

Plots created using the 'r4ss' package in R

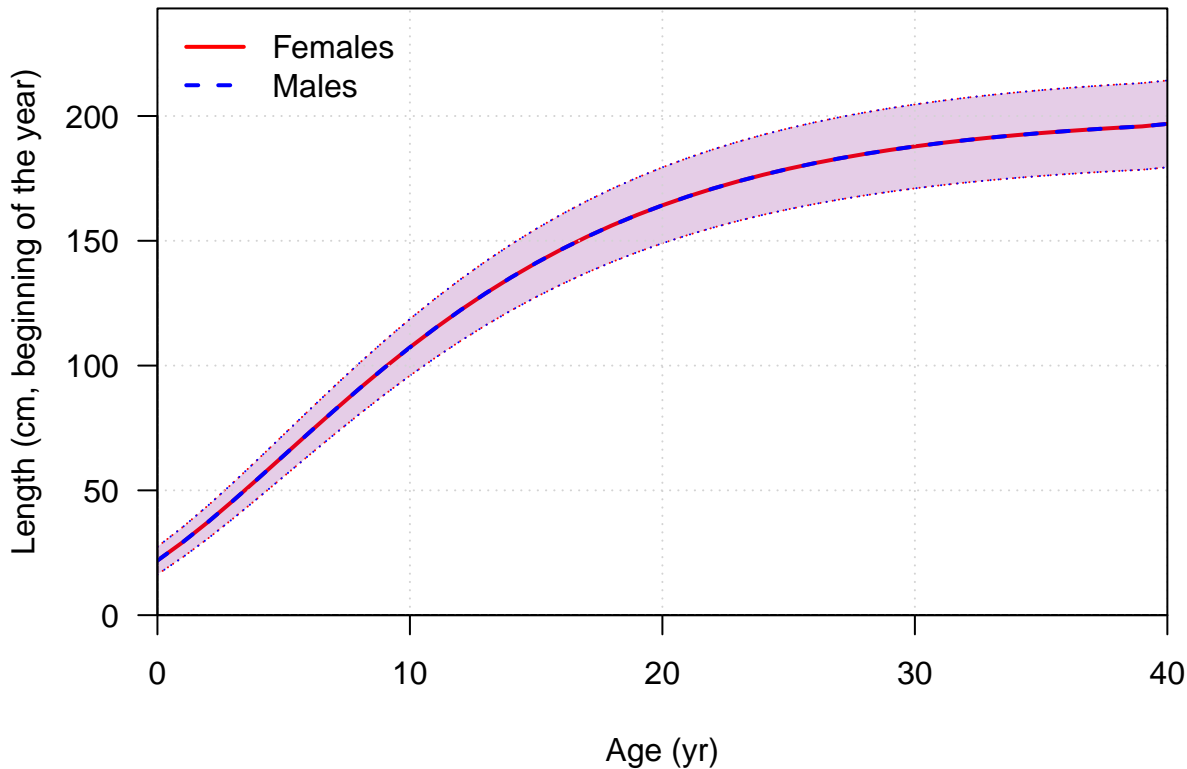
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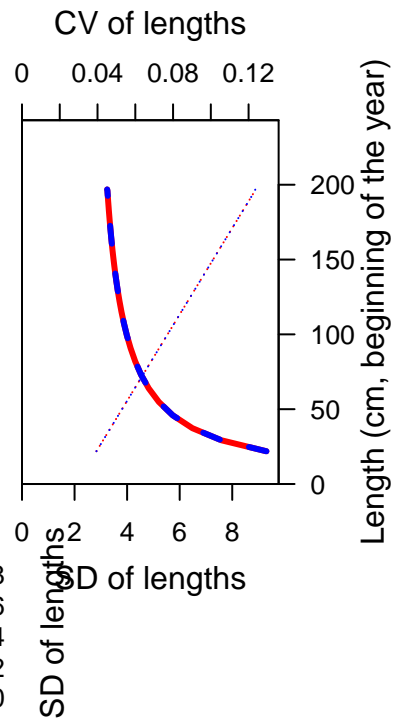
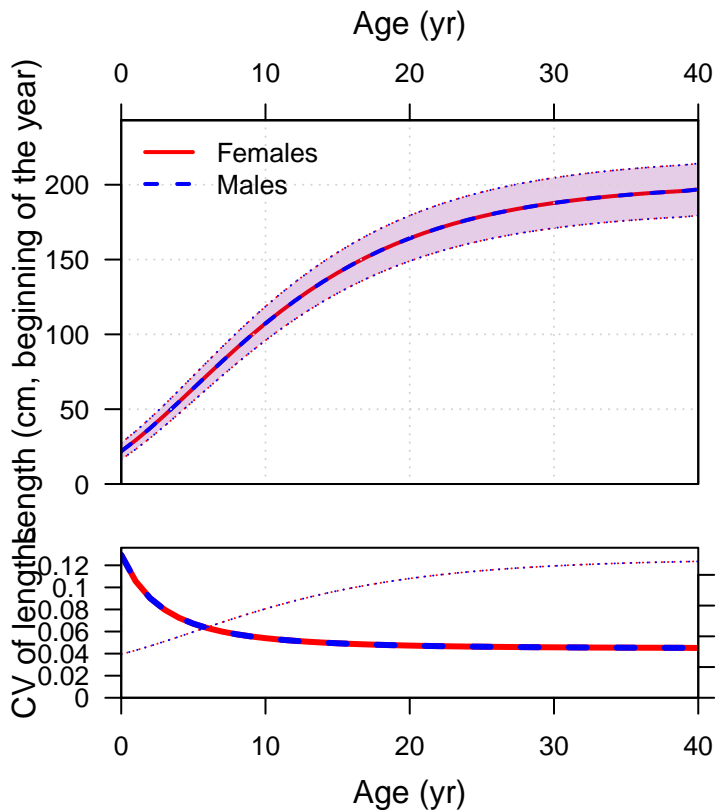
StartTime: Tue Apr 07 15:41:18 2020

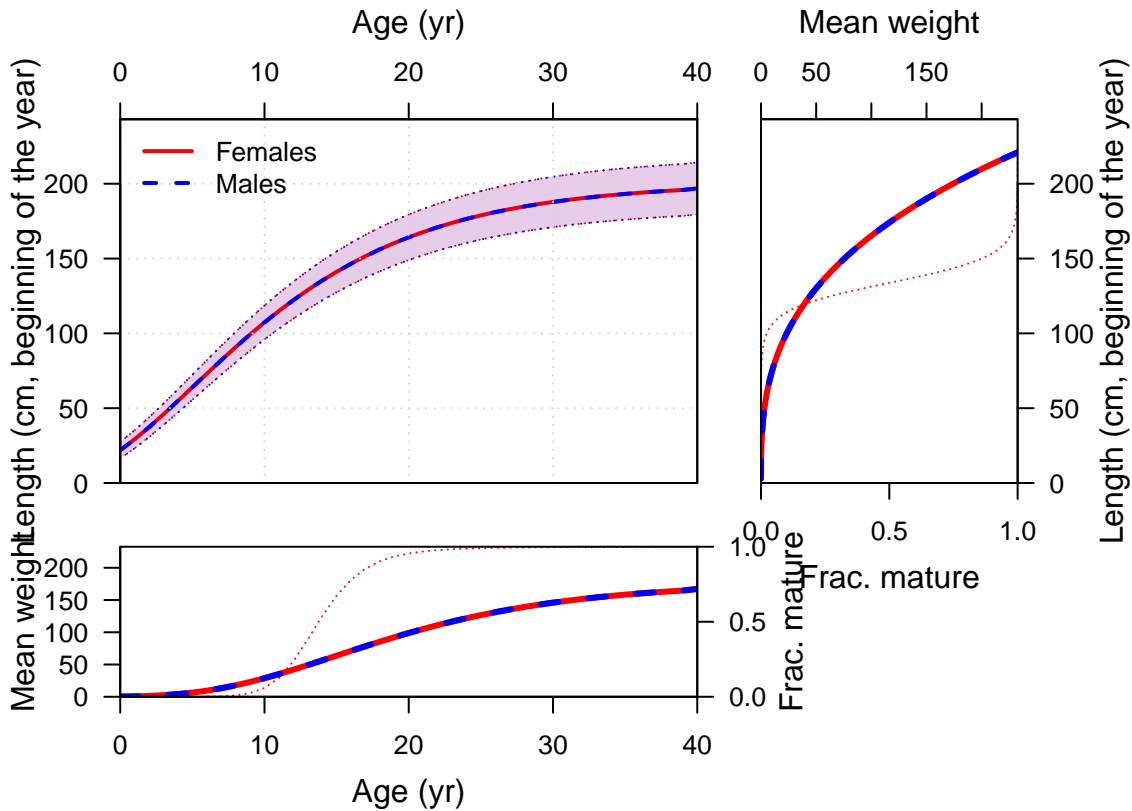
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Control\_File: BET-EPO.ctl

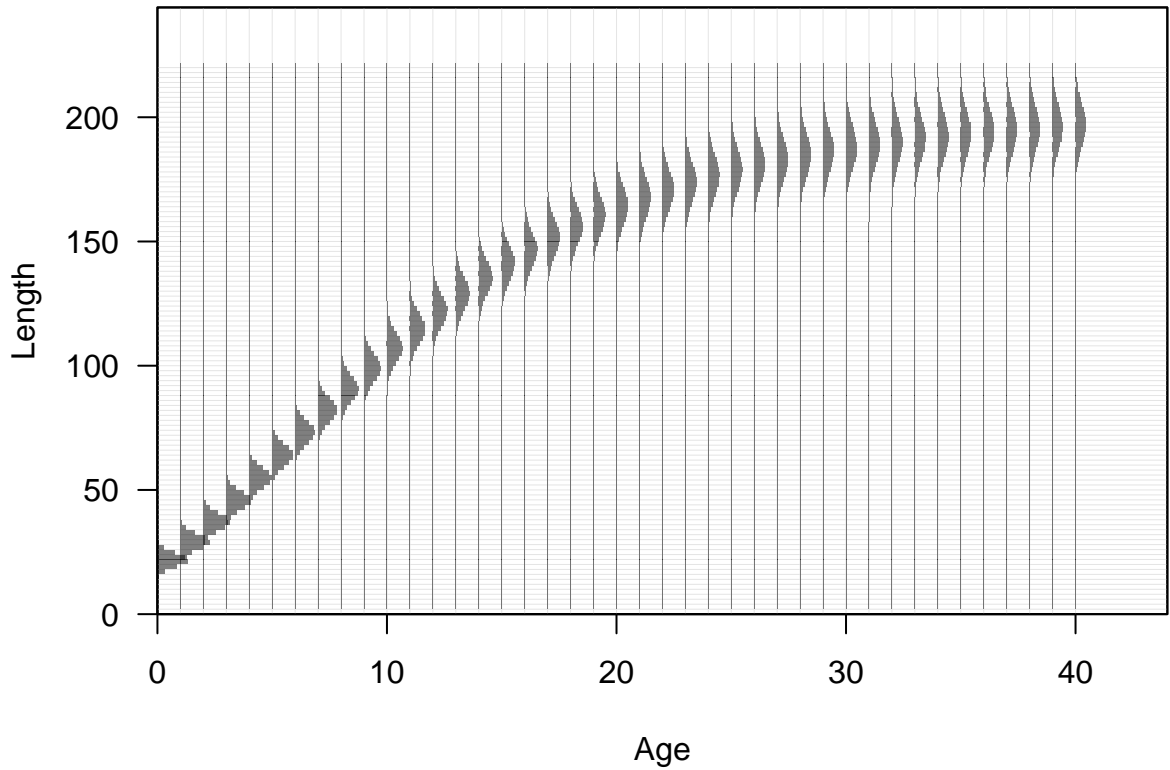
## Ending year expected growth (with 95% intervals)

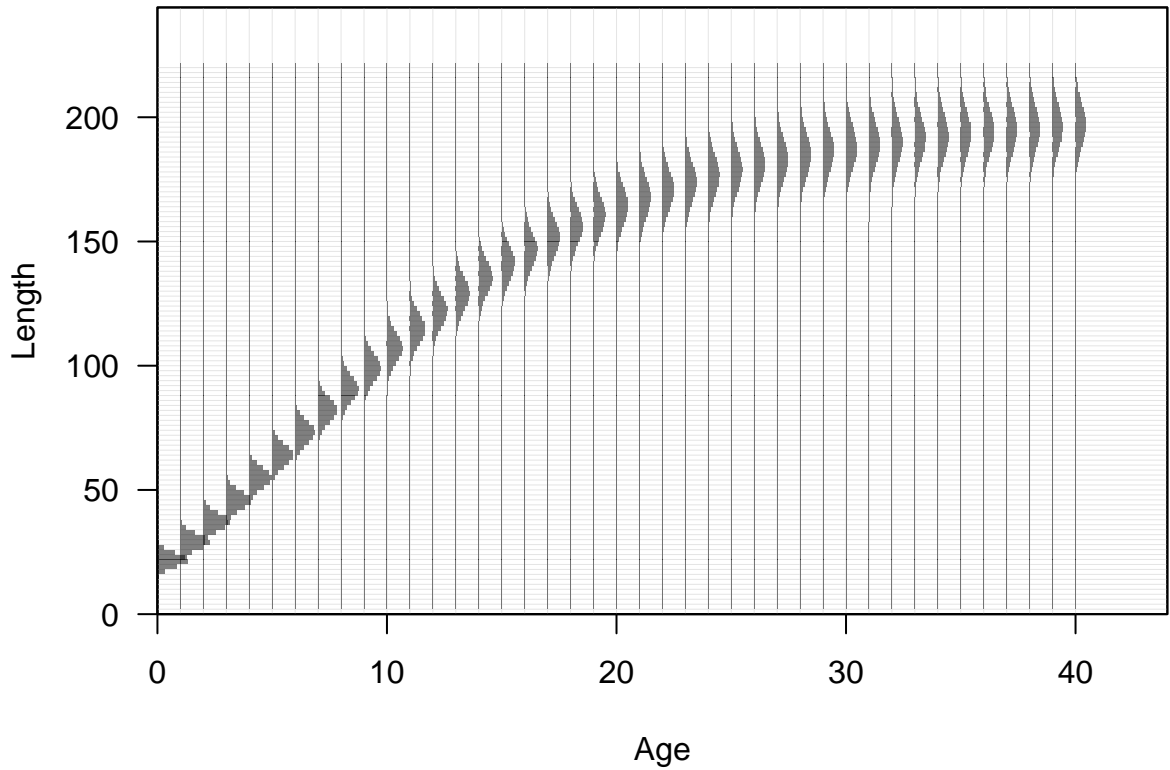


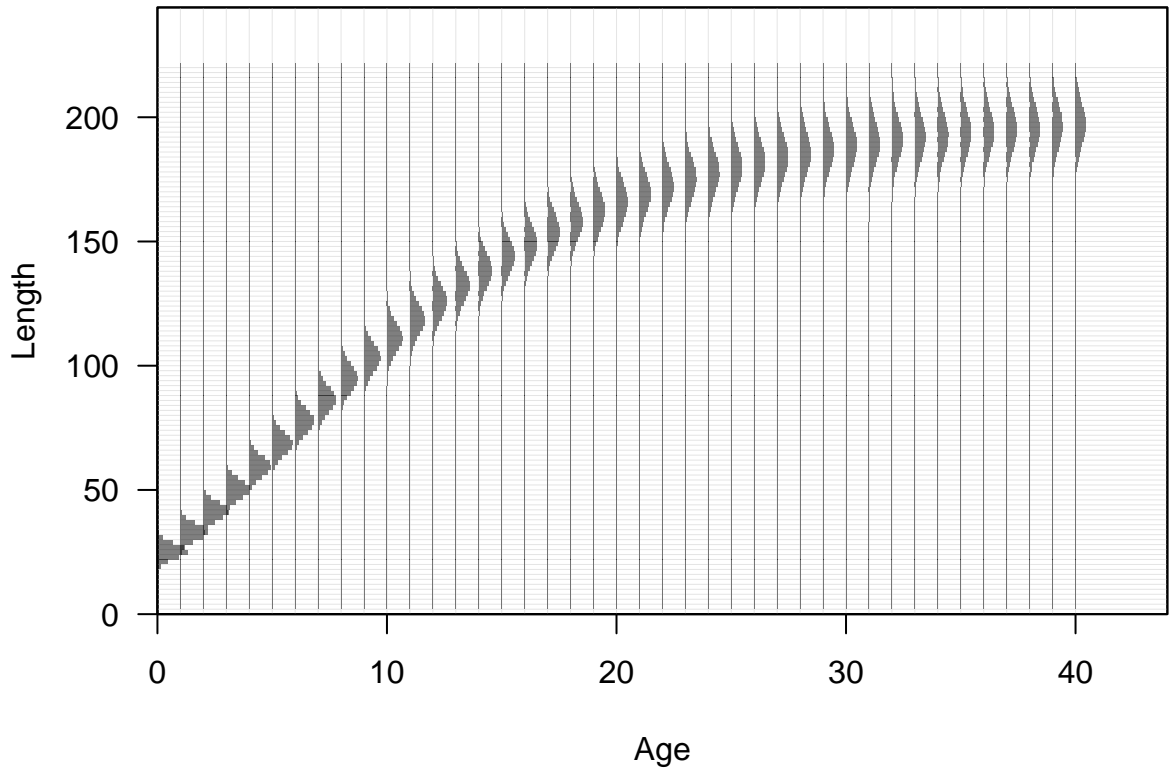


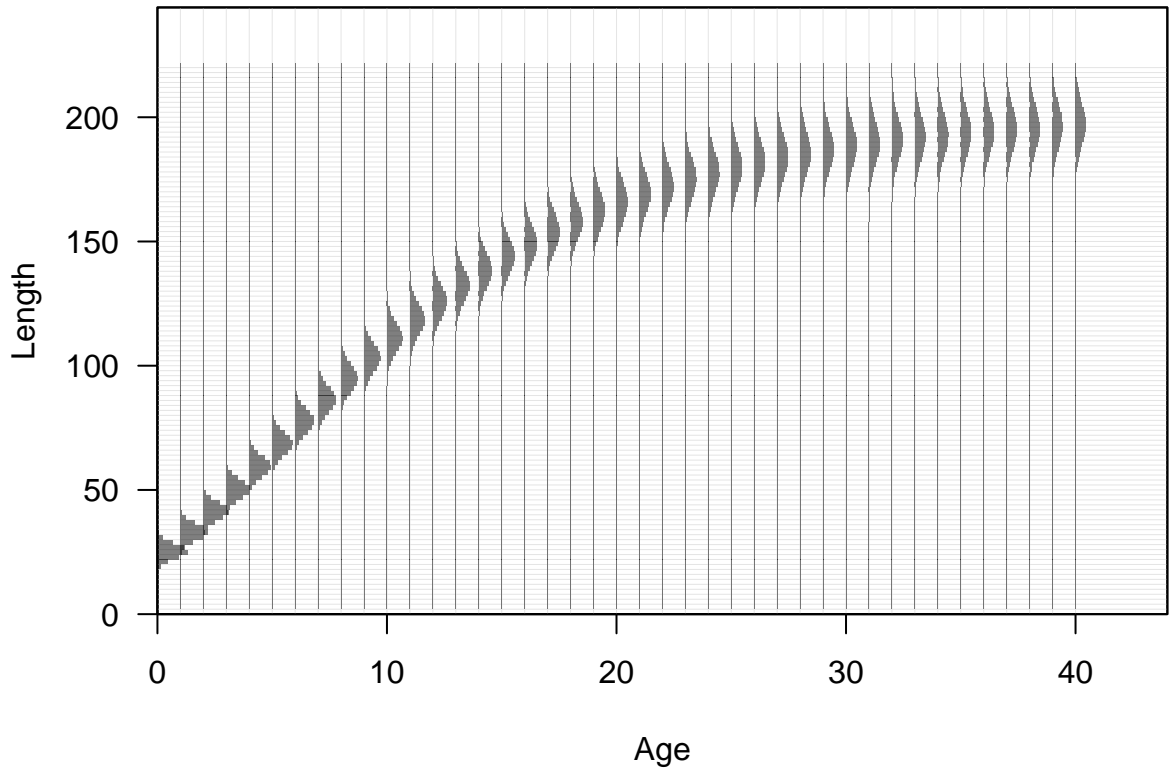


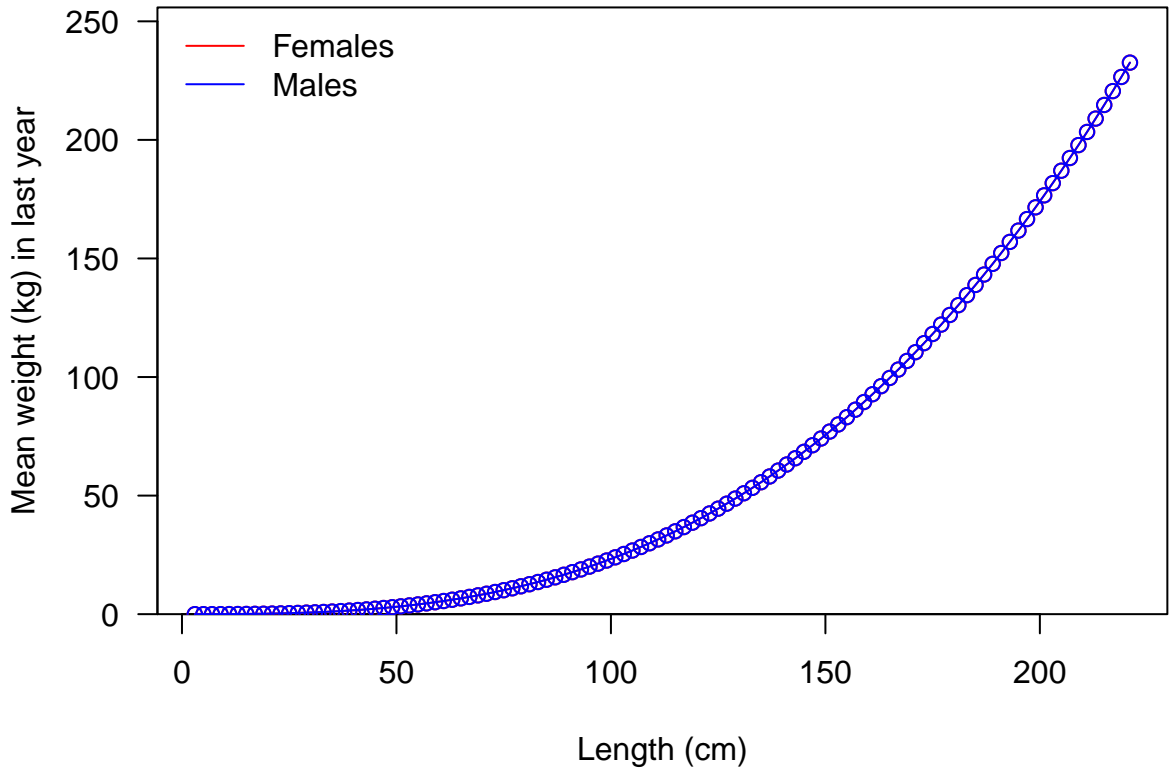


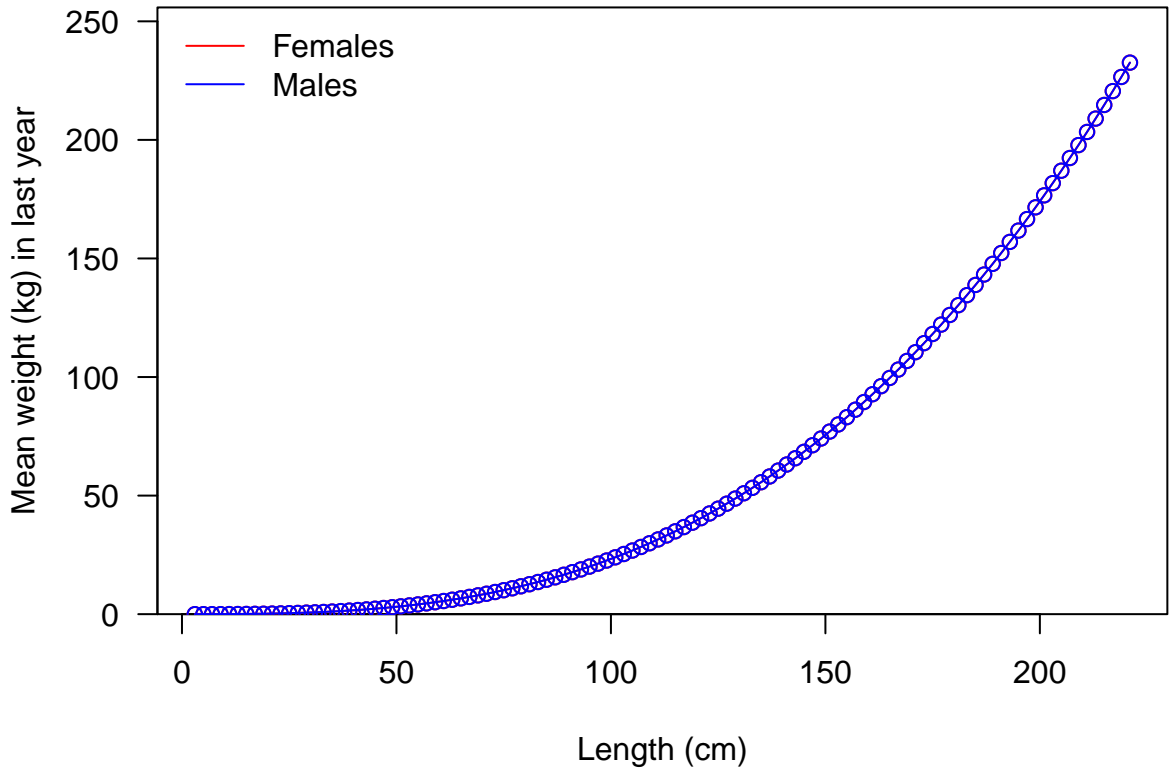


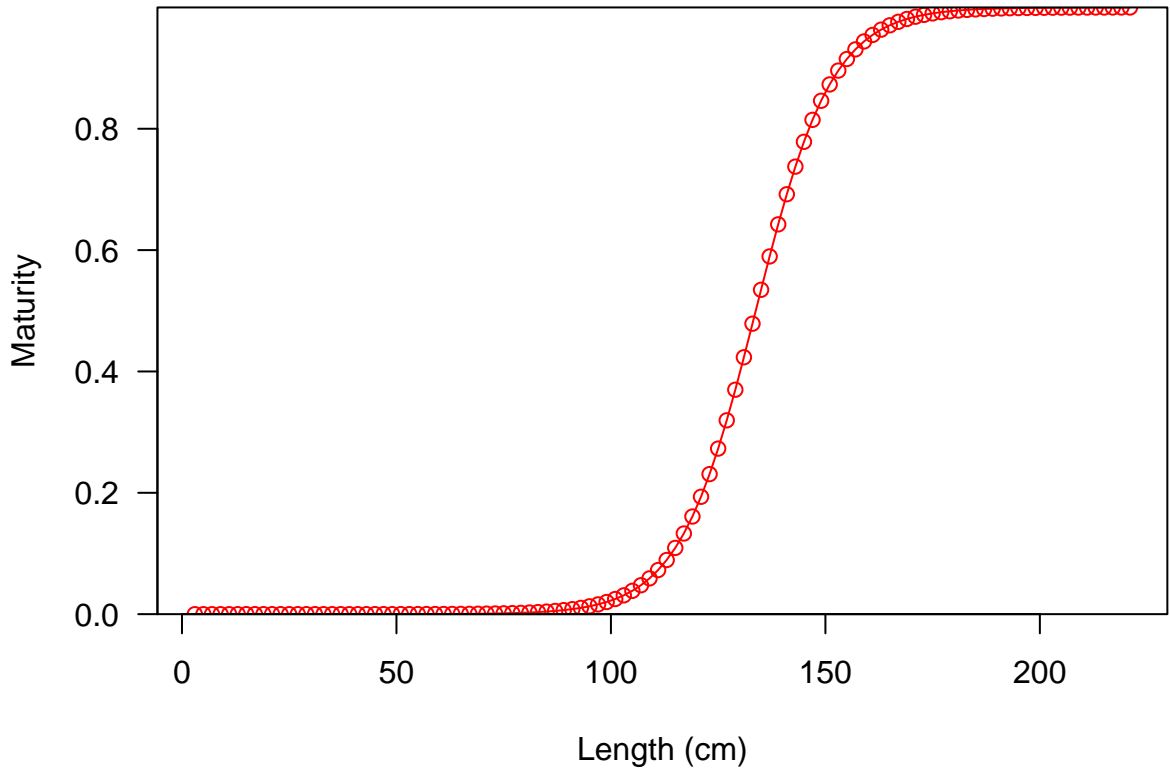


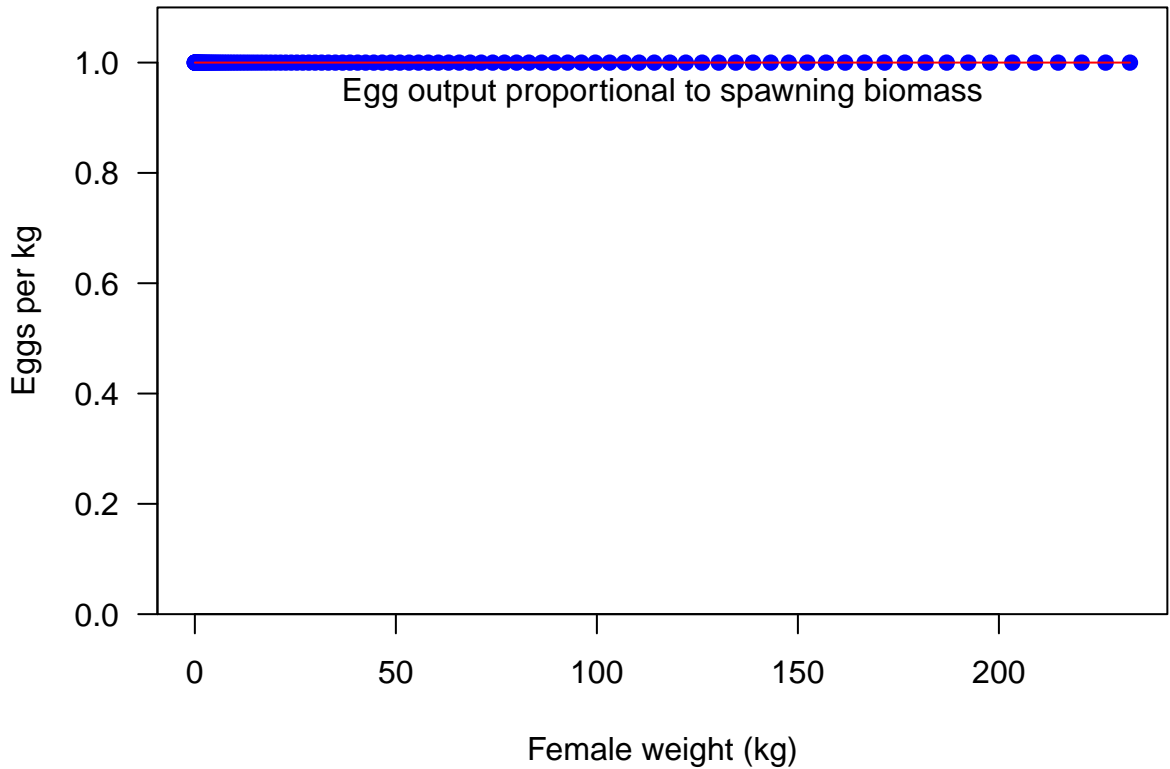




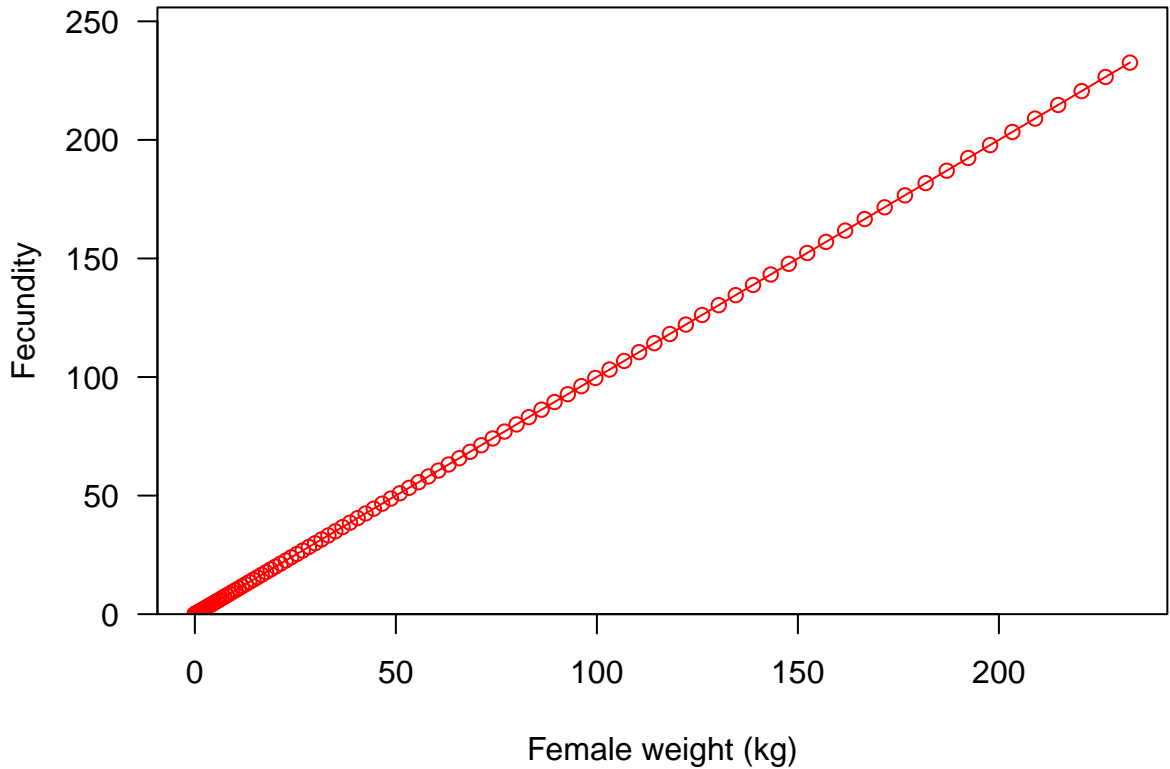


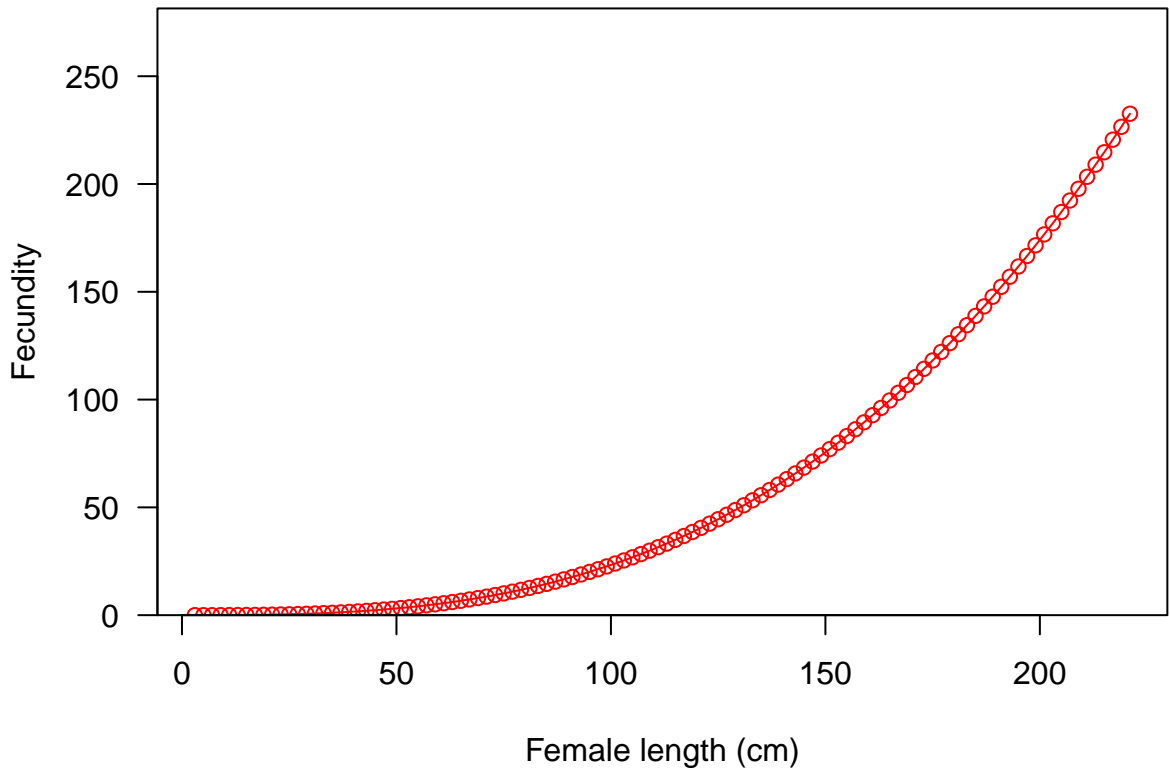


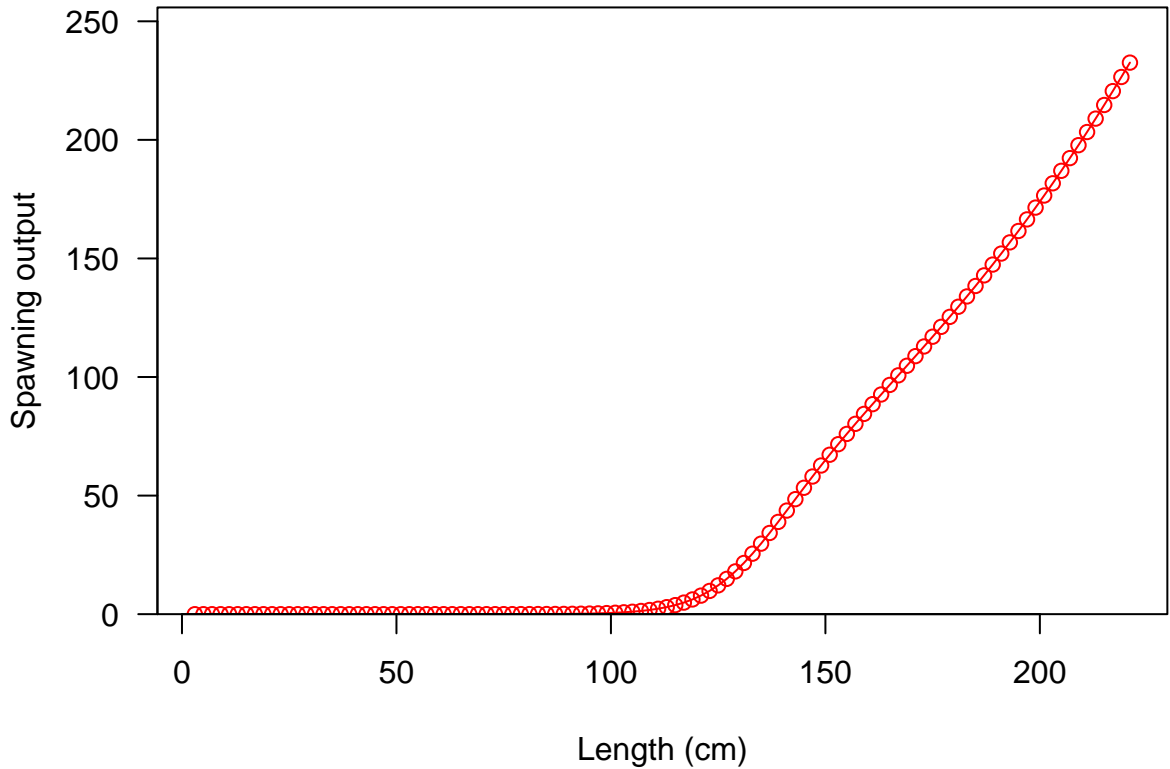


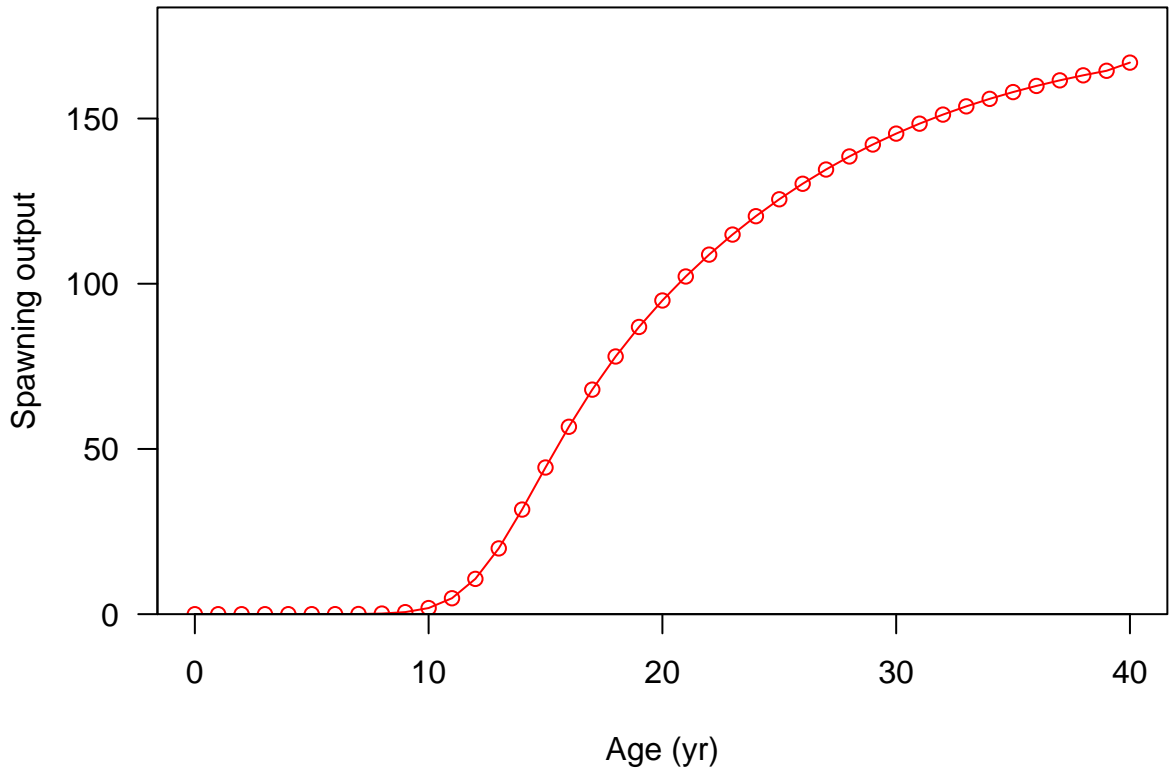


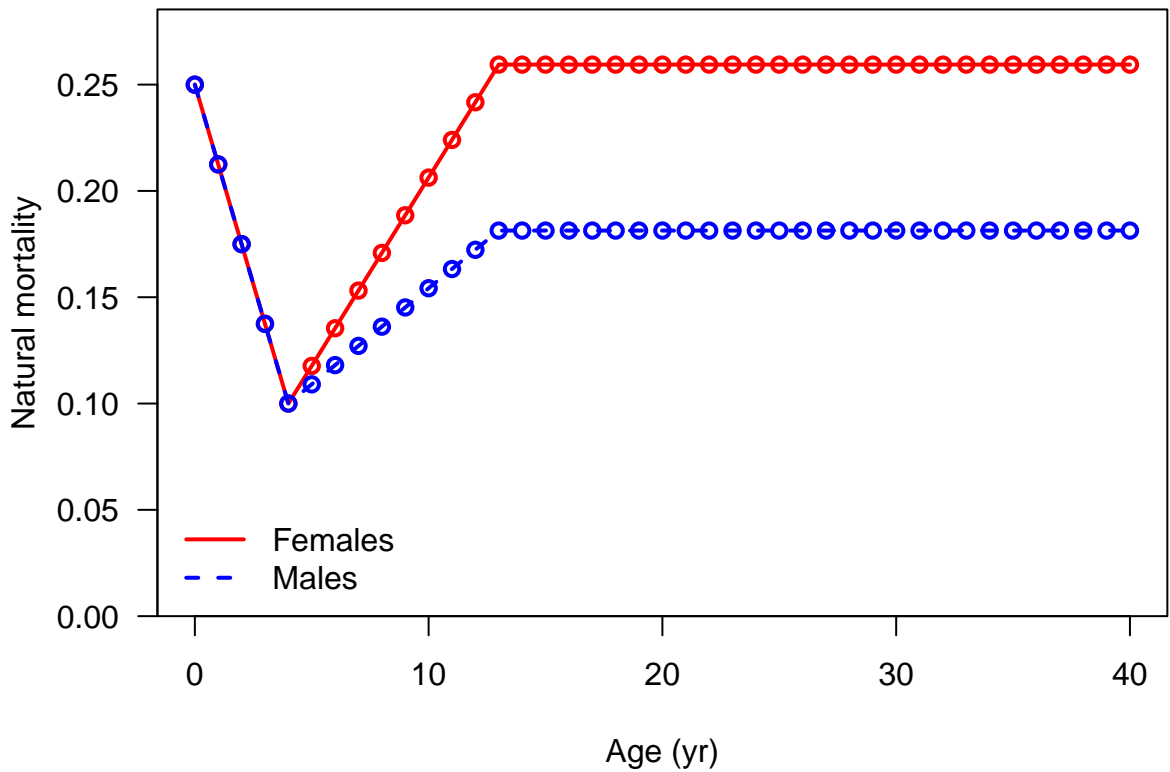






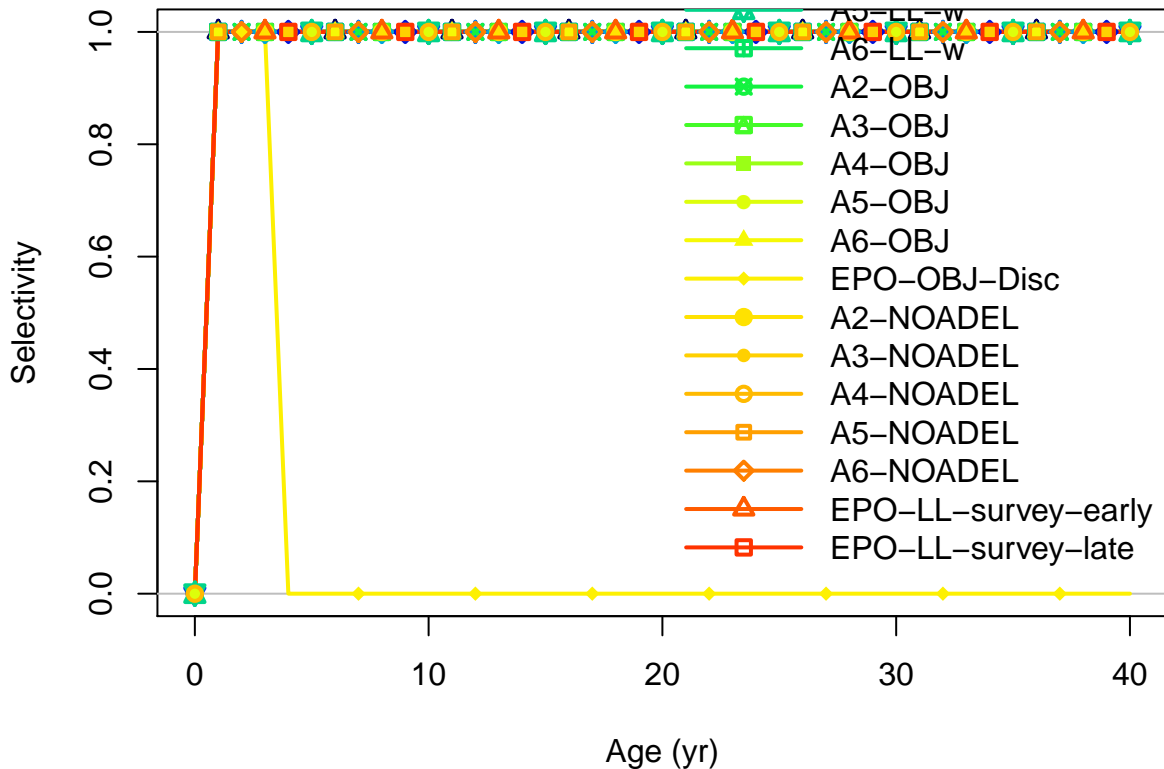








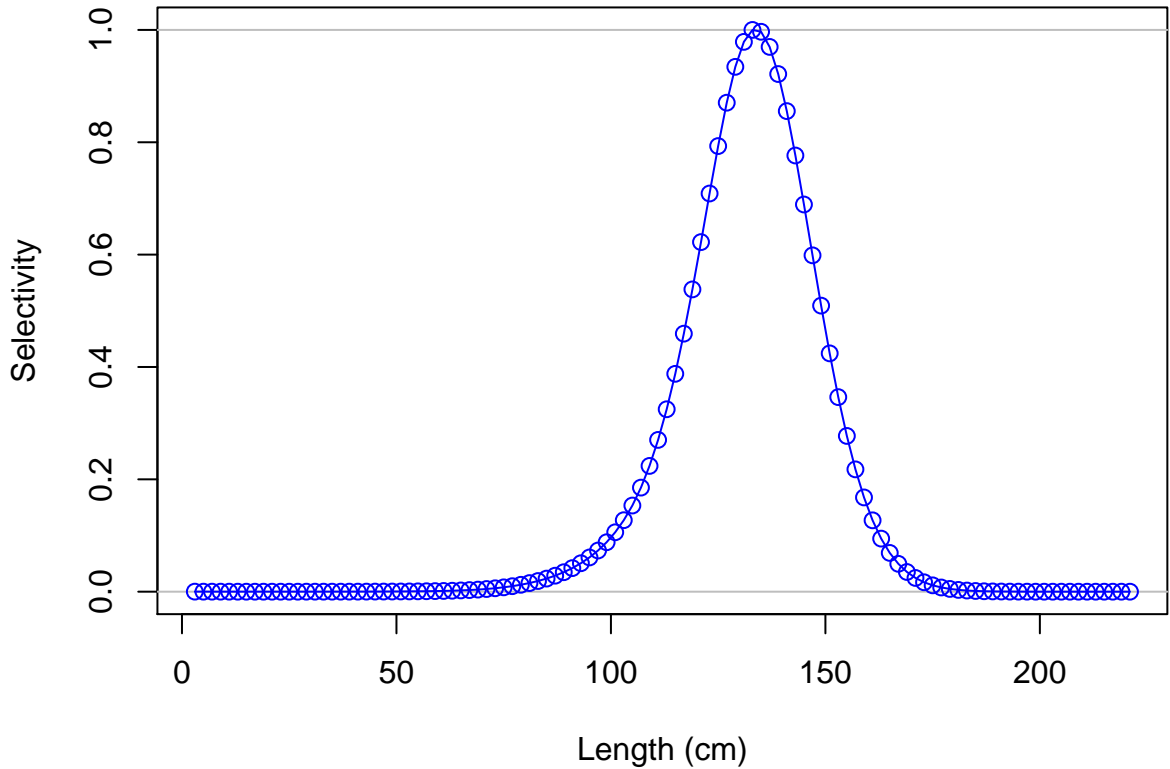
## Age-based selectivity by fleet in 180



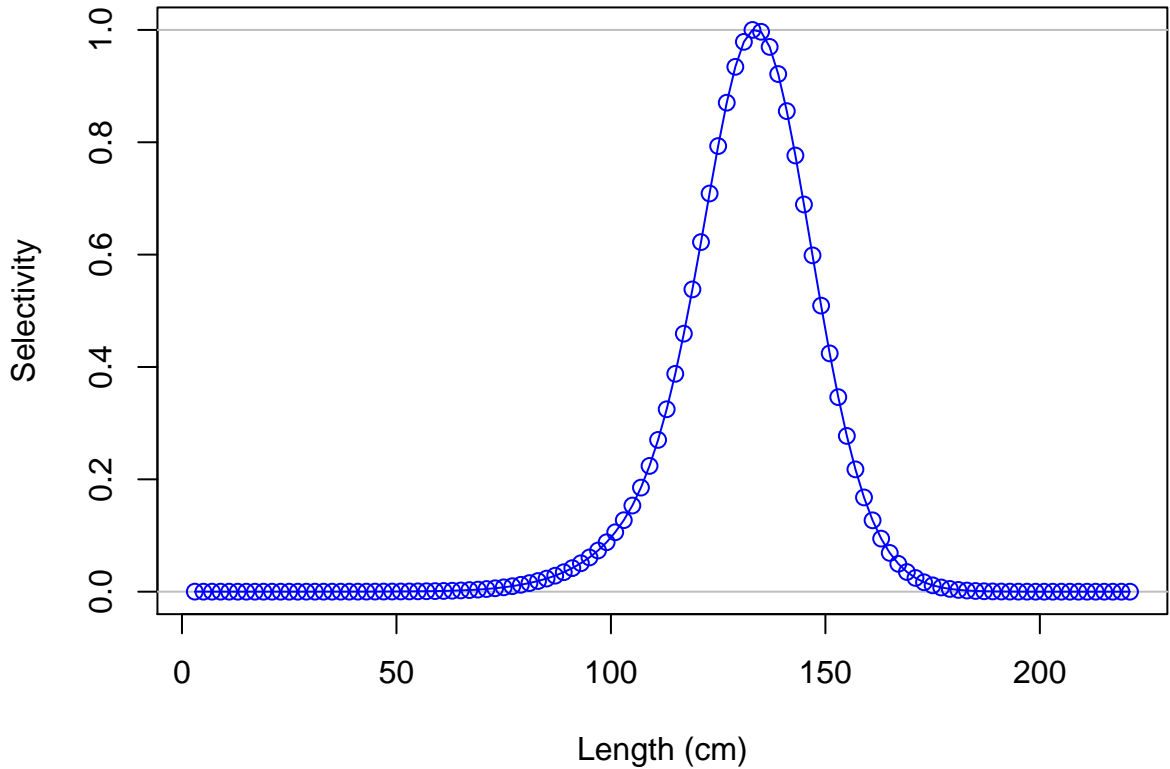




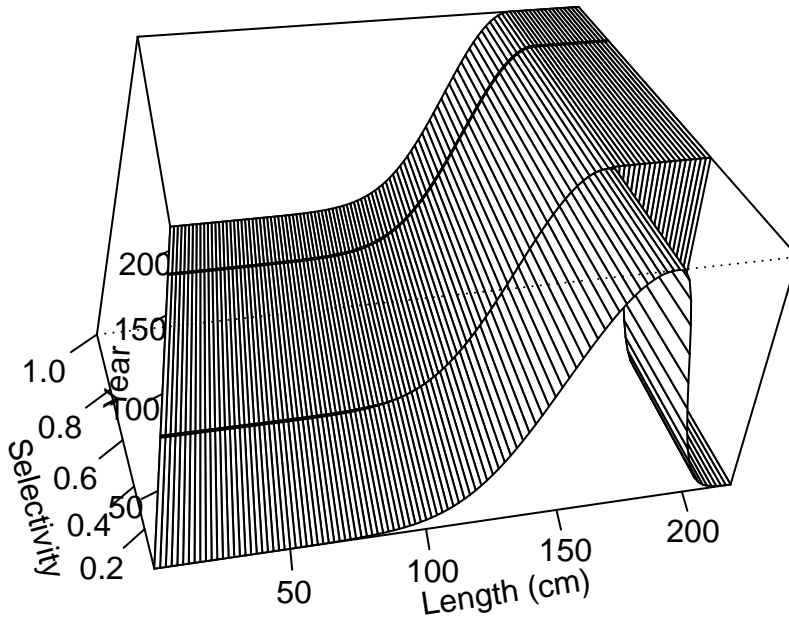
## Female ending year selectivity for A1-LL-n



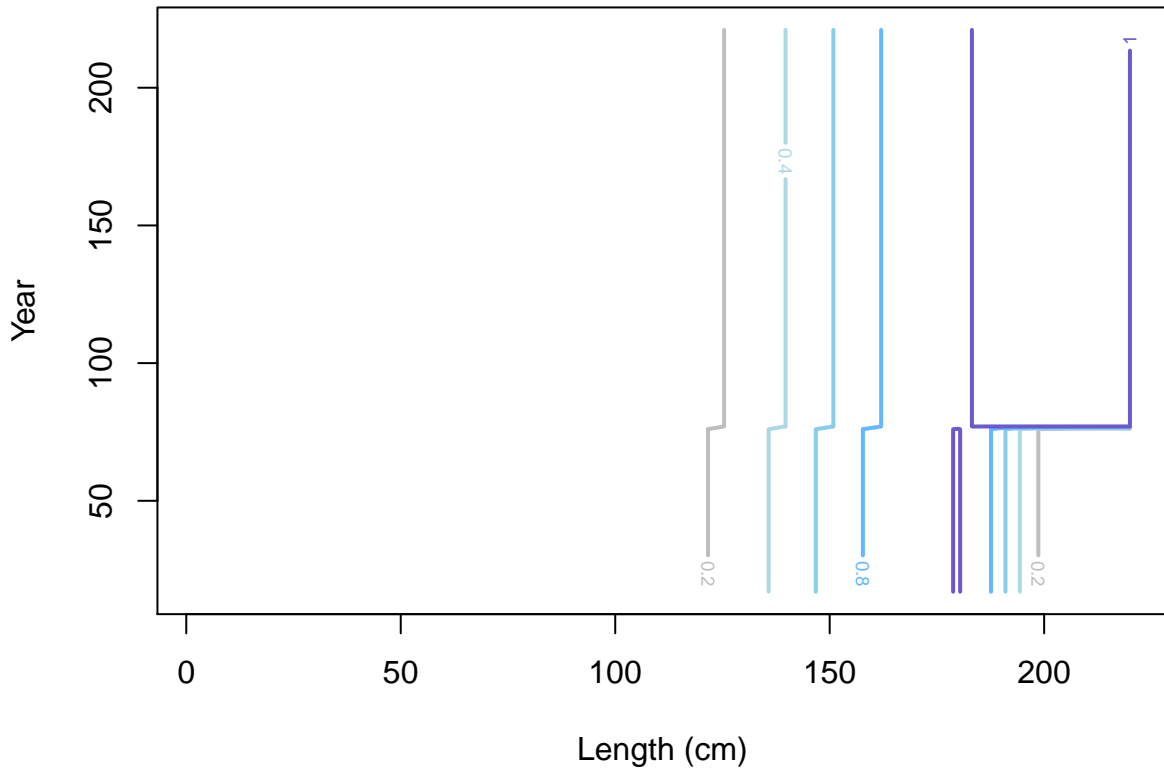
## Male ending year selectivity for A1-LL-n



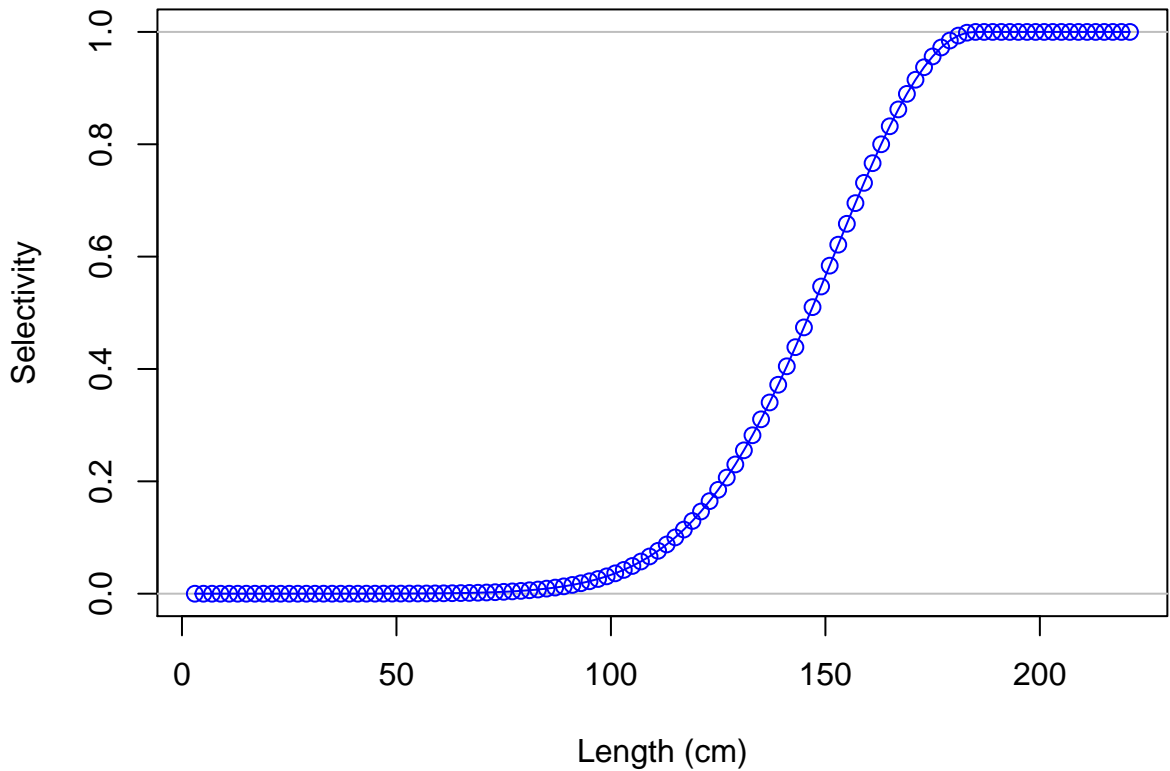
## Female time-varying selectivity for A2-LL-n



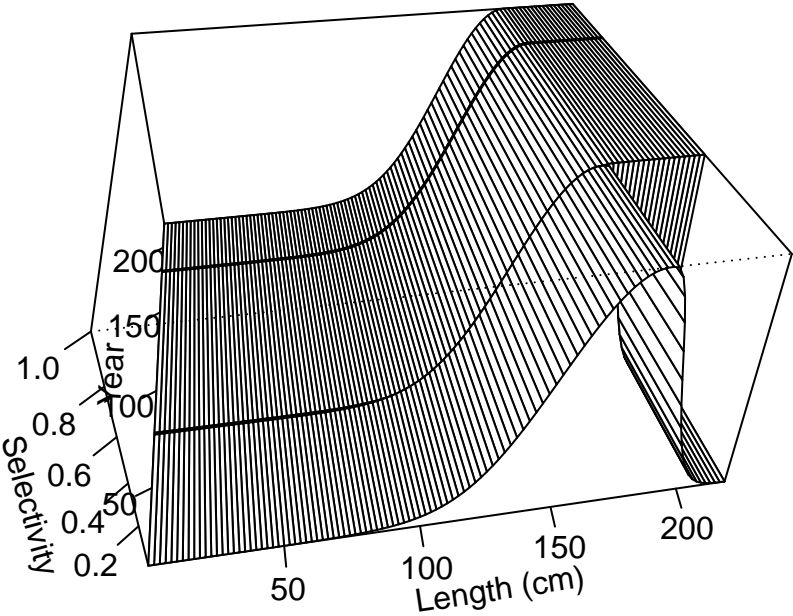
## Female time-varying selectivity for A2-LL-n



## Female ending year selectivity for A2-LL-n

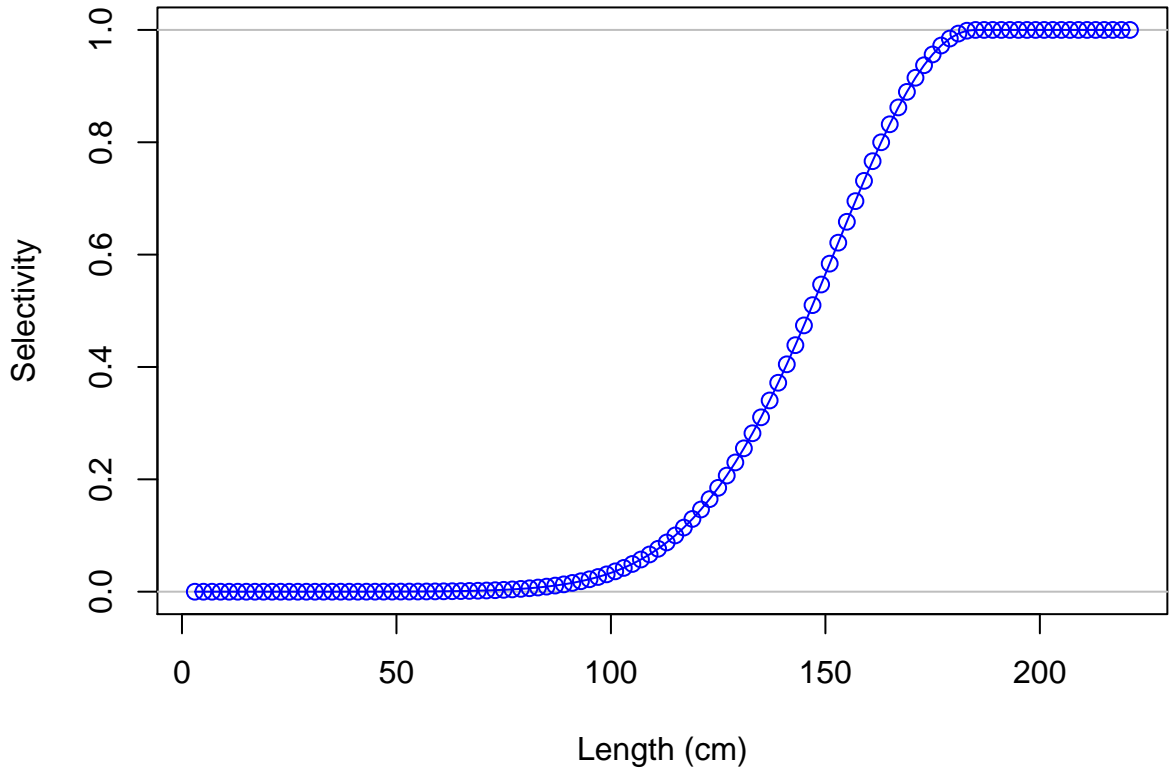


# Male time-varying selectivity for A2-LL-n



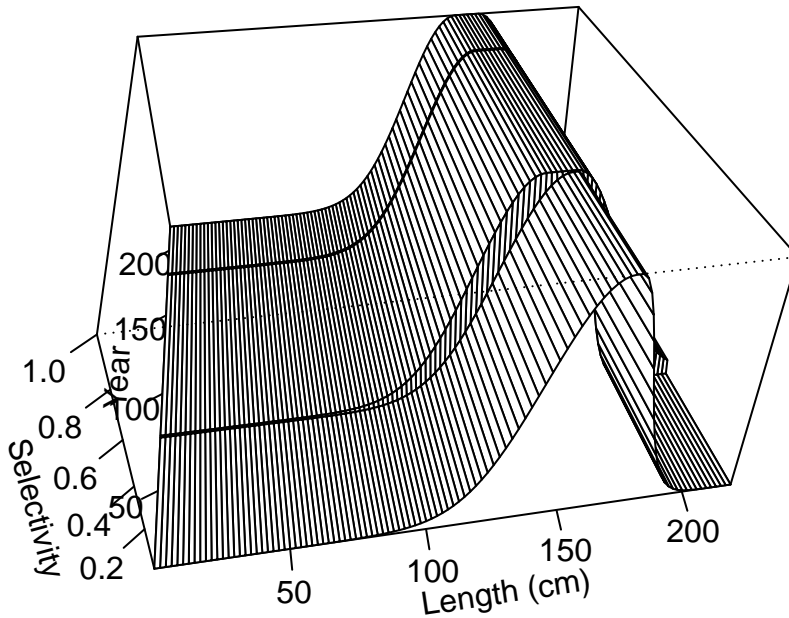


## Male ending year selectivity for A2-LL-n

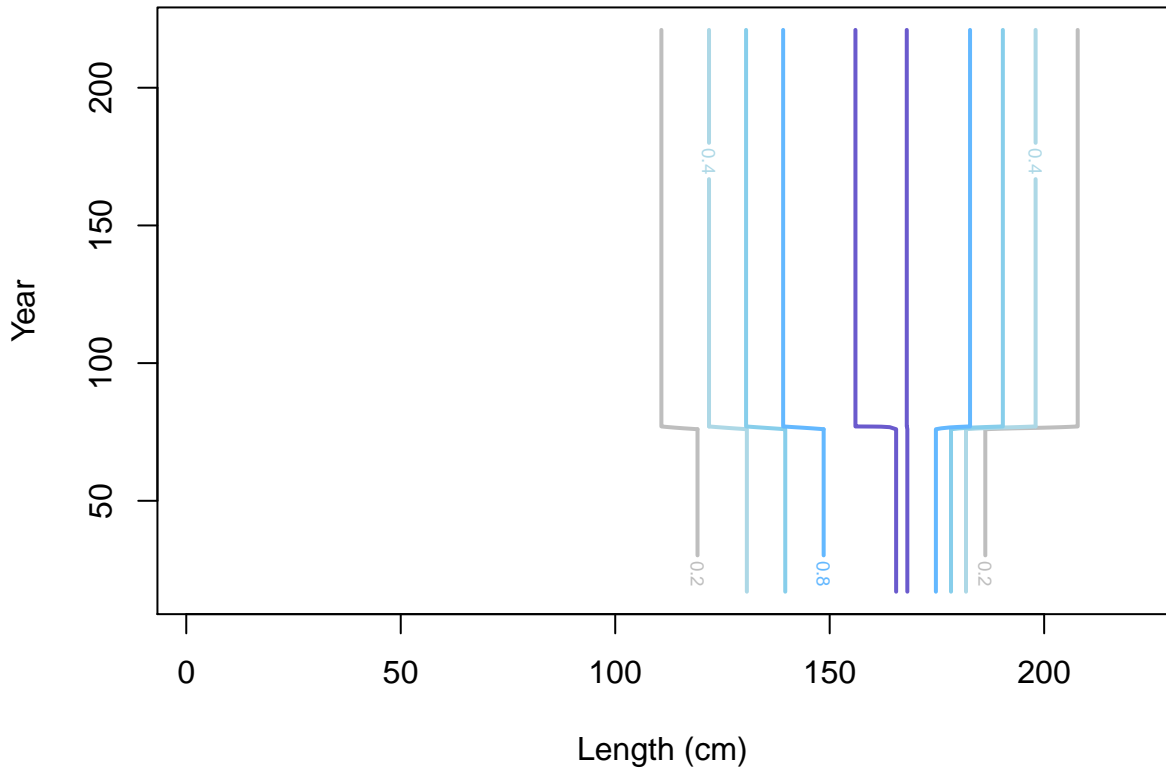




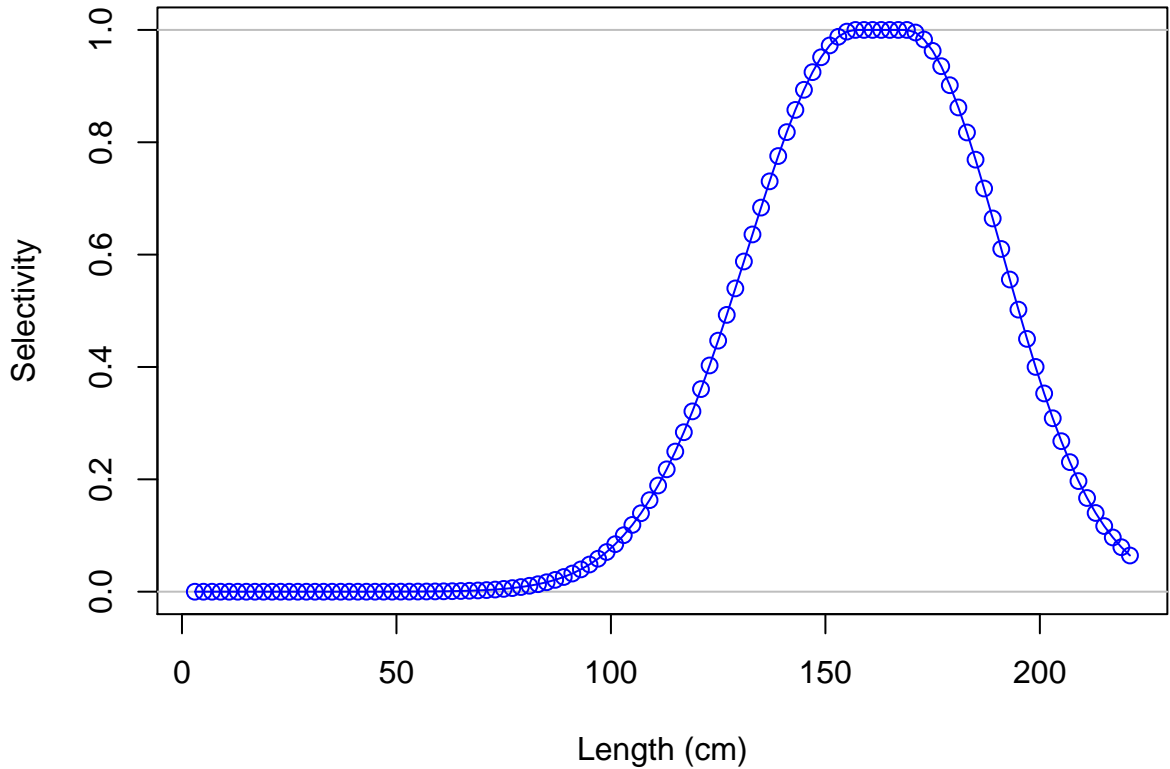
## Female time-varying selectivity for A3-LL-n



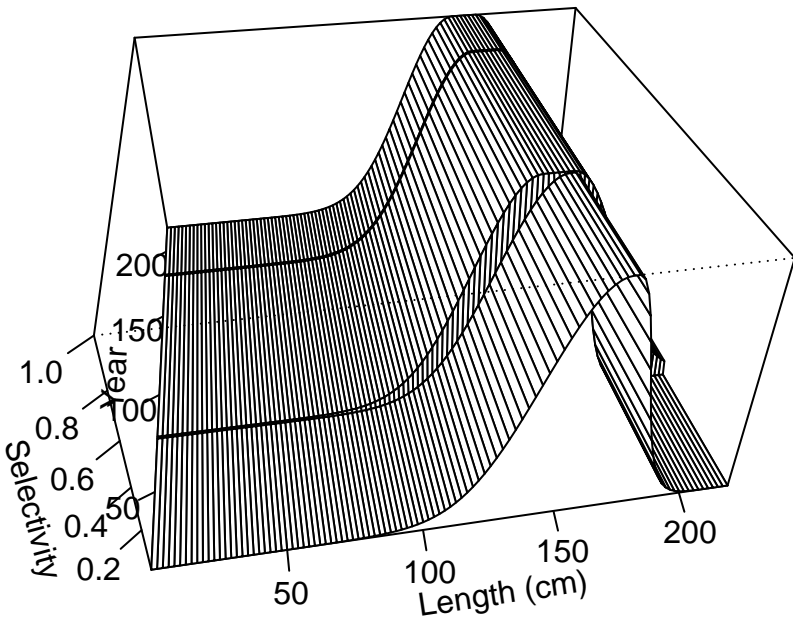
# Female time-varying selectivity for A3-LL-n



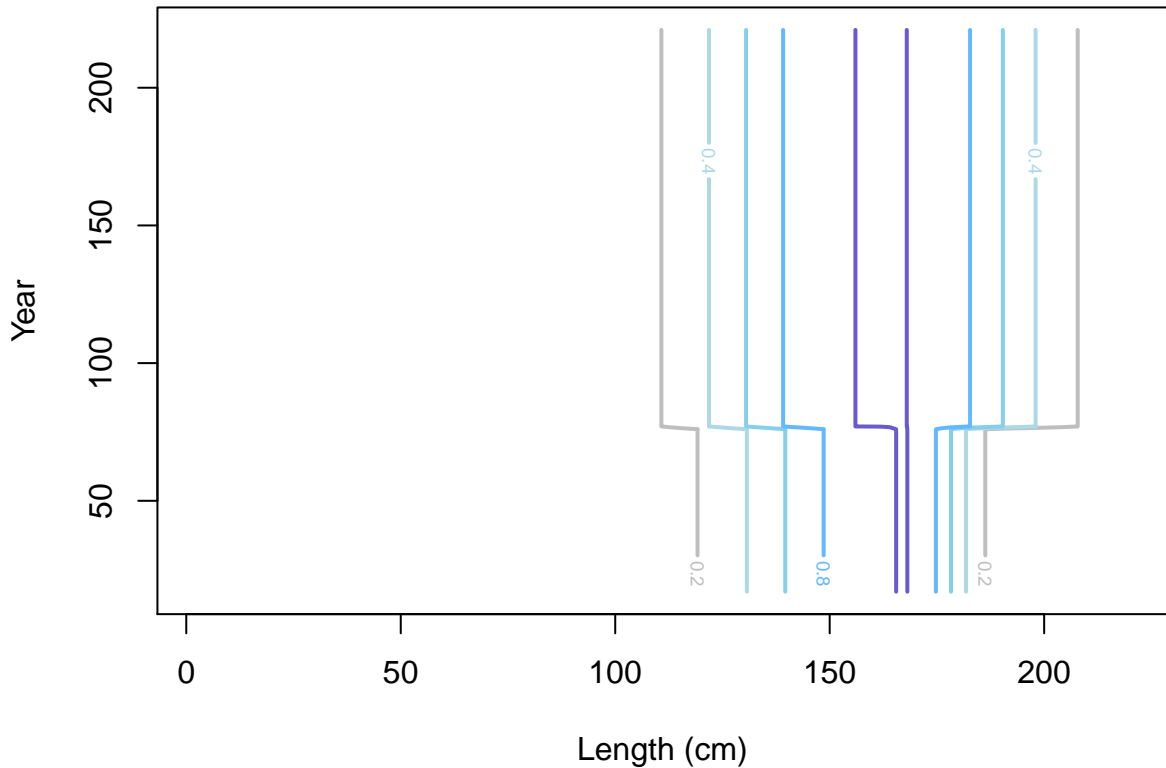
# Female ending year selectivity for A3-LL-n



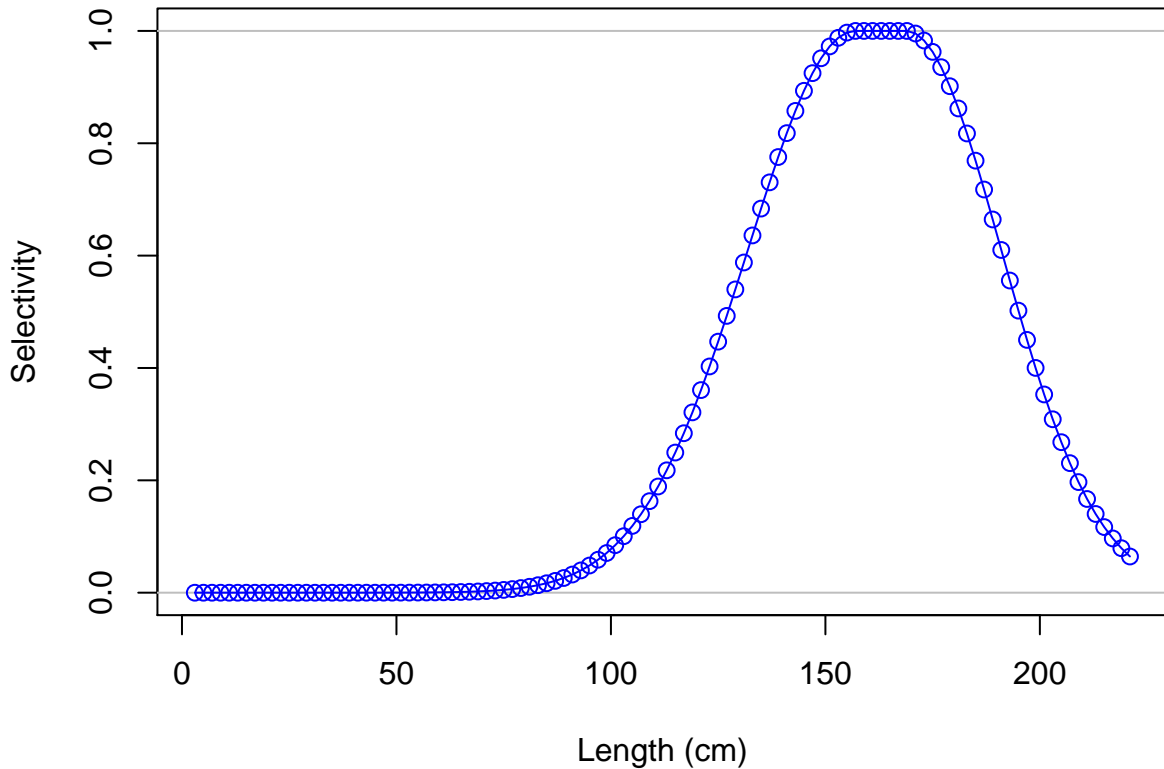
# Male time-varying selectivity for A3-LL-n



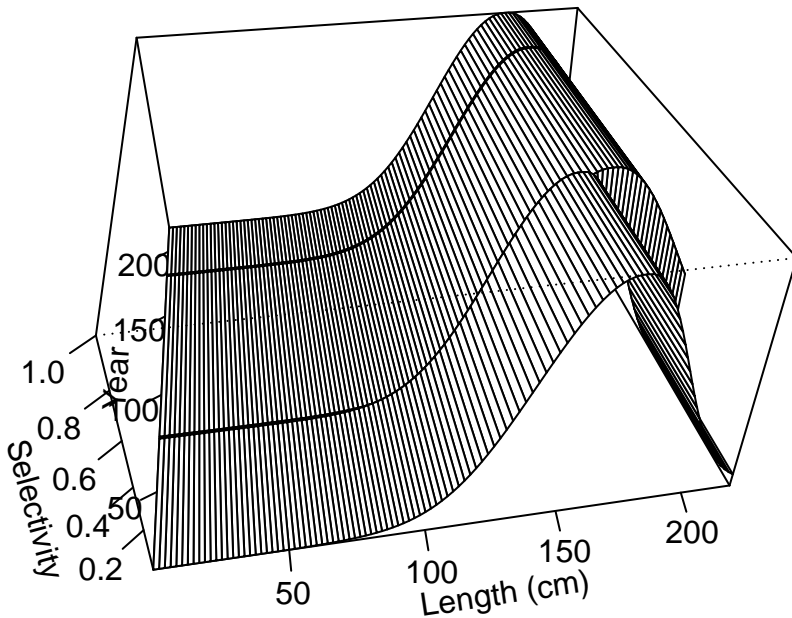
# Male time-varying selectivity for A3-LL-n



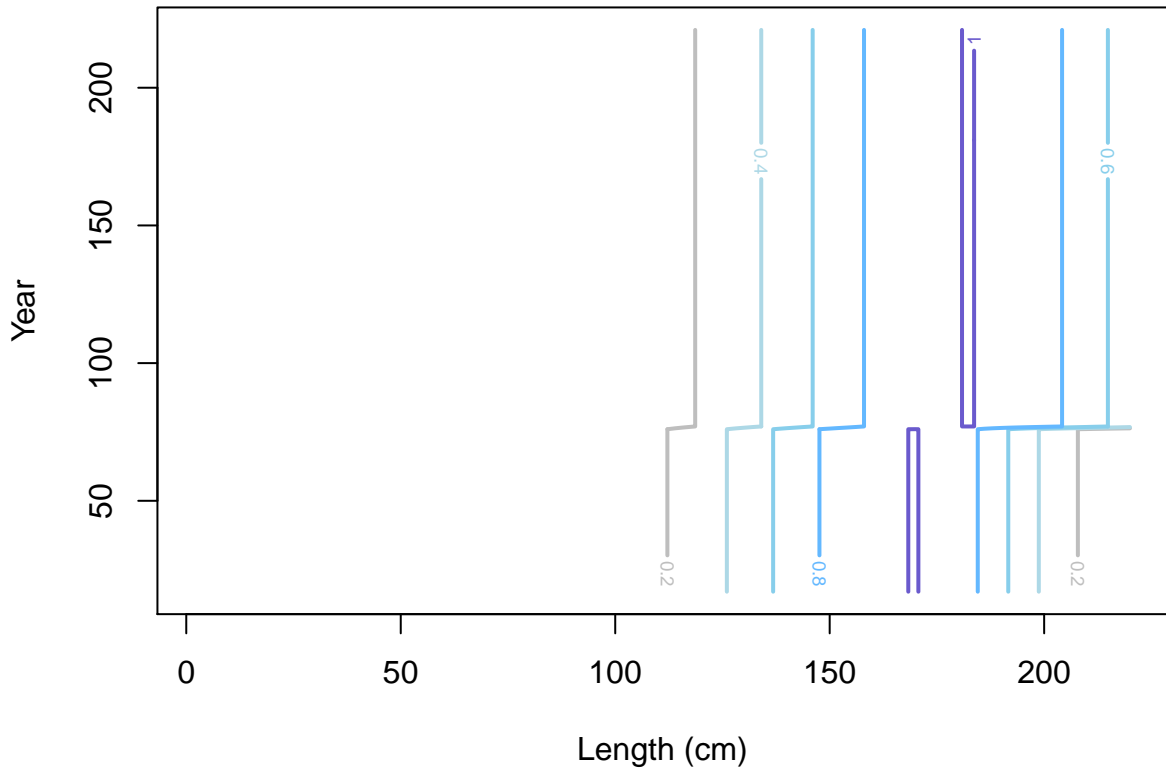
## Male ending year selectivity for A3-LL-n



## Female time-varying selectivity for A4-LL-n

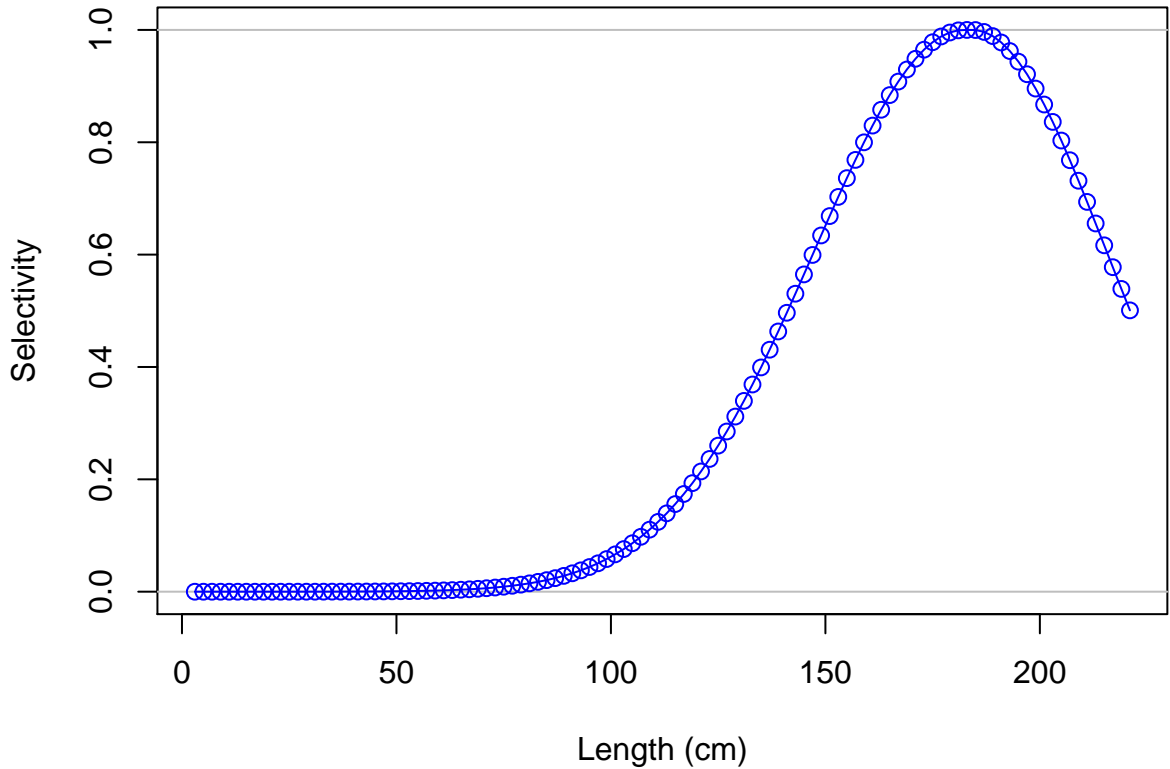


# Female time-varying selectivity for A4-LL-n

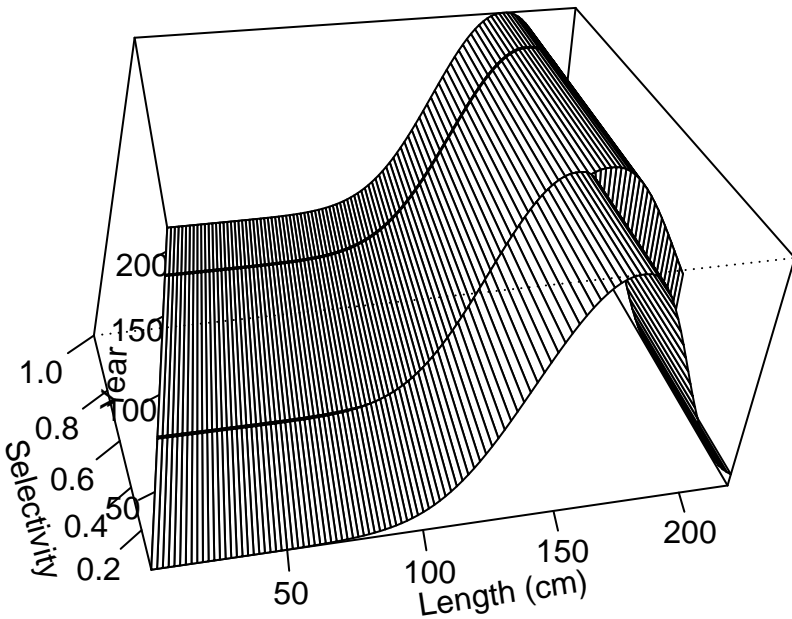




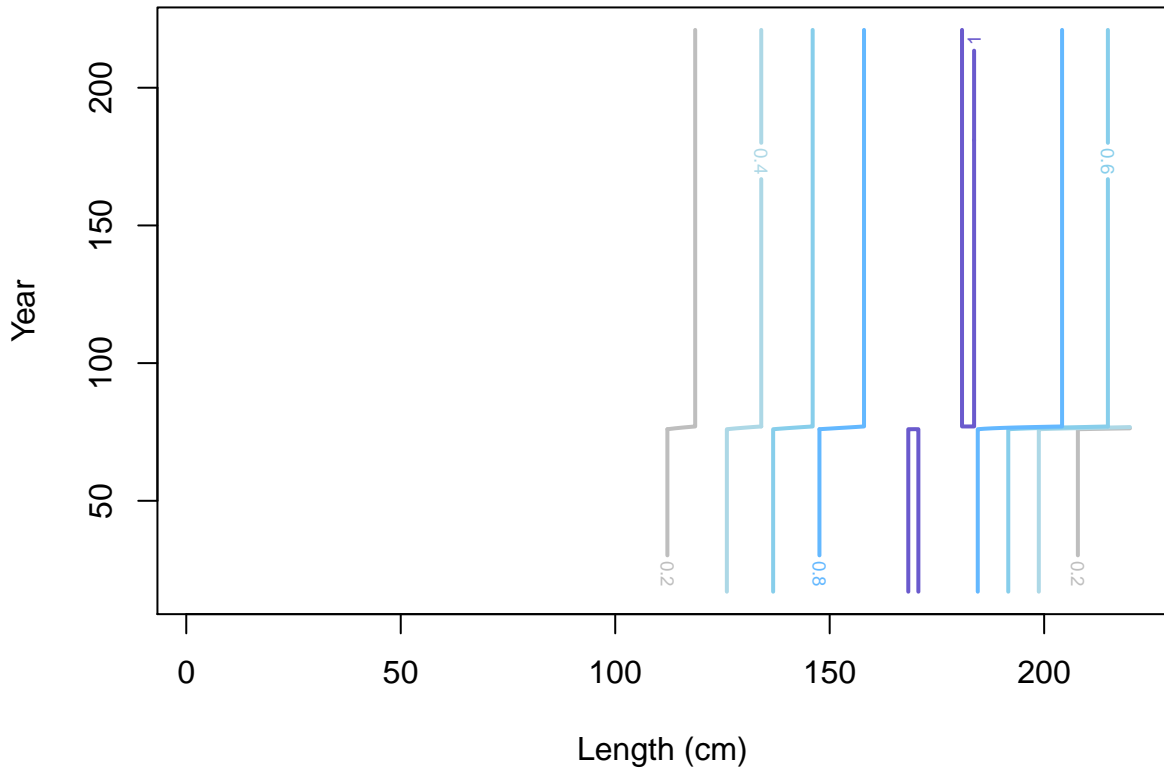
## Female ending year selectivity for A4-LL-n



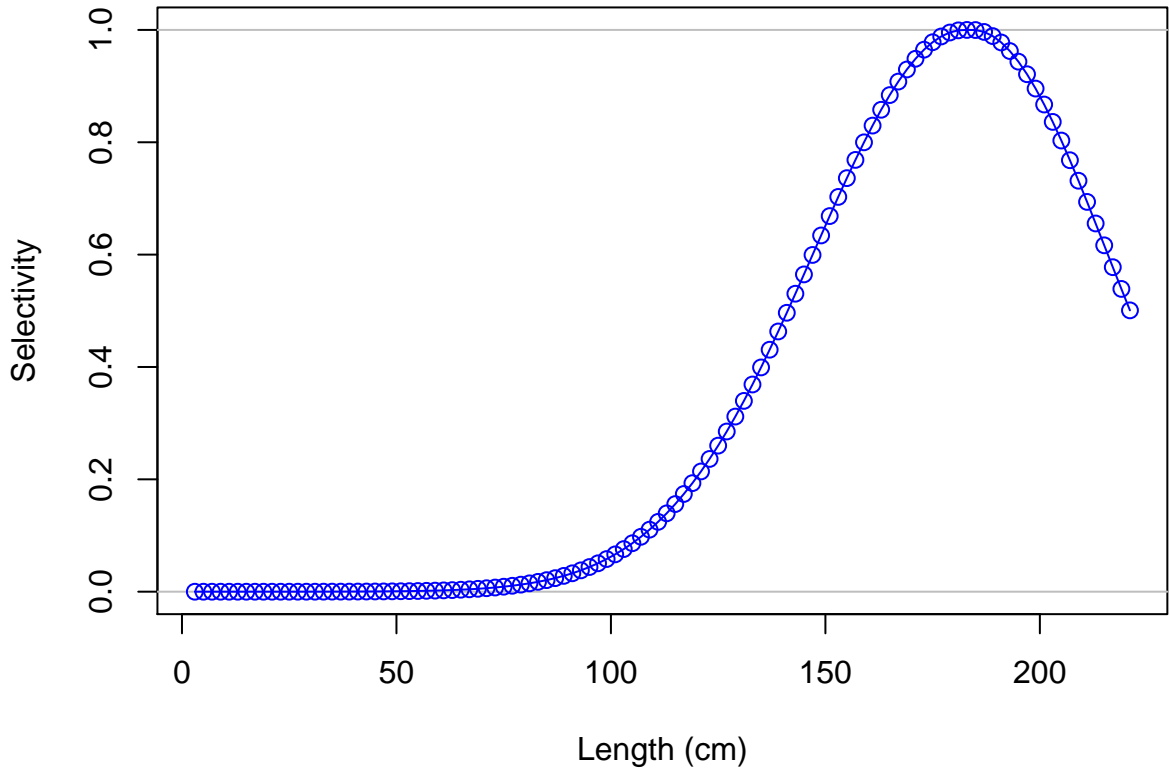
## Male time-varying selectivity for A4-LL-n



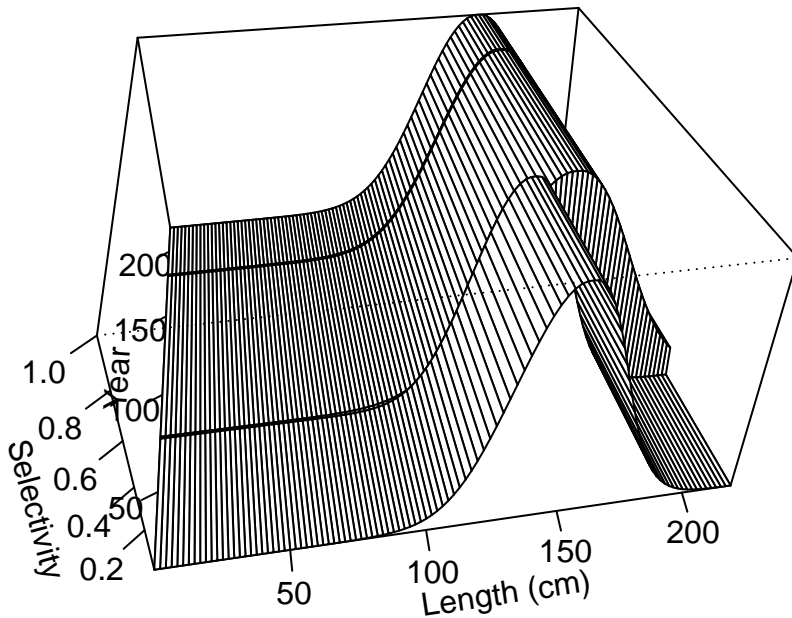
# Male time-varying selectivity for A4-LL-n



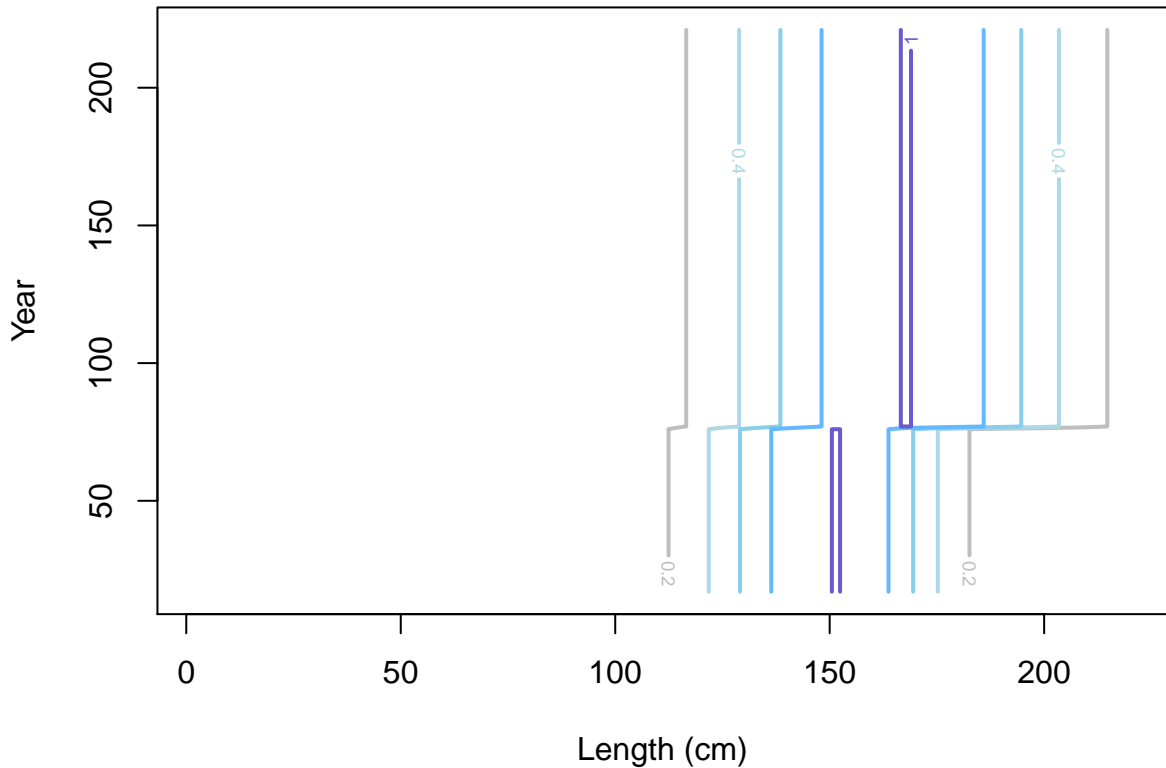
# Male ending year selectivity for A4-LL-n



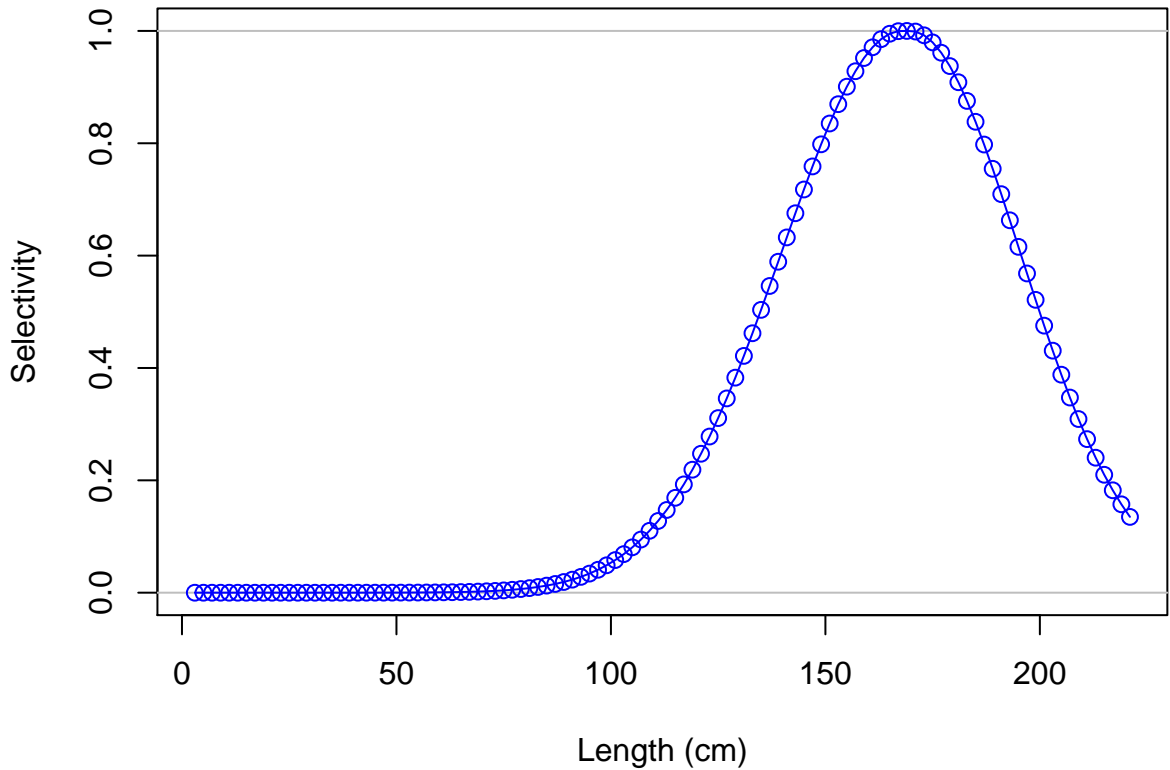
## Female time-varying selectivity for A5-LL-n



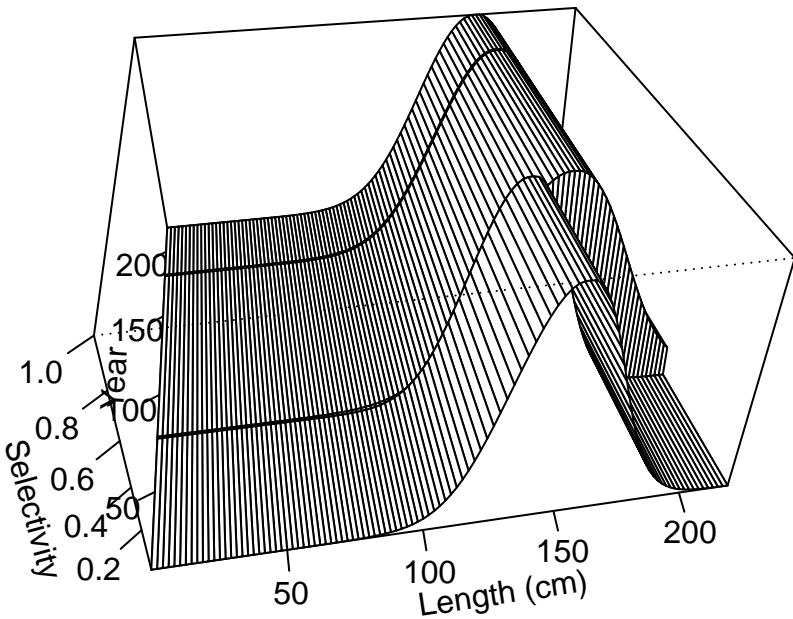
## Female time-varying selectivity for A5-LL-n



## Female ending year selectivity for A5-LL-n

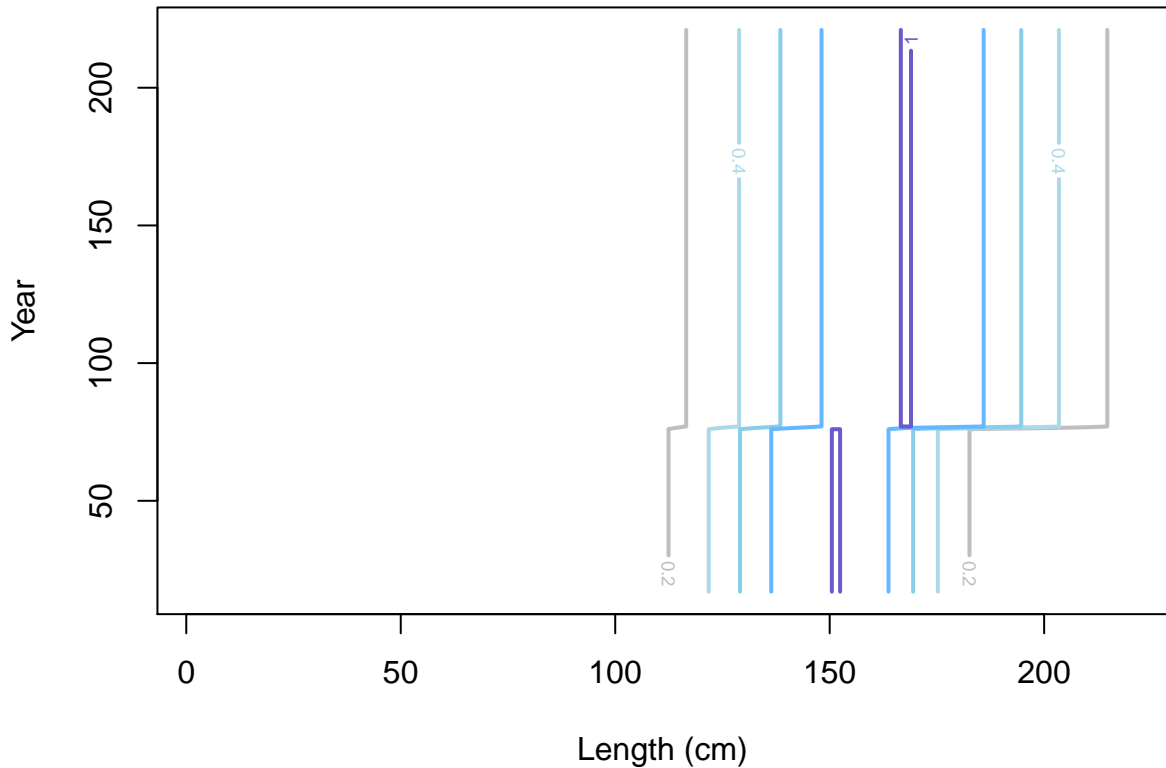


# Male time-varying selectivity for A5-LL-n

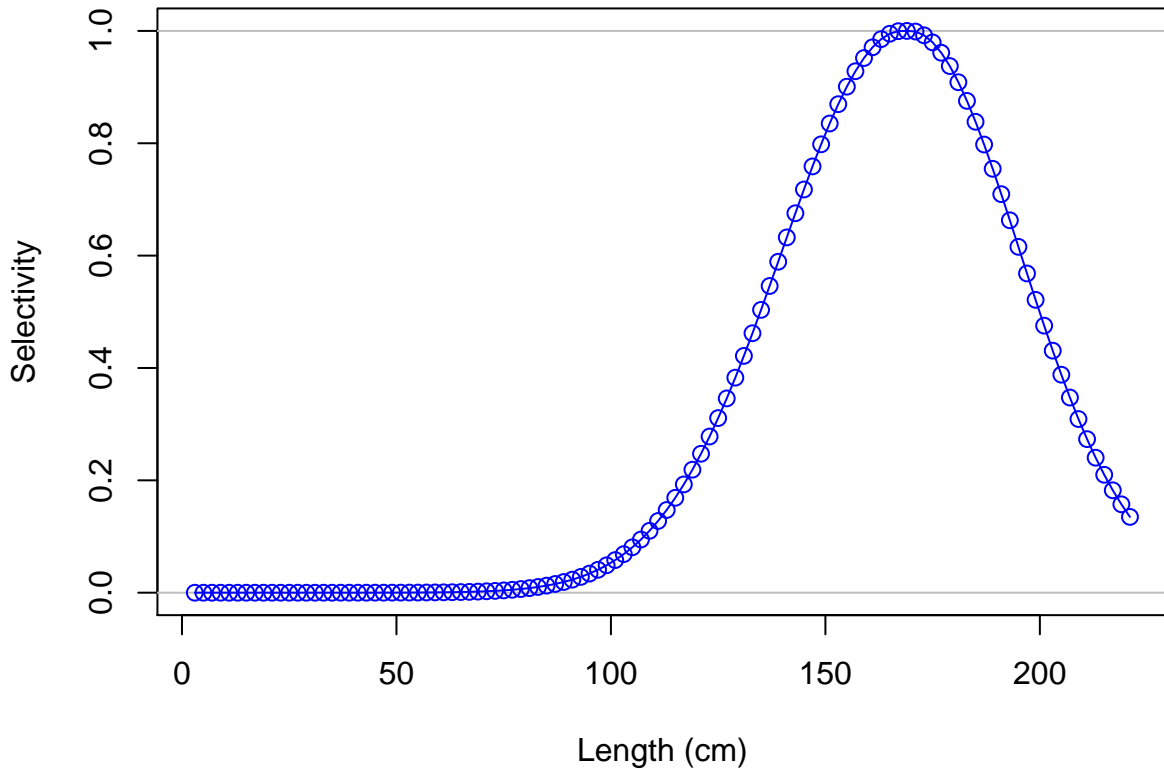




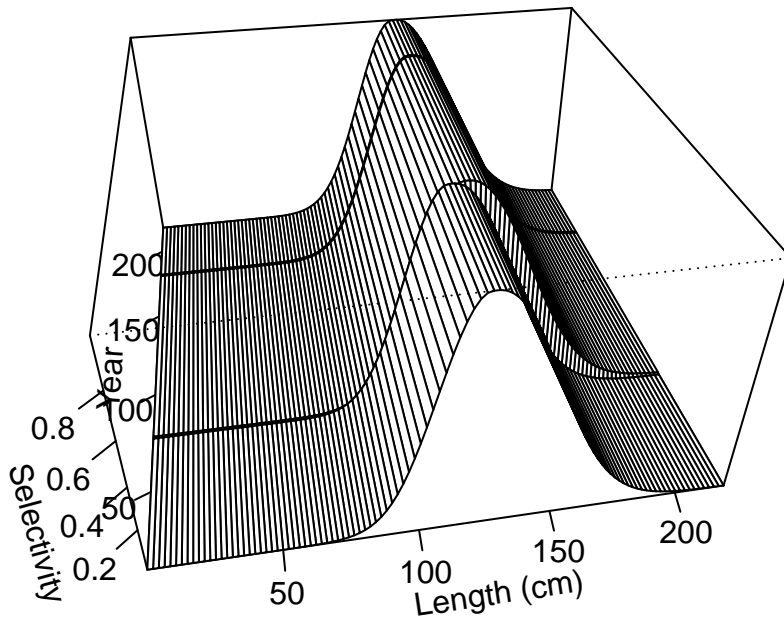
# Male time-varying selectivity for A5-LL-n



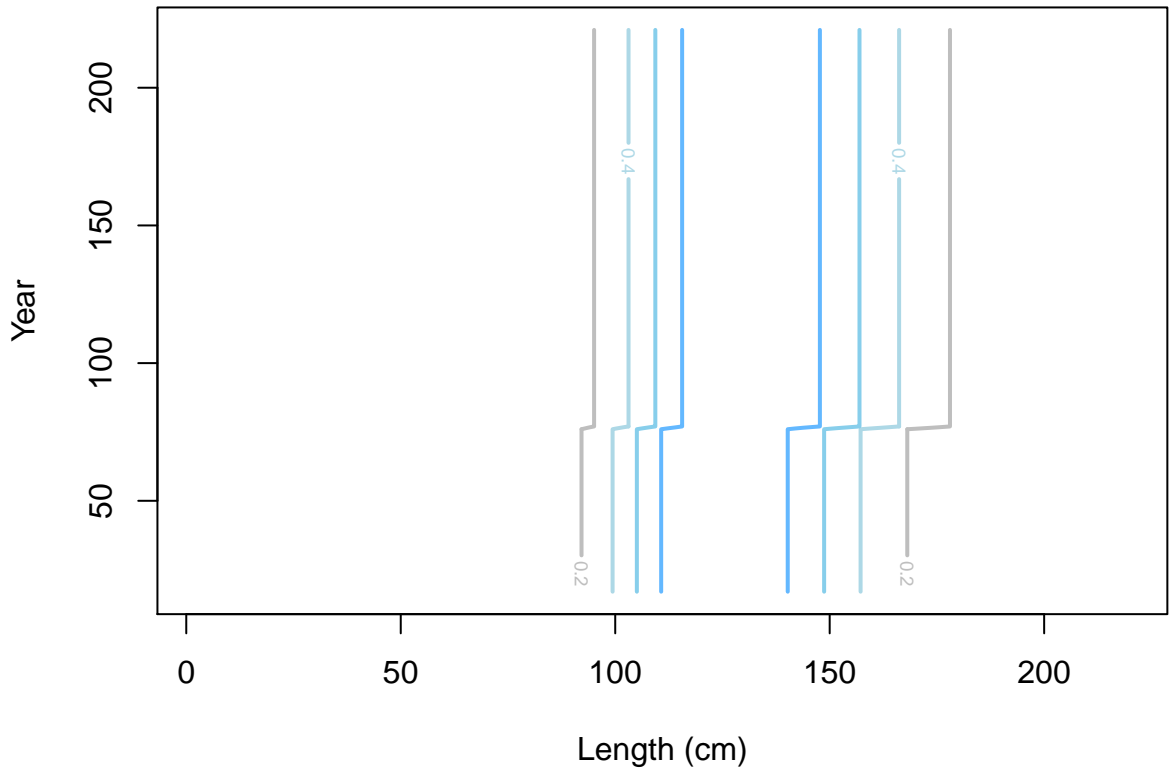
## Male ending year selectivity for A5-LL-n



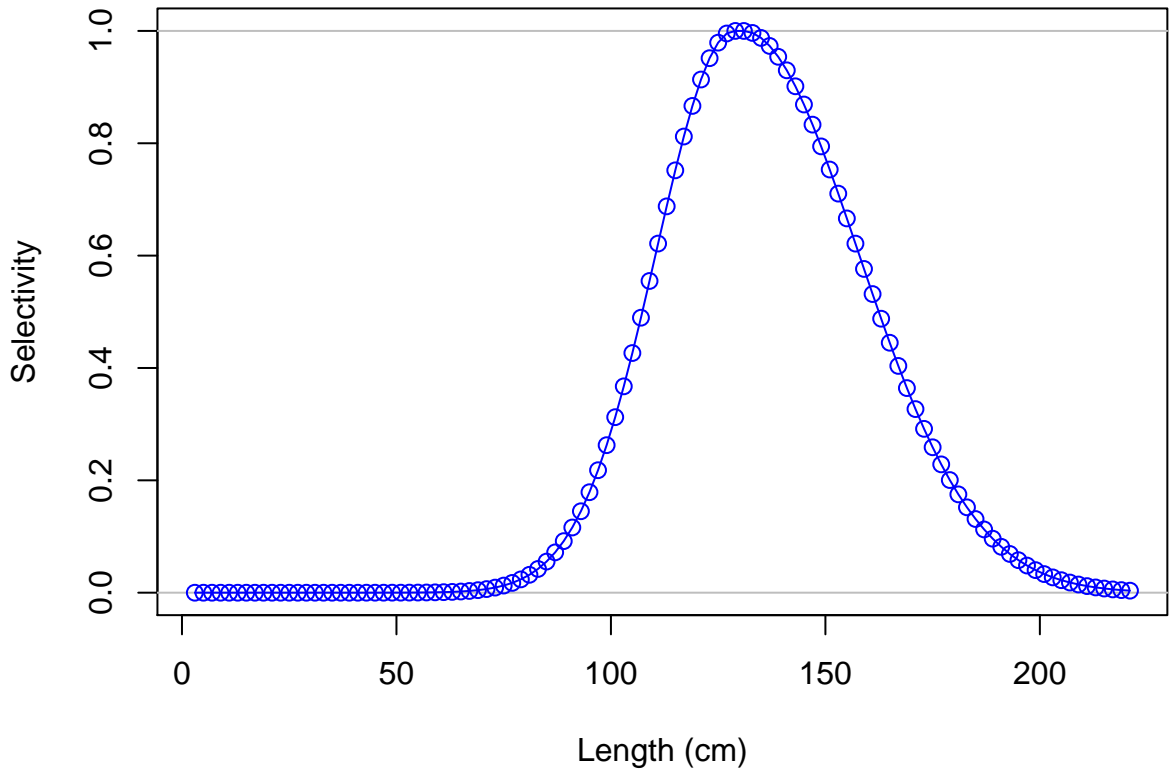
## Female time-varying selectivity for A6-LL-n



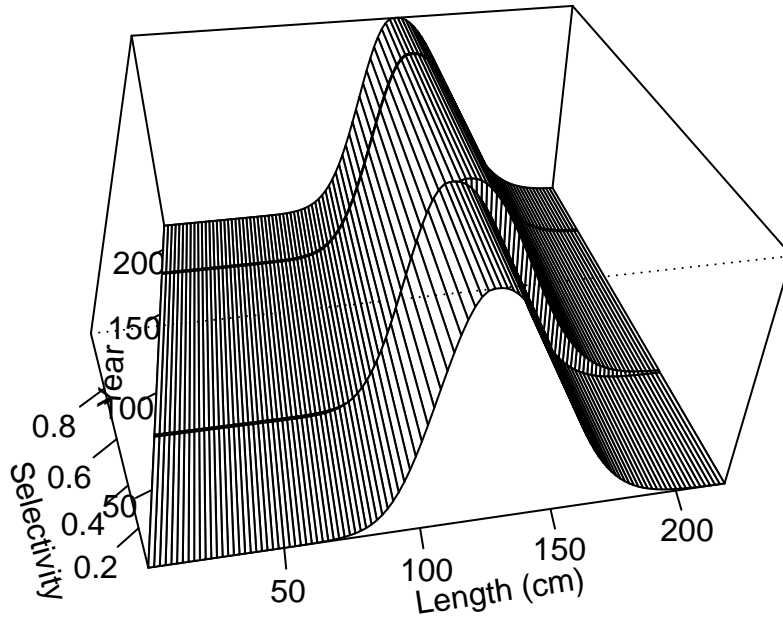
# Female time-varying selectivity for A6-LL-n



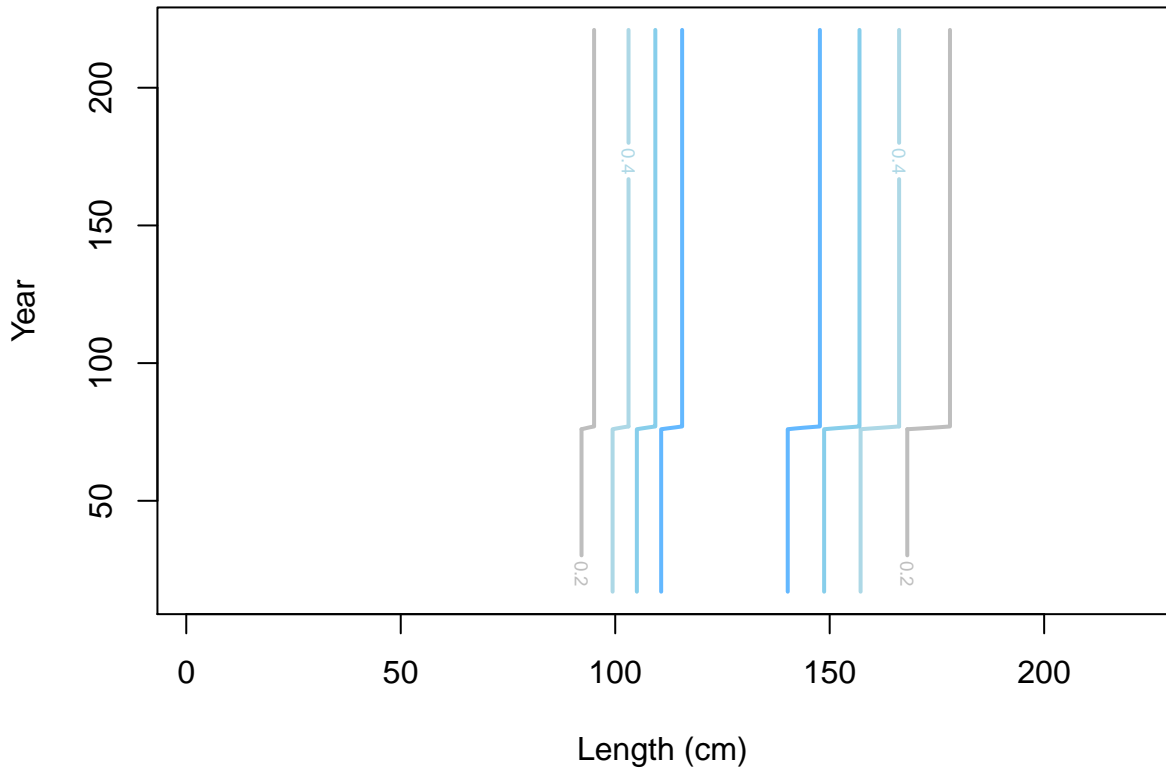
## Female ending year selectivity for A6-LL-n



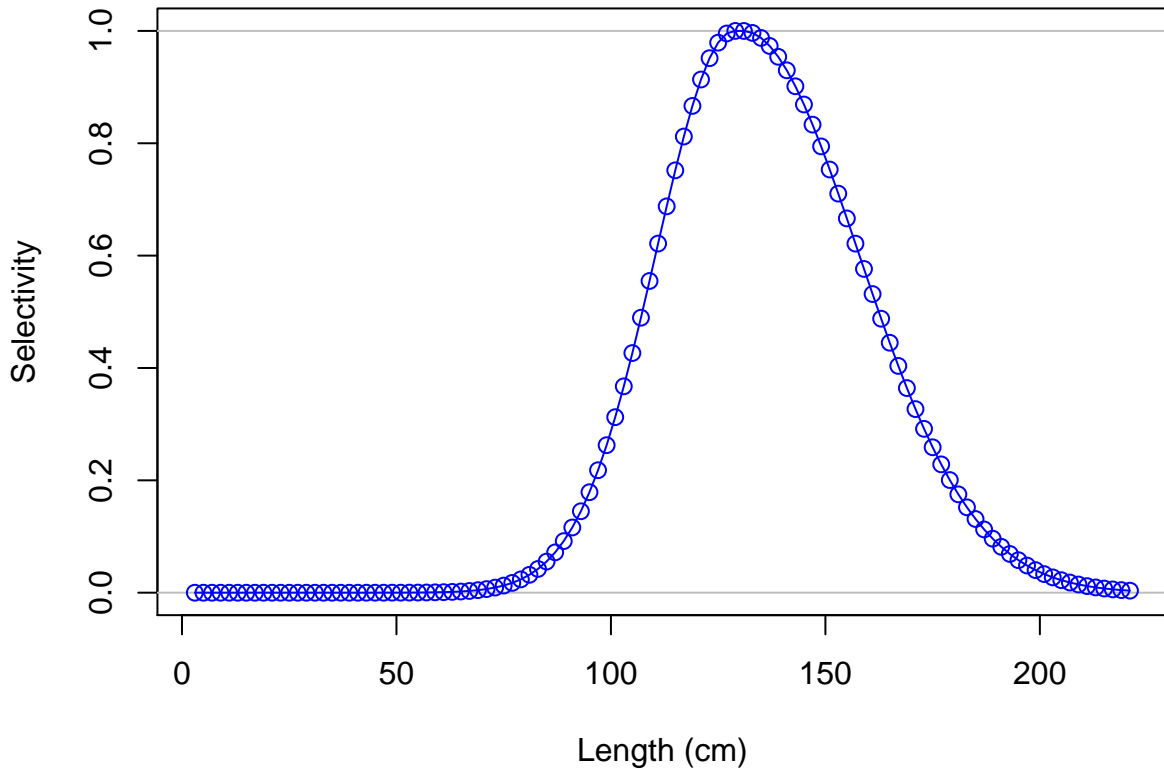
## Male time-varying selectivity for A6-LL-n



# Male time-varying selectivity for A6-LL-n

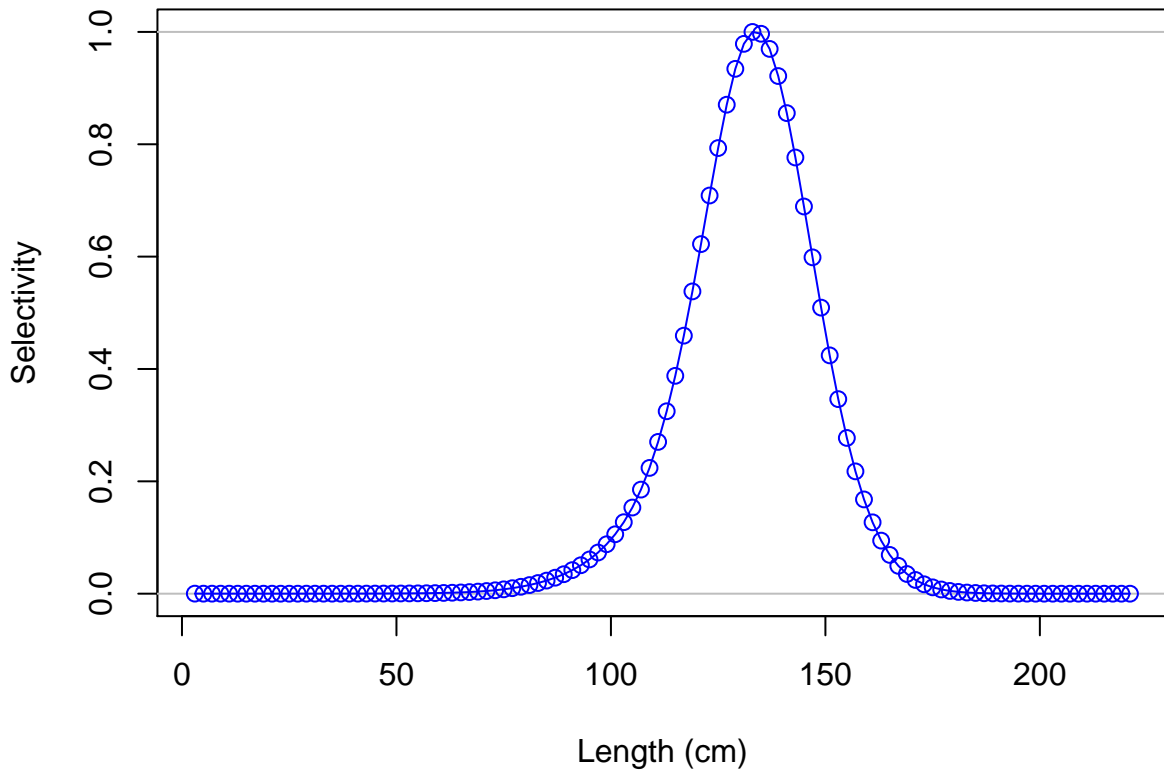


## Male ending year selectivity for A6-LL-n

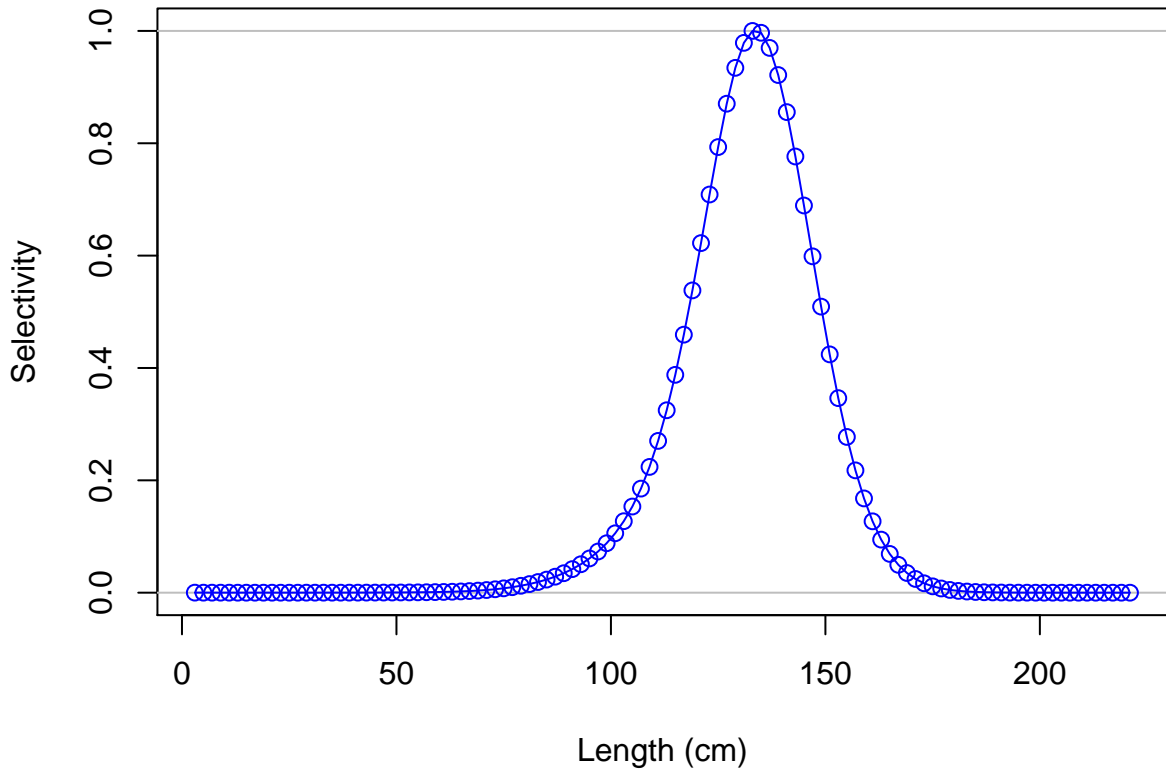




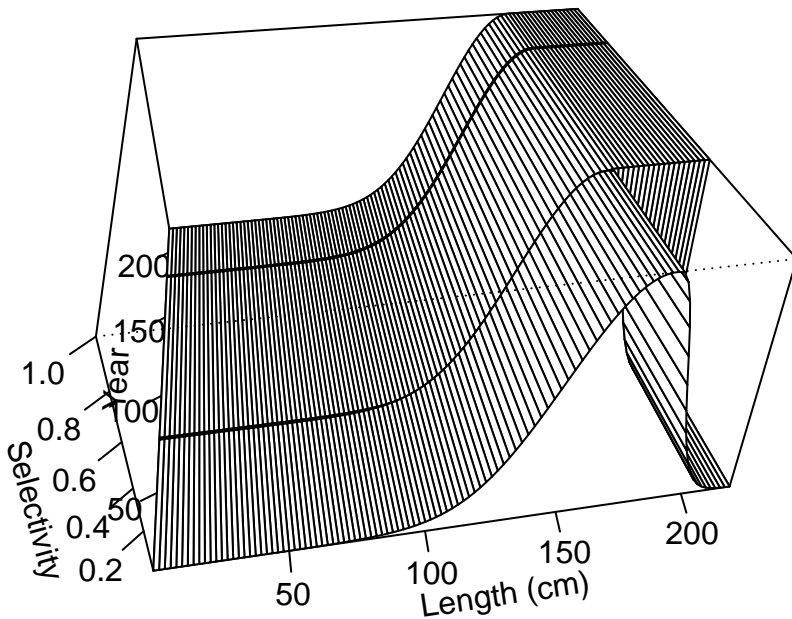
## Female ending year selectivity for A1-LL-w



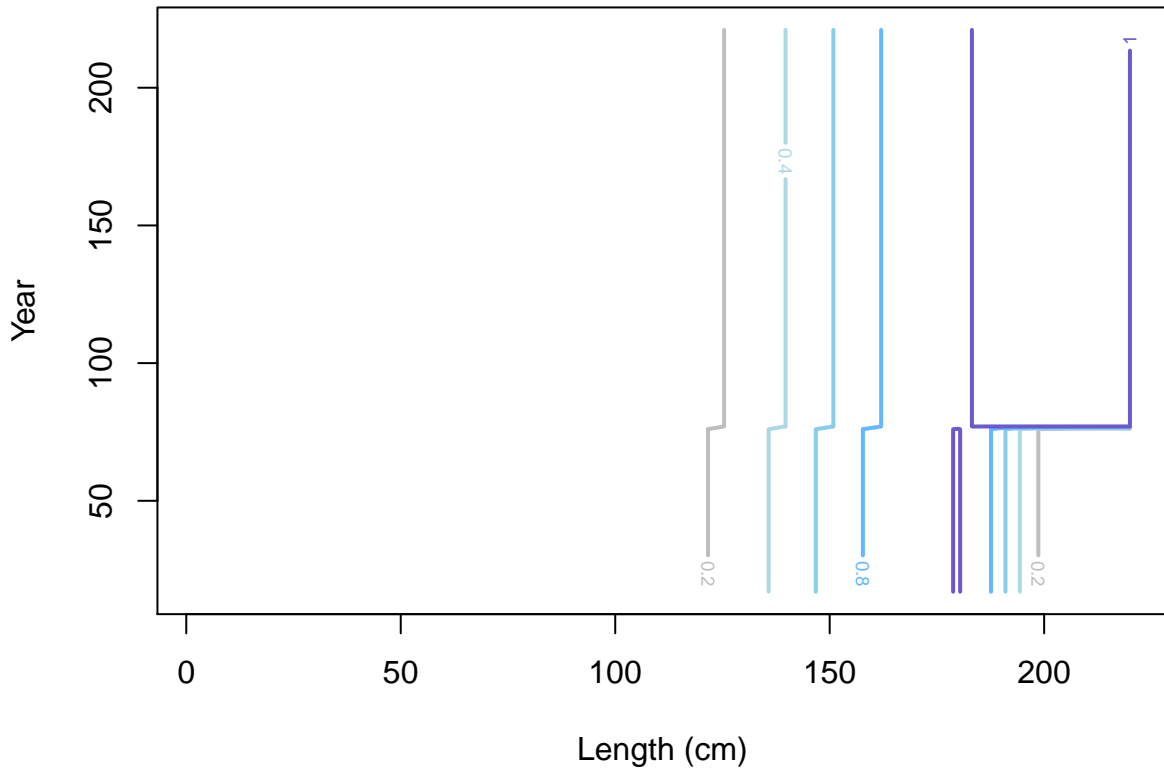
# Male ending year selectivity for A1-LL-w



