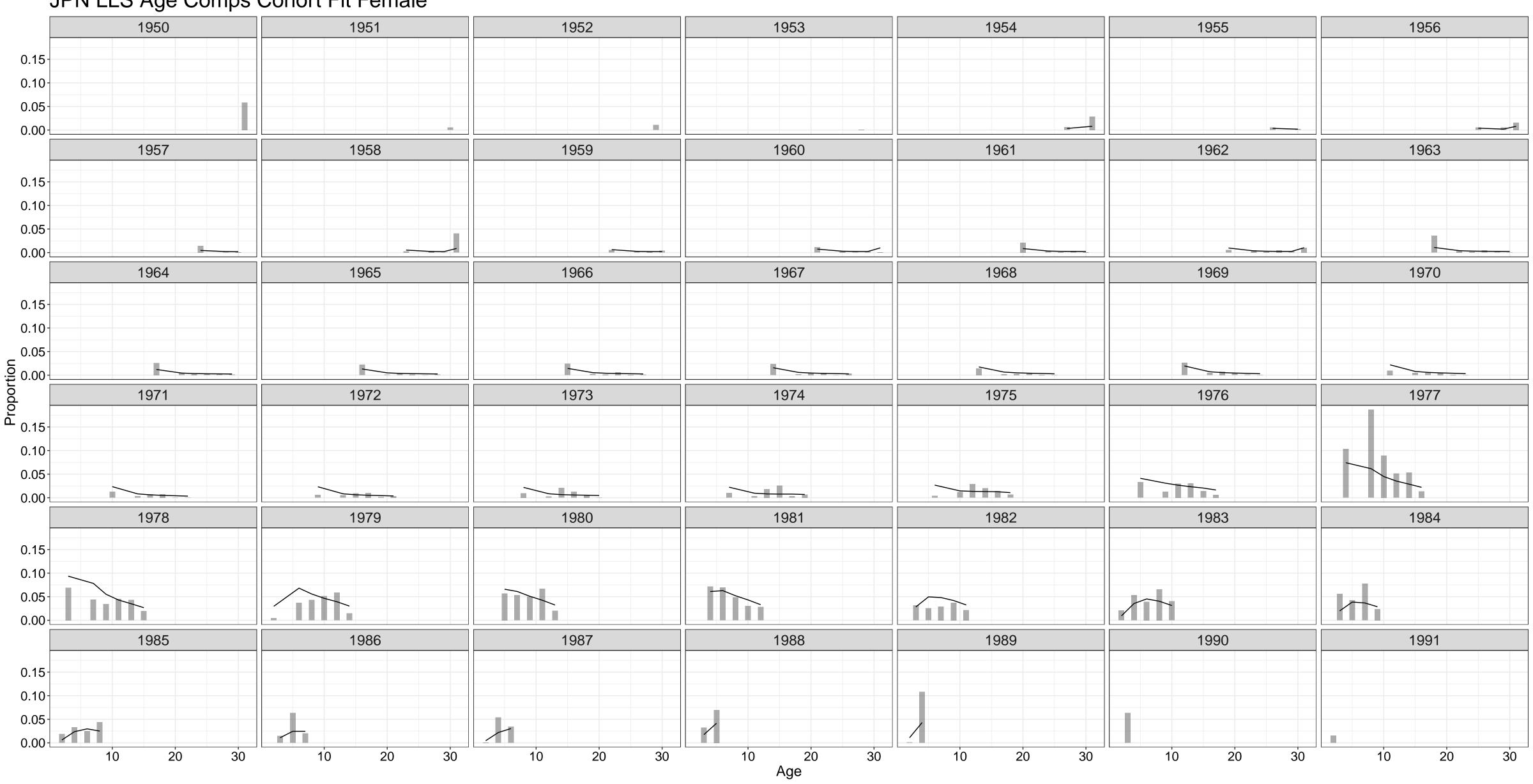
LLS Age Comps Male 0.15 0.10 0.05 0.00 0.15 0.10 0.05 0.00 0.15 Proportion 0.10-0.00 0.15 0.10 0.05 0.00 0.15 0.10 0.05 0.00 Age

## LLS Age Comps Cohort Fit Male 0.15 0.10 0.05 \_ 0.00 0.15-0.10 0.05 0.00 0.15-0.10 0.05 0.00 0.15 0.10-Proportion 0.00-0.05 0.00 0.15-0.10-0.05 0.00 0.15 0.10 0.05 0.00 0.15 0.10 0.05 0.00

