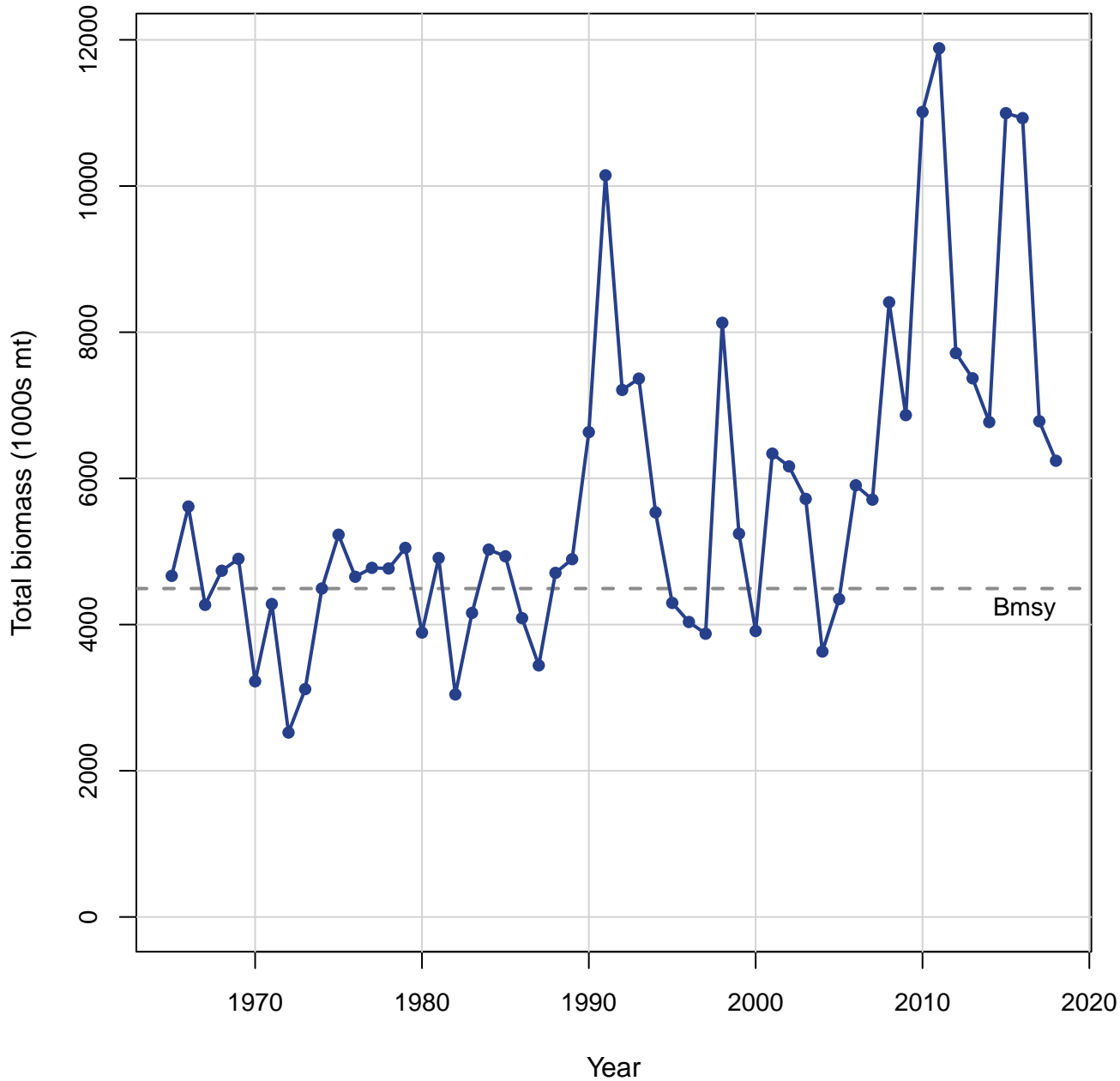
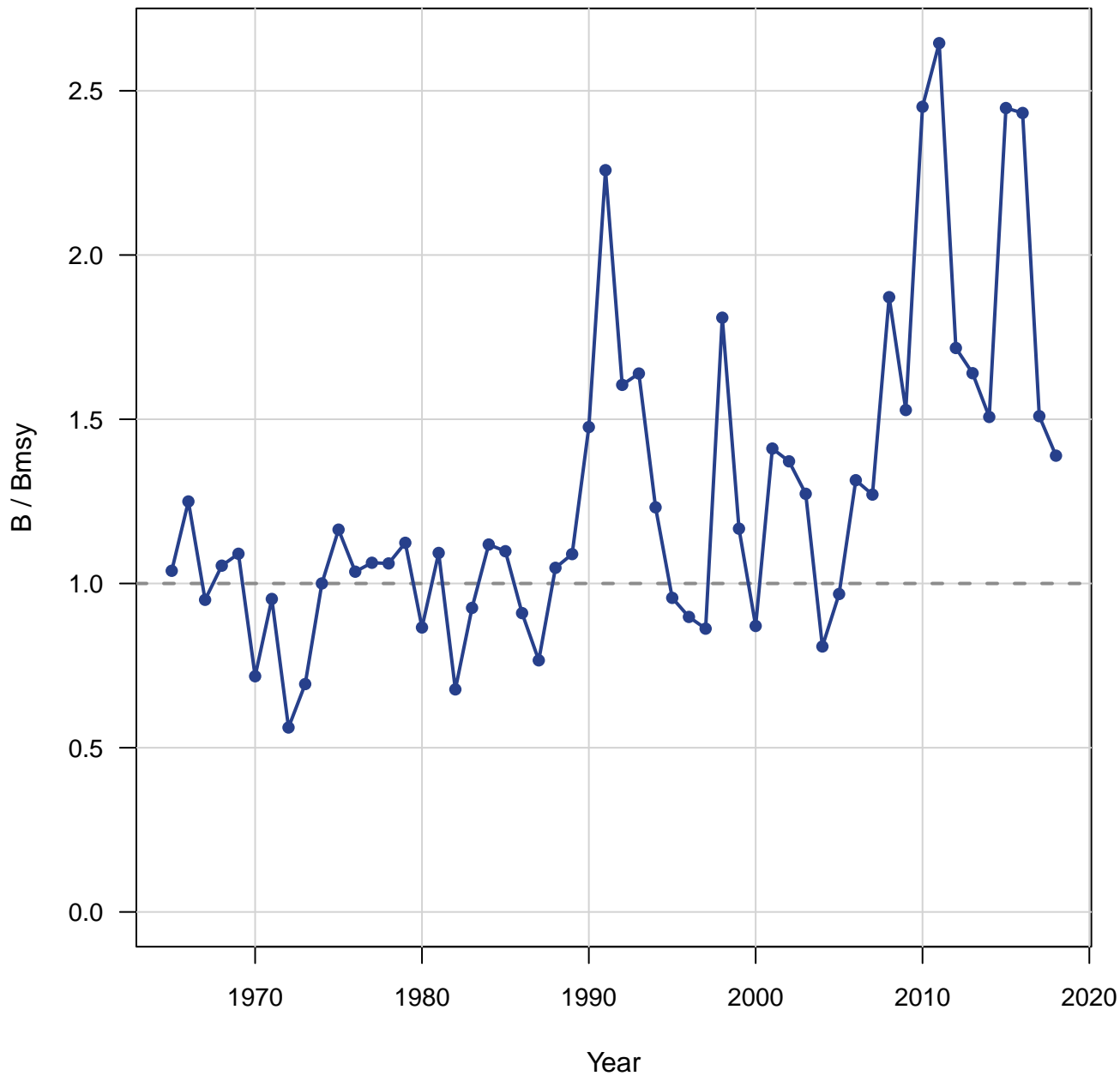


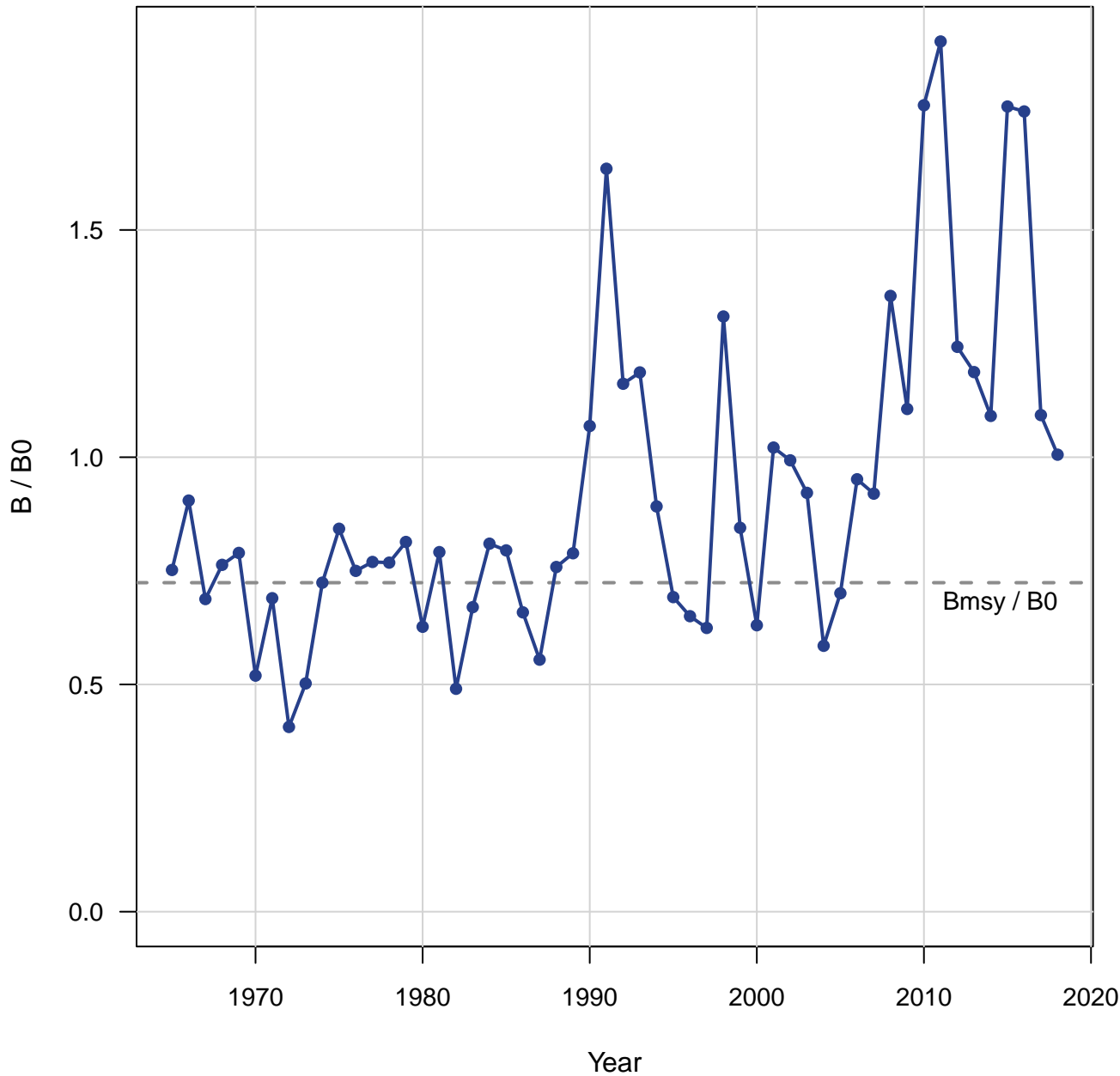
Biomass Data: menhaden



B / Bmsy **Data: menhaden**

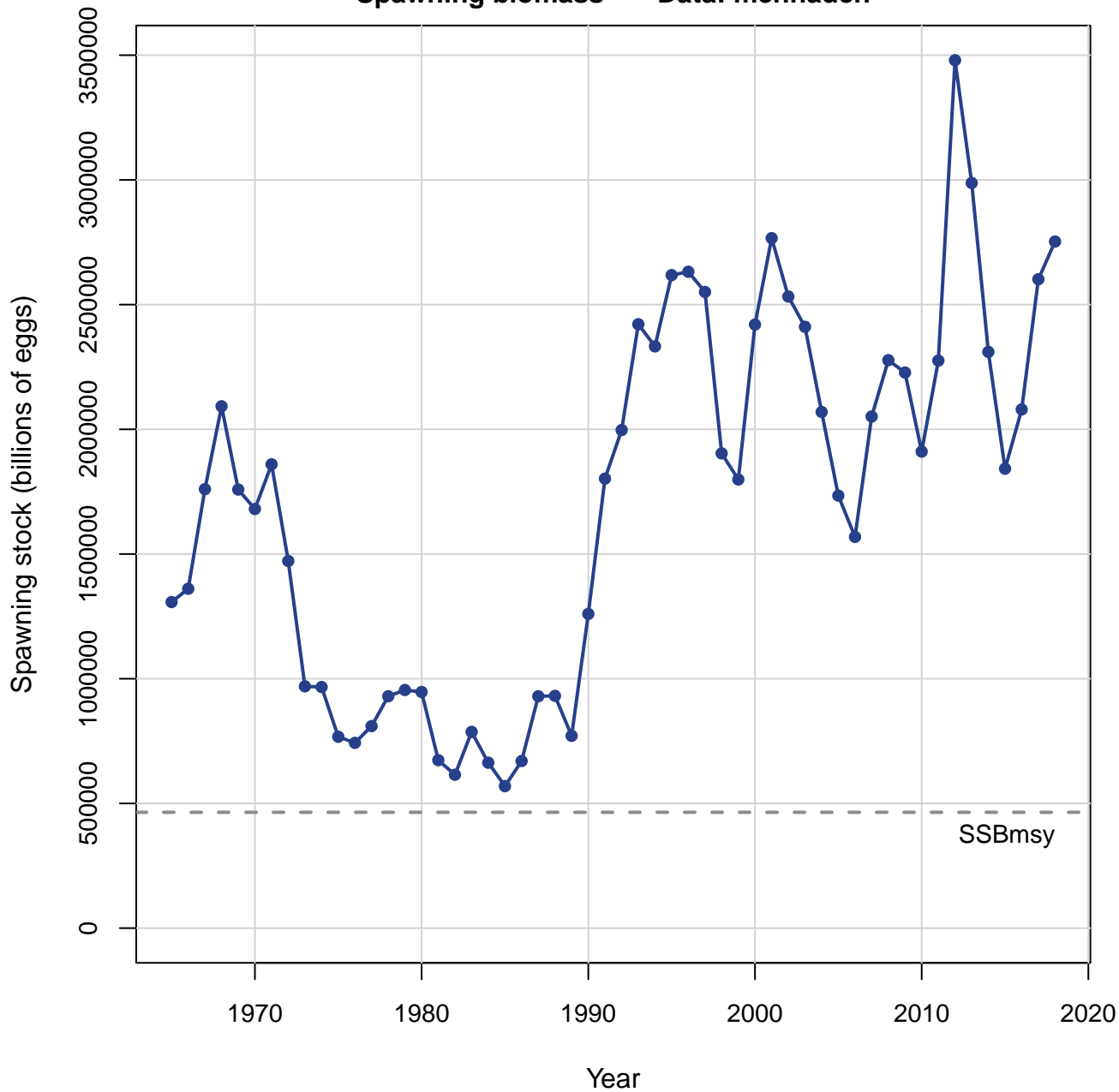


B/B0 Data: menhaden



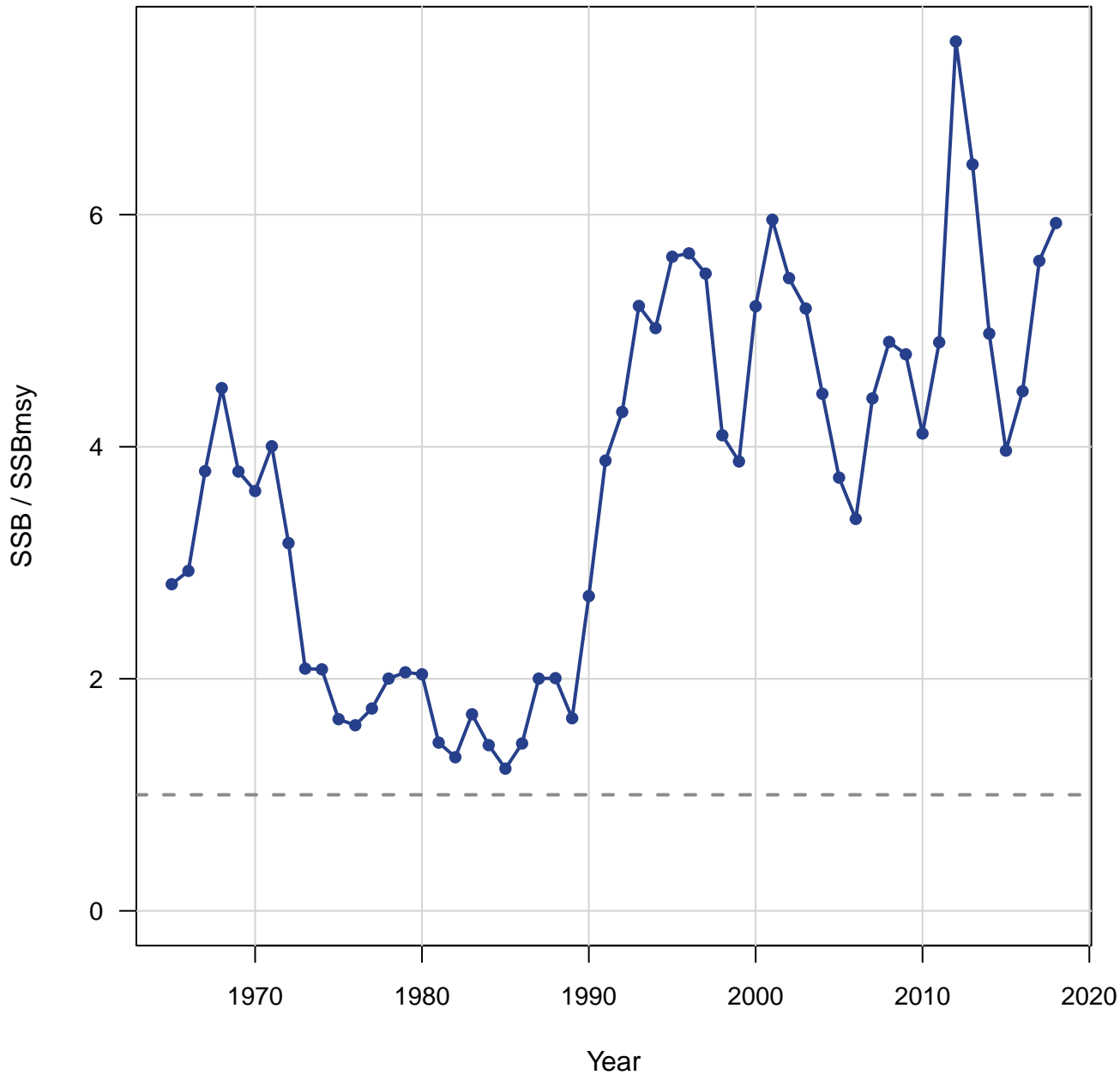
Spawning biomass

Data: menhaden

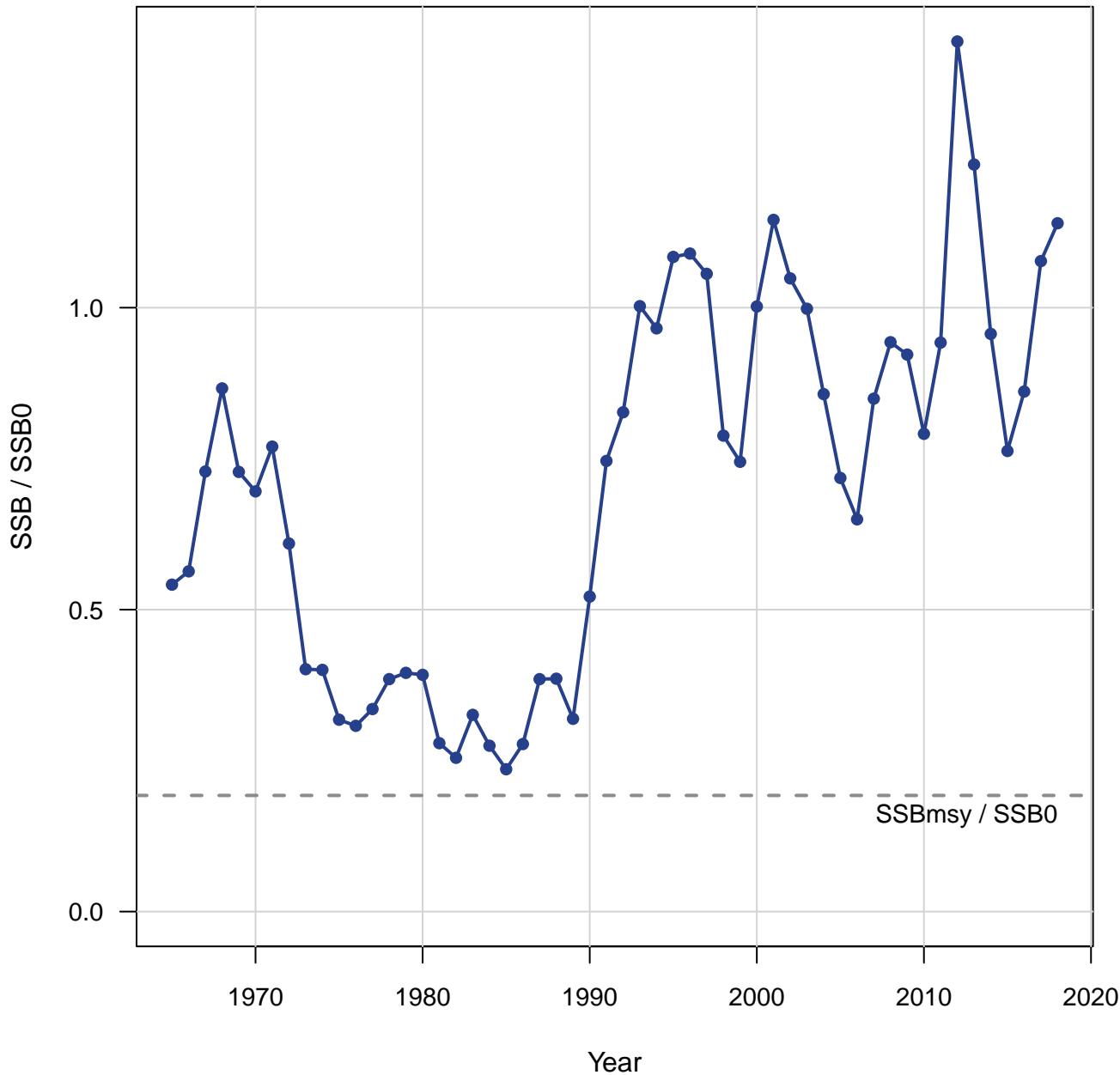


SSB / SSBmsy

Data: menhaden

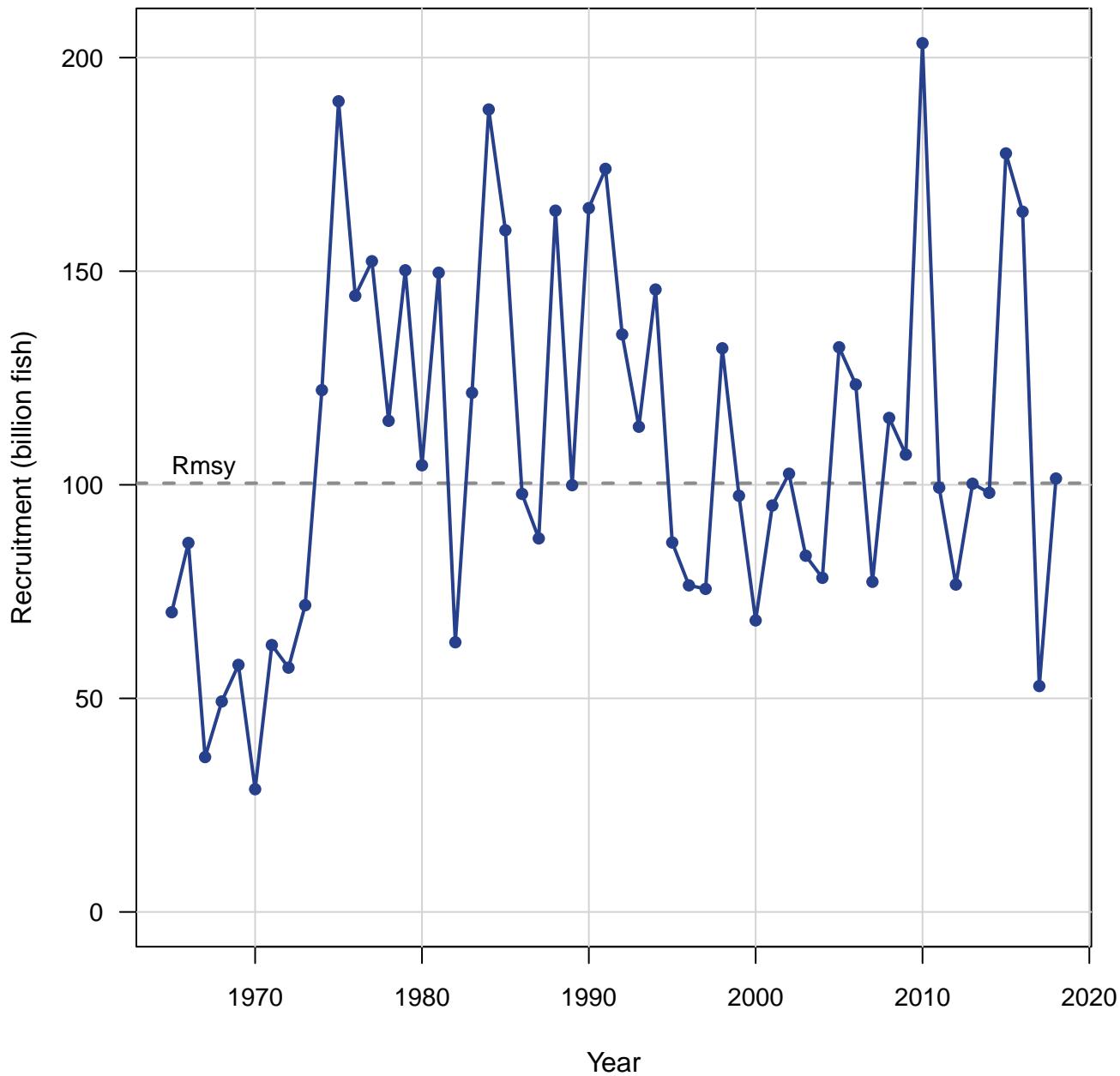


SSB/SSB0 Data: menhaden



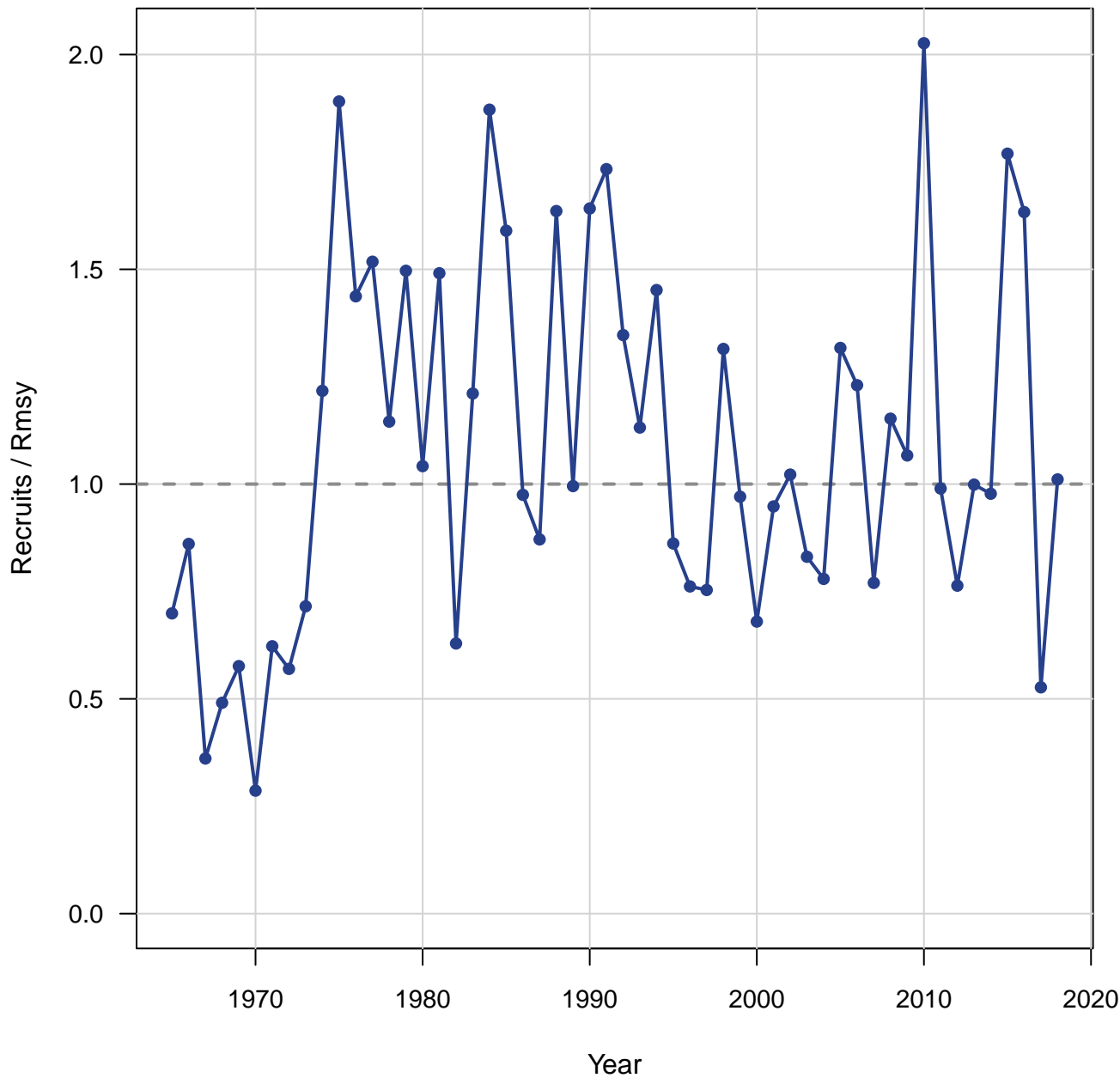
Recruitment

Data: menhaden



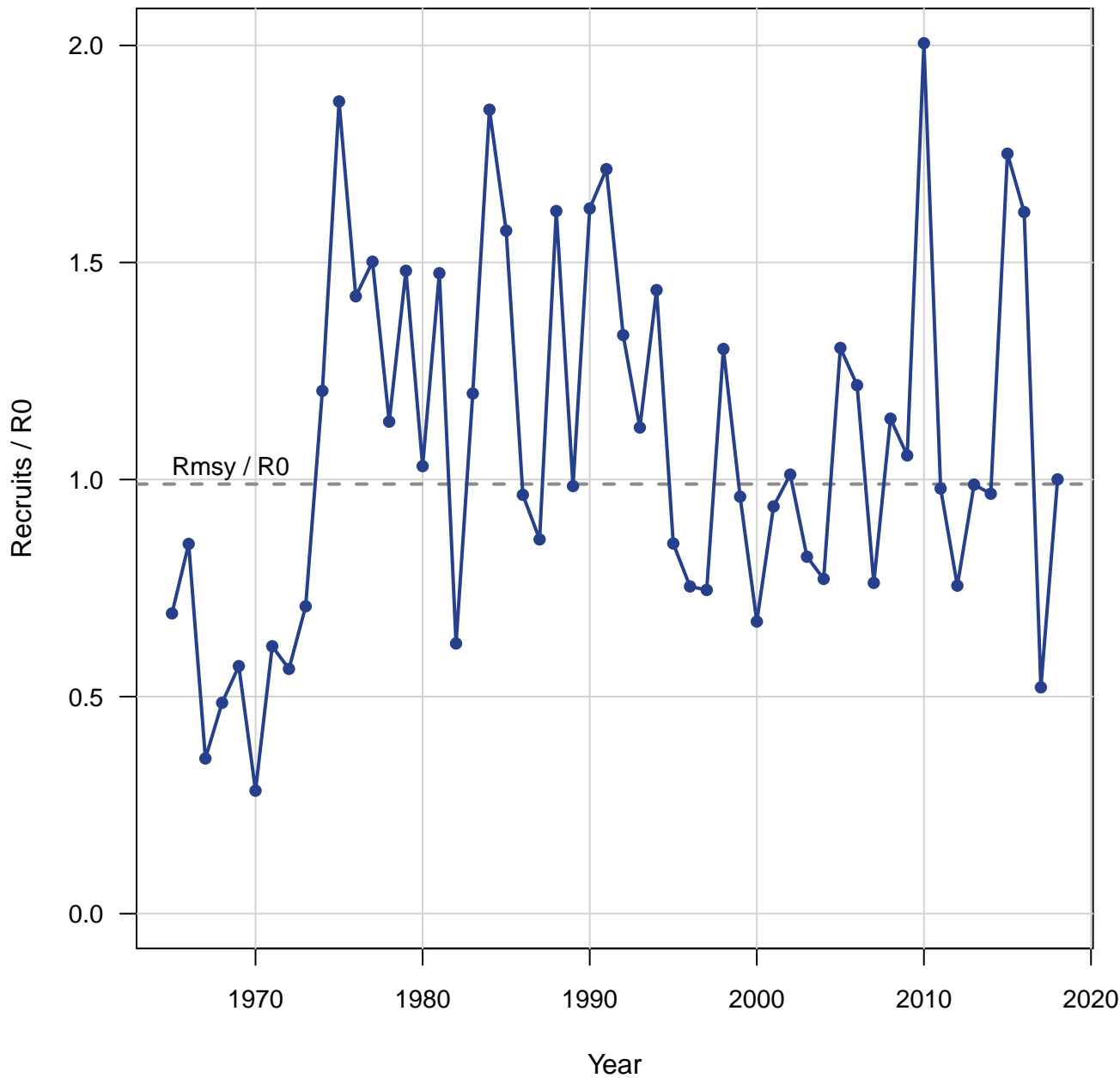
Recruits / Rmsy

Data: menhaden



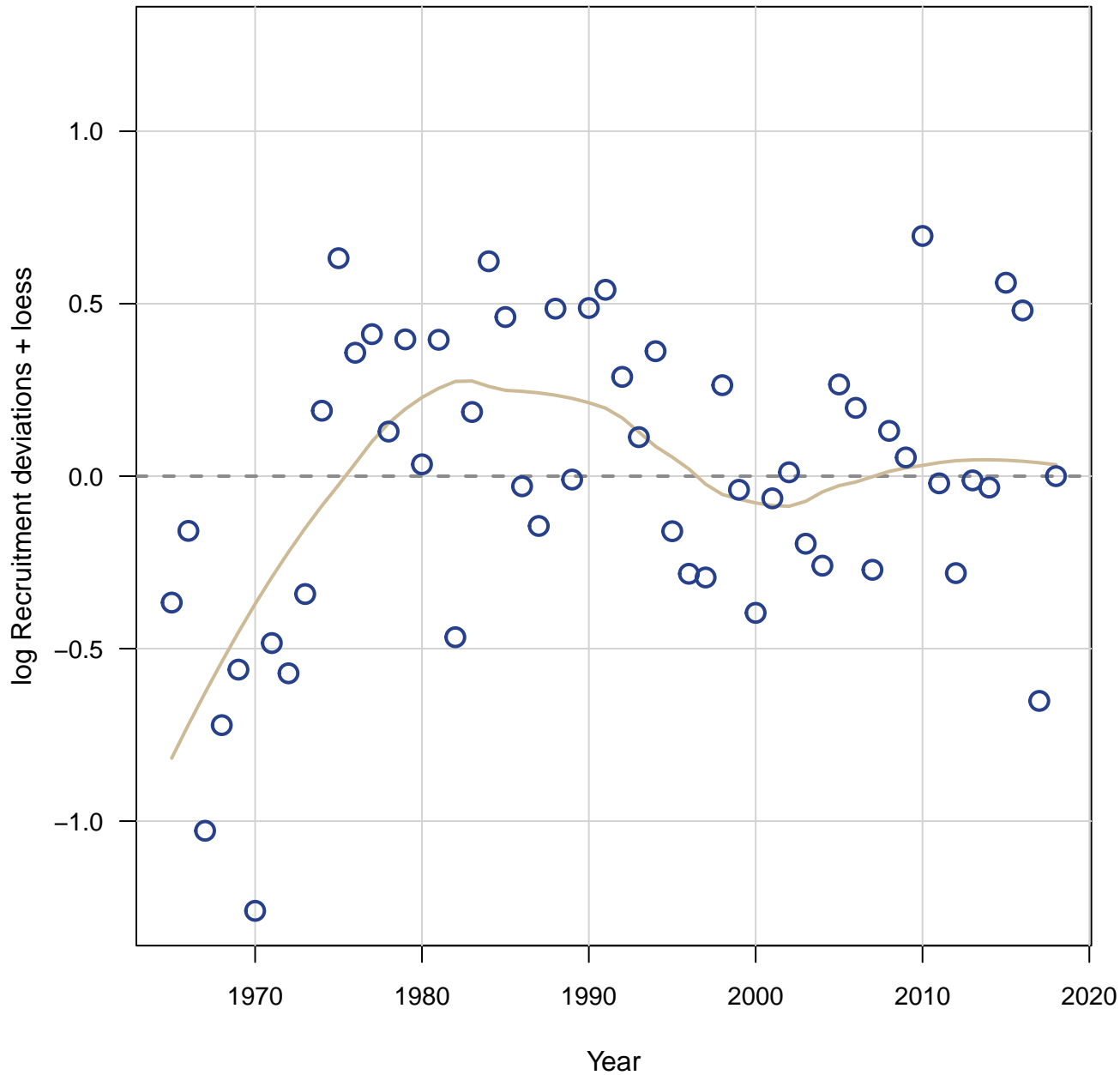
Recruits/R0

Data: menhaden

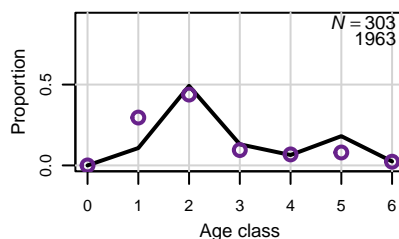
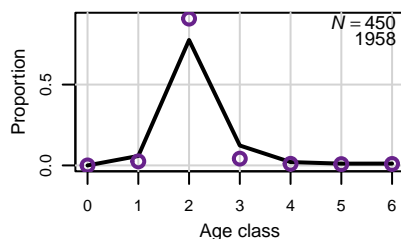
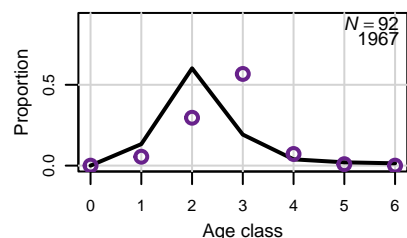
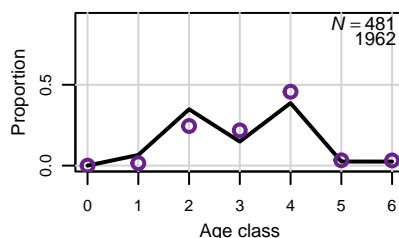
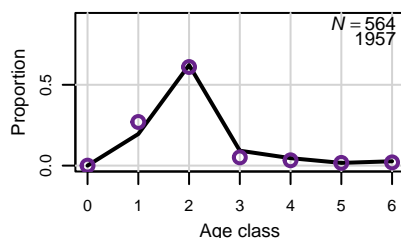
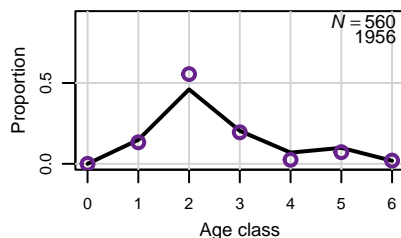
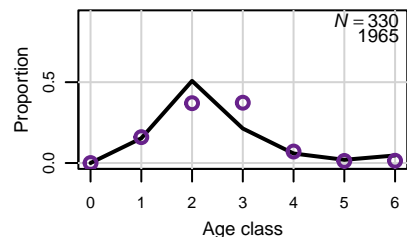
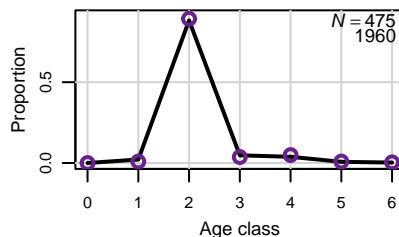
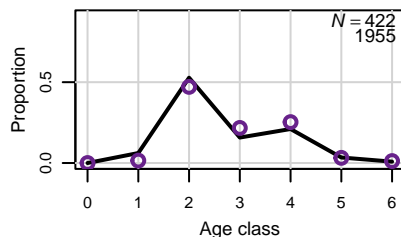
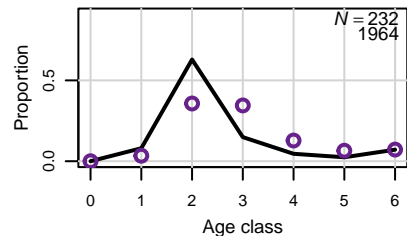


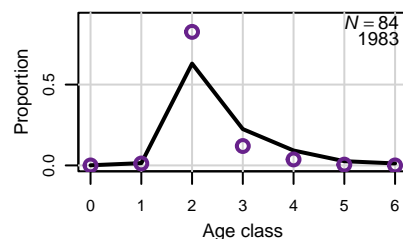
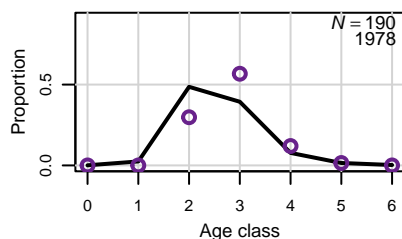
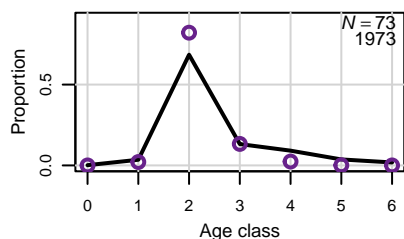
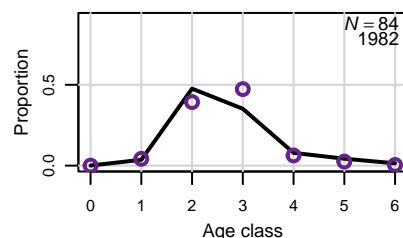
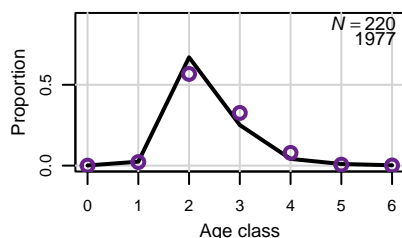
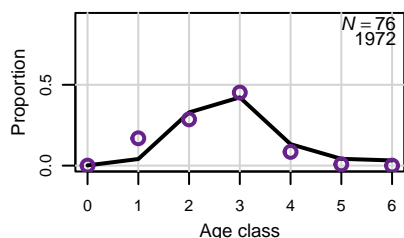
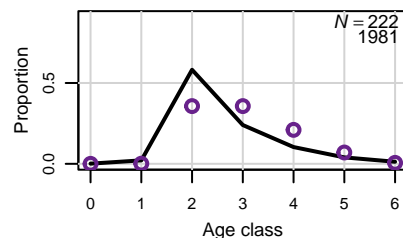
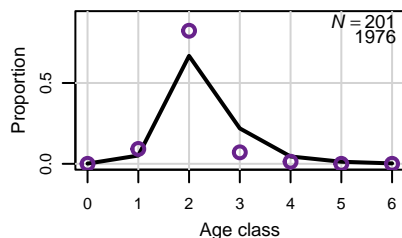
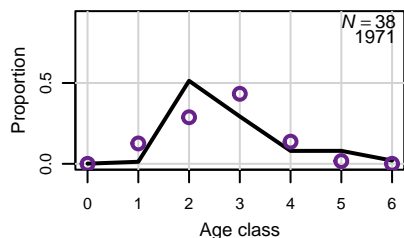
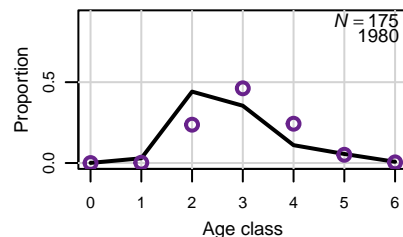
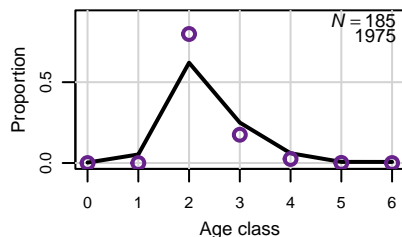
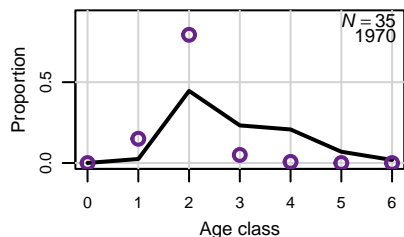
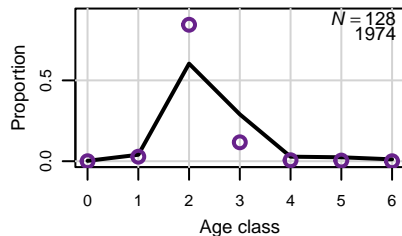
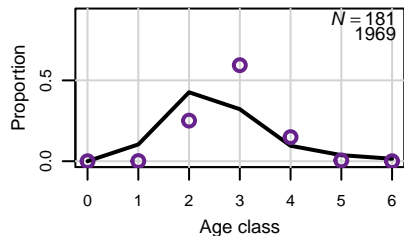
Recruitment deviations

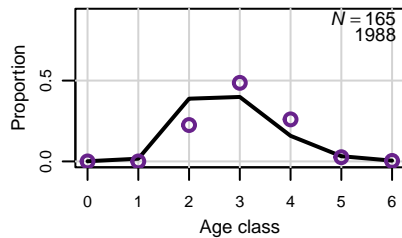
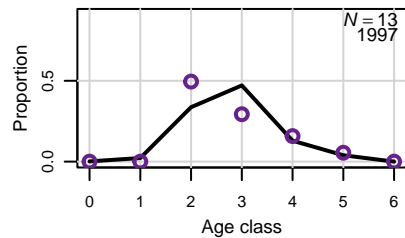
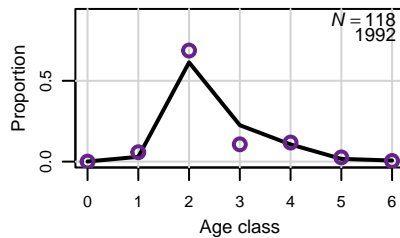
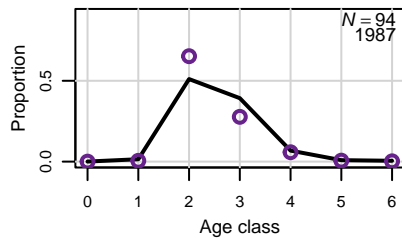
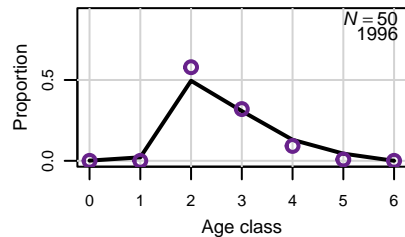
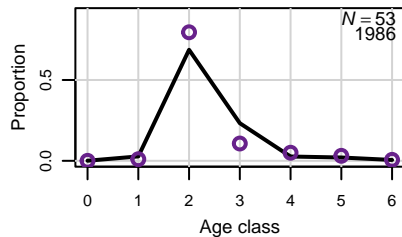
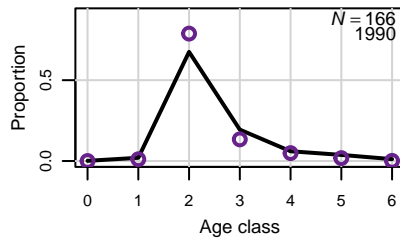
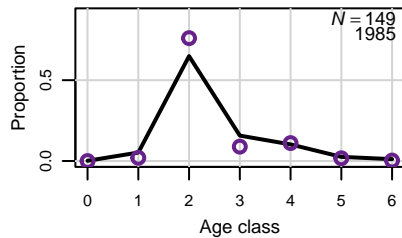
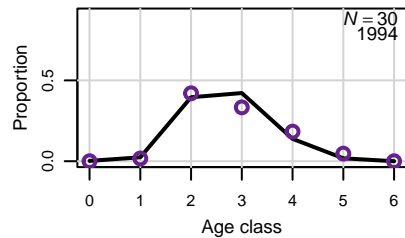
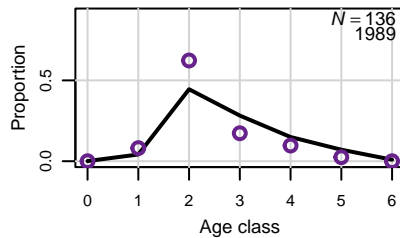
Data: menhaden

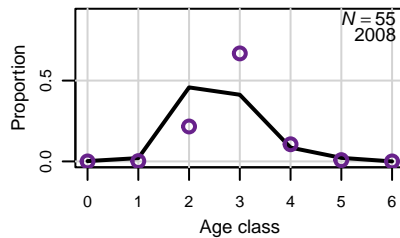
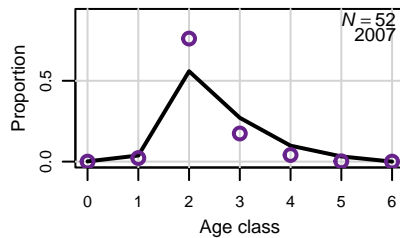
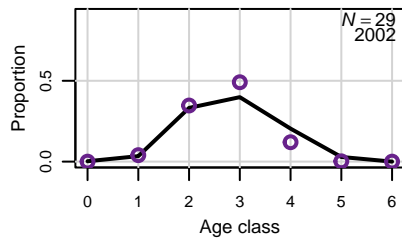
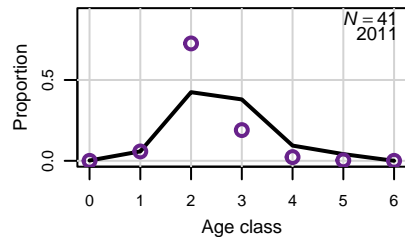
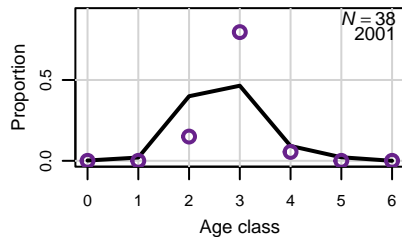
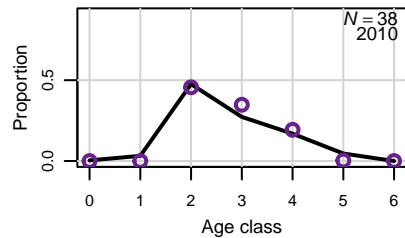
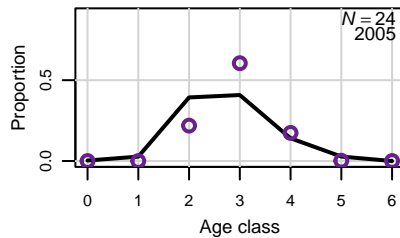
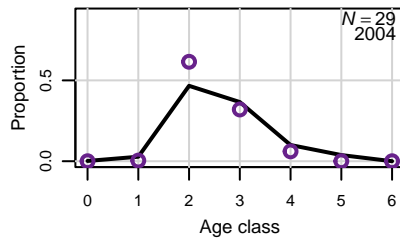
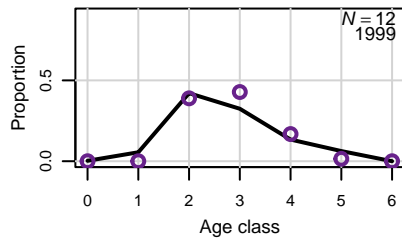


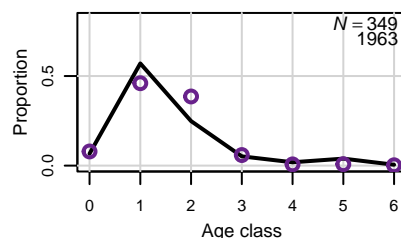
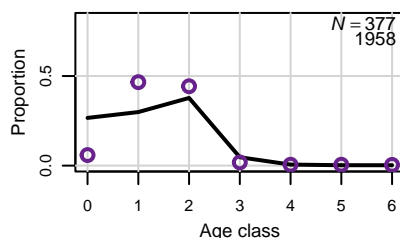
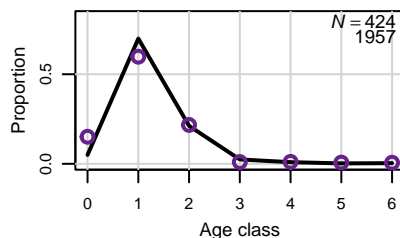
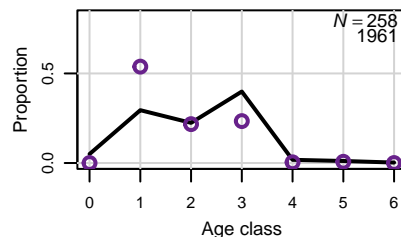
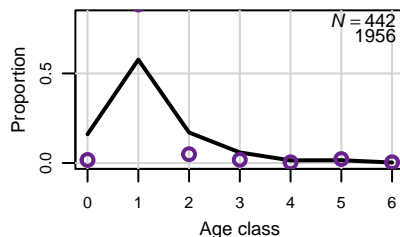
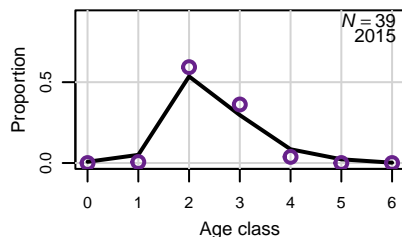
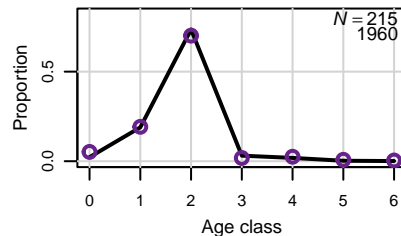
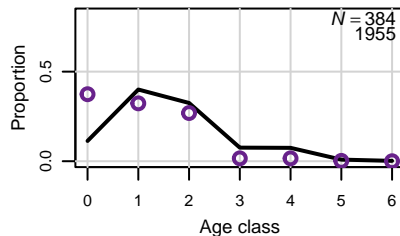
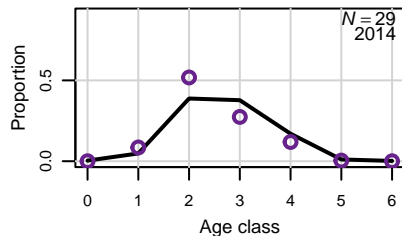
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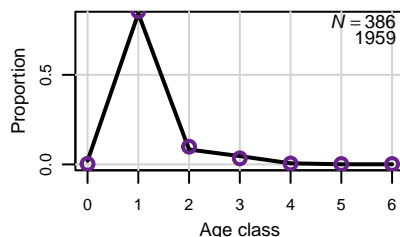


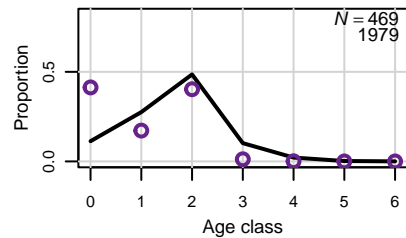
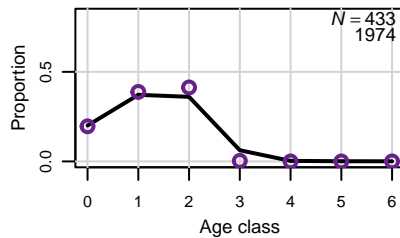
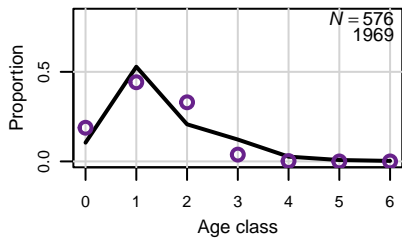
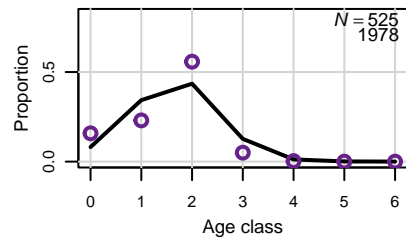
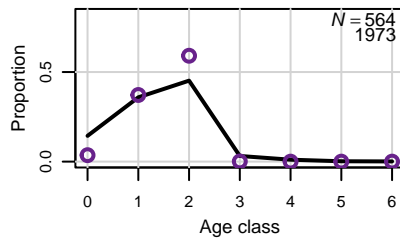
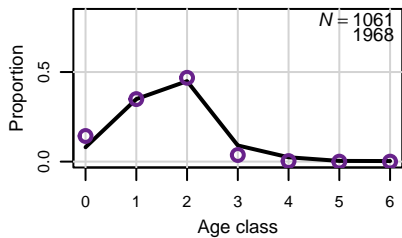
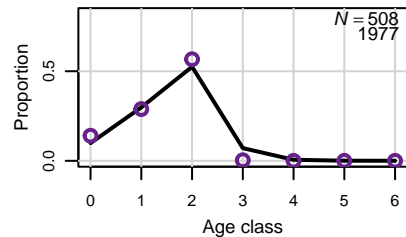
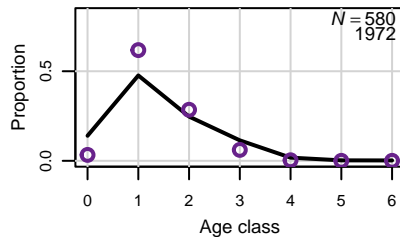
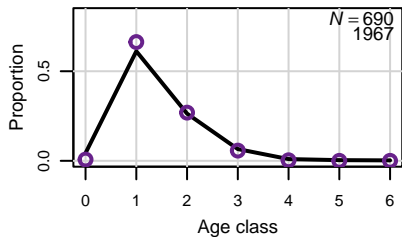
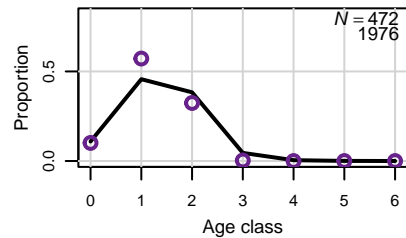
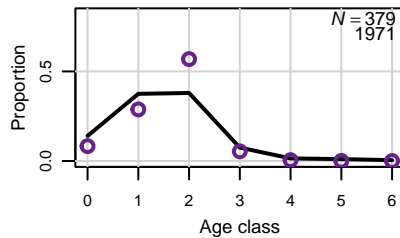
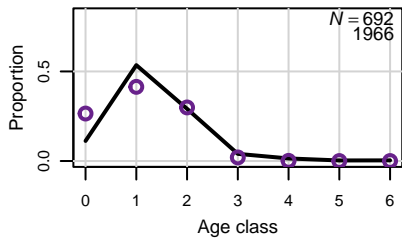
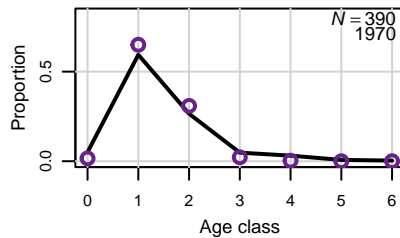
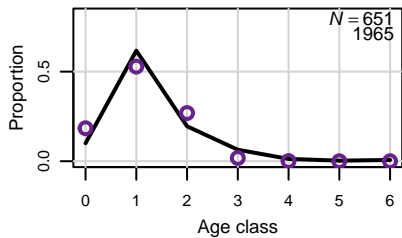


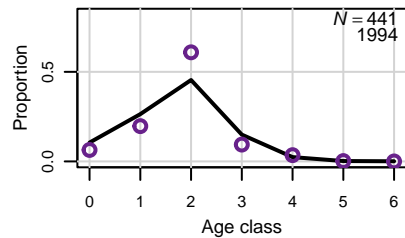
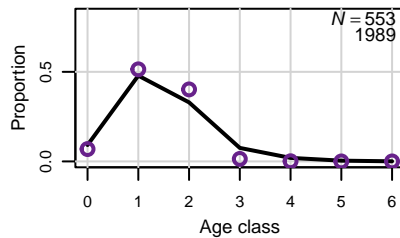
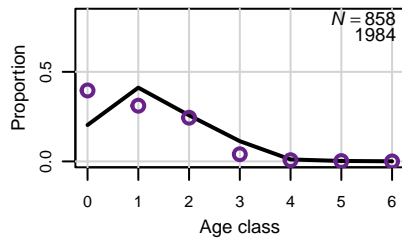
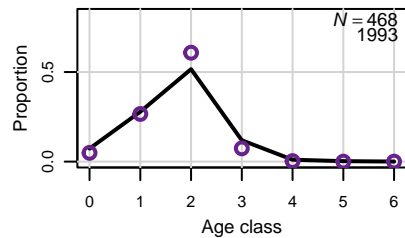
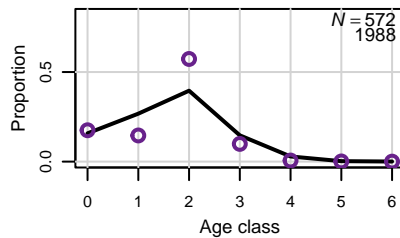
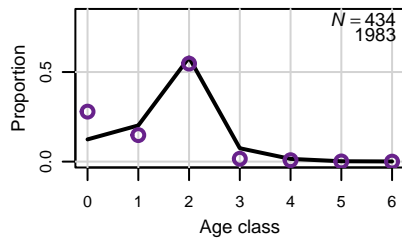
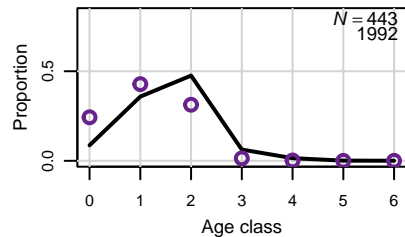
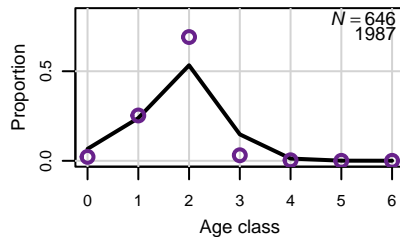
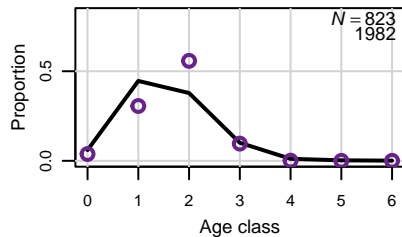
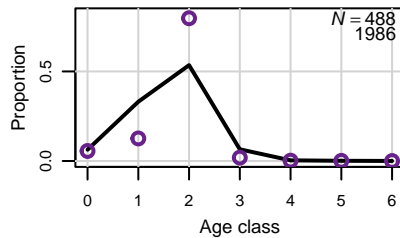
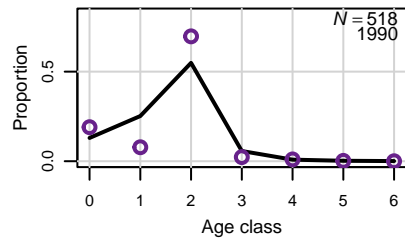
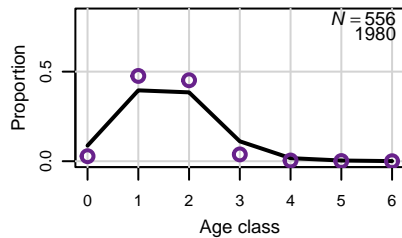


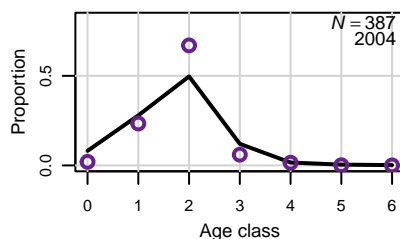
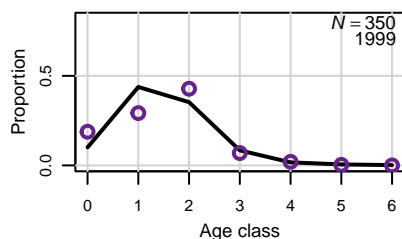
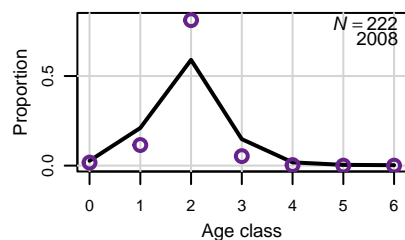
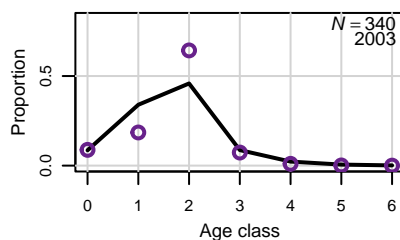
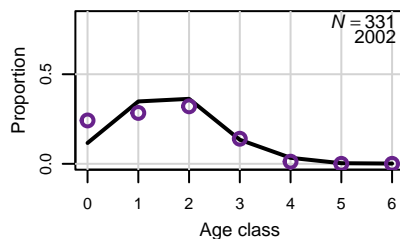
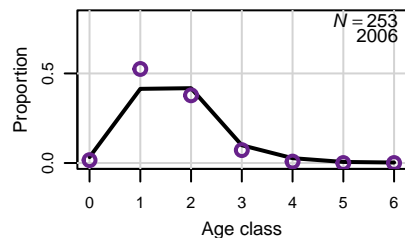
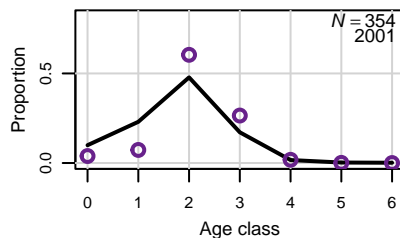
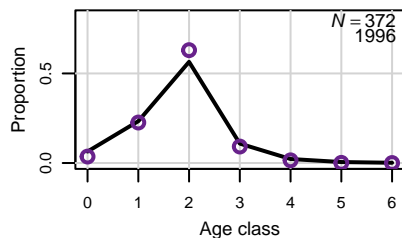
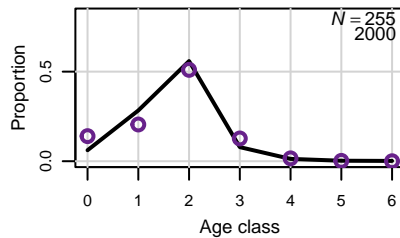
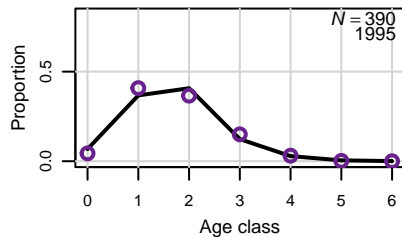


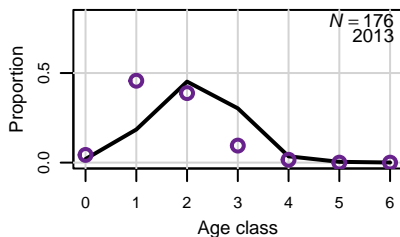
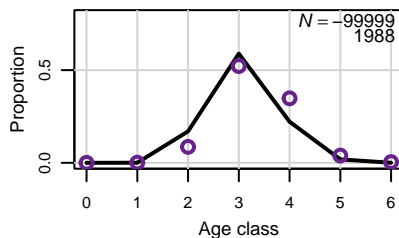
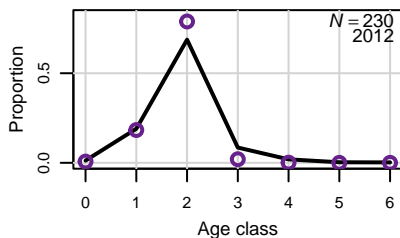
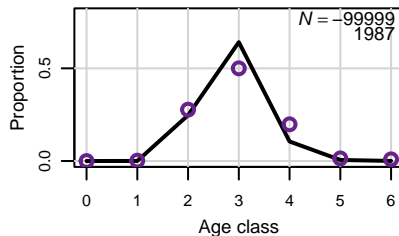
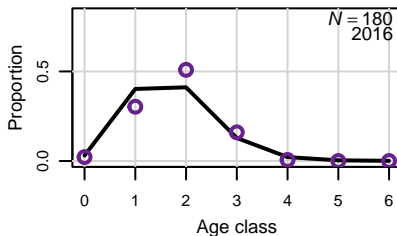
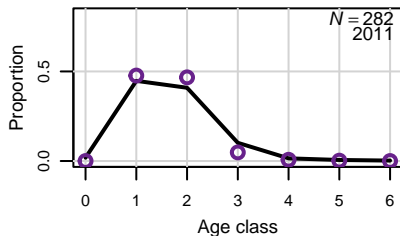
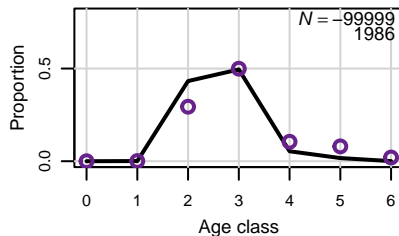
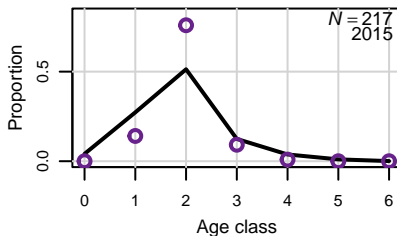
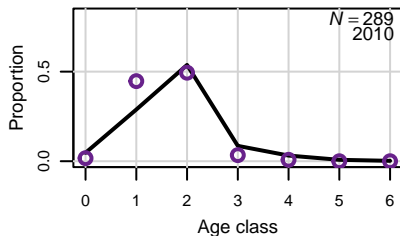
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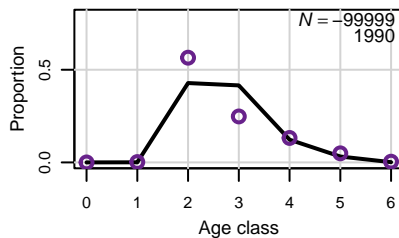
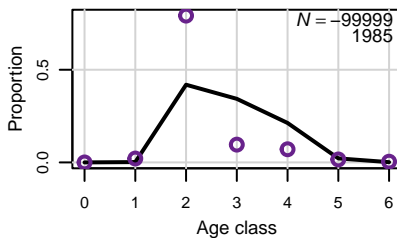
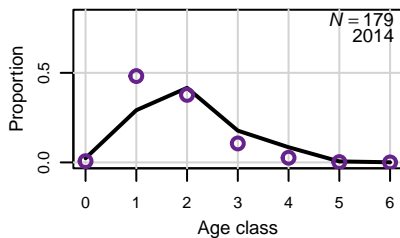
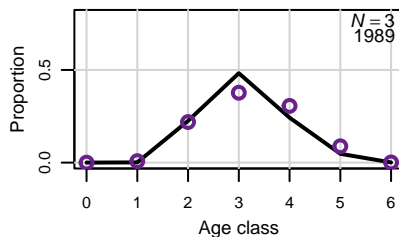


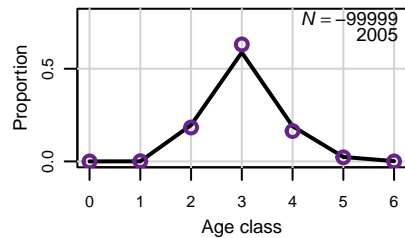
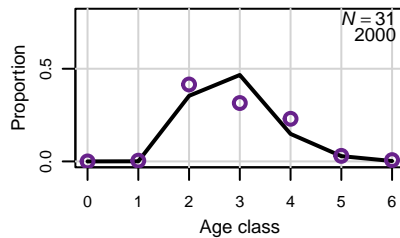
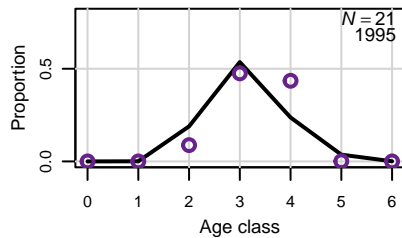
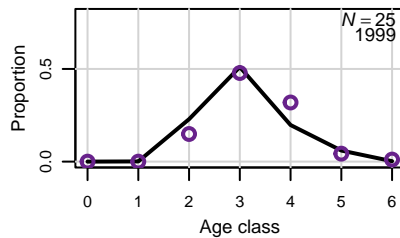
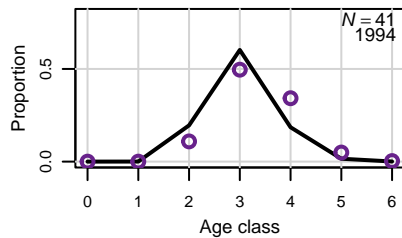
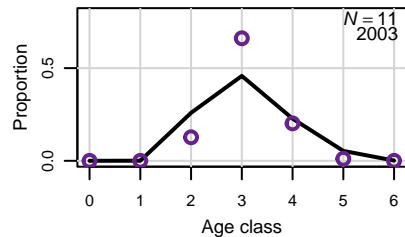
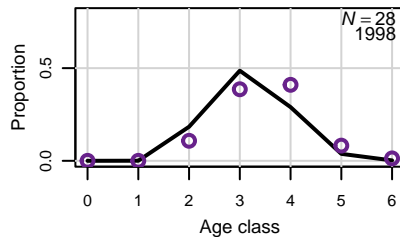
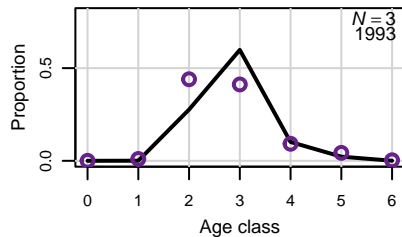
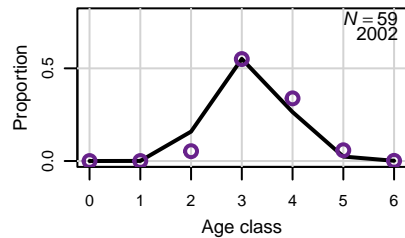
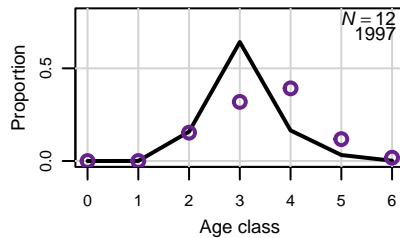
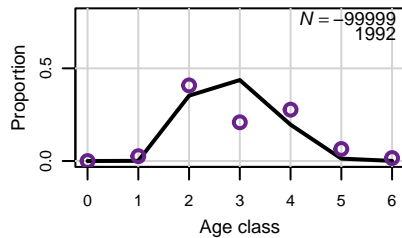
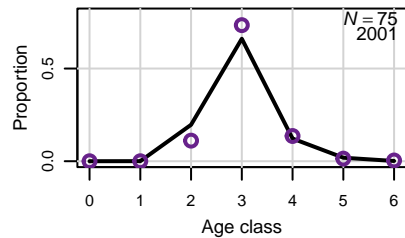
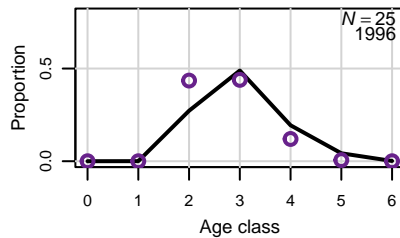
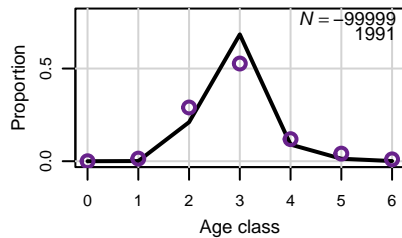


