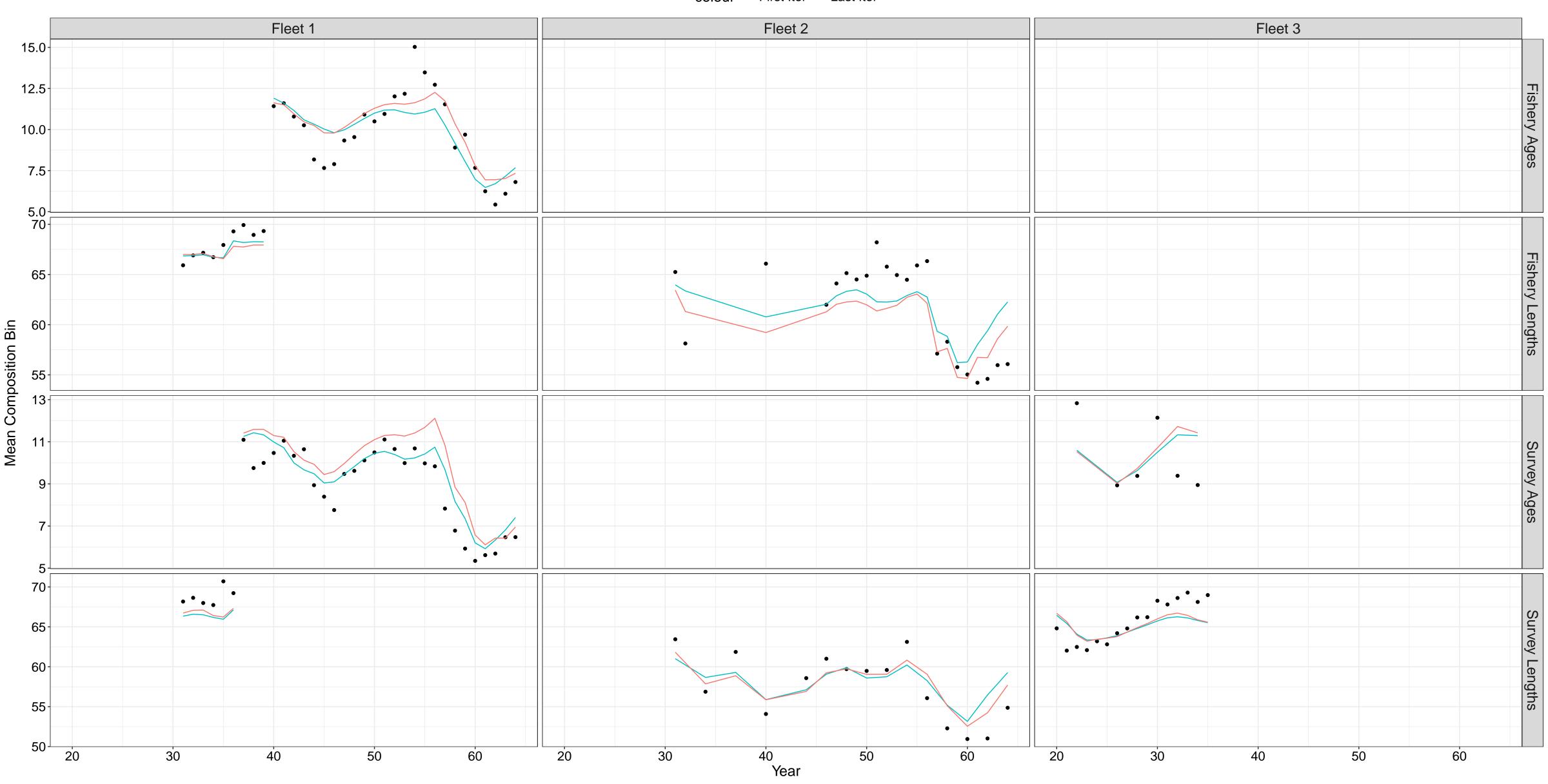
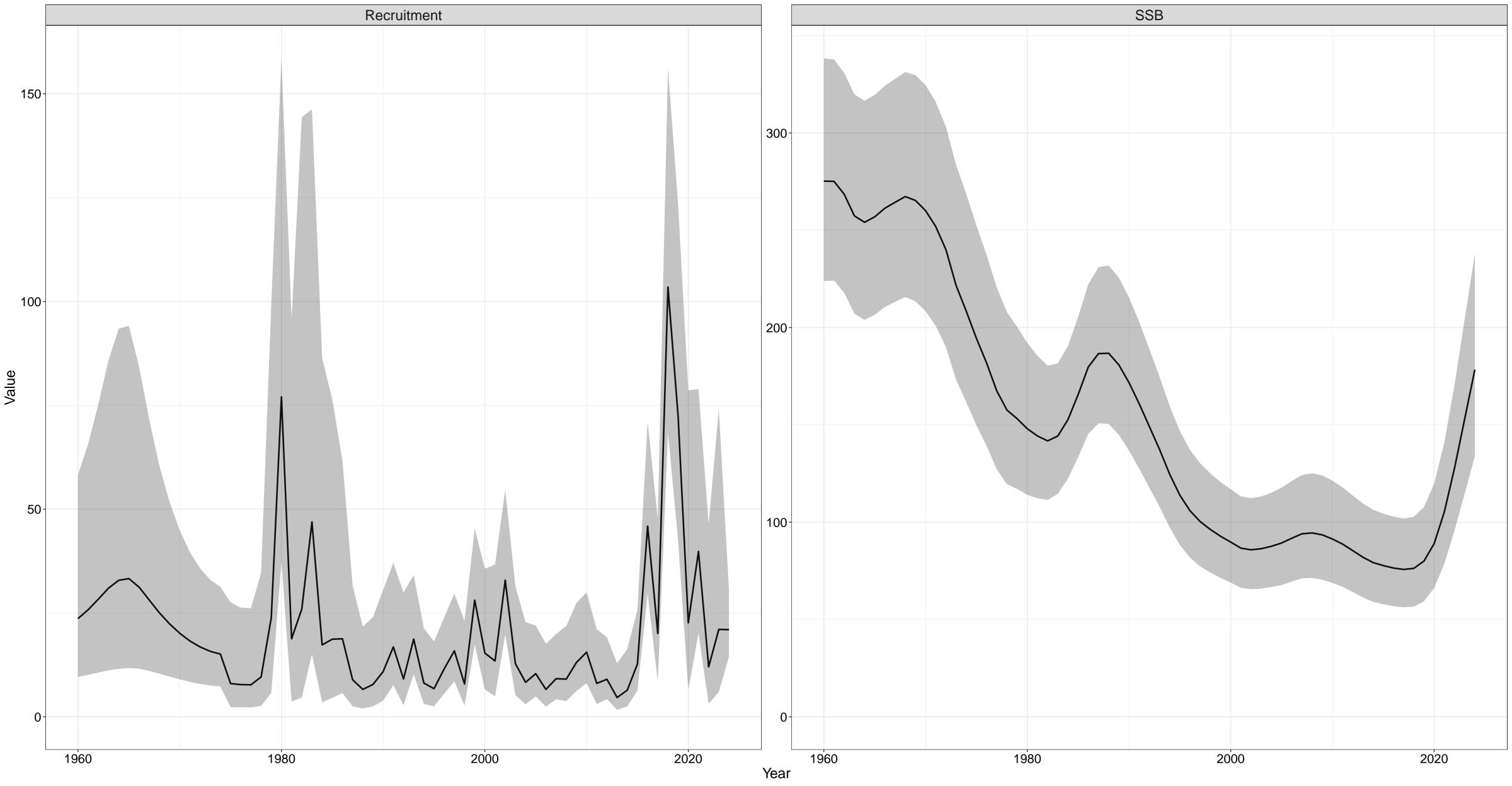
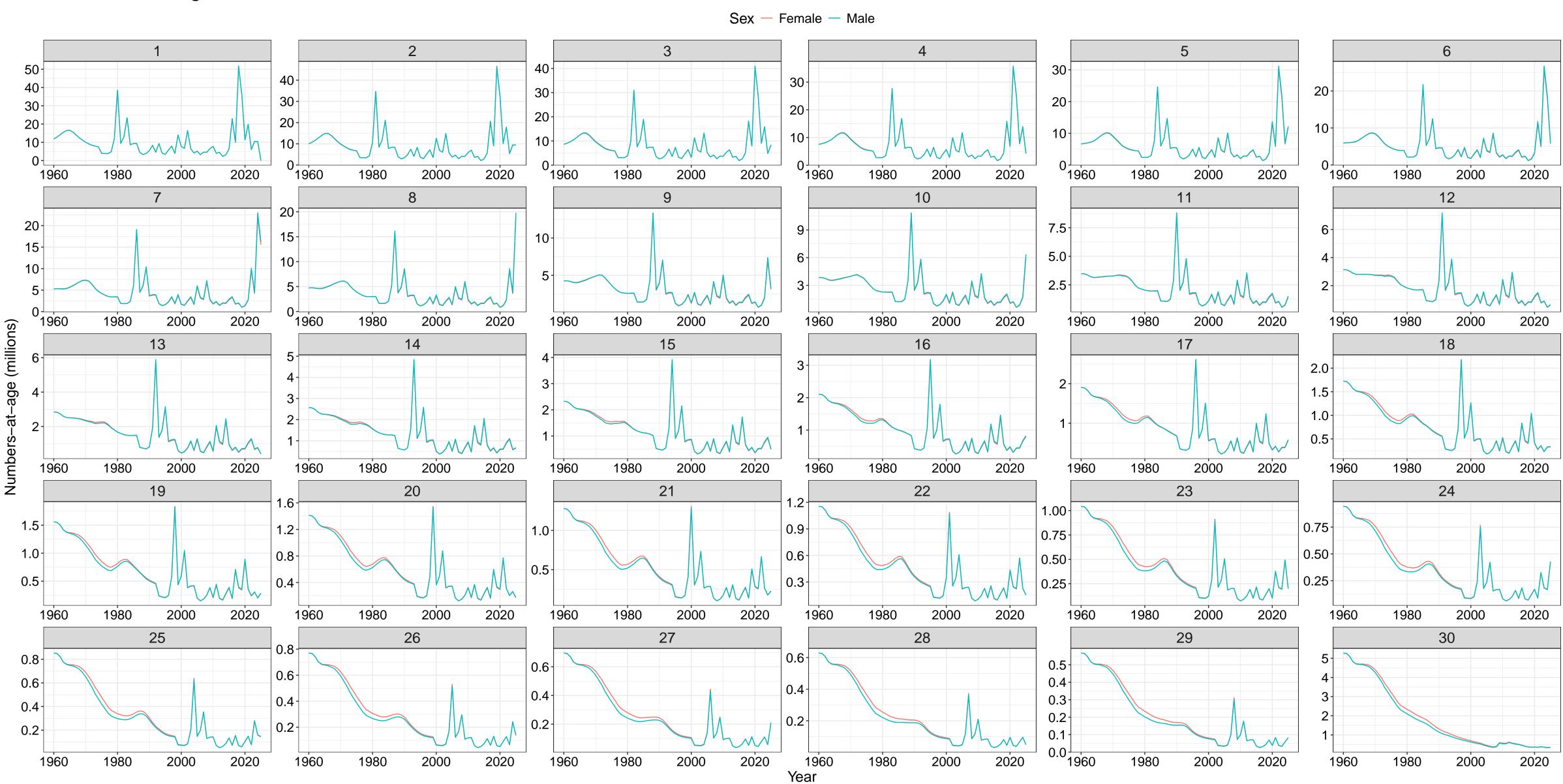
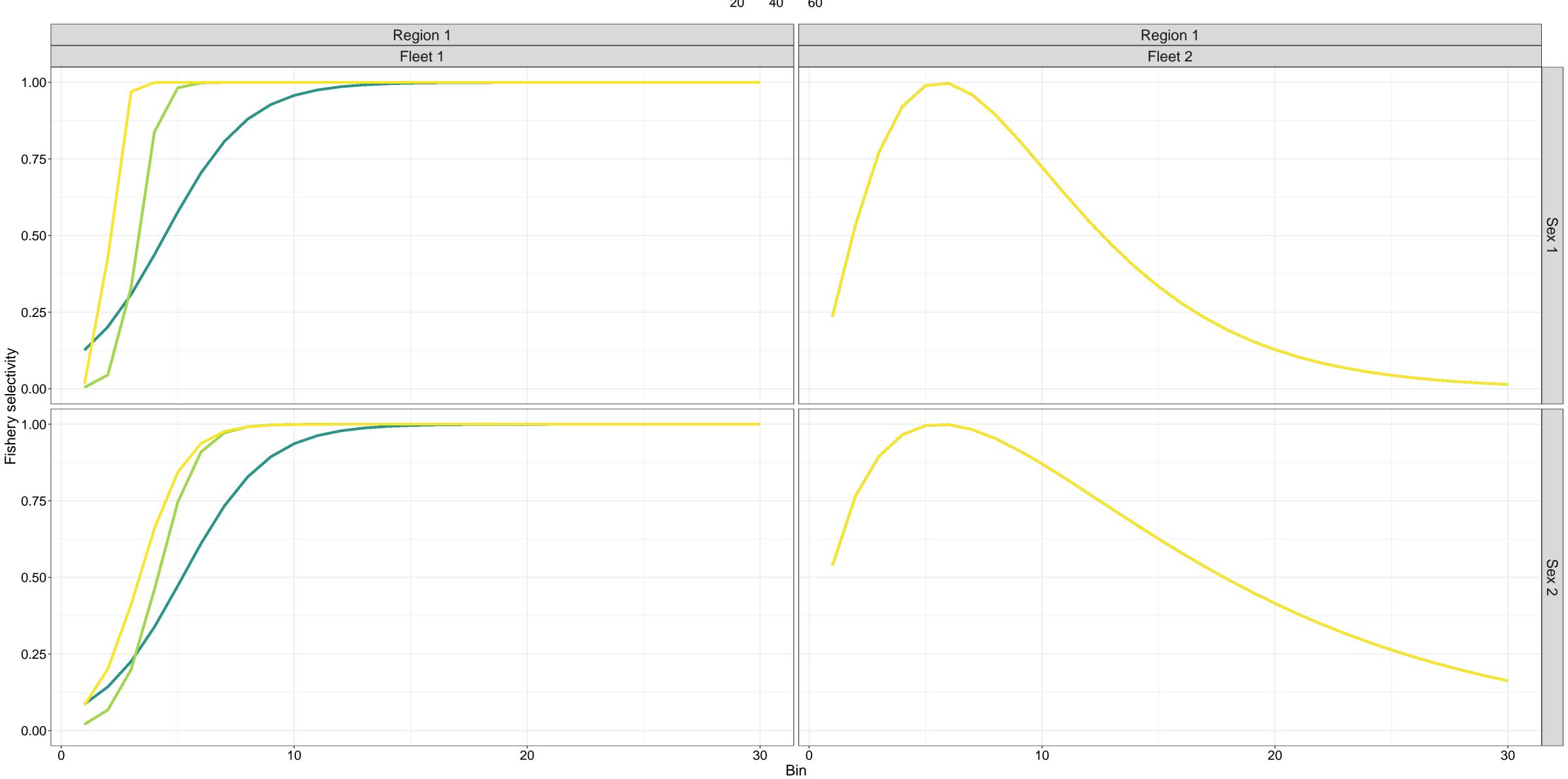
Comp_Type	Init_Weight	Final_Weight		
LLF_Age_F	0.8261073	0.8383975		
LLF_Age_M	NA	NA		
LLS_Age_F	3.7922454	3.5835819		
LLS_Age_M	NA	NA		
JPN_LLS_Age_F	1.3168111	0.6406147		
JPN_LLS_Age_M	NA	NA		
LLF_Len_F	4.1837057	5.7535682		
LLF_Len_M	4.2696935	NA		
TF_Len_F	0.3164859	0.2808551		
TF_Len_M	0.2293966	NA		
LLS_Len_F	1.4379202	2.5542269		
LLS_Len_M	1.0705376	NA		
TS_Len_F	0.6708833	0.4024118		
TS_Len_M	0.4652071	NA		
JPN_LLS_Len_F	1.2777281	1.0052764		
JPN_LLS_Len_M	0.8575195	NA		
	LLF_Age_F LLS_Age_F LLS_Age_M JPN_LLS_Age_F JPN_LLS_Age_M LLF_Len_F LLF_Len_M TF_Len_F TF_Len_M LLS_Len_F LLS_Len_F LLS_Len_F LLS_Len_M TS_Len_F TS_Len_M JPN_LLS_Len_F	LLF_Age_F       0.8261073         LLF_Age_M       NA         LLS_Age_F       3.7922454         LLS_Age_M       NA         JPN_LLS_Age_F       1.3168111         JPN_LLS_Age_M       NA         LLF_Len_F       4.1837057         LLF_Len_M       4.2696935         TF_Len_F       0.3164859         TF_Len_M       0.2293966         LLS_Len_F       1.4379202         LLS_Len_M       1.0705376         TS_Len_F       0.6708833         TS_Len_M       0.4652071         JPN_LLS_Len_F       1.2777281		

