

Plots created using the 'r4ss' package in R

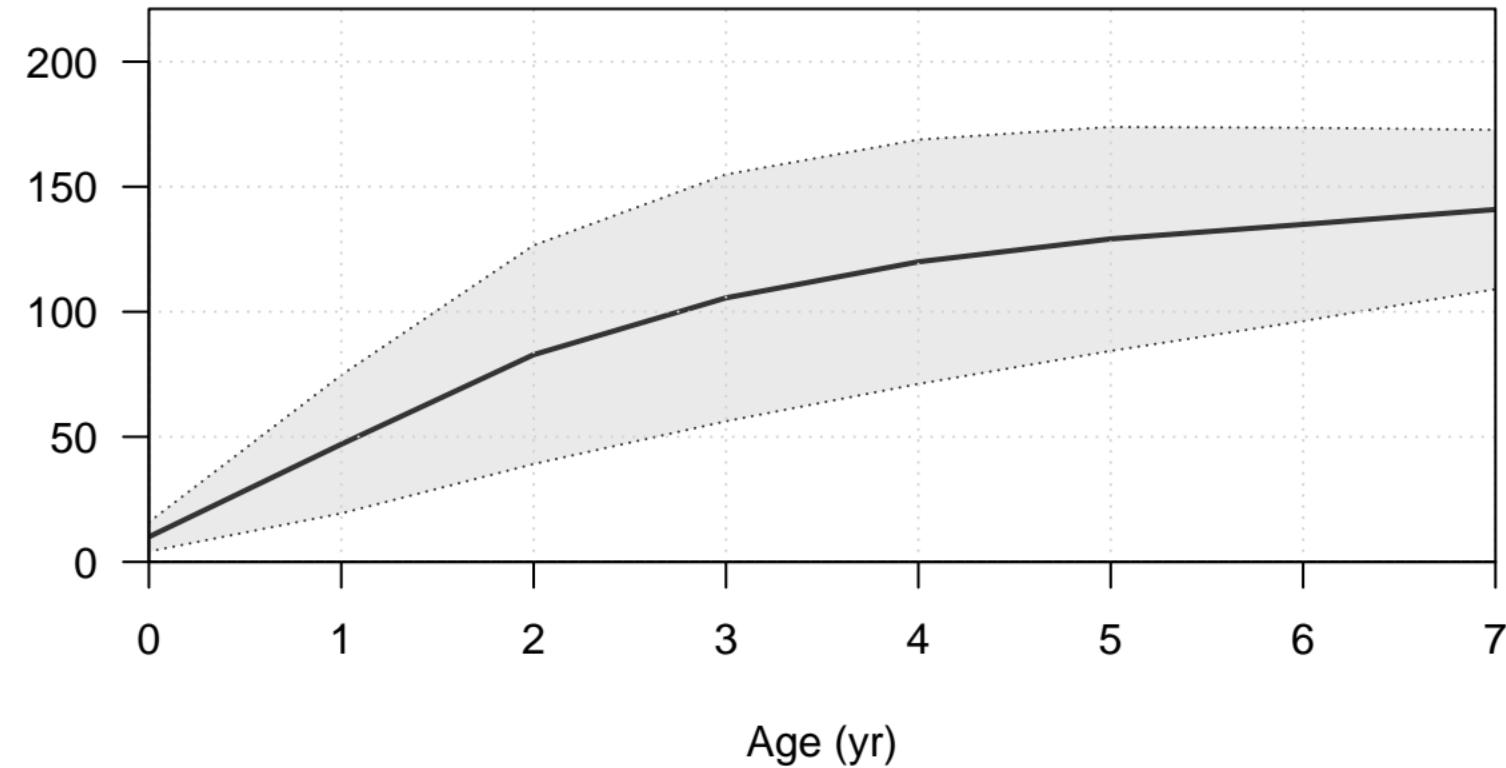
Stock Synthesis version: 3.30.18.0

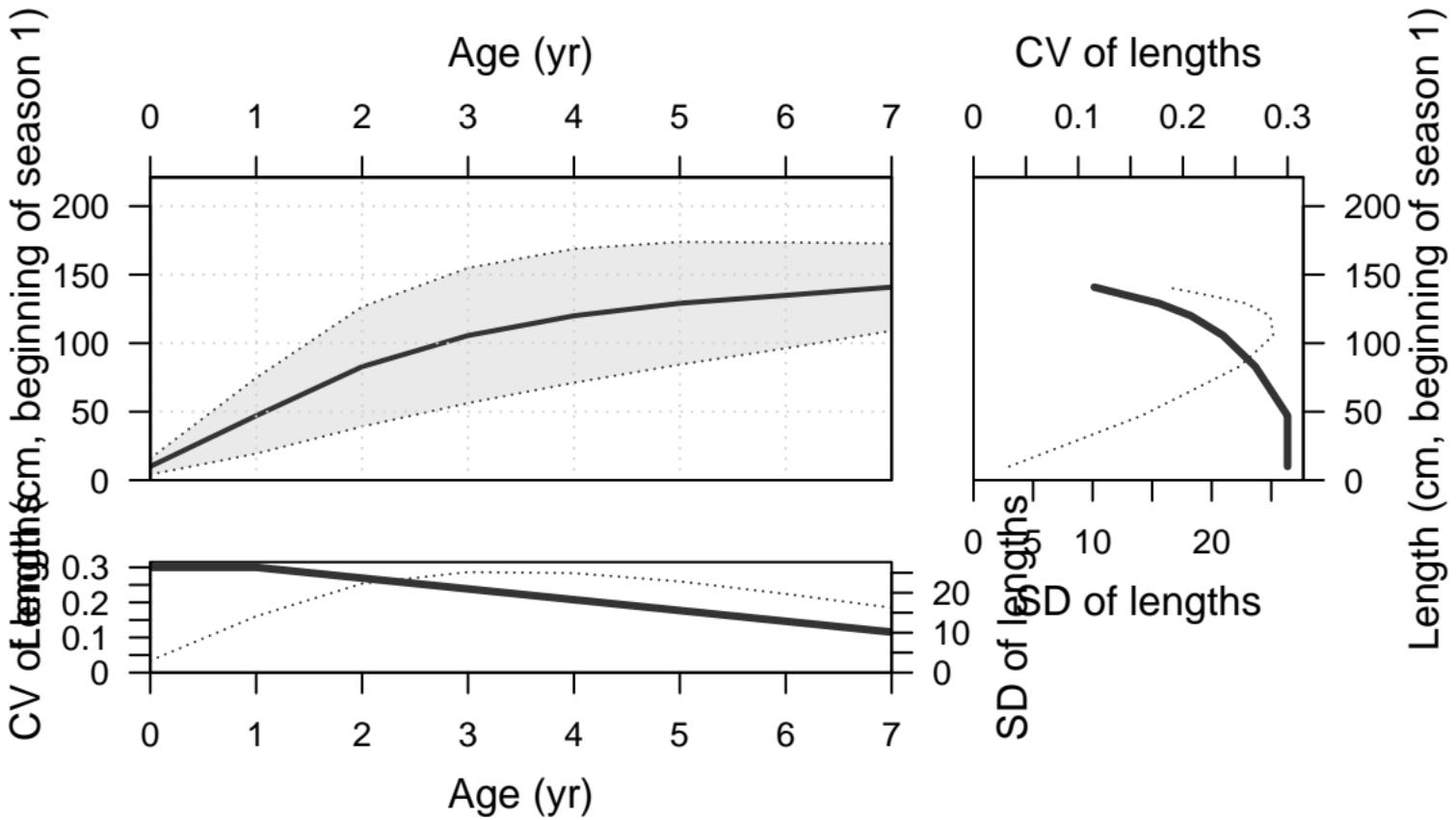
StartTime: Wed Dec 07 18:03:11 2022

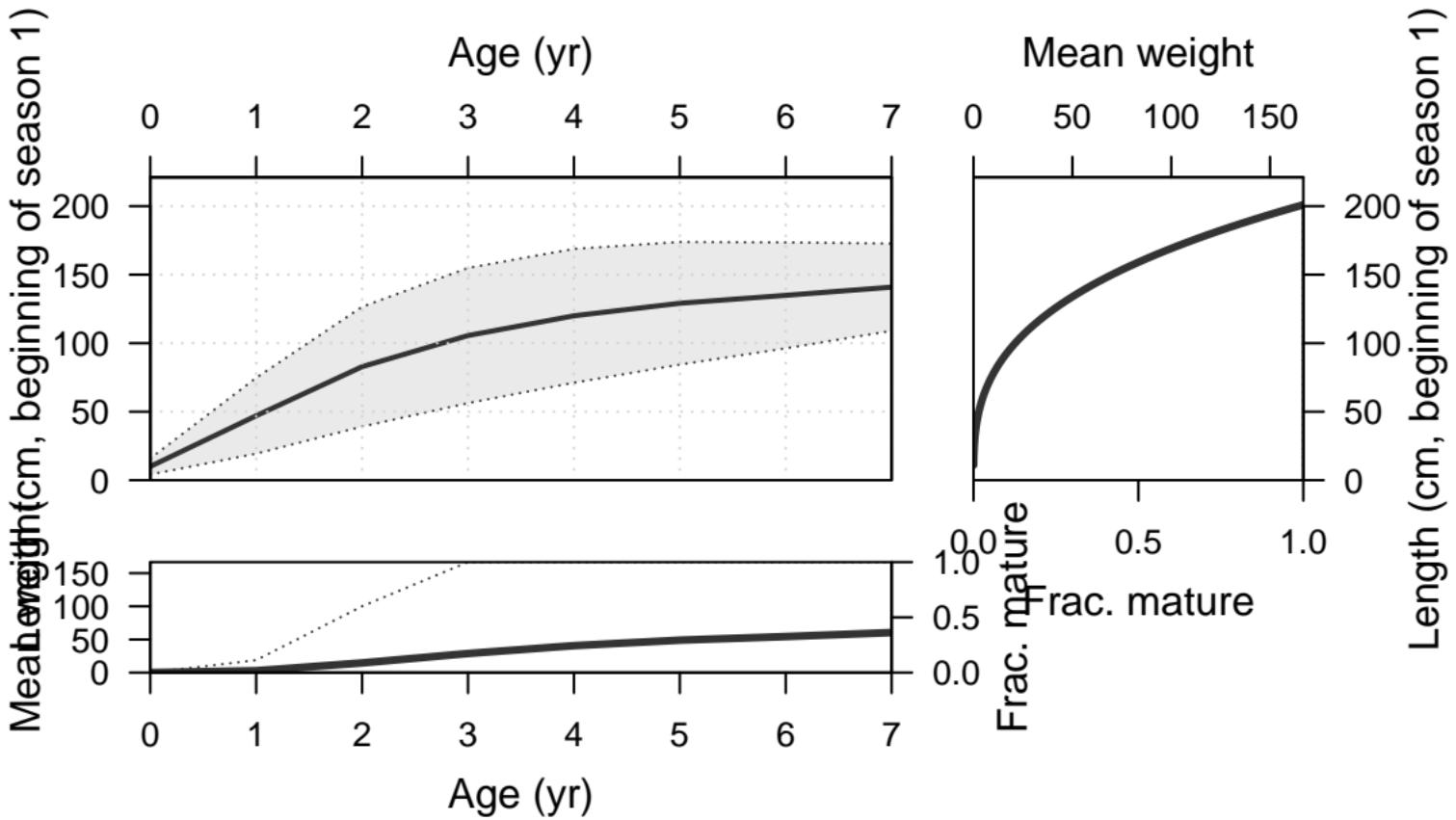
Data_File: data.ss

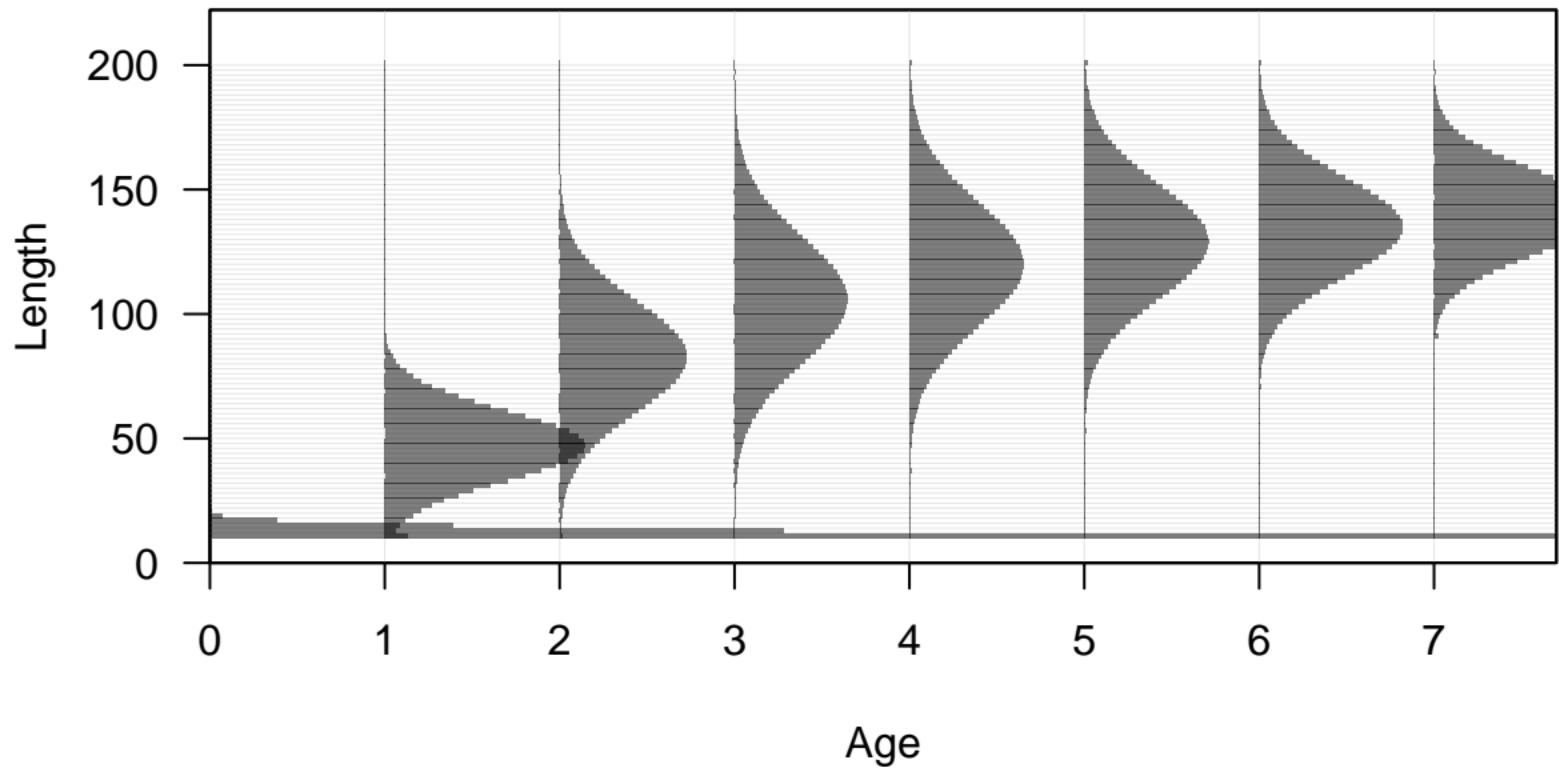
Control_File: control.ss

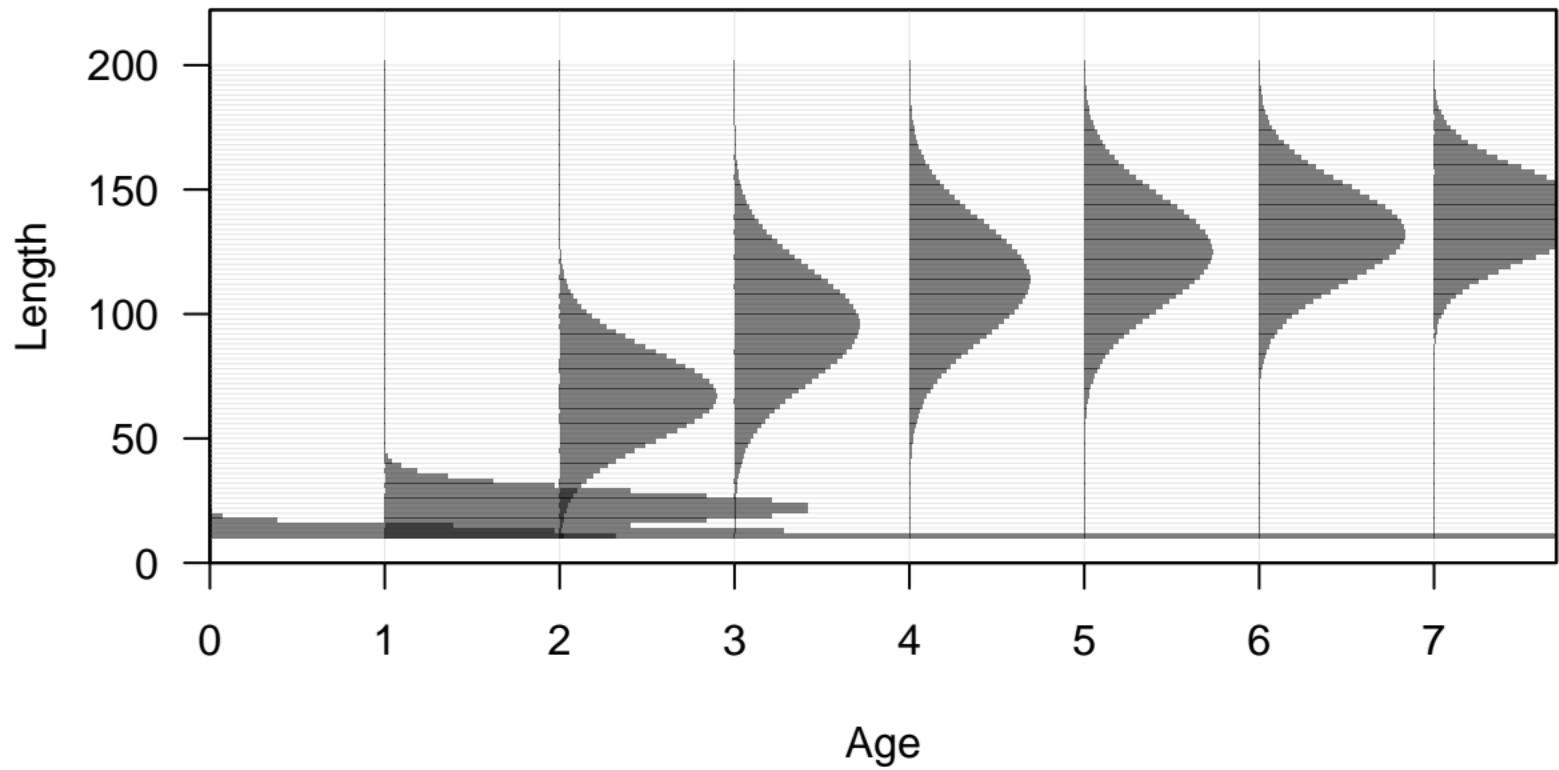
Length (cm, beginning of season 1)

