

Plots created using the 'r4ss' package in R

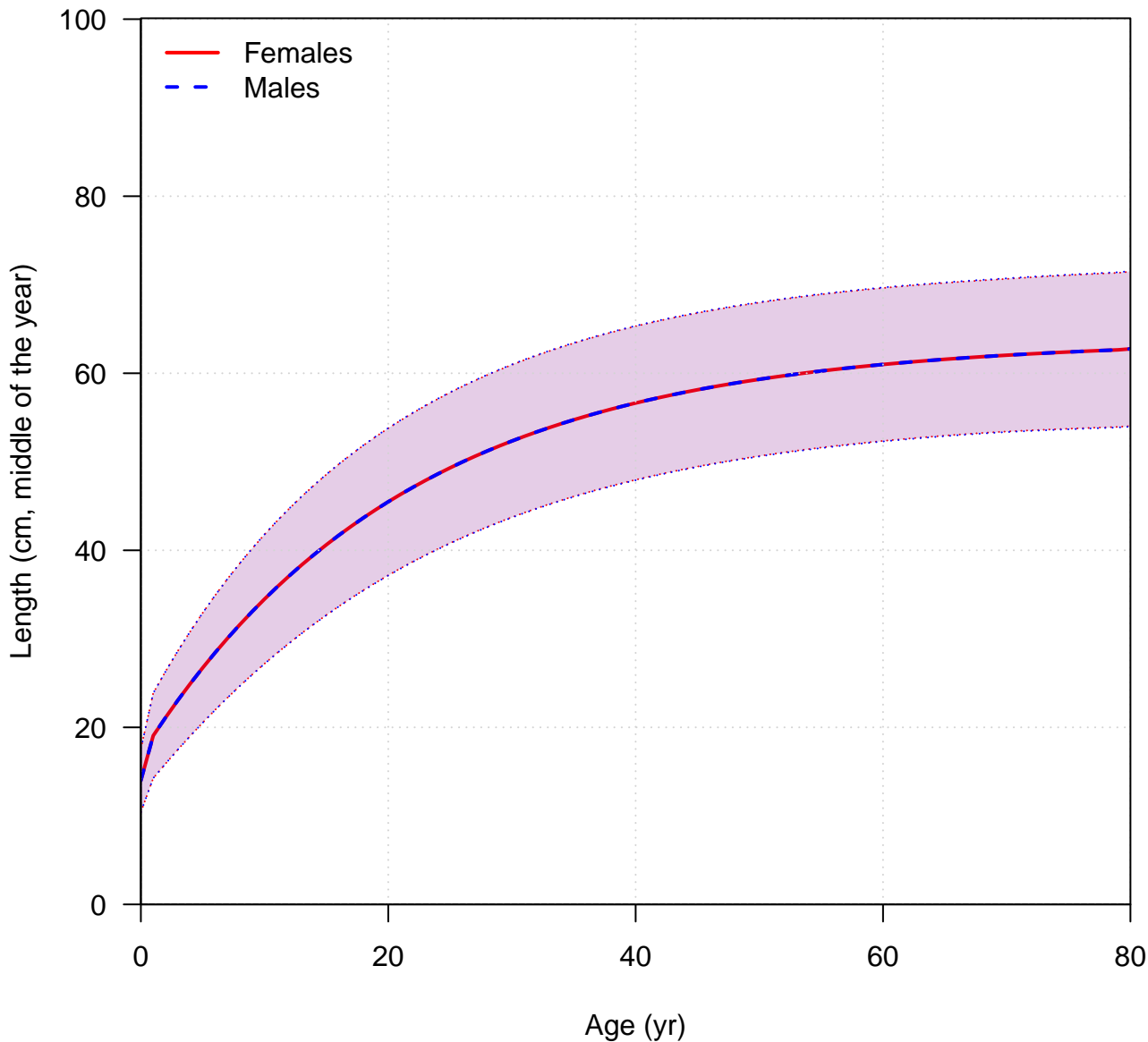
Stock Synthesis version: SS–V3.23b

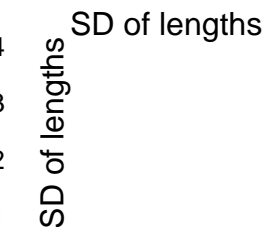
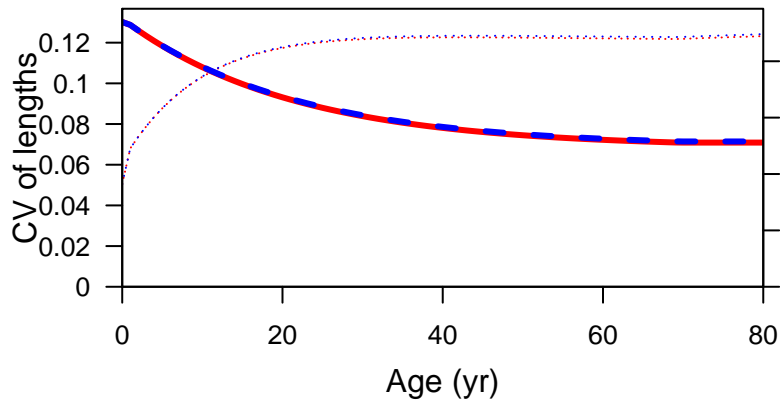
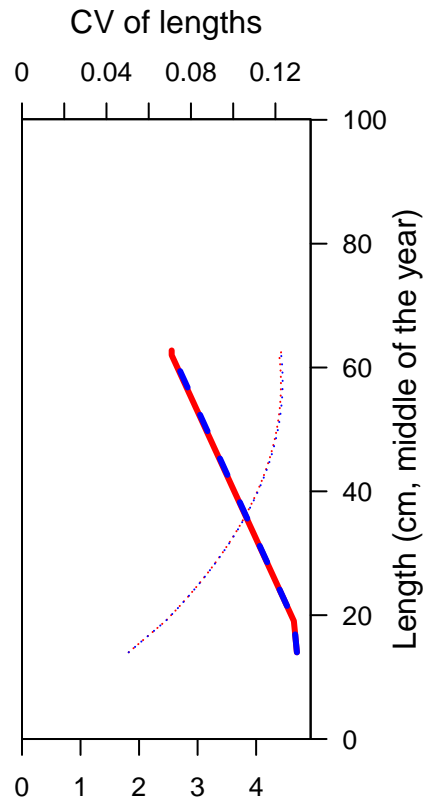
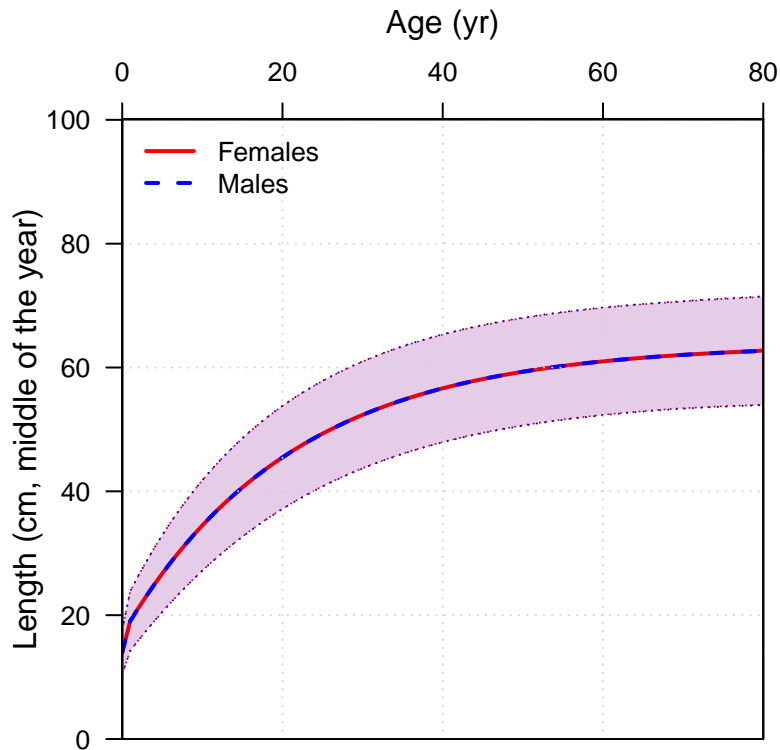
StartTime: Sun Aug 05 21:00:35 2012

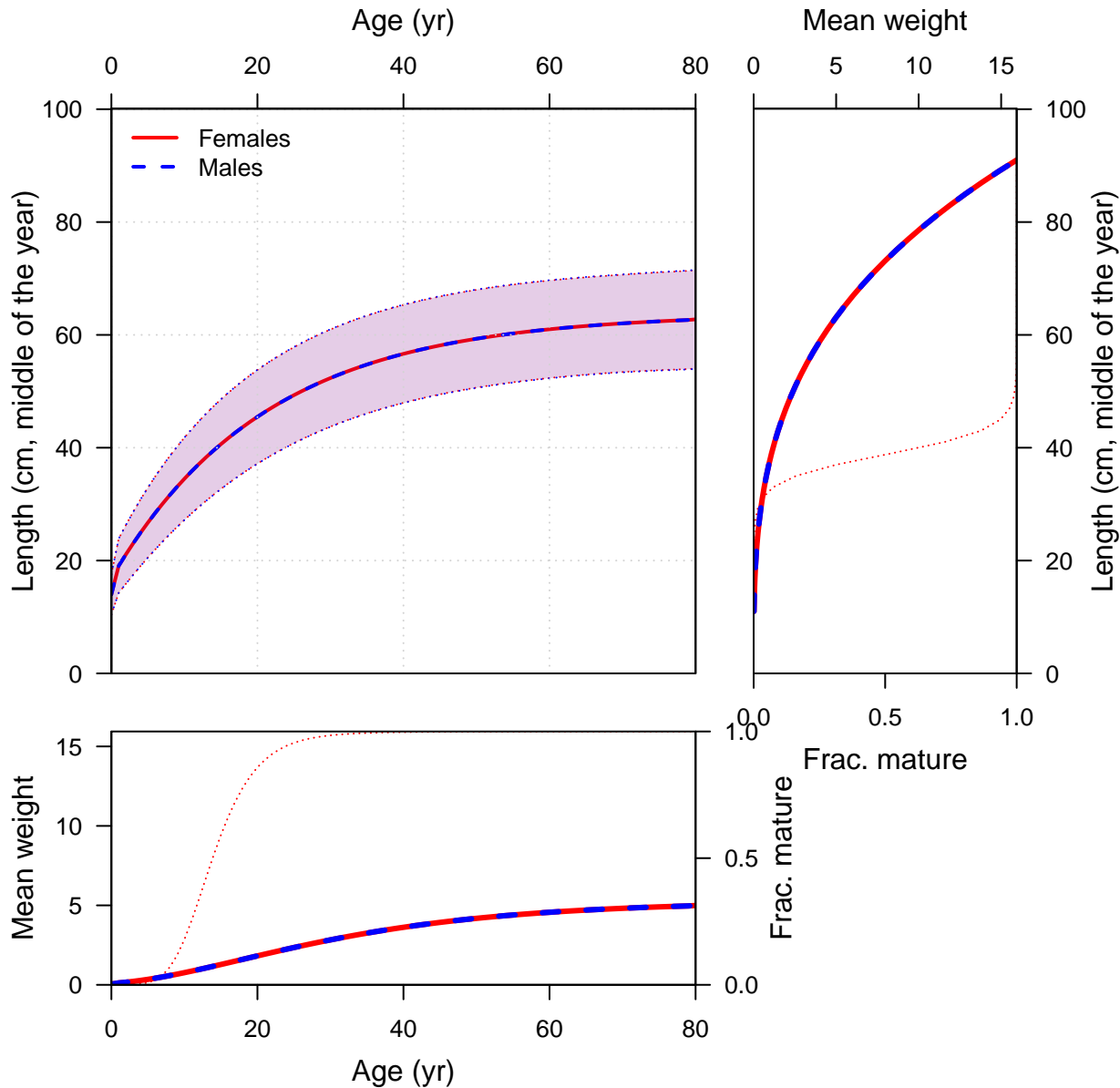
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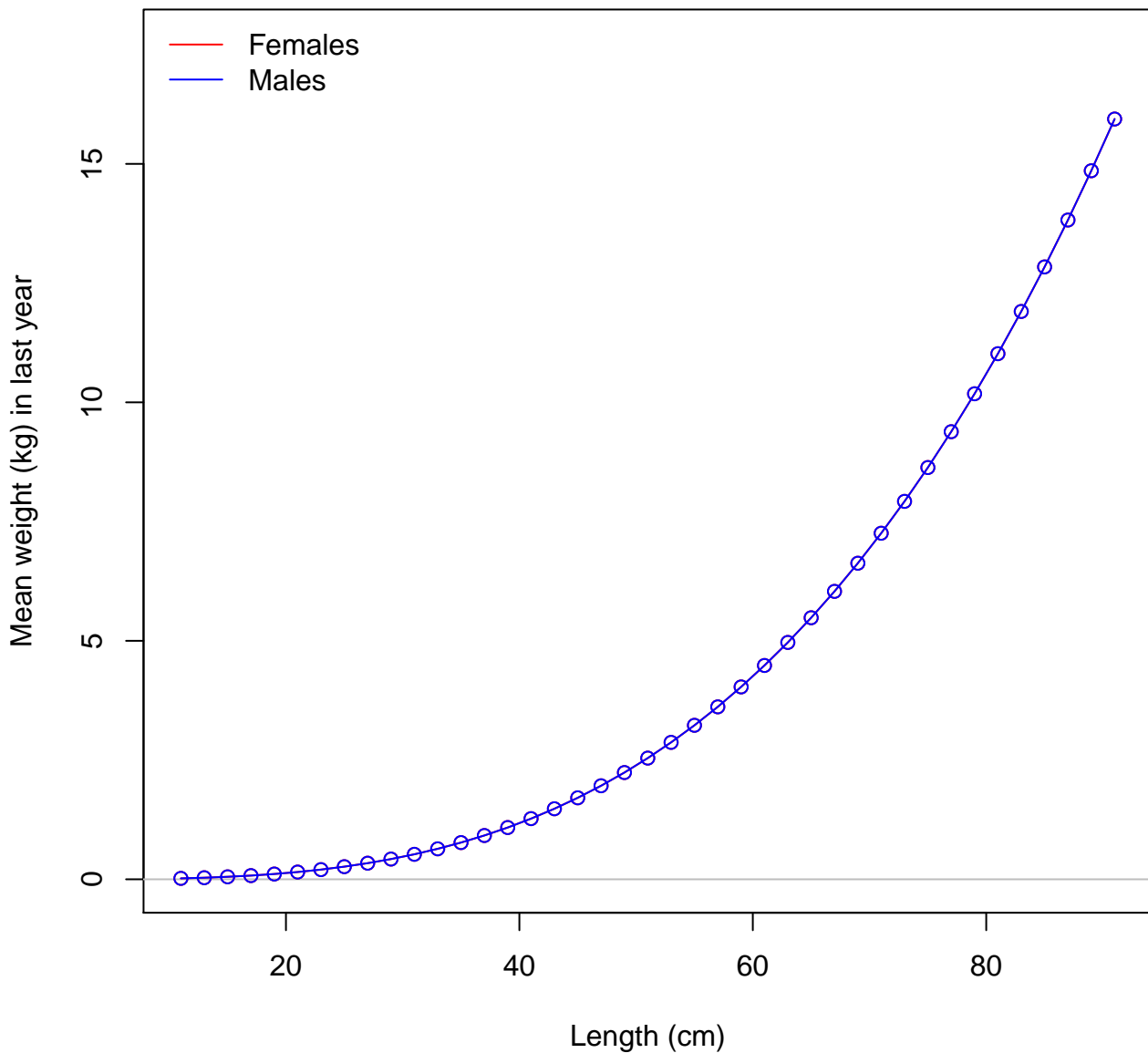
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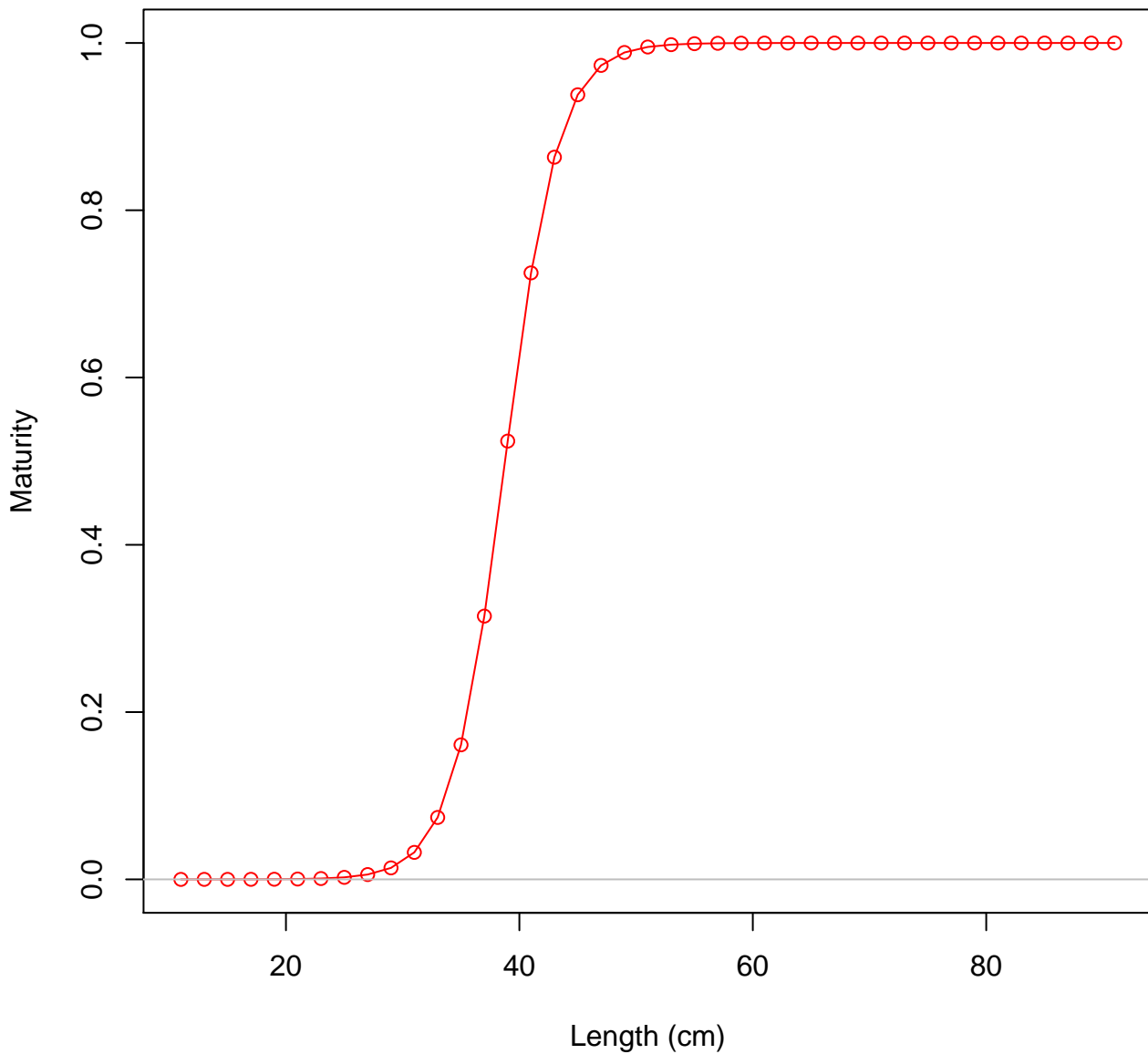
Ending year expected growth (with 95% intervals)