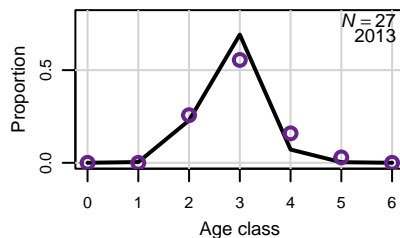
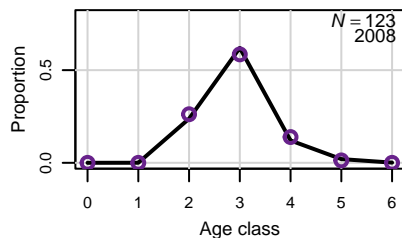
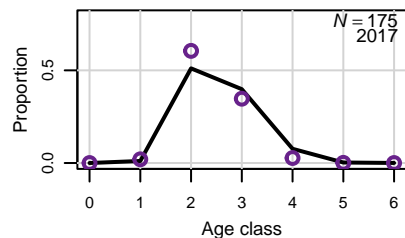
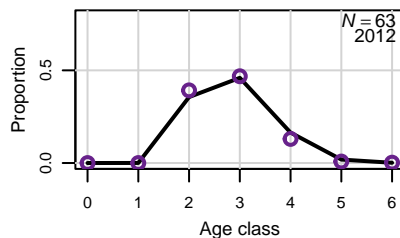
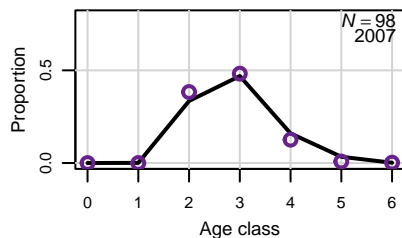
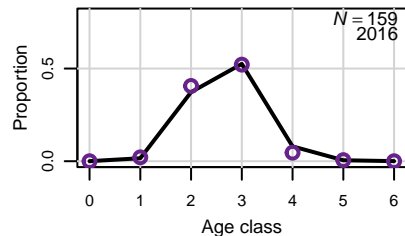
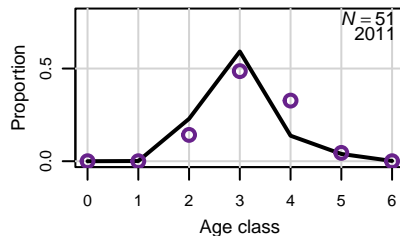
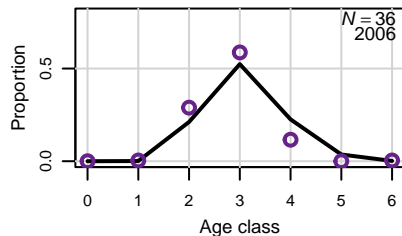




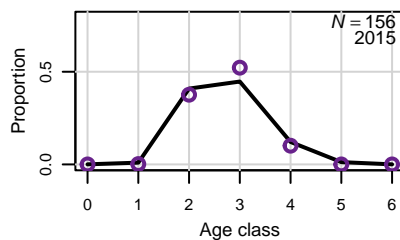
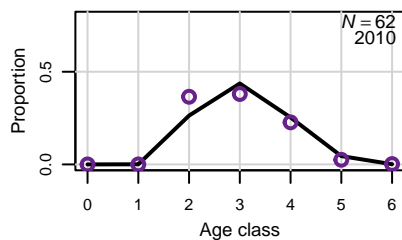
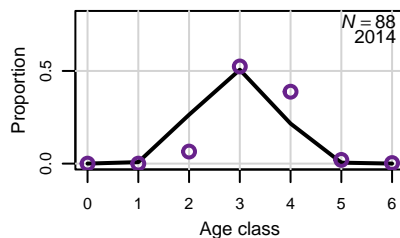
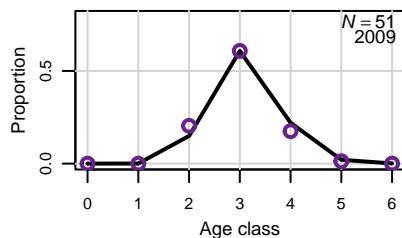
↓ acomp.cBn ↓

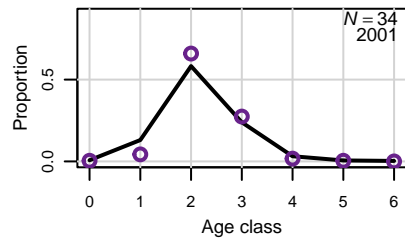
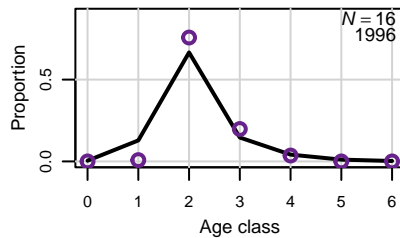
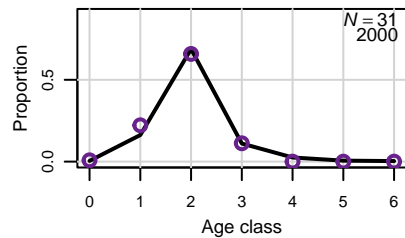
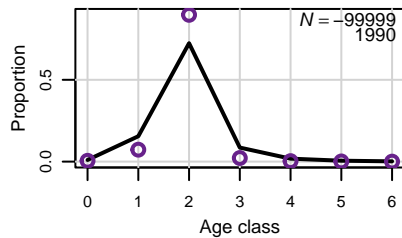
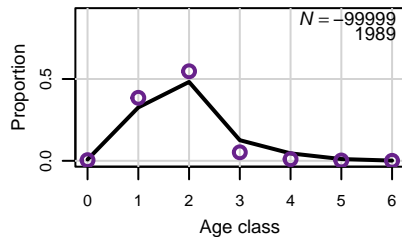
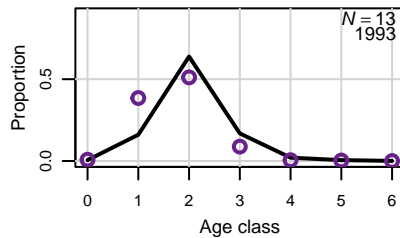
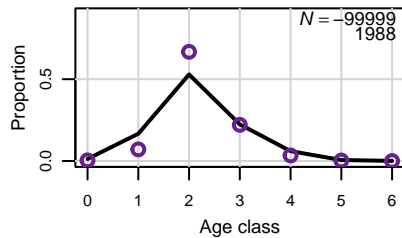
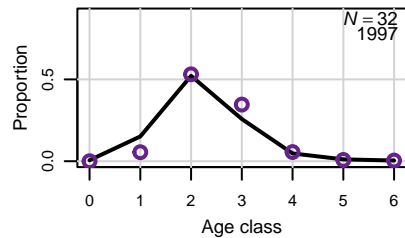
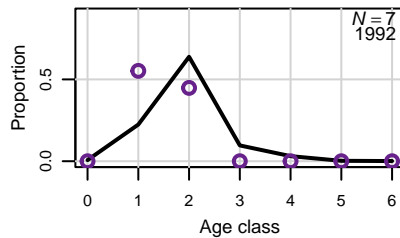
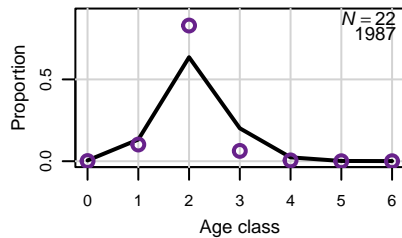


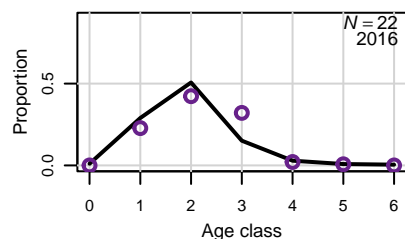
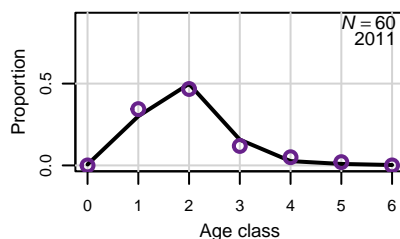
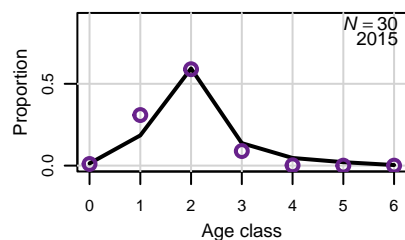
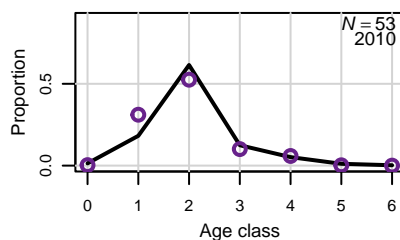
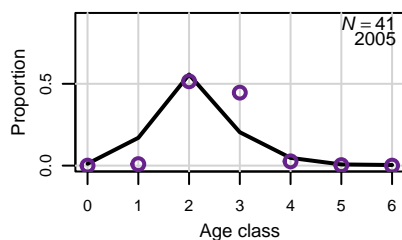
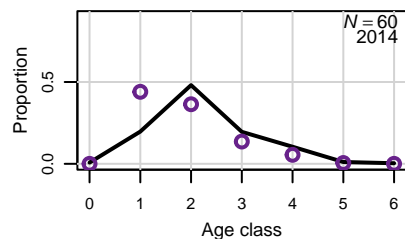
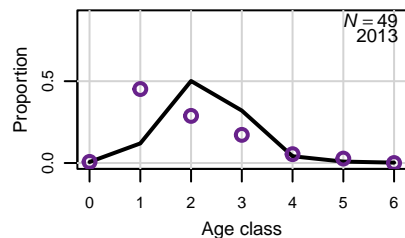
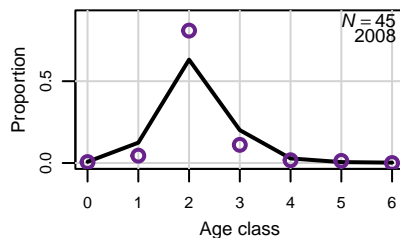
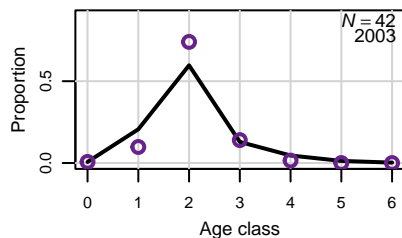
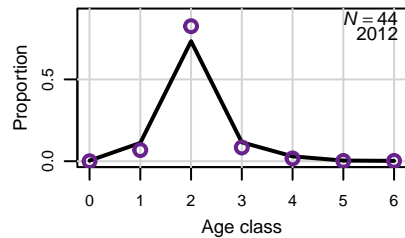
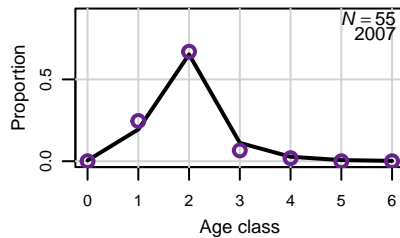
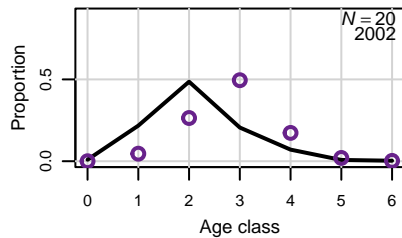


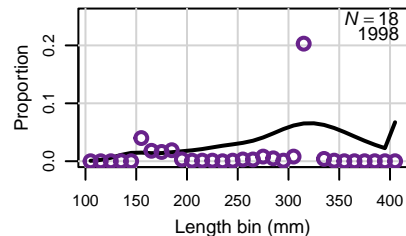
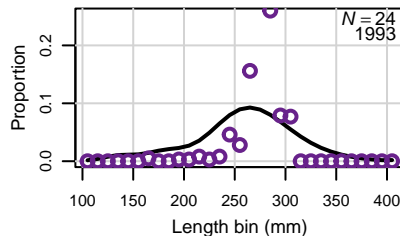
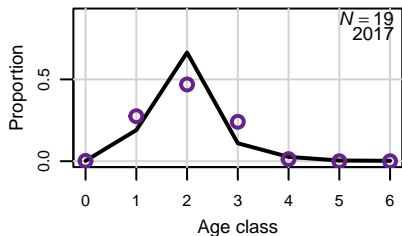


↓ acomp.cBs ↓

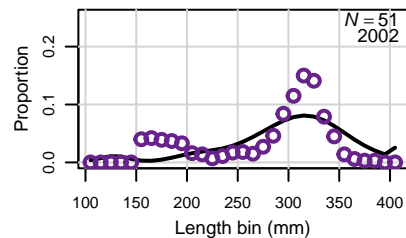
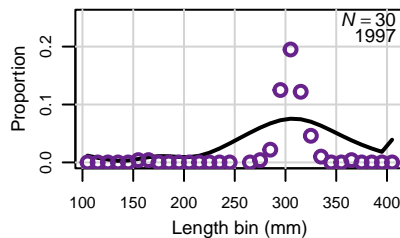
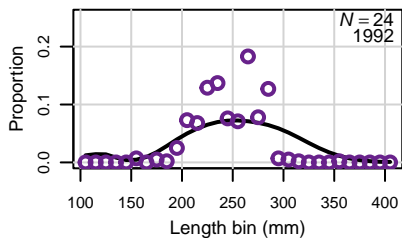
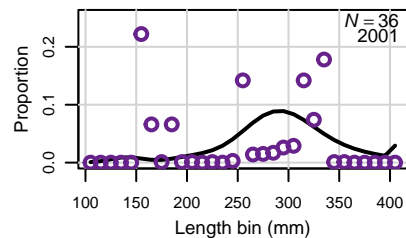
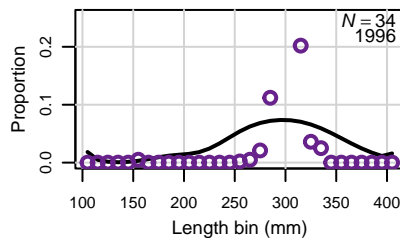
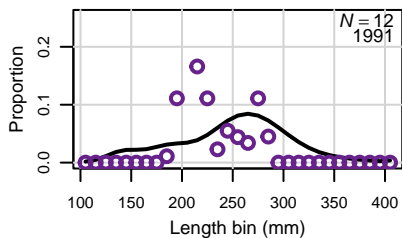
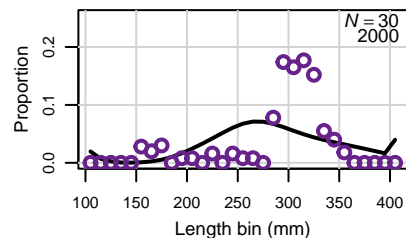
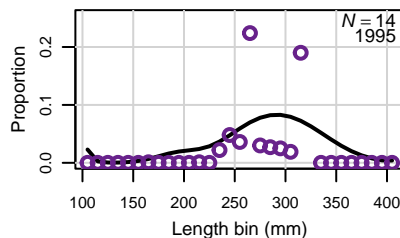
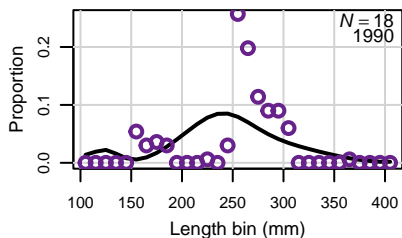
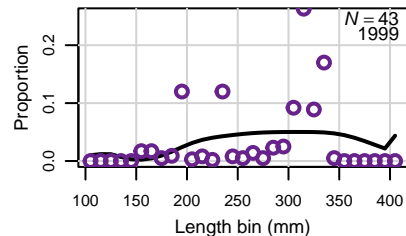
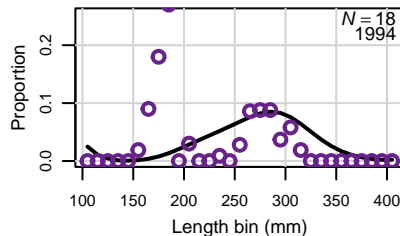


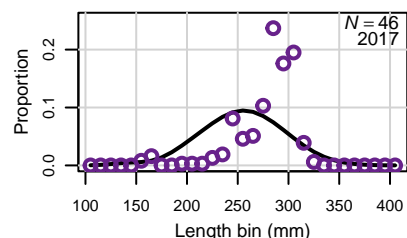


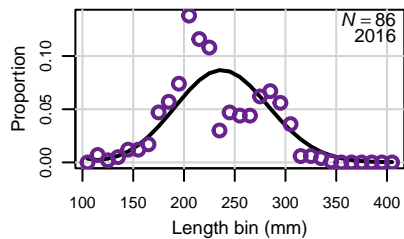
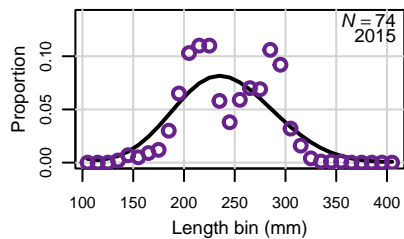
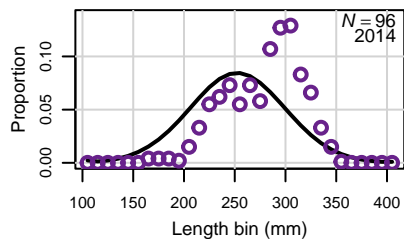
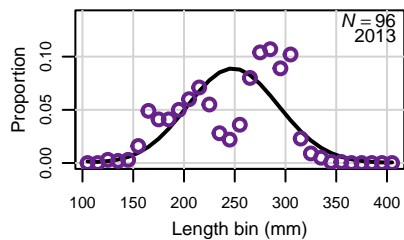
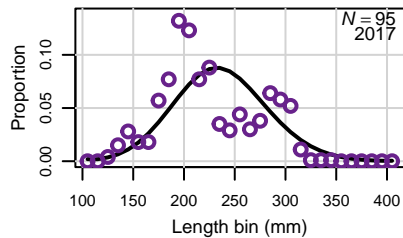
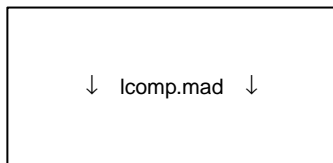




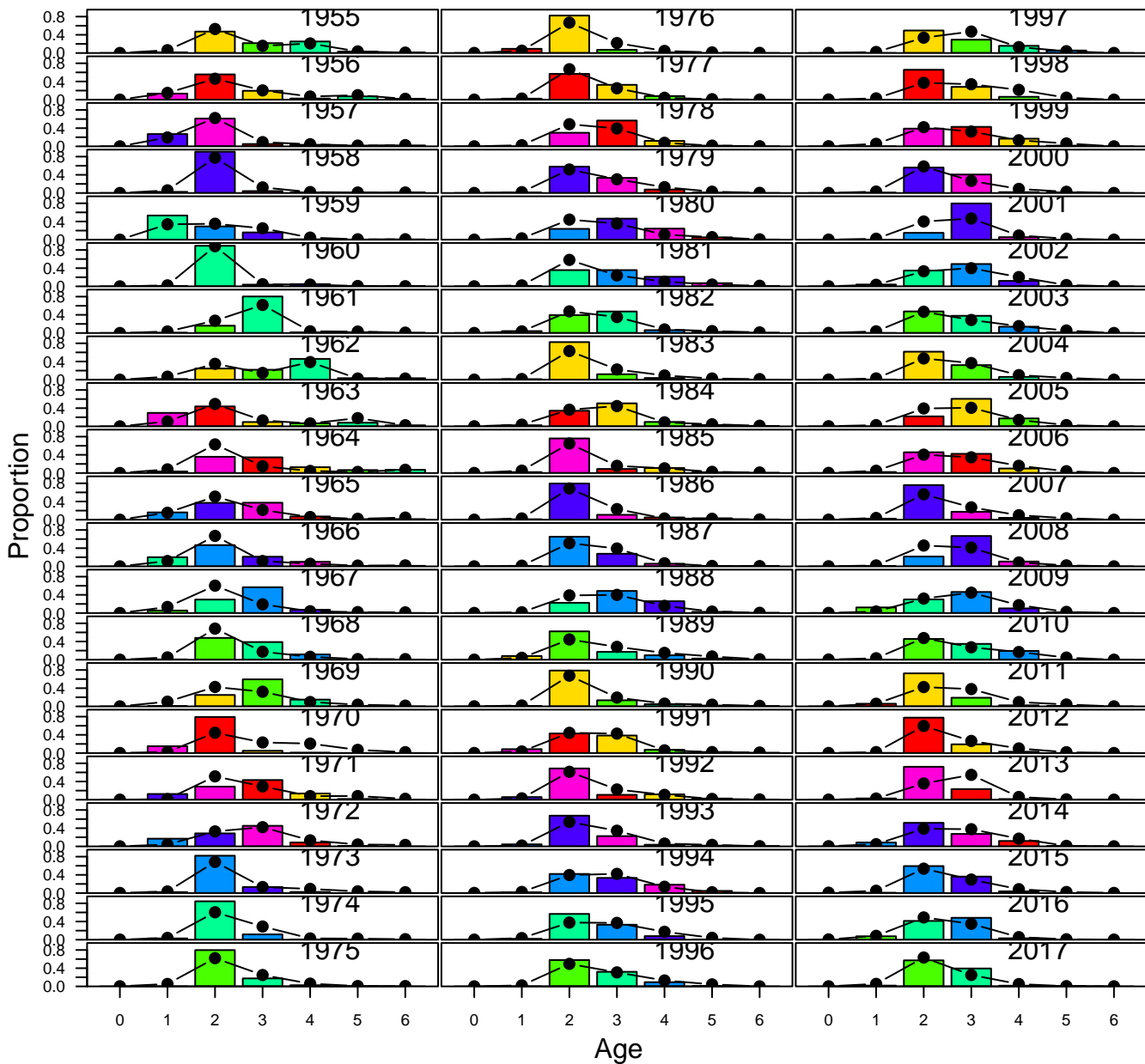
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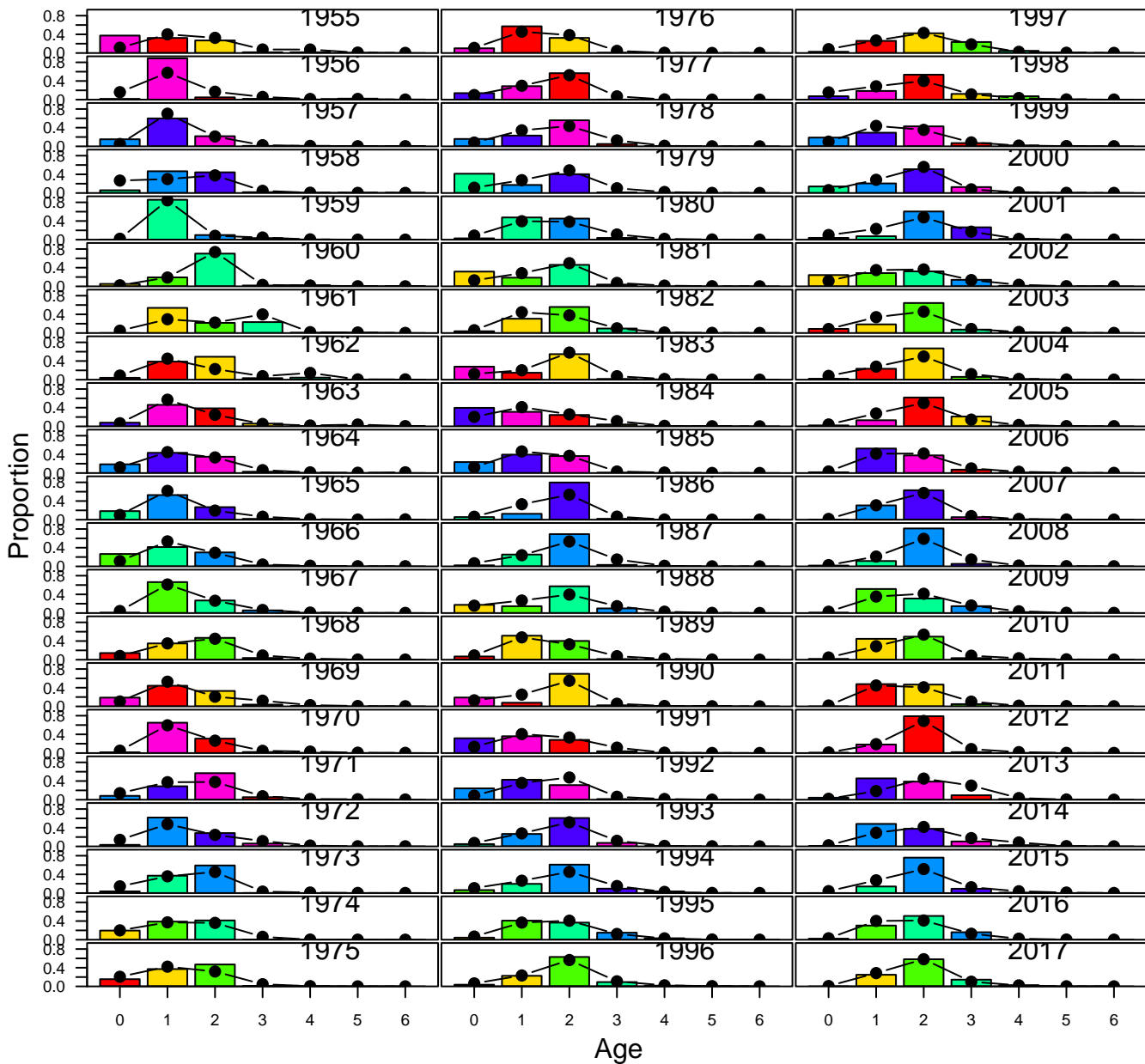




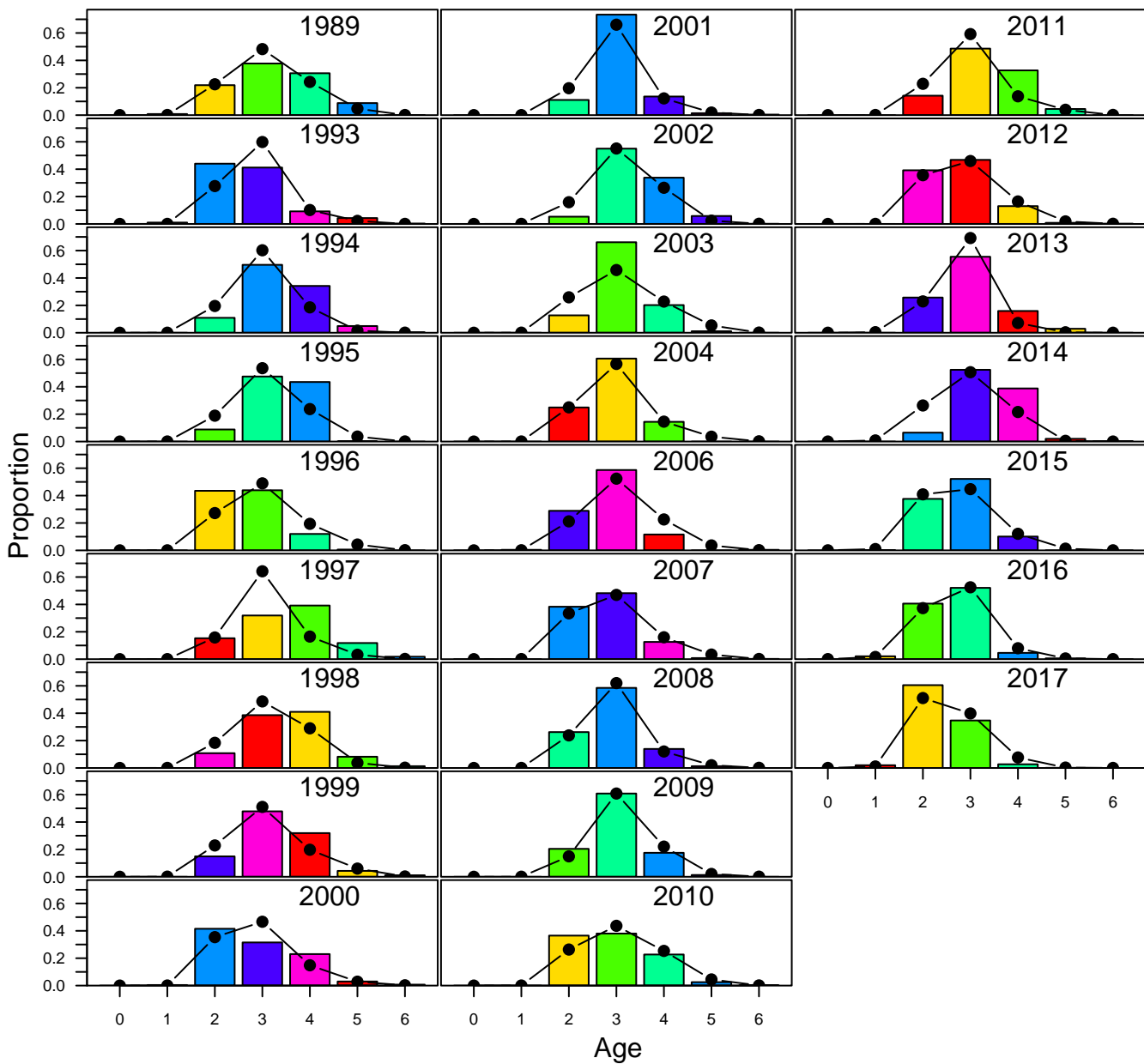
Fishery: cRn, Observed (bars), Predicted (dots)



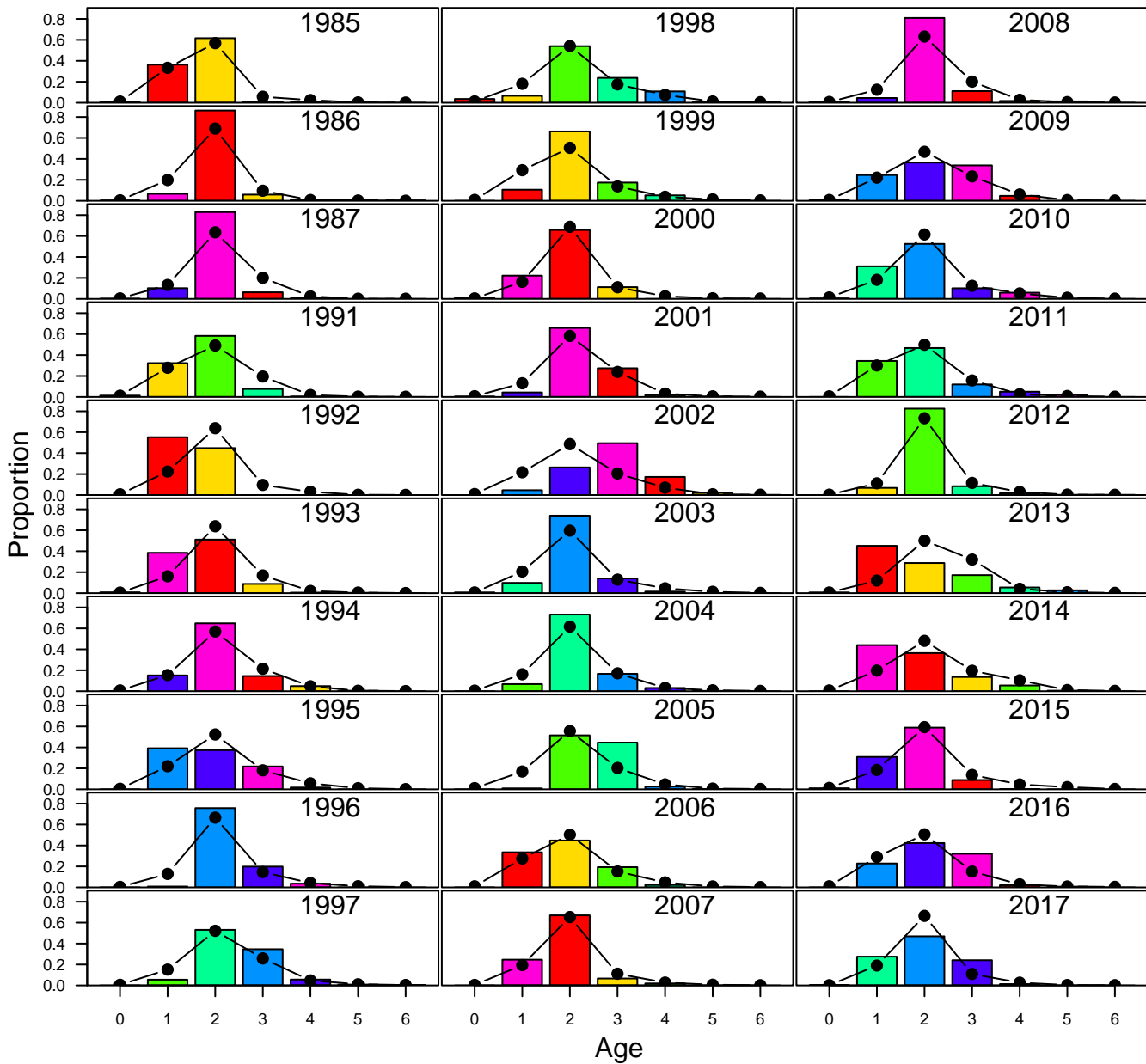
Fishery: cRs, Observed (bars), Predicted (dots)



Fishery: cBn, Observed (bars), Predicted (dots)

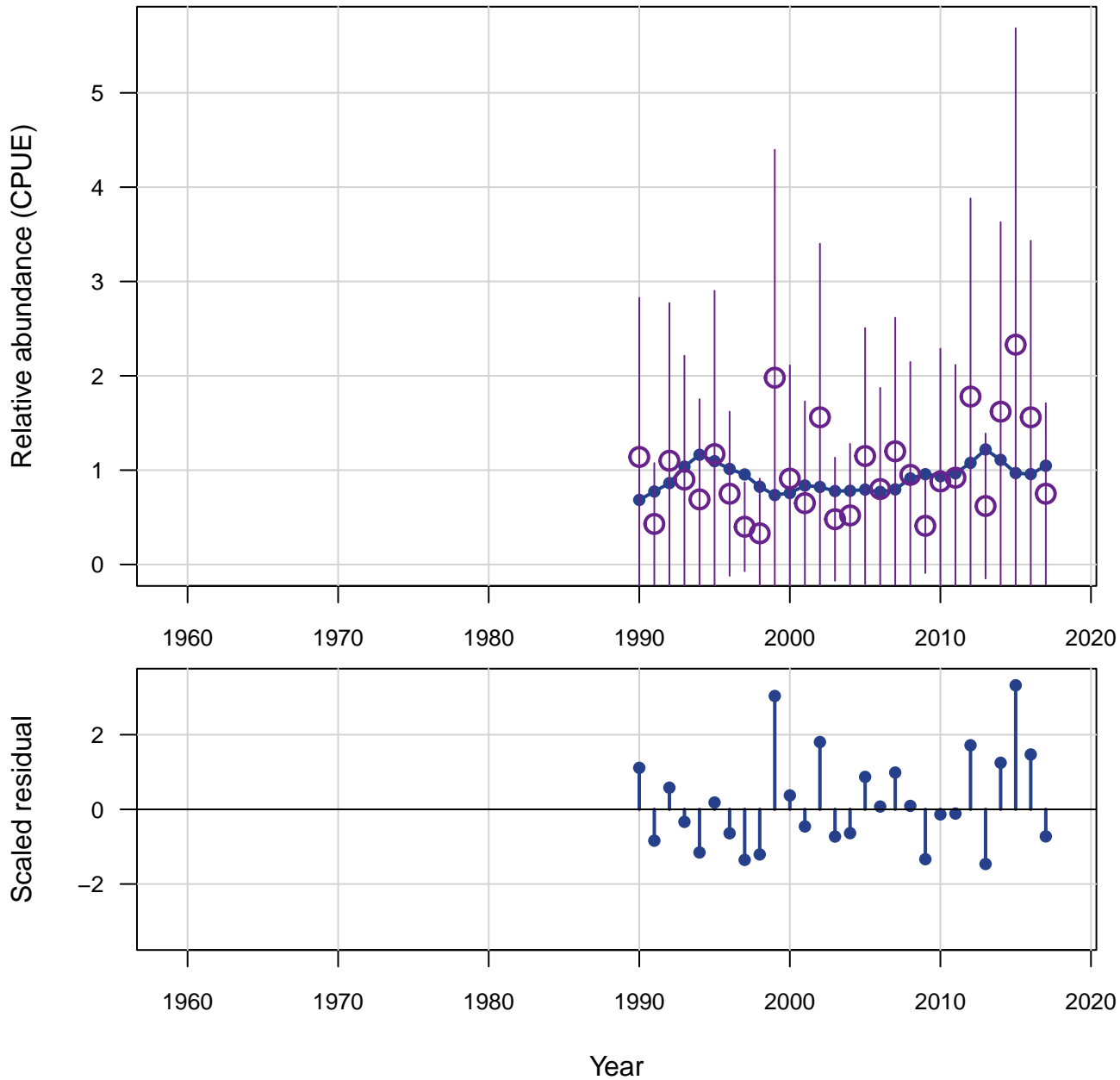


Fishery: cBs, Observed (bars), Predicted (dots)



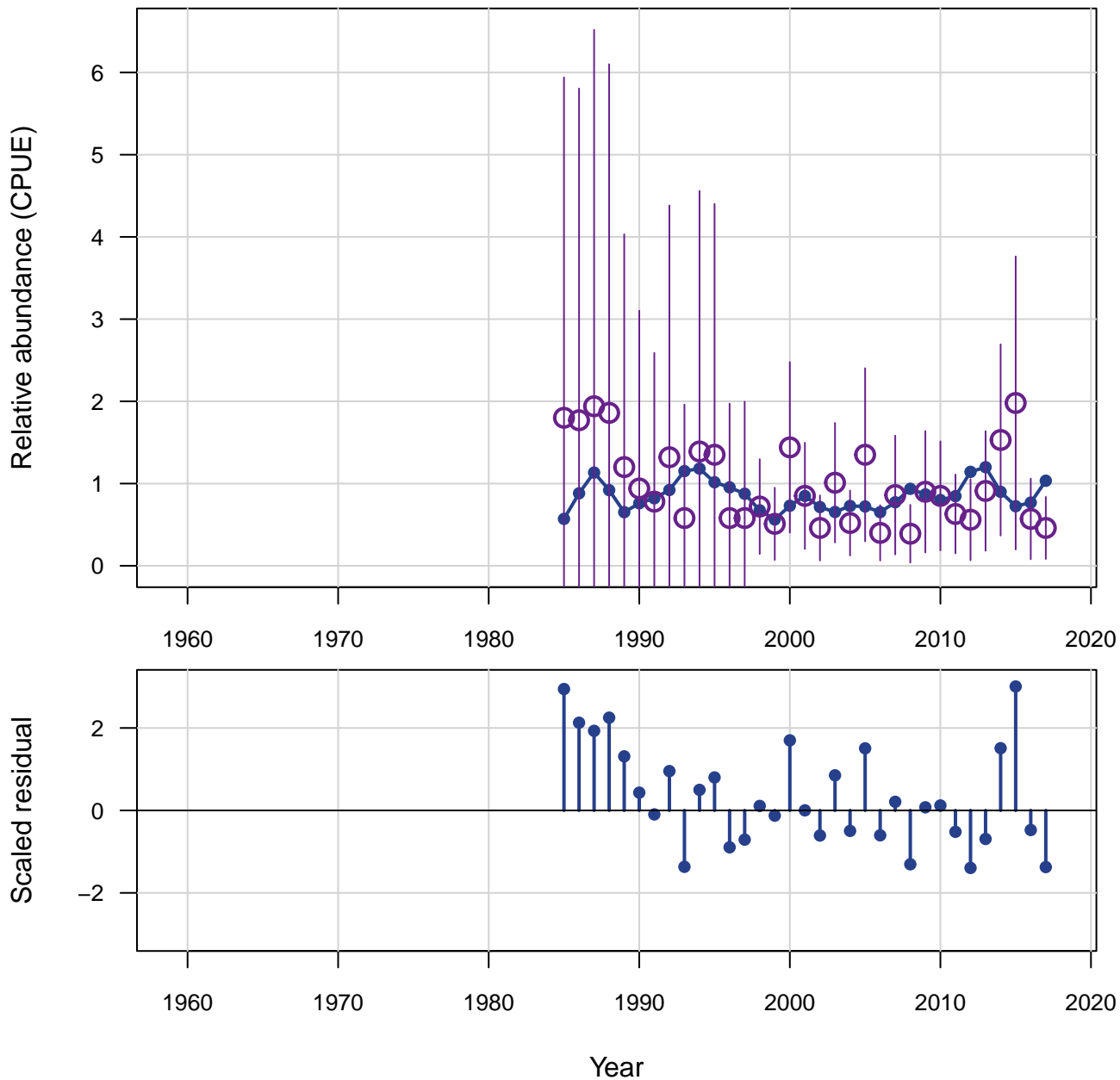
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Data: menhaden



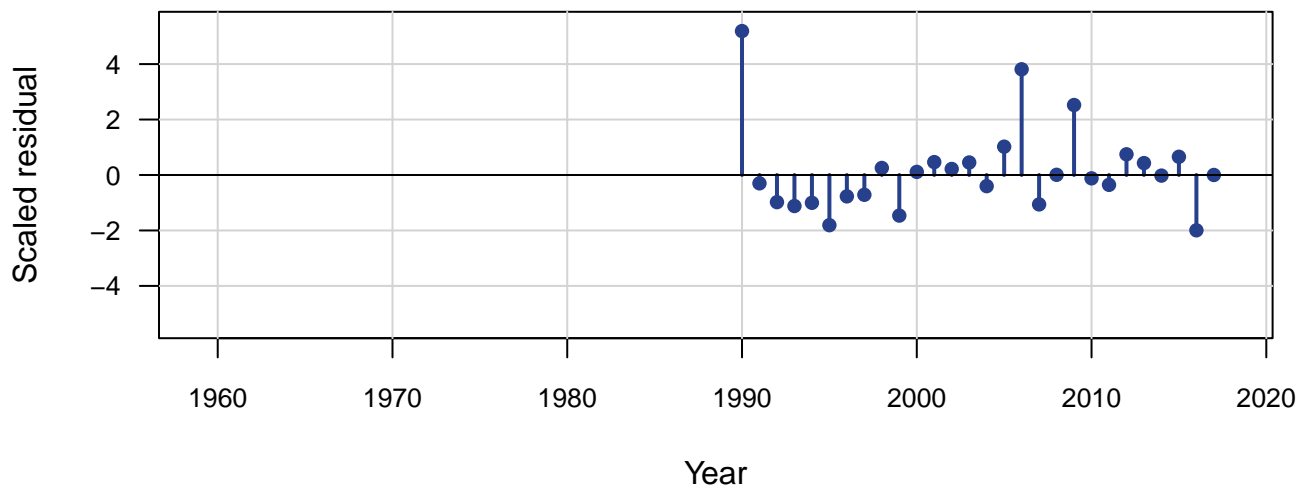
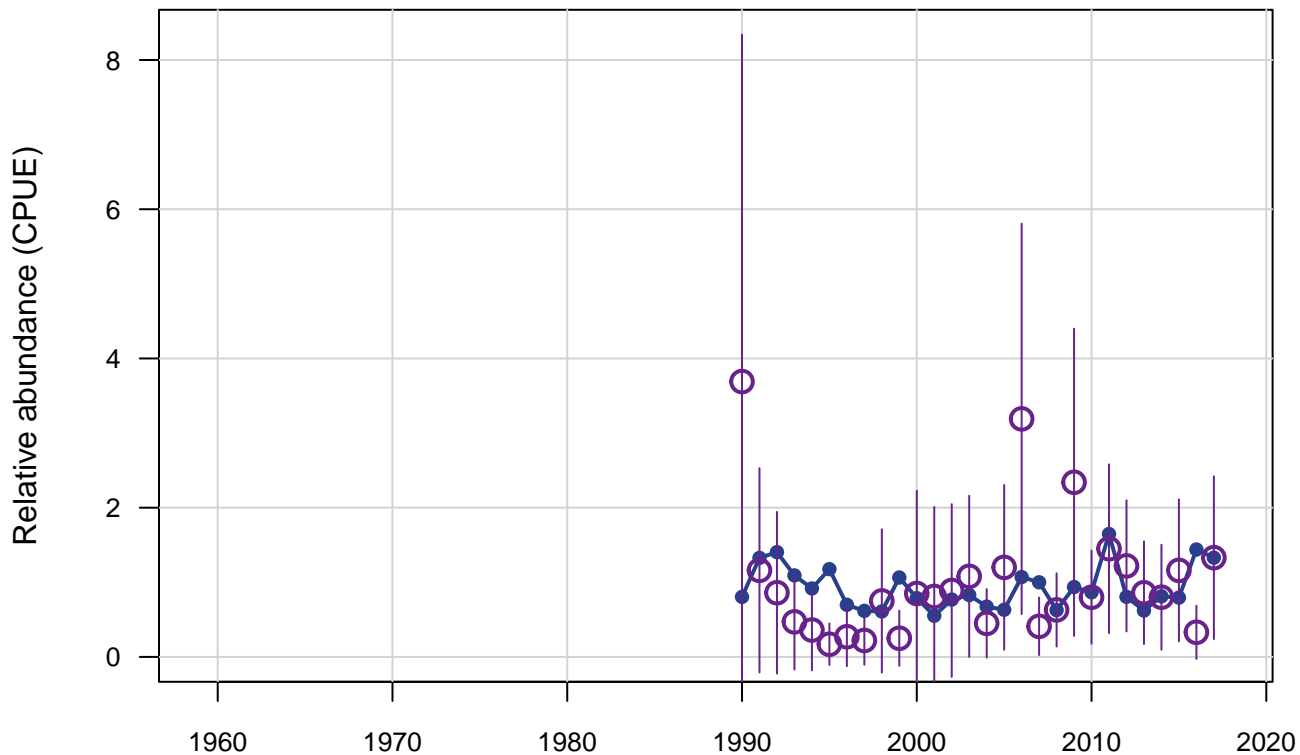
Index: mad

Data: menhaden

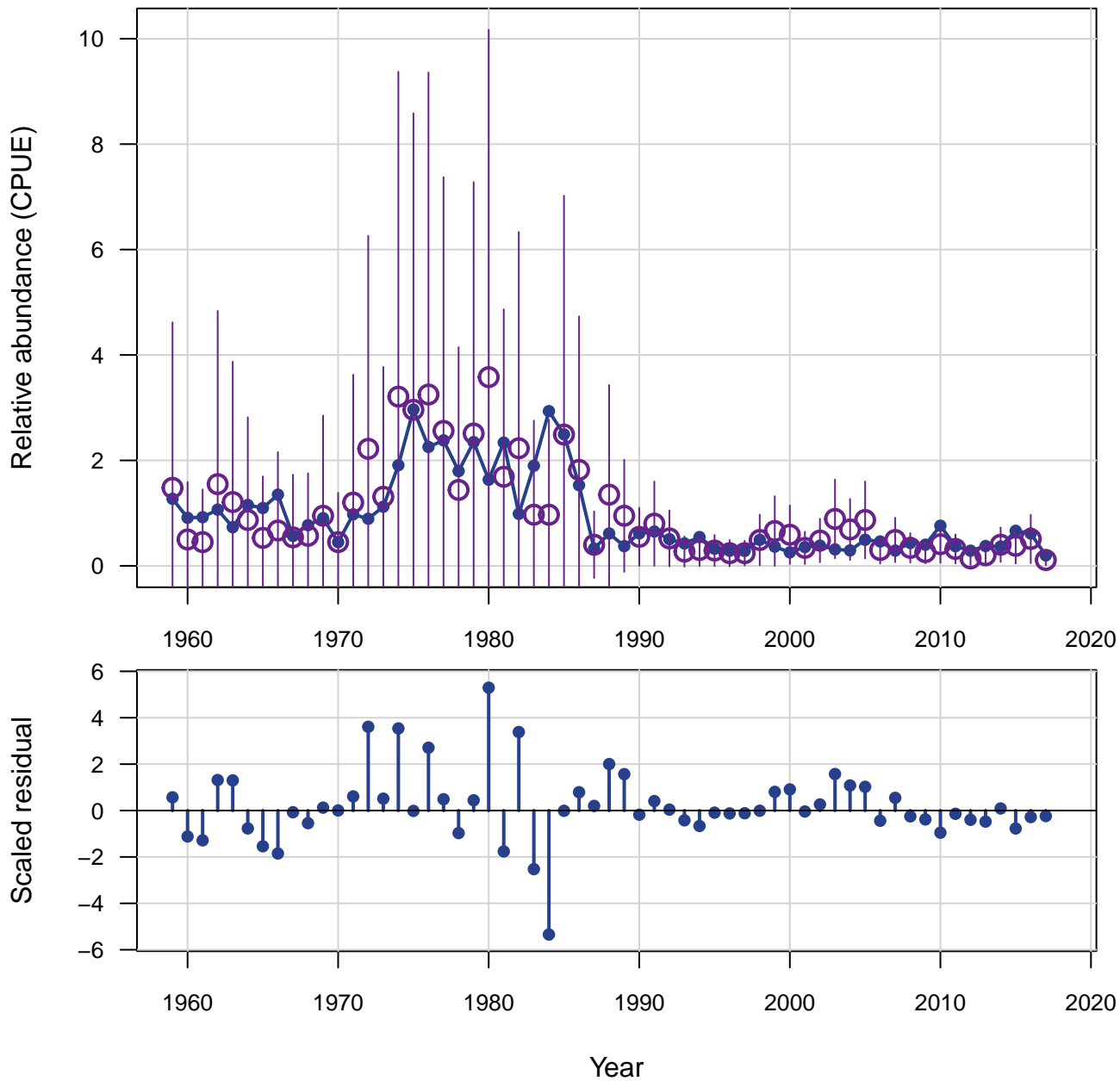


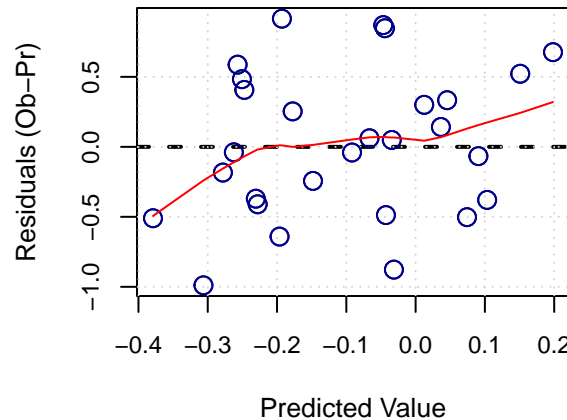
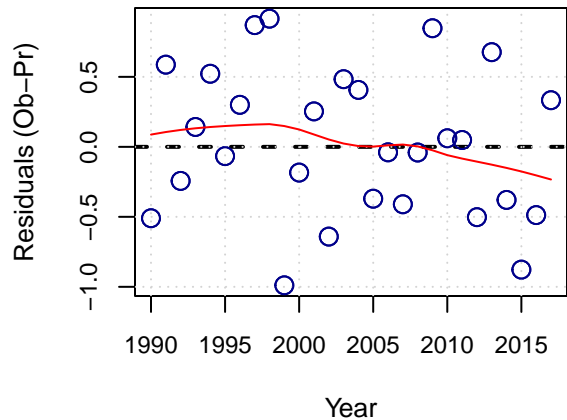
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Data: menhaden

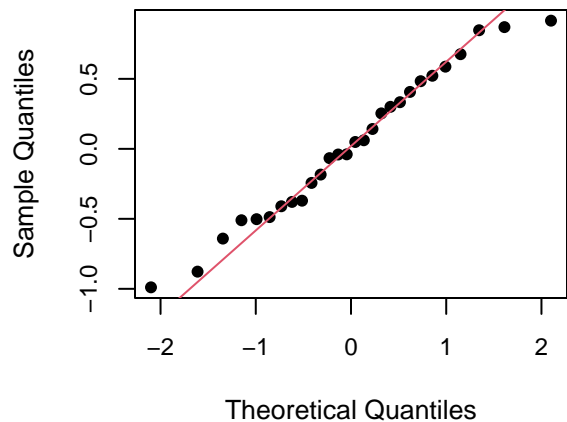


Index: jai Data: menhaden

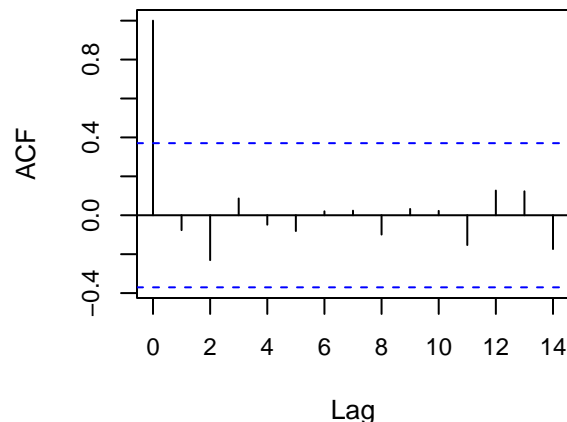




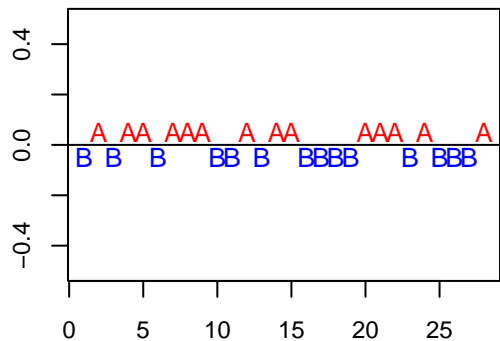
Normal Q-Q Plot



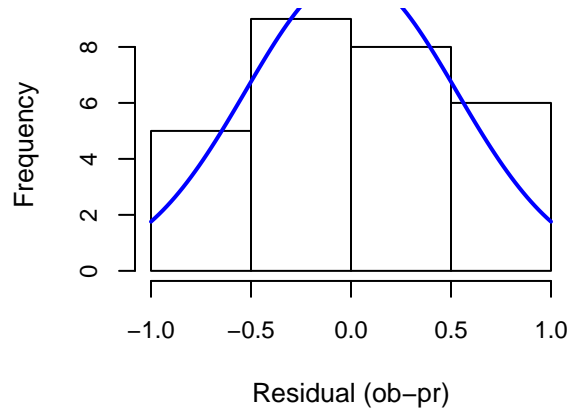
Autocorrelation Function

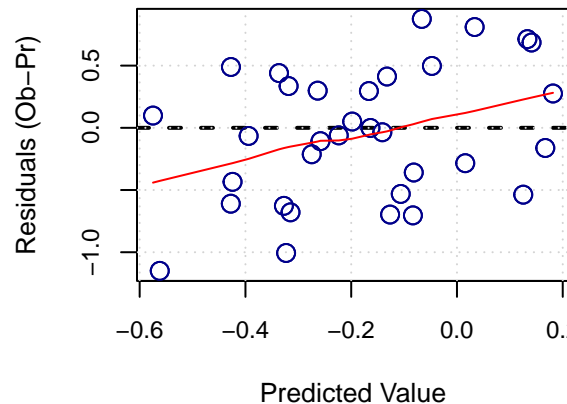
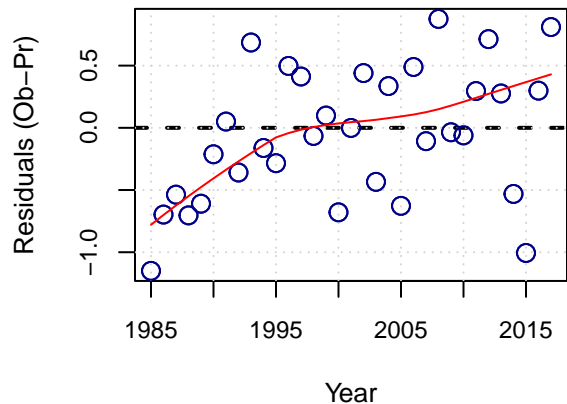


Runs Test

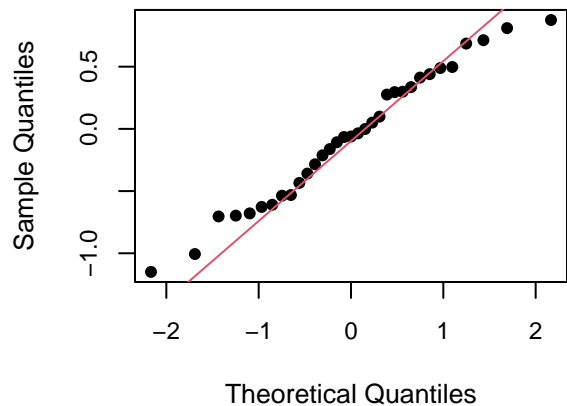


Histogram of residuals w/ normal curve

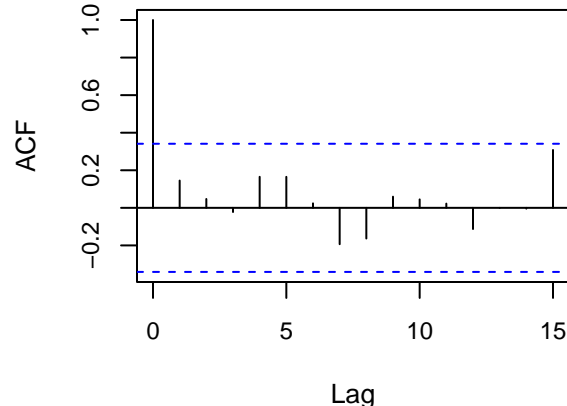




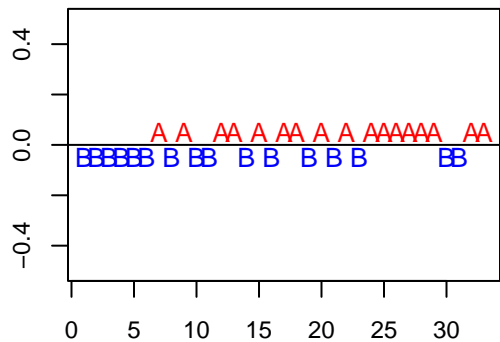
Normal Q-Q Plot



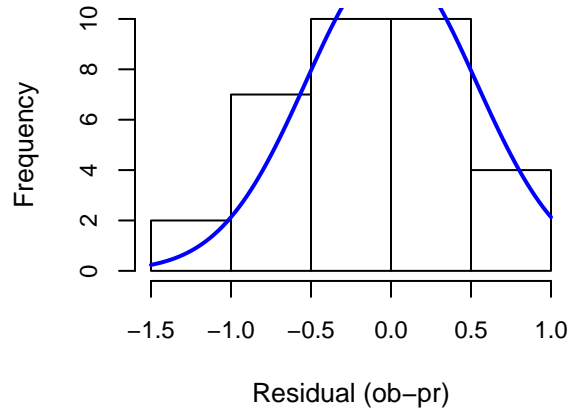
Autocorrelation Function

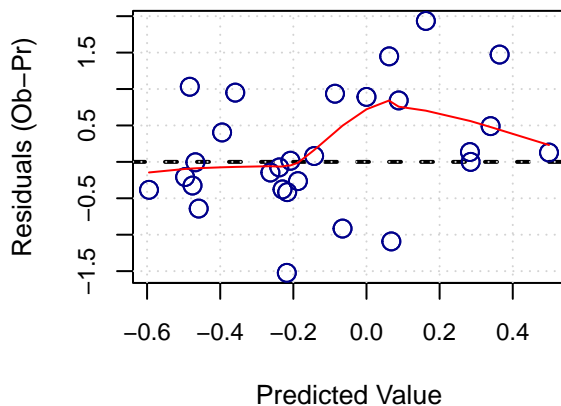
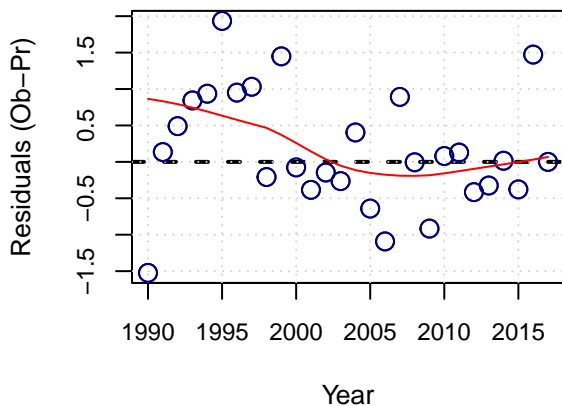


Runs Test

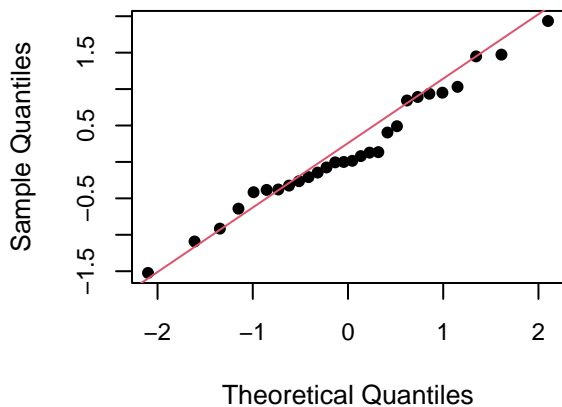


Histogram of residuals w/ normal curve

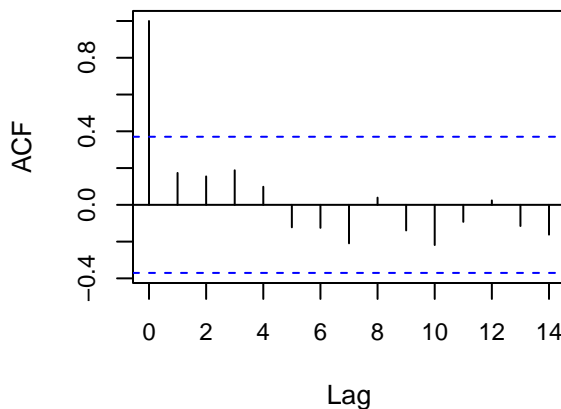




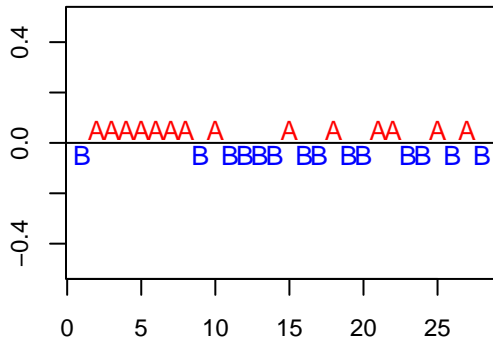
Normal Q-Q Plot



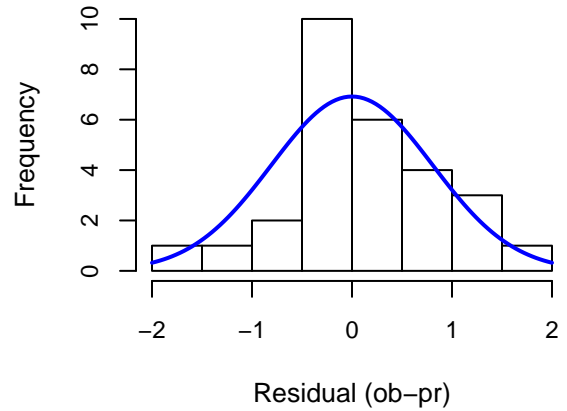
Autocorrelation Function

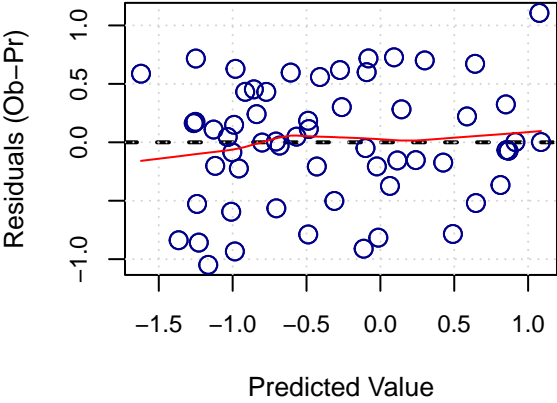
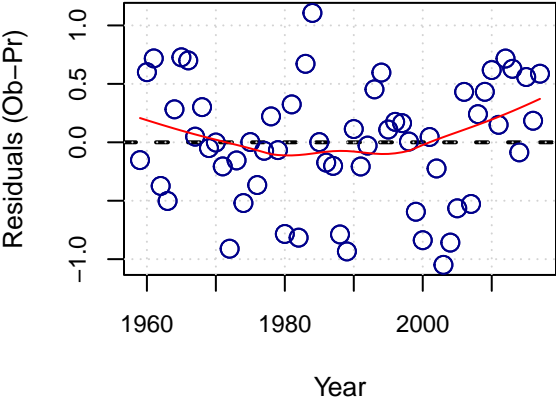