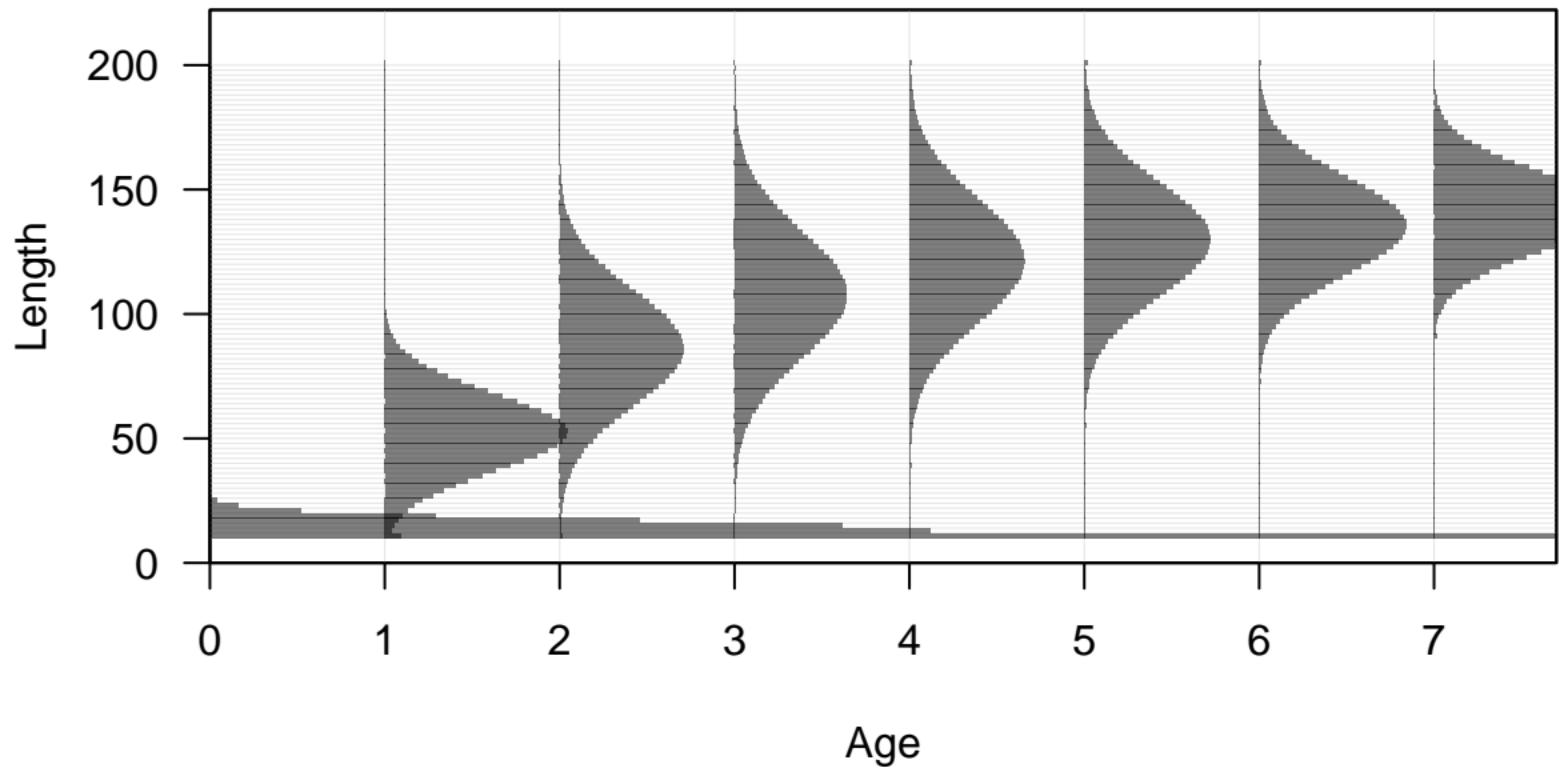


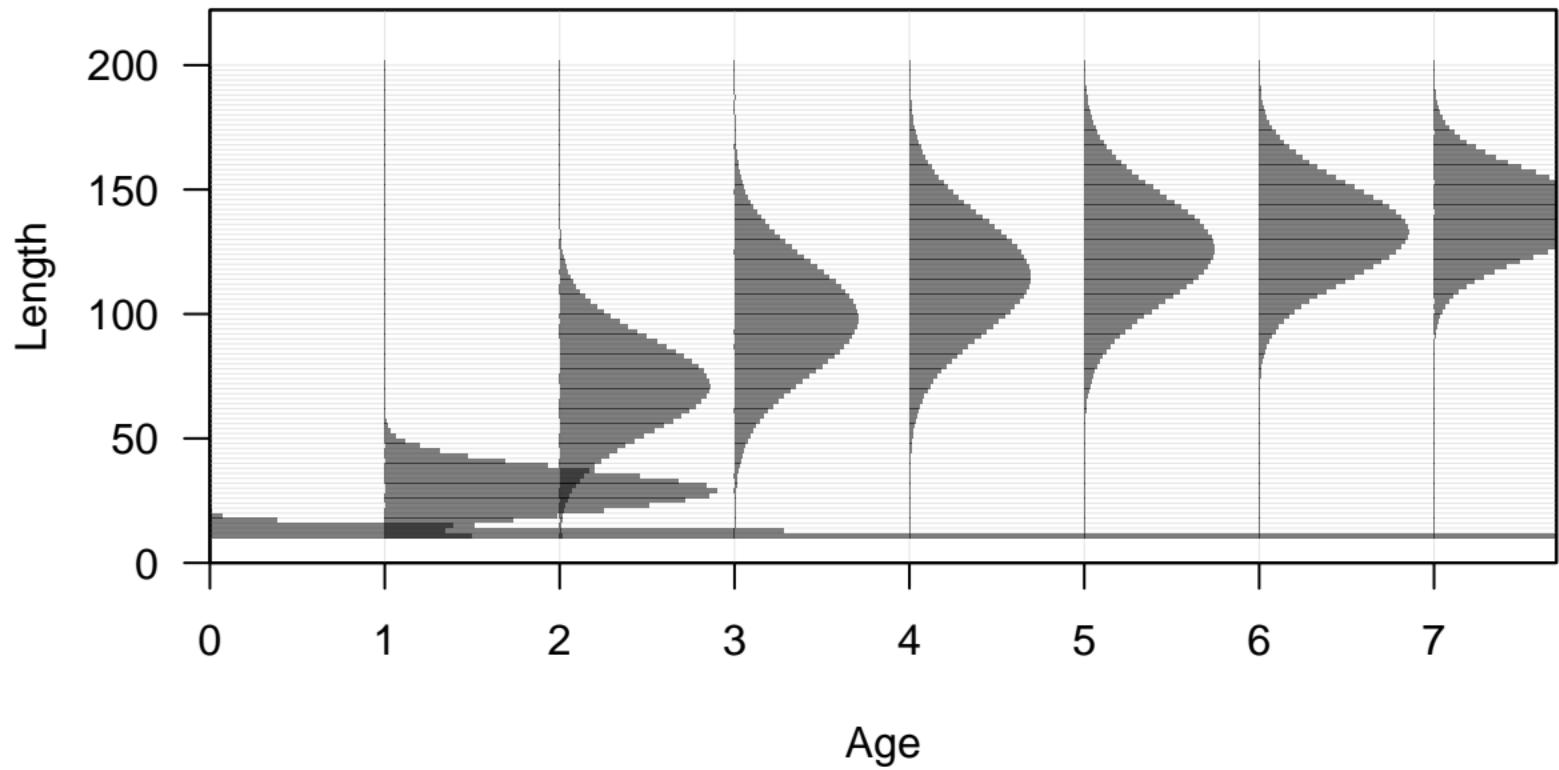


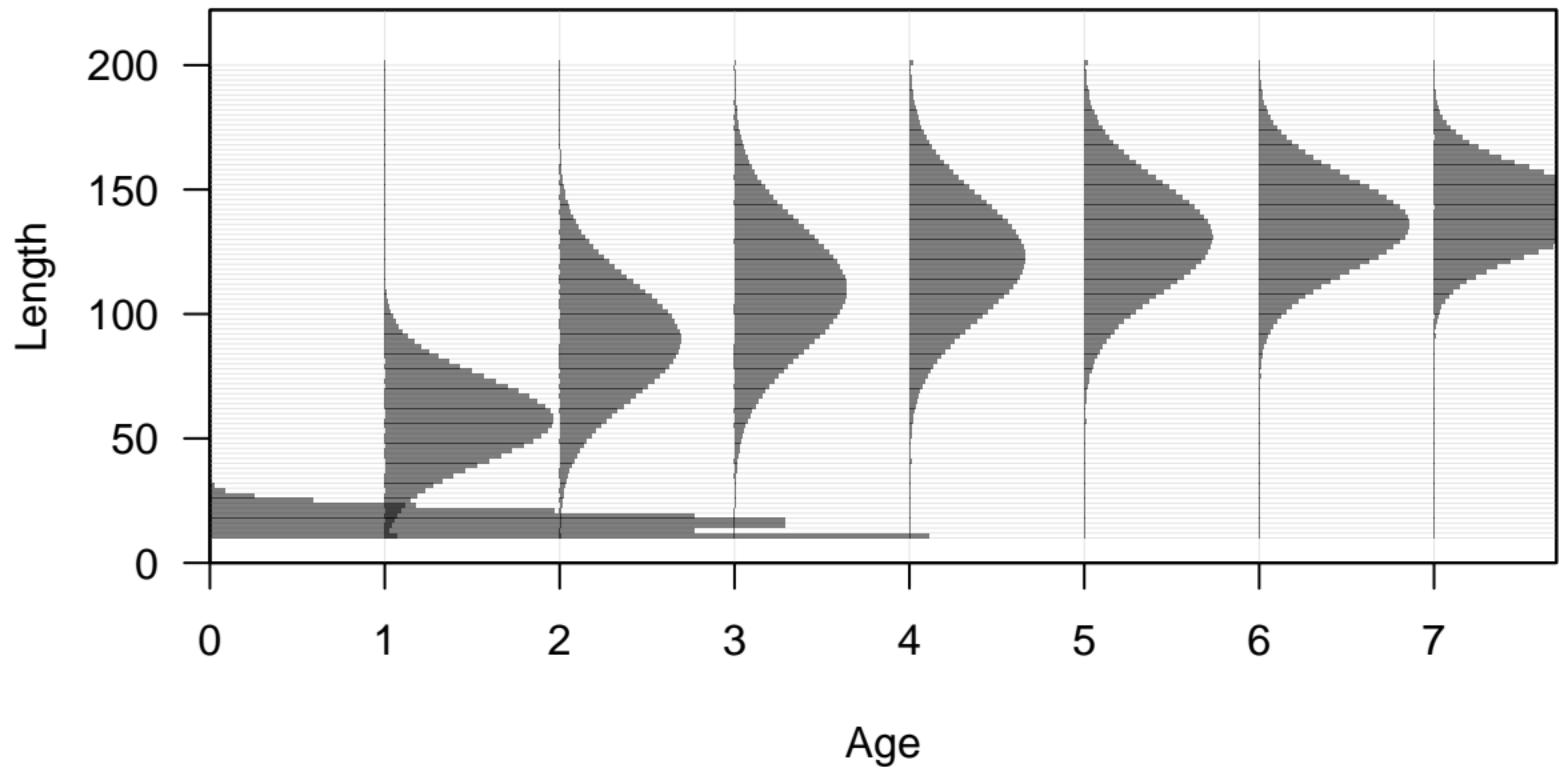


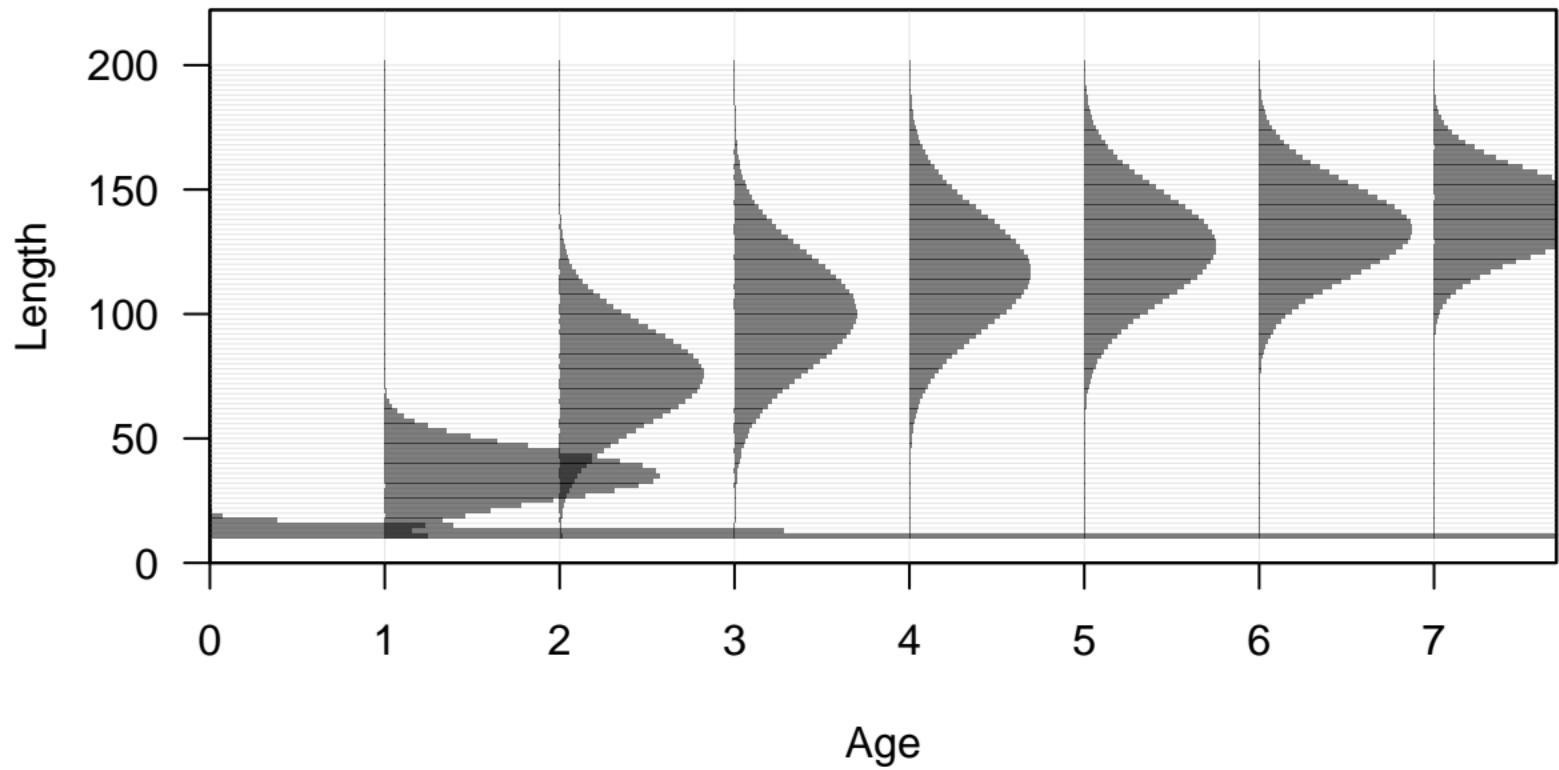


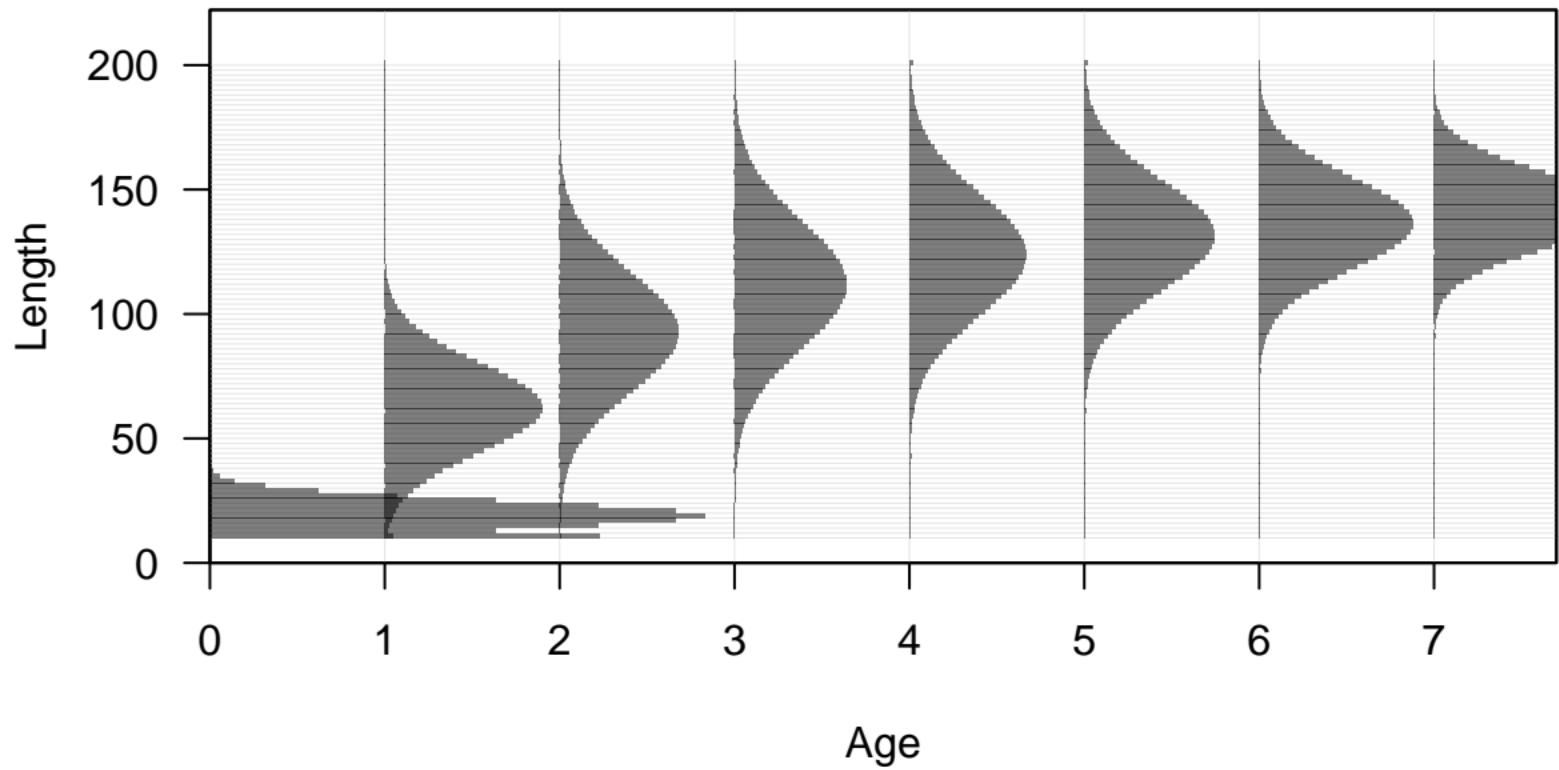


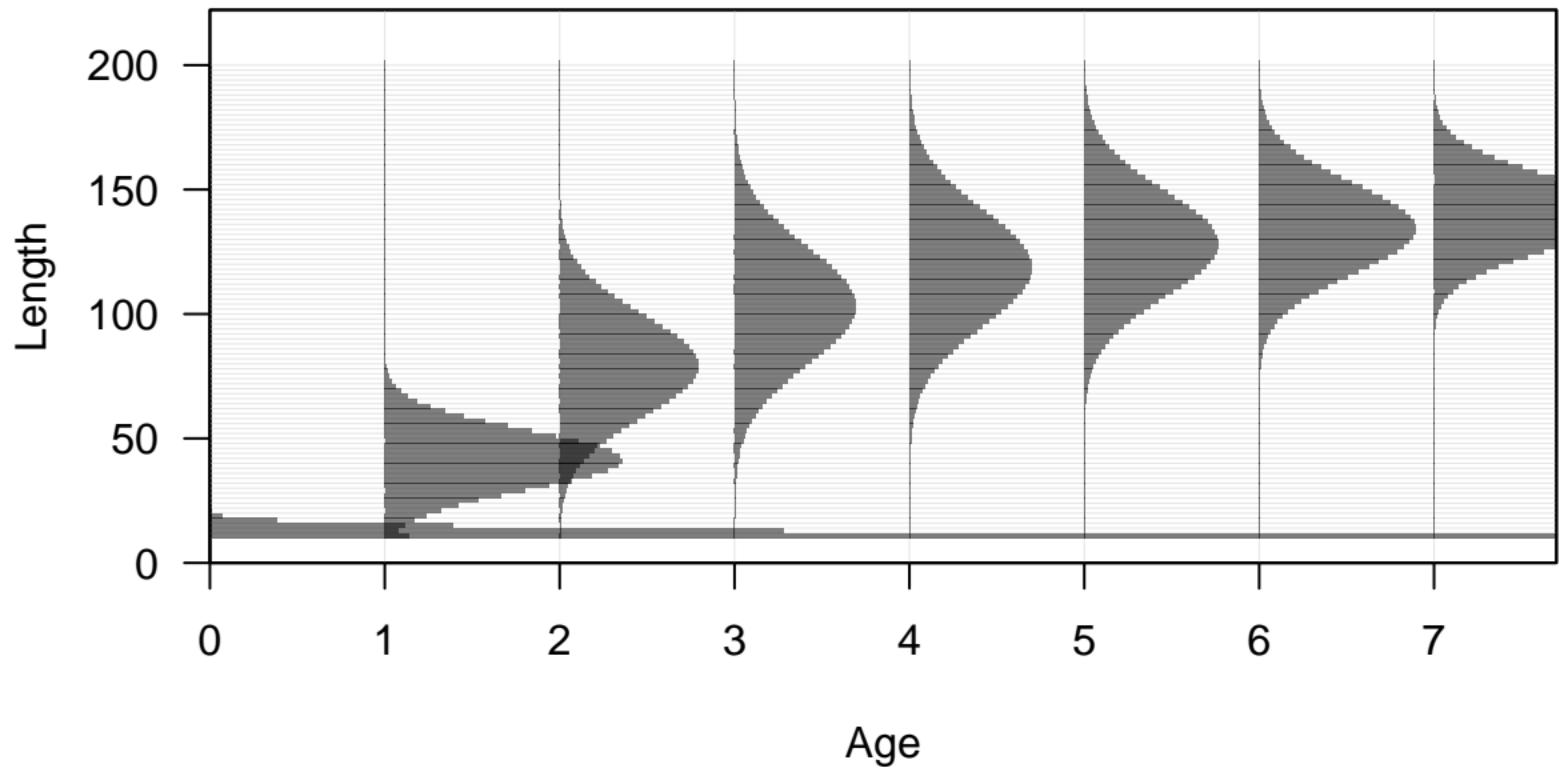


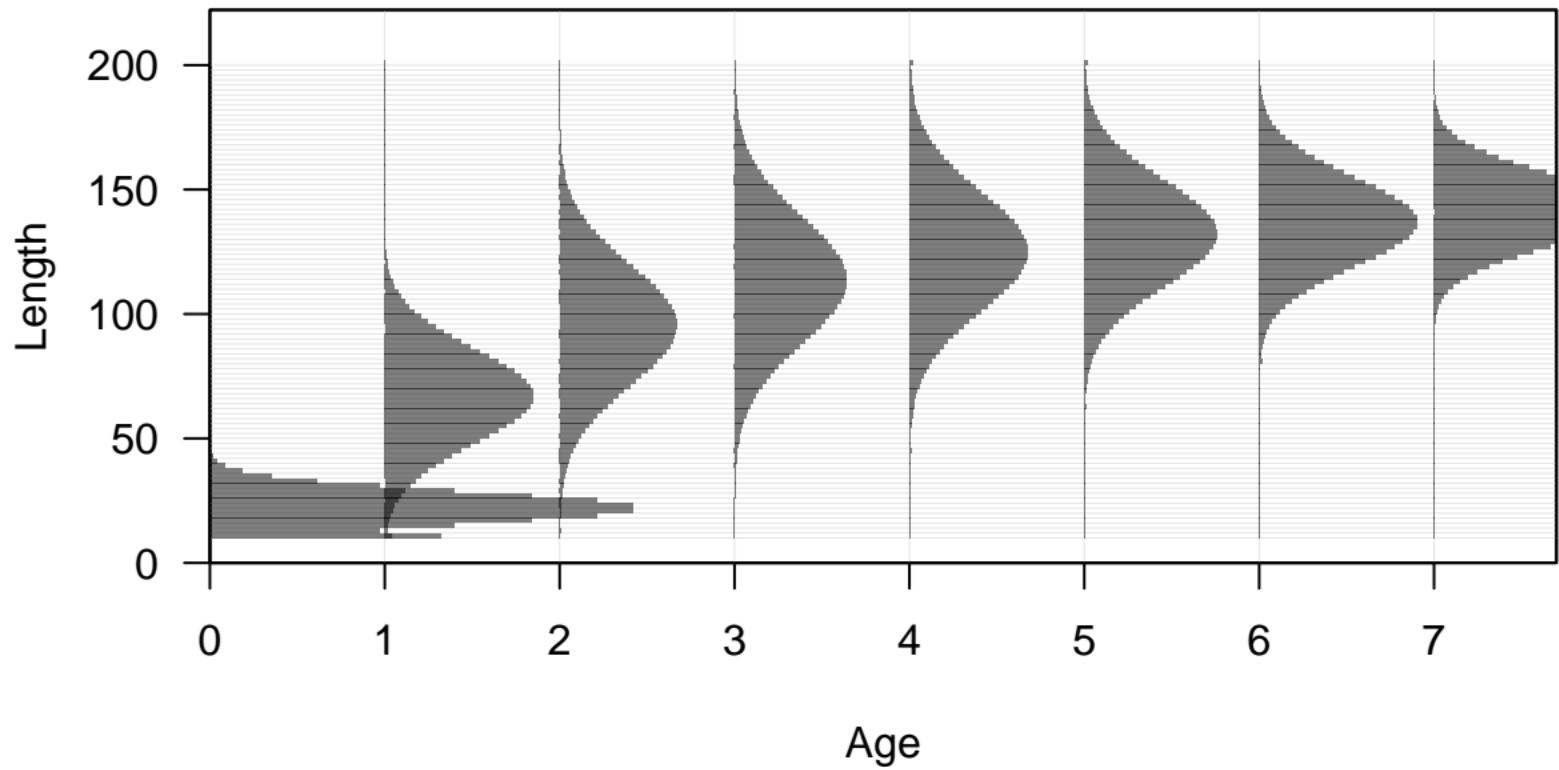


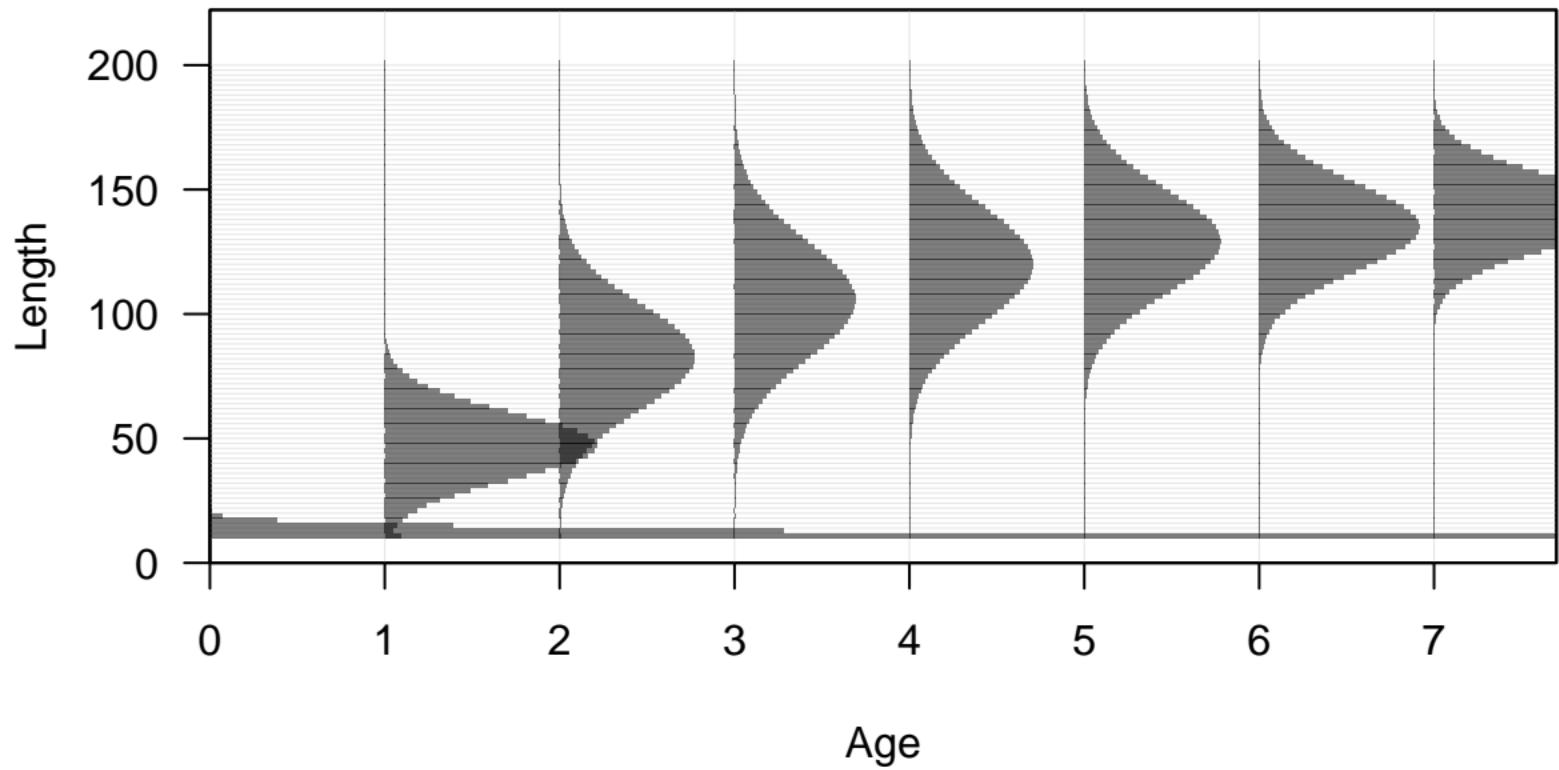


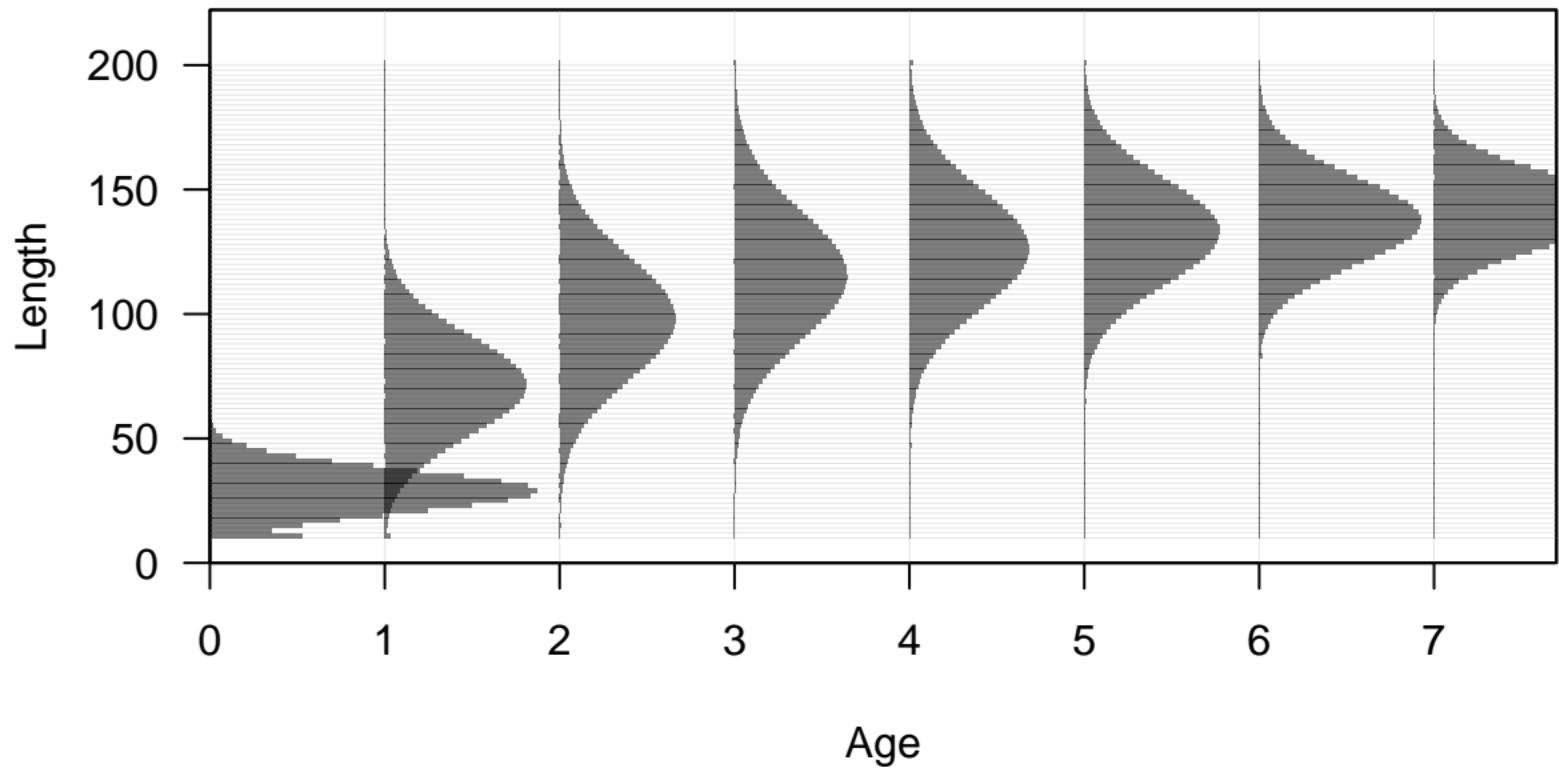


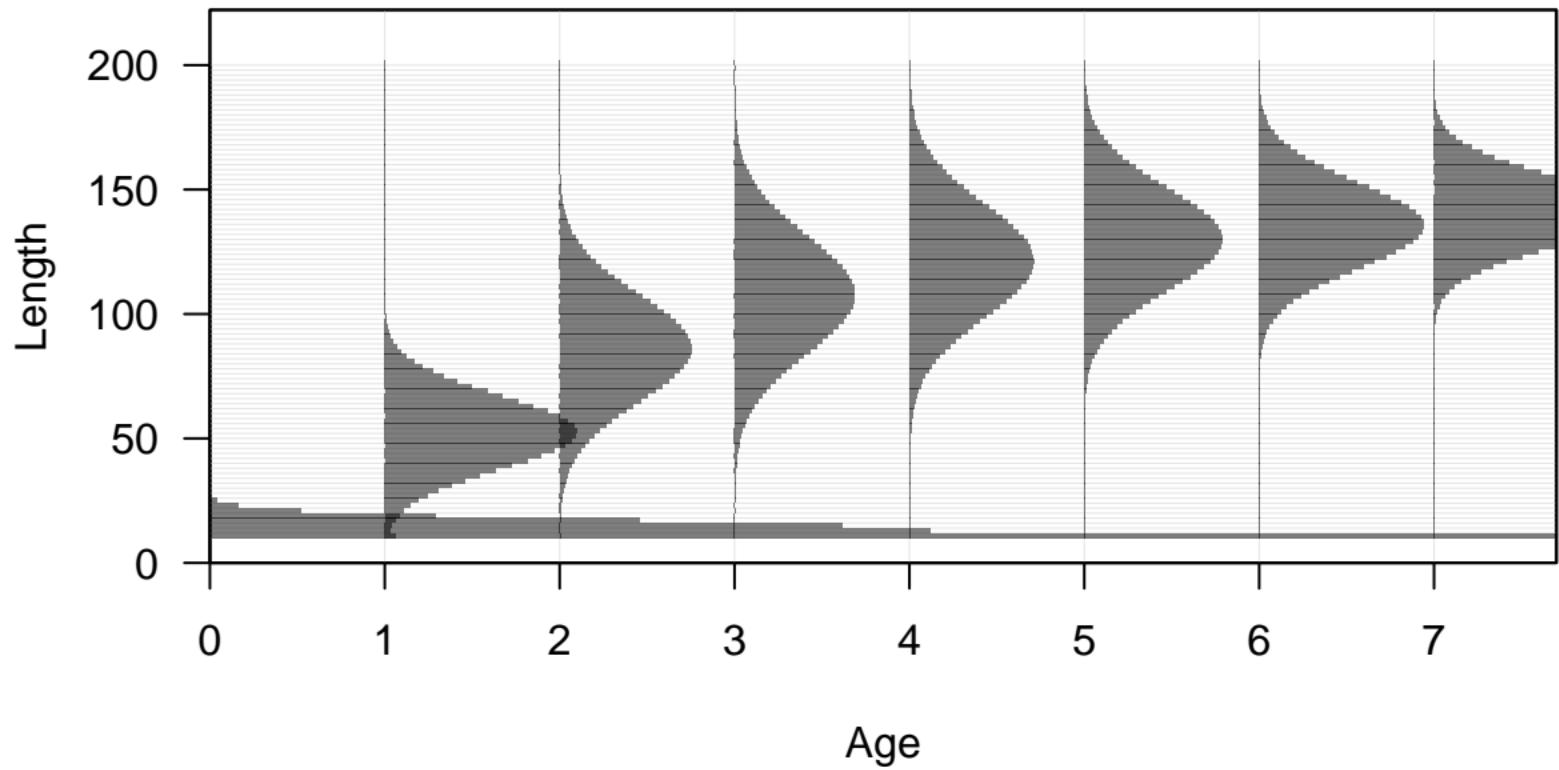


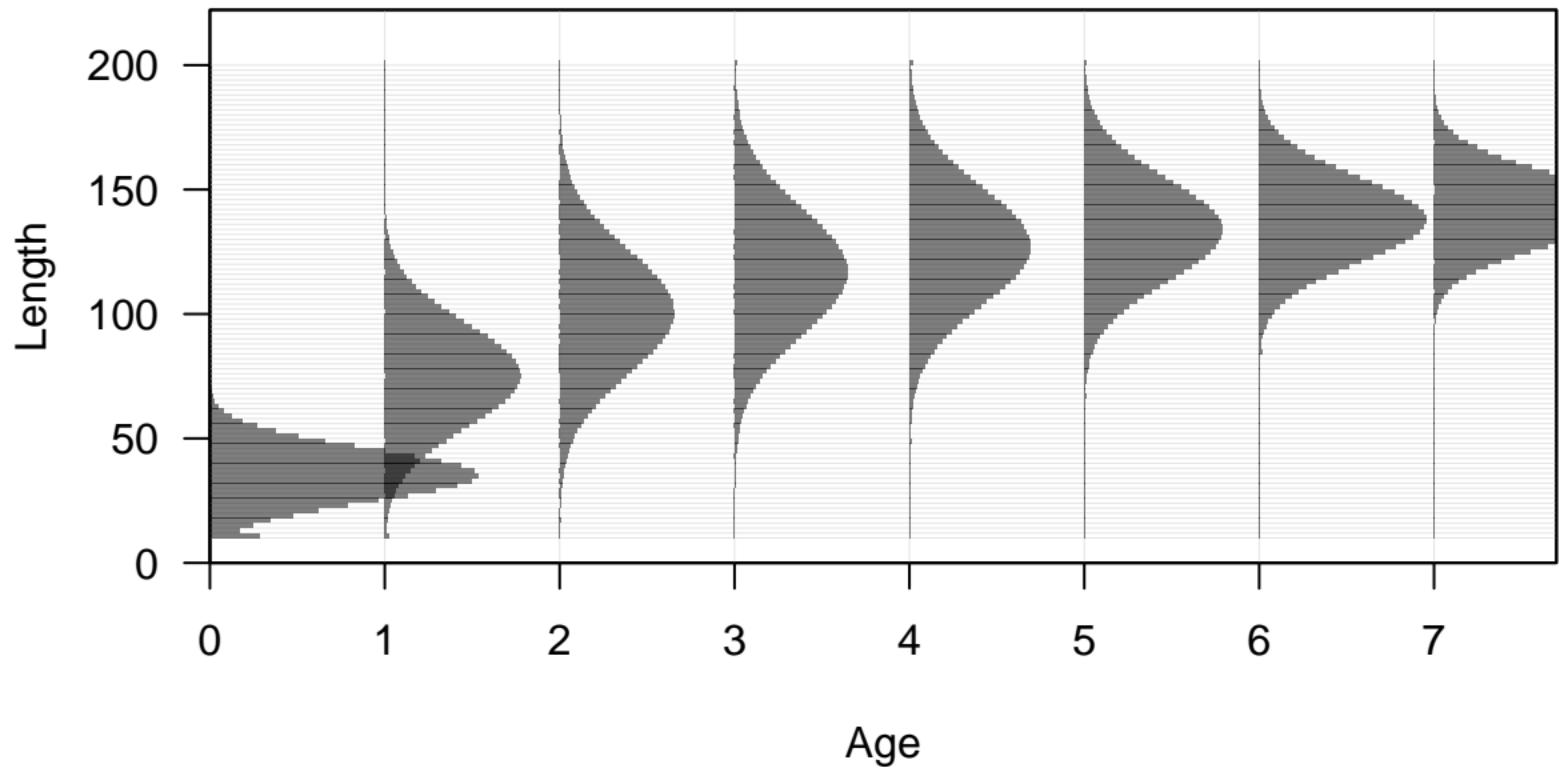


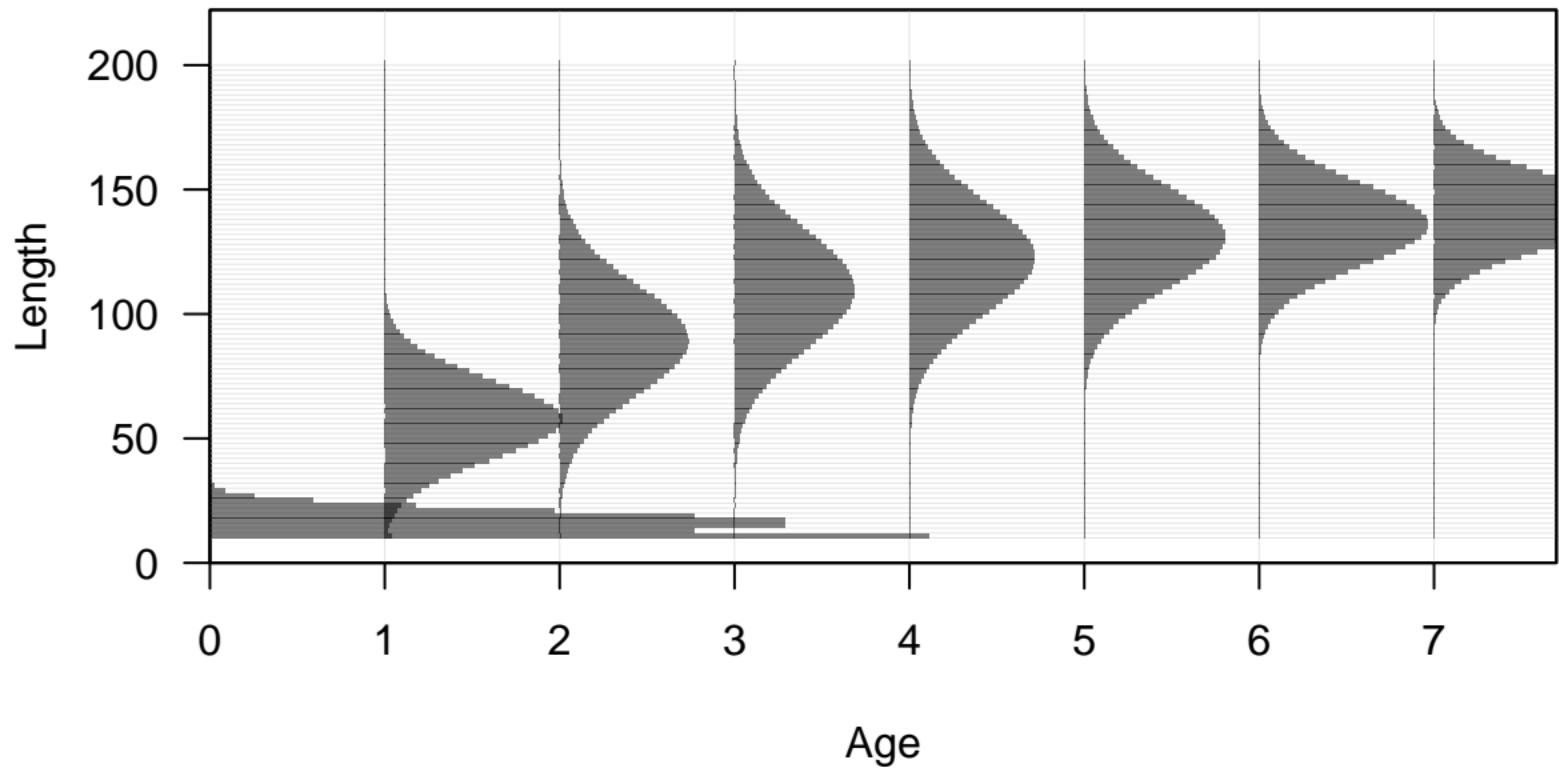


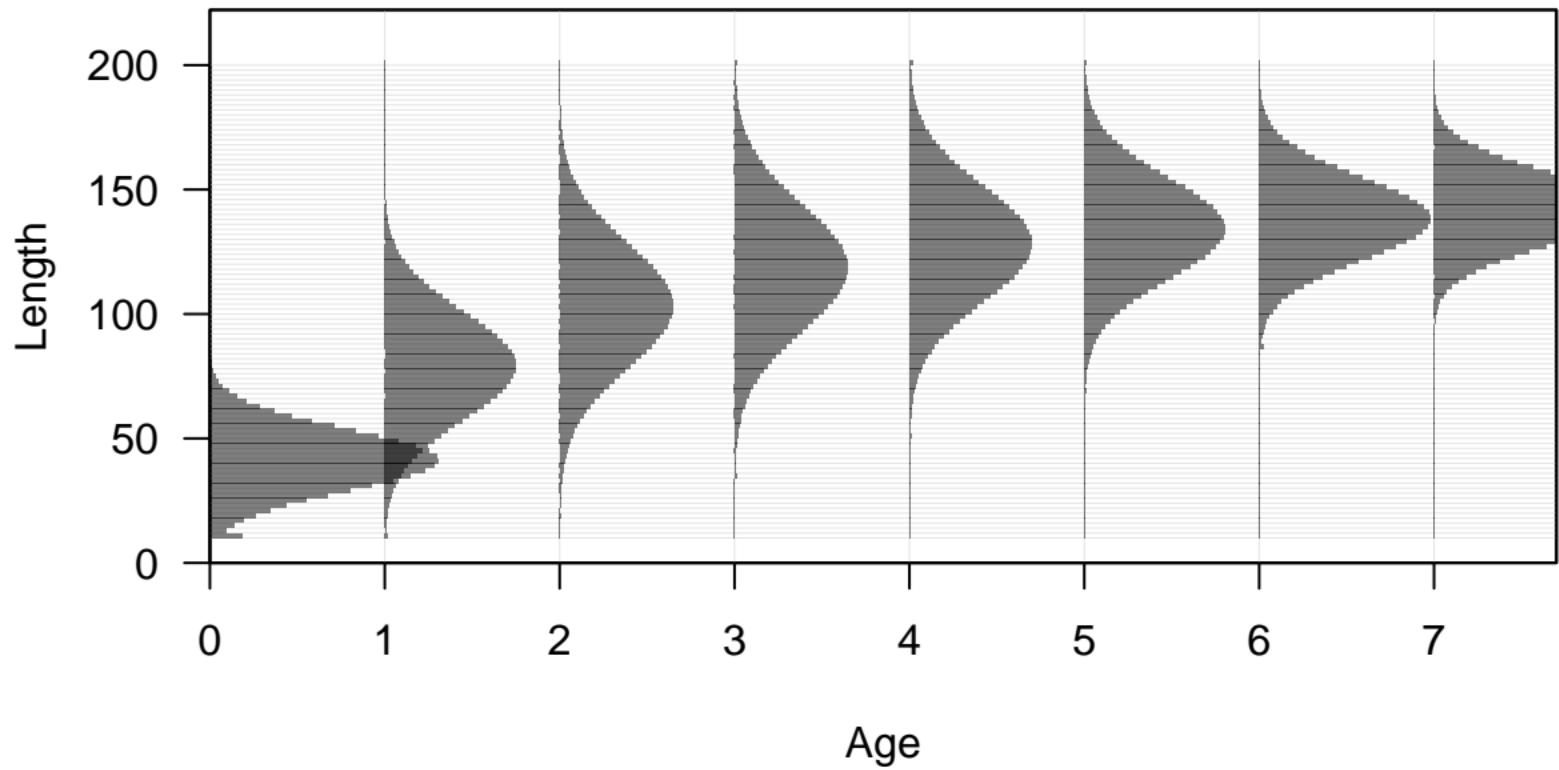


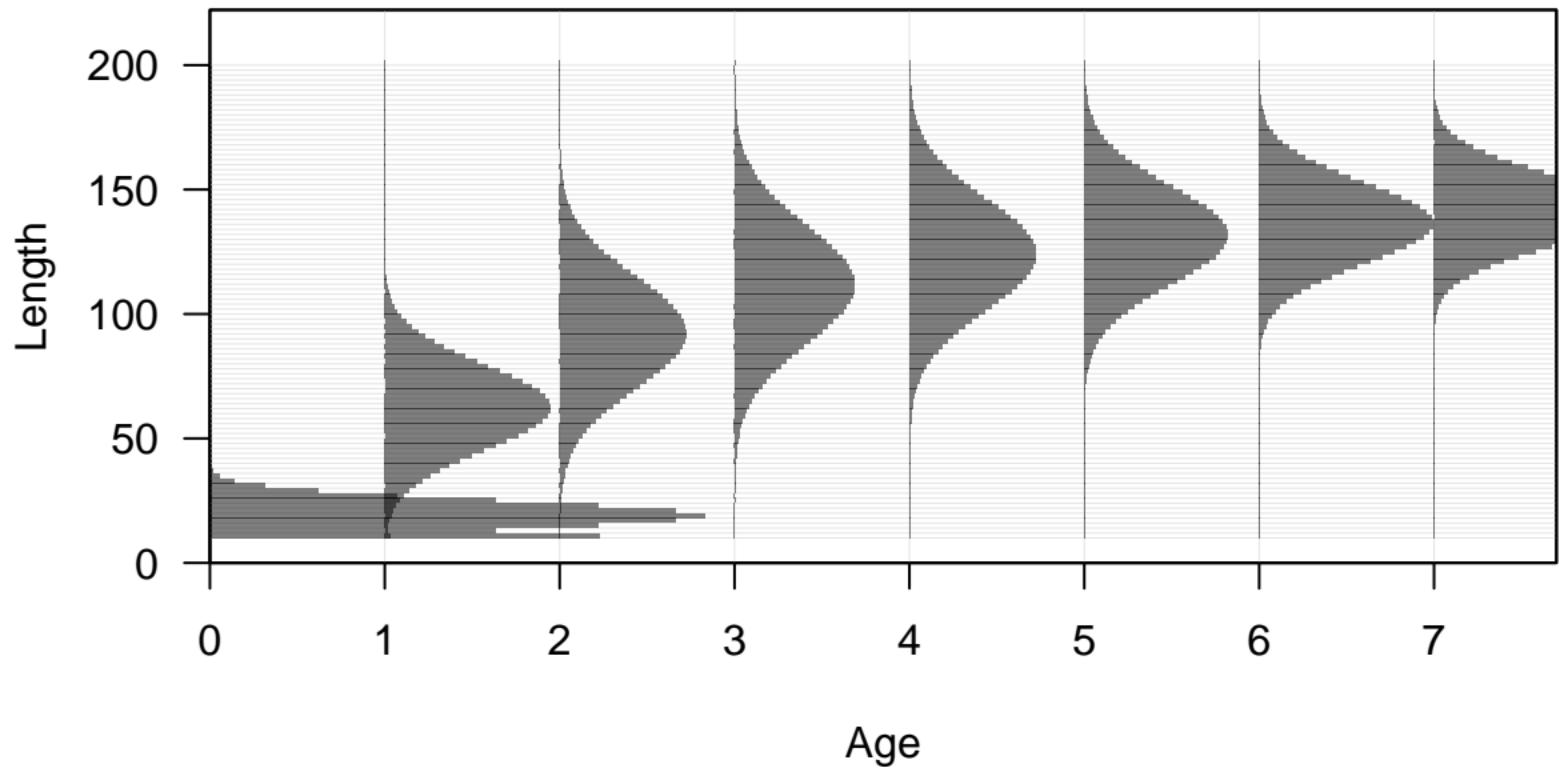




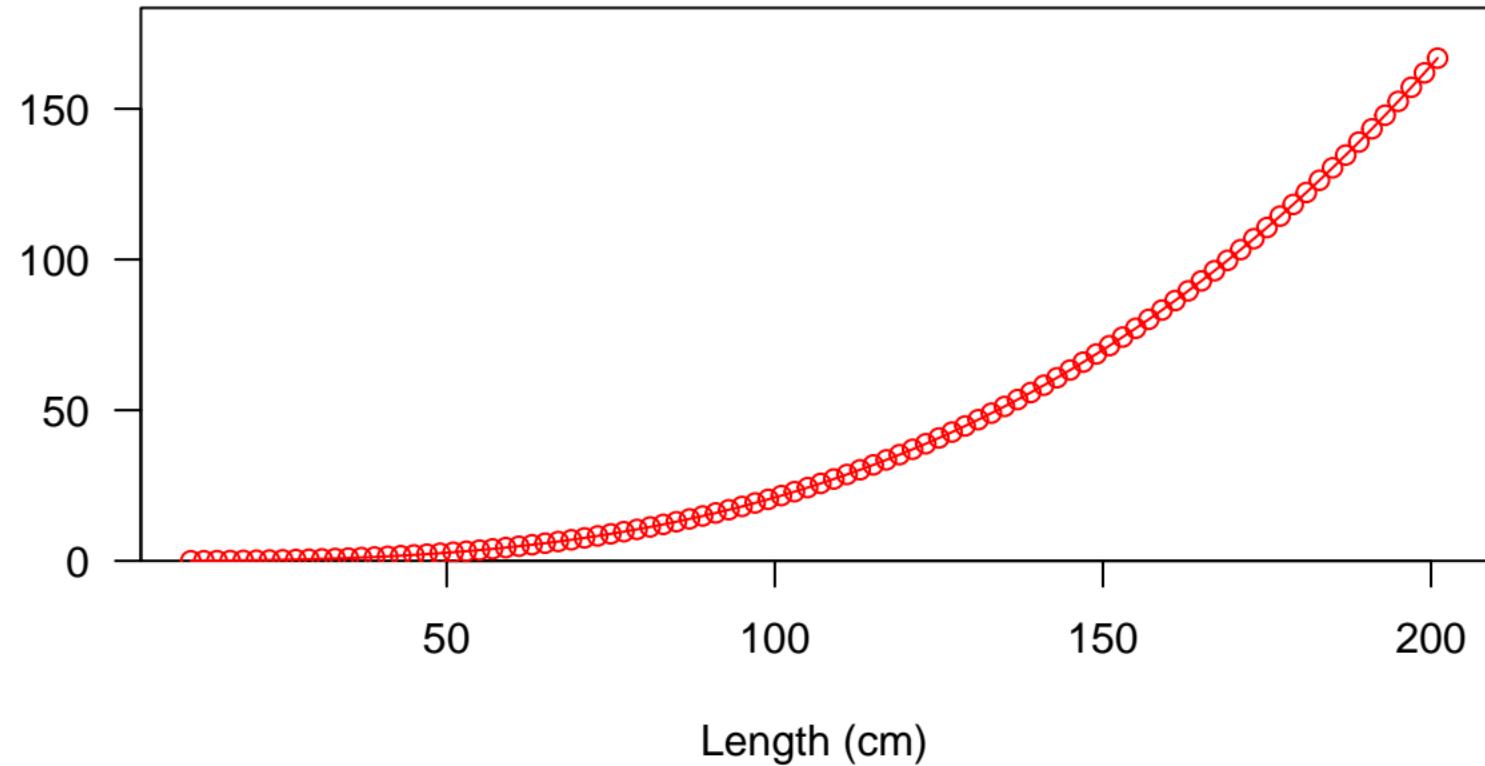


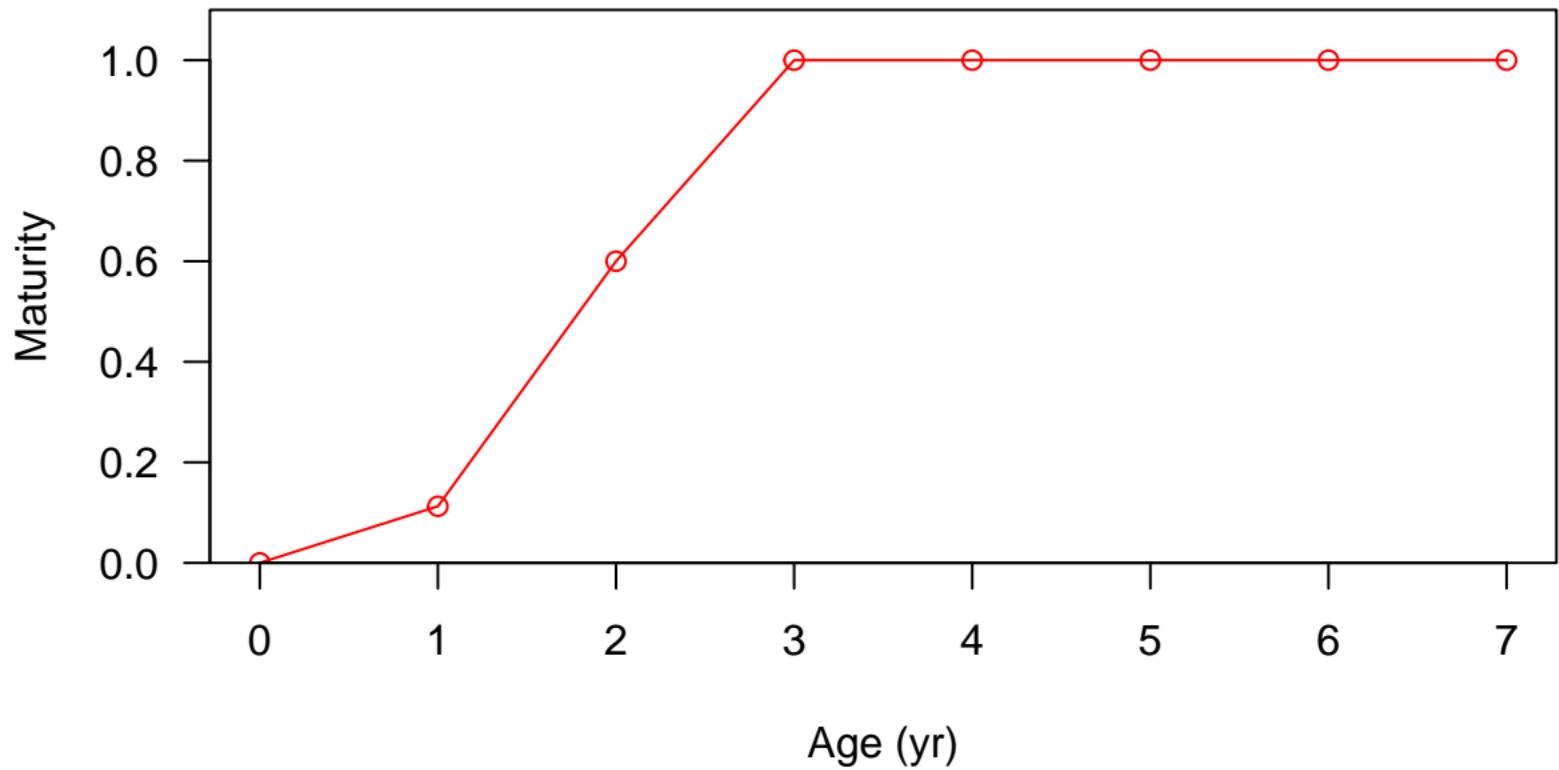


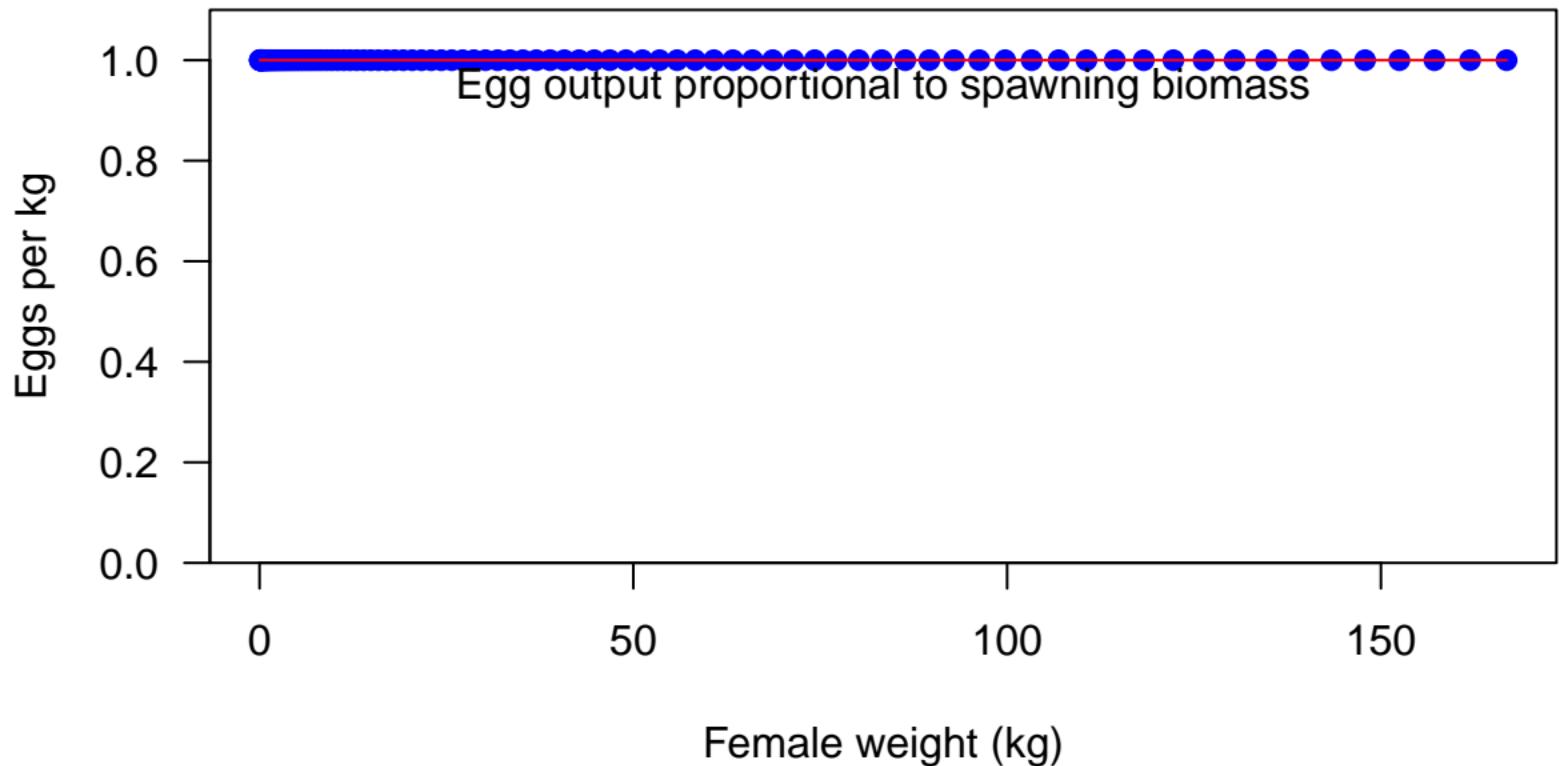


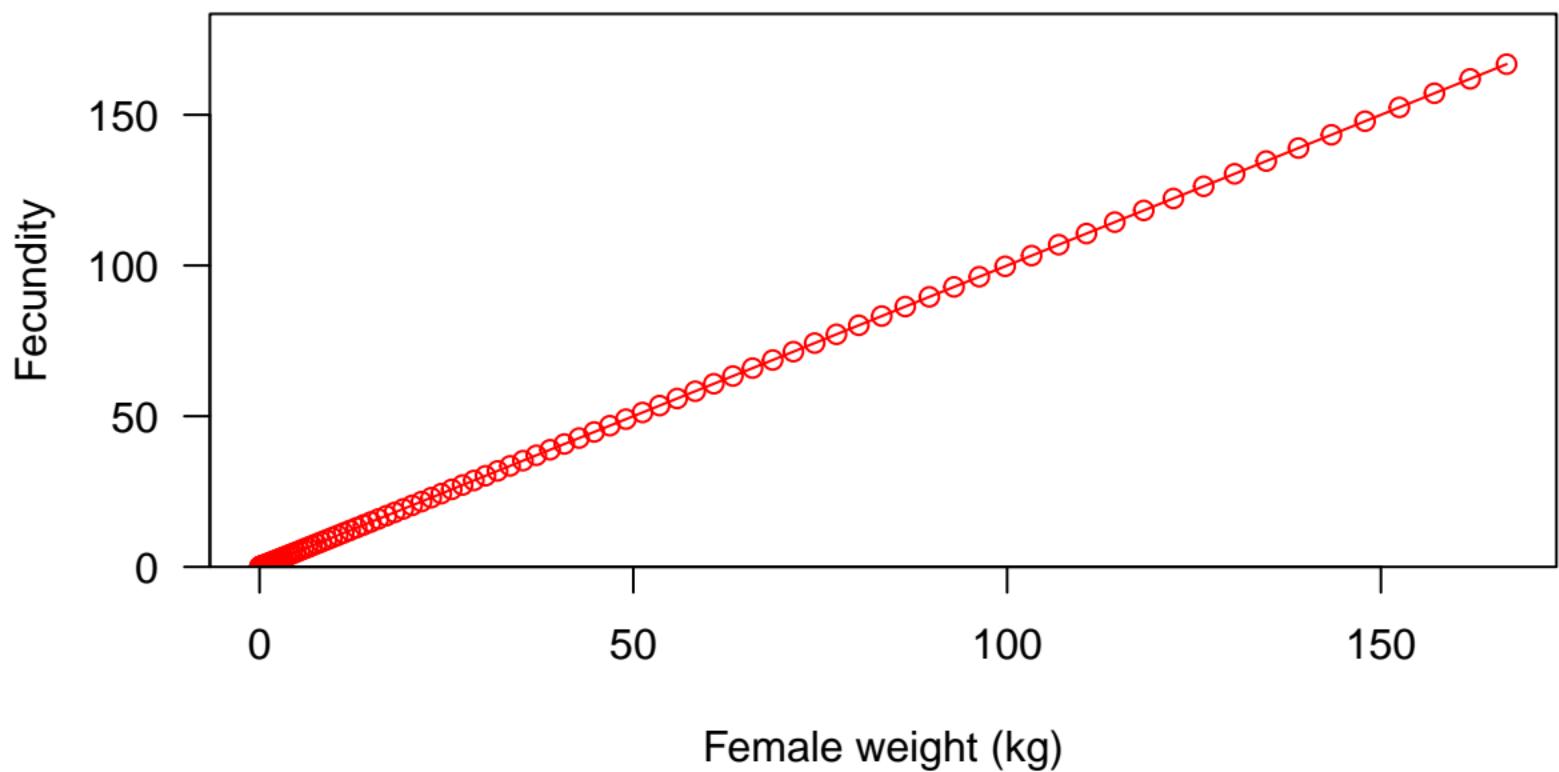


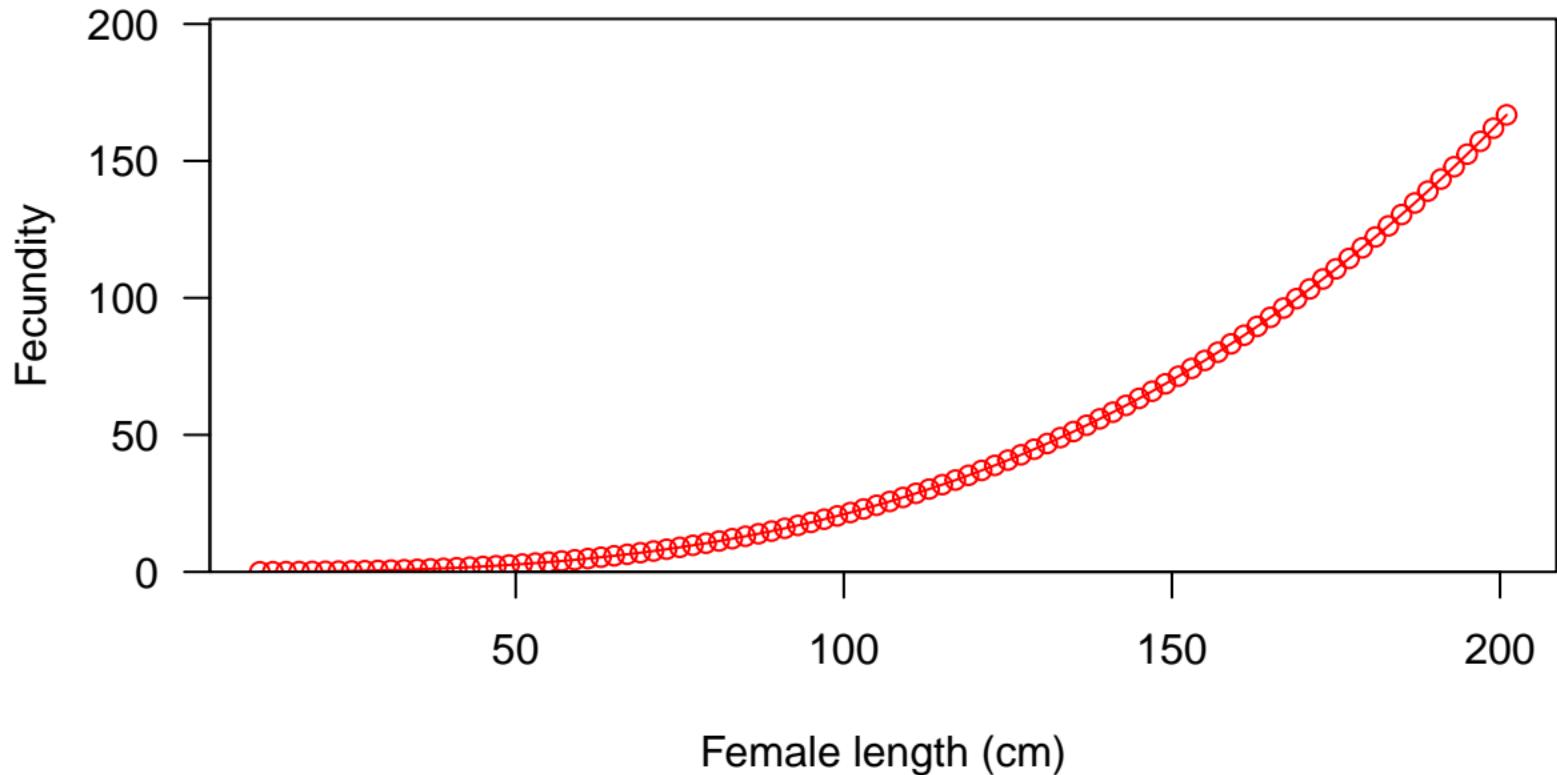
Mean weight (kg) in last year

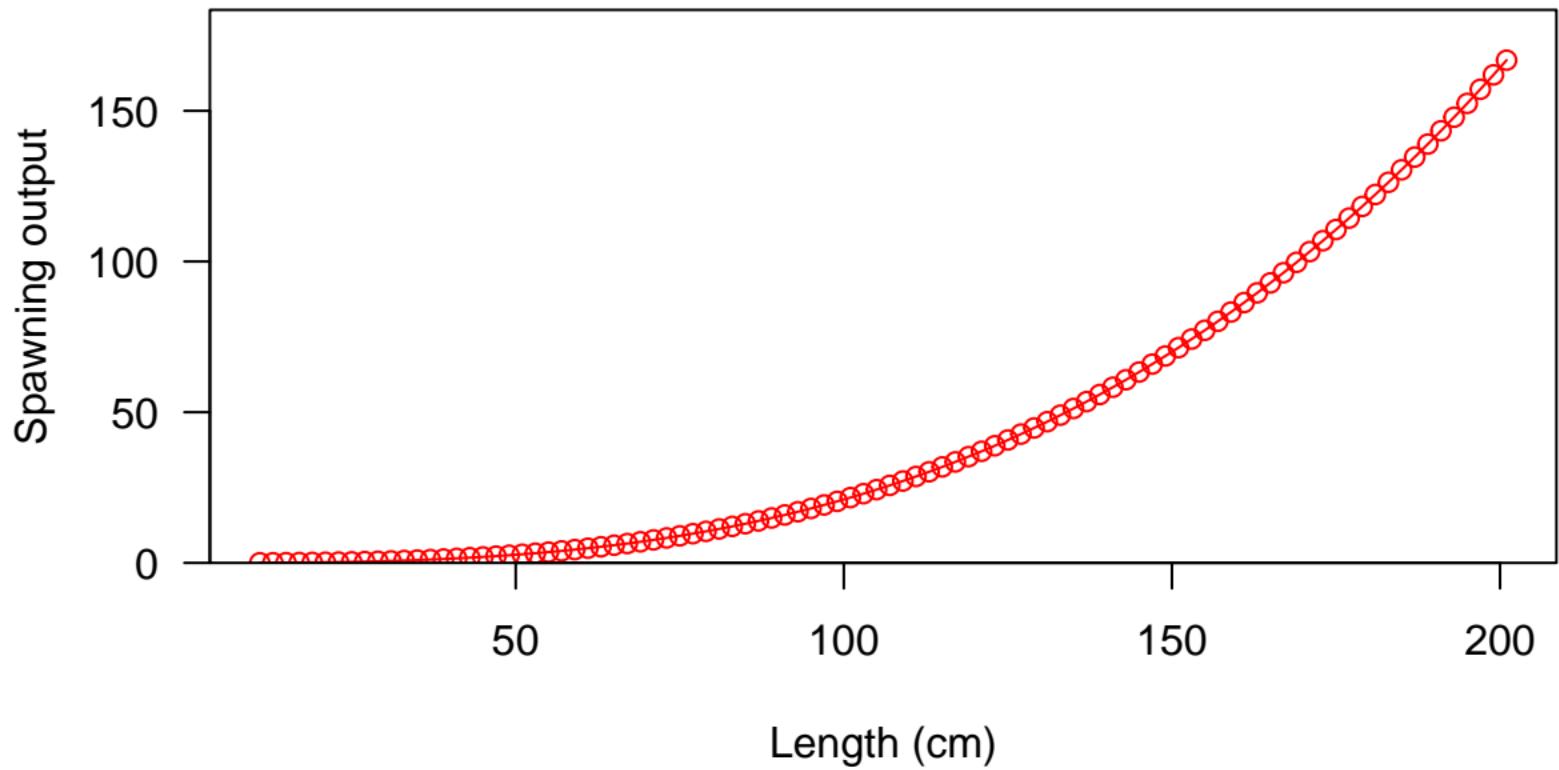




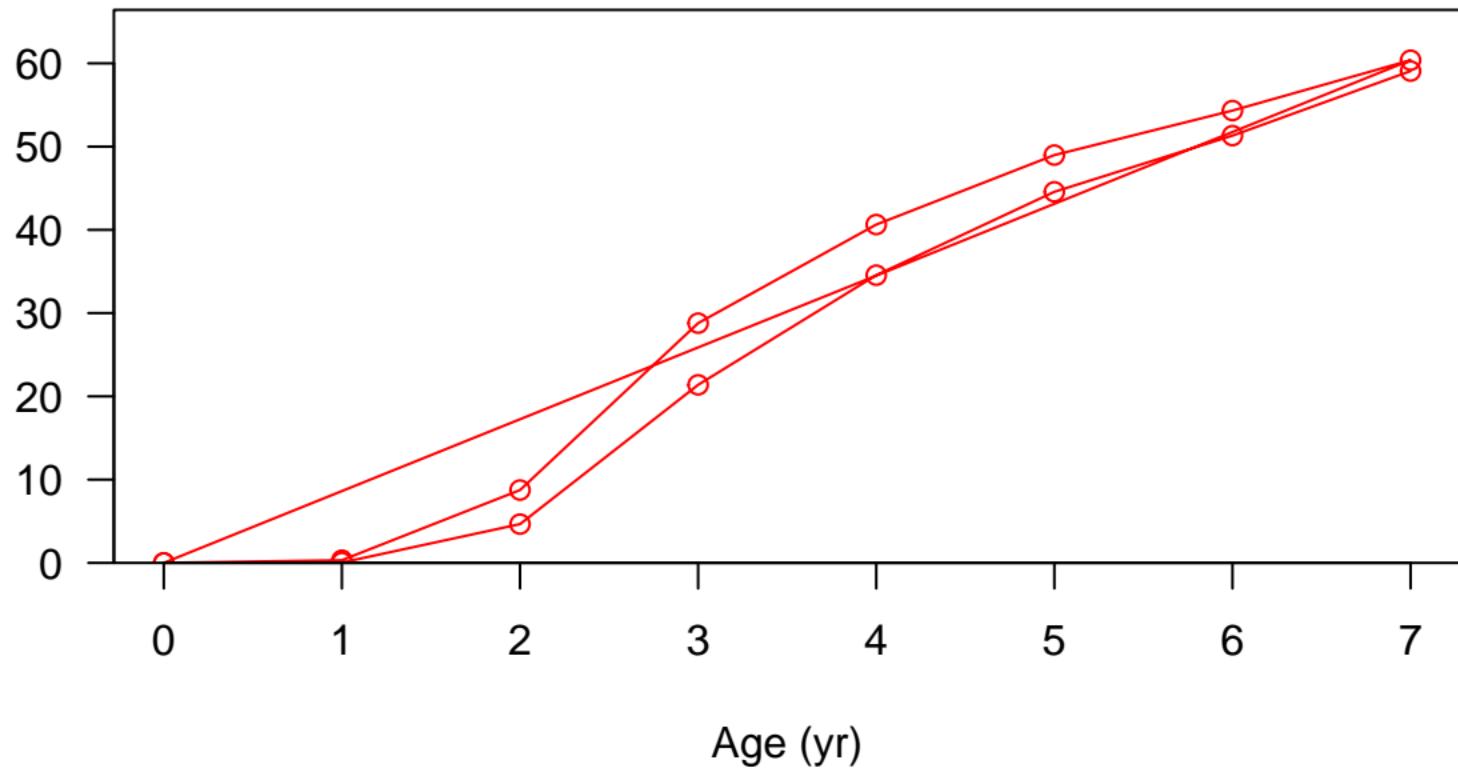


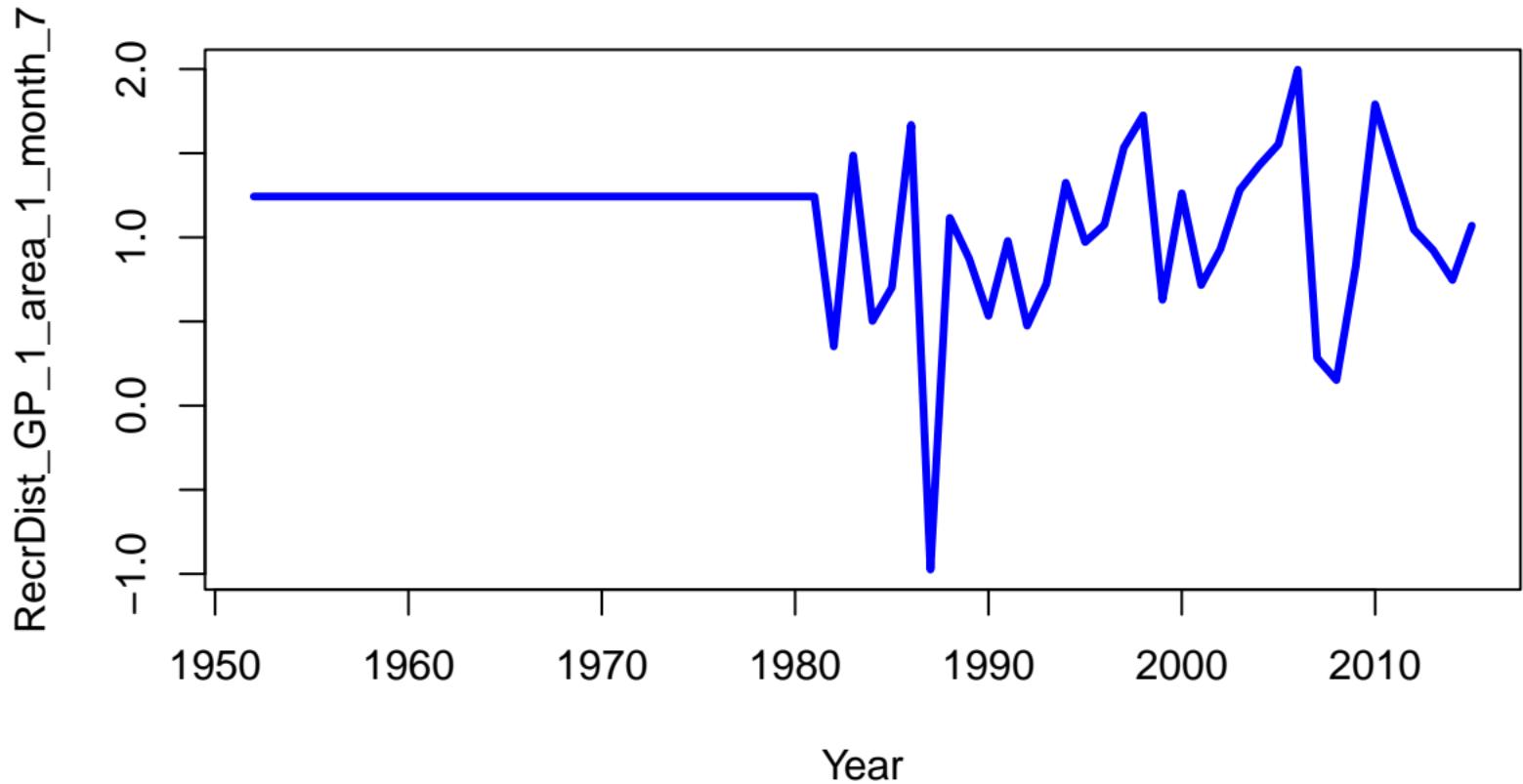


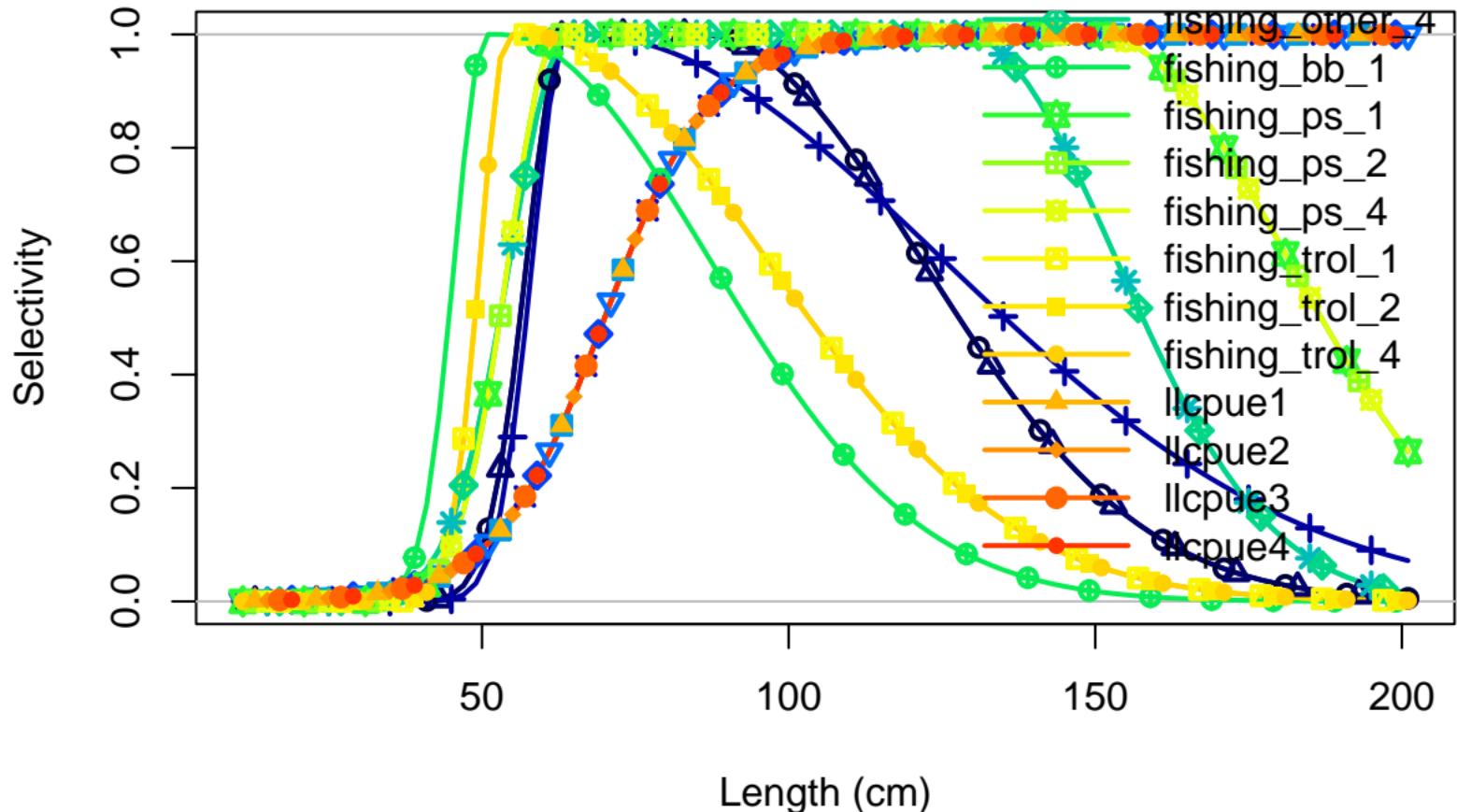


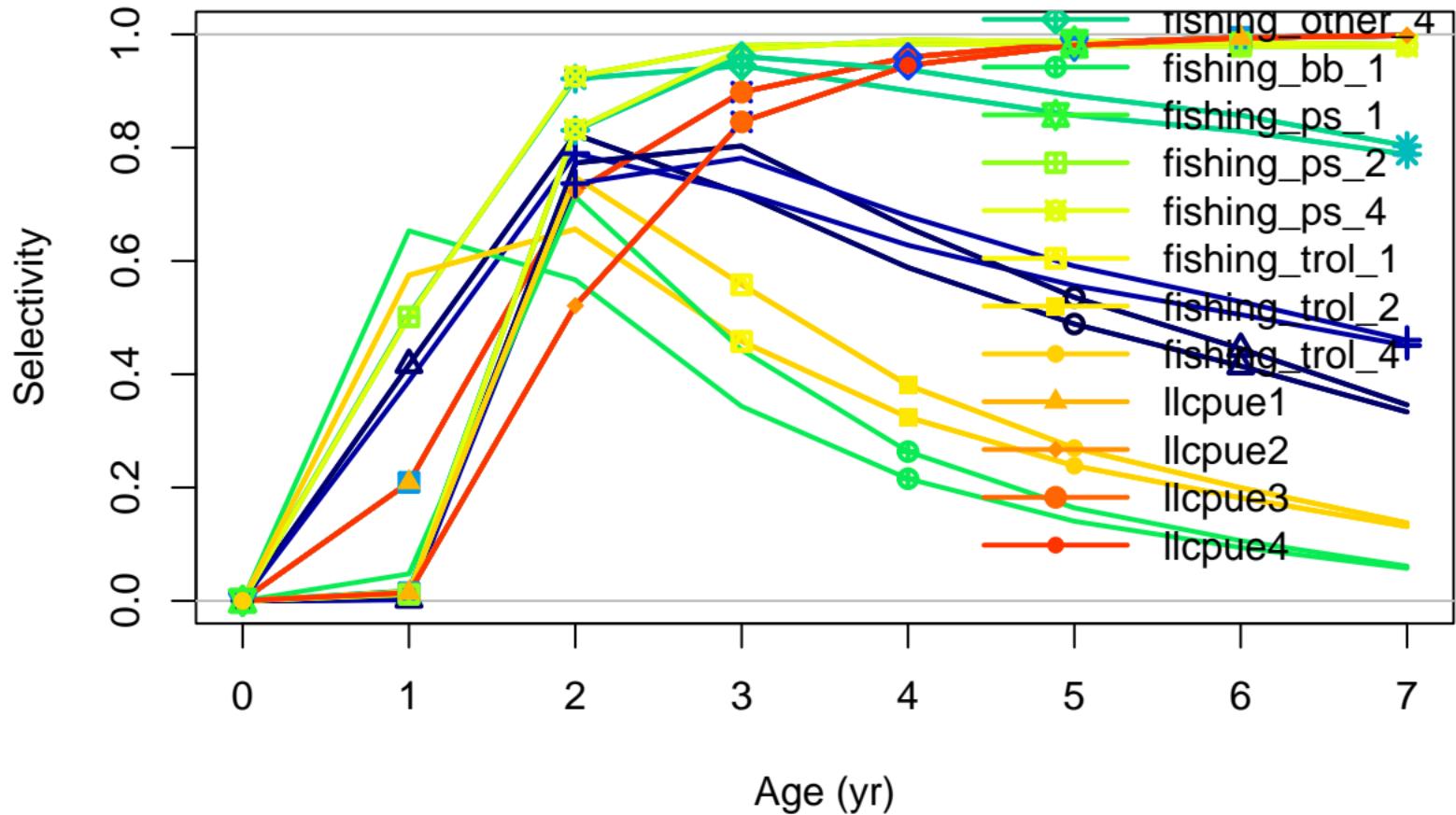


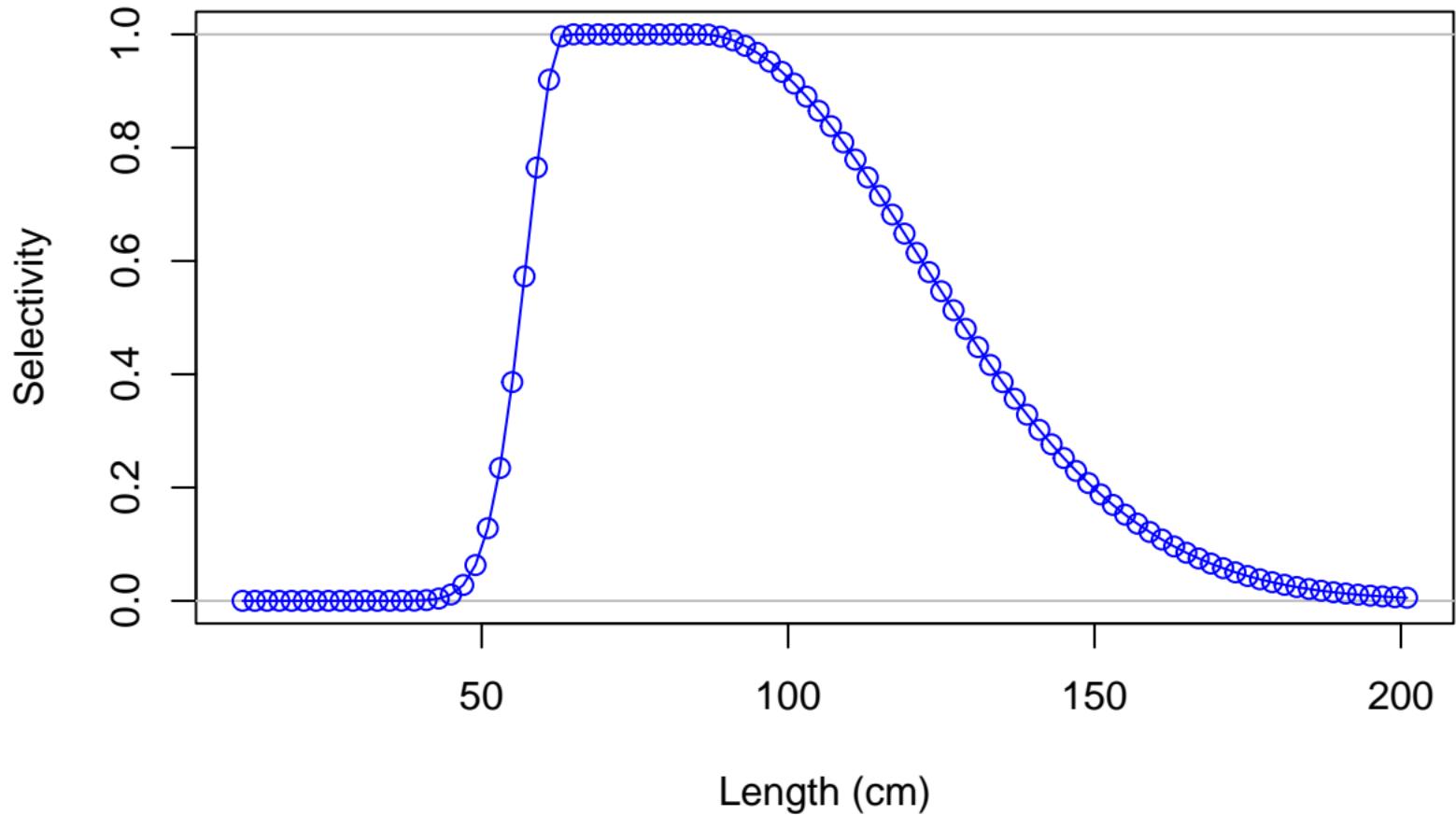
Spawning output

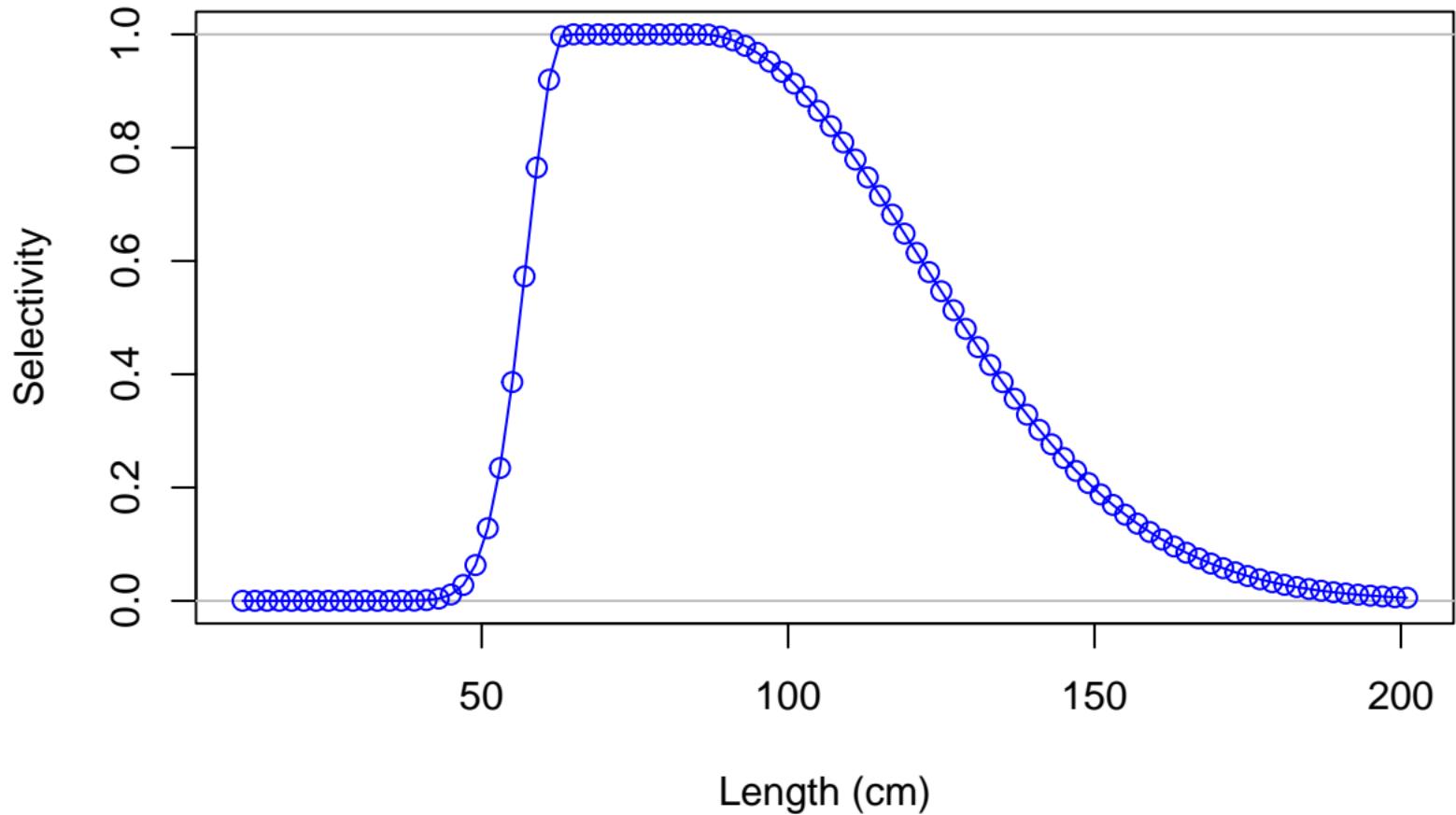


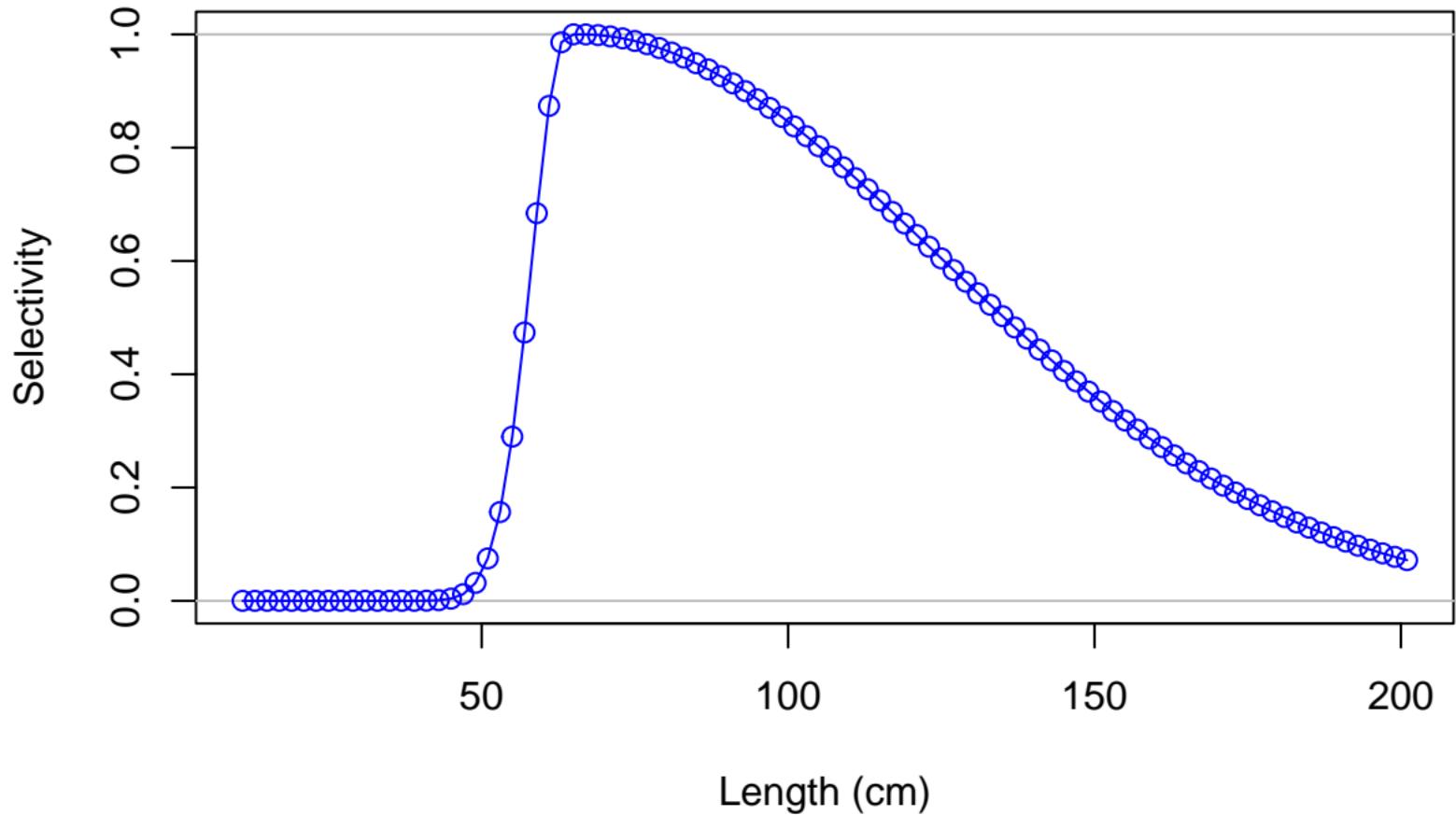


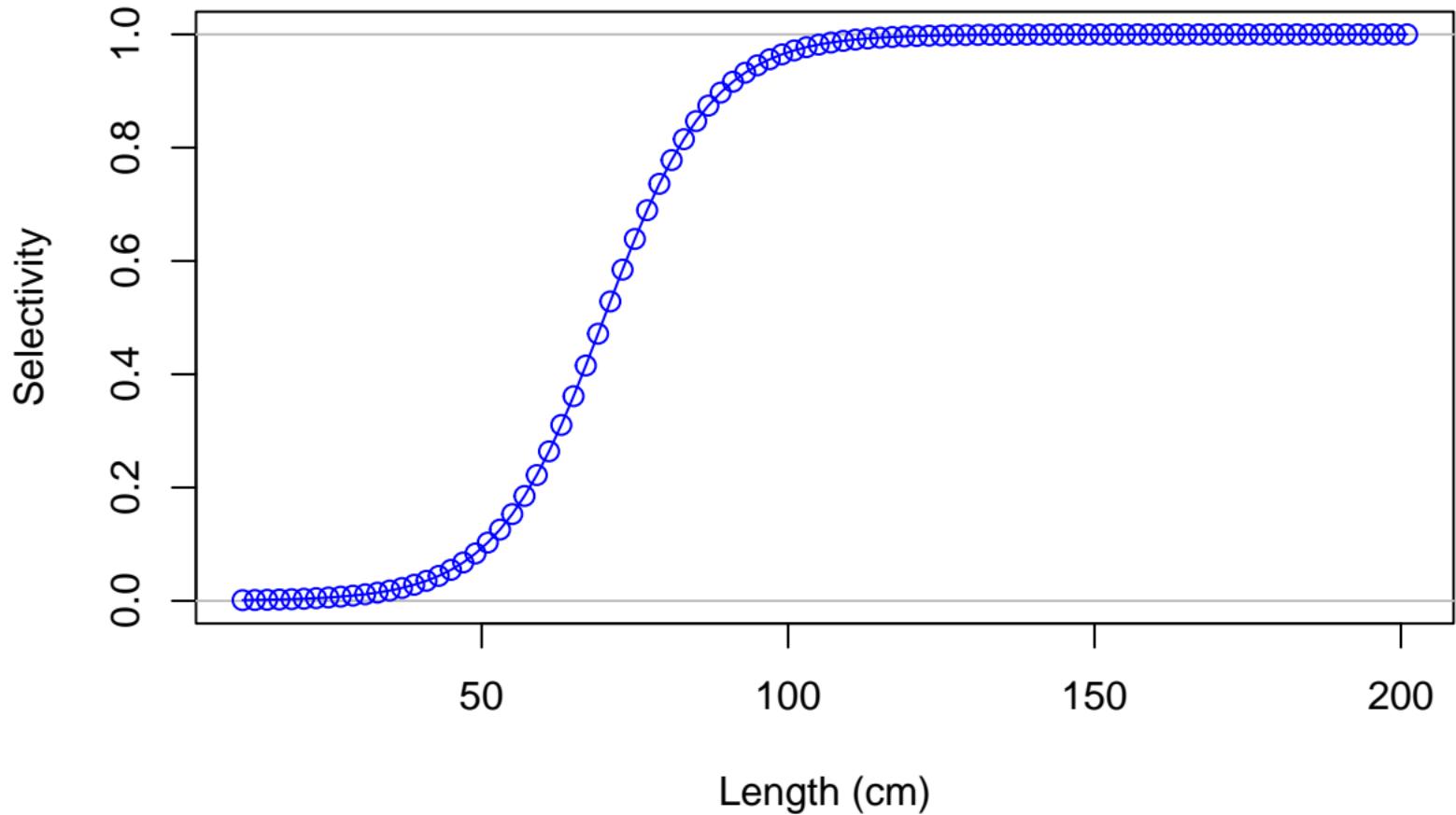


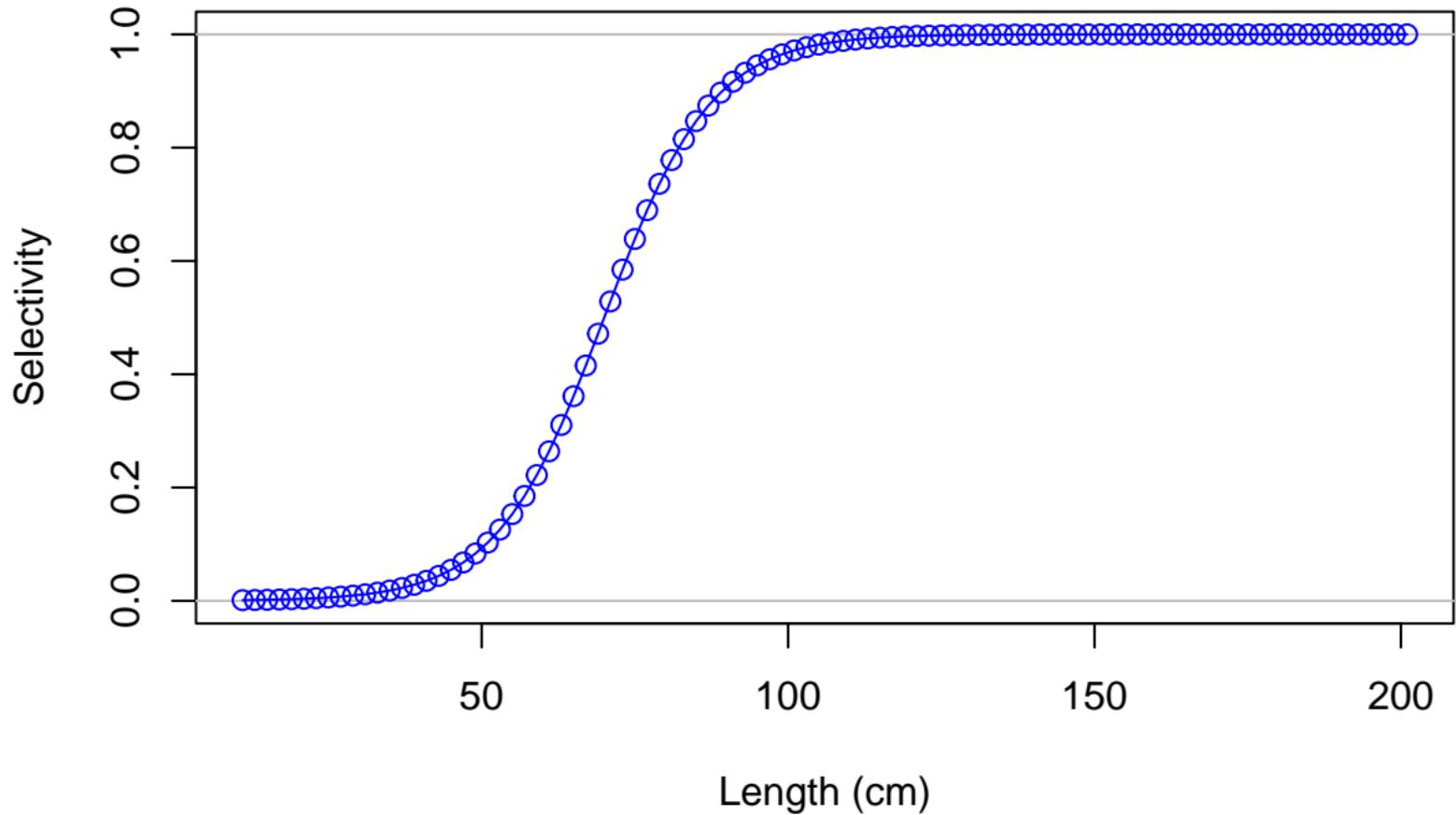


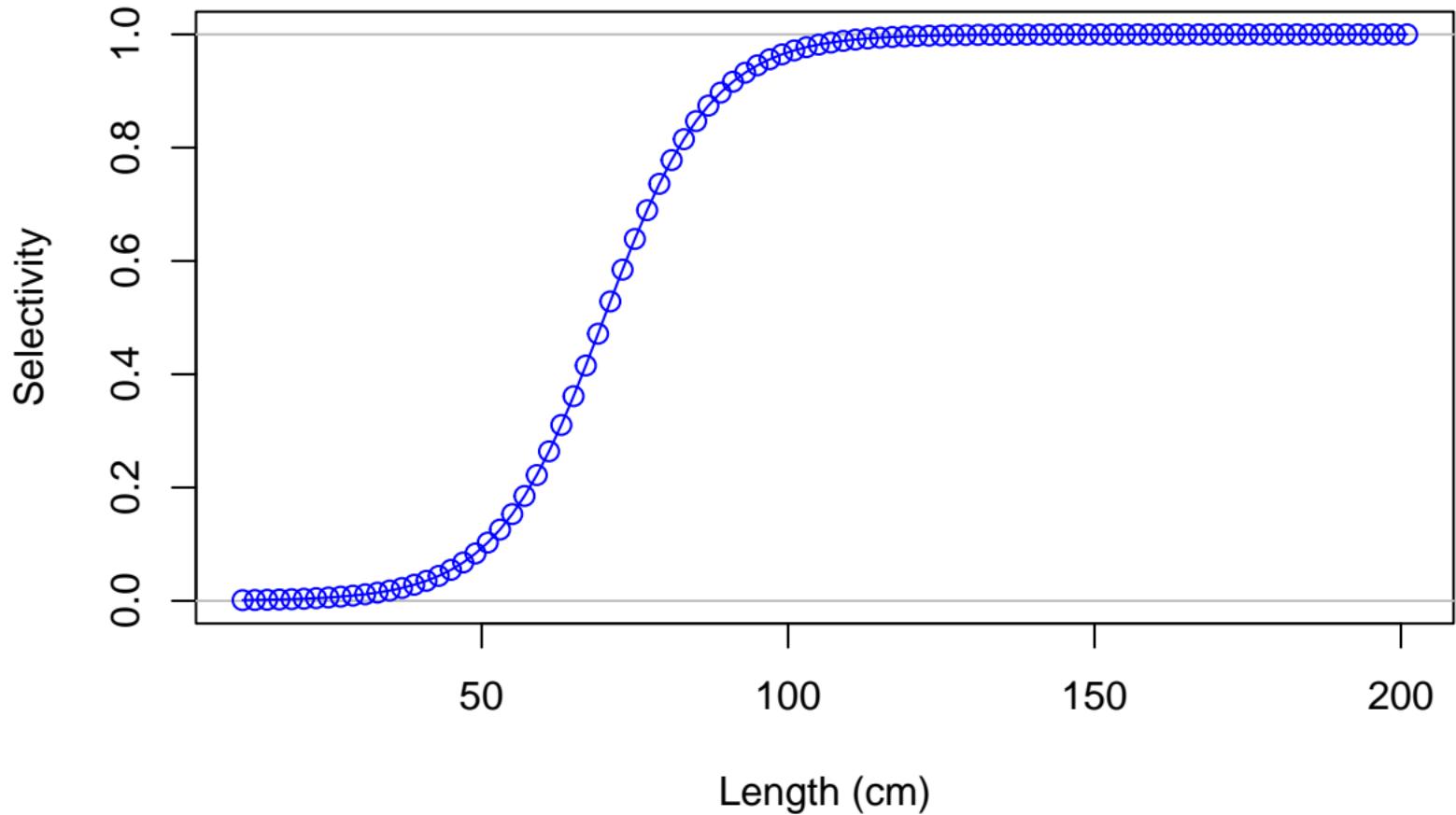


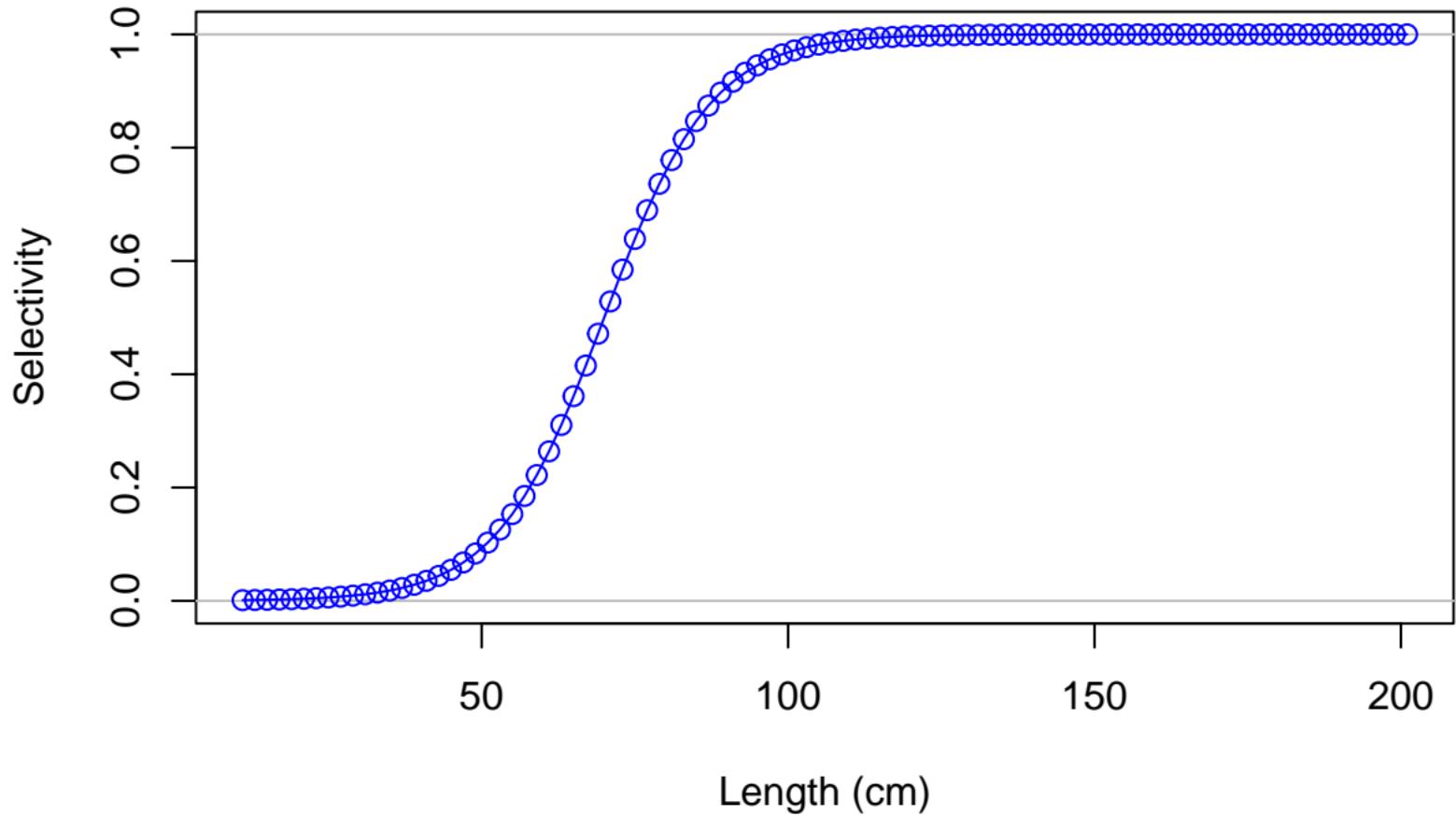


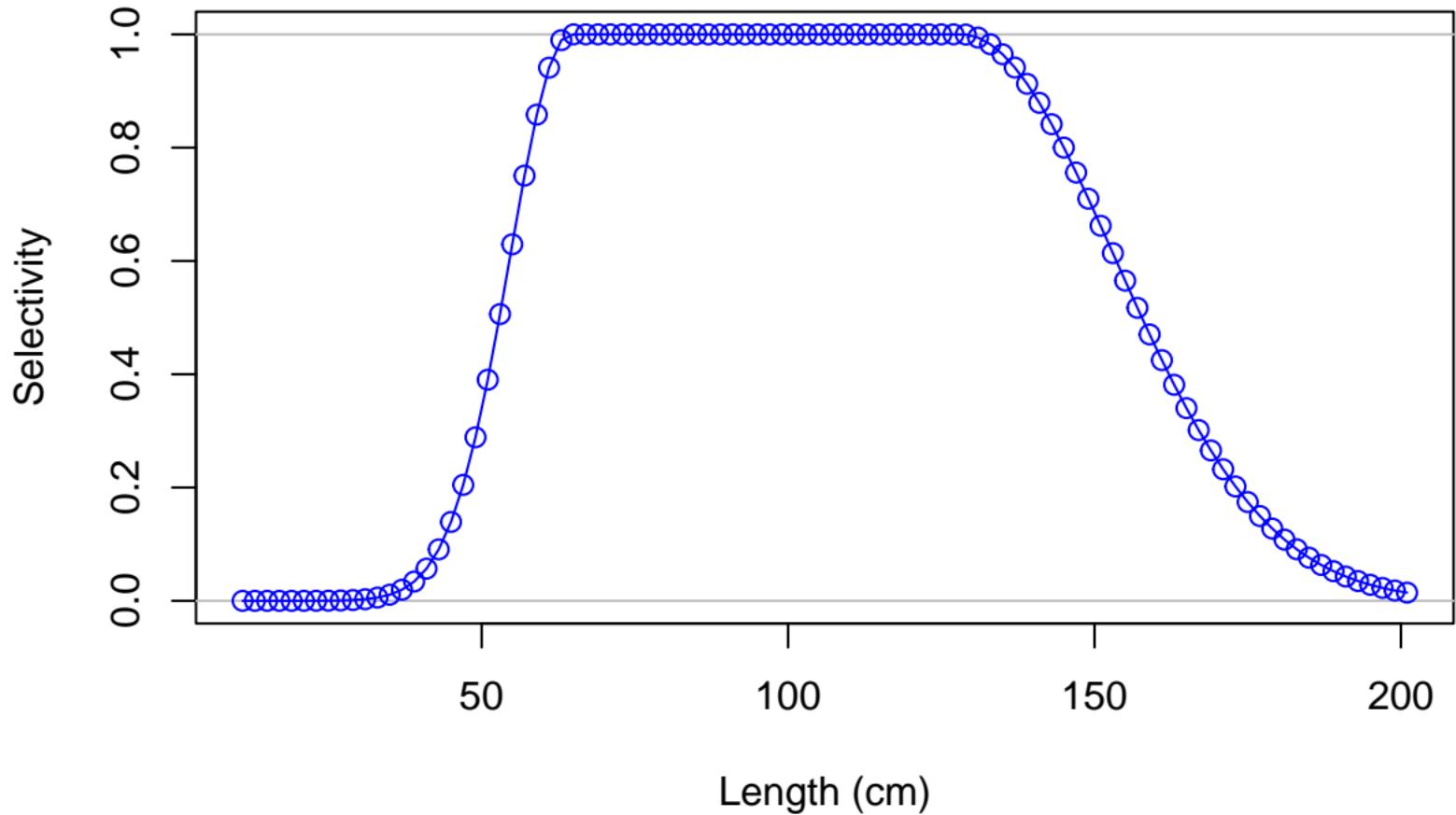


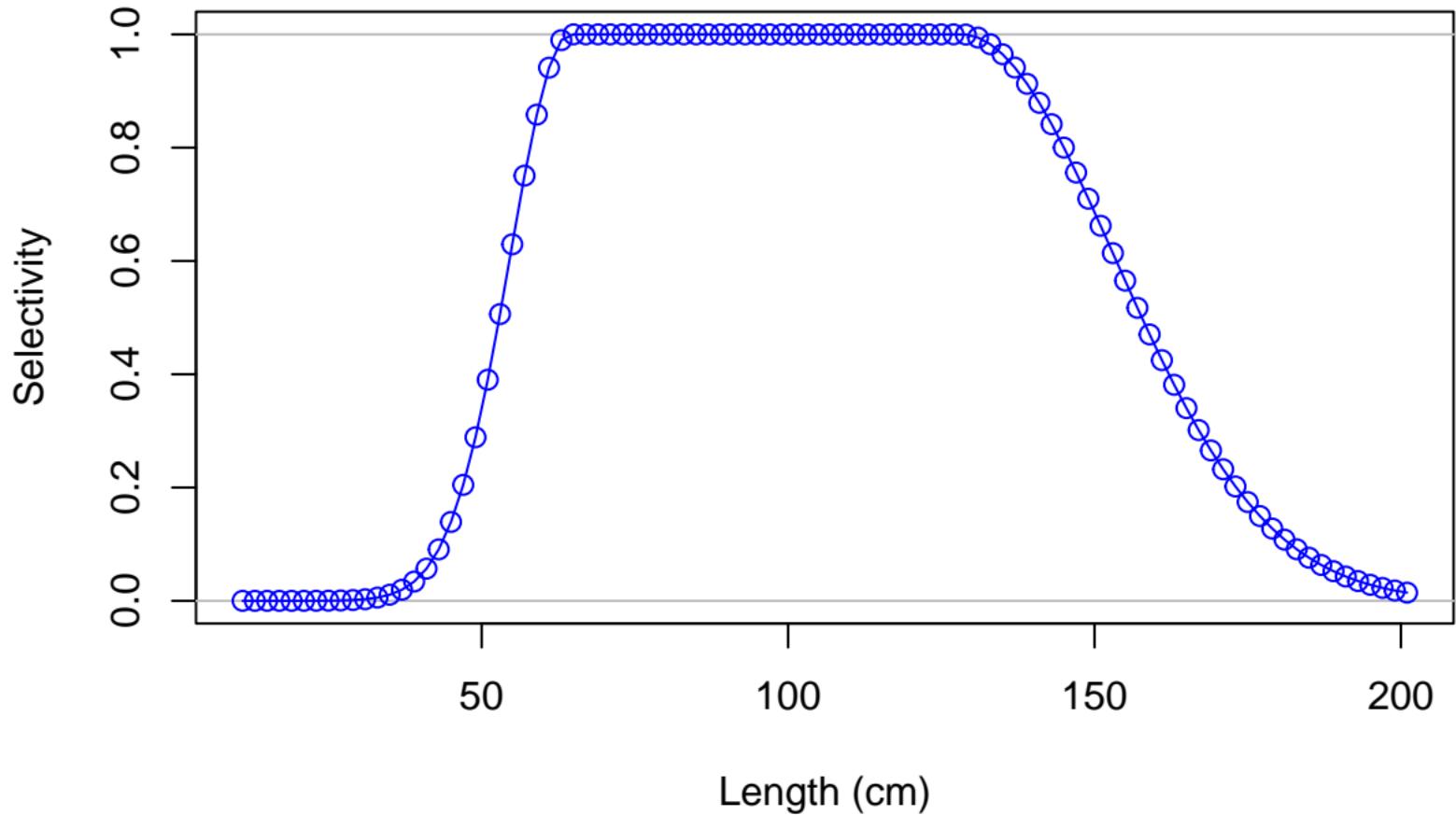


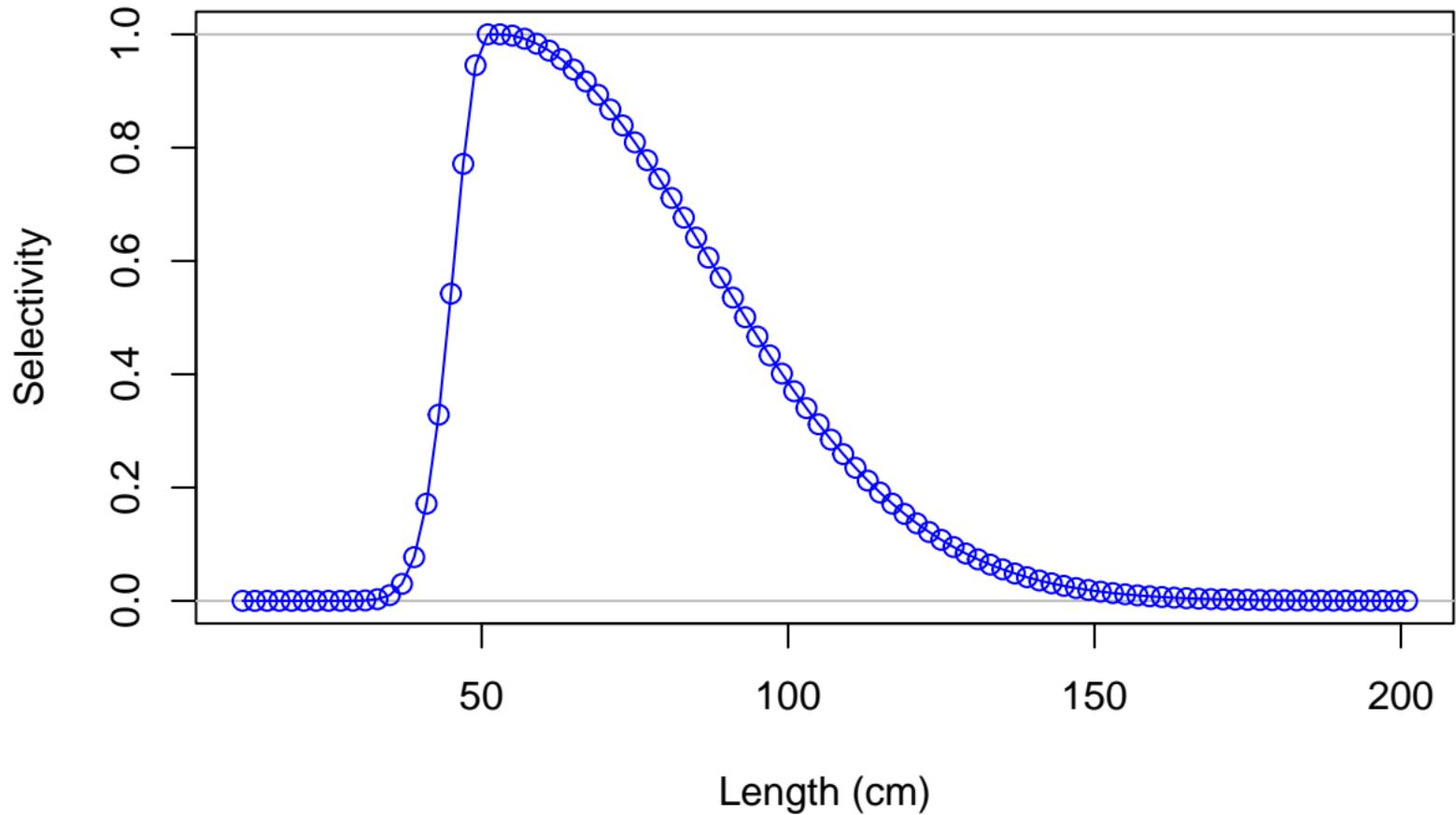


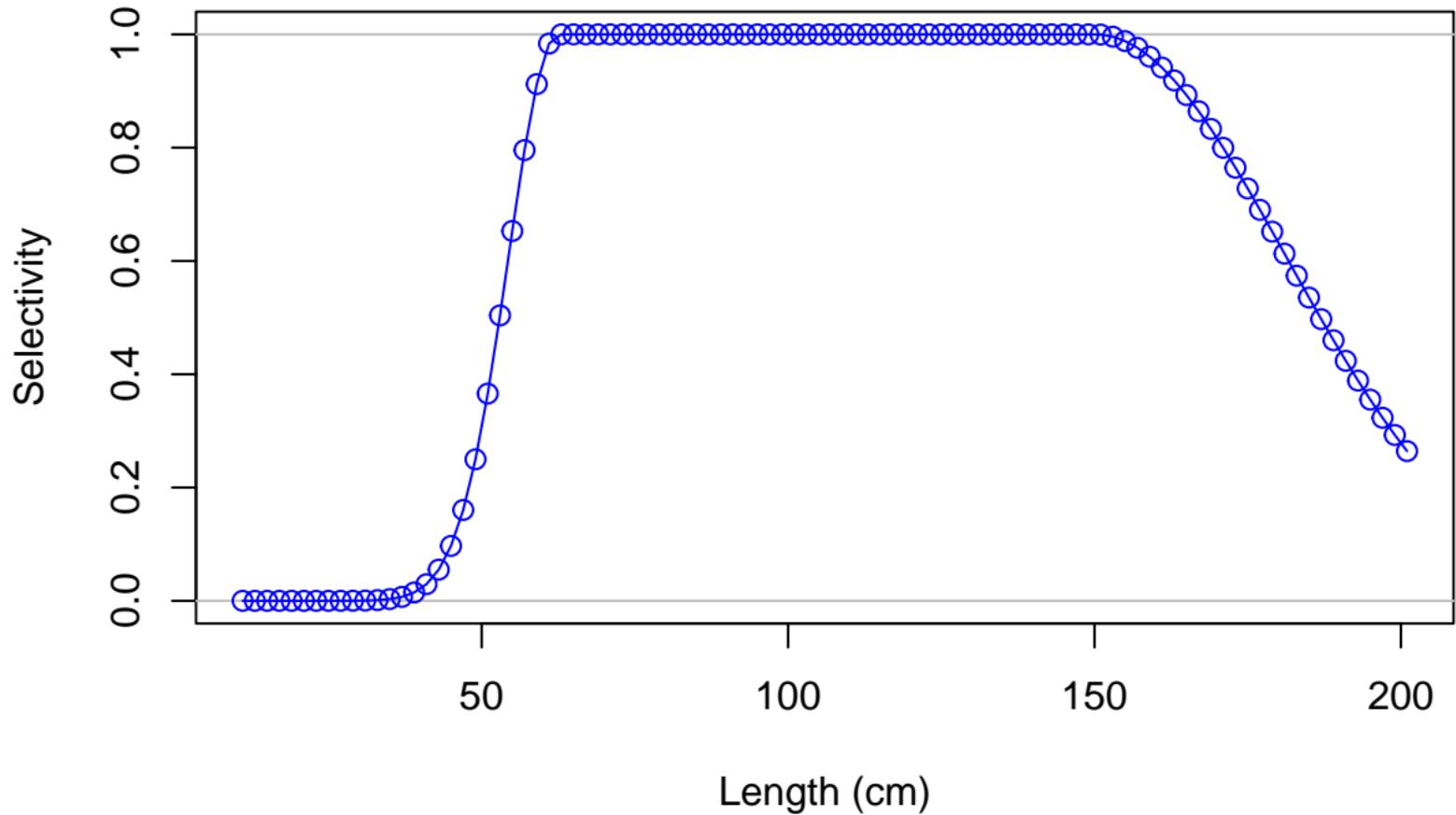


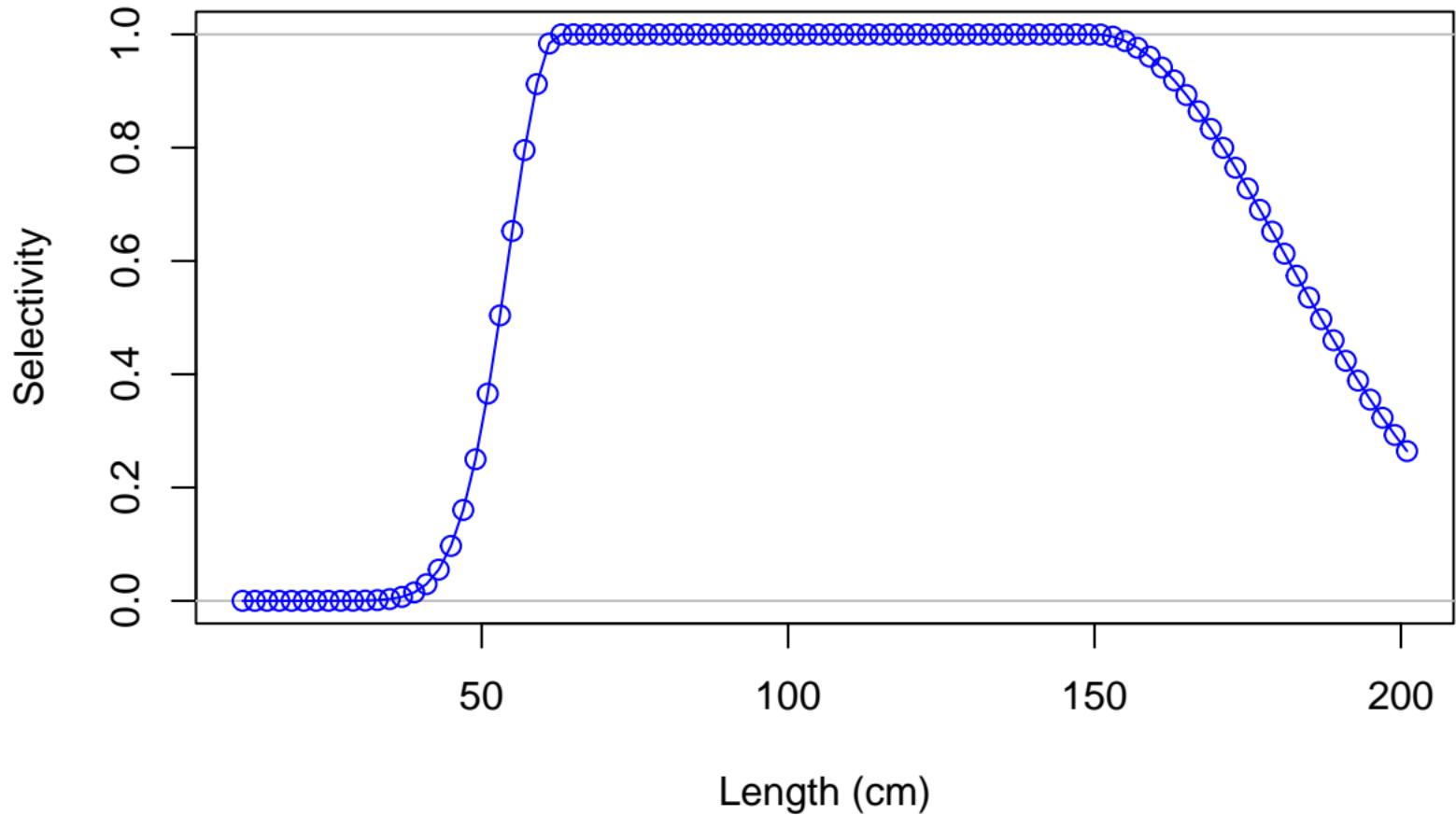


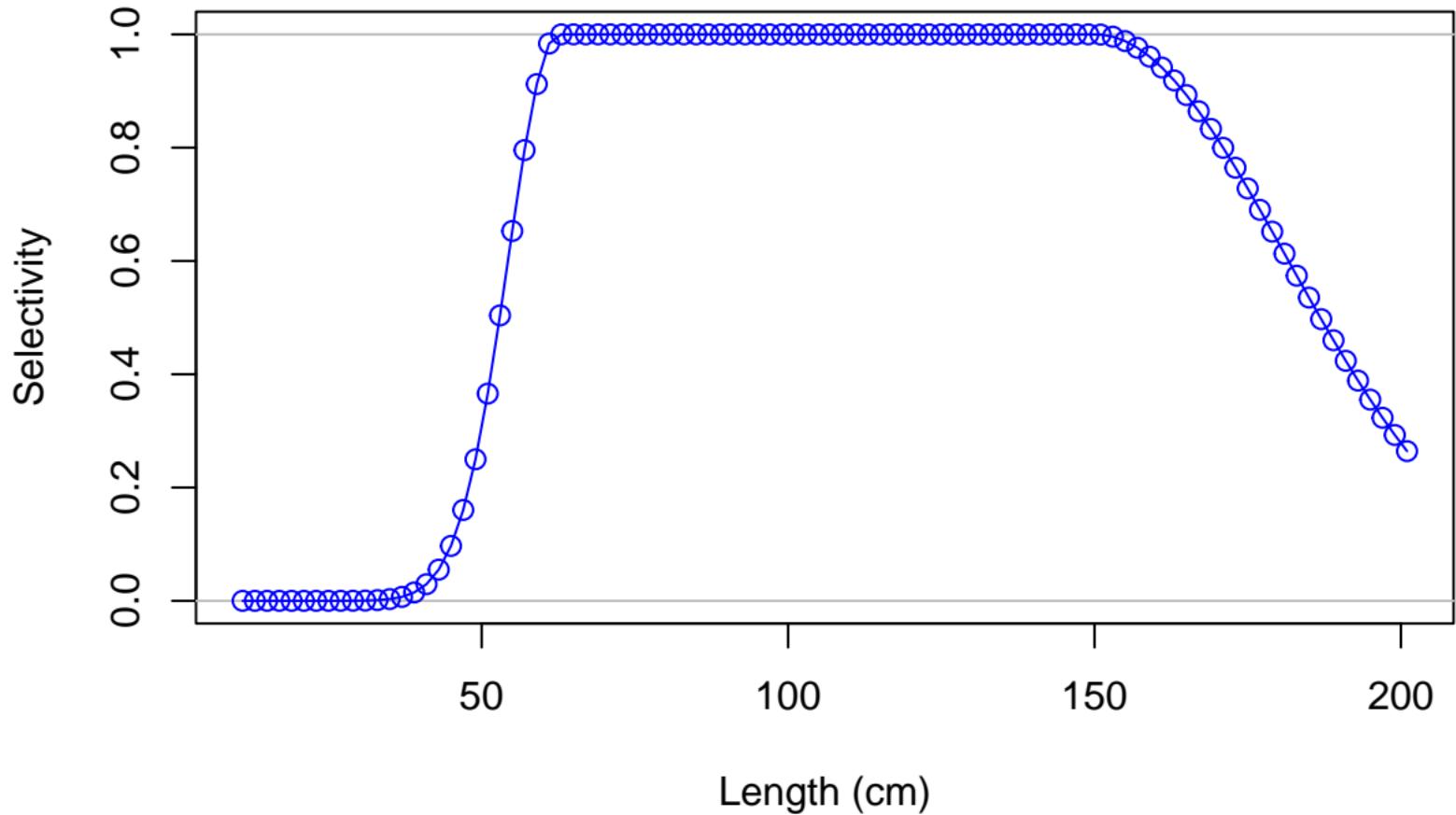


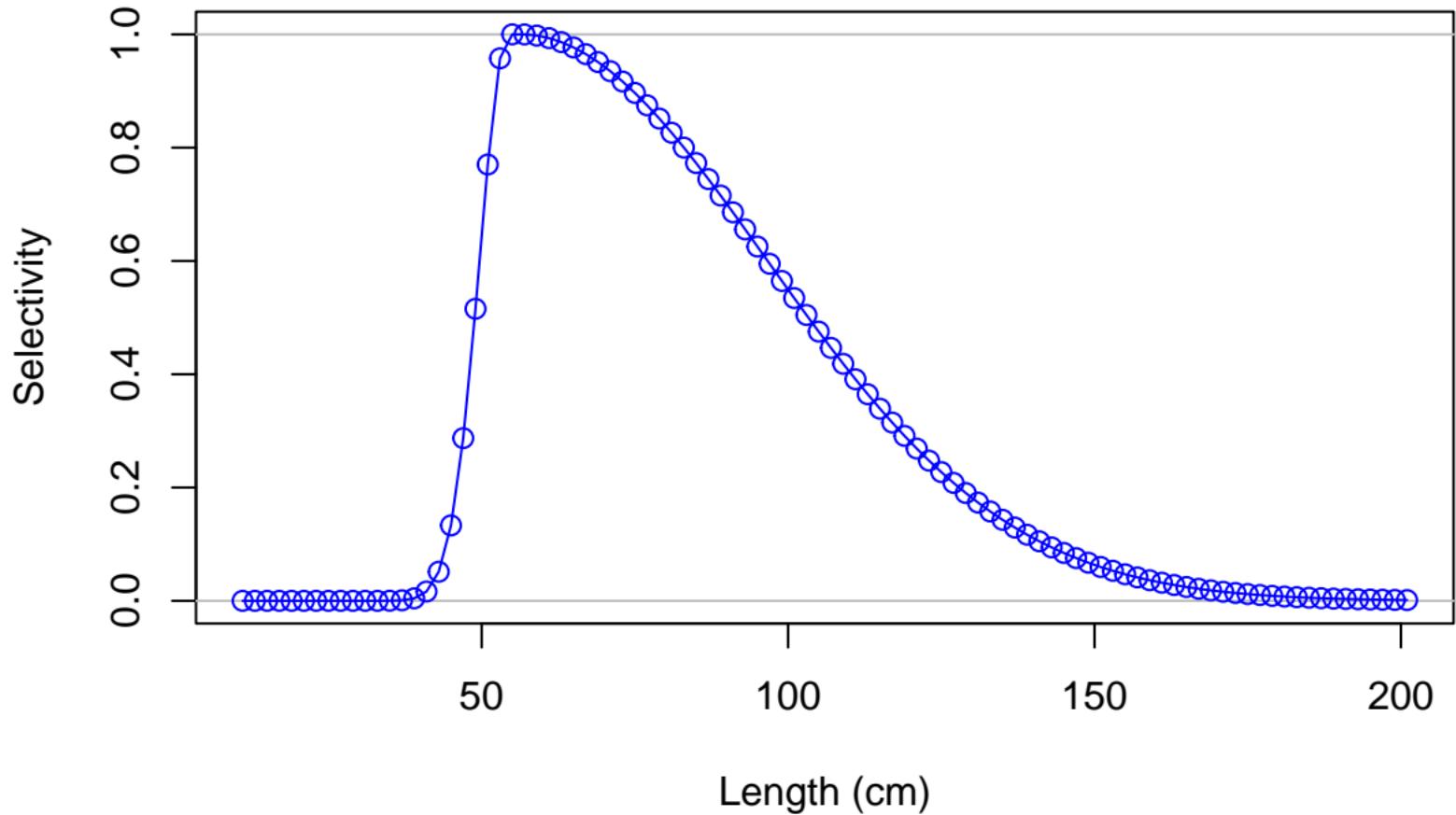


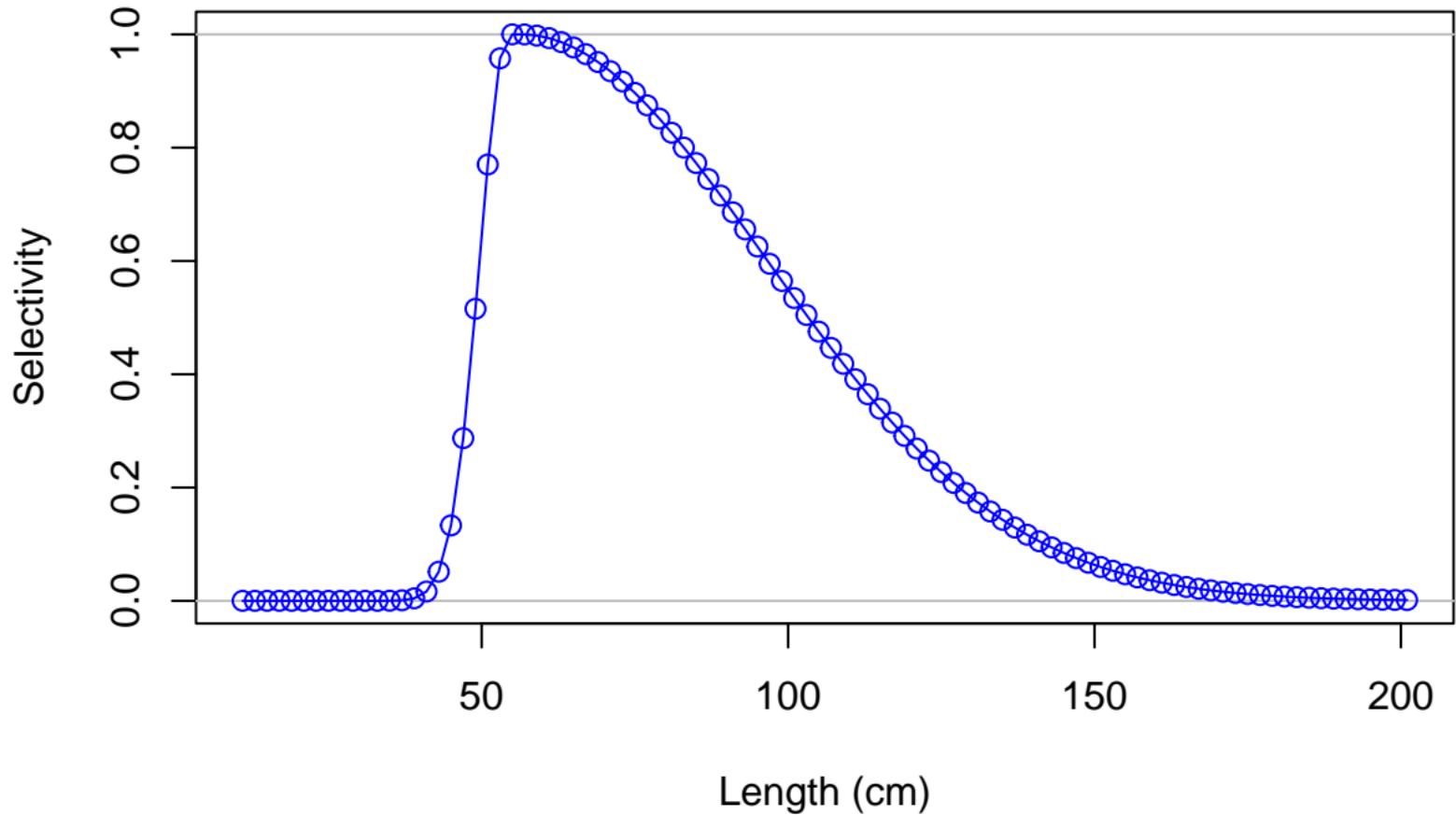


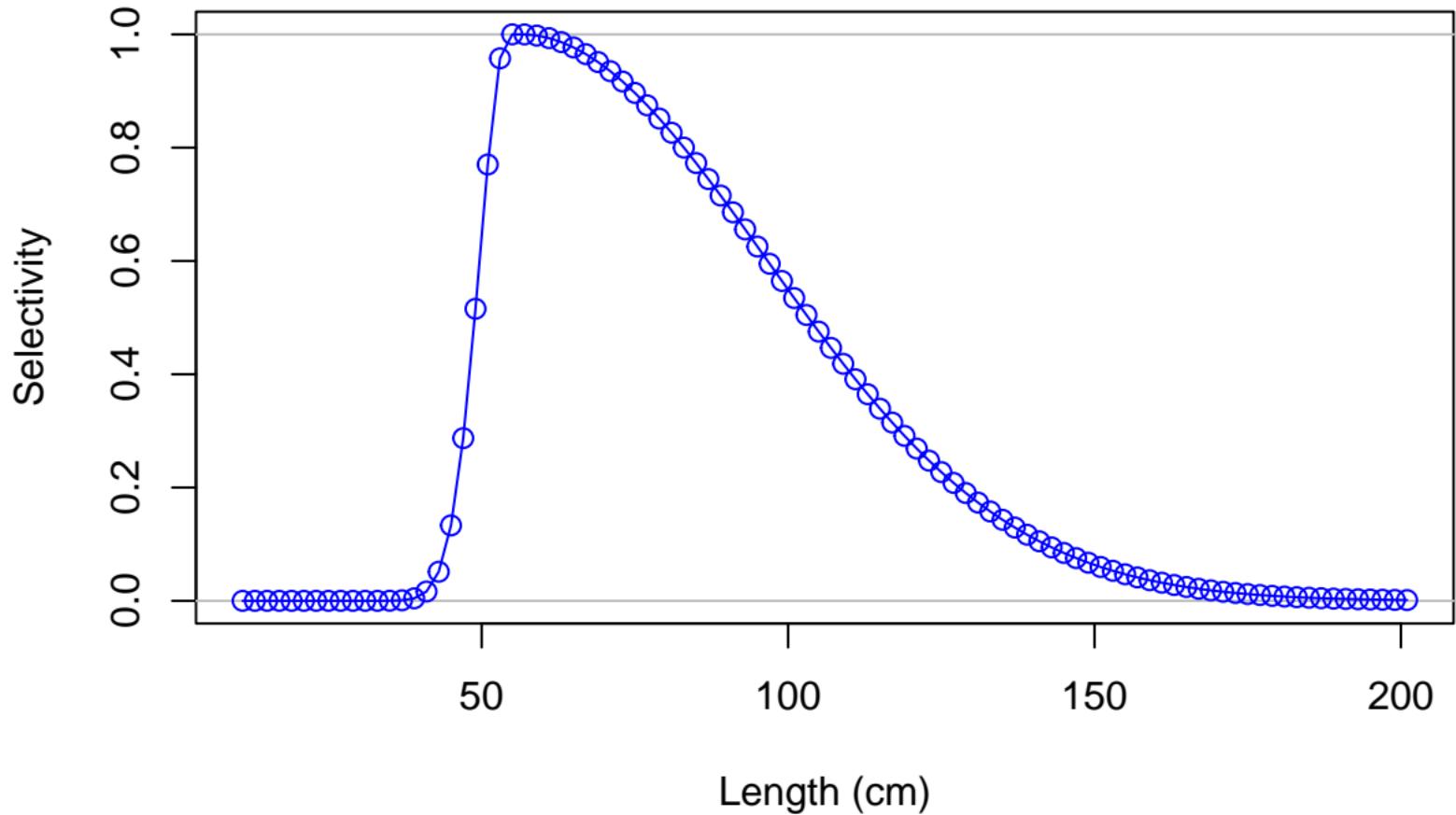


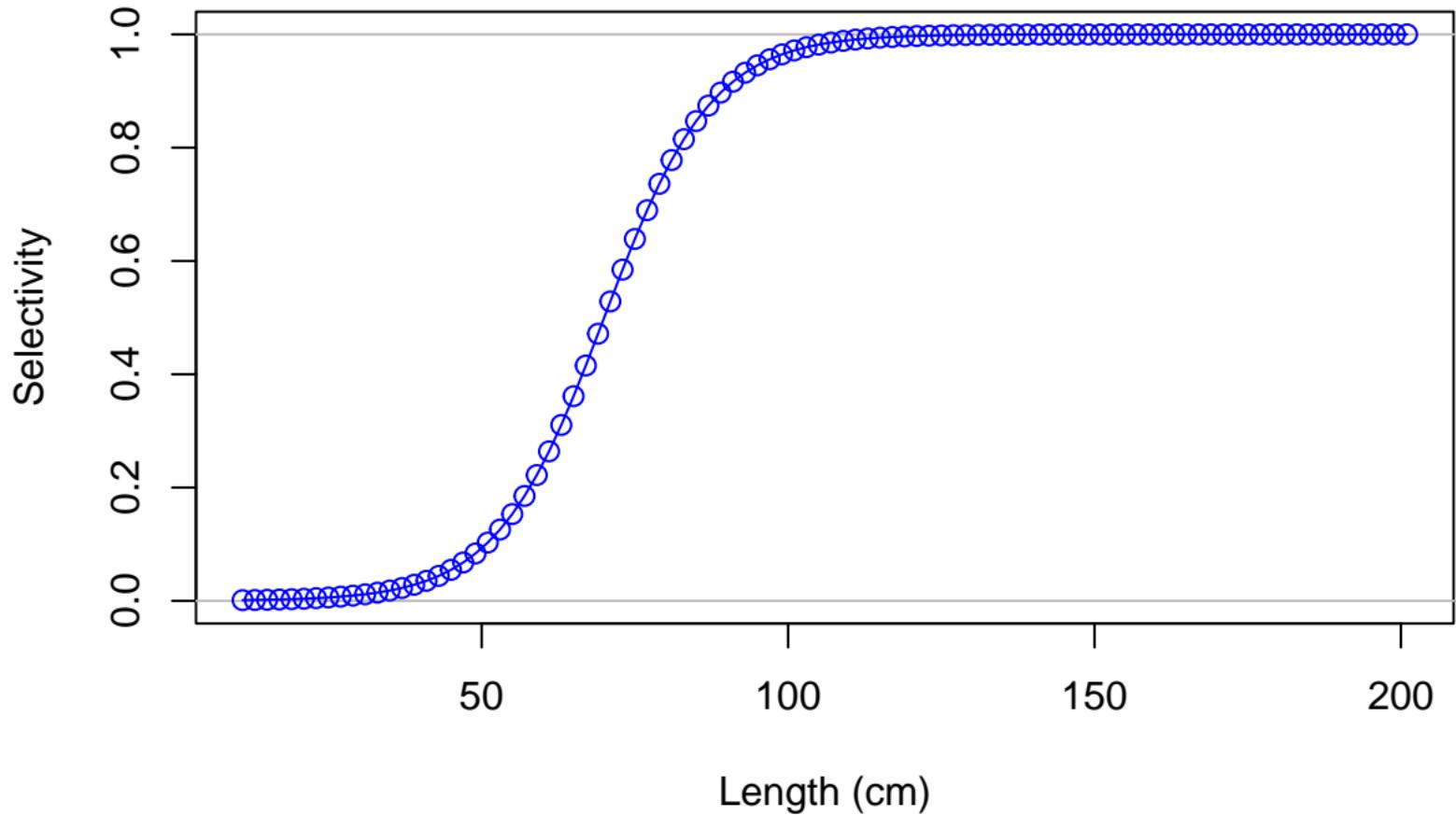


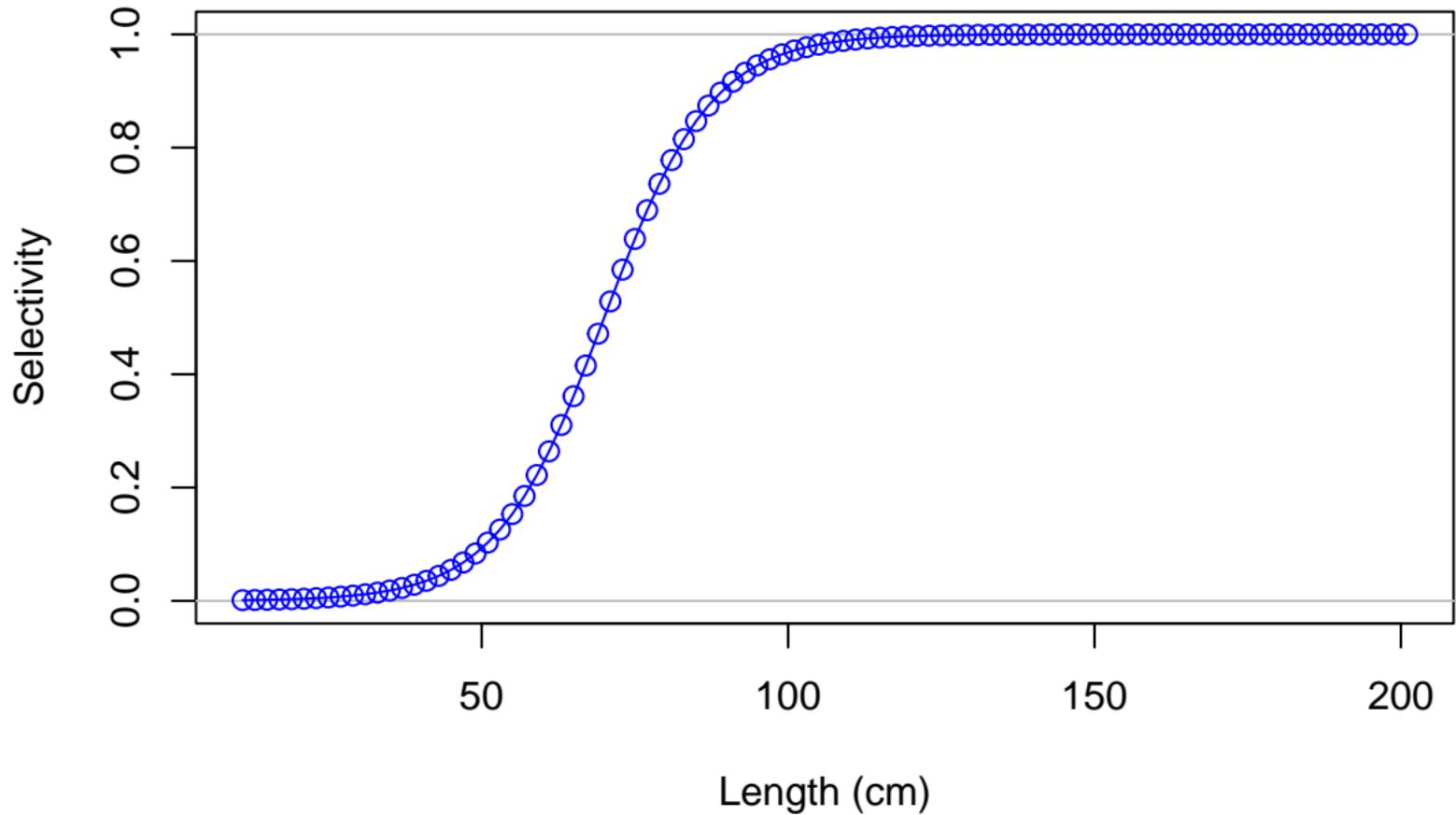


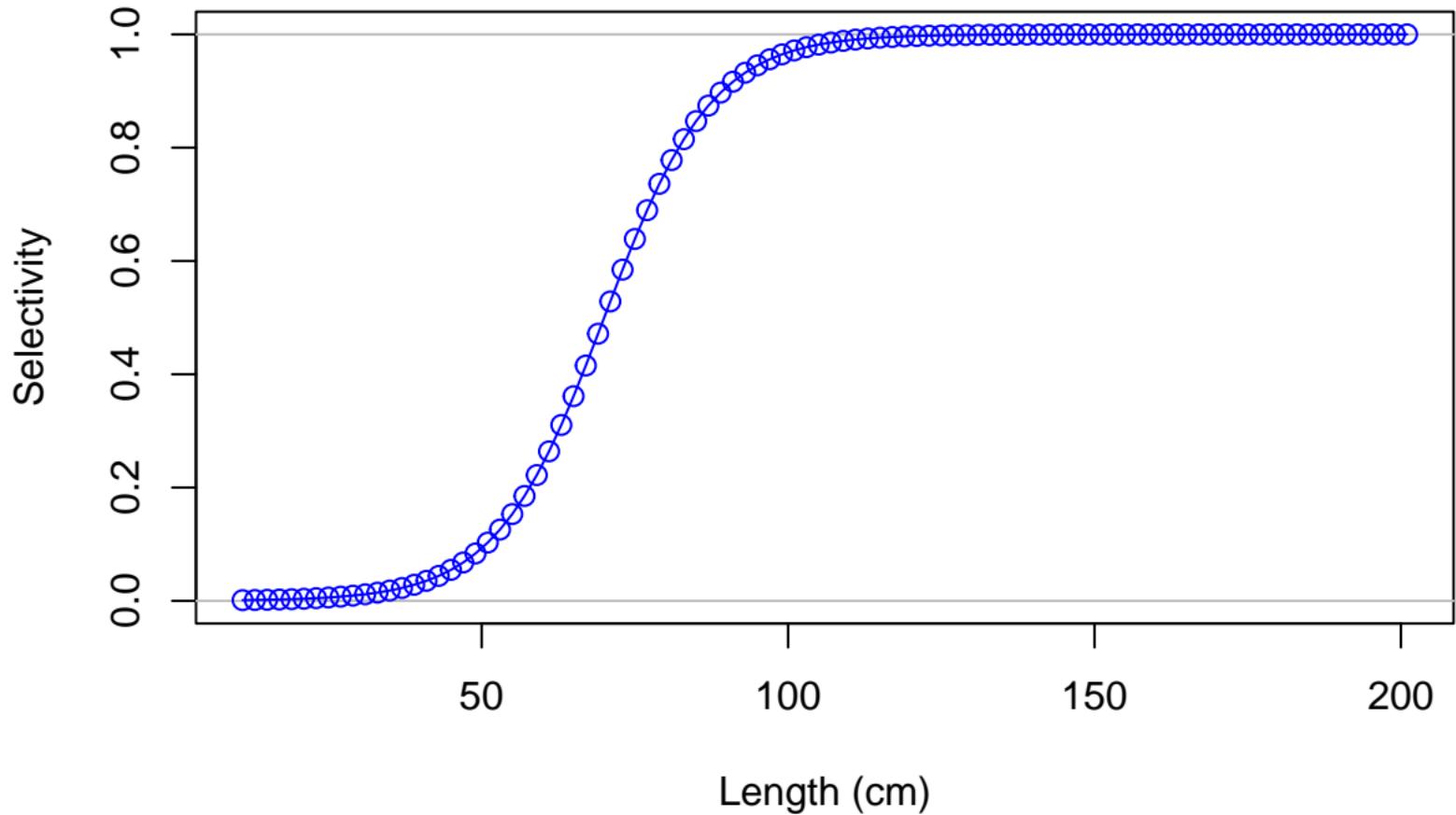


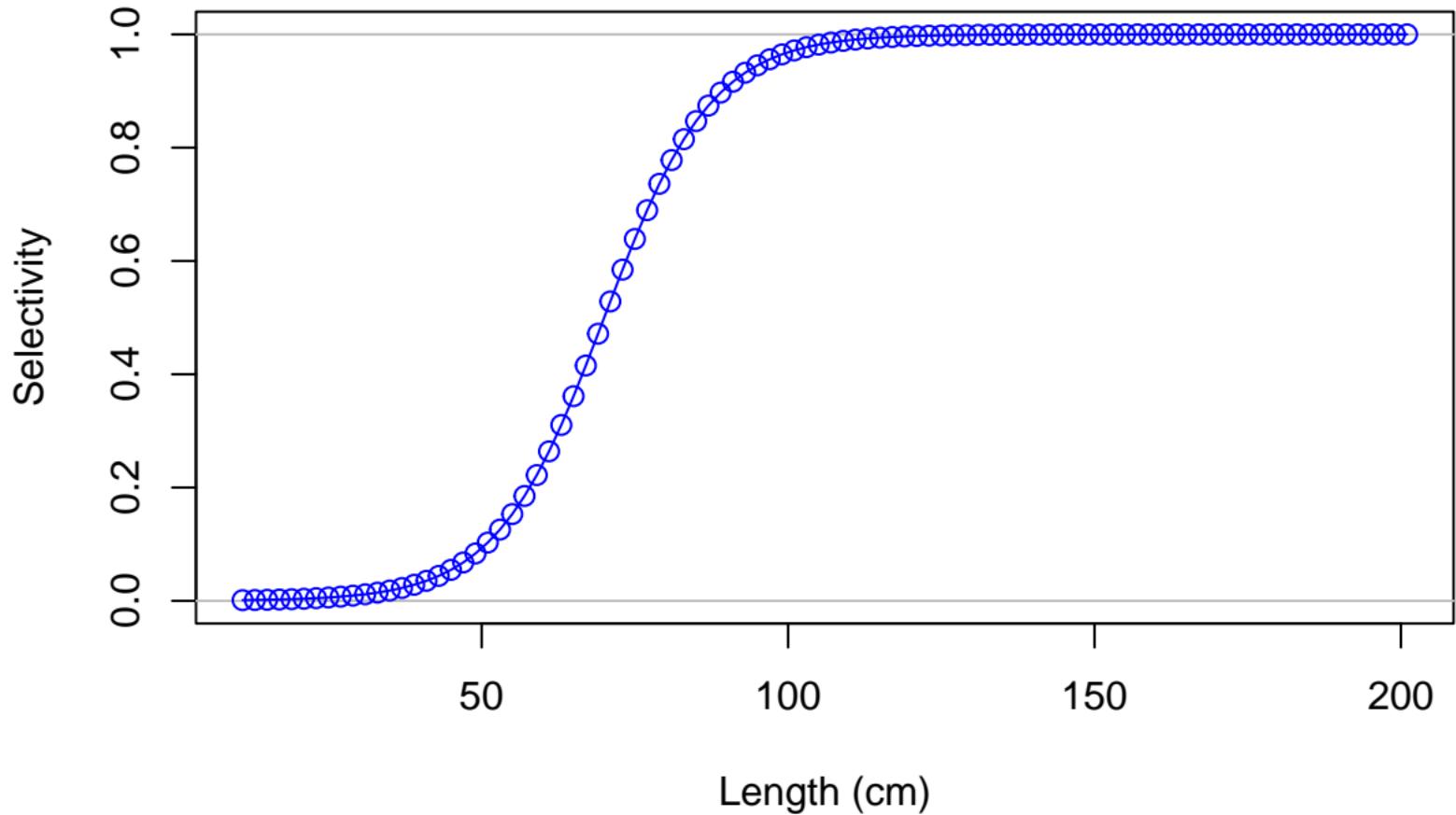


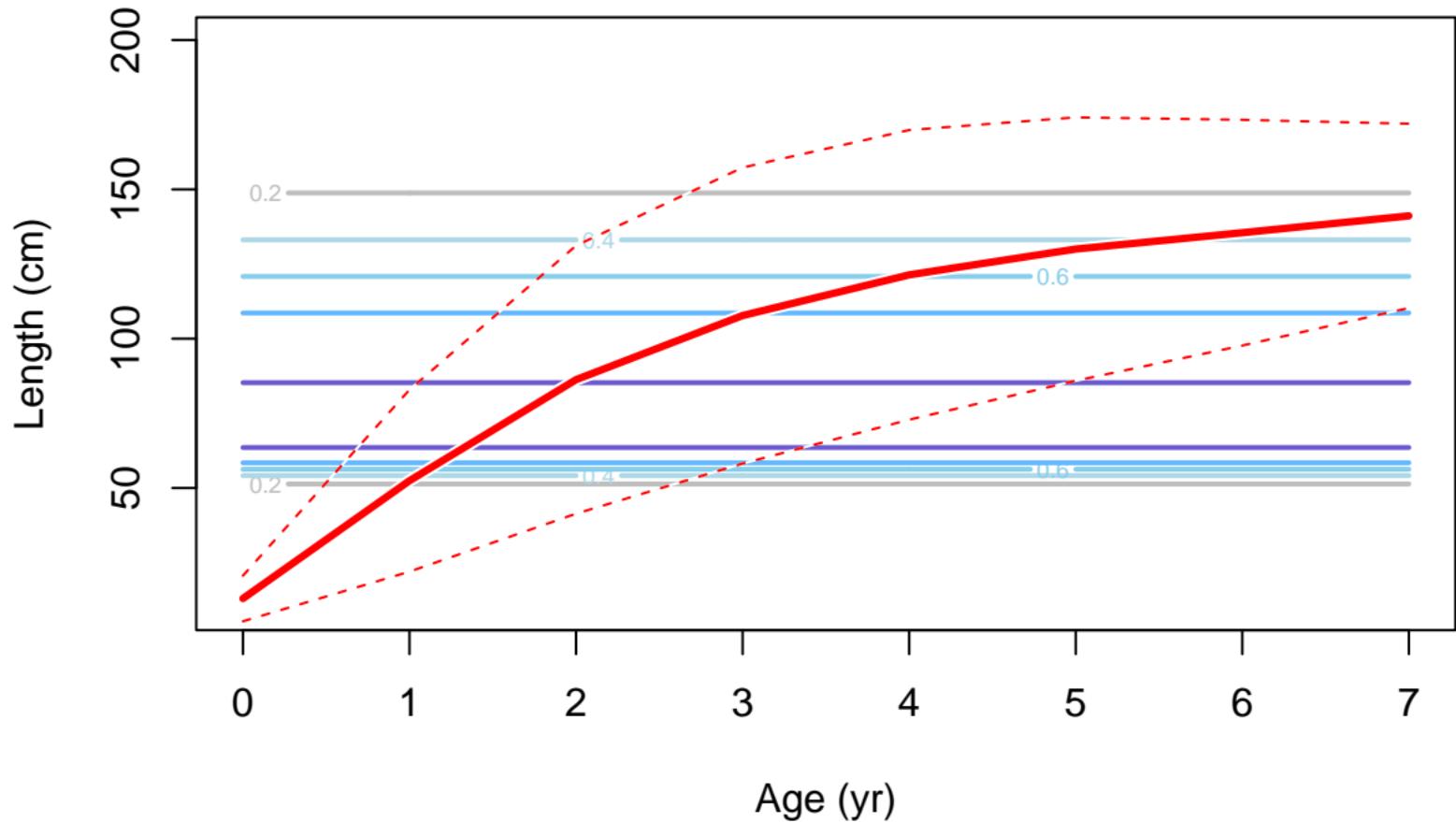


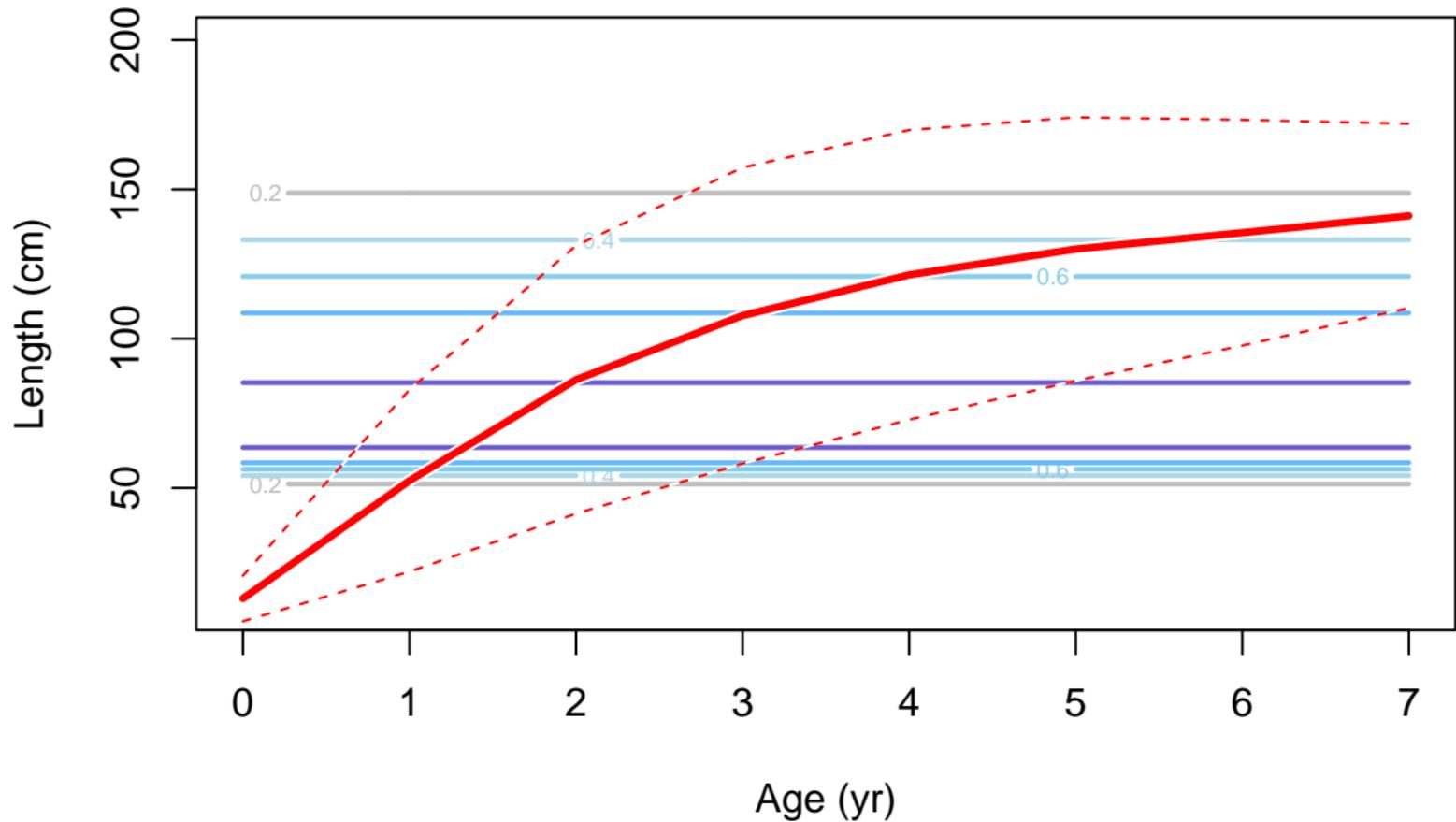


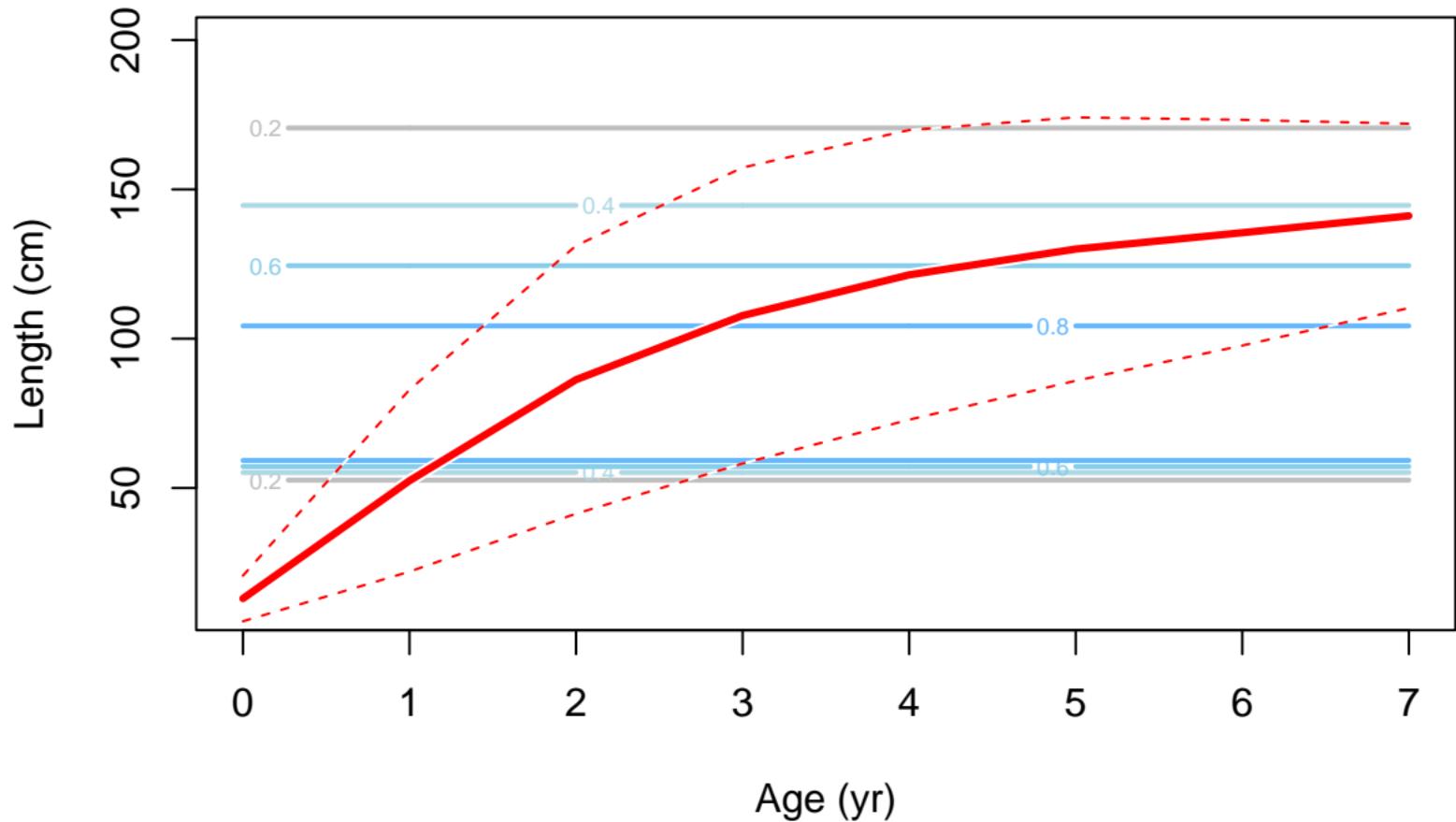


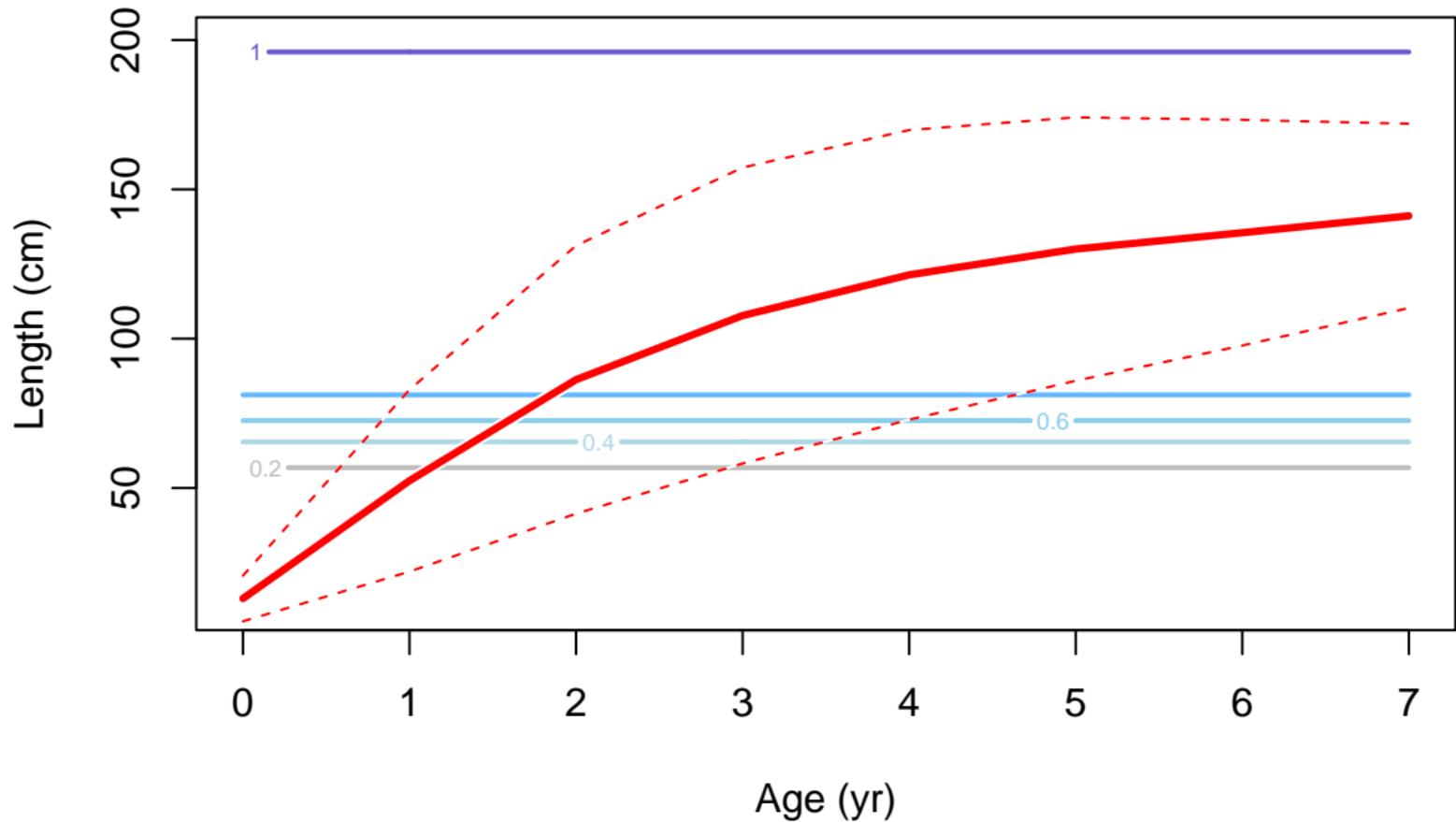


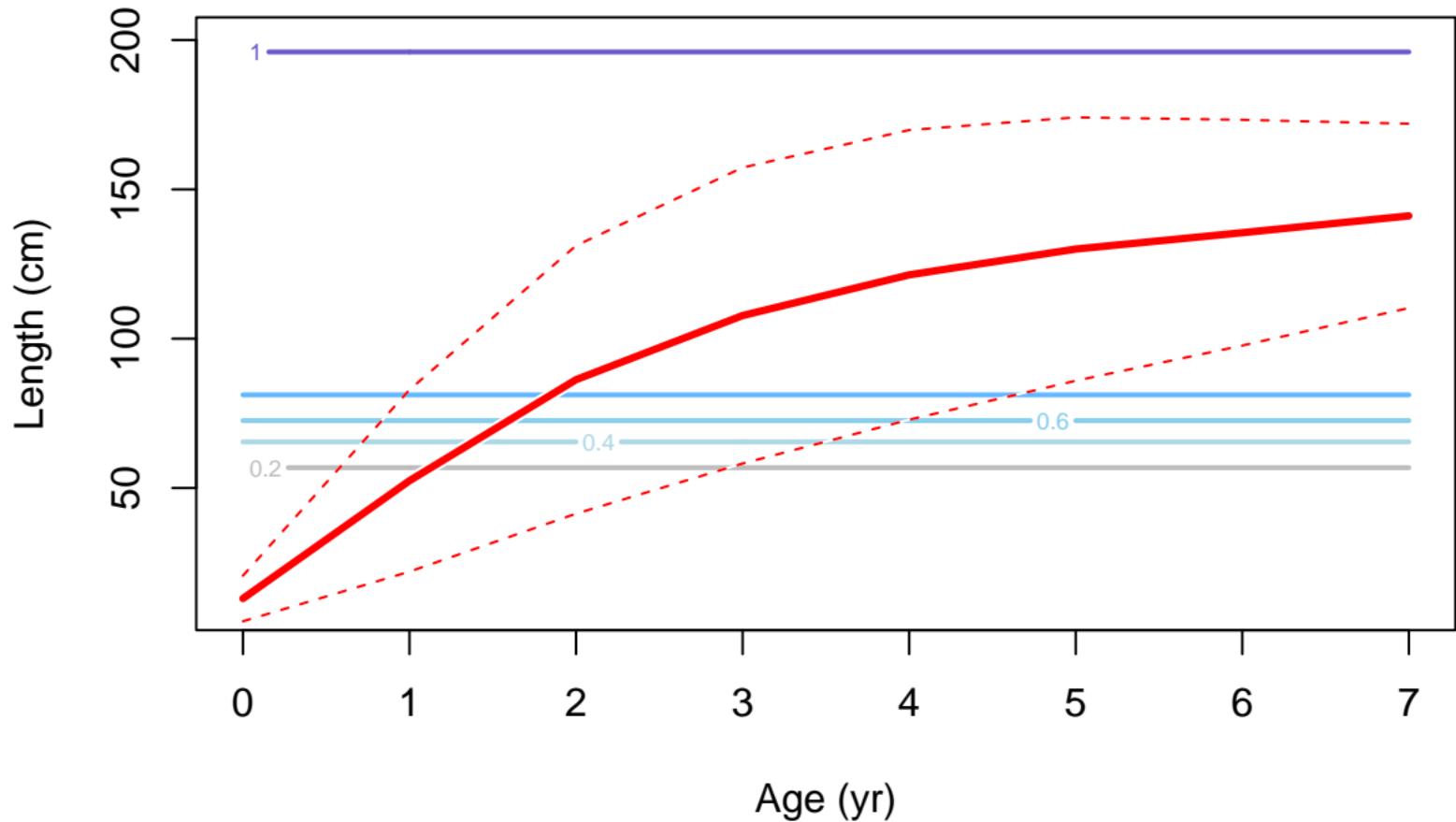


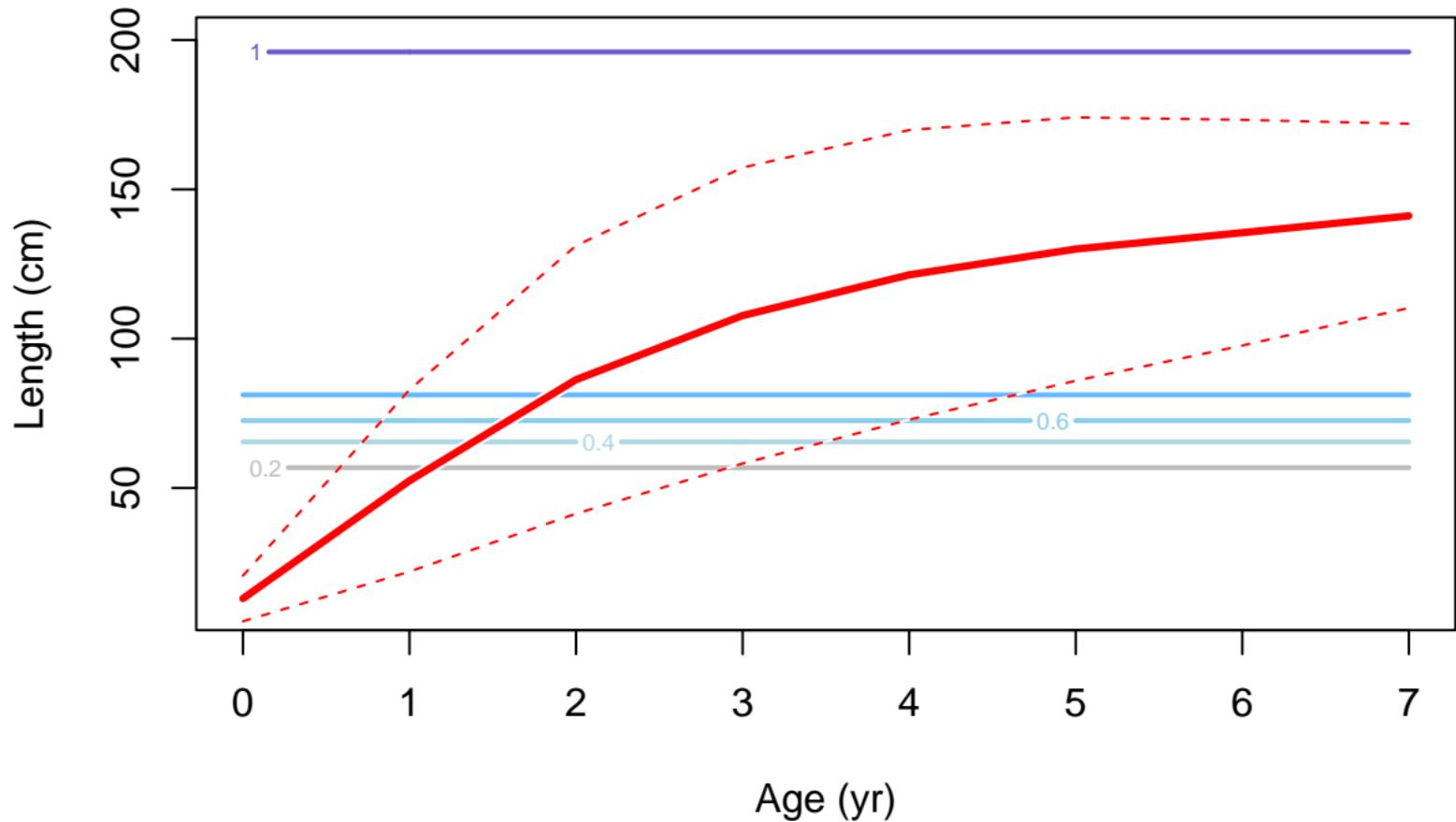


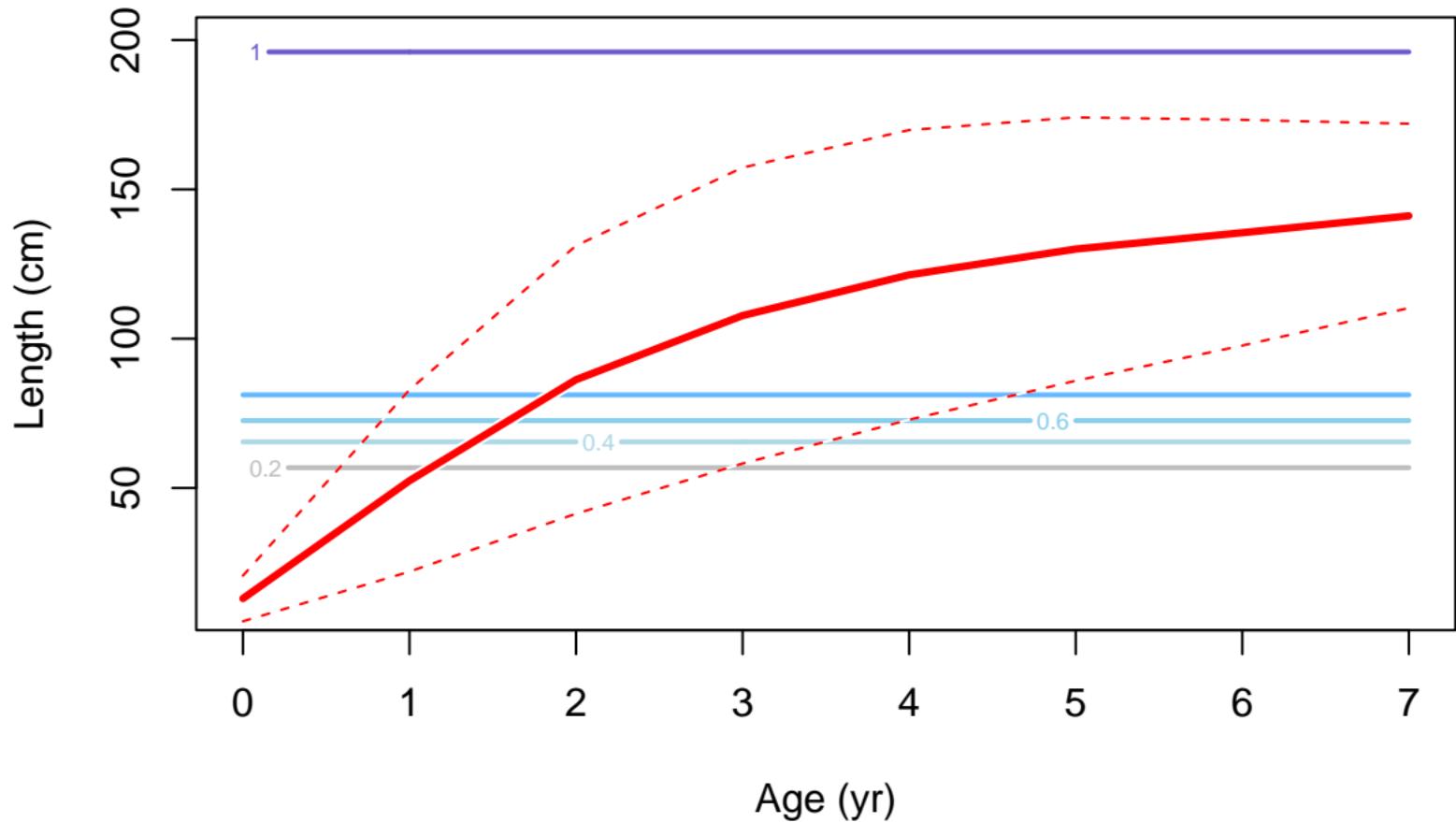


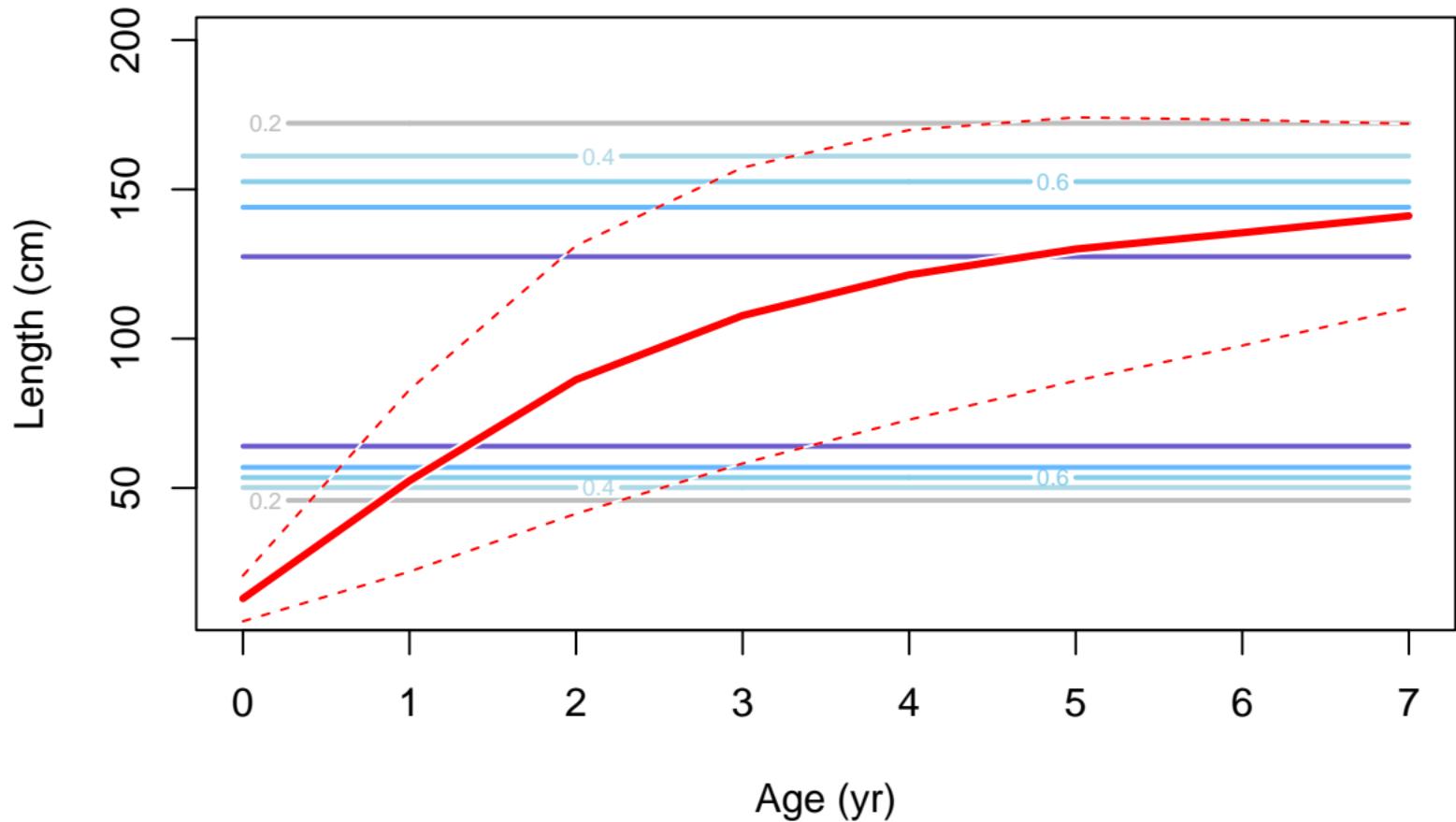


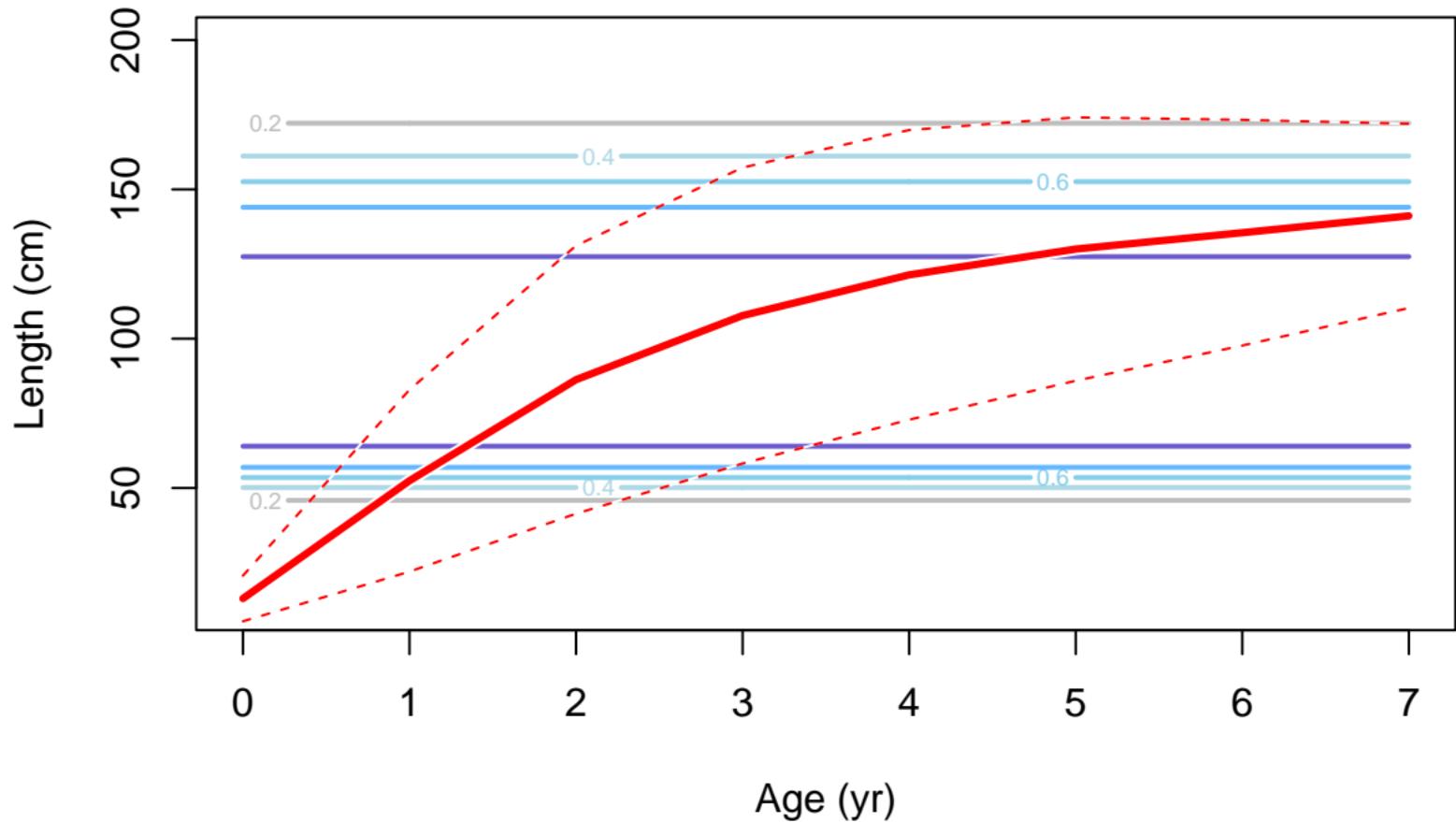


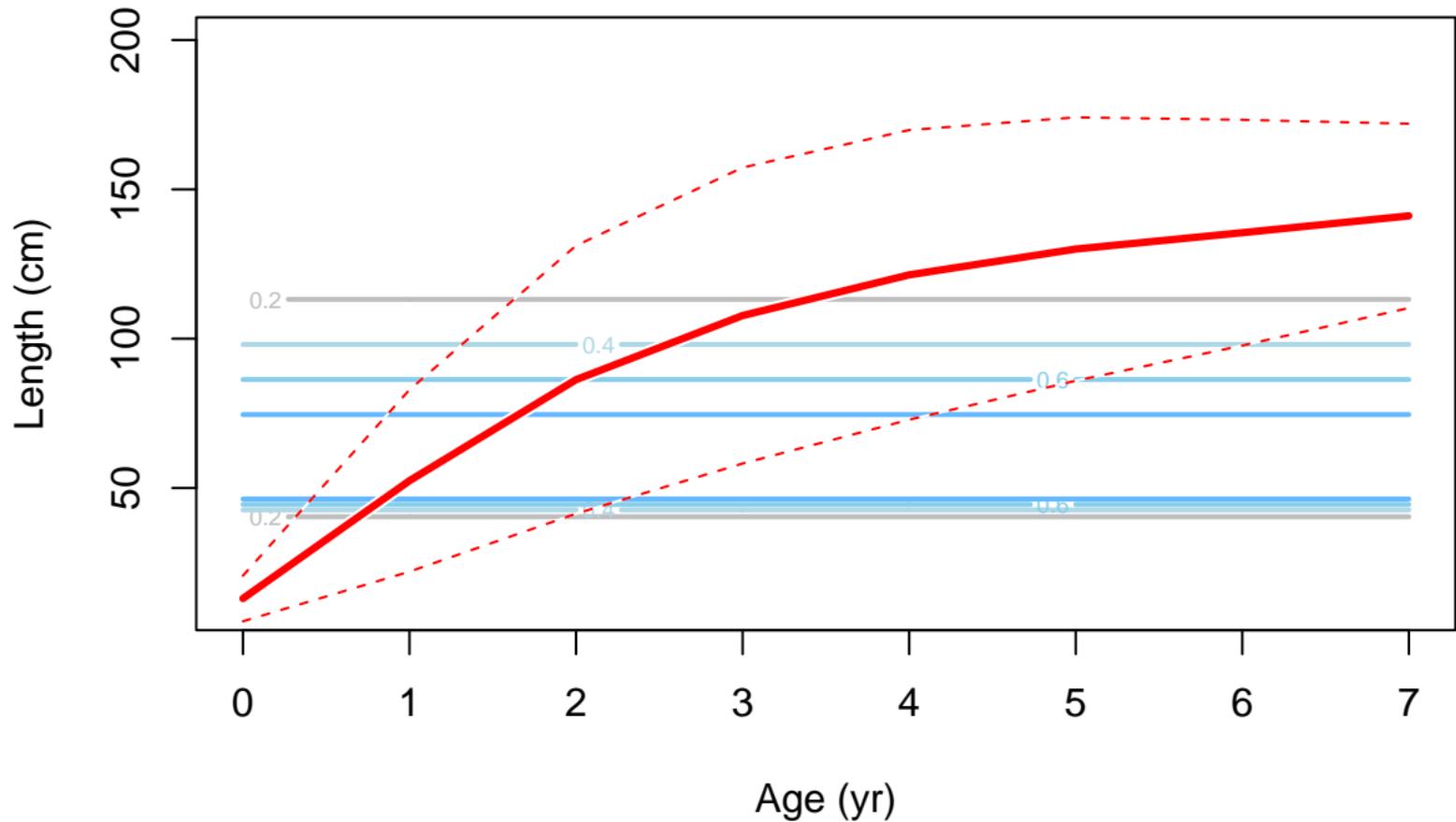


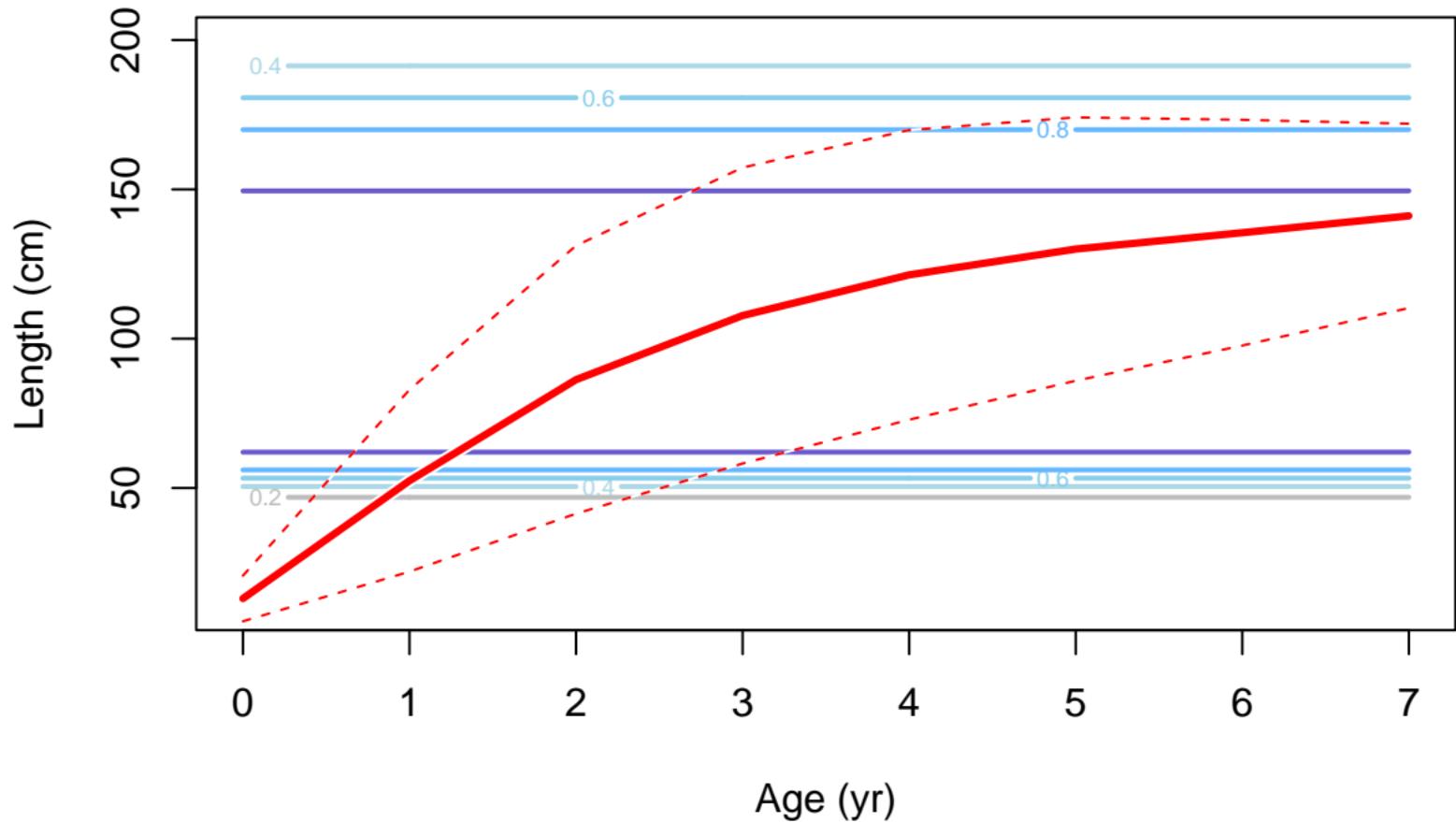


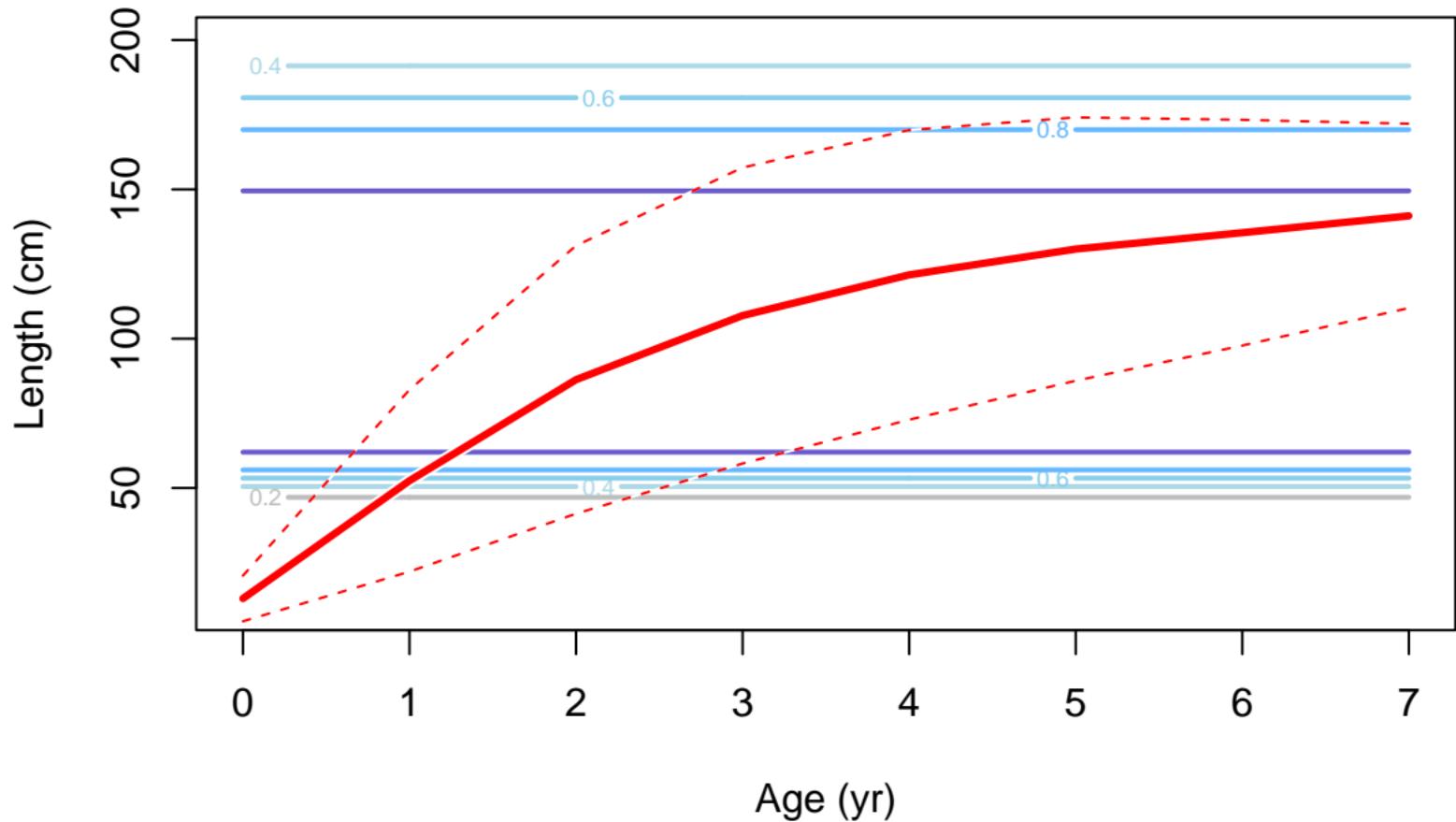


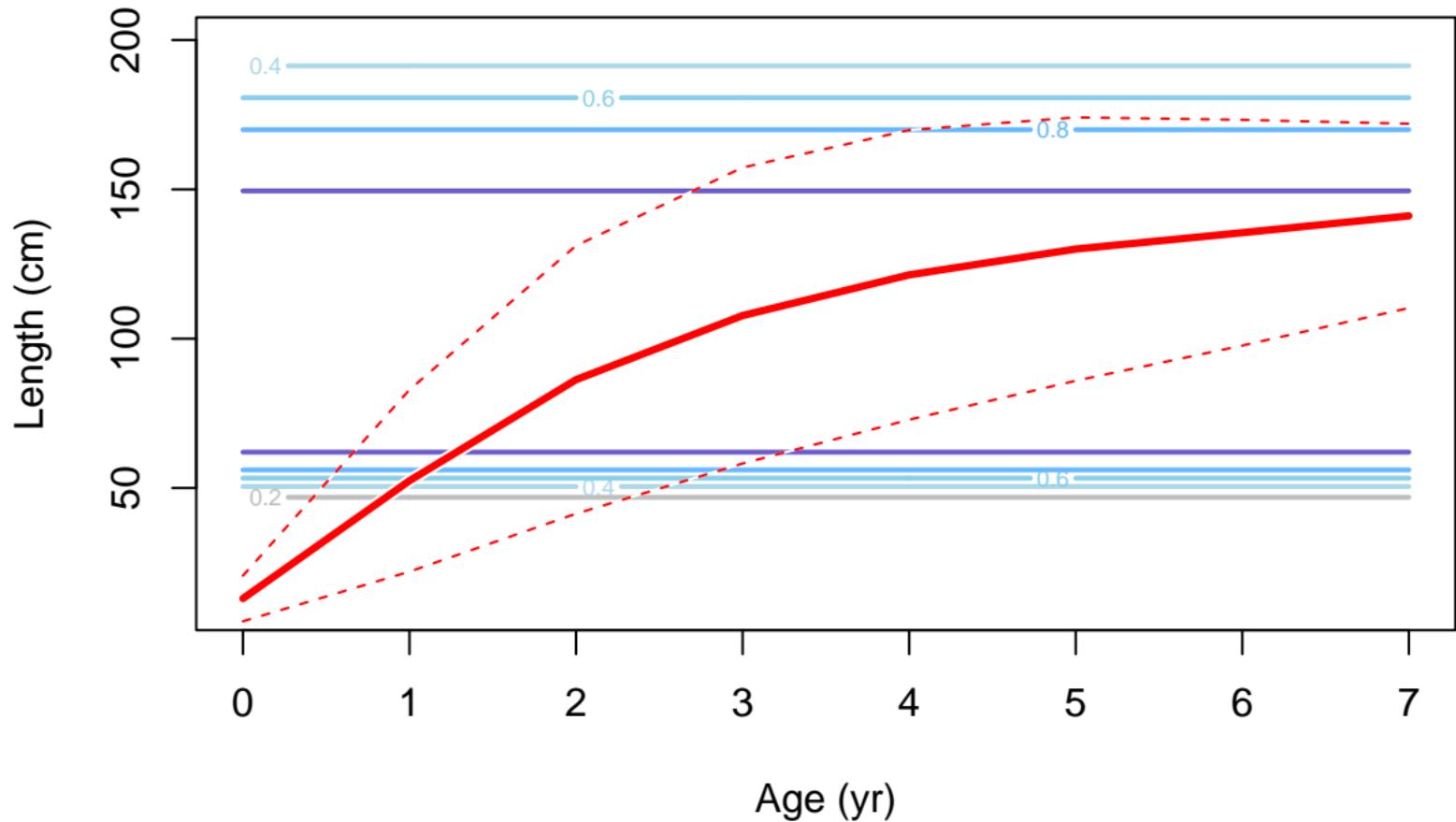


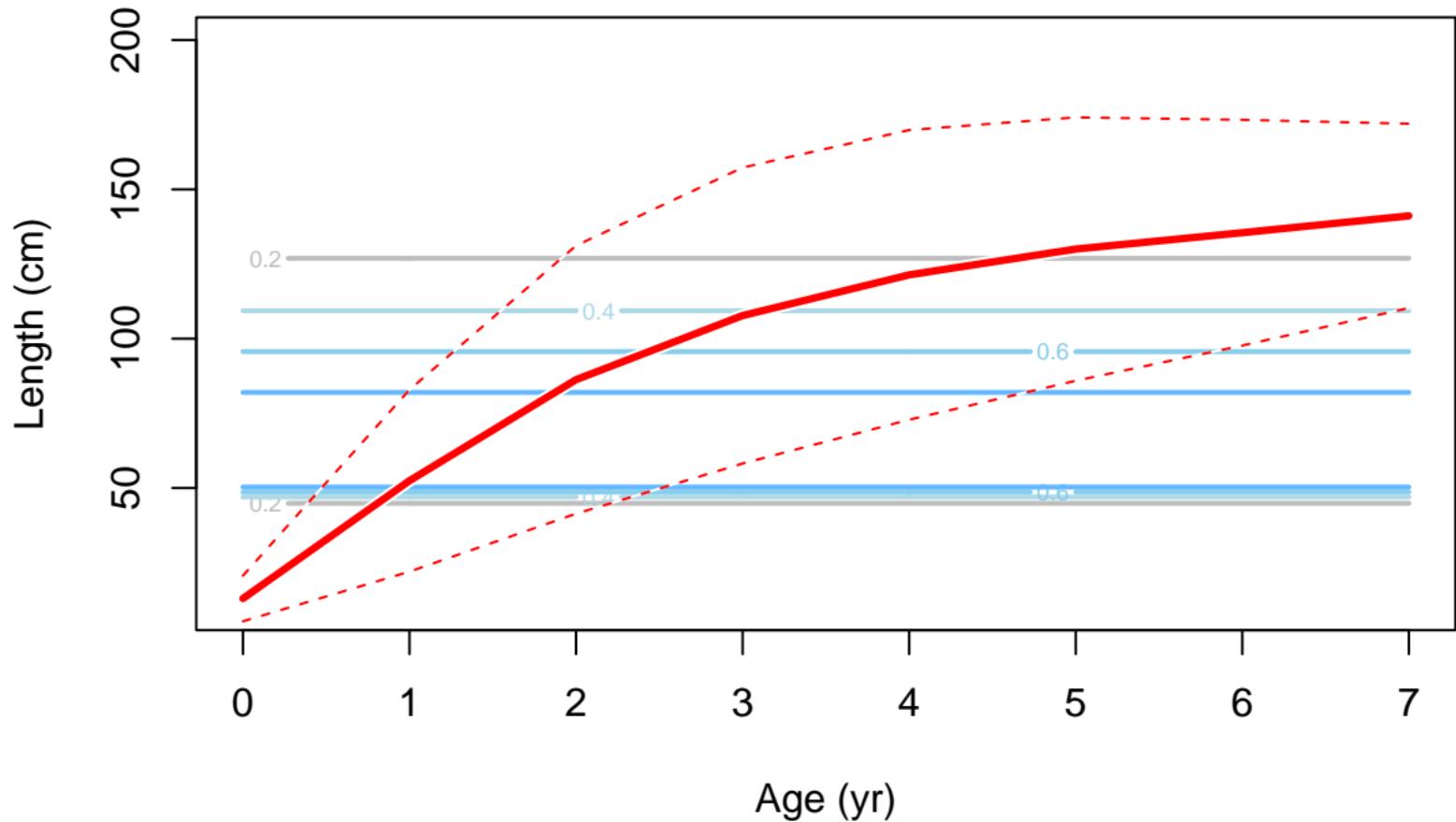


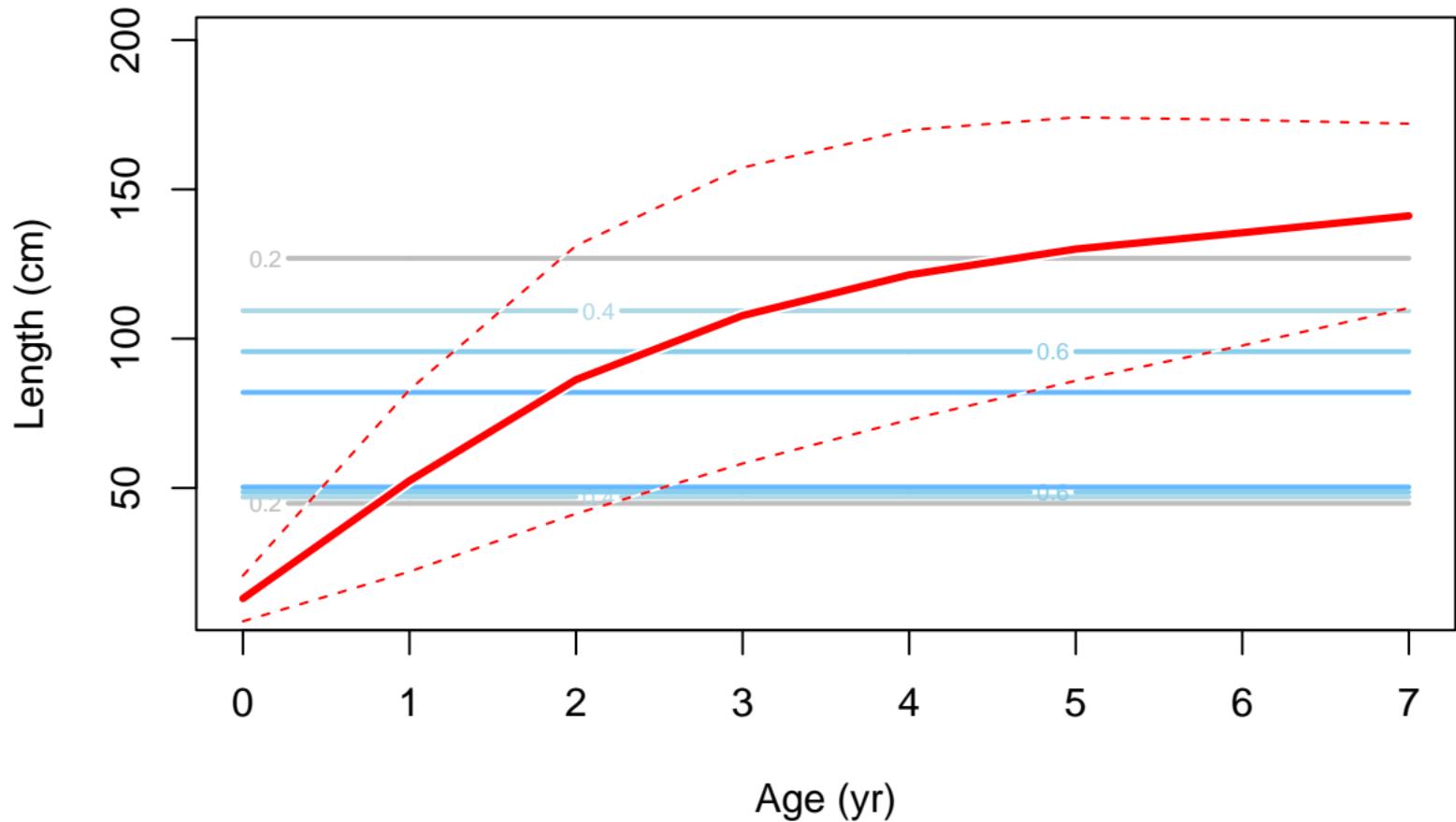


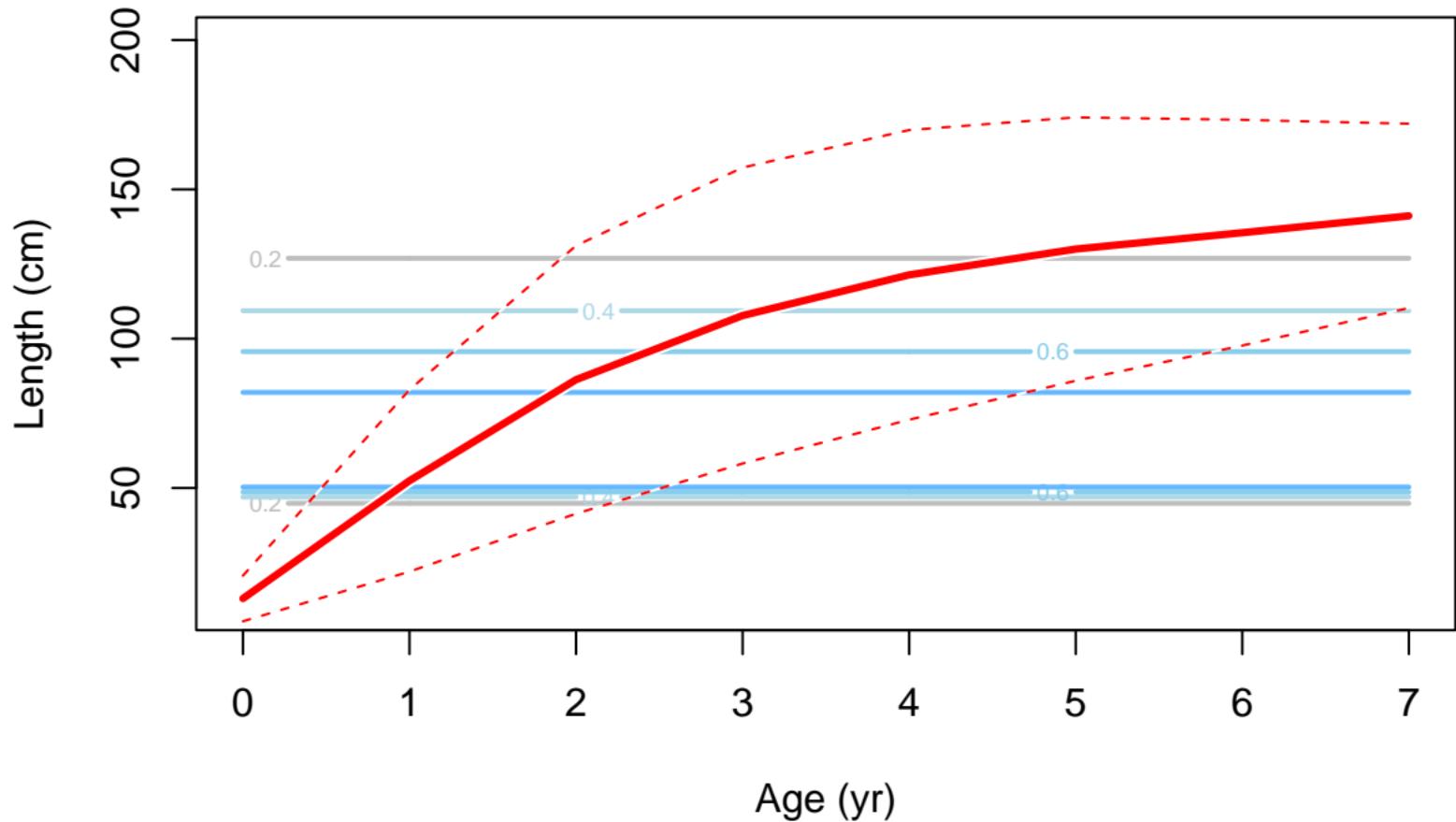


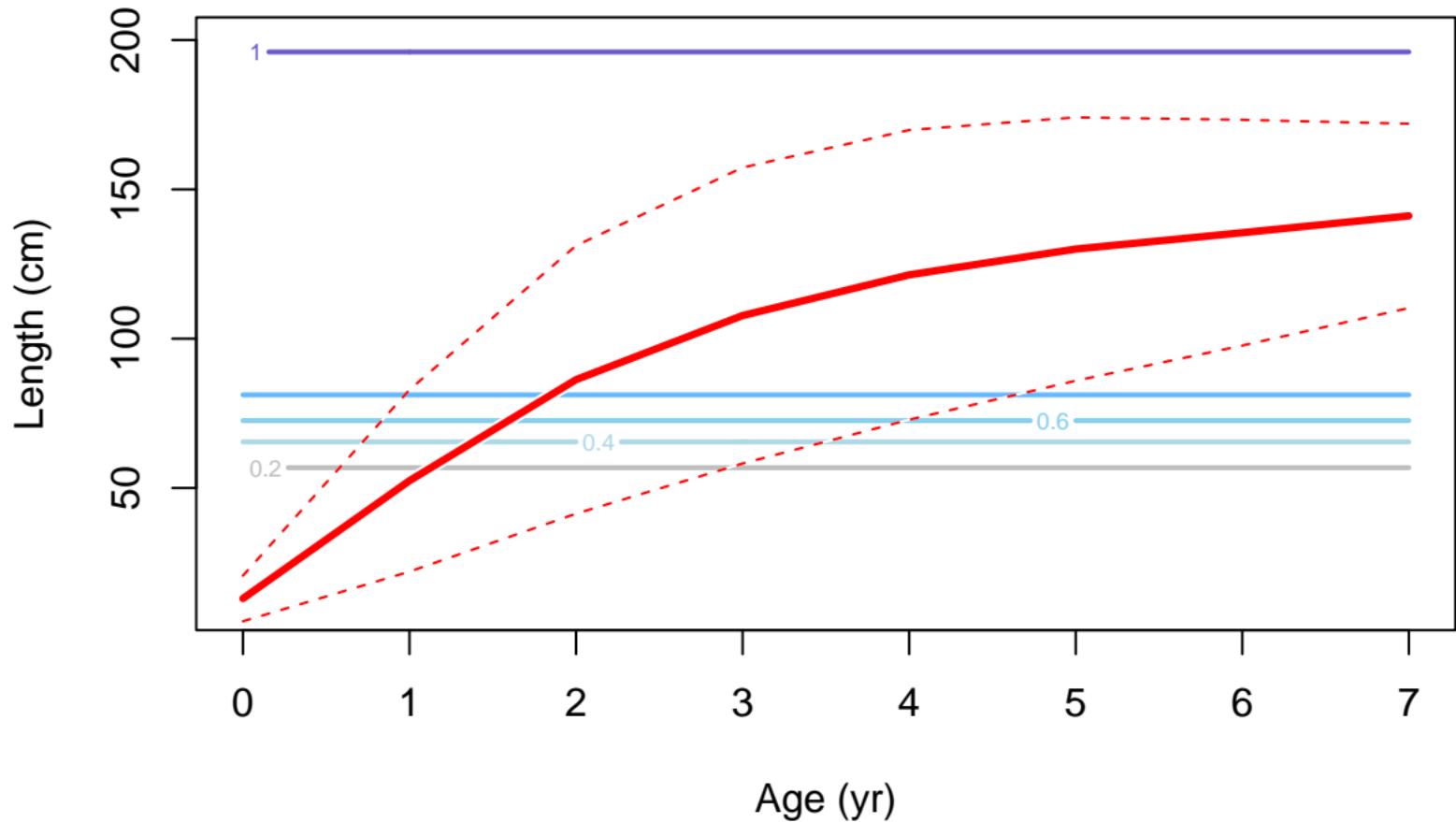


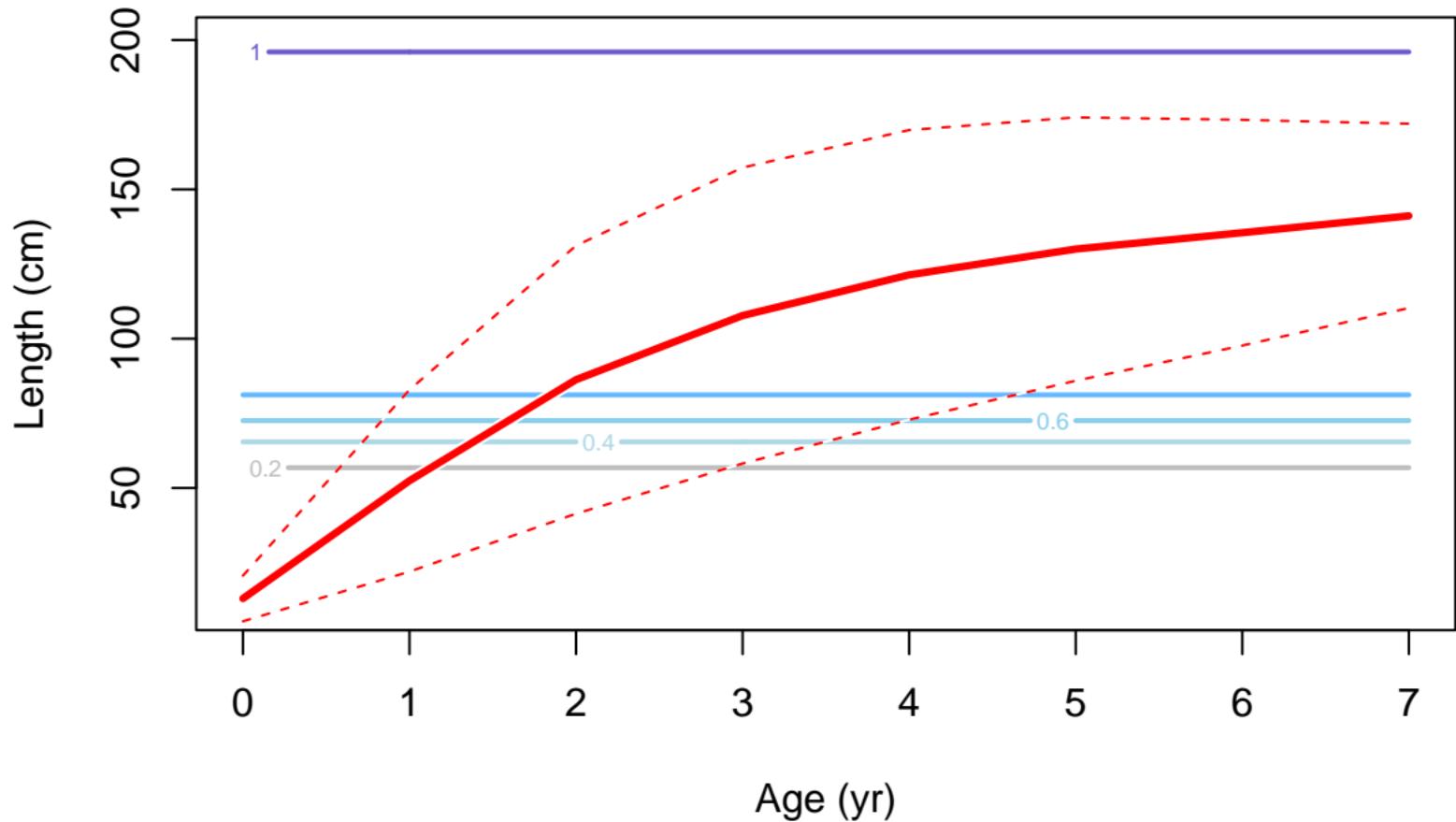


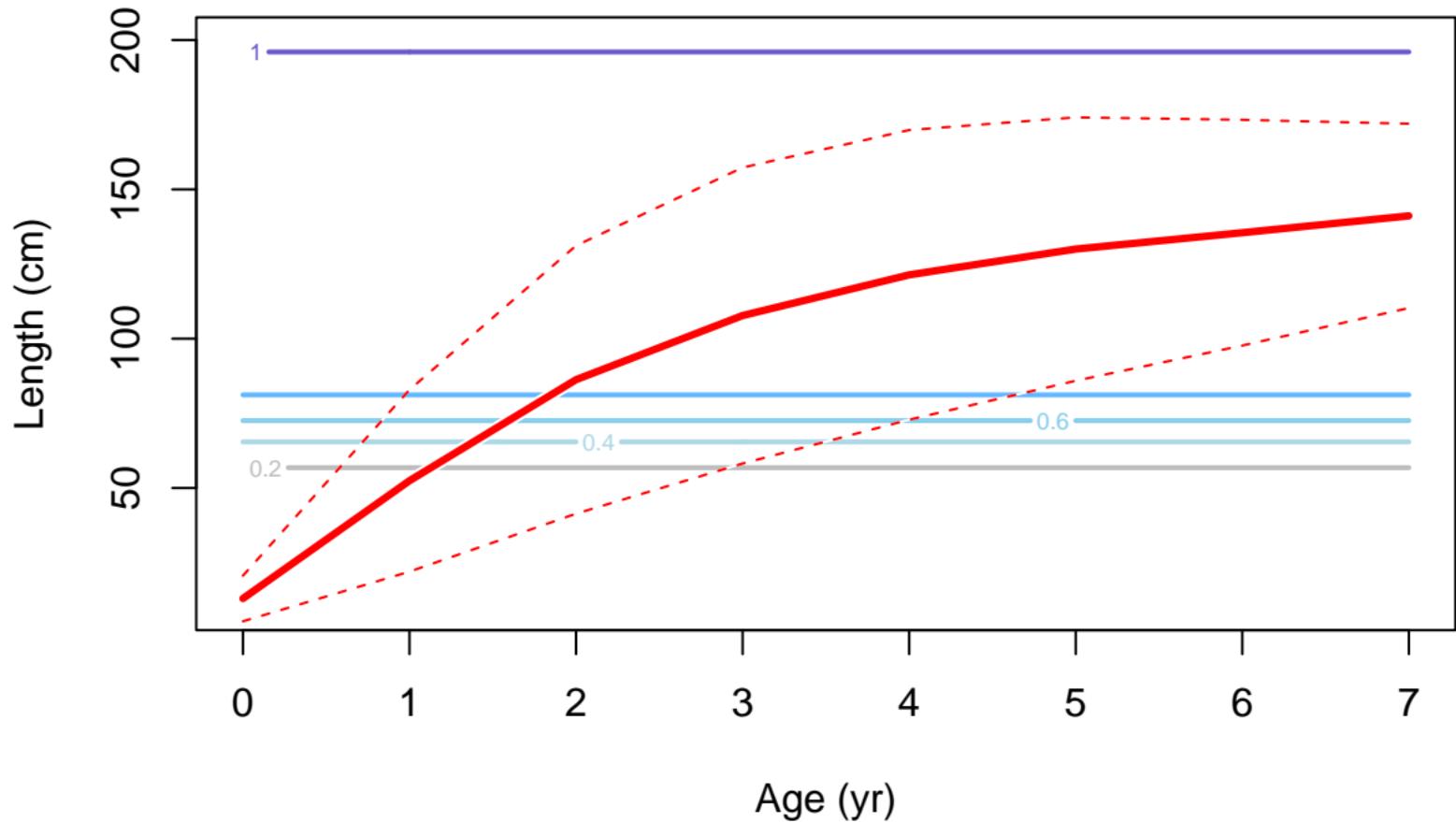


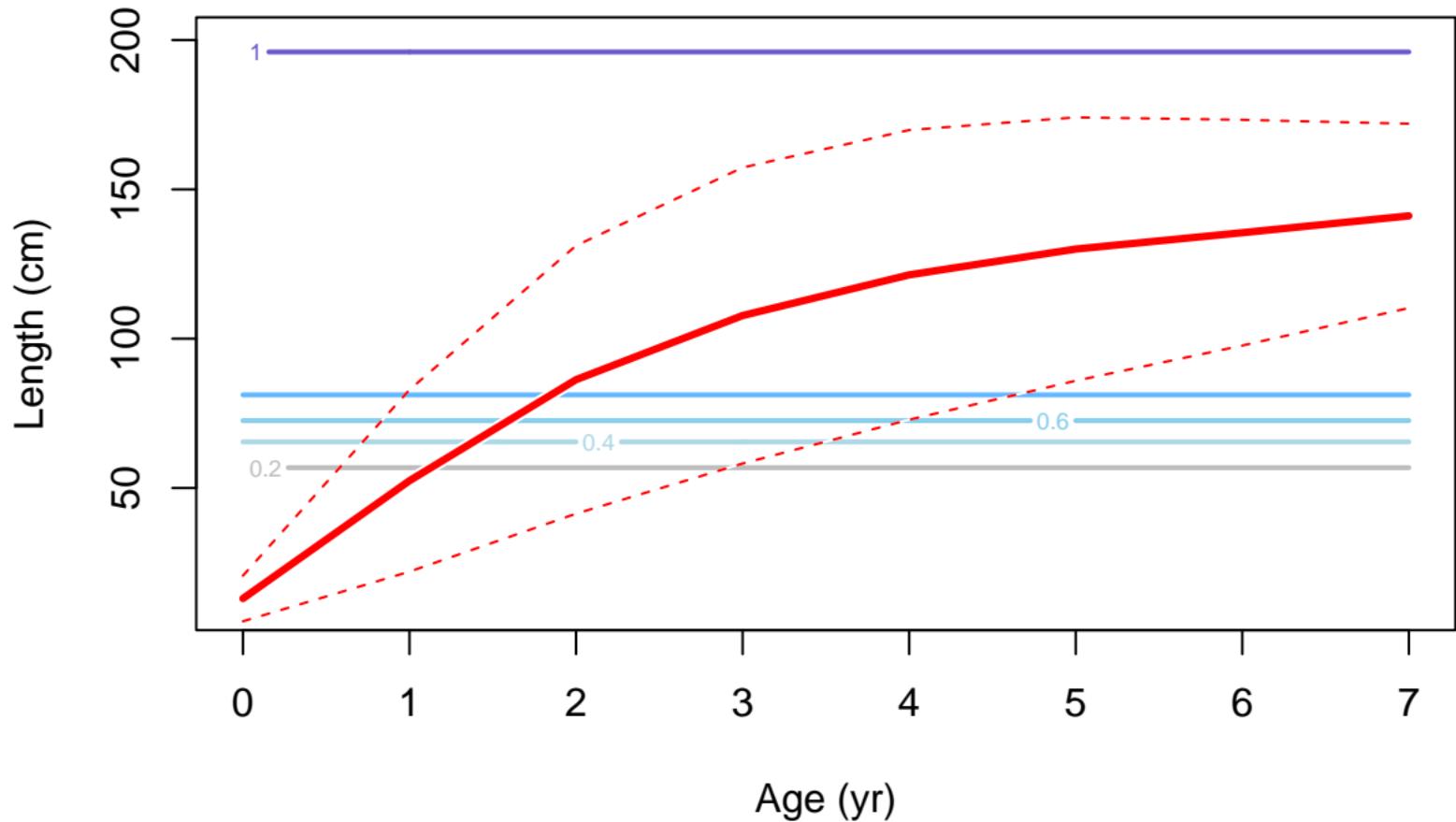


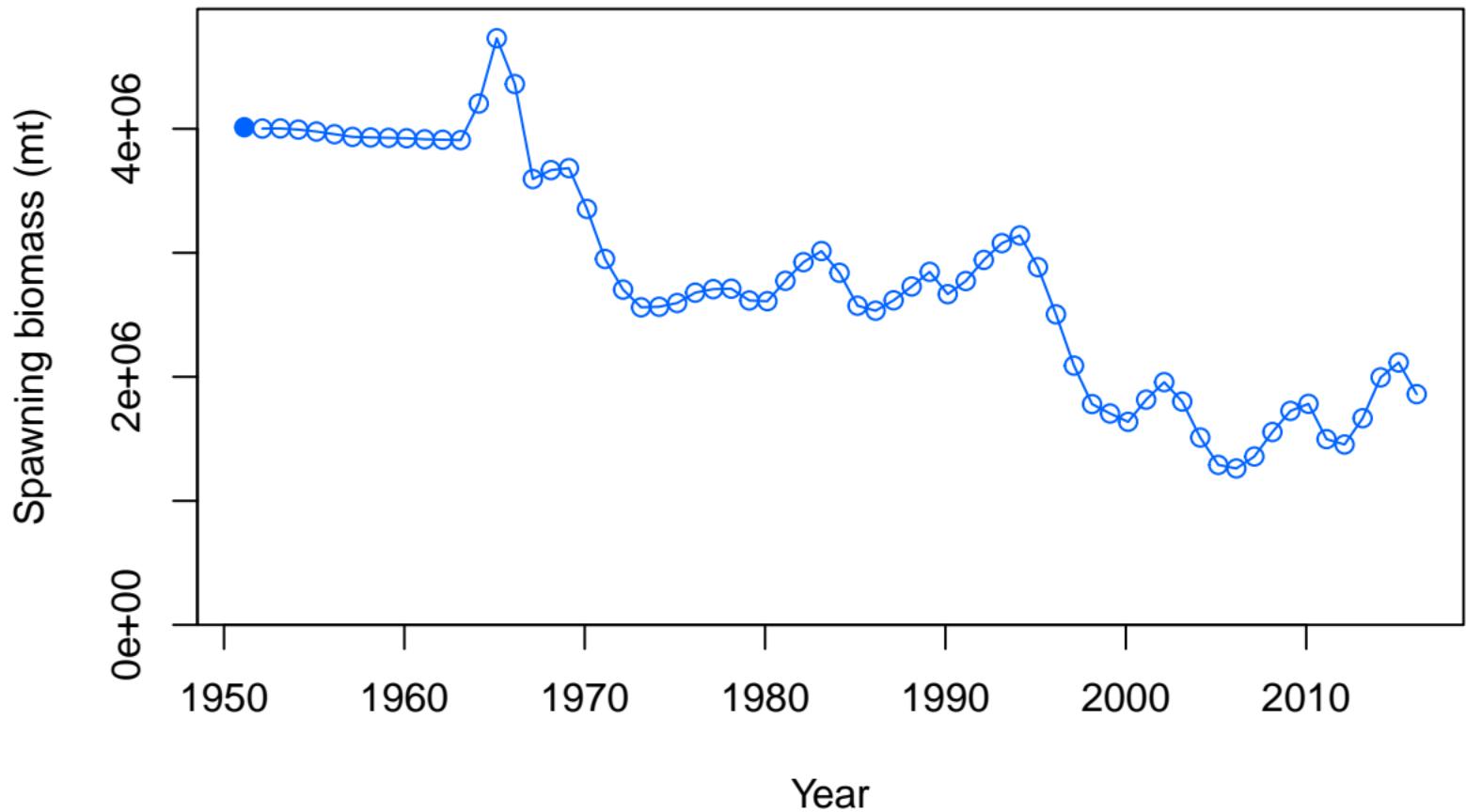


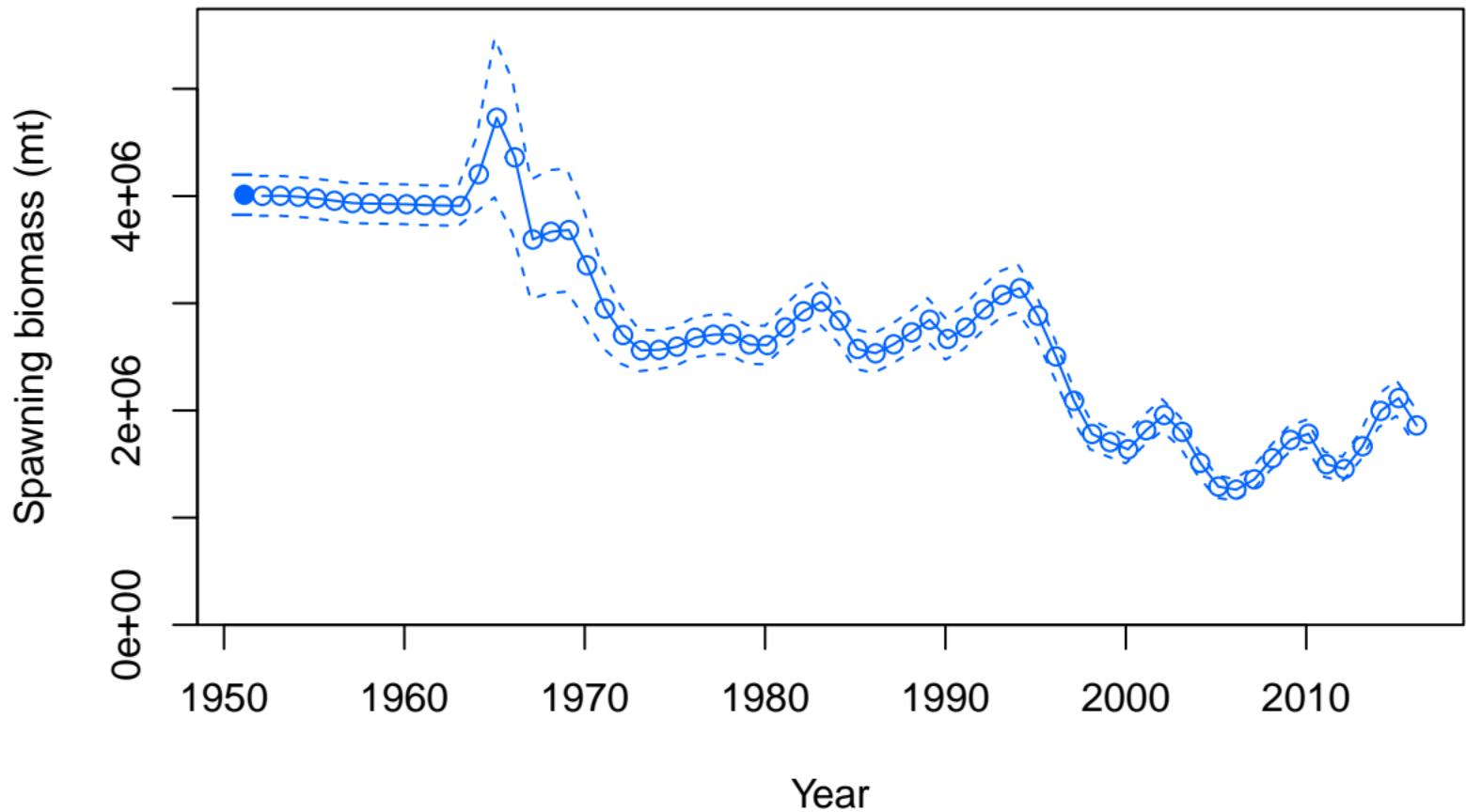


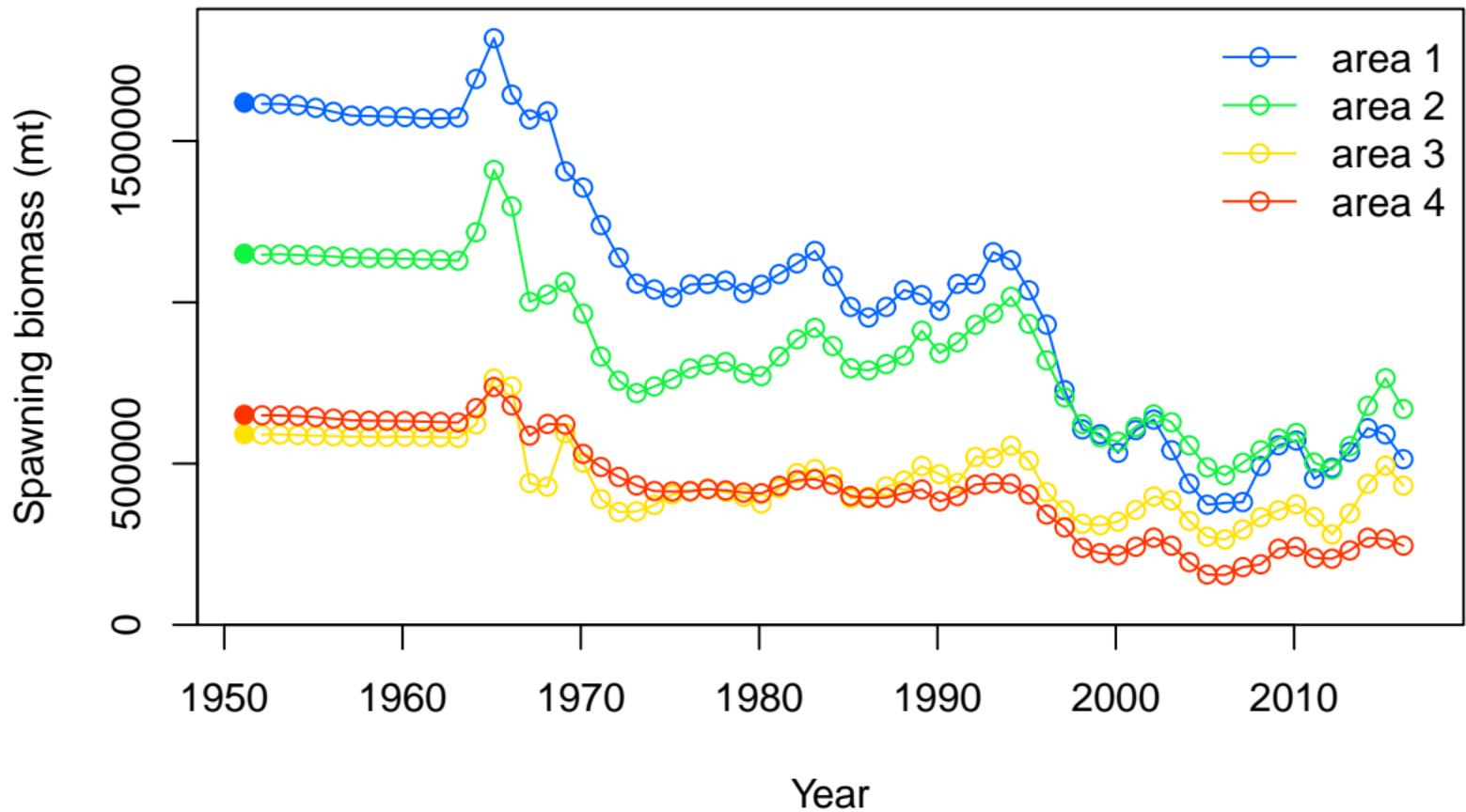




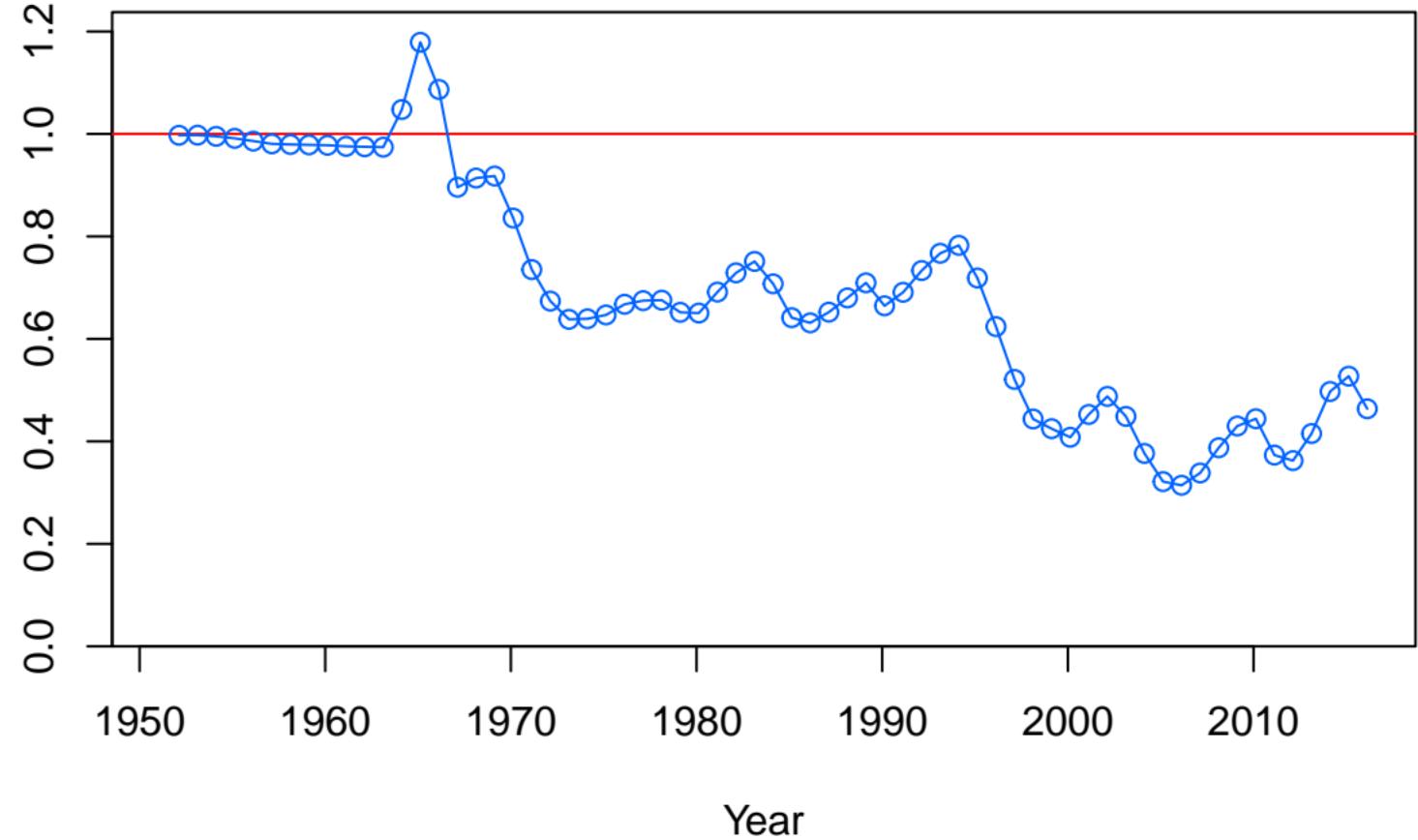




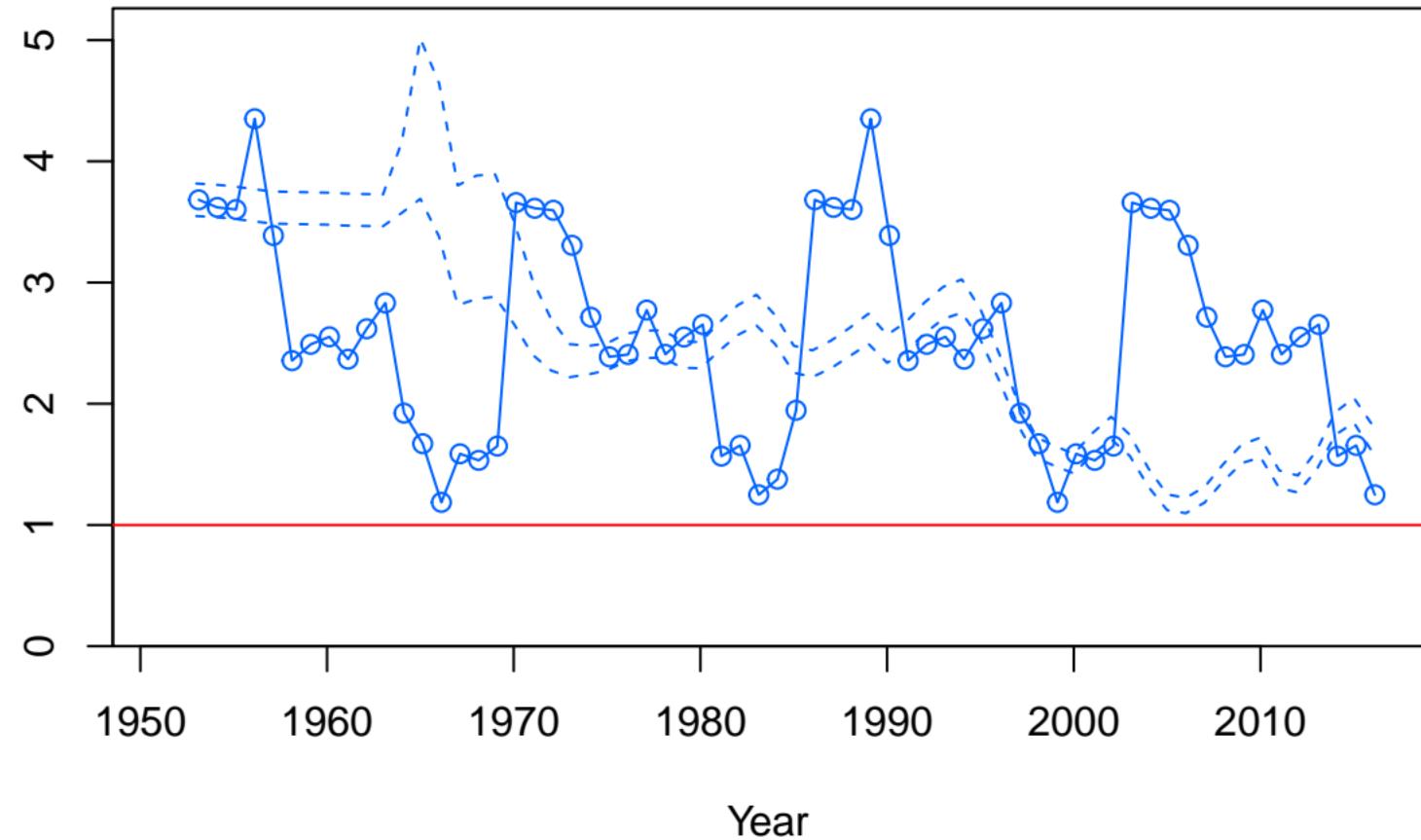




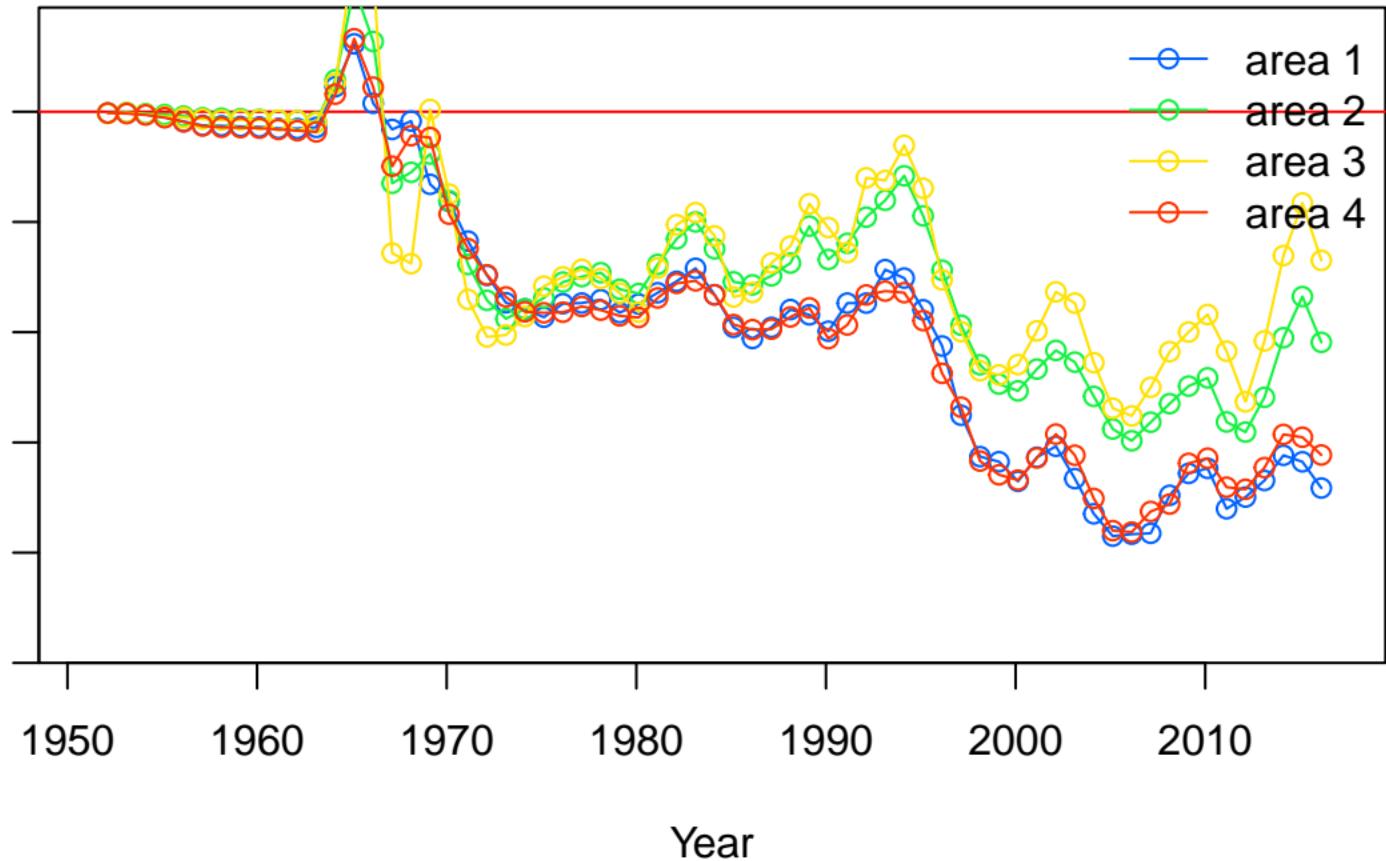
Relative spawning biomass: B/B_{MSY}

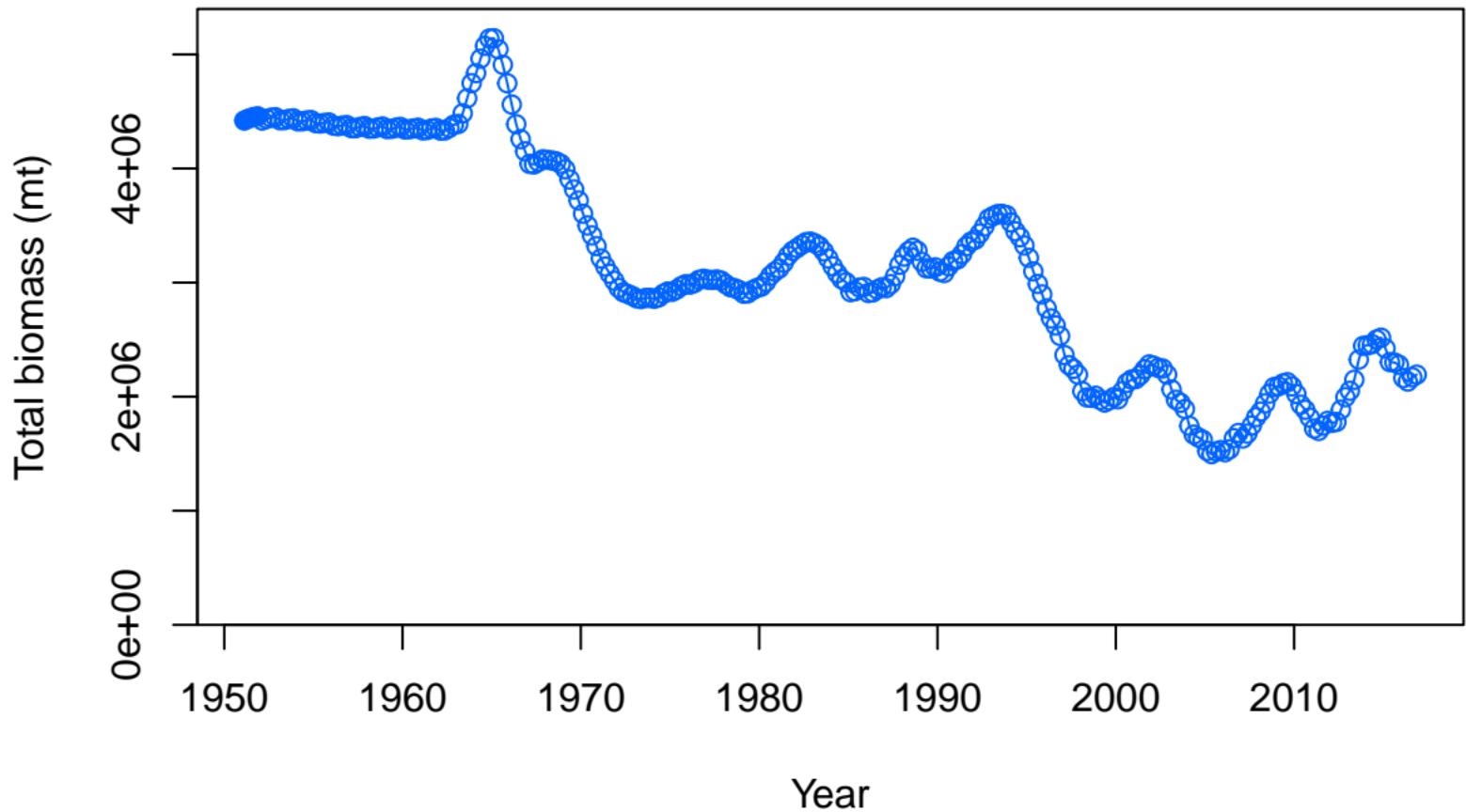


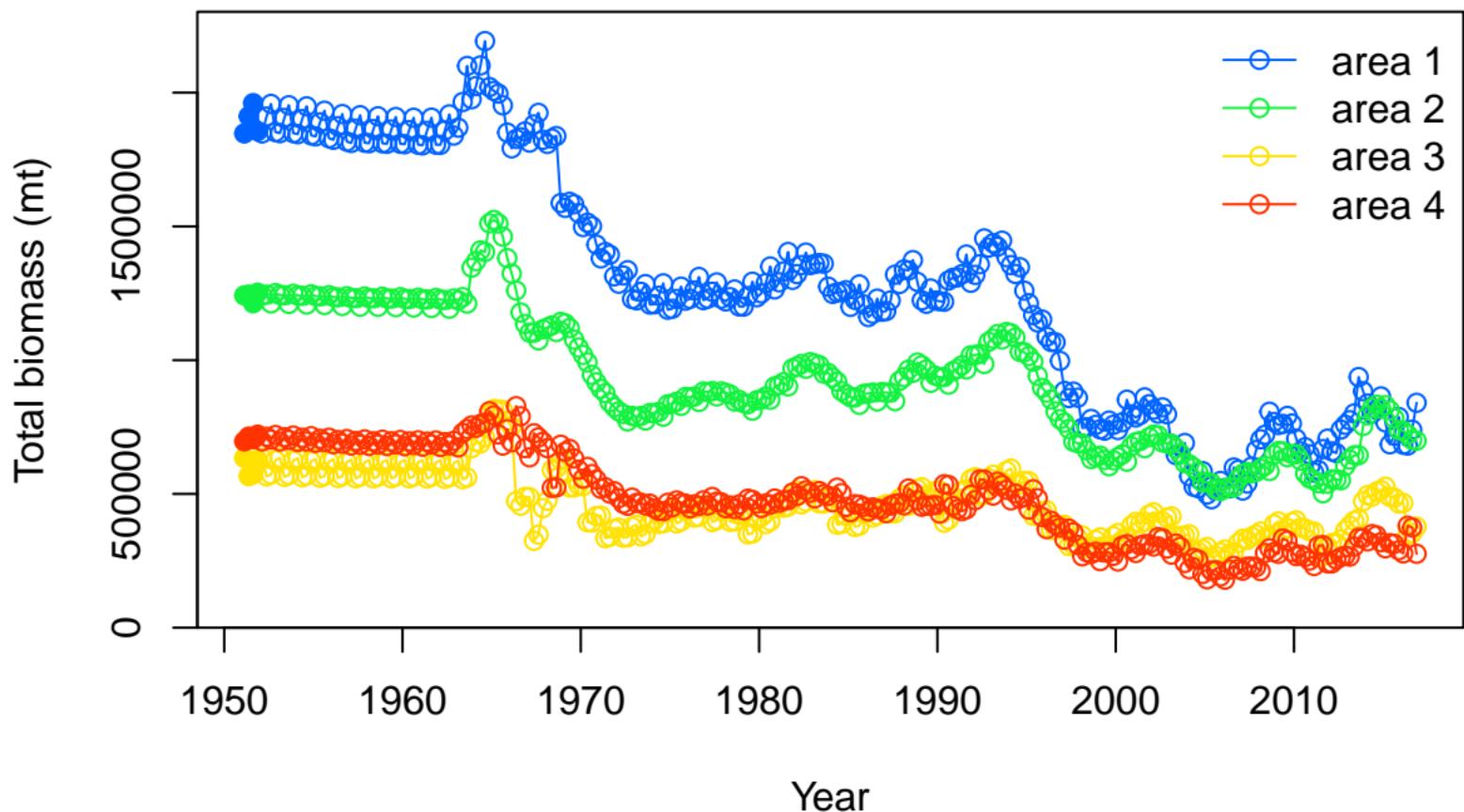
Relative spawning biomass: B/B_{MSY}

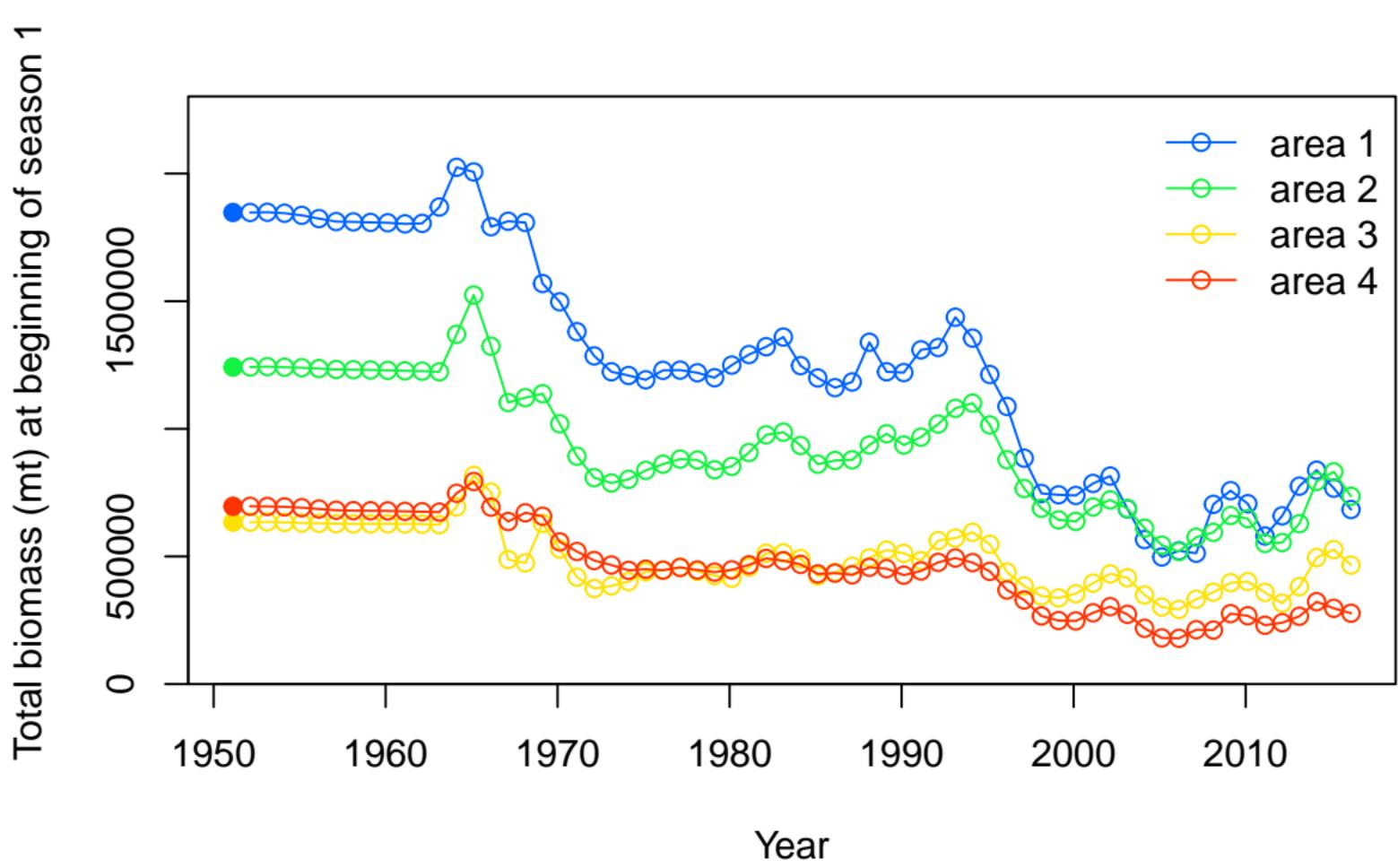


Relative spawning biomass: B/B_{MSY}

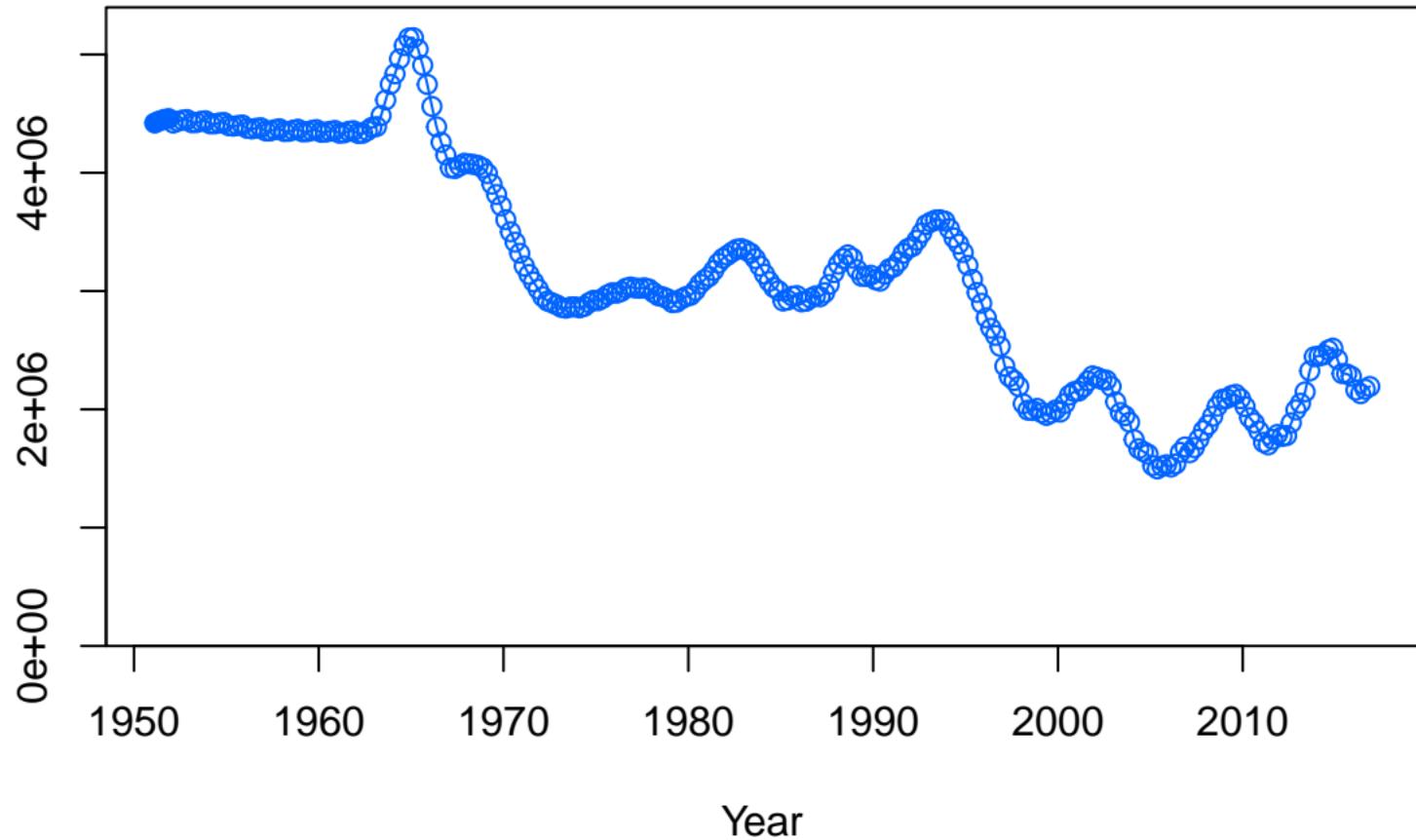


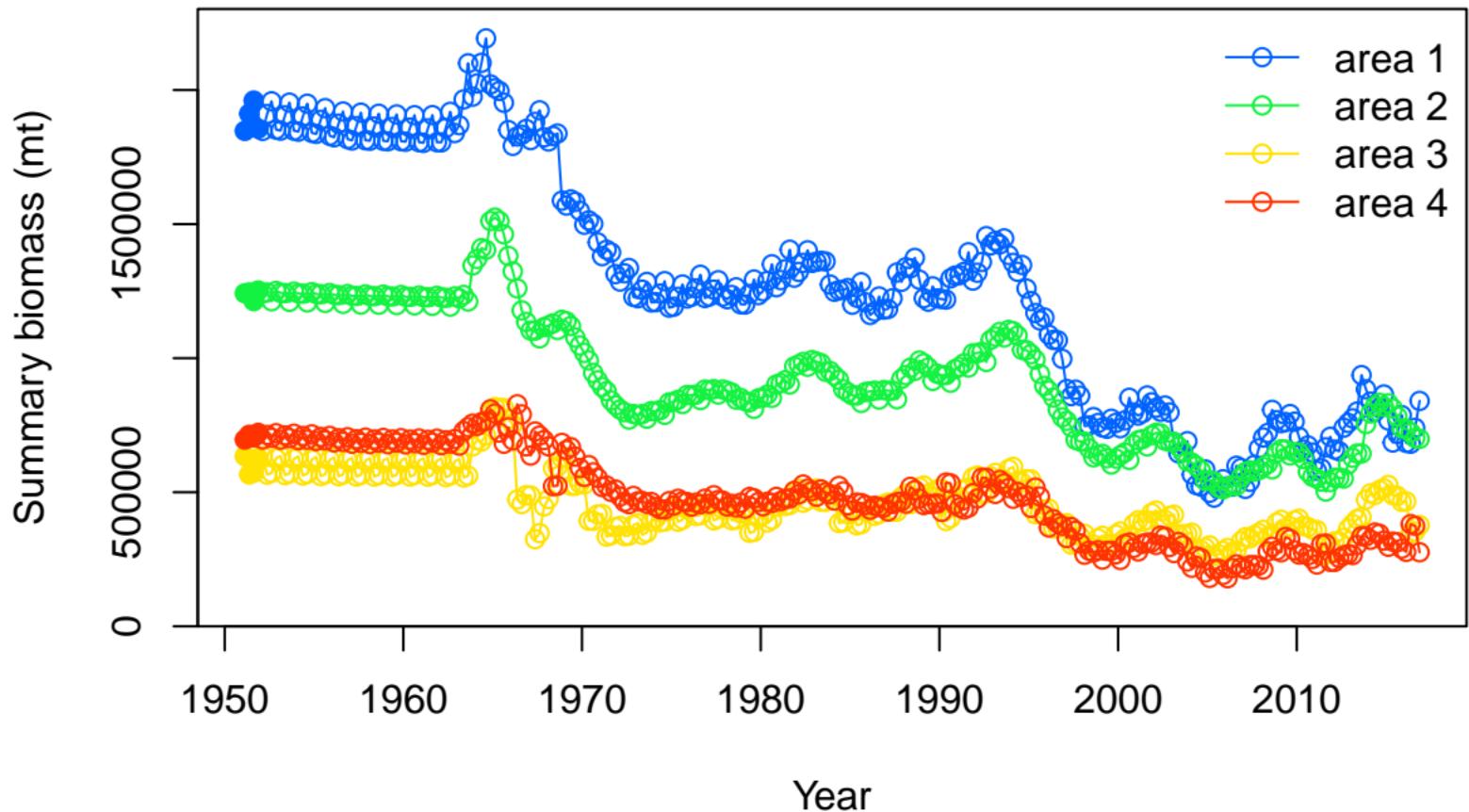


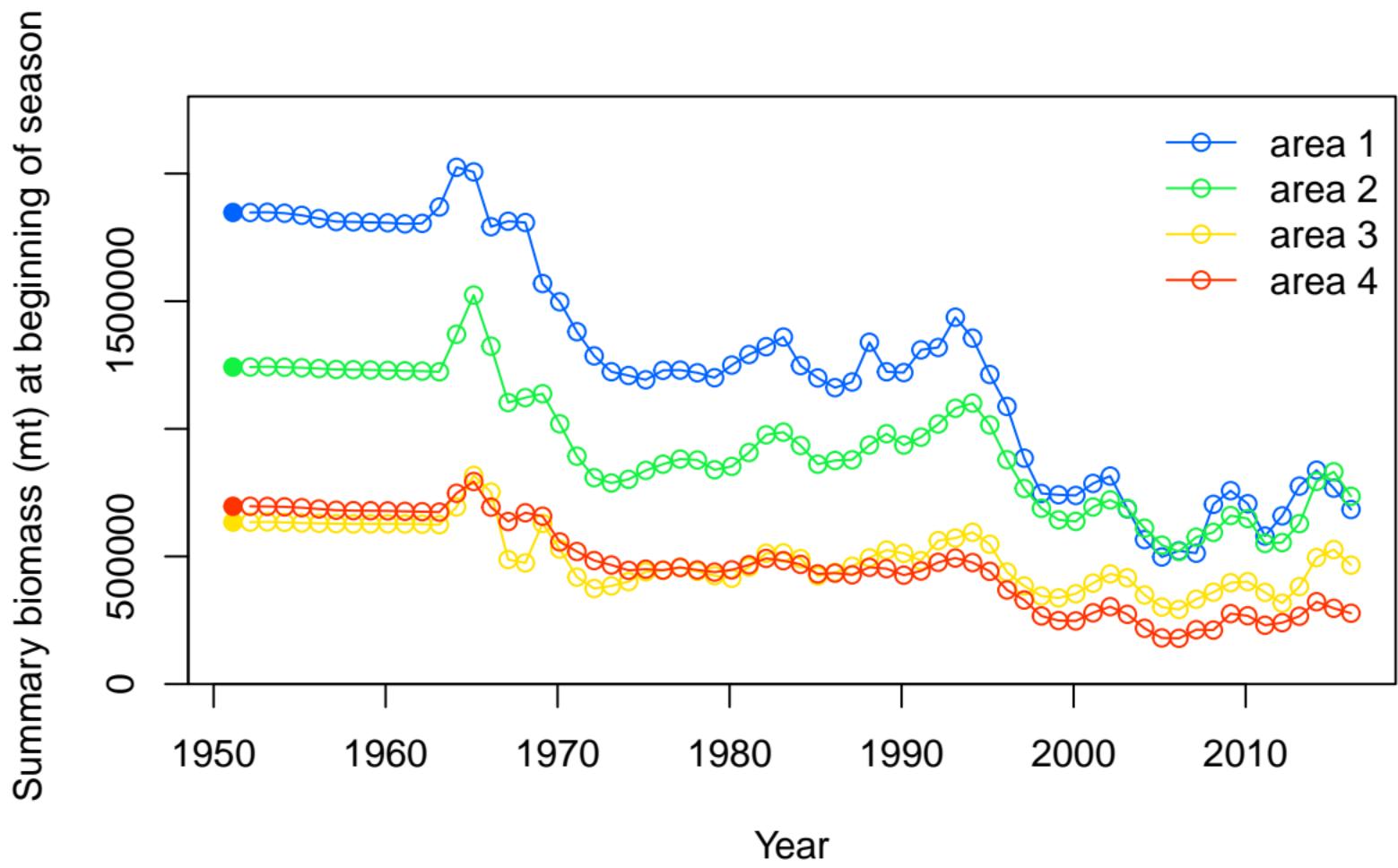


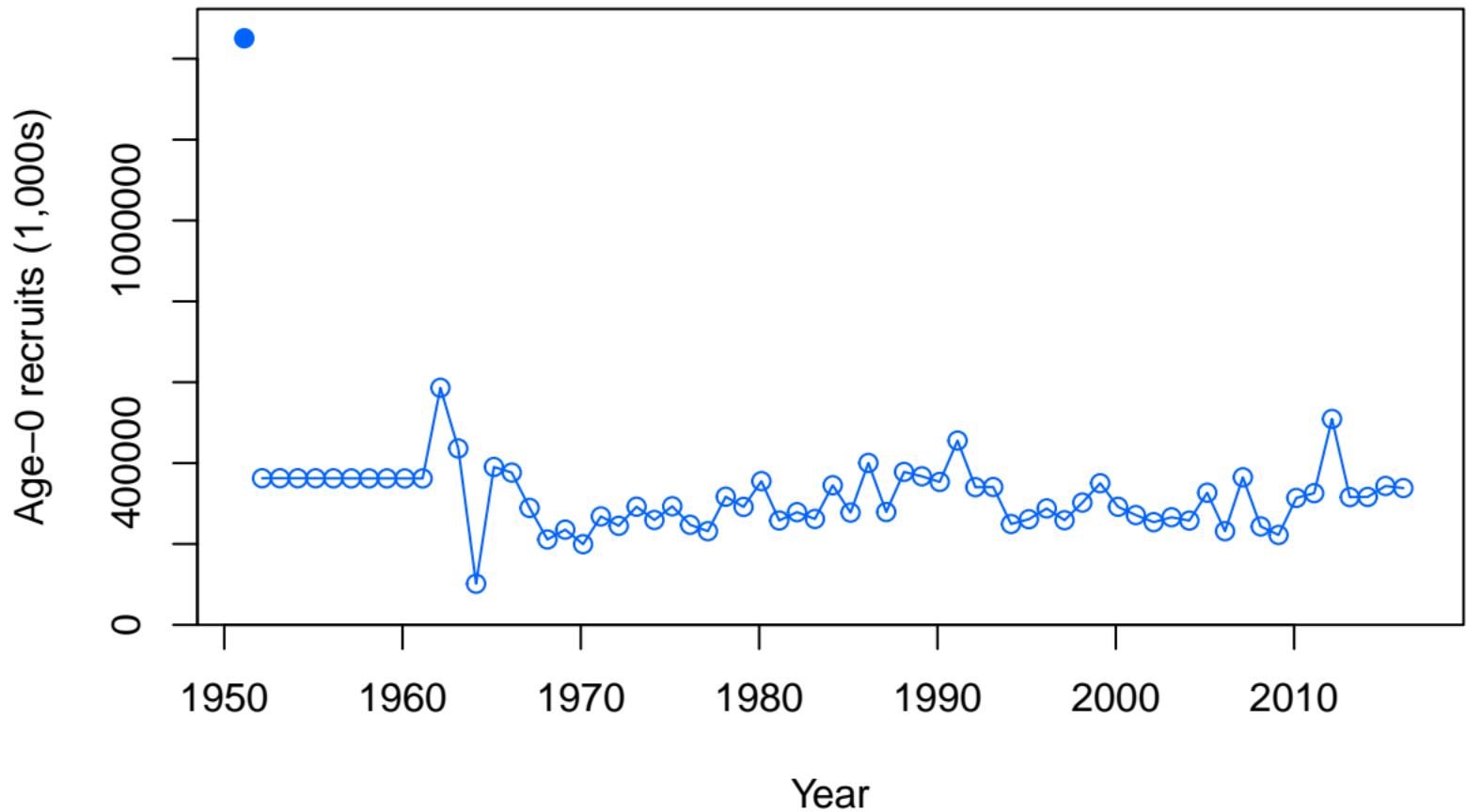


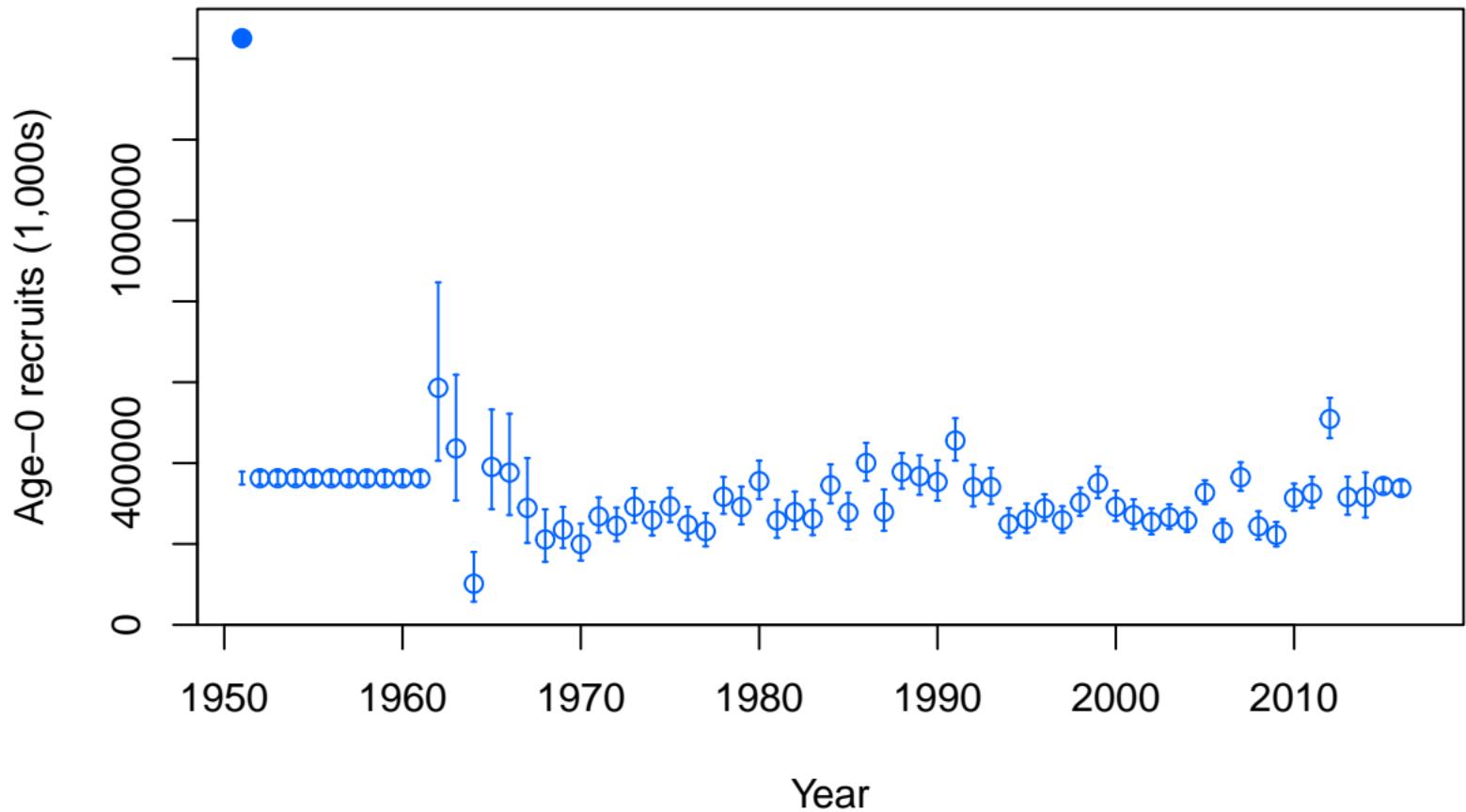
Summary biomass (mt)