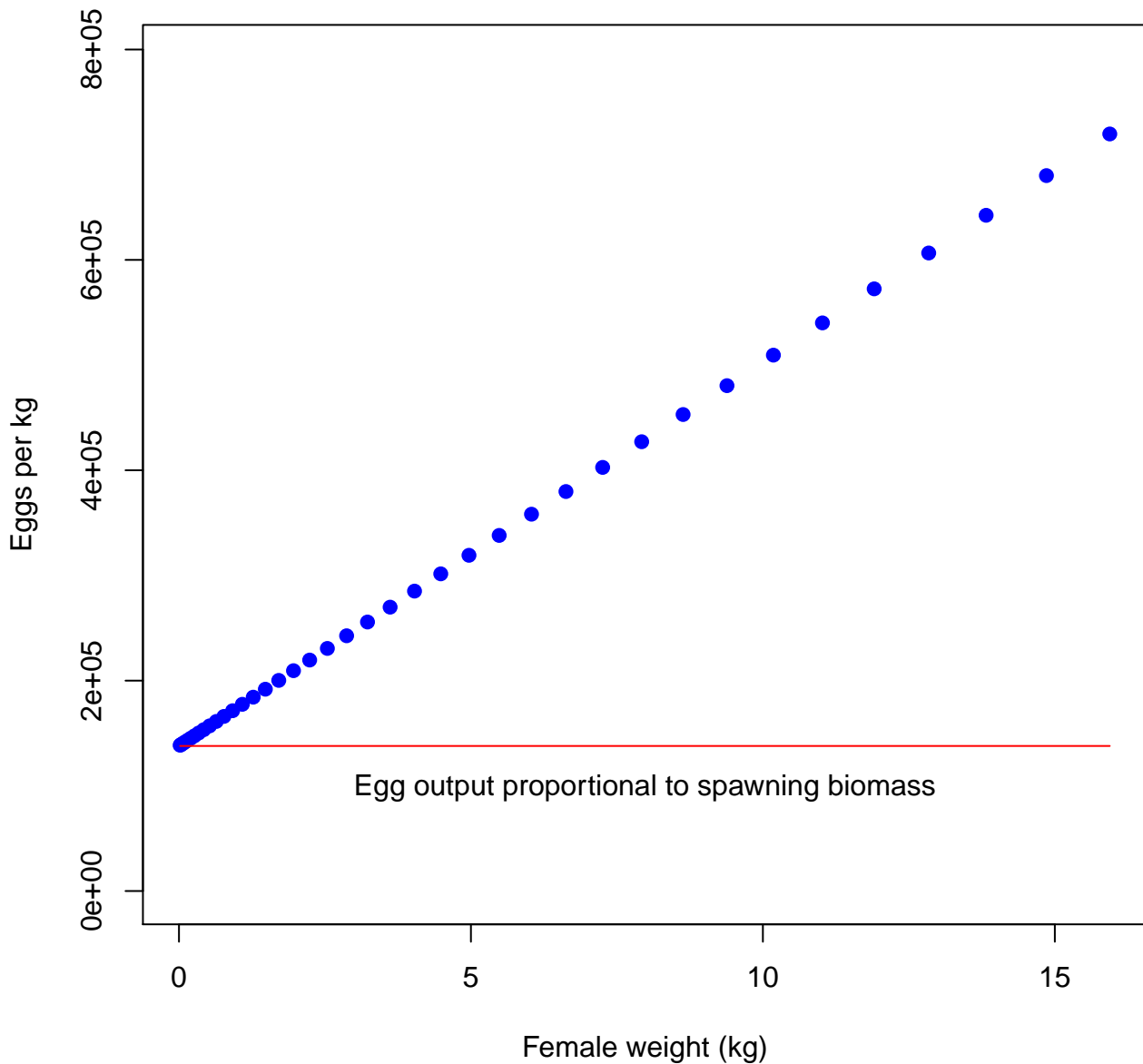


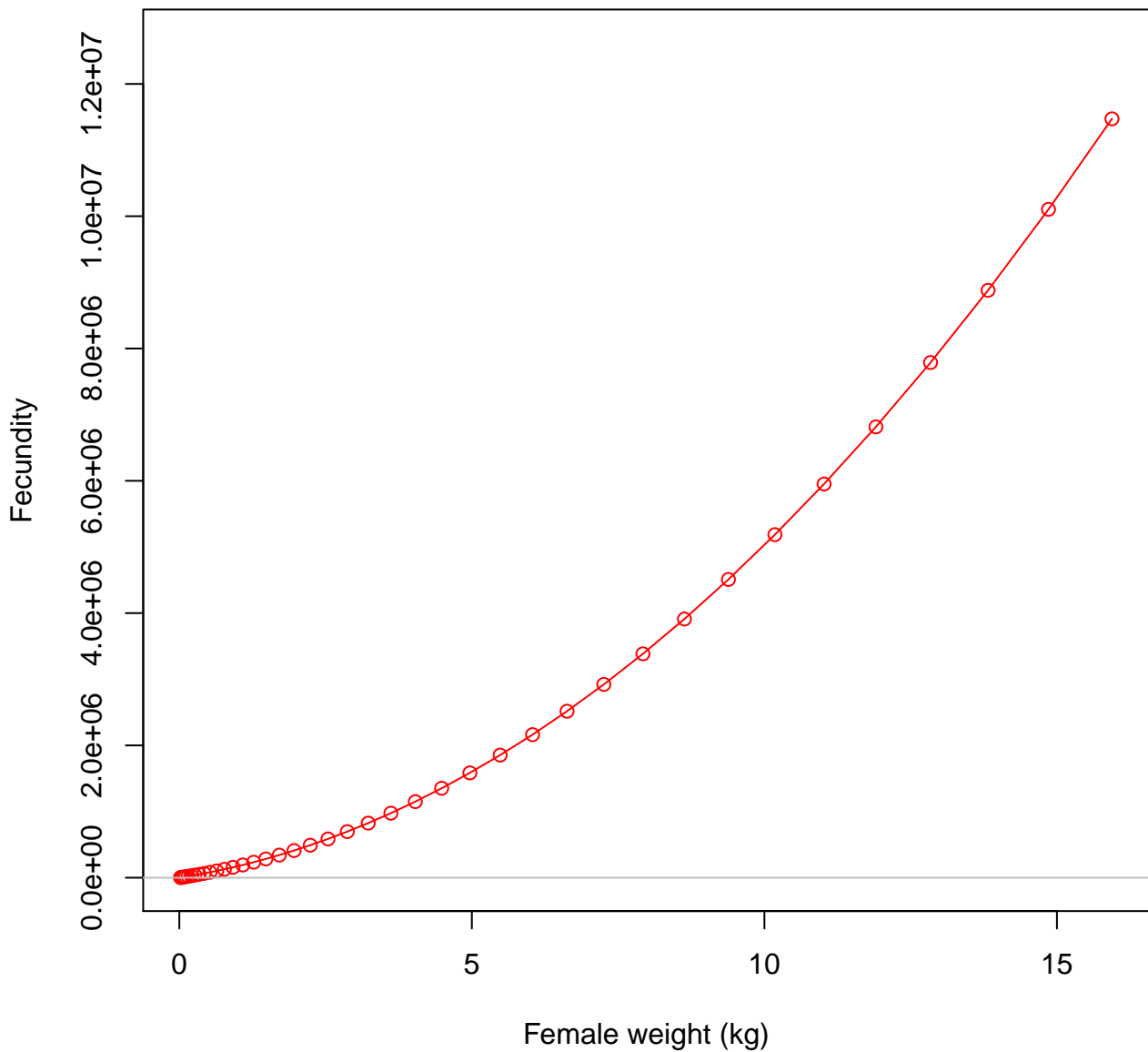




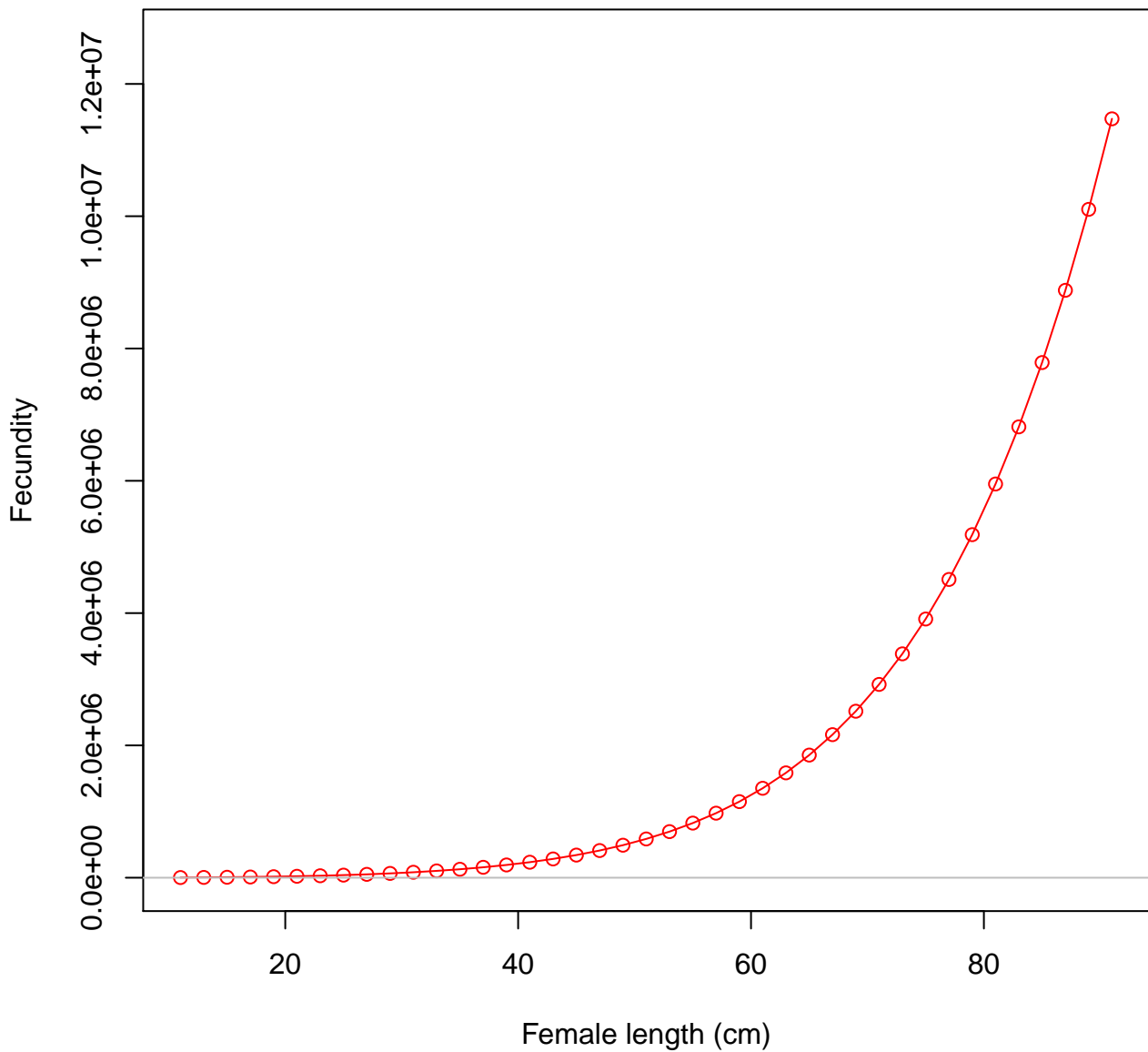


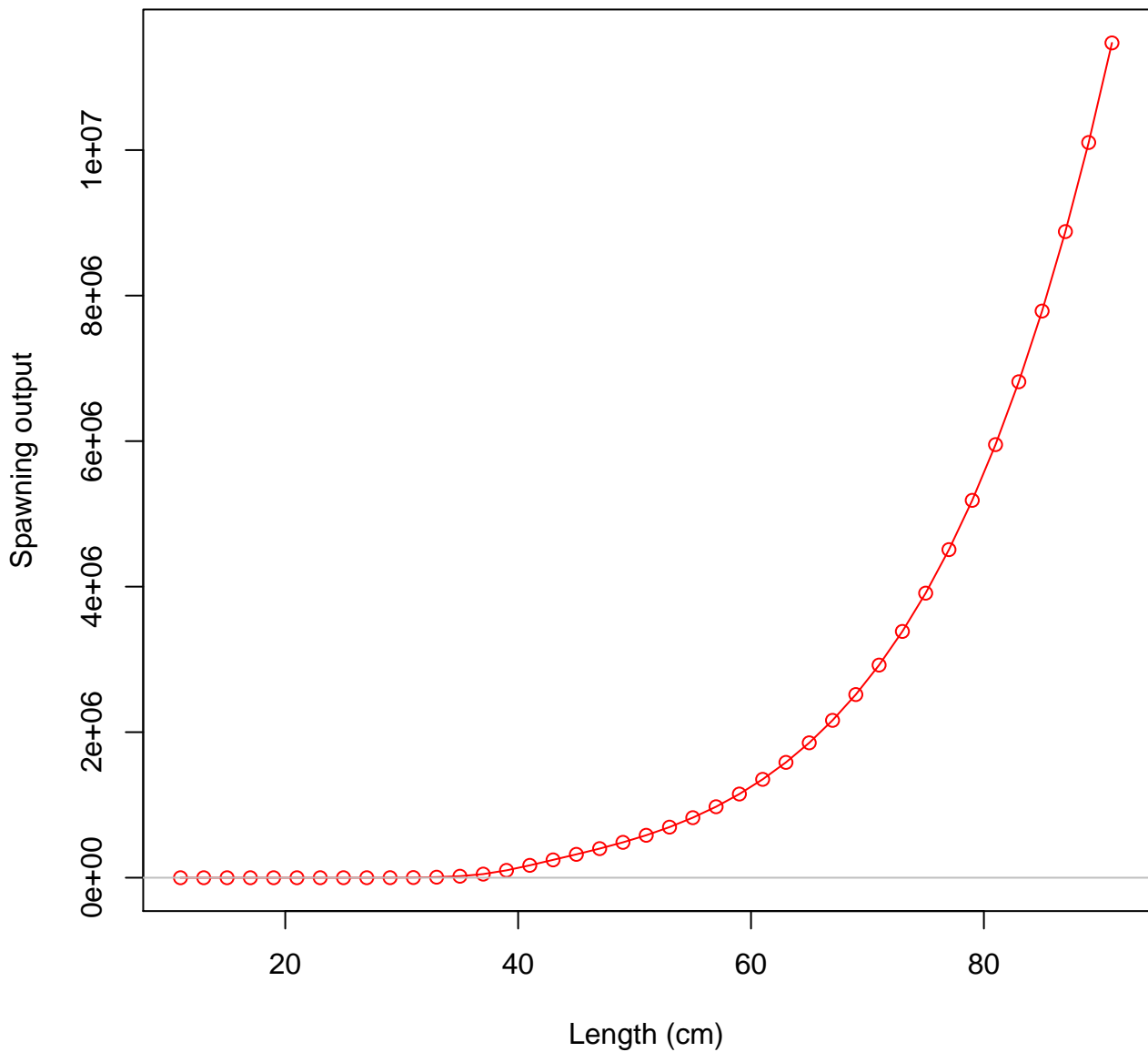




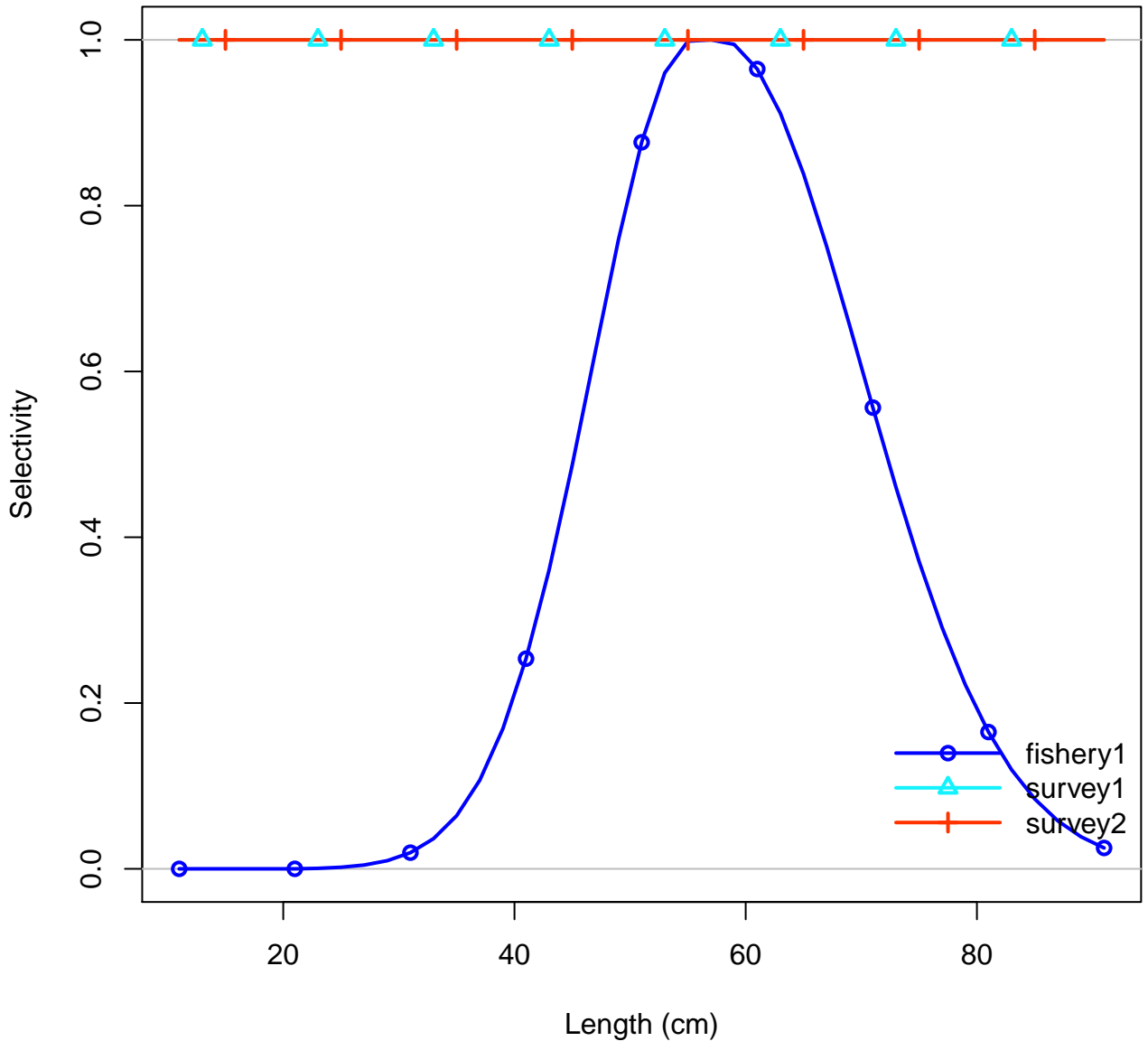




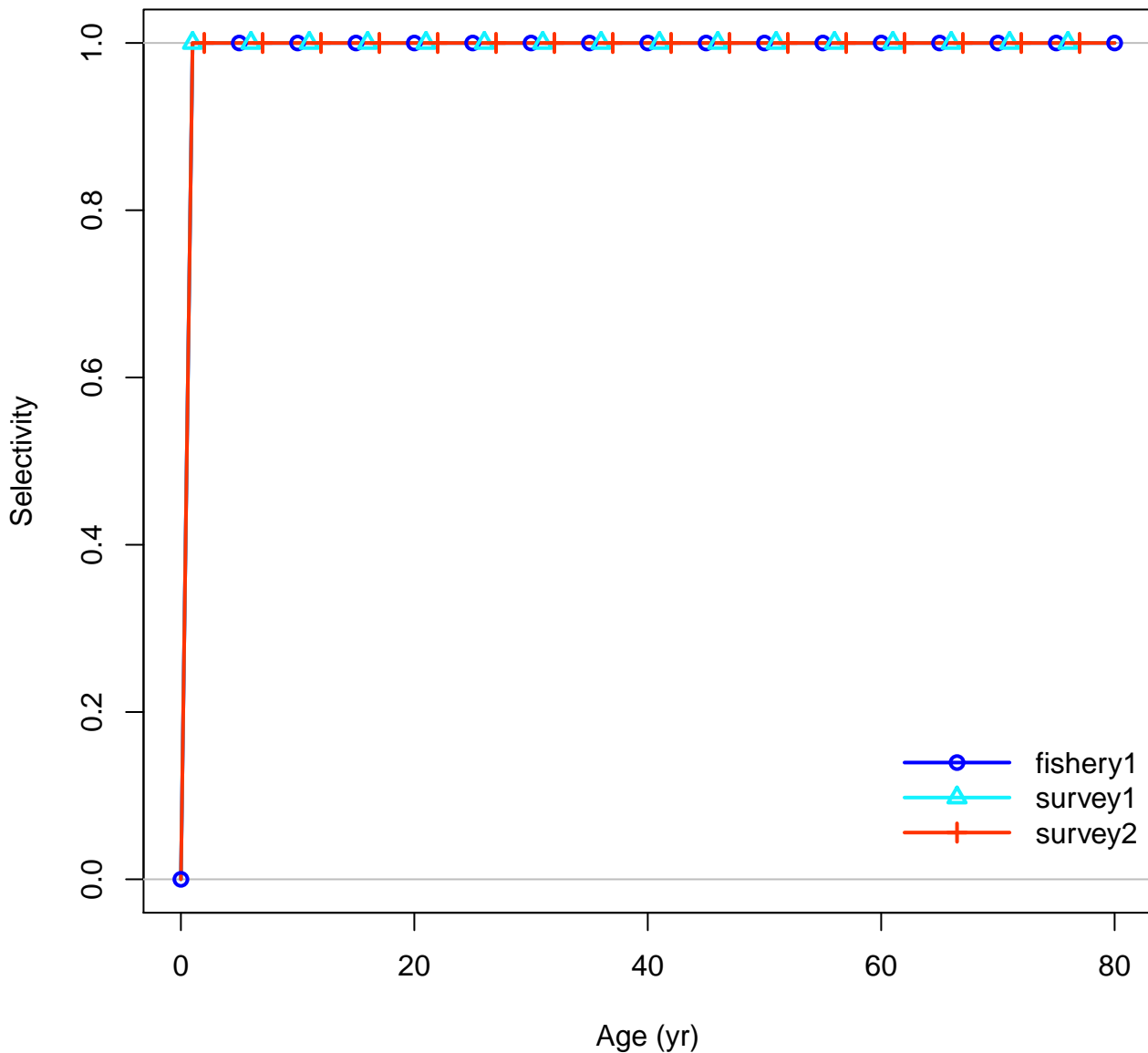




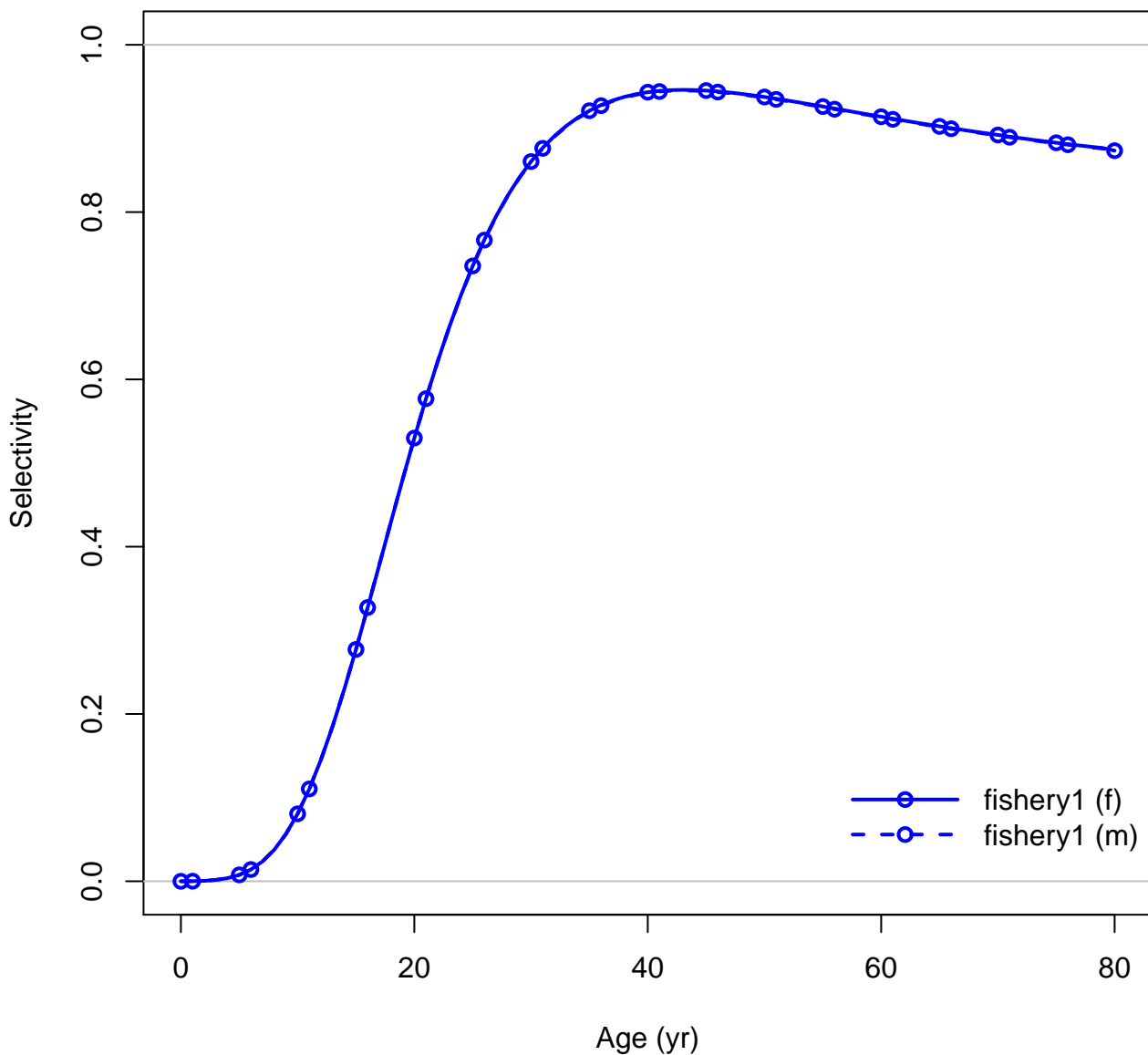
Length-based selectivity by fleet in 2010



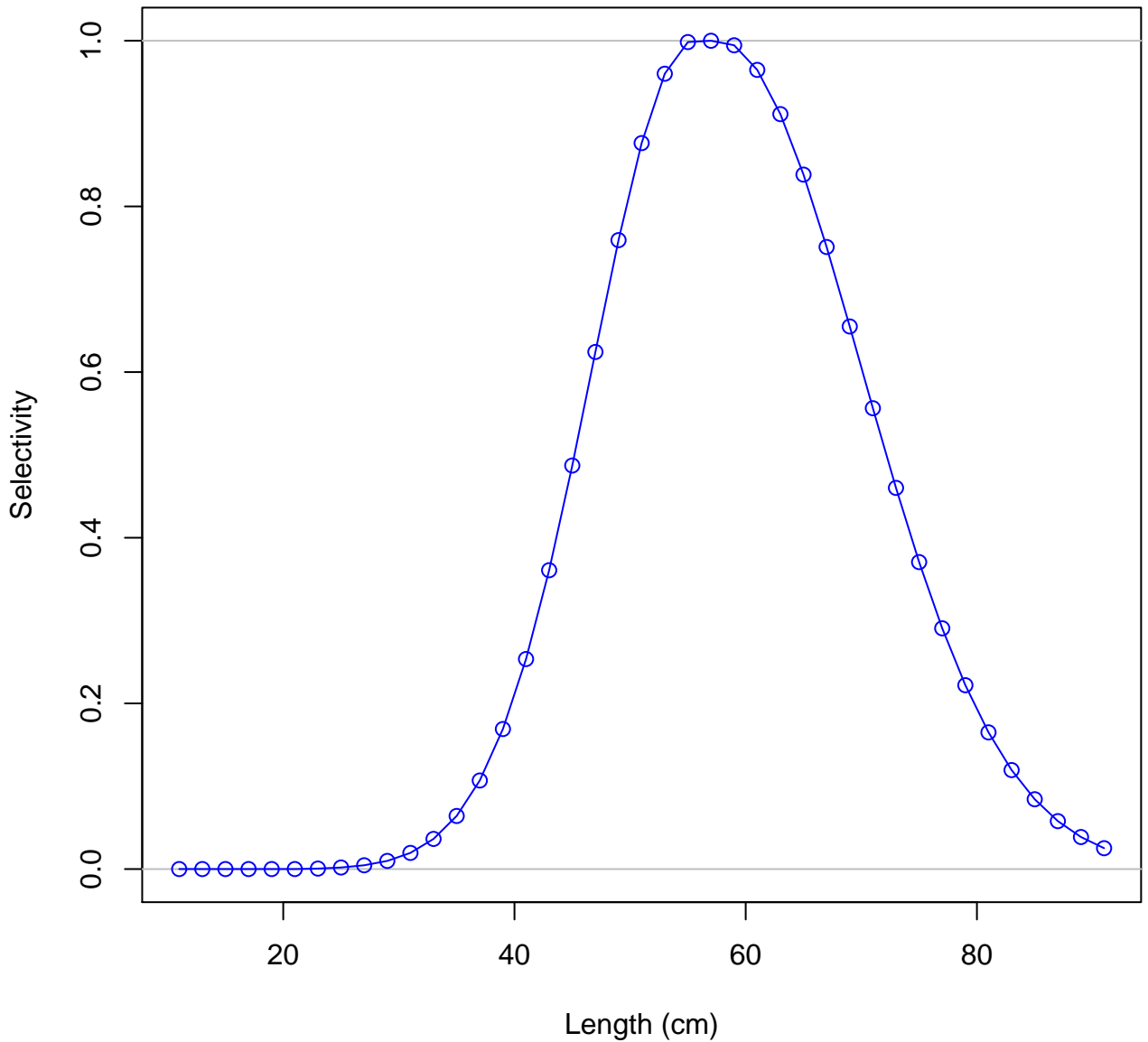
Age-based selectivity by fleet in 2010



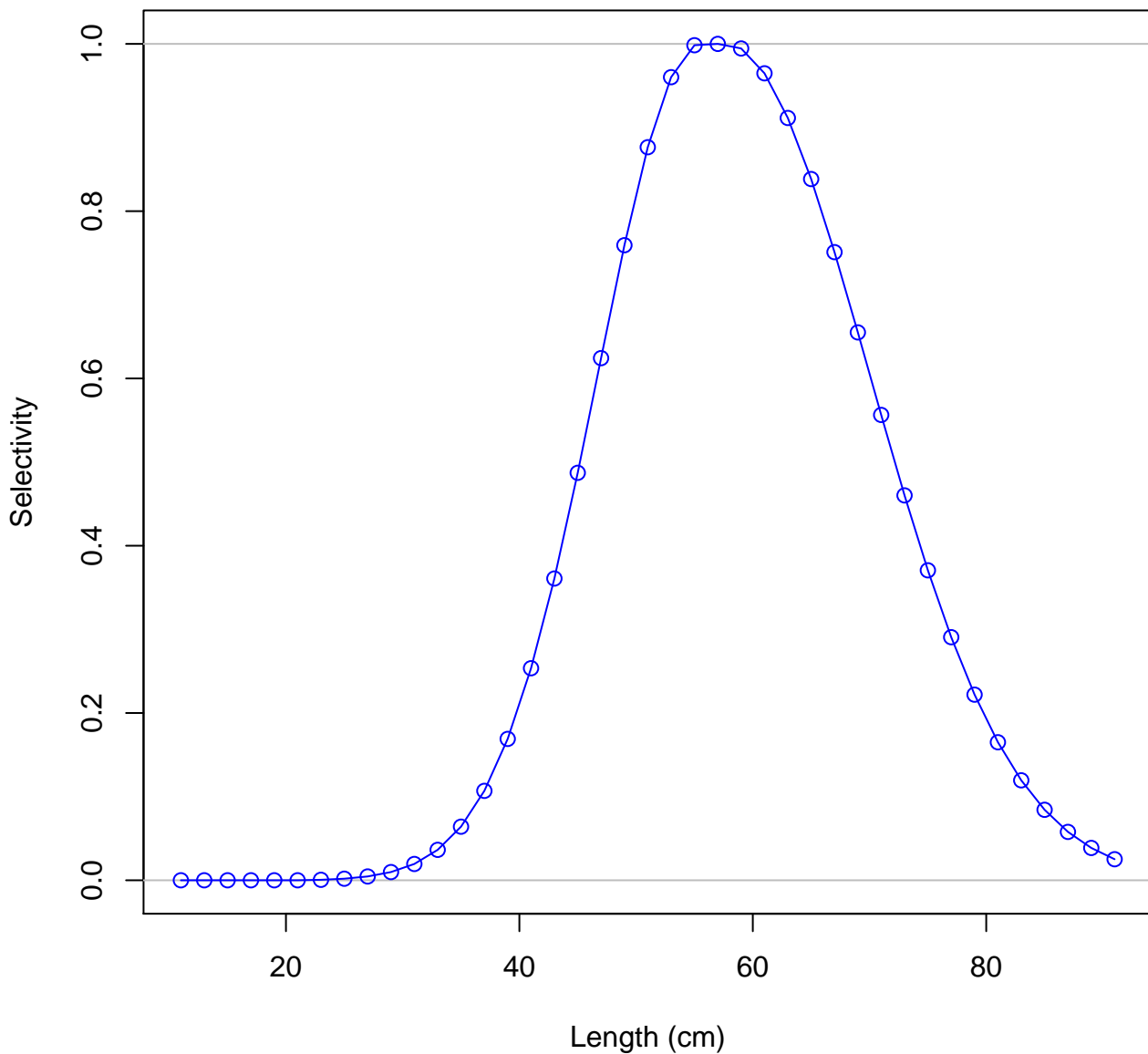
# Derived age-based from length-based selectivity by fleet in 2010



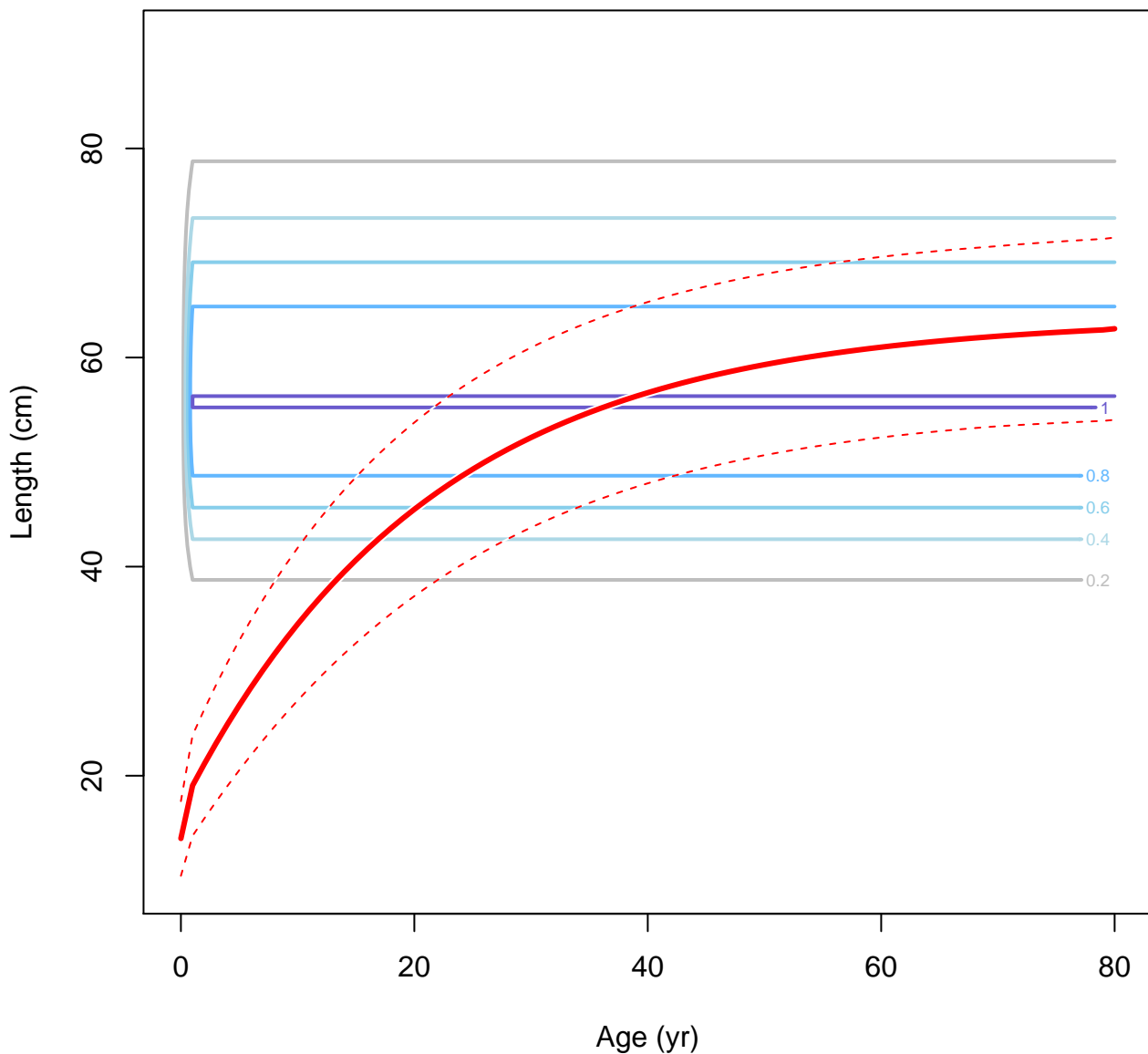
**Female ending year selectivity for fishery1**



**Male ending year selectivity for fishery1**

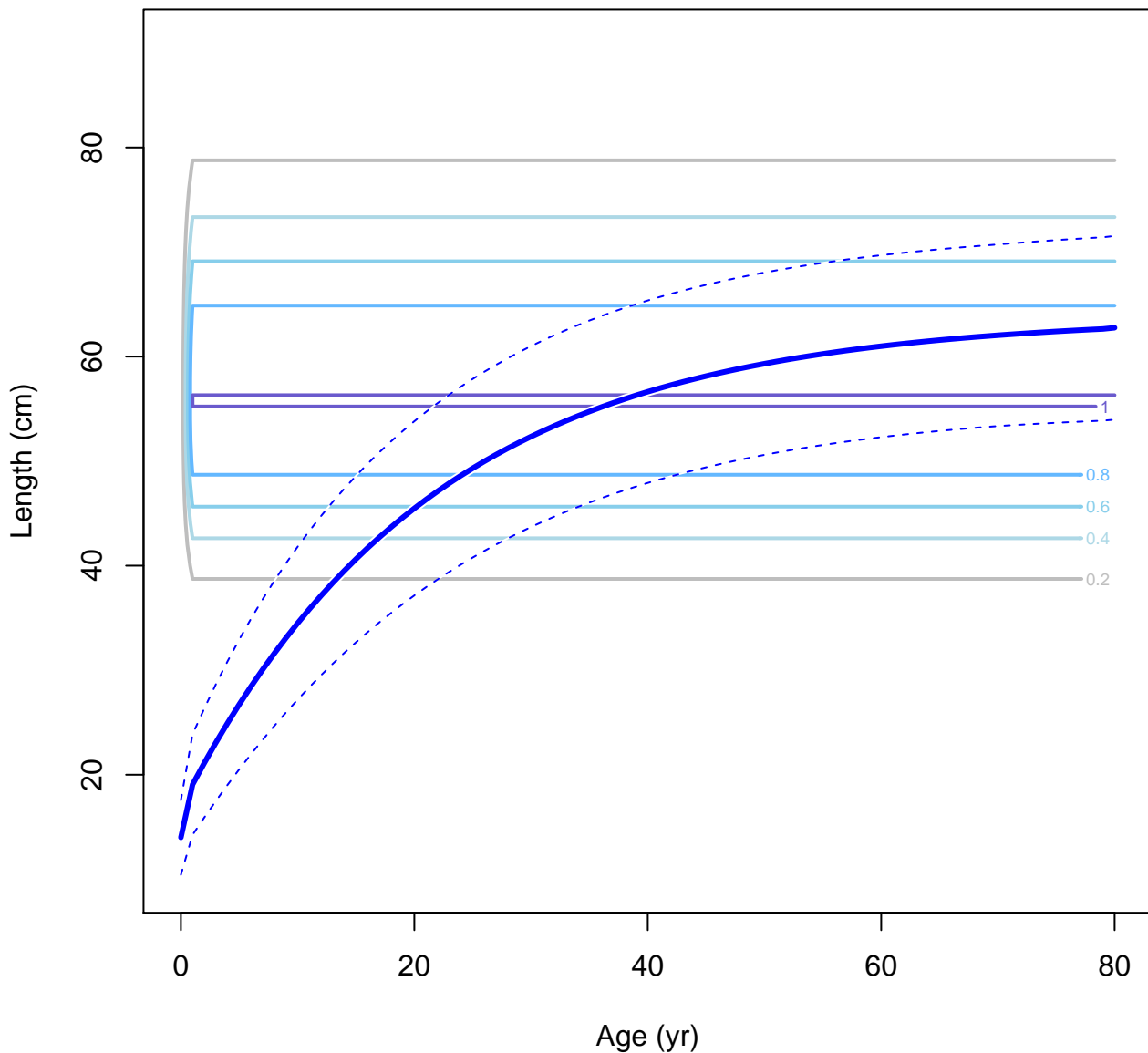


**Female ending year selectivity and growth for fishery1**

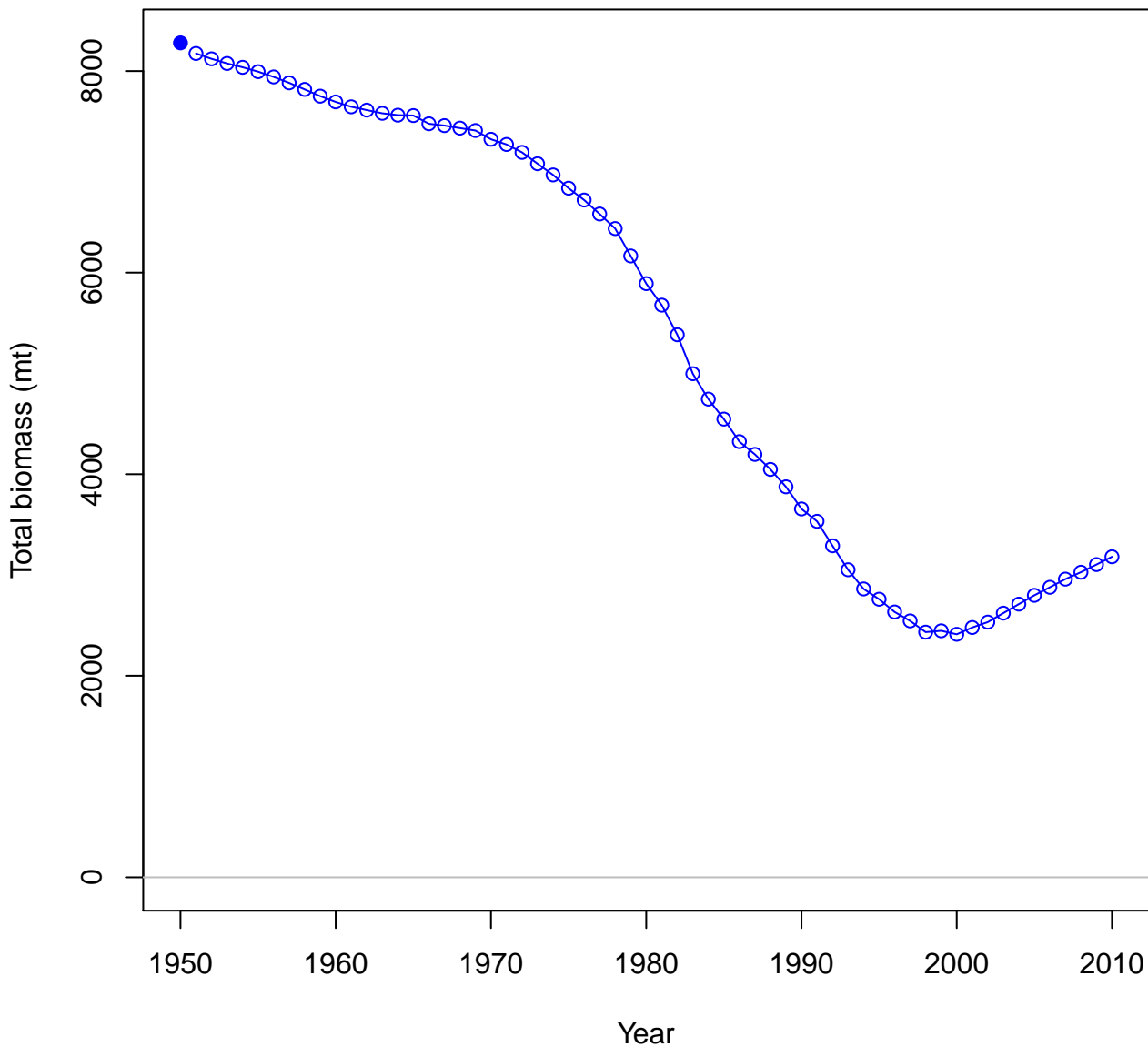




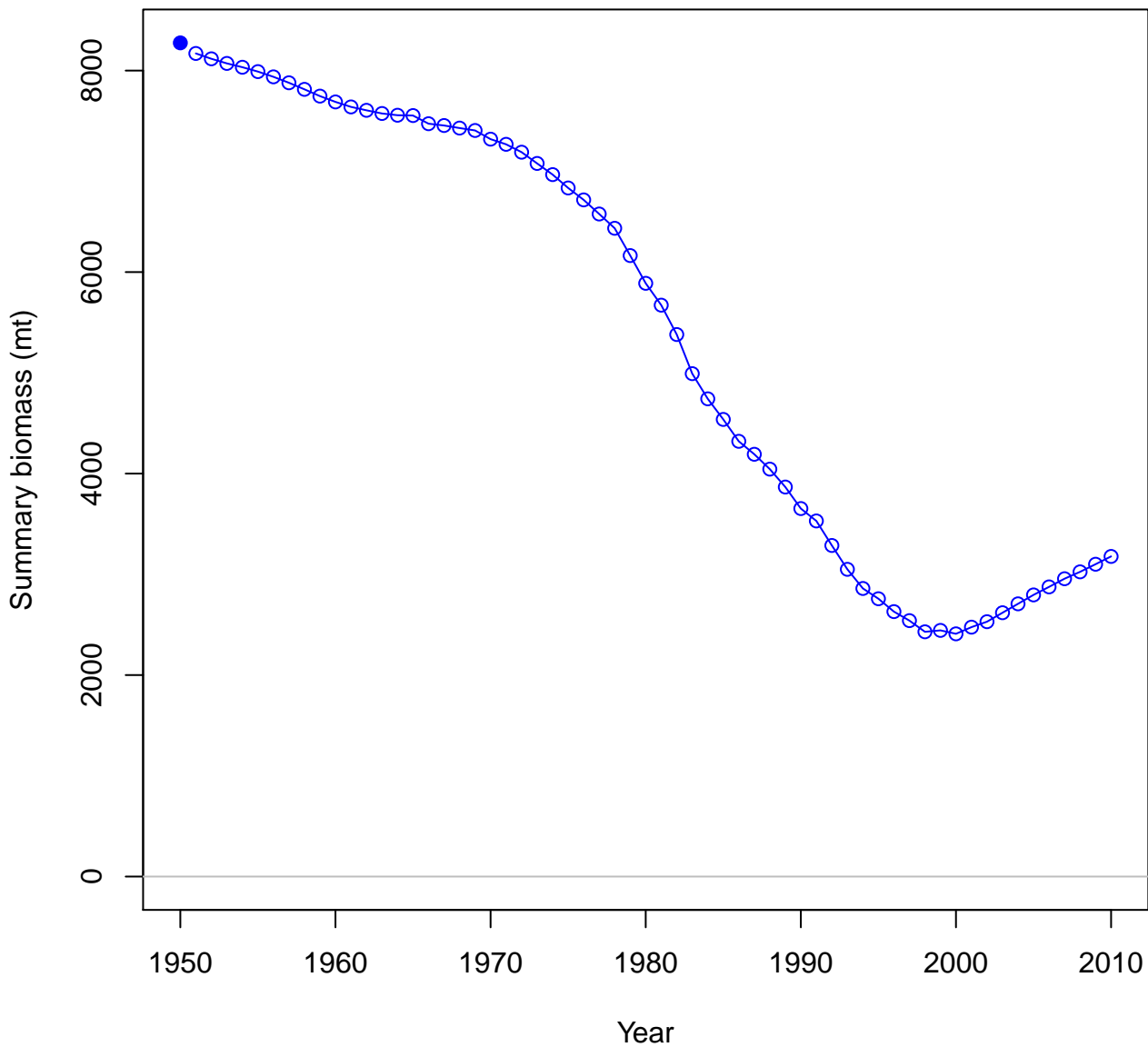
# Male ending year selectivity and growth for fishery1