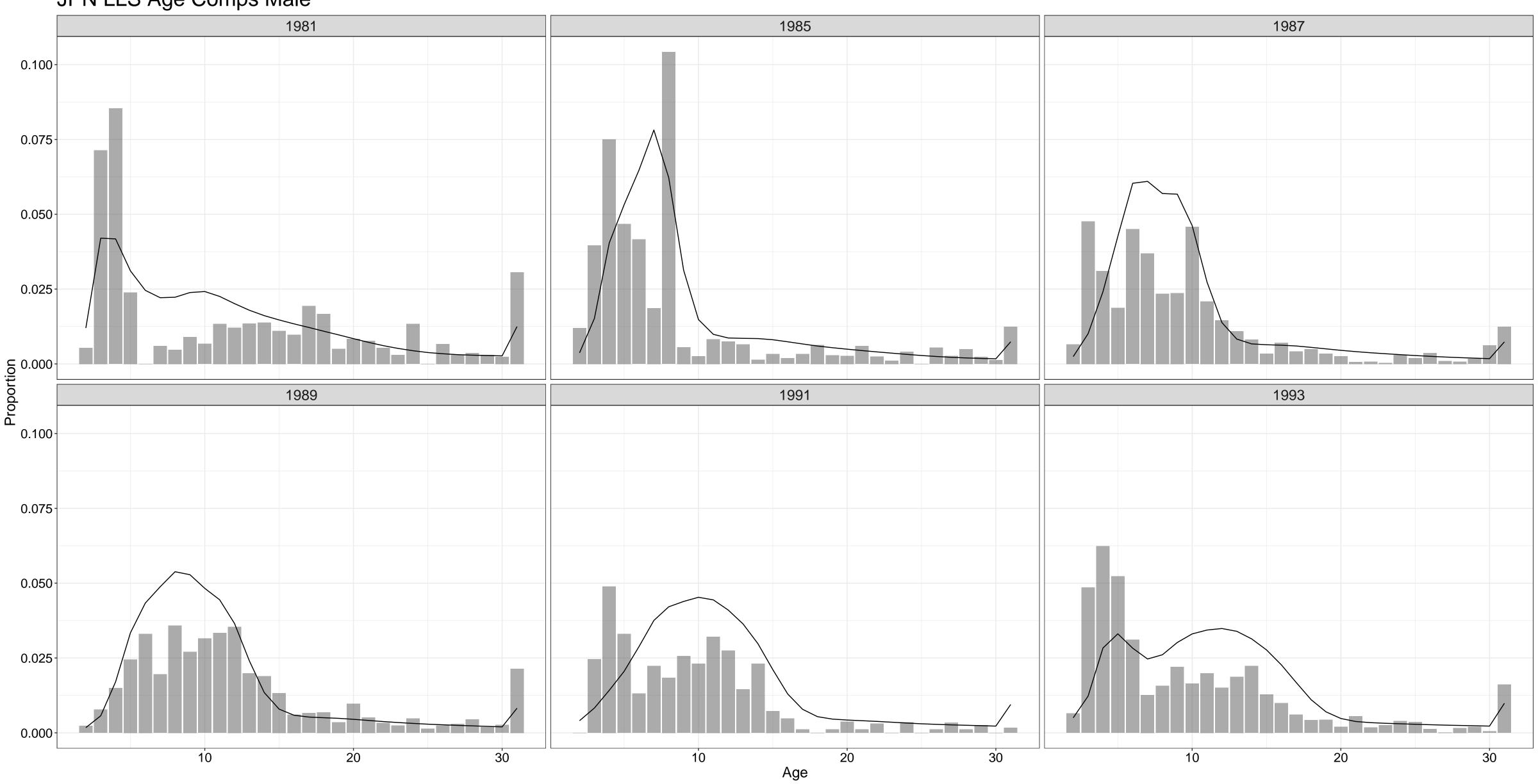
JPN LLS Age Comps Female



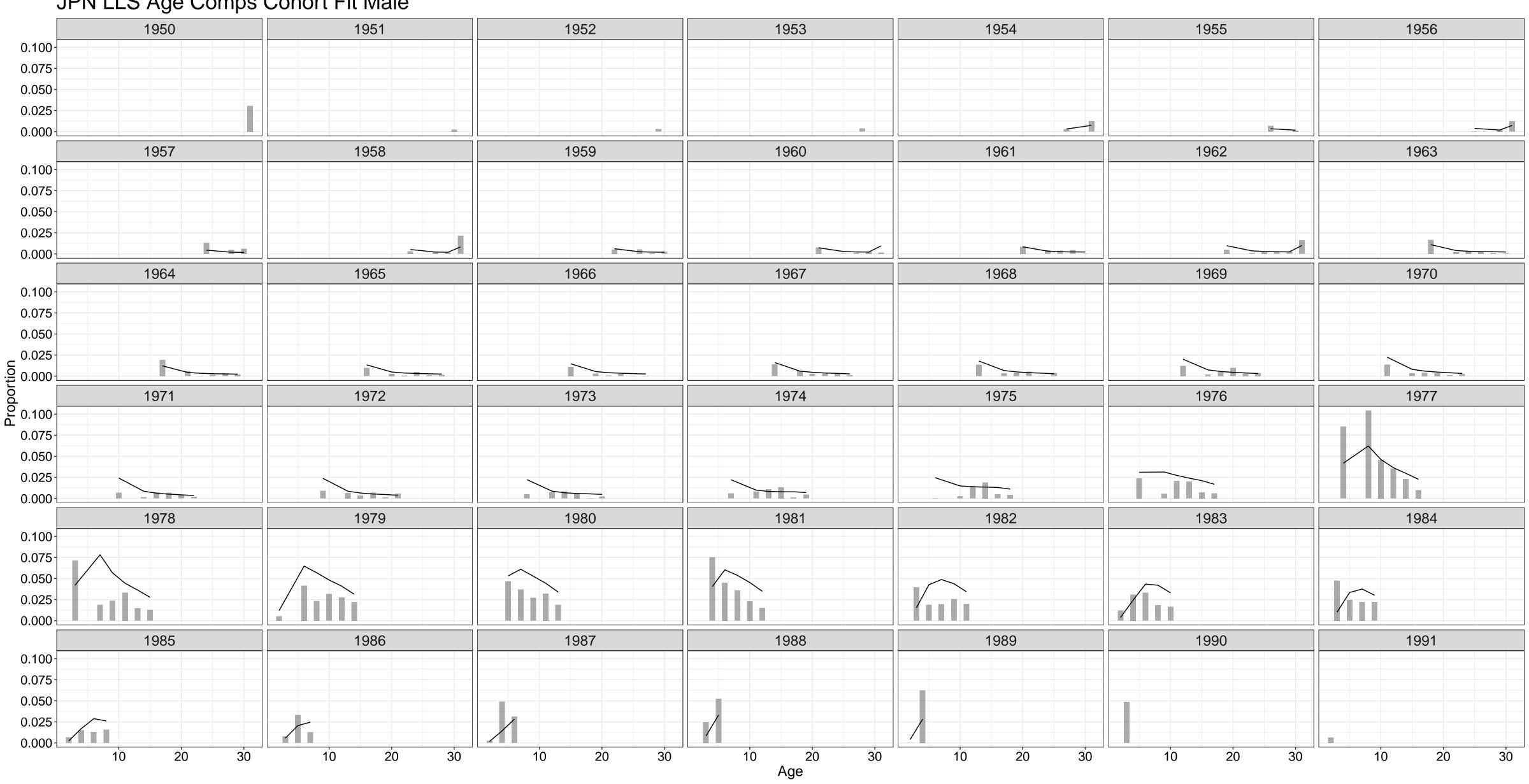
JPN LLS Age Comps Cohort Fit Female

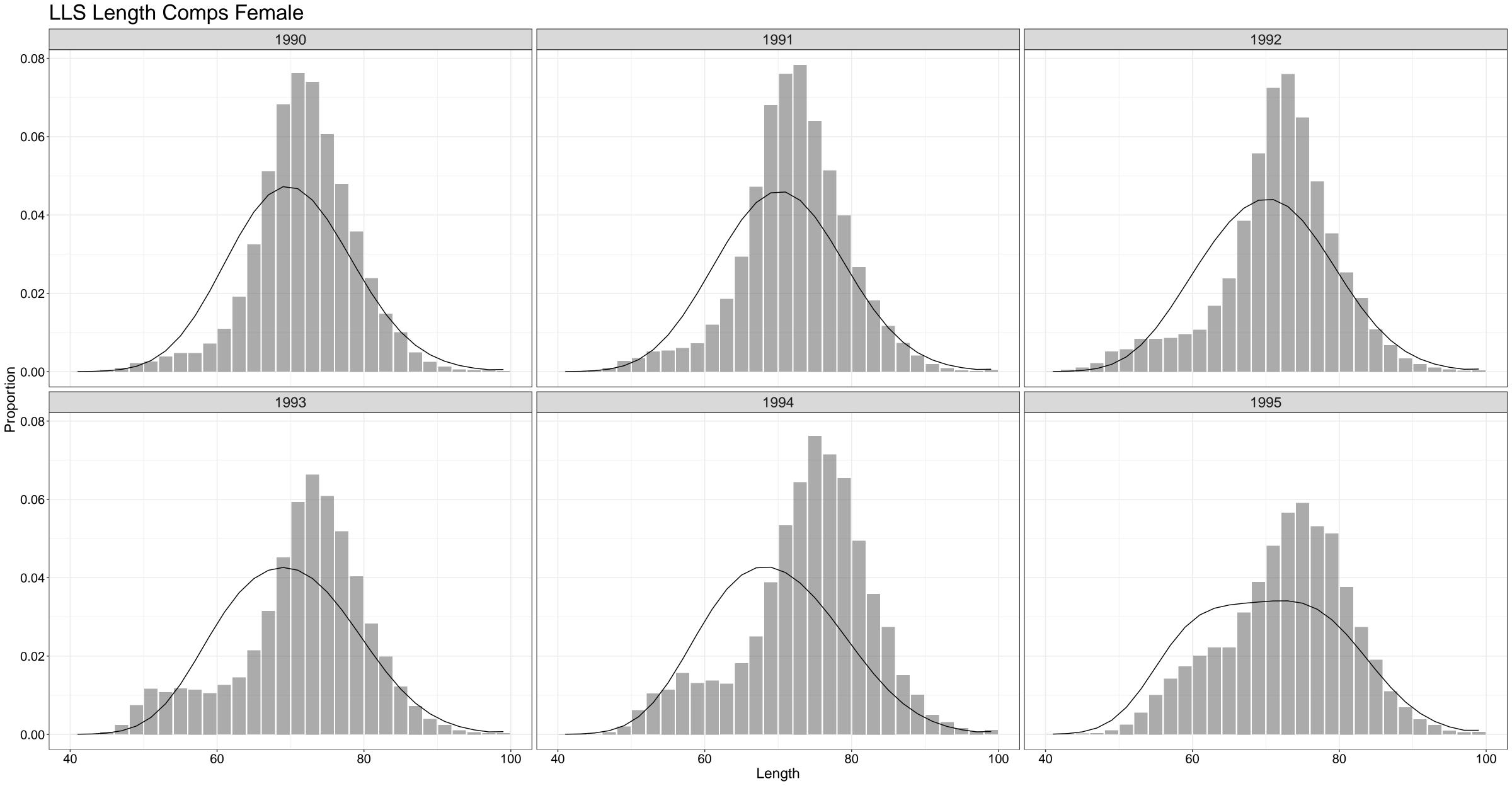


JPN LLS Age Comps Male



JPN LLS Age Comps Cohort Fit Male

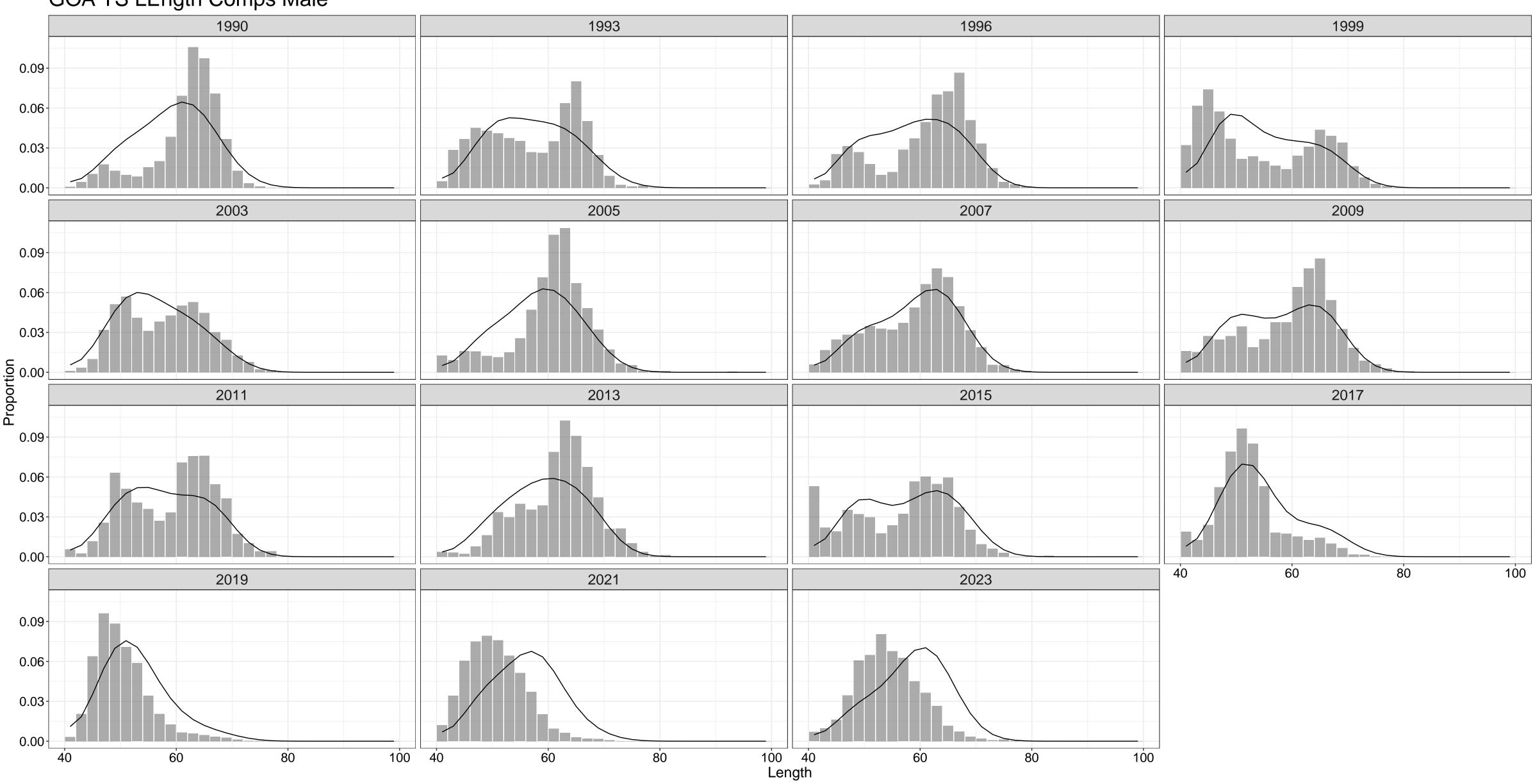




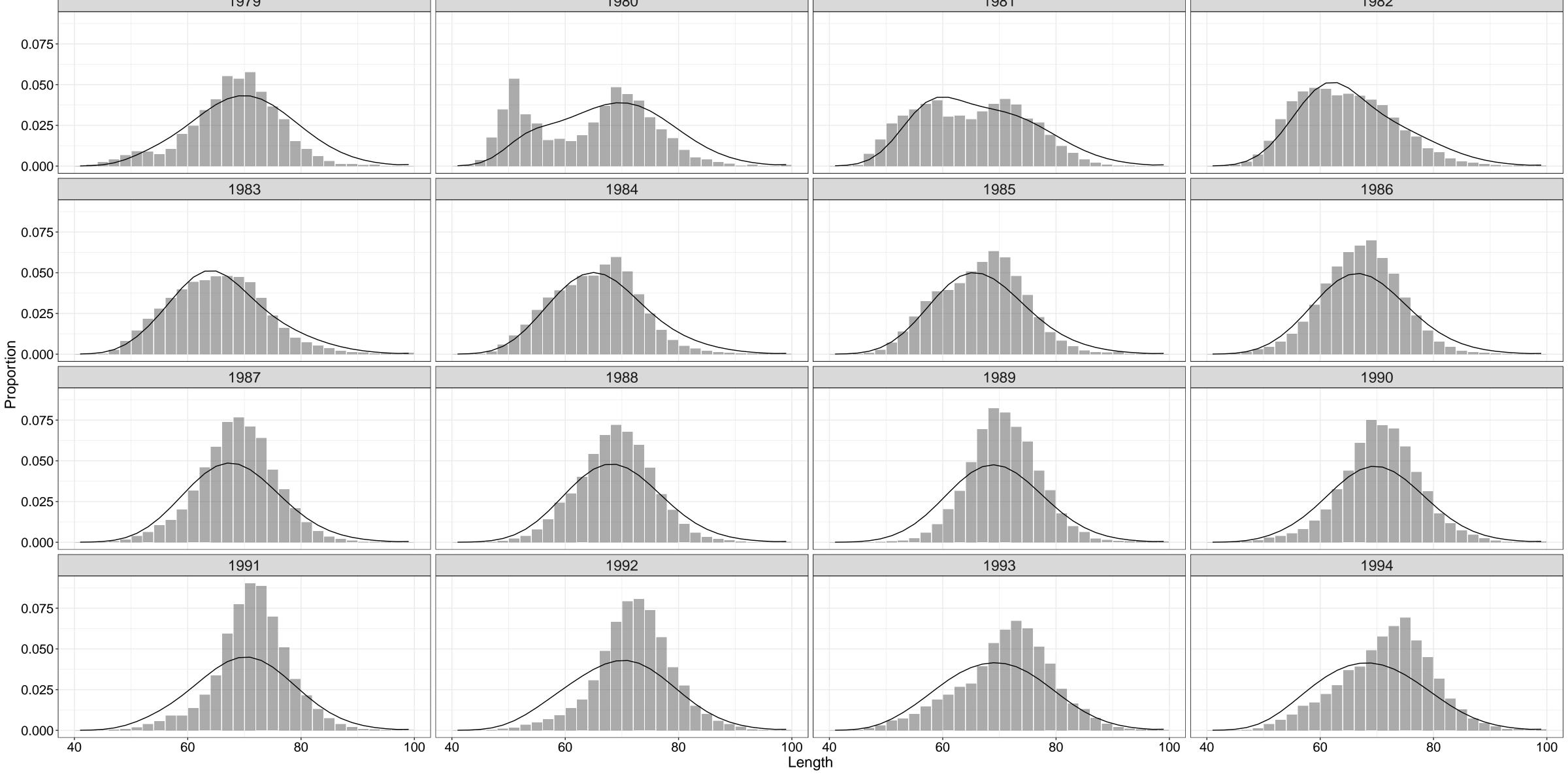
LLS Length Comps Male 0.075 0.050 0.025 Proportion 00000 0.075 0.050 0.025 0.000 Length

GOA TS Length Comps Female 1993 1999 1990 1996 0.100 0.075 0.050 0.025 0.000 2003 2005 2007 2009 0.100 0.075 0.050 0.025 Proportion 0.000 2011 2013 2015 2017 0.075 0.050 0.025 0.000 100 60 80 2019 2021 2023 0.100 0.075 0.050 0.025 0.000 60 80 100 40 Length 80 40 60 60 80 100 100