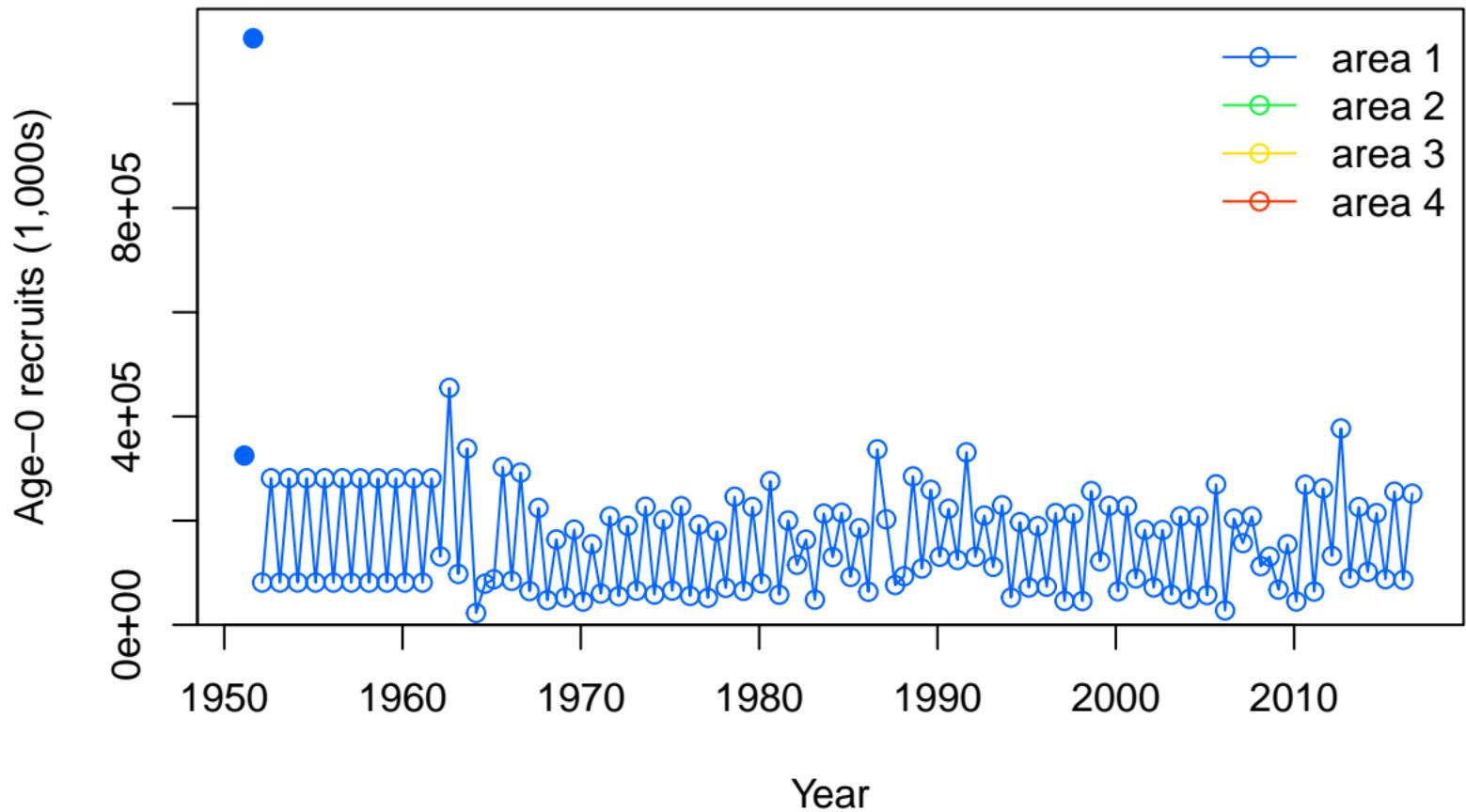




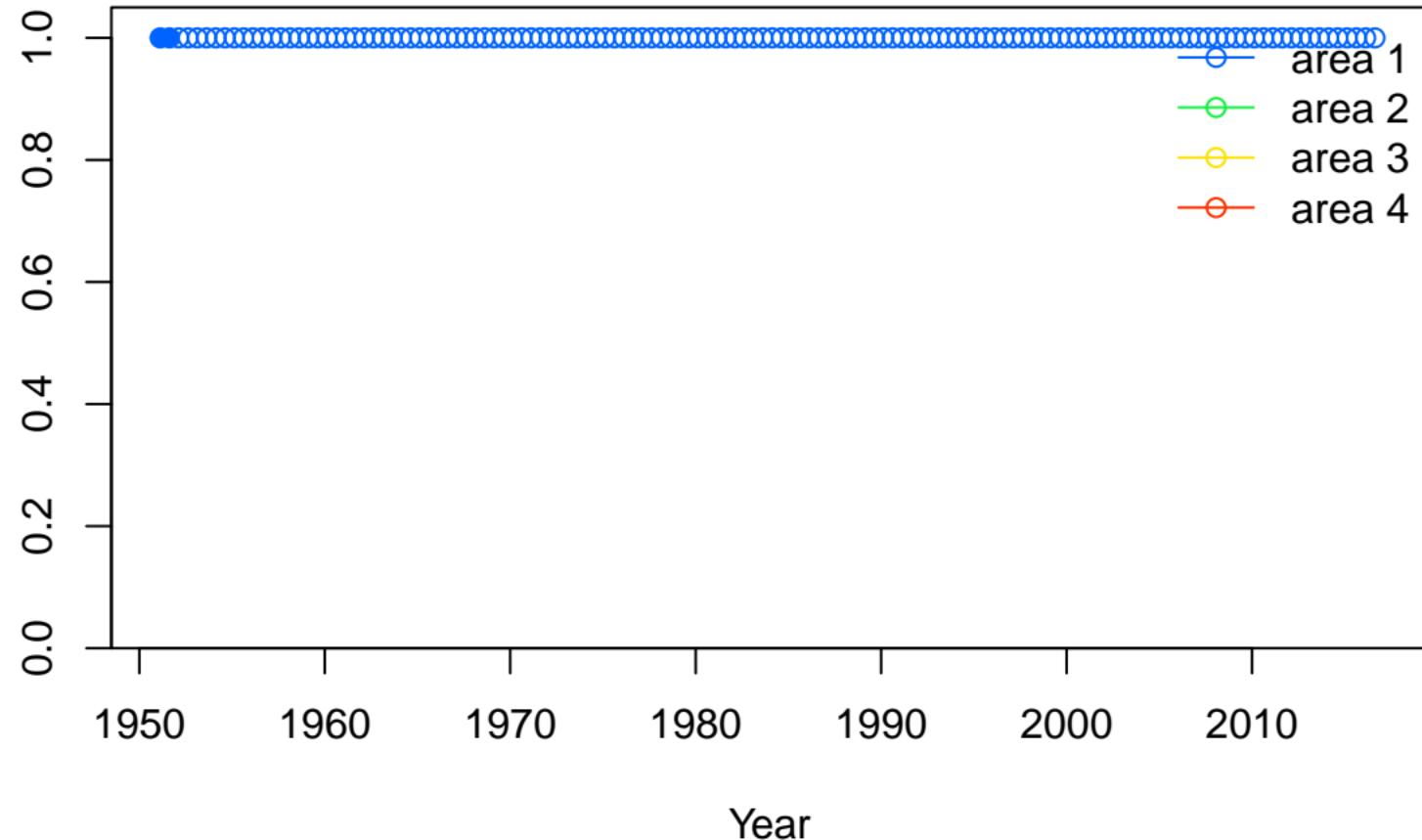


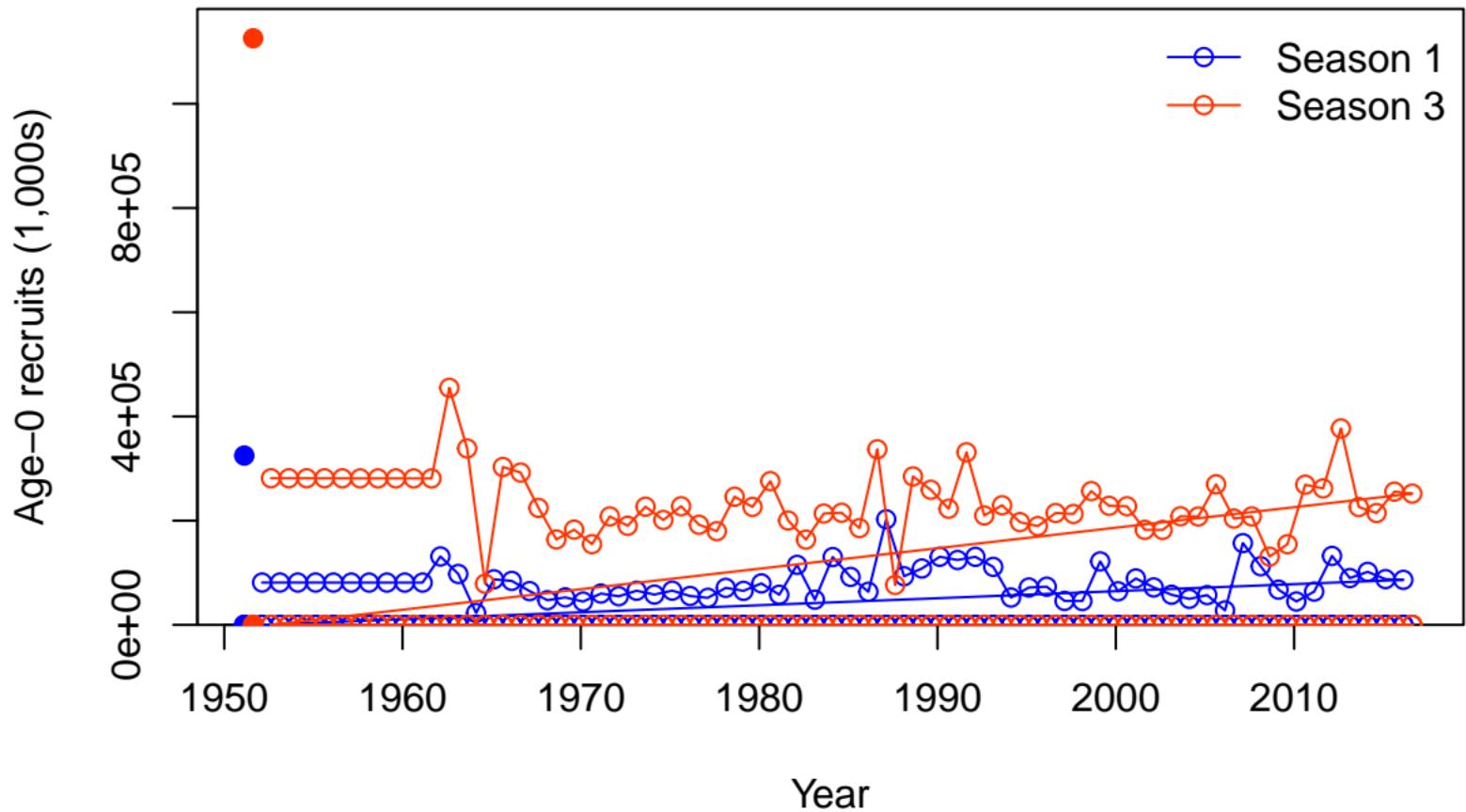




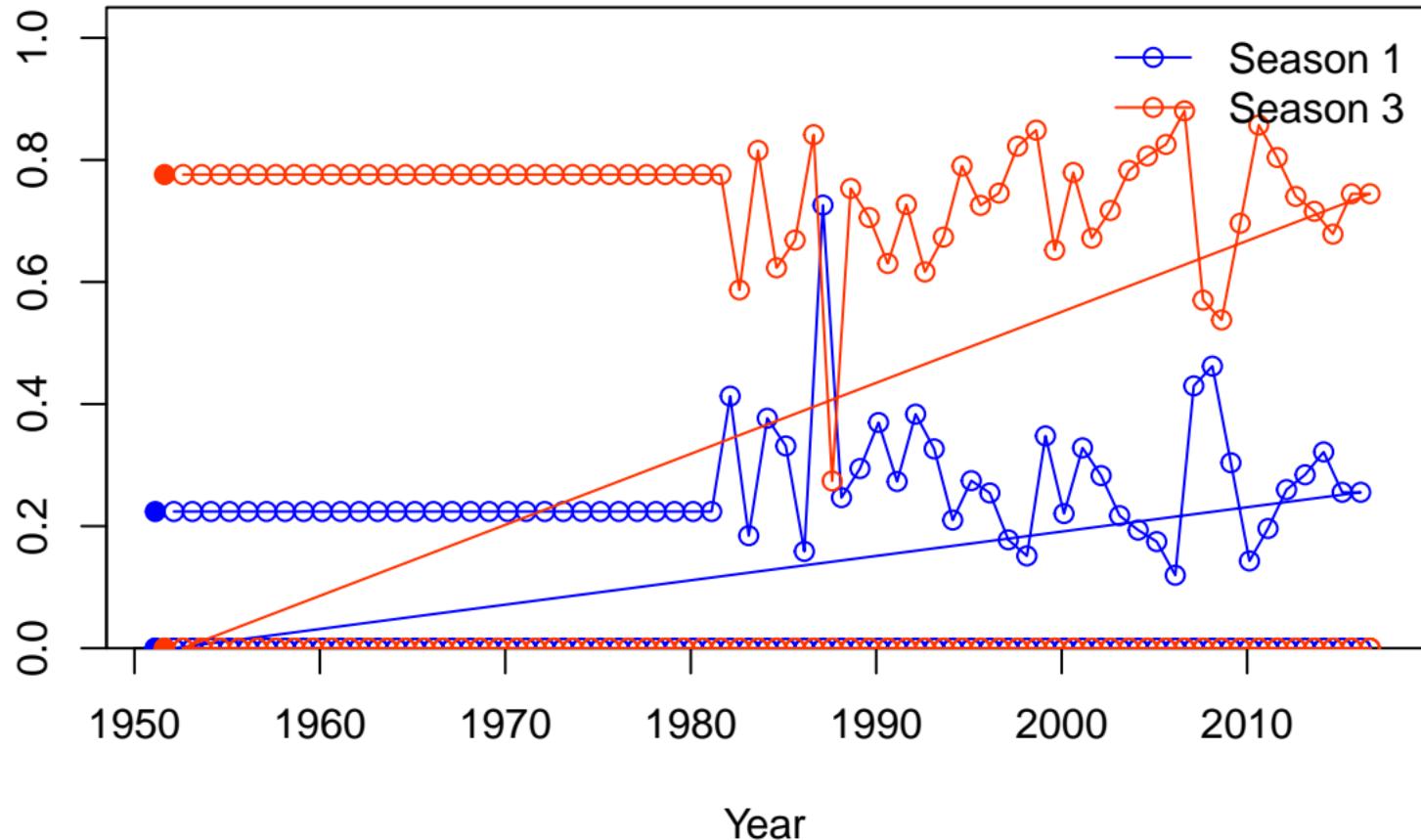


Fraction of total Age-0 recruits

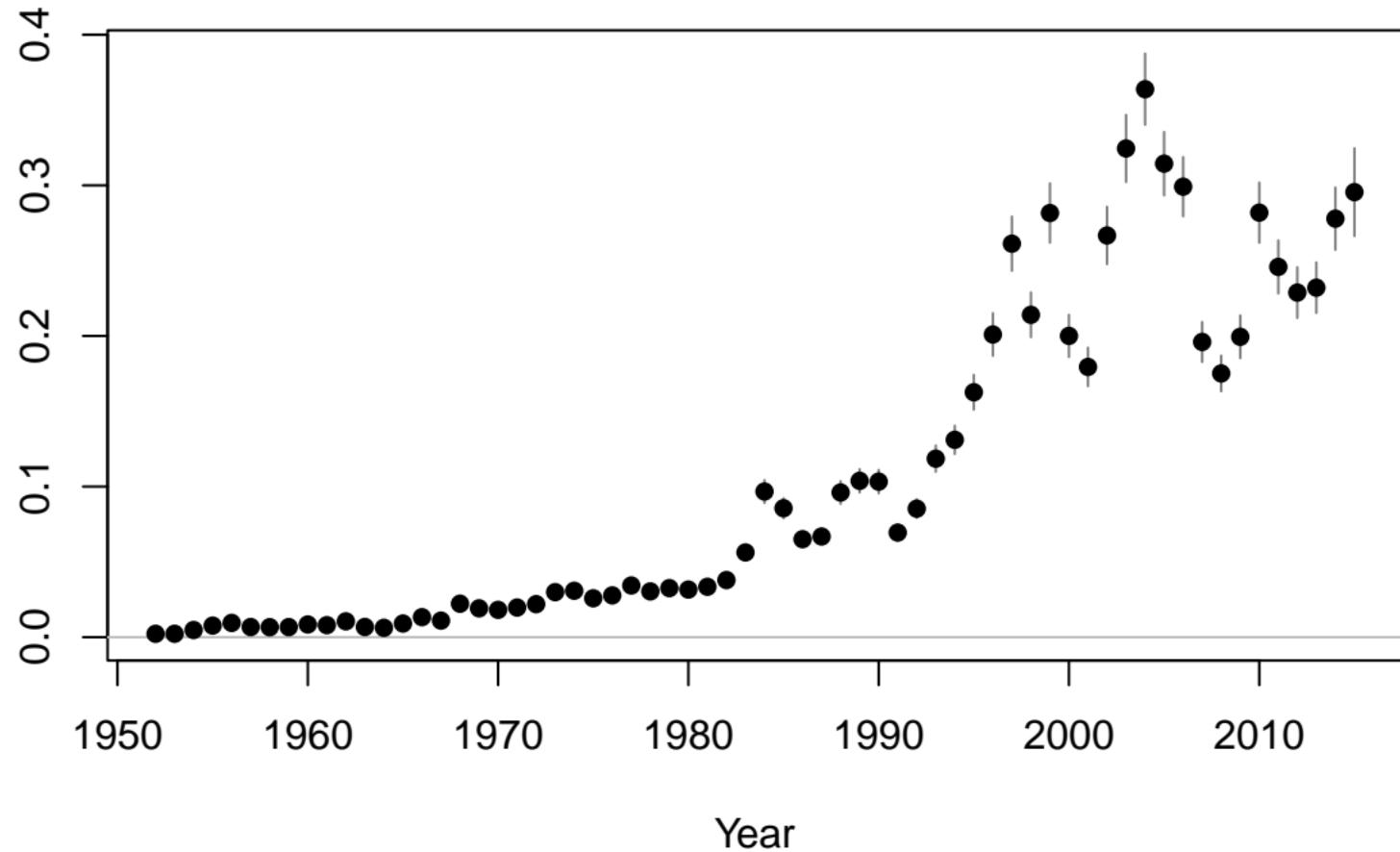


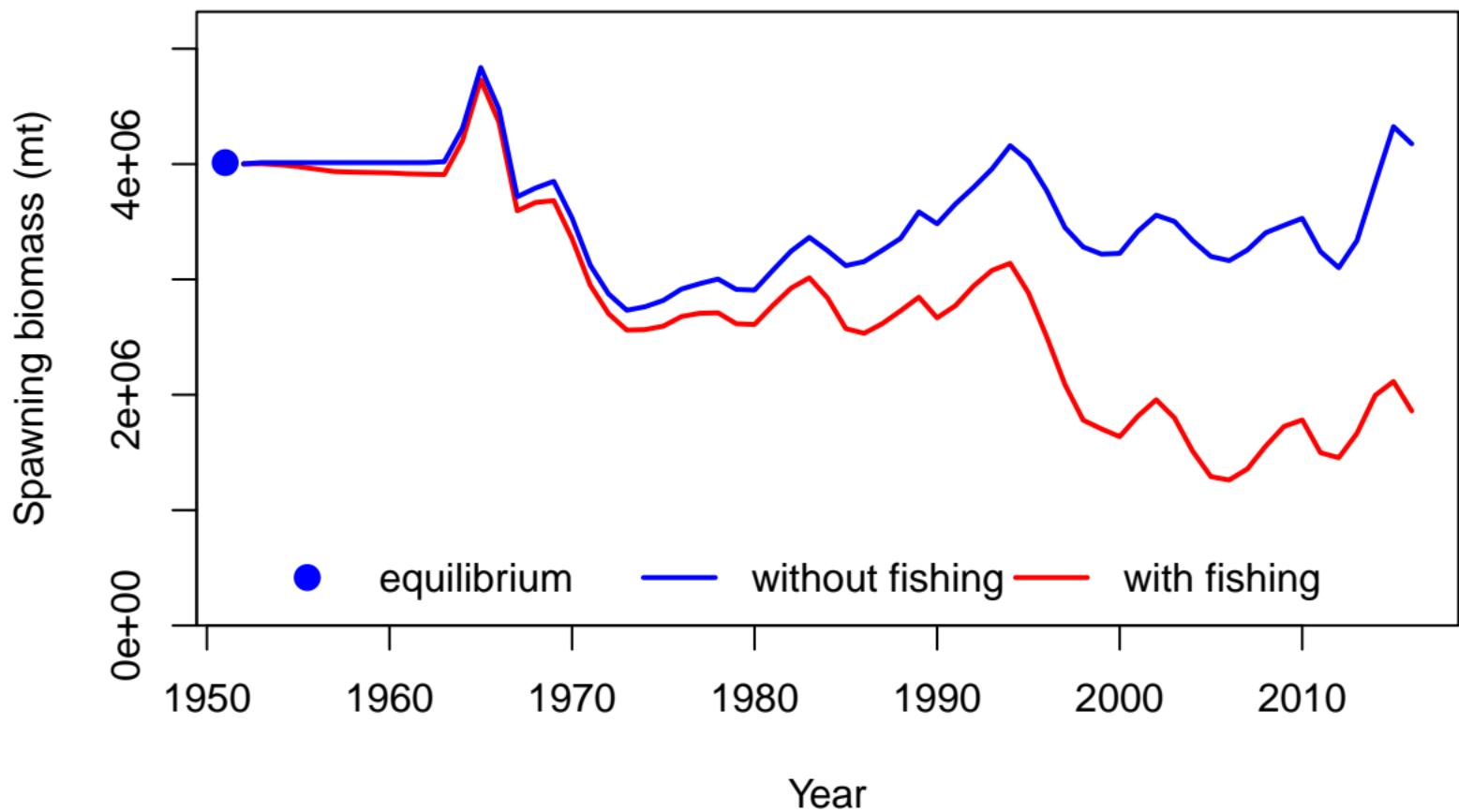


Fraction of total Age-0 recruits

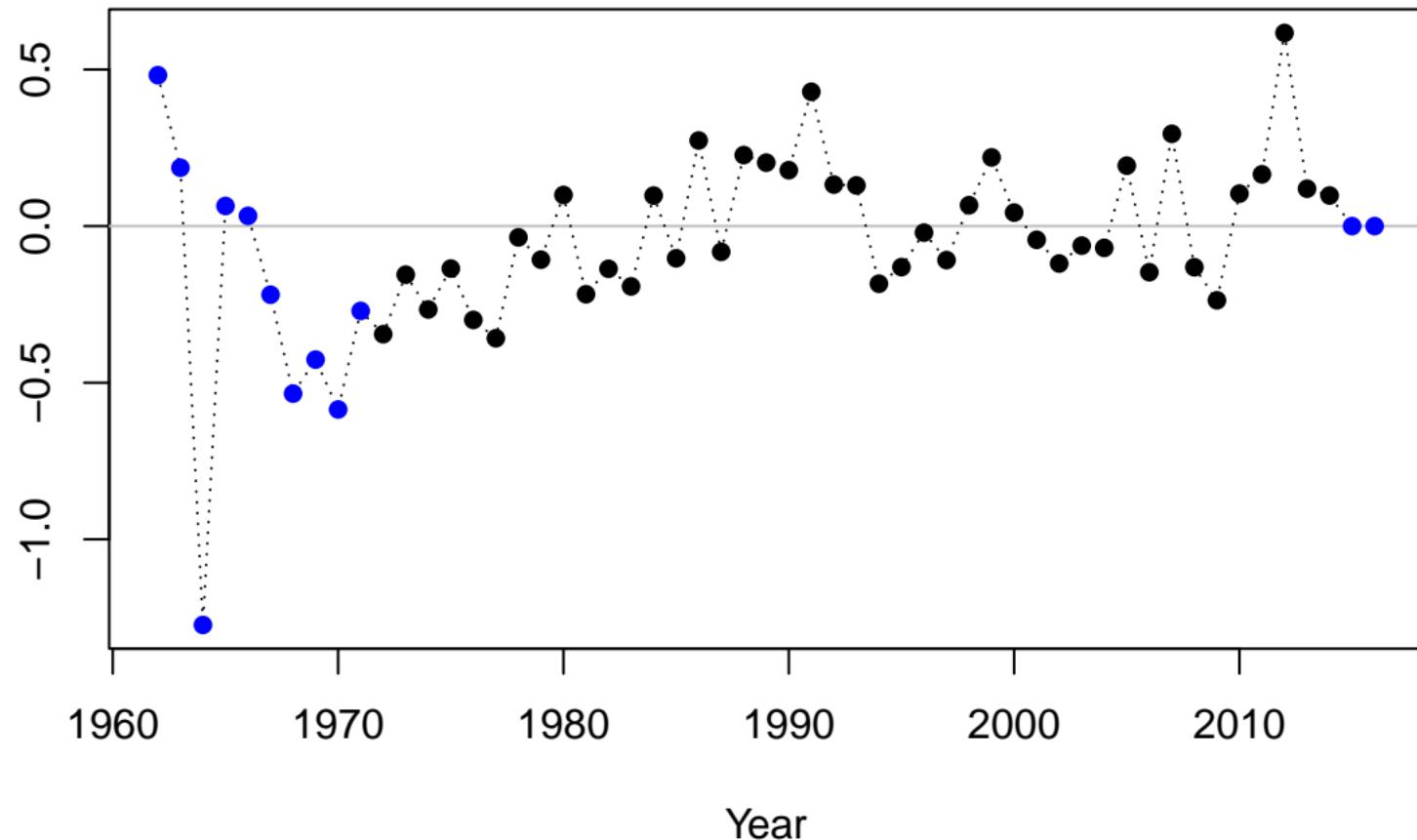


Summary Fishing Mortality

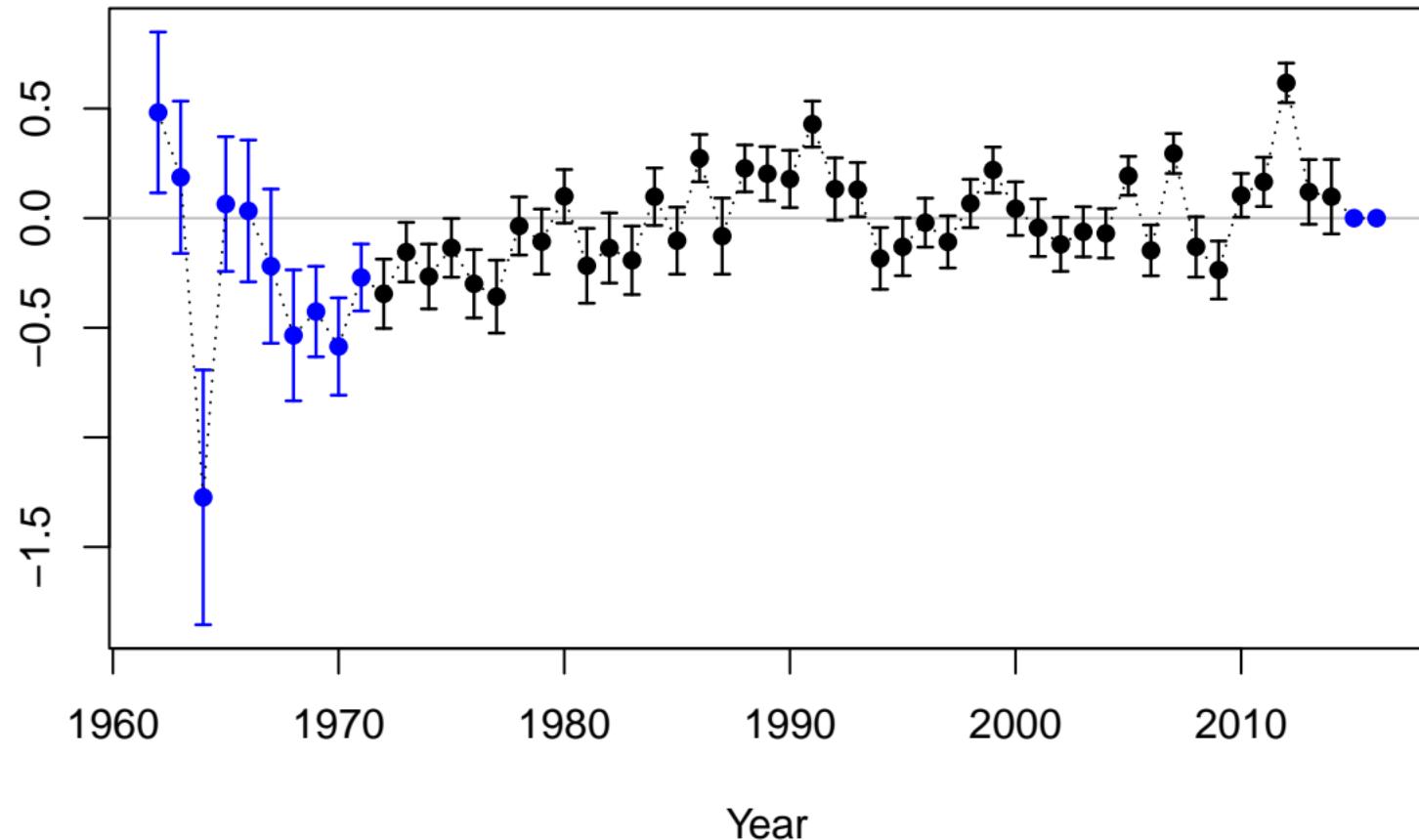




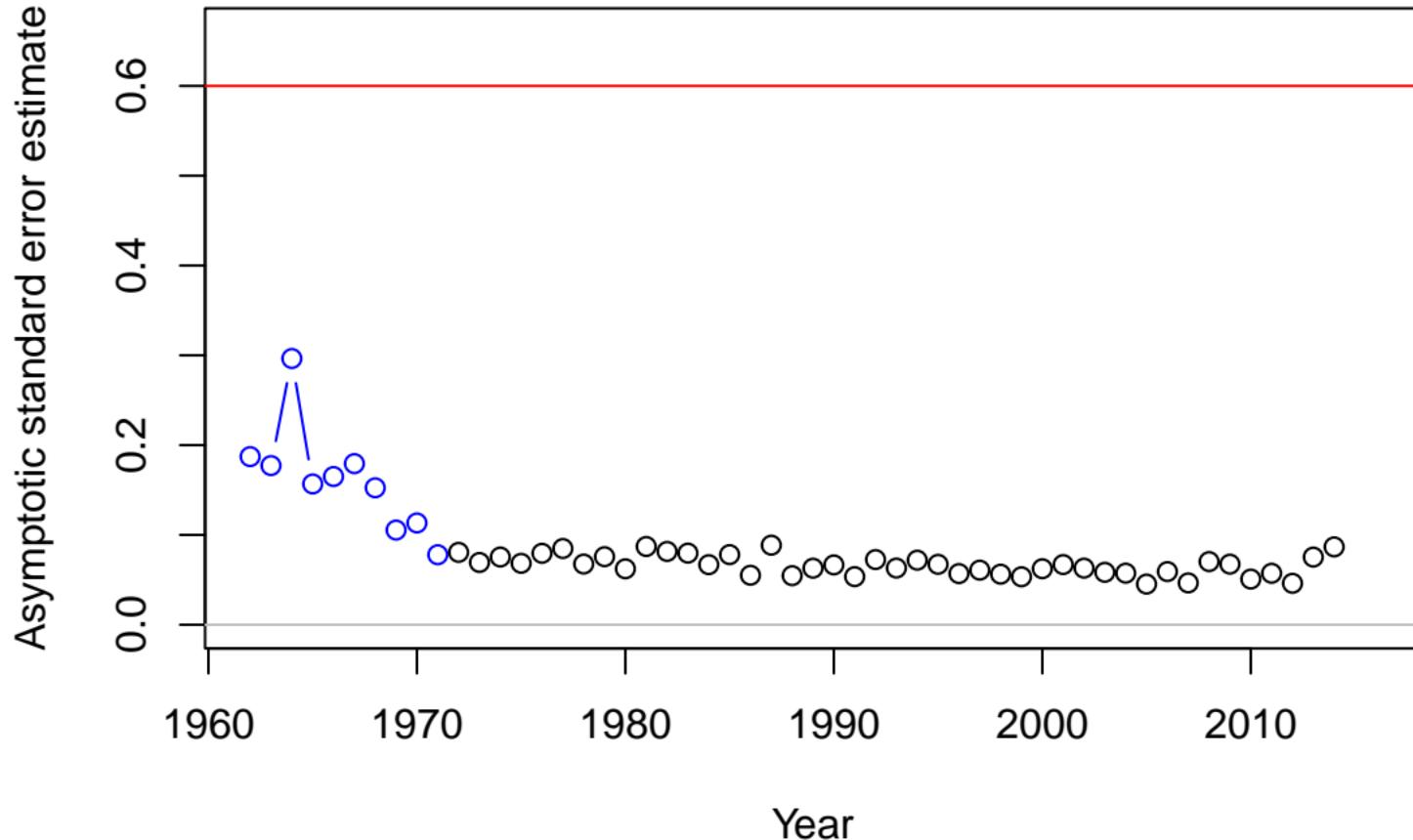
Log recruitment deviation



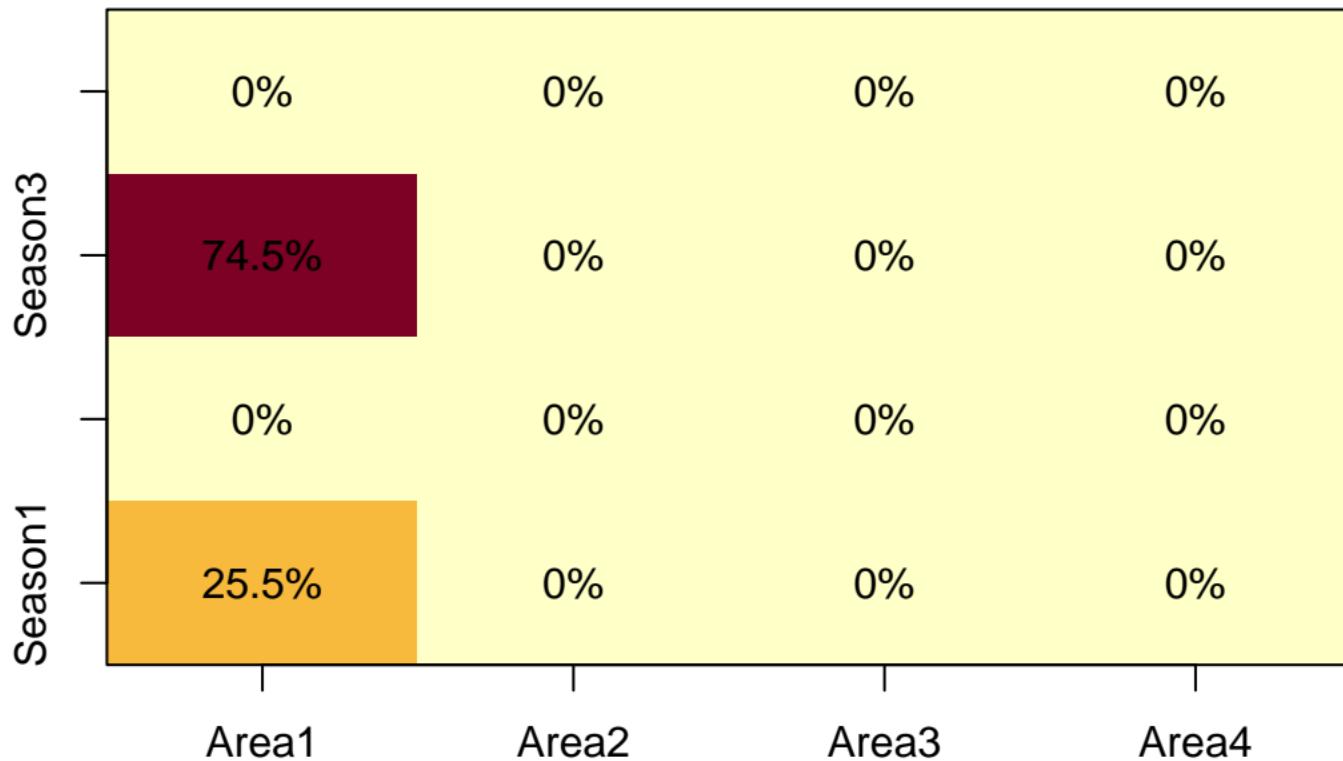
Log recruitment deviation

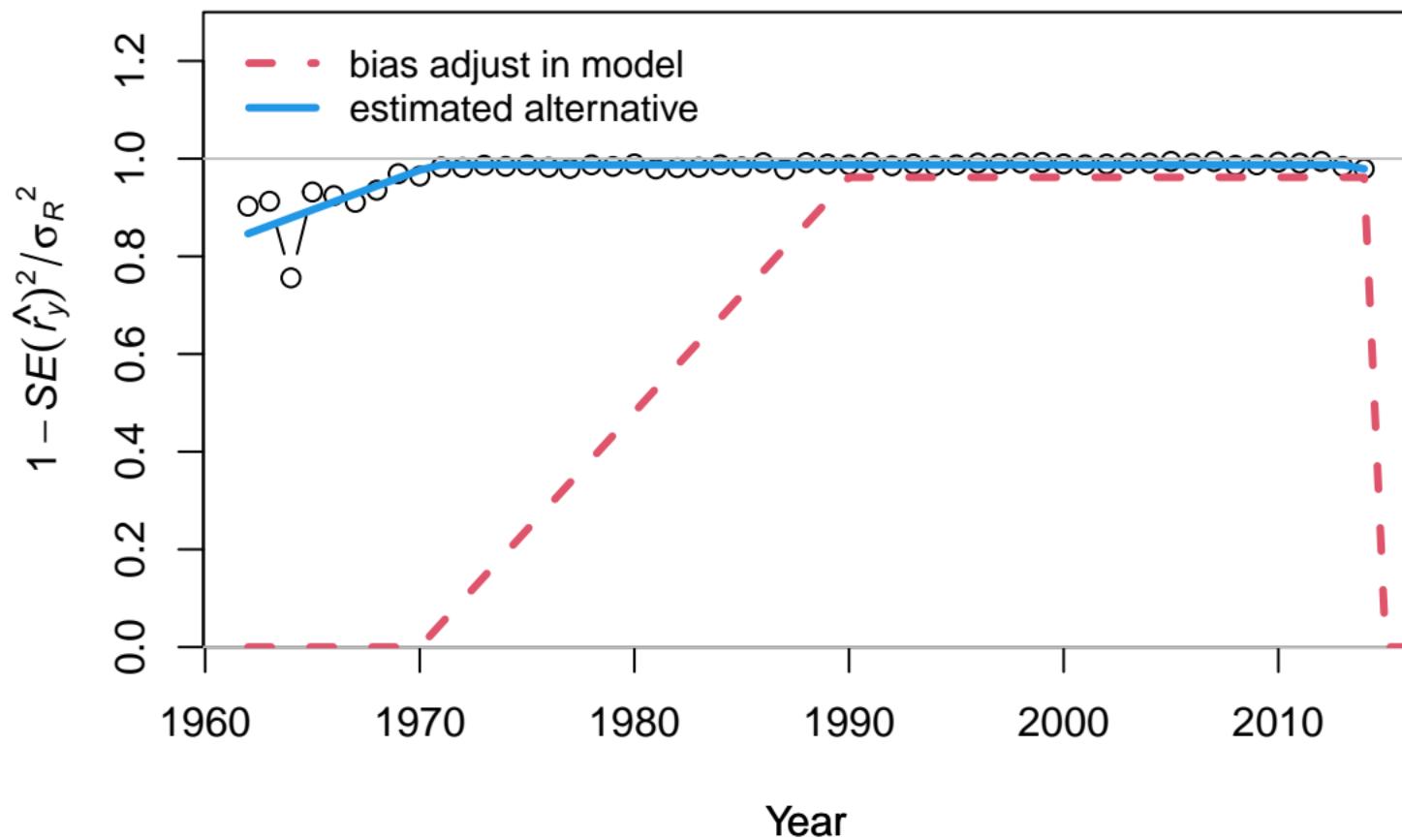


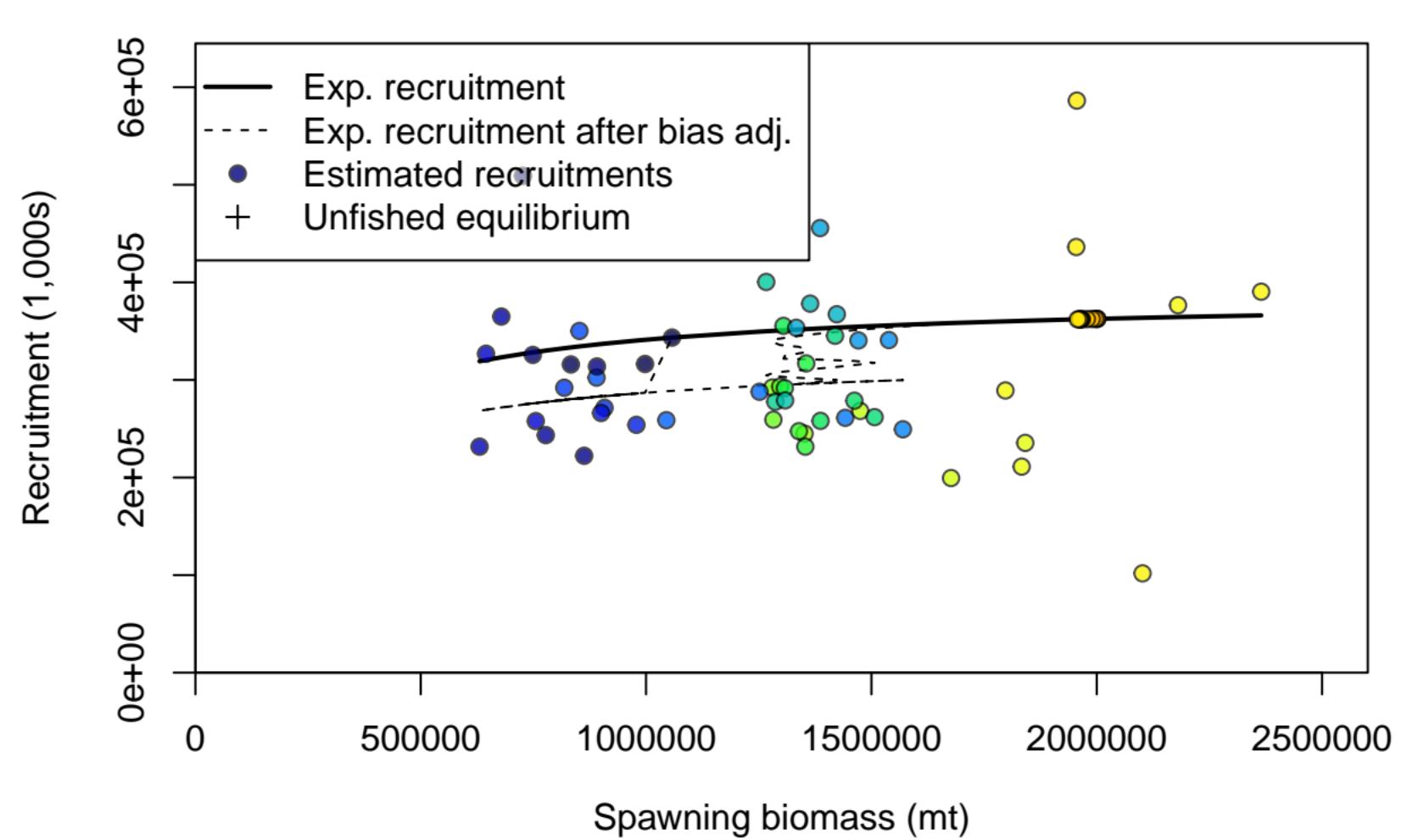
Recruitment deviation variance

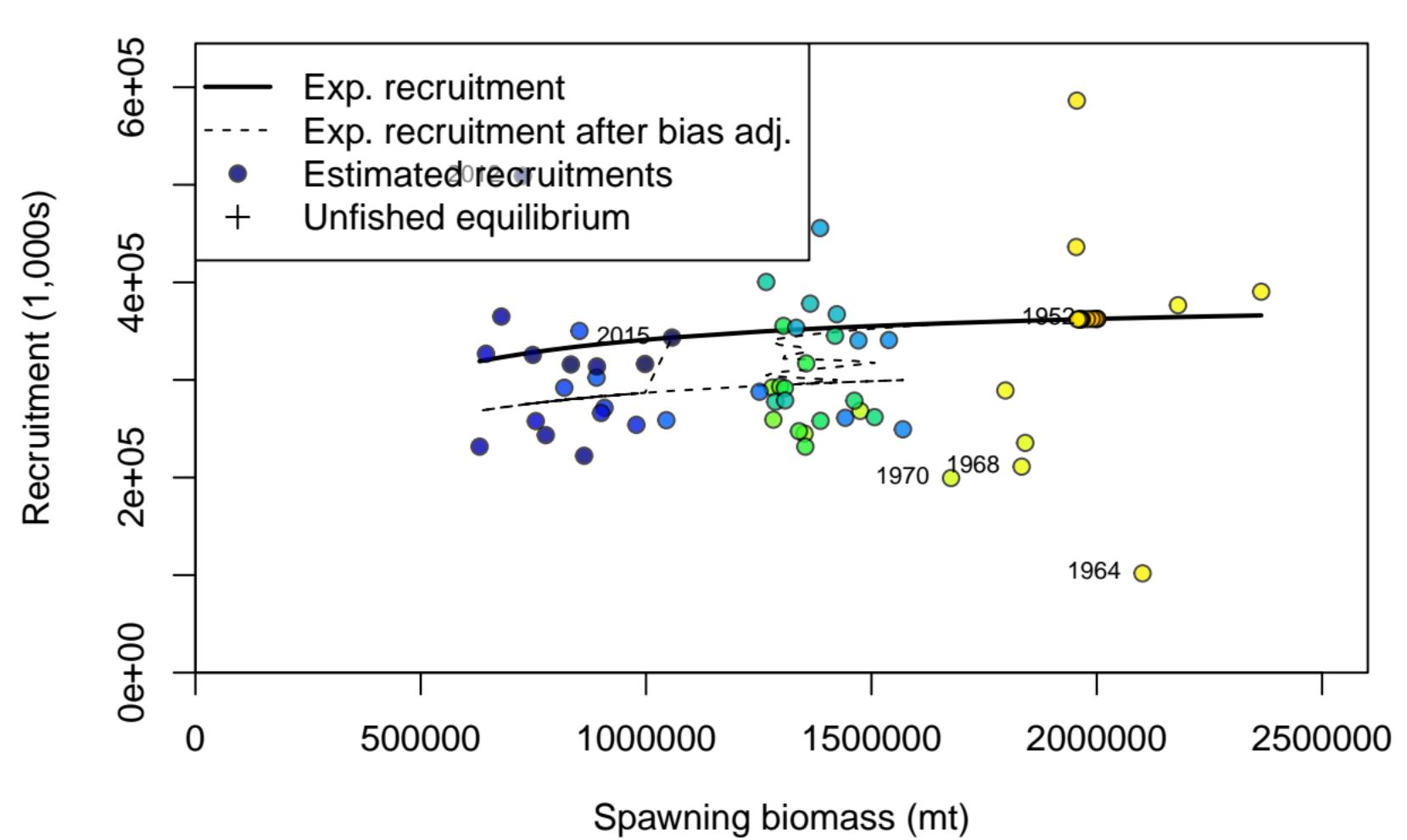


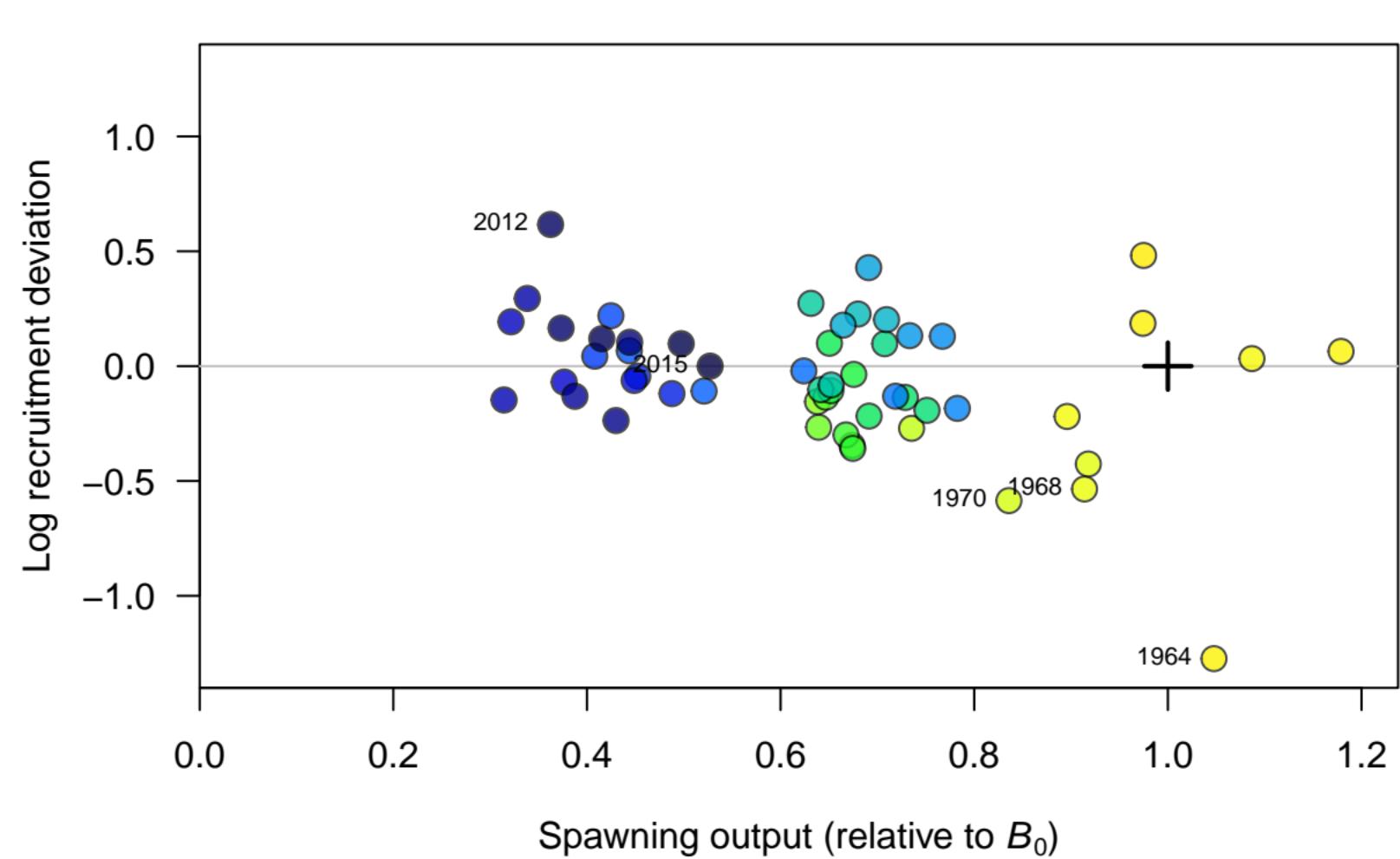
Distribution of recruitment by area and season