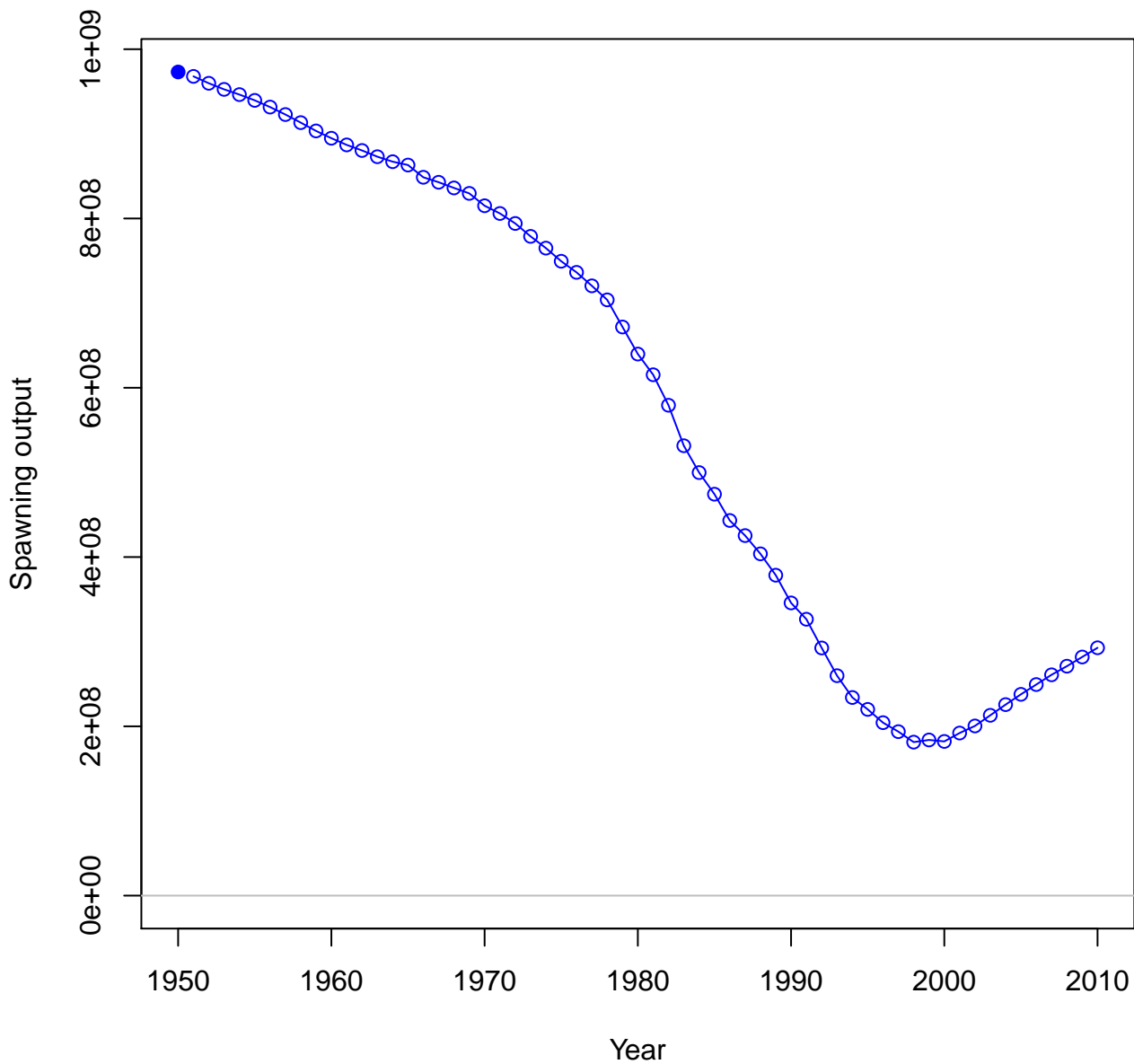
**Total biomass (mt)**



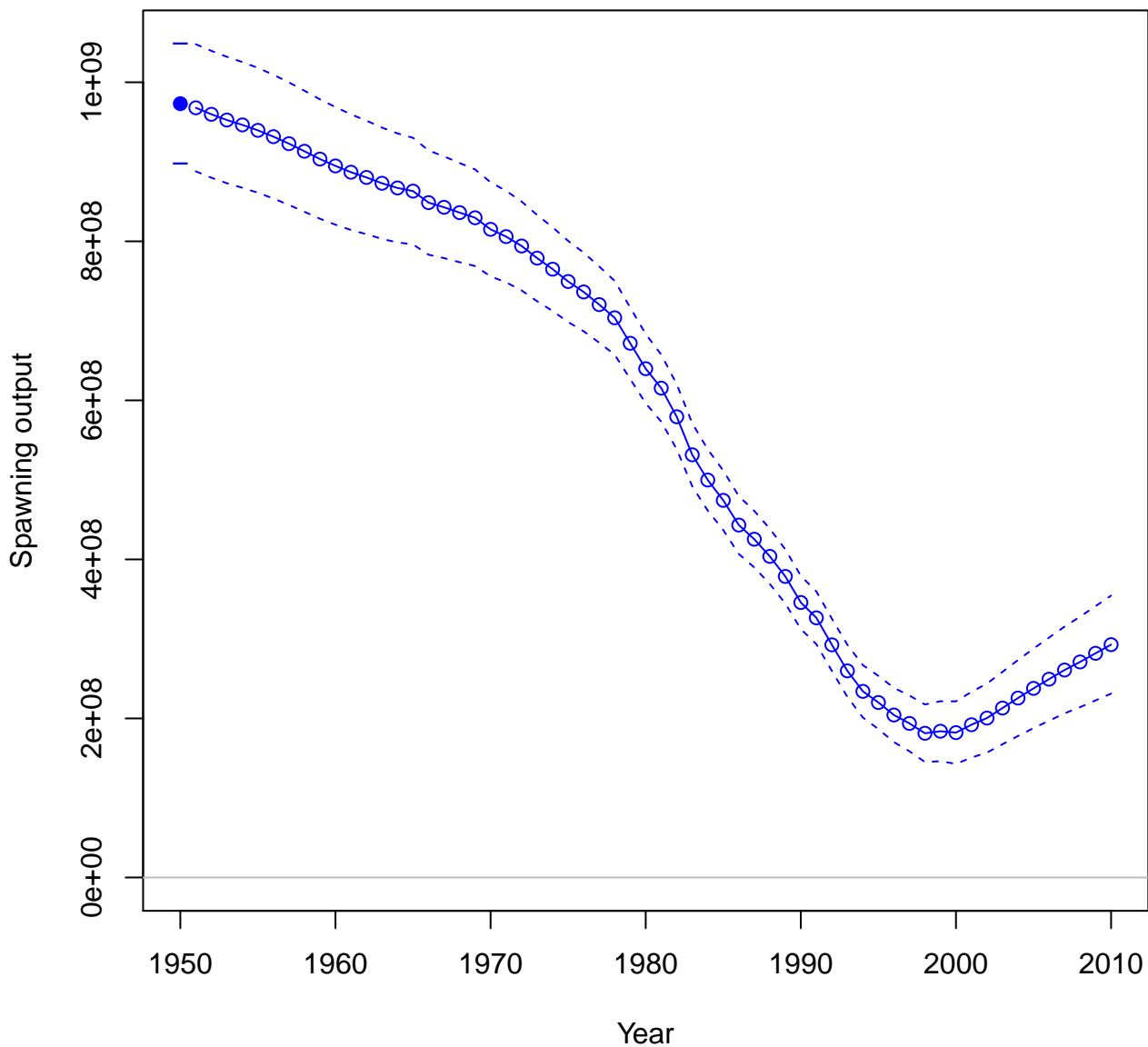
**Summary biomass (mt)**



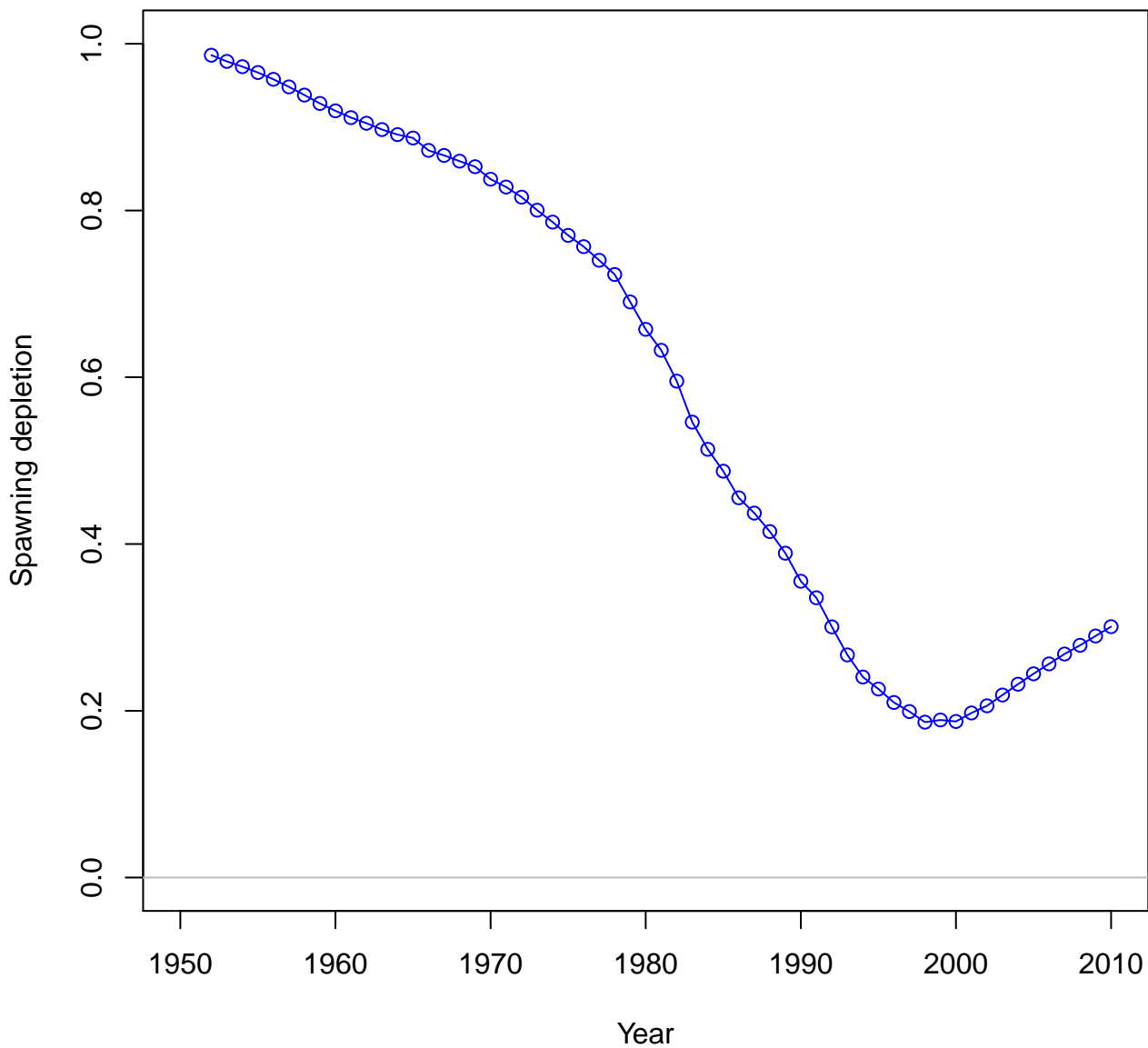
## Spawning output



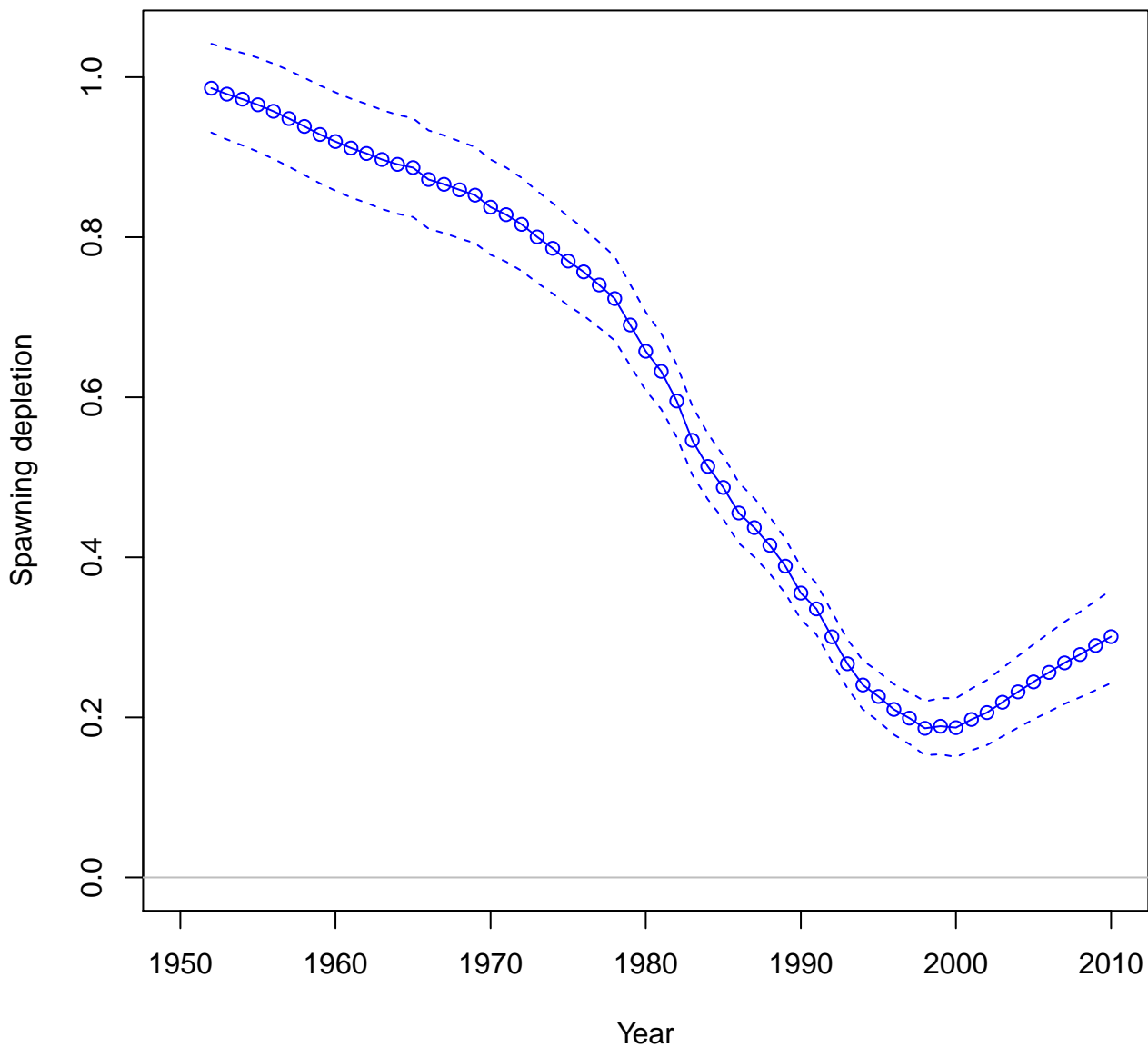
# Spawning output with ~95% asymptotic intervals



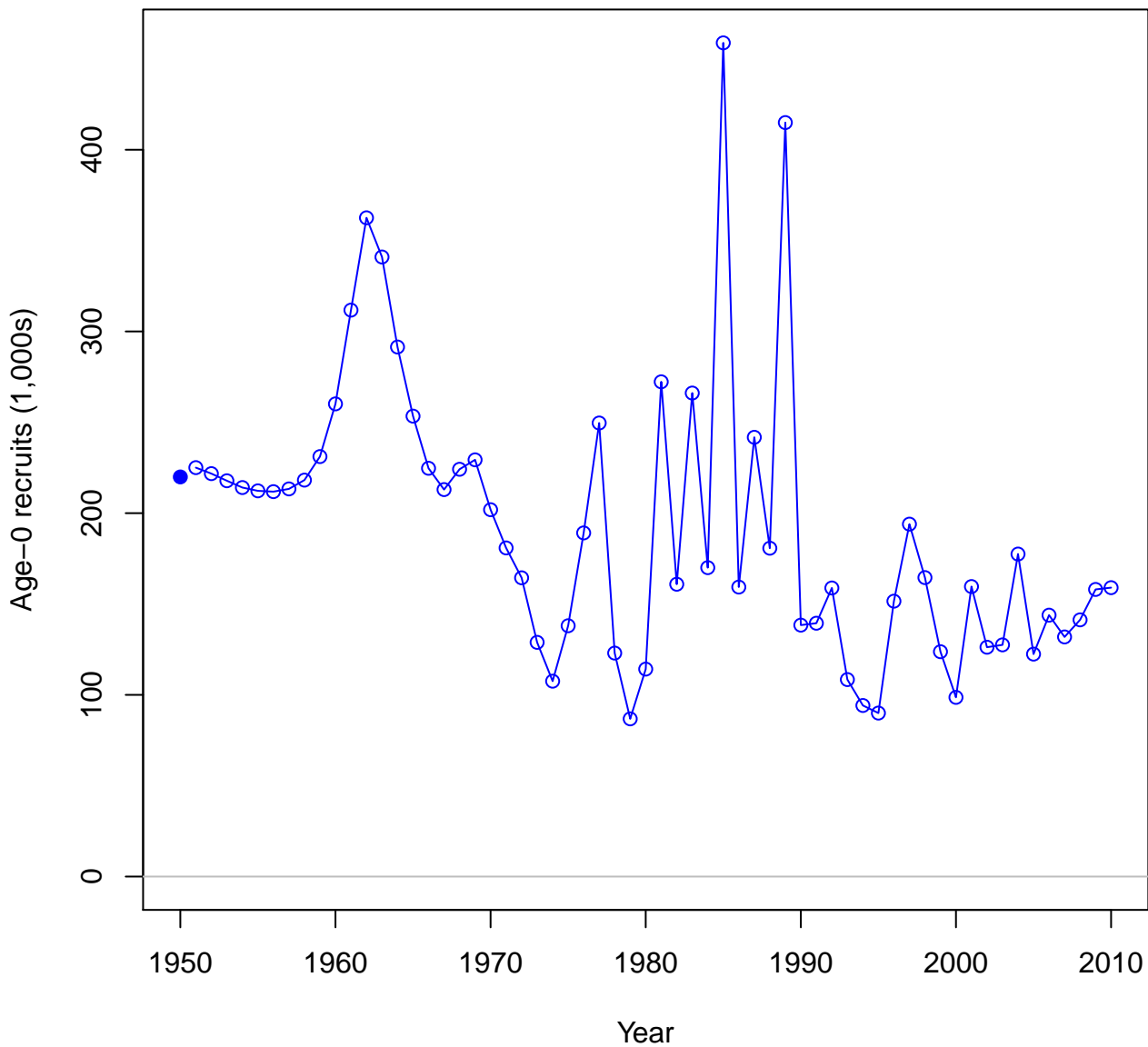
## Spawning depletion



# Spawning depletion with ~95% asymptotic intervals

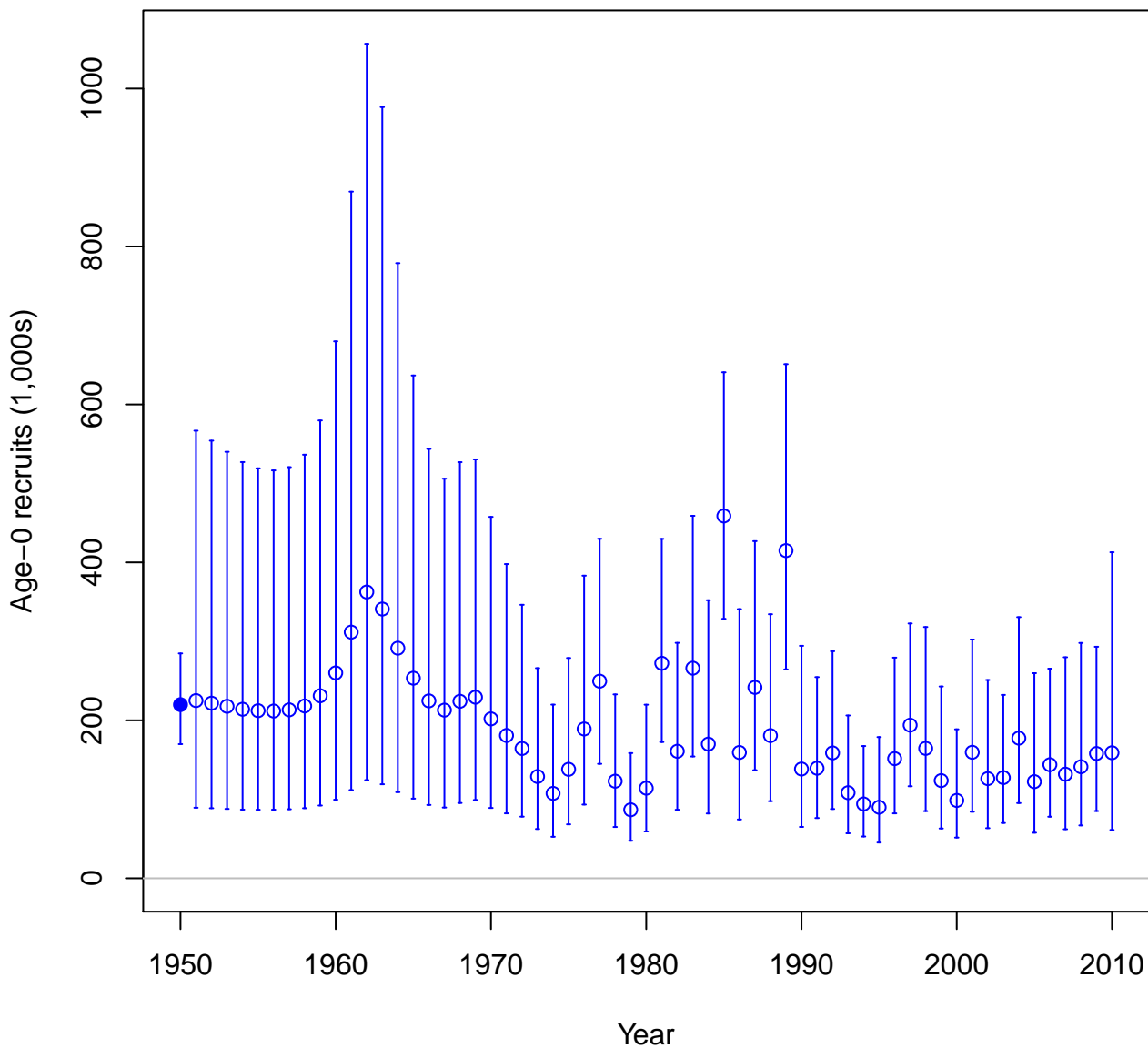


# Age-0 recruits (1,000s)

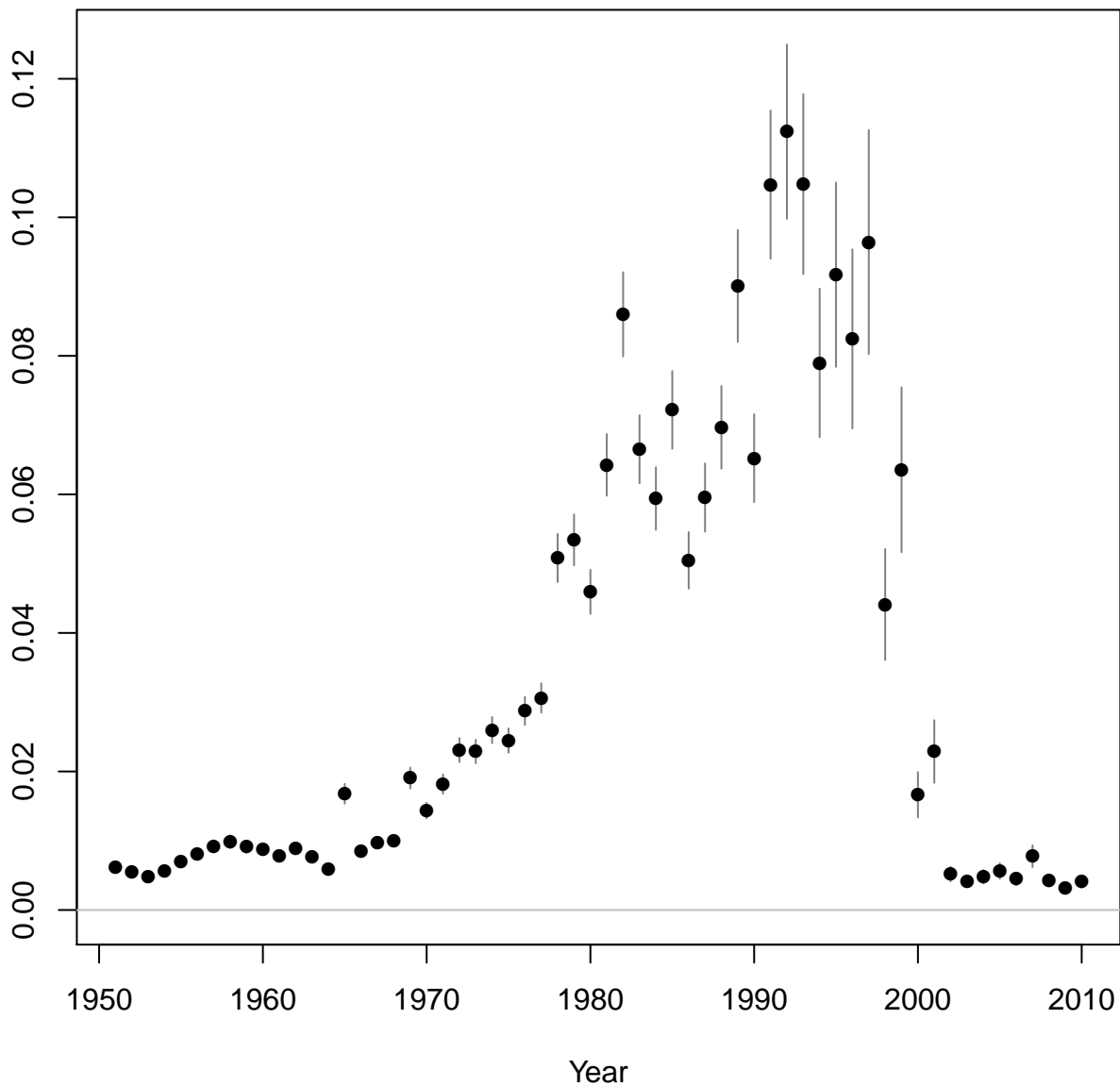


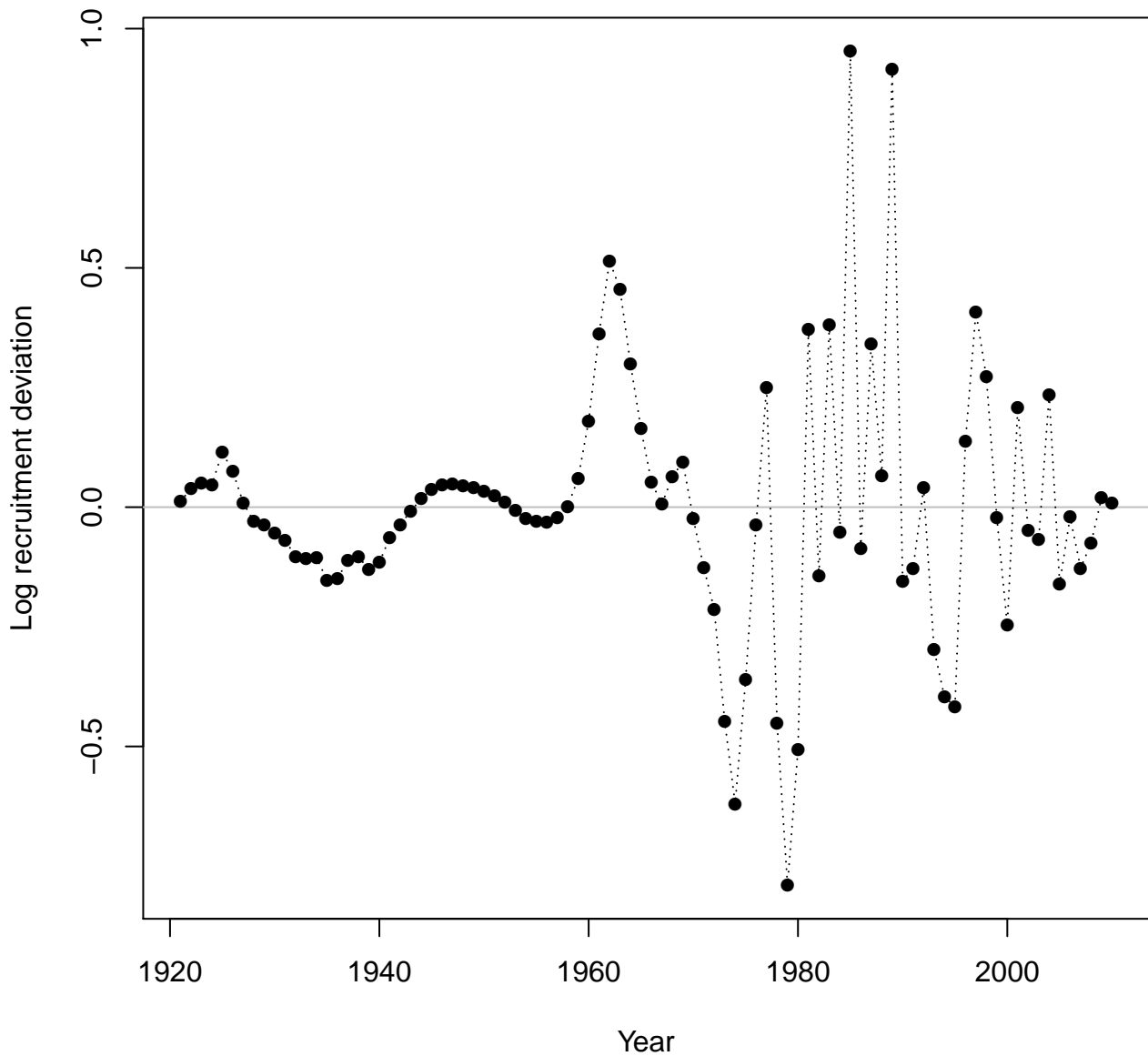


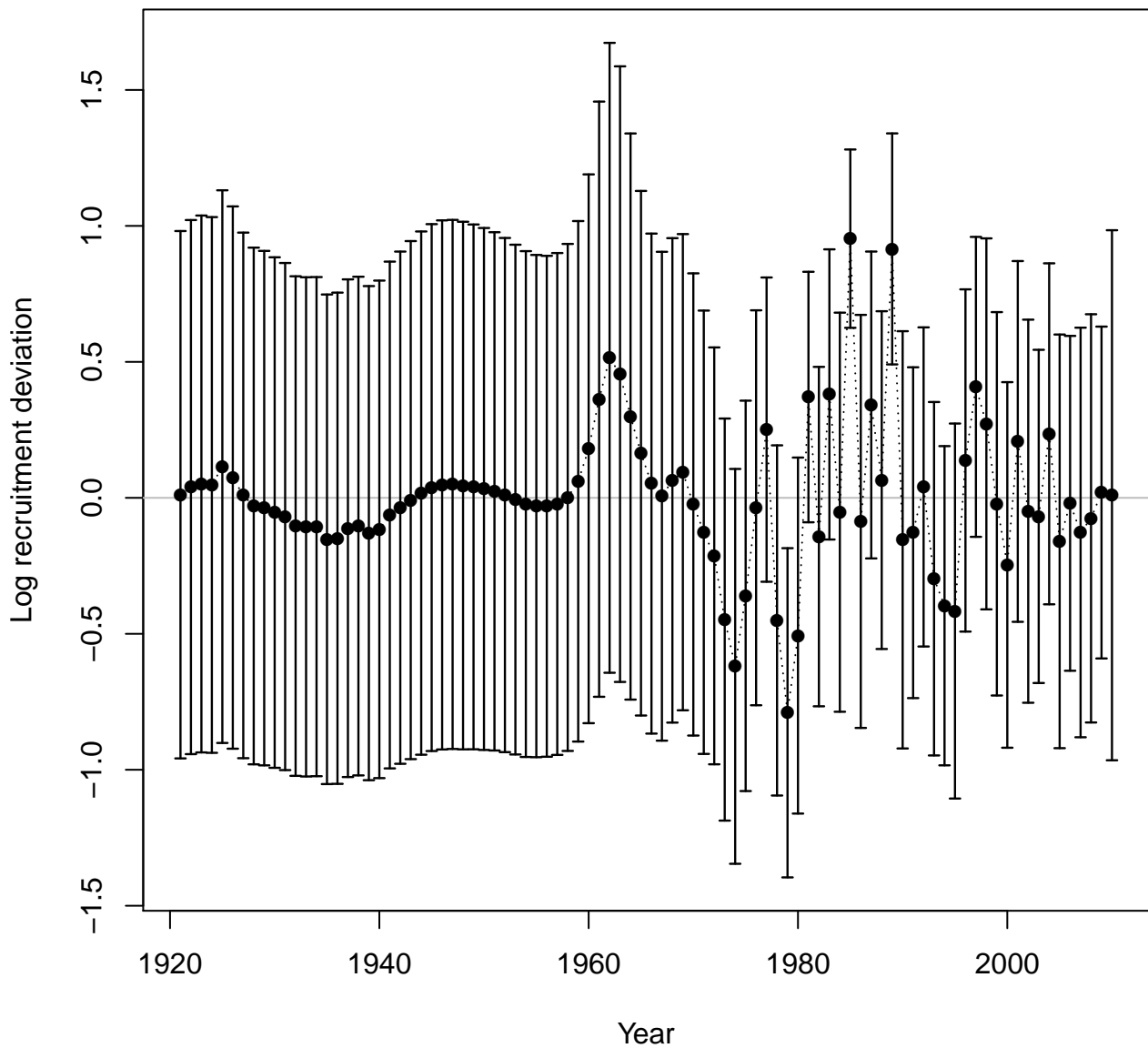
**Age-0 recruits (1,000s) with ~95% asymptotic intervals**