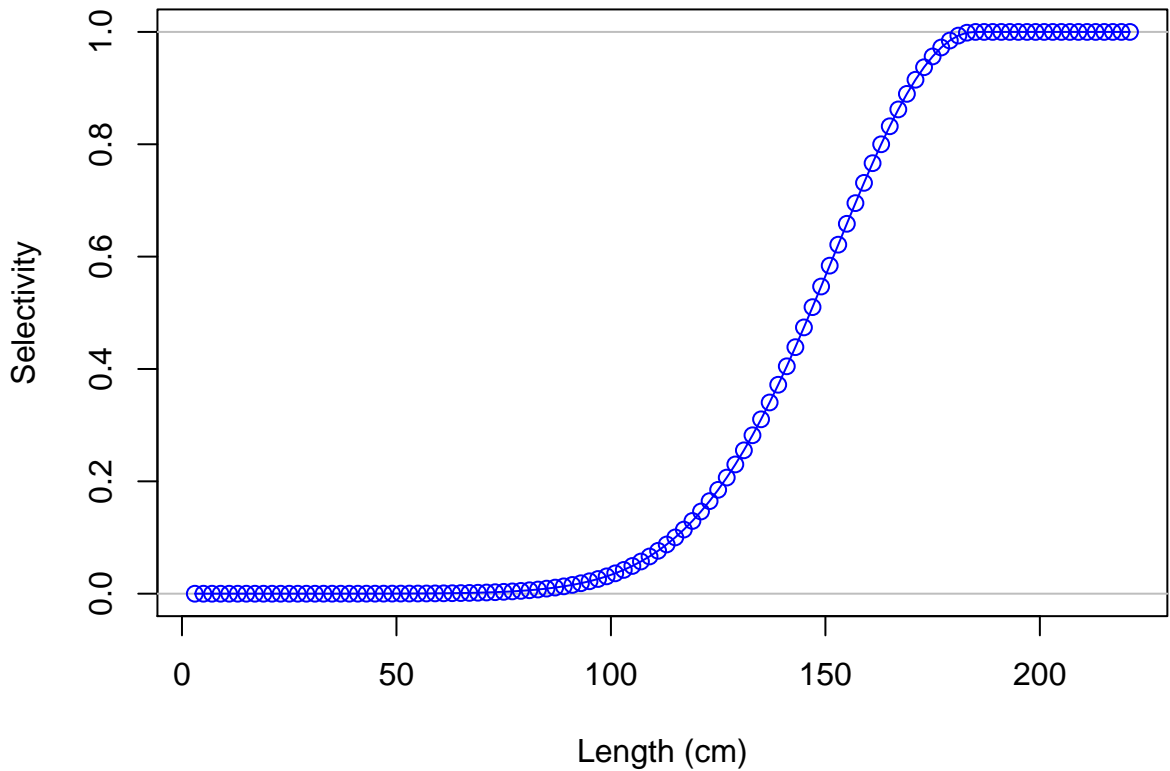
## Female time-varying selectivity for A2-LL-w



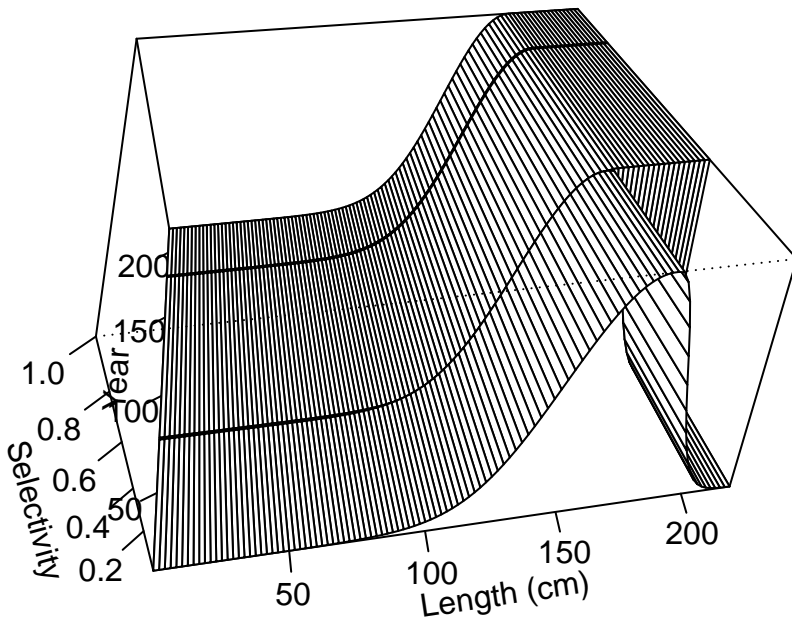
## Female time-varying selectivity for A2-LL-w



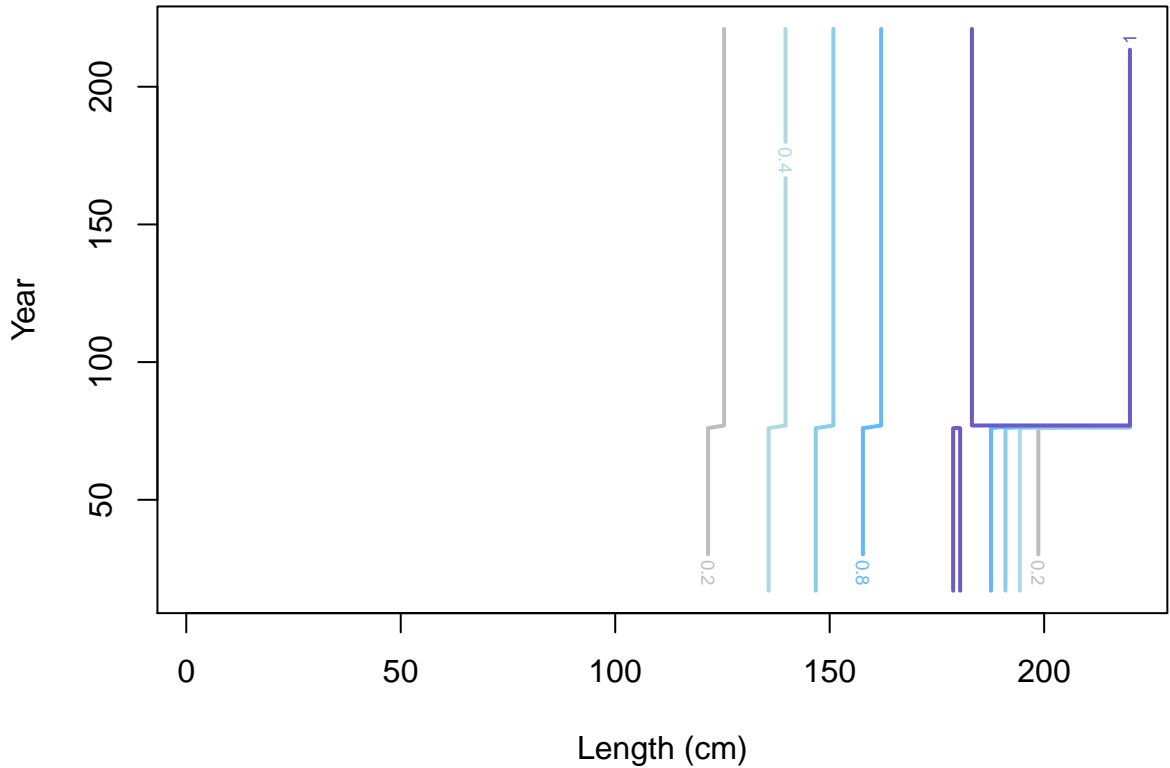
## Female ending year selectivity for A2-LL-w



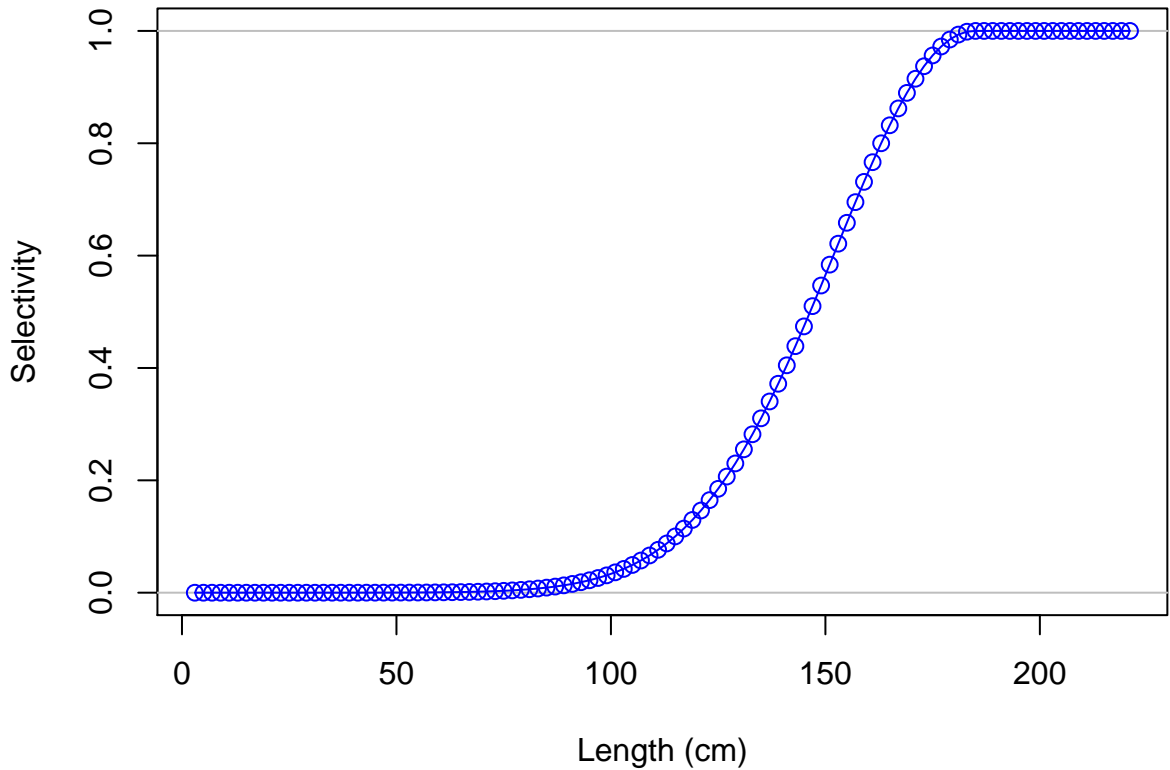
## Male time-varying selectivity for A2-LL-w



# Male time-varying selectivity for A2-LL-w

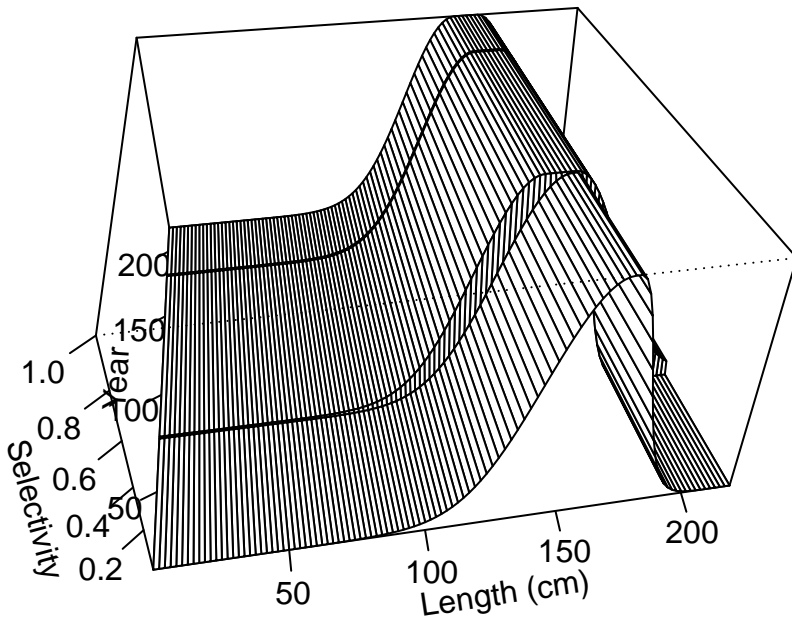


## Male ending year selectivity for A2-LL-w

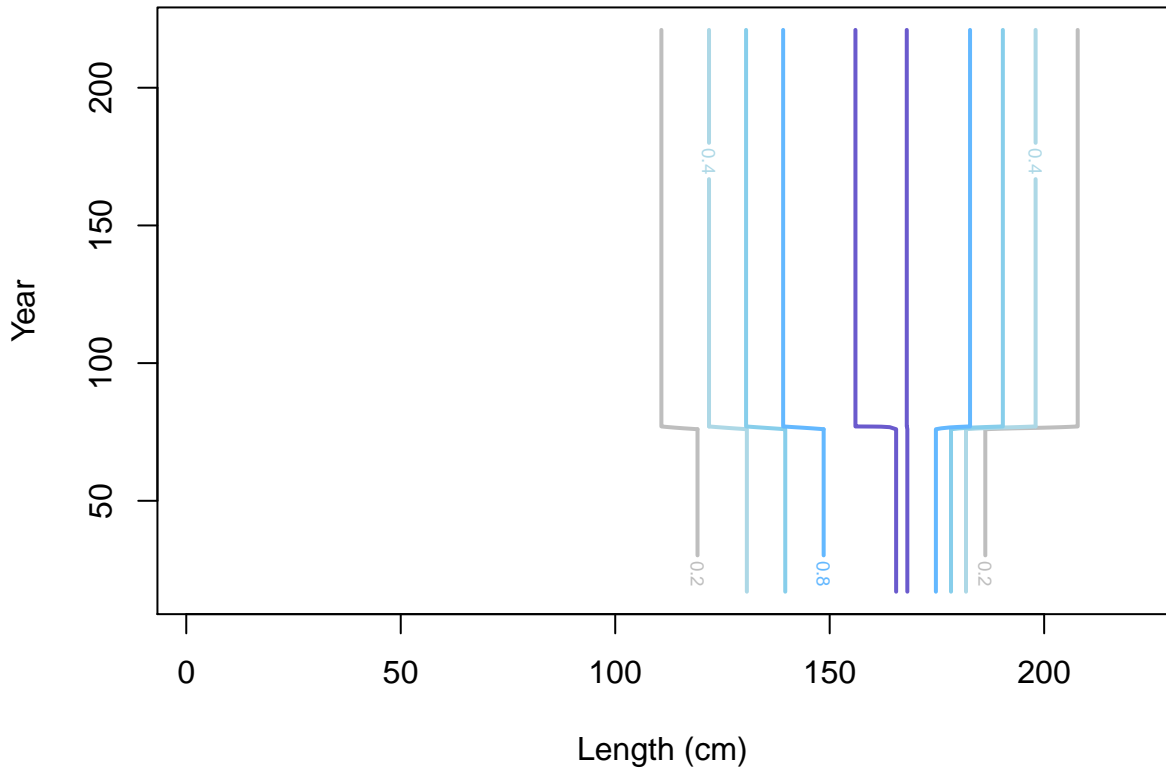




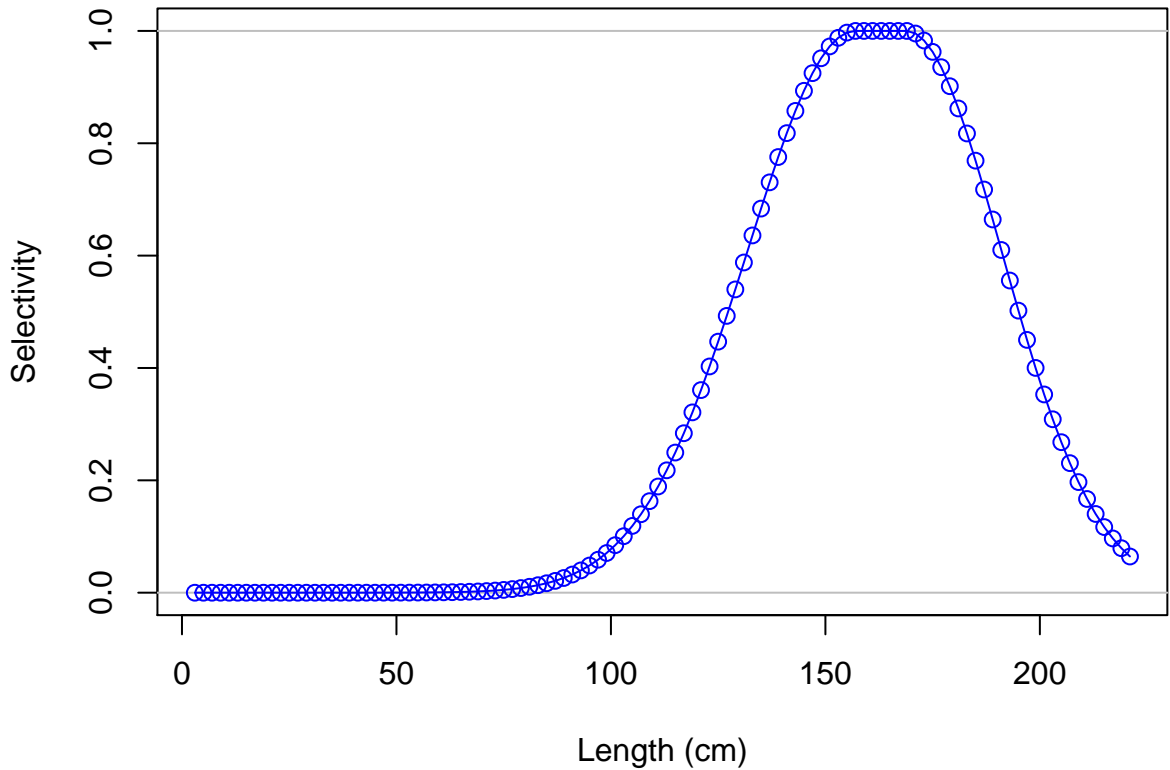
## Female time-varying selectivity for A3-LL-w



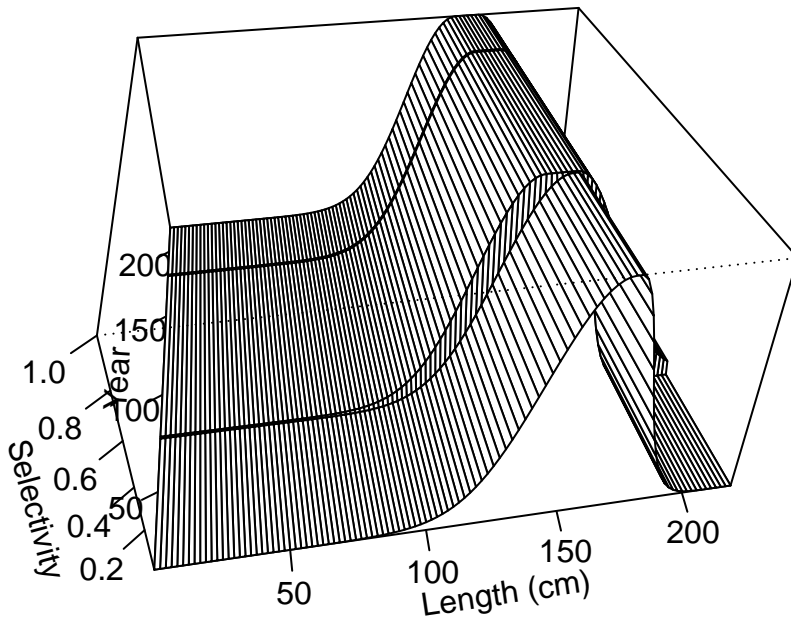
# Female time-varying selectivity for A3-LL-w



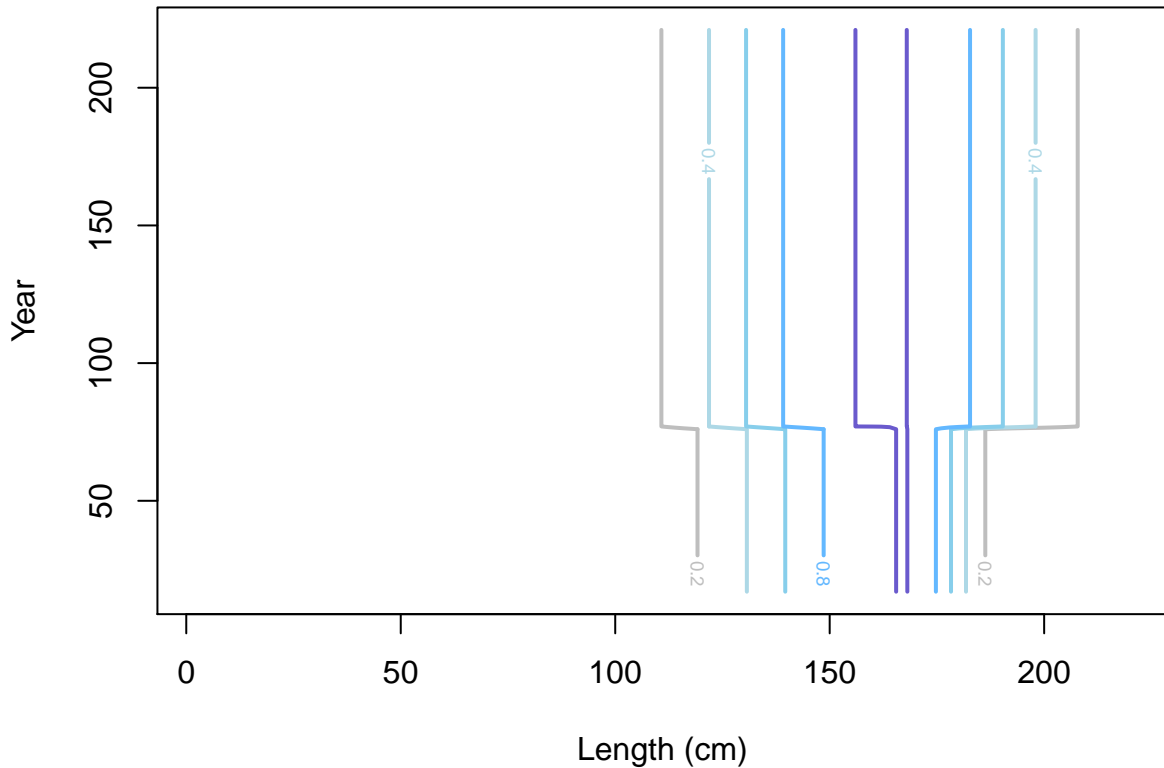
## Female ending year selectivity for A3-LL-w



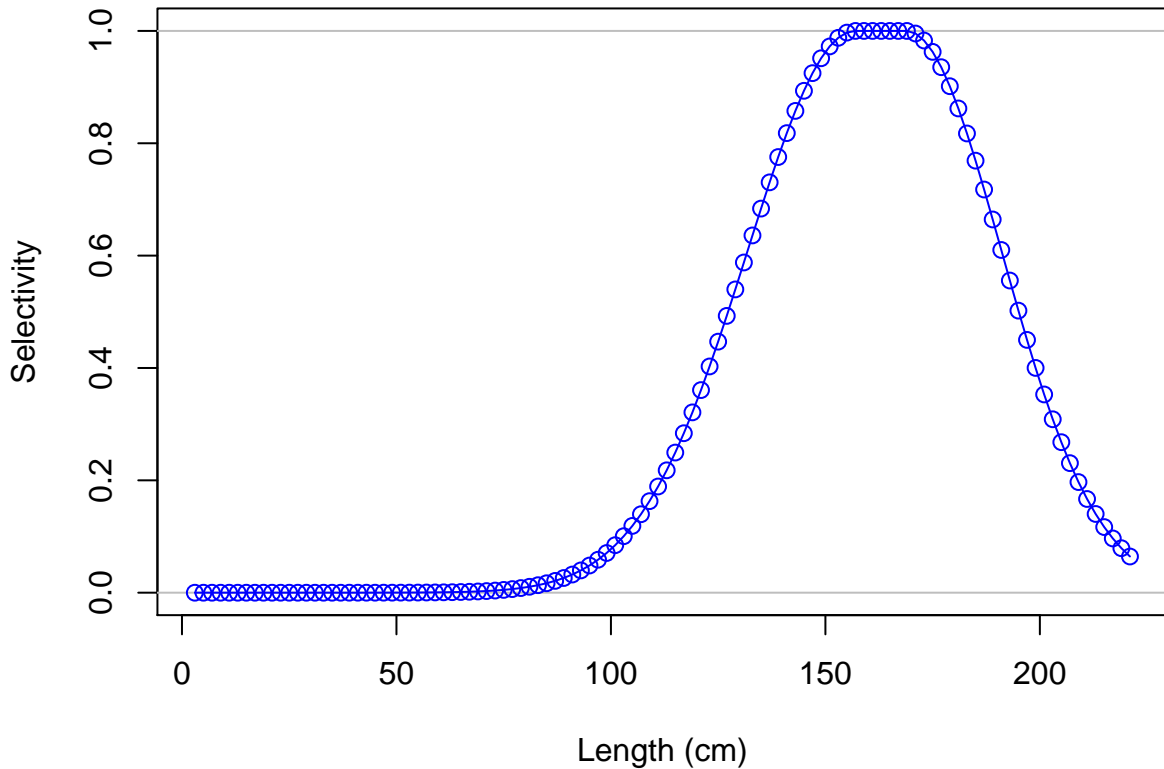
# Male time-varying selectivity for A3-LL-w



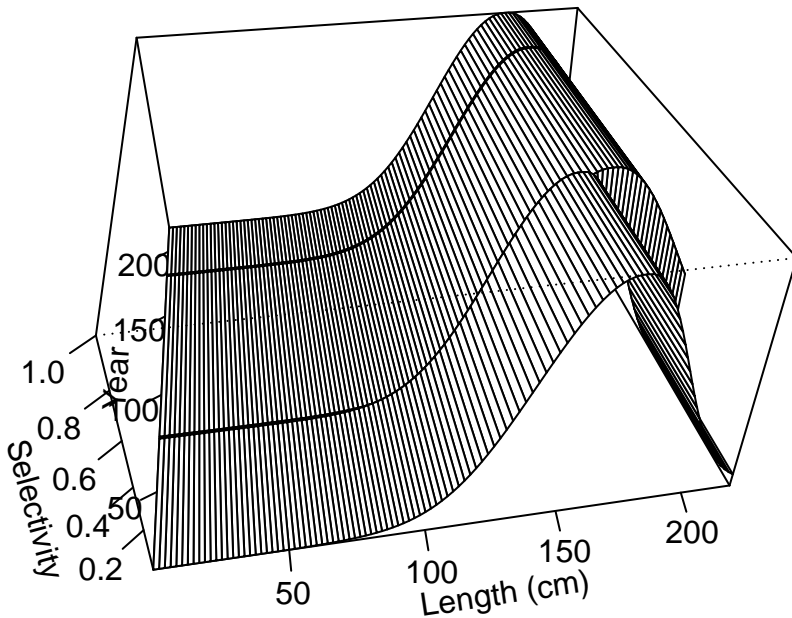
# Male time-varying selectivity for A3-LL-w



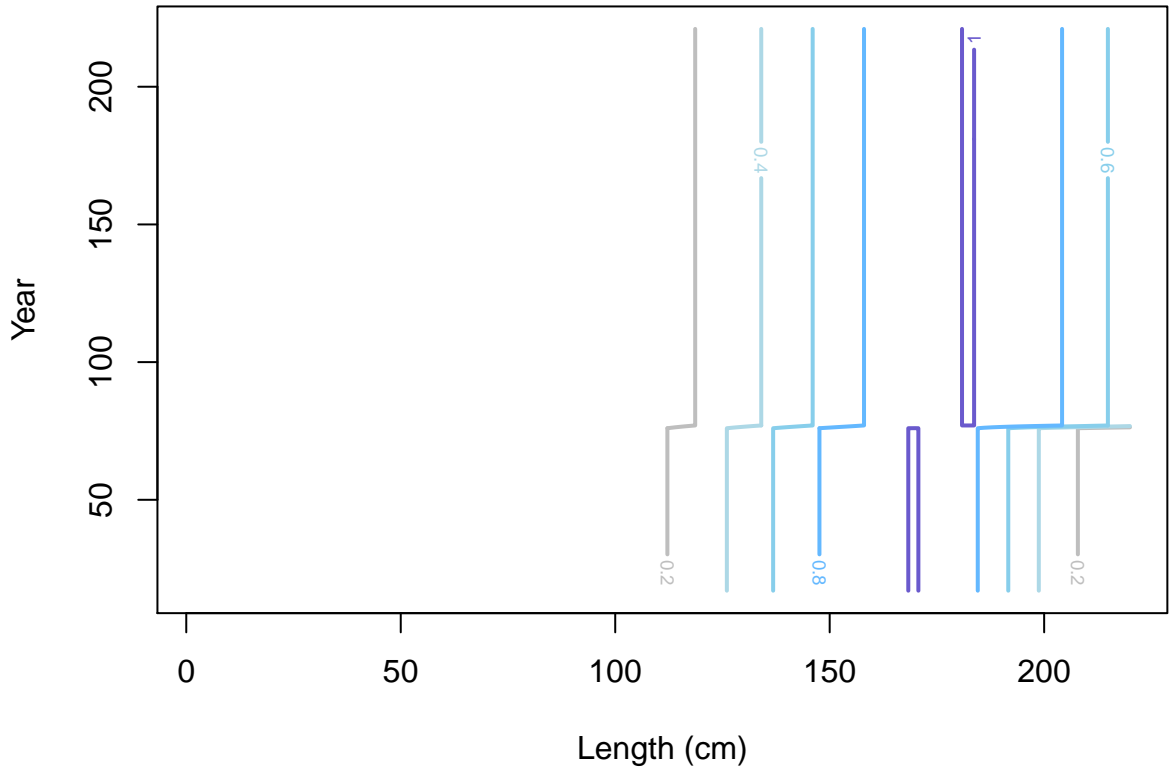
### Male ending year selectivity for A3-LL-w



## Female time-varying selectivity for A4-LL-w

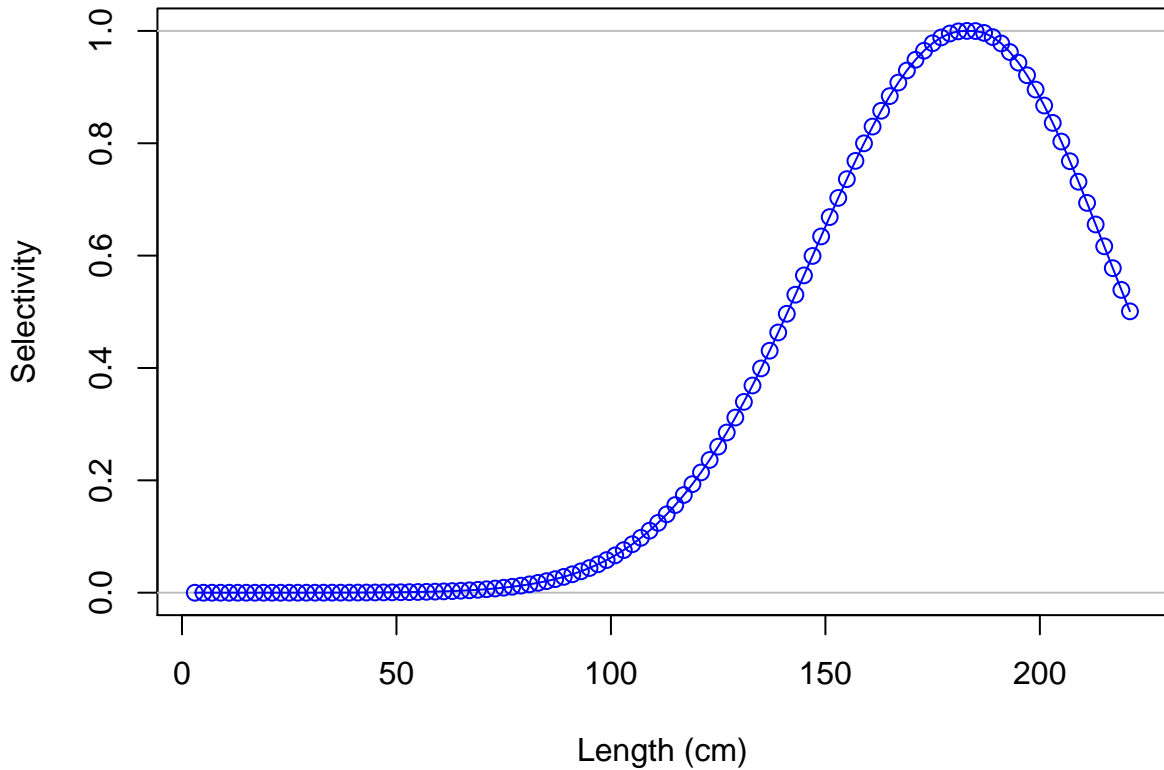


# Female time-varying selectivity for A4-LL-w

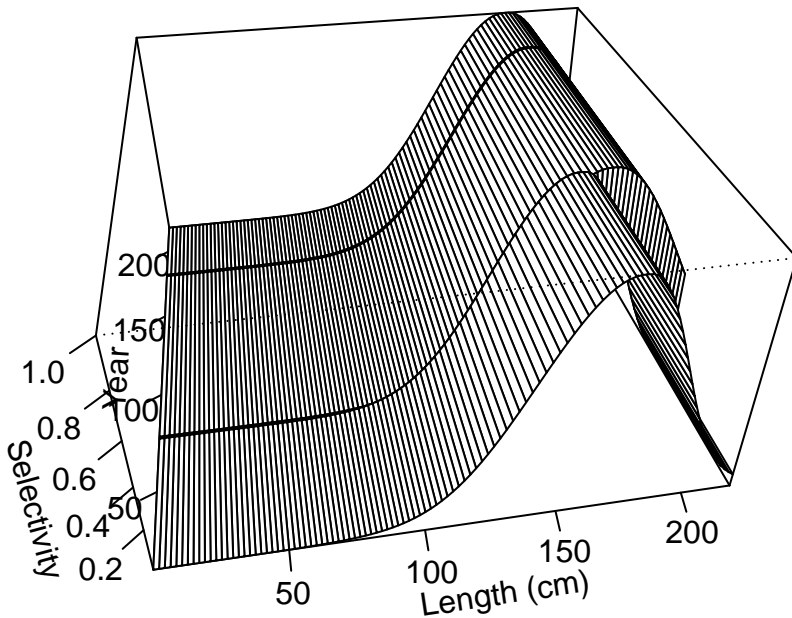




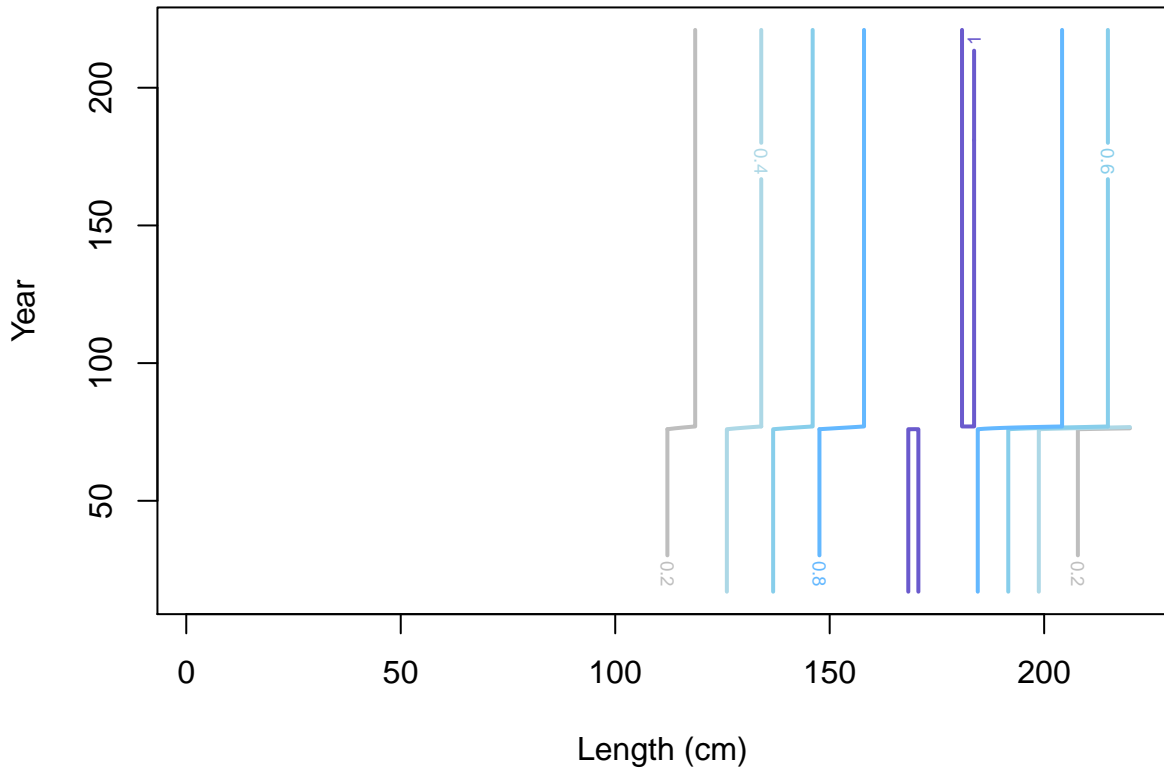
## Female ending year selectivity for A4-LL-w



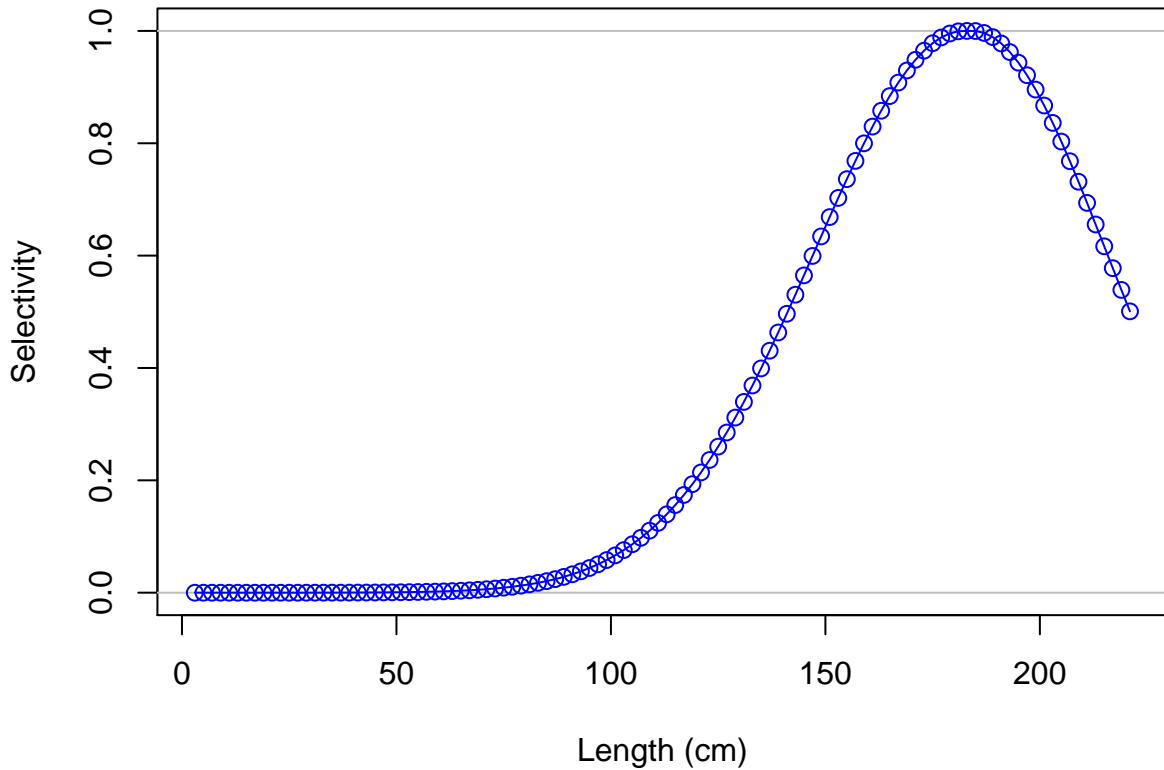
## Male time-varying selectivity for A4-LL-w



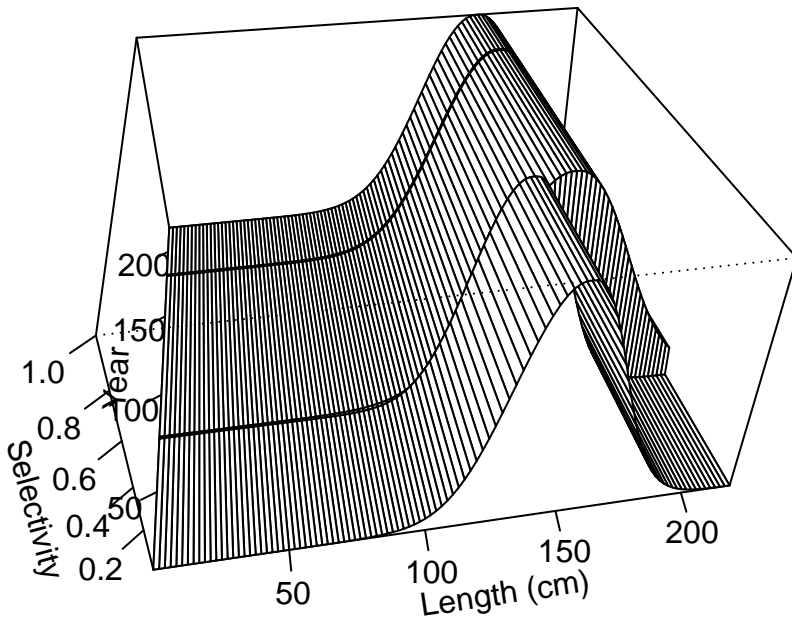
# Male time-varying selectivity for A4-LL-w



### Male ending year selectivity for A4-LL-w

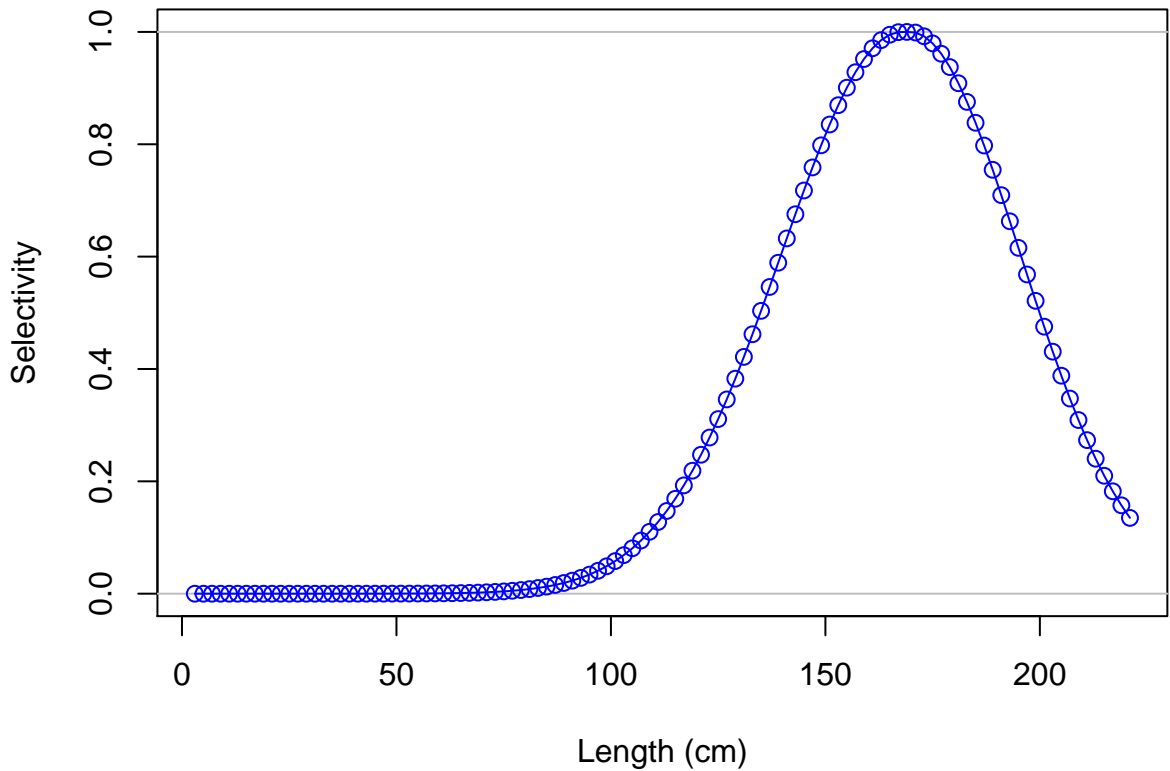


## Female time-varying selectivity for A5-LL-w

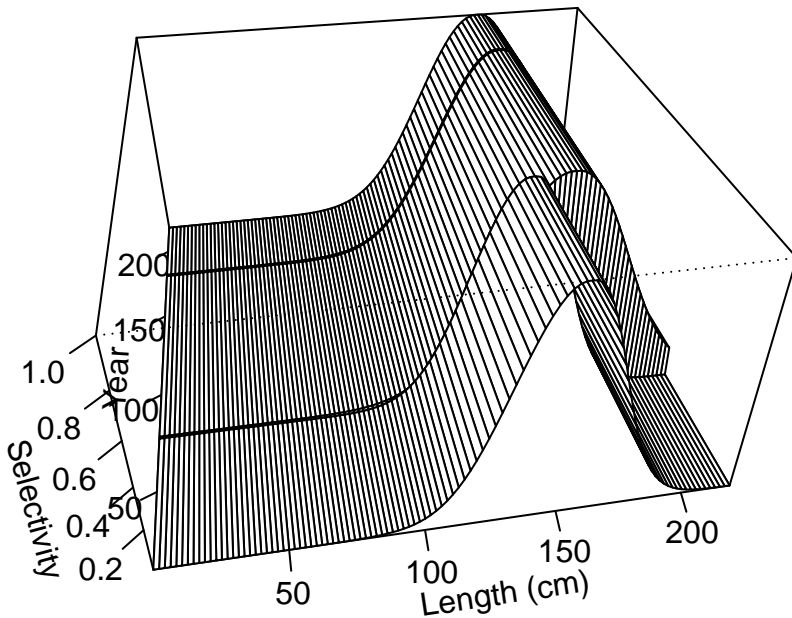




## Female ending year selectivity for A5-LL-w

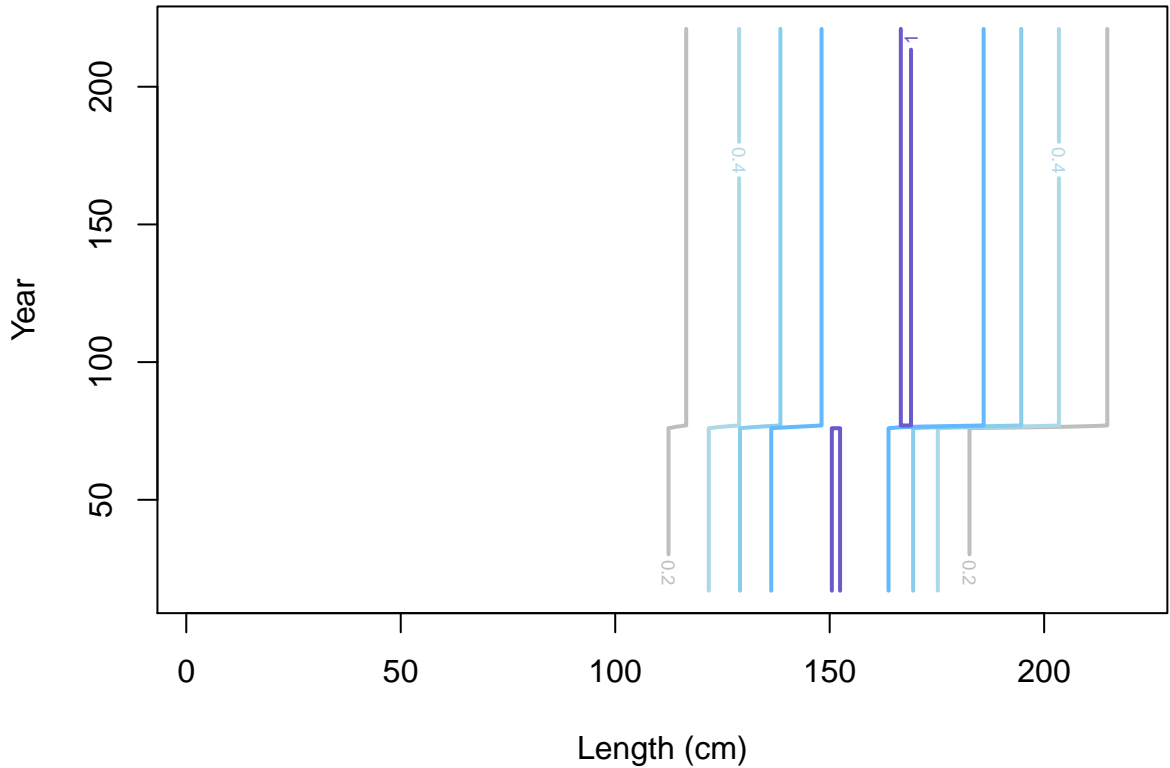


# Male time-varying selectivity for A5-LL-w

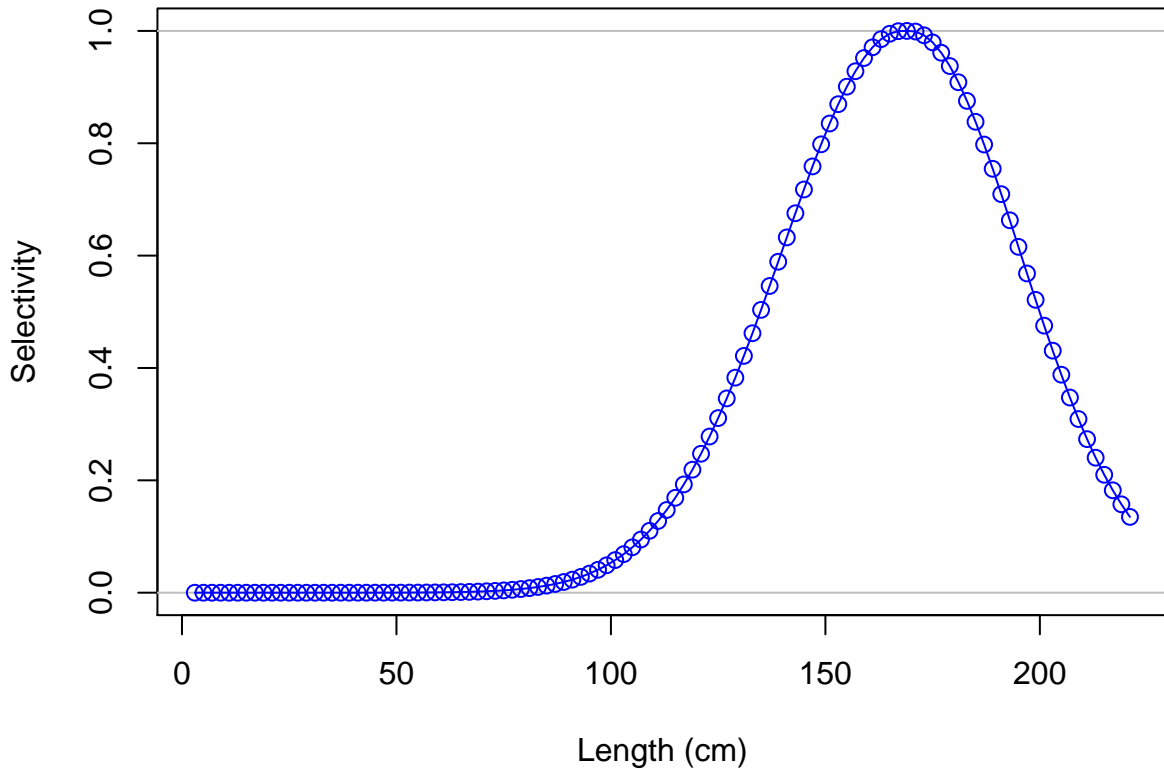




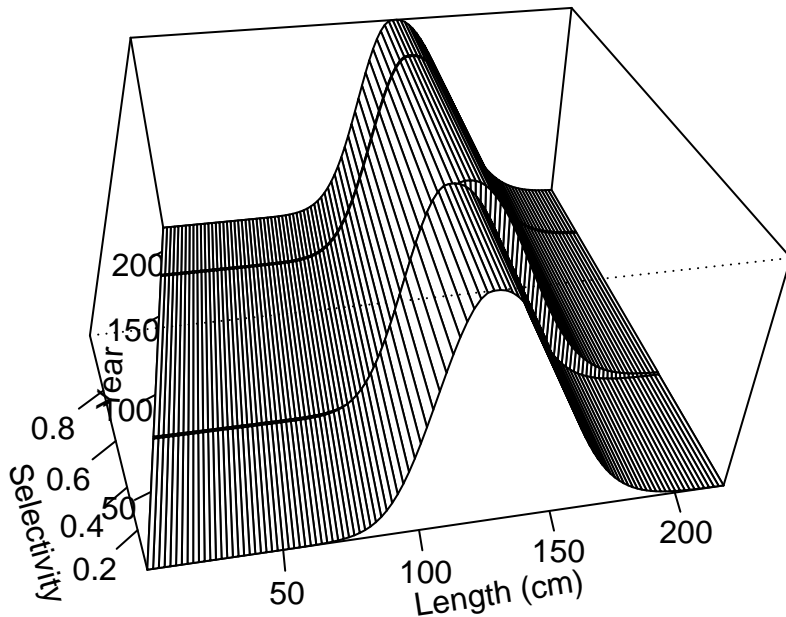
# Male time-varying selectivity for A5-LL-w



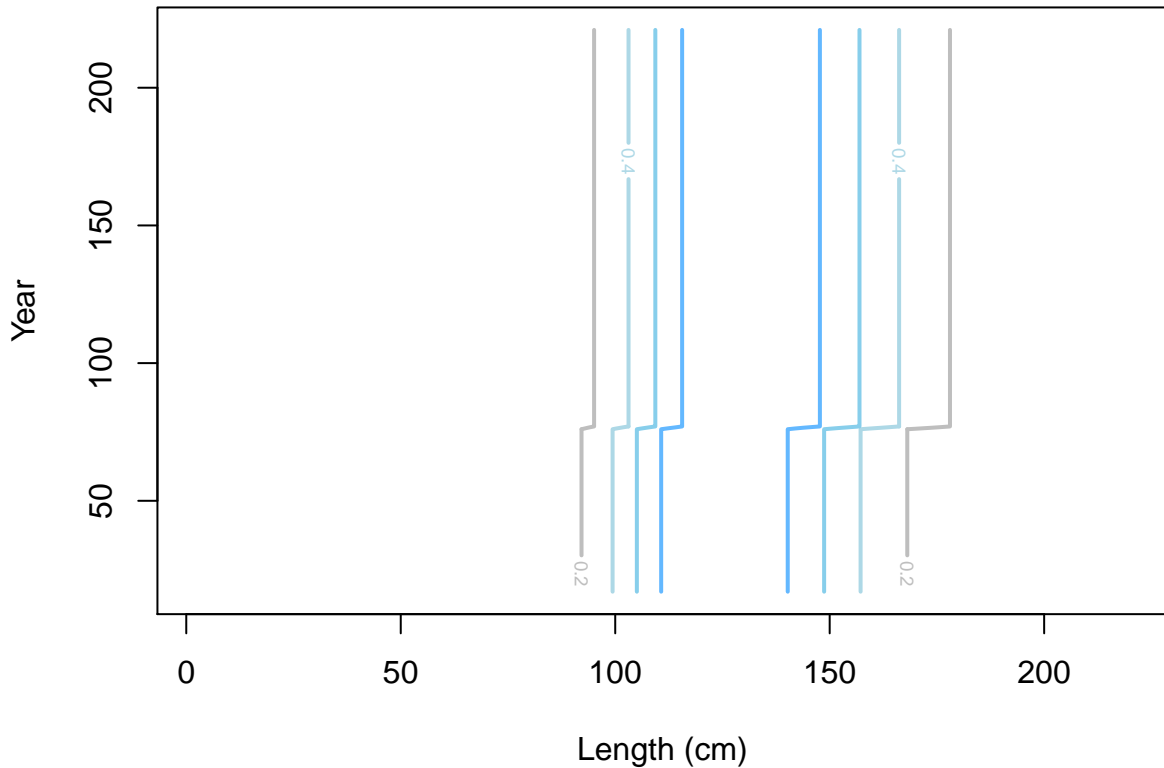
# Male ending year selectivity for A5-LL-w



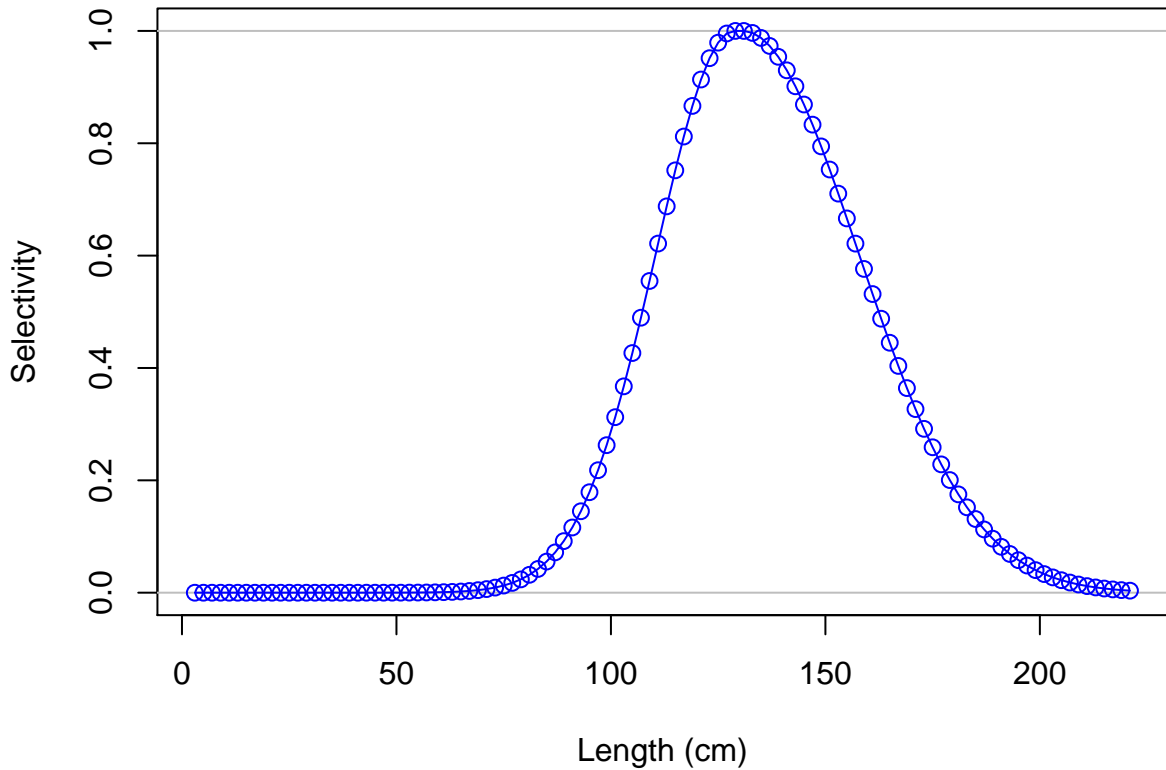
## Female time-varying selectivity for A6-LL-w



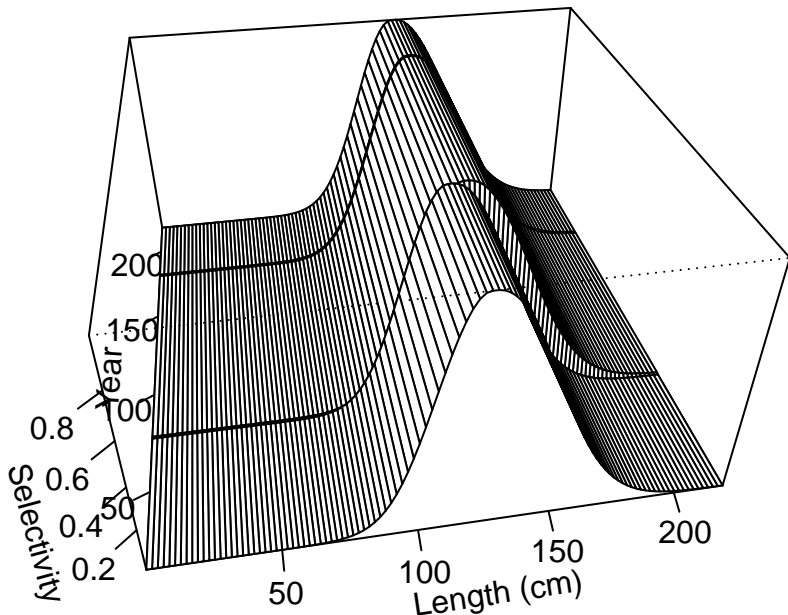
## Female time-varying selectivity for A6-LL-w



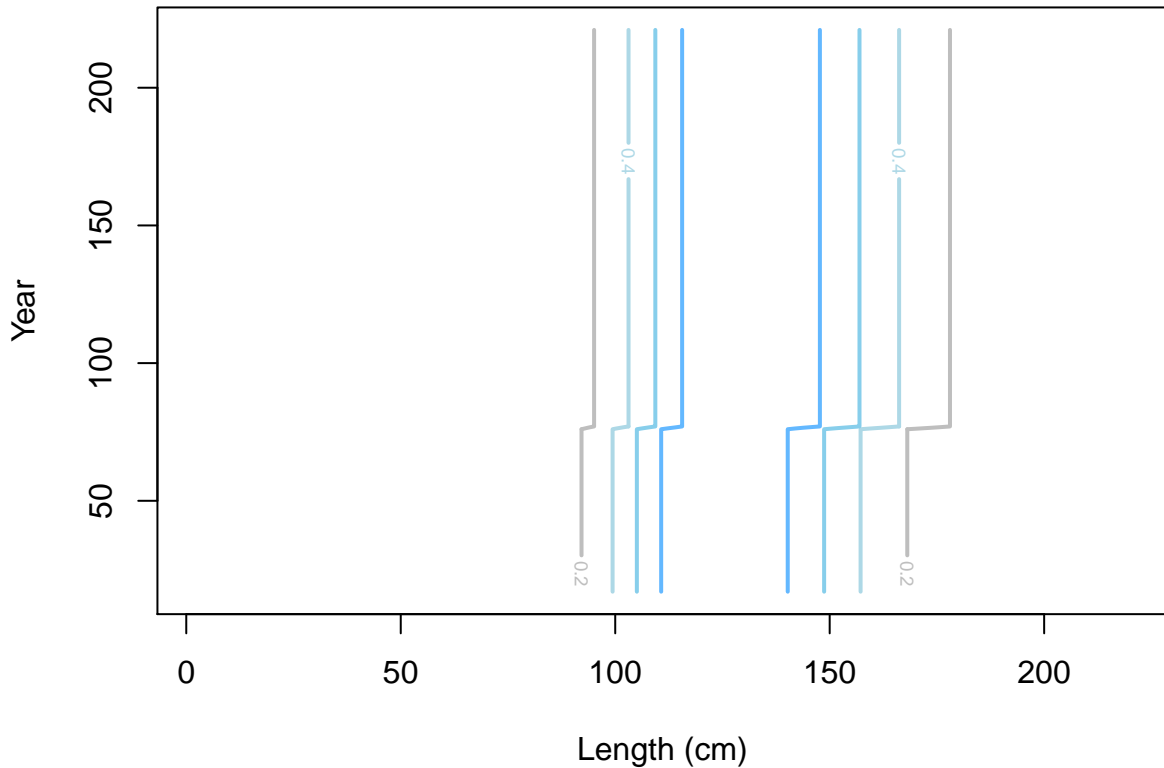
## Female ending year selectivity for A6-LL-w



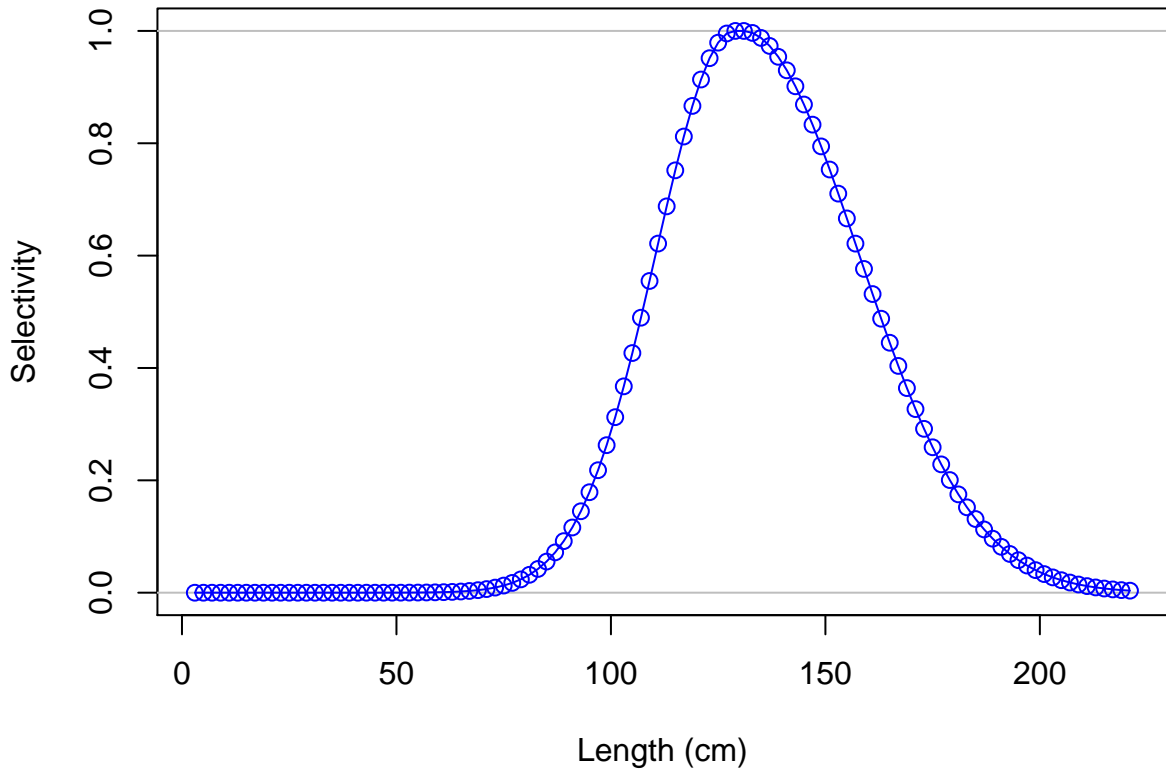
# Male time-varying selectivity for A6-LL-w



# Male time-varying selectivity for A6-LL-w

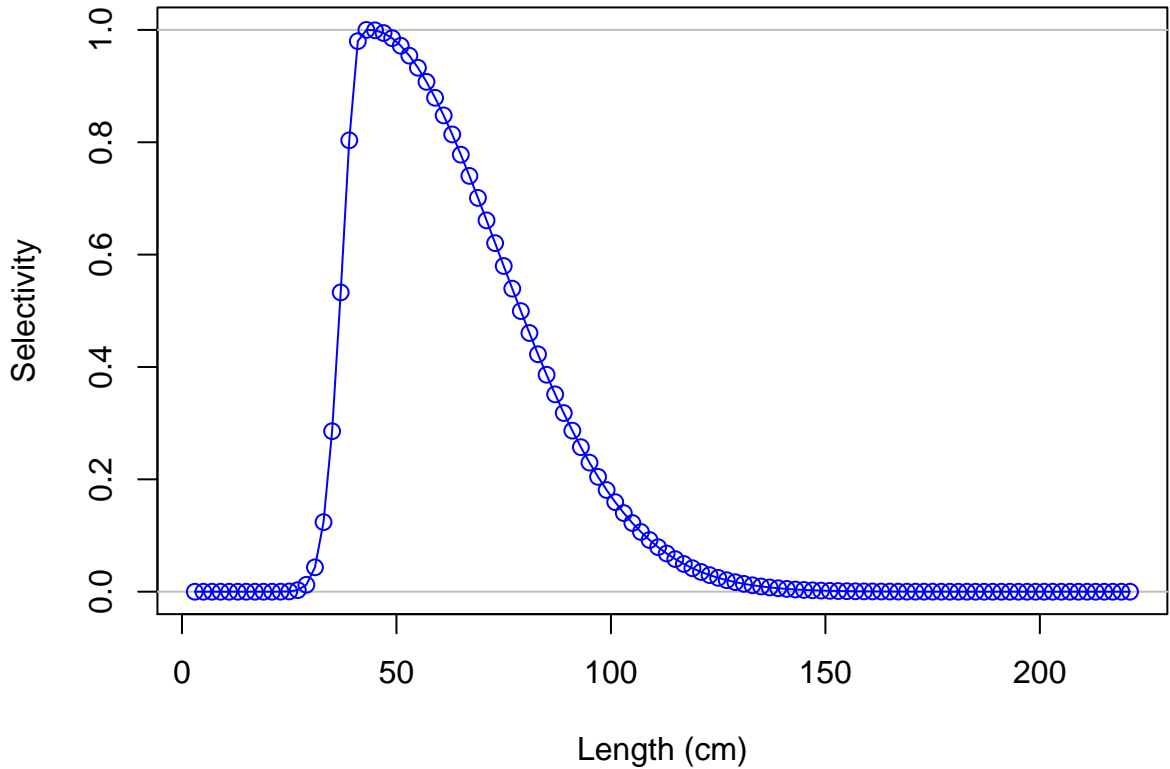


# Male ending year selectivity for A6-LL-w

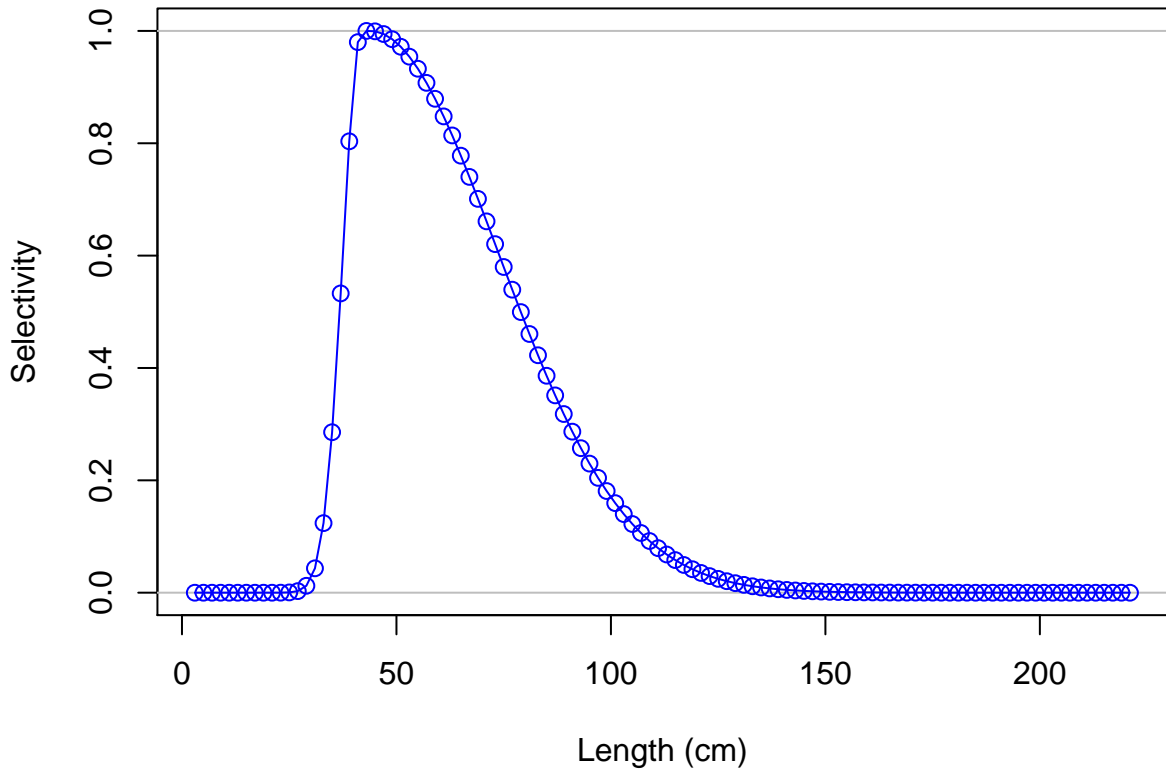




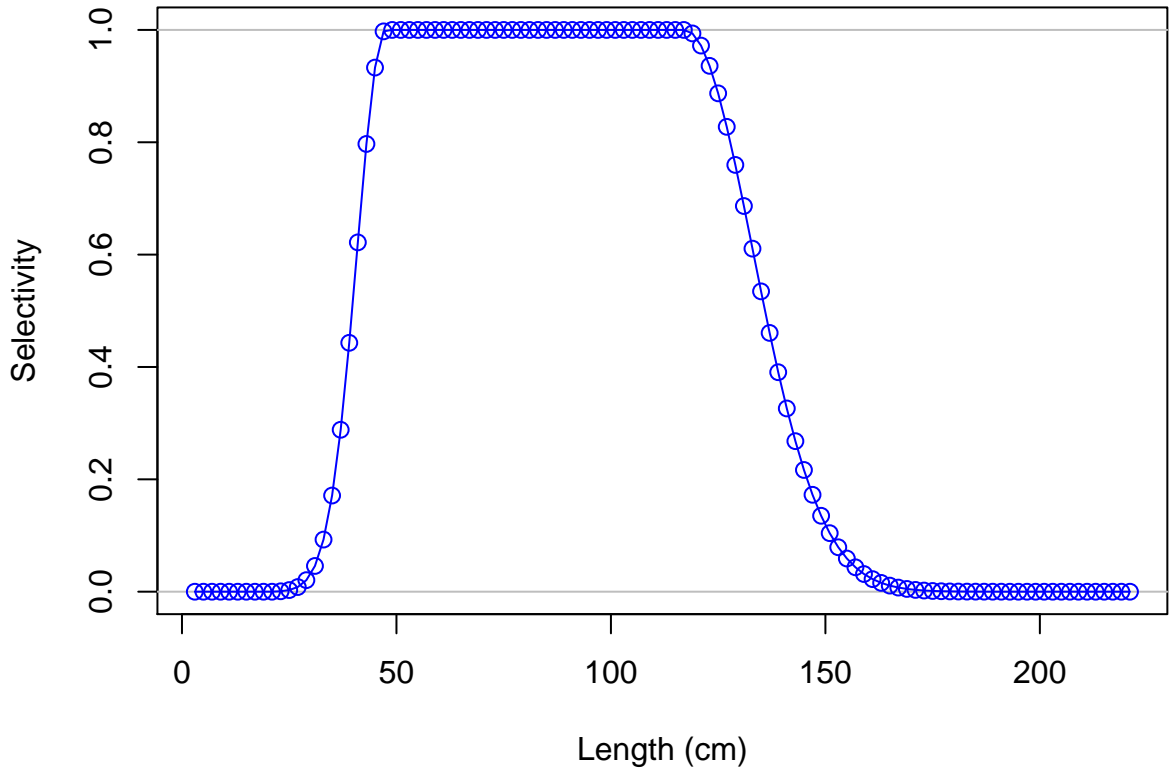
## Female ending year selectivity for A2-OBJ



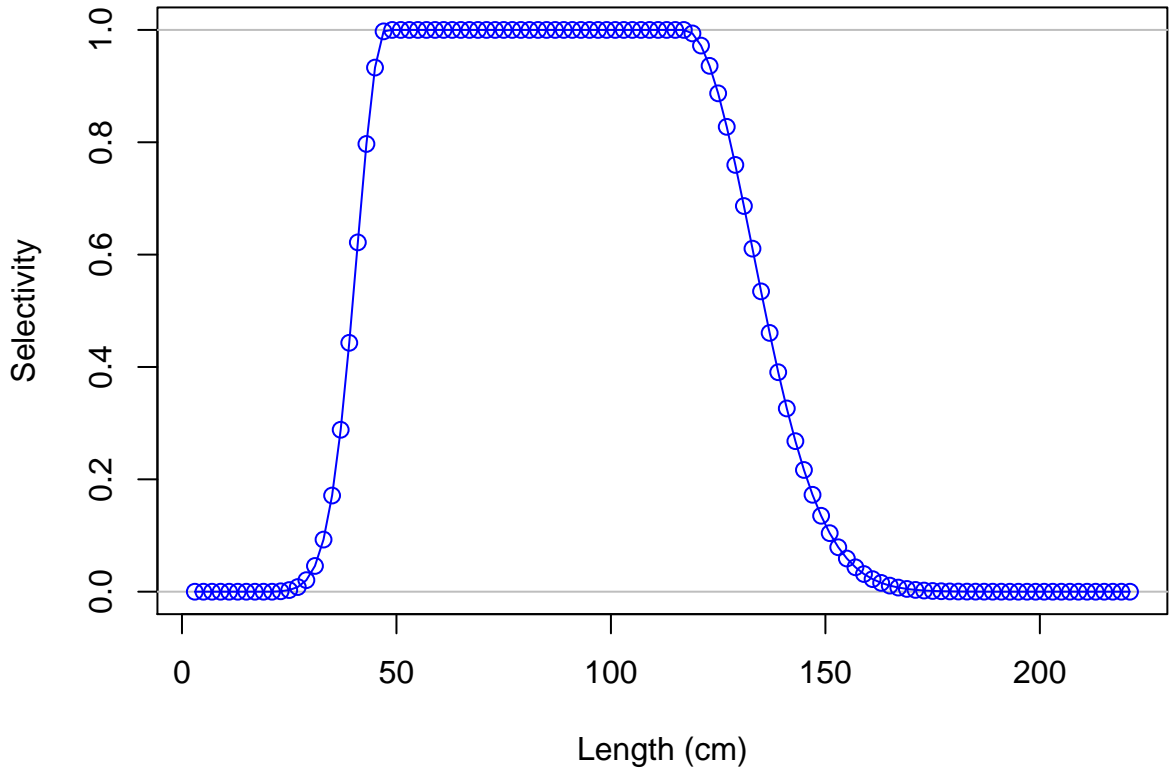
### Male ending year selectivity for A2-OBJ



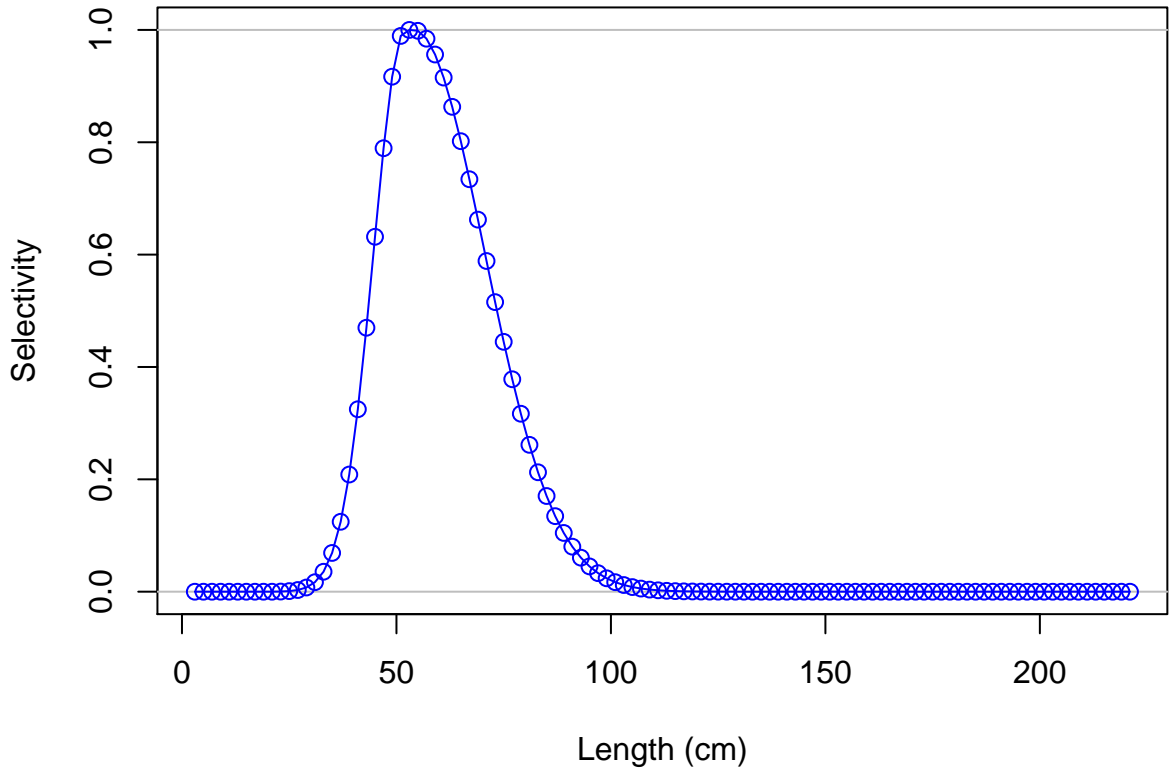
## Female ending year selectivity for A3-OBJ



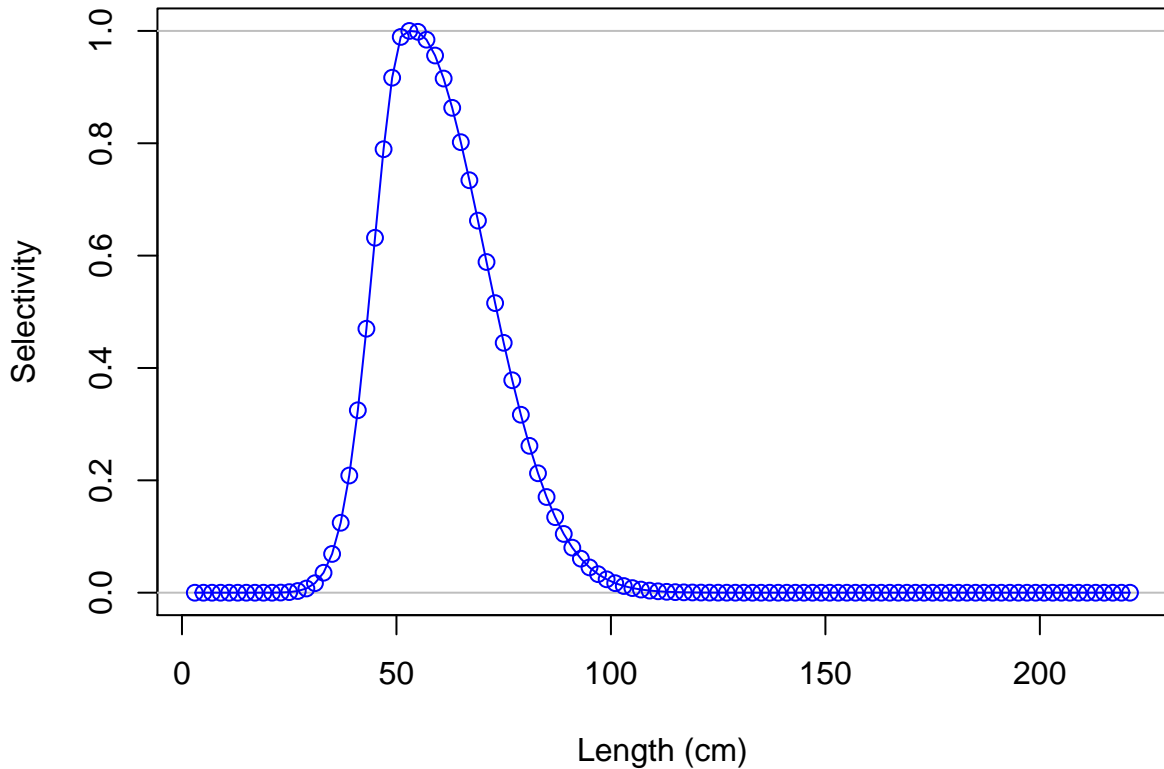
## Male ending year selectivity for A3-OBJ



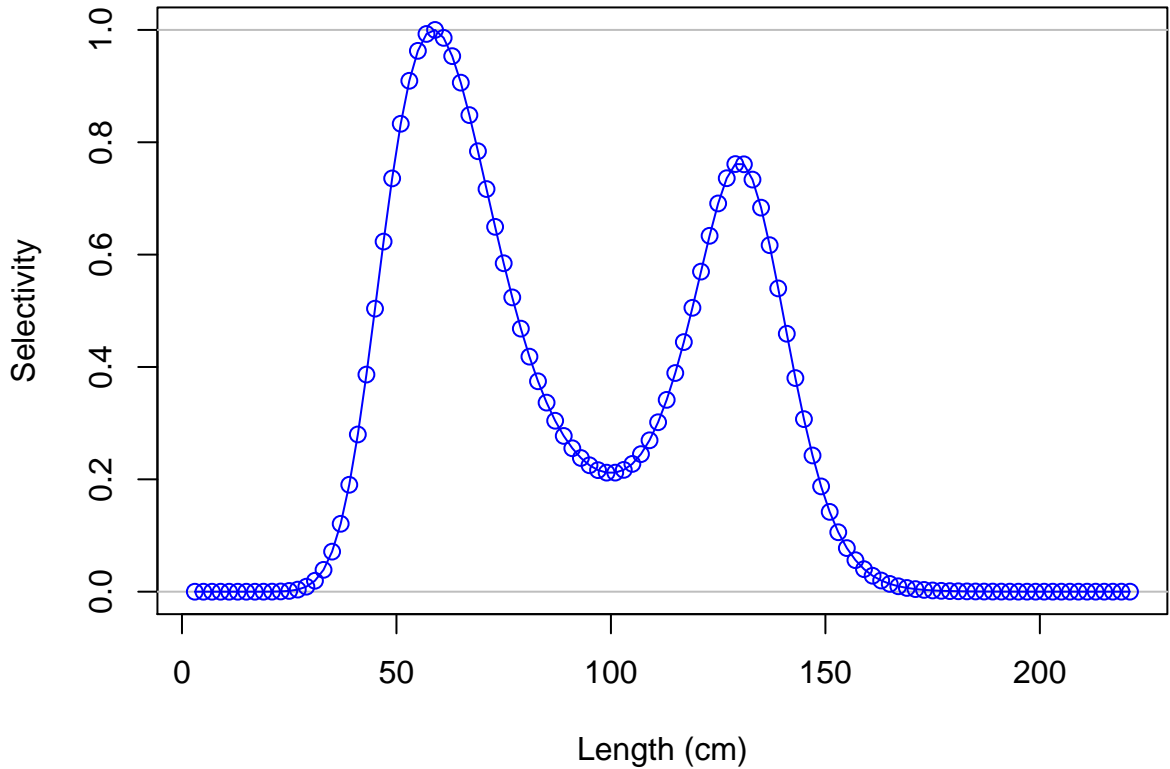
## Female ending year selectivity for A4-Obj



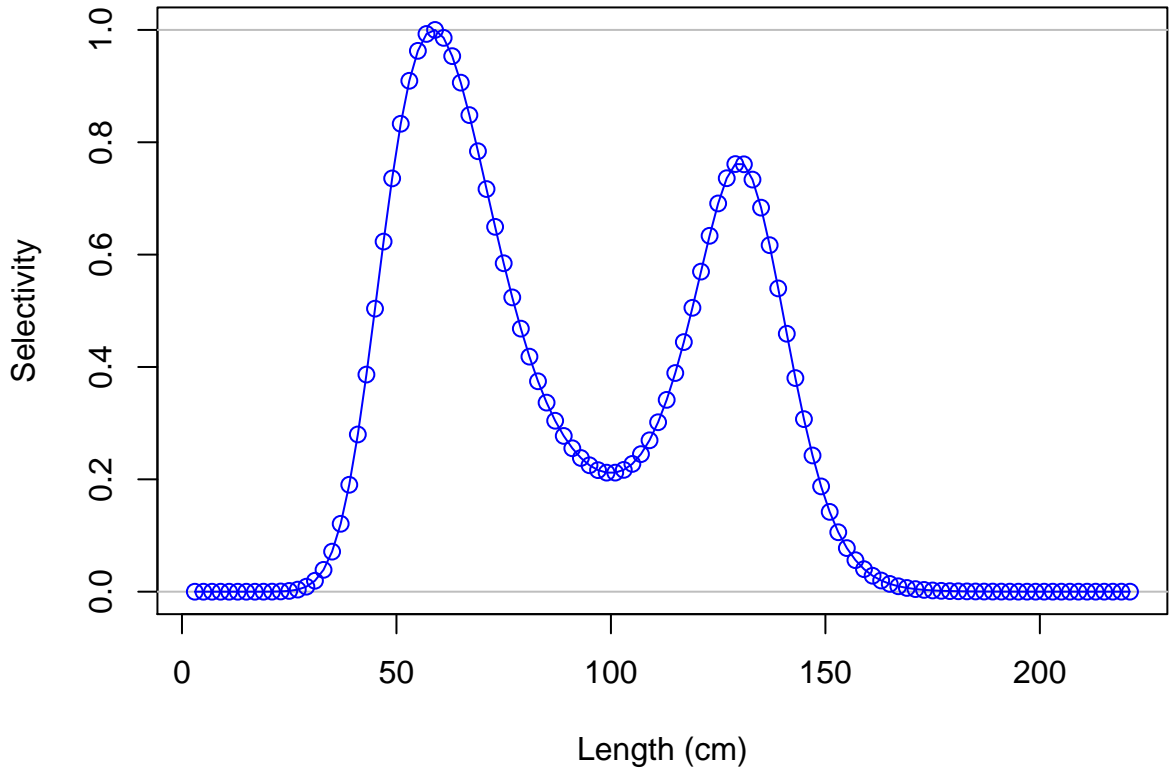
## Male ending year selectivity for A4-OBJ



## Female ending year selectivity for A5-OBJ

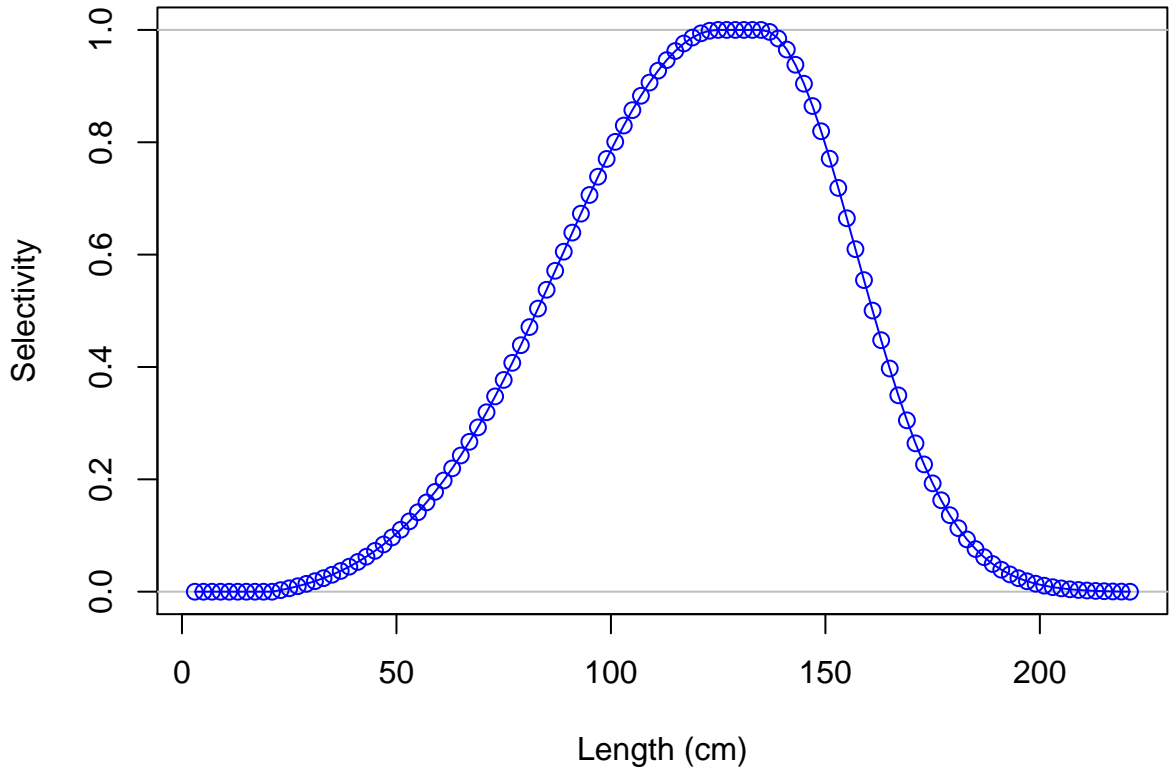


# Male ending year selectivity for A5-OBJ

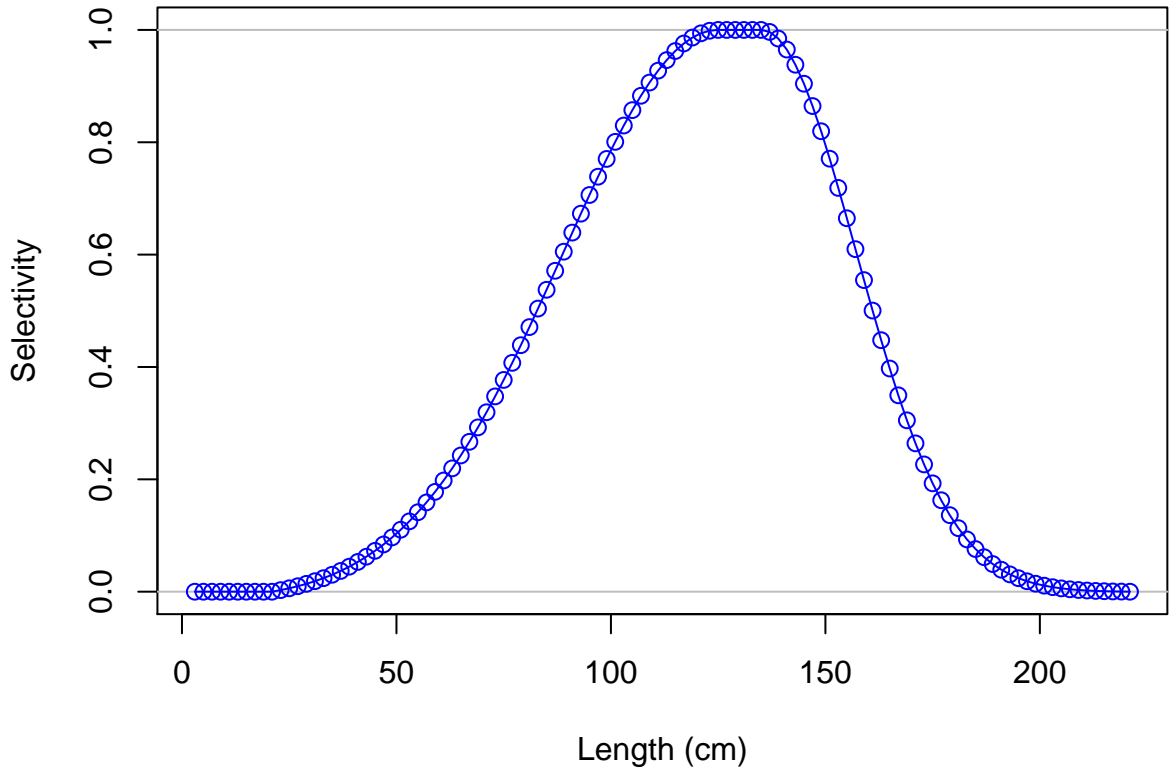




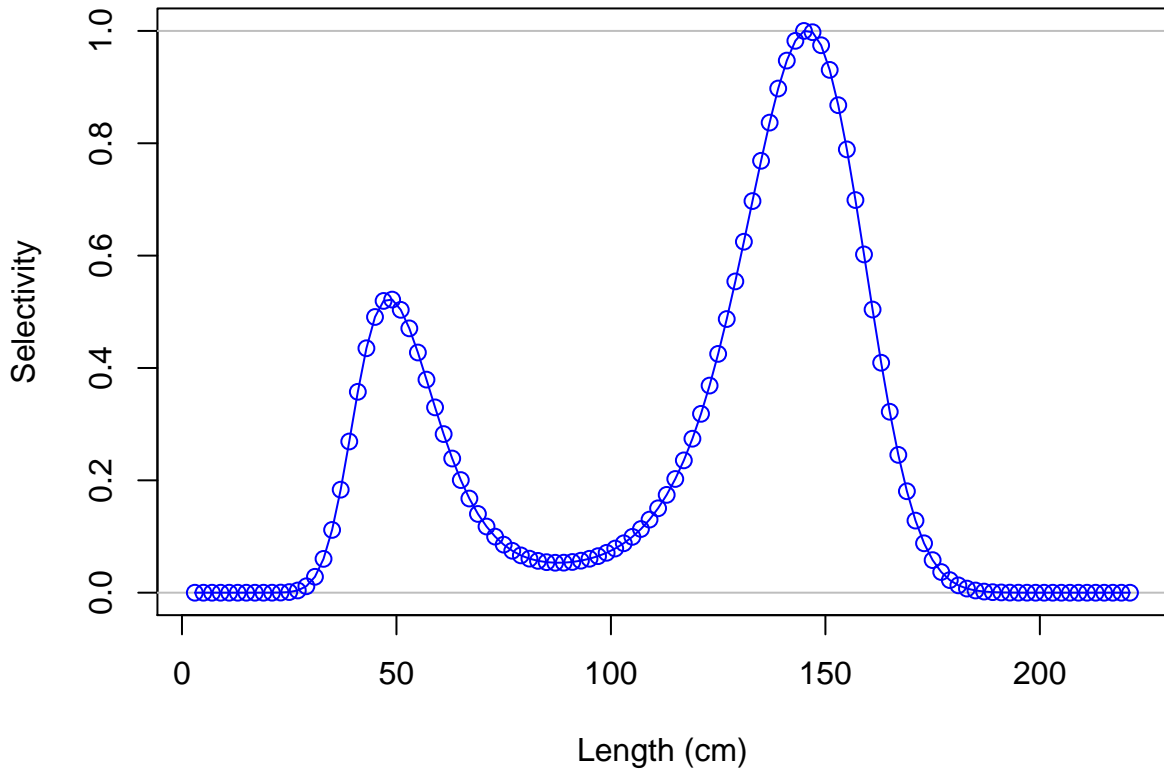
## Female ending year selectivity for A6-OBJ



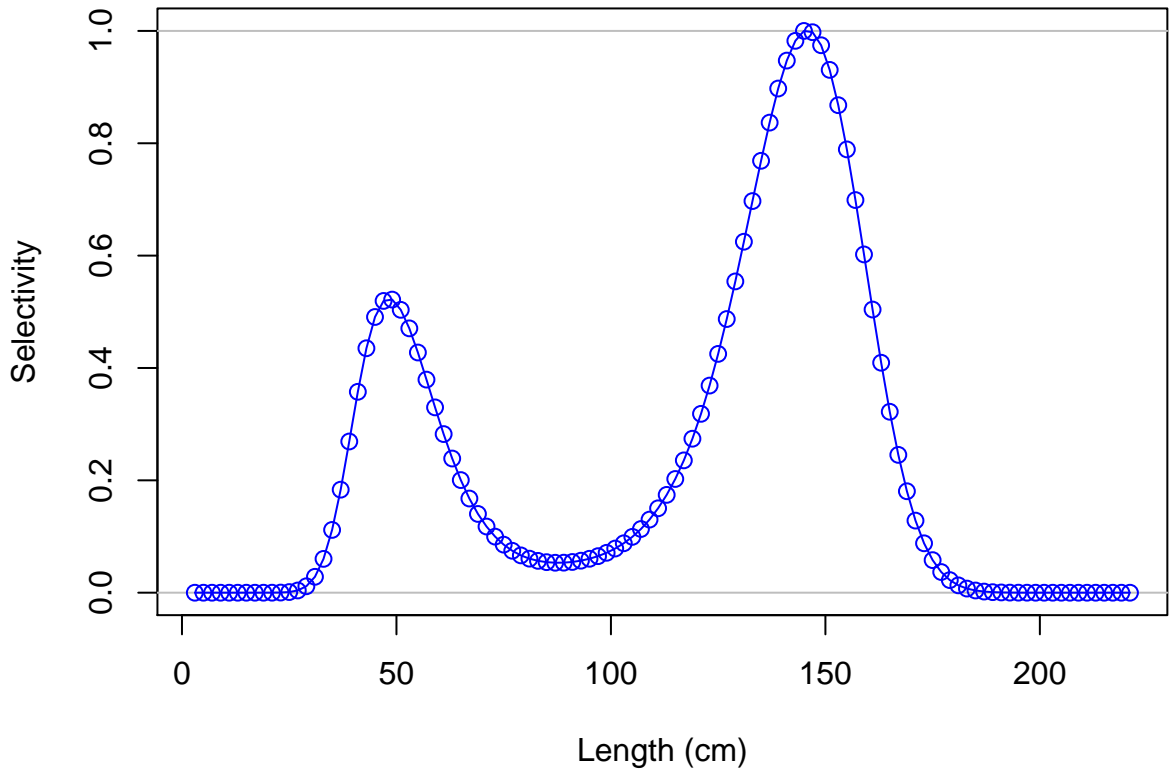
## Male ending year selectivity for A6-OBJ



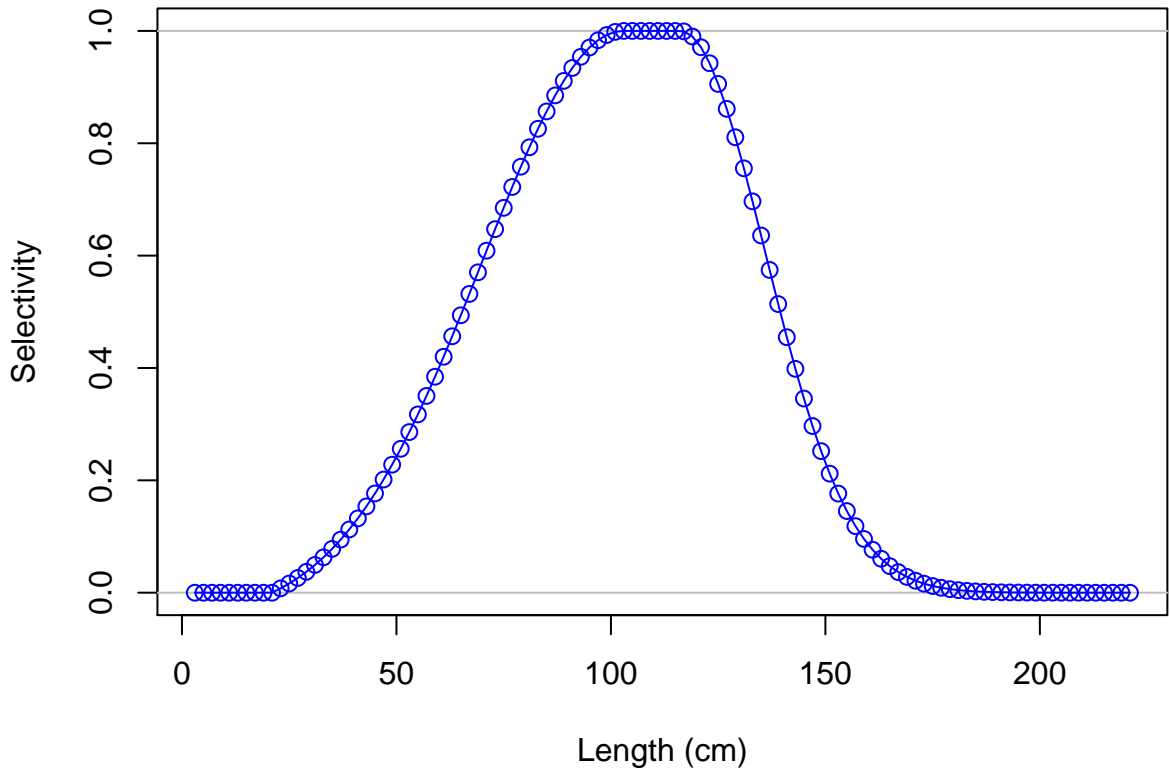
## Female ending year selectivity for A2-NOADEL



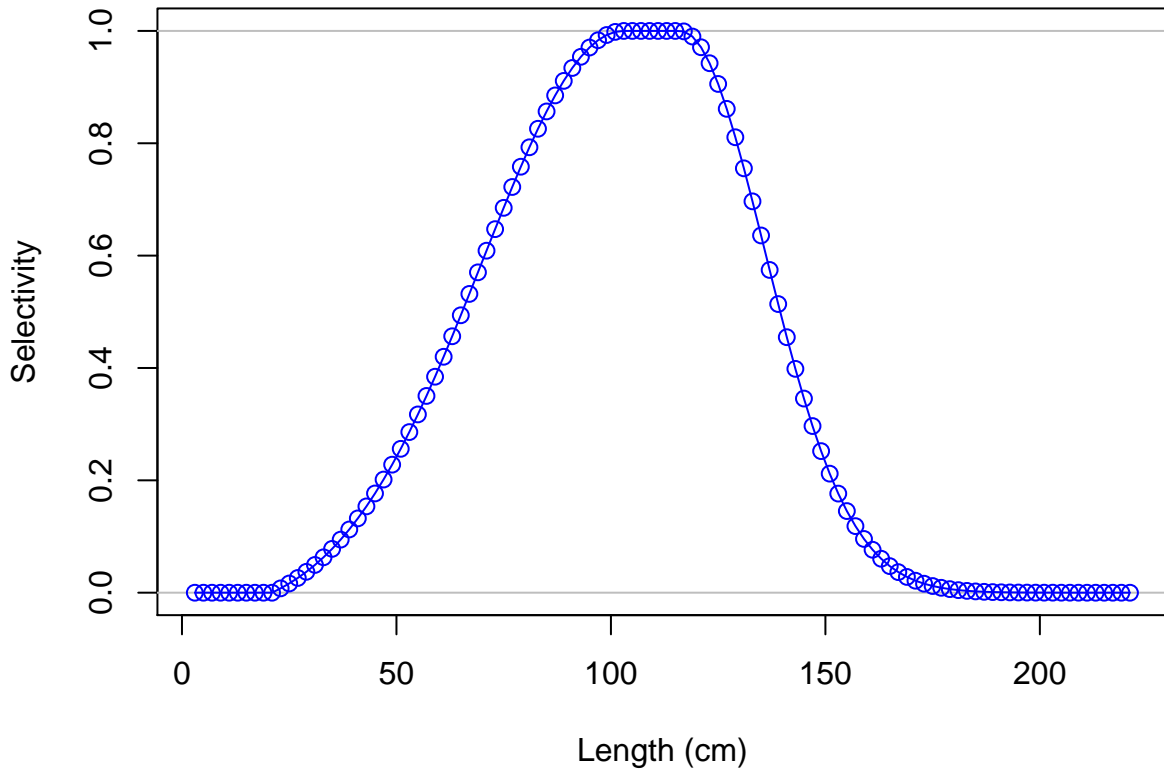
## Male ending year selectivity for A2-NOADEL



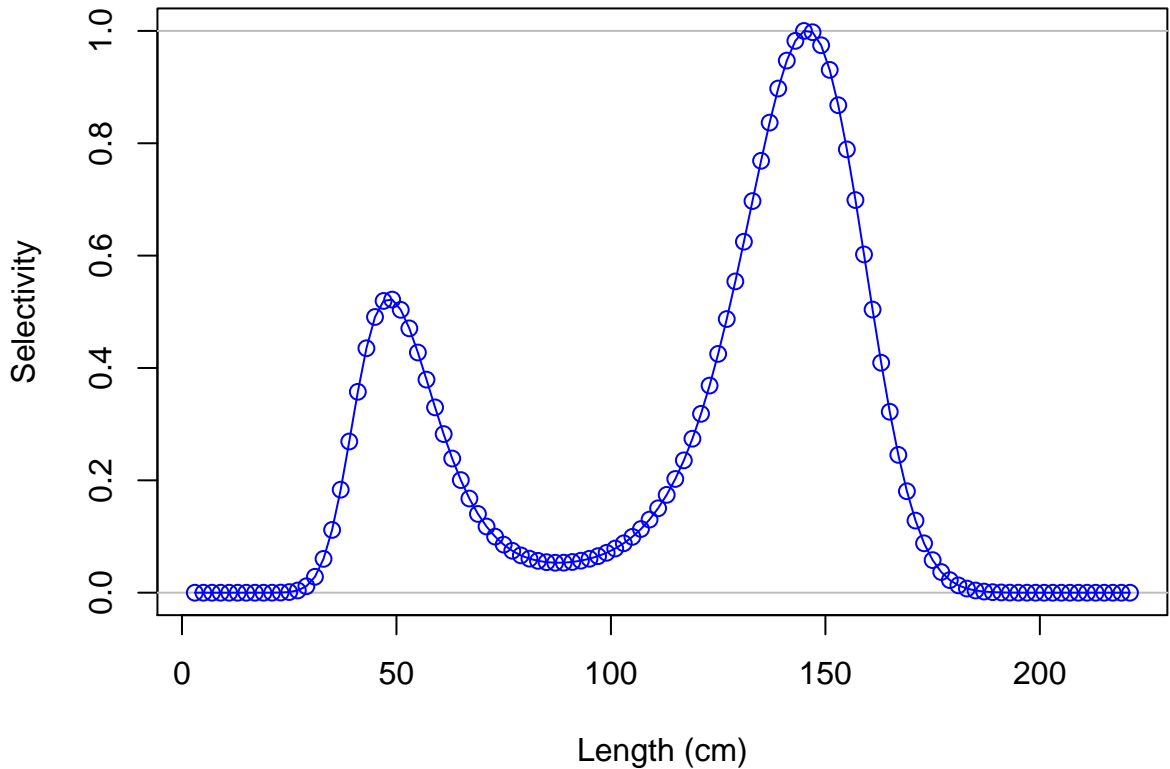
## Female ending year selectivity for A3-NOADEL



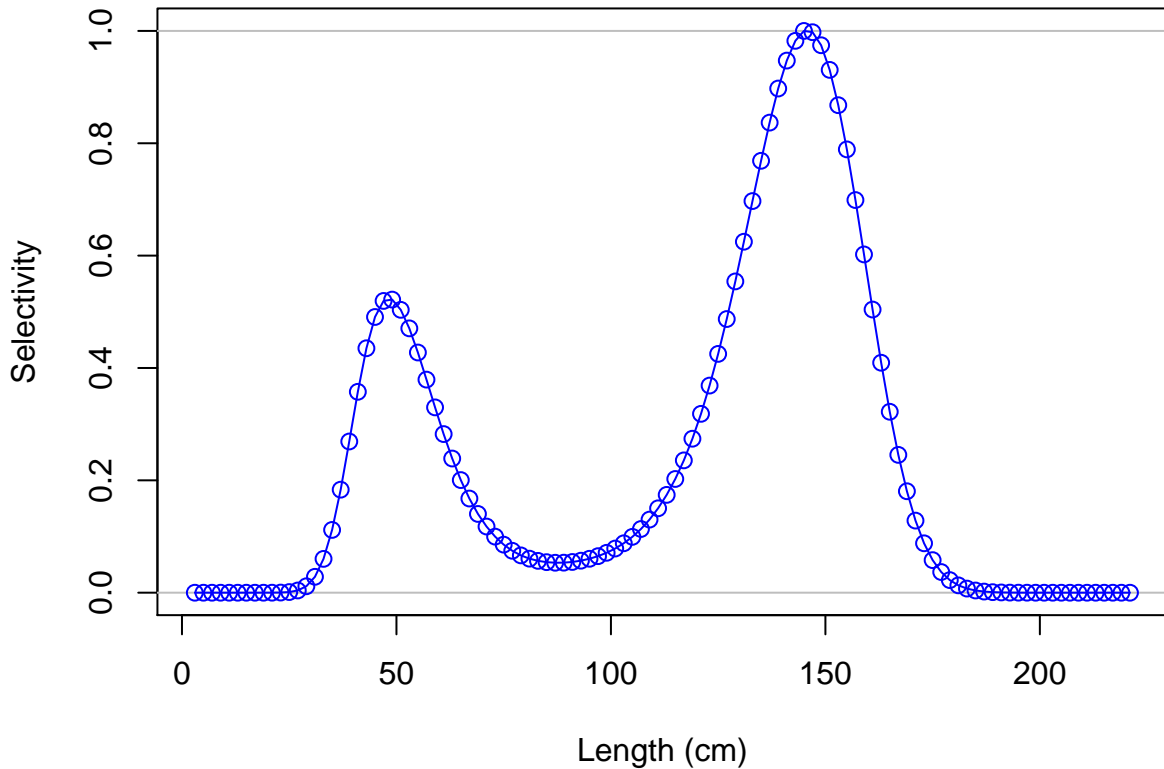
## Male ending year selectivity for A3-NOADEL



## Female ending year selectivity for A4-NOADEL

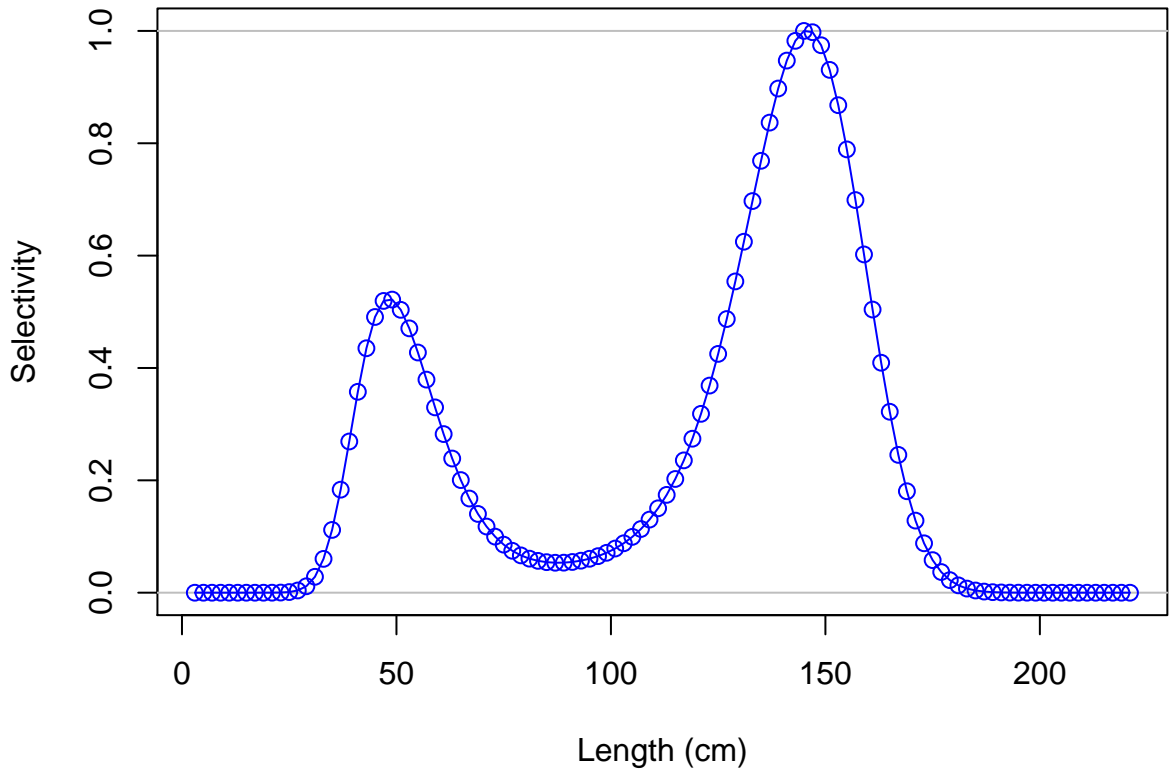


## Male ending year selectivity for A4-NOADEL

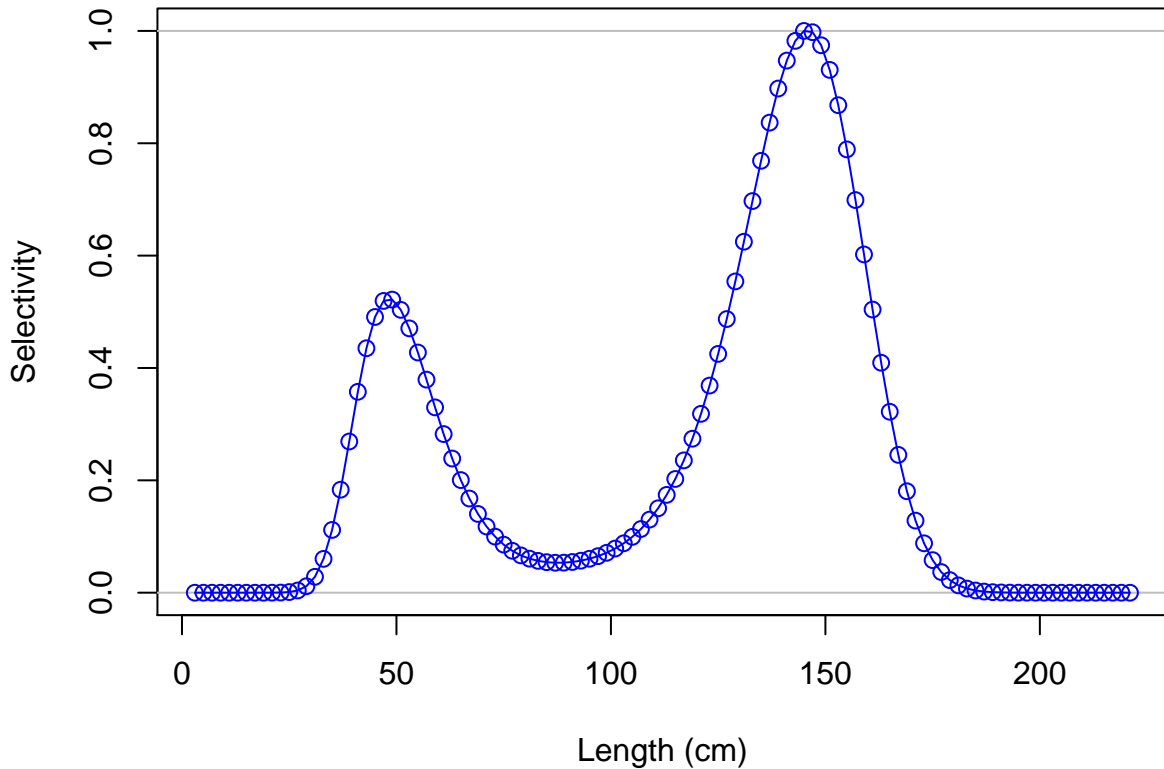




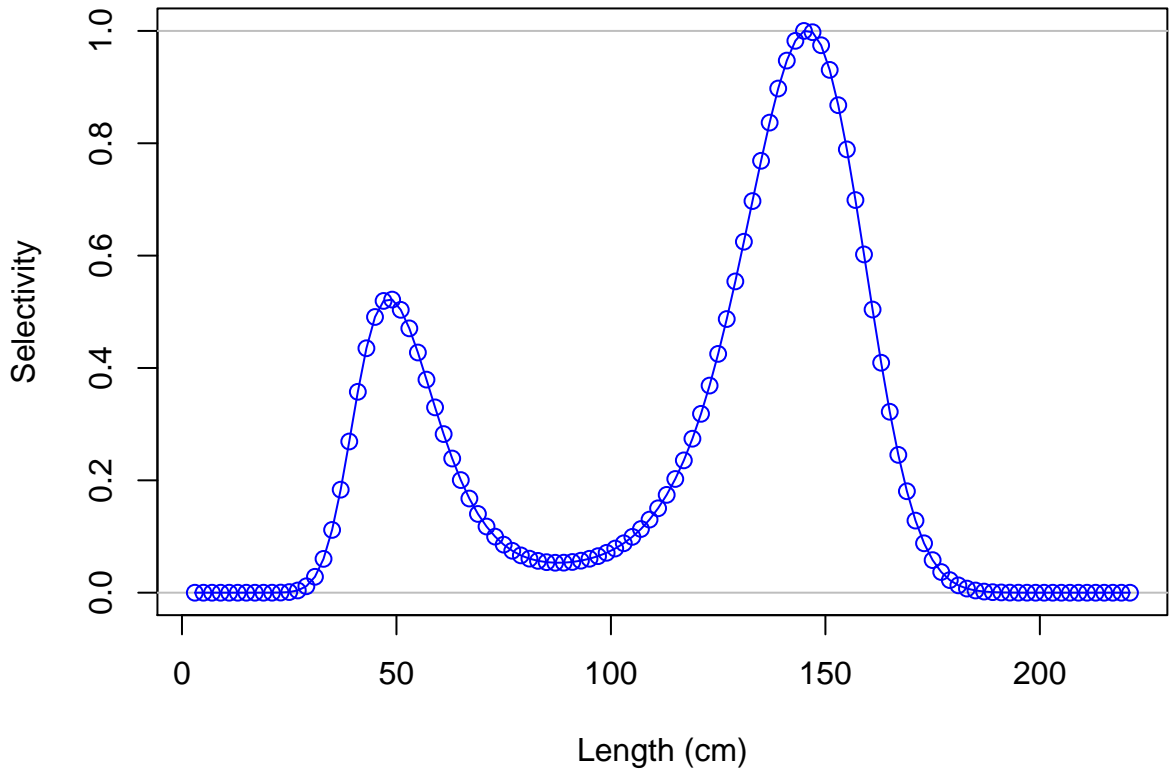
## Female ending year selectivity for A5-NOADEL



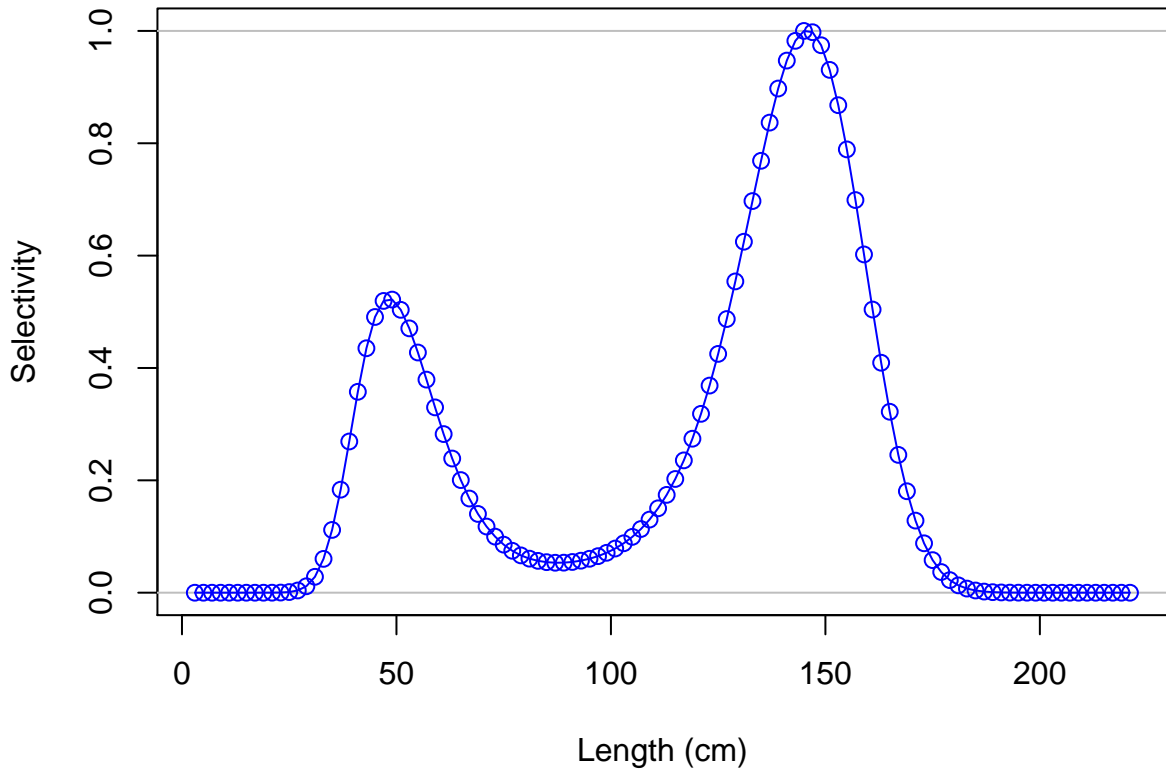
## Male ending year selectivity for A5-NOADEL



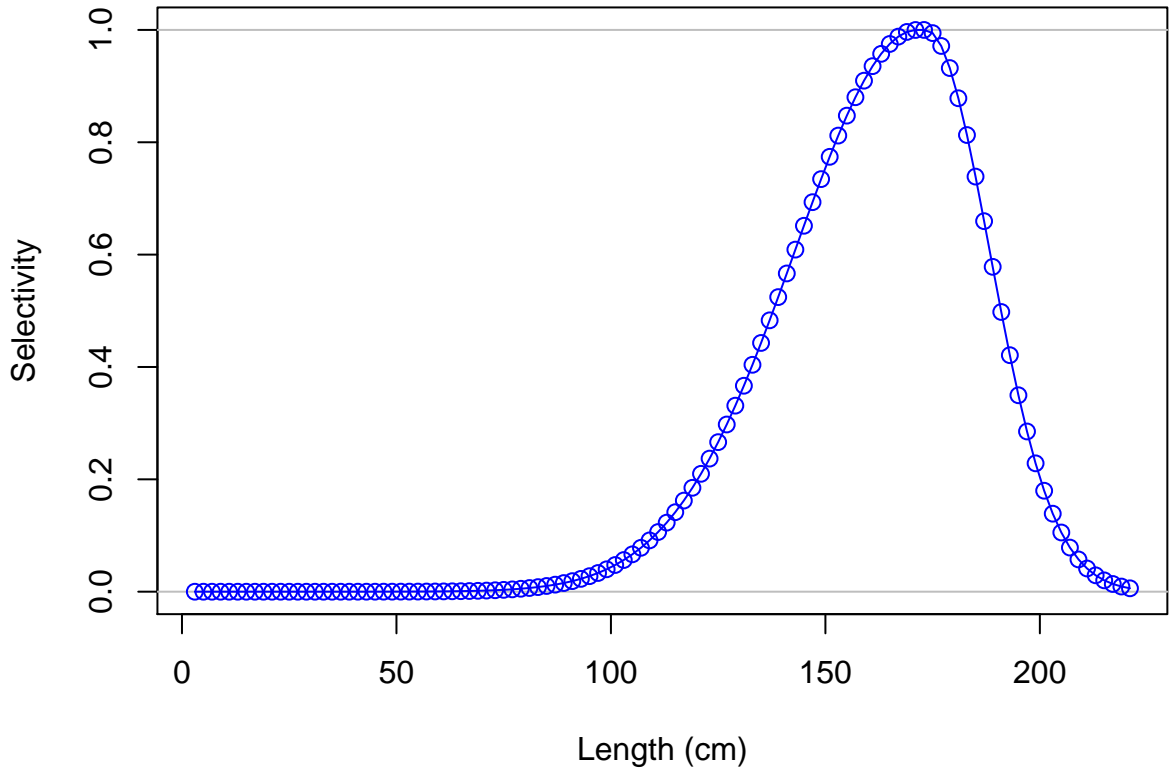
## Female ending year selectivity for A6-NOADEL



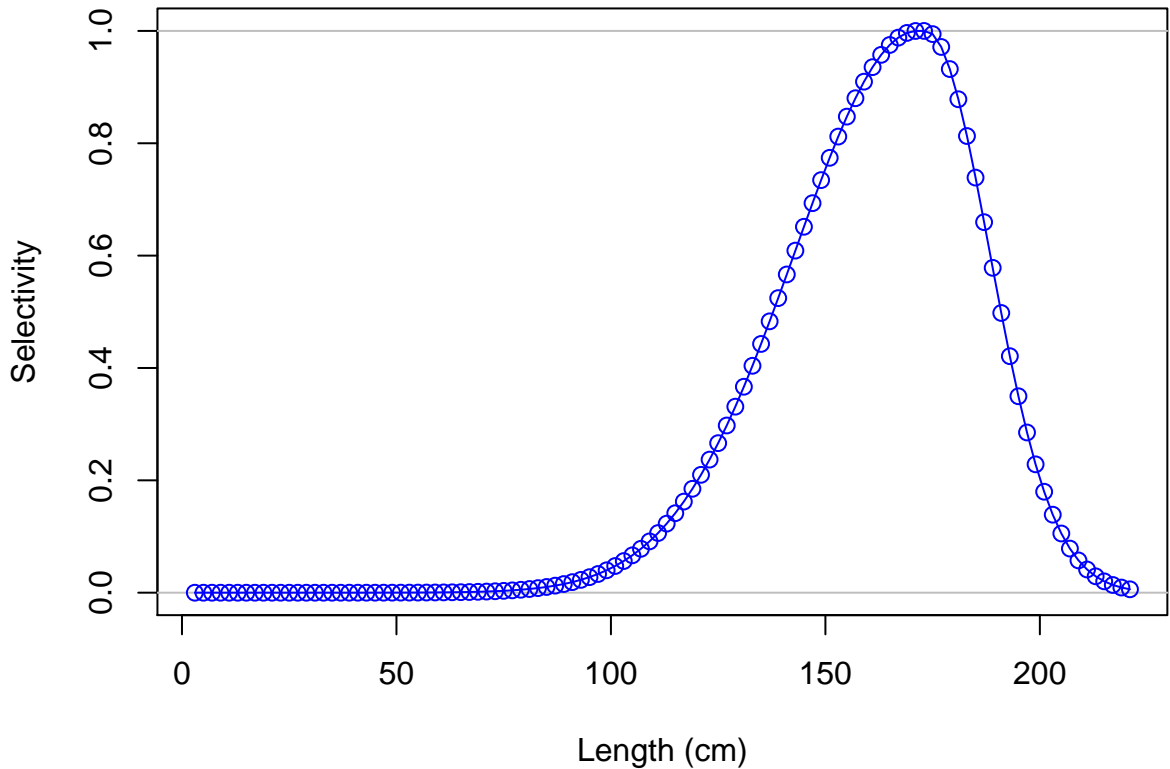
## Male ending year selectivity for A6-NOADEL



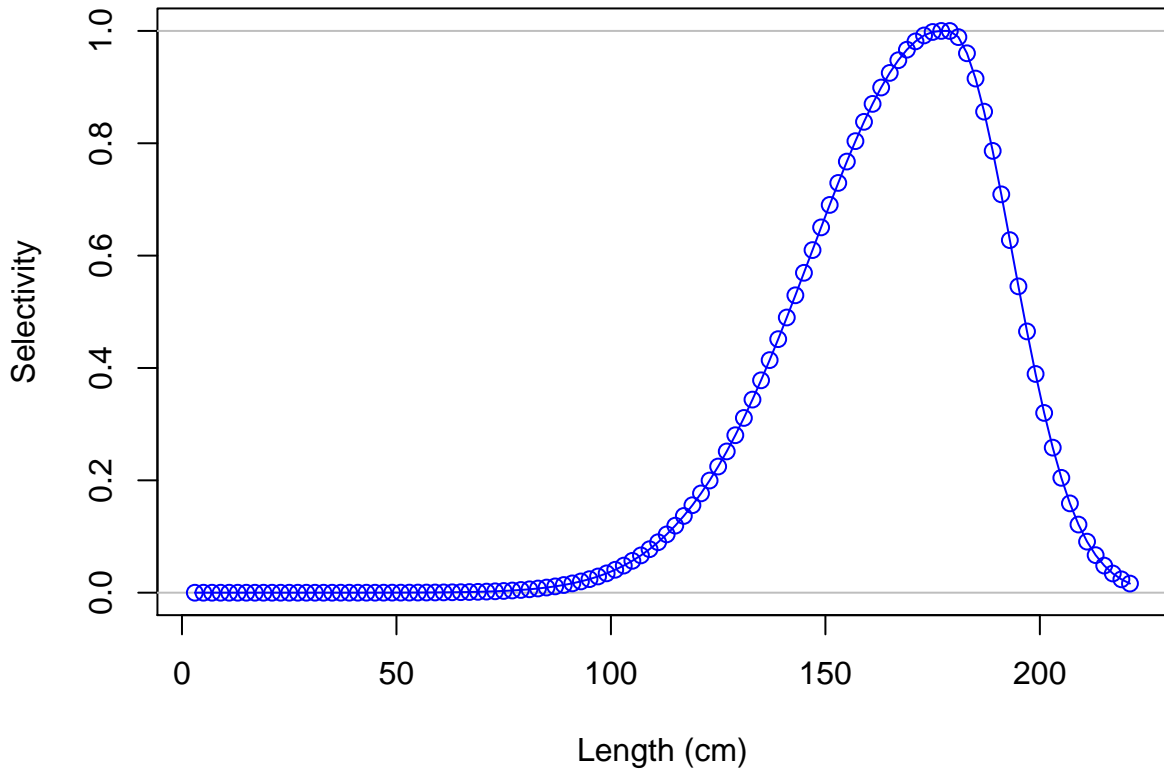
# Female ending year selectivity for EPO-LL-survey-early



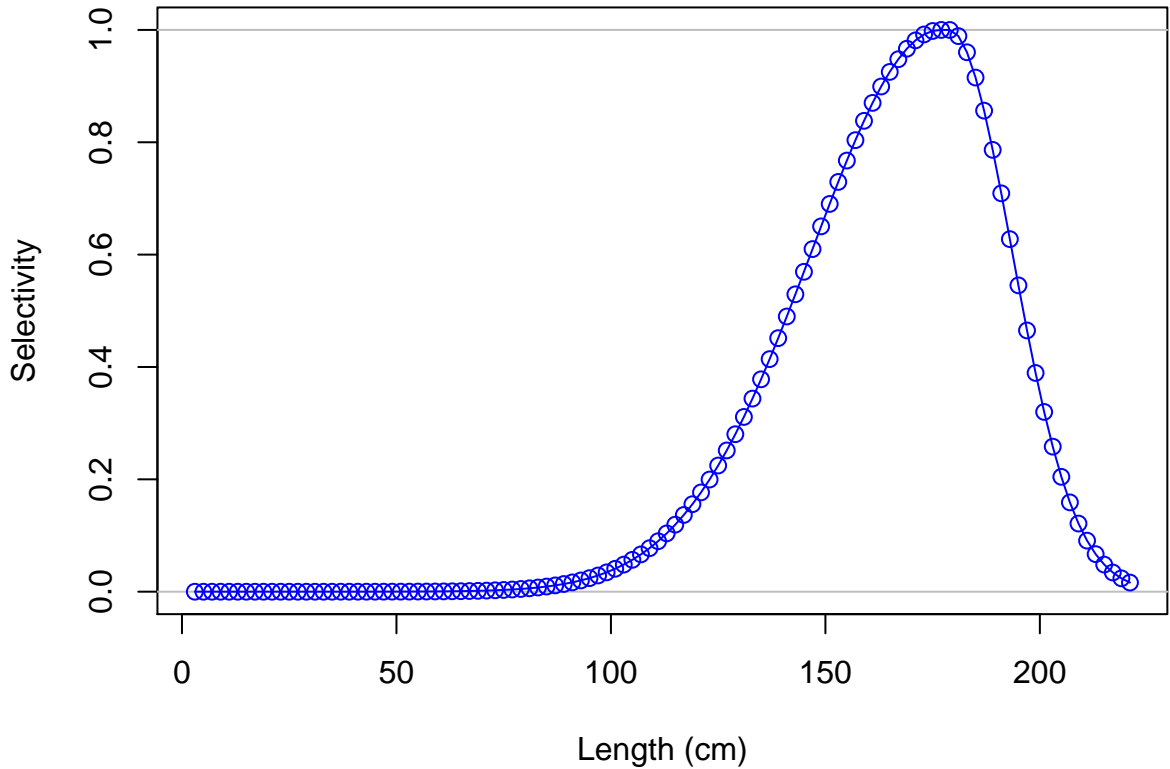
# Male ending year selectivity for EPO-LL-survey-early