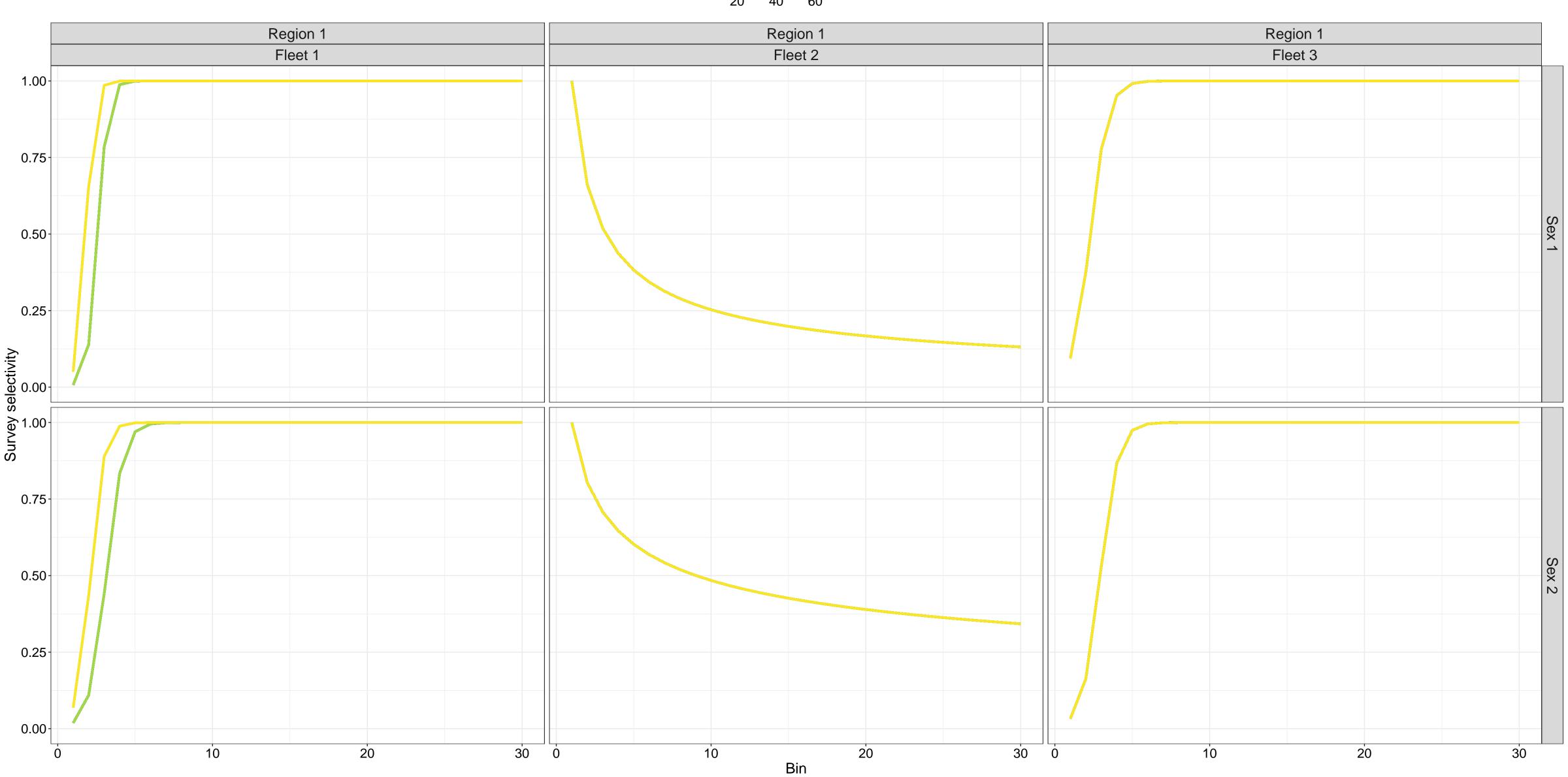


	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	1	1	178.38031	0.051471698256435	37.28203	123.43458	0.08281	1.44514	0.62155