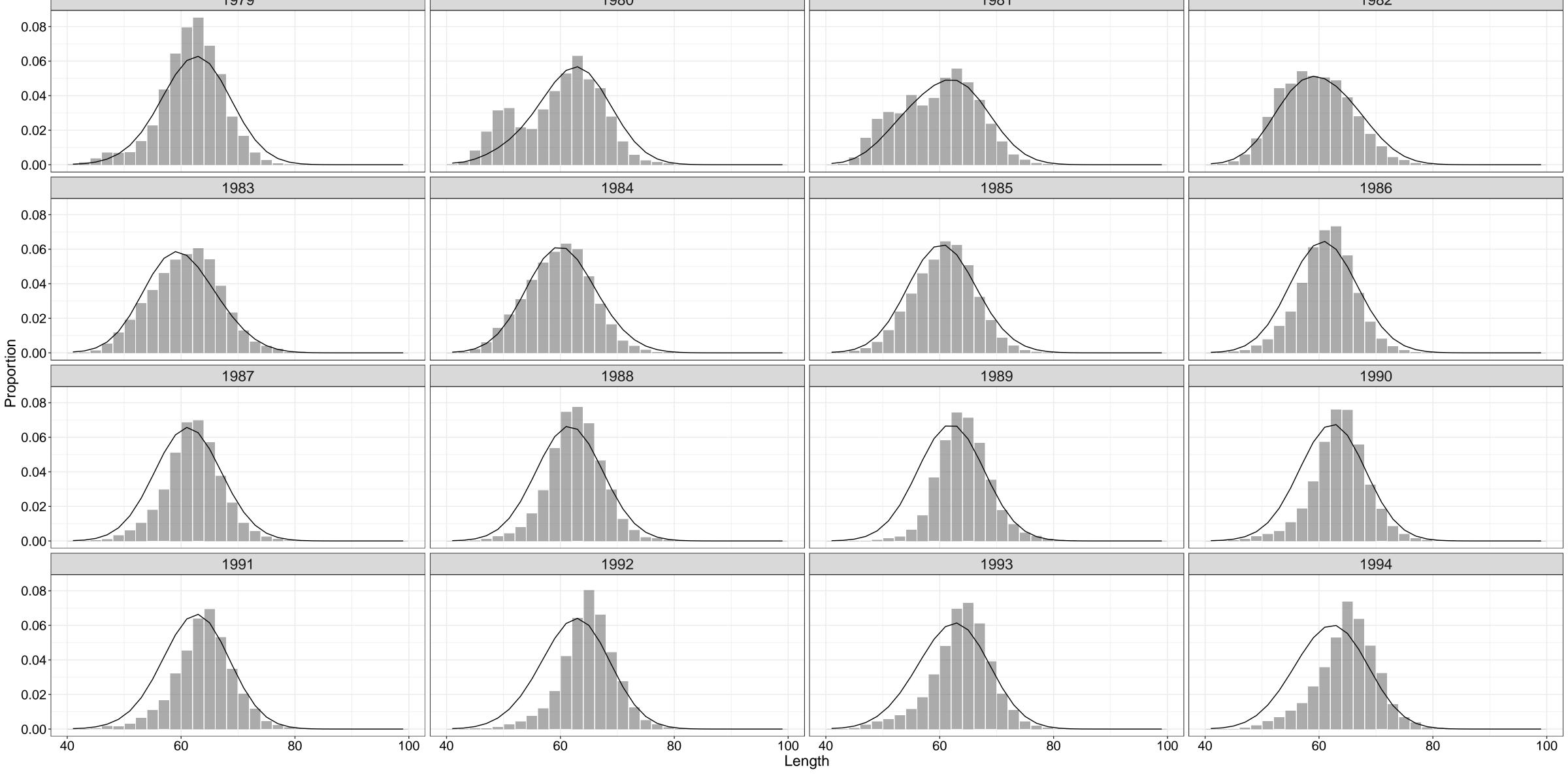
GOA TS LEngth Comps Male

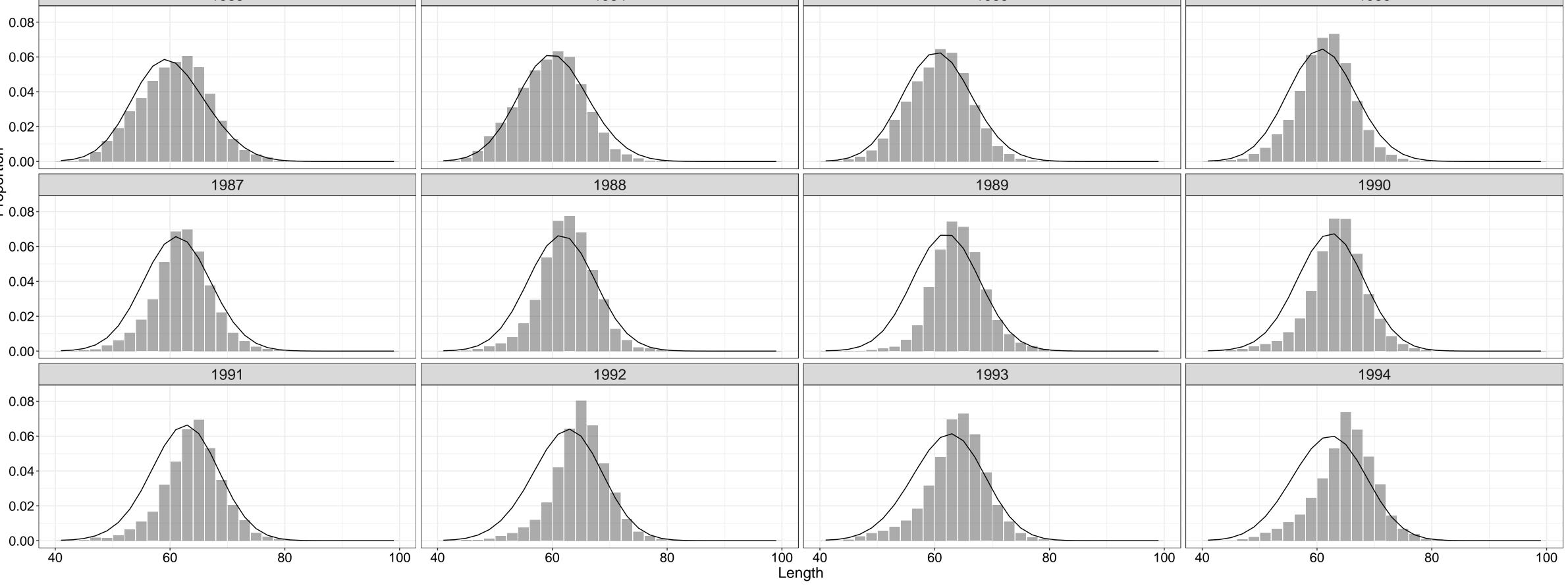


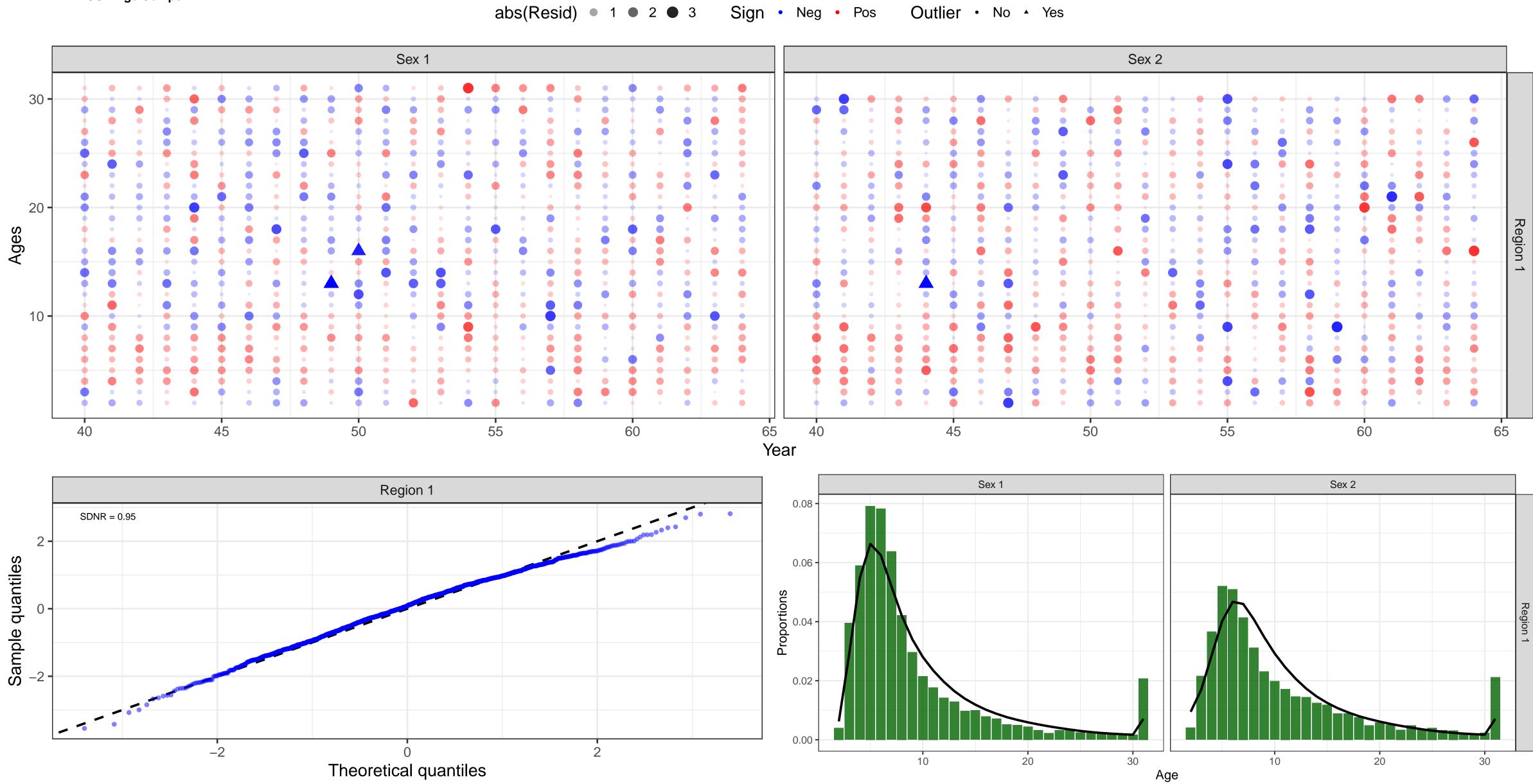
JPN LLS Length Comps Female 1979 1980 1981 1982 0.075 0.050 0.025 0.000 1983 1984 1985 1986 0.075 0.050 0.025 1987 1988 1989 1990 0.075 0.050 0.025 0.000 1992 1993 1994 1991 0.075