Runs Test

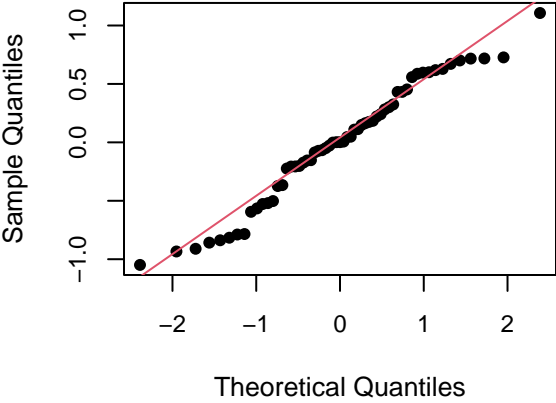


Histogram of residuals w/ normal curve

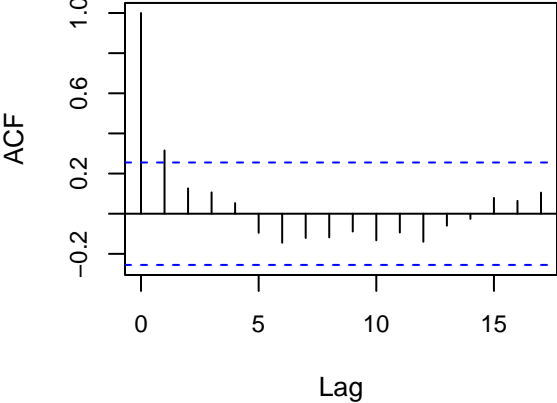




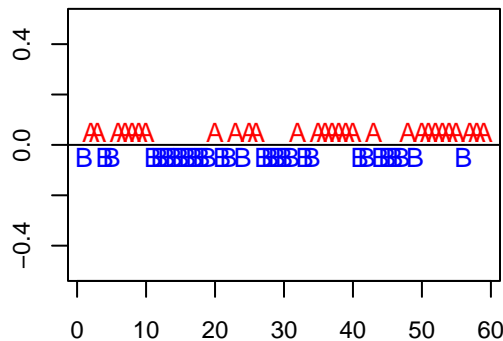
Normal Q-Q Plot



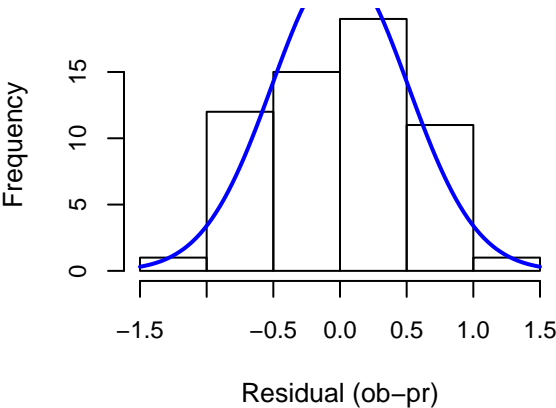
Autocorrelation Function



Runs Test

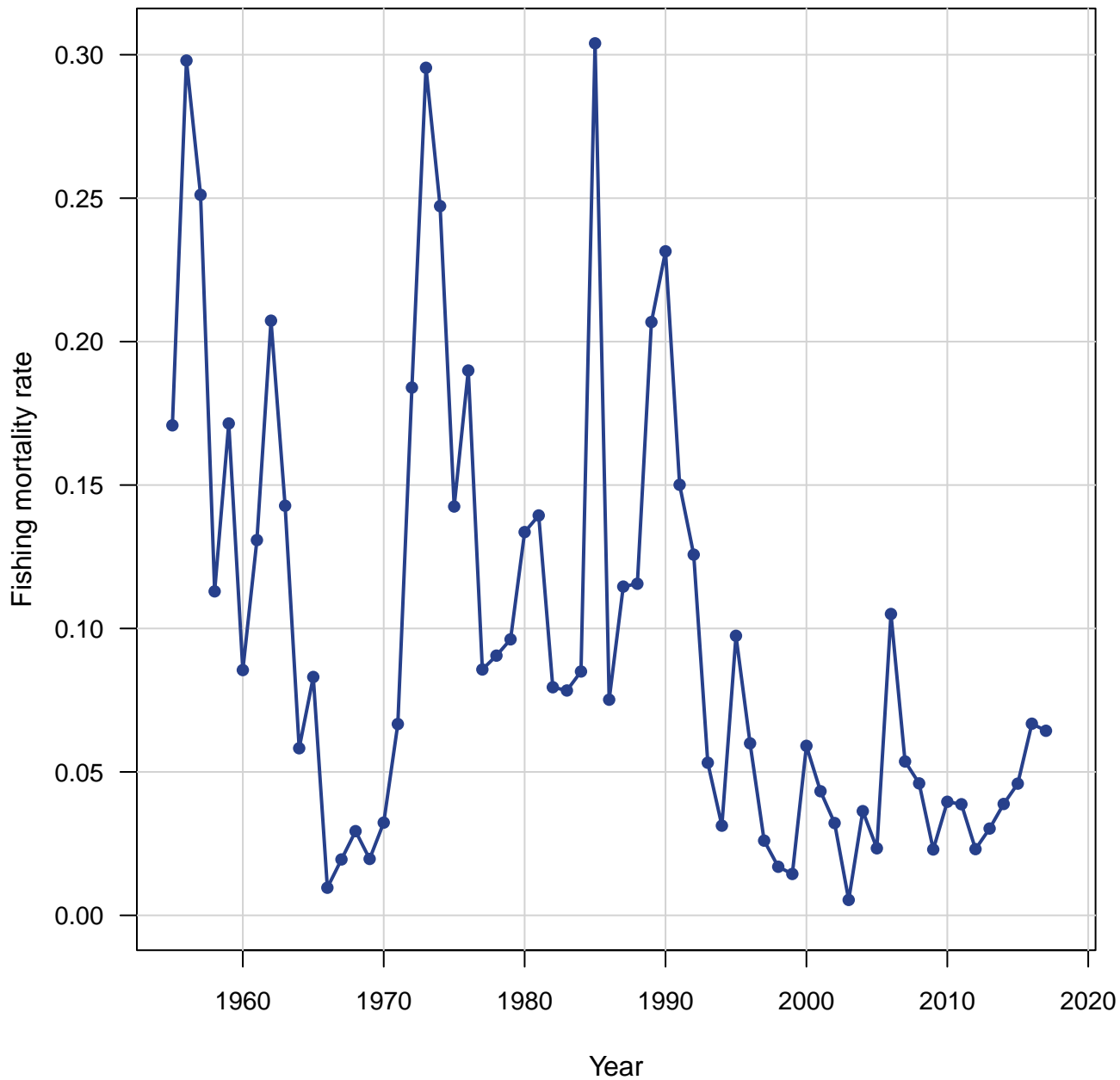


Histogram of residuals w/ normal curve



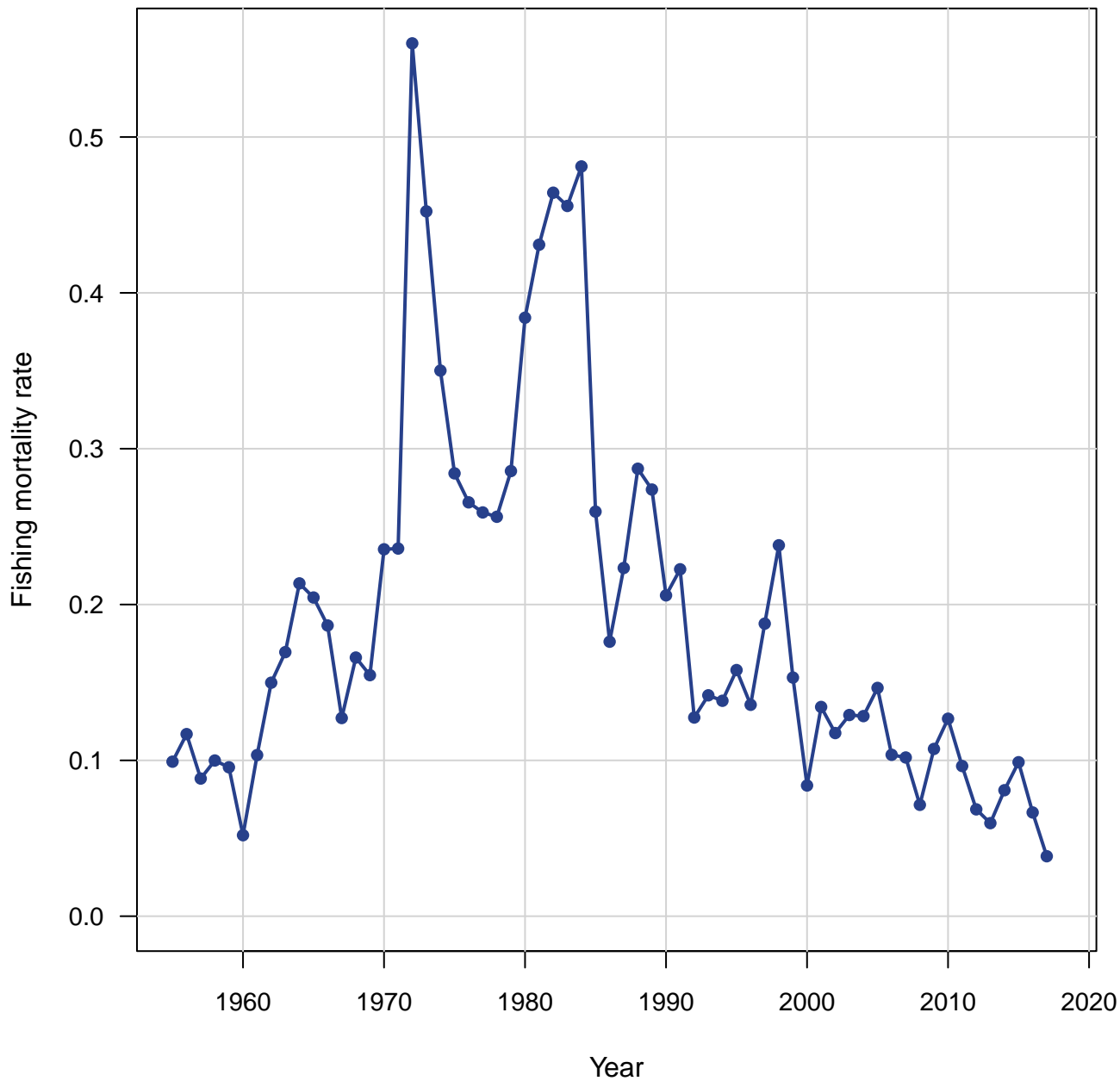
Fishery: cRn

Data: menhaden



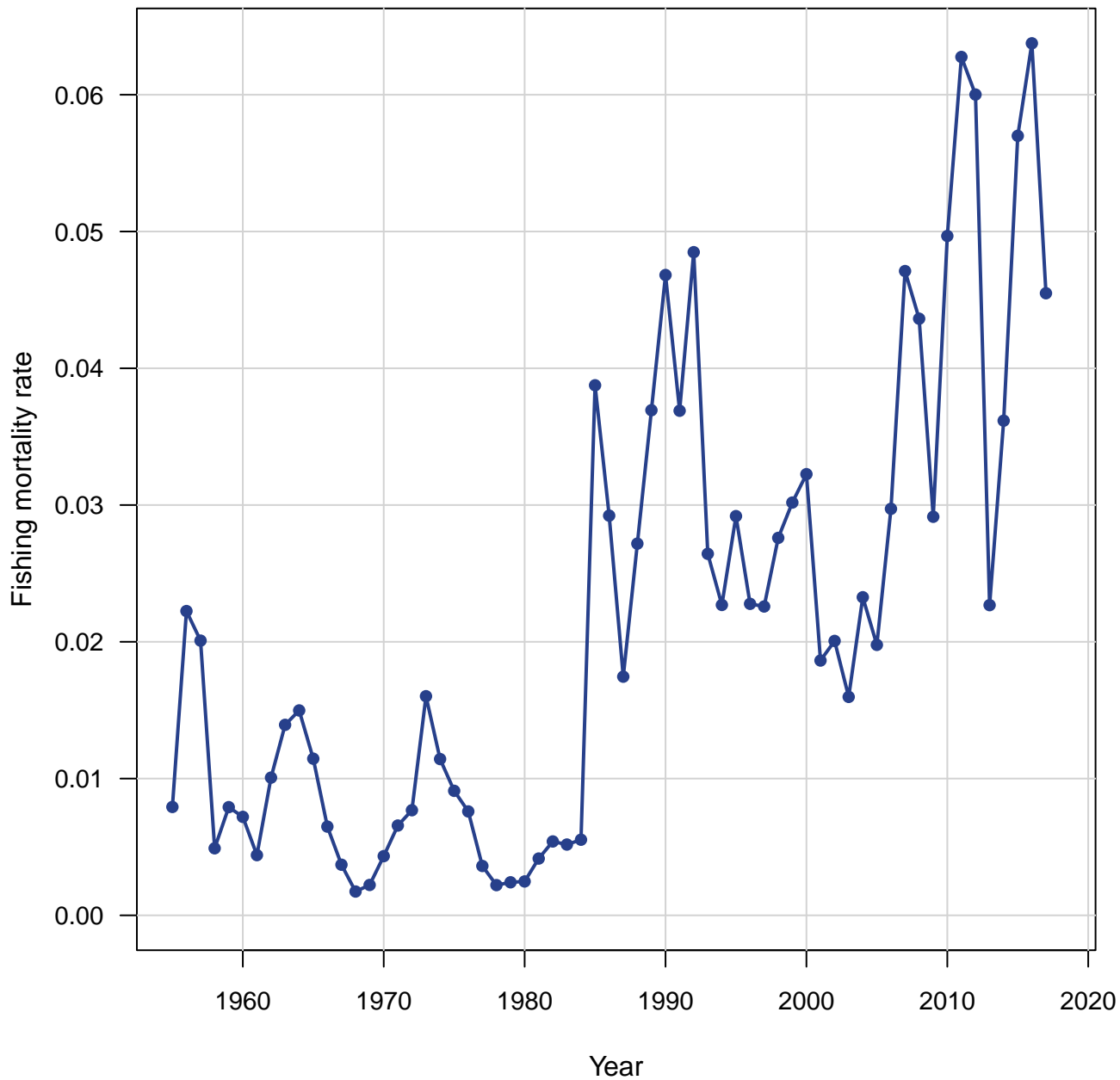
Fishery: cRs

Data: menhaden



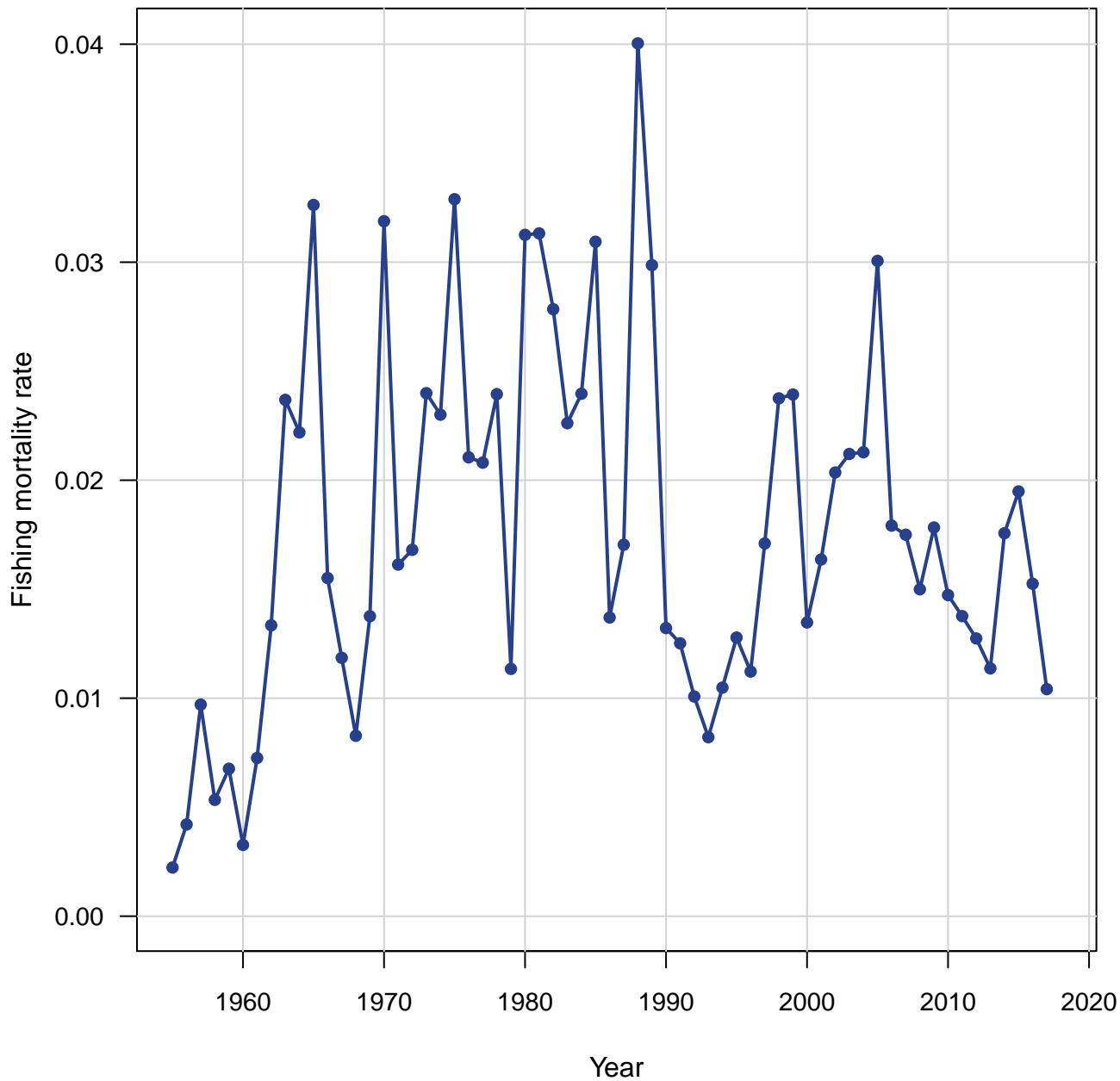
Fishery: cBn

Data: menhaden

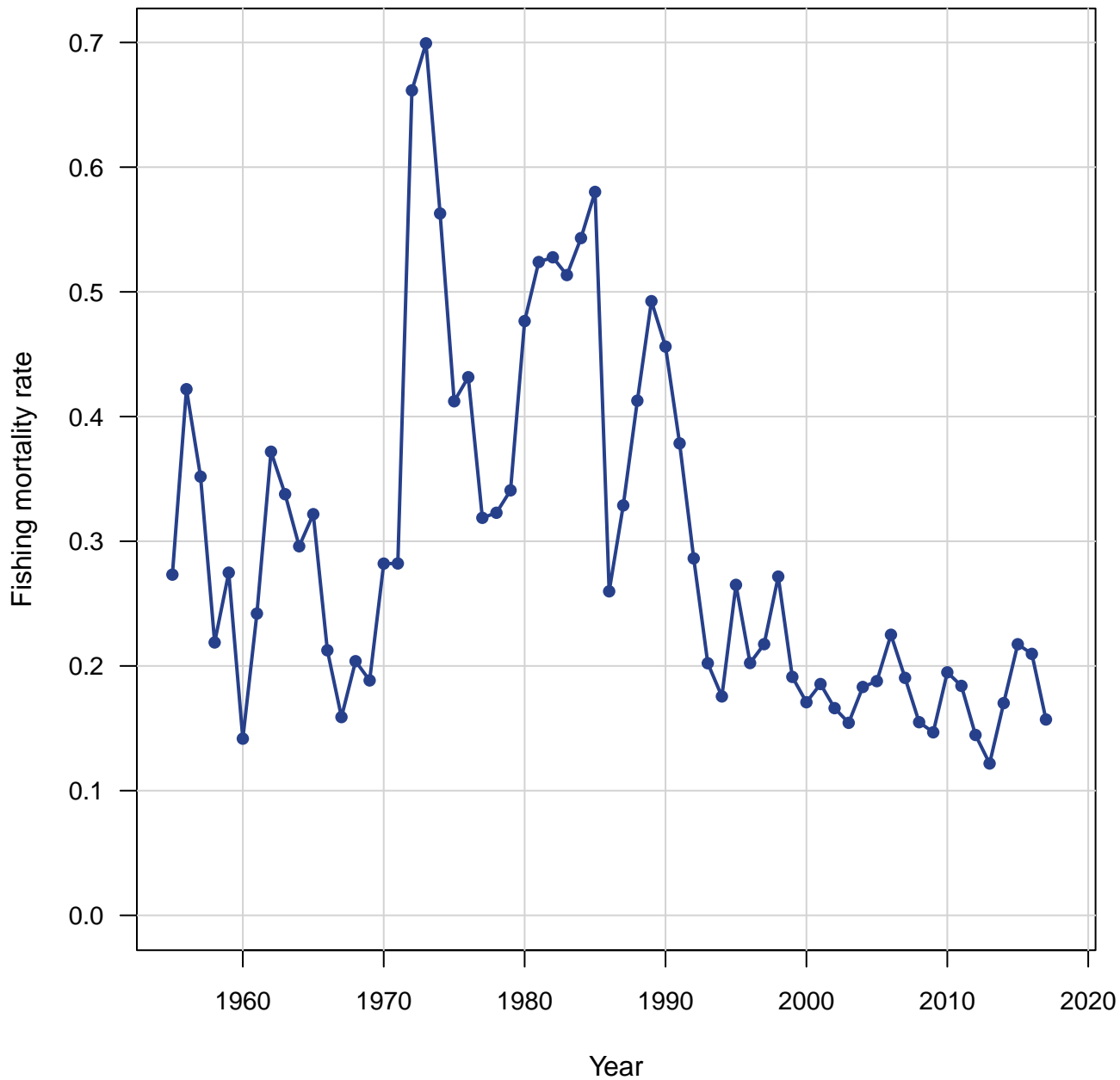


Fishery: cBs

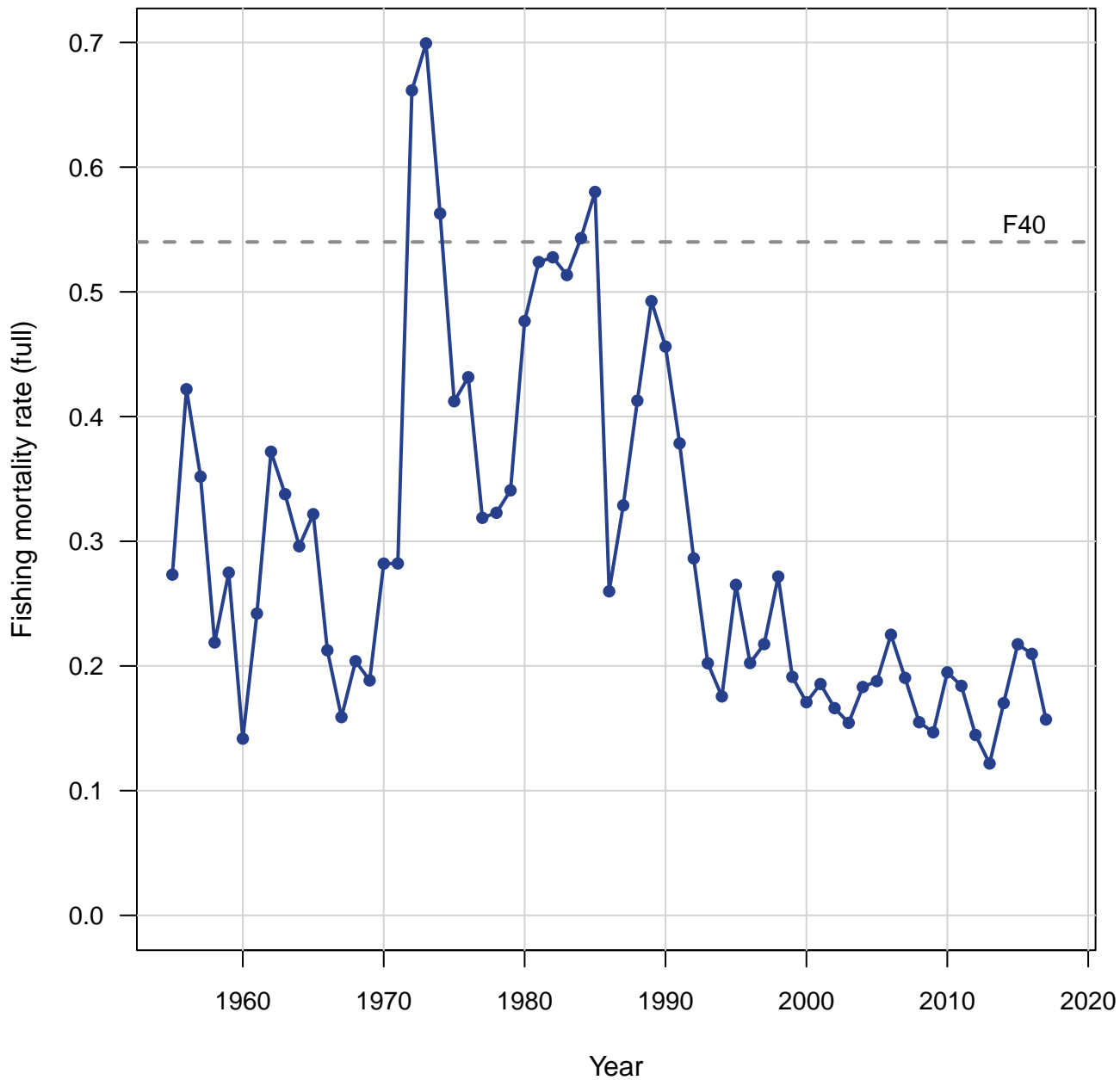
Data: menhaden



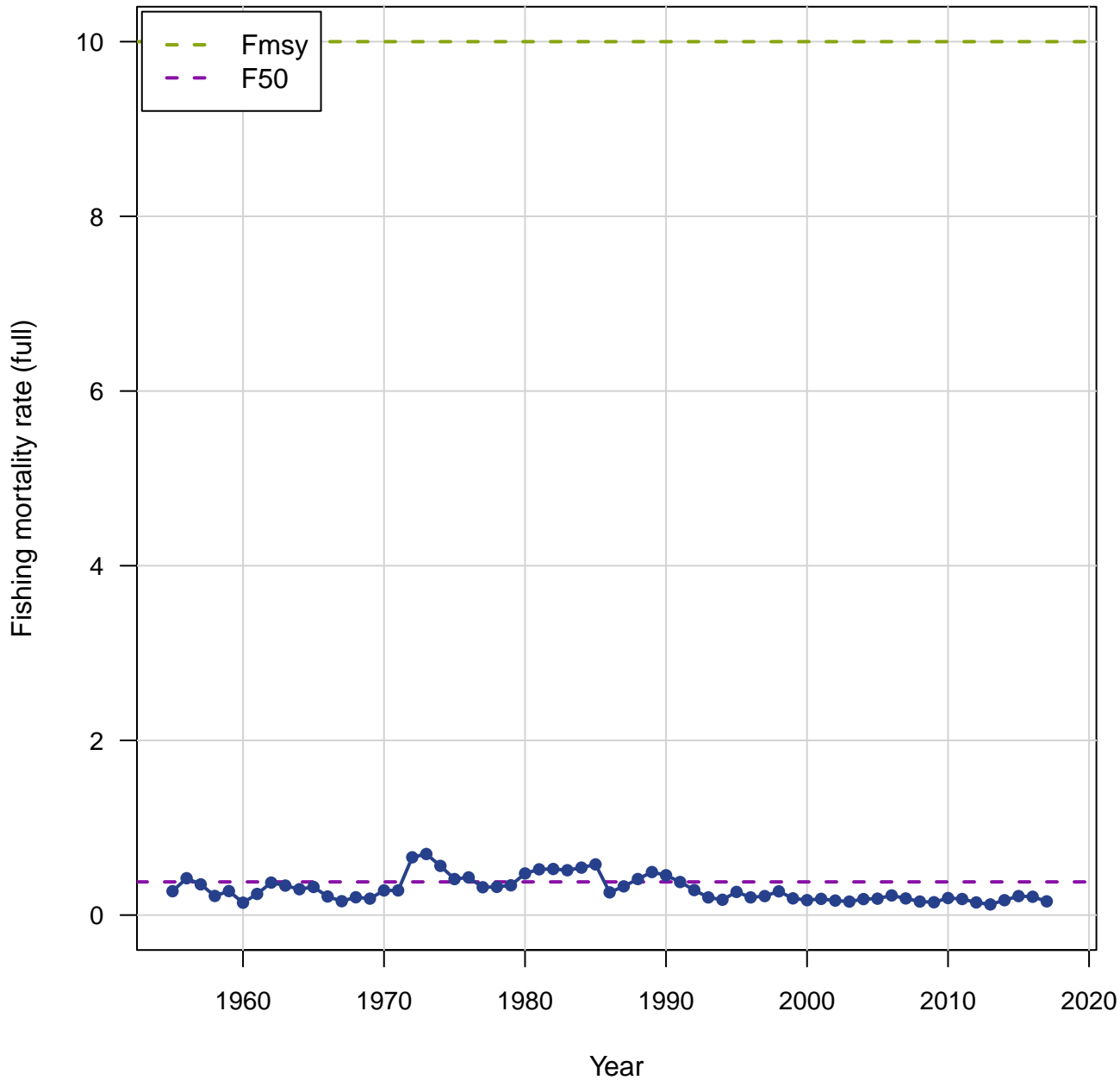
Full F Data: menhaden



Full F Data: menhaden

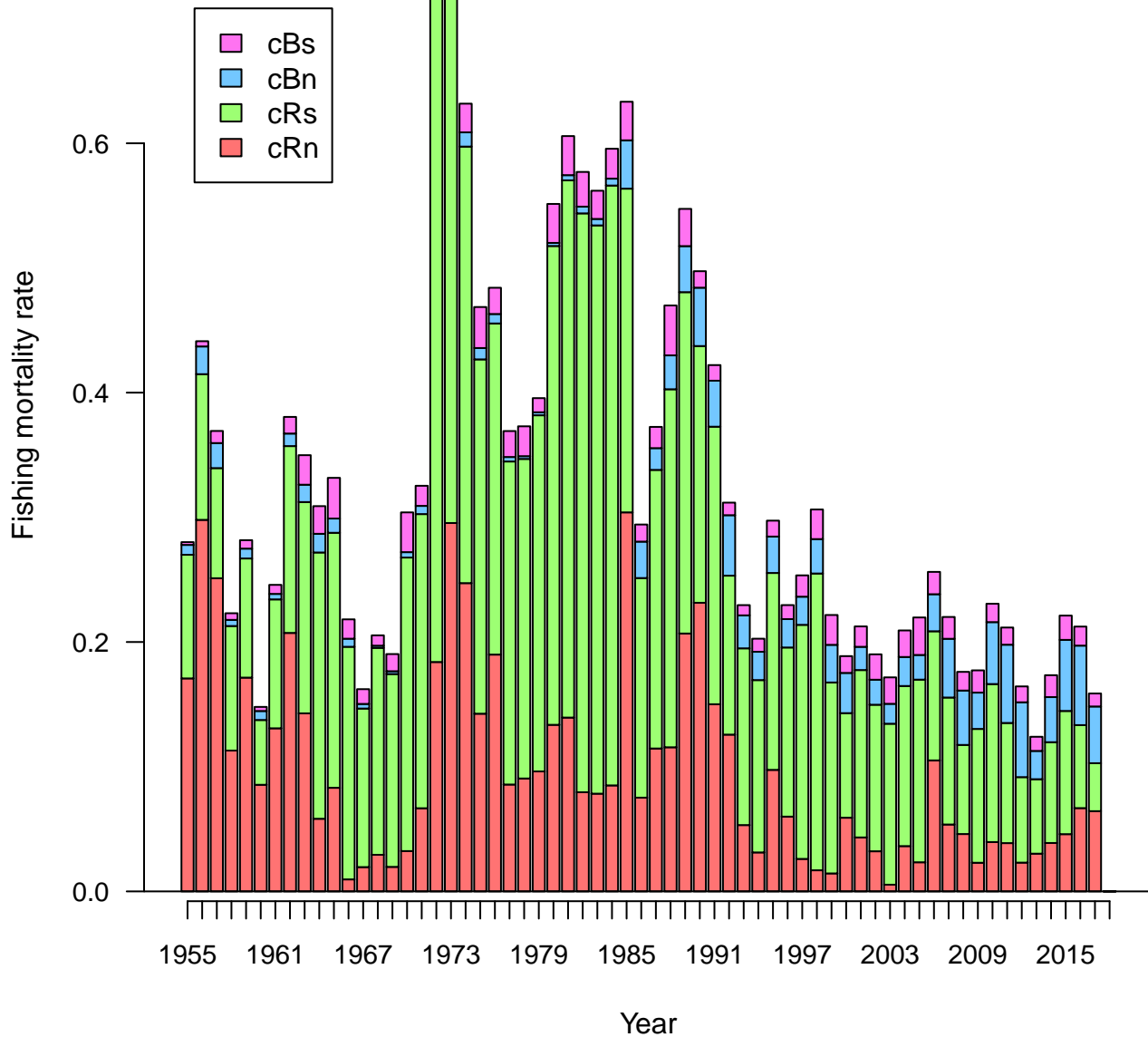


Full F Data: menhaden



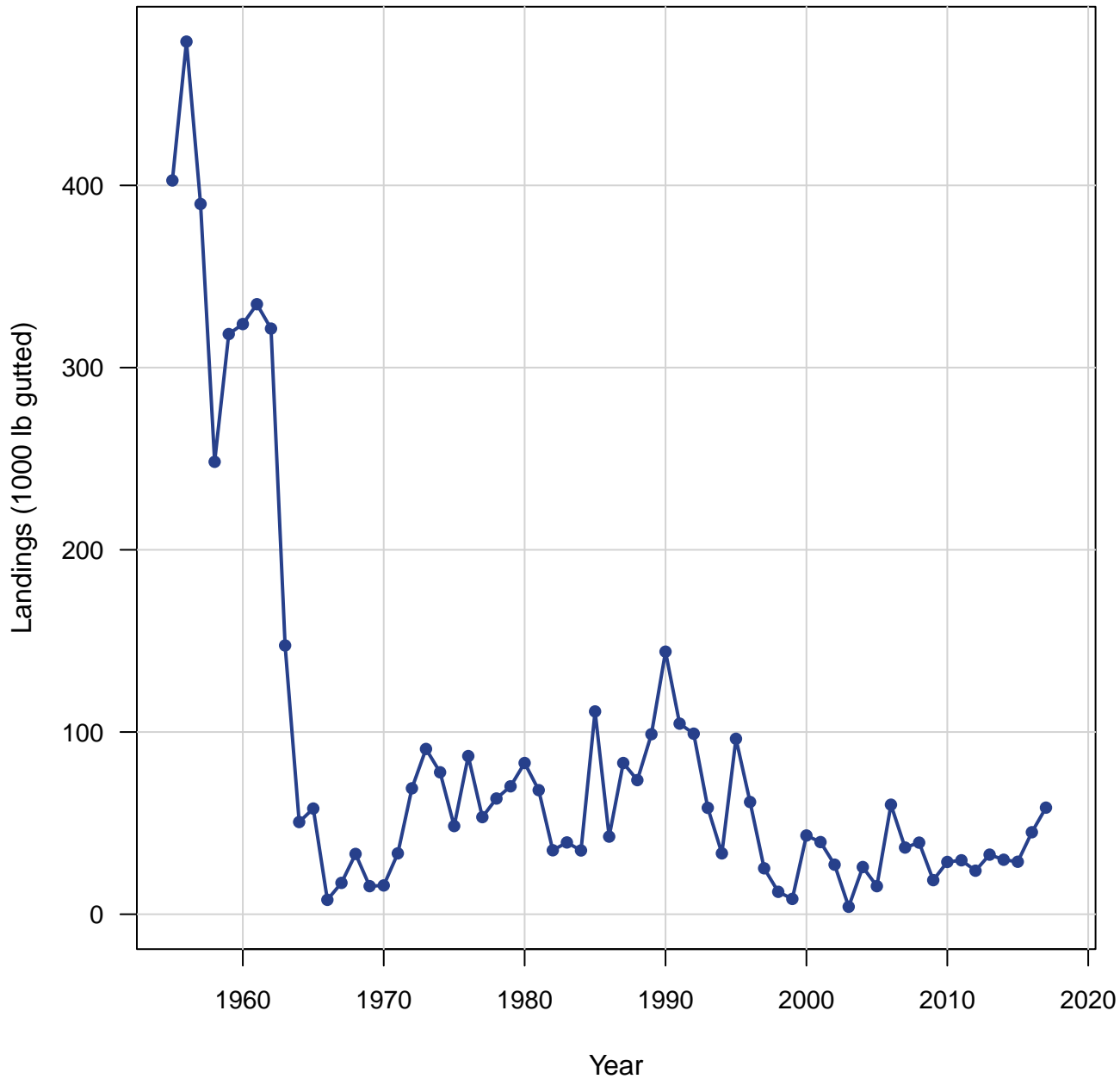
F by fishery

Data: menhaden



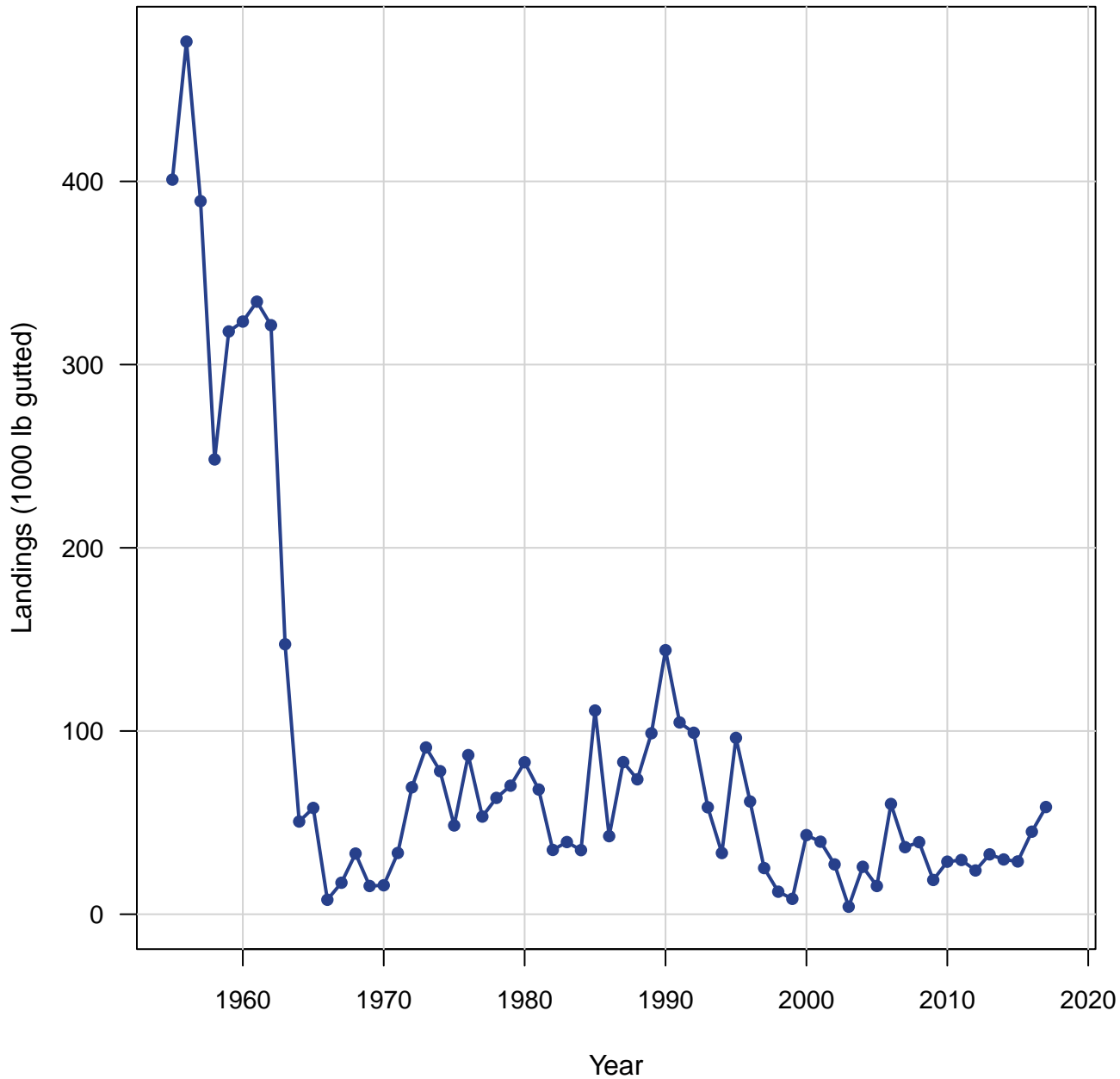
Fishery: L.cRn.ob

Data: menhaden



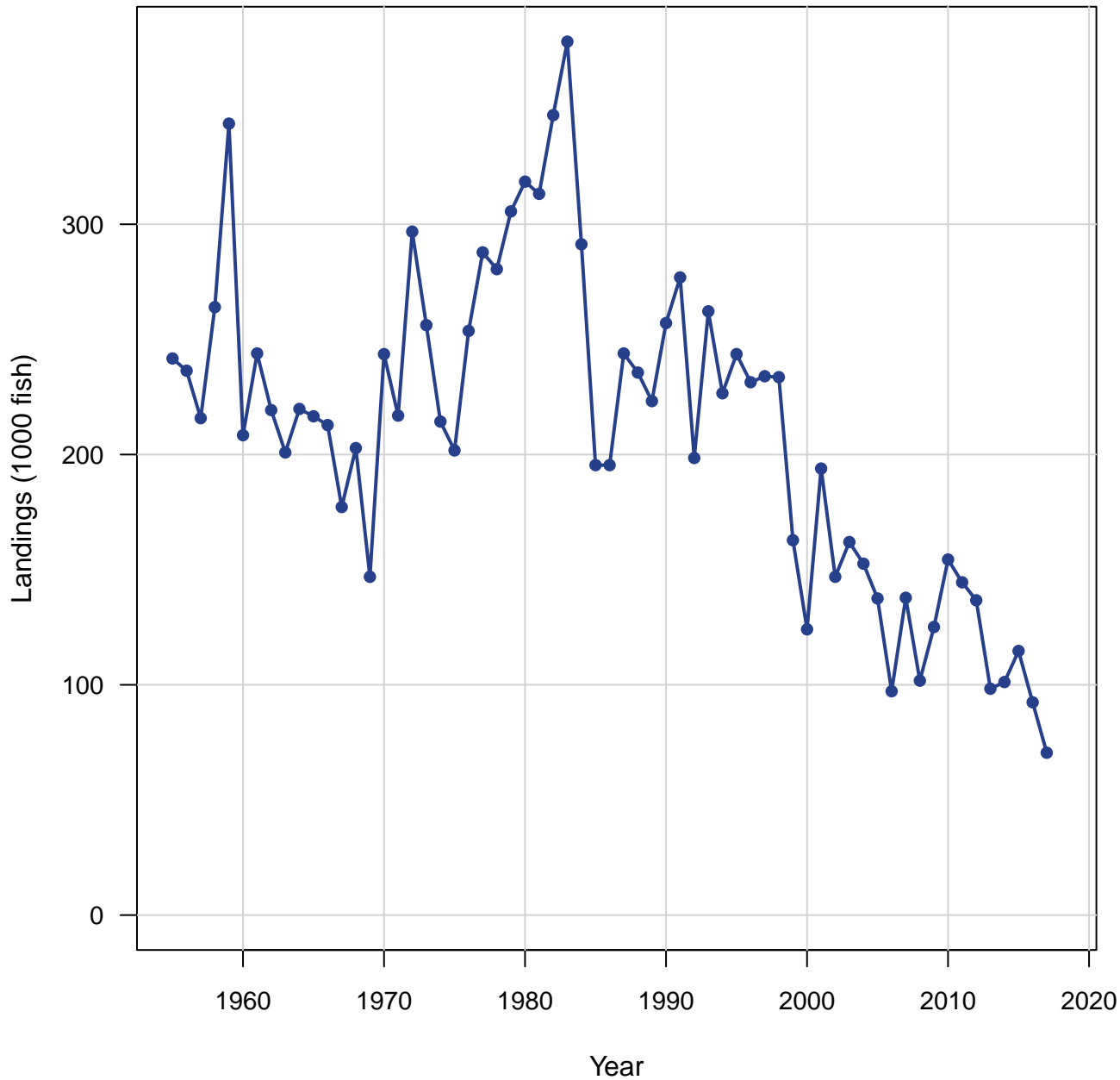
Fishery: L.cRn.pr

Data: menhaden



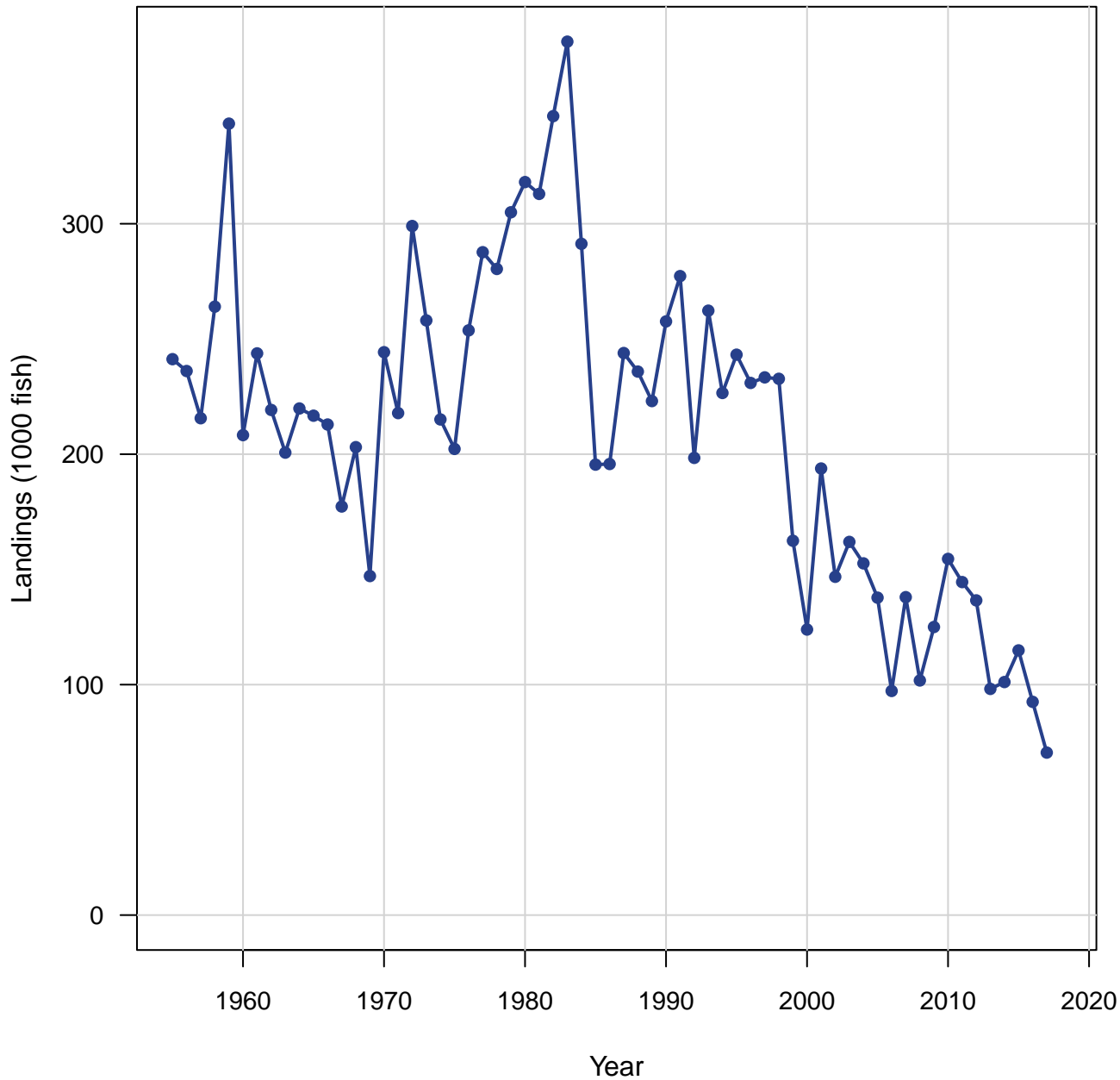
Fishery: L.cRs.ob

Data: menhaden



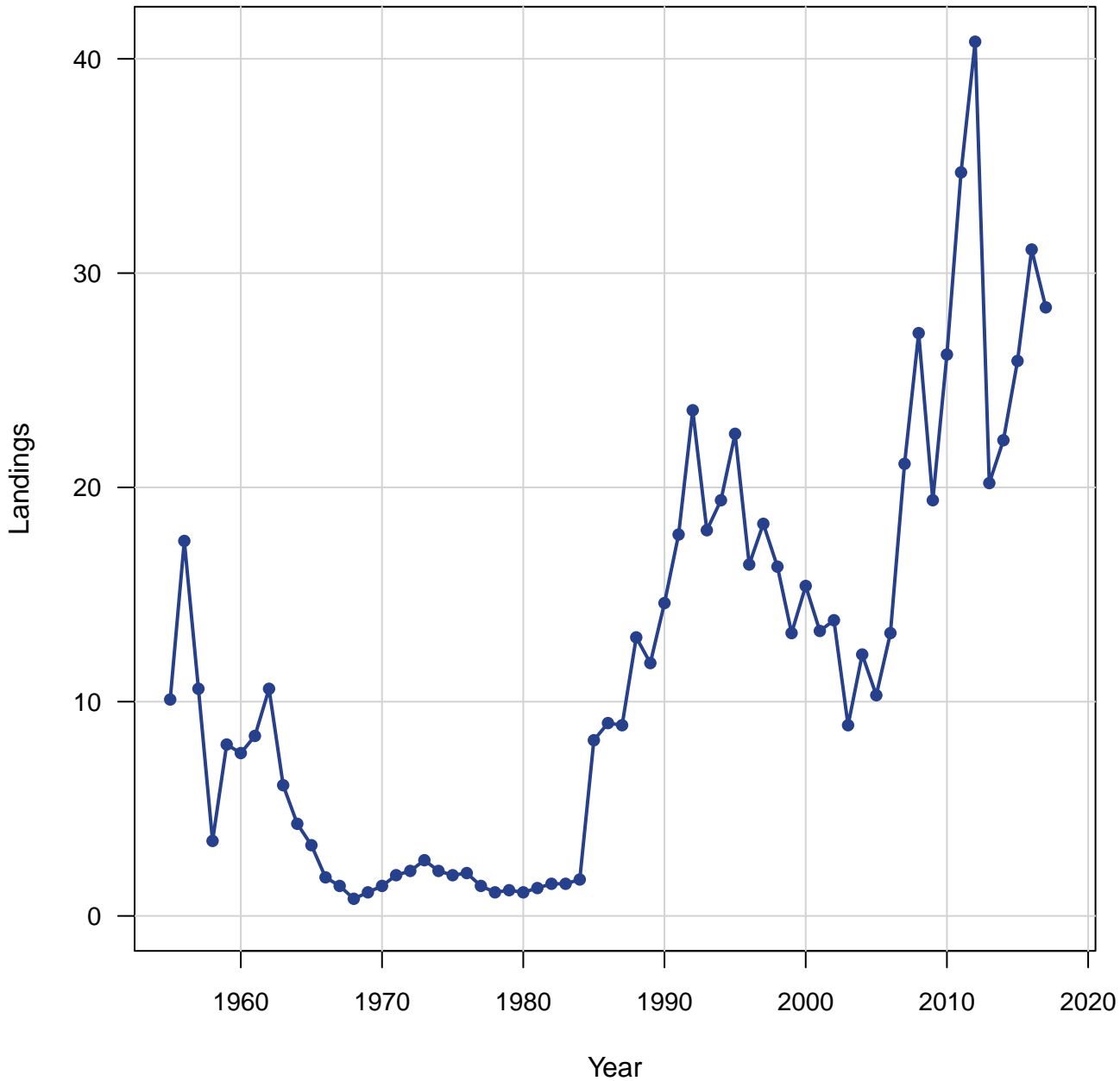
Fishery: L.cRS.pr

Data: menhaden



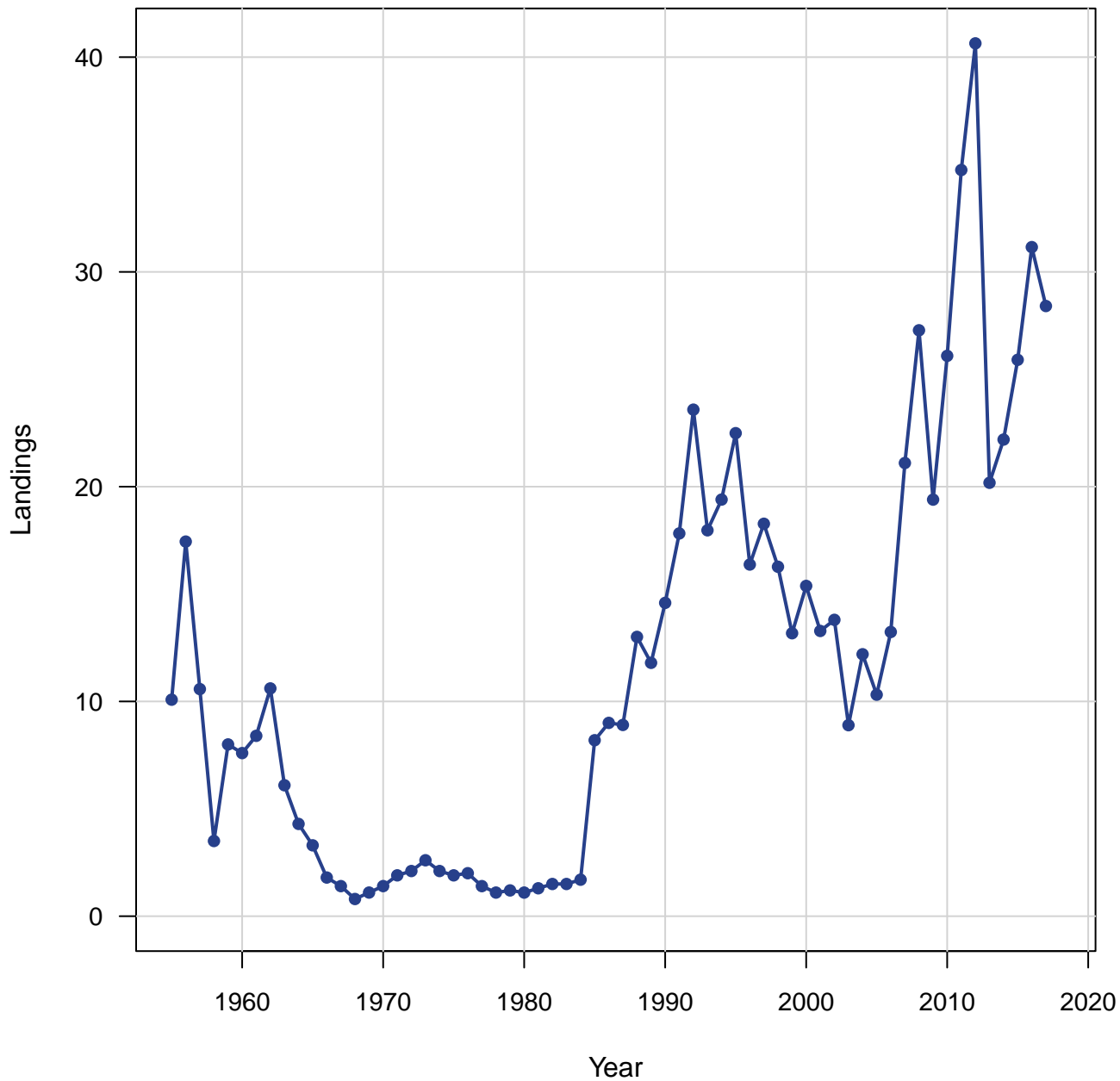
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Data: menhaden



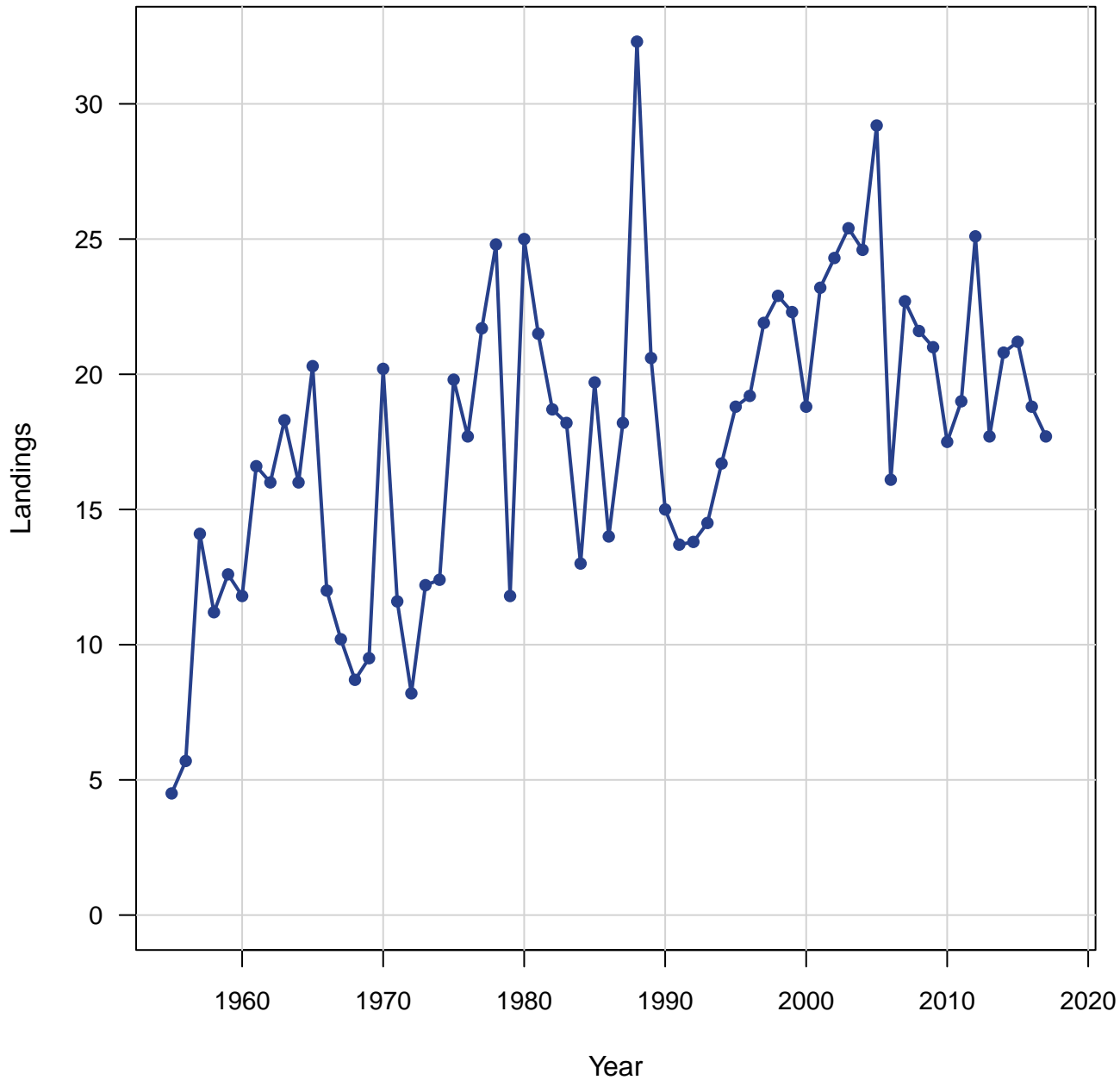
Fishery: L.cBn.pr

Data: menhaden



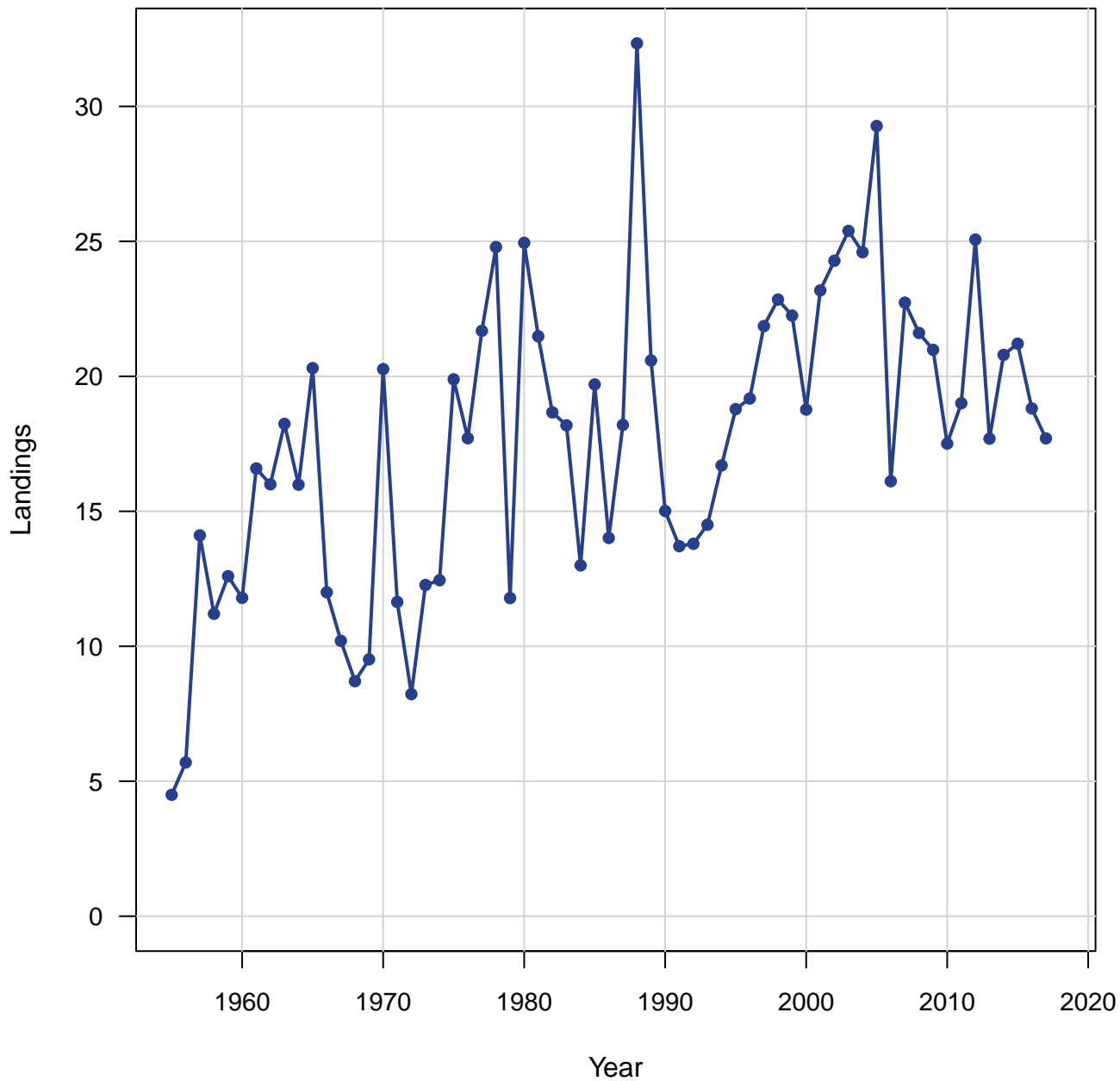
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Data: menhaden