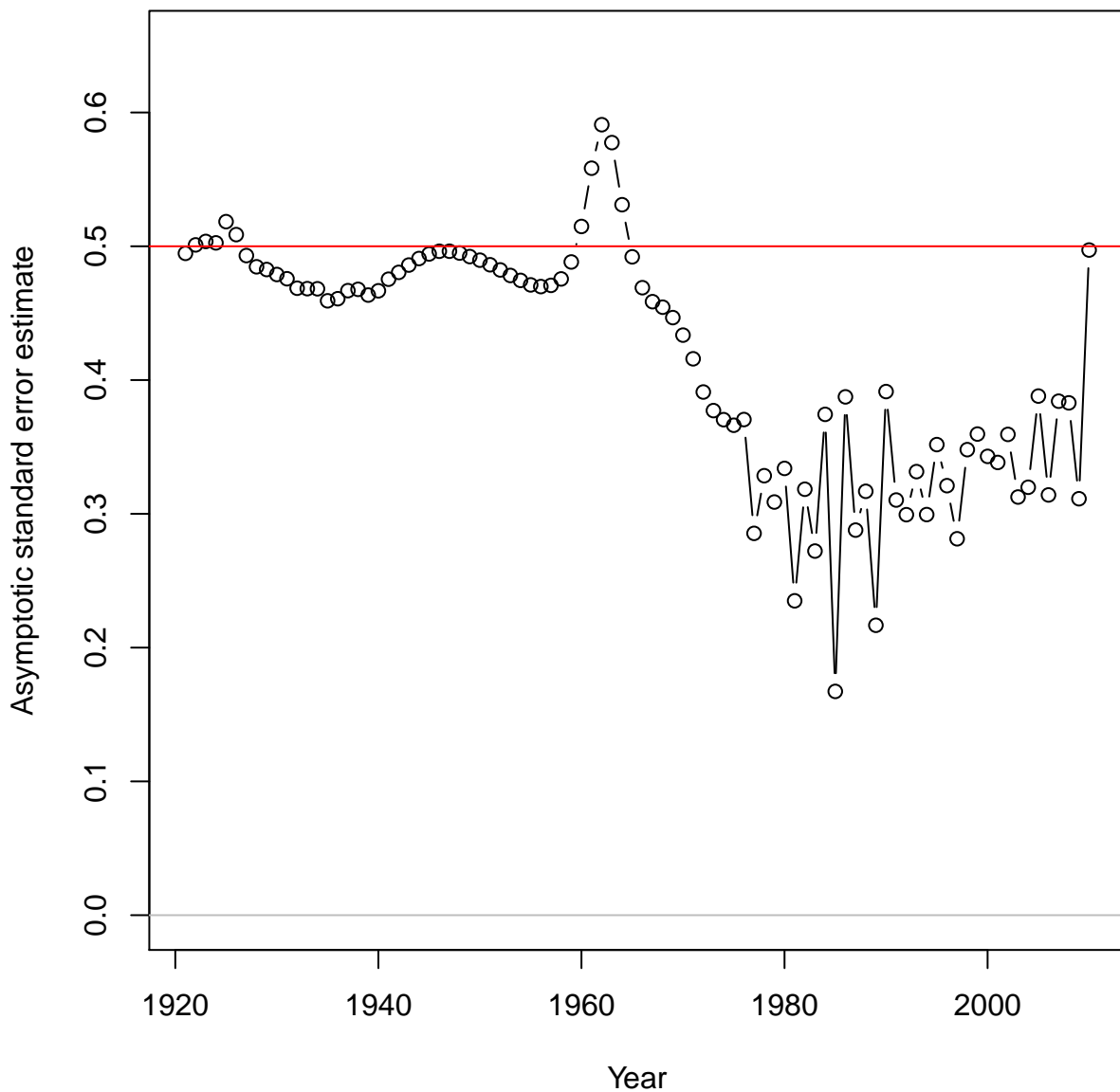
Summary Fishing Mortality

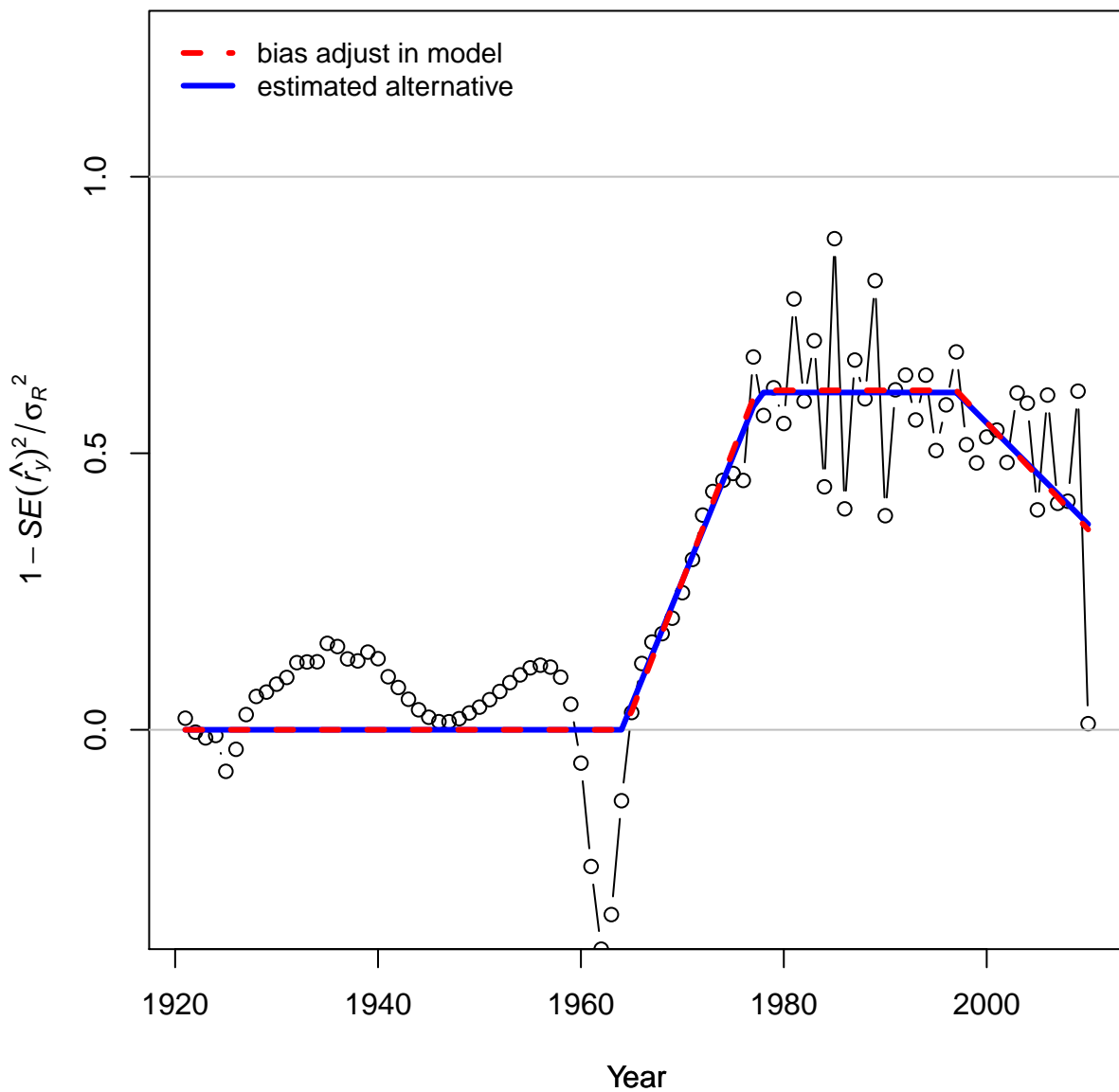


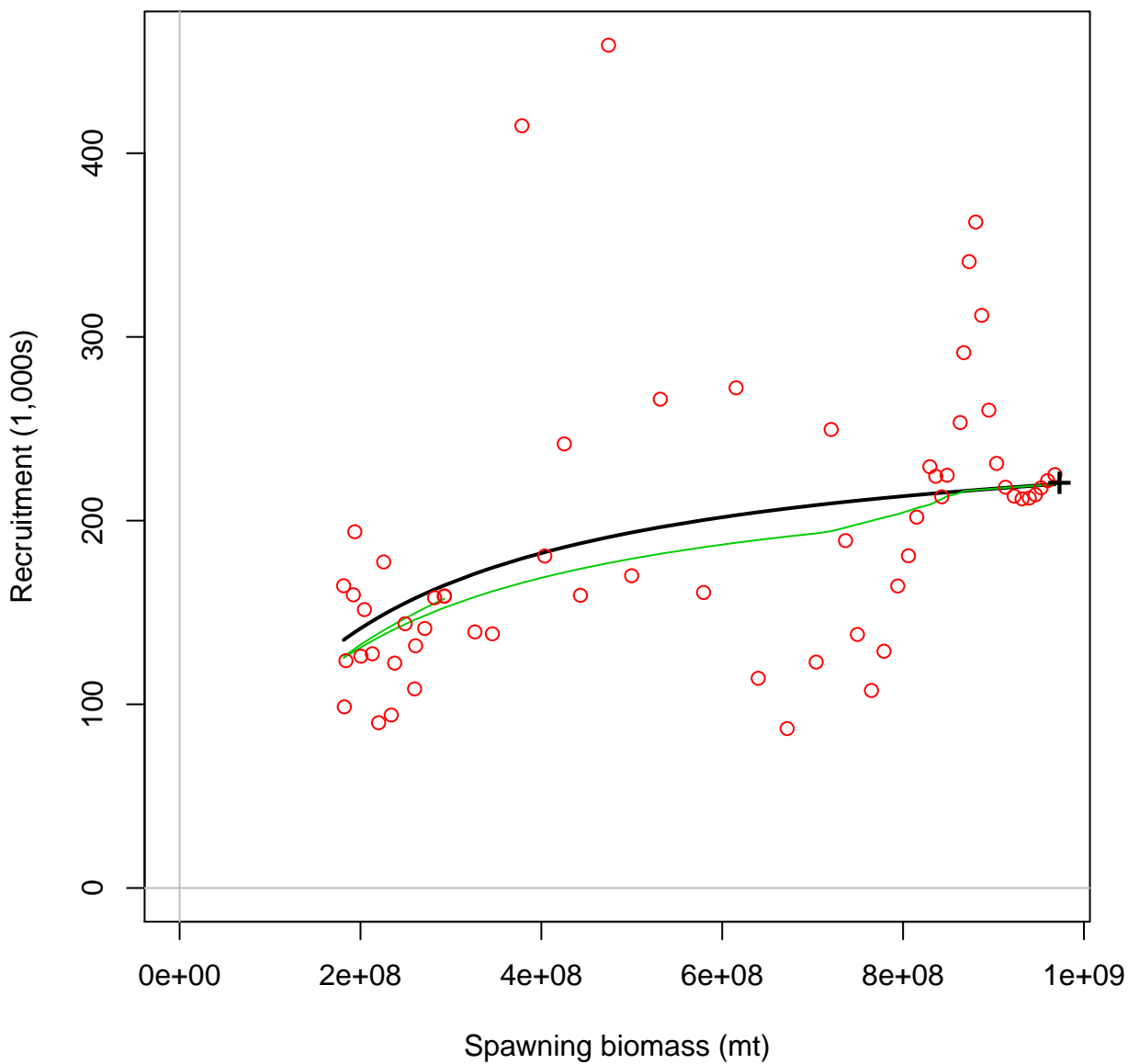


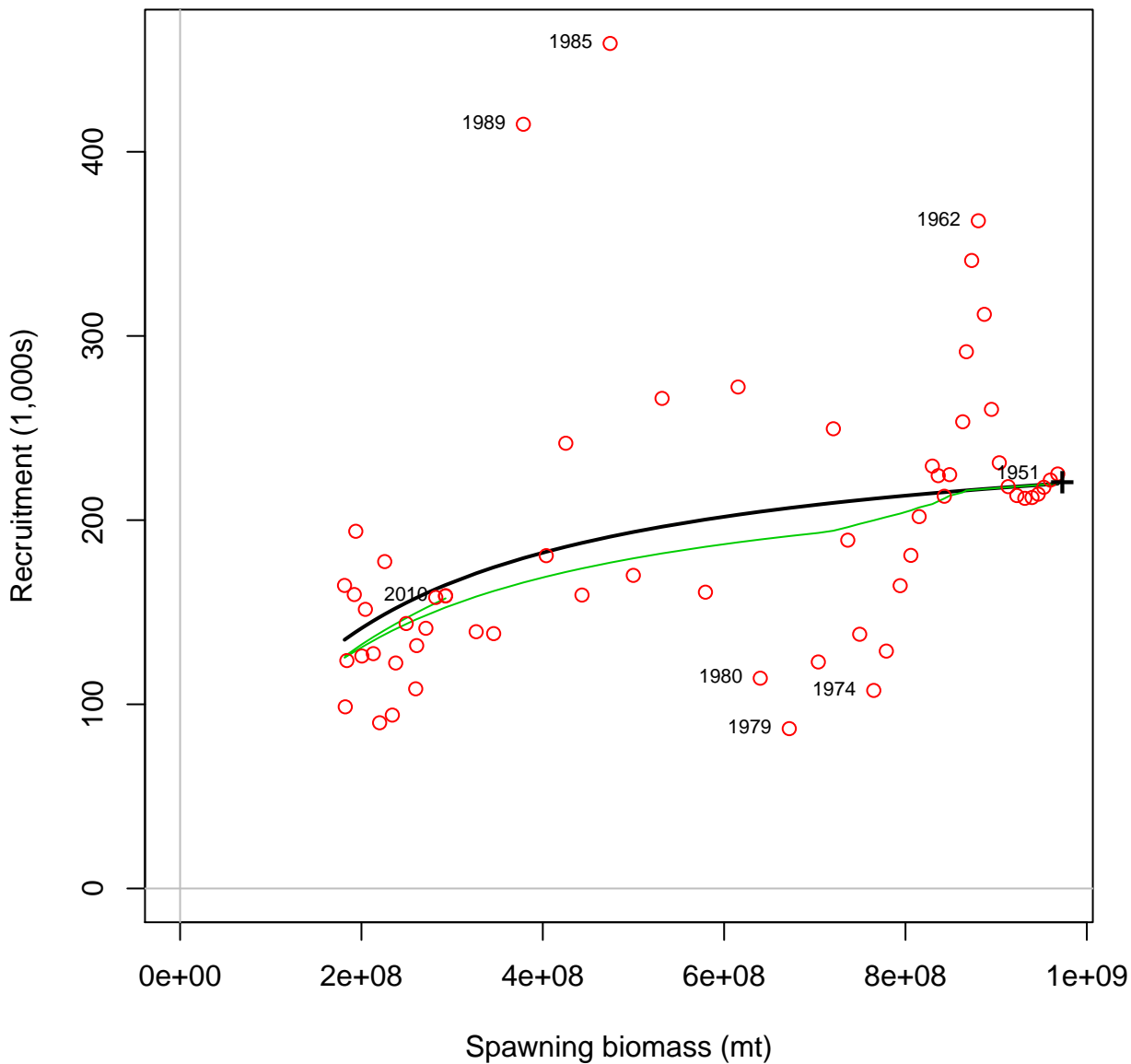


# Recruitment deviation variance

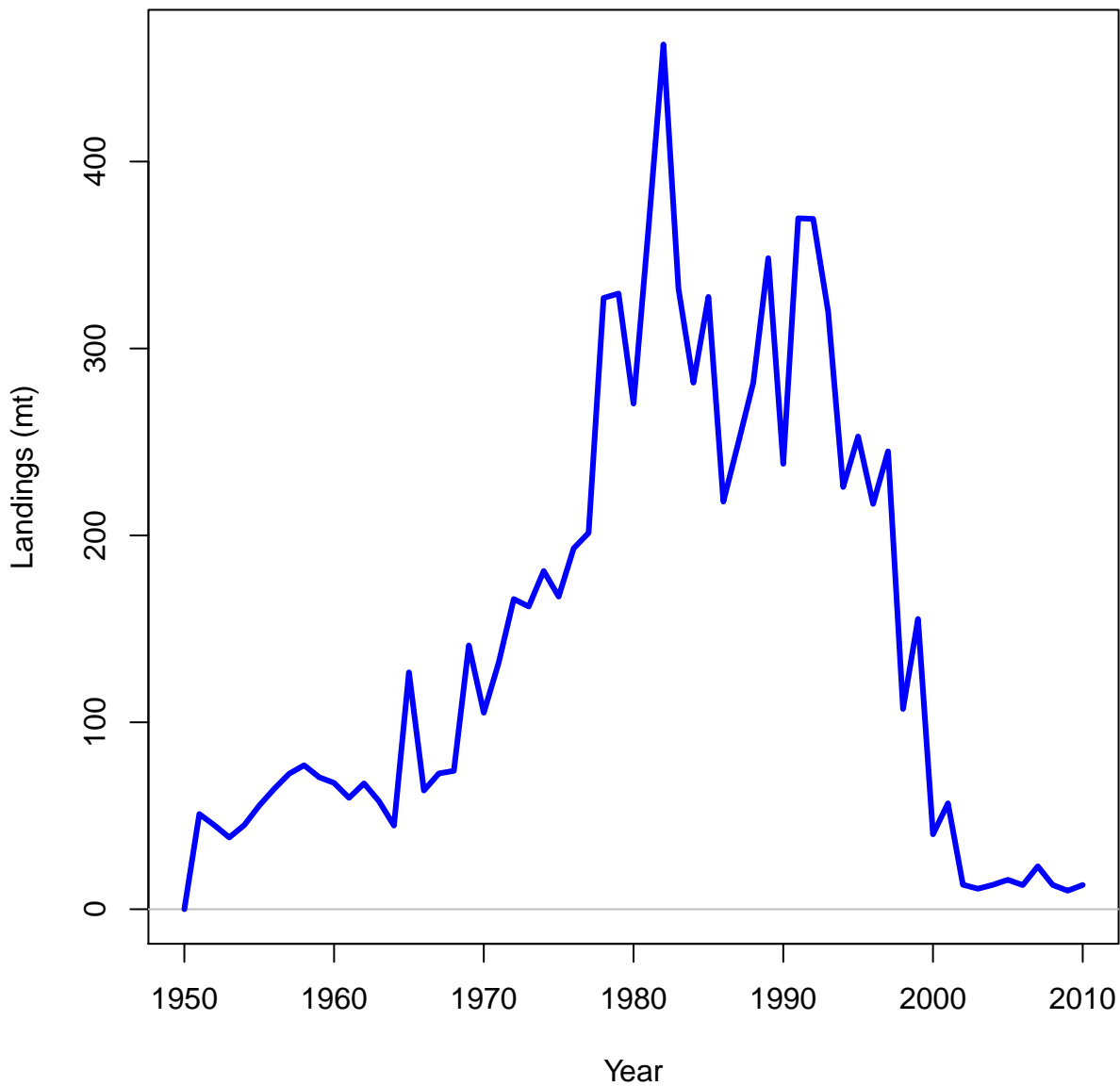


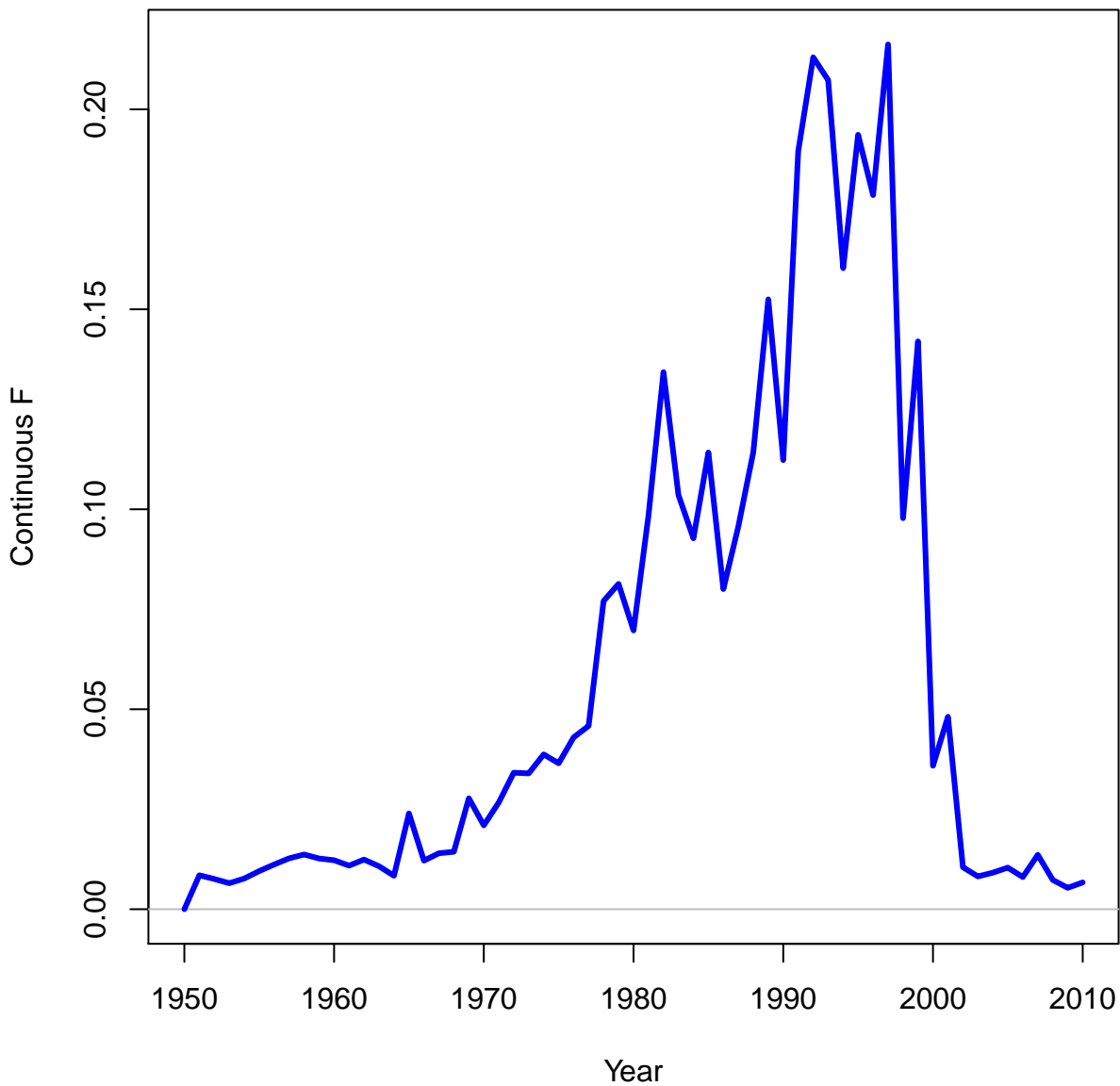


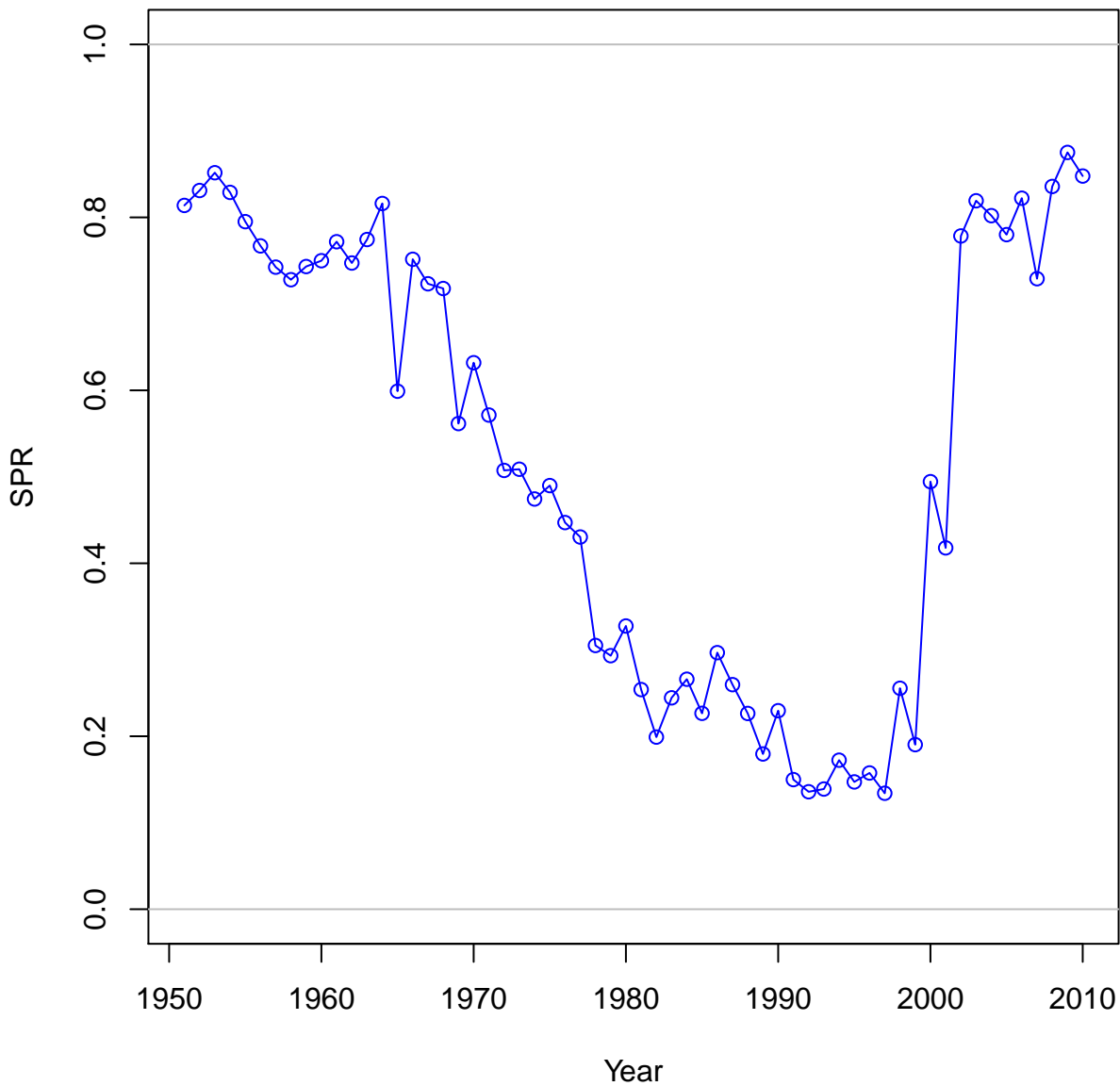


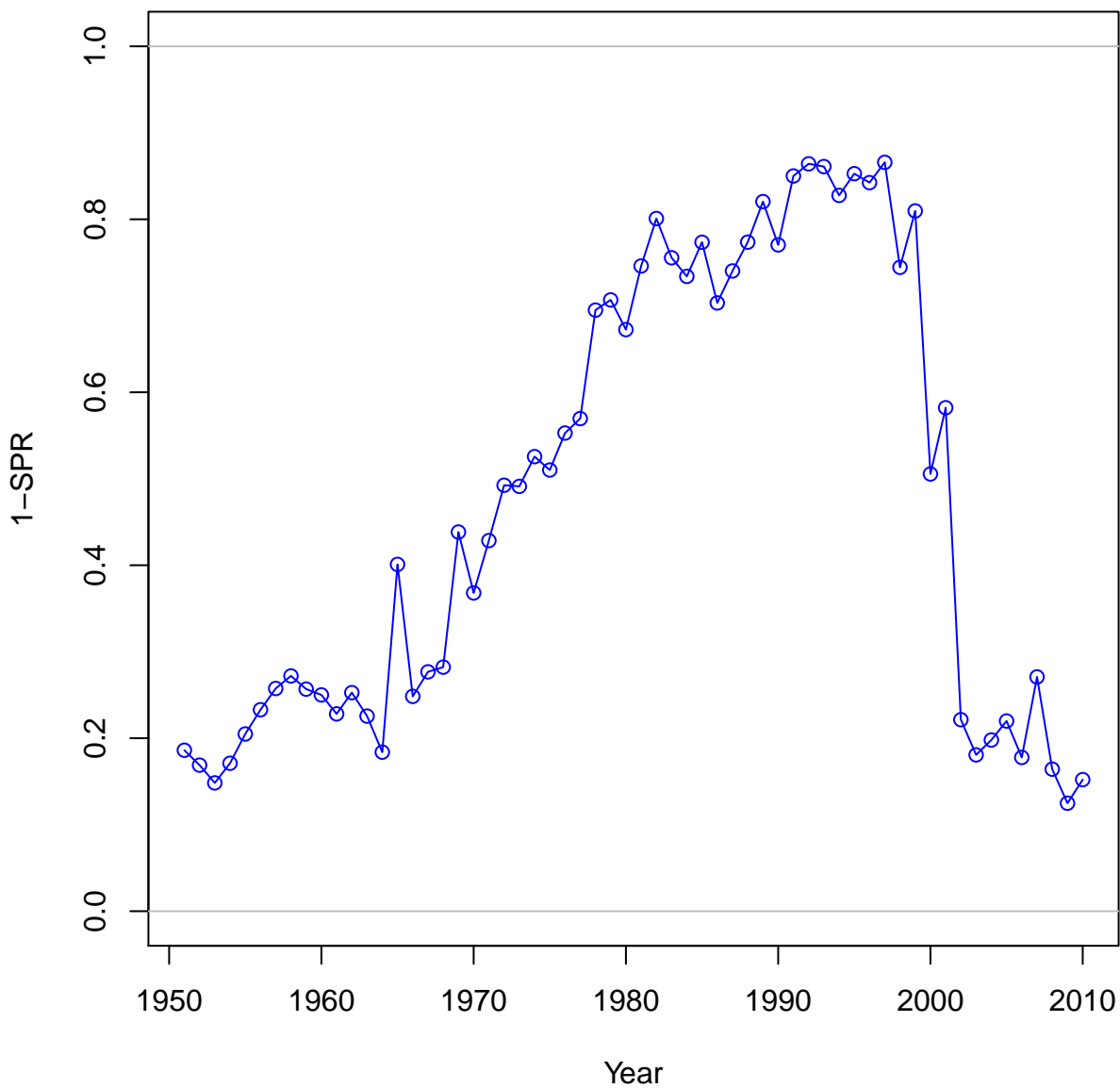




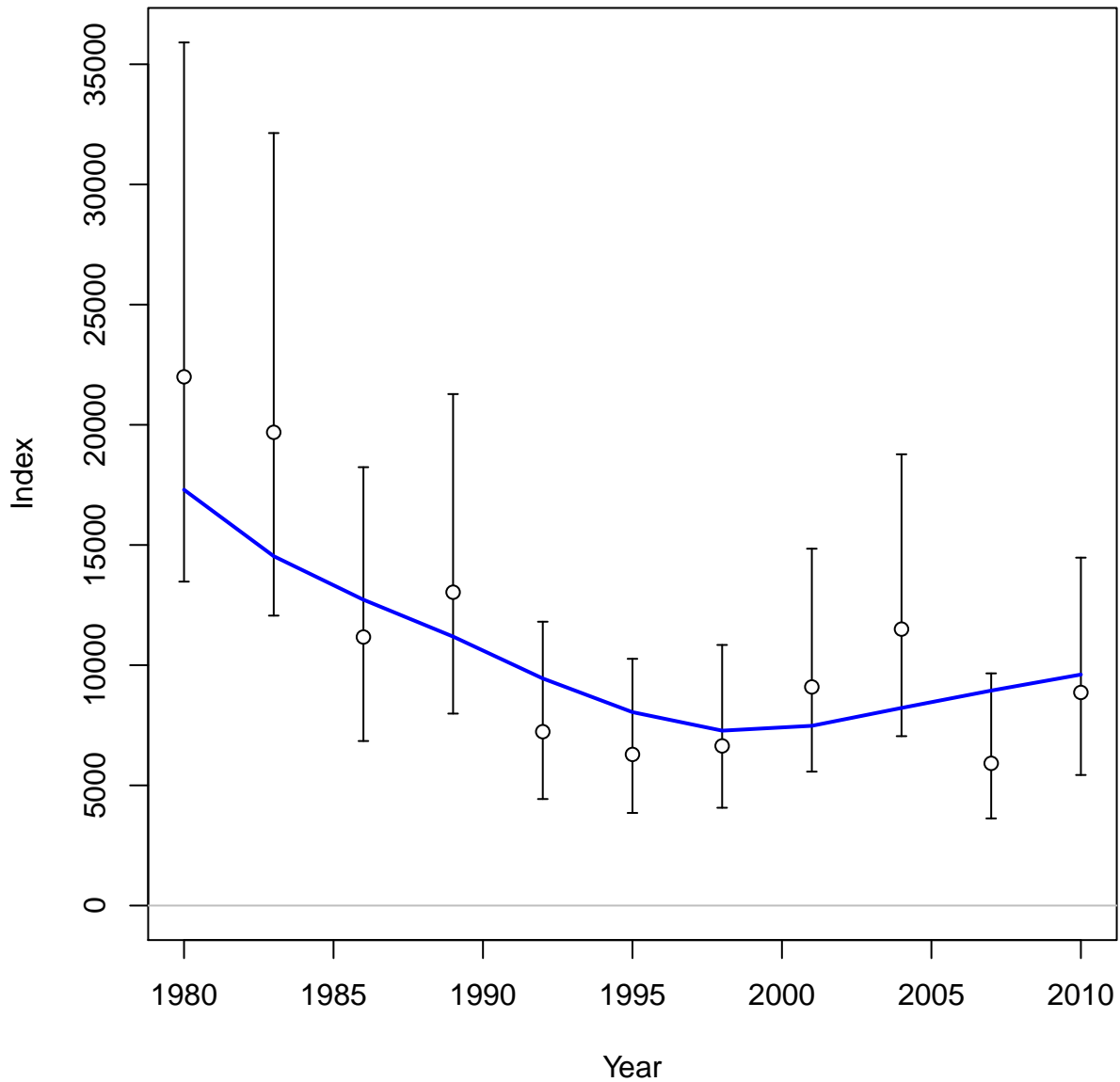




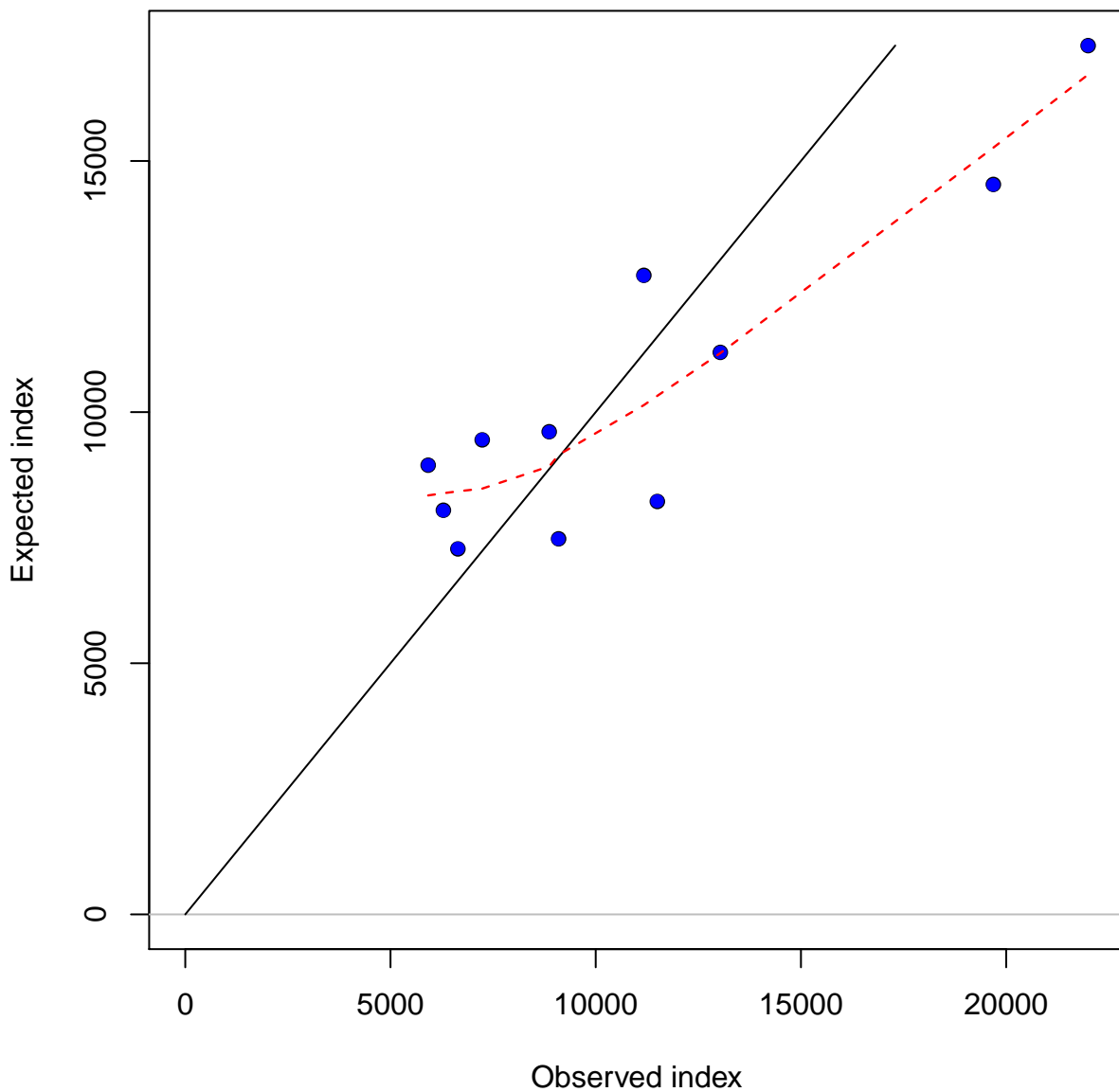




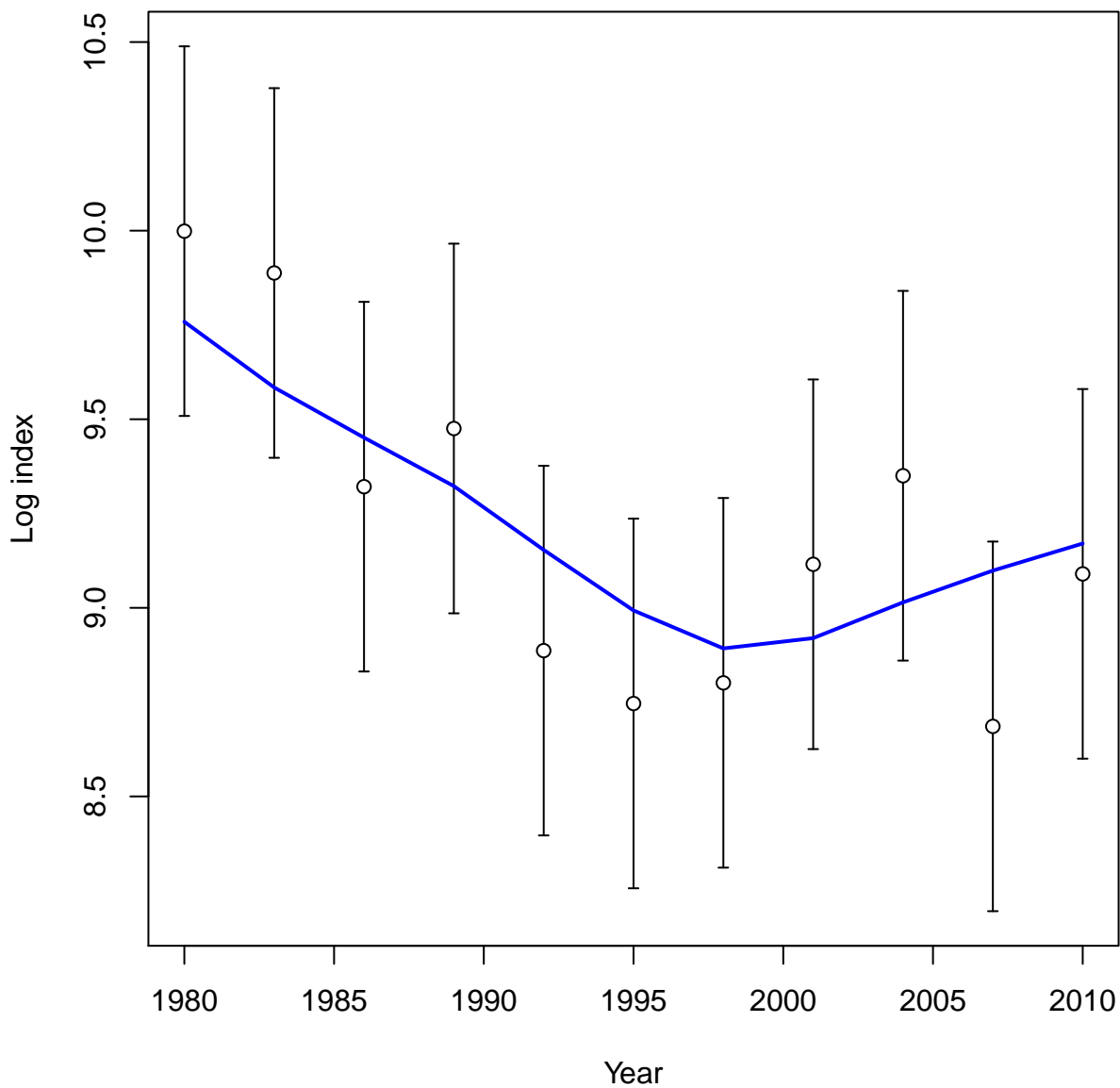
Index survey1



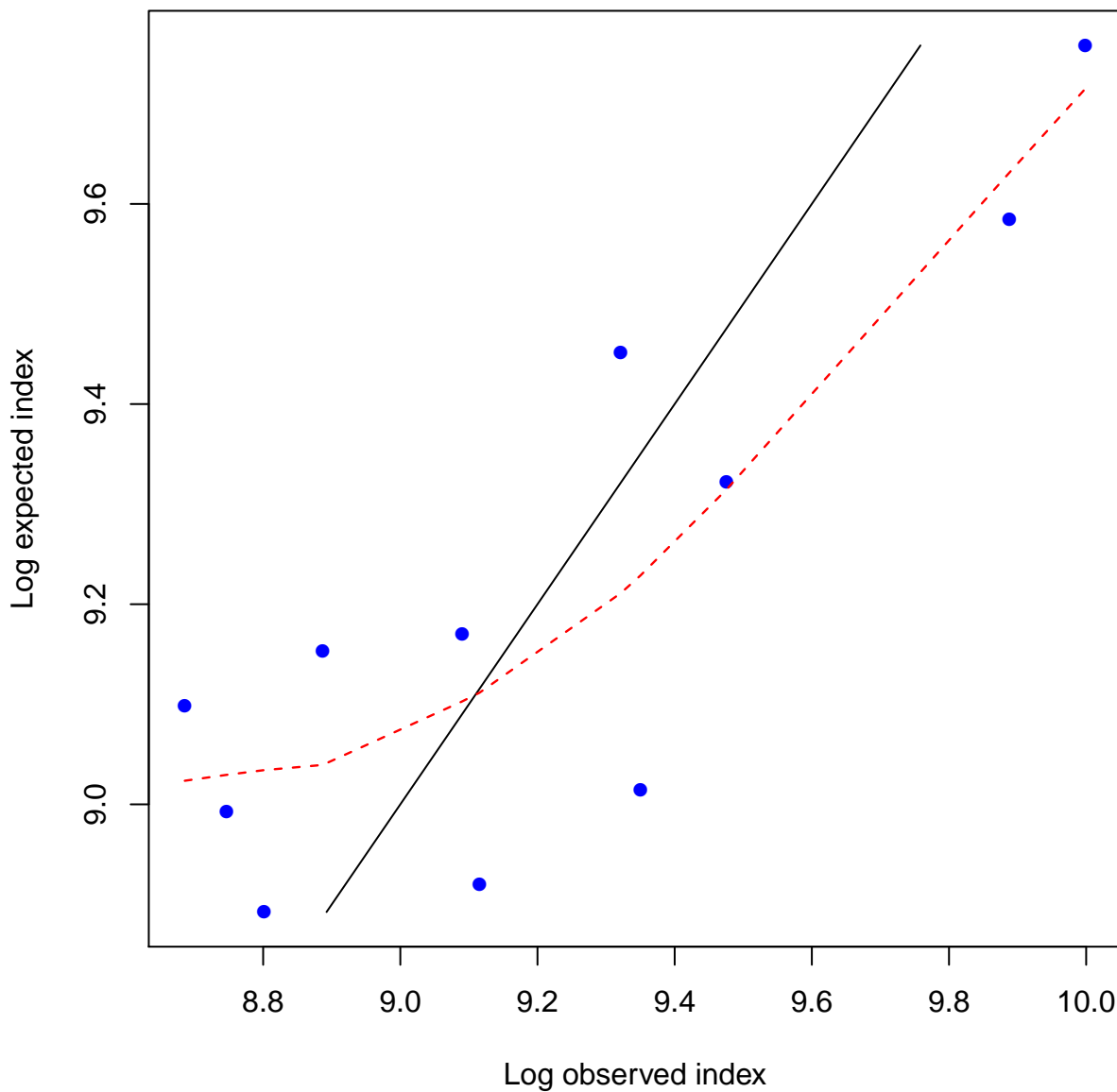
Index survey1



# Log index survey1

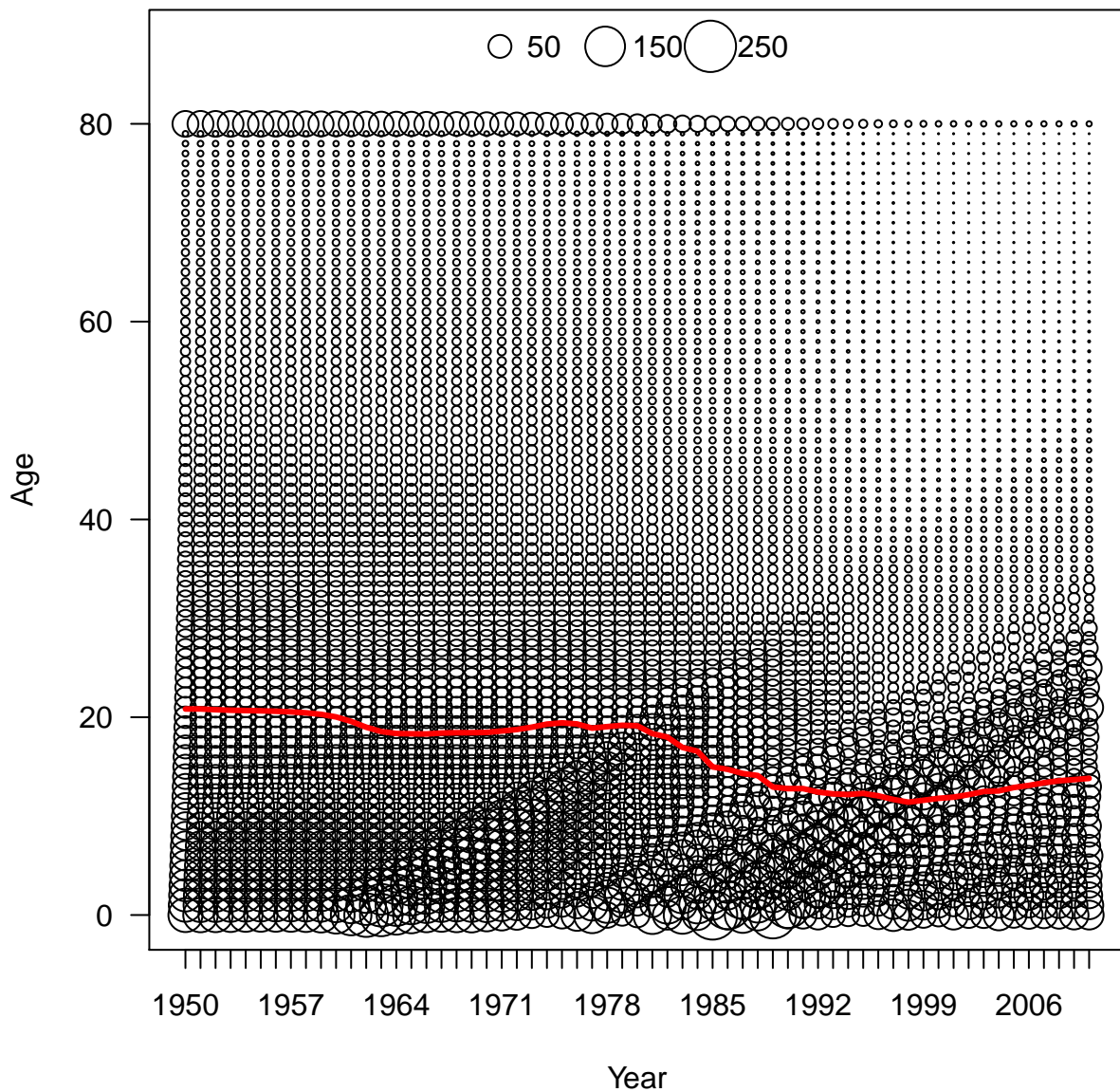


Log index survey1

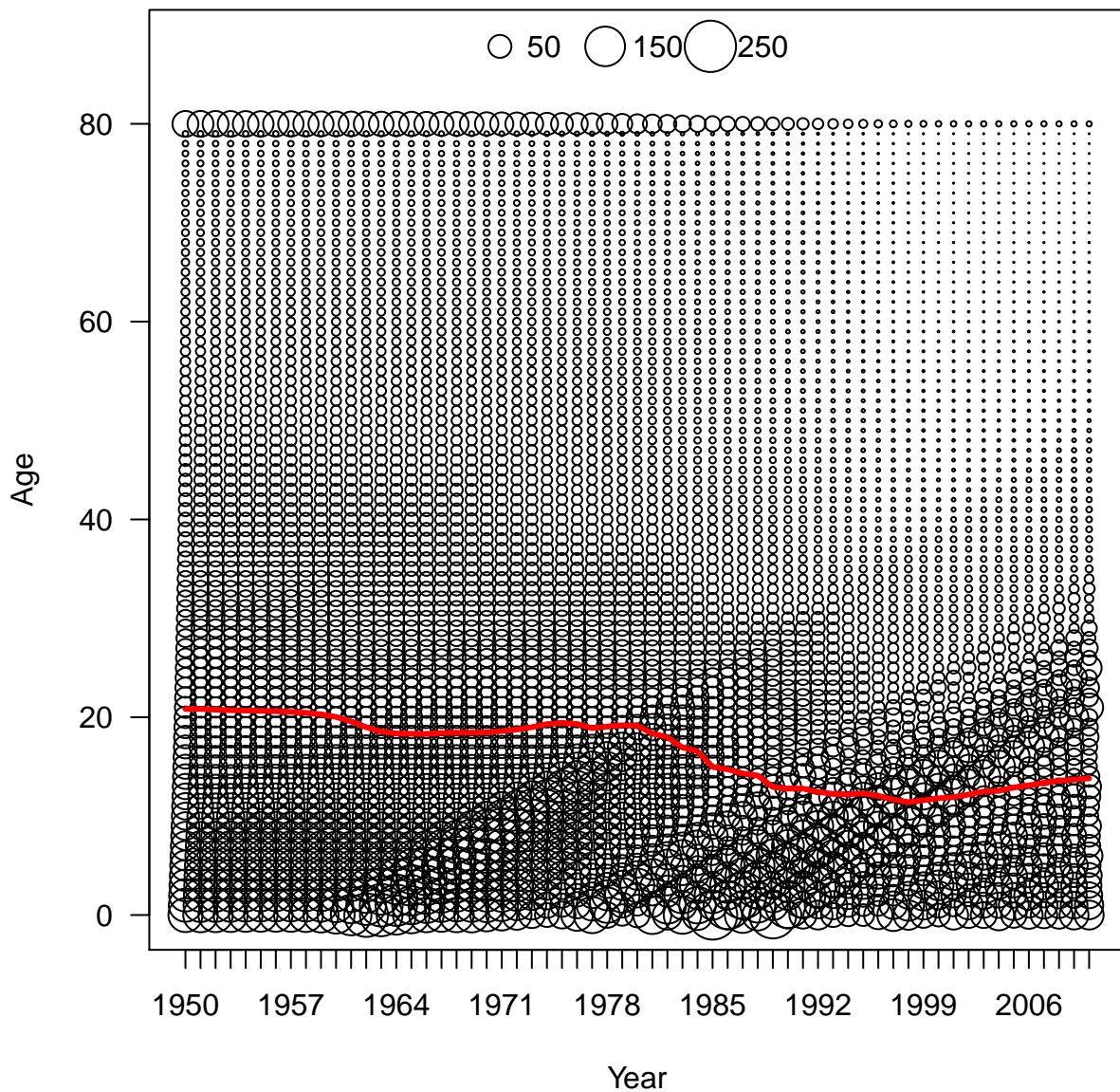




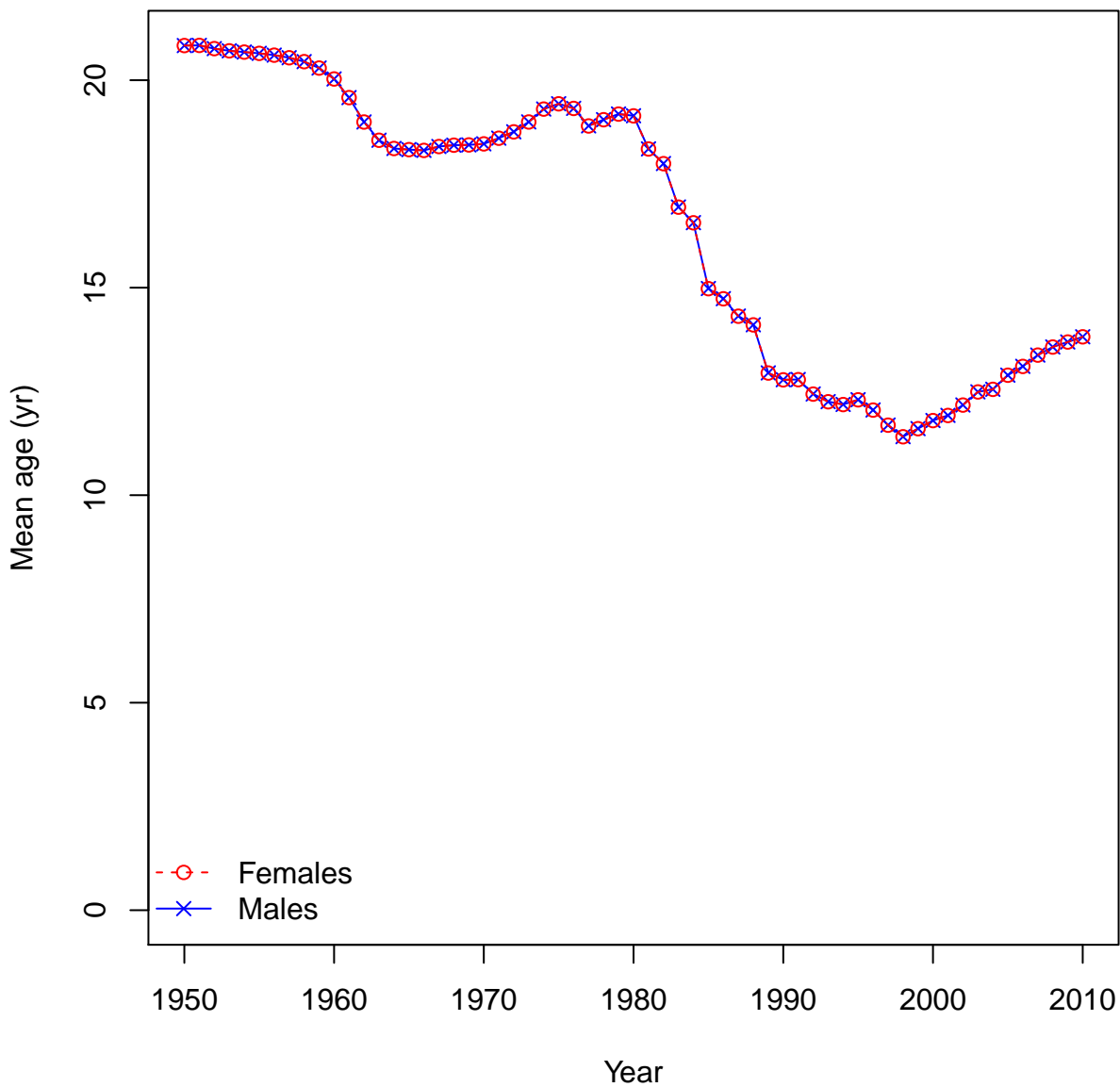
**Beginning of year expected numbers at age of females in thousands (max=229.419)**



