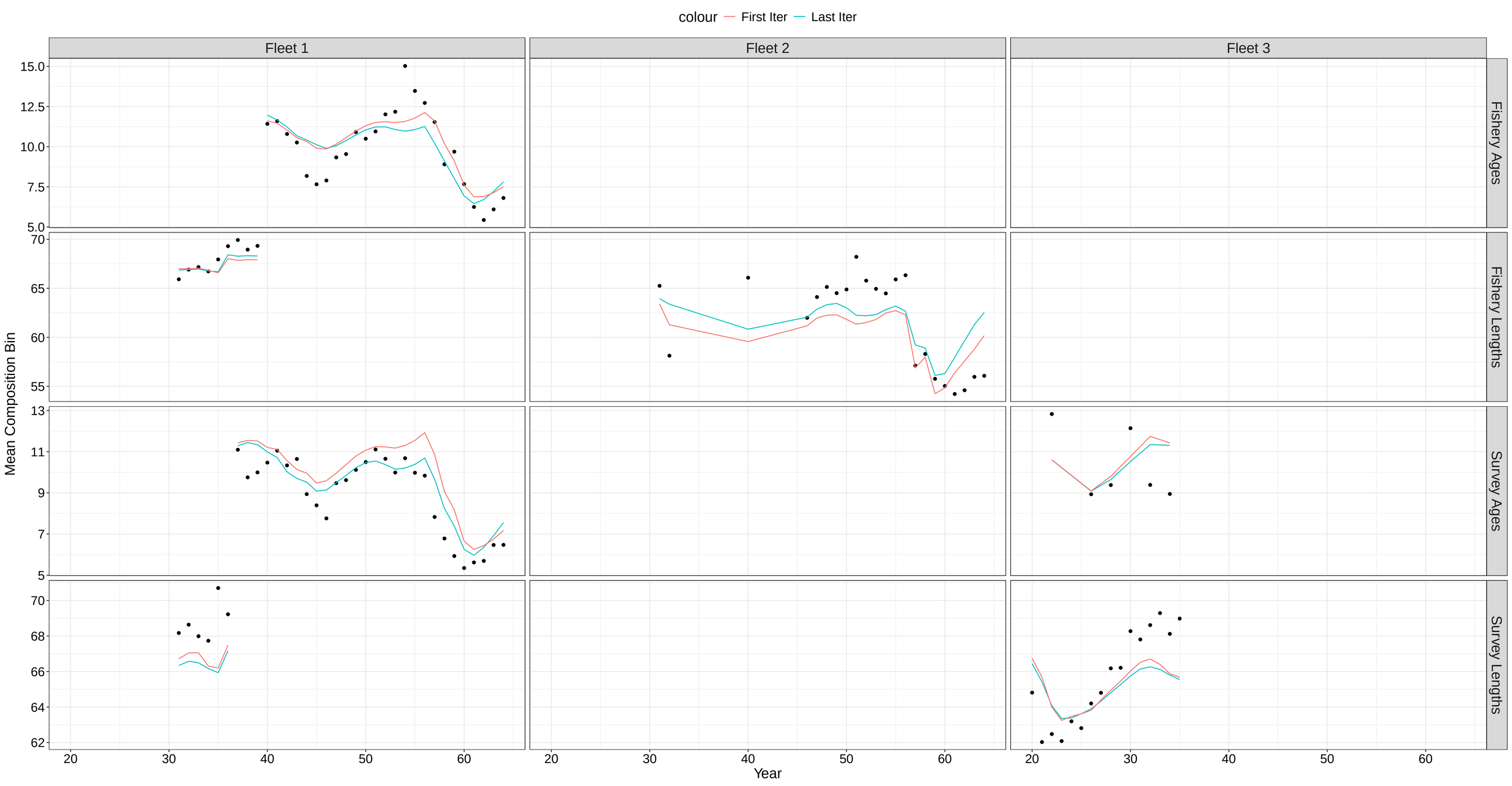
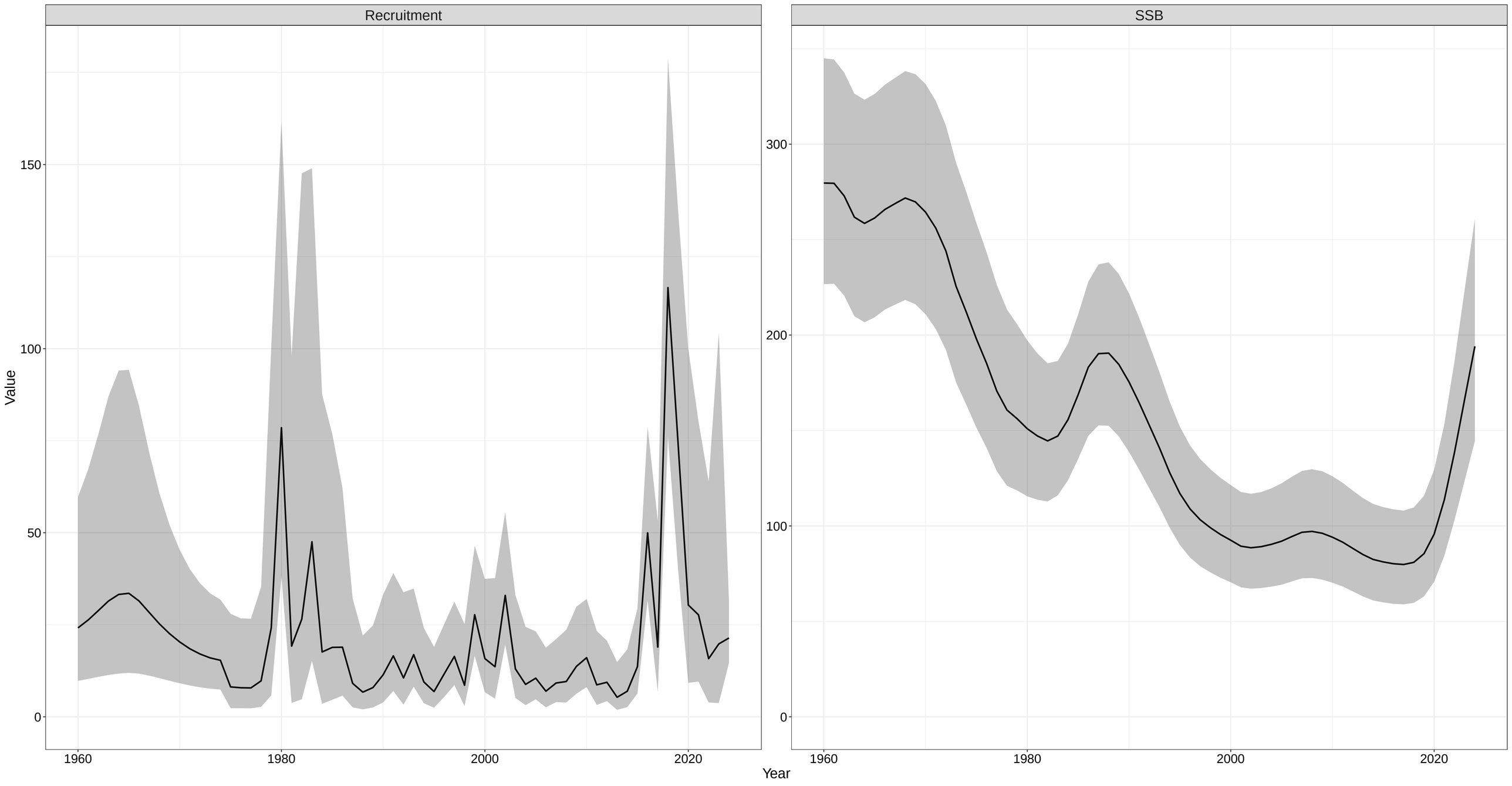
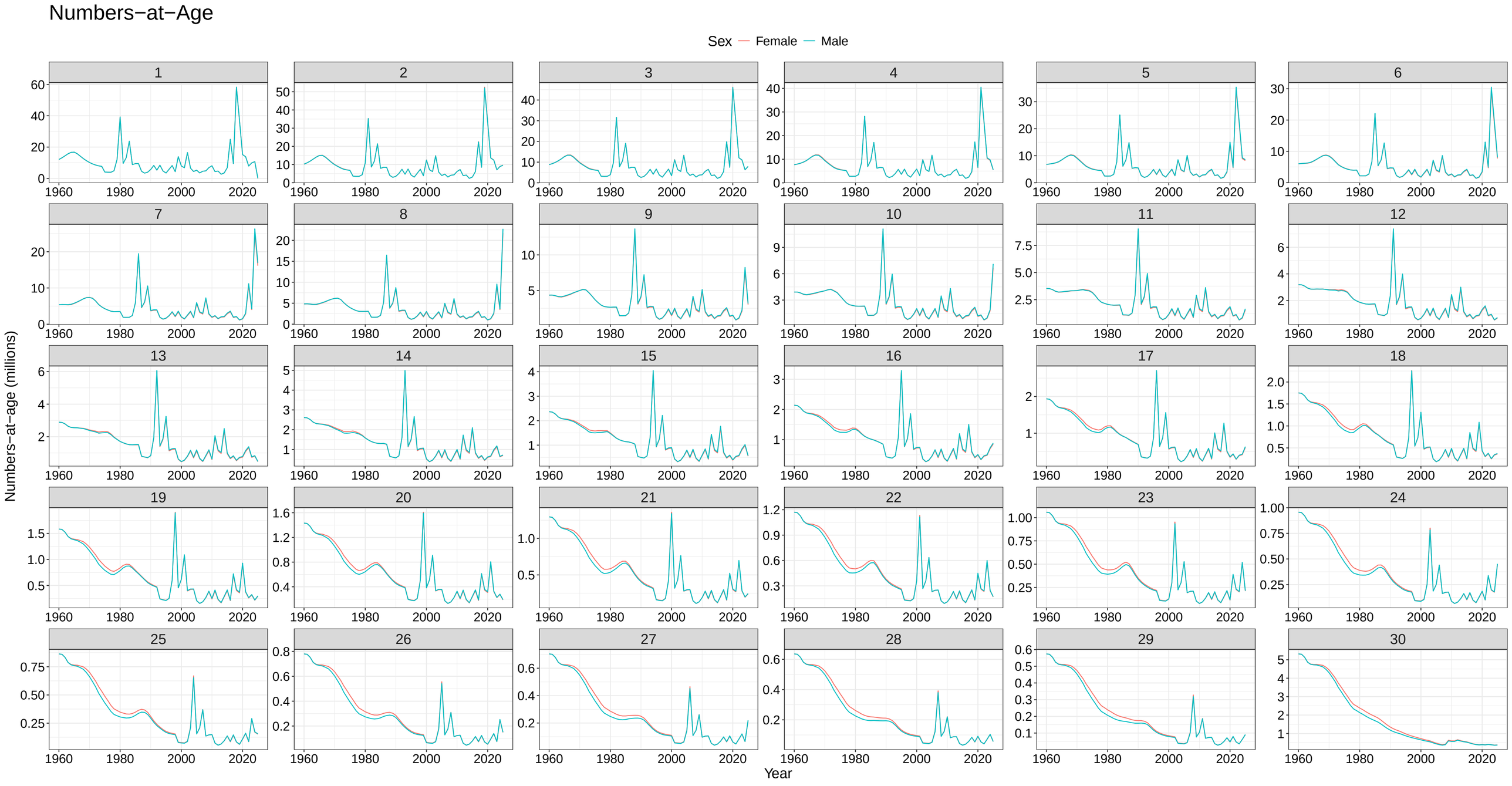
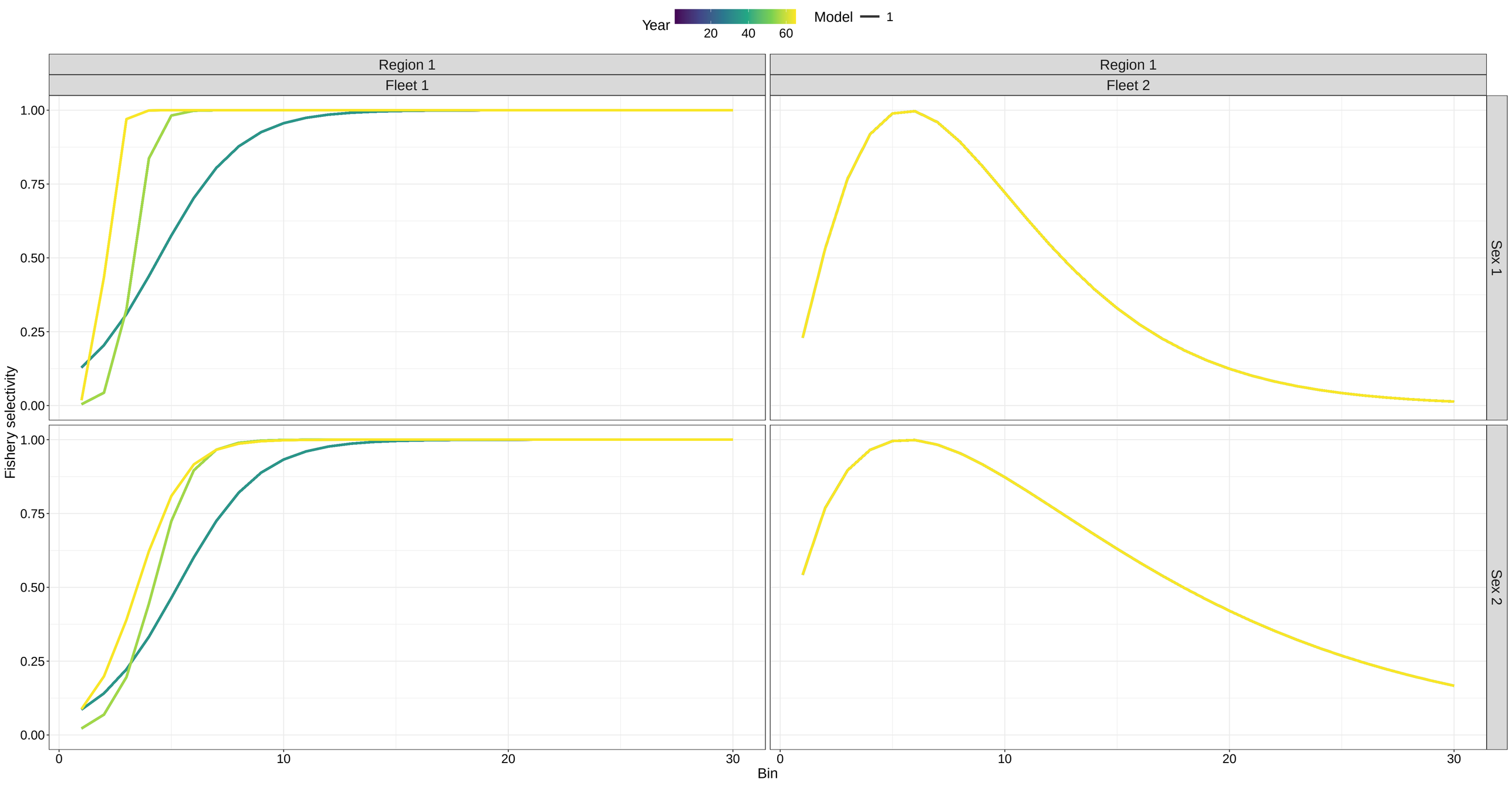
	Comp_Type	Init_Weight	Final_Weight
1	LLF_Age_F	0.8261073	0.8120319
2	LLF_Age_M	NA	NA
3	LLS_Age_F	3.7922454	3.4281336
4	LLS_Age_M	NA	NA
5	JPN_LLS_Age_F	1.3168111	0.6409265
6	JPN_LLS_Age_M	NA	NA
7	LLF_Len_F	4.1837057	6.0265426
8	LLF_Len_M	4.2696935	NA
9	TF_Len_F	0.3164859	0.2651007
10	TF_Len_M	0.2293966	NA
11	LLS_Len_F	1.4379202	2.5287035
12	LLS_Len_M	1.0705376	NA
13	JPN_LLS_Len_F	1.2777281	1.0117184
14	JPN_LLS_Len_M	0.8575195	NA

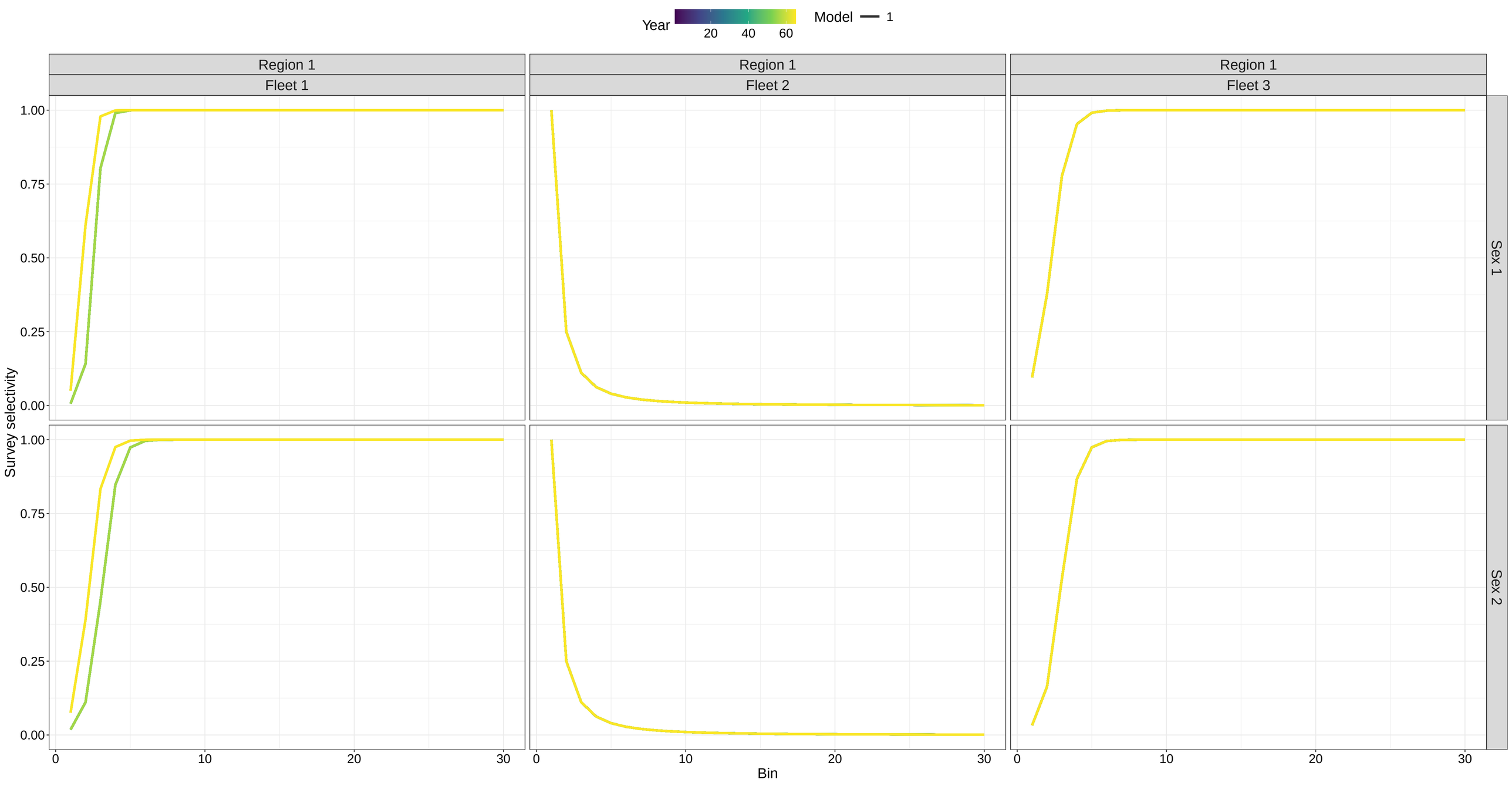

colour
First Iter
Last Iter
Fleet 1
Fleet 2
Fleet 3
Fishery Ages
Fishery Lengths
Survey Ages
Survey Lengths
Mean Composition Bin
Year
15.0
12.5
10.0
7.5
5.0
70
65
60
55
13
11
9
7
5
70
68
66
64
62
20
30
40
50
60

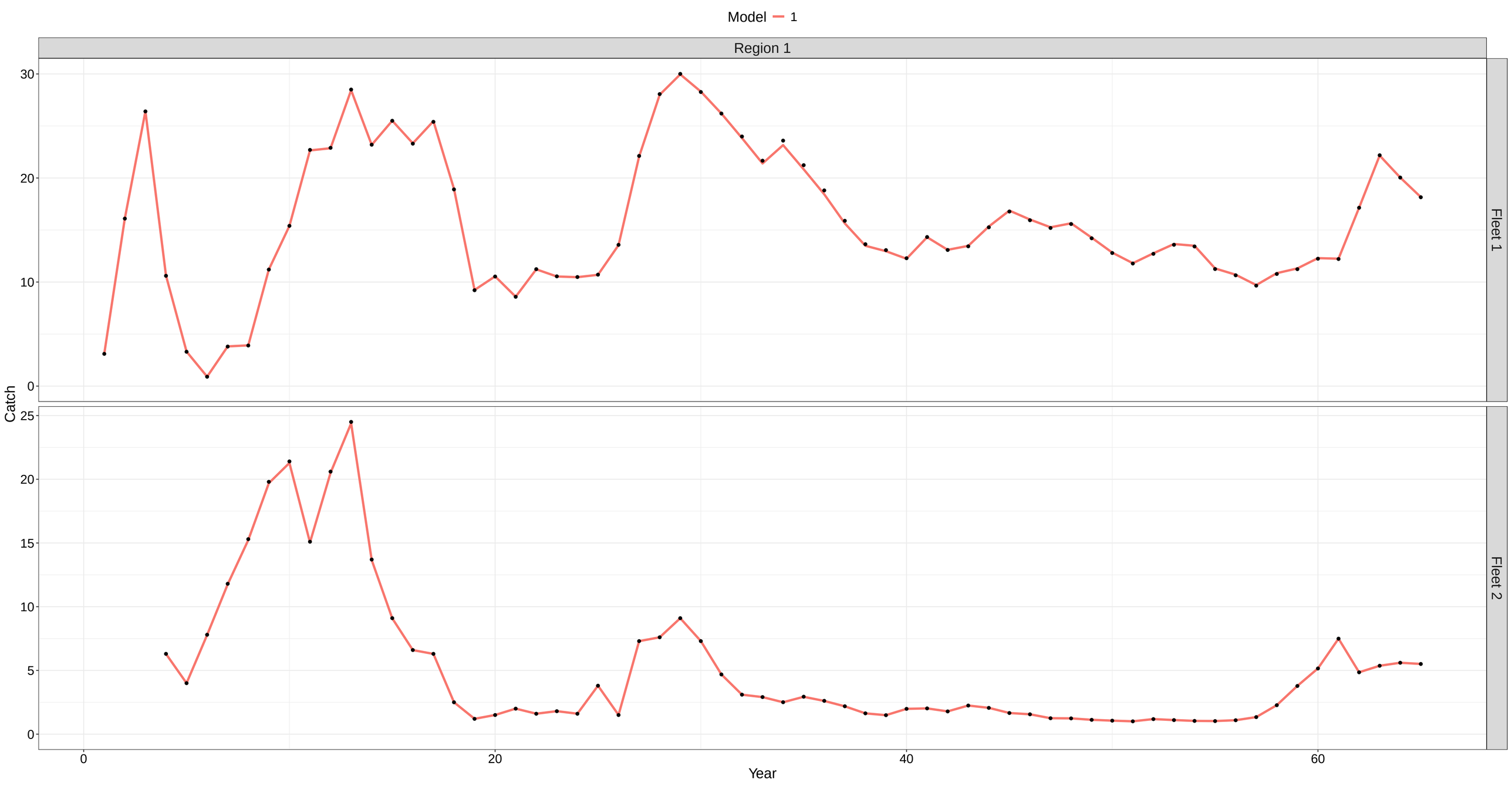
	Model	Region	Terminal_SSB	Terminal_F	Catch_Advice	B_Ref_Pt	F_Ref_Pt	B_over_B_Ref	F_over_F_Ref
1	1	1	194.09067	0.0484248550271446	39.55329	126.60578	0.08308	1.53303	0.58289