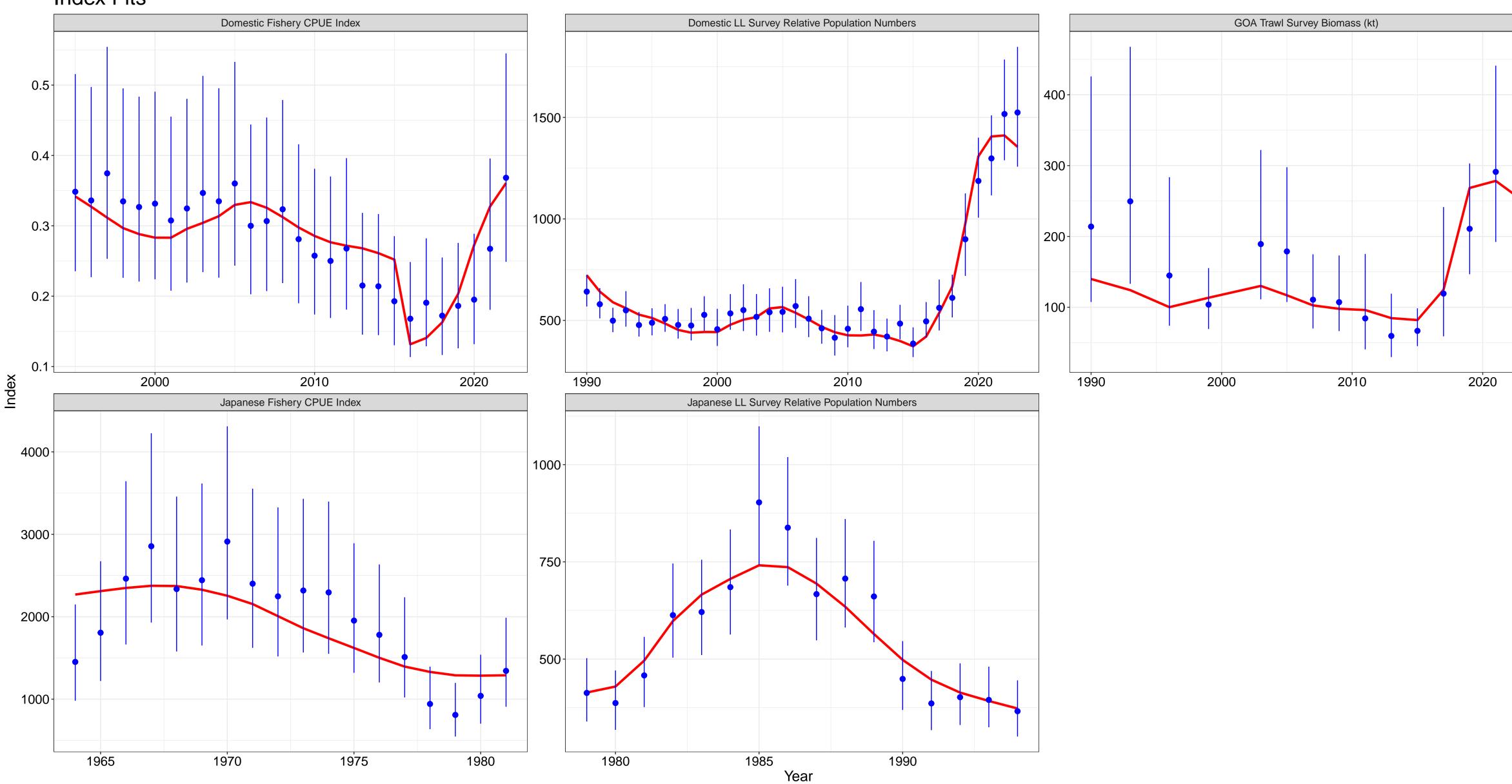




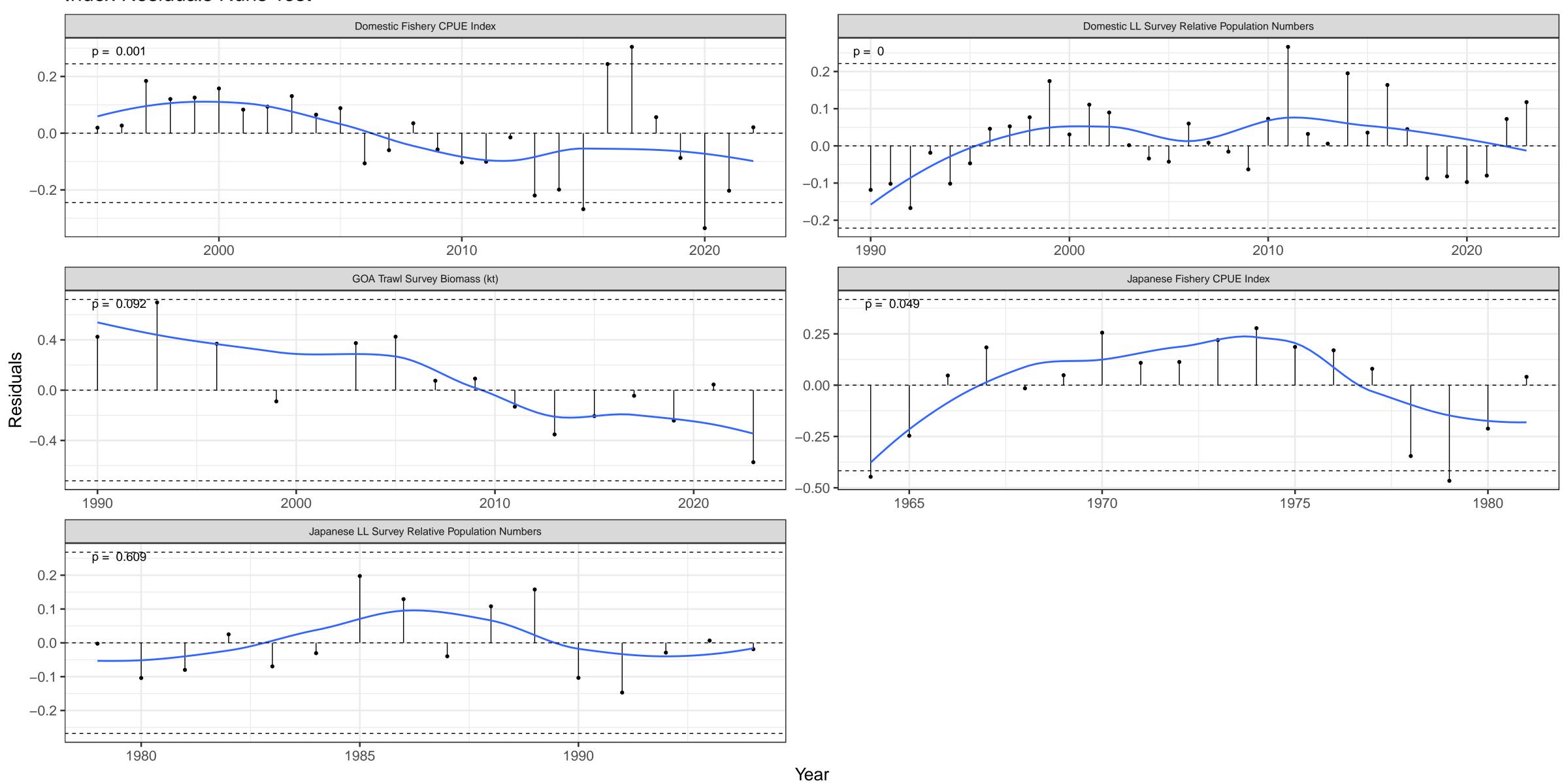


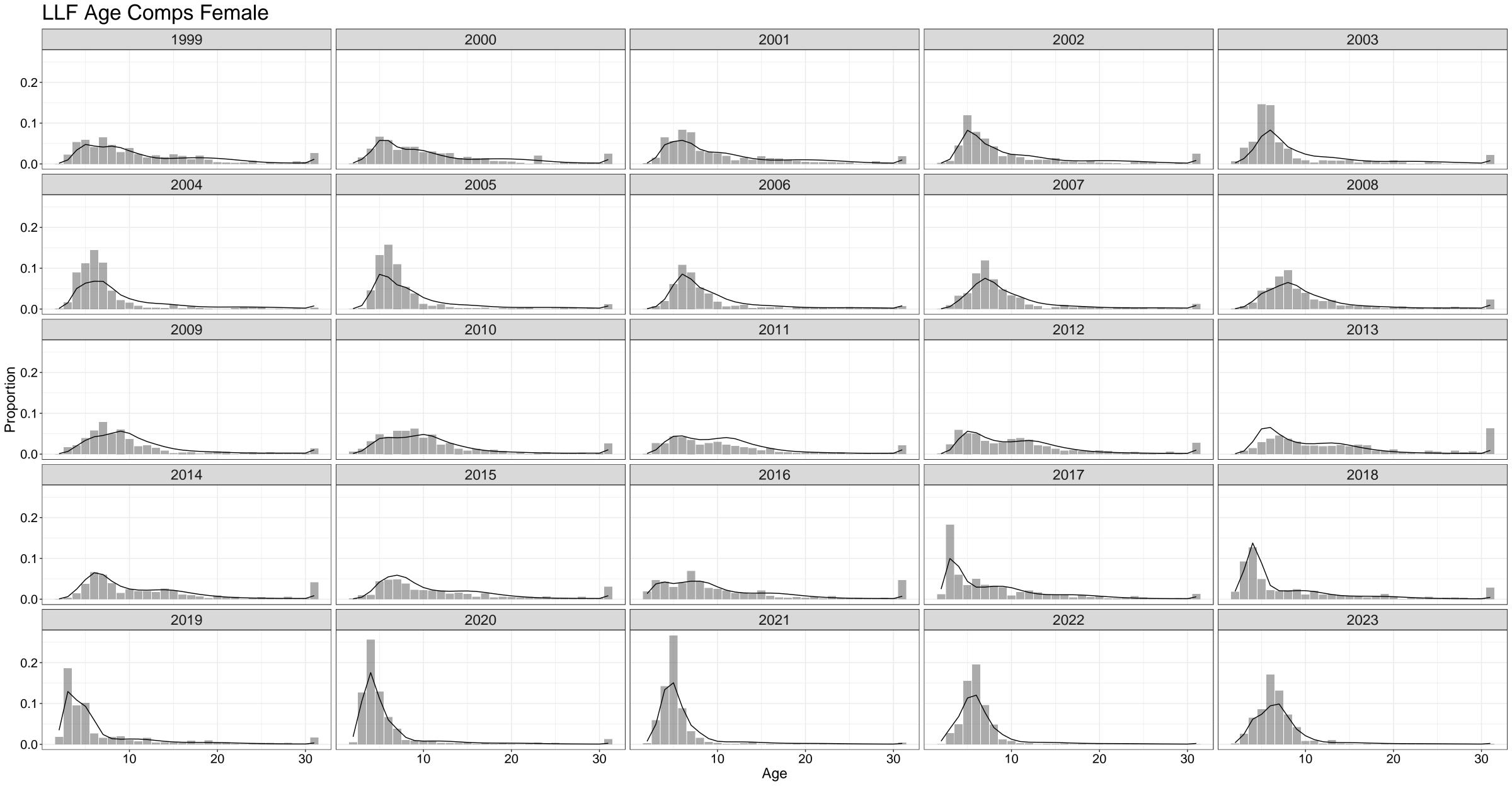


Index Fits



## Index Residuals Runs Test

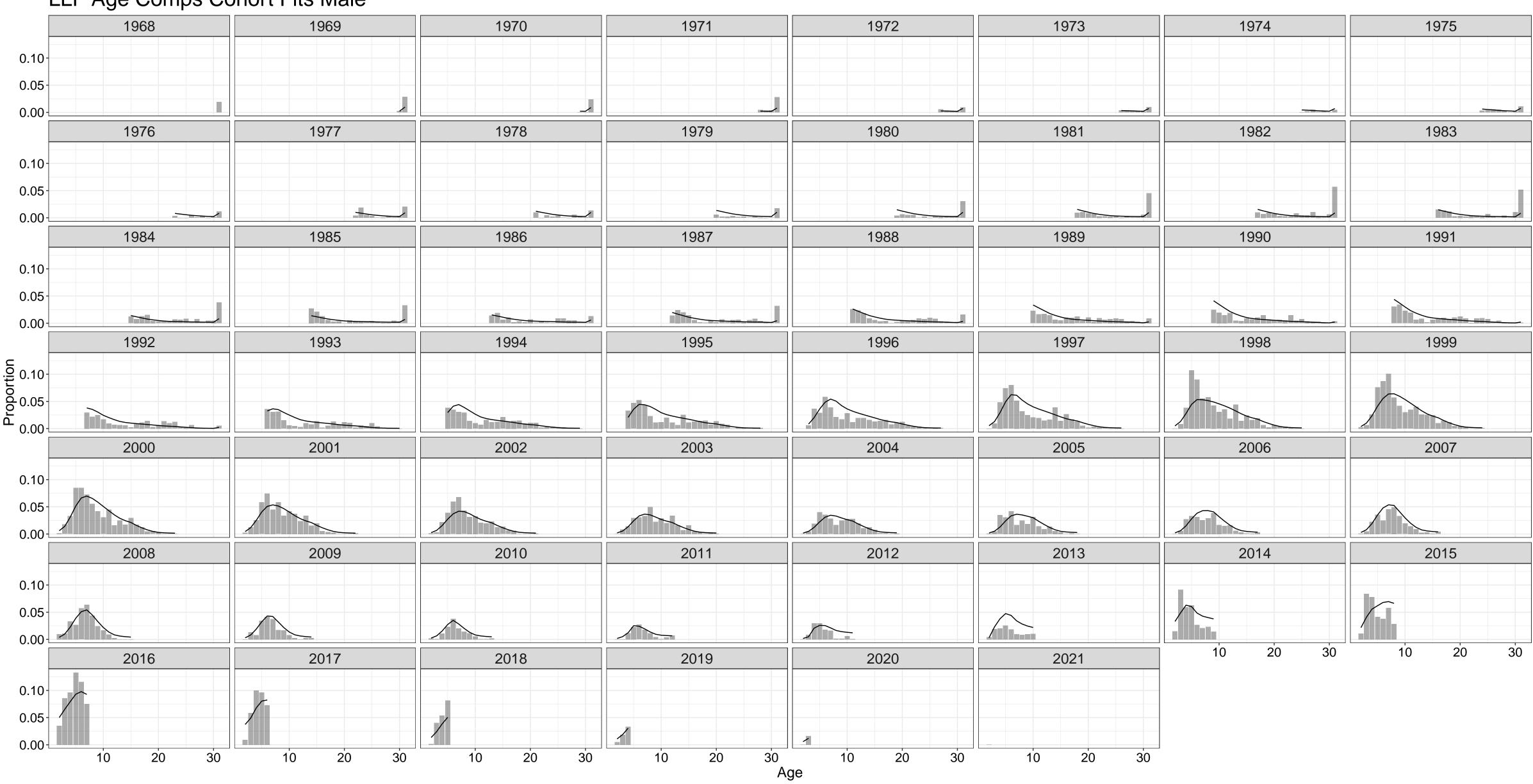




LLF Age Comps Cohort Fits Female 0.2 0.1 0.0 0.2 0.1 0.0 0.2 0.1 0.0 Proportion 0.2 0.2 0.1 0.0 0.2 0.1 0.0 0.2 0.1 Age

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 6.00 0.02 0.00 1996 1997 1998 0.06-0.04 0.02

60

80

Length

100

40

60

80

100

0.00

40

60

80

100

40

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 0.000 100 60 60 60 80 80 100 40 80 100 40