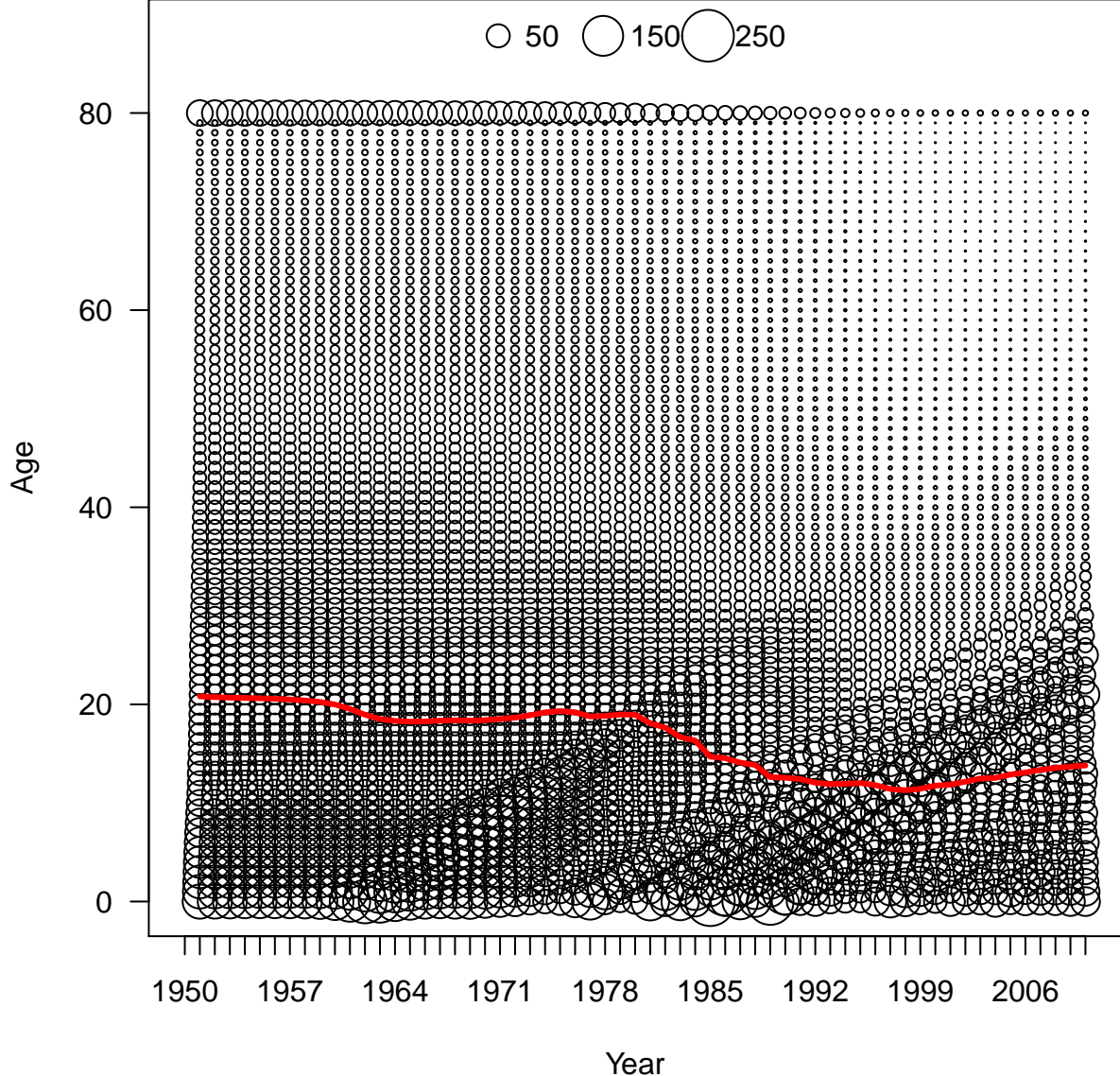
**Beginning of year expected numbers at age of males in thousands (max=229.419)**



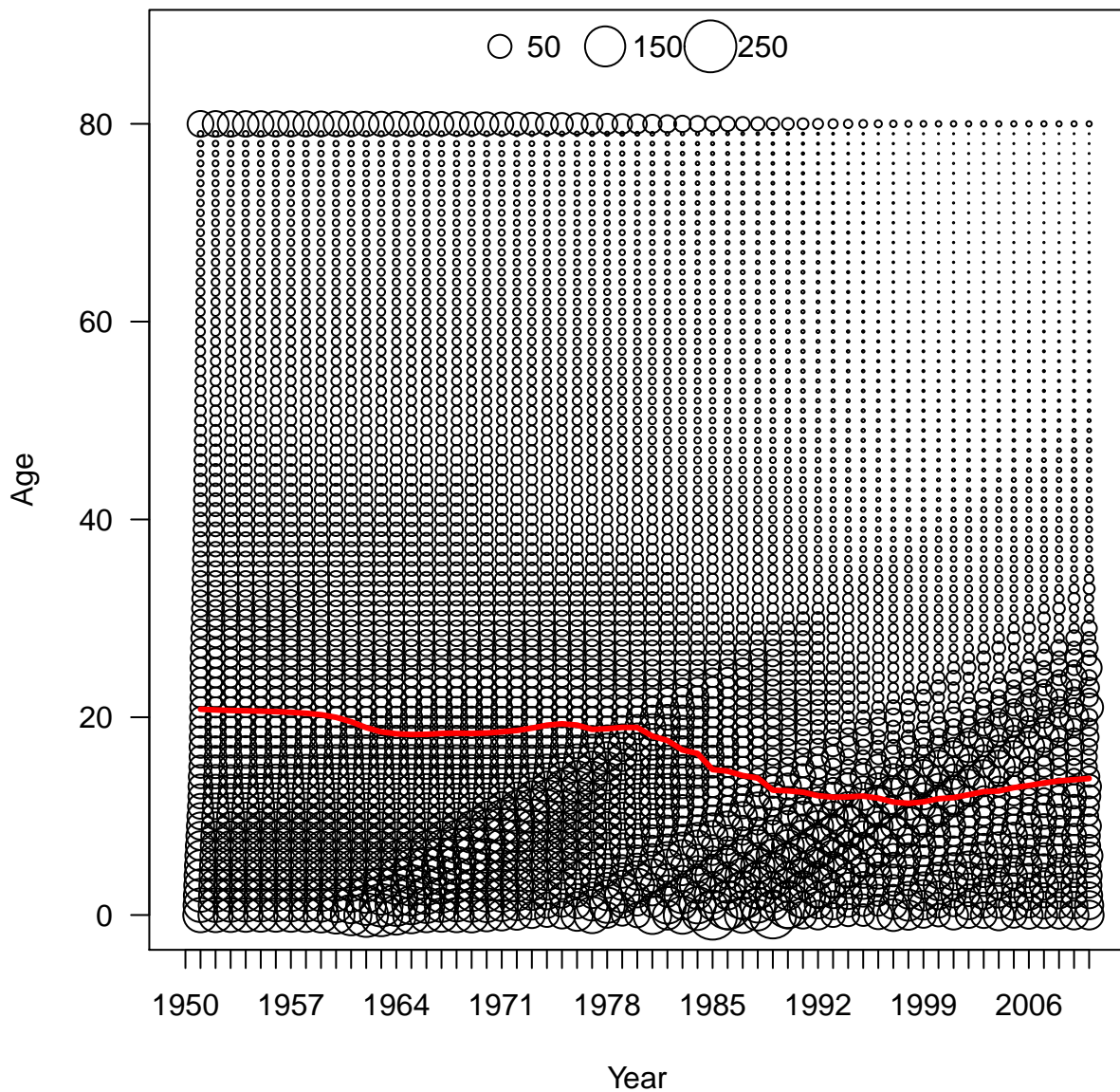
**Beginning of year mean age in the population**



Middle of year expected numbers at age of females in thousands (max=224.237)



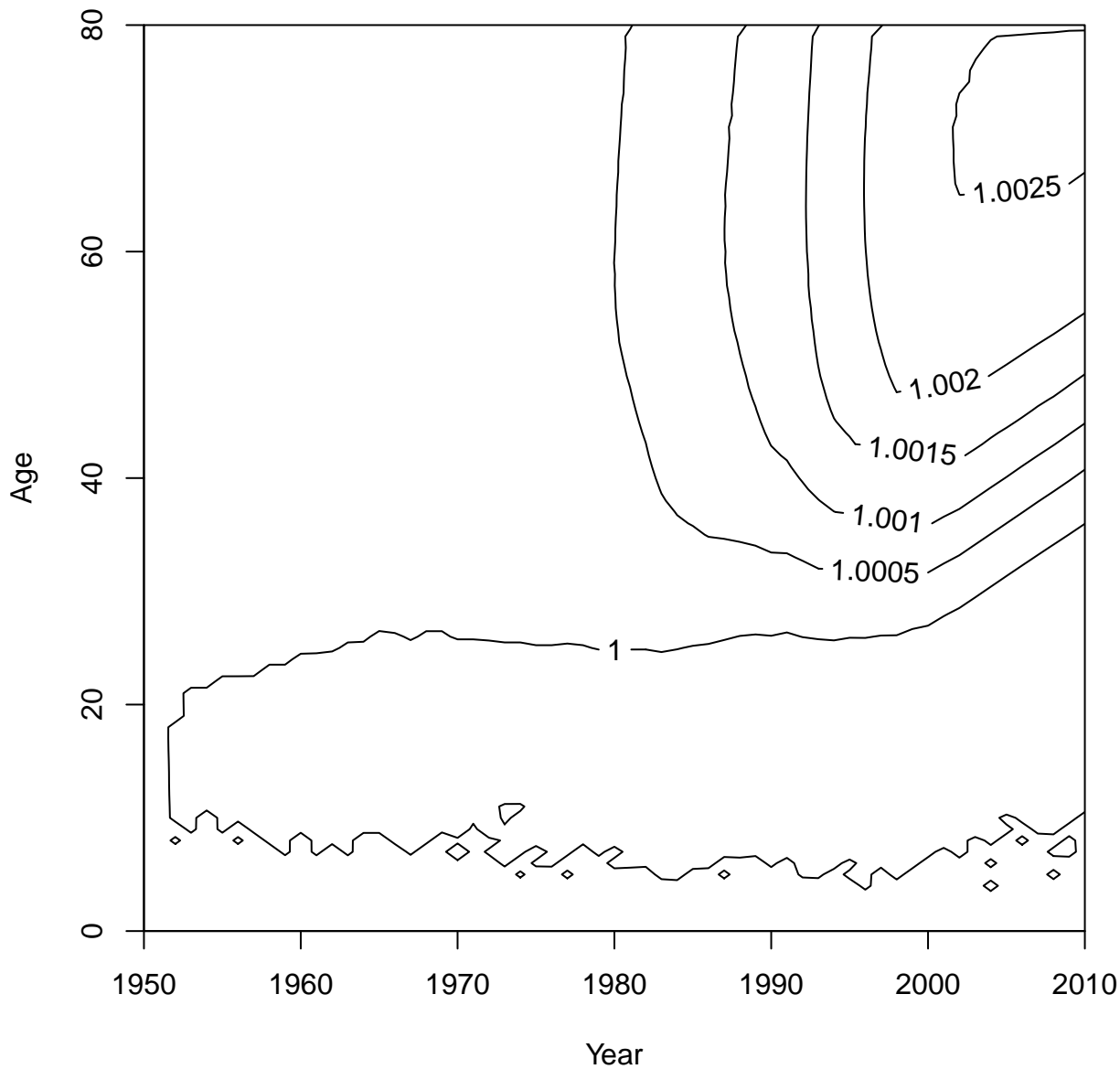
# Middle of year expected numbers at age of males in thousands (max=224.237)



Middle of year mean age in the population

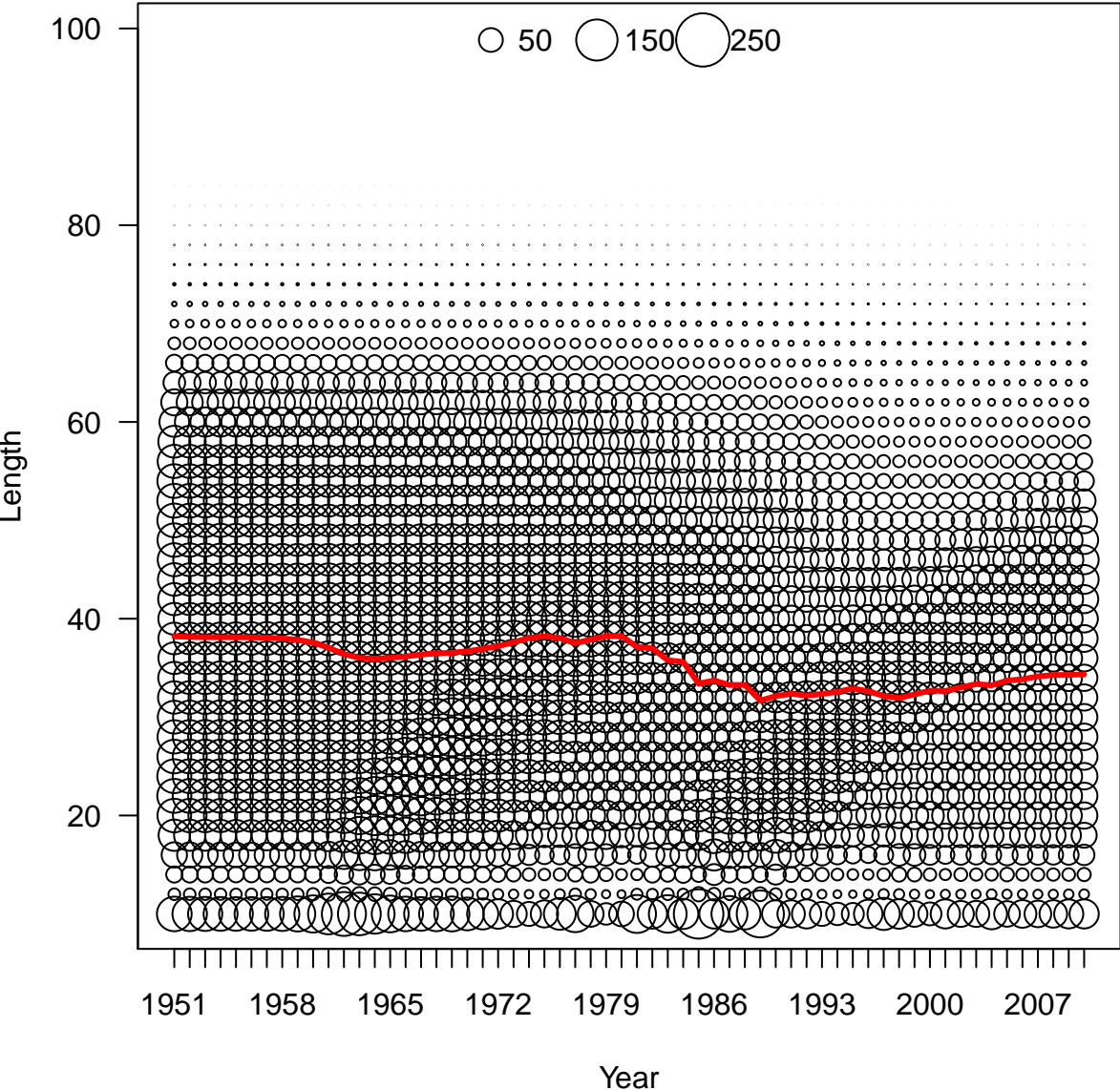


**Sex ratio of numbers at age (males/females)**



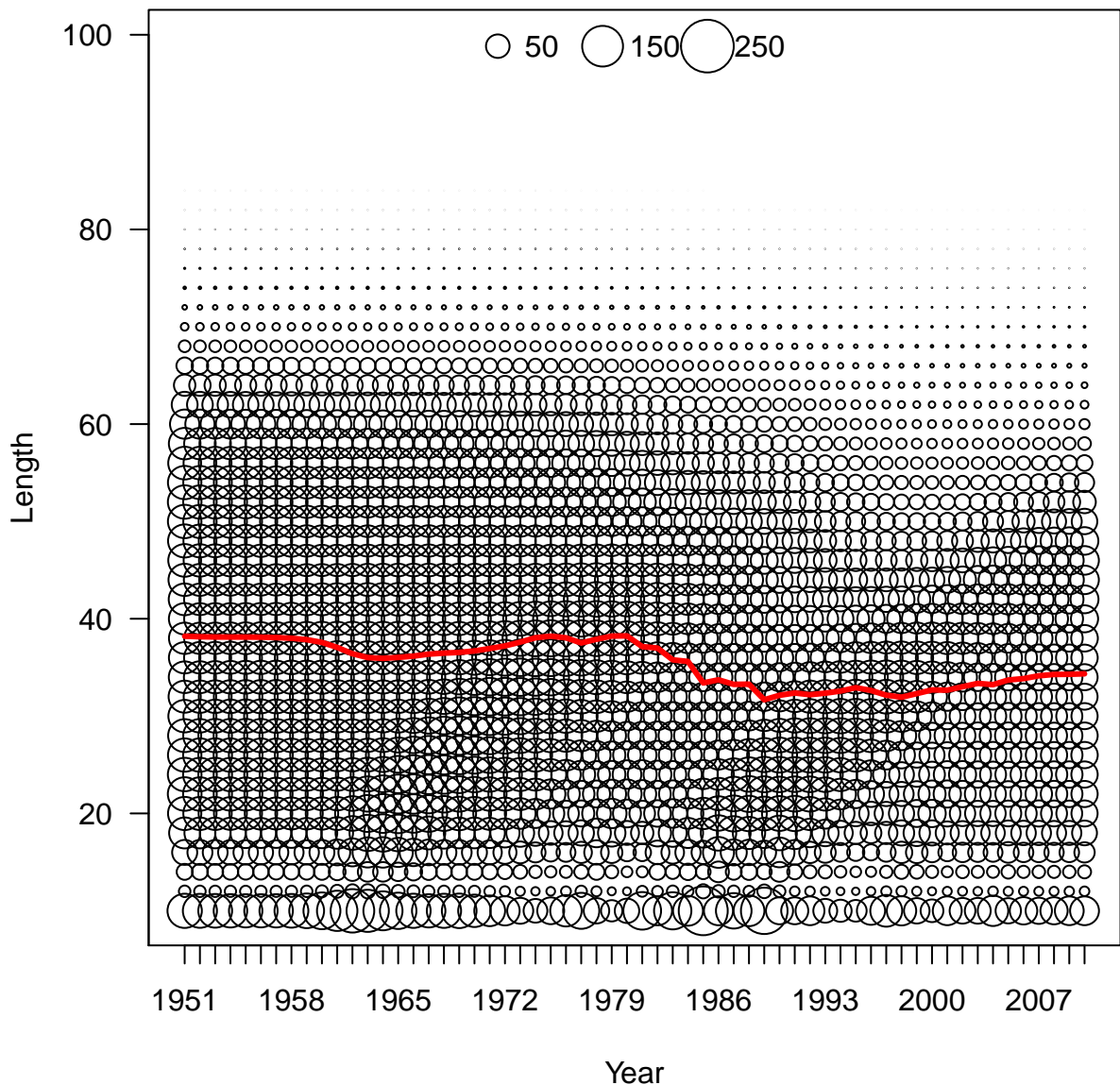


**Beginning of year expected numbers at length of females in thousands (max=215.678)**

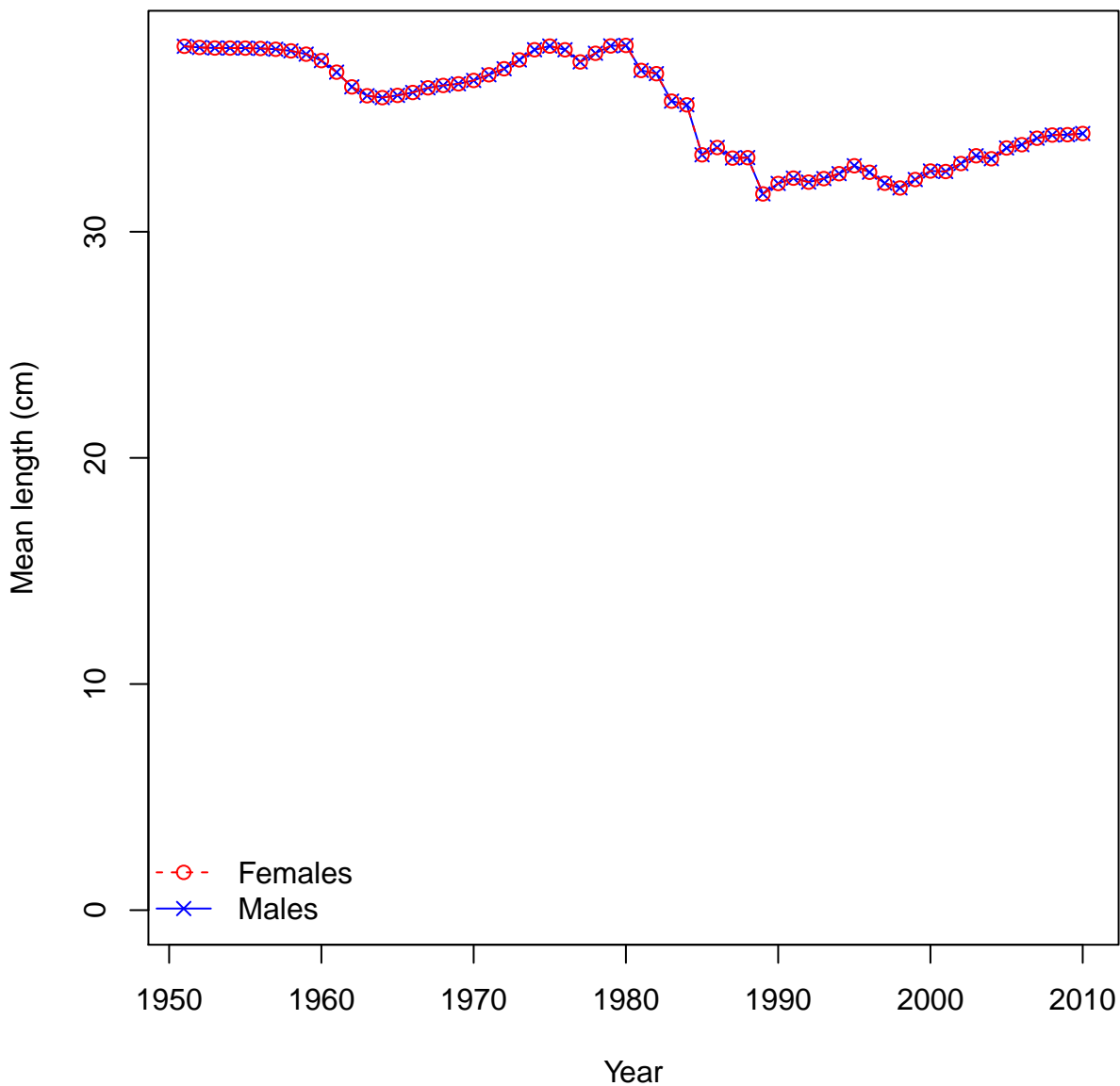




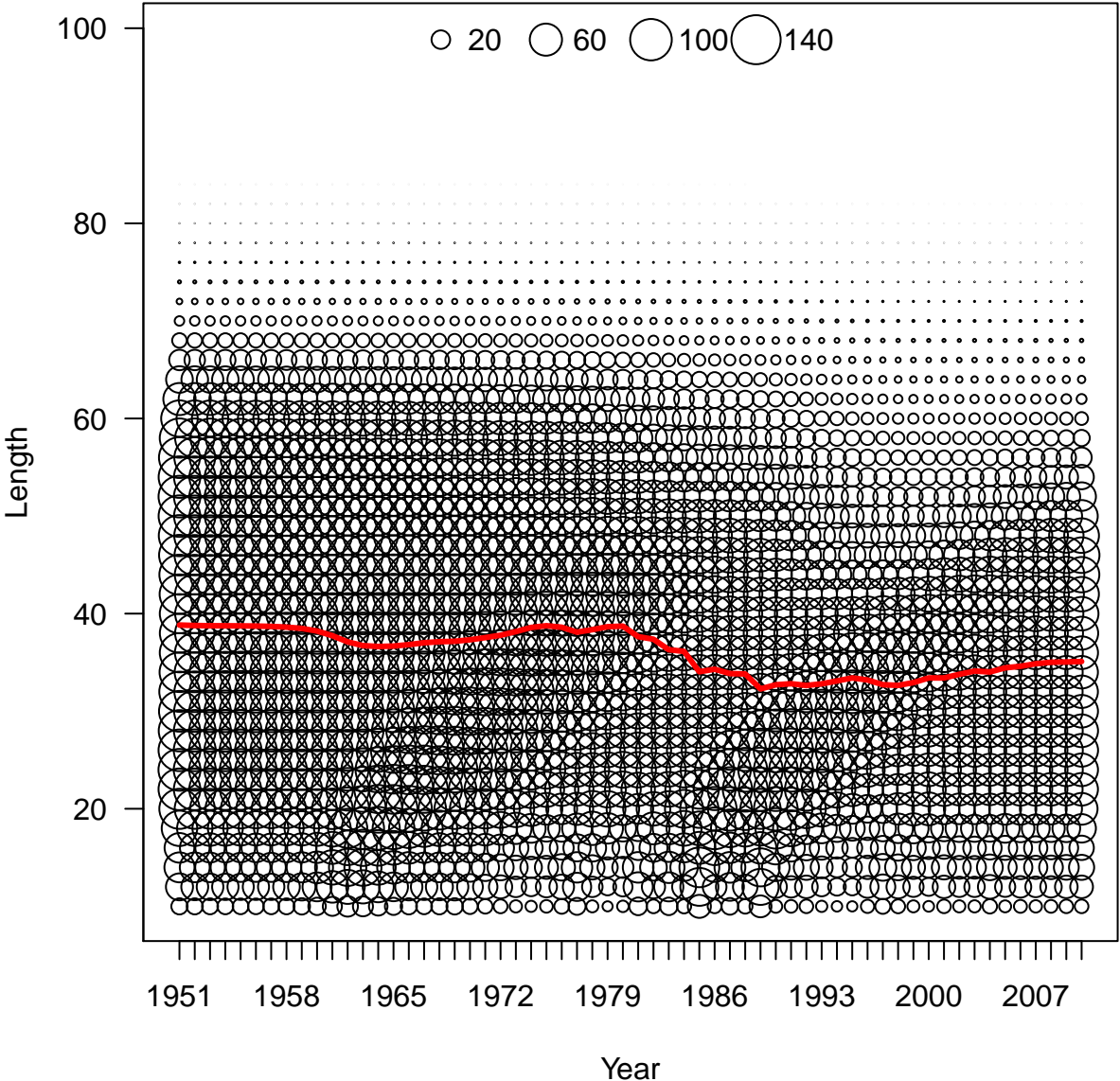
Beginning of year expected numbers at length of males in thousands (max=215.678)



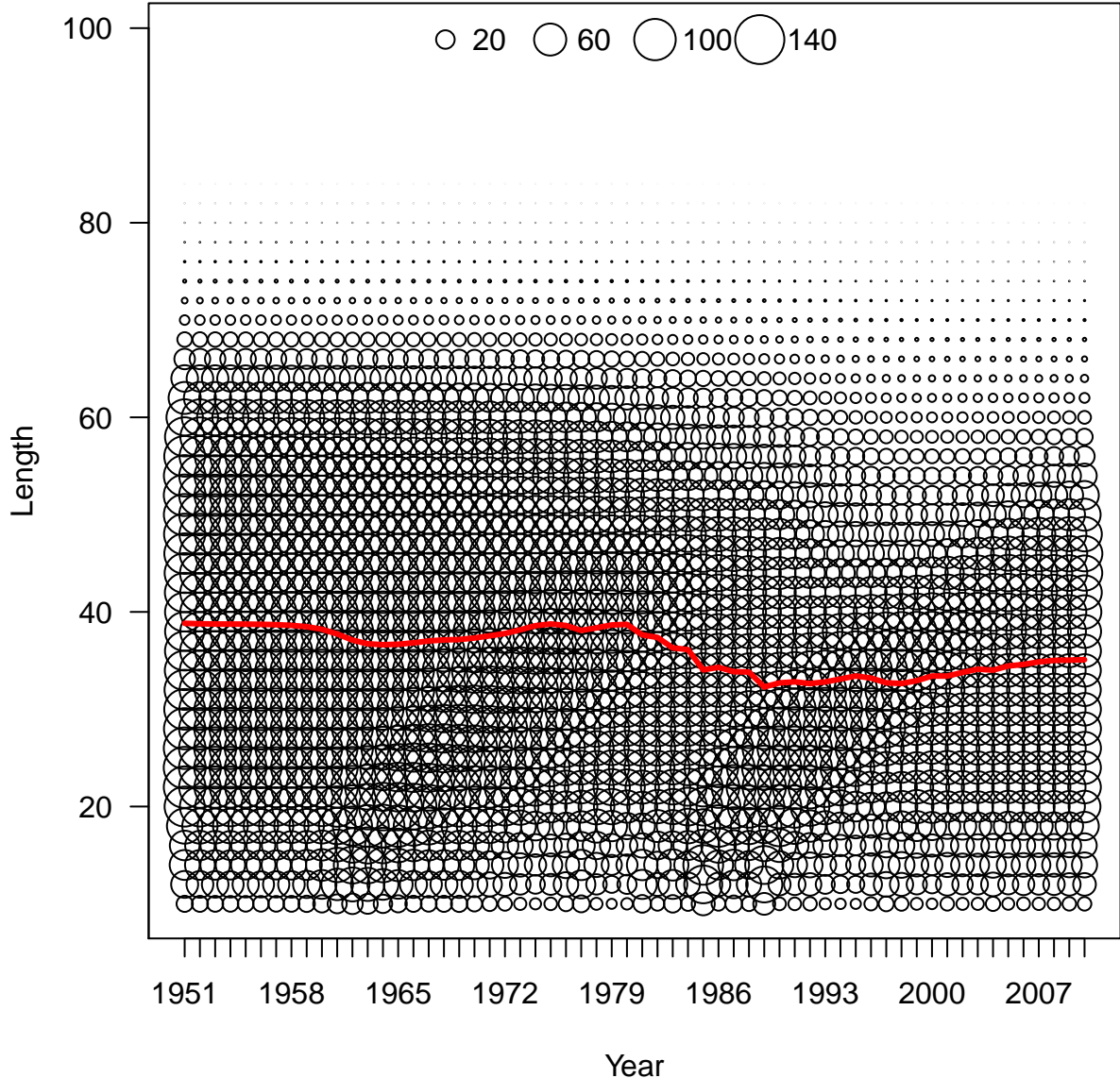
**Beginning of year mean length (cm) in the population**



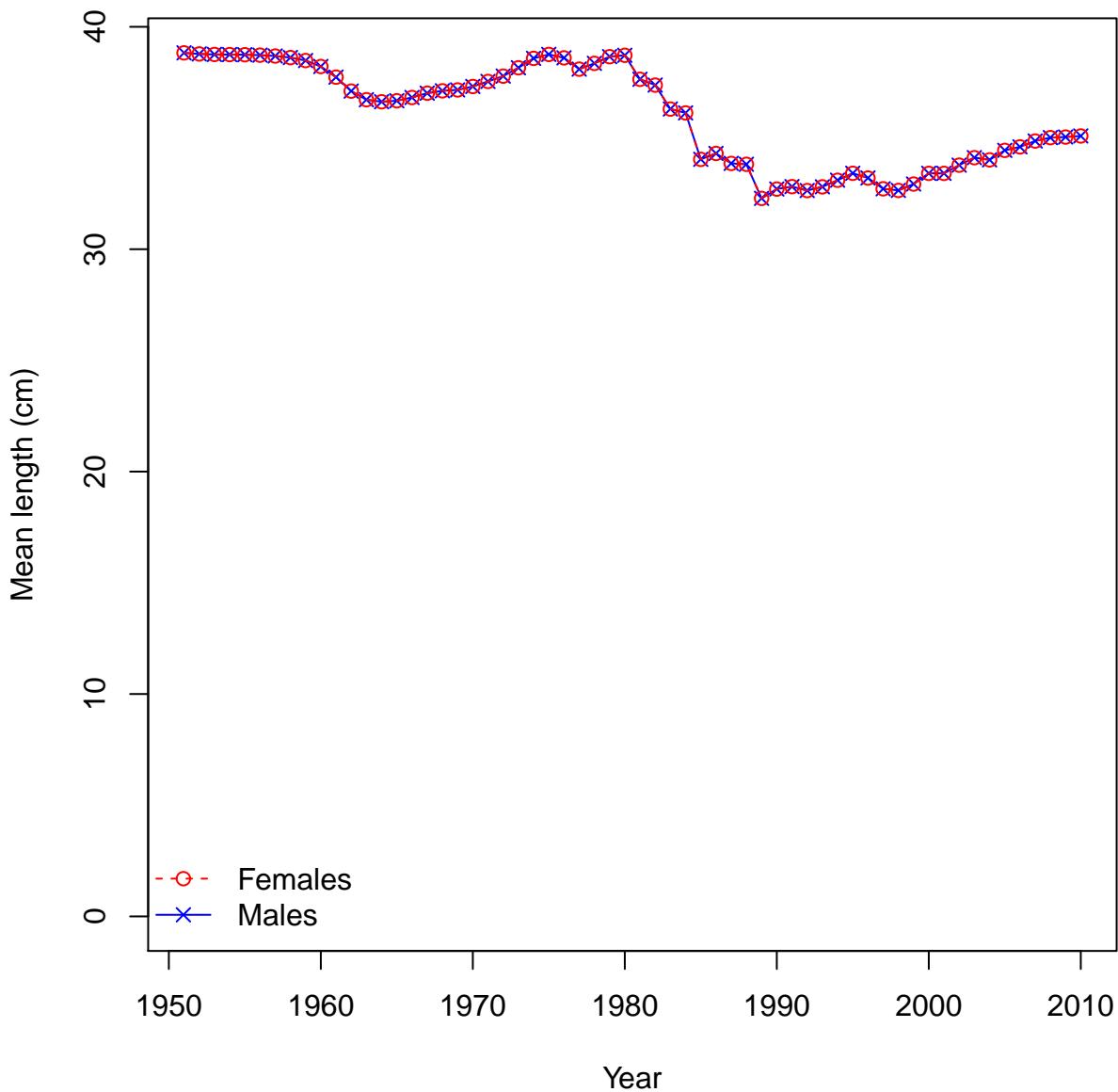
Middle of year expected numbers at length of females in thousands (max=139.235)