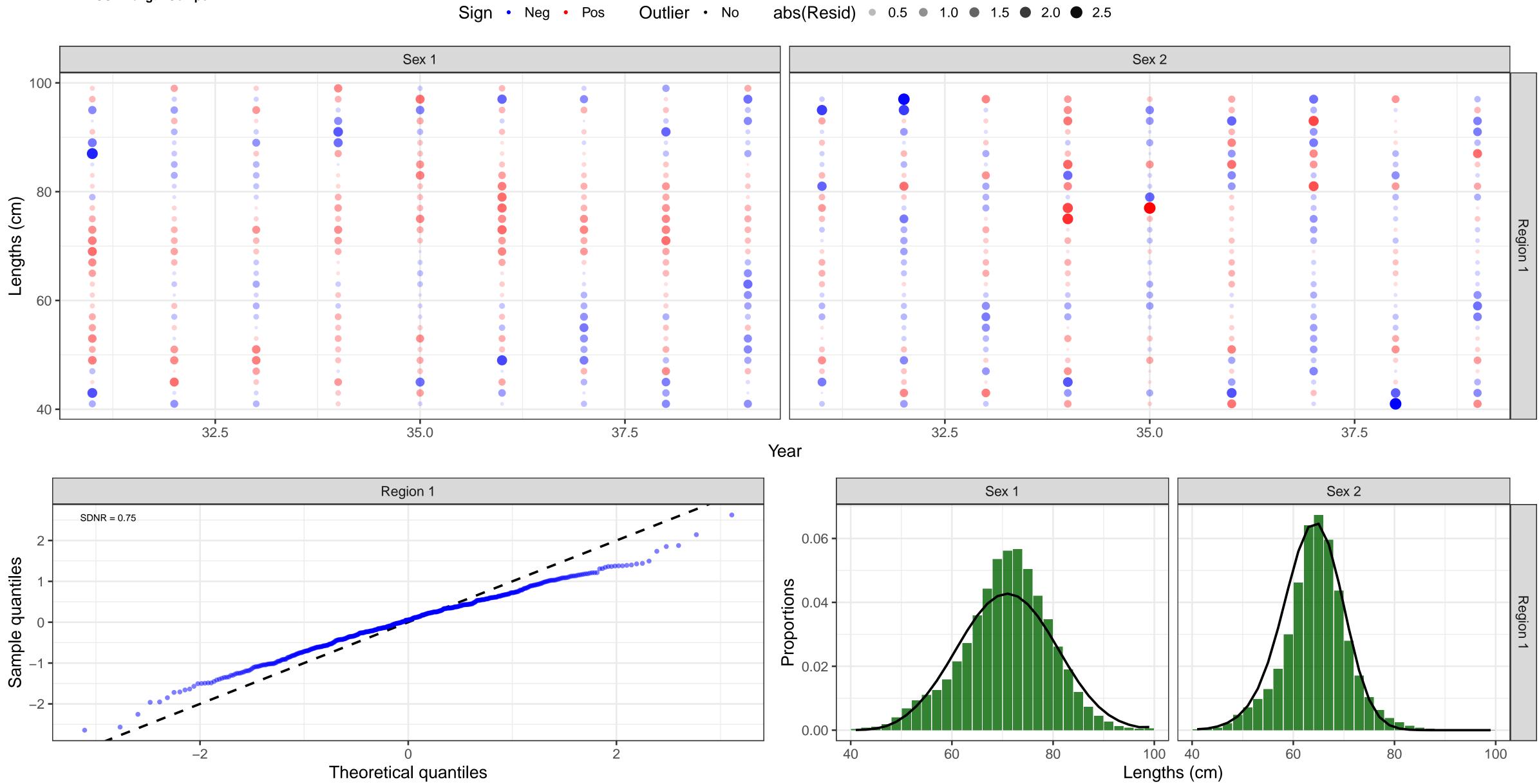


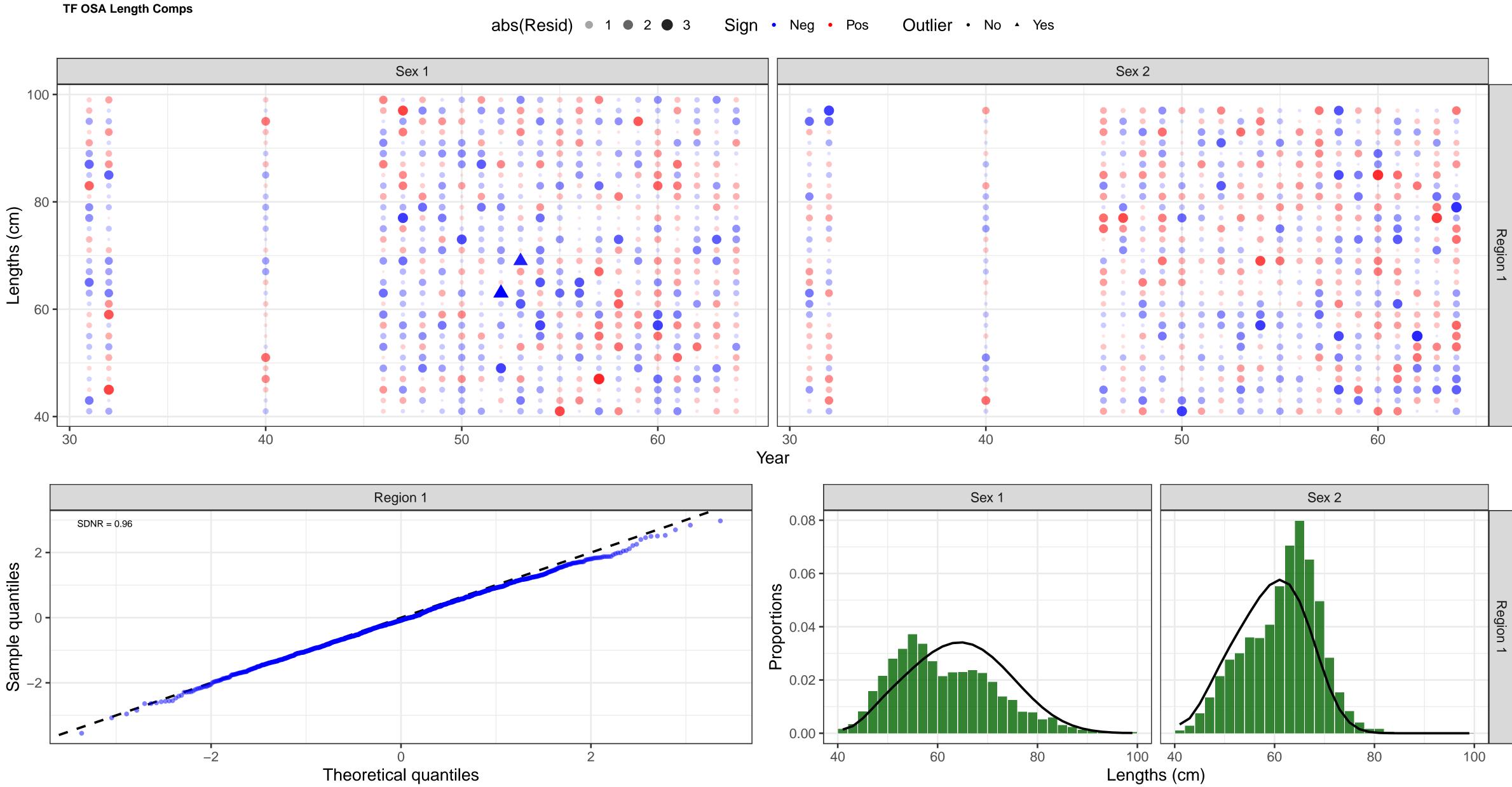
JPN LLS Length Comps Male 

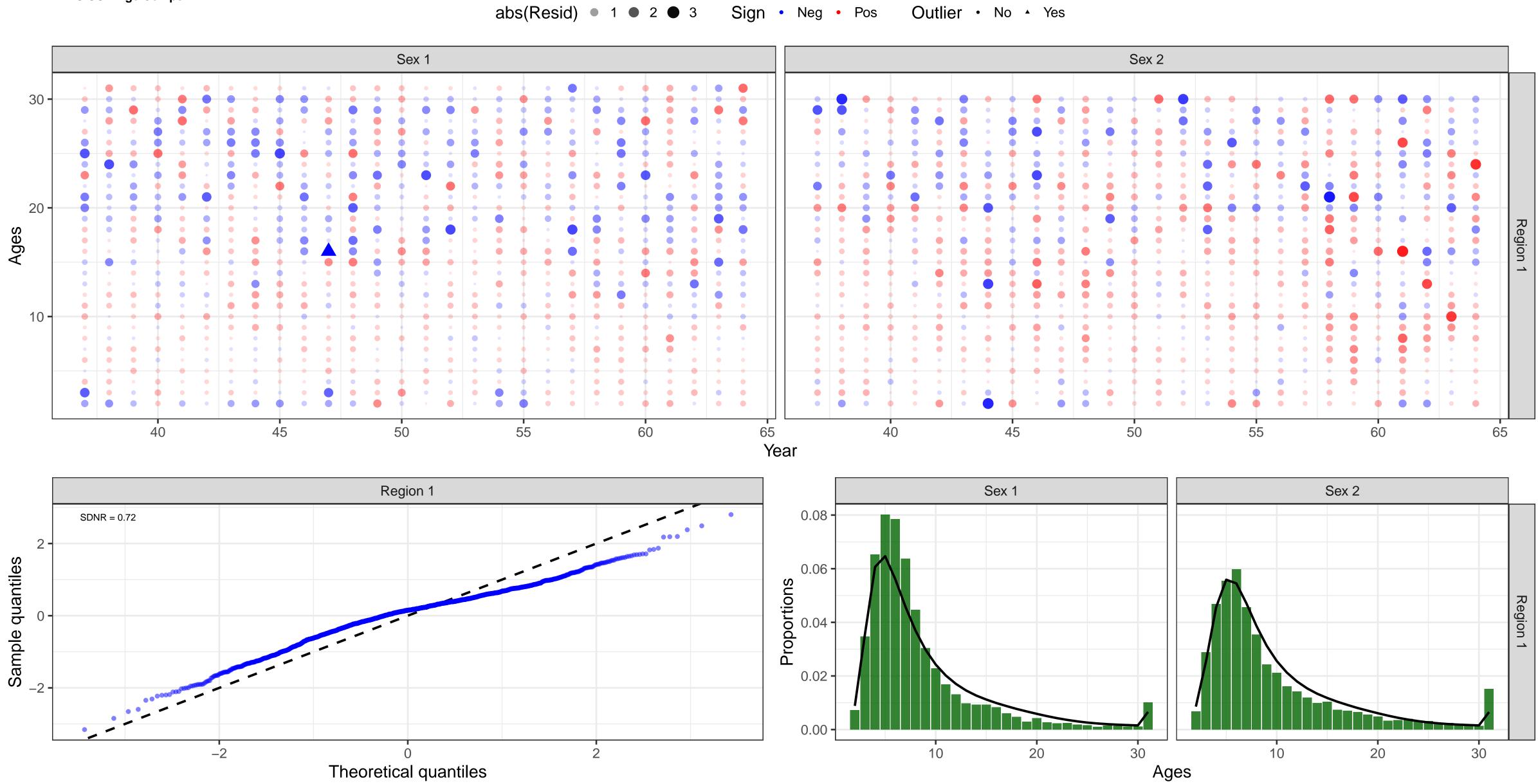