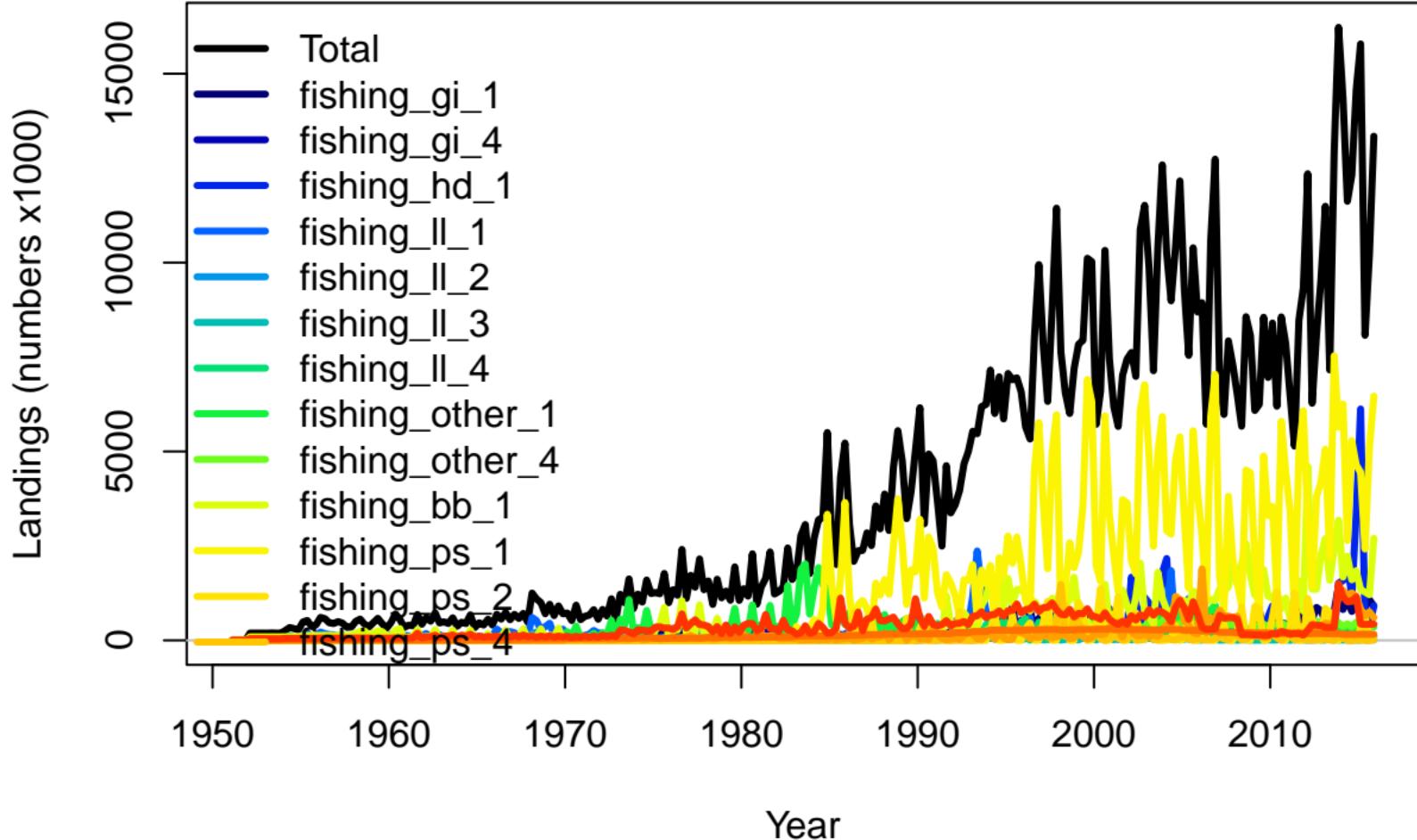


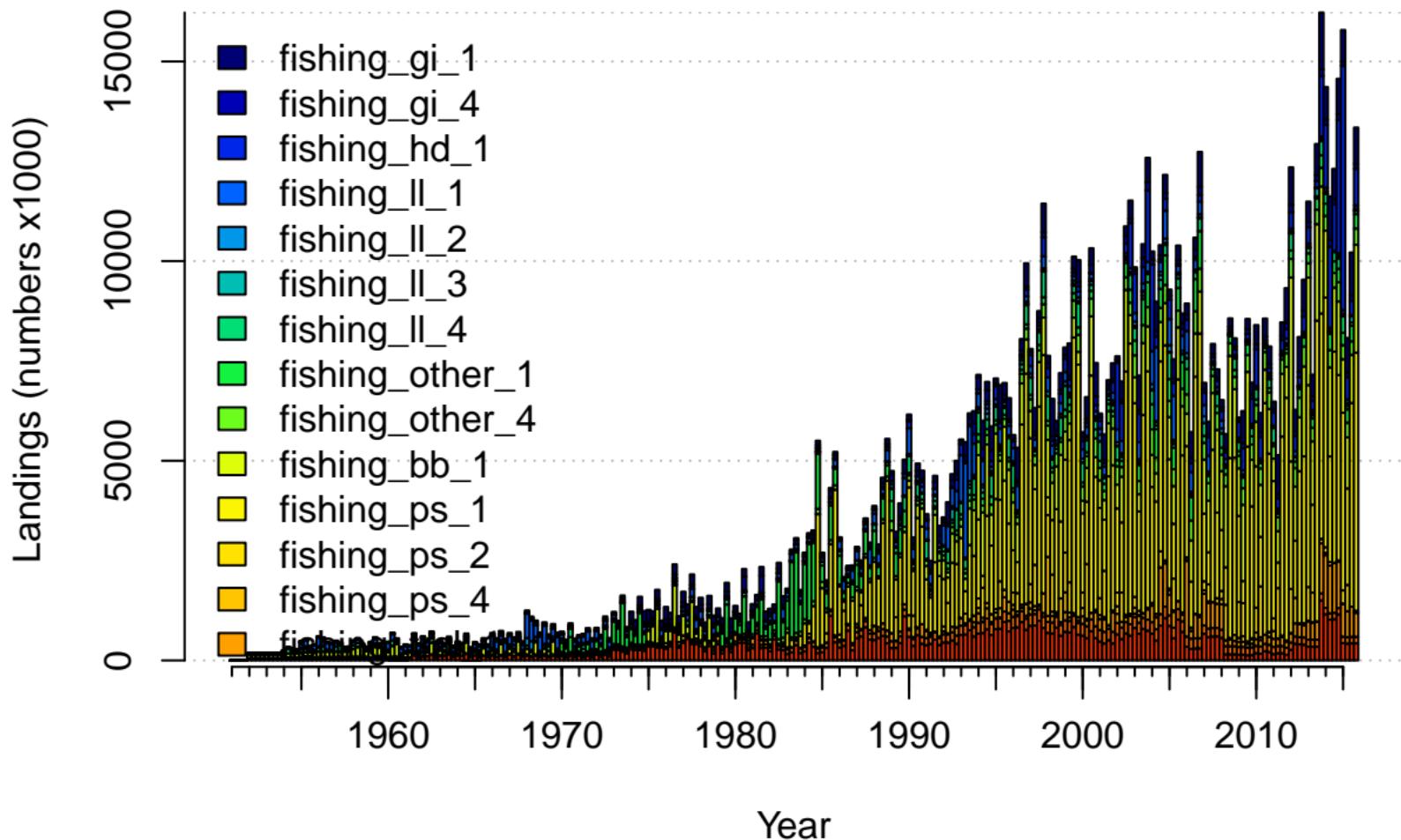




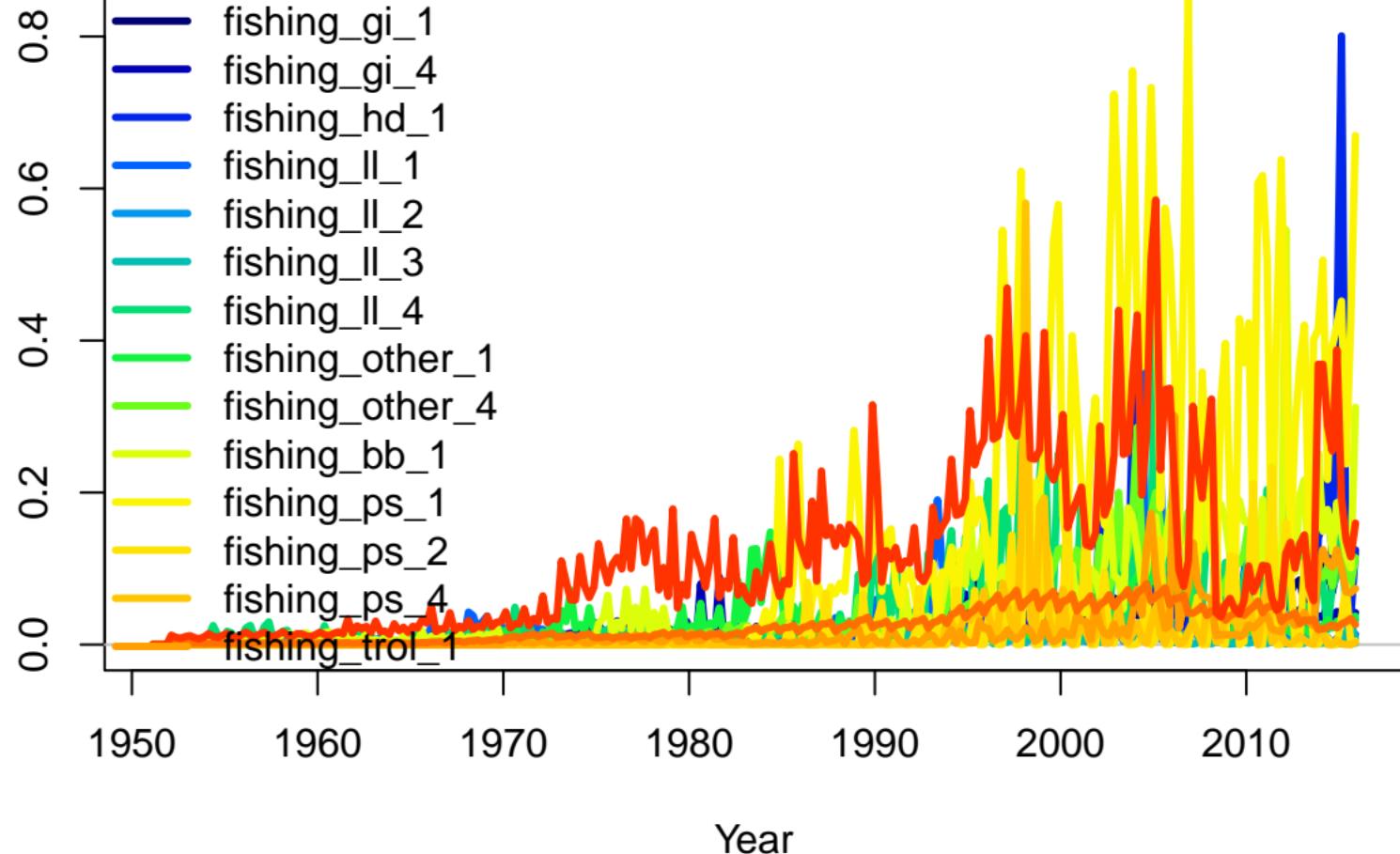


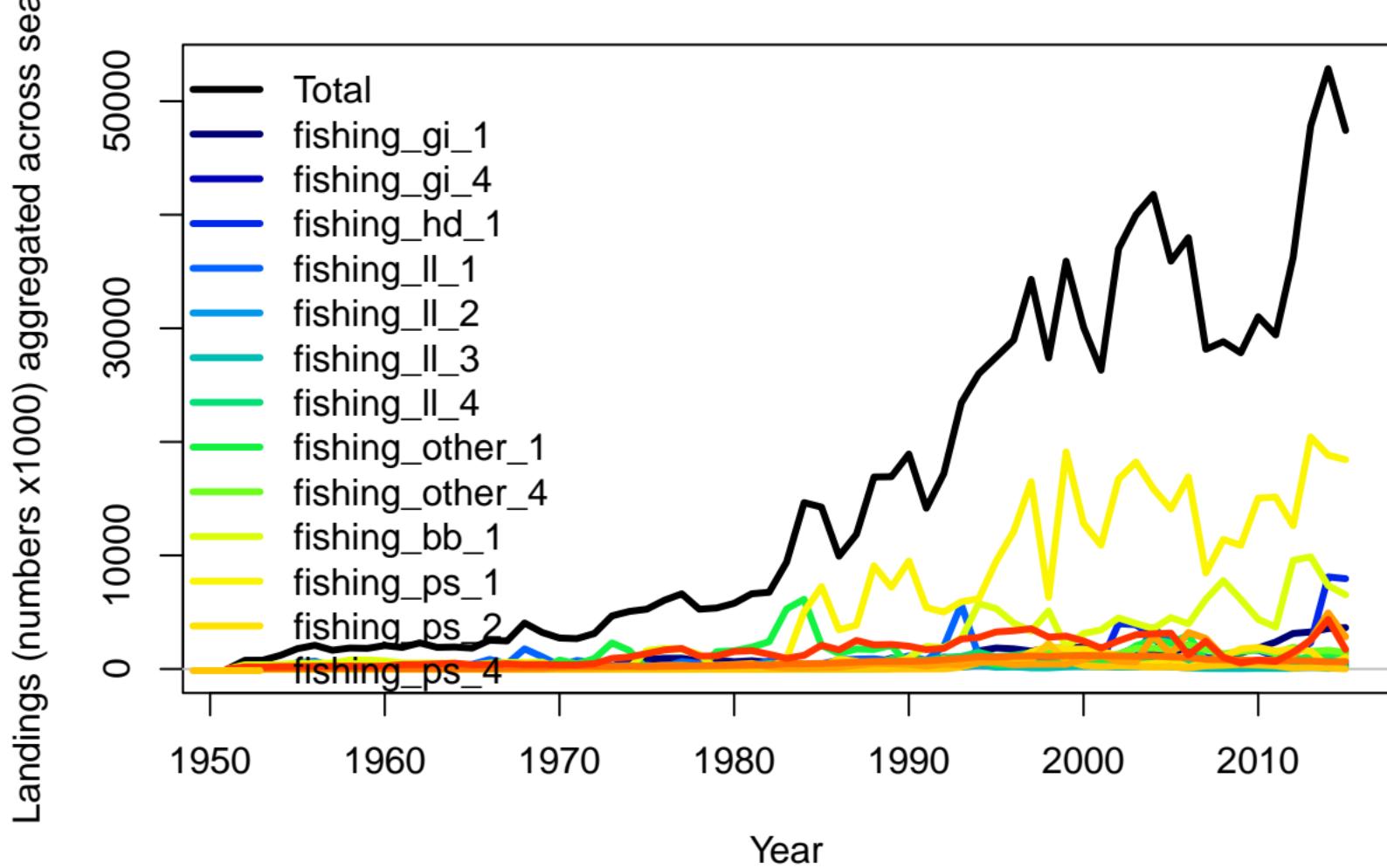


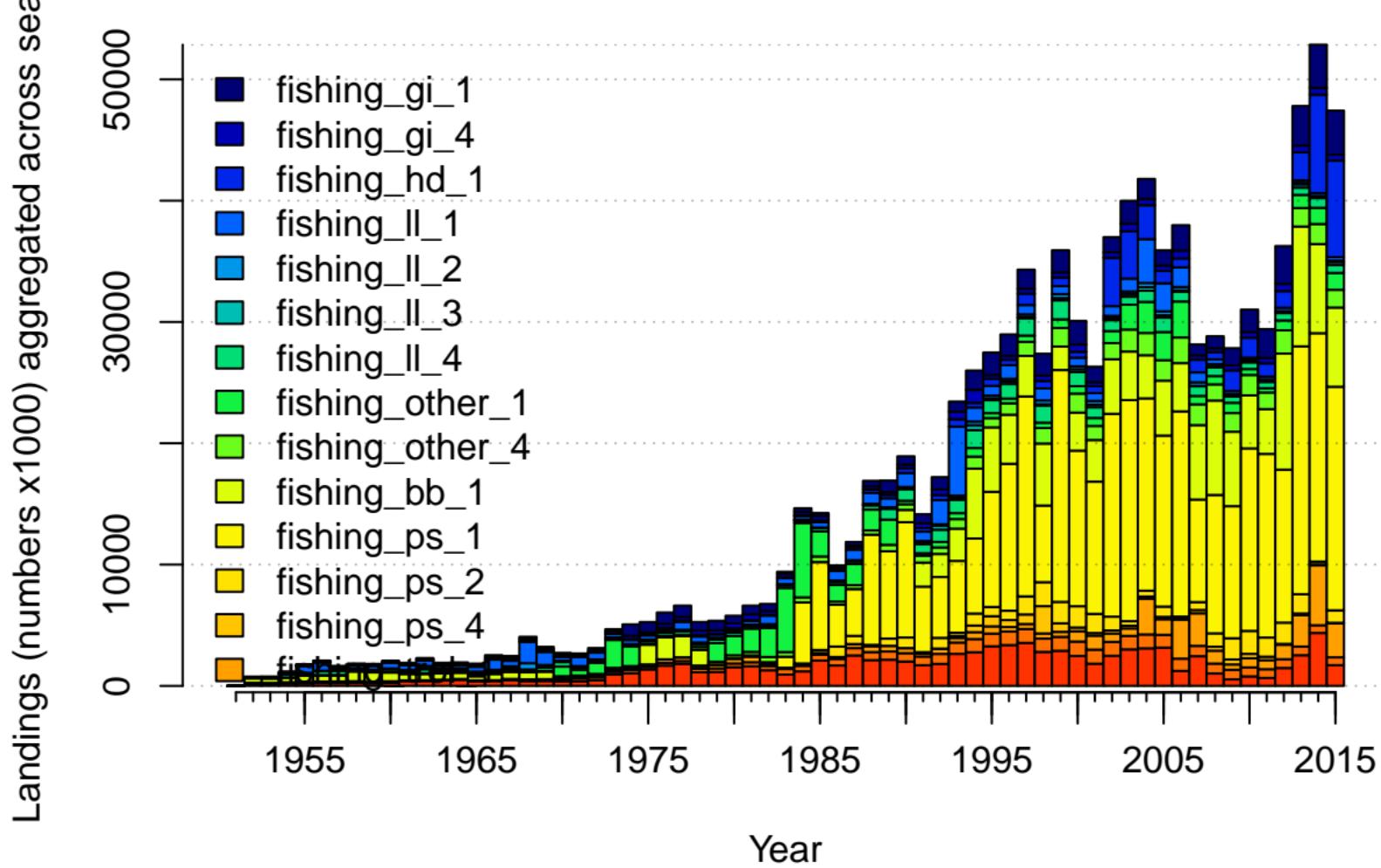


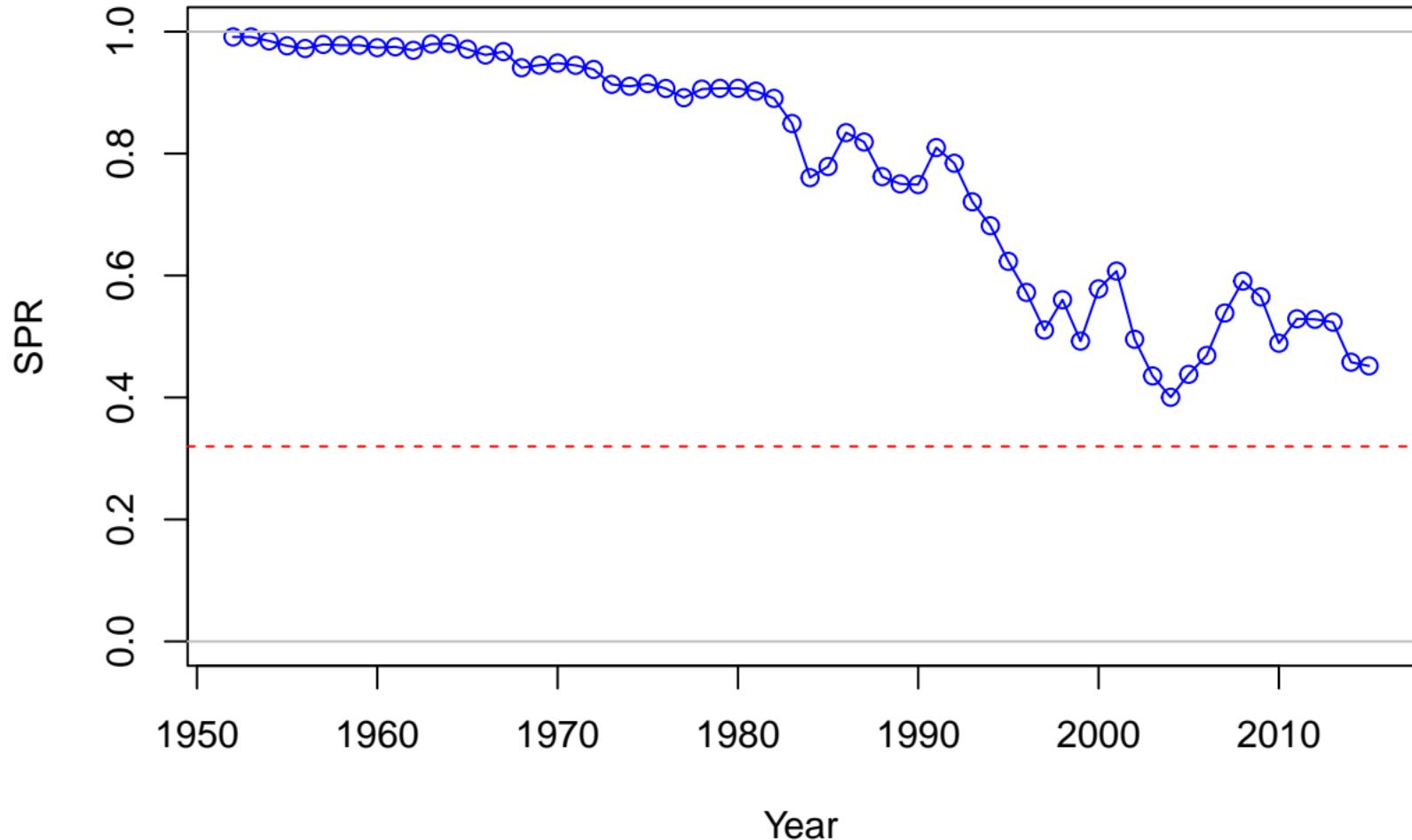


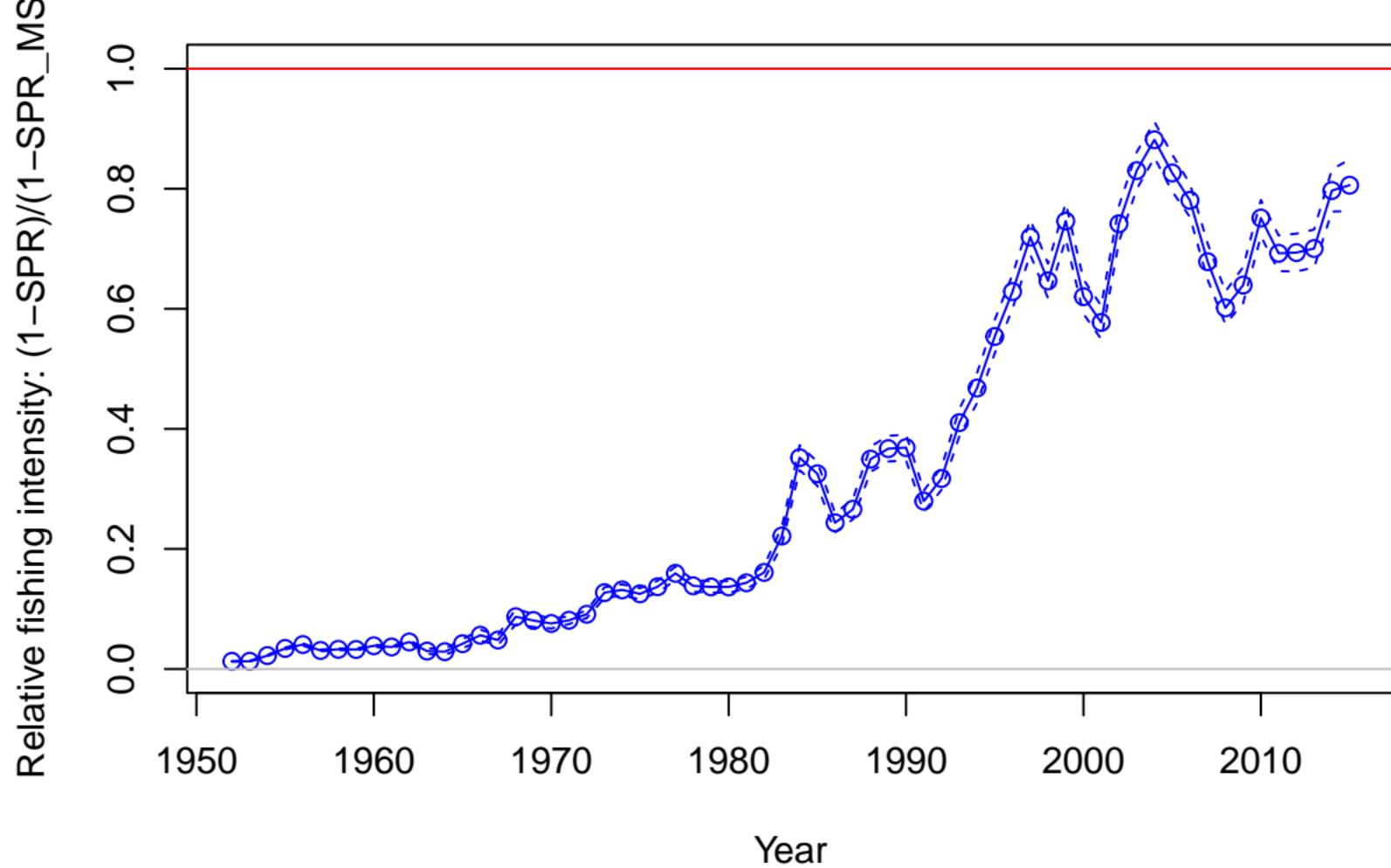
Continuous F

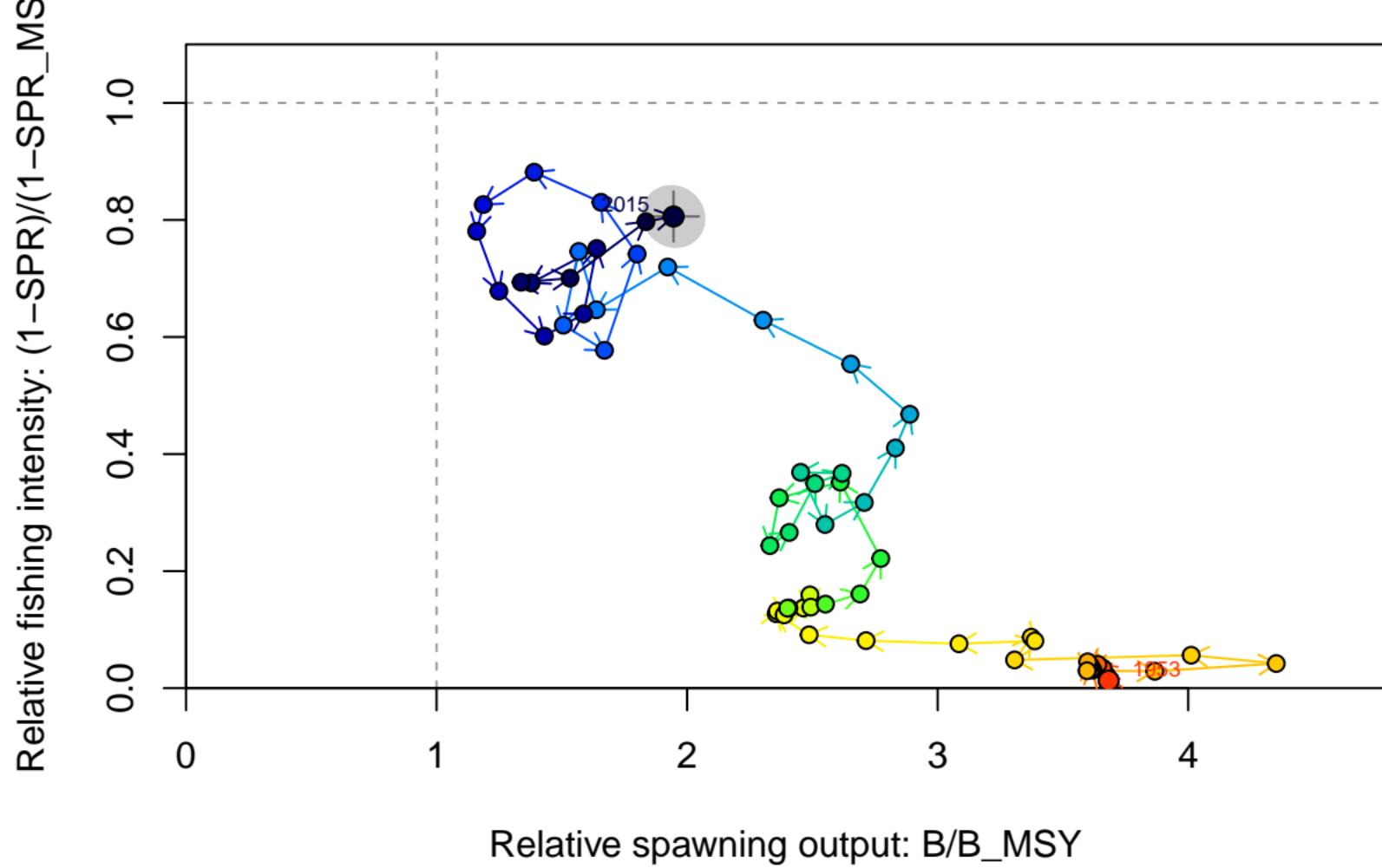


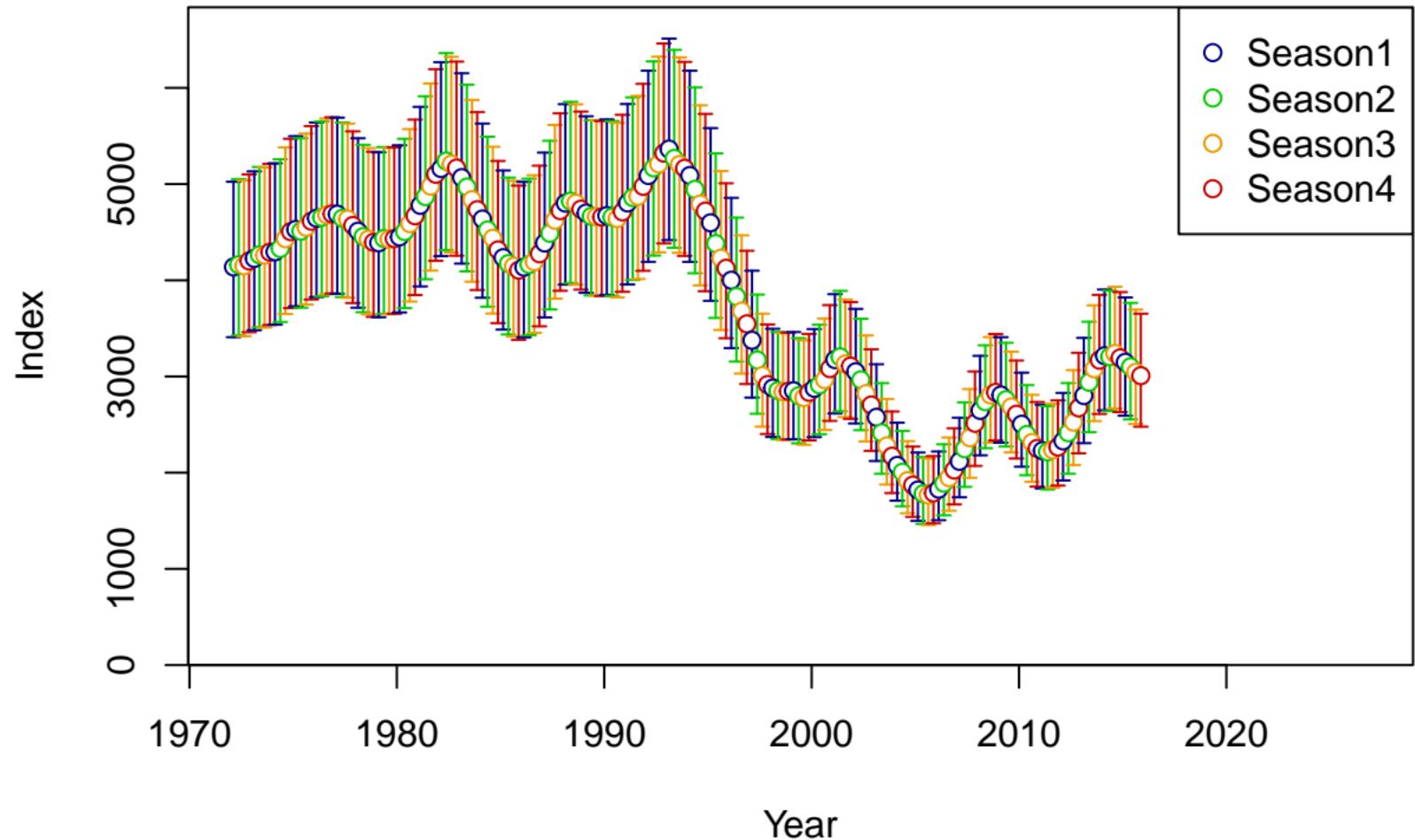


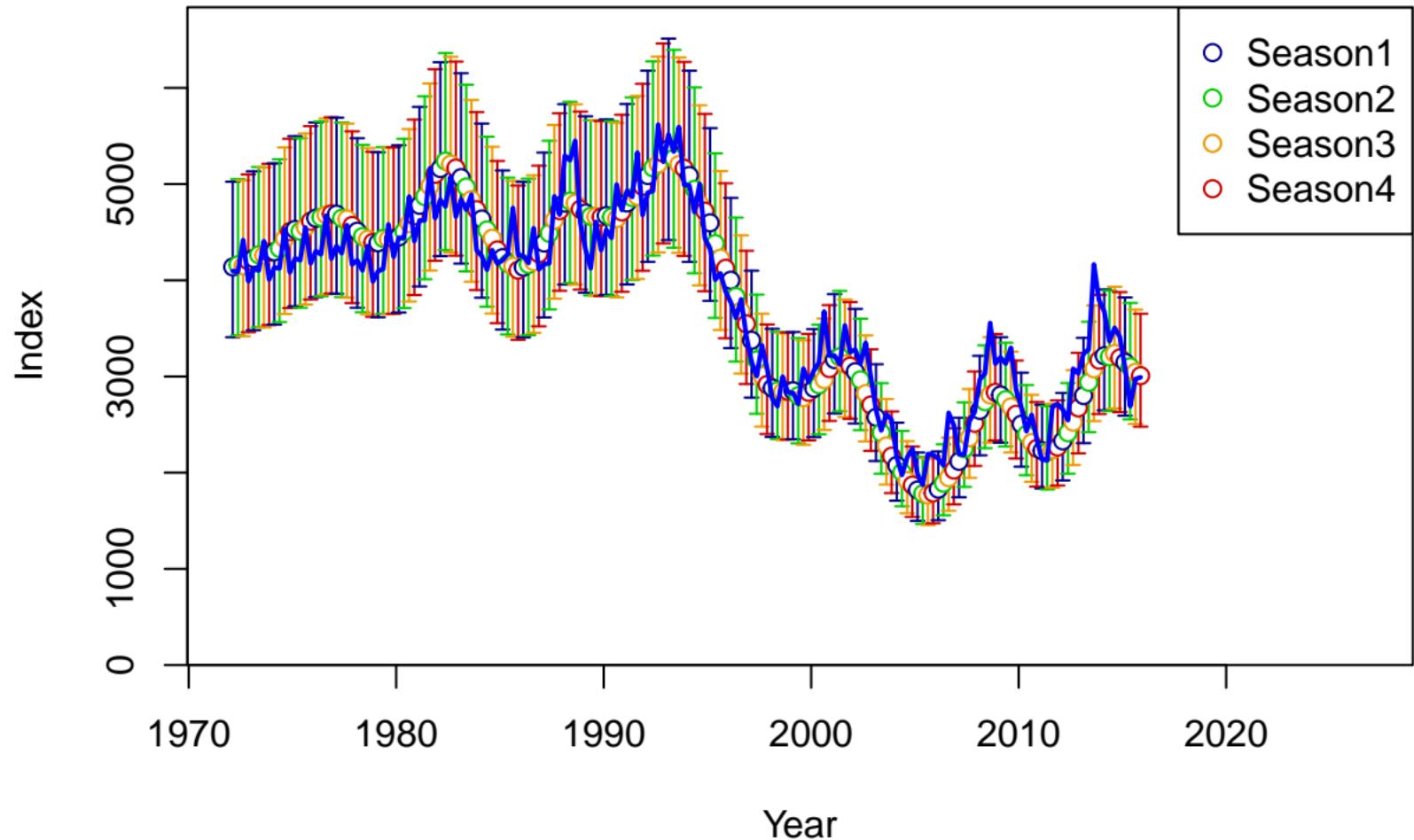


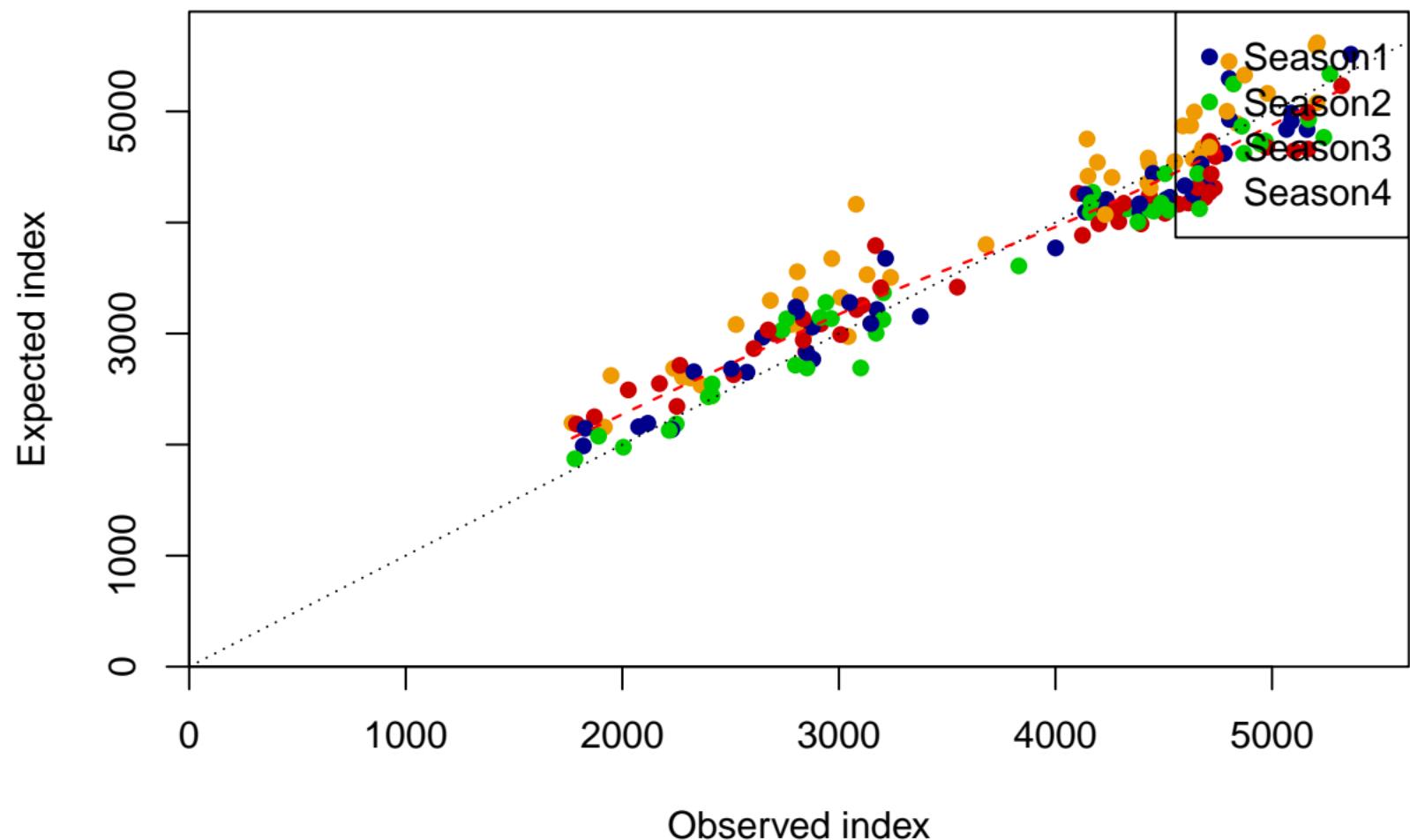


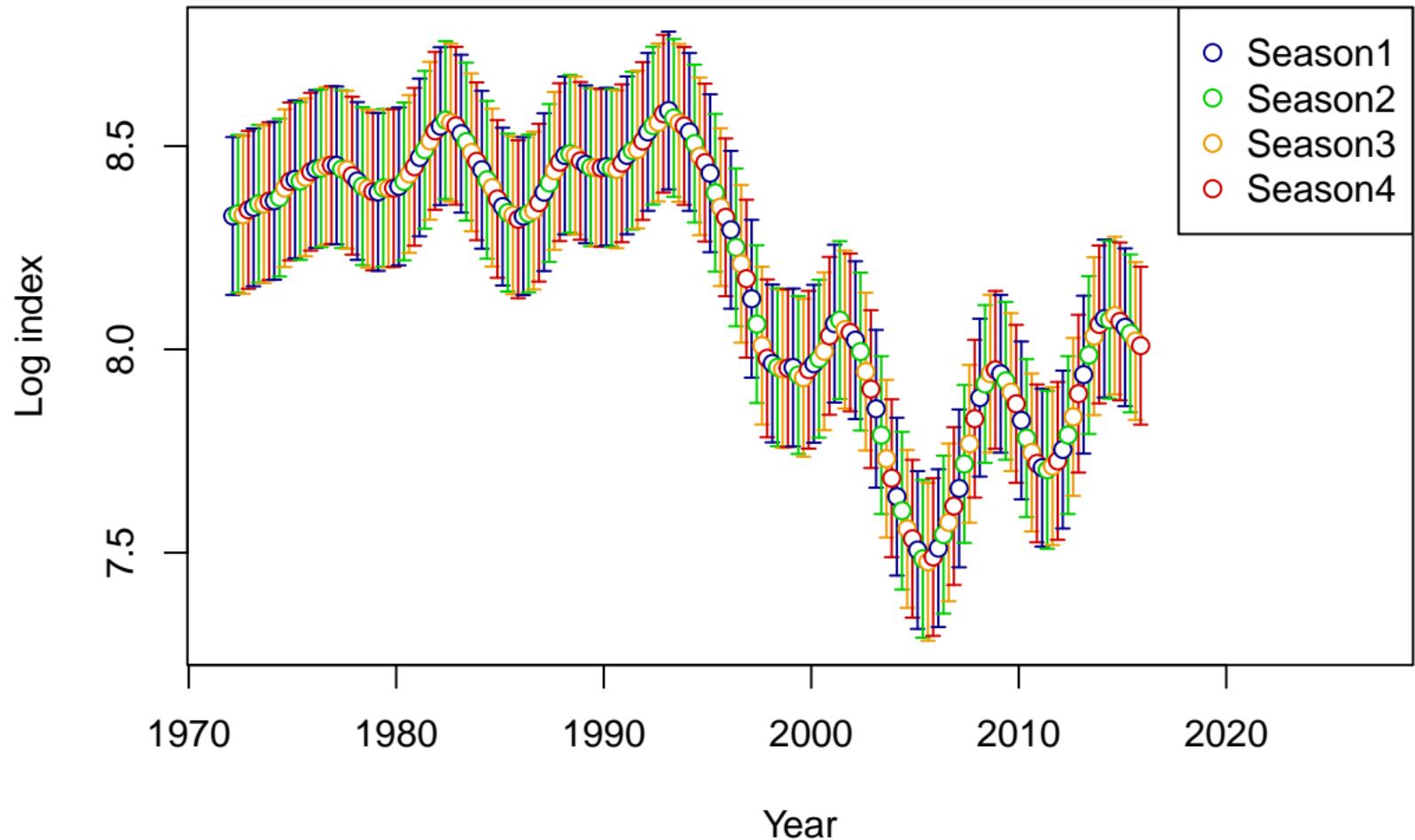


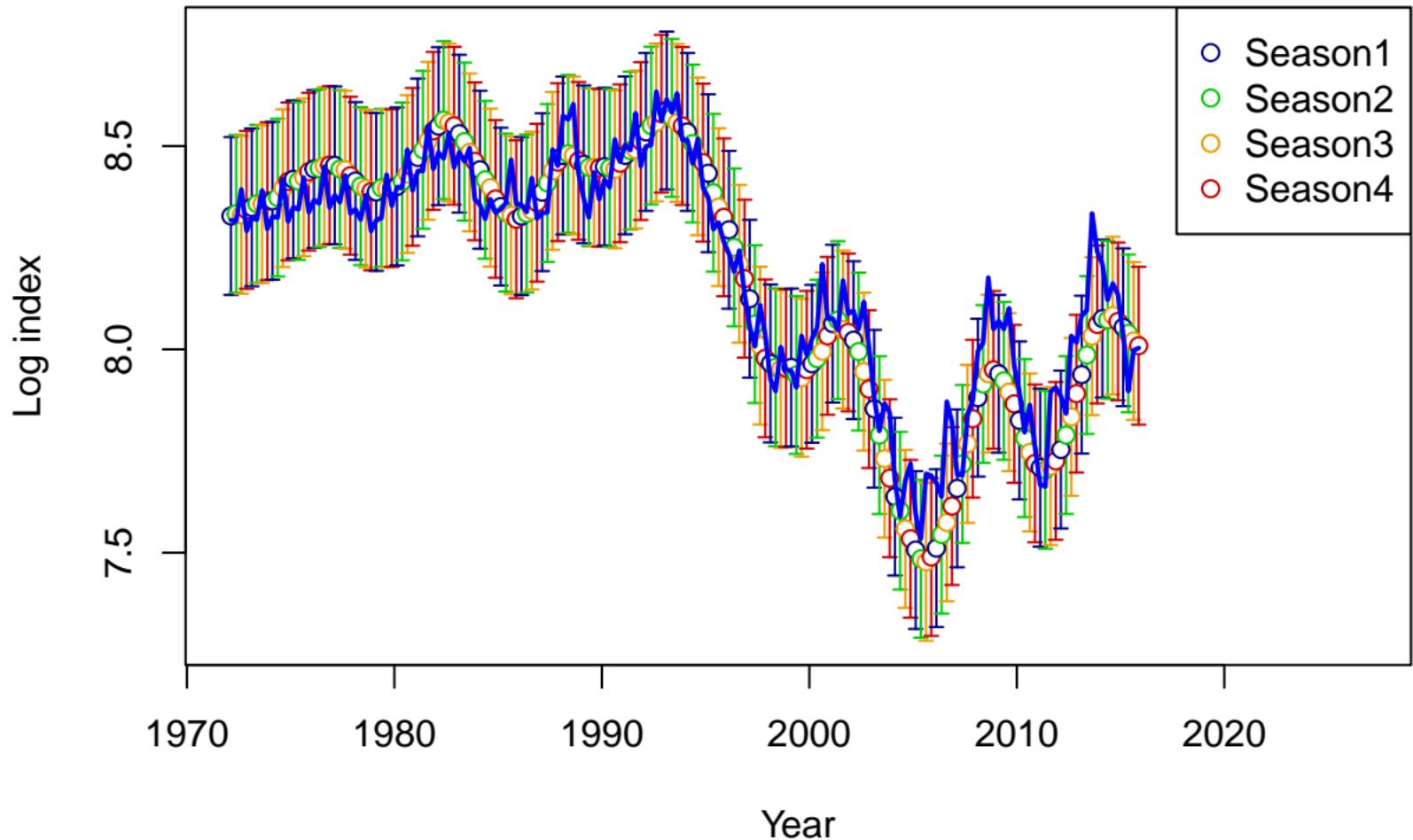


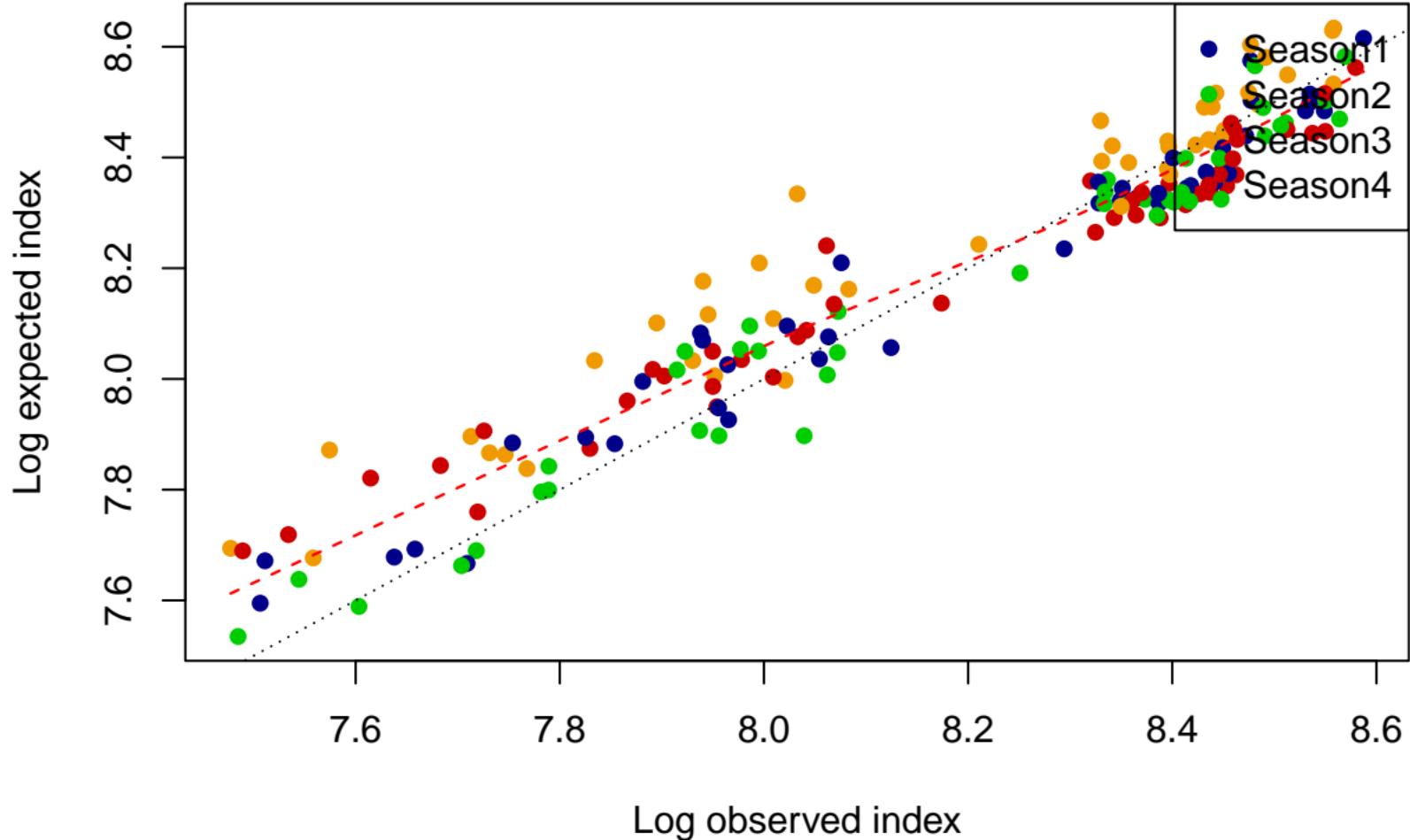


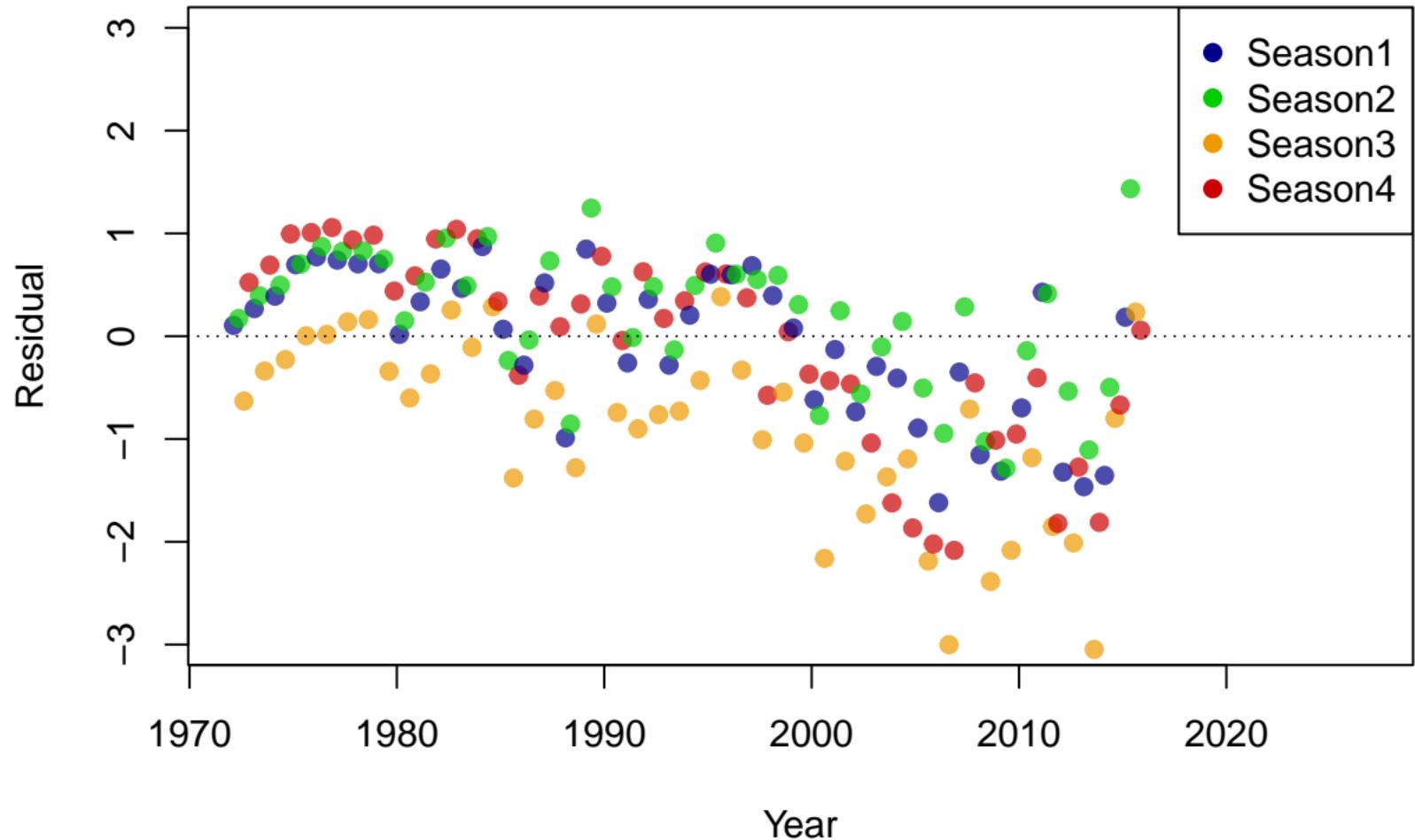


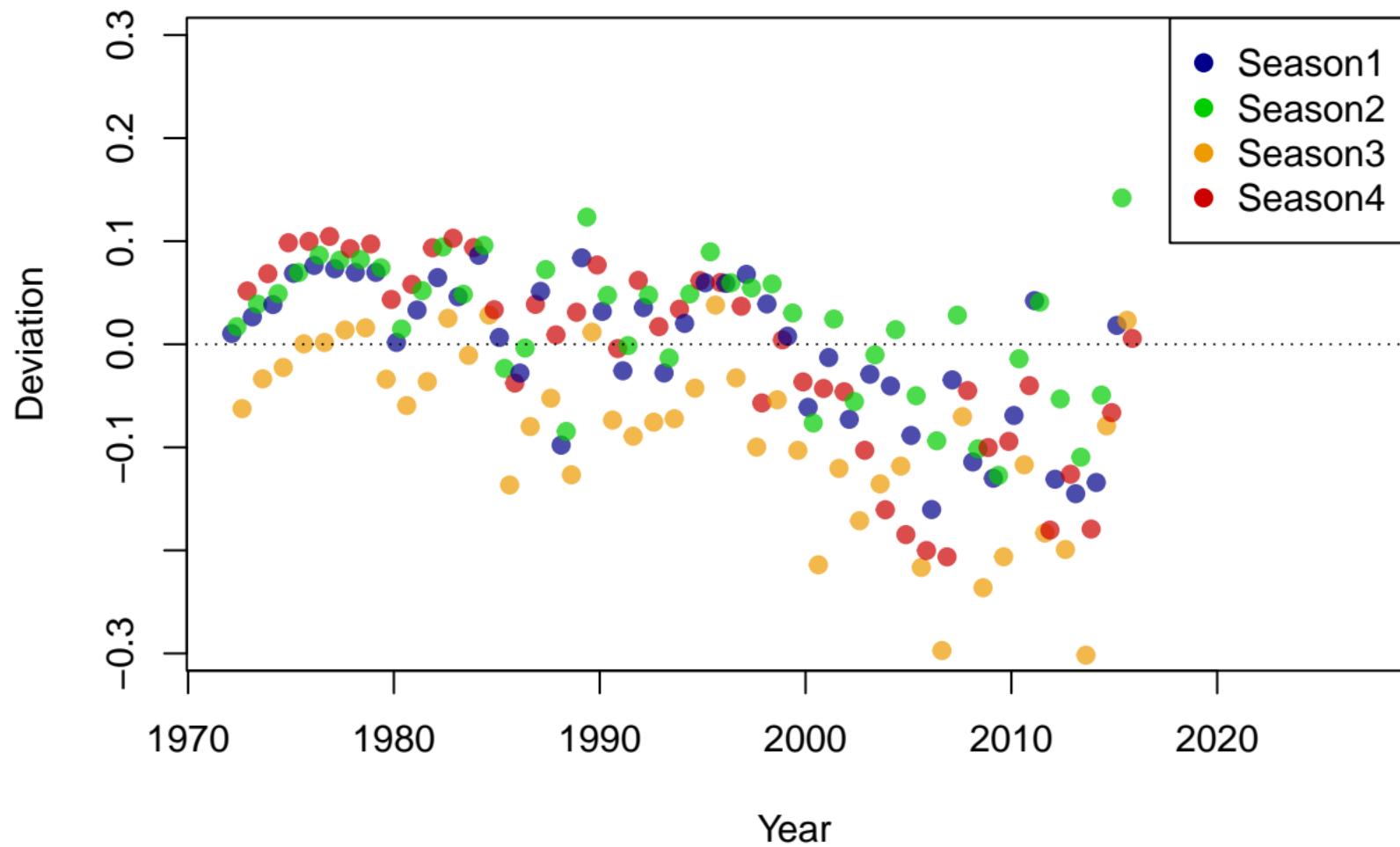


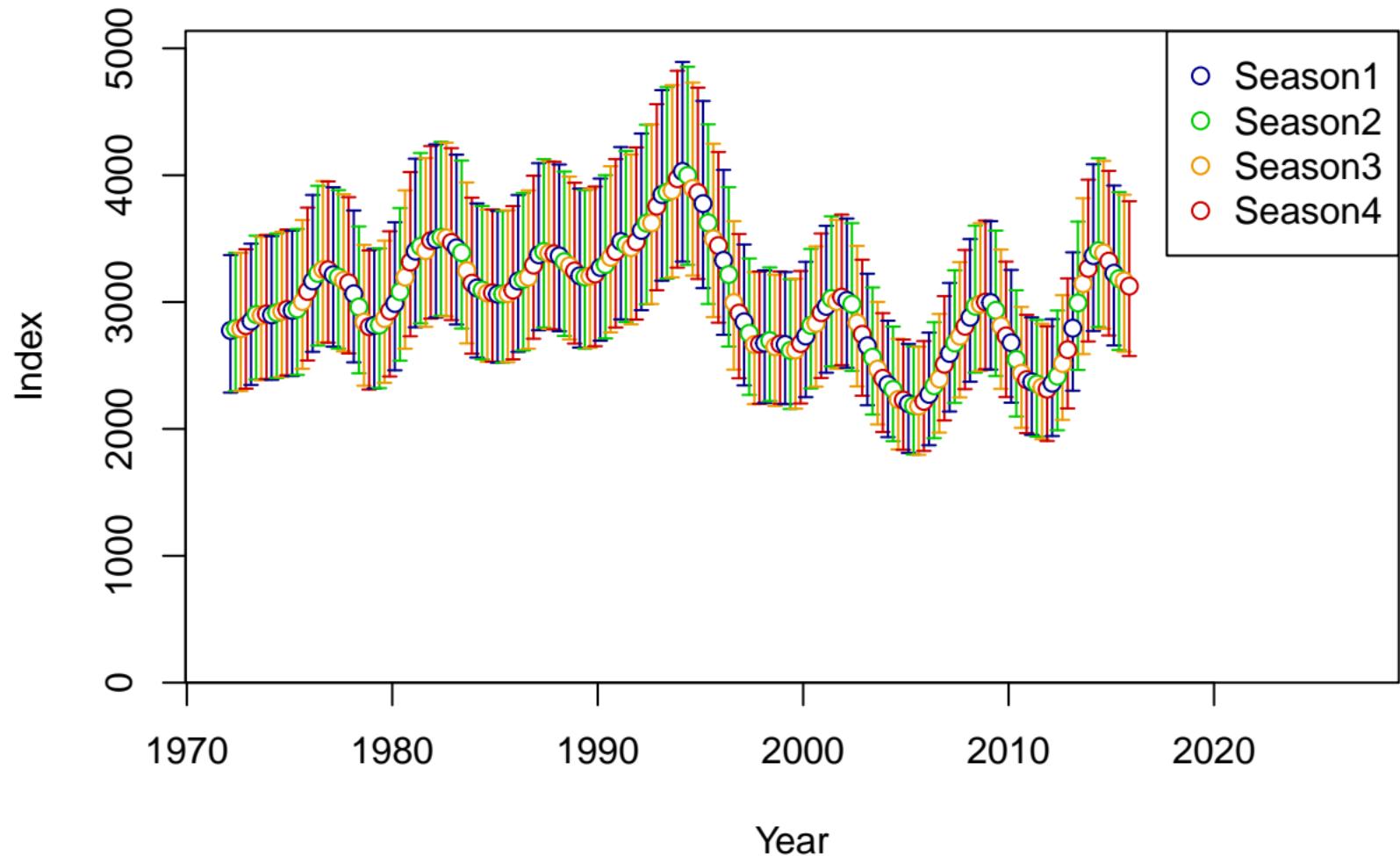


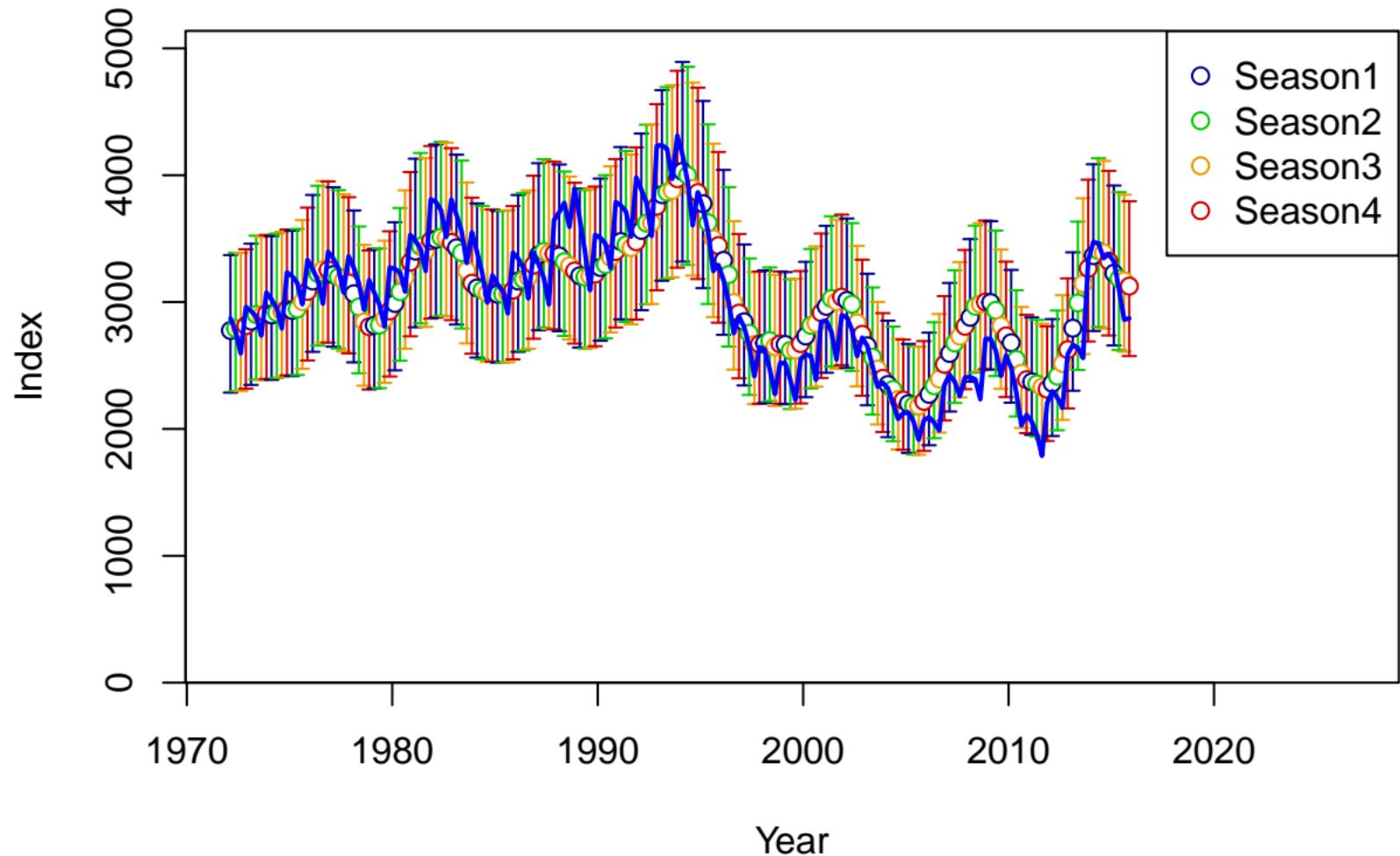


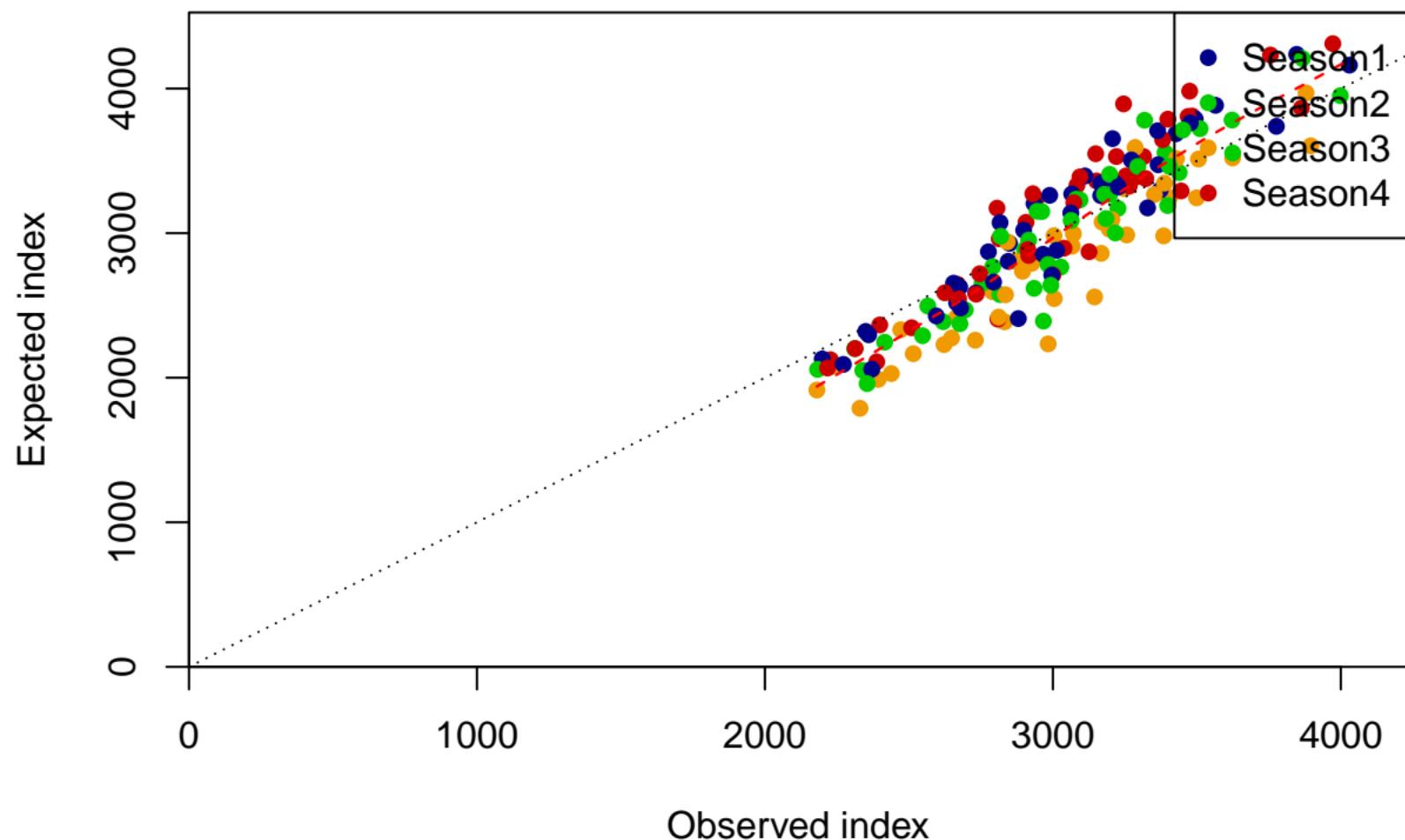


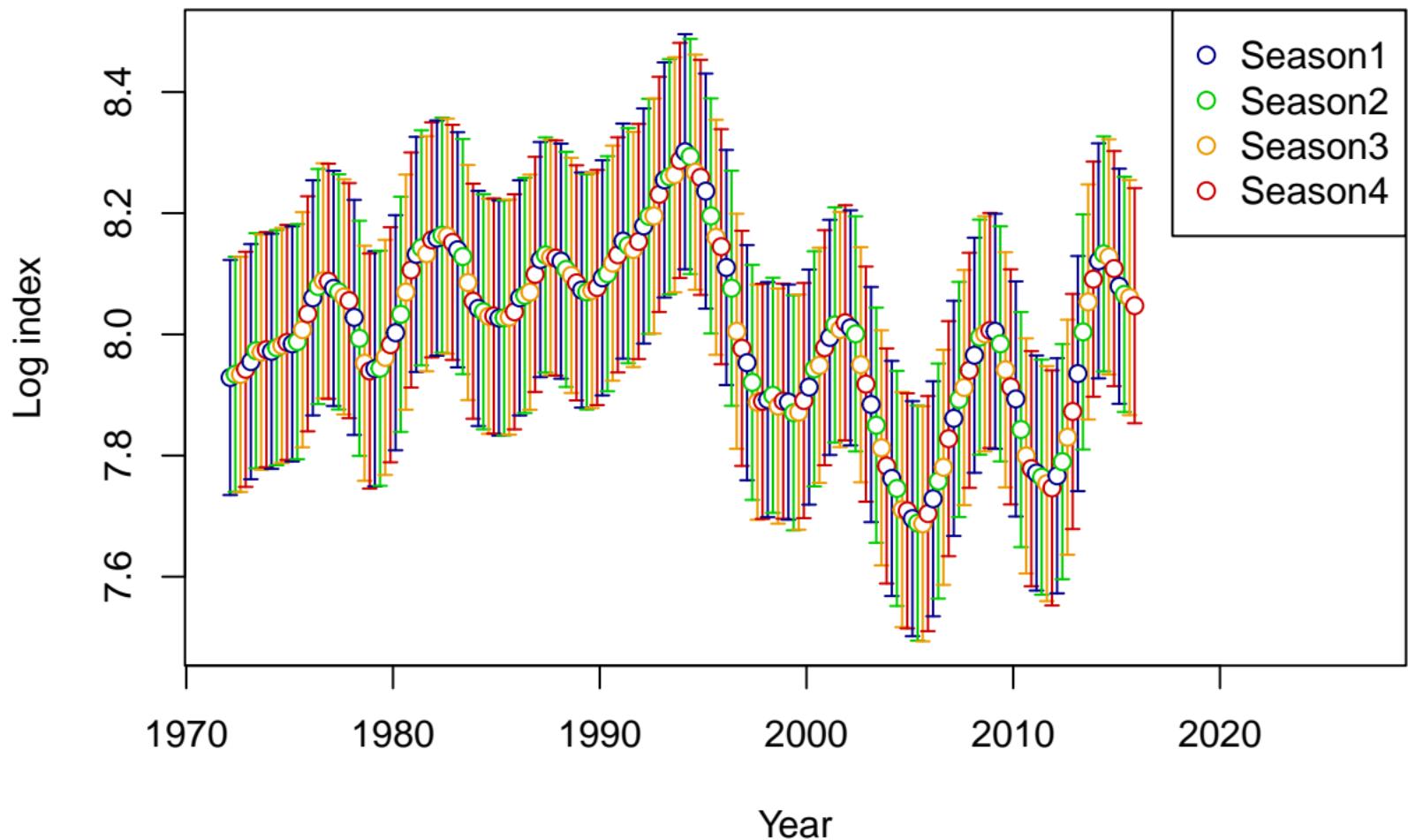


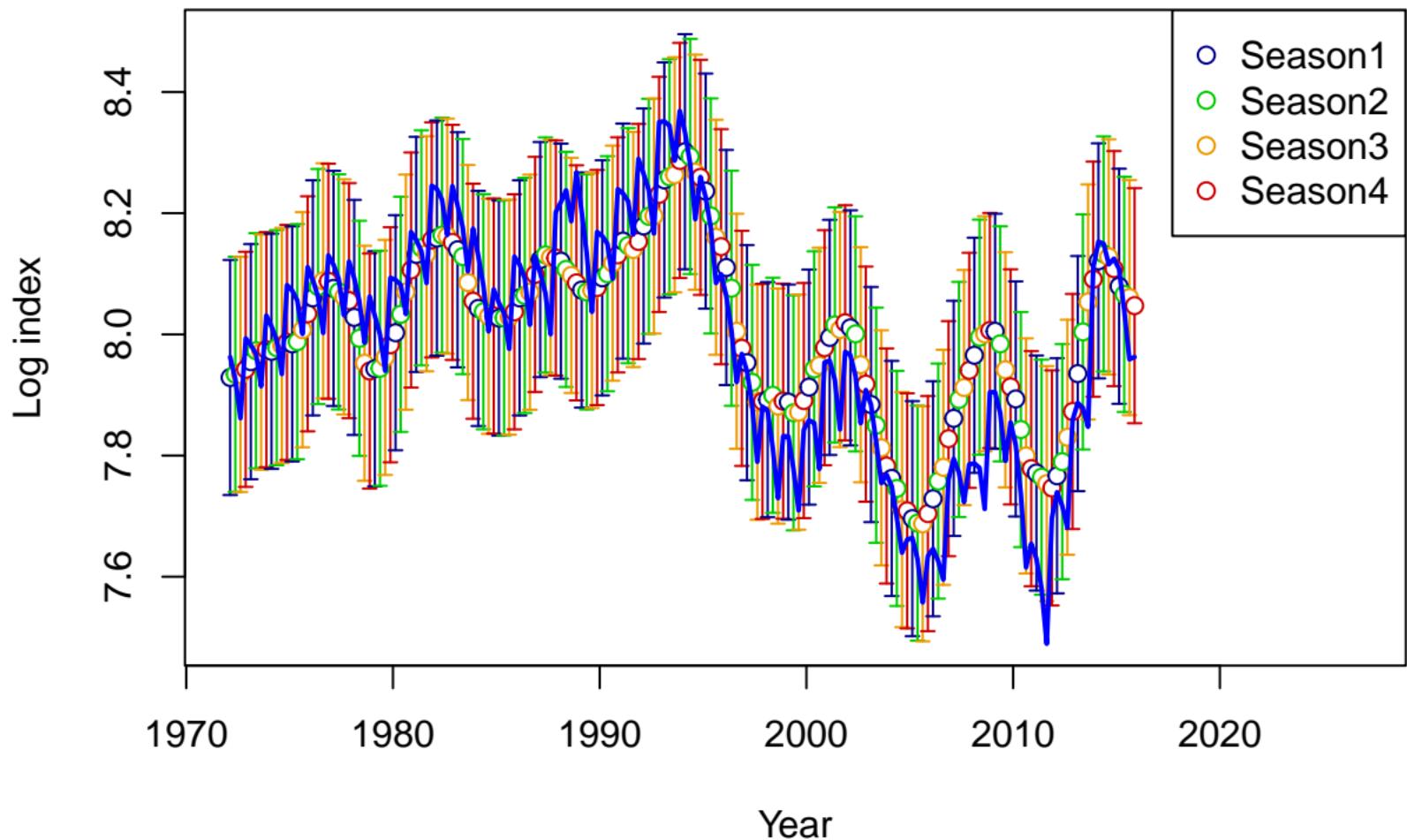


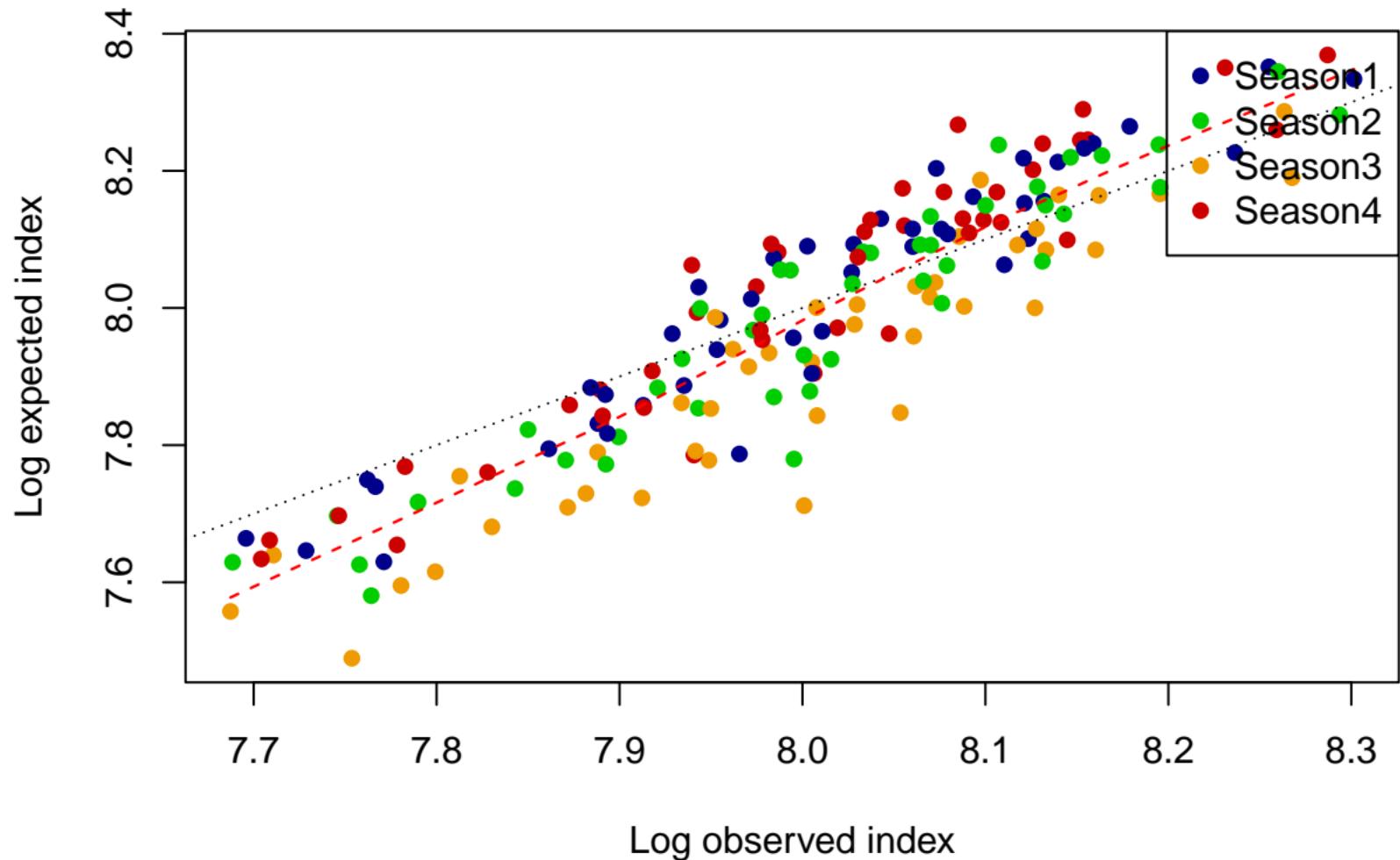


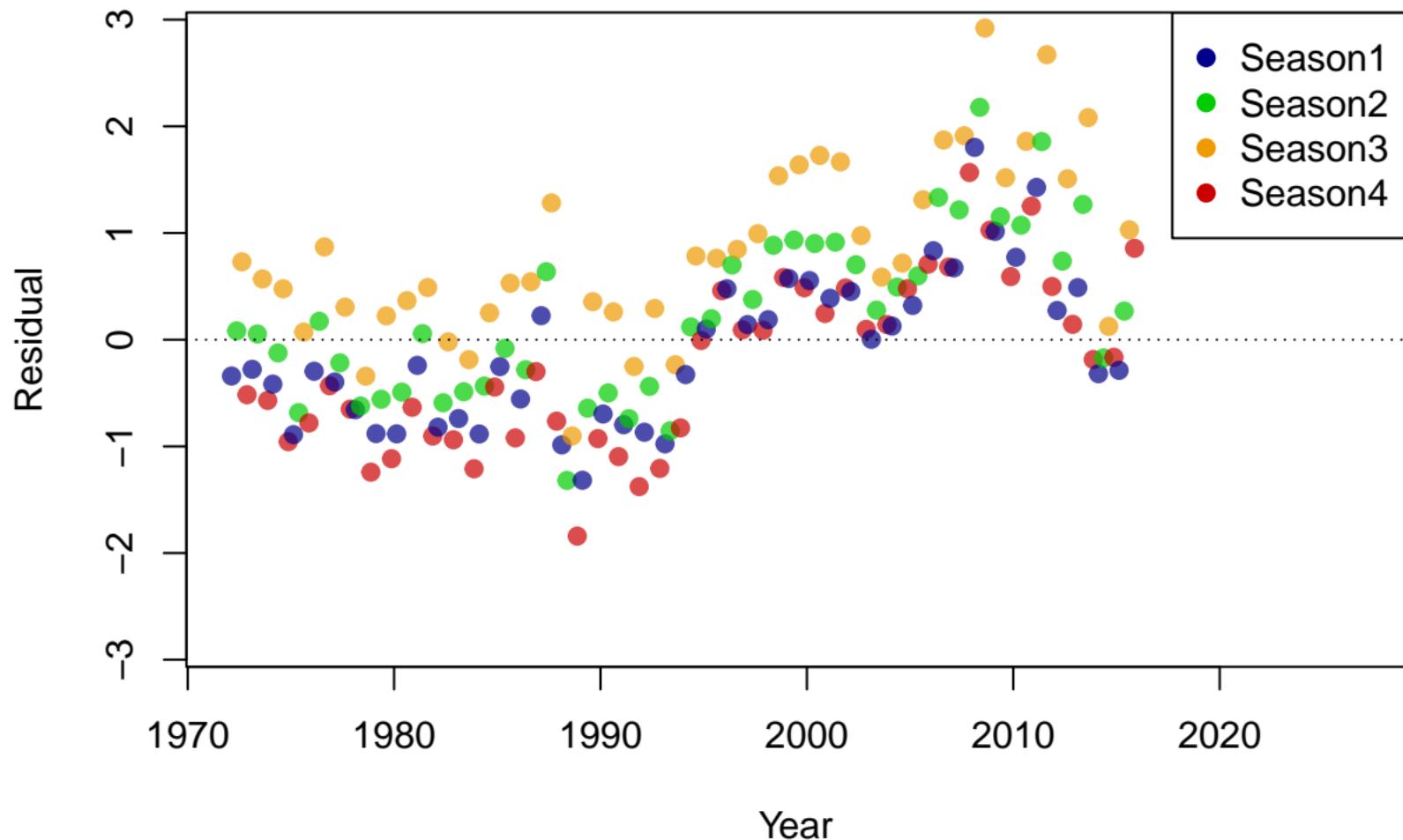


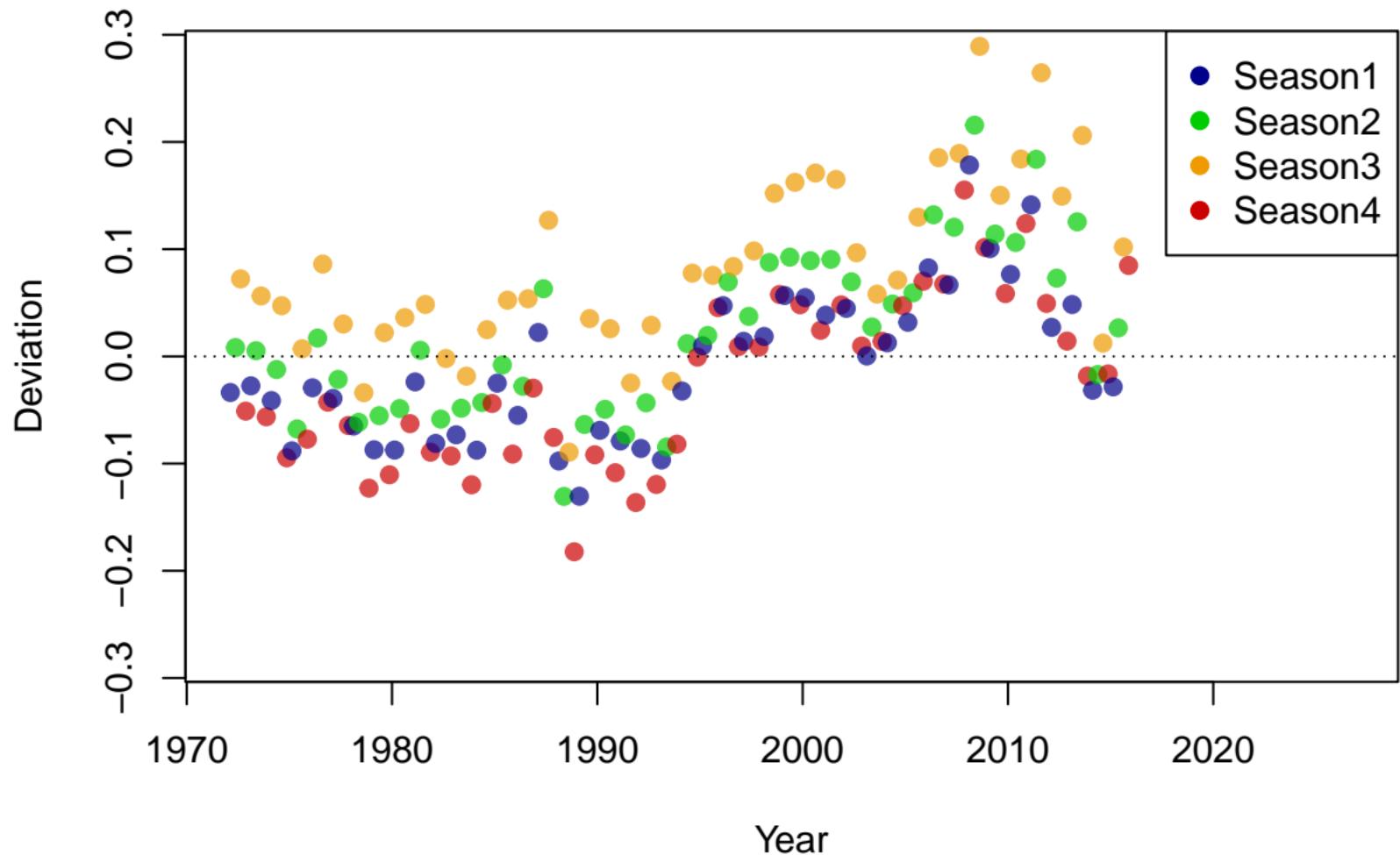


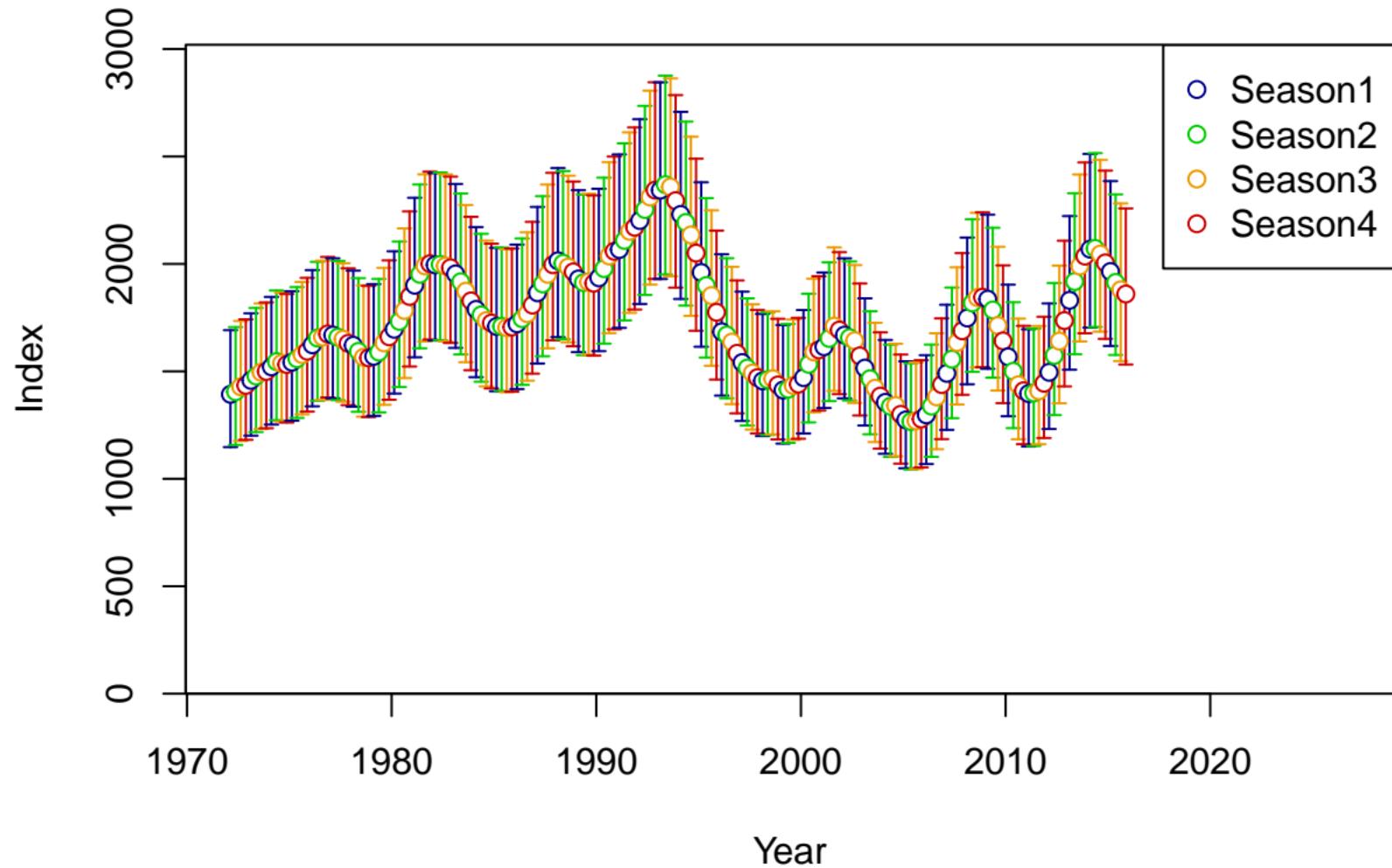


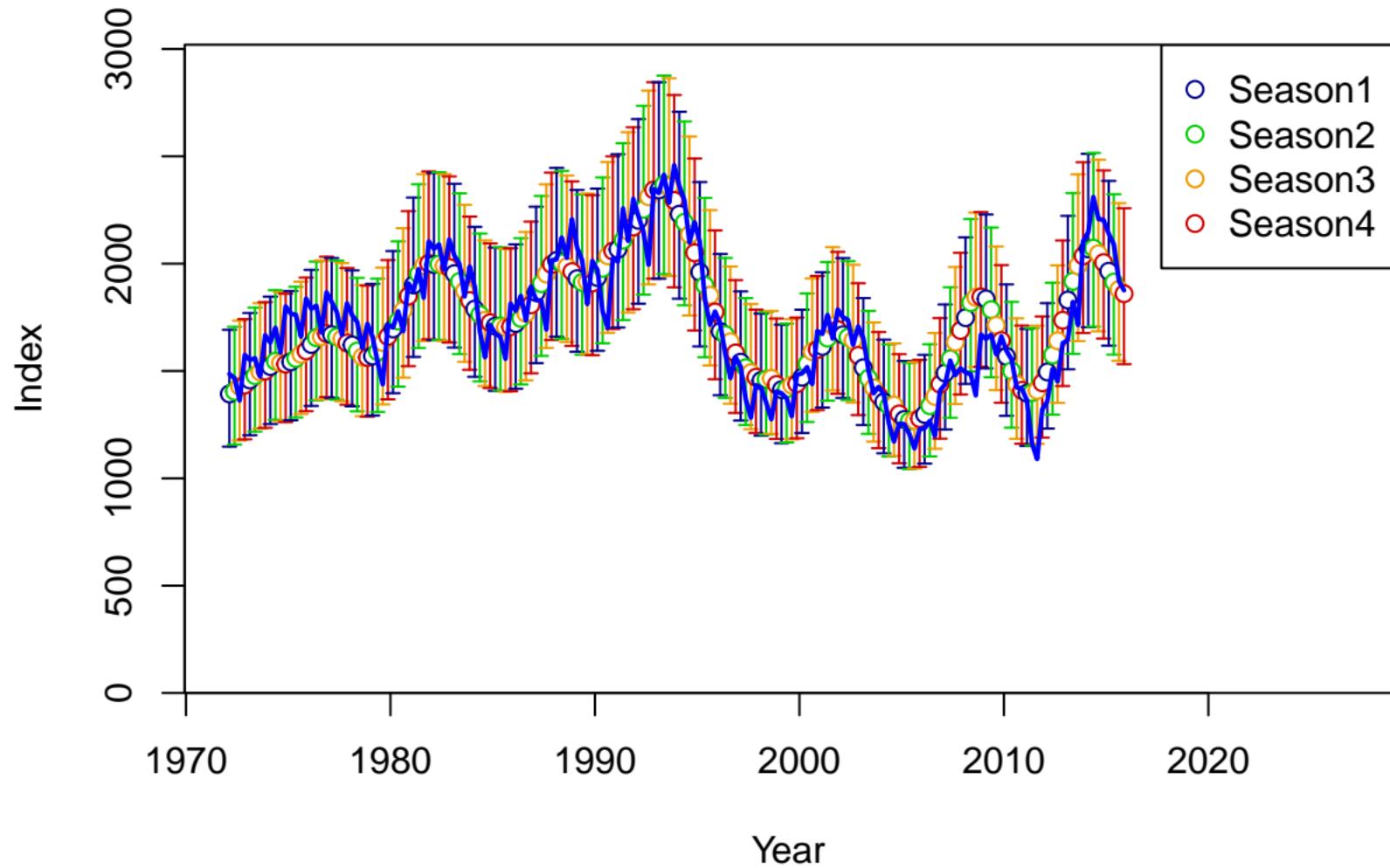


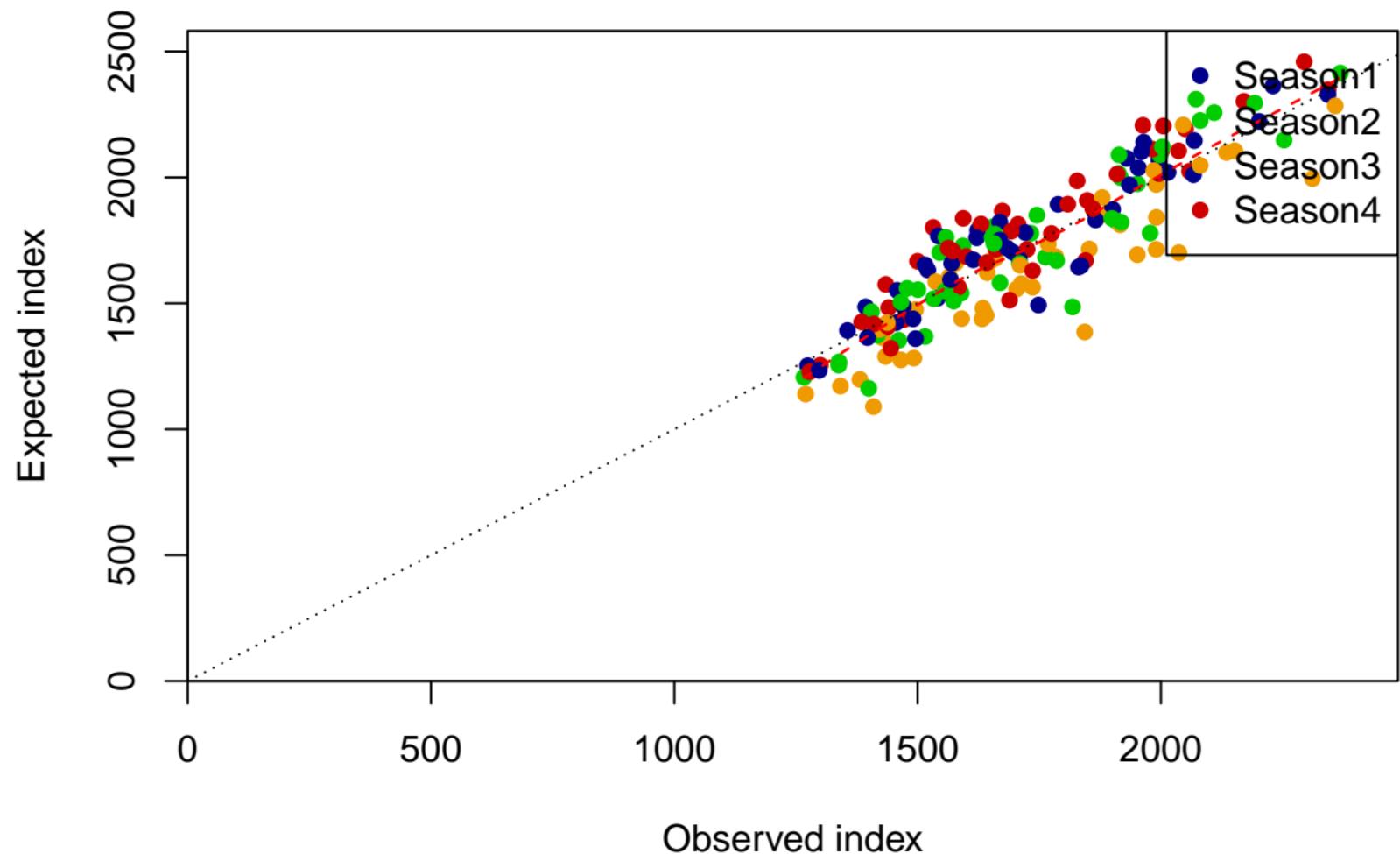


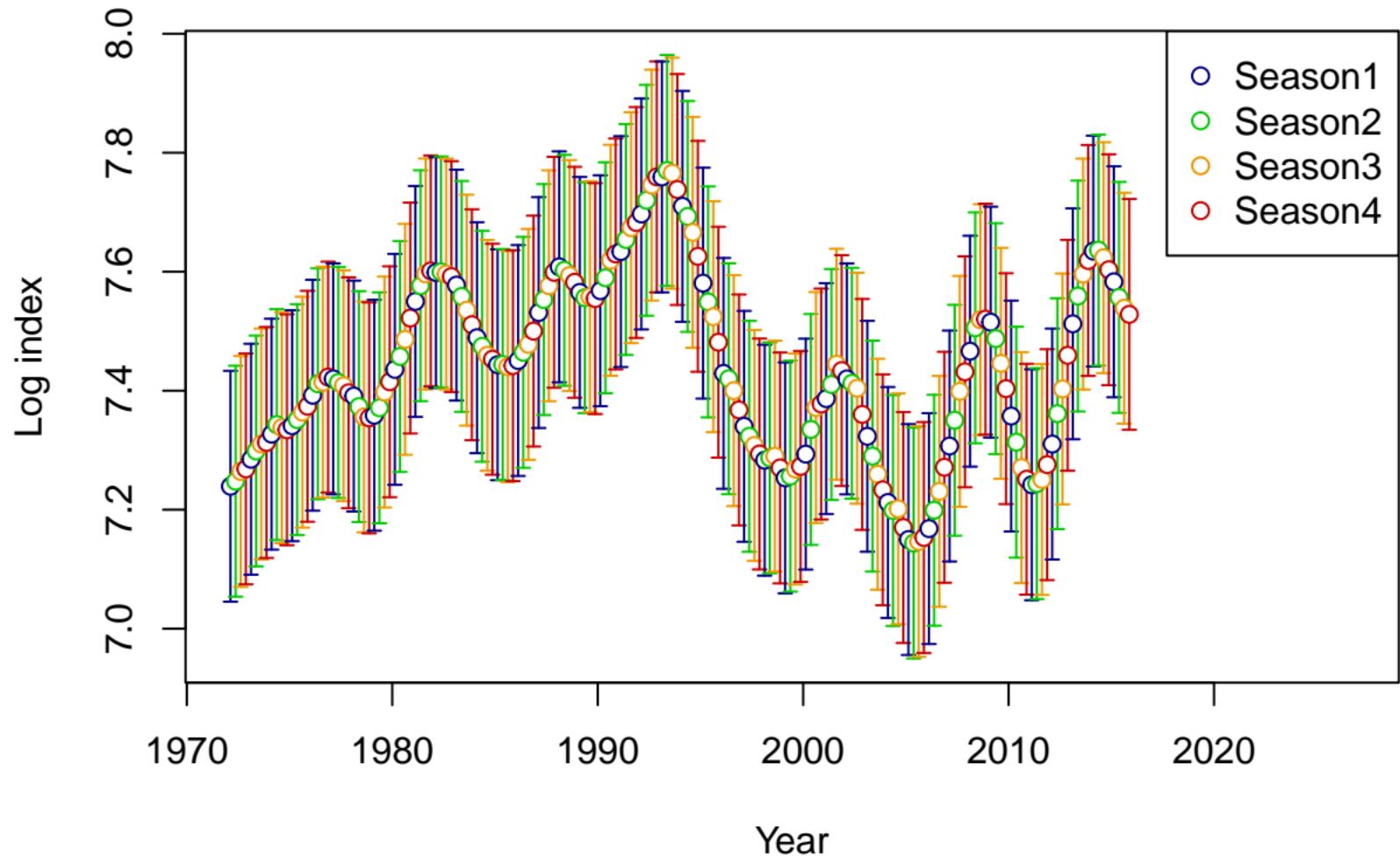


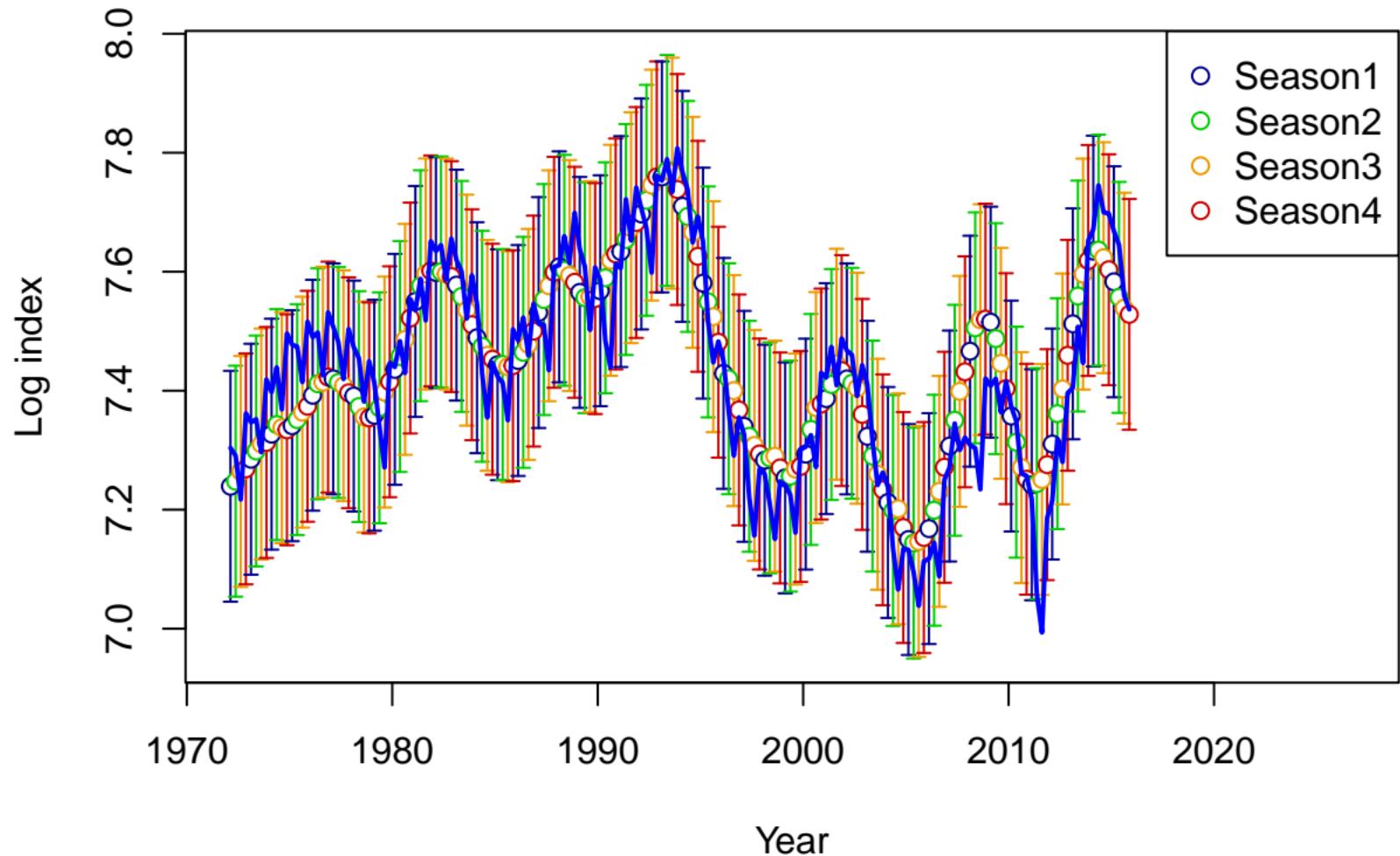


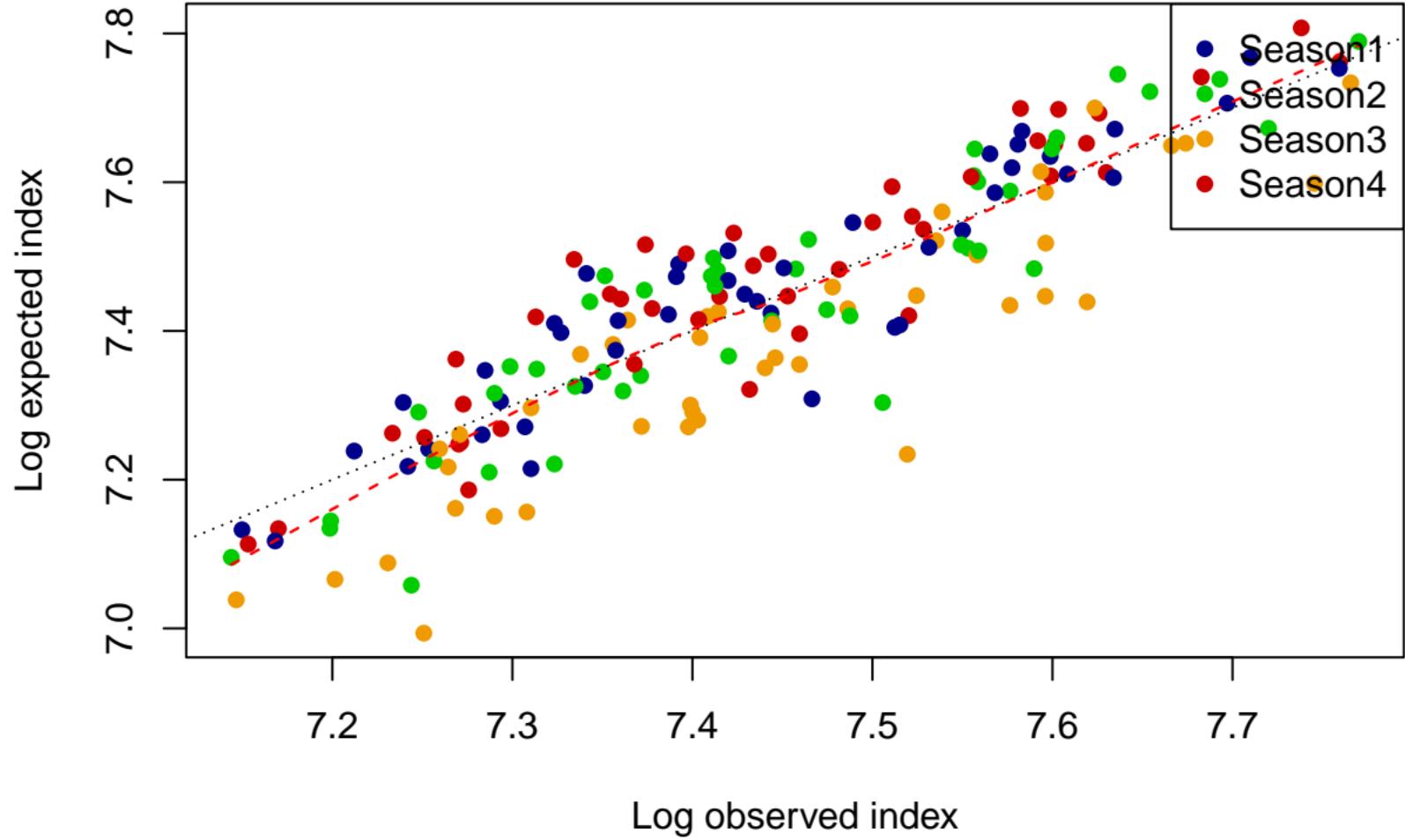


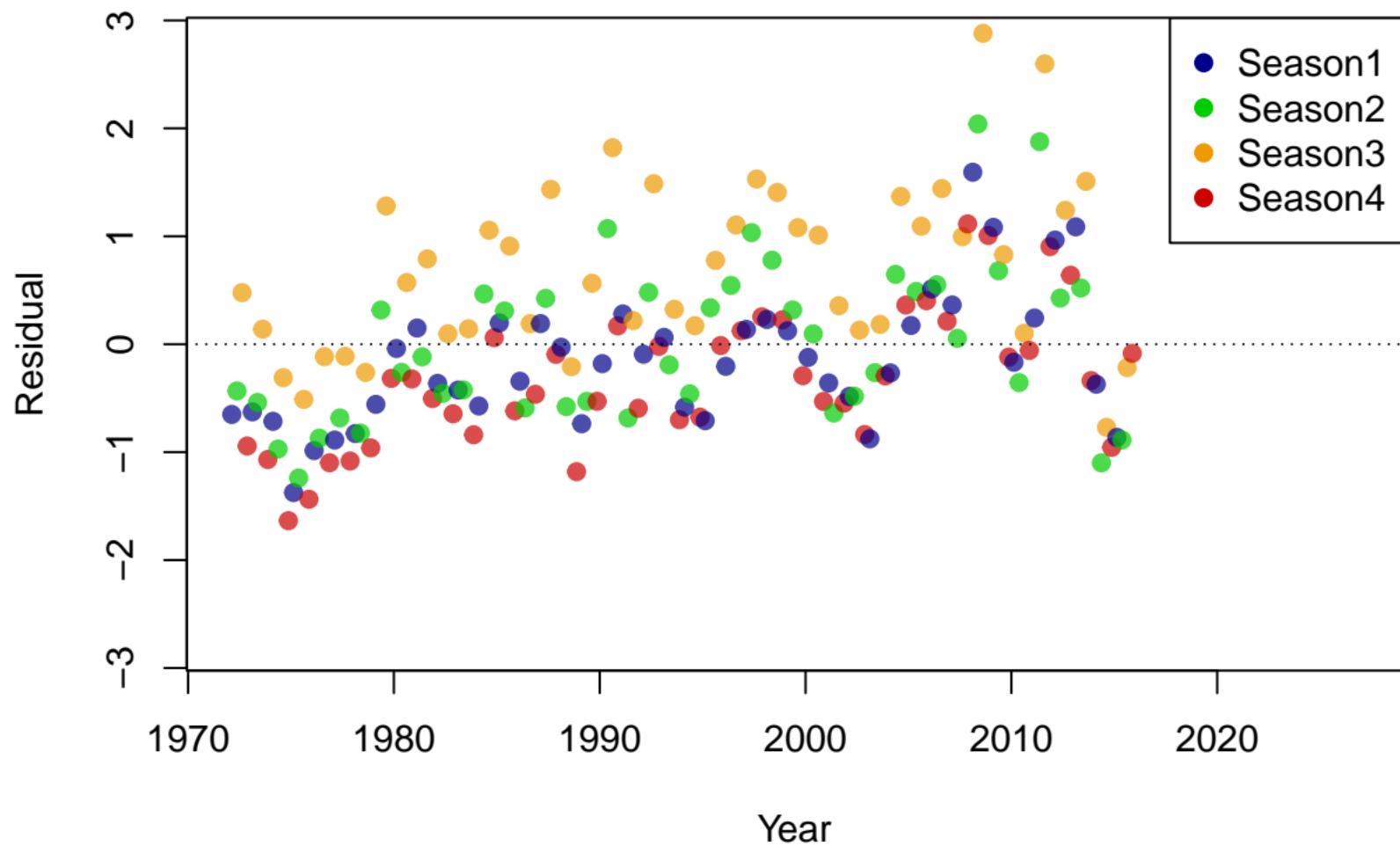


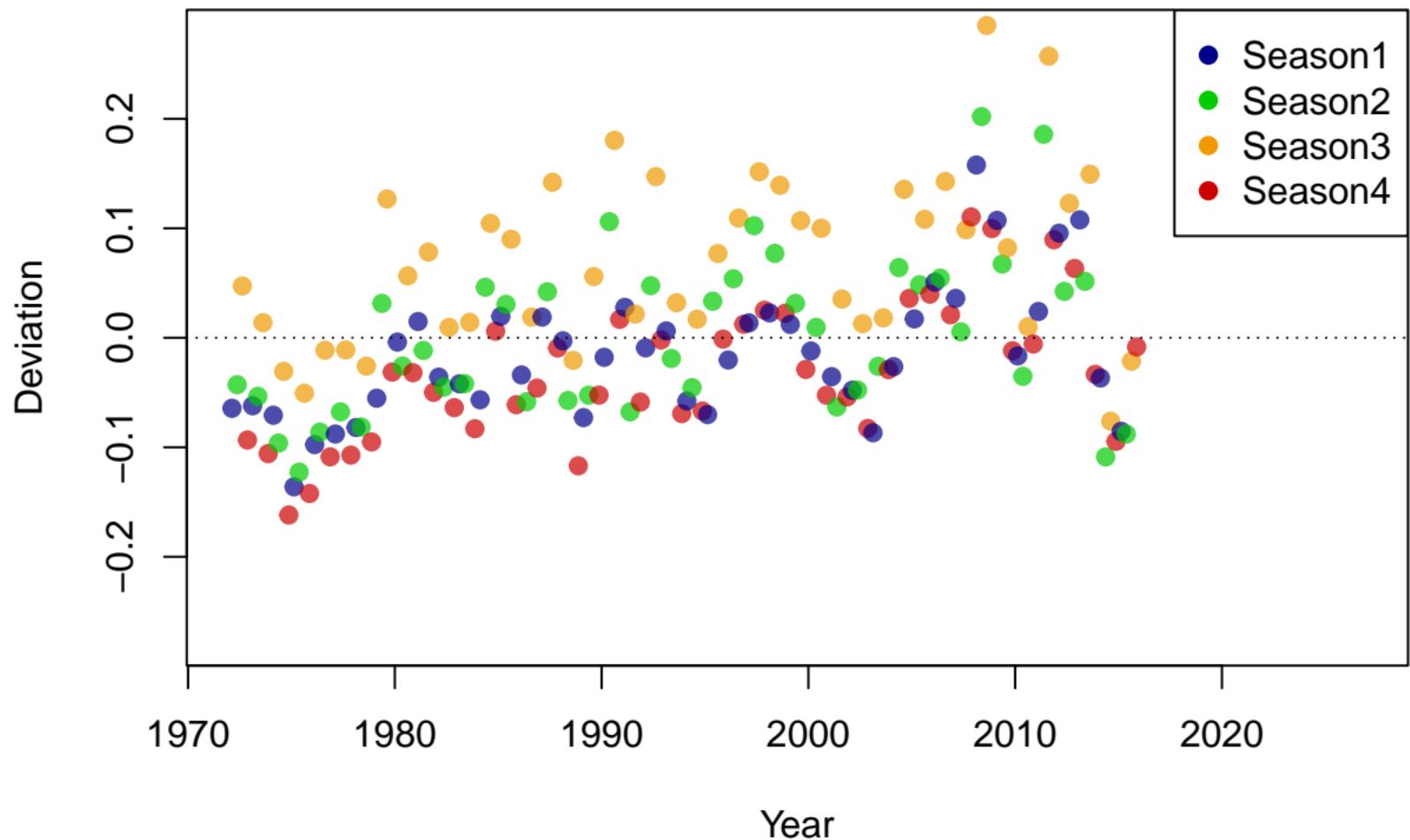


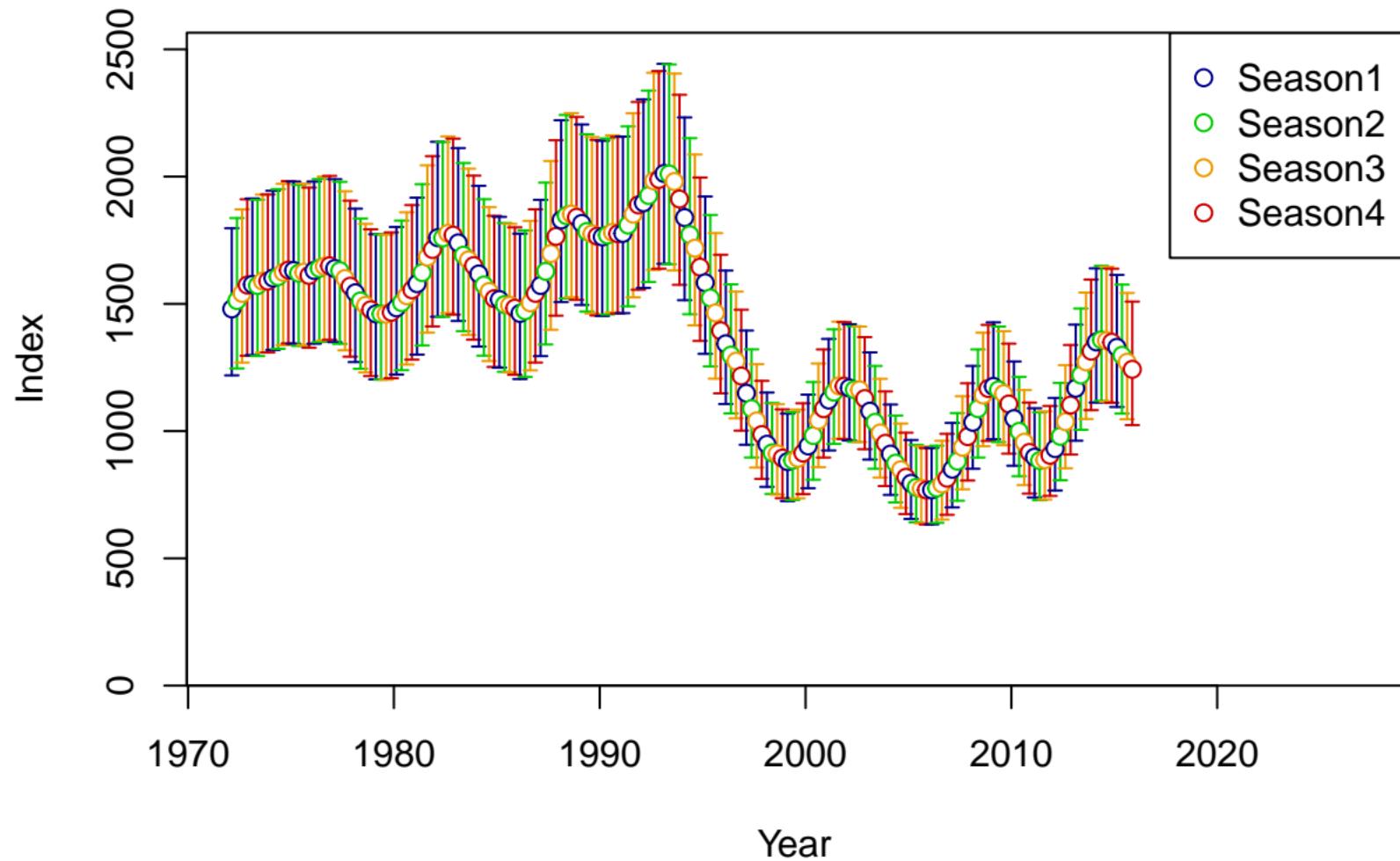


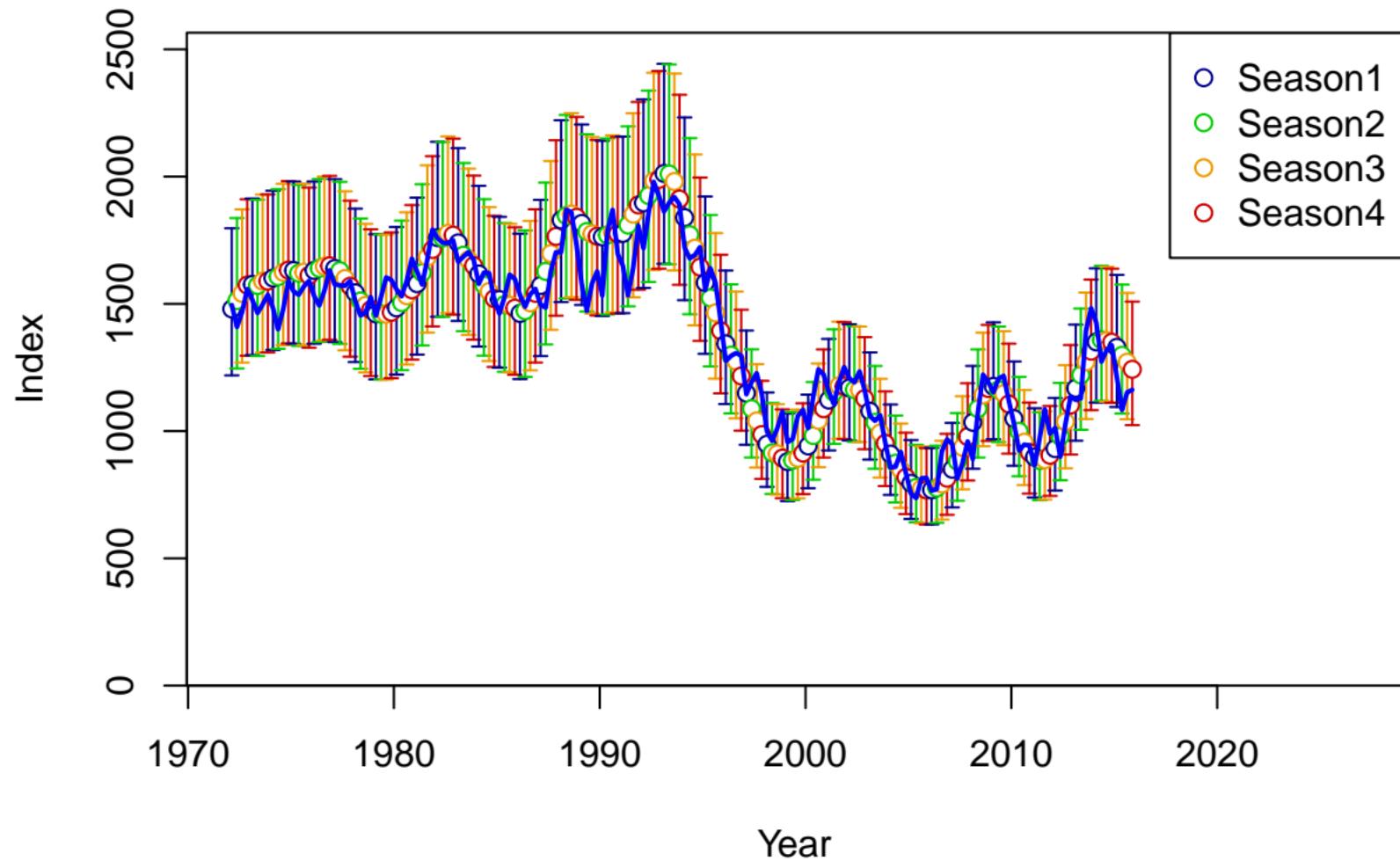


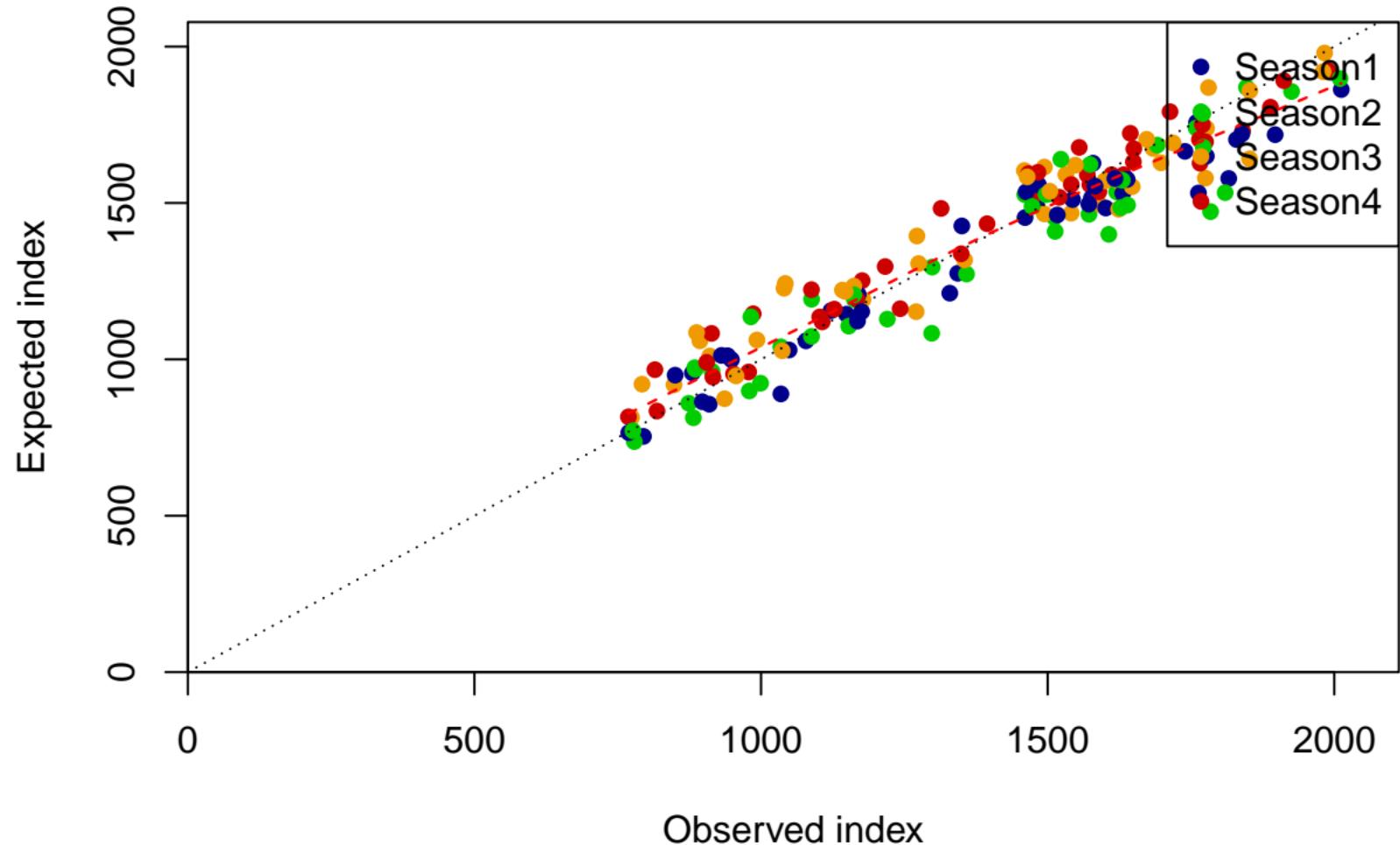


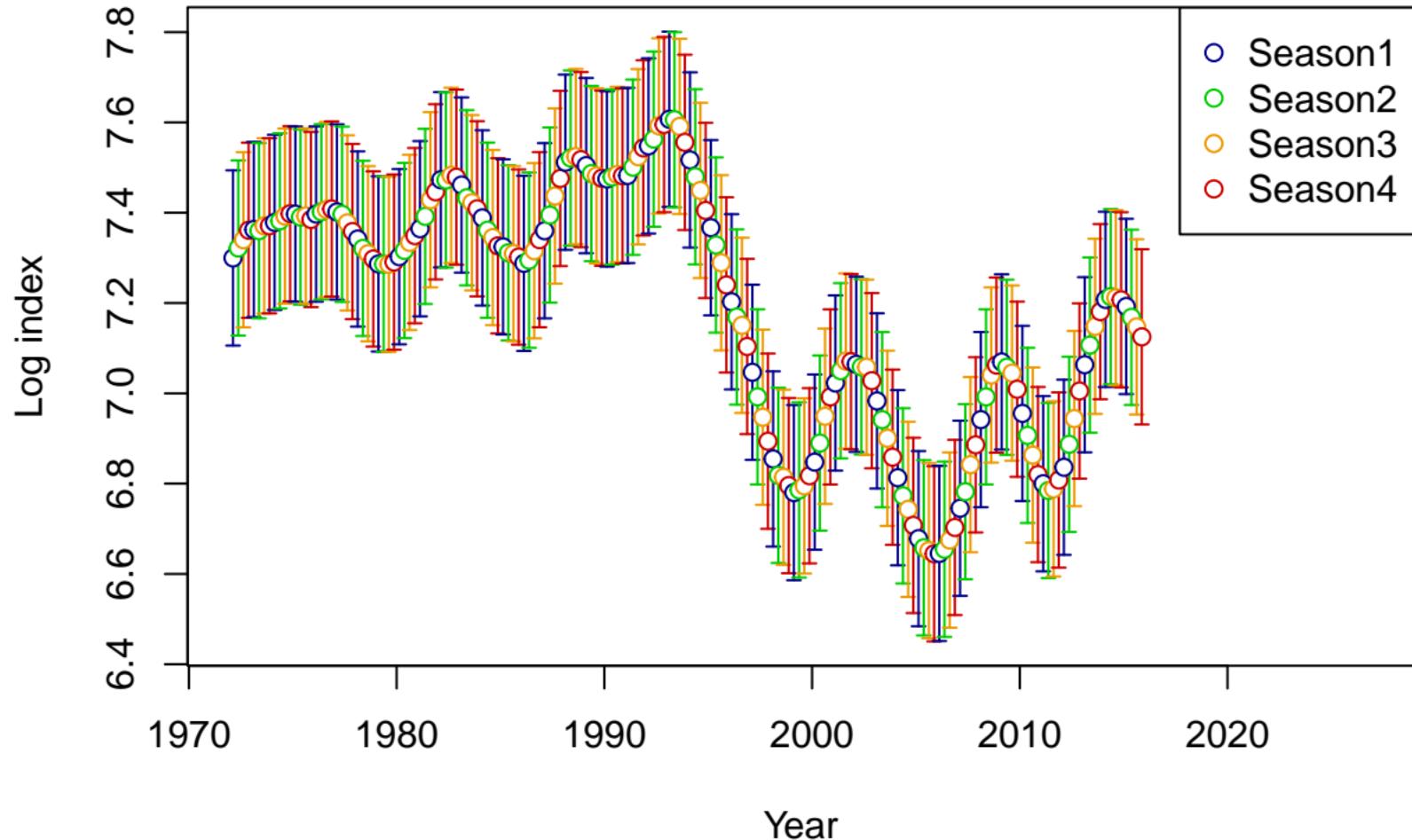


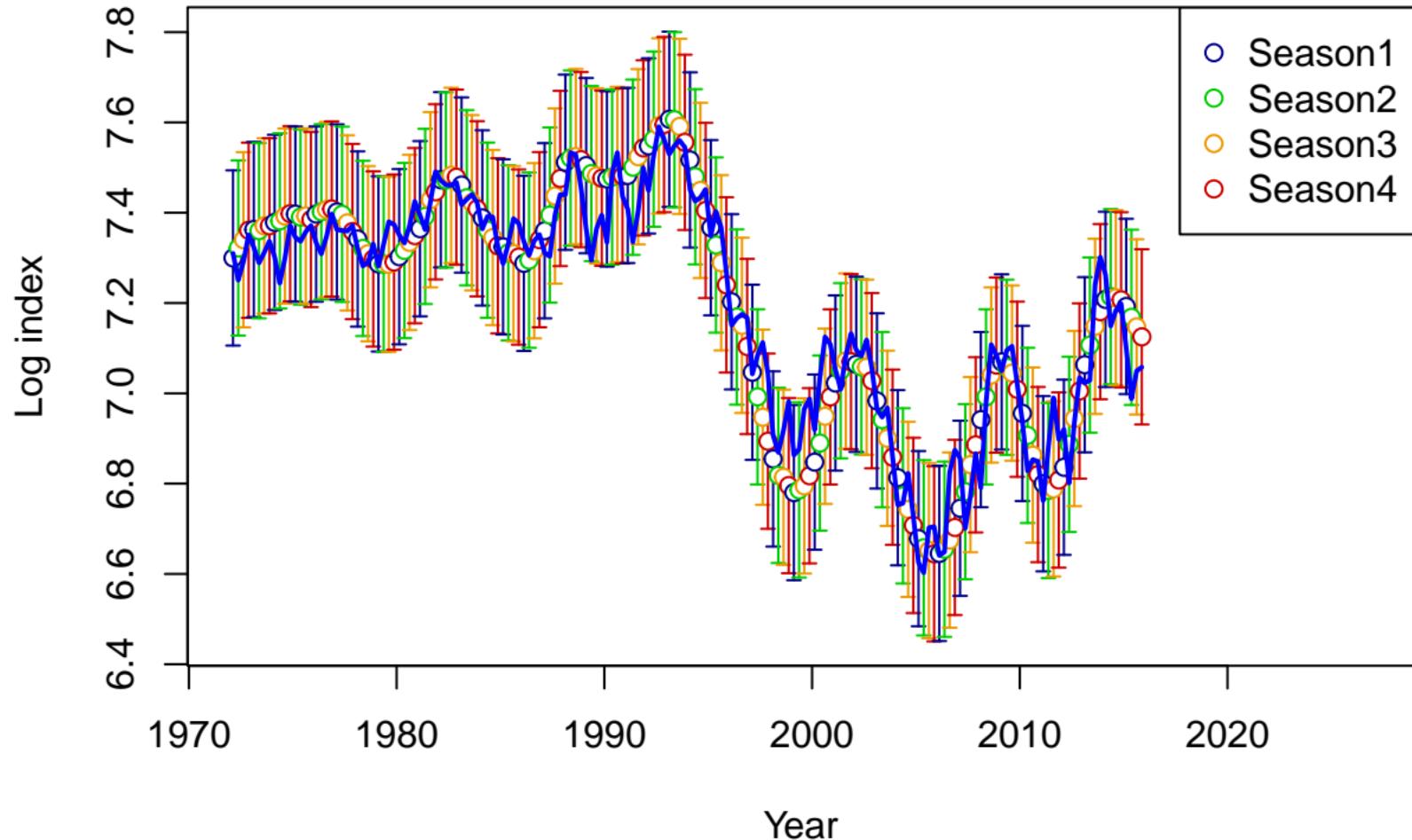


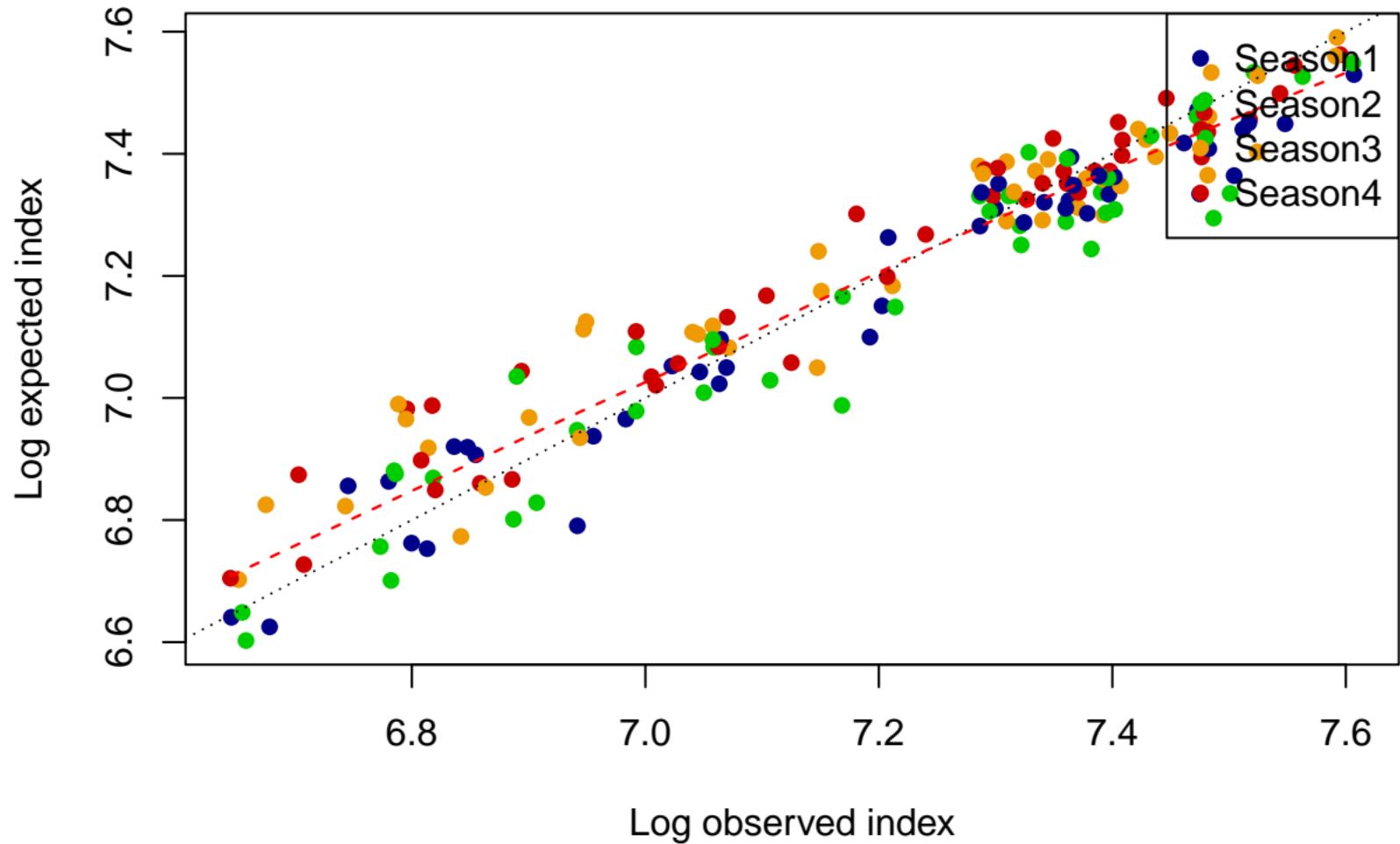


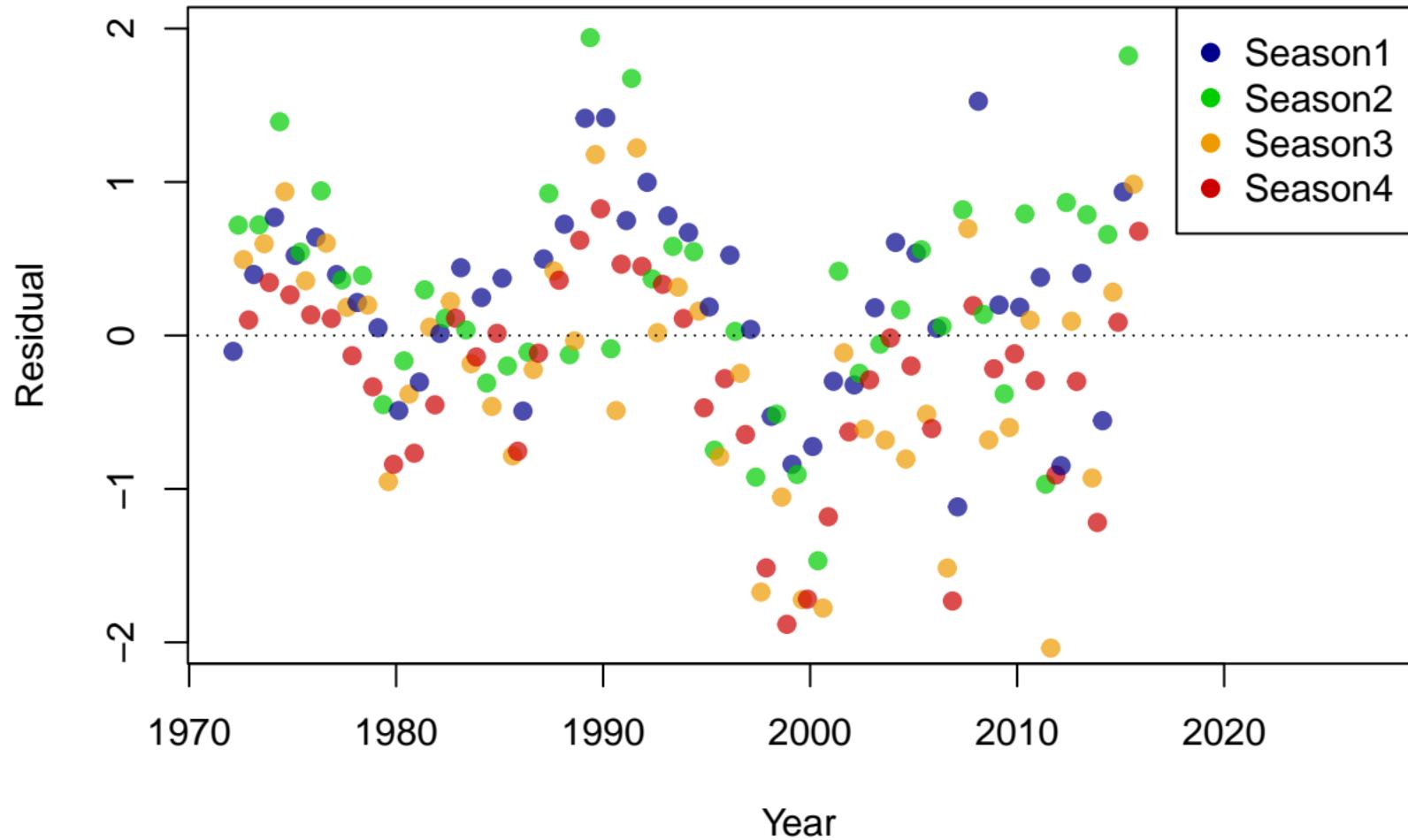


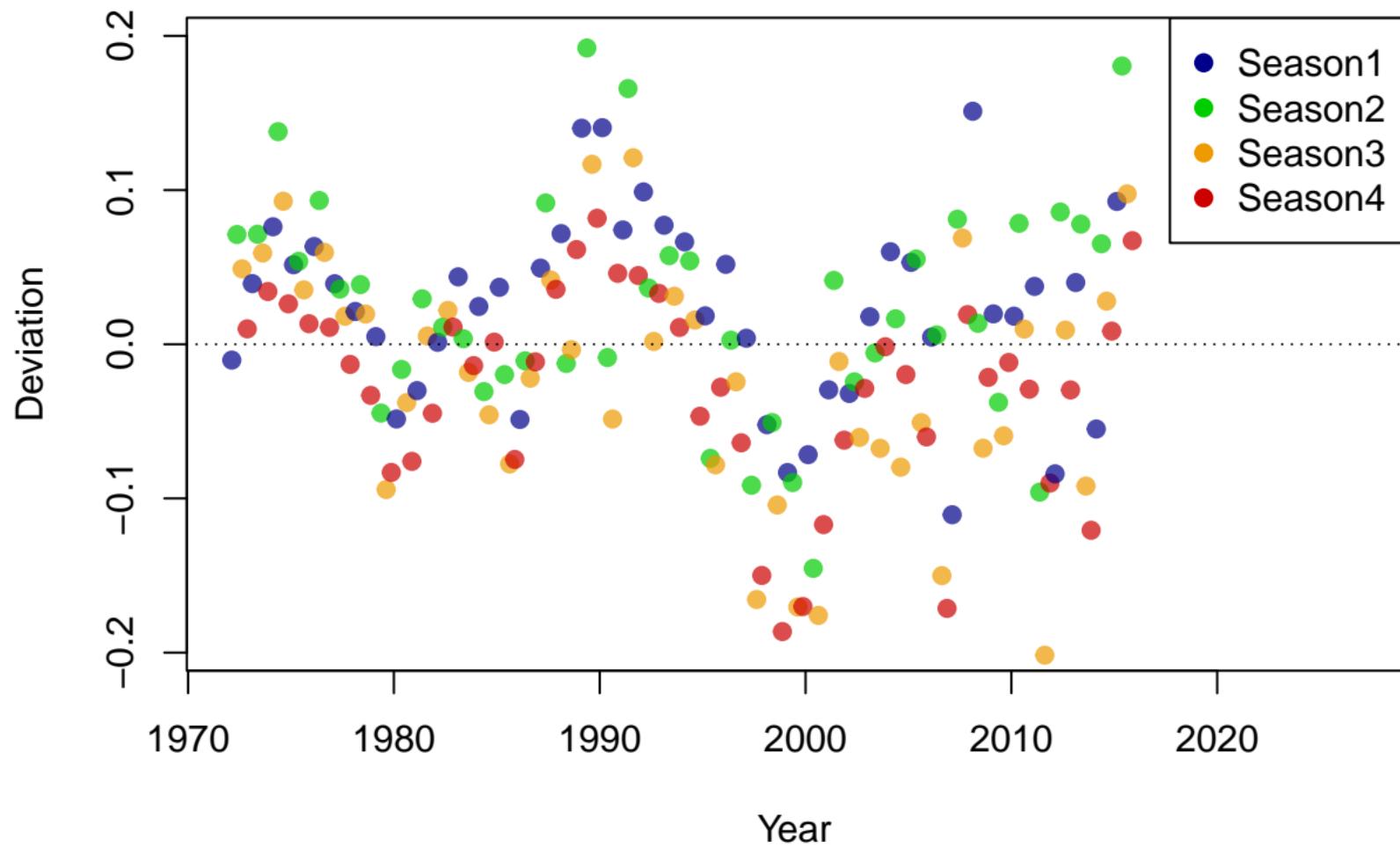


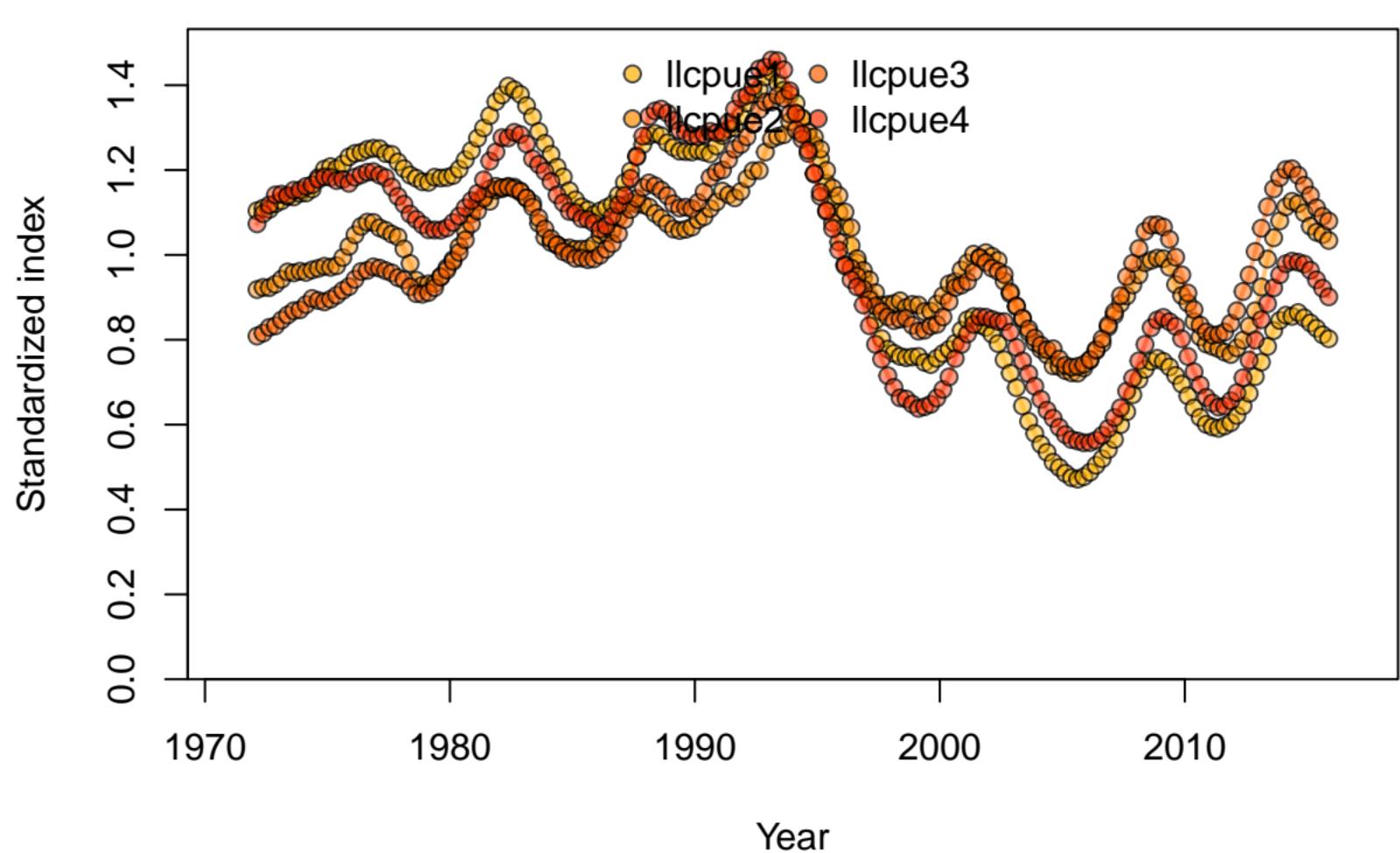


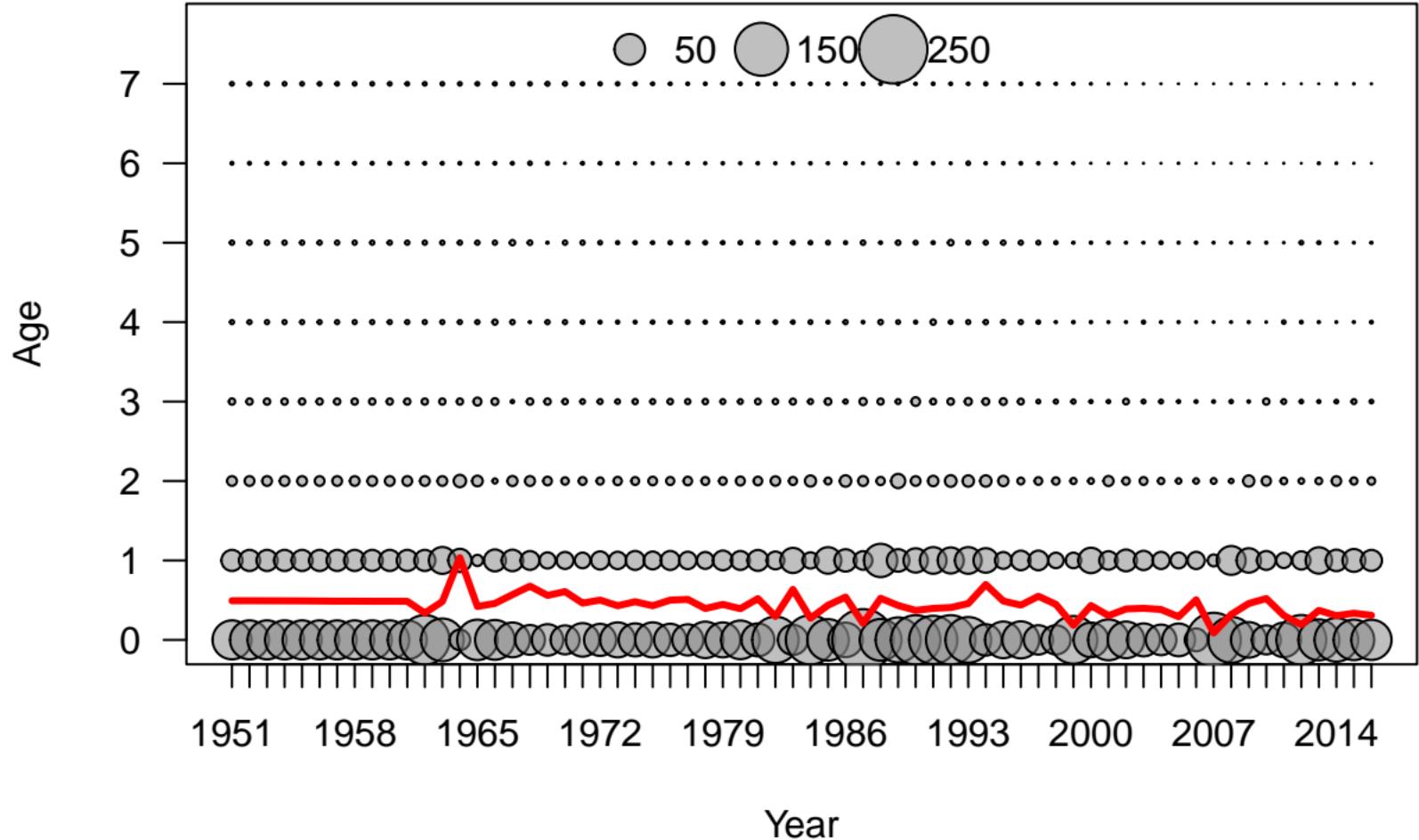


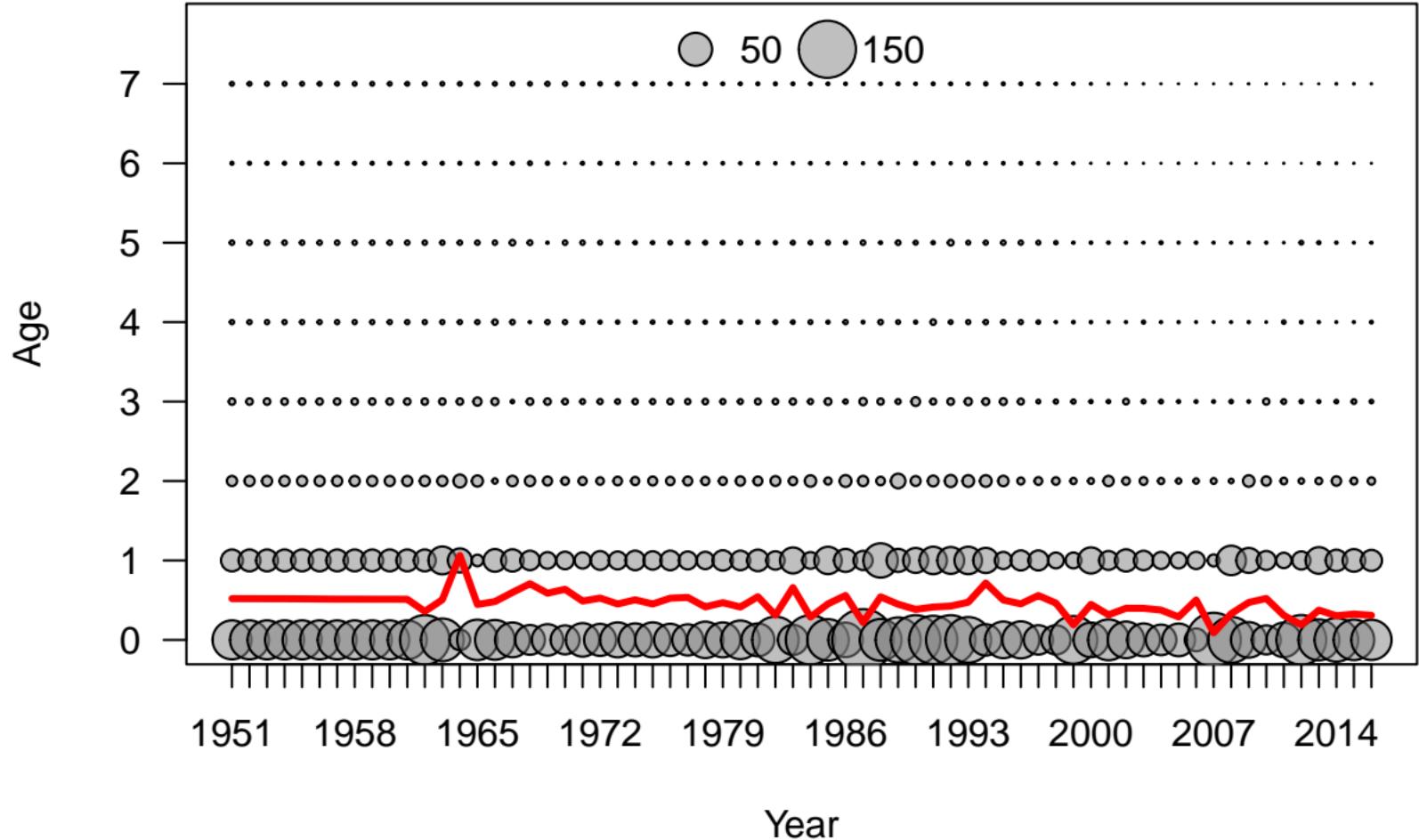


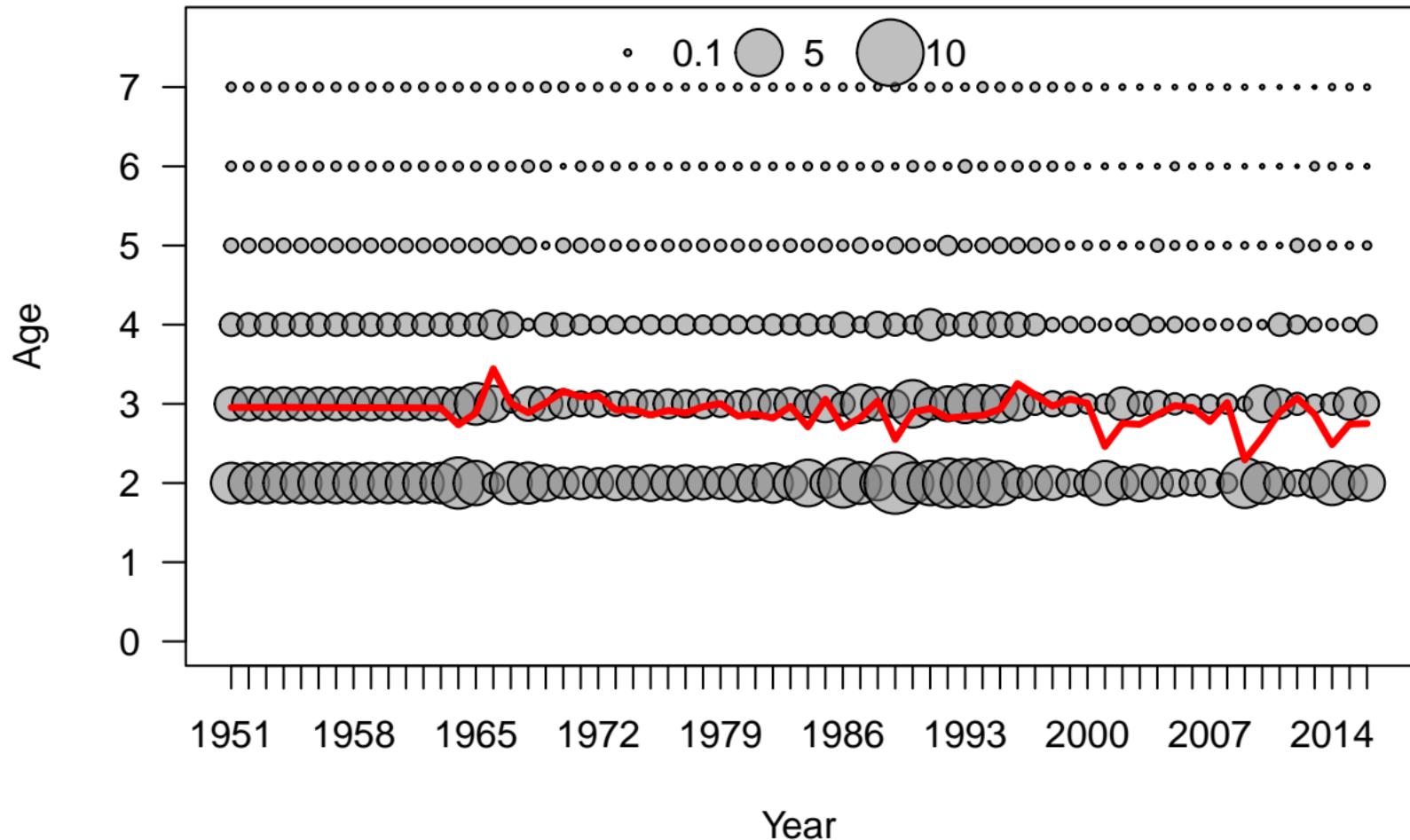


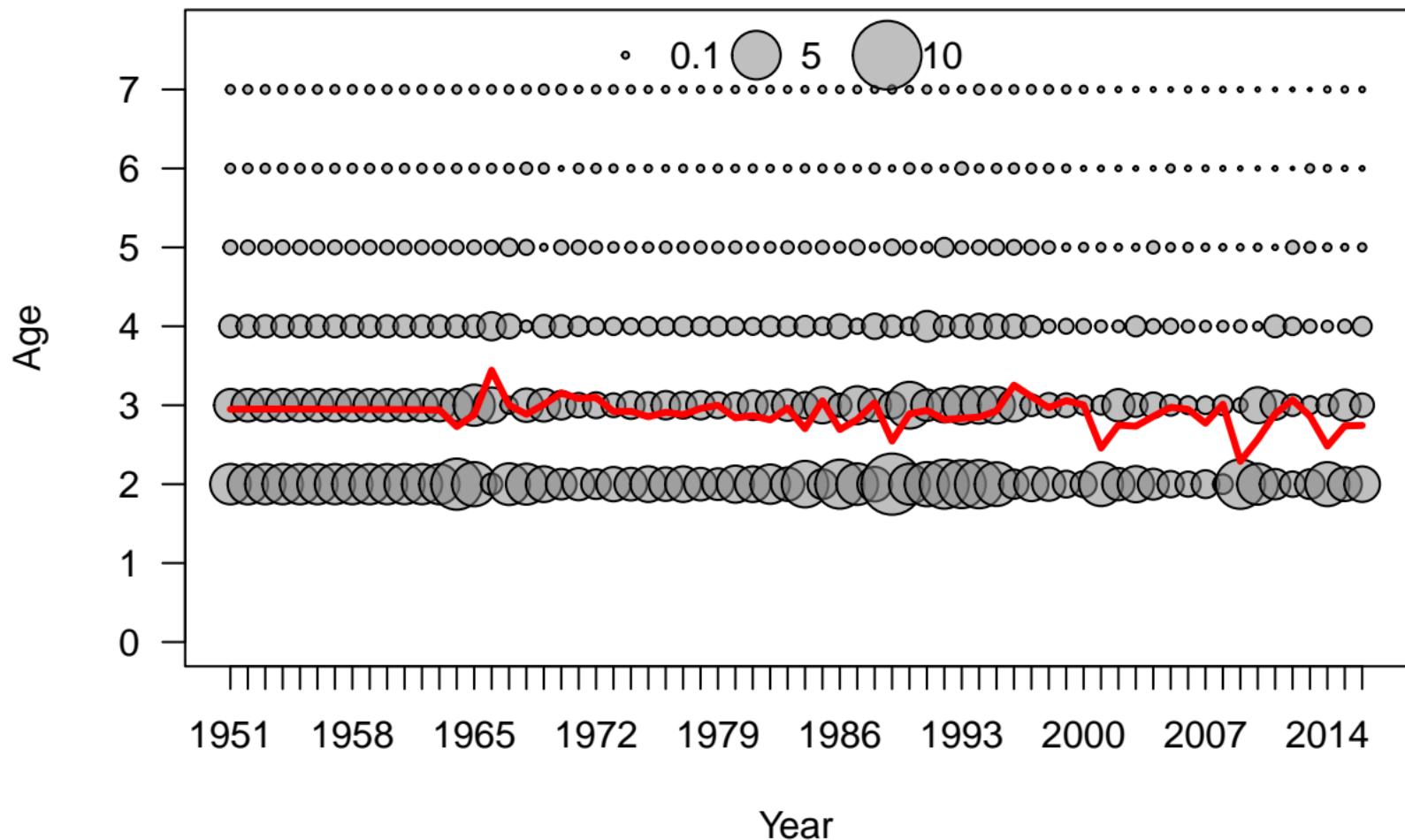












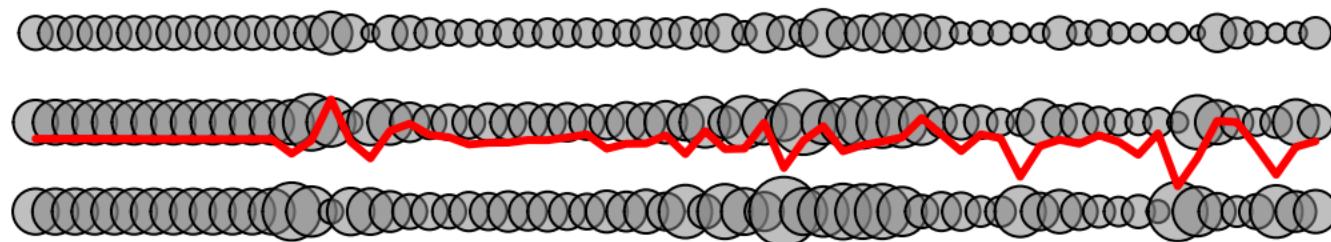
Age

◦ 0.1 ● 2

7
6
5
4
3
2
1
0

1951 1958 1965 1972 1979 1986 1993 2000 2007 2014

Year



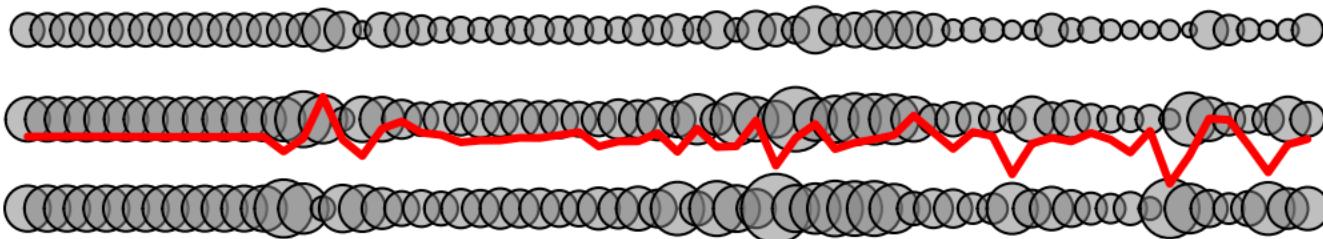
Age

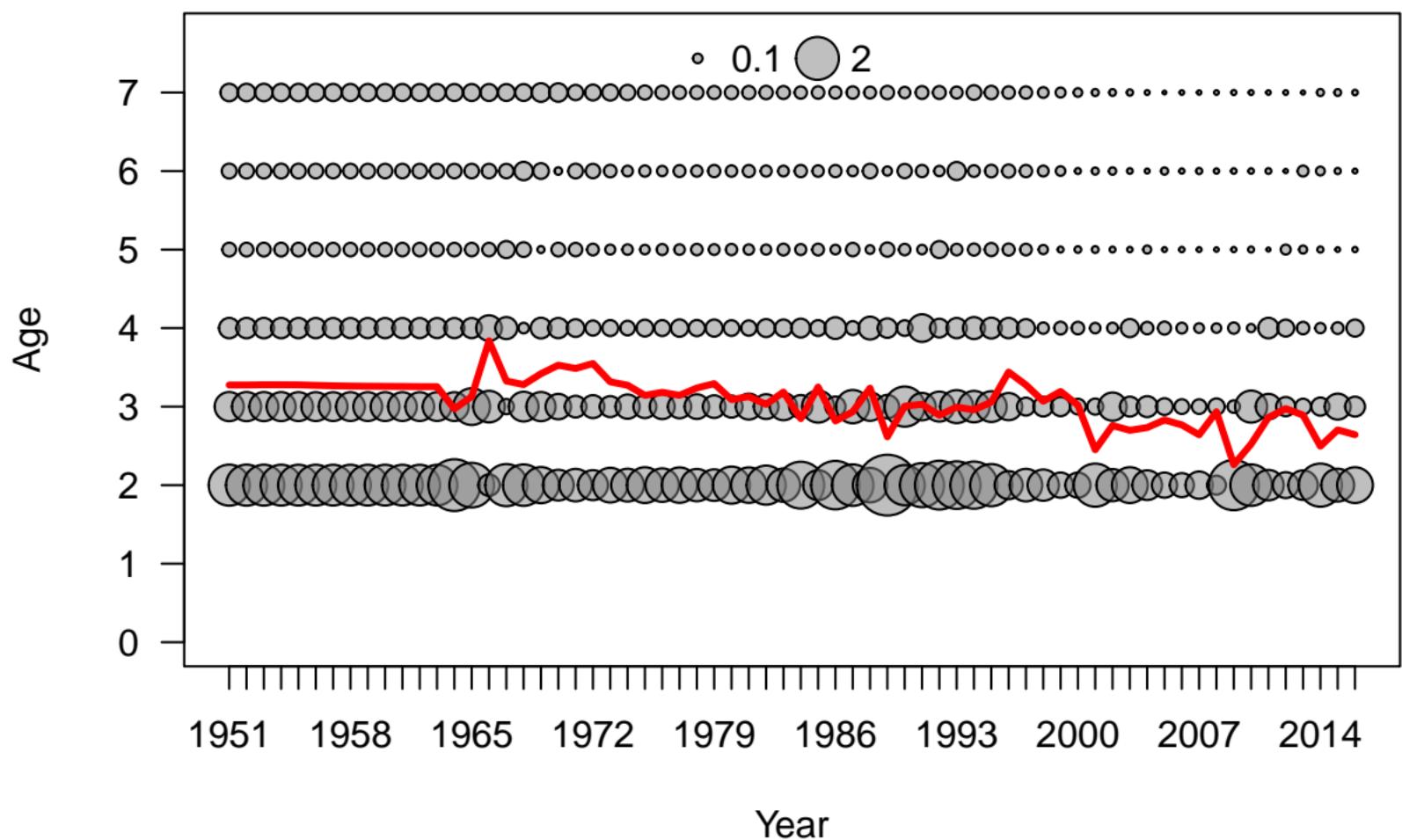
◦ 0.1 2

7
6
5
4
3
2
1
0

1951 1958 1965 1972 1979 1986 1993 2000 2007 2014

Year





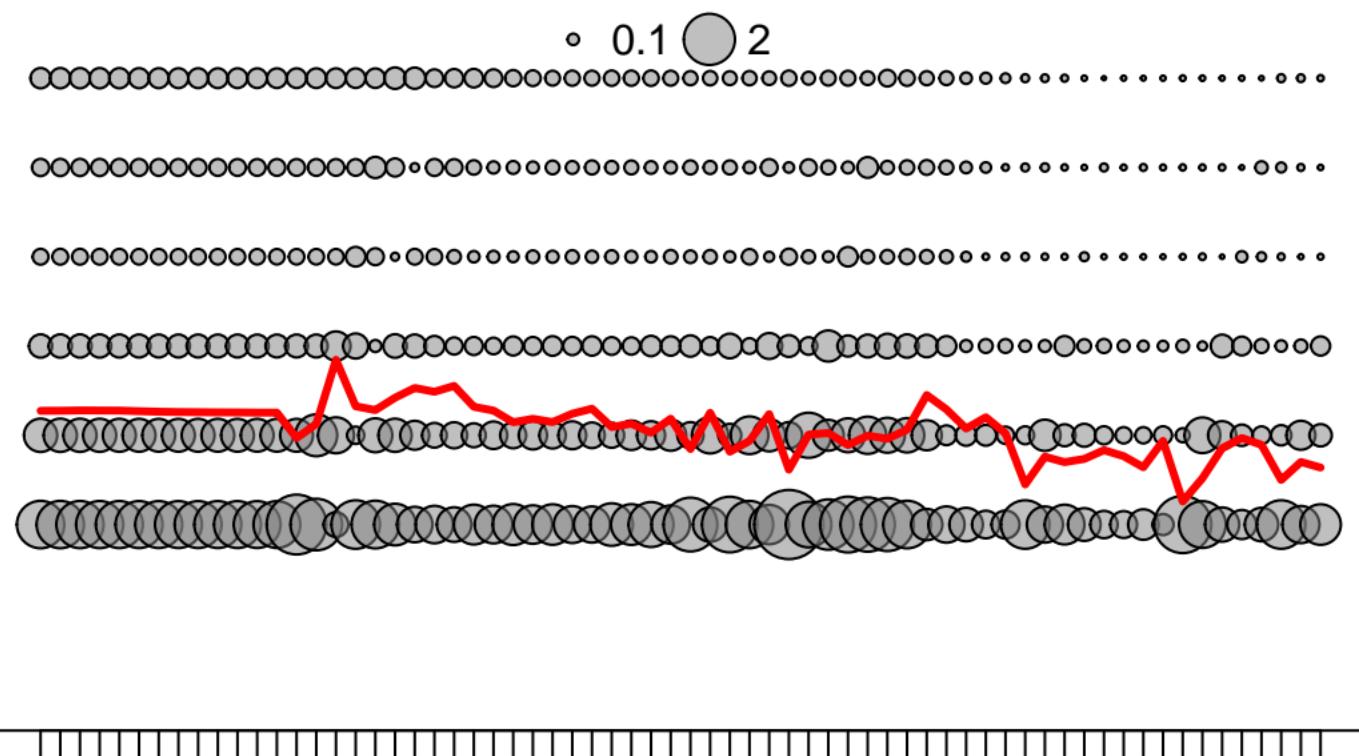
Age

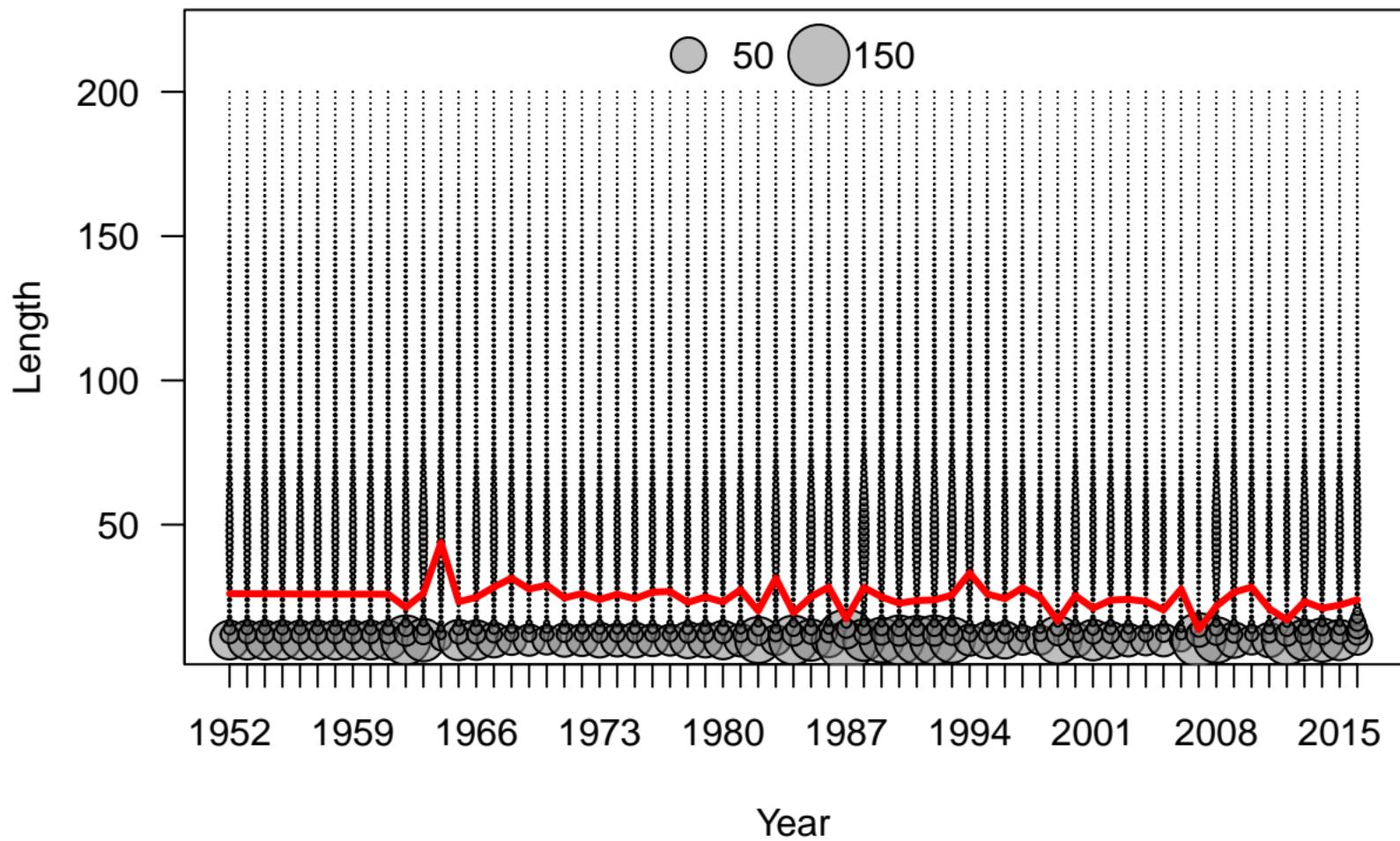
7
6
5
4
3
2
1
0

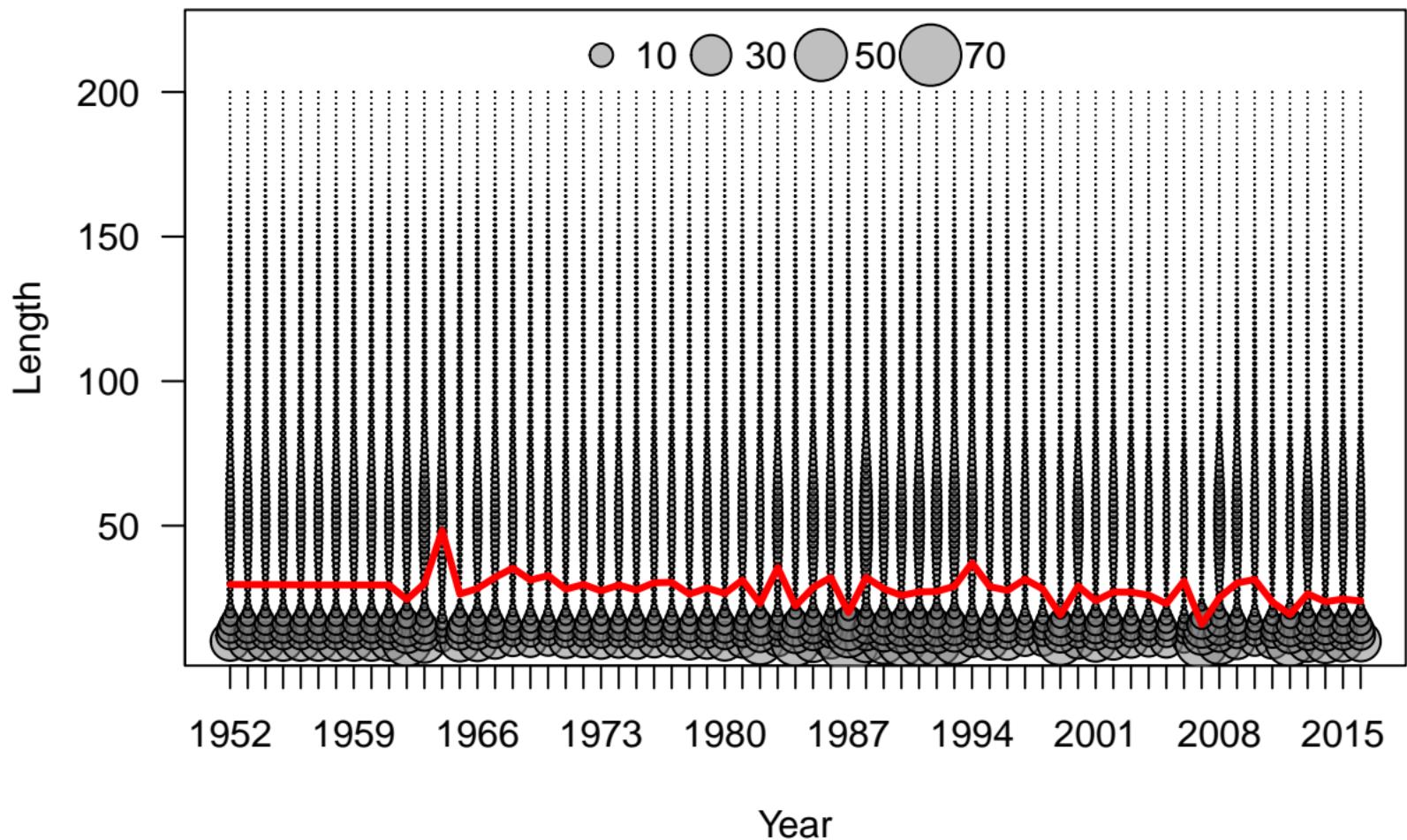
◦ 0.1 2

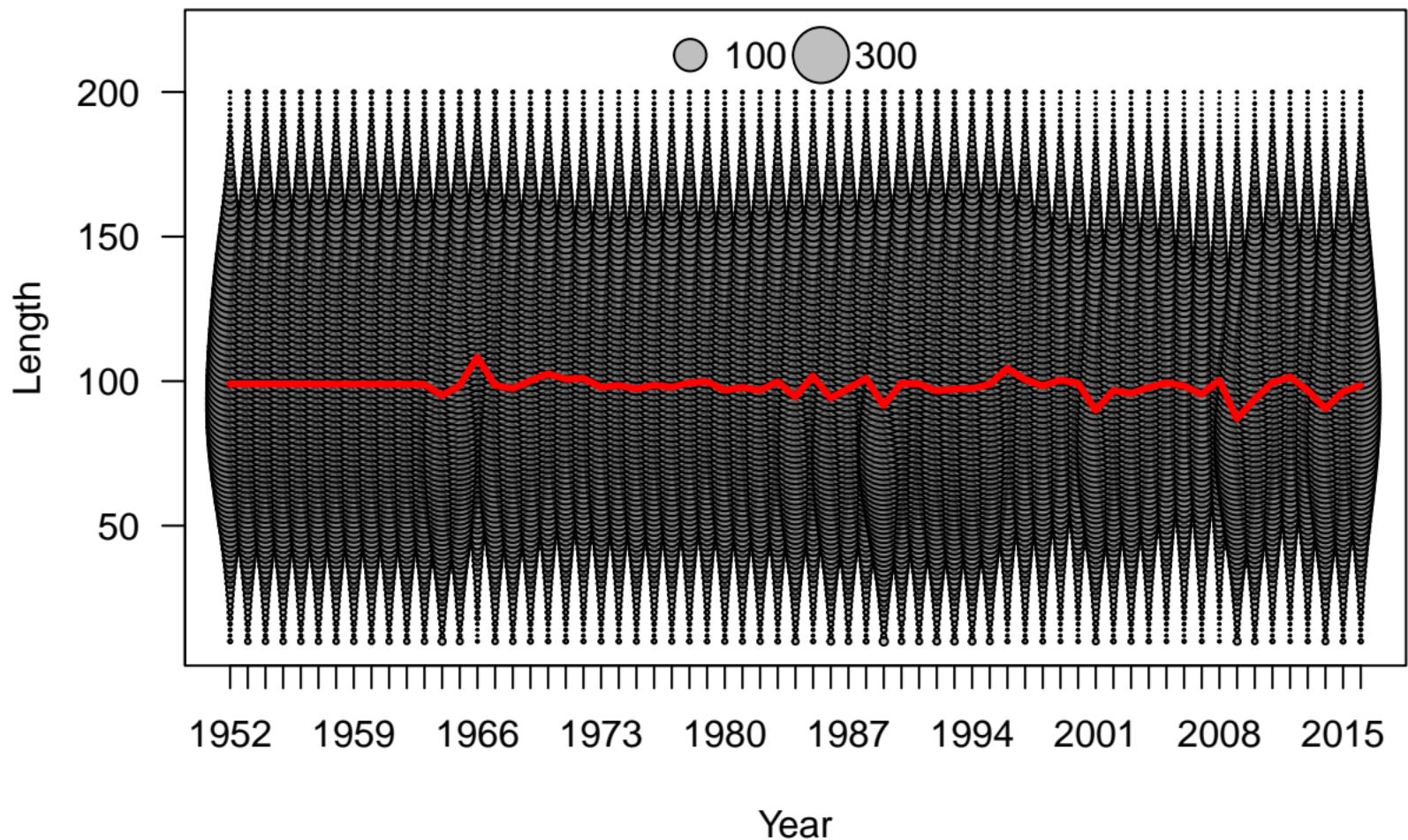
1951 1958 1965 1972 1979 1986 1993 2000 2007 2014

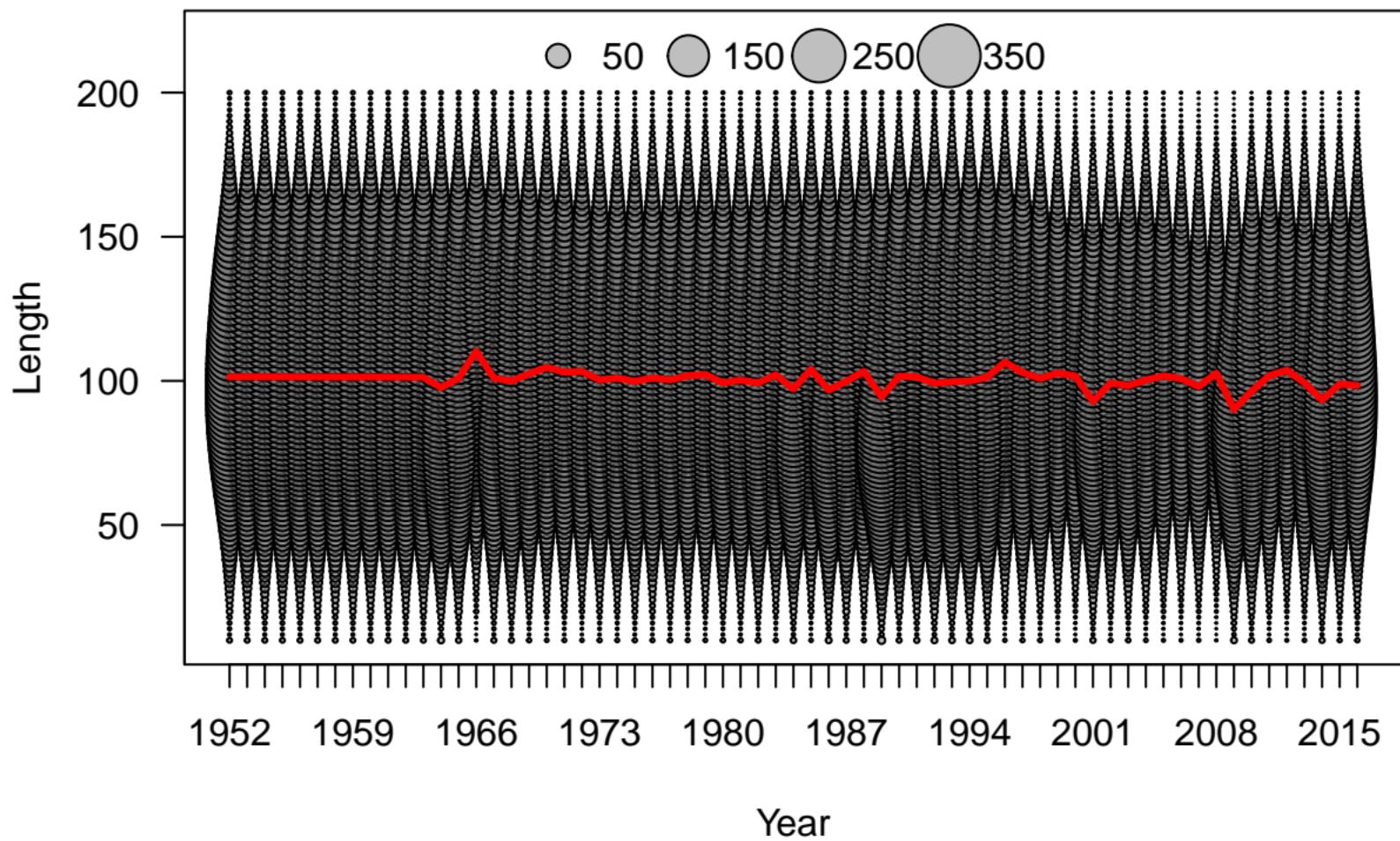
Year

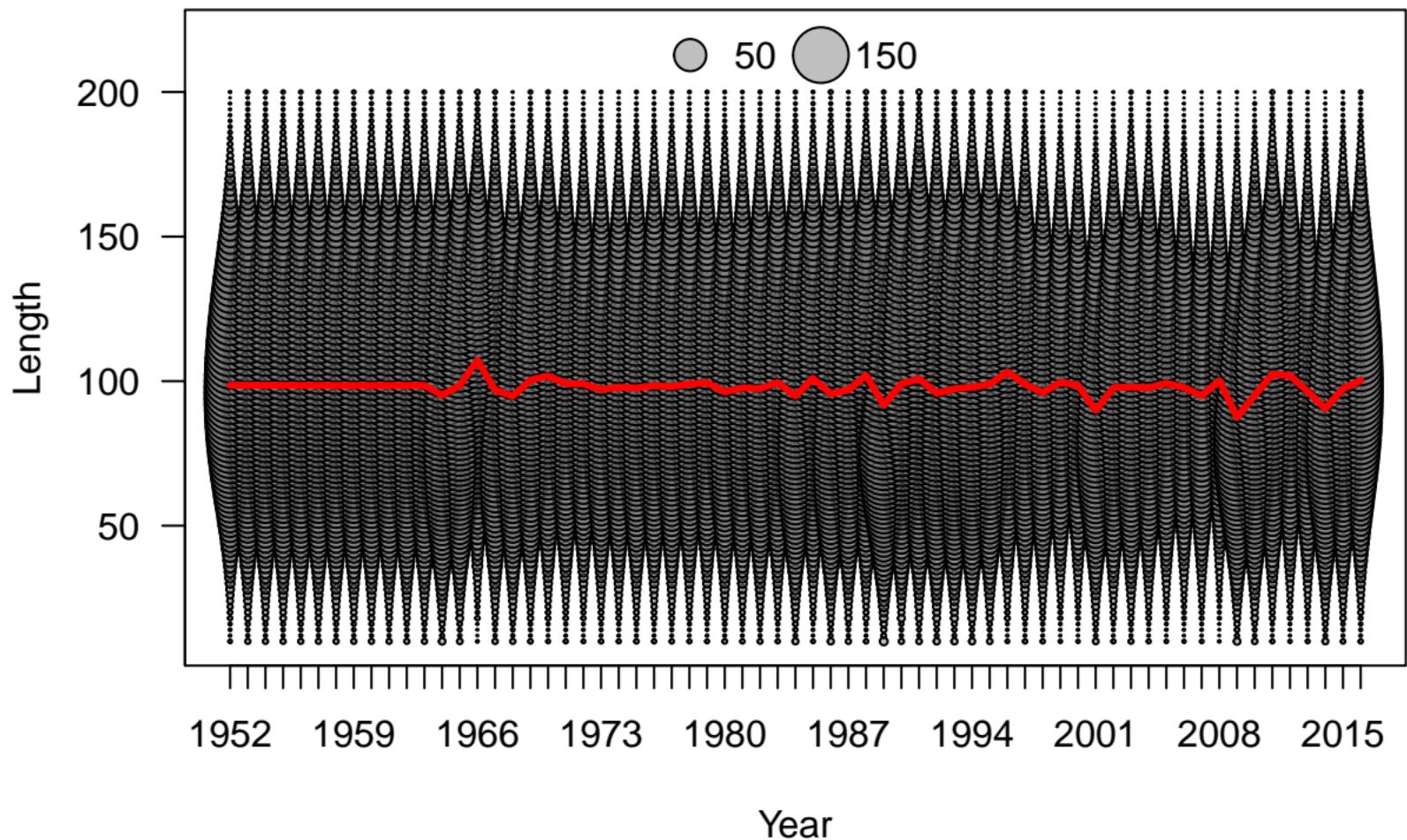


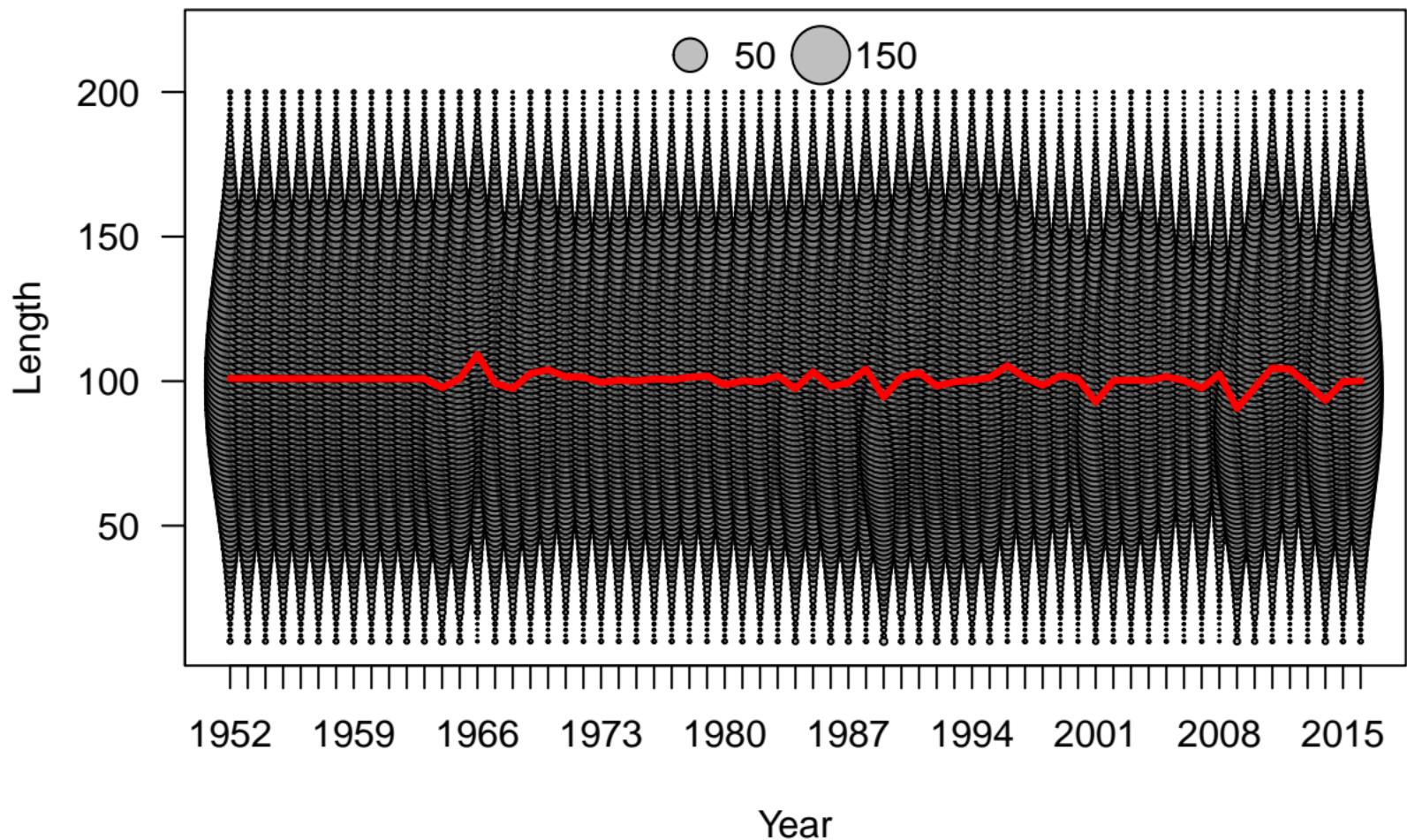


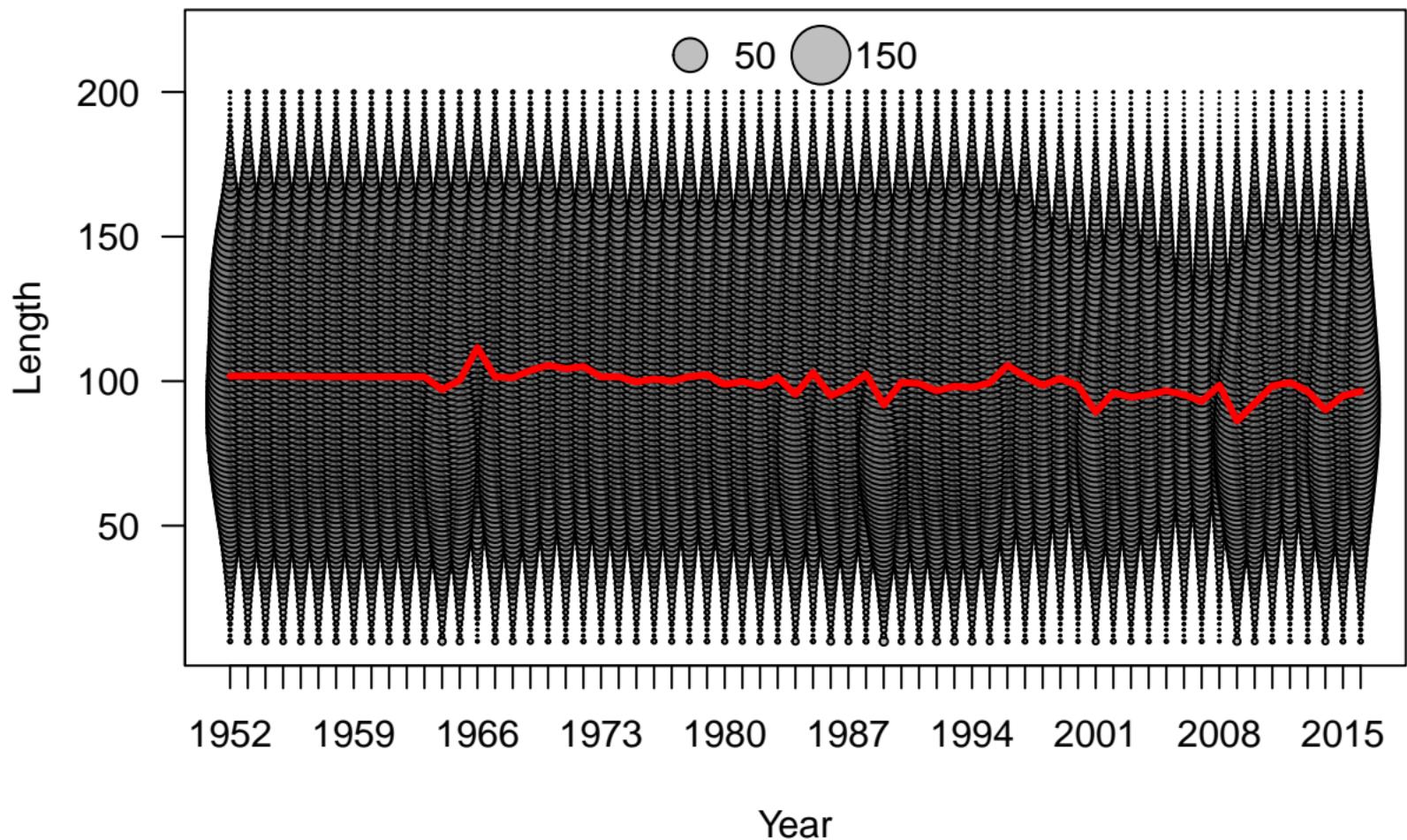


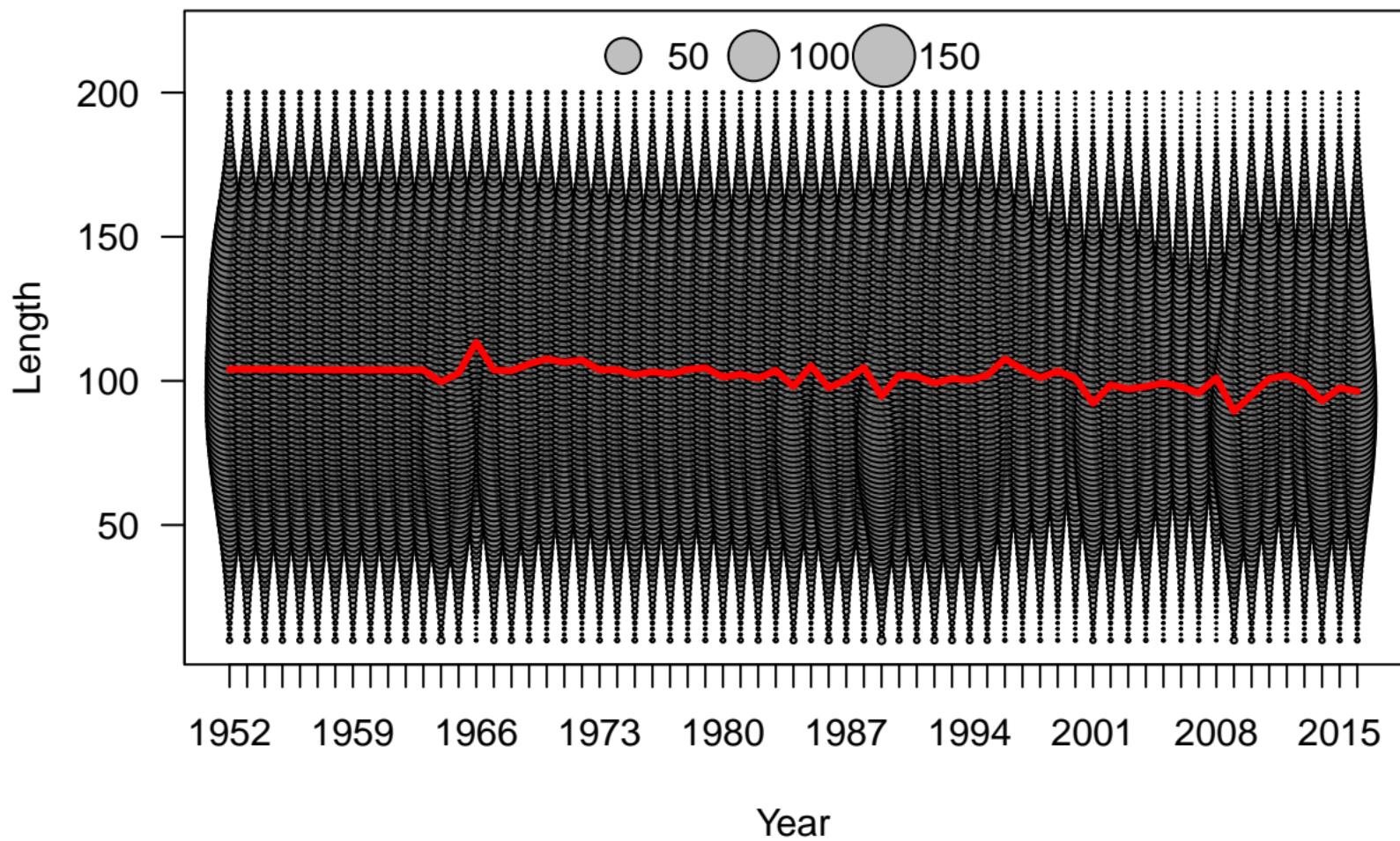




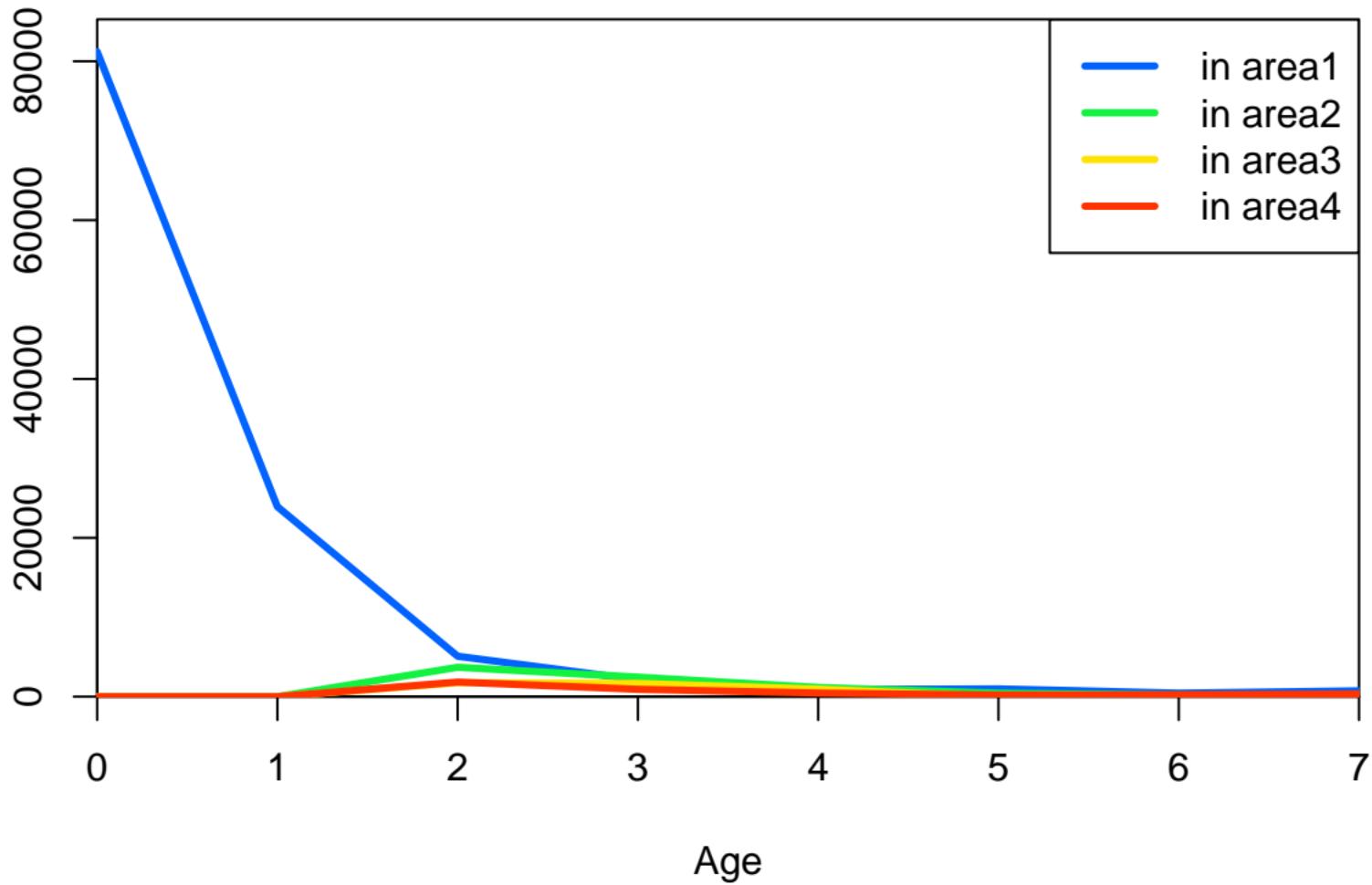




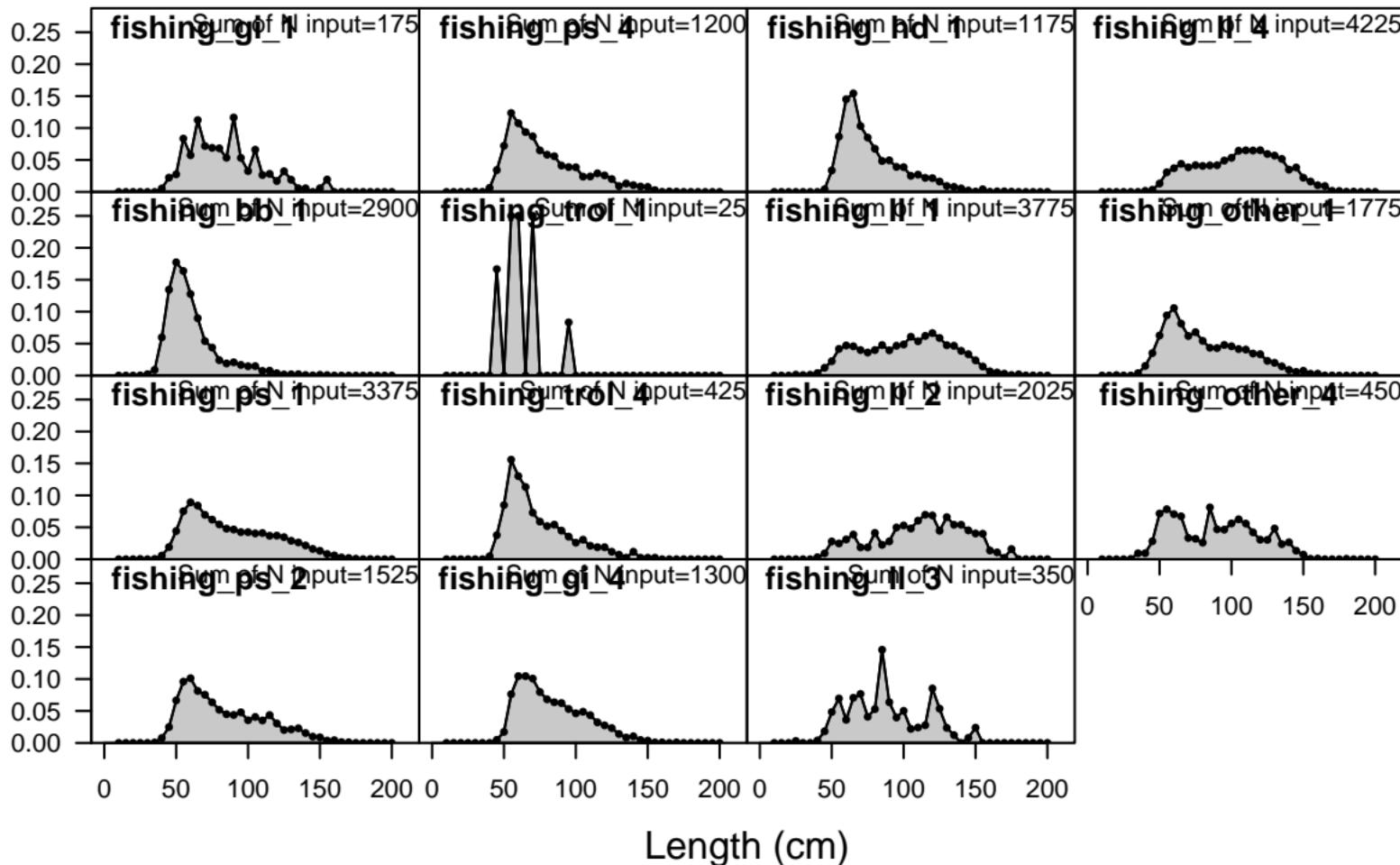


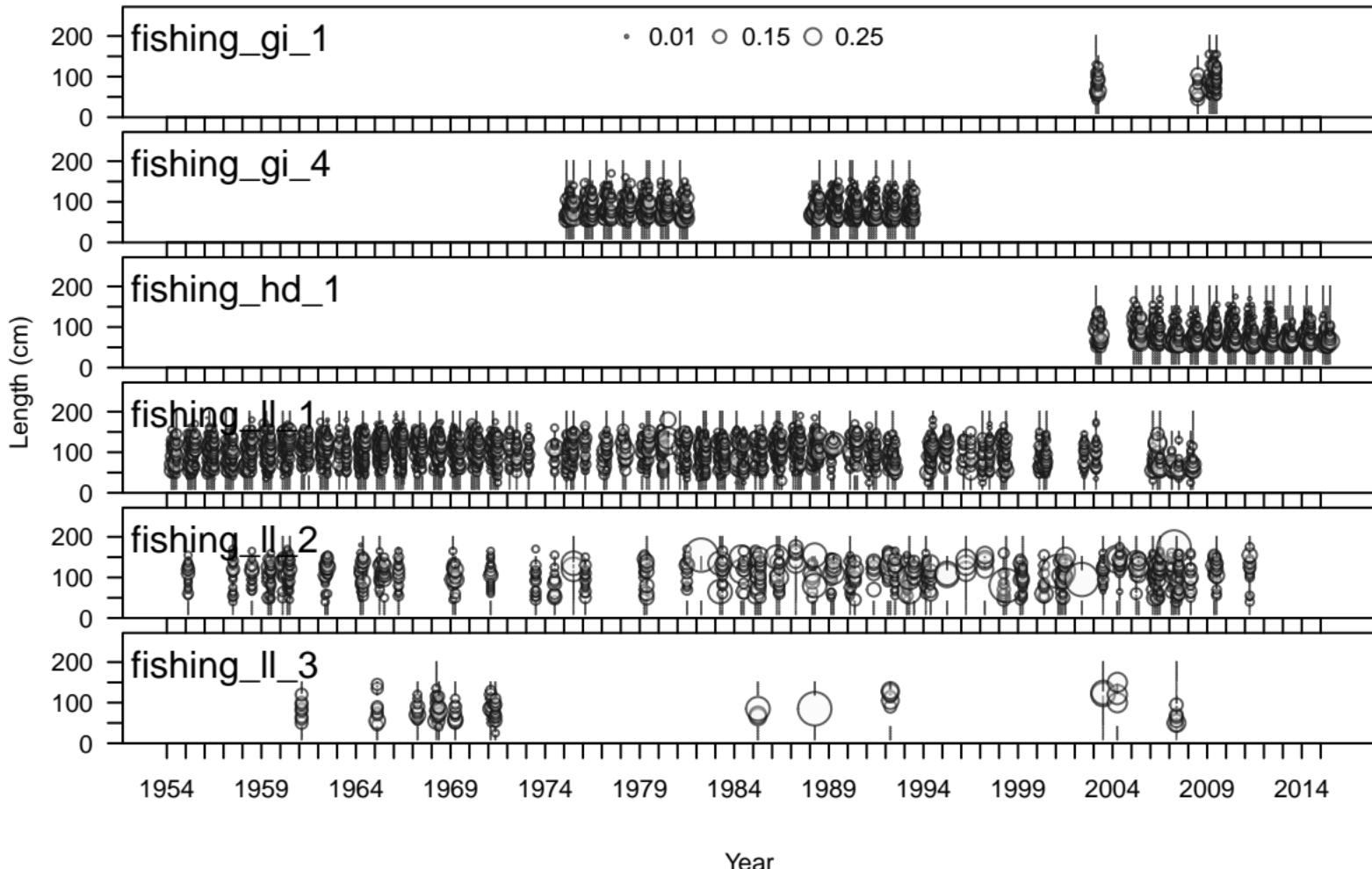


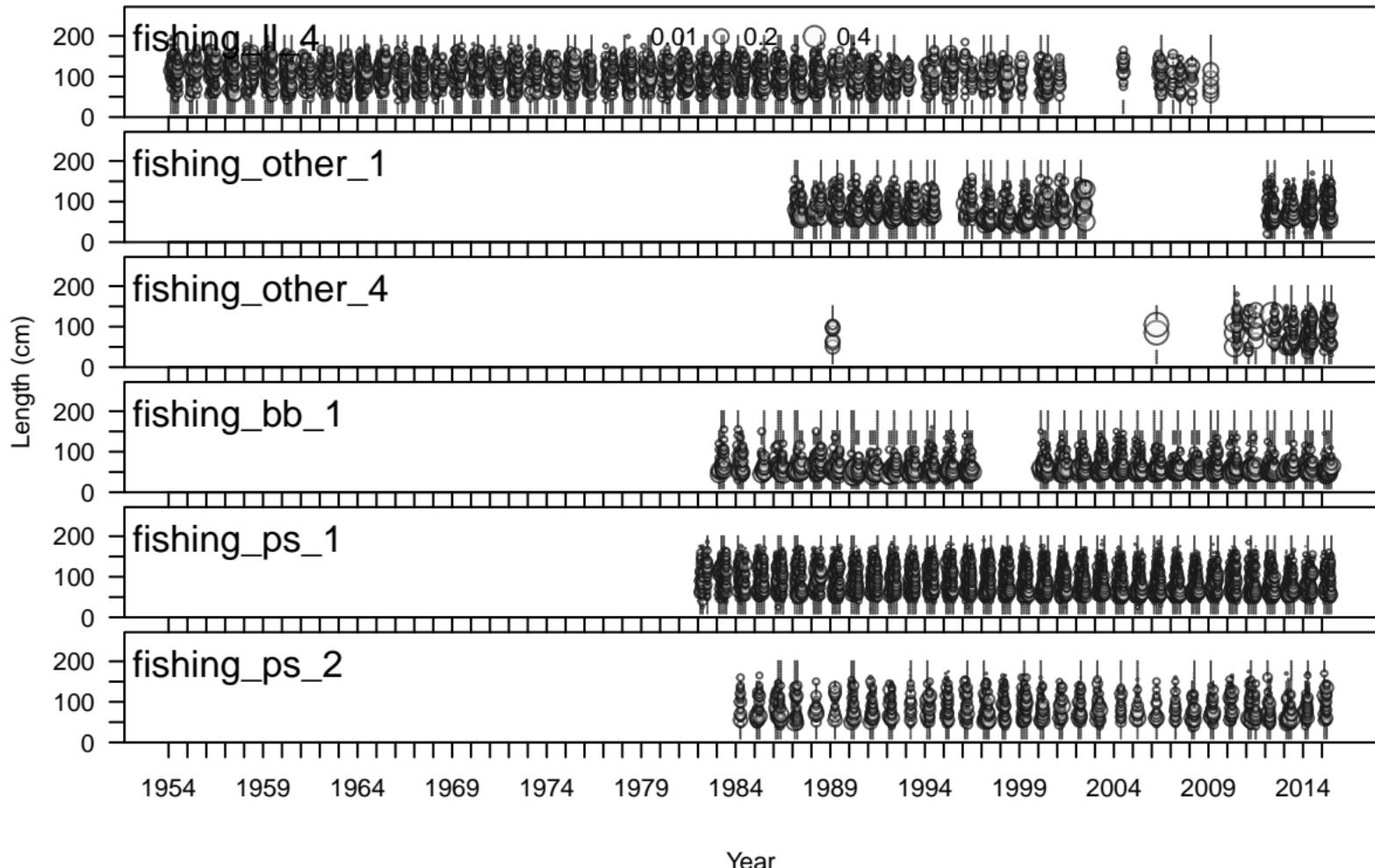
Numbers at age at equilibrium

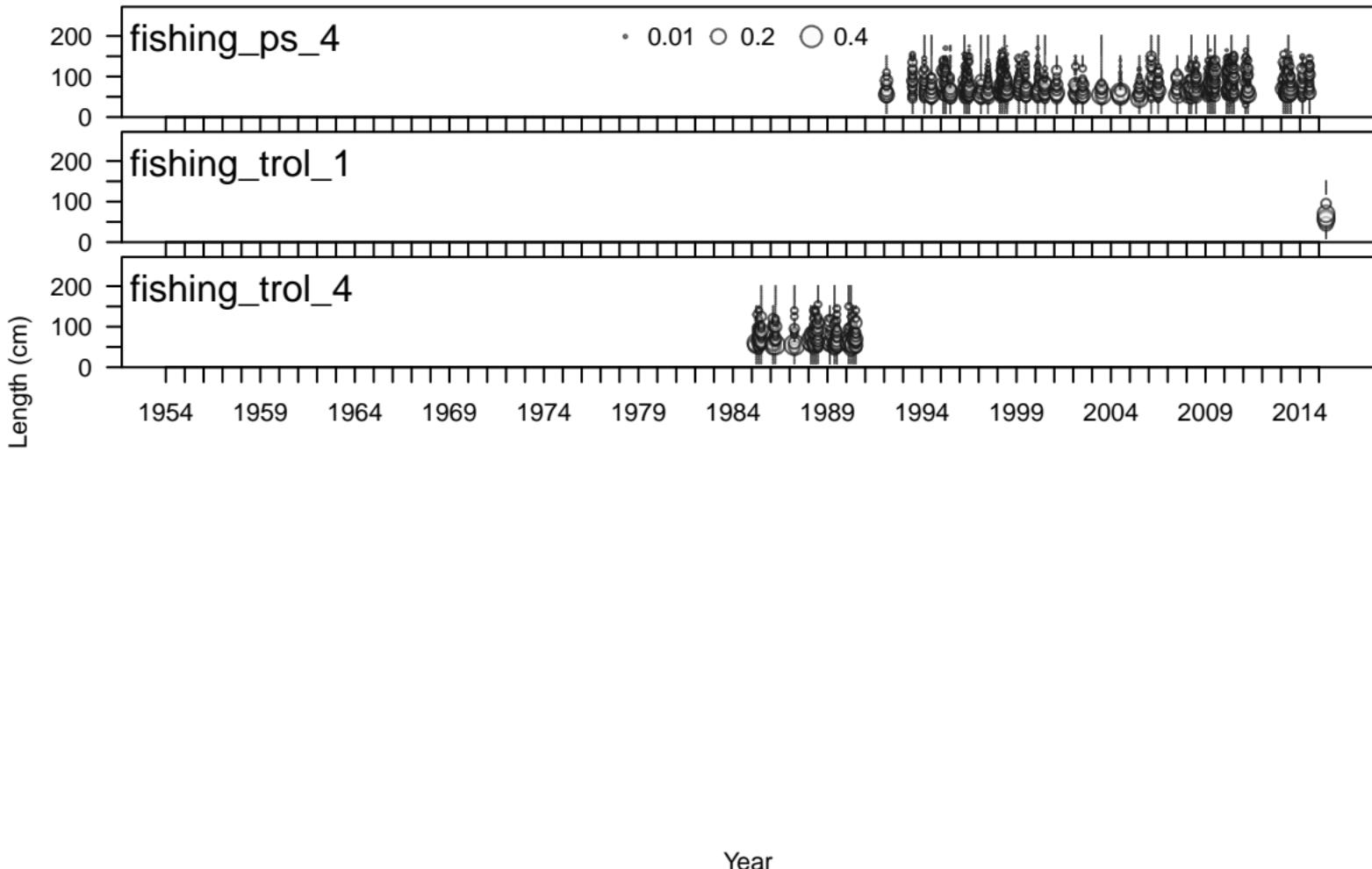


Proportion

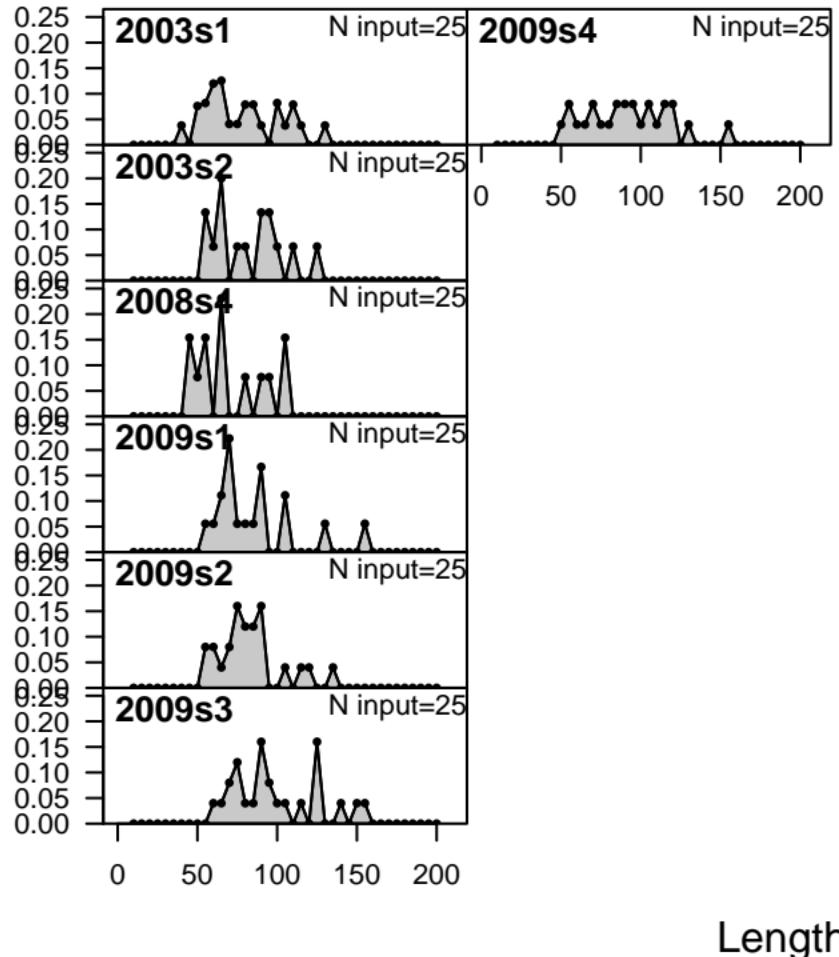


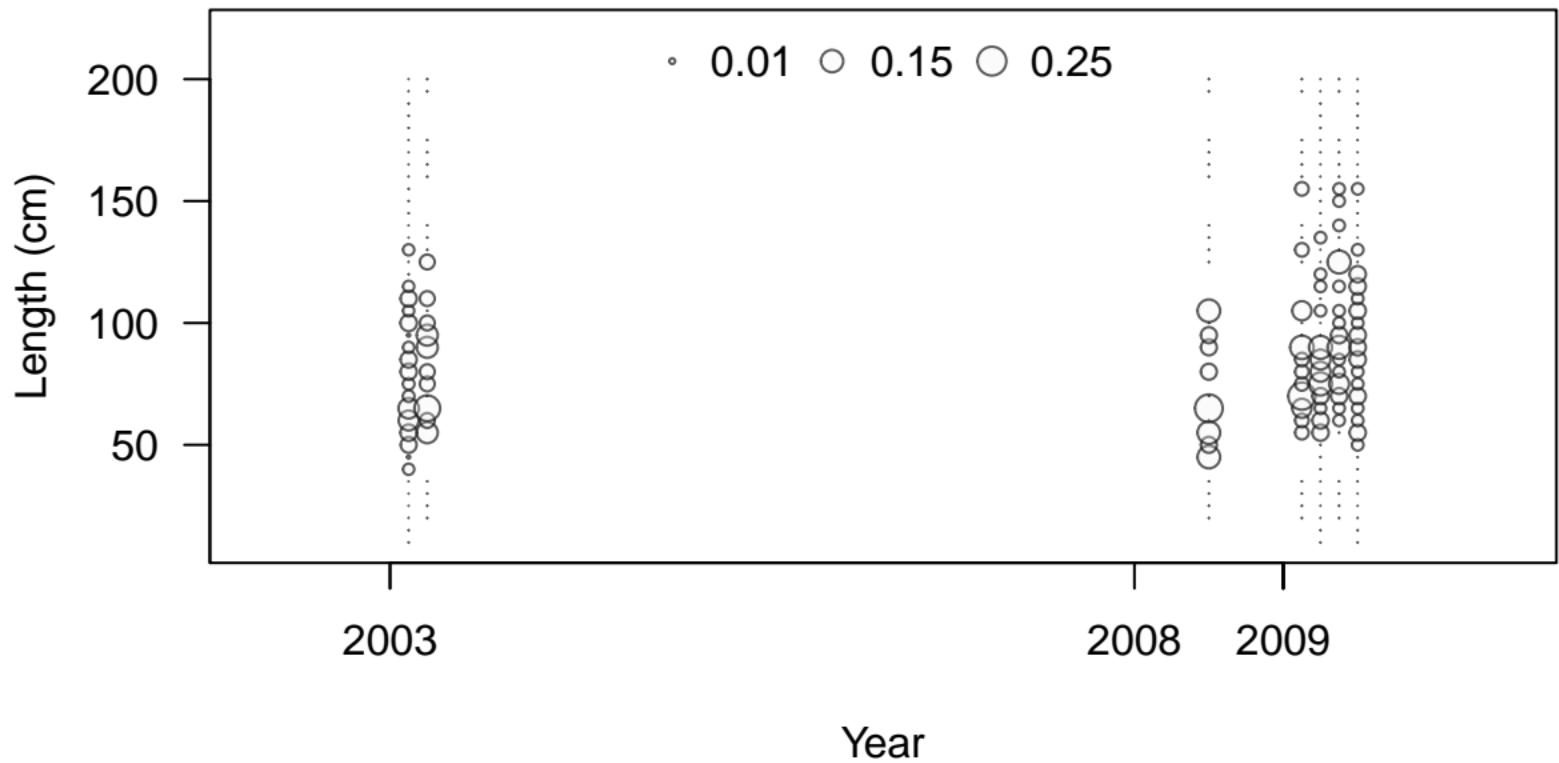




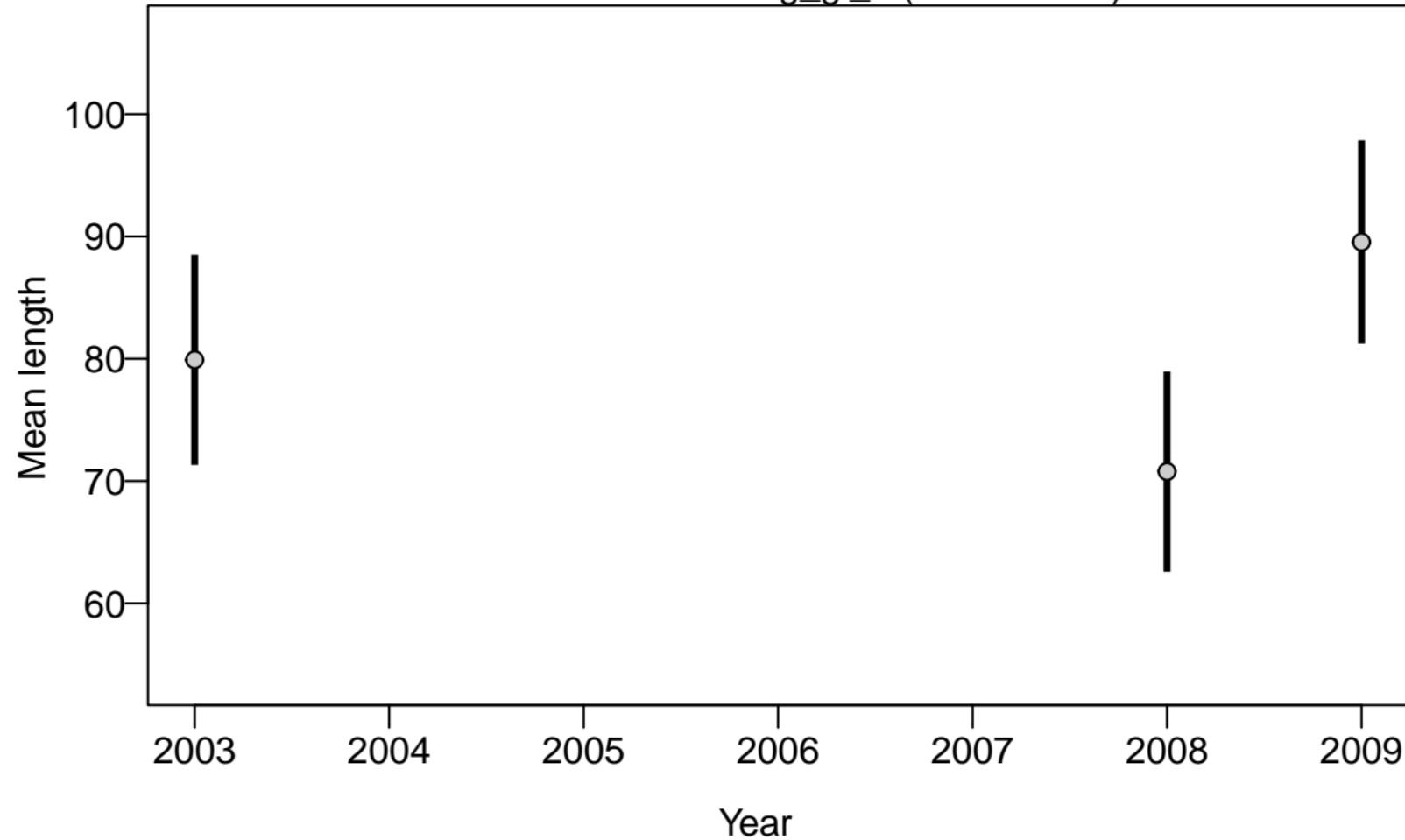


Proportion

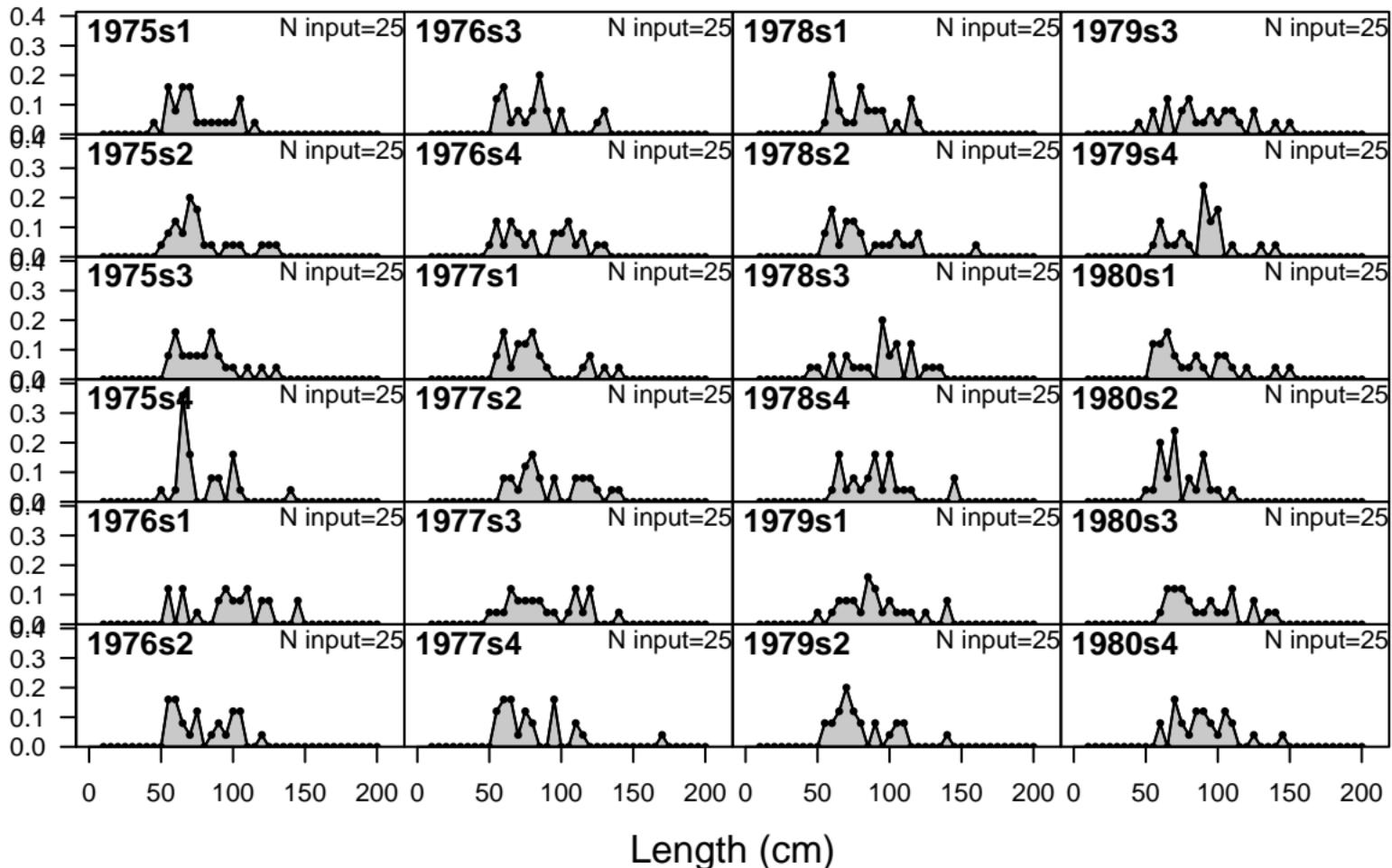




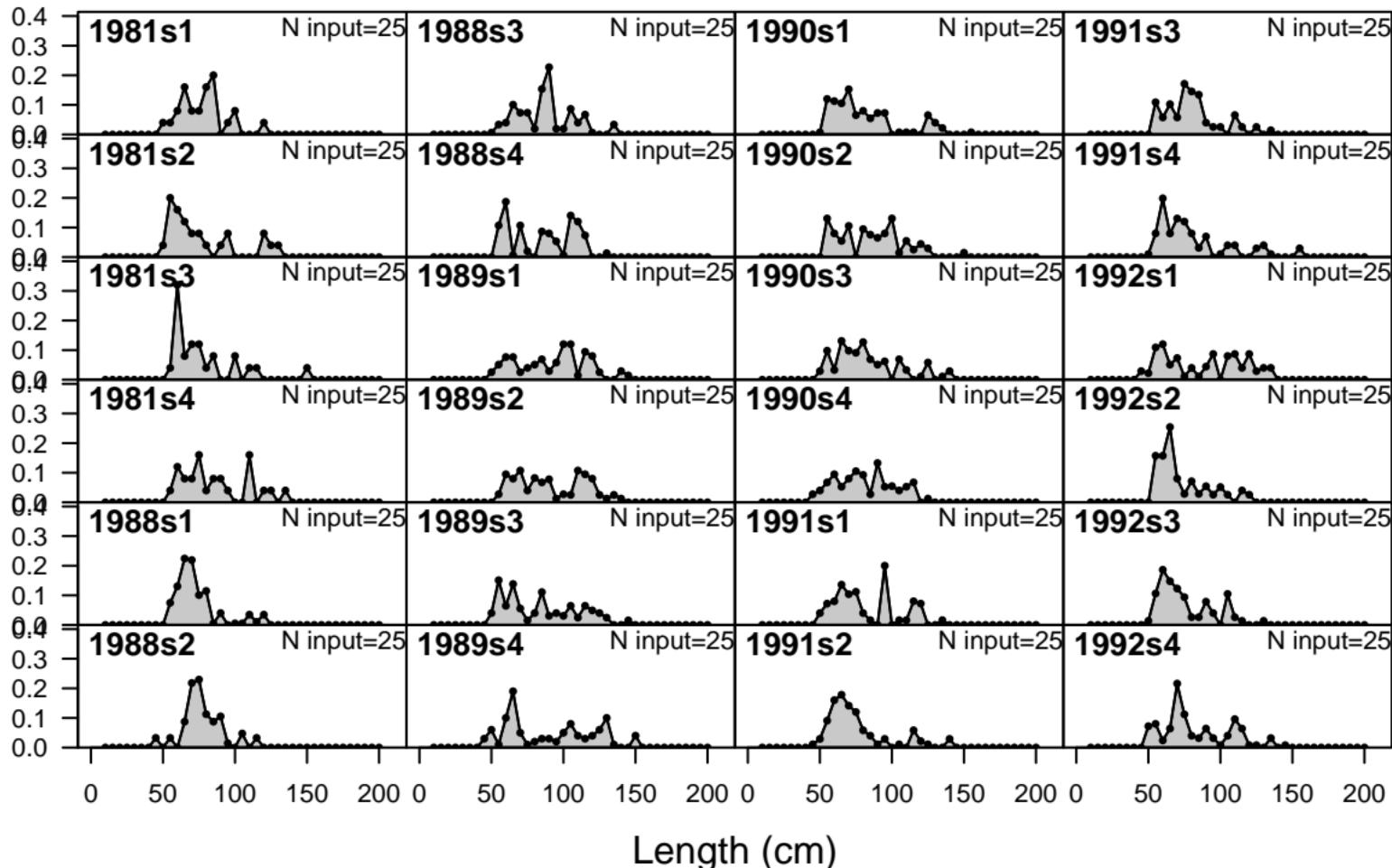
fishing_gi_1 (whole catch)



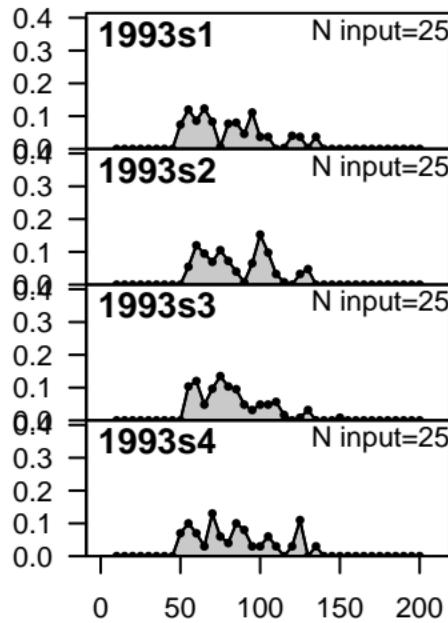
Proportion

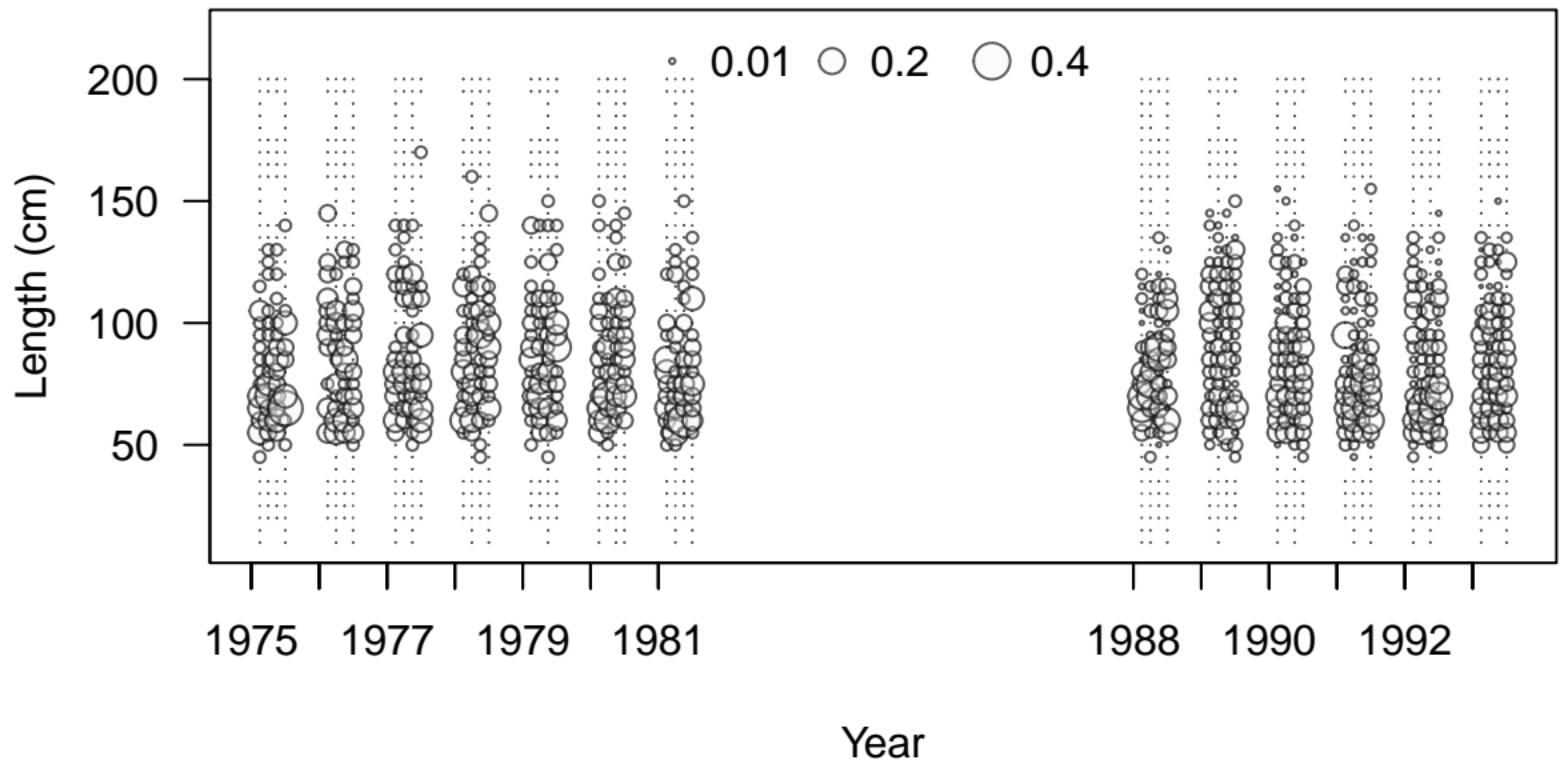


Proportion

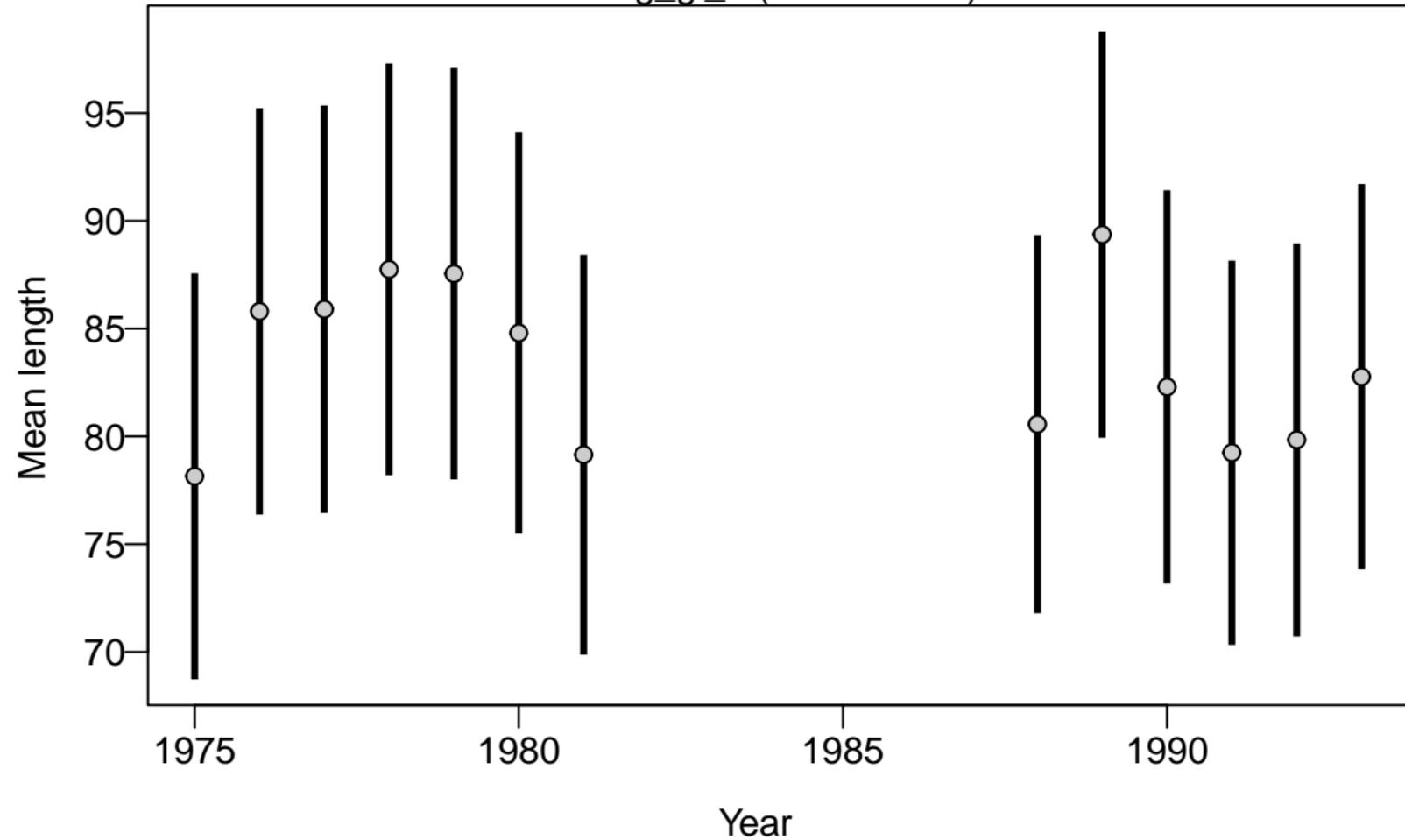


Proportion

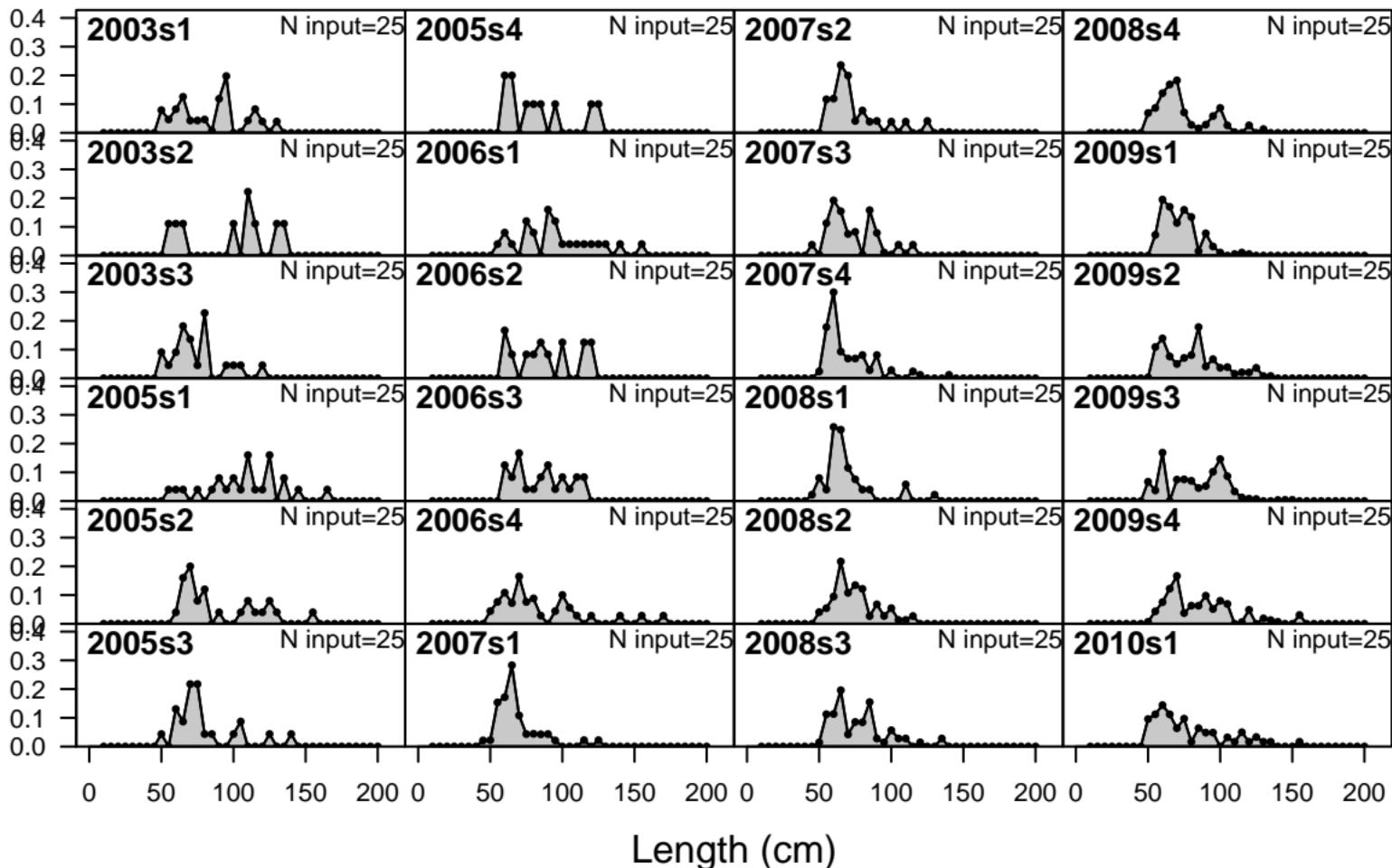




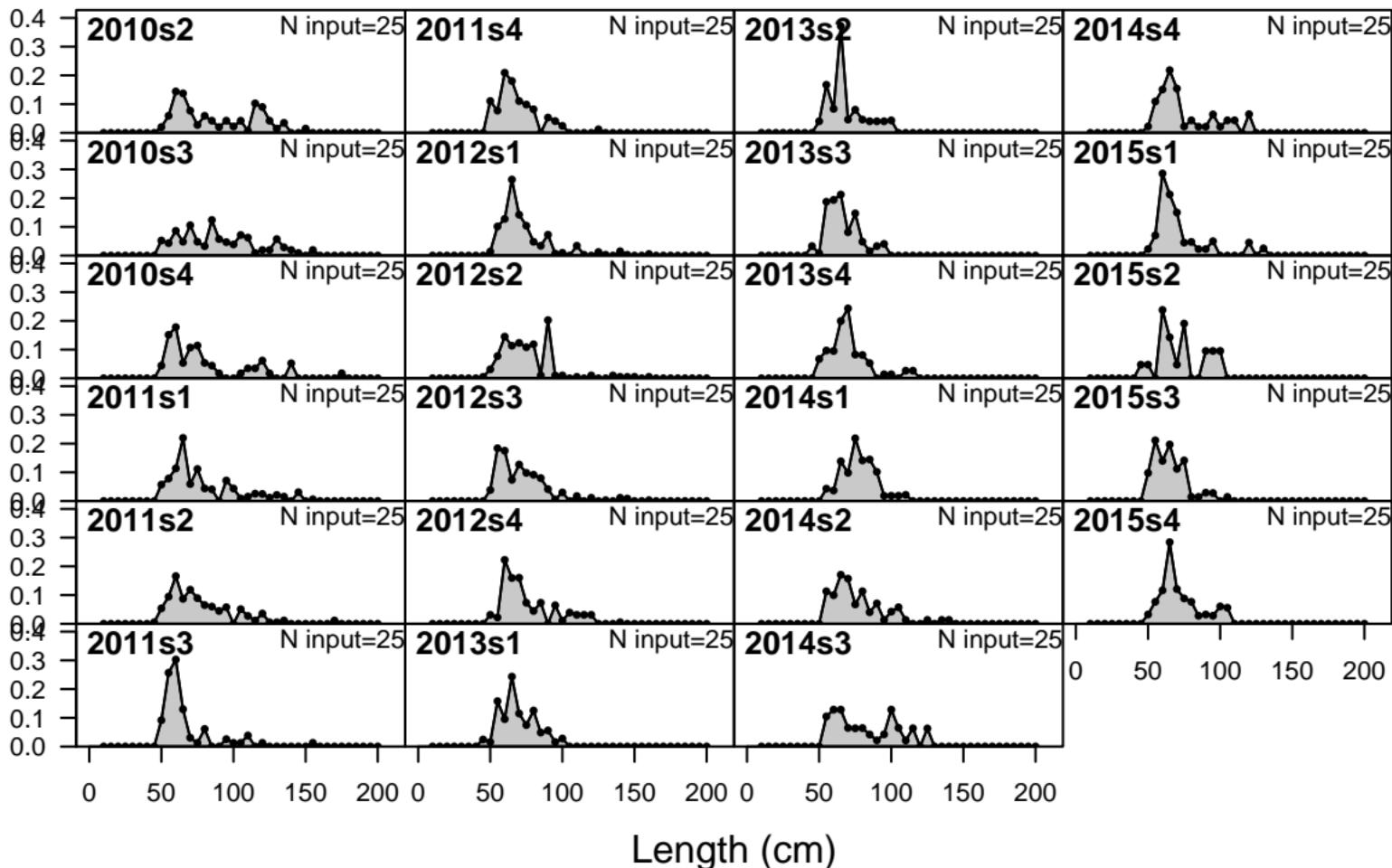
fishing_gi_4 (whole catch)