Recruitment
SSB
Value
Year
0
50
100
150
200
300
1960
1980
2000
2020

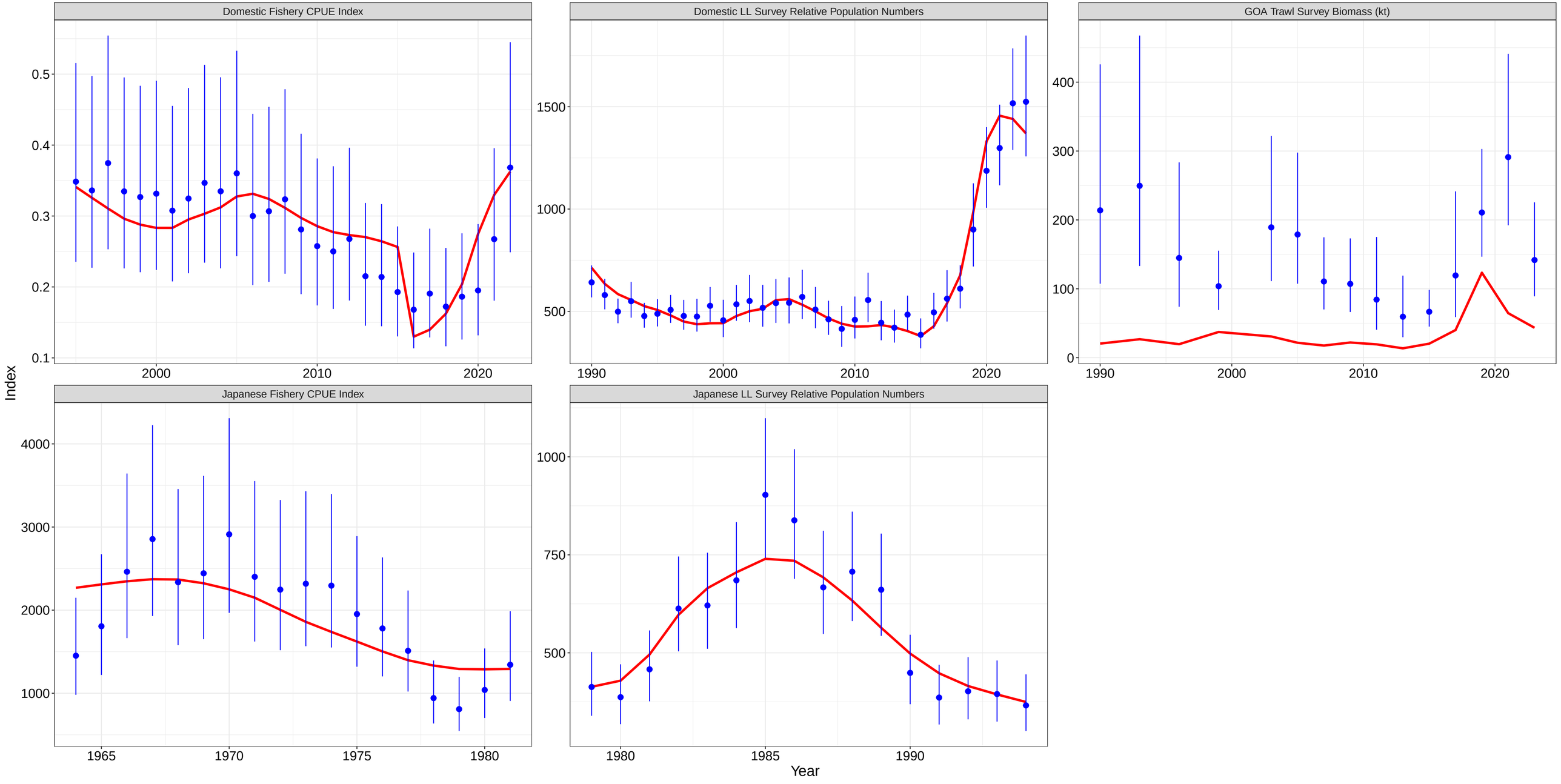

Numbers−at−Age
Sex
Female
Male
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
Numbers−at−age (millions)
Year


Year
20
40
60
Model
1
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

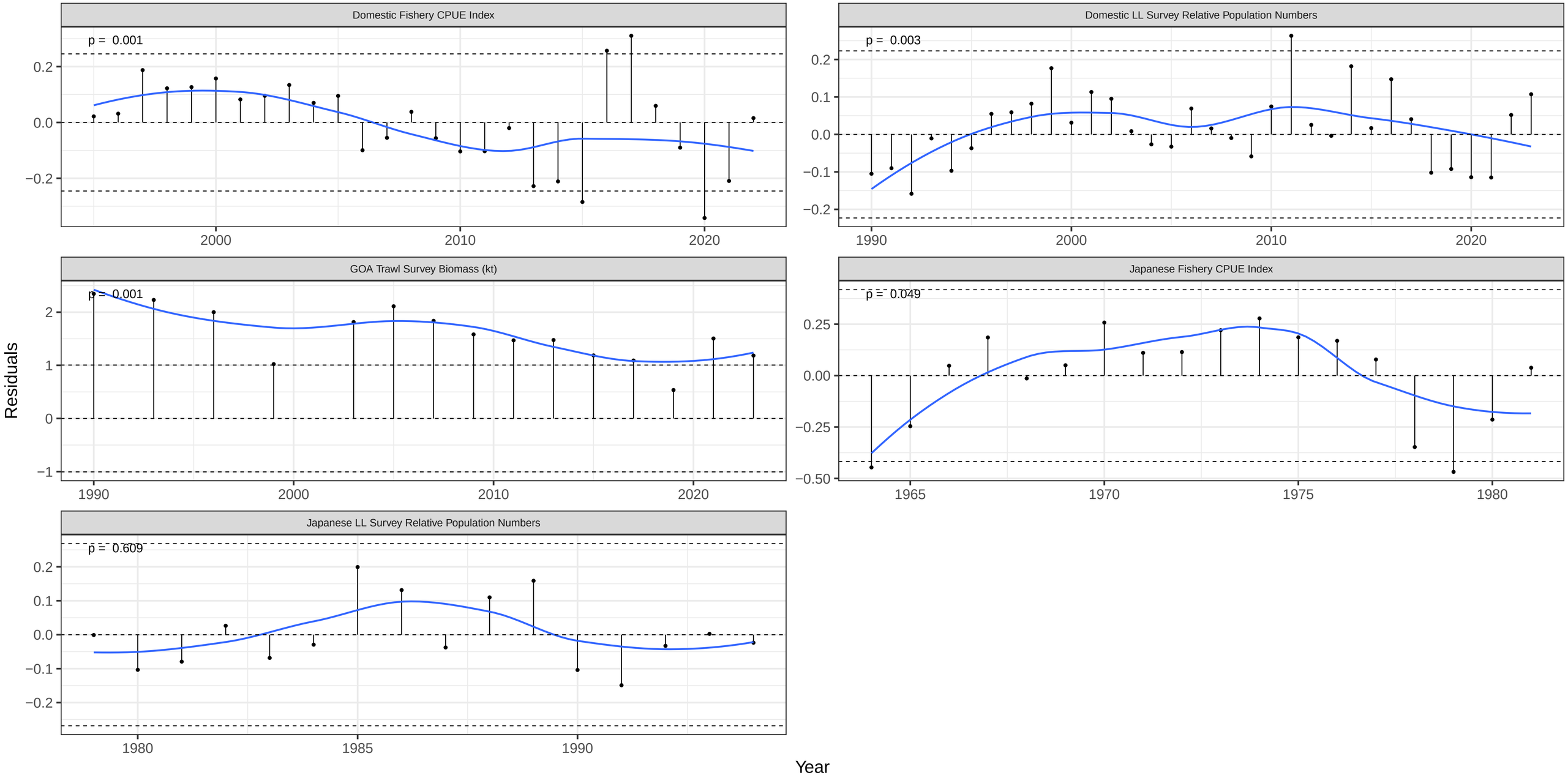

Year
20
40
60
Model
1
Region 1
Fleet 1
Region 1
Fleet 2
Region 1
Fleet 3
Sex 1
Sex 2
Survey selectivity
1.00
0.75
0.50
0.25
0.00
0
10
20
30
Bin

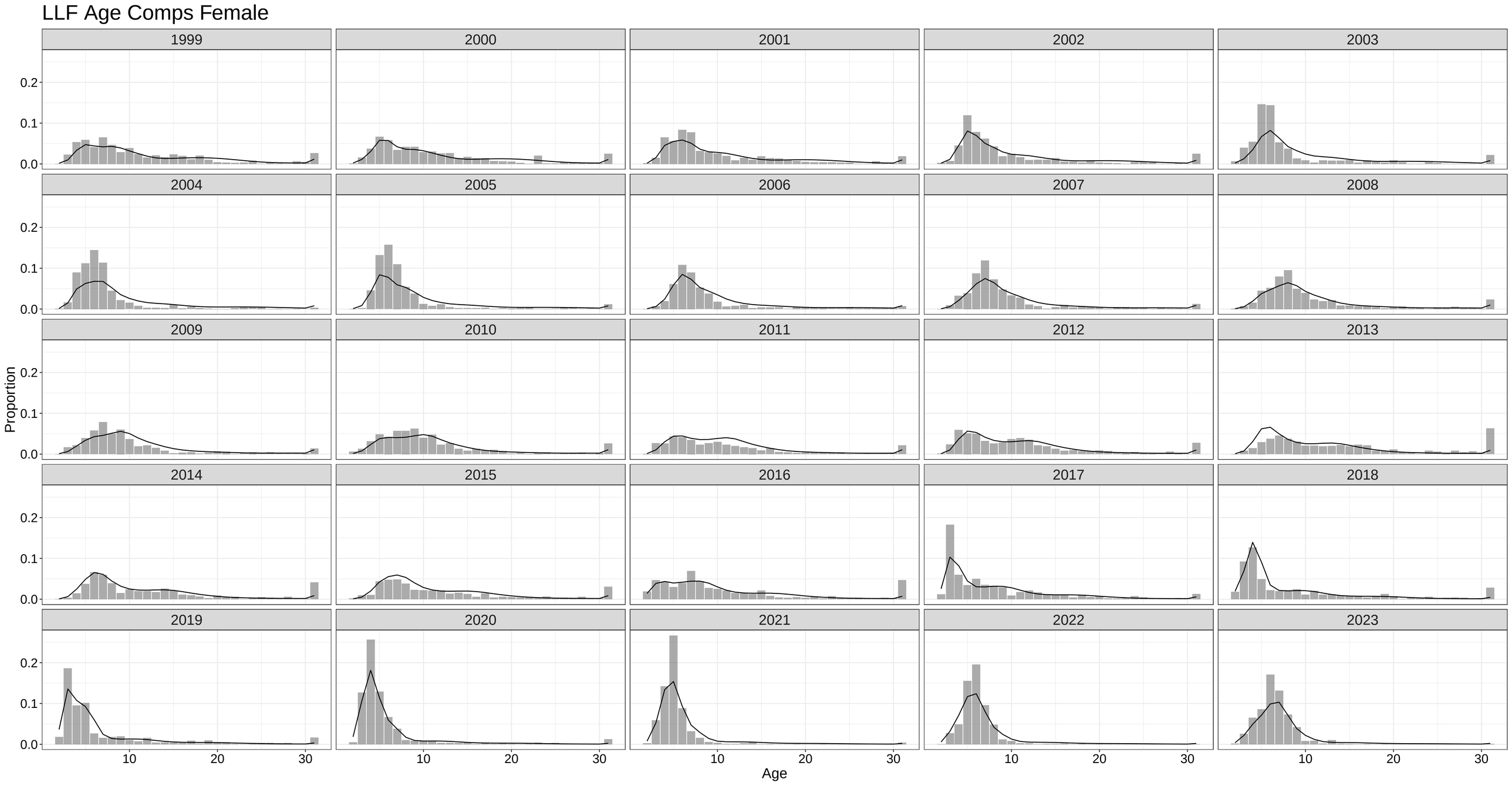

Model
1
Region 1
Fleet 1
Fleet 2
Catch
Year
0
10
20
30
0
5
10
15
20
25
0
20
40
60

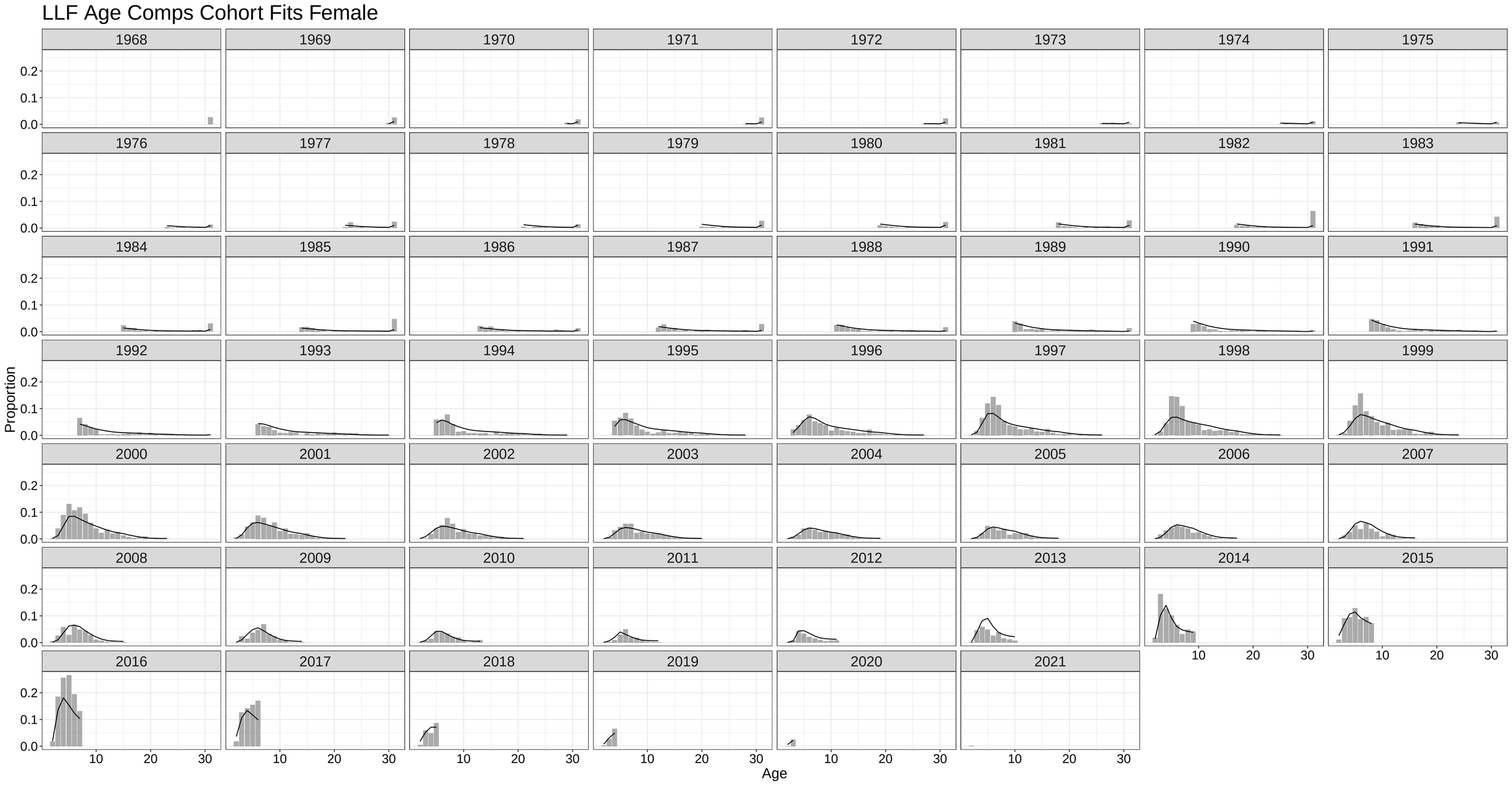
Index Fits

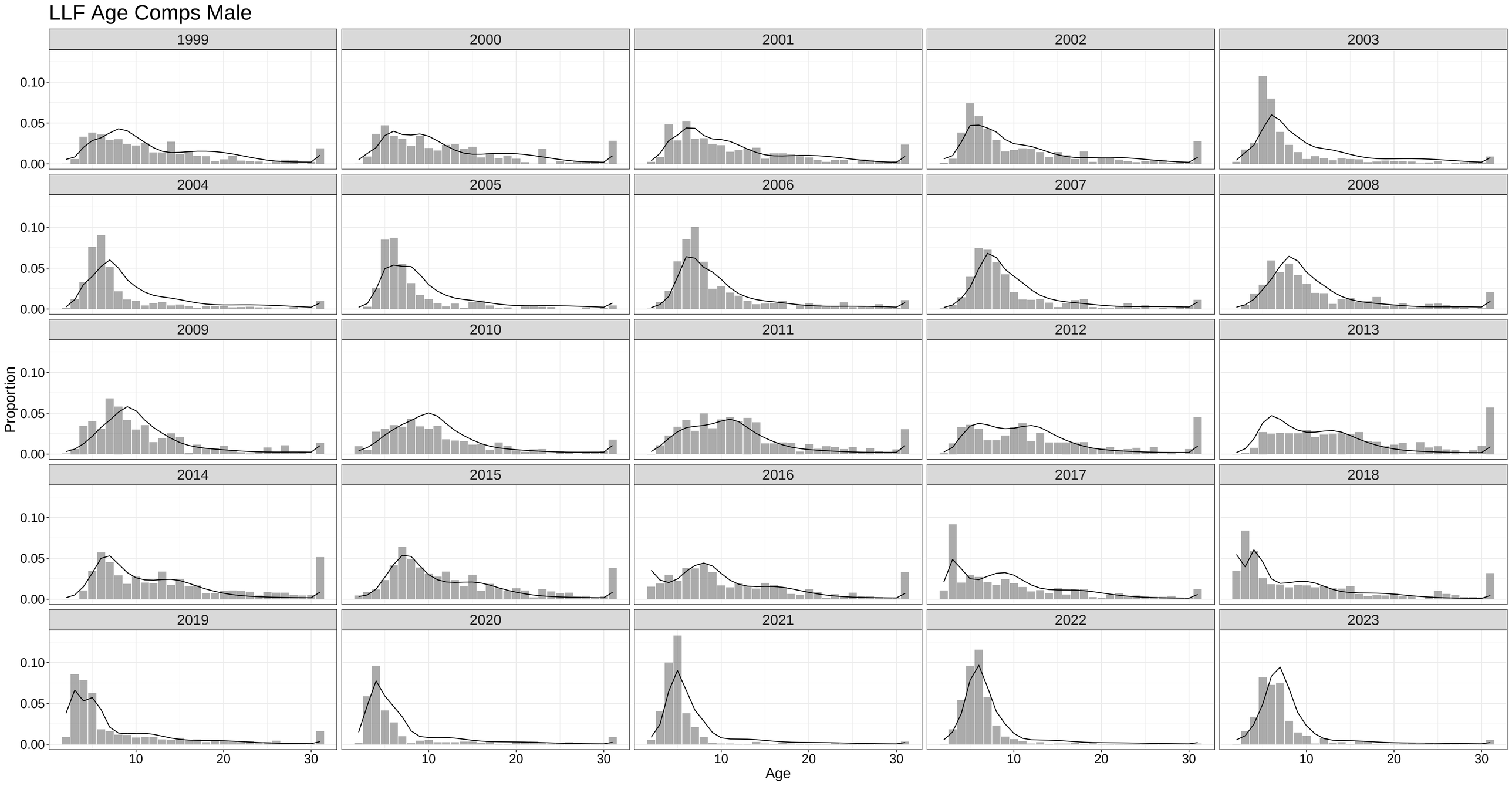

Domestic Fishery CPUE Index
Domestic LL Survey Relative Population Numbers
GOA Trawl Survey Biomass (kt)
Japanese Fishery CPUE Index
Japanese LL Survey Relative Population Numbers
Index
Year
0.1
0.2
0.3
0.4
0.5
500
1000
1500
0
100
200
300
400
1000
2000
3000
4000
750
1965
1970
1975
1980
1985
1990
2000
2010
2020