Length

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 

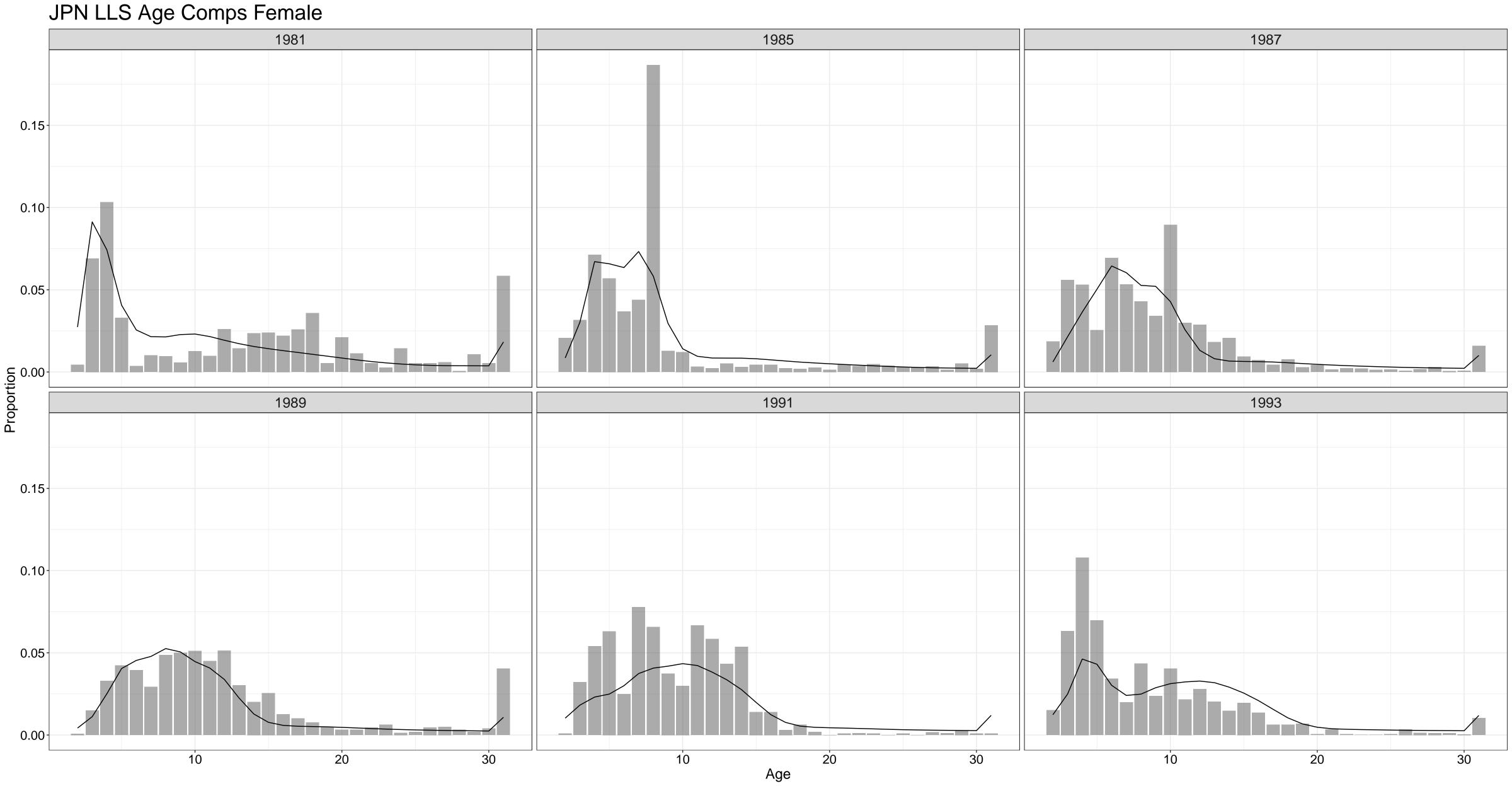
Length

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

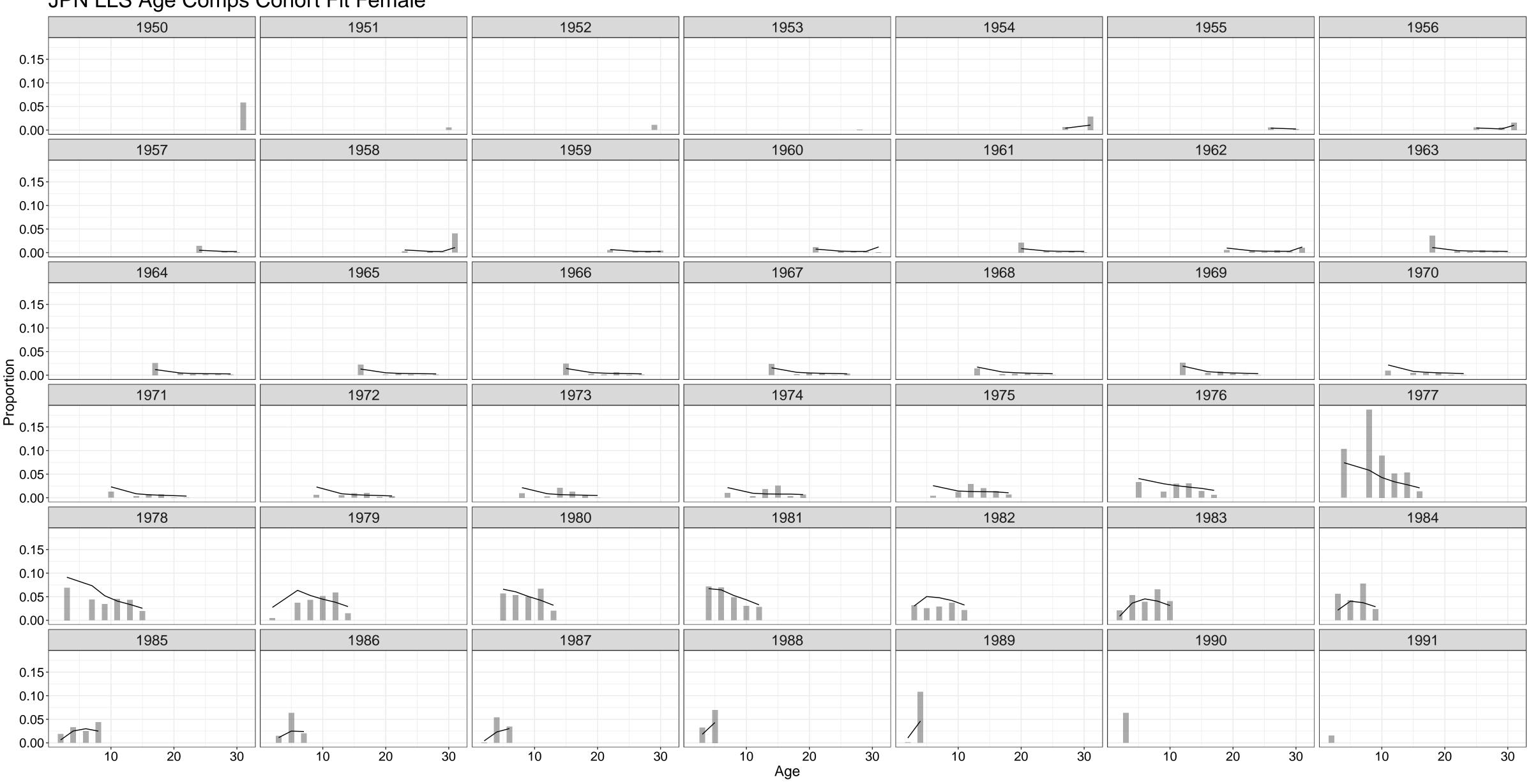
## LLS Age Comps Cohort Fit Female 0.25 0.20 0.15 0.10 0.05 0.00 0.25 0.20 0.15 0.10 0.05 0.00 0.25-0.20-0.15-0.10-0.05-0.00-0.25-0.20-0.15-0.00-0.00-0.25-0.20-0.15-0.10-0.05-0.00-0.25 0.20 0.15 0.10 0.05 0.00 0.25-0.20-0.15-0.10-0.05-0.00-0.25-0.20-0.15-0.10-0.05-0.00-Age

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

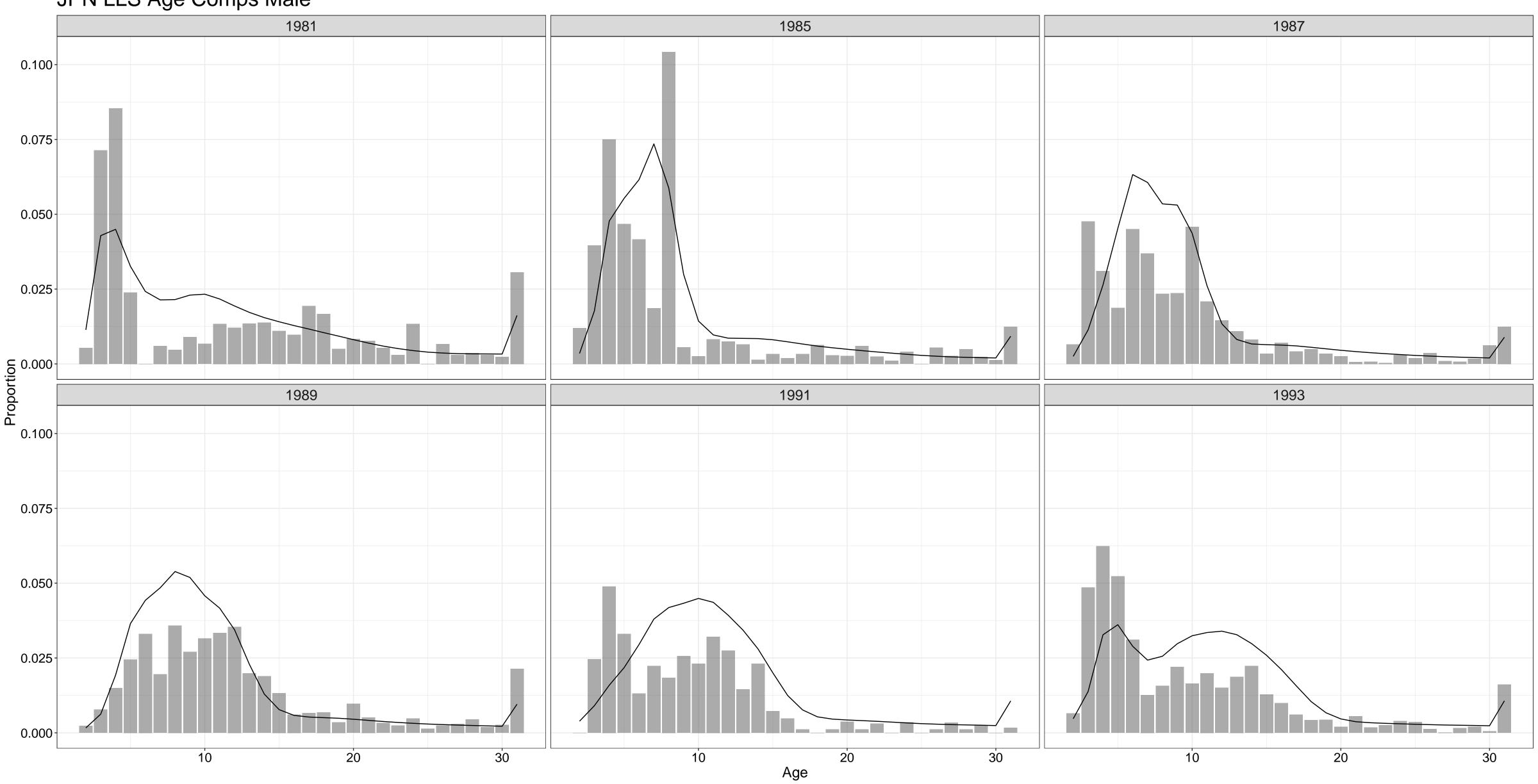
## LLS Age Comps Cohort Fit Male 0.15 0.10 0.05 / 0.00 0.15-0.10 0.05 0.00 0.15-0.10 0.05 0.00 0.15 0.10-Proportion 0.00-0.05 0.00 0.15-0.10-0.05 0.00 0.15 0.10 0.05 0.00 0.15 0.10 0.05 0.00