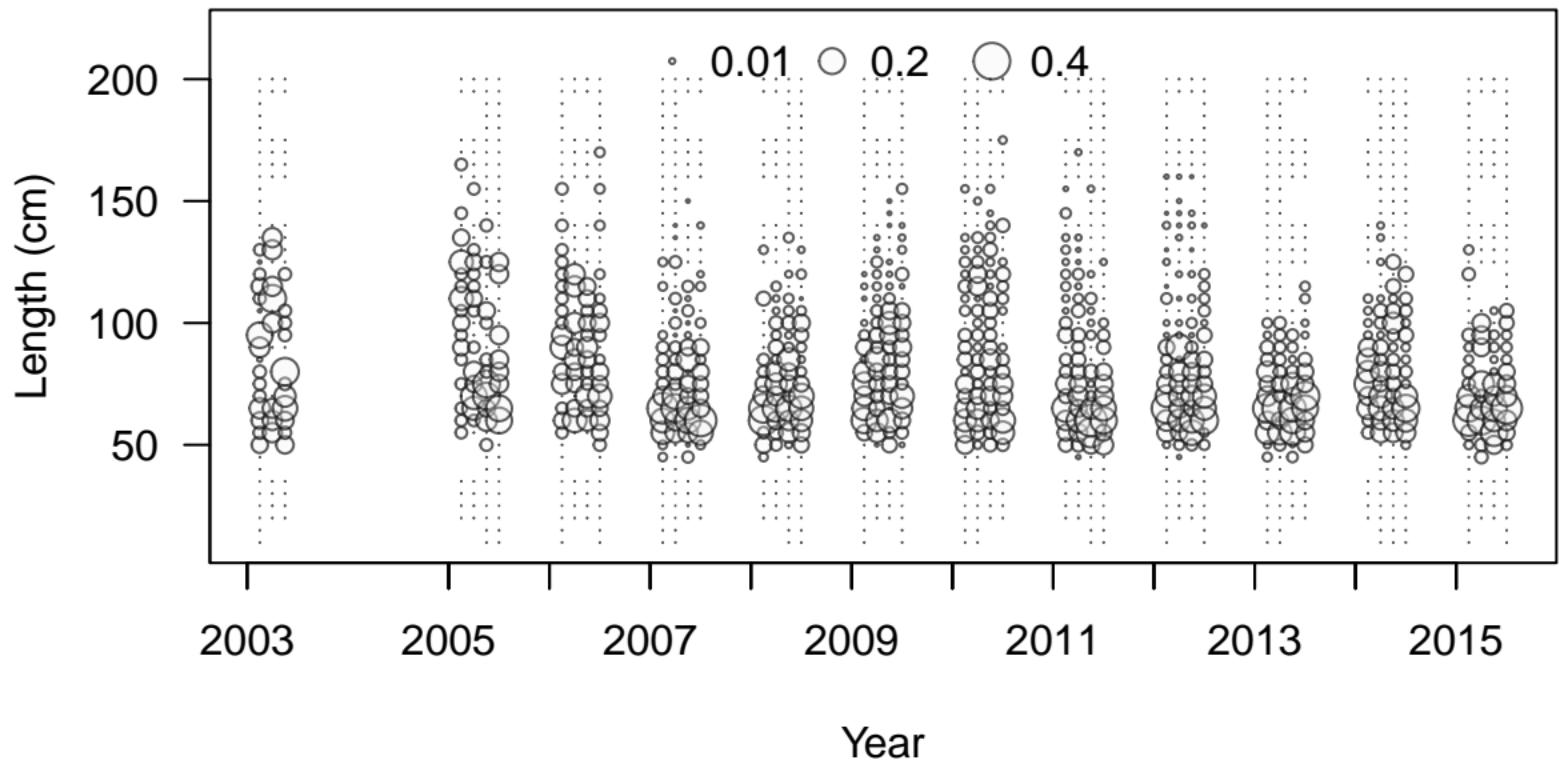


Proportion

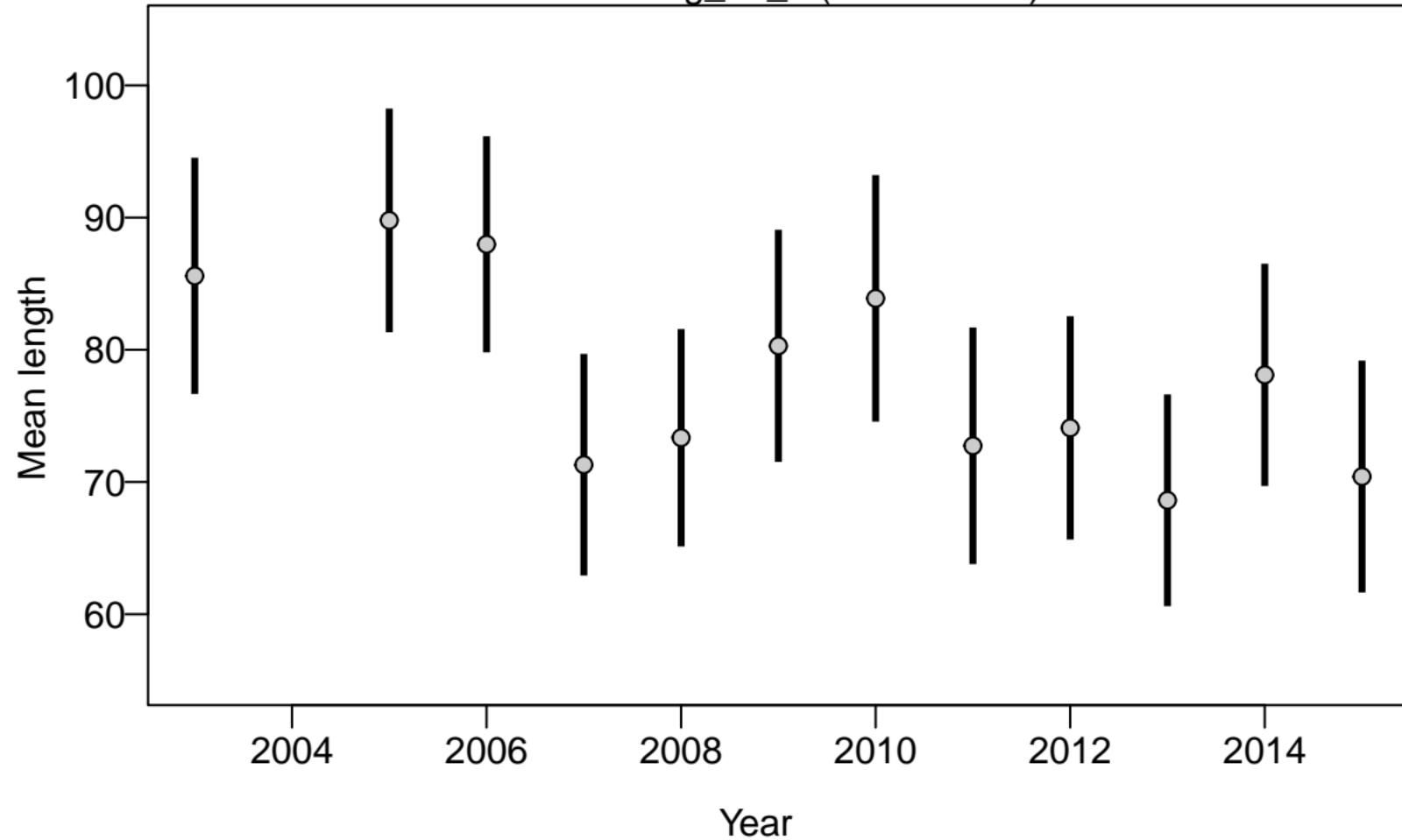


Proportion

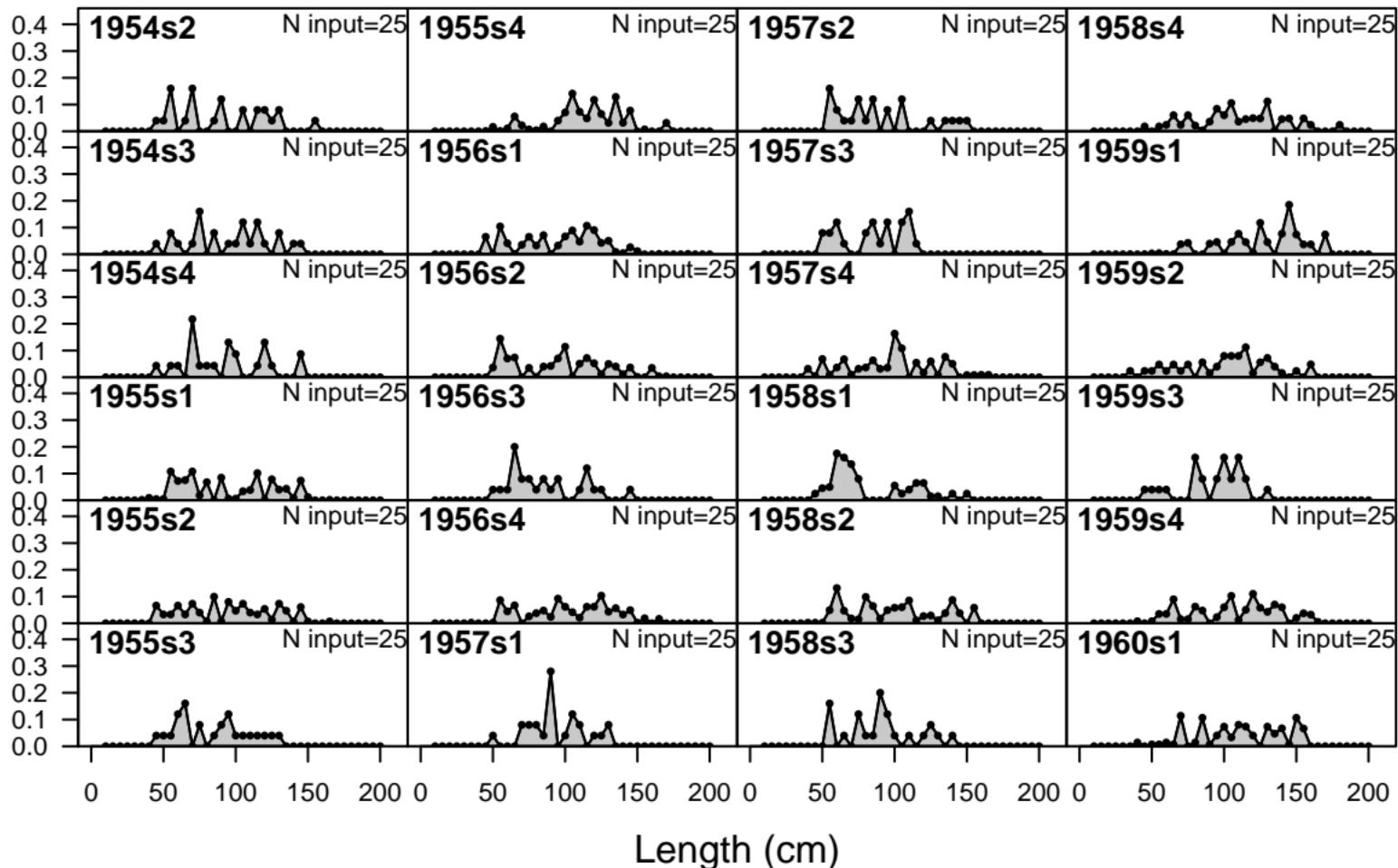




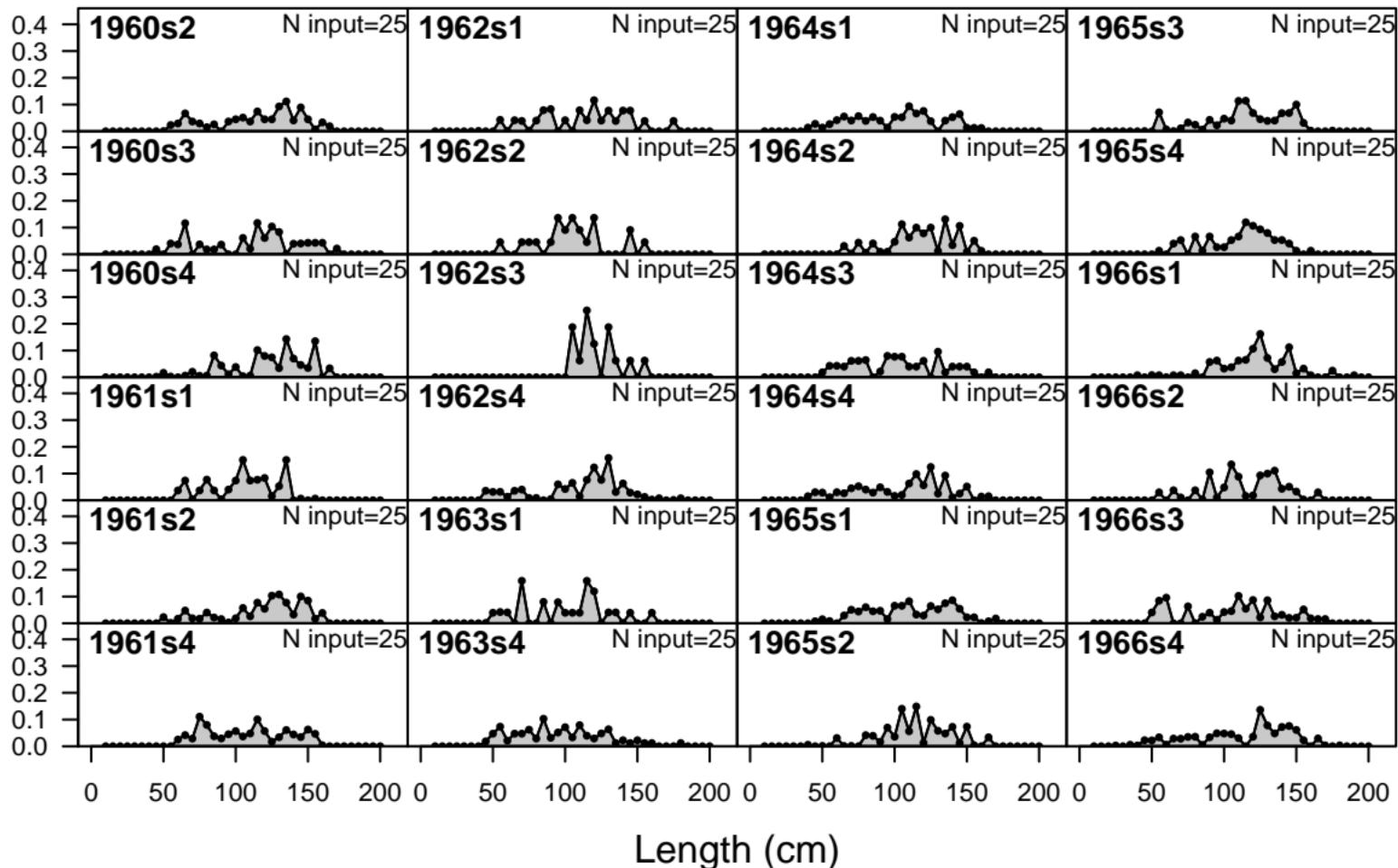
fishing_hd_1 (whole catch)



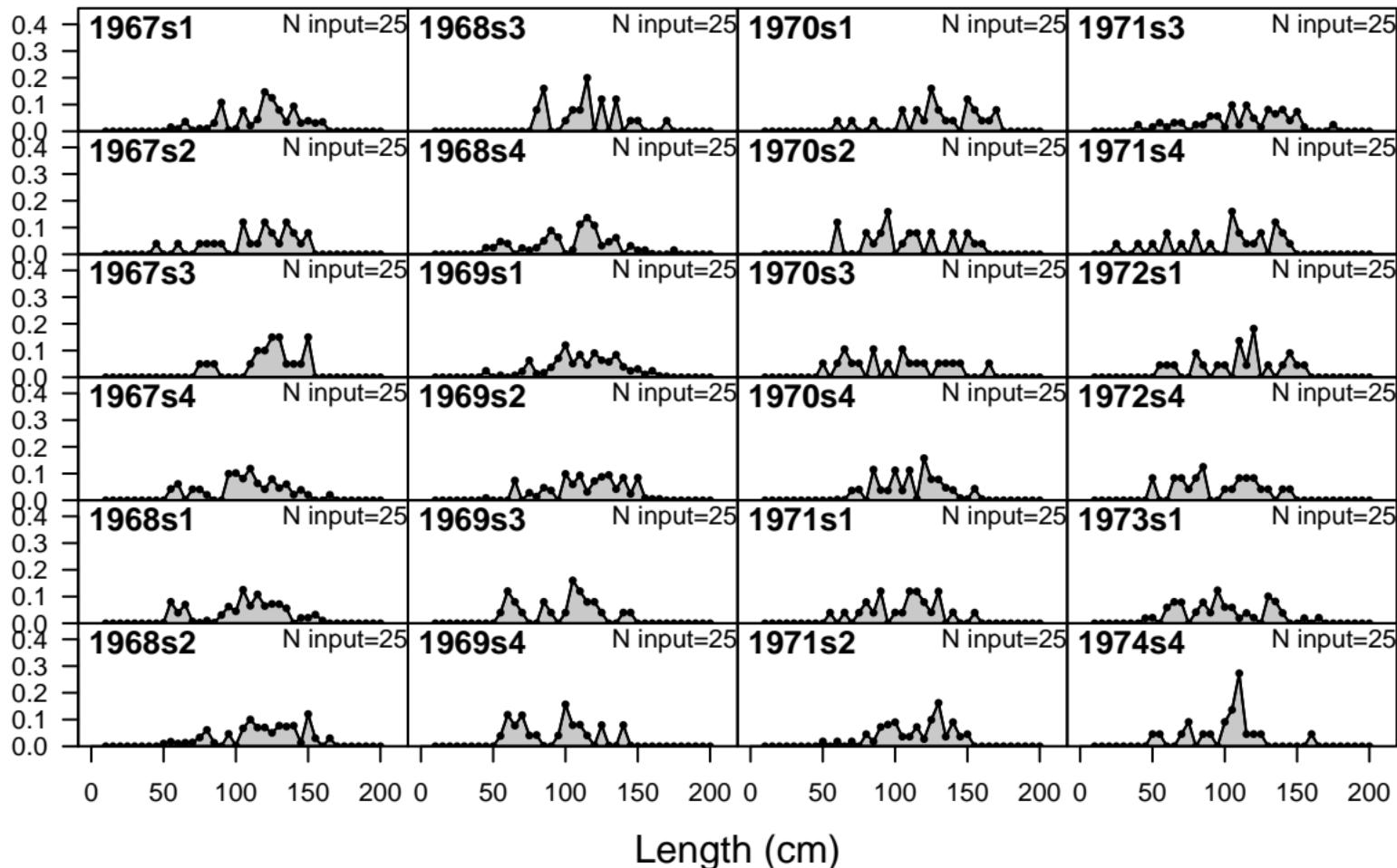
Proportion



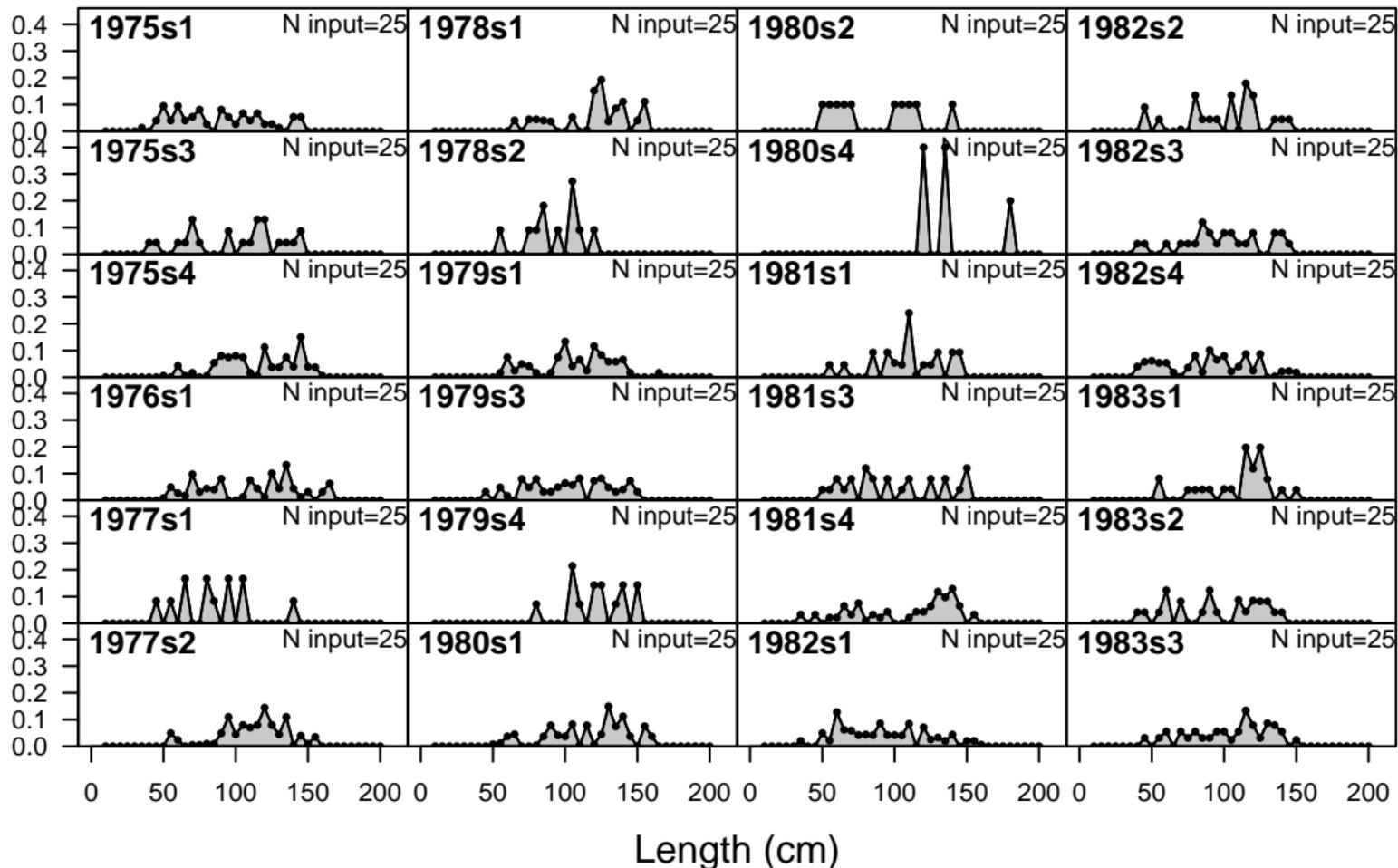
Proportion



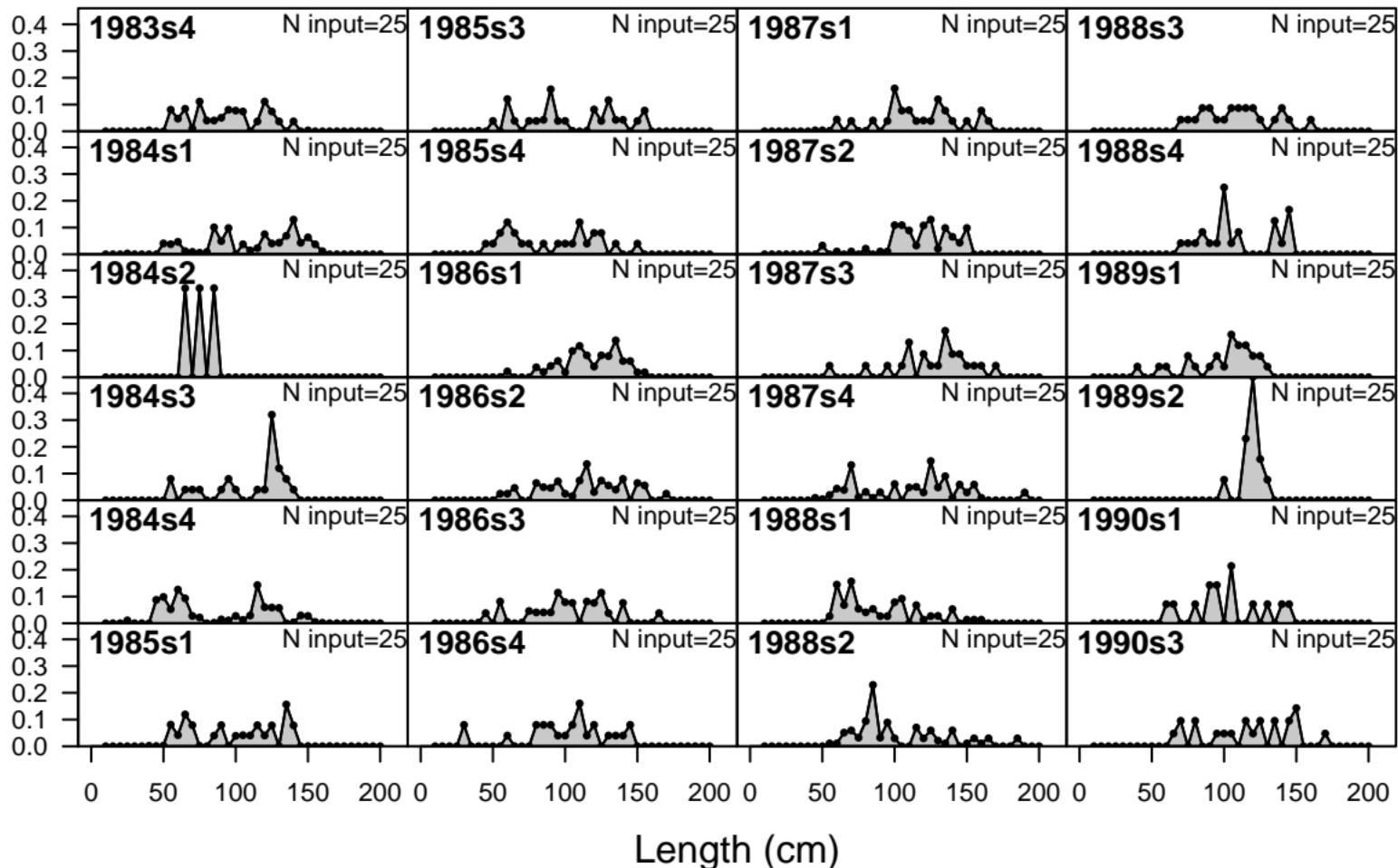
Proportion



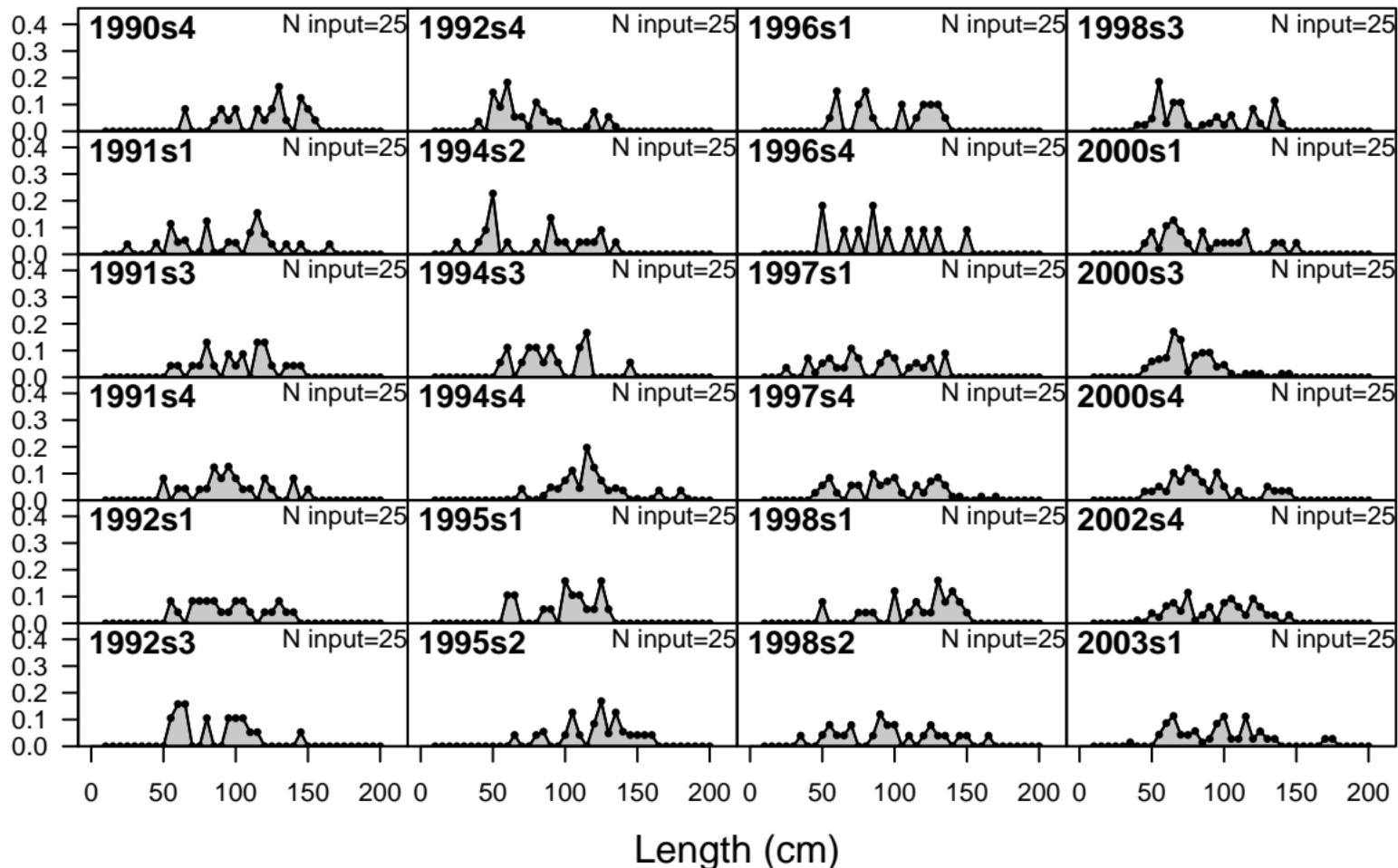
Proportion



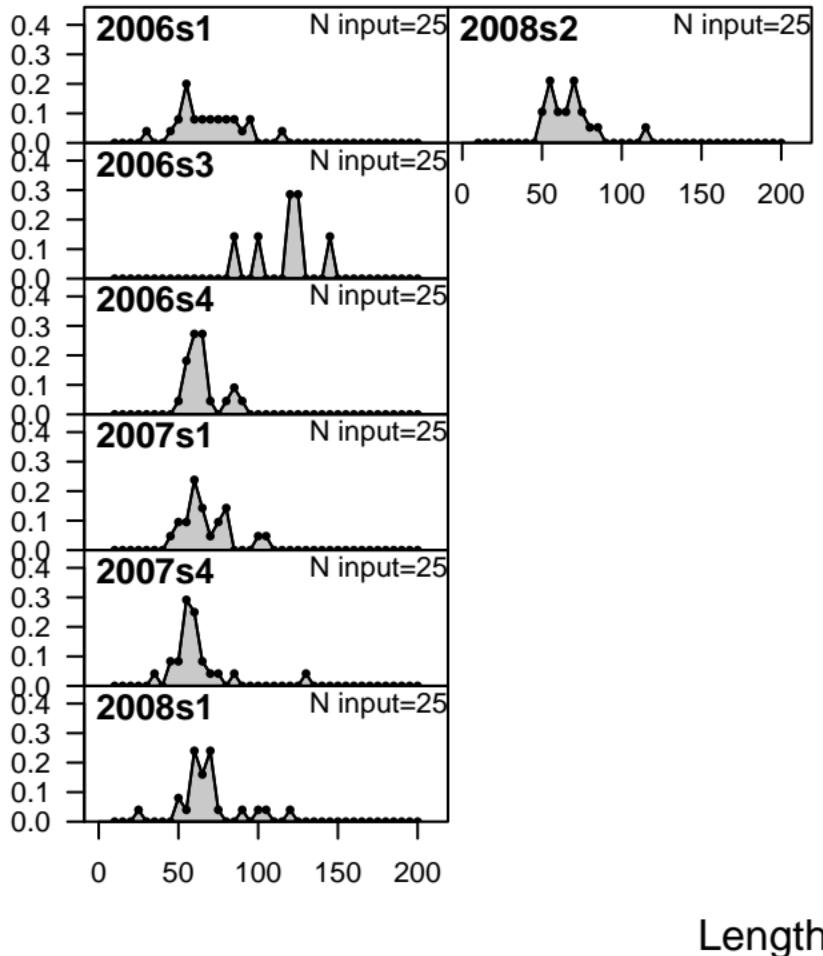
Proportion

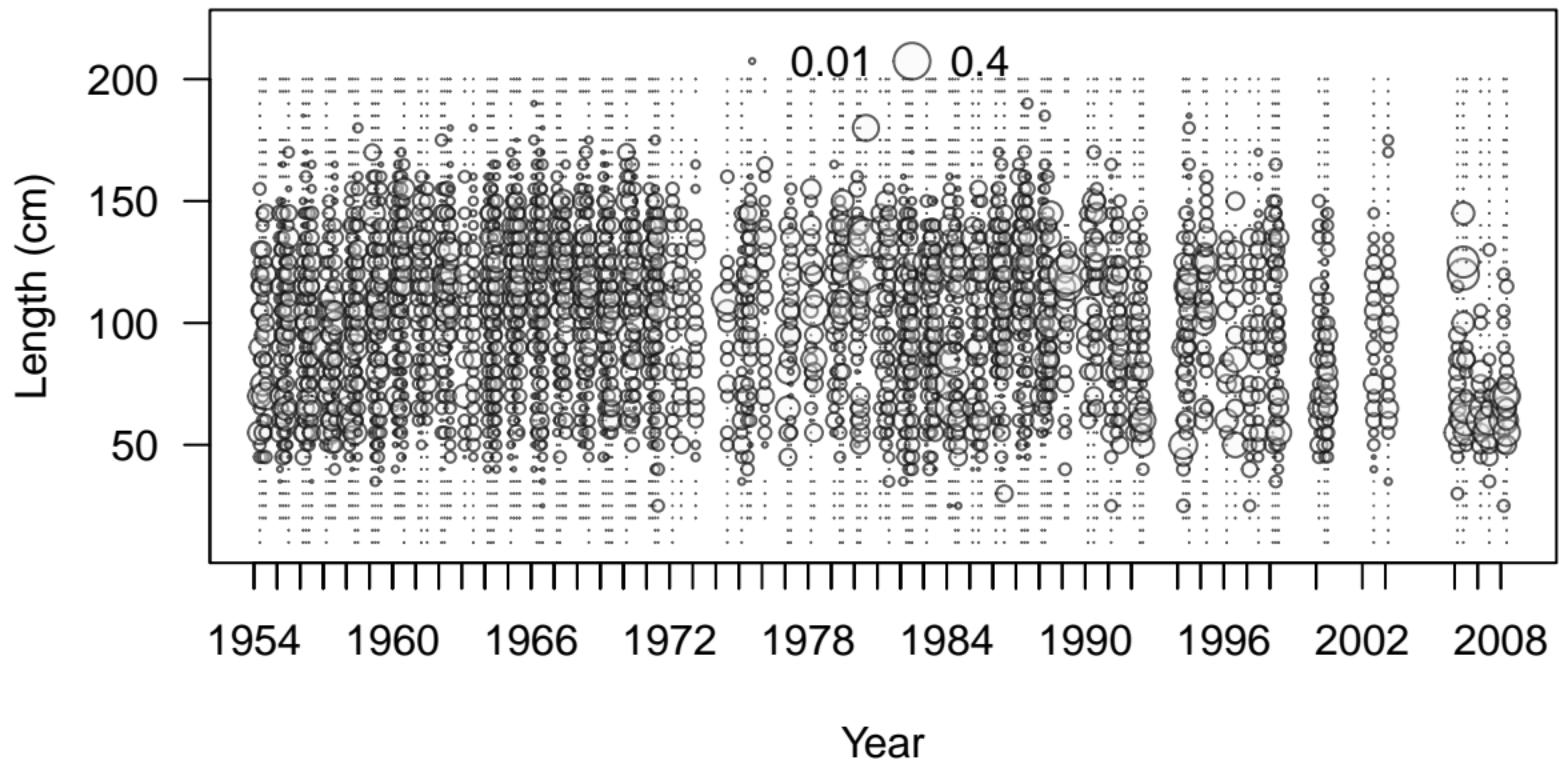


Proportion

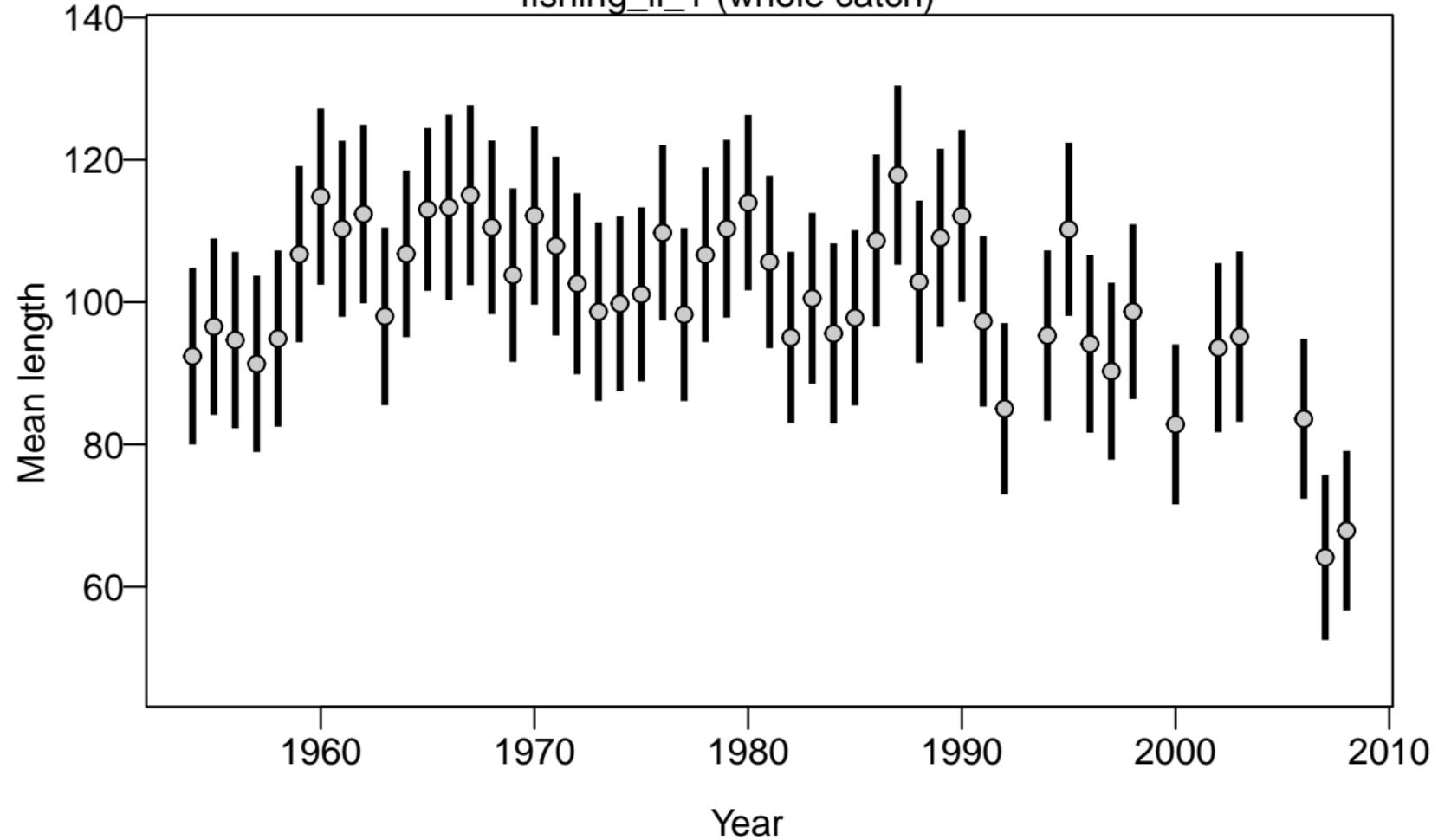


Proportion

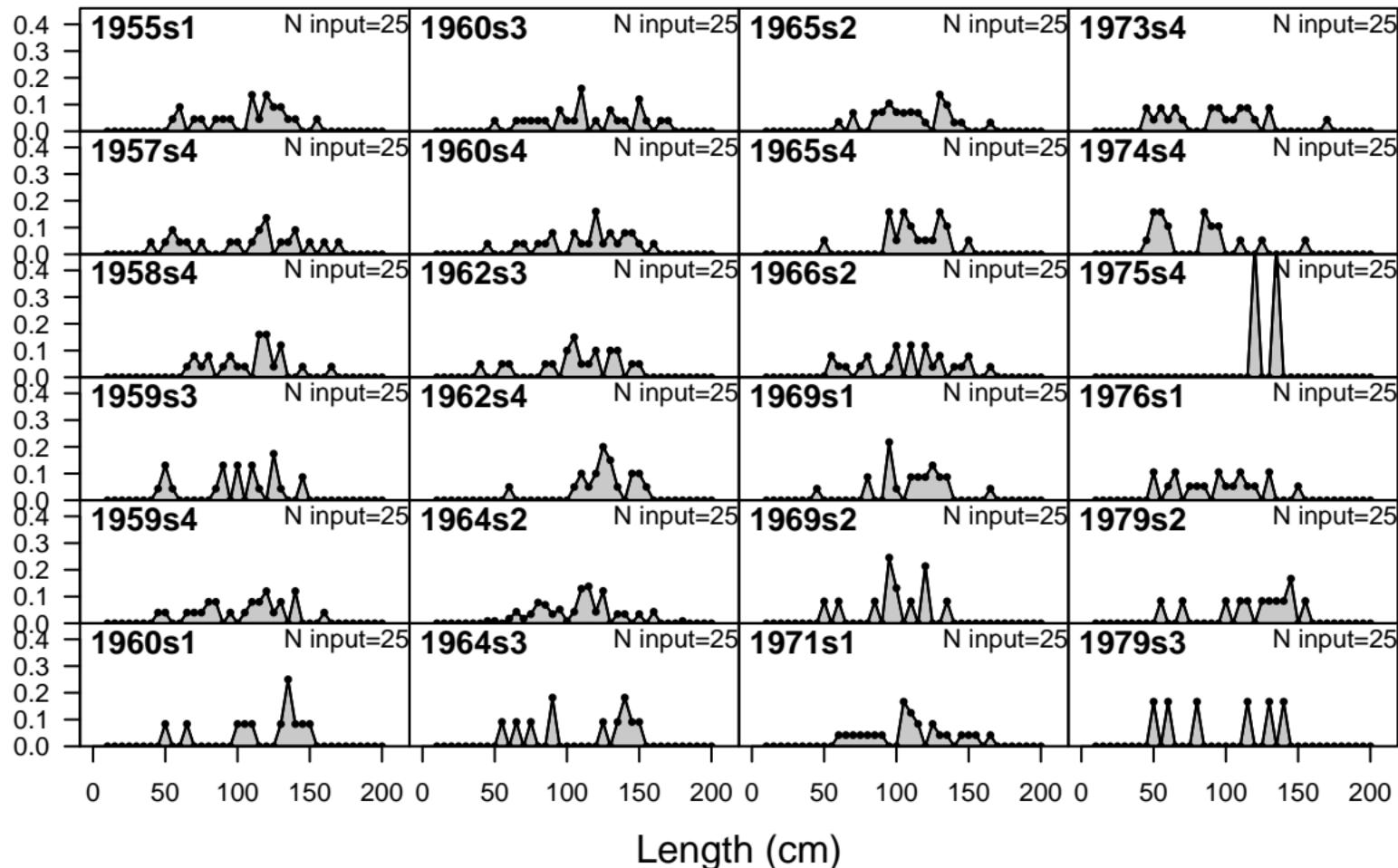




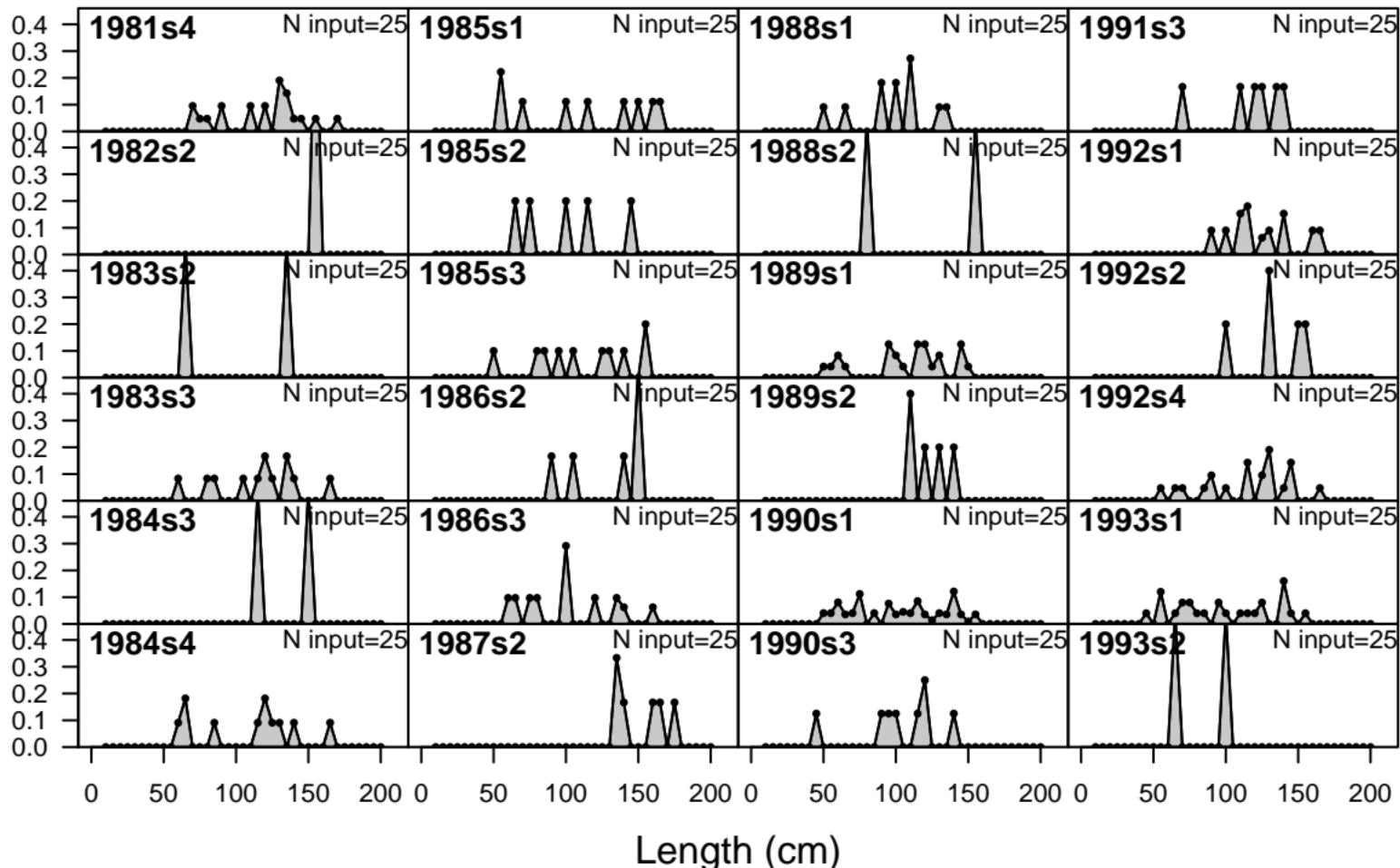
fishing_ll_1 (whole catch)



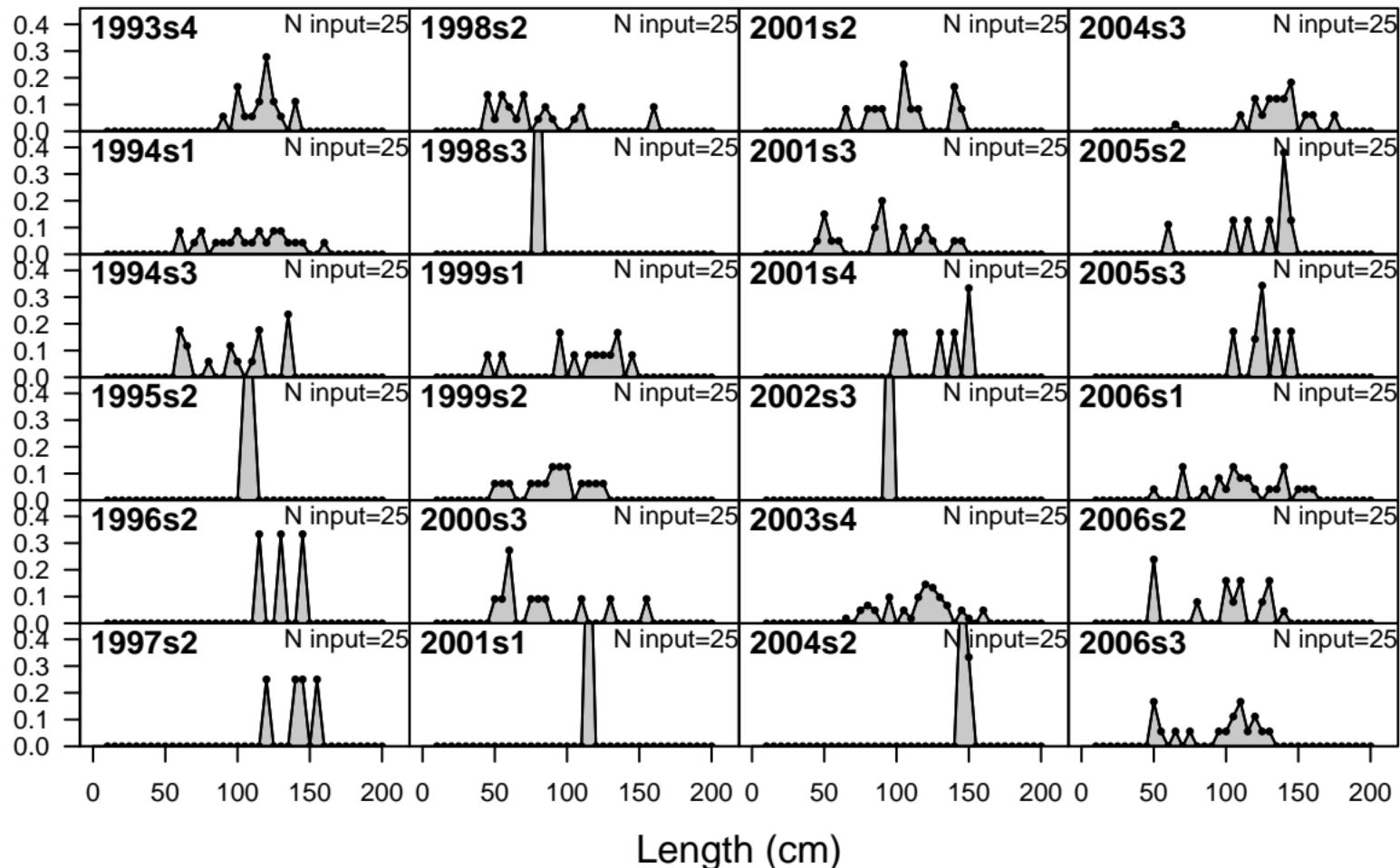
Proportion



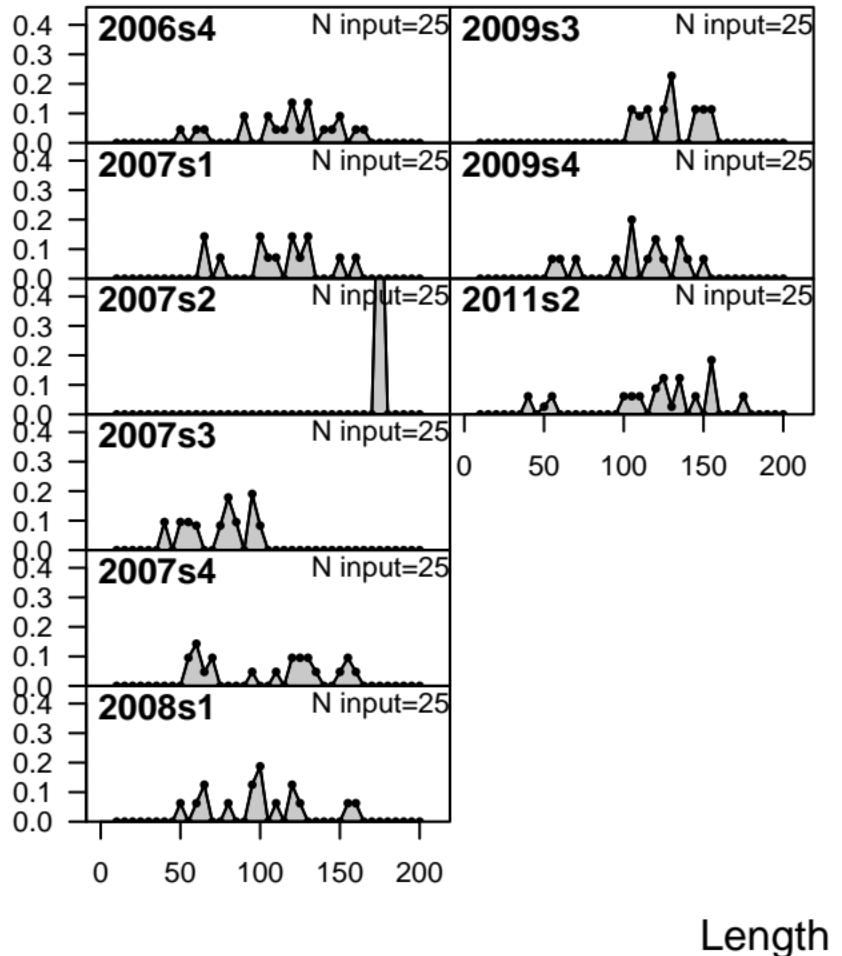
Proportion

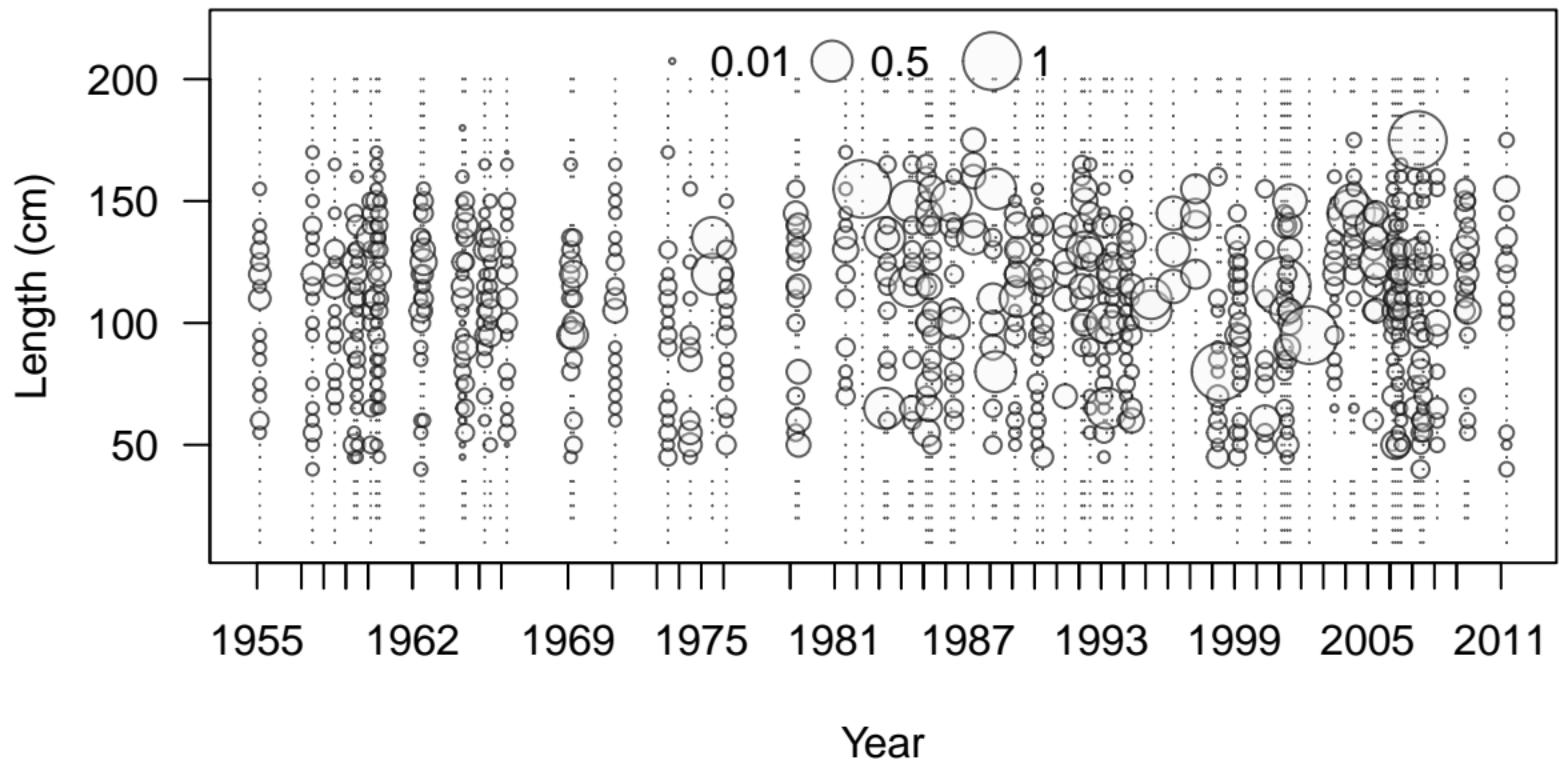


Proportion

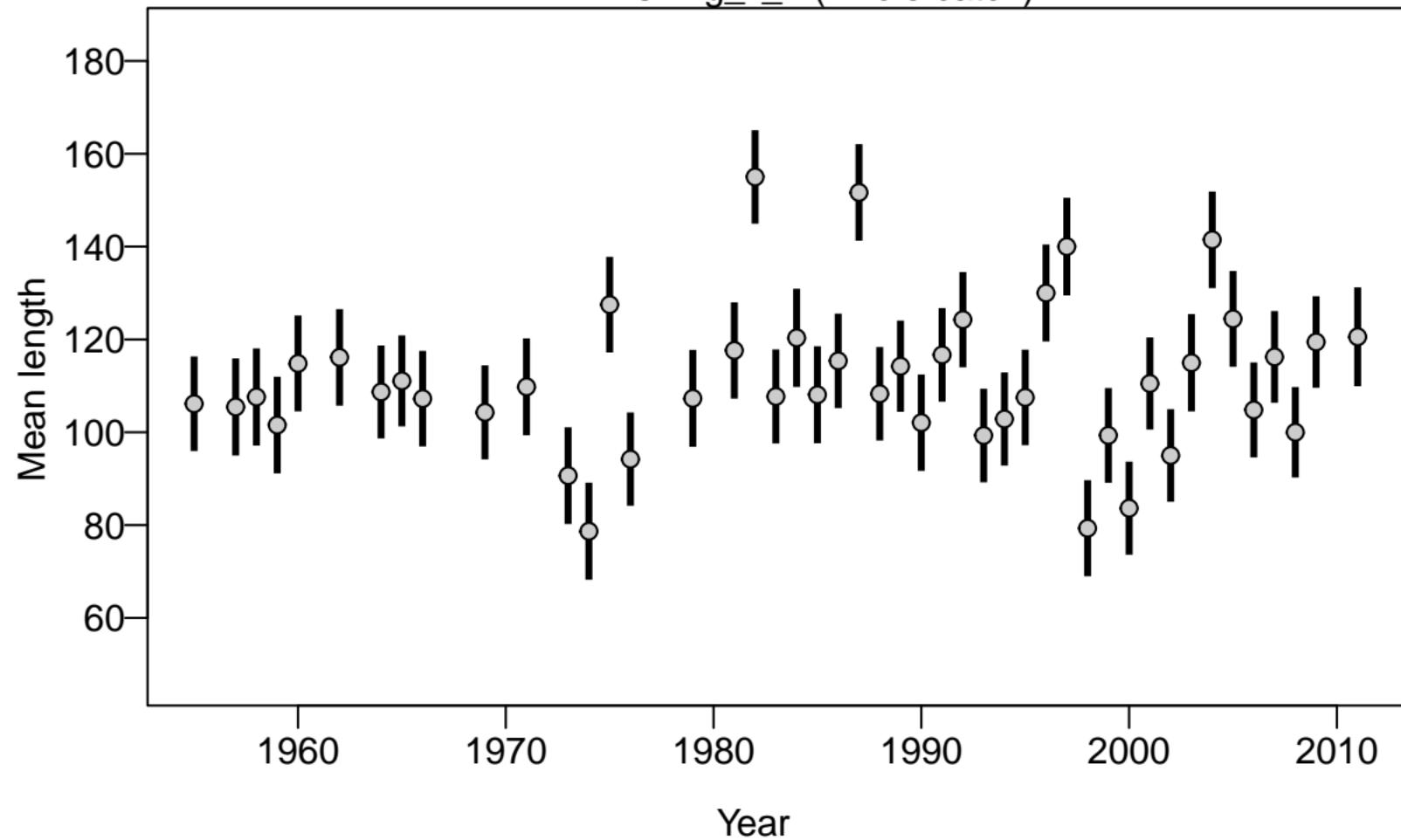


Proportion

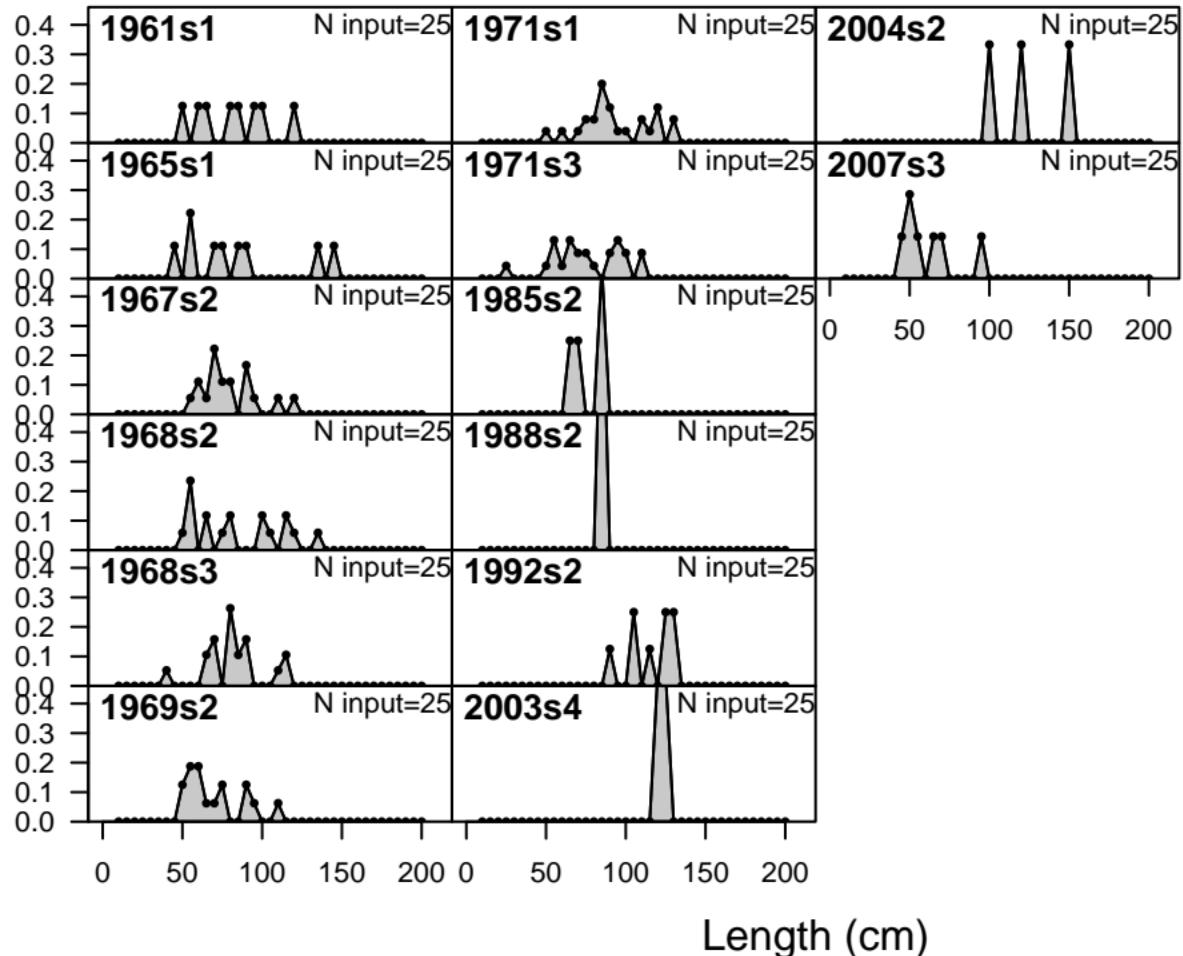


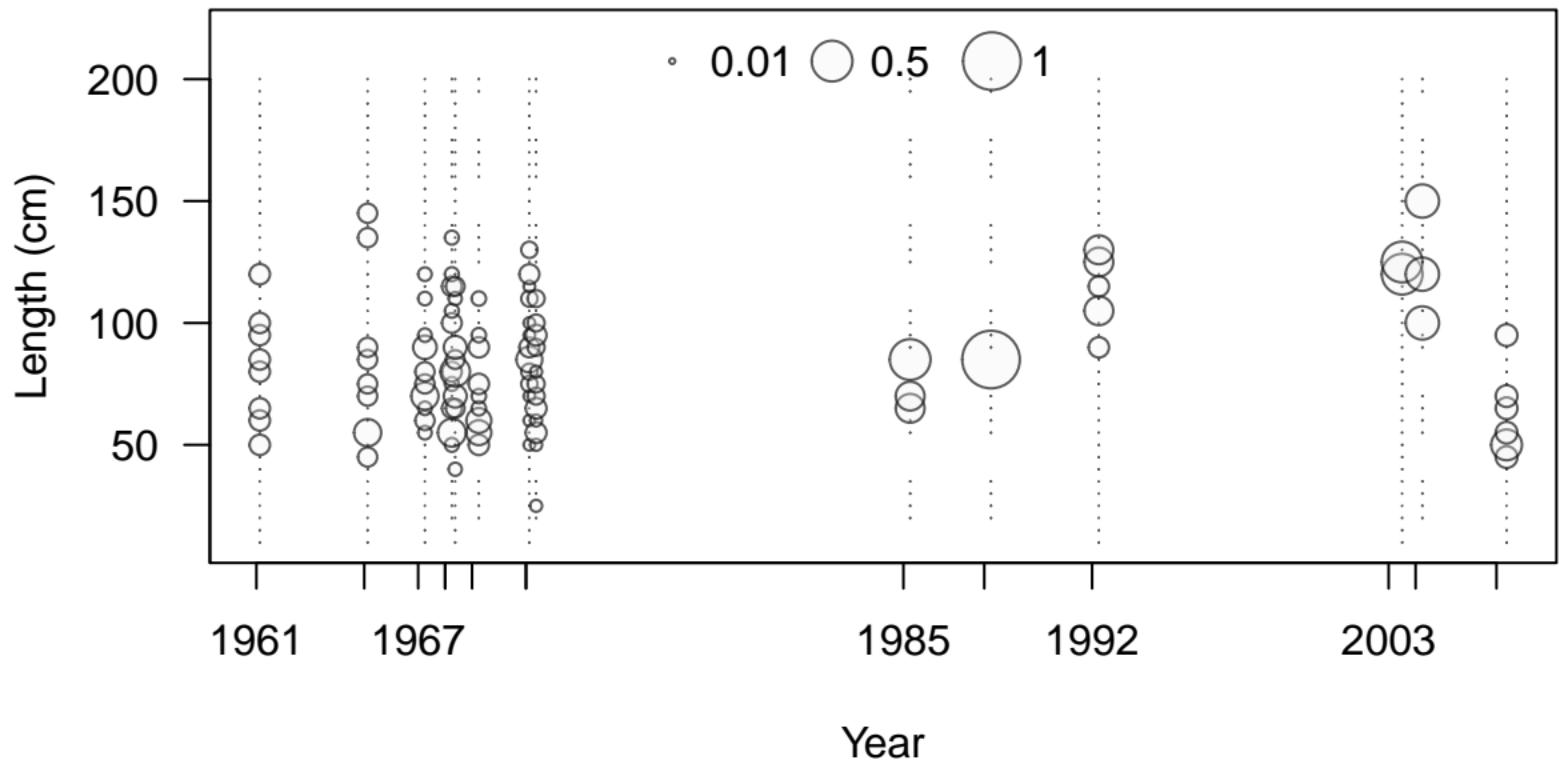


fishing_ll_2 (whole catch)

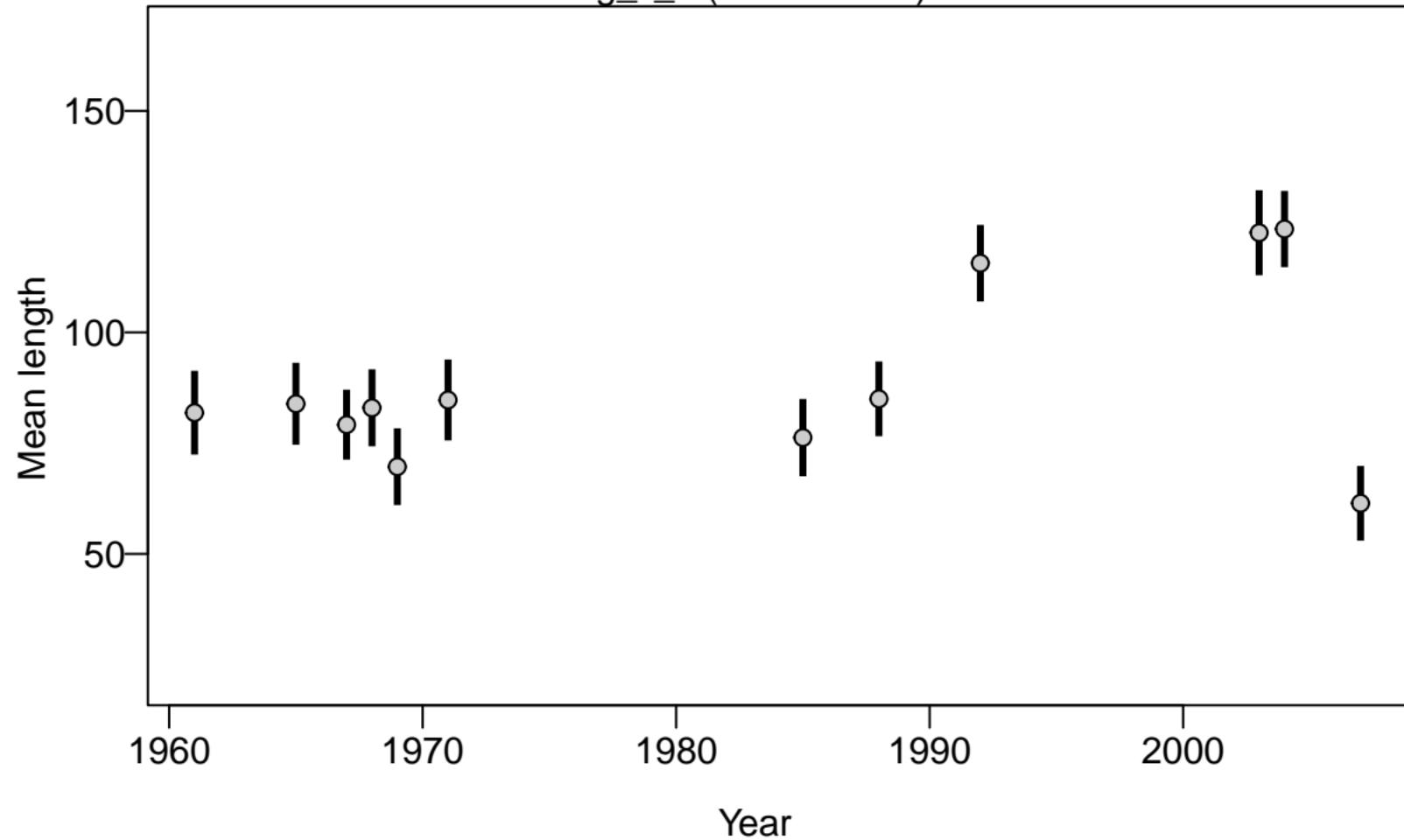


Proportion

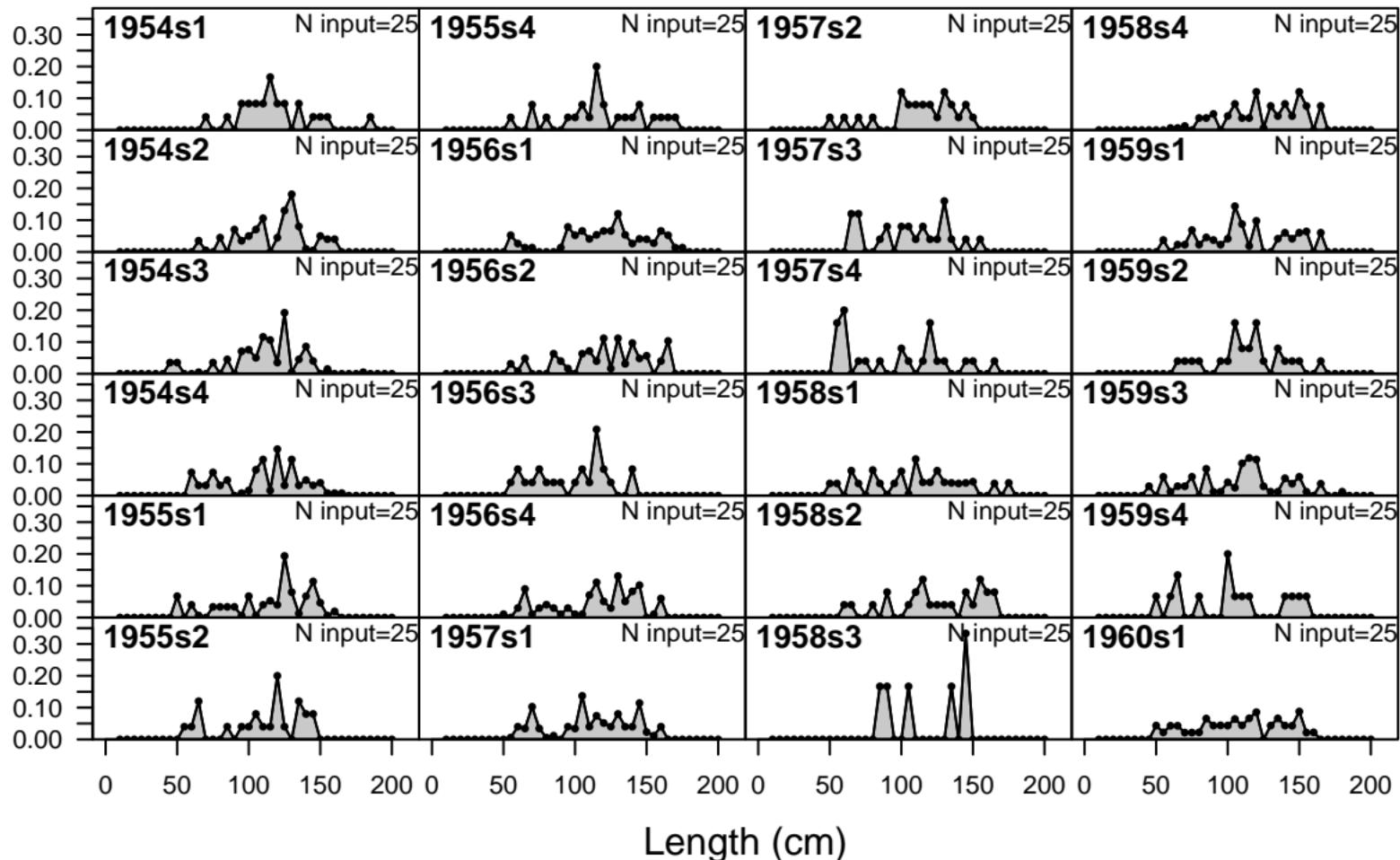




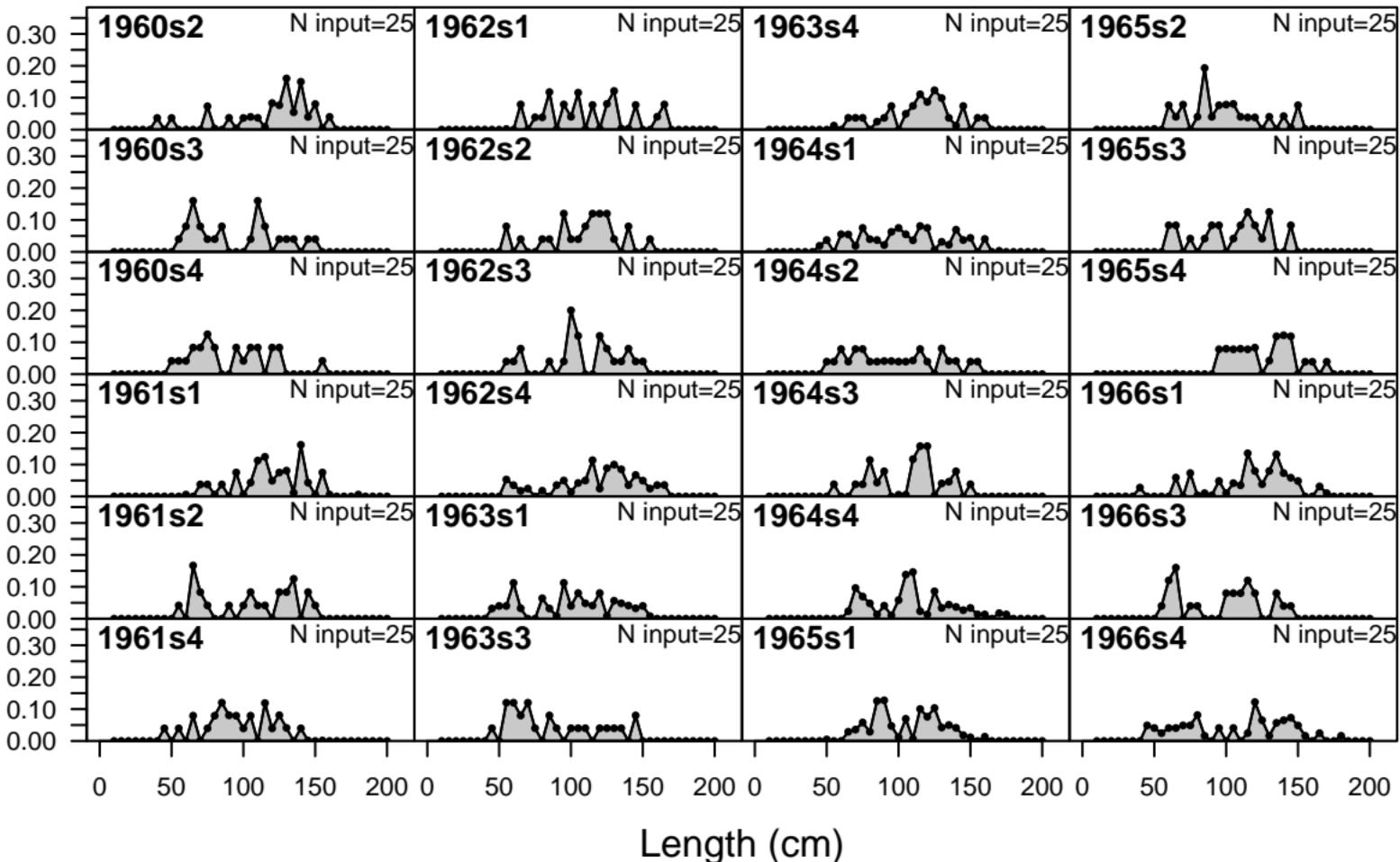
fishing_ll_3 (whole catch)



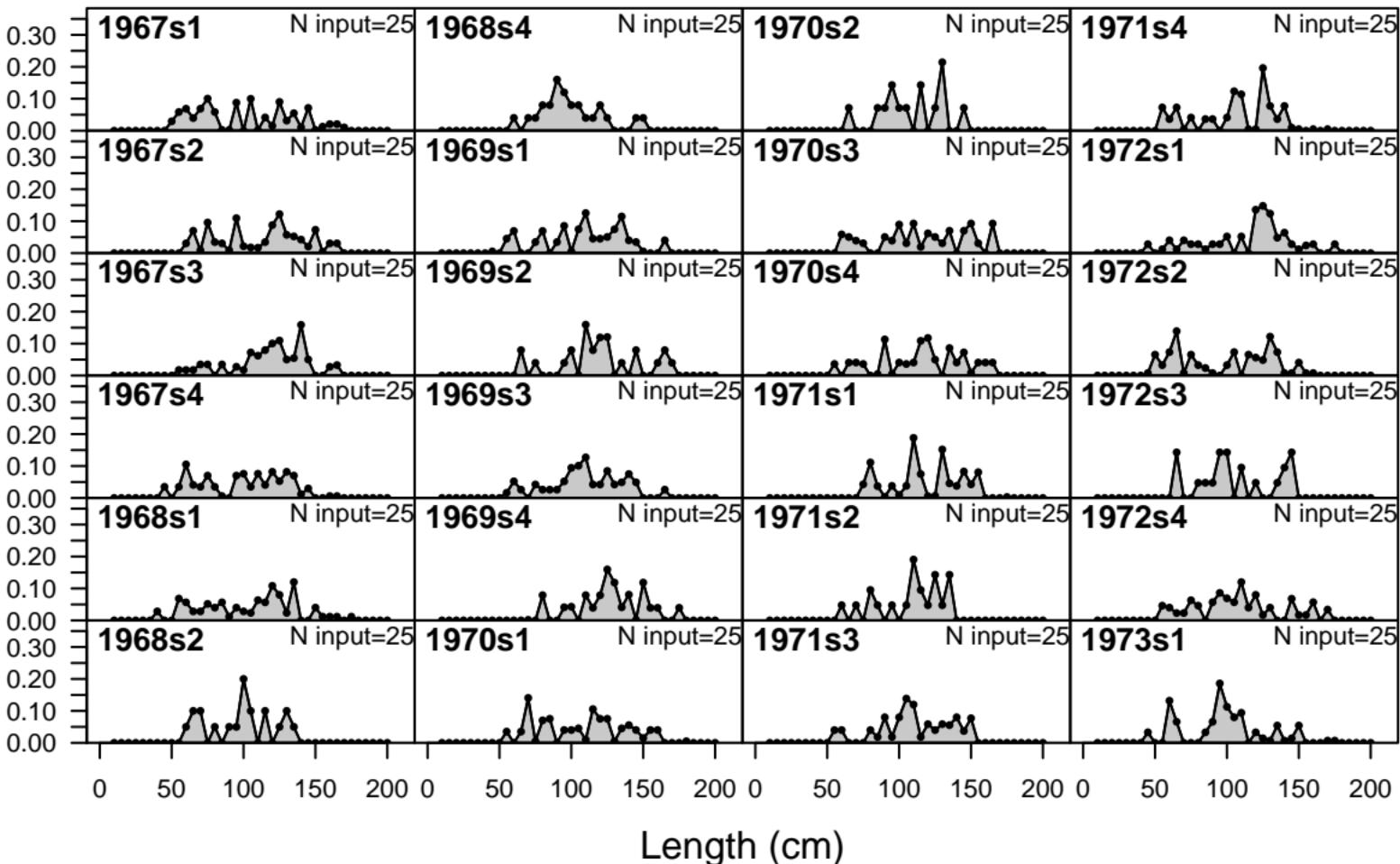
Proportion



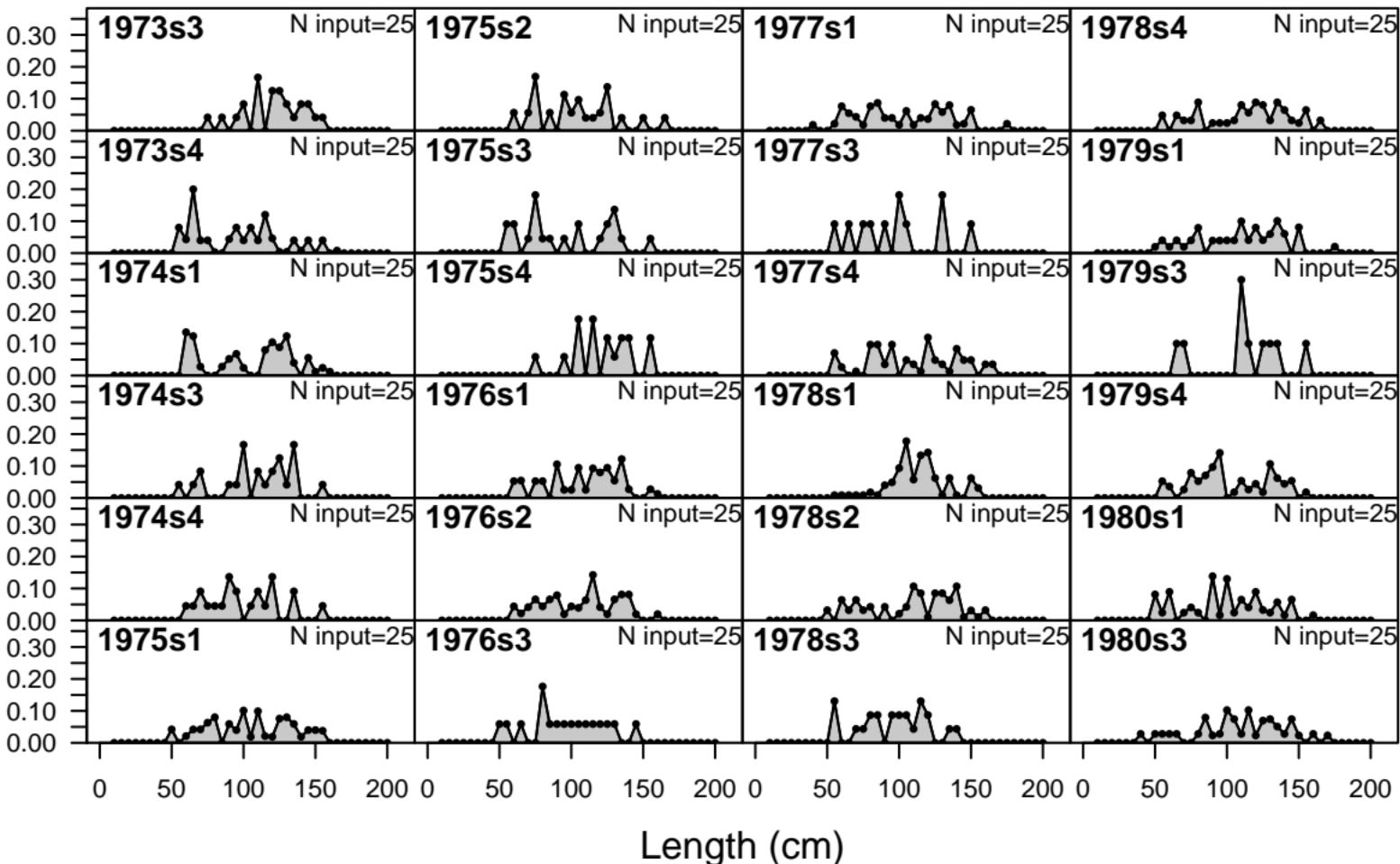
Proportion



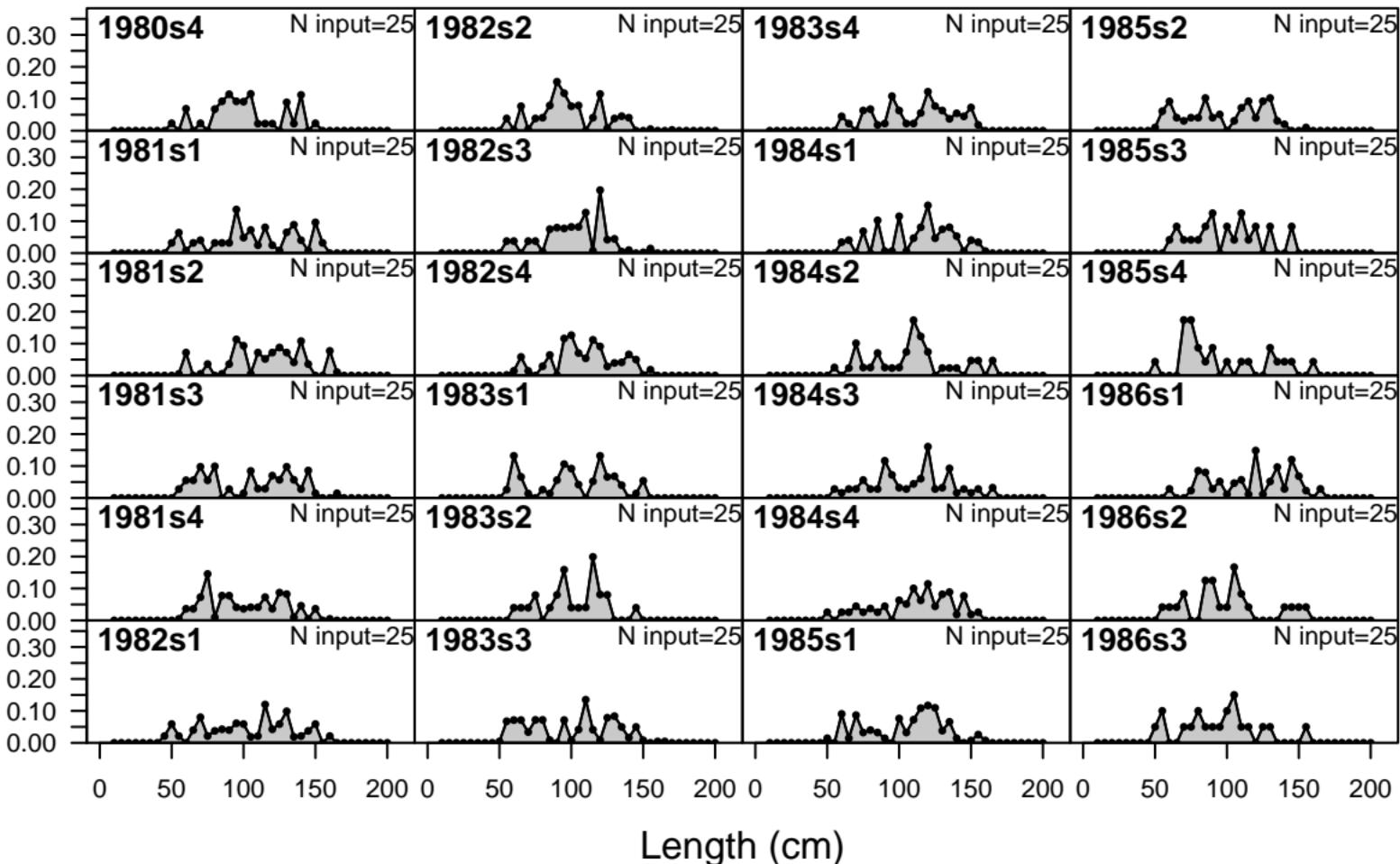
Proportion



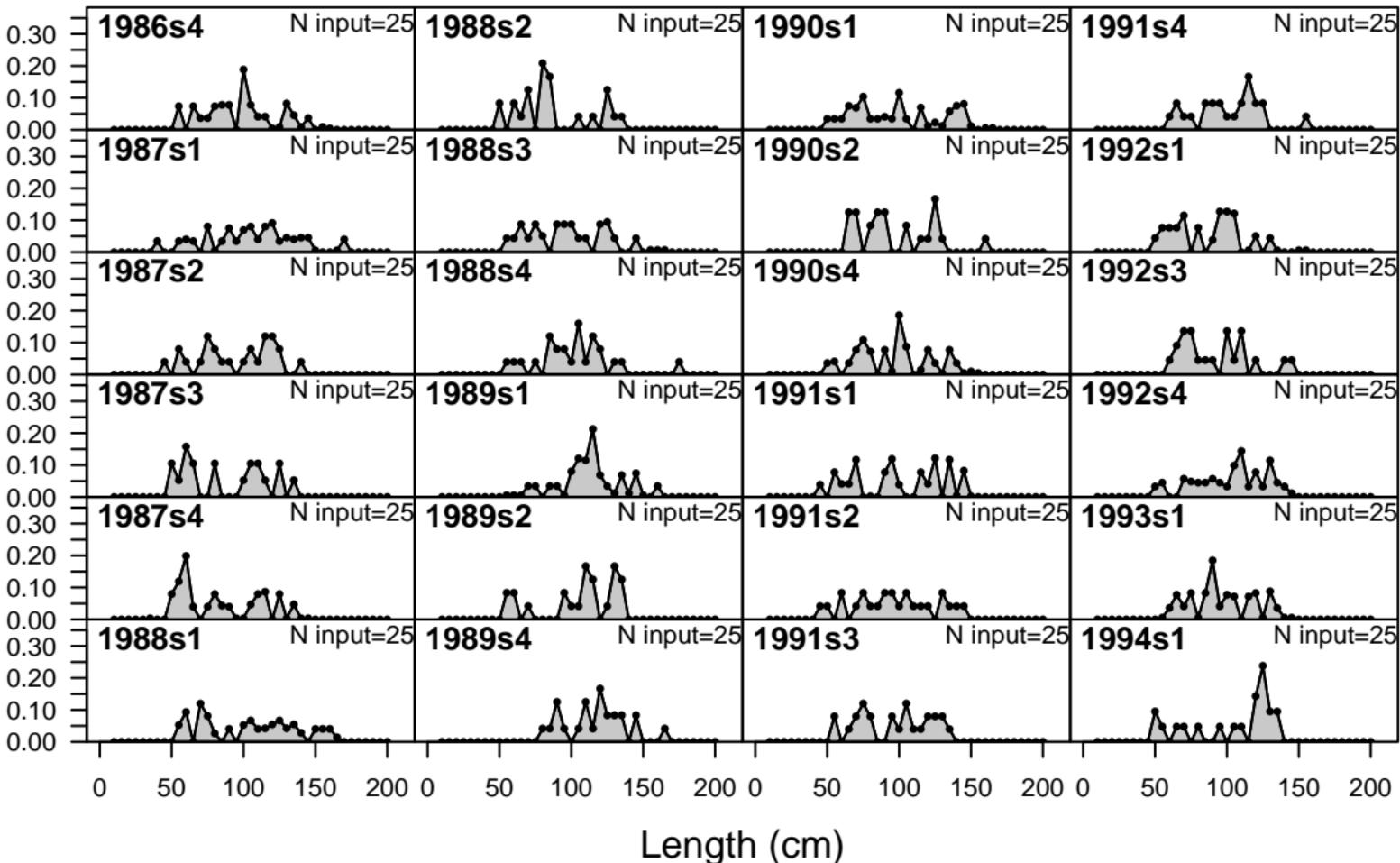
Proportion



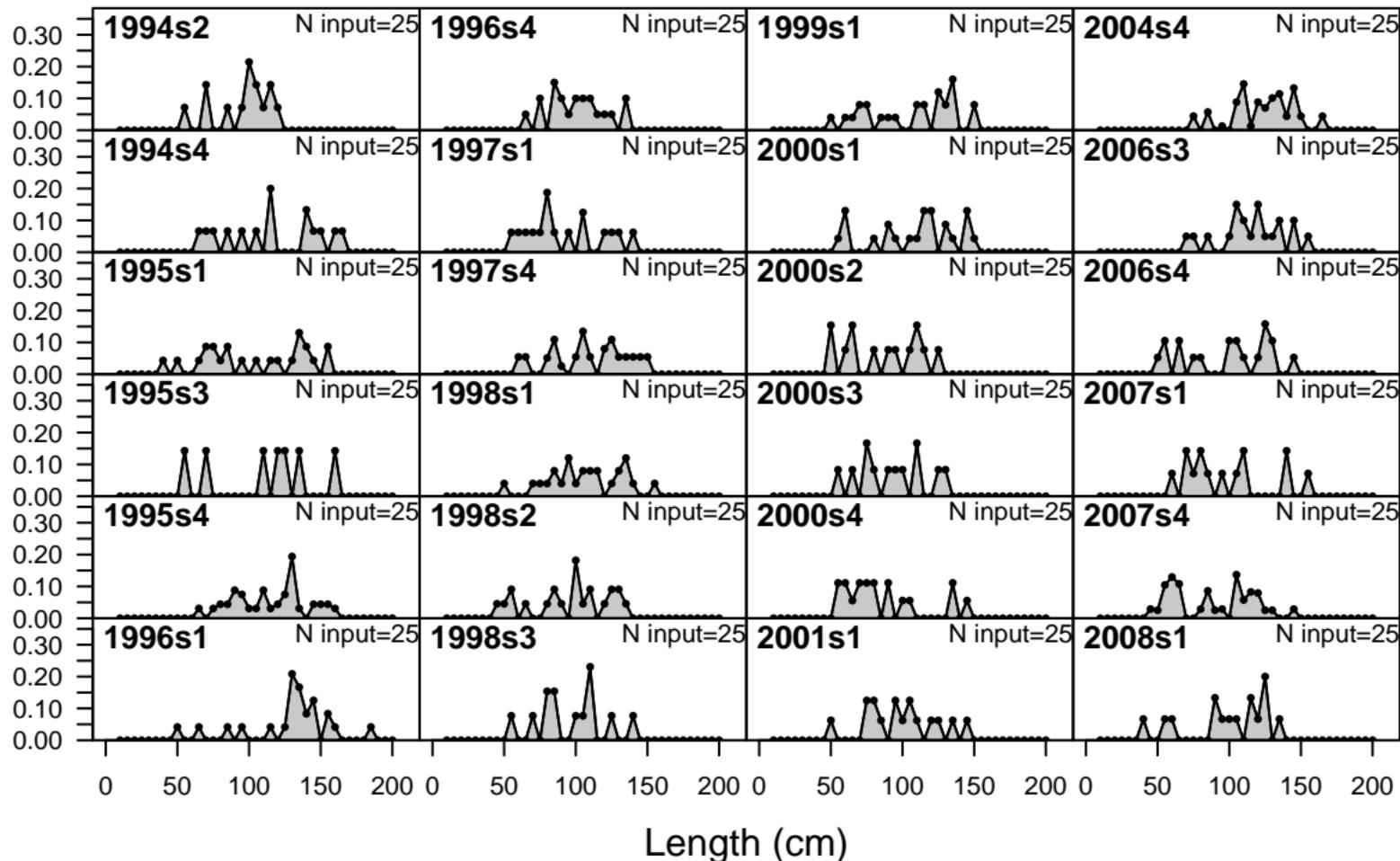
Proportion



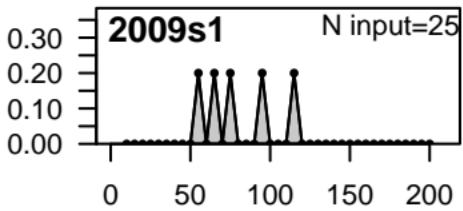
Proportion



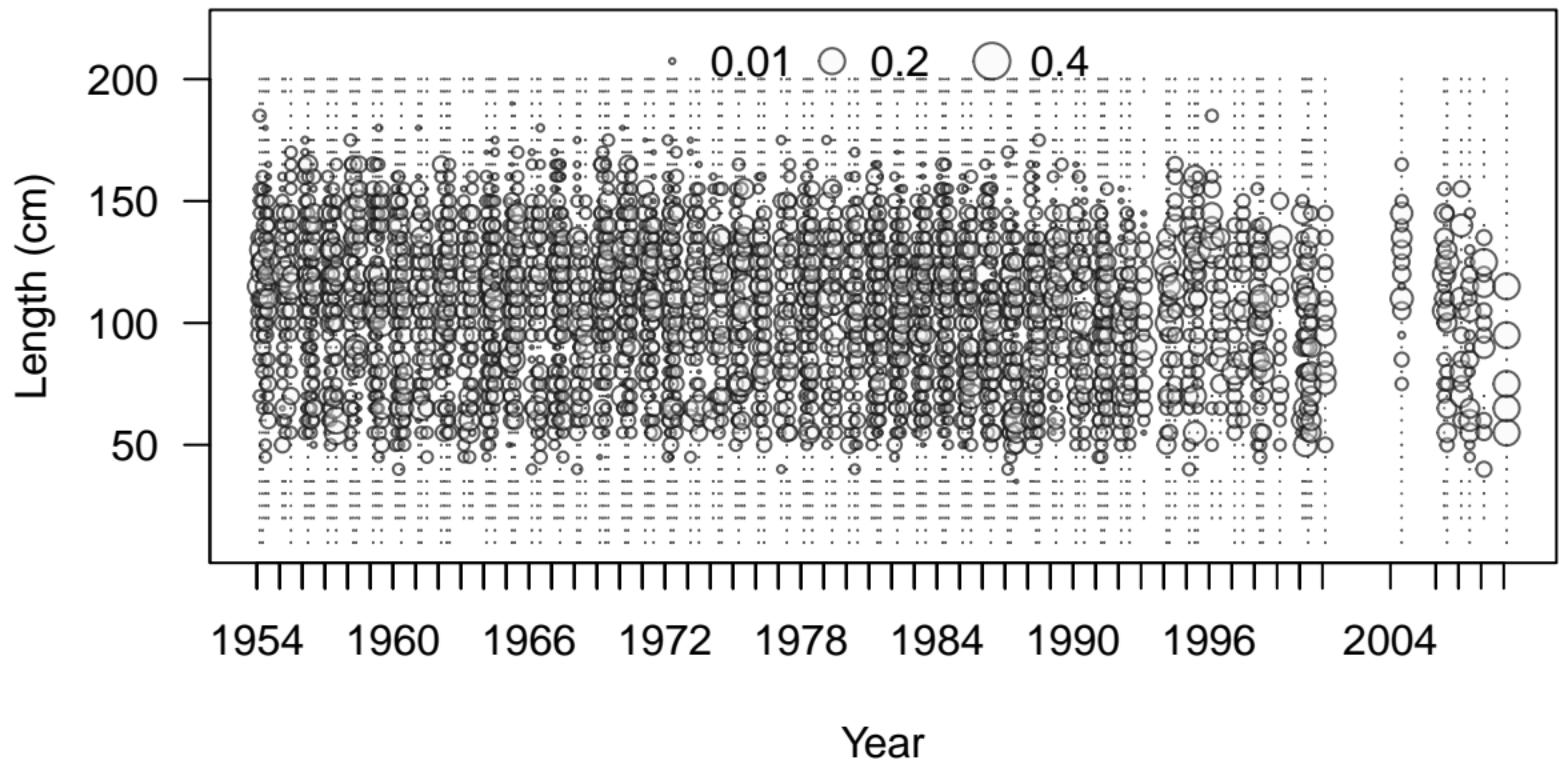
Proportion



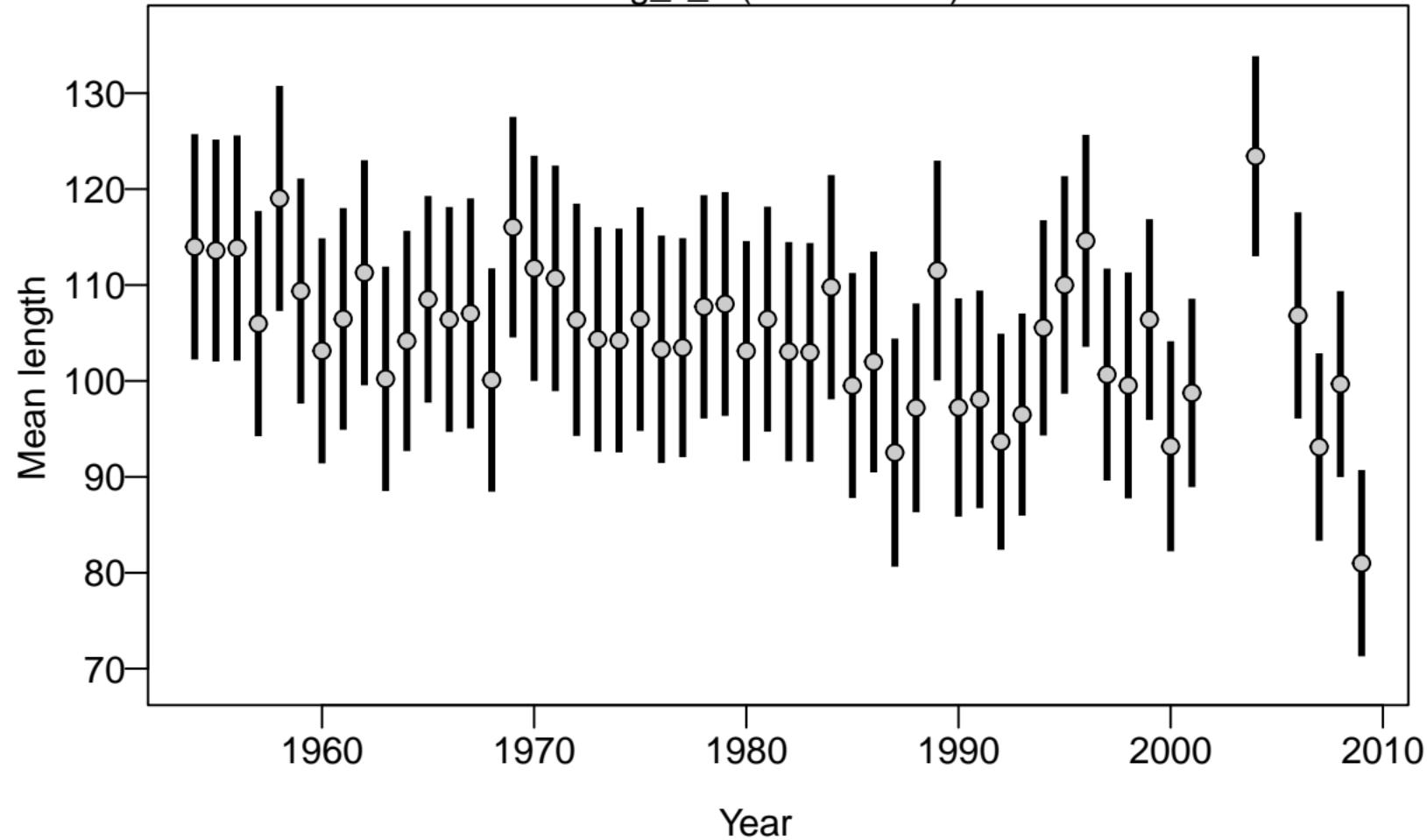
Proportion



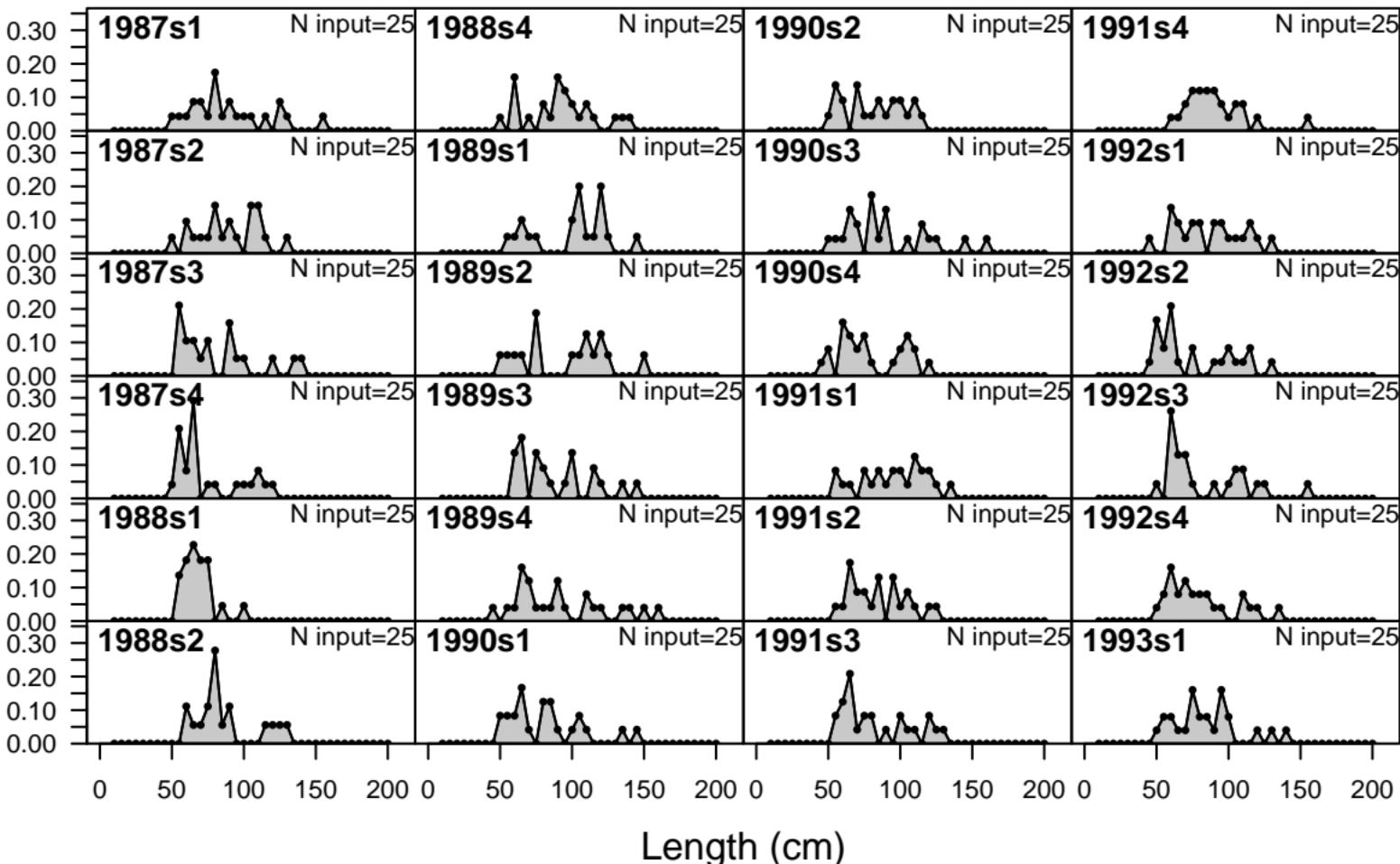
Length (cm)



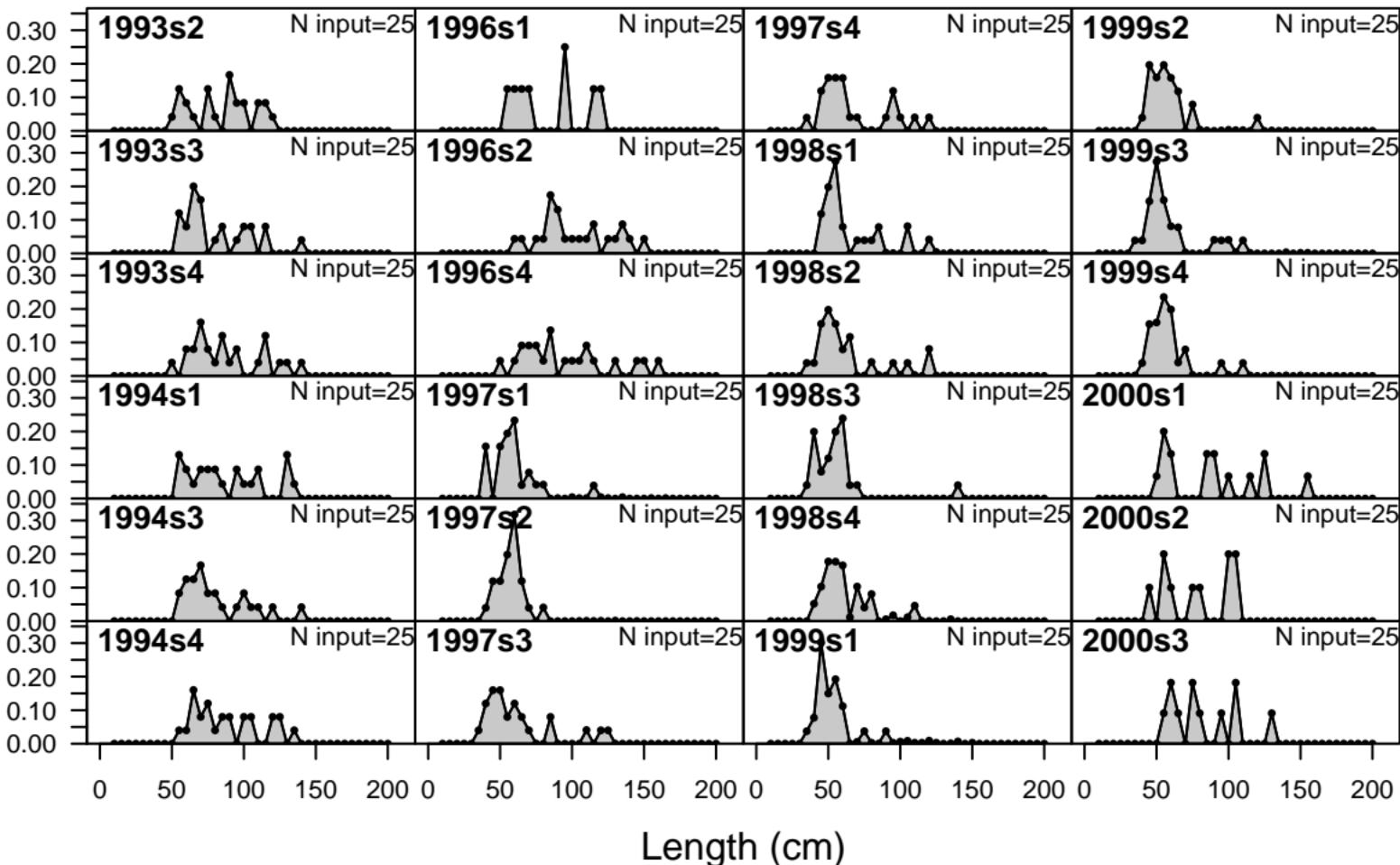
fishing_ll_4 (whole catch)



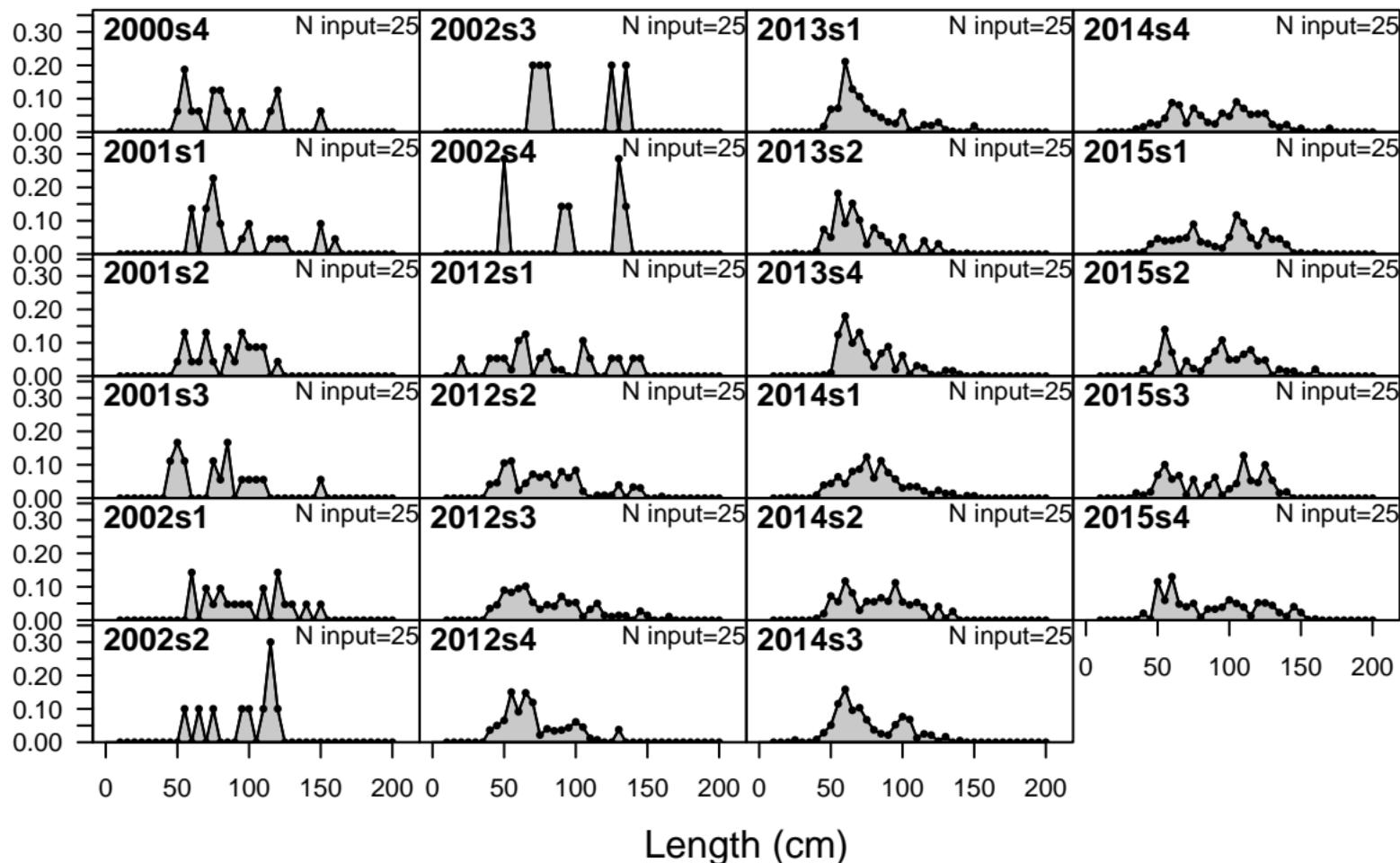
Proportion

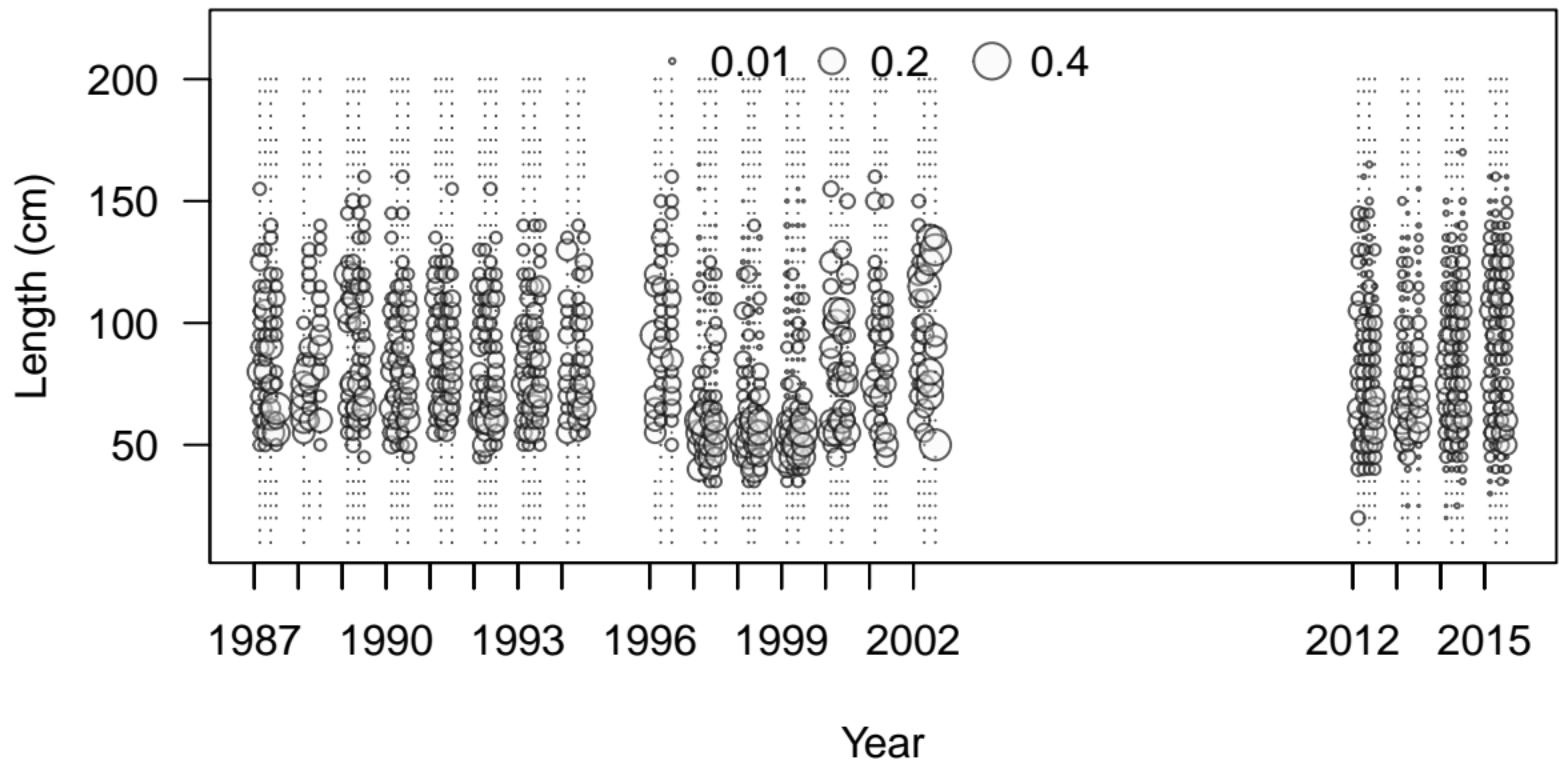


Proportion

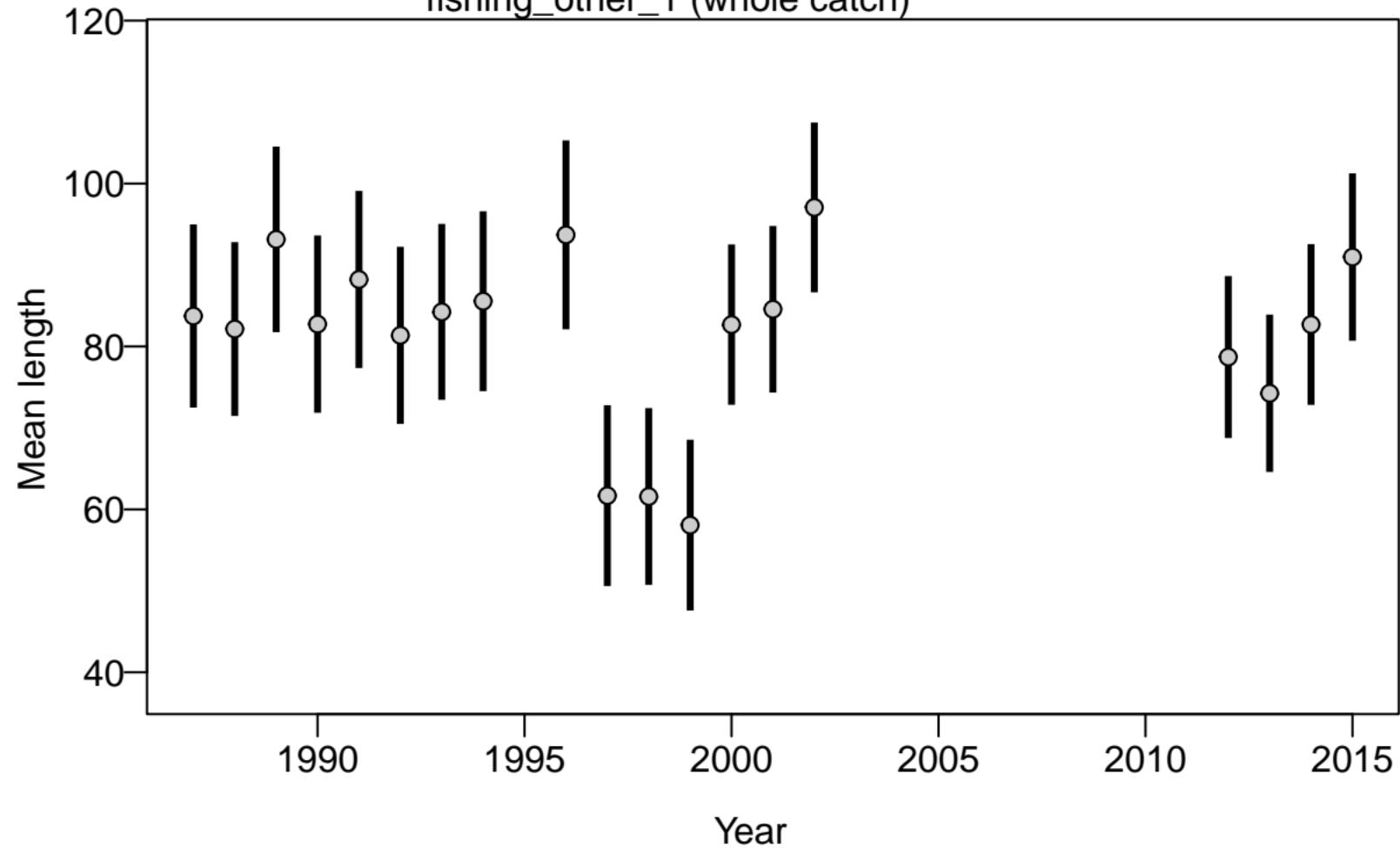


Proportion

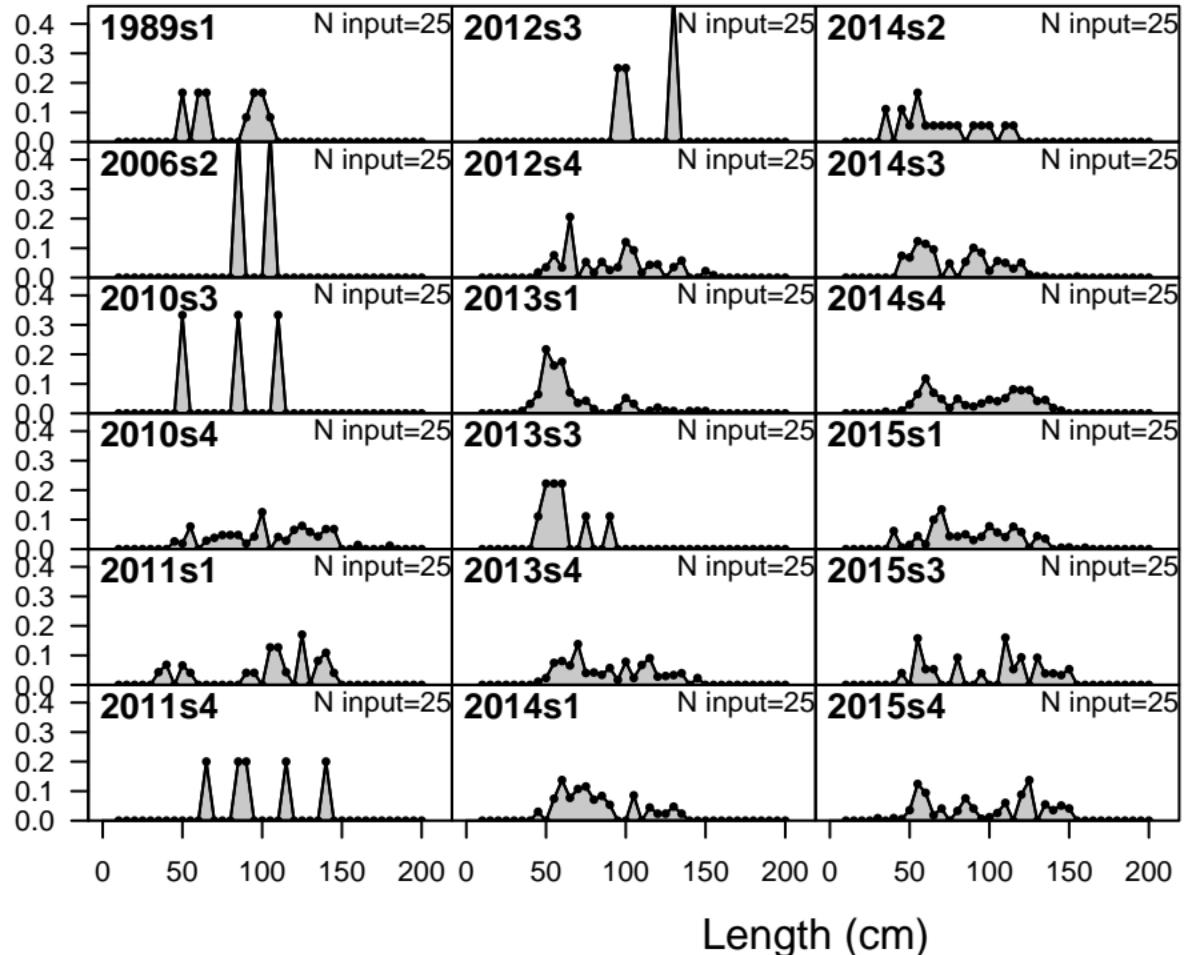


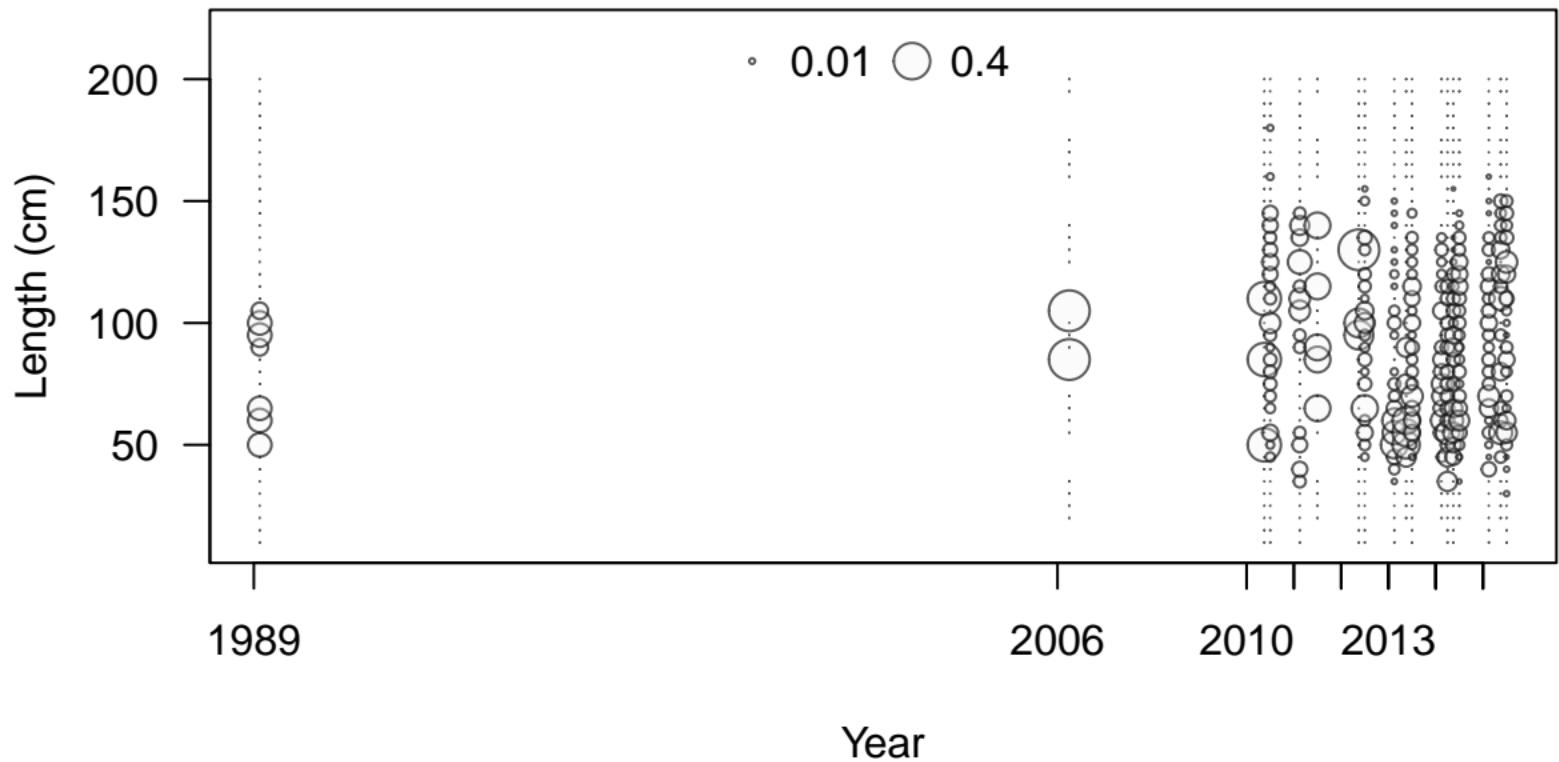


fishing_other_1 (whole catch)

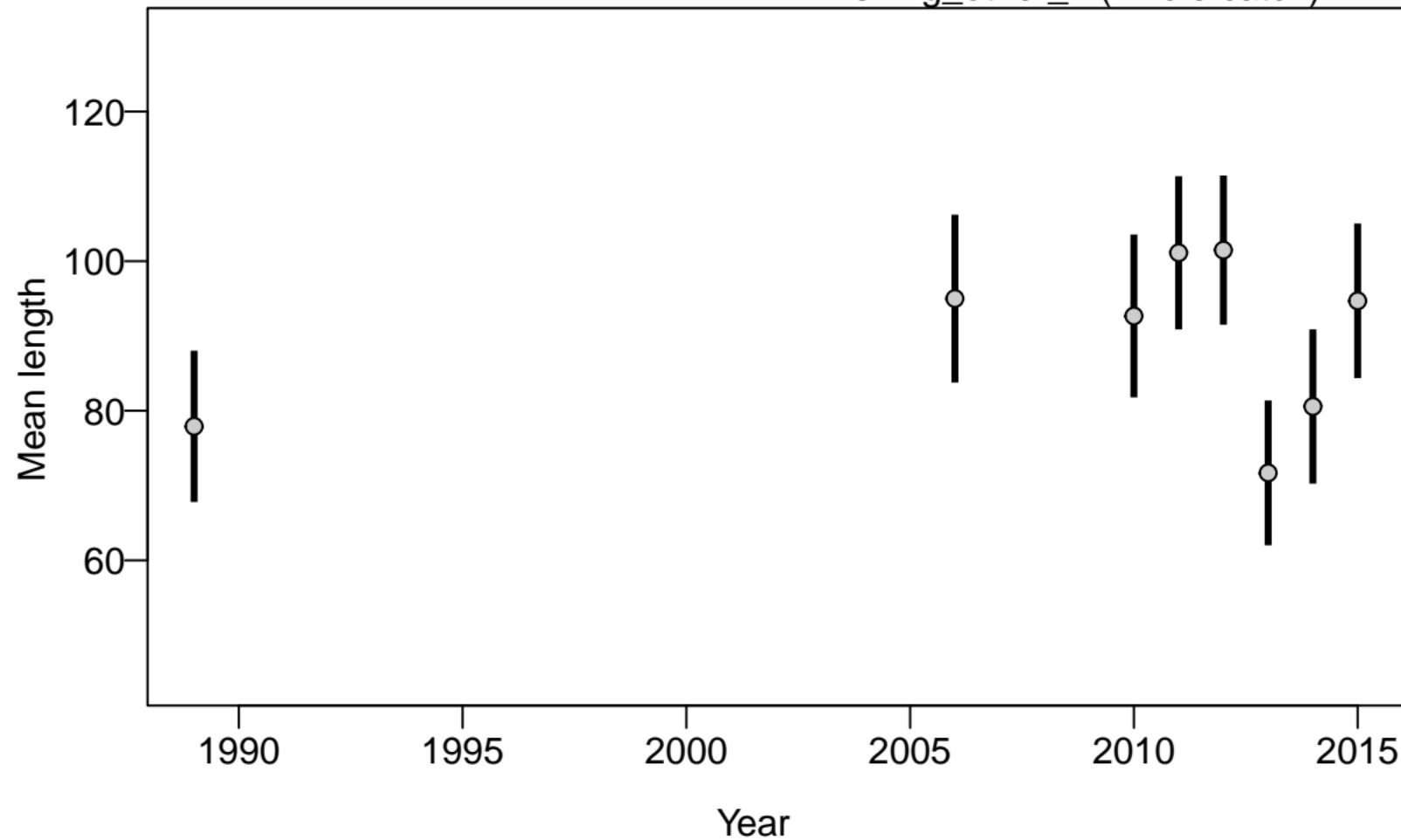


Proportion

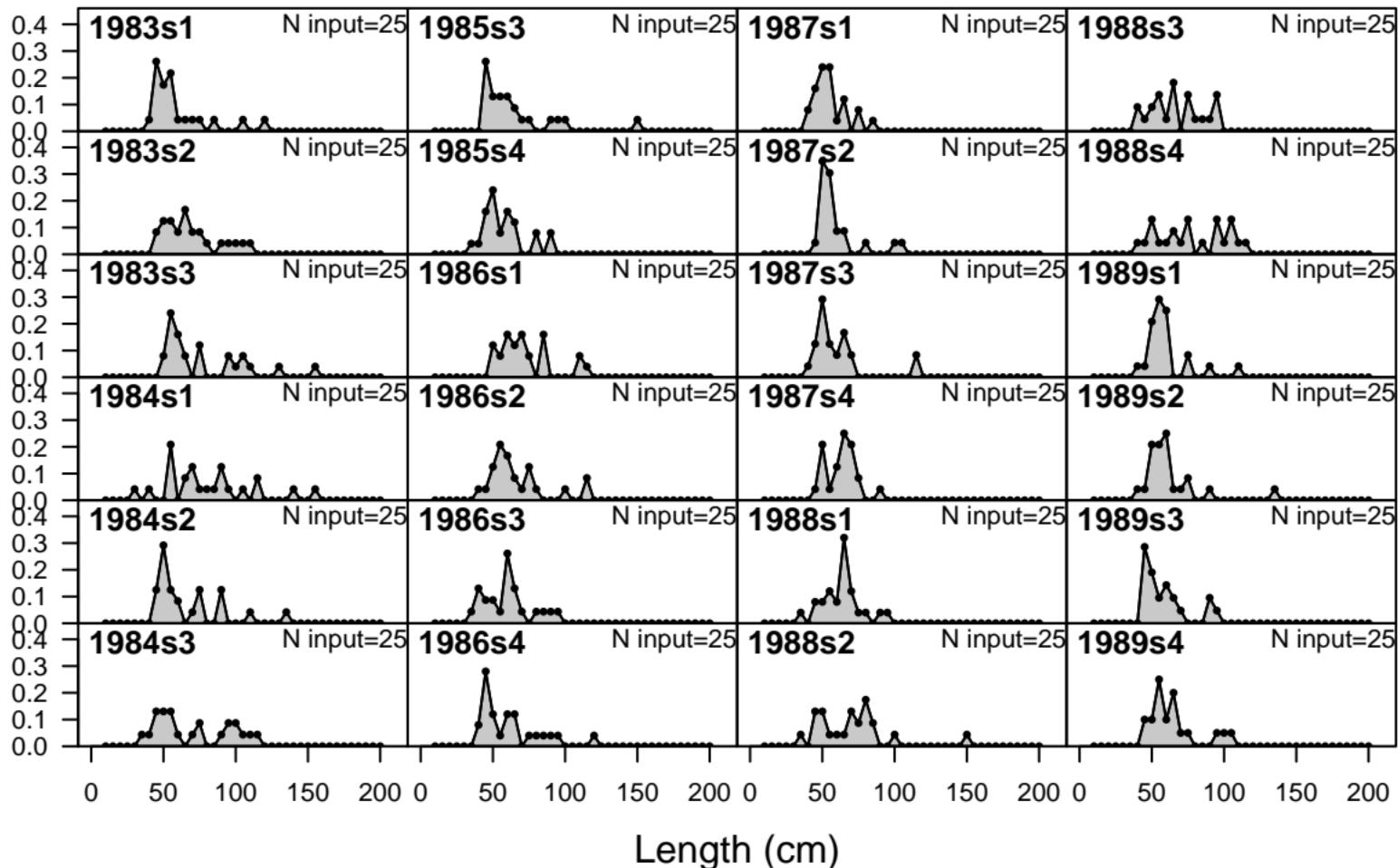




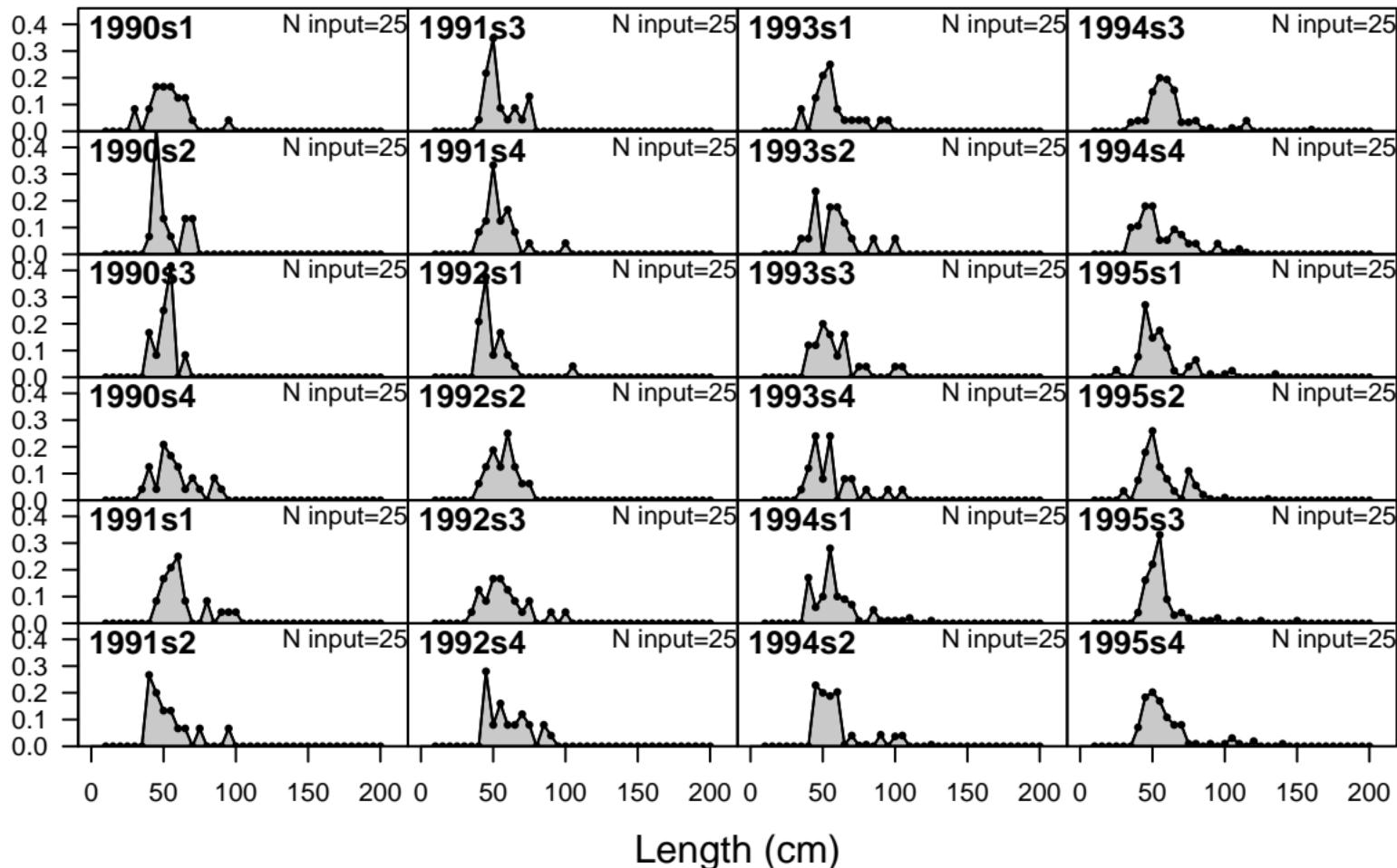
fishing_other_4 (whole catch)