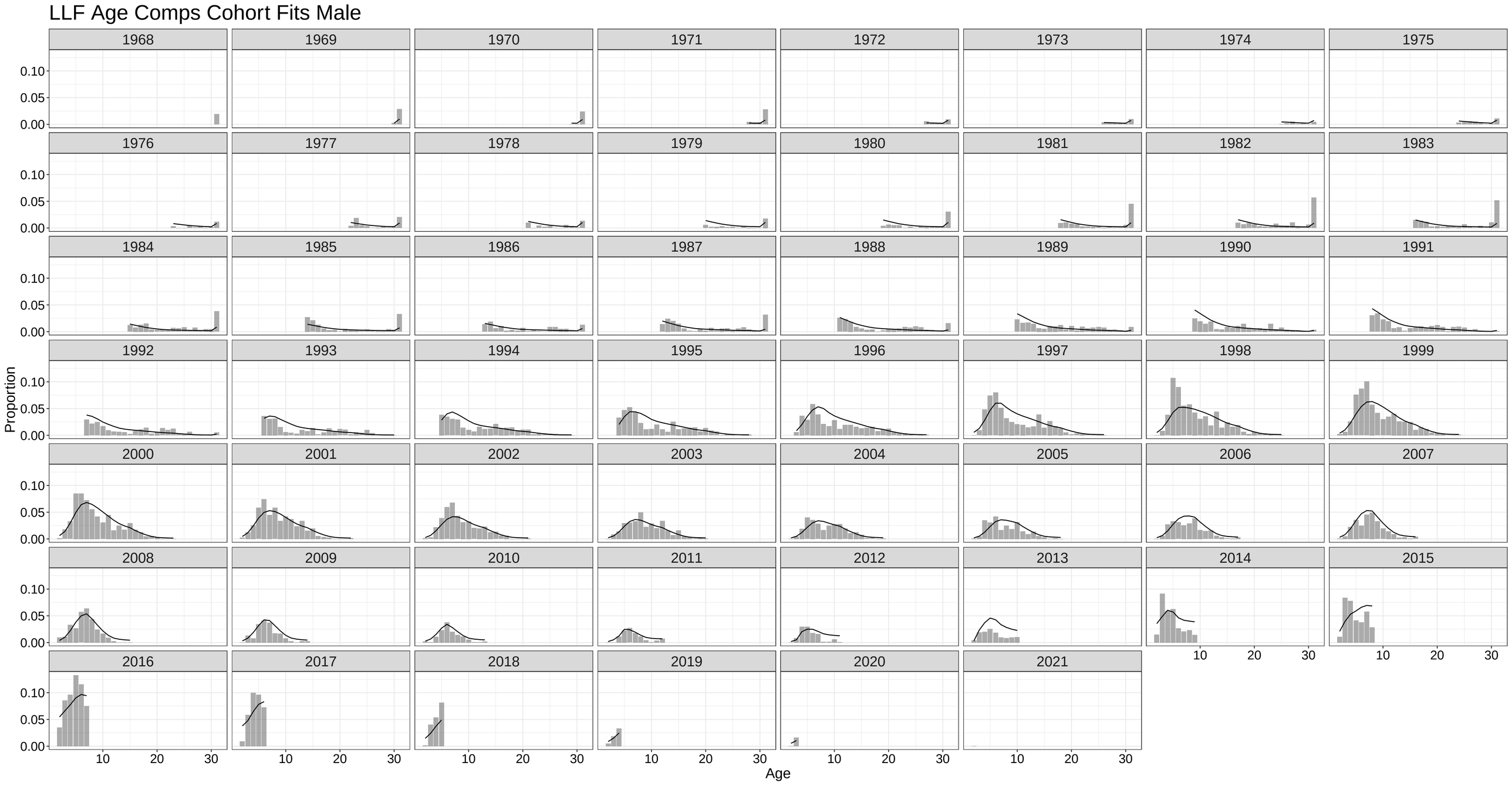
Index Residuals Runs Test

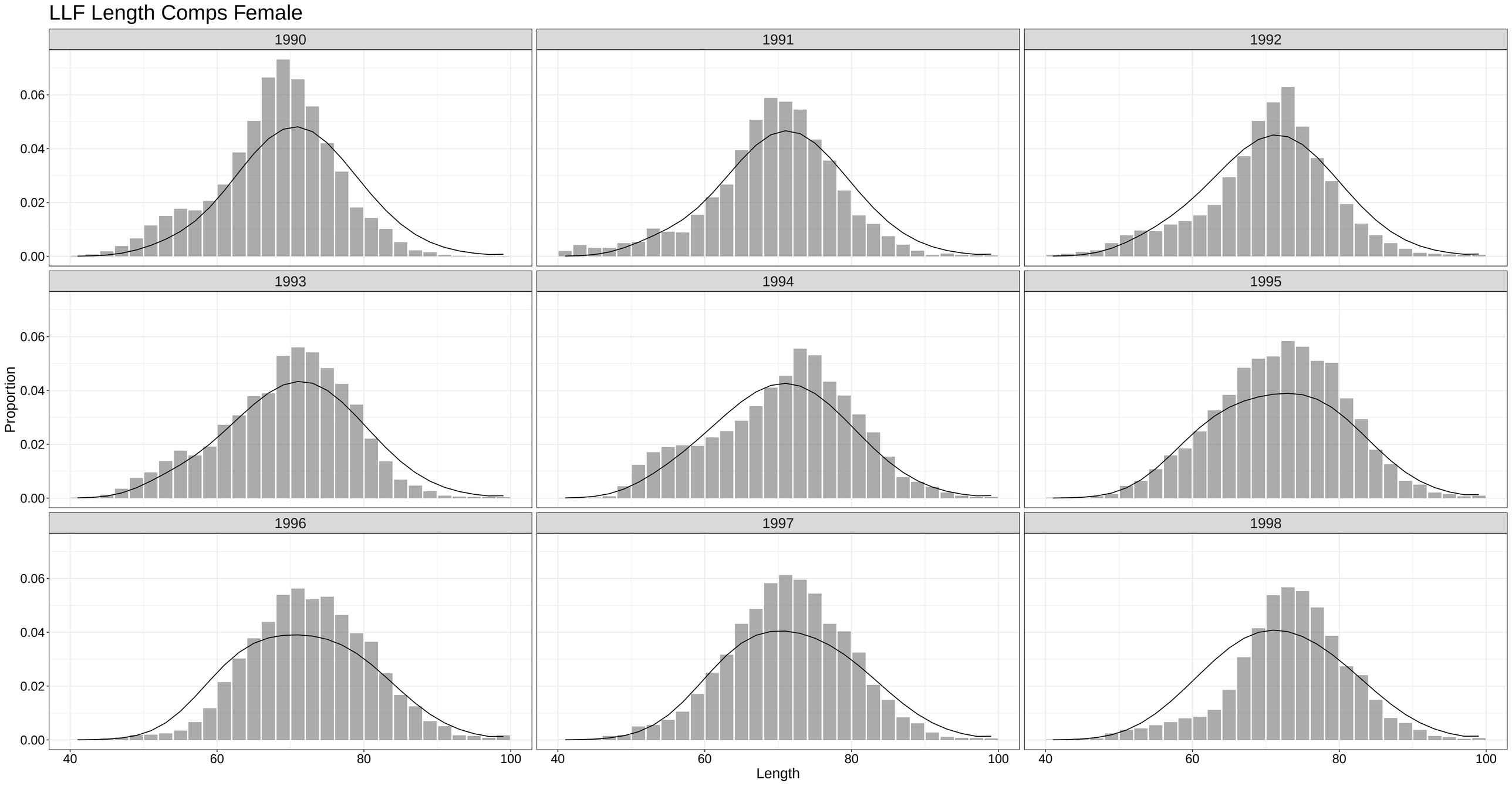


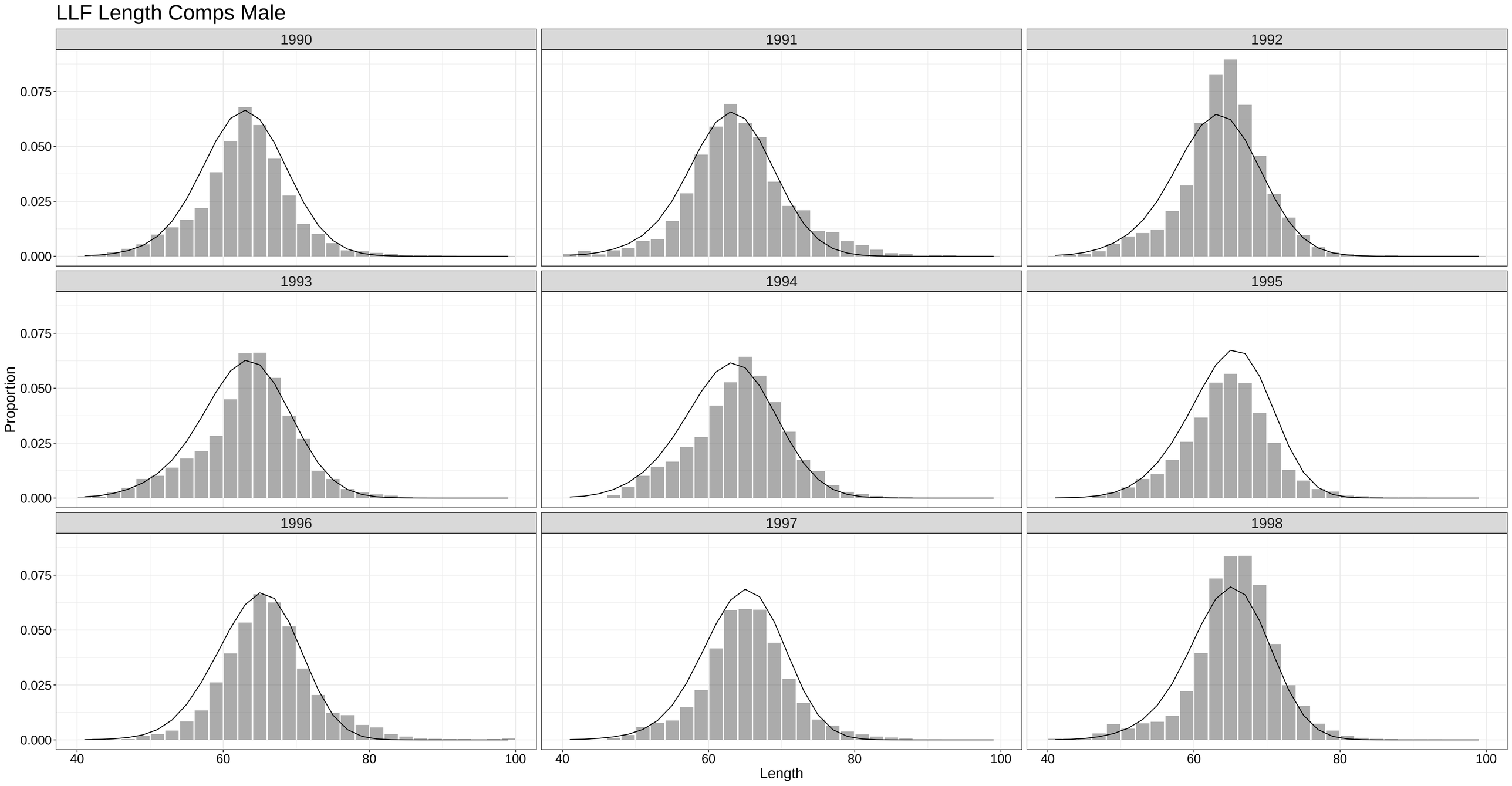

LLF Age Comps Female
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.0
0.1
0.2
10
20
30
Age

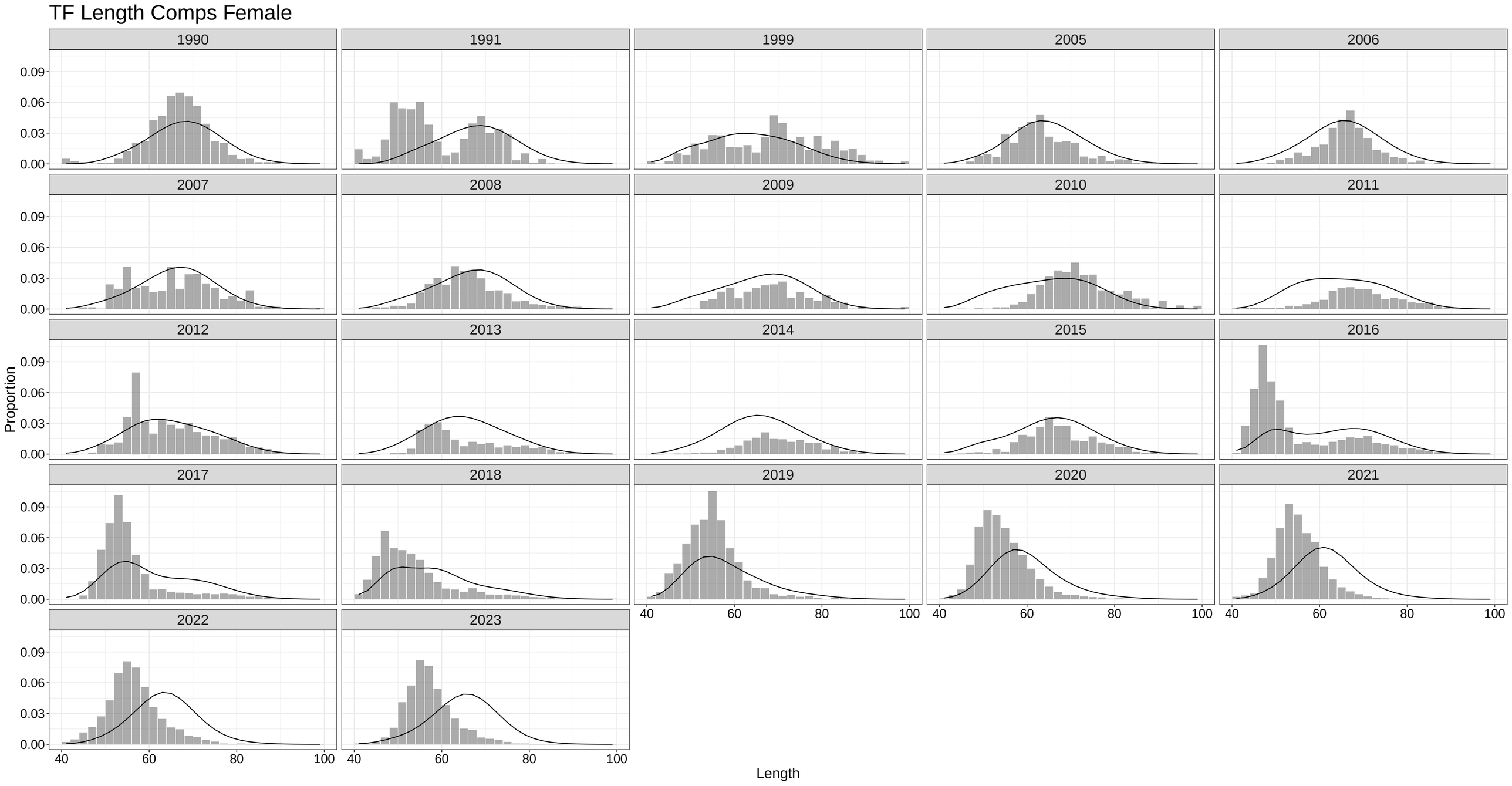

LLF Age Comps Cohort Fits Female
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Proportion
0.0
0.1
0.2
10
20
30
Age

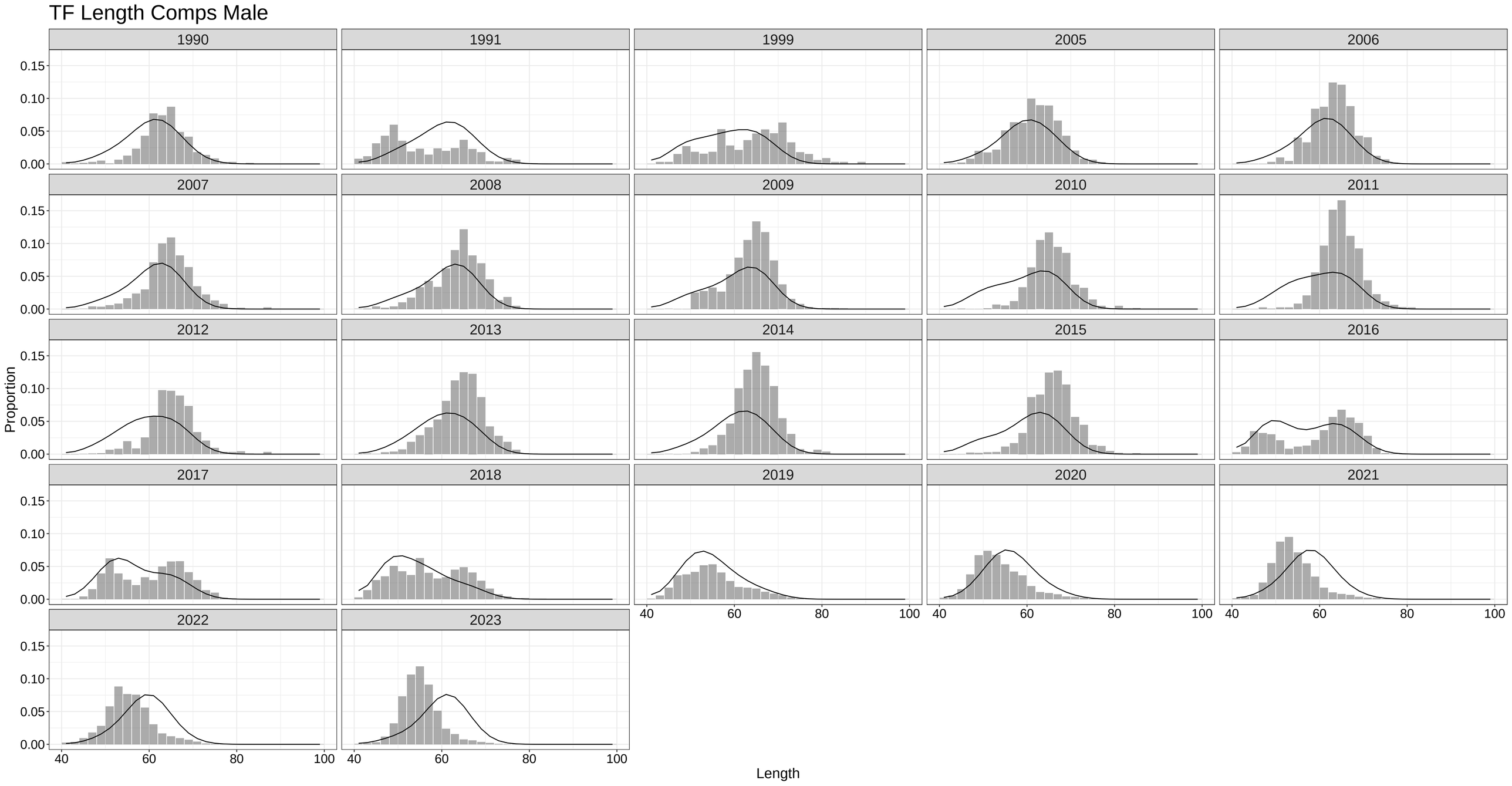

LLF Age Comps Male
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.00
0.05
0.10
10
20
30
Age

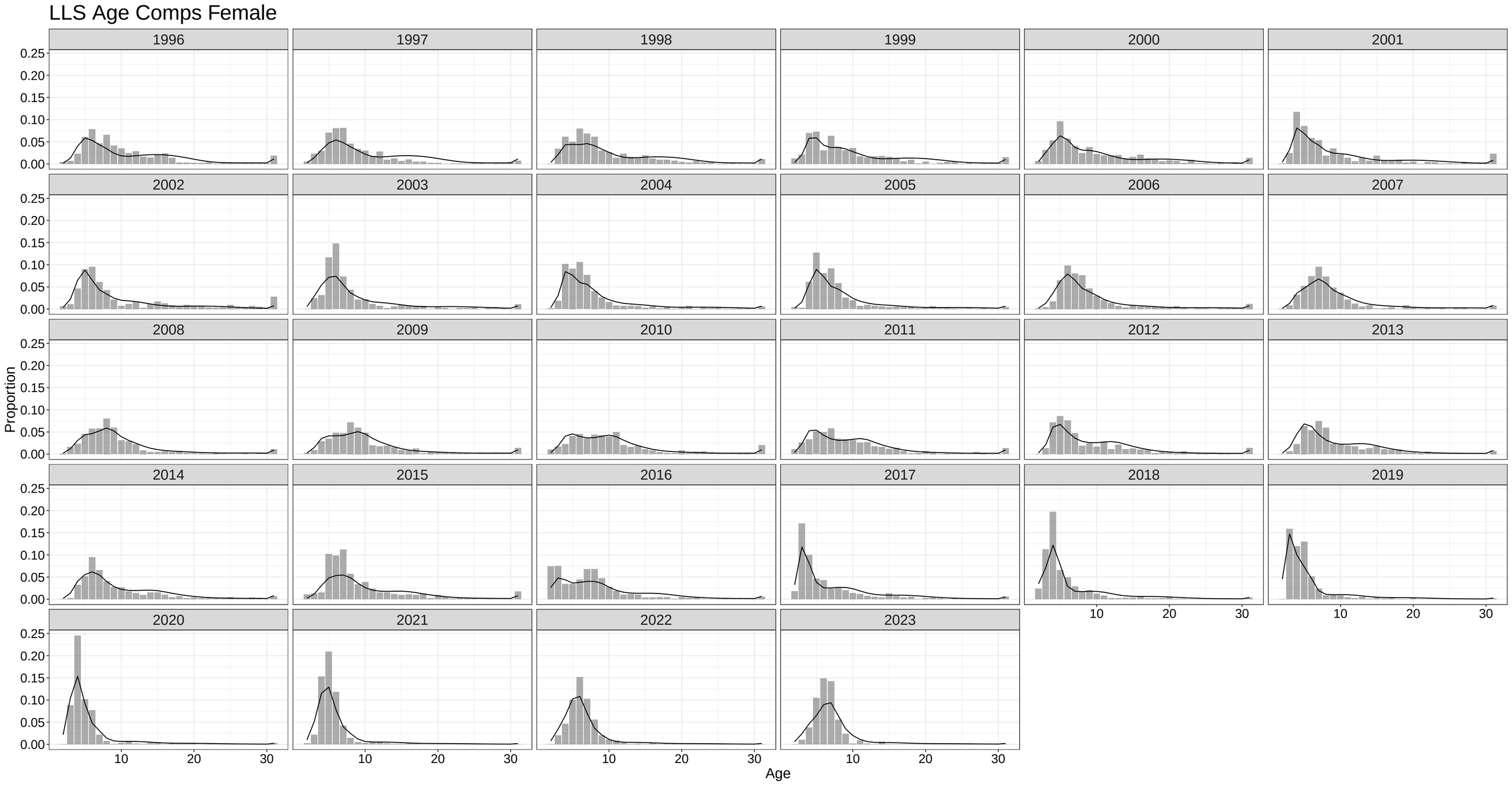

LLF Age Comps Cohort Fits Male
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Proportion
0.00
0.05
0.10
10
20
30
Age


LLF Length Comps Female
1990
1991
1992
1993
1994
1995
1996
1997
1998
Proportion
0.00
0.02
0.04
0.06
40
60
80
100
Length

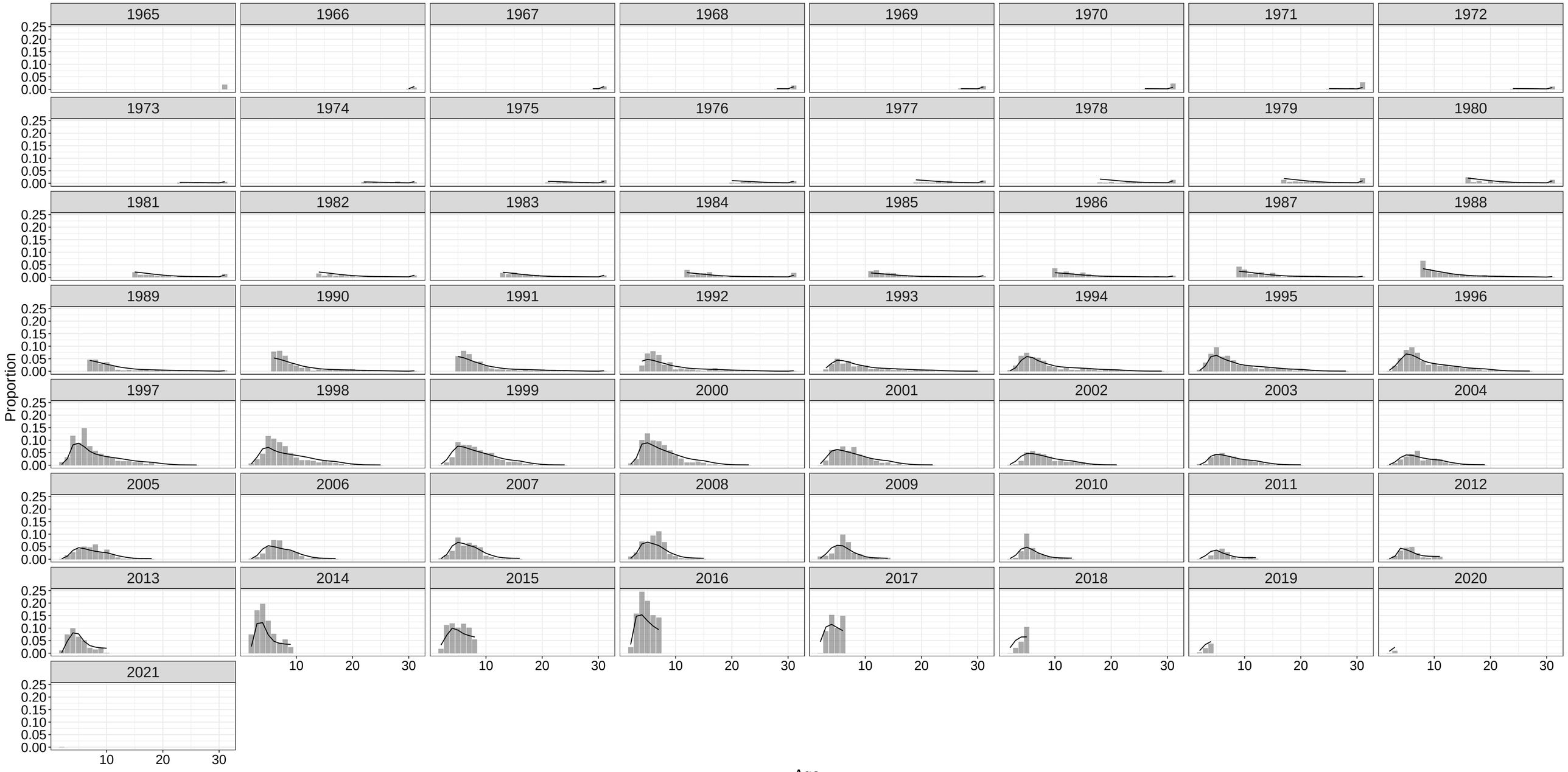

LLF Length Comps Male
1990
1991
1992
1993
1994
1995
1996
1997
1998
Proportion
0.000
0.025
0.050
0.075
40
60
80
100
Length