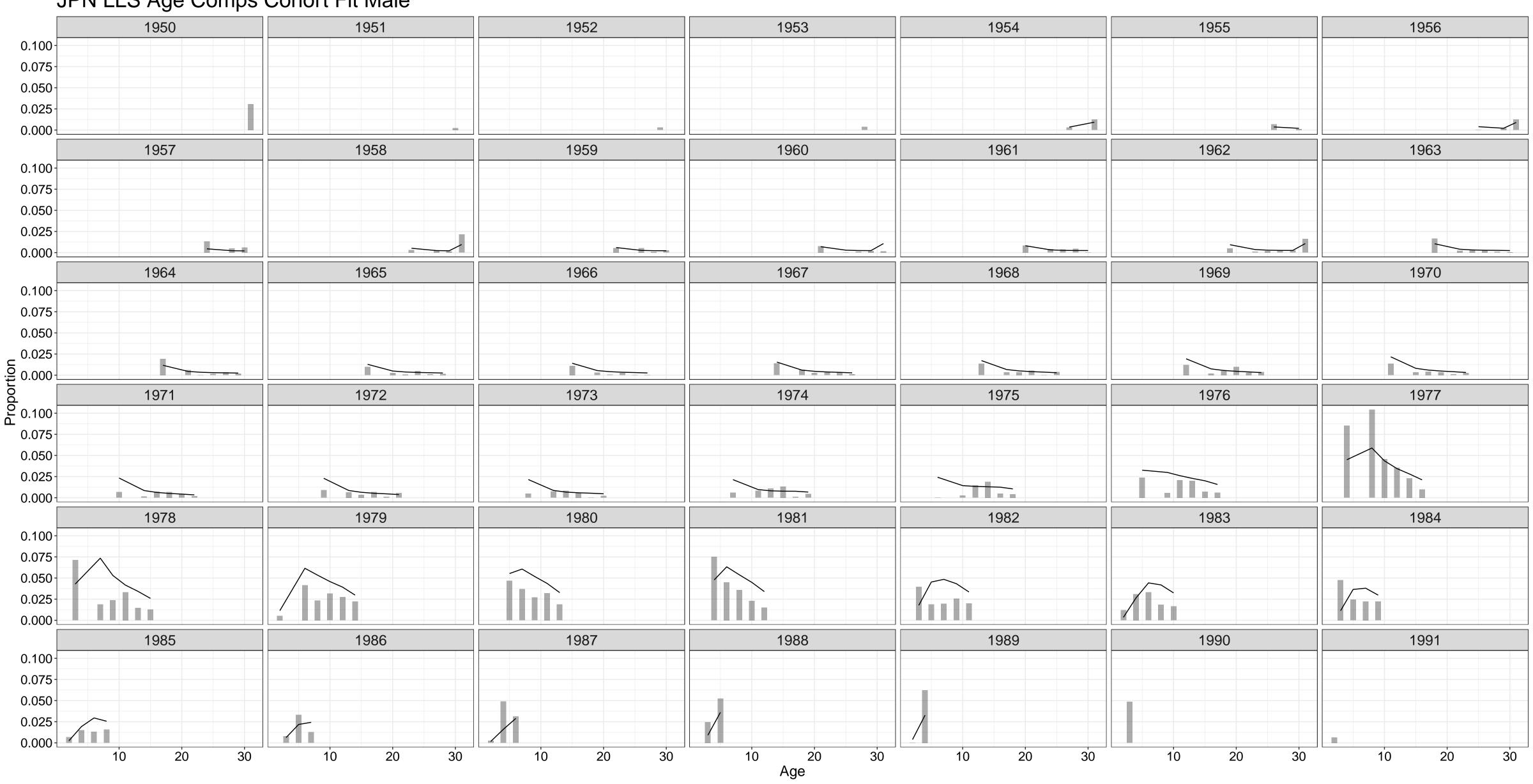
JPN LLS Age Comps Cohort Fit Female

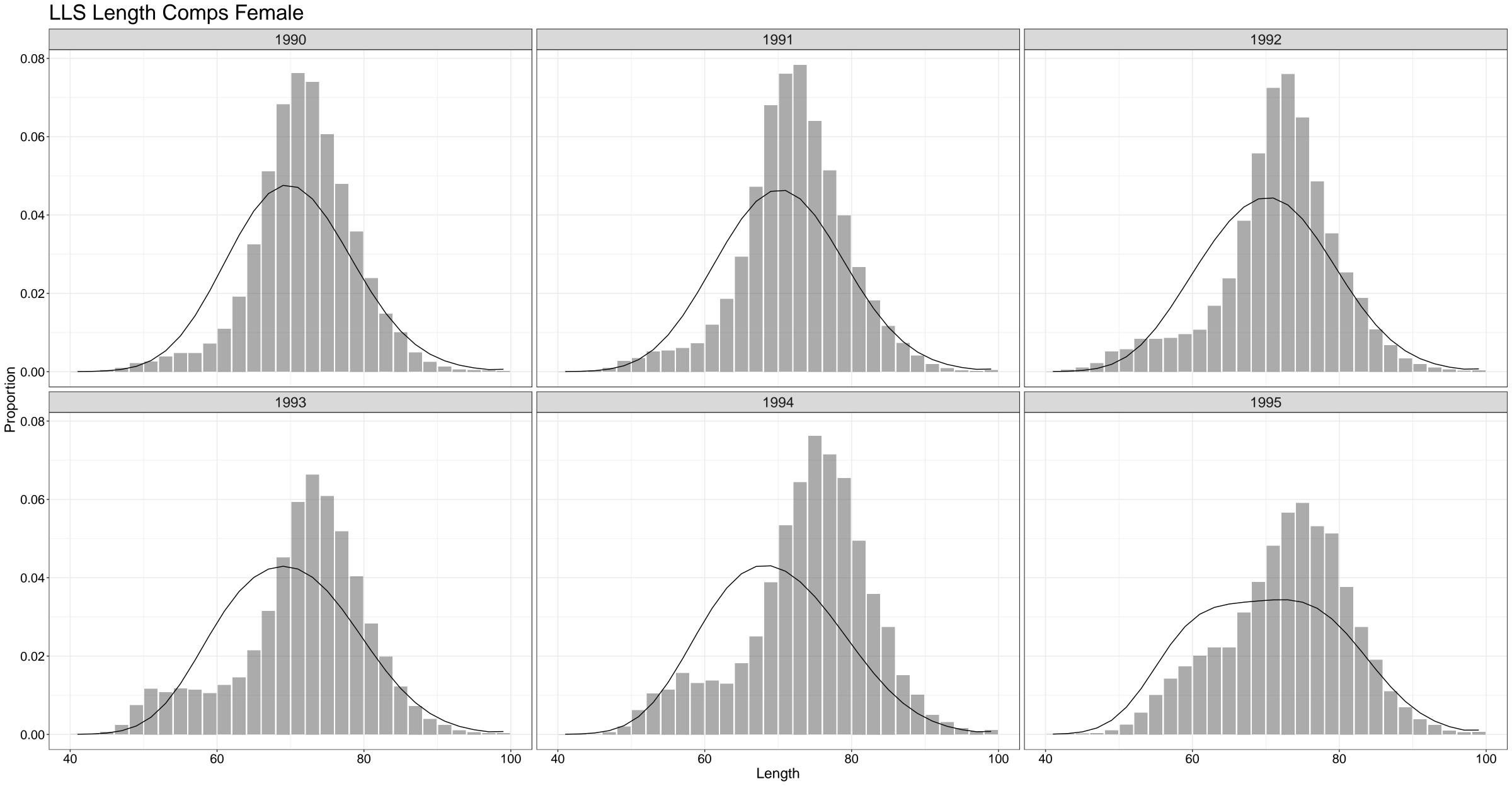


JPN LLS Age Comps Male



JPN LLS Age Comps Cohort Fit Male

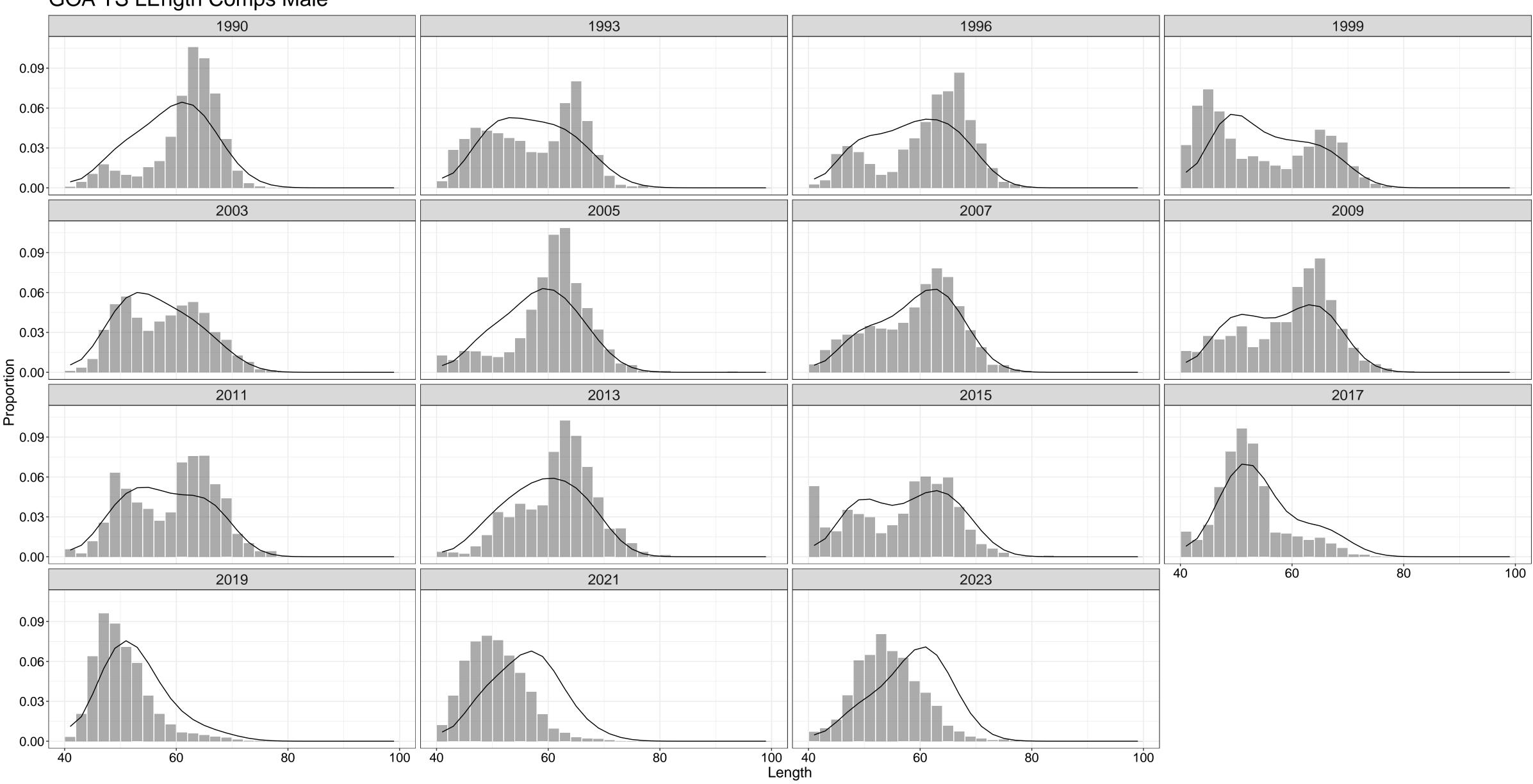




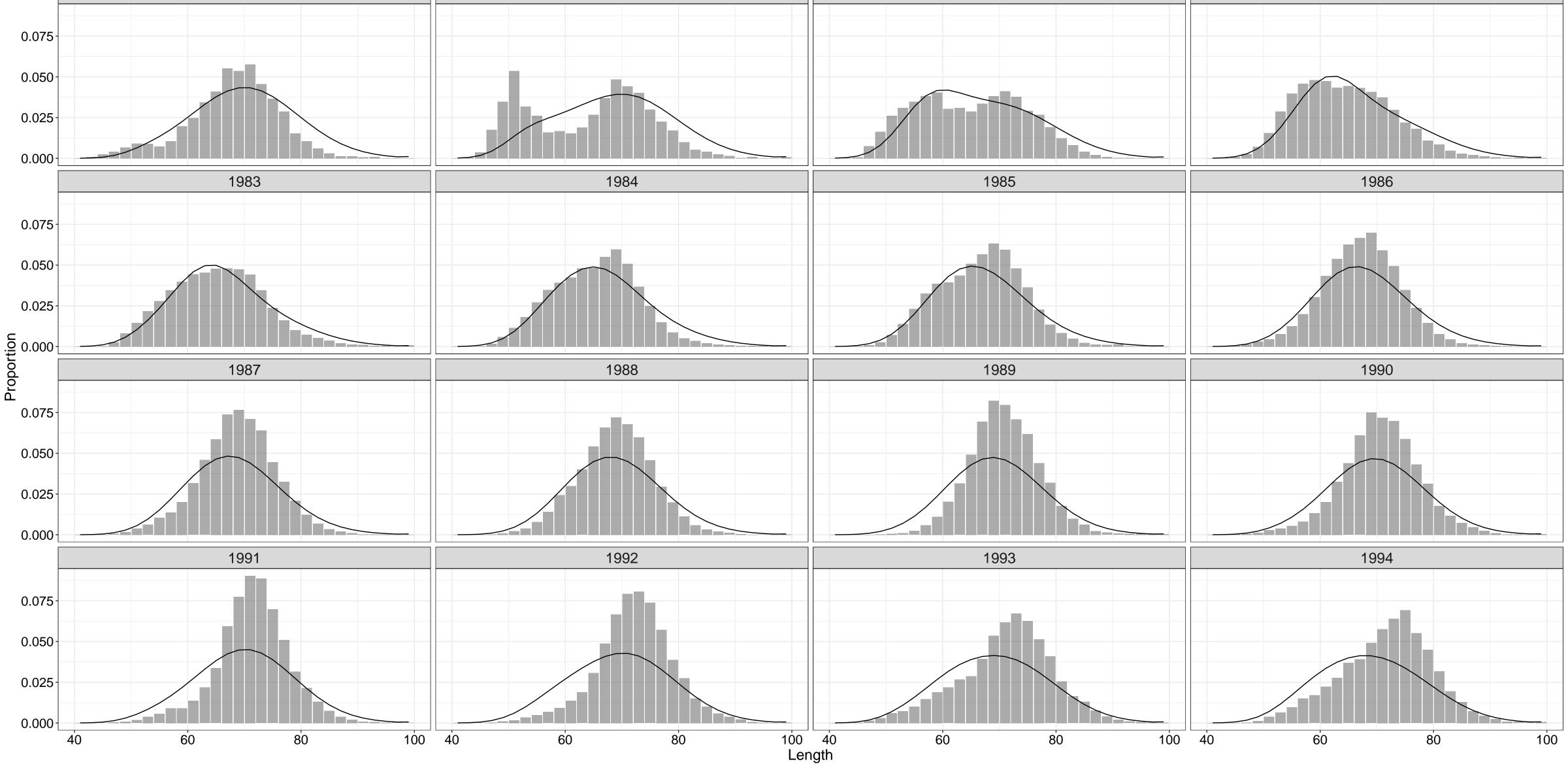
LLS Length Comps Male 0.075 0.050 0.025 Proportion 00000 0.075 0.050 0.025 0.000 Length