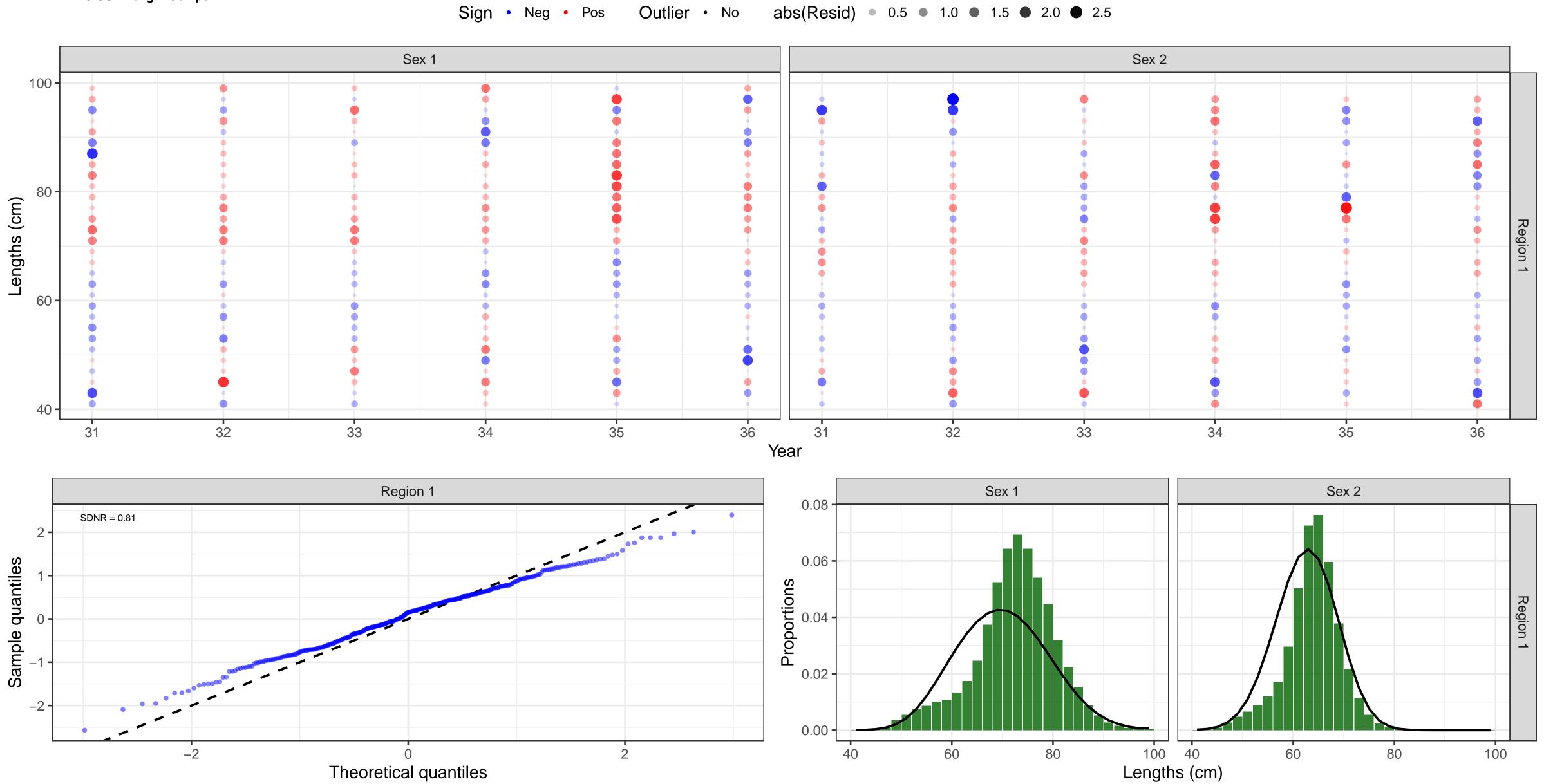


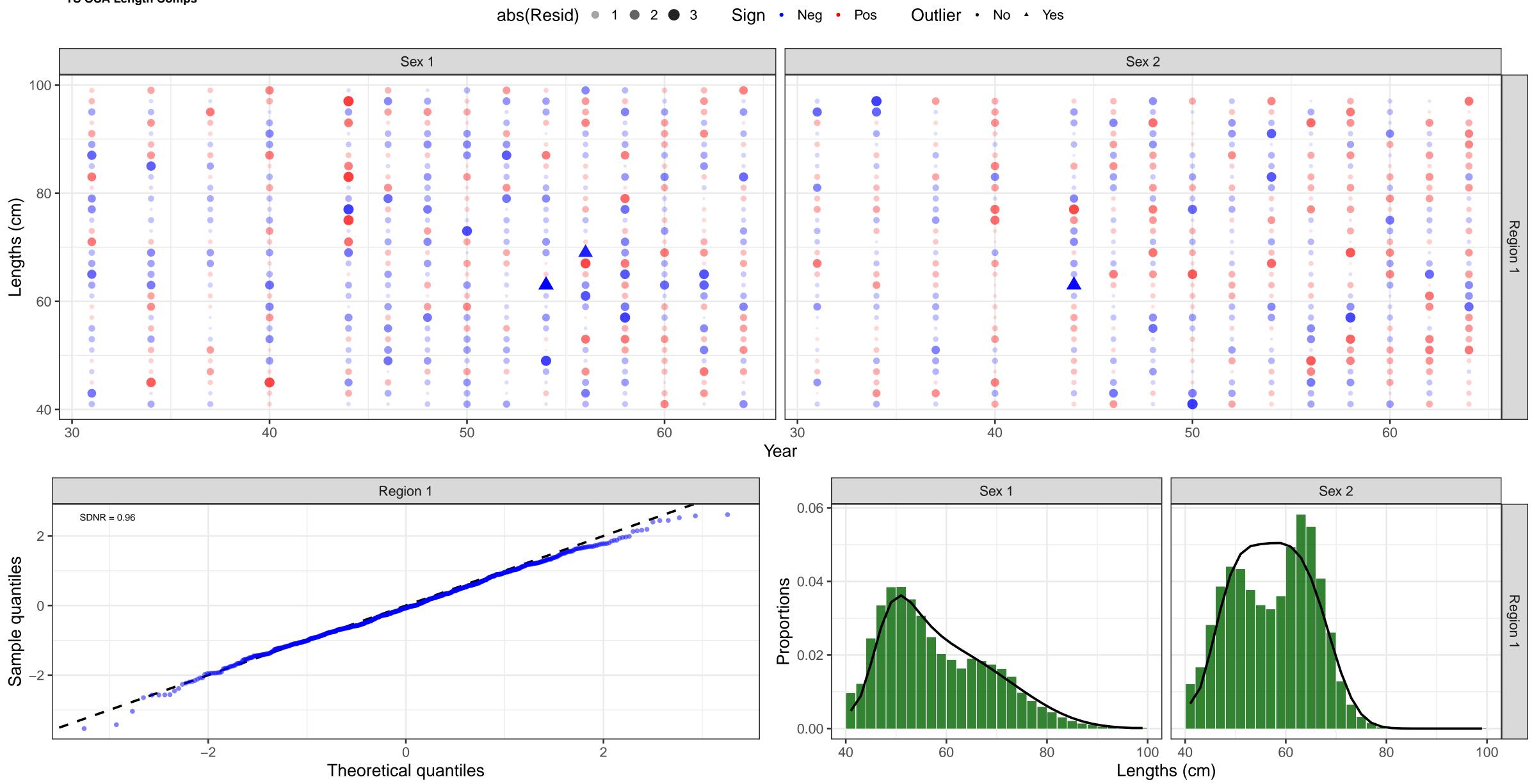


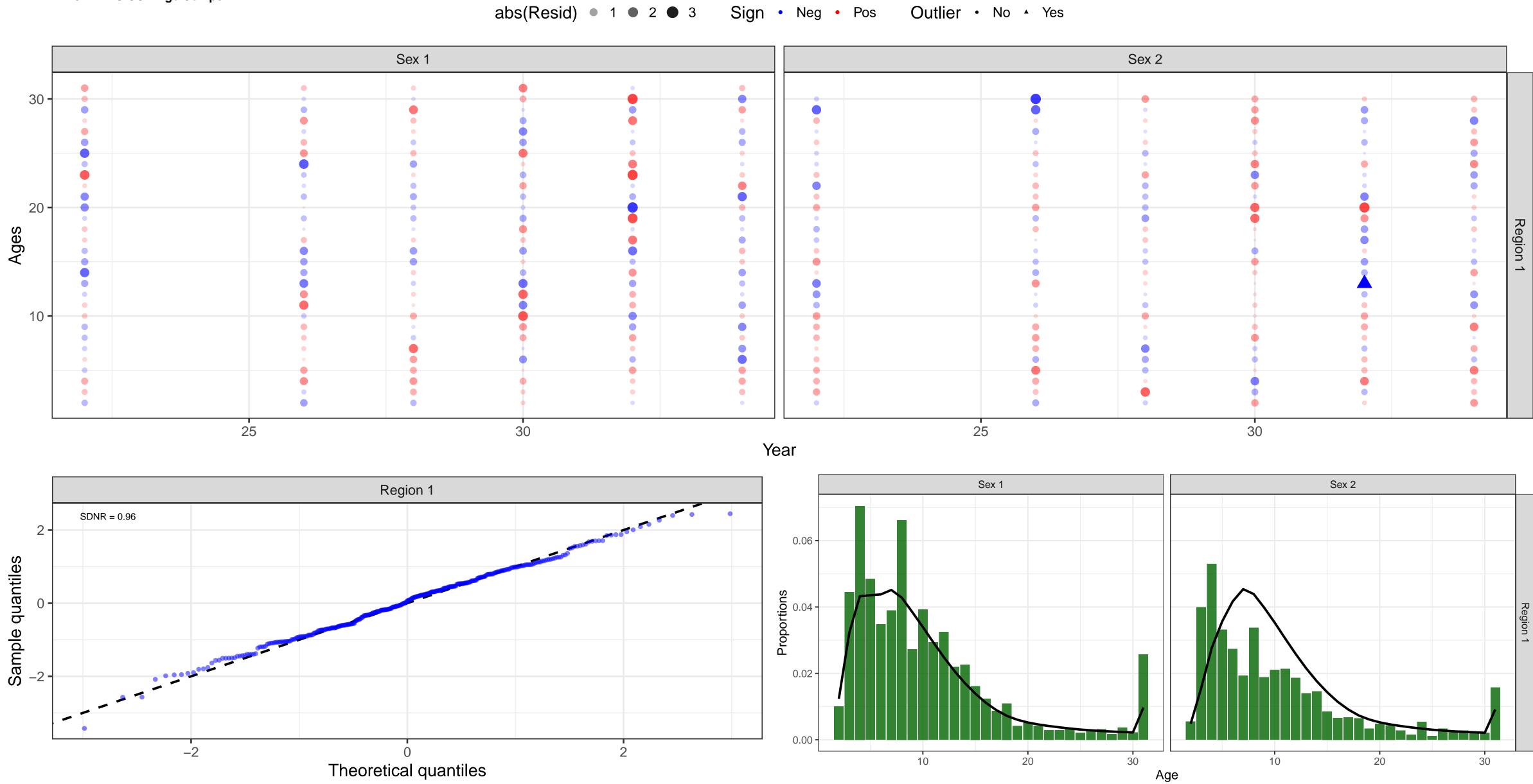


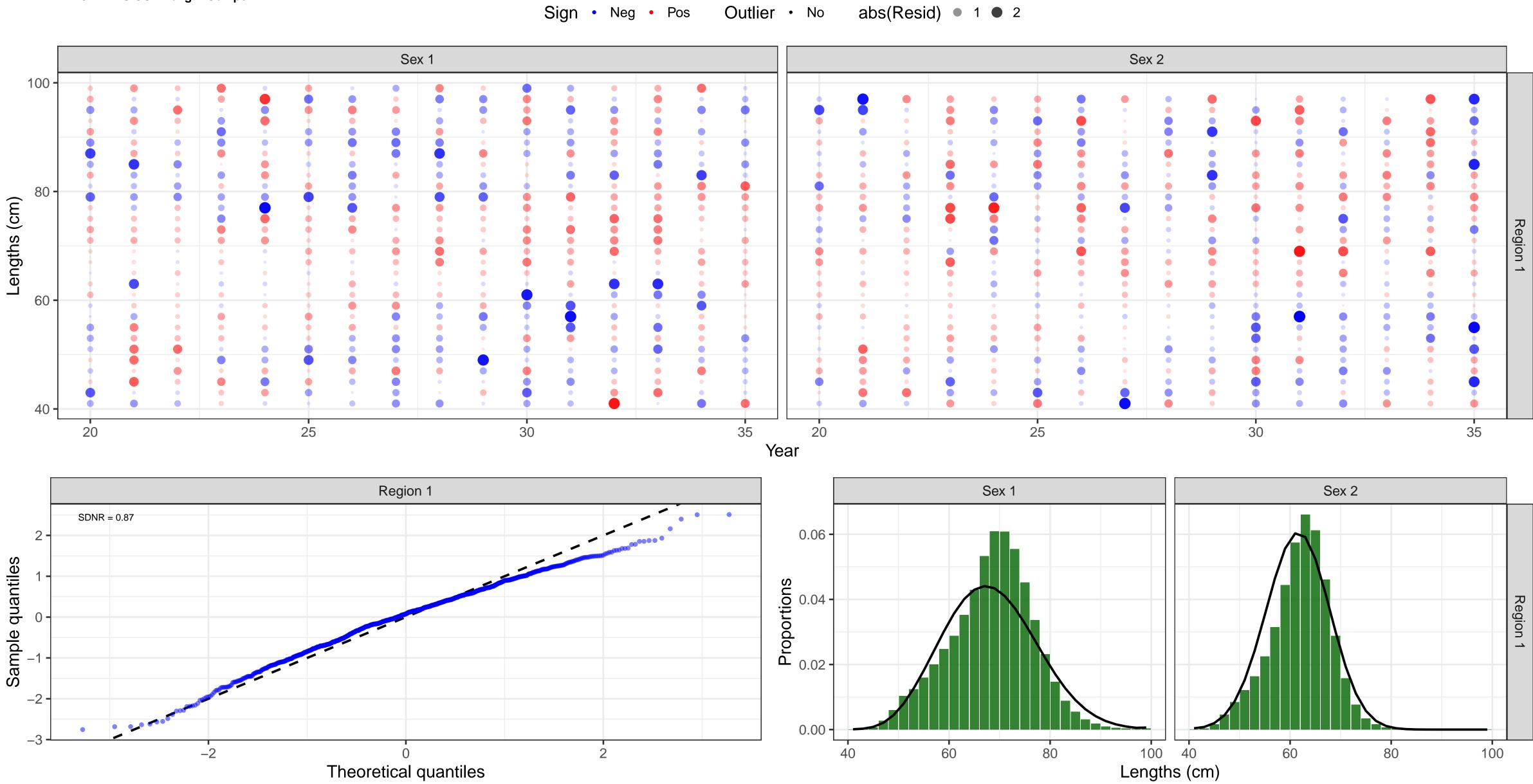


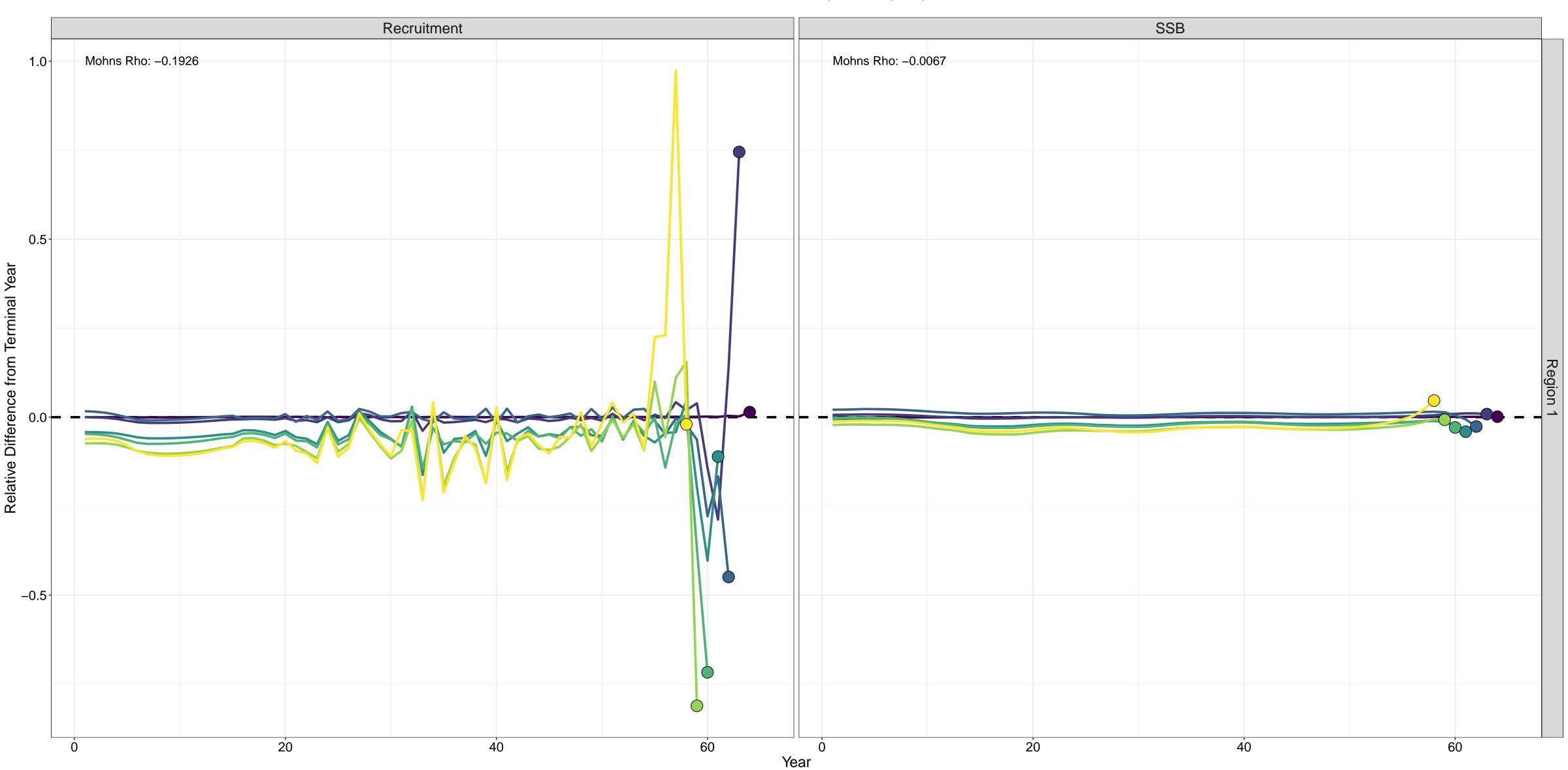