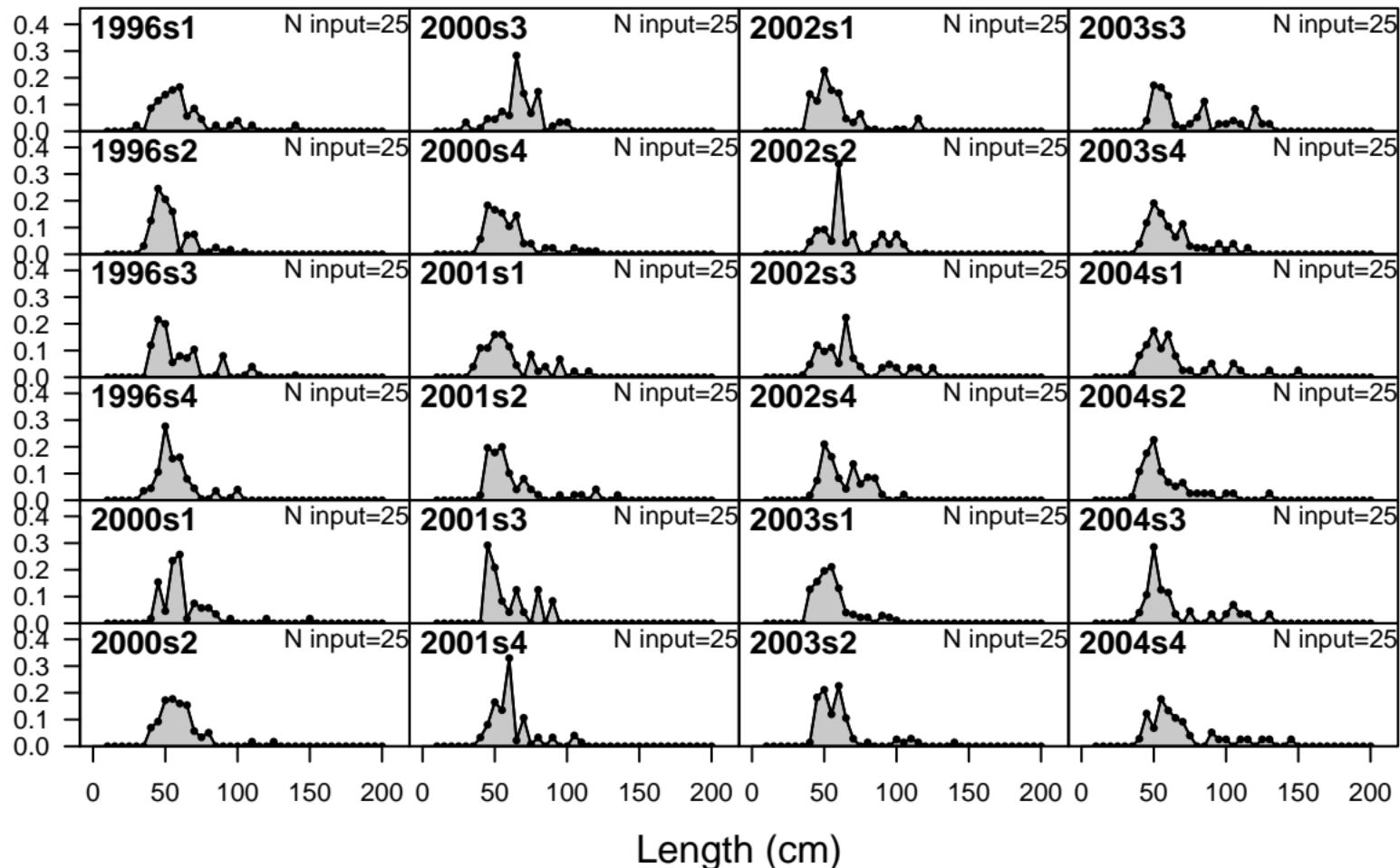
Proportion



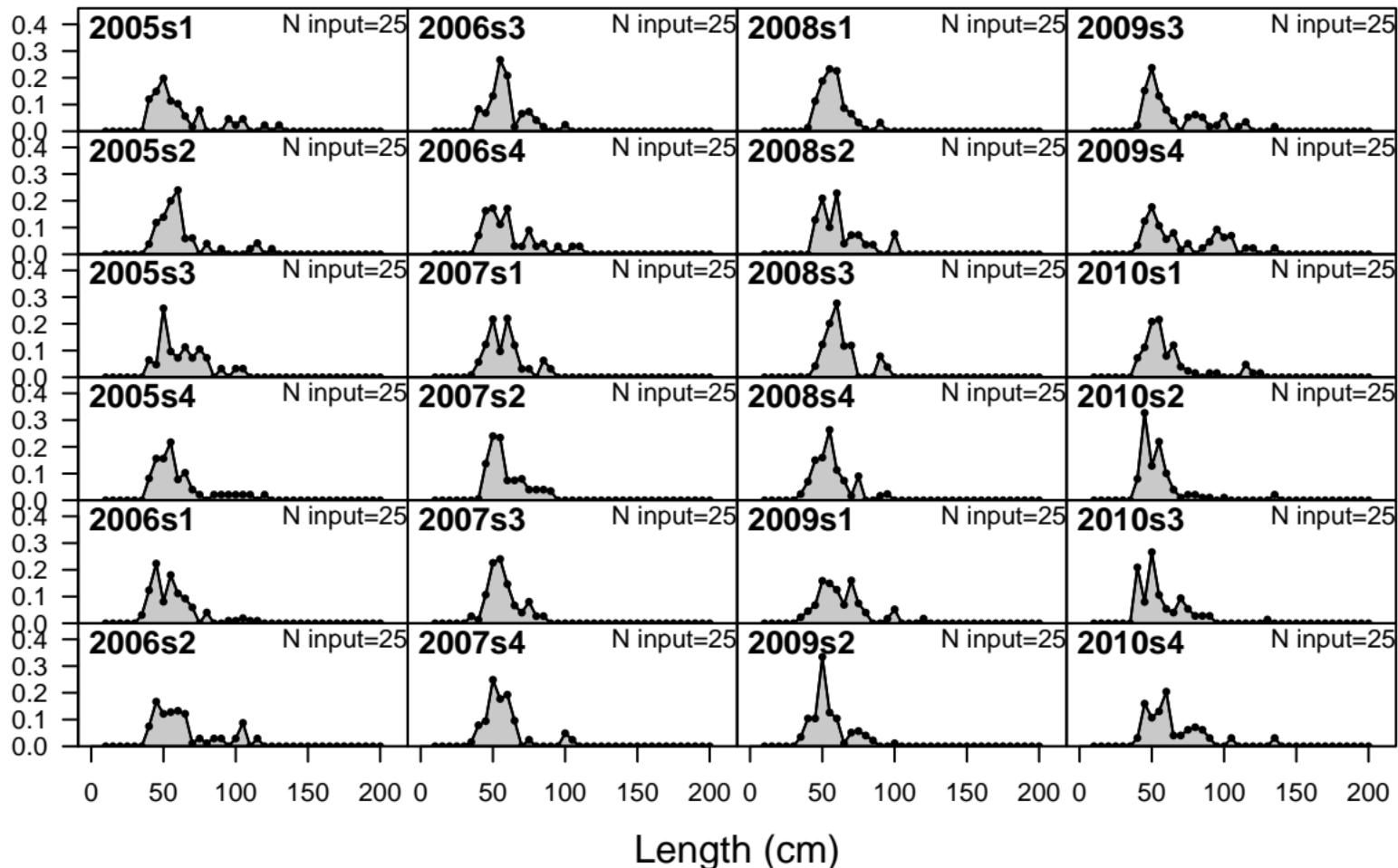
Proportion



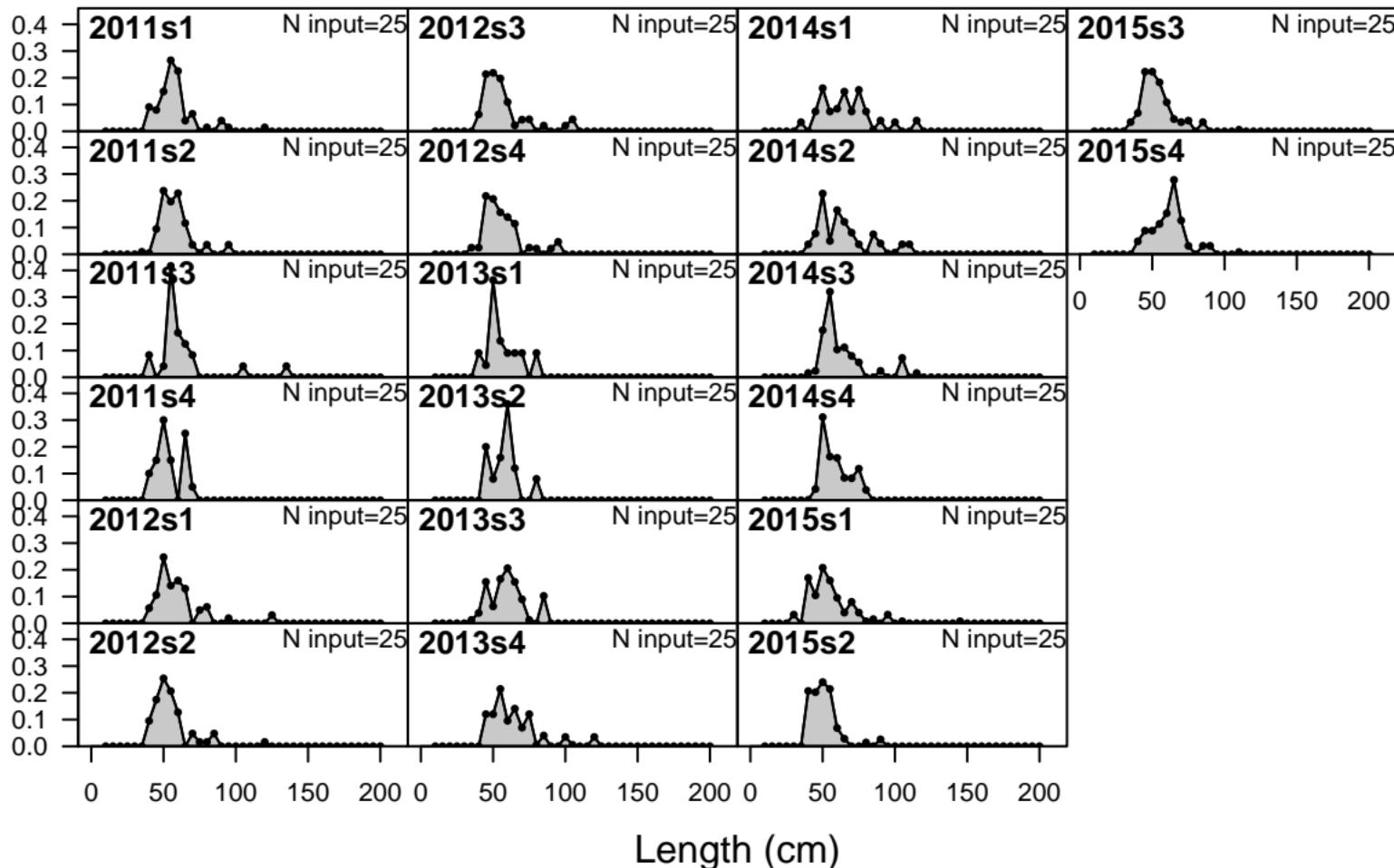
Proportion

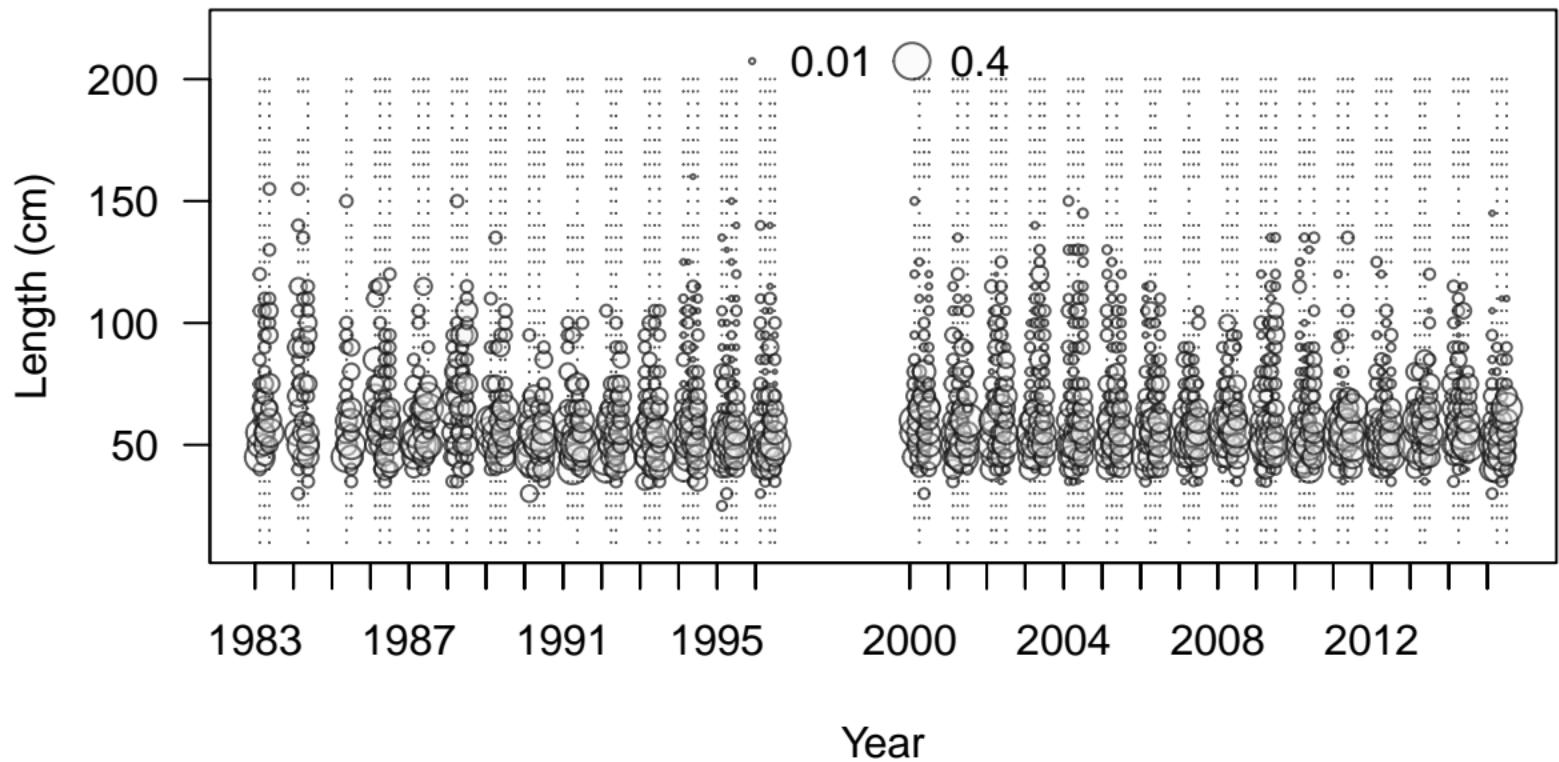


Proportion

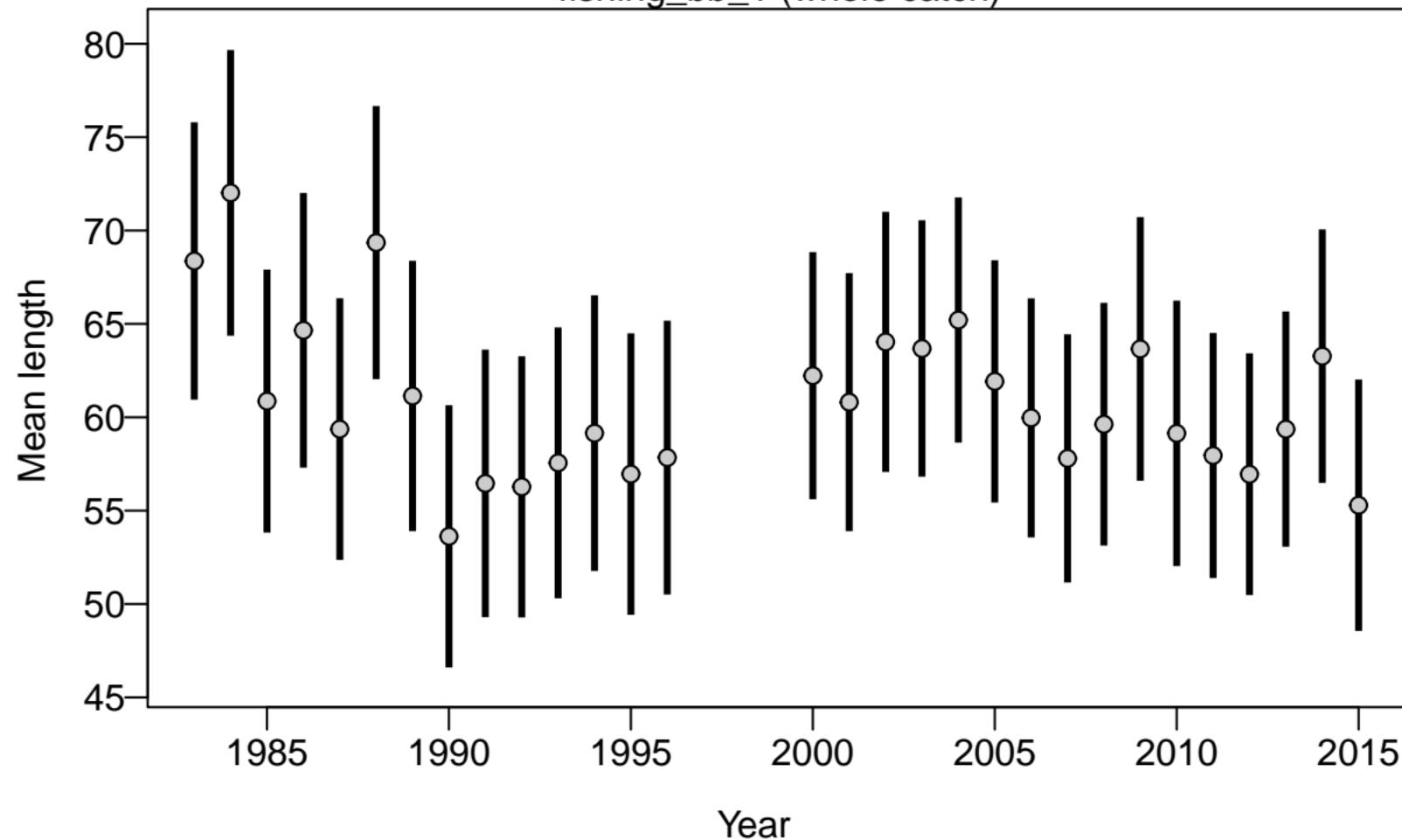


Proportion

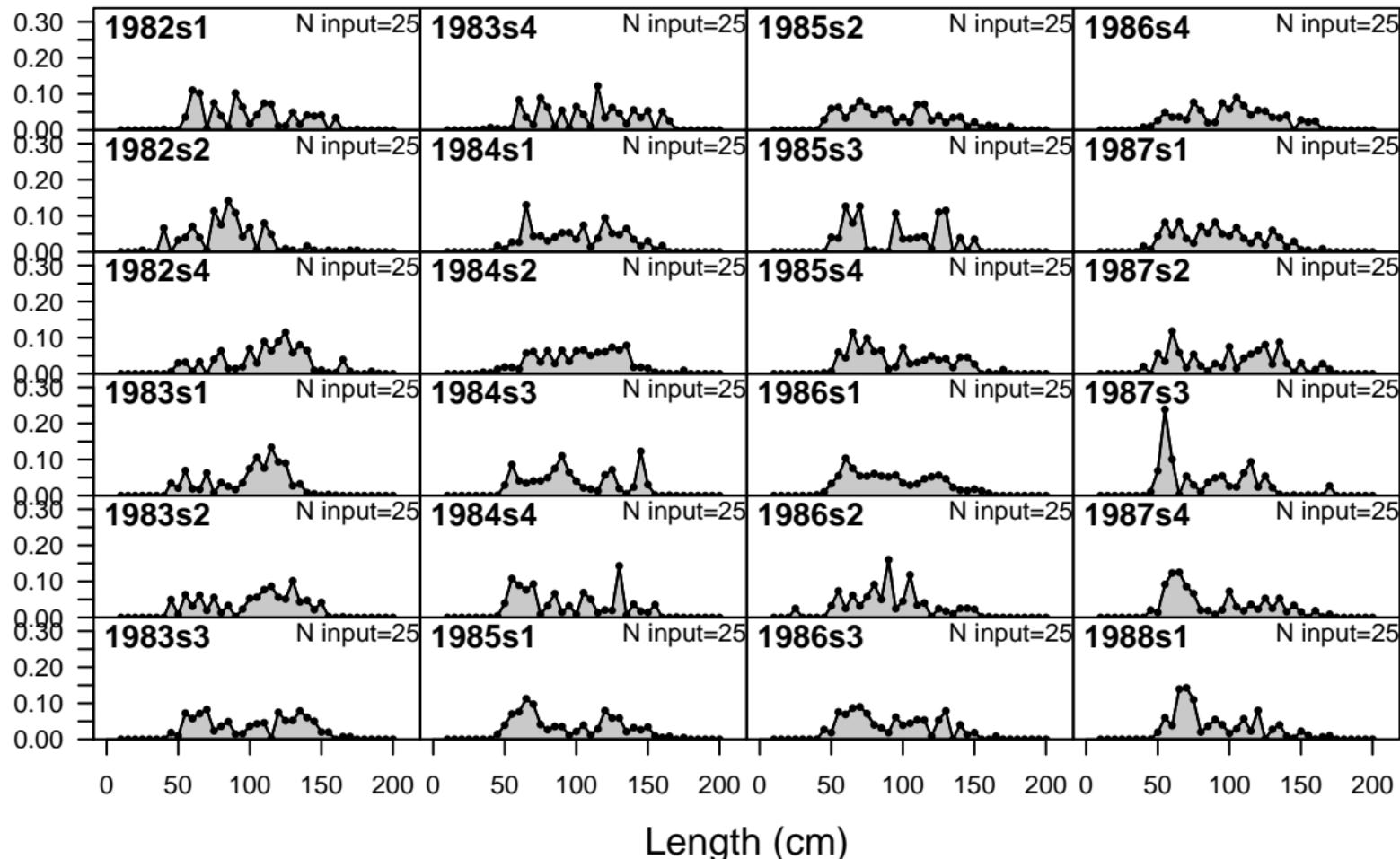




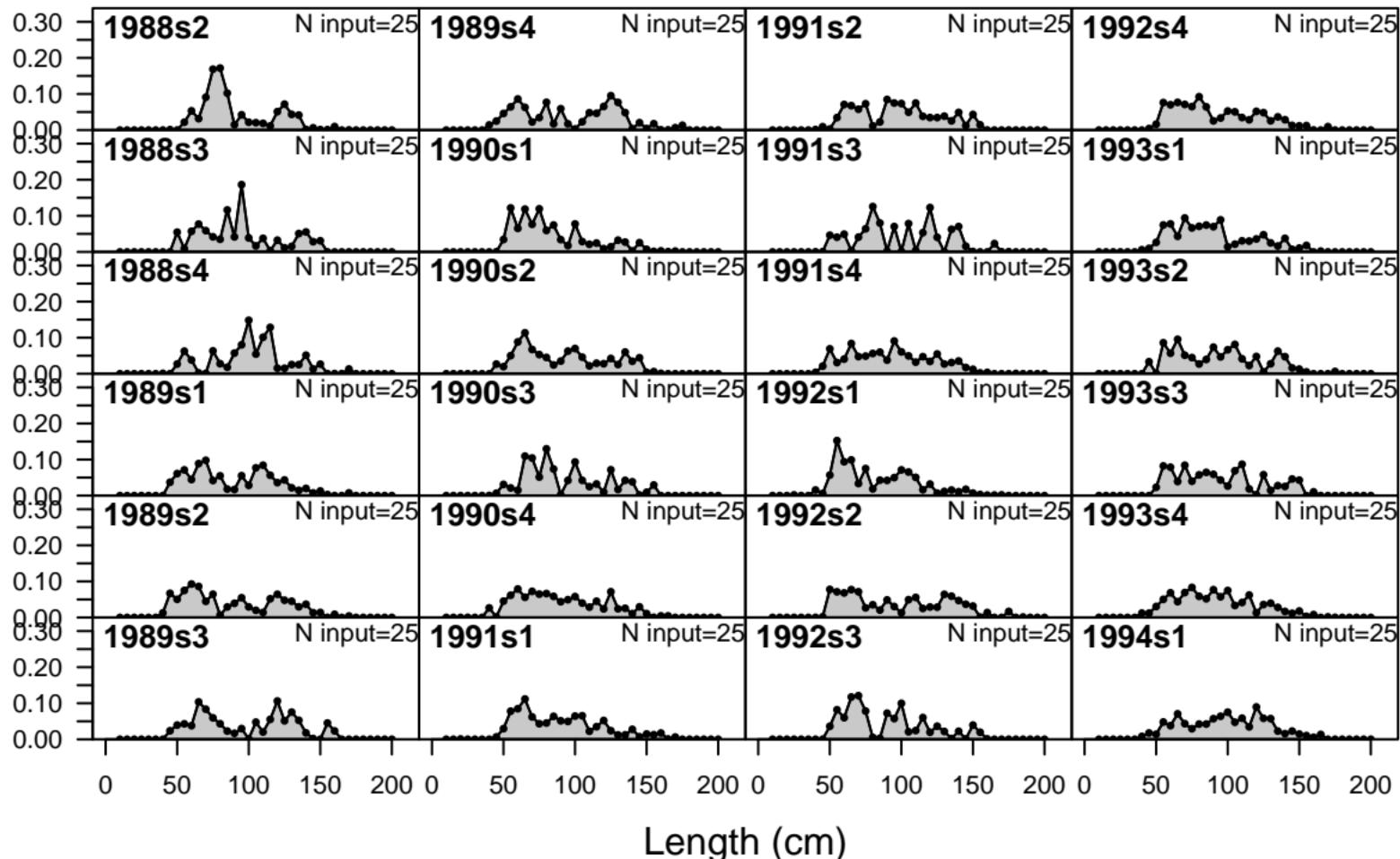
fishing_bb_1 (whole catch)



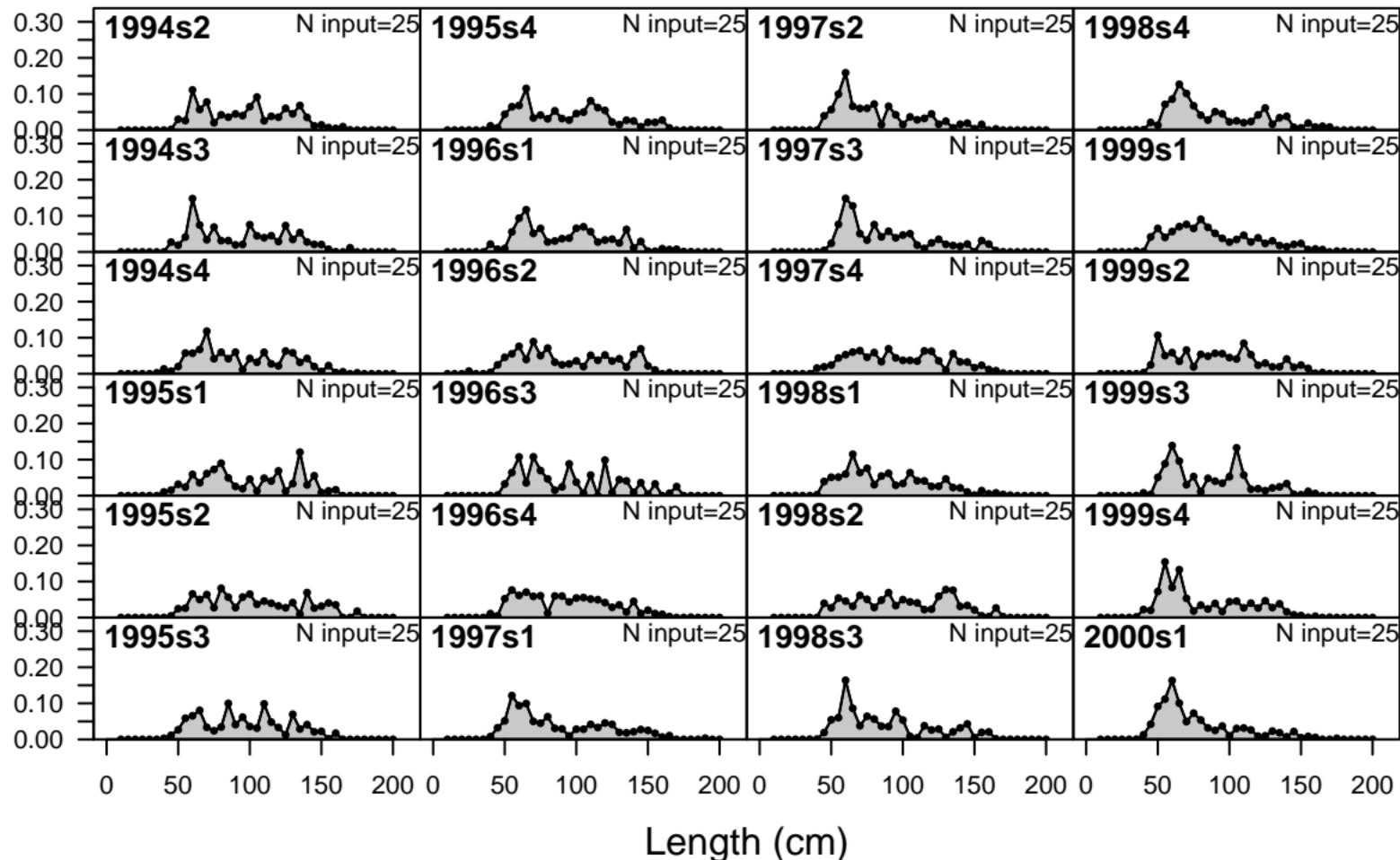
Proportion



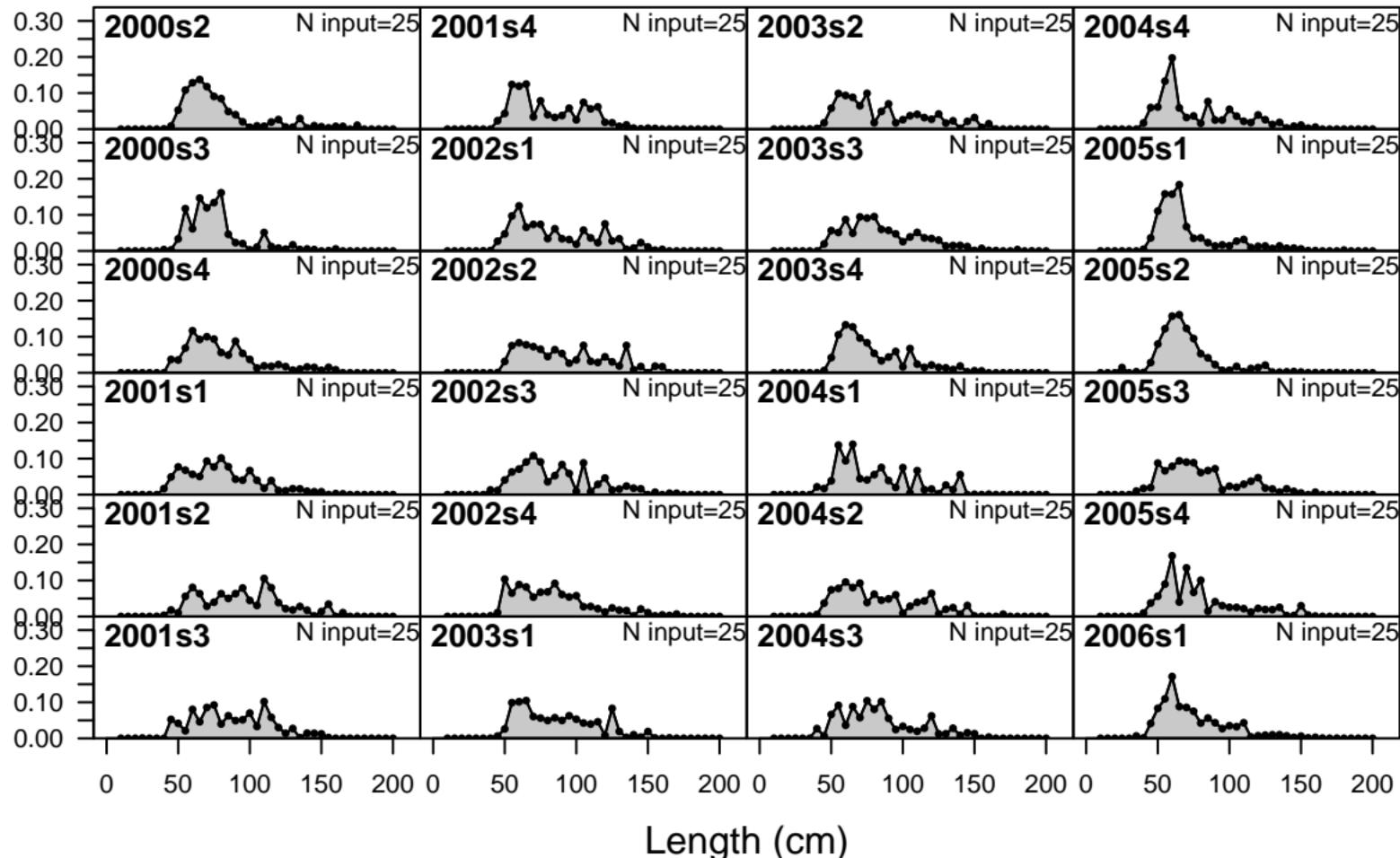
Proportion



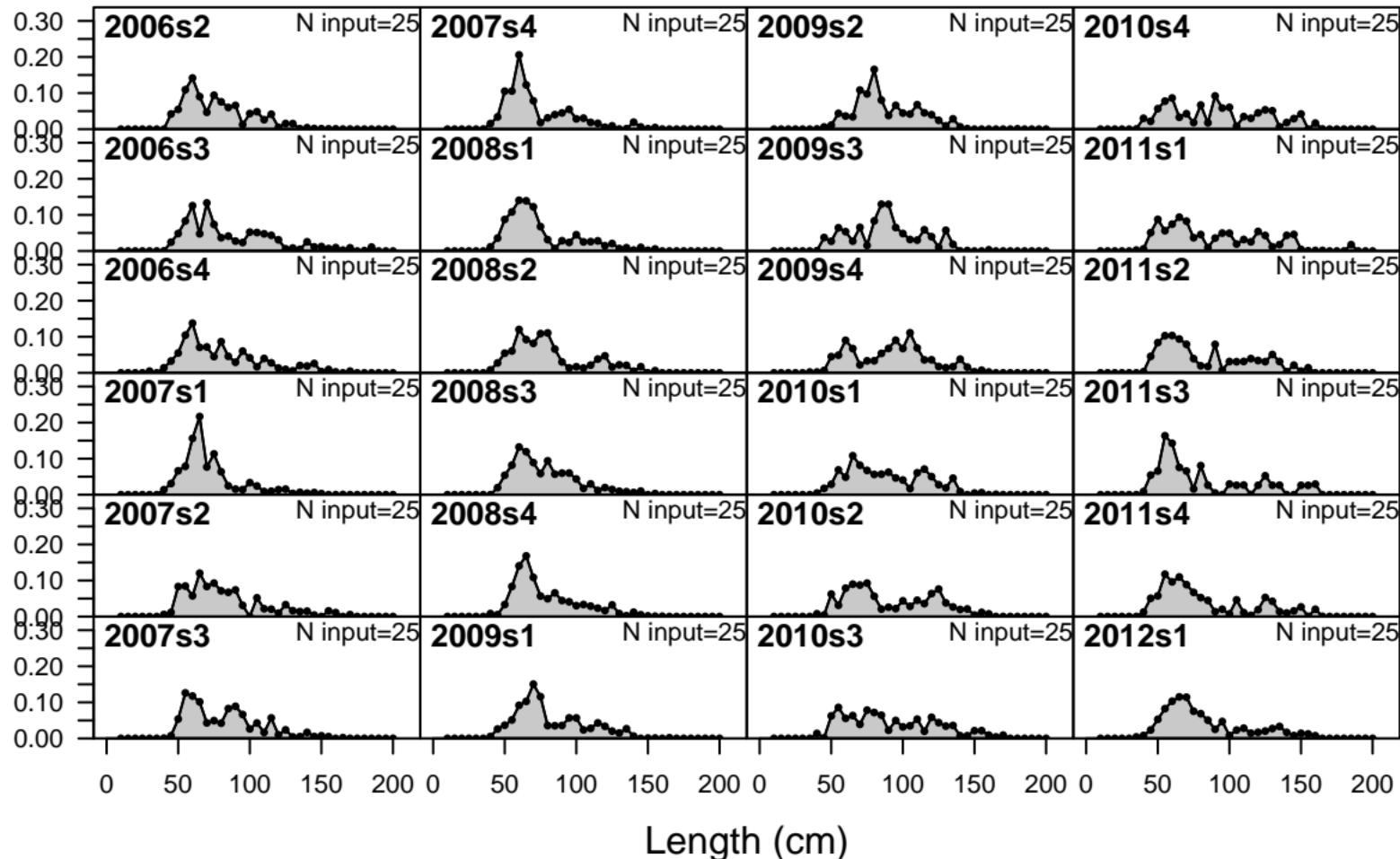
Proportion



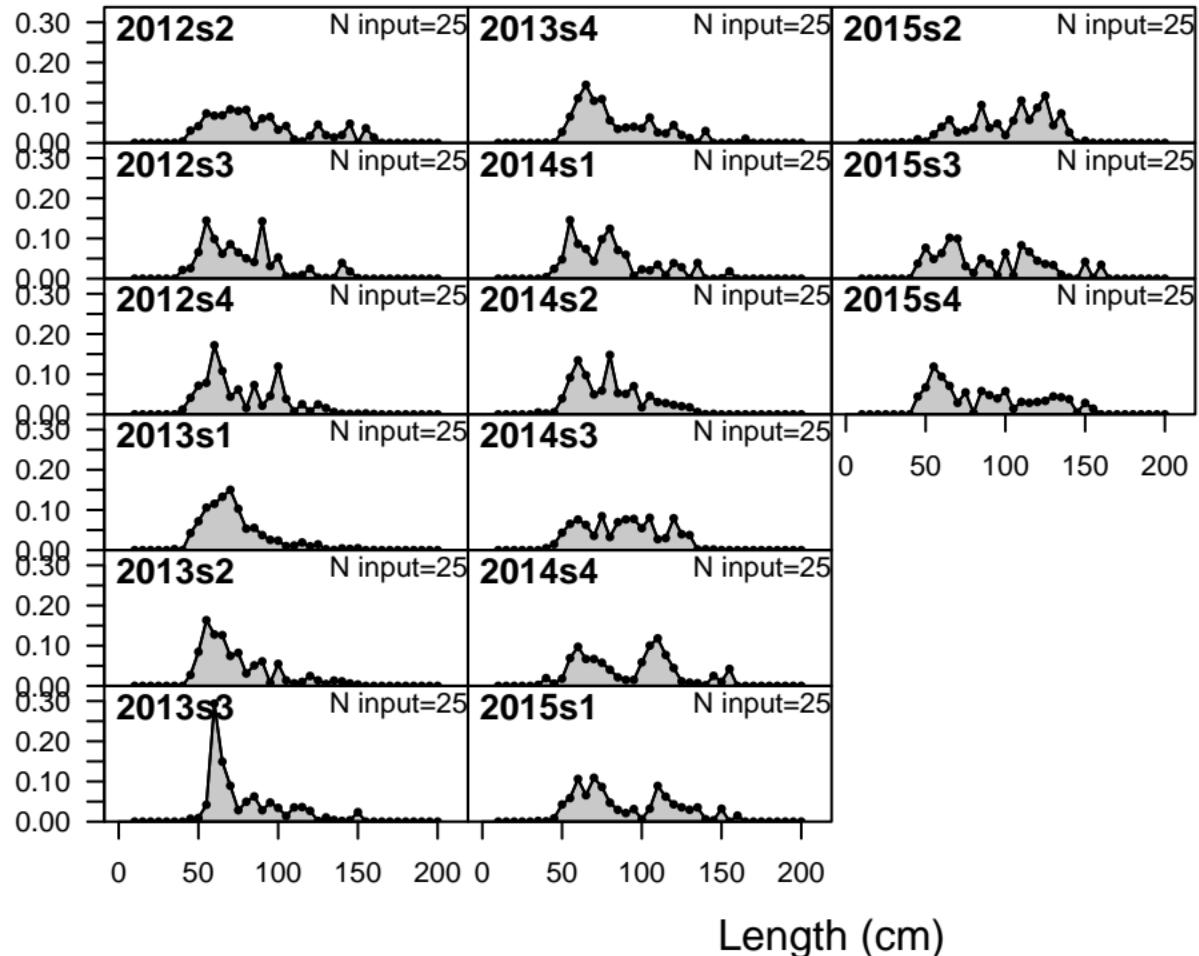
Proportion

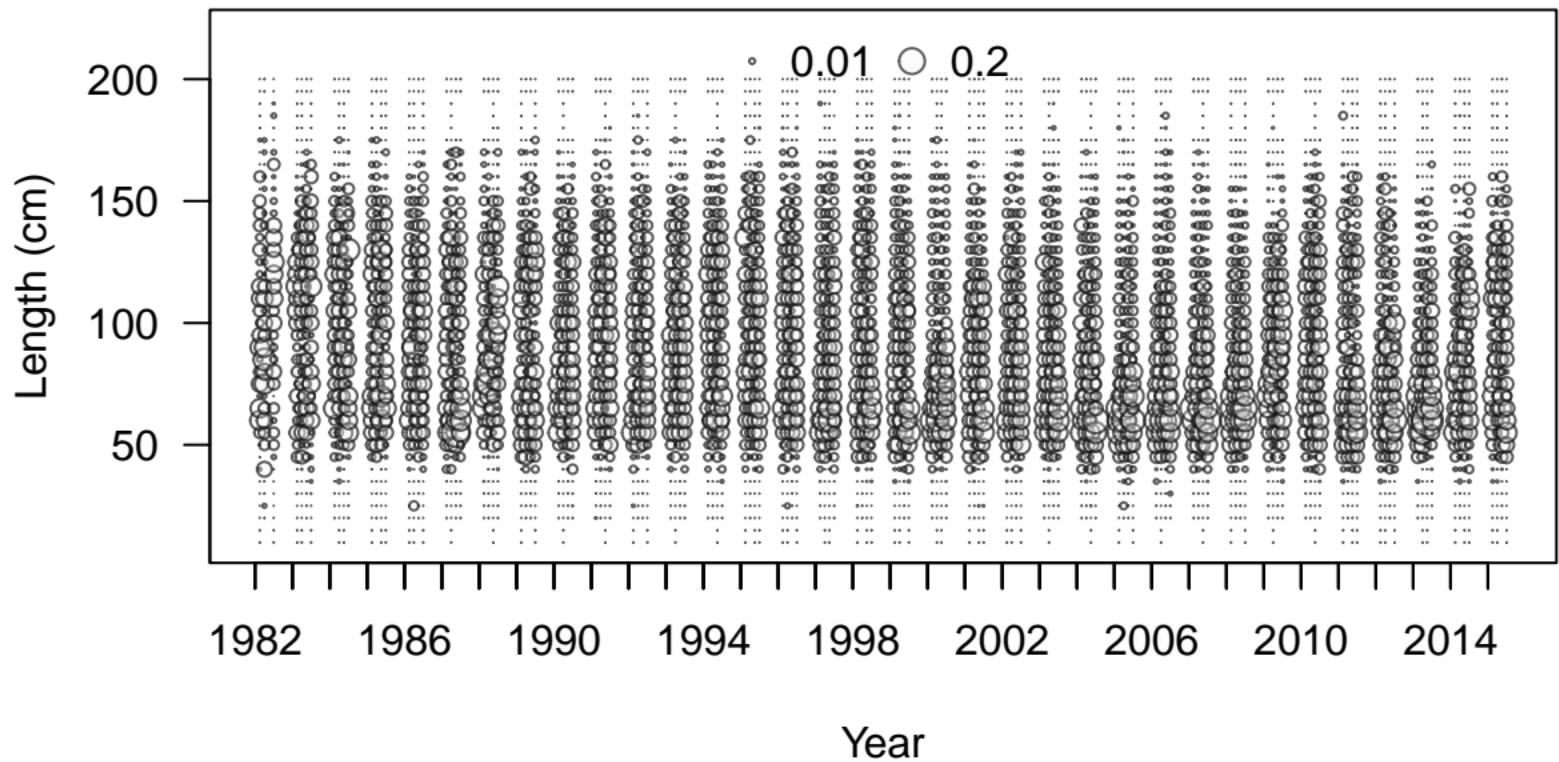


Proportion

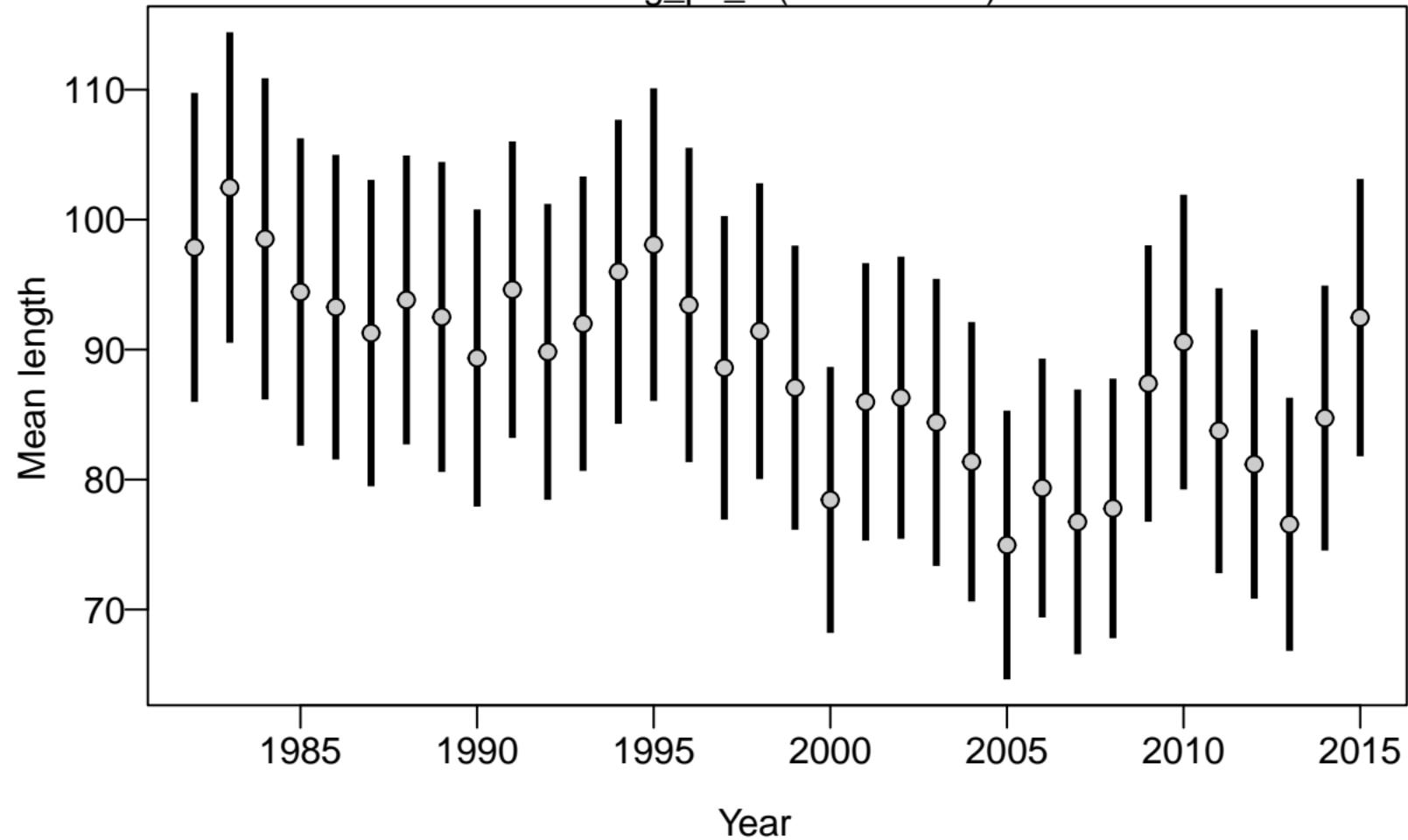


Proportion

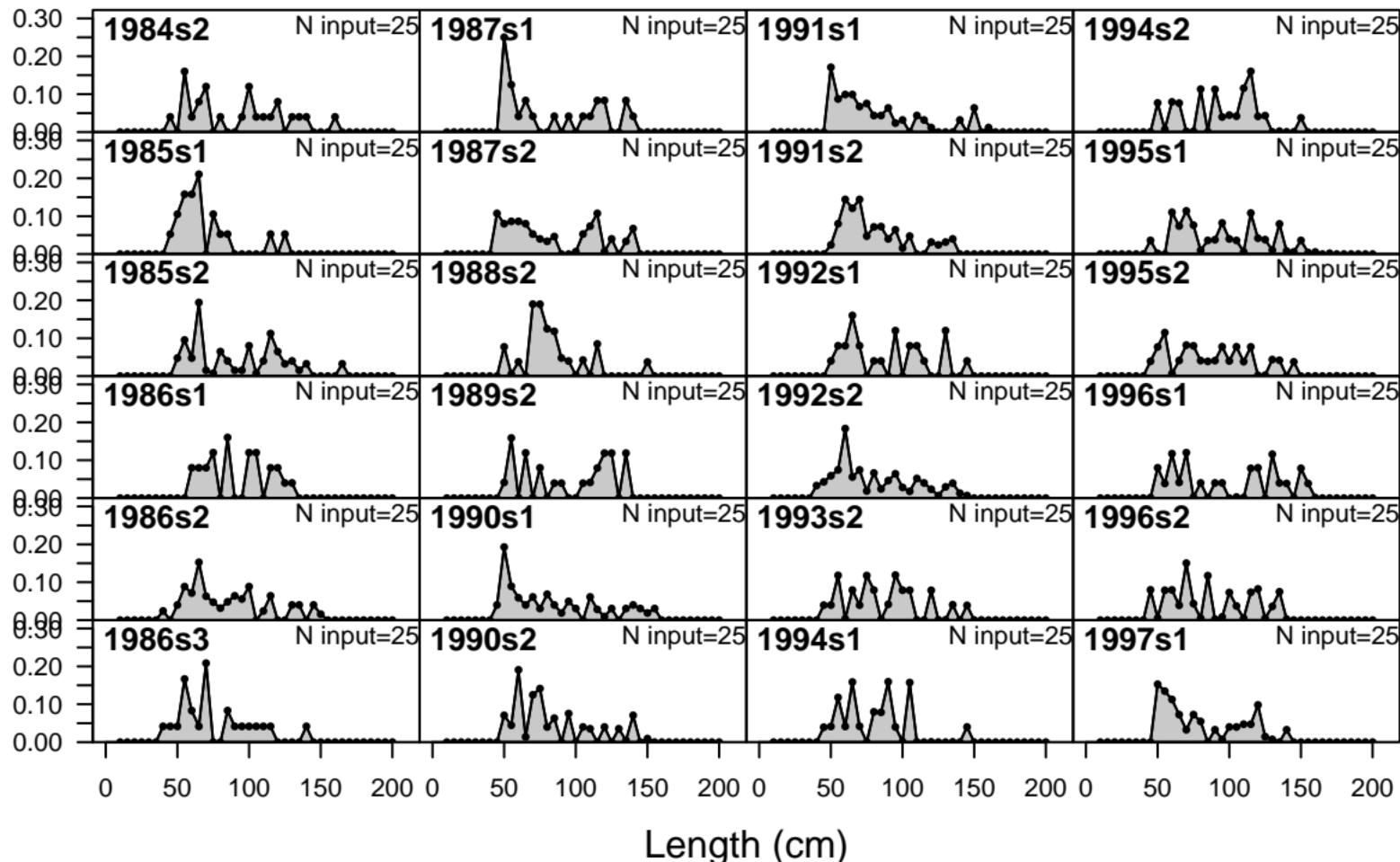




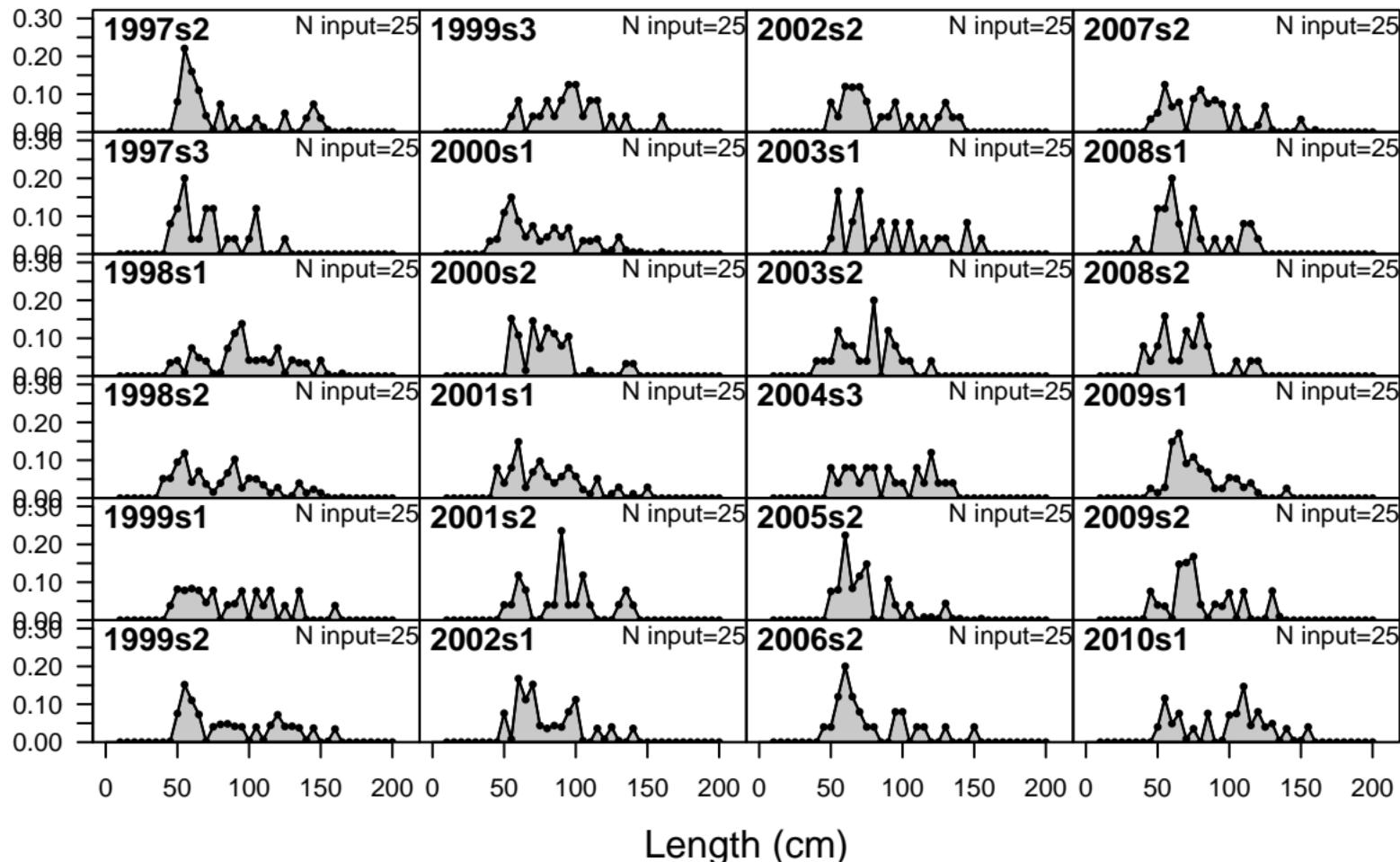
fishing_ps_1 (whole catch)



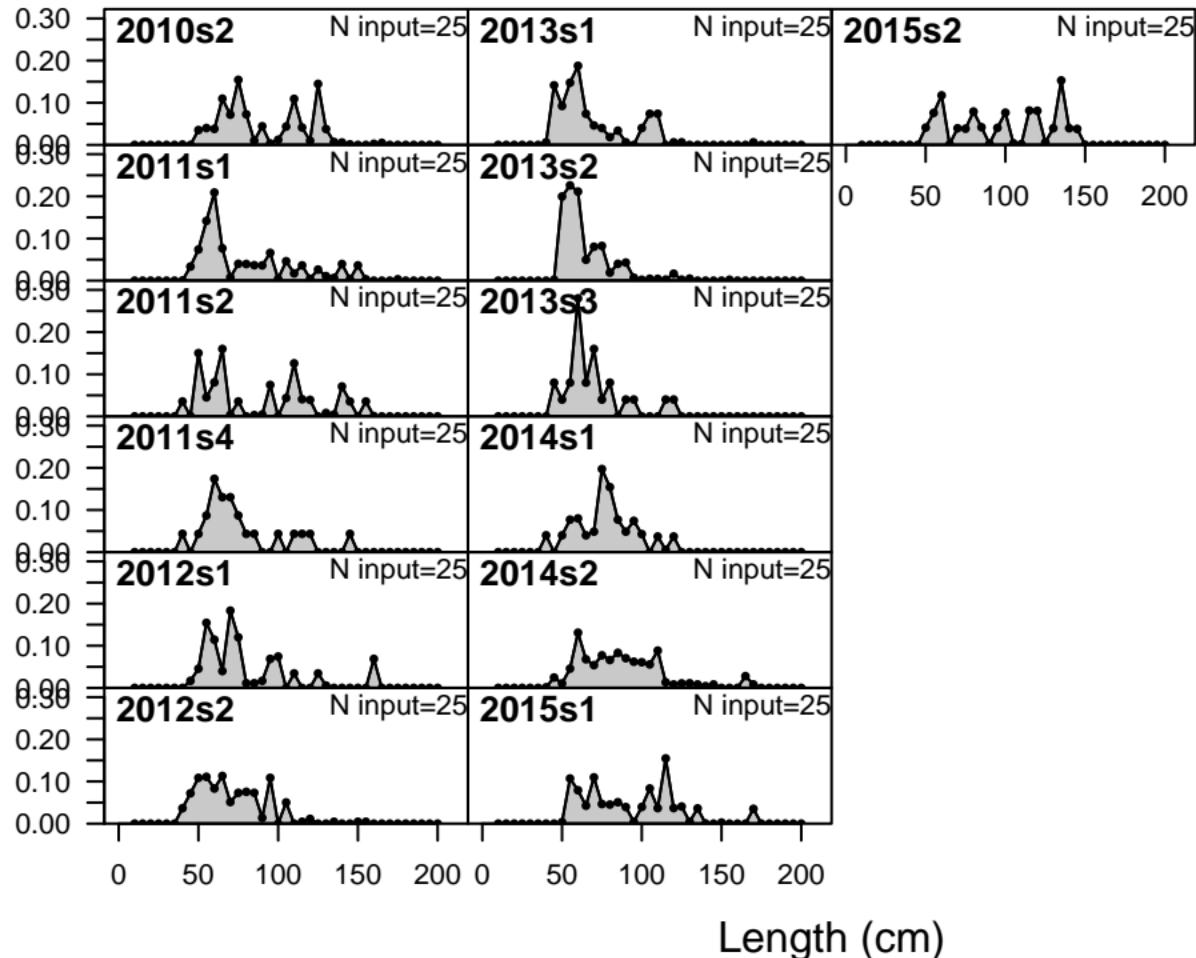
Proportion

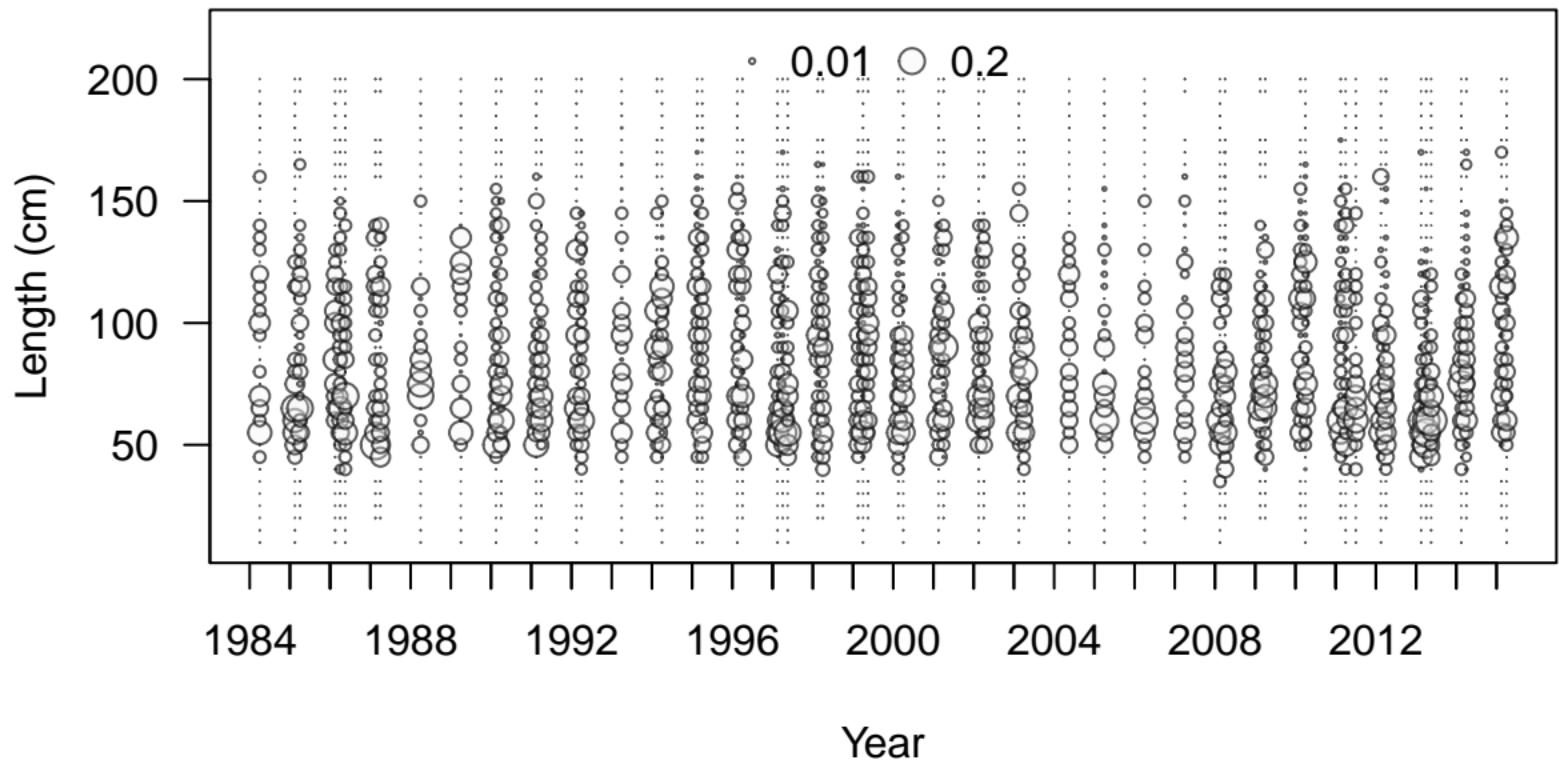


Proportion

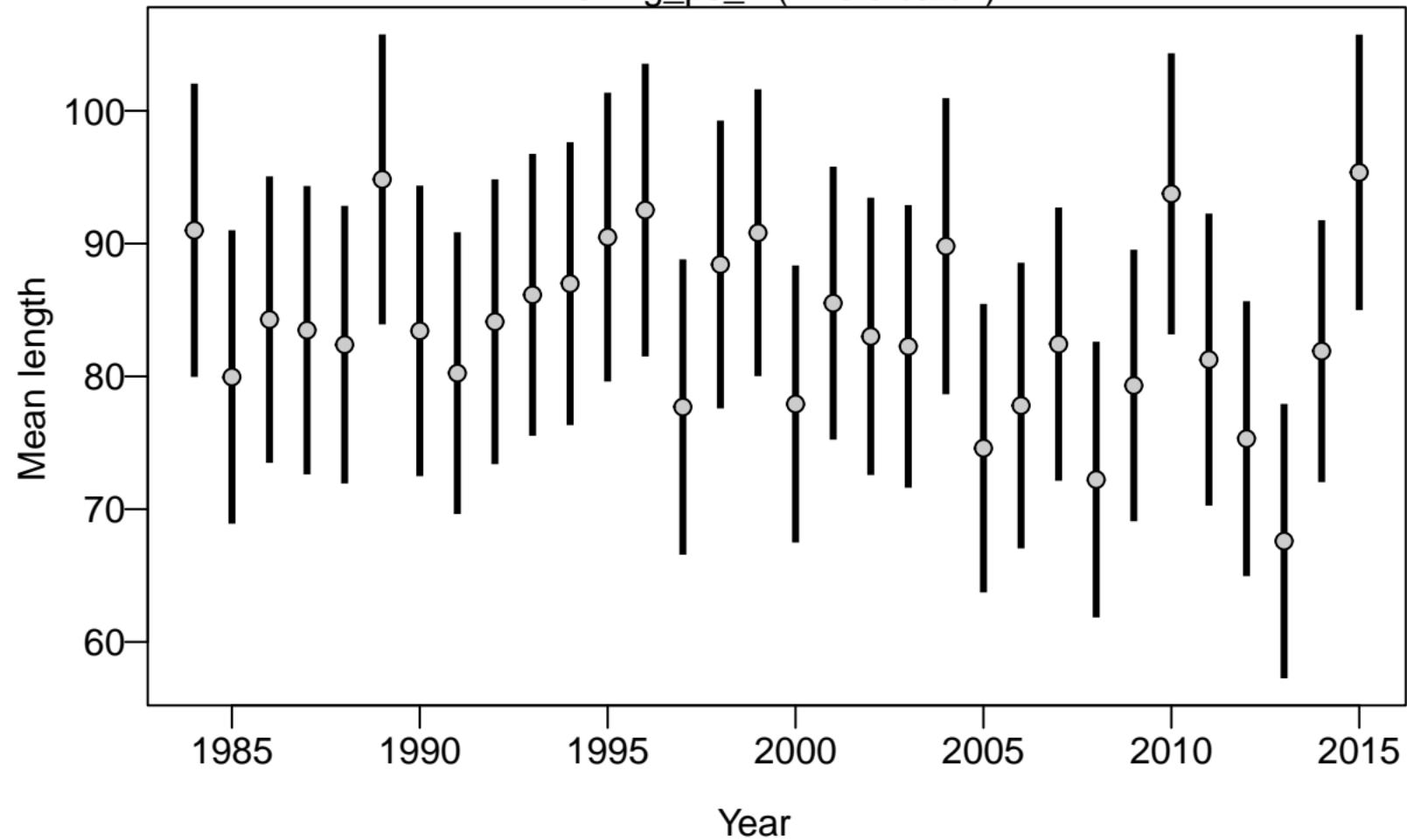


Proportion

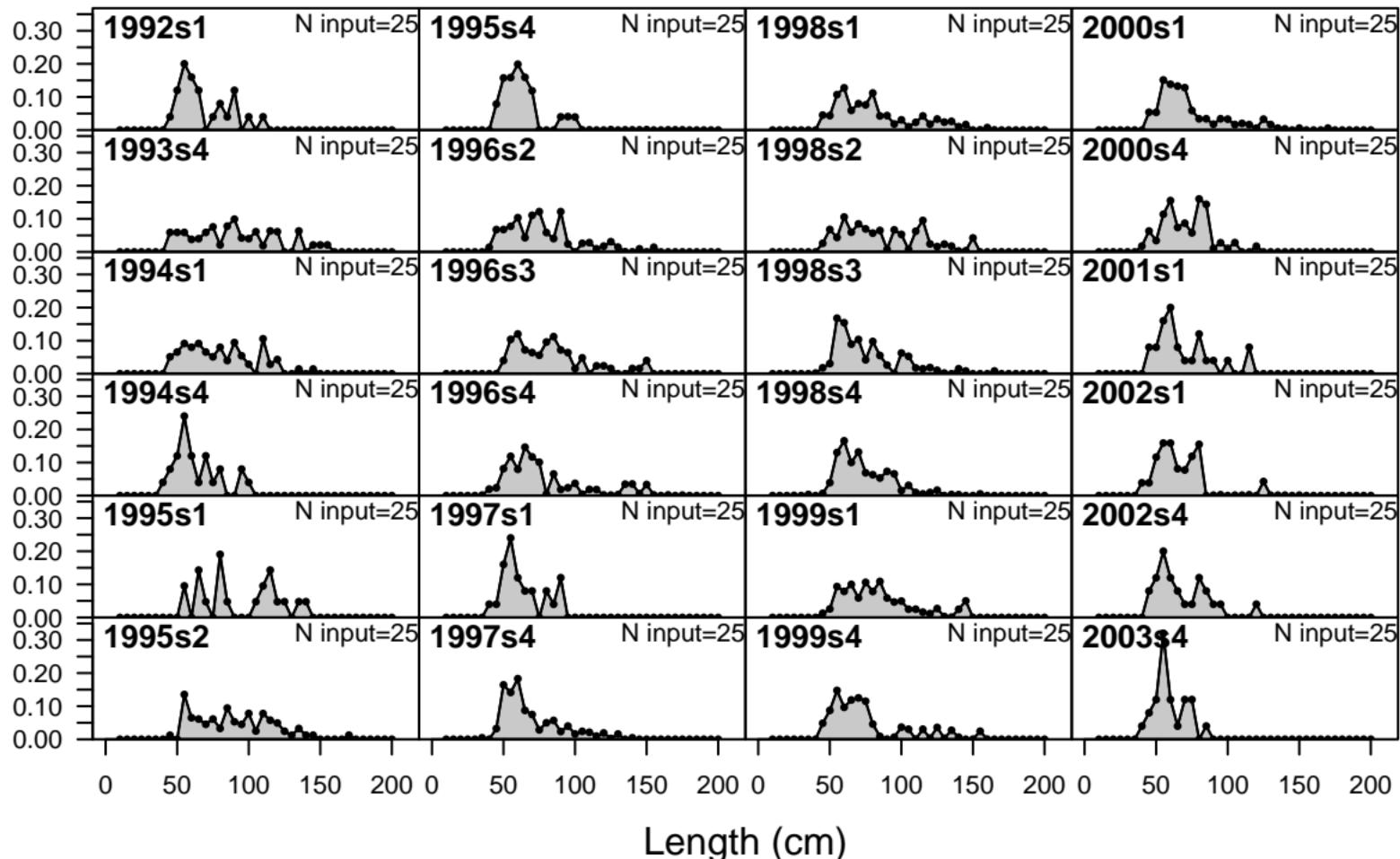




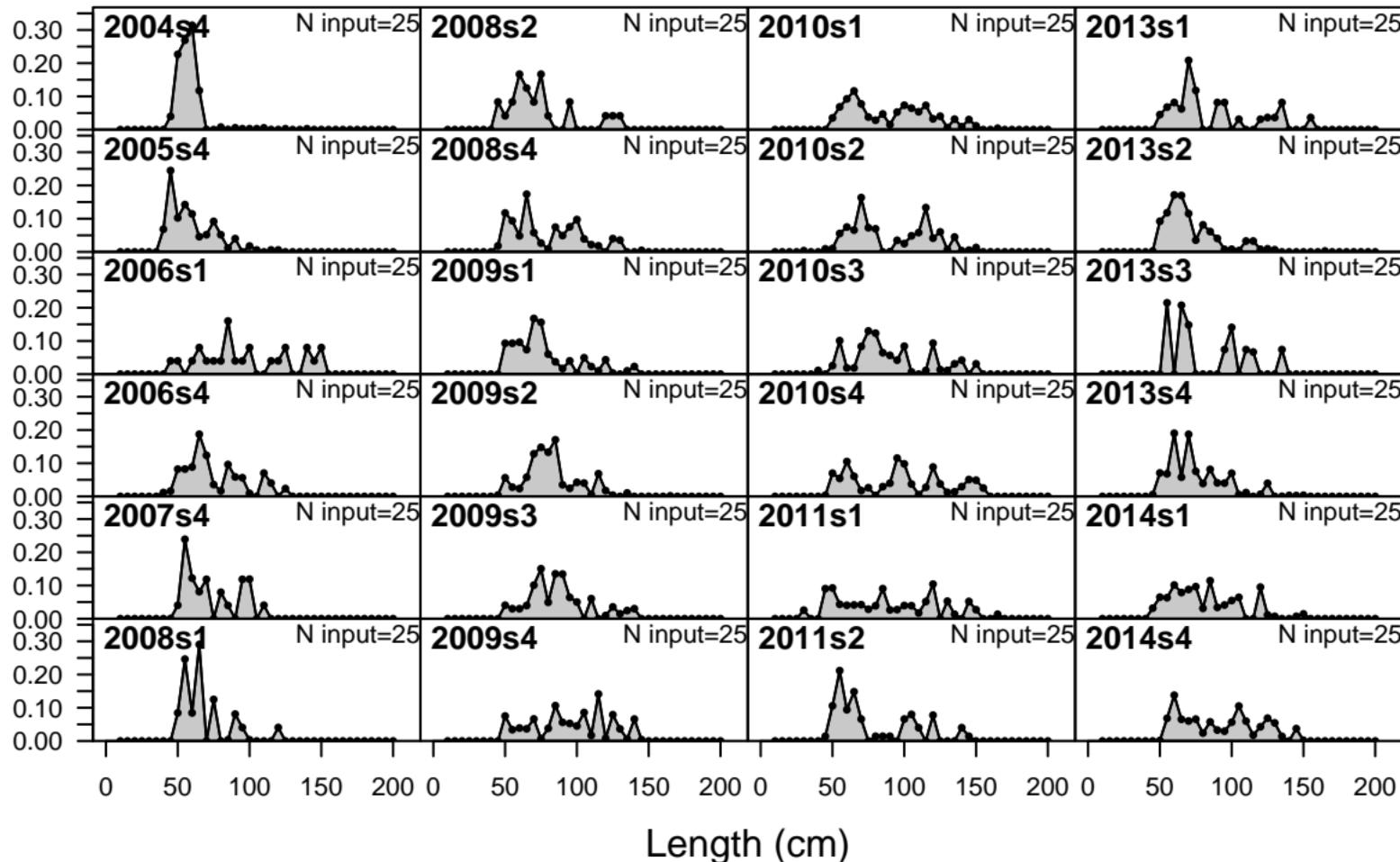
fishing_ps_2 (whole catch)

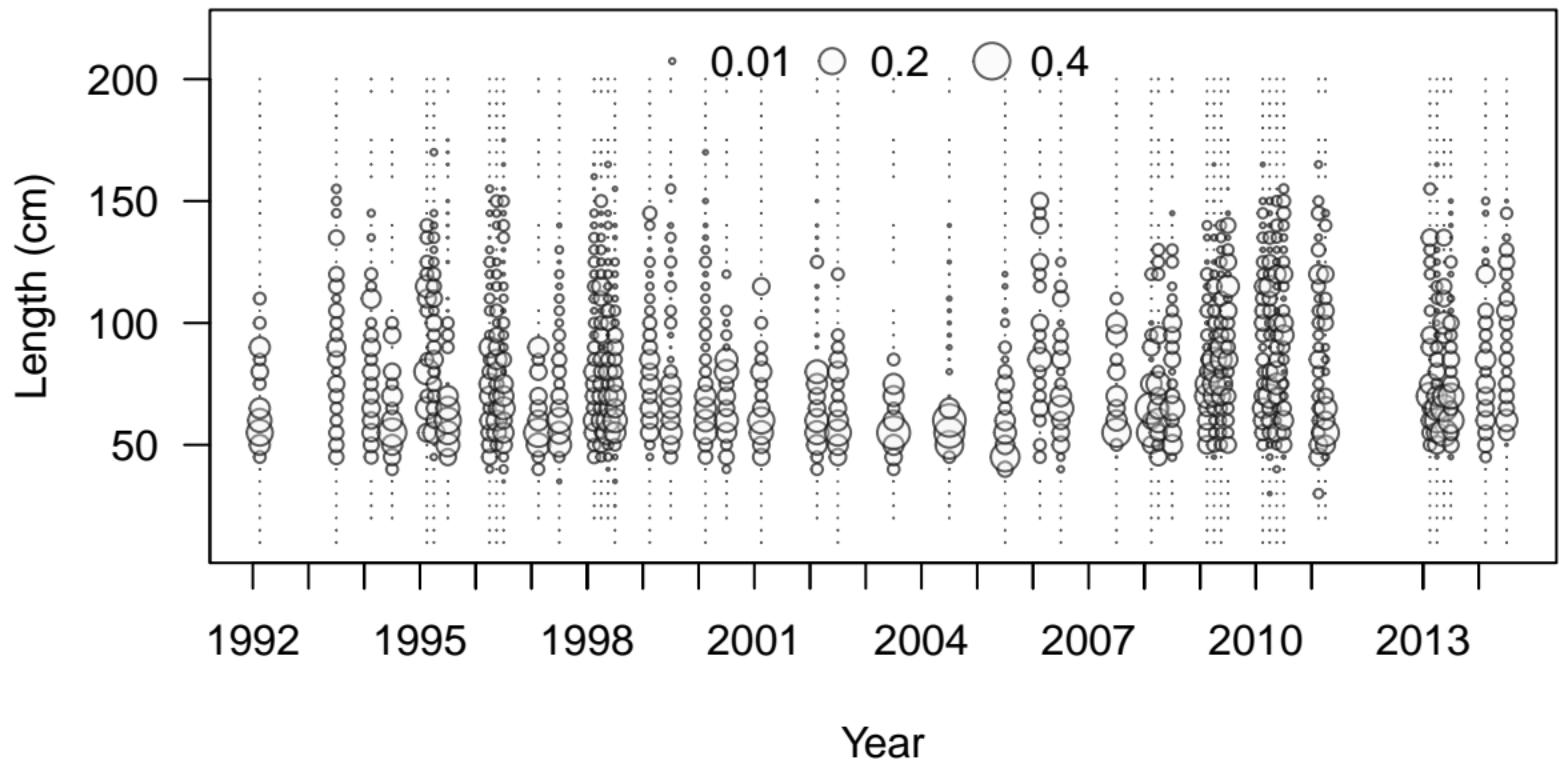


Proportion

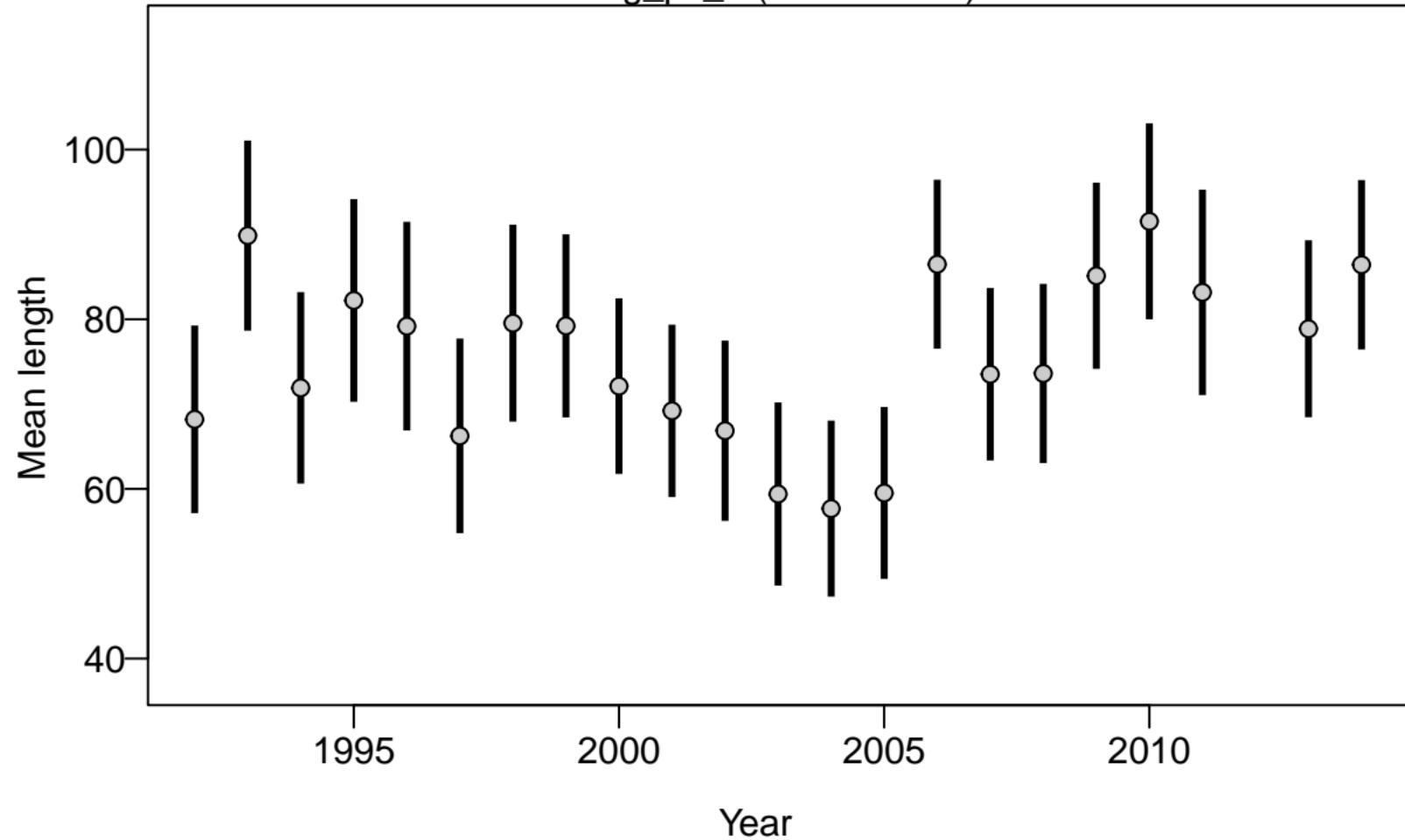


Proportion

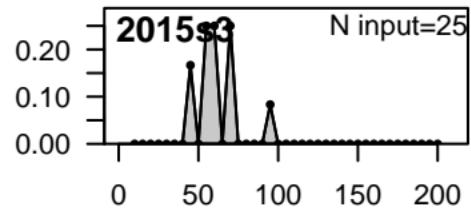


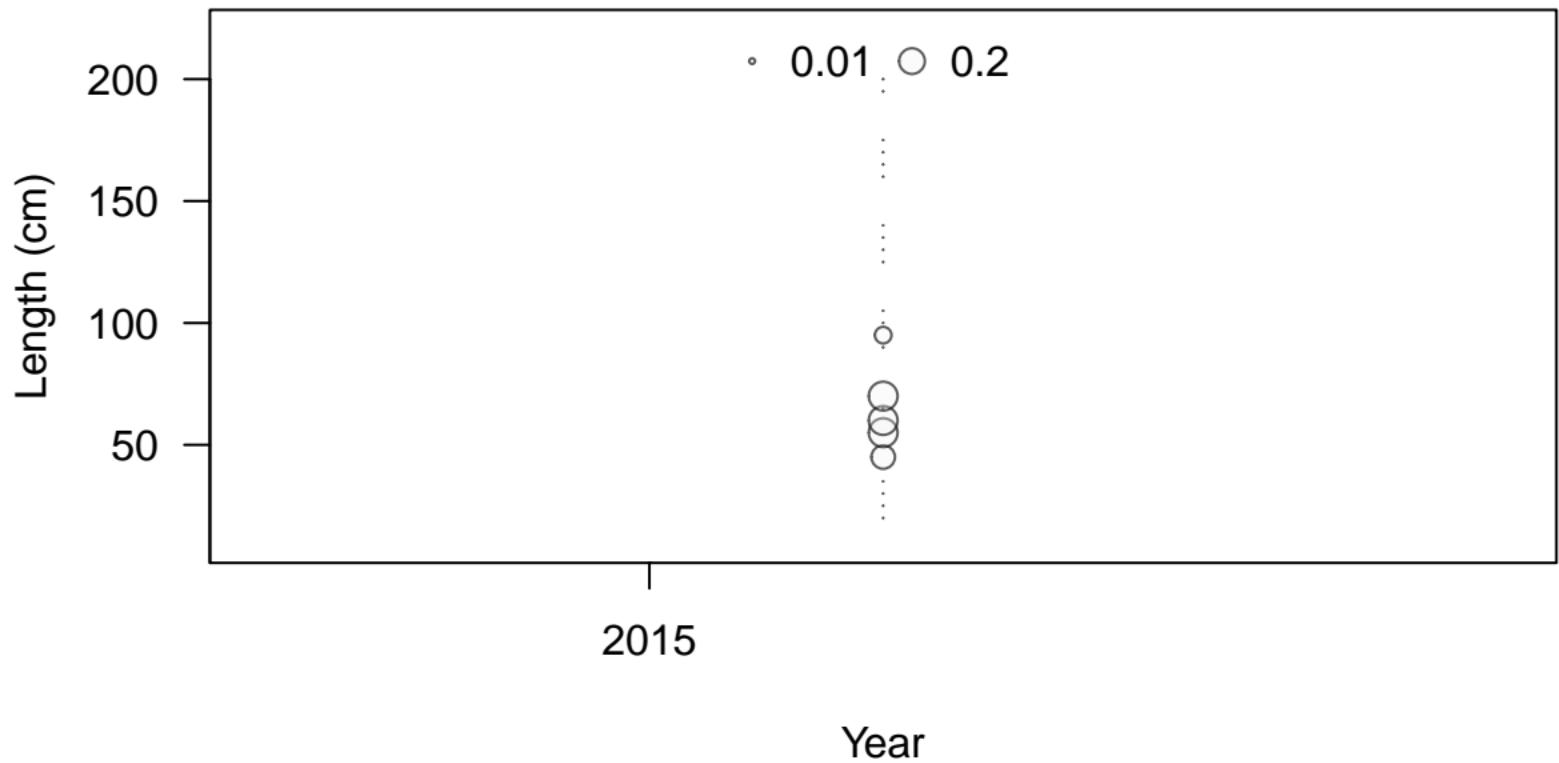


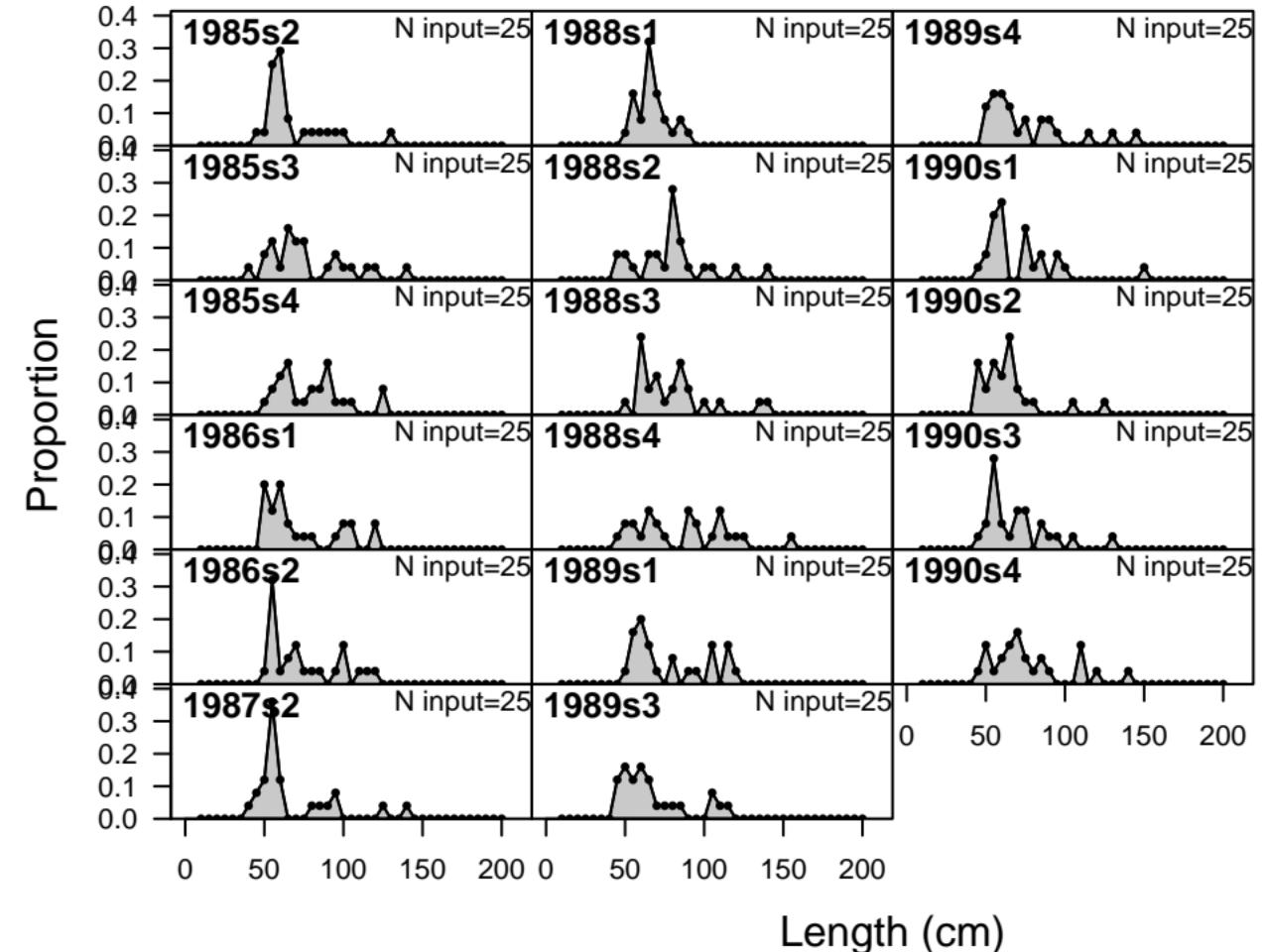
fishing_ps_4 (whole catch)

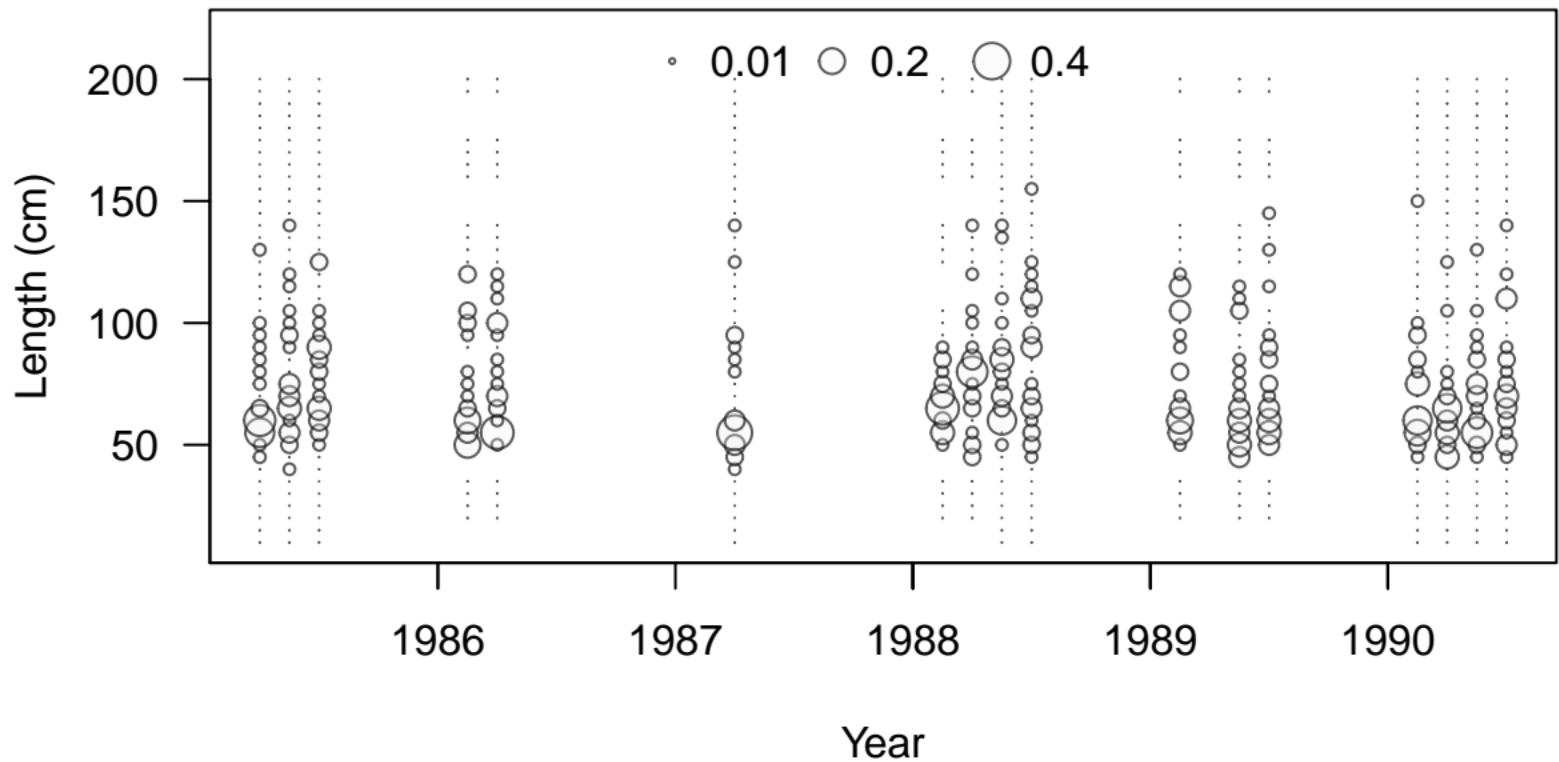


Proportion

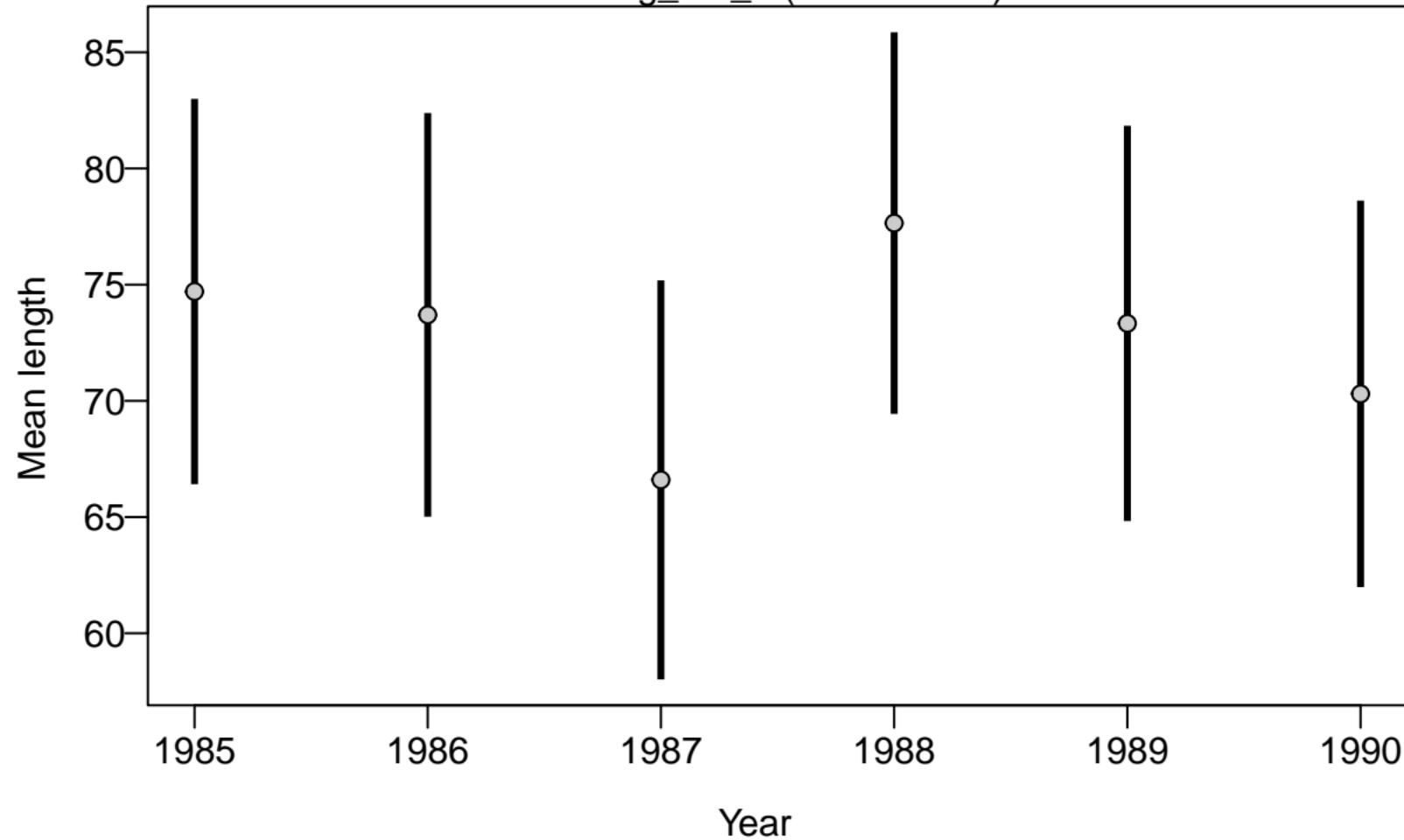




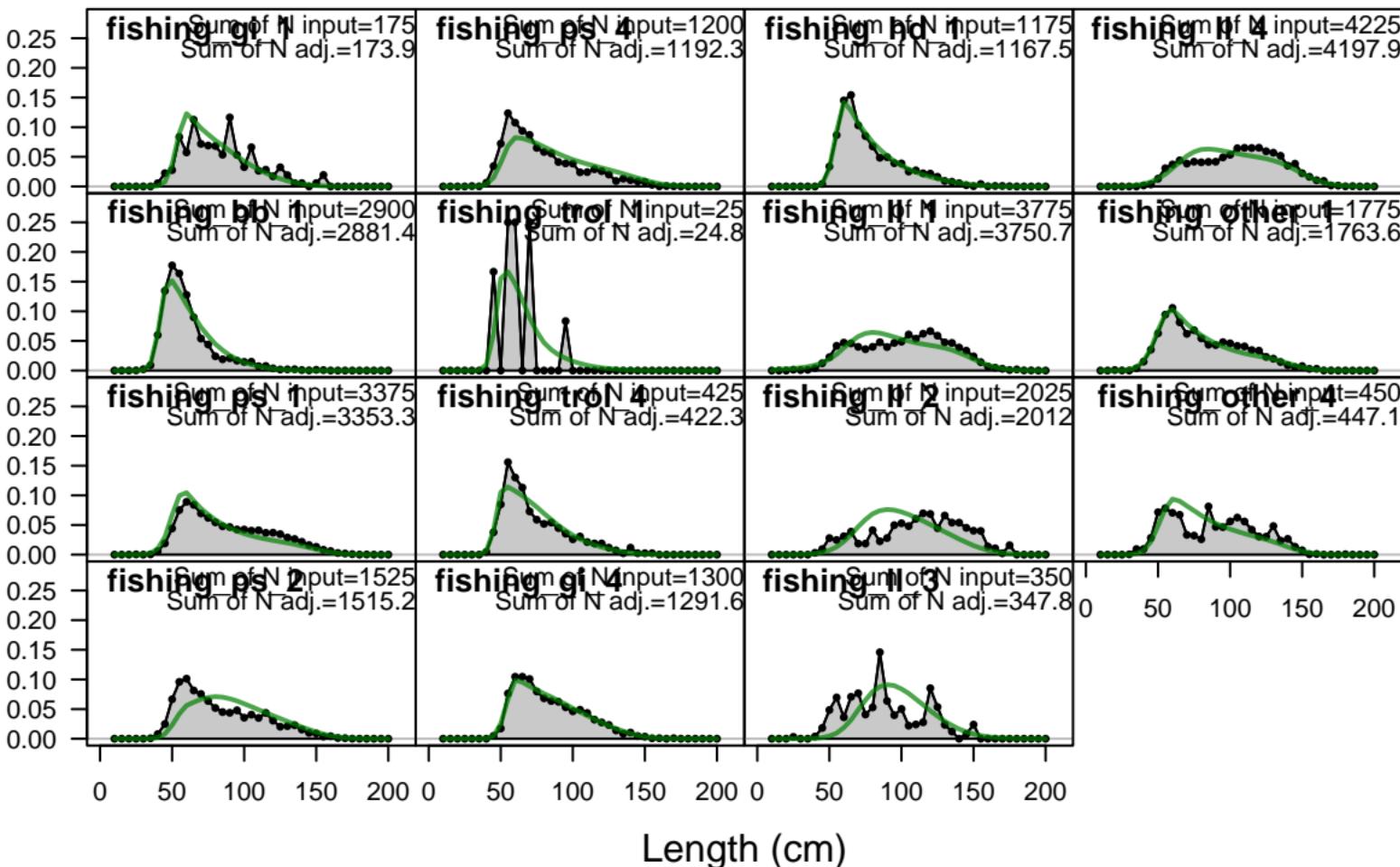


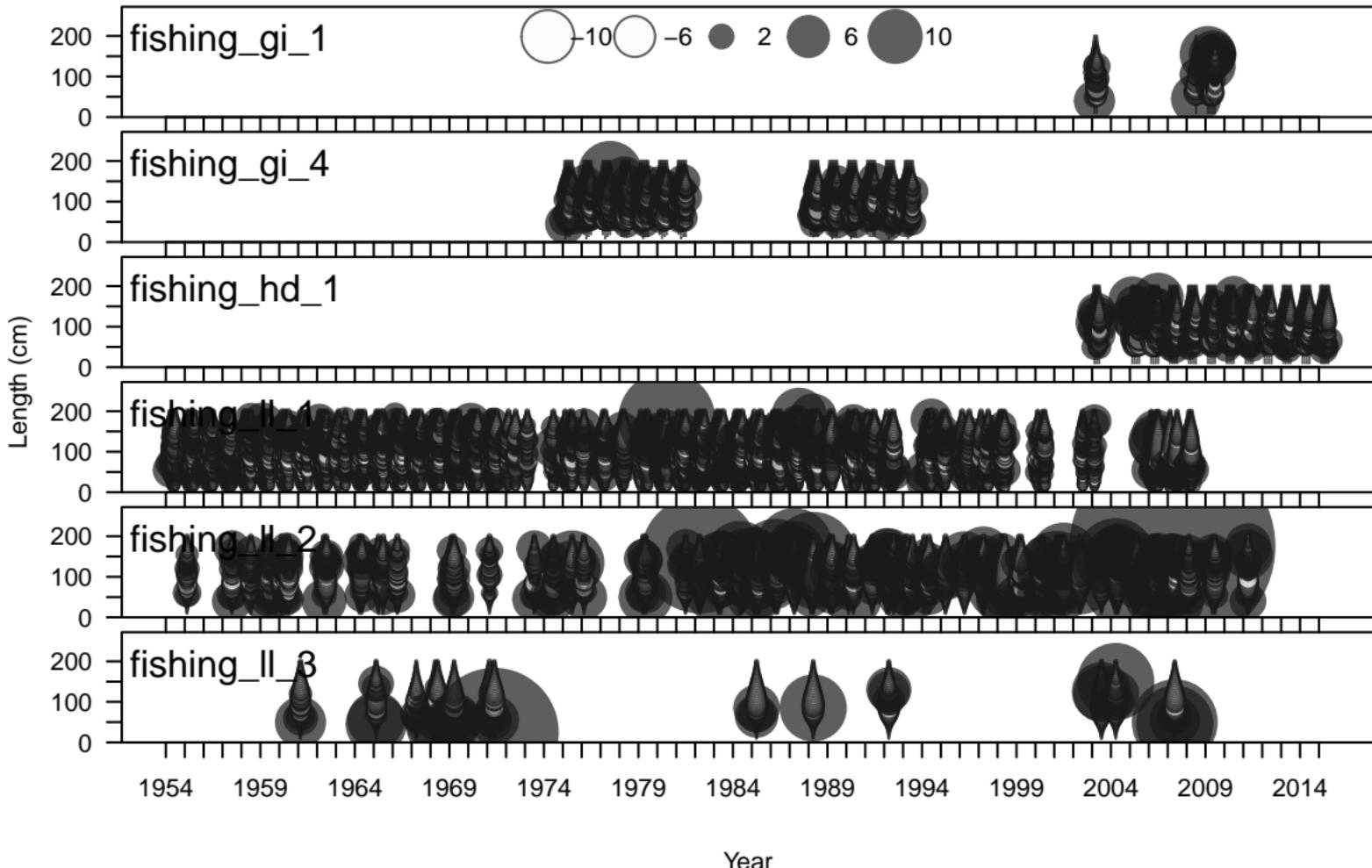


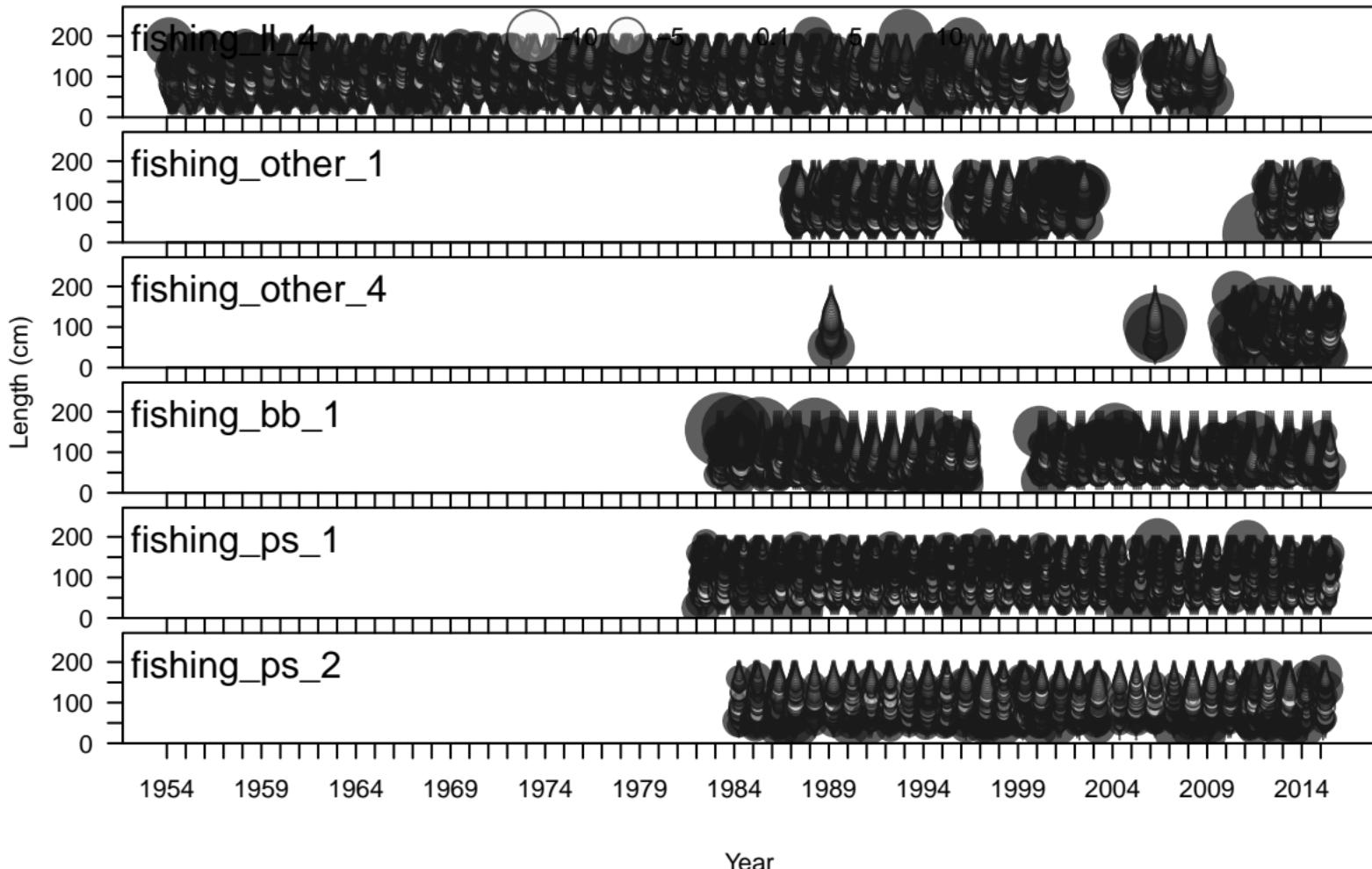
fishing_trol_4 (whole catch)

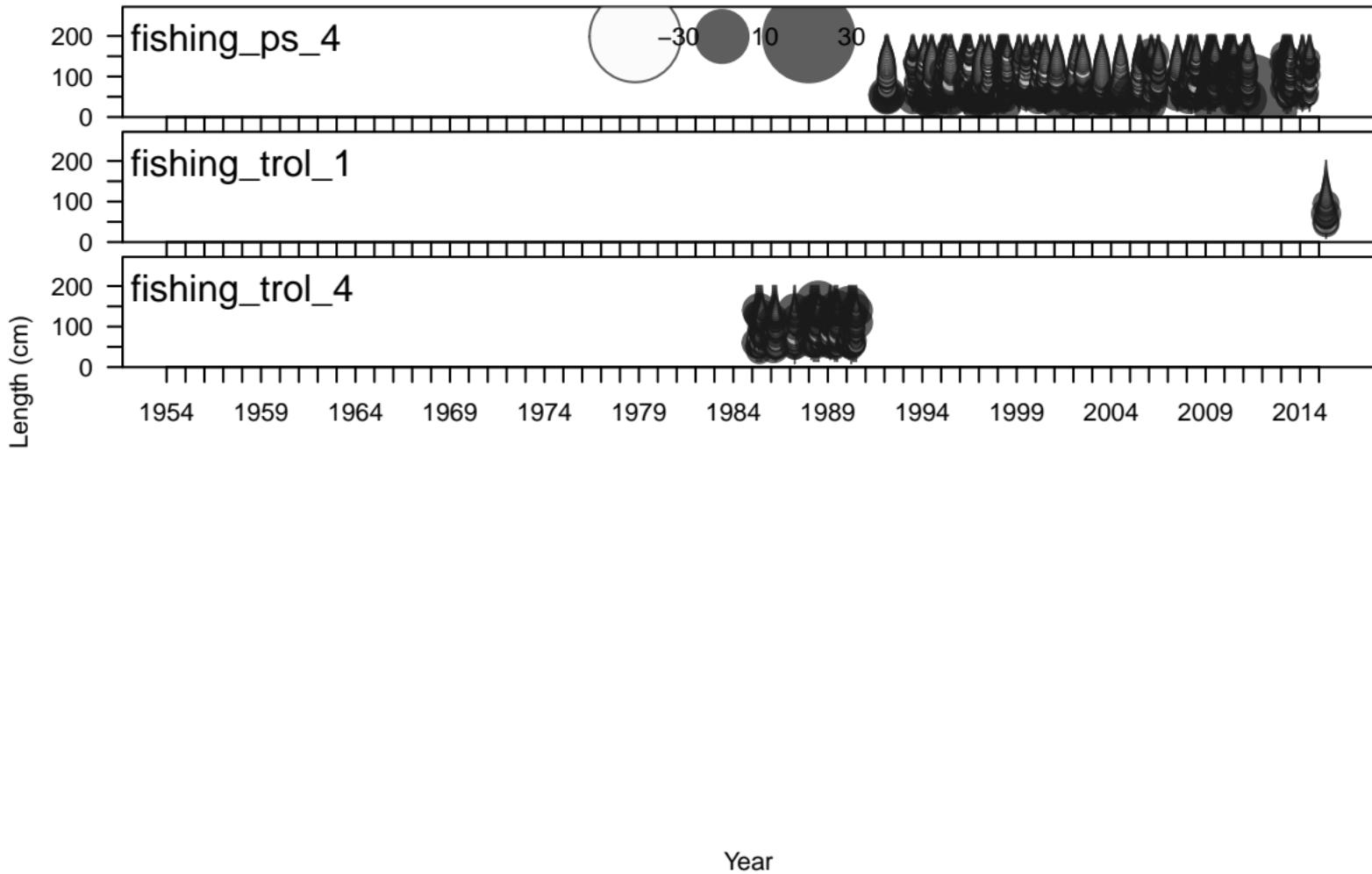


Proportion

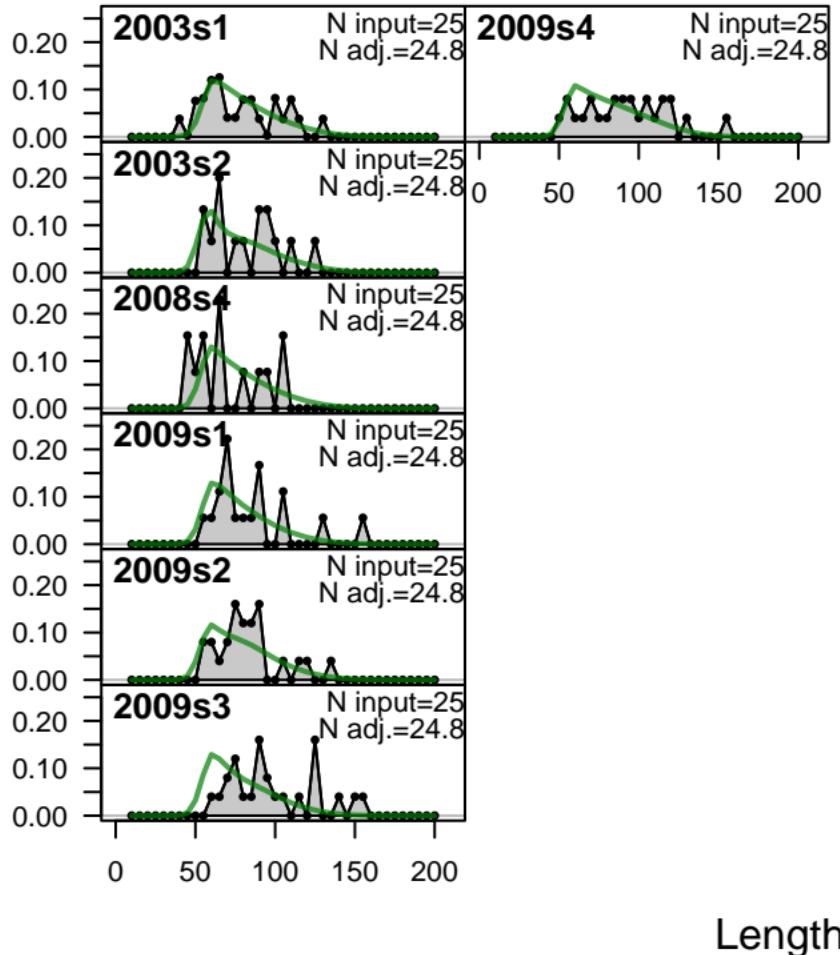


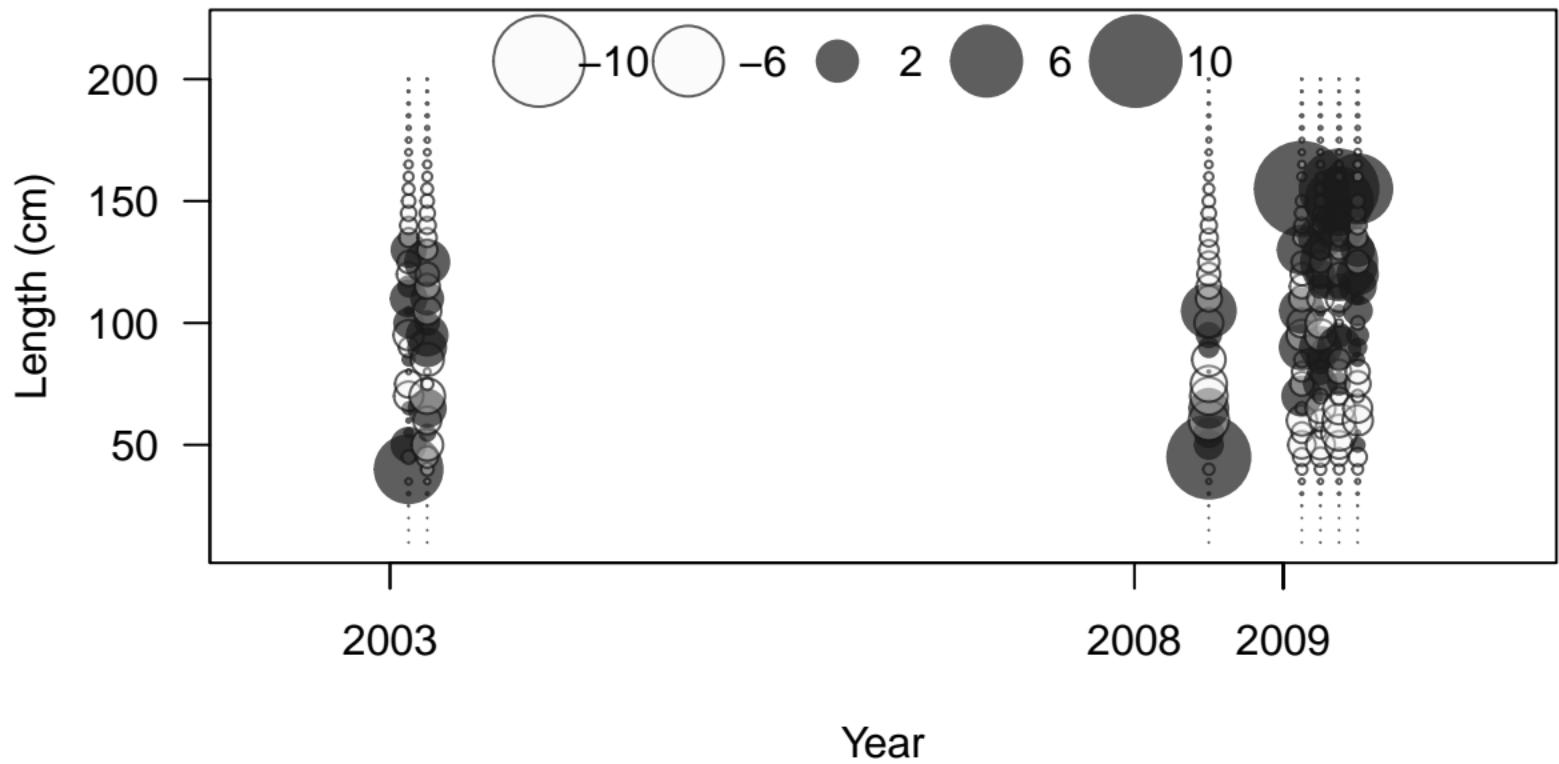




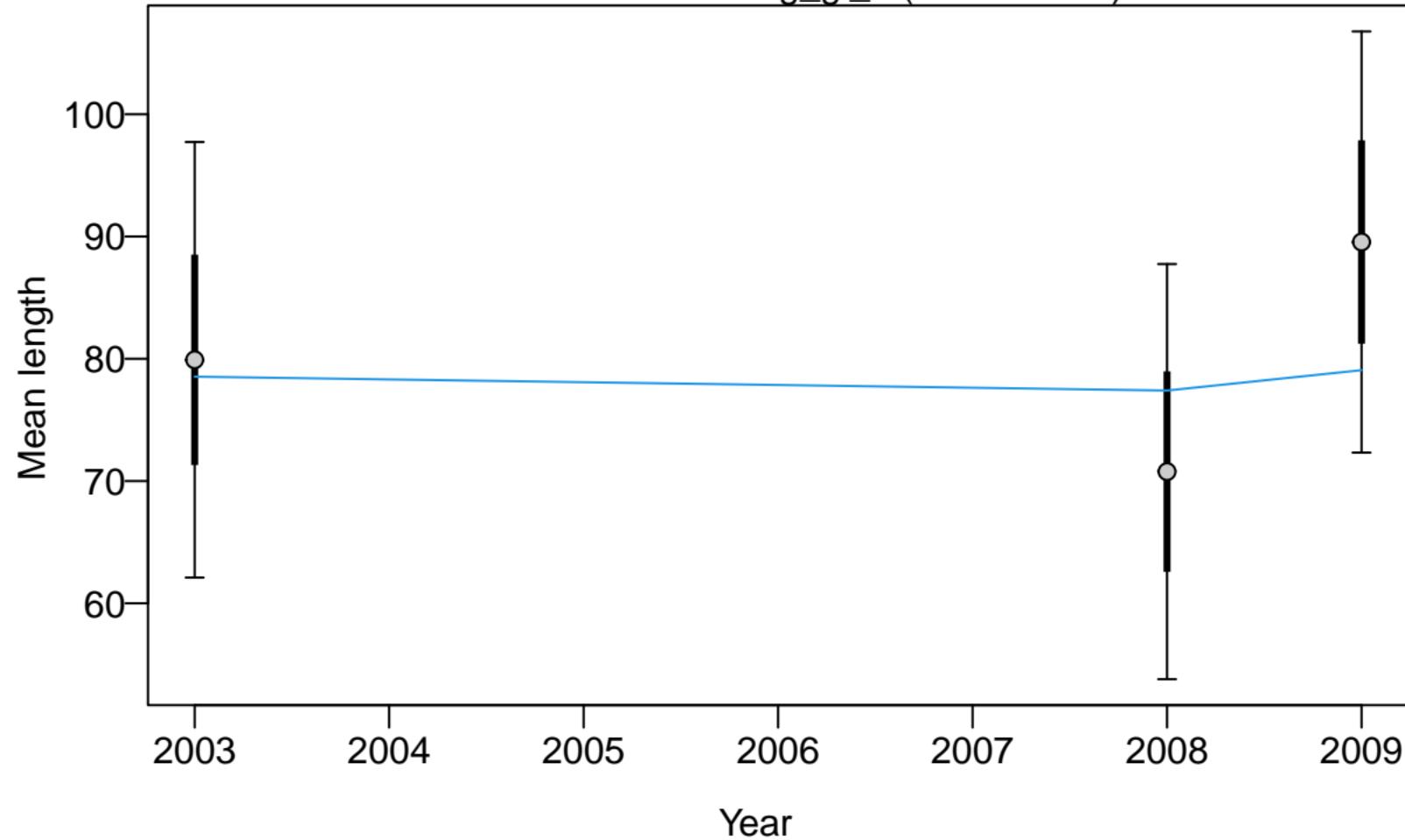


Proportion

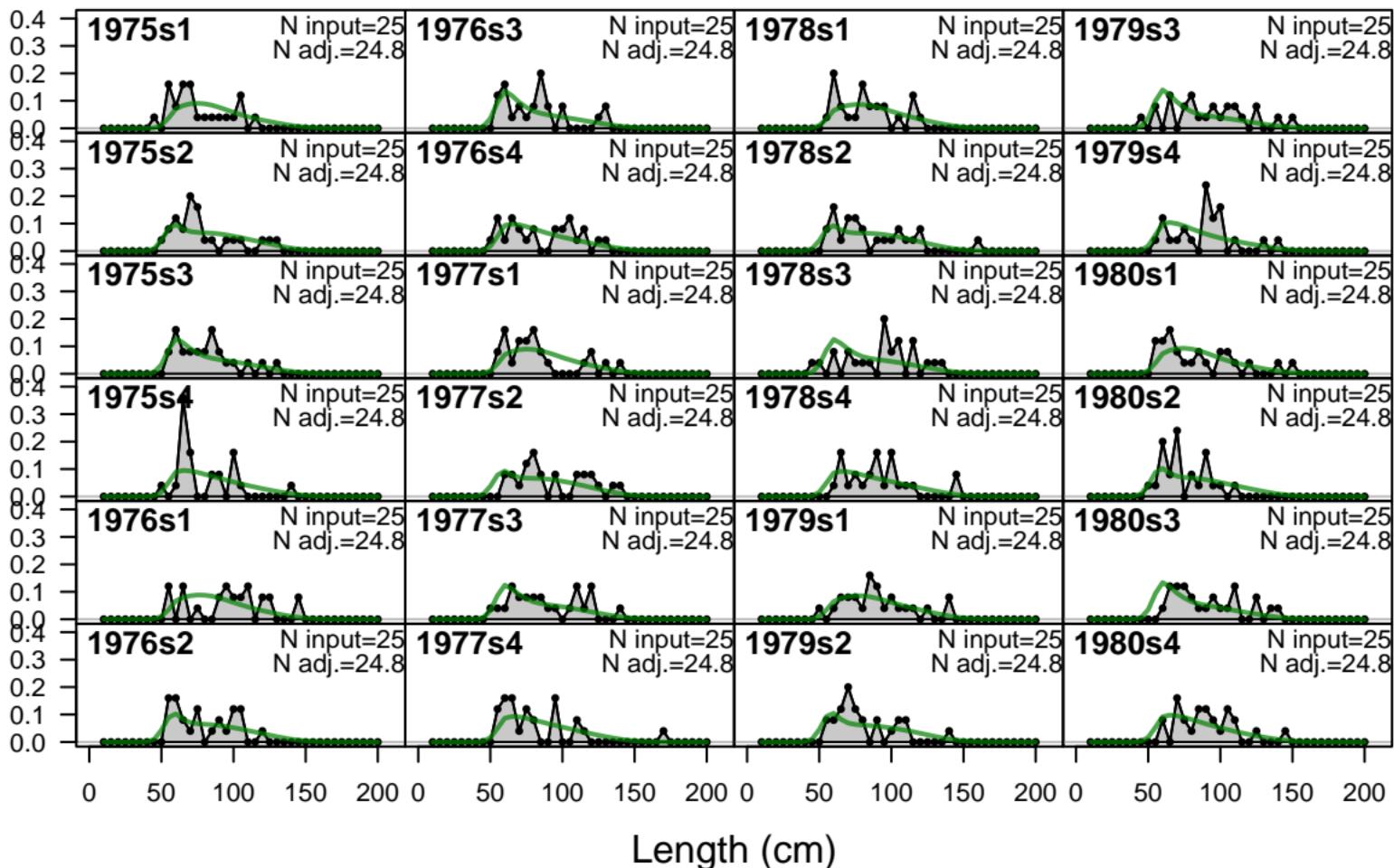




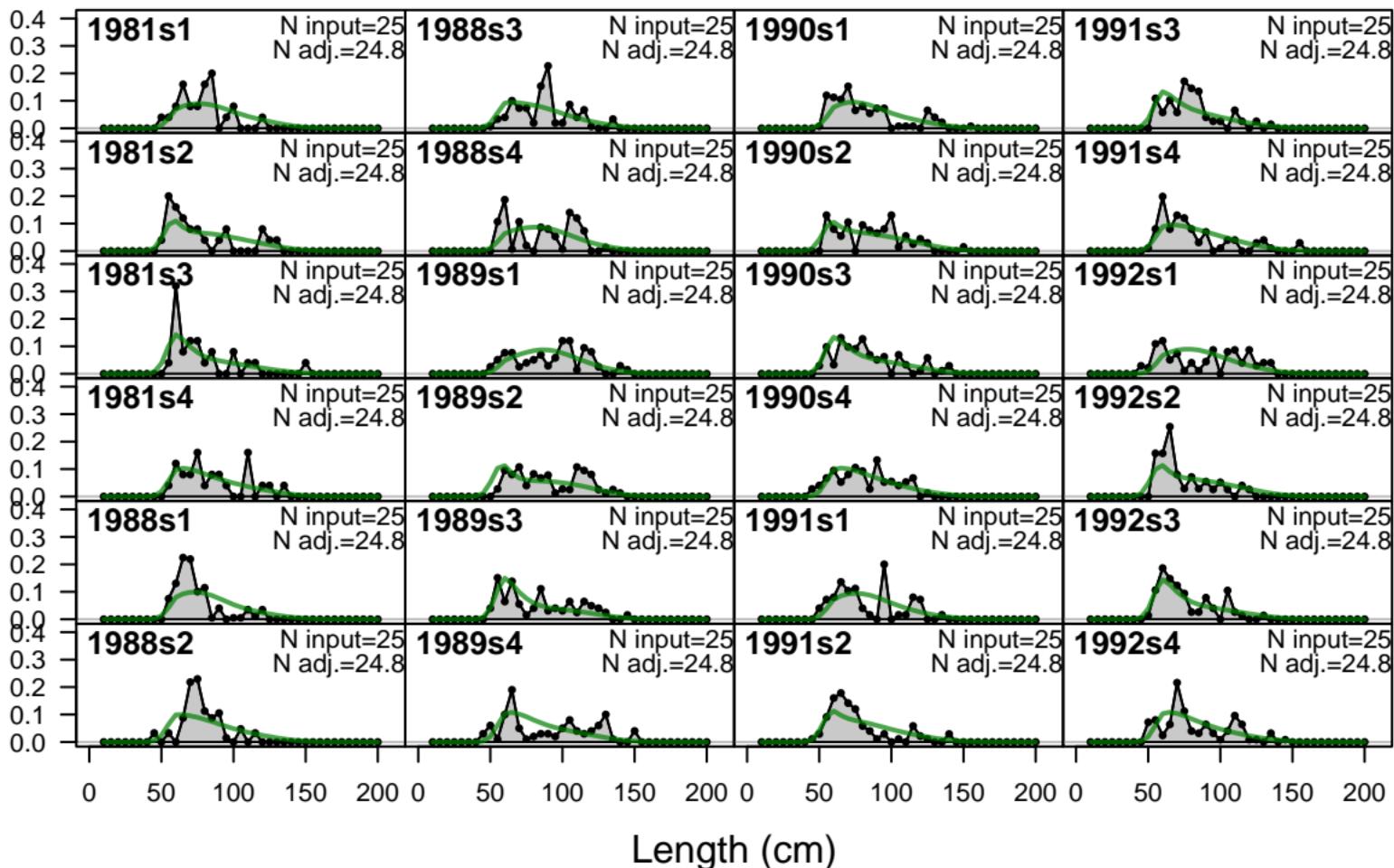
fishing_gi_1 (whole catch)



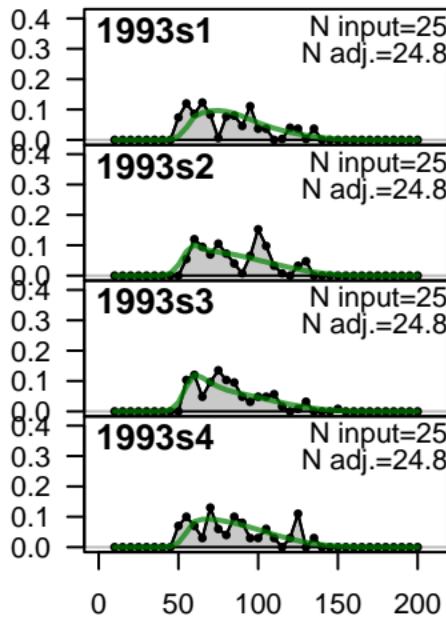
Proportion

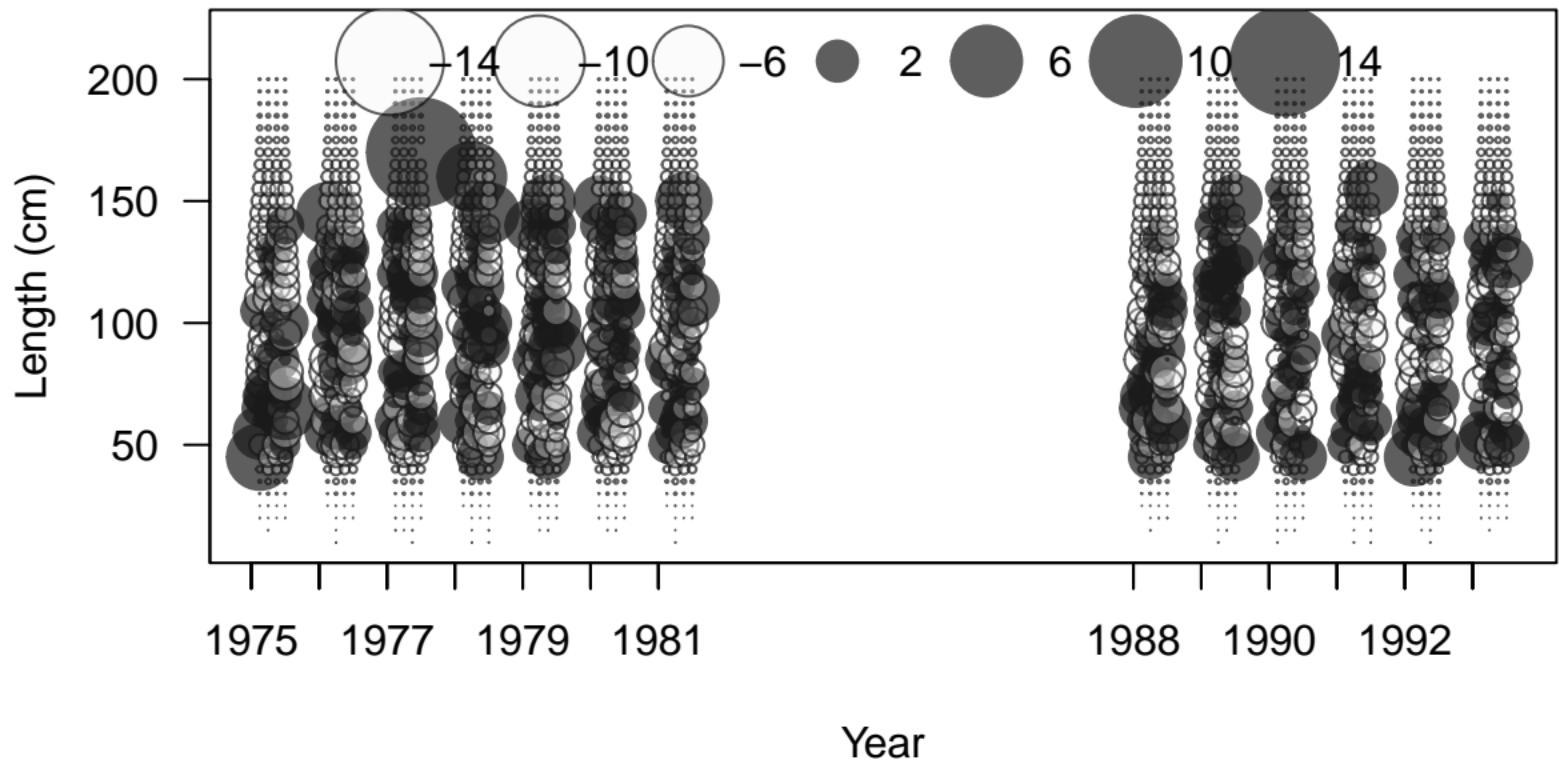


Proportion

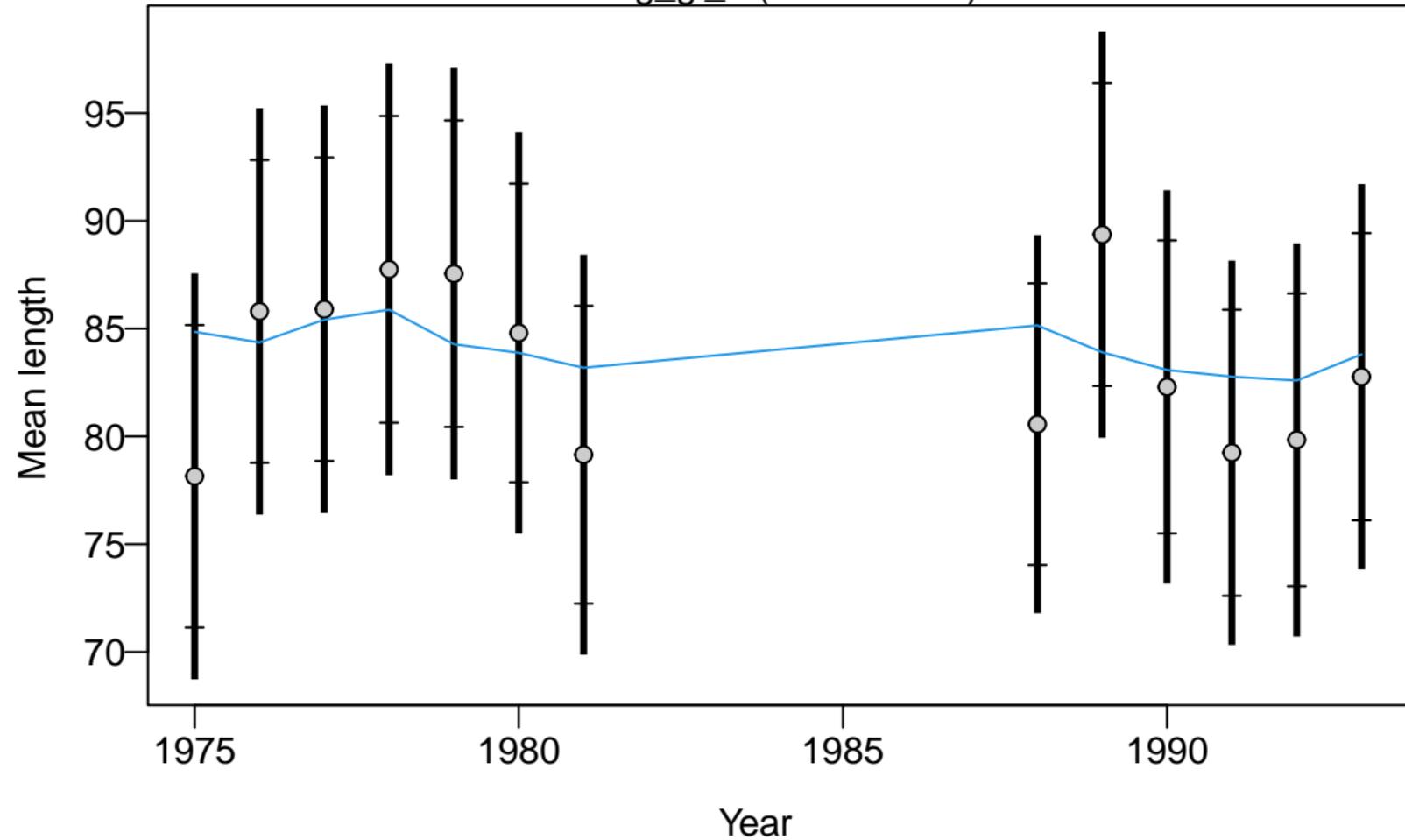


Proportion

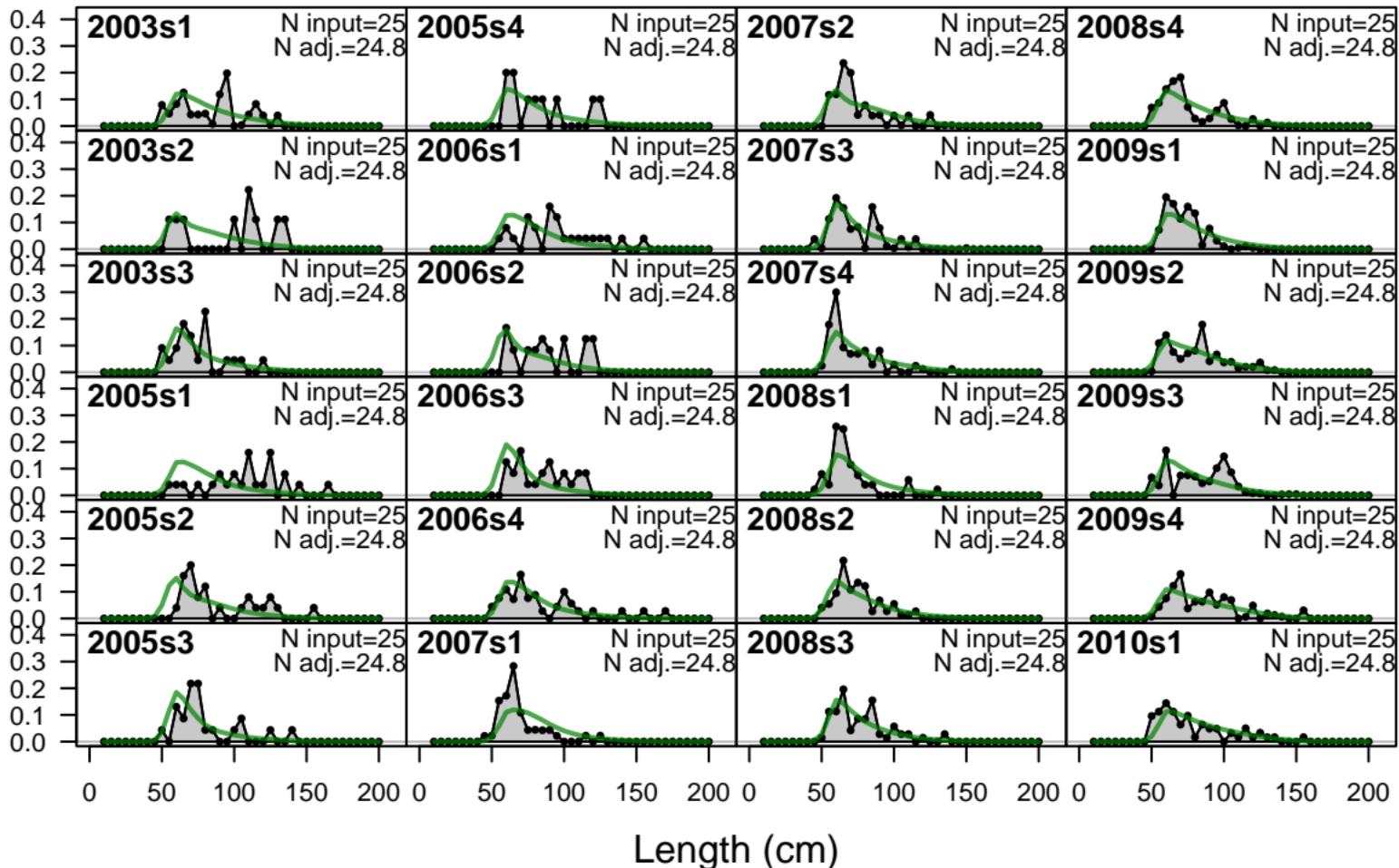




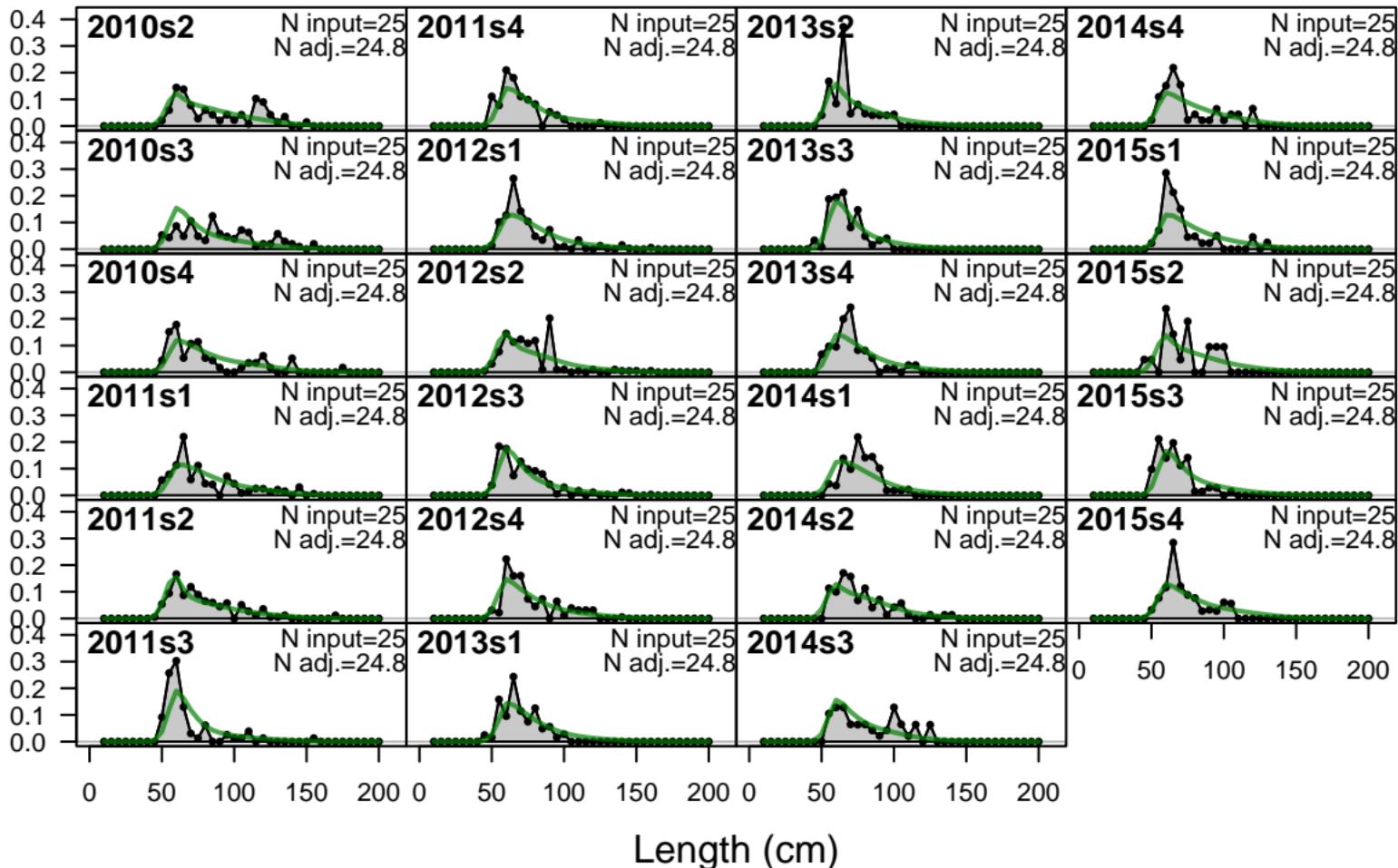
fishing_gi_4 (whole catch)

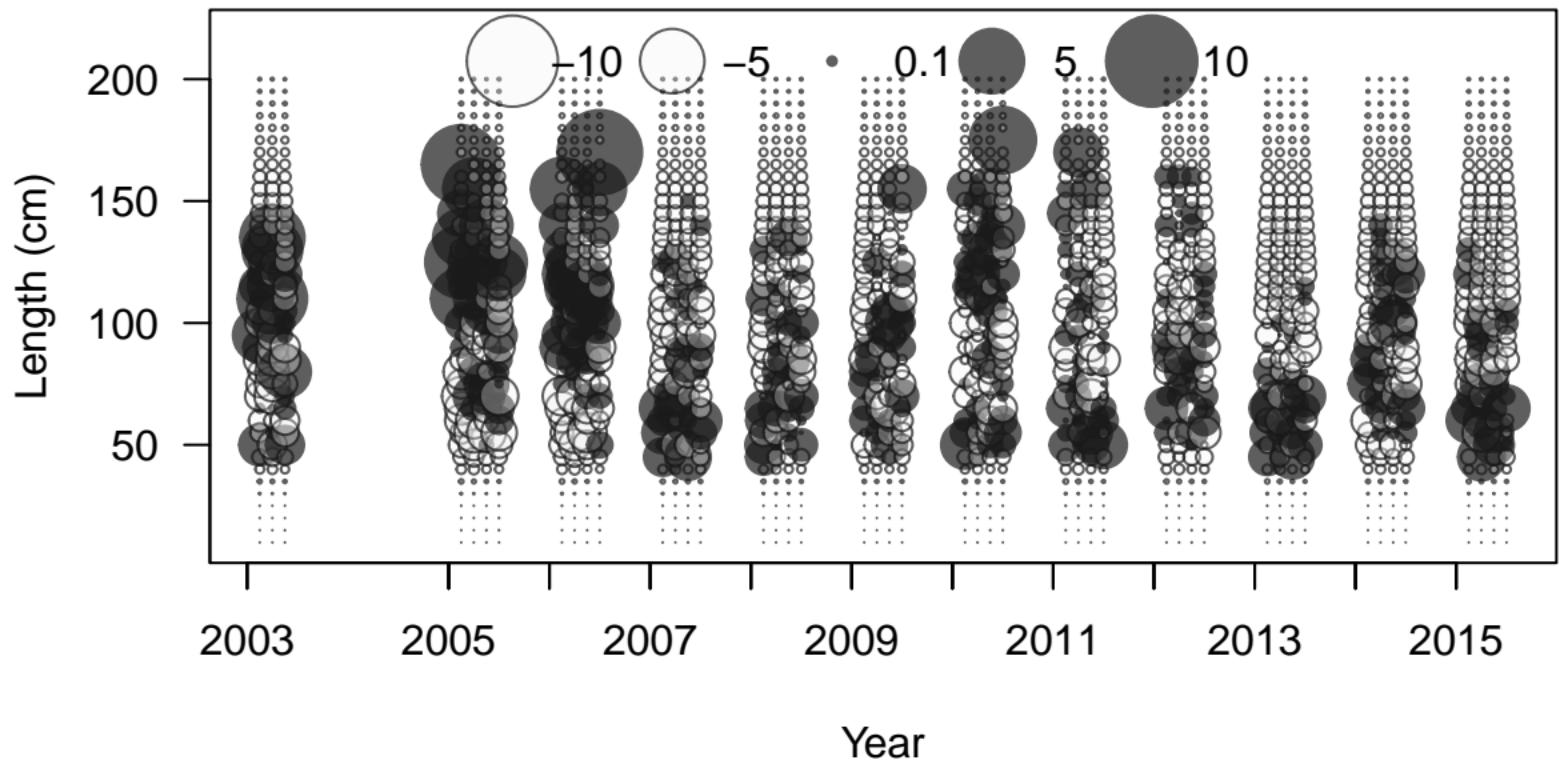


Proportion

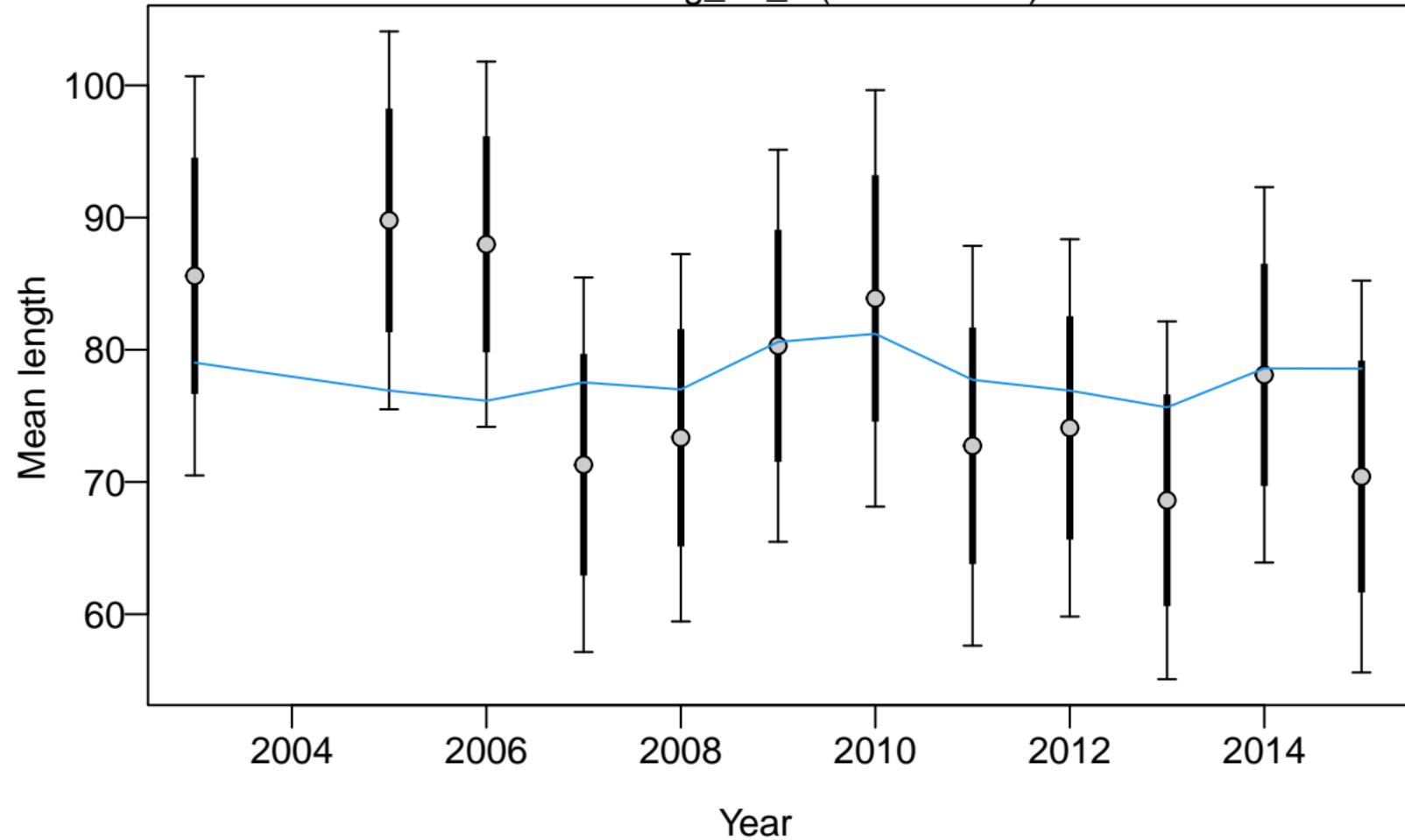


Proportion

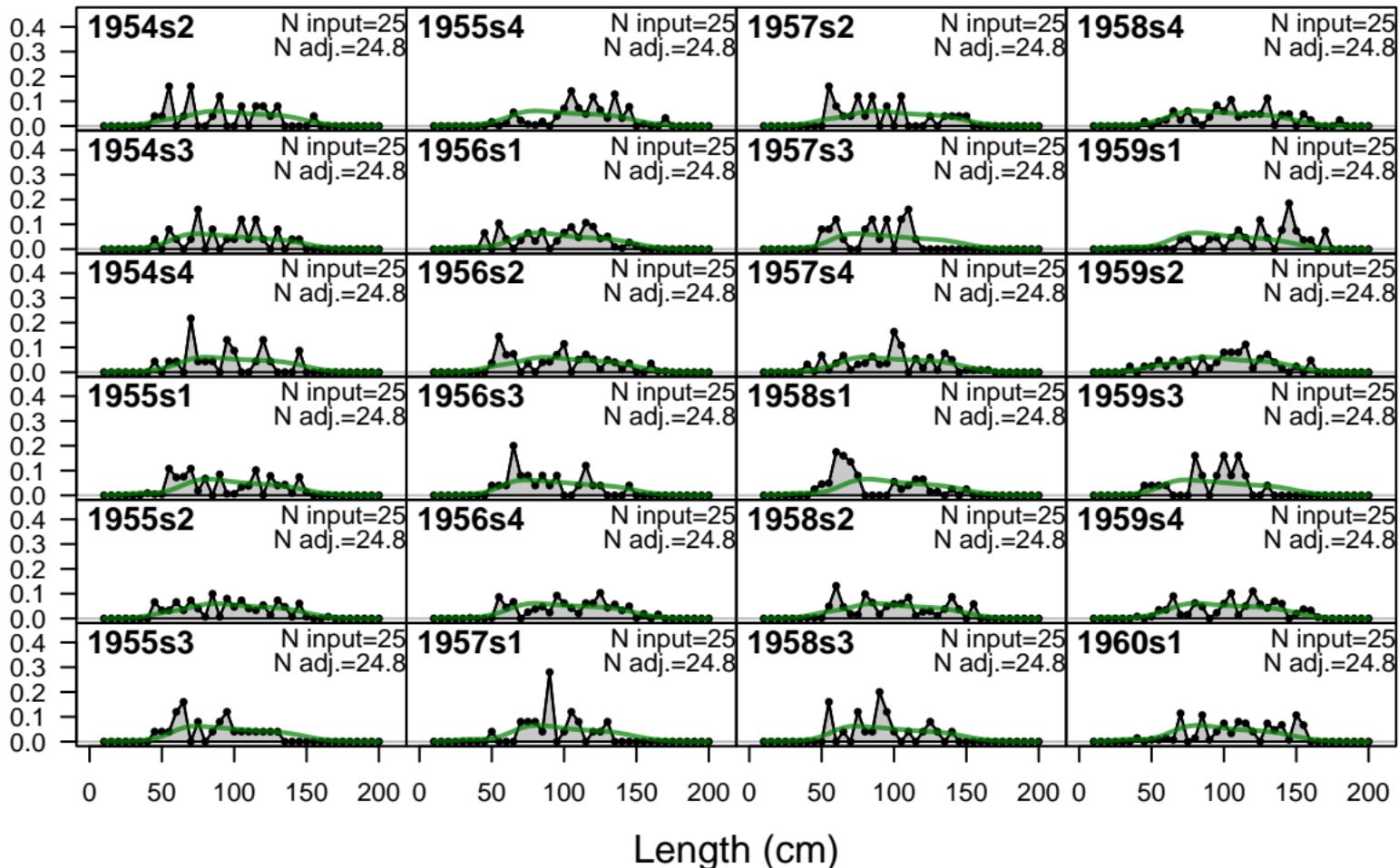




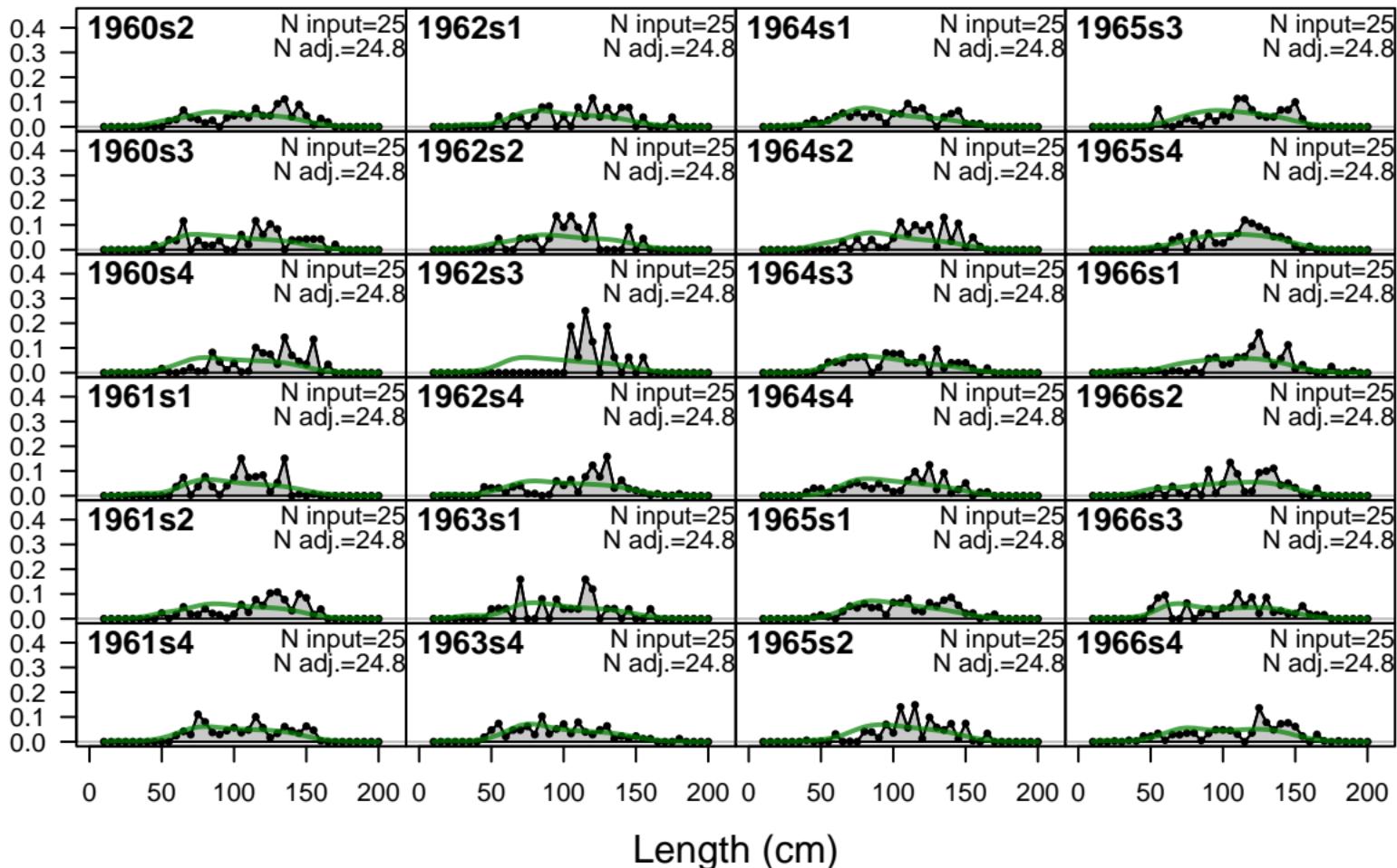
fishing_hd_1 (whole catch)