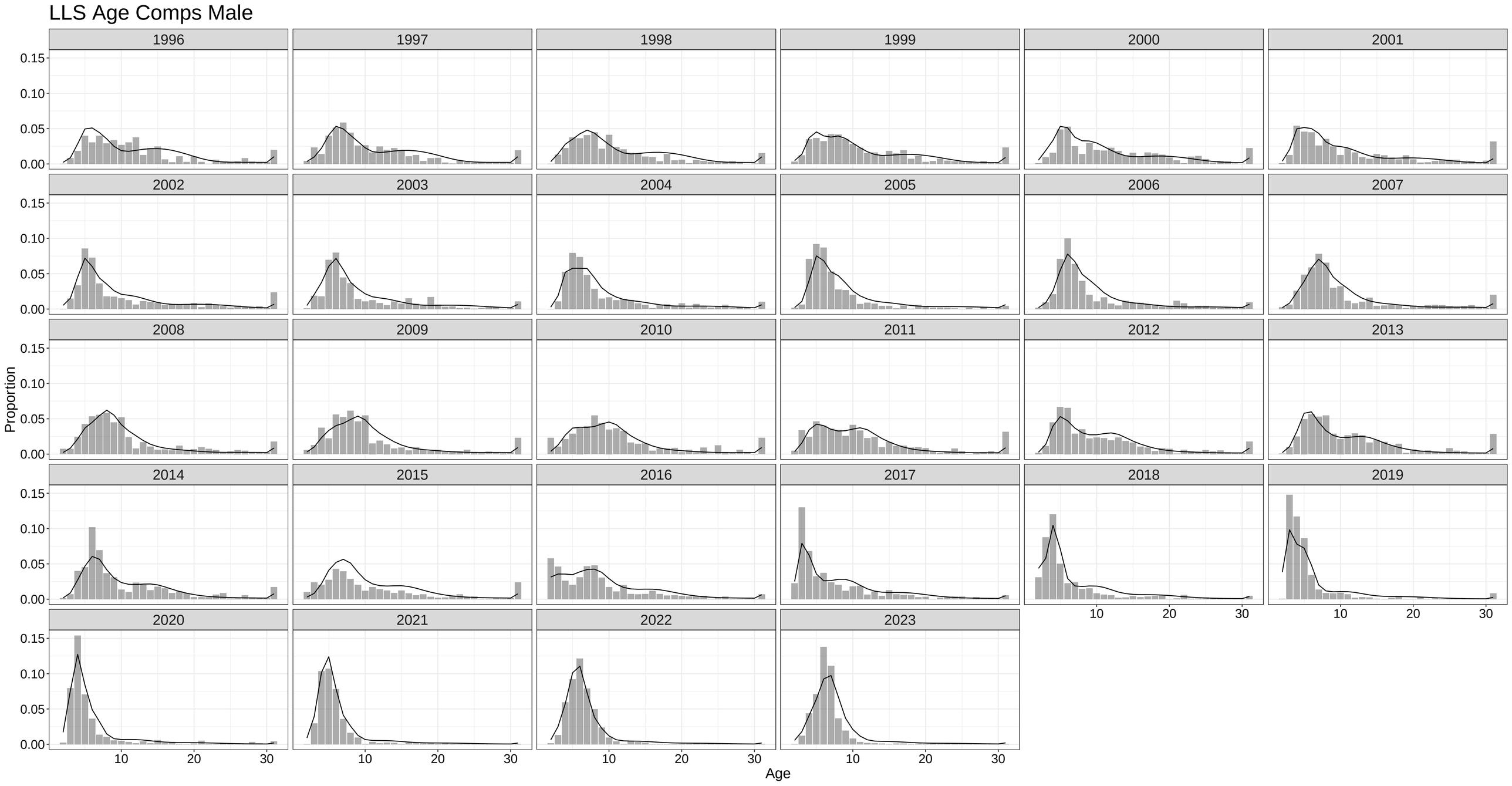

TF Length Comps Female
1990
1991
1999
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.00
0.03
0.06
0.09
40
60
80
100
Length

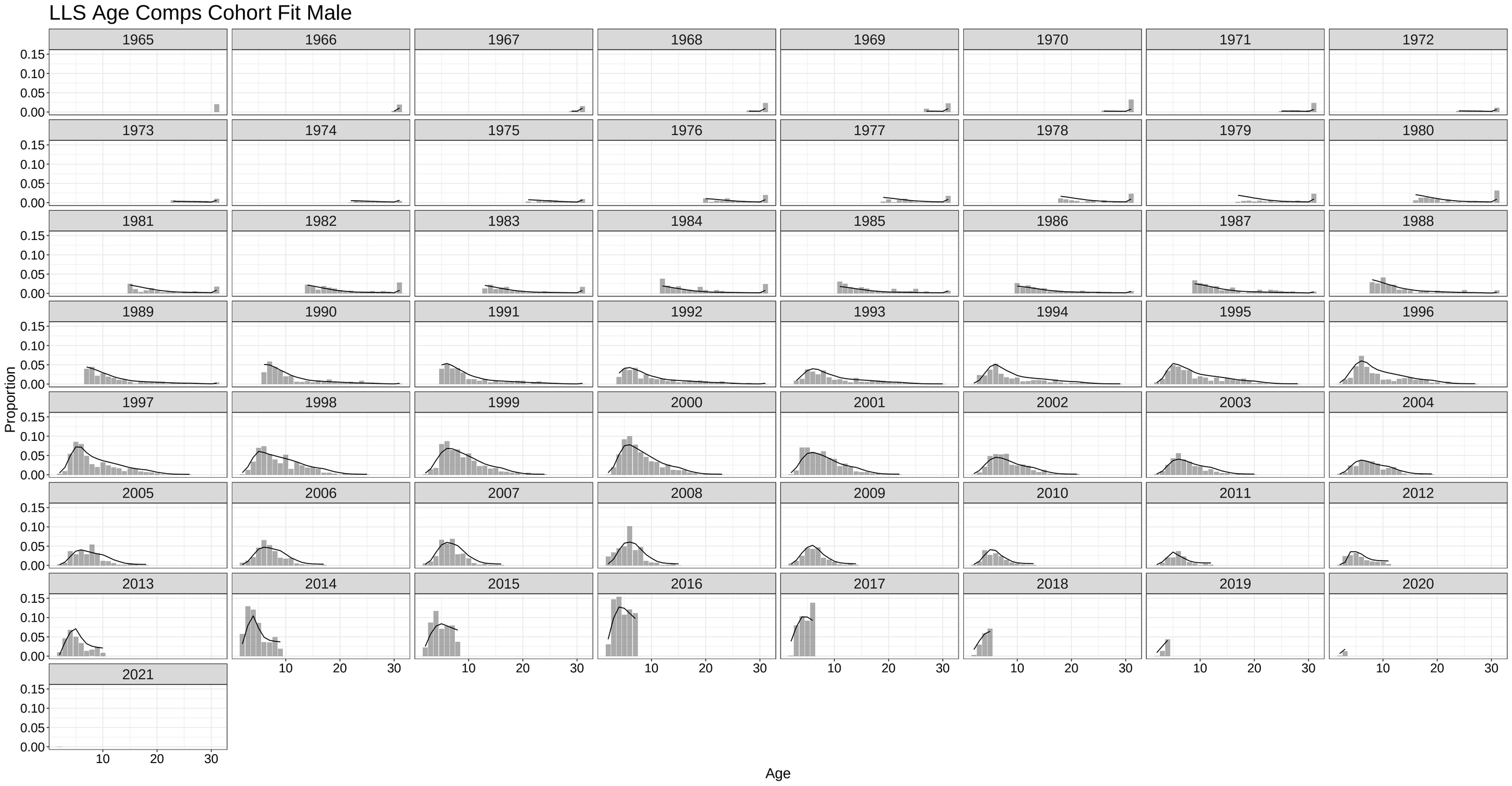

TF Length Comps Male
1990
1991
1999
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.00
0.05
0.10
0.15
40
60
80
100
Length

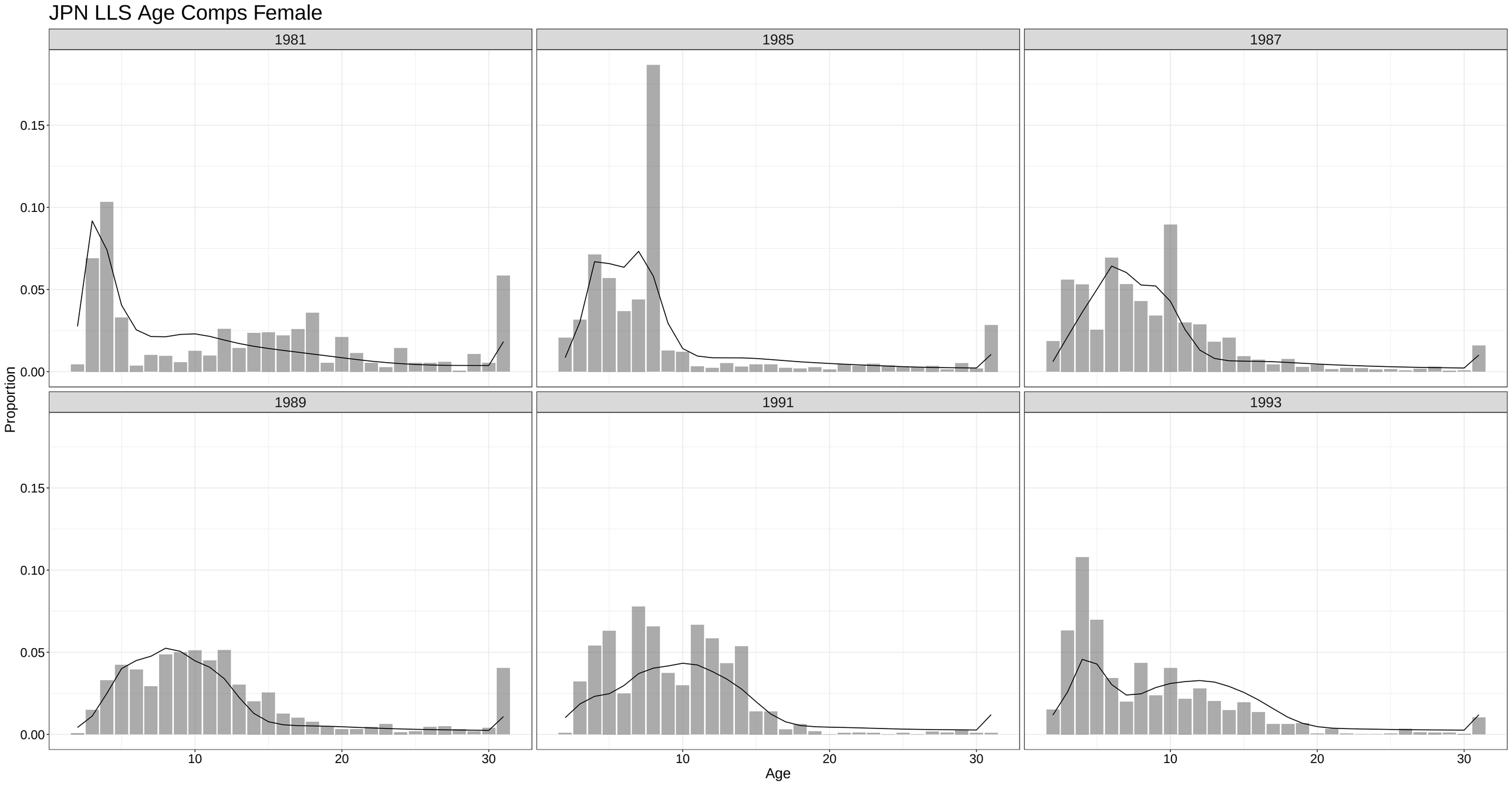

LLS Age Comps Female
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.25
0.20
0.15
0.10
0.05
0.00
10
20
30
Age

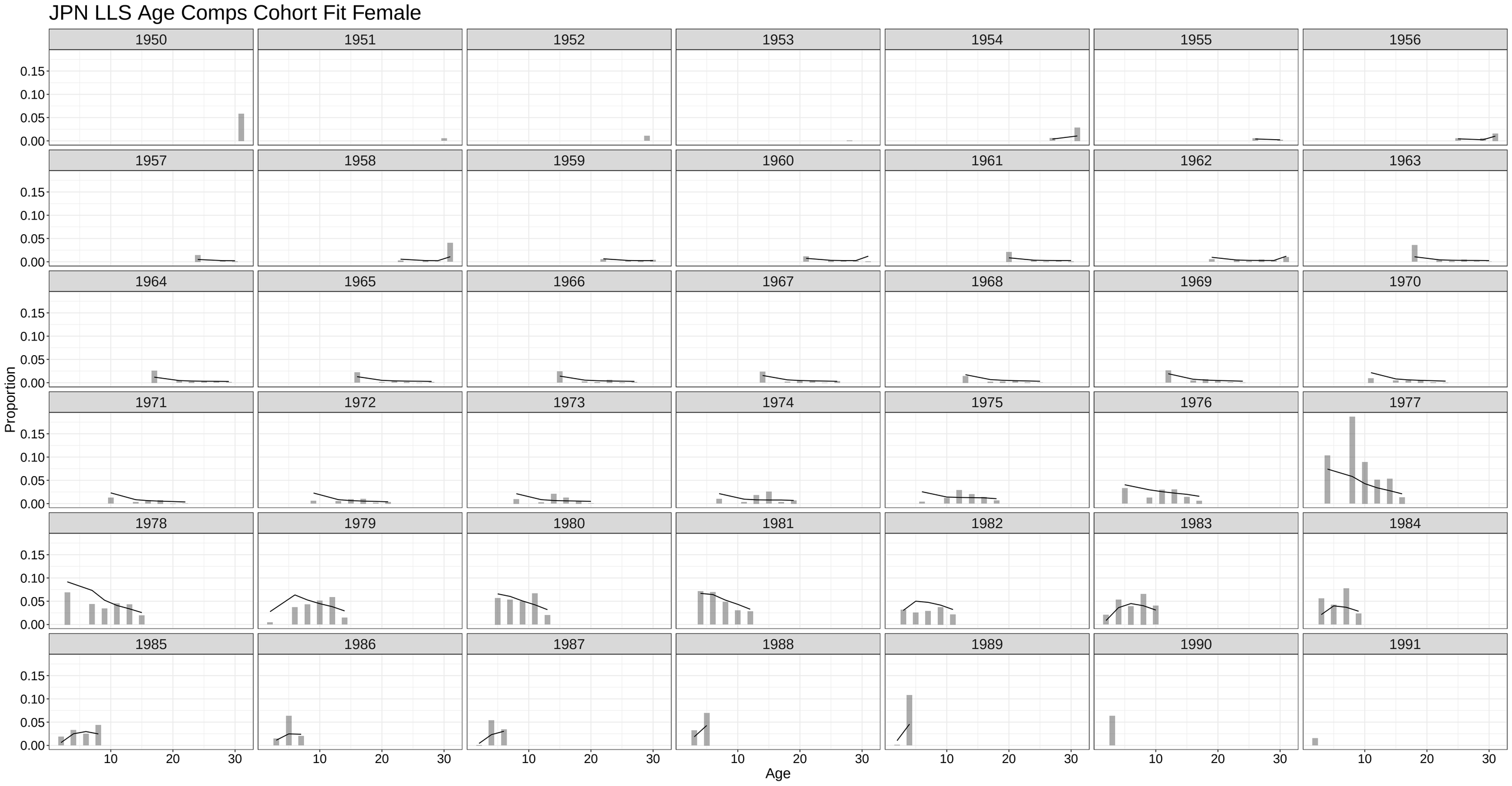
LLS Age Comps Cohort Fit Female

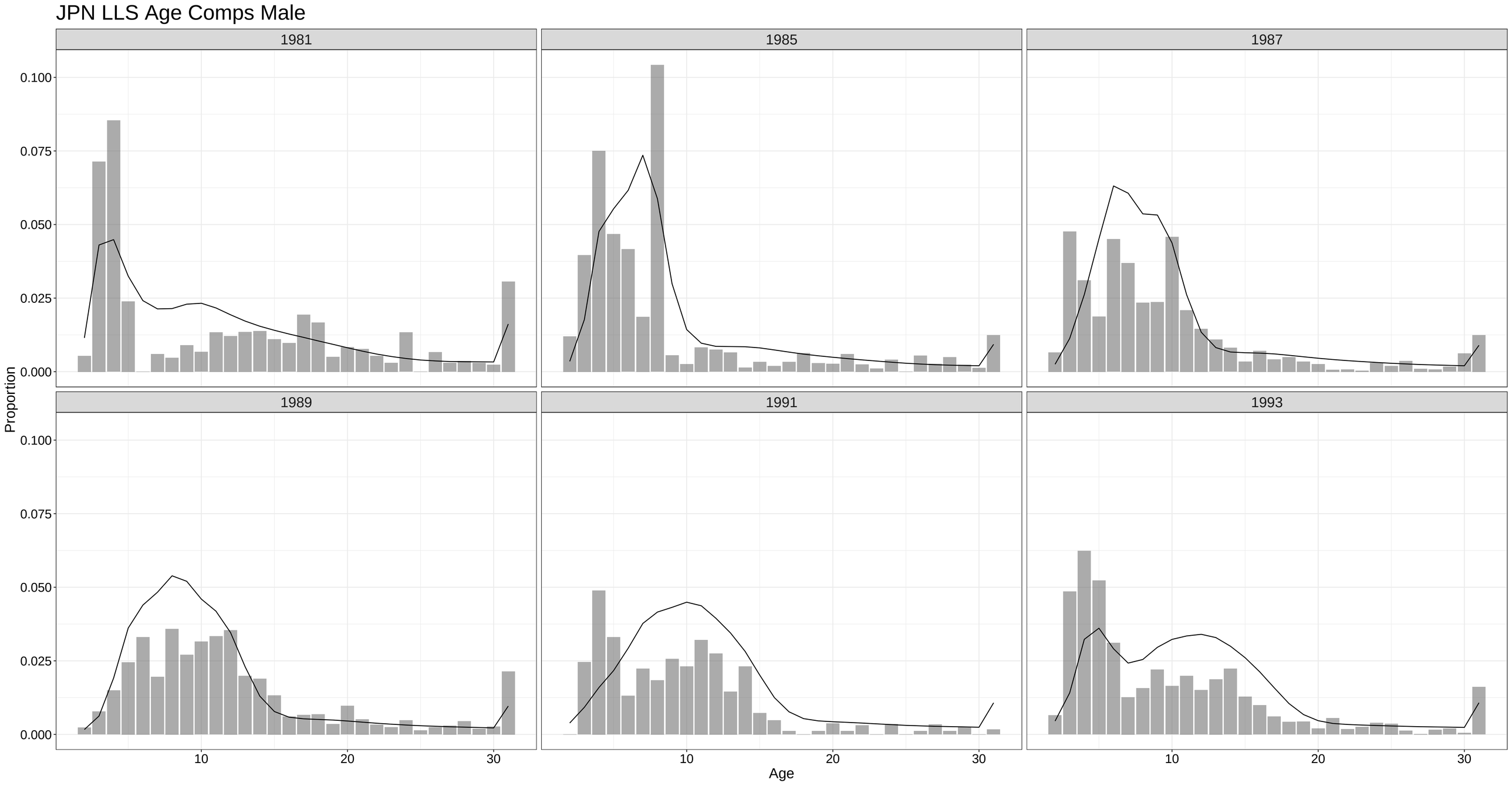



LLS Age Comps Male
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Proportion
0.00
0.05
0.10
0.15
10
20
30
Age

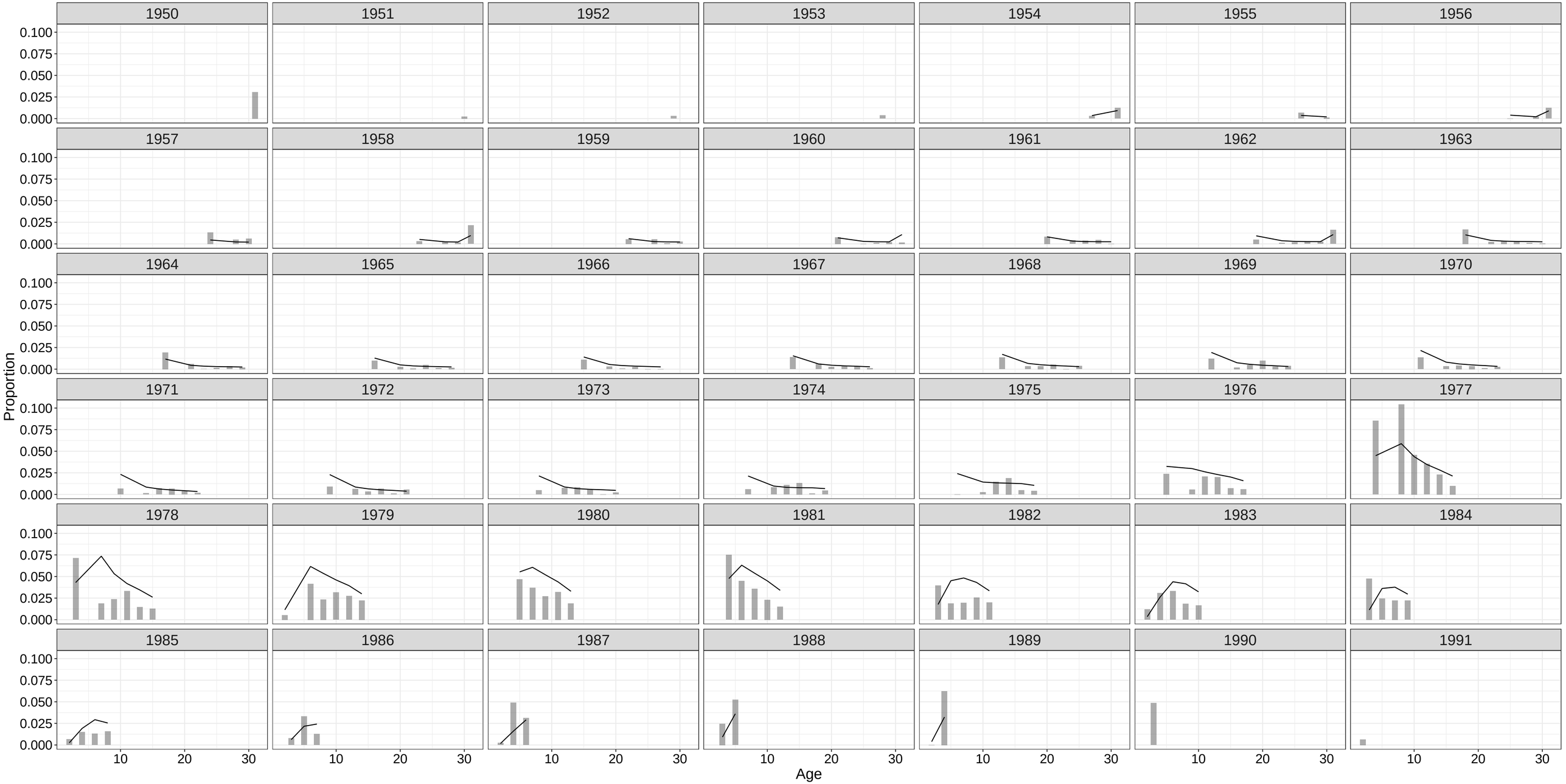

LLS Age Comps Cohort Fit Male
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Proportion
0.00
0.05
0.10
0.15
10
20
30
Age