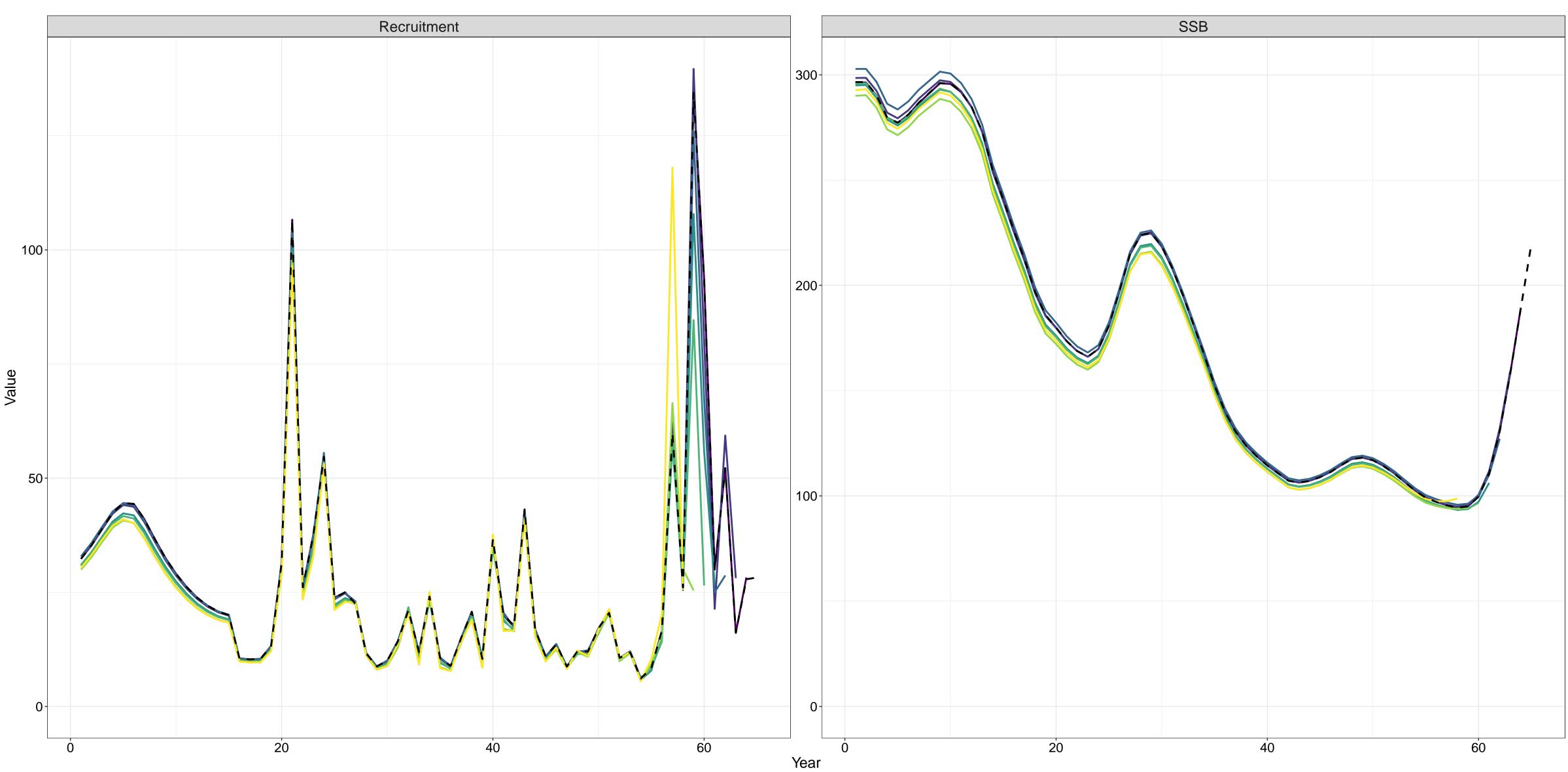


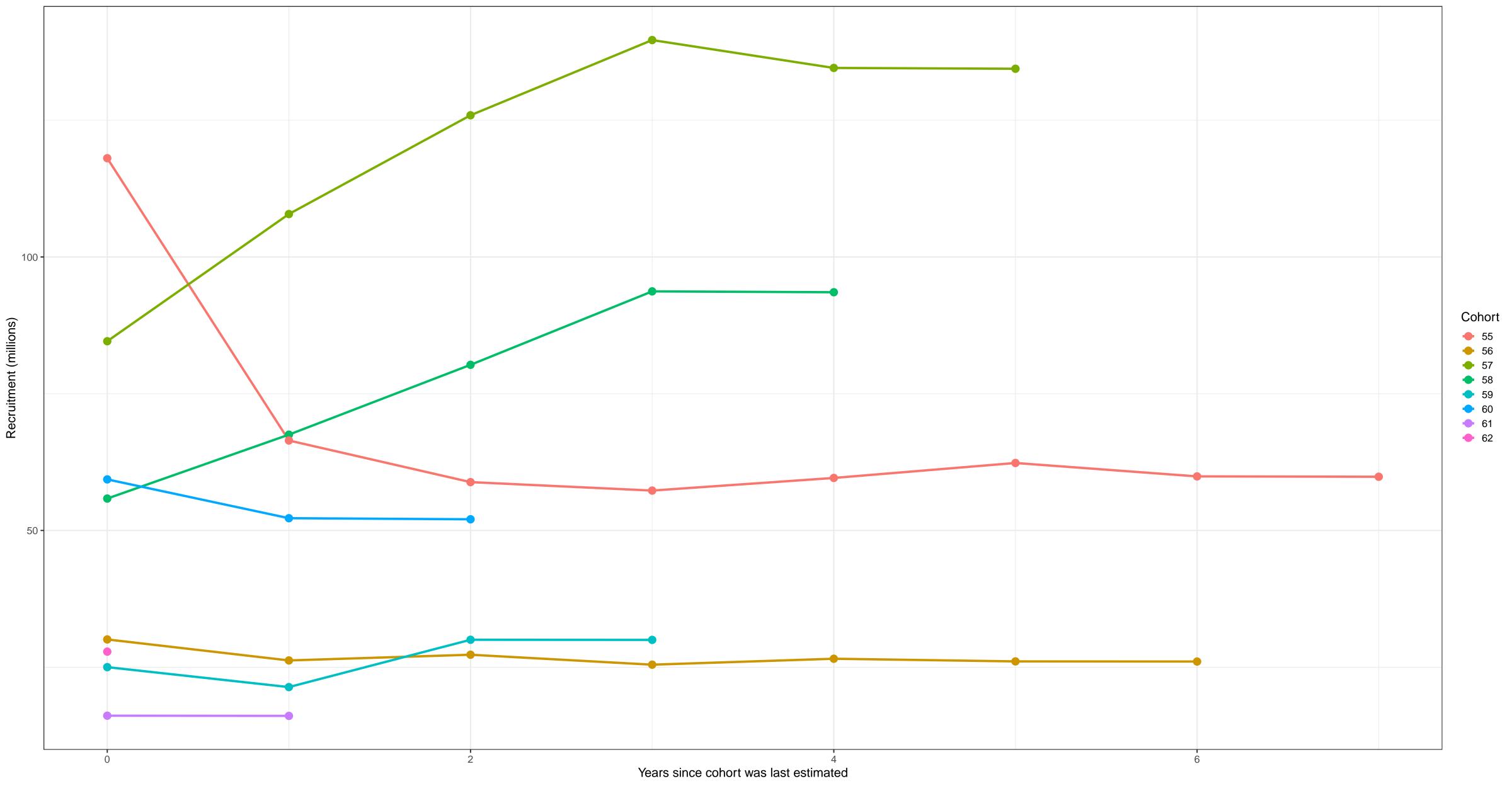




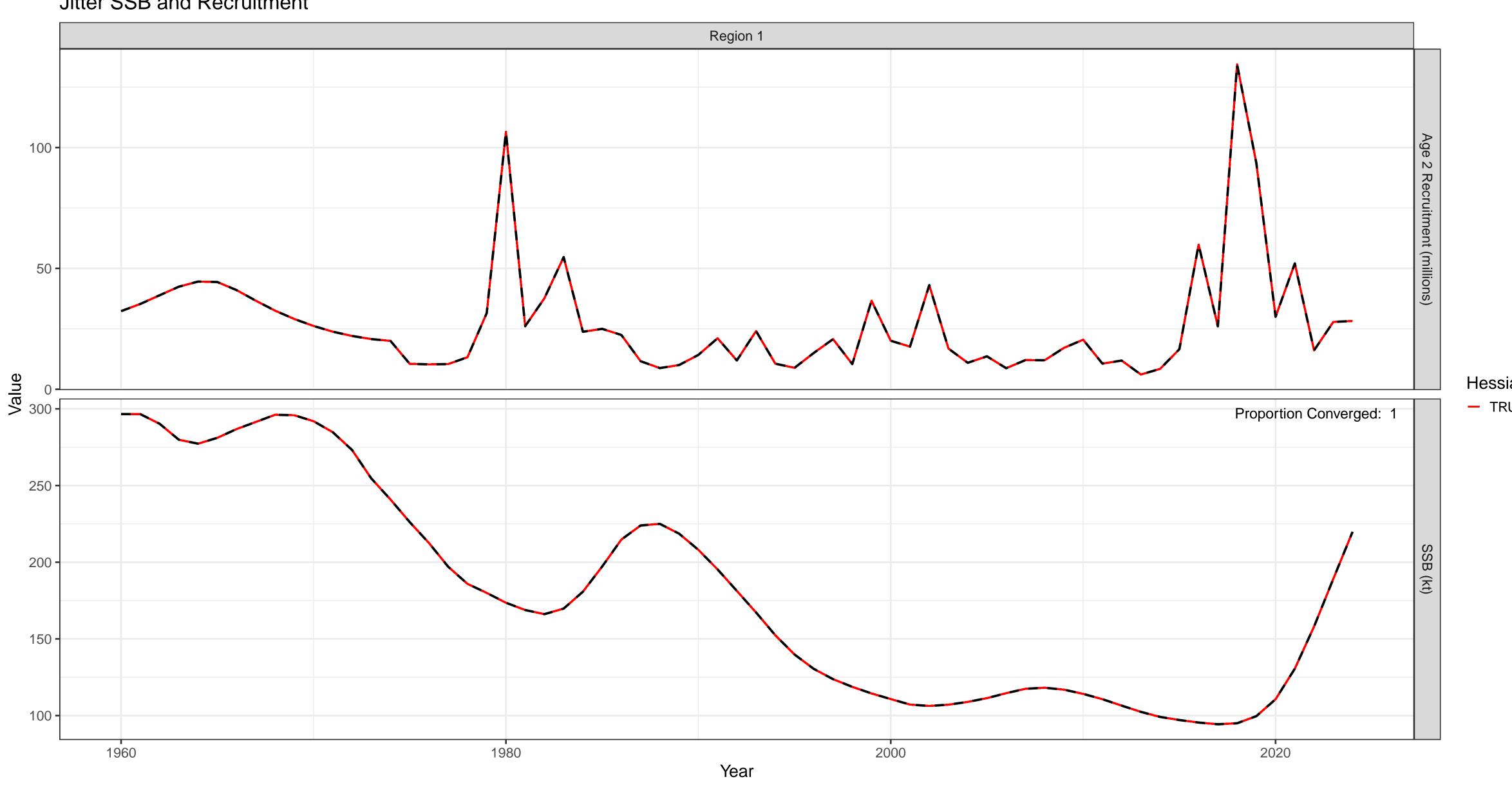




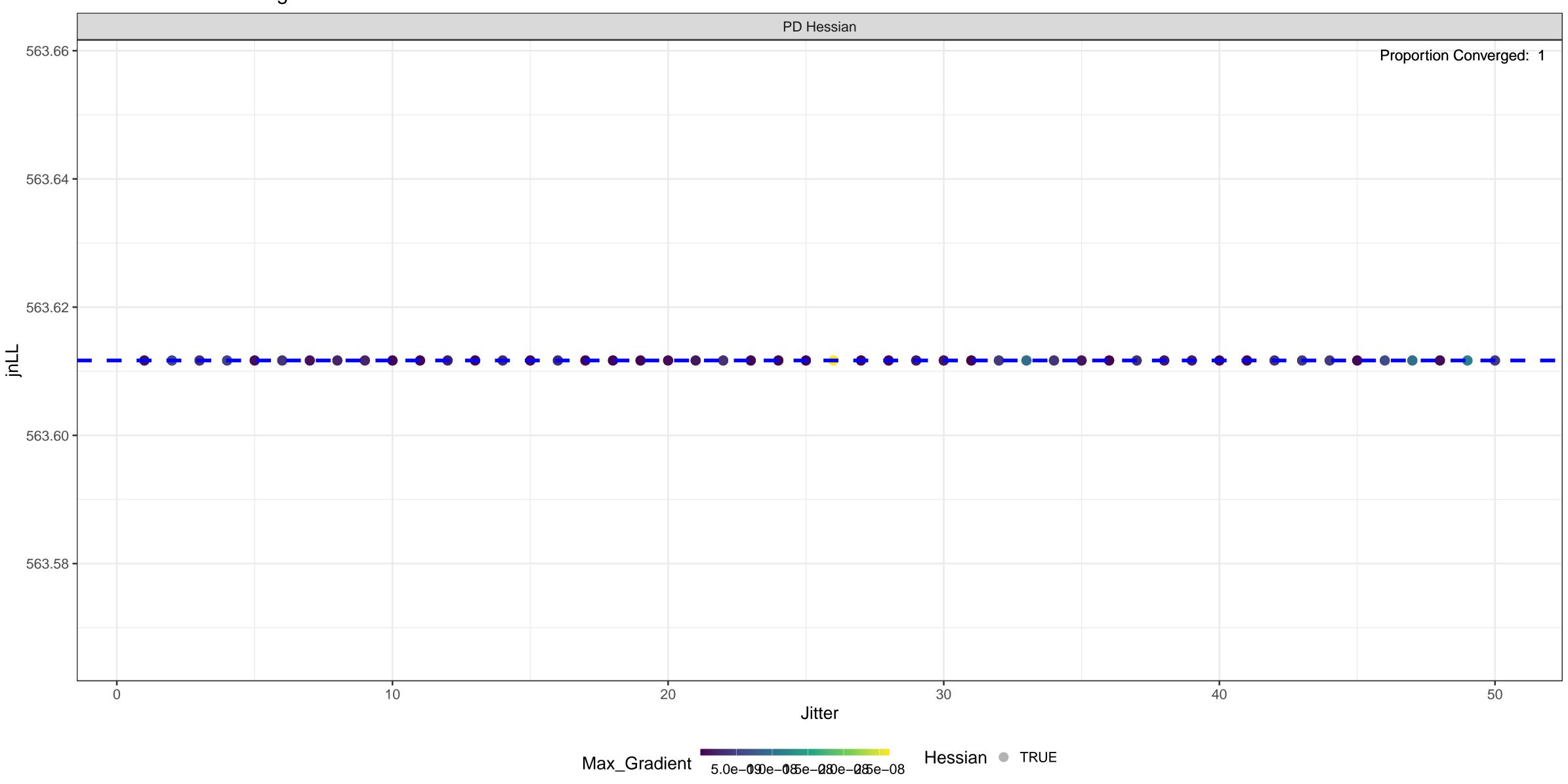