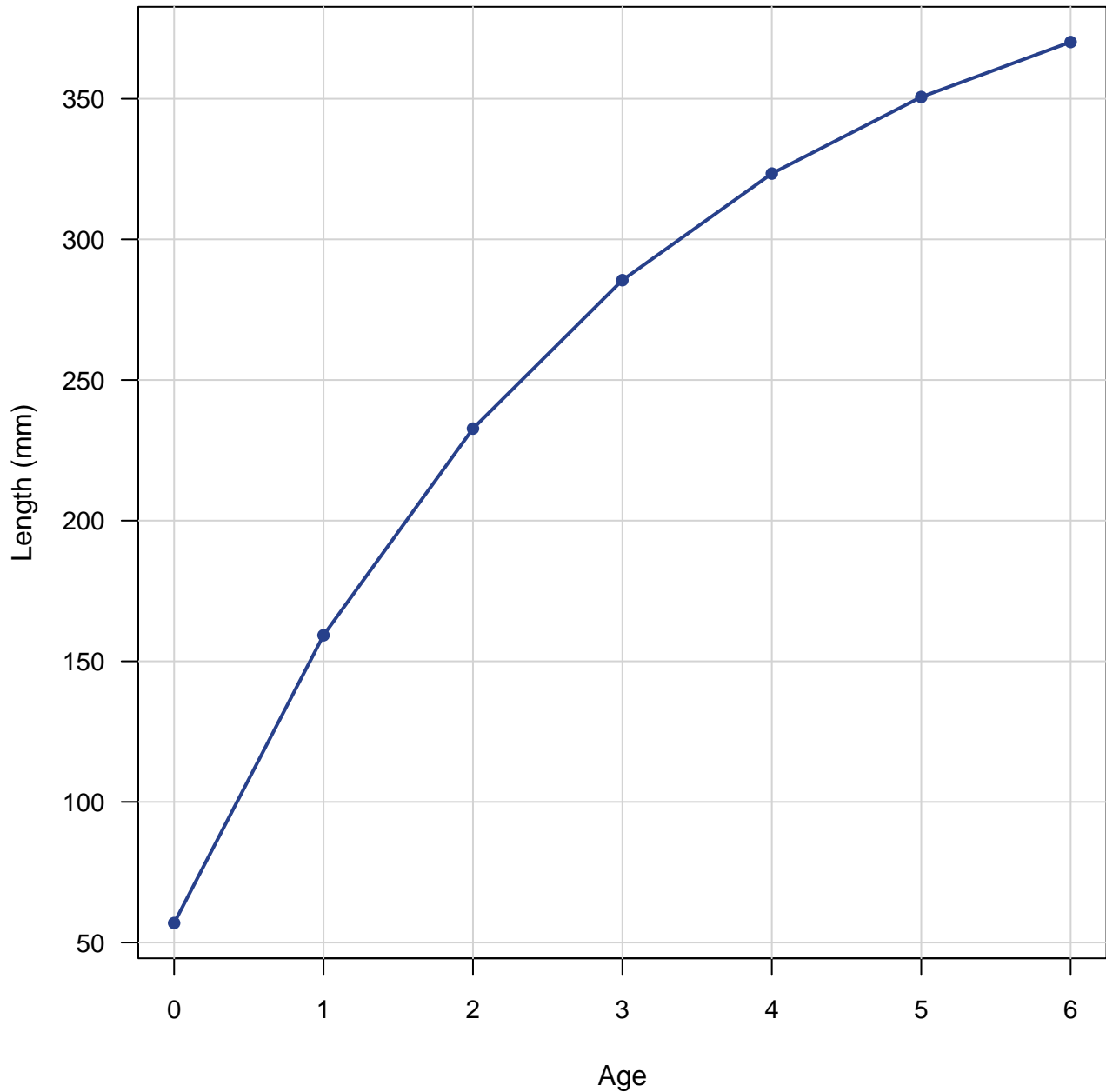
Fishery: L.cBs.pr

Data: menhaden

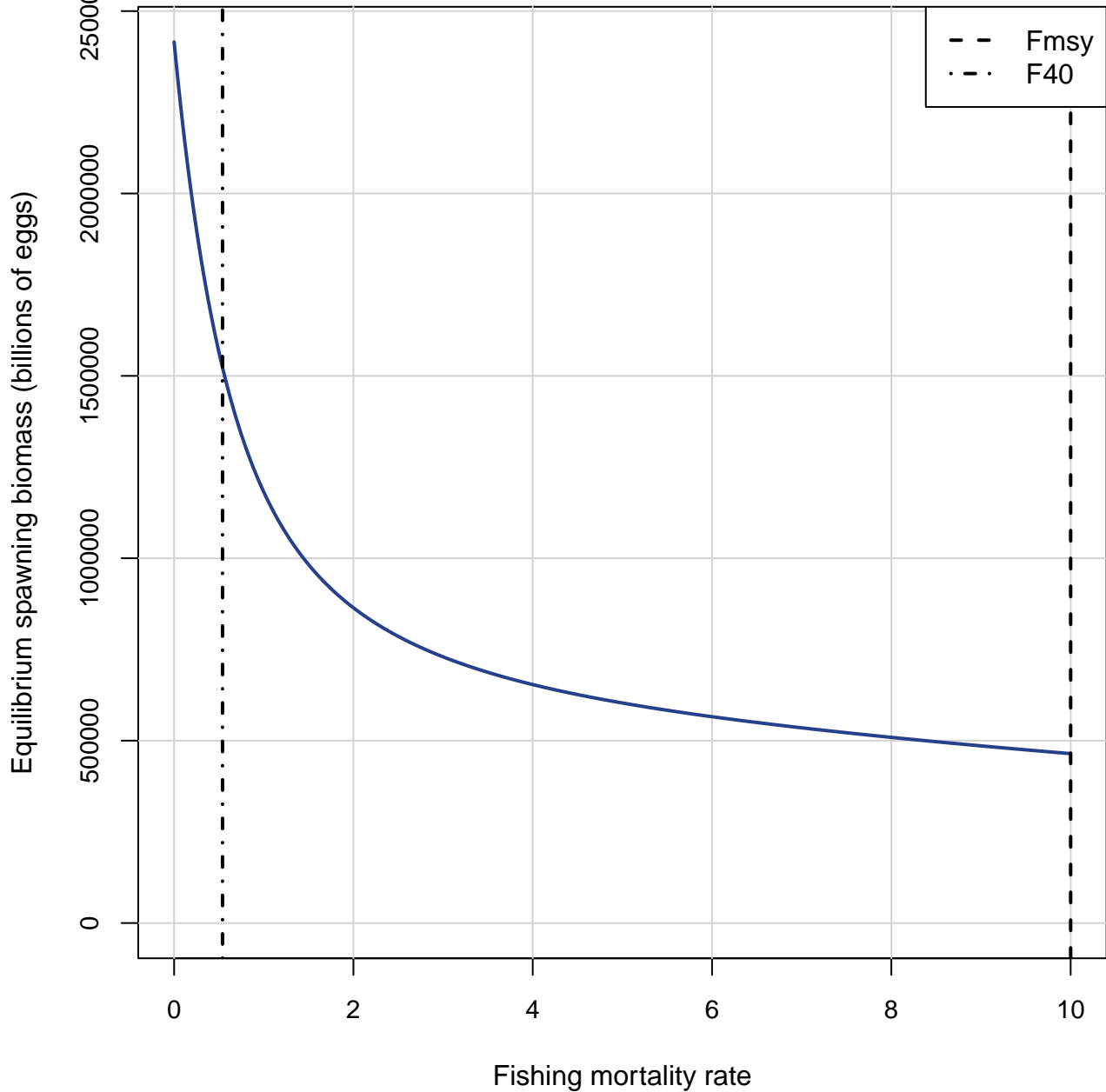


Length at age

Data: menhaden

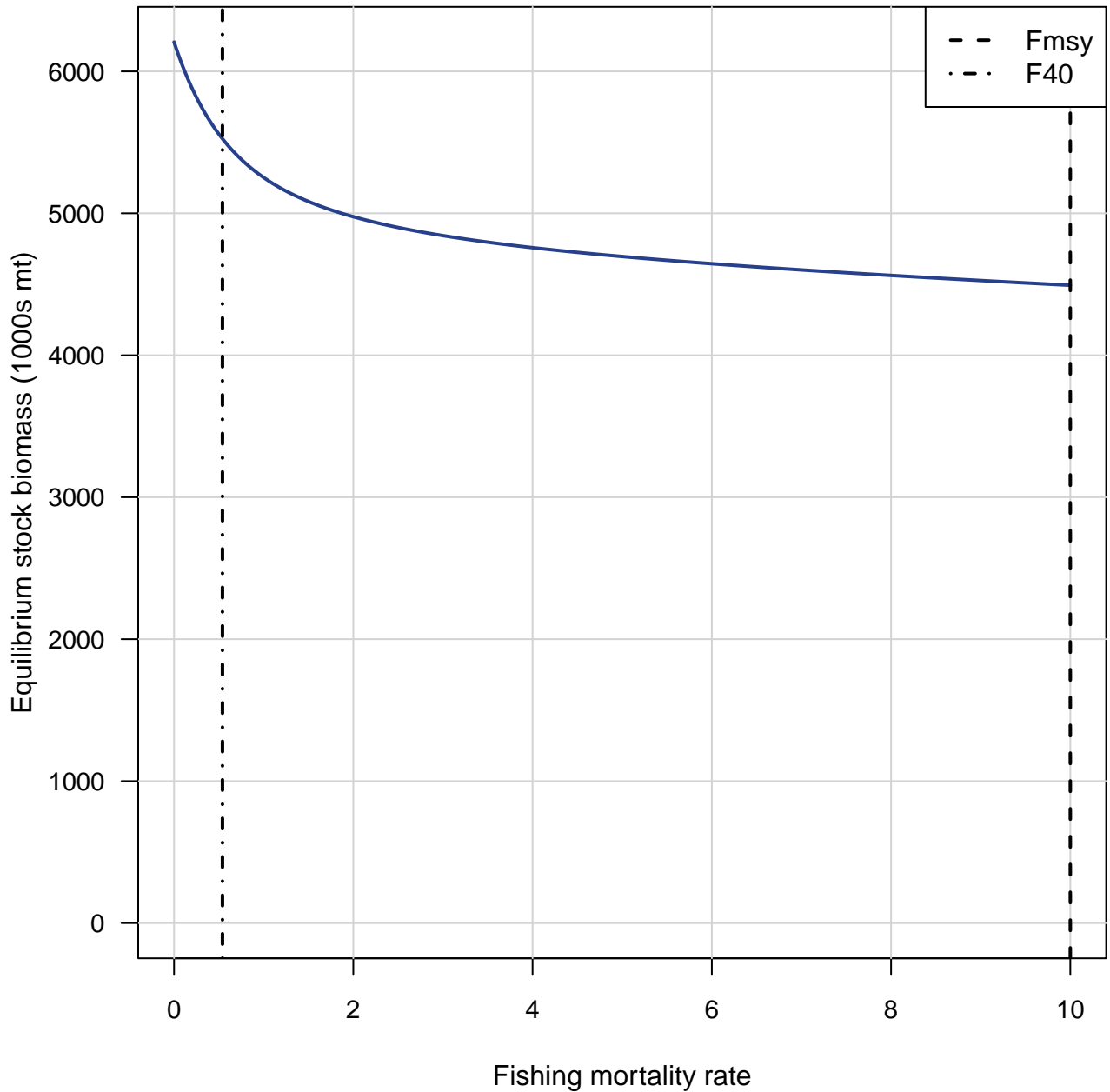


EqSSB Data: menhaden

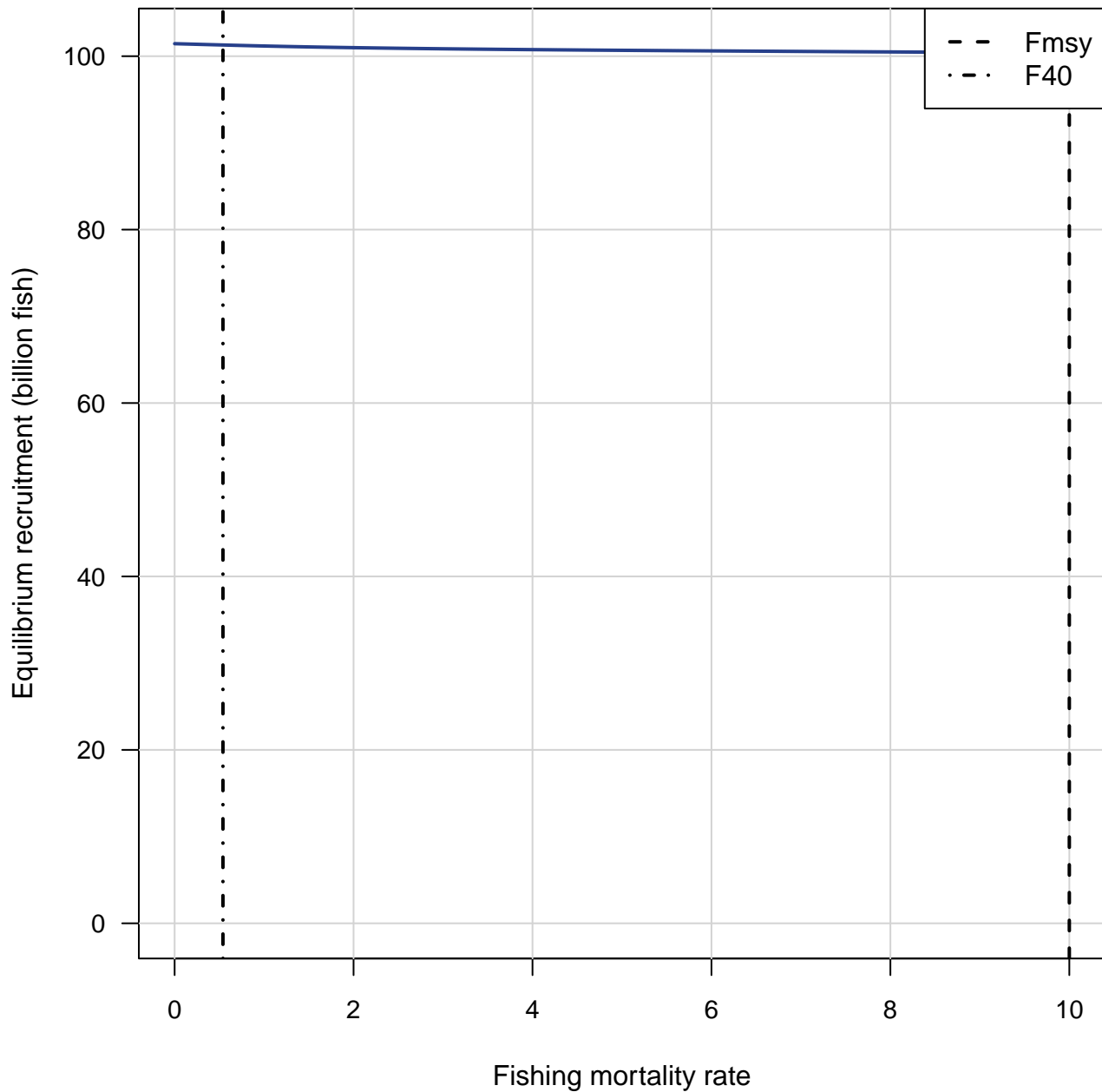


EqB

Data: menhaden

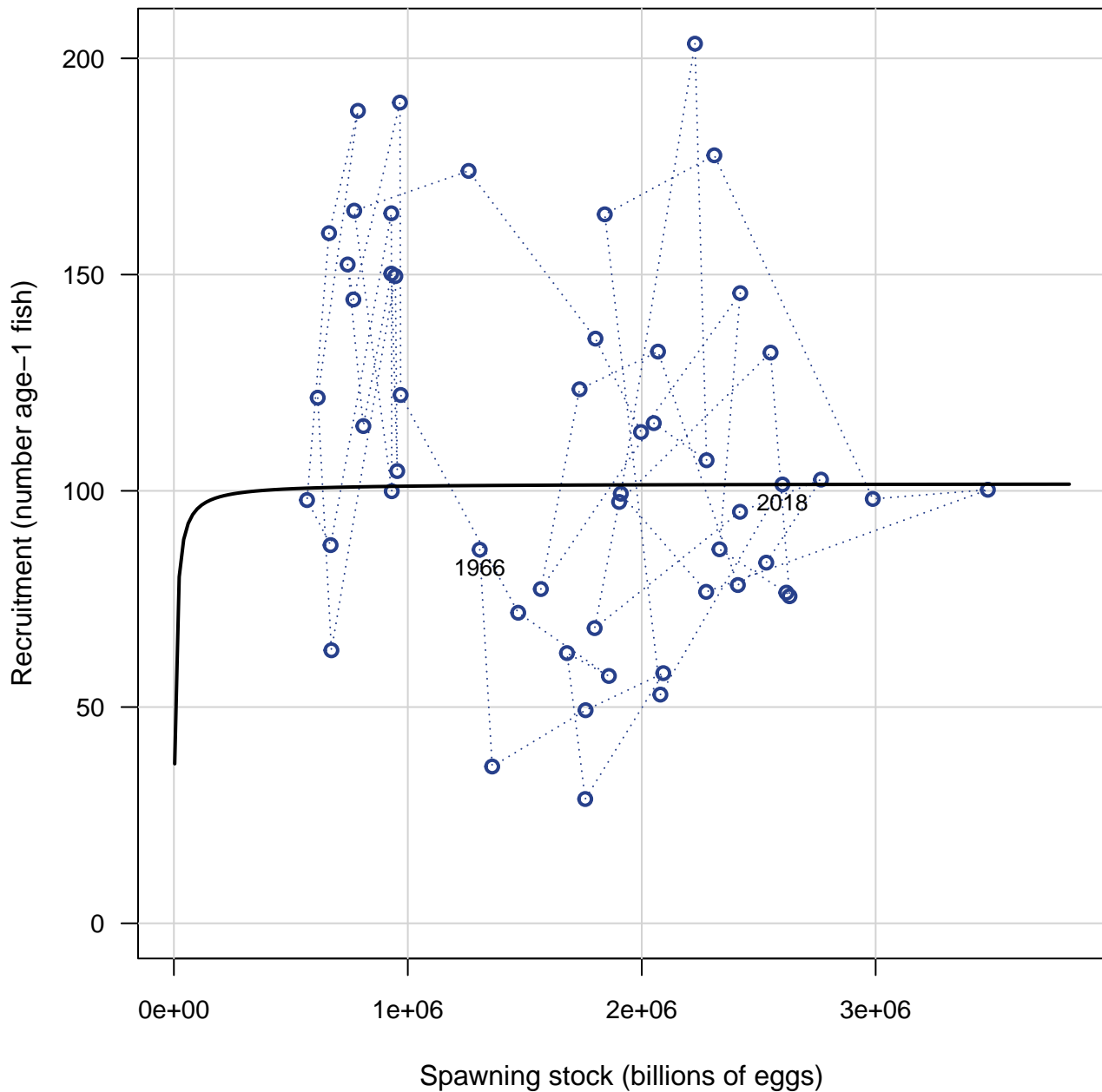


EqRec Data: menhaden

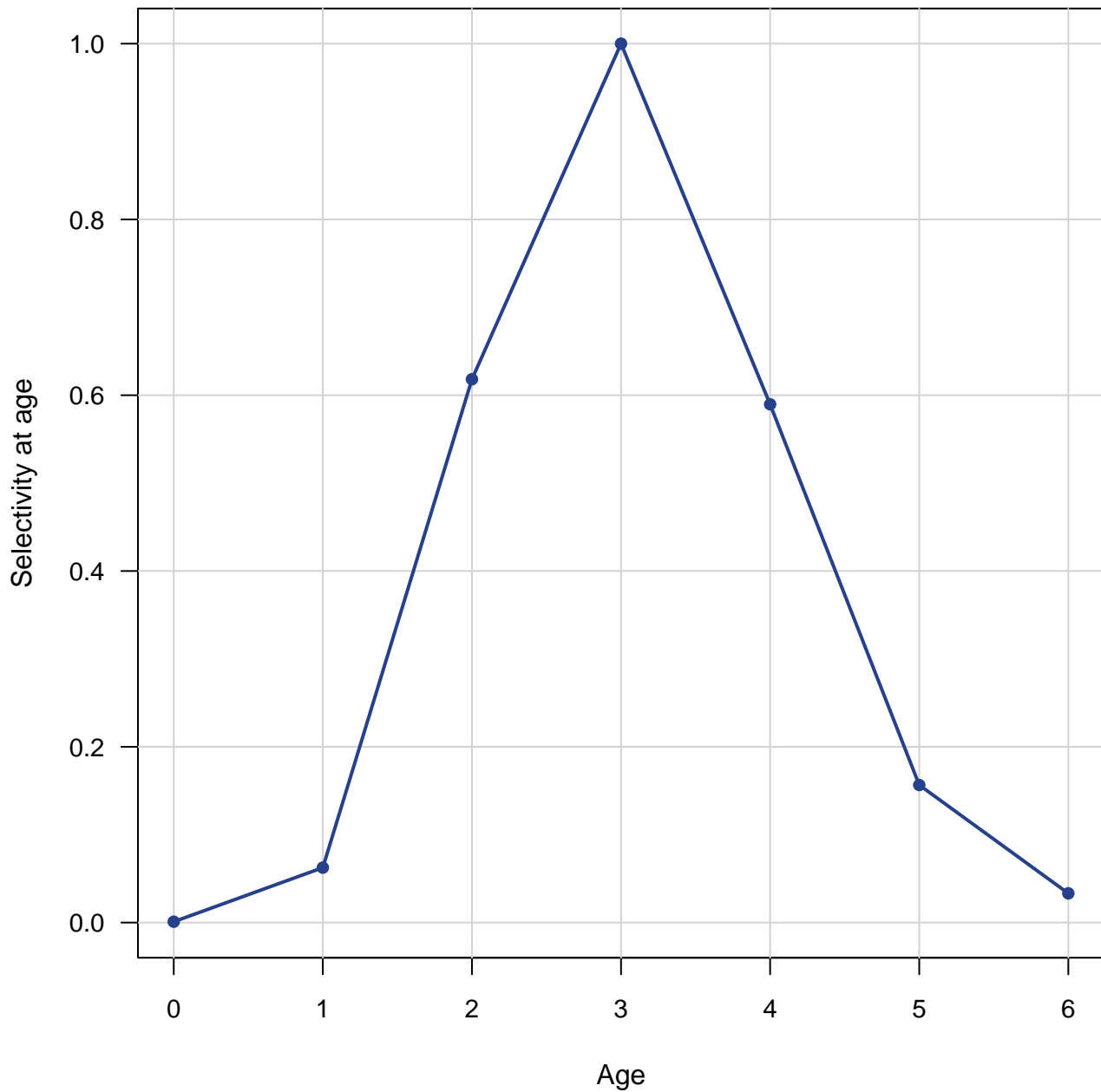


Stock-recruitment

Data: menhaden

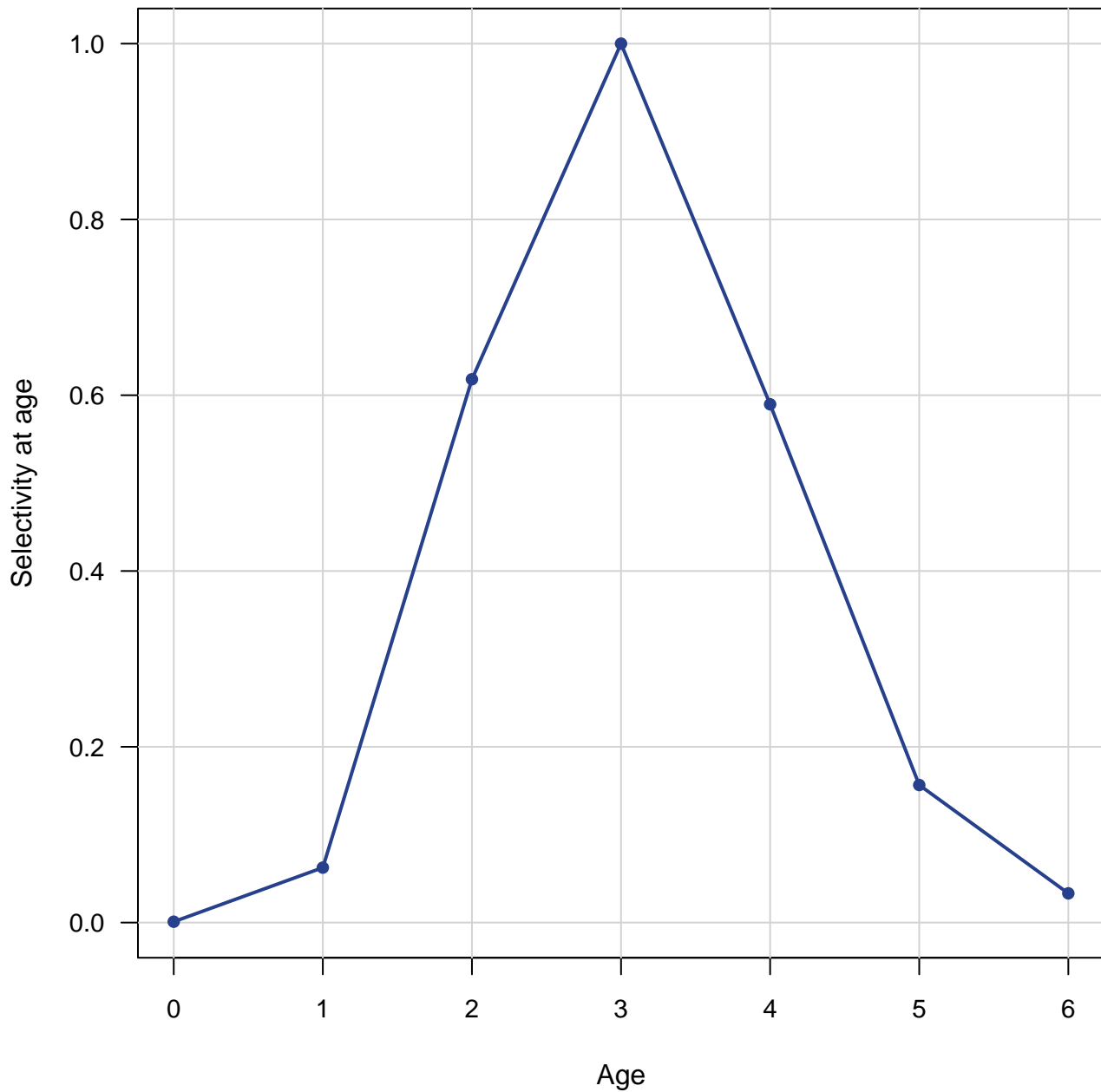


Fishery: wgted.L Data: menhaden



Fishery: wgted.tot

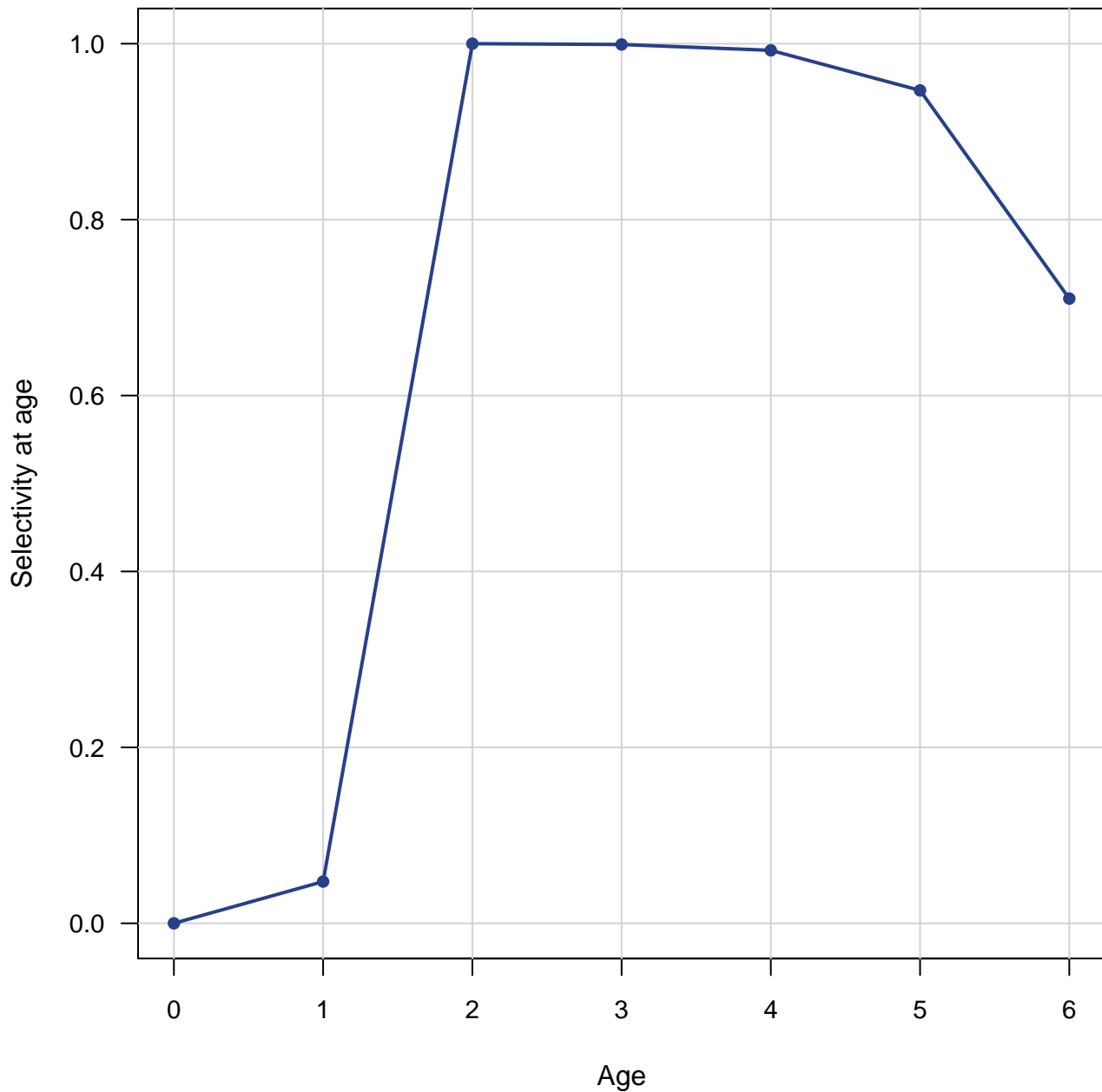
Data: menhaden



Selectivity in: cRn

Data: menhaden

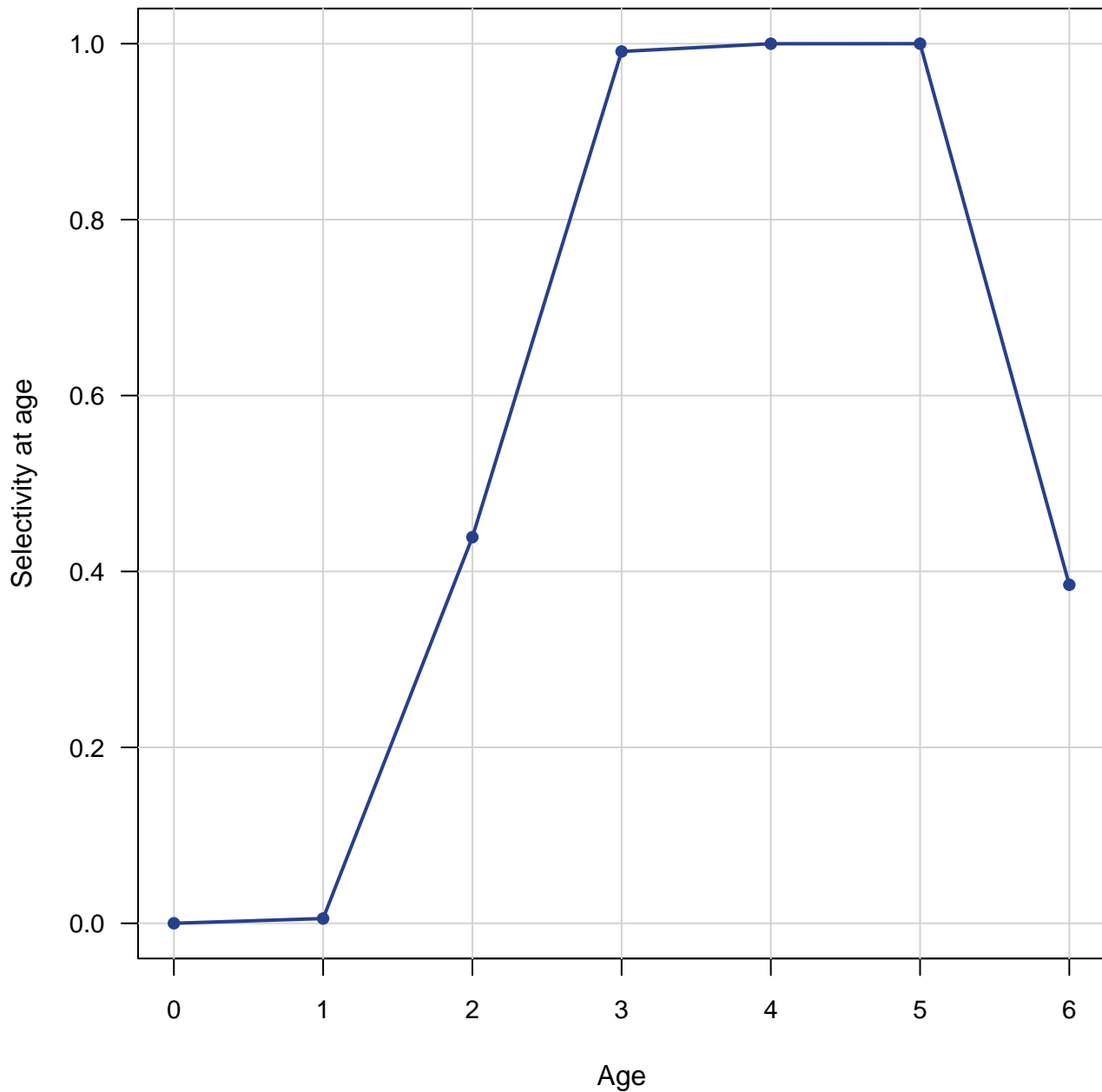
Year: 1955



Selectivity in: cRn

Data: menhaden

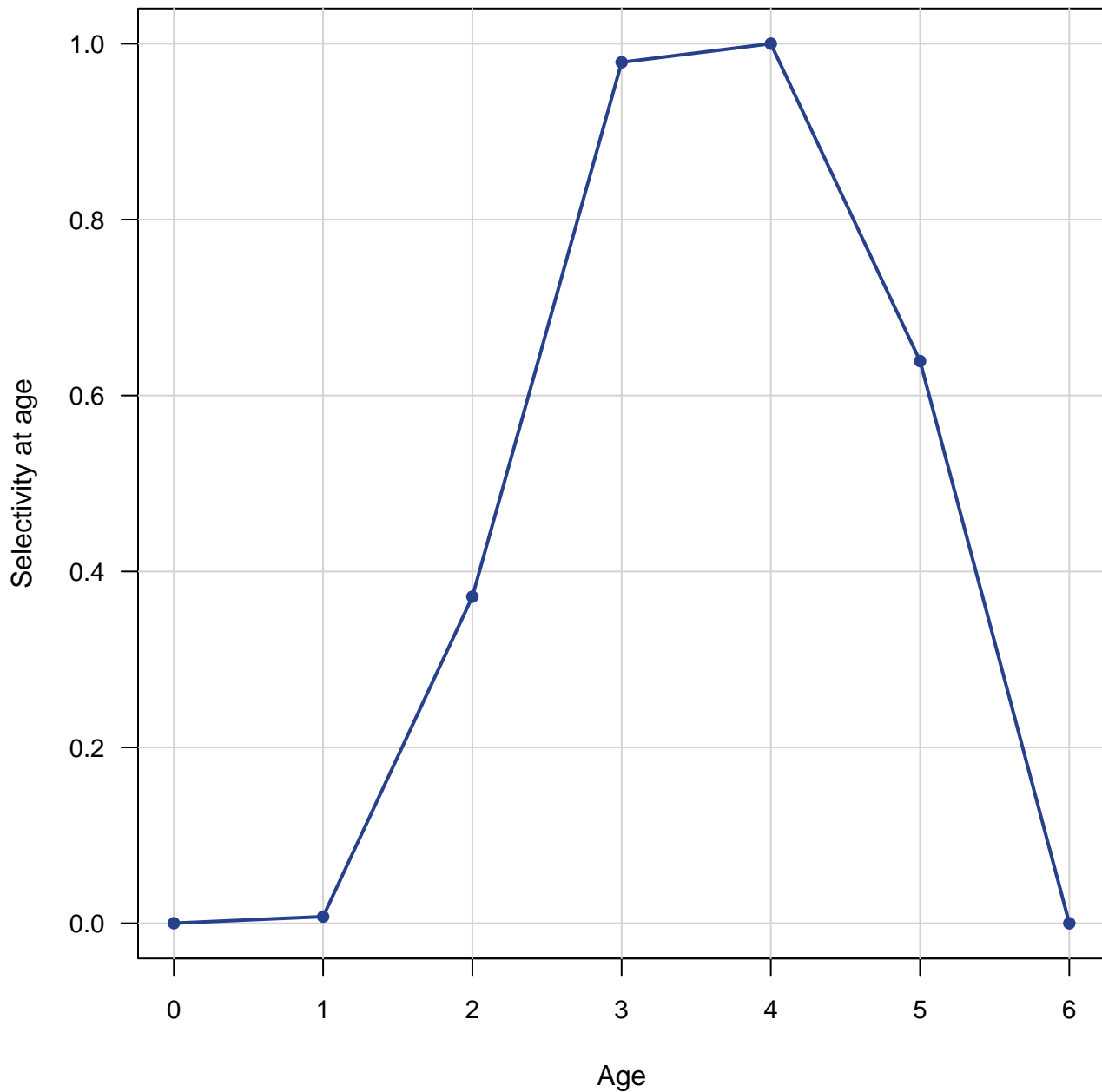
Year: 1970



Selectivity in: cRn

Data: menhaden

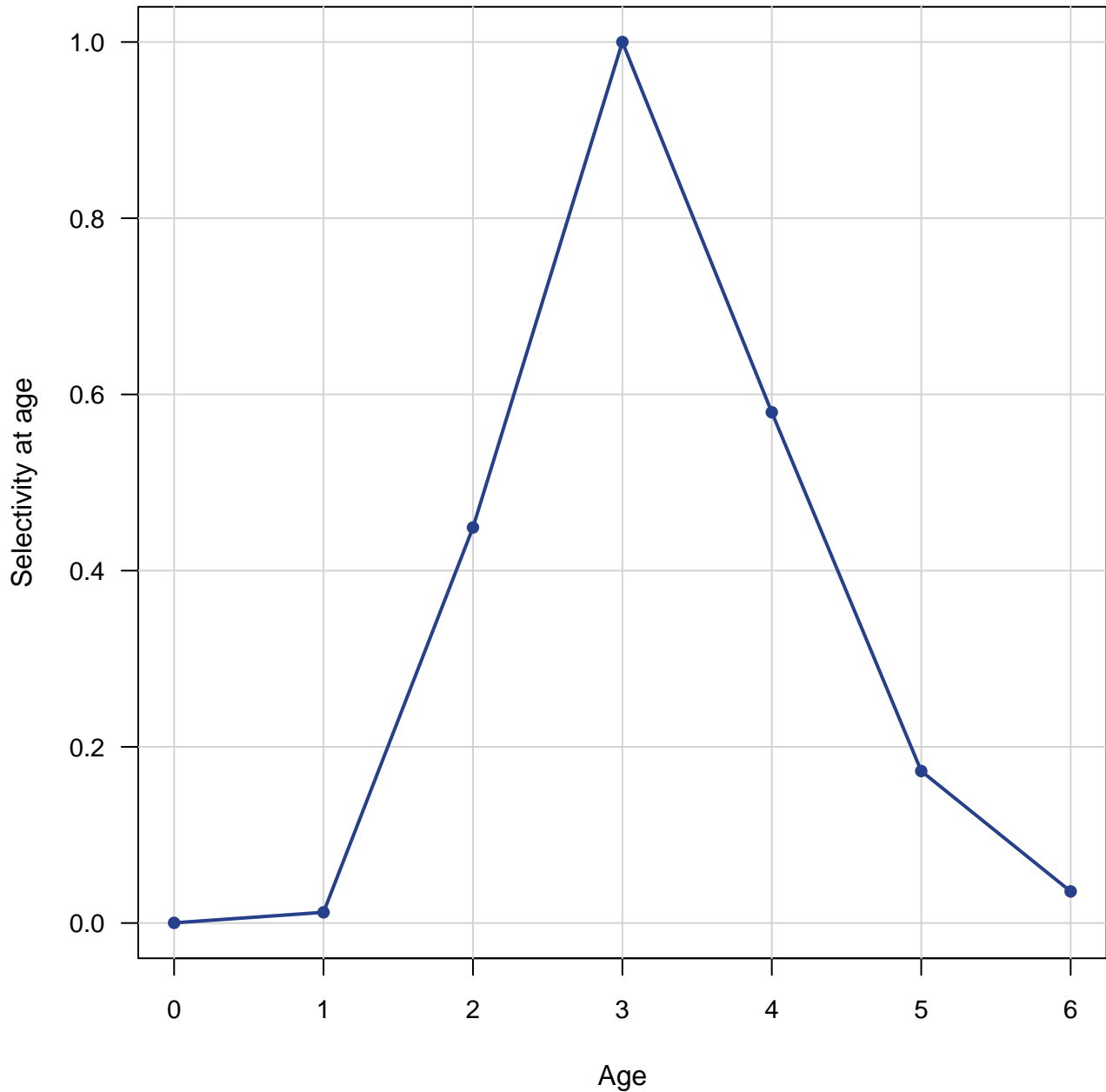
Year: 1994



Selectivity in: cRn

Data: menhaden

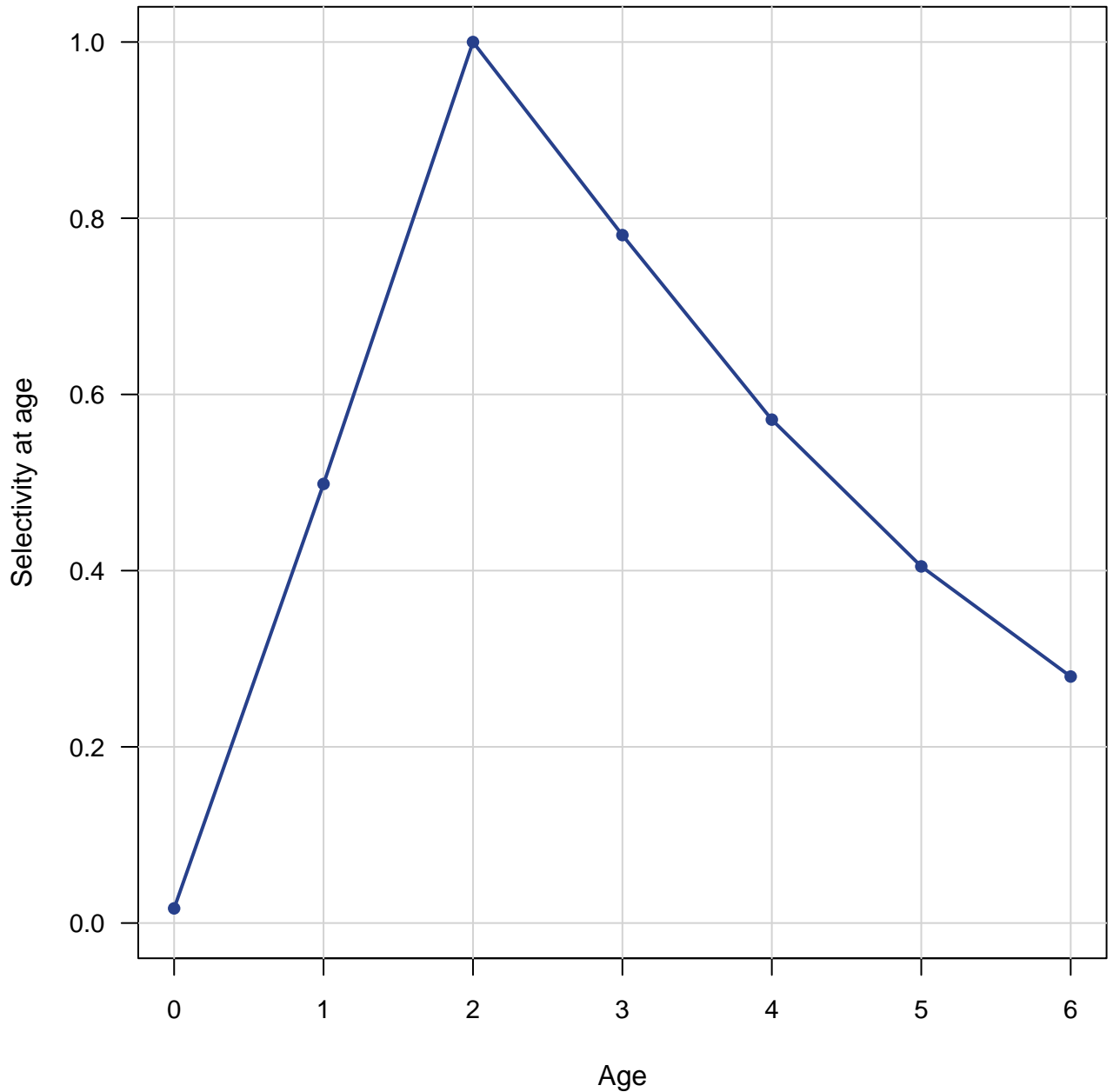
Year: 2013



Selectivity in: cRs

Data: menhaden

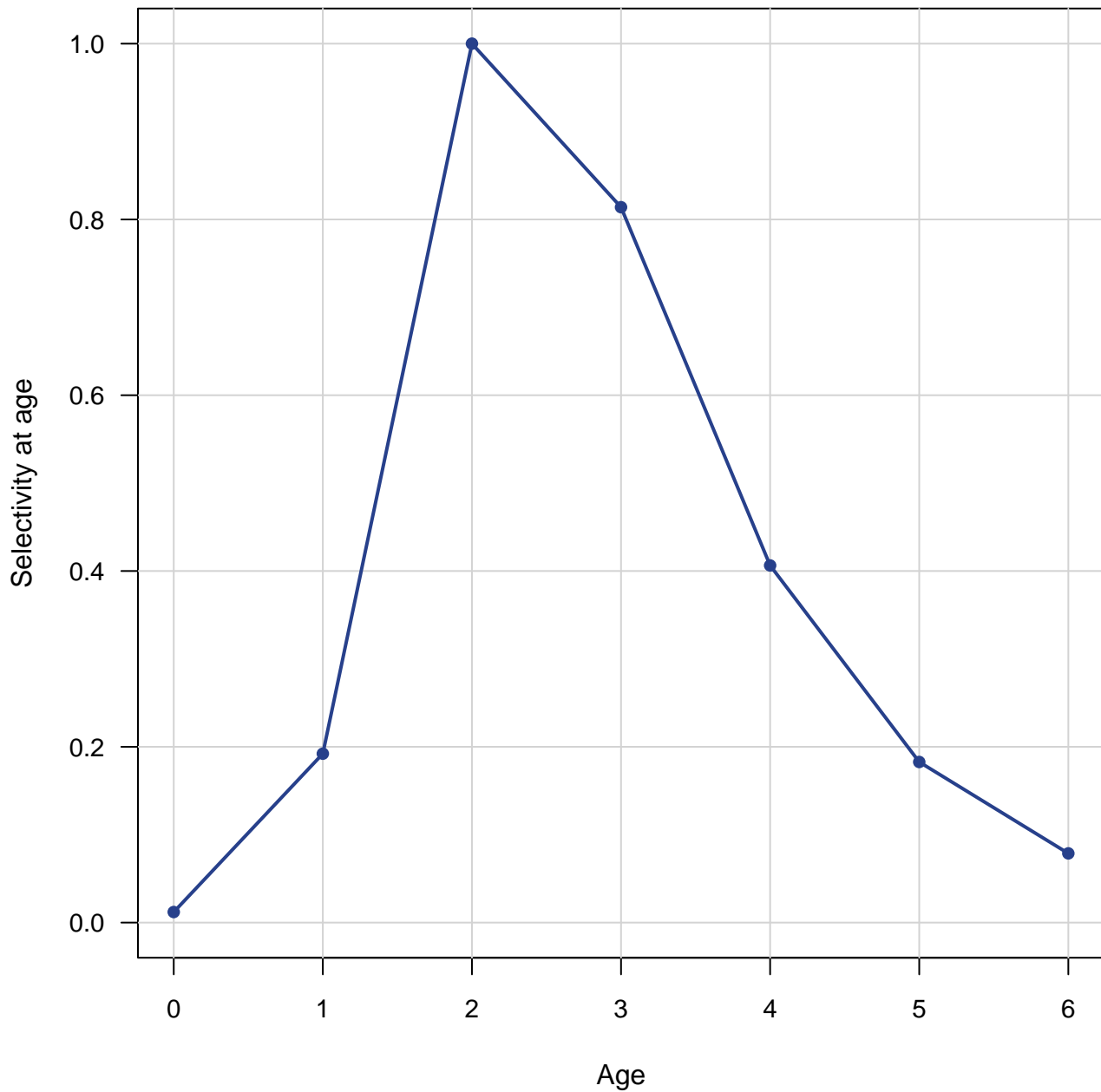
Year: 1955



Selectivity in: cRs

Data: menhaden

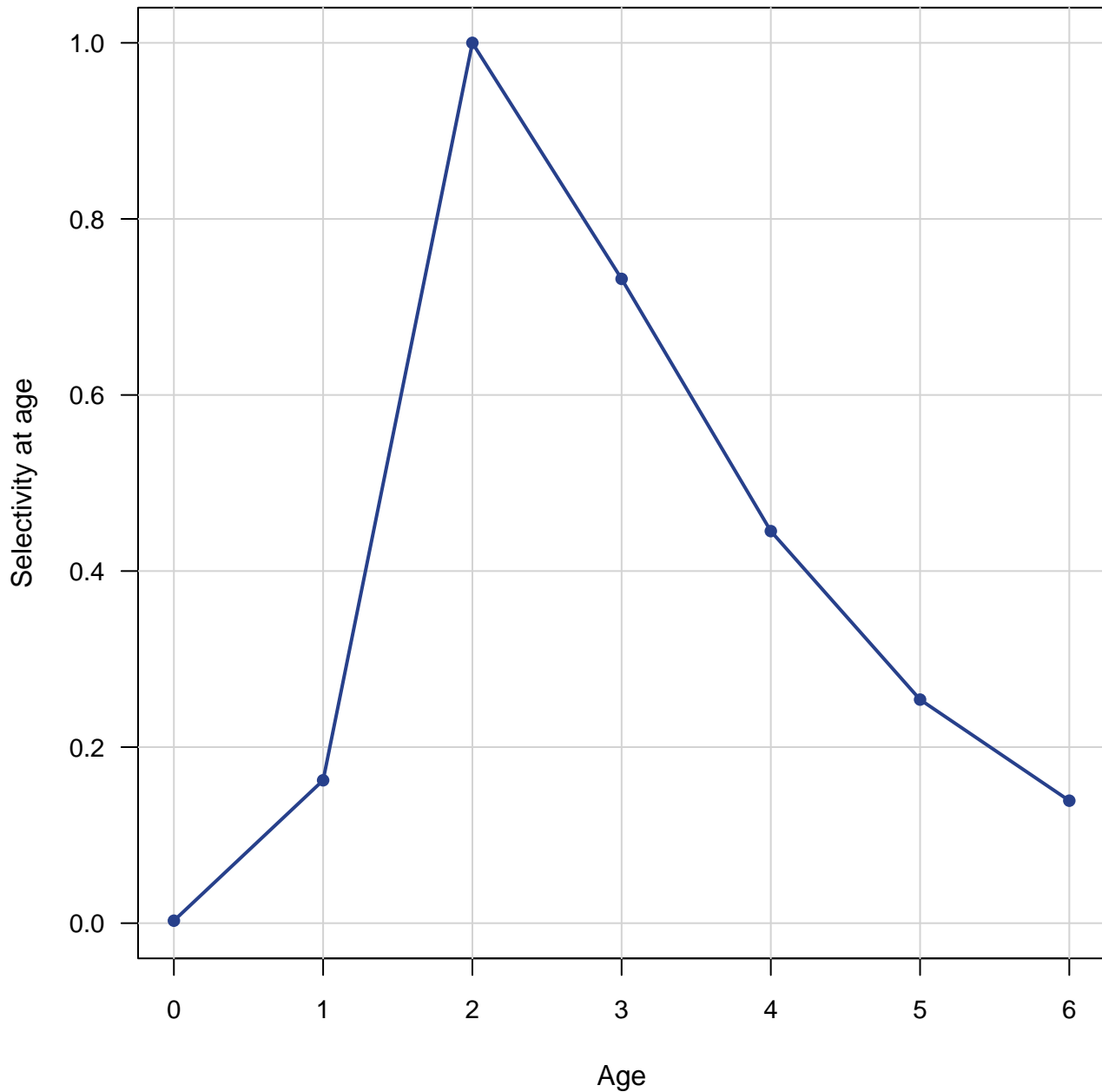
Year: 1972



Selectivity in: cRs

Data: menhaden

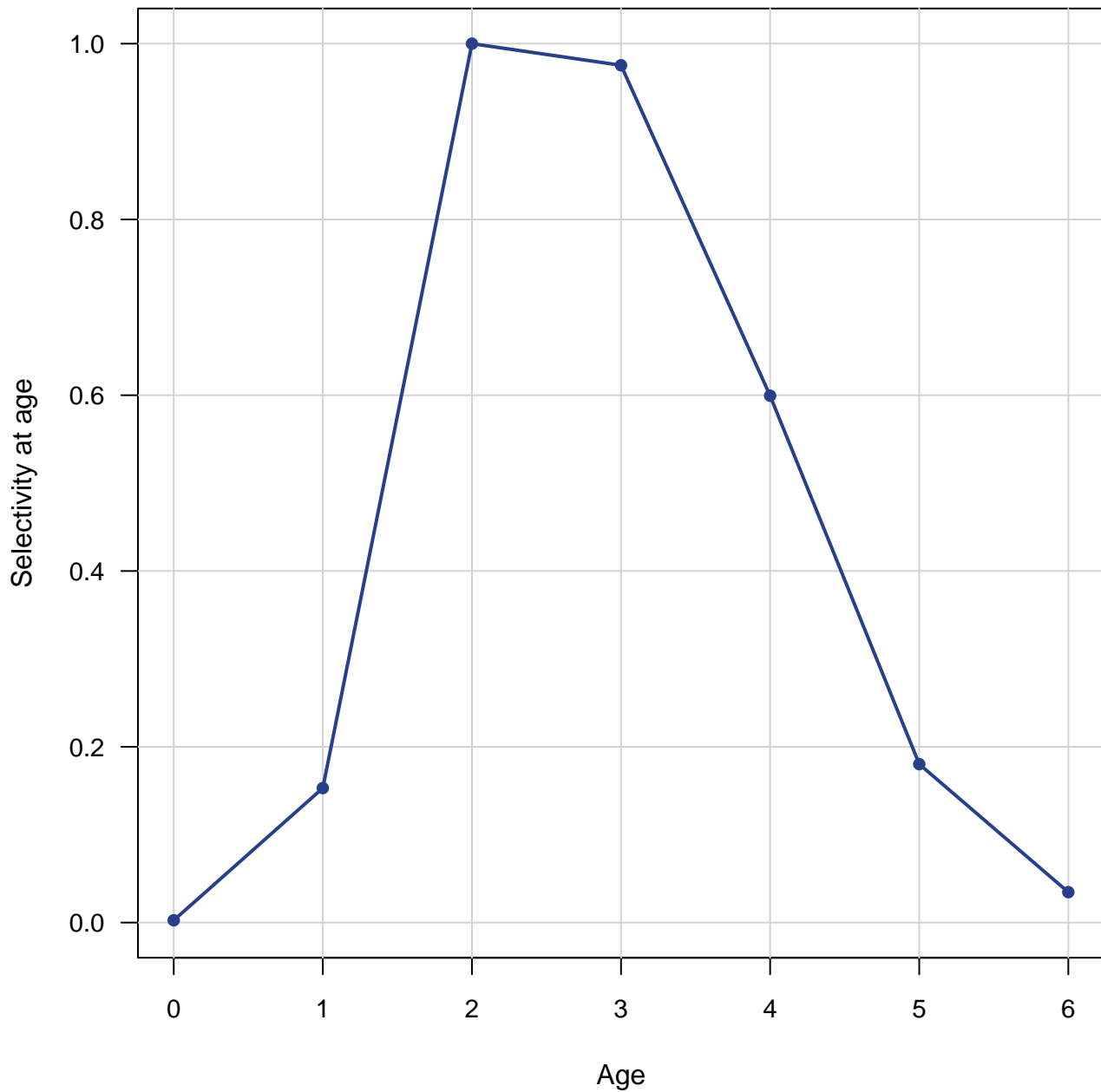
Year: 2005



Selectivity in: cRs

Data: menhaden

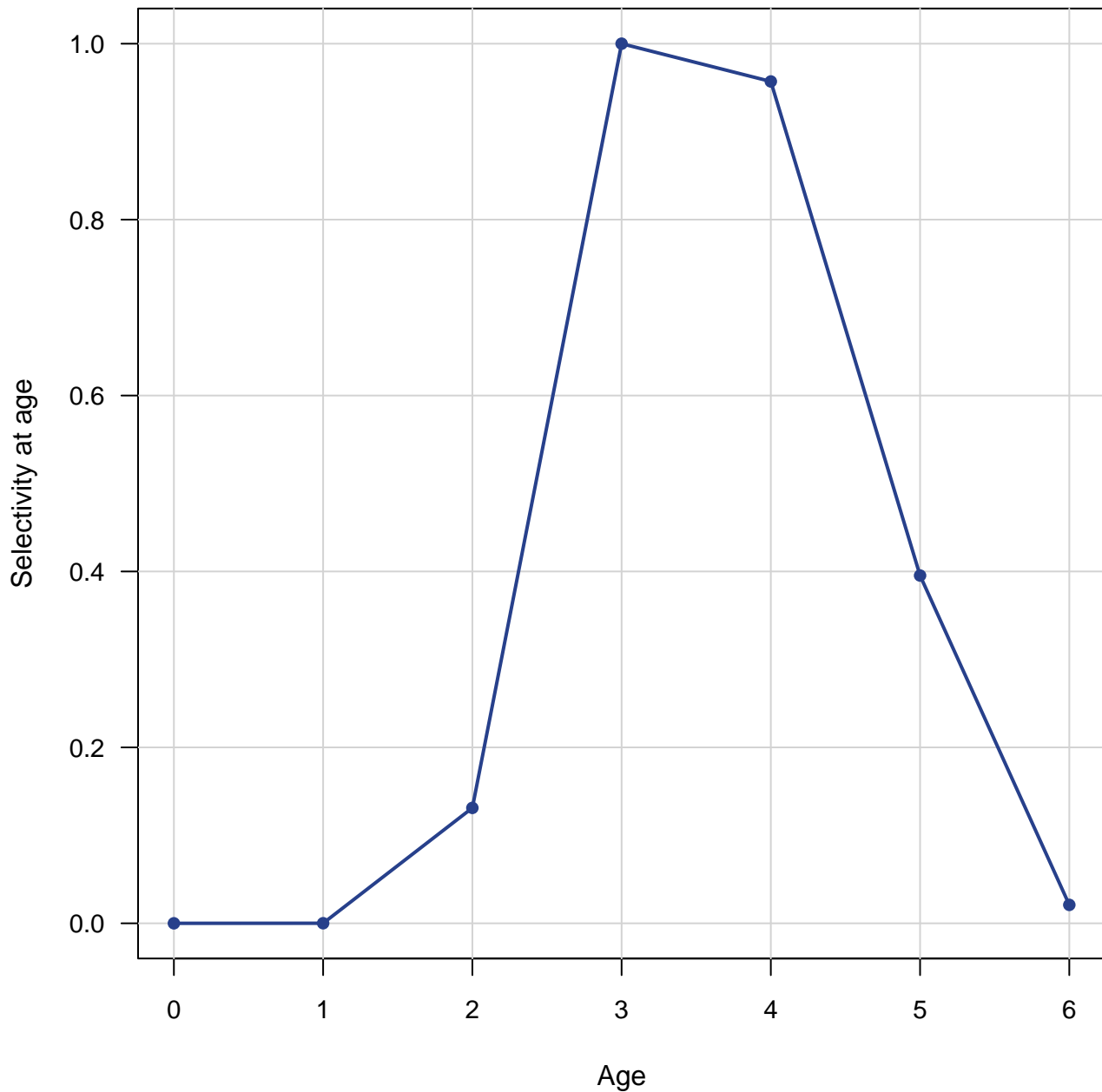
Year: 2013



Selectivity in: cBn

Data: menhaden

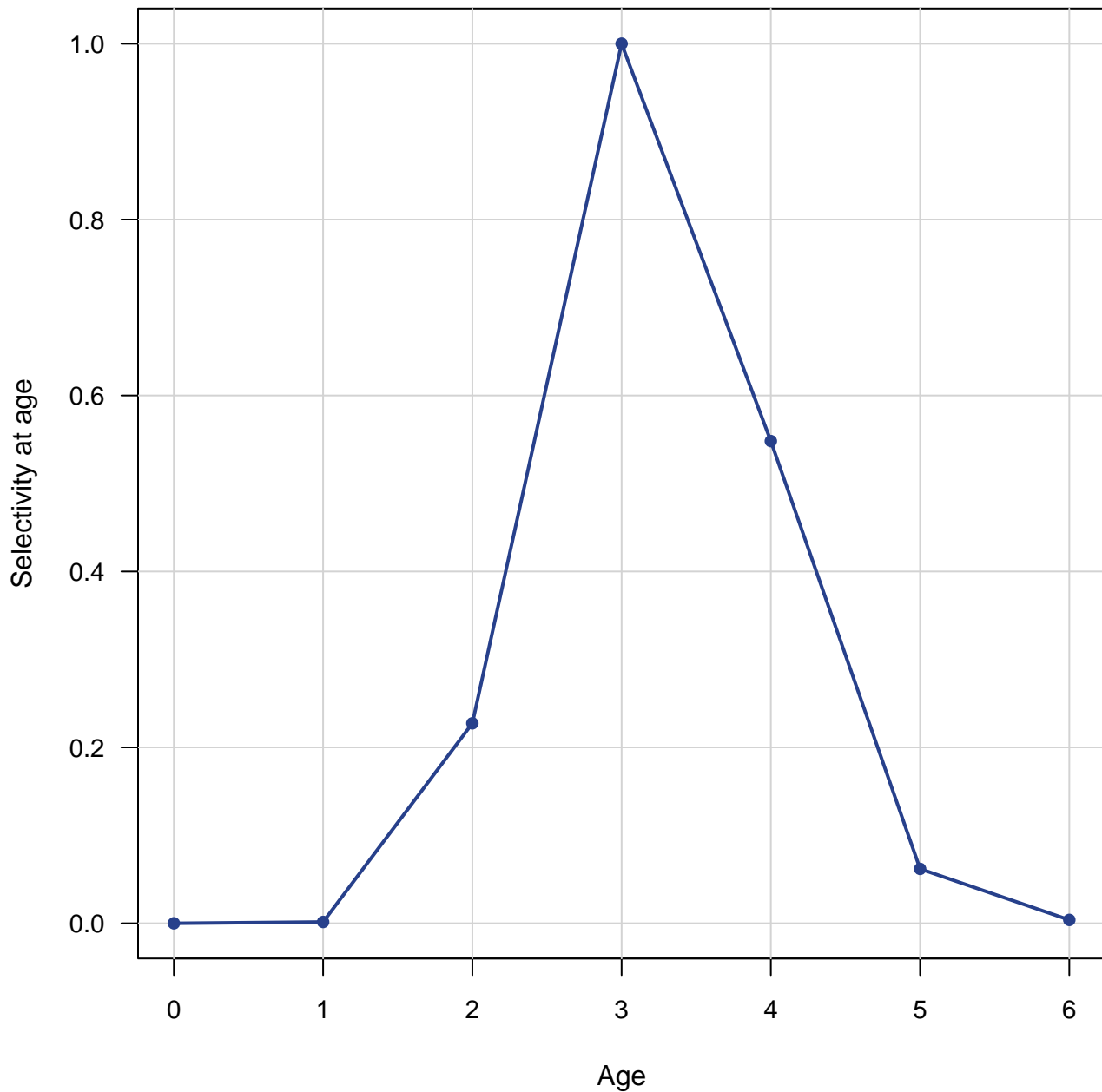
Year: 1955



Selectivity in: cBn

Data: menhaden

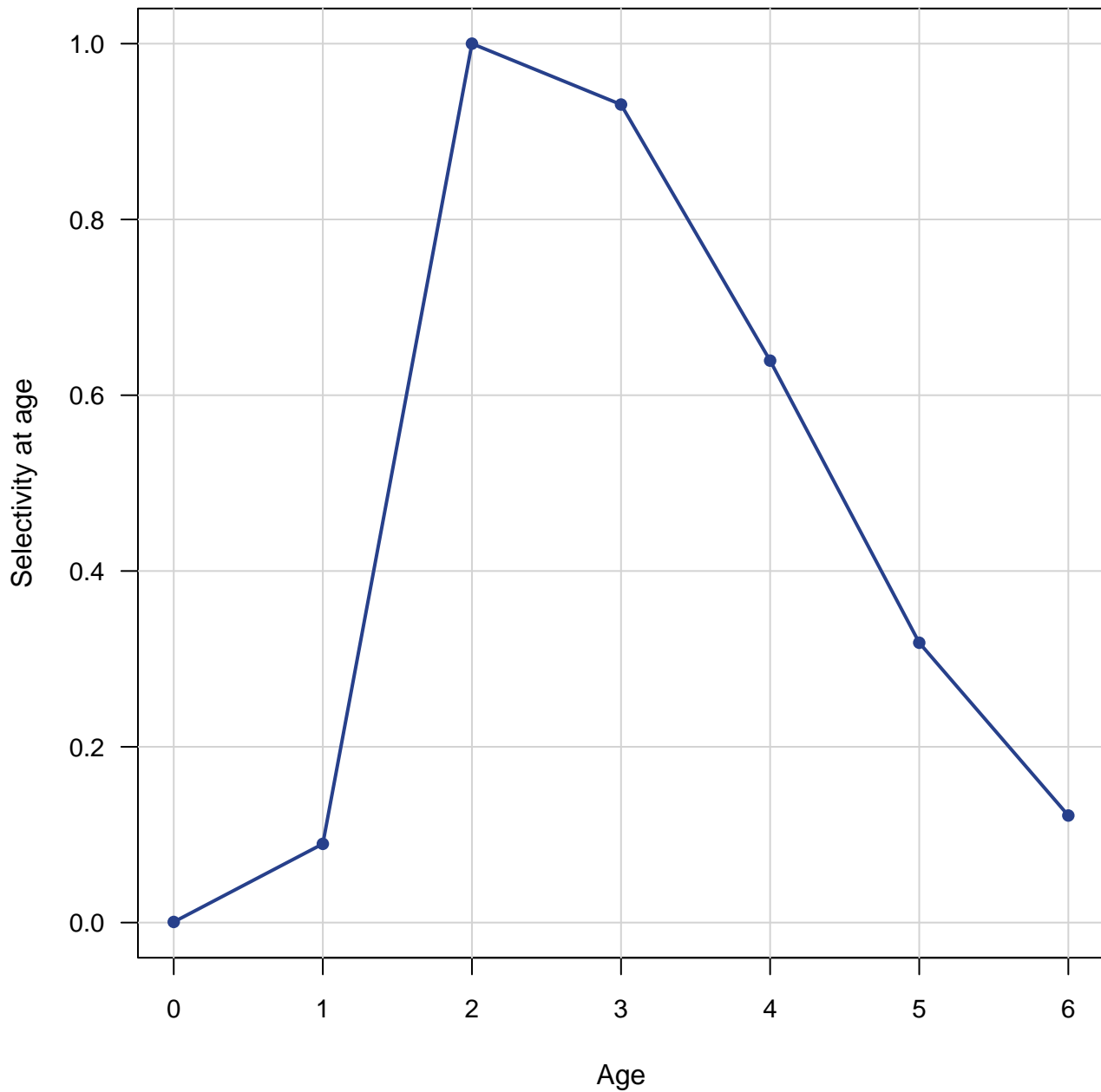
Year: 2013



Selectivity in: cBs

Data: menhaden

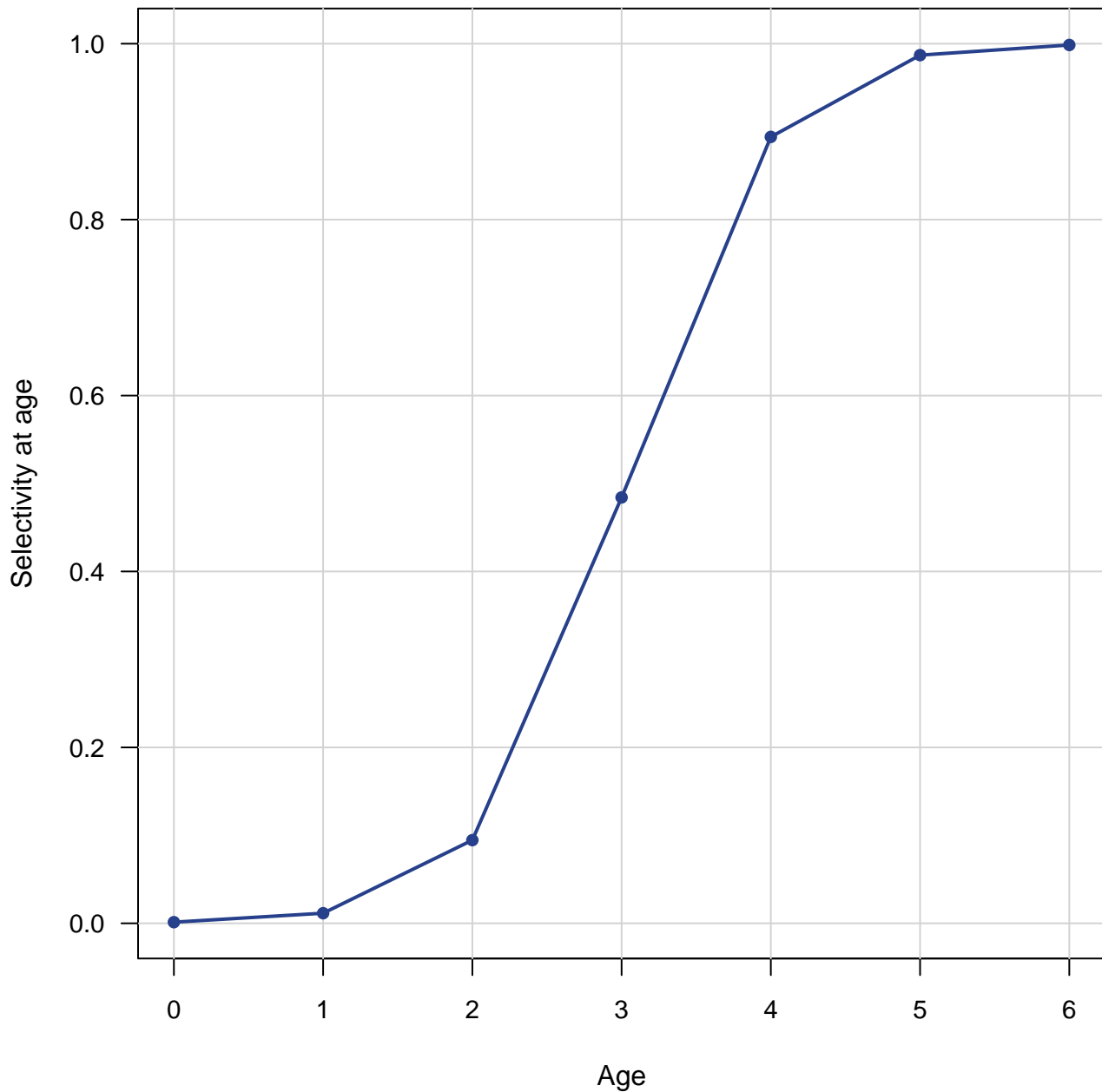
Year: 1955



Selectivity in: nad

Data: menhaden

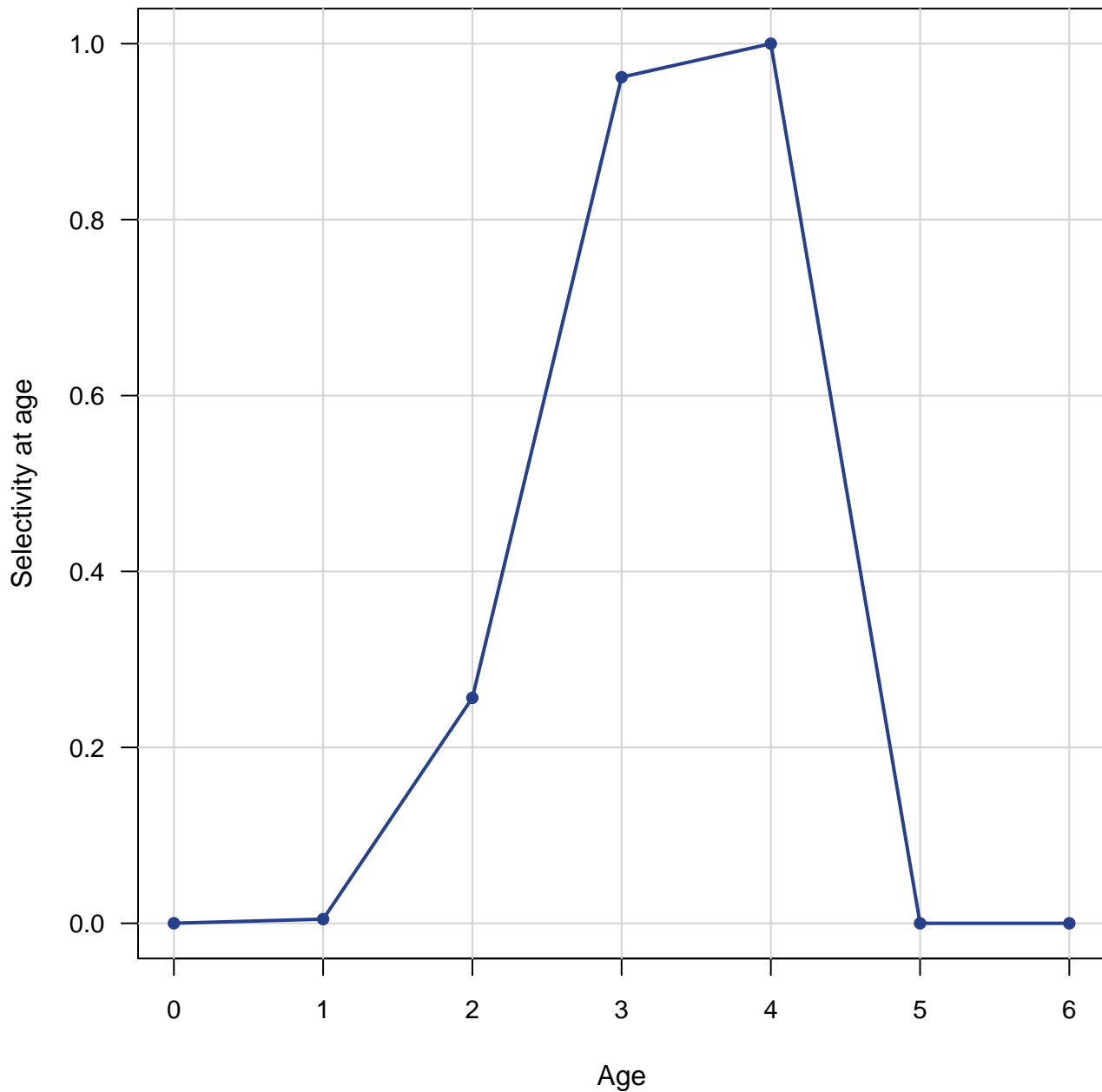
Year: 1990



Selectivity in: mad

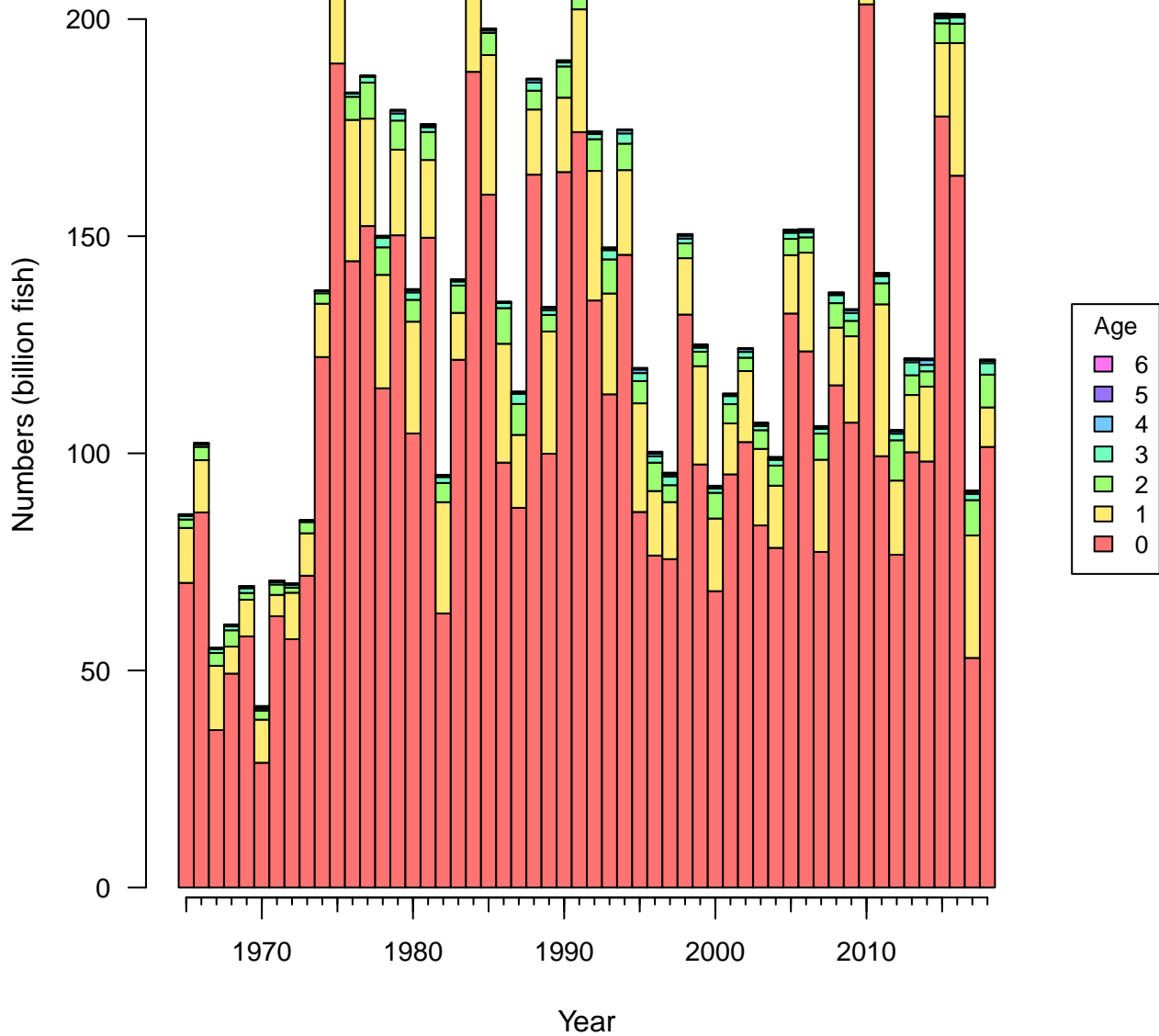
Data: menhaden

Year: 1985

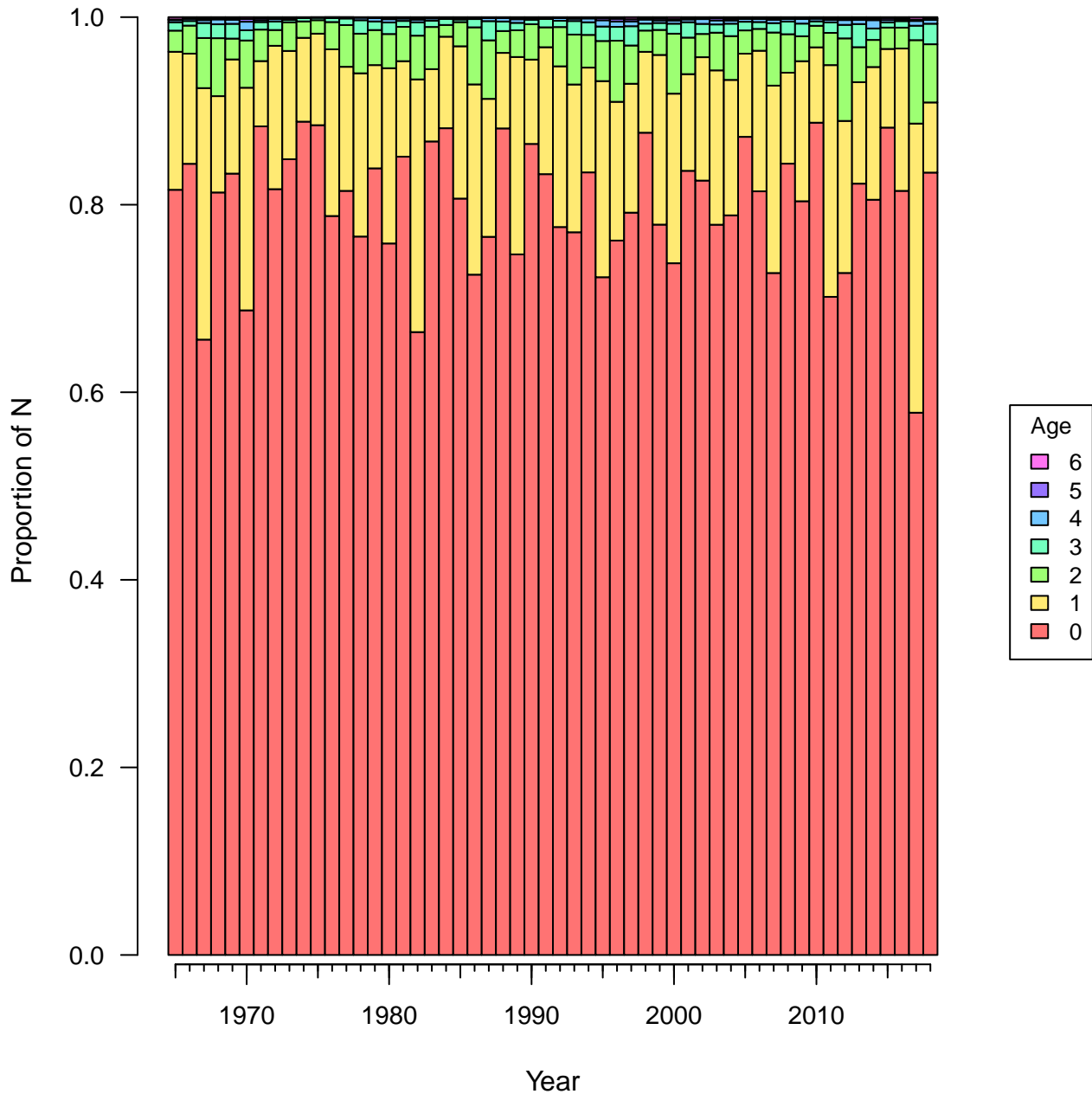


N at age

Data: menhaden

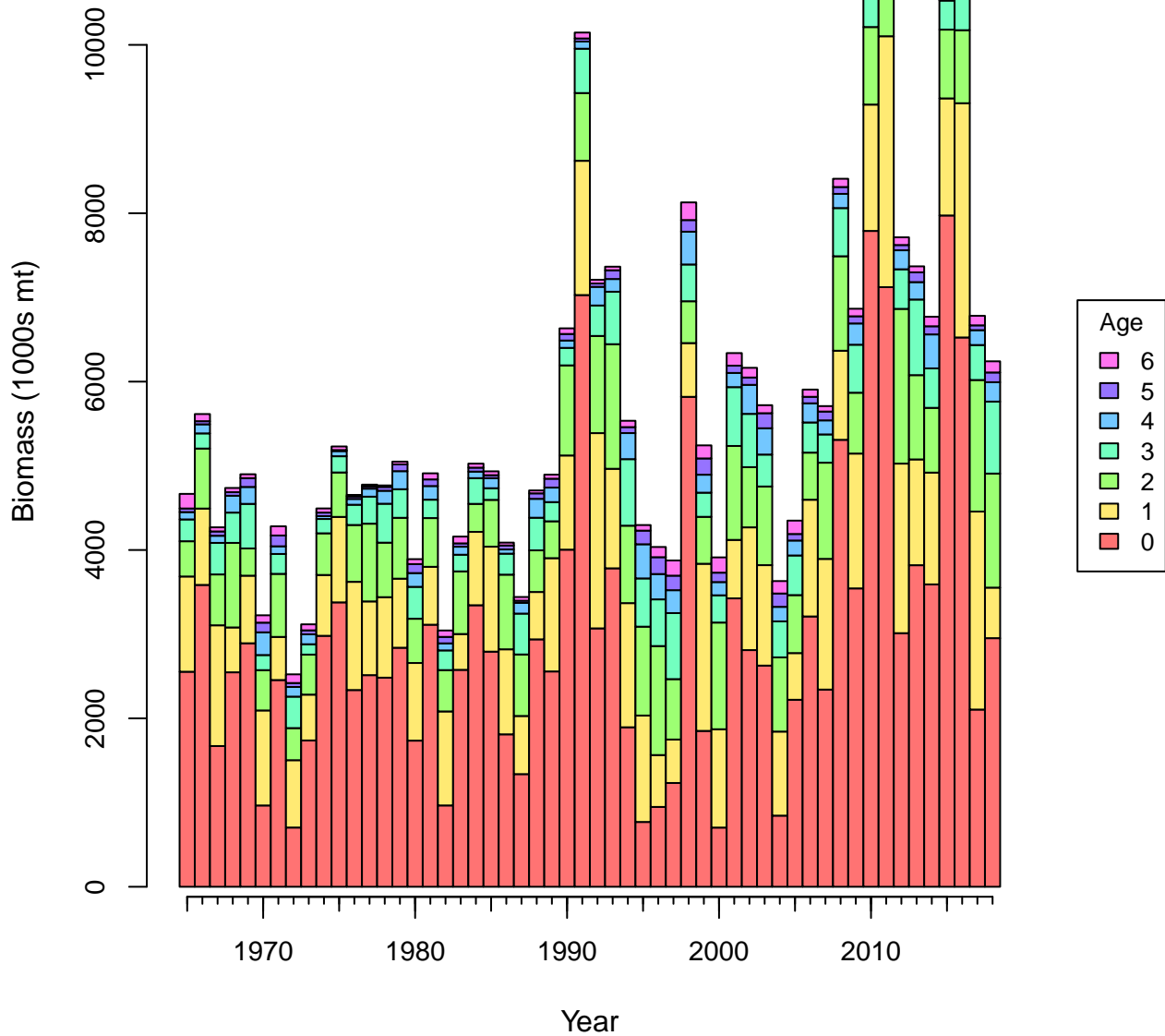


Proportion N at age Data: menhaden

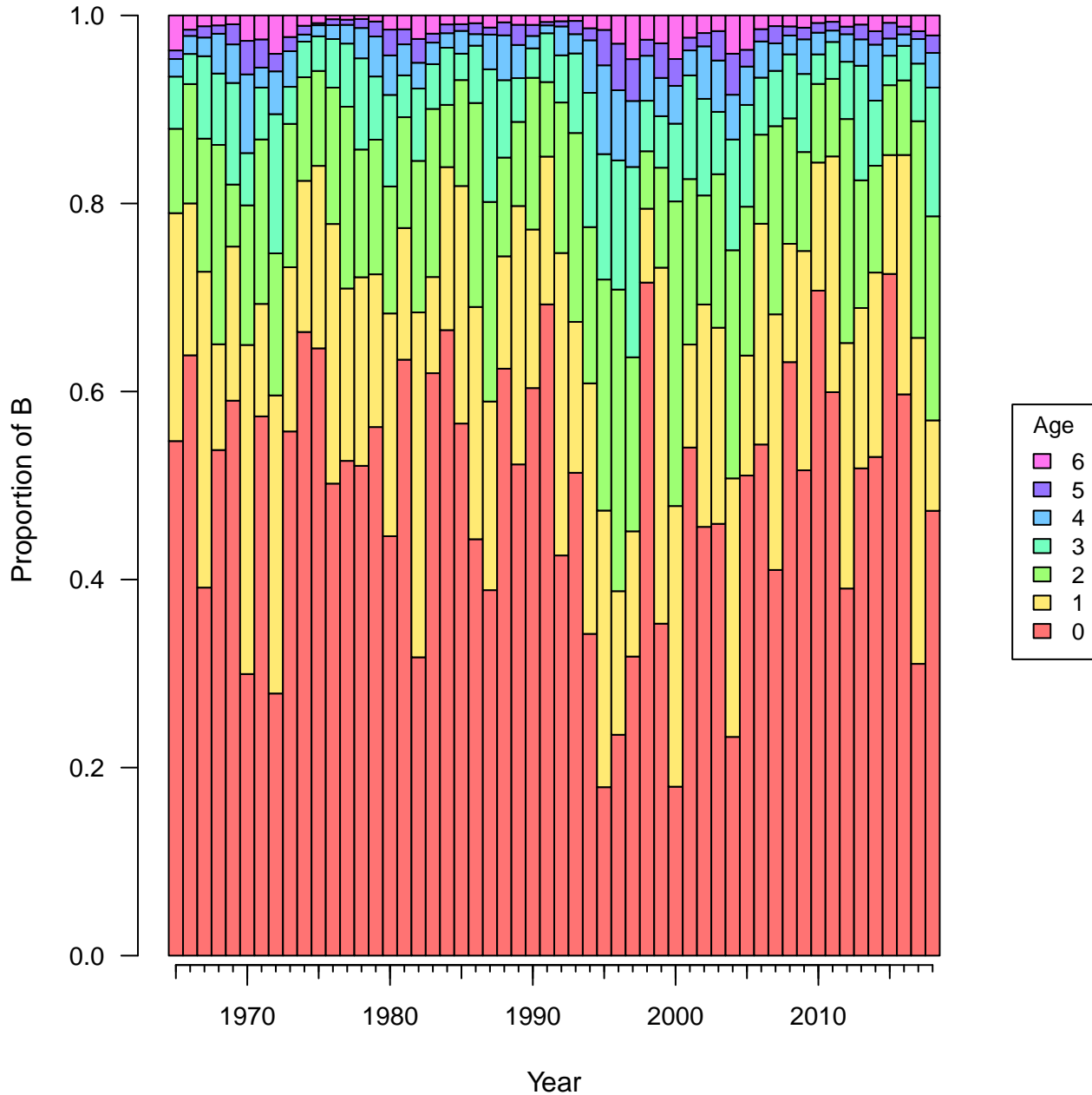


Biomass at age

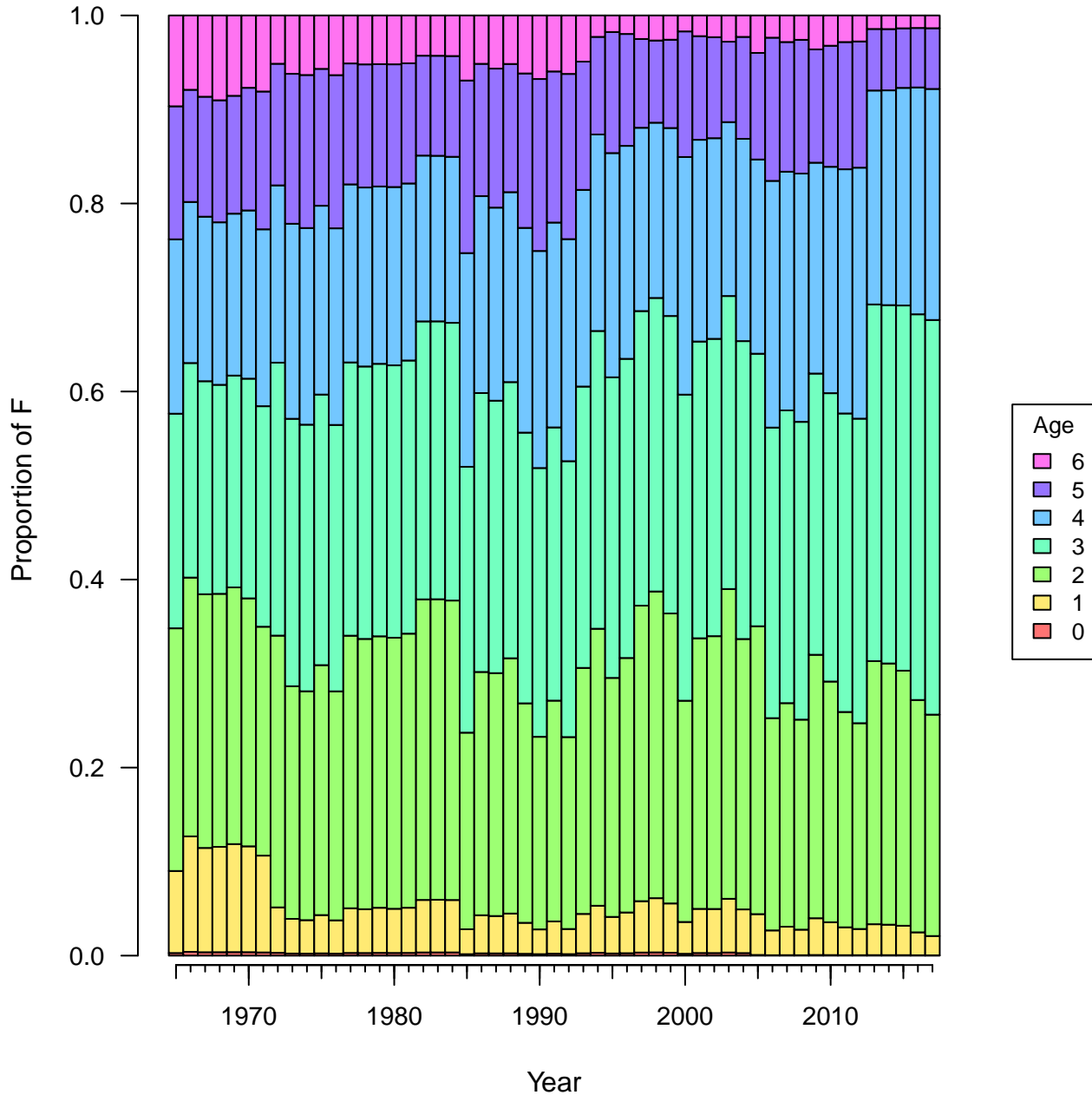
Data: menhaden



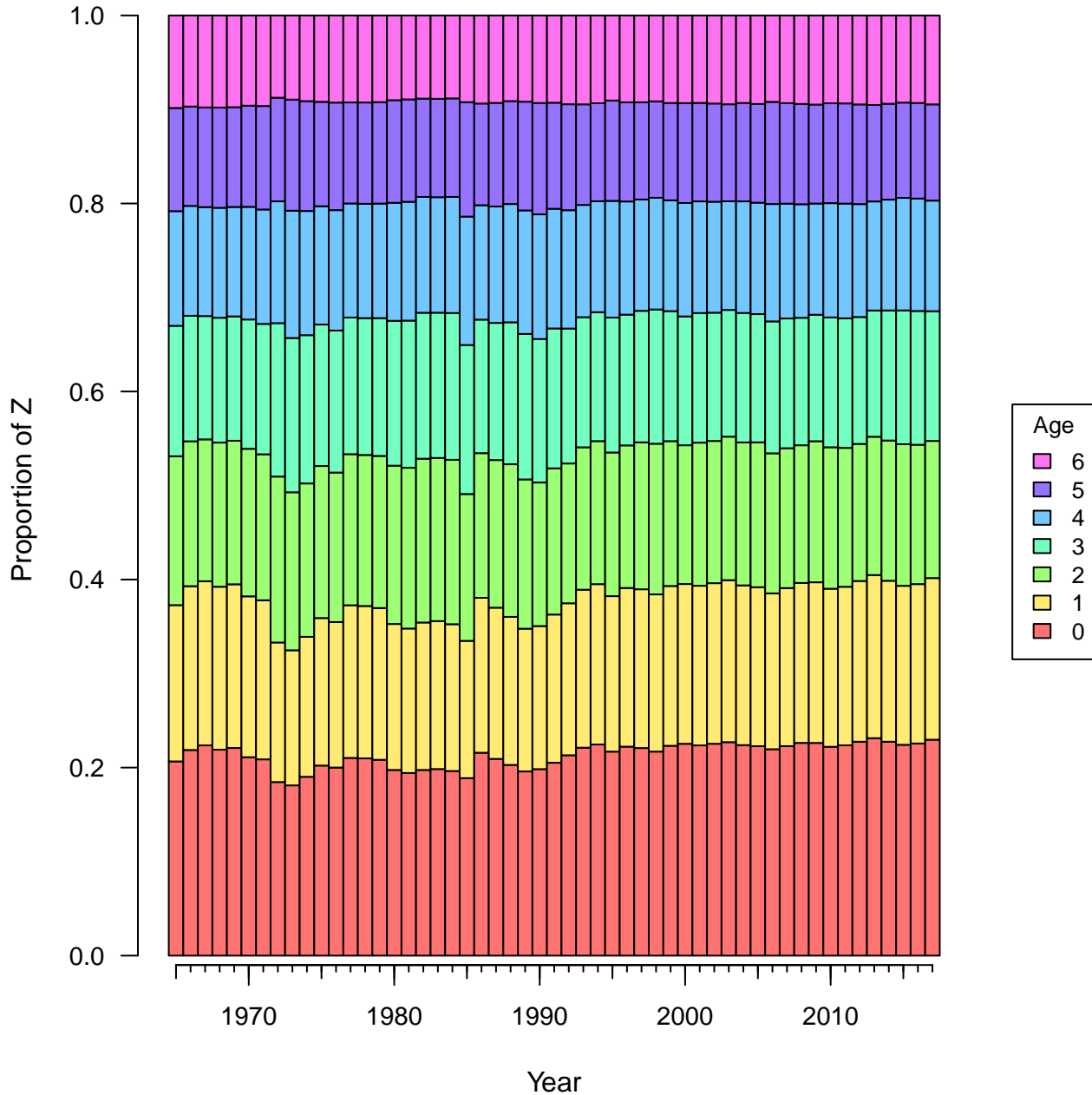
Proportion B at age Data: menhaden



Proportion F at age Data: menhaden



Proportion Z at age Data: menhaden



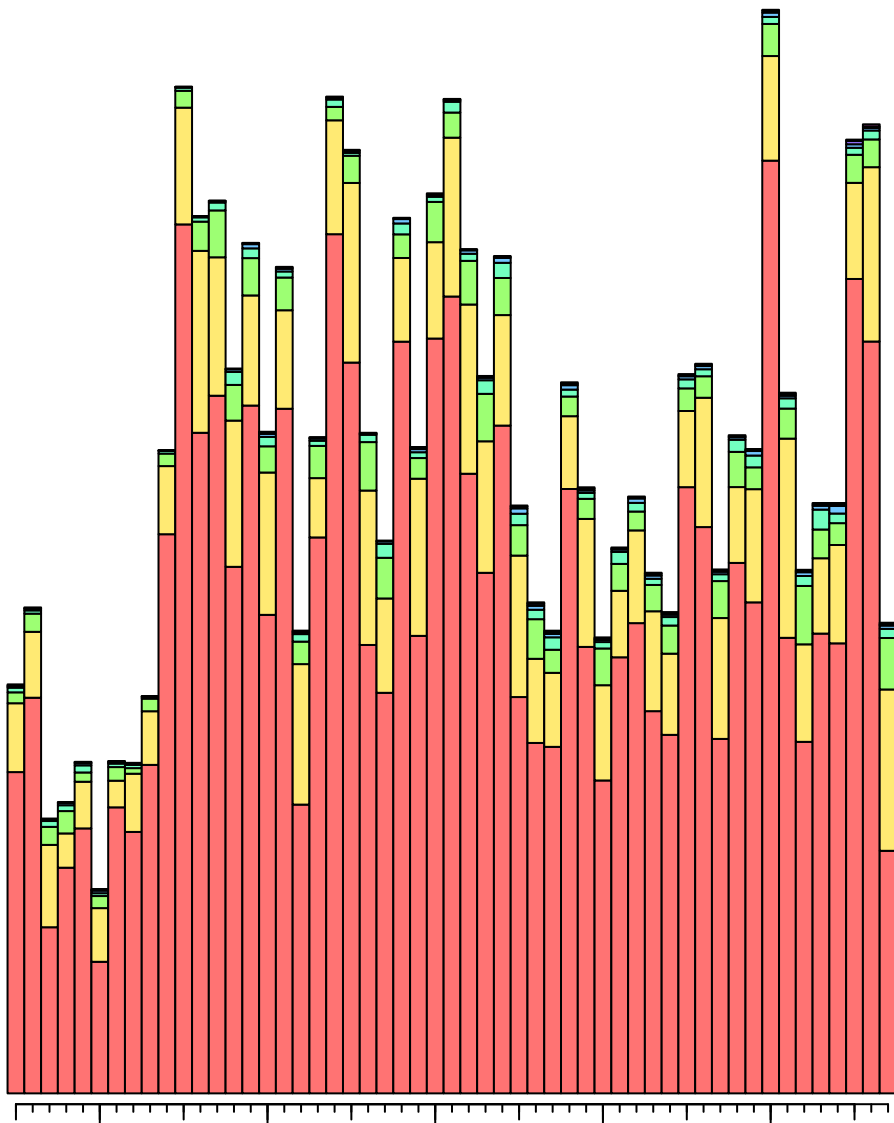
N.age.mdyr

Data: menhaden

N.age.mdyr at age



80
60
40
20
0



Year

N.age.mdyr

Data: menhaden

Proportion of N.age.mdyr

1.0
0.8
0.6
0.4
0.2
0.0

1970

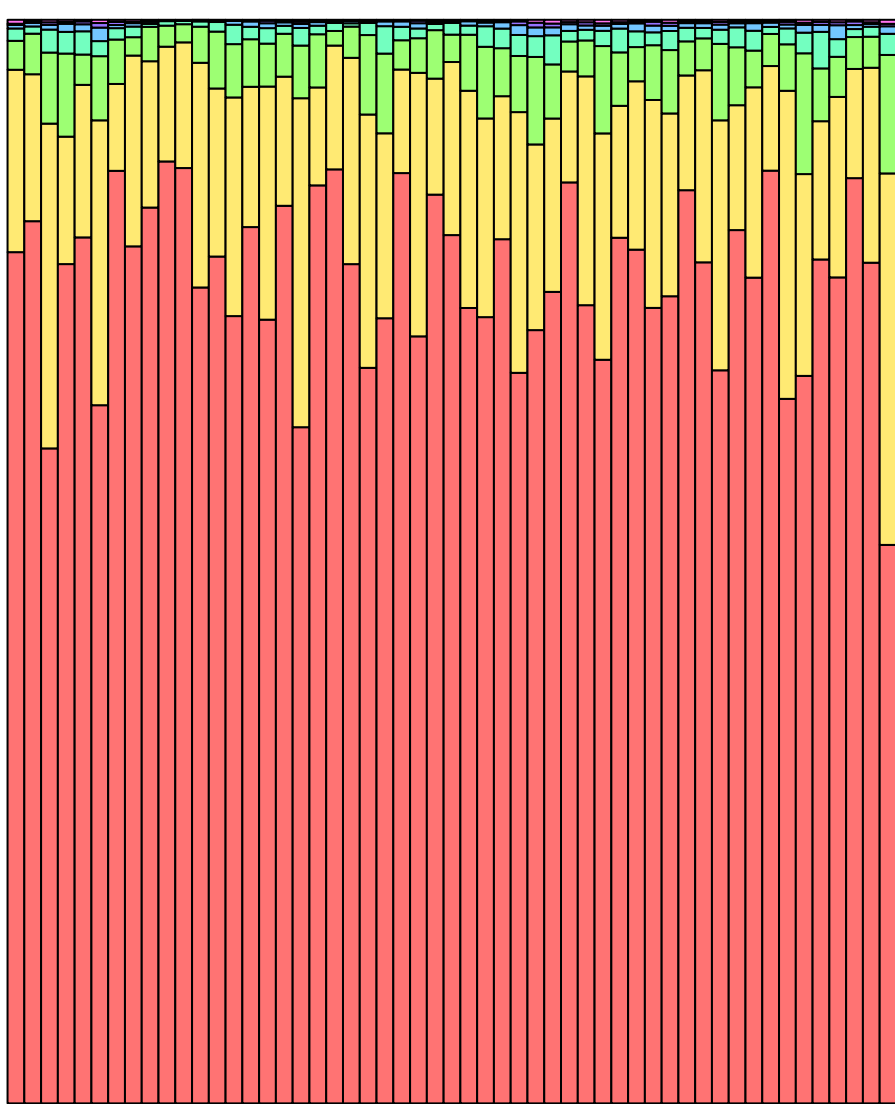
1980

1990

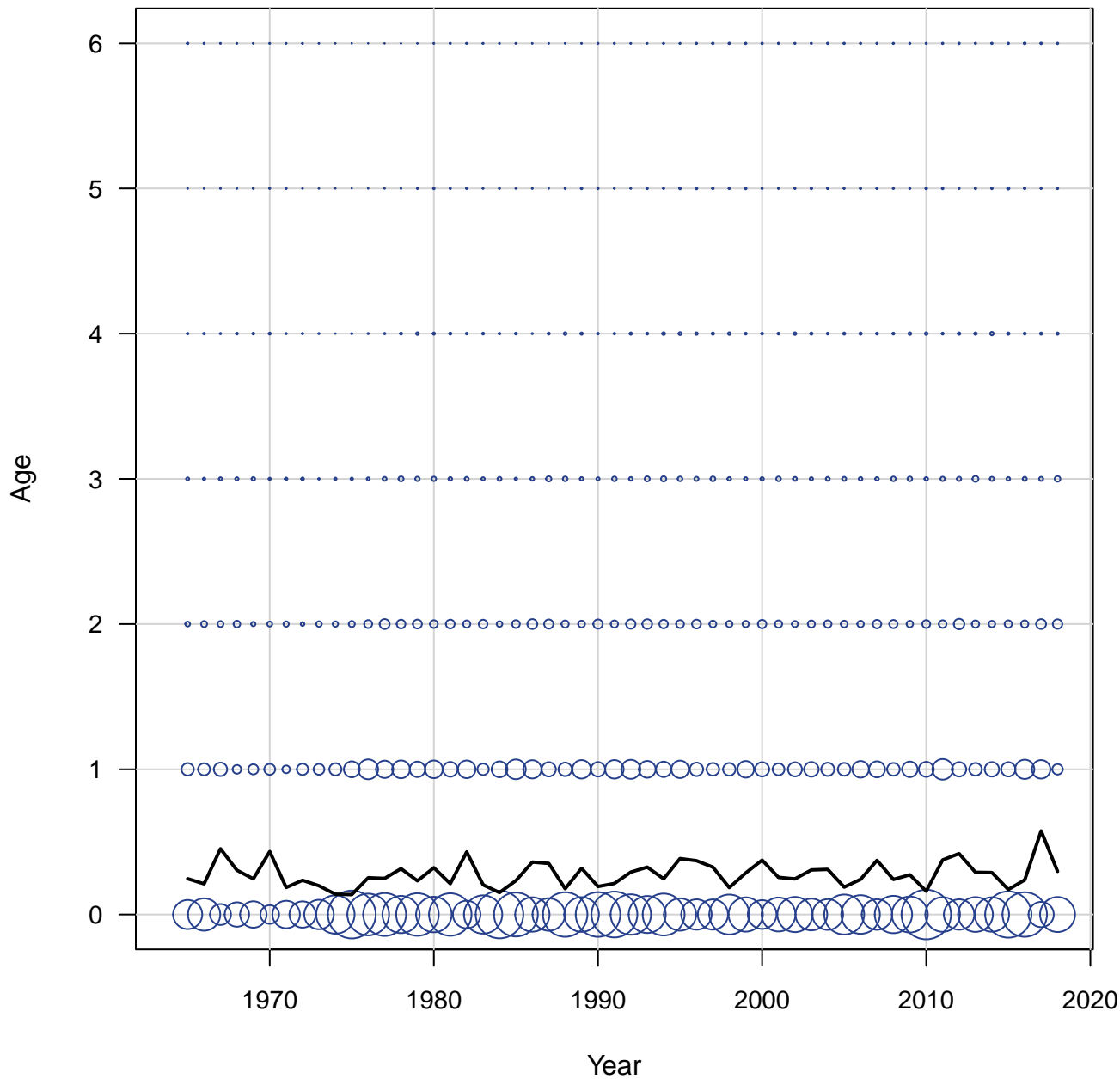
2000

2010

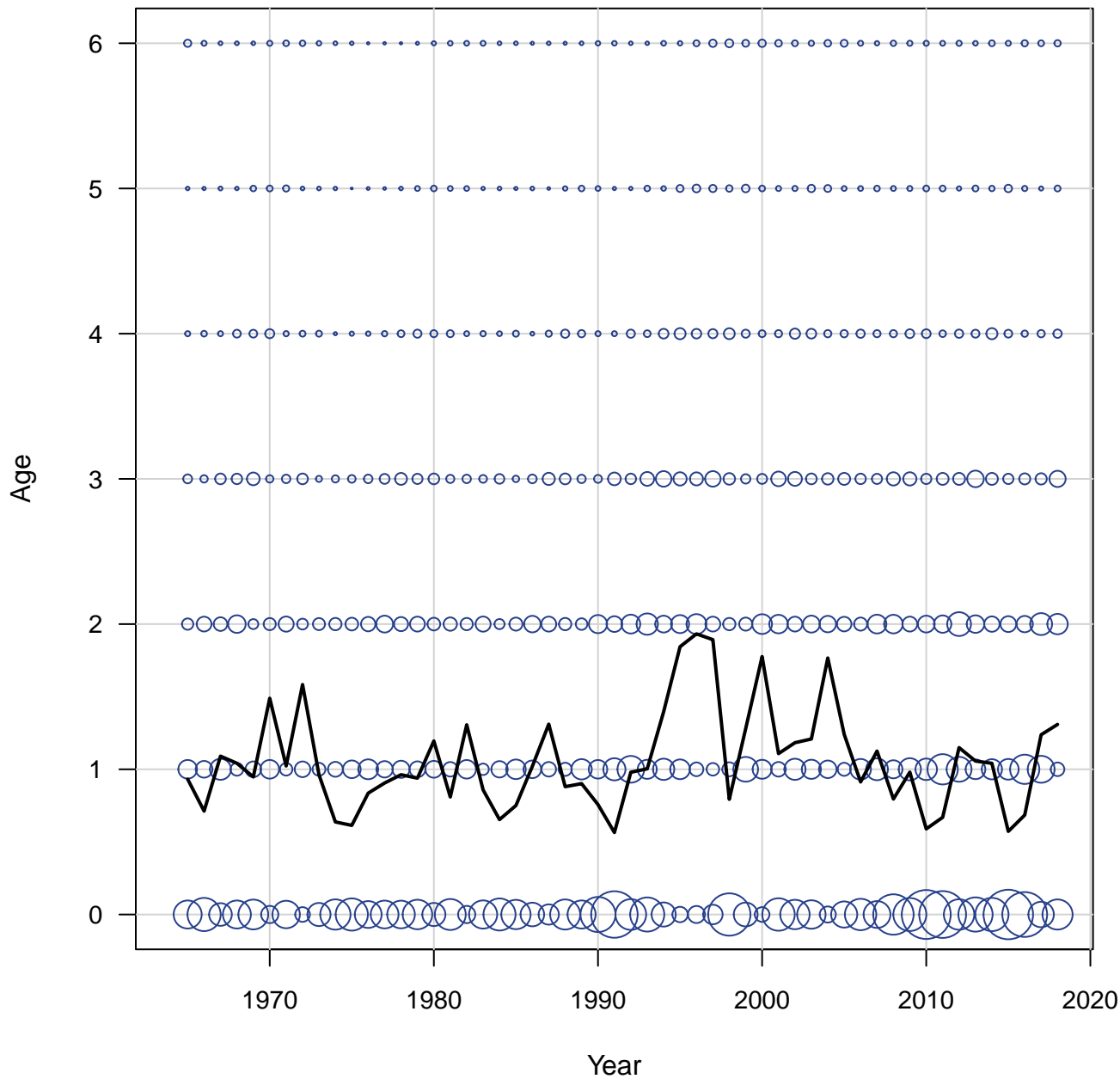
Year

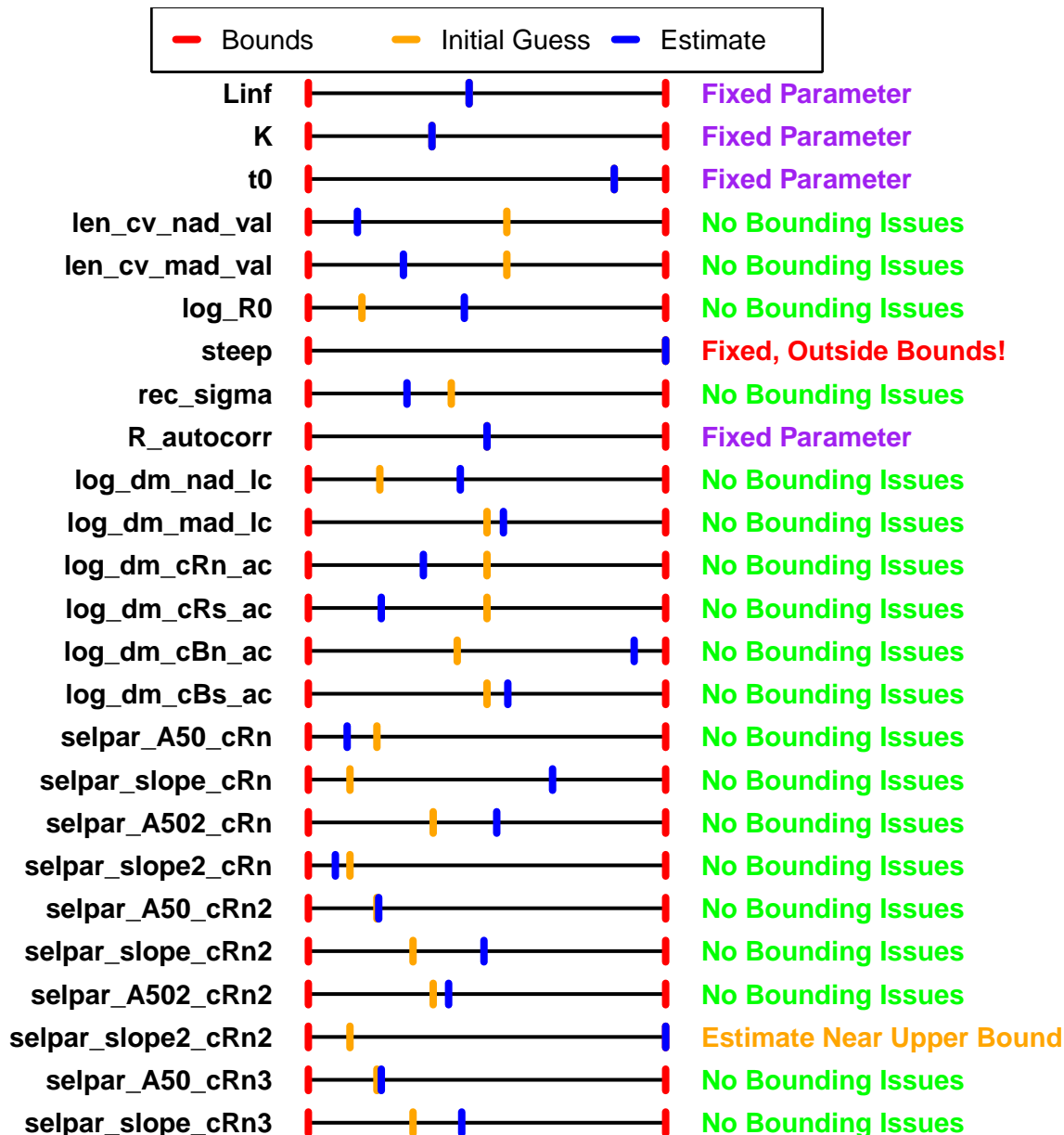


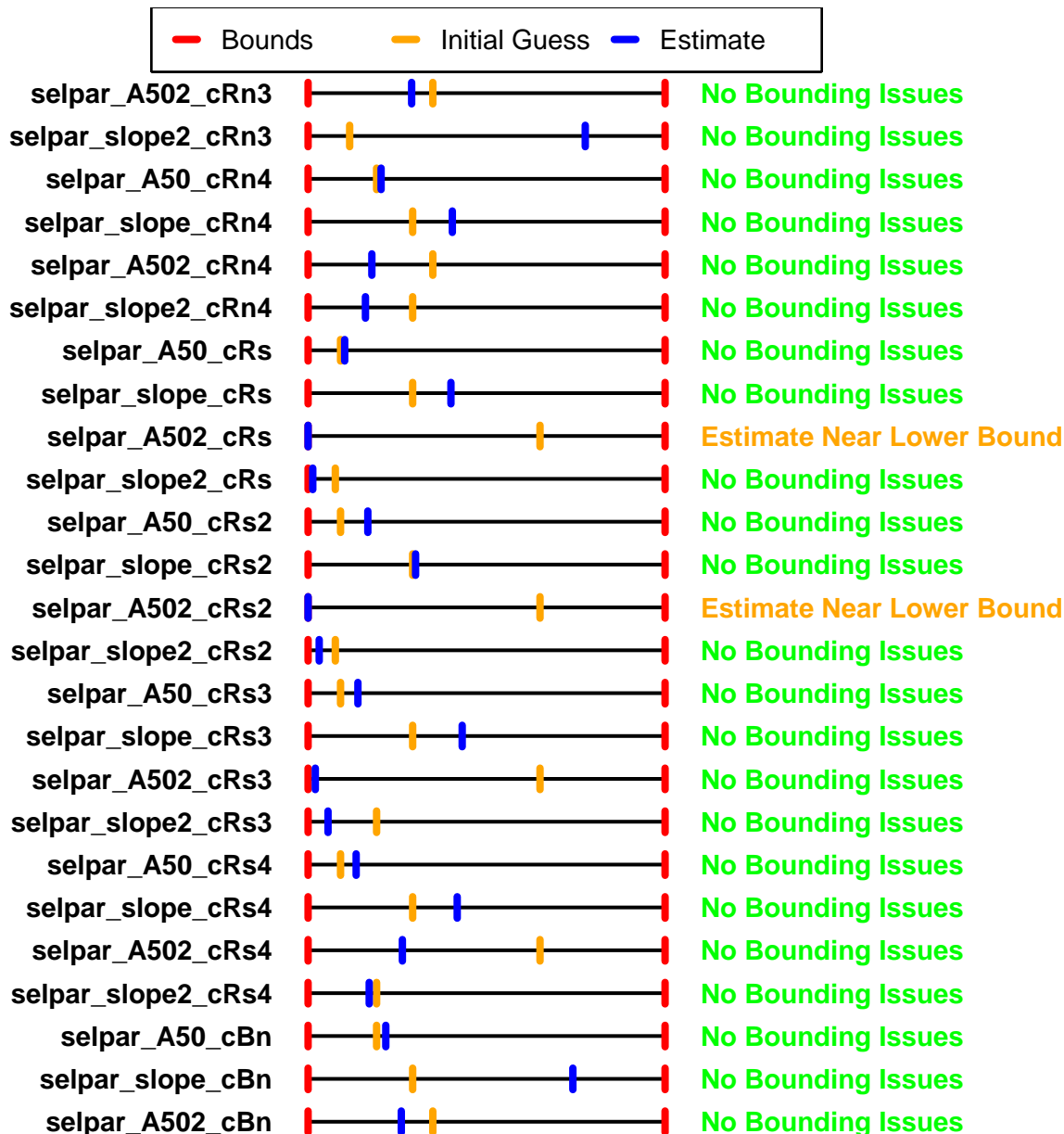