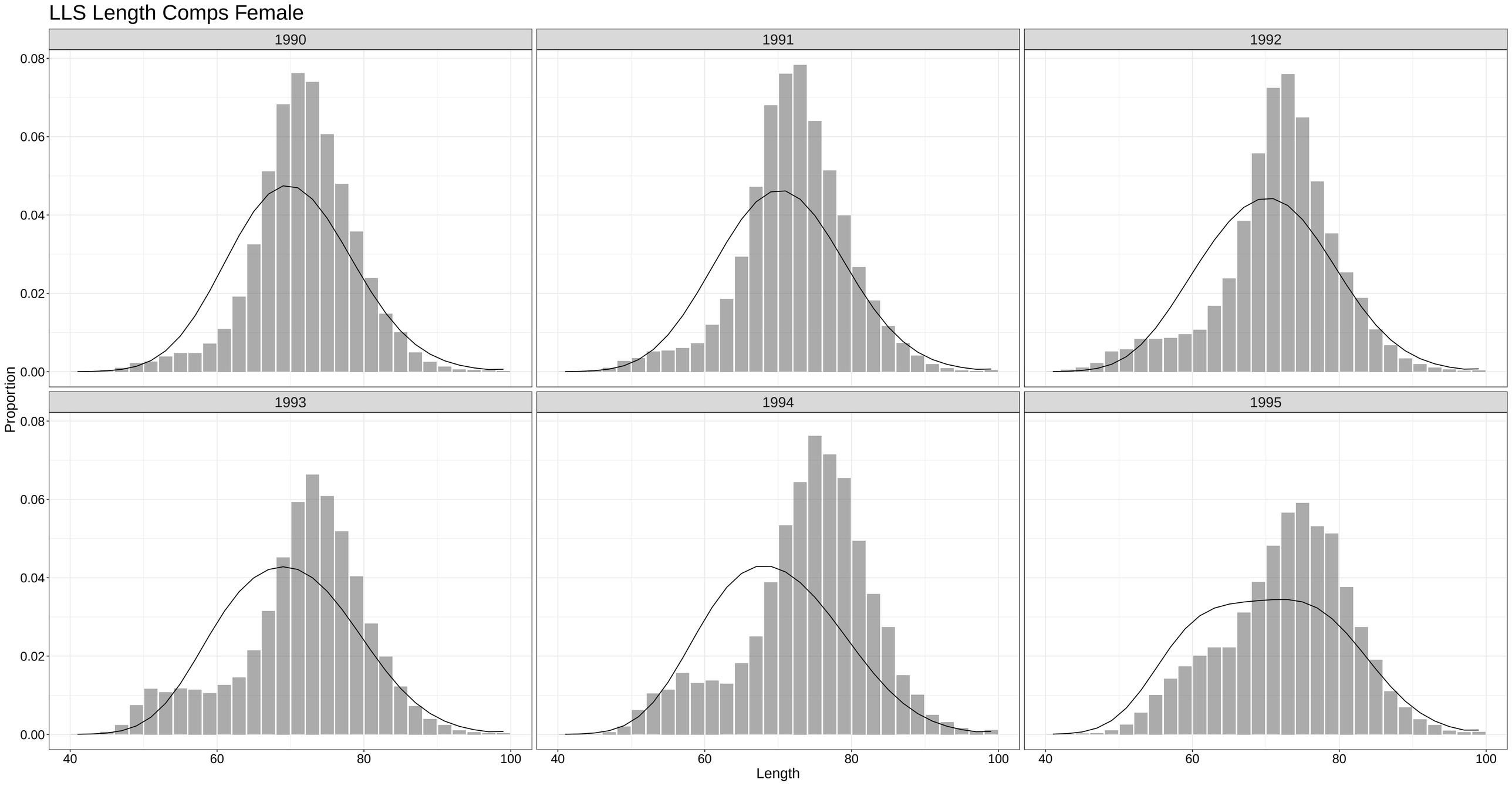

JPN LLS Age Comps Female
1981
1985
1987
1989
1991
1993
Proportion
0.00
0.05
0.10
0.15
10
20
30
Age

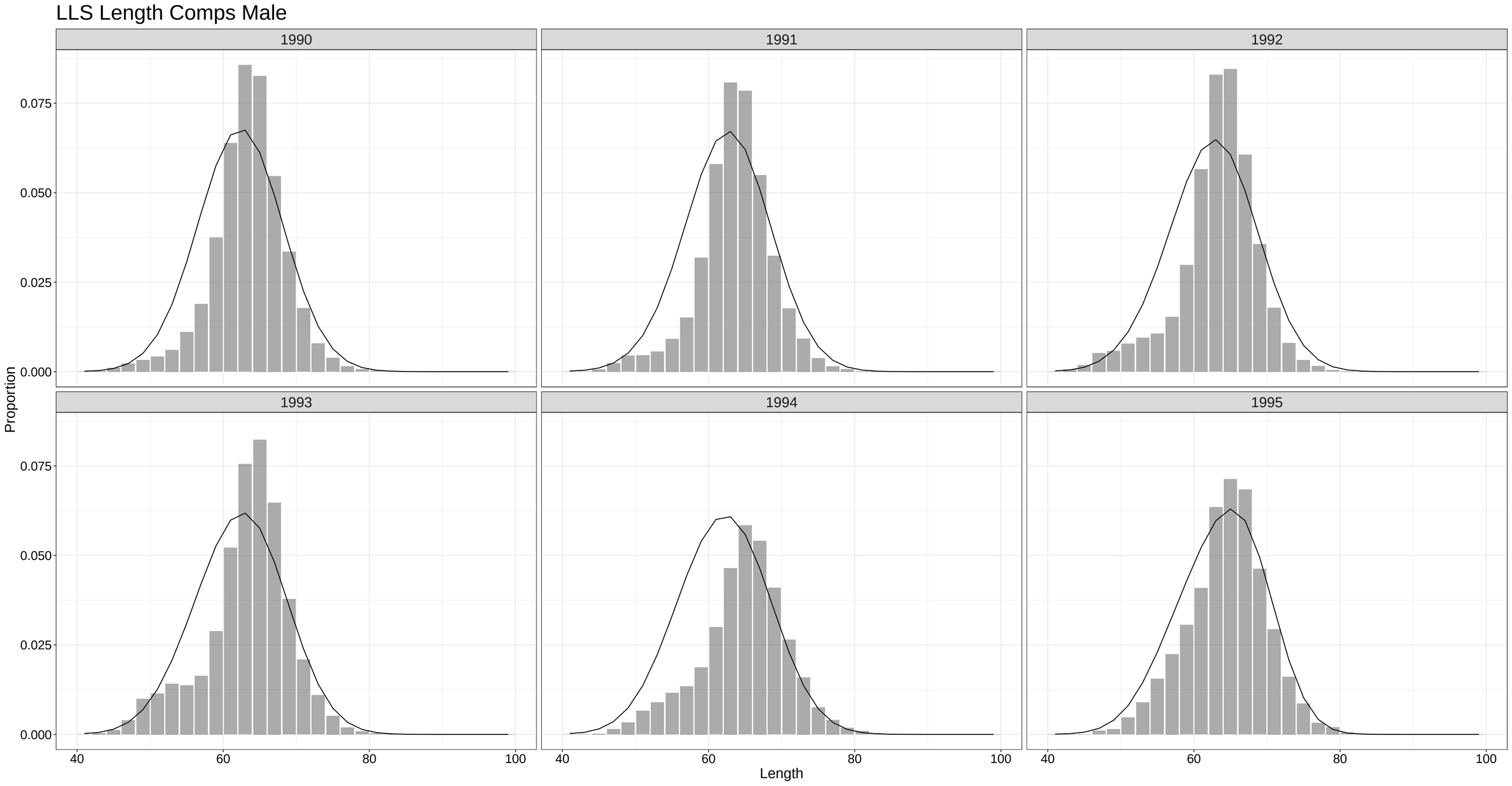

JPN LLS Age Comps Cohort Fit Female
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
Proportion
0.00
0.05
0.10
0.15
Age
10
20
30

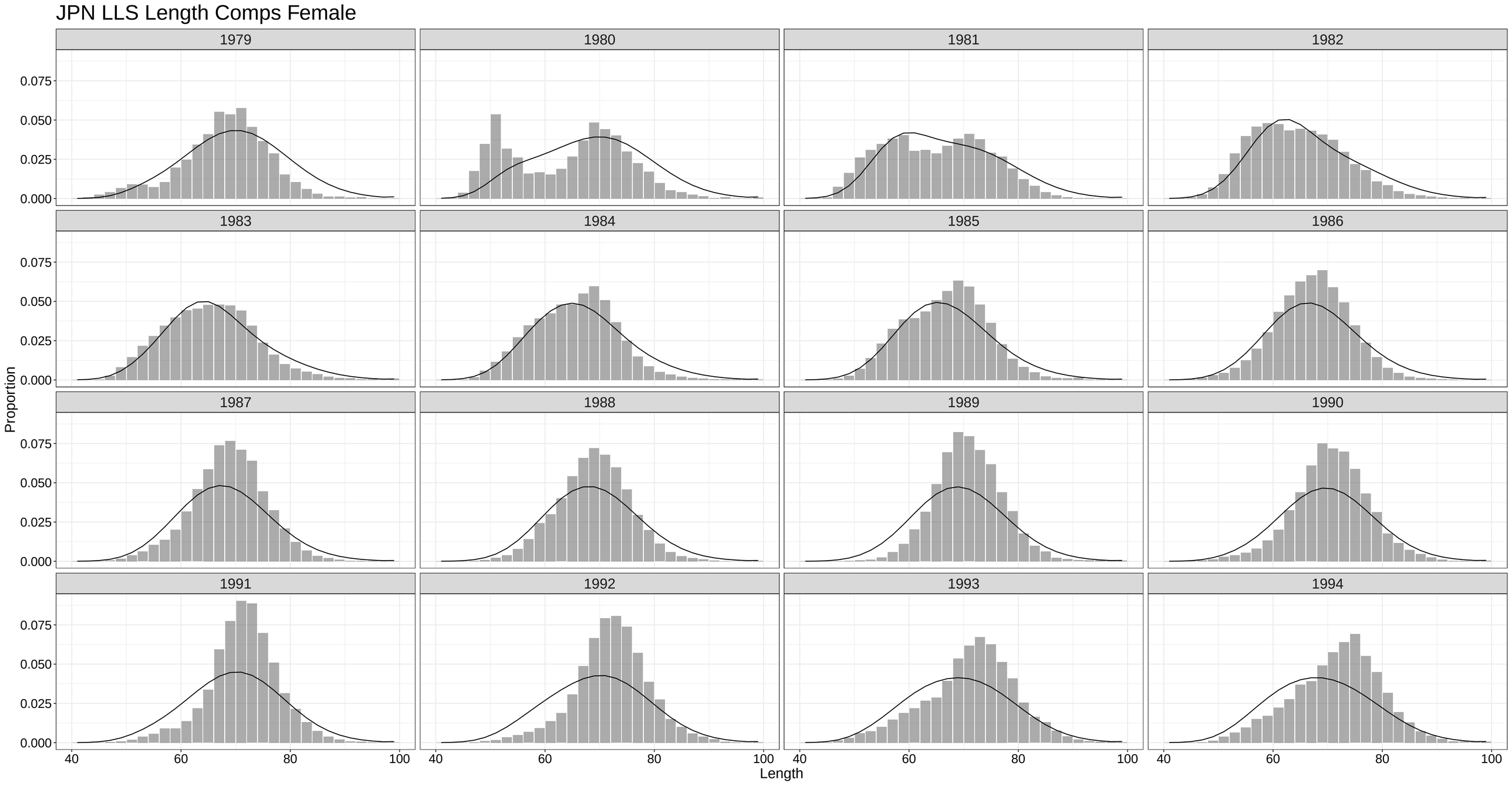

JPN LLS Age Comps Male
1981
1985
1987
1989
1991
1993
Proportion
0.100
0.075
0.050
0.025
0.000
10
20
30
Age

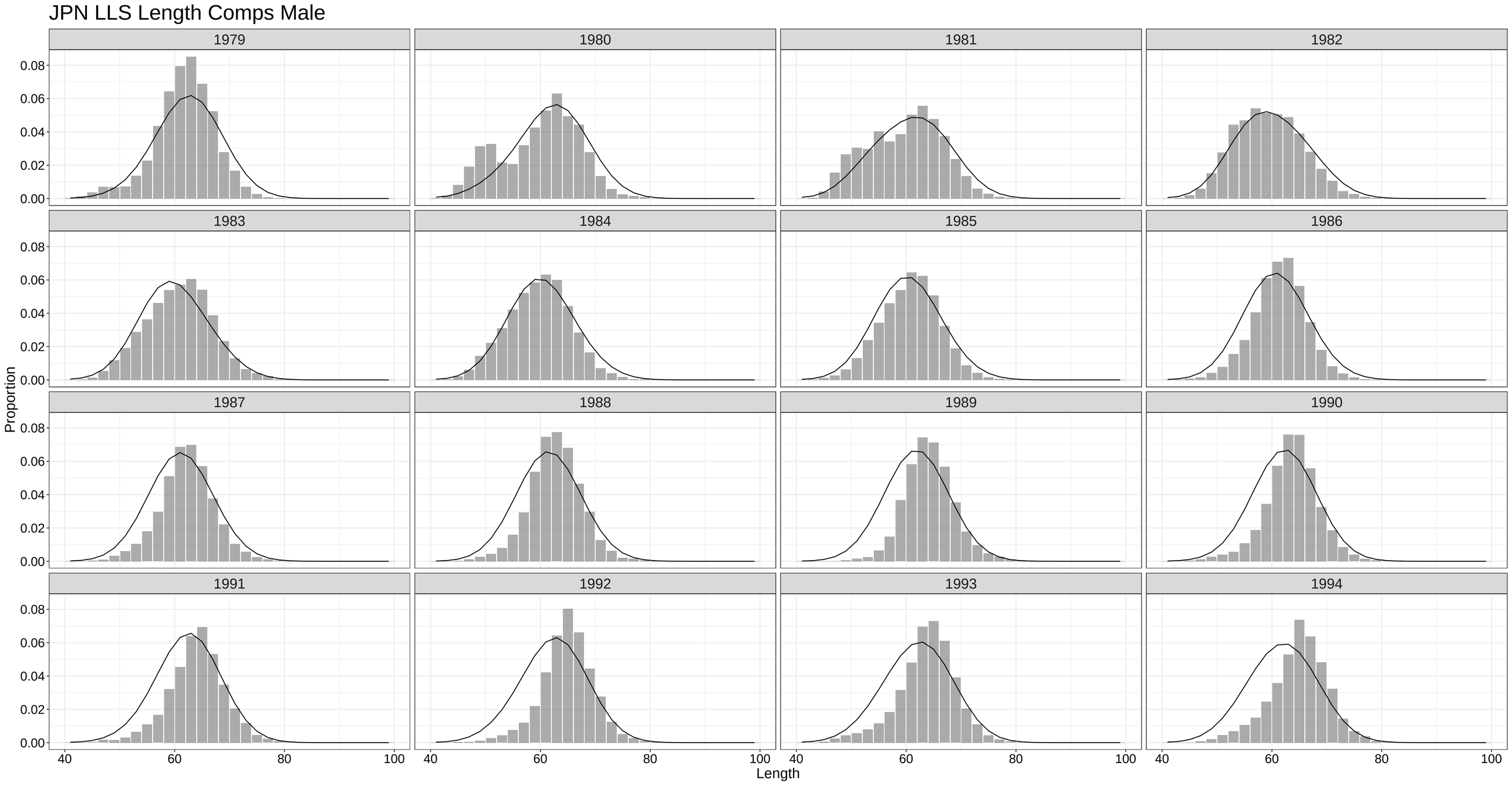
JPN LLS Age Comps Cohort Fit Male

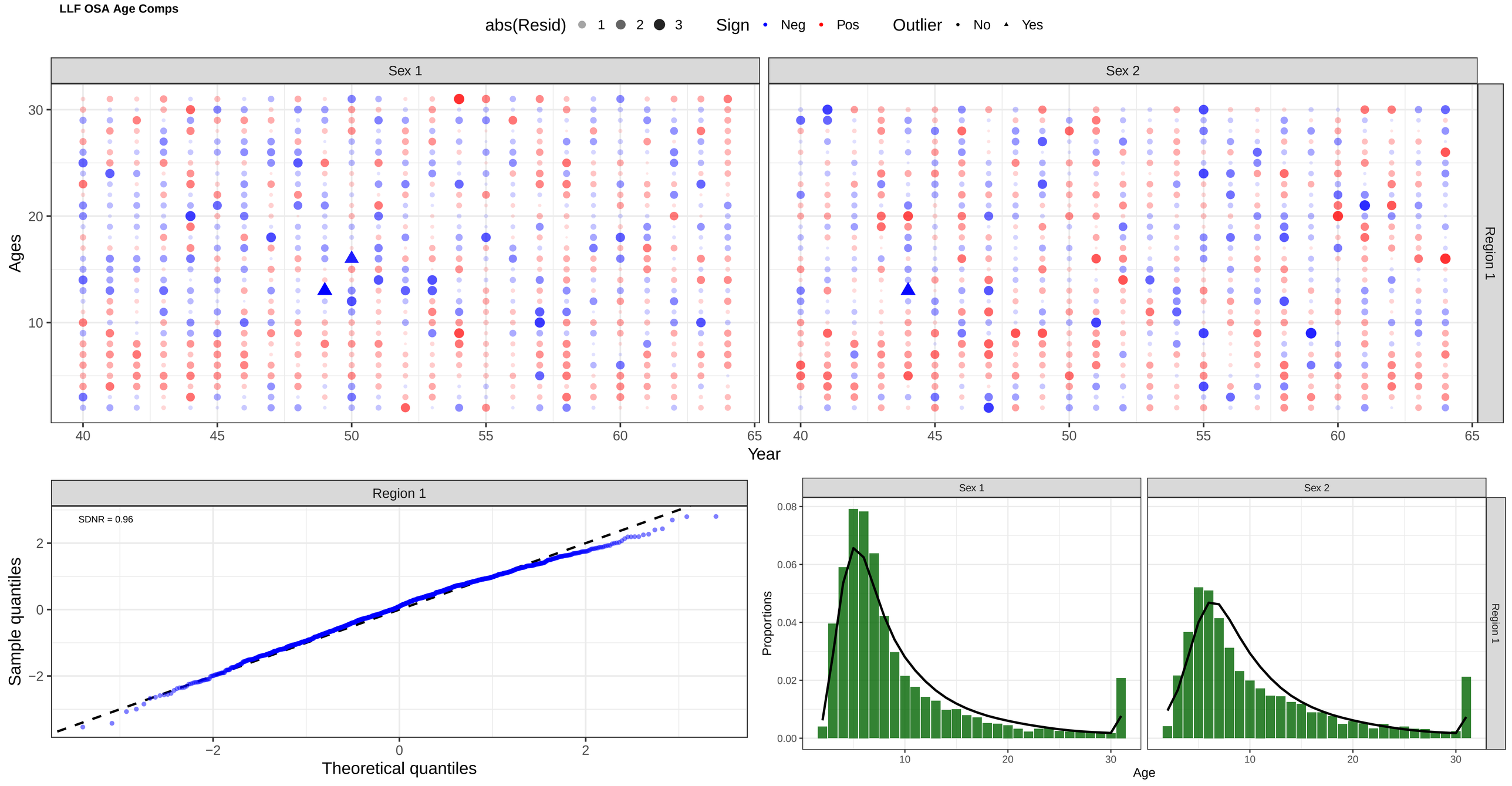


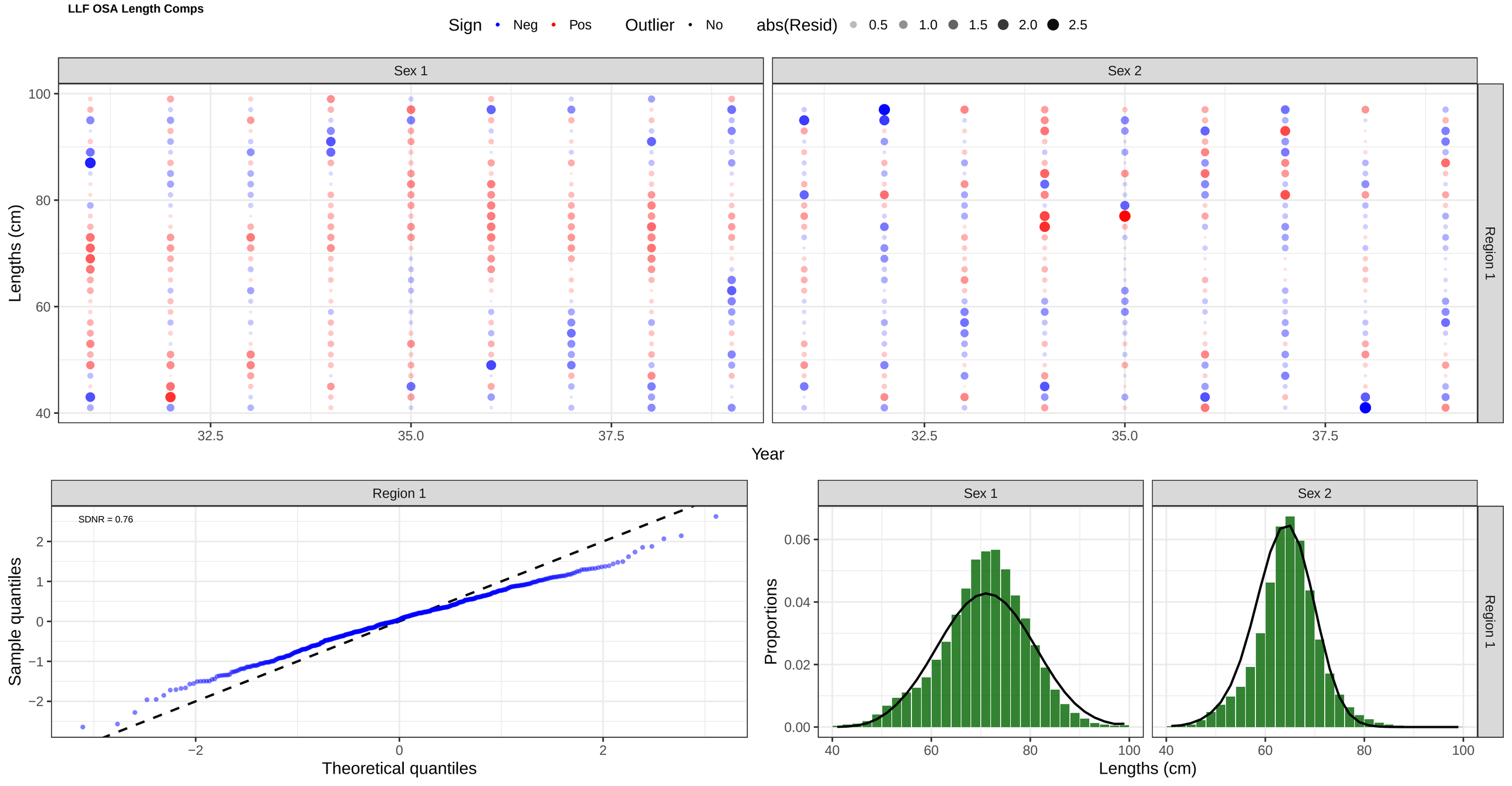

LLS Length Comps Female
1990
1991
1992
1993
1994
1995
Proportion
0.00
0.02
0.04
0.06
0.08
40
60
80
100
Length