# Female ending year selectivity for EPO-LL-survey-late

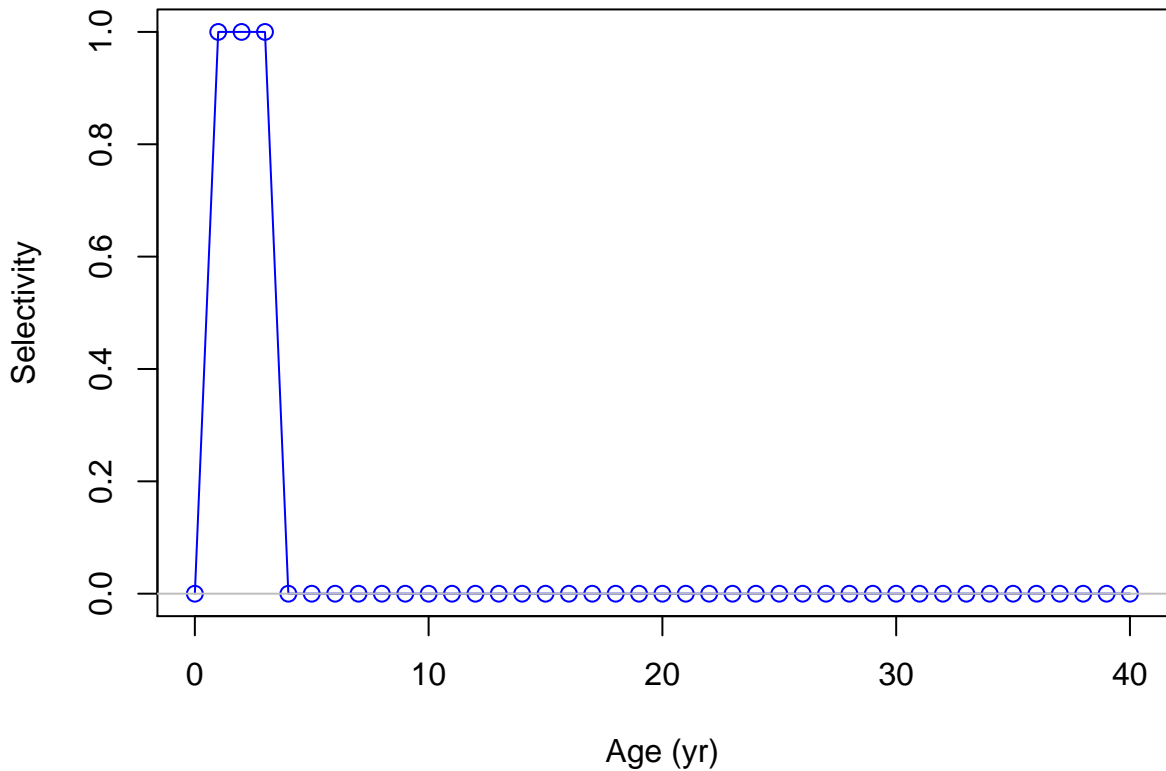


# Male ending year selectivity for EPO-LL-survey-late

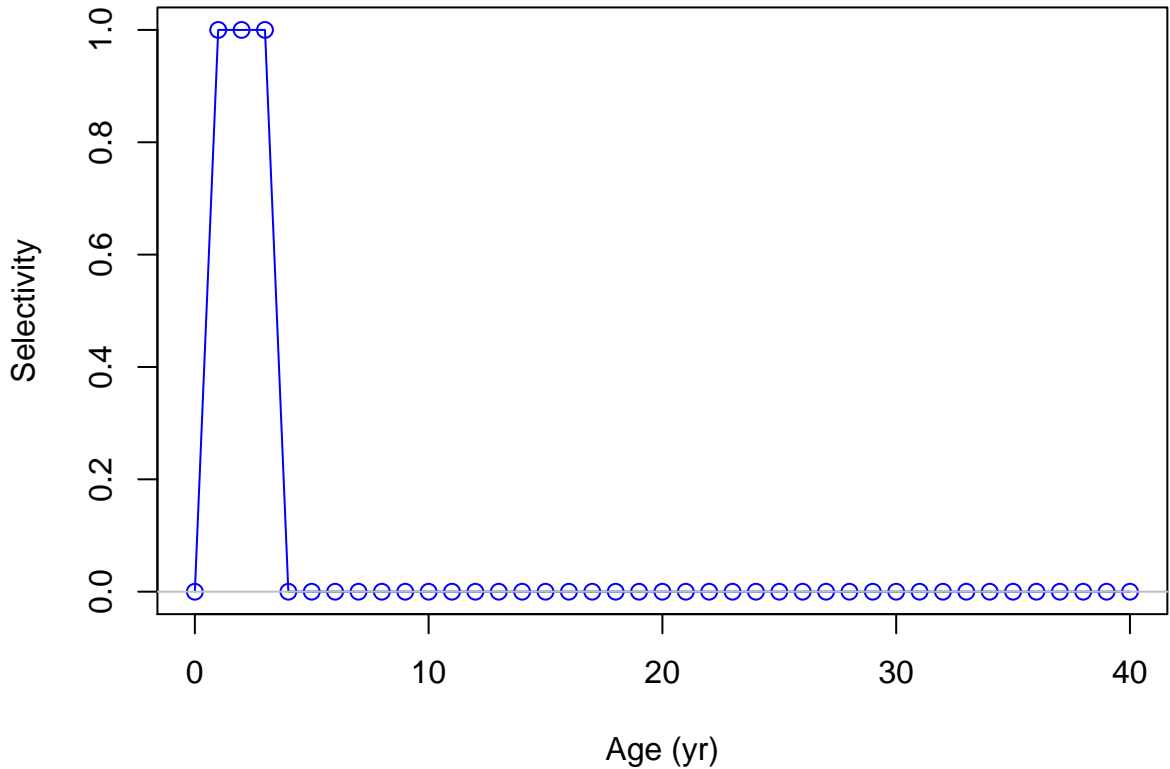




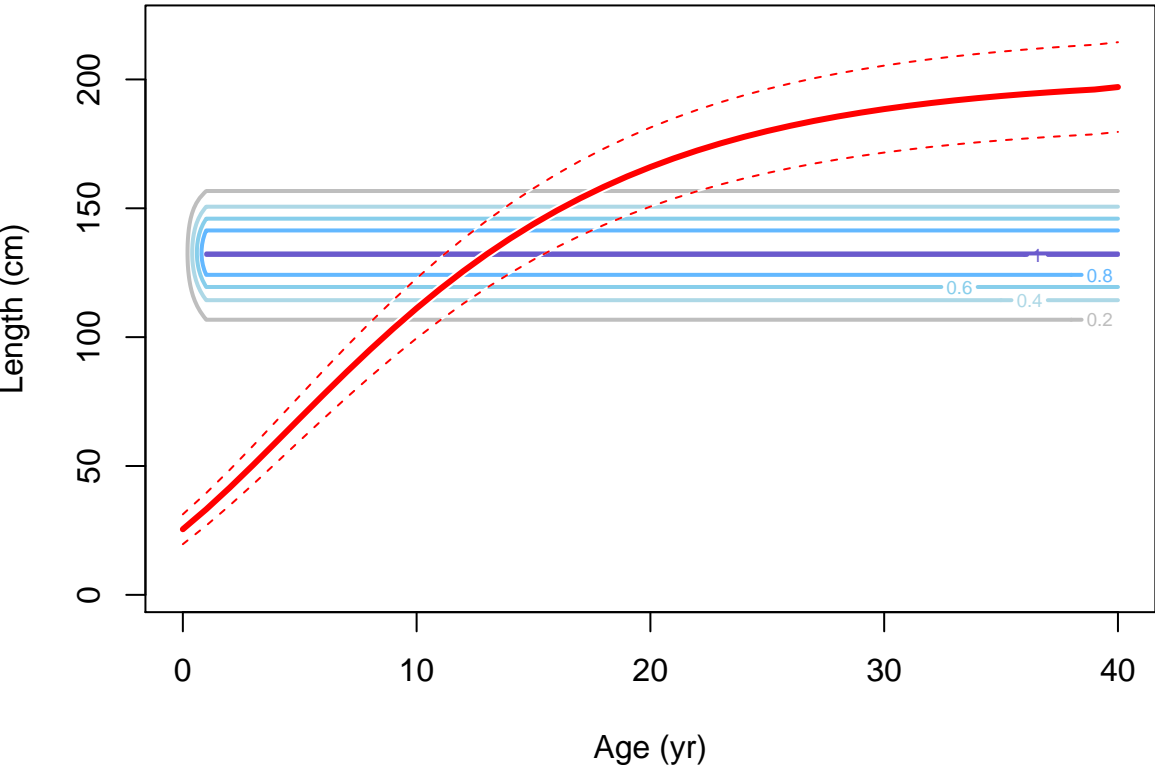
## Female ending year selectivity for EPO-OBJ-Disc



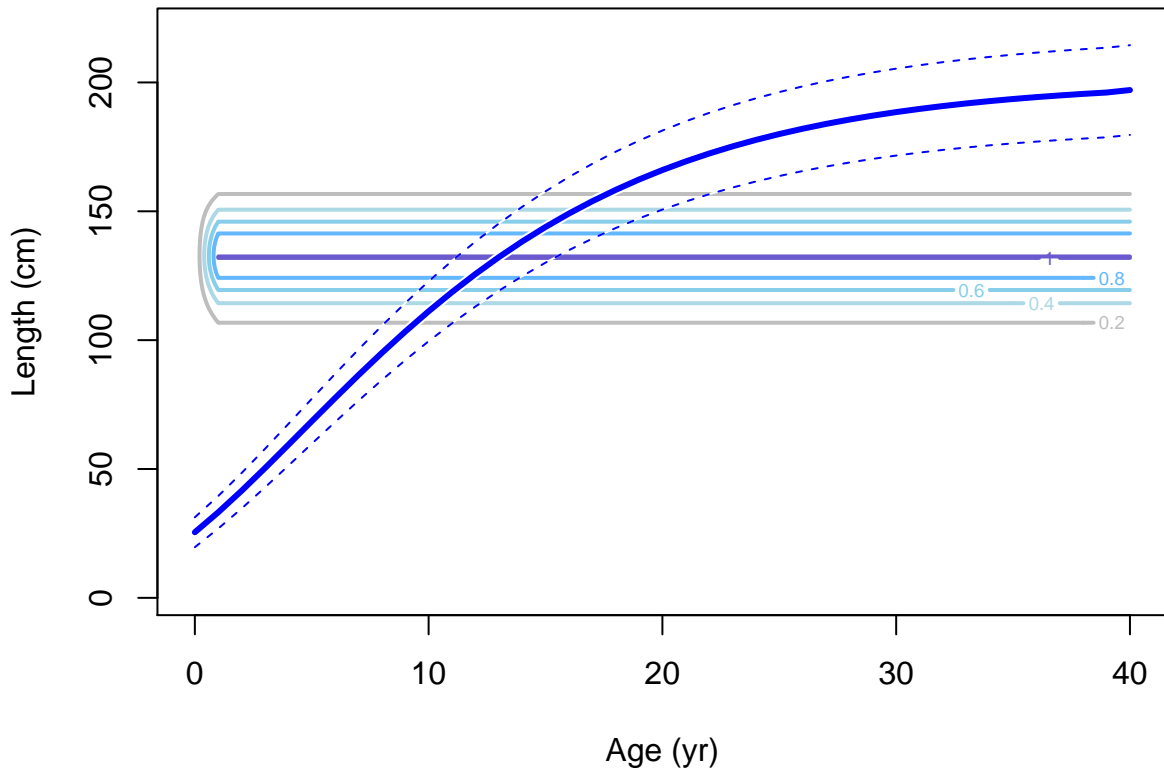
# Male ending year selectivity for EPO-OBJ-Disc



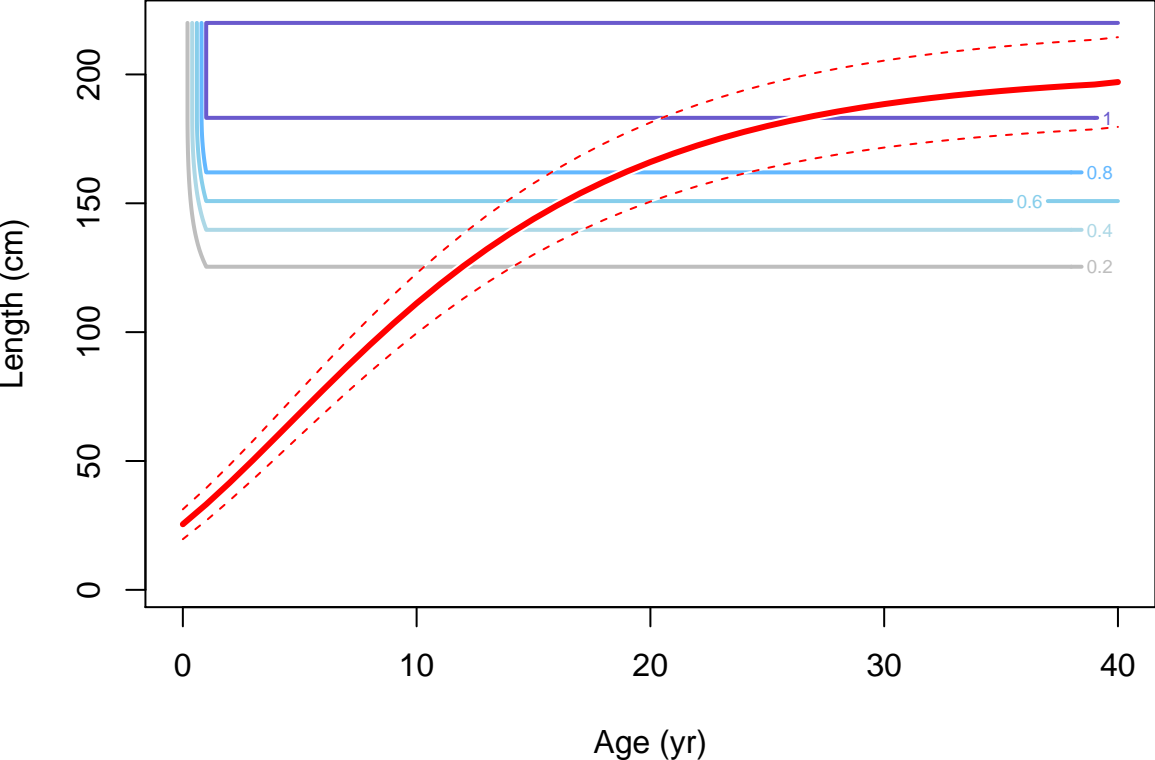
# Female ending year selectivity and growth for A1-LL-n



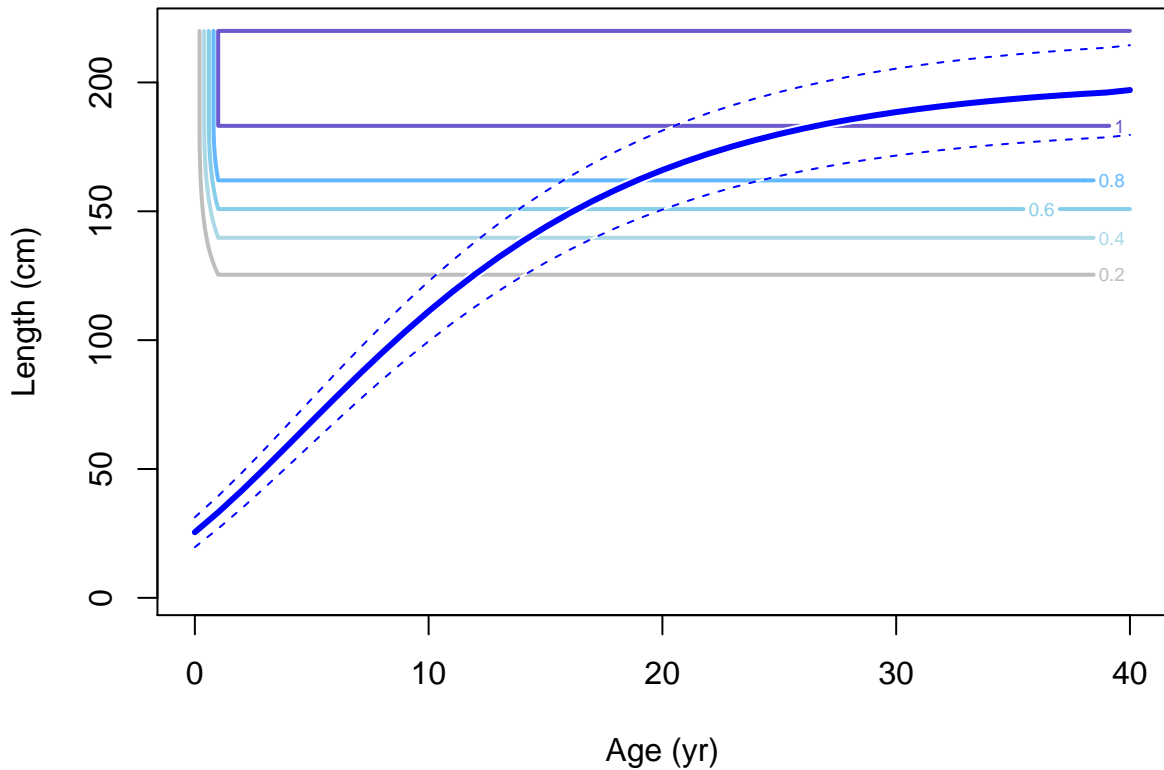
# Male ending year selectivity and growth for A1-LL-n



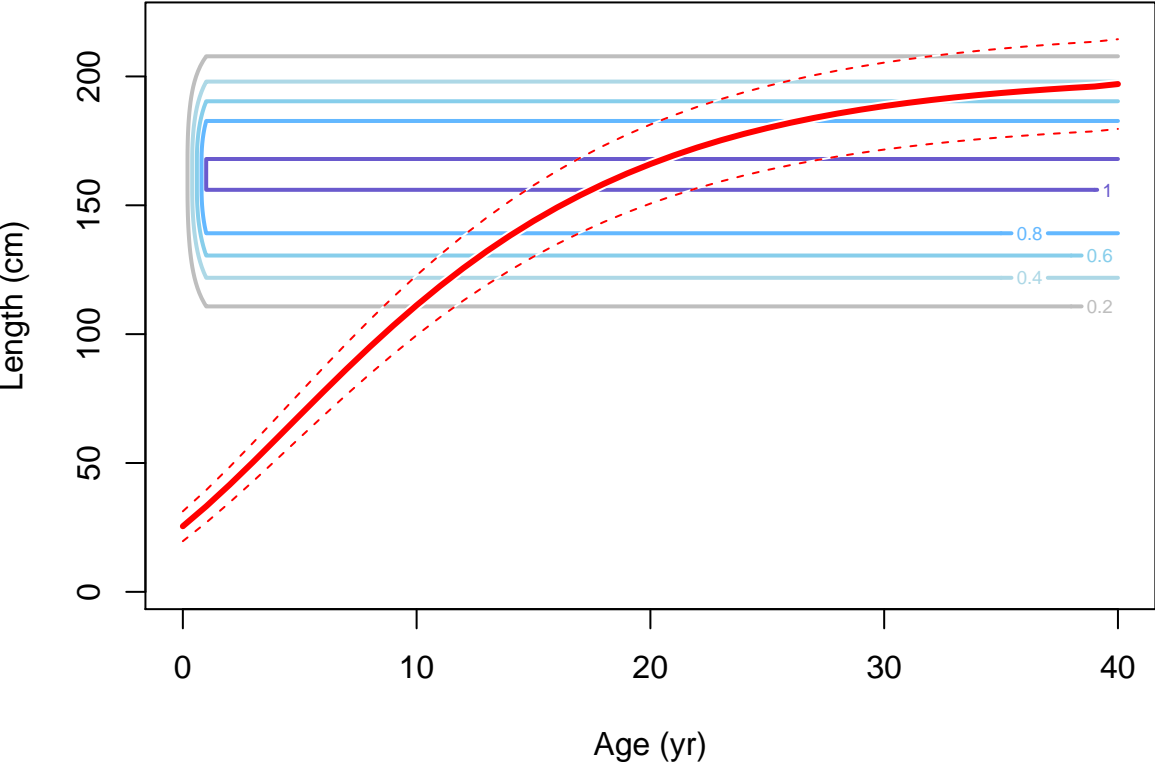
Female ending year selectivity and growth for A2-LL-n



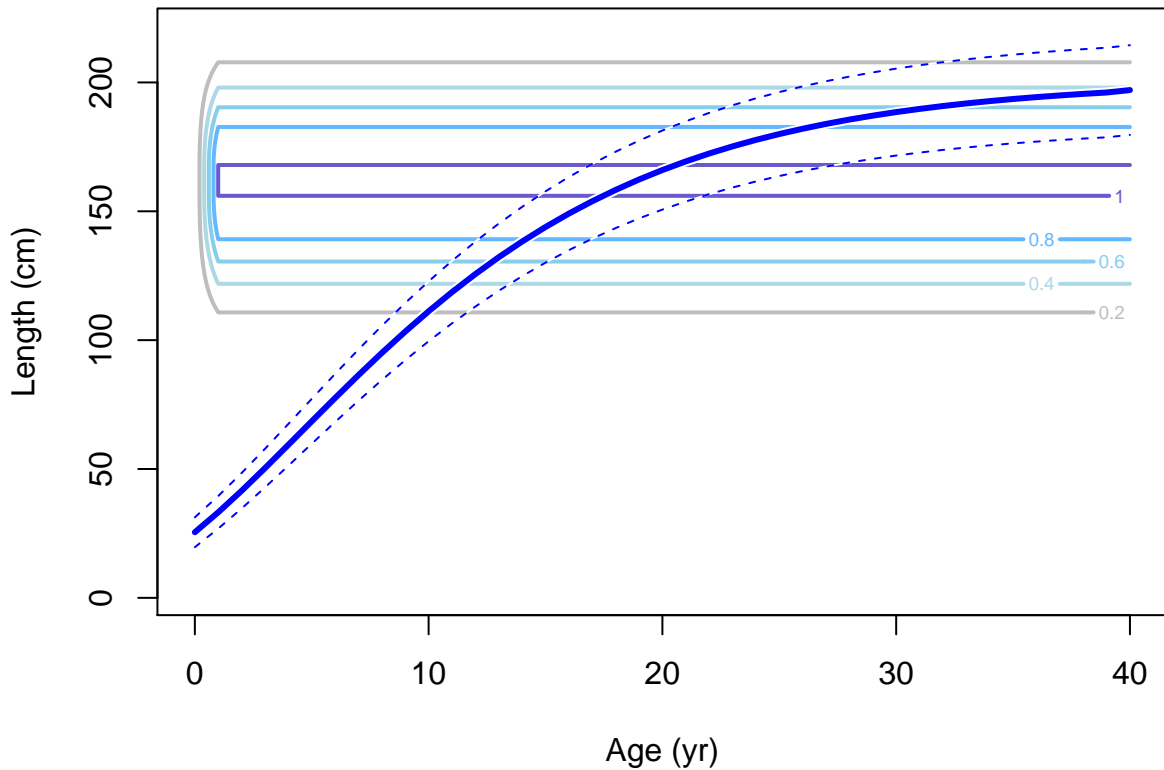
# Male ending year selectivity and growth for A2-LL-n



# Female ending year selectivity and growth for A3-LL-n

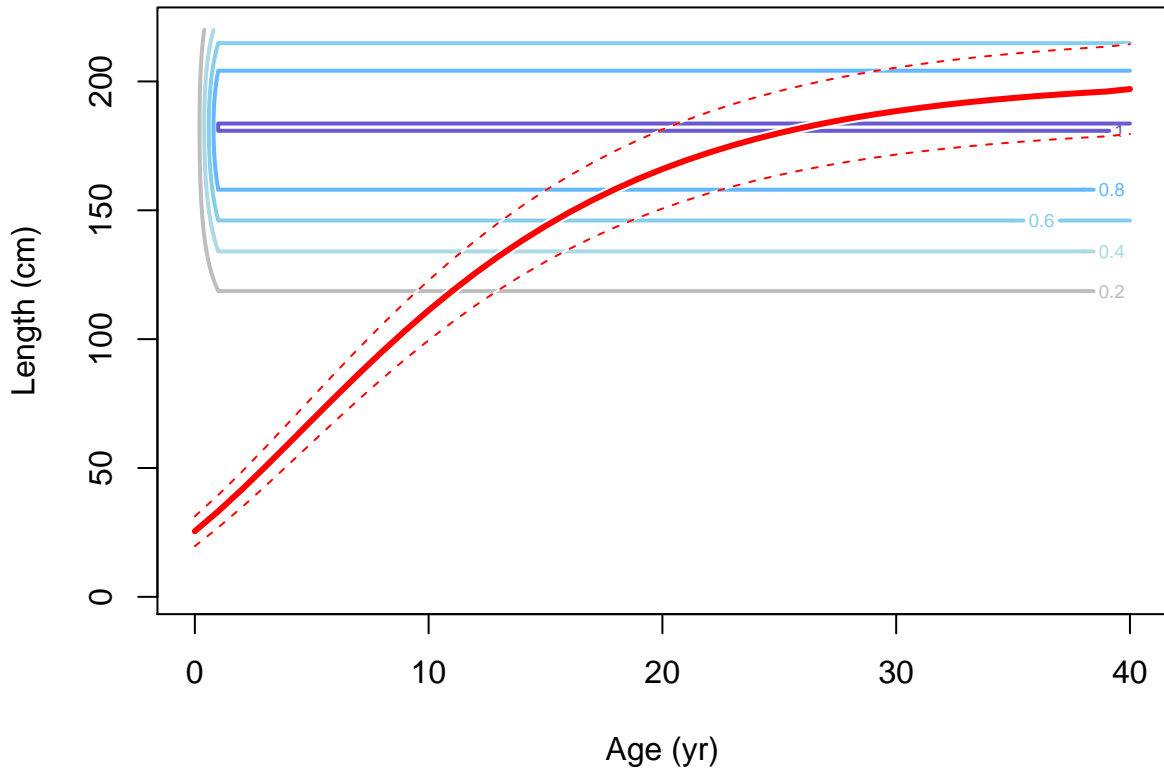


# Male ending year selectivity and growth for A3-LL-n

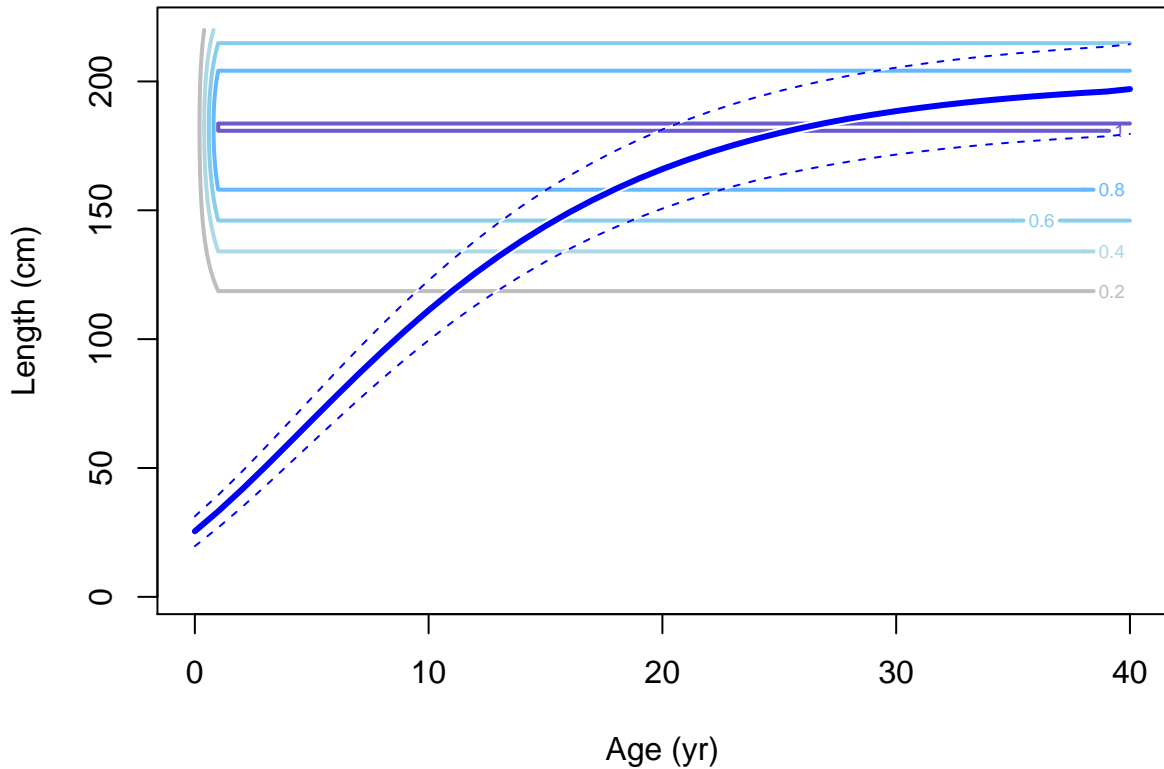




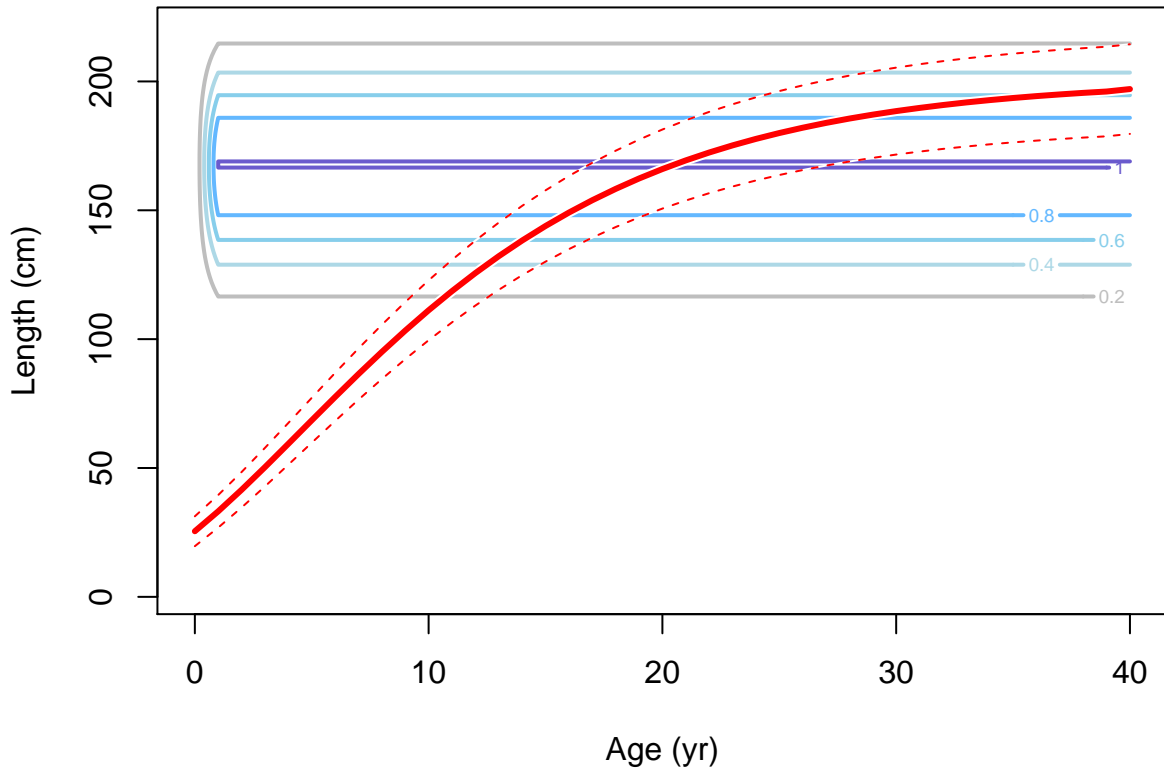
## Female ending year selectivity and growth for A4-LL-n



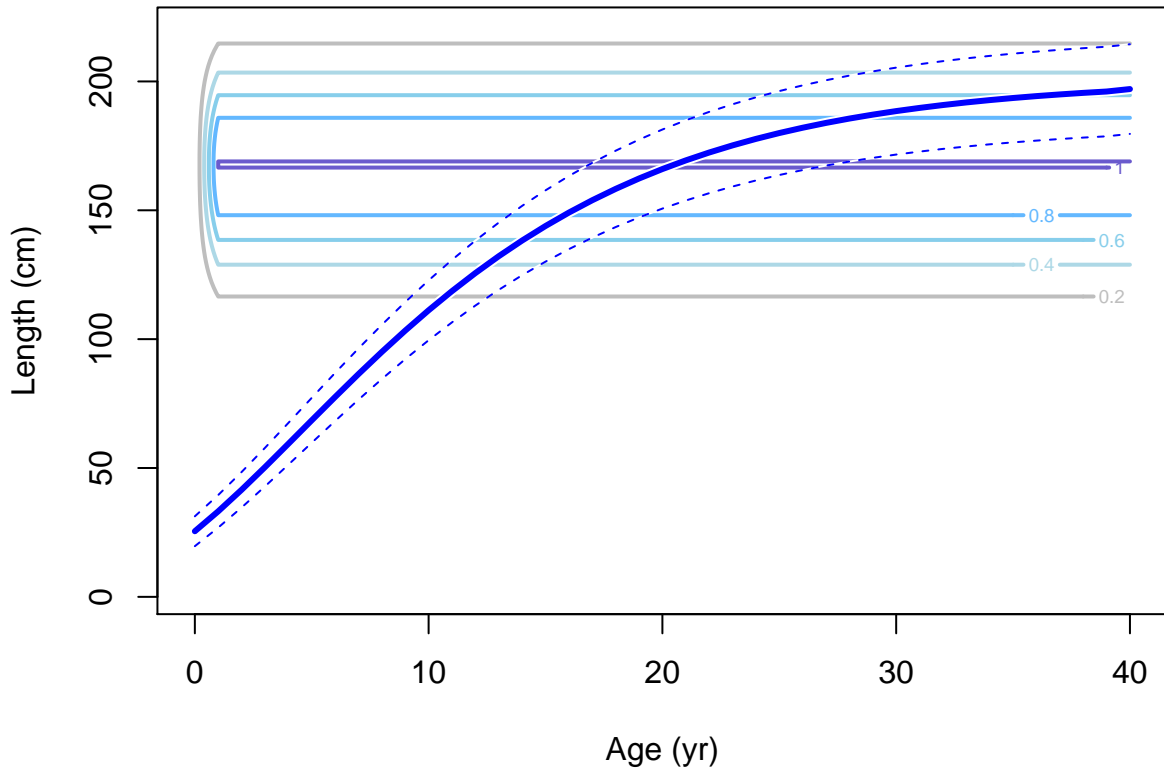
# Male ending year selectivity and growth for A4-LL-n



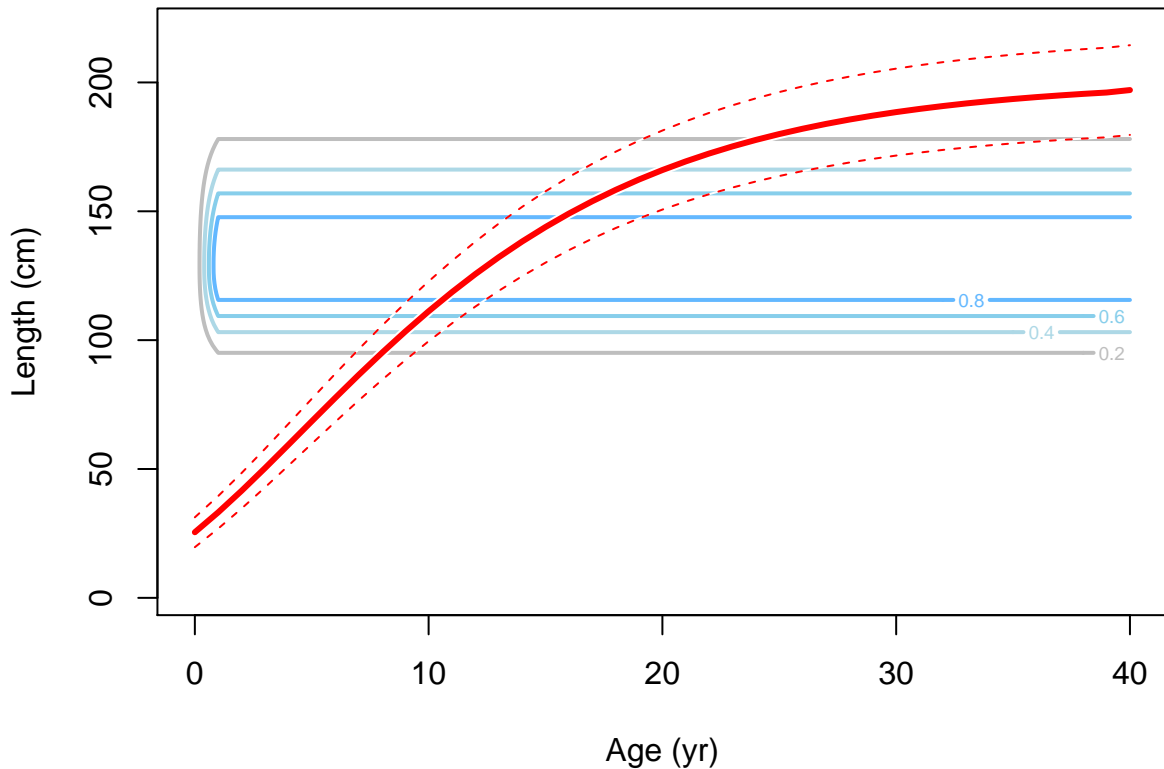
## Female ending year selectivity and growth for A5-LL-n



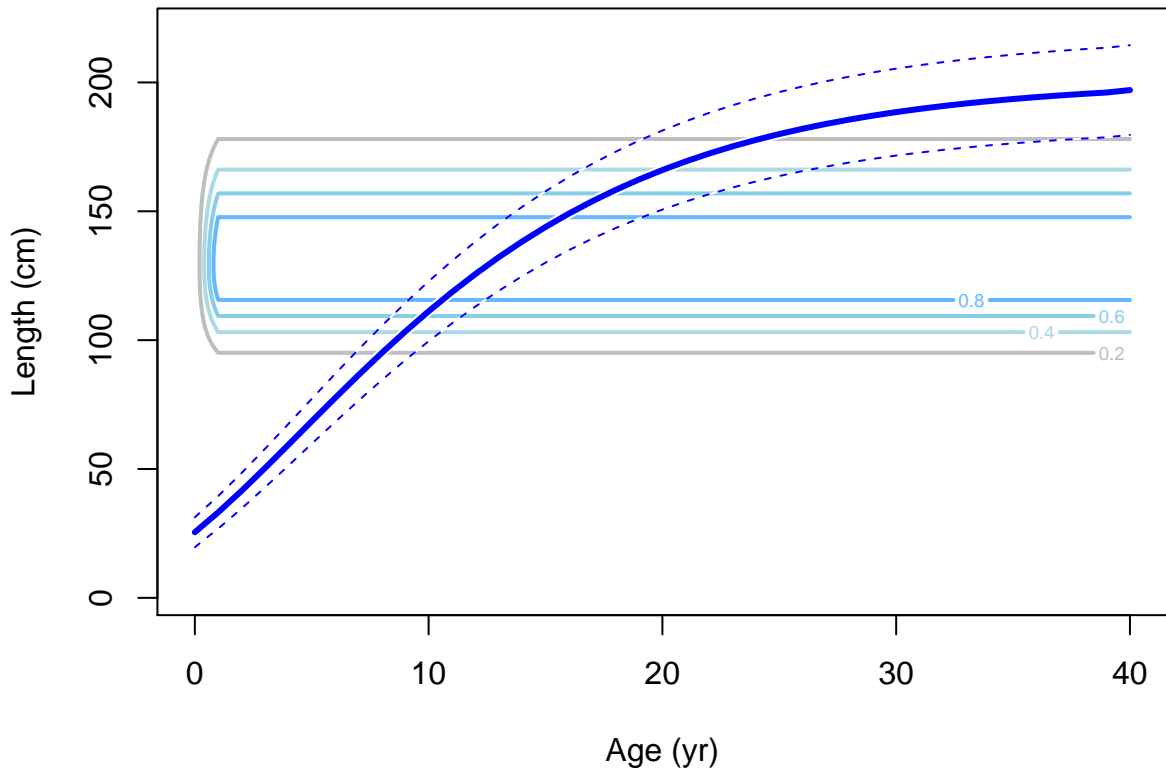
# Male ending year selectivity and growth for A5-LL-n



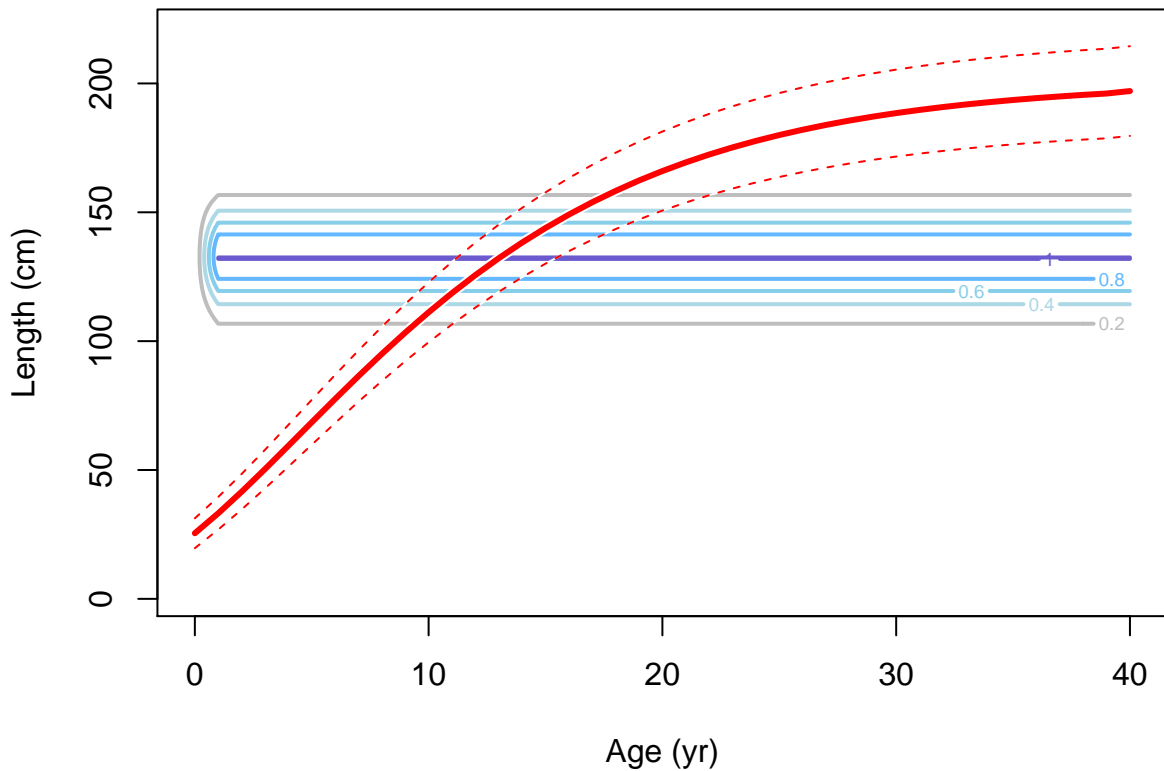
## Female ending year selectivity and growth for A6-LL-n



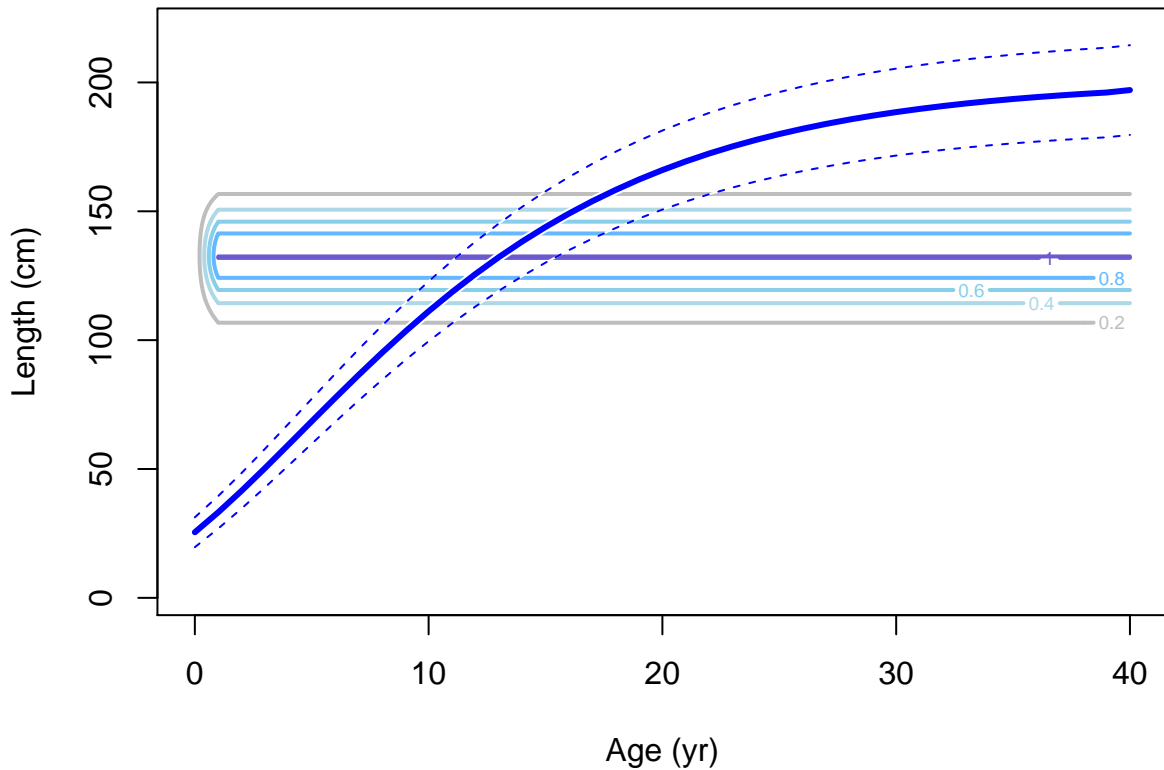
# Male ending year selectivity and growth for A6-LL-n



## Female ending year selectivity and growth for A1-LL-w

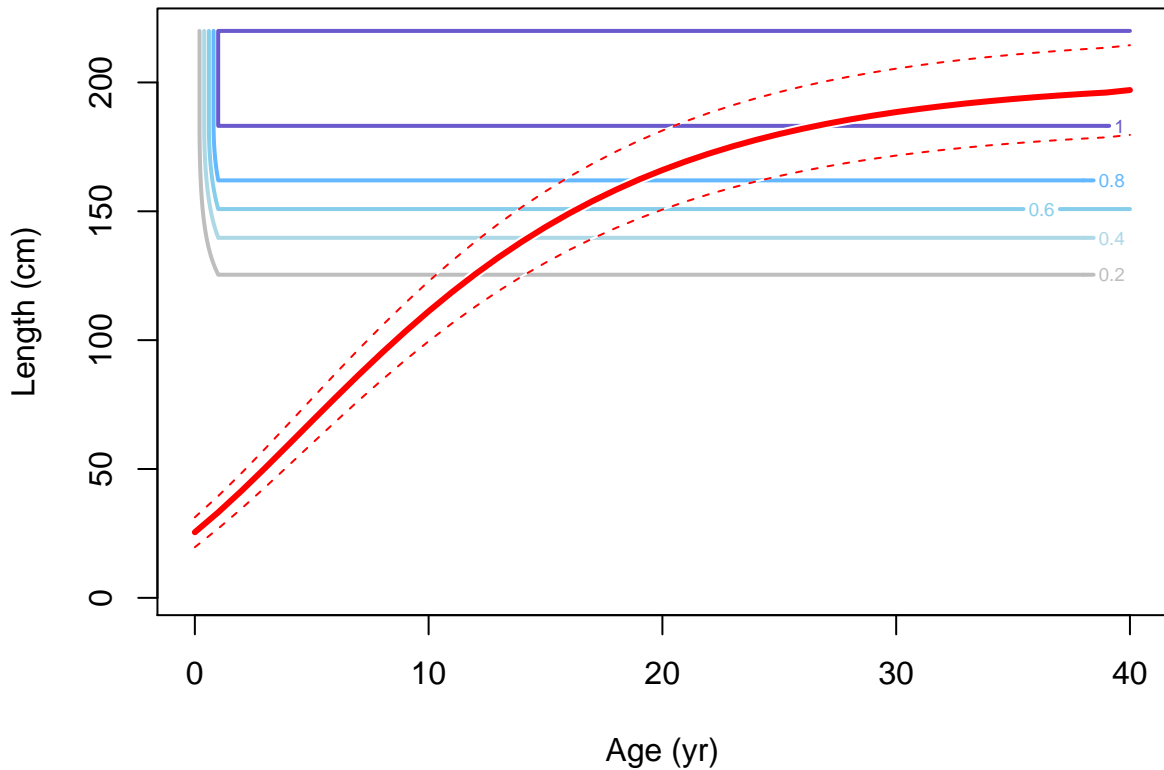


# Male ending year selectivity and growth for A1-LL-w

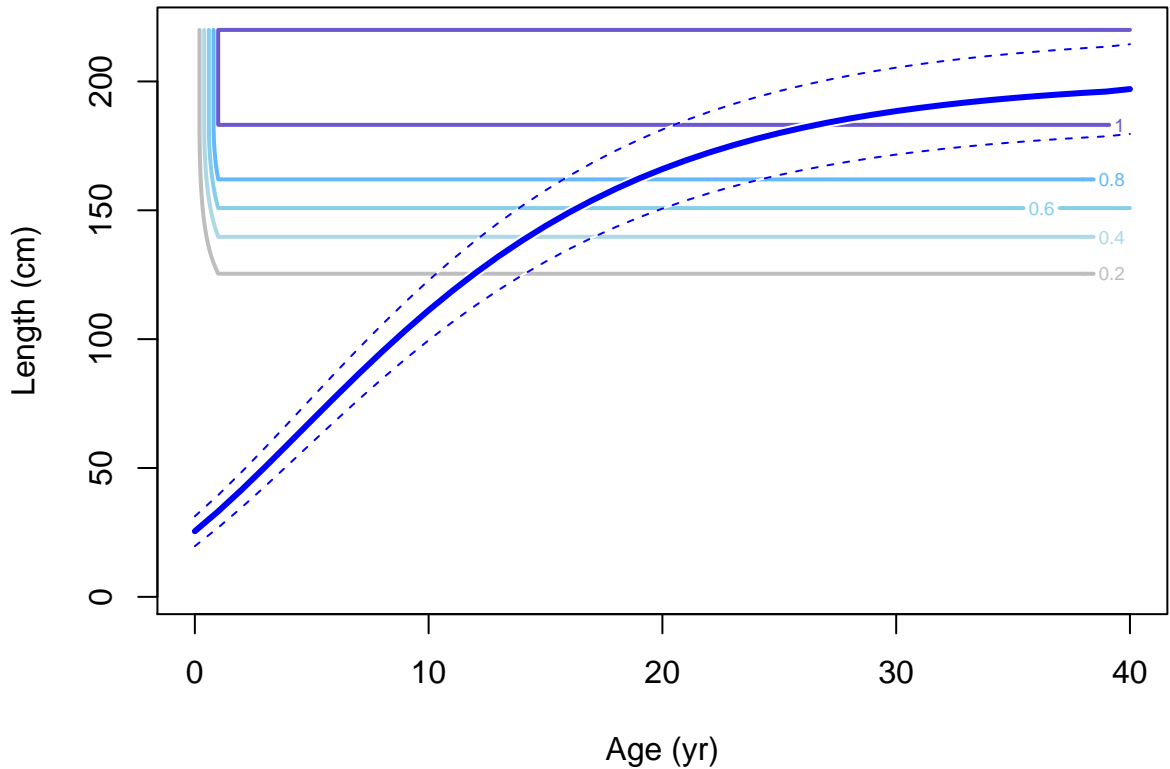




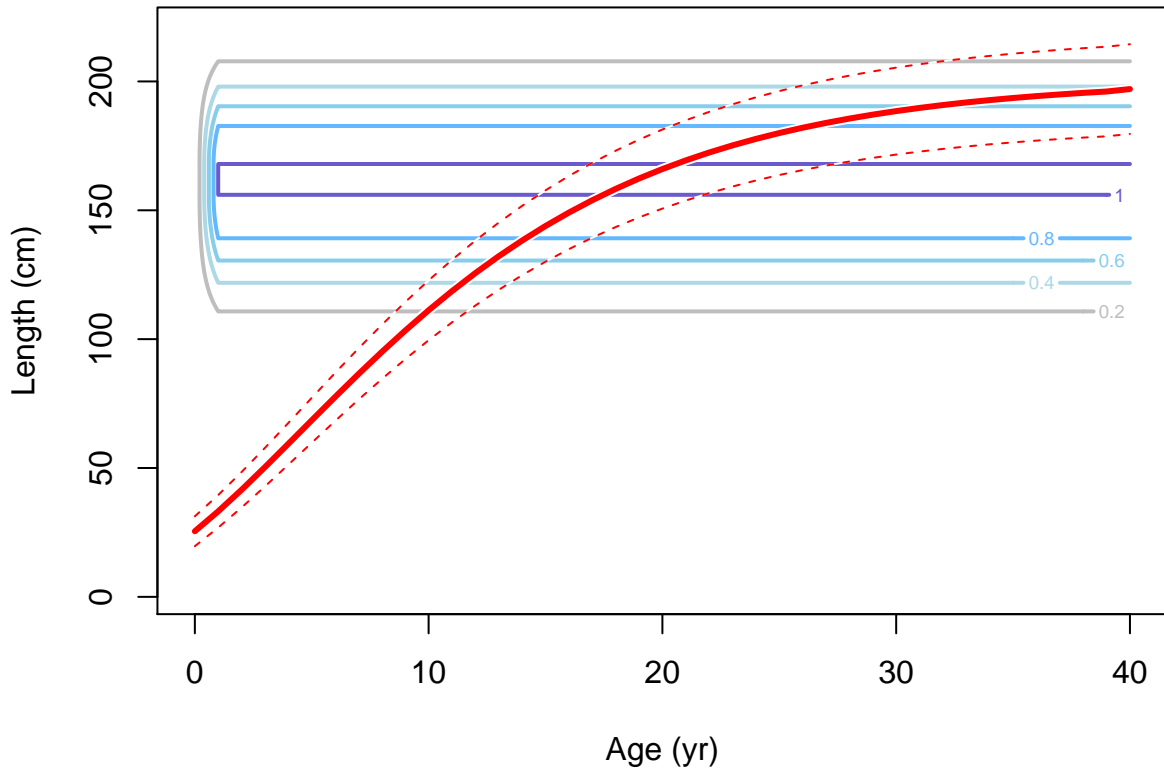
## Female ending year selectivity and growth for A2-LL-w



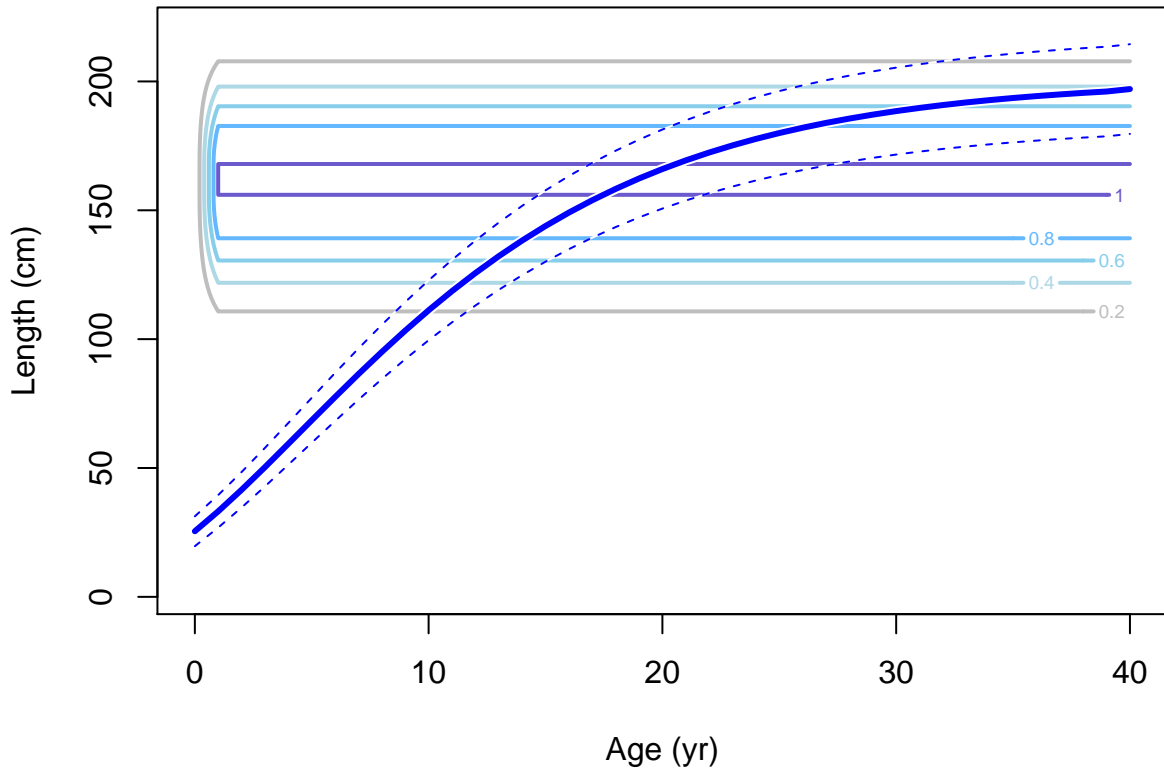
# Male ending year selectivity and growth for A2-LL-w



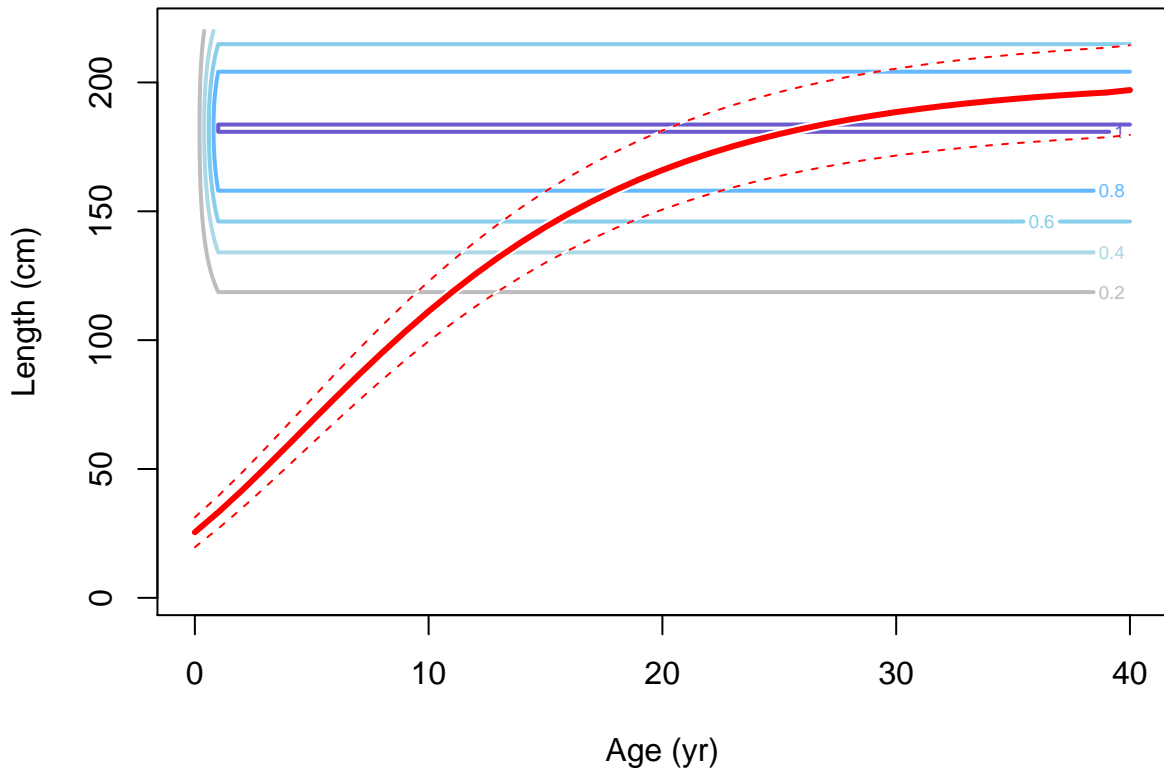
## Female ending year selectivity and growth for A3-LL-w



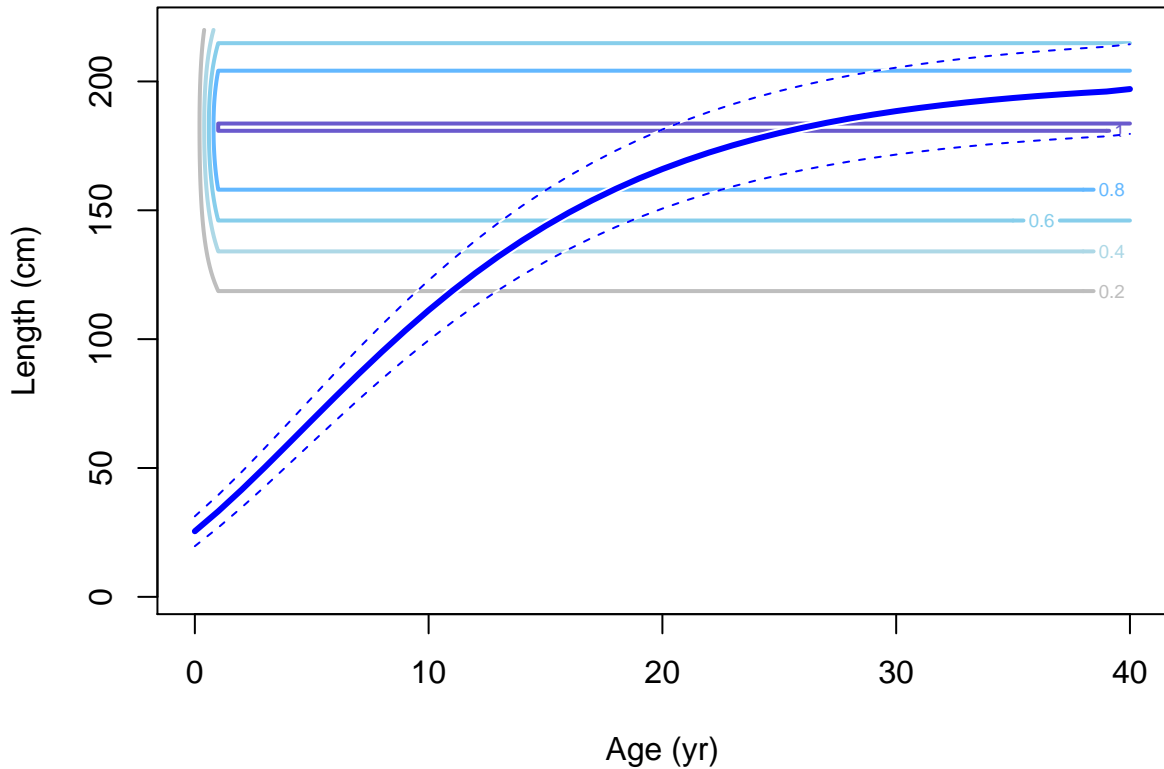
# Male ending year selectivity and growth for A3-LL-w



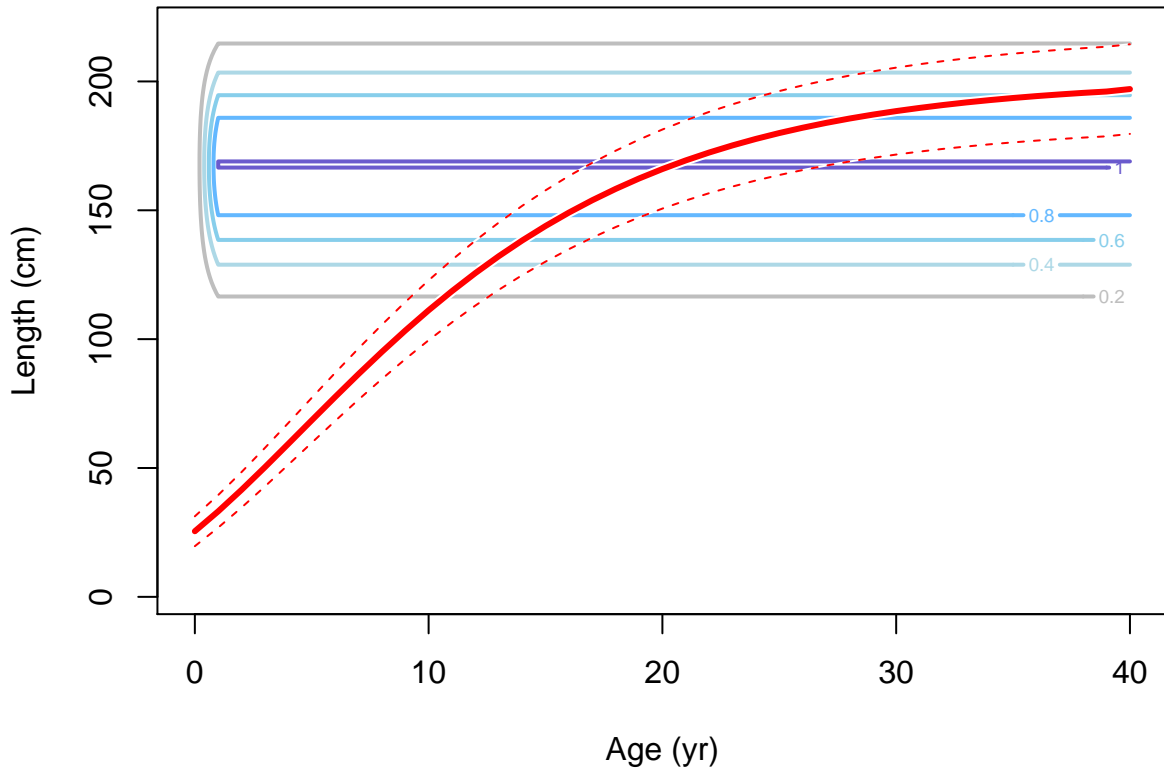
## Female ending year selectivity and growth for A4-LL-w



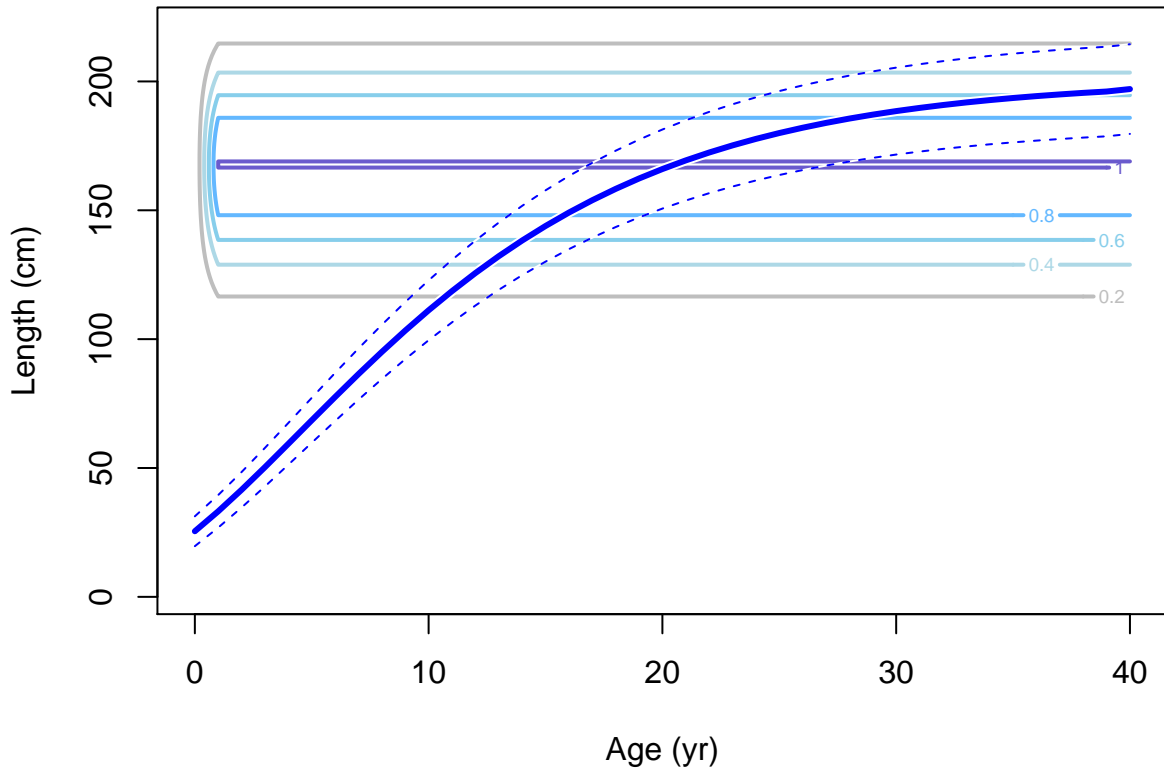
# Male ending year selectivity and growth for A4-LL-w



## Female ending year selectivity and growth for A5-LL-w

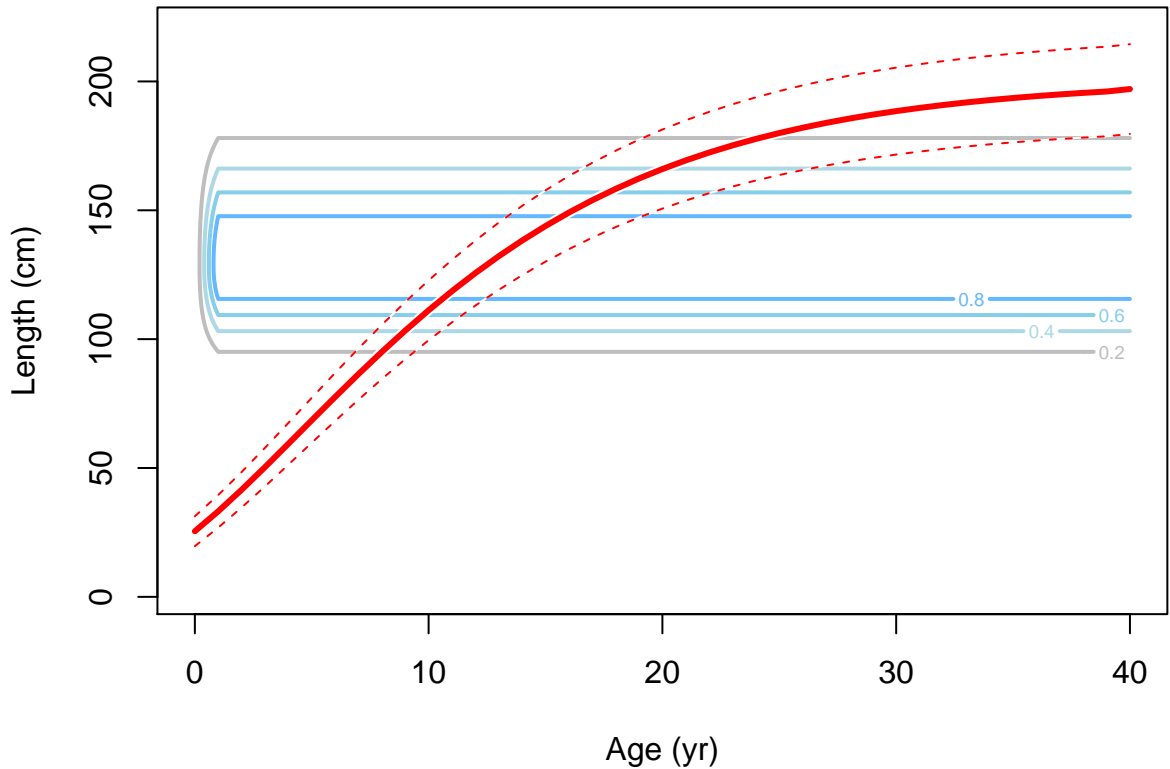


# Male ending year selectivity and growth for A5-LL-w

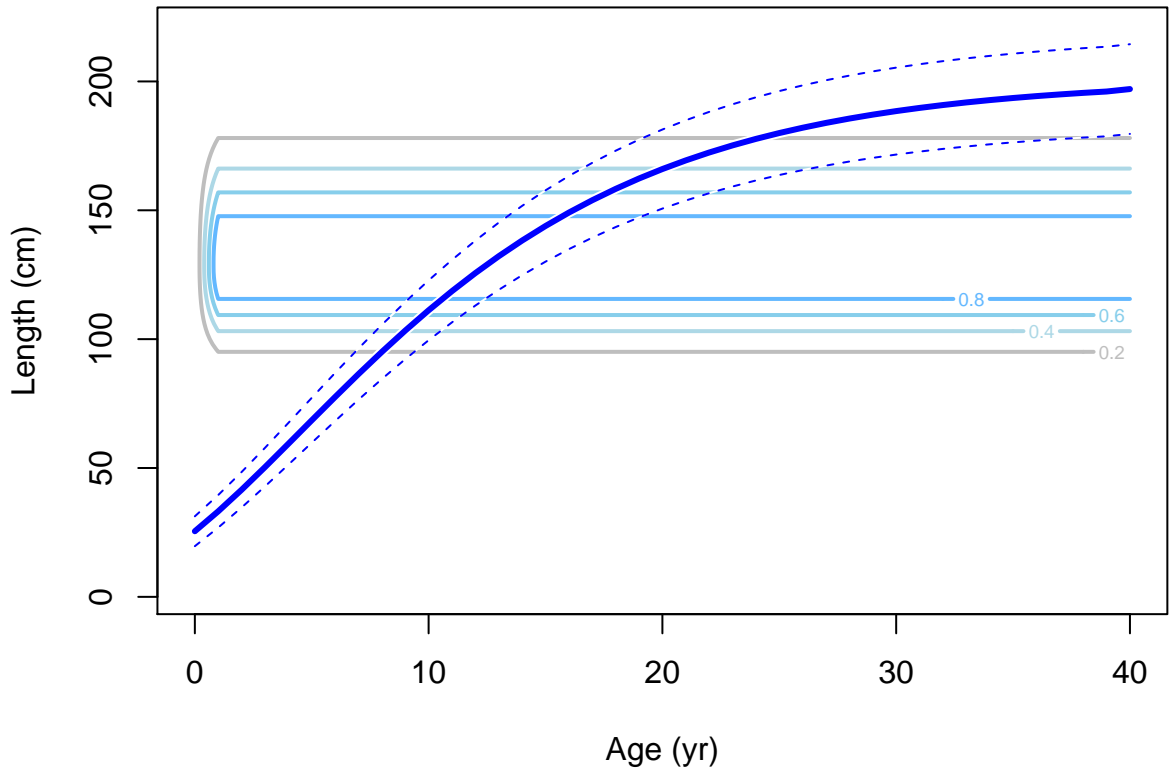




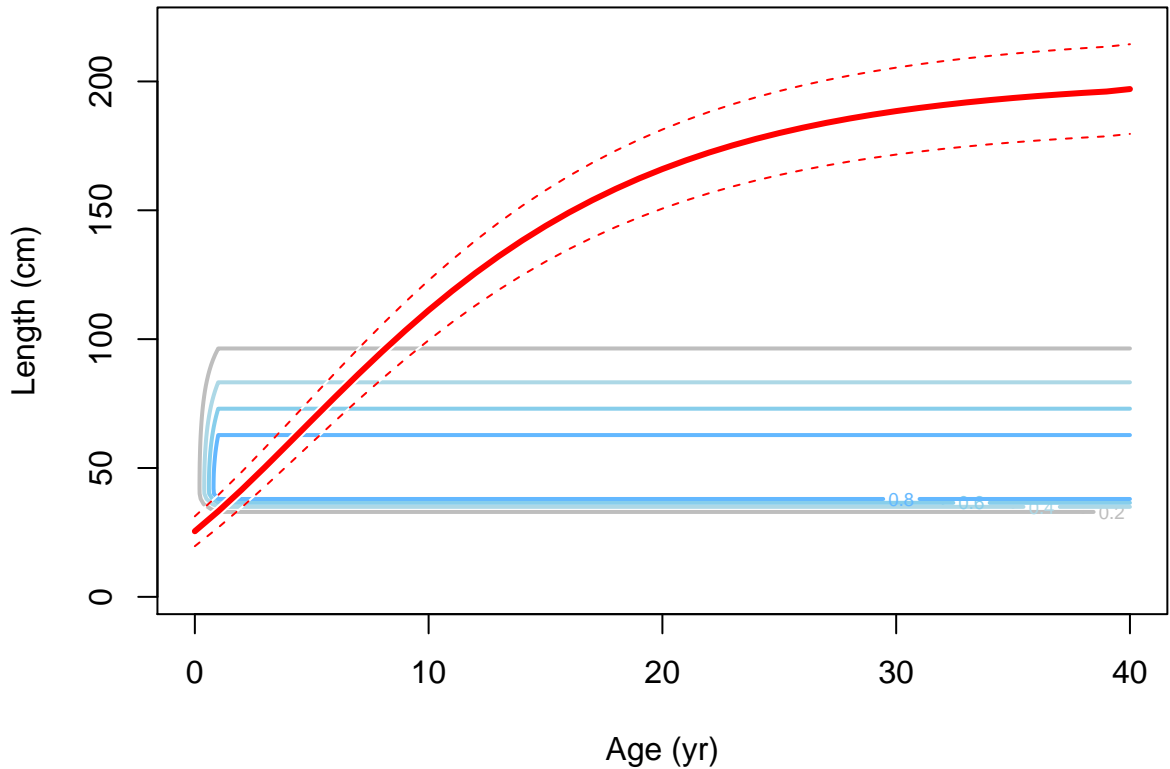
## Female ending year selectivity and growth for A6-LL-w



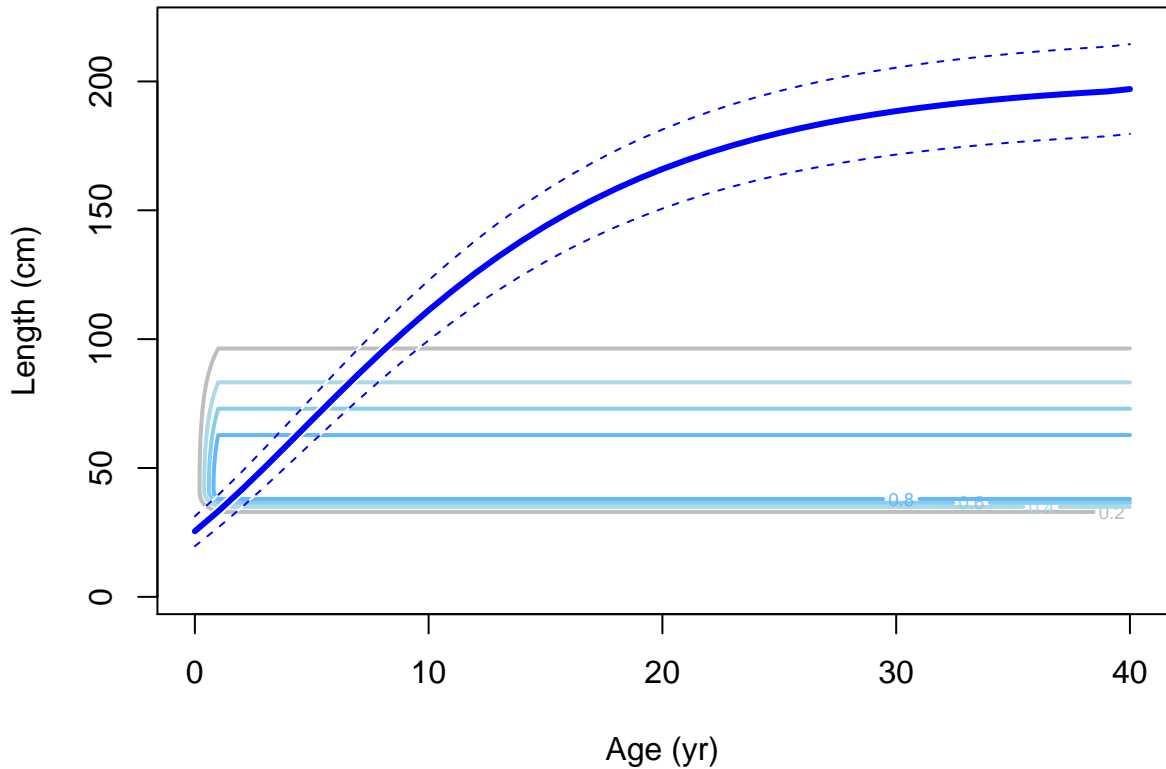
# Male ending year selectivity and growth for A6-LL-w



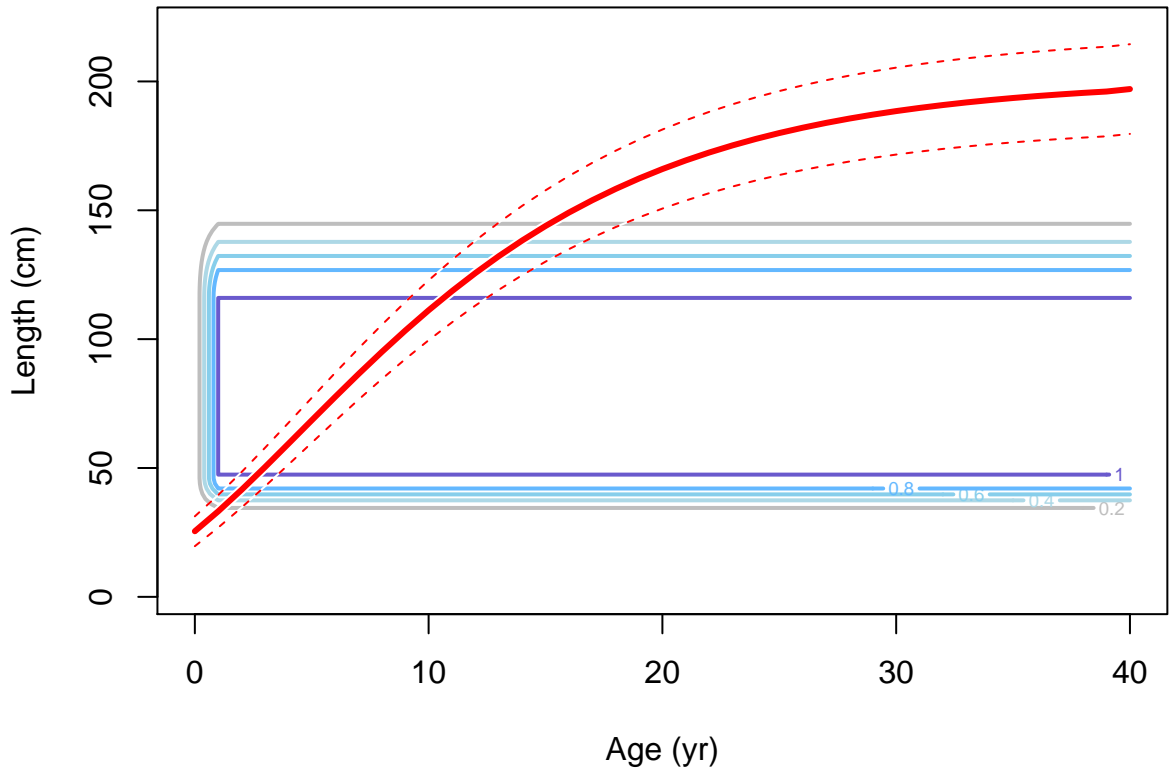
## Female ending year selectivity and growth for A2-OBJ



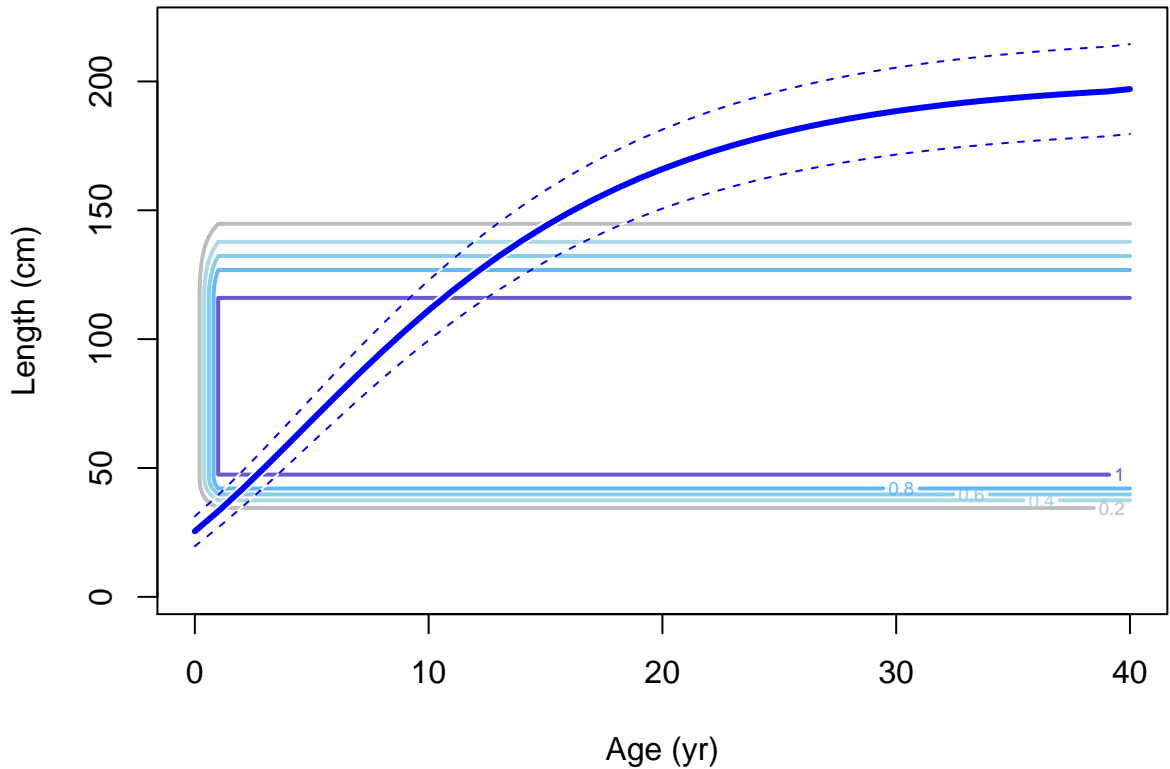
## Male ending year selectivity and growth for A2-OBJ



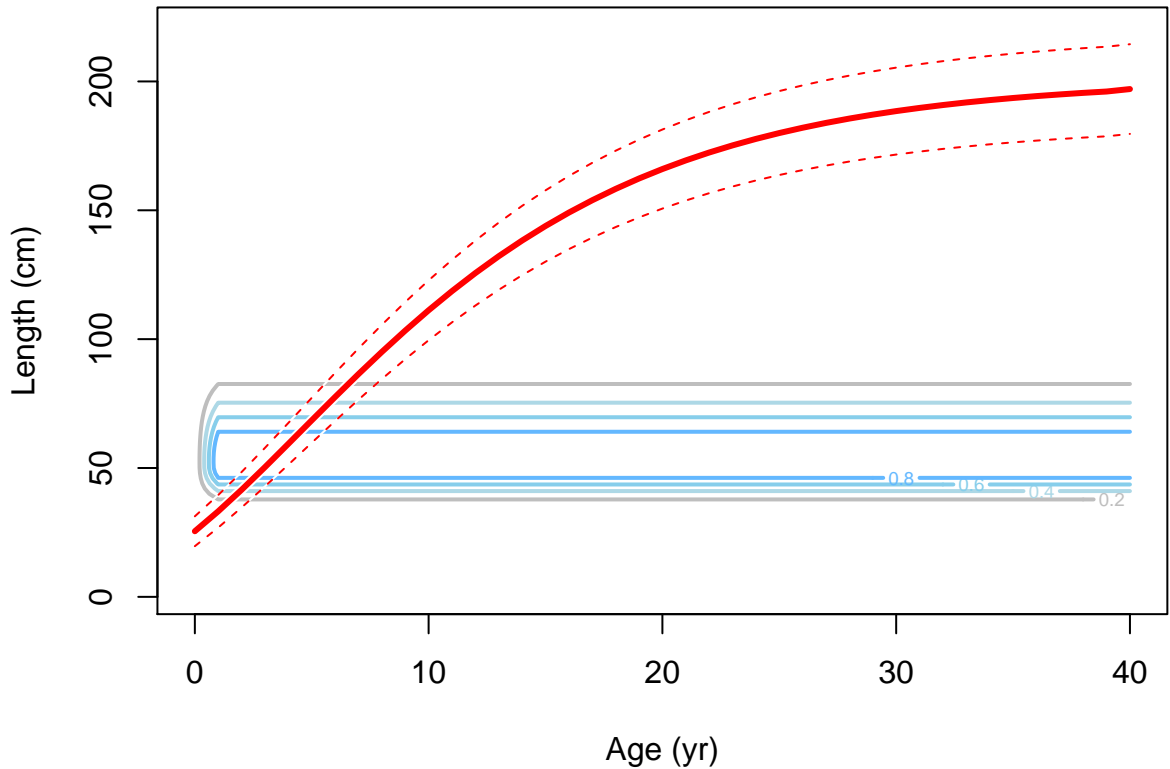
## Female ending year selectivity and growth for A3-OBJ



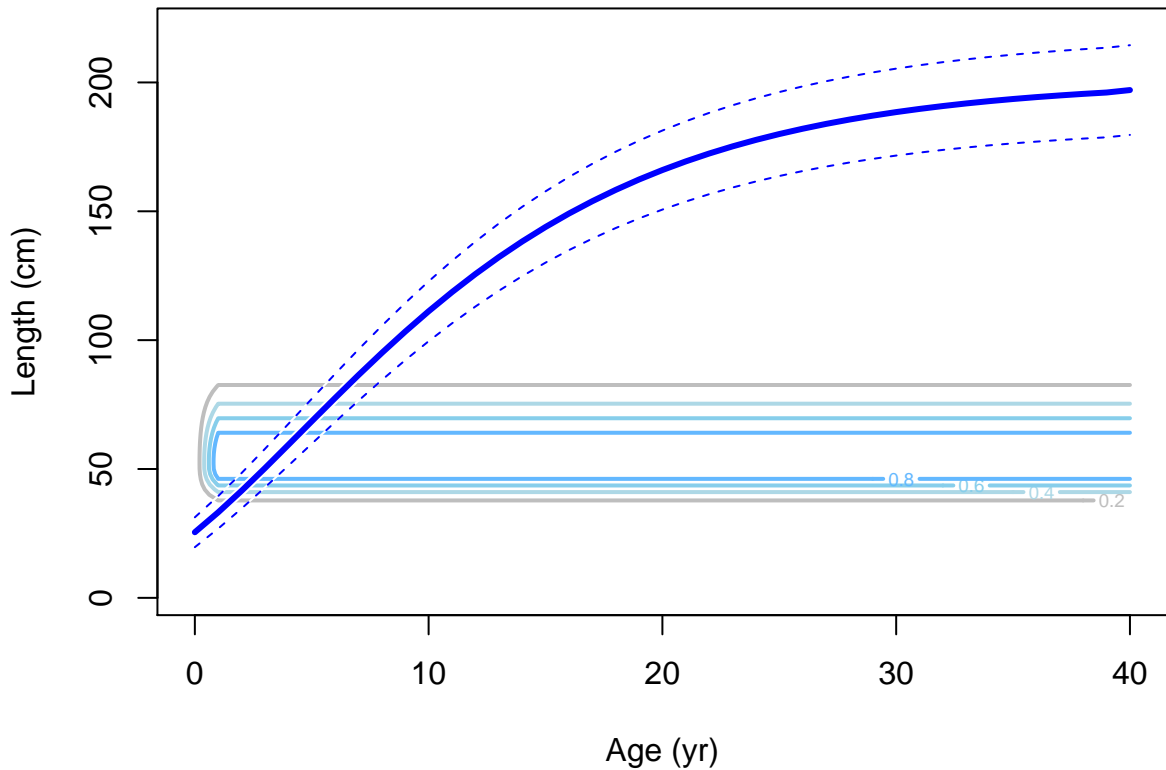
# Male ending year selectivity and growth for A3-OBJ



## Female ending year selectivity and growth for A4-OBJ

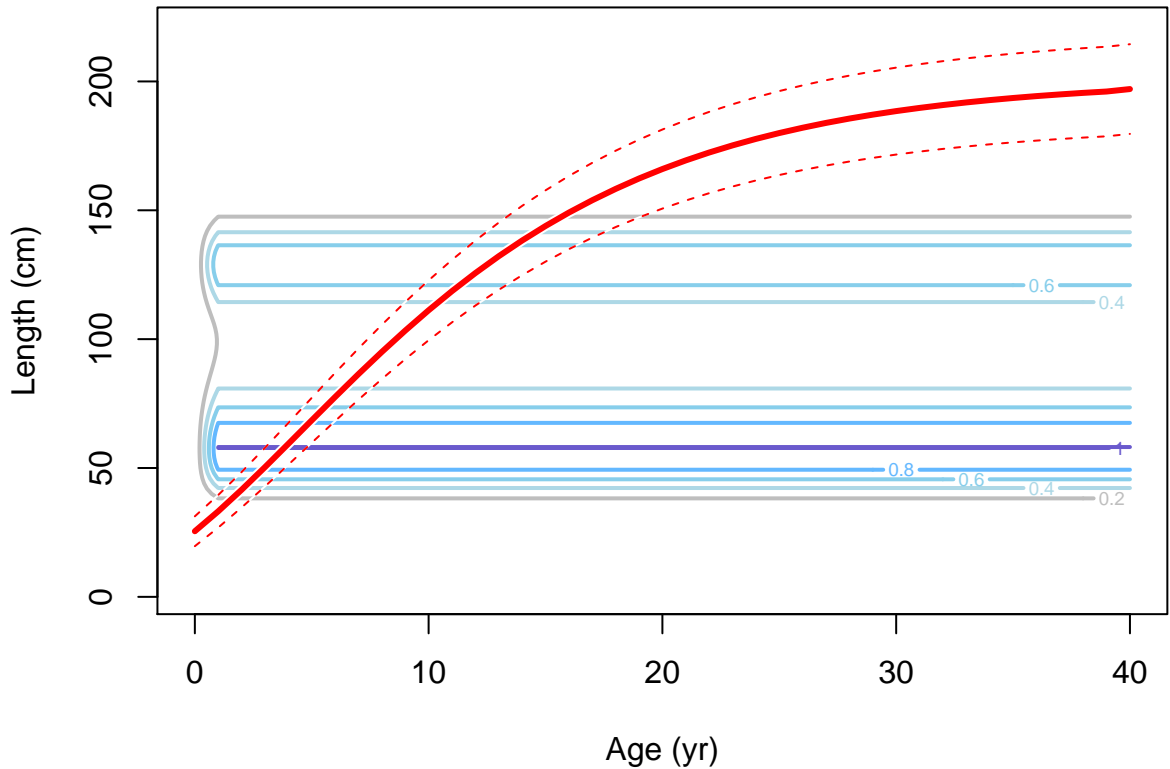


# Male ending year selectivity and growth for A4-OBJ

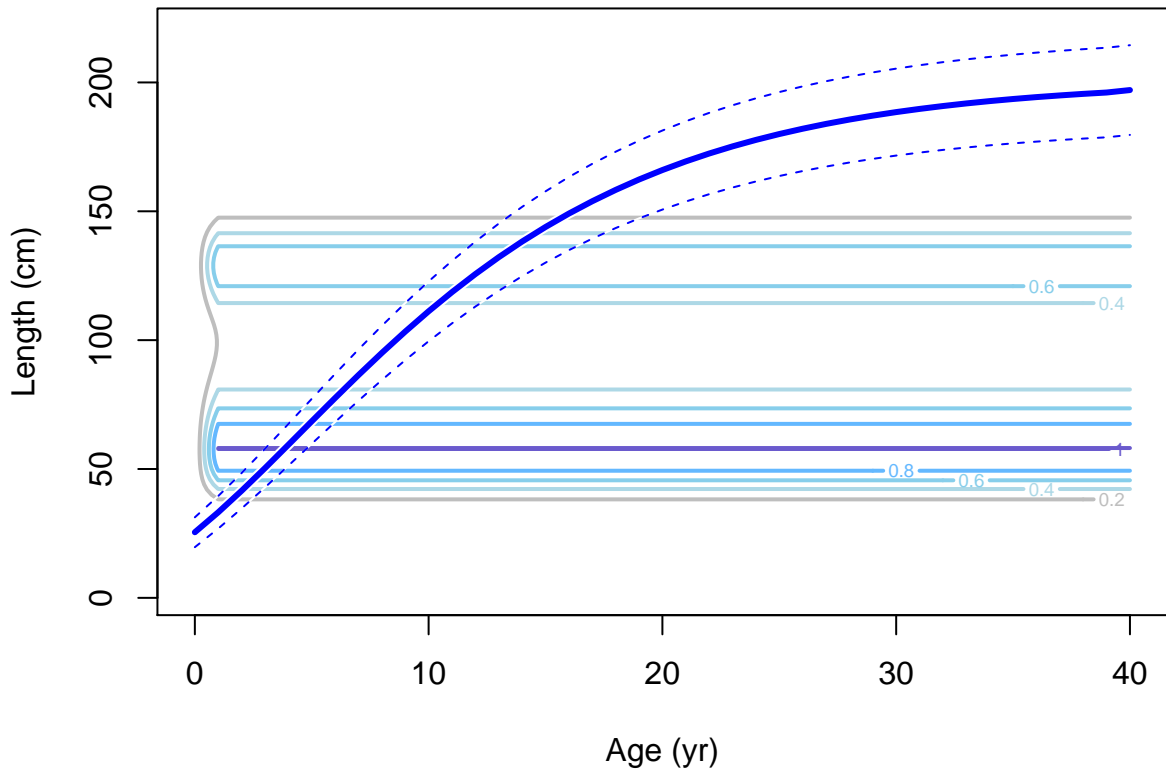




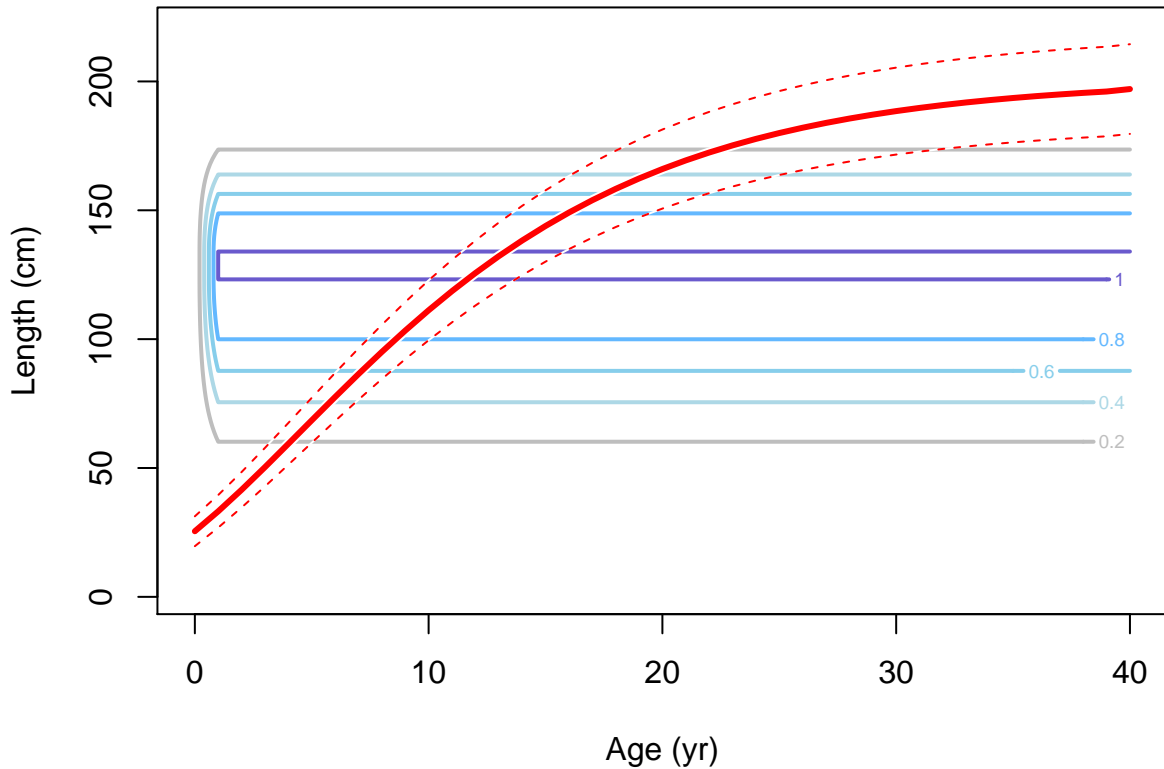
## Female ending year selectivity and growth for A5-OBJ



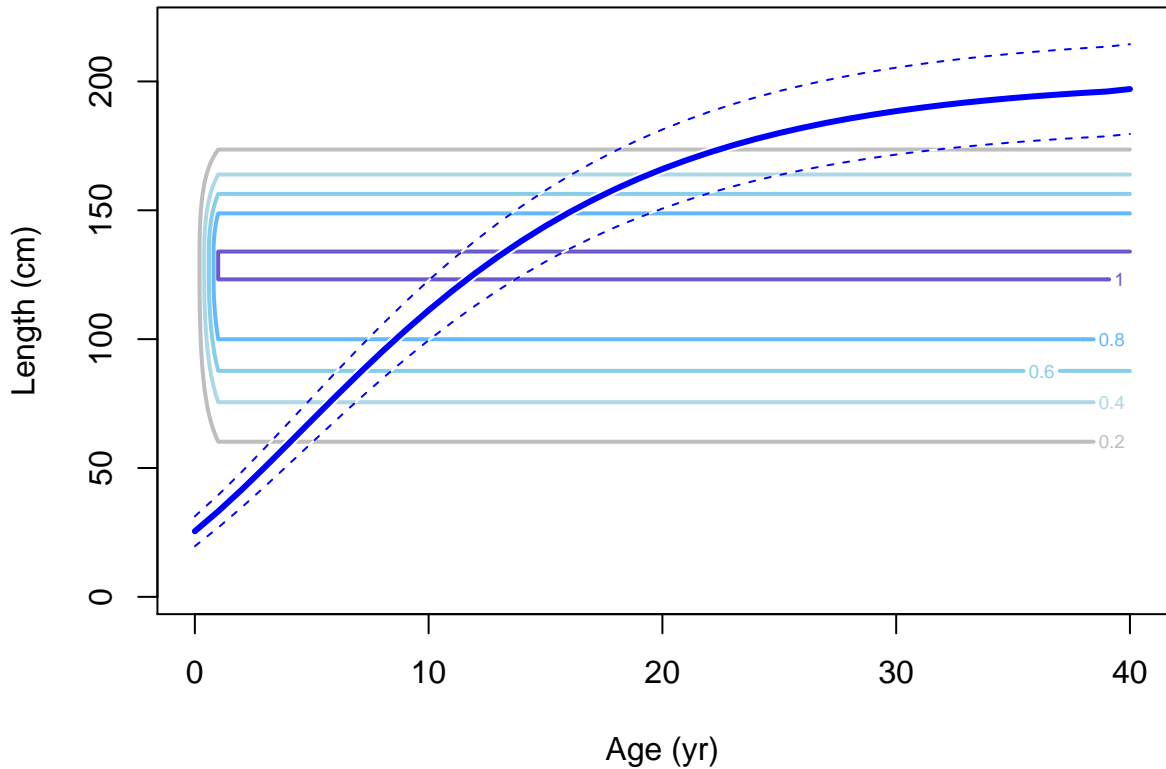
# Male ending year selectivity and growth for A5-OBJ



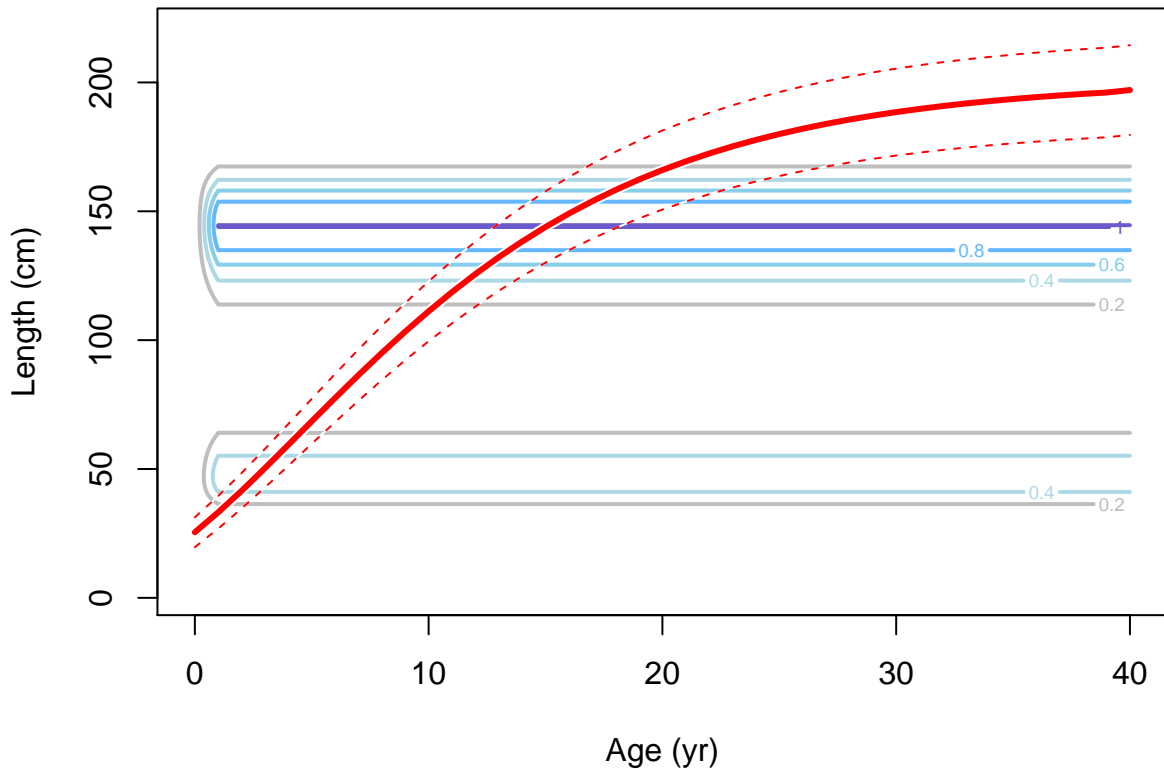
## Female ending year selectivity and growth for A6-OBJ



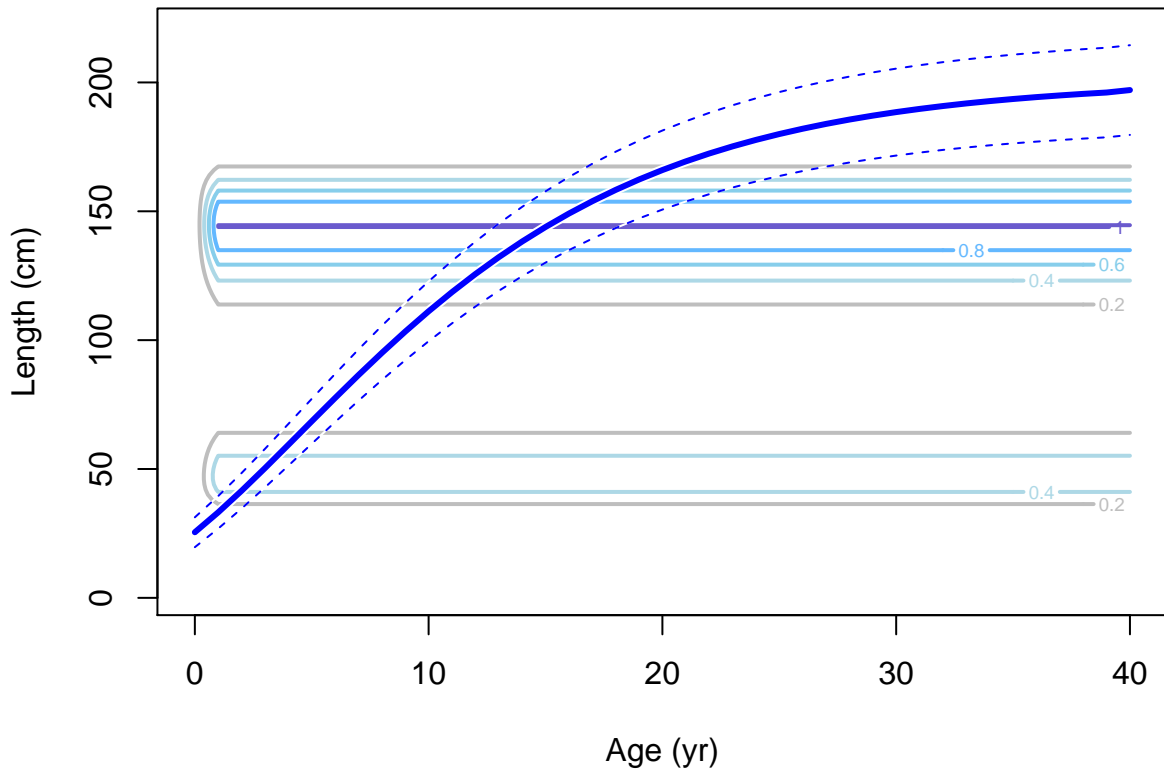
# Male ending year selectivity and growth for A6-OBJ



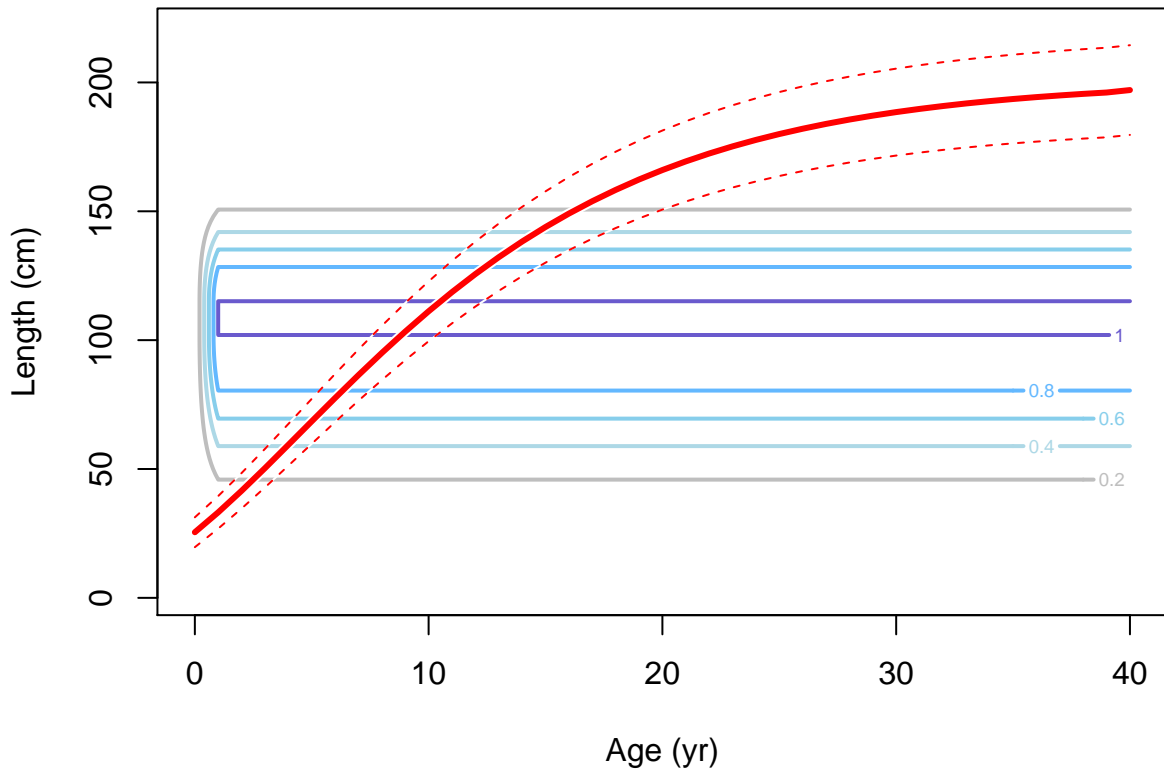
## Female ending year selectivity and growth for A2-NOADEL



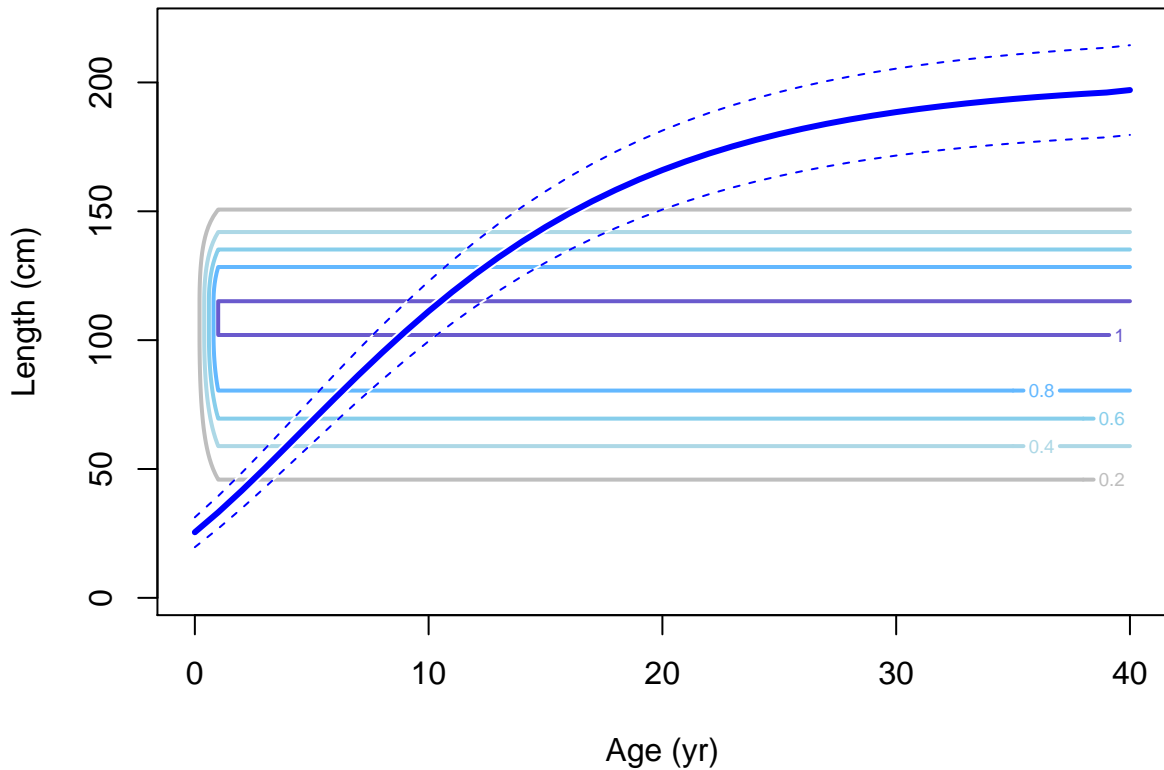
# Male ending year selectivity and growth for A2-NOADEL



## Female ending year selectivity and growth for A3-NOADEL

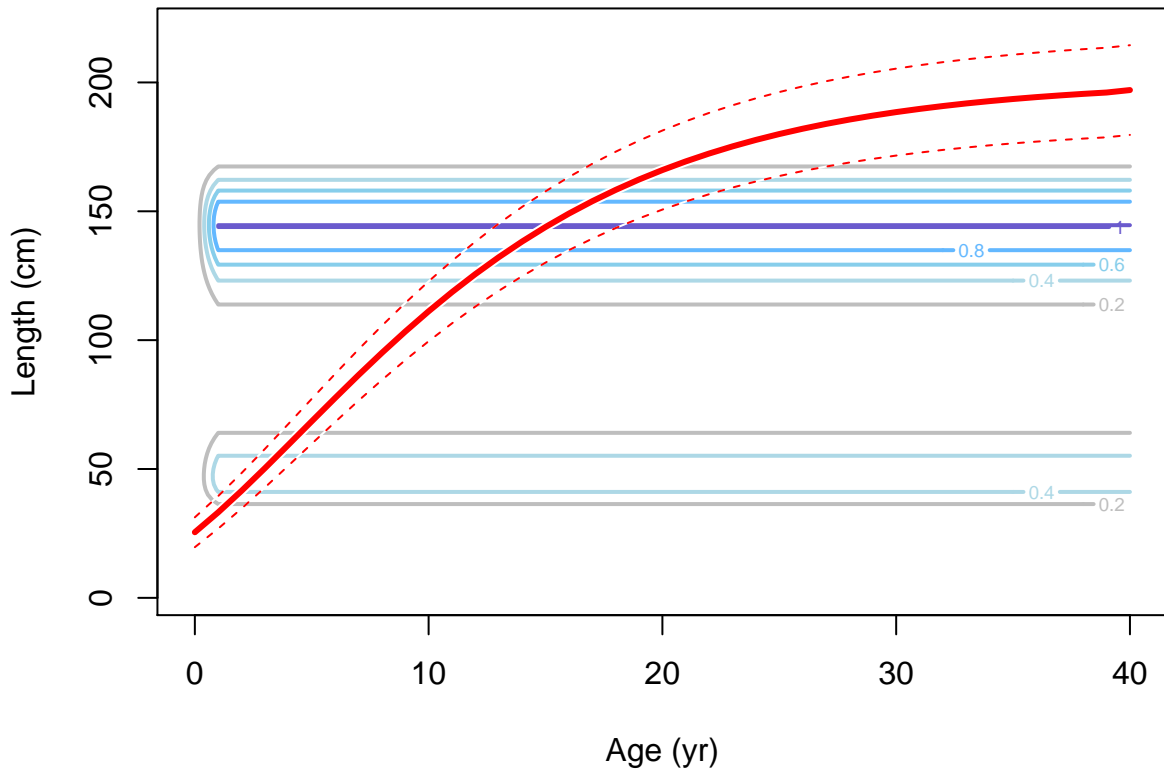


## Male ending year selectivity and growth for A3-NOADEL

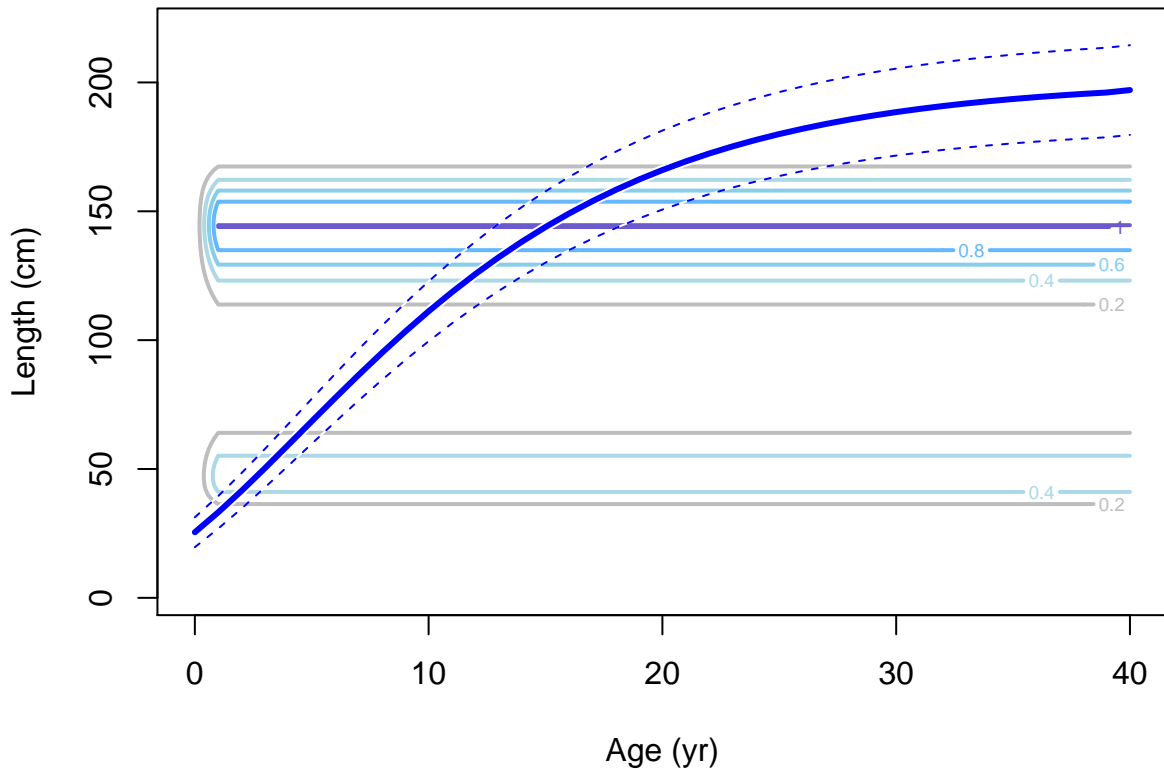




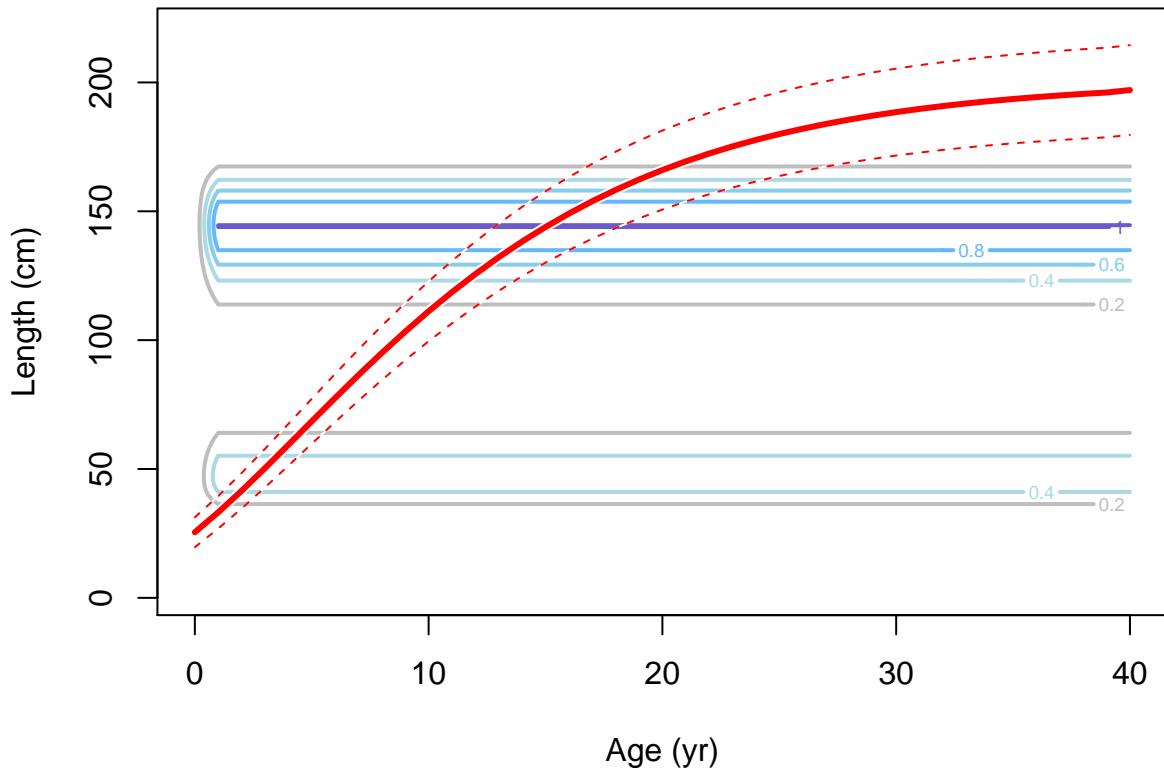
## Female ending year selectivity and growth for A4-NOADEL



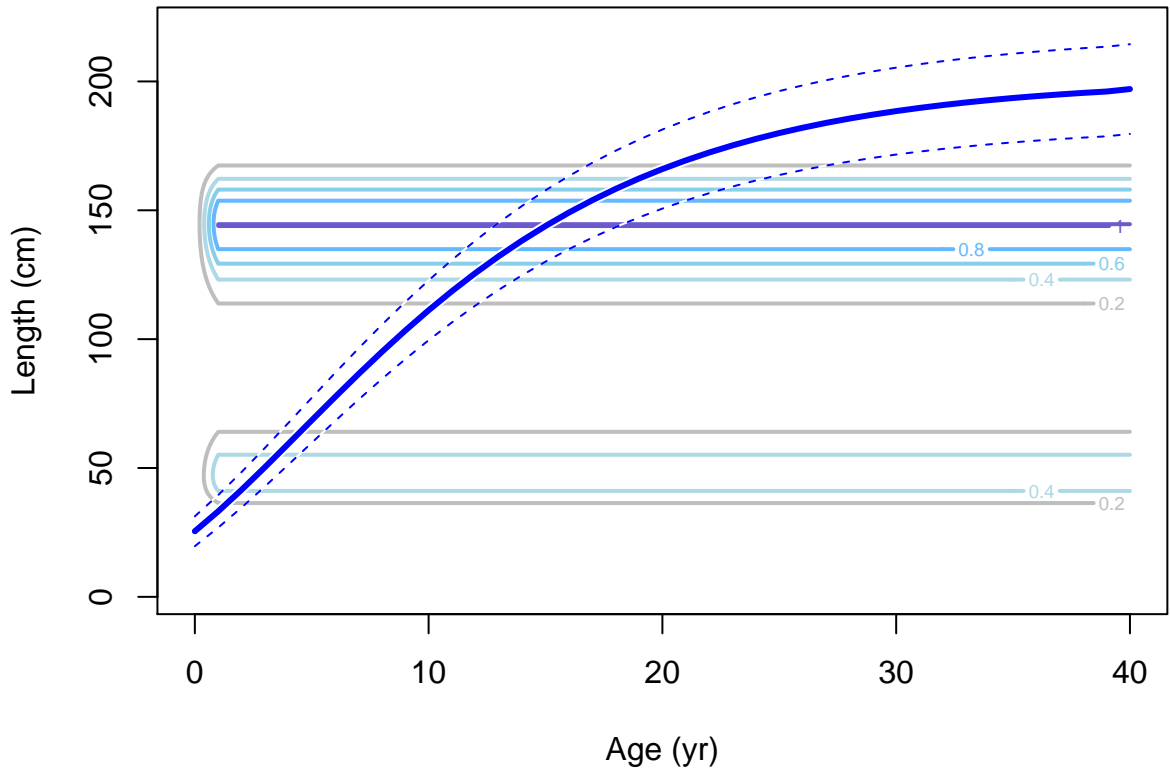
# Male ending year selectivity and growth for A4-NOADEL



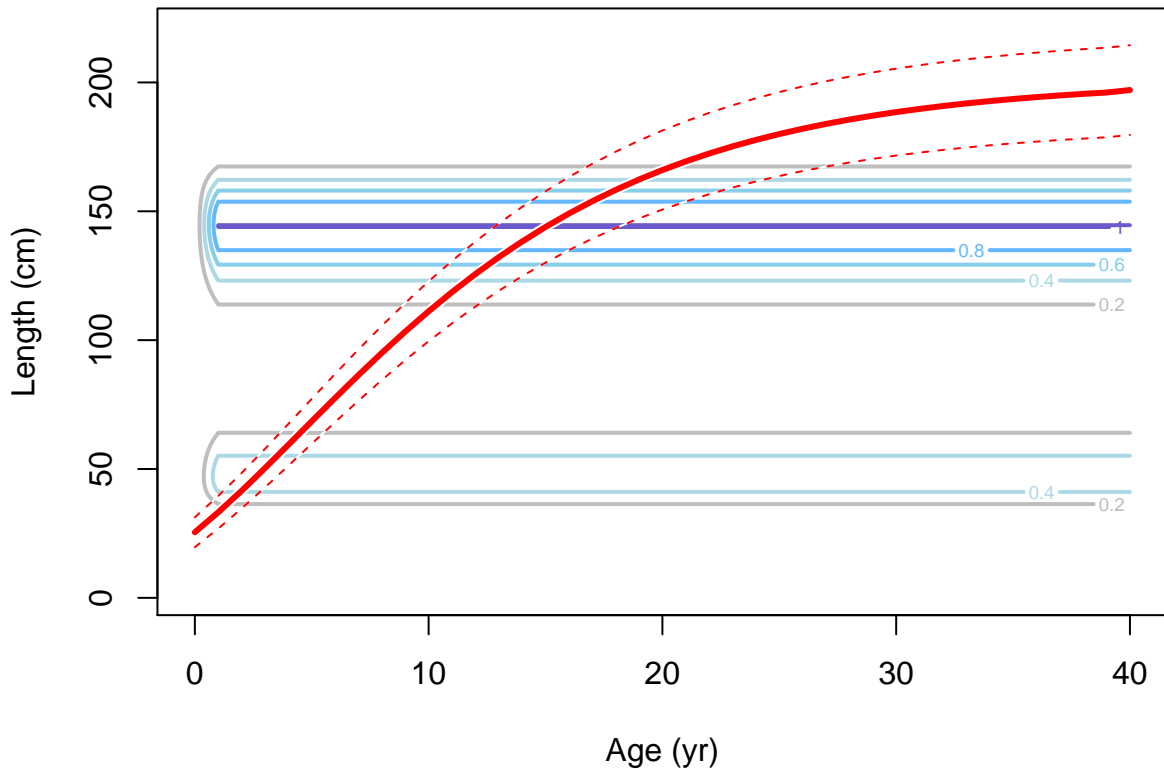
## Female ending year selectivity and growth for A5-NOADEL



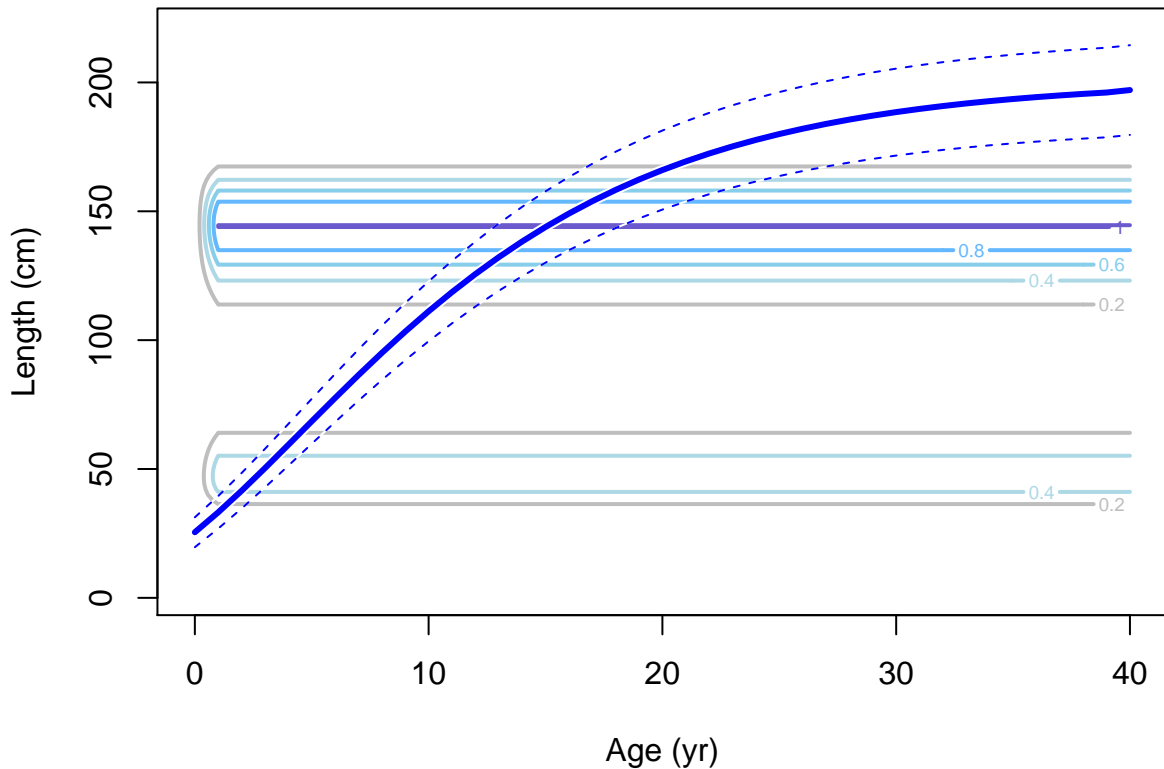
# Male ending year selectivity and growth for A5-NOADEL



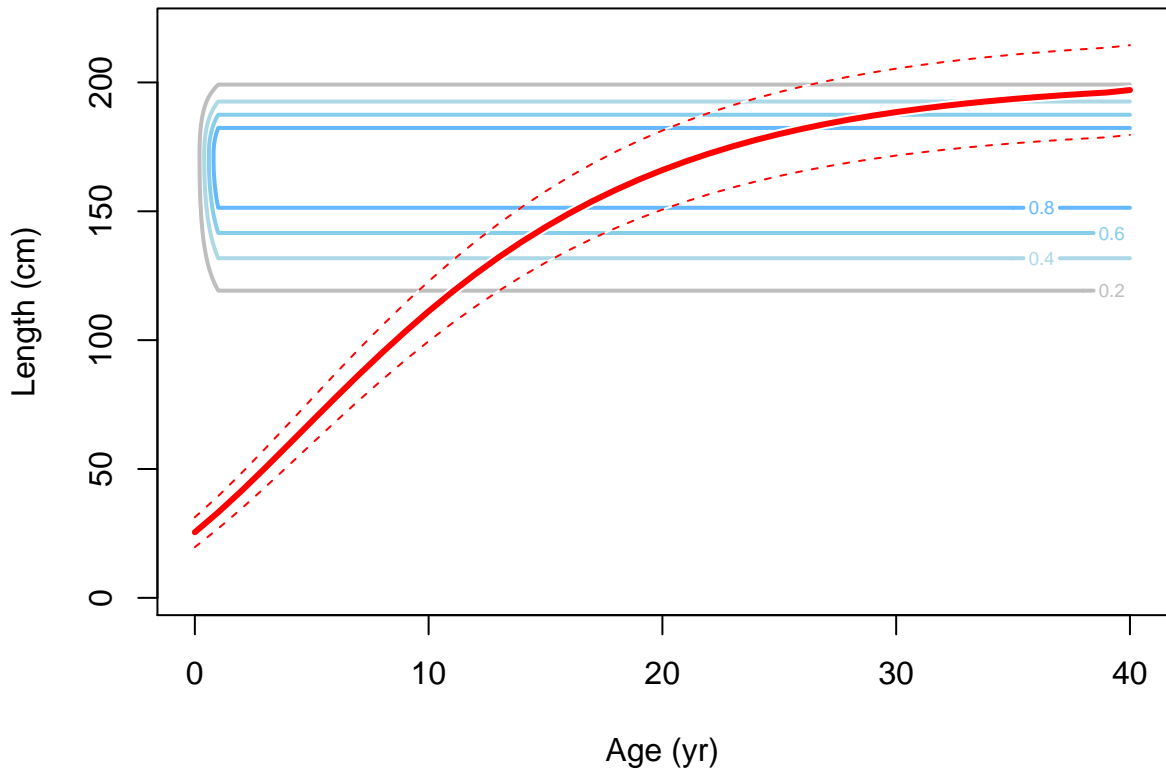
## Female ending year selectivity and growth for A6-NOADEL