N at age Data: menhaden

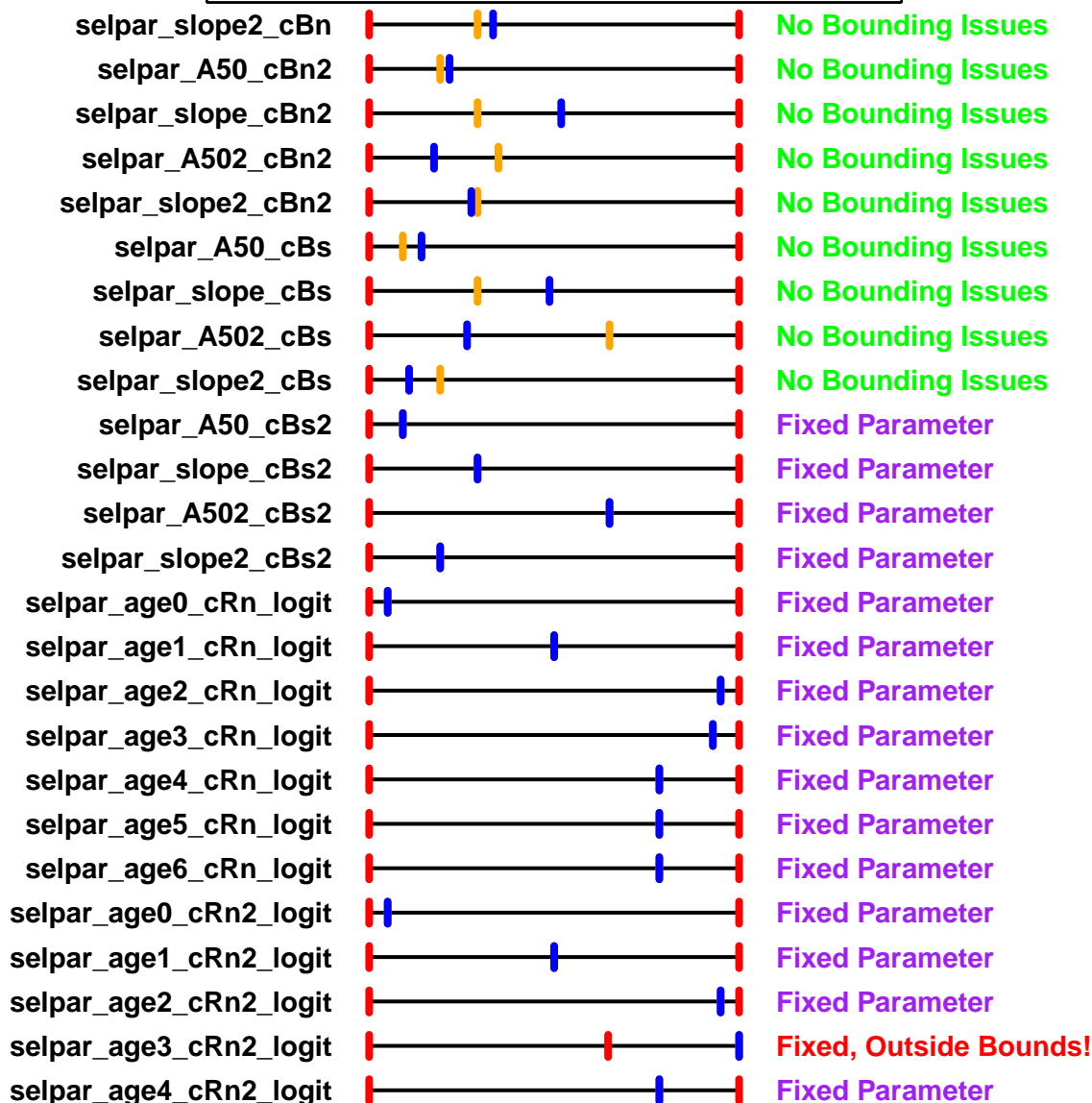
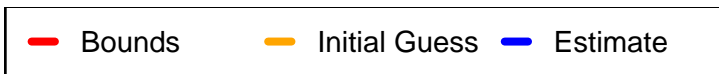


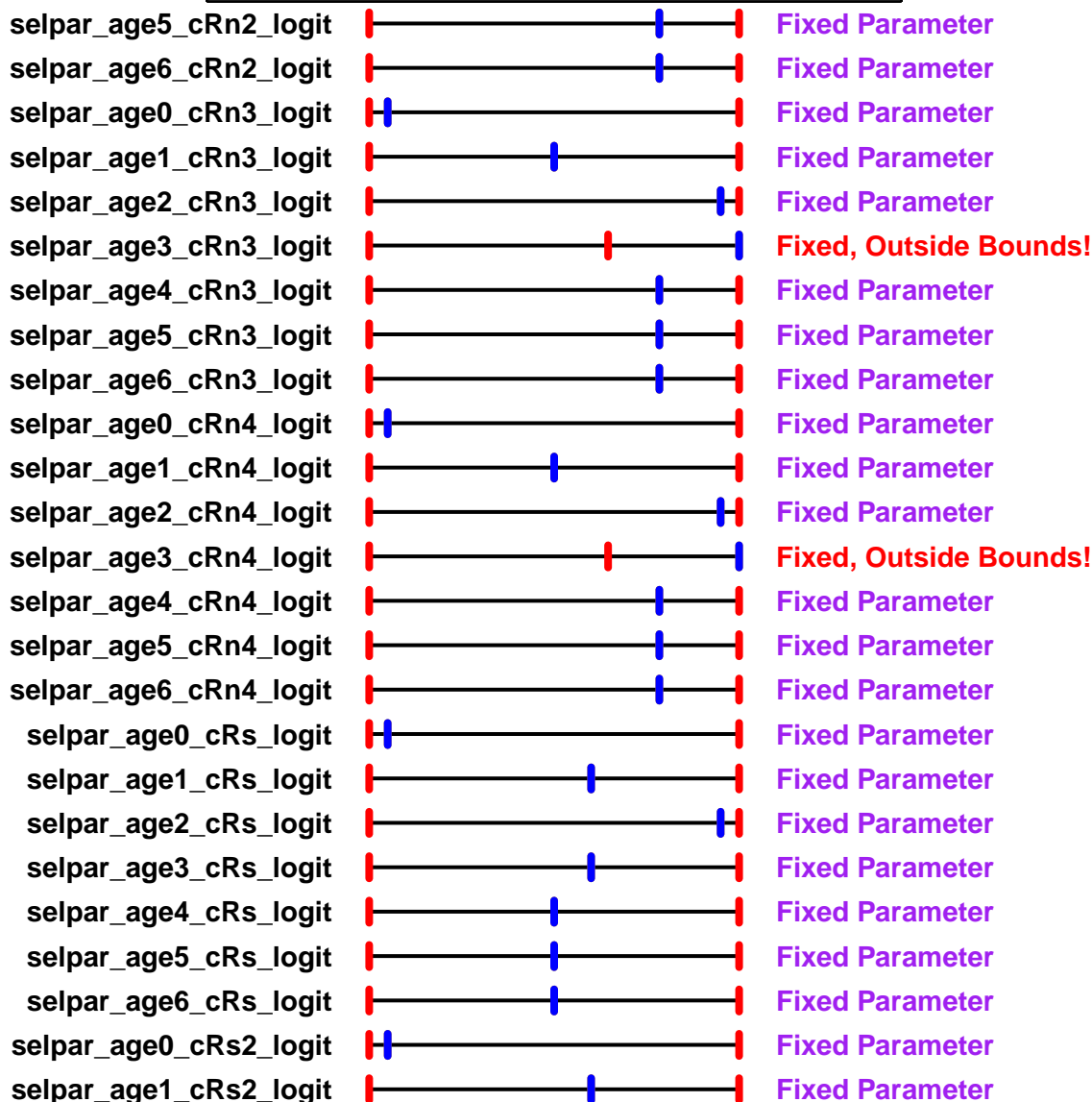
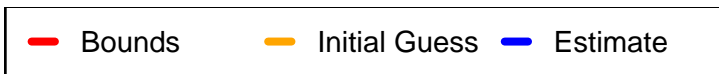
B at age Data: menhaden

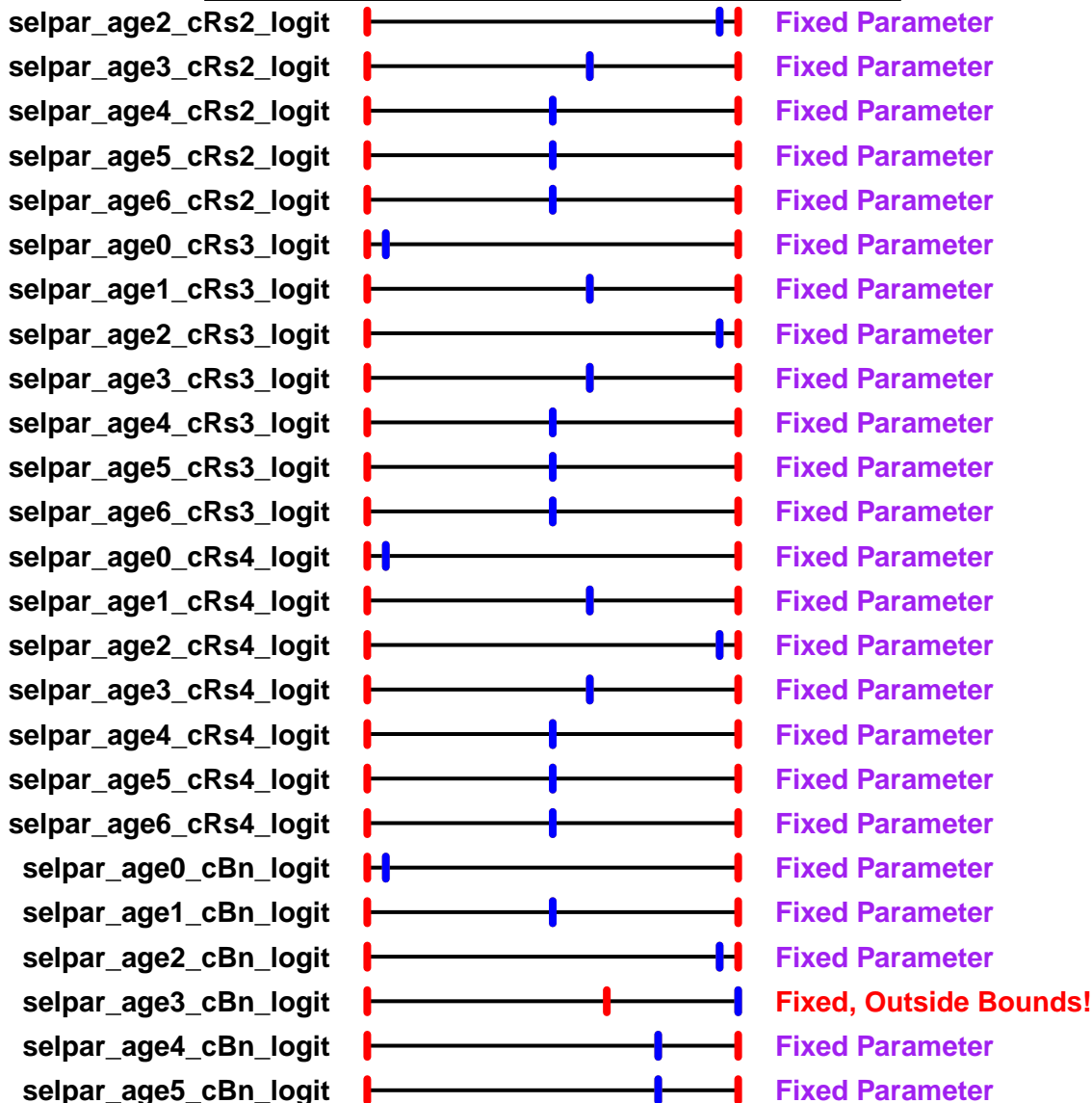
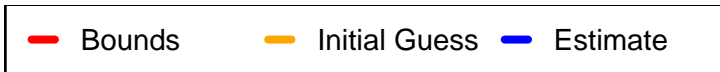


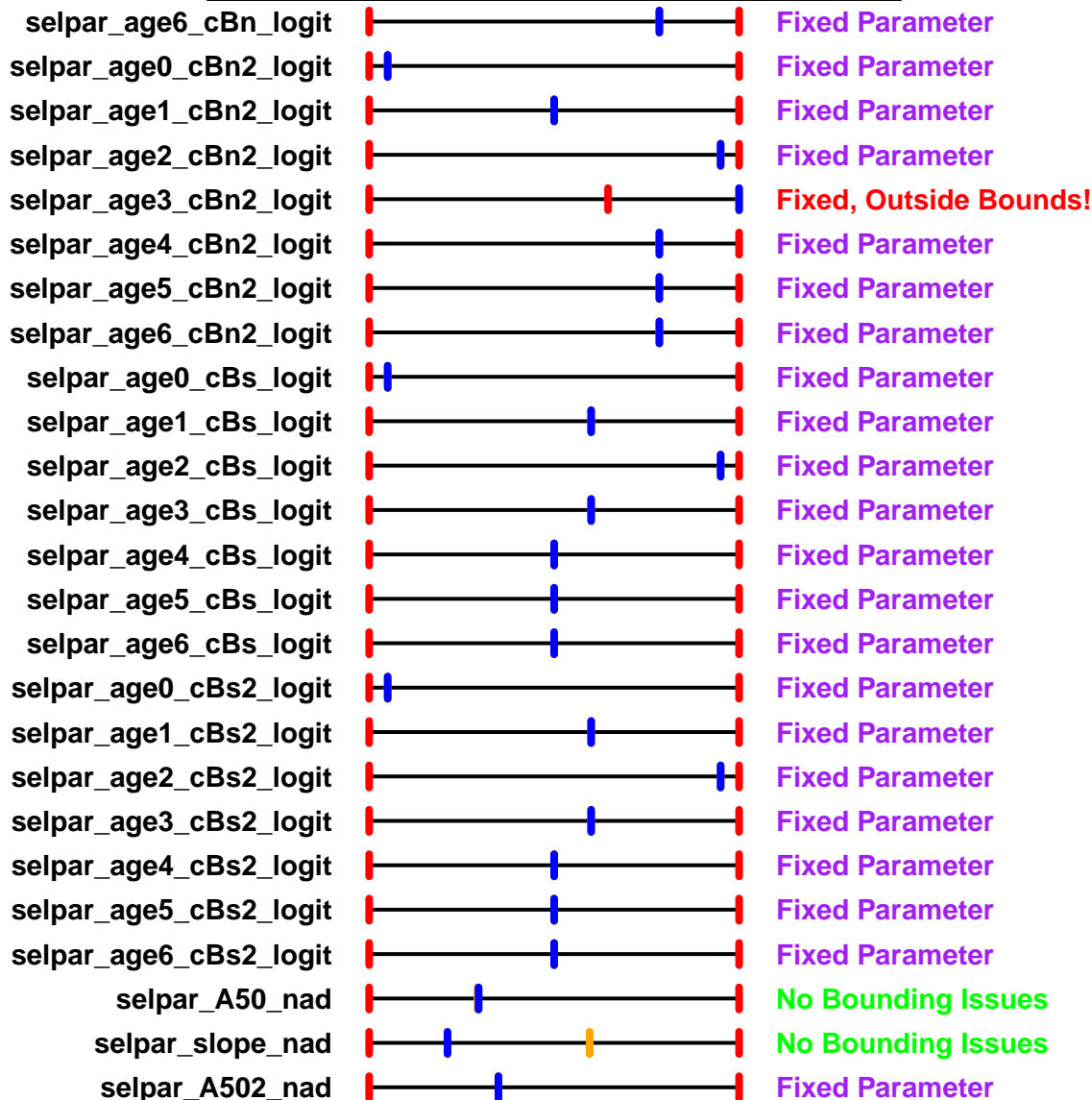
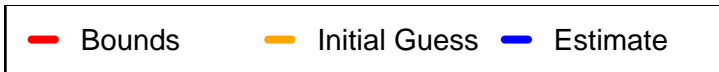


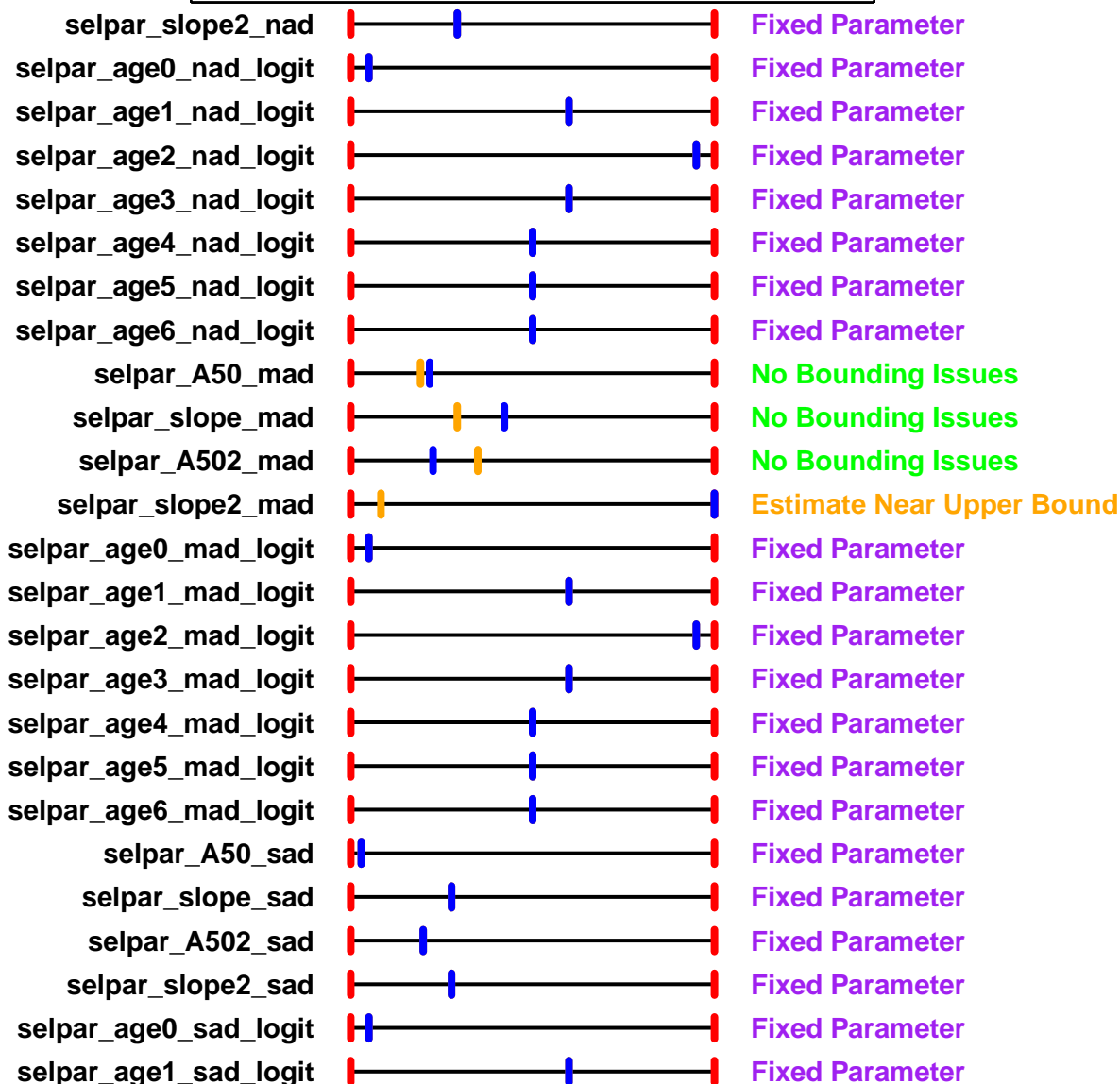
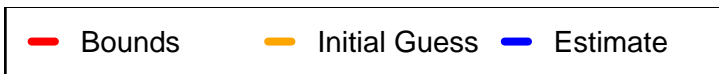


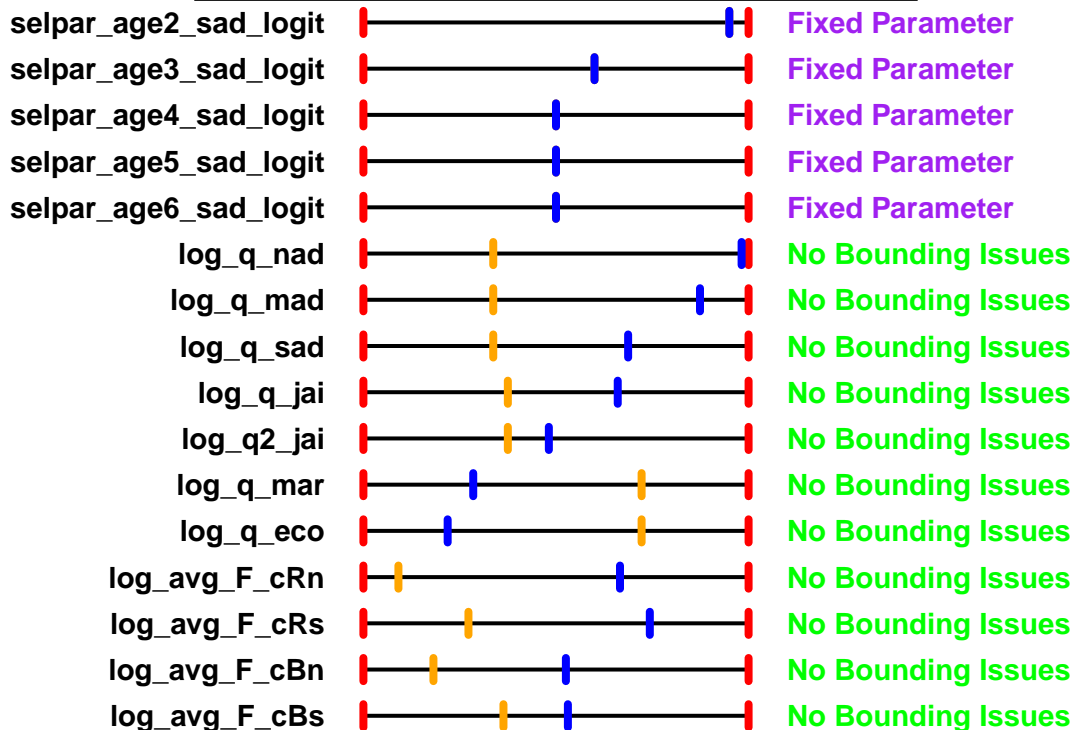
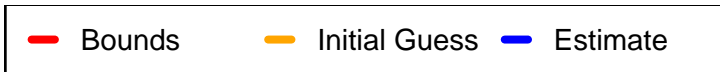




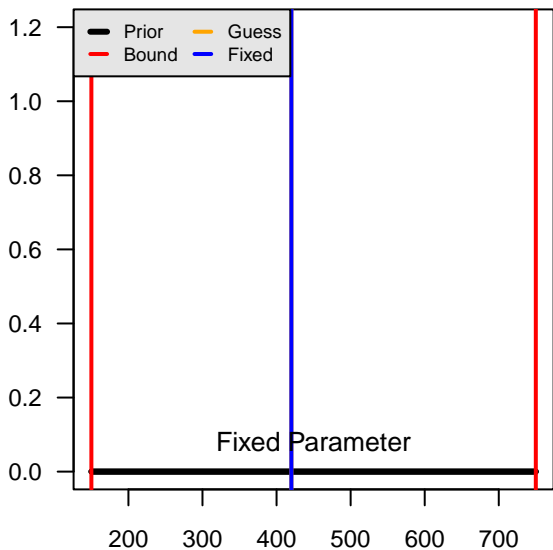






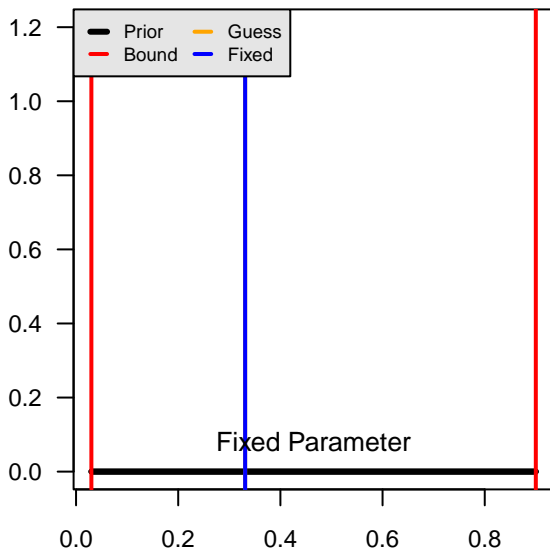


Likelihood



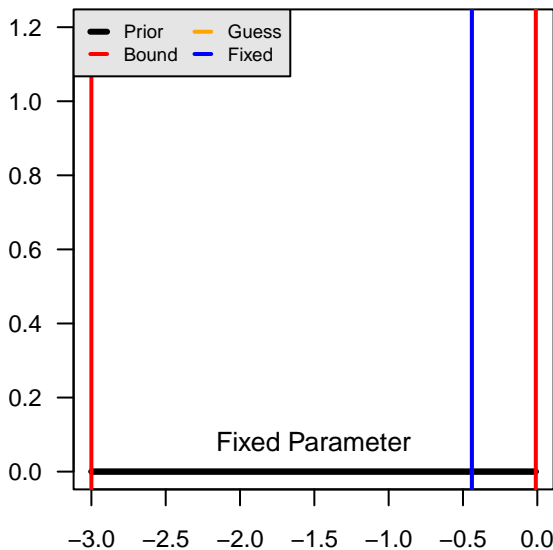
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Likelihood



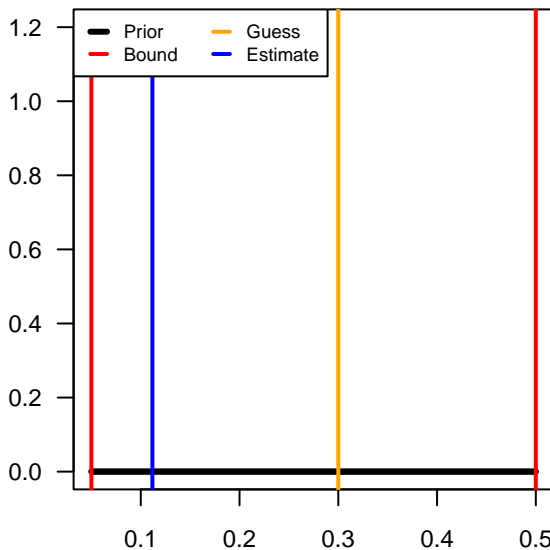
K

Likelihood



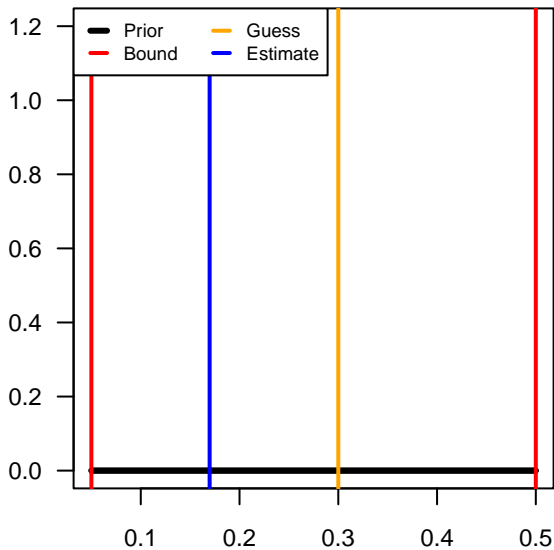
t0

Likelihood



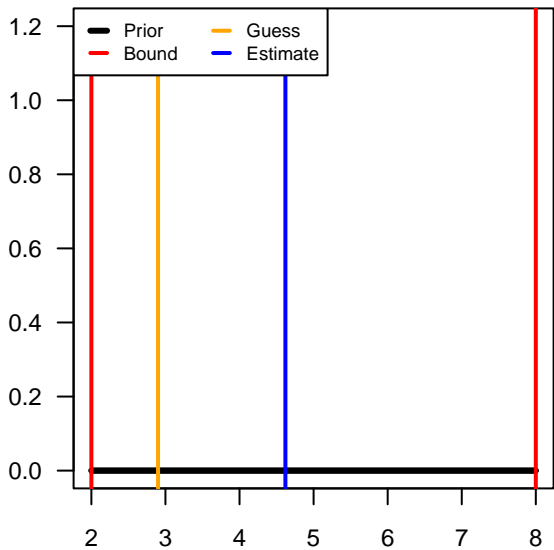
len_cv_nad_val

Likelihood



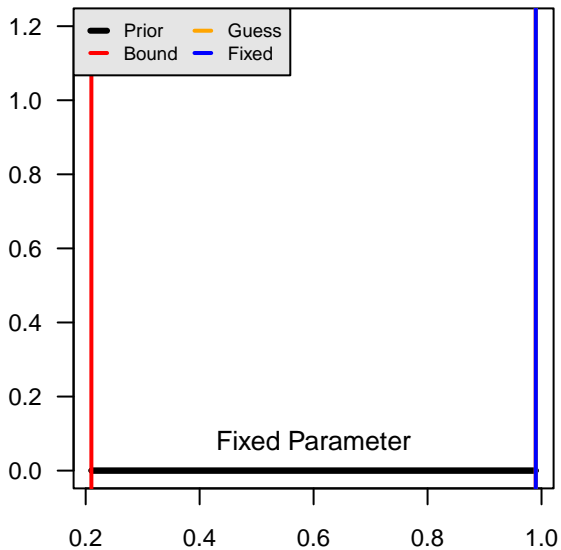
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Likelihood



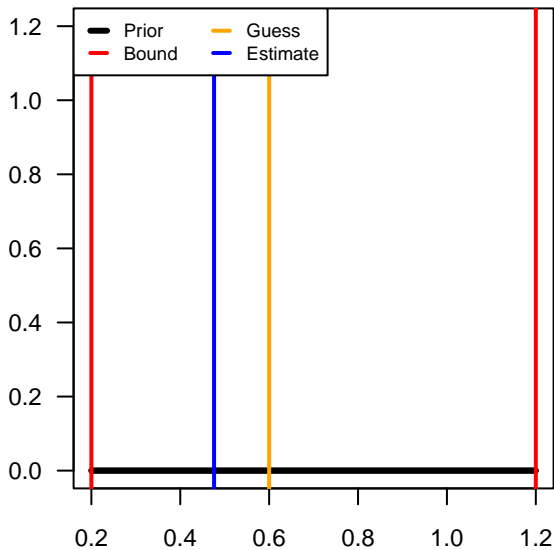
log_R0

Likelihood



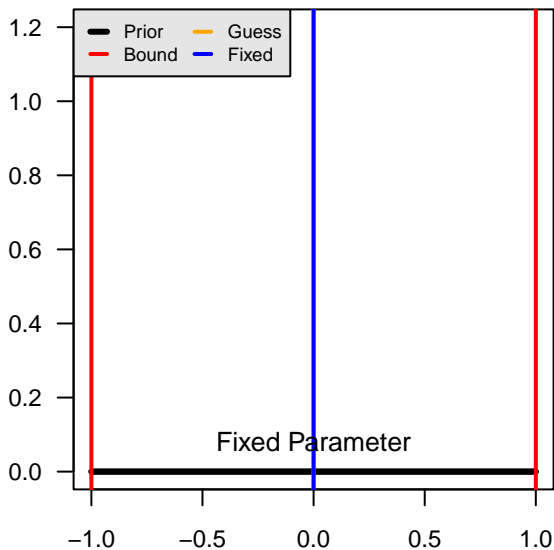
steep

Likelihood



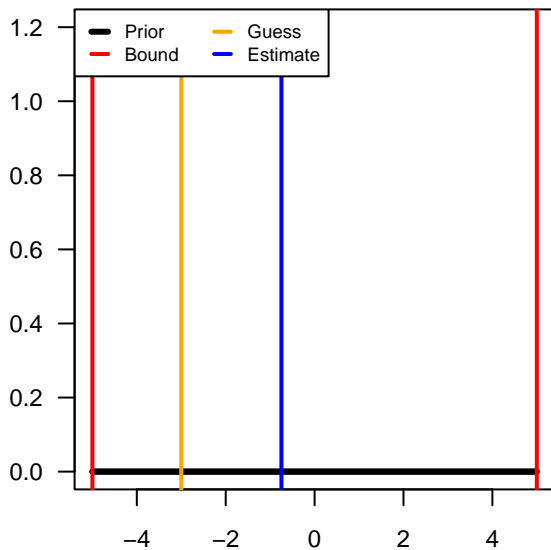
rec_sigma

Likelihood



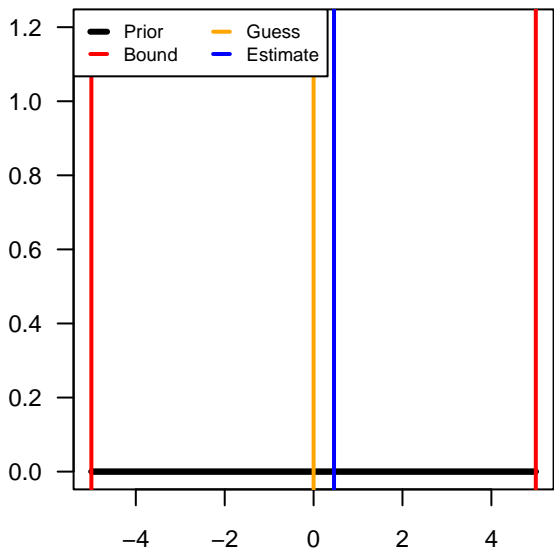
R_{autocorr}

Likelihood



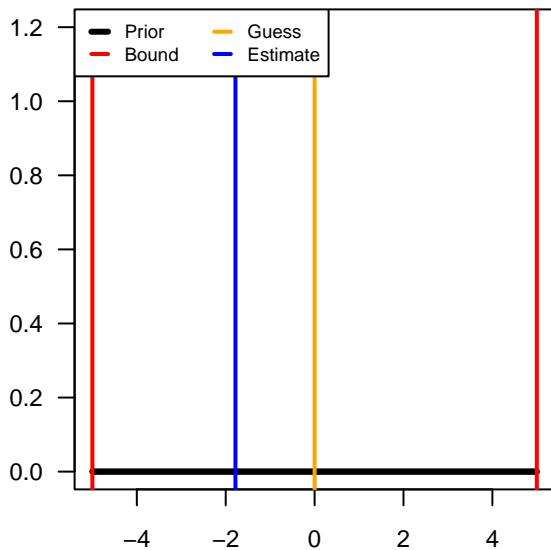
$\log_{\text{dm_nad_lc}}$

Likelihood



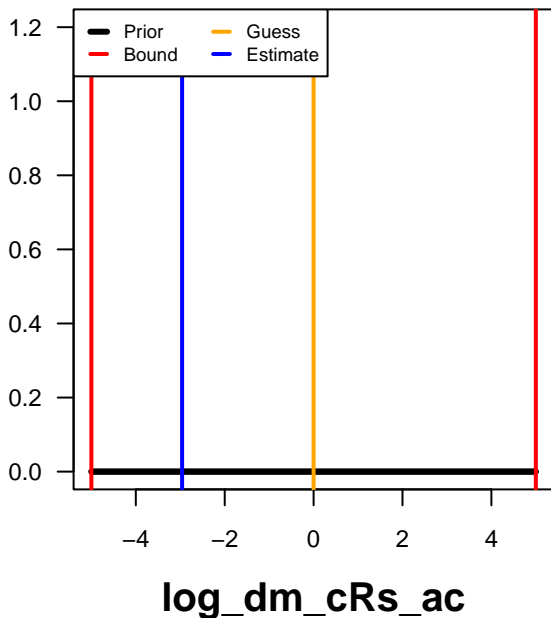
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Likelihood

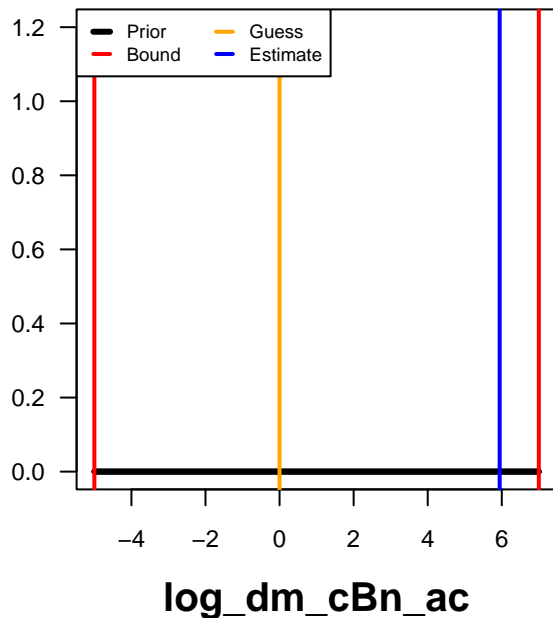


$\log_{\text{dm_cRn_ac}}$

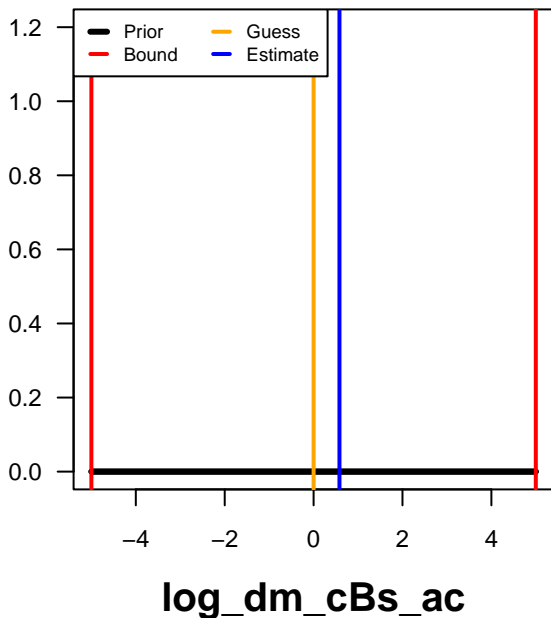
Likelihood



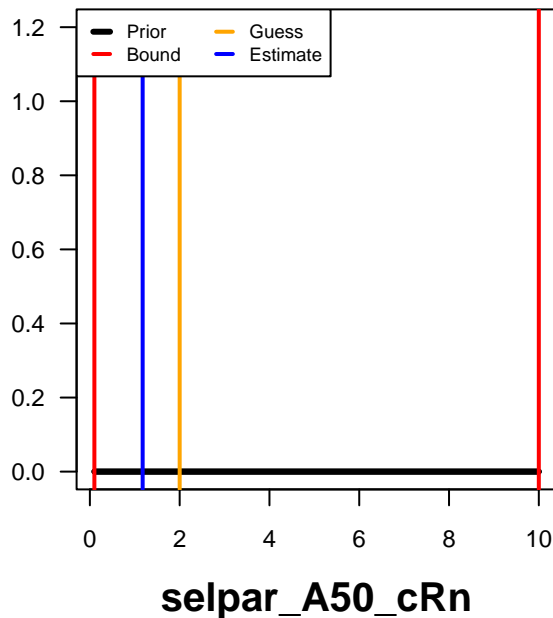
Likelihood



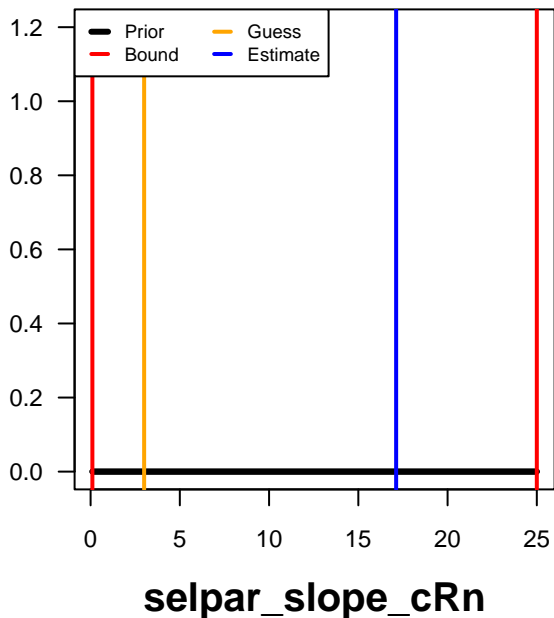
Likelihood



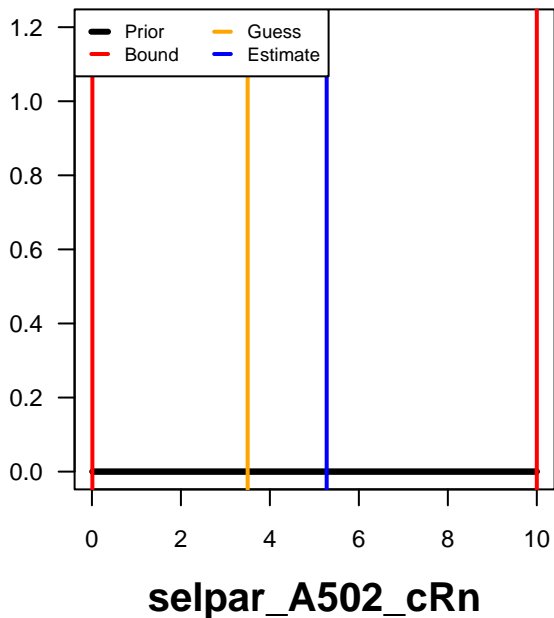
Likelihood



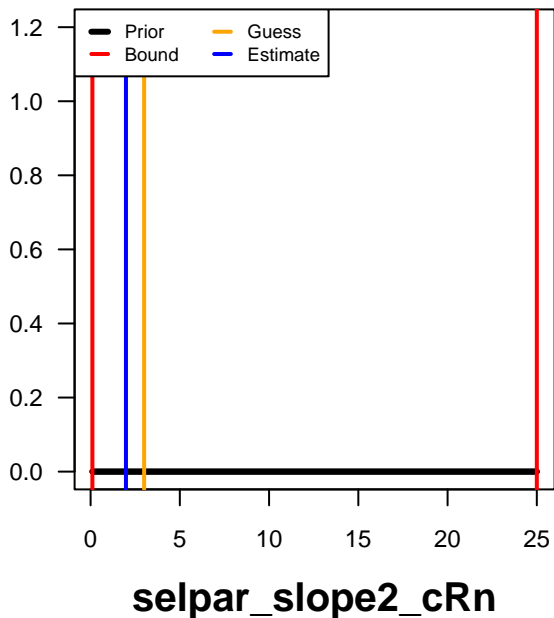
Likelihood



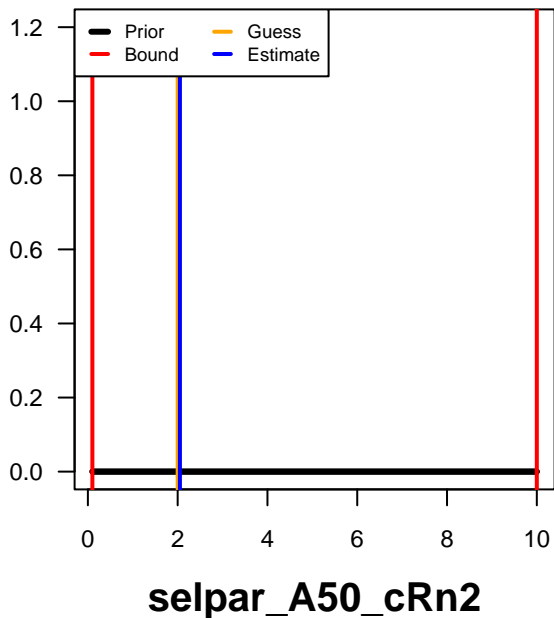
Likelihood



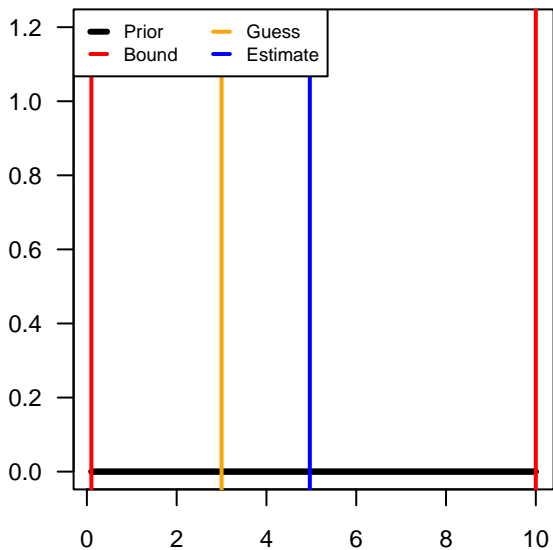
Likelihood



Likelihood

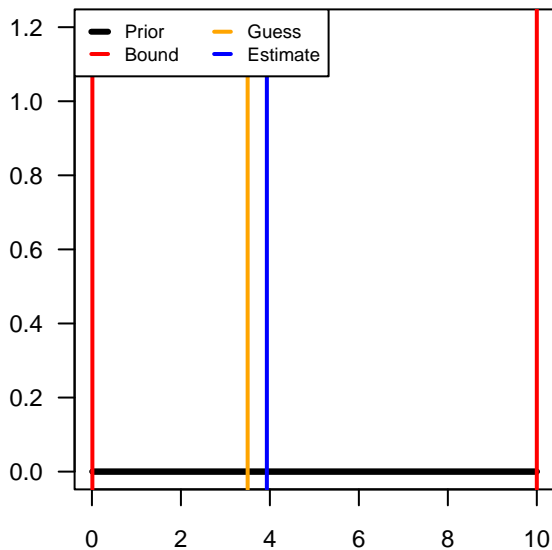


Likelihood



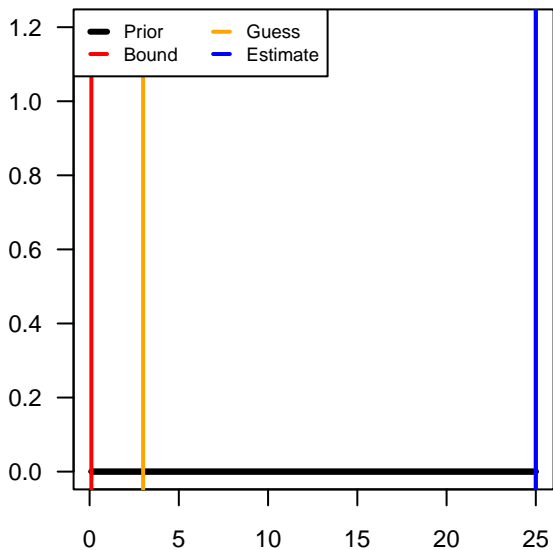
selpar_slope_cRn2

Likelihood



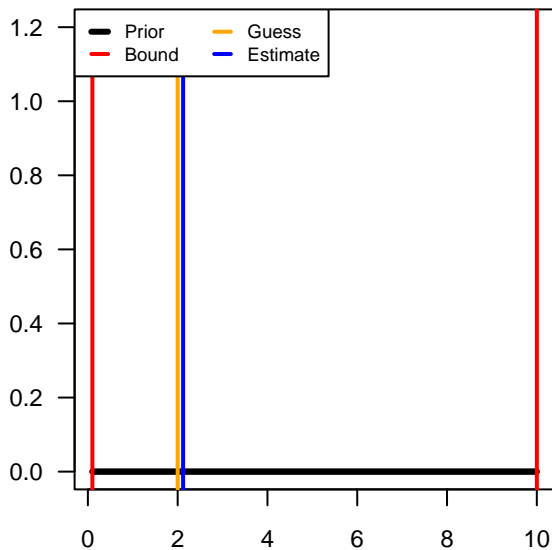
selpar_A502_cRn2

Likelihood



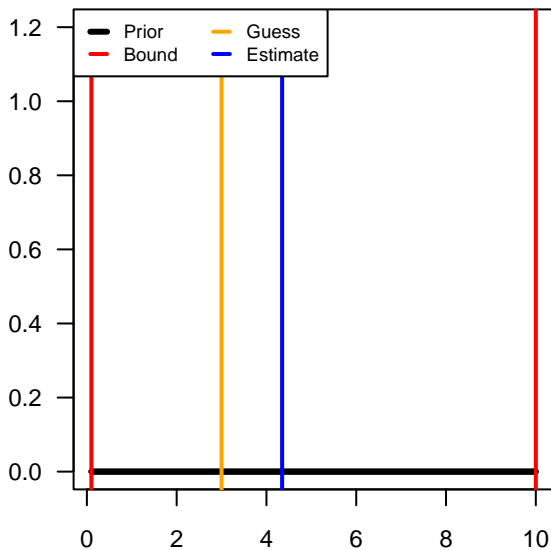
selpar_slope2_cRn2

Likelihood



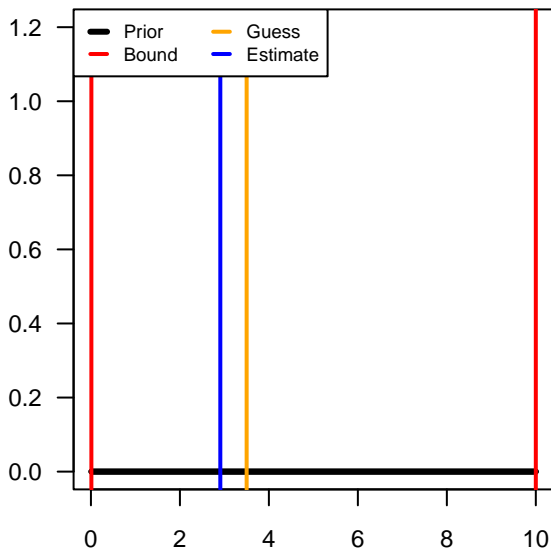
selpar_A50_cRn3

Likelihood



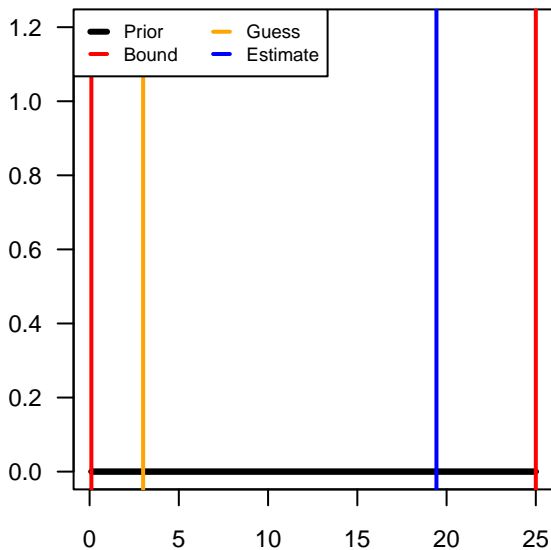
selpar_slope_cRn3

Likelihood



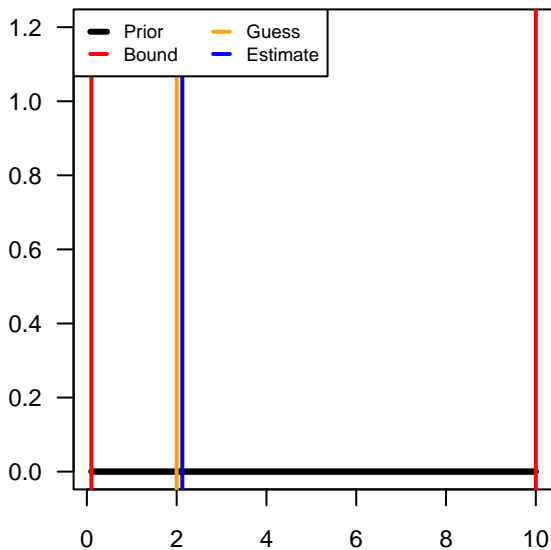
selpar_A502_cRn3

Likelihood

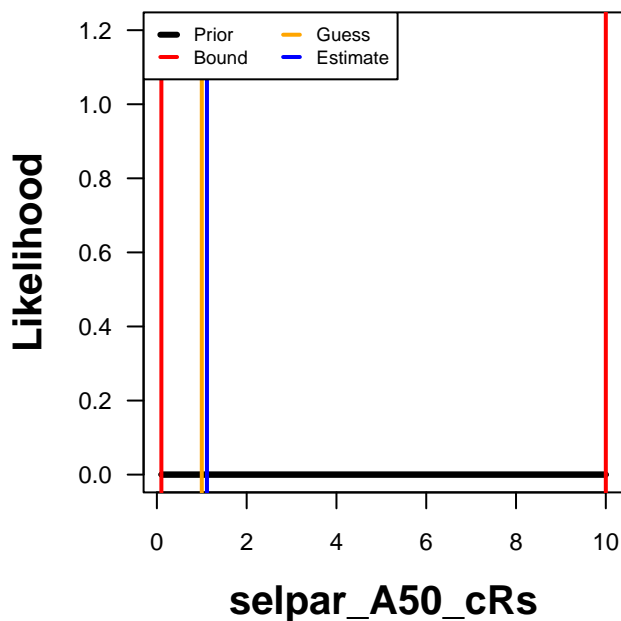
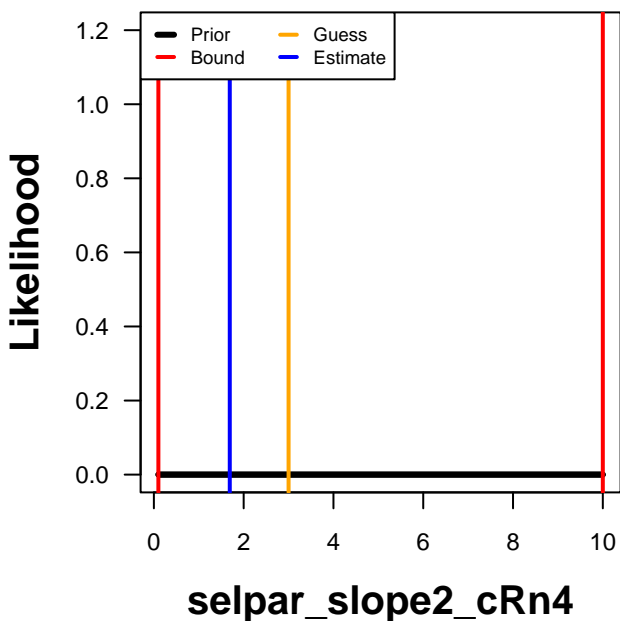
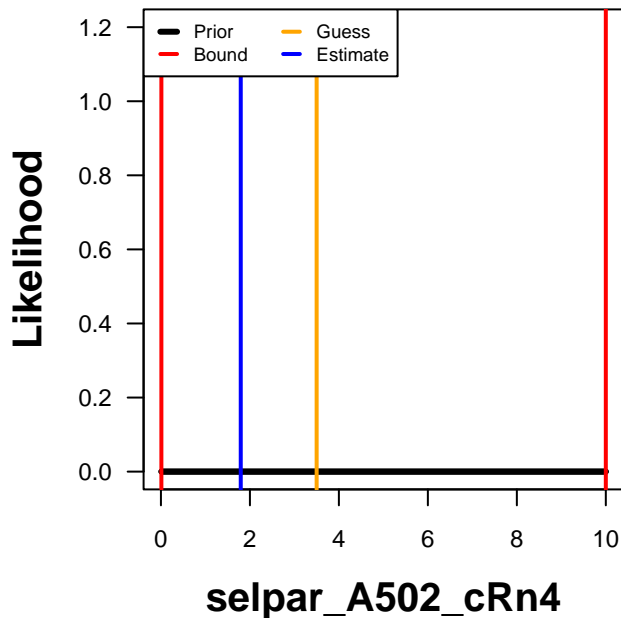
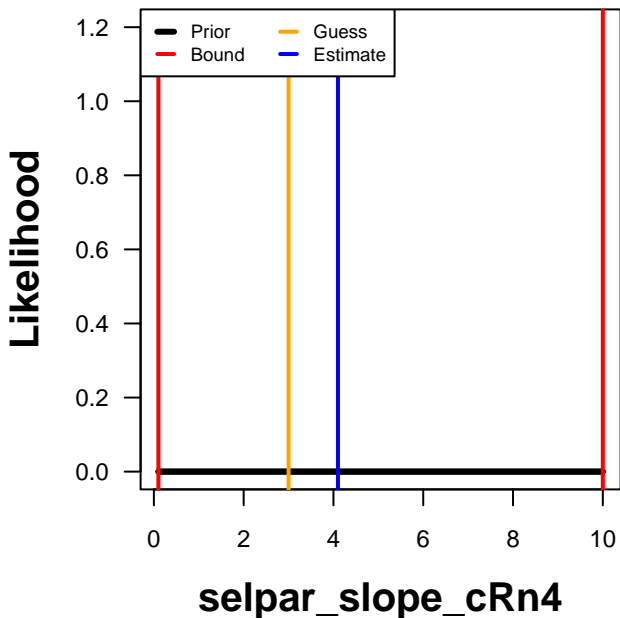