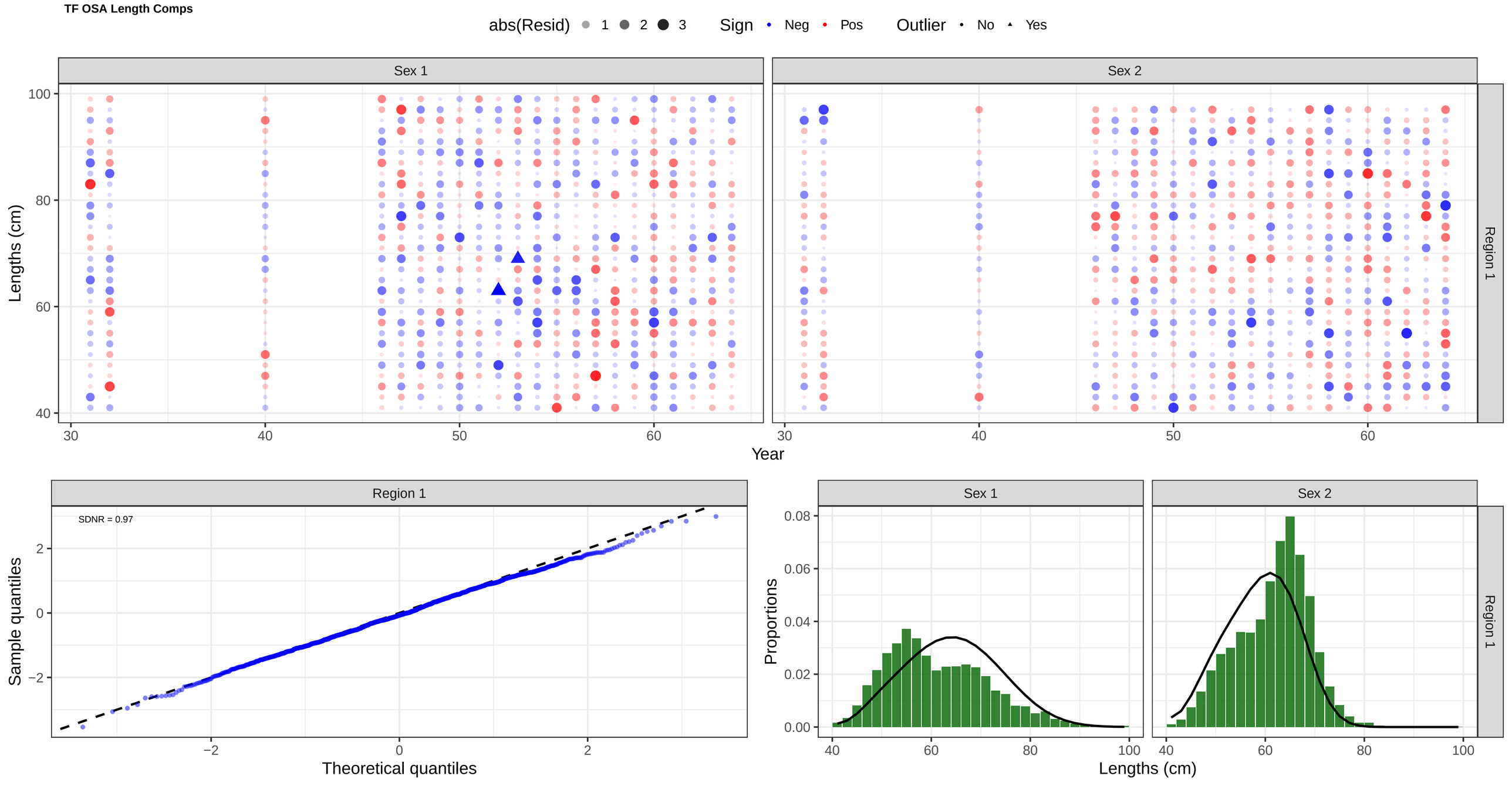

LLS Length Comps Male
1990
1991
1992
1993
1994
1995
Proportion
0.000
0.025
0.050
0.075
40
60
80
100
Length


JPN LLS Length Comps Female
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
Proportion
0.000
0.025
0.050
0.075
40
60
80
100
Length

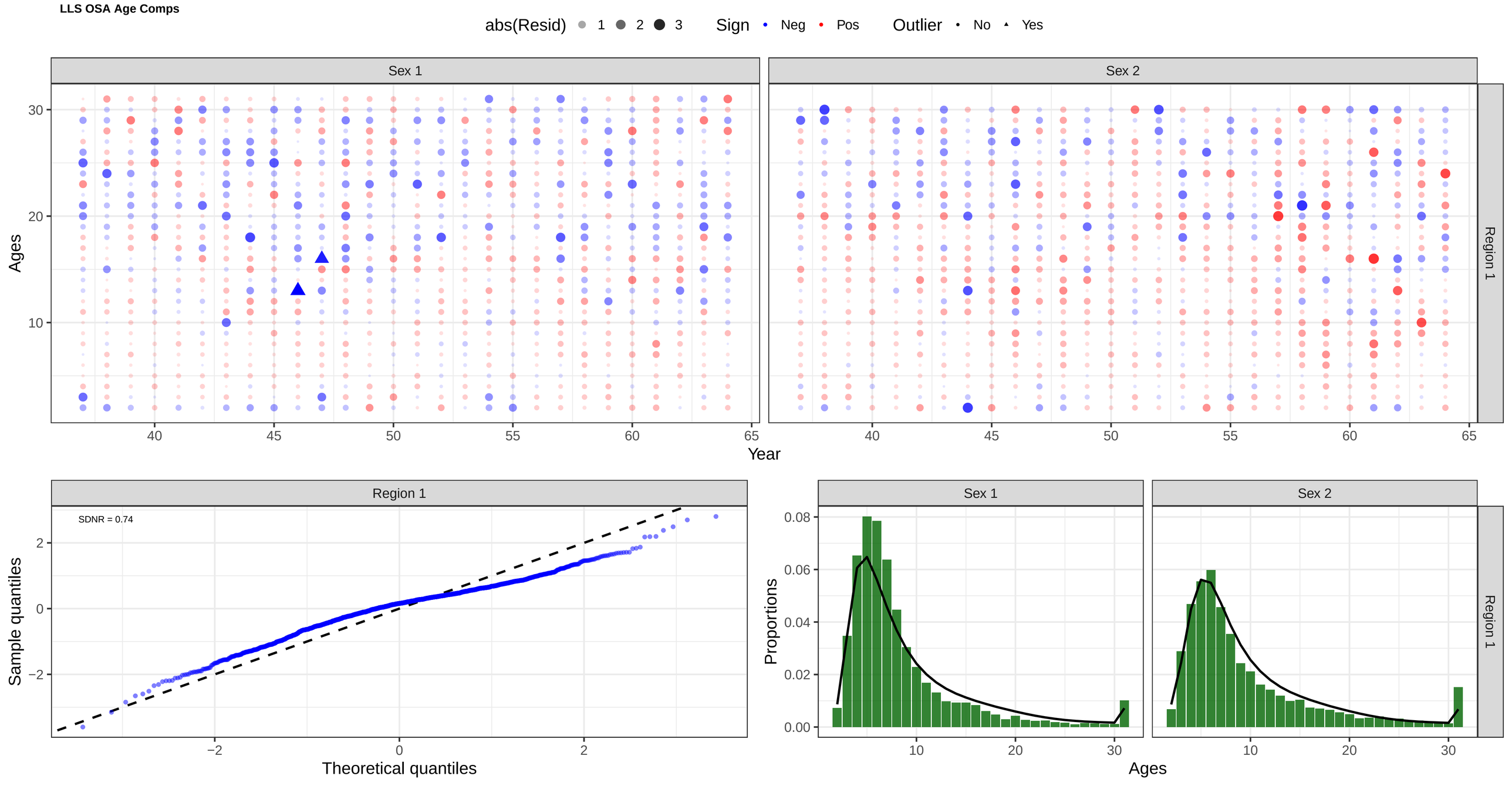

JPN LLS Length Comps Male
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
Proportion
0.00
0.02
0.04
0.06
0.08
40
60
80
100
Length


LLF OSA Age Comps
abs(Resid) 1 2 3
Sign Neg Pos
Outlier No Yes
Sex 1
Sex 2
Region 1
Ages
Year
30
20
10
40
45
50
55
60
65
Region 1
SDNR = 0.96
Sample quantiles
Theoretical quantiles
−2
0
2
Sex 1
Sex 2
Proportions
Age
0.08
0.06
0.04
0.02
0.00
10
20
30
Region 1

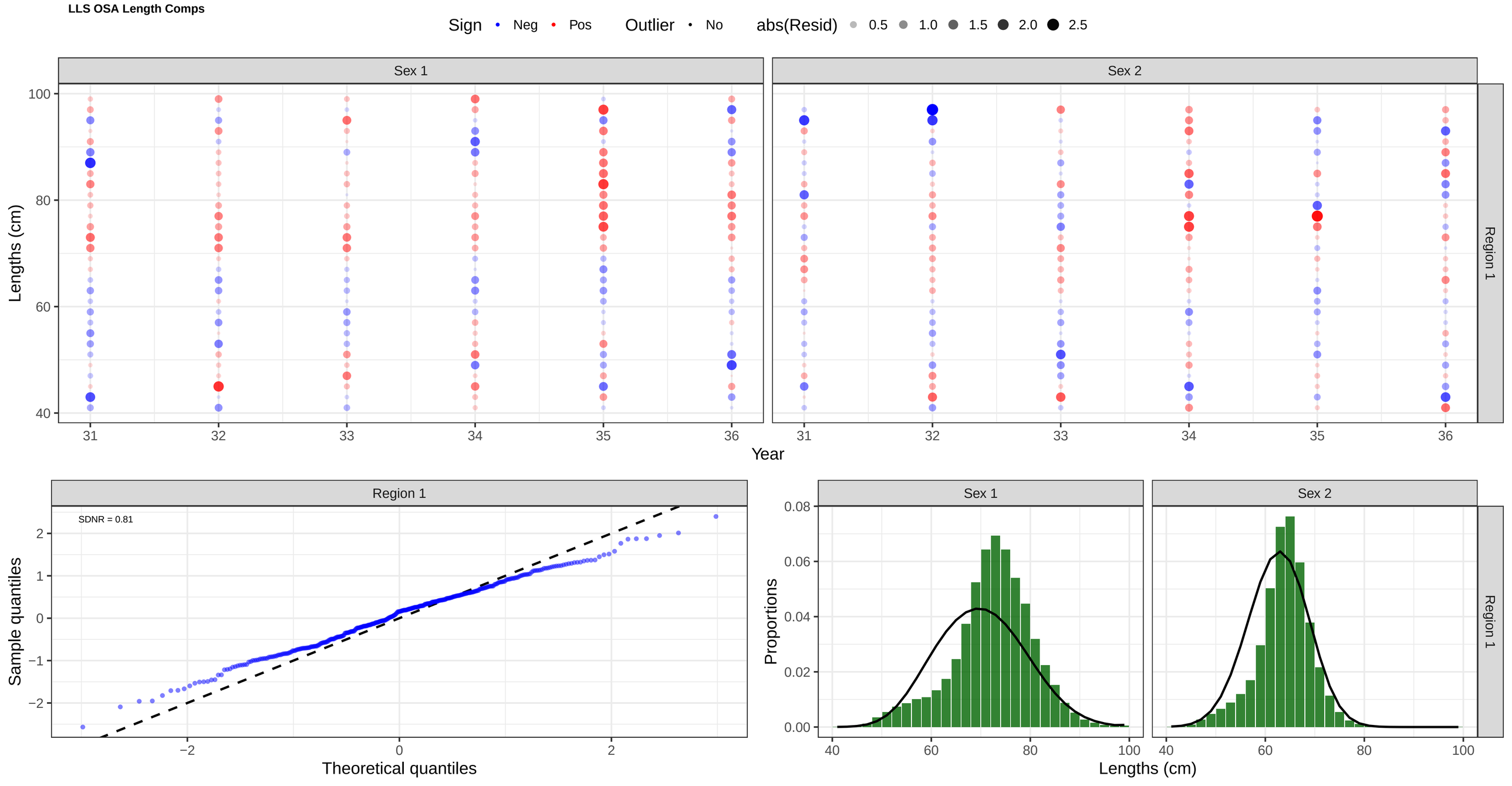

LLF OSA Length Comps
Sign Neg Pos
Outlier No
abs(Resid) 0.5 1.0 1.5 2.0 2.5
Sex 1
Sex 2
Region 1
Lengths (cm)
Year
SDNR = 0.76
Sample quantiles
Theoretical quantiles
Proportions
Lengths (cm)

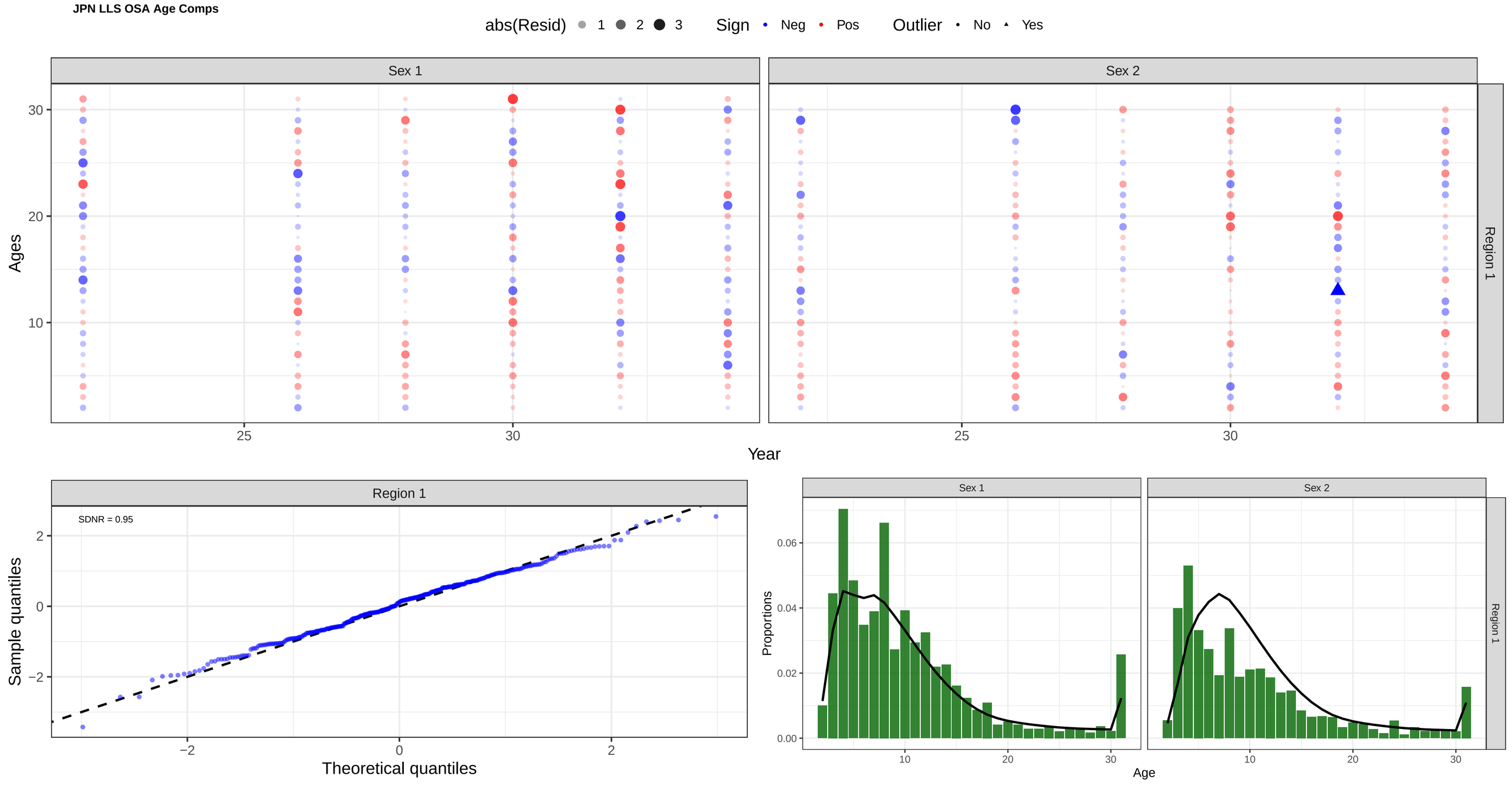

TF OSA Length Comps
abs(Resid) 1 2 3
Sign Neg Pos
Outlier No Yes
Sex 1
Sex 2
Region 1
Lengths (cm)
Year
SDNR = 0.97
Sample quantiles
Theoretical quantiles
Proportions
Lengths (cm)