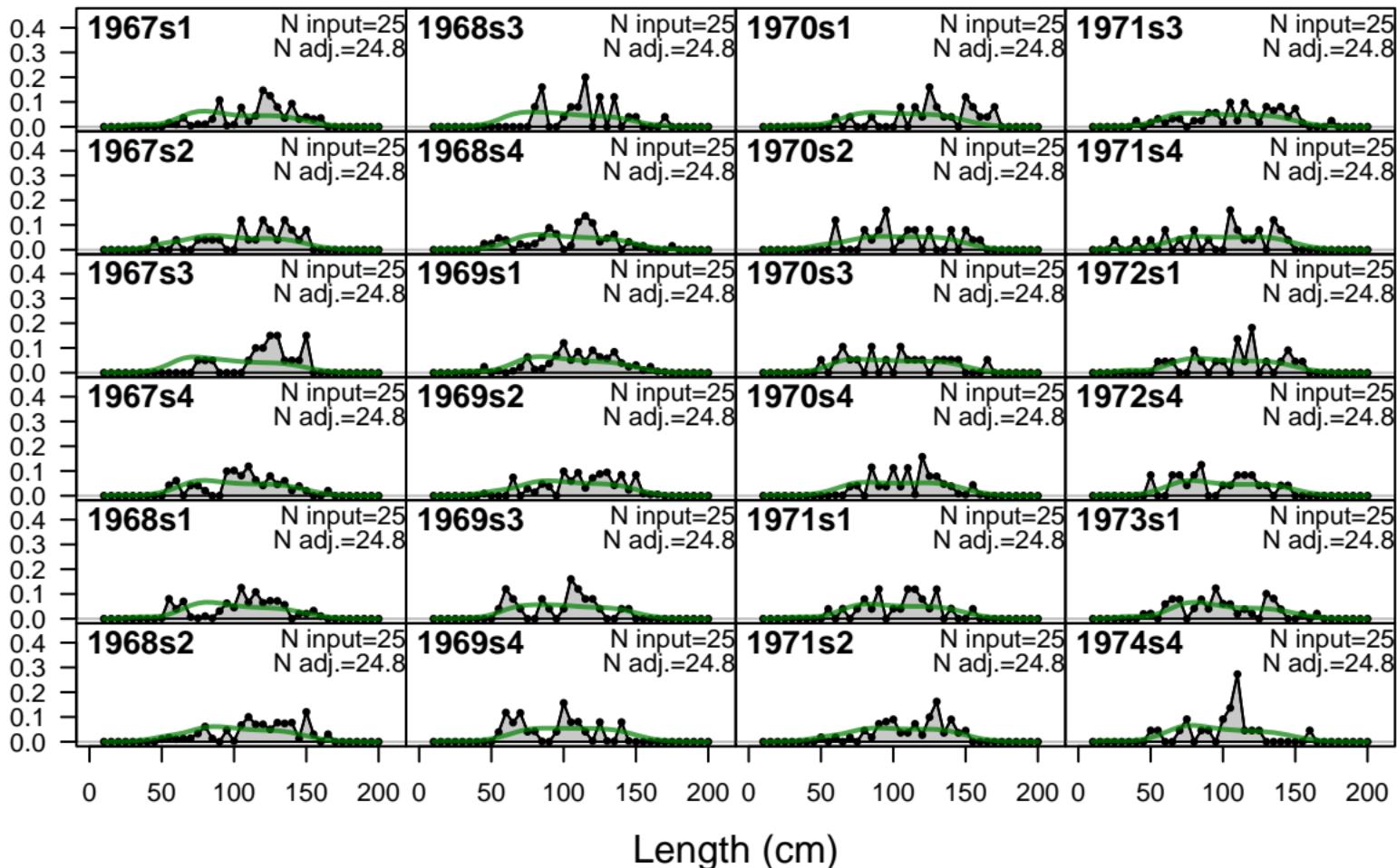
Proportion



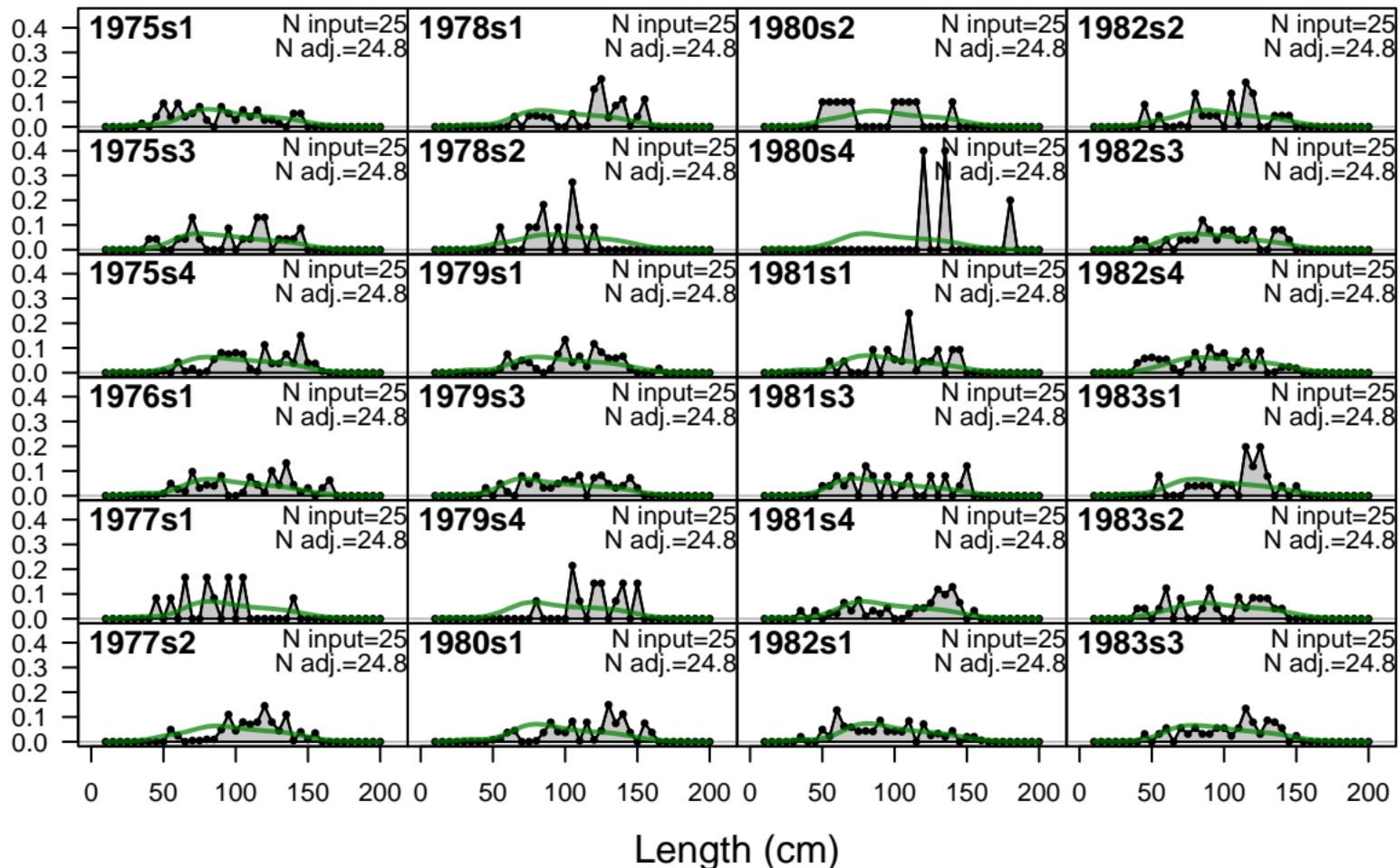
Proportion



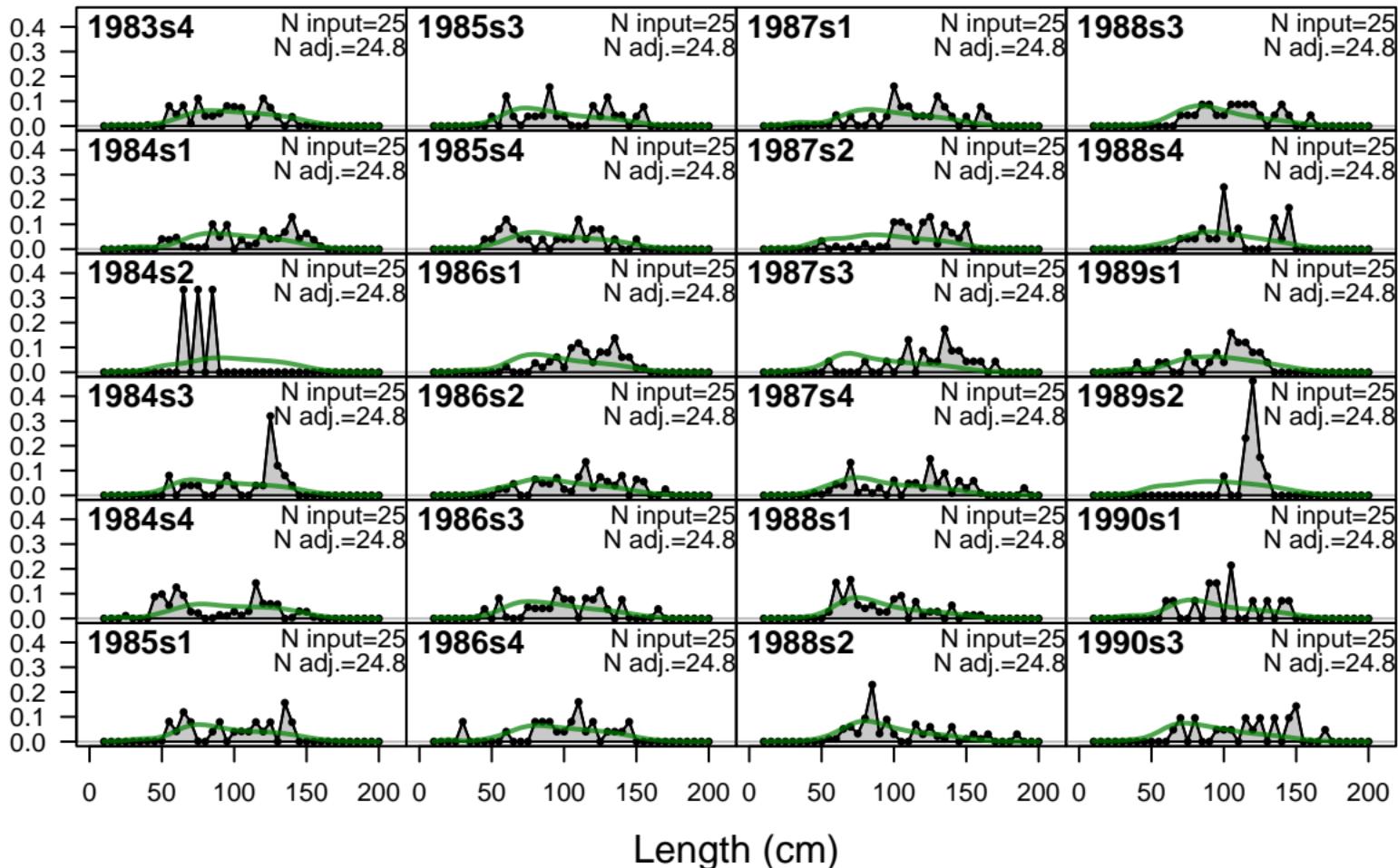
Proportion



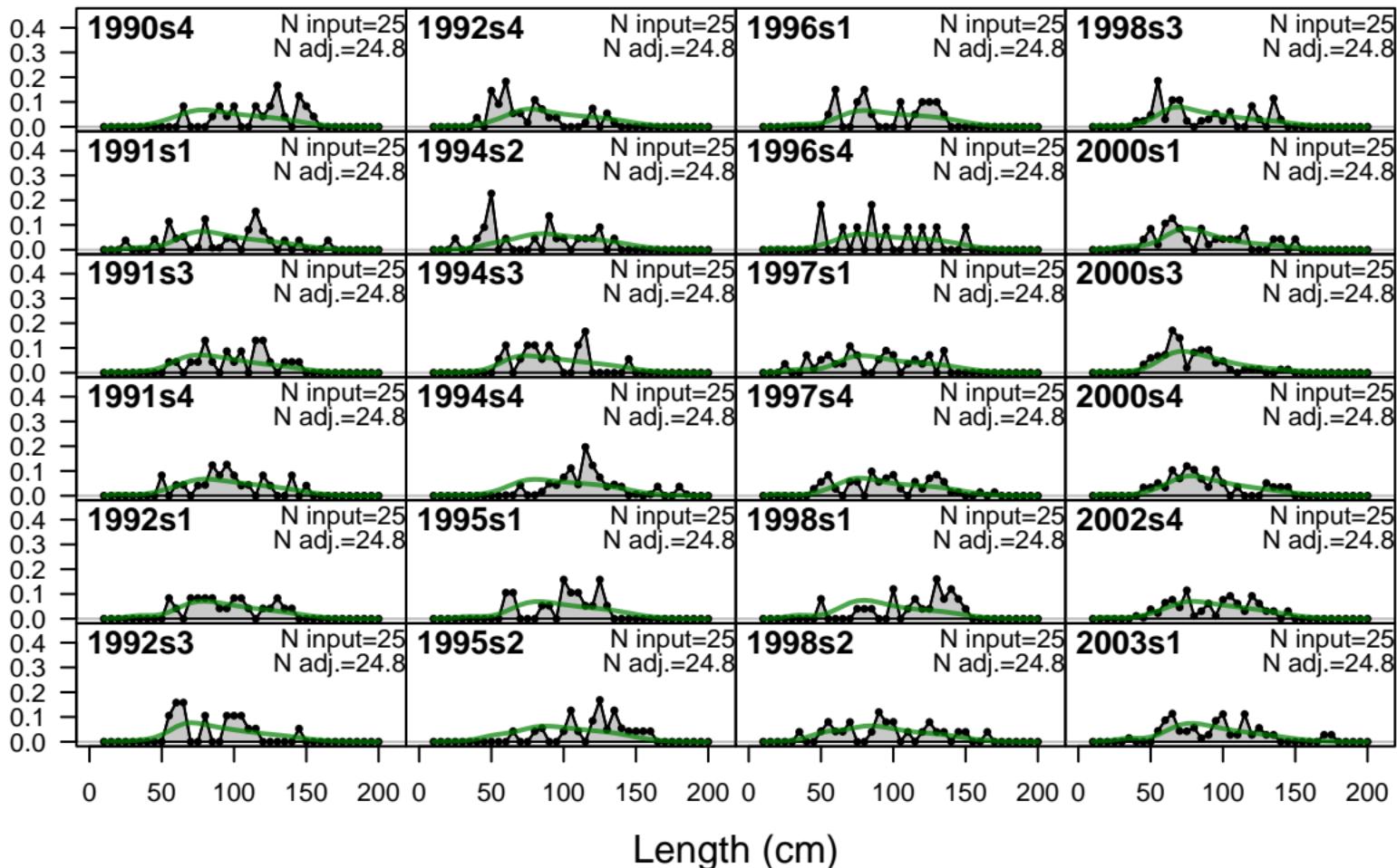
Proportion



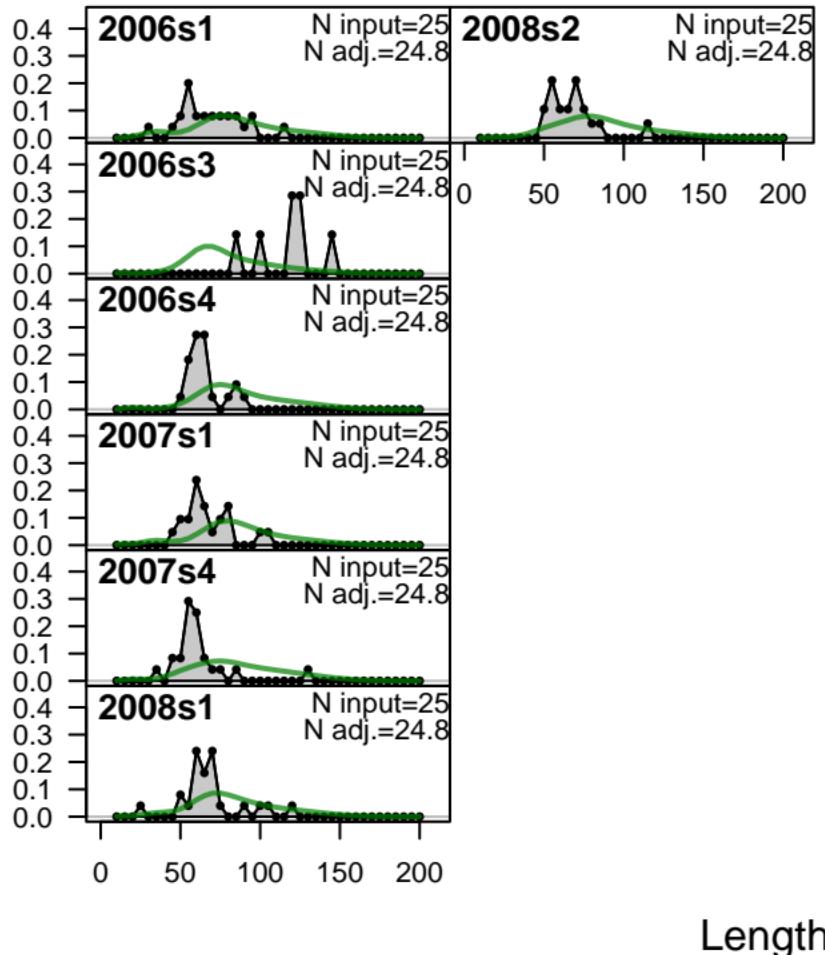
Proportion

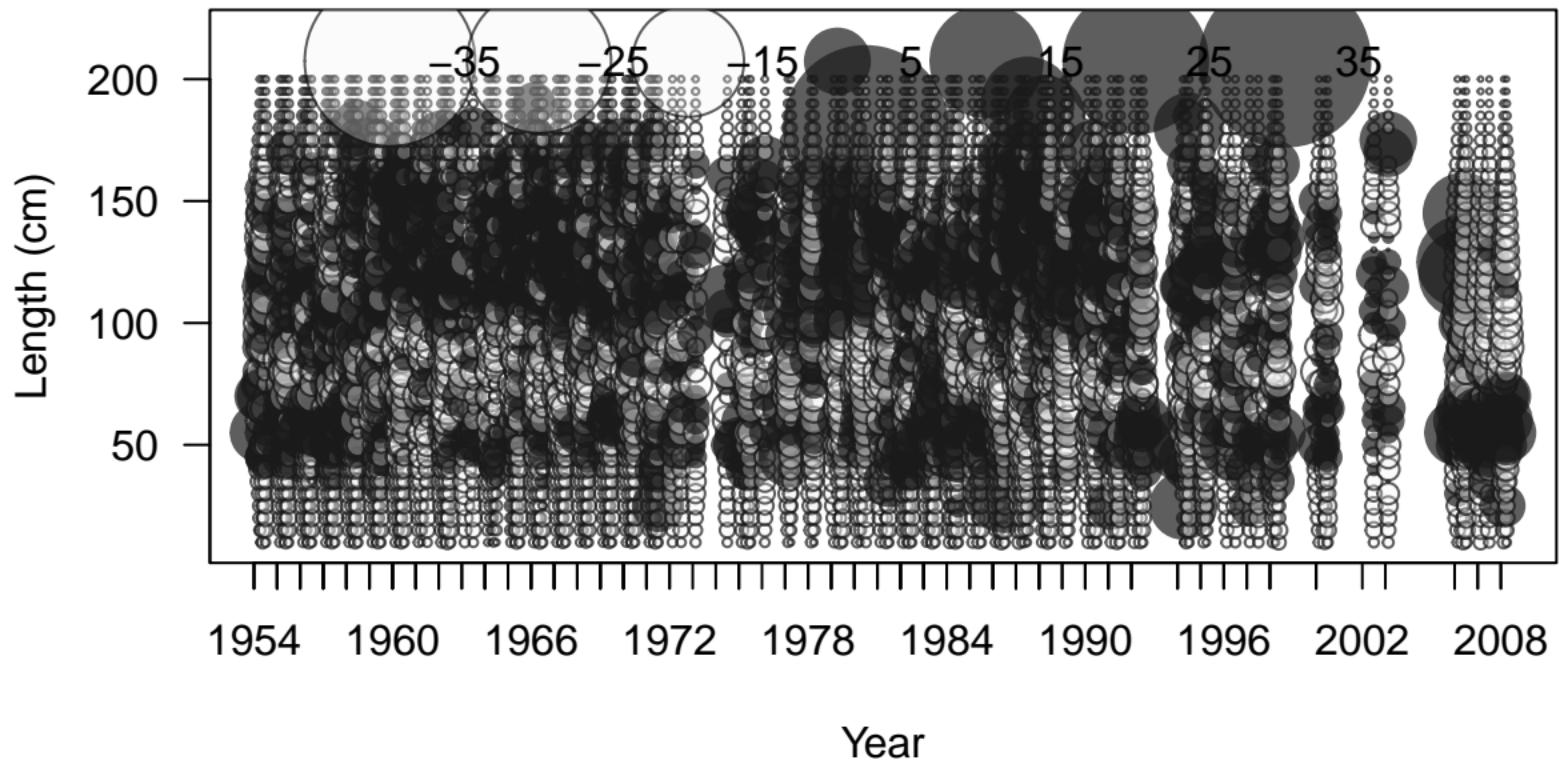


Proportion



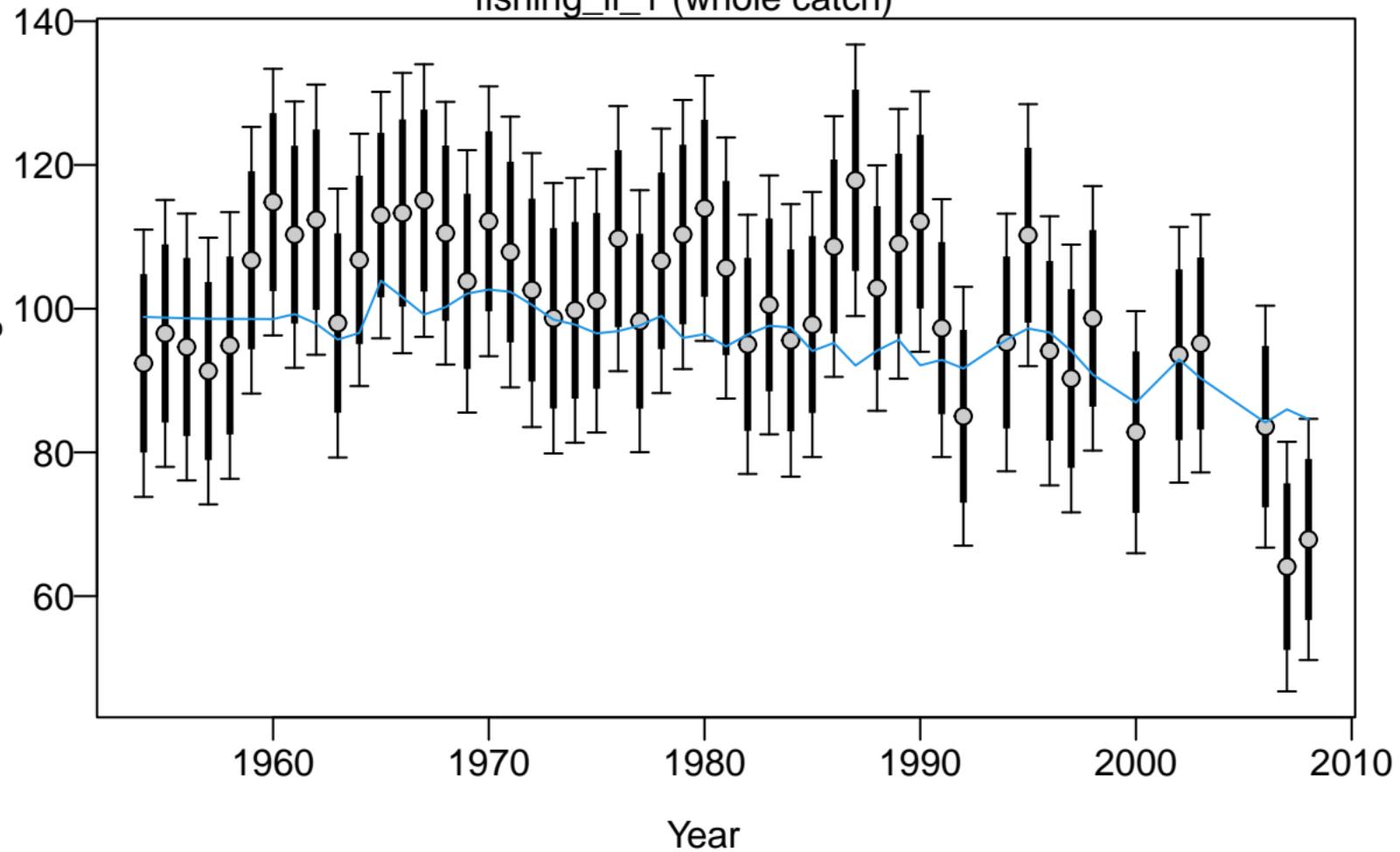
Proportion



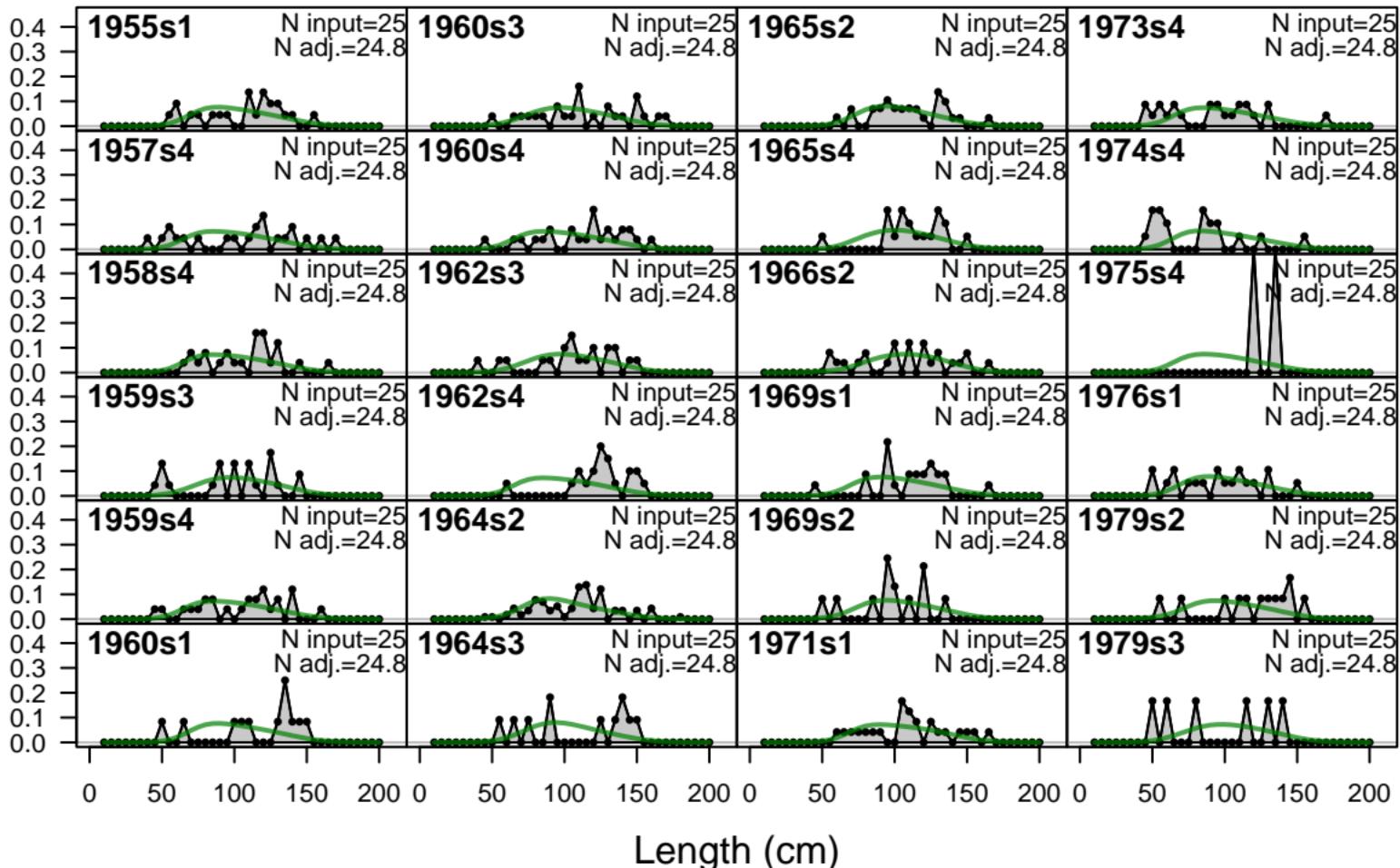


fishing_ll_1 (whole catch)

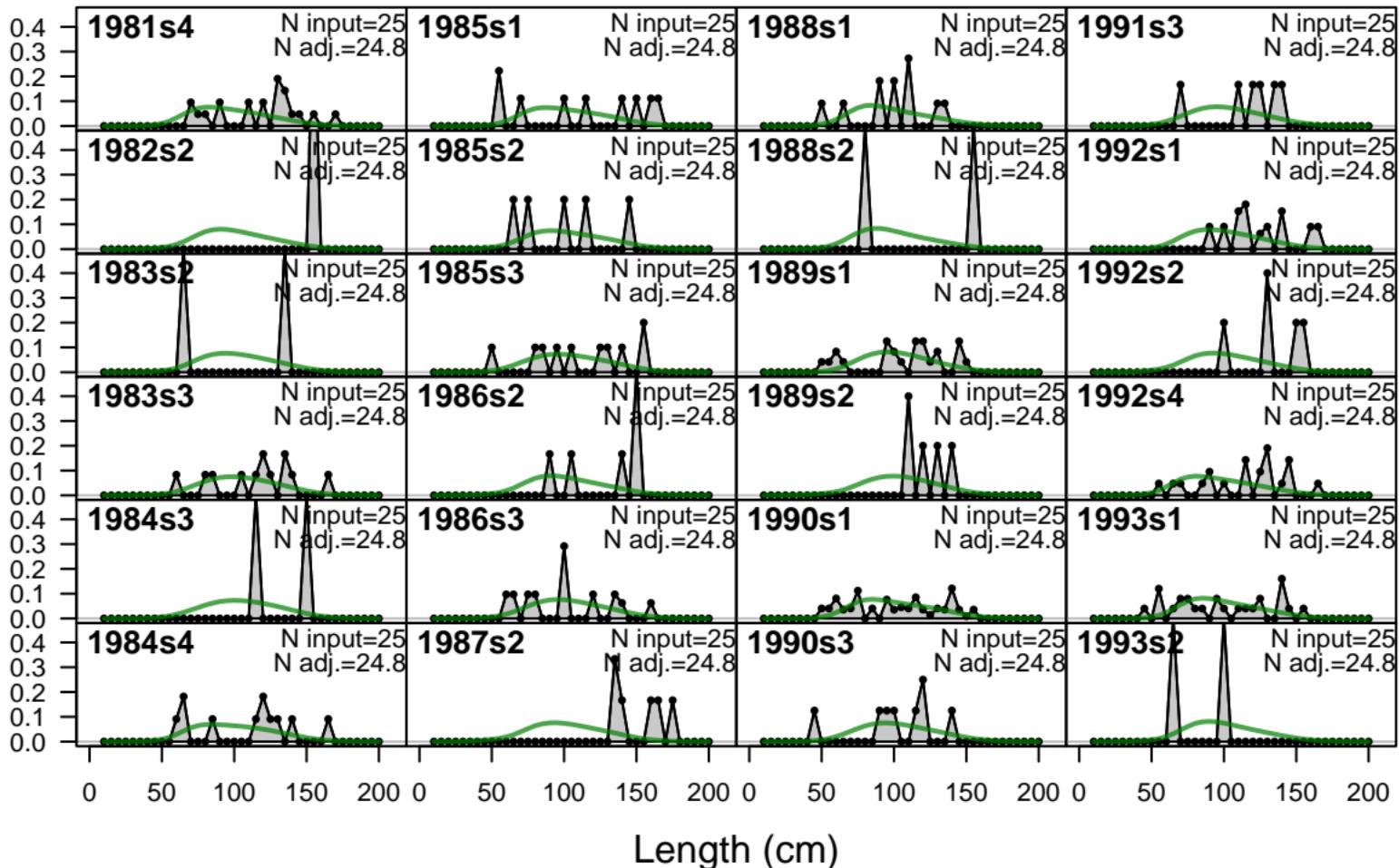
Mean length



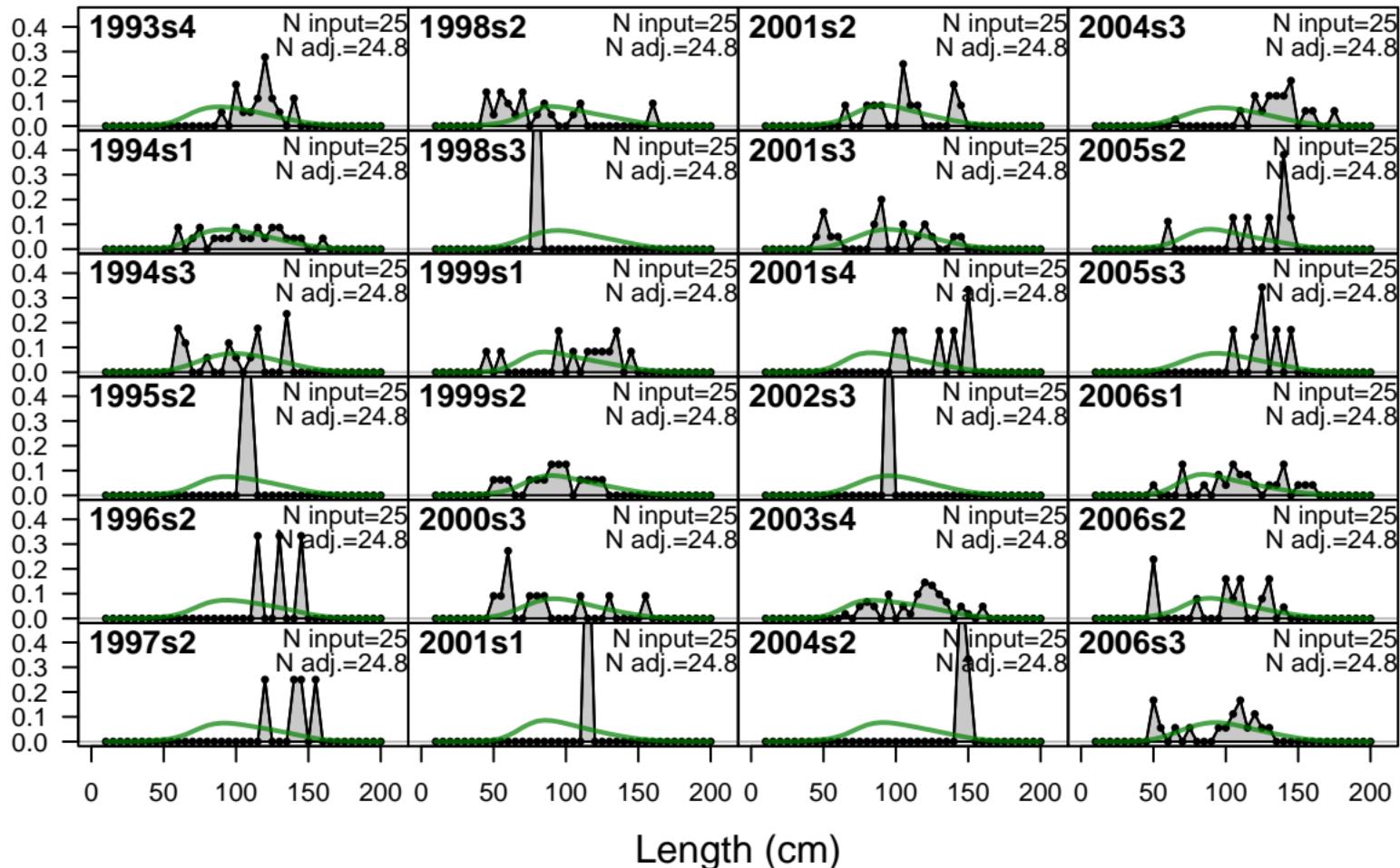
Proportion



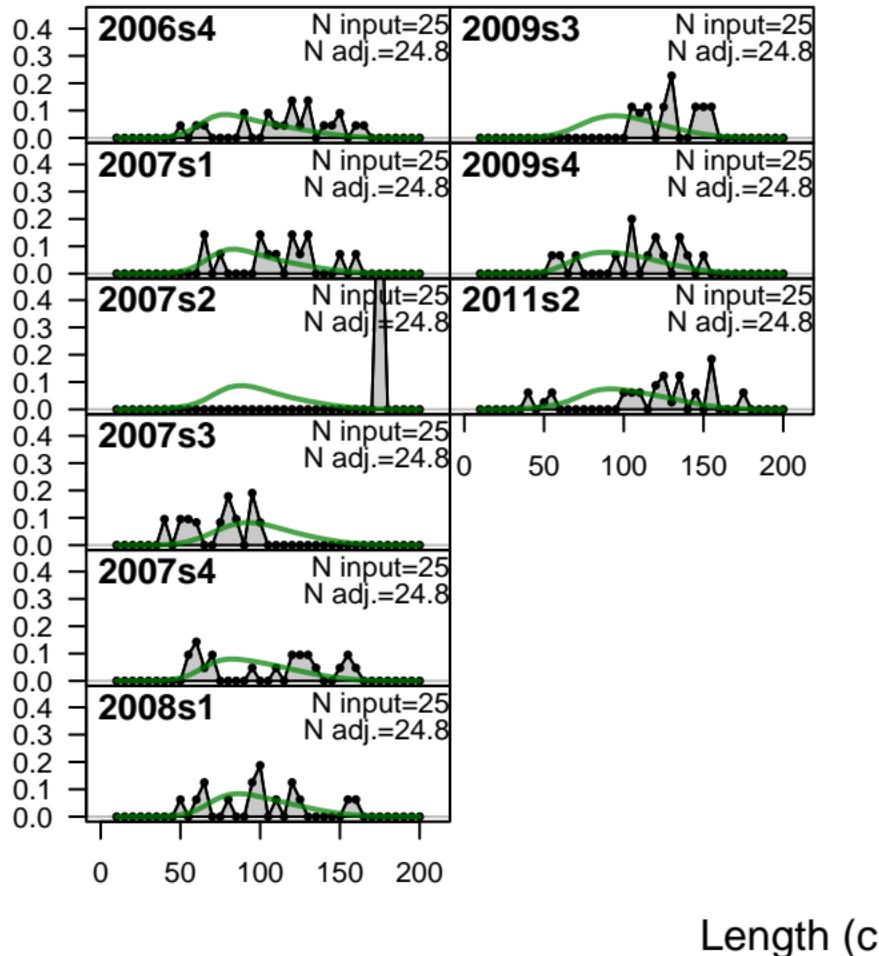
Proportion

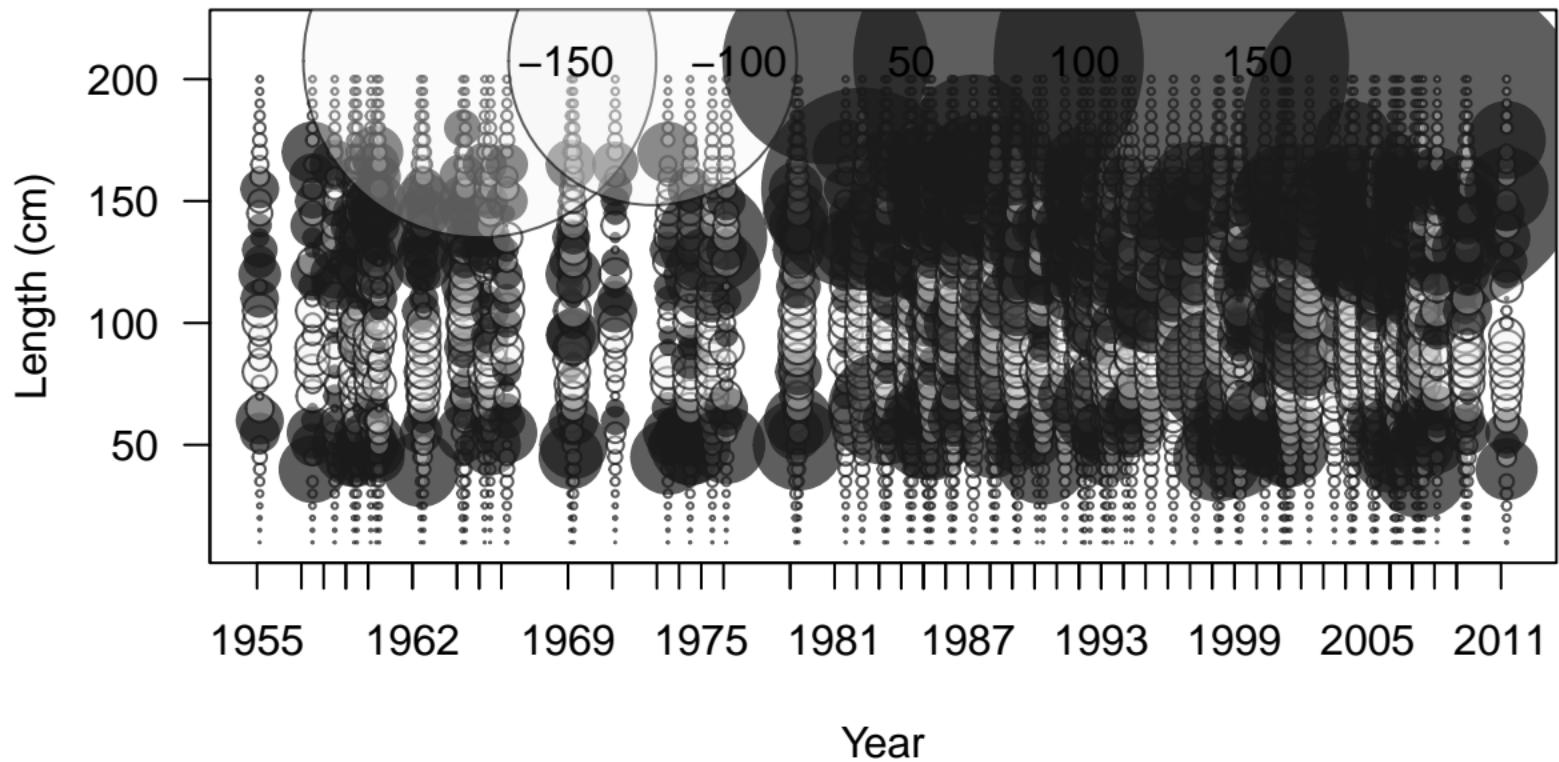


Proportion

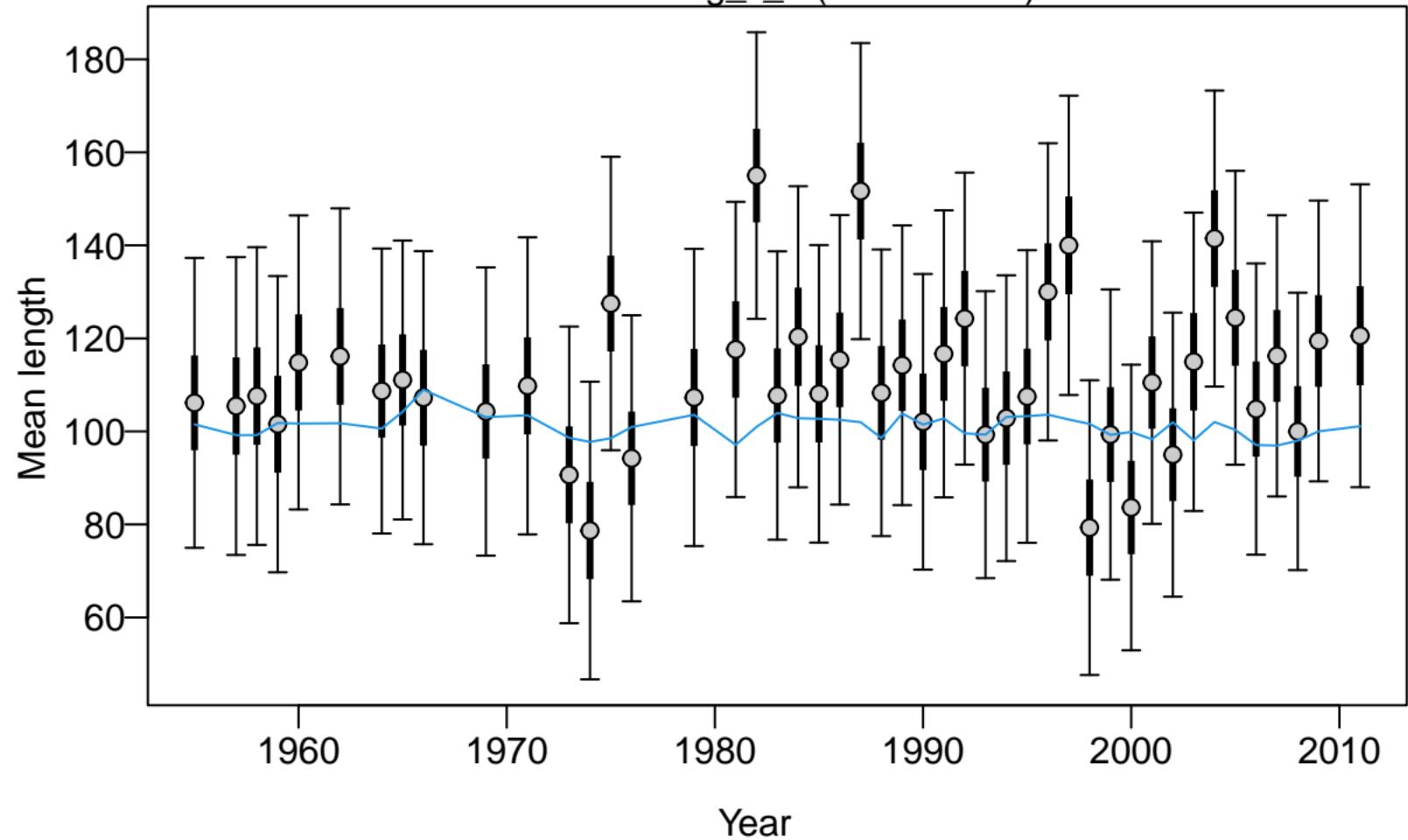


Proportion

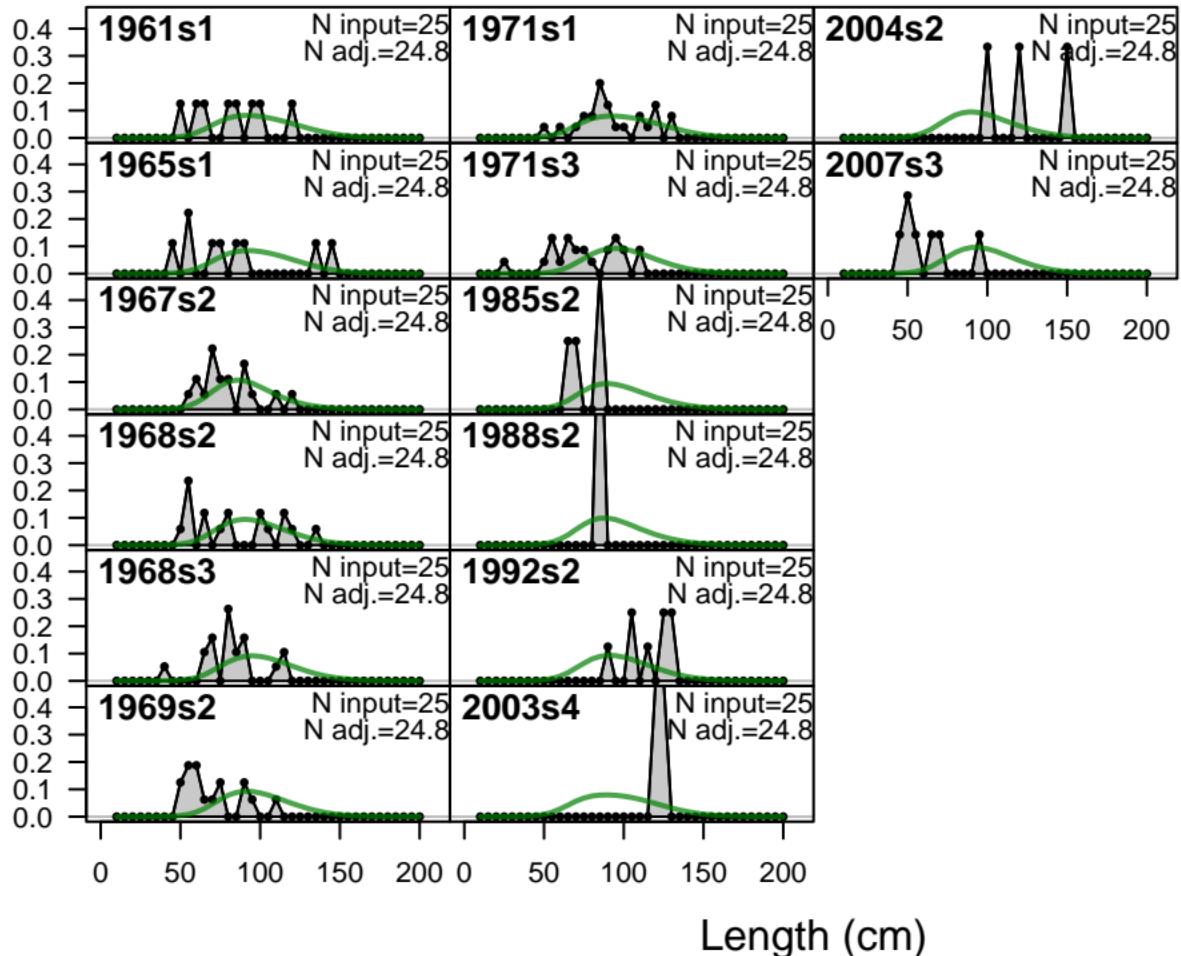


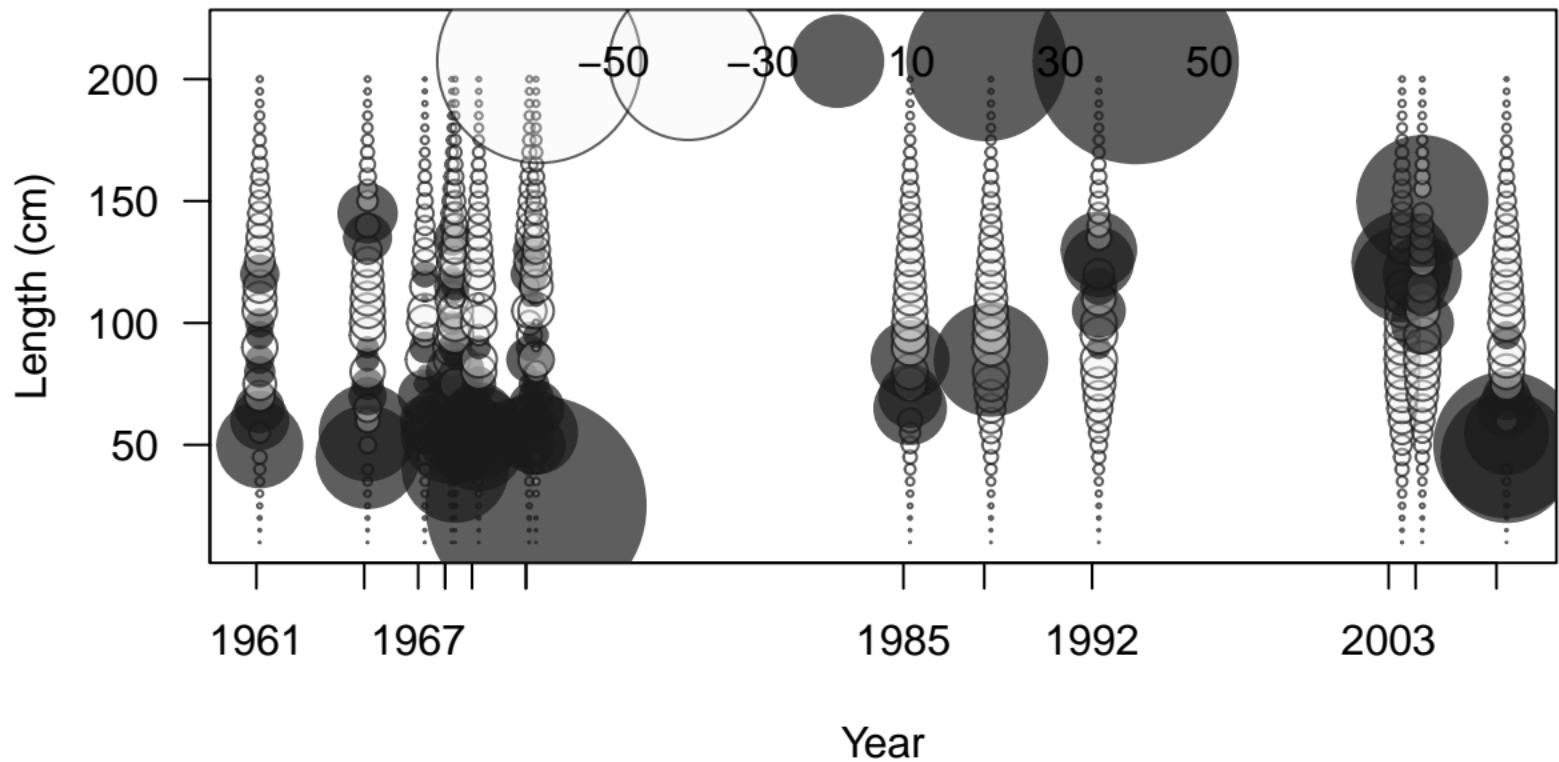


fishing_II_2 (whole catch)

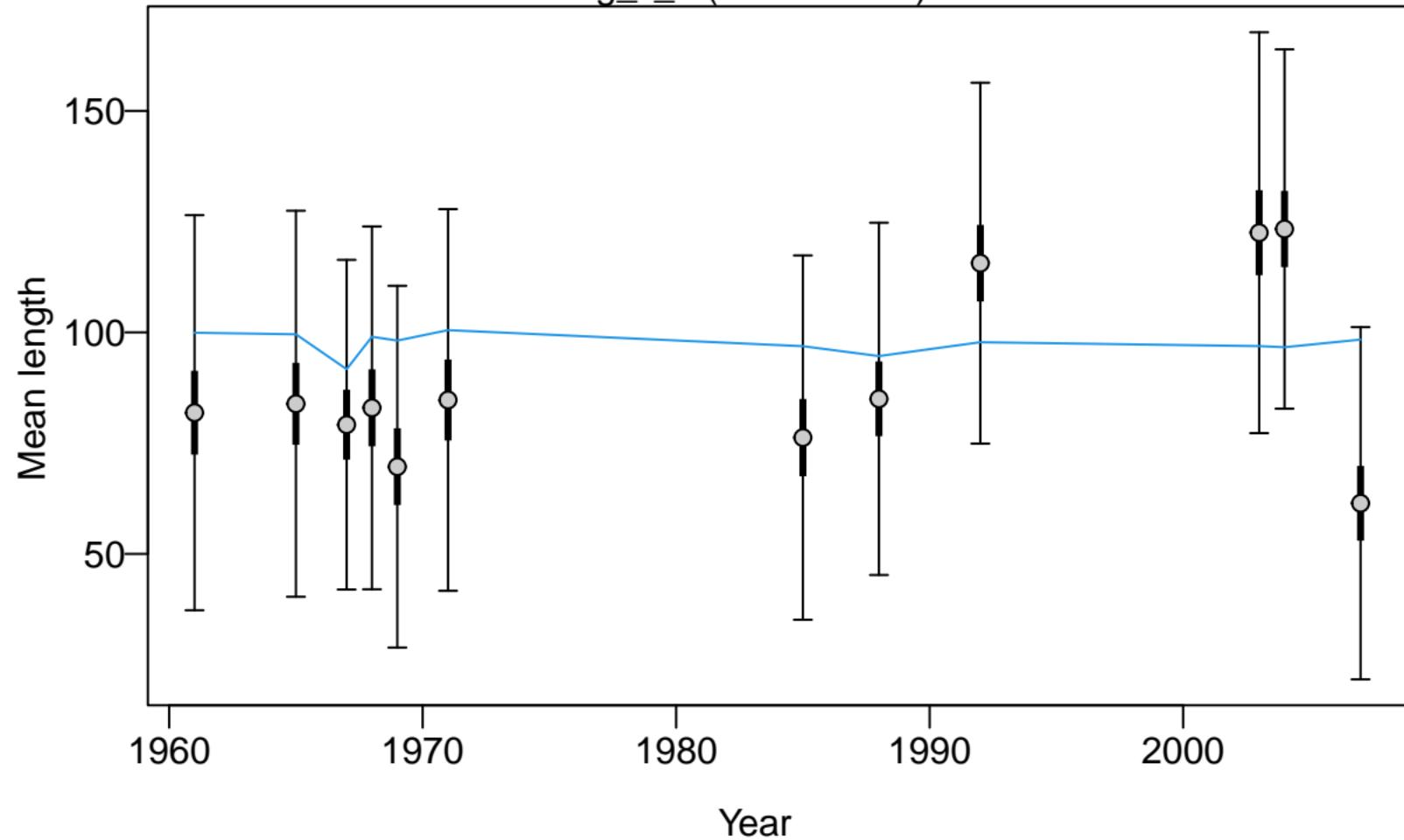


Proportion

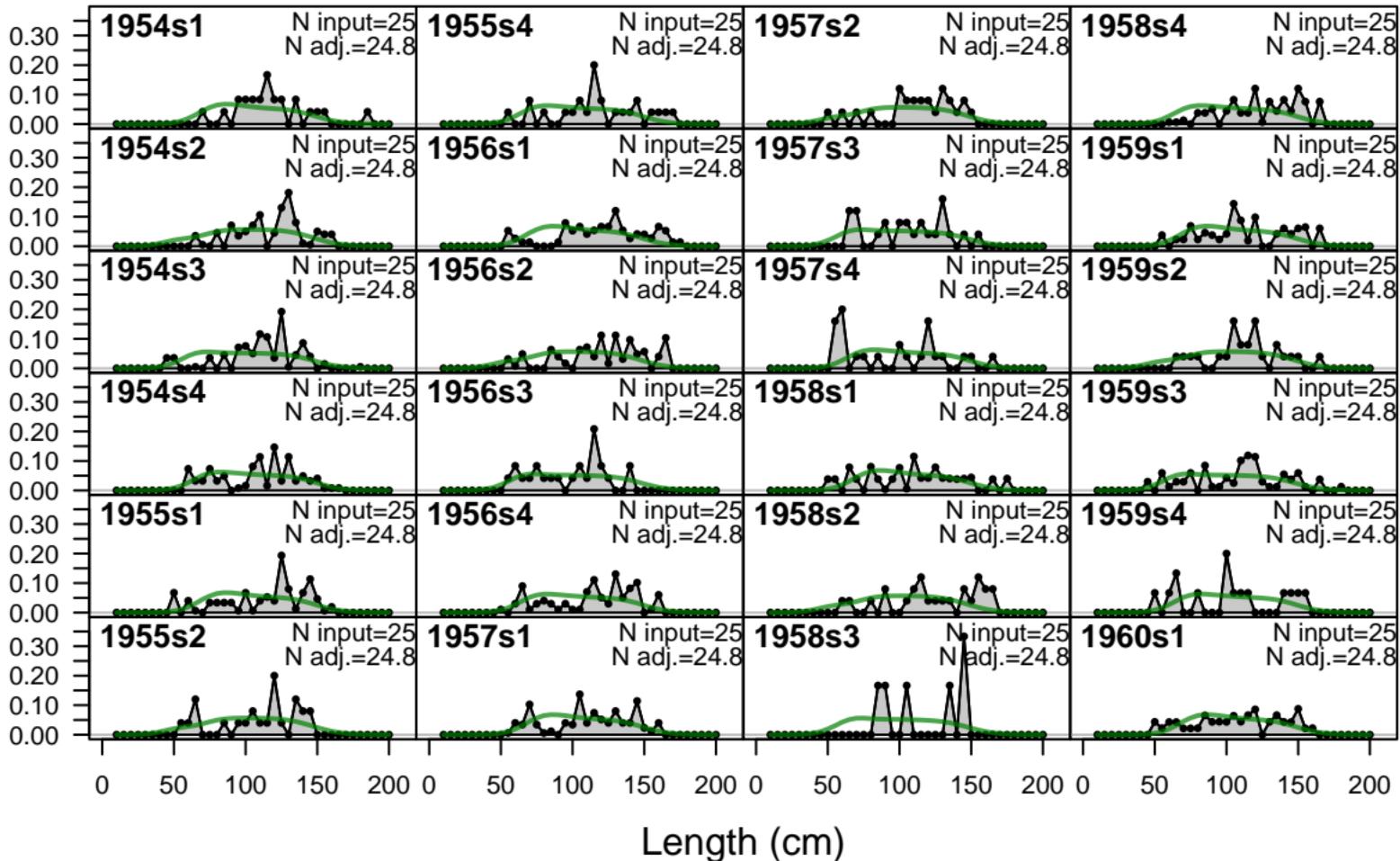




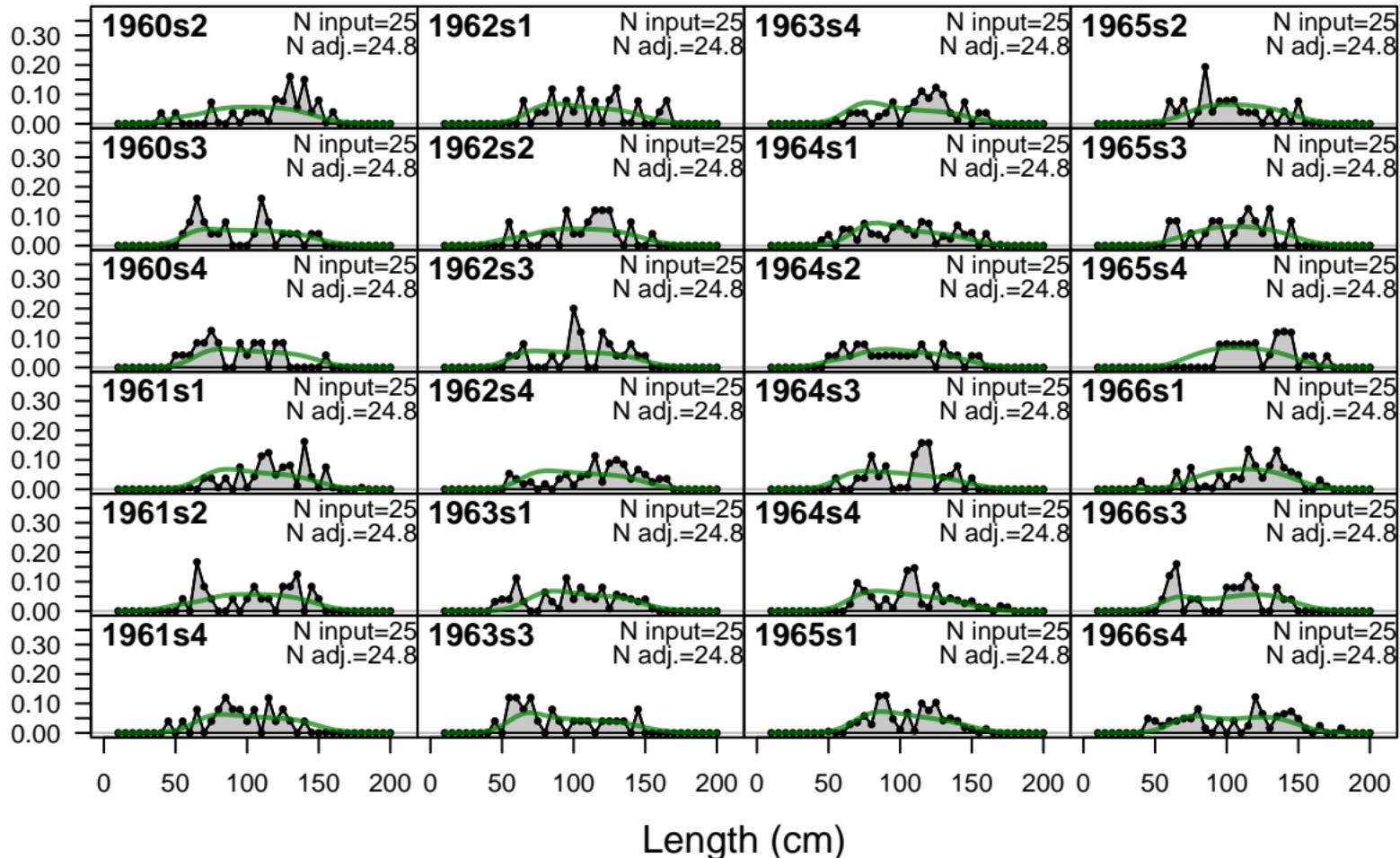
fishing_ll_3 (whole catch)



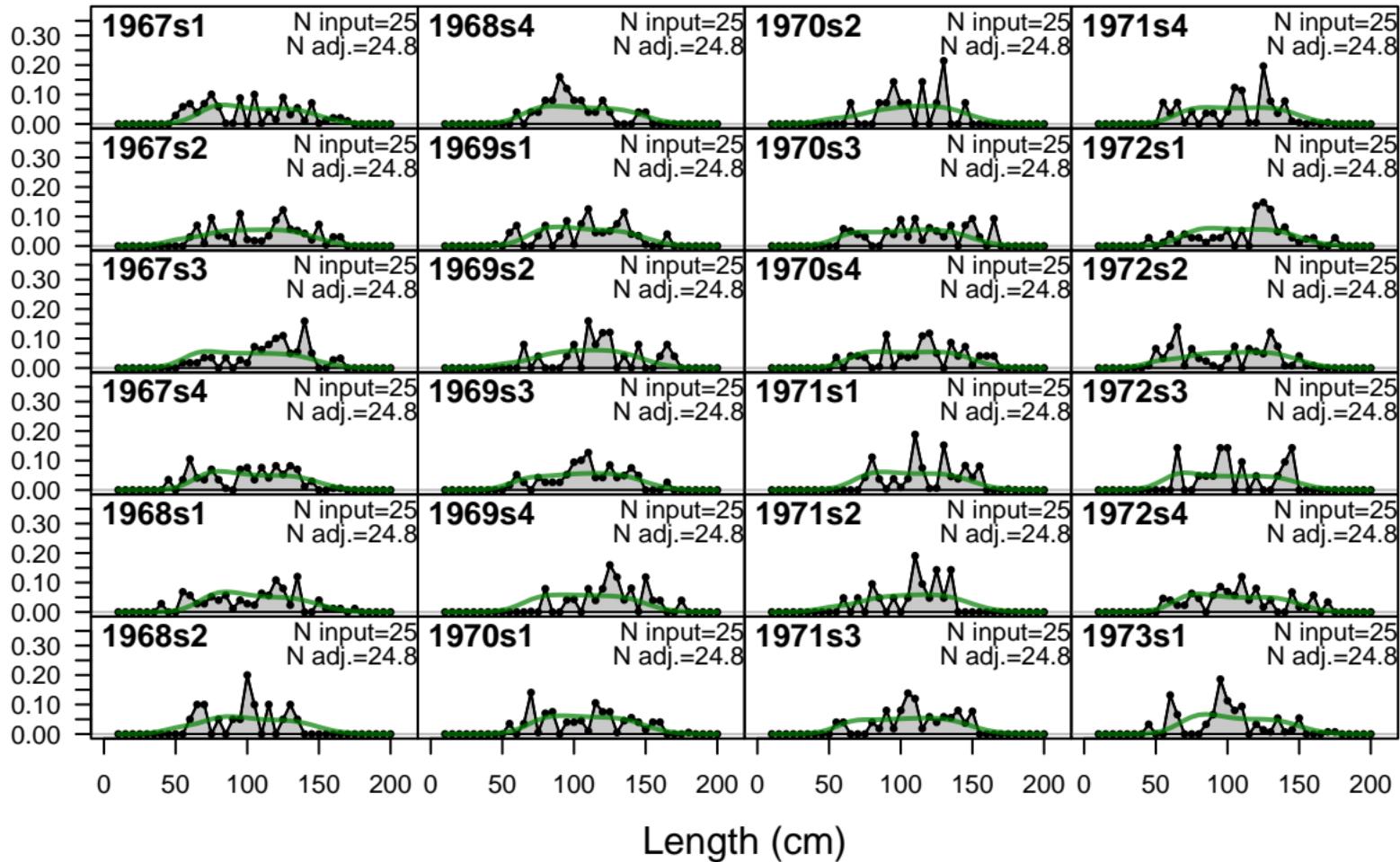
Proportion



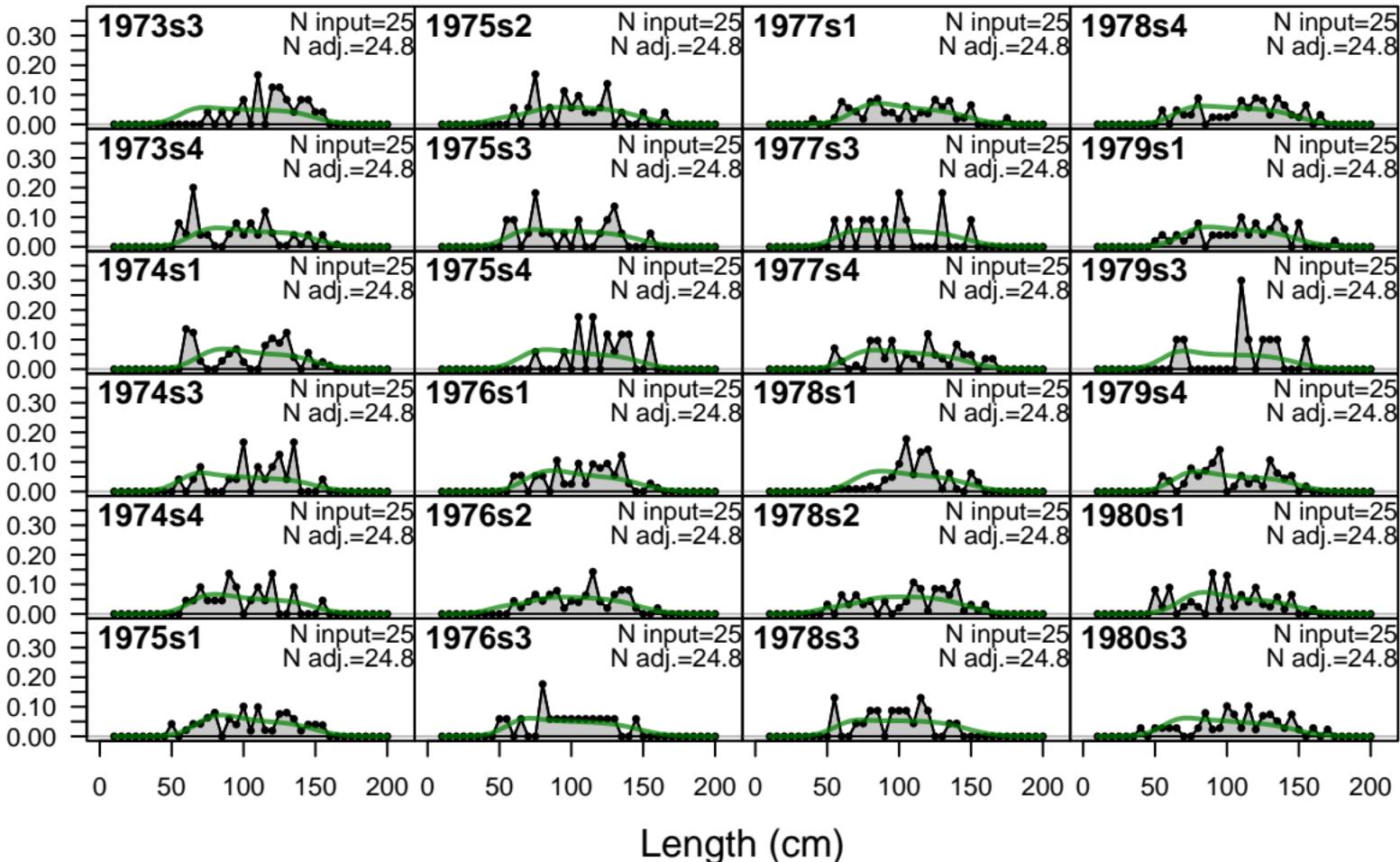
Proportion



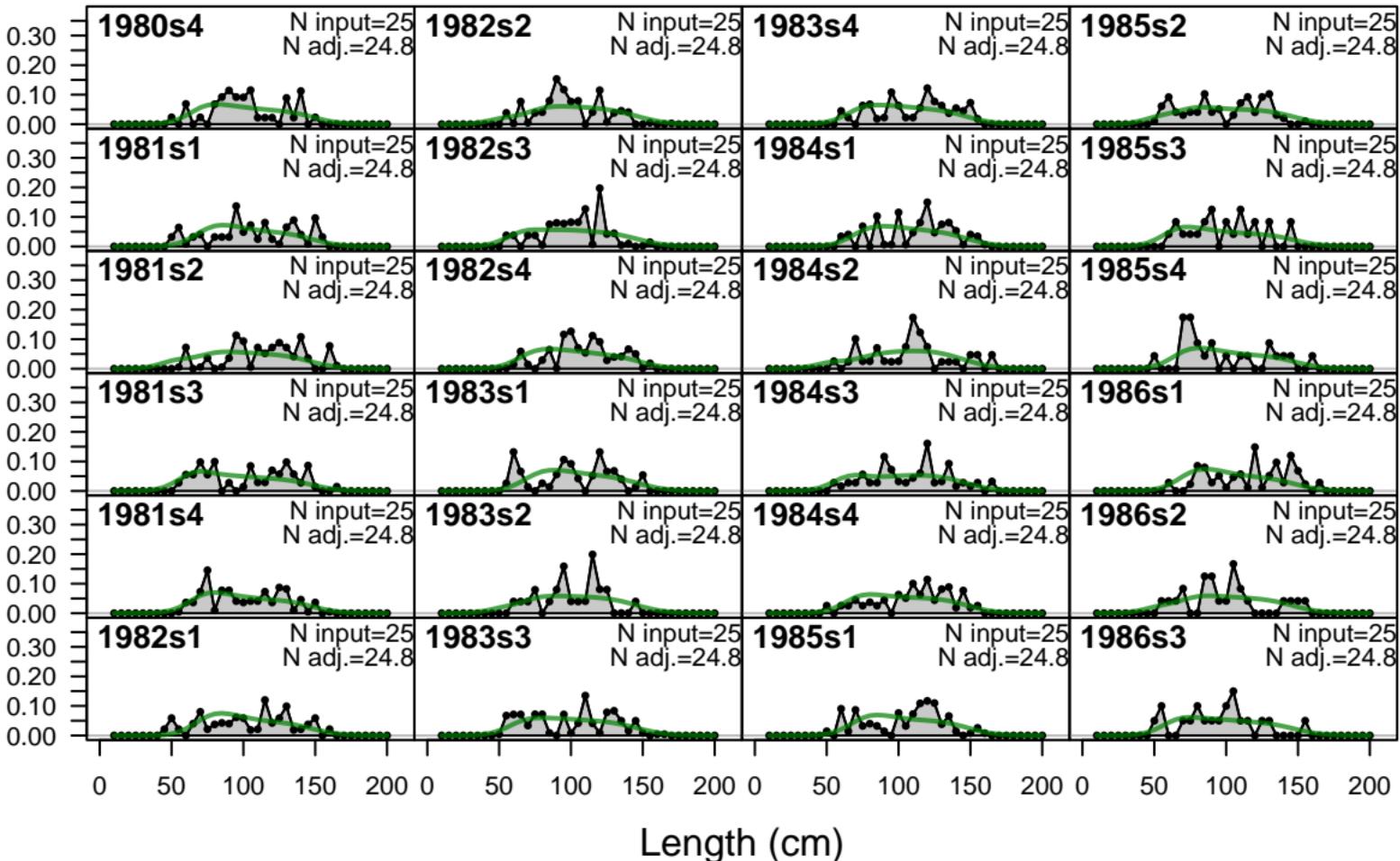
Proportion



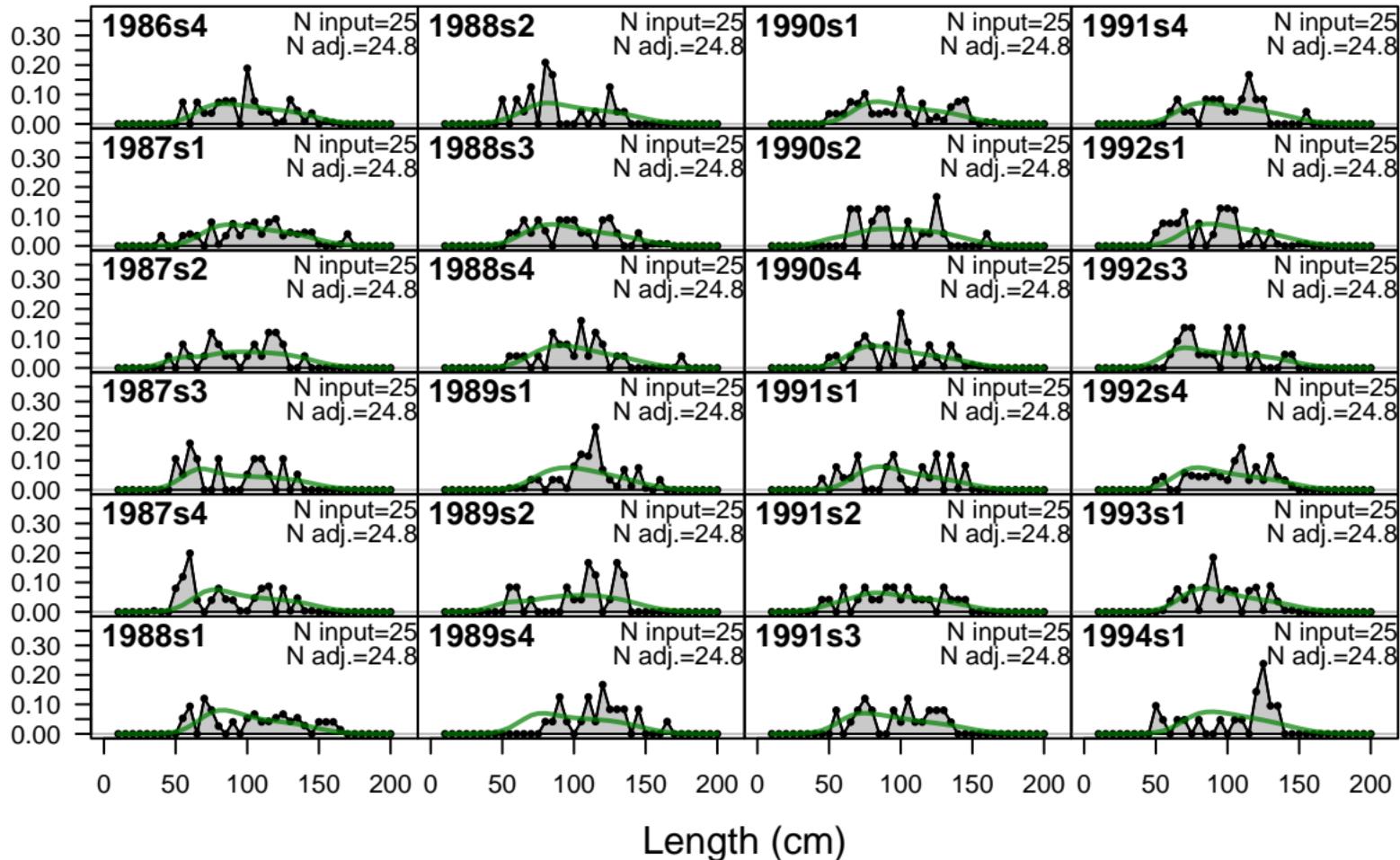
Proportion



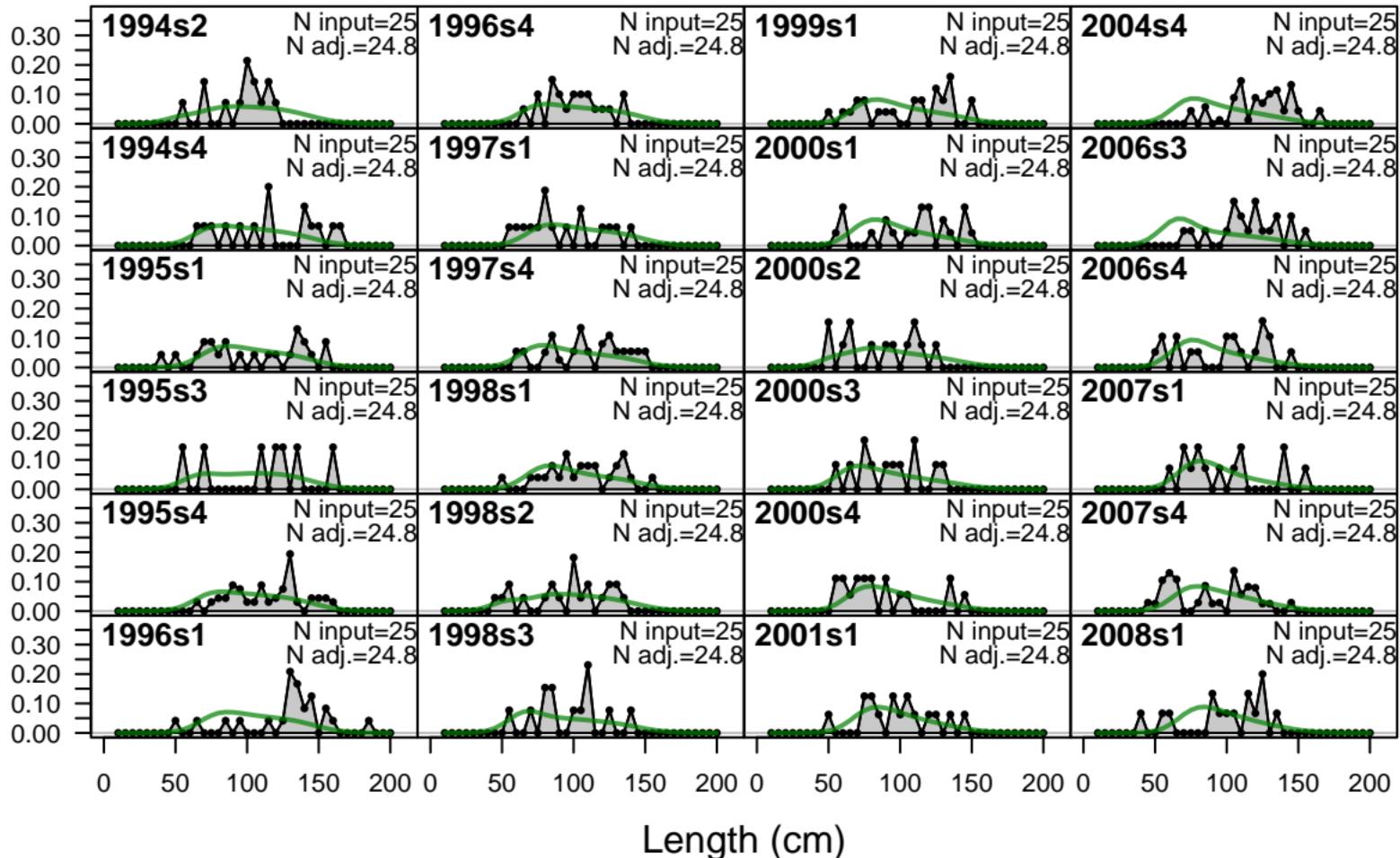
Proportion



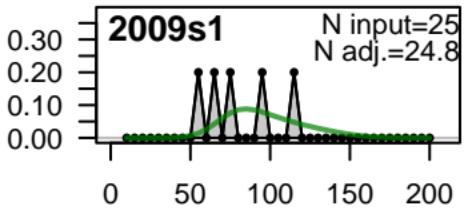
Proportion

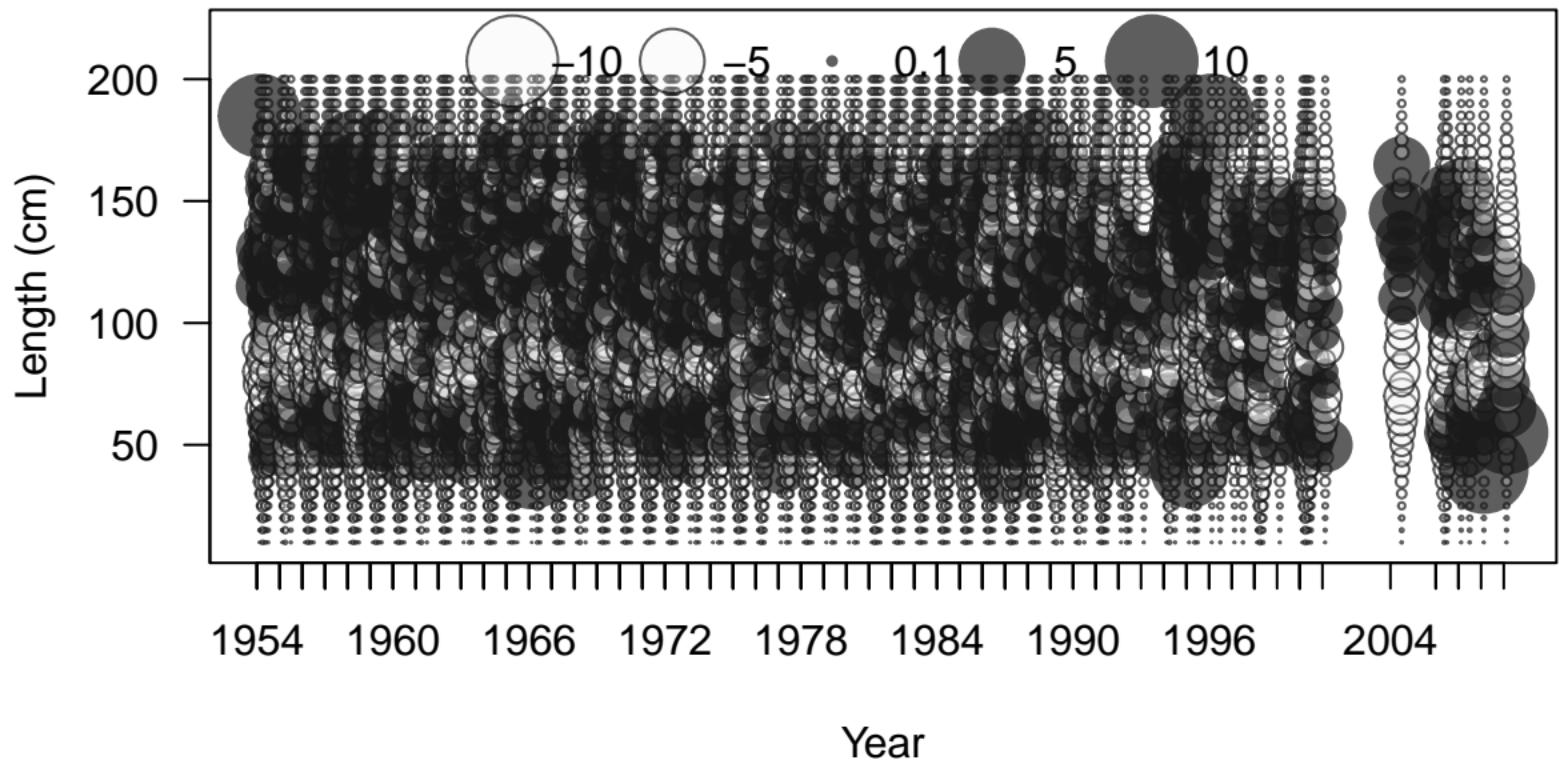


Proportion

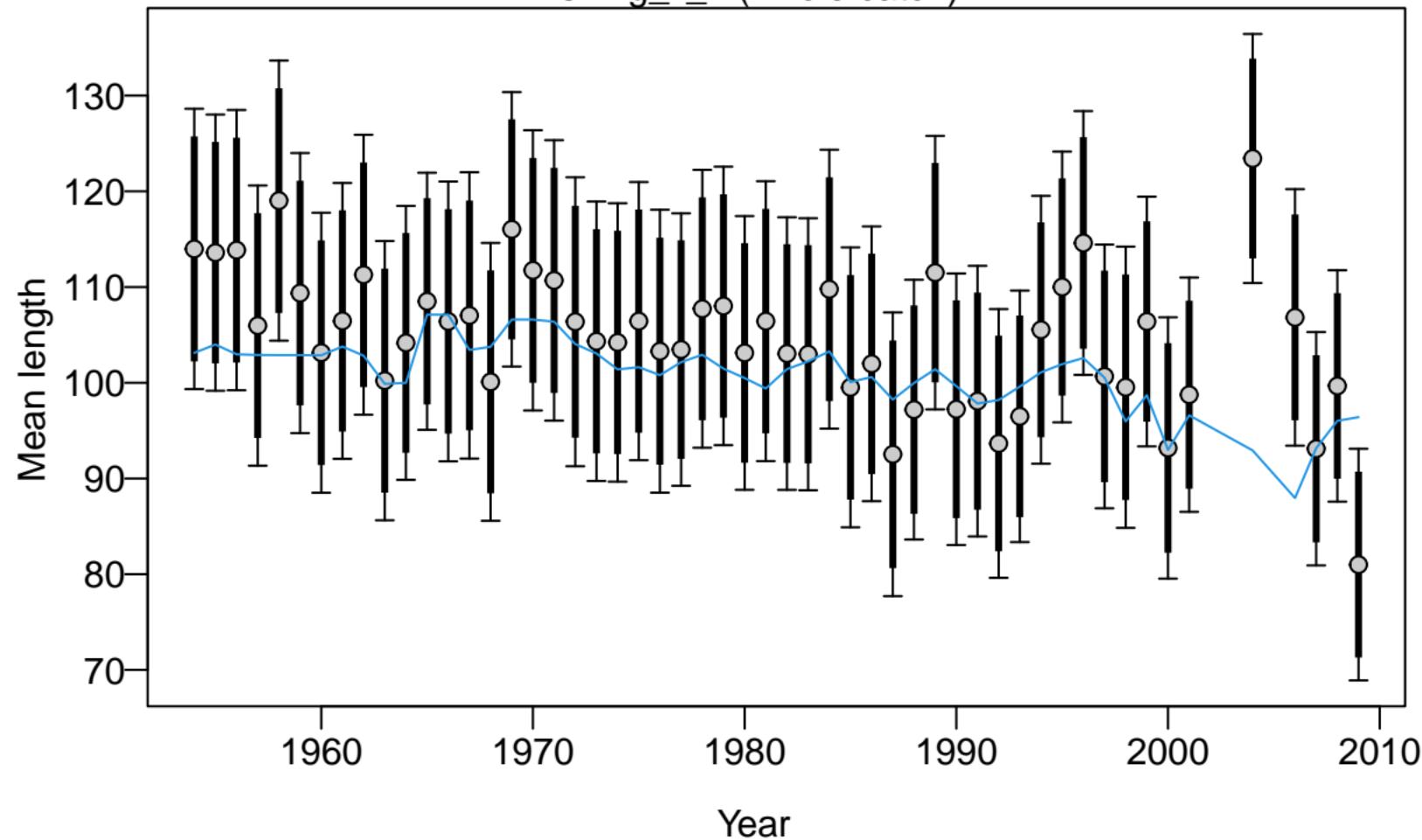


Proportion

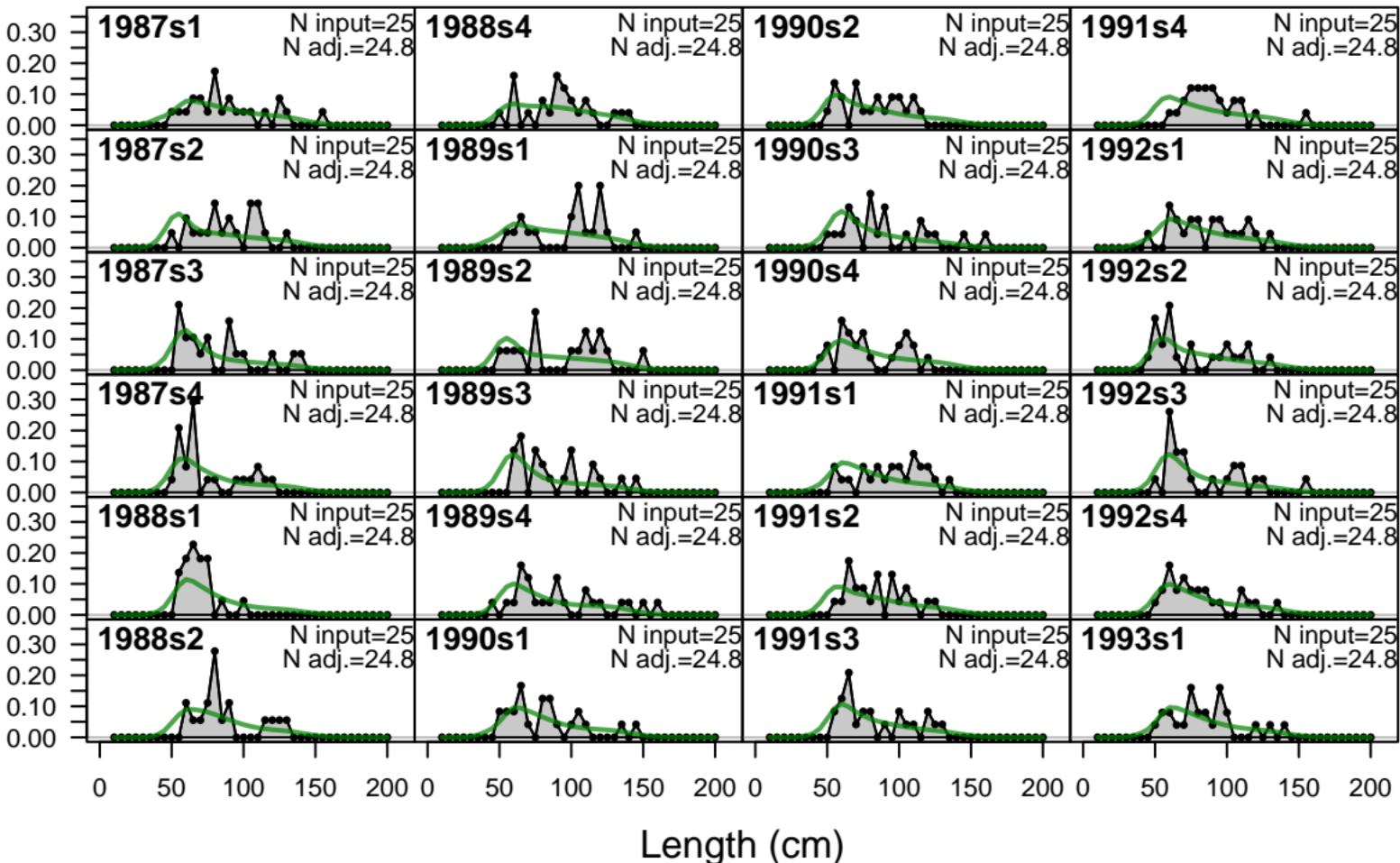




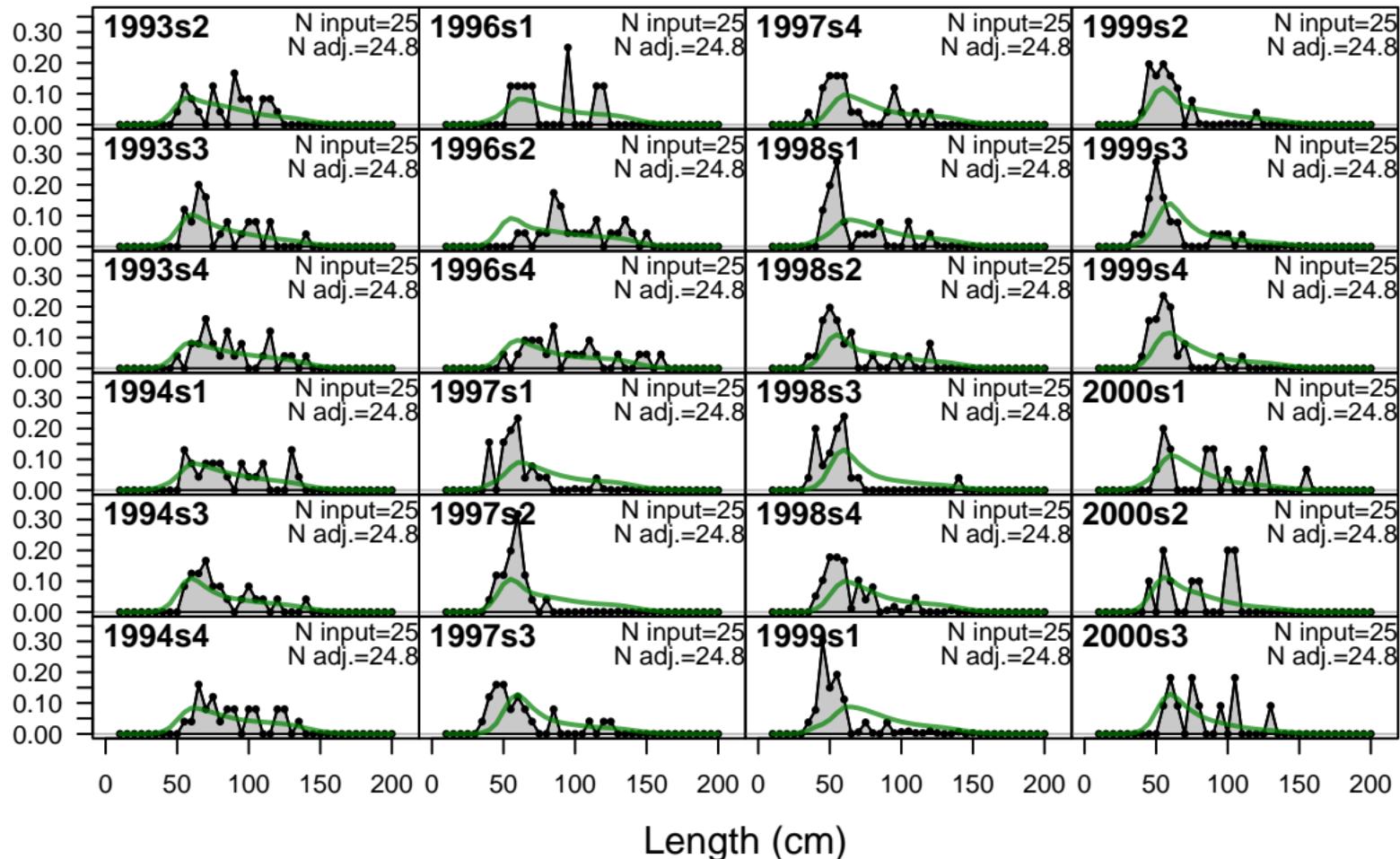
fishing_ll_4 (whole catch)



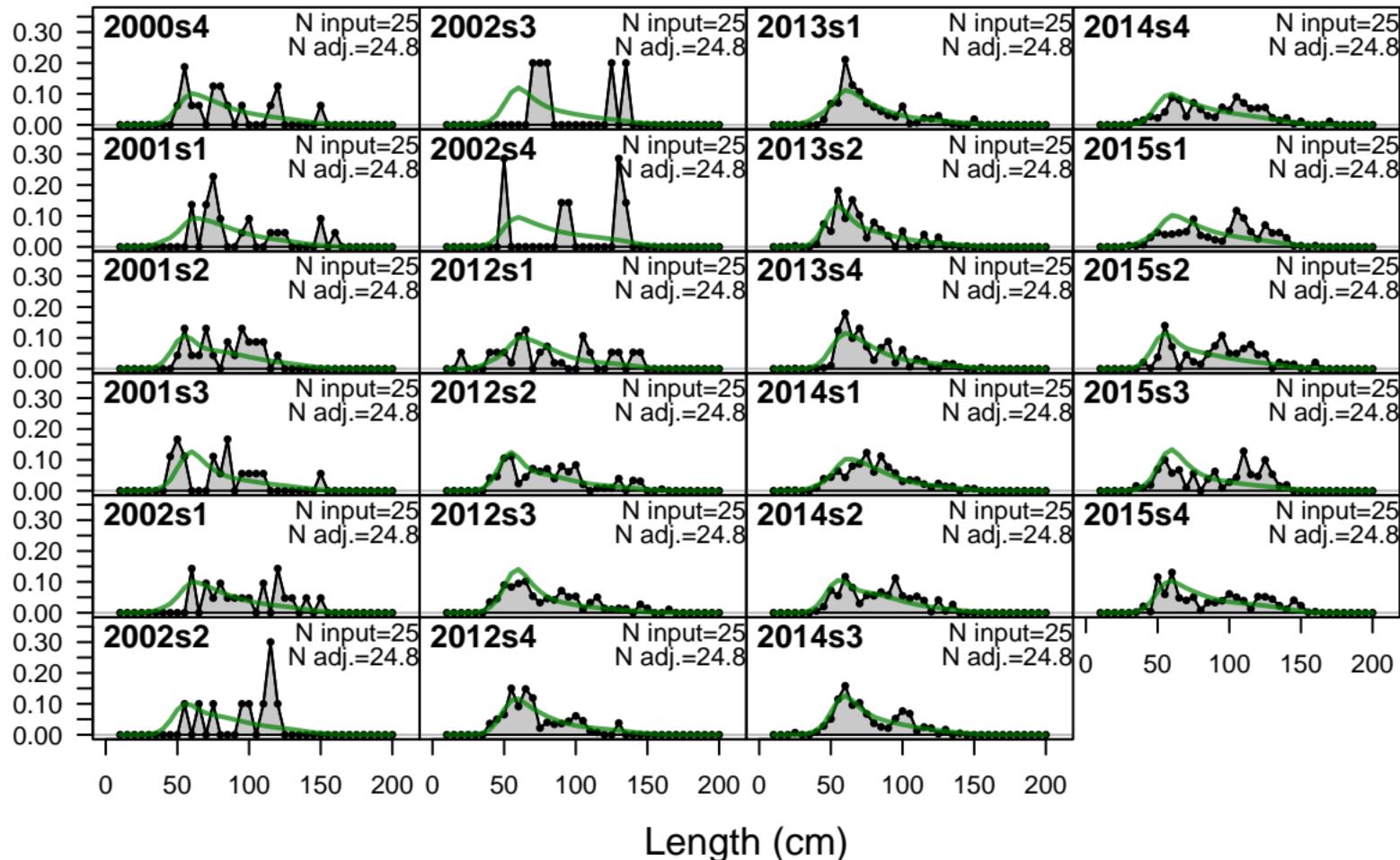
Proportion

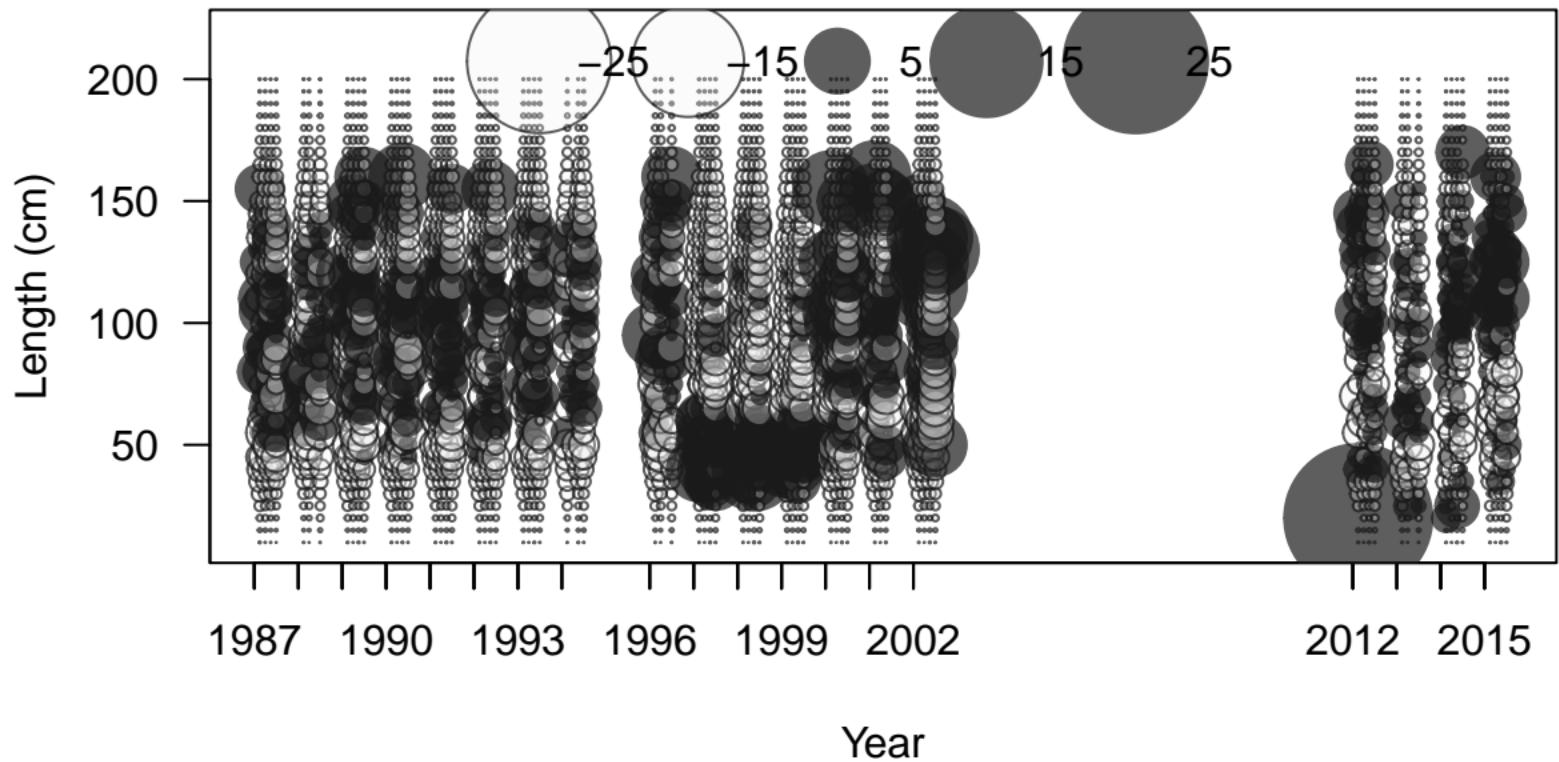


Proportion

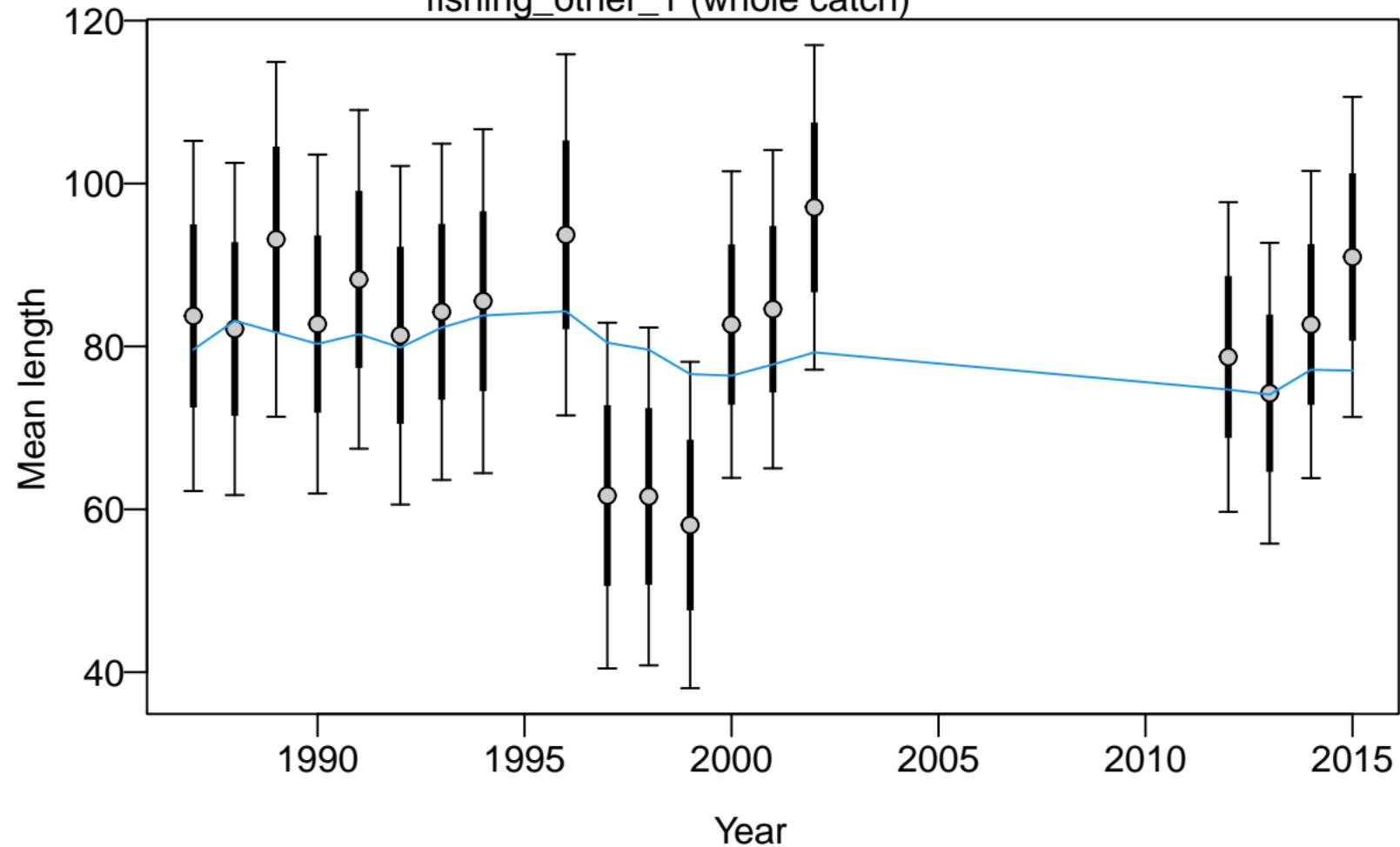


Proportion

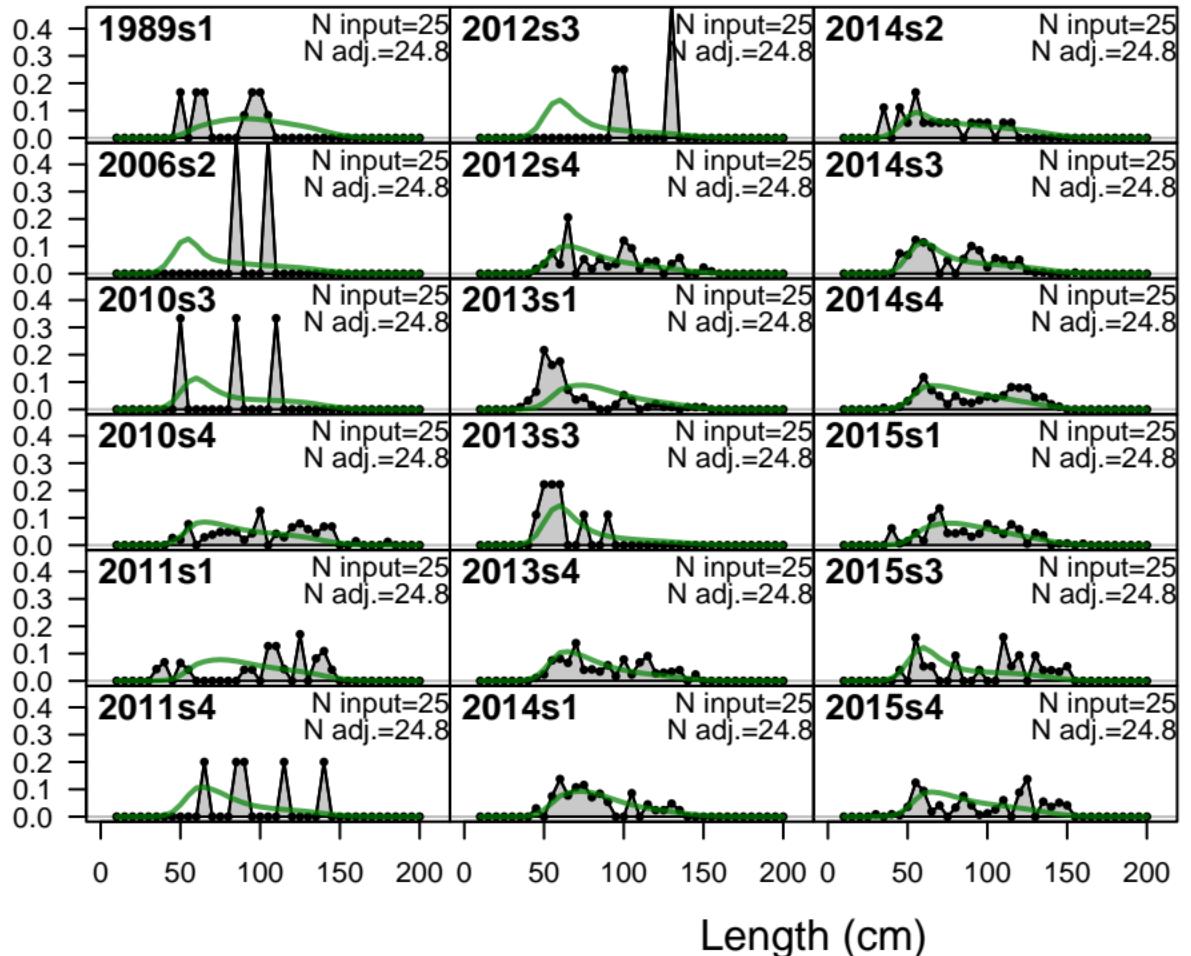


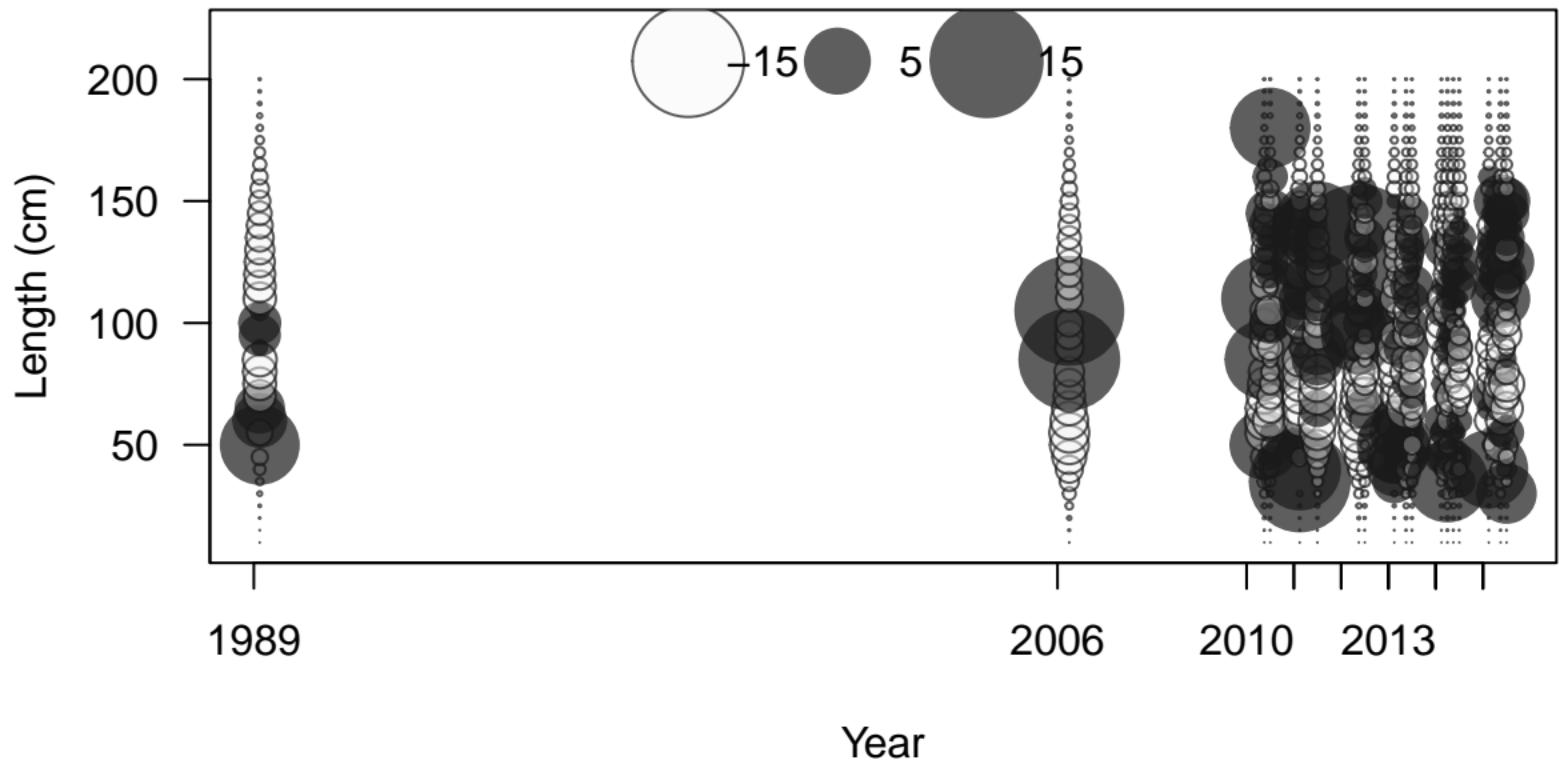


fishing_other_1 (whole catch)

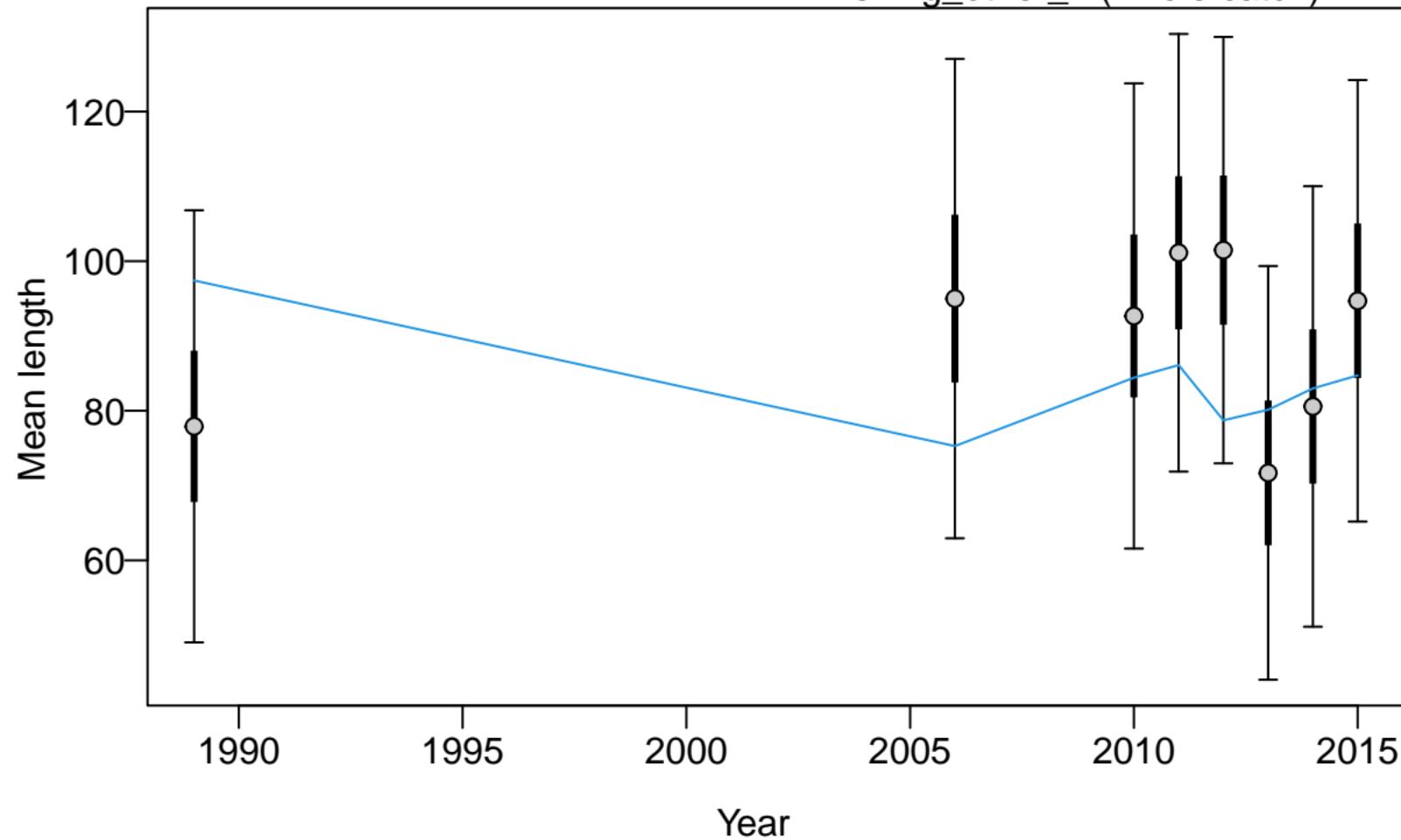


Proportion

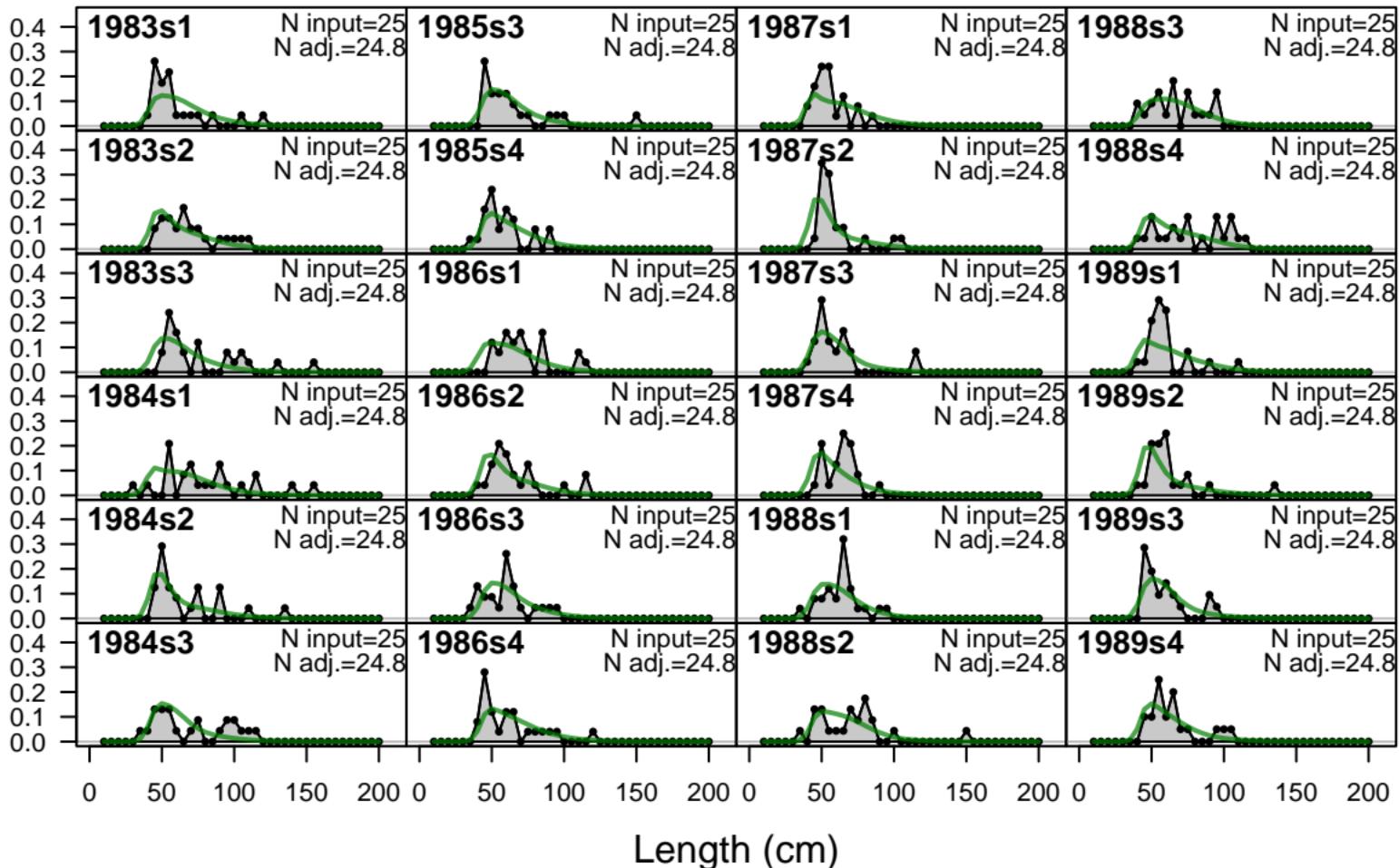




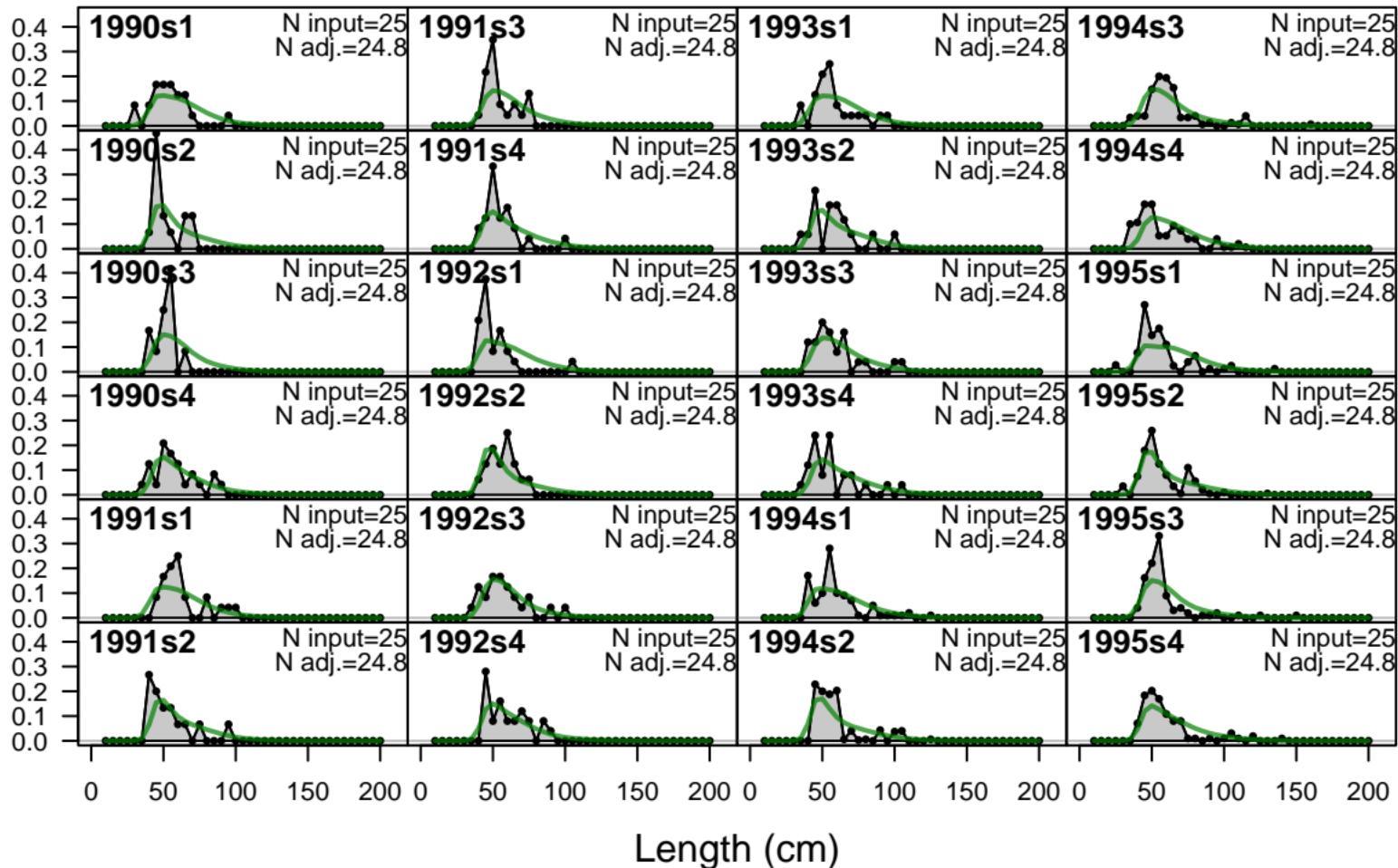
fishing_other_4 (whole catch)



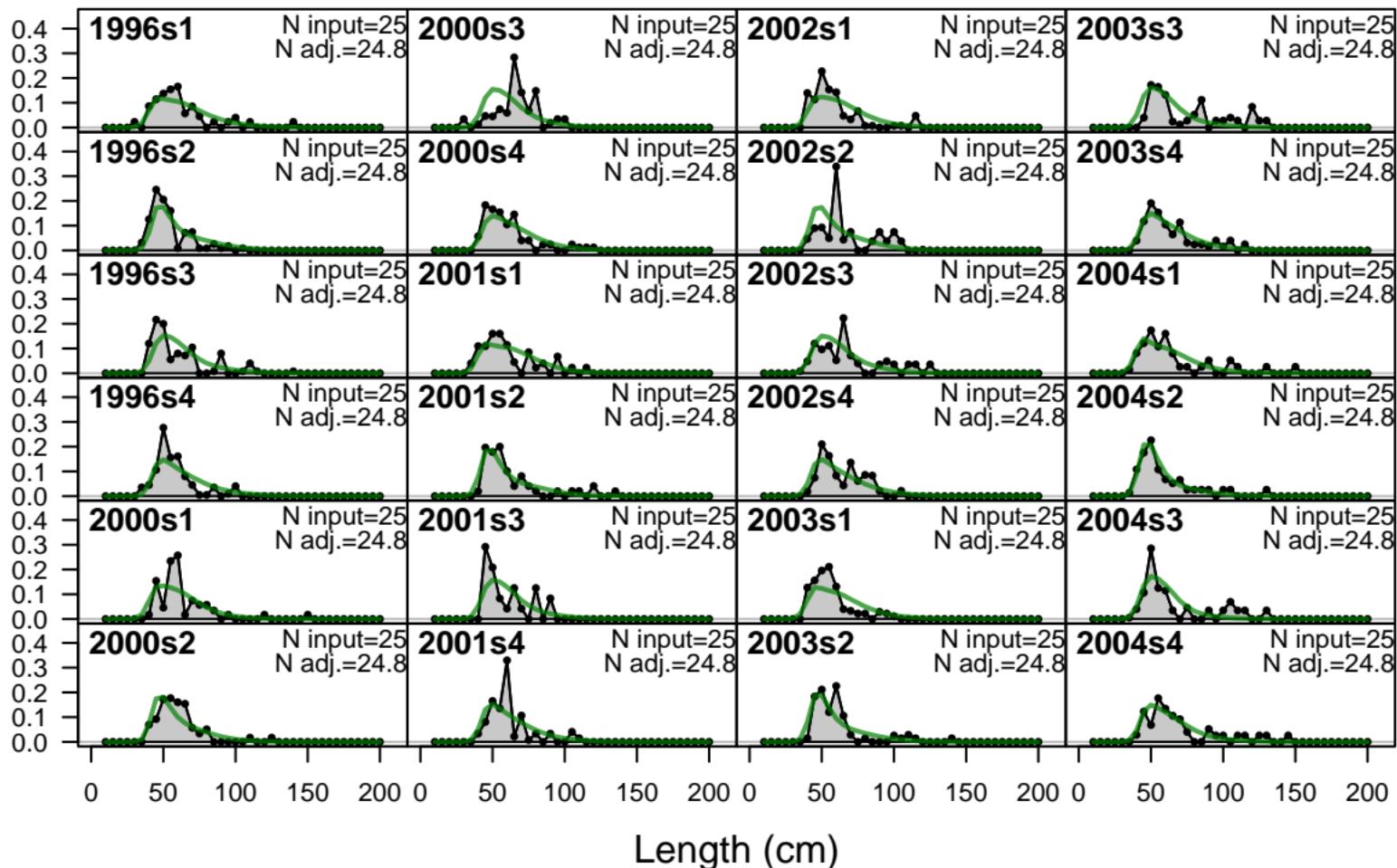
Proportion



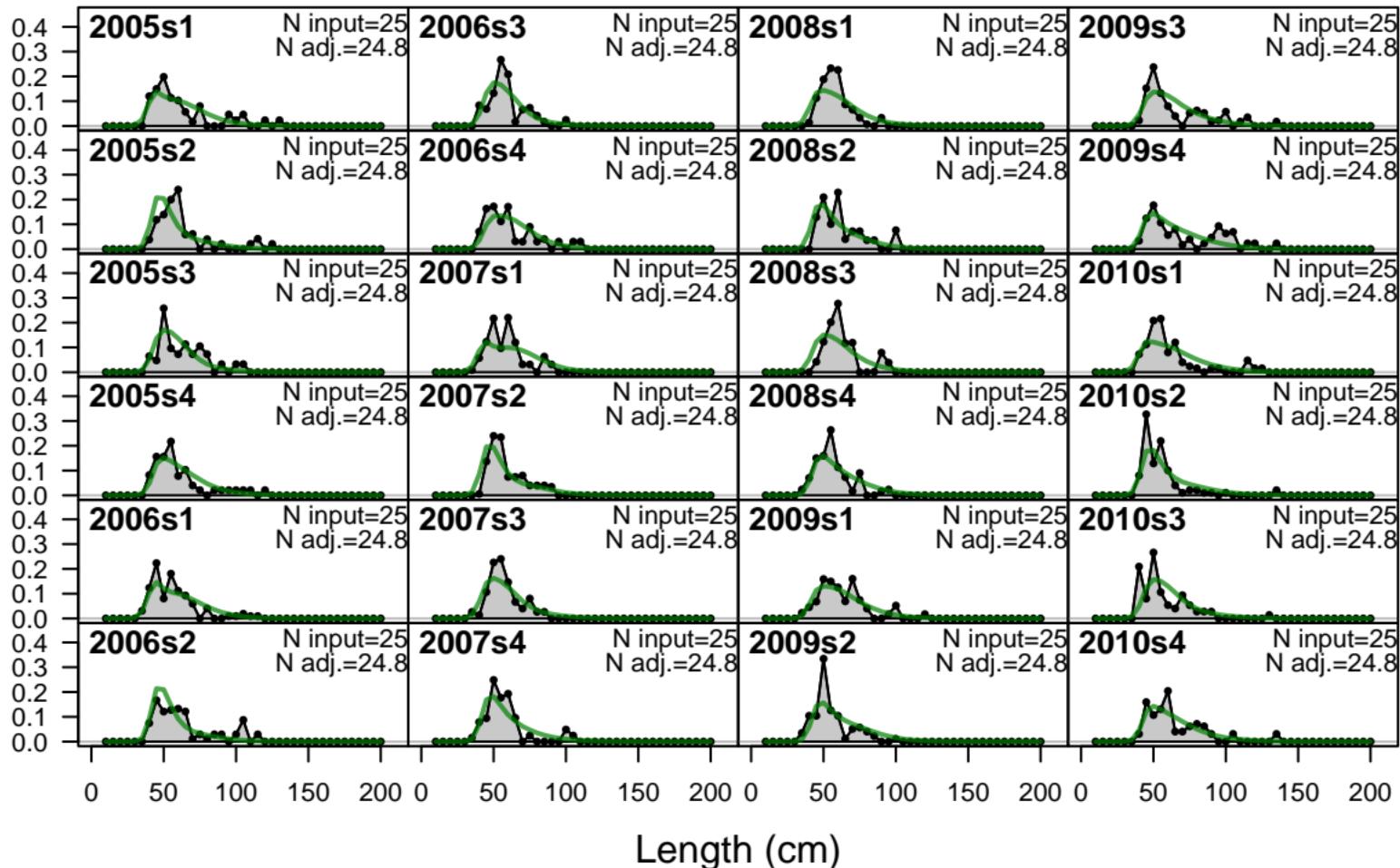
Proportion



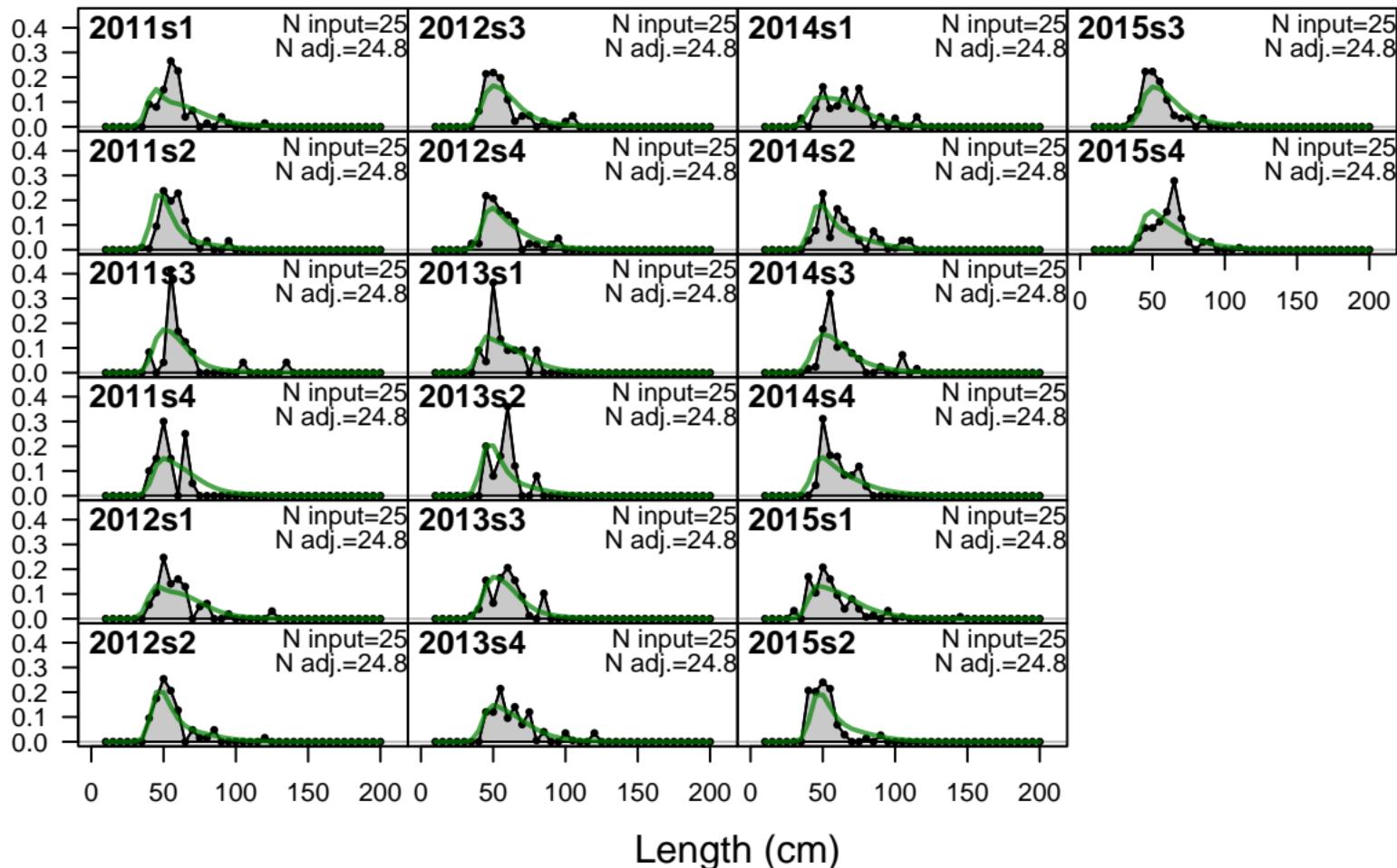
Proportion

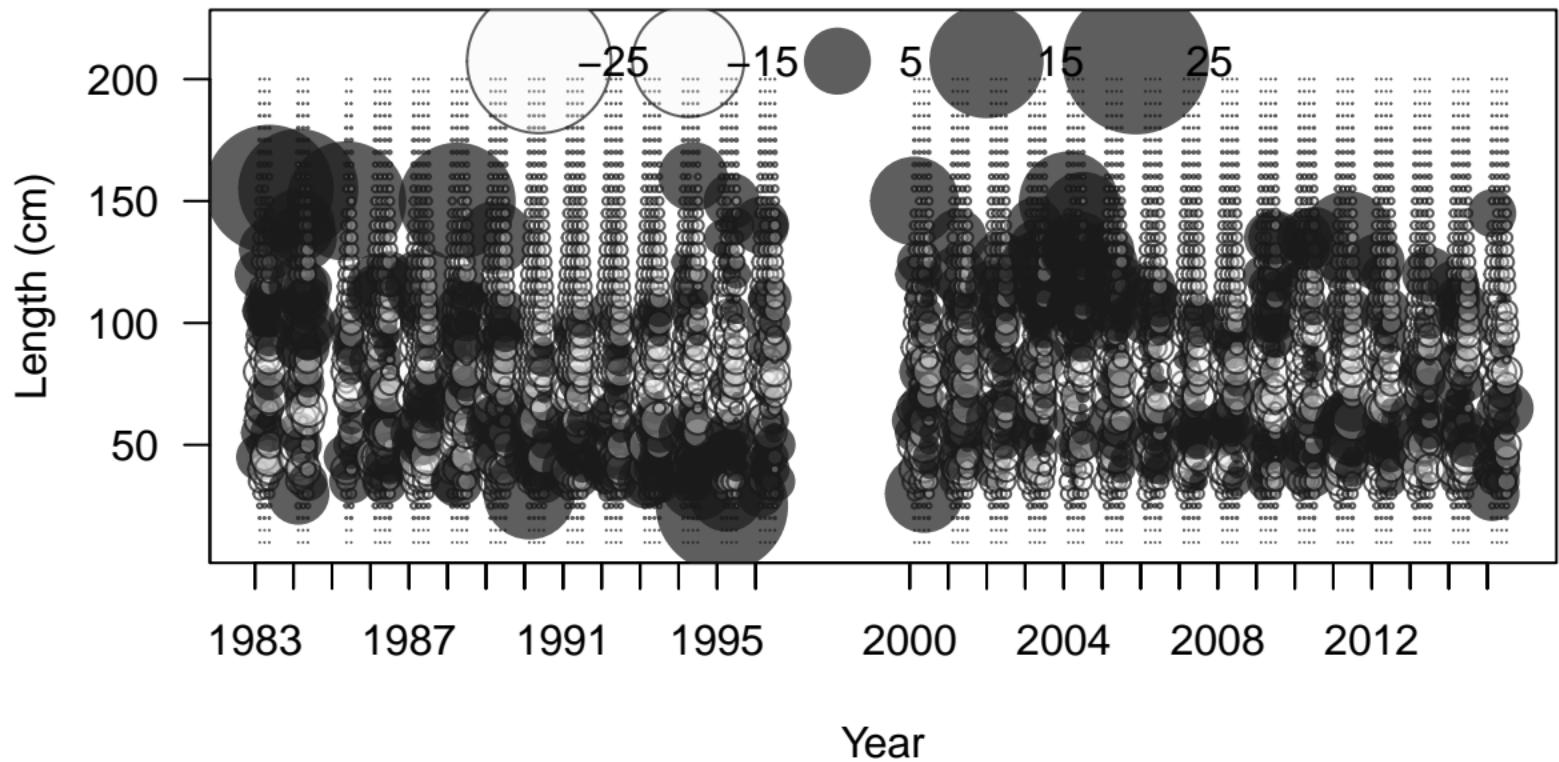


Proportion

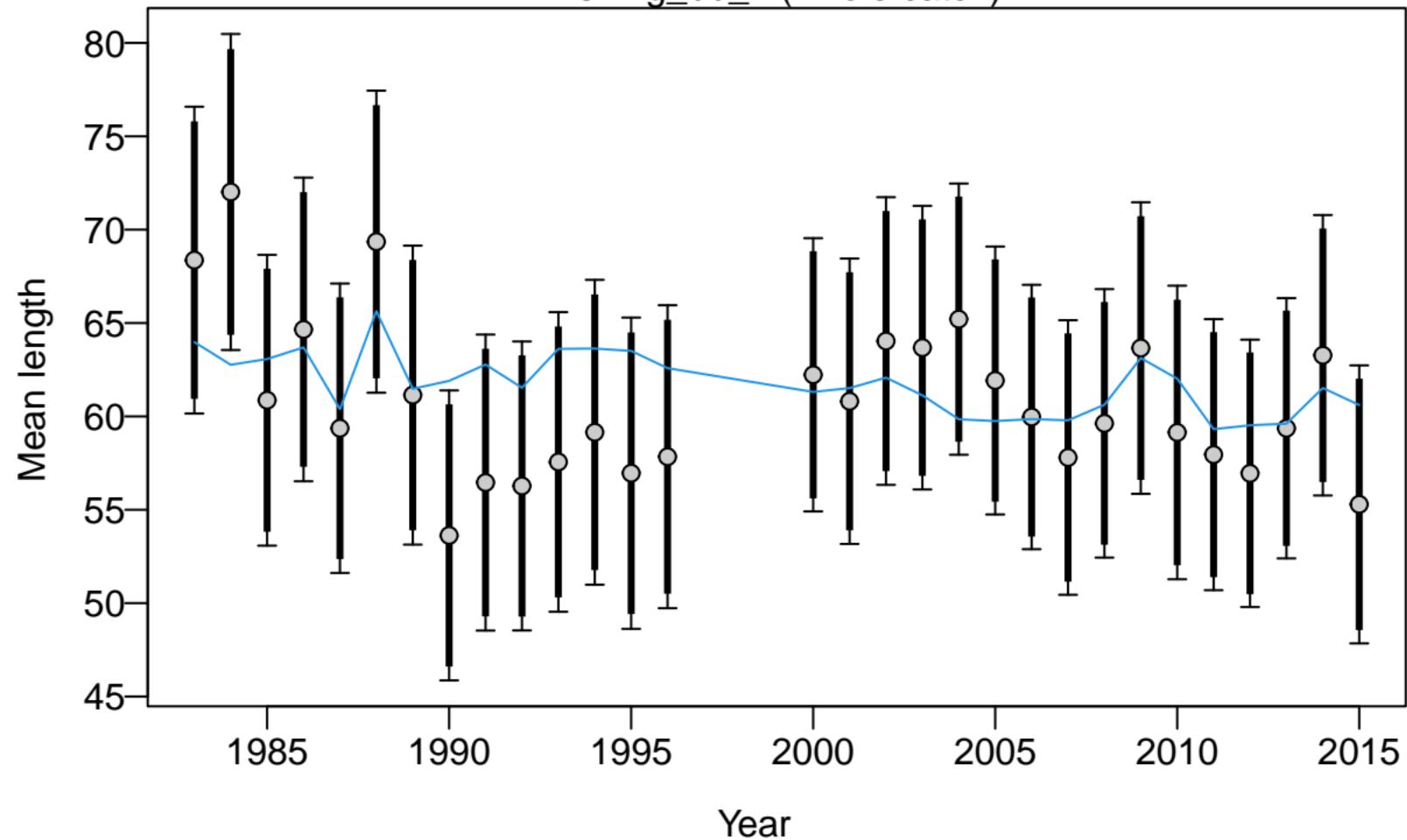


Proportion

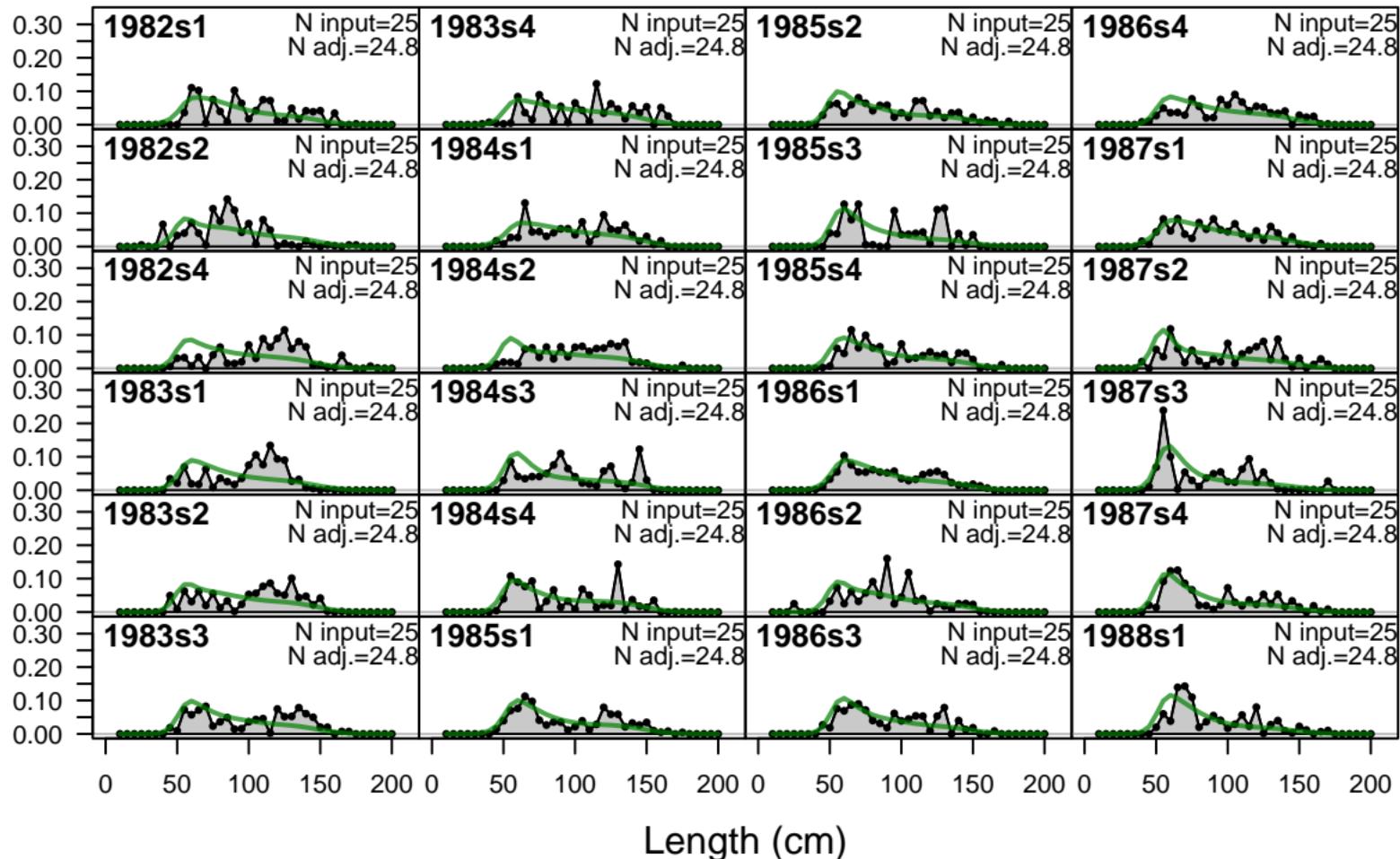




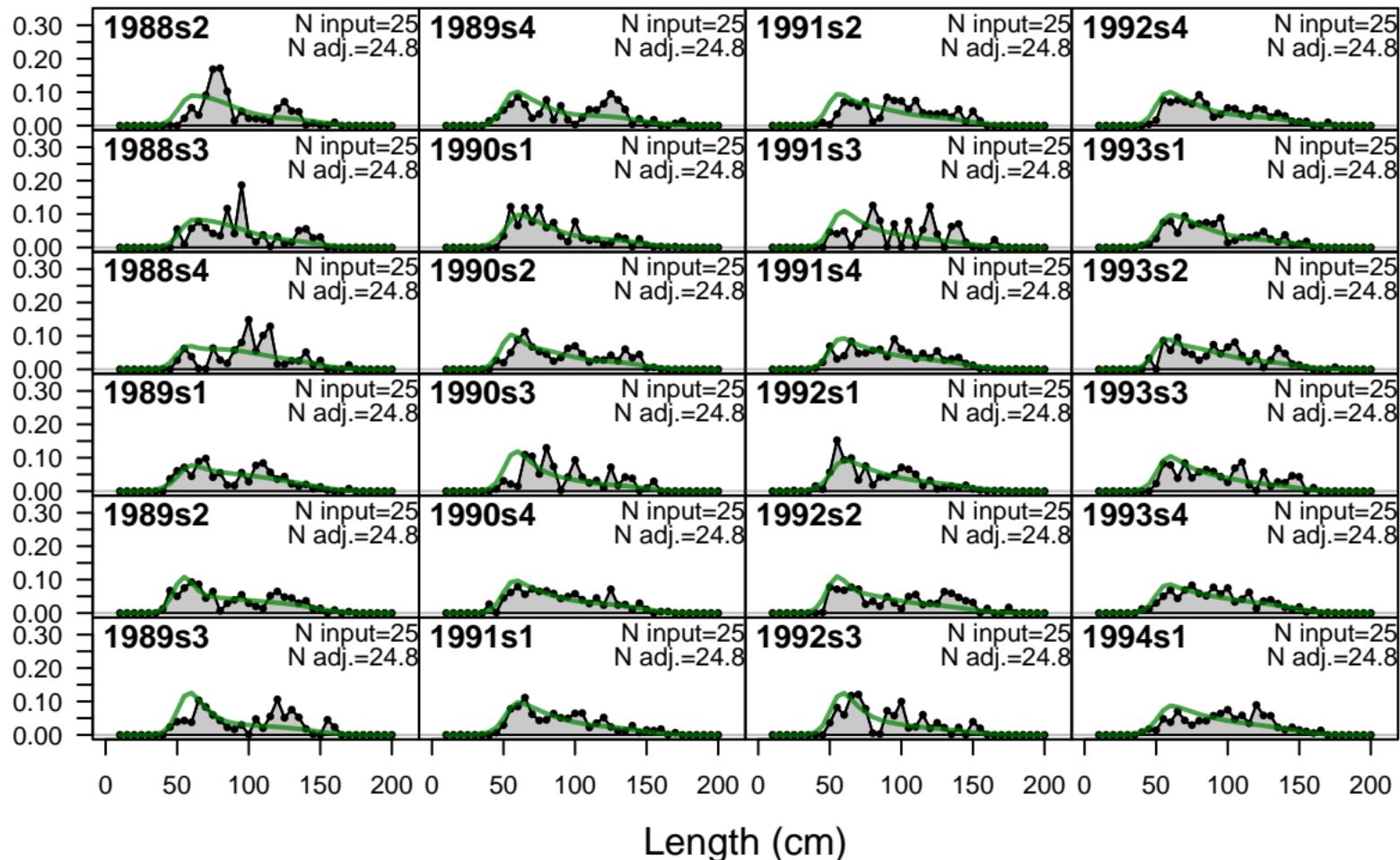
fishing_bb_1 (whole catch)