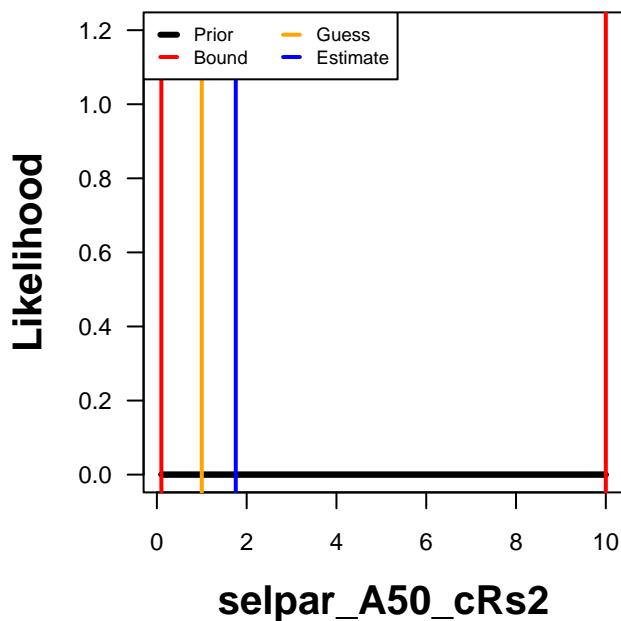
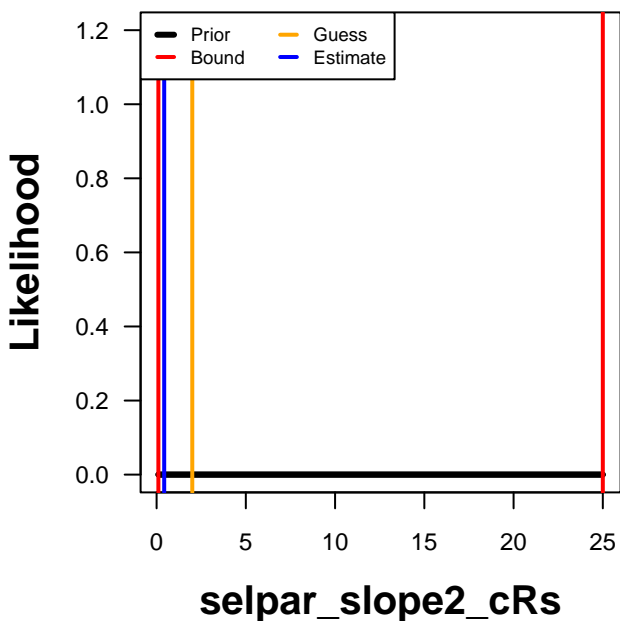
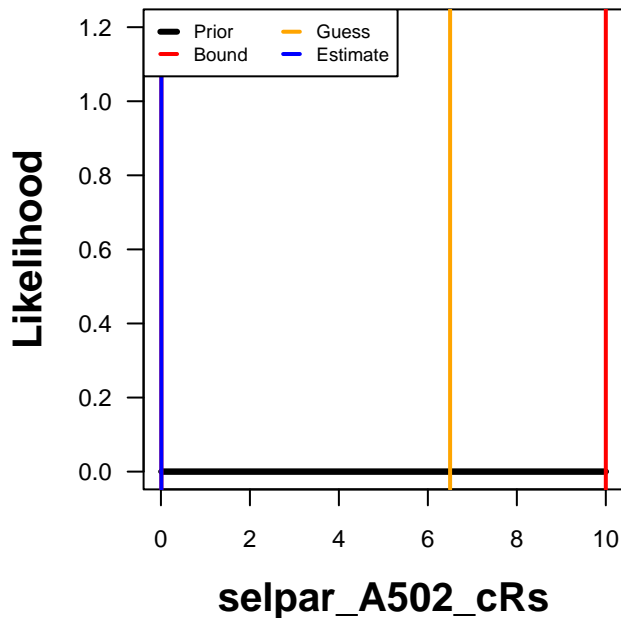
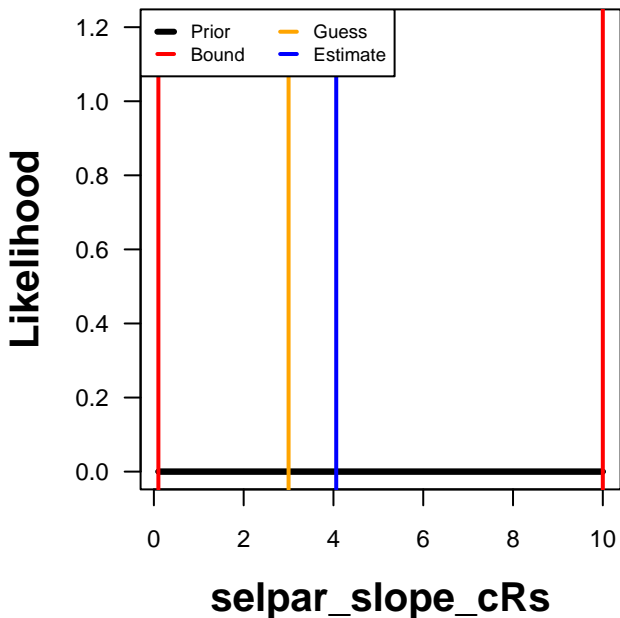
selpar_slope2_cRn3

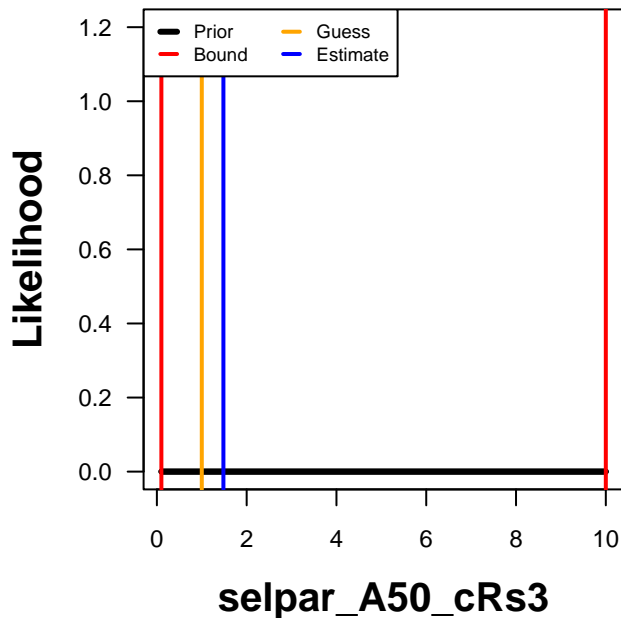
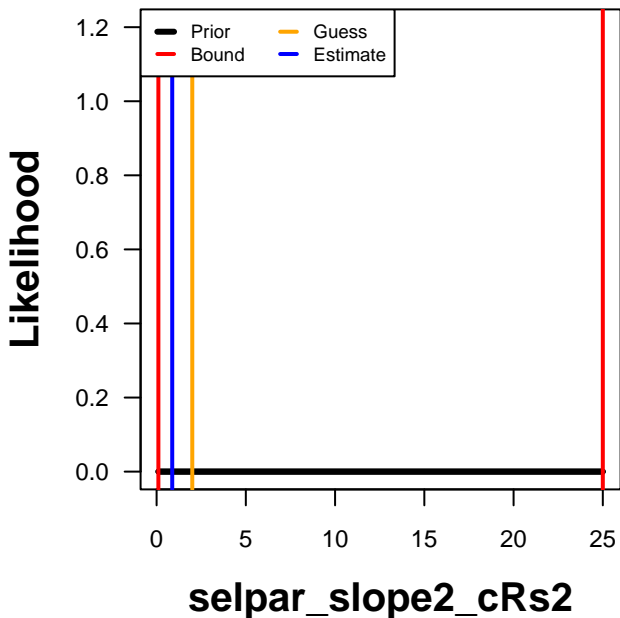
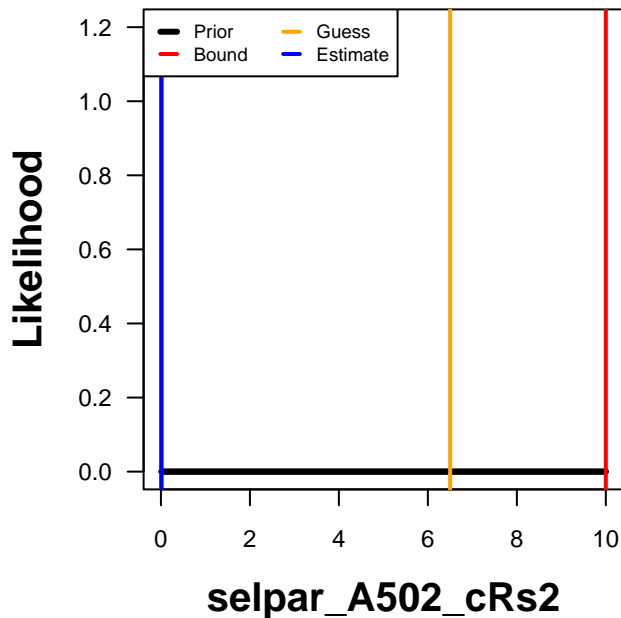
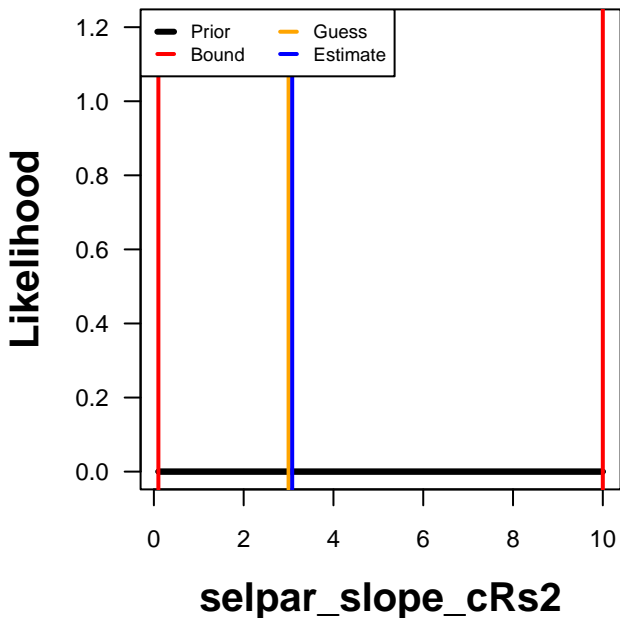
Likelihood

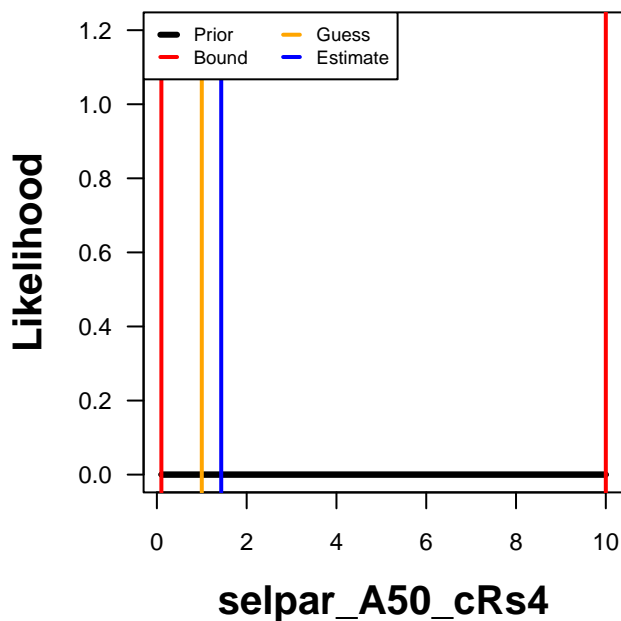
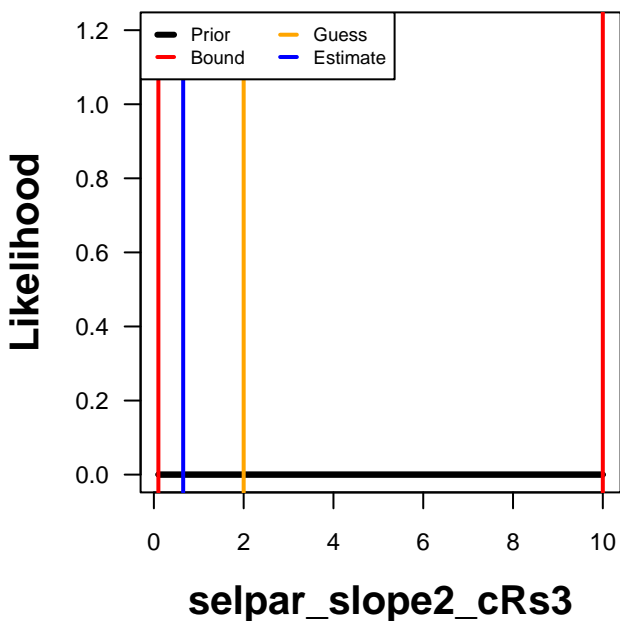
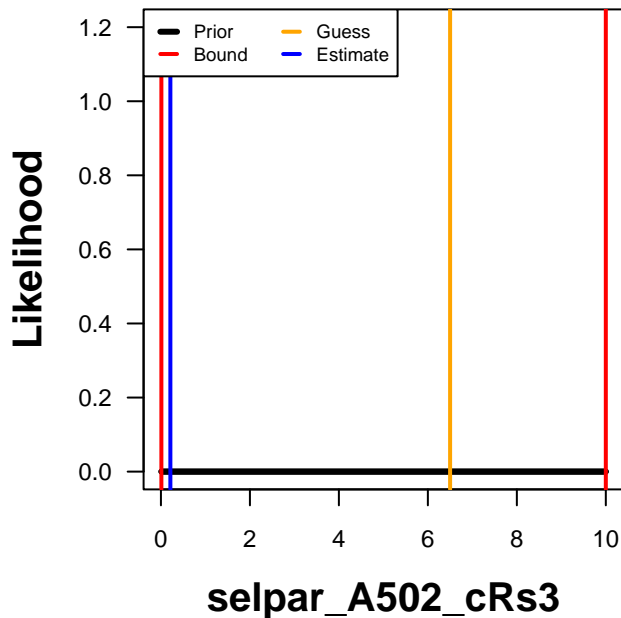
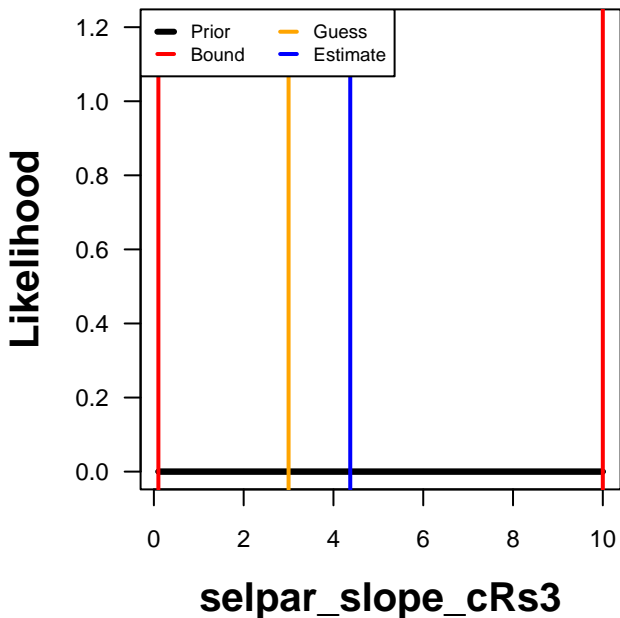


selpar_A50_cRn4

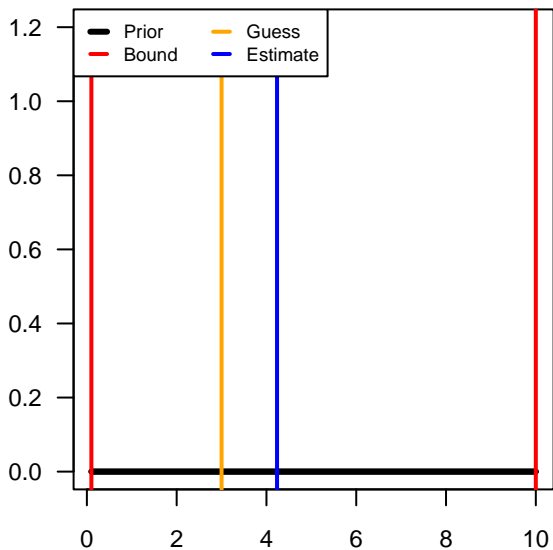






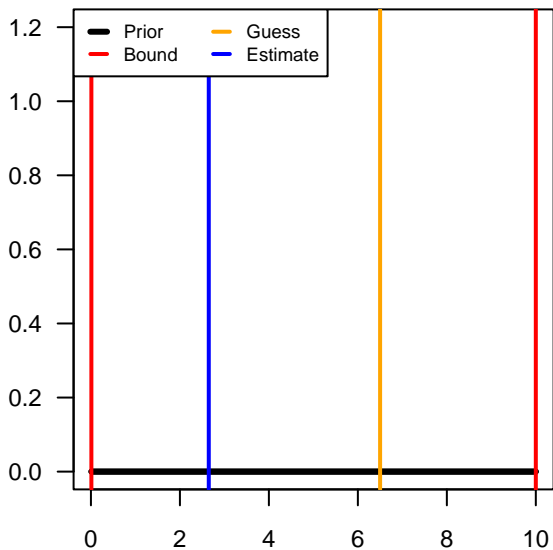


Likelihood



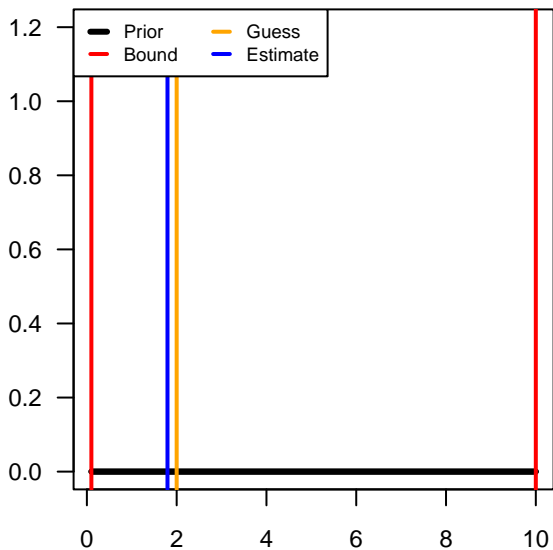
selpar_slope_cRs4

Likelihood



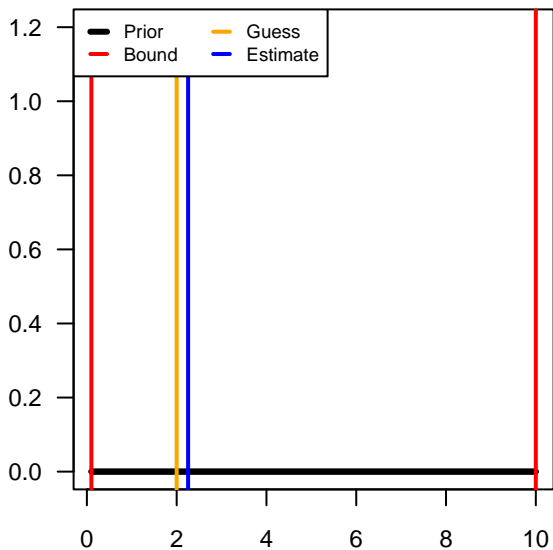
selpar_A502_cRs4

Likelihood



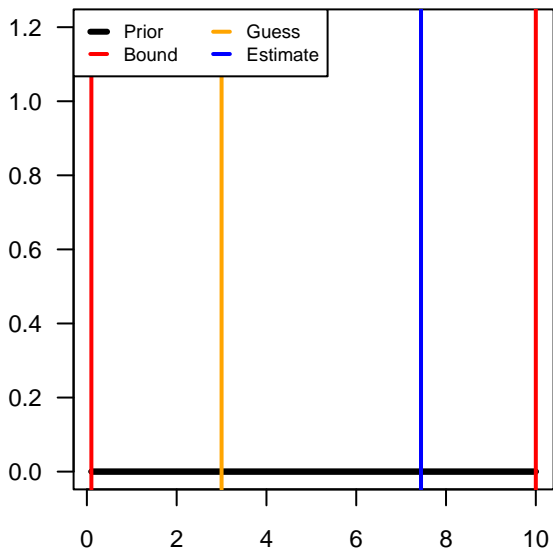
selpar_slope2_cRs4

Likelihood



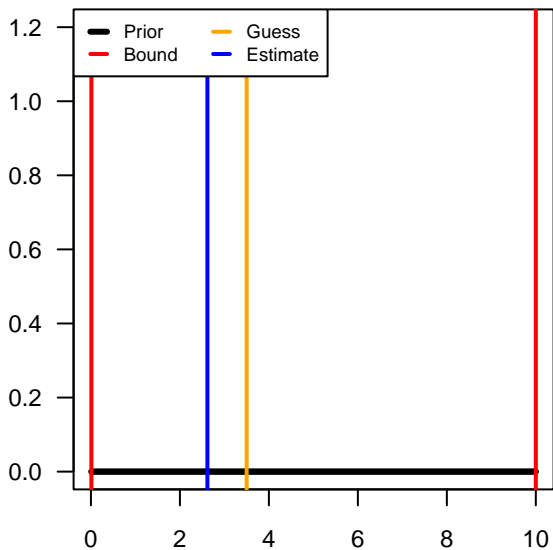
selpar_A50_cBn

Likelihood



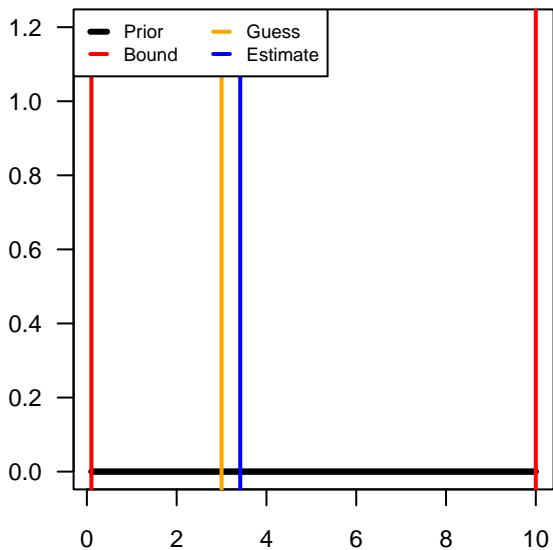
selpar_slope_cBn

Likelihood



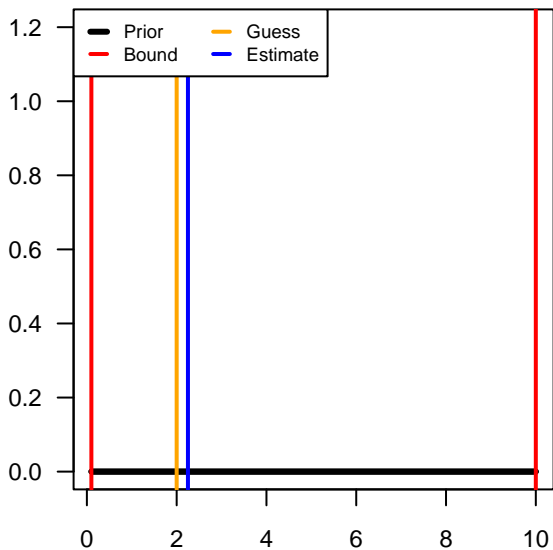
selpar_A502_cBn

Likelihood



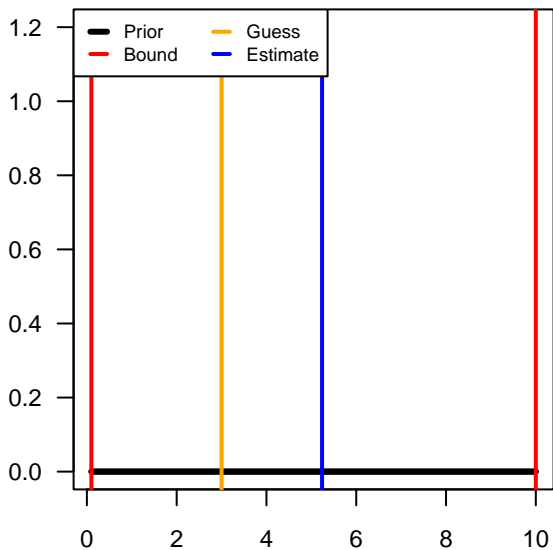
selpar_slope2_cBn

Likelihood



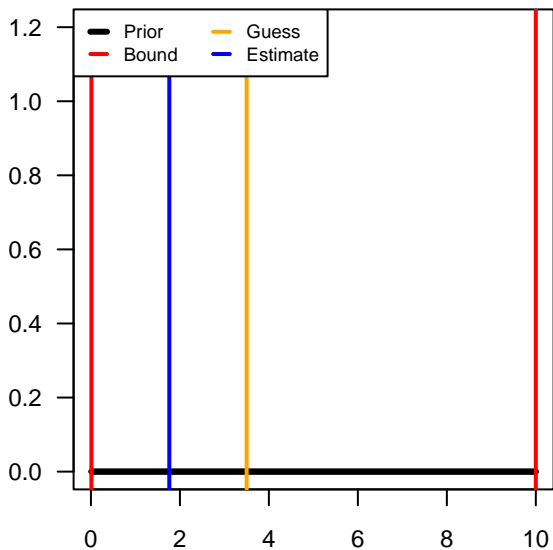
selpar_A50_cBn2

Likelihood



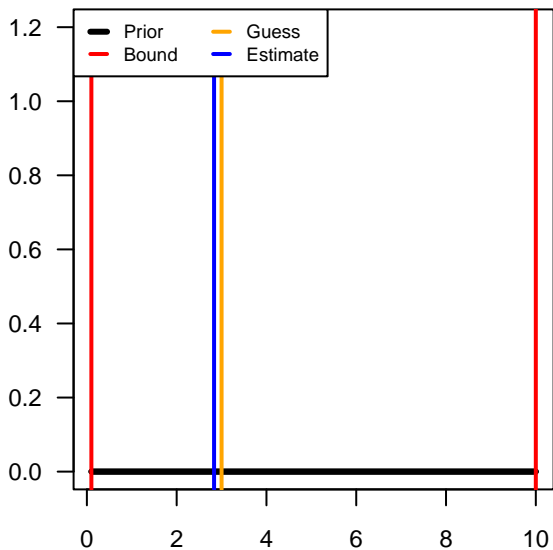
selpar_slope_cBn2

Likelihood



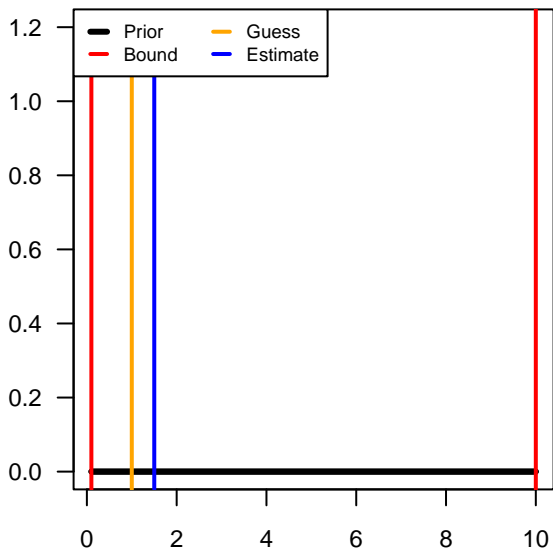
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Likelihood

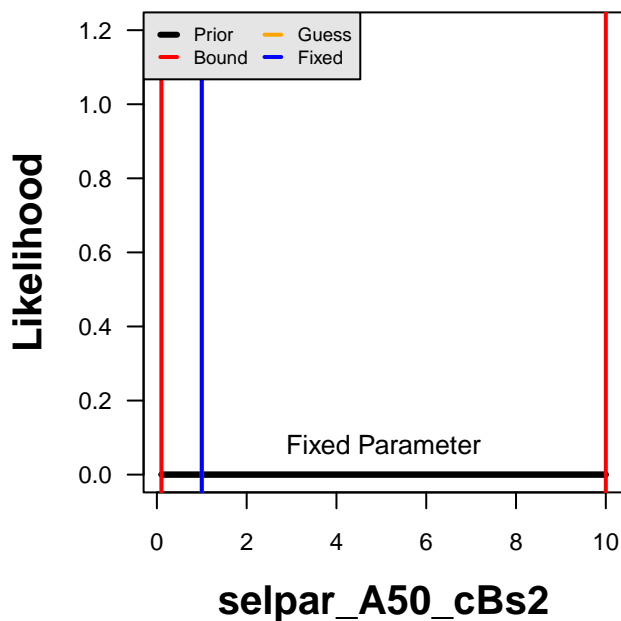
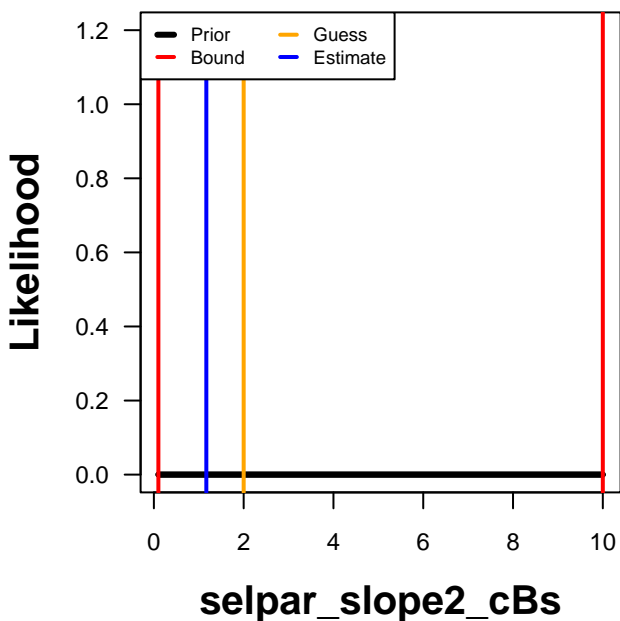
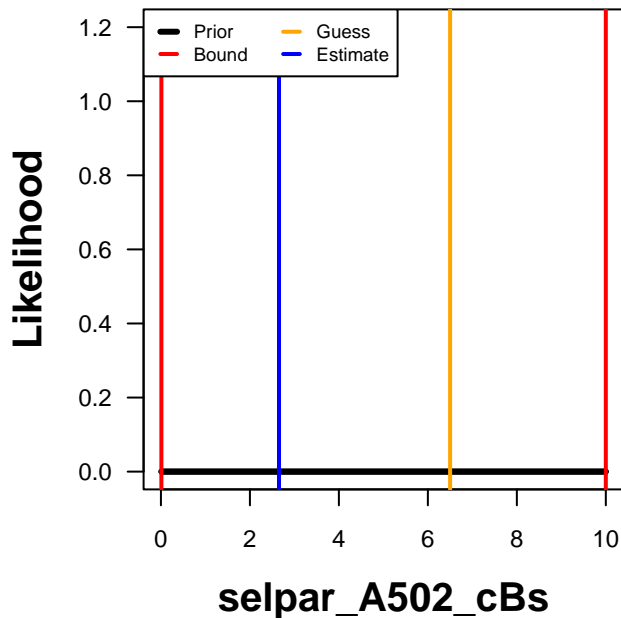
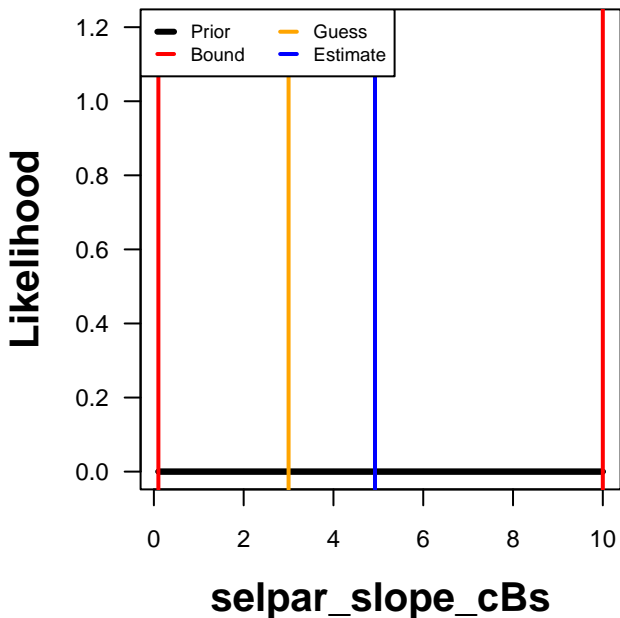


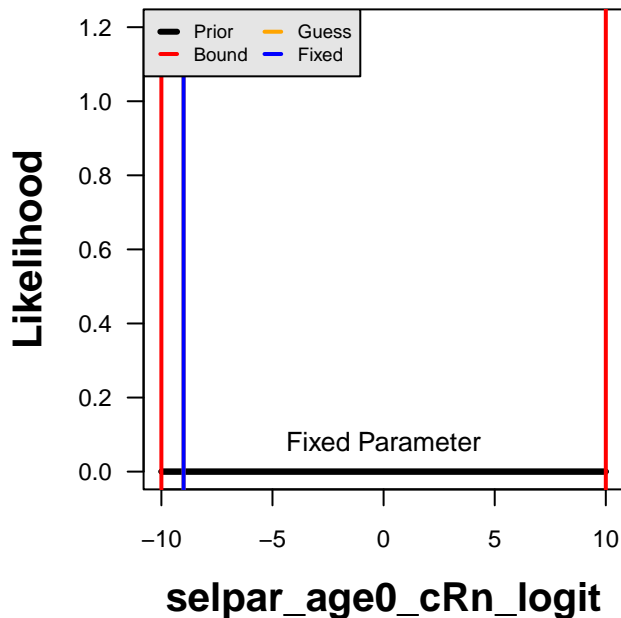
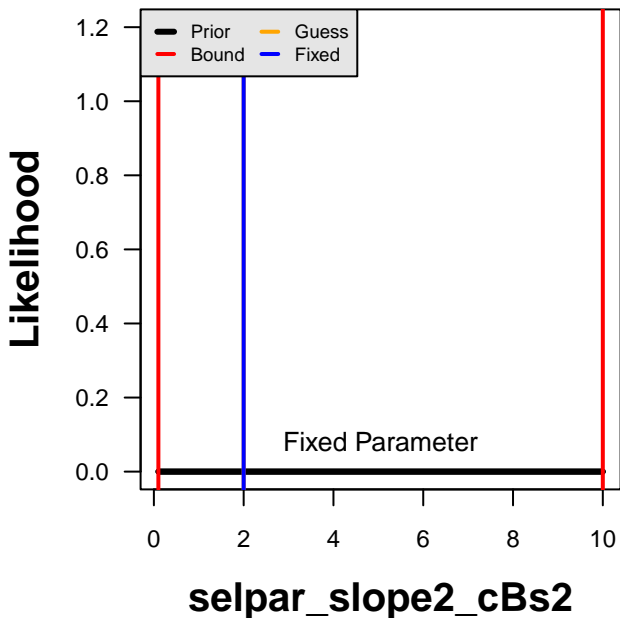
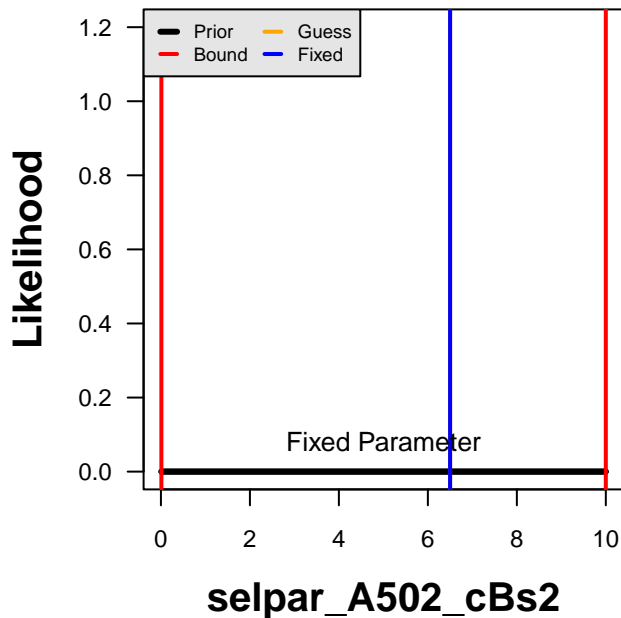
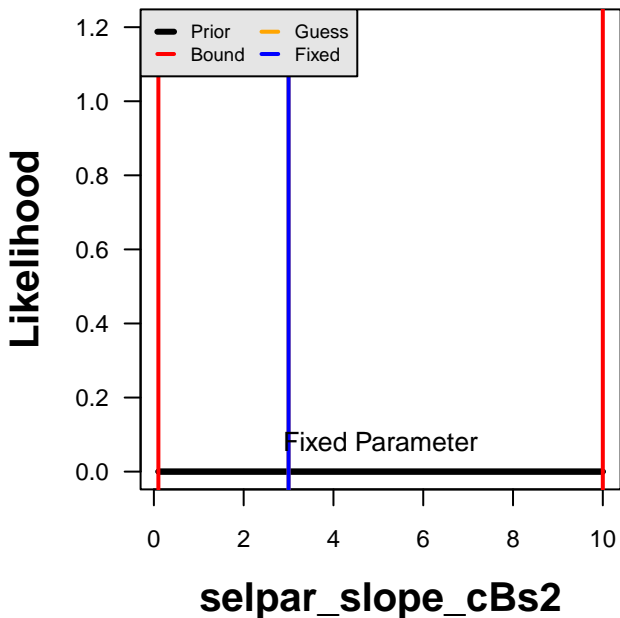
selpar_slope2_cBn2

Likelihood

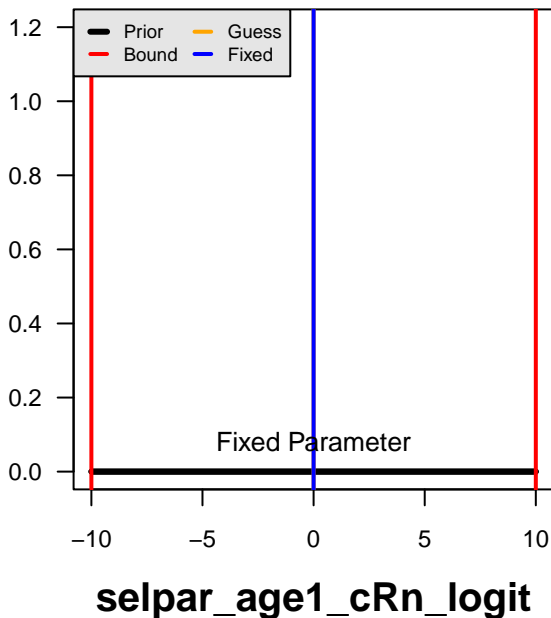


selpar_A50_cBs

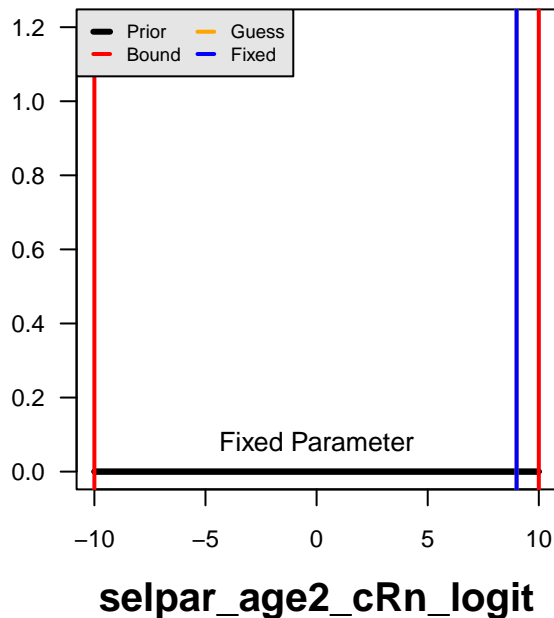




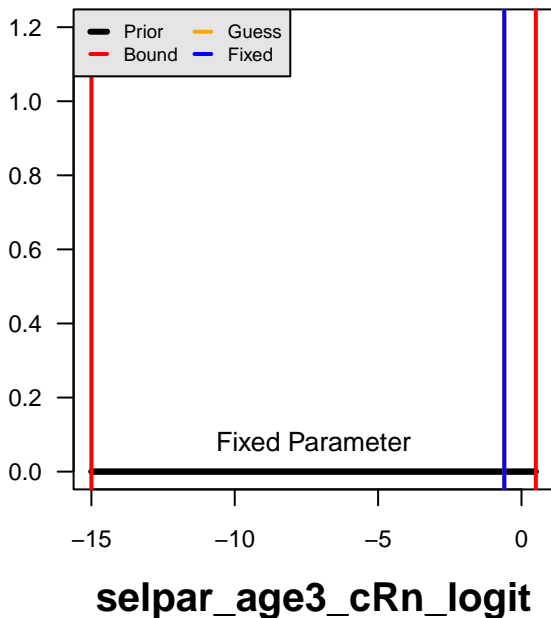
Likelihood



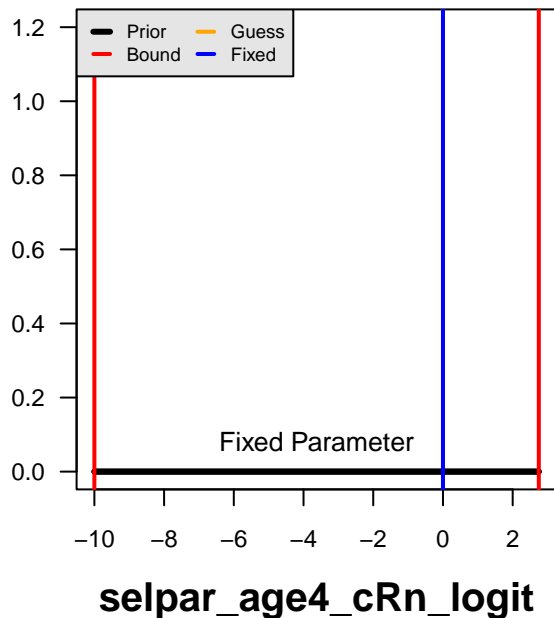
Likelihood

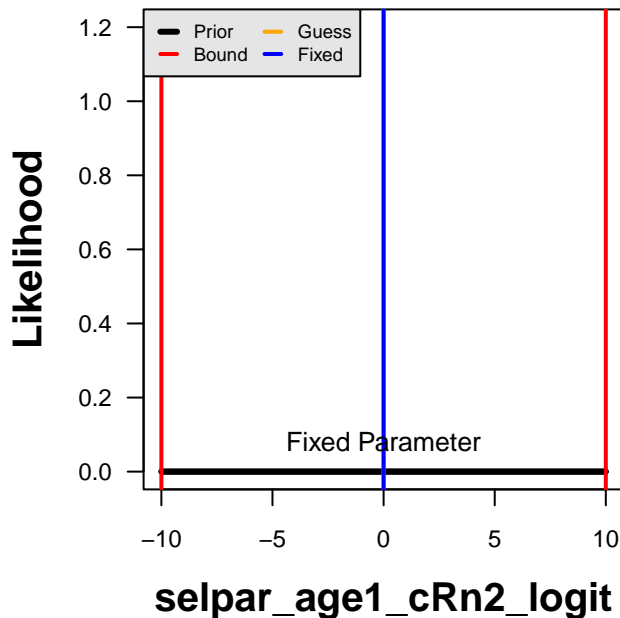
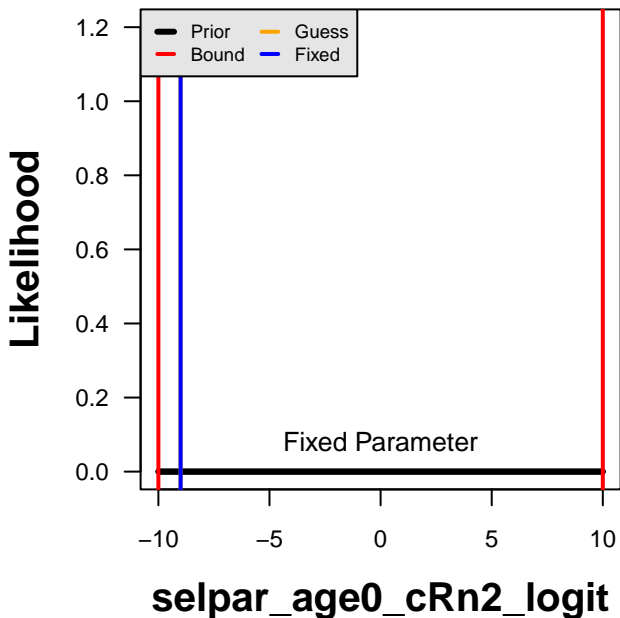
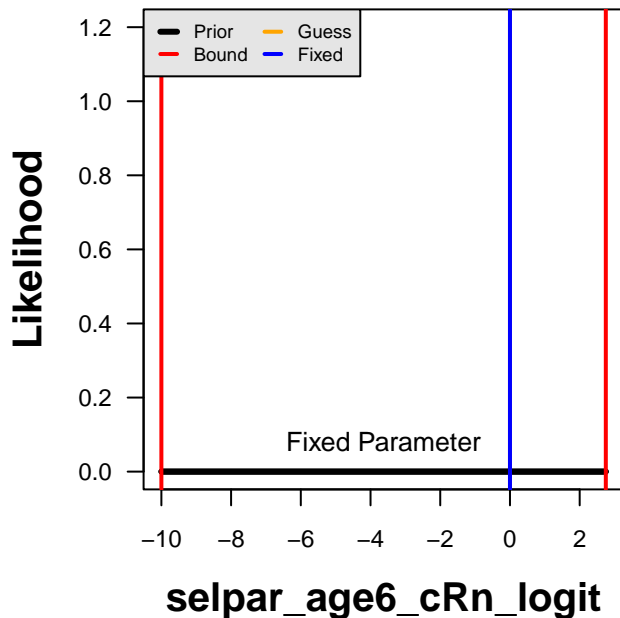
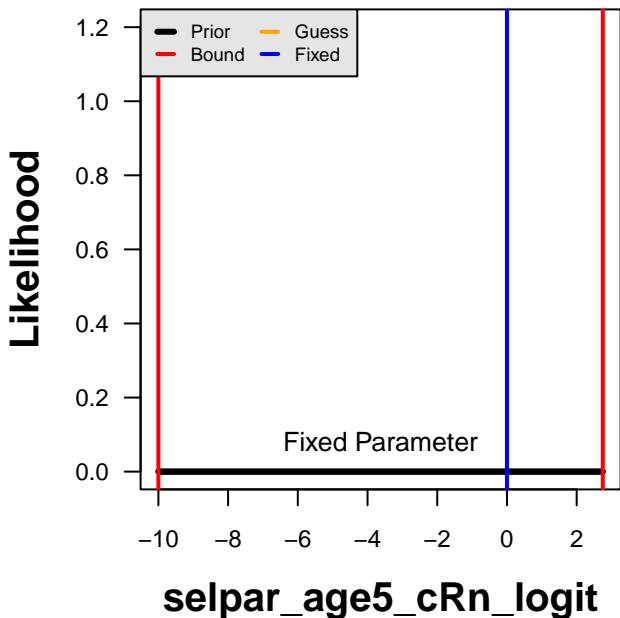


Likelihood

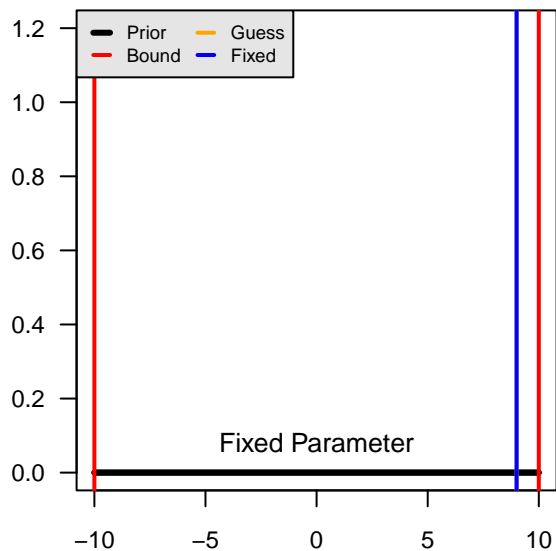


Likelihood



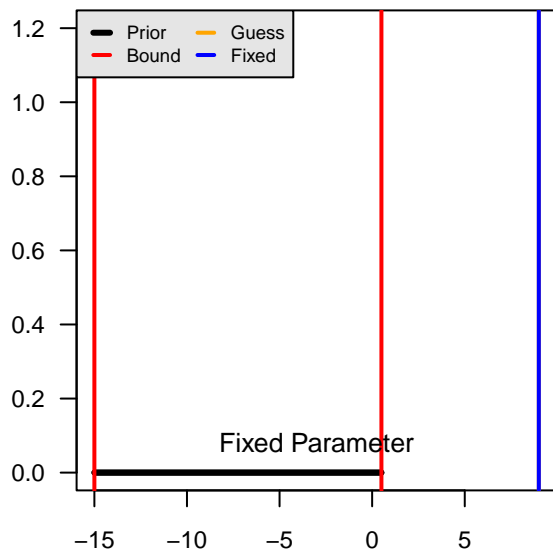


Likelihood



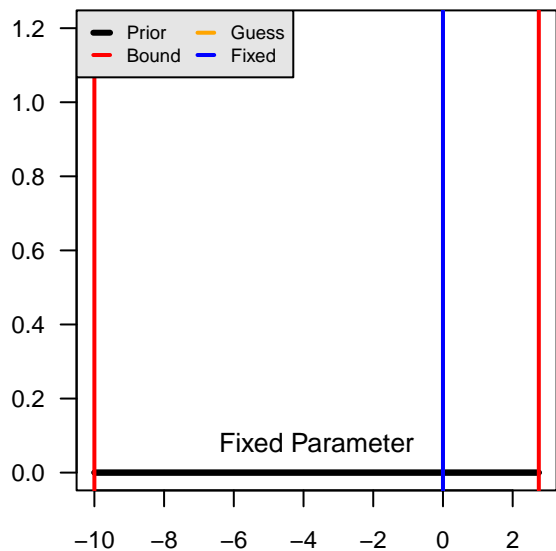
selpar_age2_cRn2_logit

Likelihood



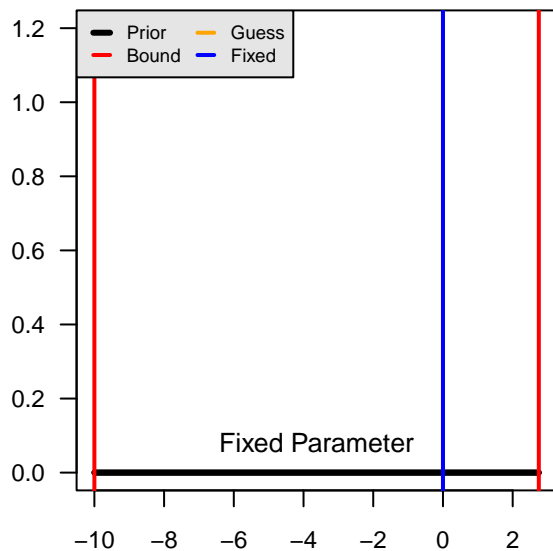
selpar_age3_cRn2_logit

Likelihood



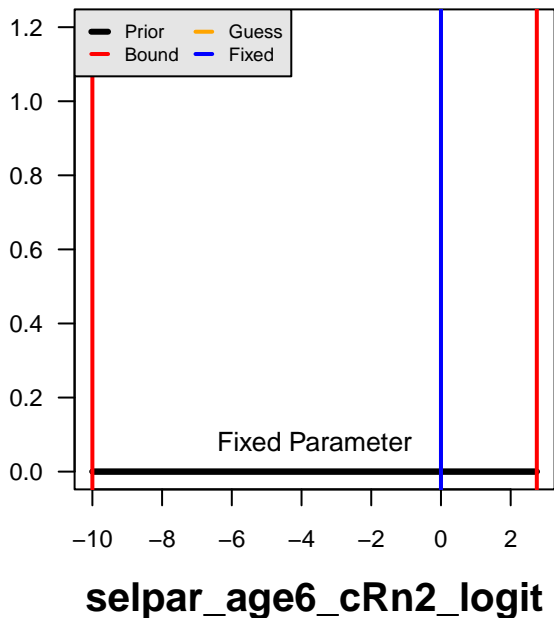
selpar_age4_cRn2_logit

Likelihood

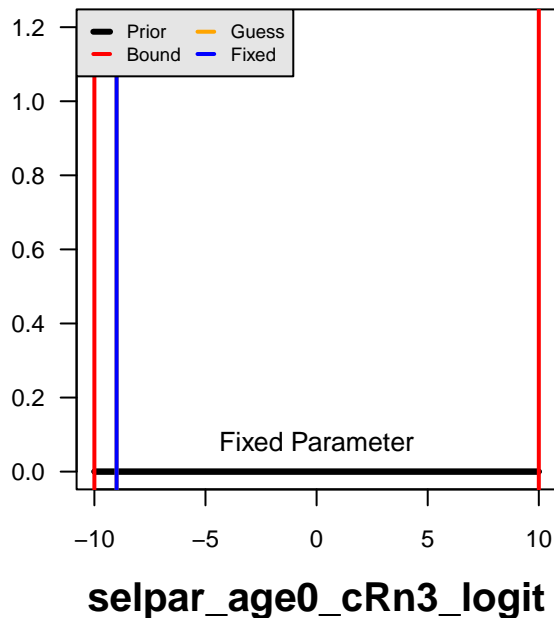


selpar_age5_cRn2_logit

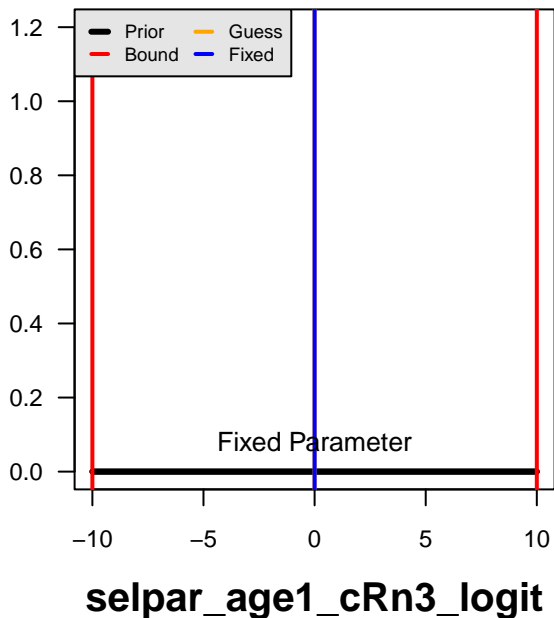
Likelihood



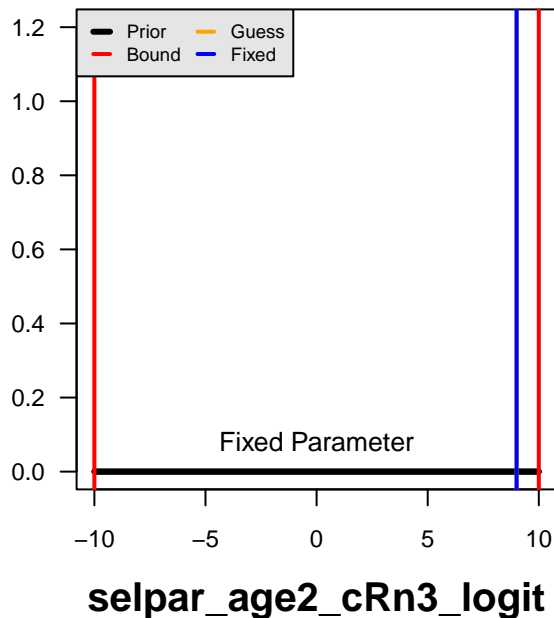
Likelihood



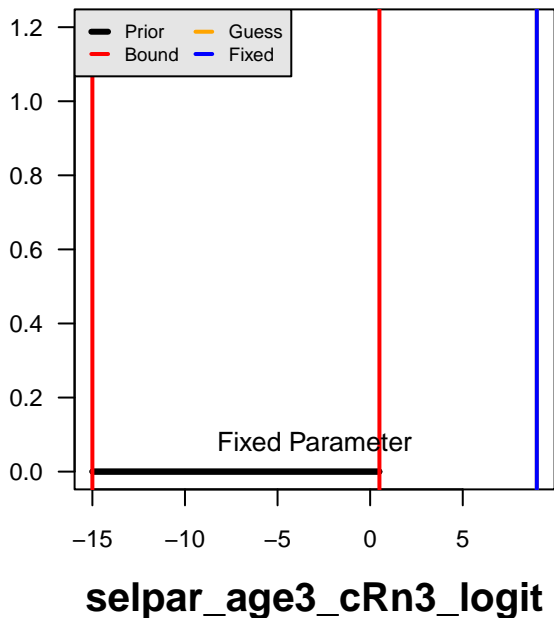
Likelihood



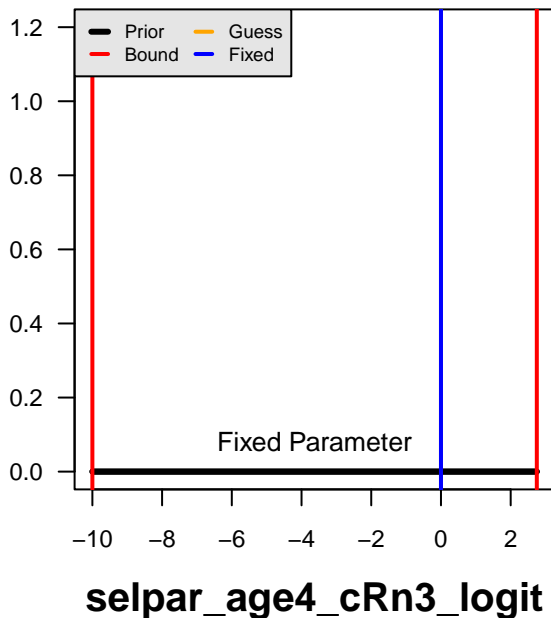
Likelihood



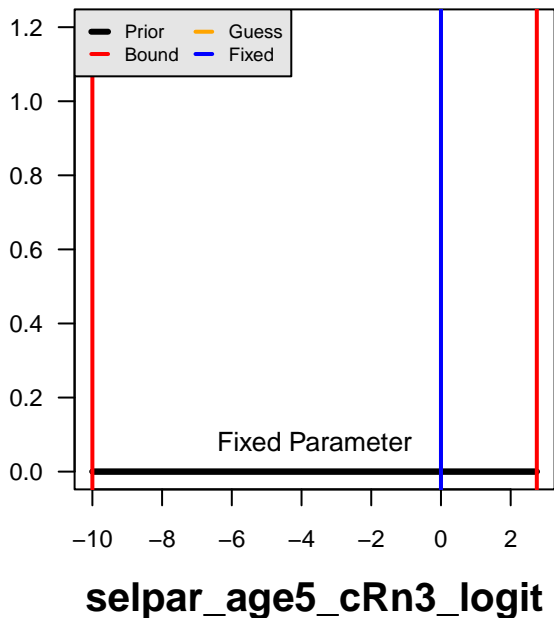
Likelihood



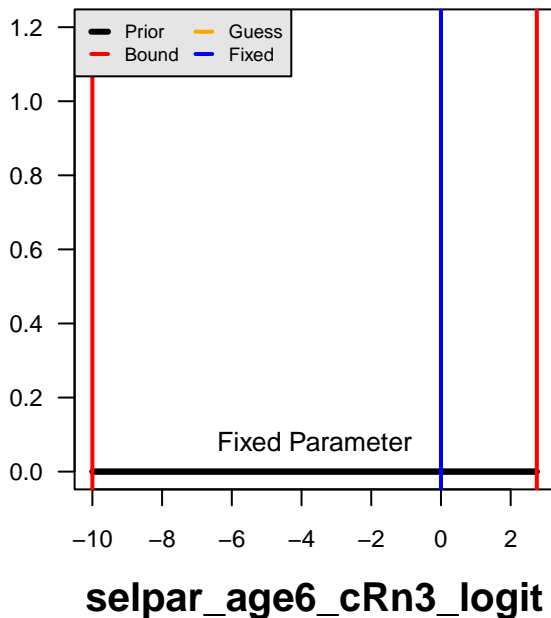
Likelihood

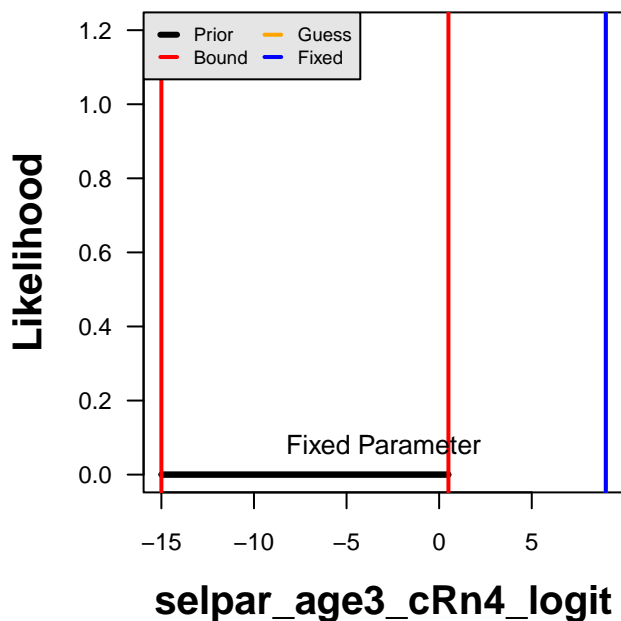
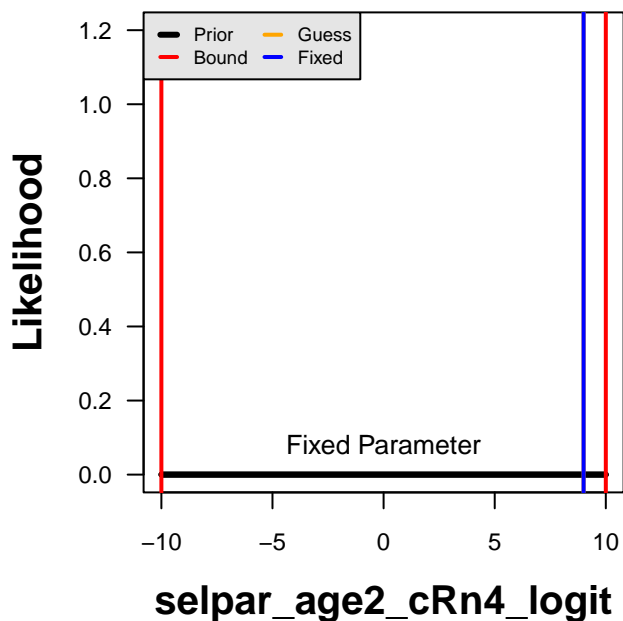
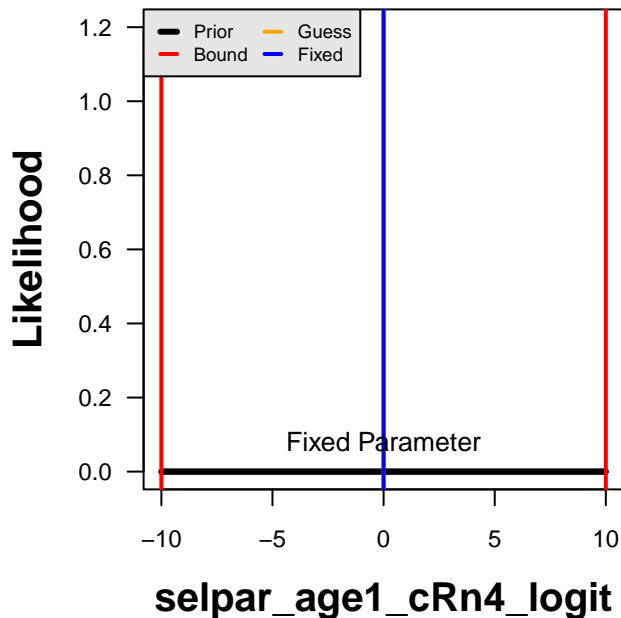
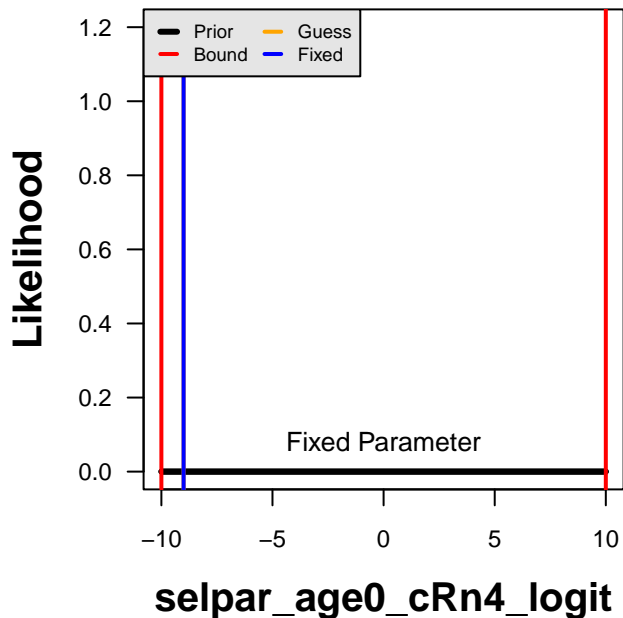