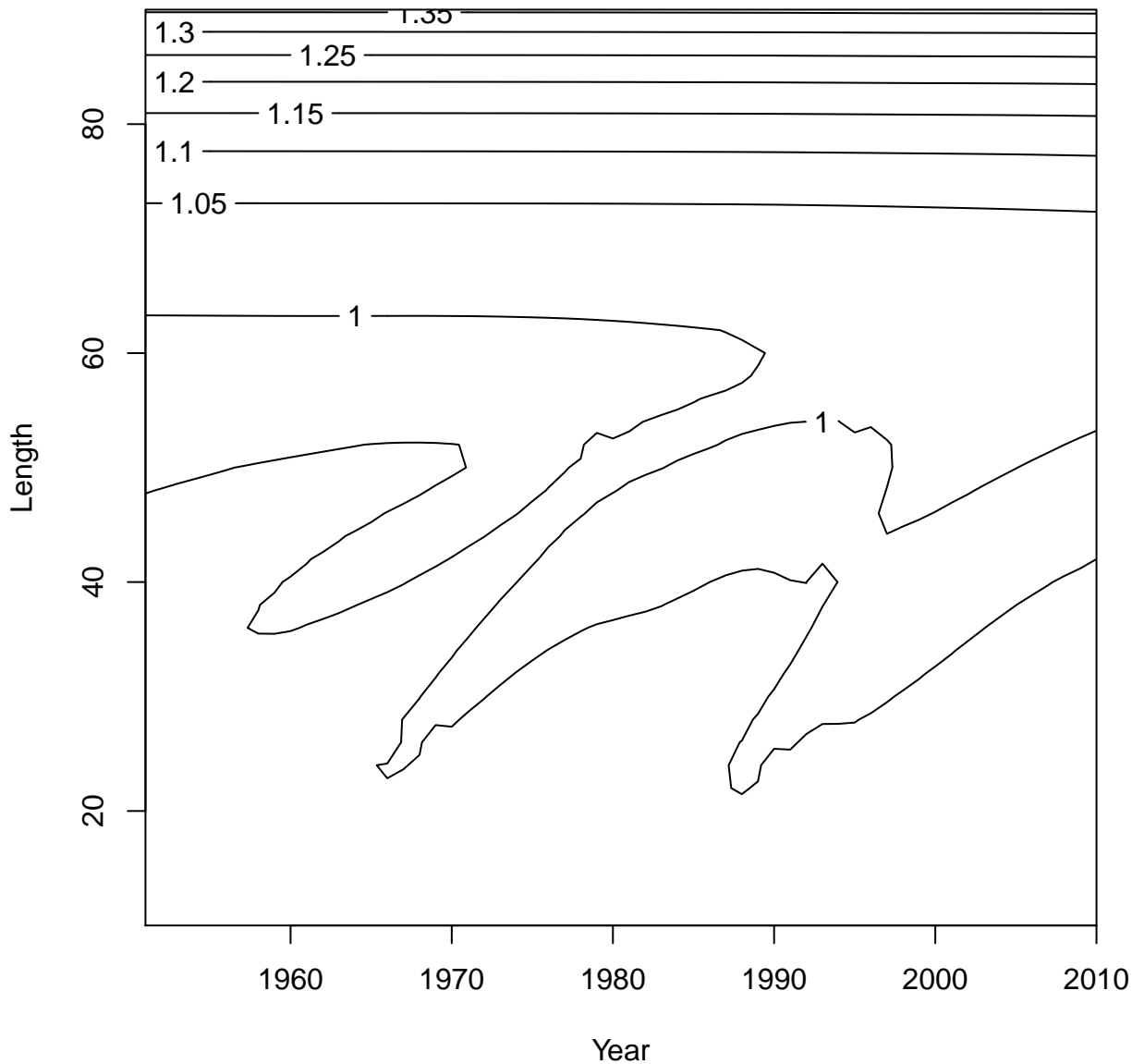
Middle of year expected numbers at length of males in thousands (max=139.236)



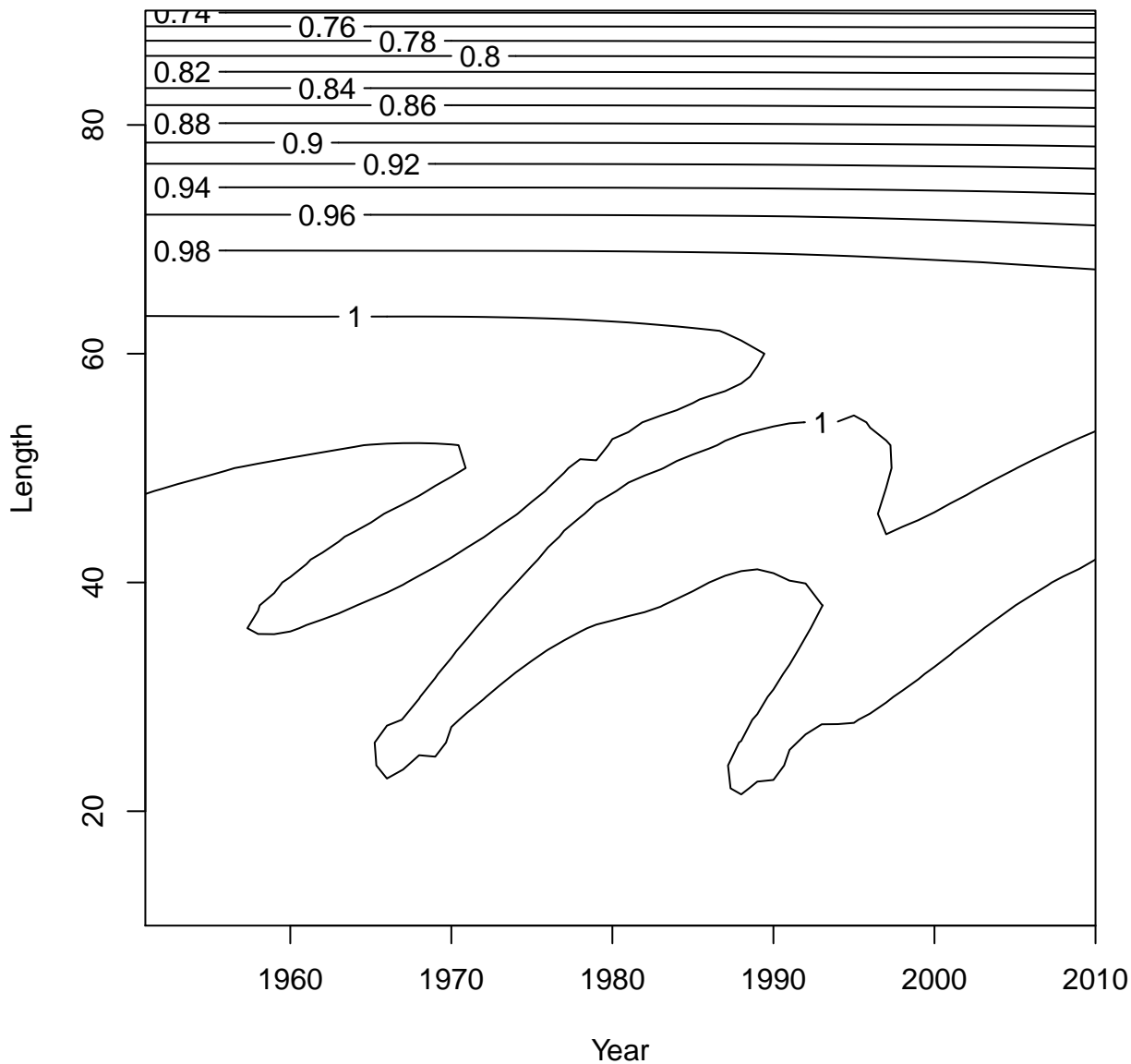
**Middle of year mean length (cm) in the population**



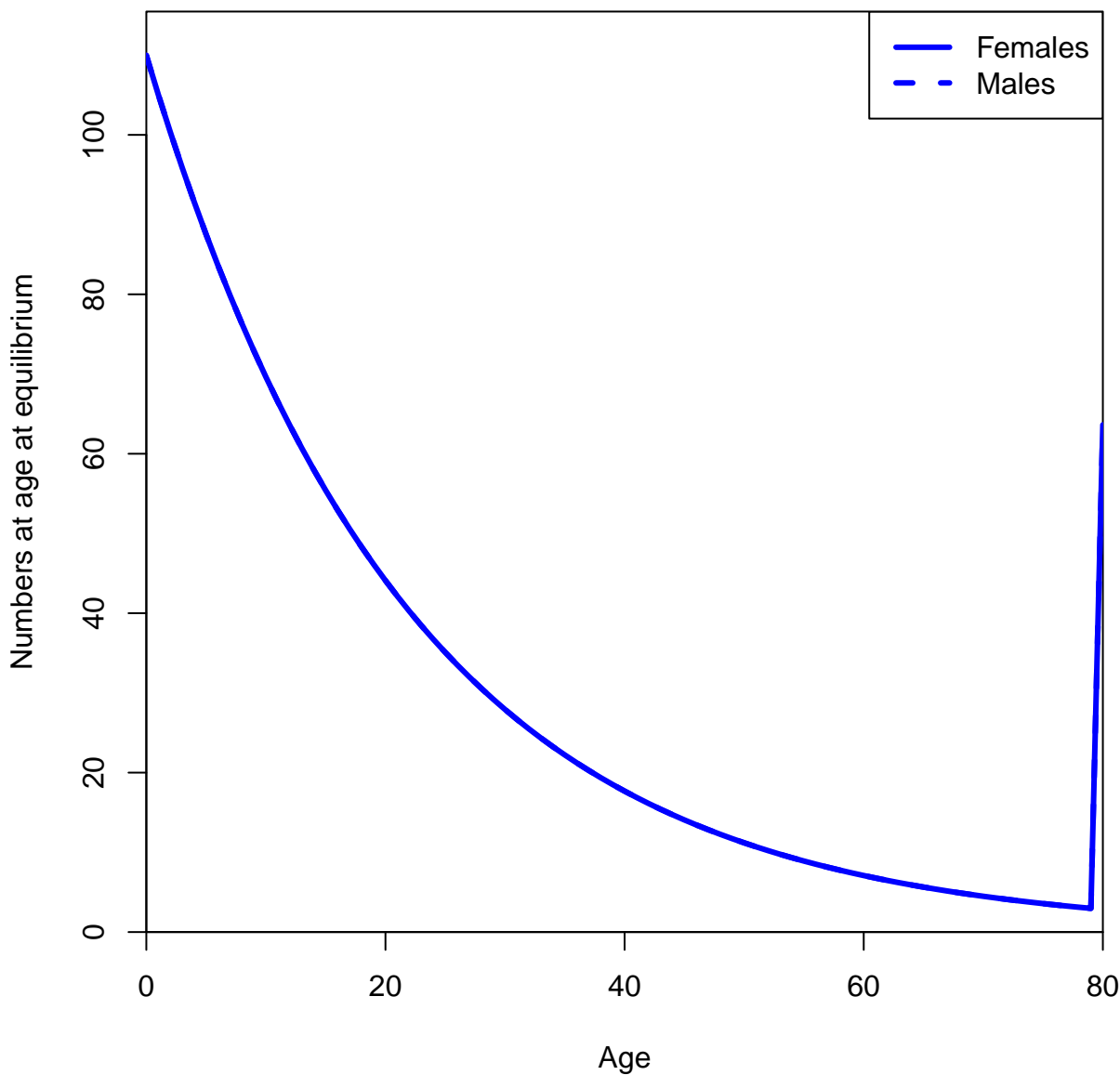
**Sex ratio of numbers at length (males/females)**



# Sex ratio of numbers at length (females/males)

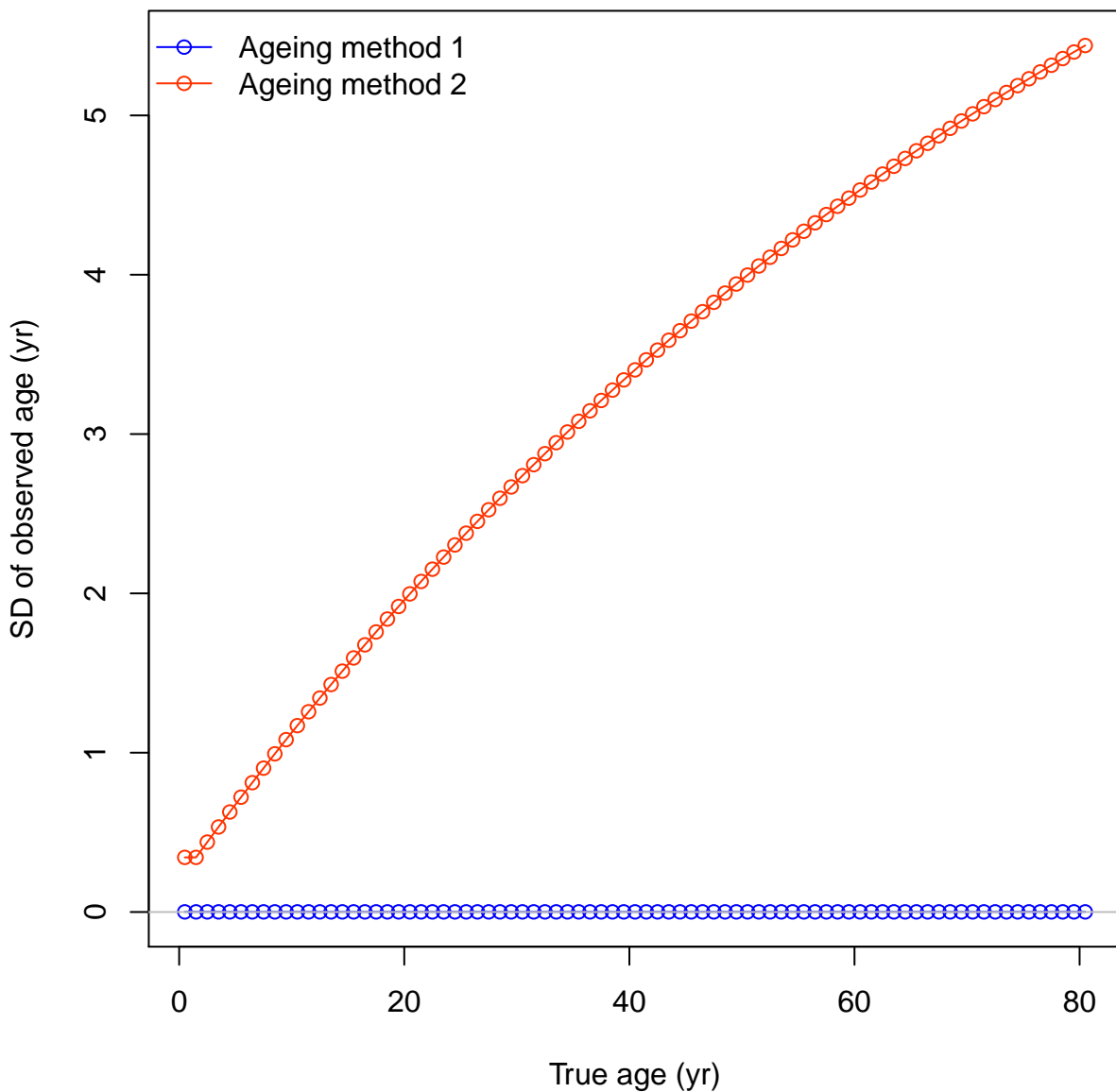


Equilibrium age distribution

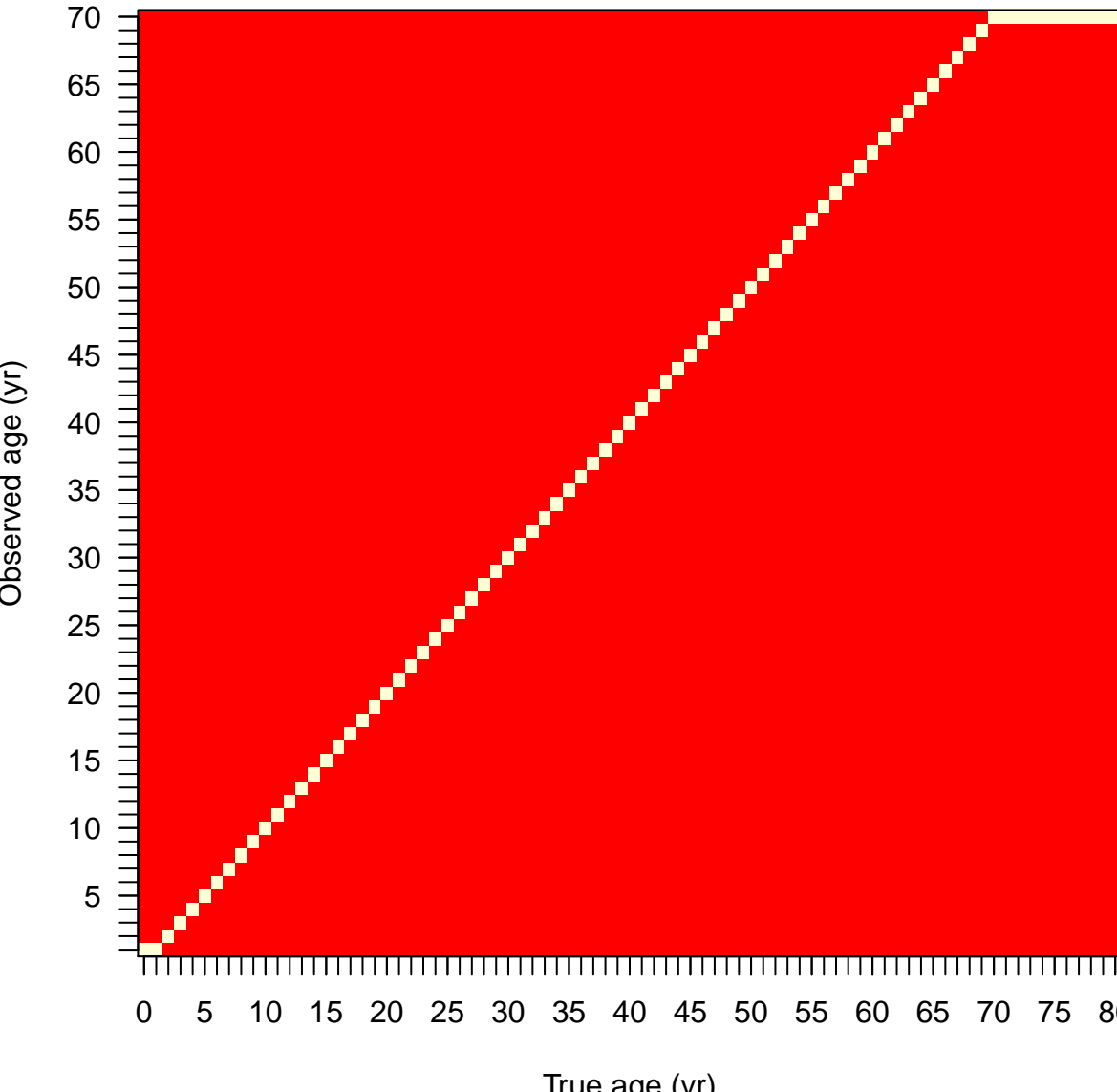




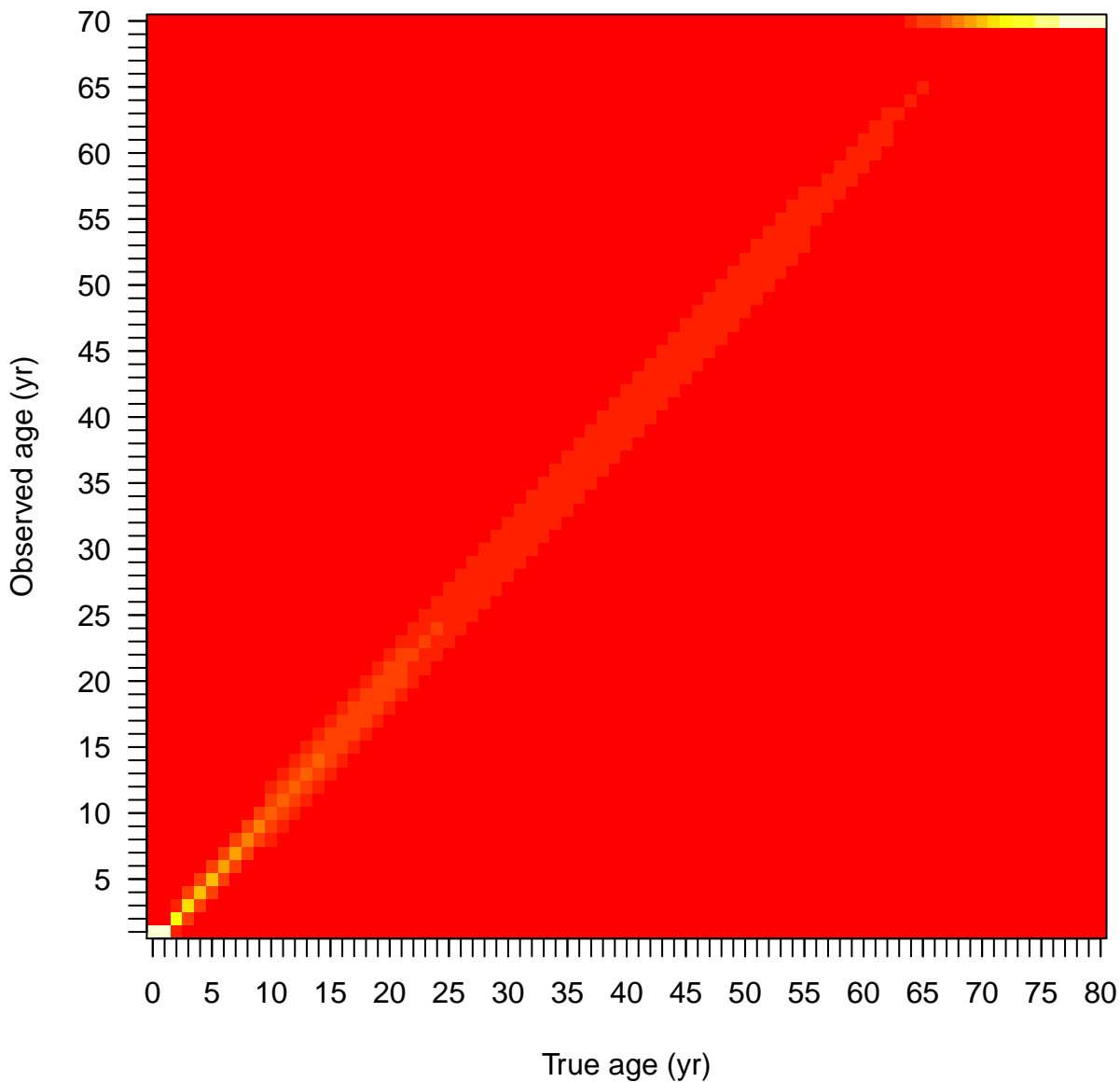
## Ageing imprecision



## Ageing imprecision: matrix for method 1

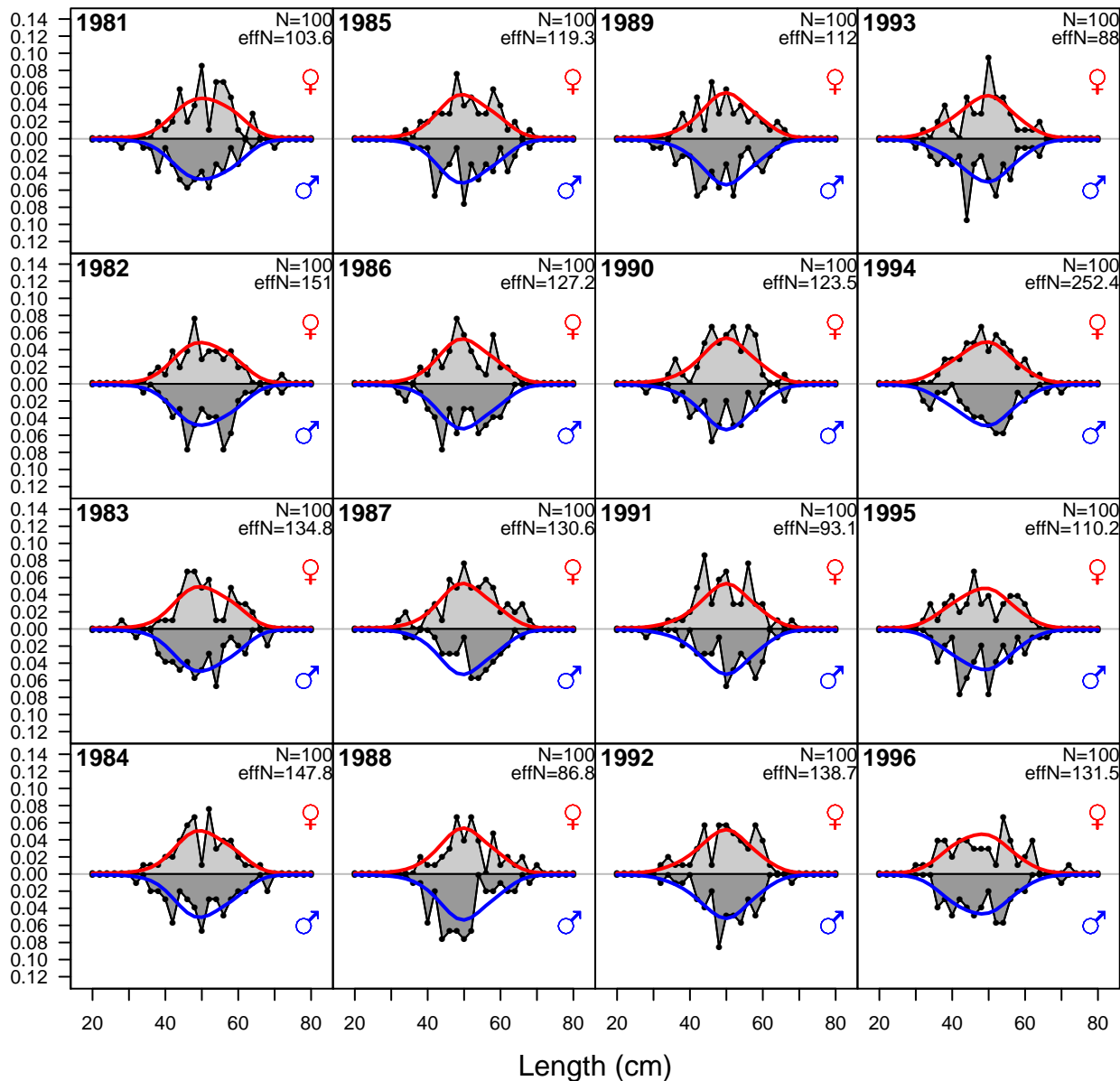


## Ageing imprecision: matrix for method 2

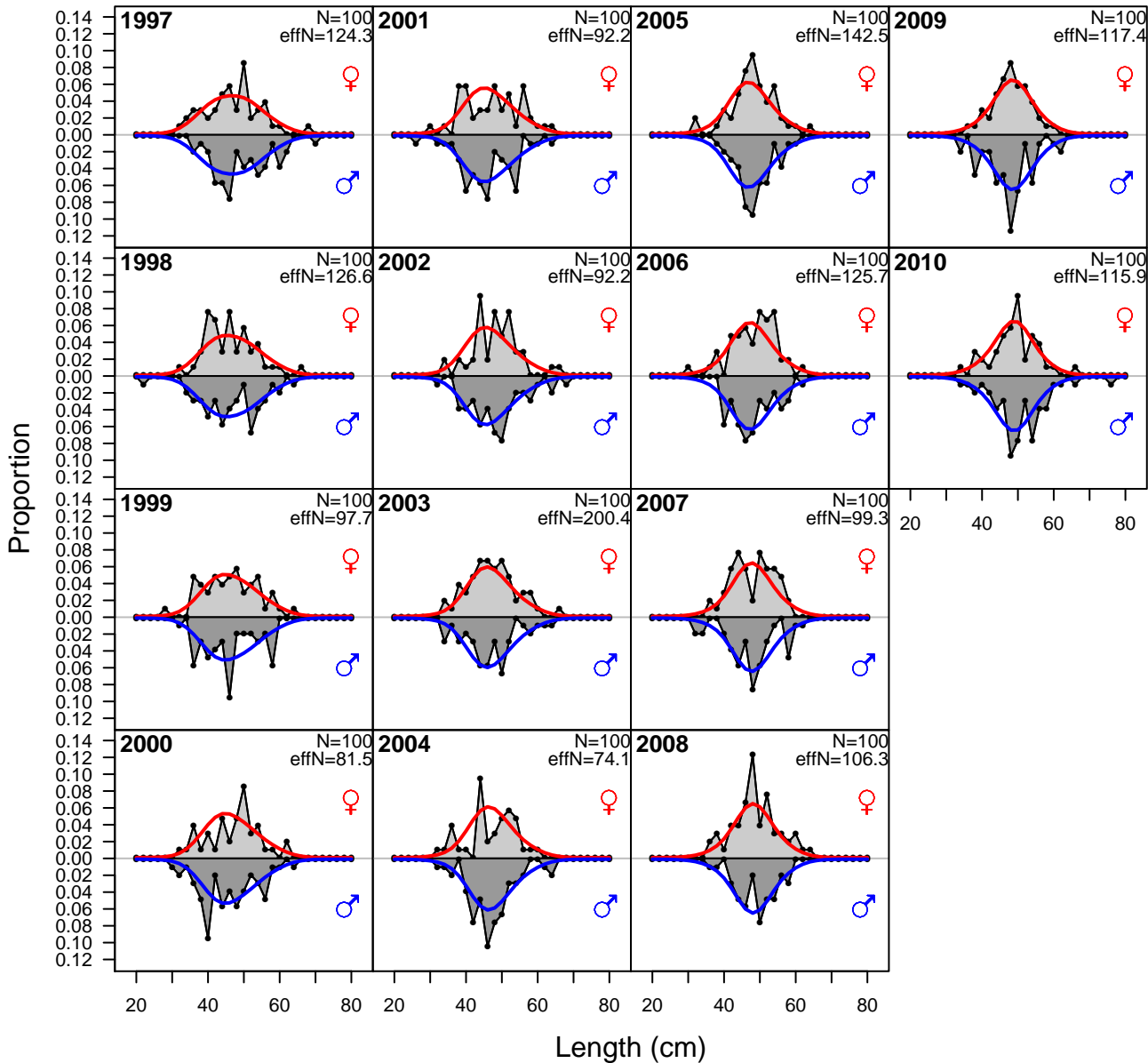


# length comps, whole catch, fishery1

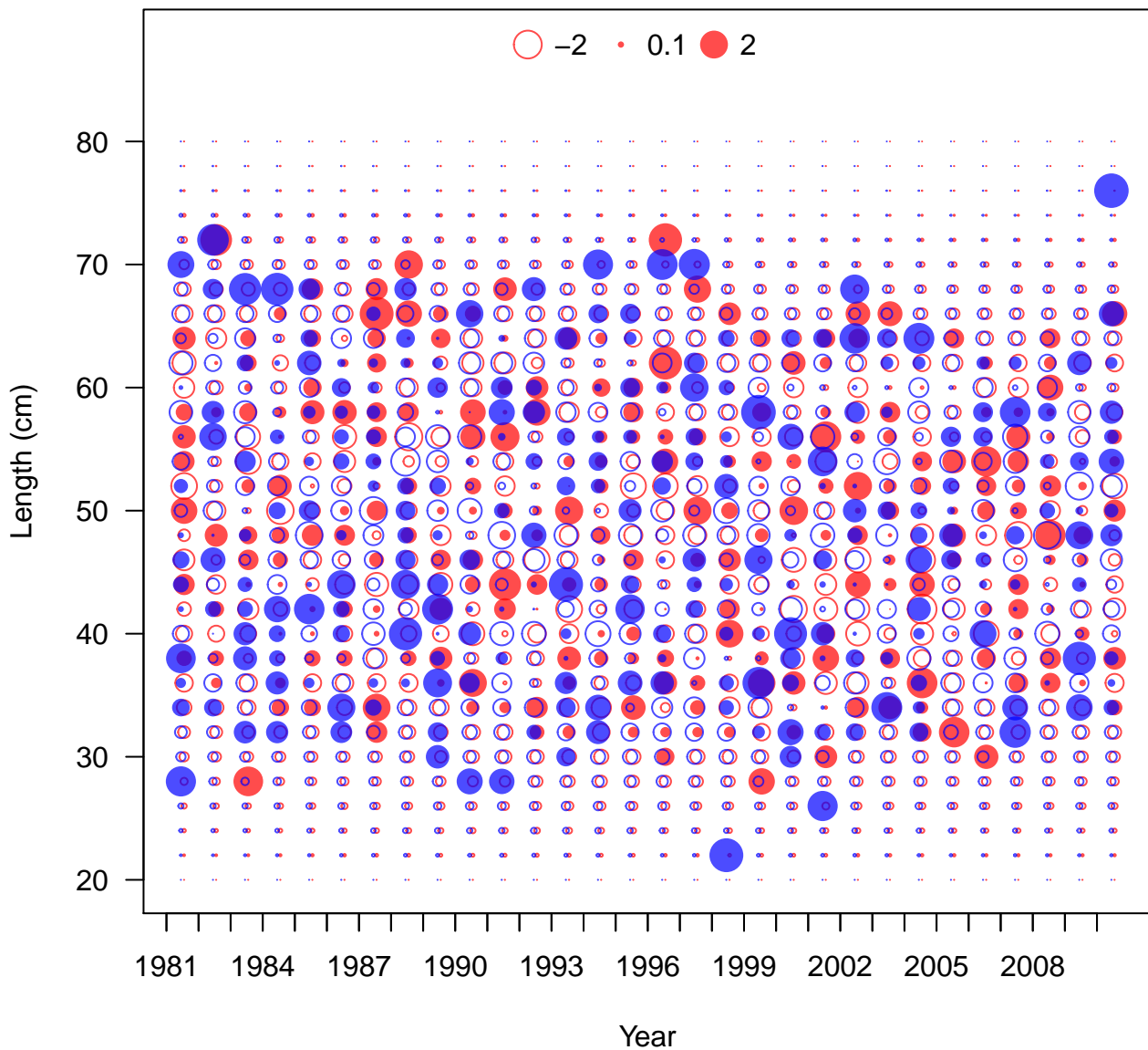
Proportion



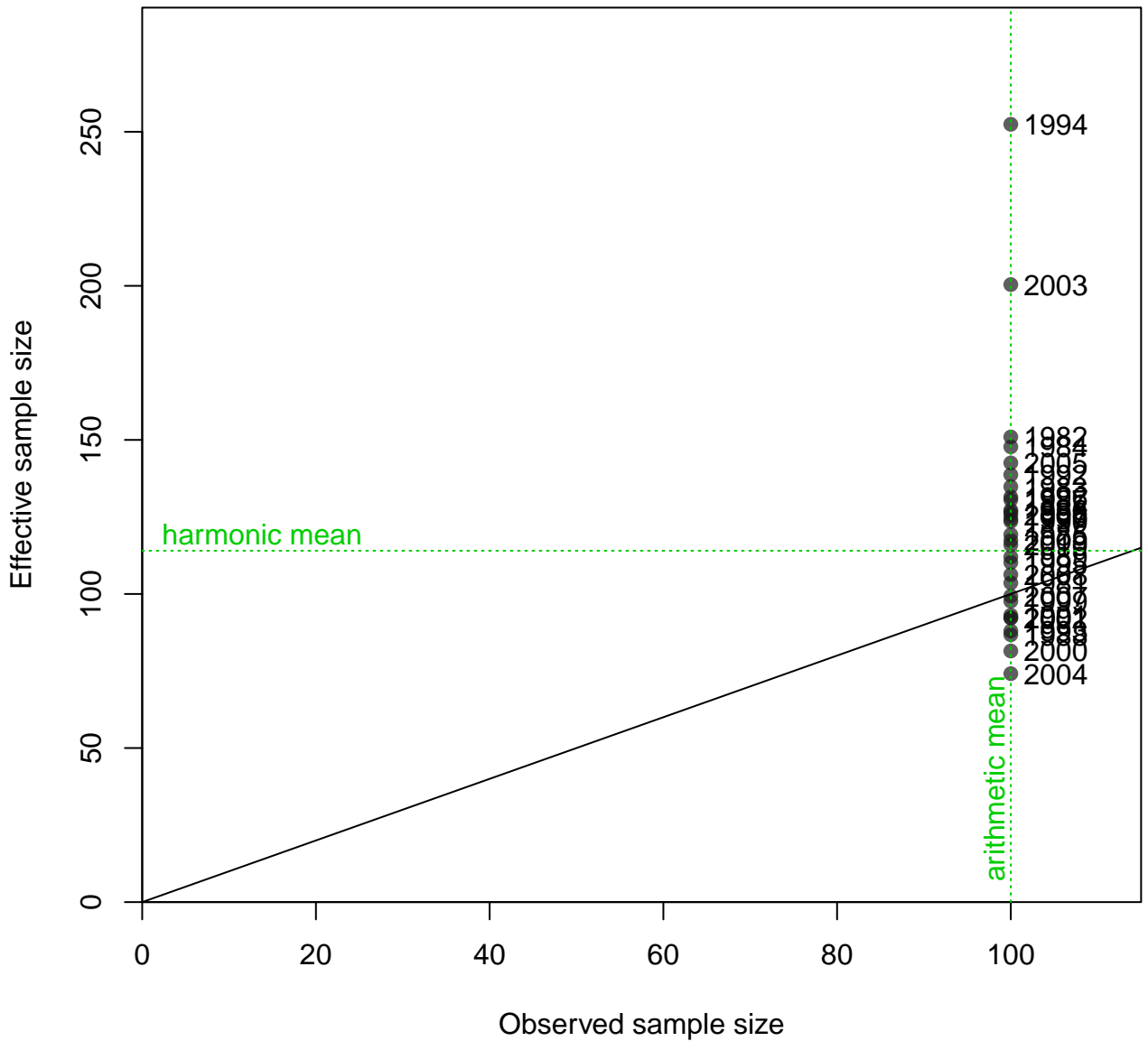
# length comps, whole catch, fishery1



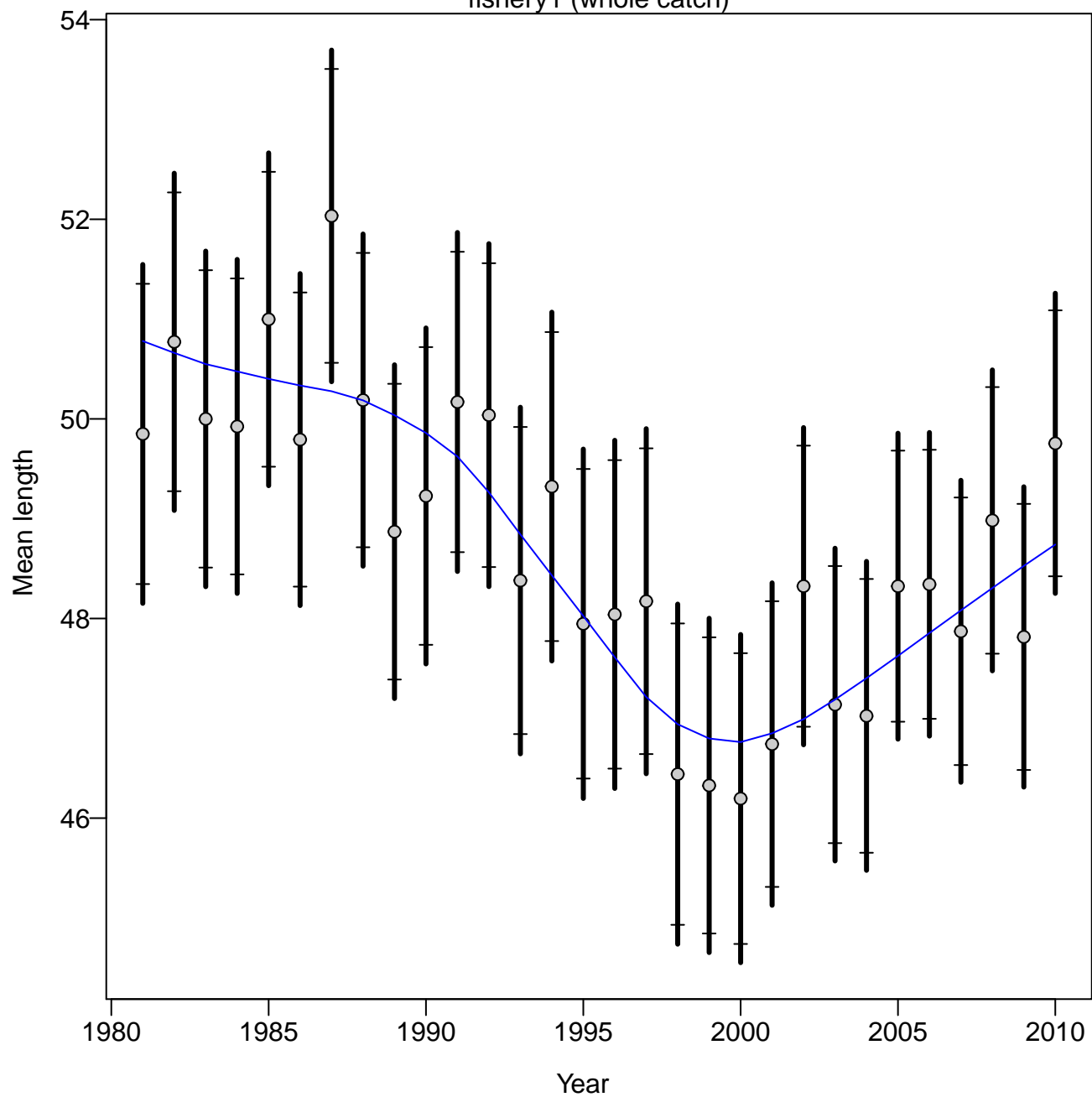
**Pearson residuals, whole catch, fishery1 (max=3.09)**