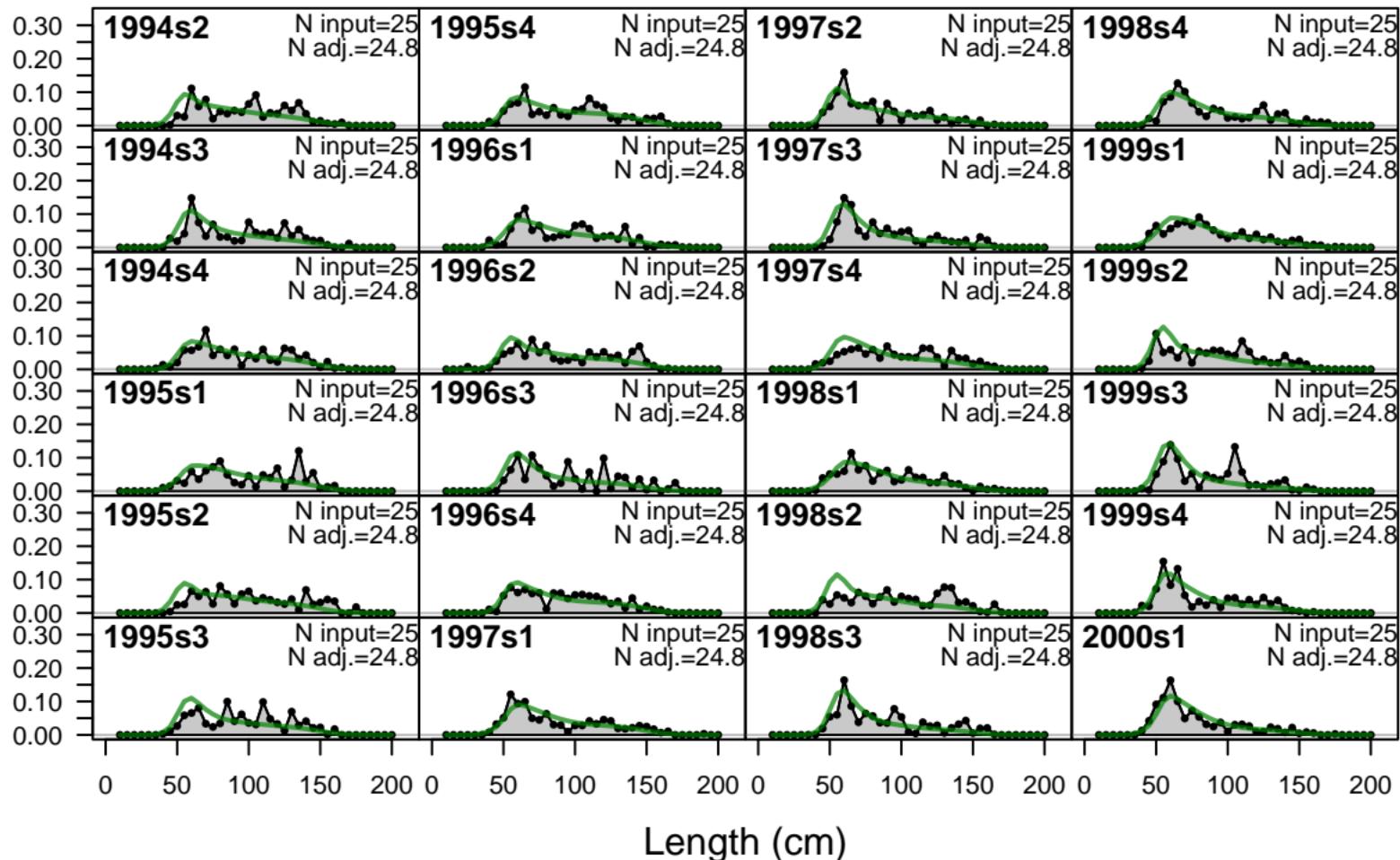
Proportion



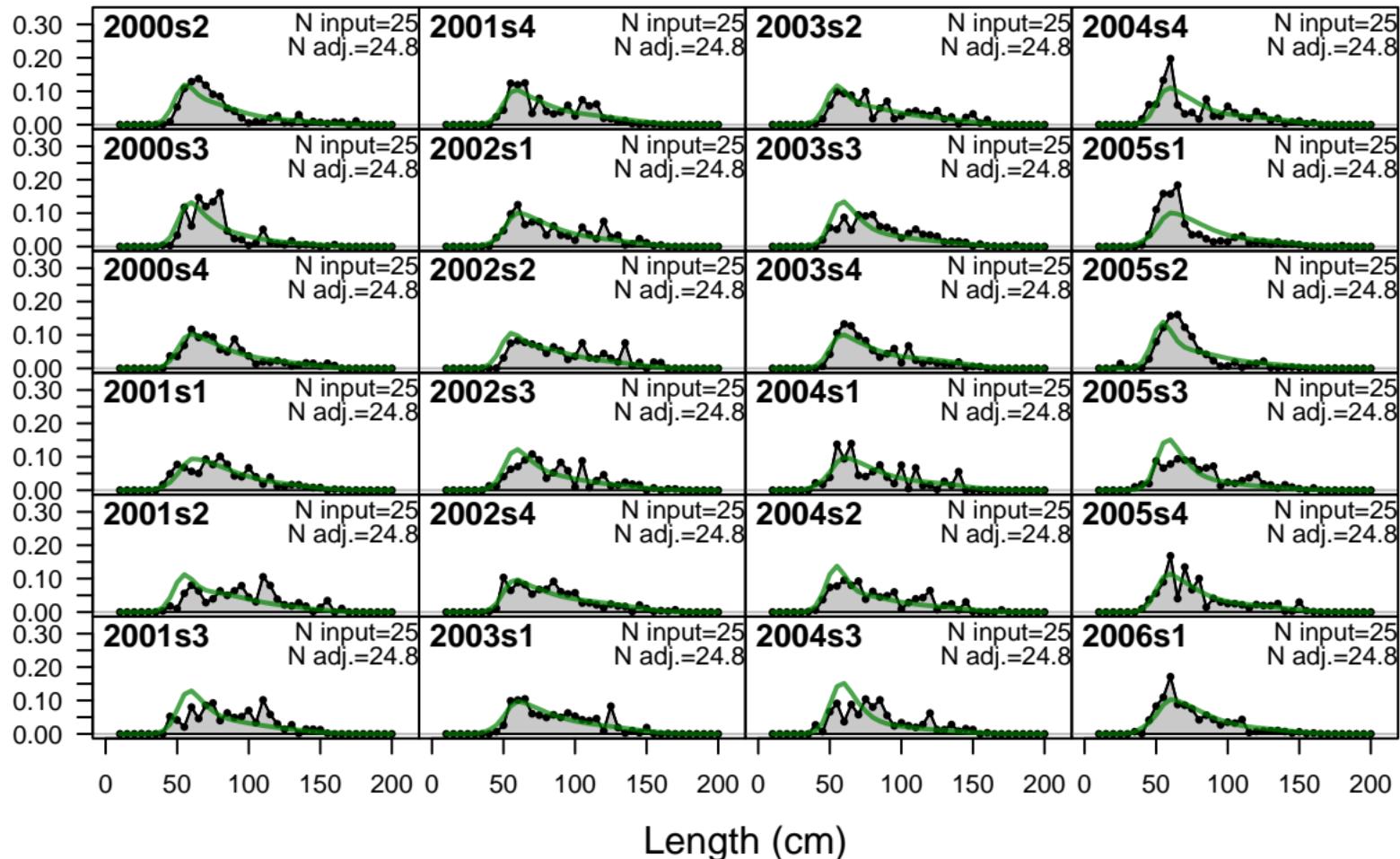
Proportion



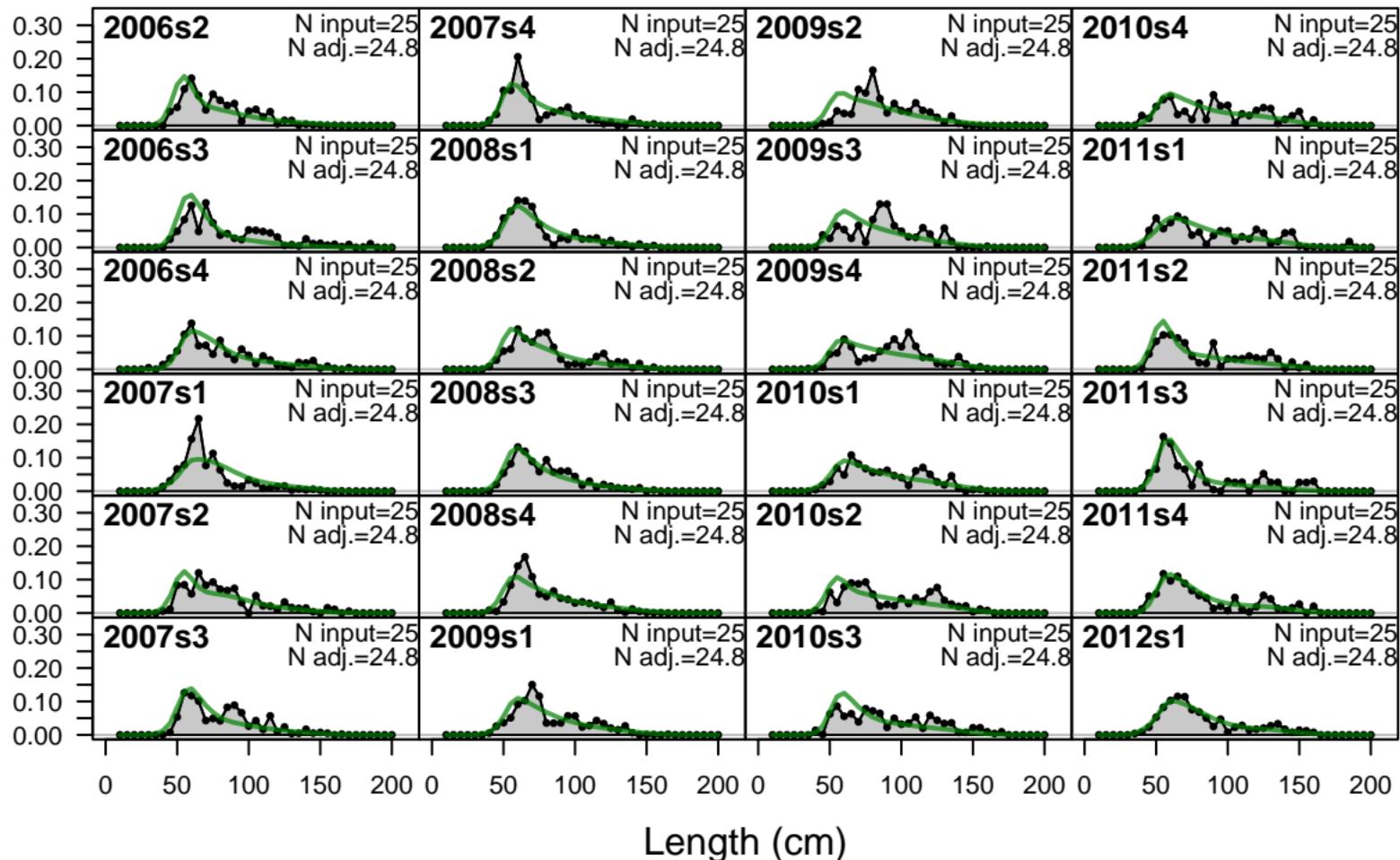
Proportion



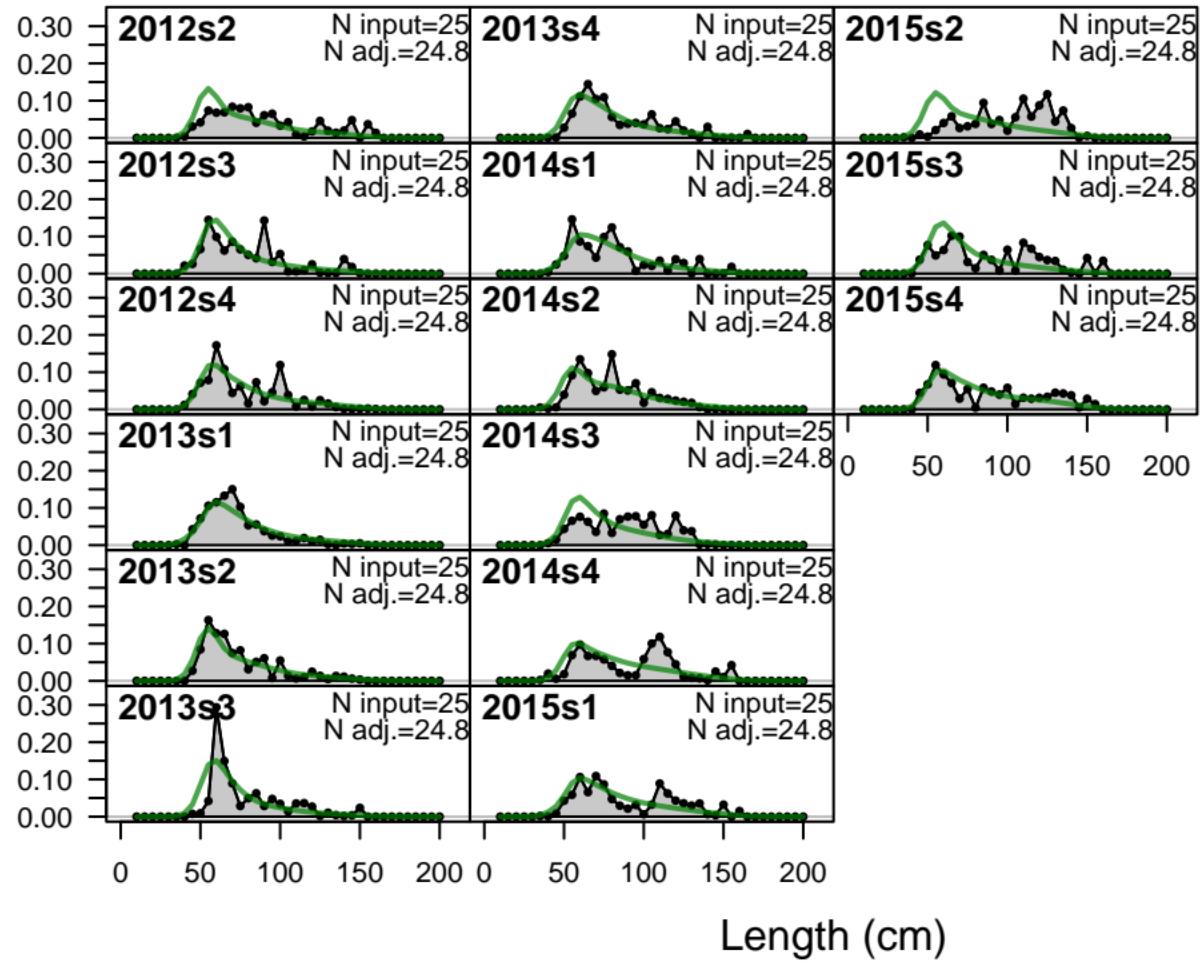
Proportion

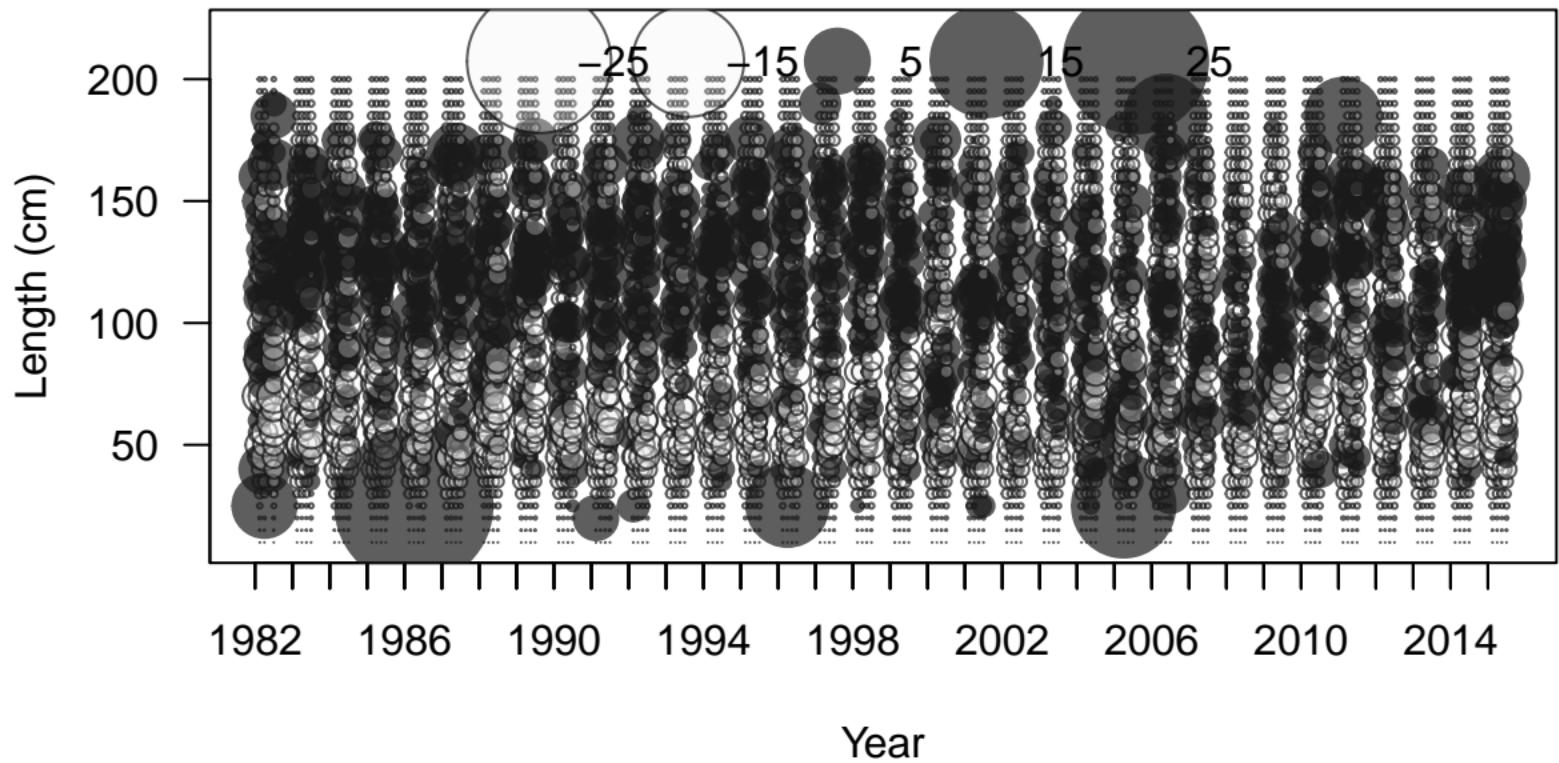


Proportion

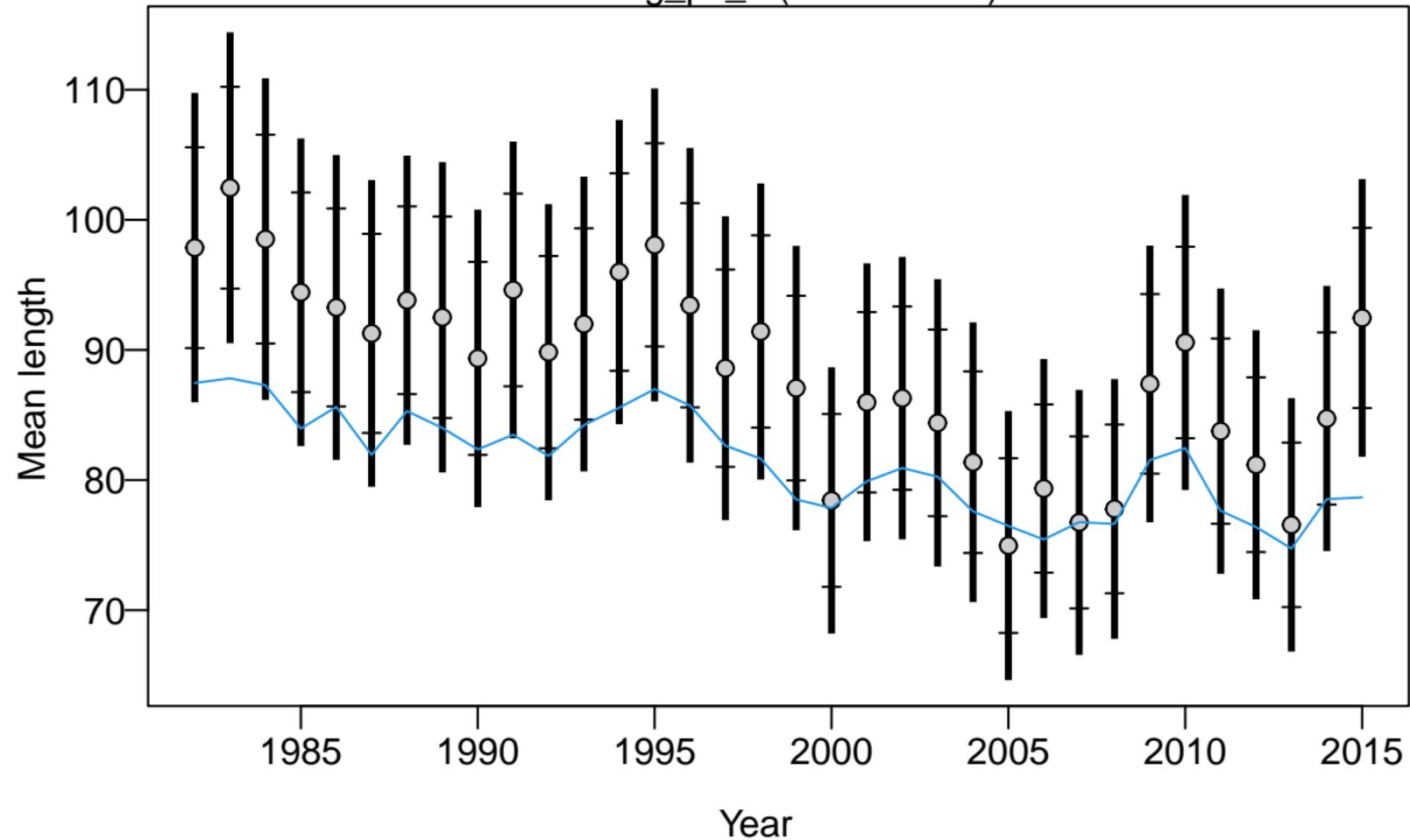


Proportion

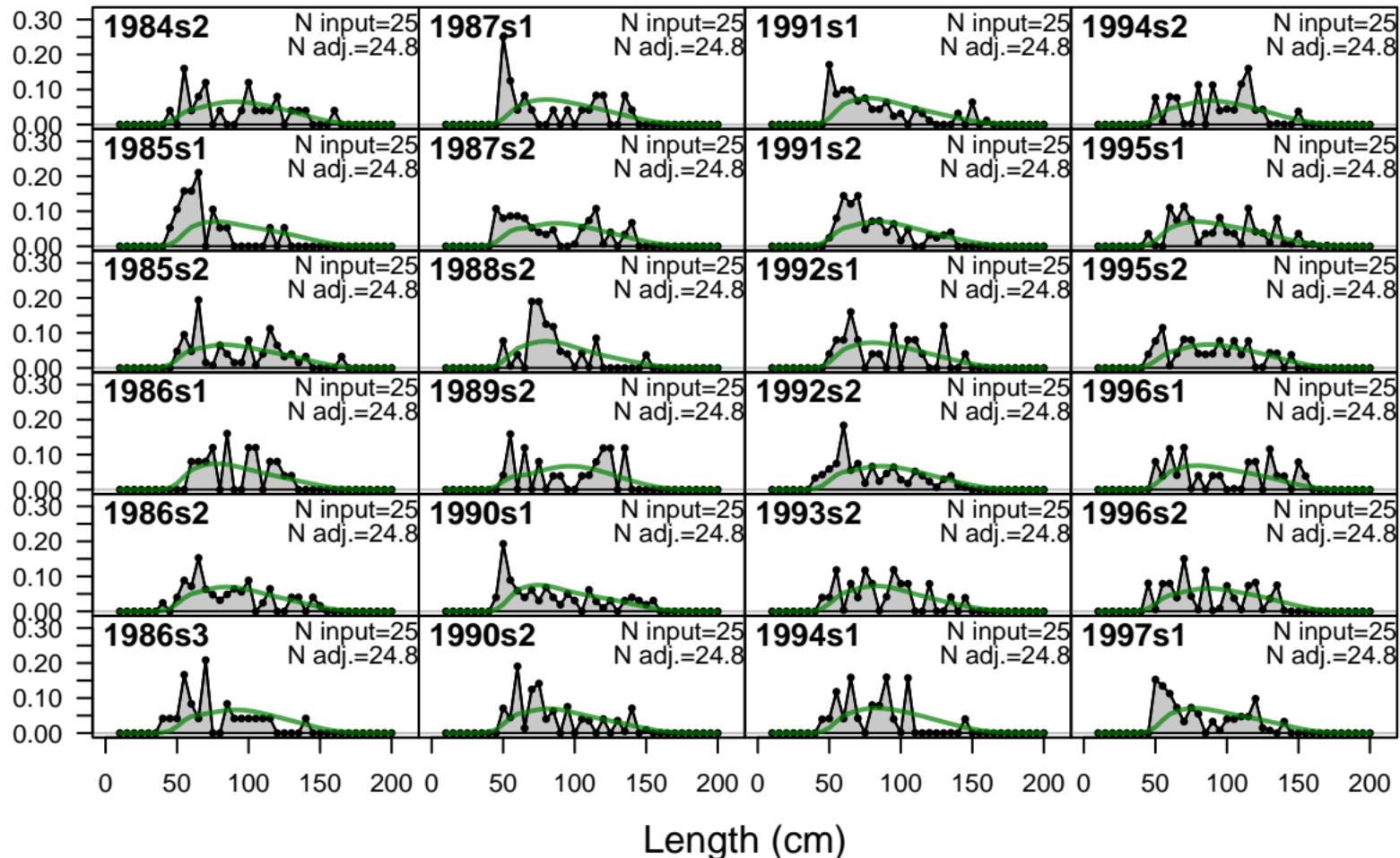




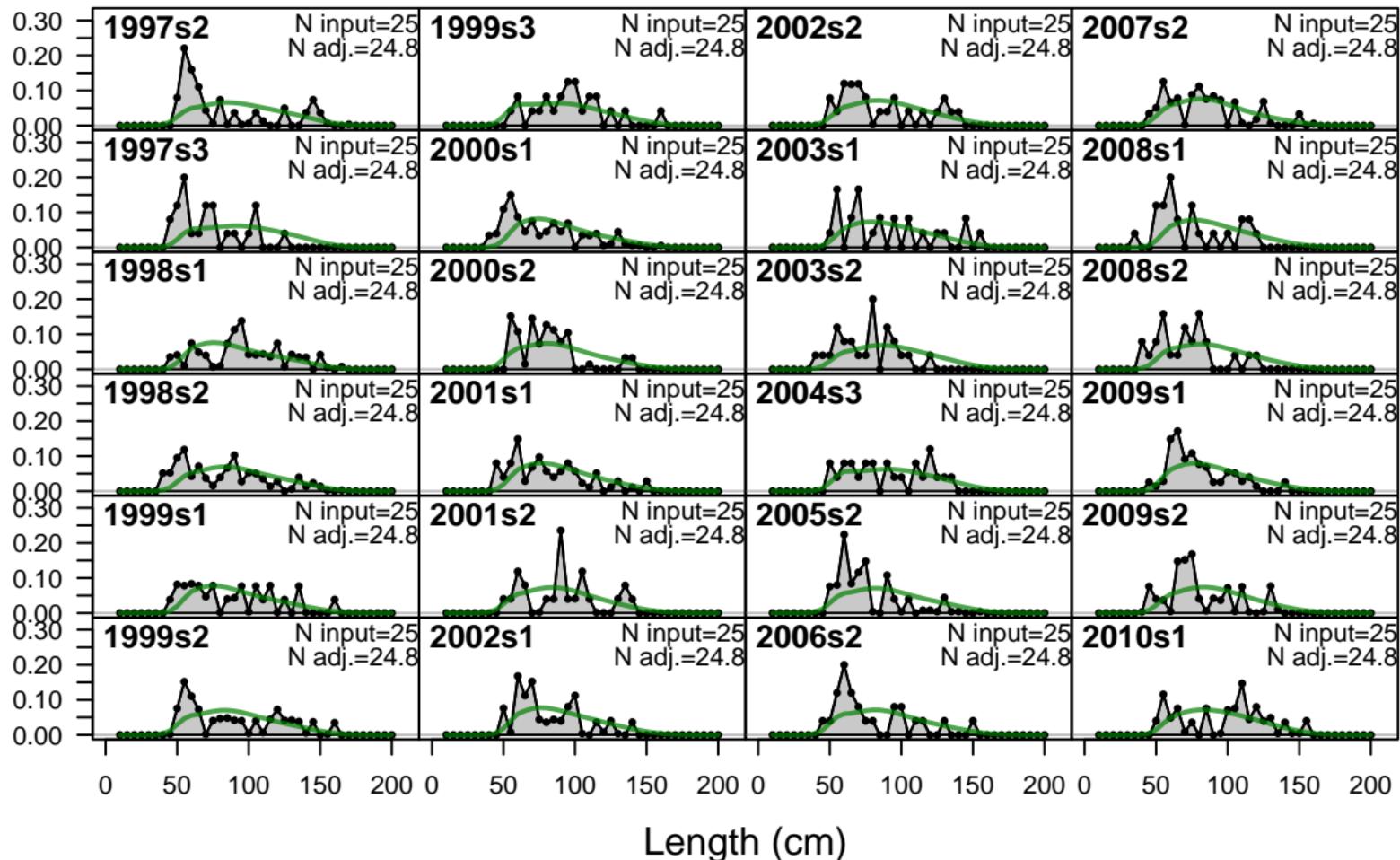
fishing_ps_1 (whole catch)



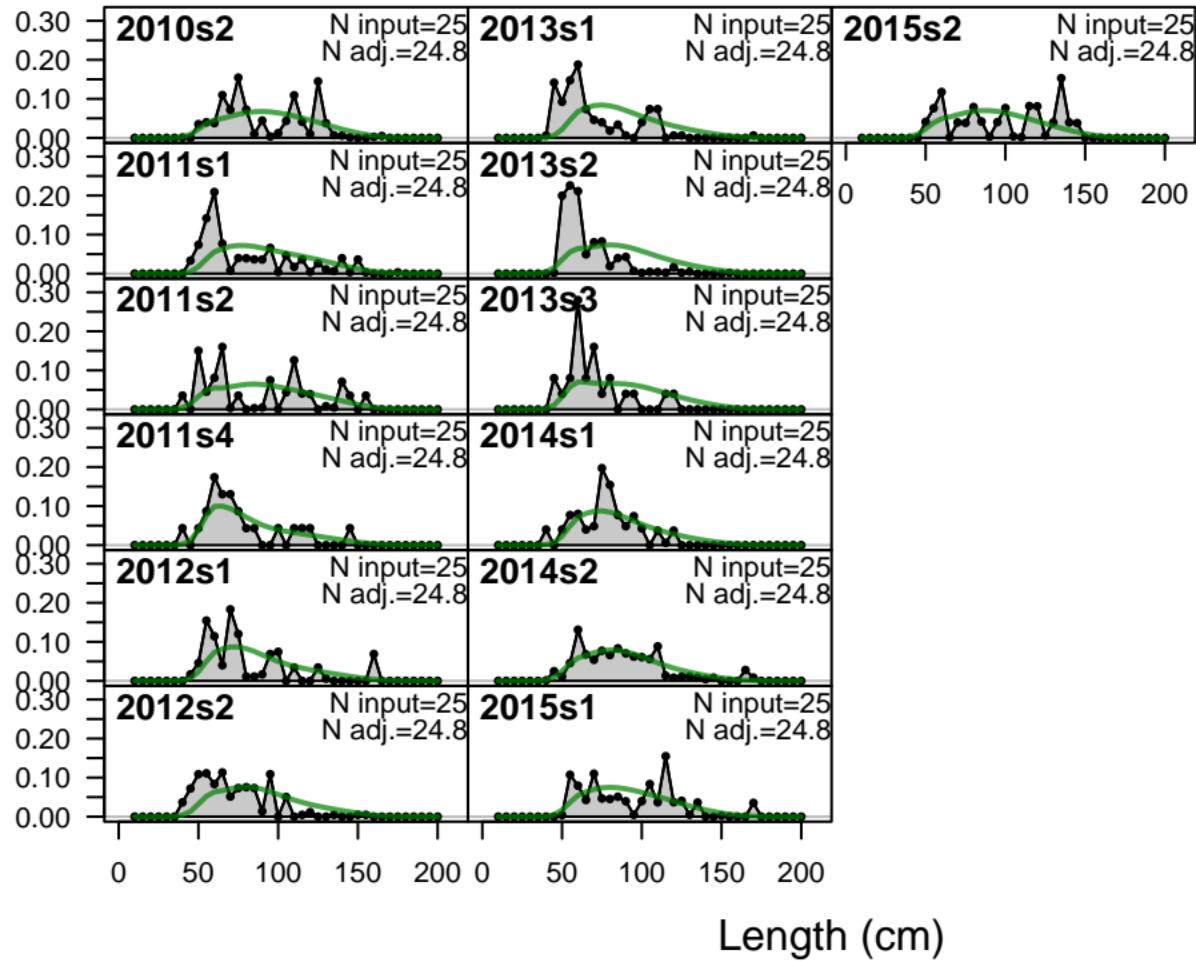
Proportion

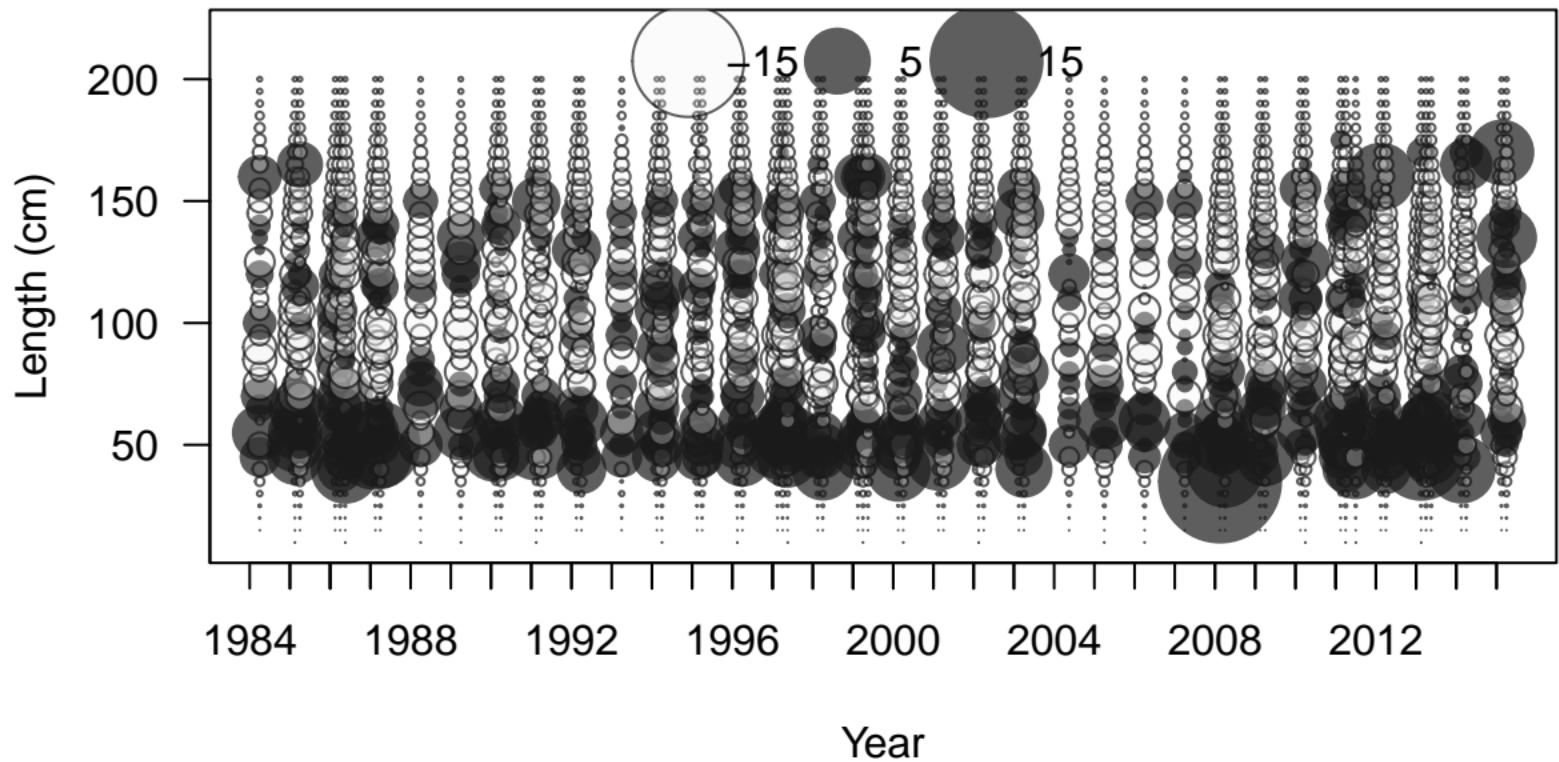


Proportion

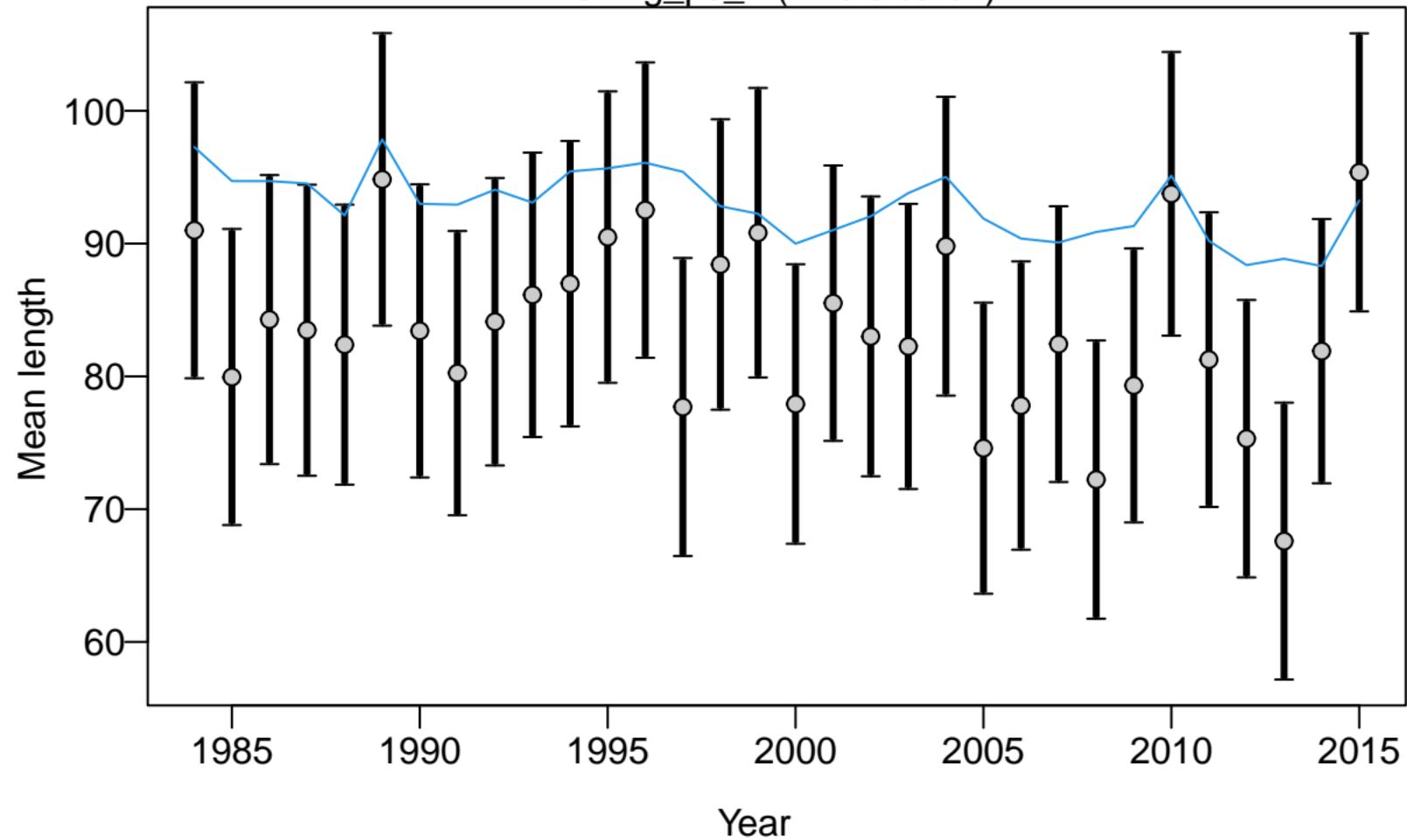


Proportion

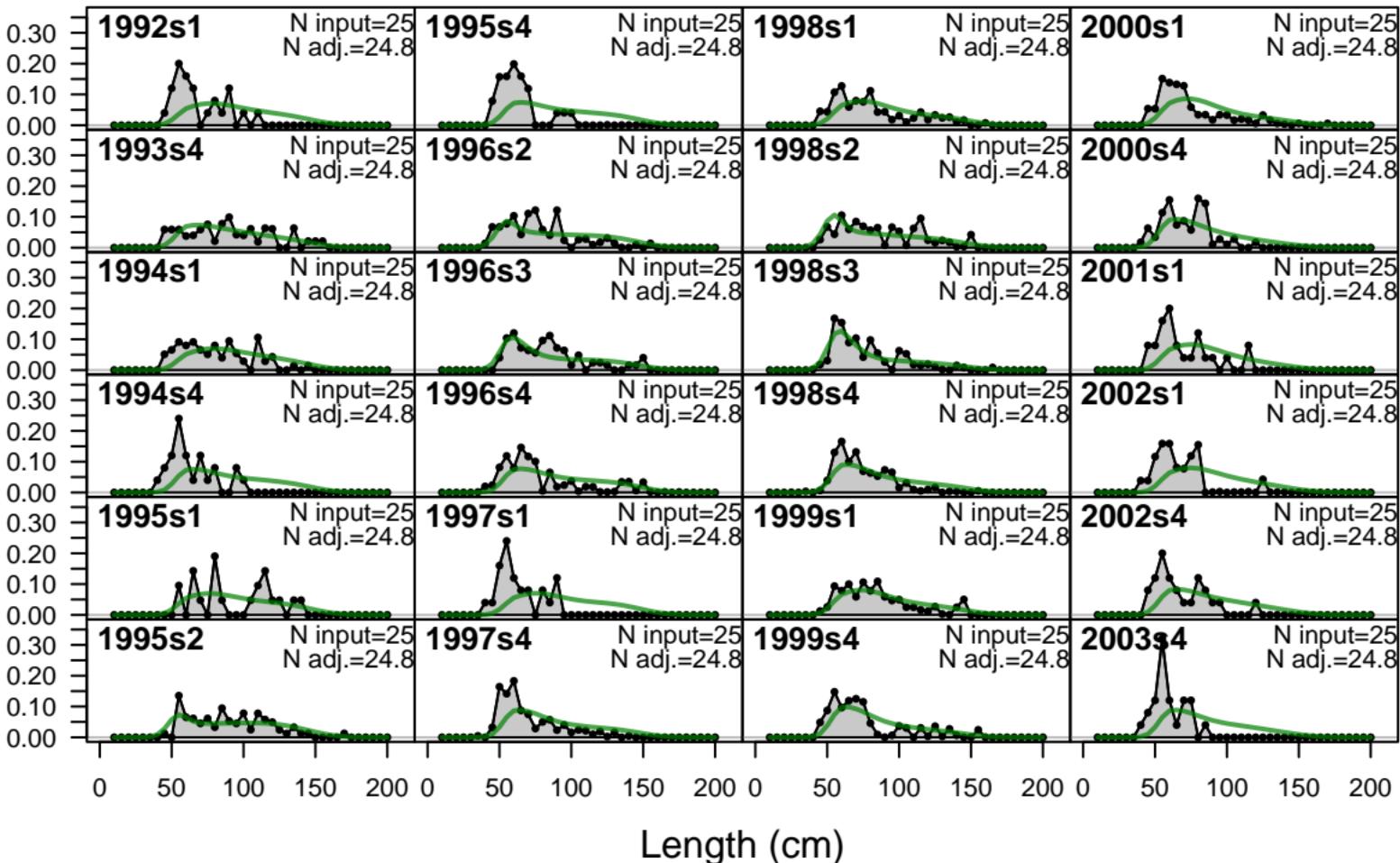




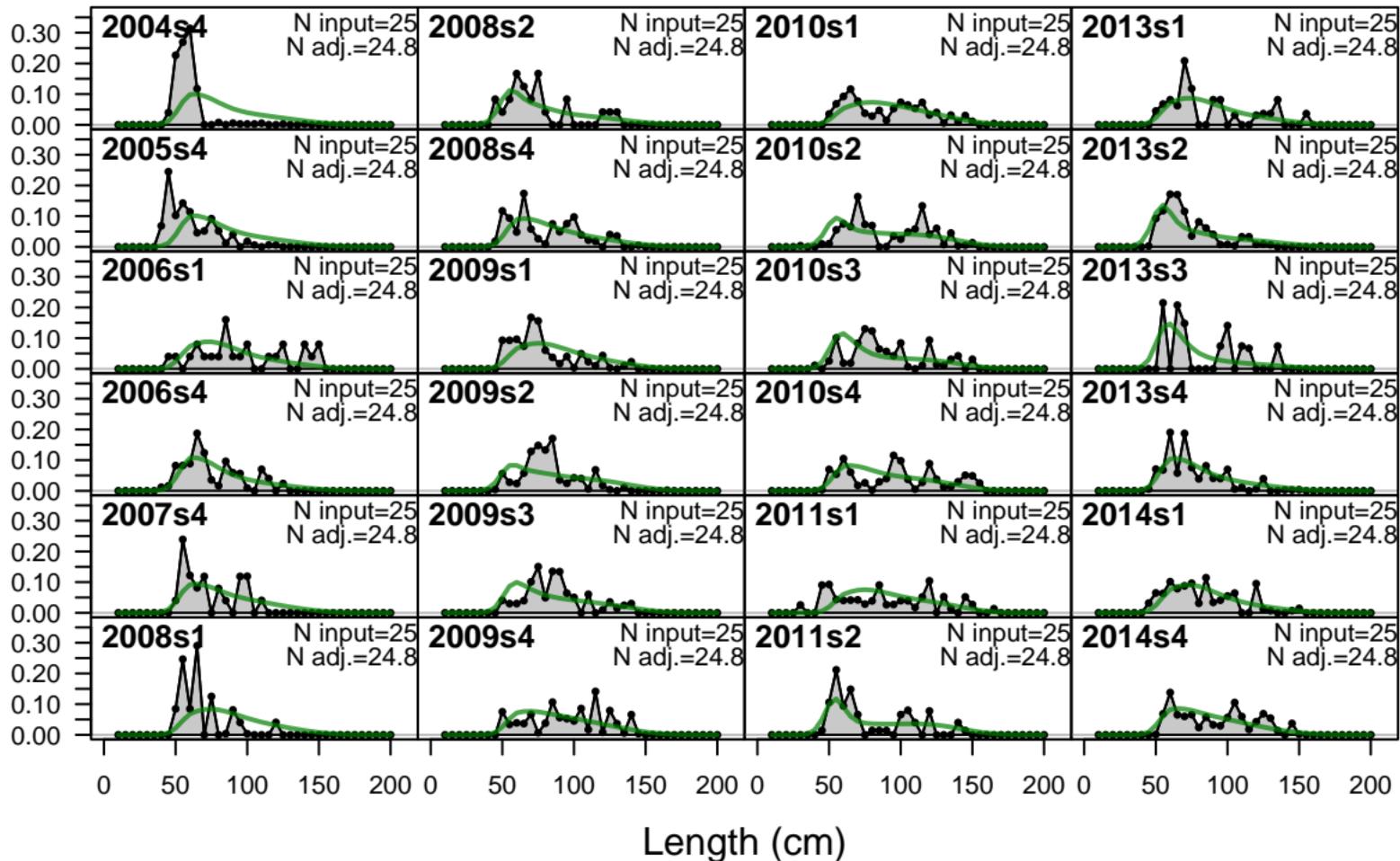
fishing_ps_2 (whole catch)

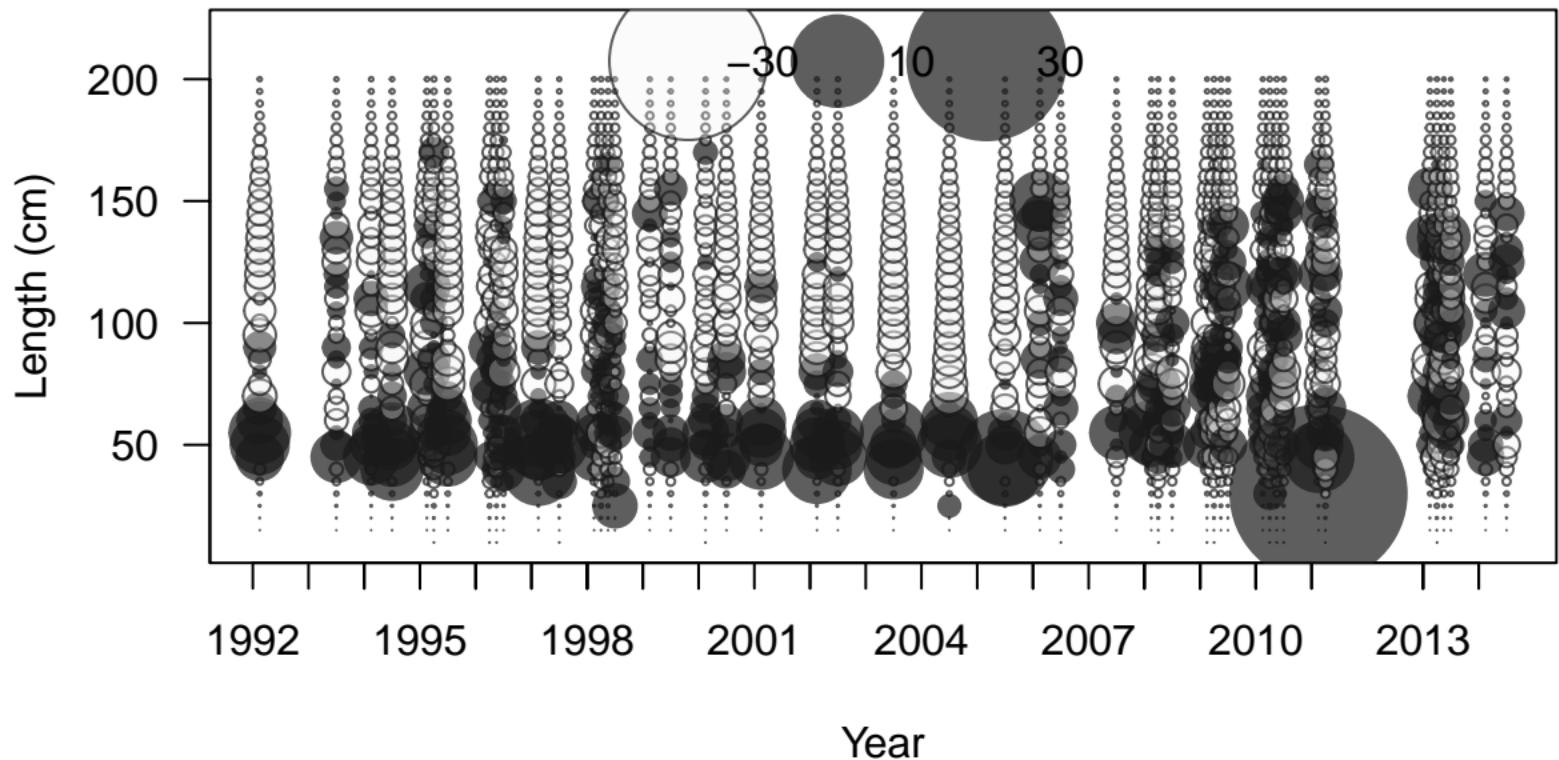


Proportion

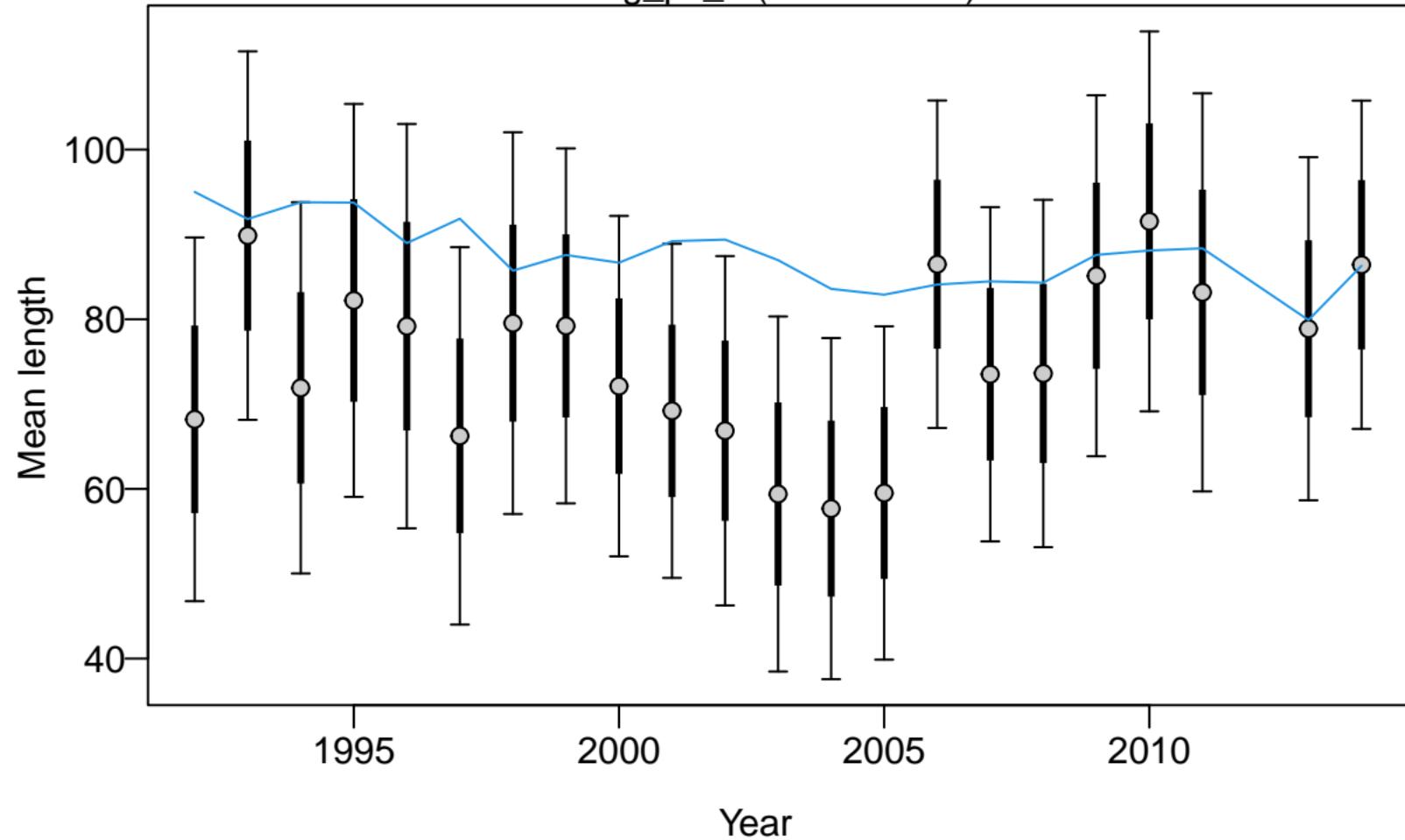


Proportion

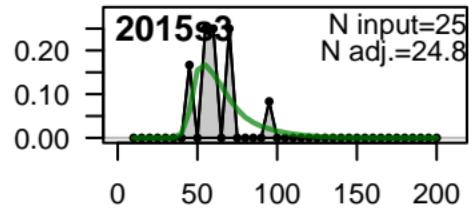


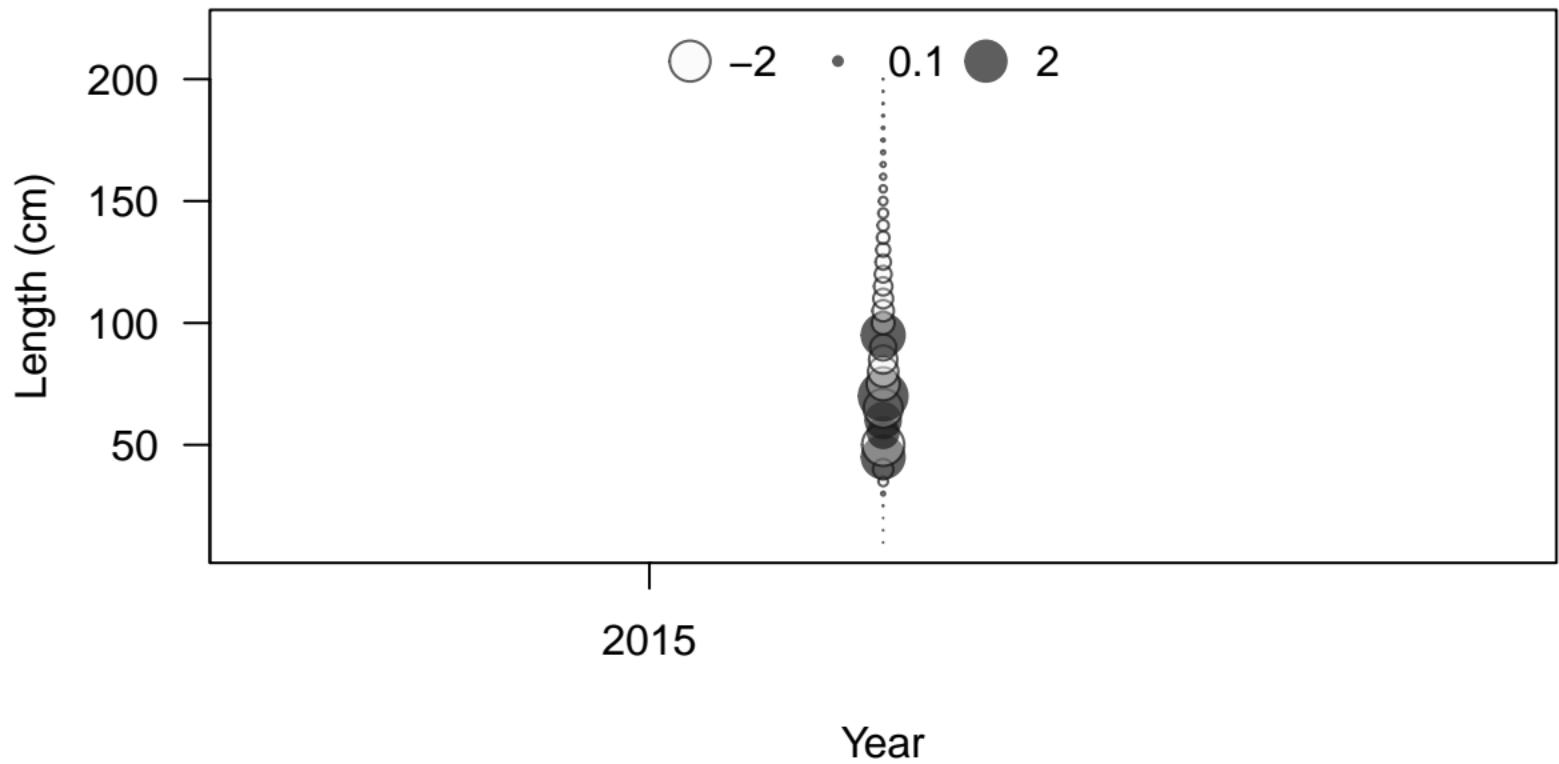


fishing_ps_4 (whole catch)

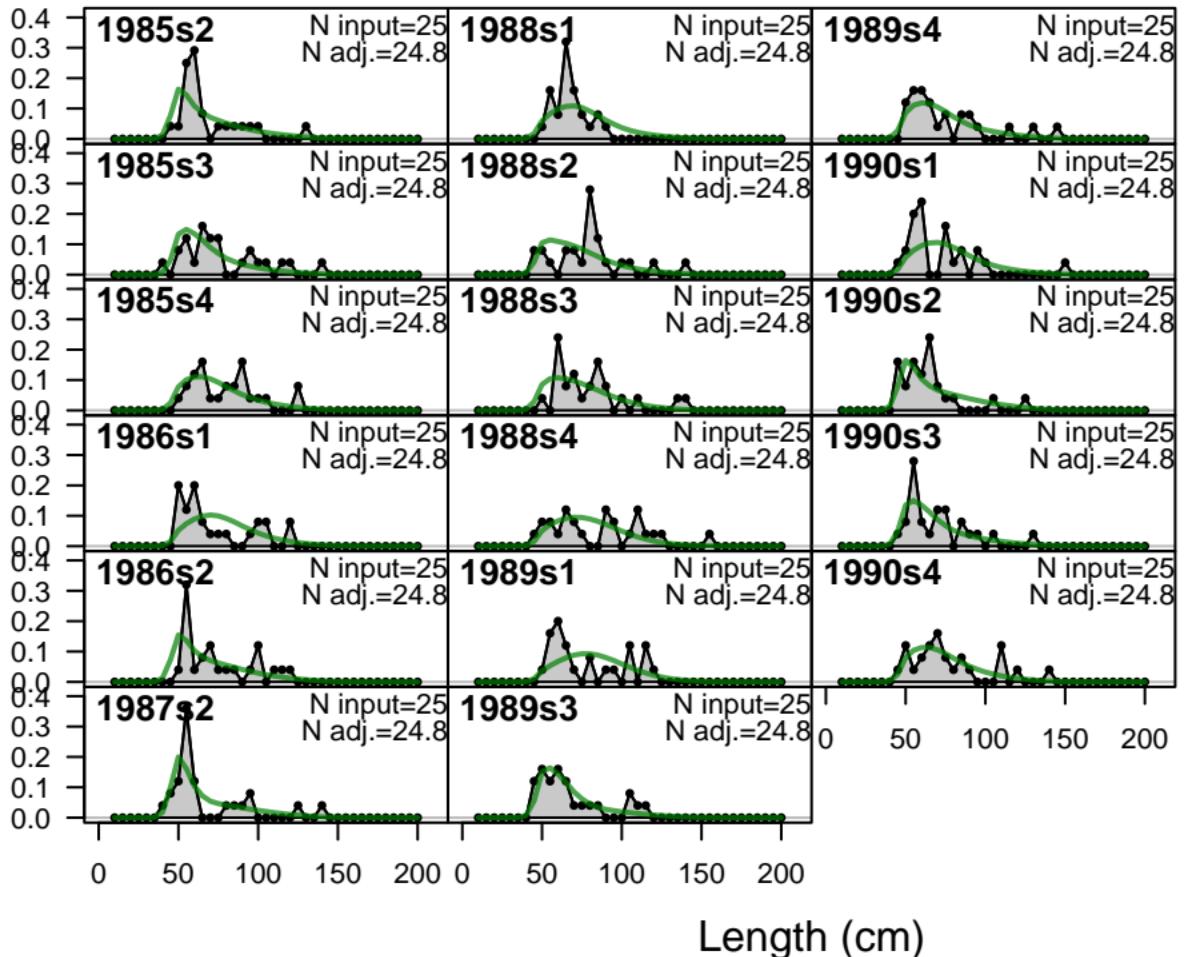


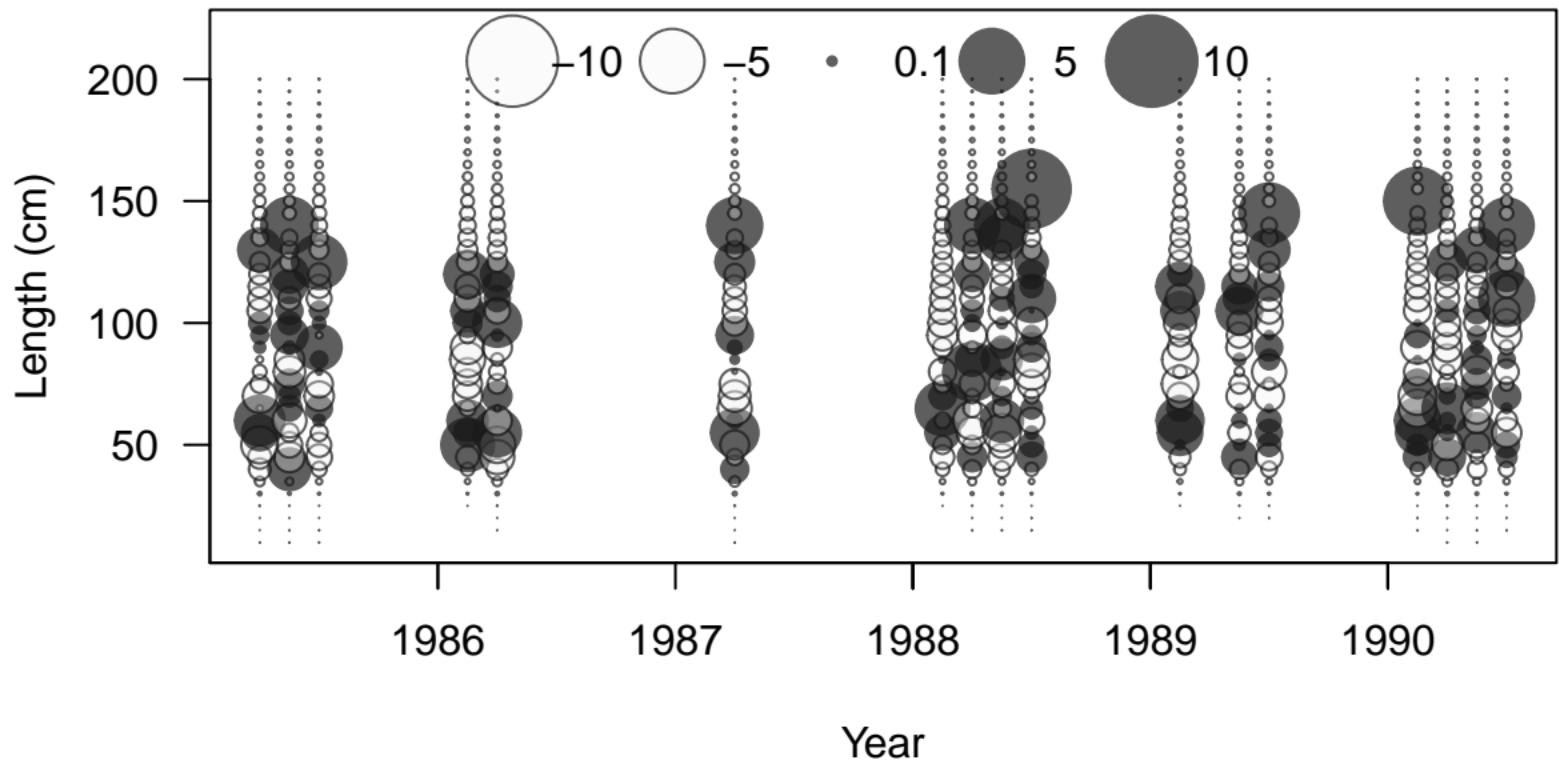
Proportion



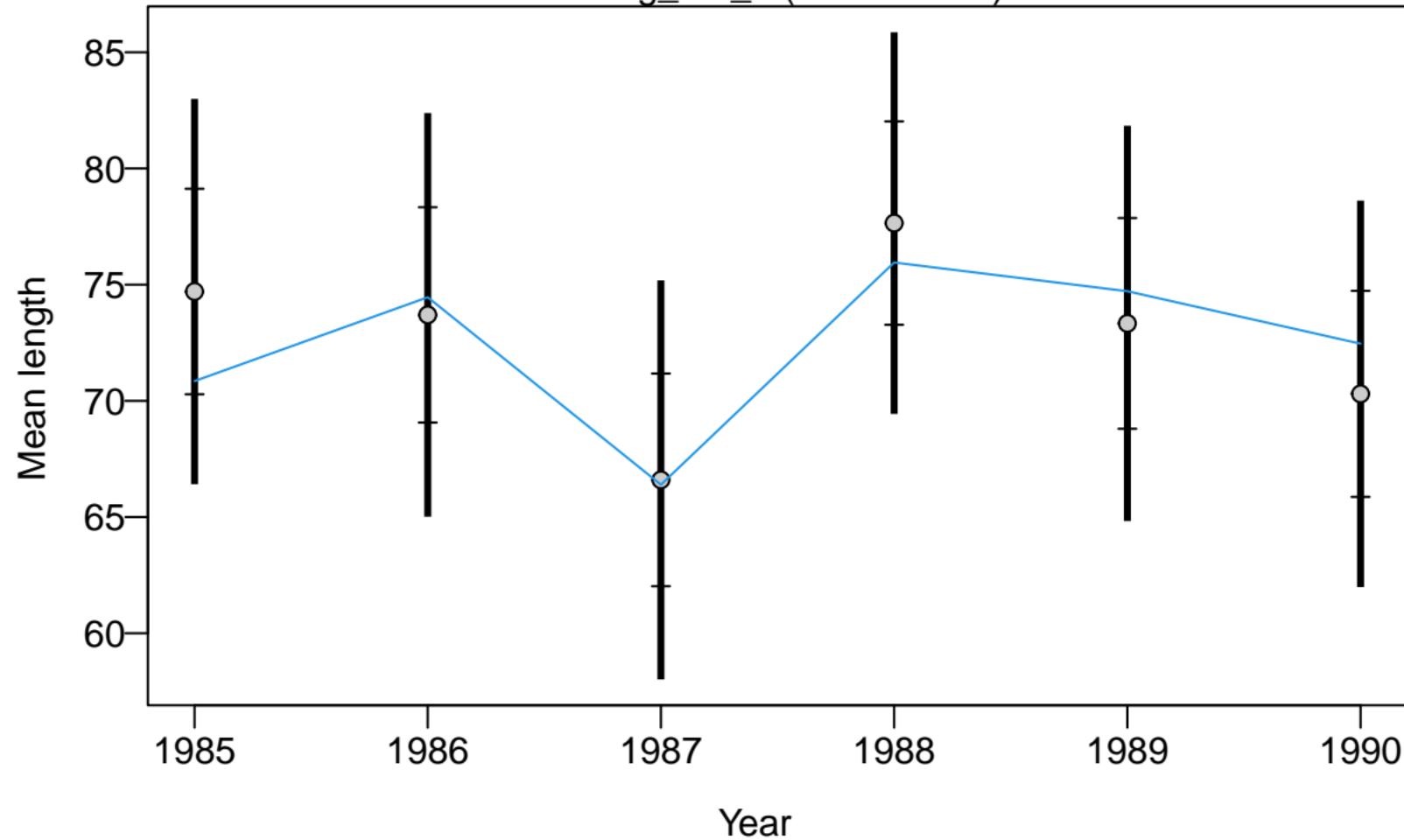


Proportion



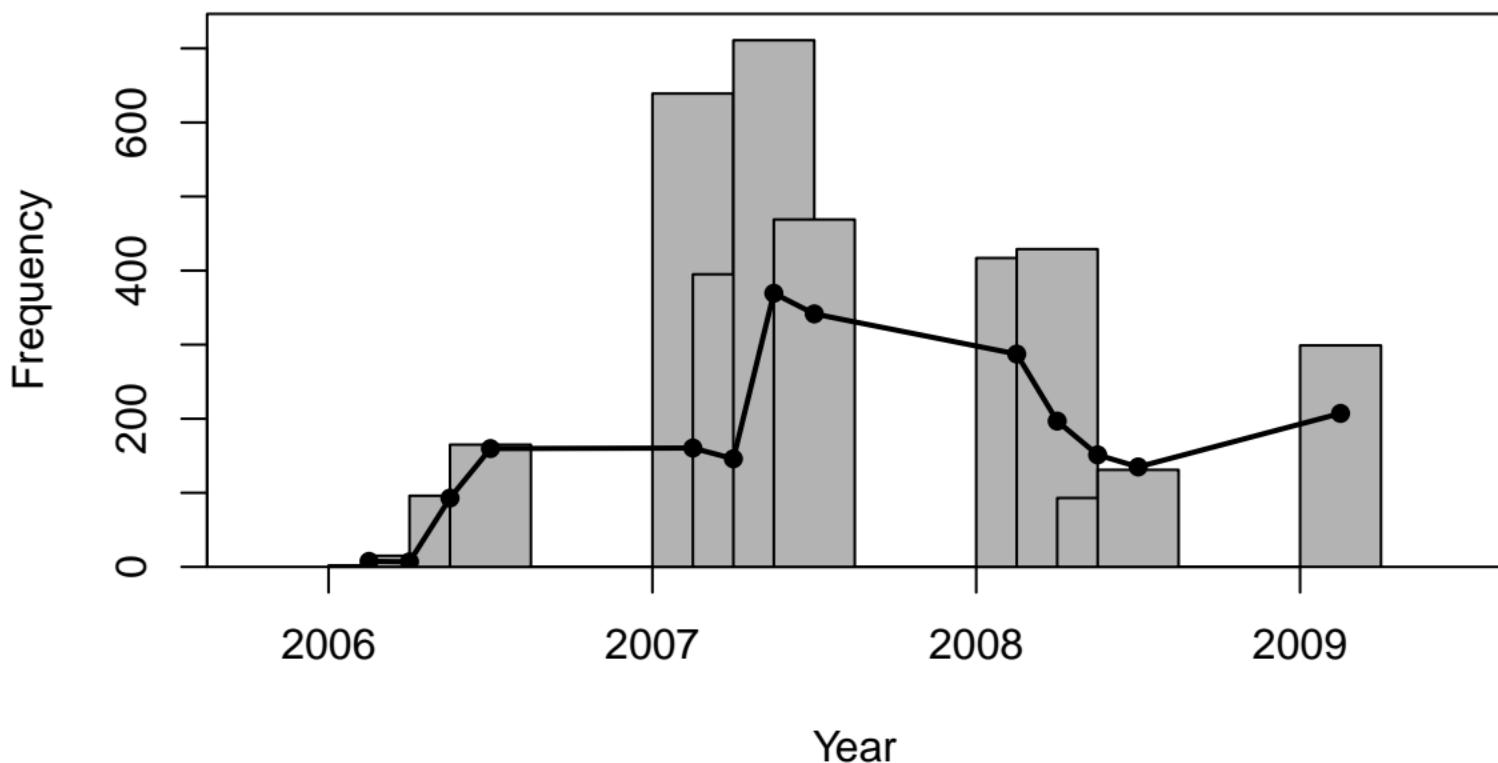


fishing_trol_4 (whole catch)

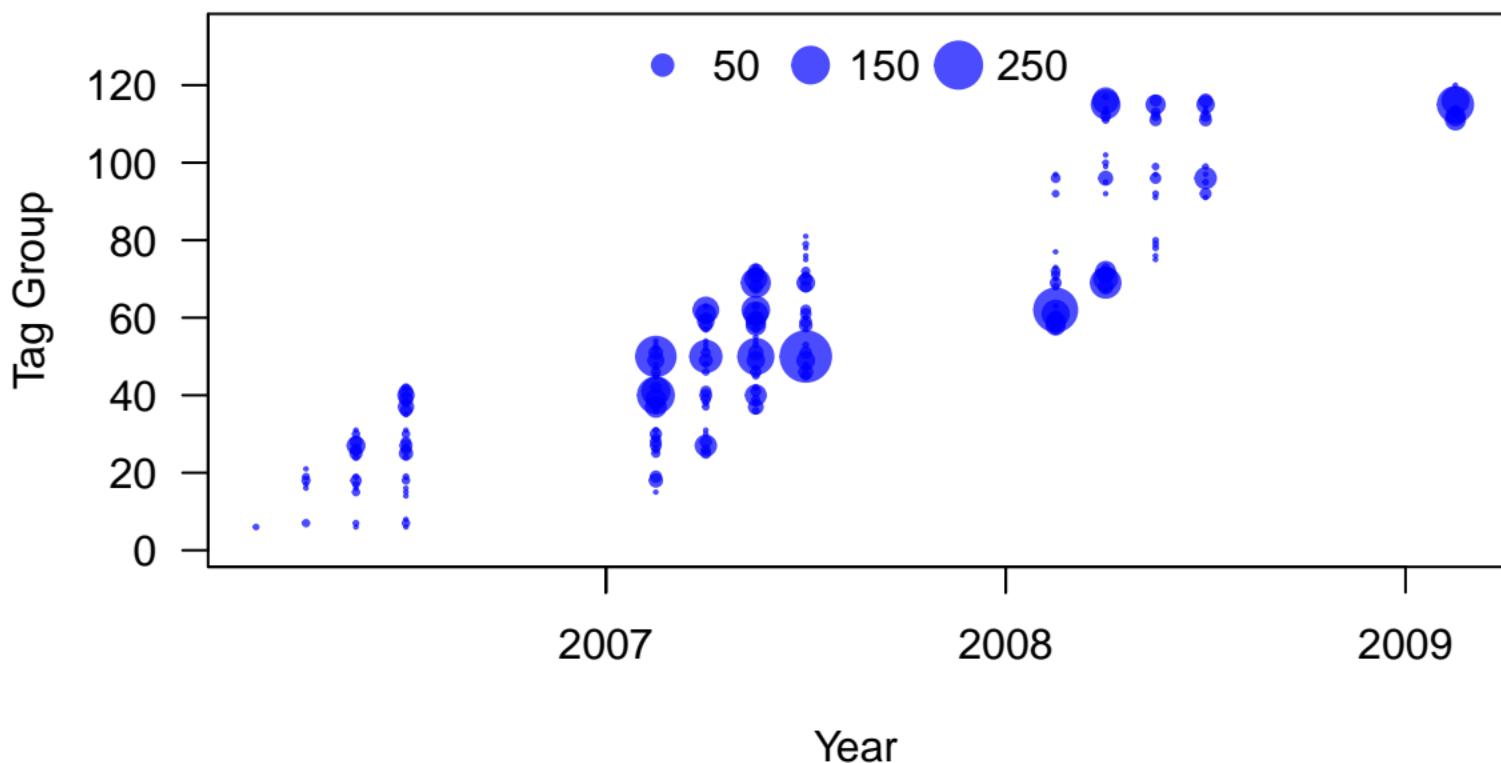




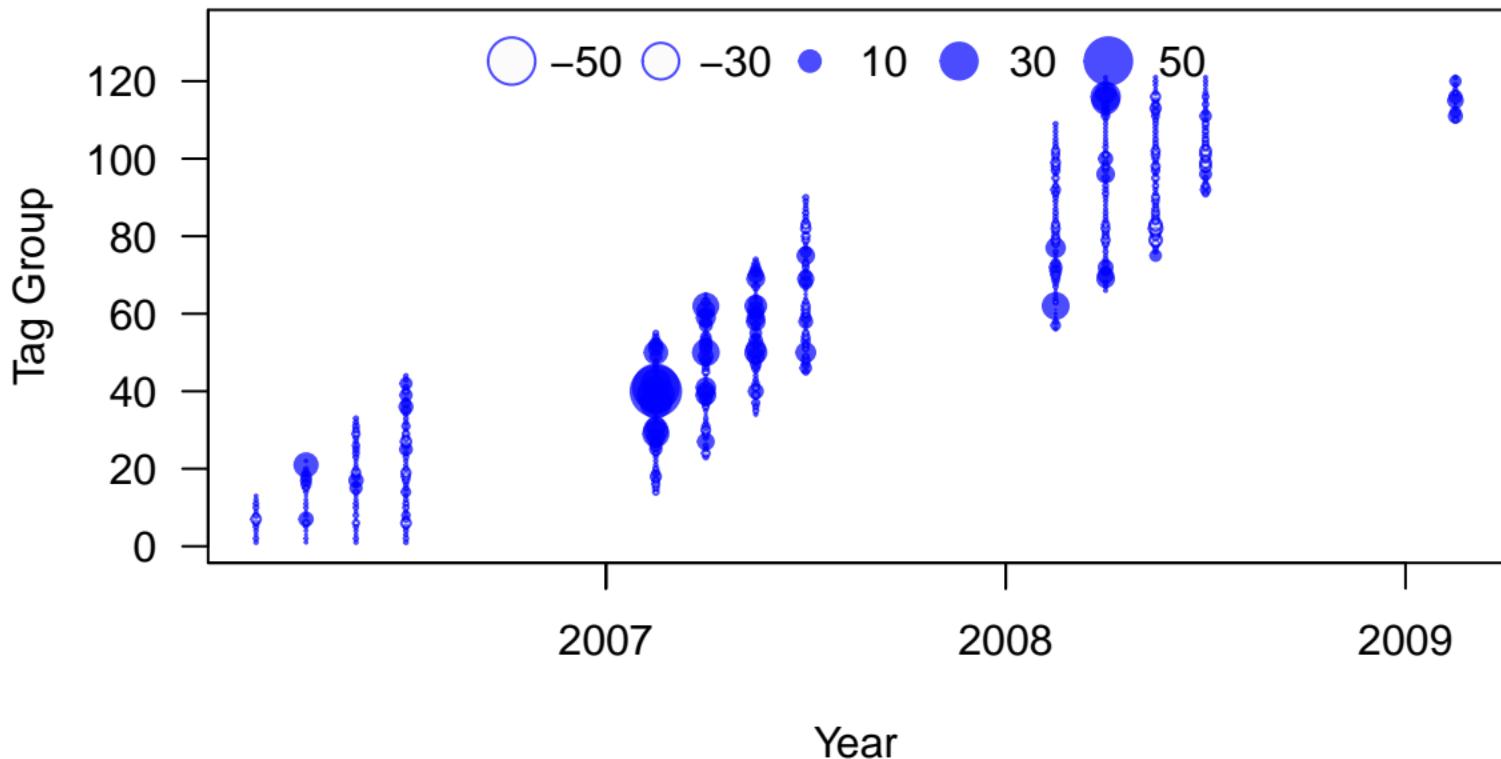
Post-latency tag recaptures aggregated across tag groups



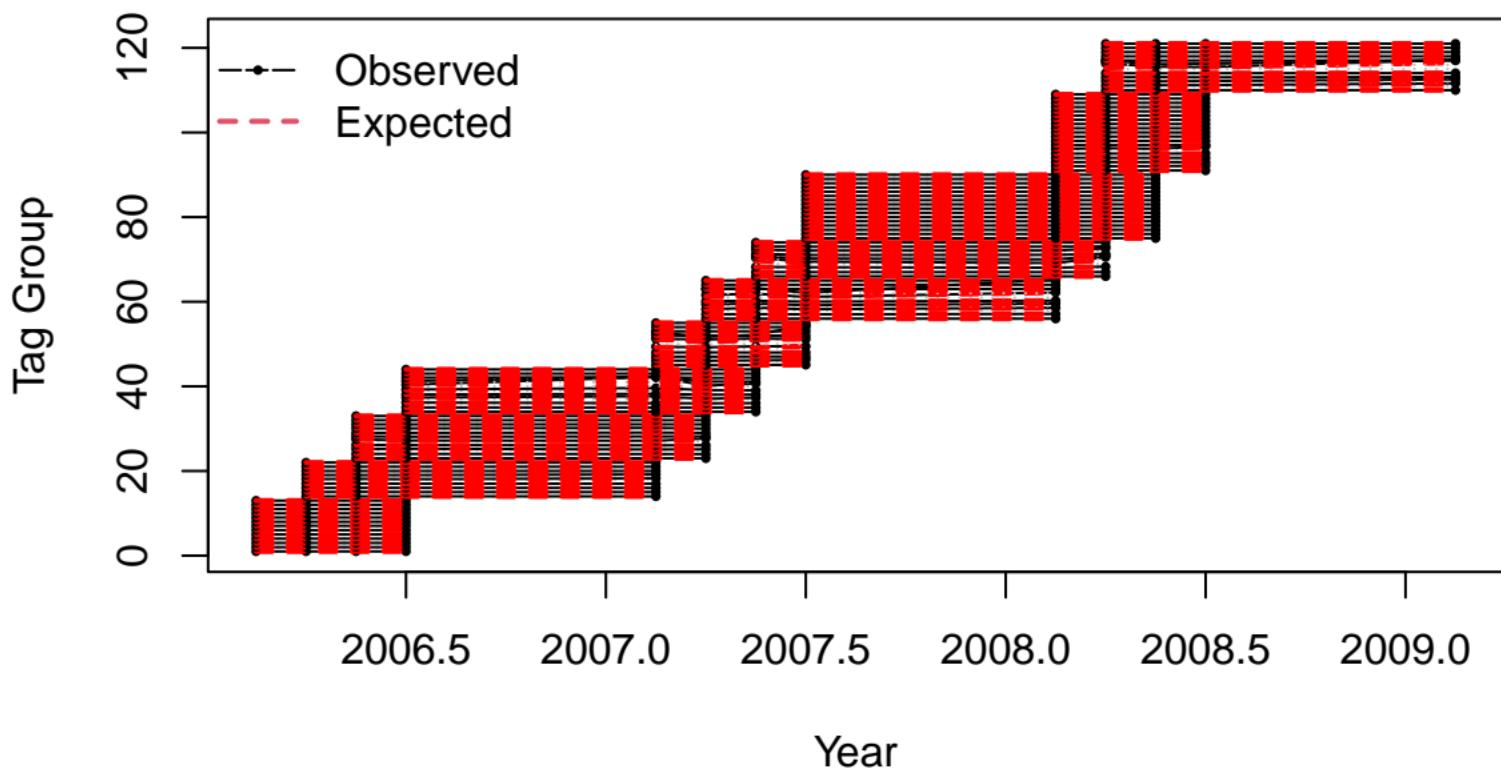
Observed tag recaptures by year and tag group



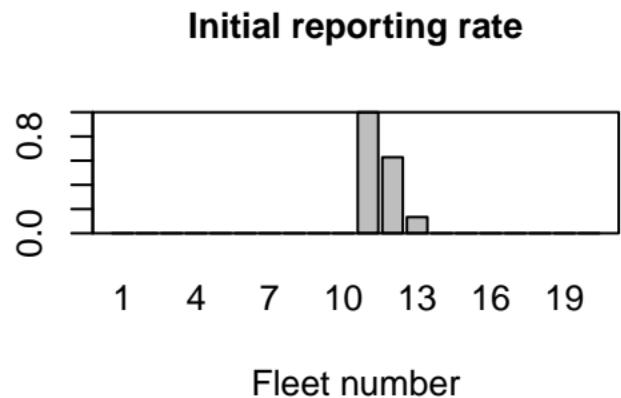
Residuals for post-latency tag recaptures: $(\text{obs}-\text{exp})/\sqrt{\text{exp}}$



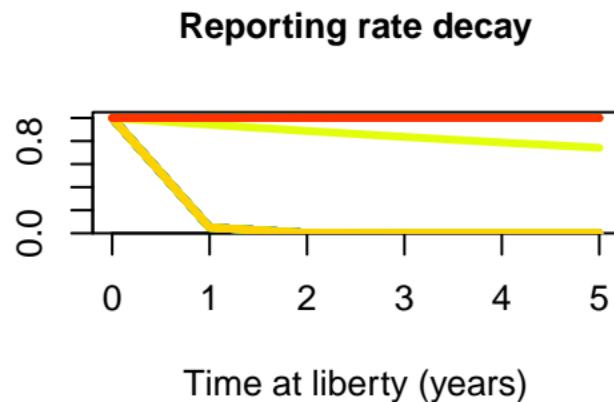
Observed and expected post-latency tag recaptures by year and tag group



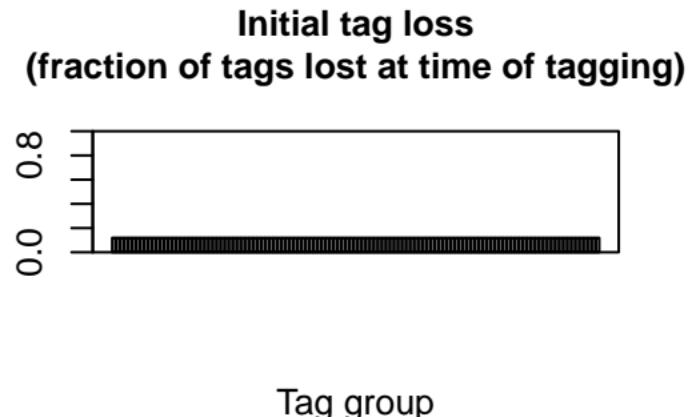
Reporting rate



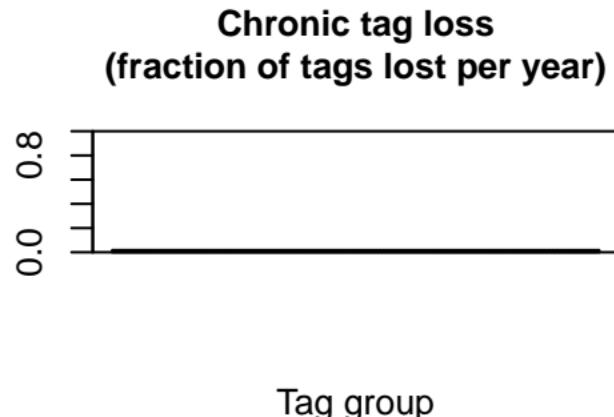
Reporting rate



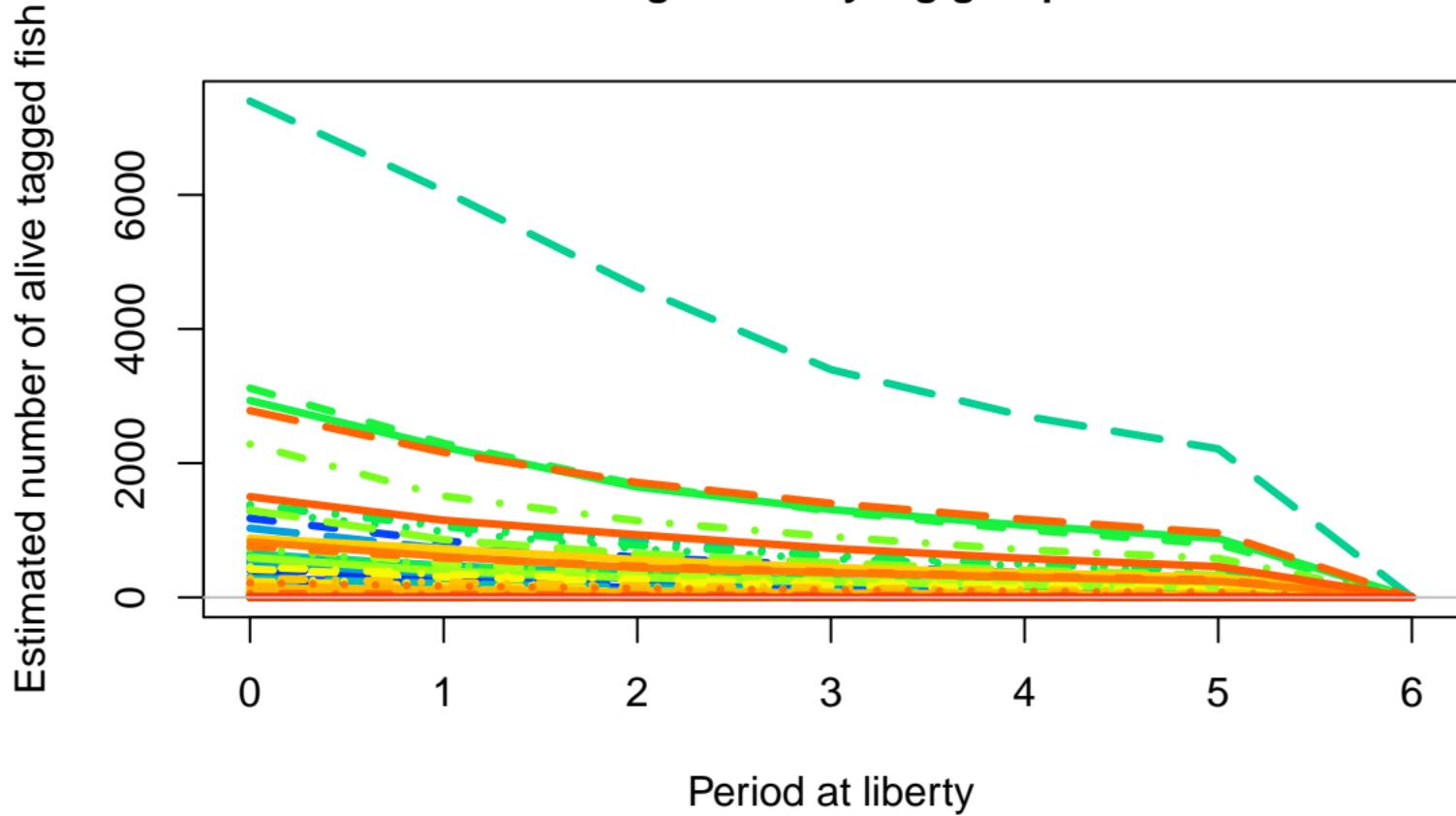
Initial tag loss



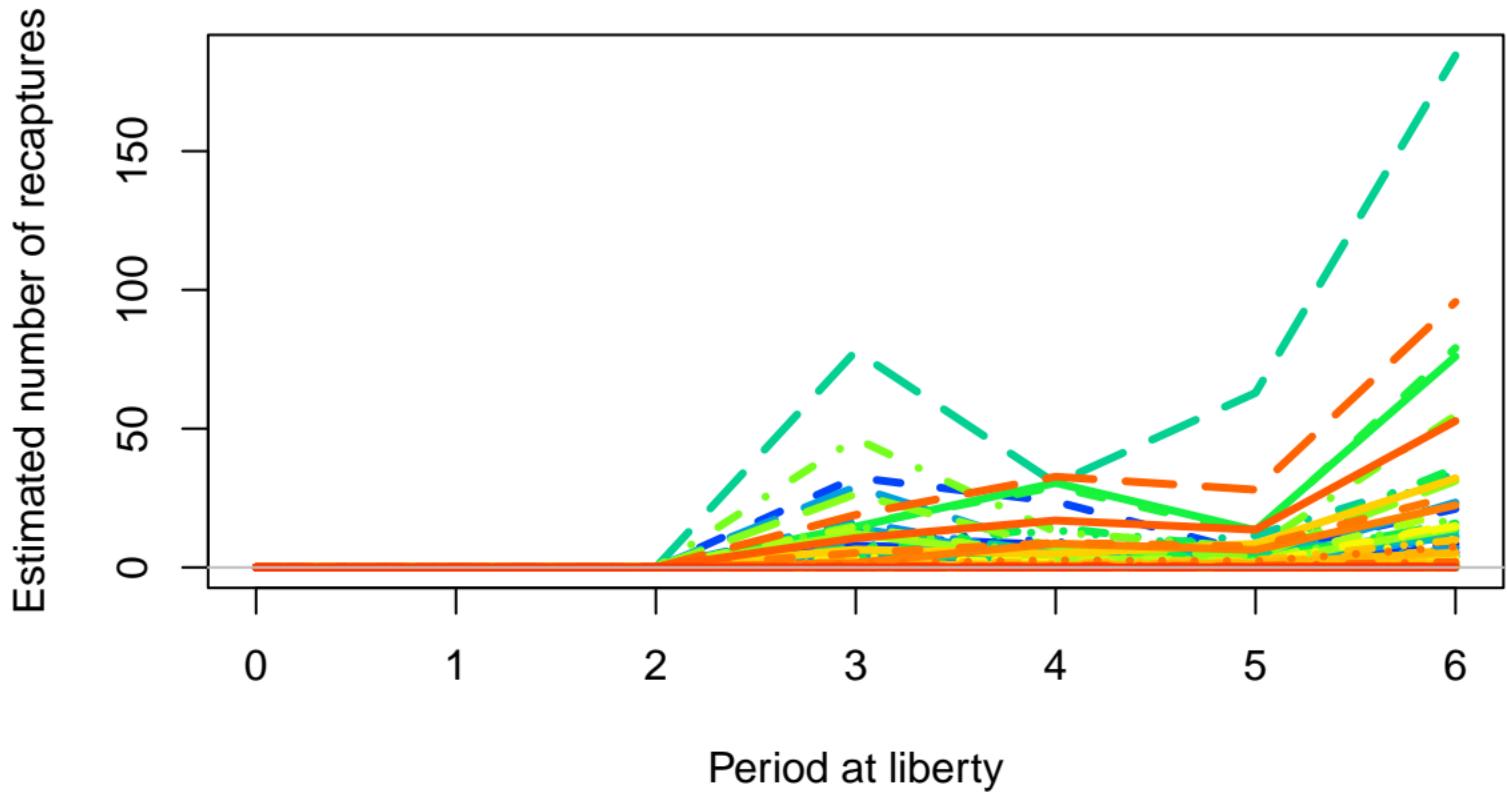
Chronic tag loss



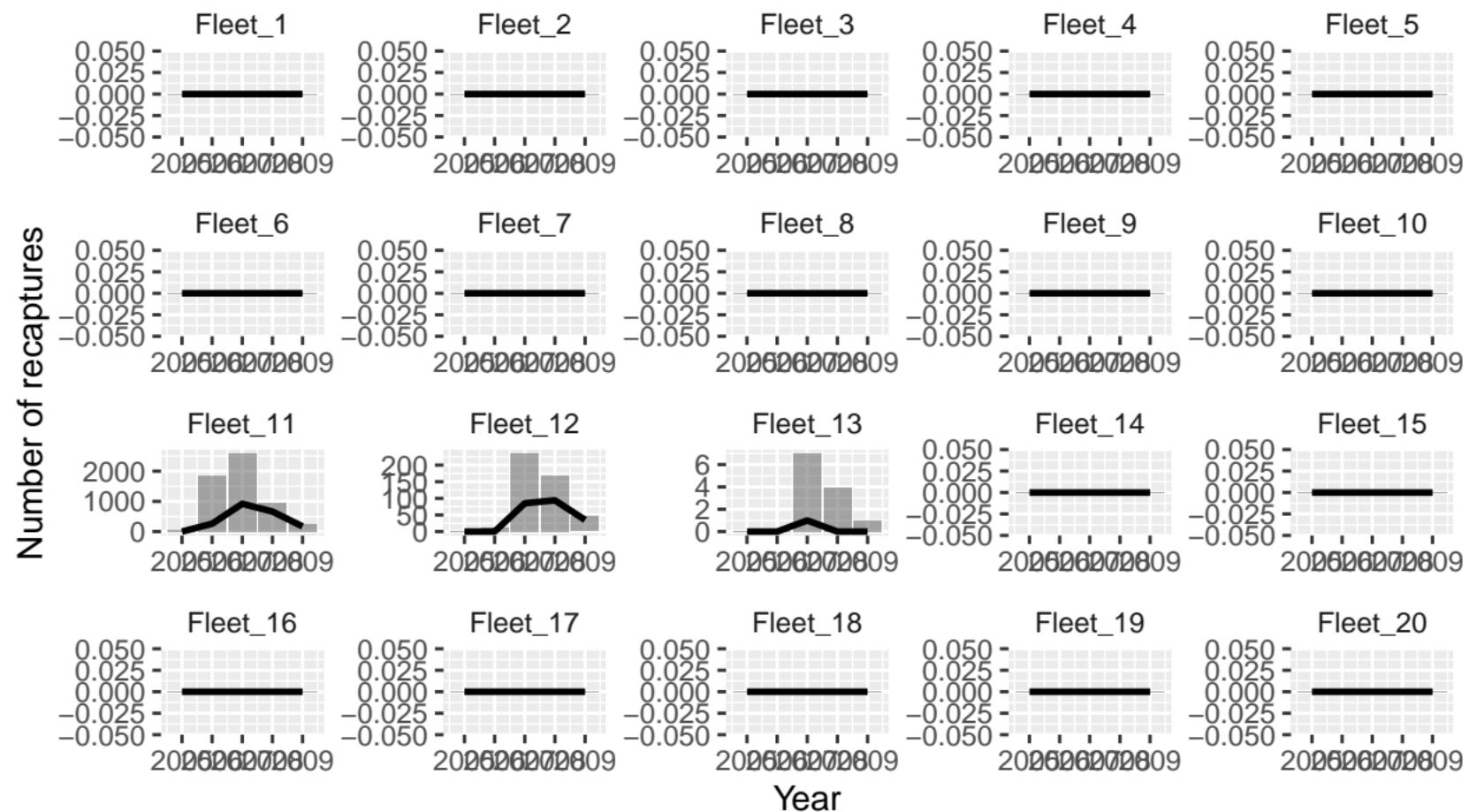
'Tags alive' by tag group



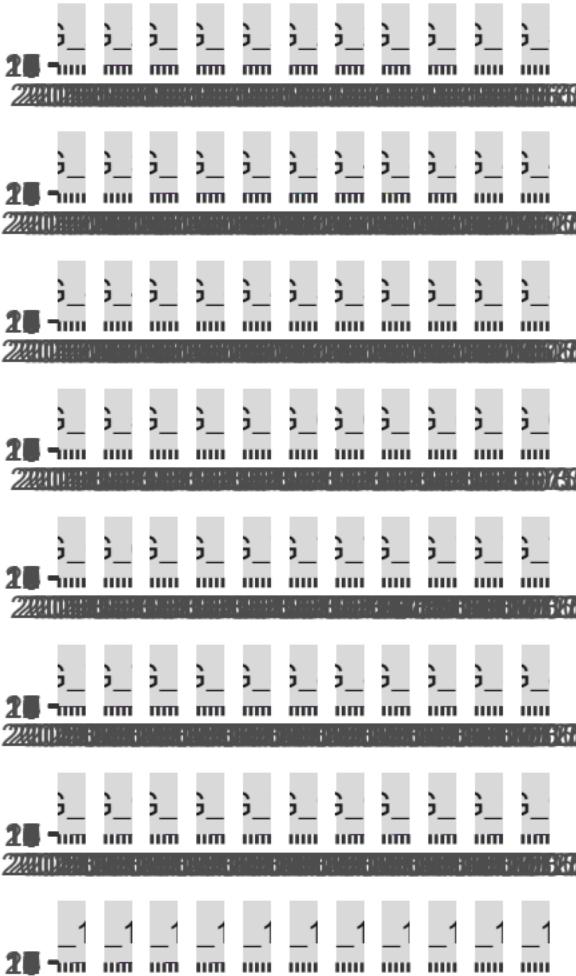
'Total recaptures' by tag group



Observed (bar) and expected (line)



Fleets



11



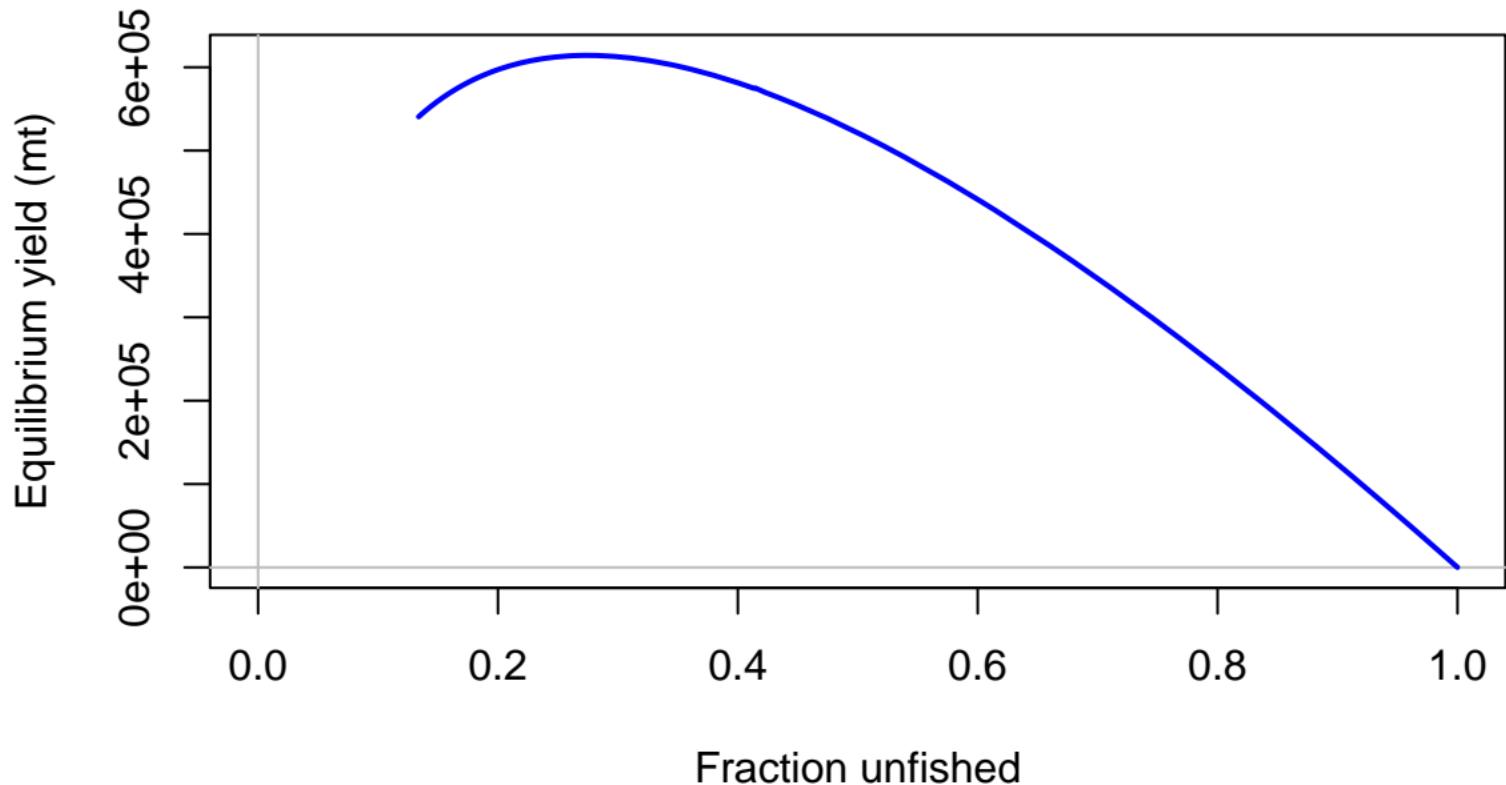
44

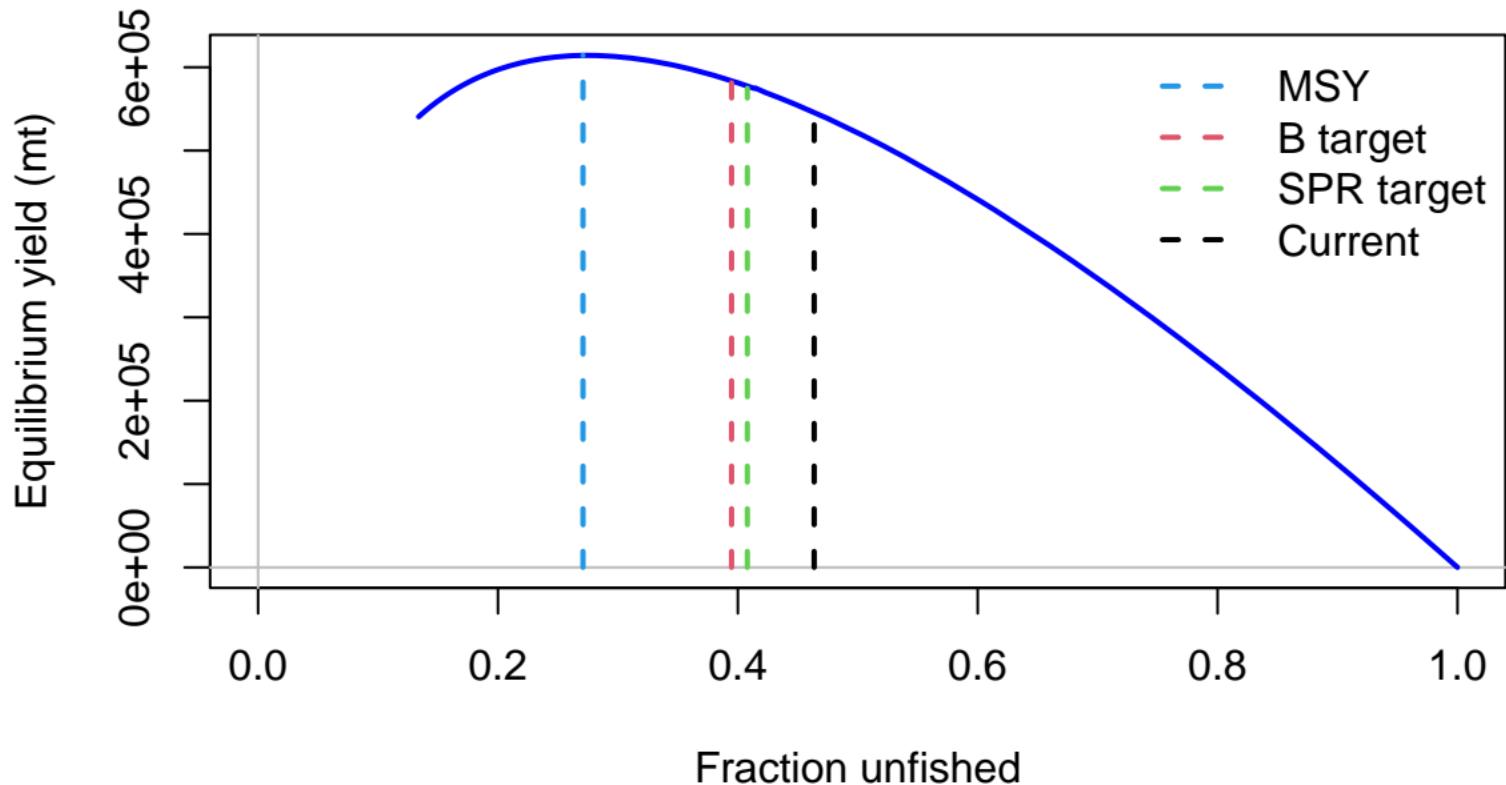


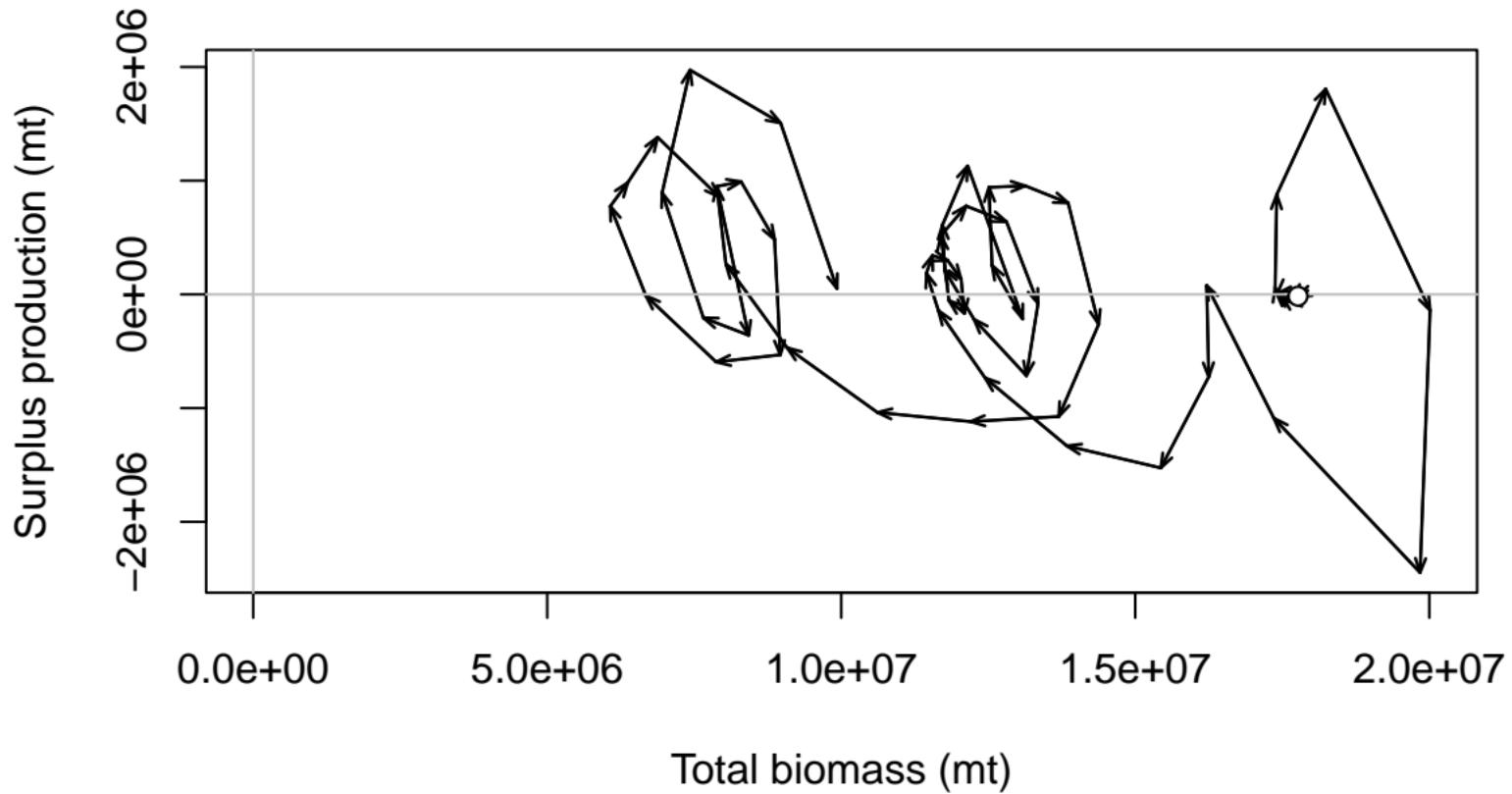
14

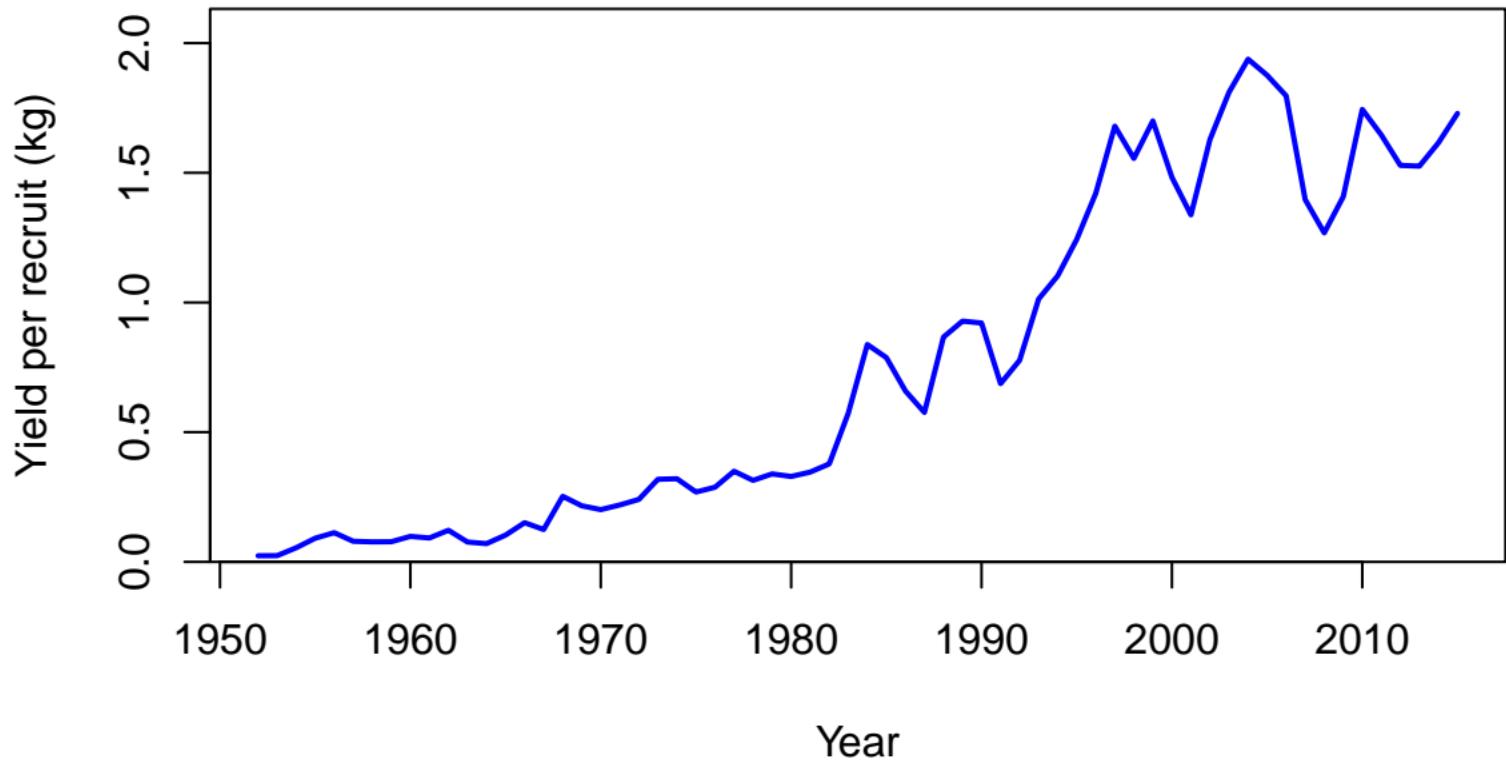


47

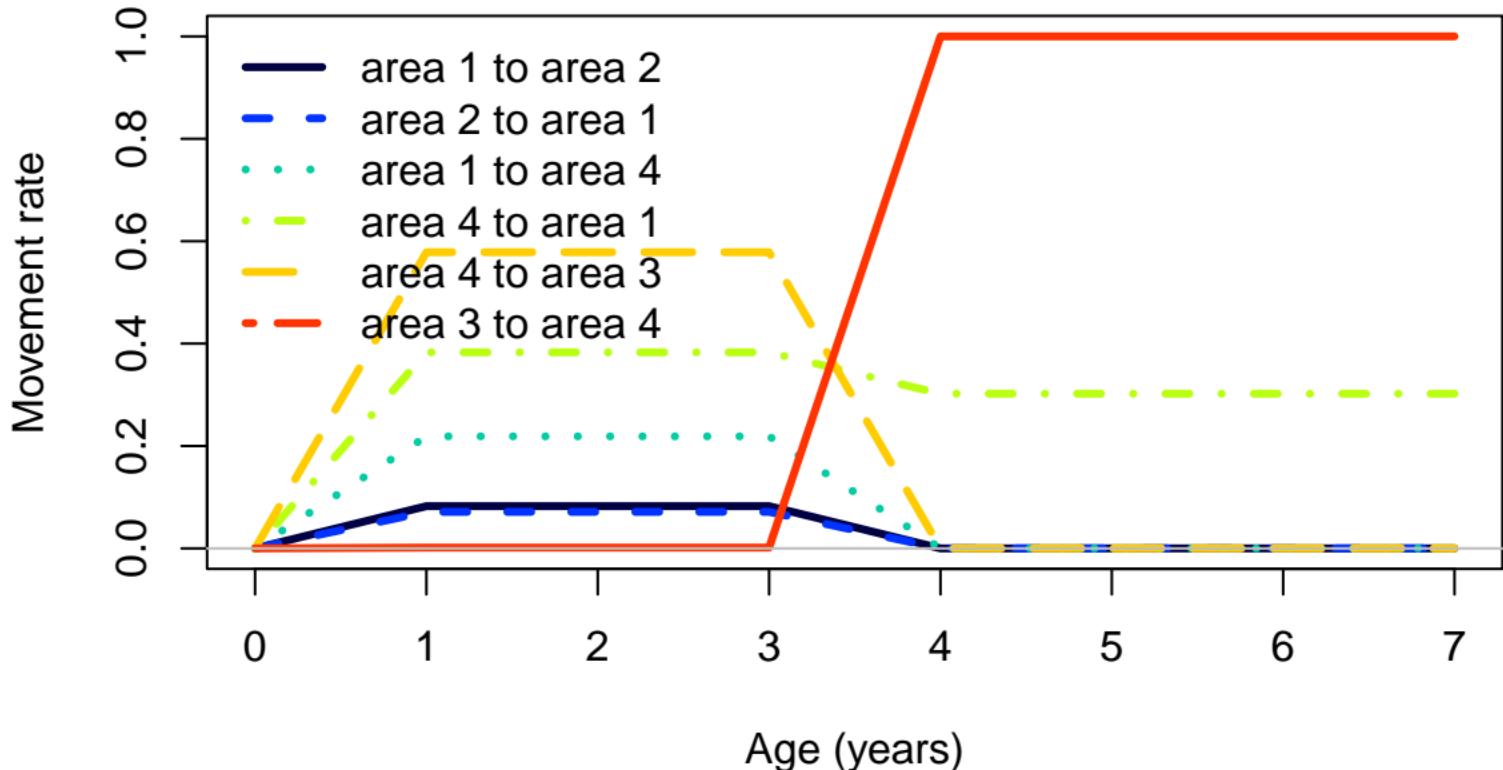




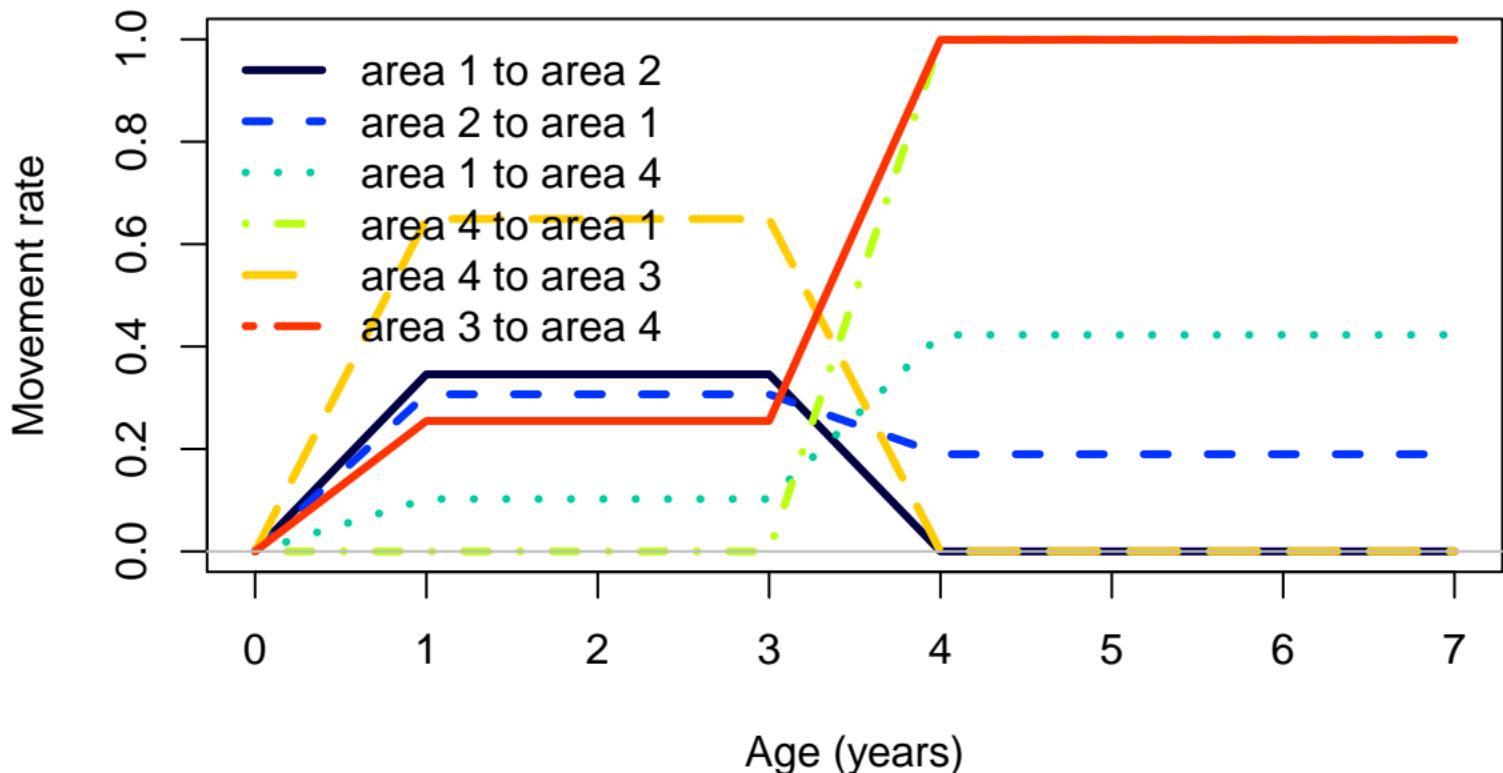


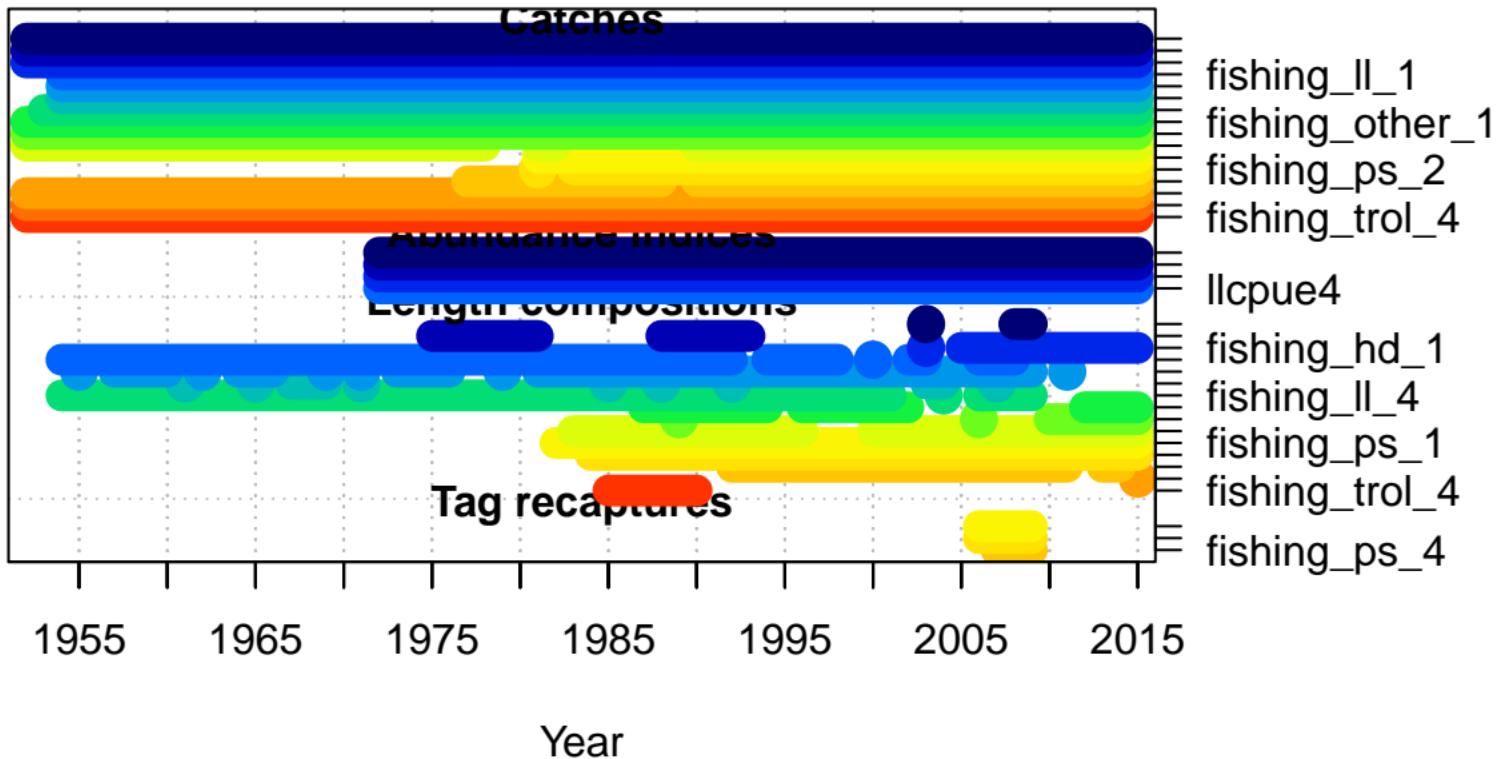


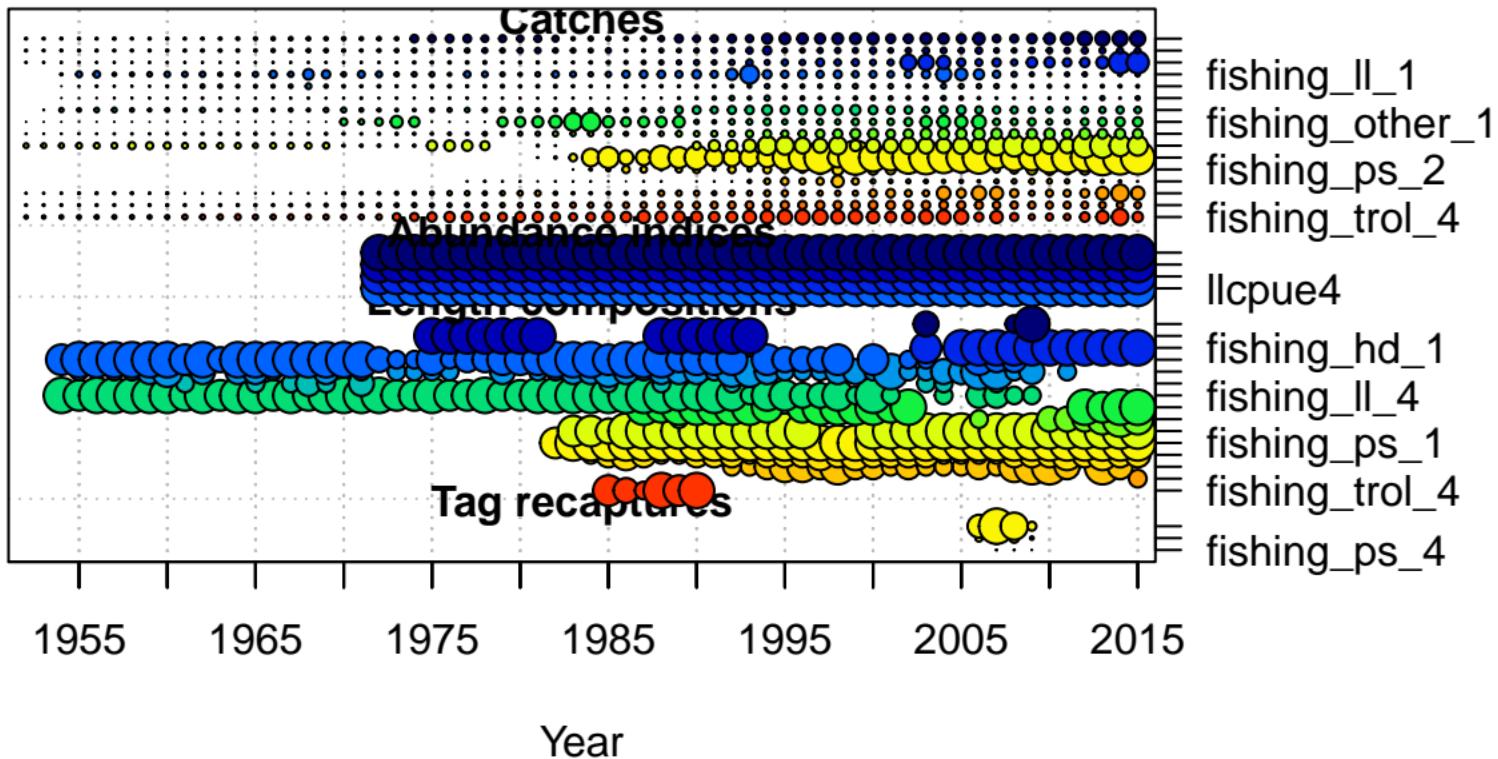
Movement rates (fraction moving per year in season 1)



Movement rates (fraction moving per year in season 3)

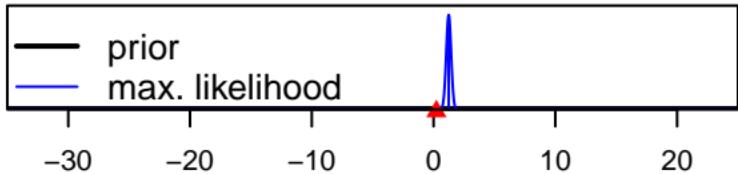




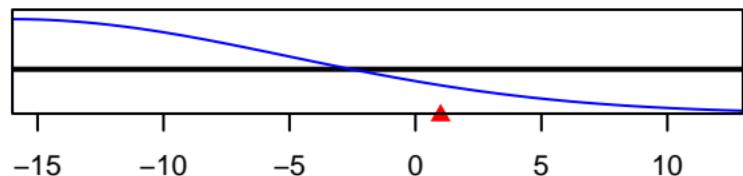


Density

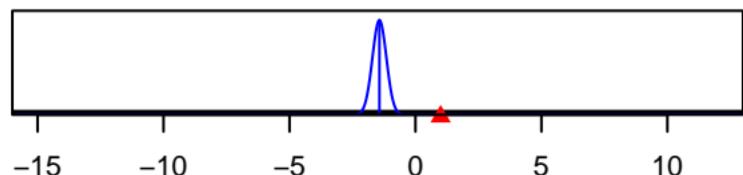
RecrDist_GP_1_area_1_month_7



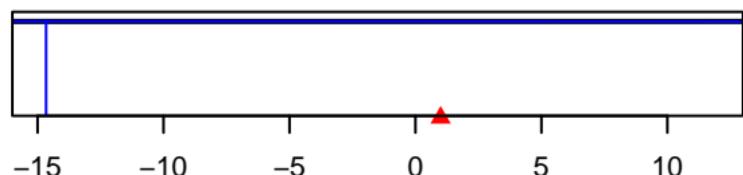
MoveParm_B_seas_1_GP_1from_1to_2



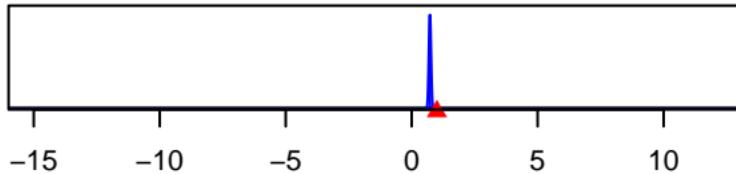
MoveParm_A_seas_1_GP_1from_2to_1



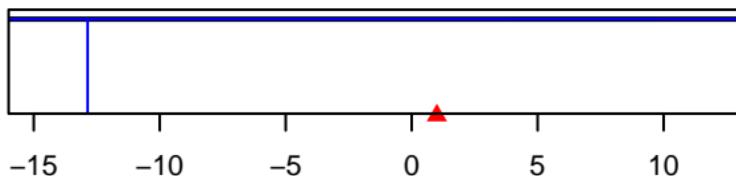
MoveParm_B_seas_1_GP_1from_2to_1



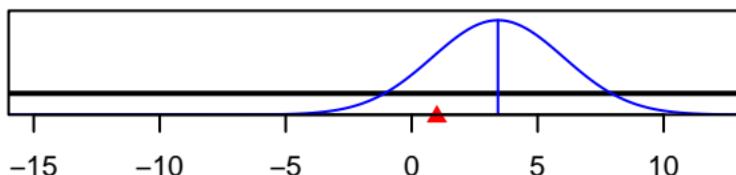
MoveParm_A_seas_1_GP_1from_1to_4



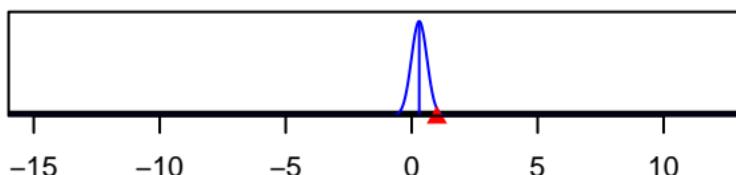
MoveParm_B_seas_1_GP_1from_1to_4



MoveParm_A_seas_1_GP_1from_4to_1



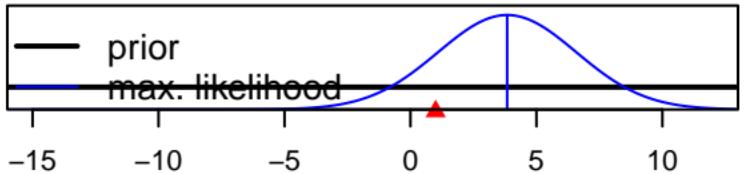
MoveParm_B_seas_1_GP_1from_4to_1



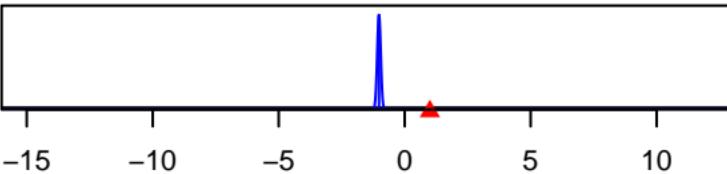
Parameter value

Density

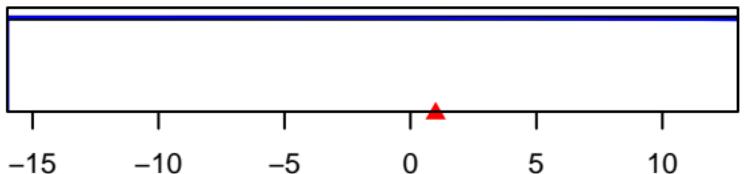
MoveParm_A_seas_1_GP_1from_4to_3



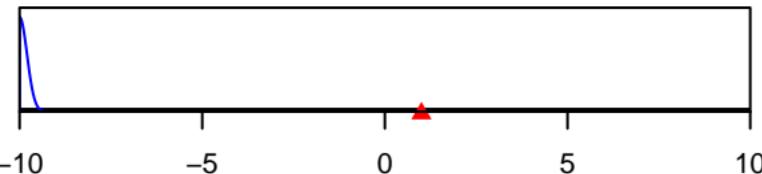
MoveParm_A_seas_3_GP_1from_1to_1



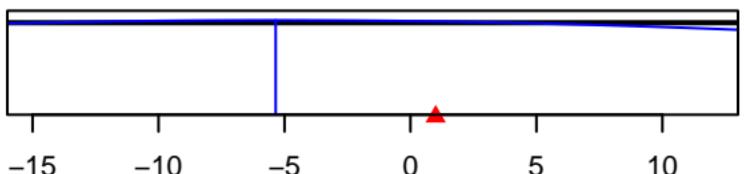
MoveParm_B_seas_1_GP_1from_4to_3



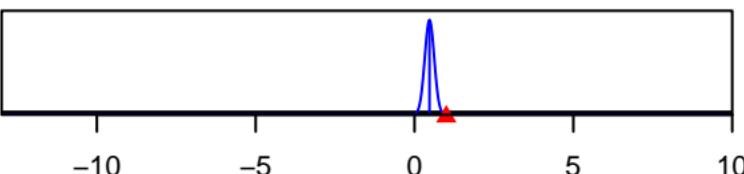
MoveParm_B_seas_3_GP_1from_1to_2



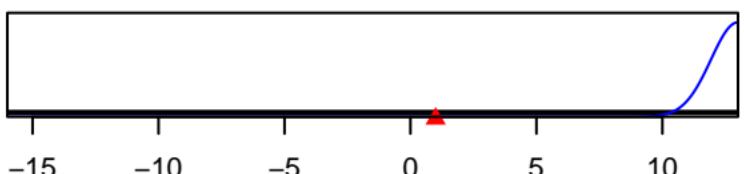
MoveParm_A_seas_1_GP_1from_3to_4



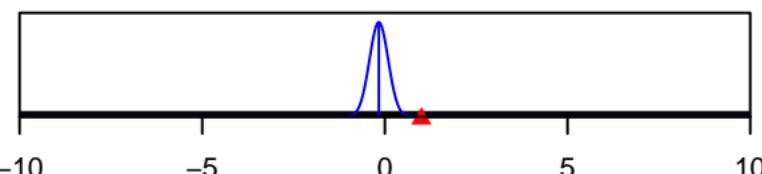
MoveParm_A_seas_3_GP_1from_2to_1



MoveParm_B_seas_1_GP_1from_3to_4



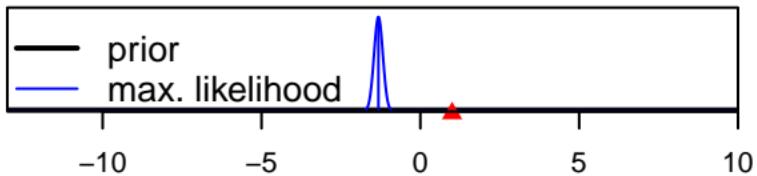
MoveParm_B_seas_3_GP_1from_2to_1



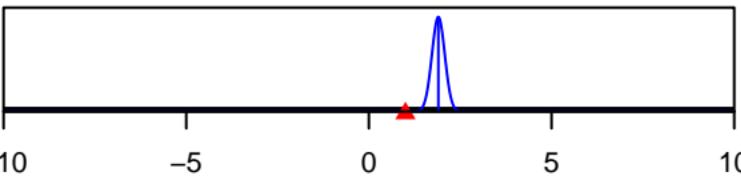
Parameter value

Density

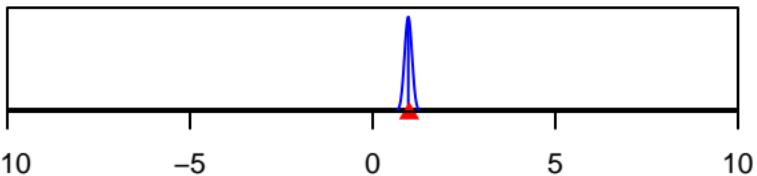
MoveParm_A_seas_3_GP_1from_1to_4



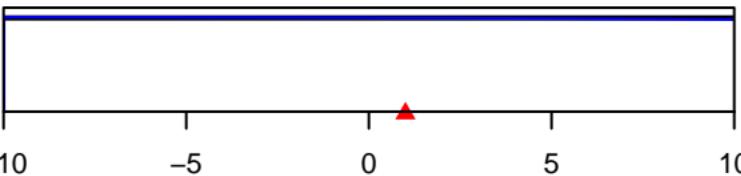
MoveParm_A_seas_3_GP_1from_4to_3



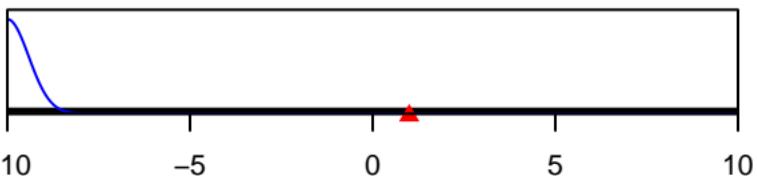
MoveParm_B_seas_3_GP_1from_1to_4



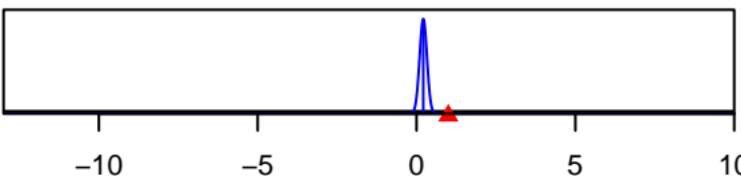
MoveParm_B_seas_3_GP_1from_4to_3



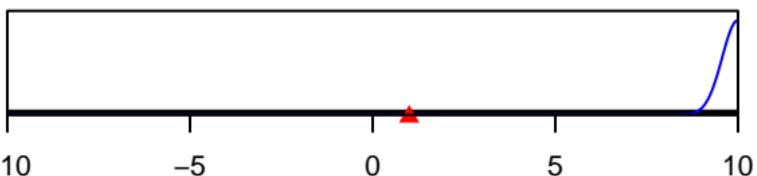
MoveParm_A_seas_3_GP_1from_4to_1



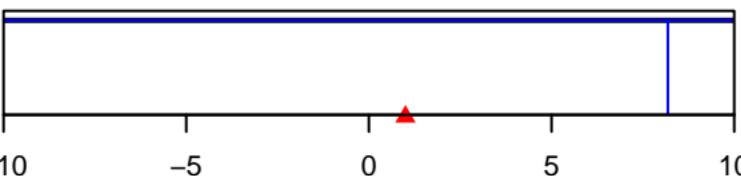
MoveParm_A_seas_3_GP_1from_3to_4



MoveParm_B_seas_3_GP_1from_4to_1



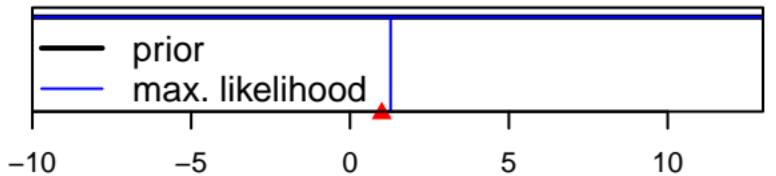
MoveParm_B_seas_3_GP_1from_3to_4



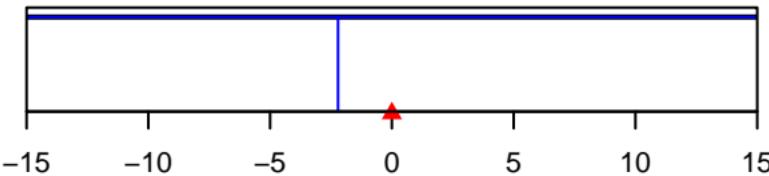
Parameter value

Density

FracFemale_GP_1



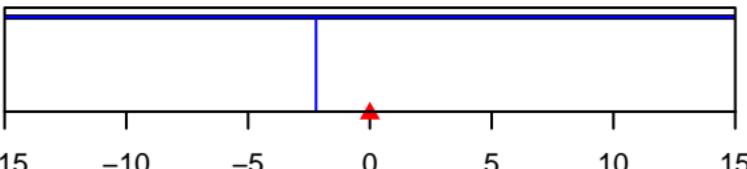
LnQ_base_llcpue3(19)



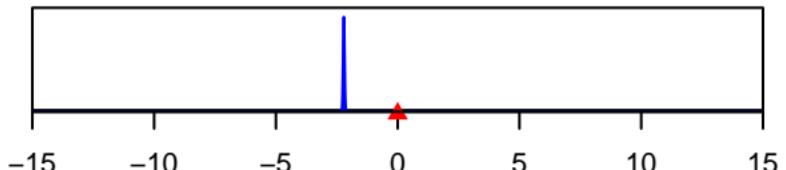
SR_LN(R0)



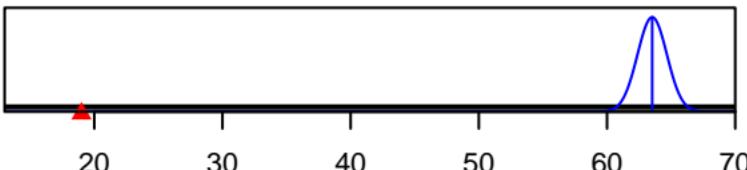
LnQ_base_llcpue4(20)



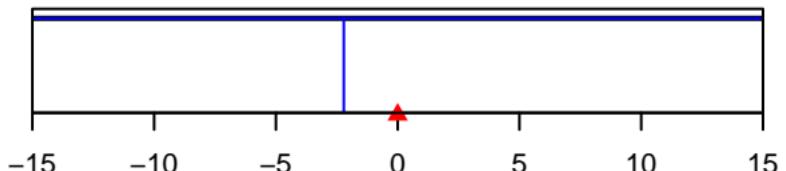
LnQ_base_llcpue1(17)



Size_DbIN_peak_fishing_gi_1(1)



LnQ_base_llcpue2(18)



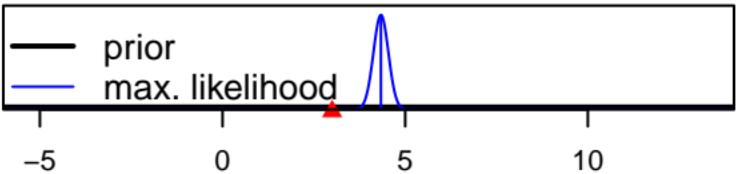
Size_DbIN_top_logit_fishing_gi_1(1)



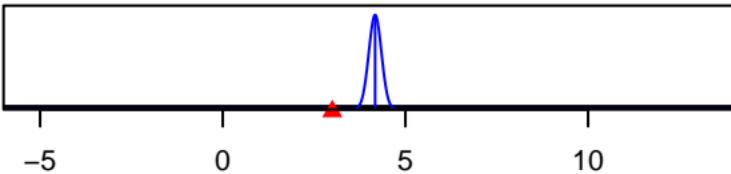
Parameter value

Density

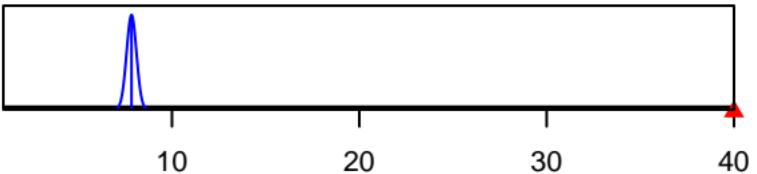
Size_DbIN_ascend_se_fishing_gi_1(1)



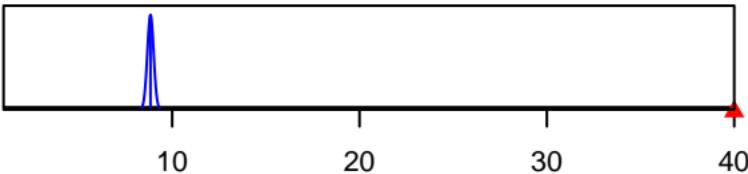
Size_DbIN_ascend_se_fishing_hd_1(3)



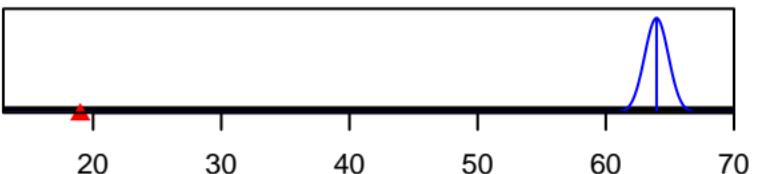
Size_DbIN_descend_se_fishing_gi_1(1)



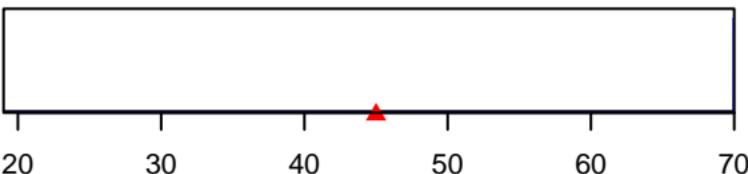
Size_DbIN_descend_se_fishing_hd_1(3)



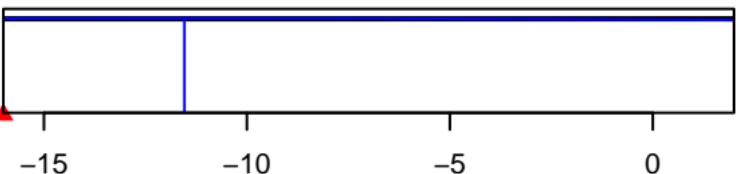
Size_DbIN_peak_fishing_hd_1(3)



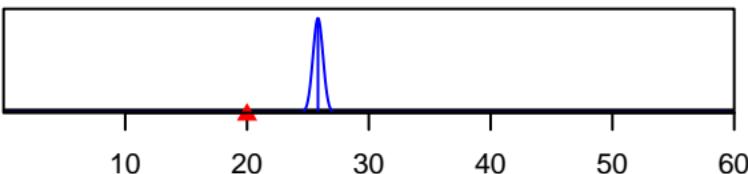
Size_inflection_fishing_ll_1(4)



Size_DbIN_top_logit_fishing_hd_1(3)



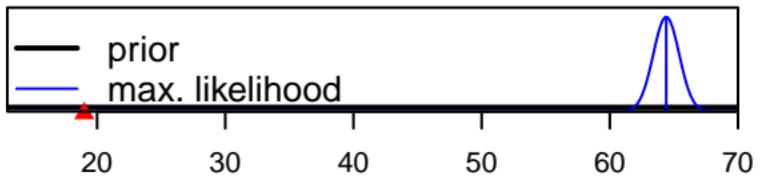
Size_95%width_fishing_ll_1(4)



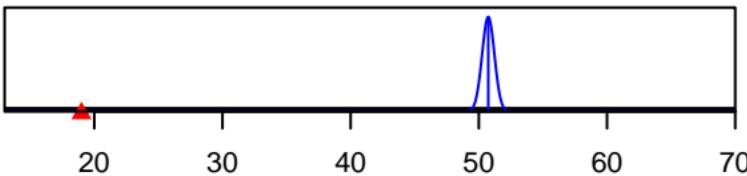
Parameter value

Density

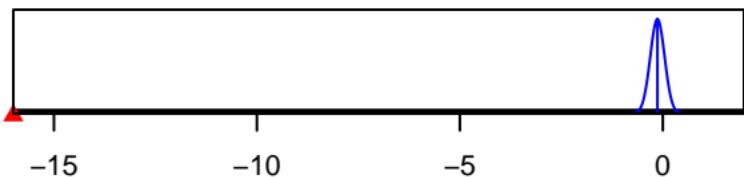
Size_DbIN_peak_fishing_other_1(8)



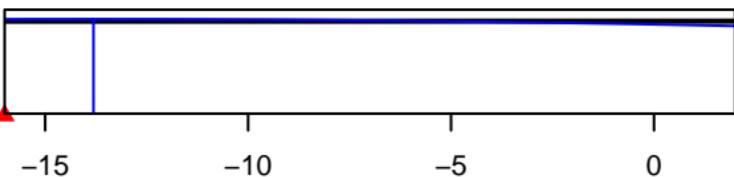
Size_DbIN_peak_fishing_bb_1(10)



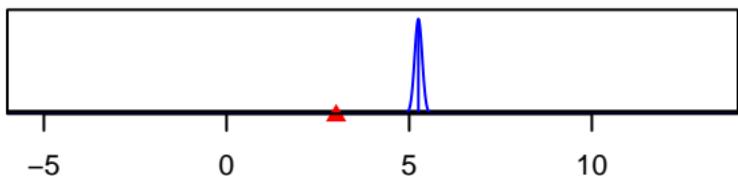
Size_DbIN_top_logit_fishing_other_1(8)



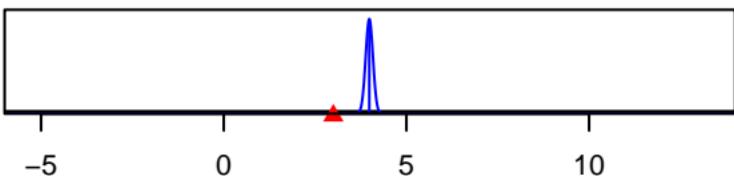
Size_DbIN_top_logit_fishing_bb_1(10)



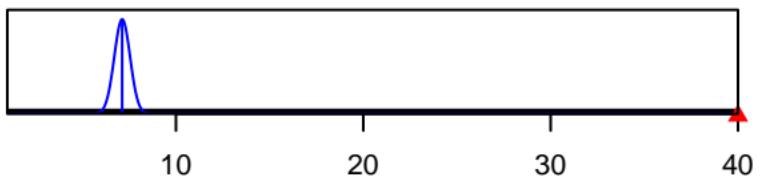
Size_DbIN_ascend_se_fishing_other_1(8)



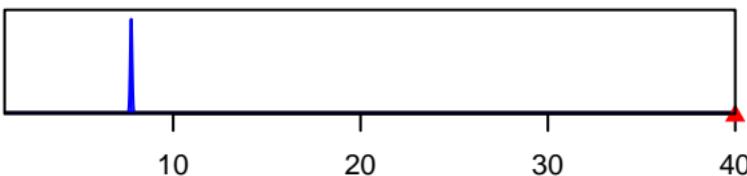
Size_DbIN_ascend_se_fishing_bb_1(10)



Size_DbIN_descend_se_fishing_other_1(8)



Size_DbIN_descend_se_fishing_bb_1(10)



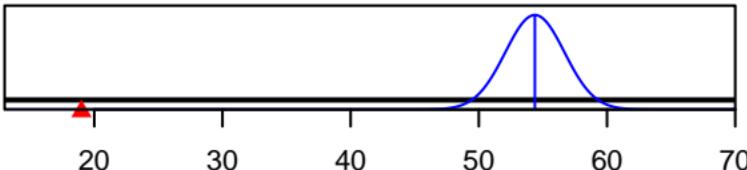
Parameter value

Density

Size_DbIN_peak_fishing_ps_1(11)



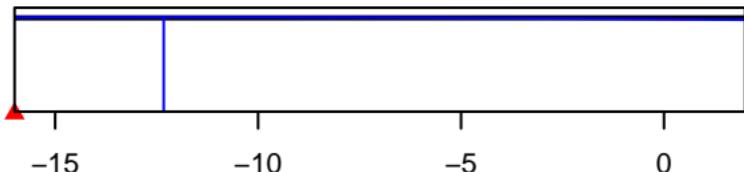
Size_DbIN_peak_fishing_trol_1(14)



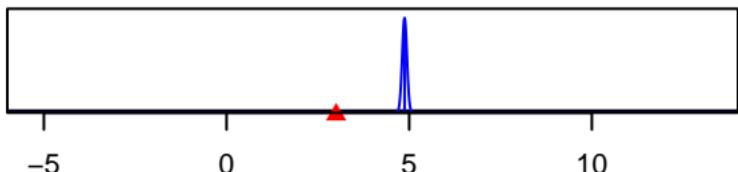
Size_DbIN_top_logit_fishing_ps_1(11)



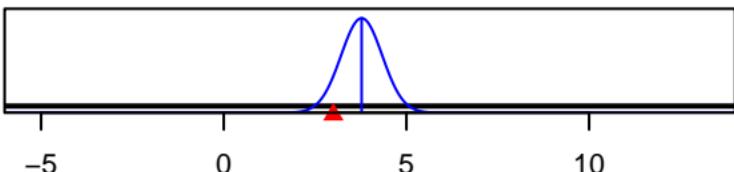
Size_DbIN_top_logit_fishing_trol_1(14)



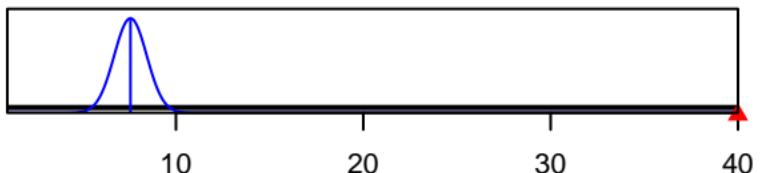
Size_DbIN_ascend_se_fishing_ps_1(11)



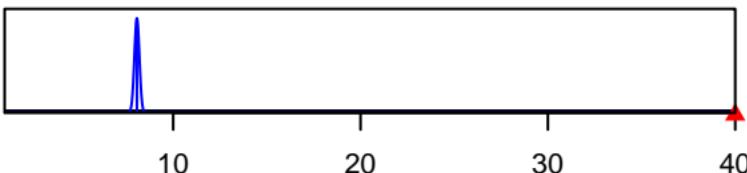
Size_DbIN_ascend_se_fishing_trol_1(14)



Size_DbIN_descend_se_fishing_ps_1(11)



Size_DbIN_descend_se_fishing_trol_1(14)



Parameter value