Likelihood

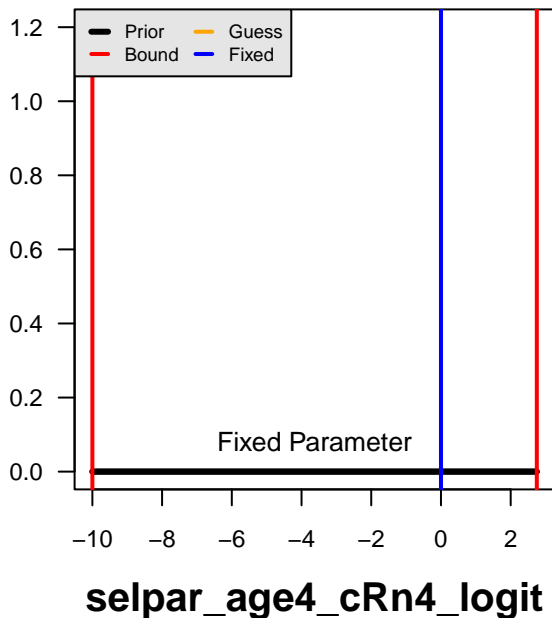


Likelihood

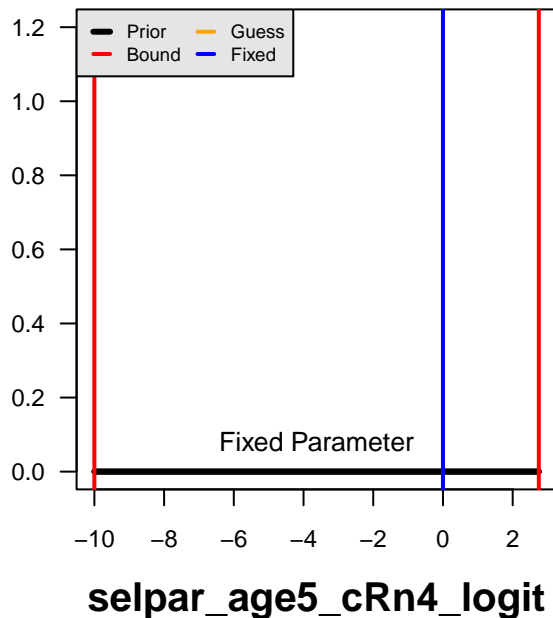




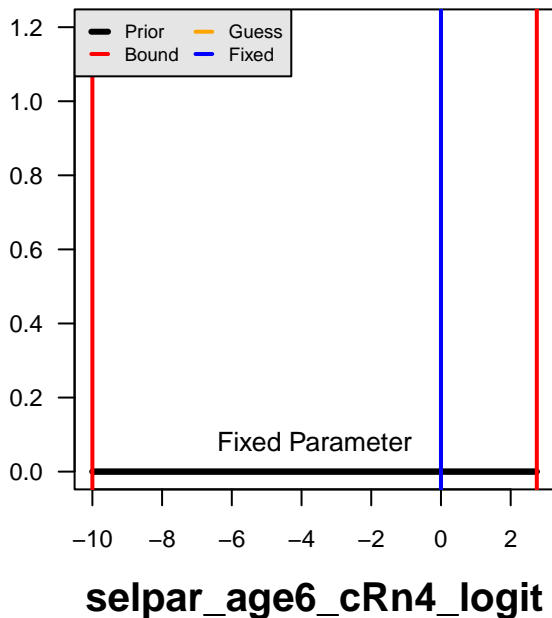
Likelihood



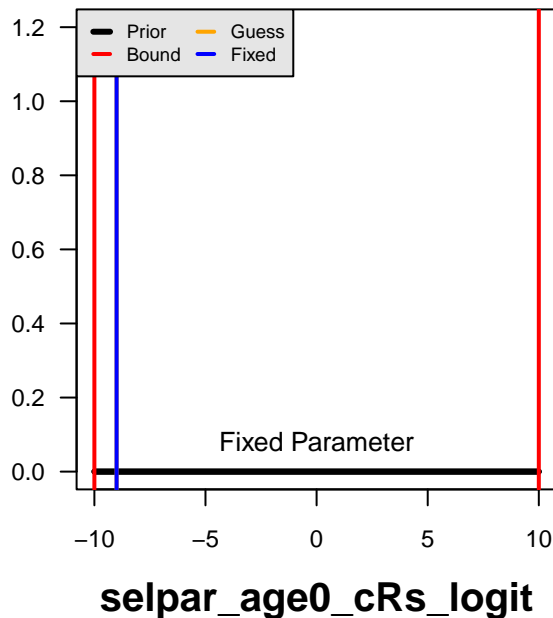
Likelihood



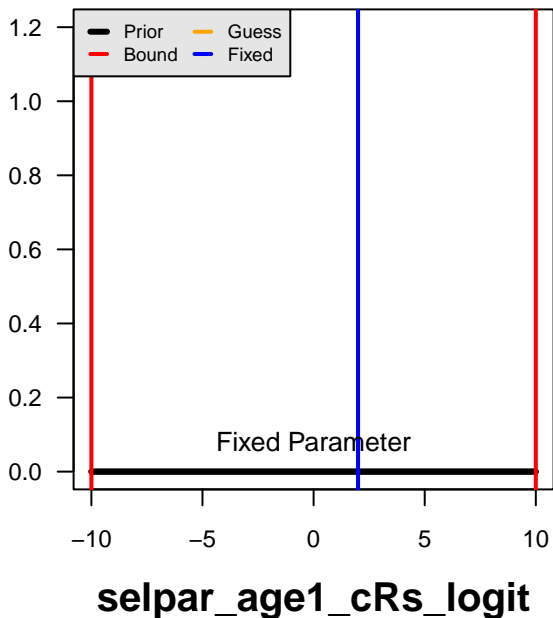
Likelihood



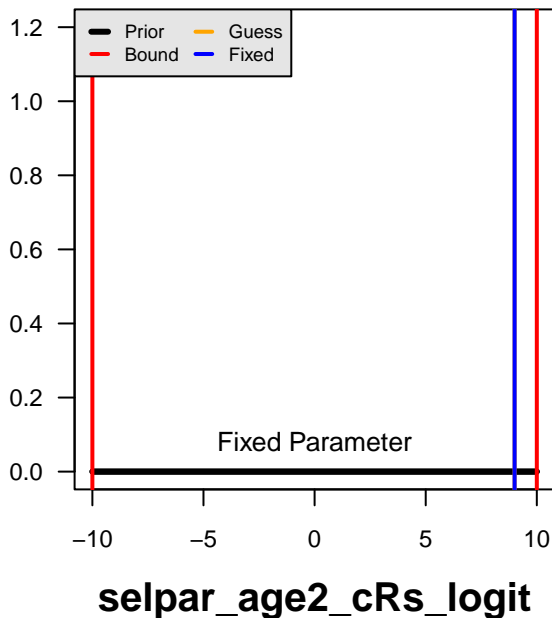
Likelihood



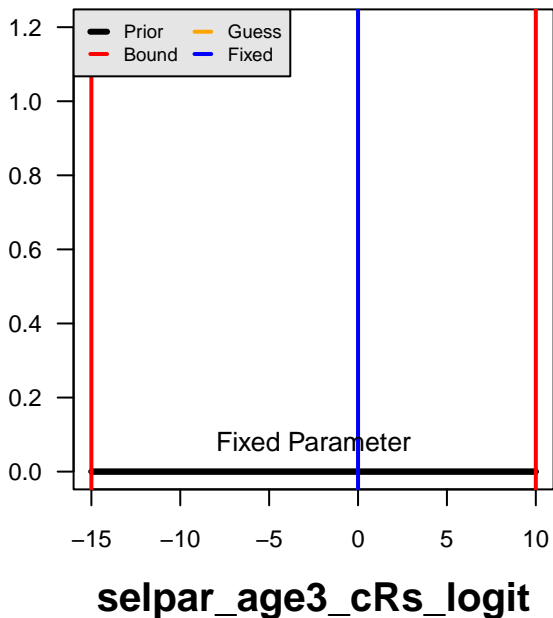
Likelihood



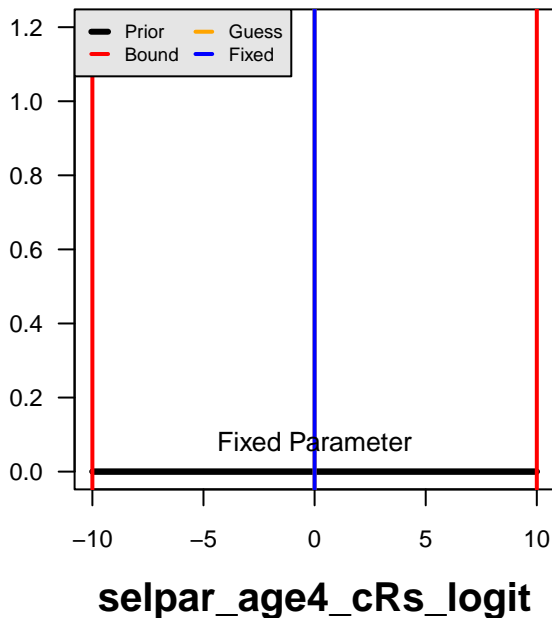
Likelihood



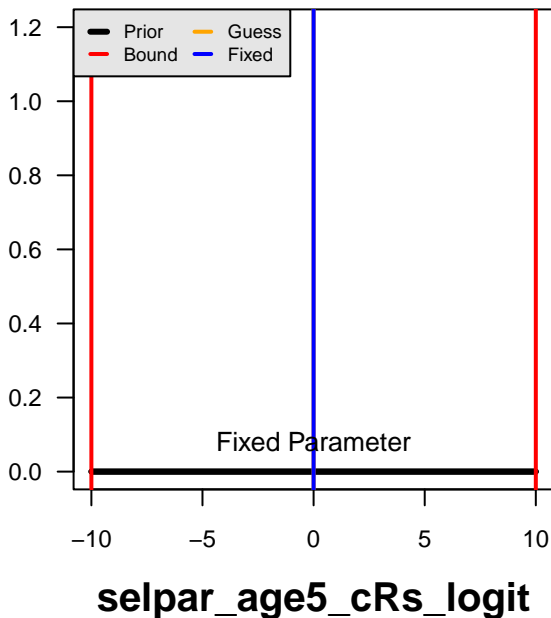
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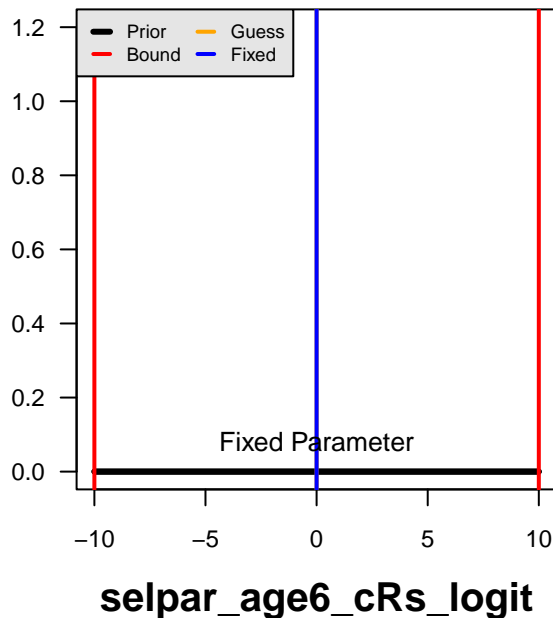
Likelihood



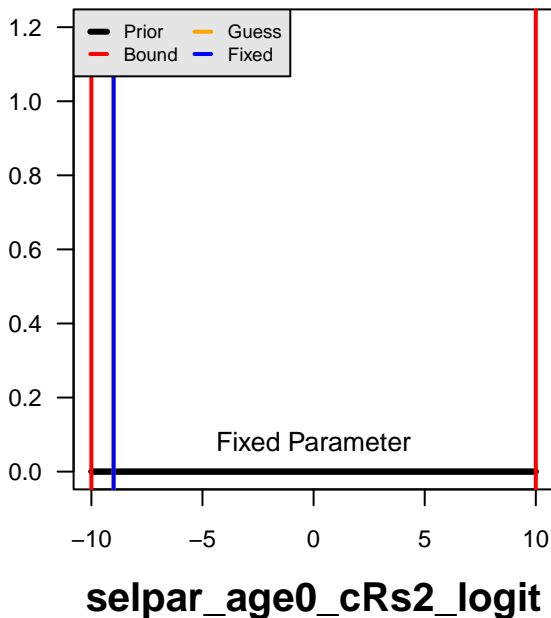
Likelihood



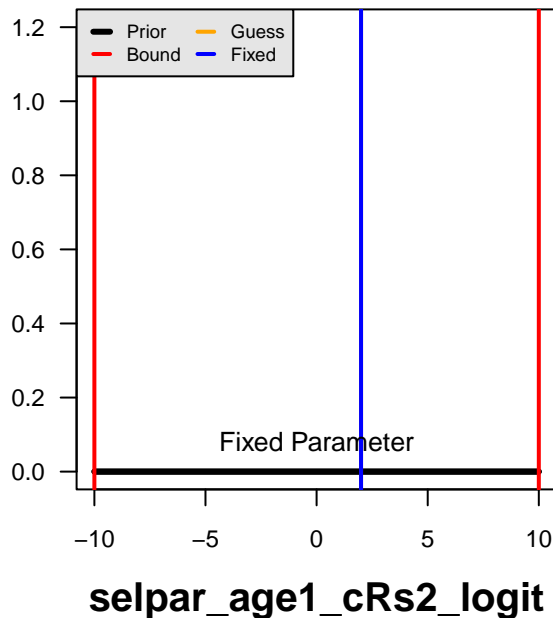
Likelihood

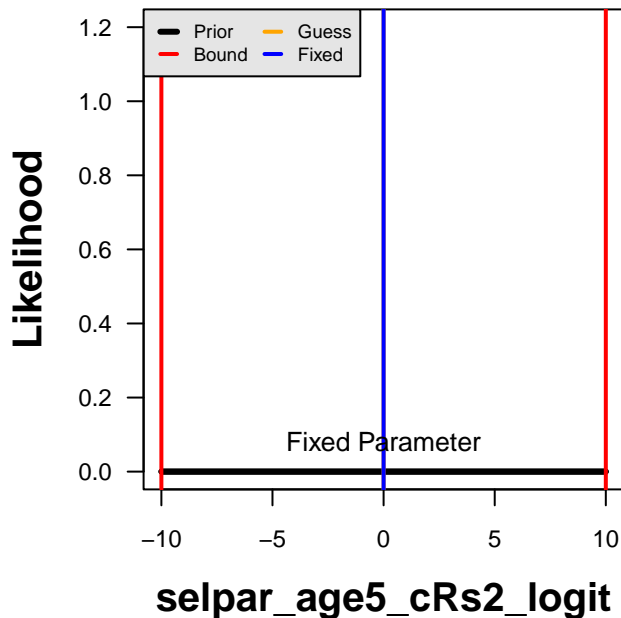
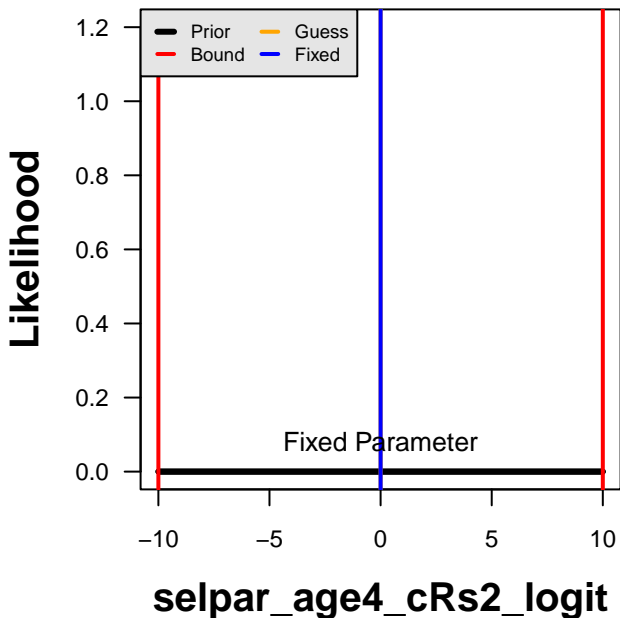
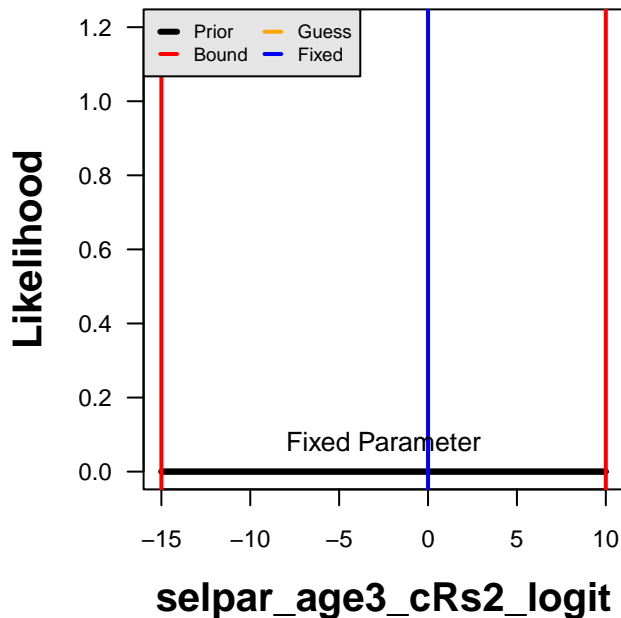
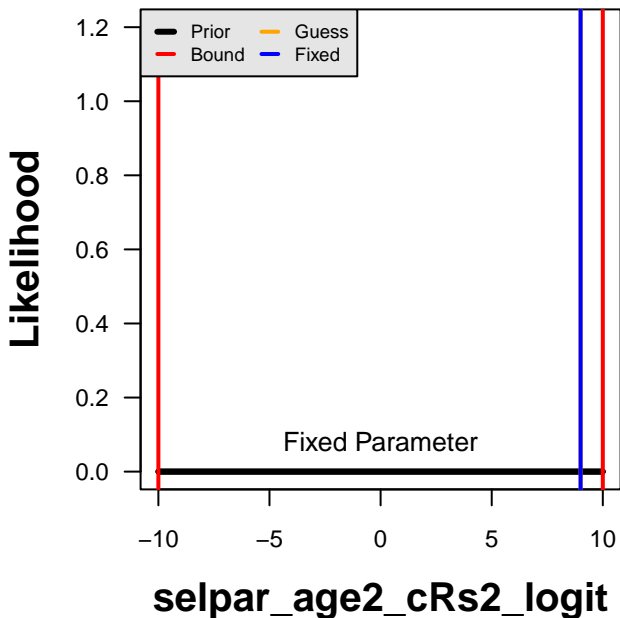


Likelihood

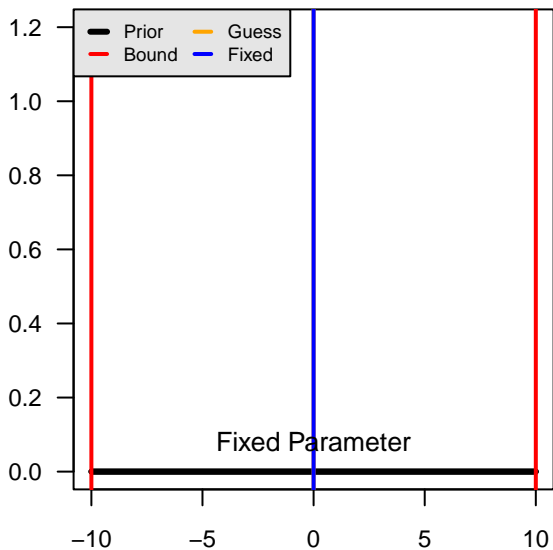


Likelihood



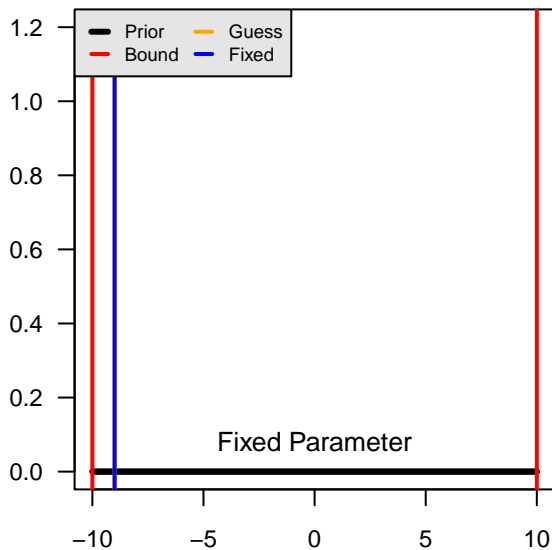


Likelihood



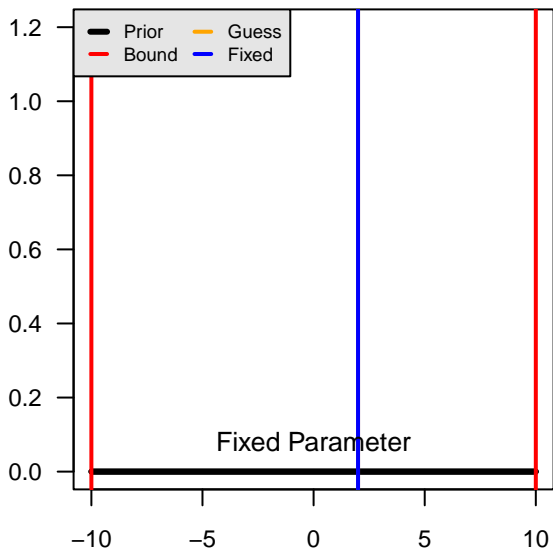
`selpar_age6_cRs2_logit`

Likelihood



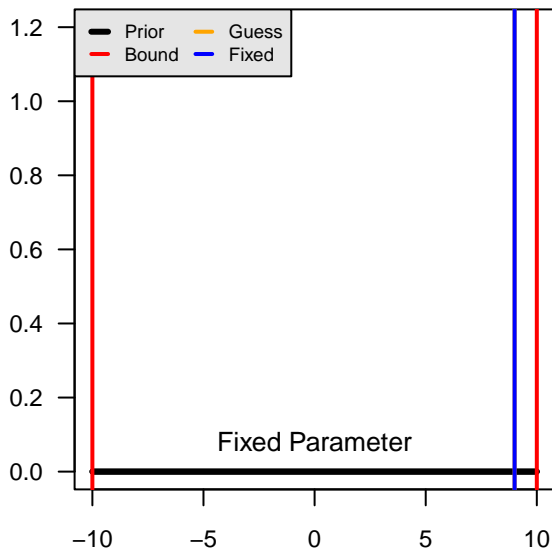
`selpar_age0_cRs3_logit`

Likelihood



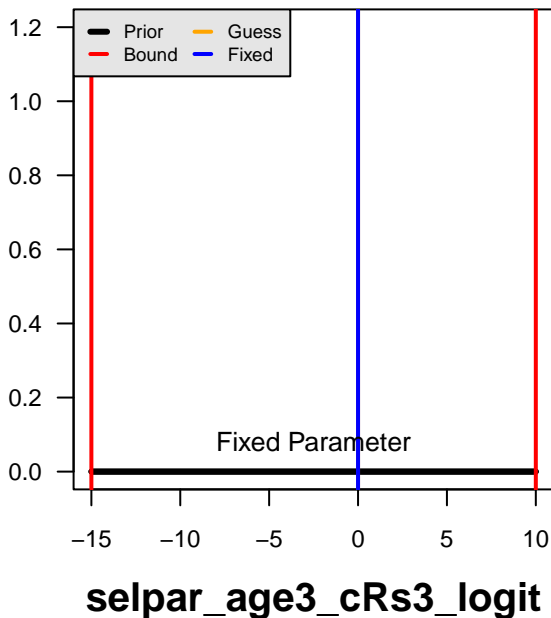
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Likelihood

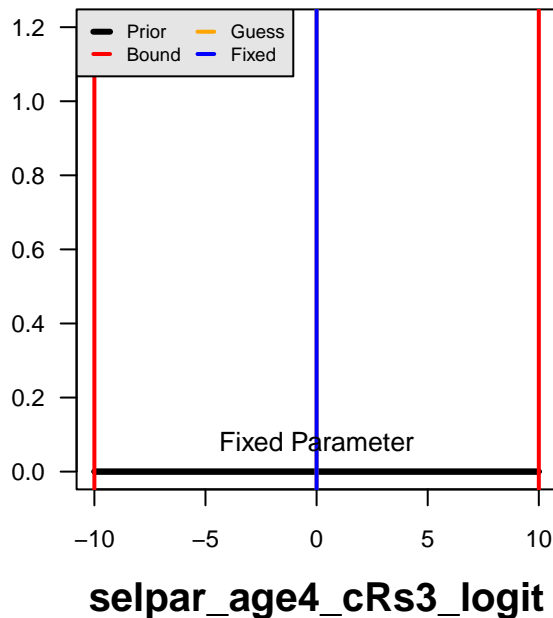


`selpar_age2_cRs3_logit`

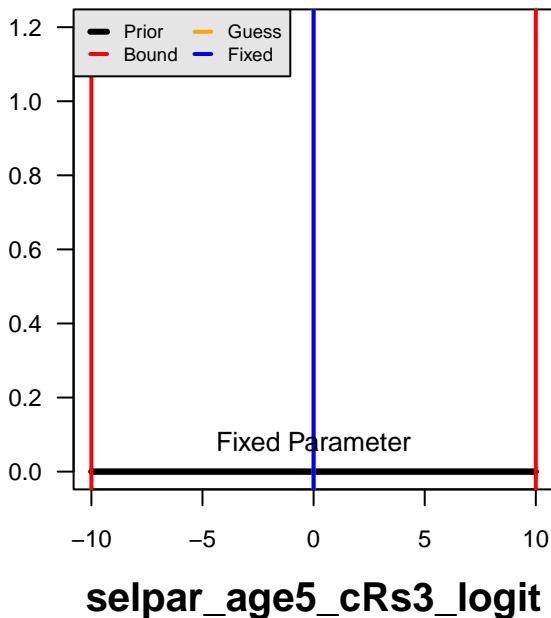
Likelihood



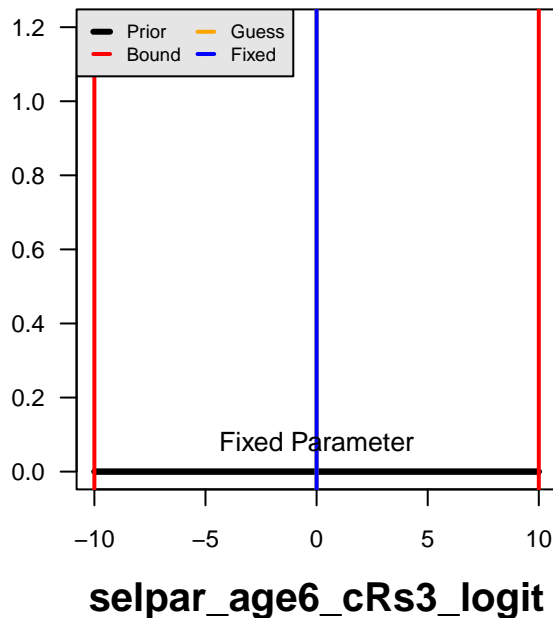
Likelihood

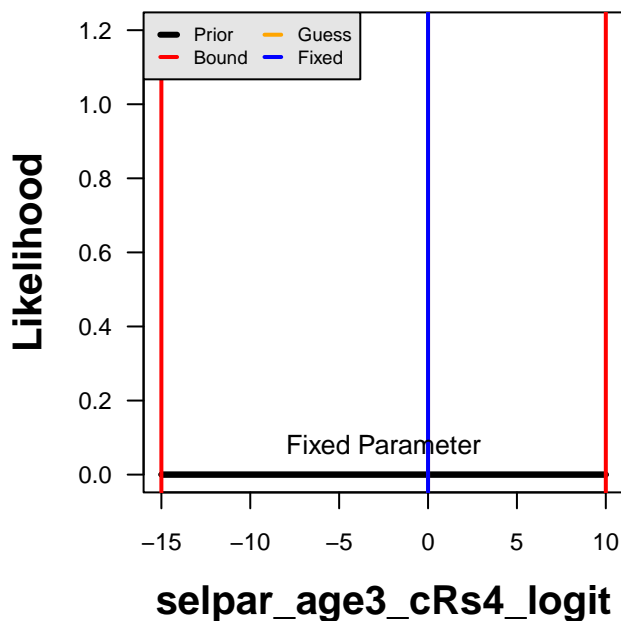
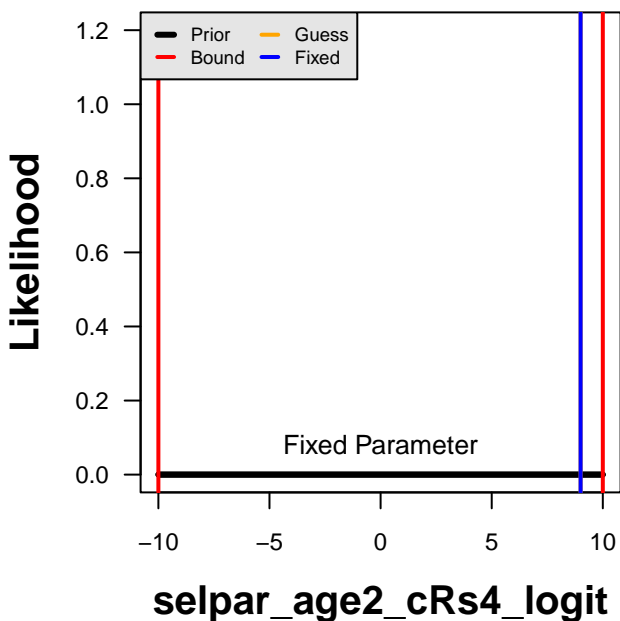
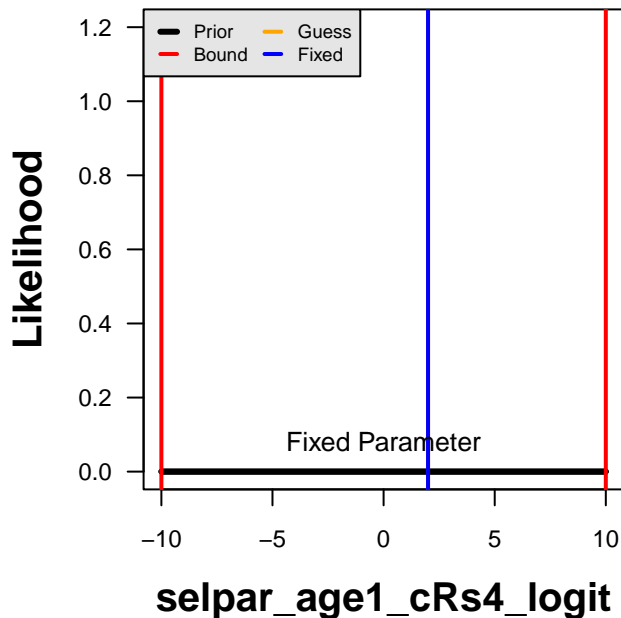
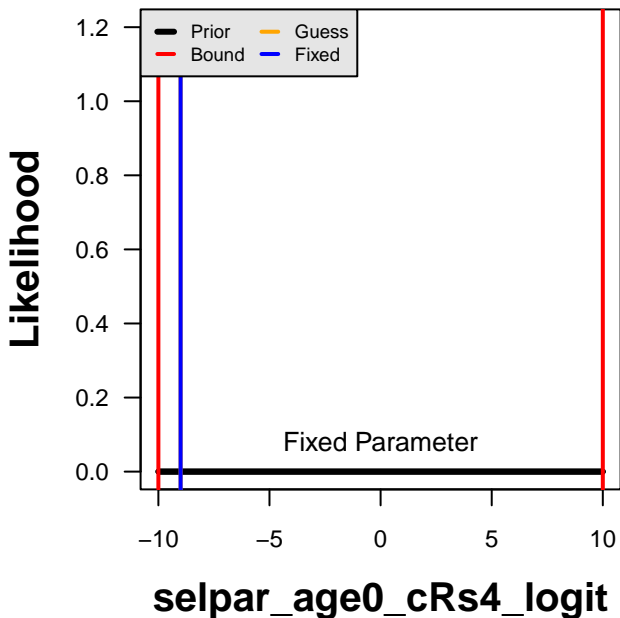


Likelihood

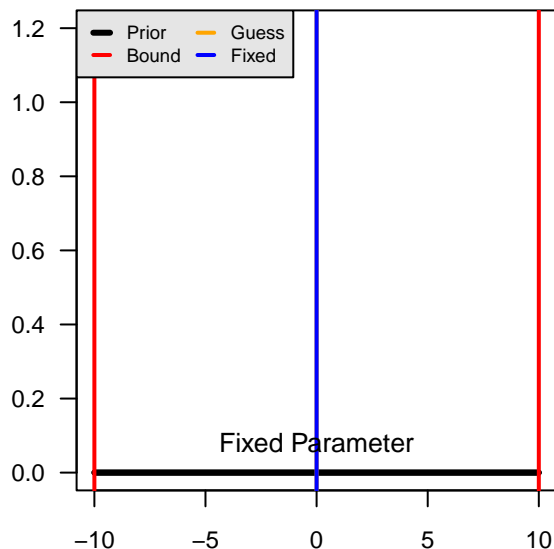


Likelihood



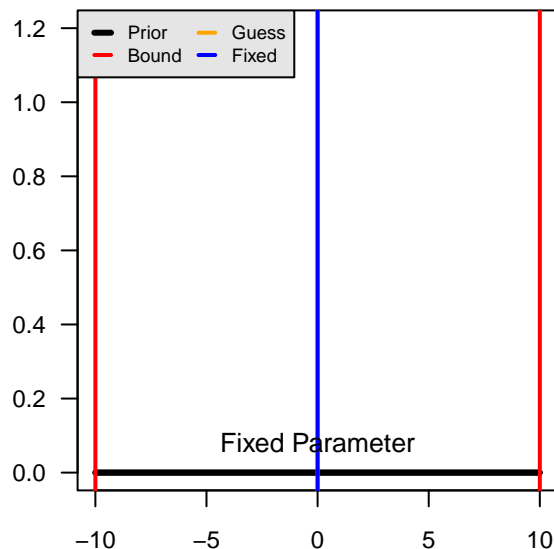


Likelihood



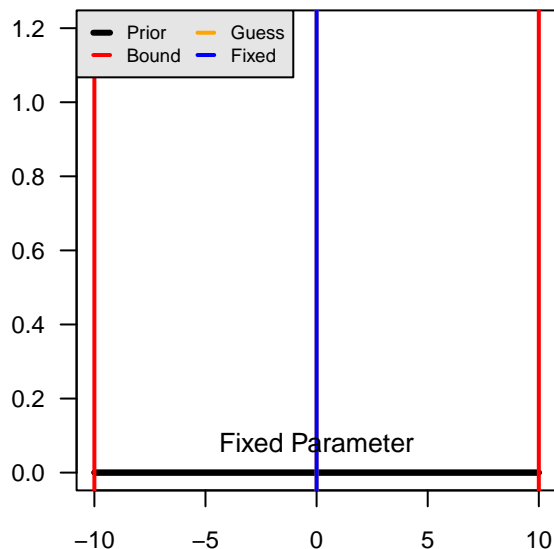
`selpar_age4_cRs4_logit`

Likelihood



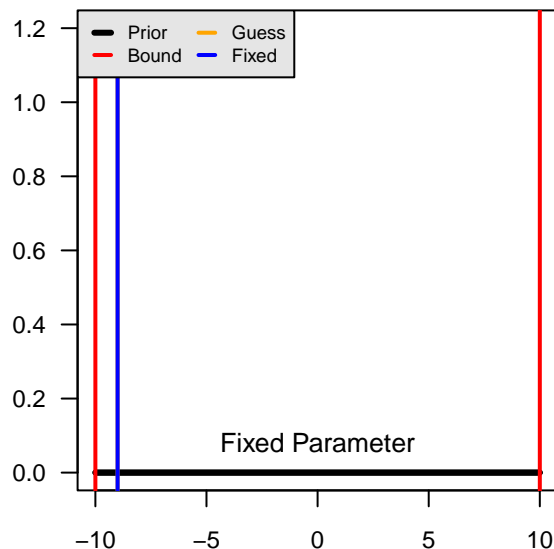
`selpar_age5_cRs4_logit`

Likelihood



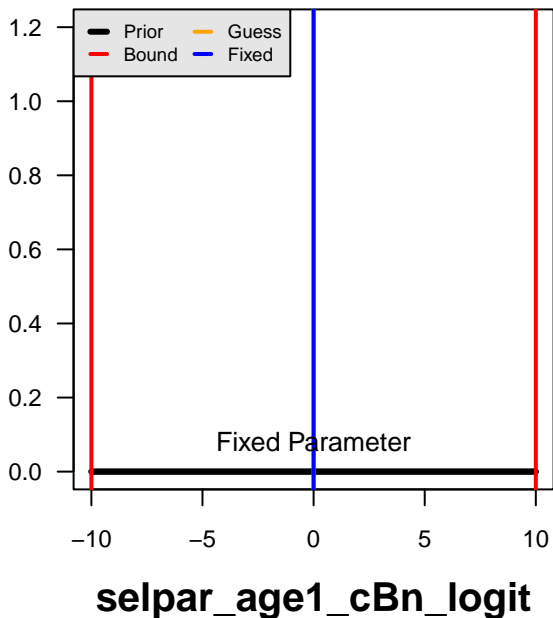
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Likelihood

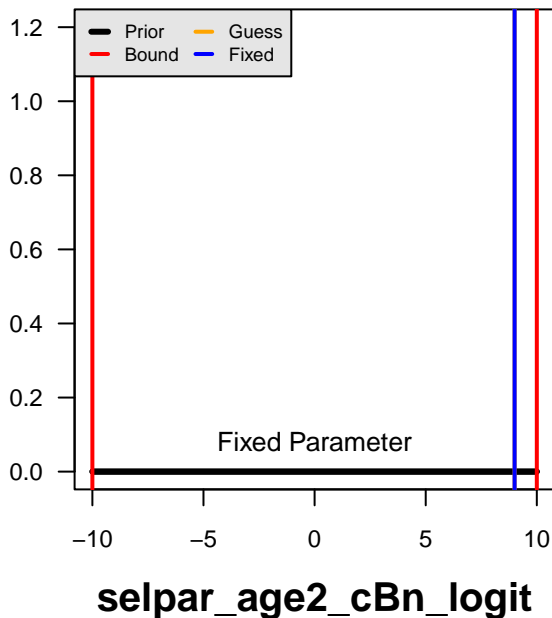


`selpar_age0_cBn_logit`

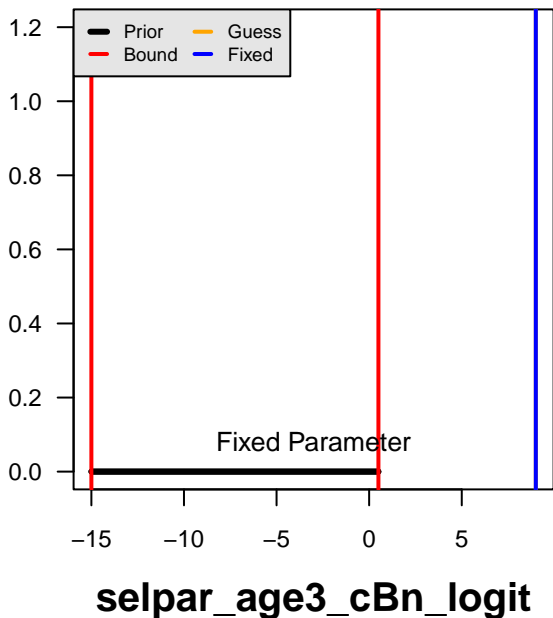
Likelihood



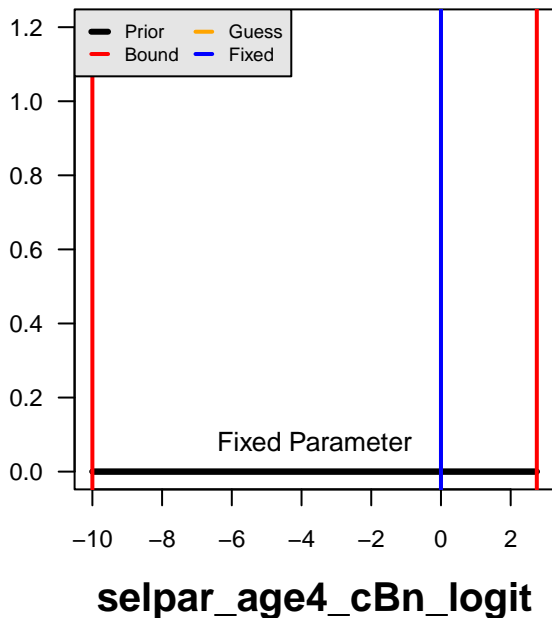
Likelihood

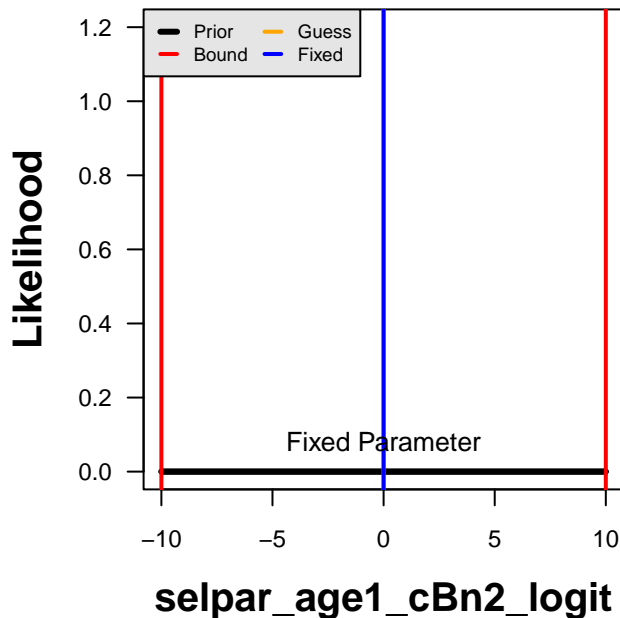
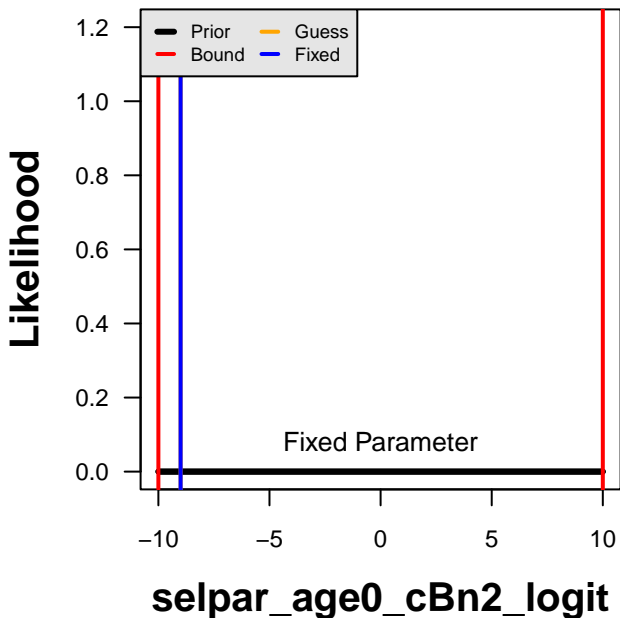
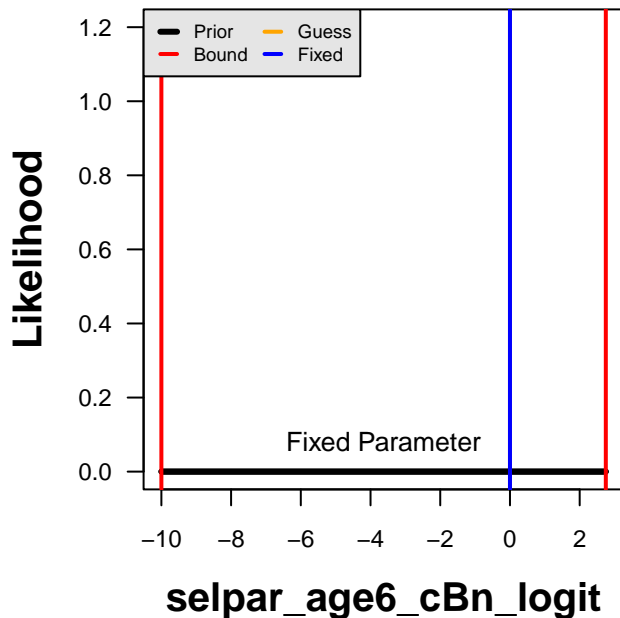
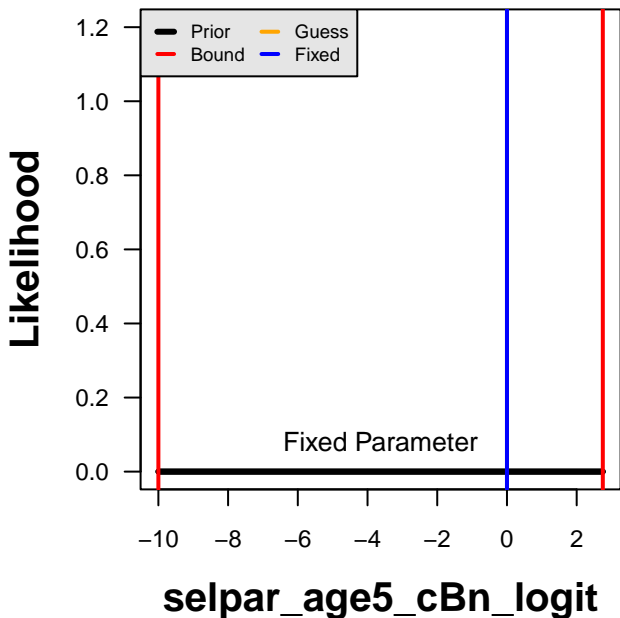


Likelihood

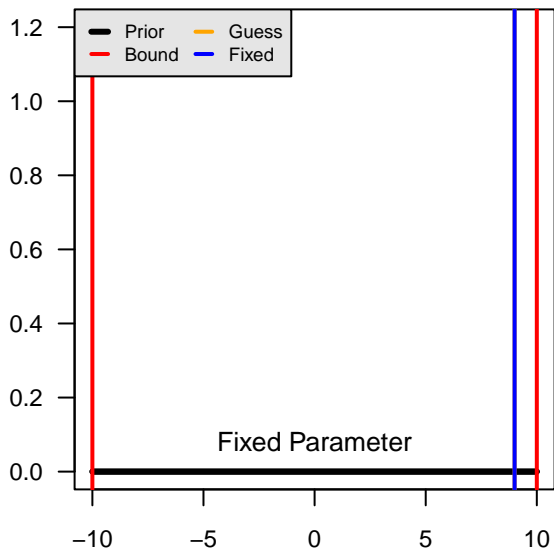


Likelihood



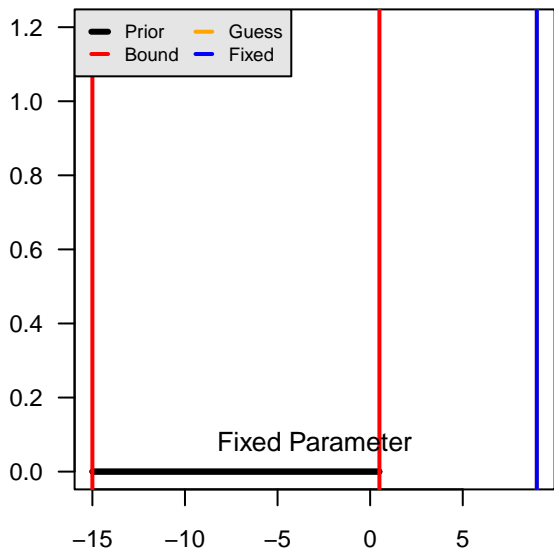


Likelihood



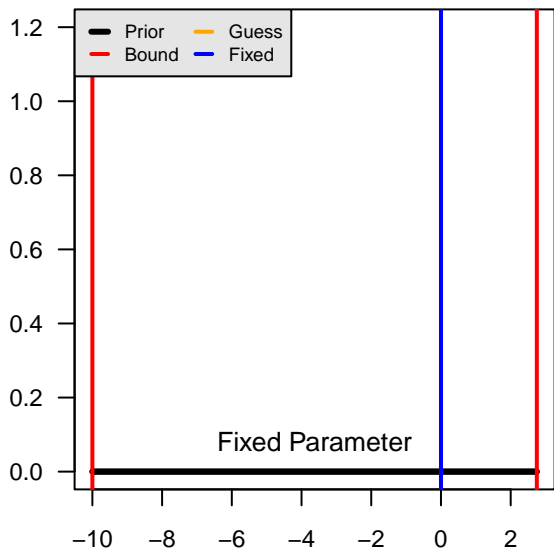
selpar_age2_cBn2_logit

Likelihood



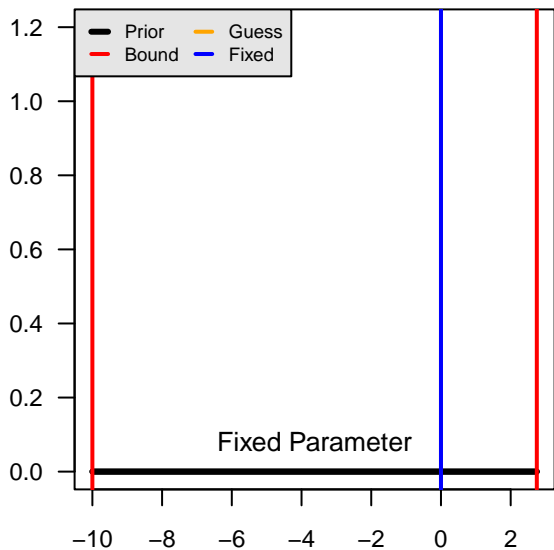
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Likelihood



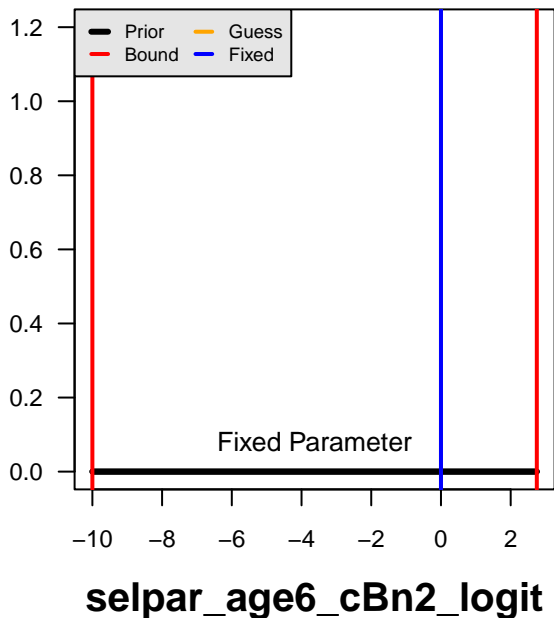
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Likelihood

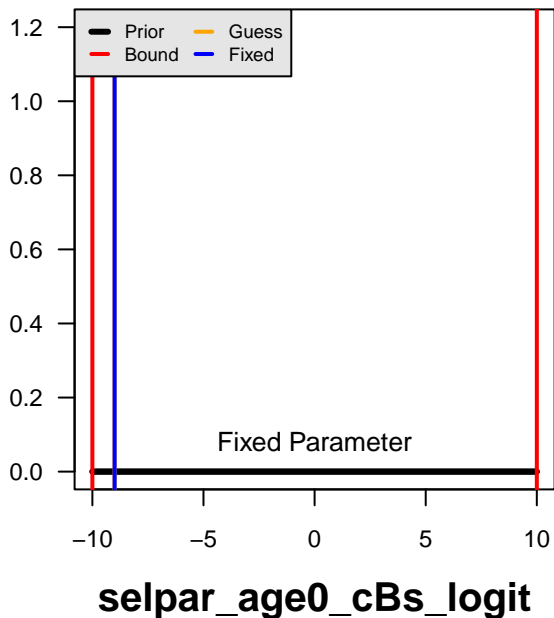


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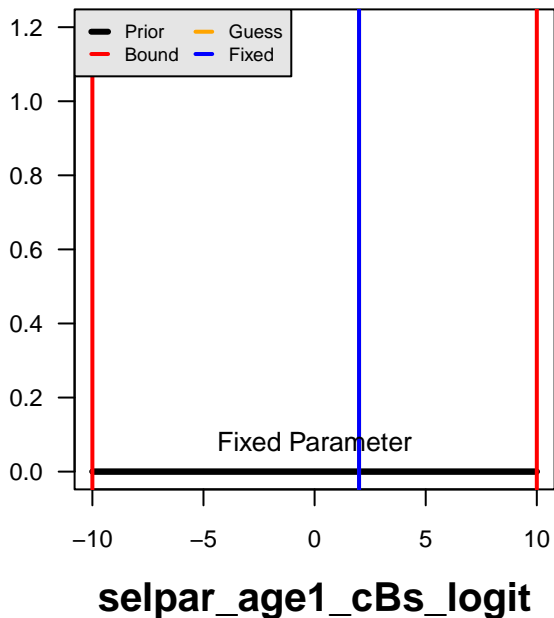
Likelihood



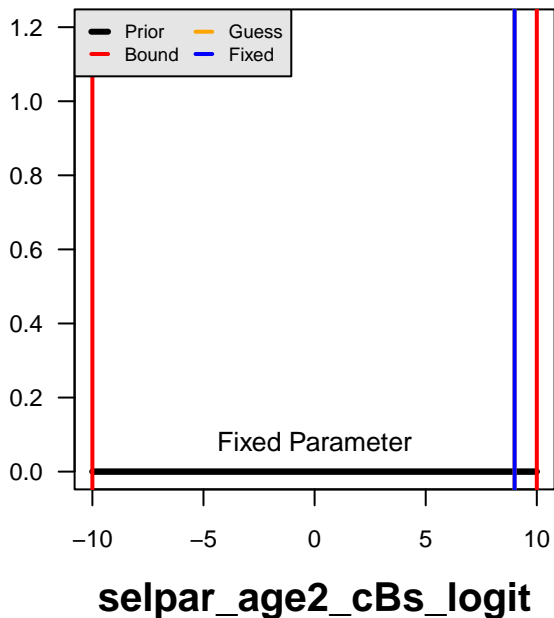
Likelihood



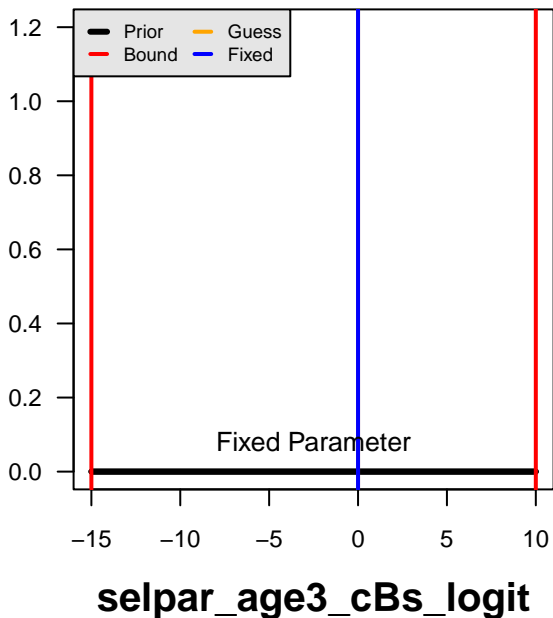
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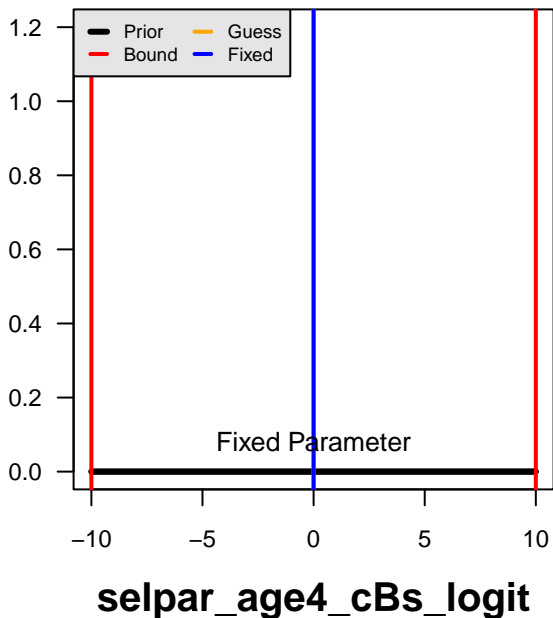
Likelihood



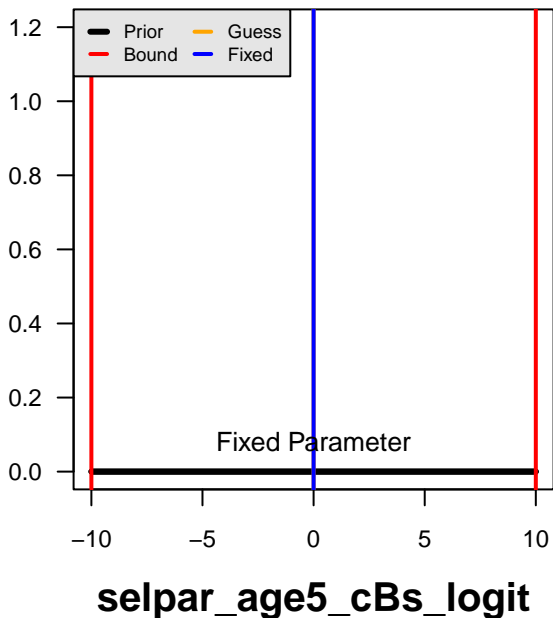
Likelihood



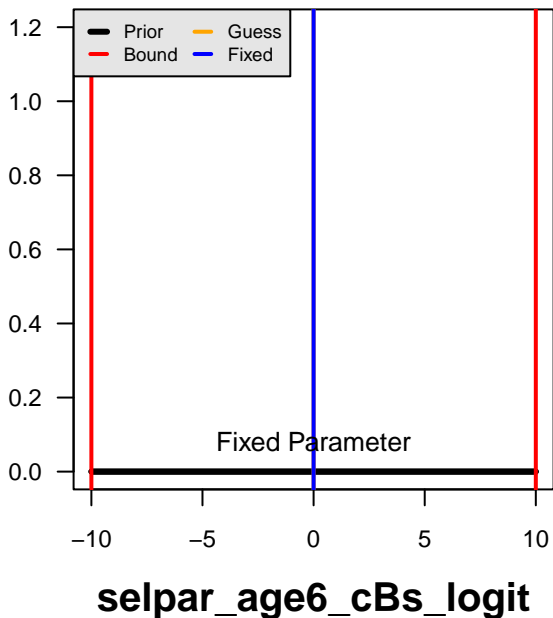
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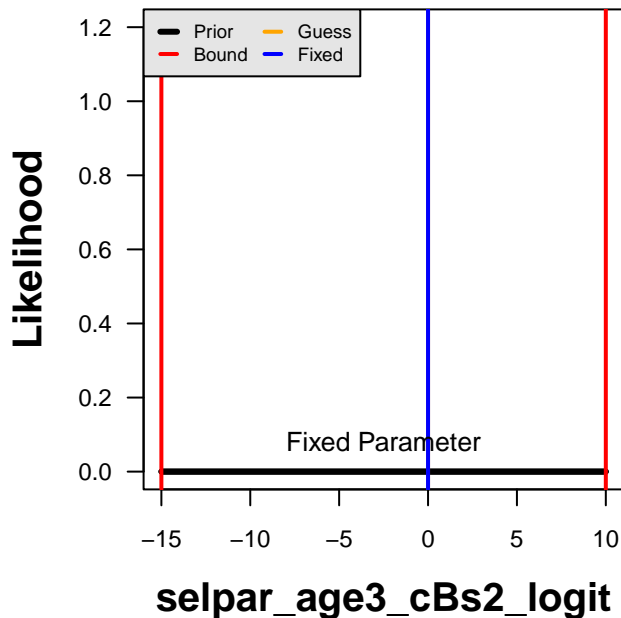
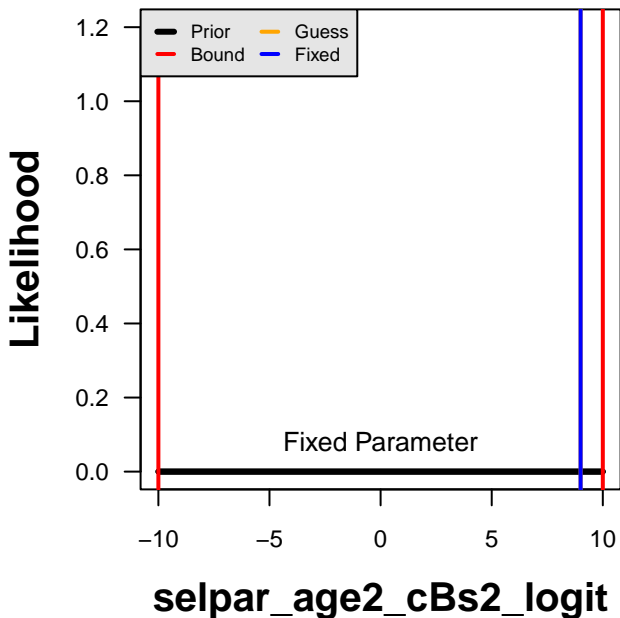
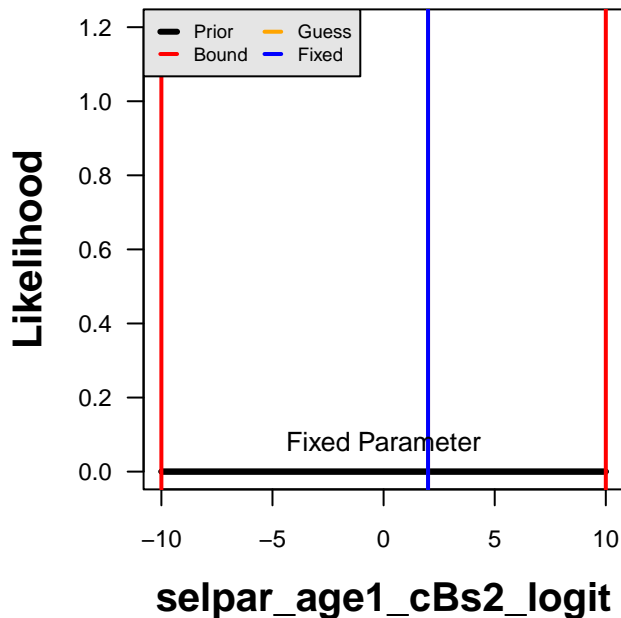
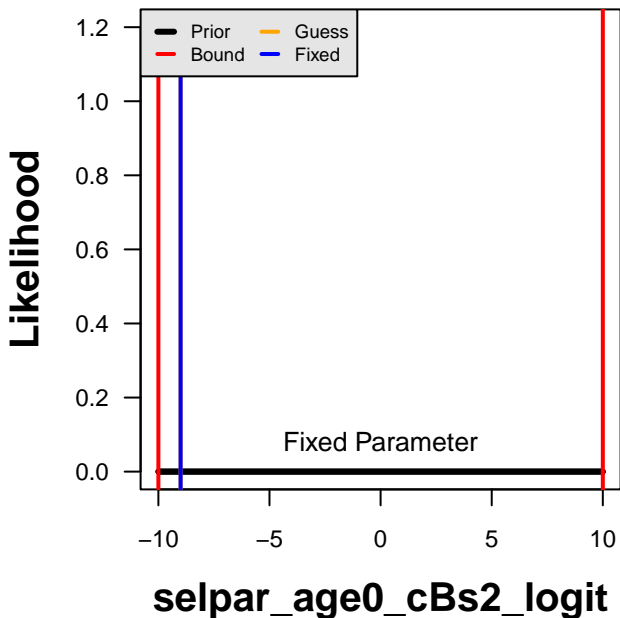


Likelihood

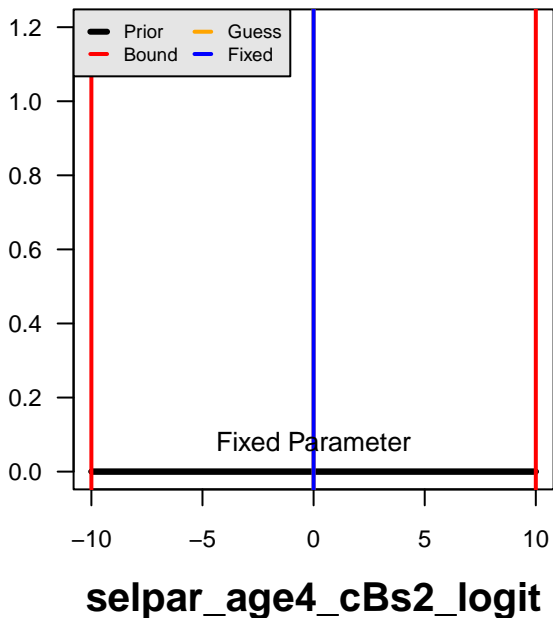


Likelihood

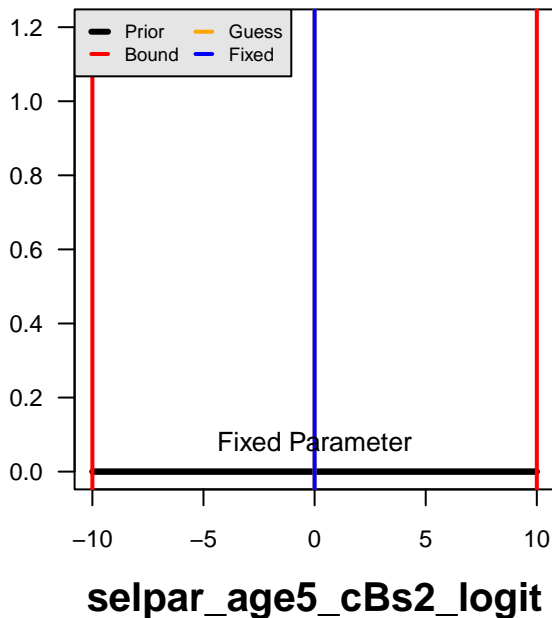




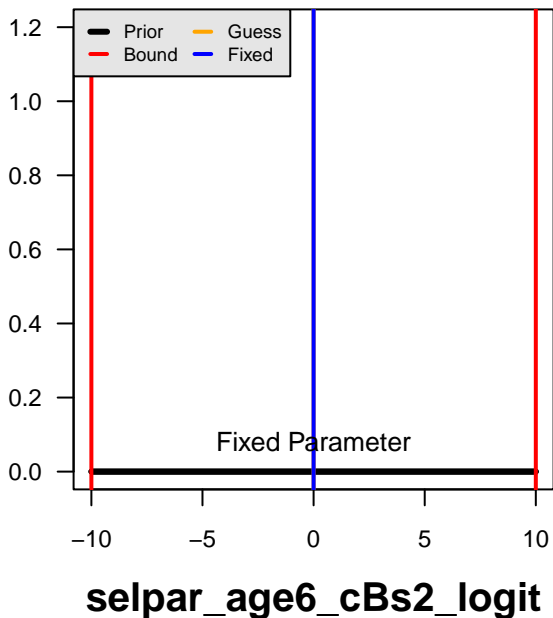
Likelihood



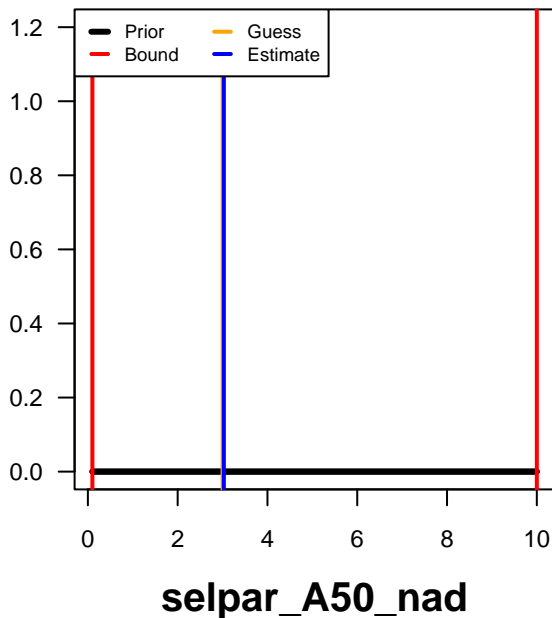
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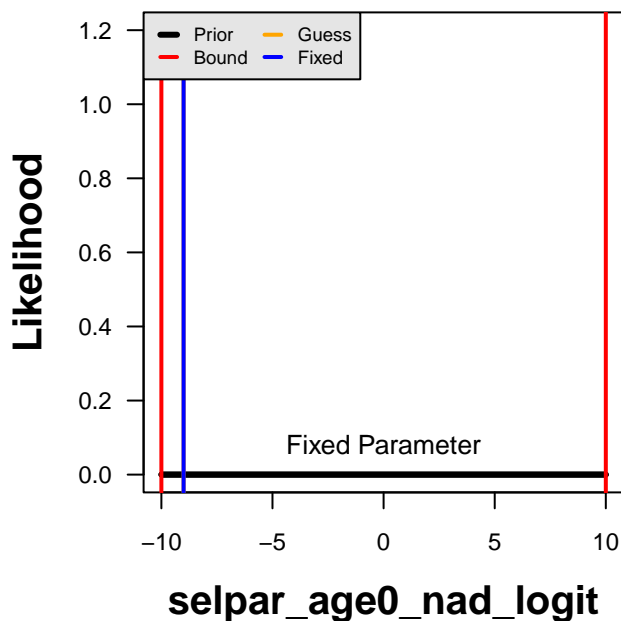
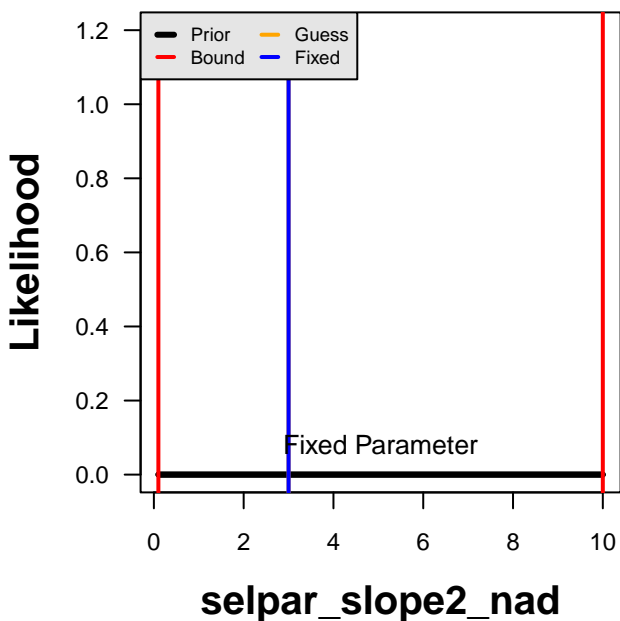
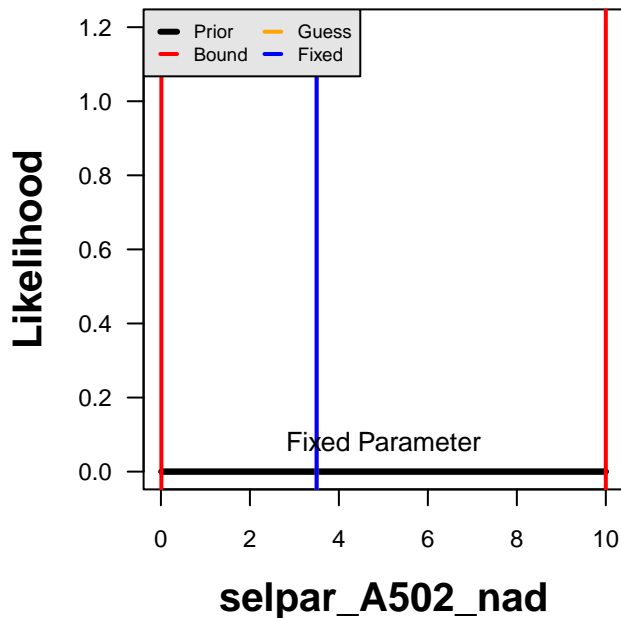
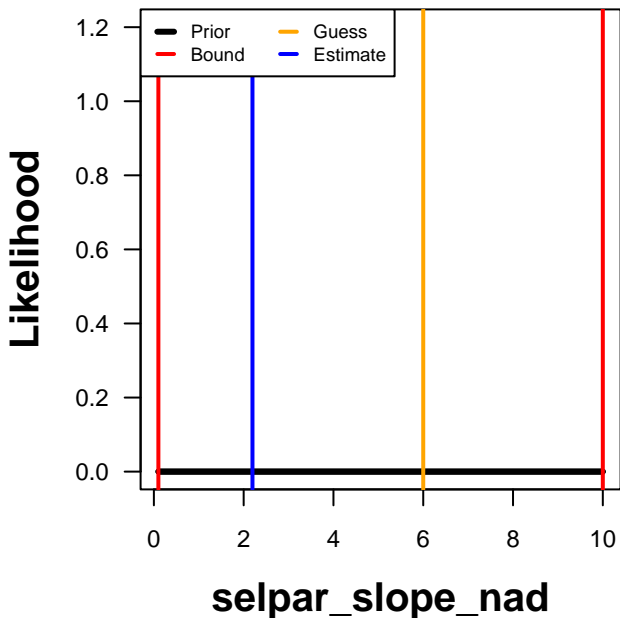


Likelihood

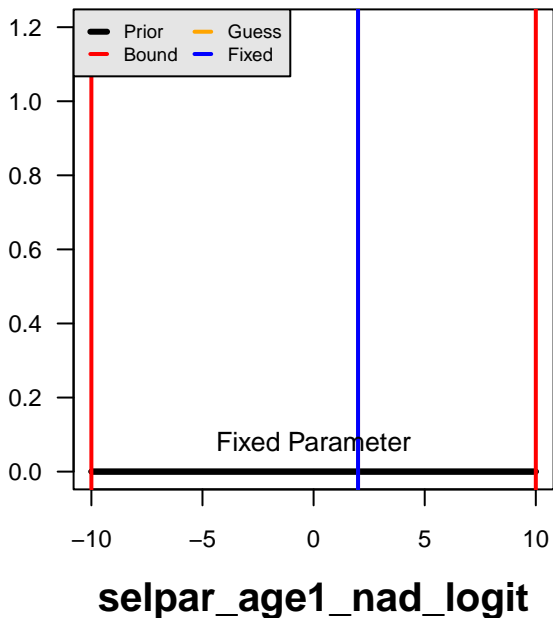


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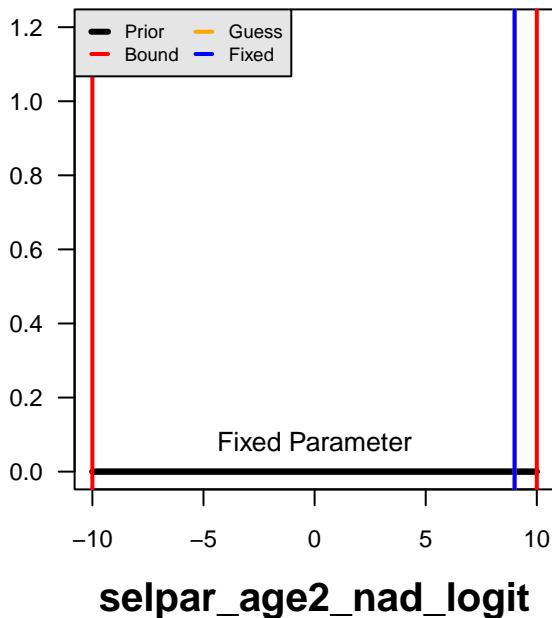