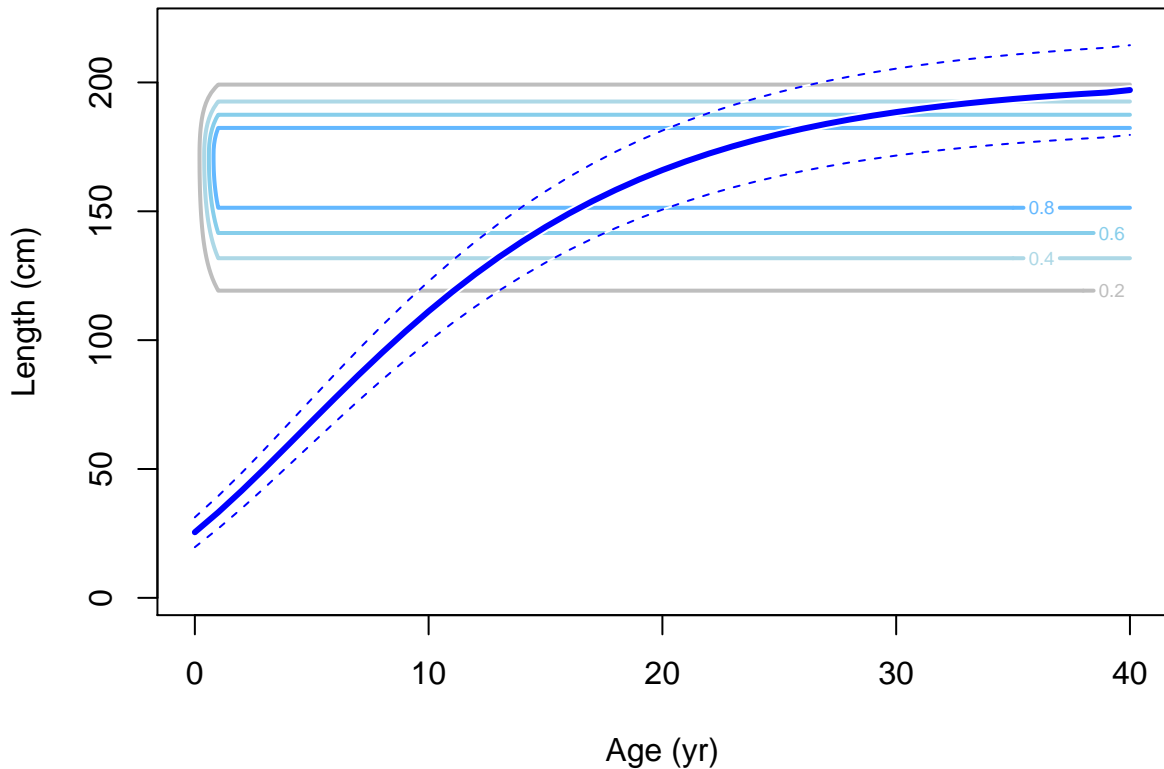
# Male ending year selectivity and growth for A6-NOADEL



# Female ending year selectivity and growth for EPO-LL-survey-early

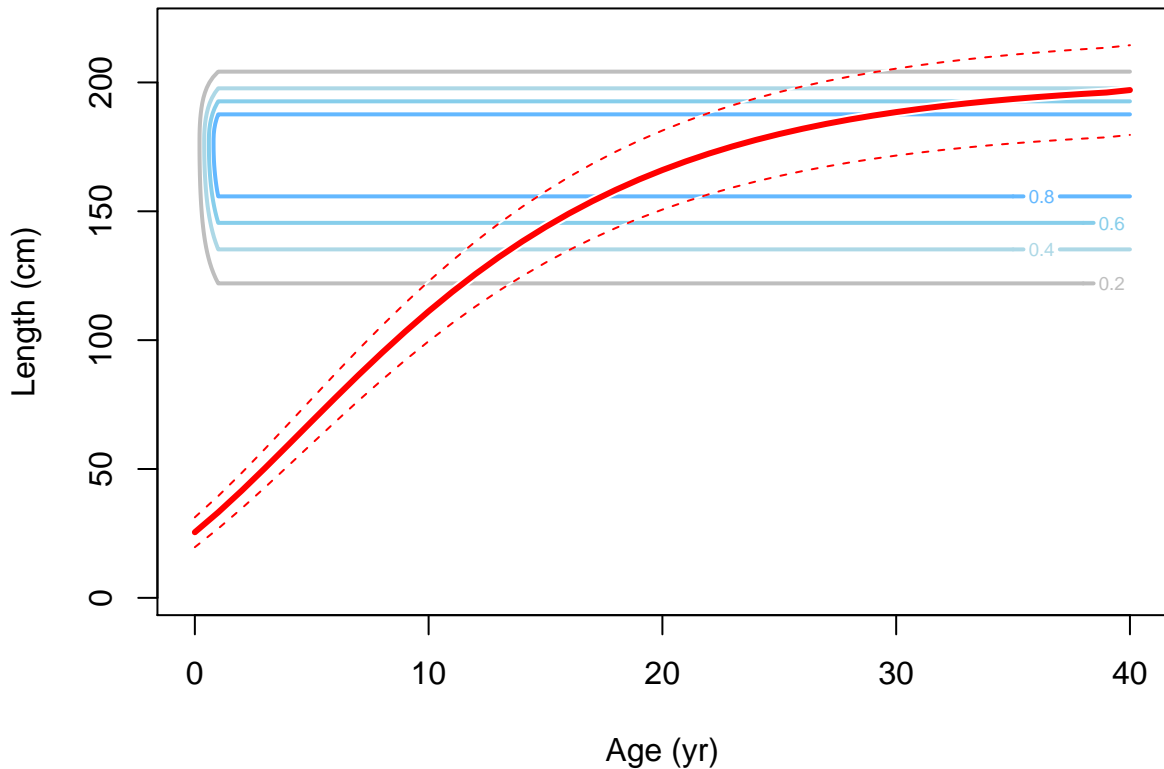


# Male ending year selectivity and growth for EPO-LL-survey-early

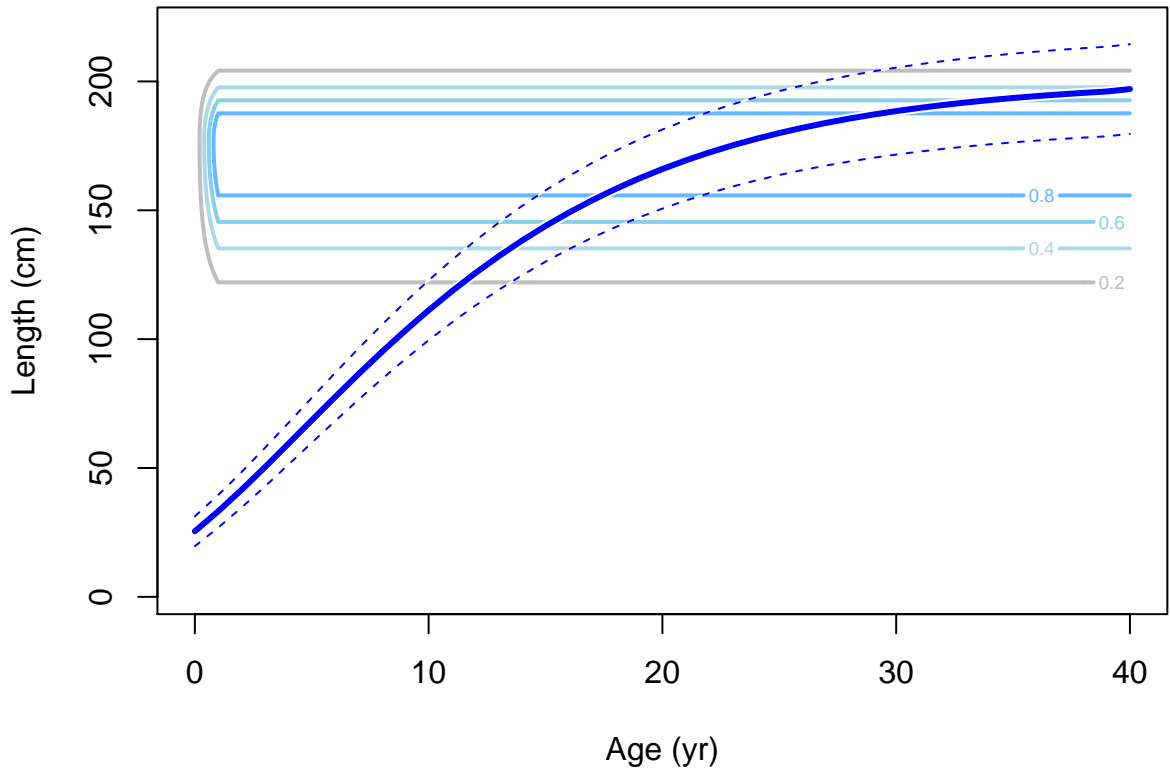




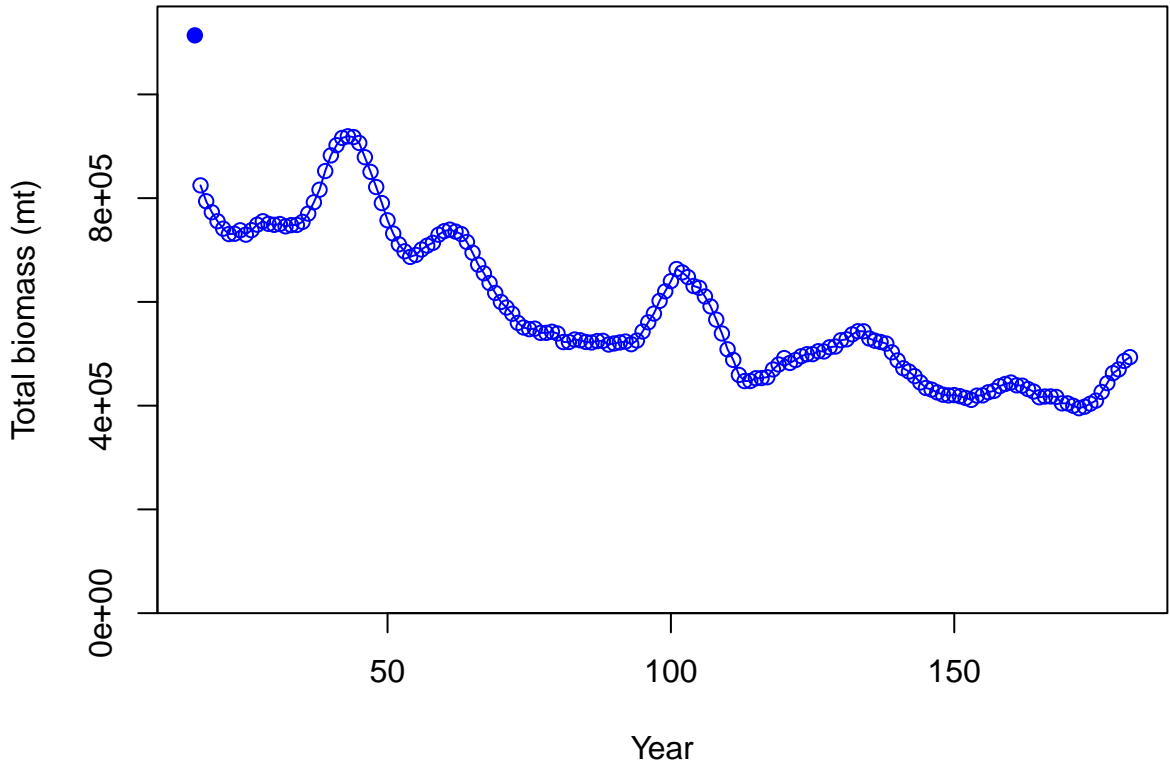
# Female ending year selectivity and growth for EPO-LL-survey-late



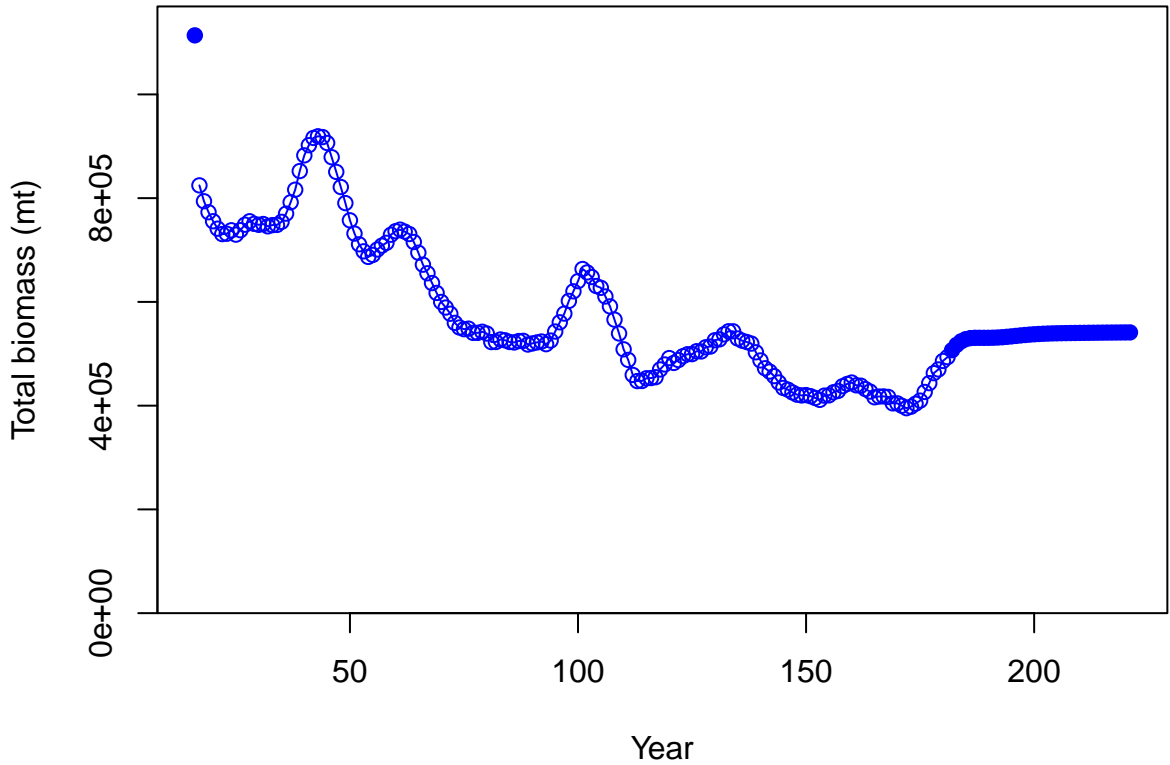
# Male ending year selectivity and growth for EPO-LL-survey-late



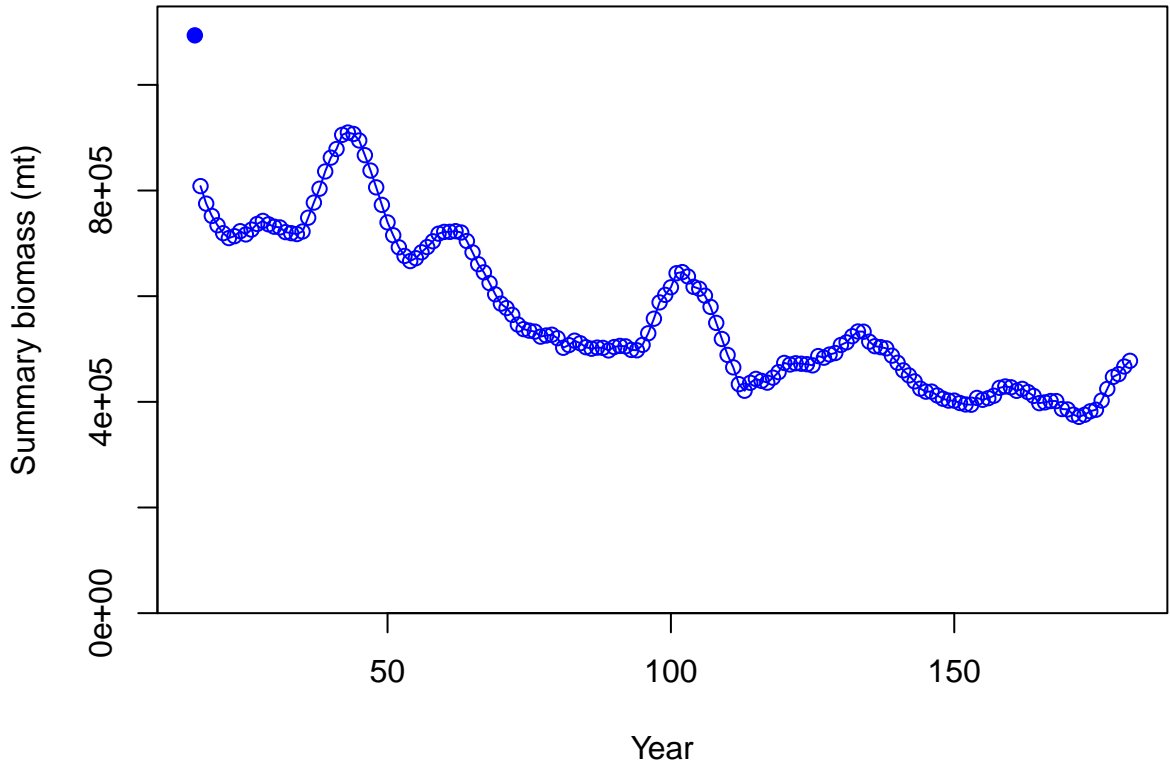
# Total biomass (mt)



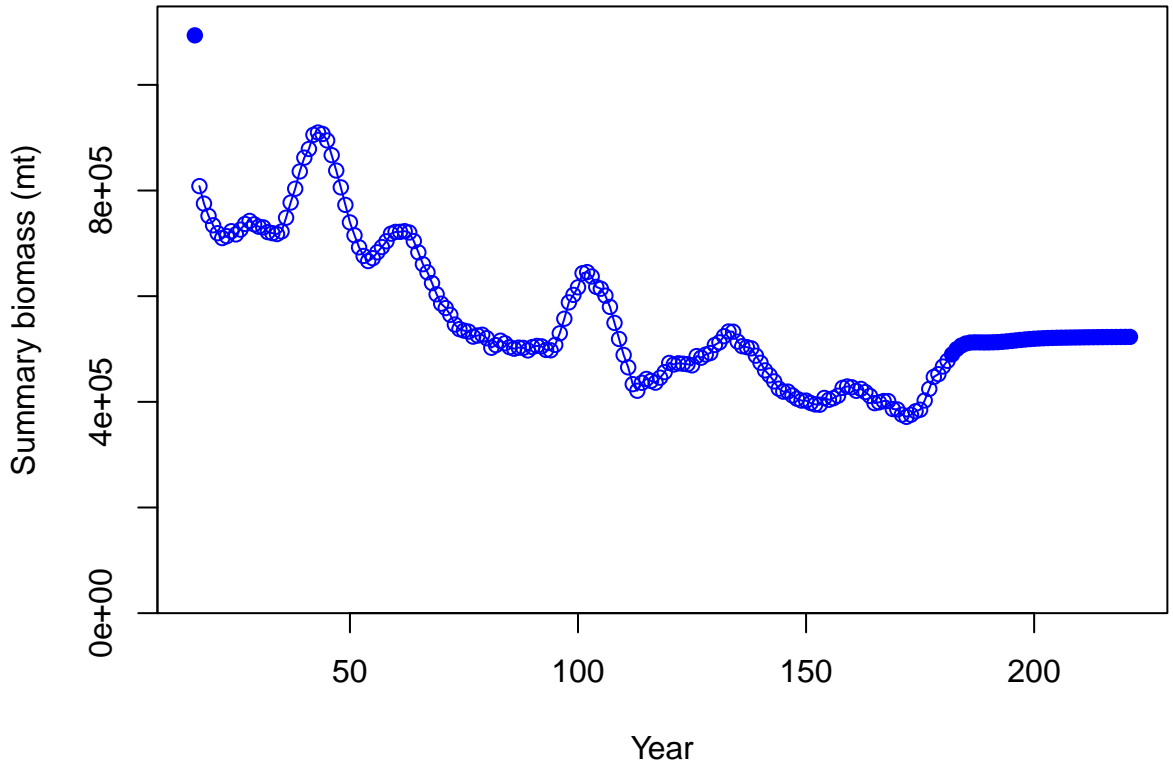
Total biomass (mt) with forecast



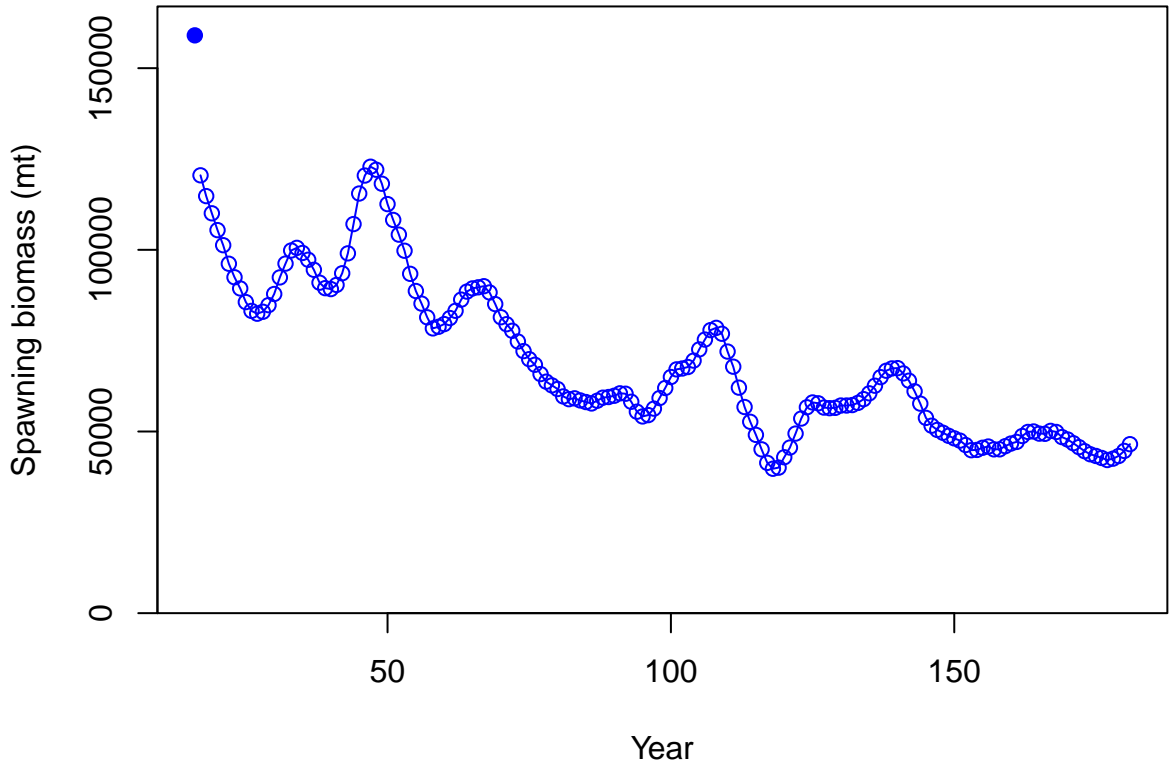
# Summary biomass (mt)



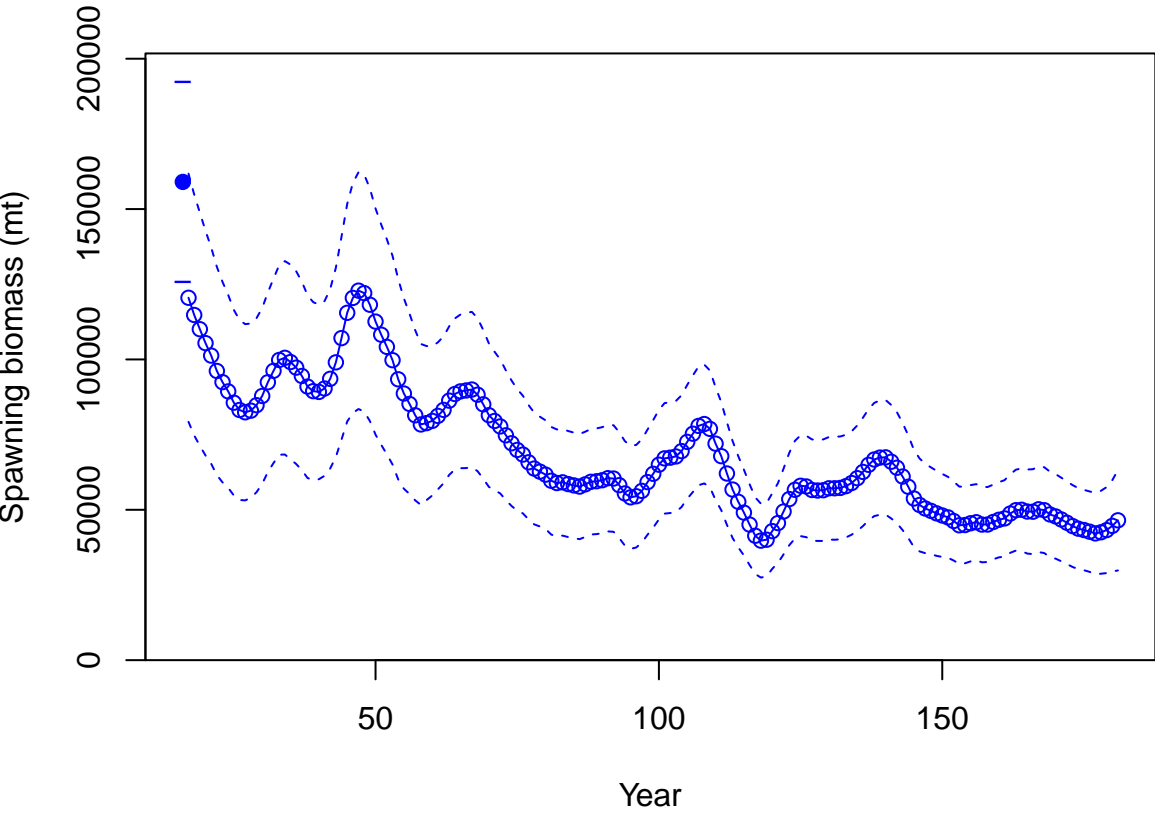
Summary biomass (mt) with forecast



## Spawning biomass (mt)

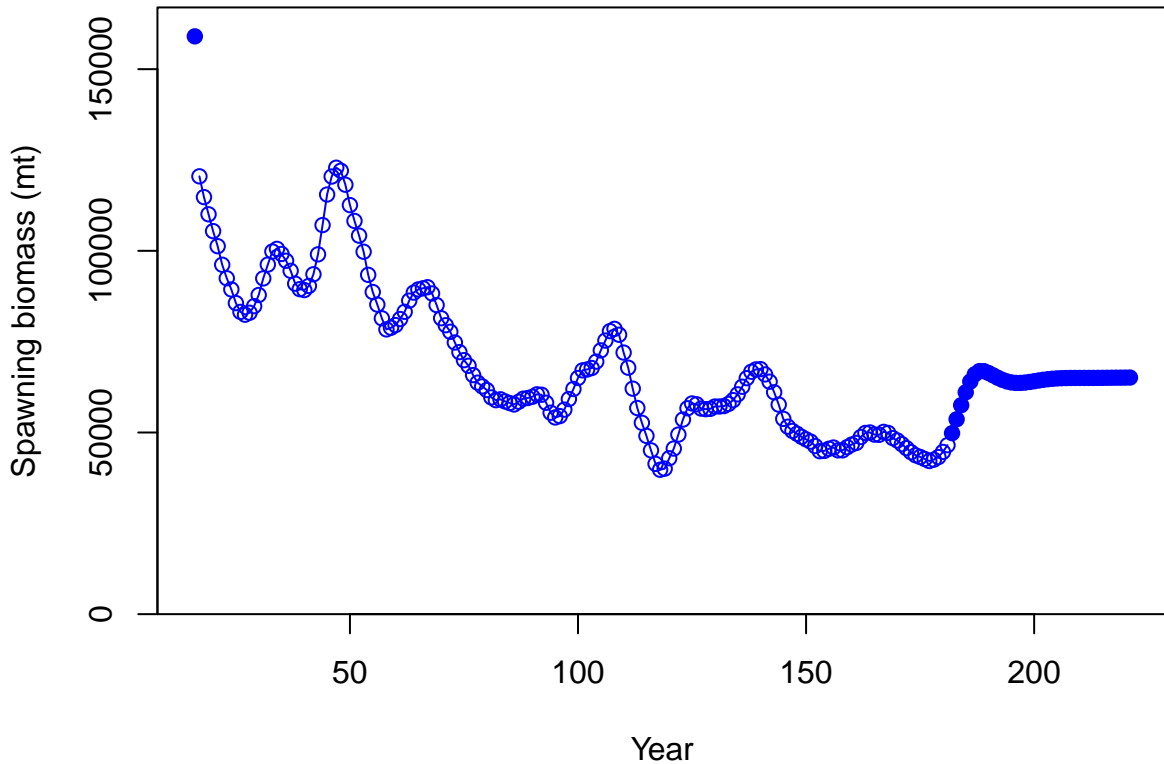


**Spawning biomass (mt) with ~95% asymptotic intervals**

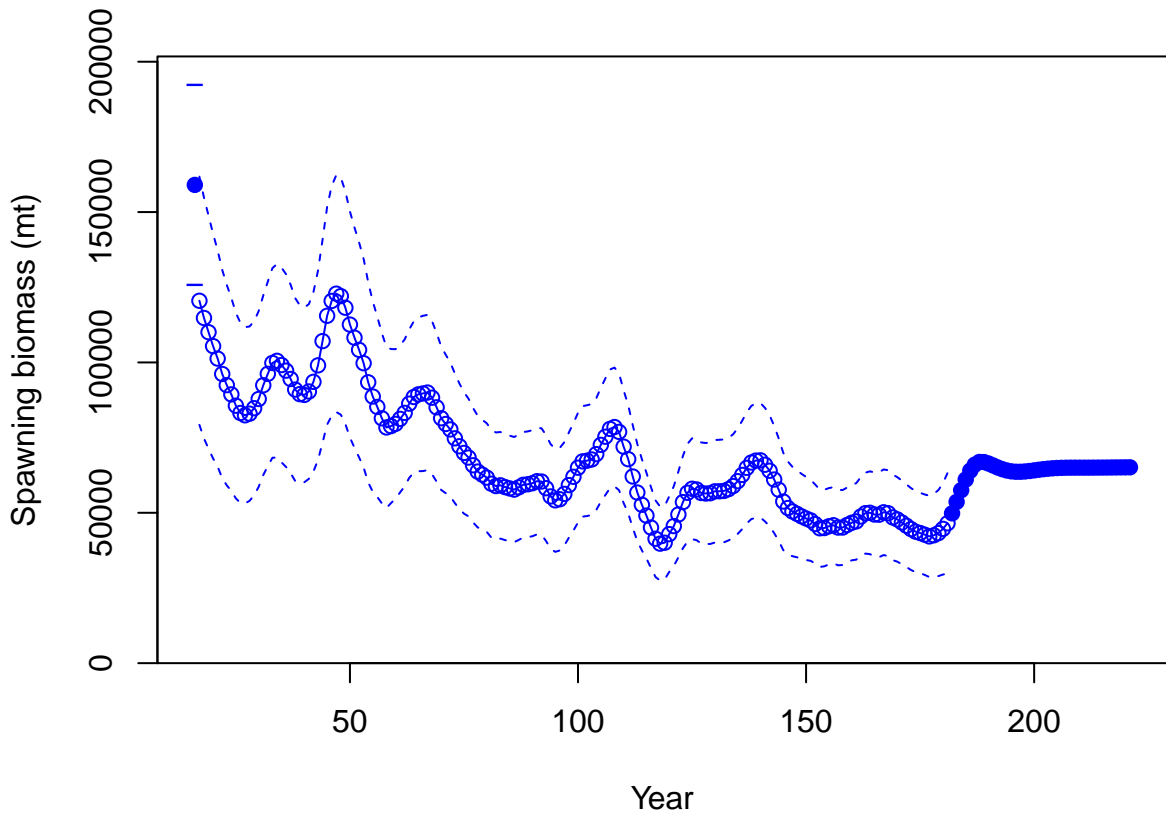




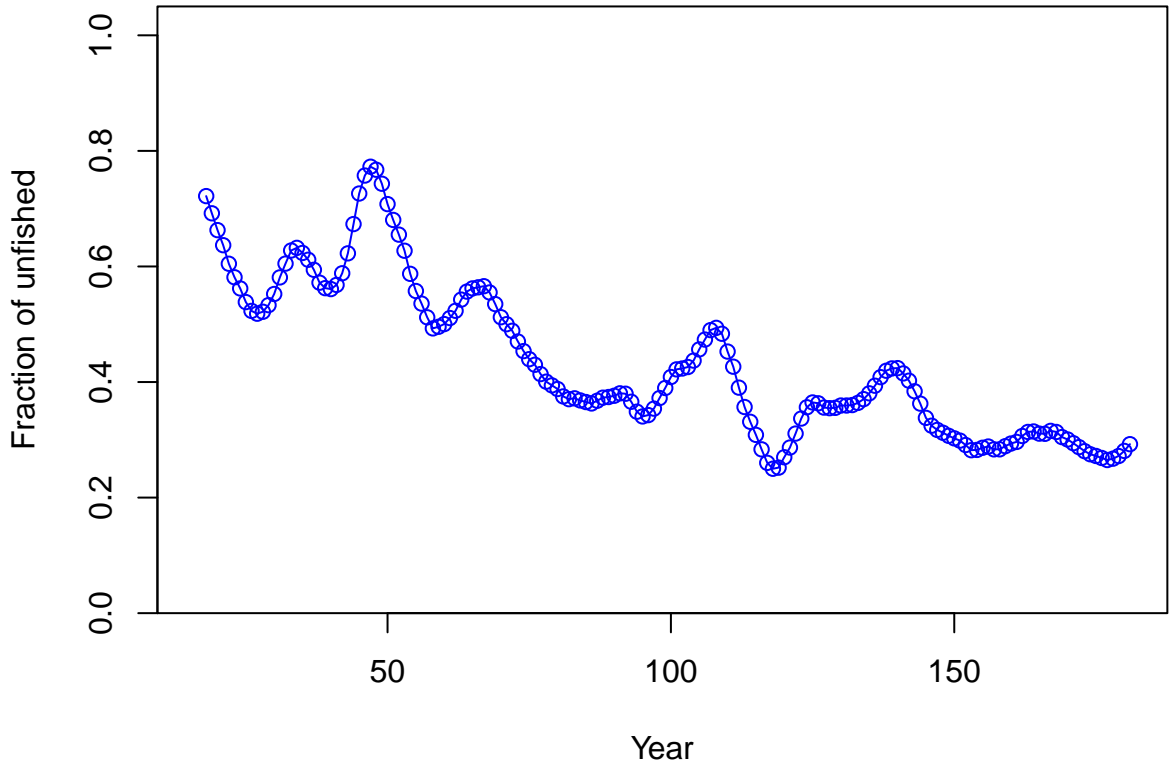
## Spawning biomass (mt) with forecast



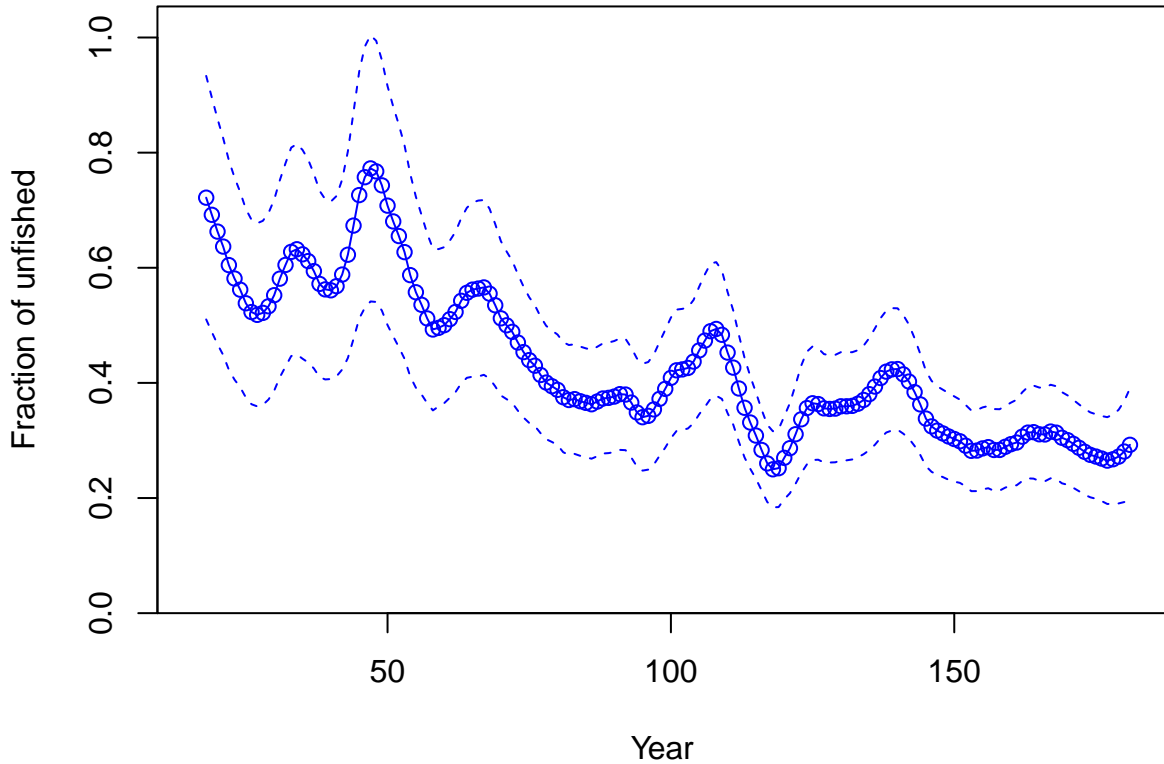
**Spawning biomass (mt) with forecast with ~95% asymptotic intervals**



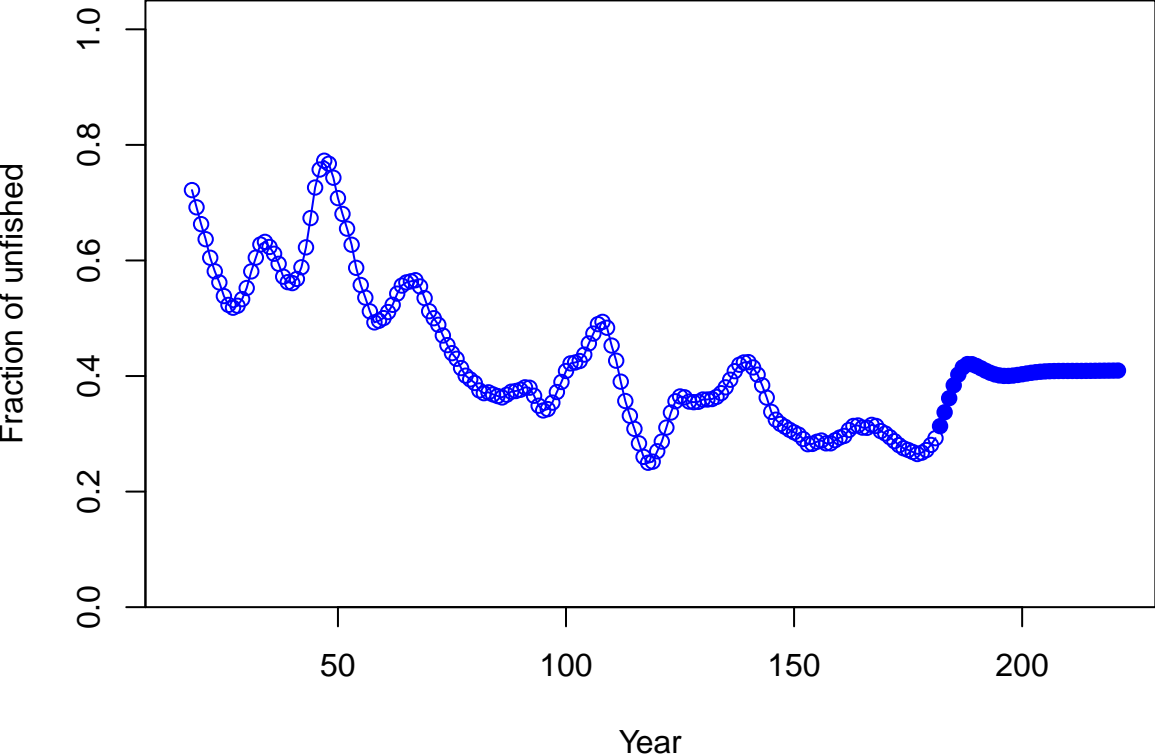
# Fraction of unfished



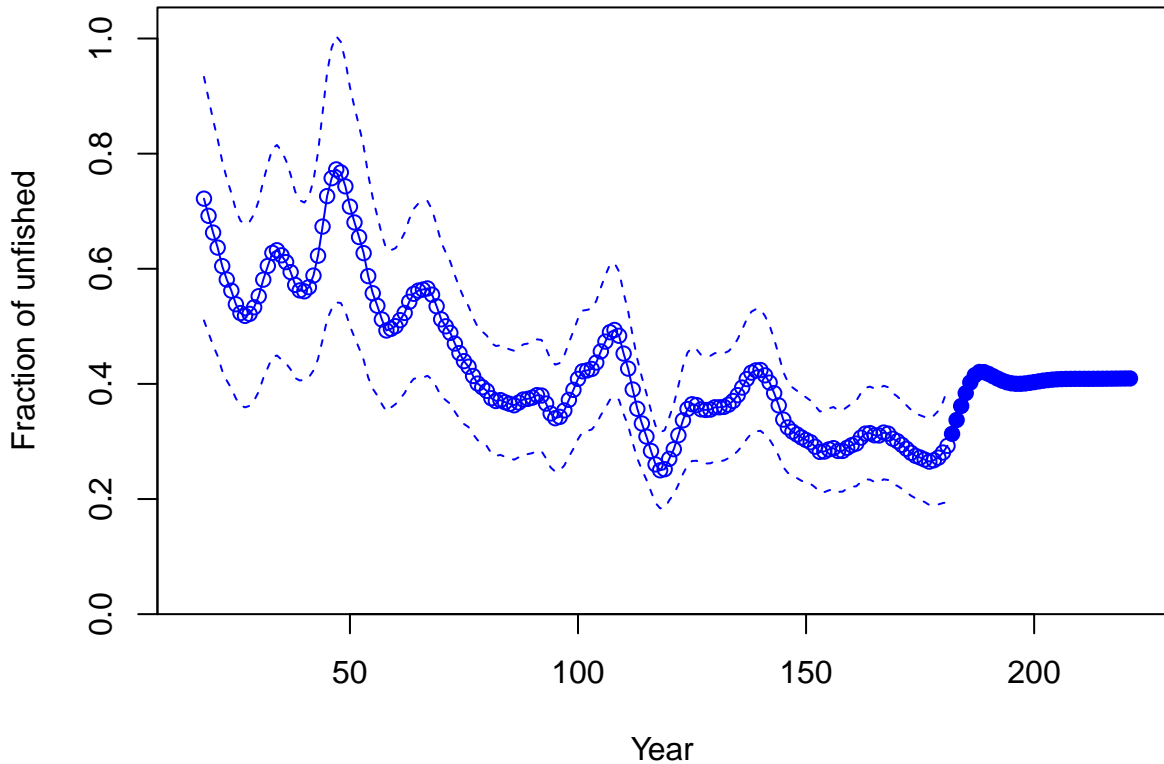
**Fraction of unfished with ~95% asymptotic intervals**



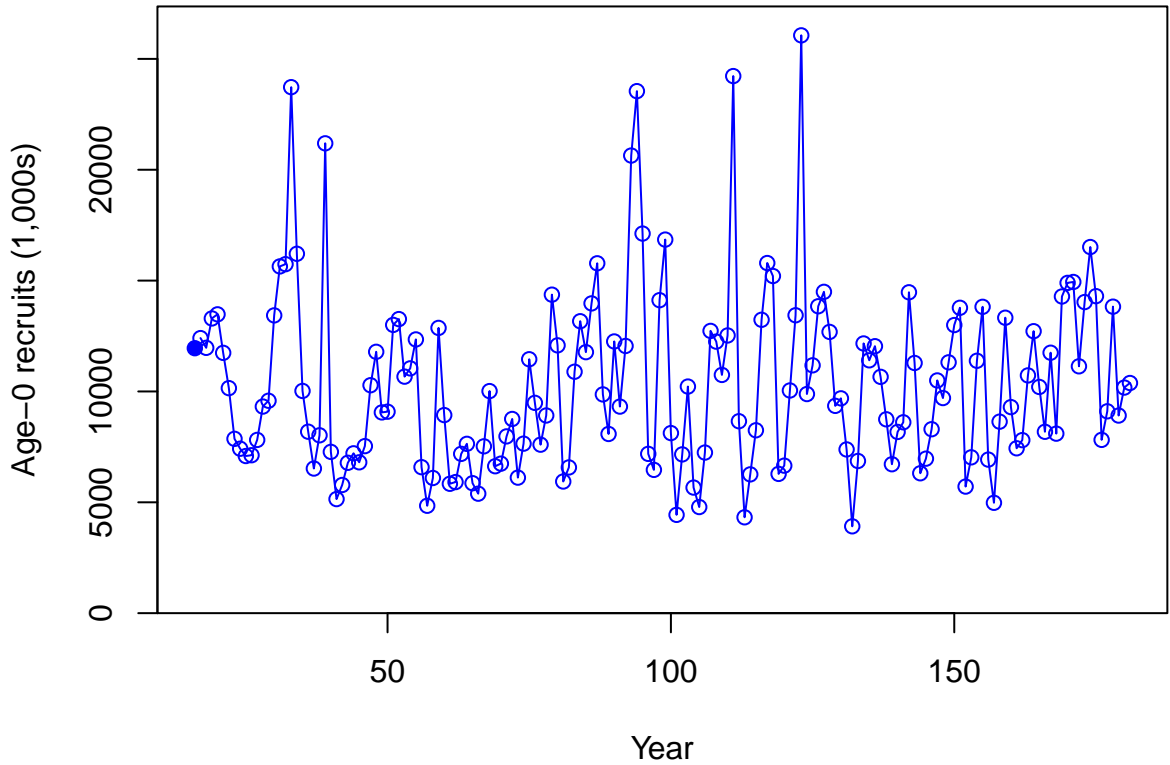
**Fraction of unfished with forecast**



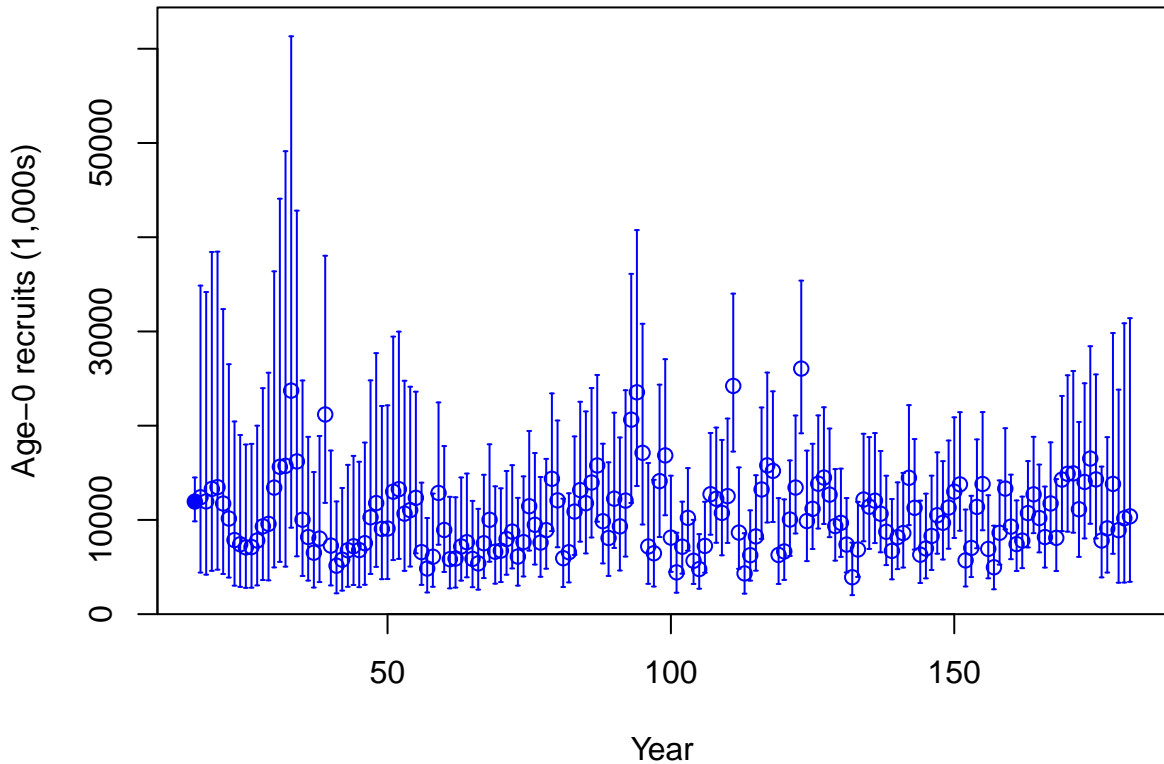
**Fraction of unfished with forecast with ~95% asymptotic intervals**



# Age-0 recruits (1,000s)

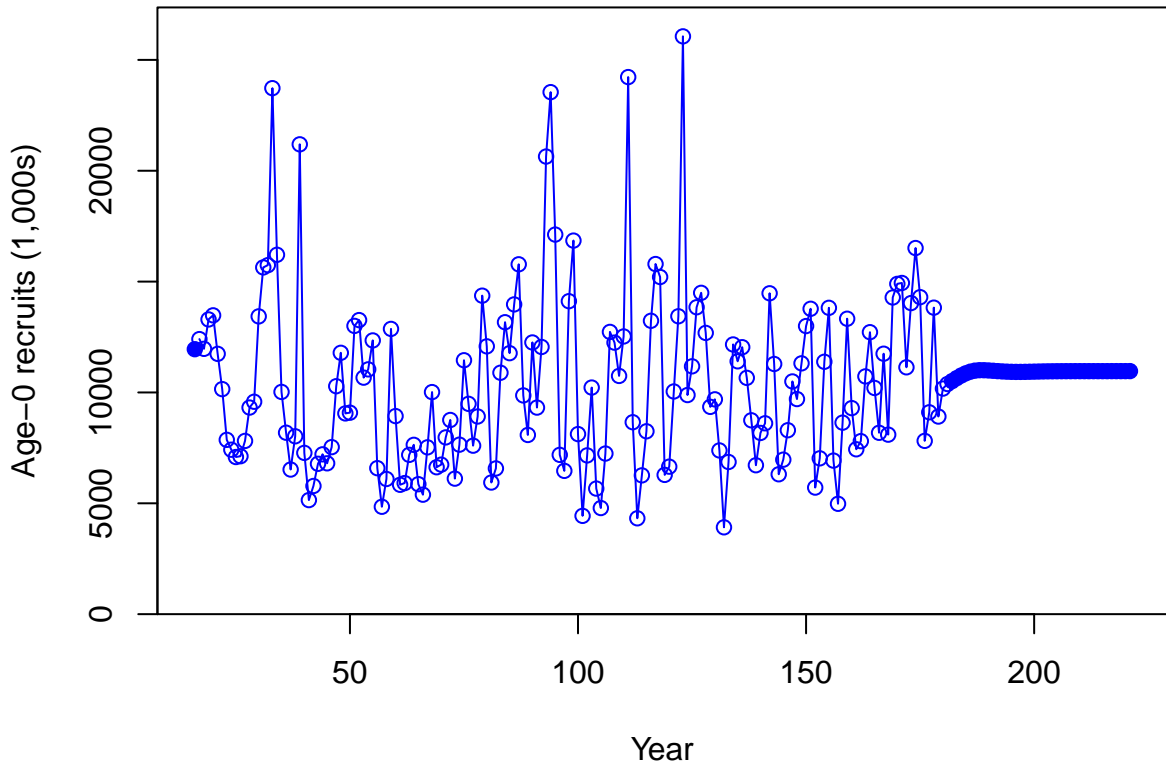


# Age-0 recruits (1,000s) with ~95% asymptotic intervals

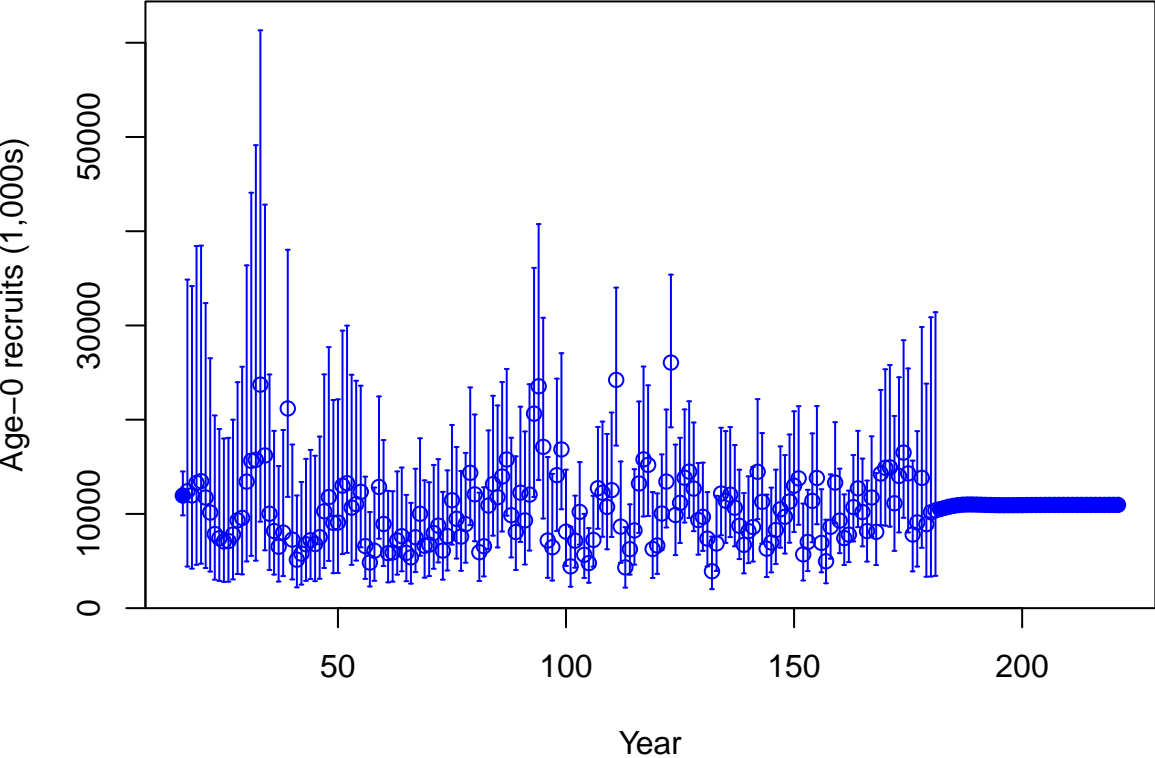




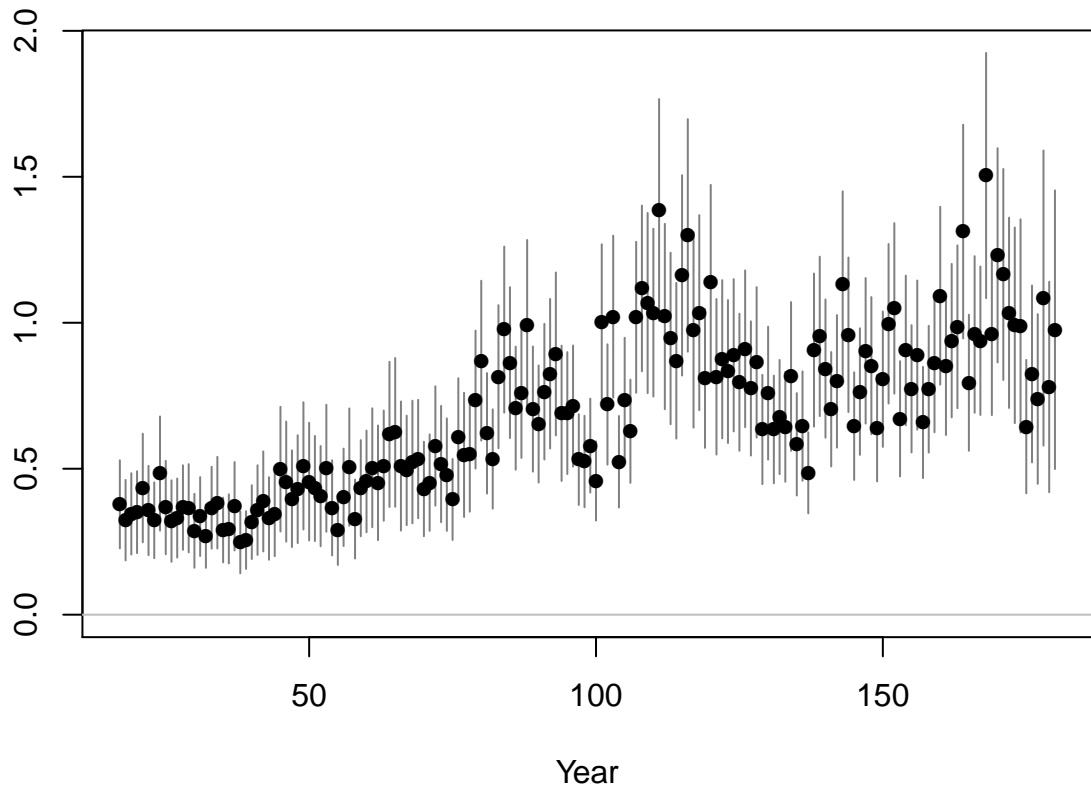
**Age-0 recruits (1,000s) with forecast**

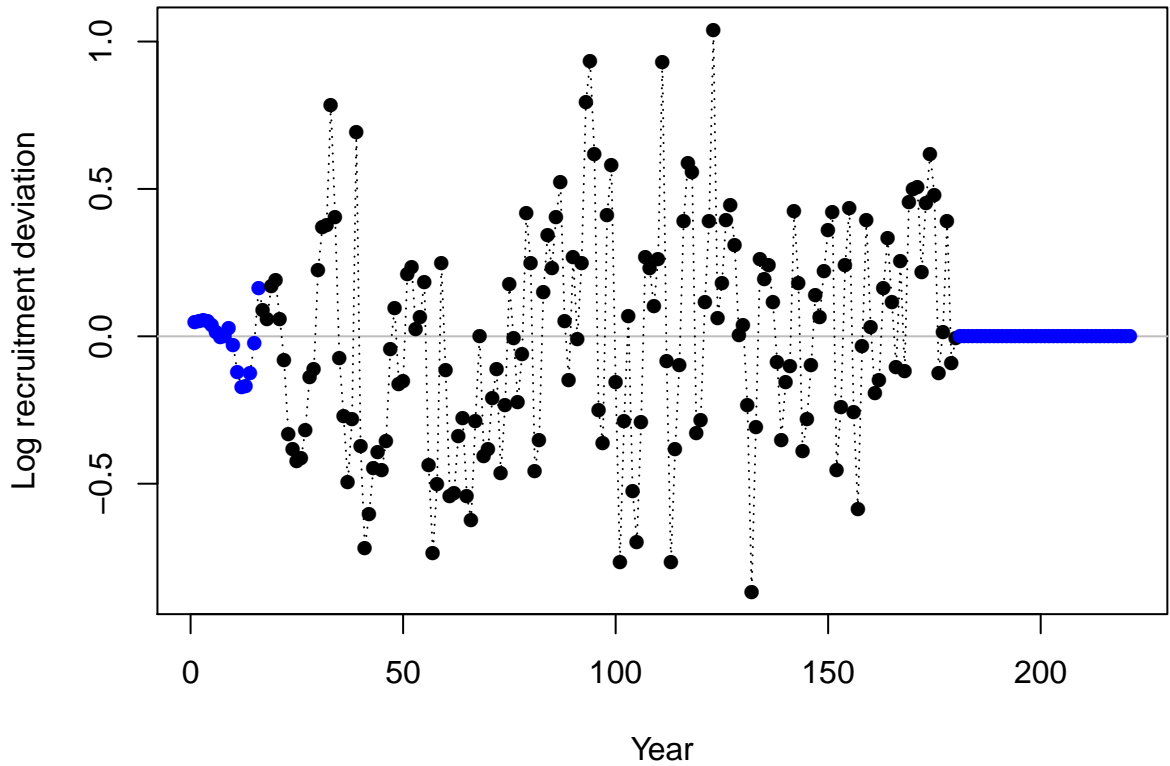


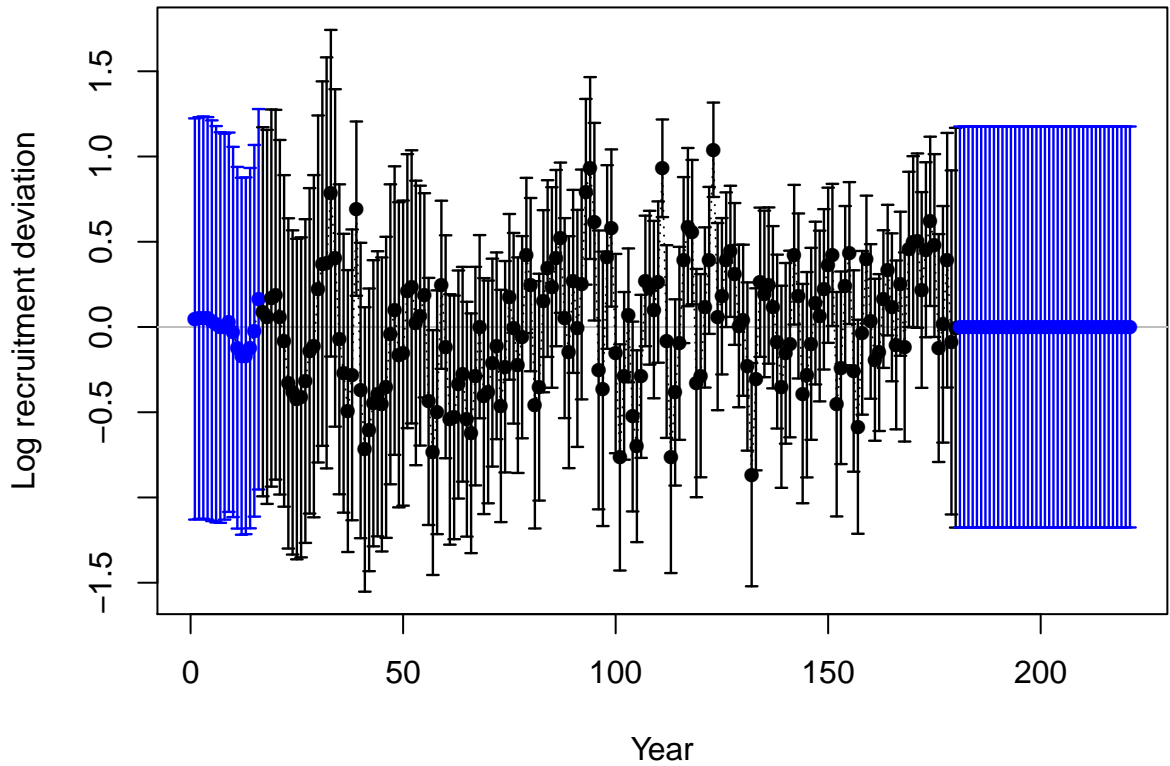
**Age-0 recruits (1,000s) with forecast with ~95% asymptotic intervals**



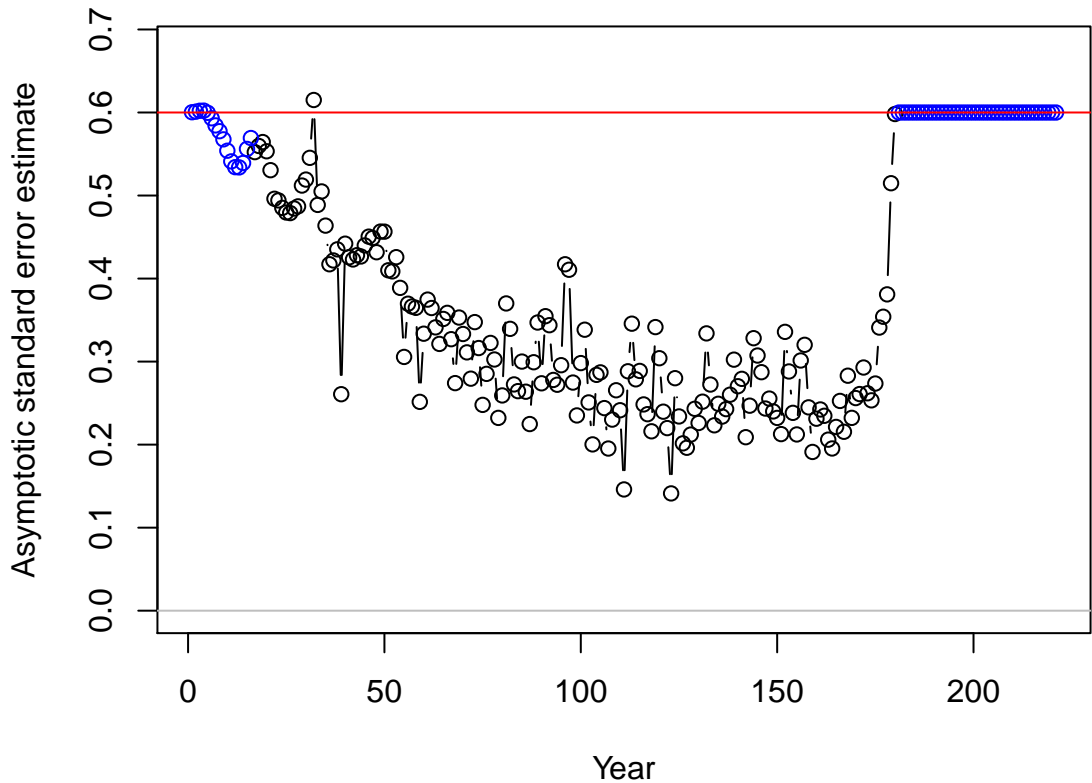
Summary Fishing Mortality

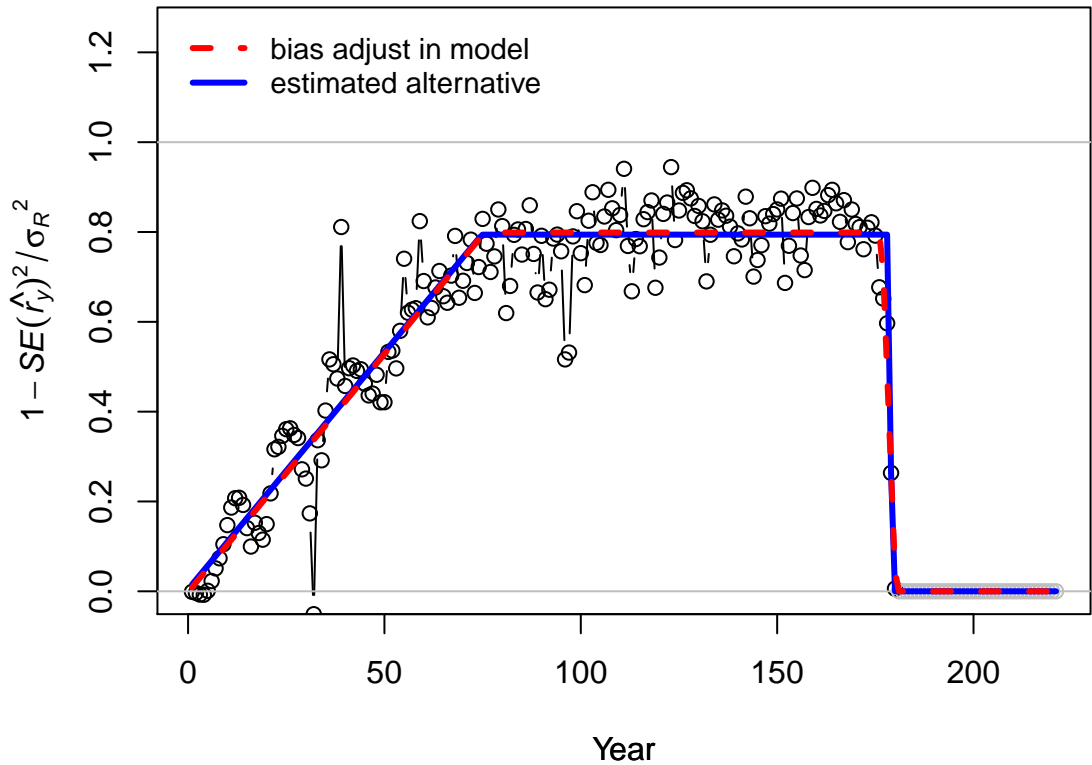


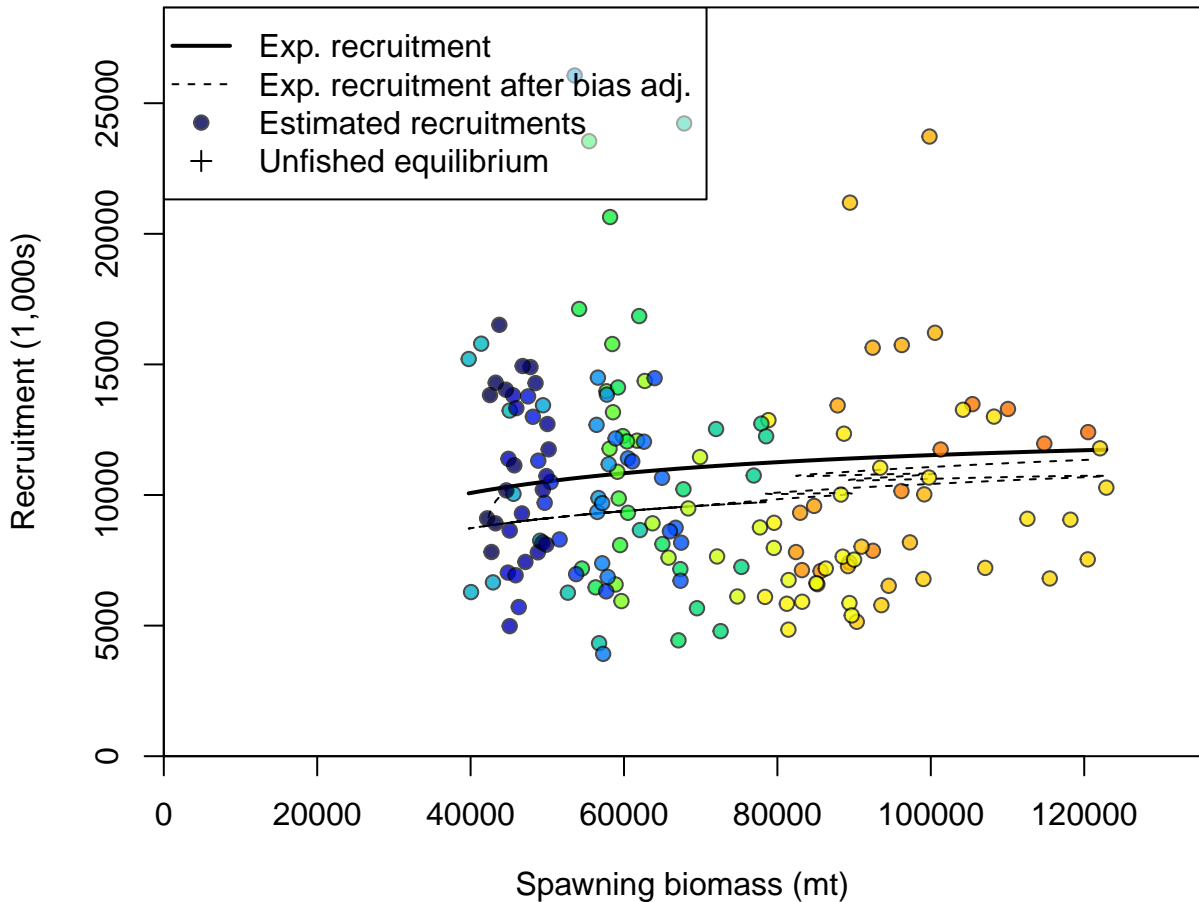




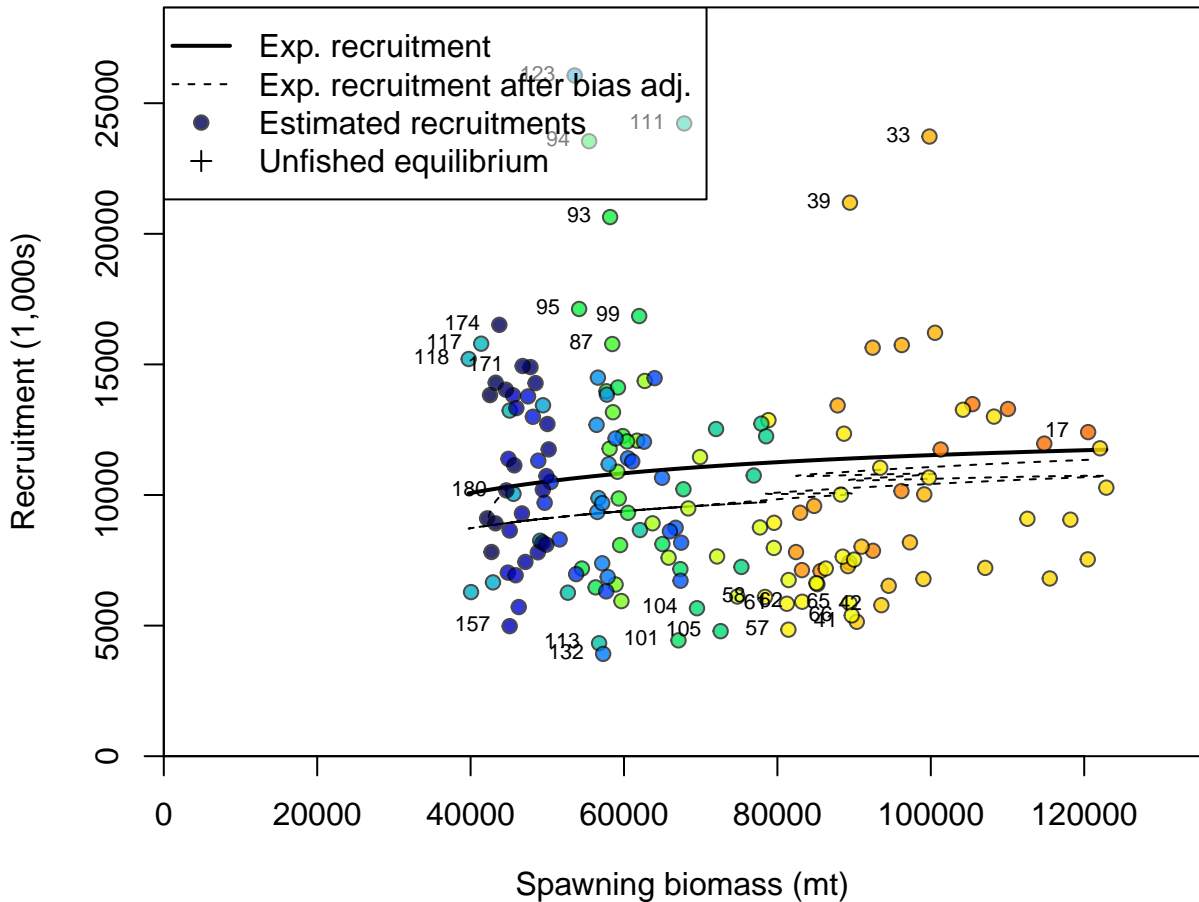
# Recruitment deviation variance

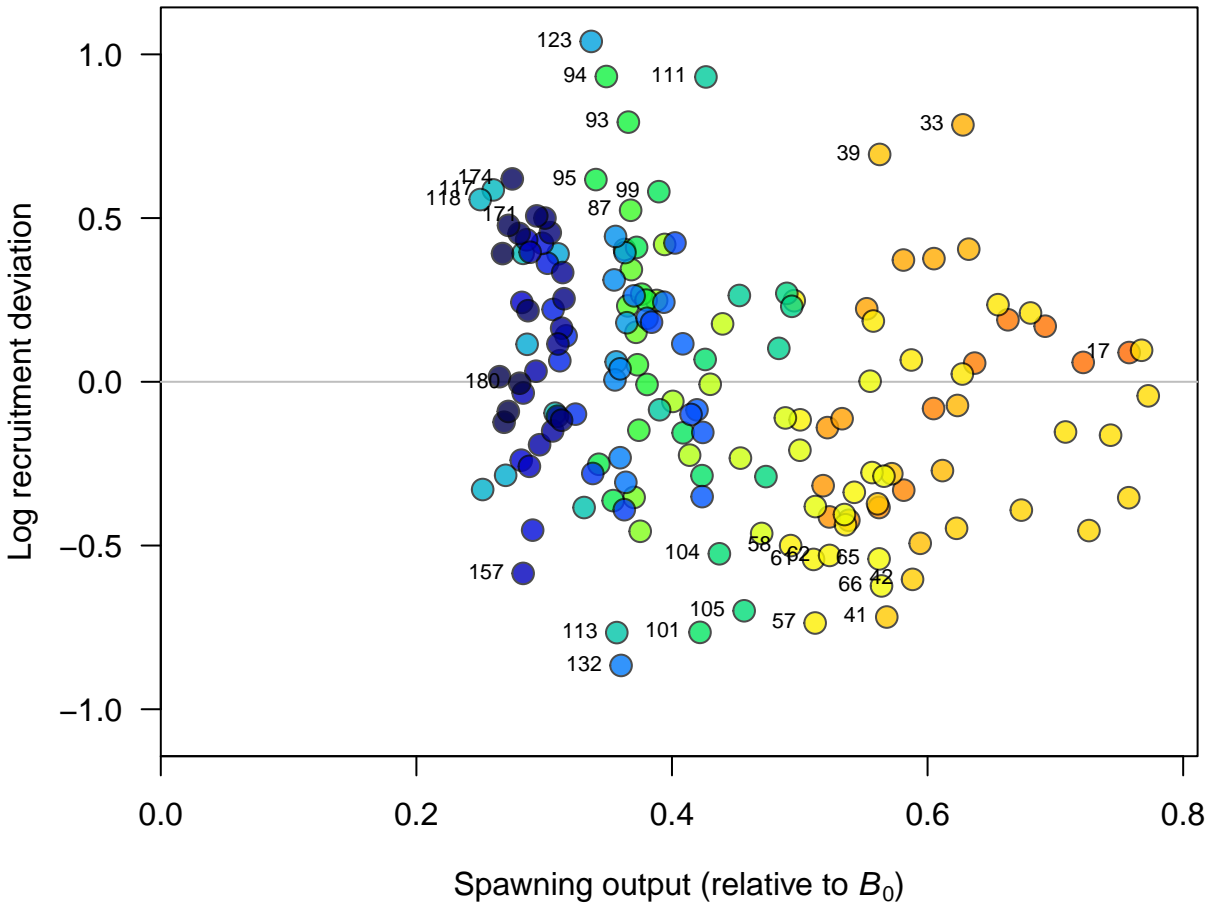




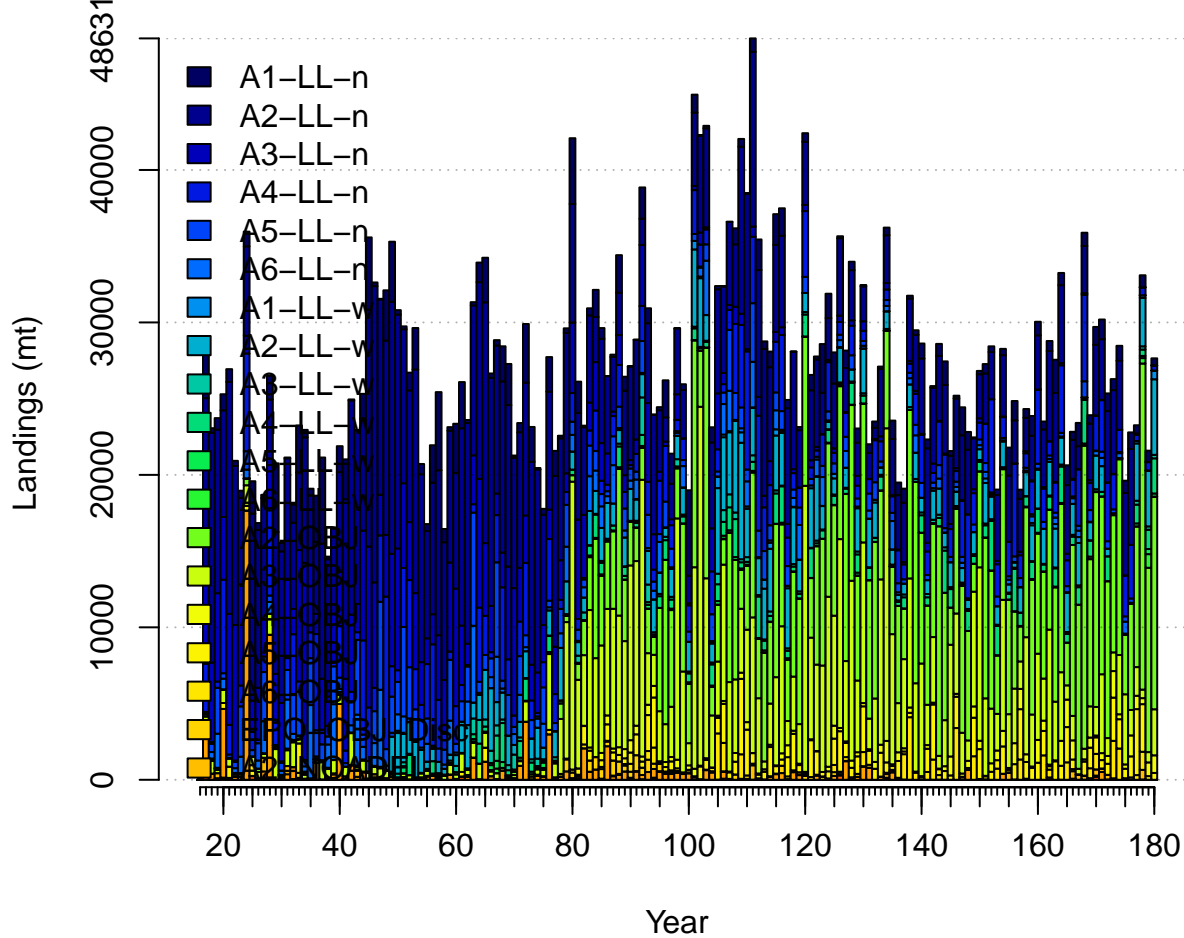




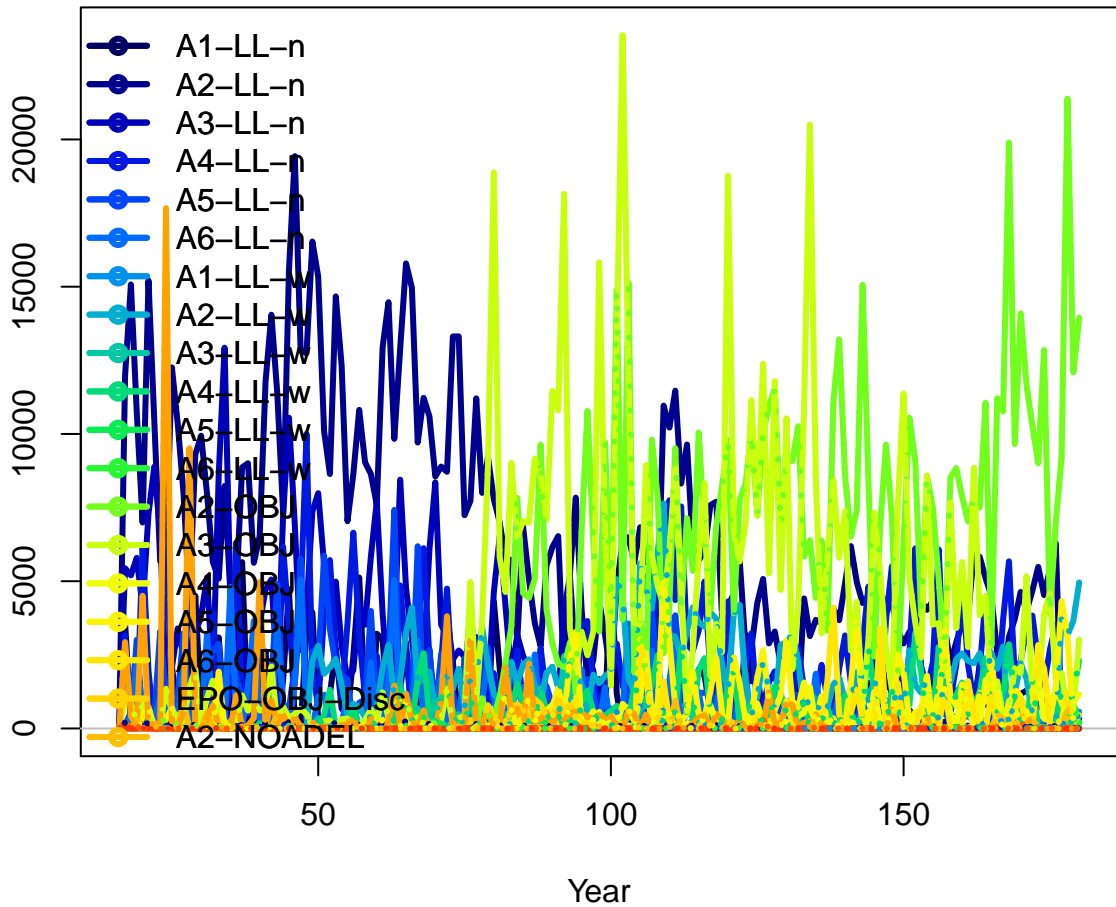




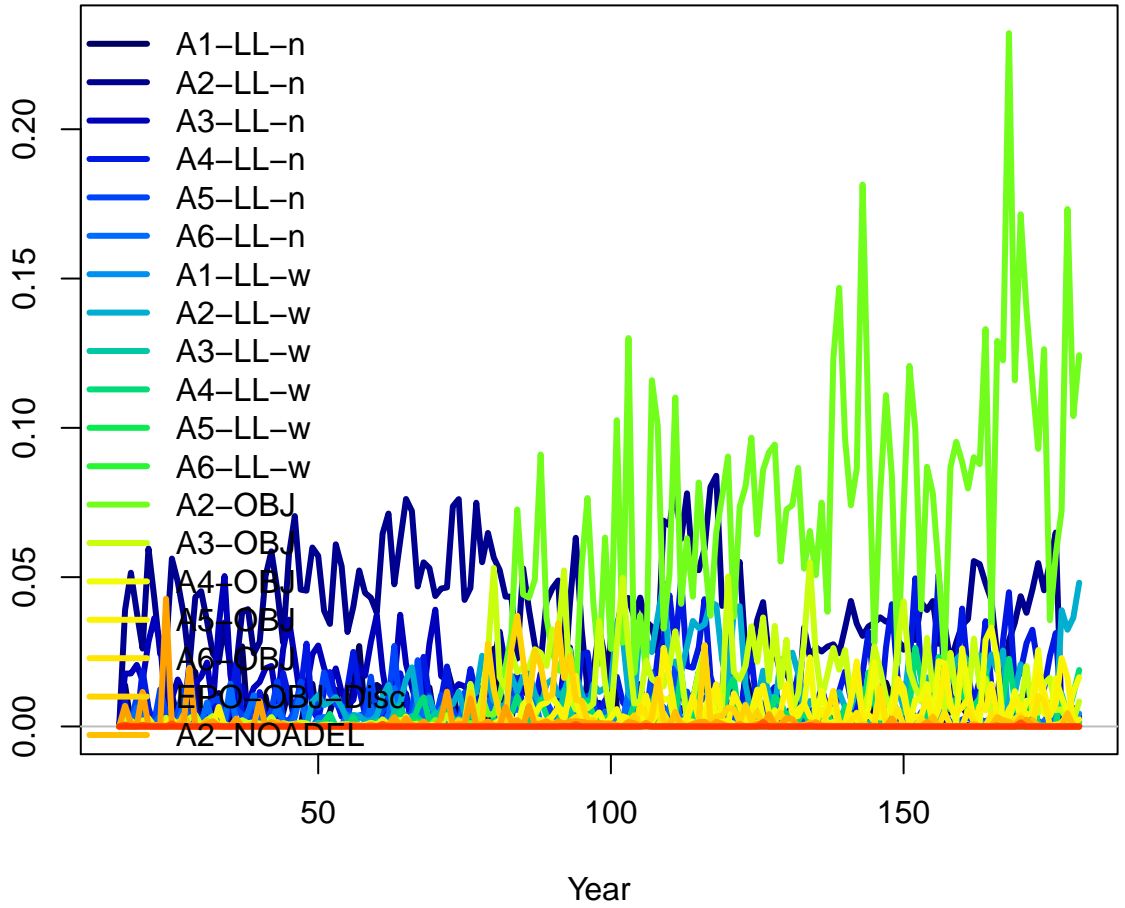




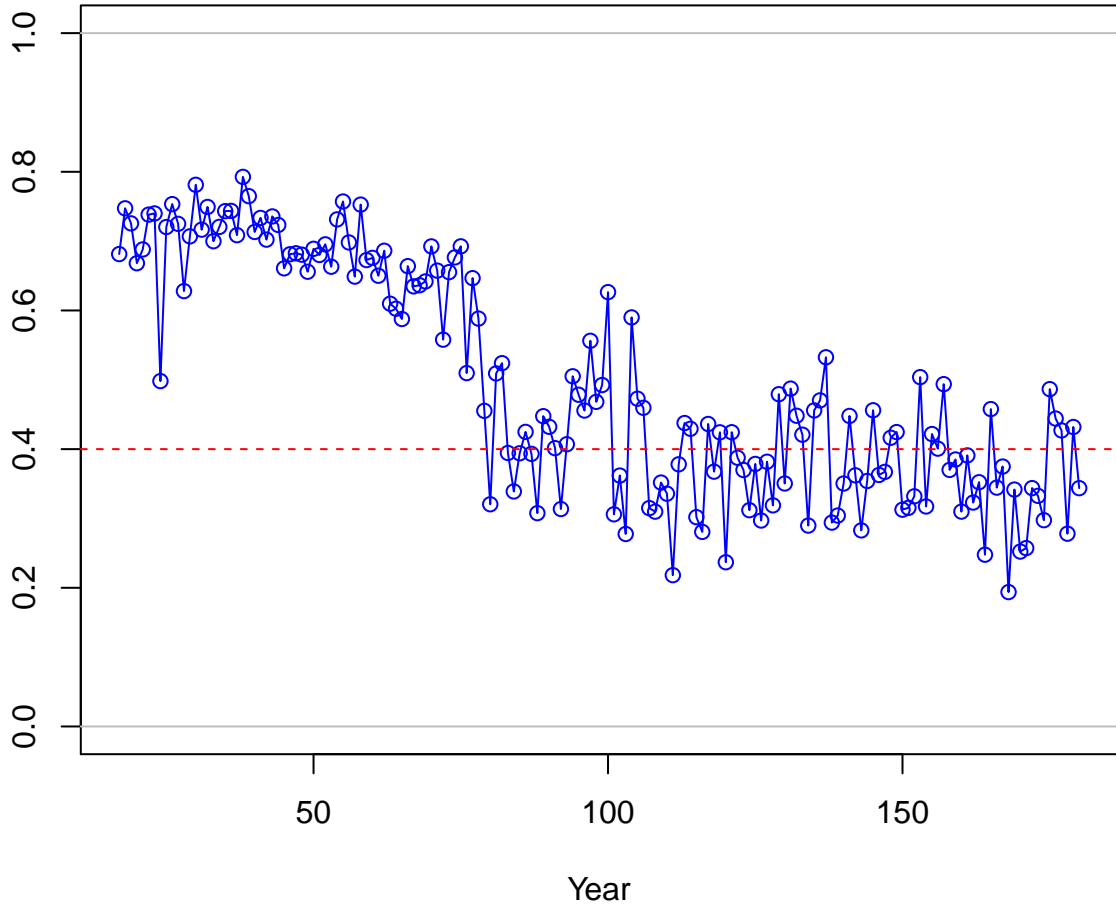
Observed and expected Landings (mt)