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

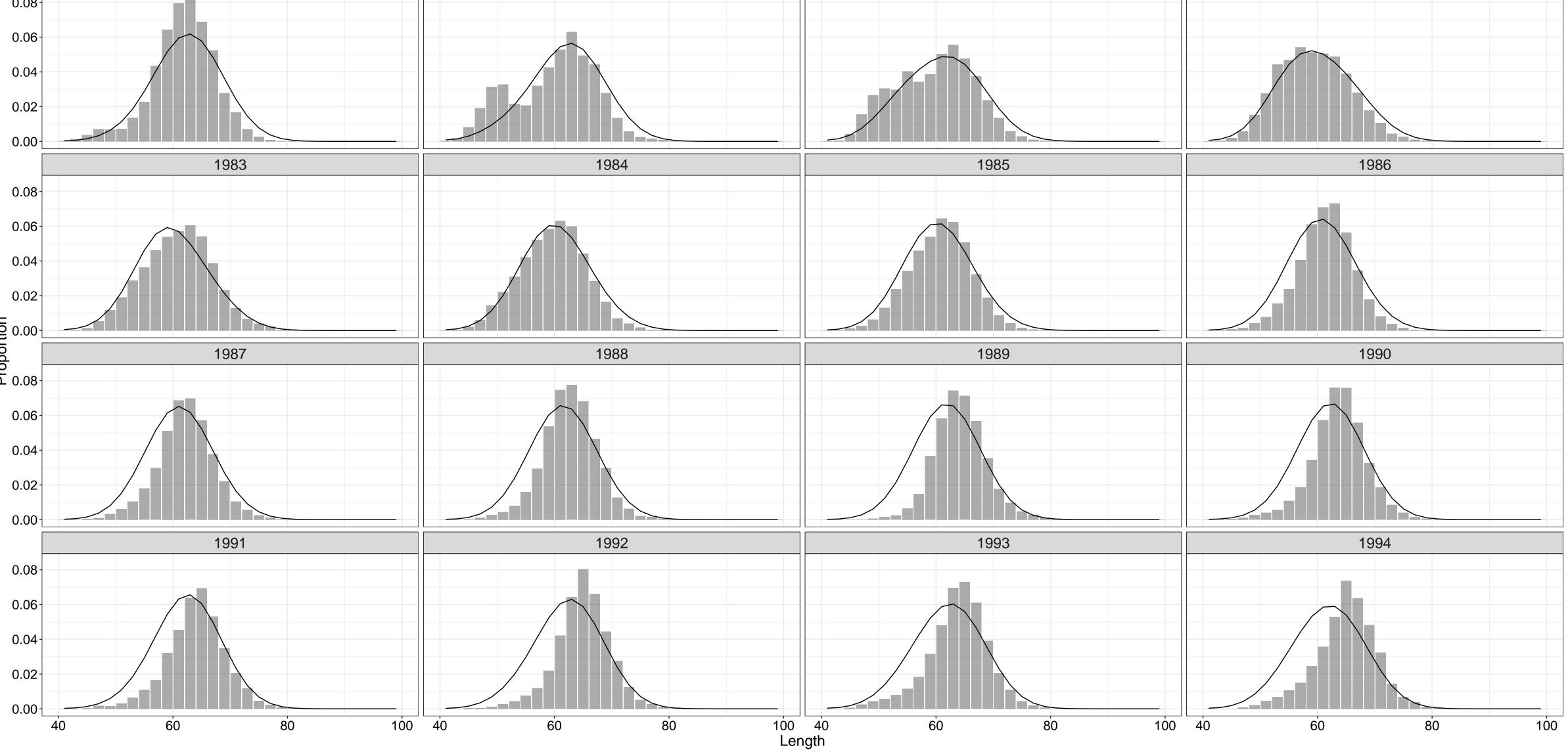
GOA TS LEngth Comps Male

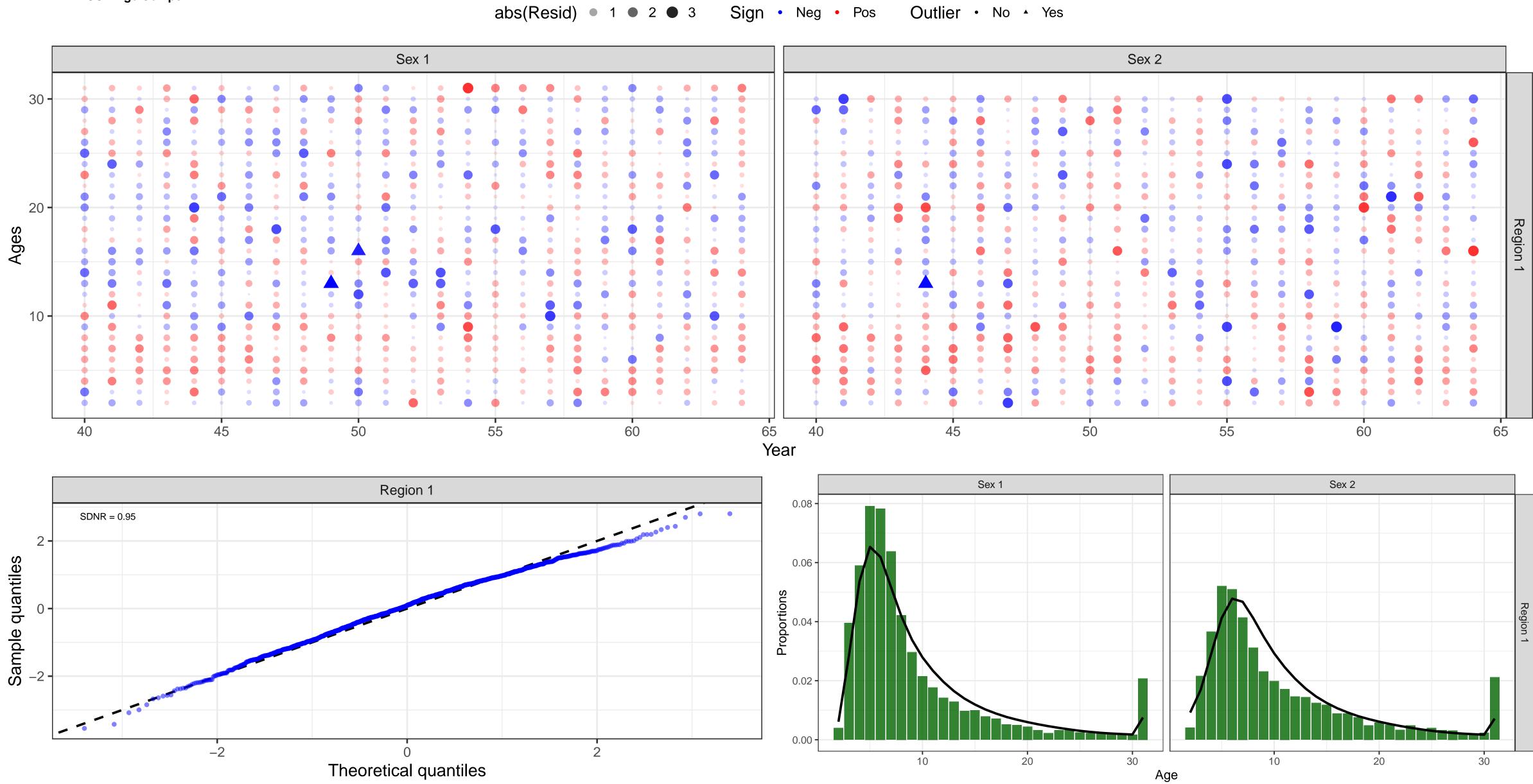


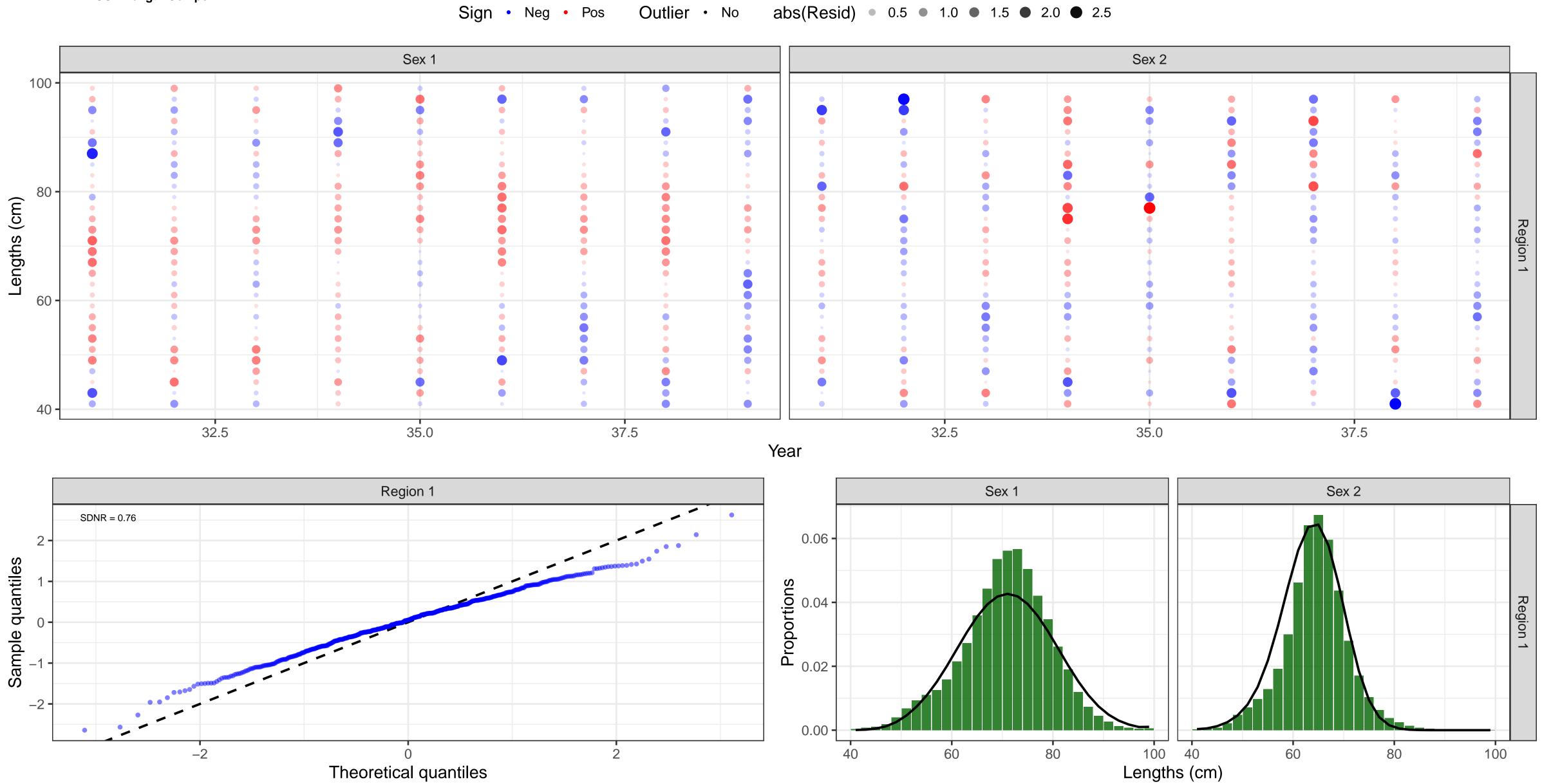
JPN LLS Length Comps Female 

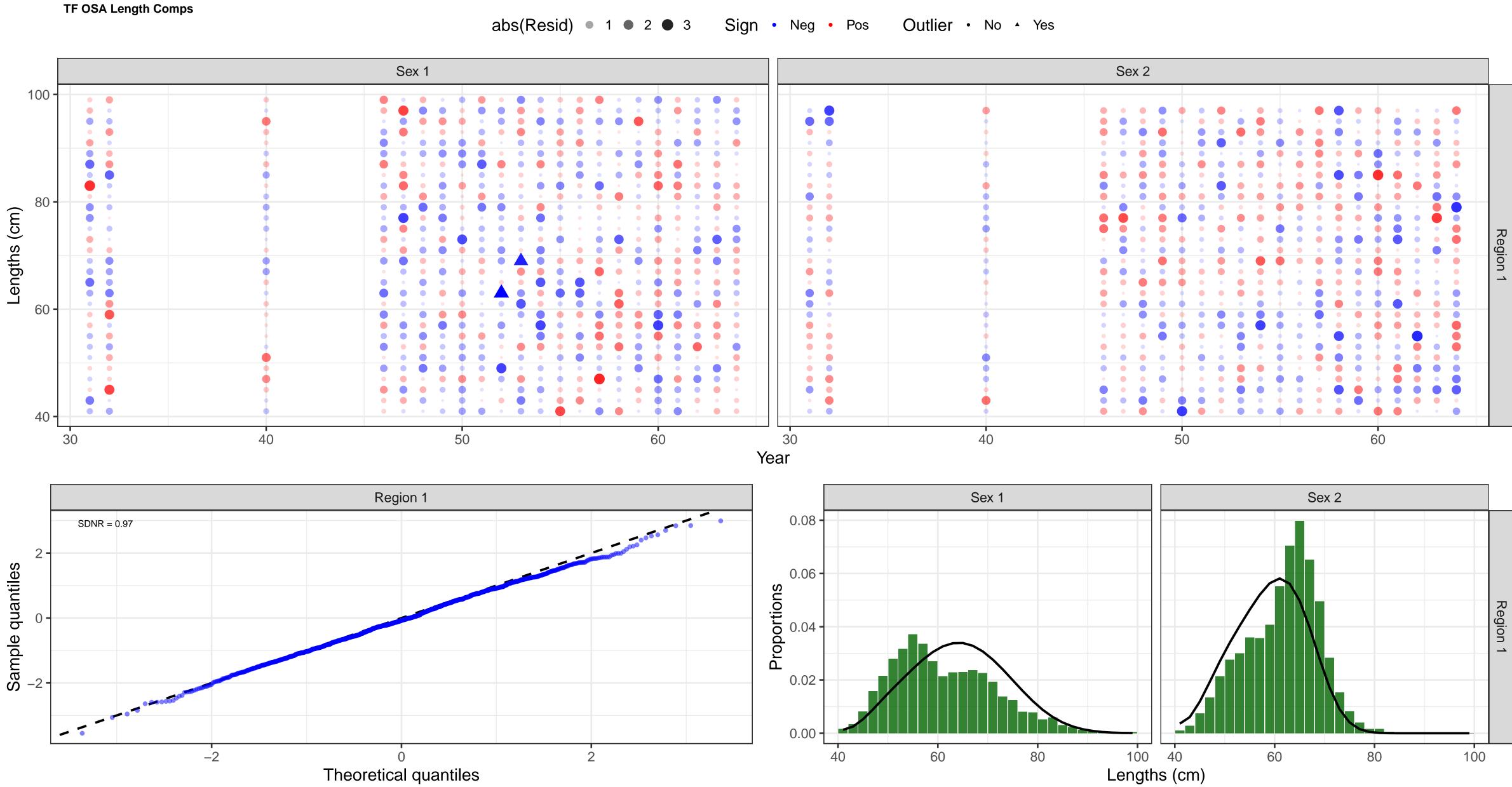


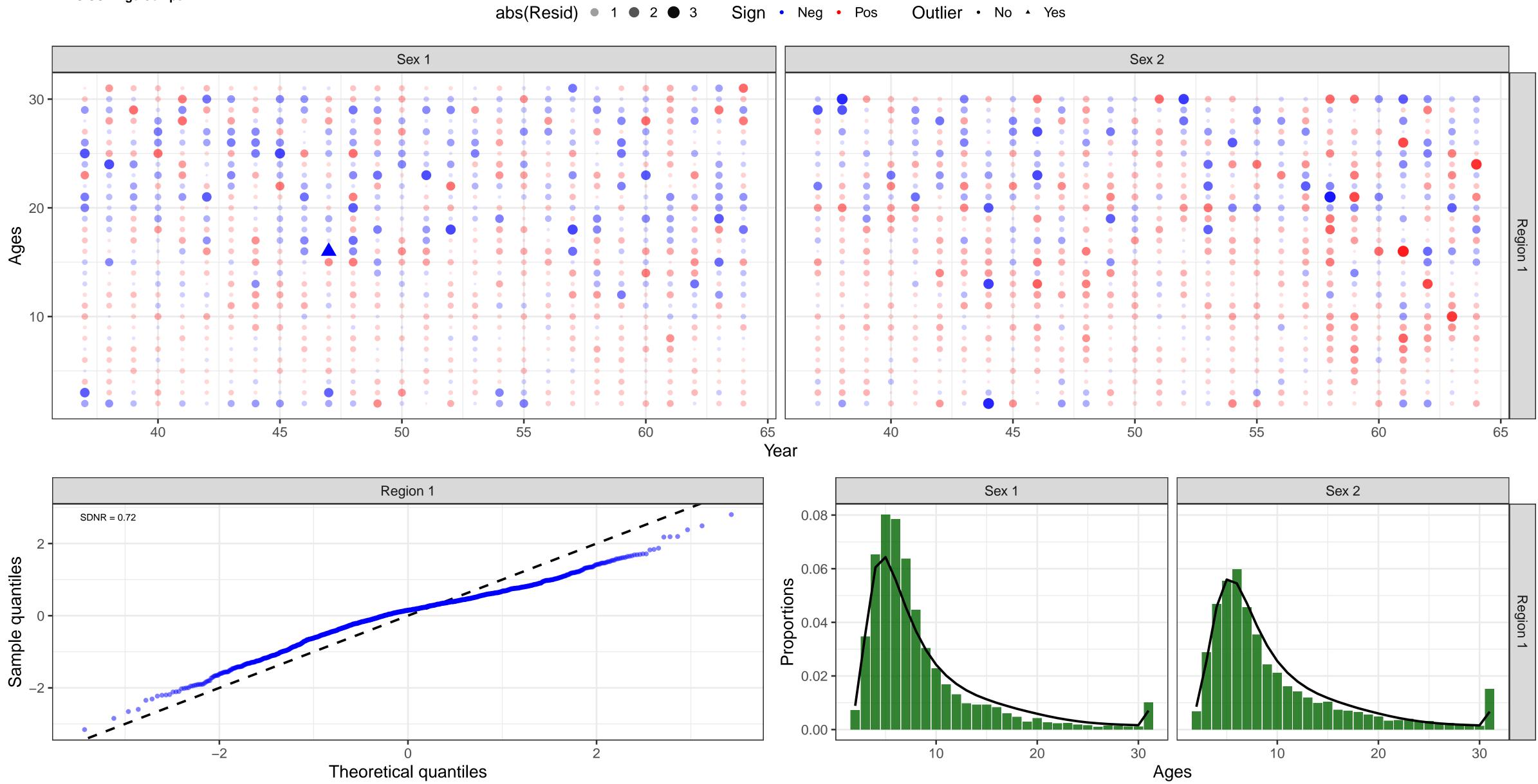
JPN LLS Length Comps Male 1980 1981 1982 1979 0.08-0.06 0.04 0.02 0.00 1983 1984 1985 1986 0.08-0.06 0.04 0.02 Proportion 80.0 1987 1988 1989 1990 0.06 0.04 0.02 0.00 1991 1992 1993 1994 0.08-