# N-EffN comparison, length comps, whole catch, fishery1

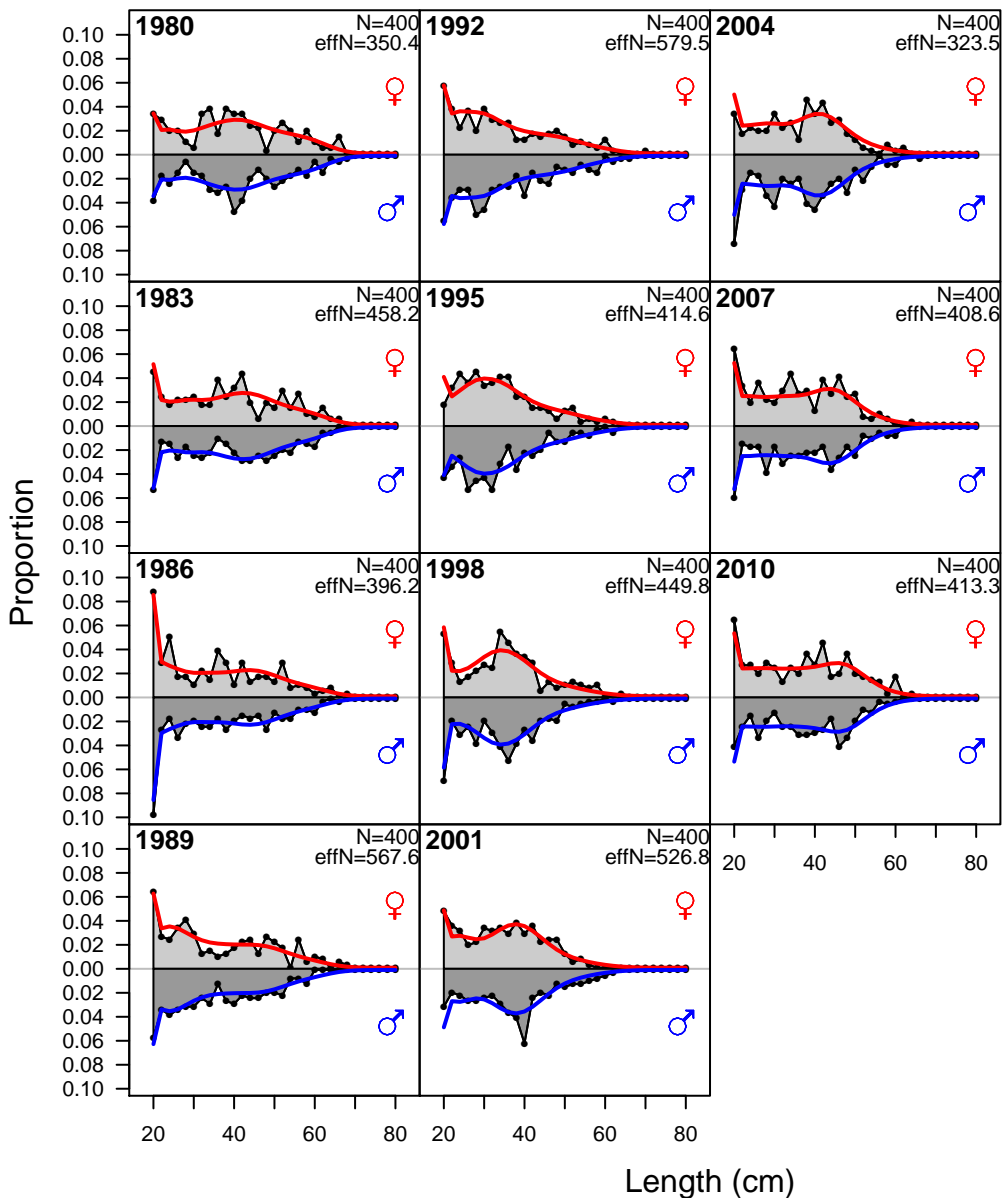


fishery1 (whole catch)

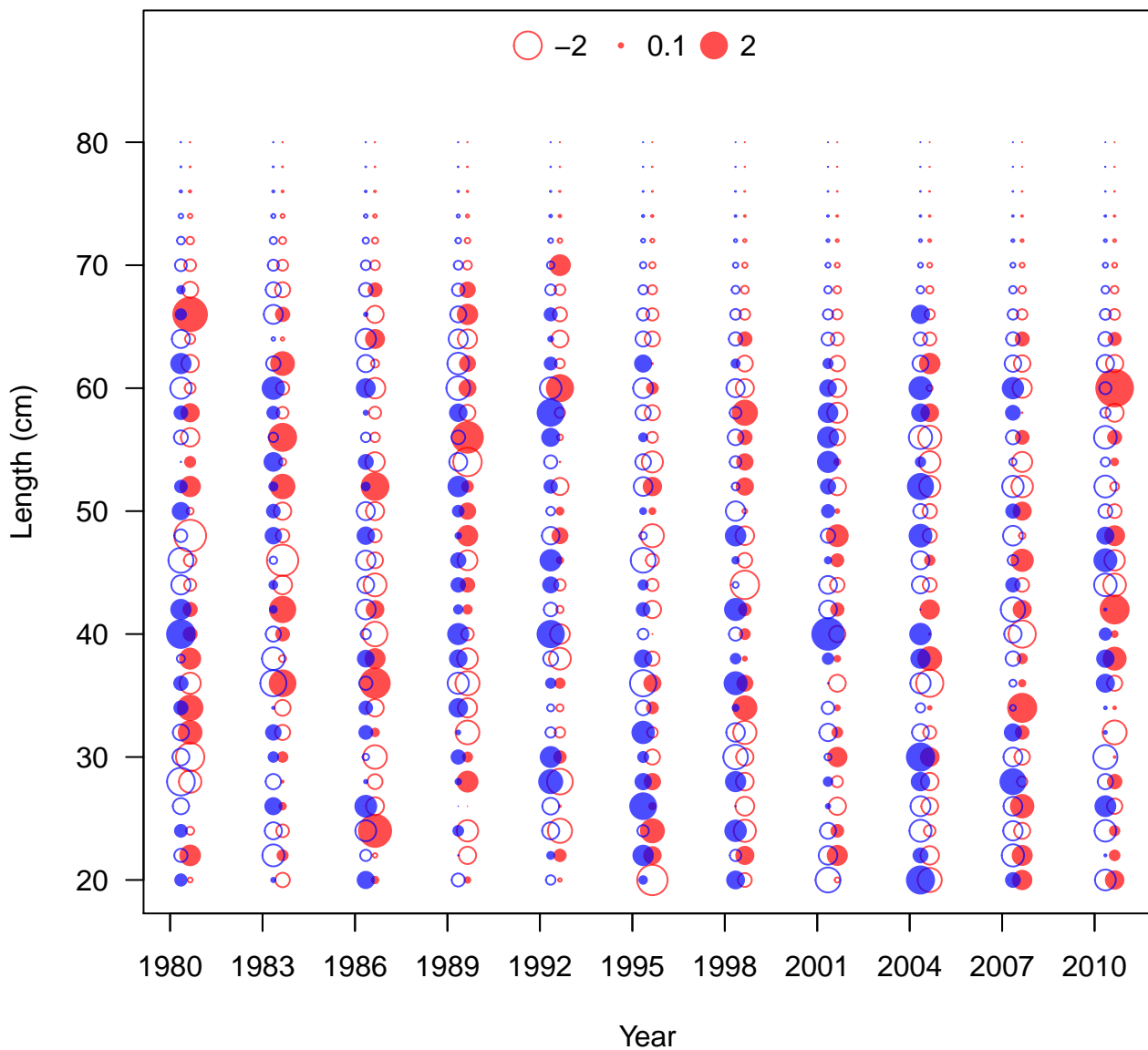




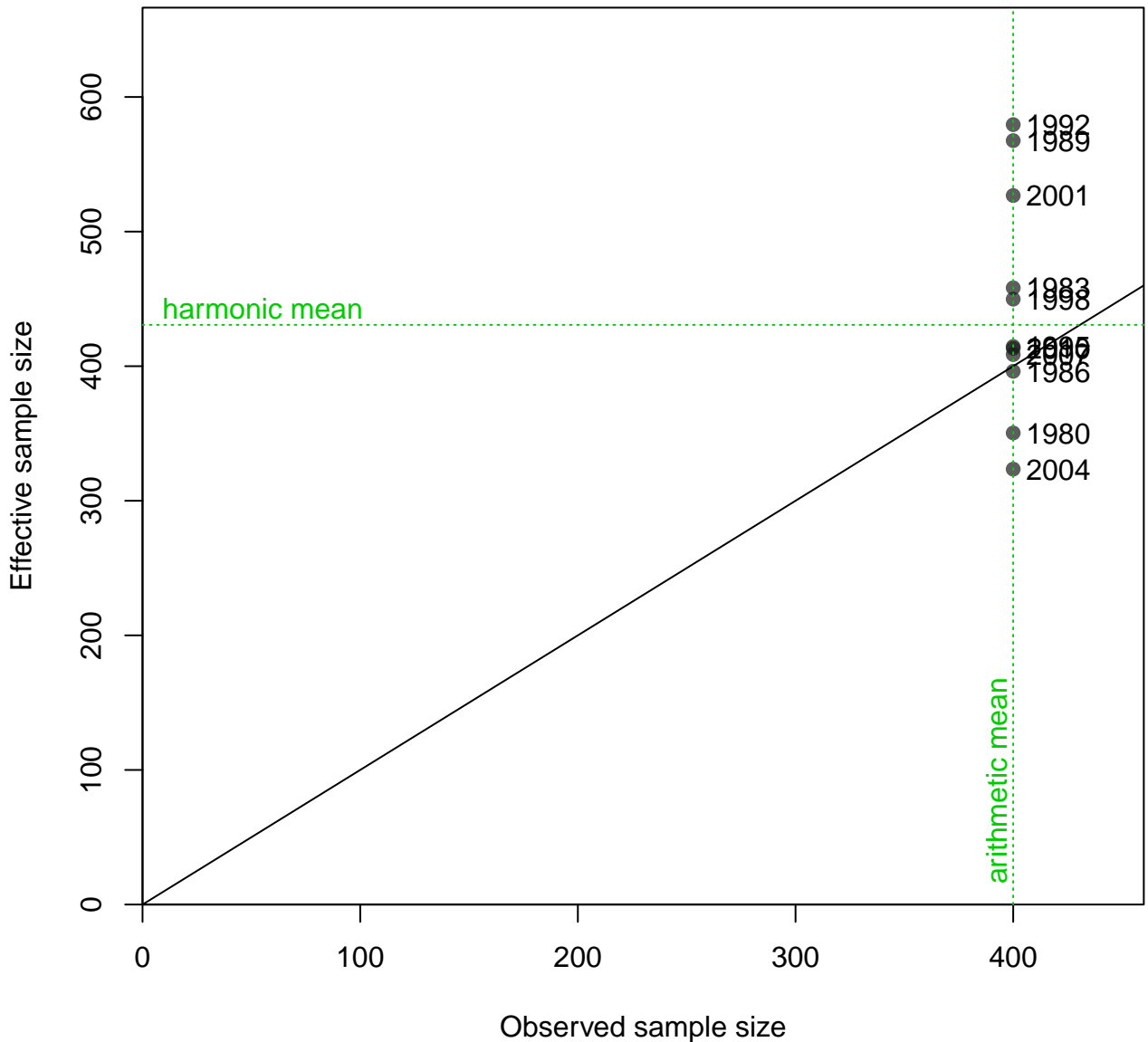
# length comps, whole catch, survey1



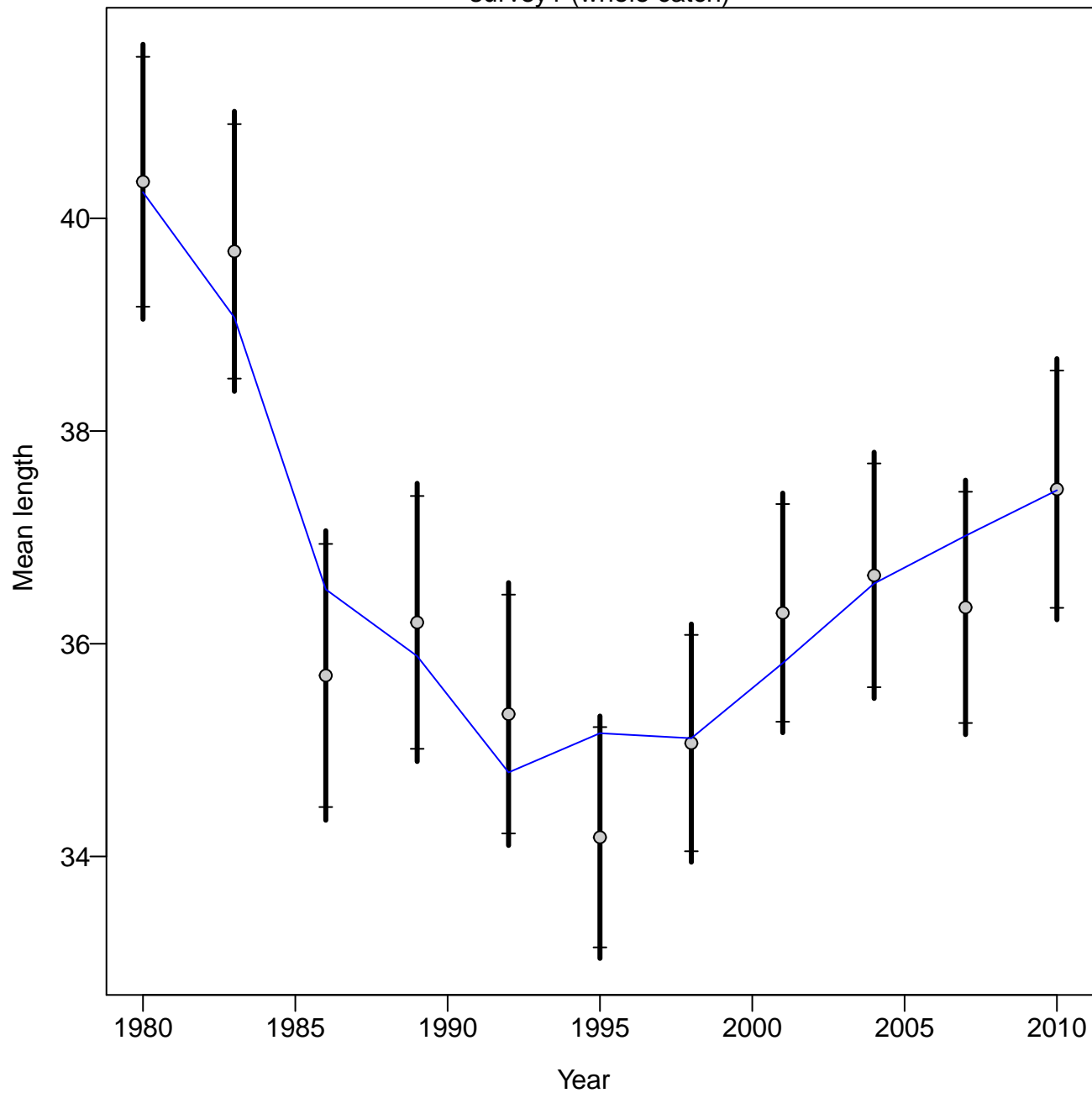
**Pearson residuals, whole catch, survey1 (max=3.82)**



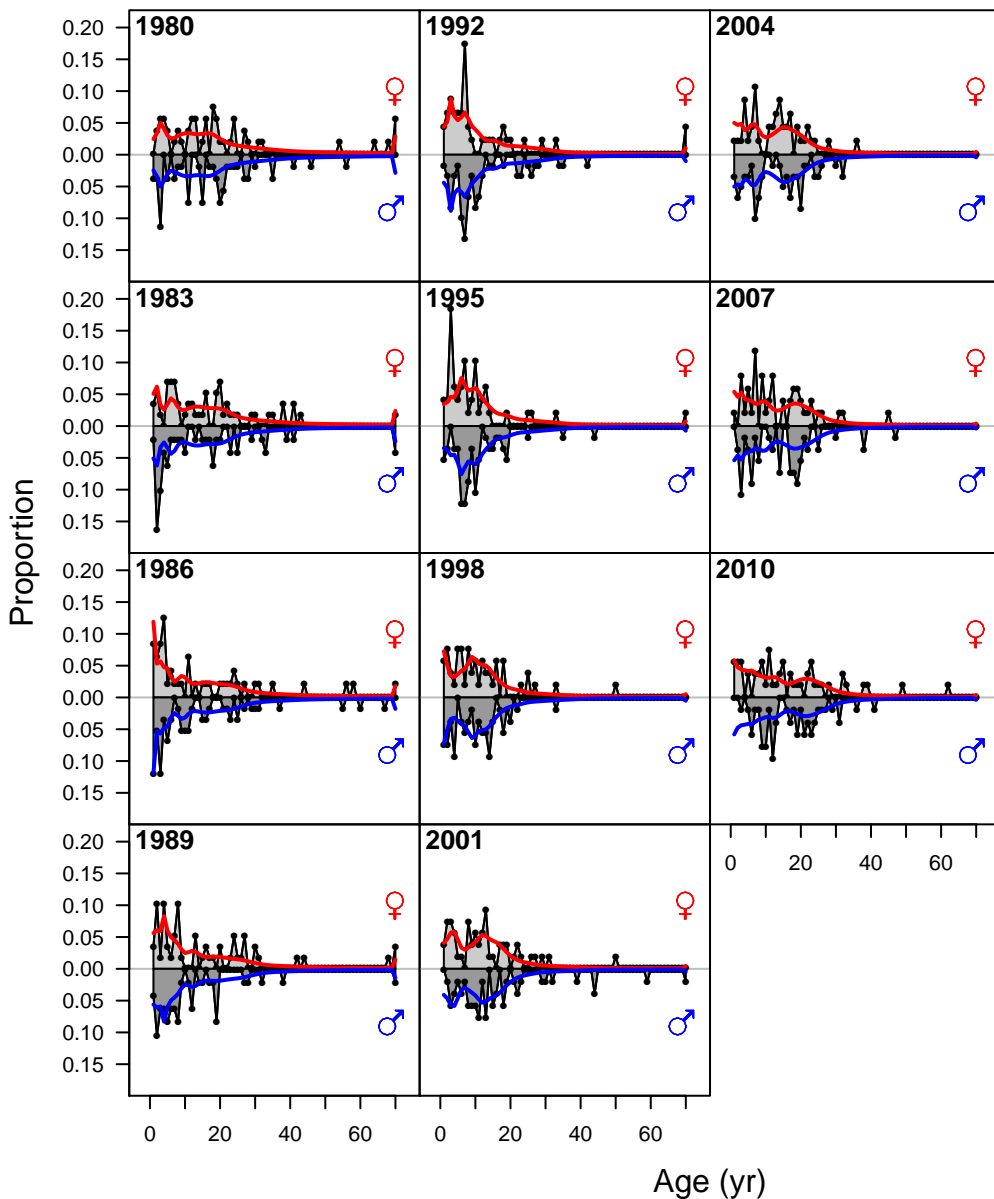
# N-EffN comparison, length comps, whole catch, survey1



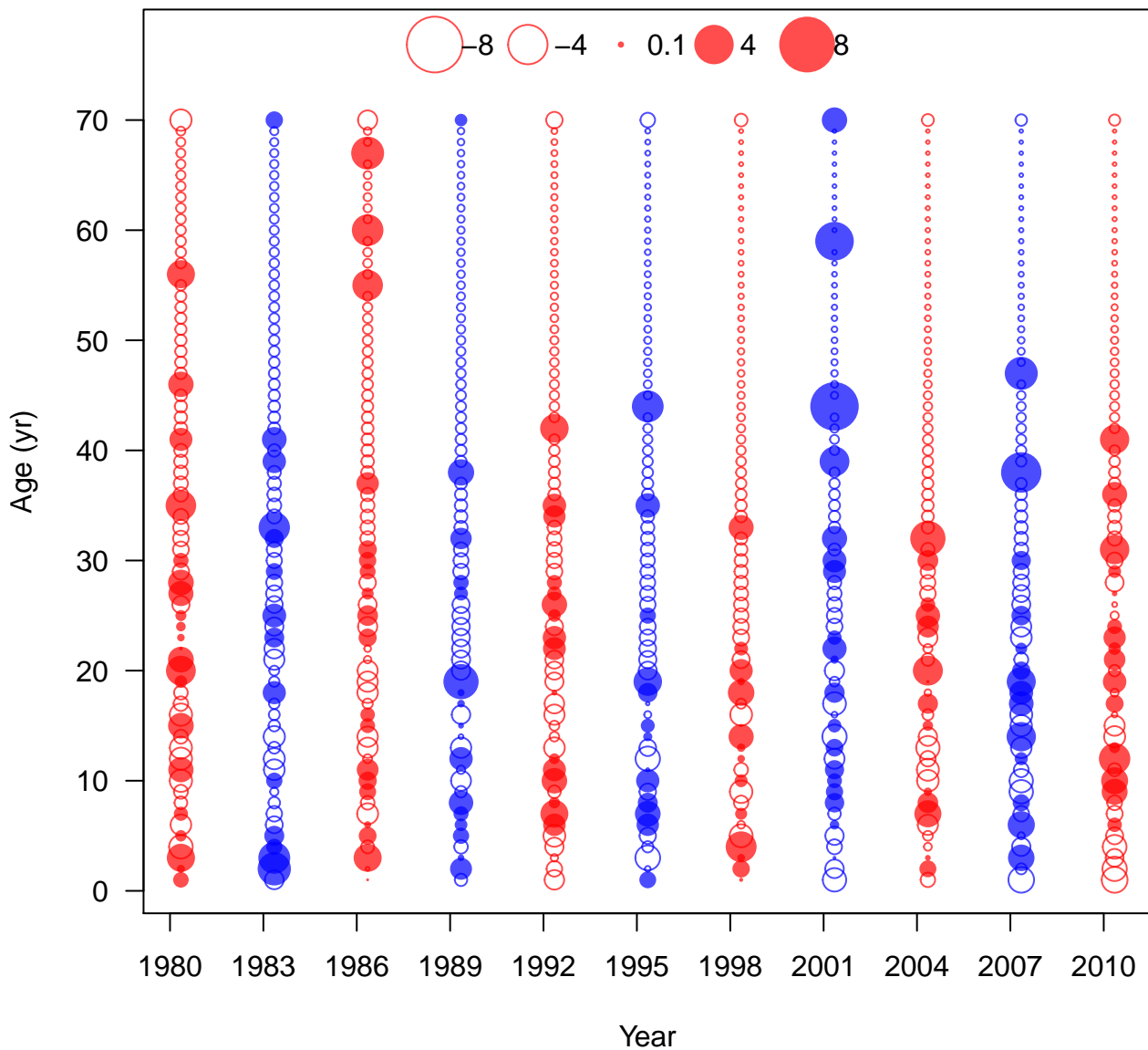
survey1 (whole catch)



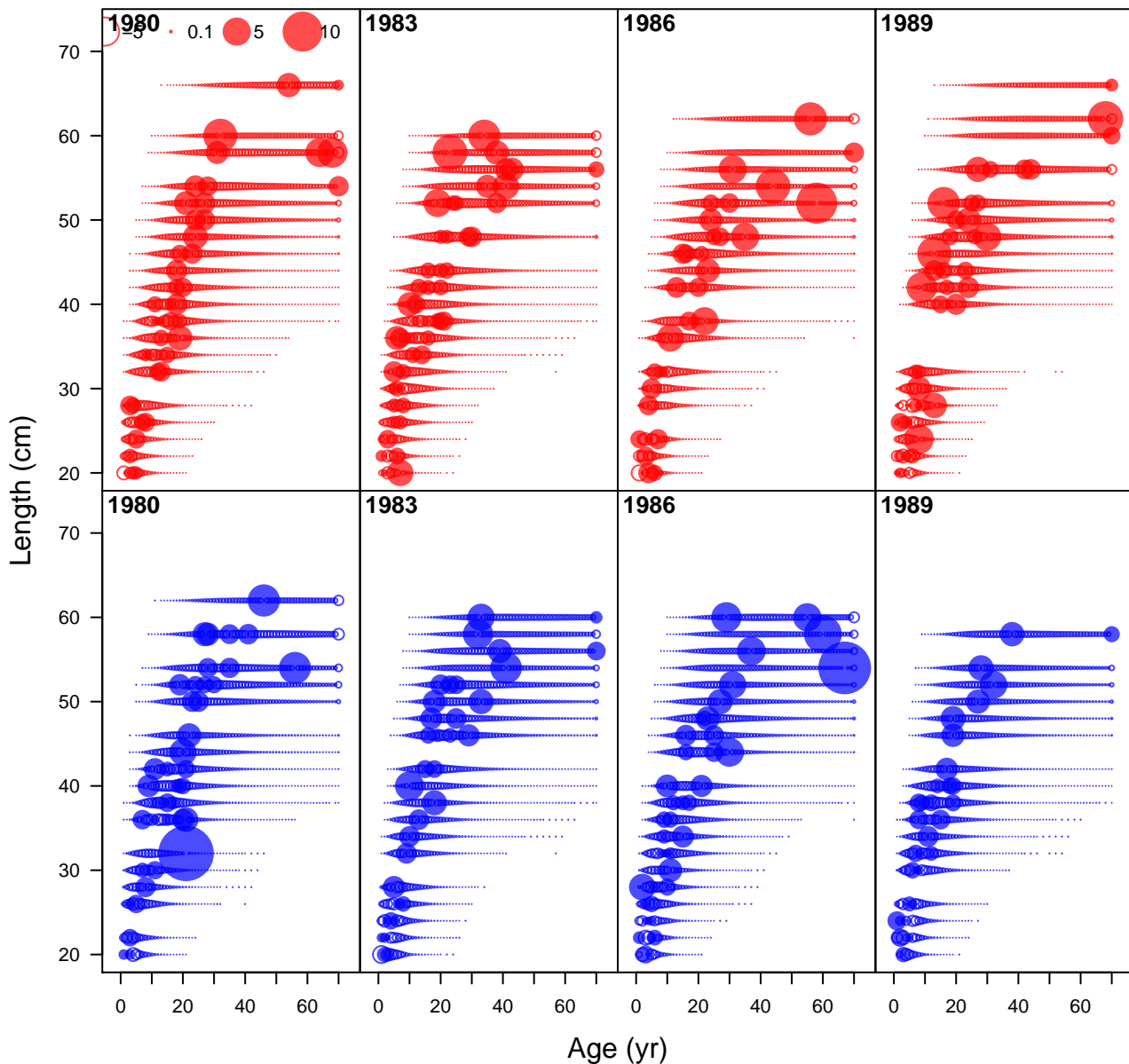
# ghost age comps, whole catch, survey1



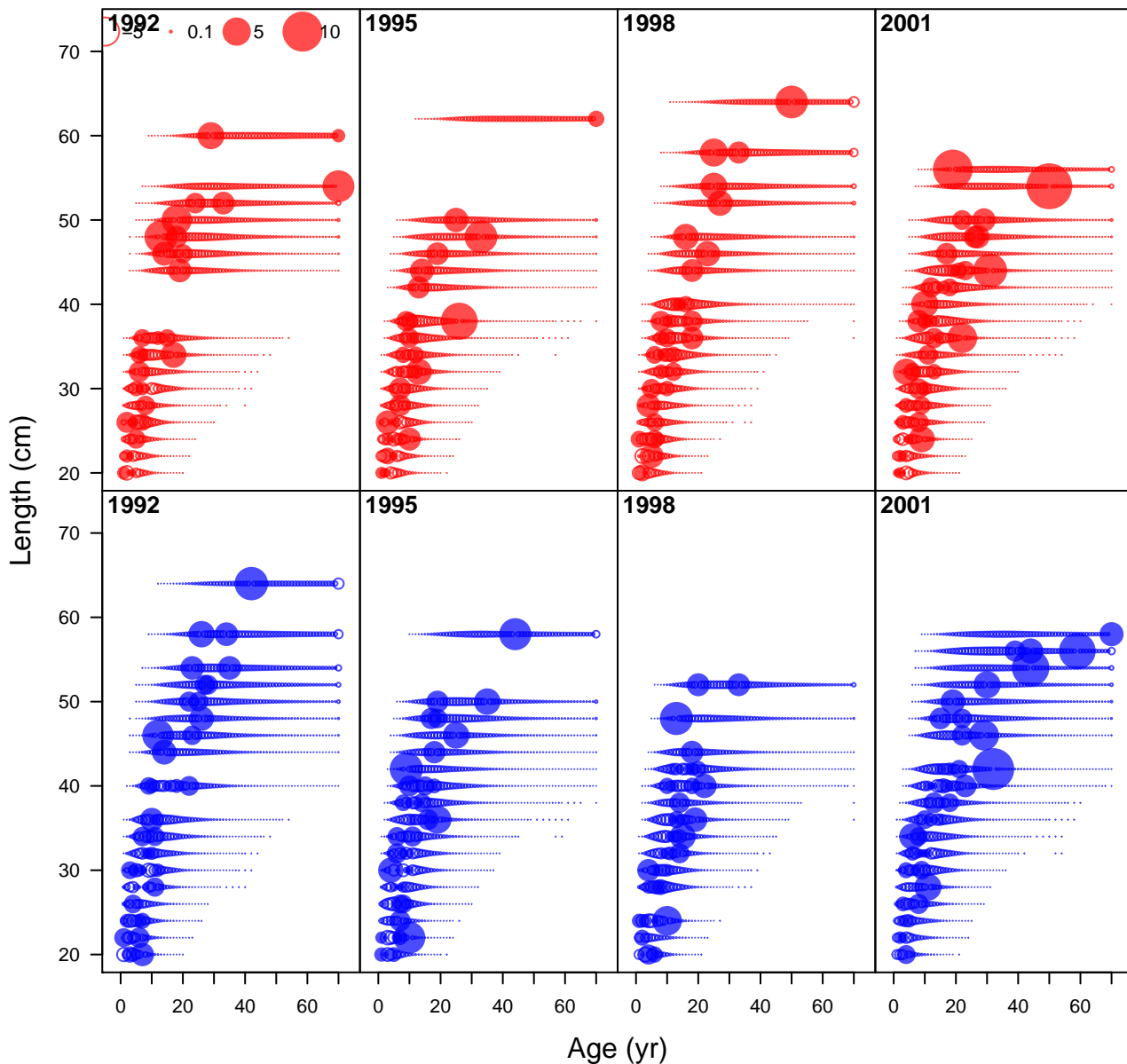
Pearson residuals, whole catch, survey1 (max=NA)



# Pearson residuals, whole catch, survey1 (max=19.24)

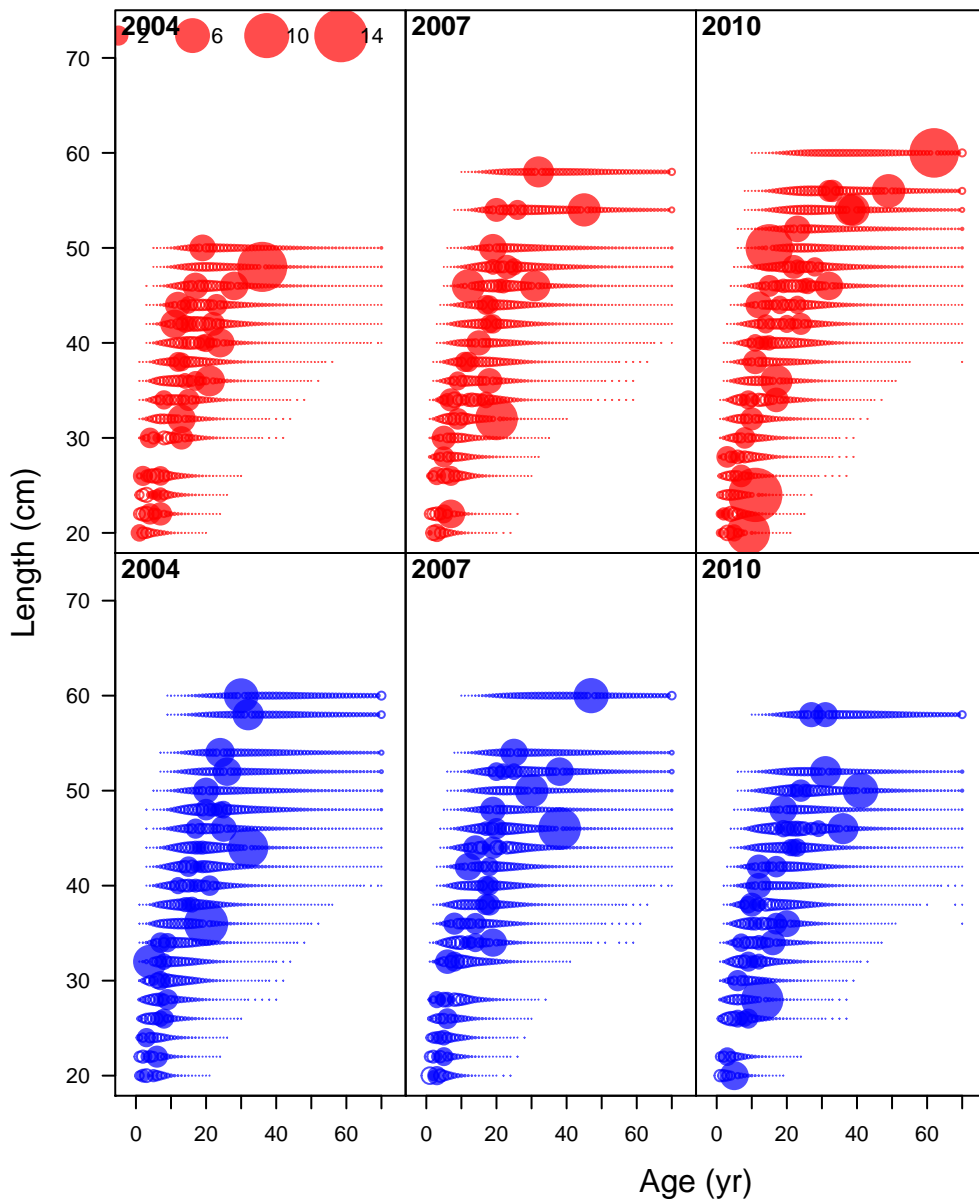


# Pearson residuals, whole catch, survey1 (max=19.24)

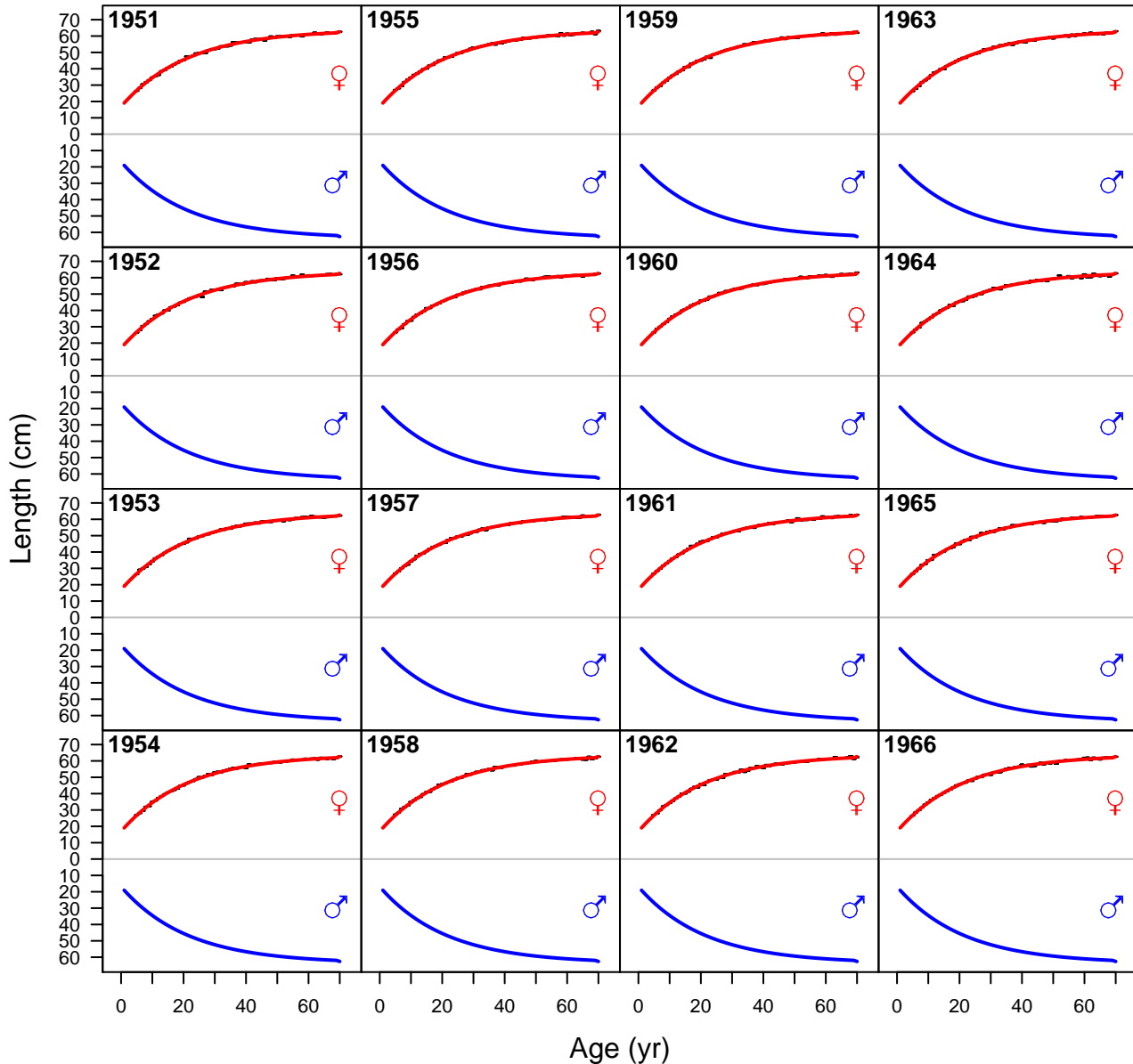




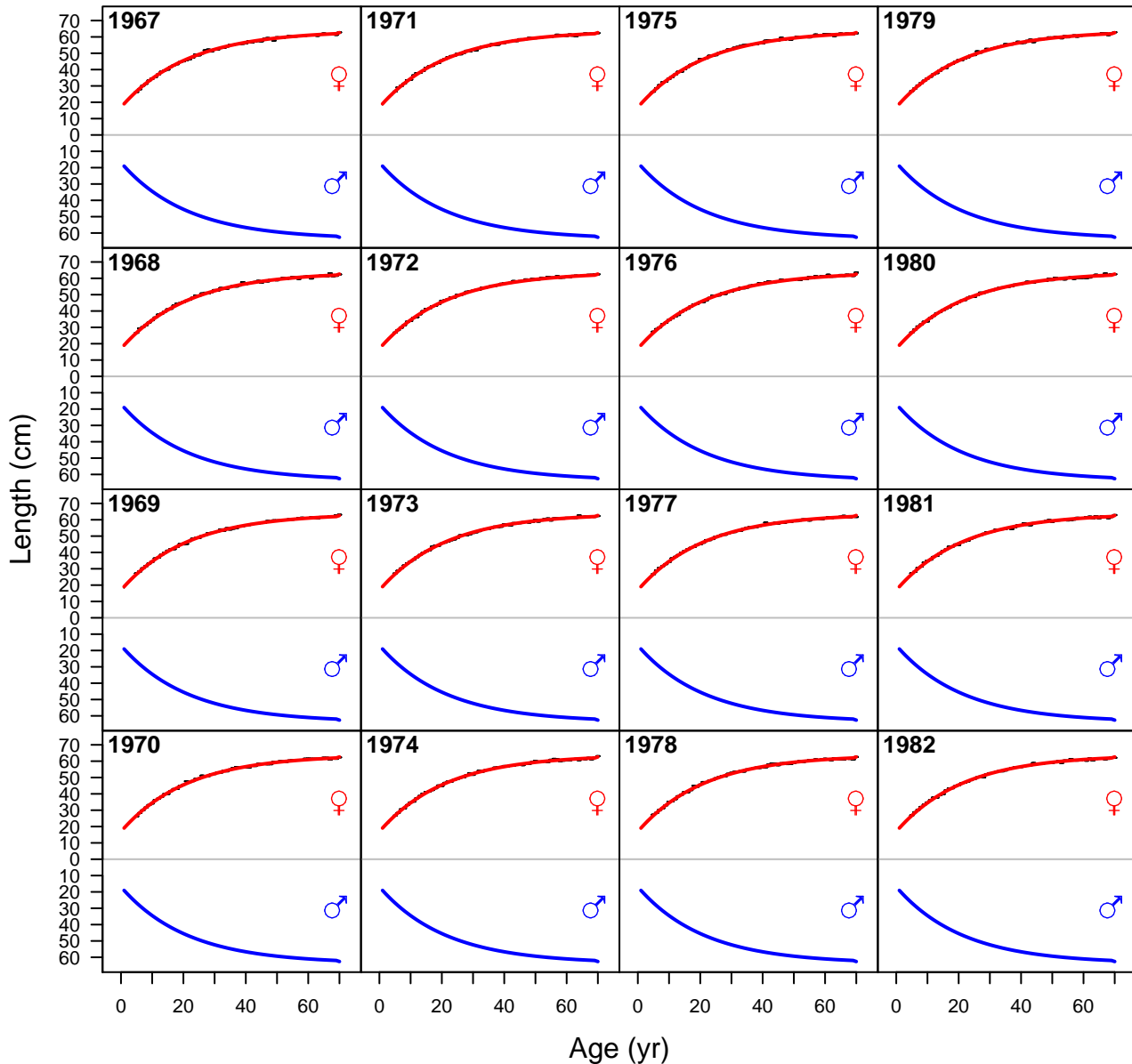
# Pearson residuals, whole catch, survey1 (max=19.24)