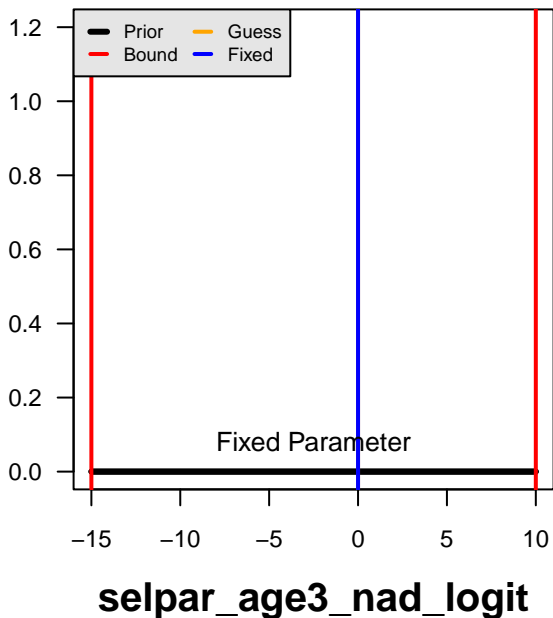
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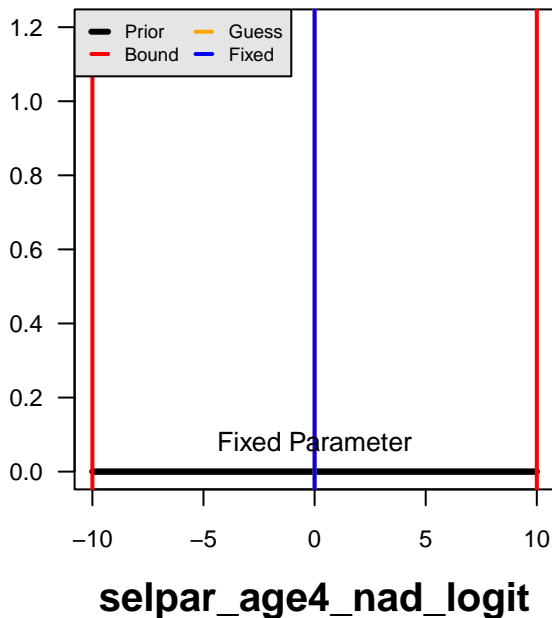
Likelihood



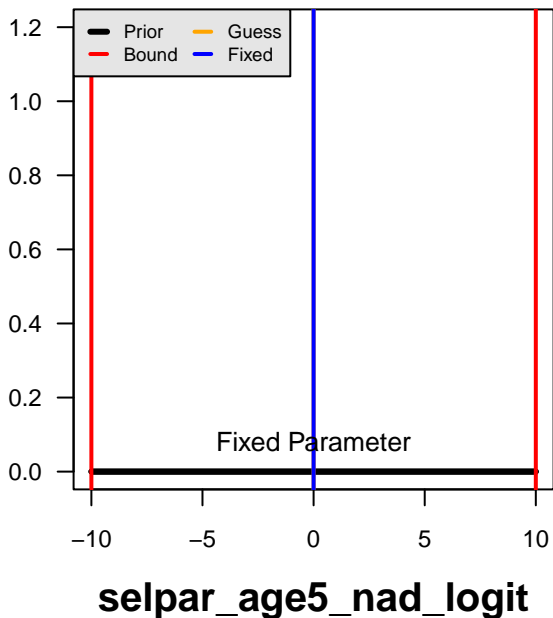
Likelihood



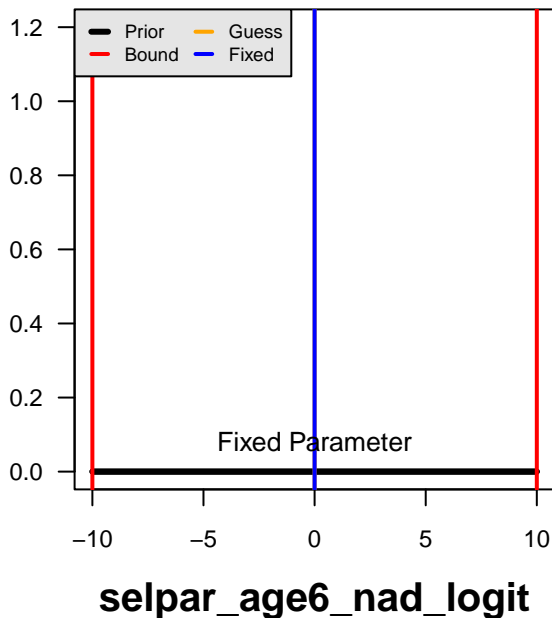
Likelihood



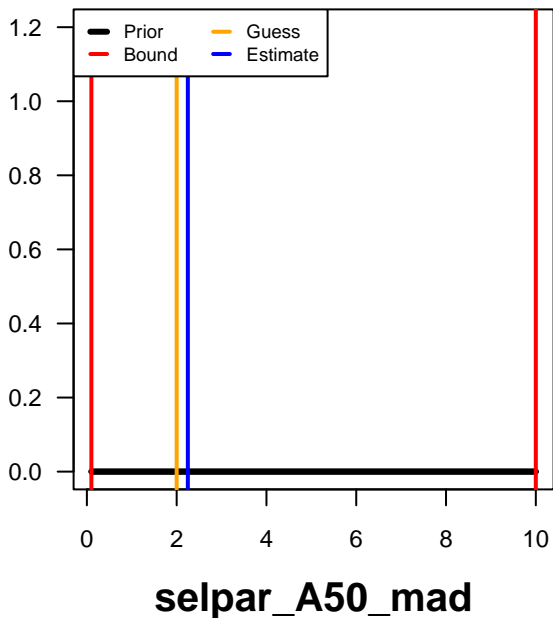
Likelihood



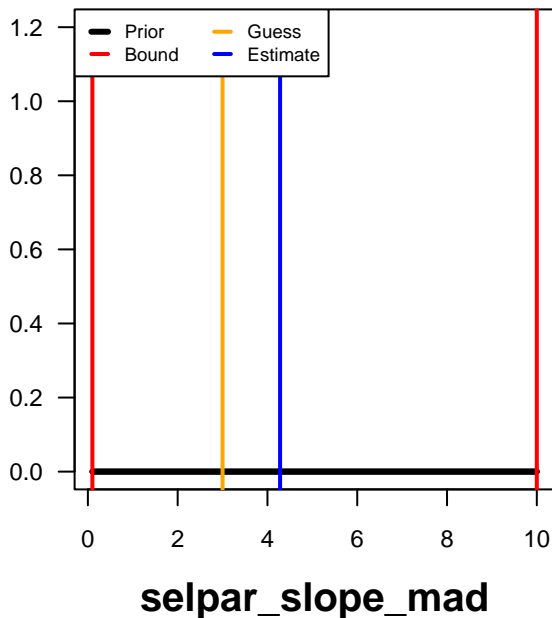
Likelihood

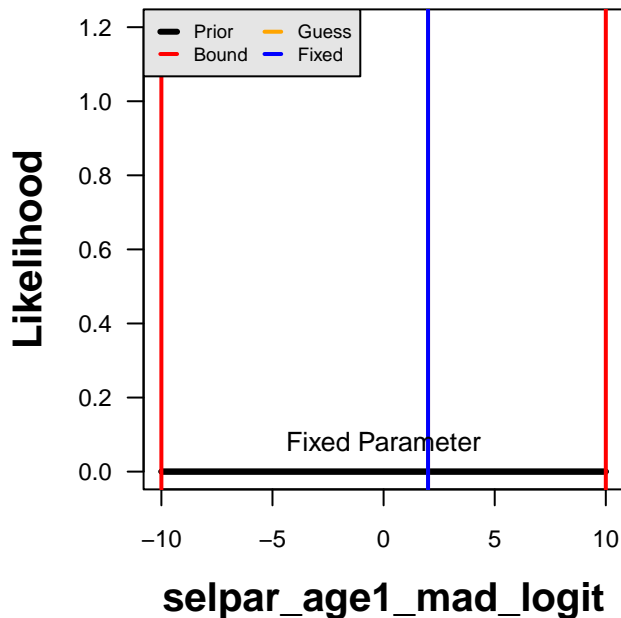
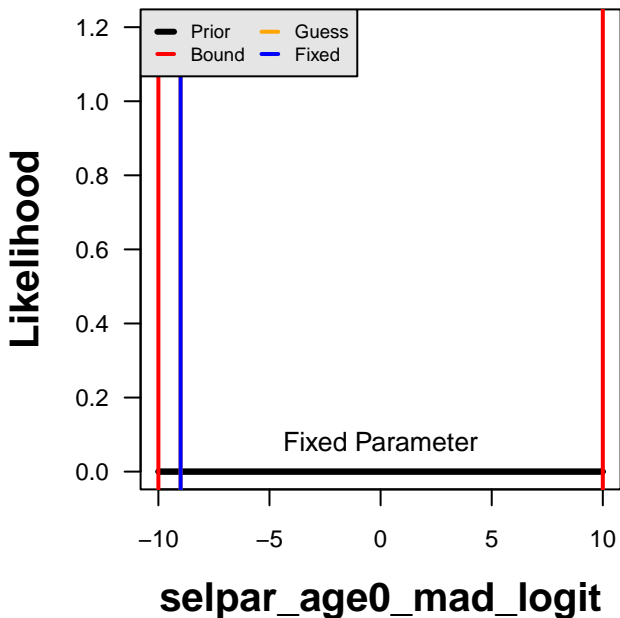
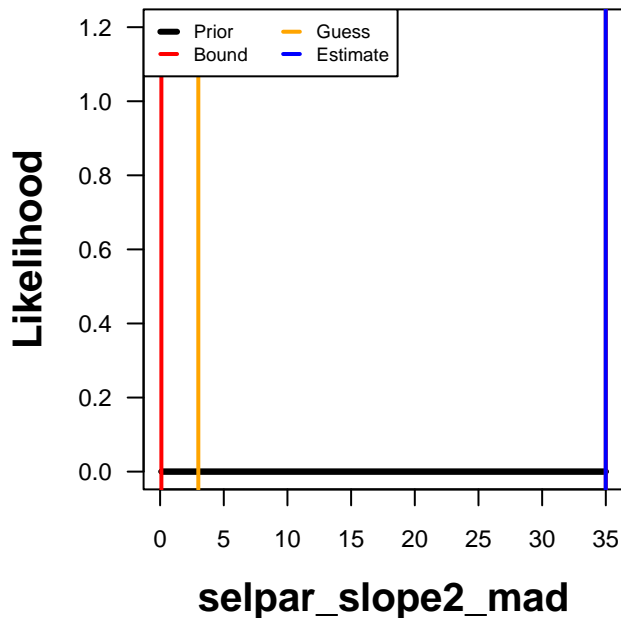
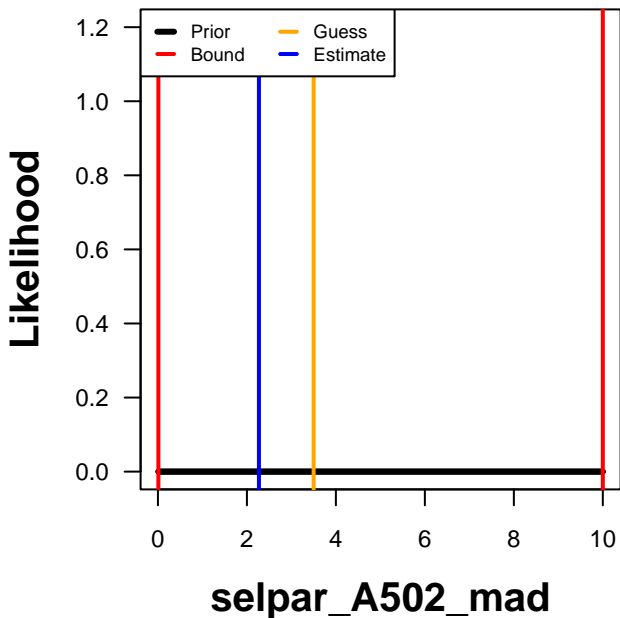


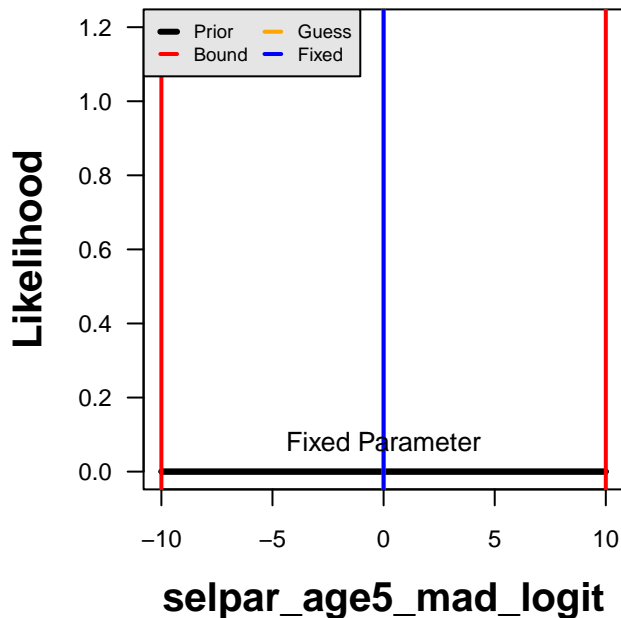
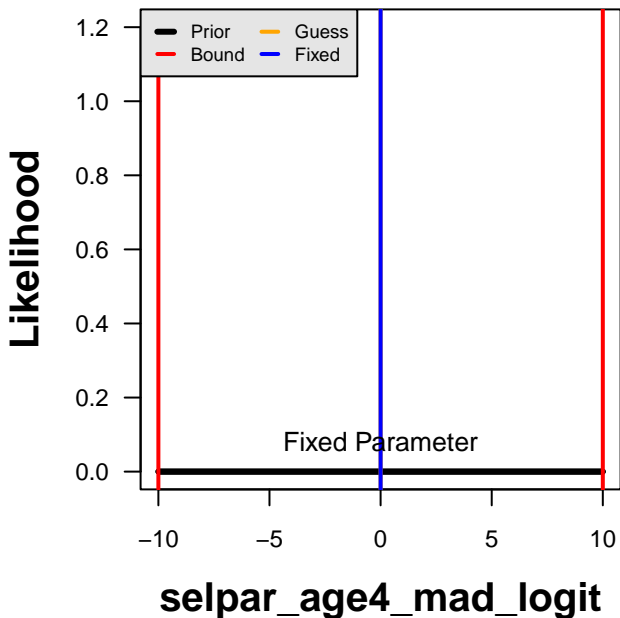
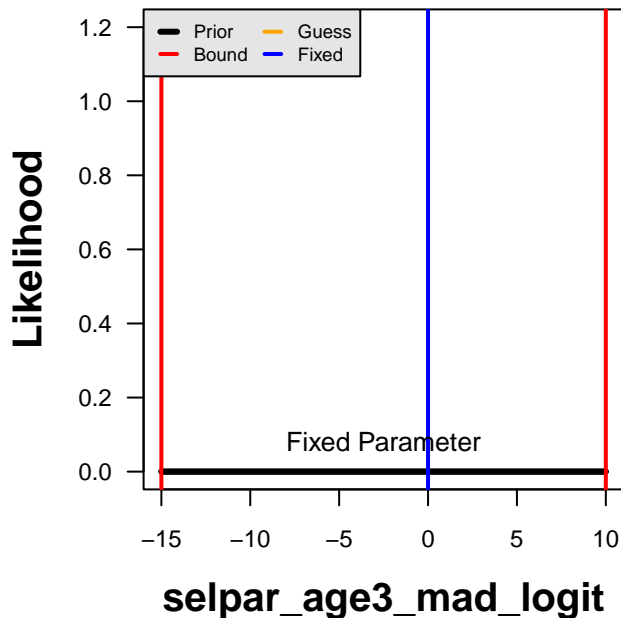
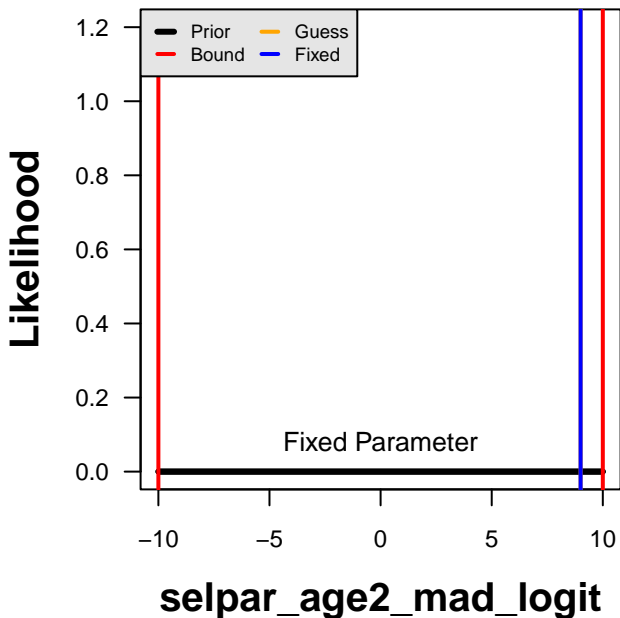
Likelihood



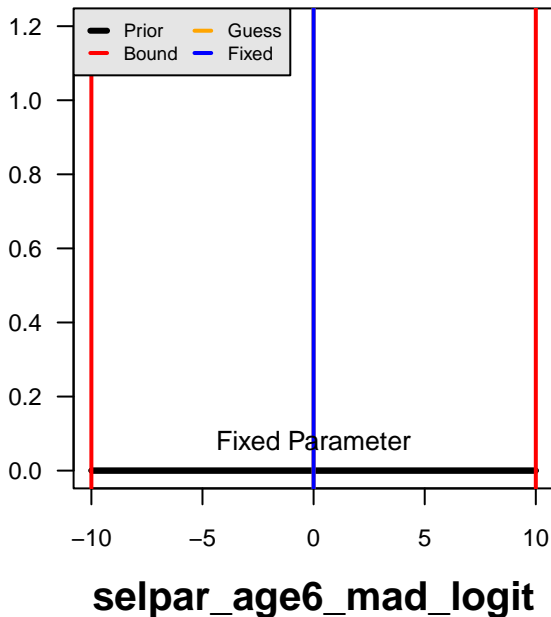
Likelihood



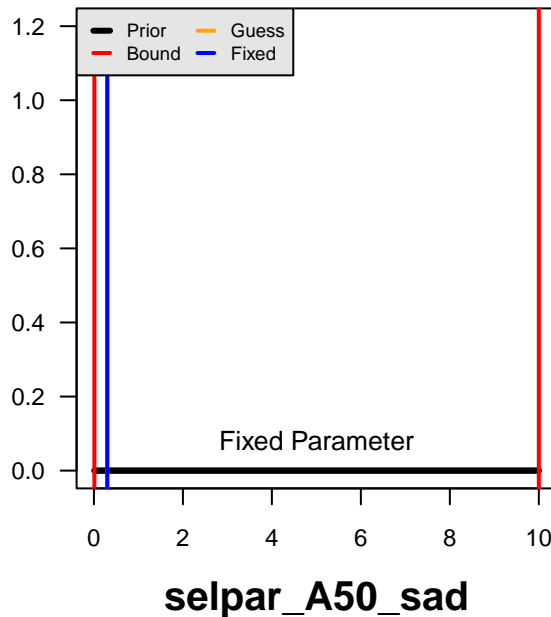




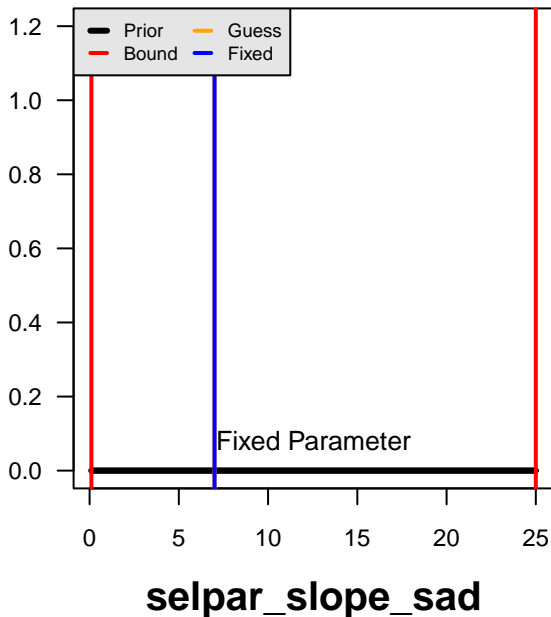
Likelihood



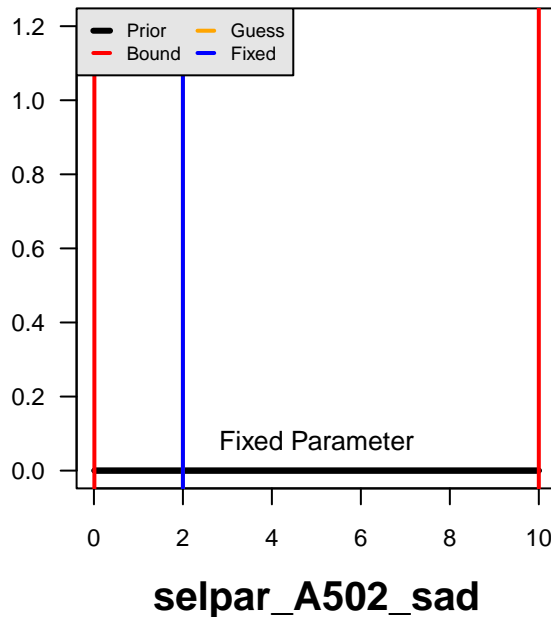
Likelihood



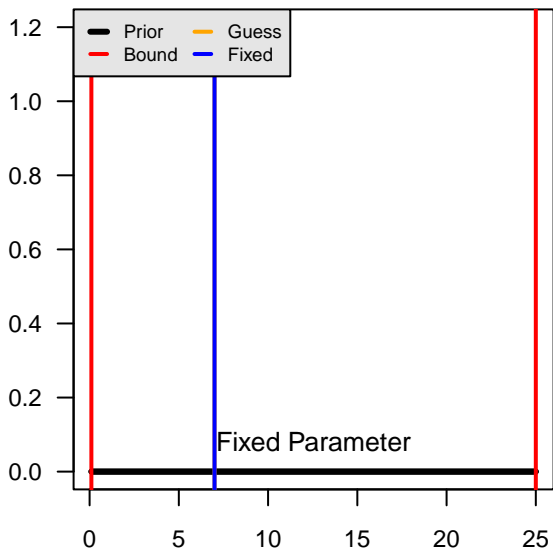
Likelihood



Likelihood

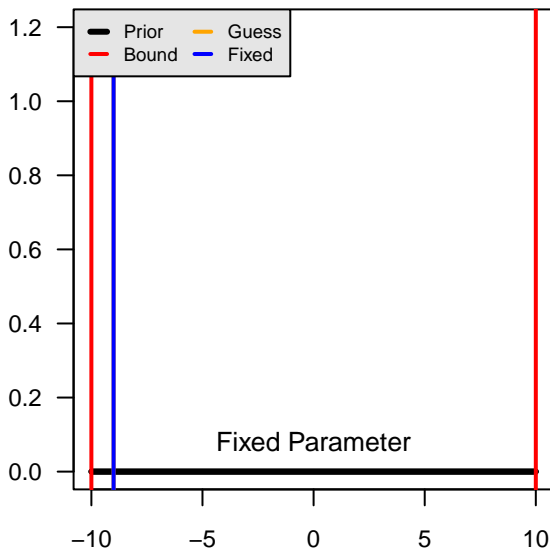


Likelihood



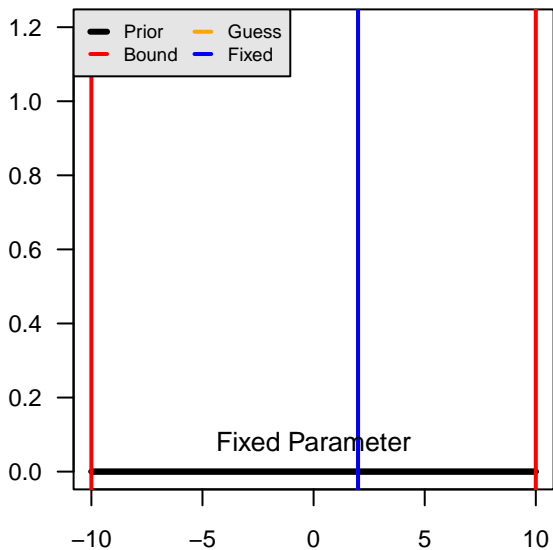
`selpar_slope2_sad`

Likelihood



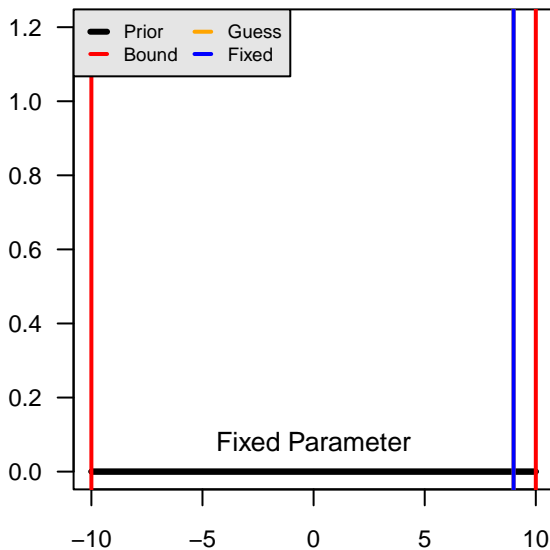
`selpar_age0_sad_logit`

Likelihood

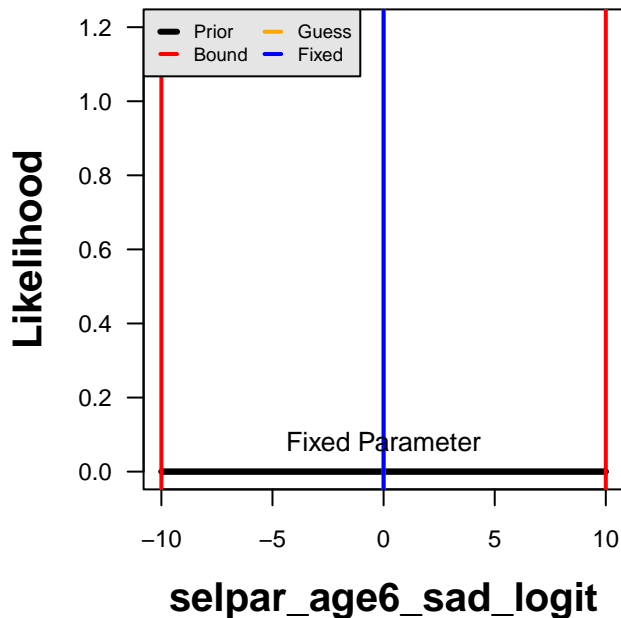
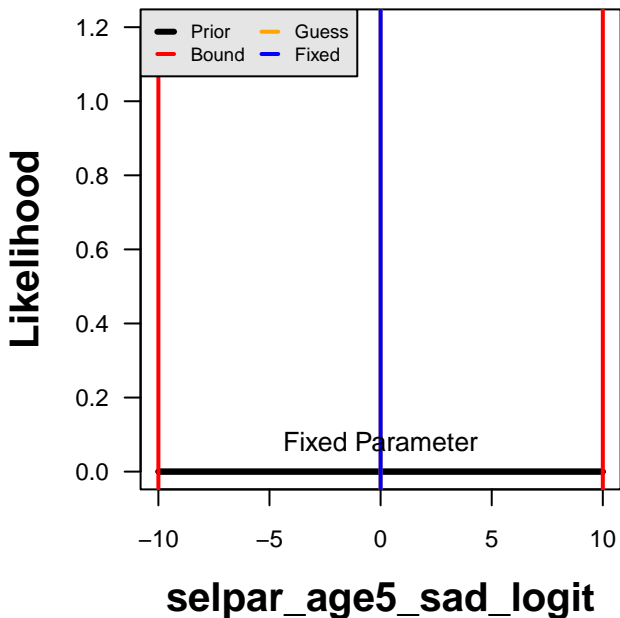
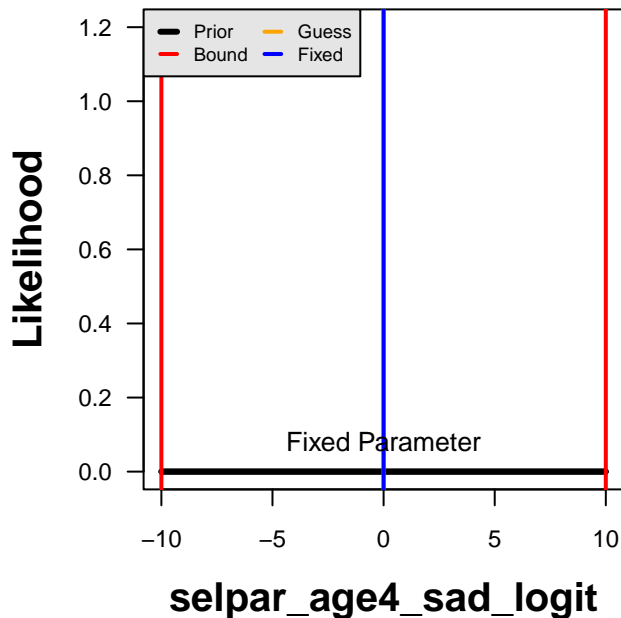
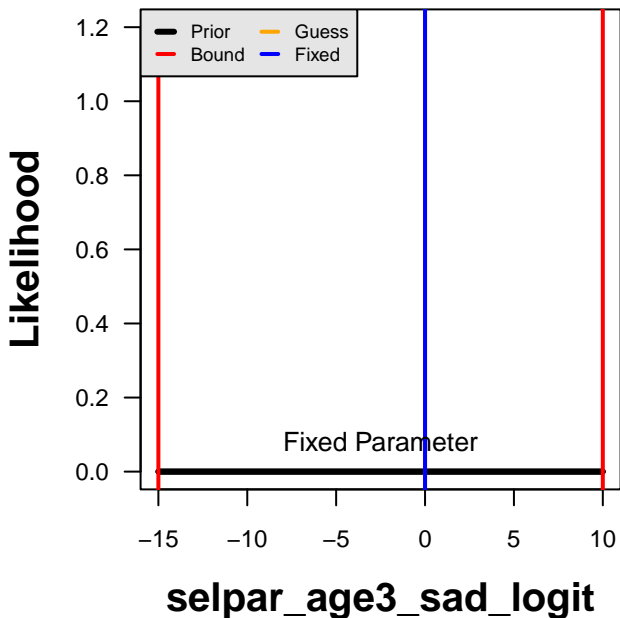


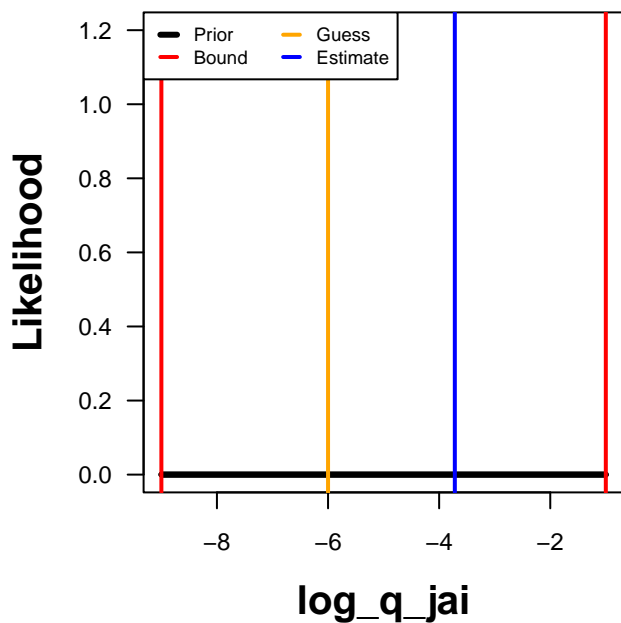
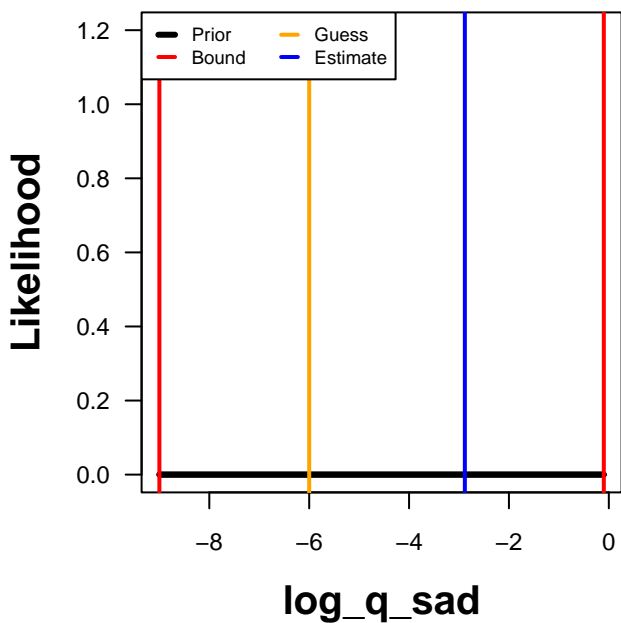
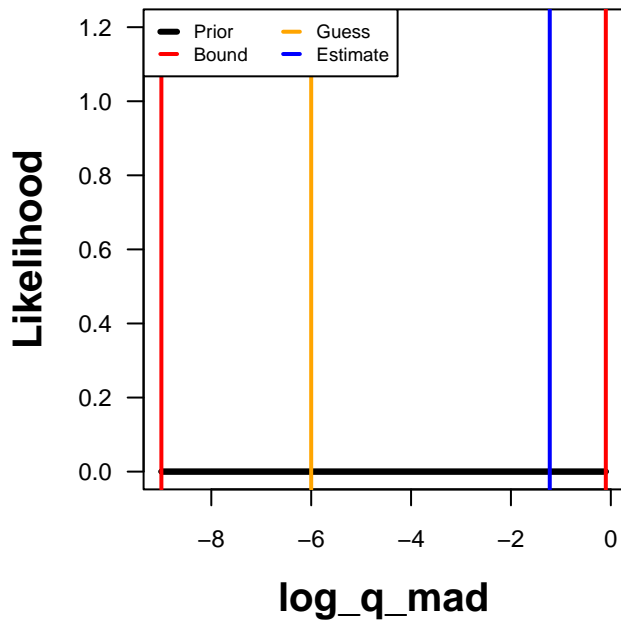
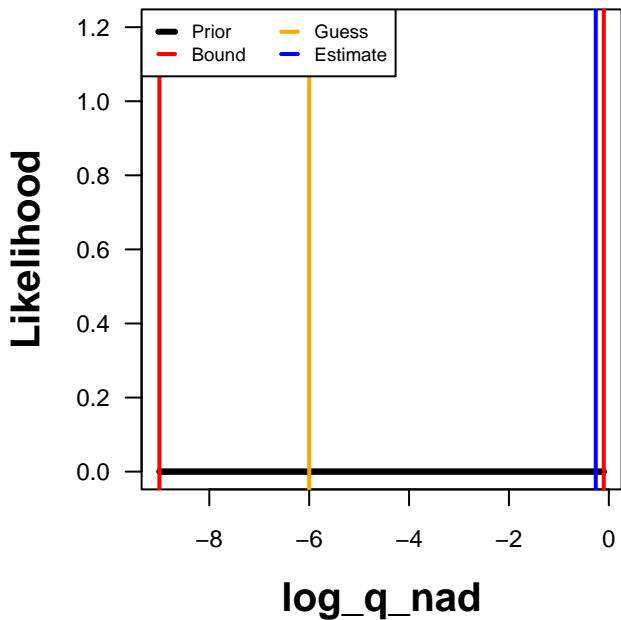
`selpar_age1_sad_logit`

Likelihood

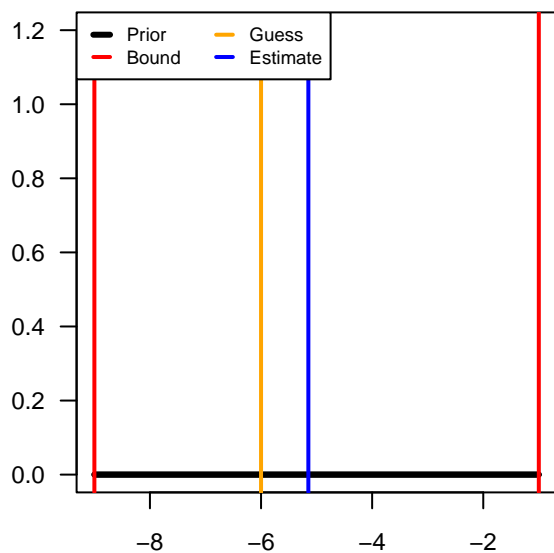


`selpar_age2_sad_logit`



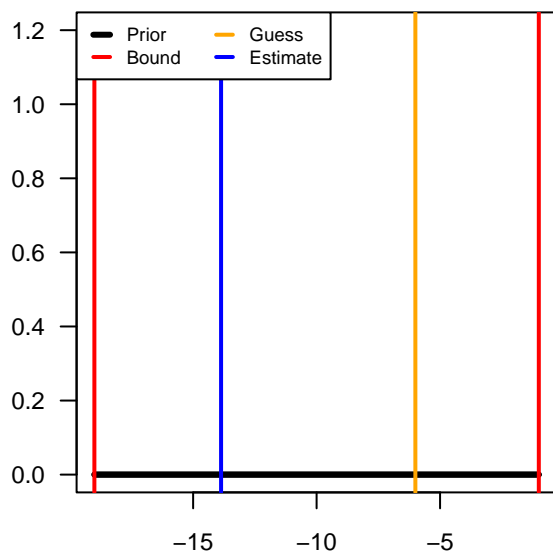


Likelihood



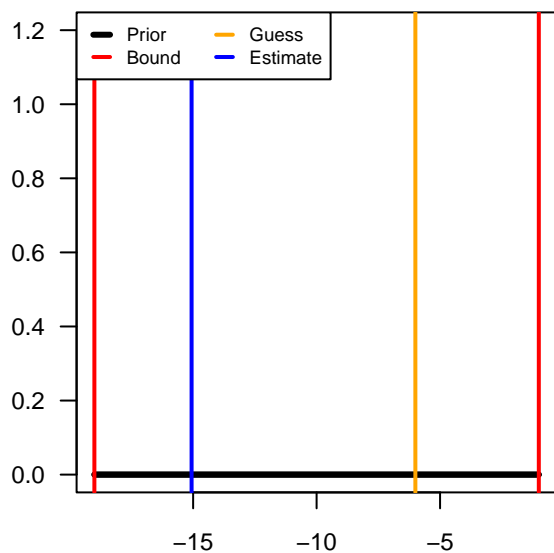
\log_q2_jai

Likelihood



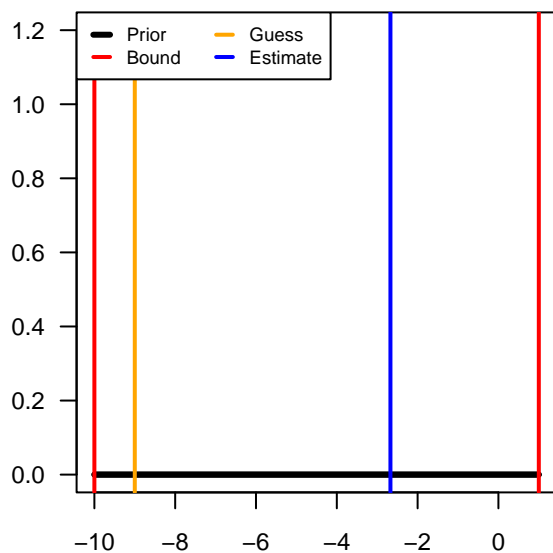
\log_q_mar

Likelihood



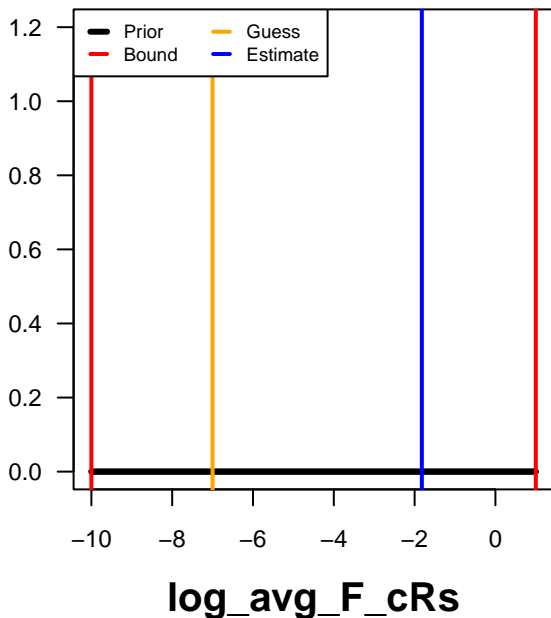
\log_q_eco

Likelihood

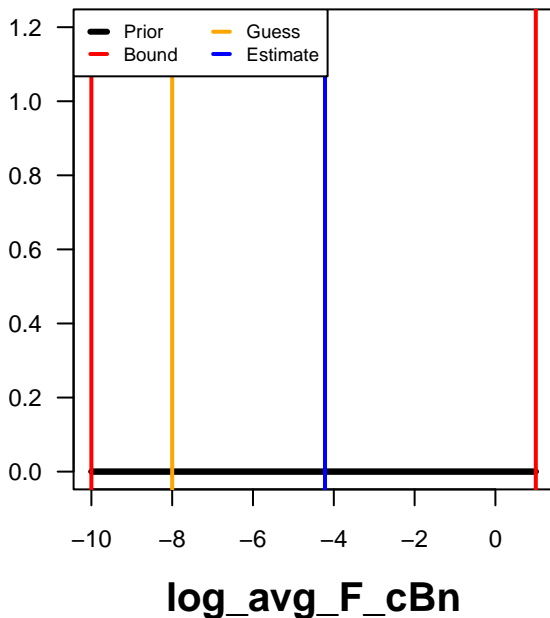


$\log_avg_F_cRn$

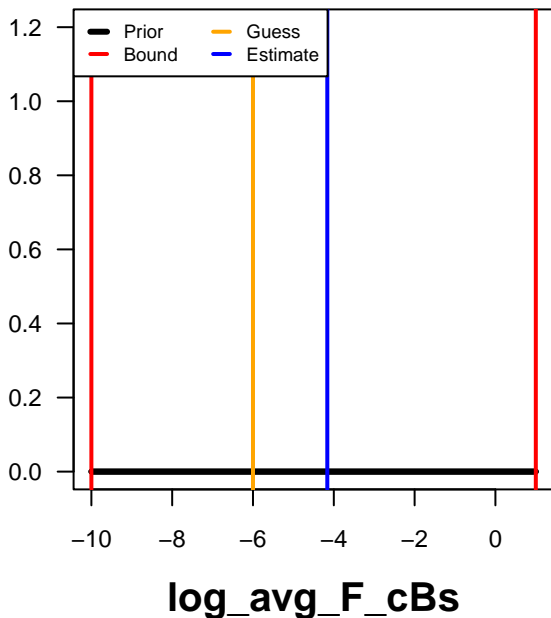
Likelihood



Likelihood



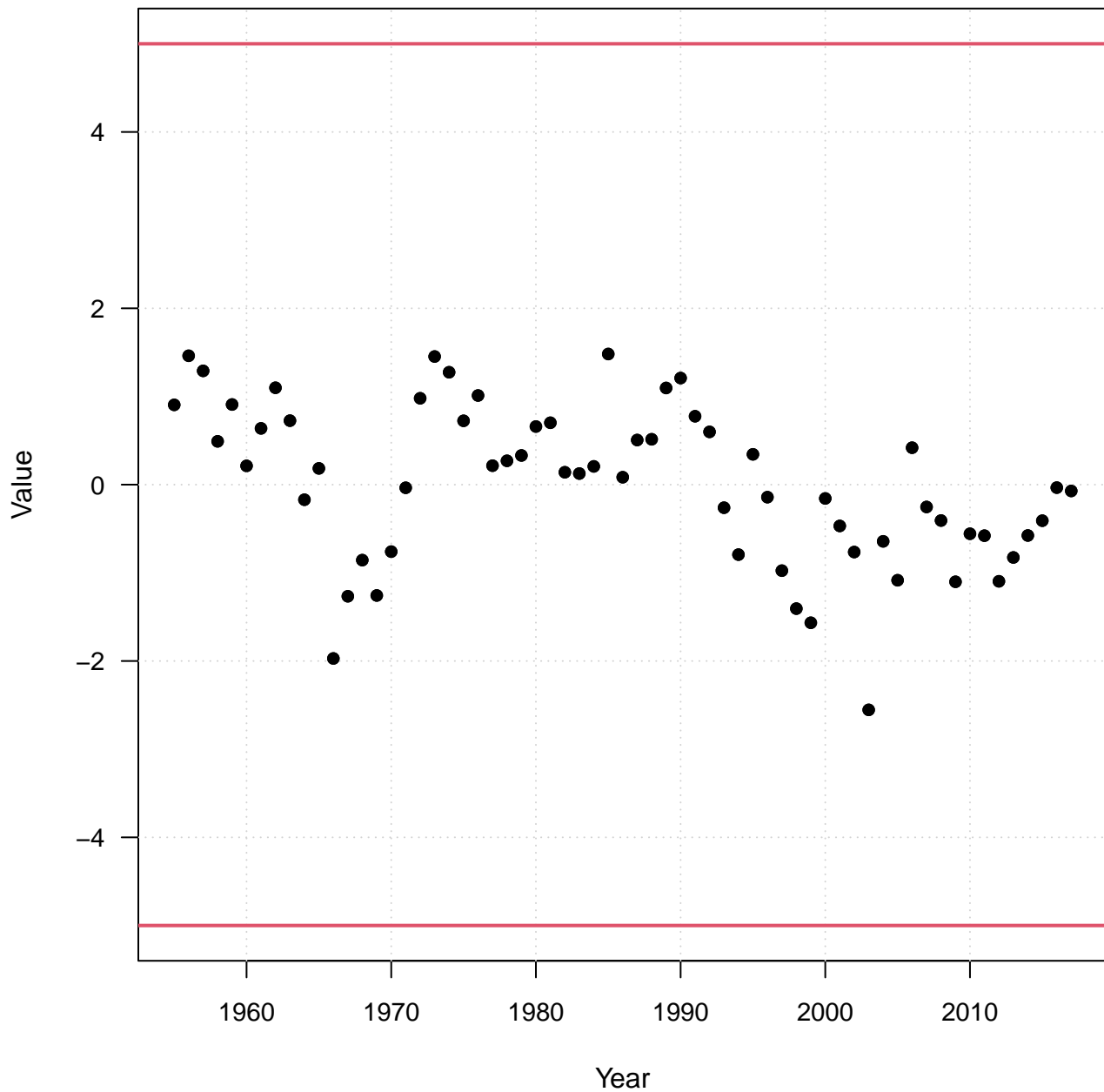
Likelihood



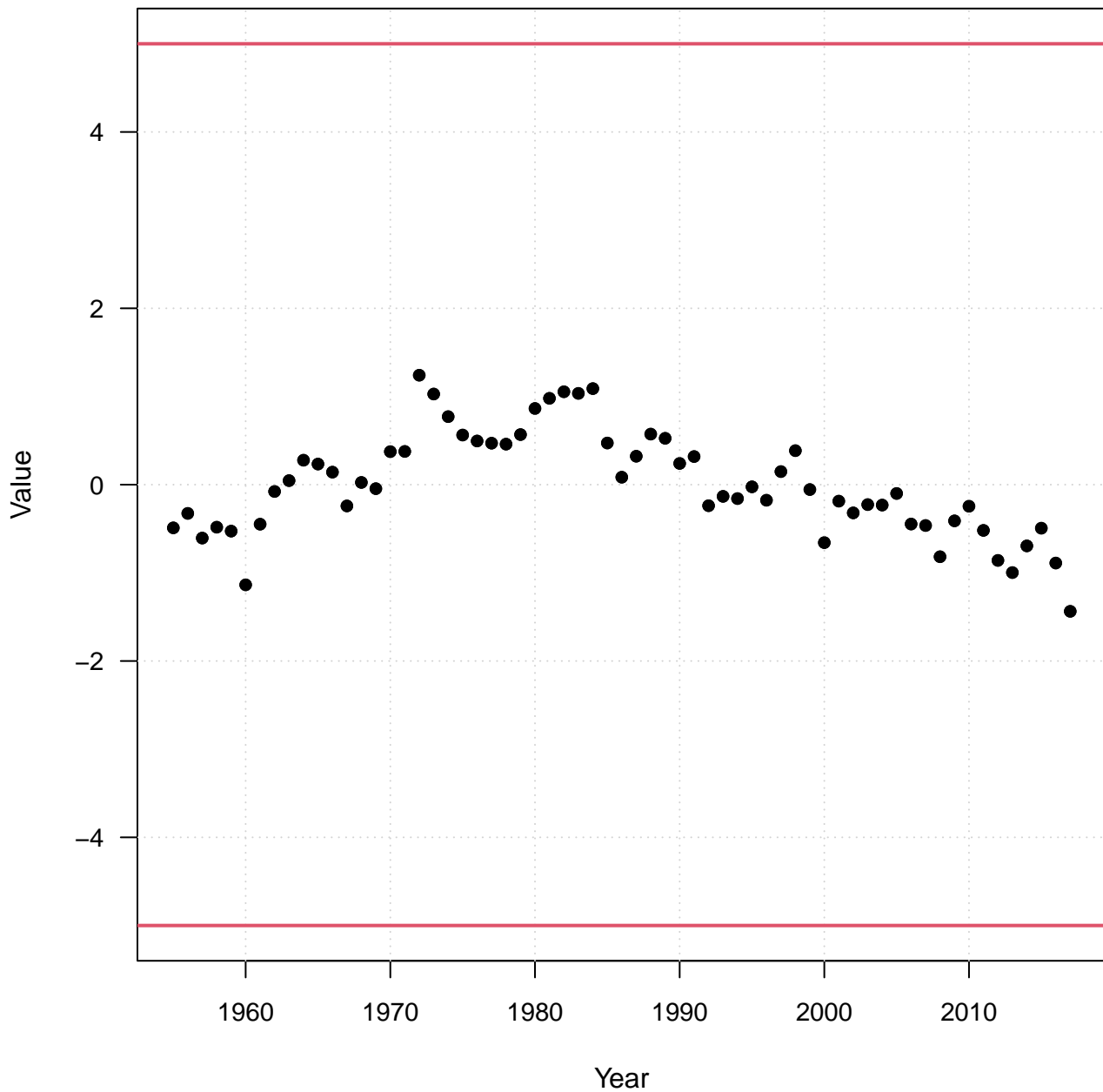
Vector: log.rec.dev



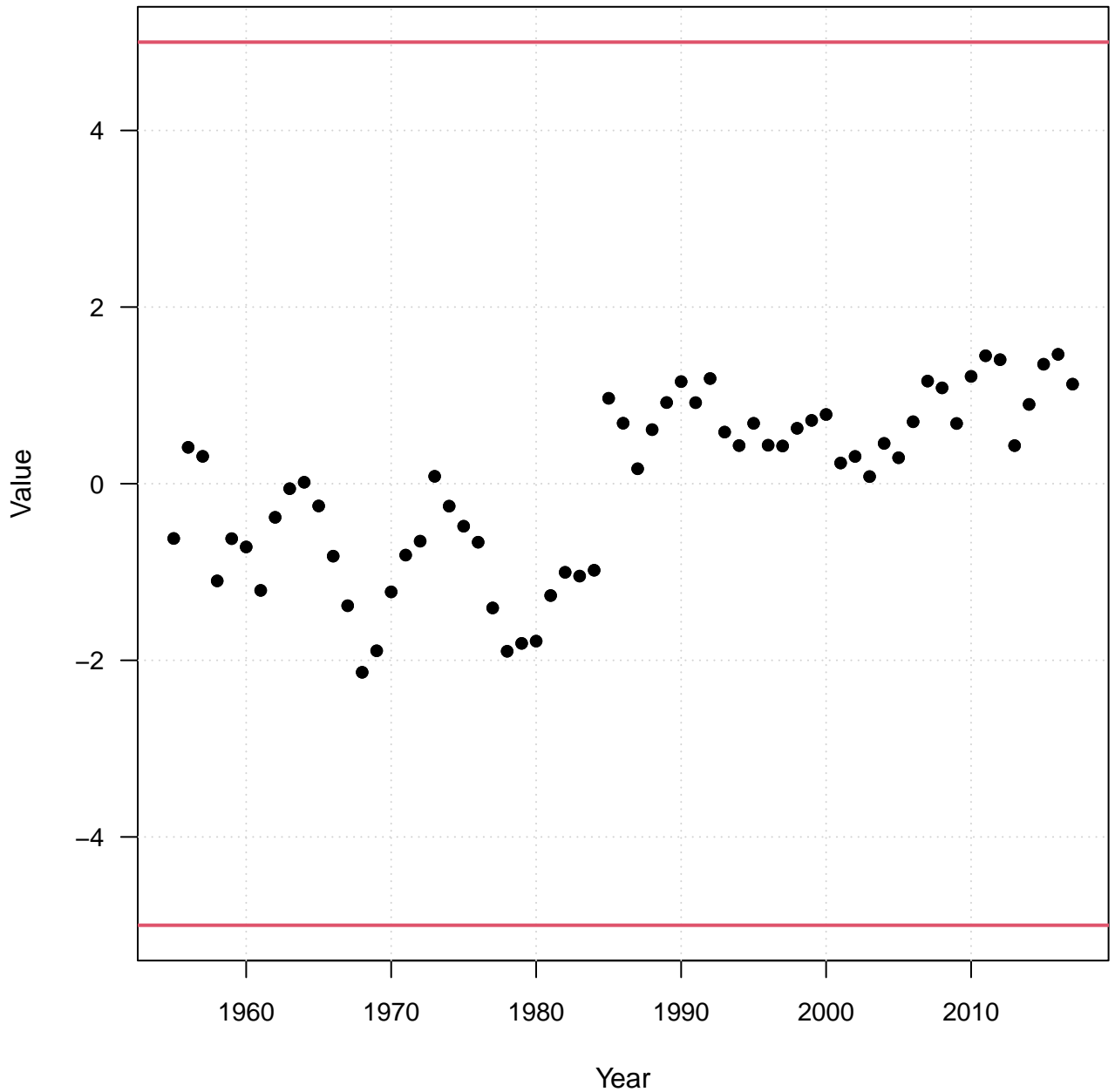
Vector: log.F.dev.cRn



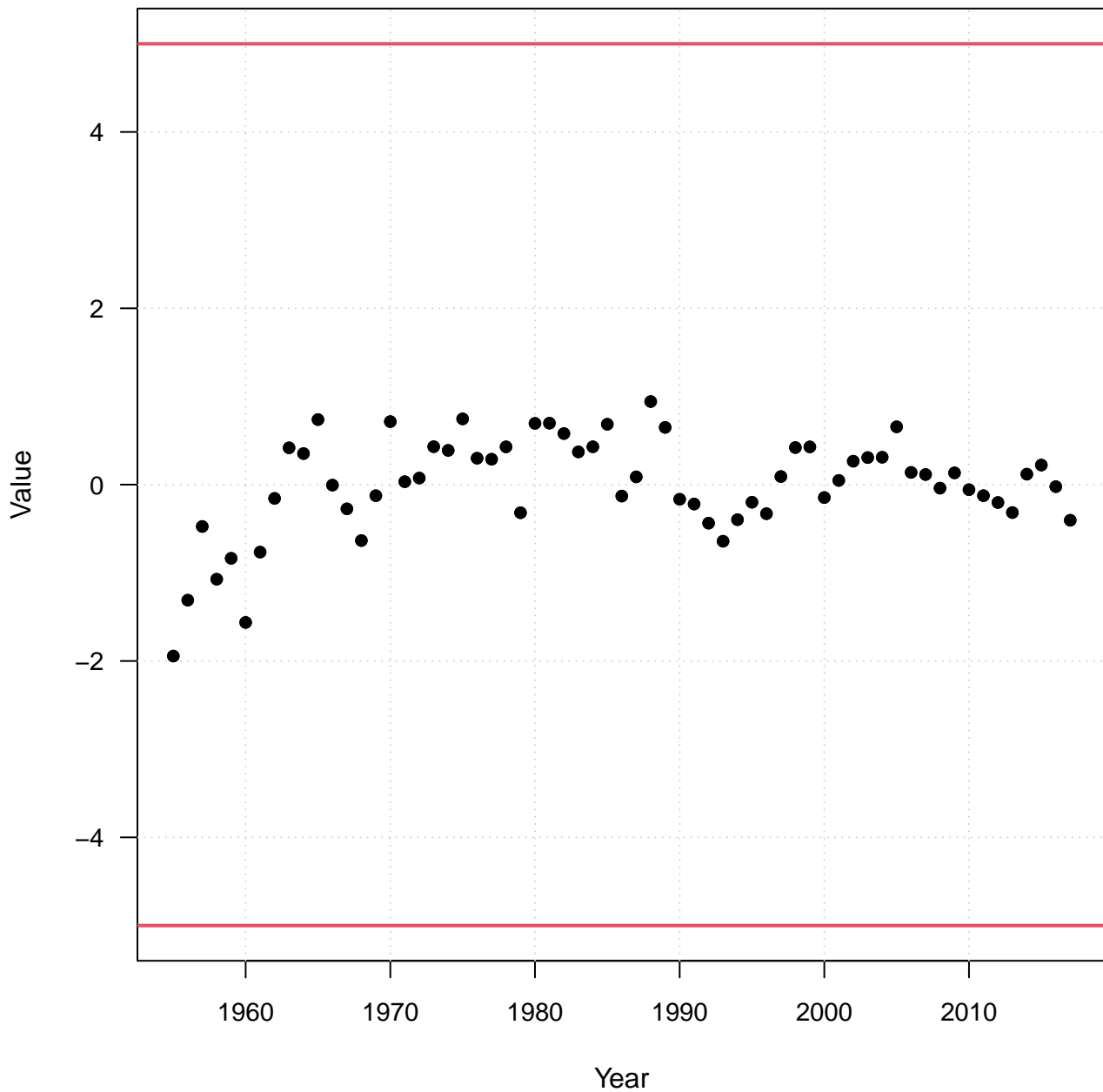
Vector: log.F.dev.cRs



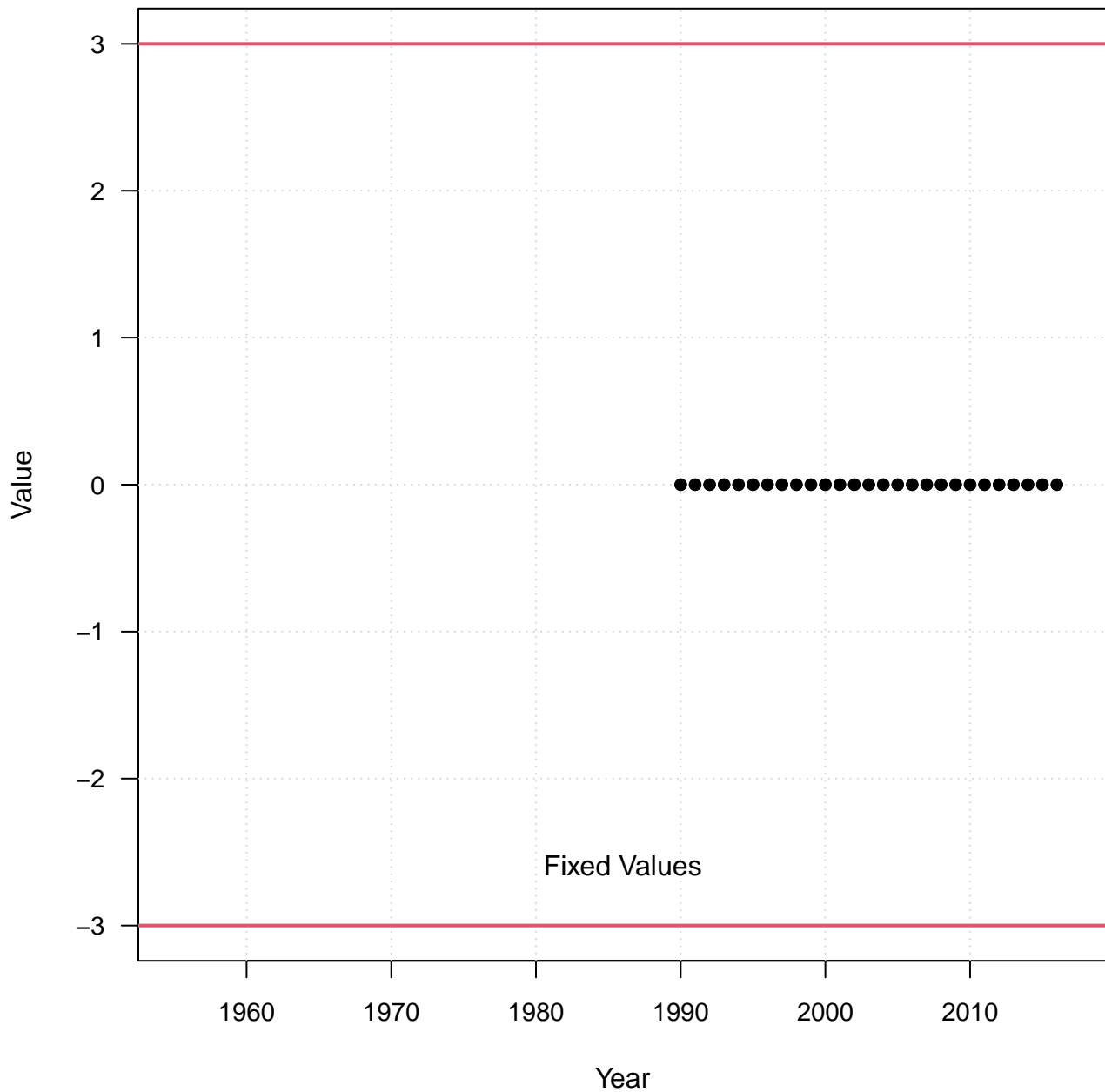
Vector: log.F.dev.cBn



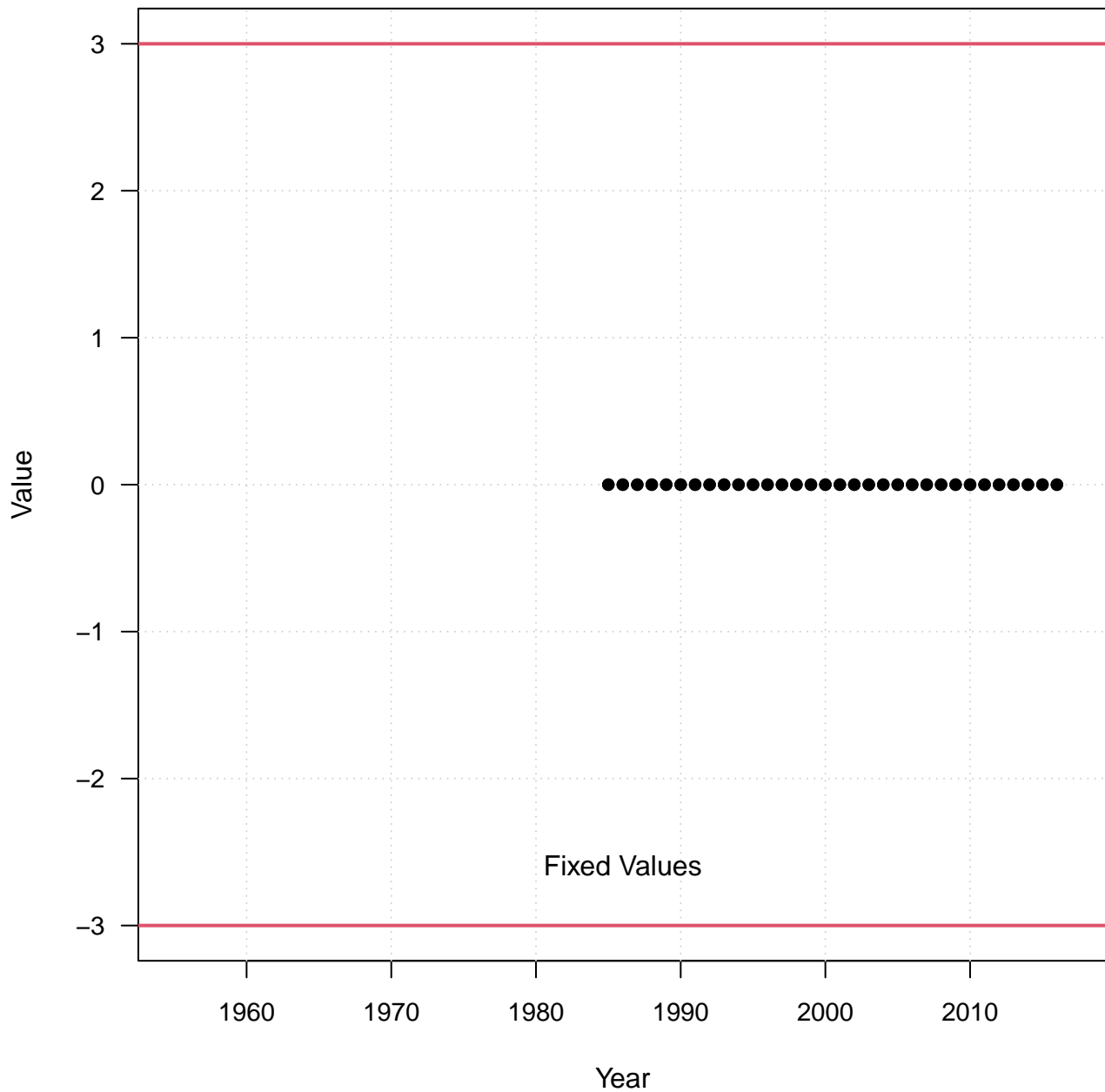
Vector: log.F.dev.cBs



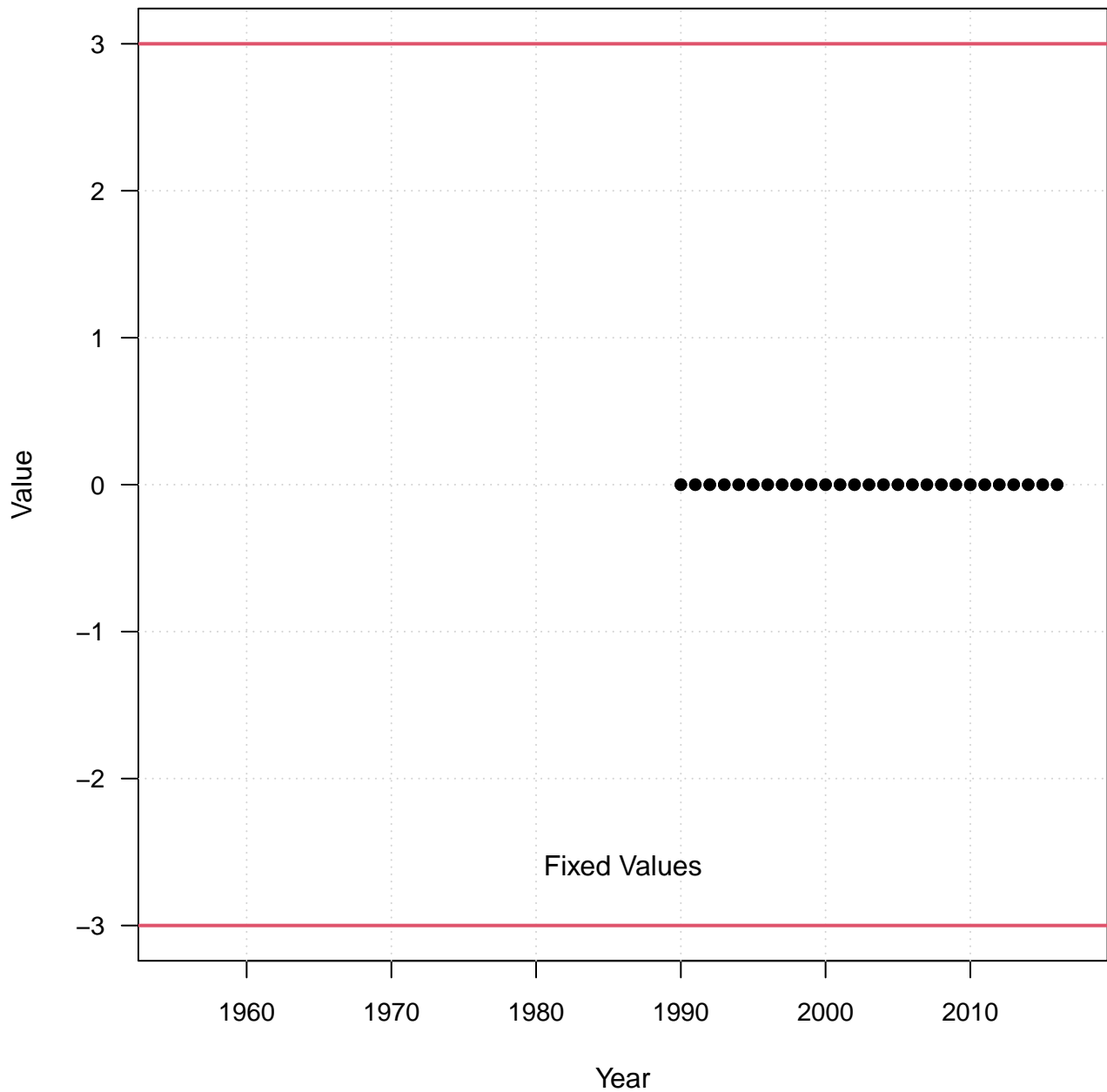
Vector: log.q.dev.nad.RWq



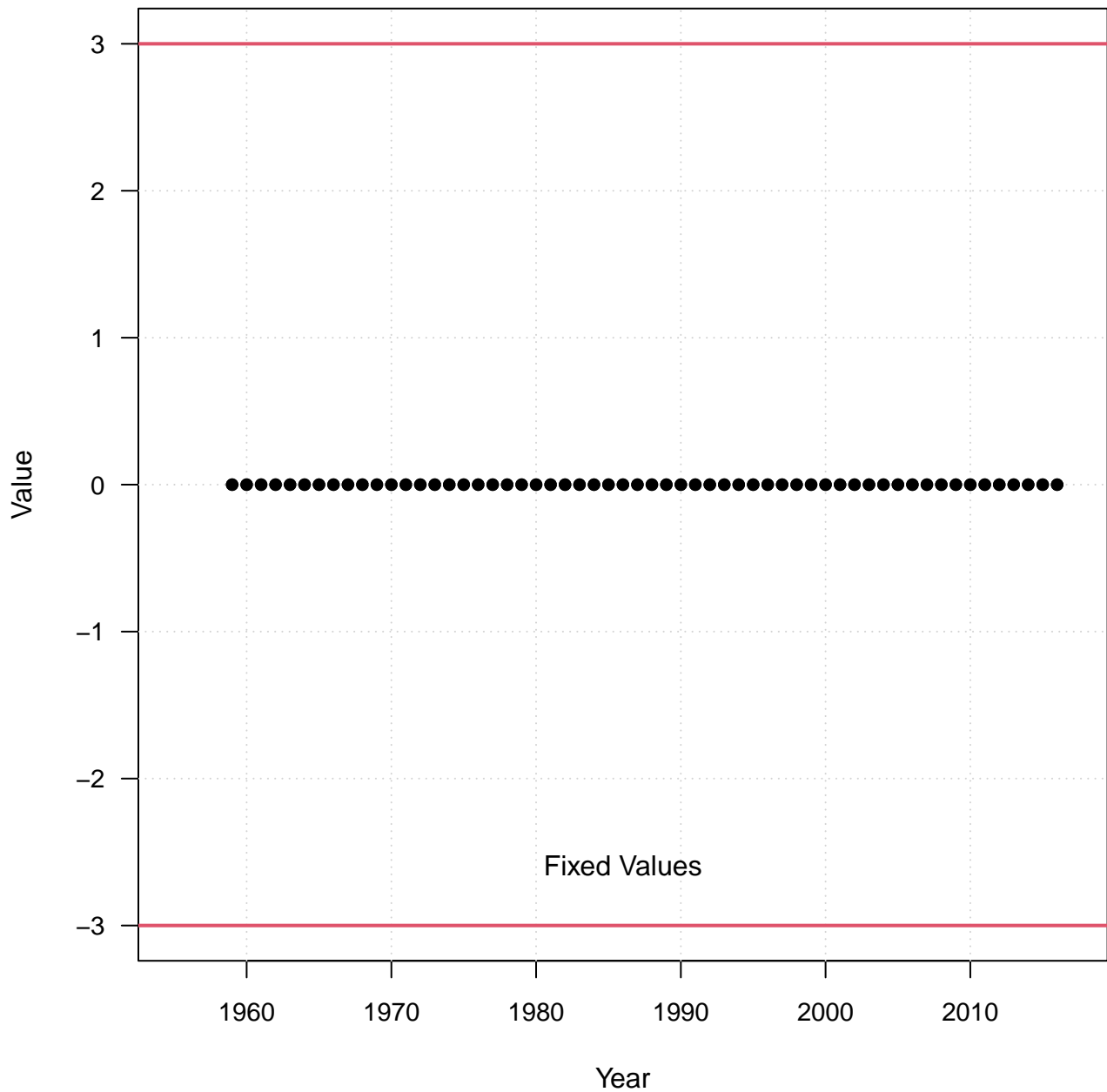
Vector: log.q.dev.mad.RWq



Vector: log.q.dev.sad.RWq



Vector: log.q.dev.jai.RWq



Vector: log.Nage.dev