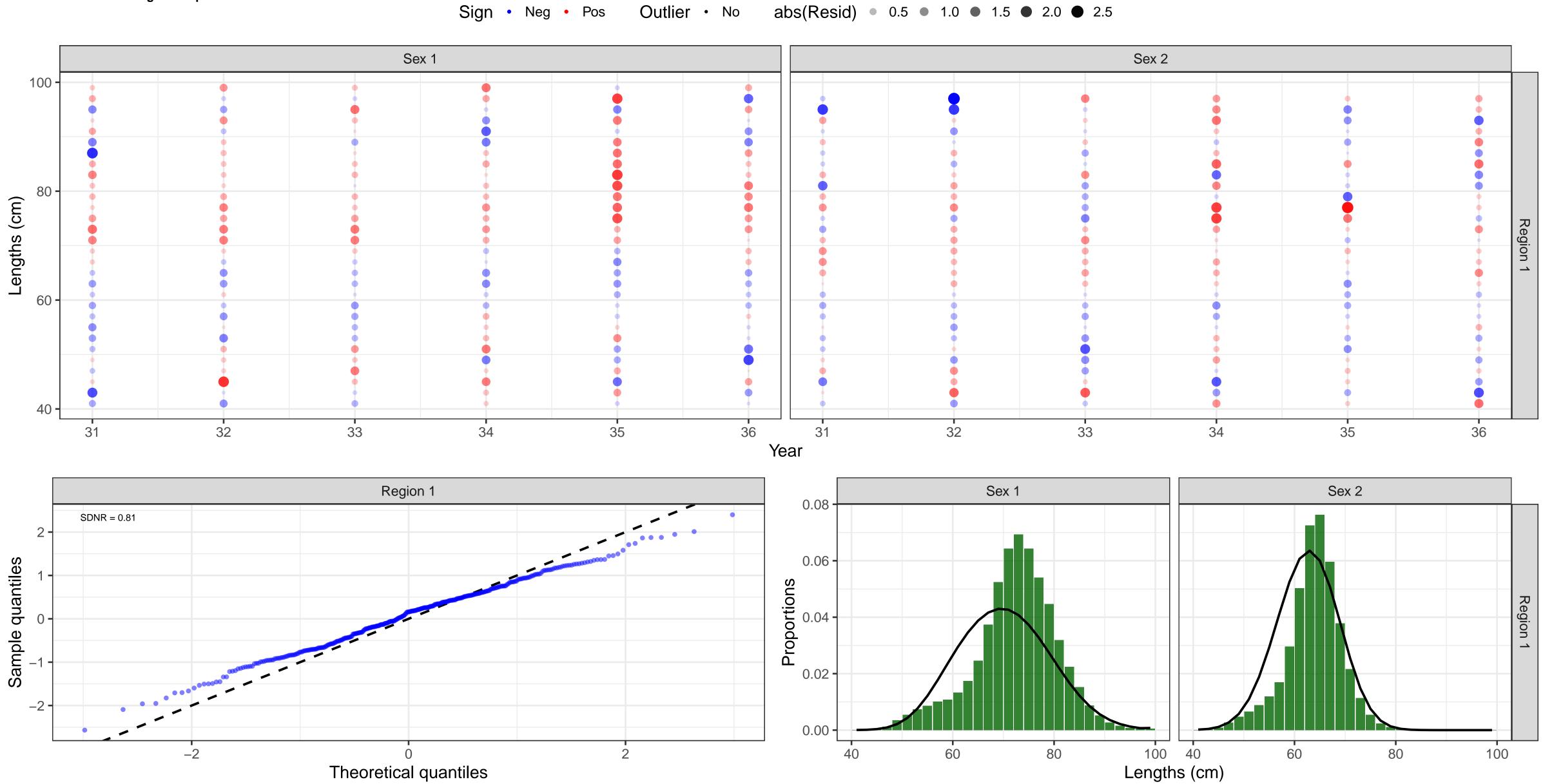


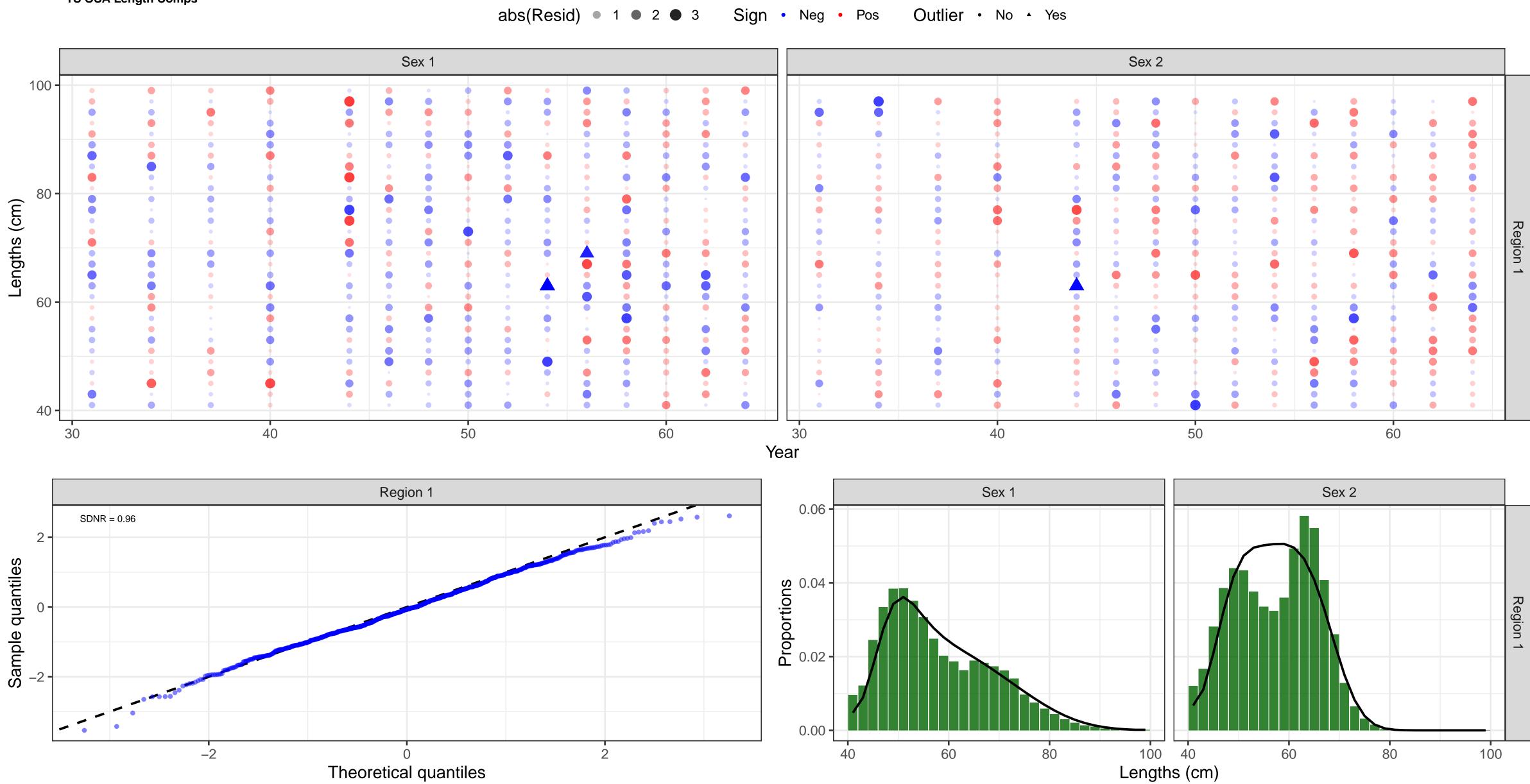


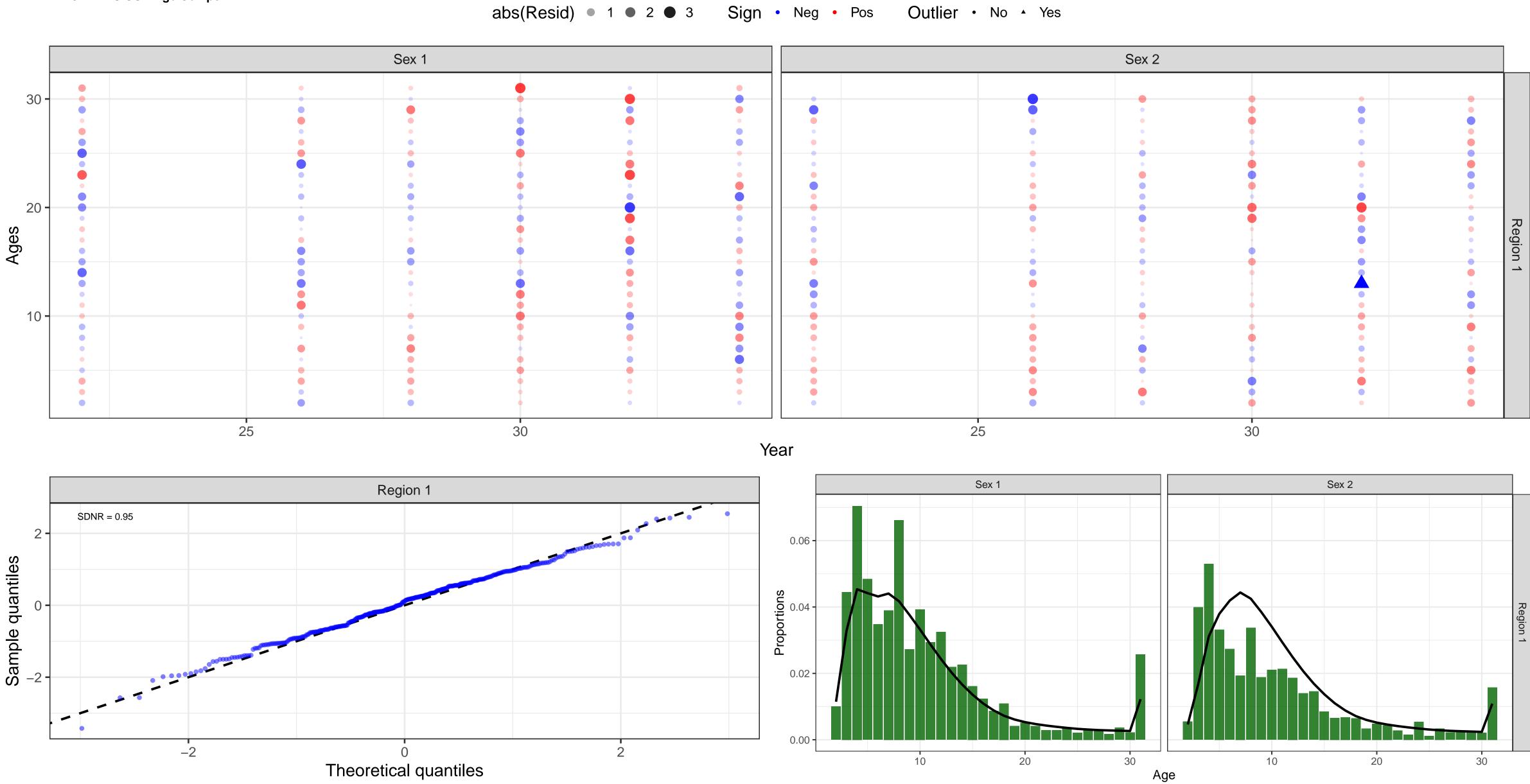


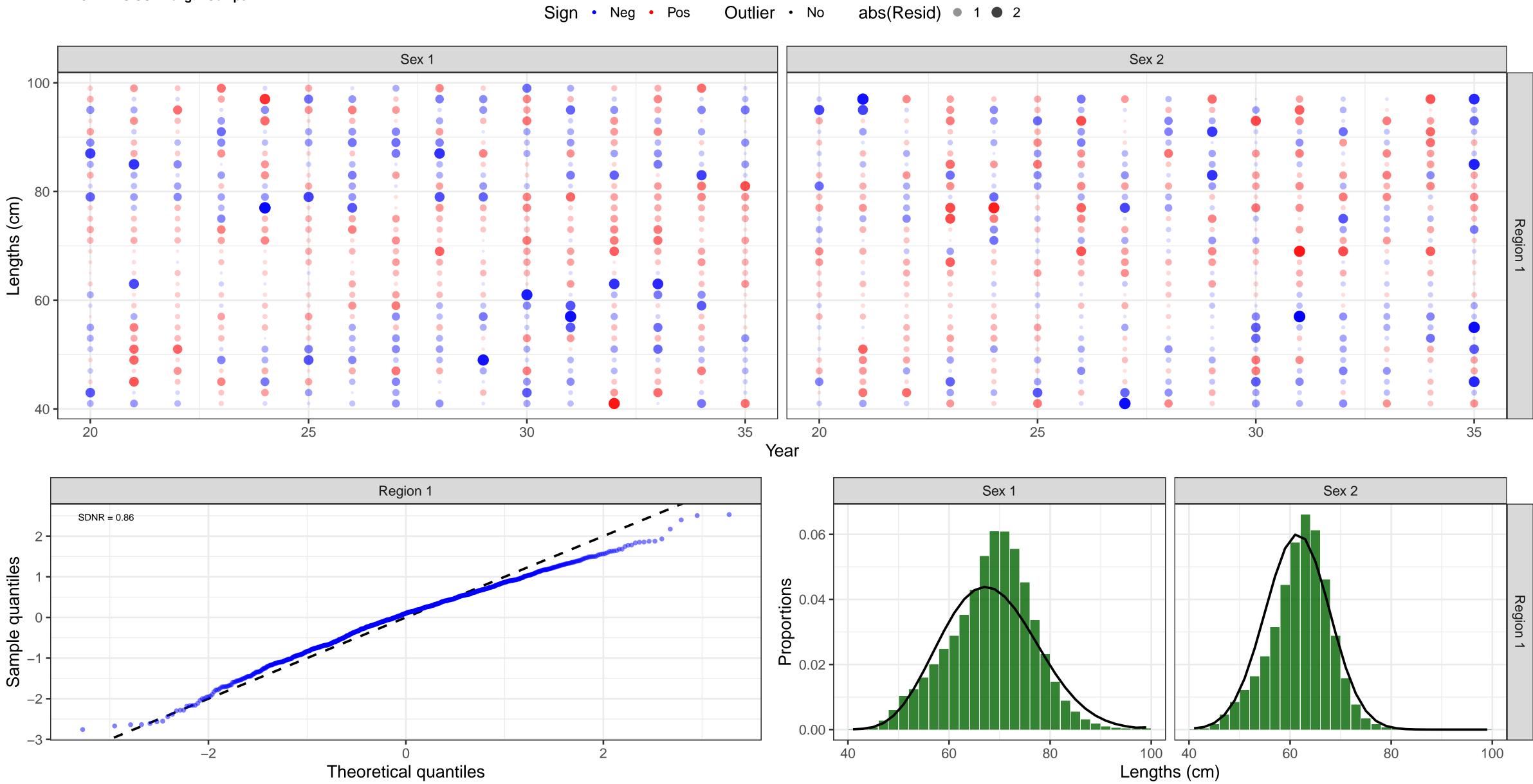


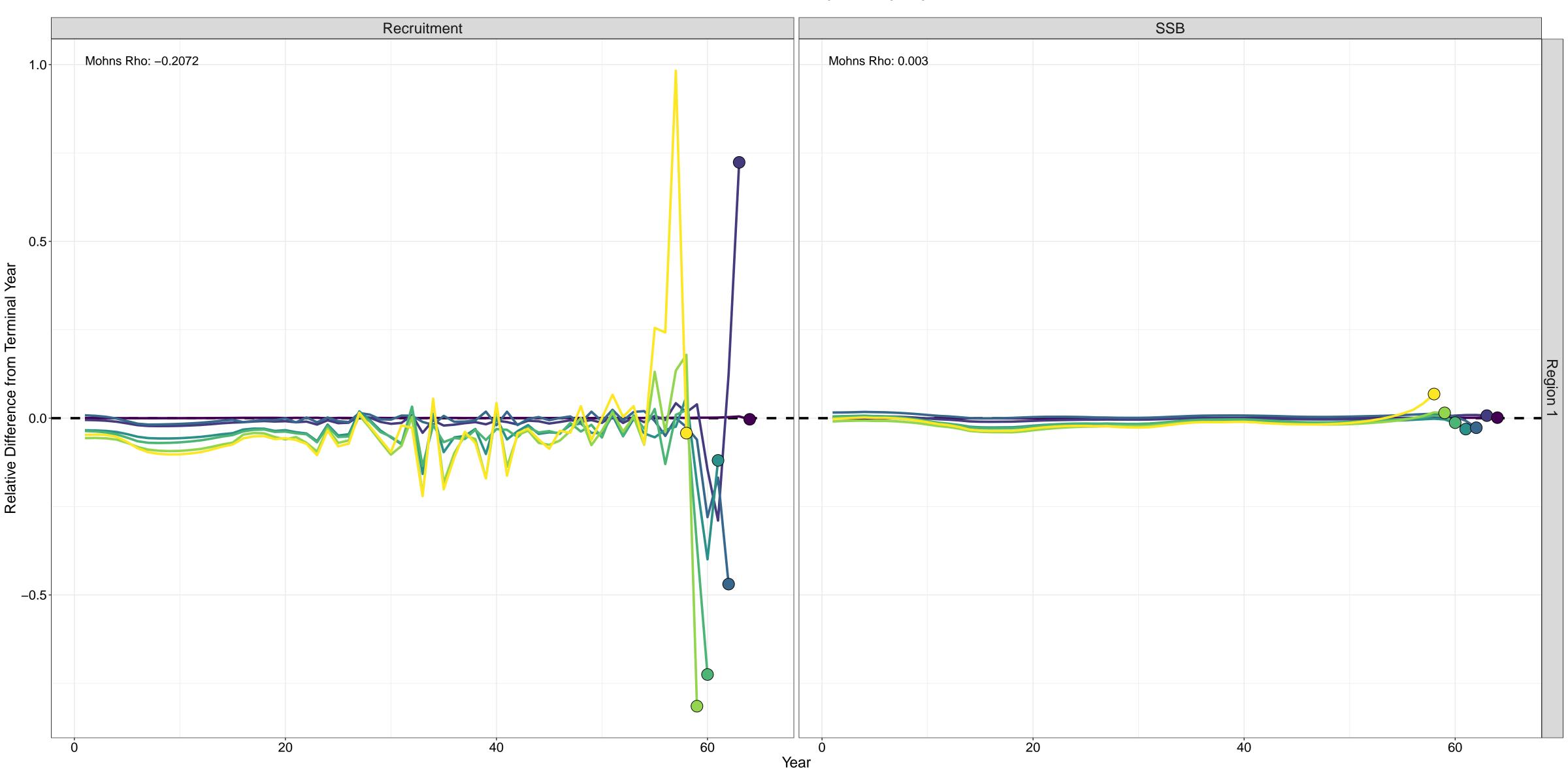




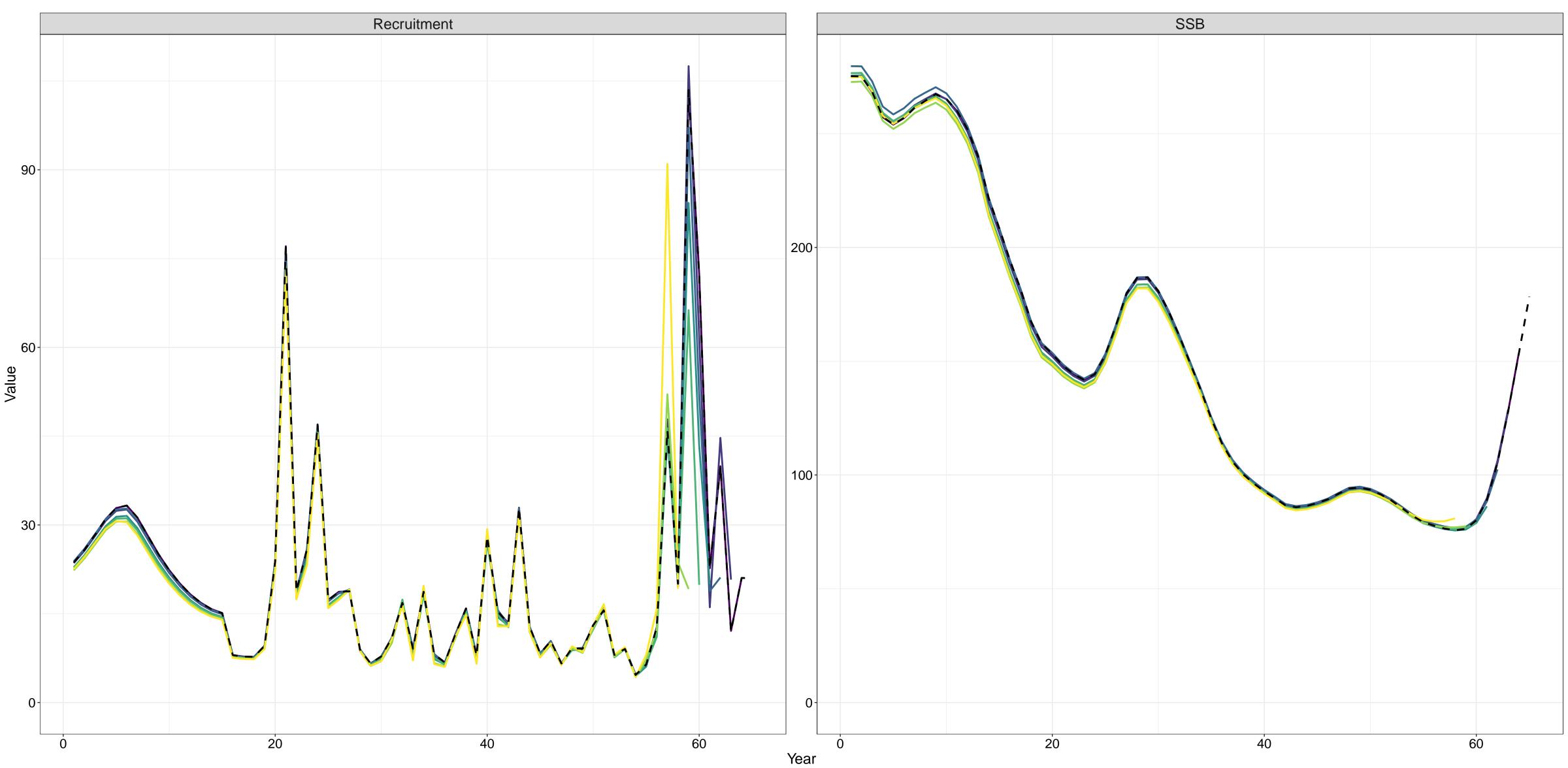