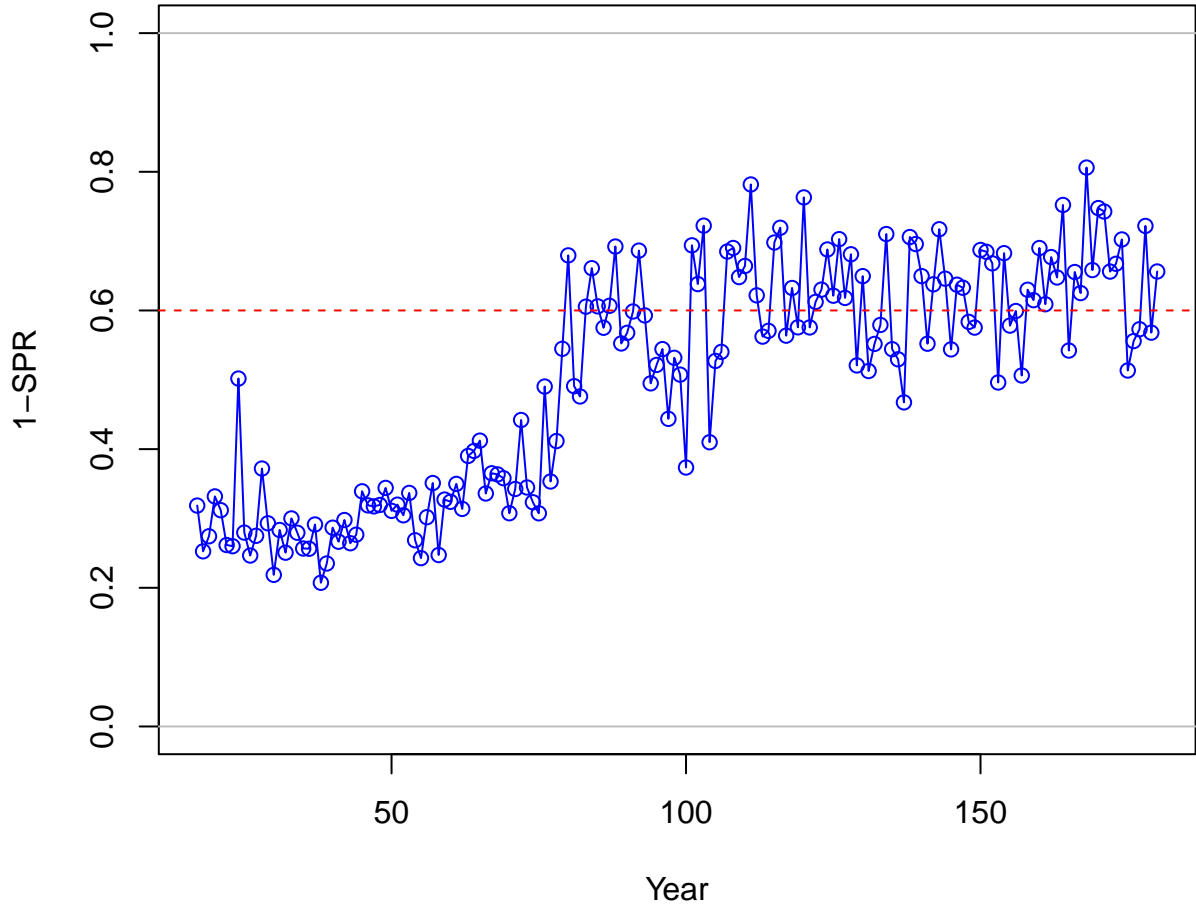


Continuous F

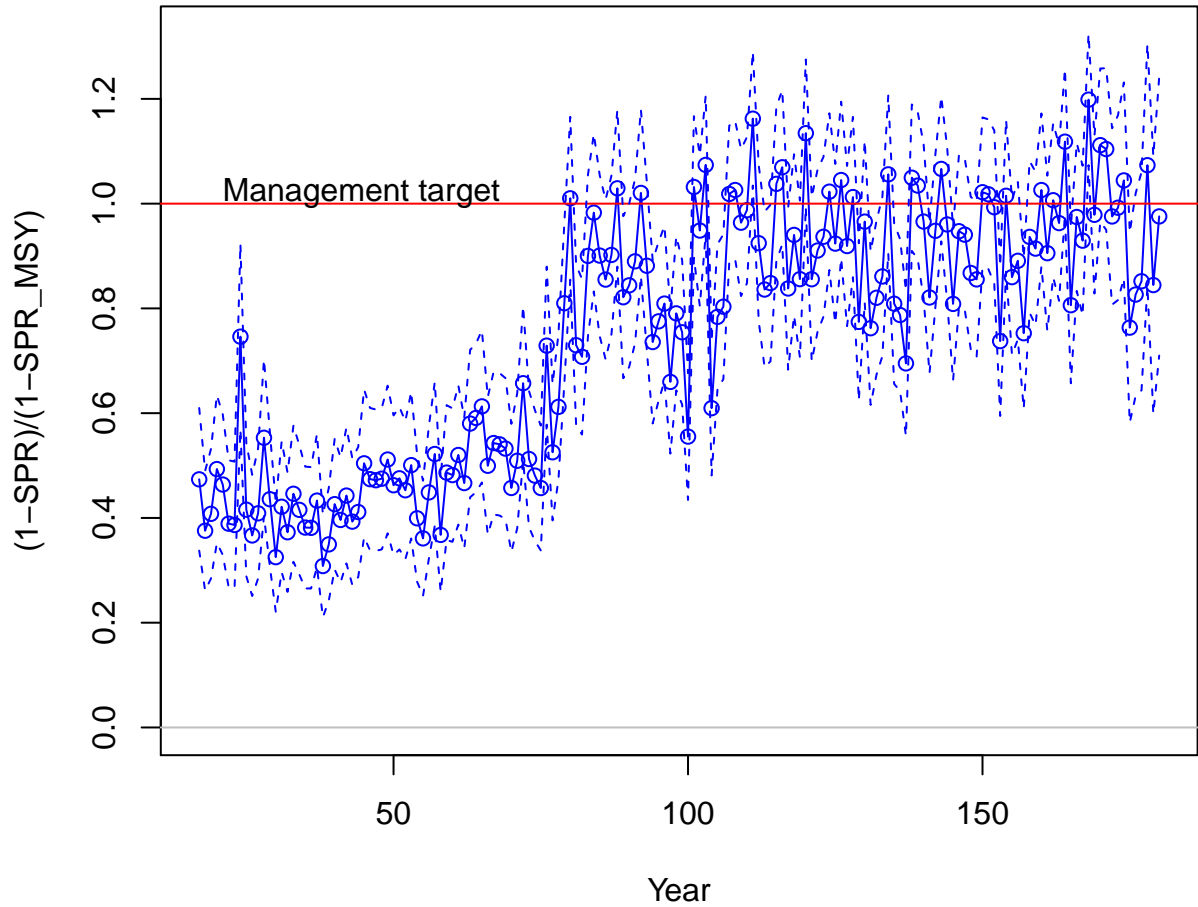


SPR

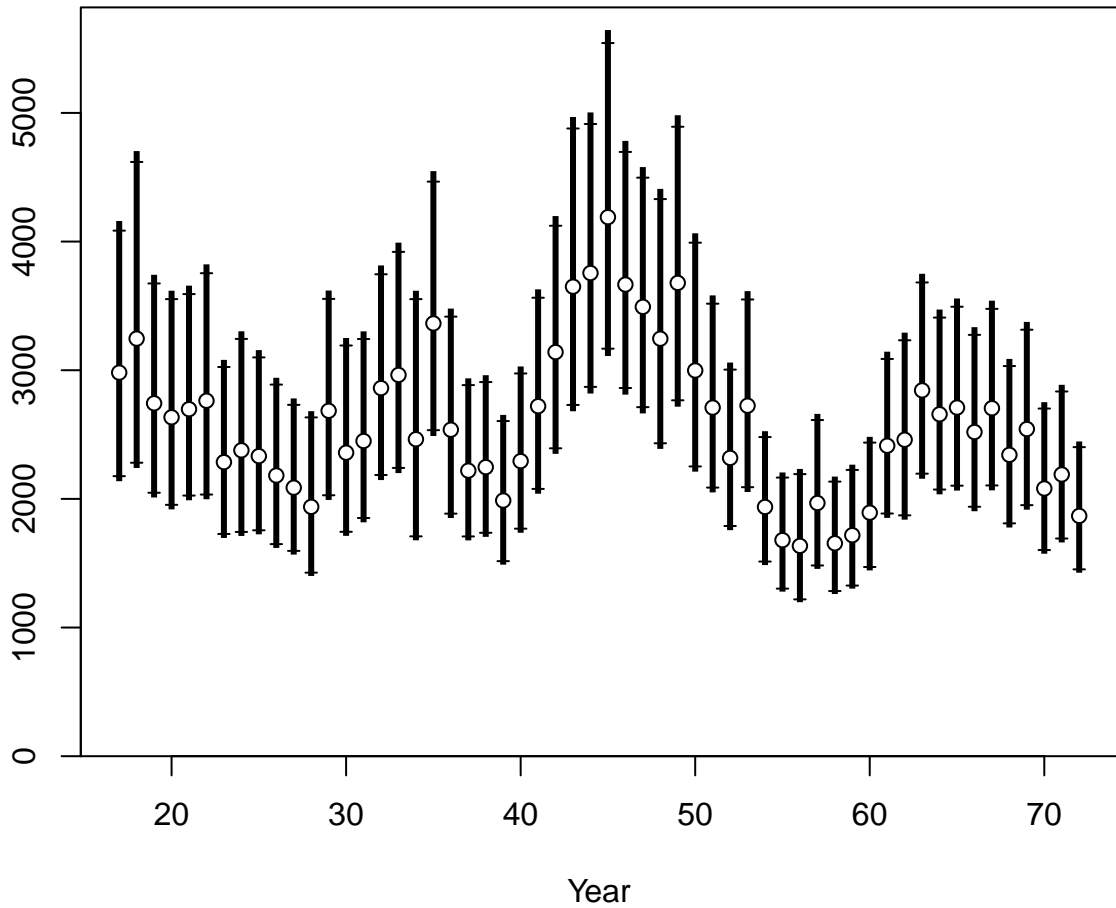




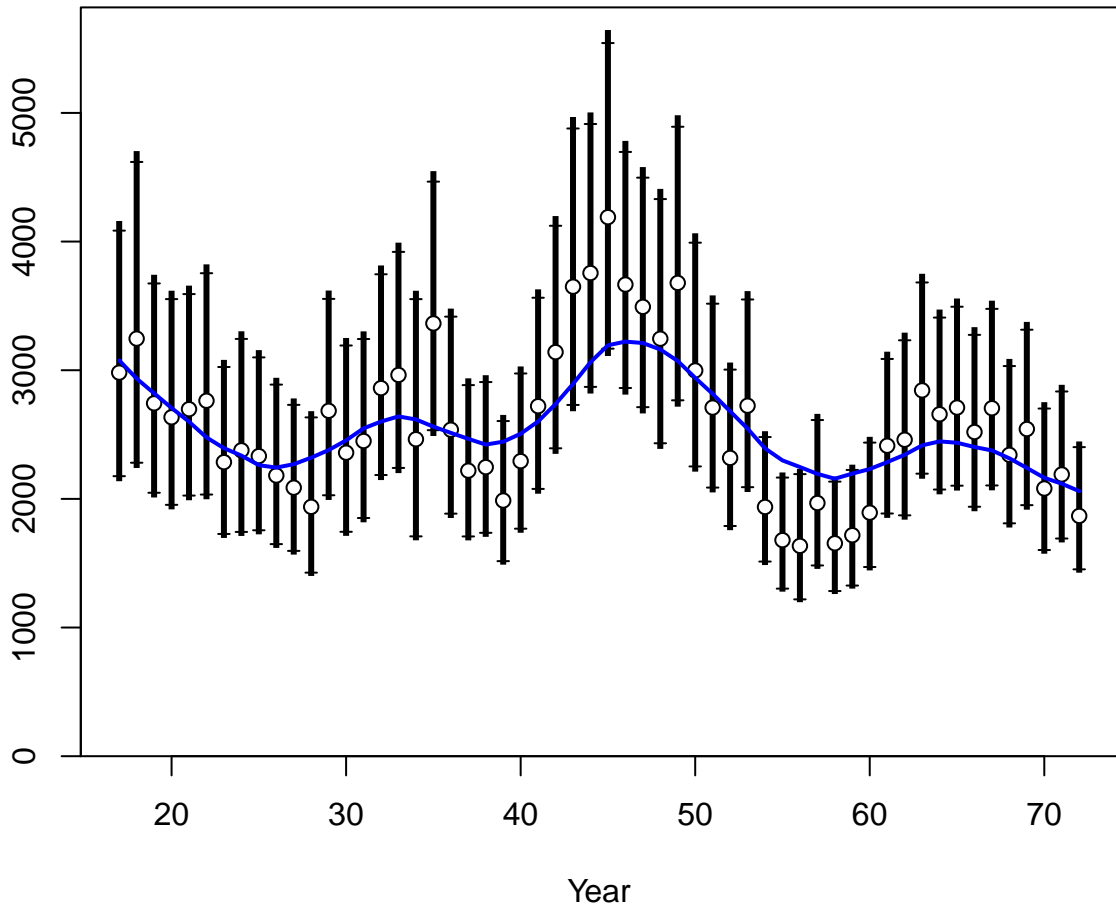




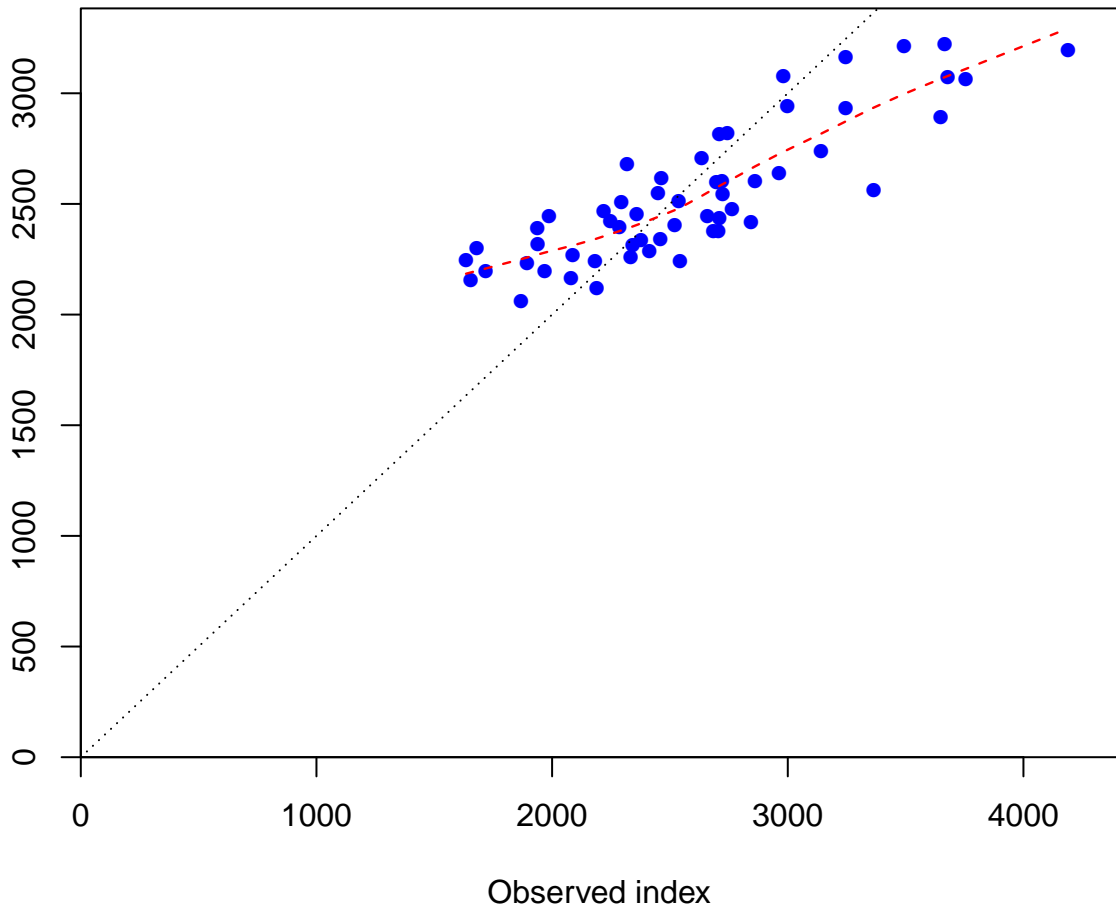
Index



Index



Expected index



Observed index

Log index

8.5

8.0

7.5

20

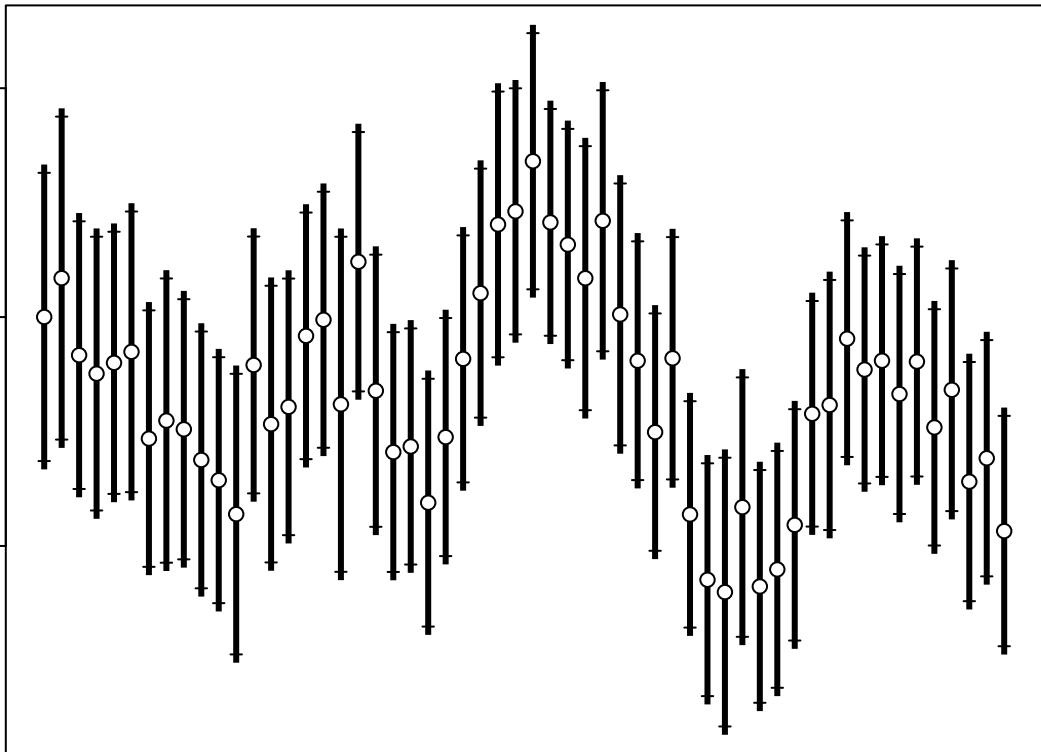
30

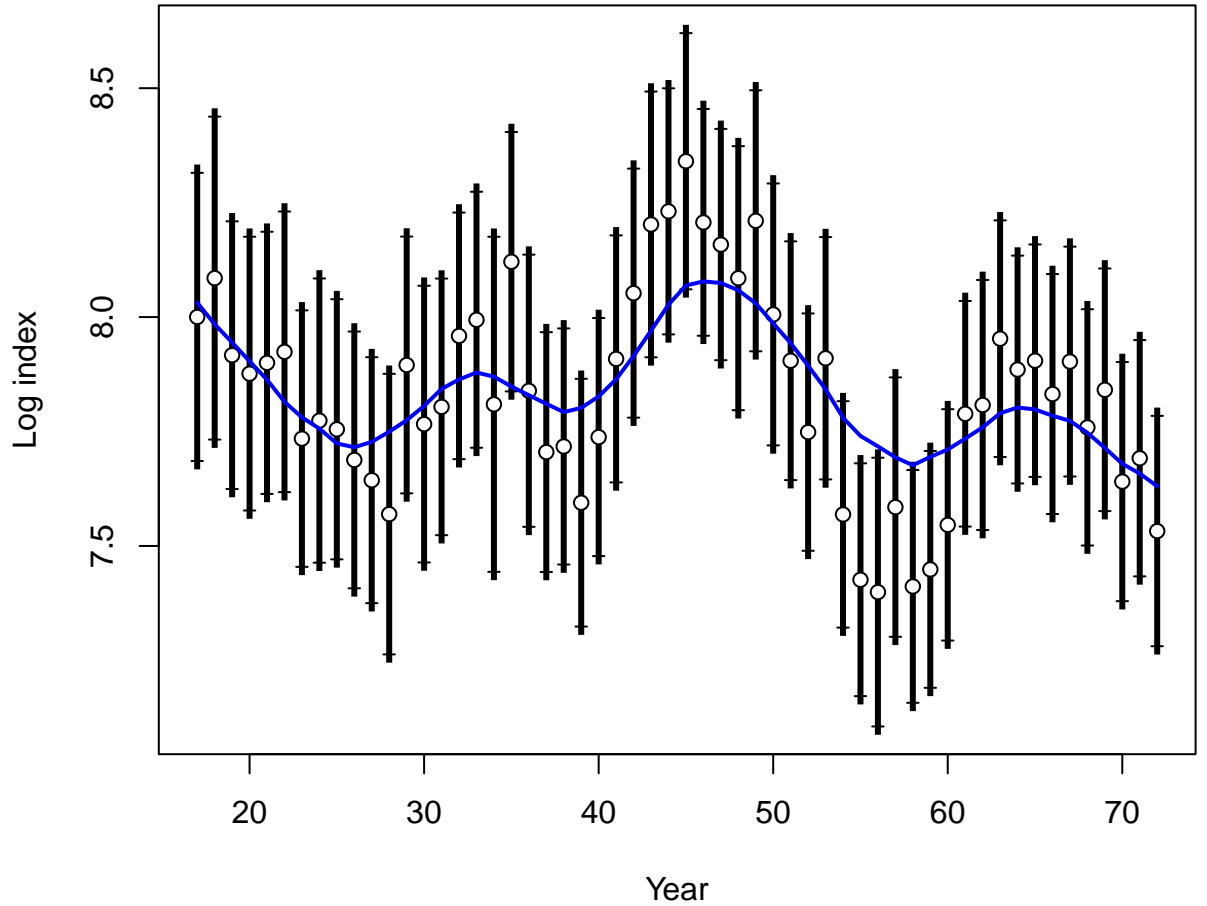
40

60

70

Year





Log expected index

7.7  
7.8  
7.9  
8.0

7.4

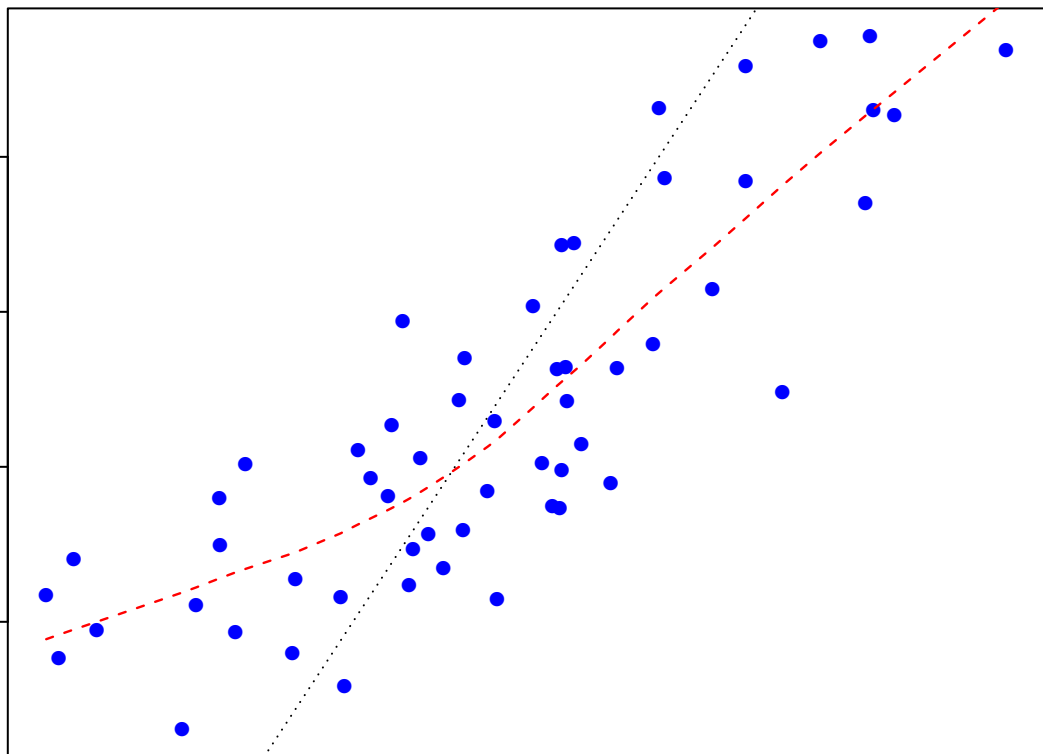
7.6

7.8

8.0

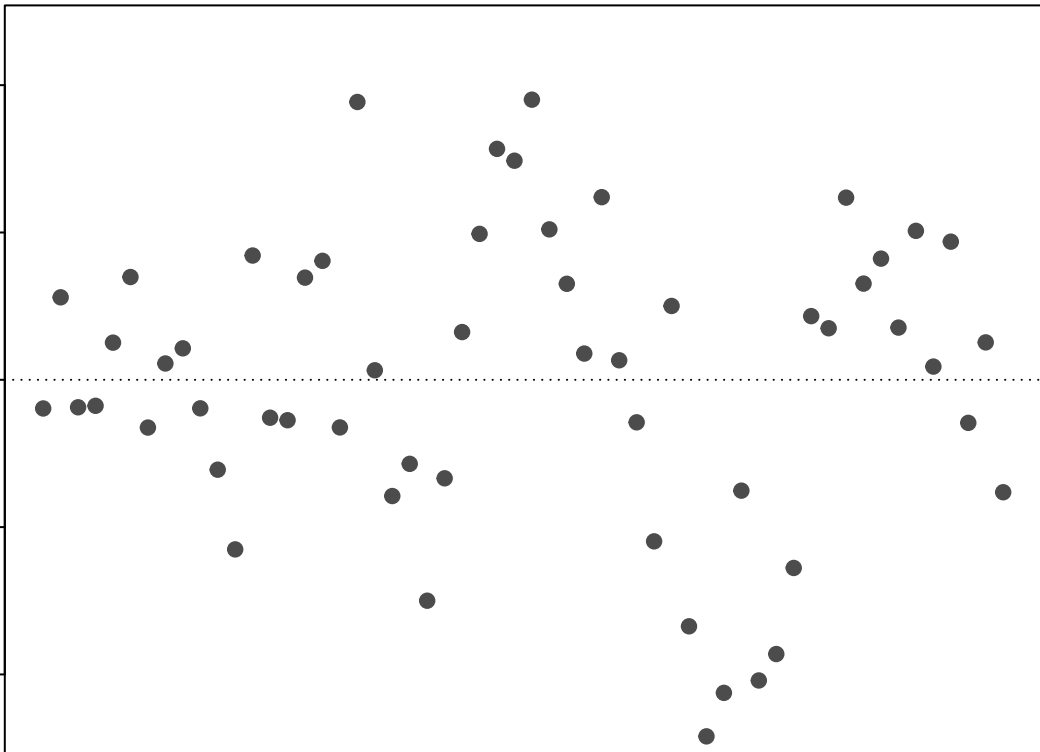
8.2

Log observed index



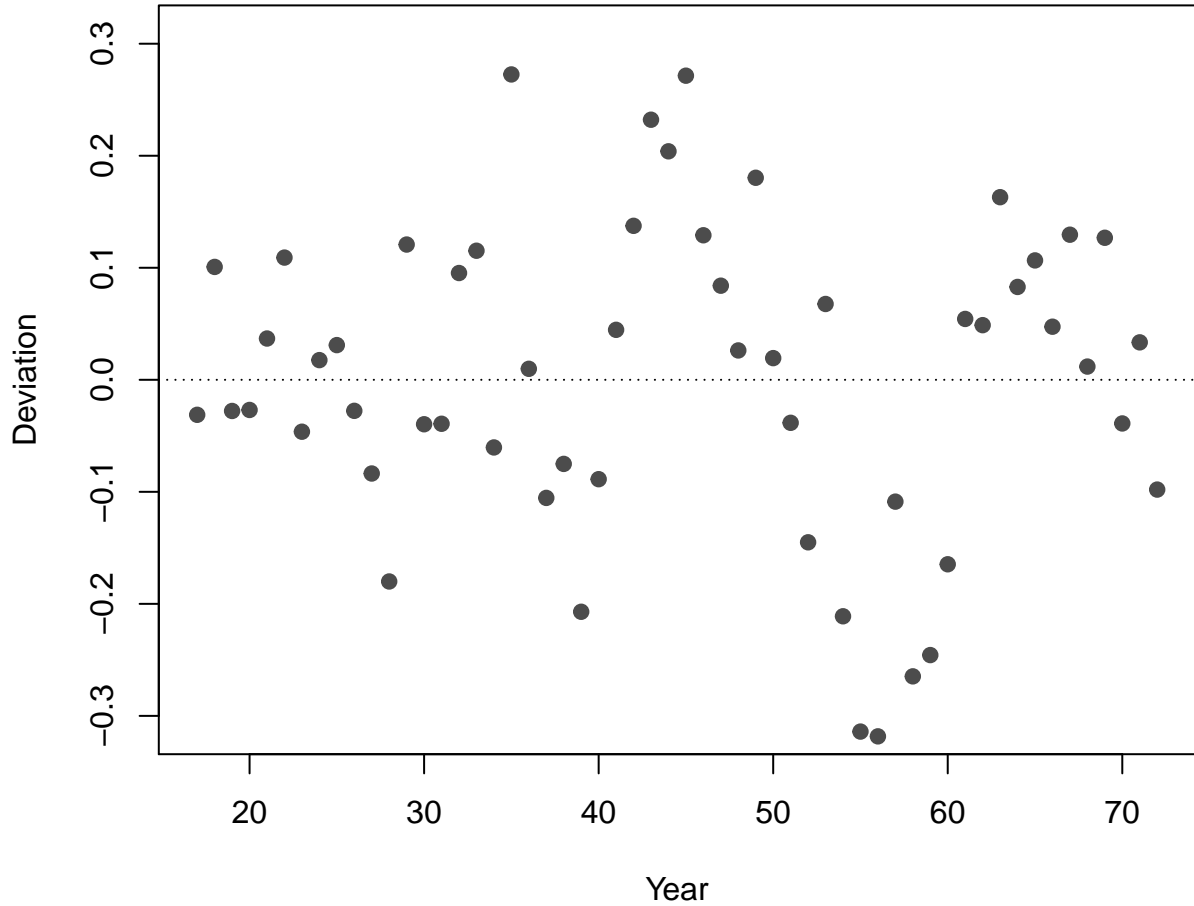
Residual

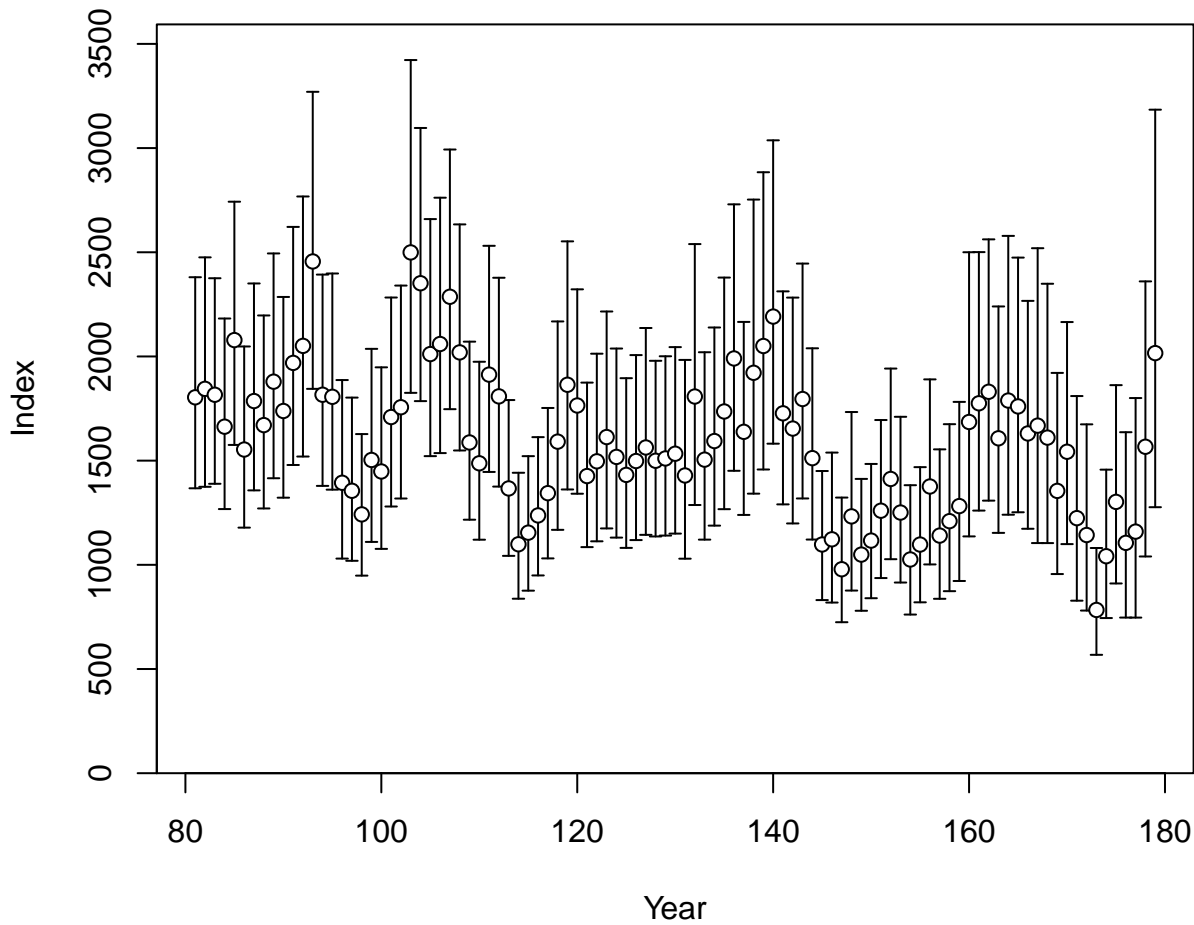
2  
1  
0  
-1  
-2

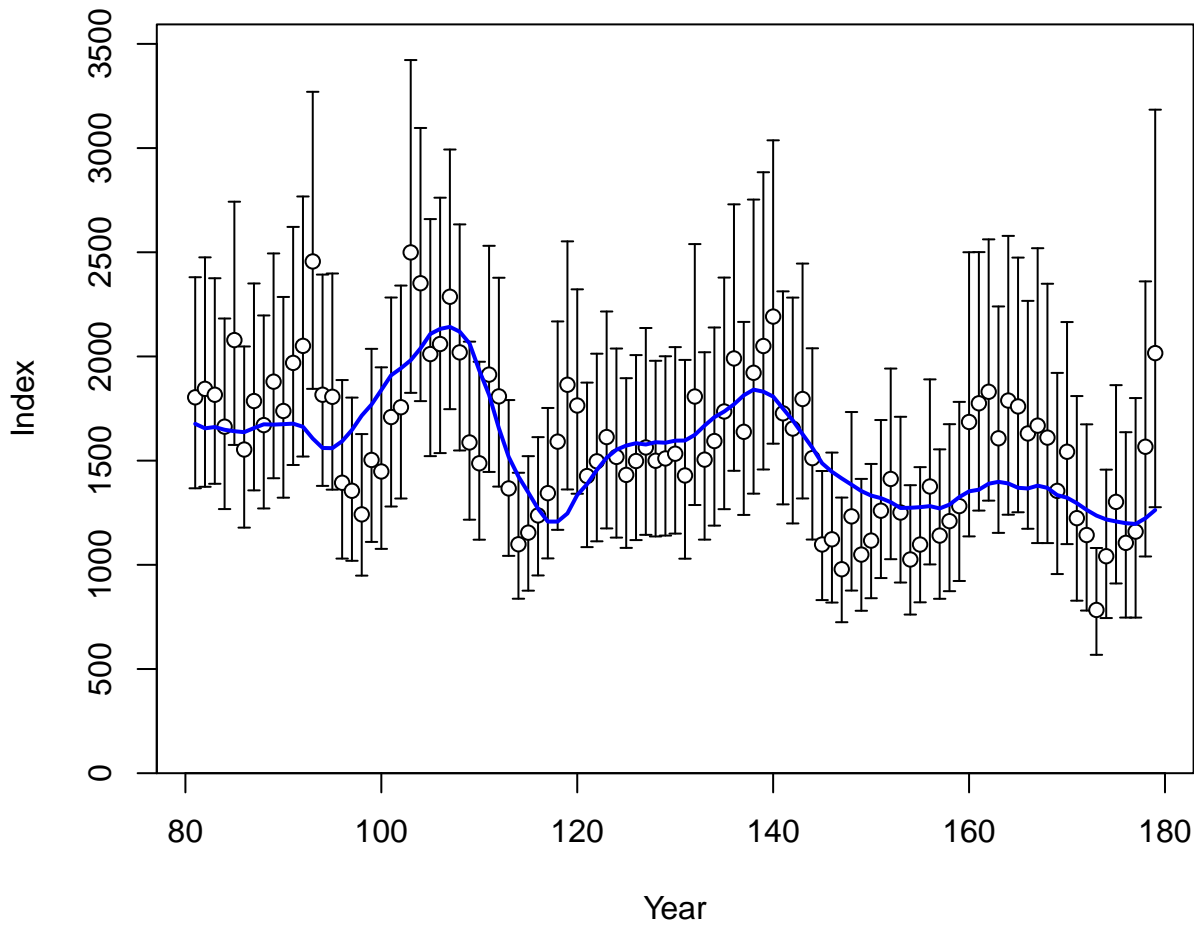


Year

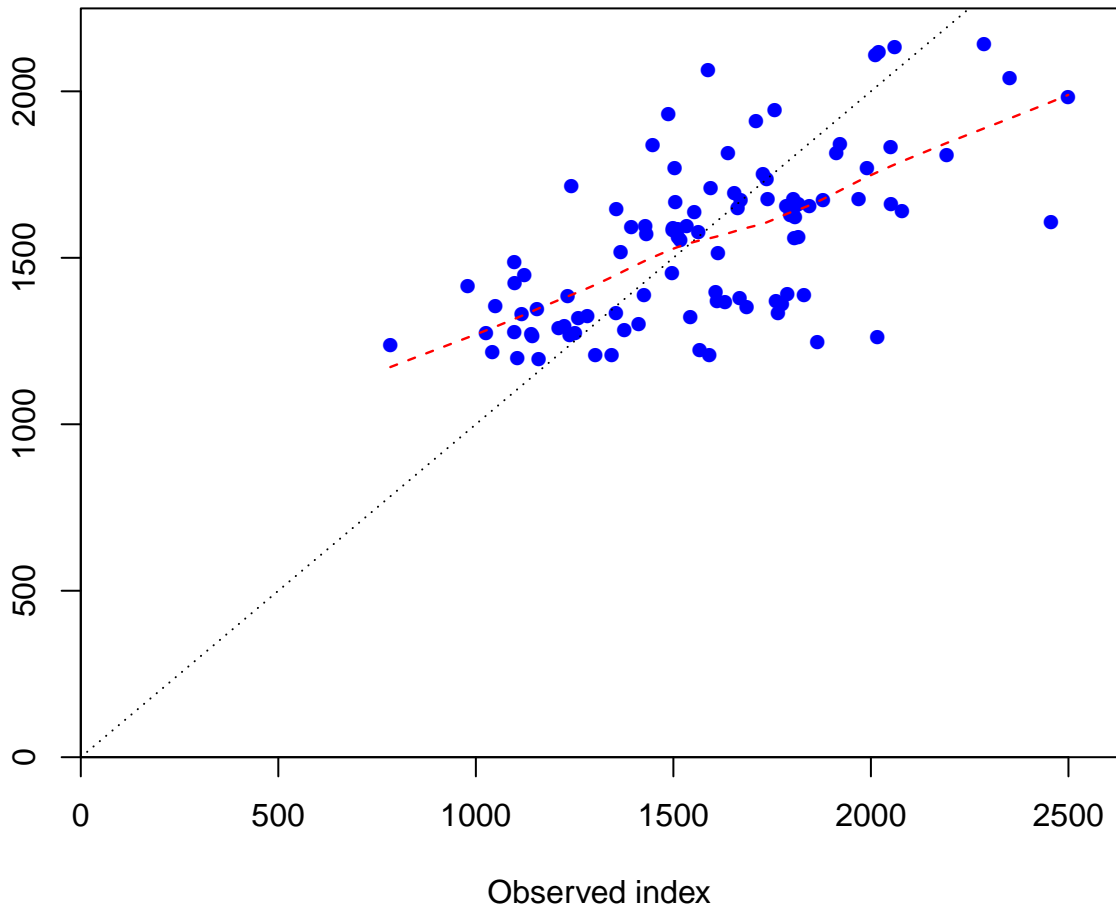








Expected index



Log index

8.0  
7.5  
7.0  
6.5

80

100

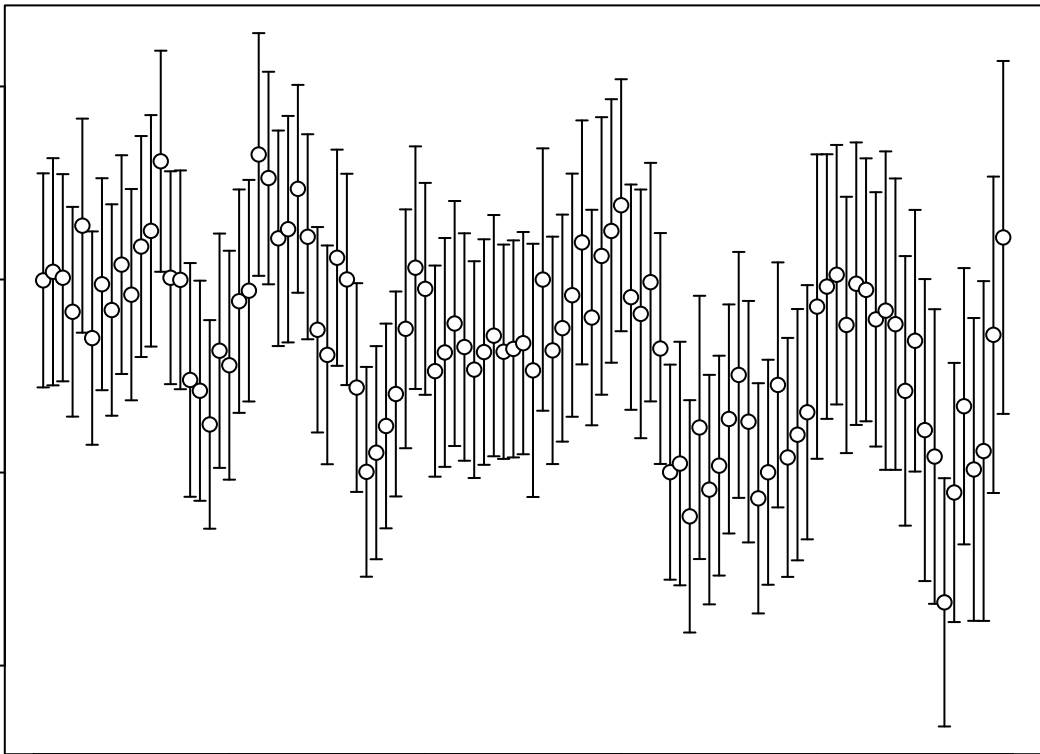
120

140

160

180

Year



Log index

8.0  
7.5  
7.0  
6.5

80

100

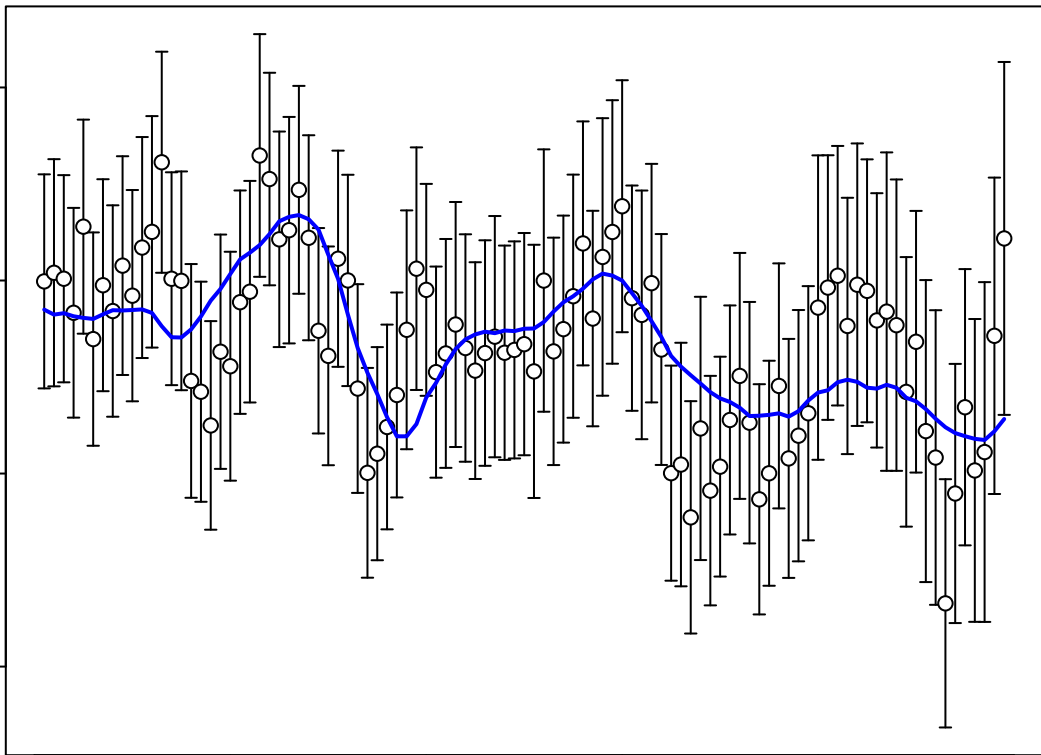
120

140

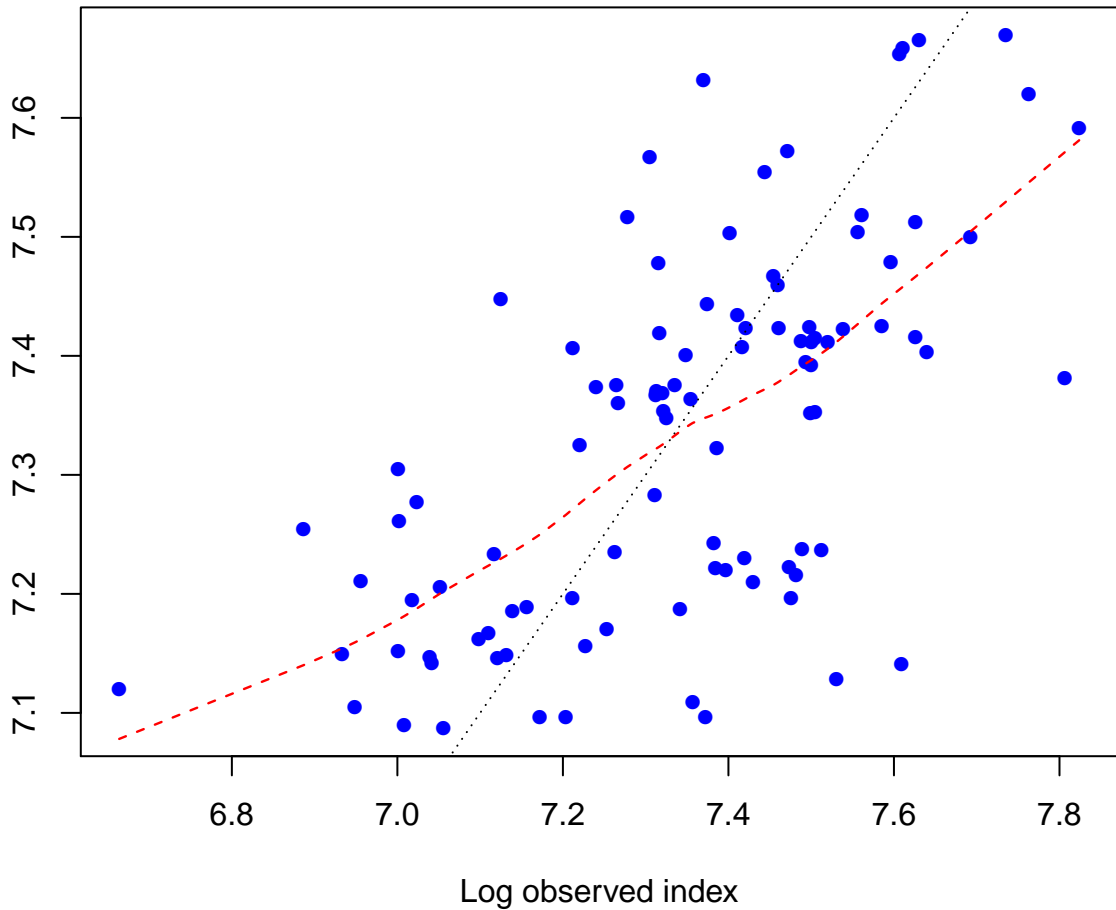
160

180

Year

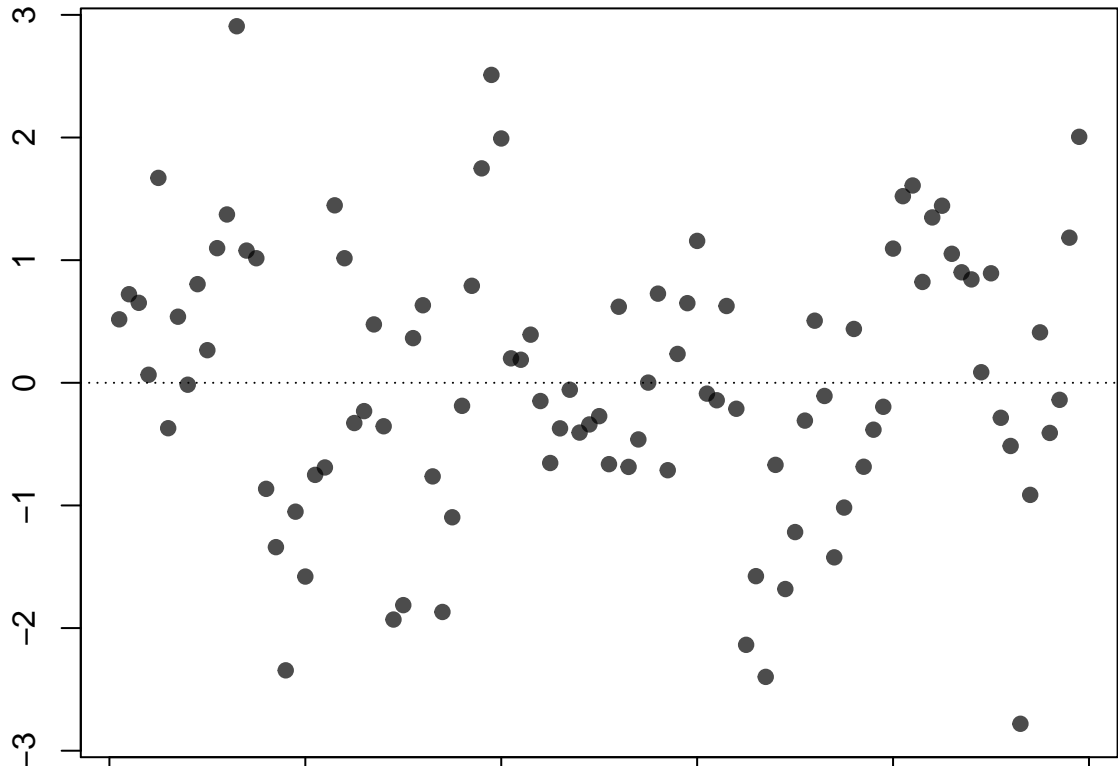


Log expected index



Log observed index

Residual

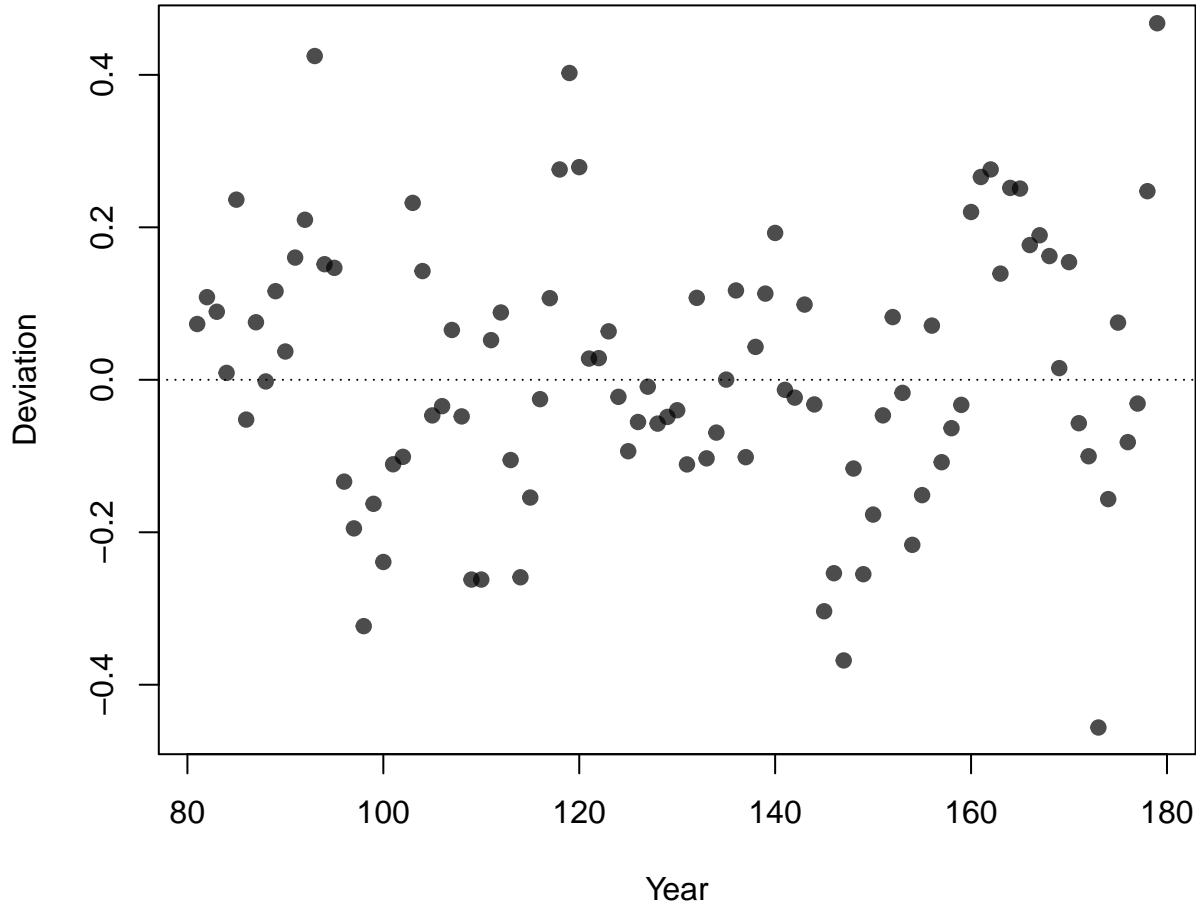


3  
2  
1  
0  
-1  
-2  
-3

80 100 120 140 160 180

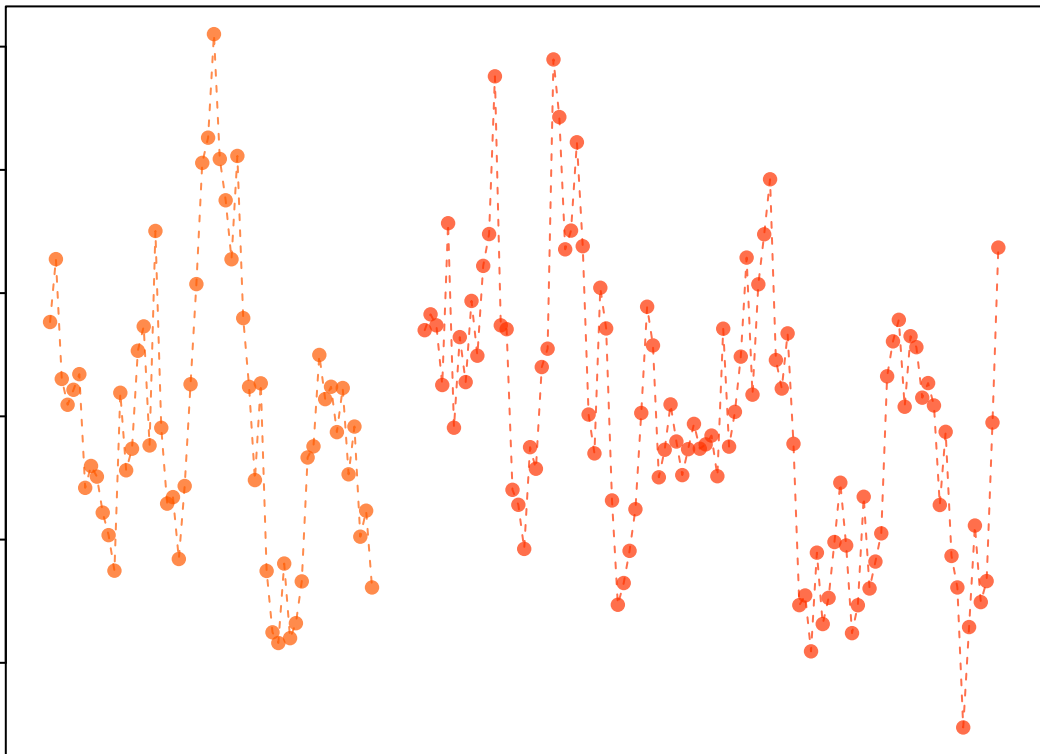
Year





Standardized index

1.6  
1.4  
1.2  
1.0  
0.8  
0.6



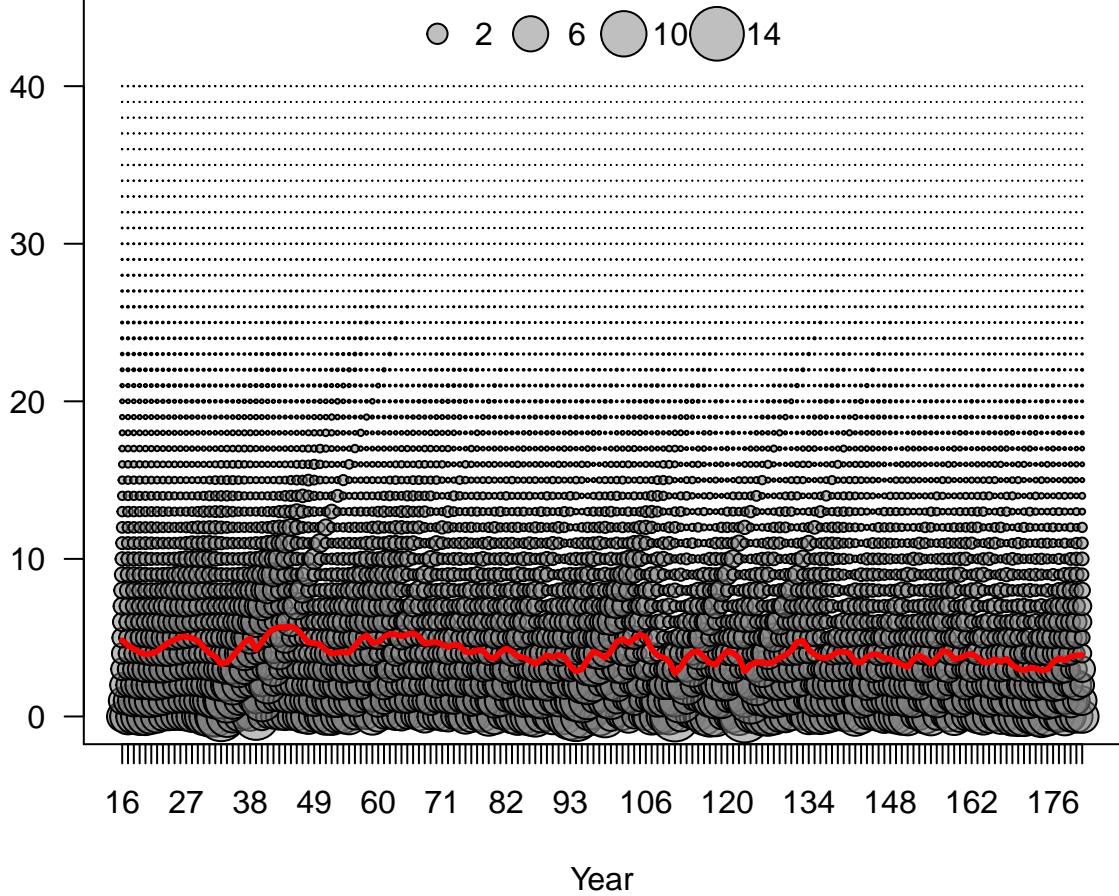
50

100

150

Year

Age



Age

40

30

20

10

0



2



6



10



14

16

27

38

49

60

71

82

93

106

120

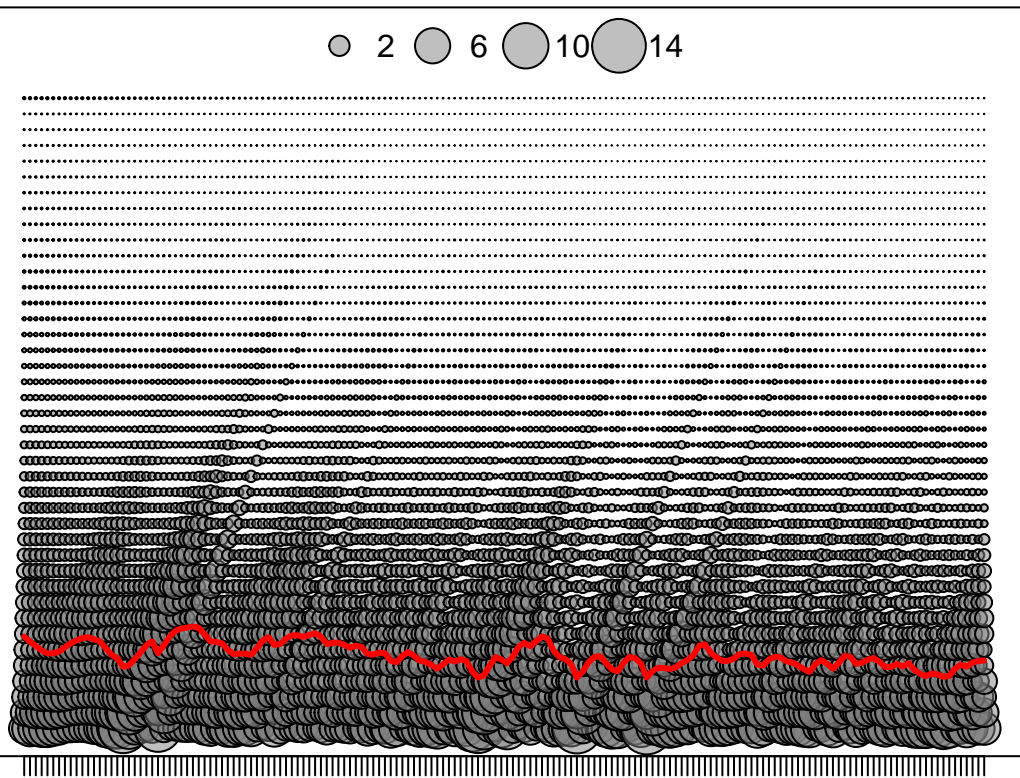
134

148

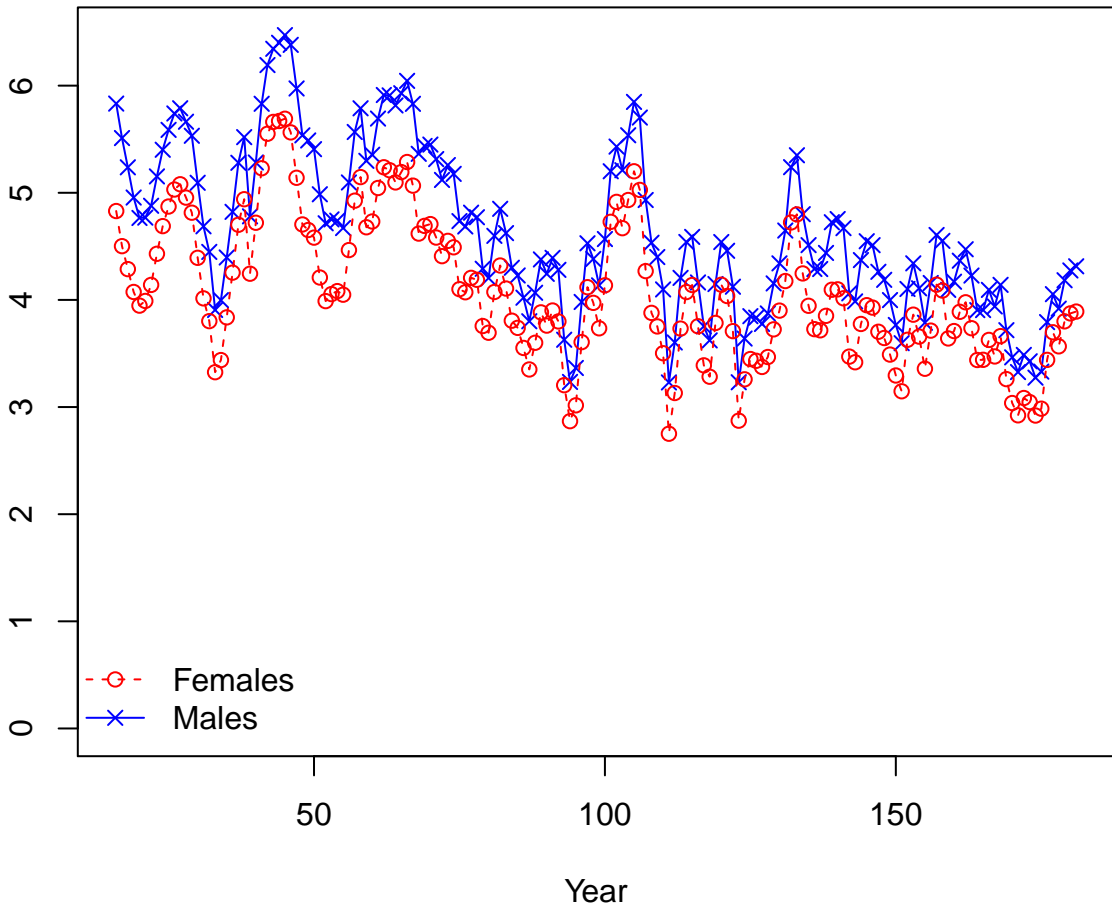
162

176

Year



Mean age (yr)



-o- Females

-x- Males

50

100

150

Year

Age

○ 2   ○ 6   ○ 10

40

30

20

10

0

16

27

38

49

60

71

82

93

106

120

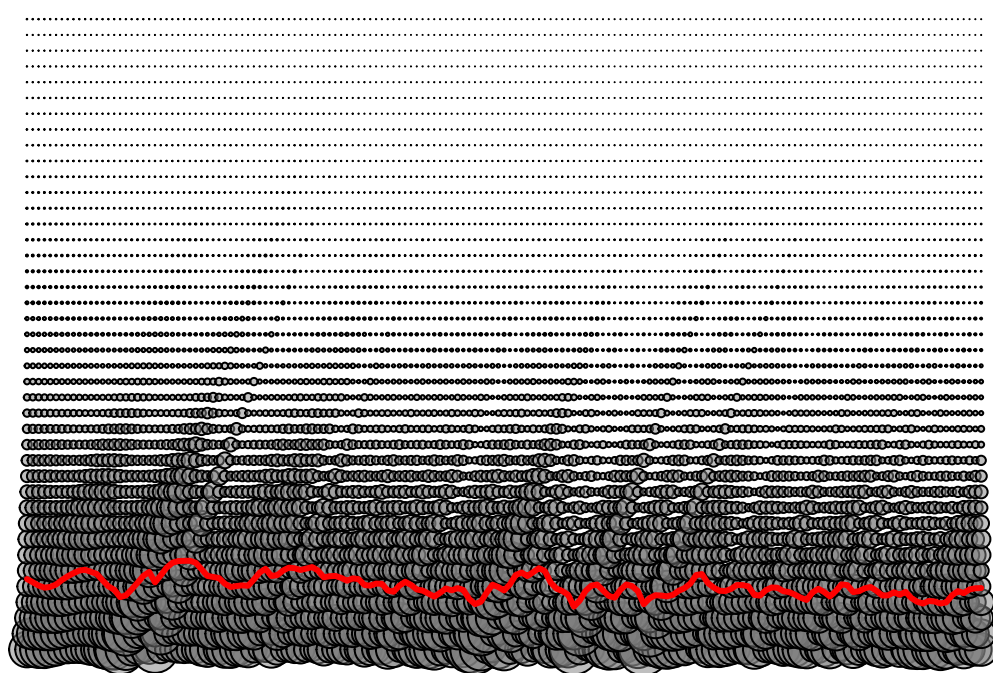
134

148

162

176

Year



Age

40

30

20

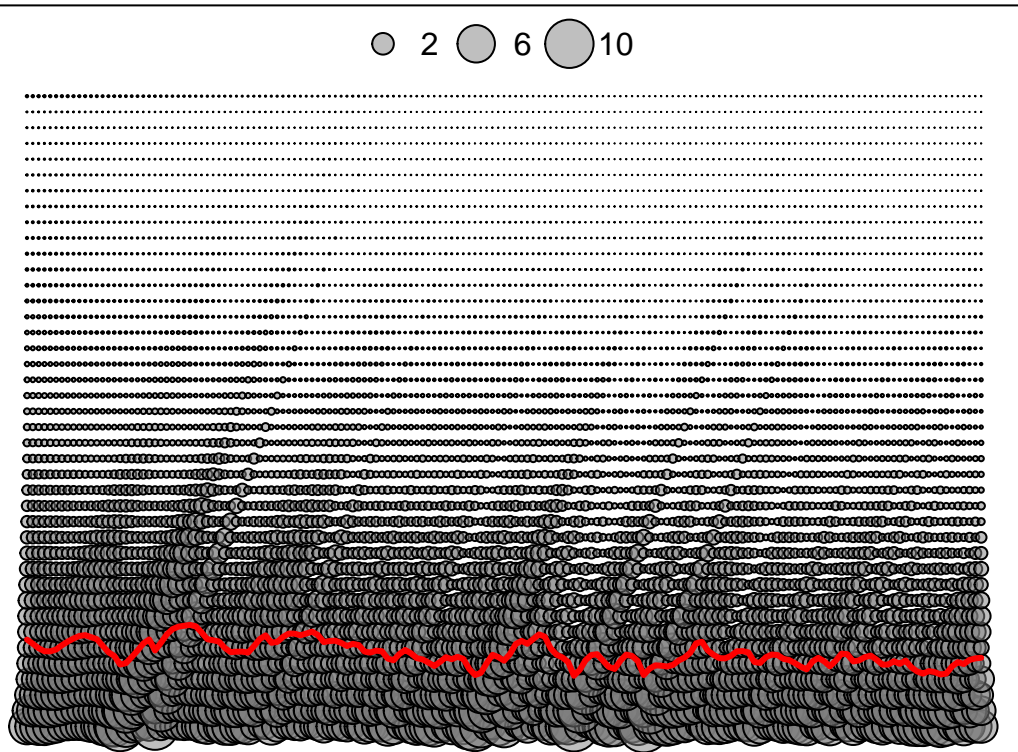
10

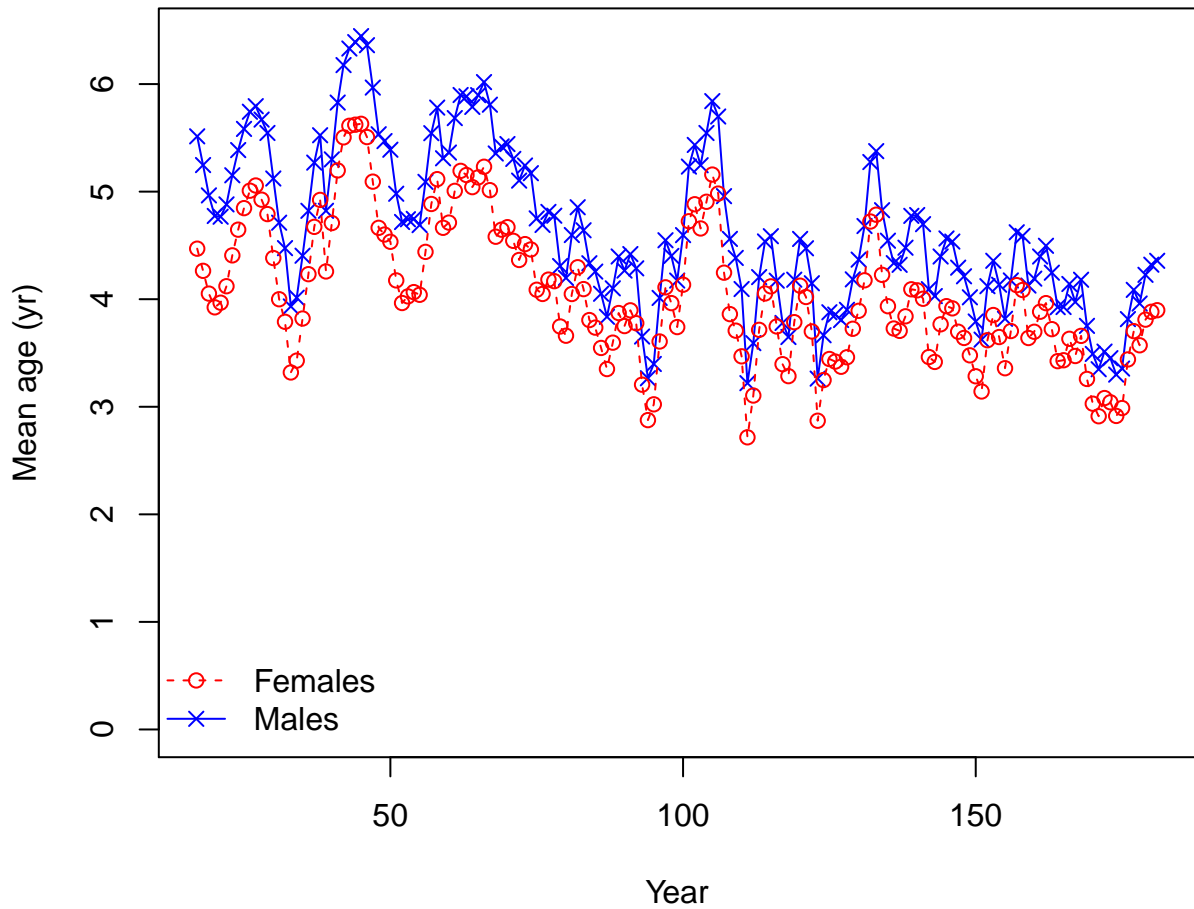
0

○ 2    ● 6    ● 10

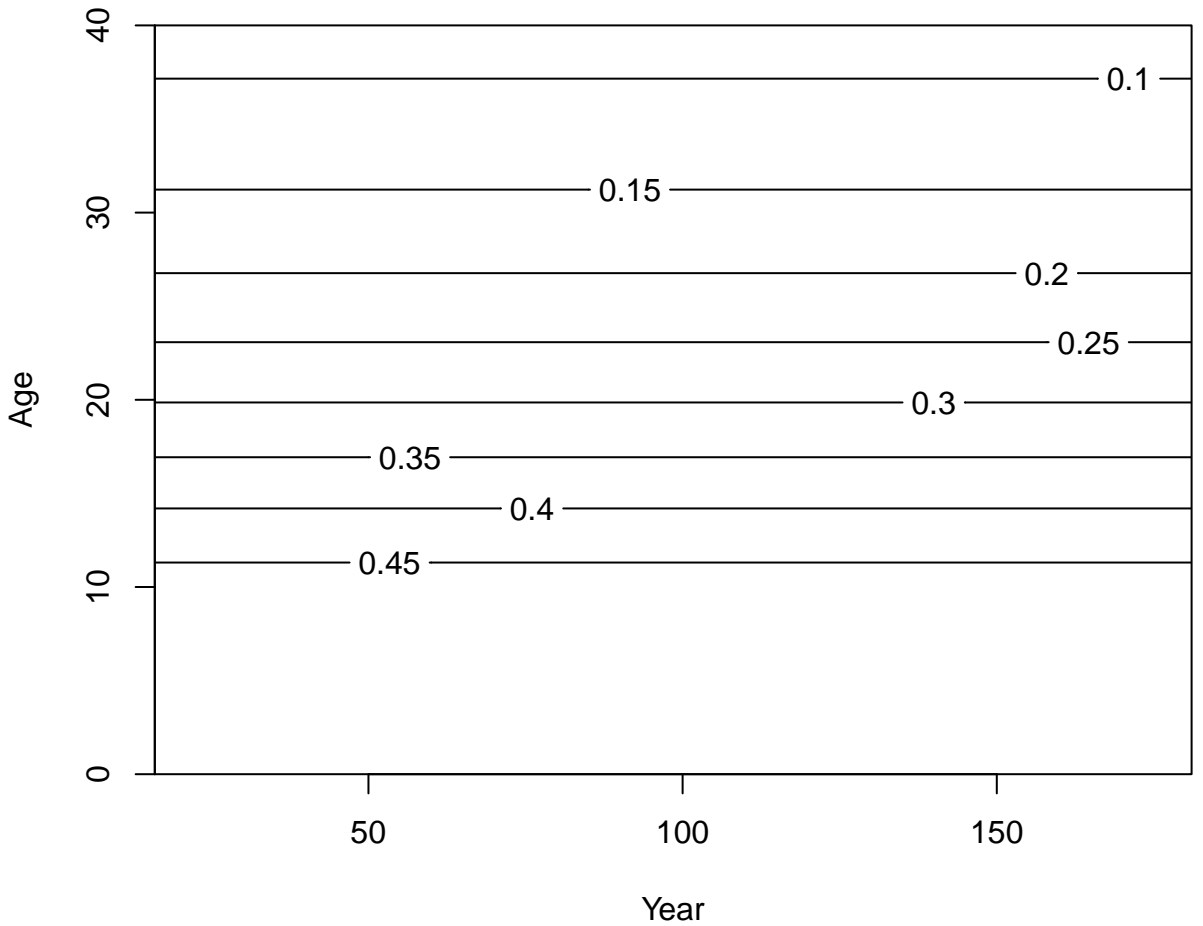
16 27 38 49 60 71 82 93 106 120 134 148 162 176

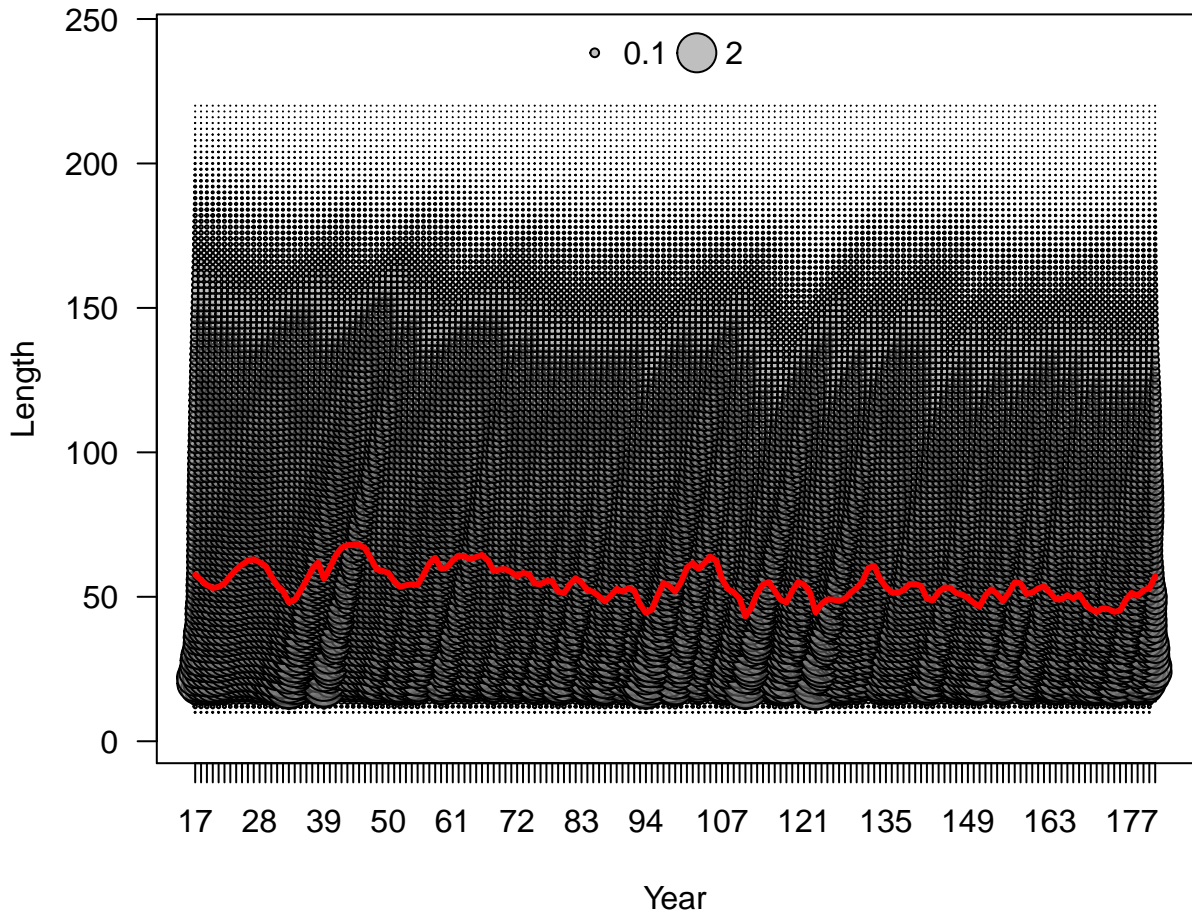
Year

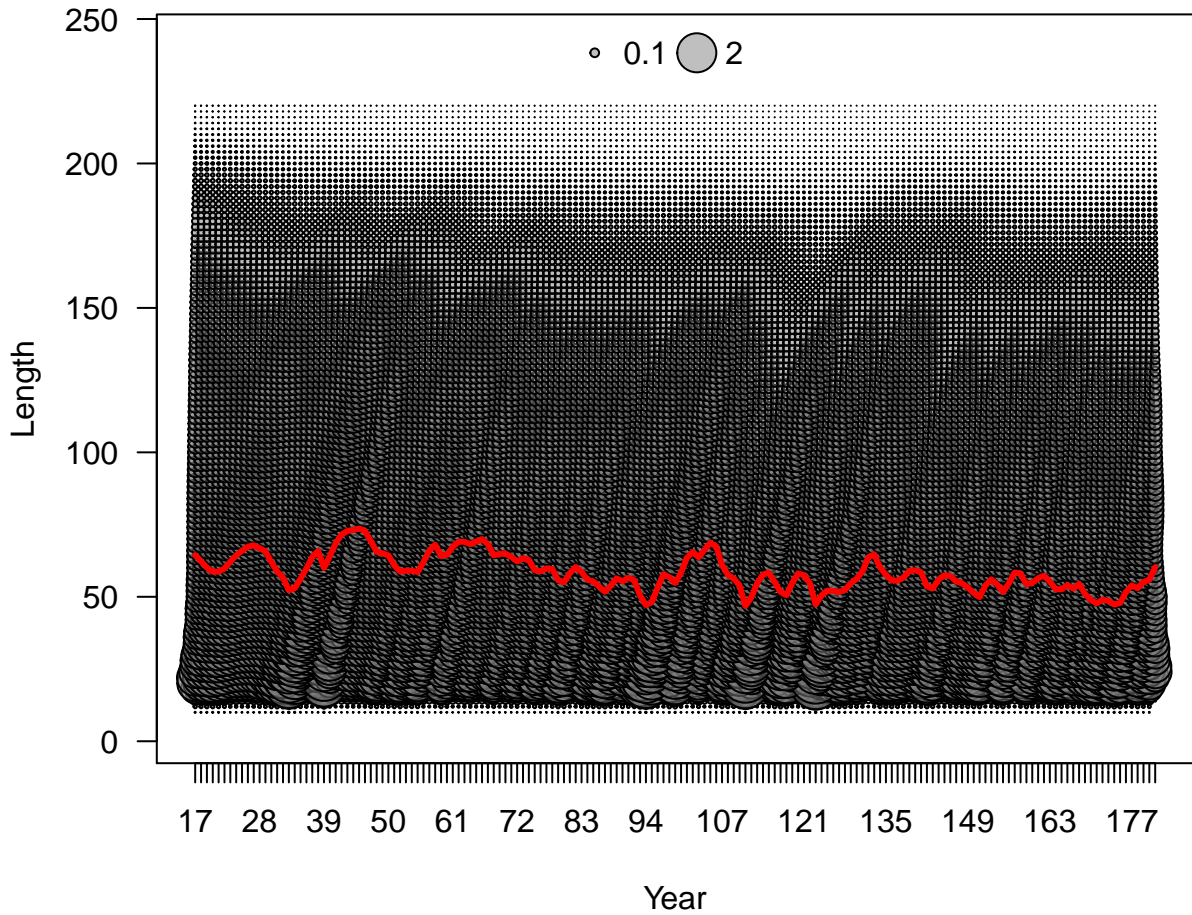


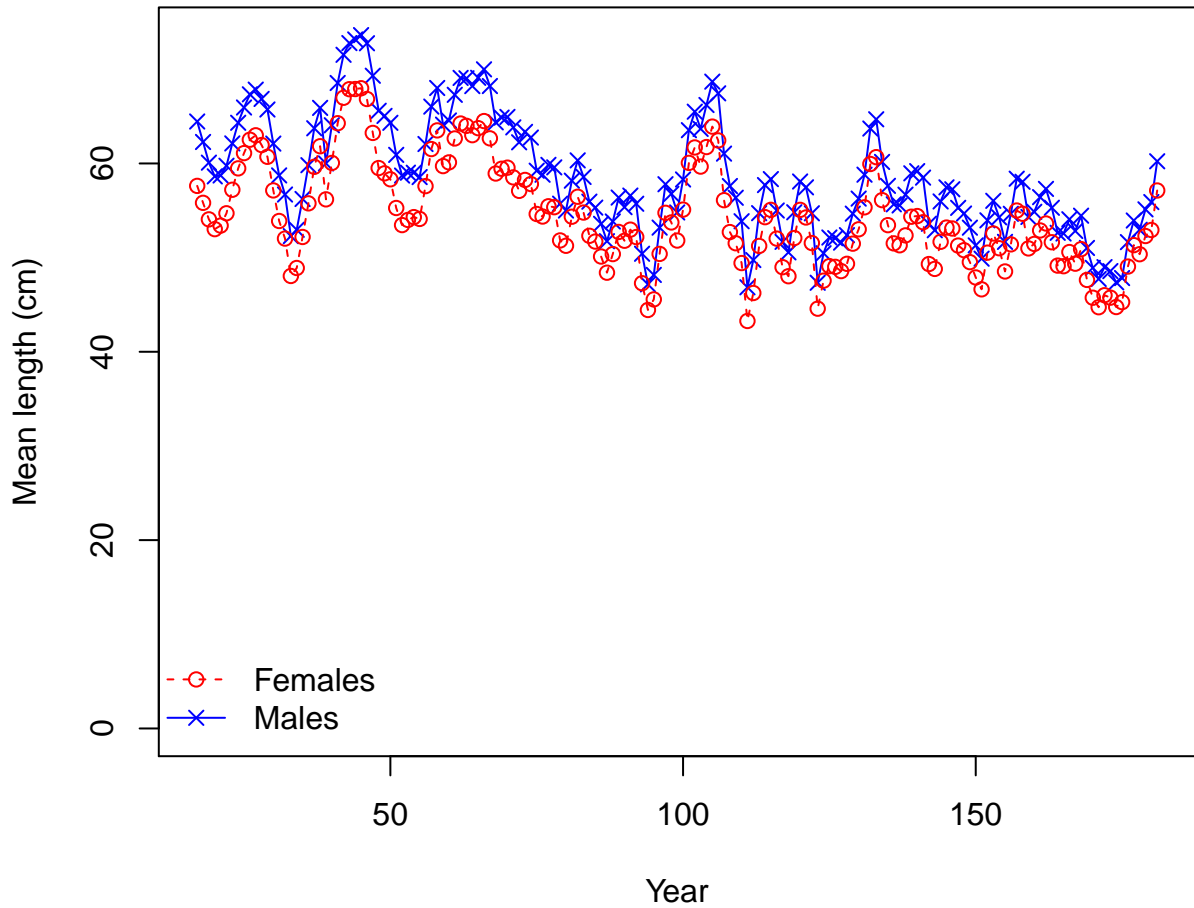


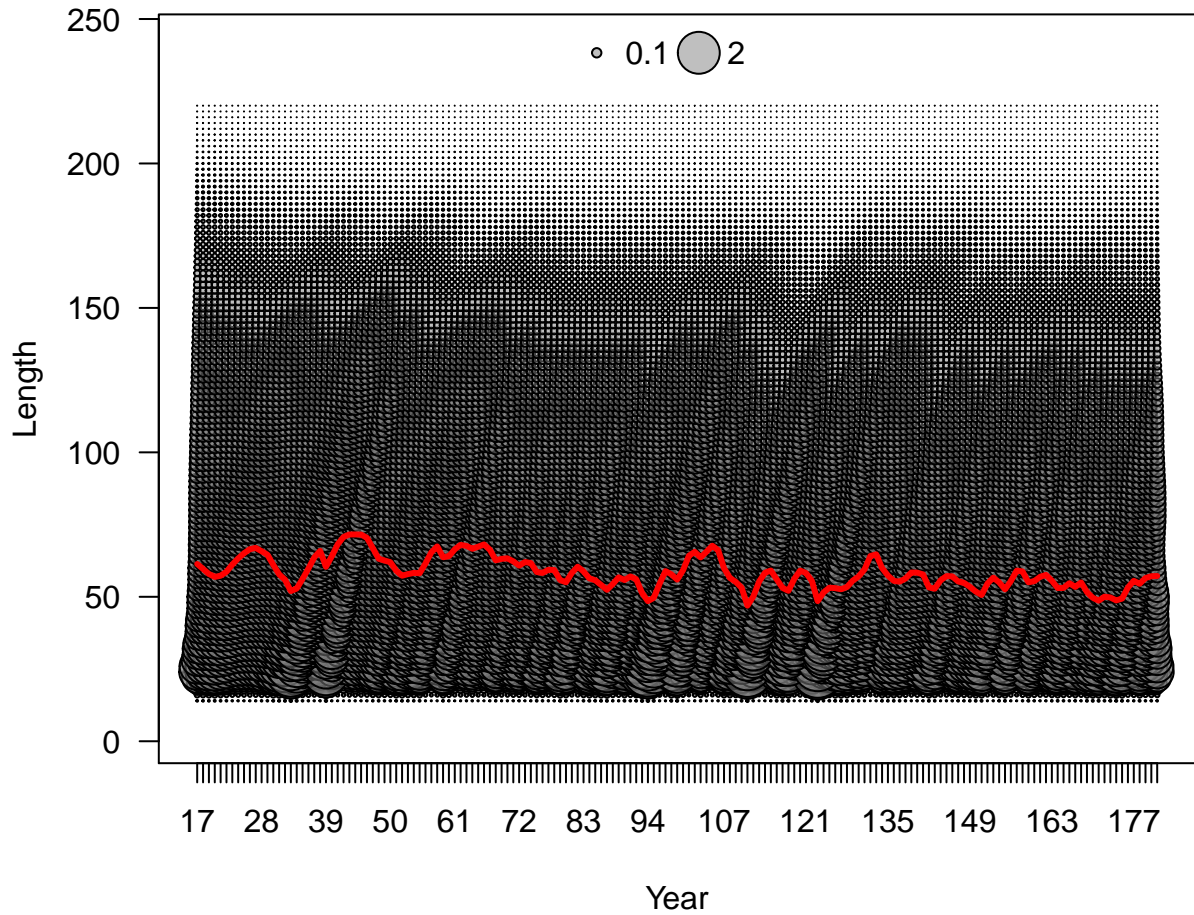




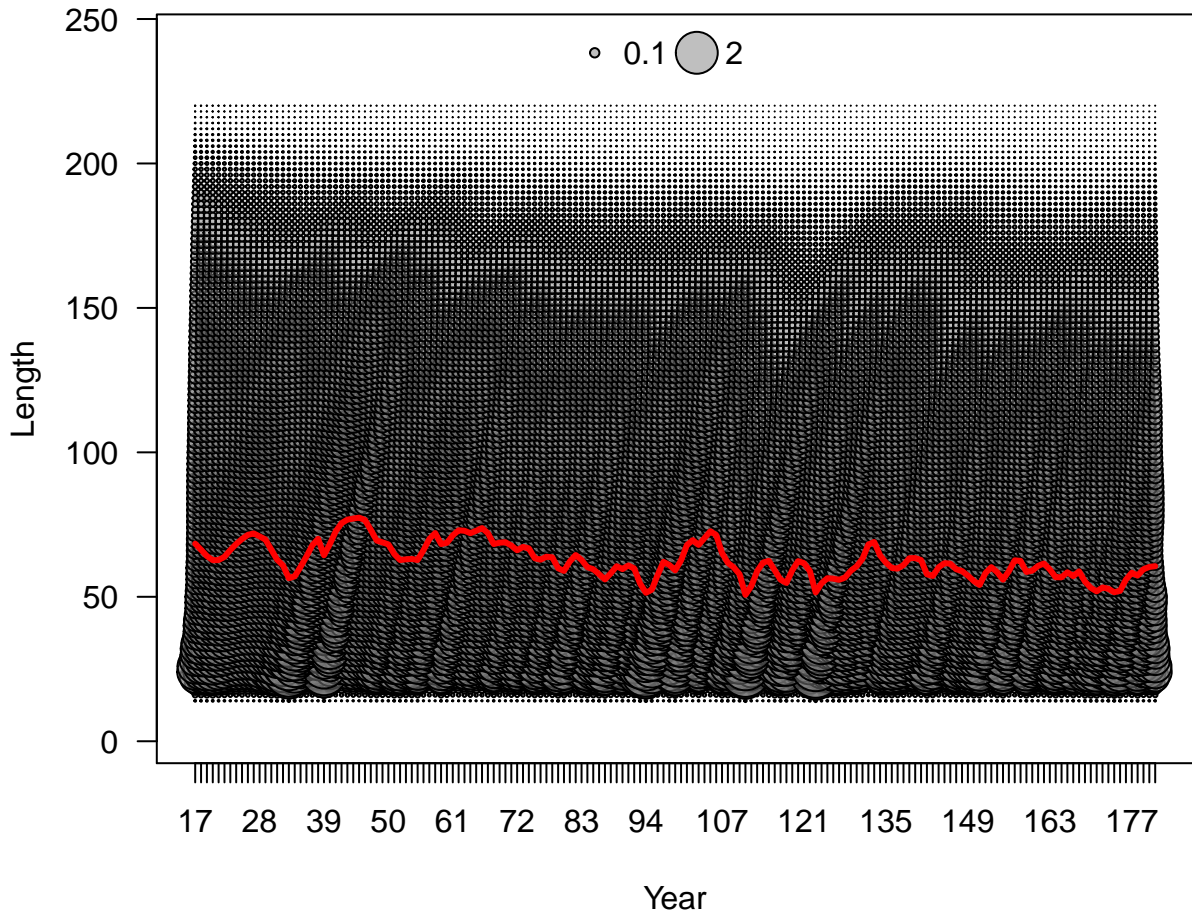


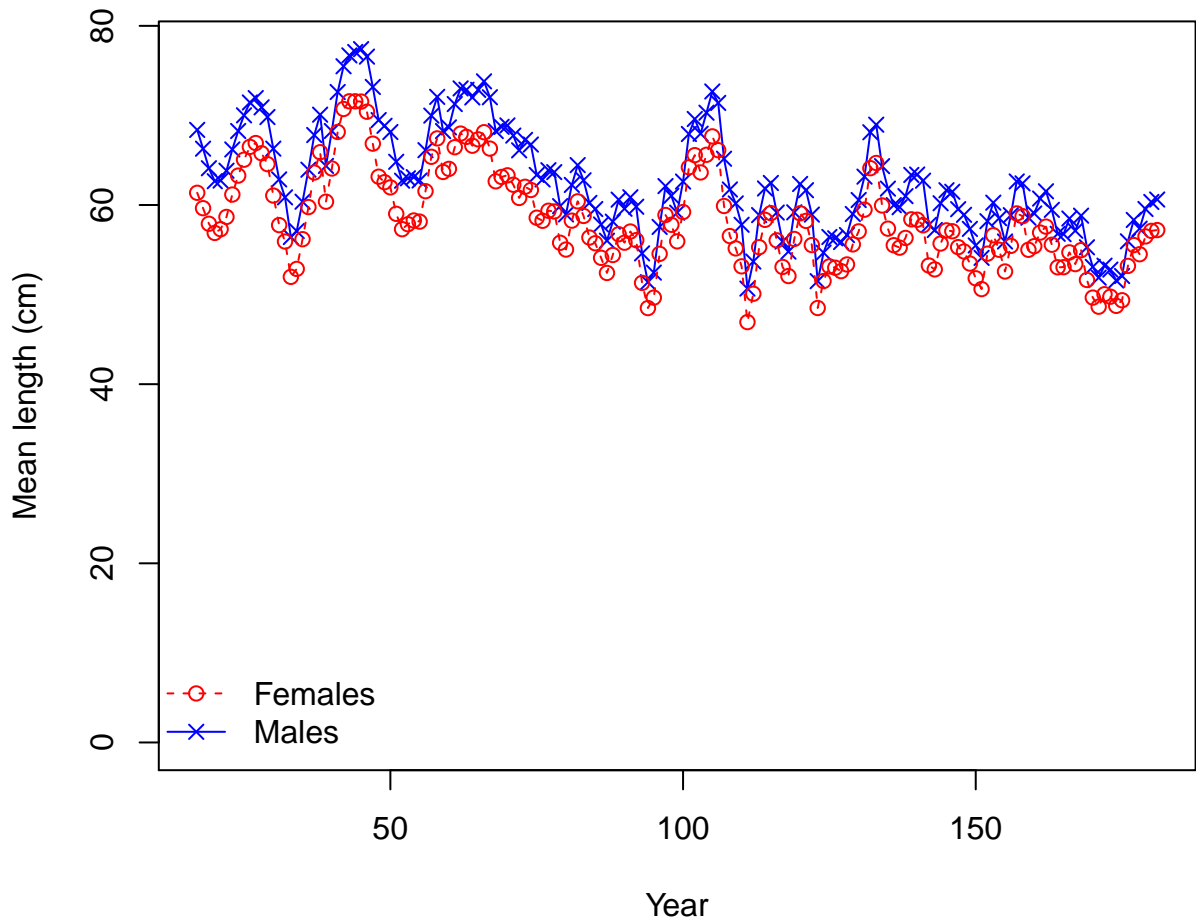




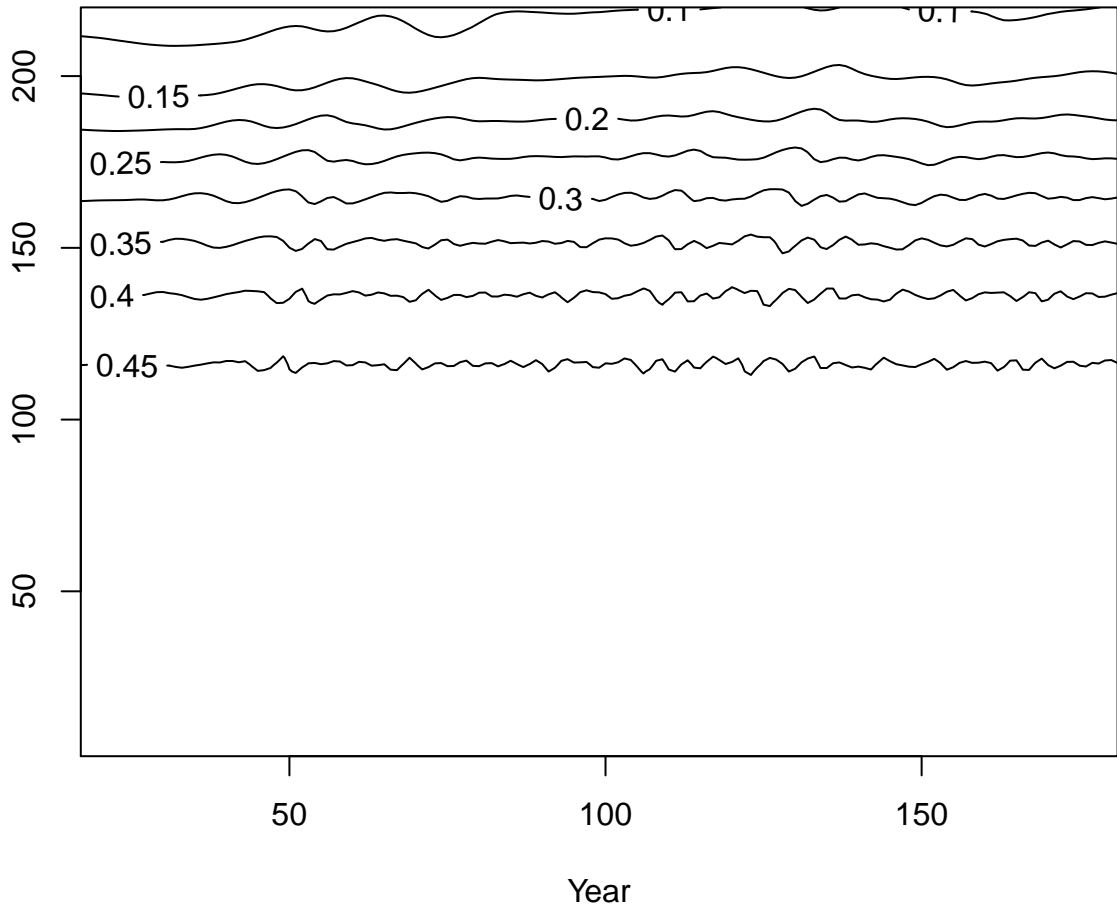




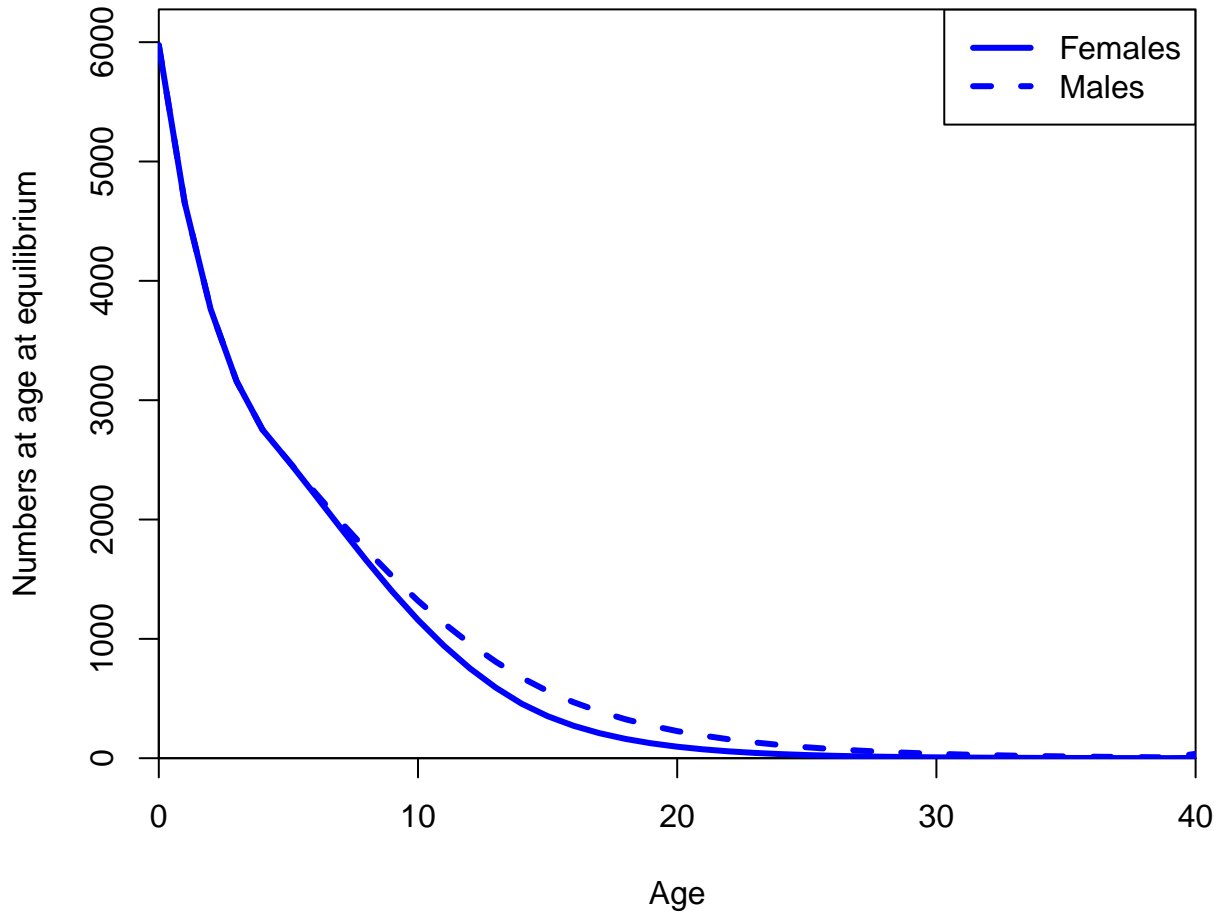


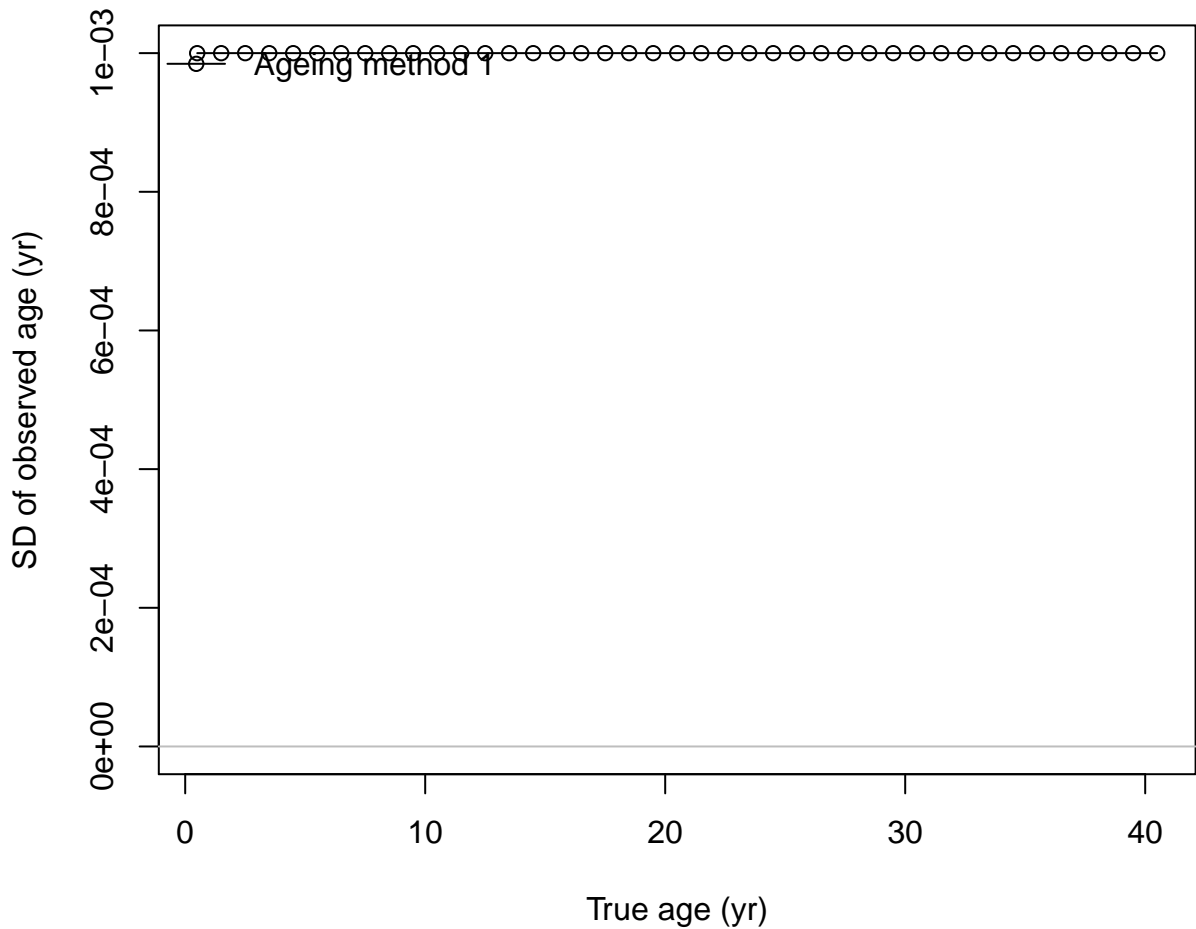


Length

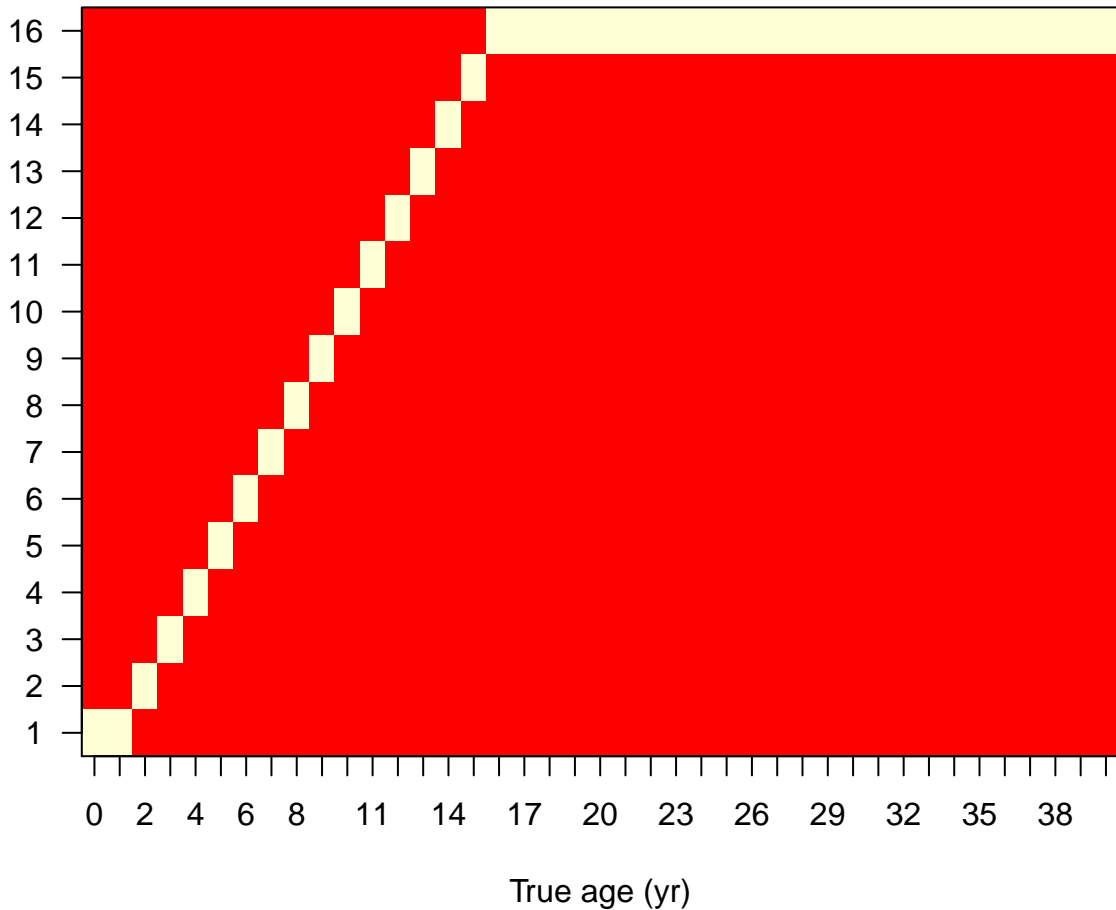




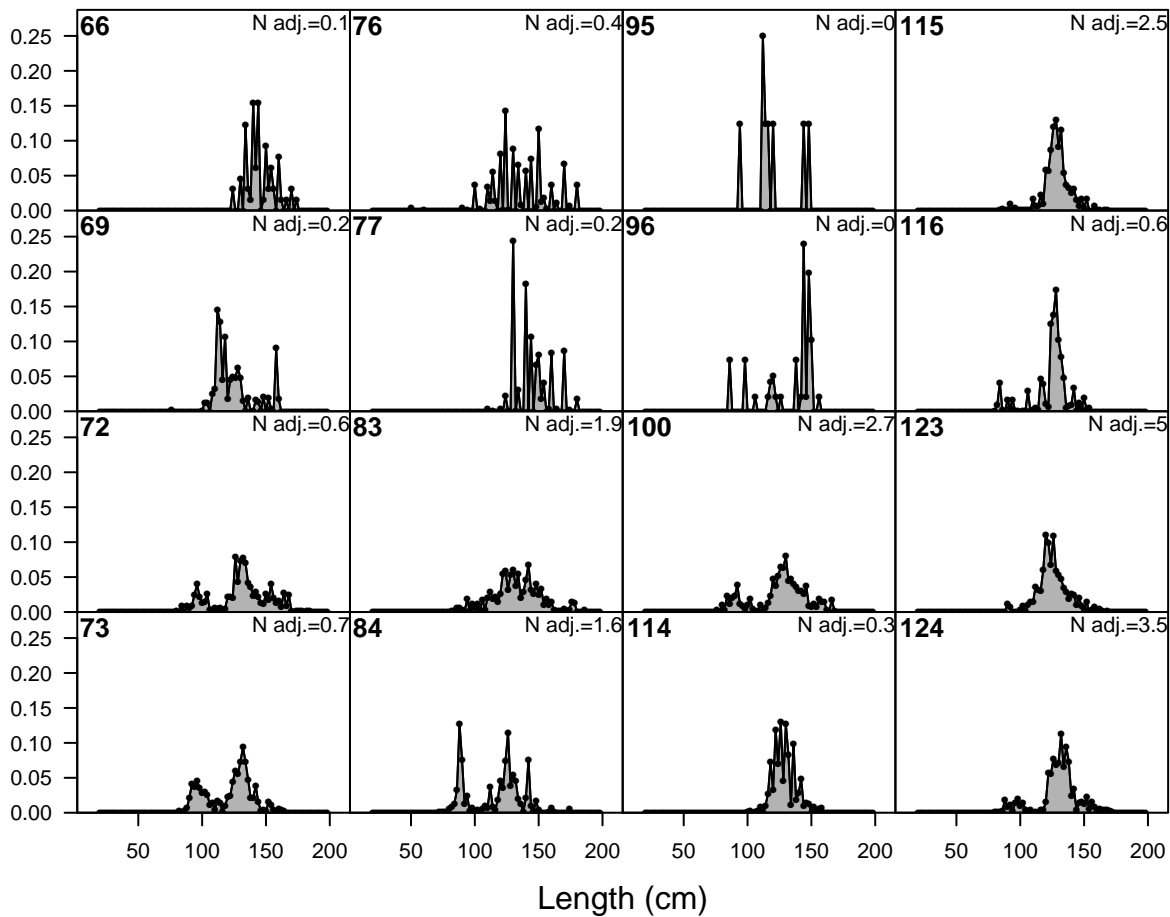


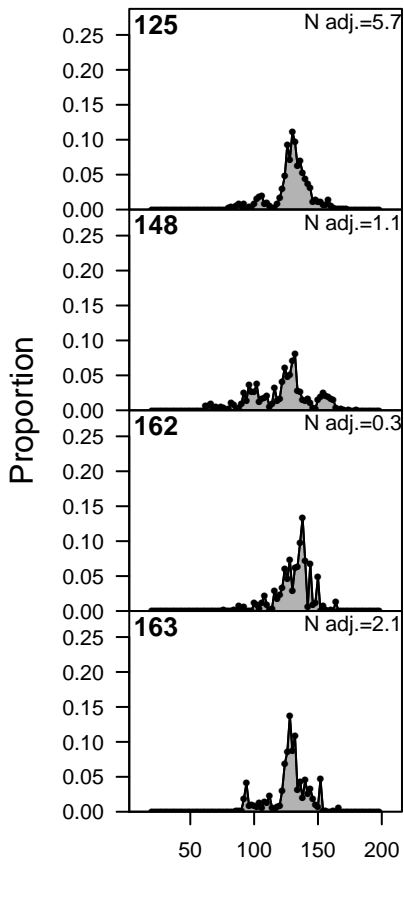


Observed age (yr)

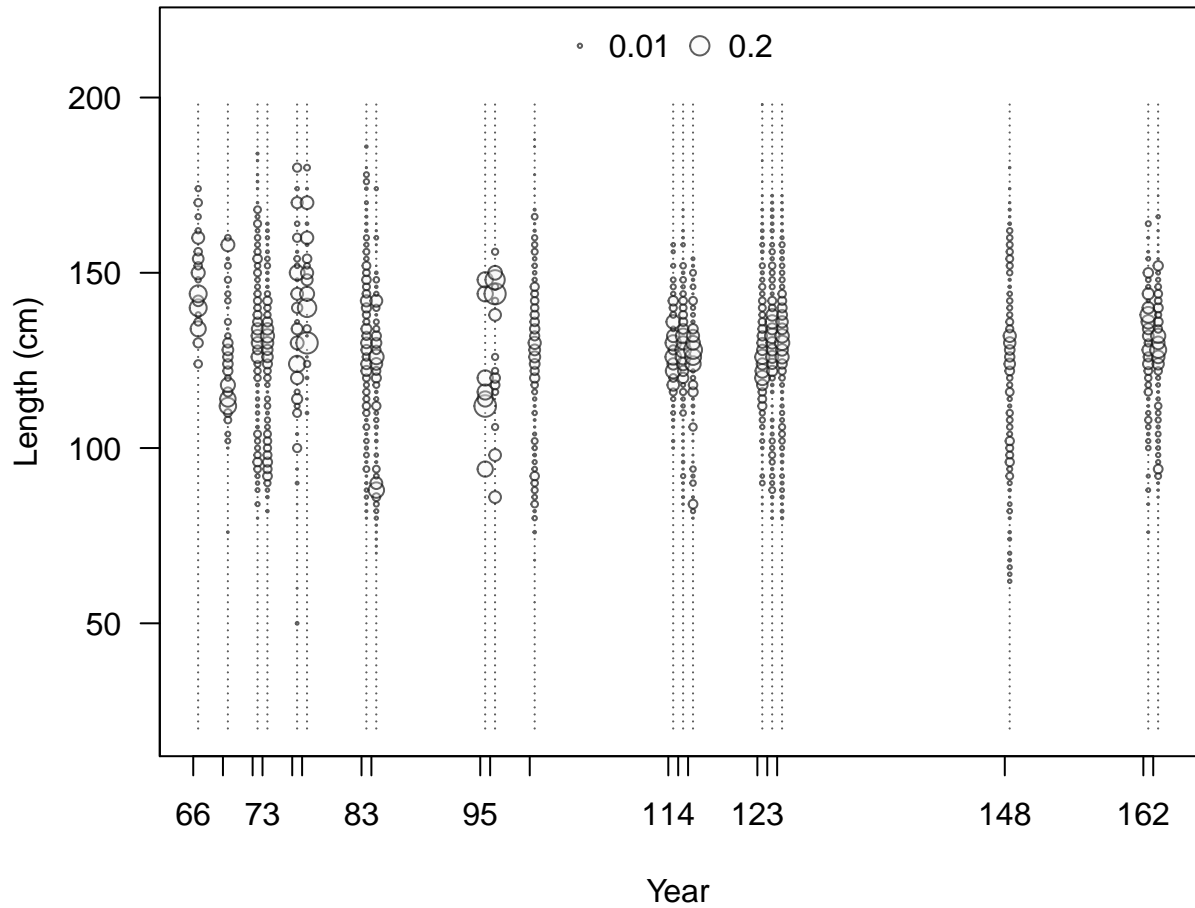


Proportion

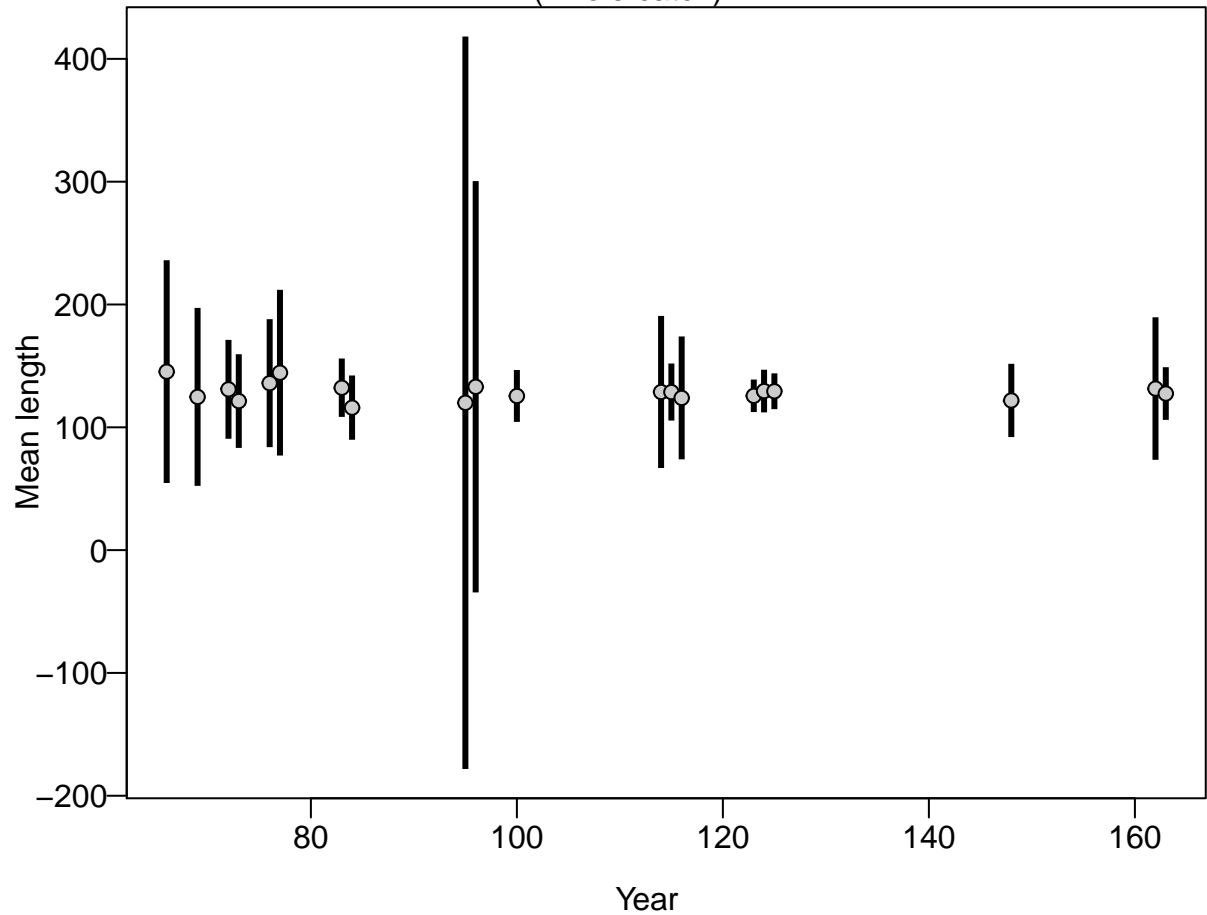




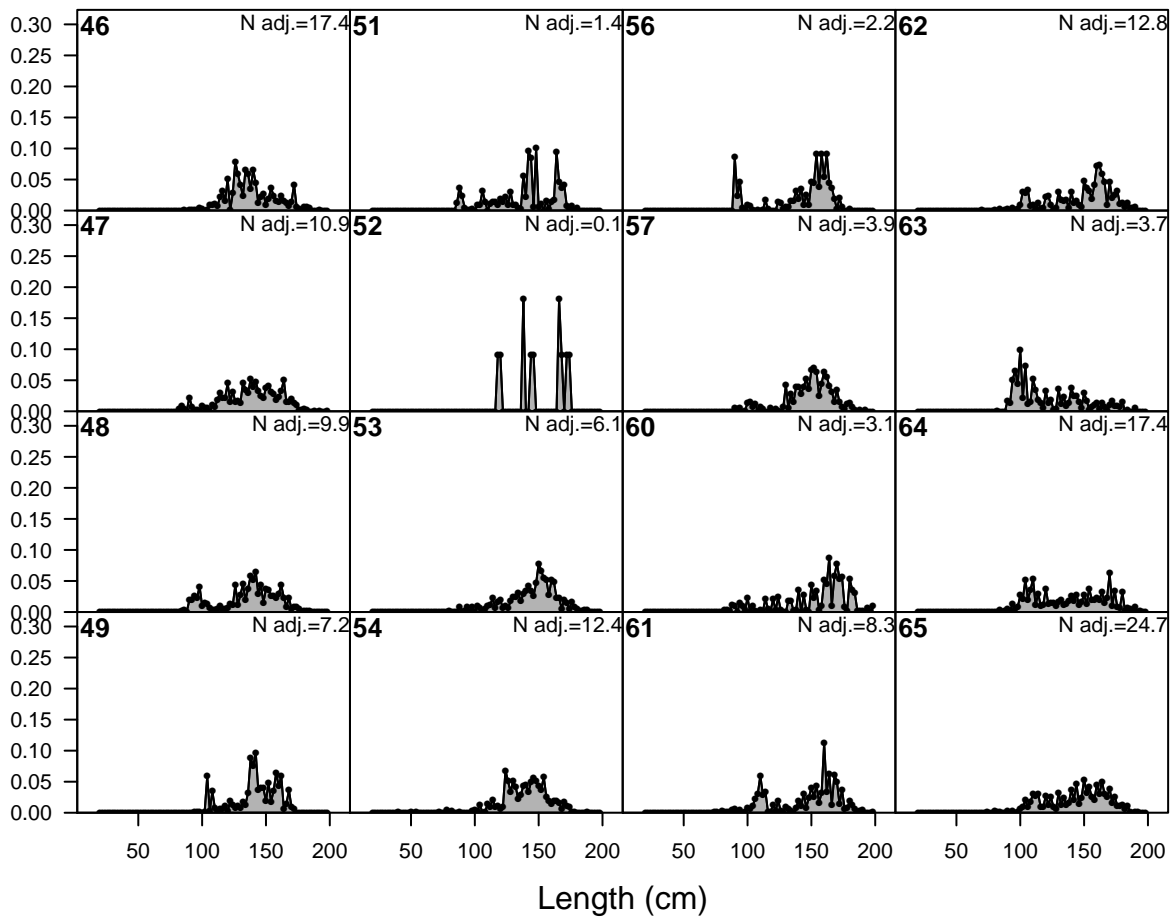
Length (cm)



A1-LL-n (whole catch)

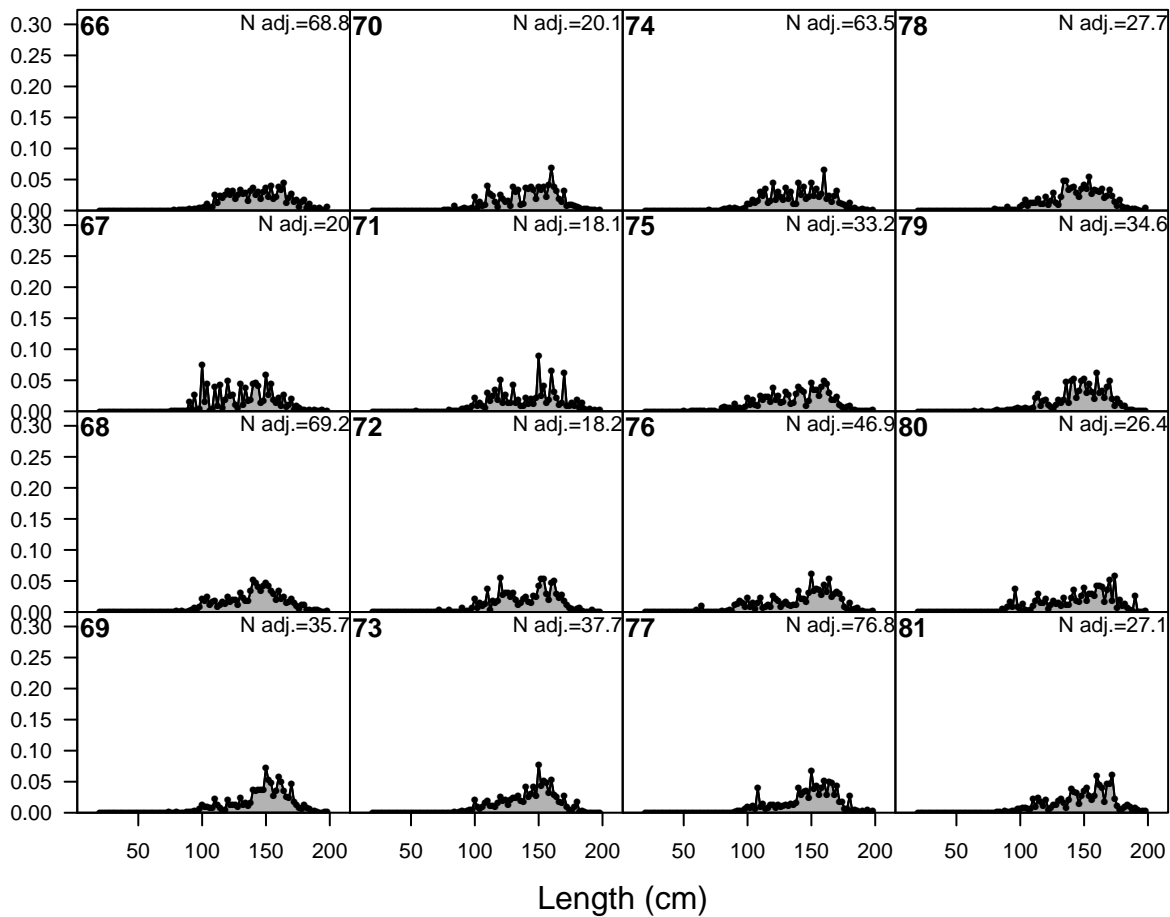


Proportion

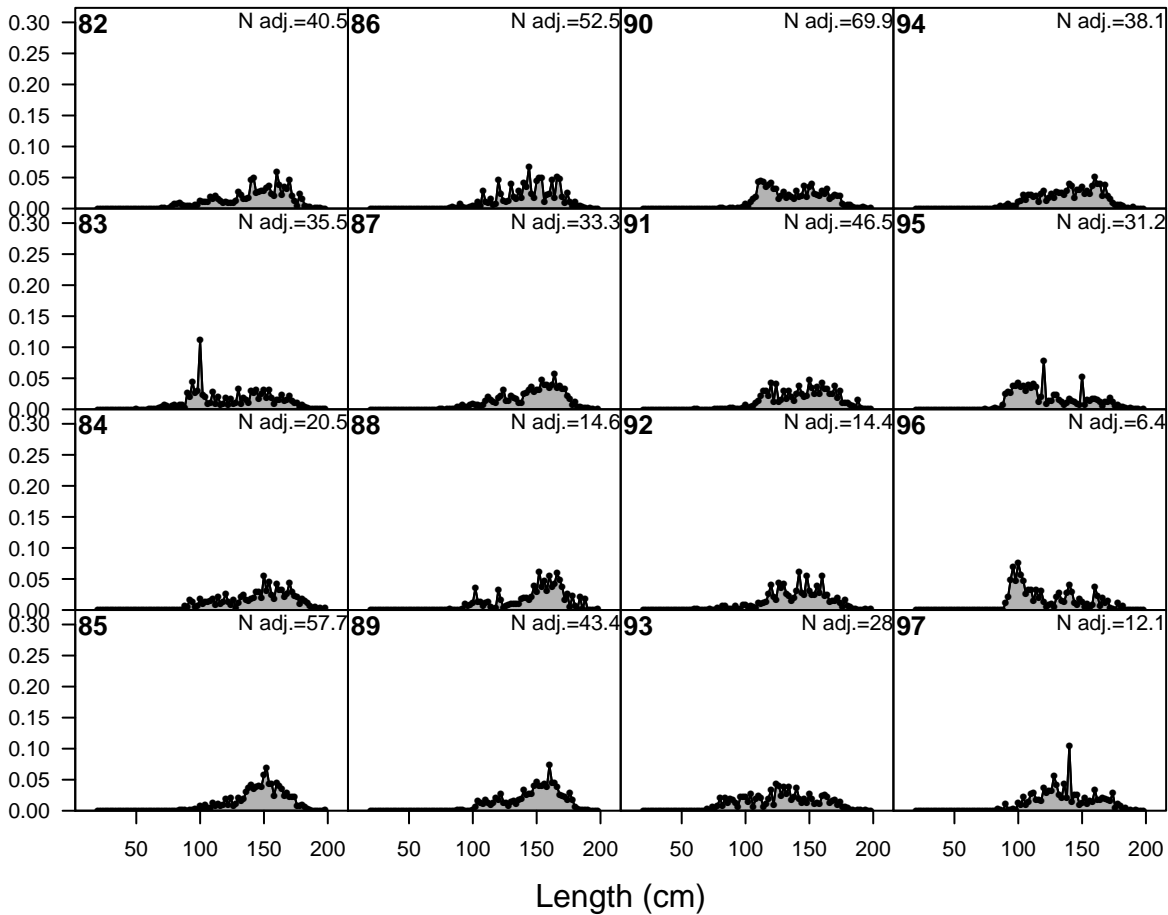




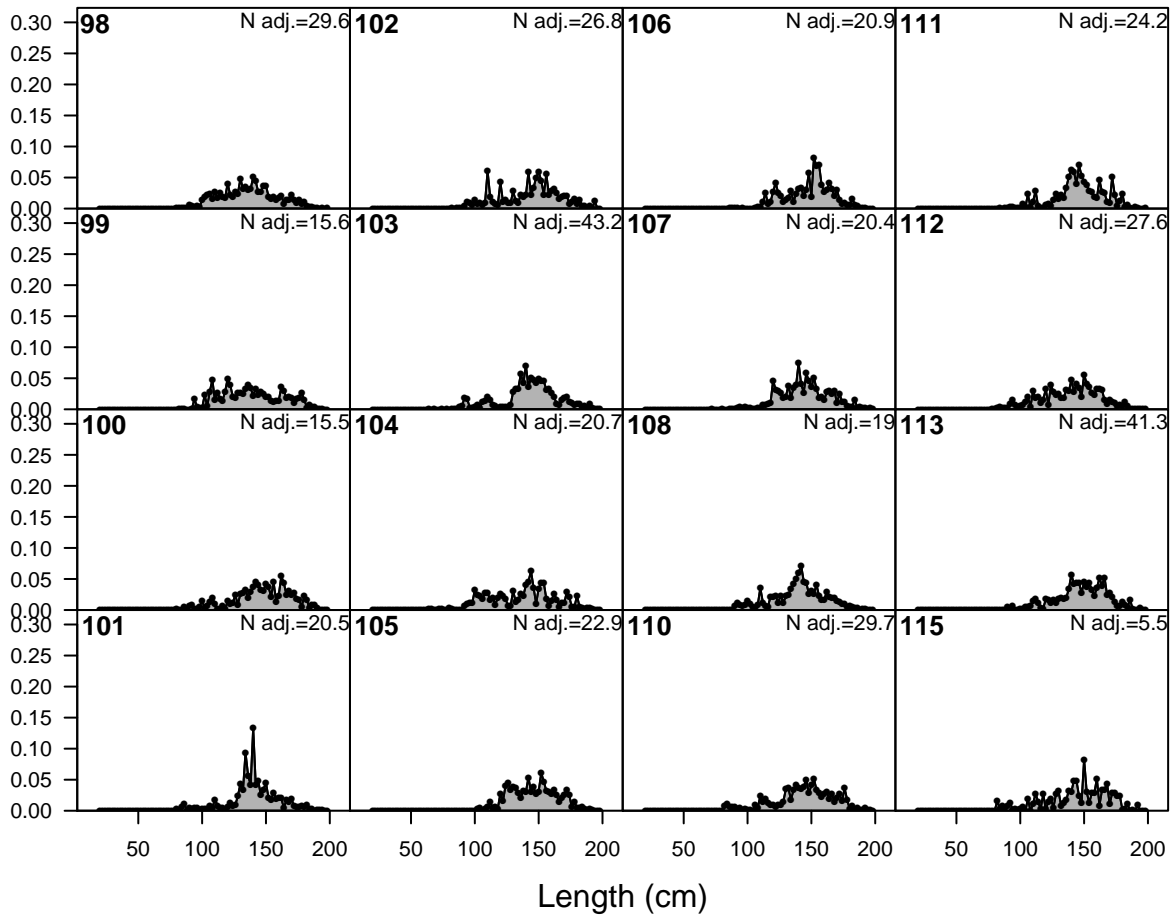
Proportion



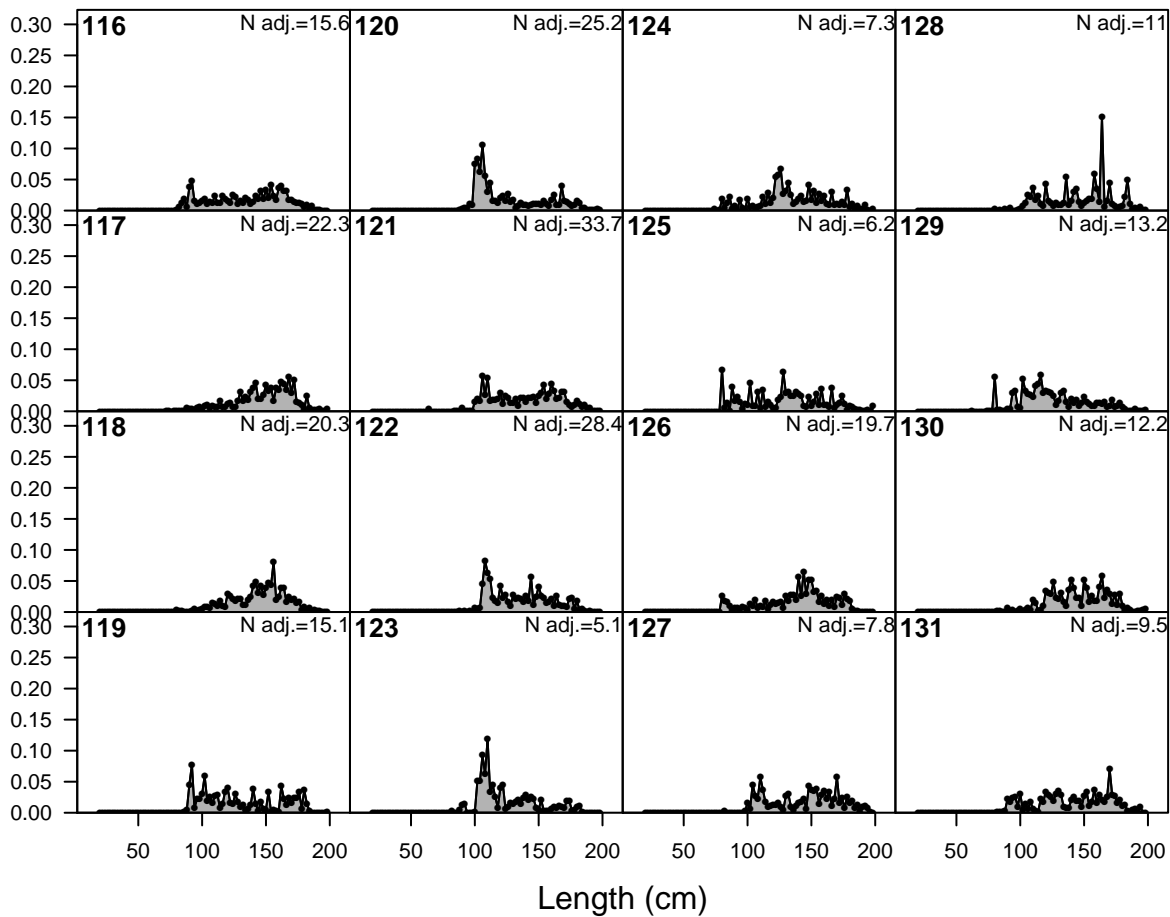
Proportion



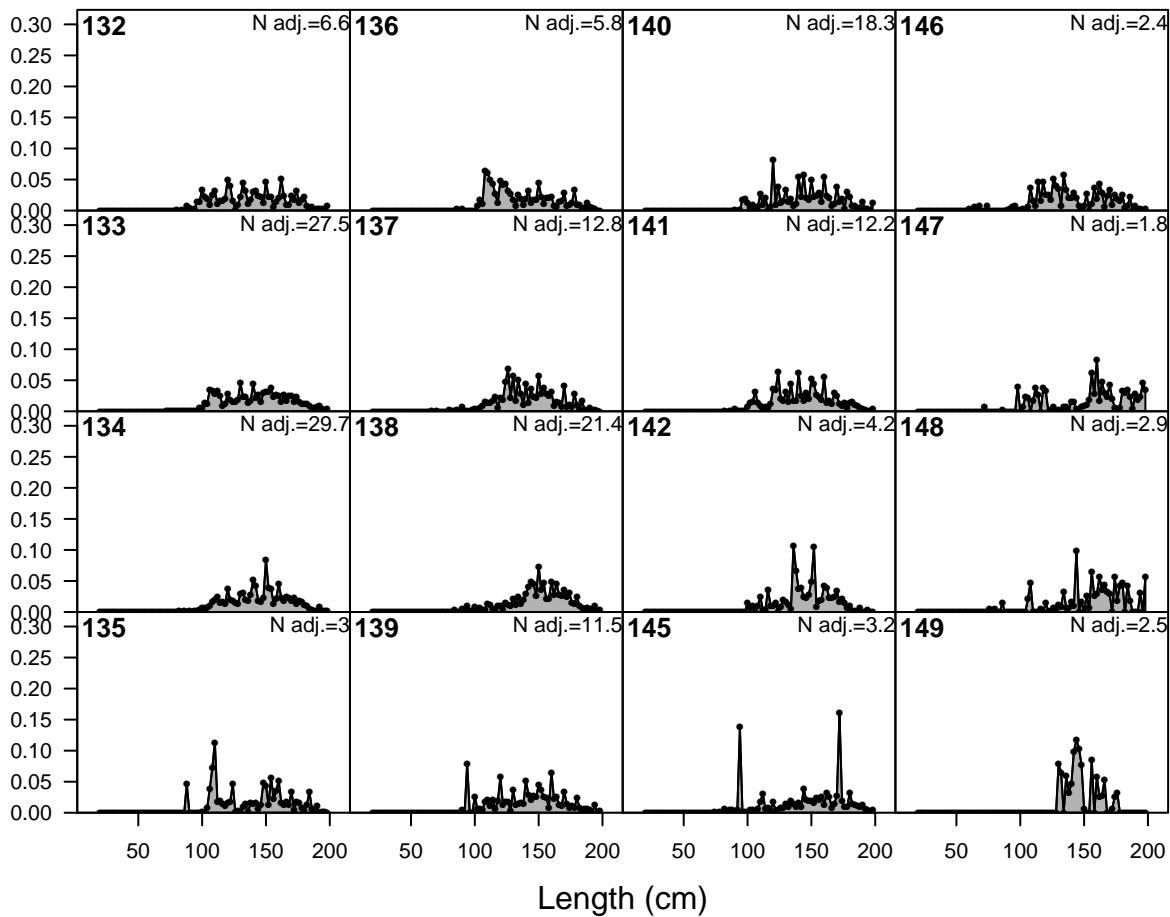
Proportion



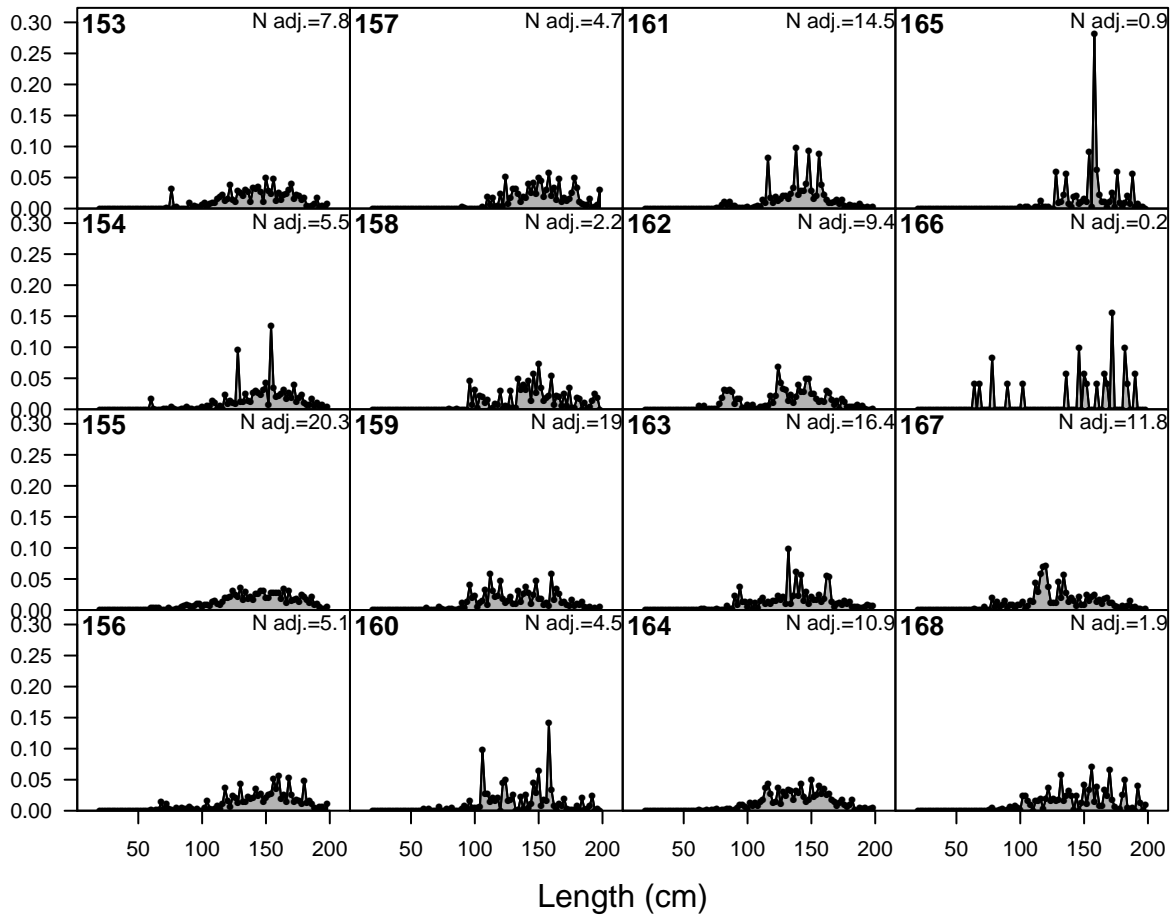
Proportion



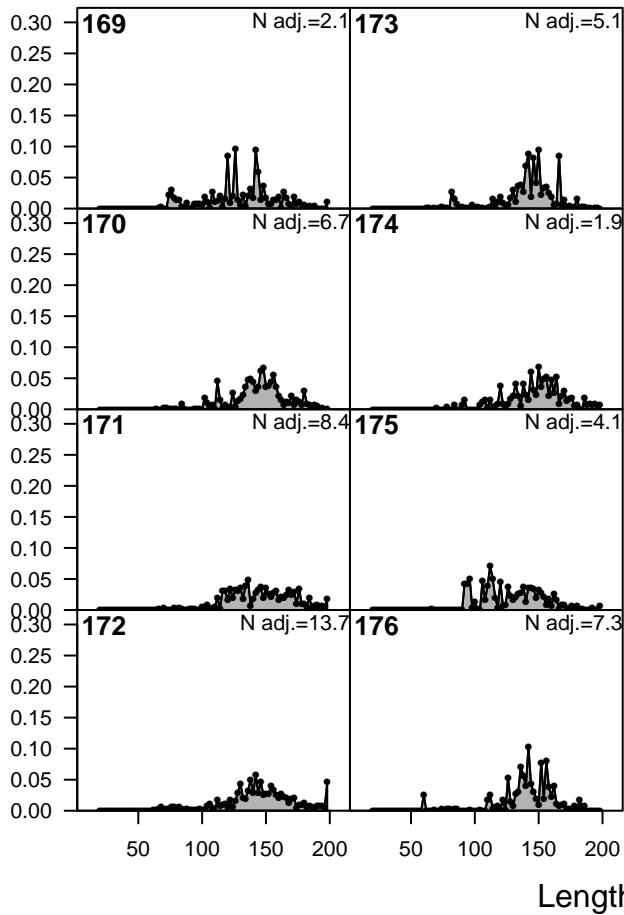
Proportion

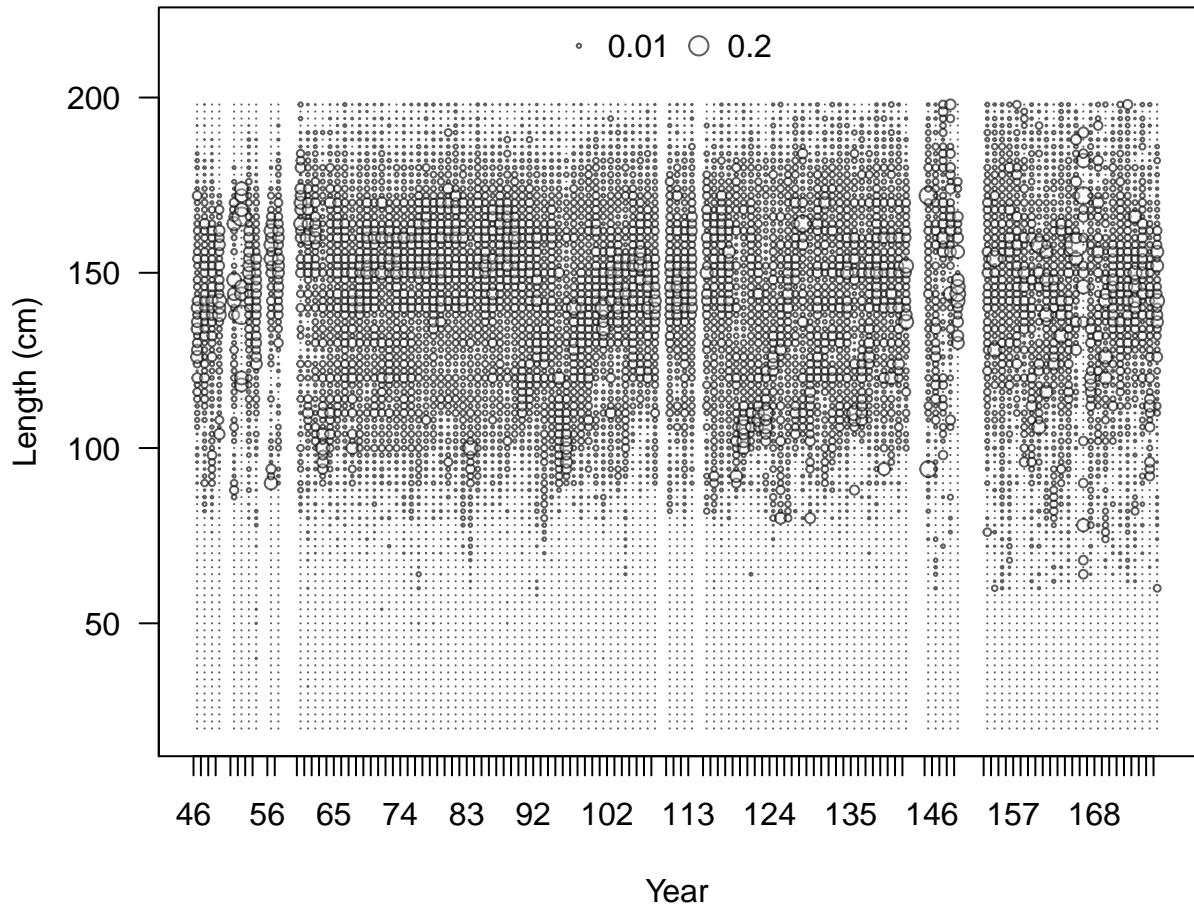


Proportion



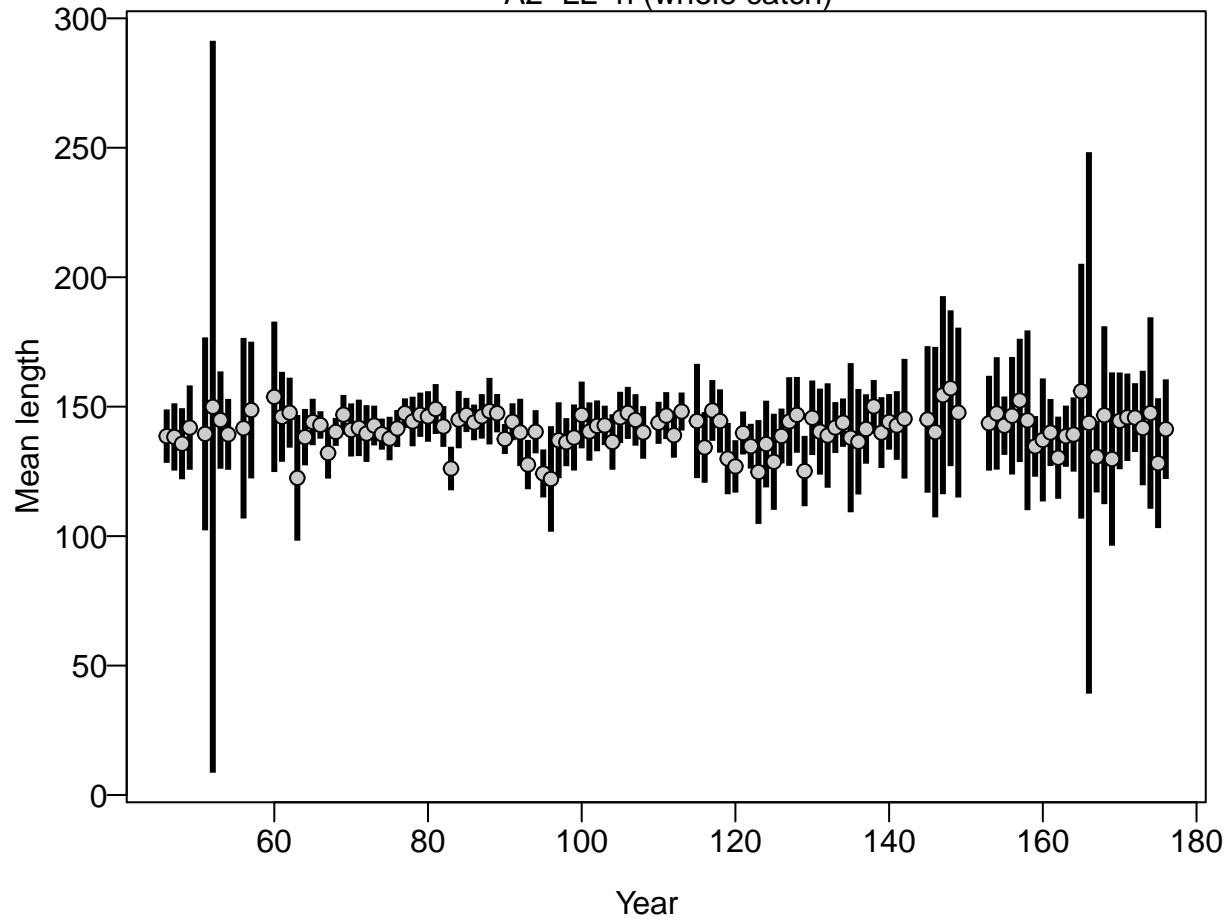
Proportion



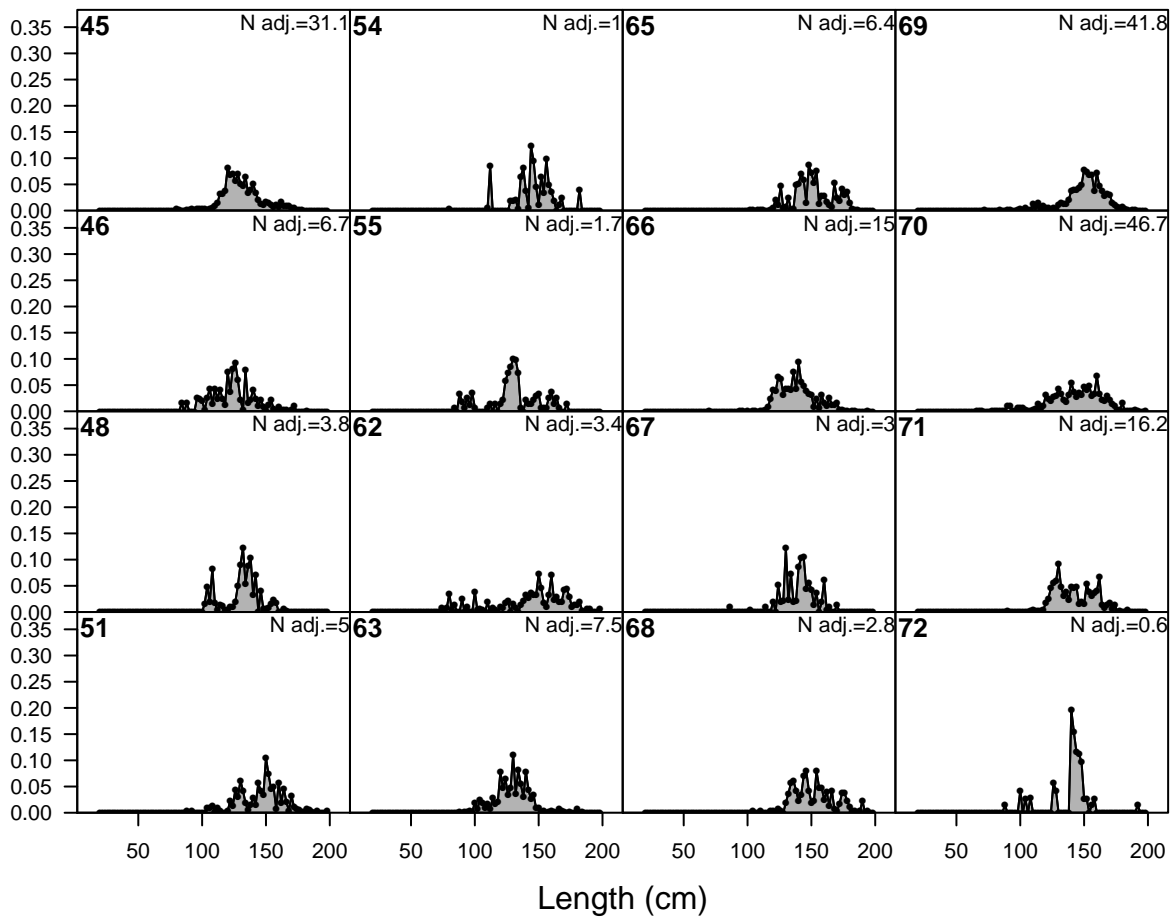




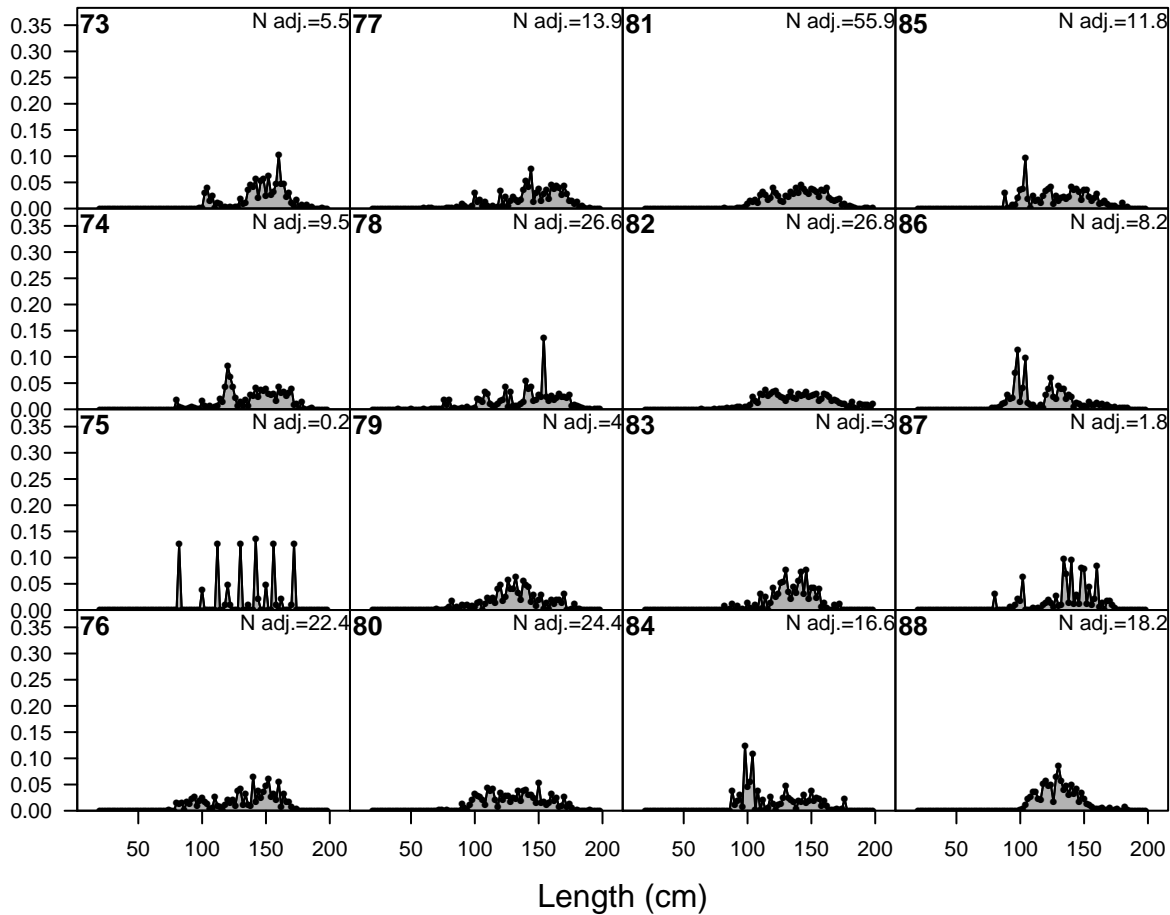
A2-LL-n (whole catch)



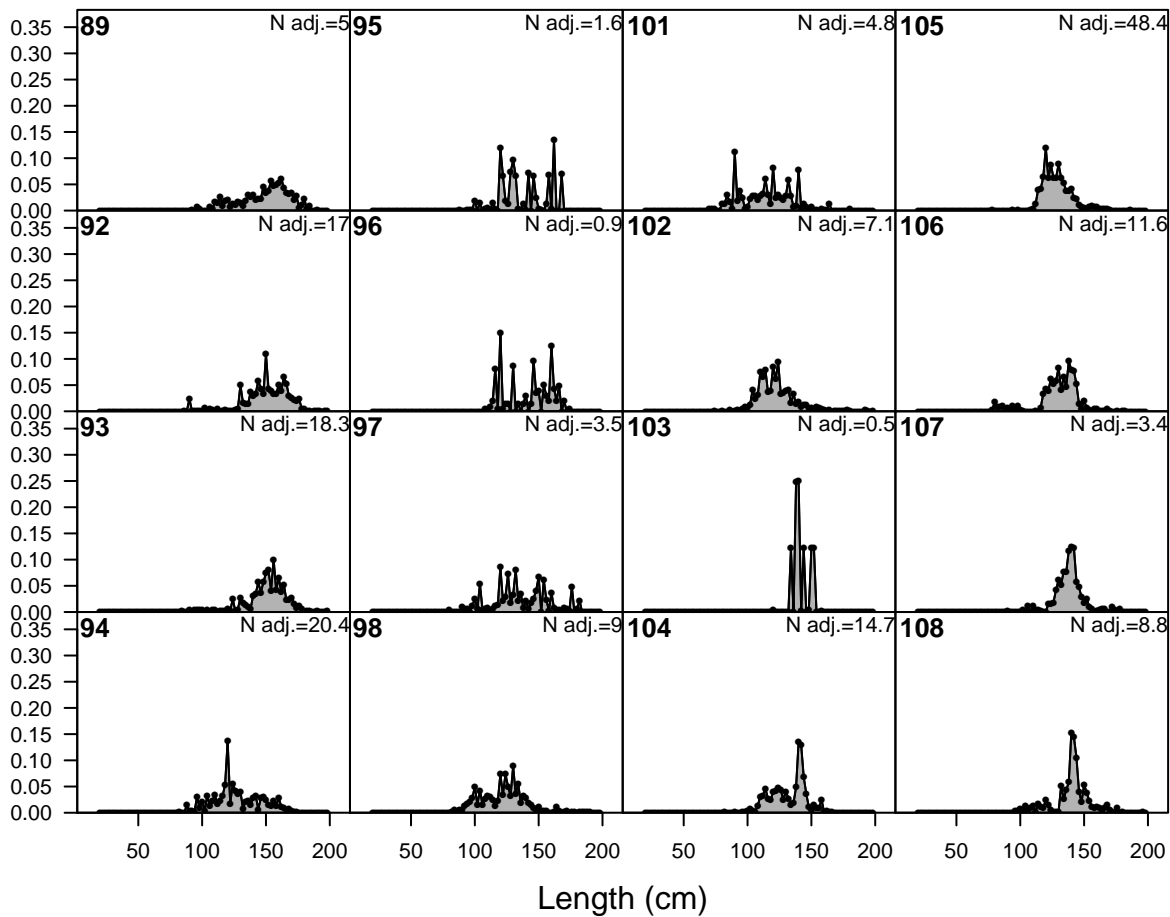
Proportion



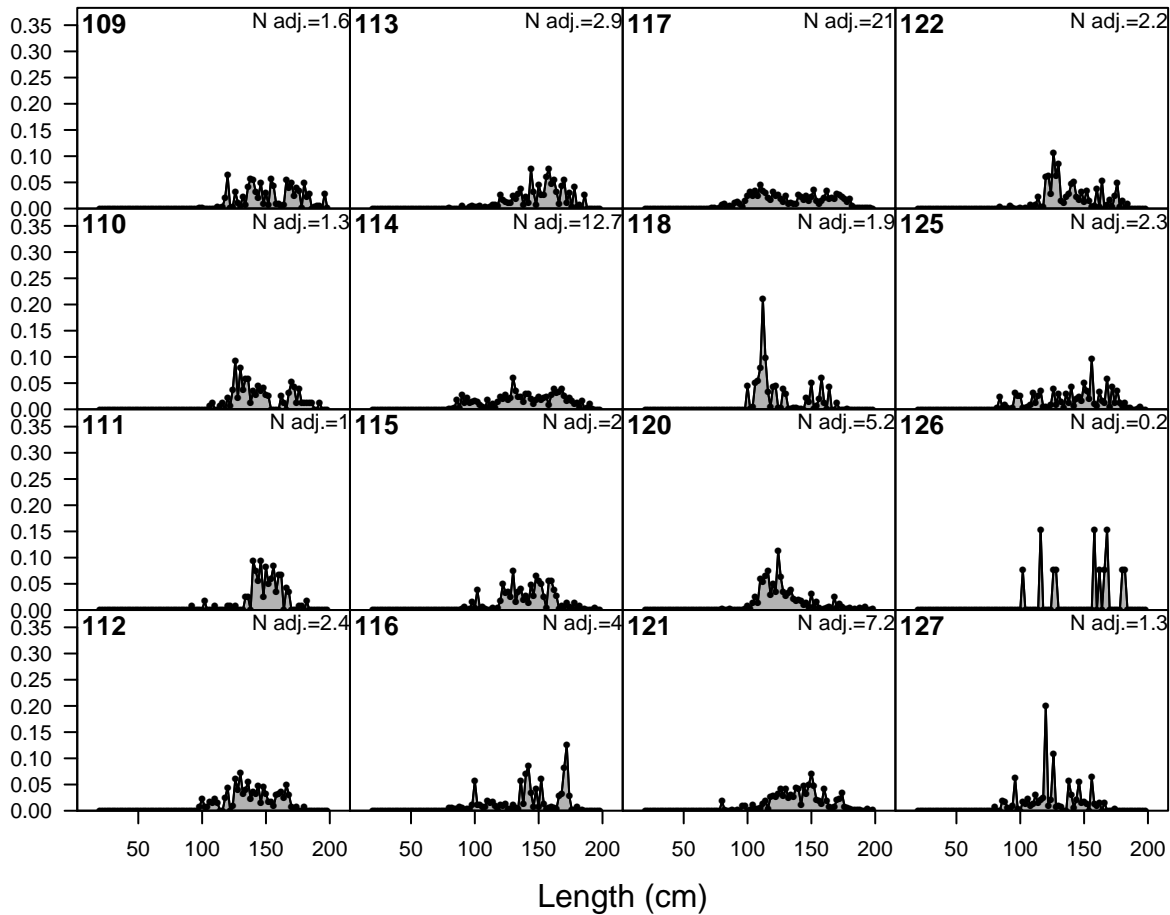
Proportion



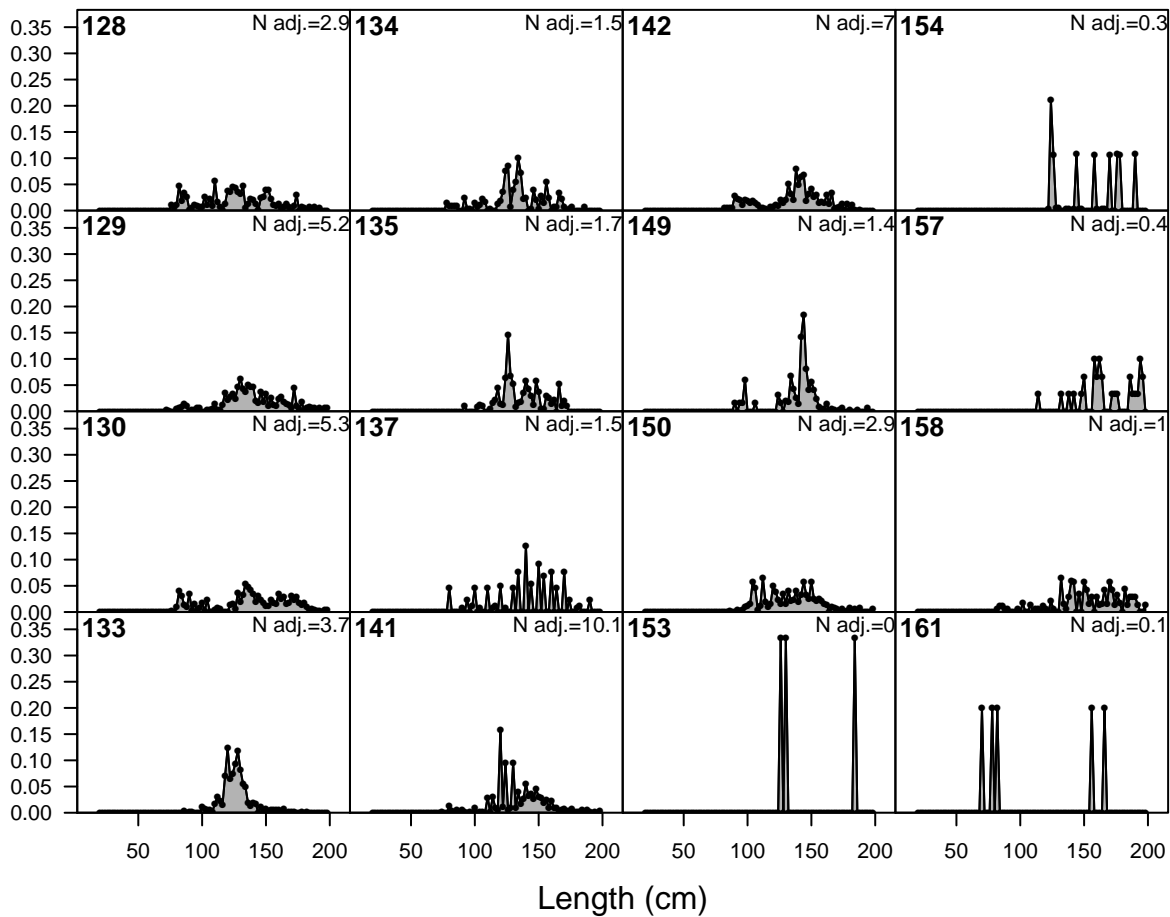
Proportion



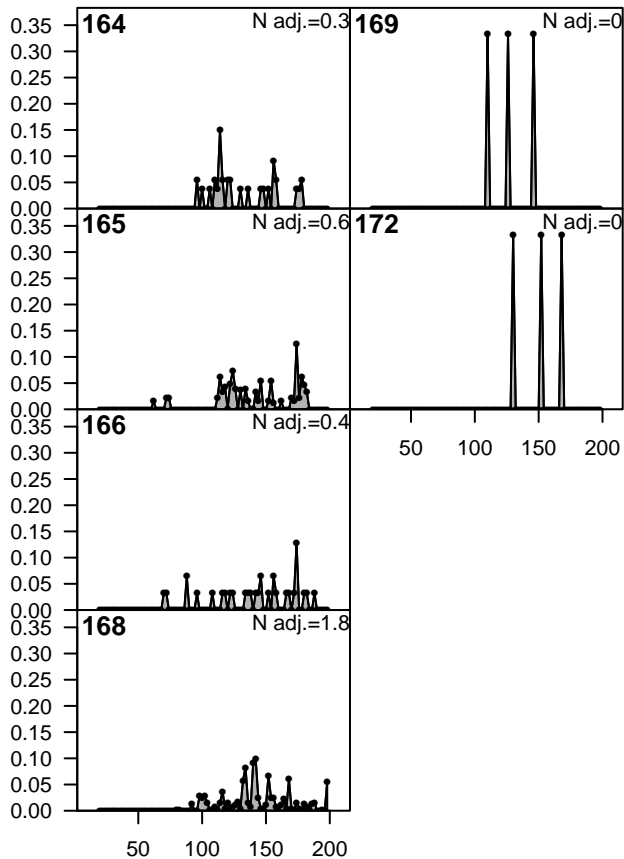
Proportion



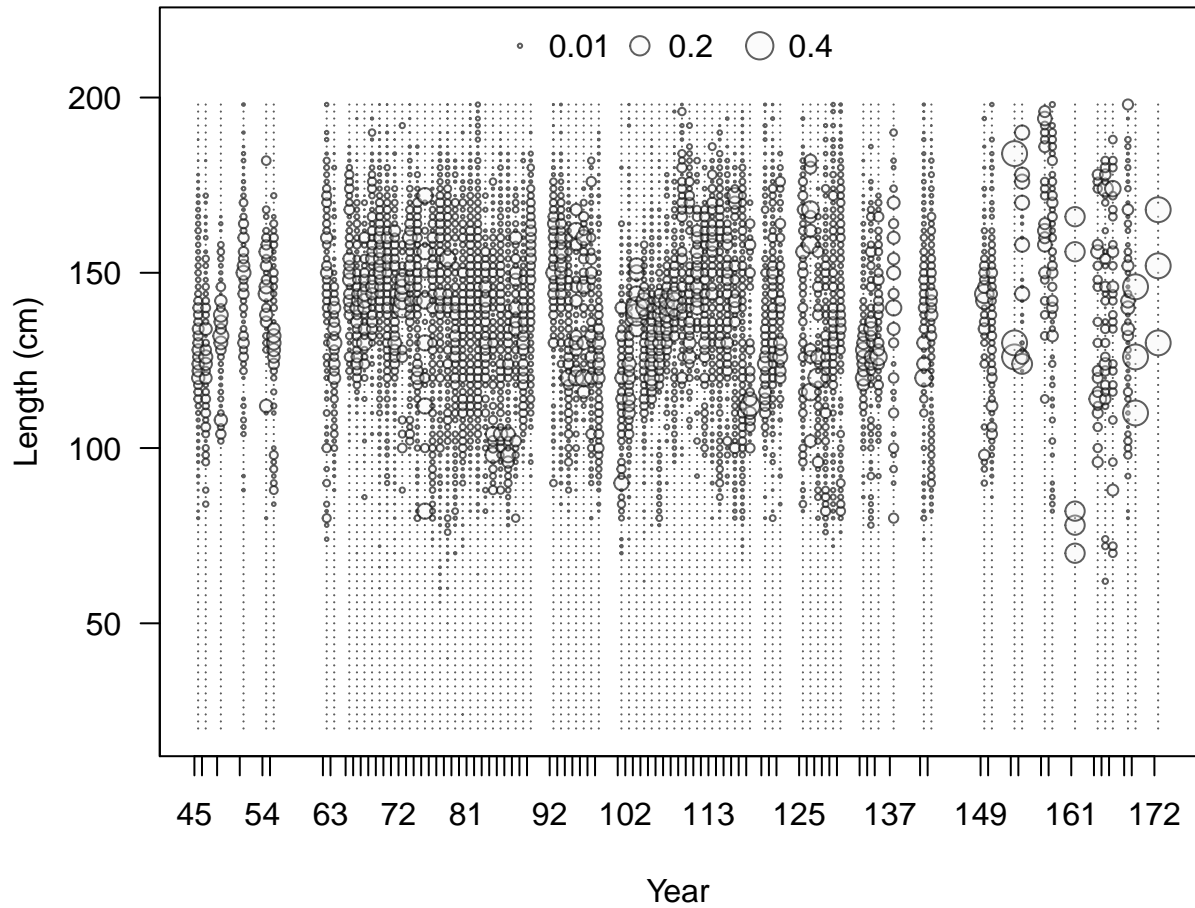
Proportion



Proportion

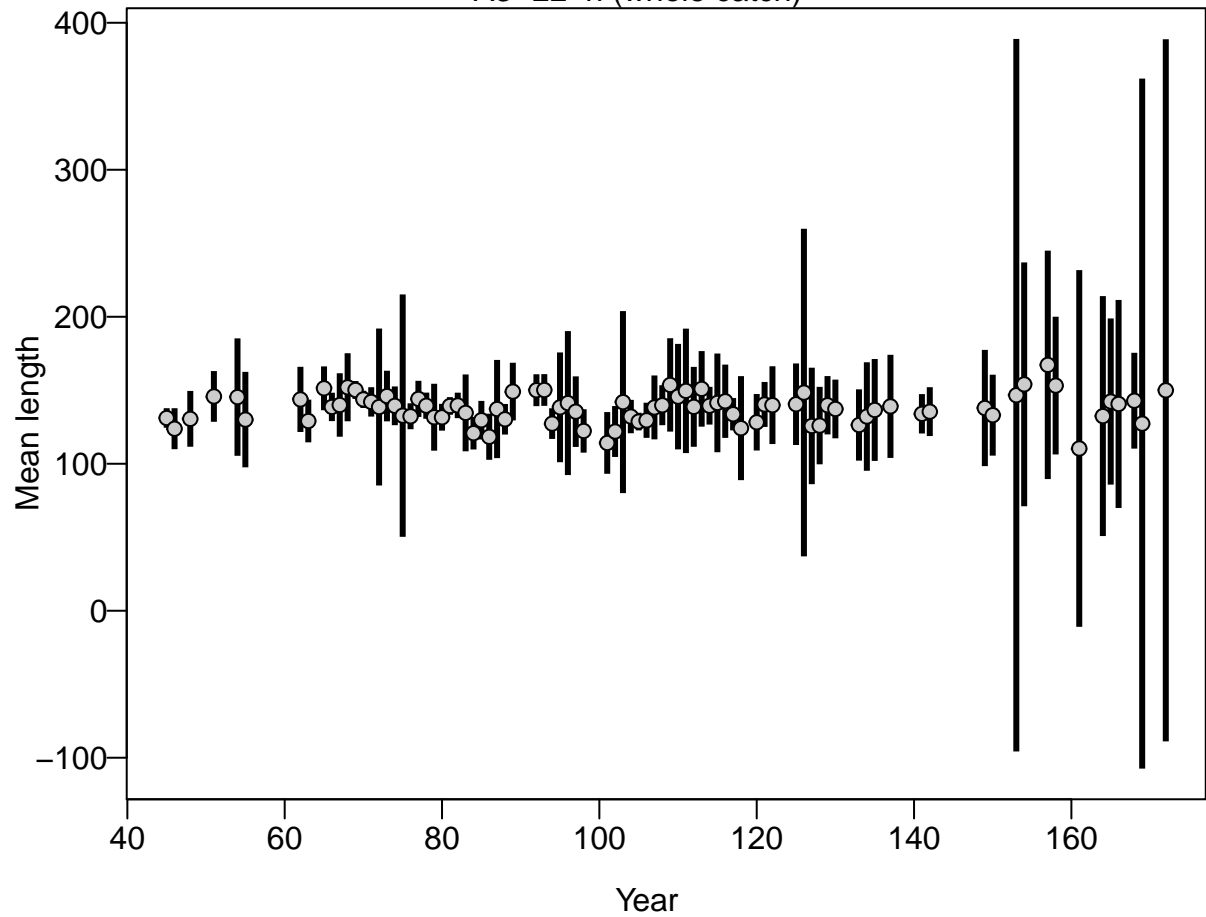


Length (cm)