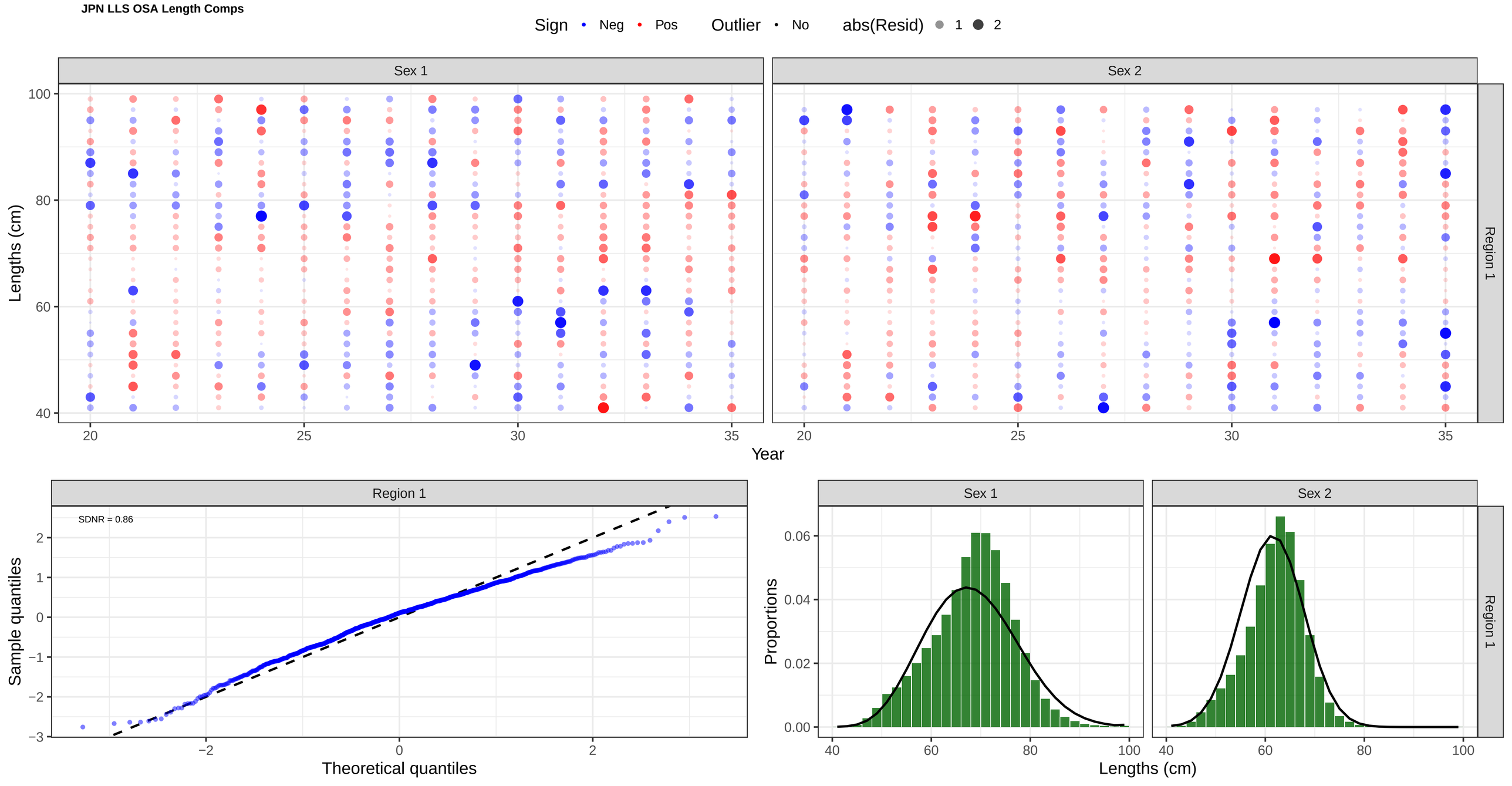
LLS OSA Age Comps

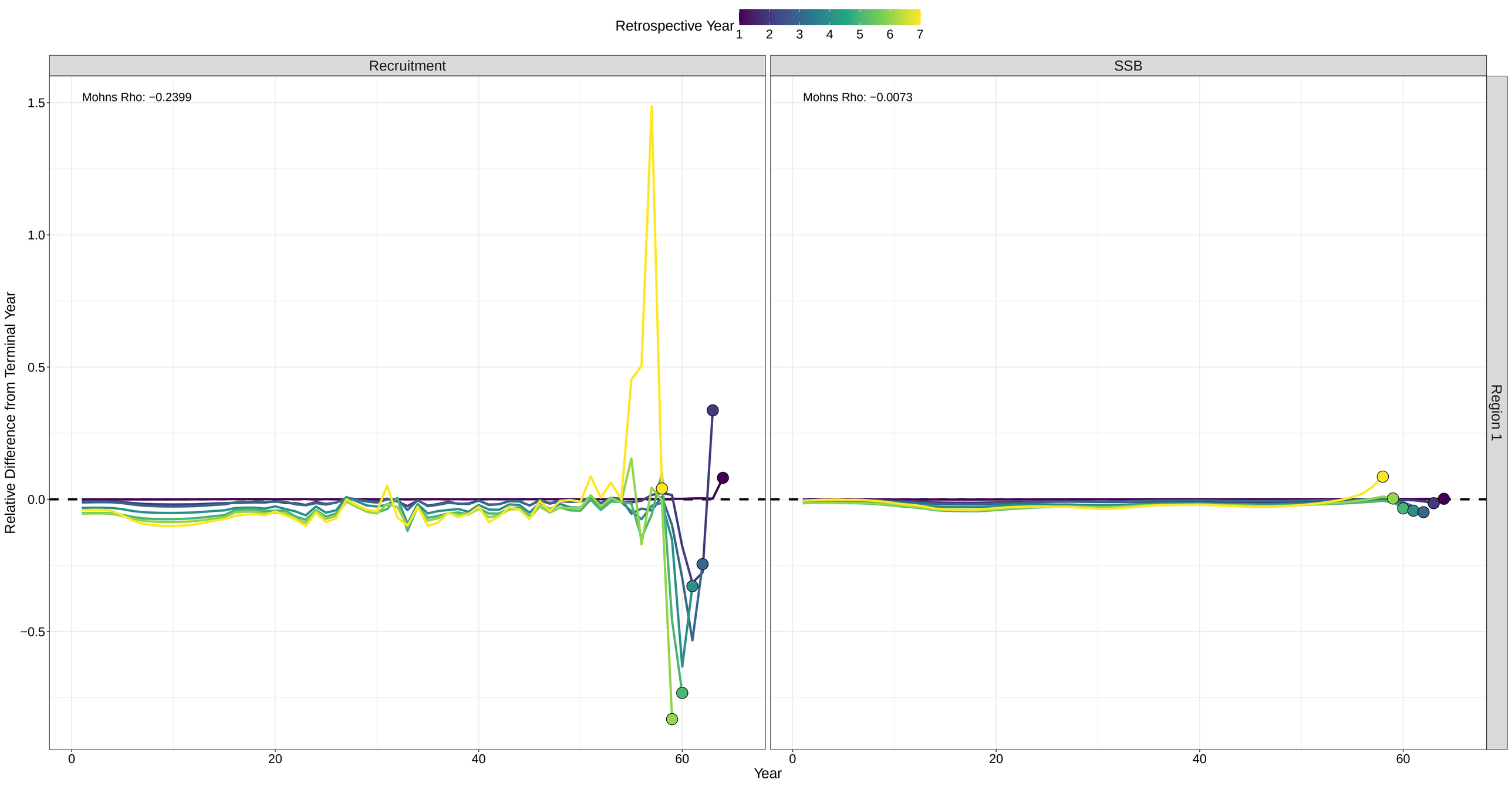


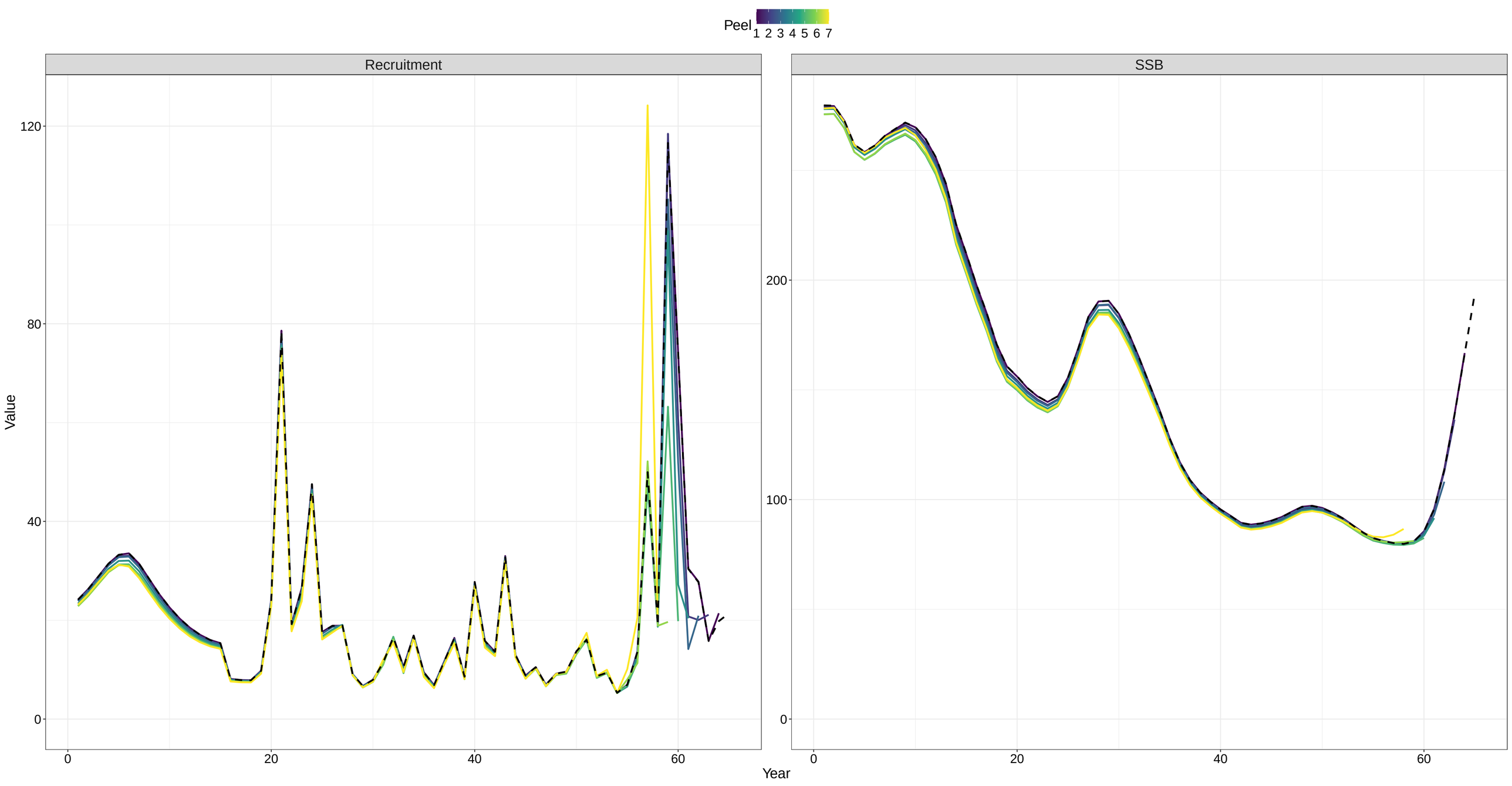
LLS OSA Length Comps

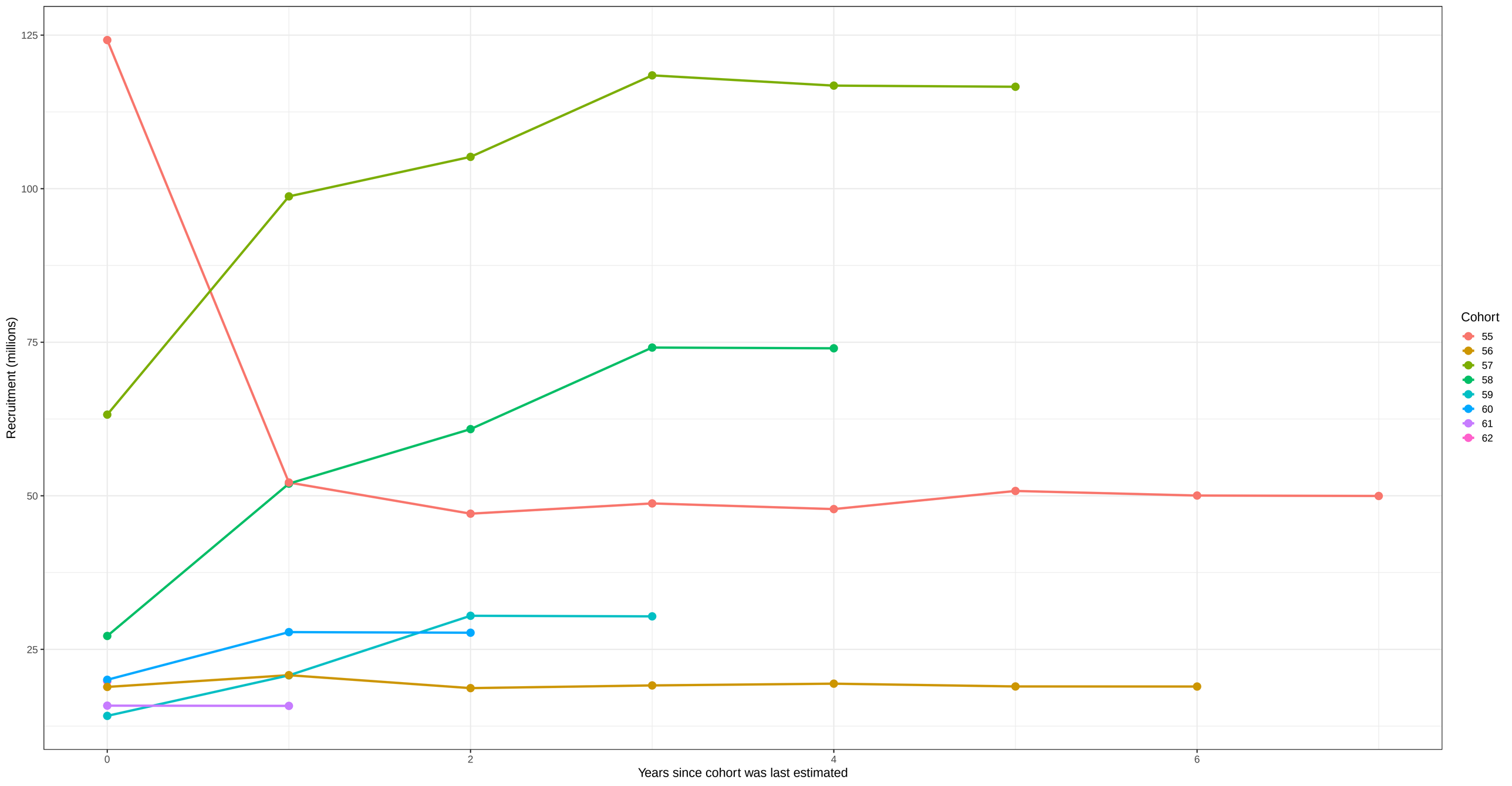


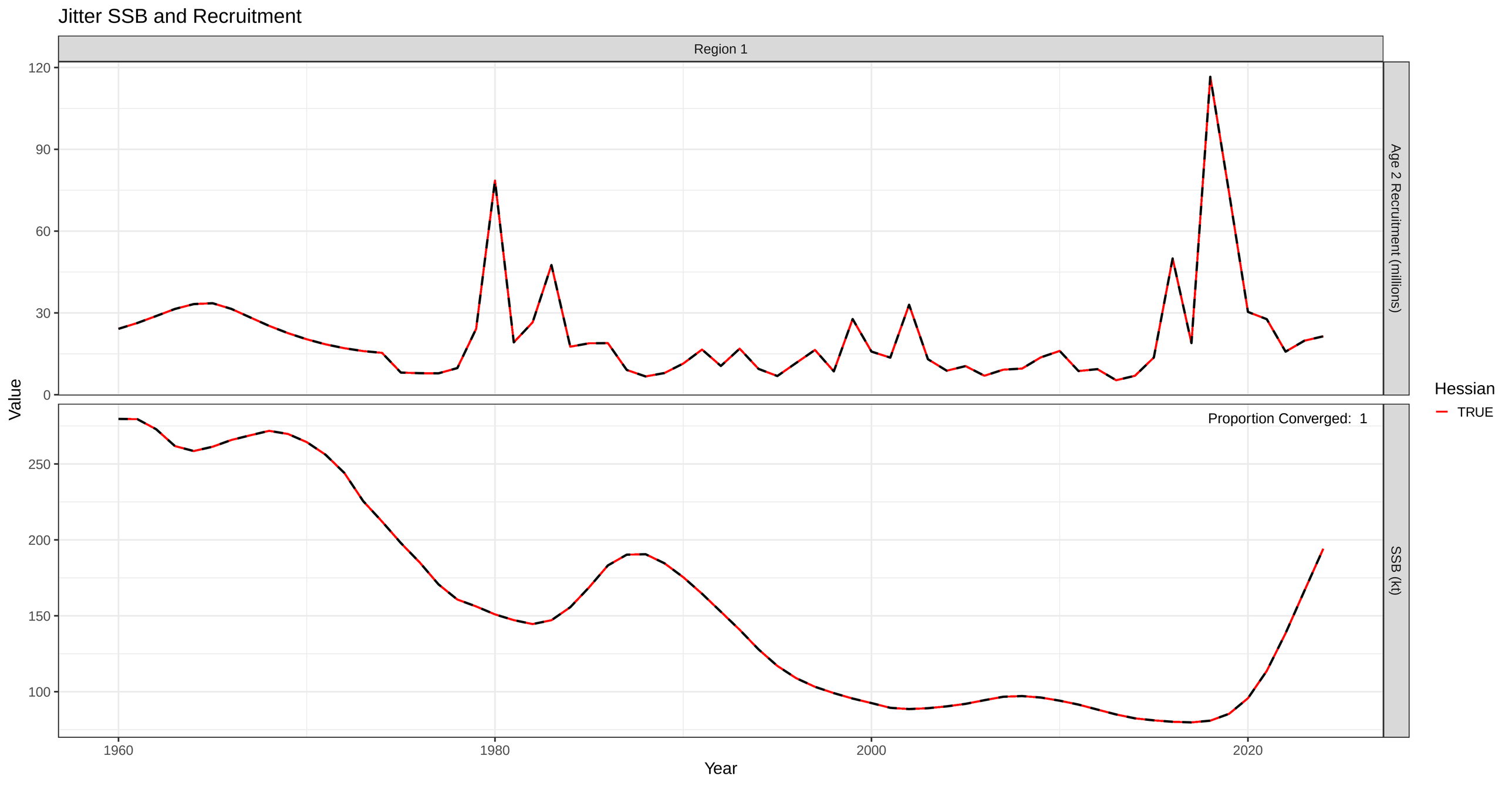

JPN LLS OSA Age Comps
abs(Resid) 1 2 3
Sign Neg Pos
Outlier No Yes
Sex 1
Sex 2
Region 1
Ages
Year
Region 1
SDNR = 0.95
Sample quantiles
Theoretical quantiles
Sex 1
Sex 2
Region 1
Proportions
Age

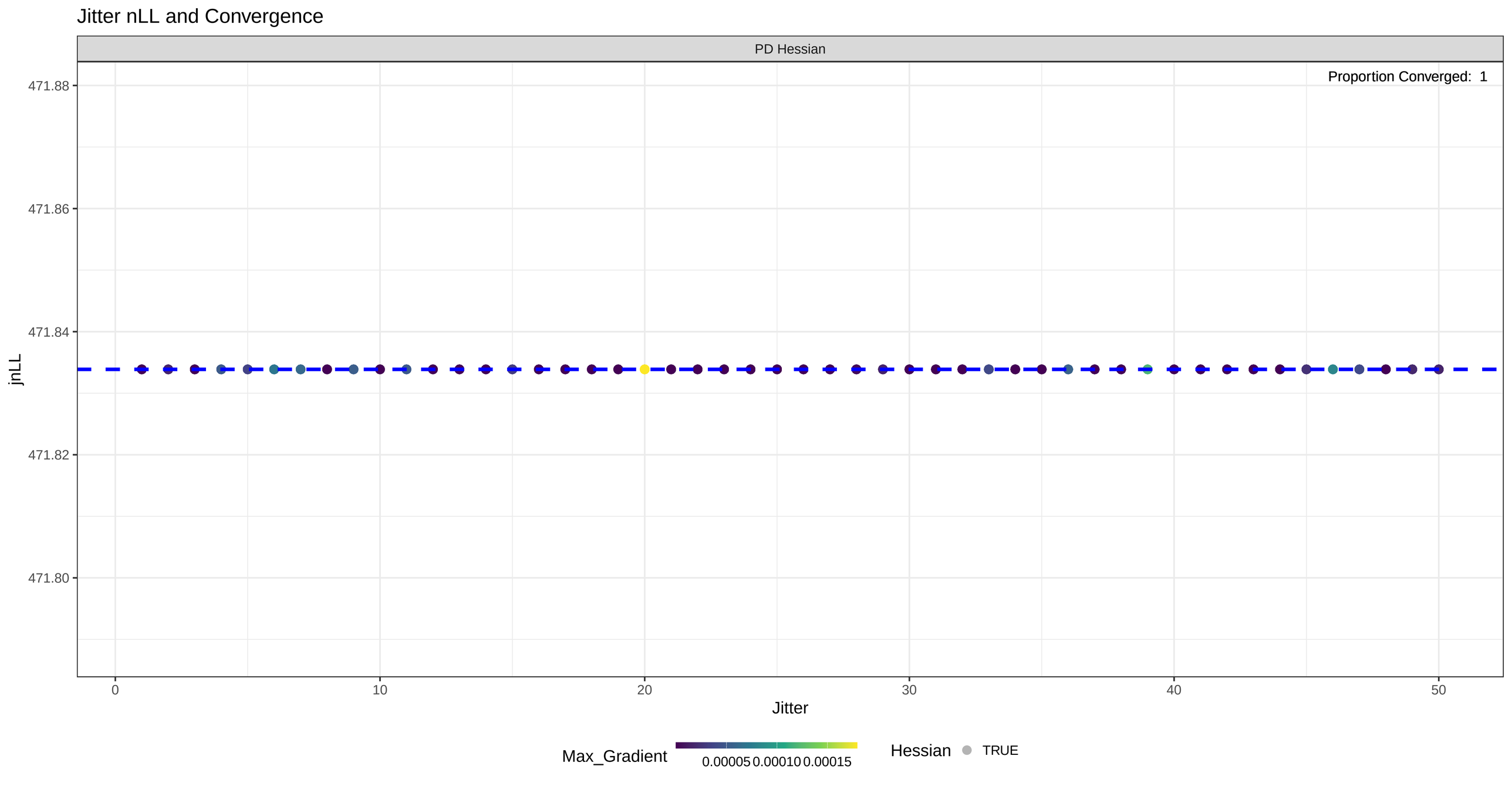

JPN LLS OSA Length Comps
Sign Neg Pos
Outlier No
abs(Resid) 1 2
Sex 1
Sex 2
Region 1
Lengths (cm)
Year
SDNR = 0.86
Sample quantiles
Theoretical quantiles
Proportions
Lengths (cm)

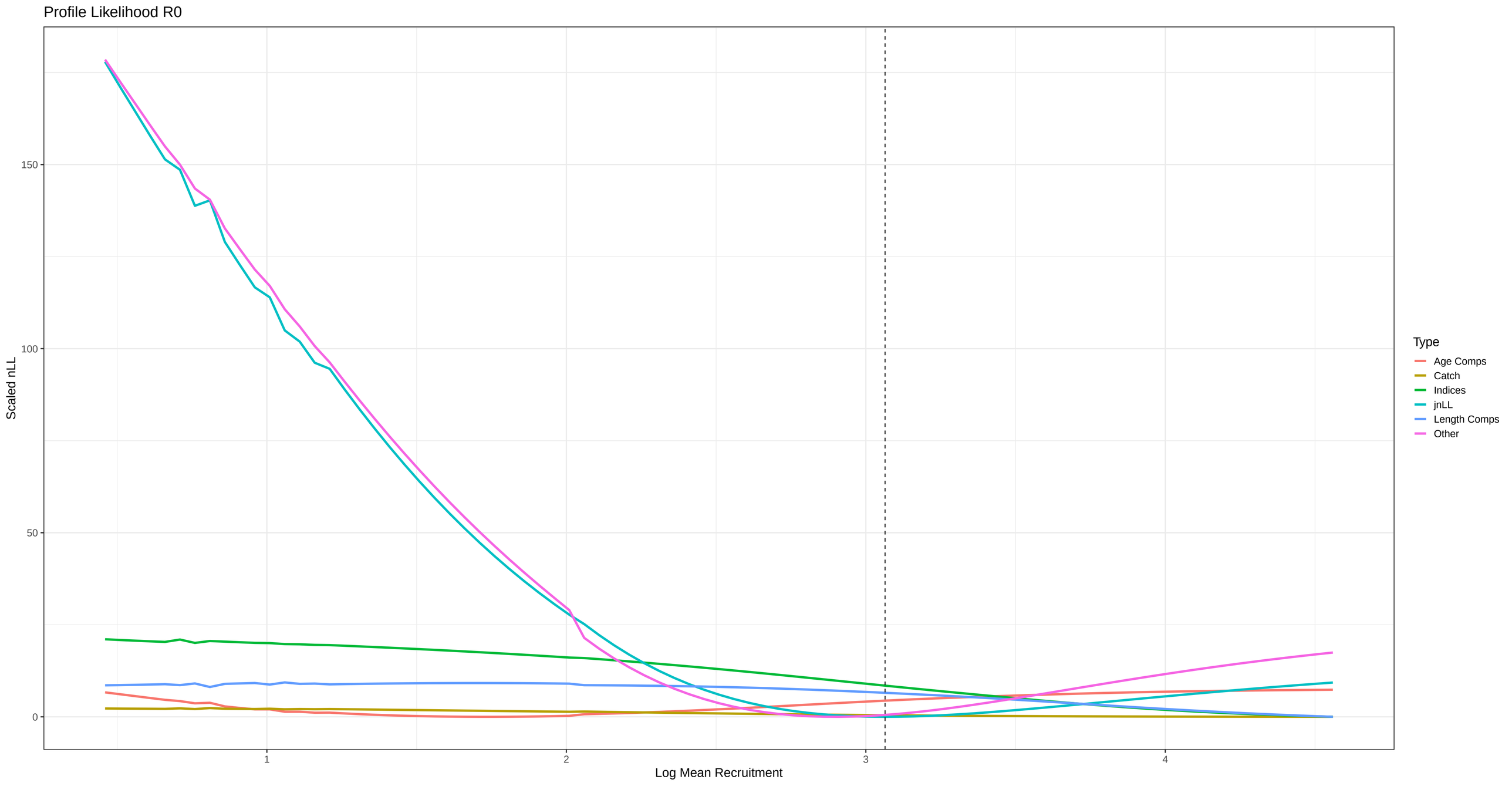

Retrospective Year
1
2
3
4
5
6
7
Recruitment
SSB
Region 1
Mohns Rho: −0.2399
Mohns Rho: −0.0073
Relative Difference from Terminal Year
1.5
1.0
0.5
0.0
−0.5
0
20
40
60
Year

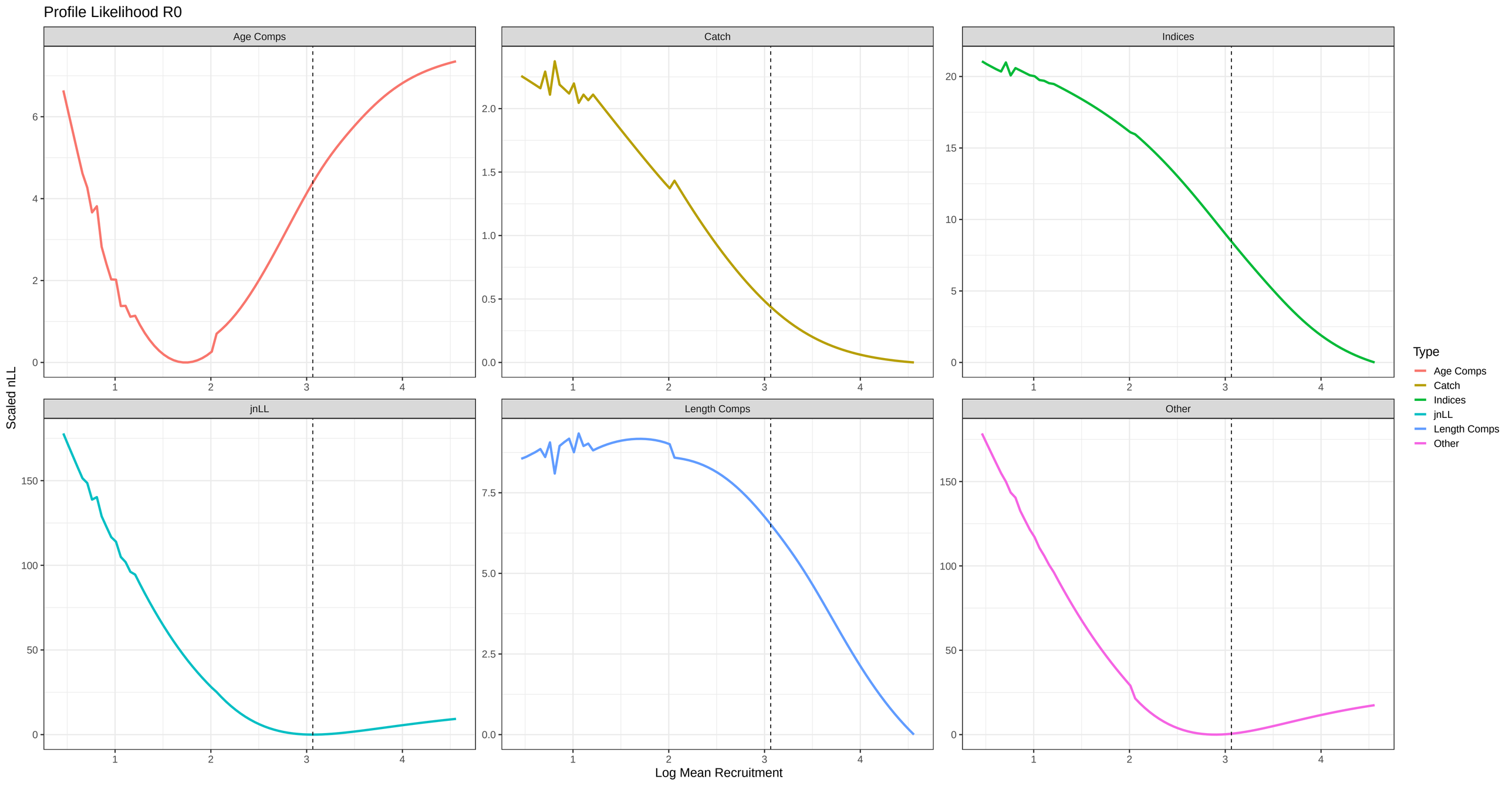

Peel
1 2 3 4 5 6 7
Recruitment
SSB
Value
Year
0
40
80
120
100
200
0
20
40
60

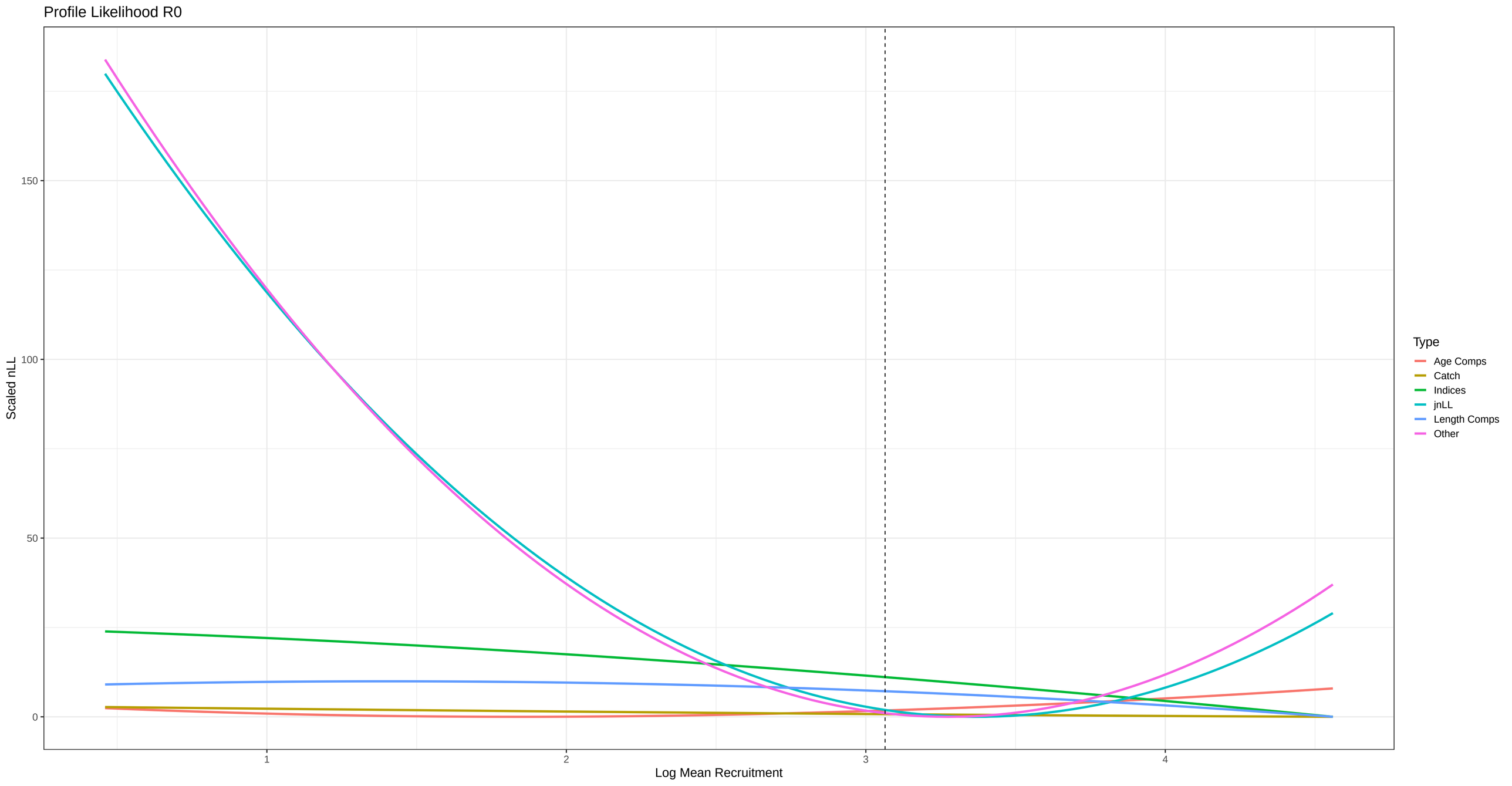

125
100
75
50
25
Recruitment (millions)
0
2
4
6
Years since cohort was last estimated
Cohort
55
56
57
58
59
60
61
62