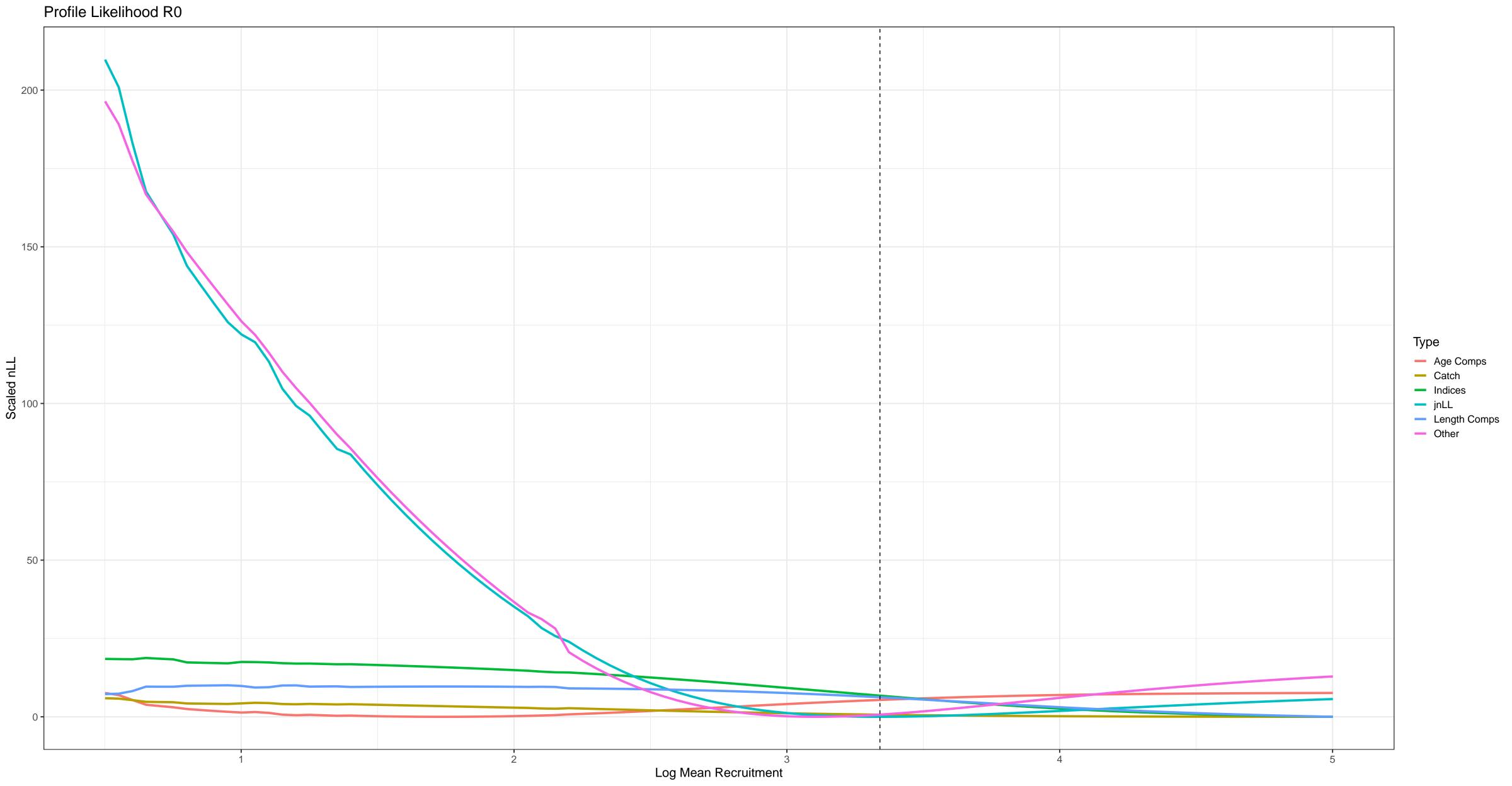


Jitter SSB and Recruitment Region 1 Age 2 Recruitment (millions) 50 -Hessian TRUE Proportion Converged: 1 SSB (kt)