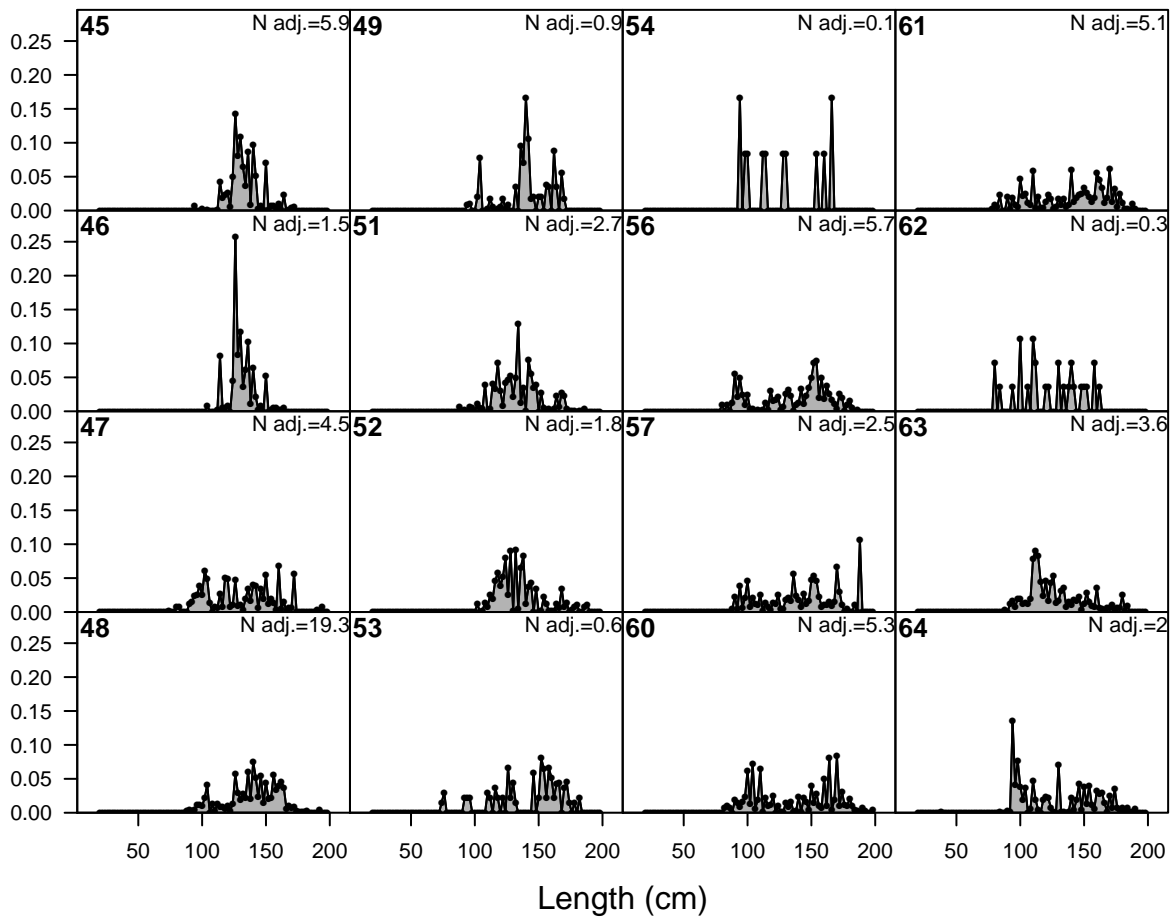




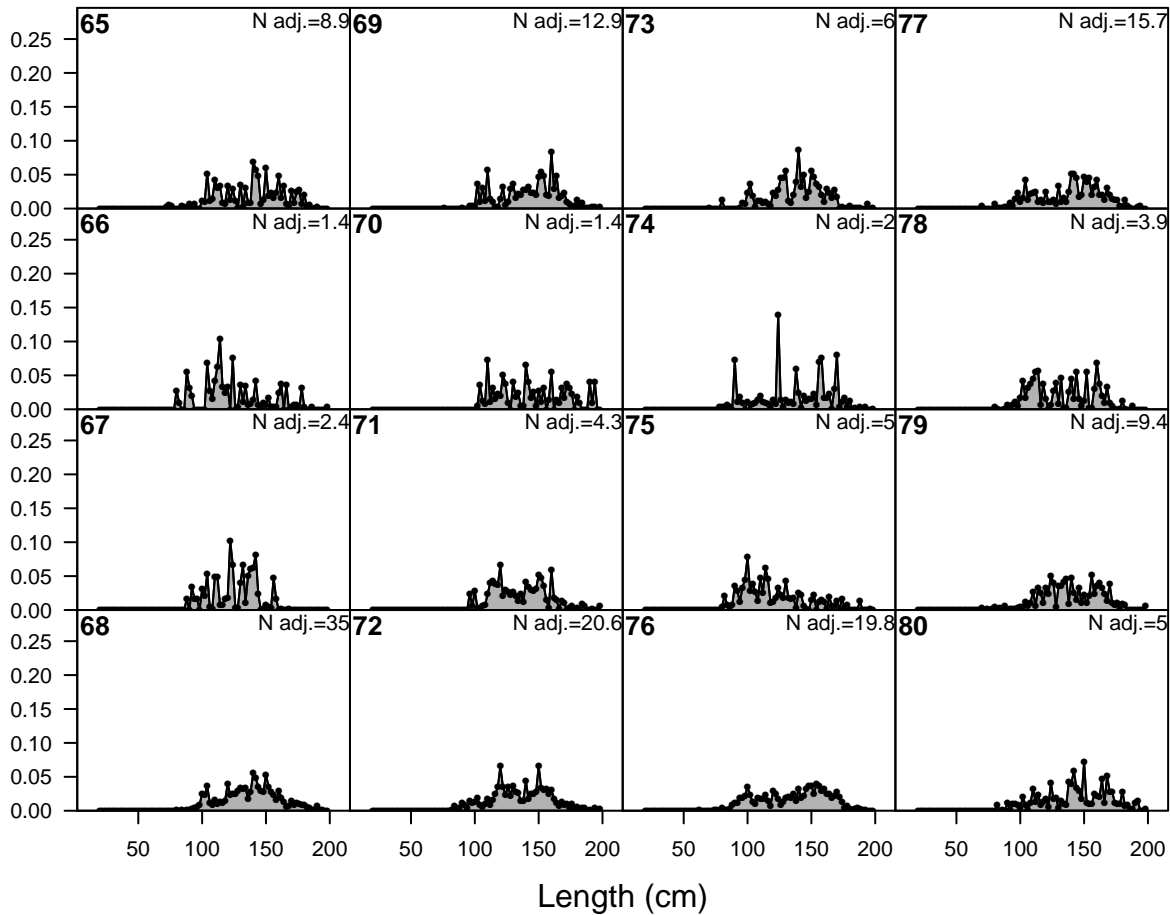
A3-LL-n (whole catch)



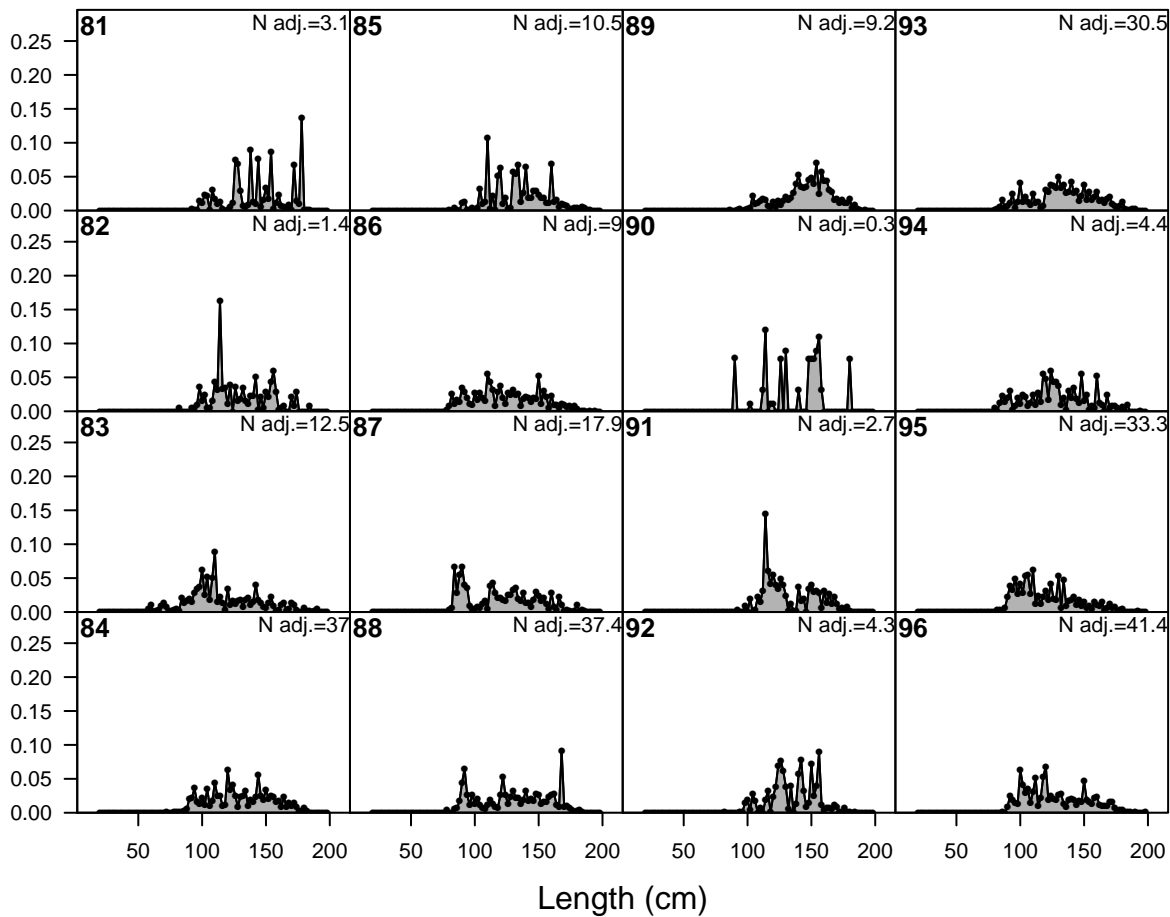
Proportion



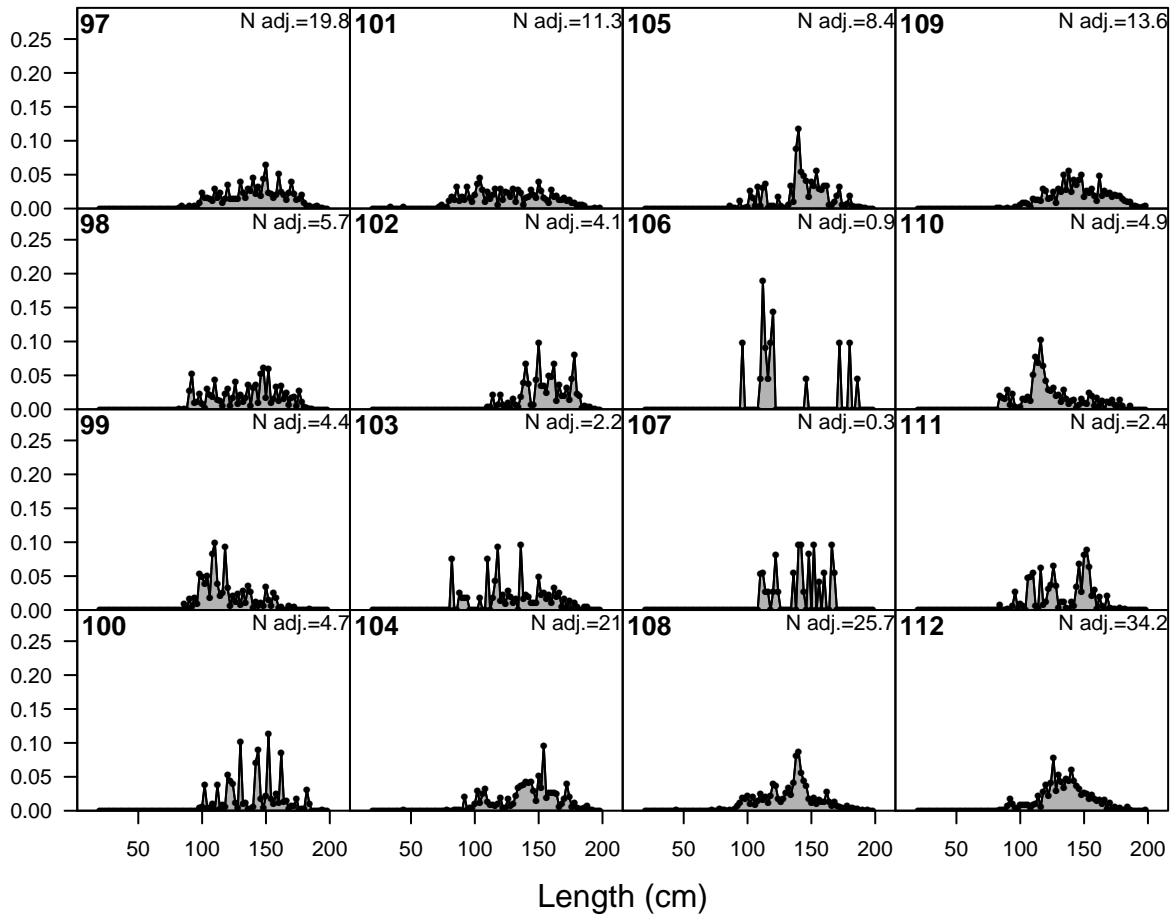
Proportion



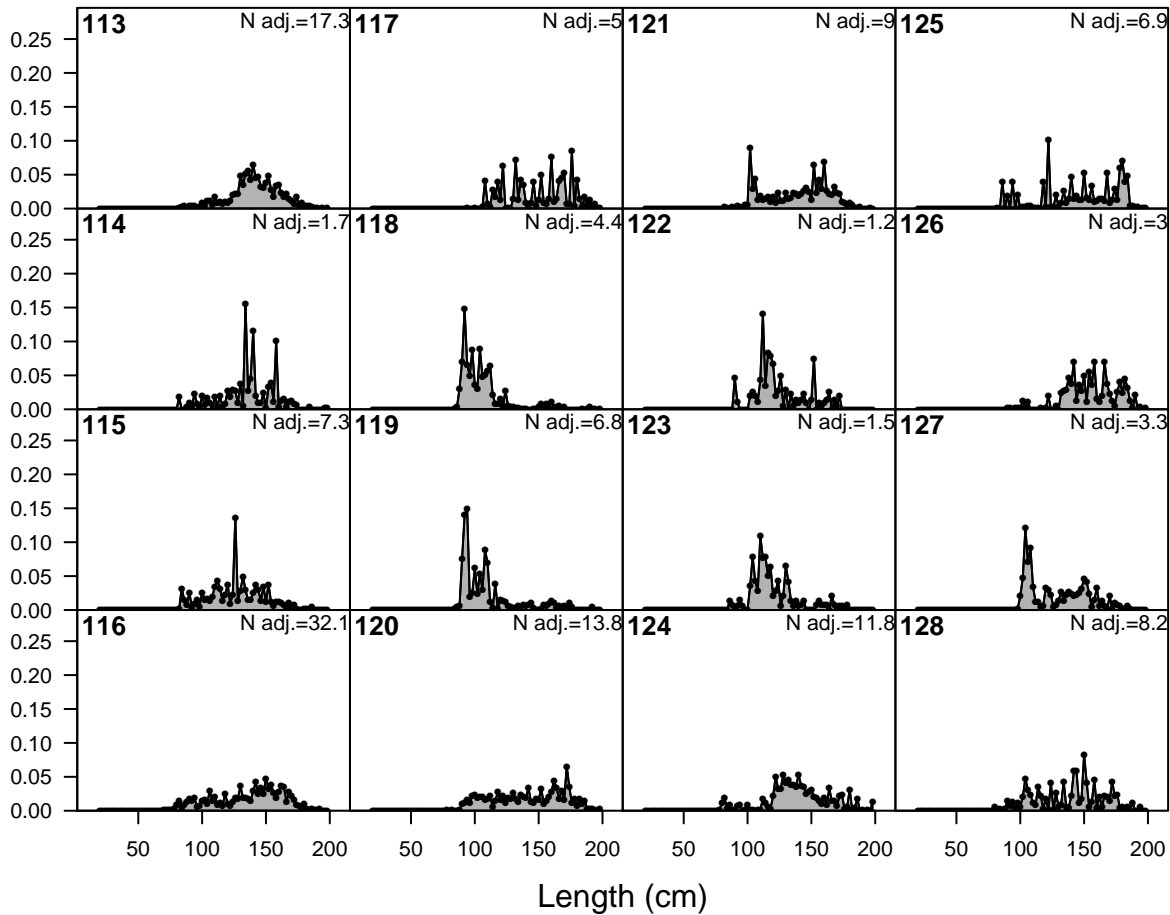
Proportion



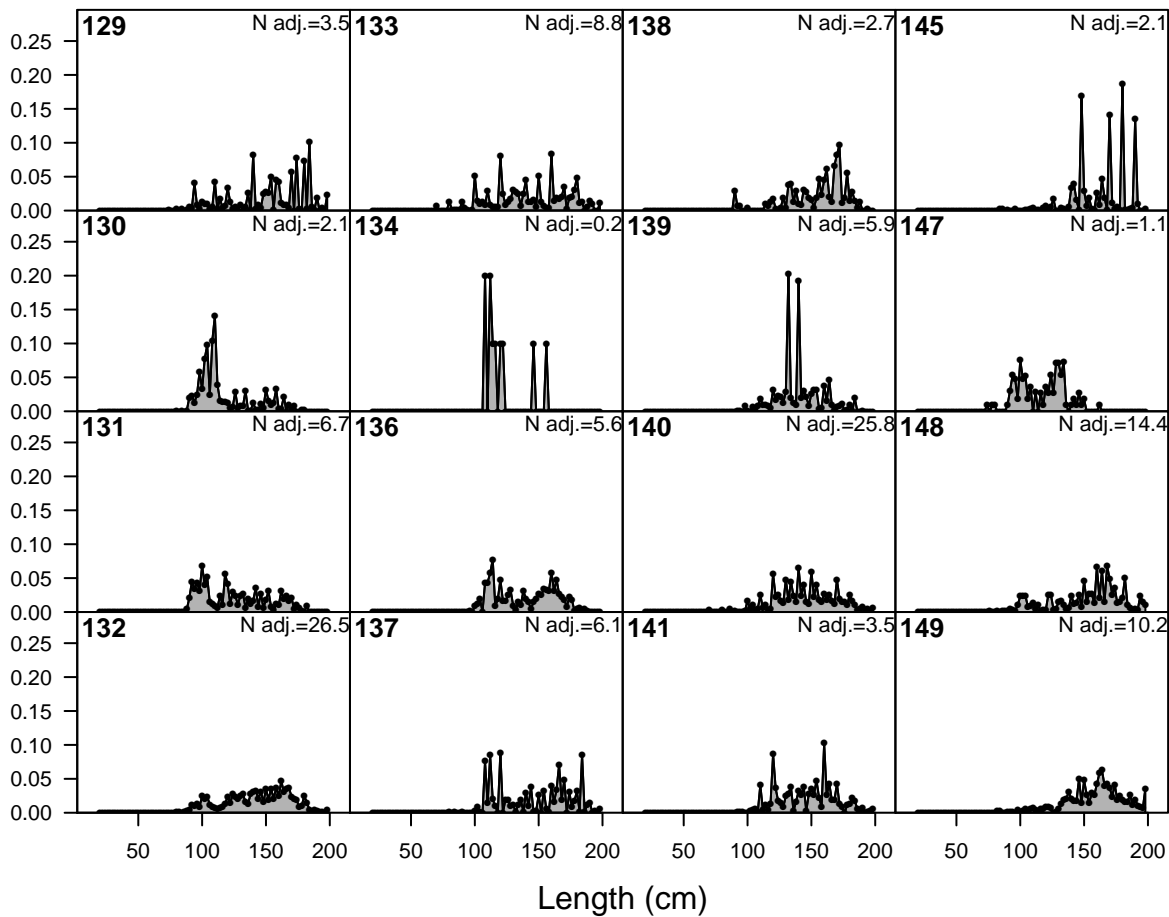
Proportion



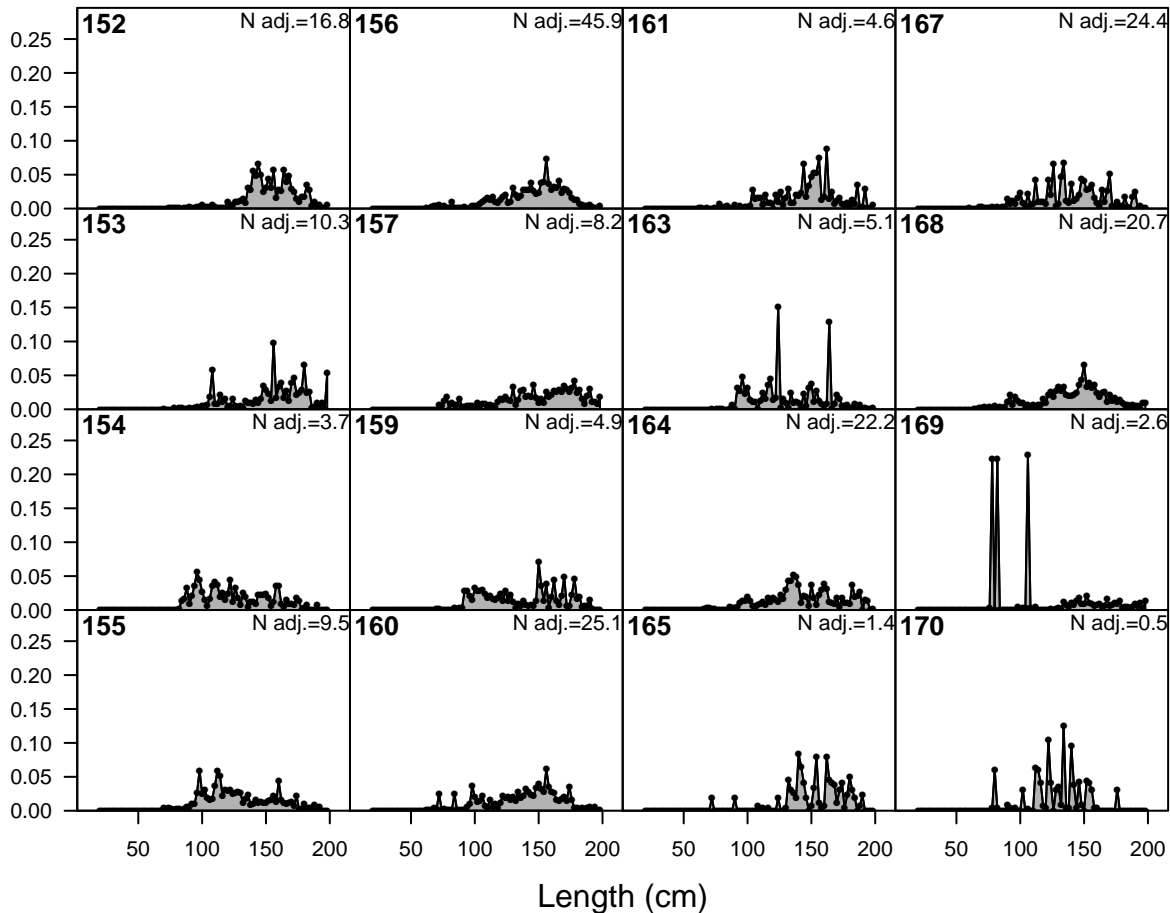
Proportion



Proportion

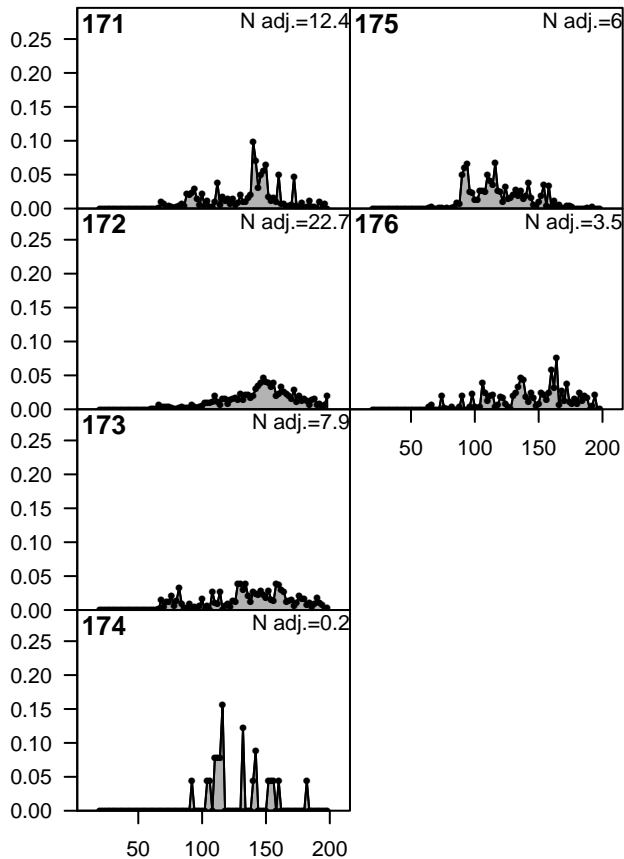


Proportion

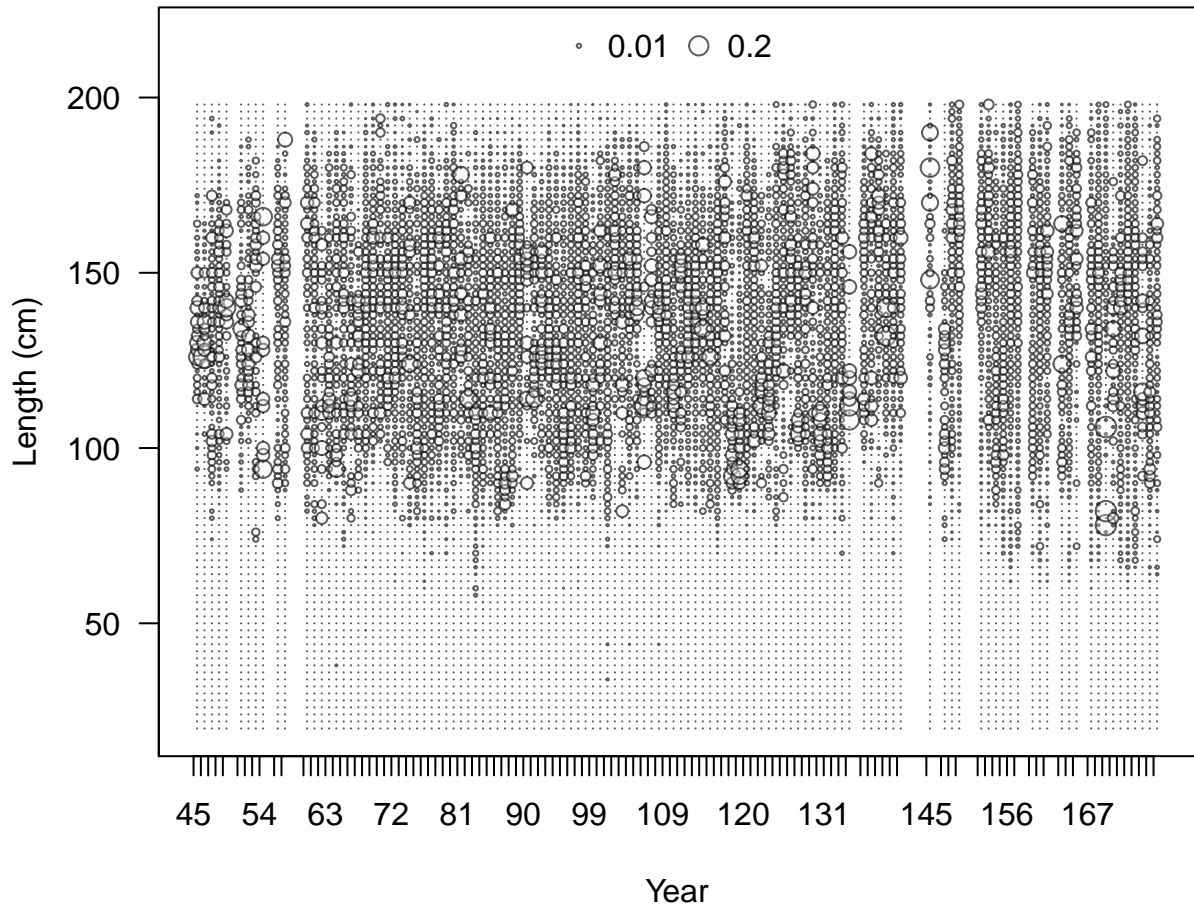




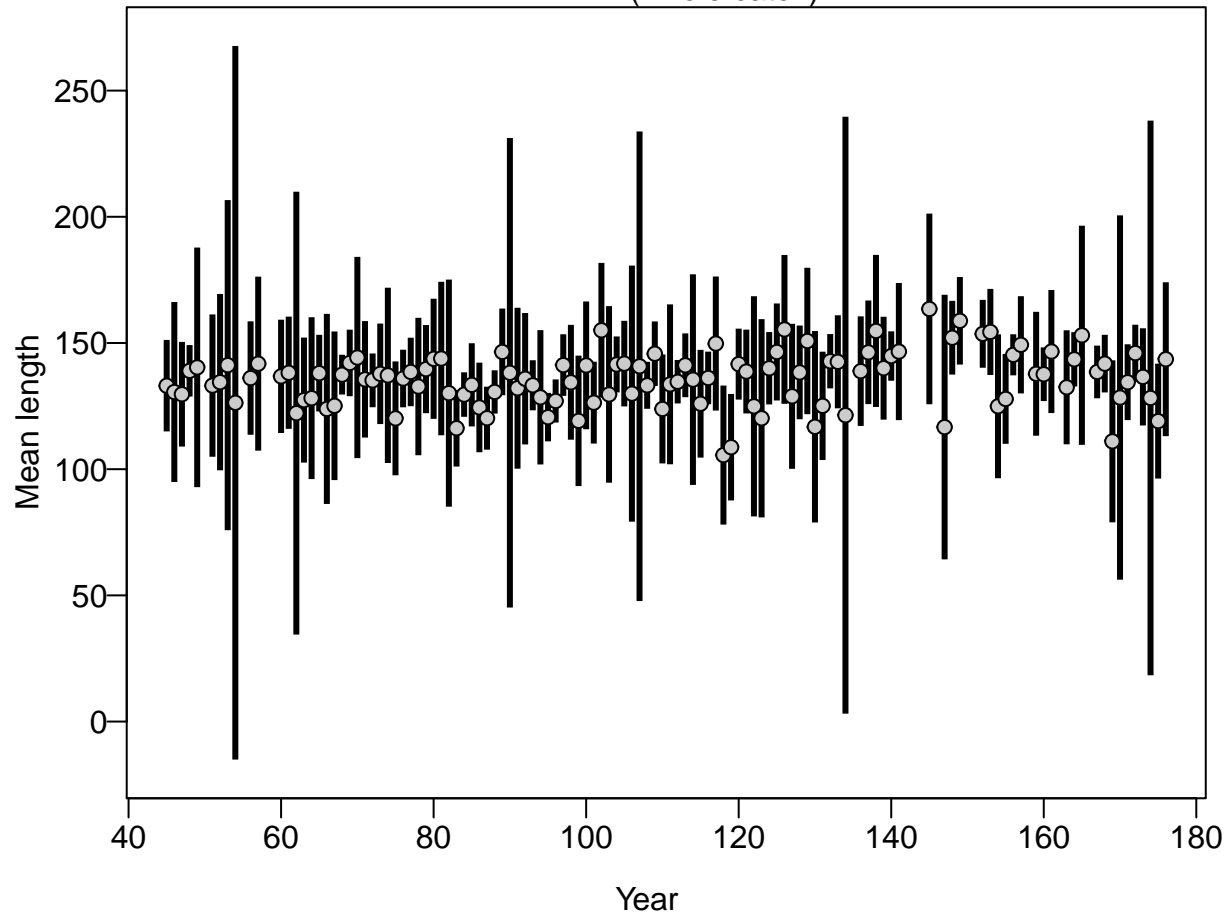
Proportion



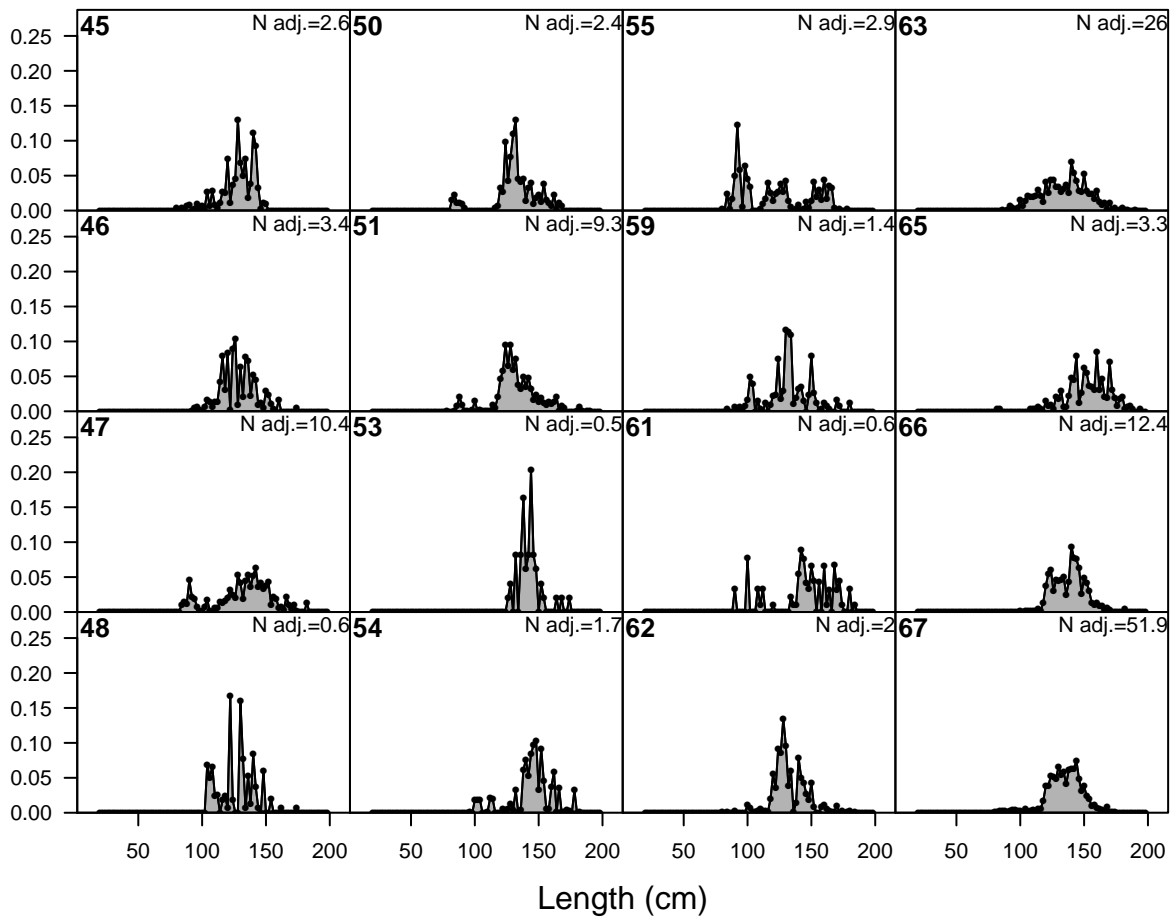
Length (cm)



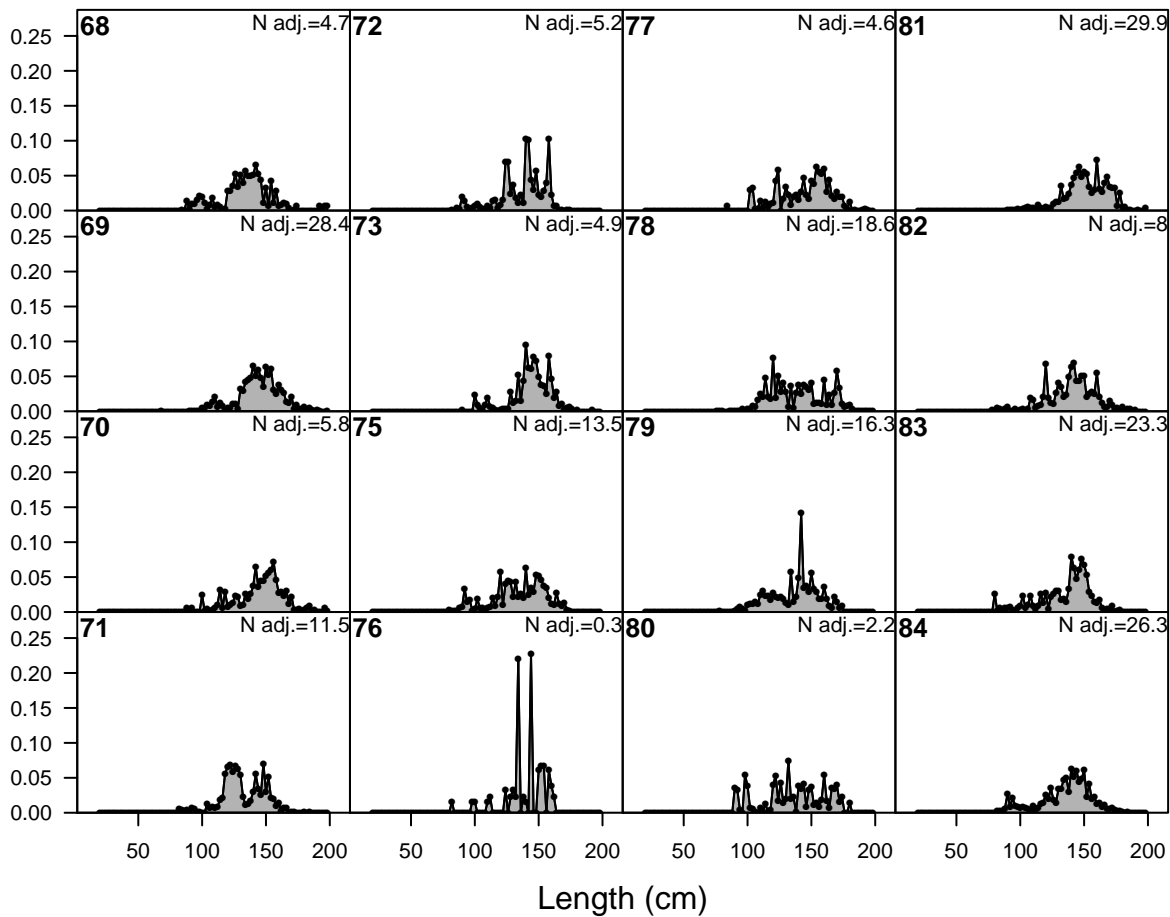
A4-LL-n (whole catch)



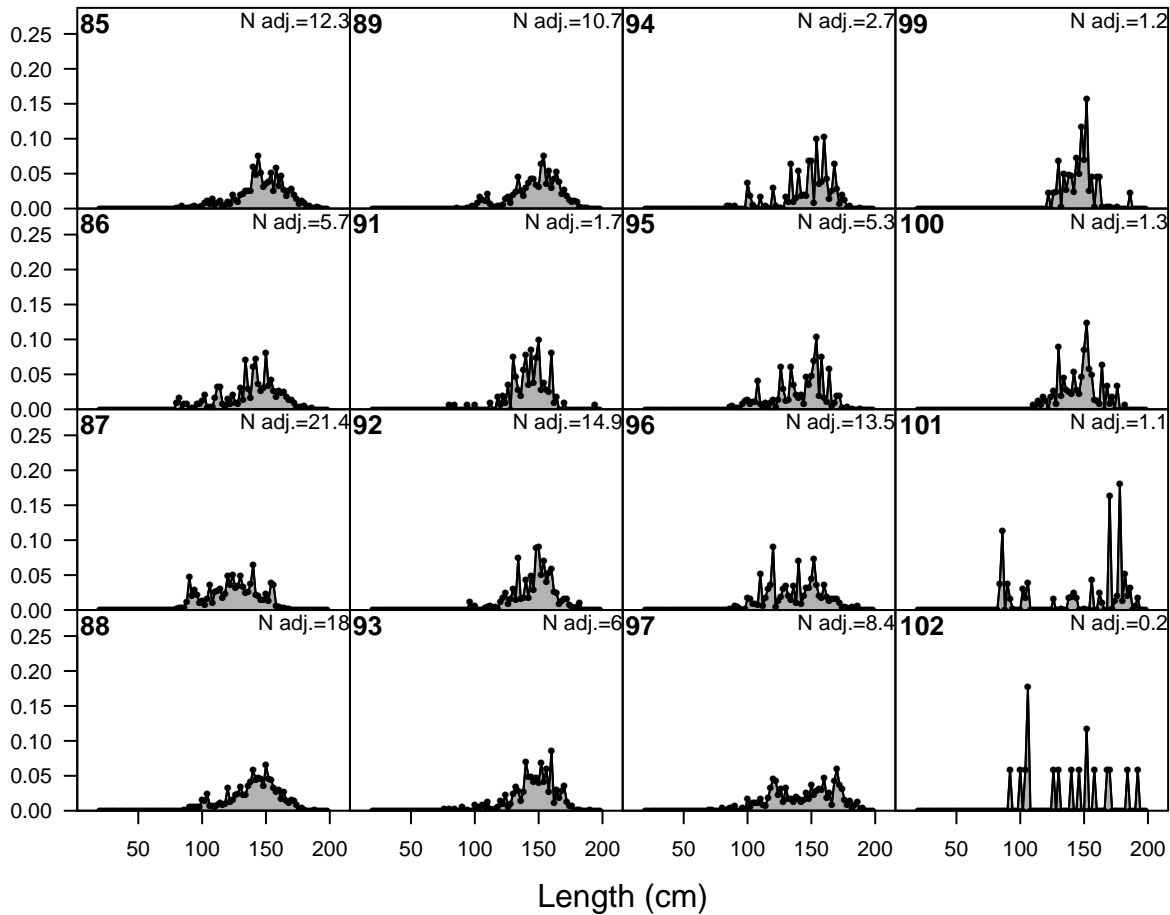
Proportion



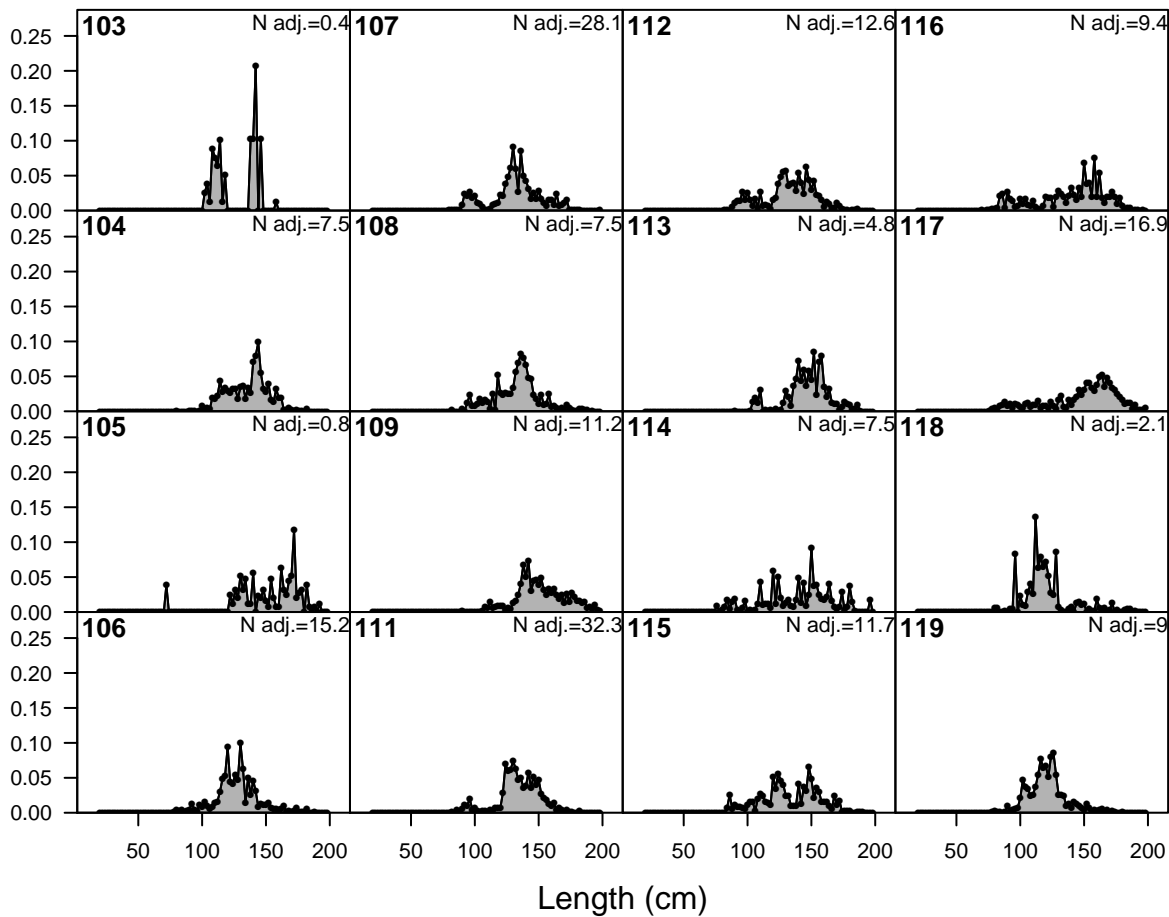
Proportion



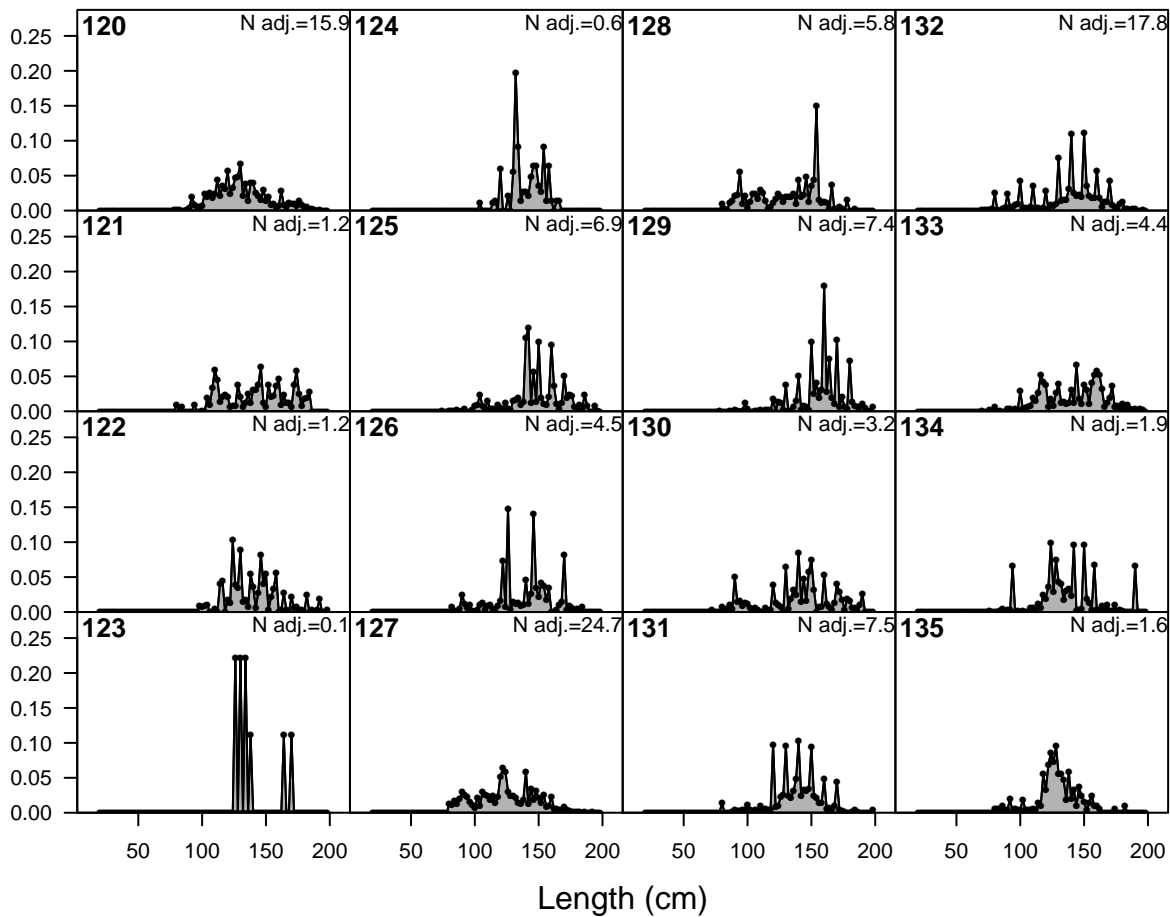
Proportion



Proportion

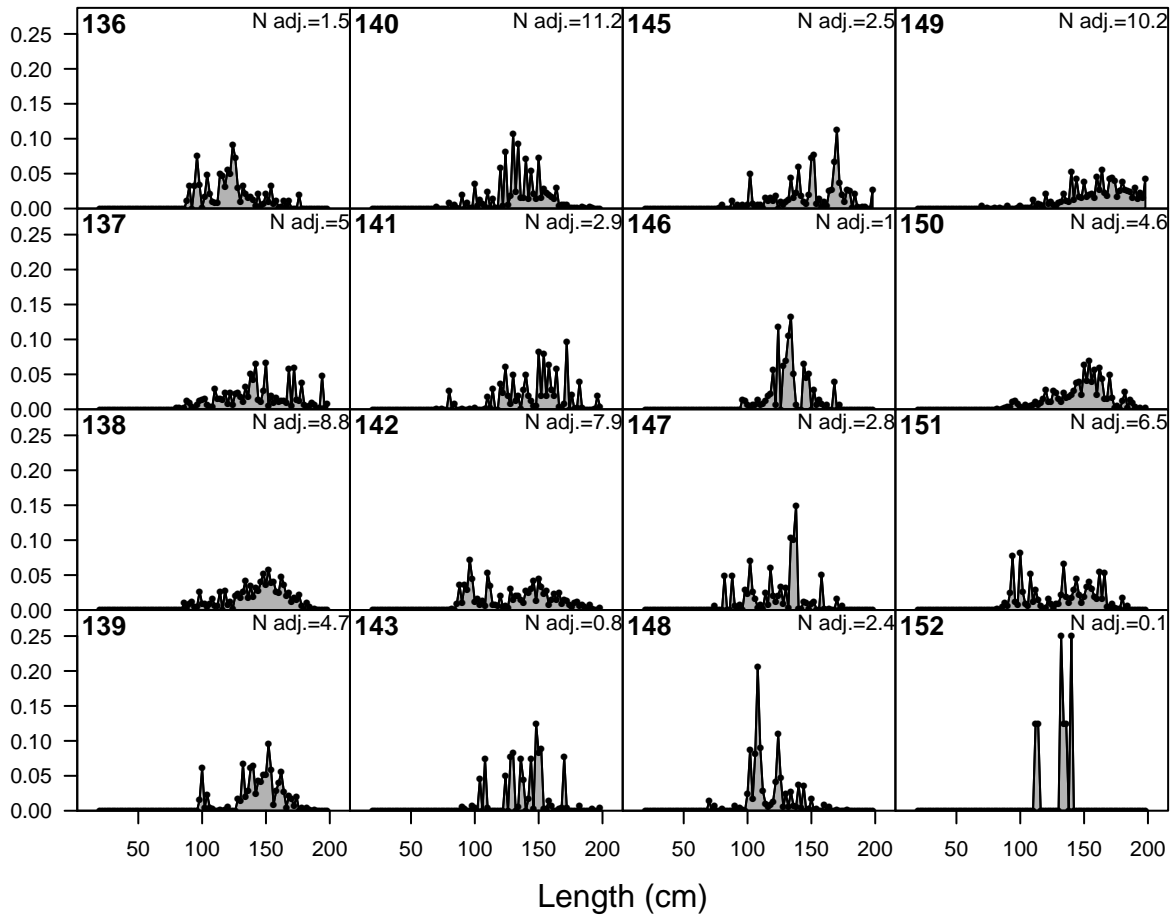


Proportion

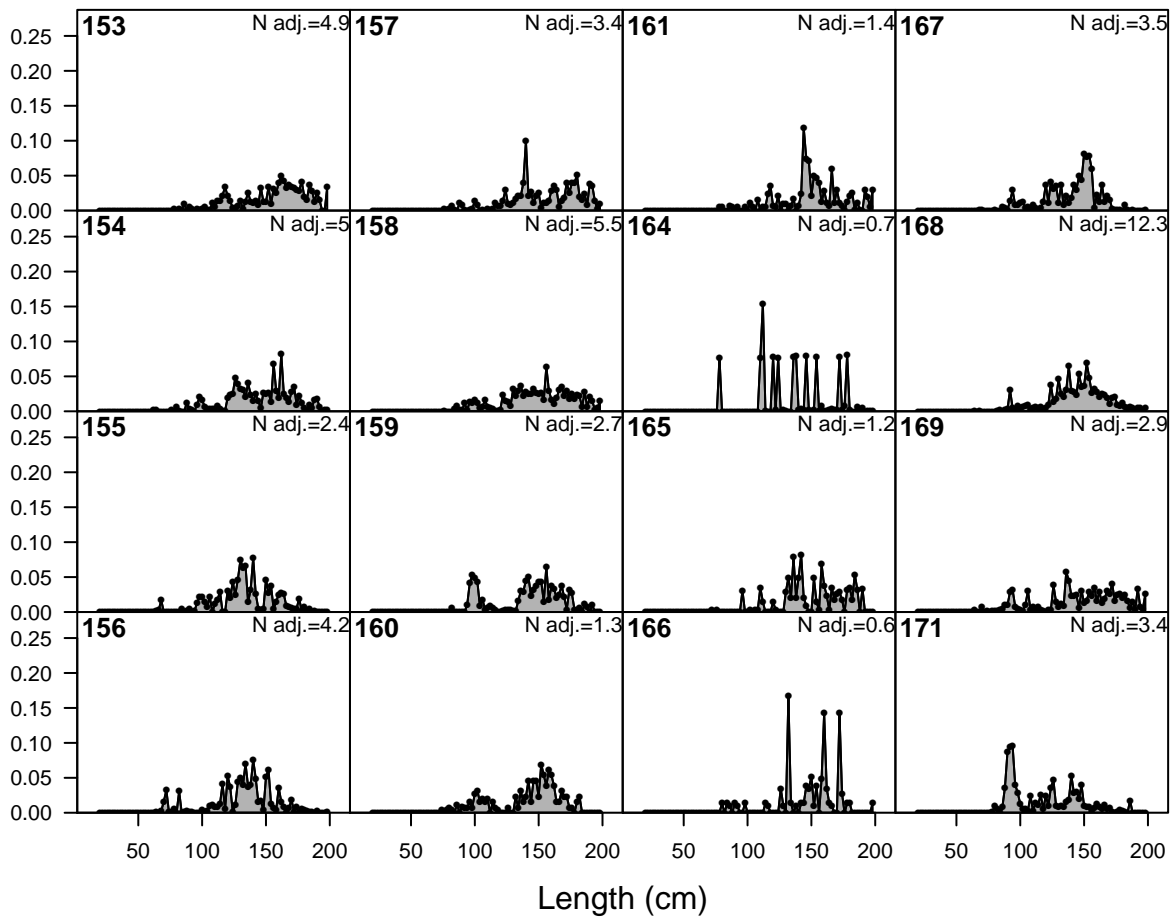


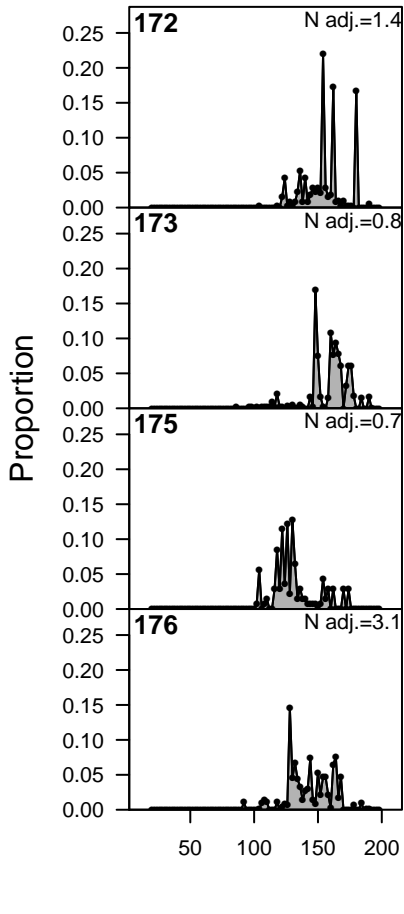


Proportion

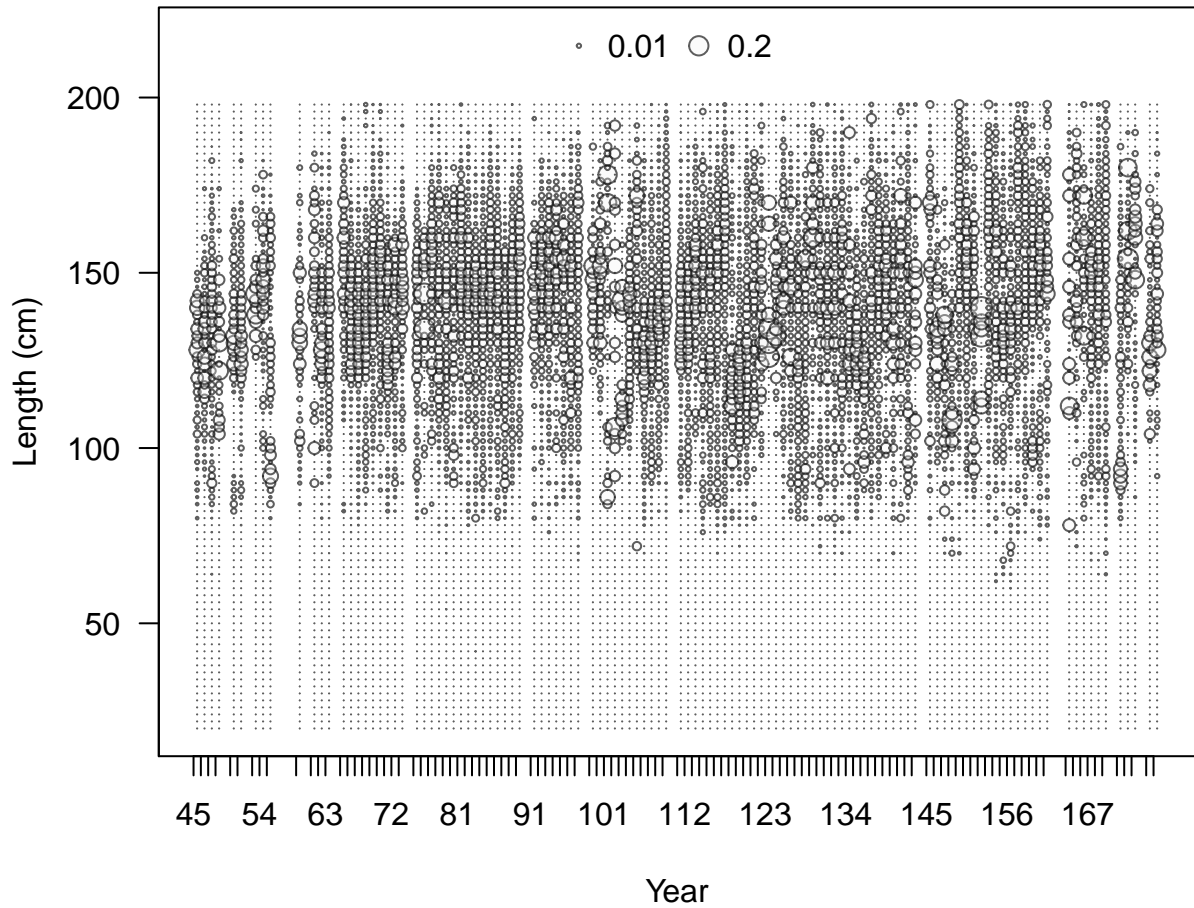


Proportion

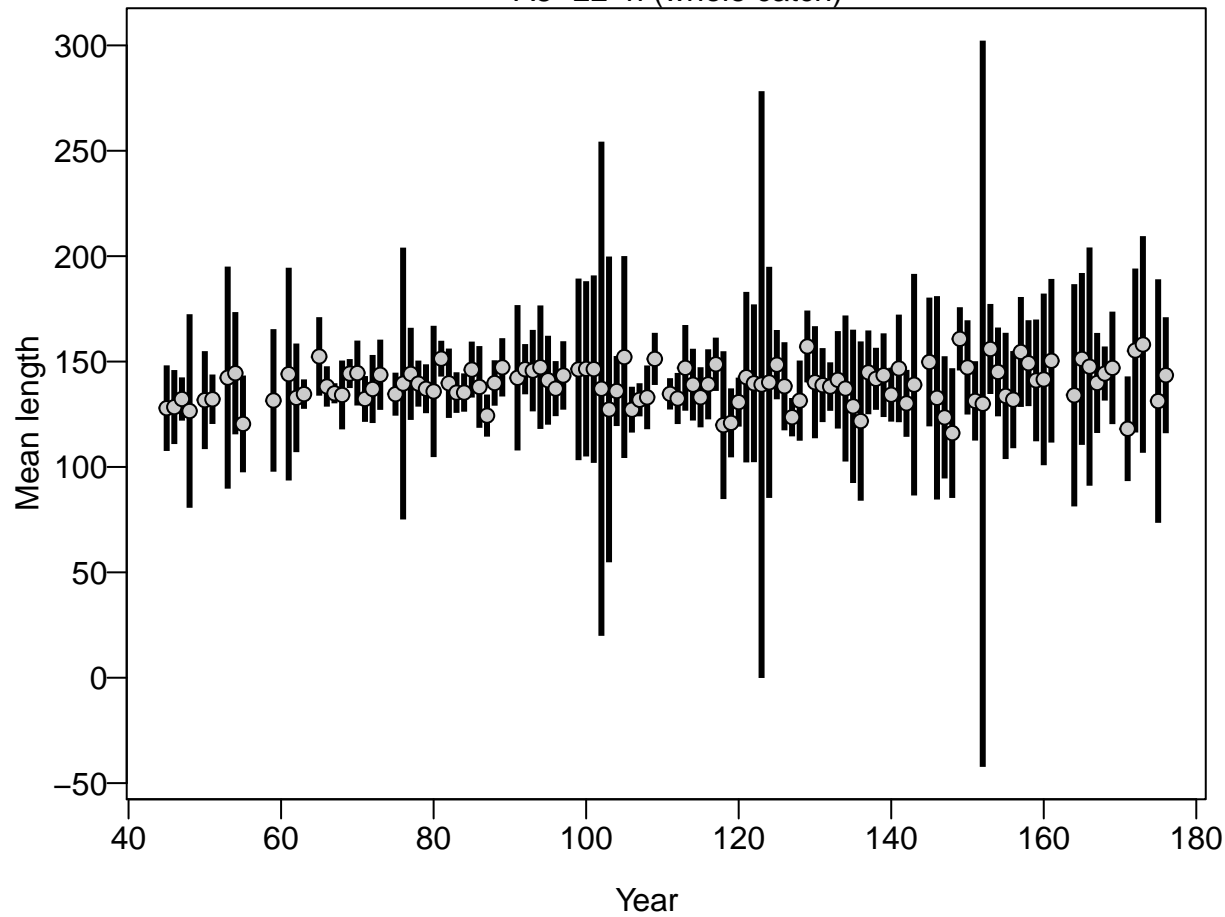


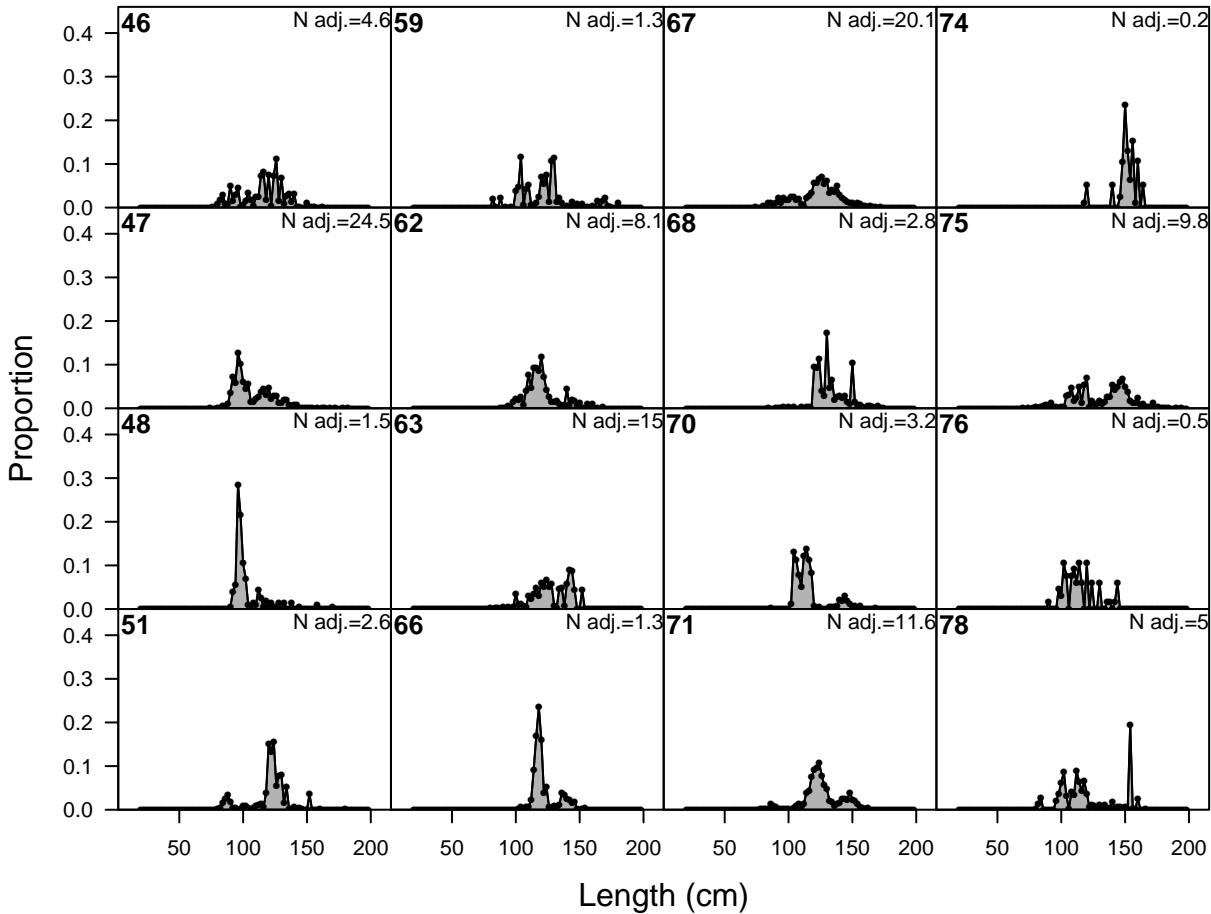


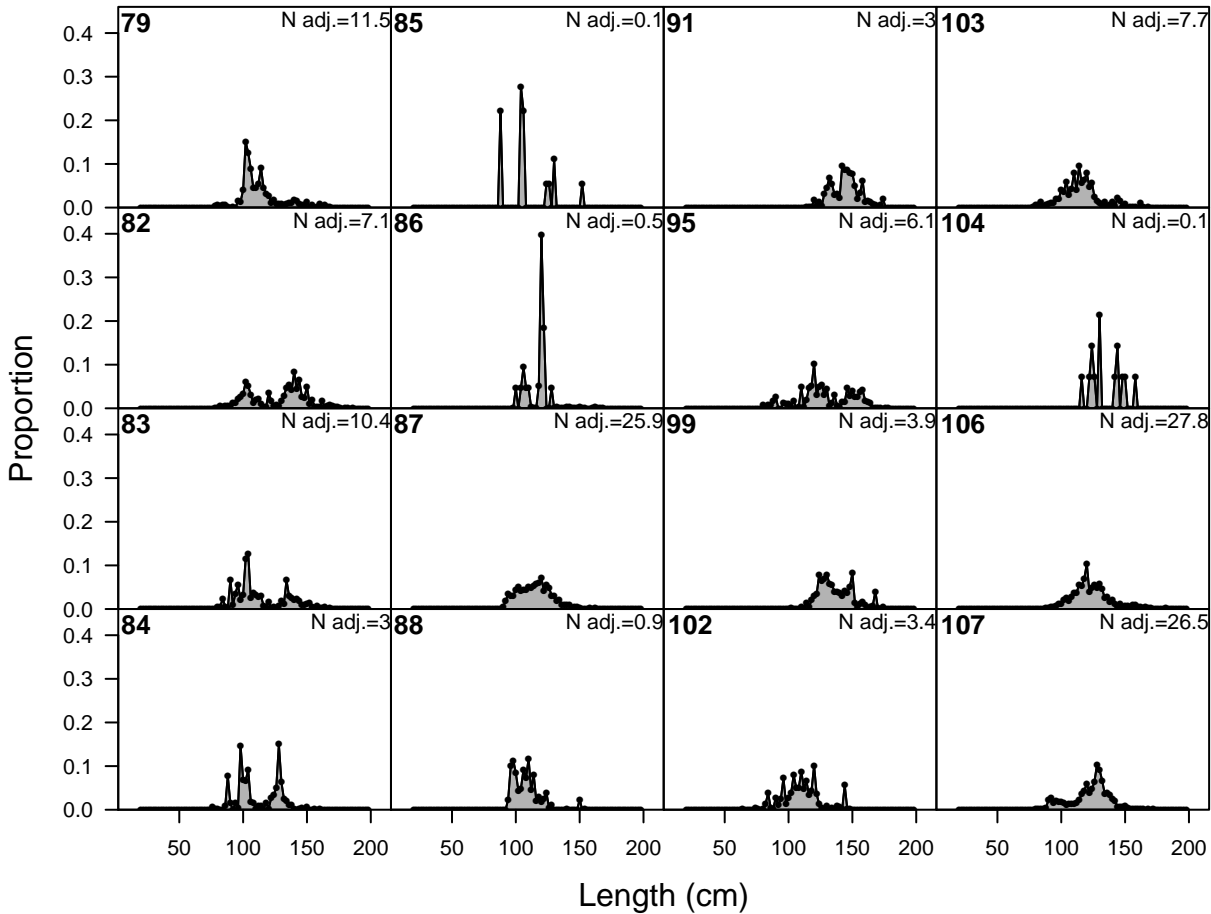
Length (cm)

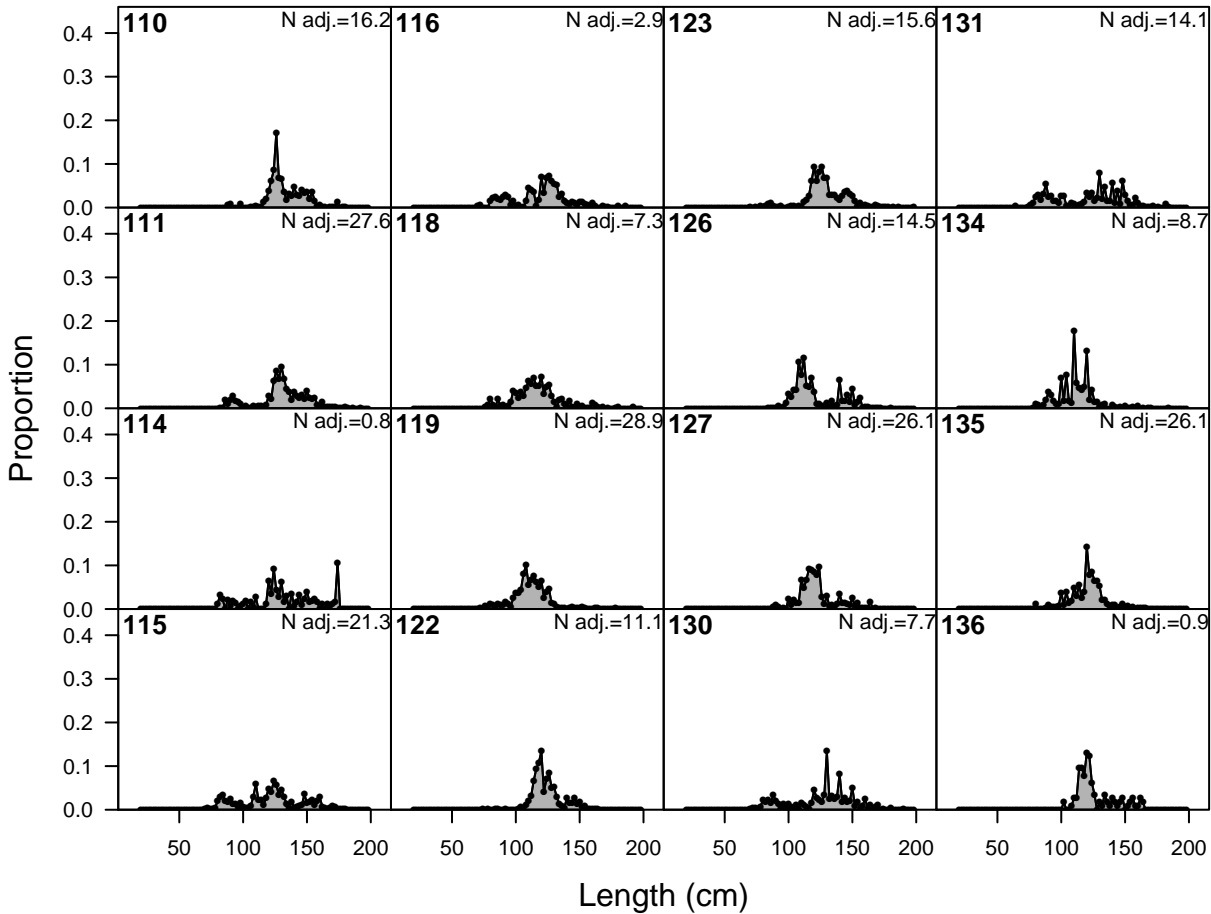


A5-LL-n (whole catch)

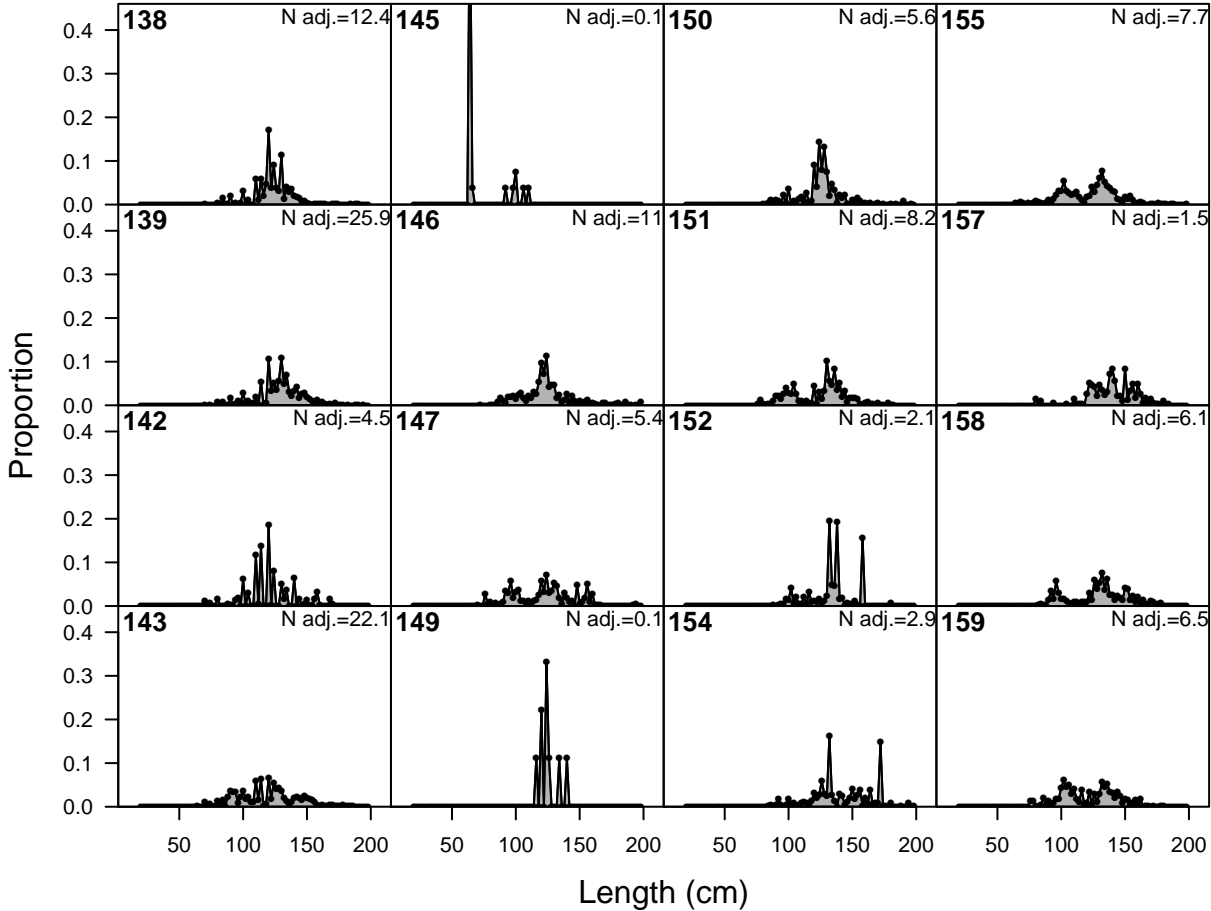


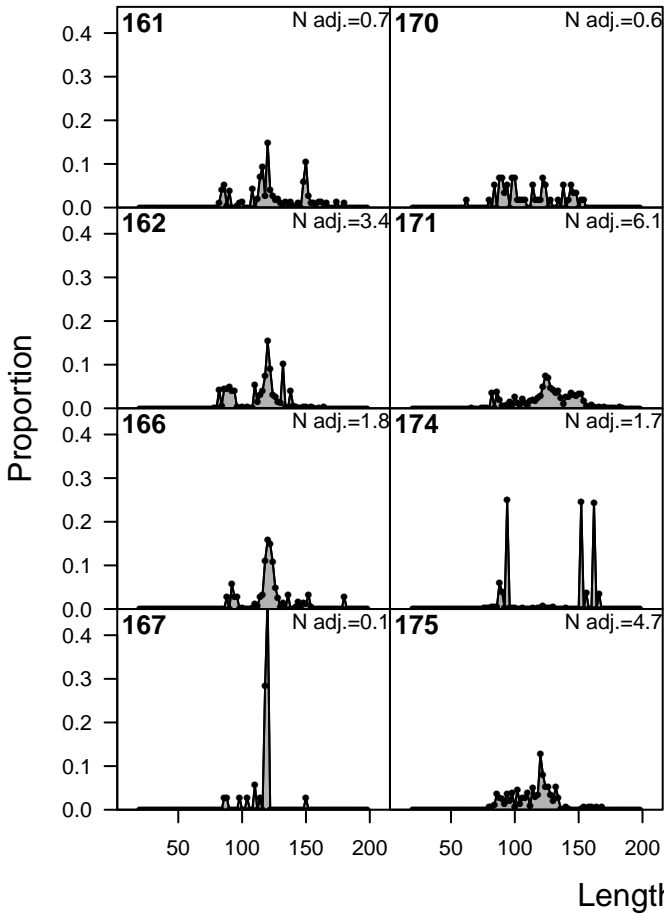


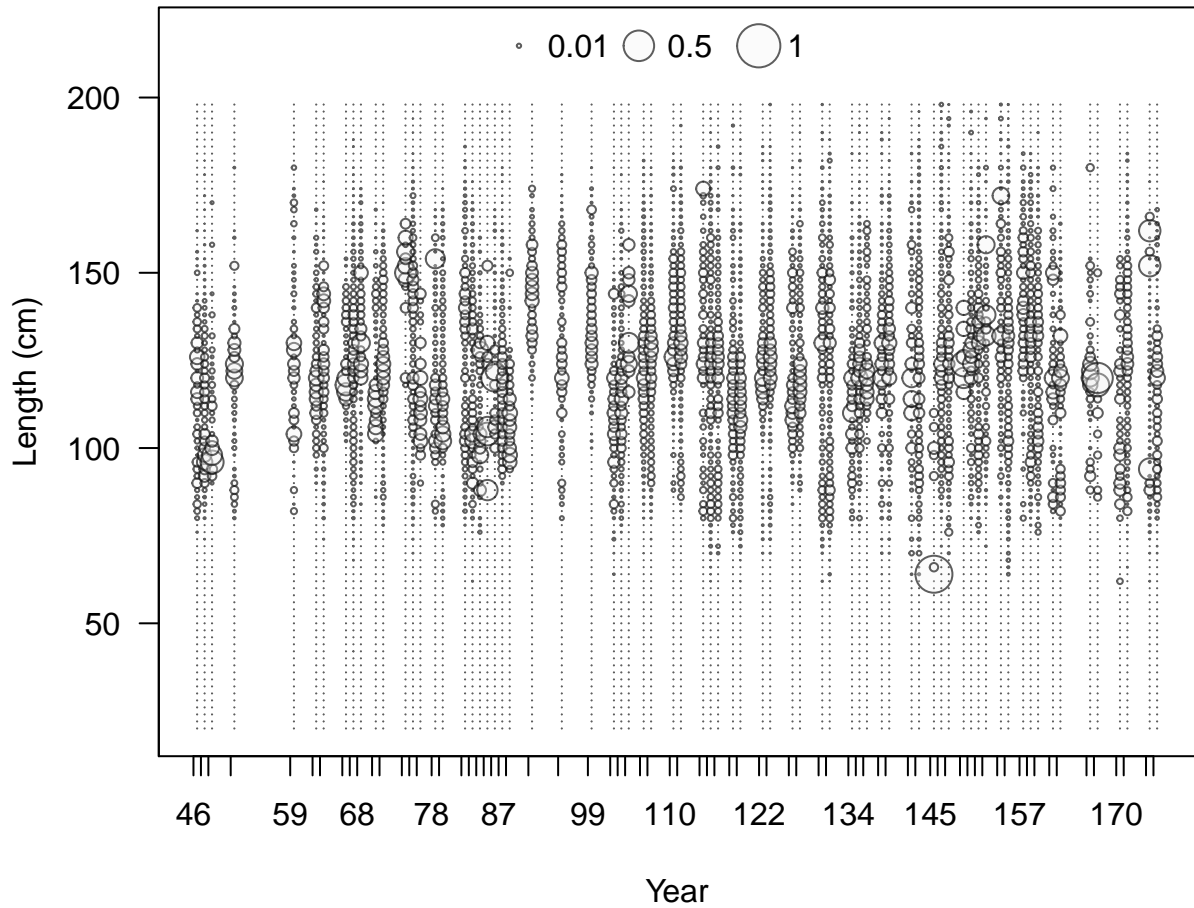




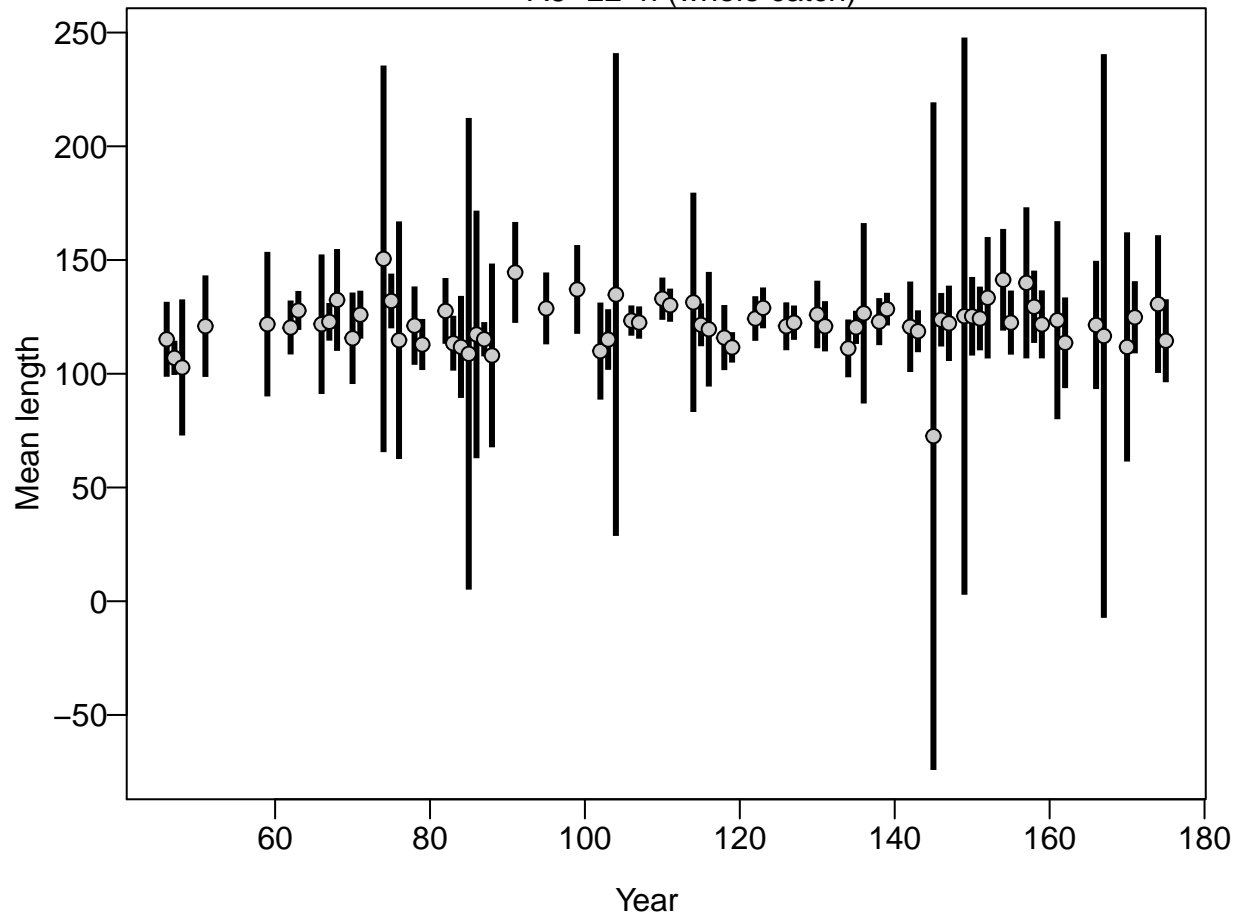


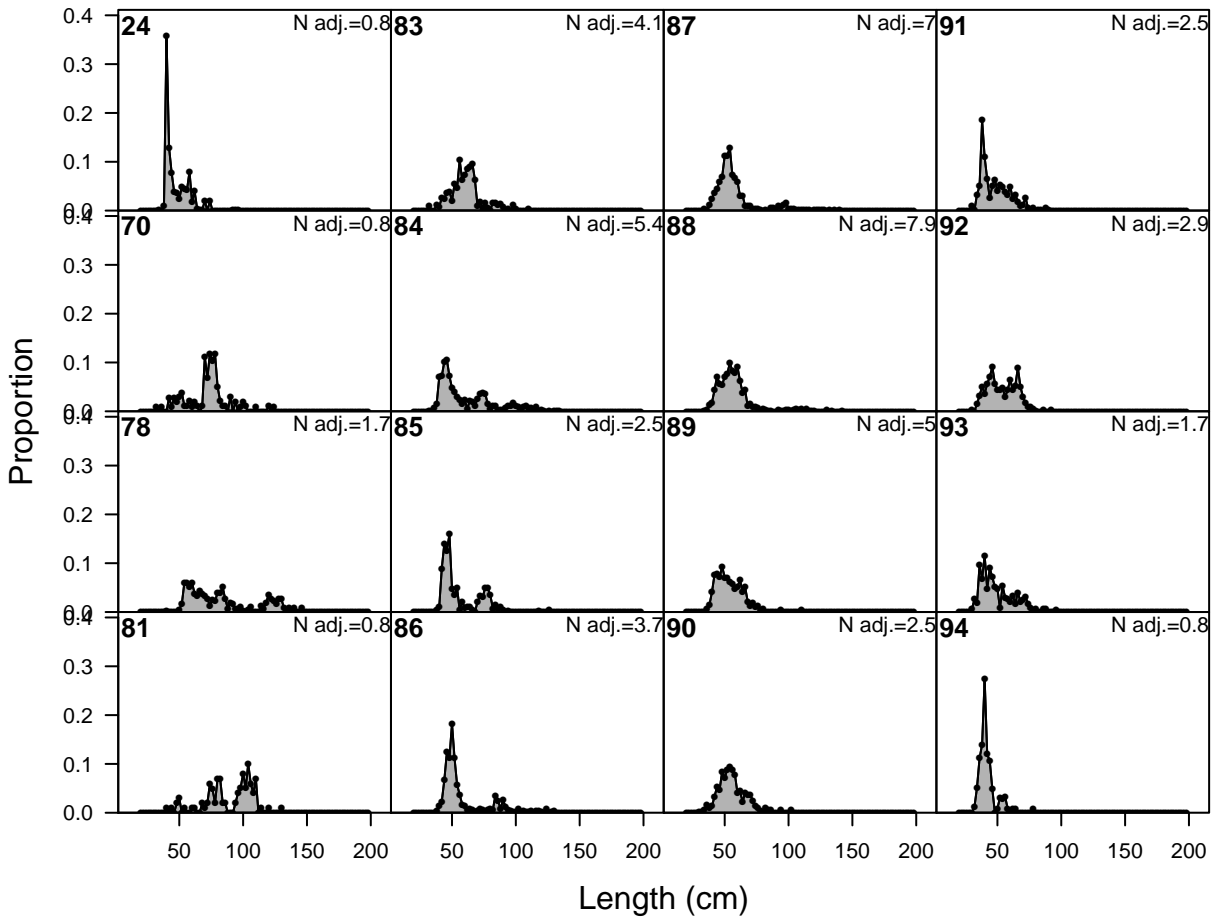


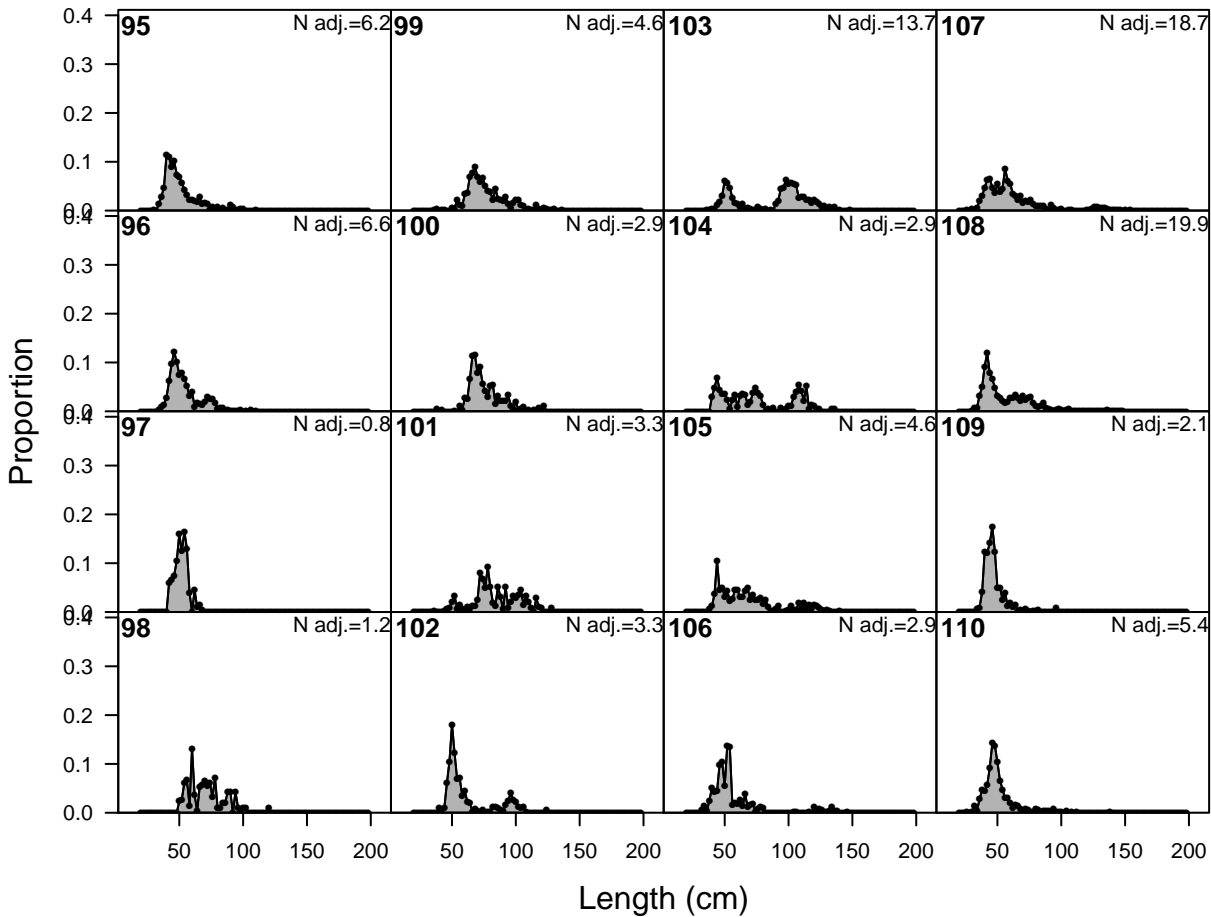


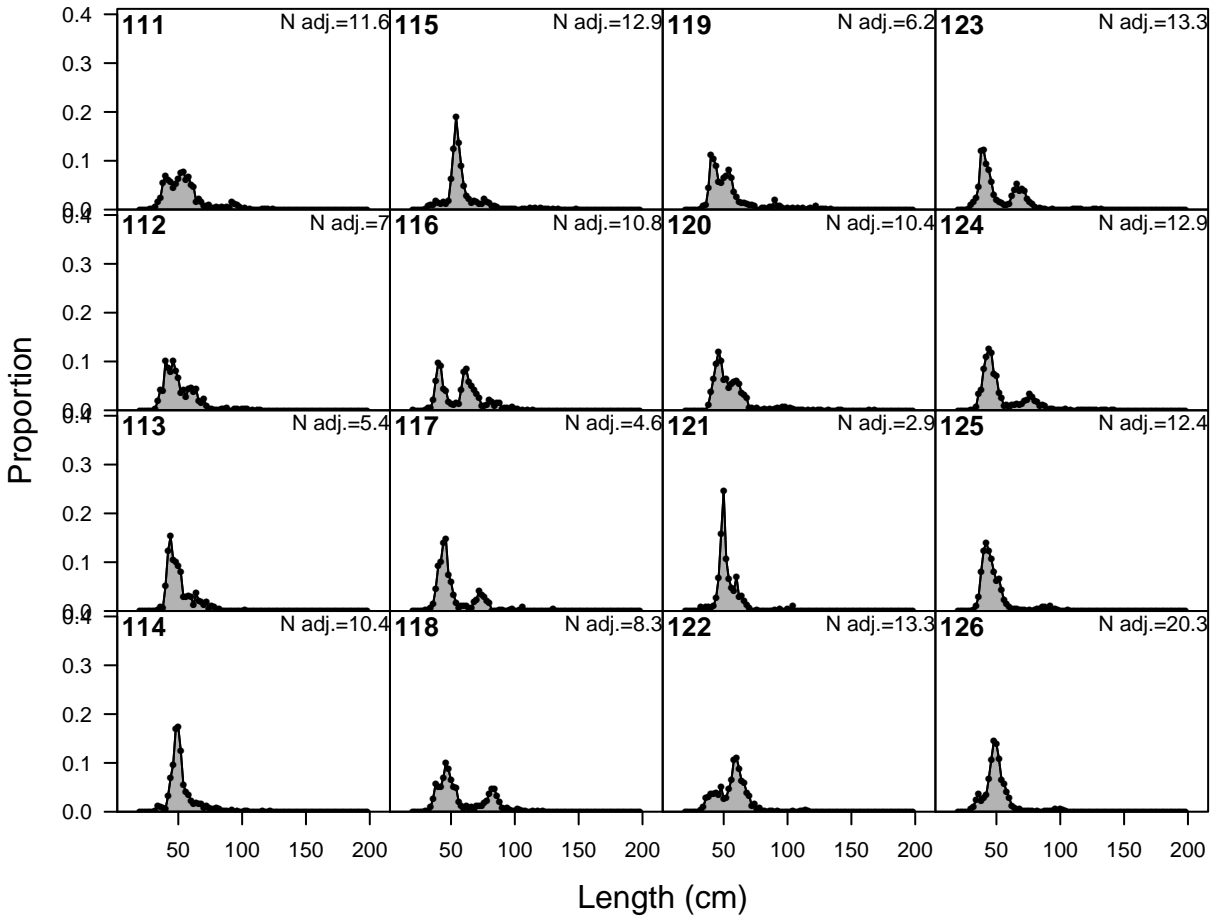


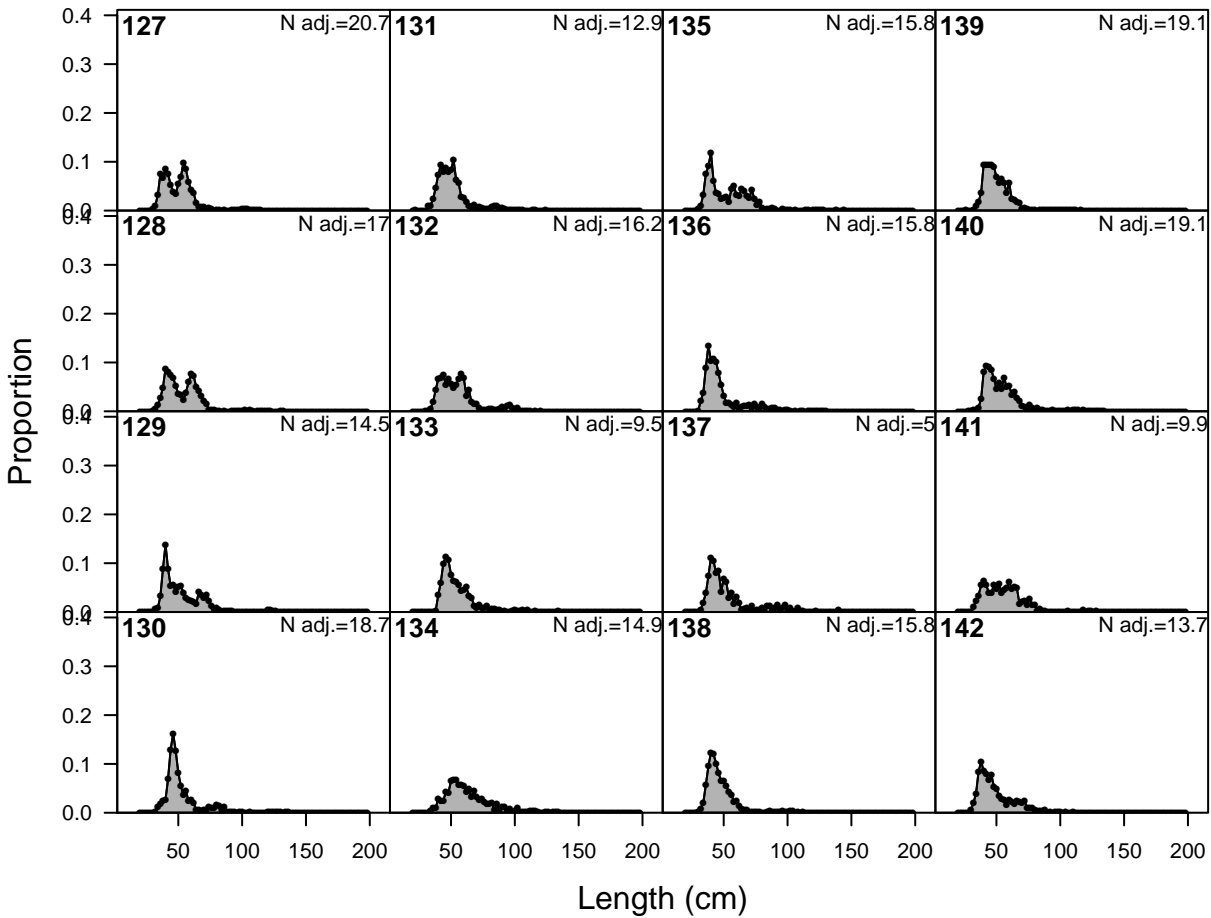
A6-LL-n (whole catch)



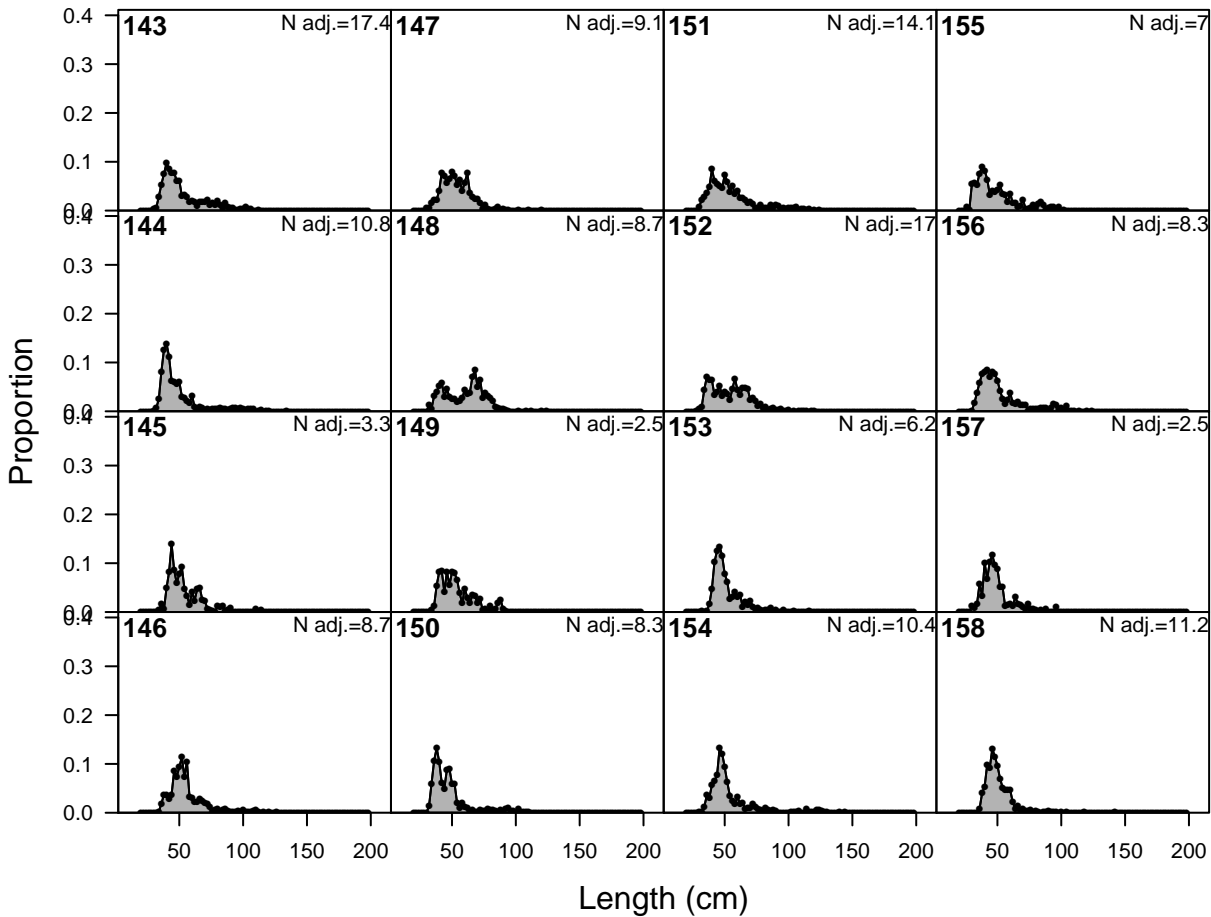


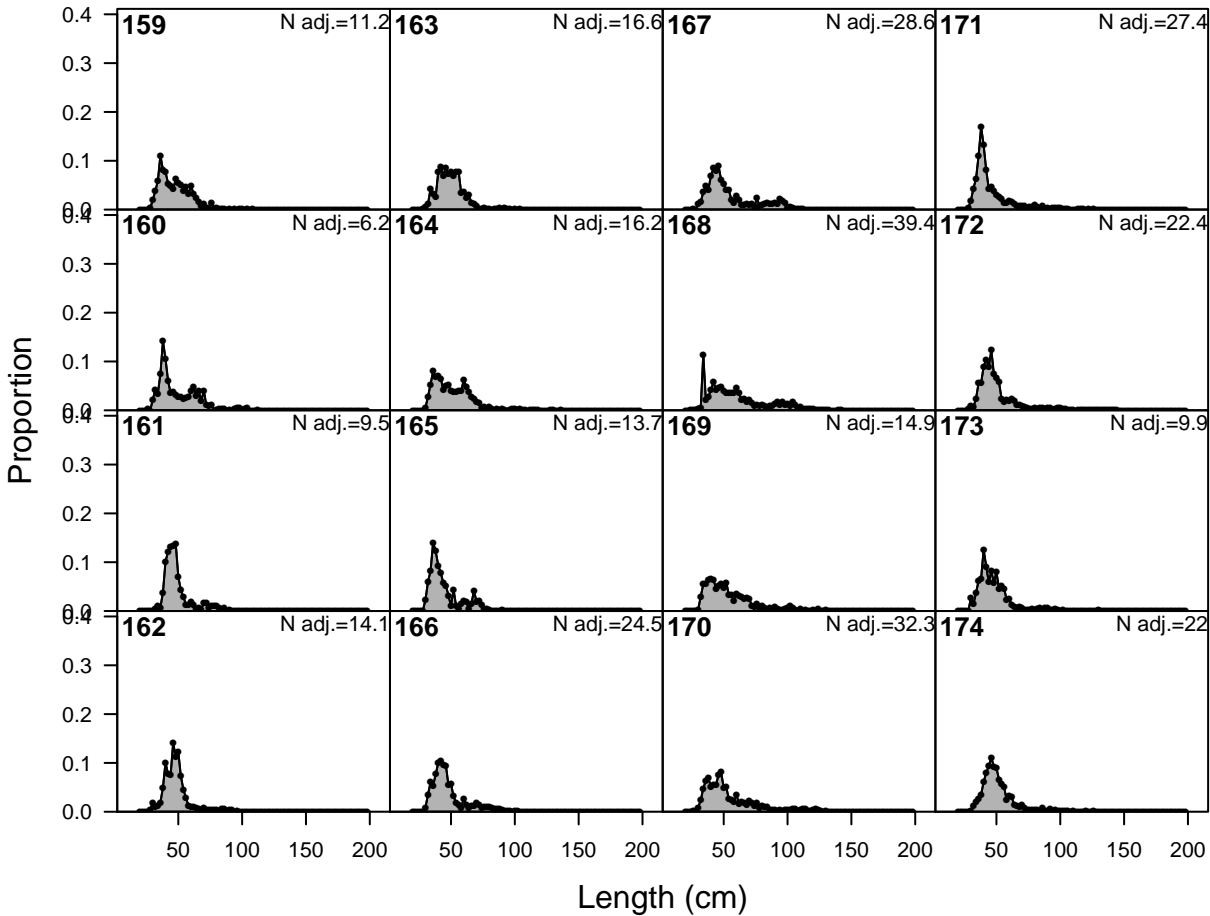


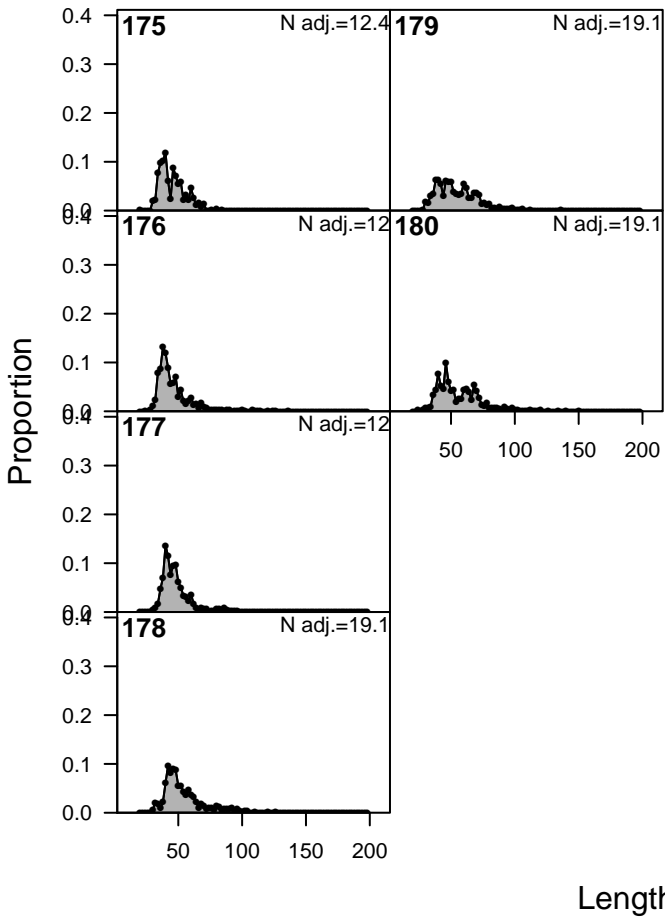


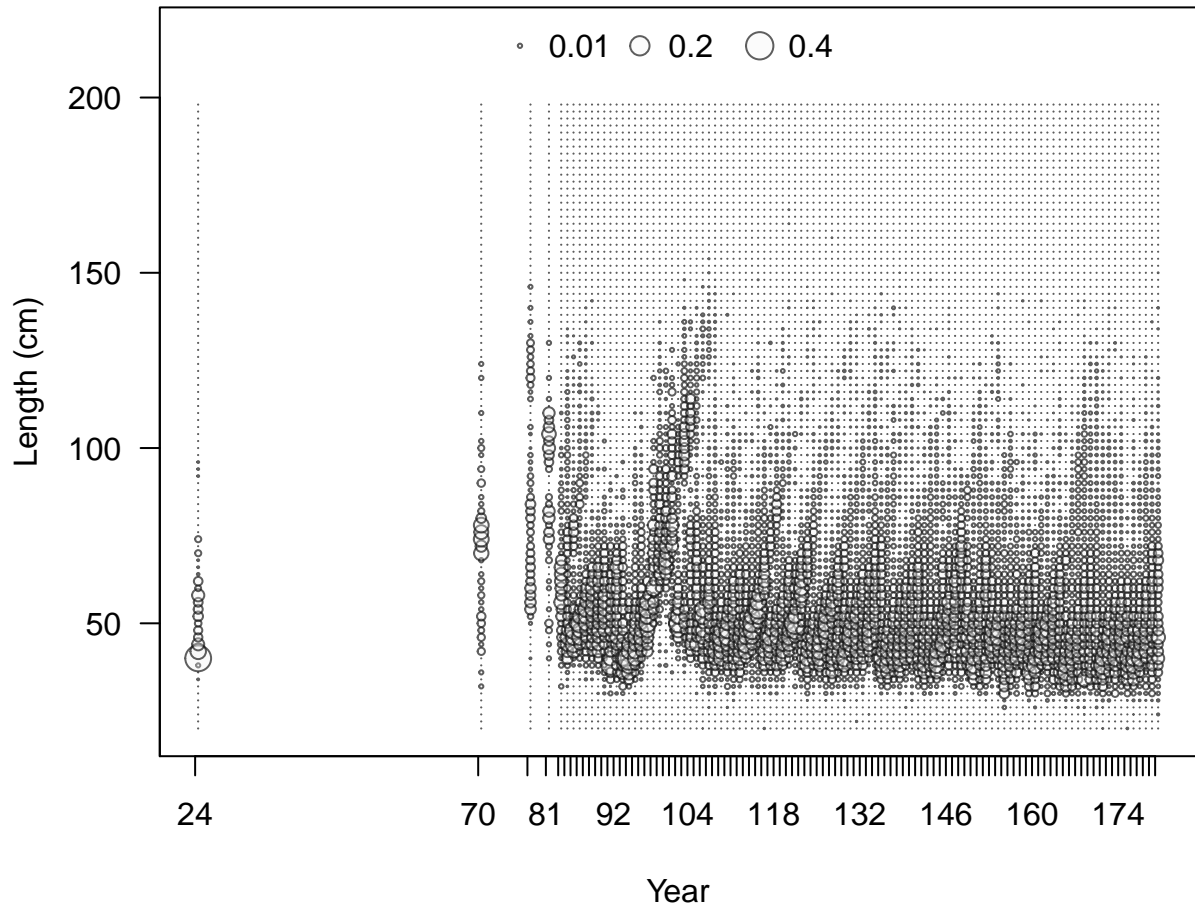




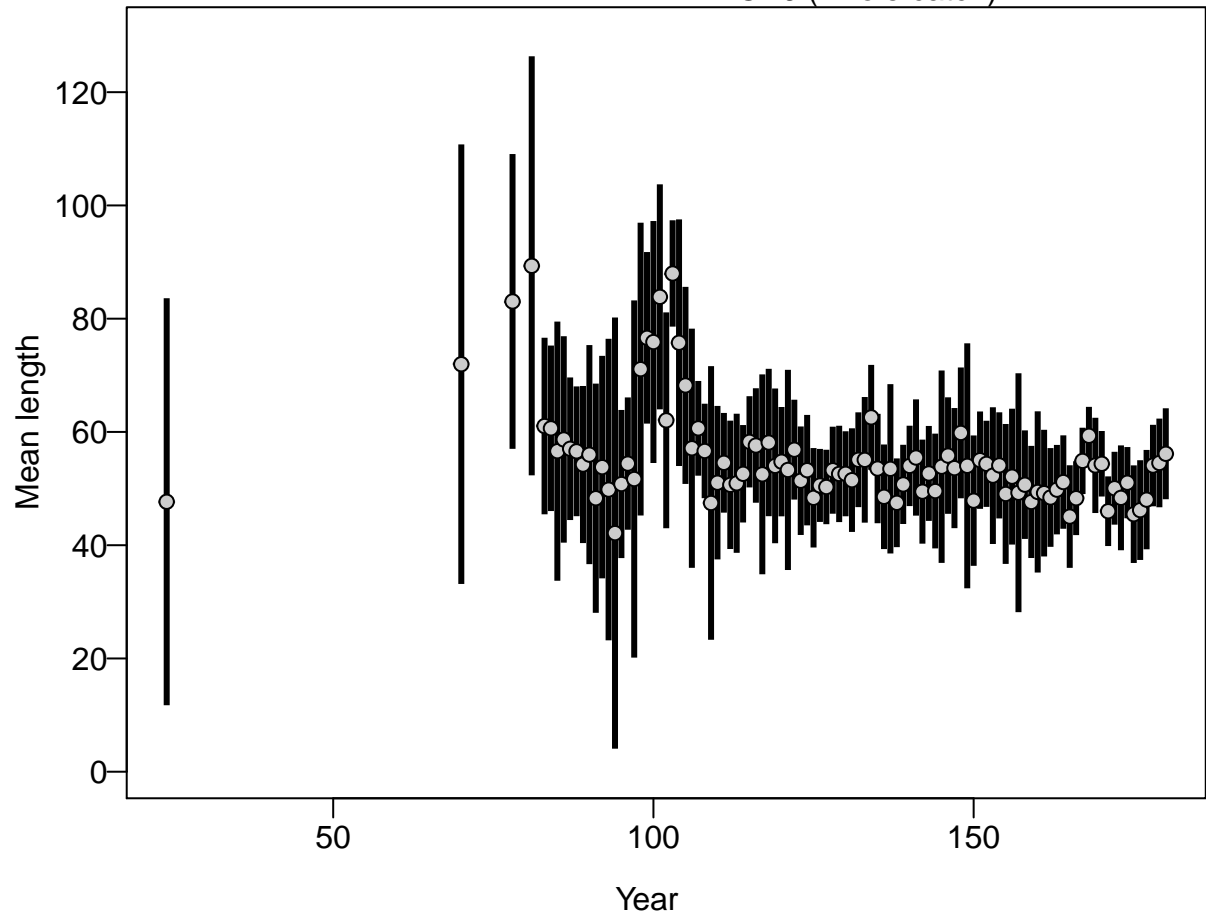


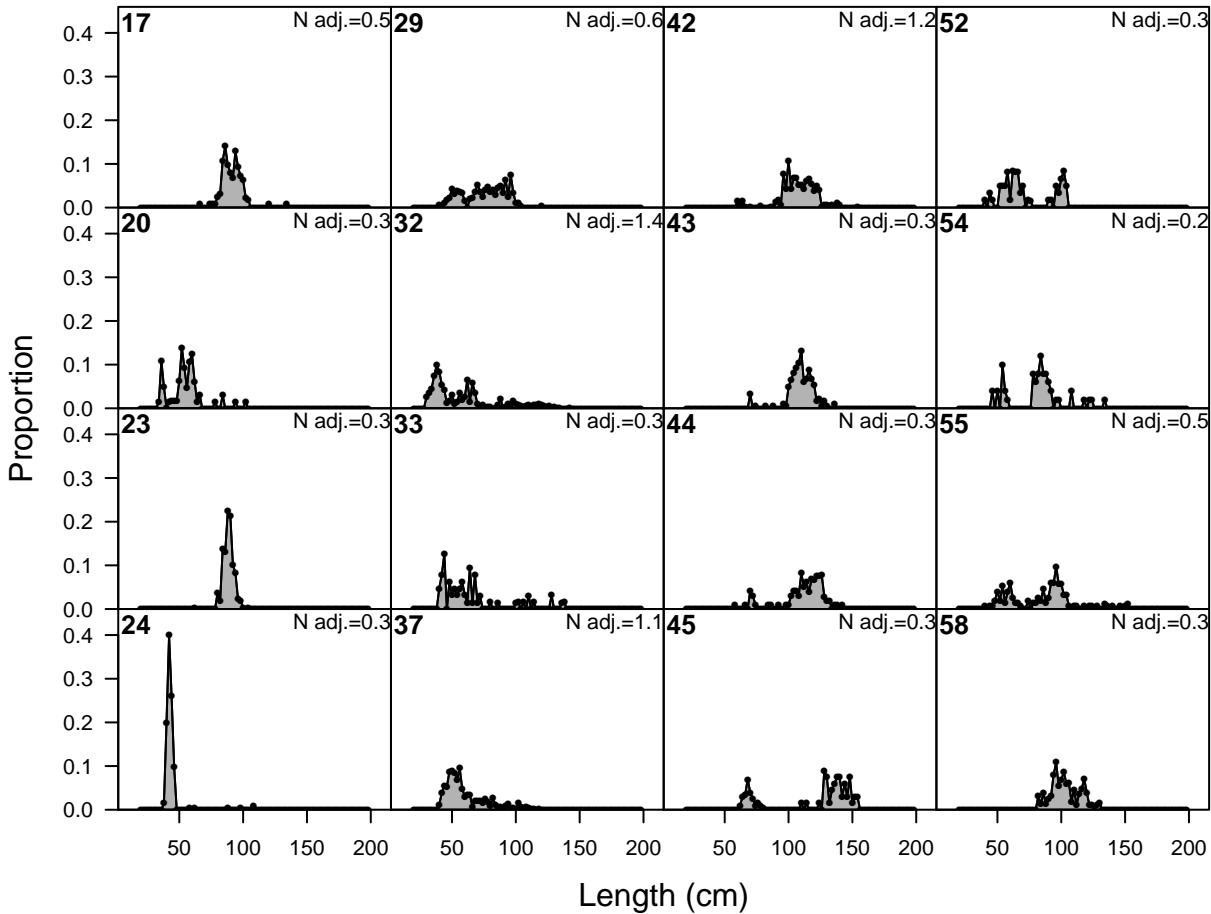


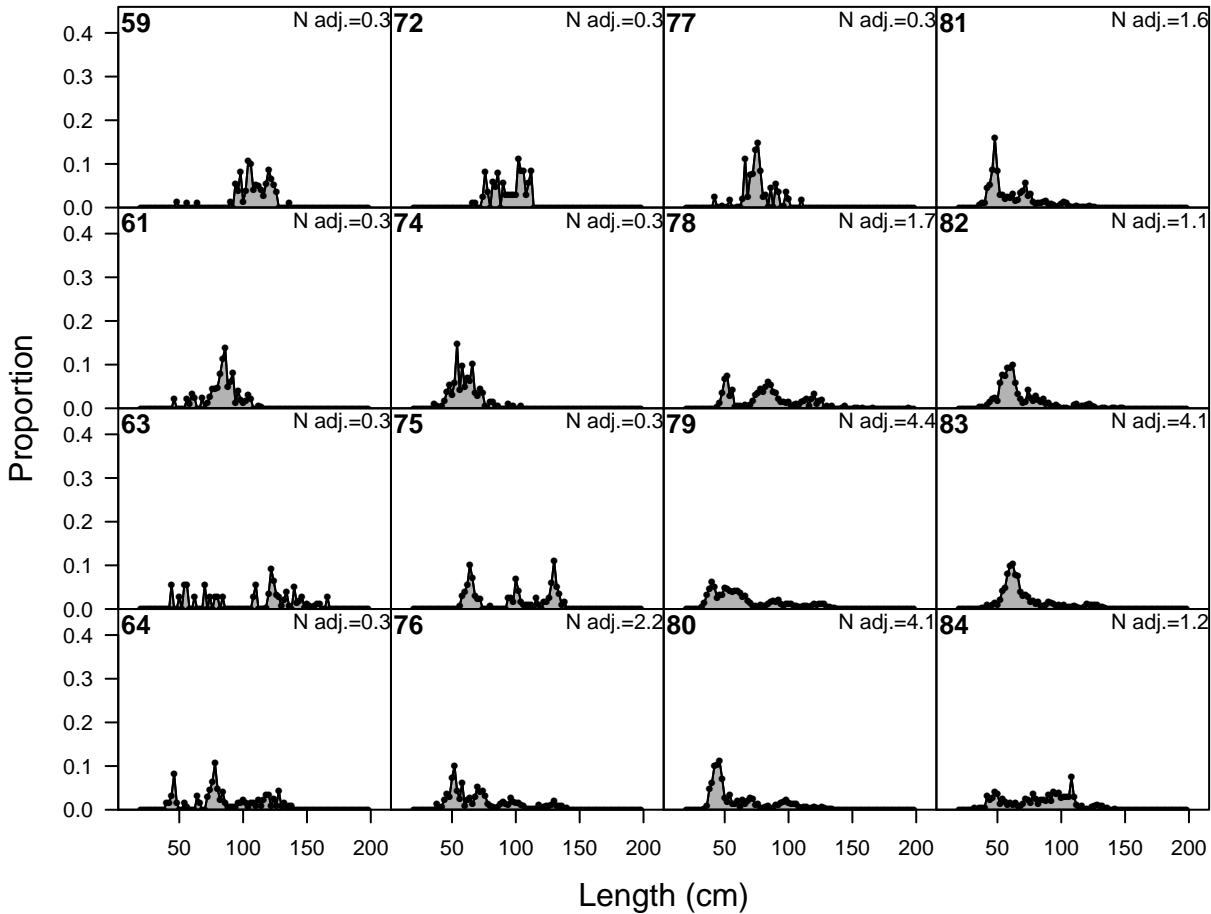


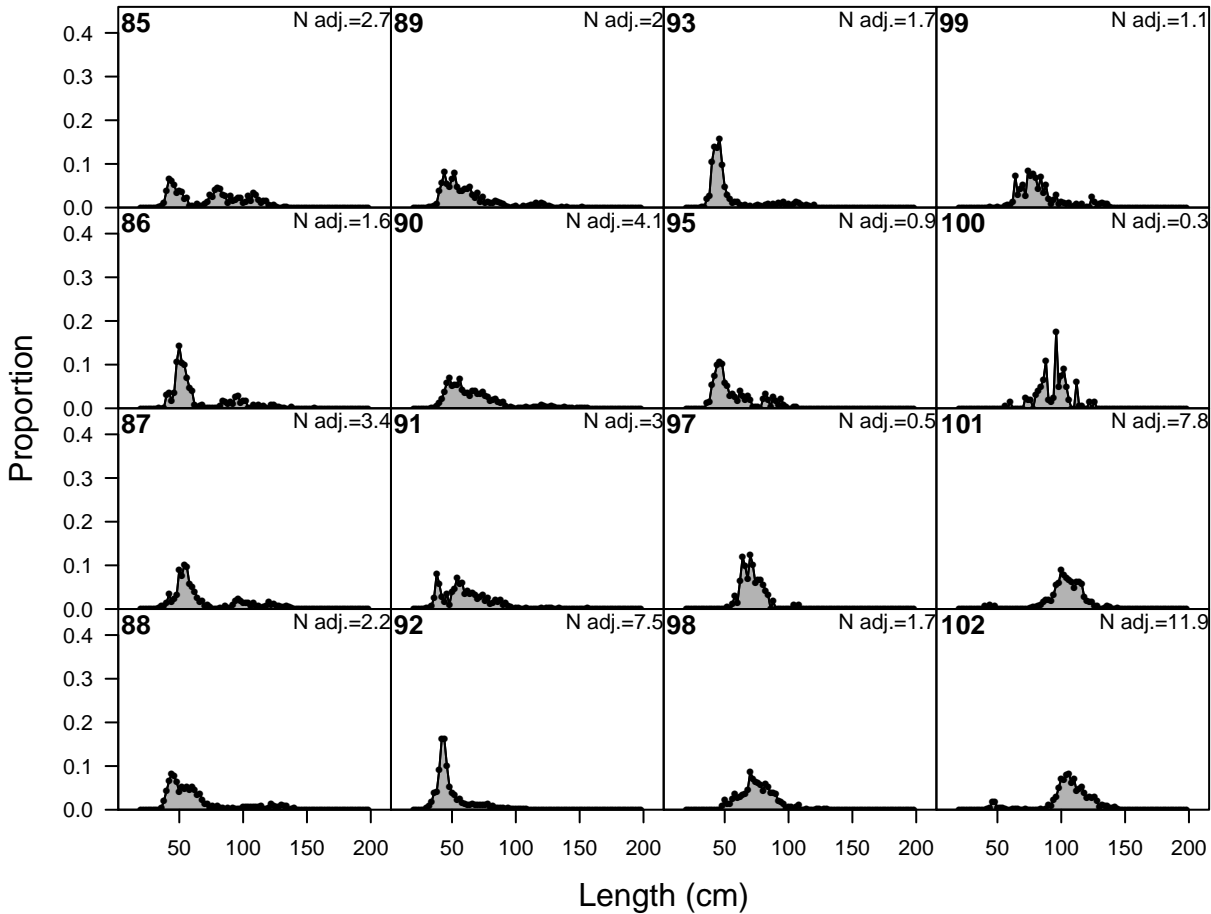


A2-OBJ (whole catch)