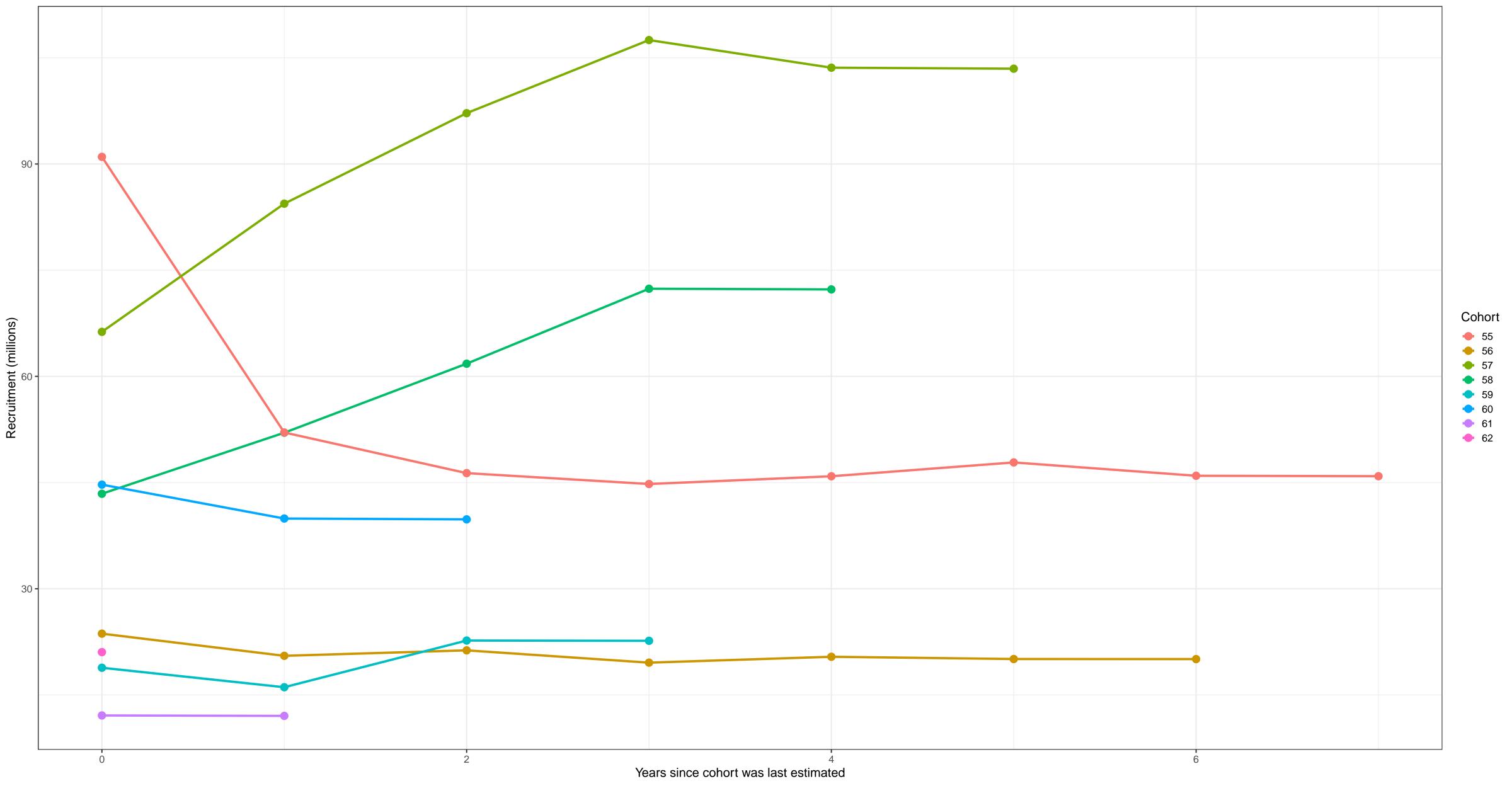












Jitter SSB and Recruitment Region 1 100 -Age 2 Recruitment (millions) 75 **-**50 -25 **-**Value Hessian TRUE Proportion Converged: 1 250 **-**200 -150 **-**100 -

Year

2000

2020

1980

1960

Jitter nLL and Convergence