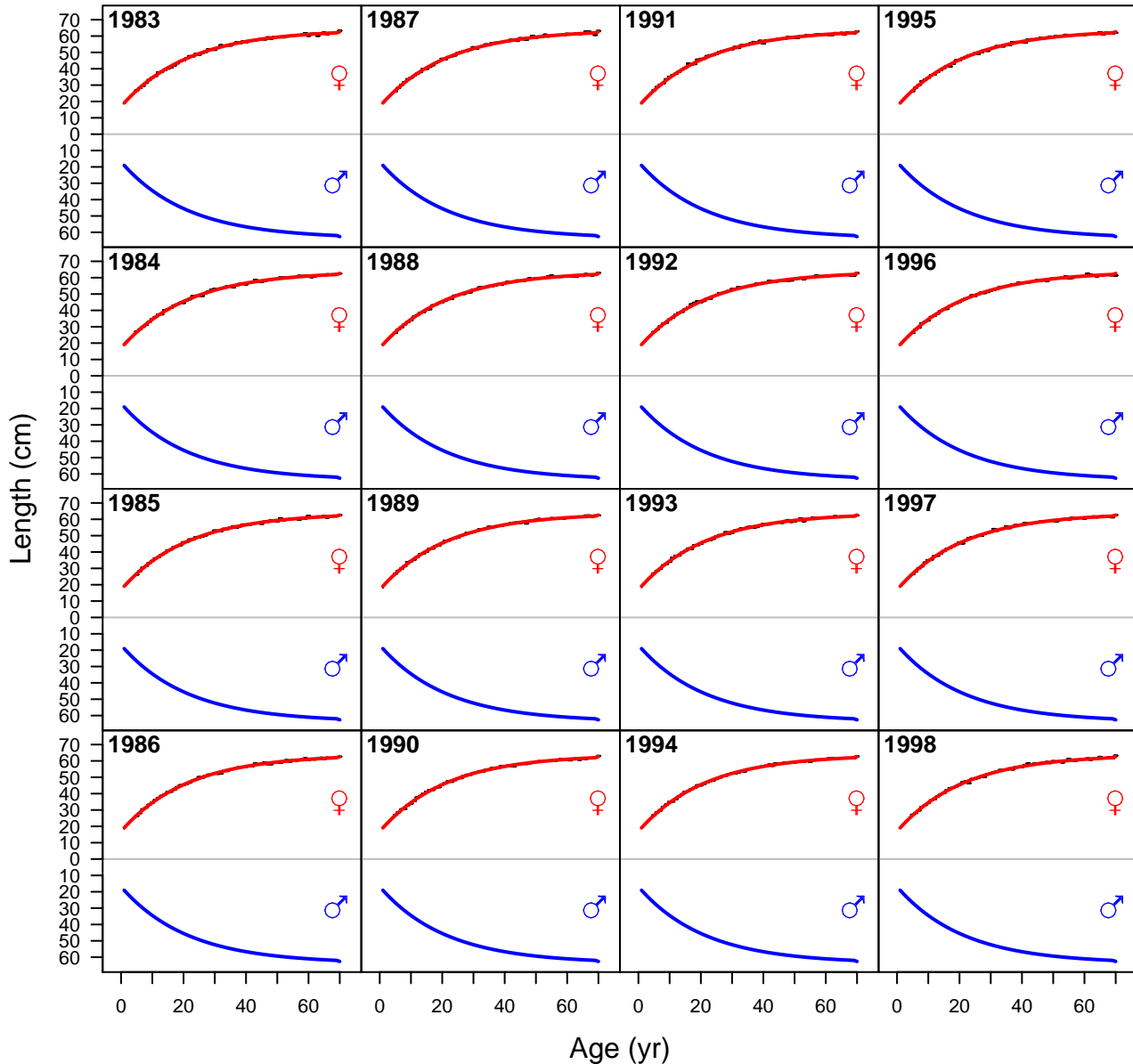
# mean length at age, whole catch, survey2



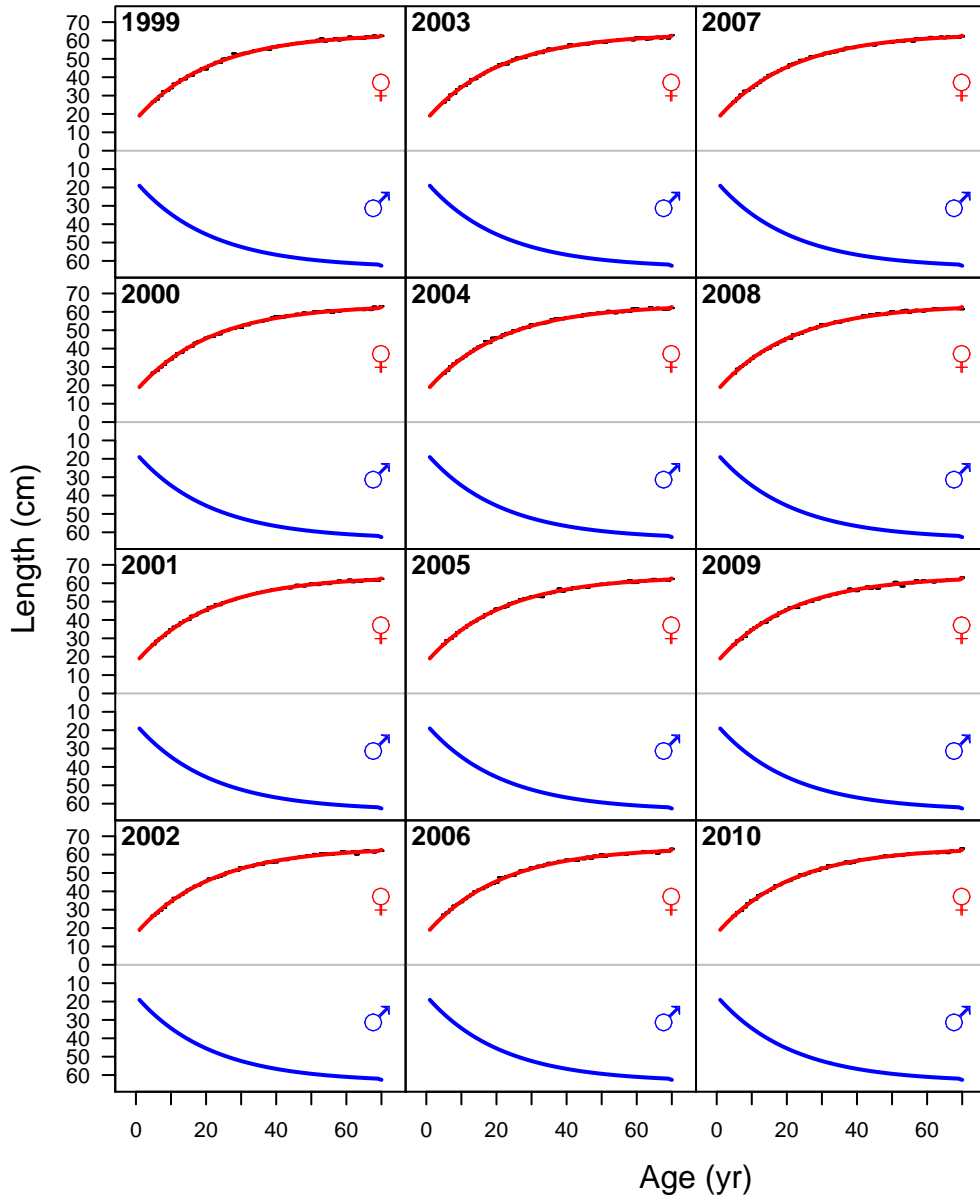
# mean length at age, whole catch, survey2



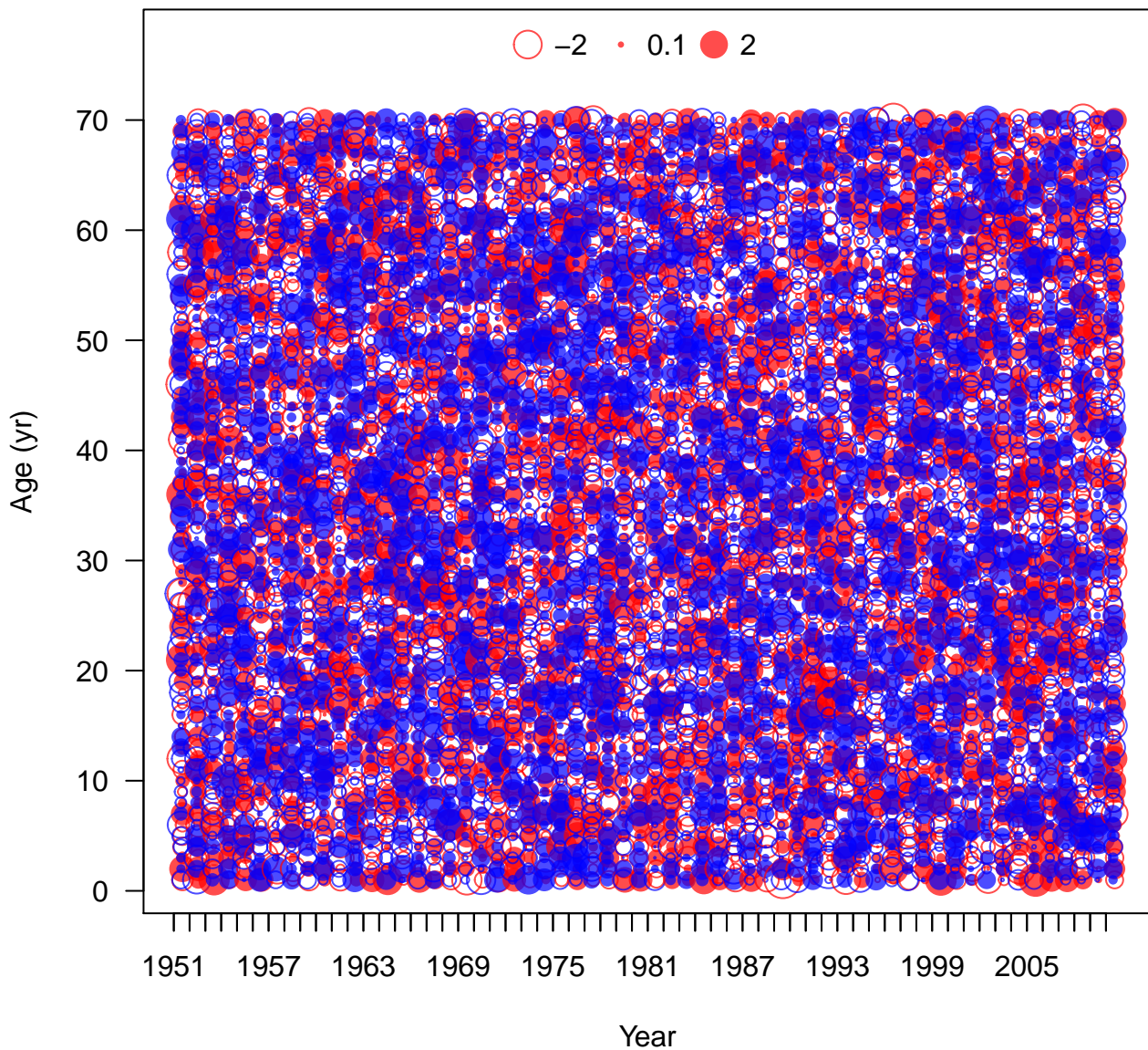
# mean length at age, whole catch, survey2



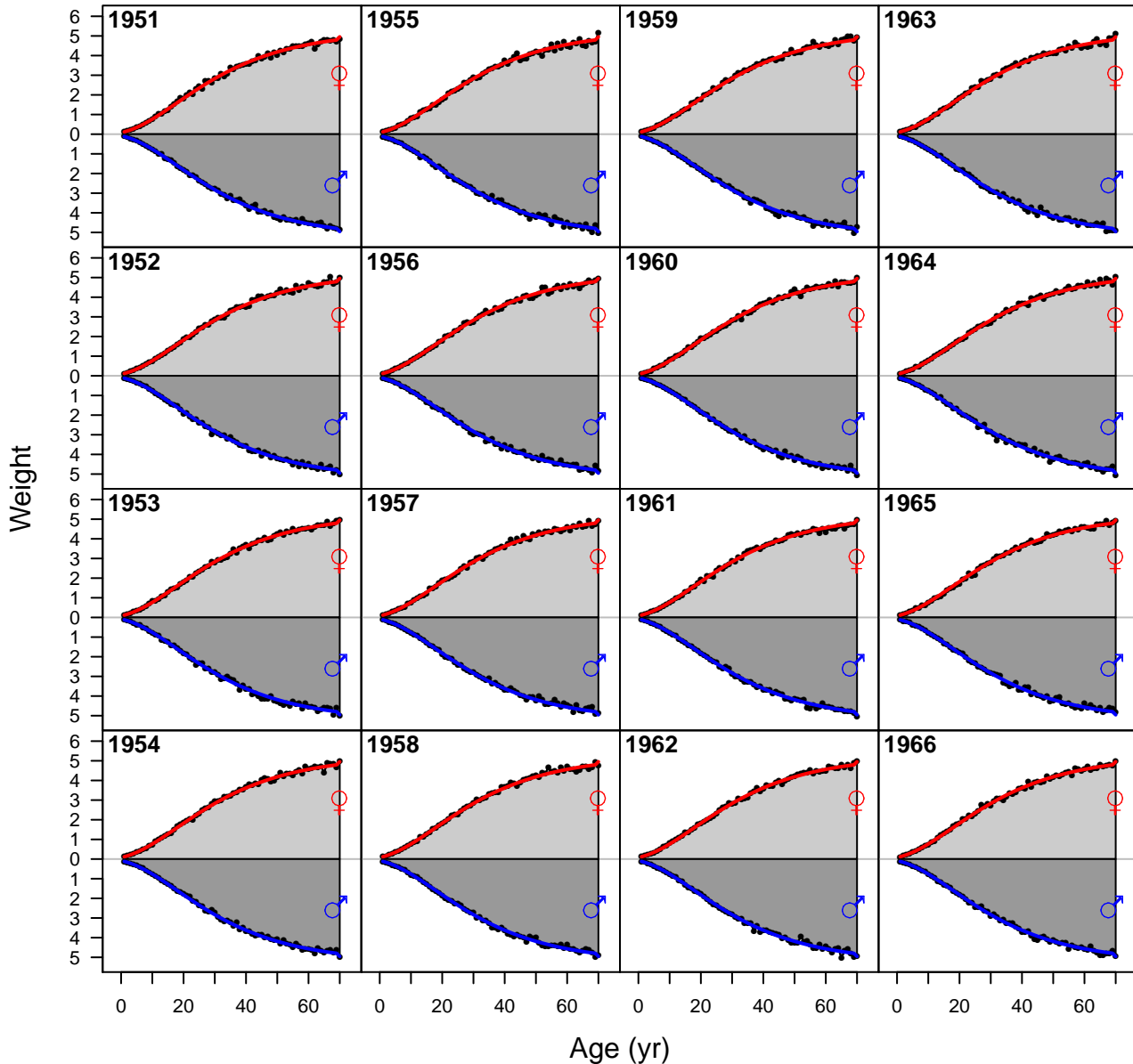
# mean length at age, whole catch, survey2



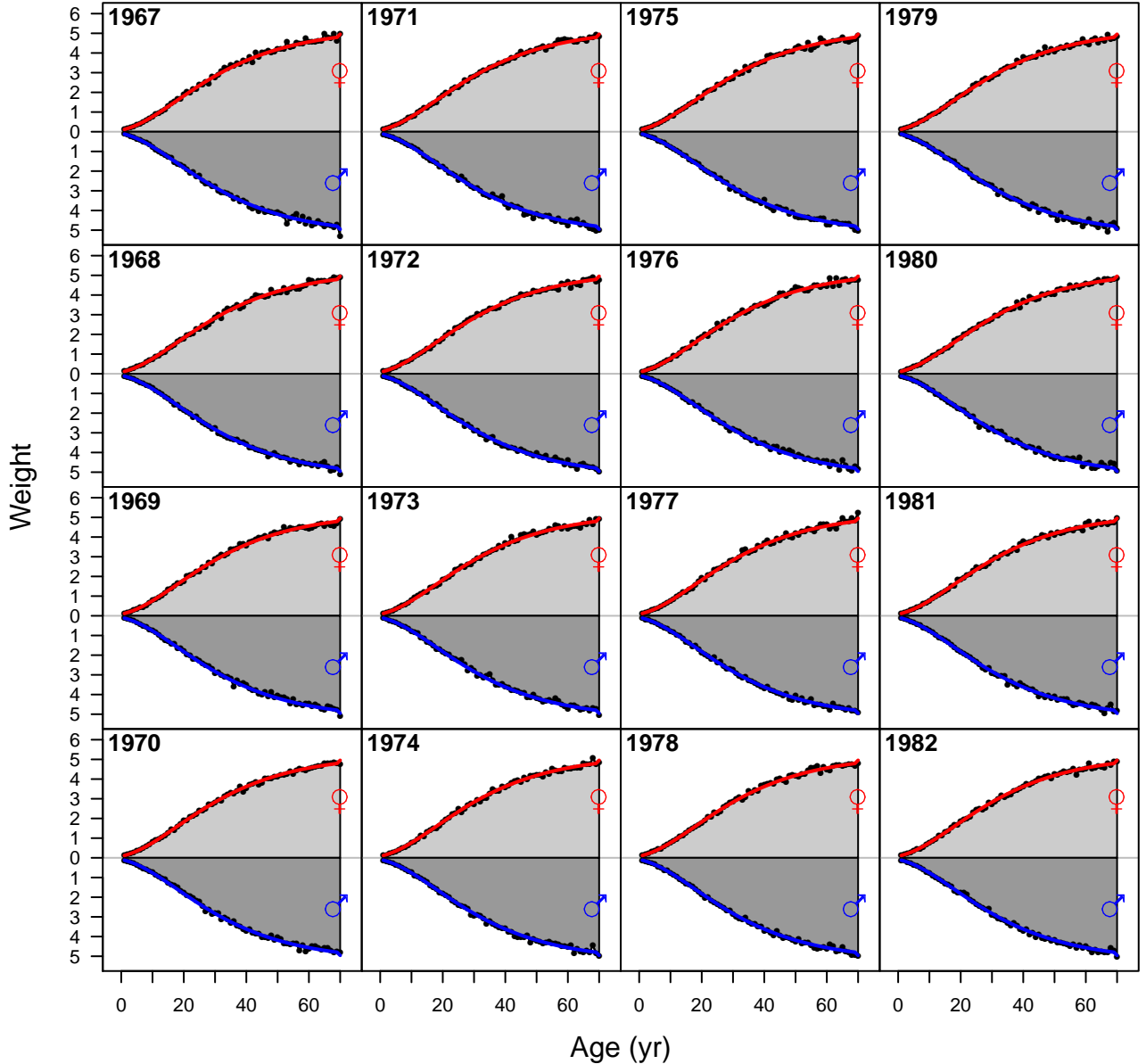
**Pearson residuals, whole catch, survey2 (max=3.89)**



# mean weight at age, whole catch, survey2

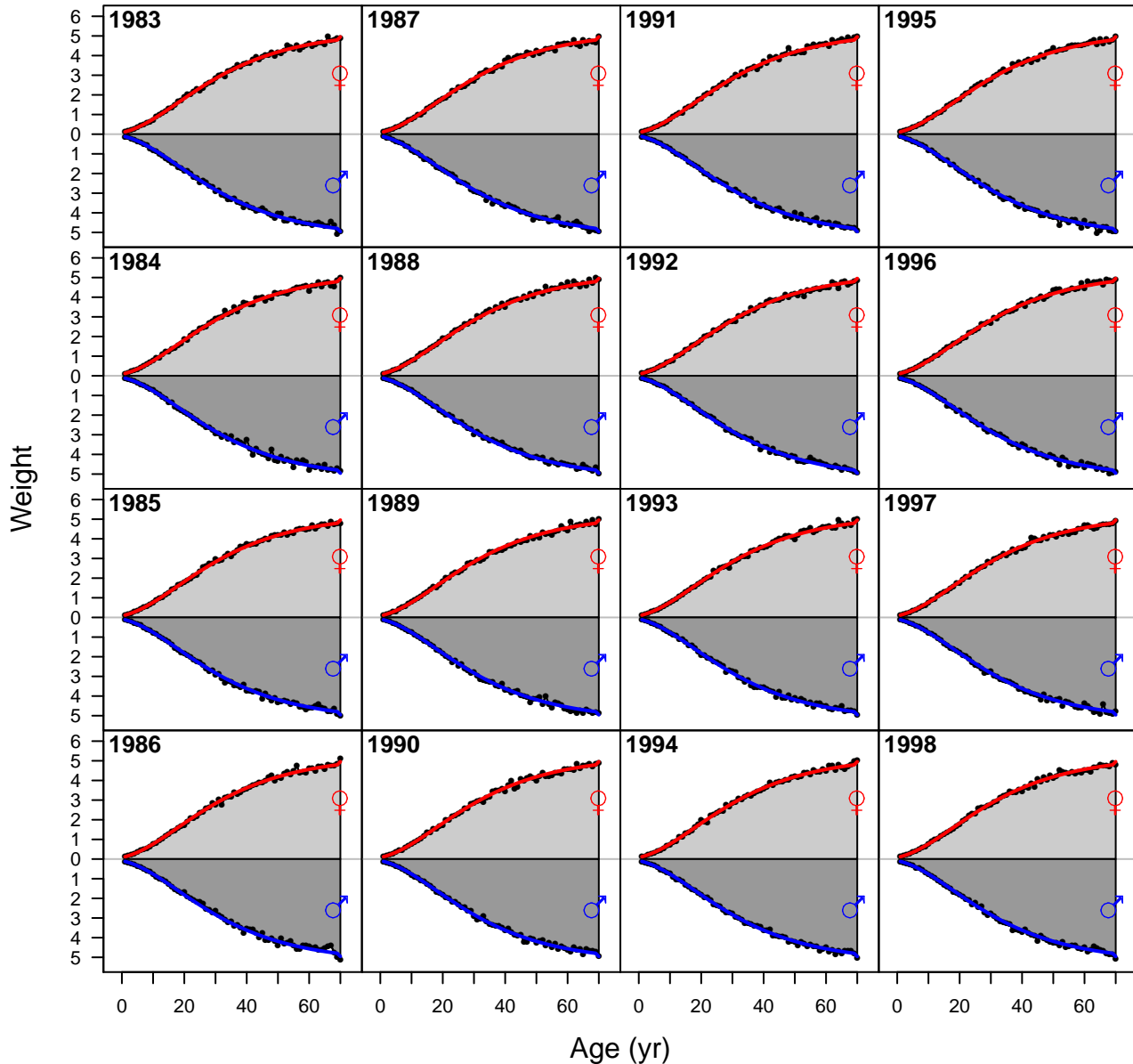


# mean weight at age, whole catch, survey2

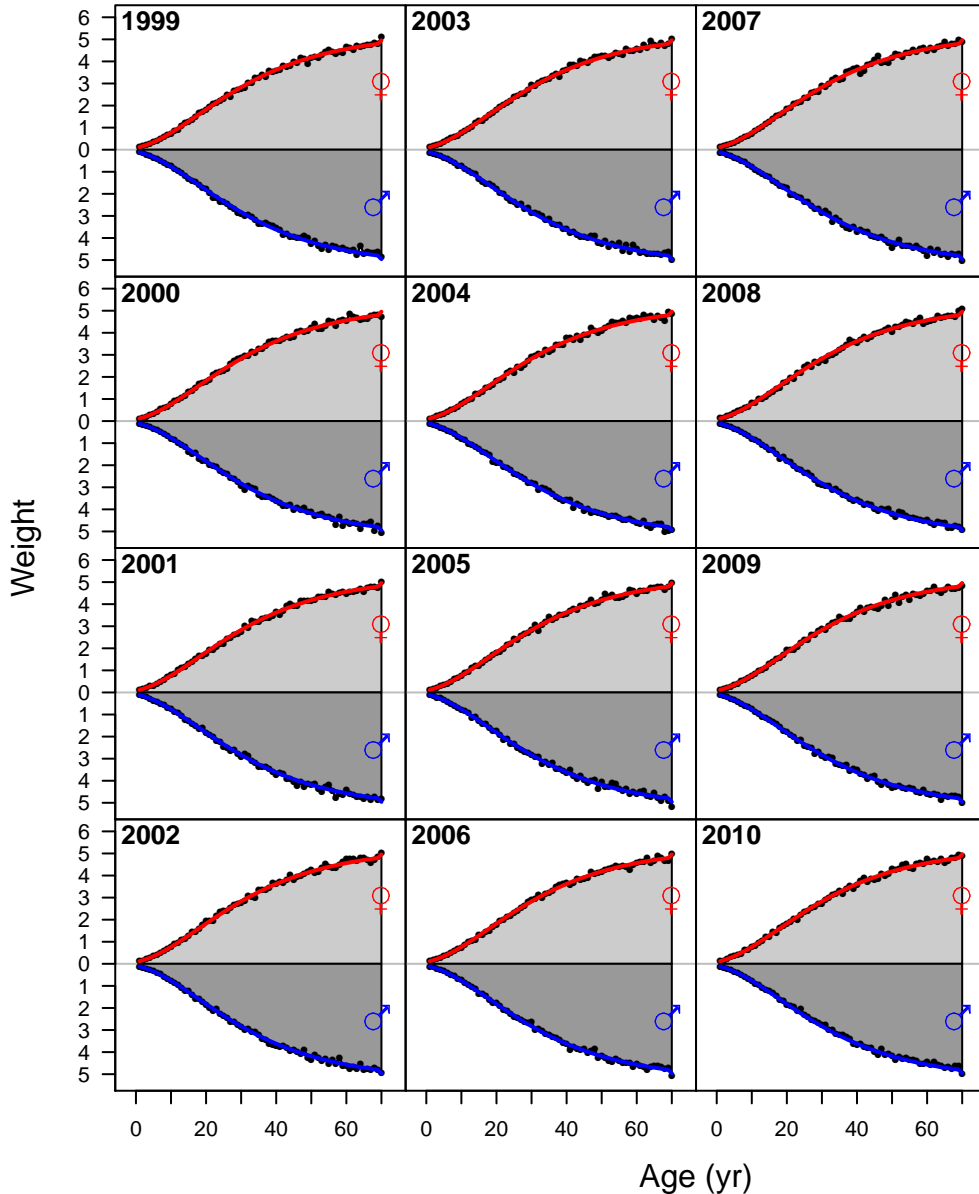




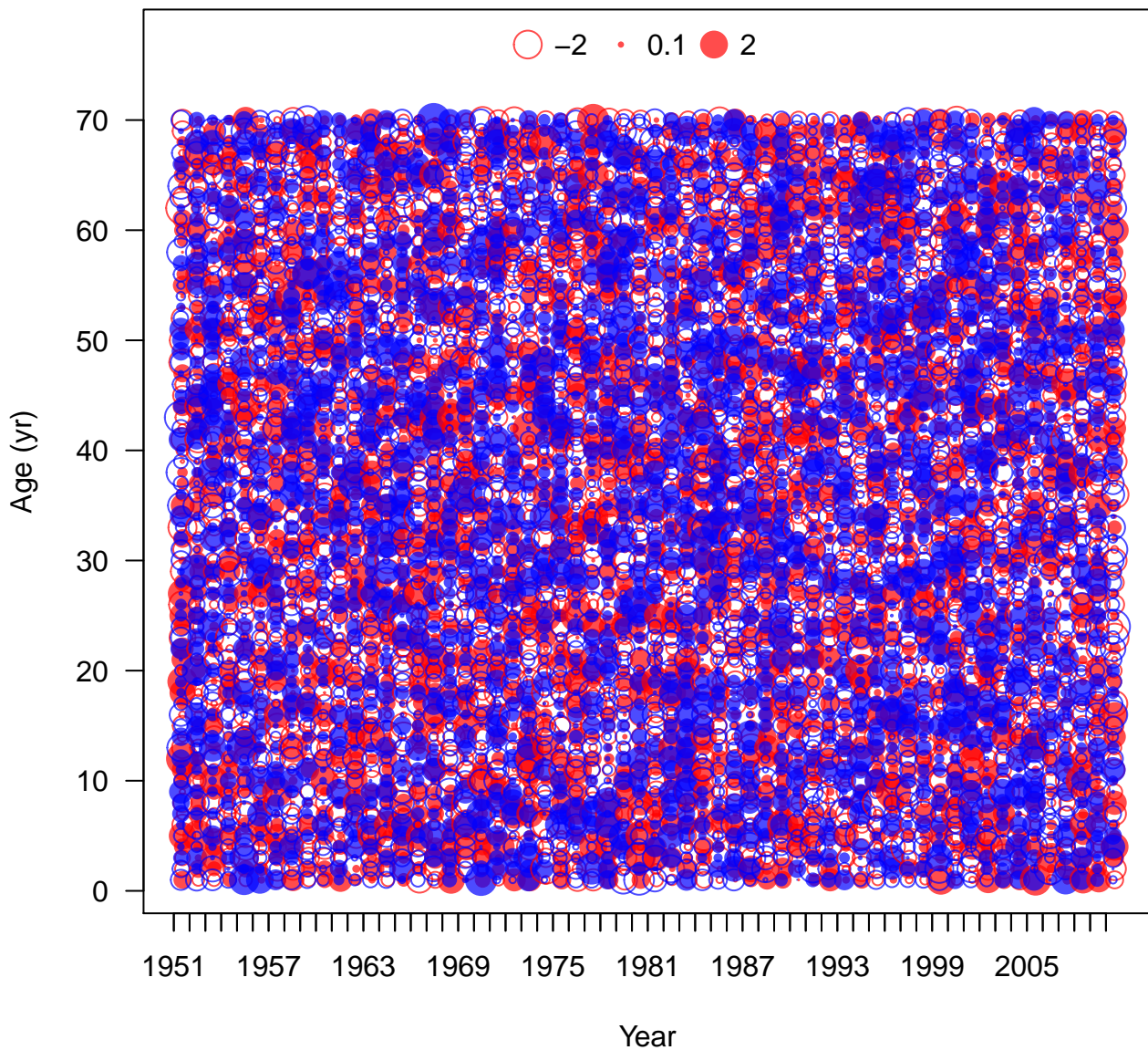
# mean weight at age, whole catch, survey2

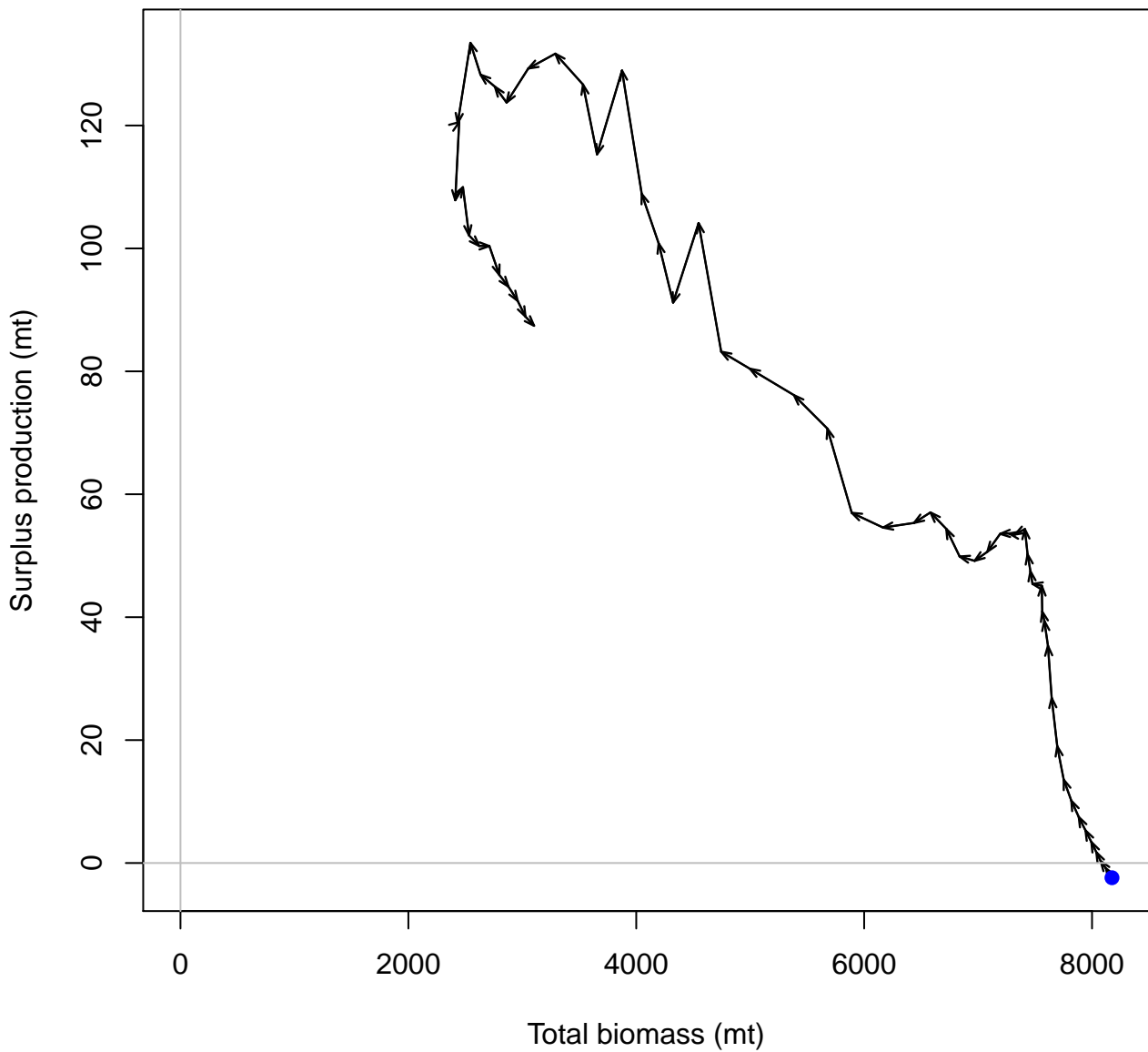


# mean weight at age, whole catch, survey2



Pearson residuals, whole catch, survey2 (max=3.8)





## Data by type and year