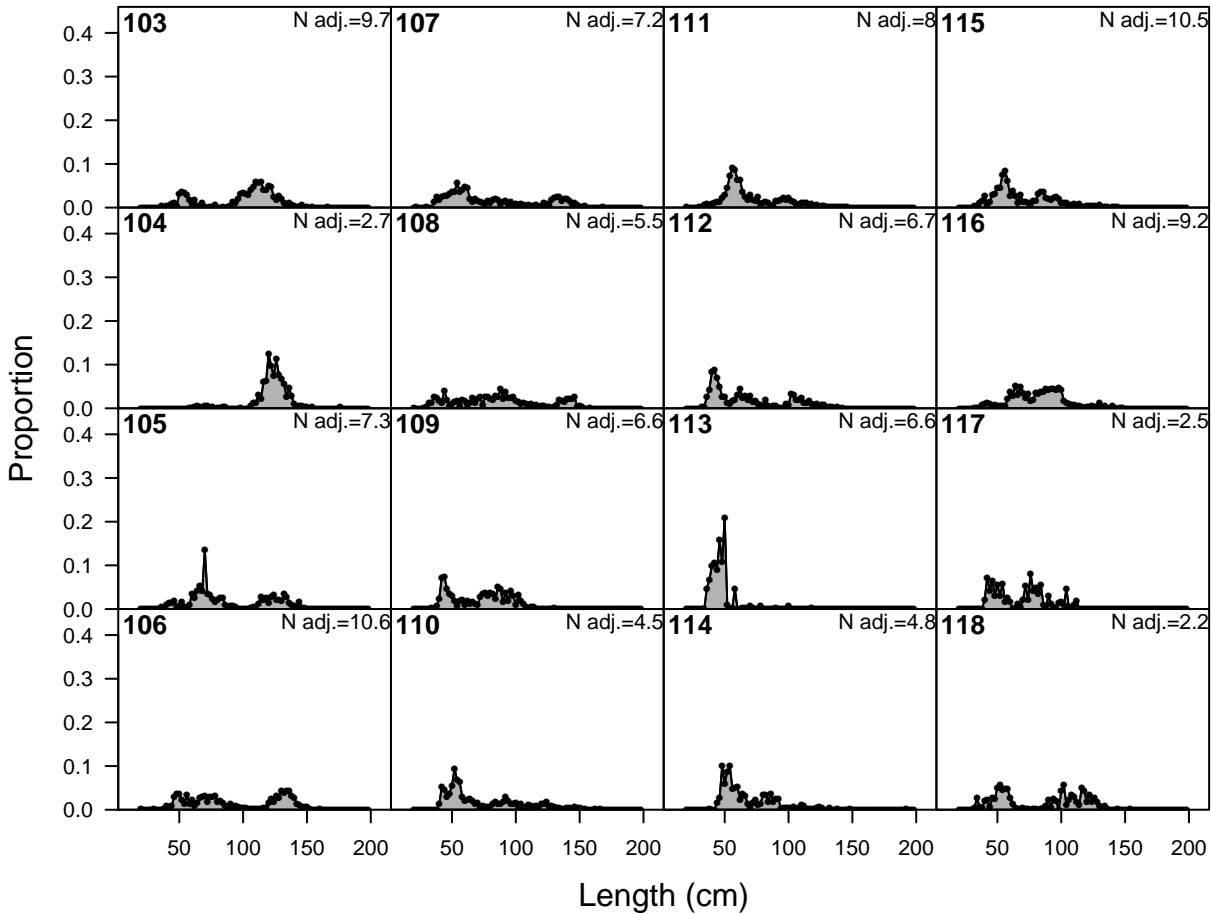


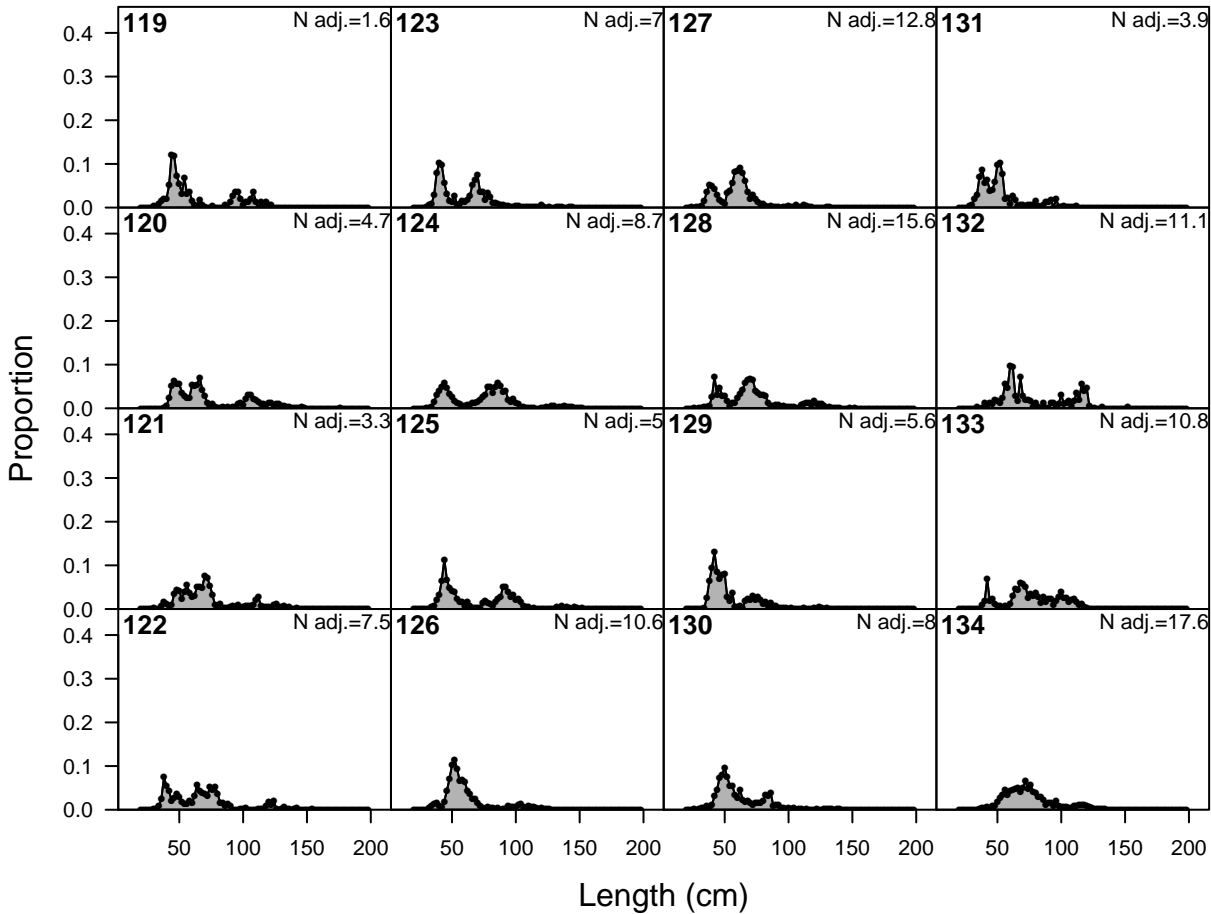


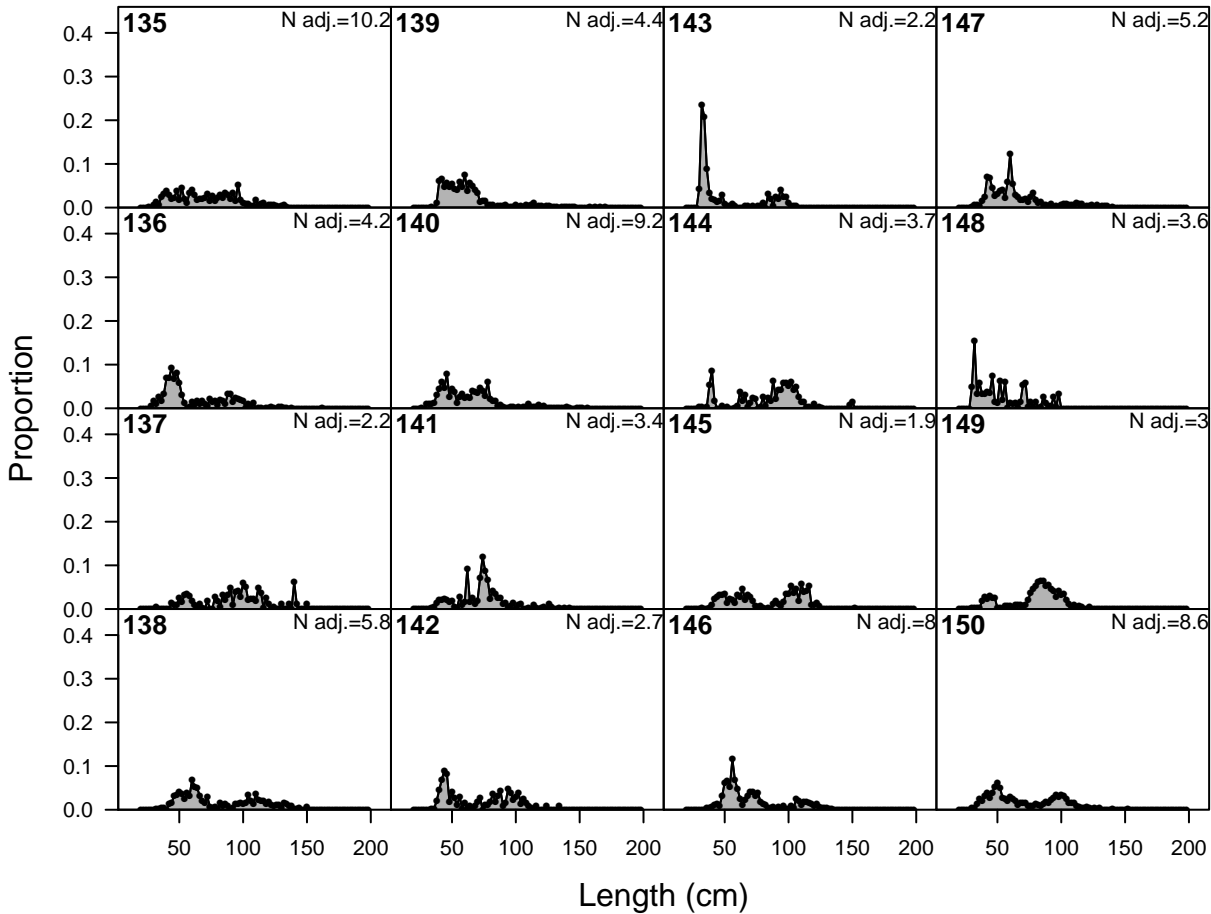


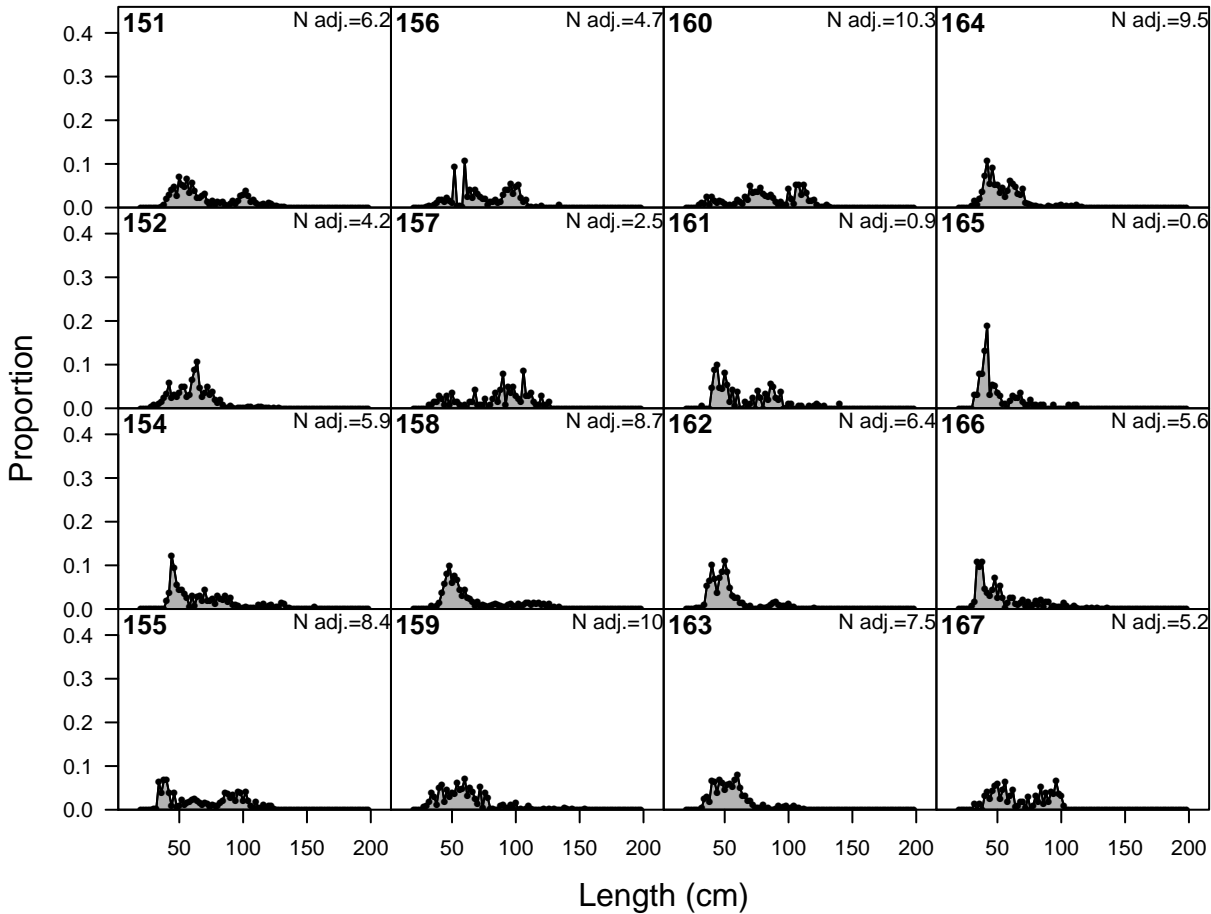


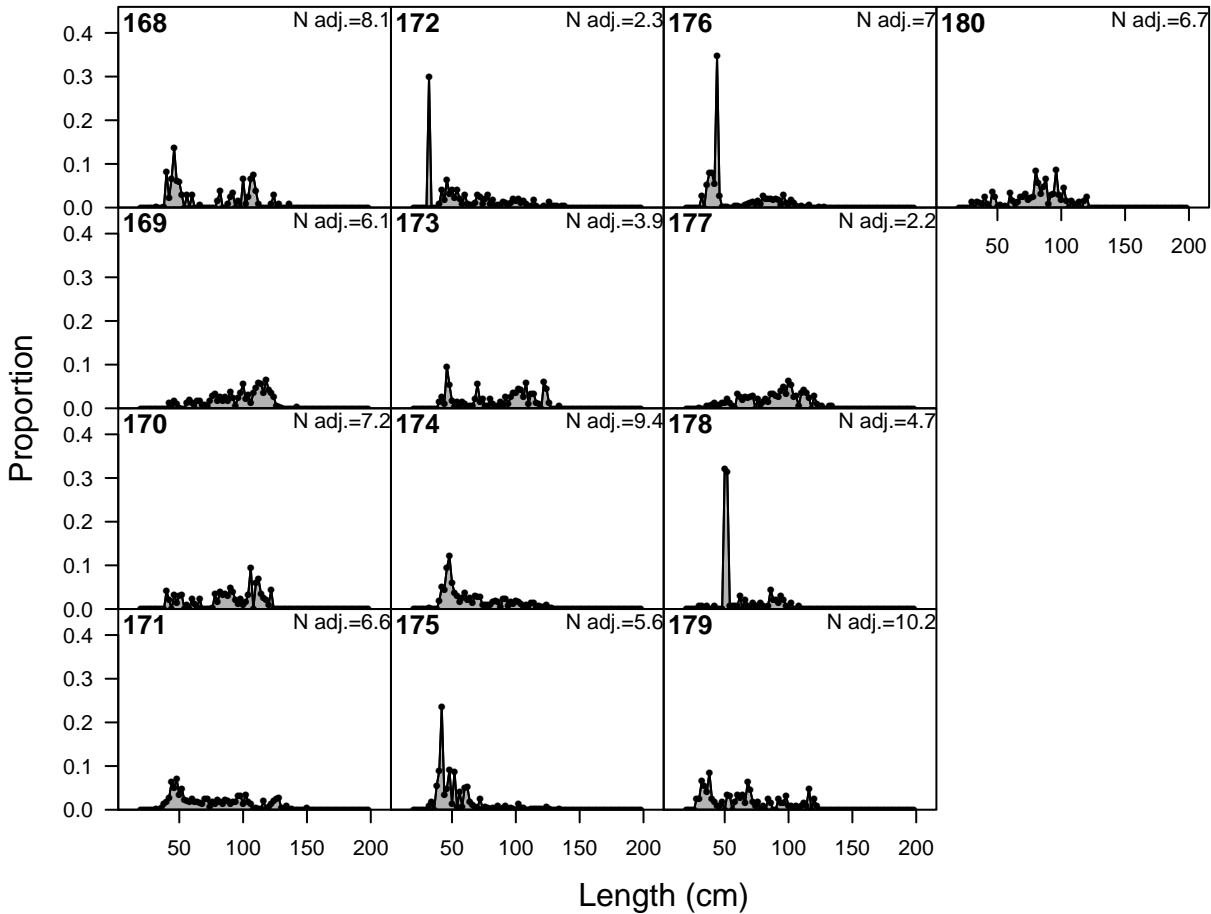


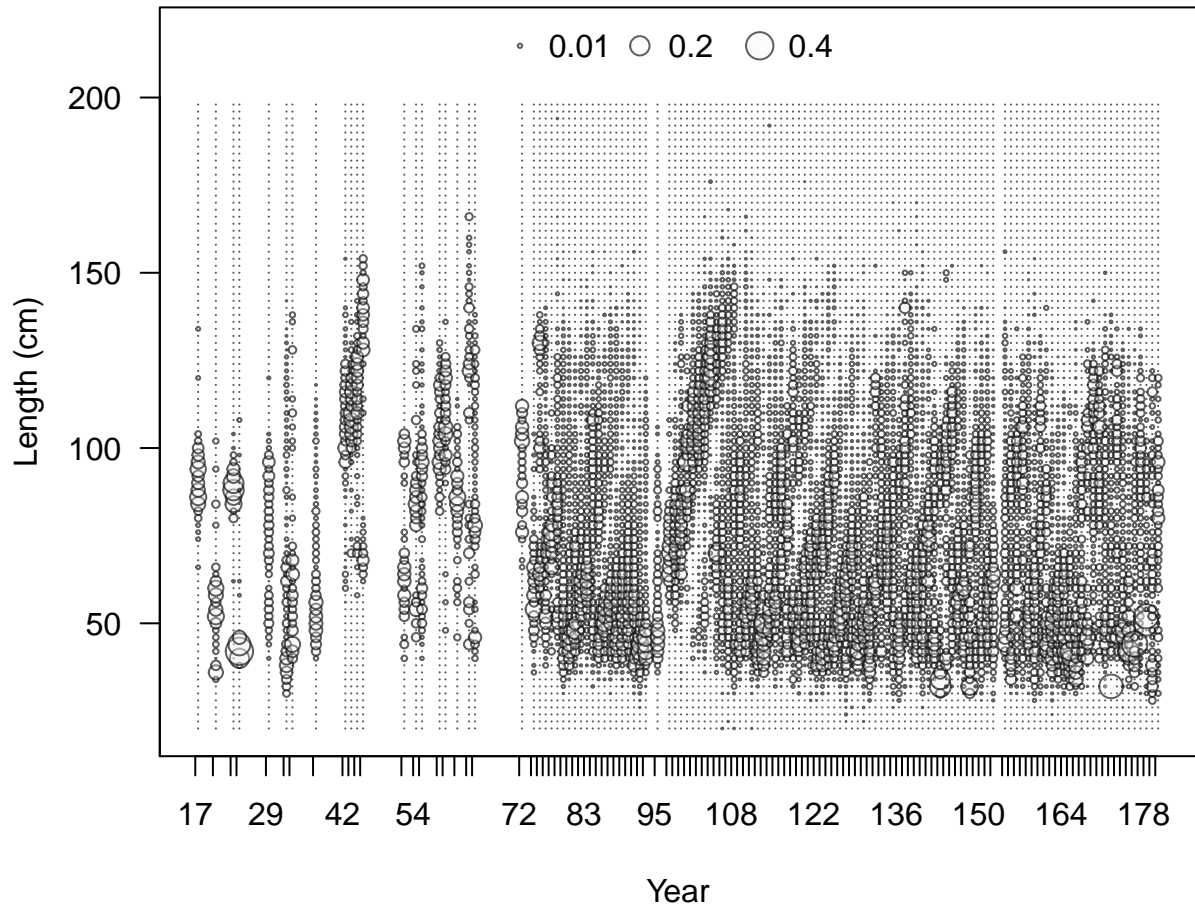




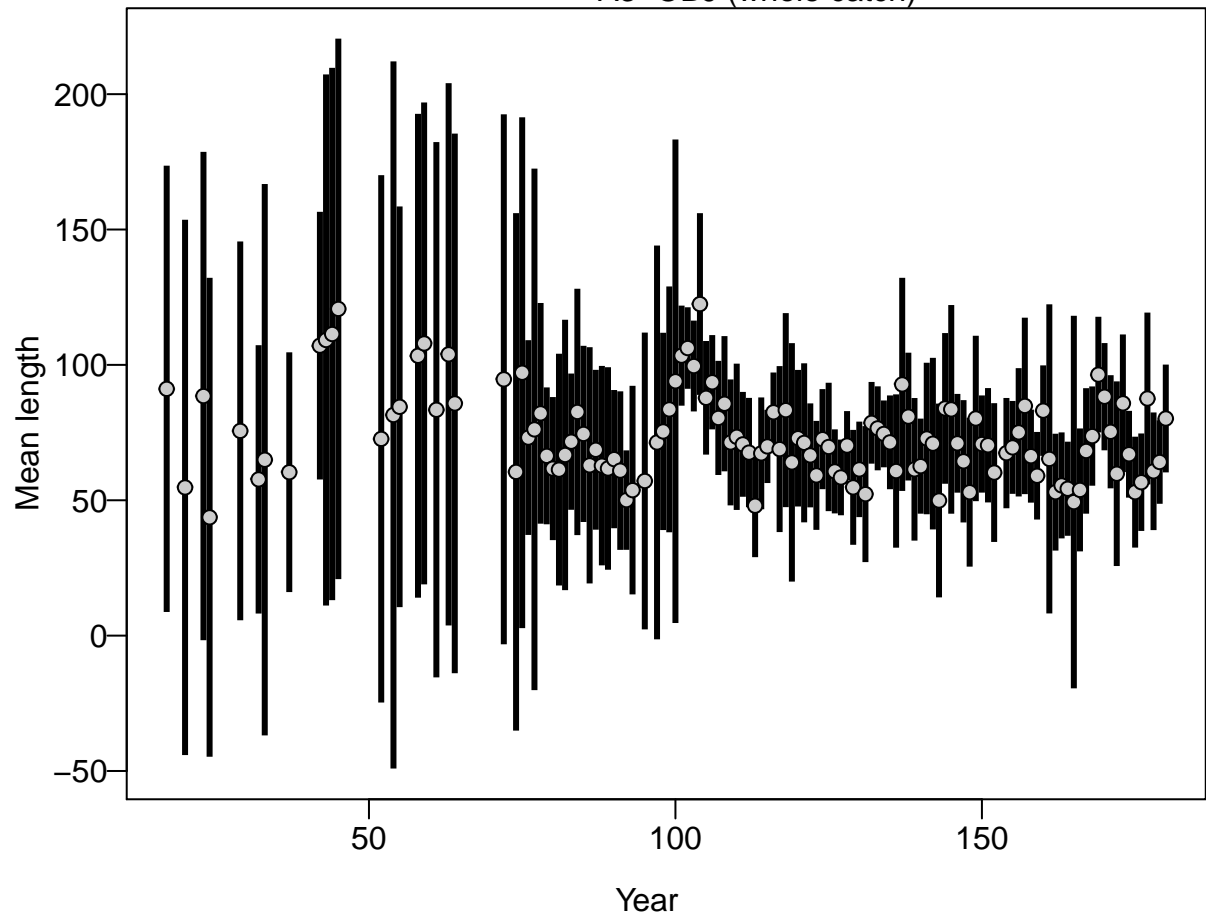




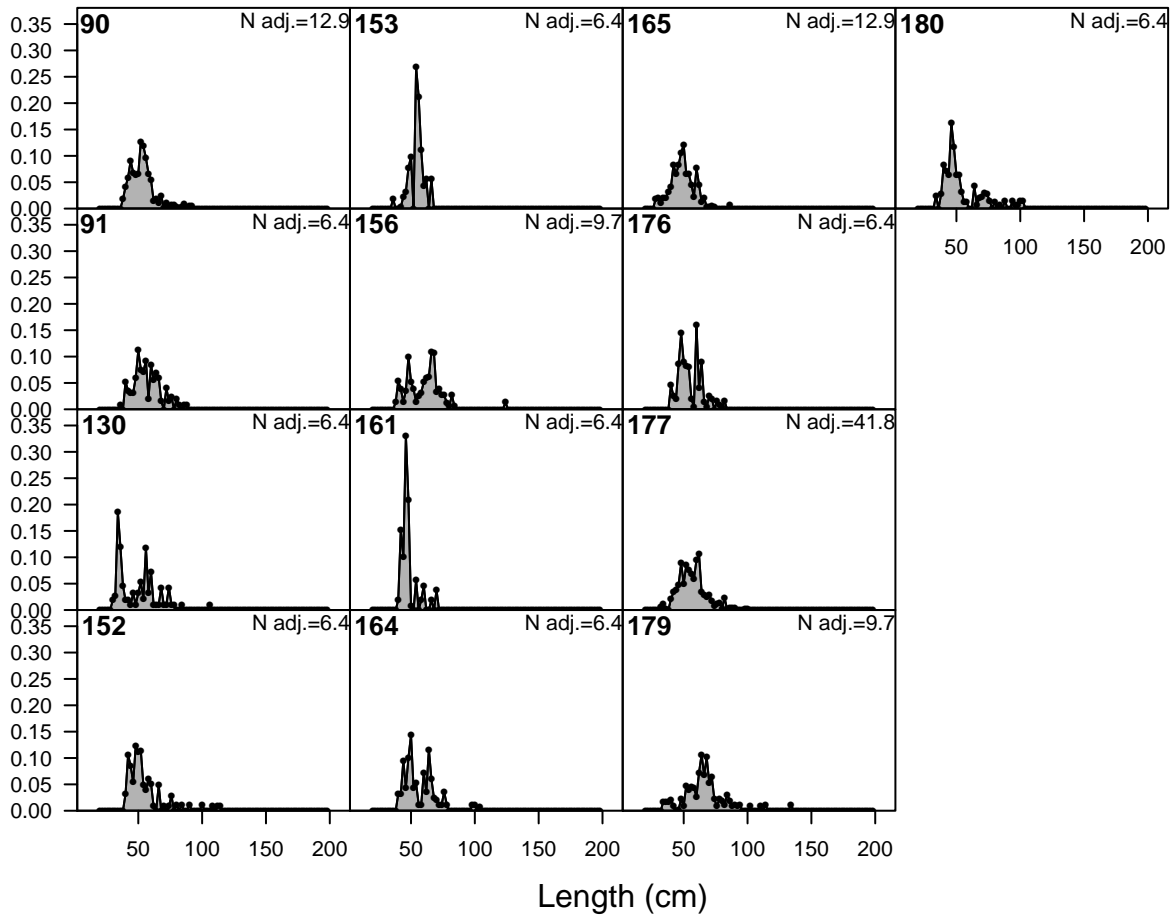




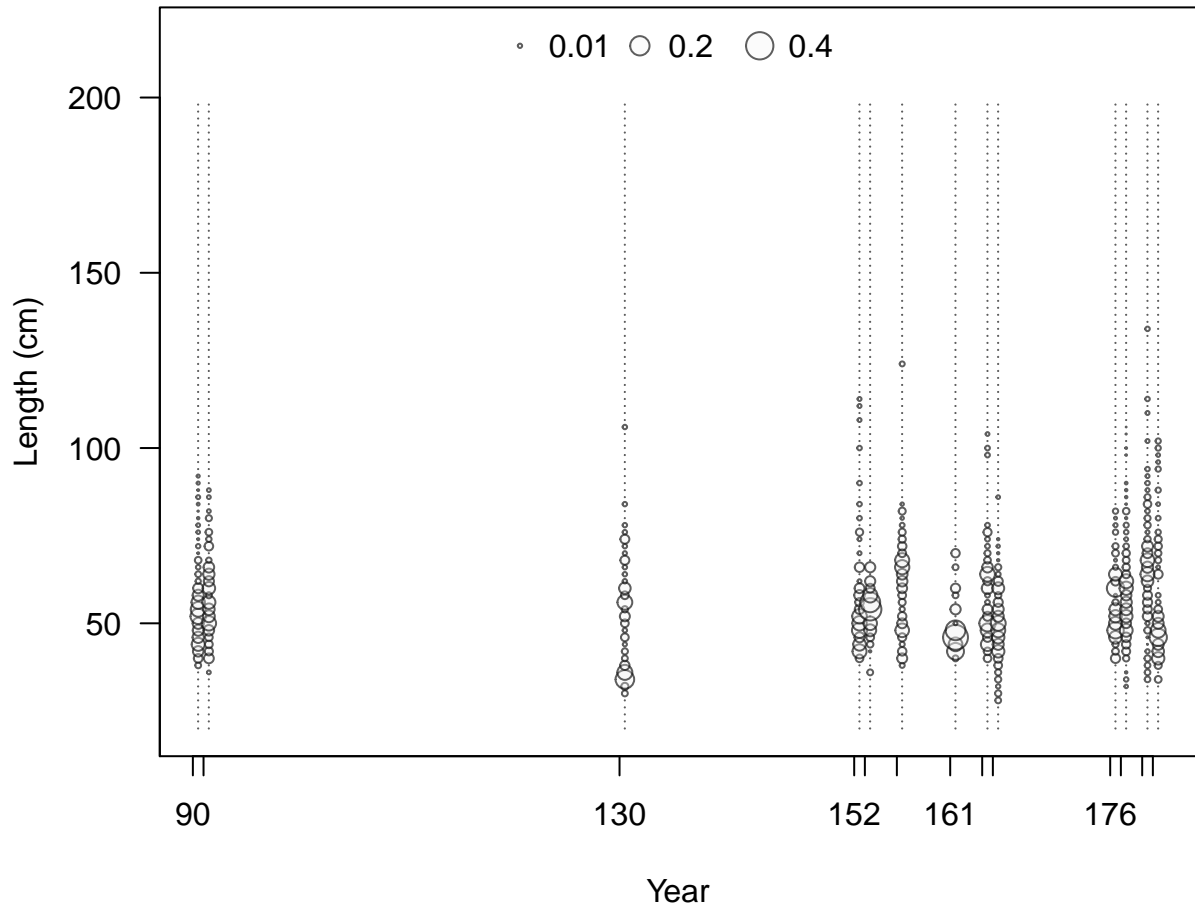
## A3-OBJ (whole catch)



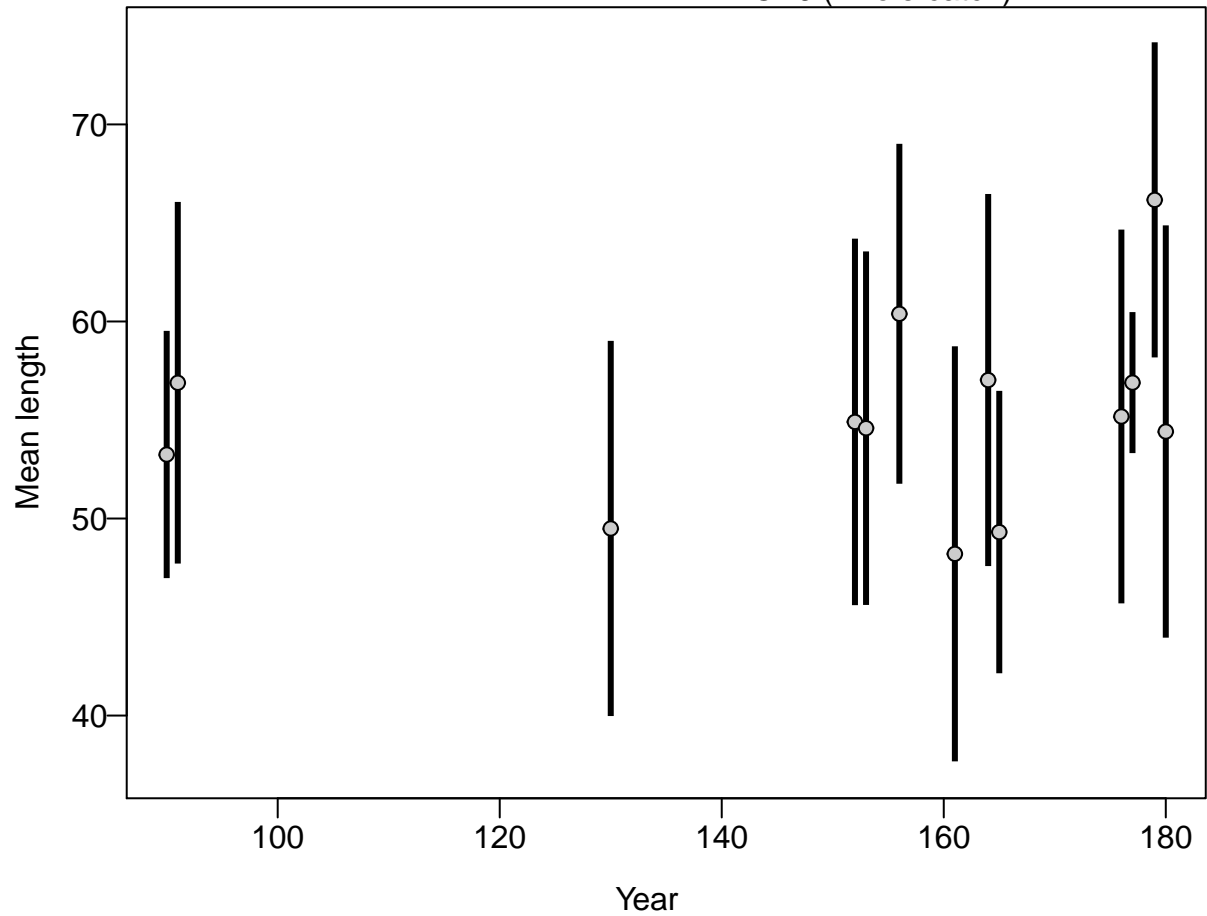
Proportion



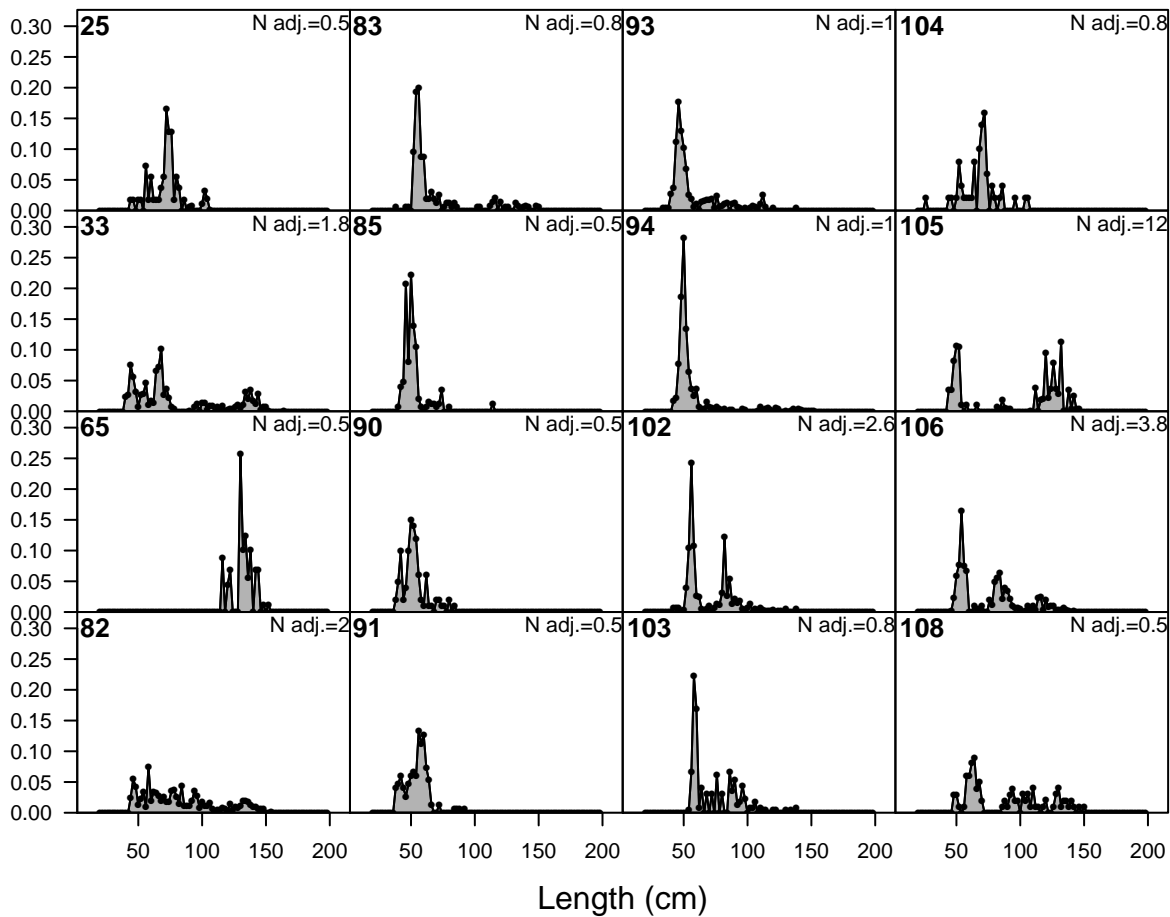




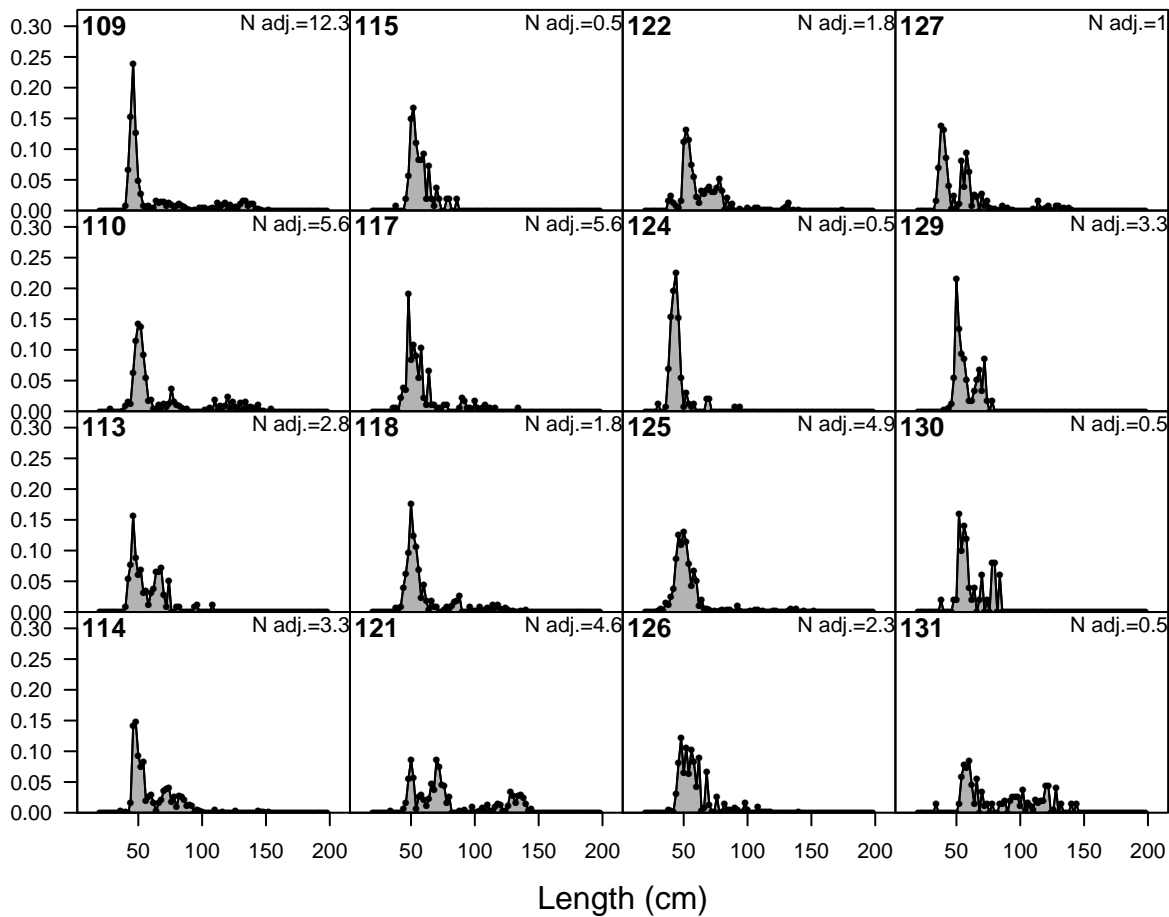
## A4-OBJ (whole catch)



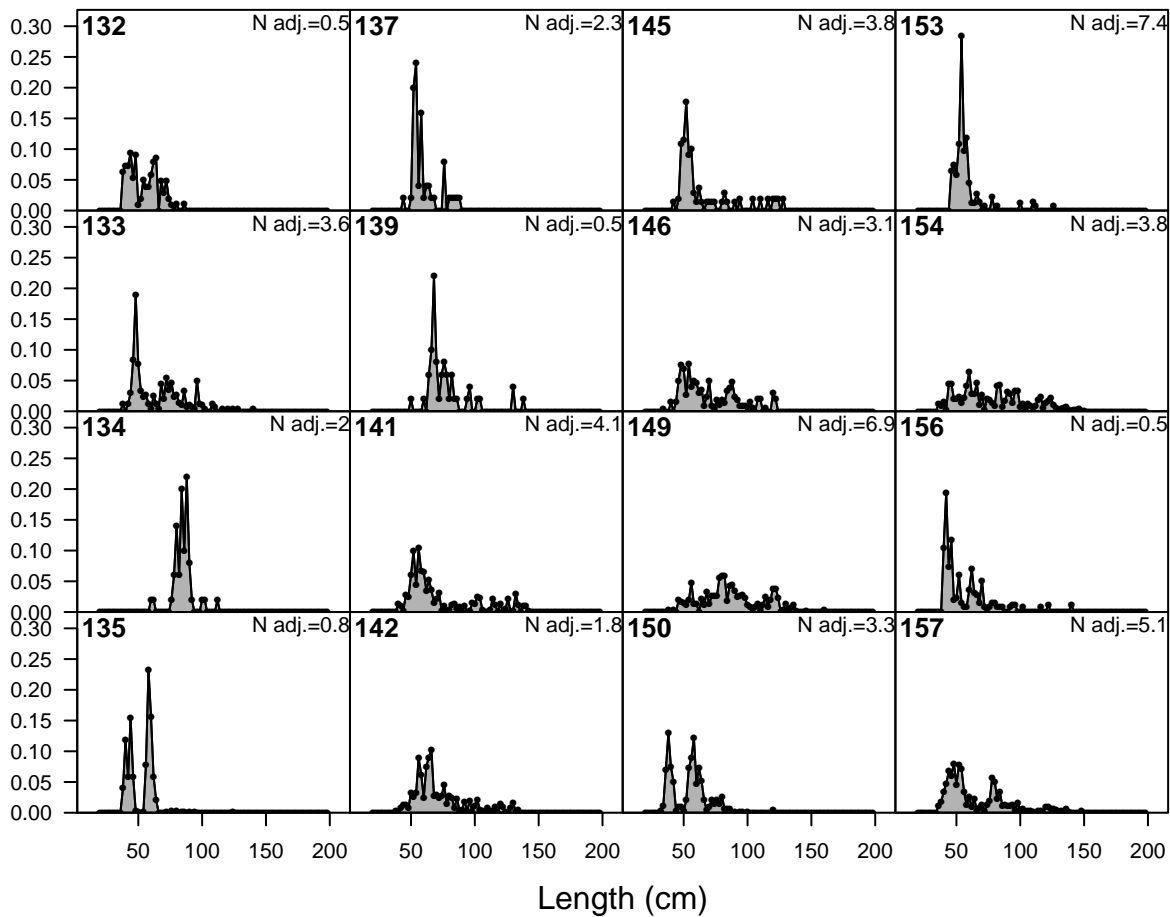
Proportion



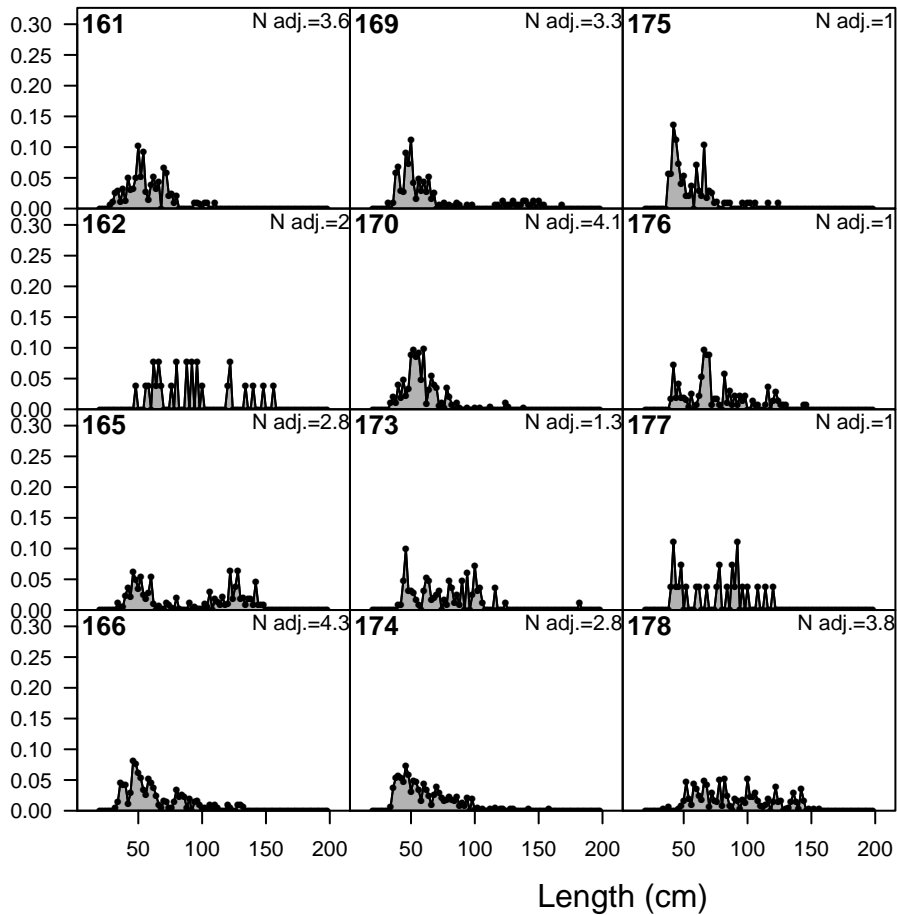
Proportion

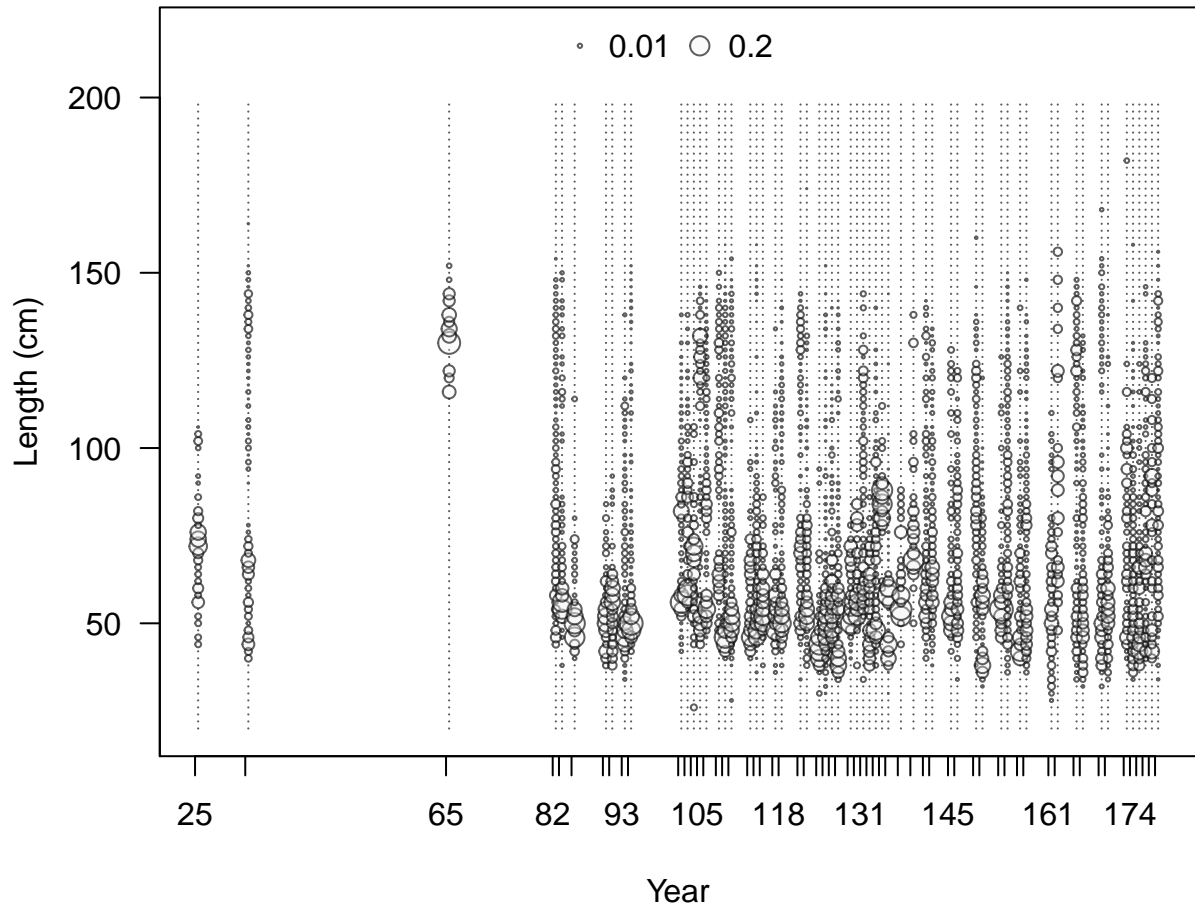


Proportion

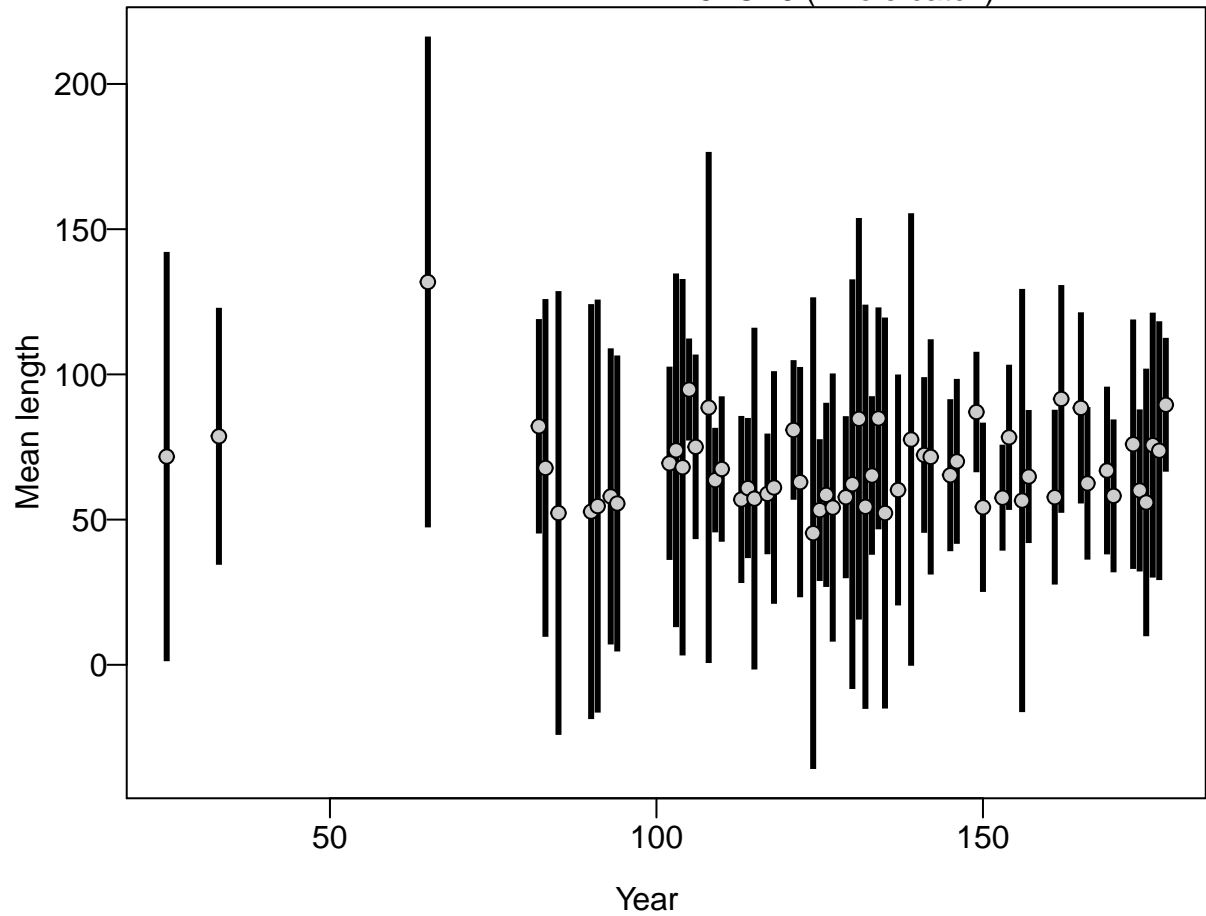


Proportion



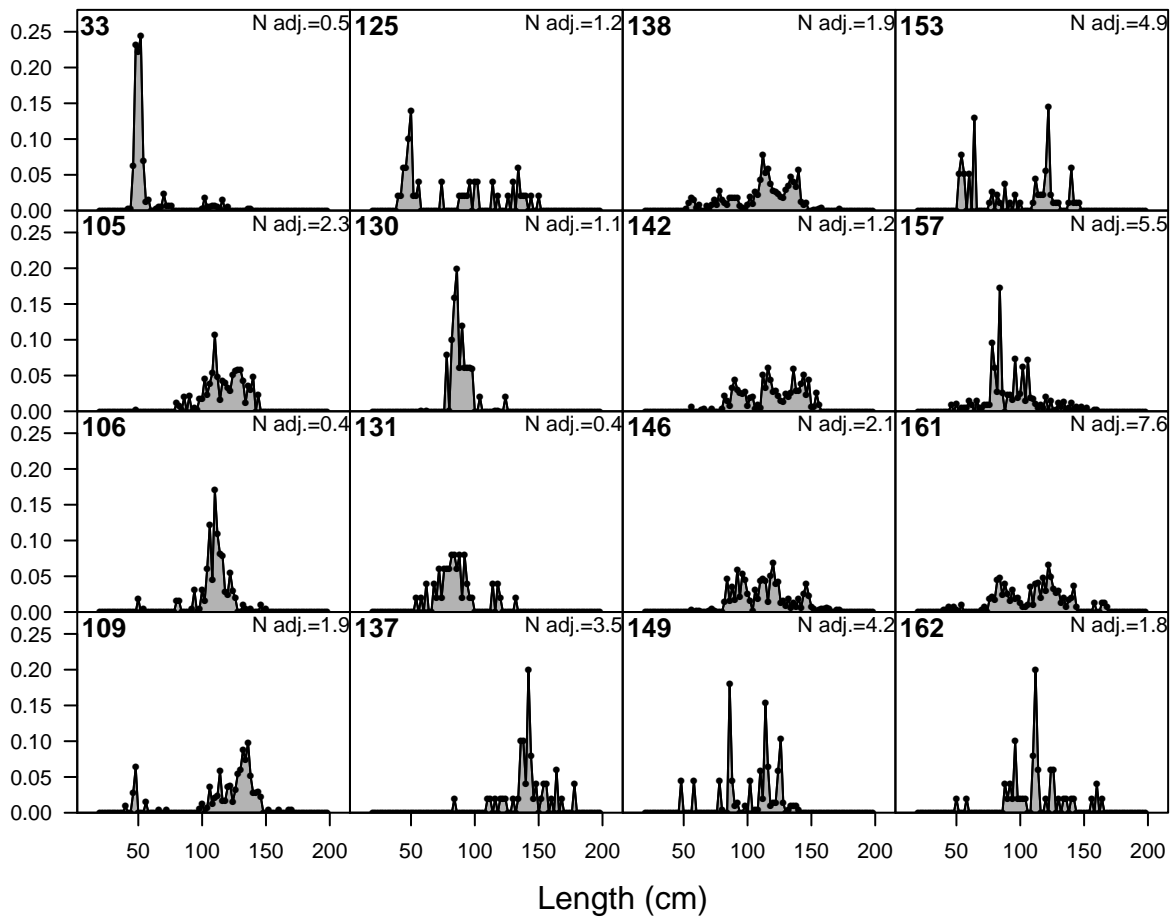


## A5-OBJ (whole catch)

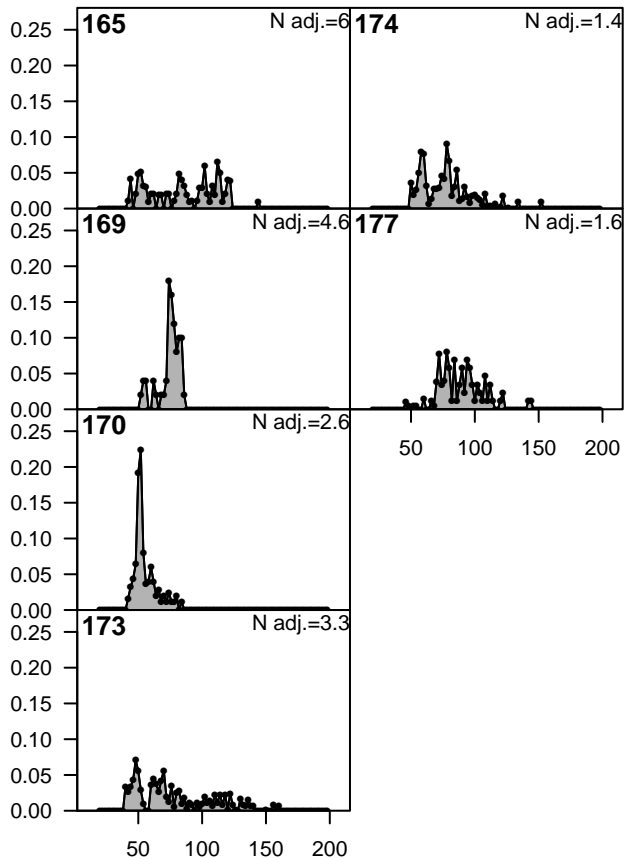




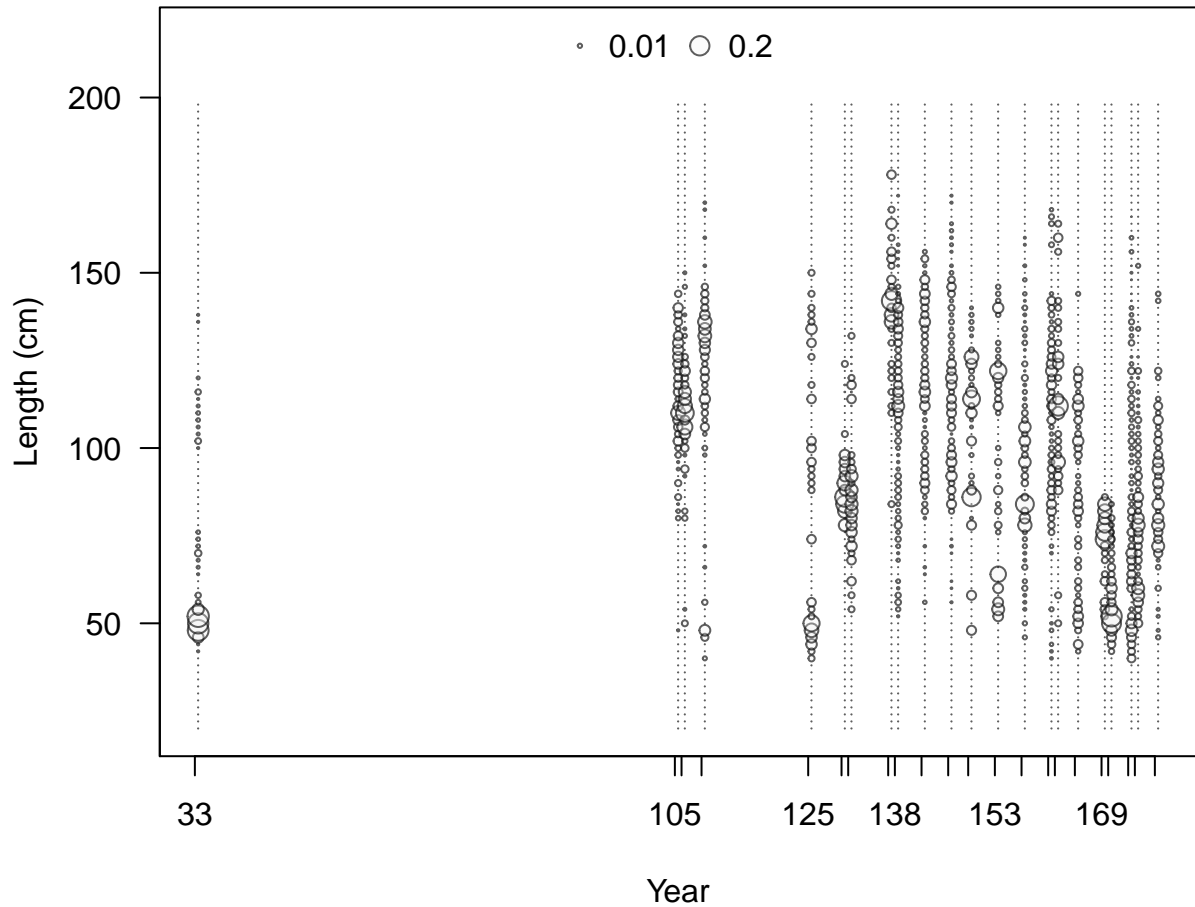
Proportion



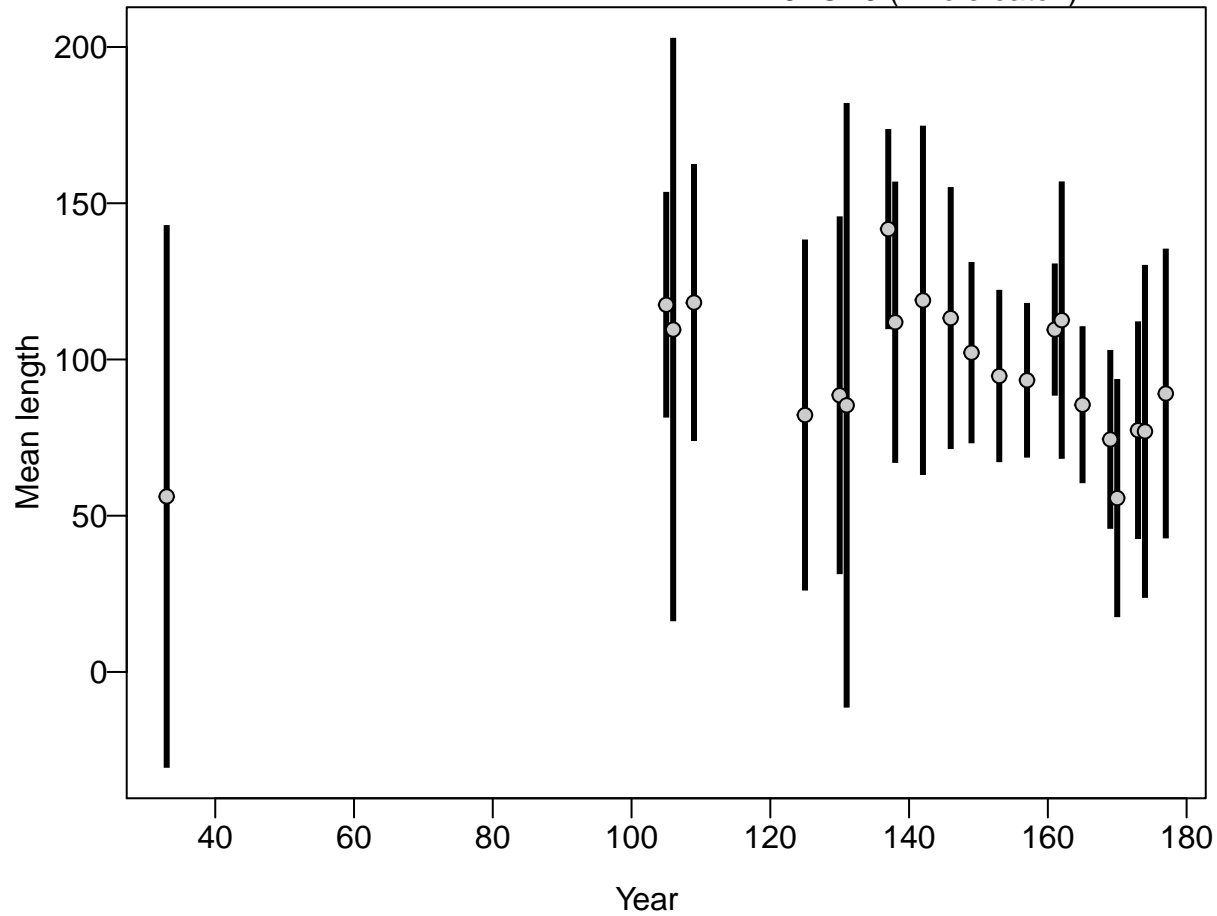
Proportion

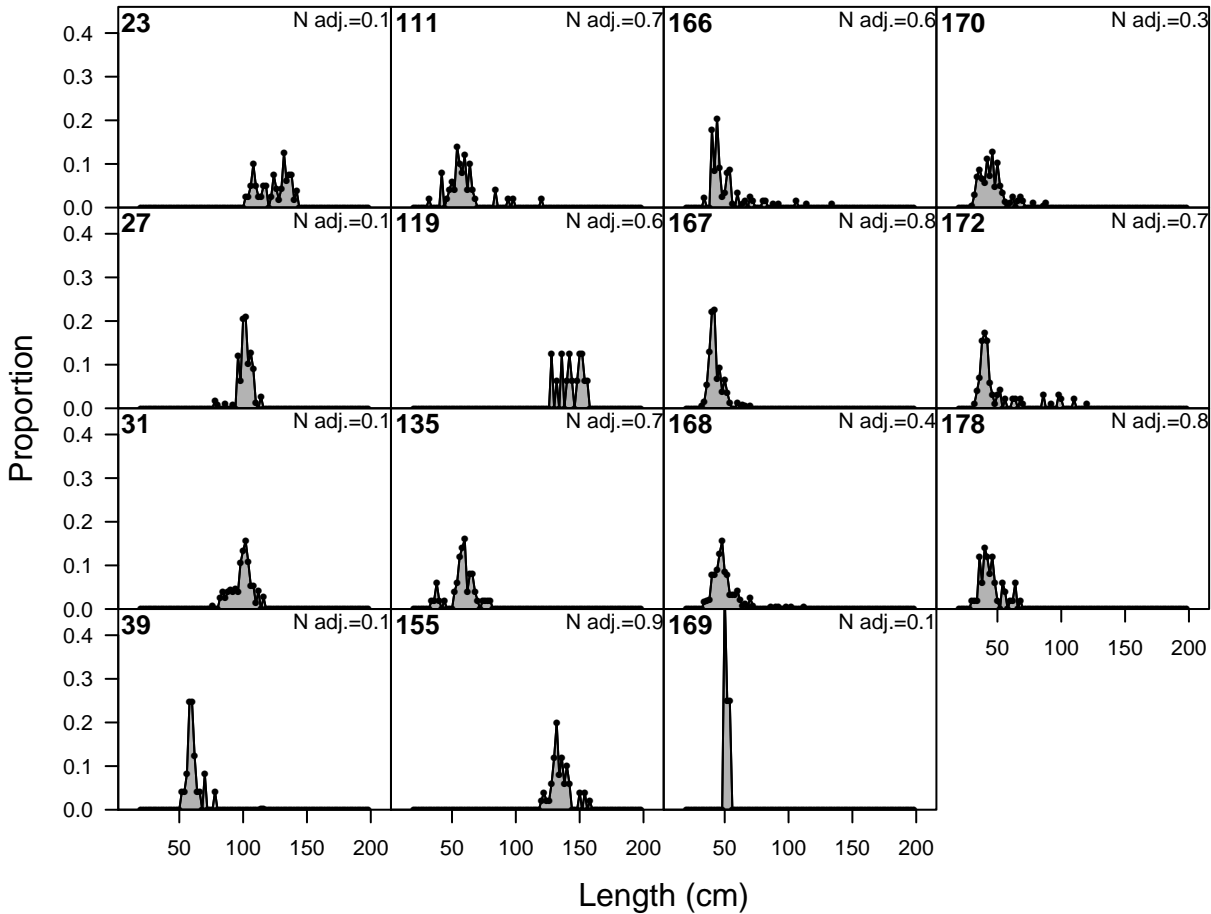


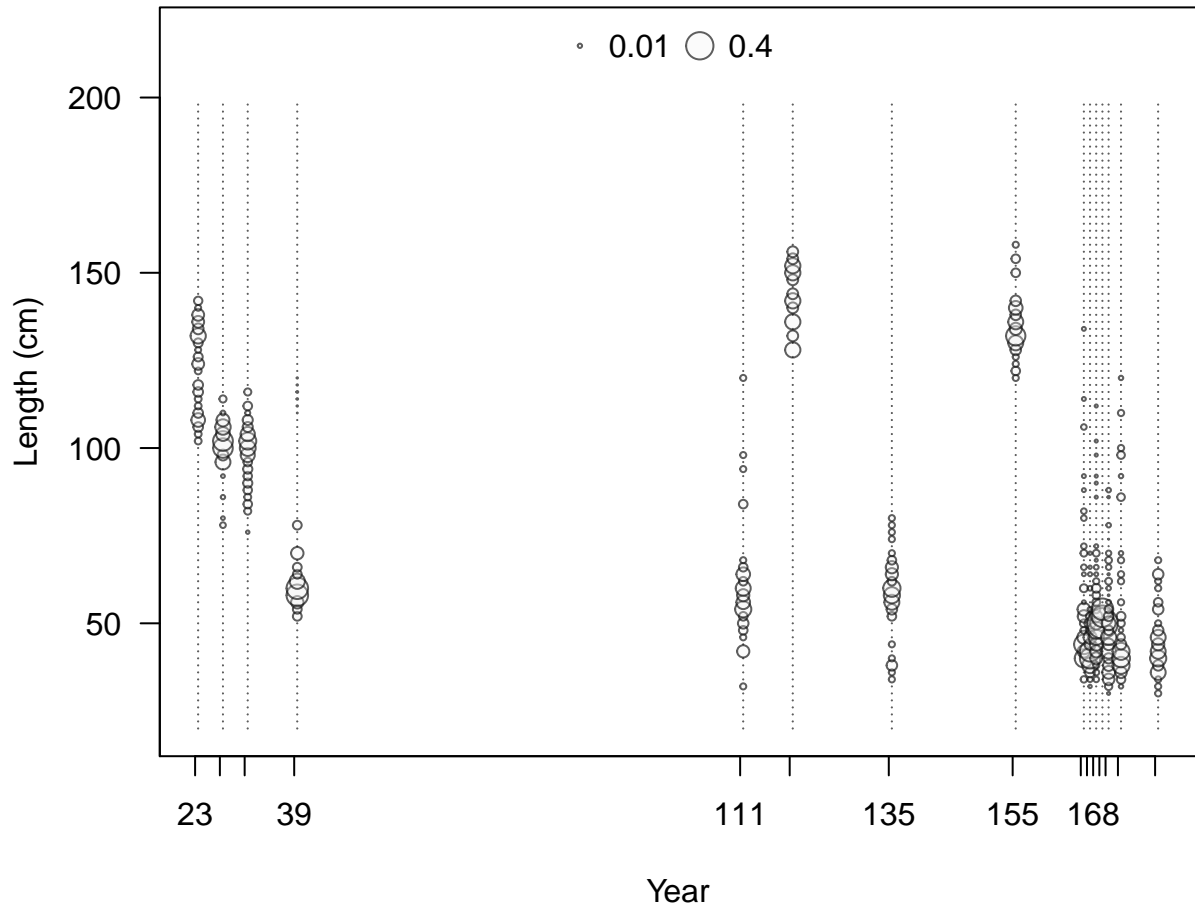
Length (cm)



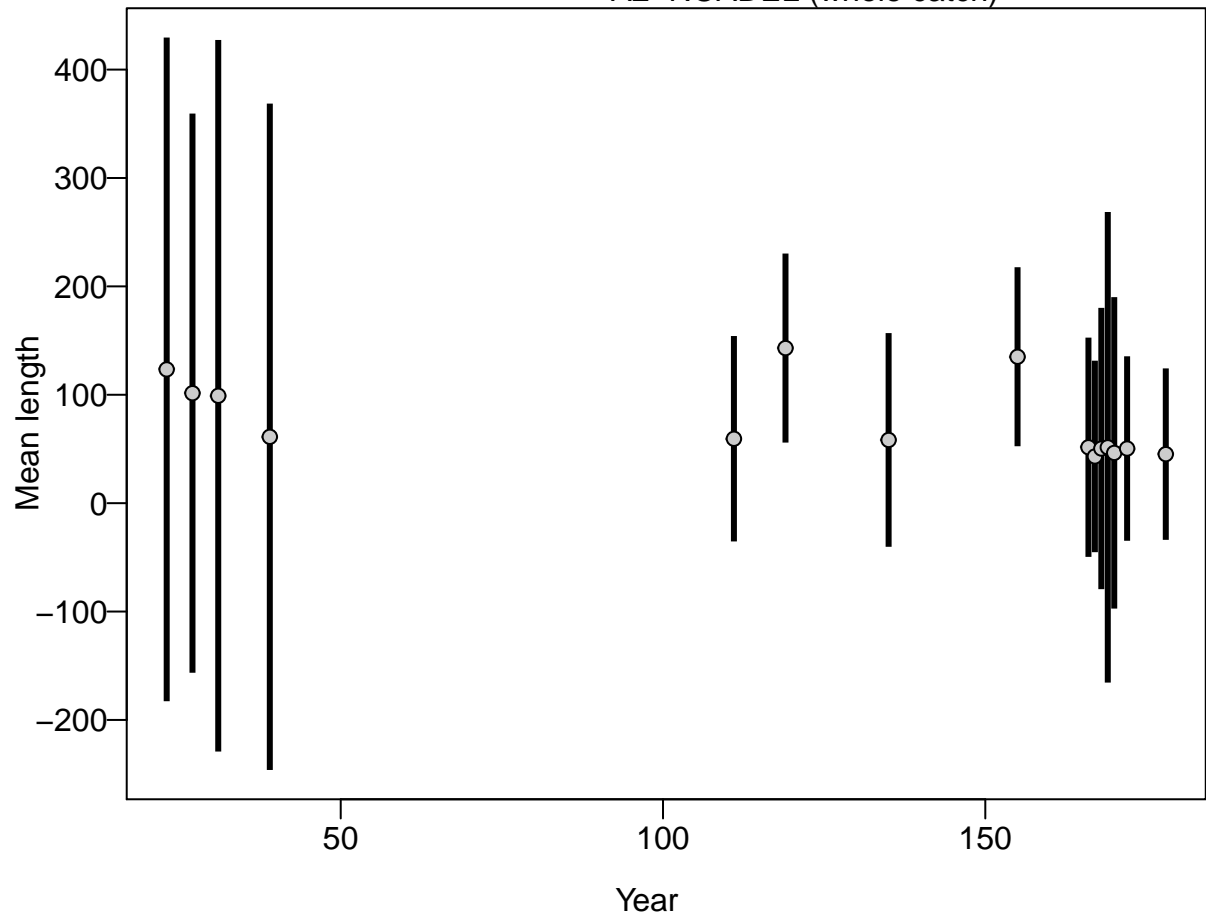
## A6-OBJ (whole catch)

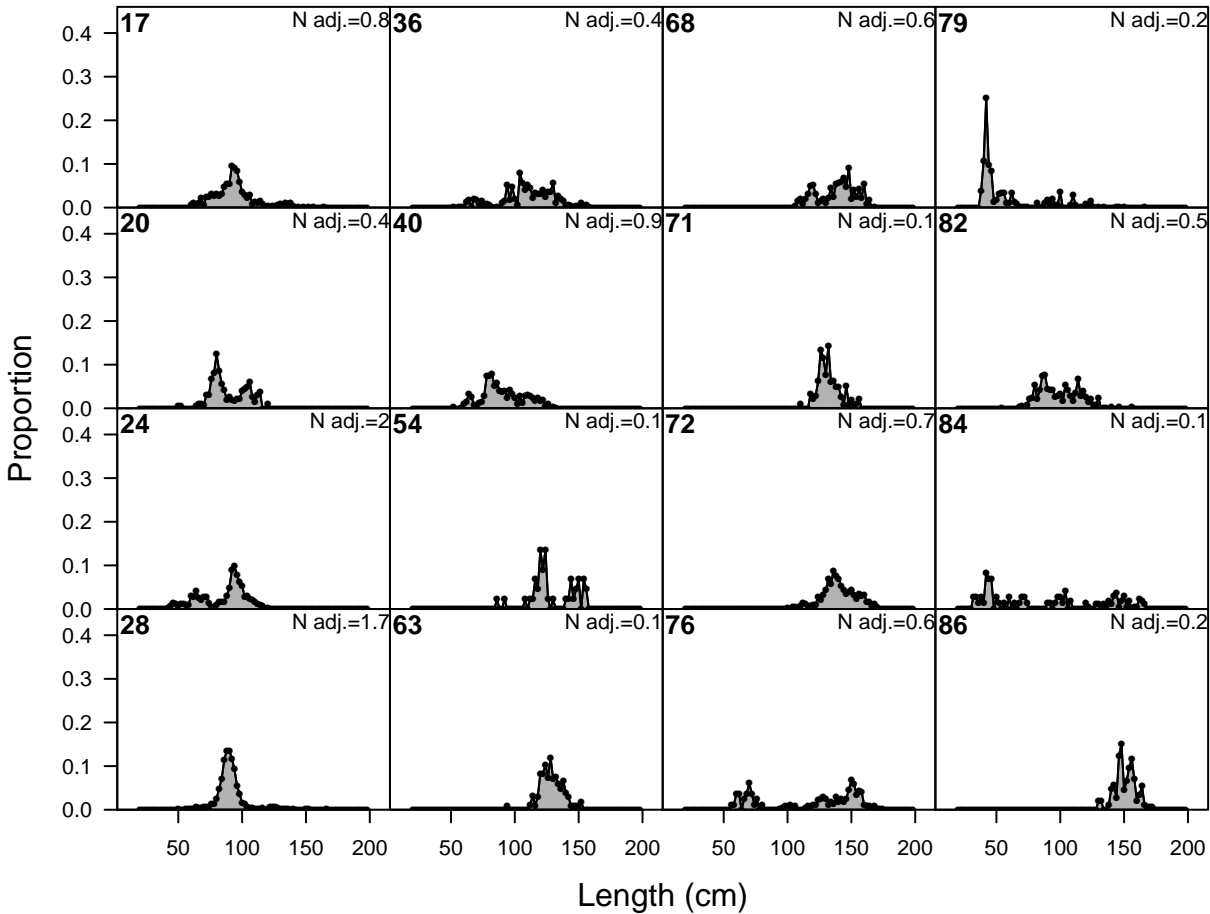




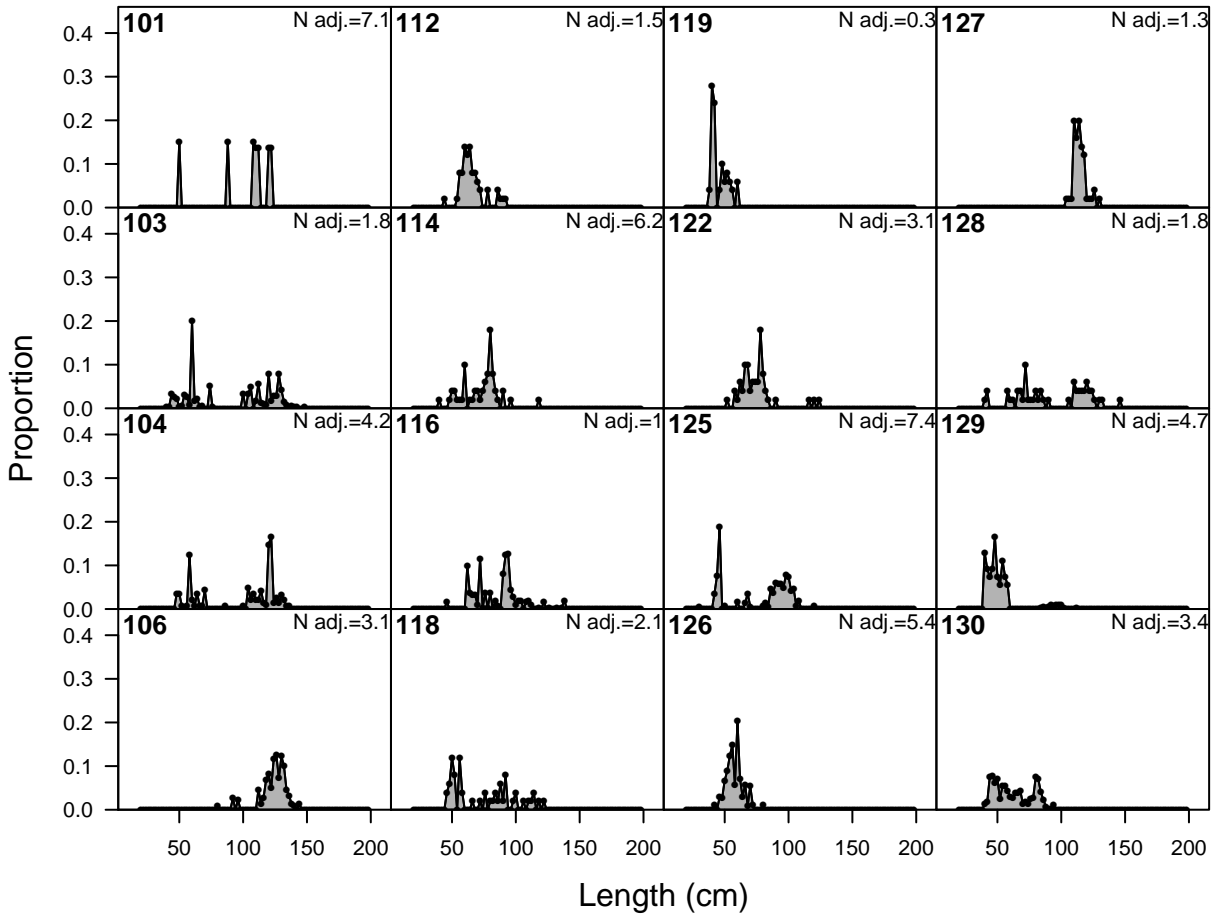


## A2-NOADEL (whole catch)

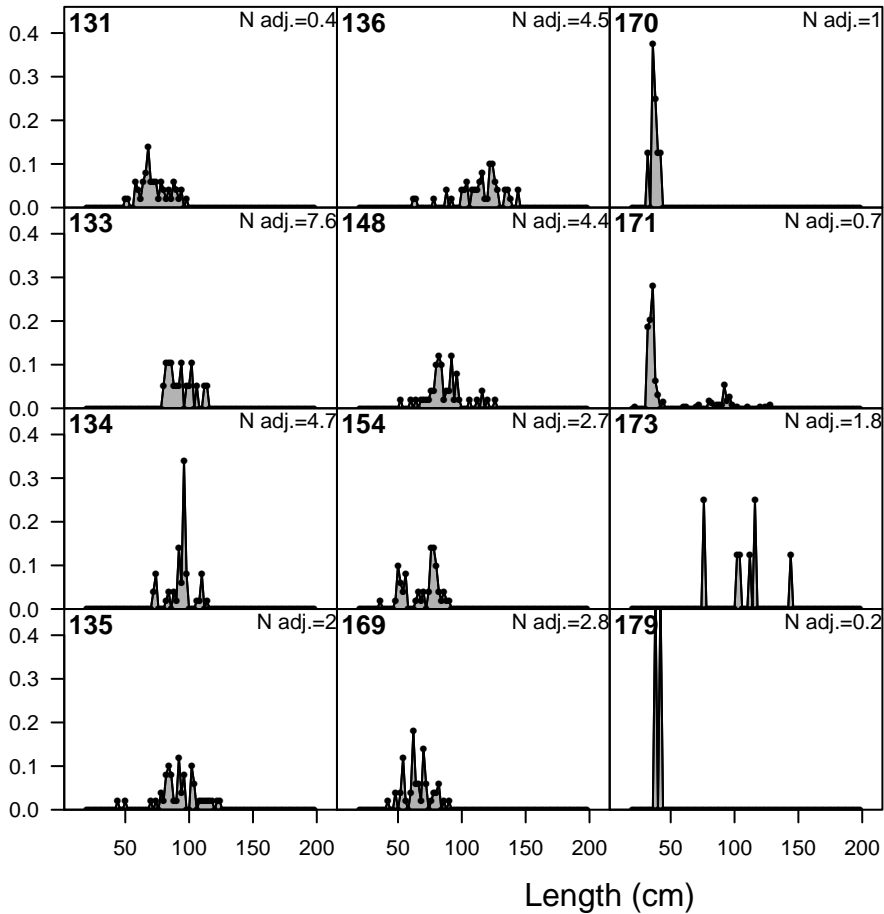


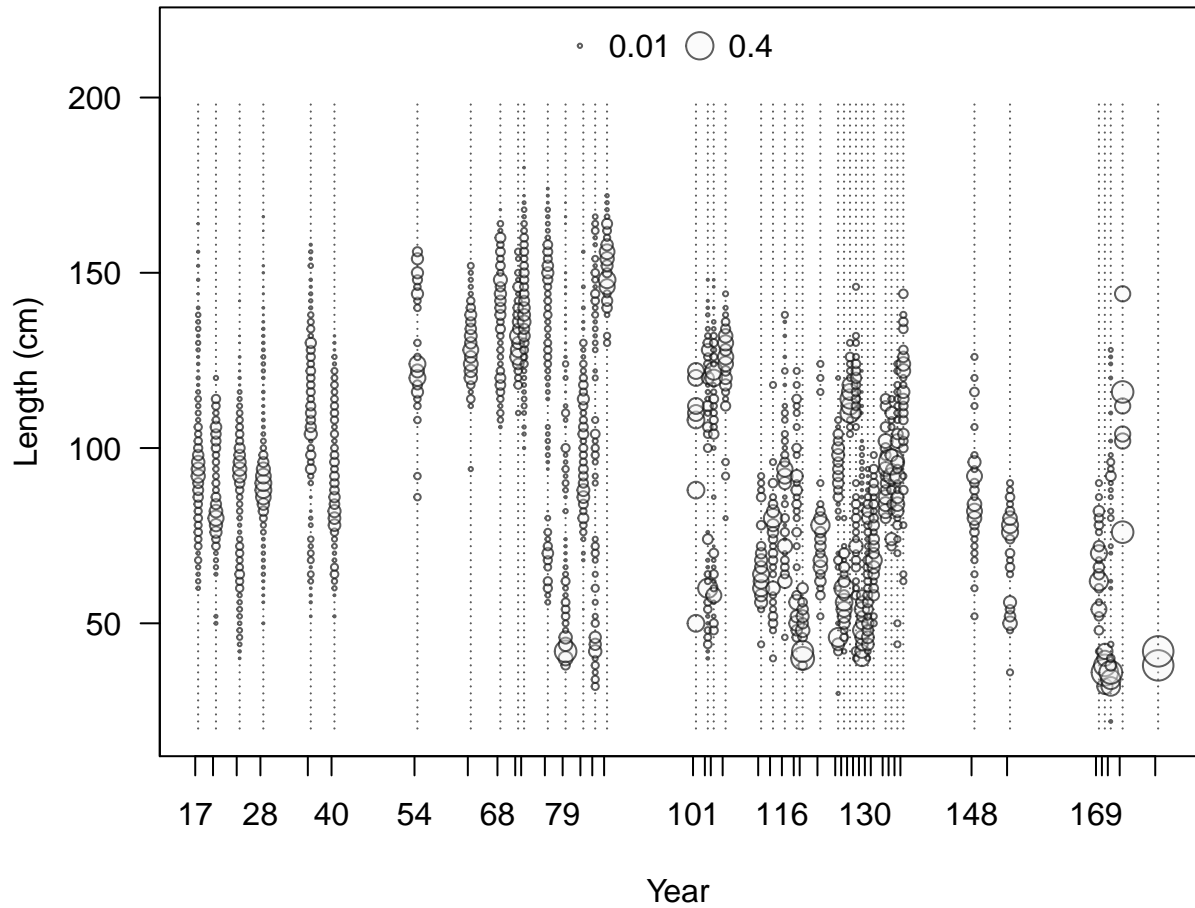




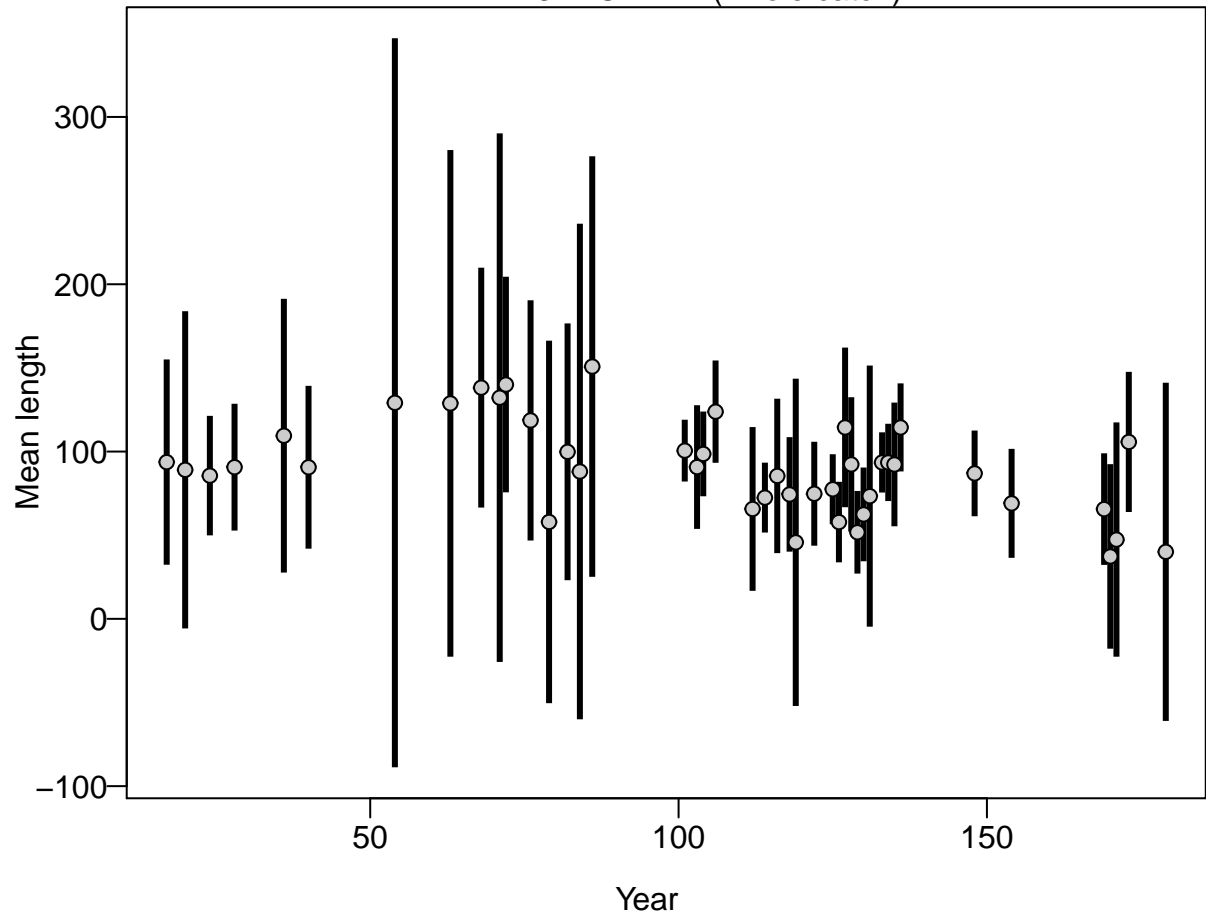


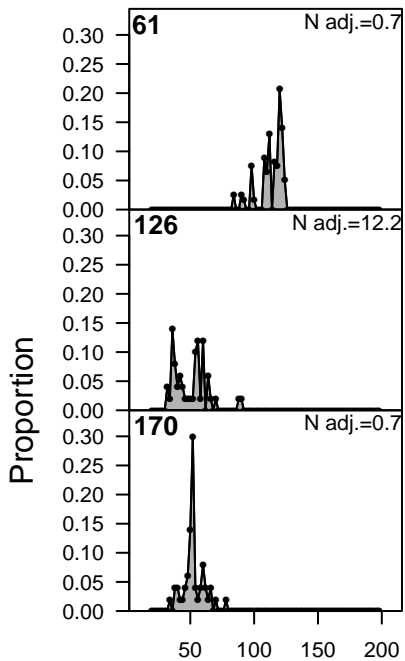
Proportion



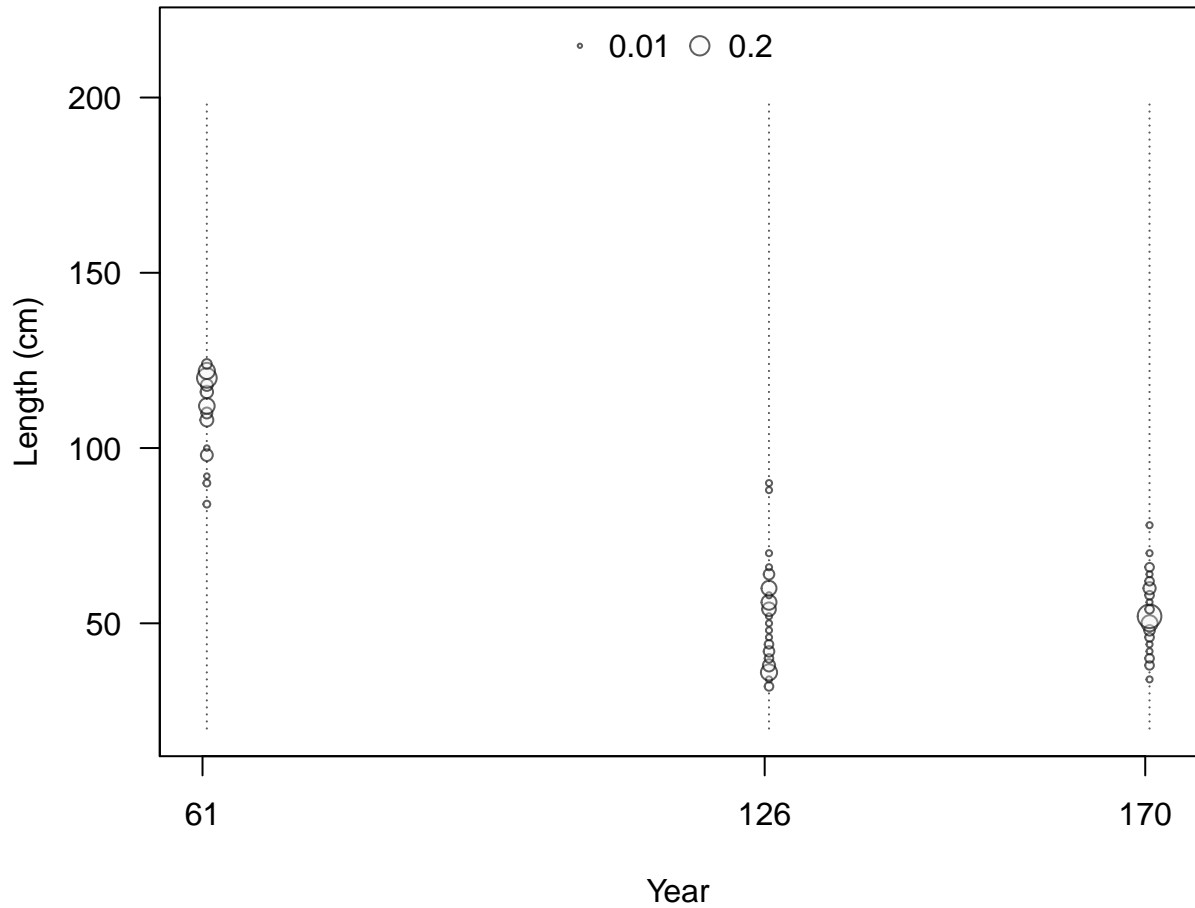


## A3-NOADEL (whole catch)

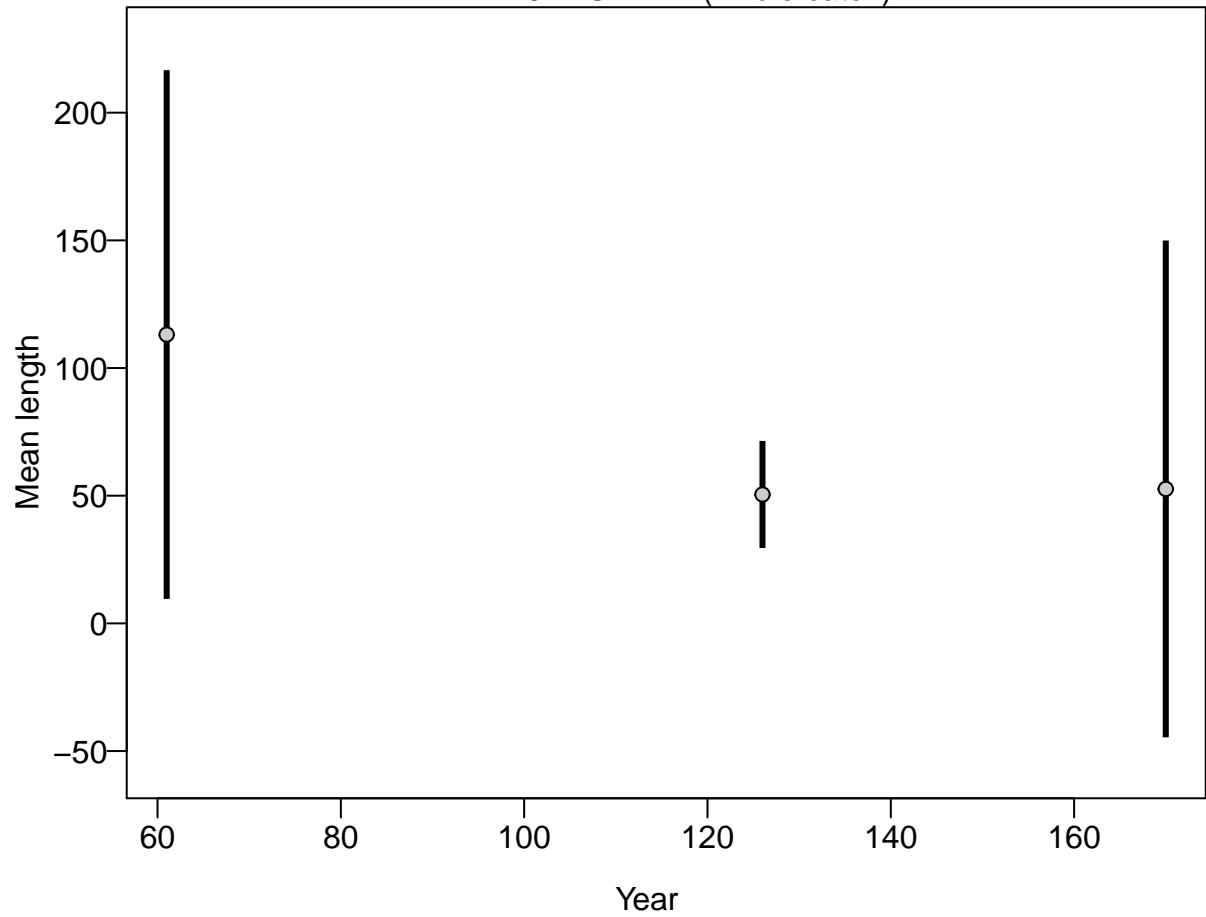




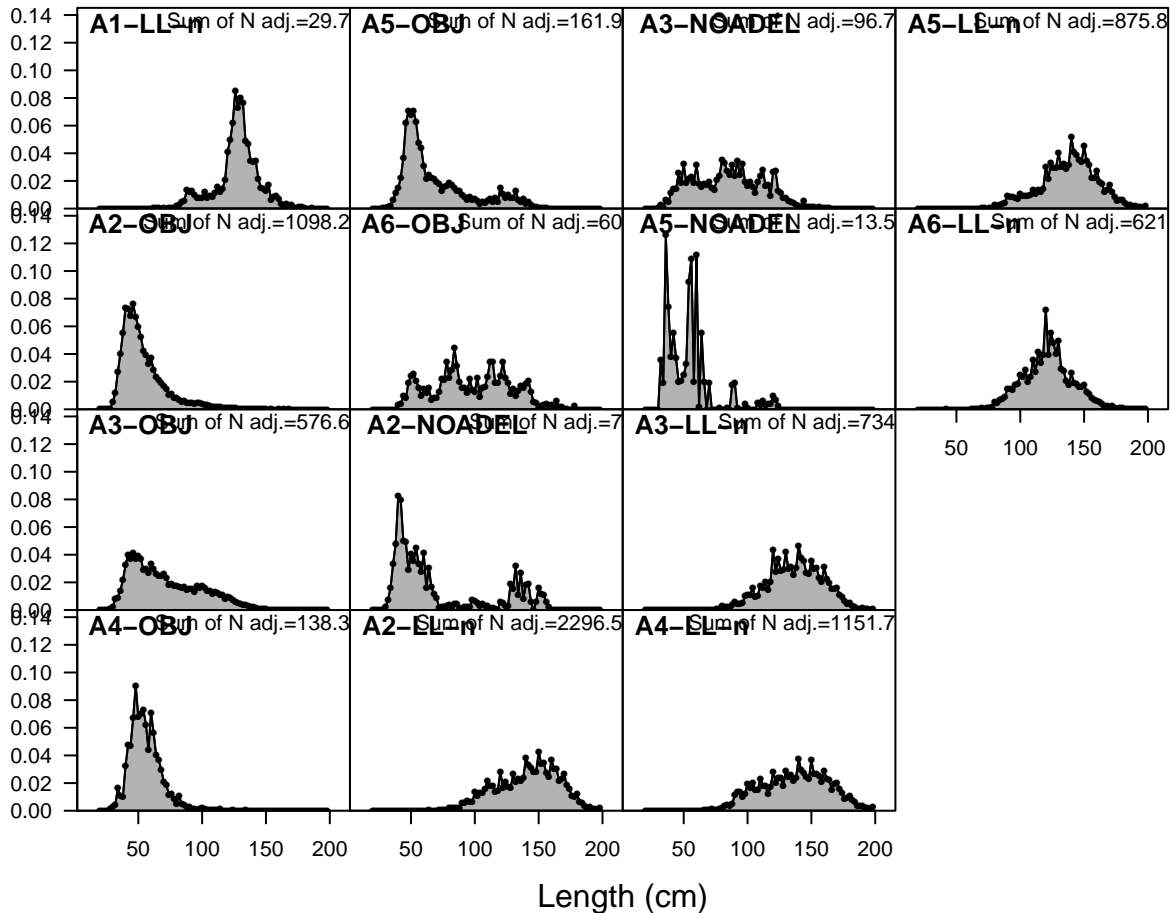
Length (cm)



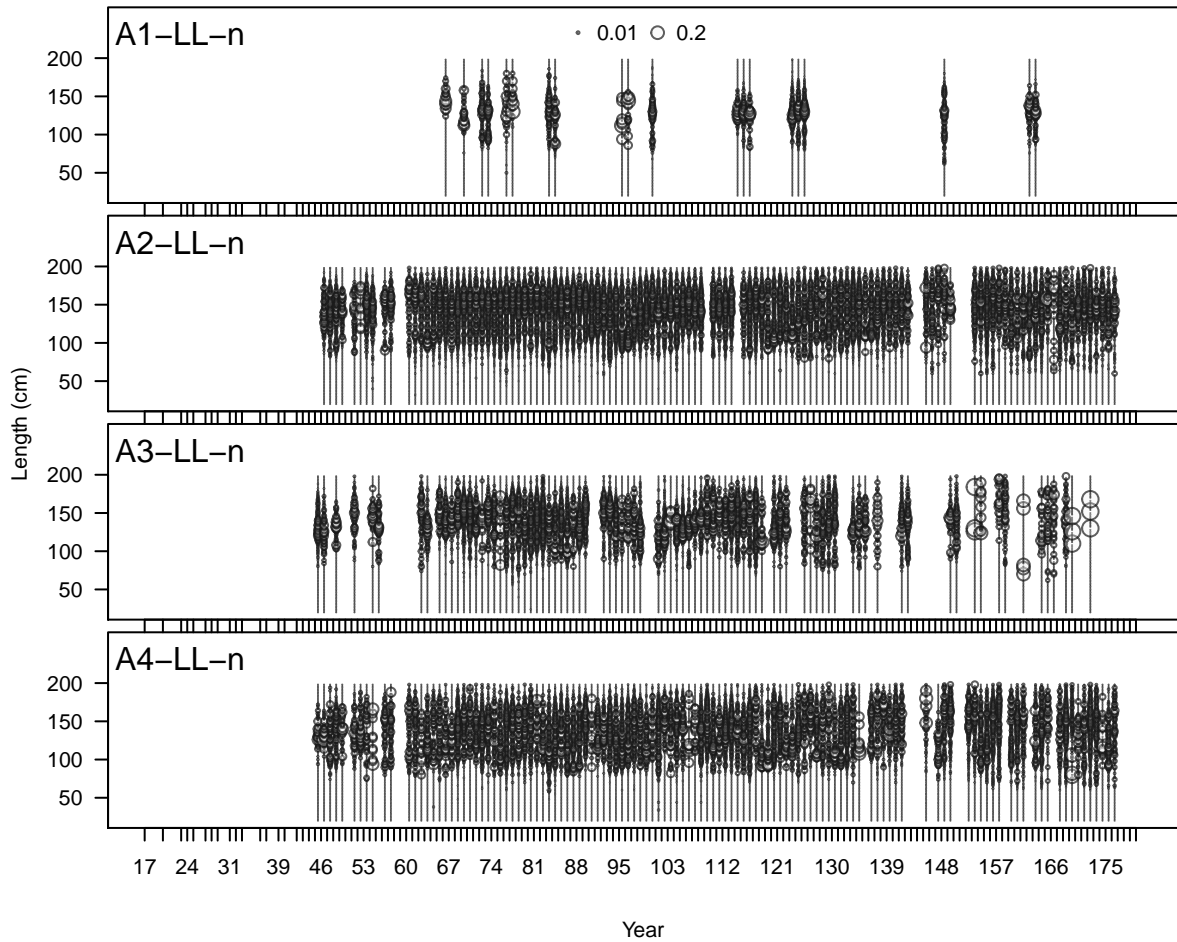
A5-NOADEL (whole catch)

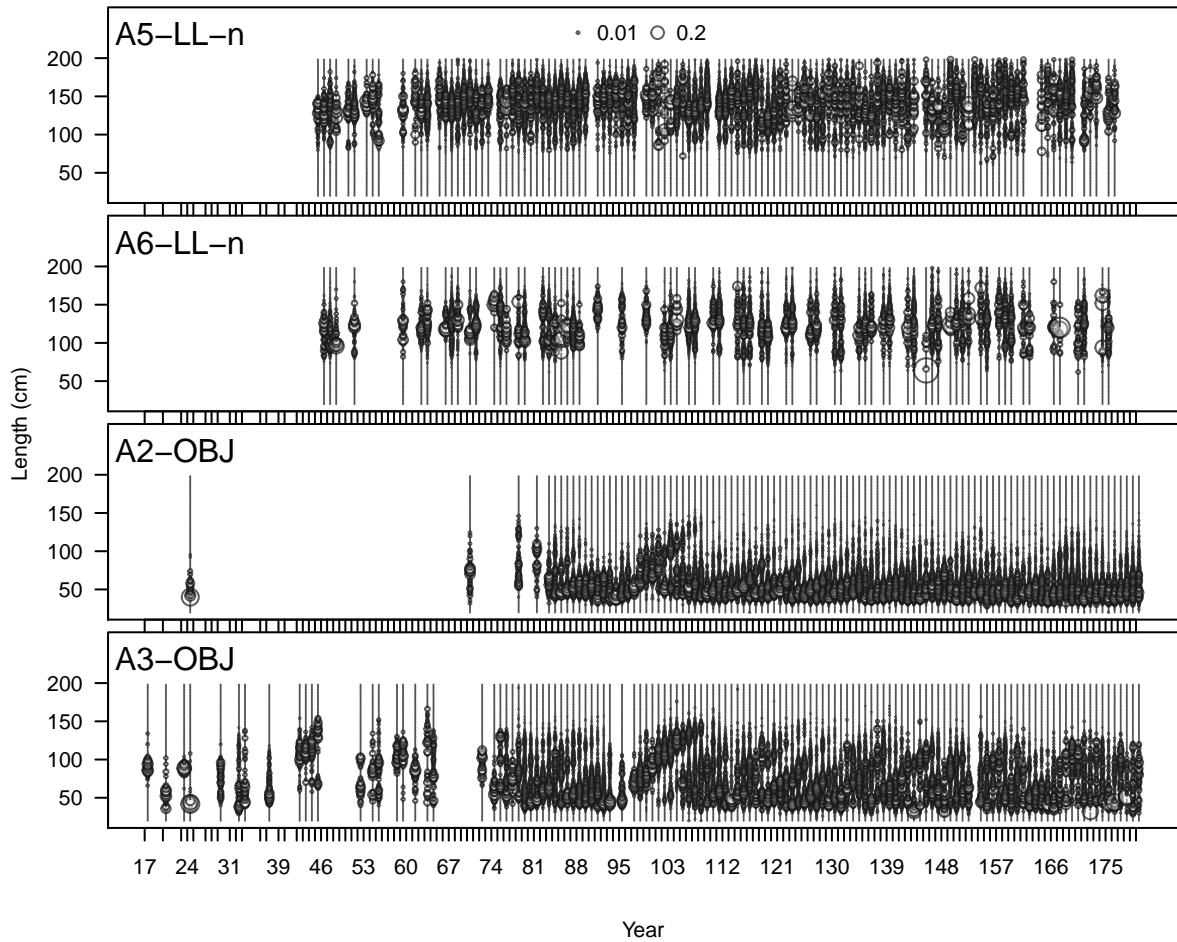


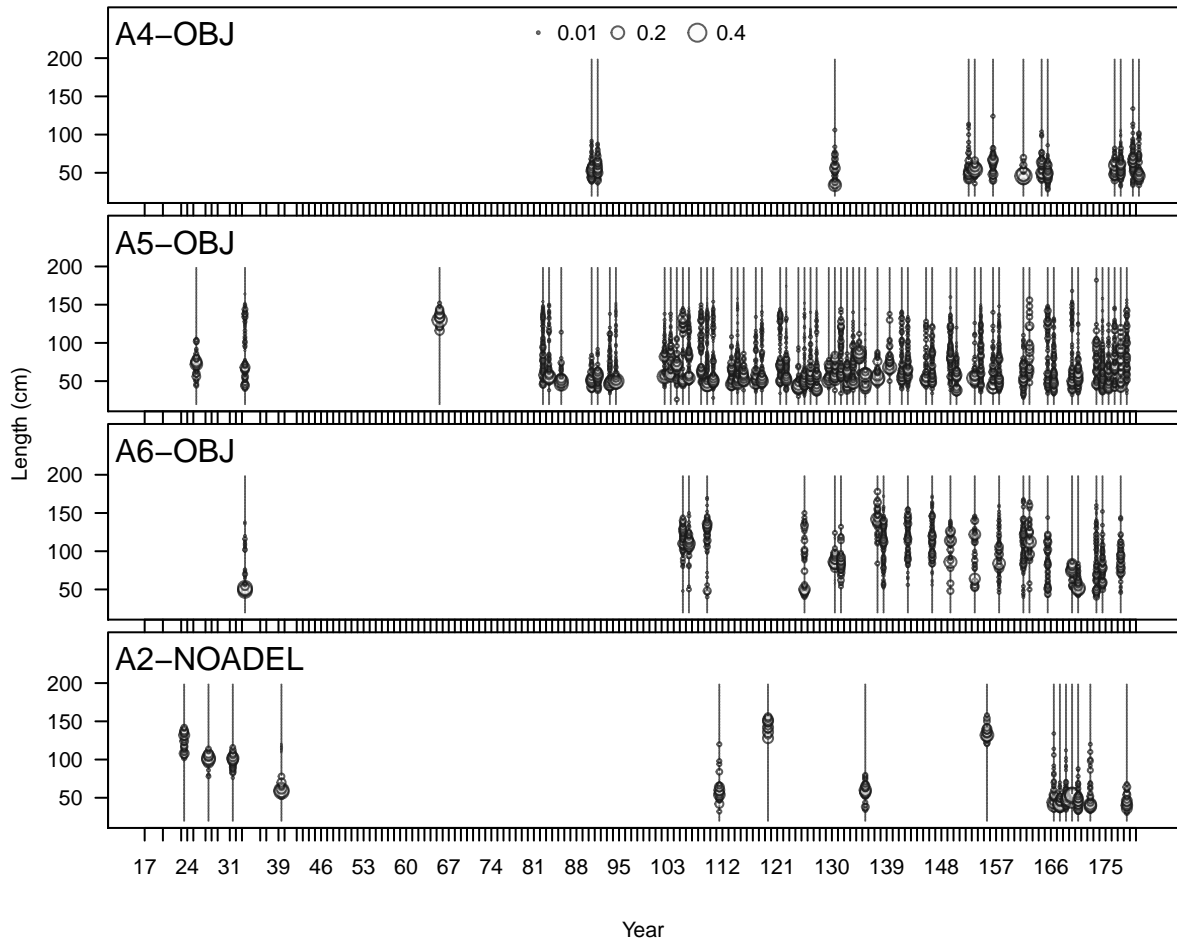
Proportion

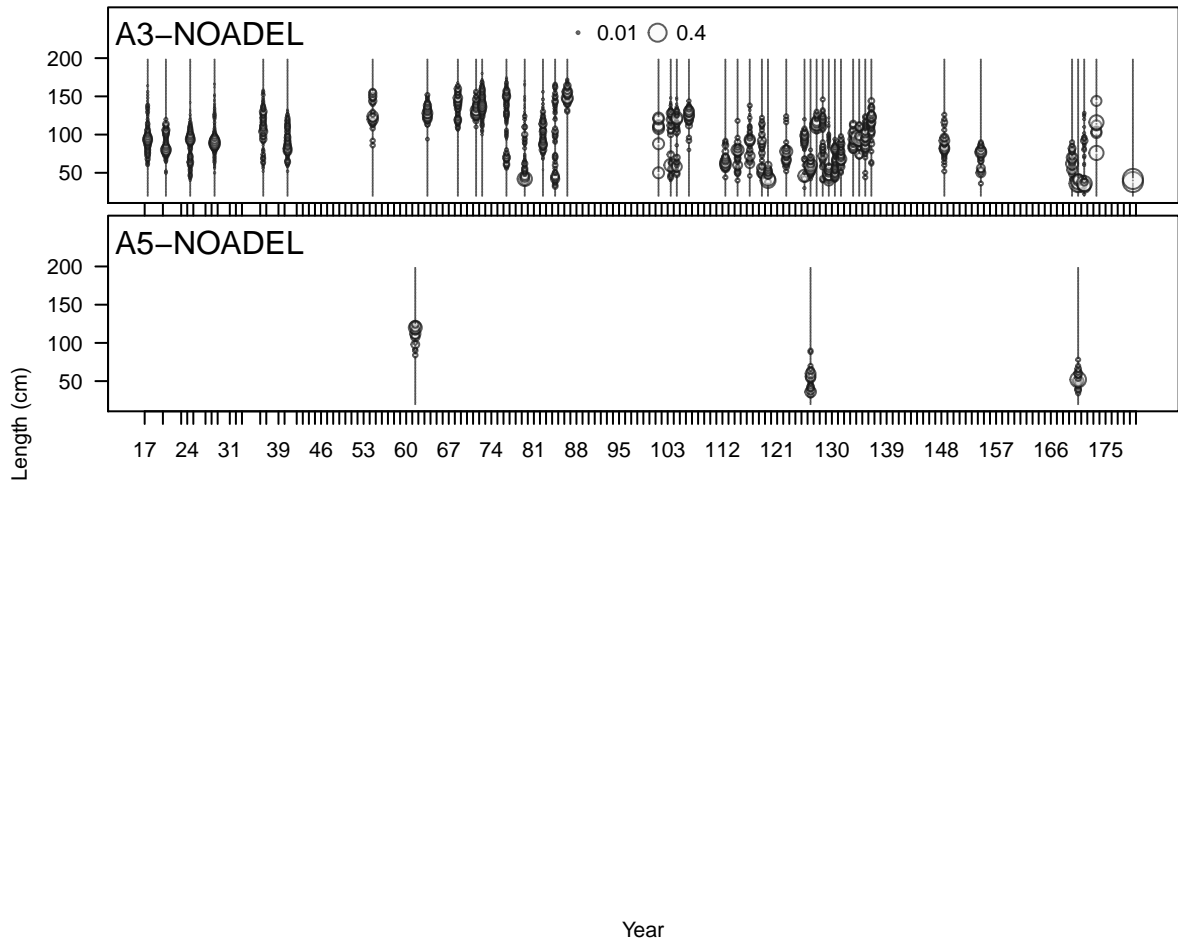




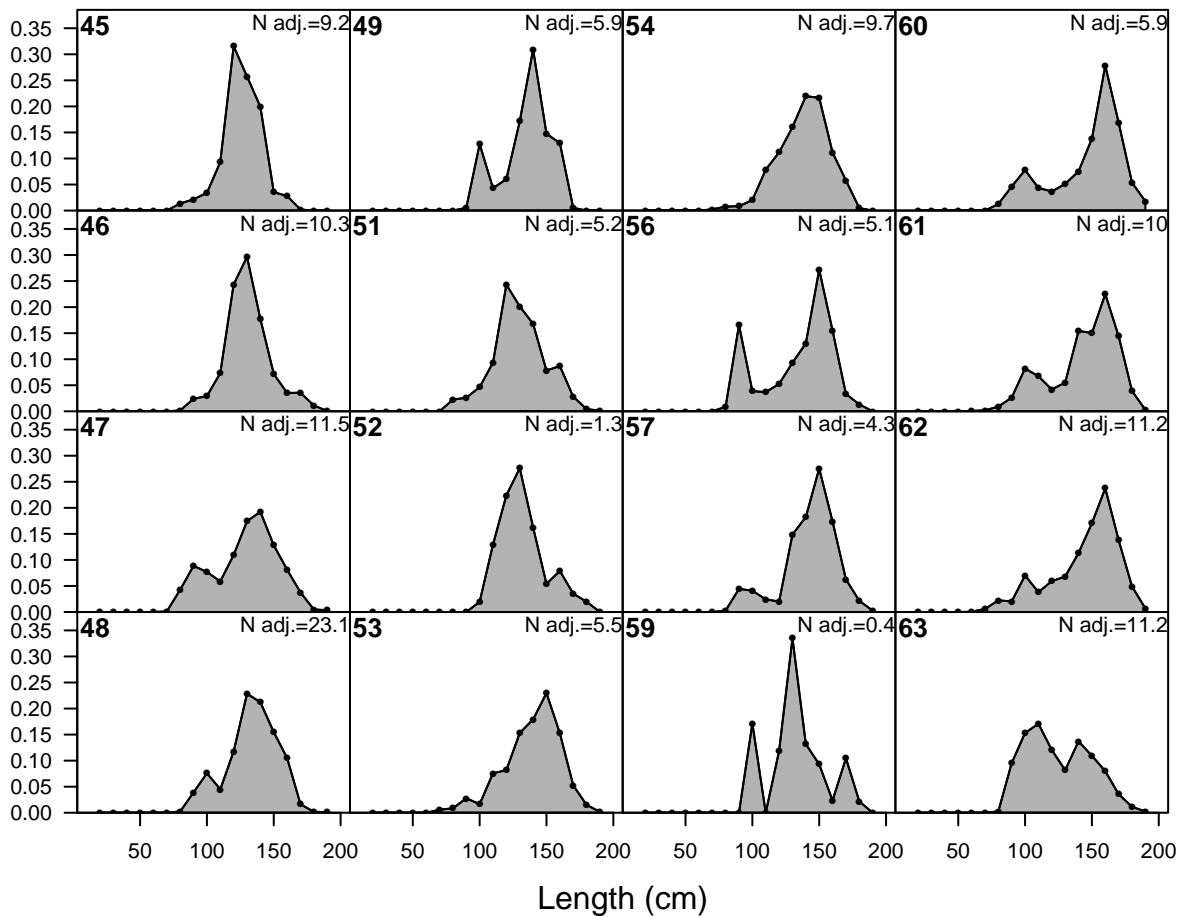




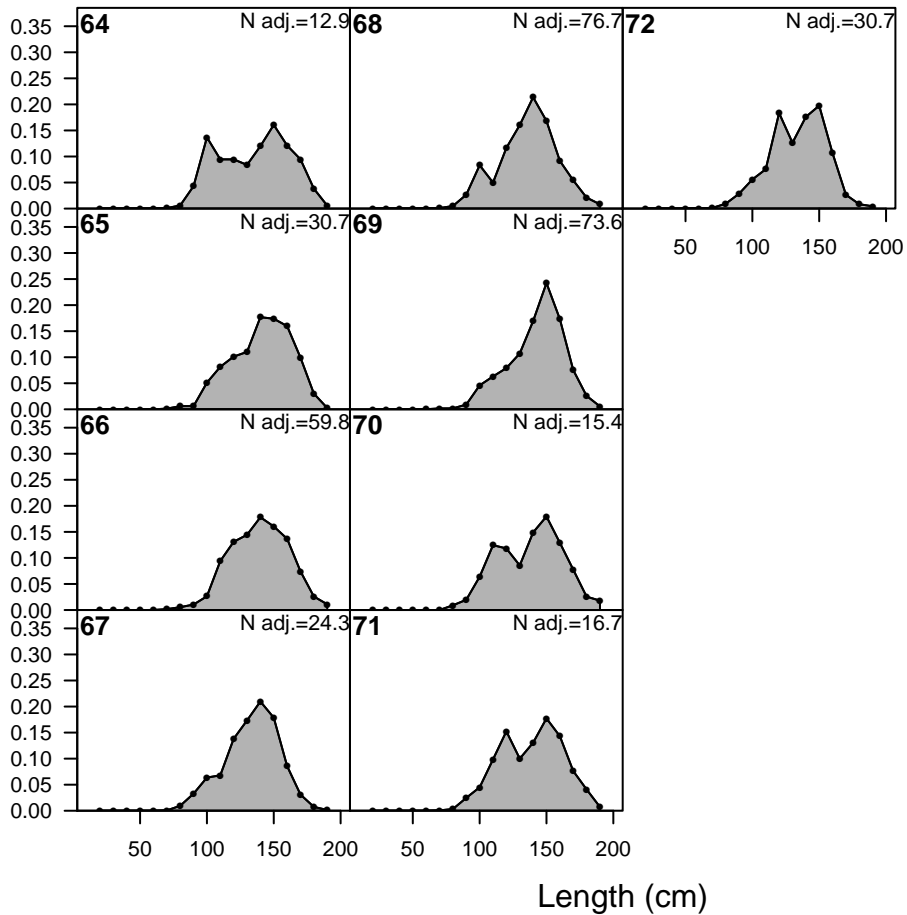


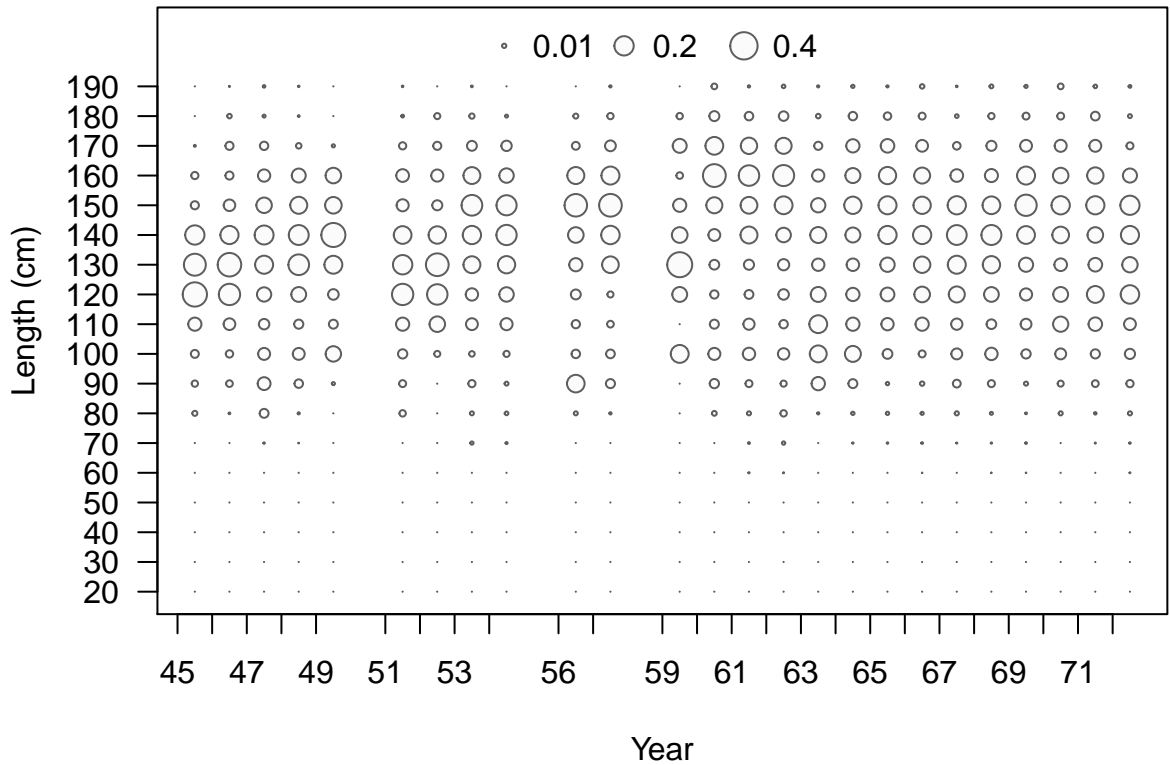


Proportion

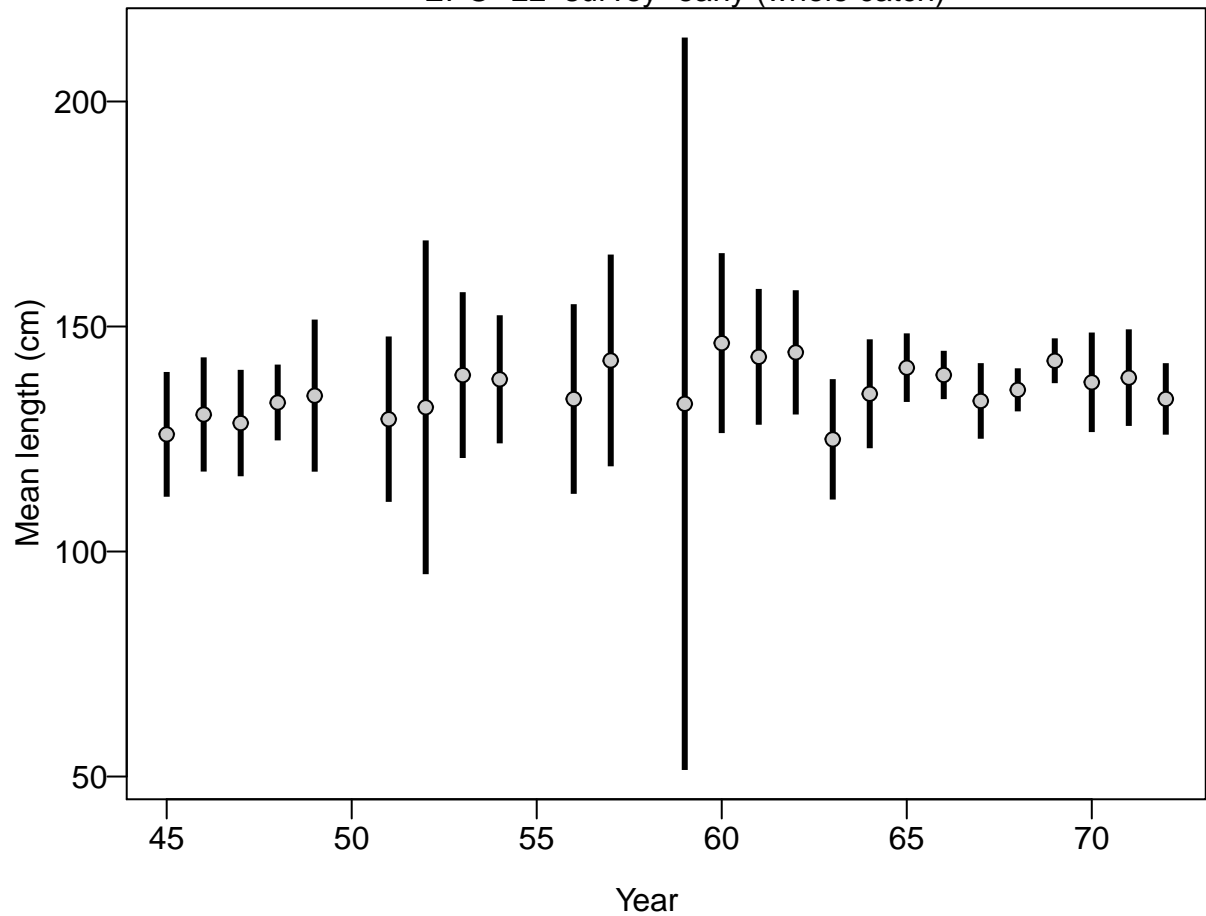


Proportion

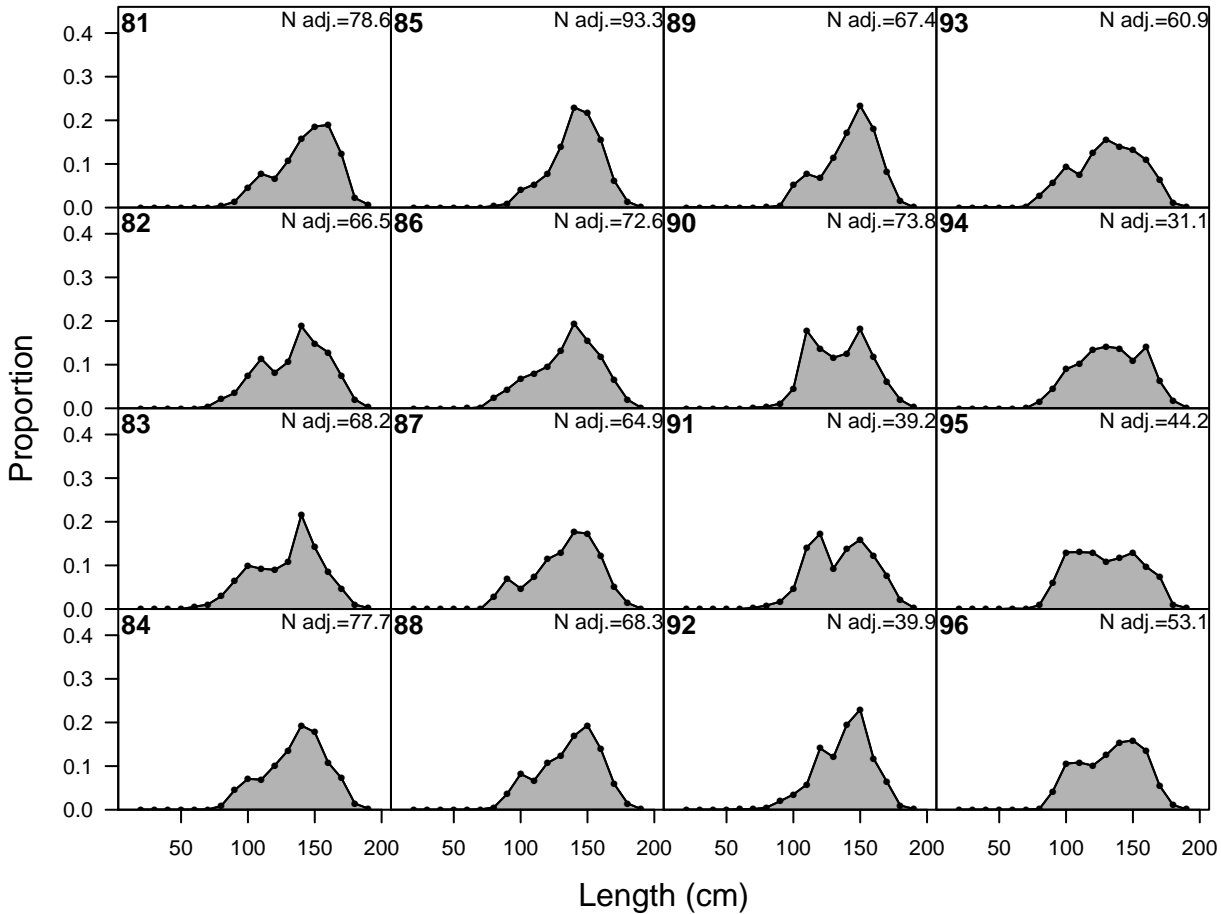


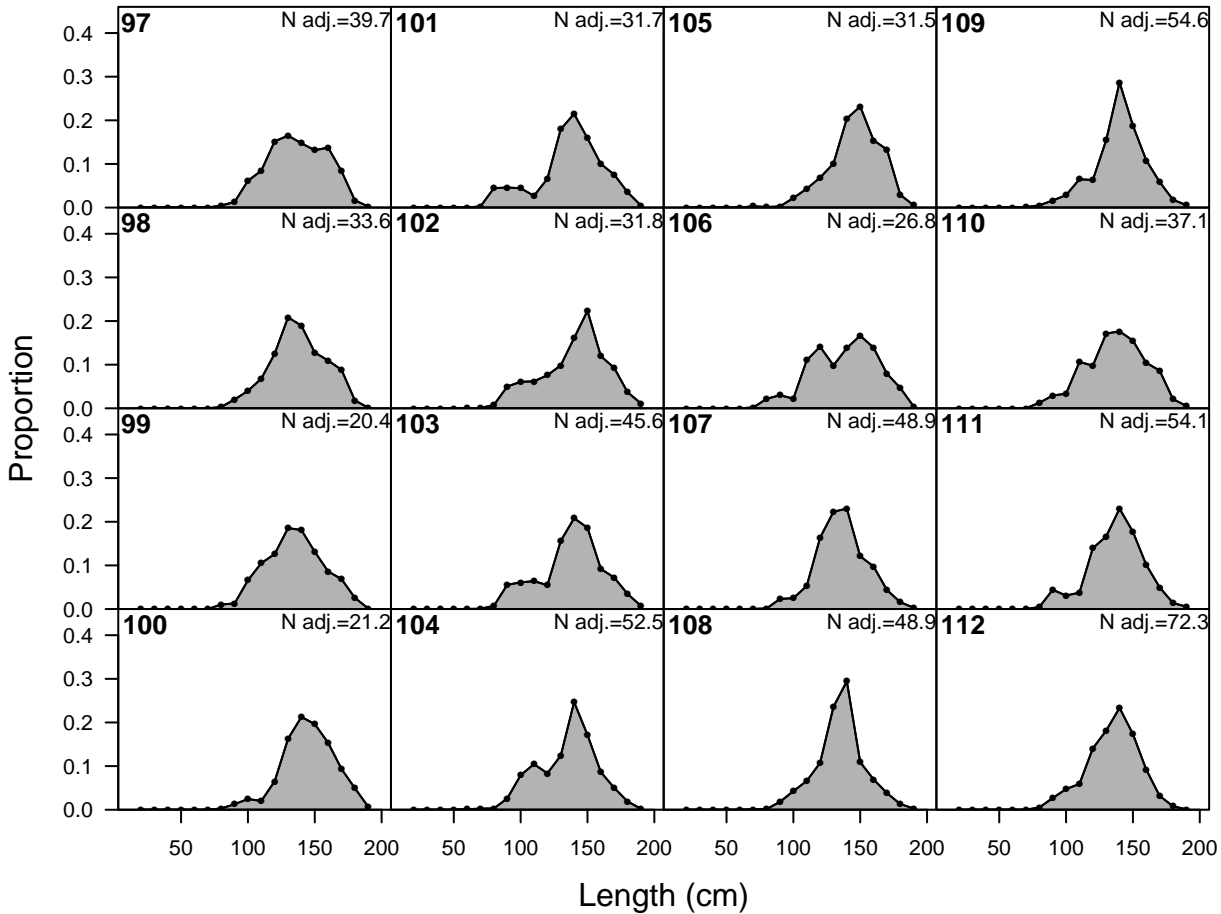


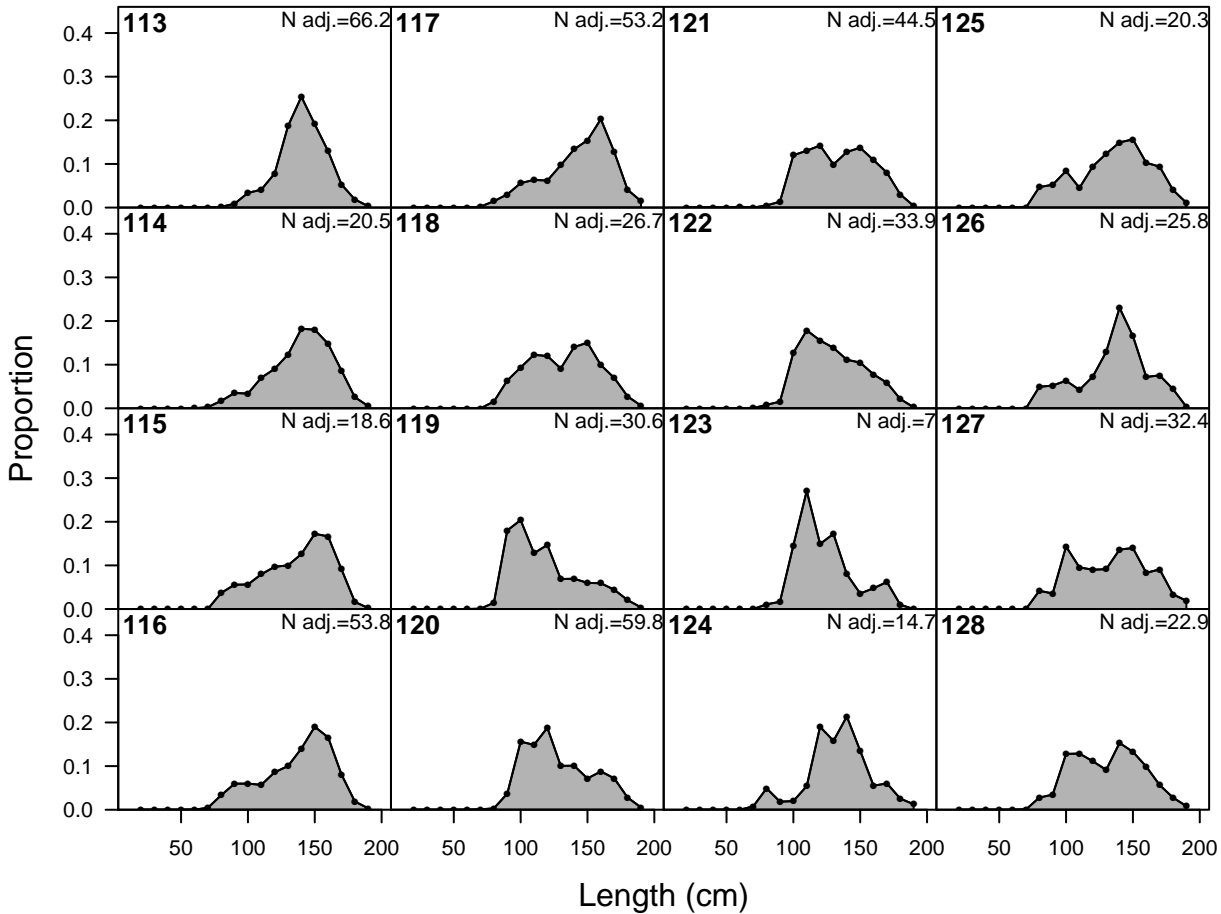
EPO-LL-survey-early (whole catch)