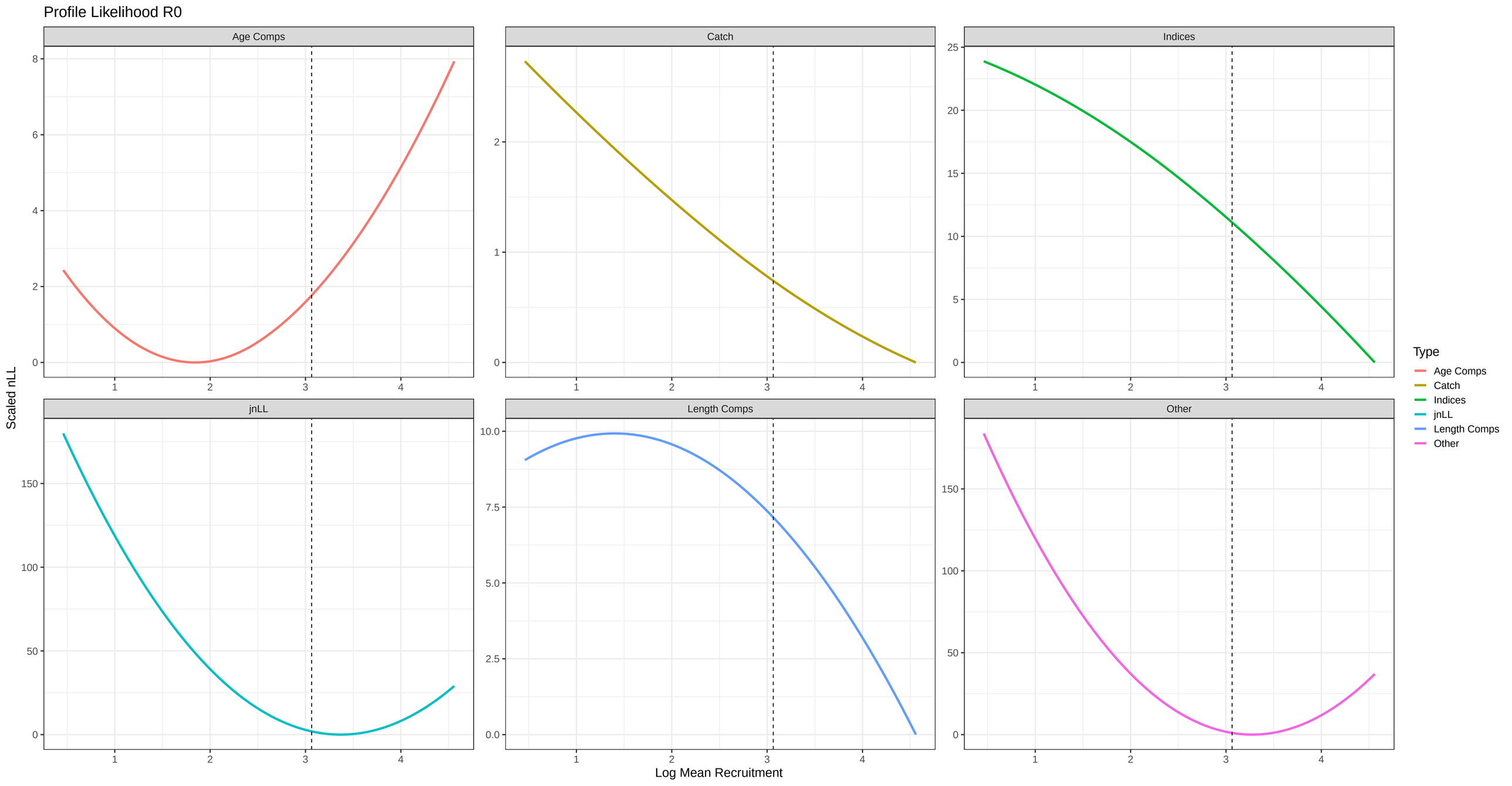

Jitter SSB and Recruitment
Region 1
Age 2 Recruitment (millions)
SSB (kt)
Proportion Converged: 1
Value
Year
Hessian
TRUE
120
90
60
30
0
250
200
150
100
1960
1980
2000
2020

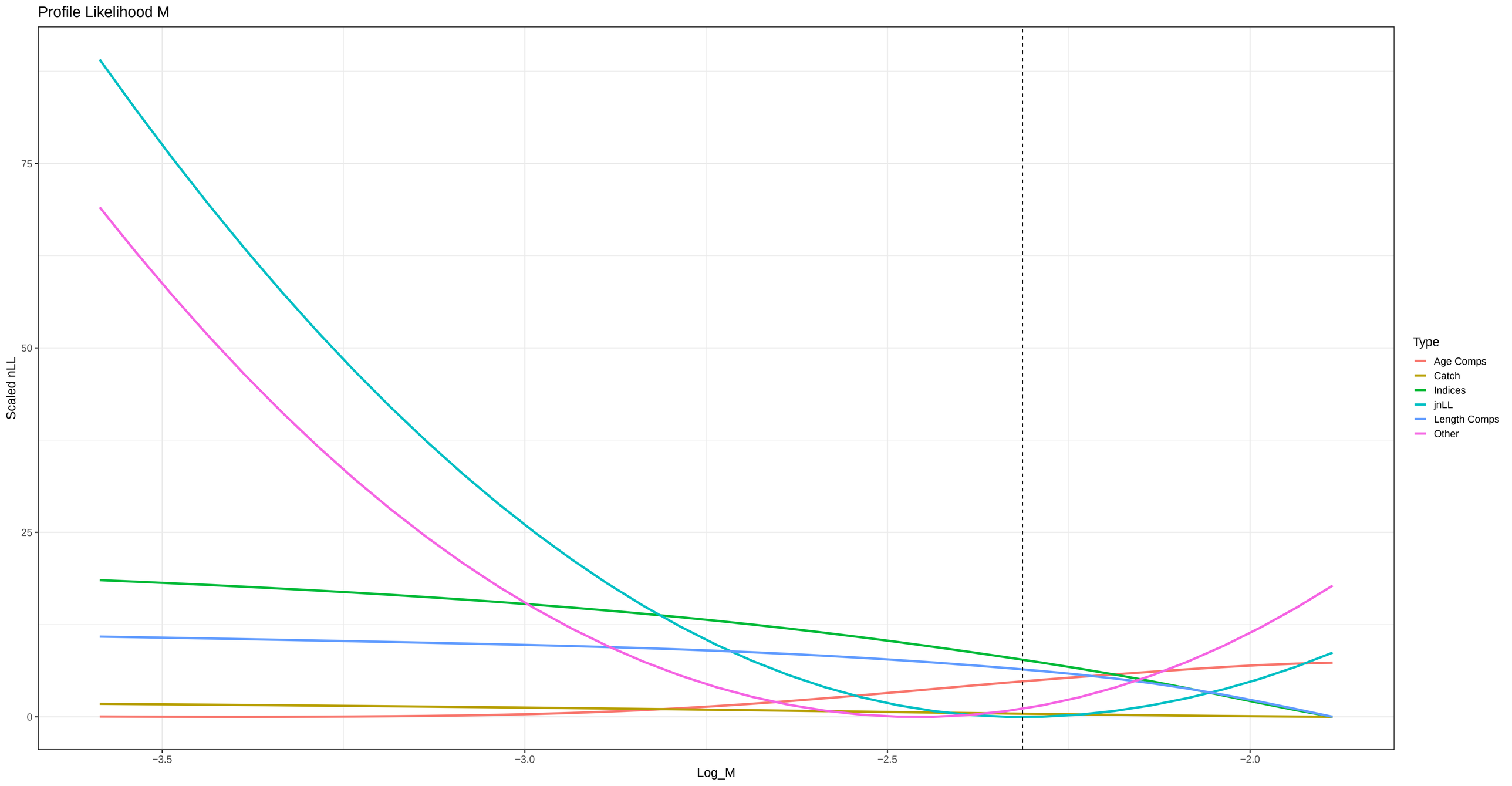

Jitter nLL and Convergence
PD Hessian
Proportion Converged: 1
471.88
471.86
471.84
471.82
471.80
jnLL
0
10
20
30
40
50
Jitter
Max_Gradient
0.00005
0.00010
0.00015
Hessian
TRUE

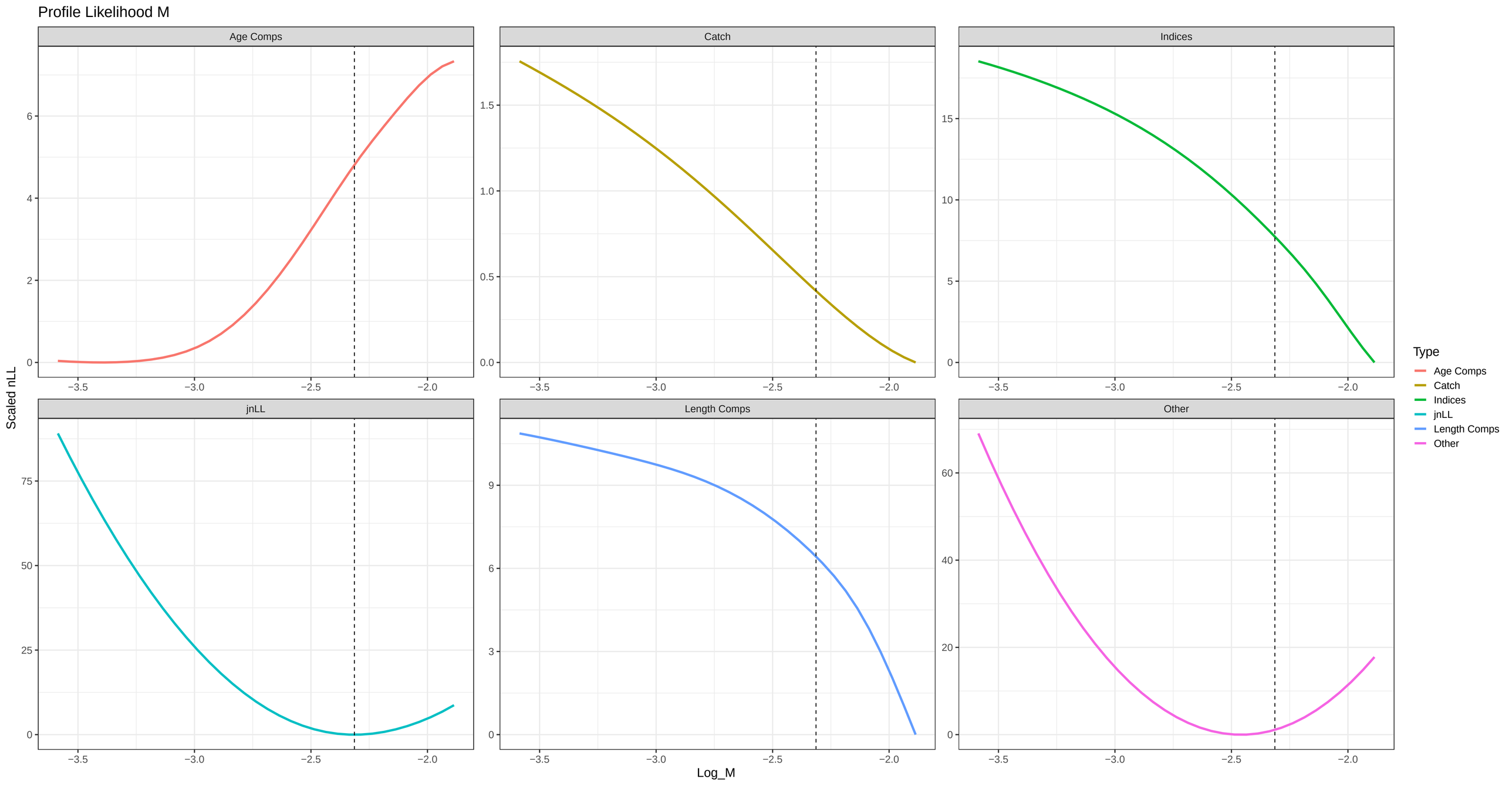

Profile Likelihood R0
Scaled nLL
150
100
50
0
1
2
3
4
Log Mean Recruitment
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other

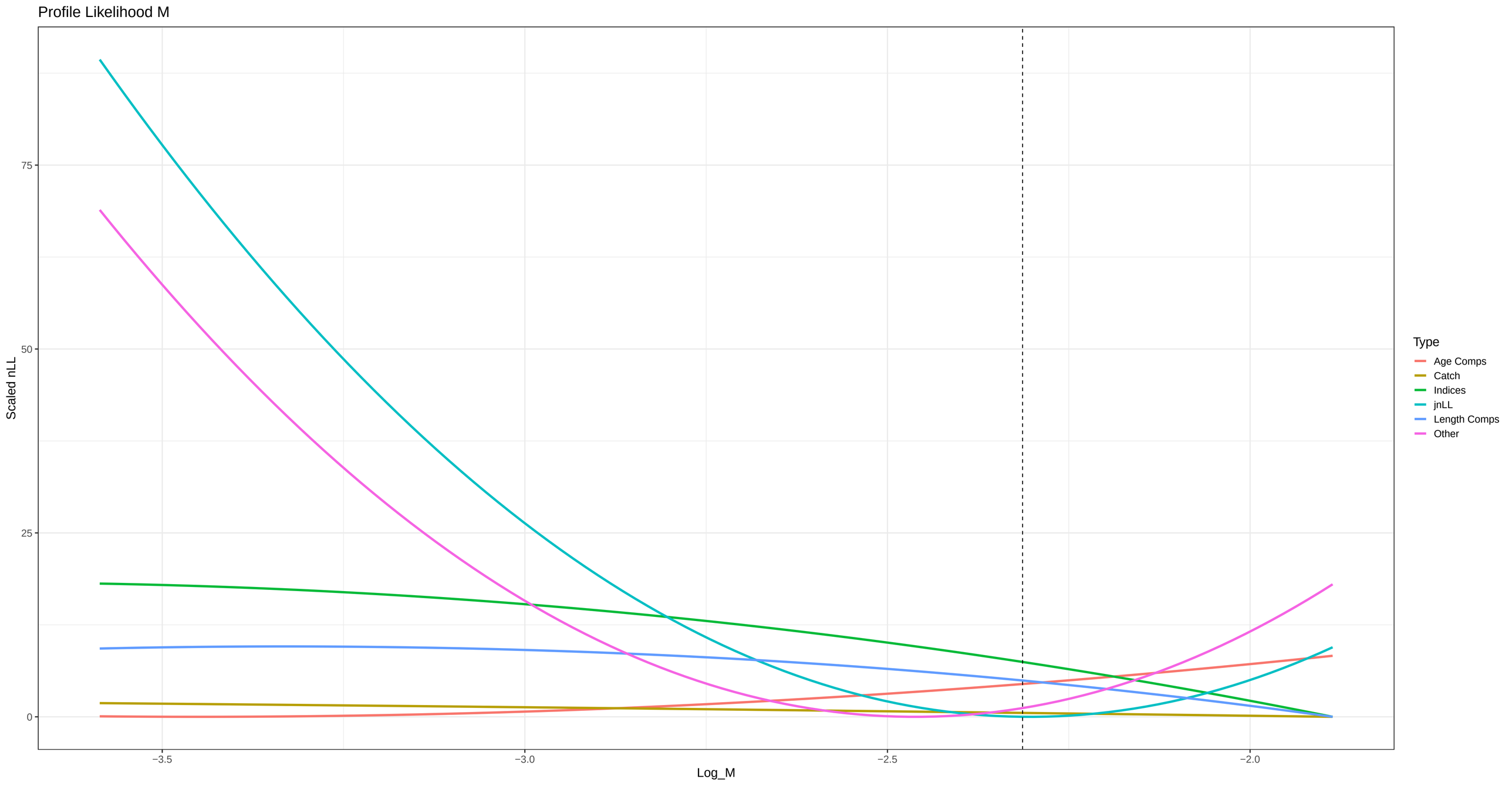

Profile Likelihood R0
Age Comps
Catch
Indices
jnLL
Length Comps
Other
Scaled nLL
Log Mean Recruitment
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other

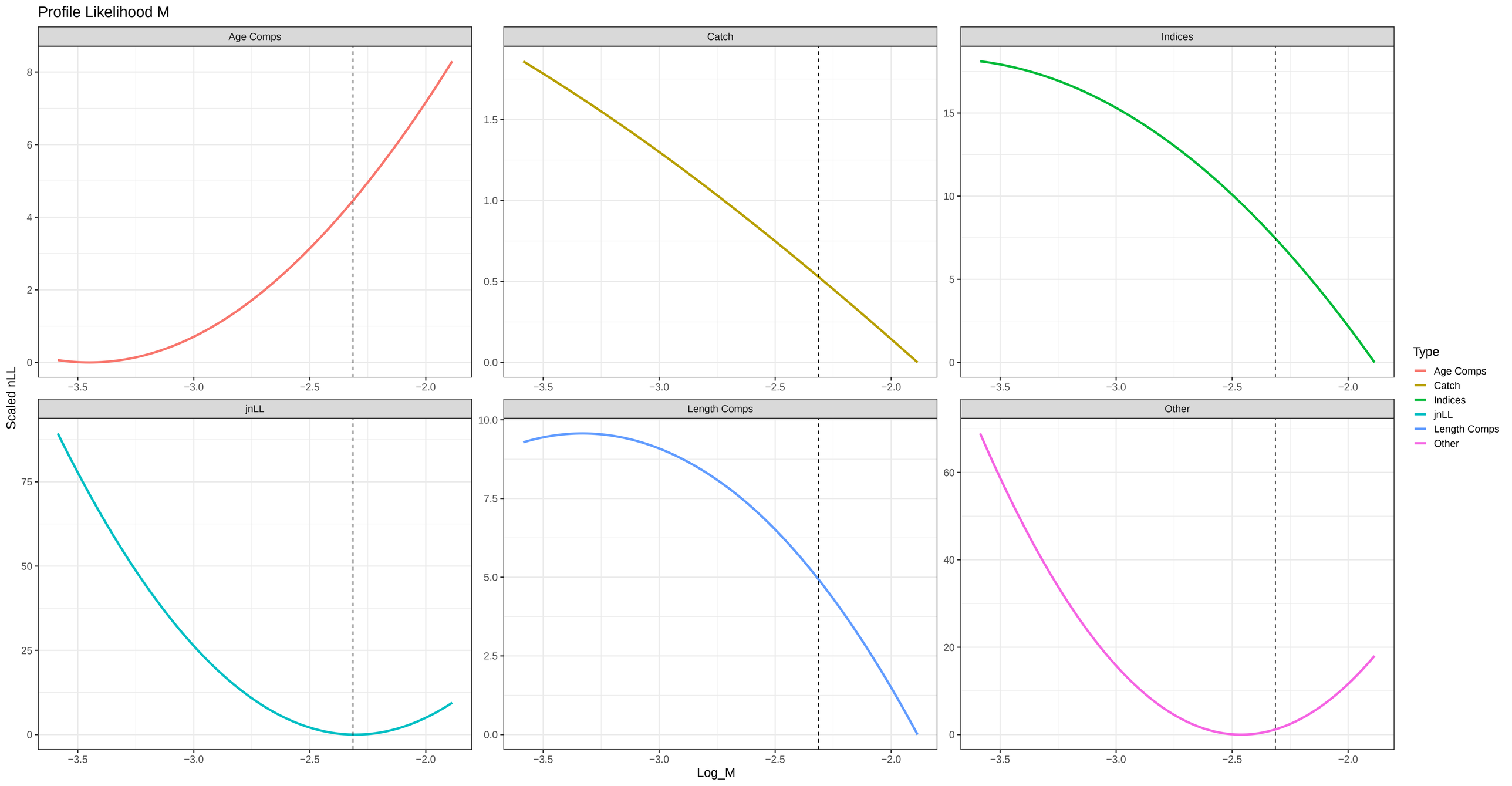

Profile Likelihood R0
Scaled nLL
150
100
50
0
1
2
3
4
Log Mean Recruitment
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other


Profile Likelihood R0
Age Comps
Catch
Indices
jnLL
Length Comps
Other
Scaled nLL
Log Mean Recruitment
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other


Profile Likelihood M
Scaled nLL
75
50
25
0
−3.5
−3.0
−2.5
−2.0
Log_M
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other


Profile Likelihood M
Age Comps
Catch
Indices
jnLL
Length Comps
Other
Scaled nLL
Log_M
−3.5
−3.0
−2.5
−2.0
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other


Profile Likelihood M
Scaled nLL
75
50
25
0
−3.5
−3.0
−2.5
−2.0
Log_M
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other


Profile Likelihood M
Age Comps
Catch
Indices
jnLL
Length Comps
Other
Scaled nLL
Log_M
Type
Age Comps
Catch
Indices
jnLL
Length Comps
Other