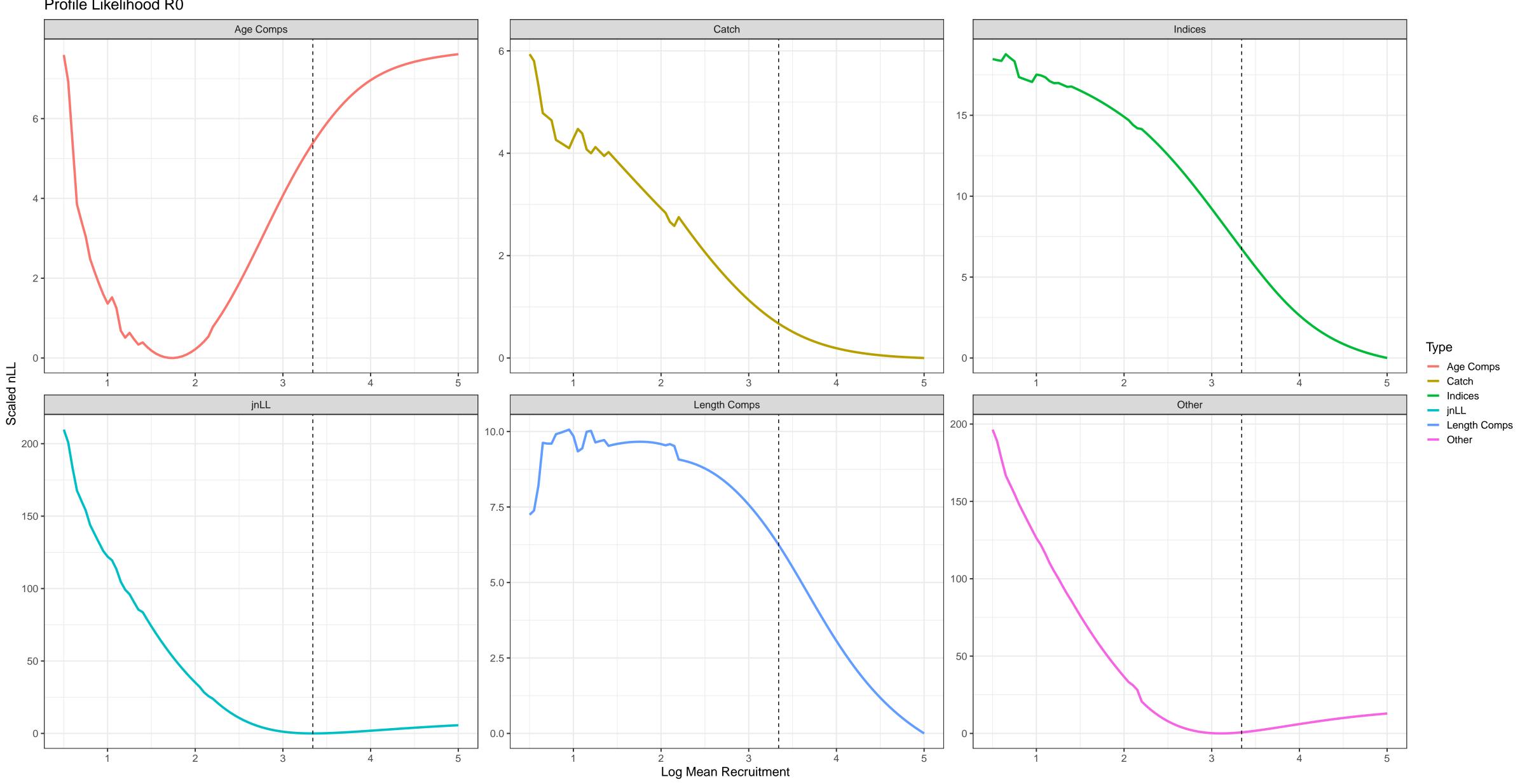


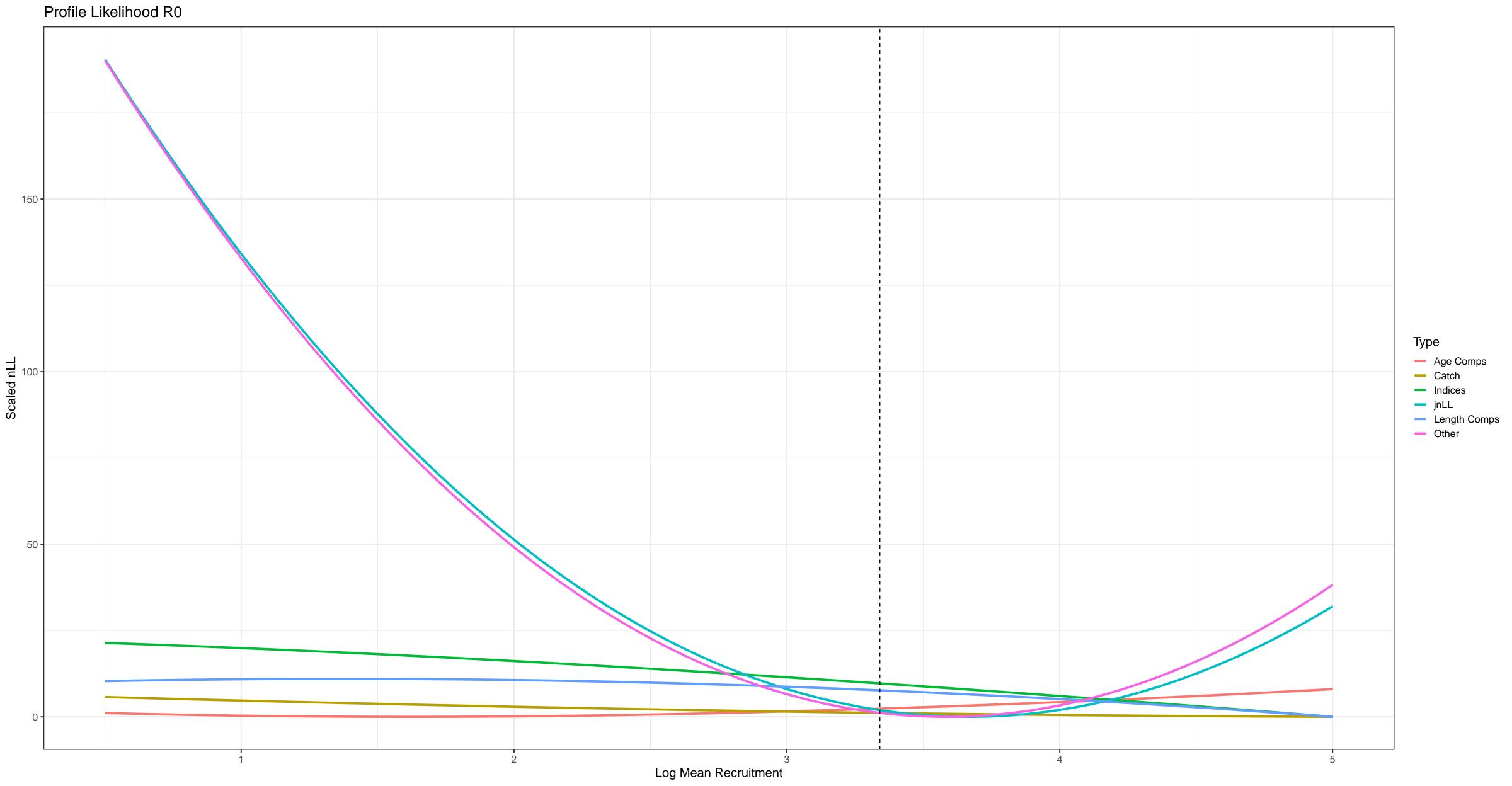
Jitter nLL and Convergence

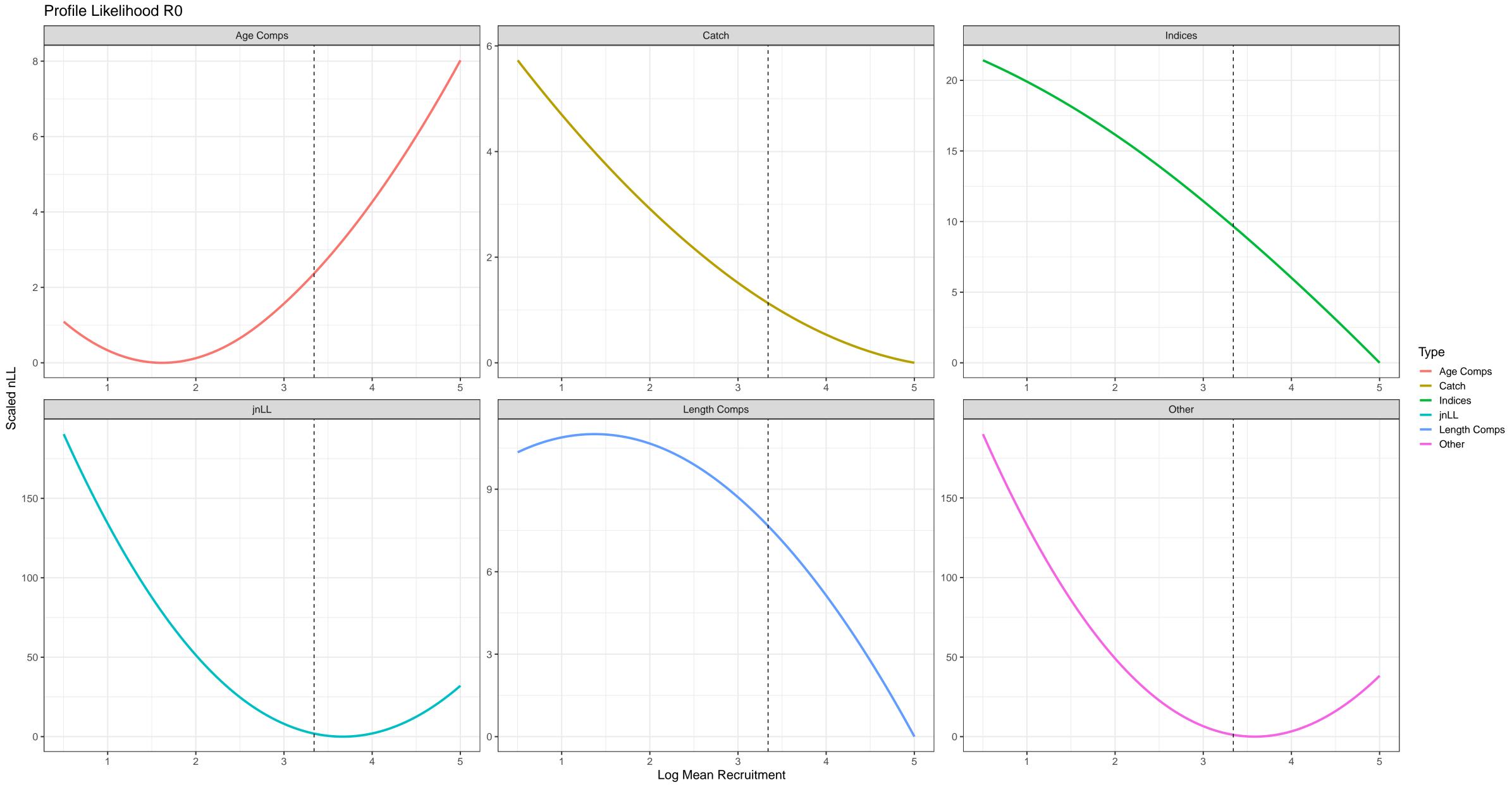


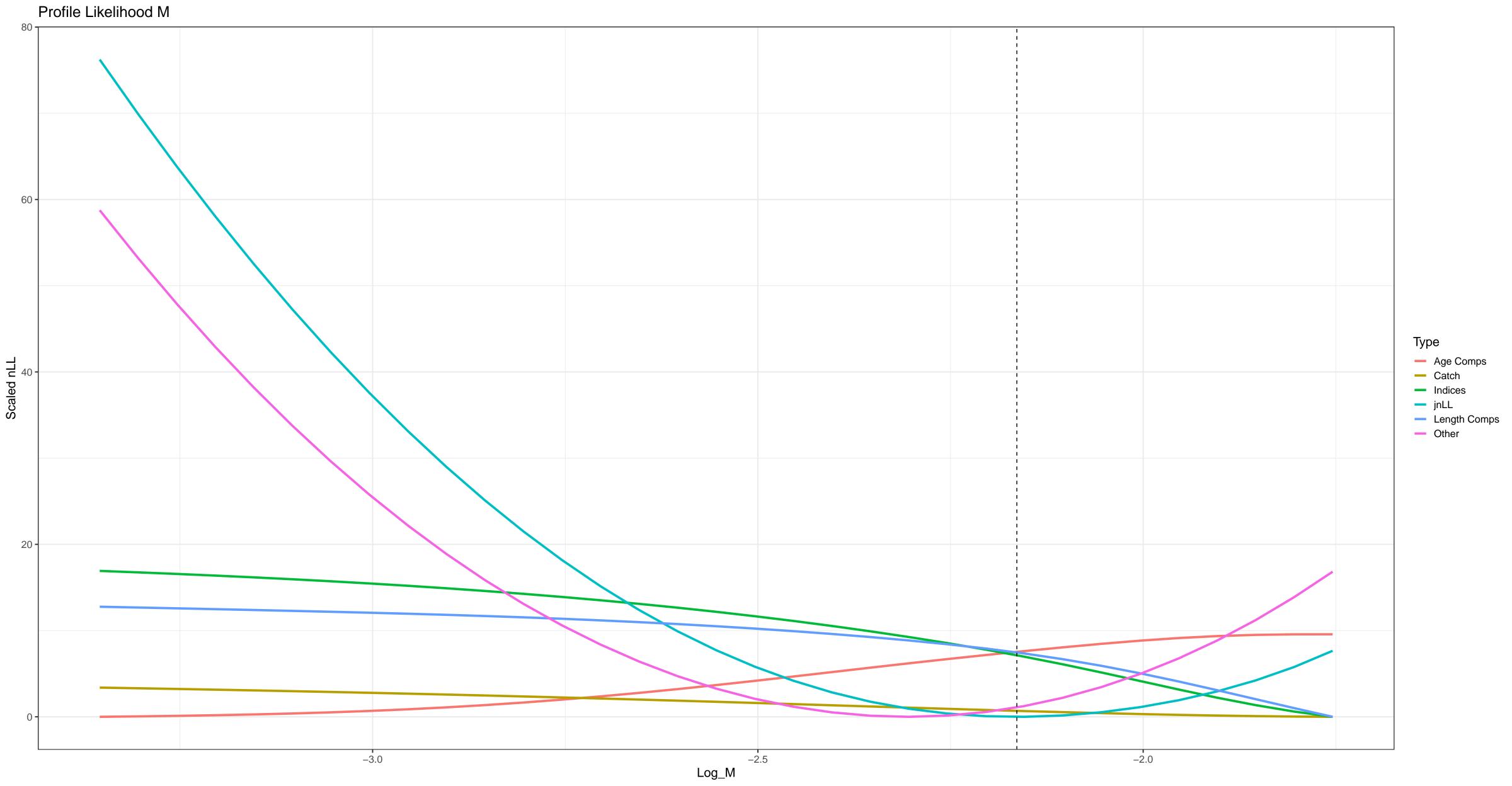


Profile Likelihood R0









Profile Likelihood M Catch Age Comps Indices 10.0 3 -7.5