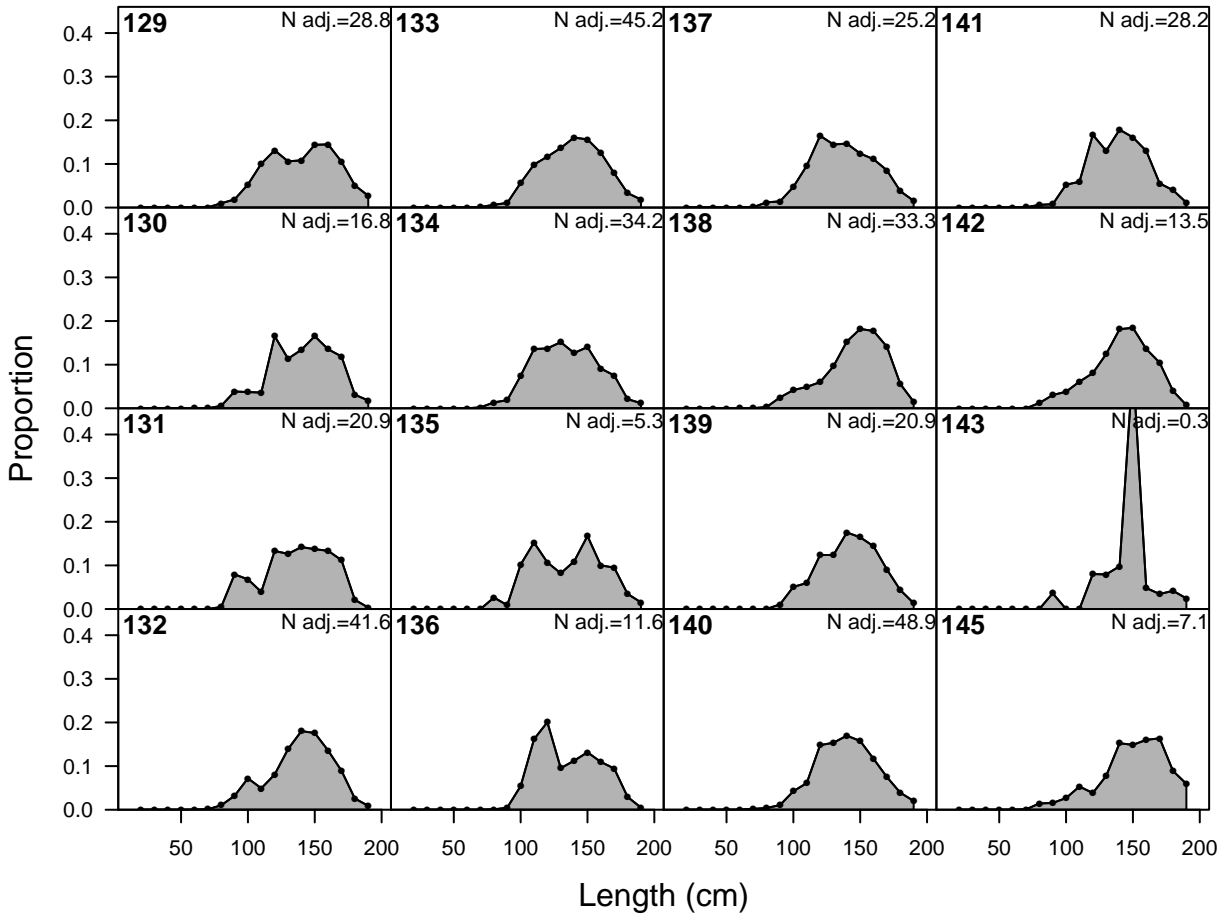


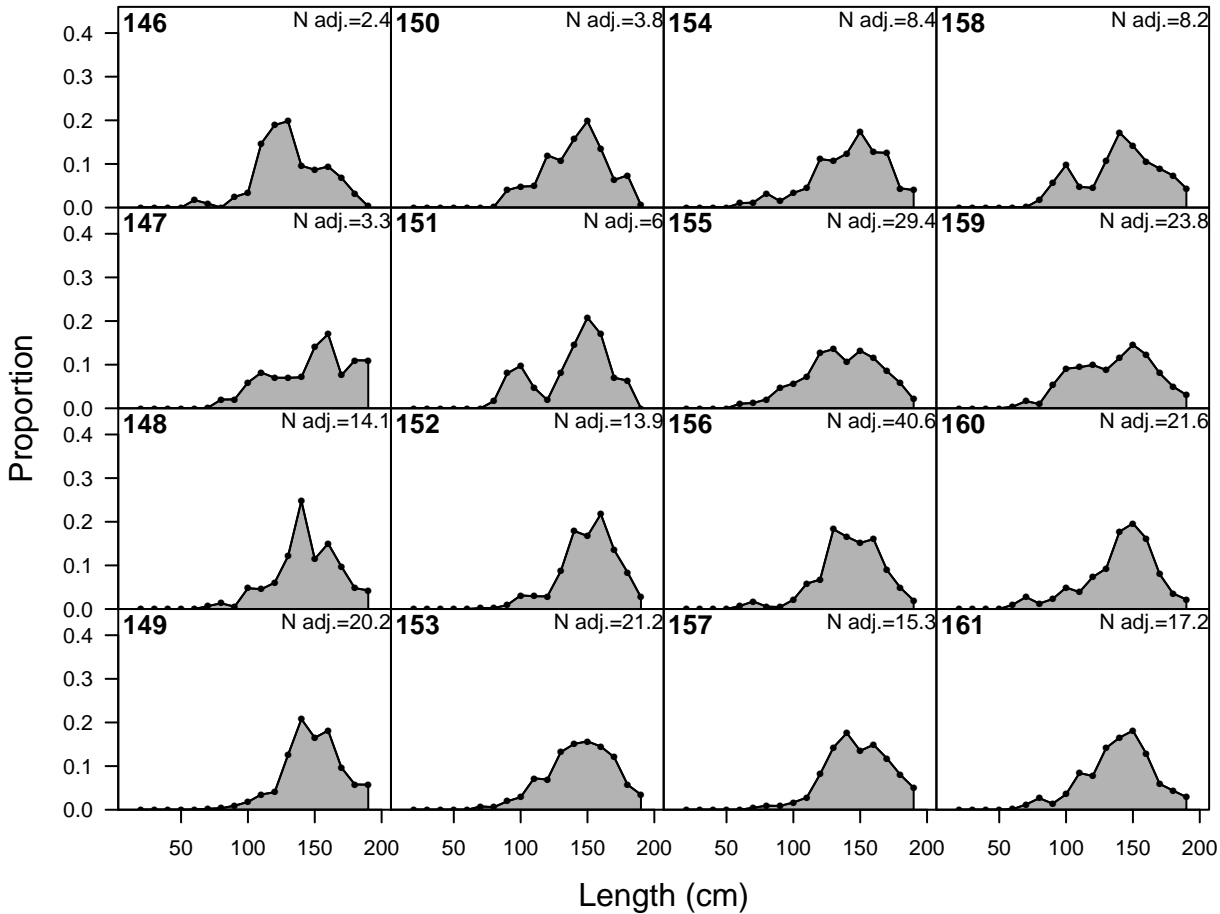


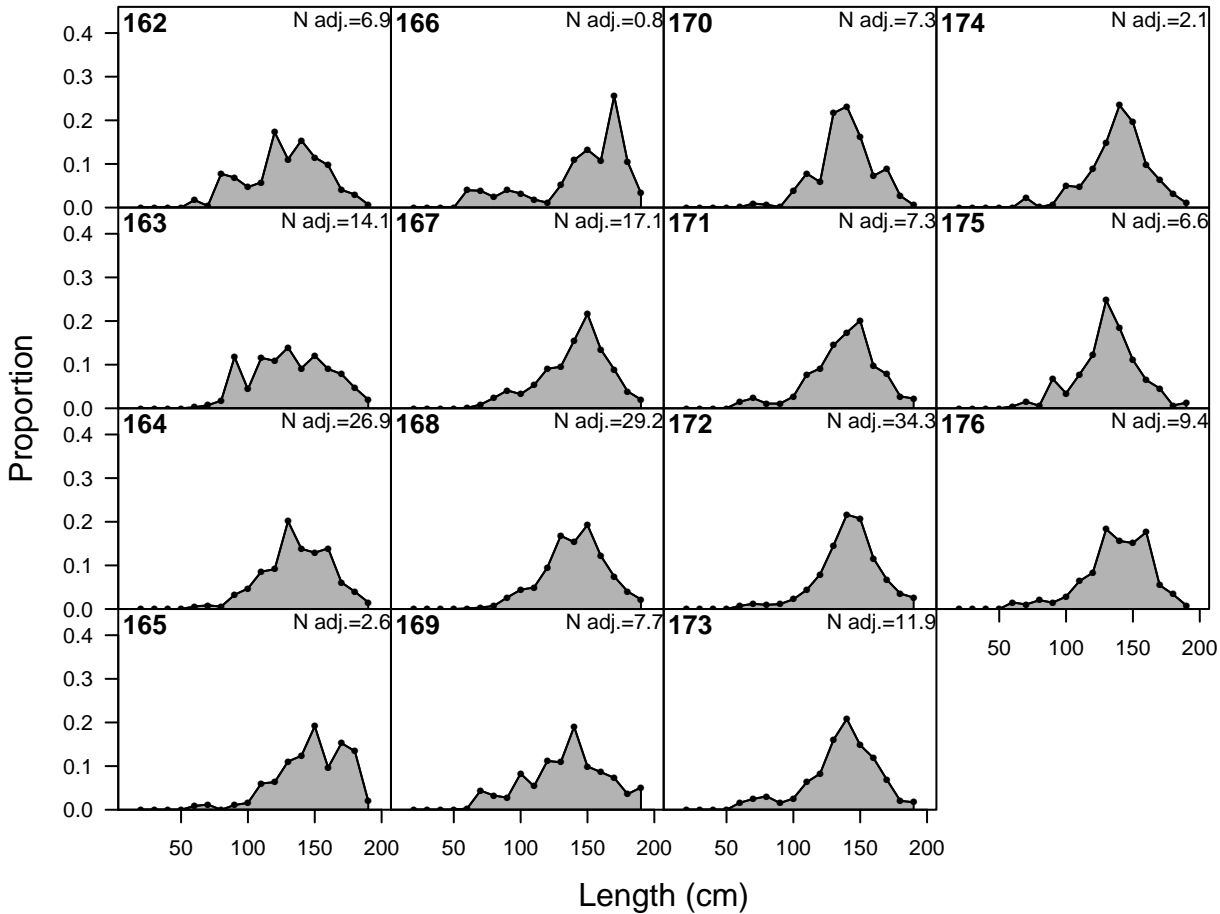


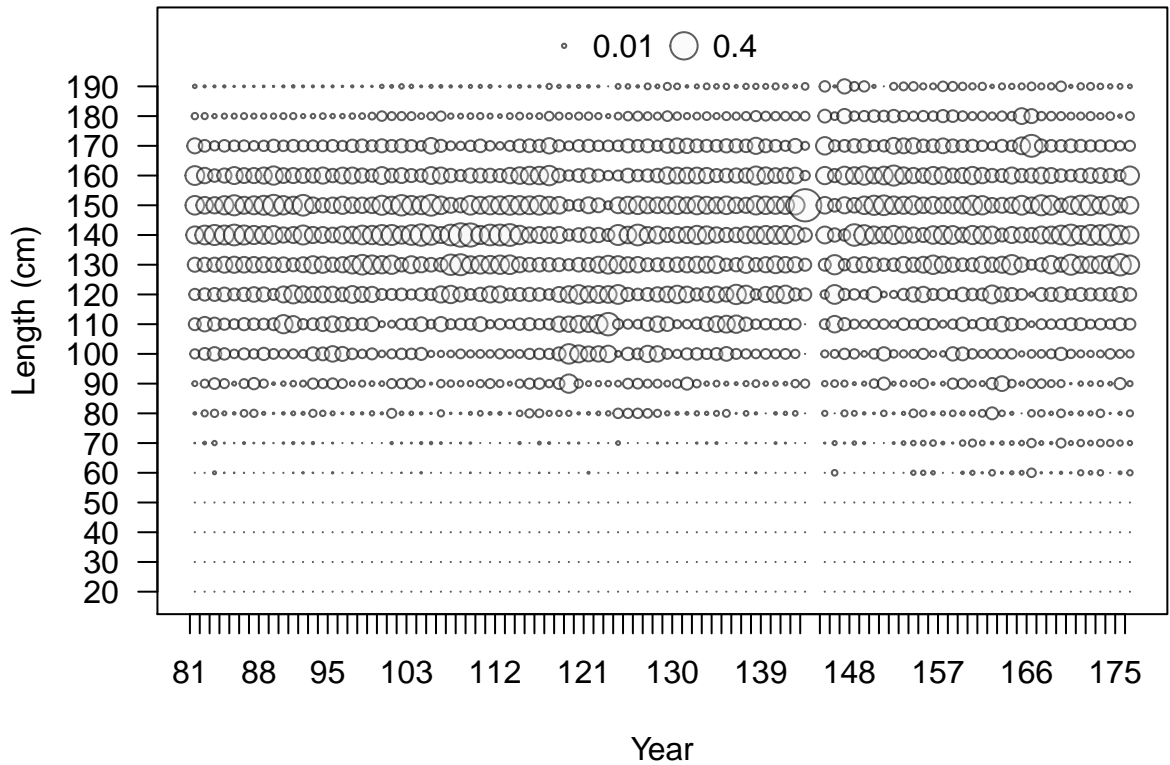




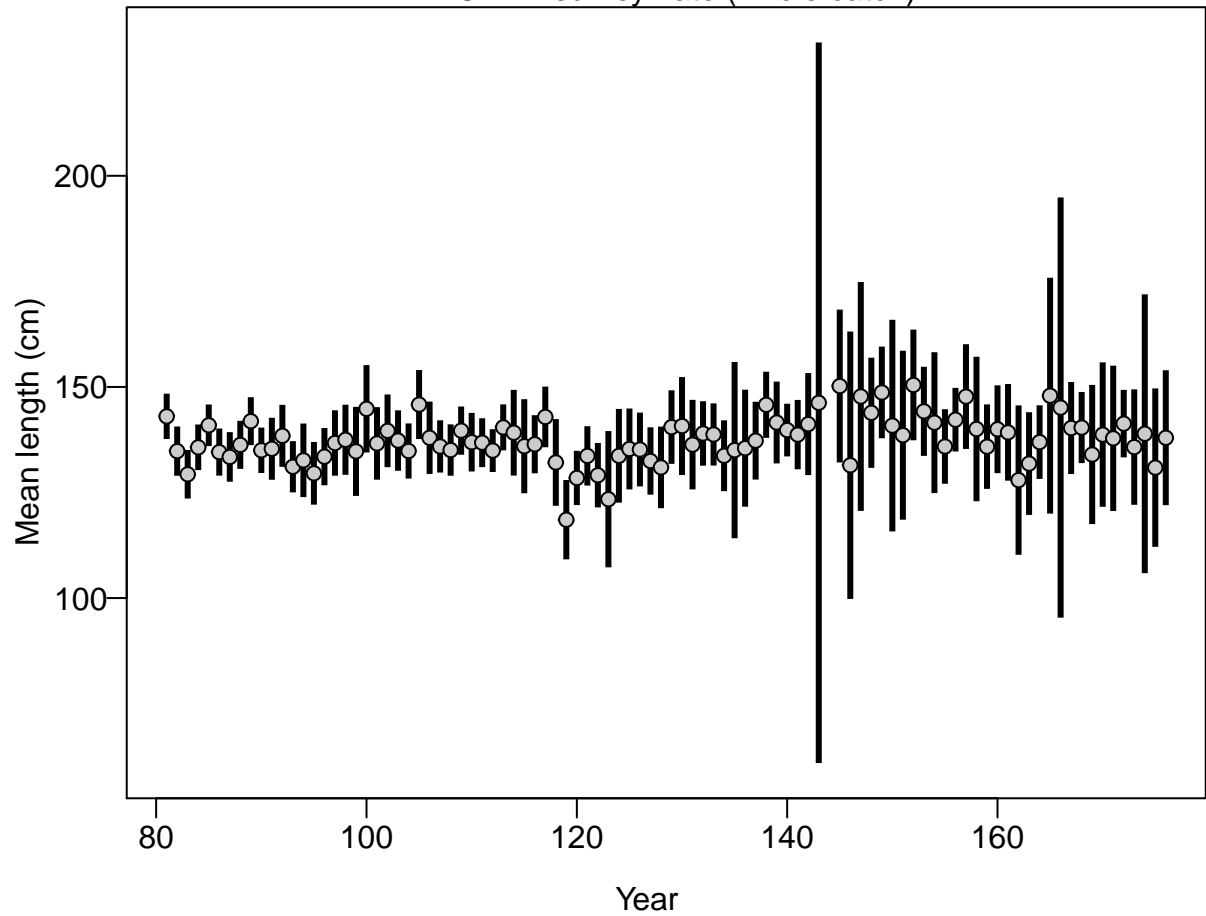








EPO-LL-survey-late (whole catch)





**EPO-LL-survey-early**

Sum of N adj.=470.6

0.20  
0.15  
0.10  
0.05  
0.00  
0.00  
0.20  
0.15  
0.10  
0.05  
0.00

**EPO-LL-survey-late**

Sum of N adj.=2996.3

50

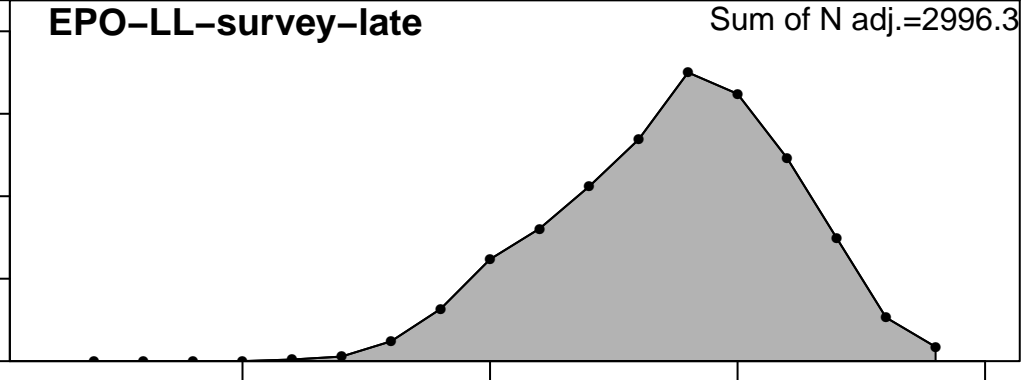
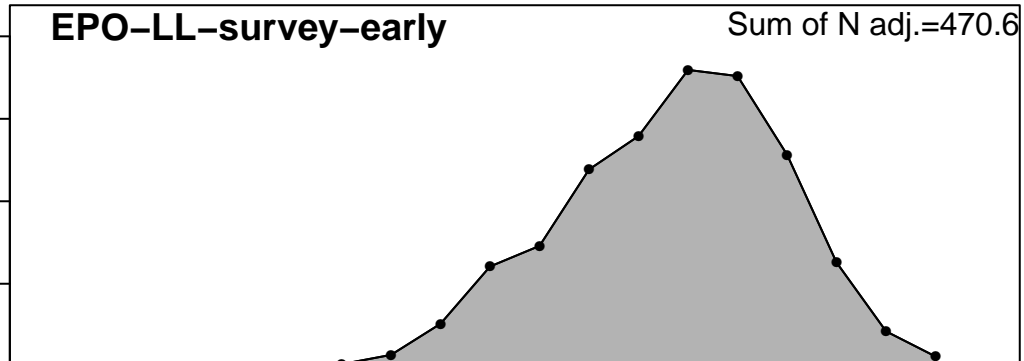
100

150

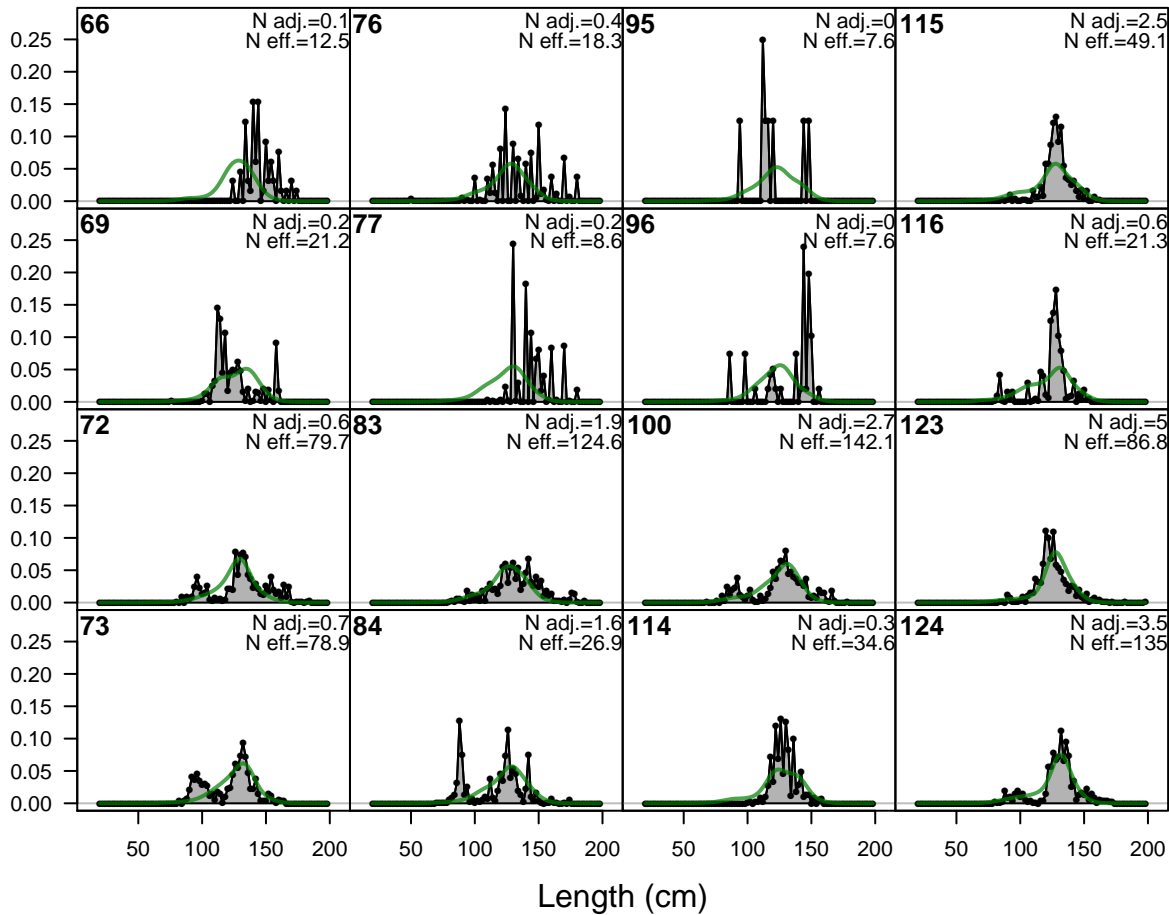
200

Length (cm)

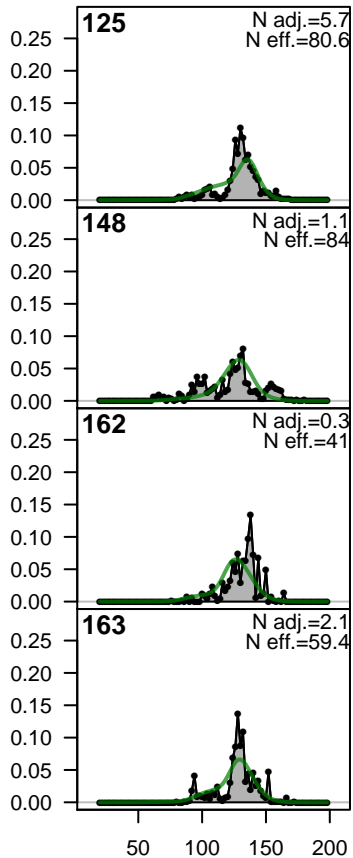
Proportion



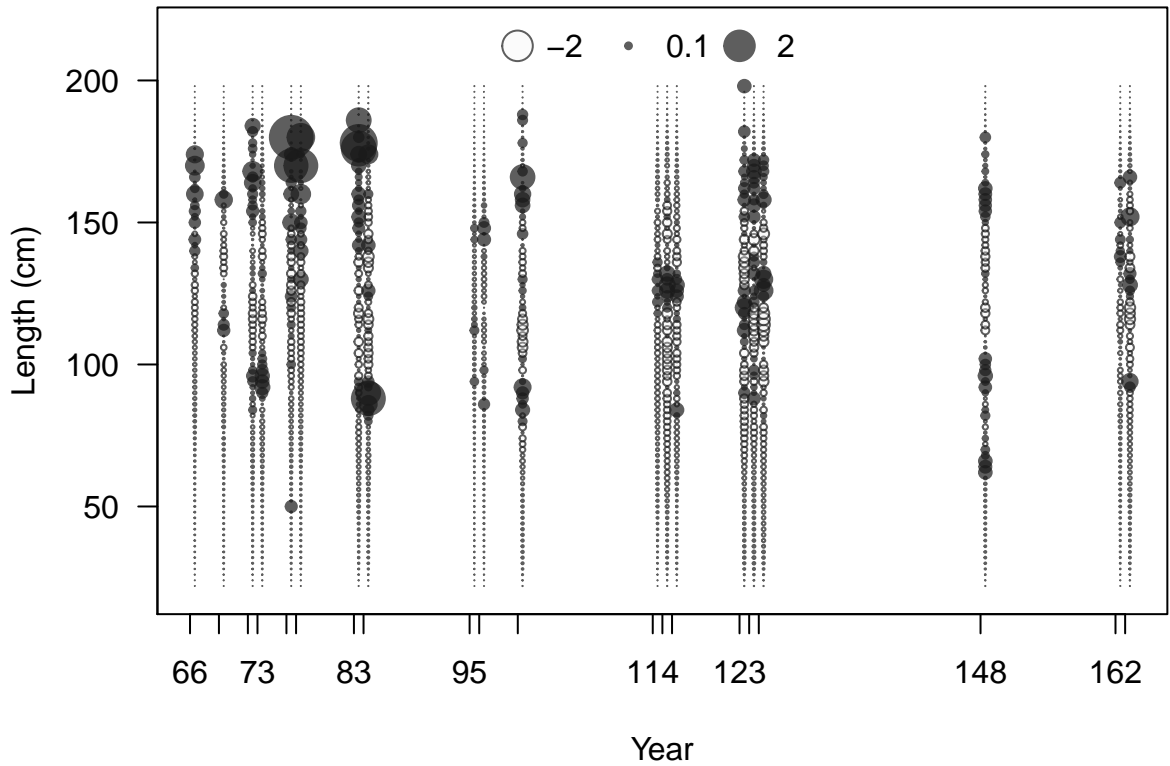
Proportion

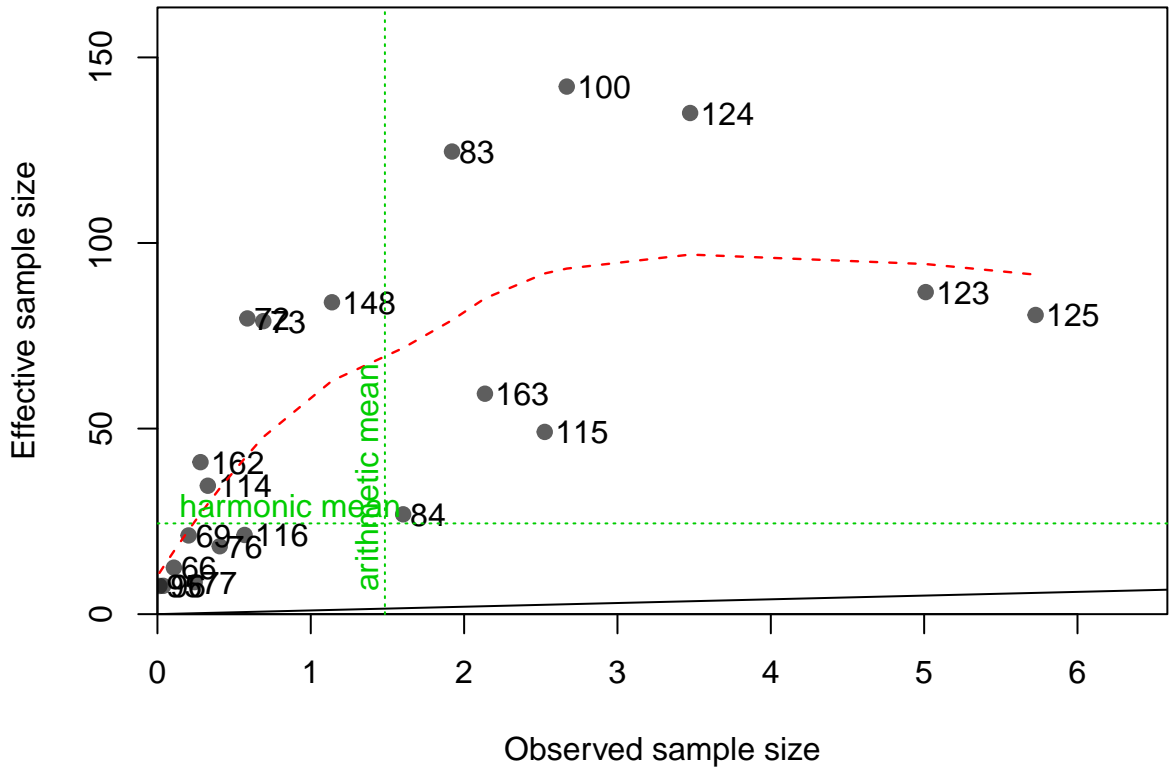


Proportion

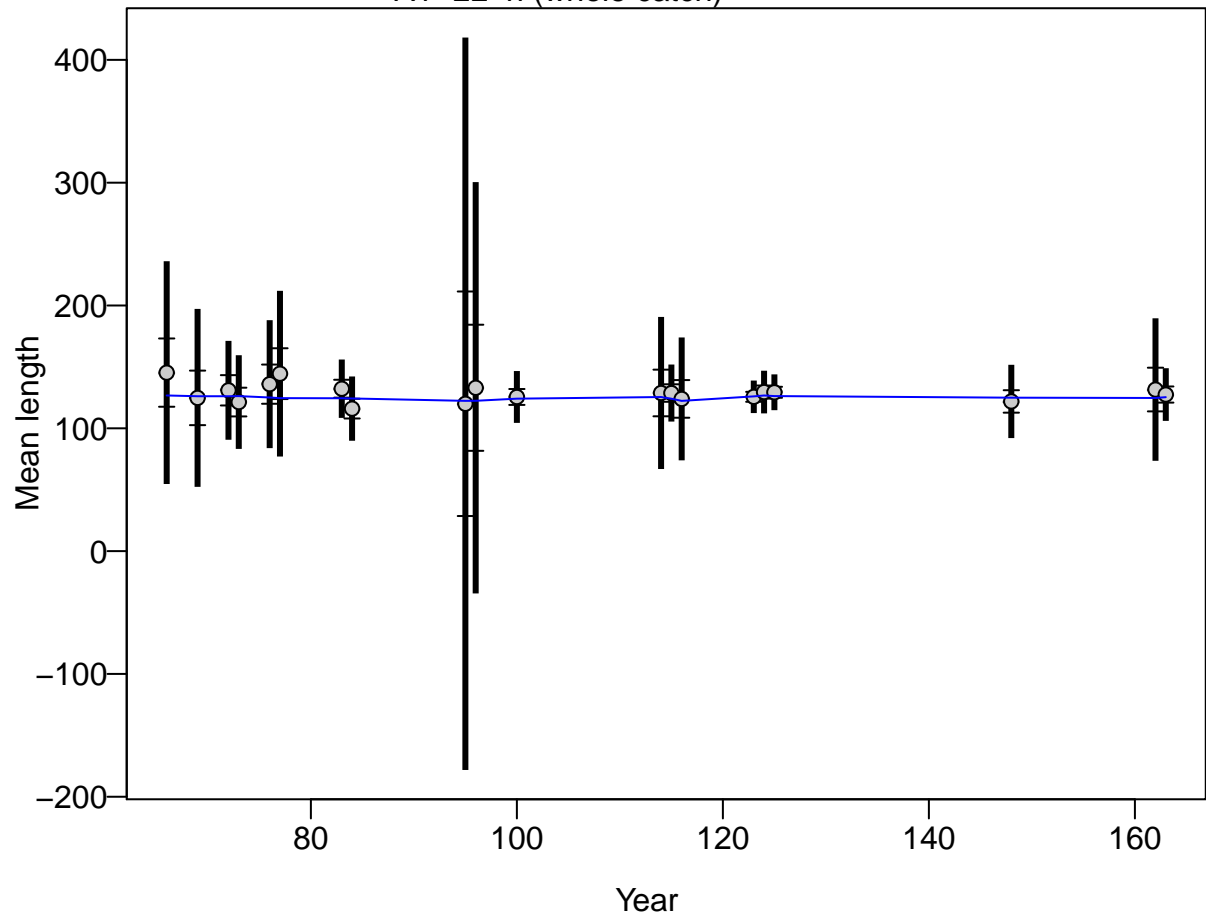


Length (cm)

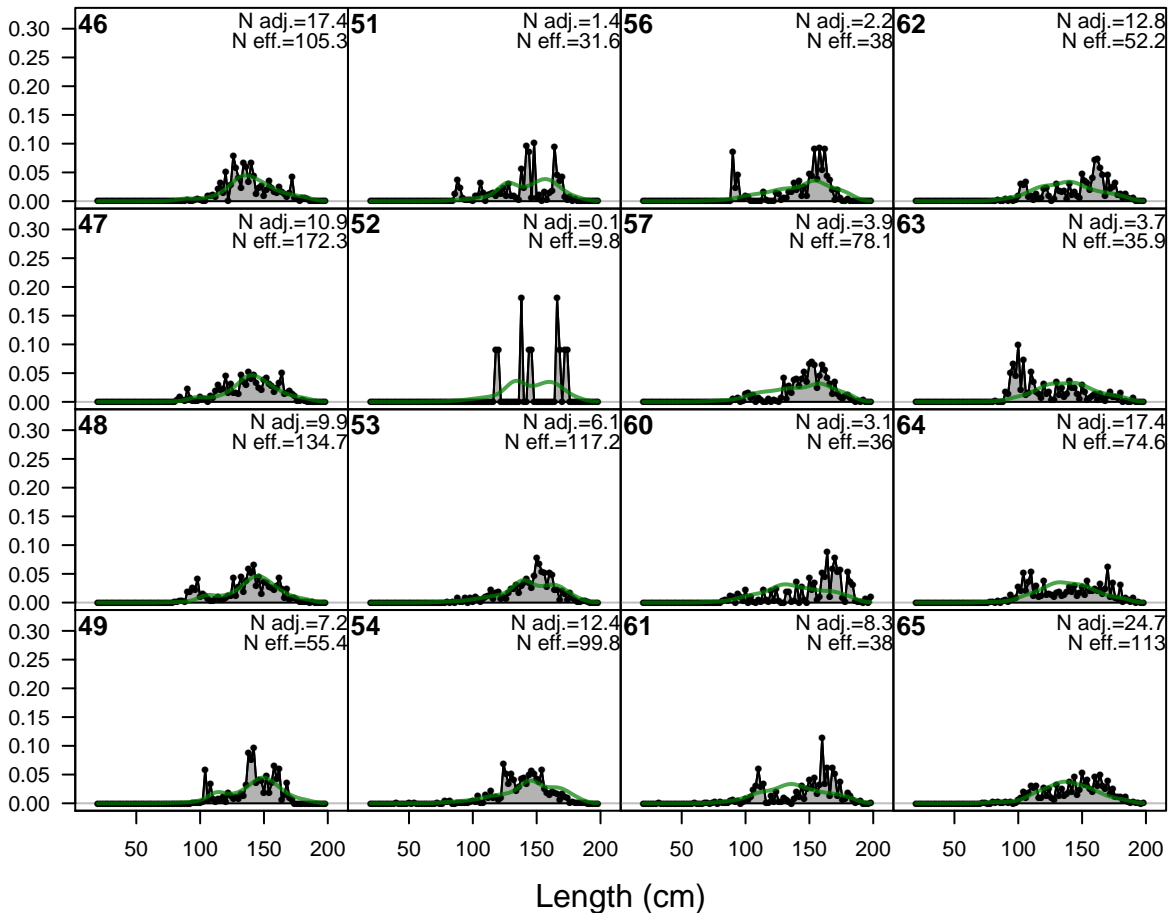




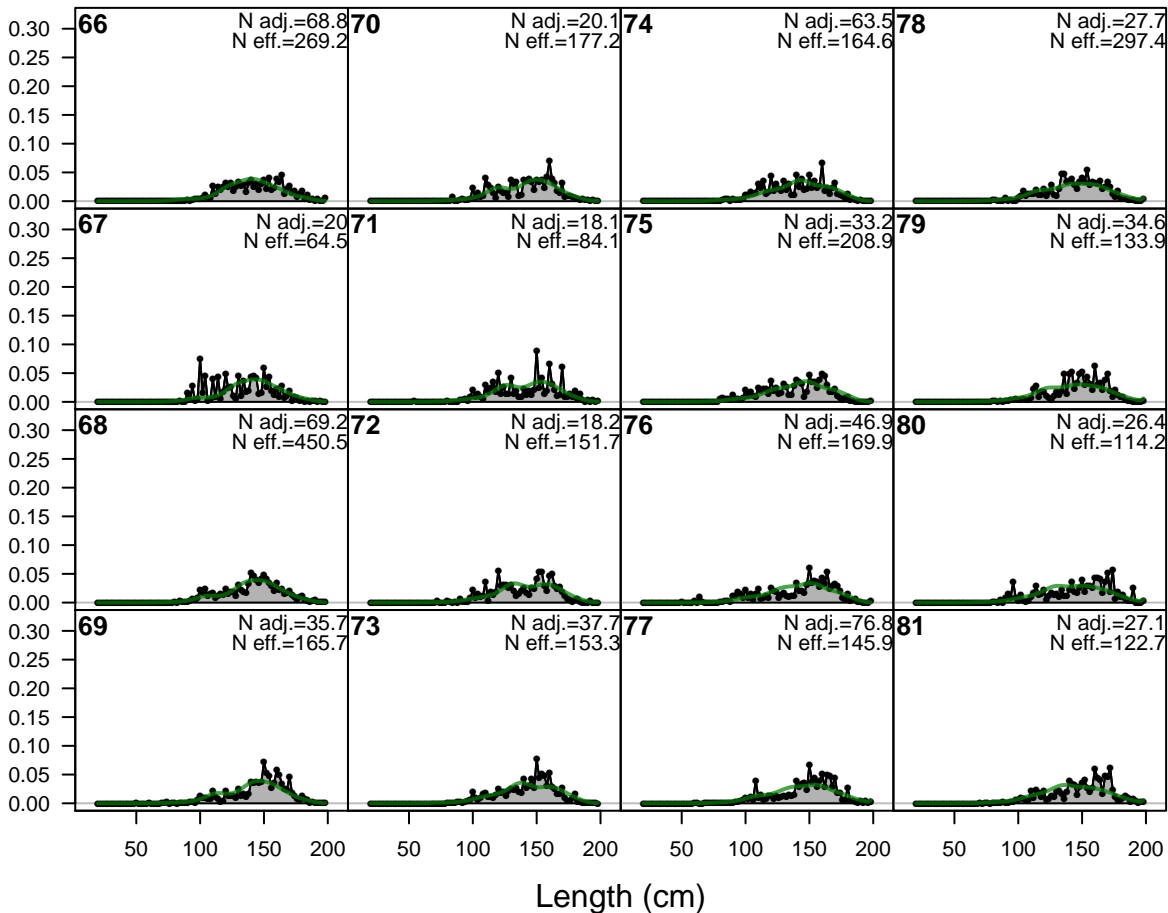
A1-LL-n (whole catch)



Proportion

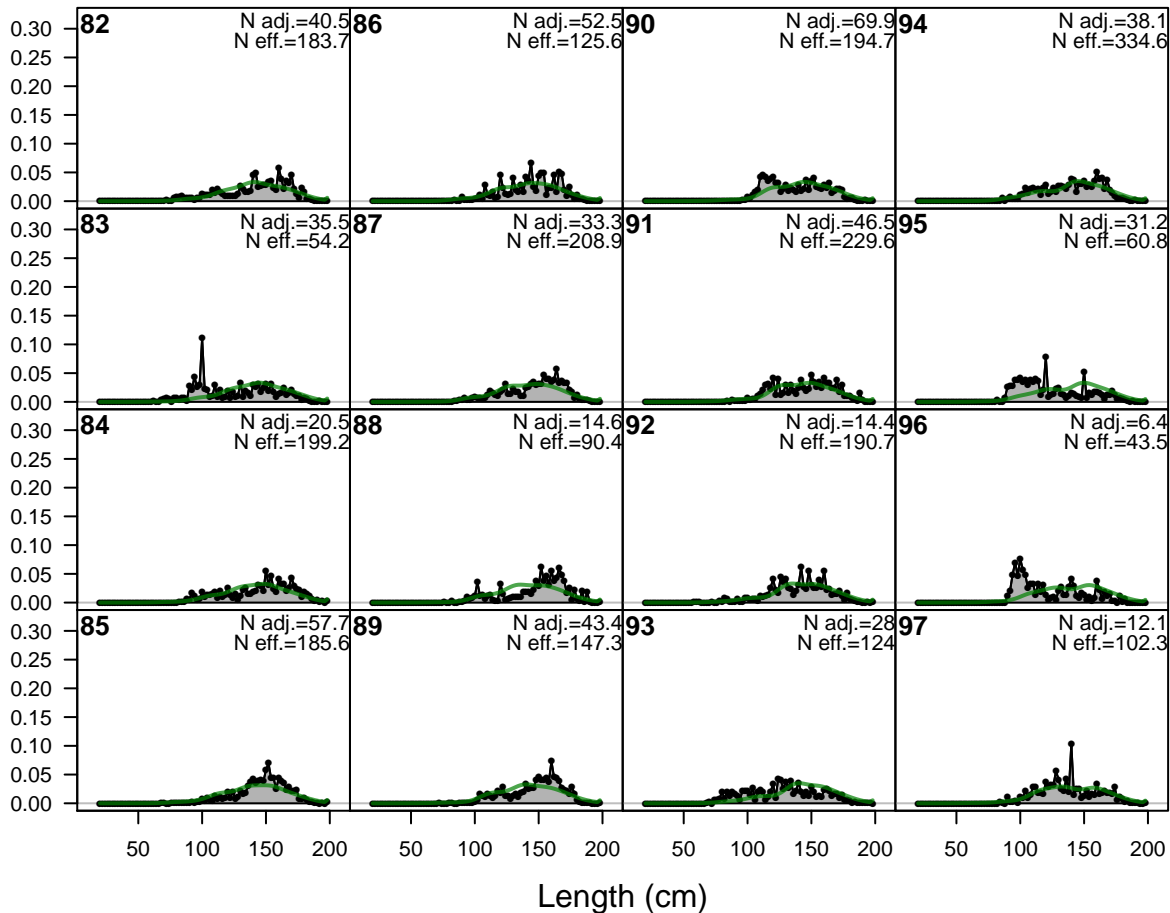


Proportion

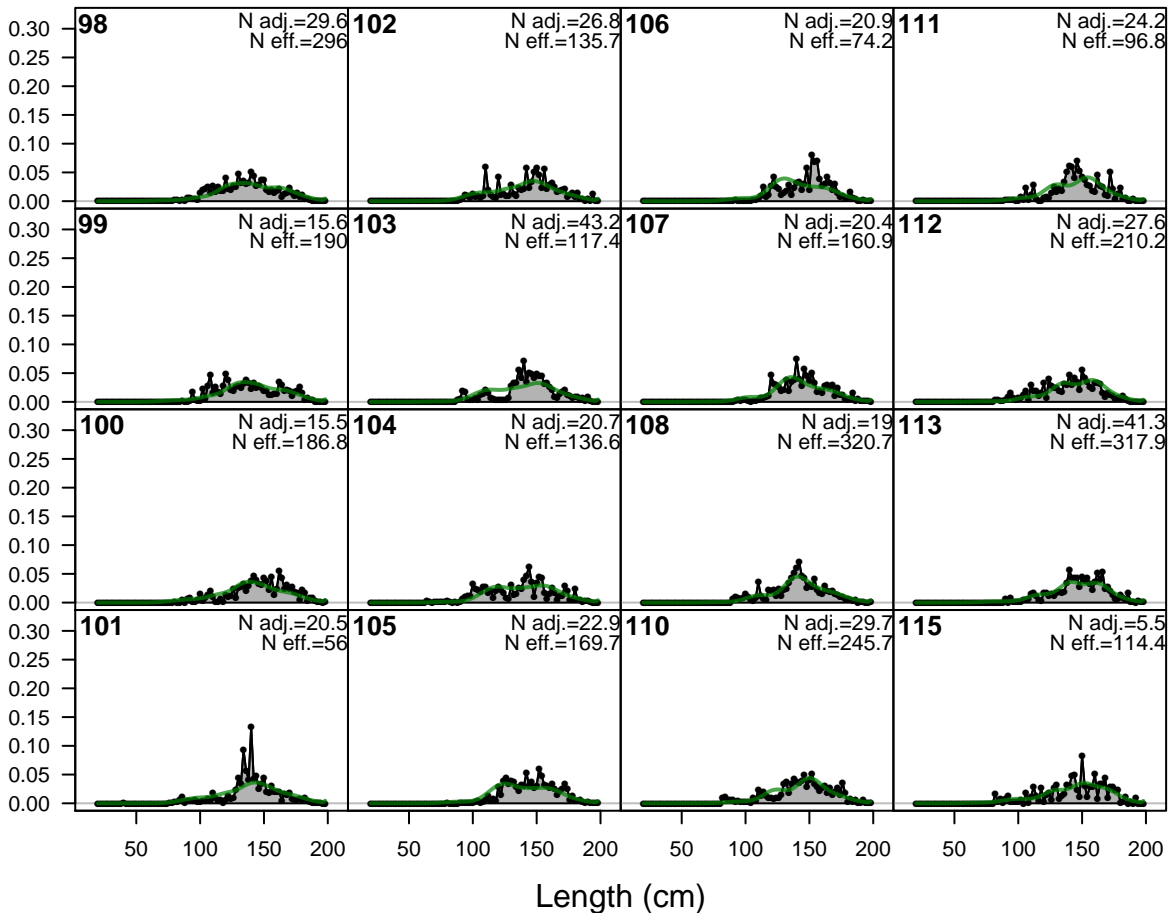




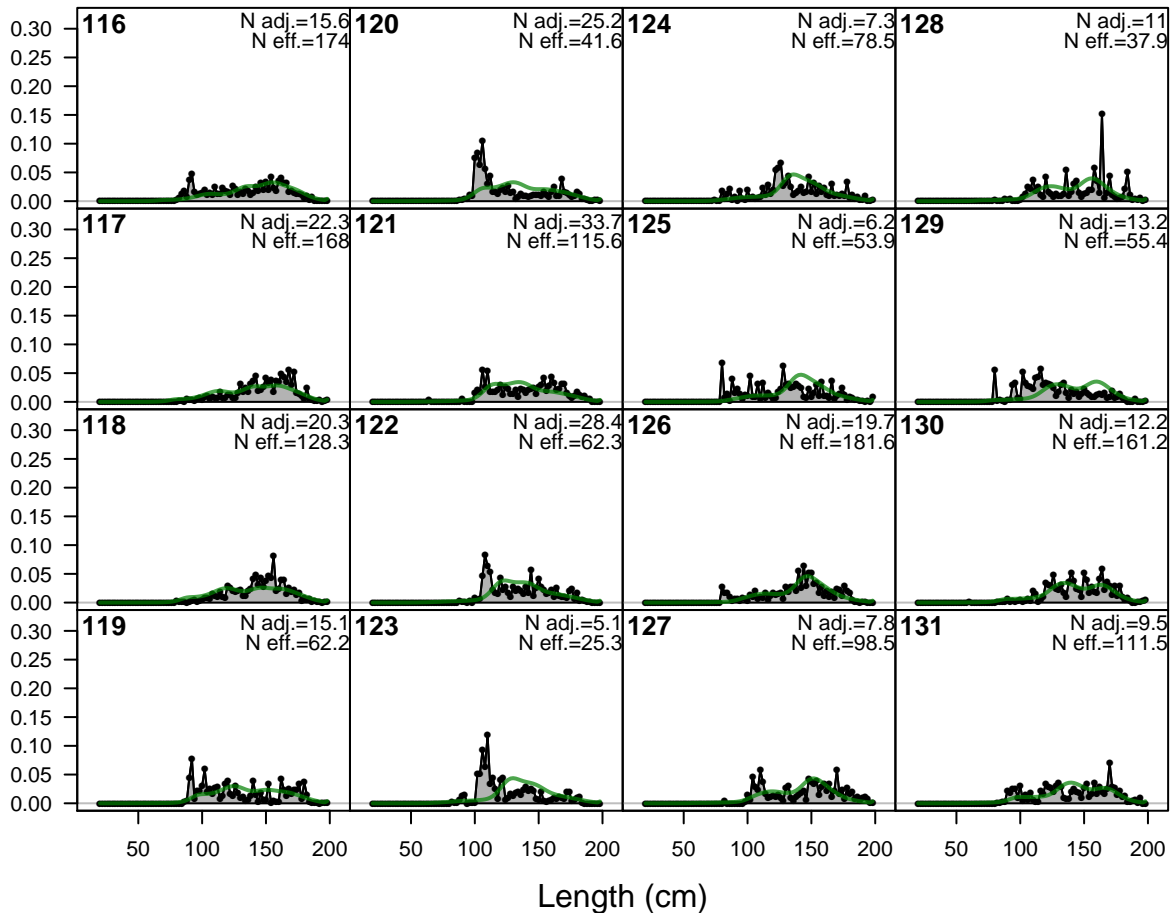
Proportion



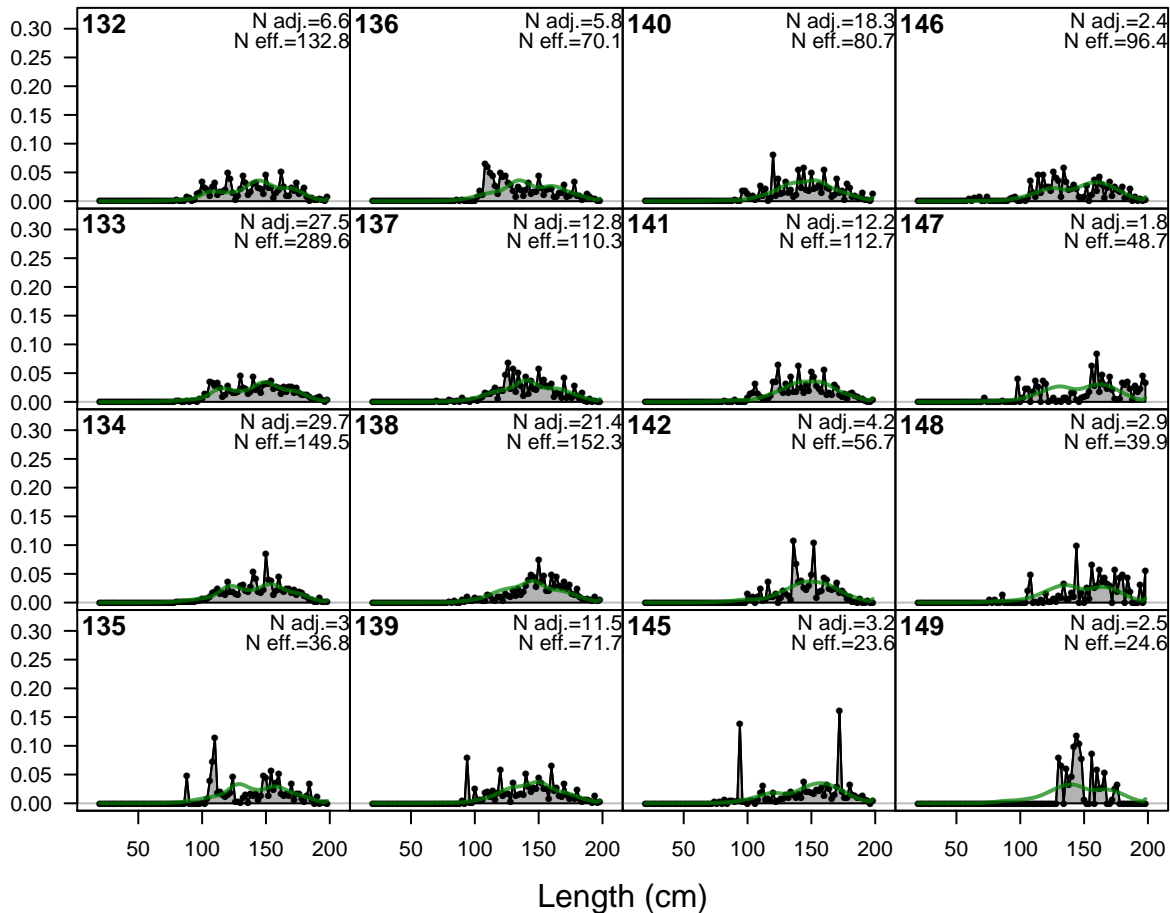
Proportion



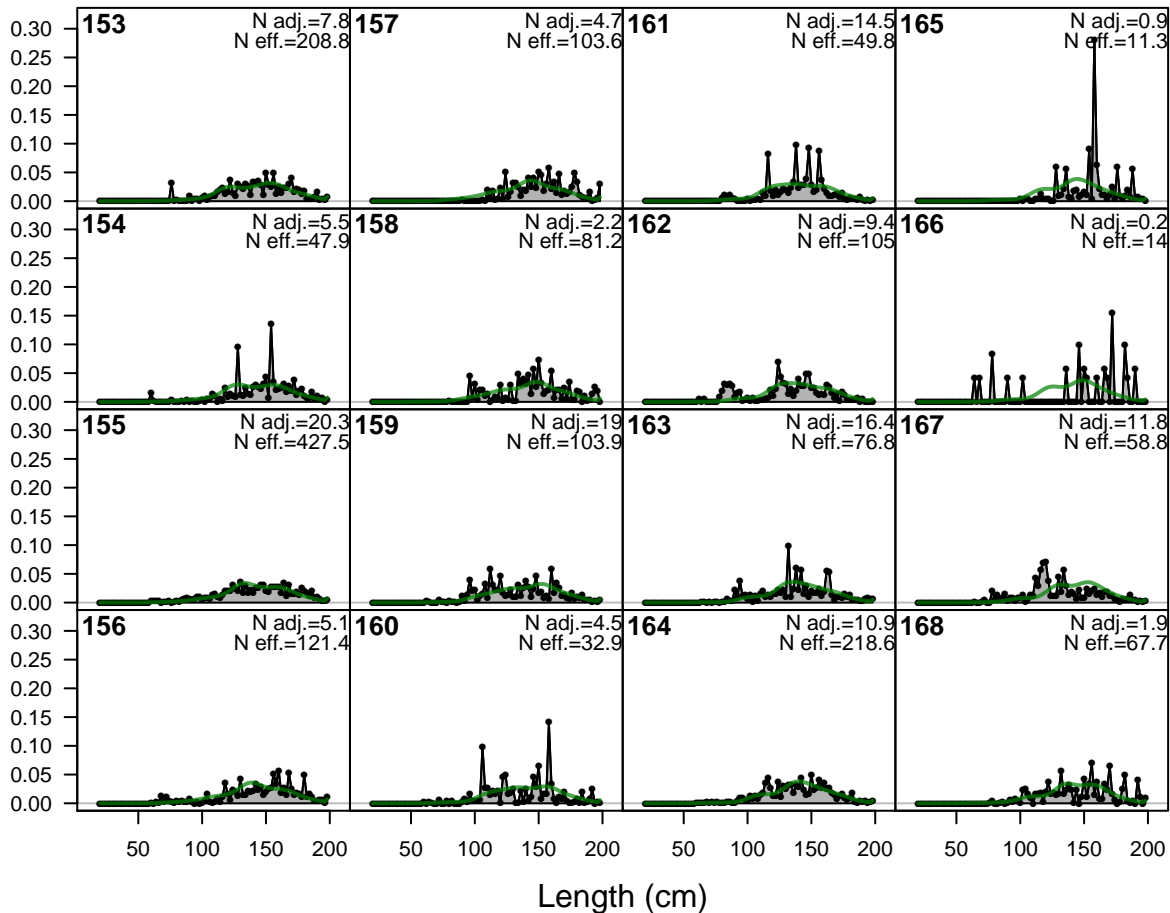
Proportion



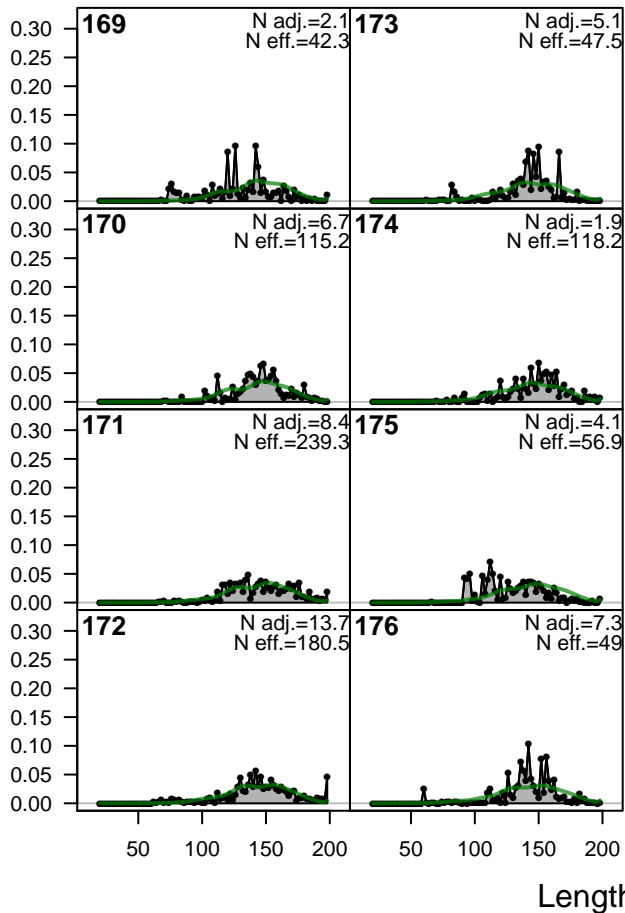
Proportion

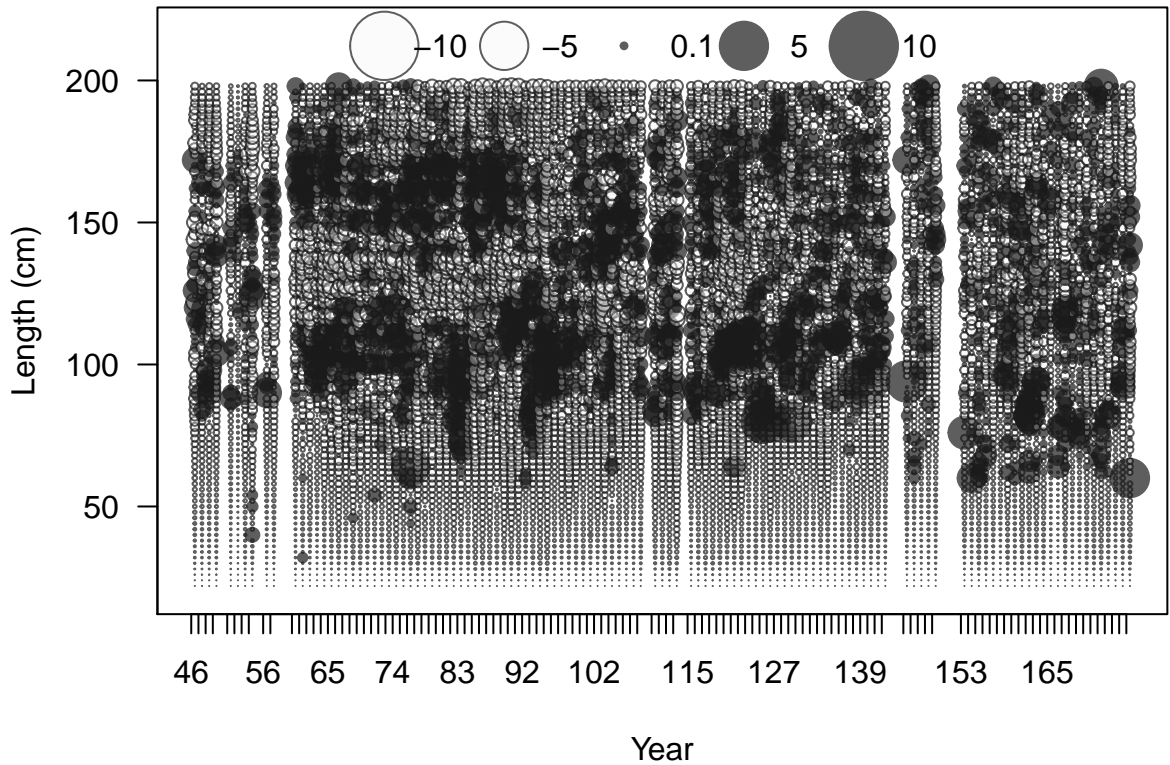


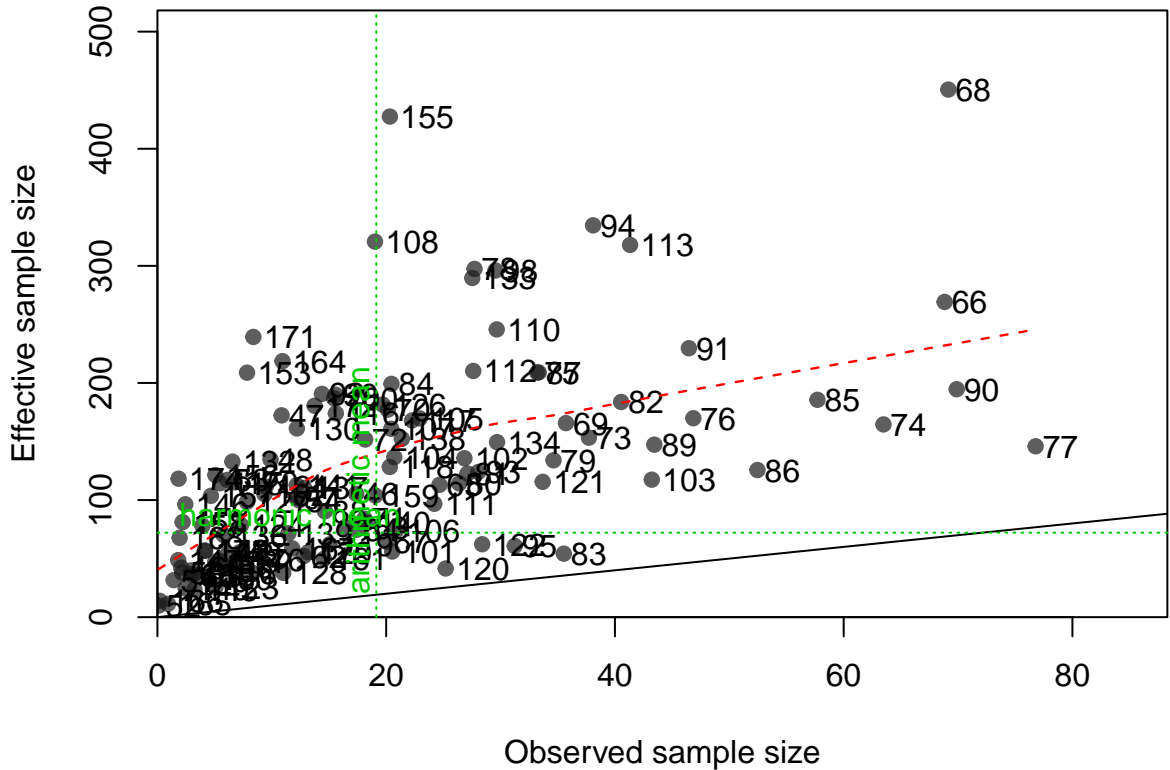
Proportion



Proportion

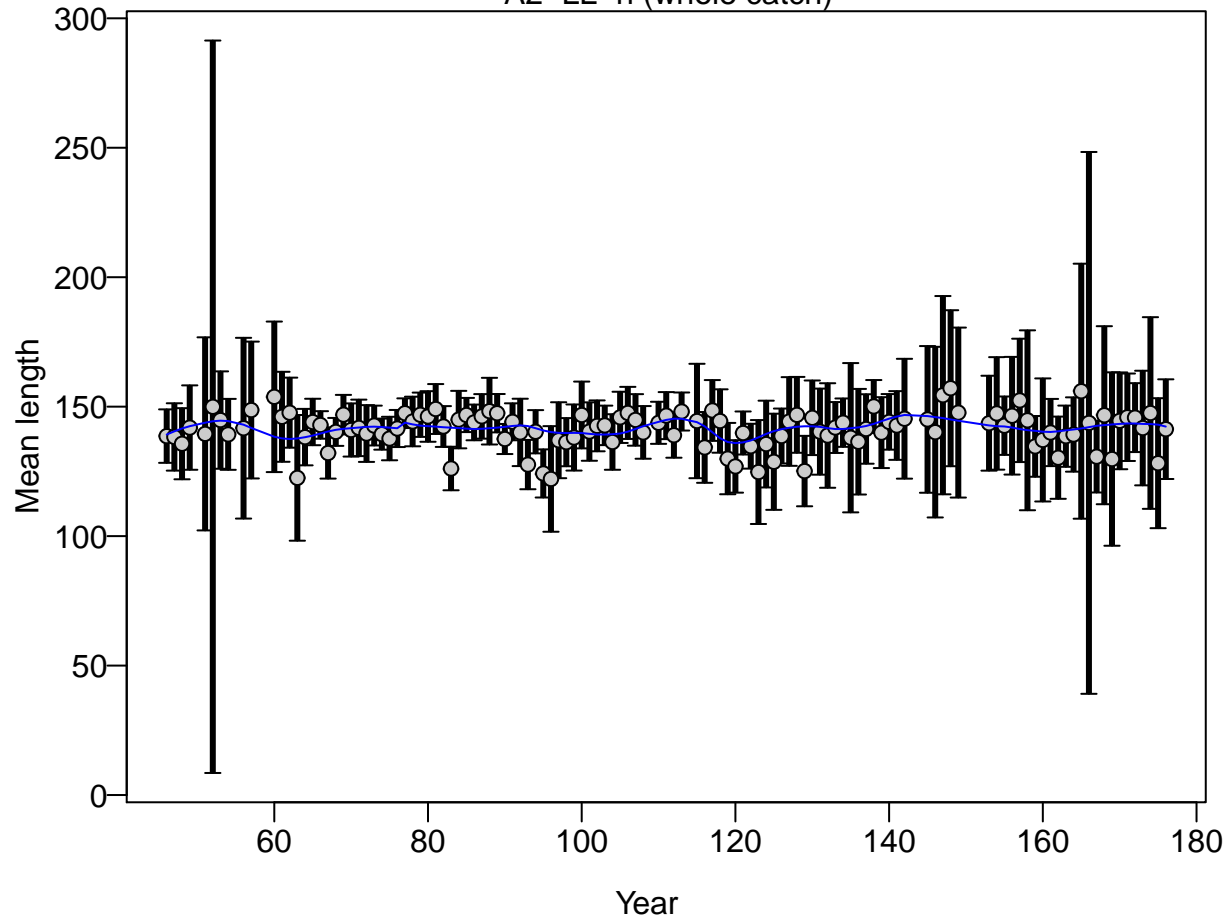




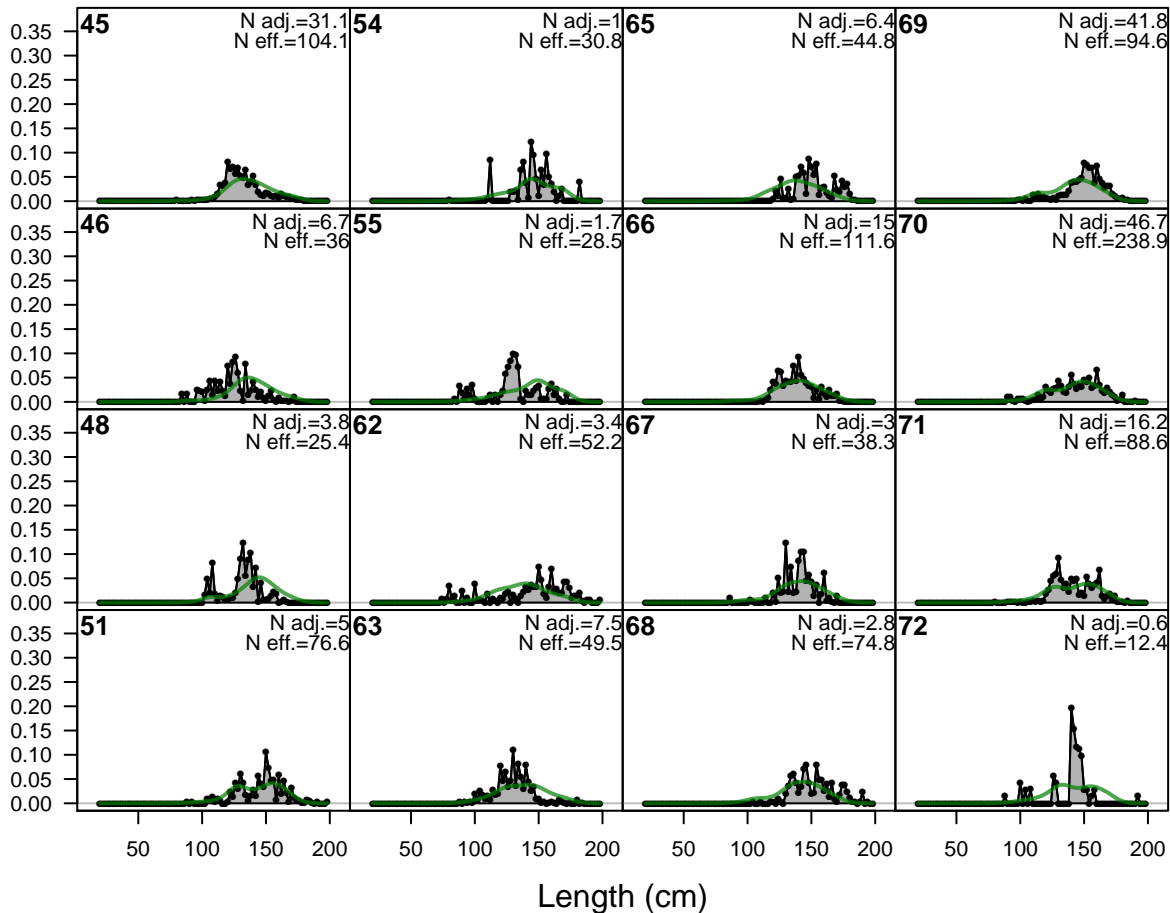




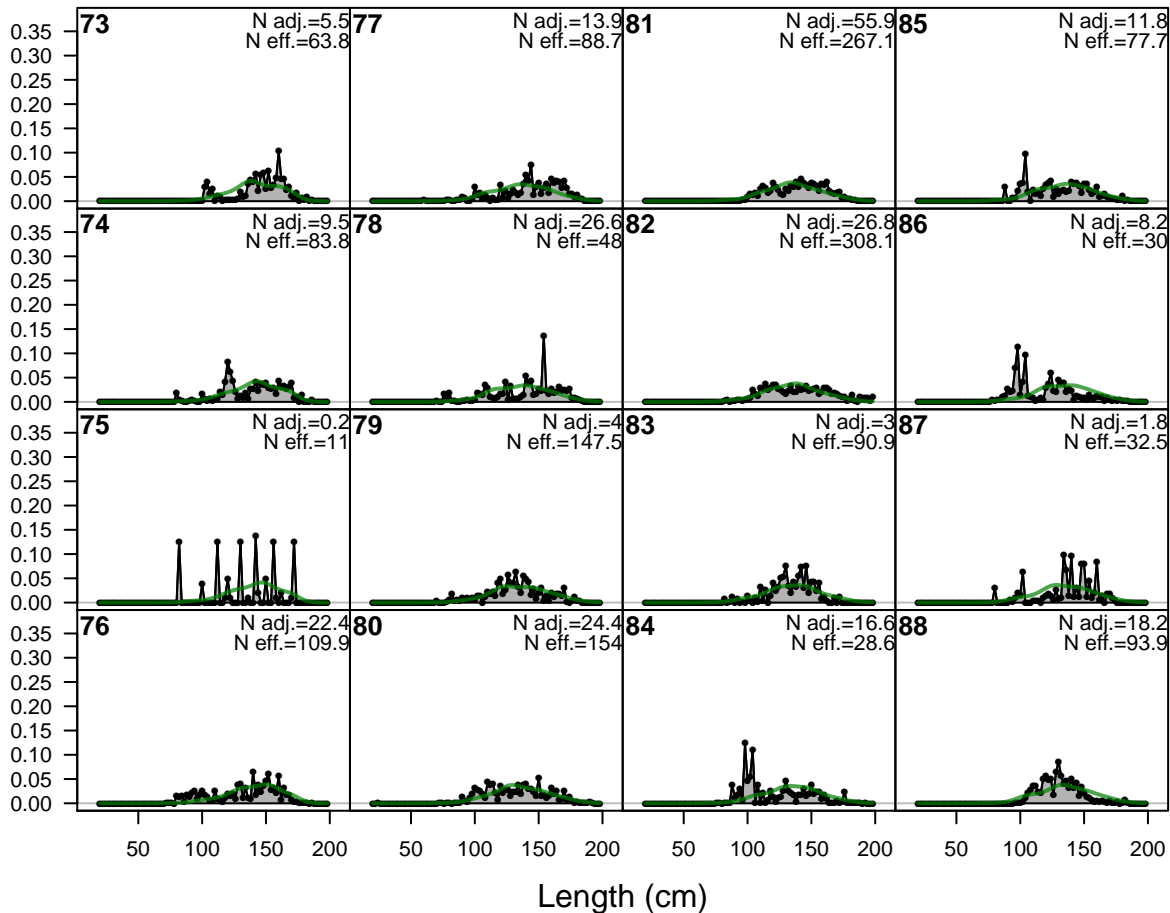
## A2-LL-n (whole catch)



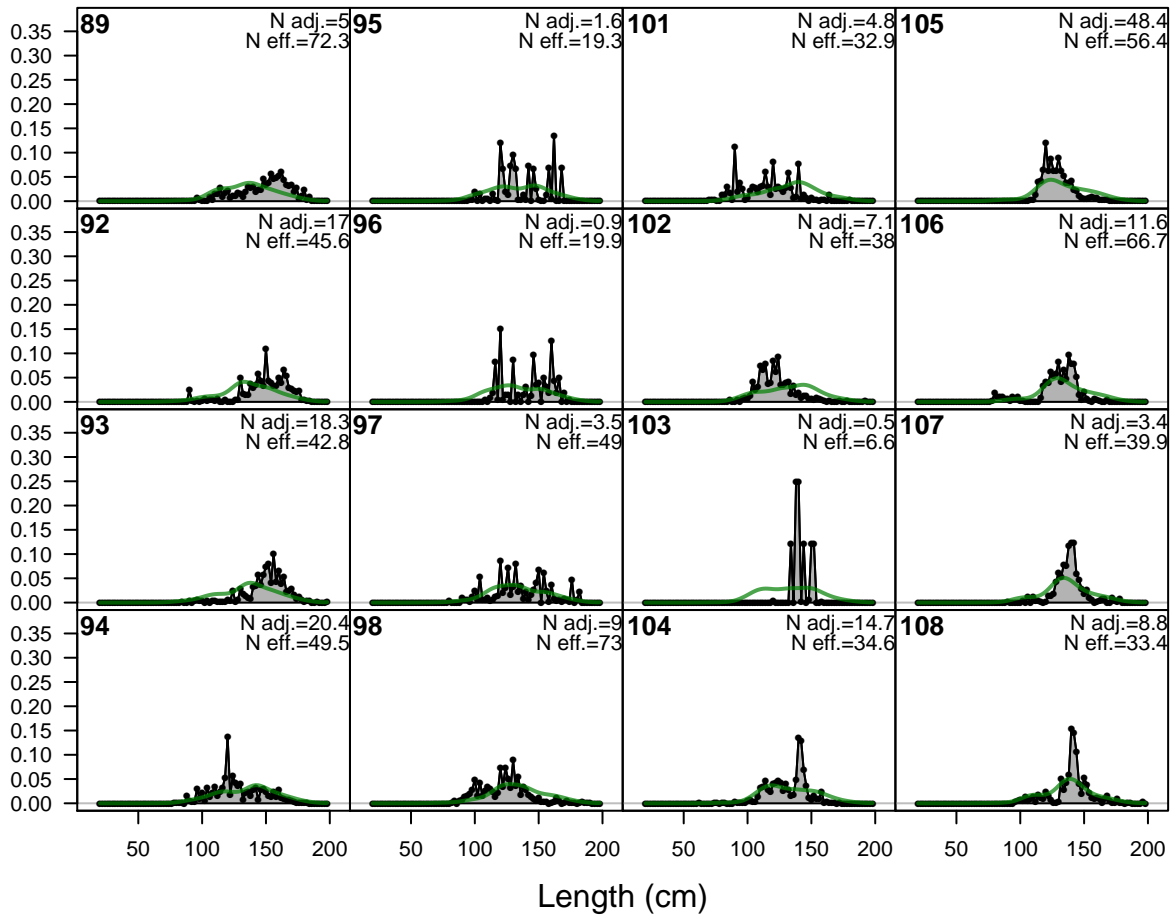
Proportion



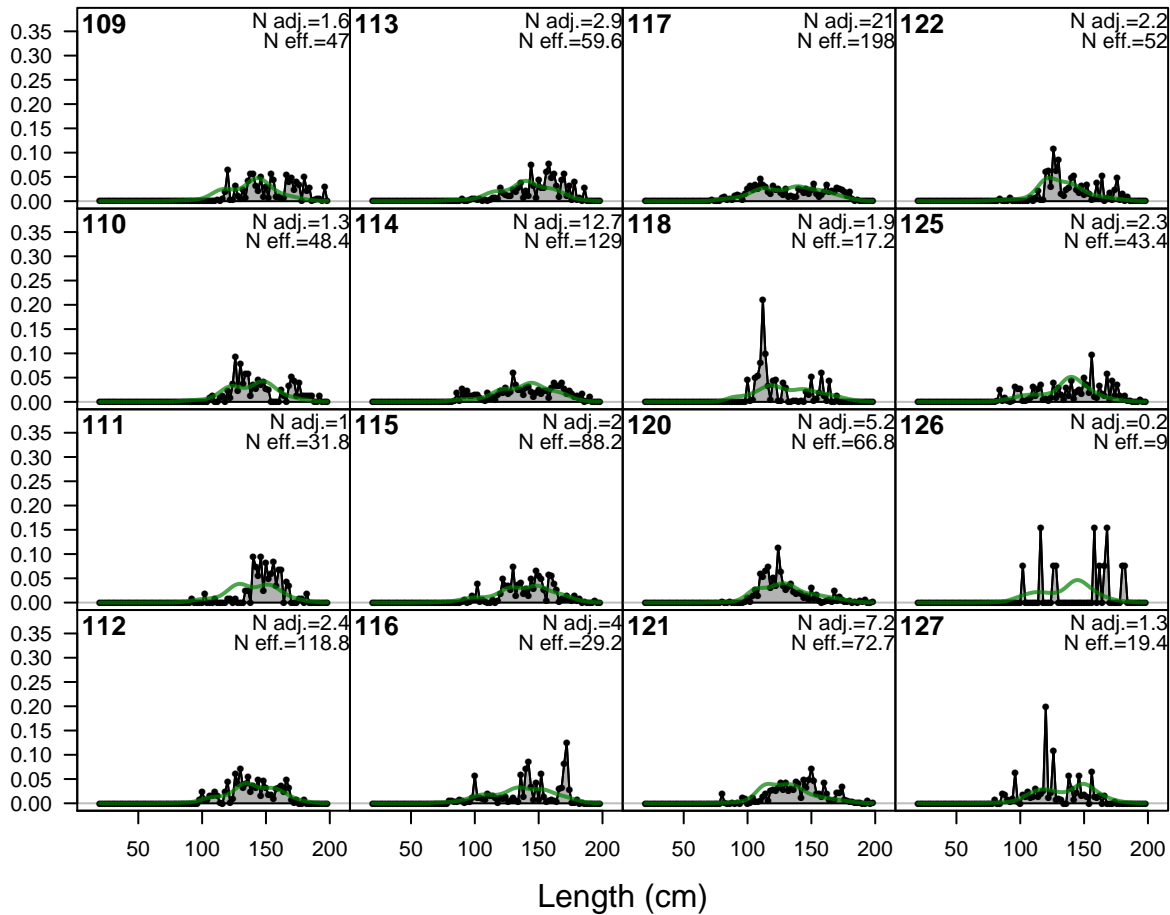
Proportion



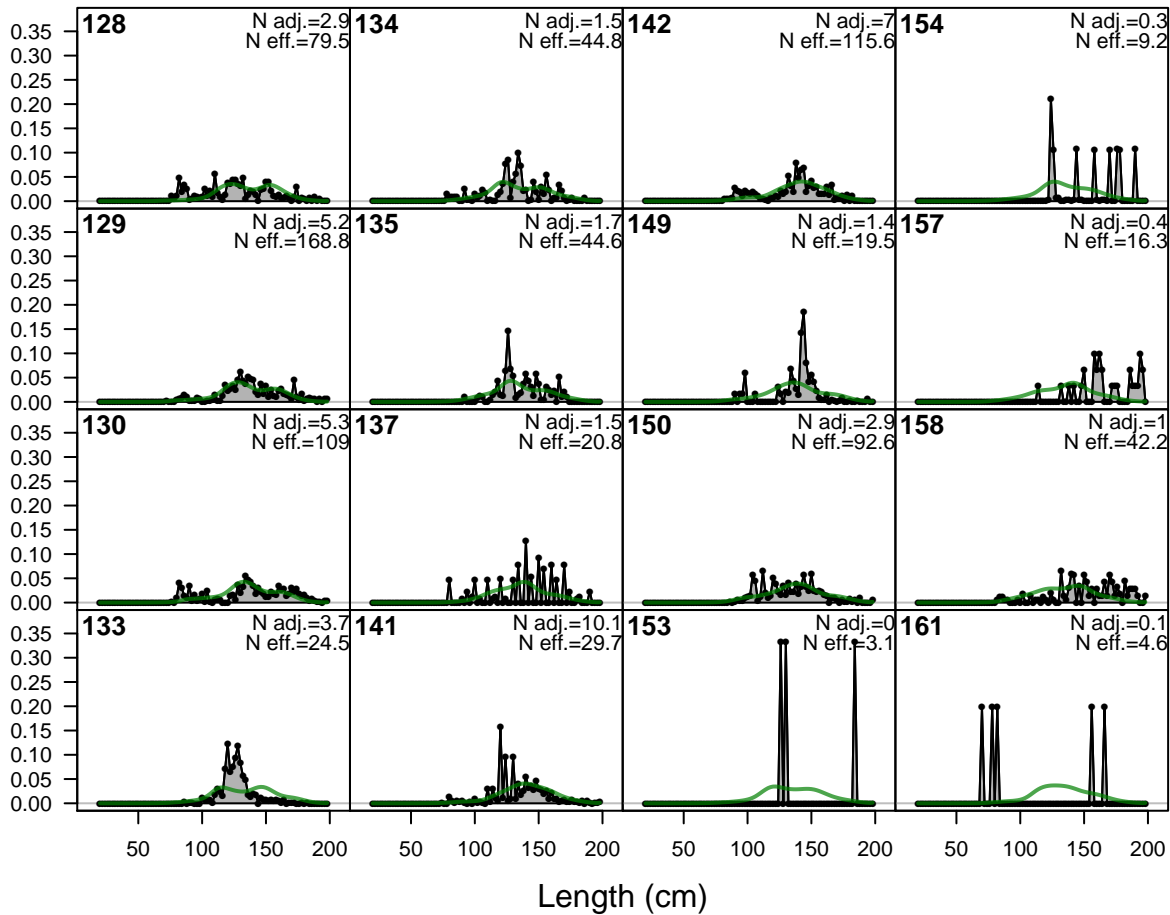
Proportion



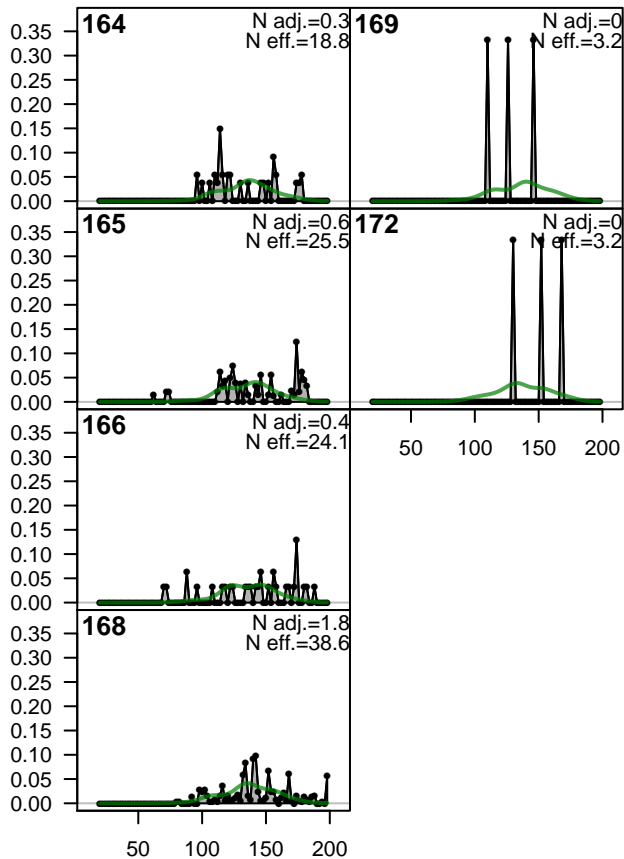
Proportion



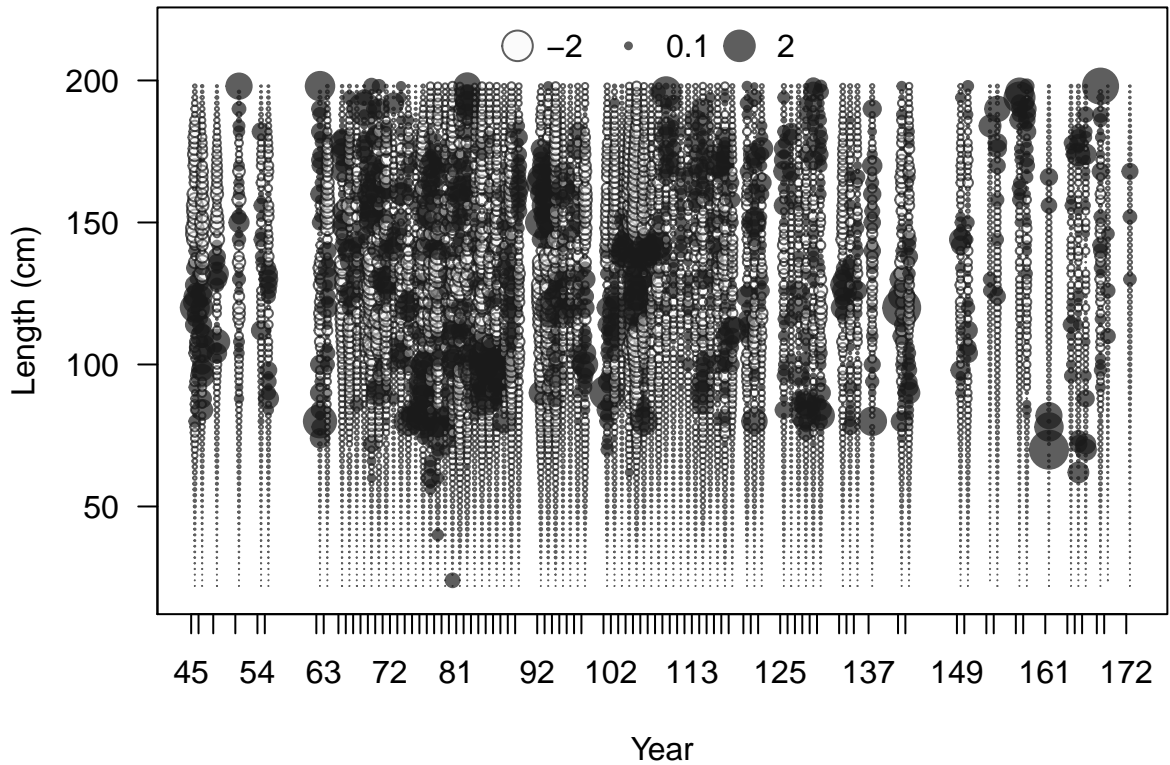
Proportion



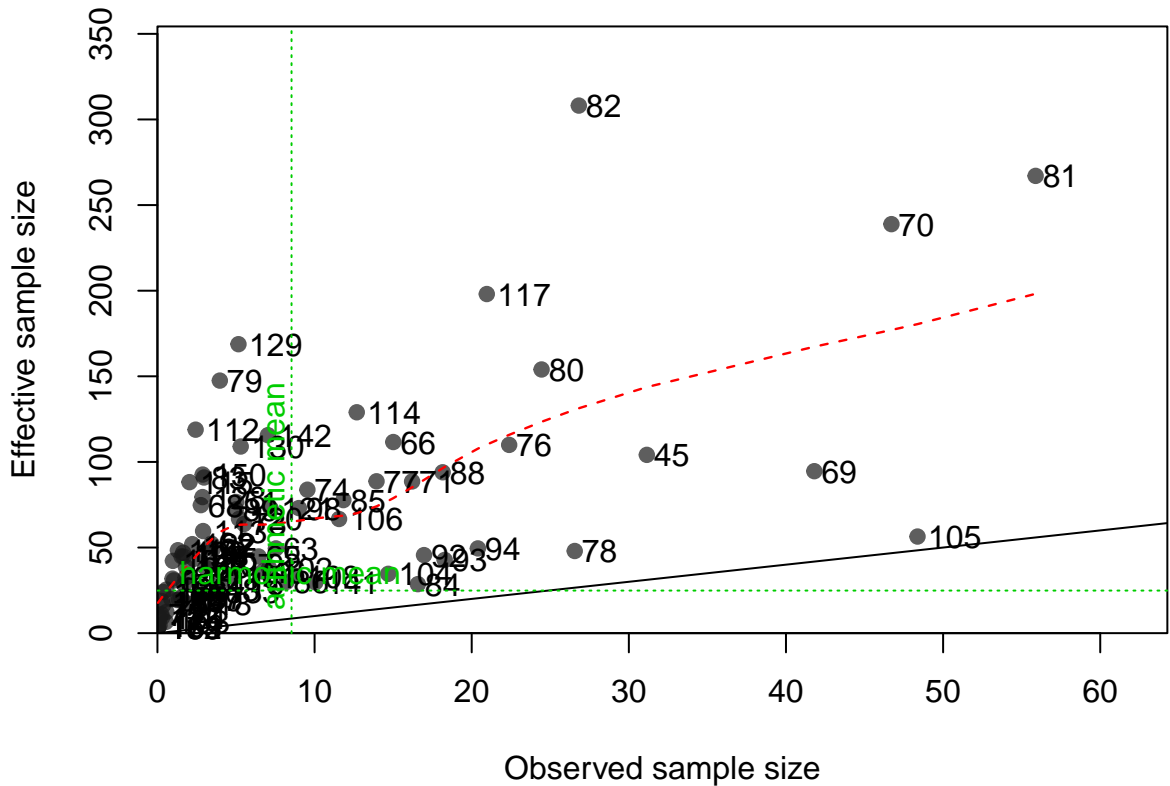
Proportion



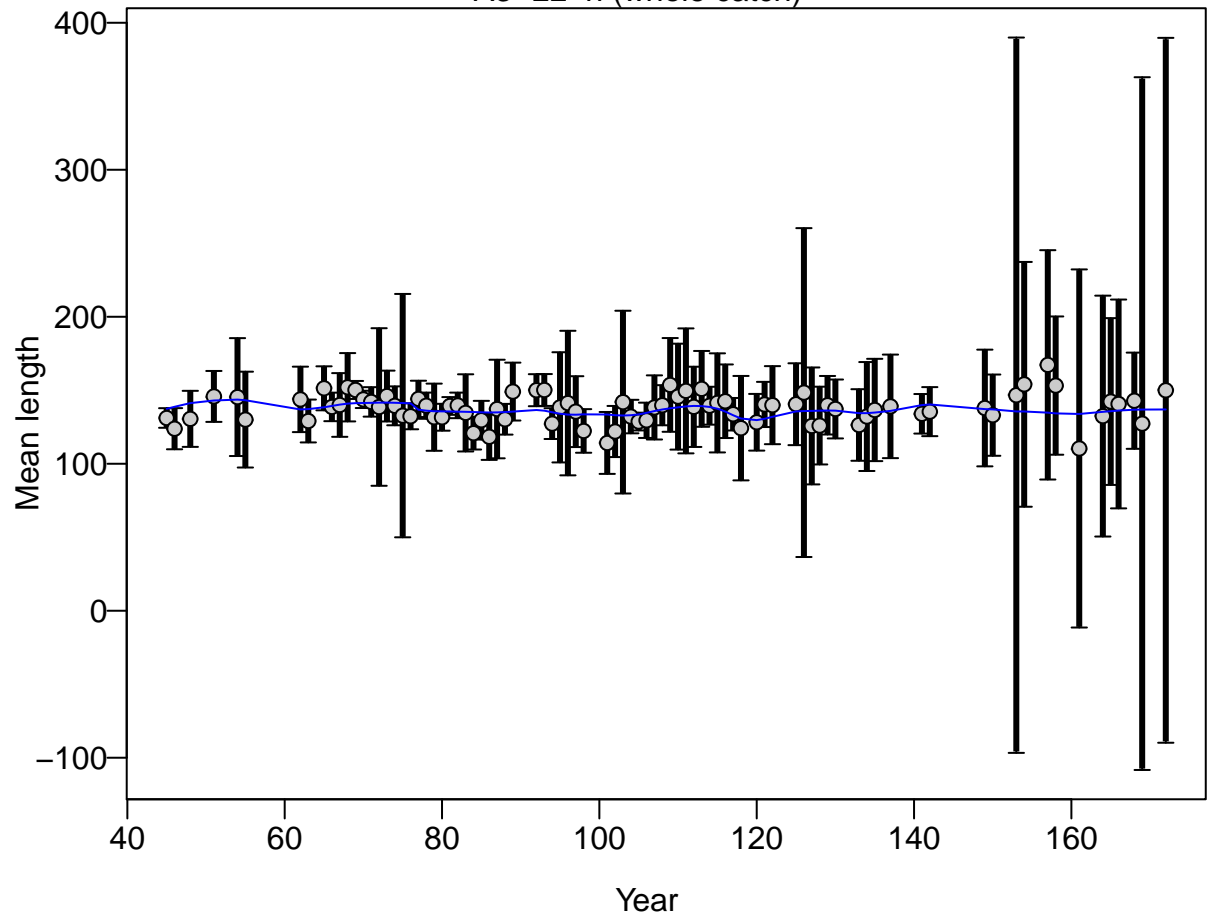
Length (cm)



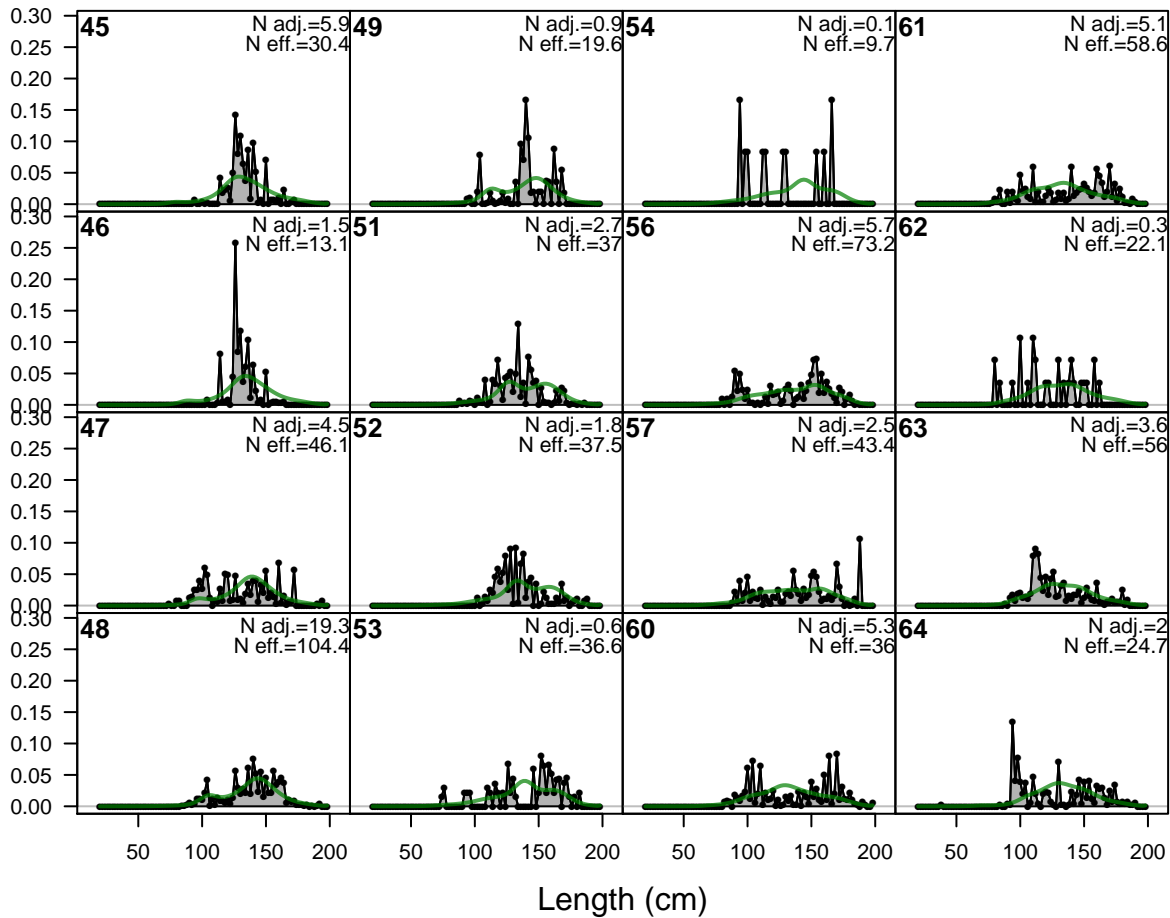




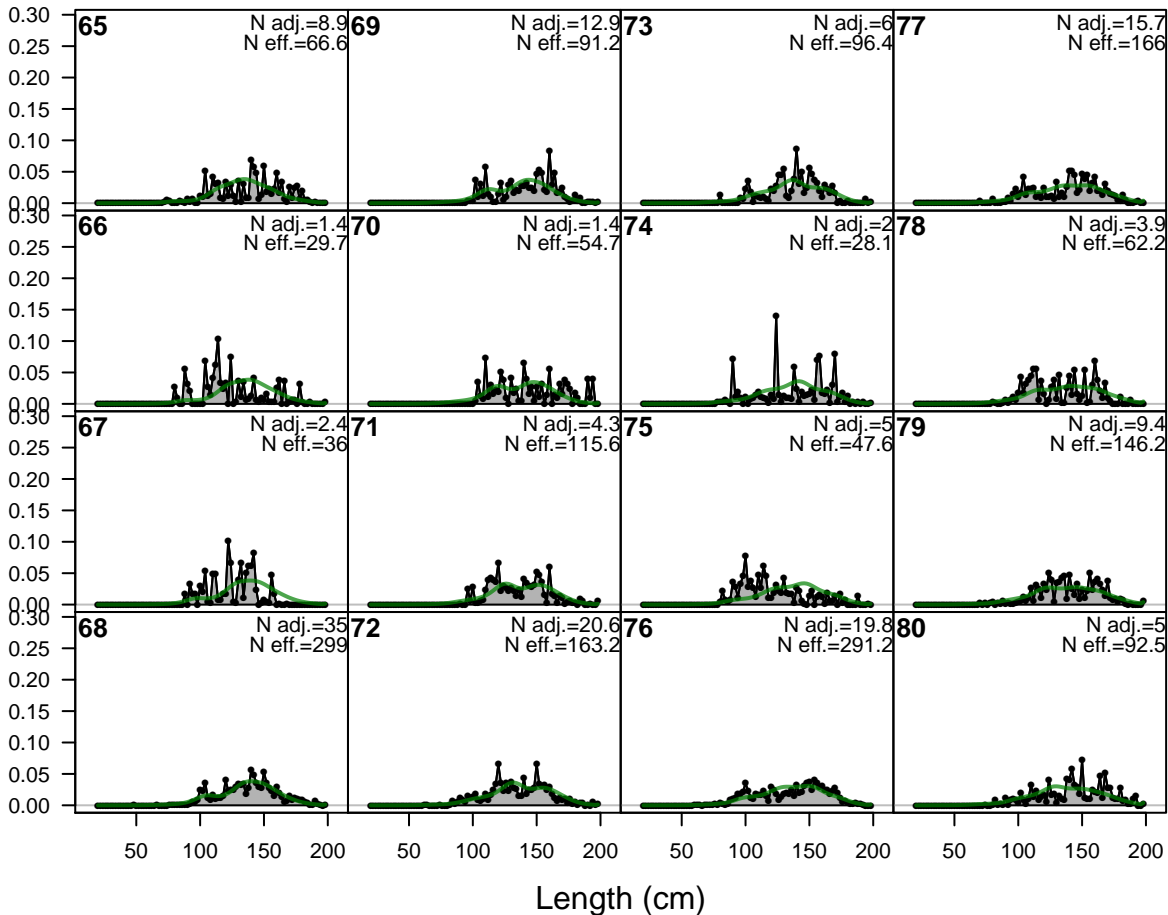
A3-LL-n (whole catch)



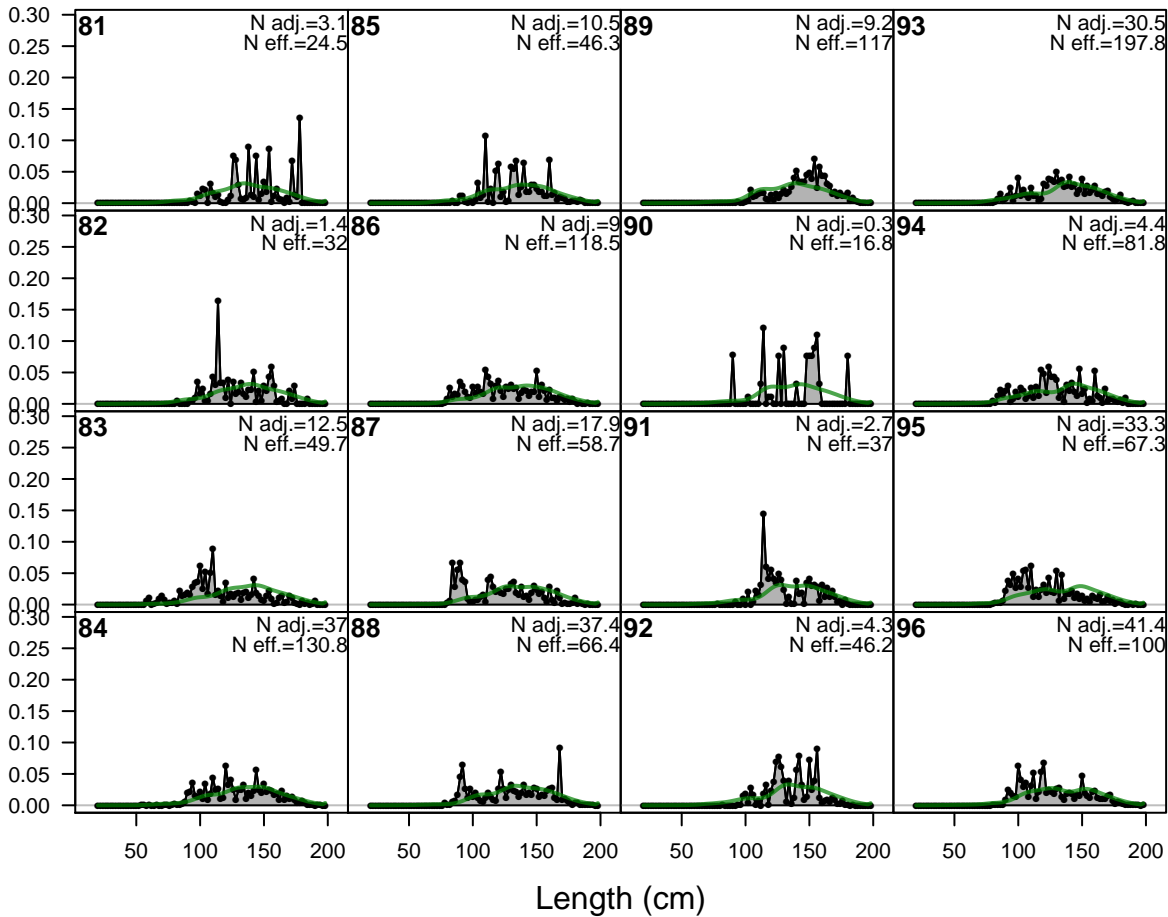
Proportion



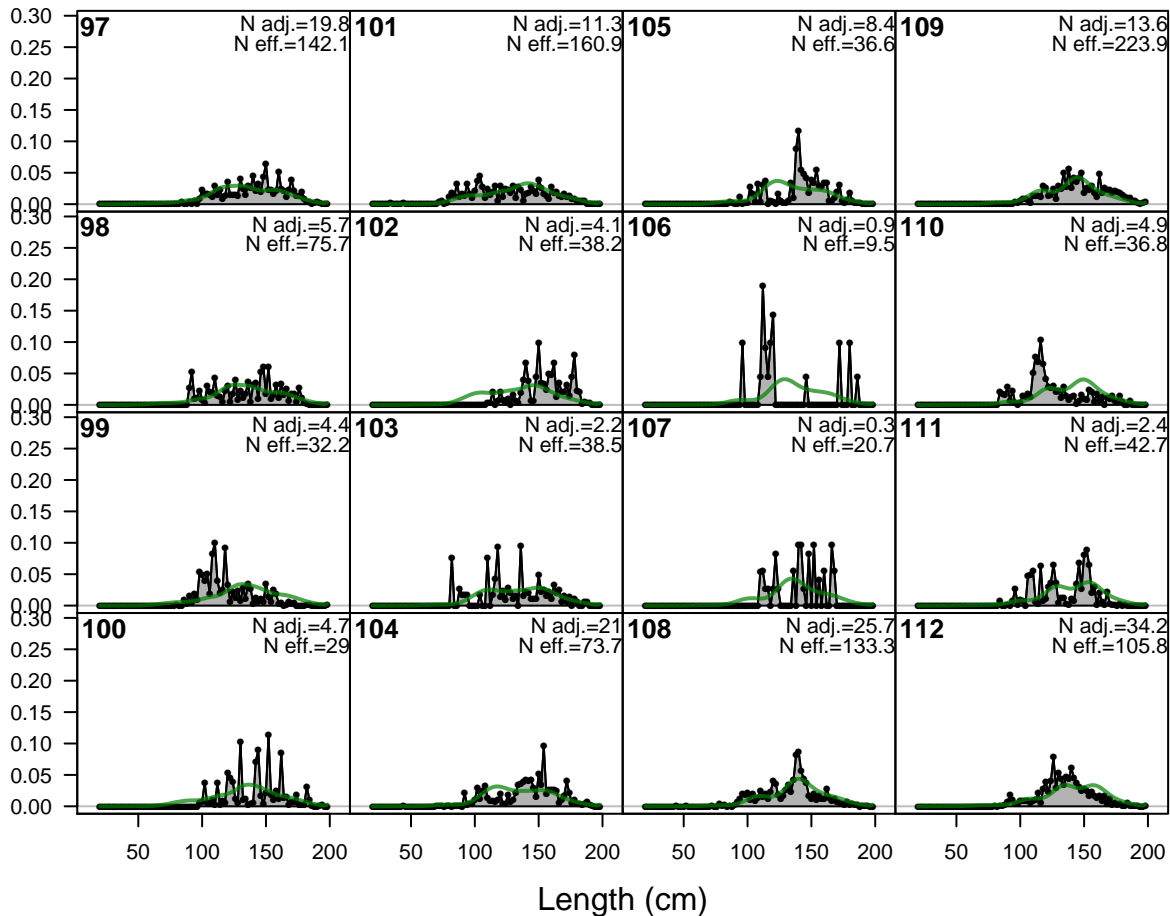
Proportion



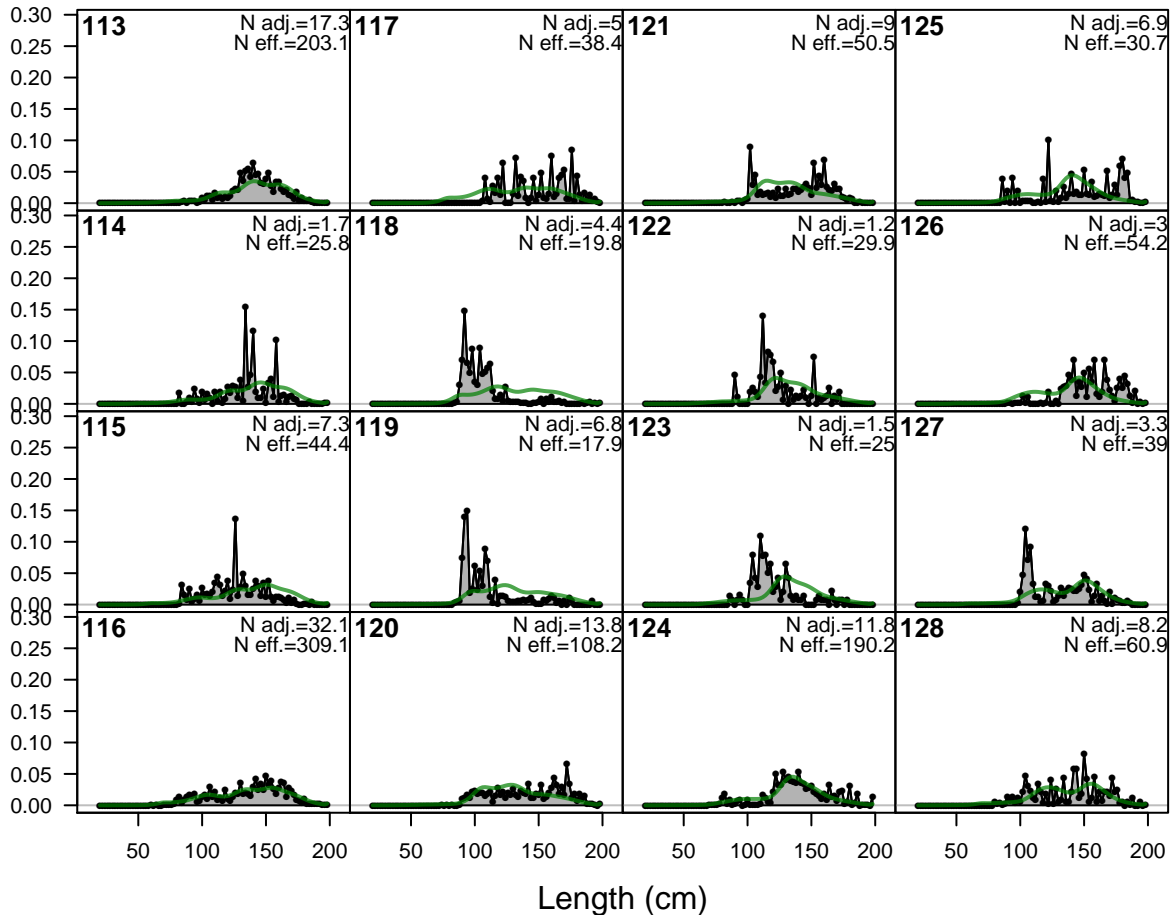
Proportion



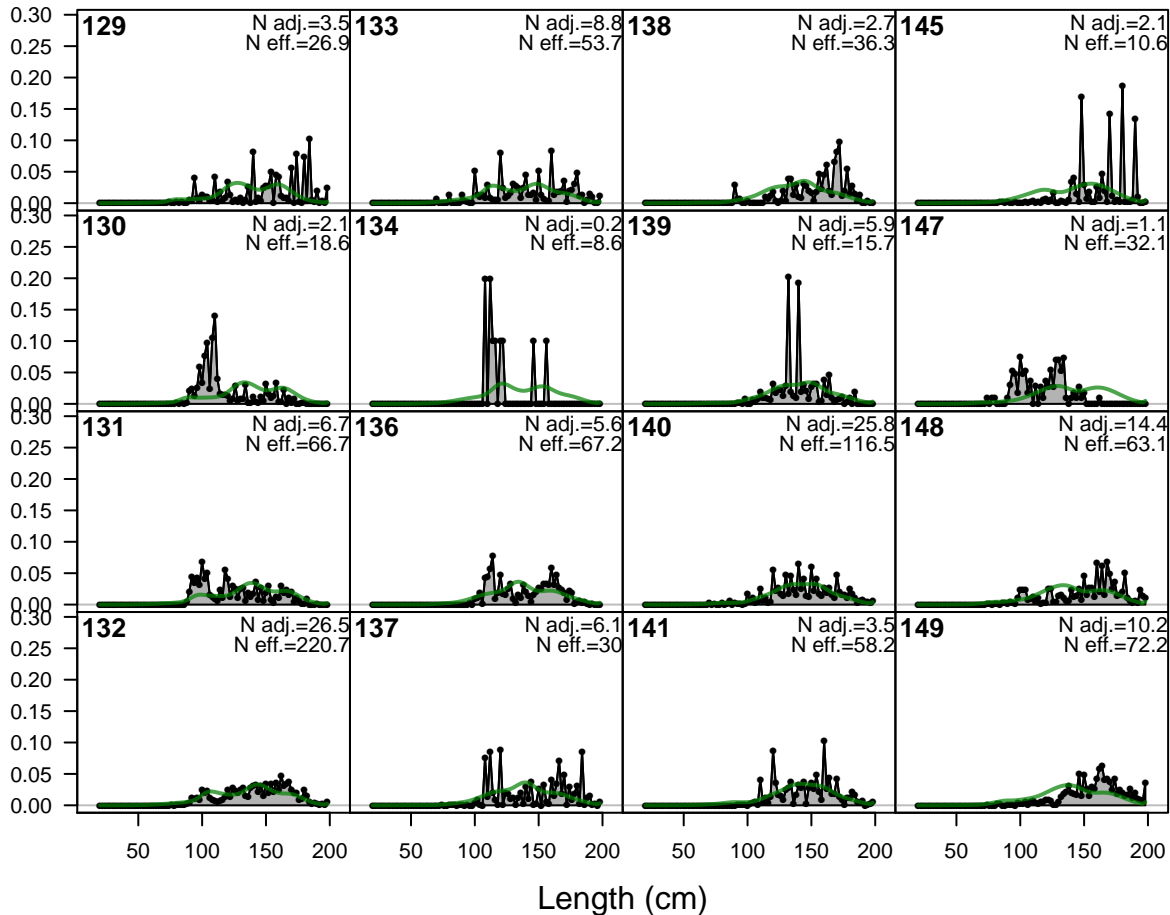
Proportion



Proportion

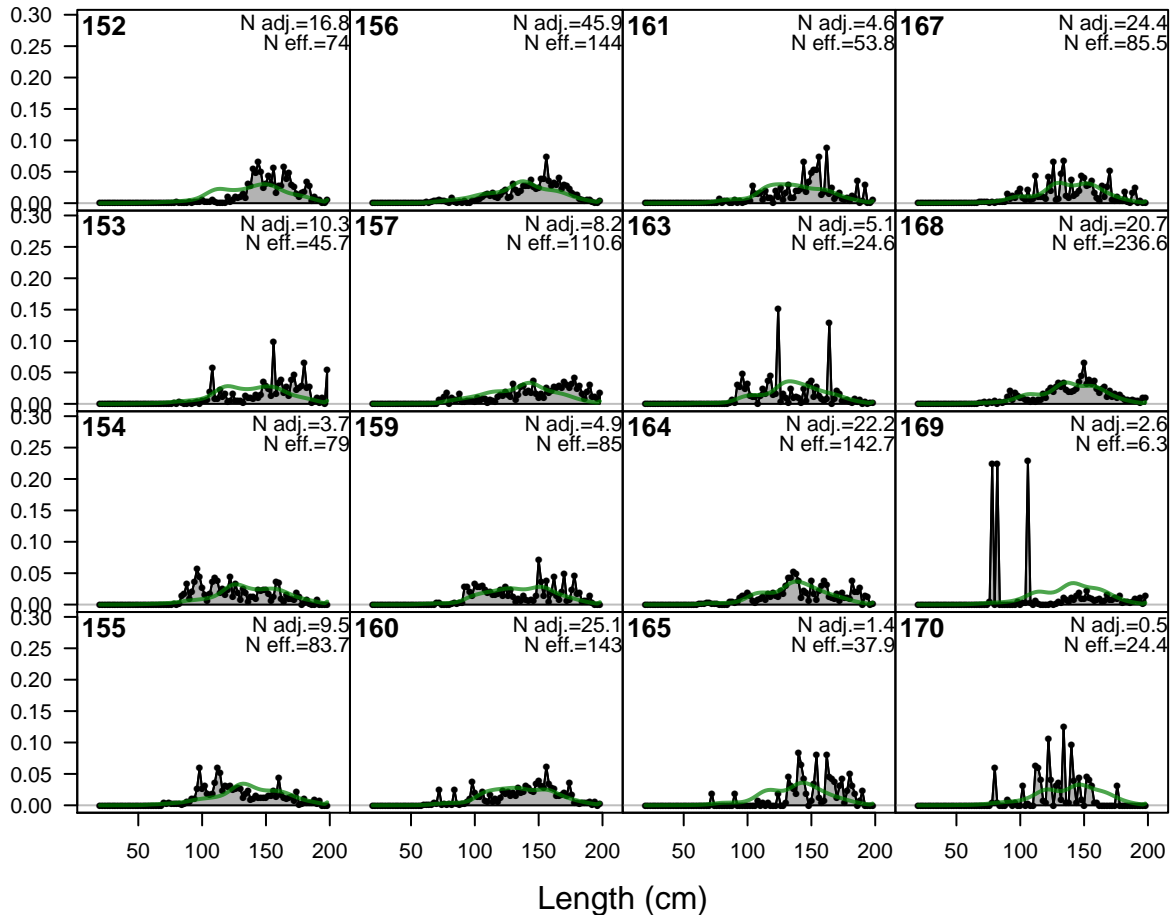


Proportion

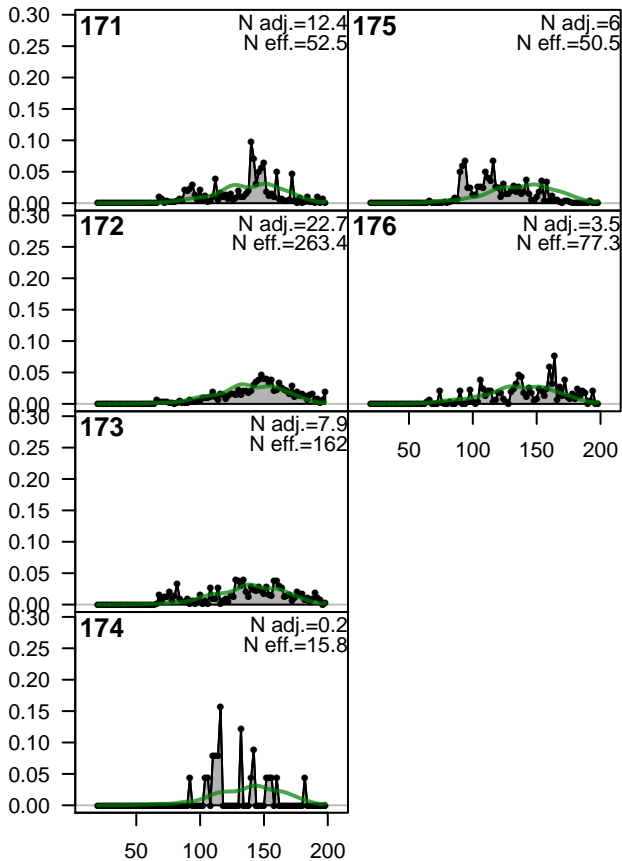




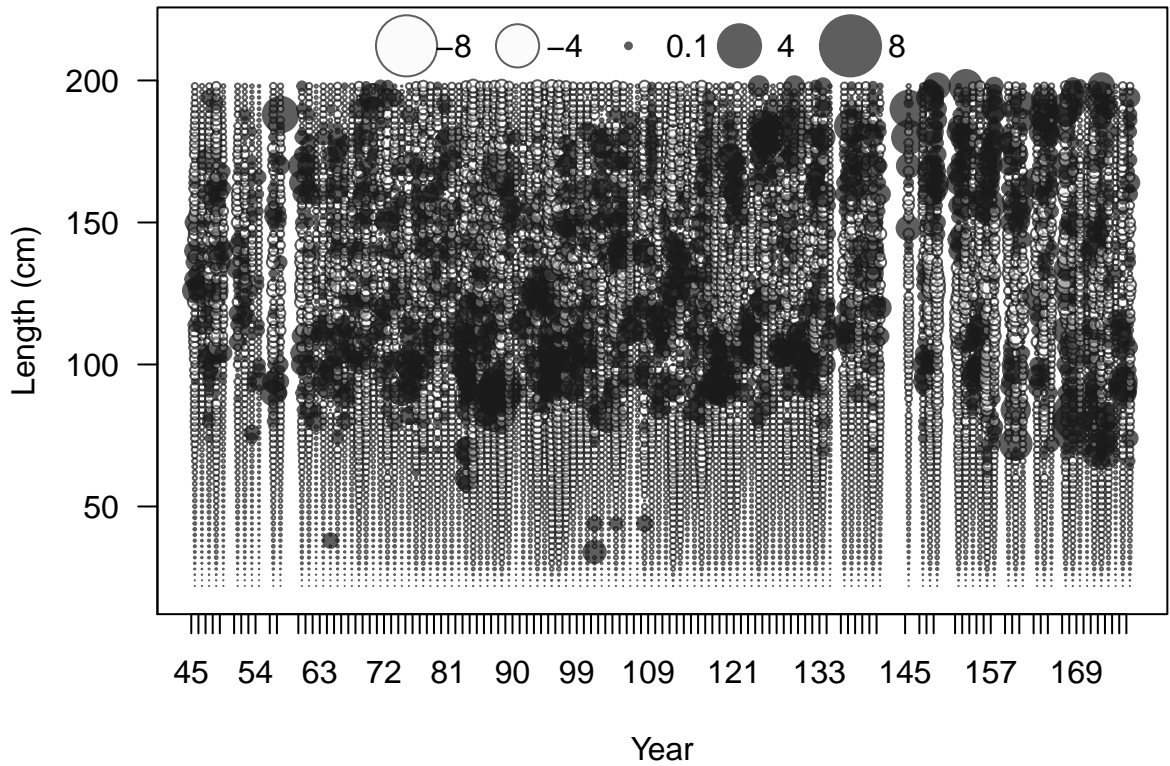
Proportion

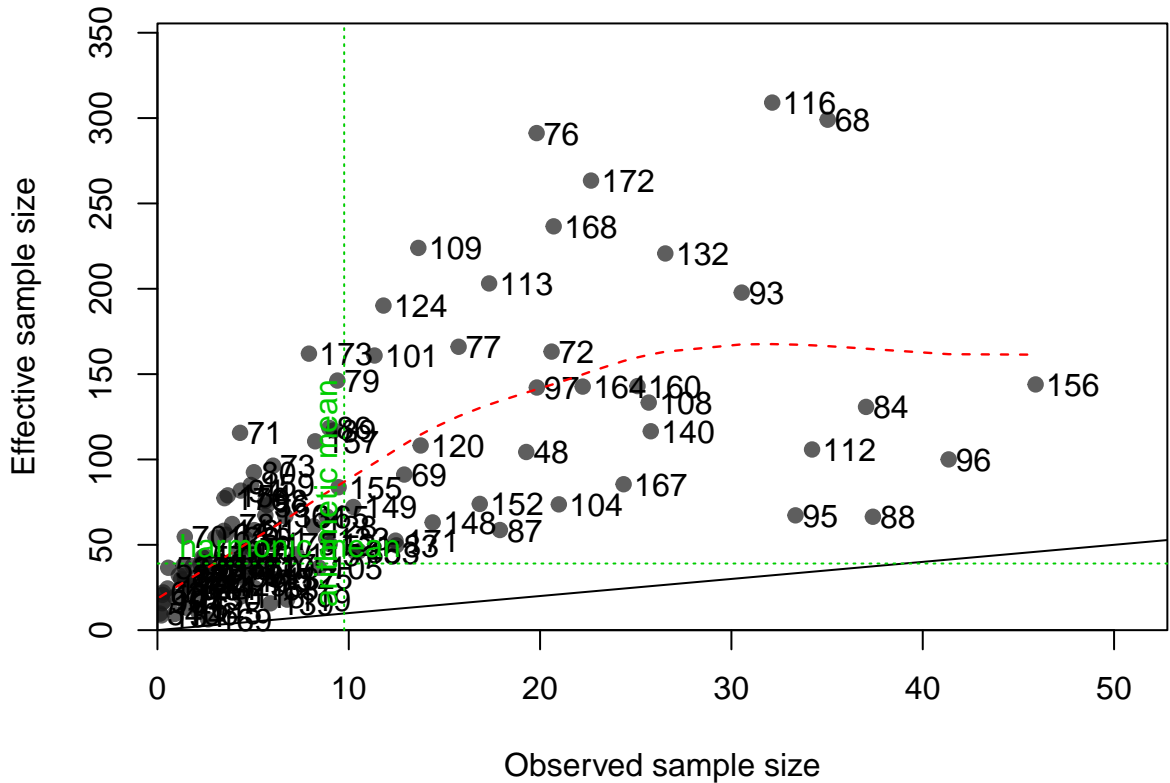


Proportion

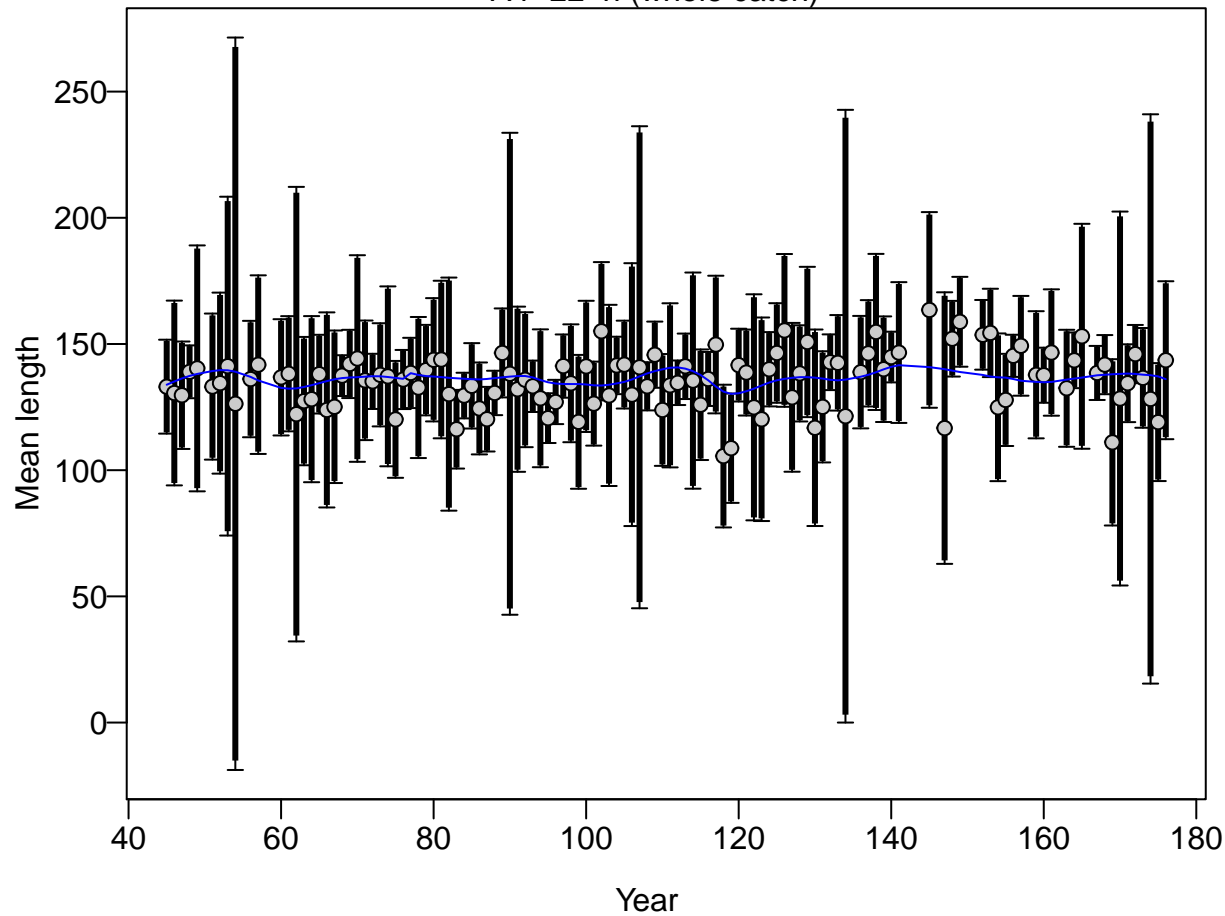


Length (cm)

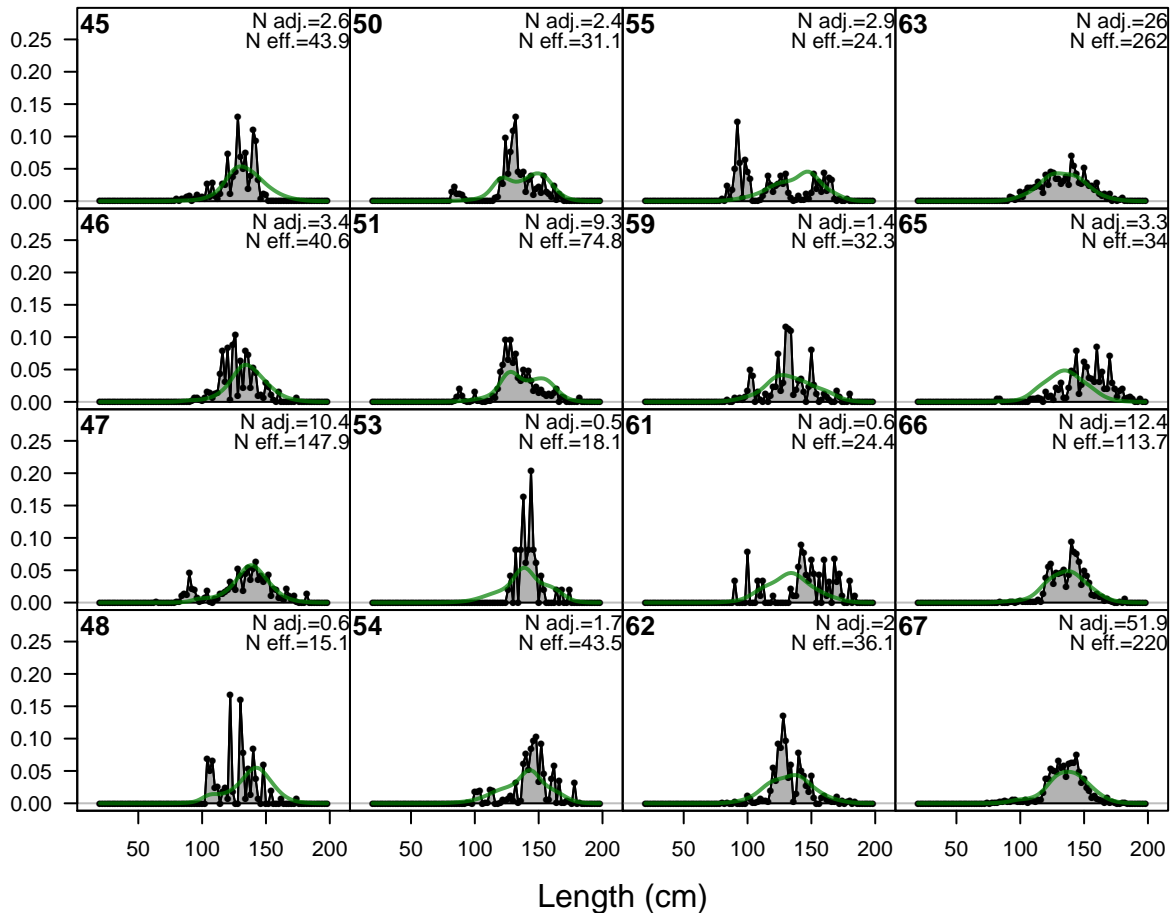




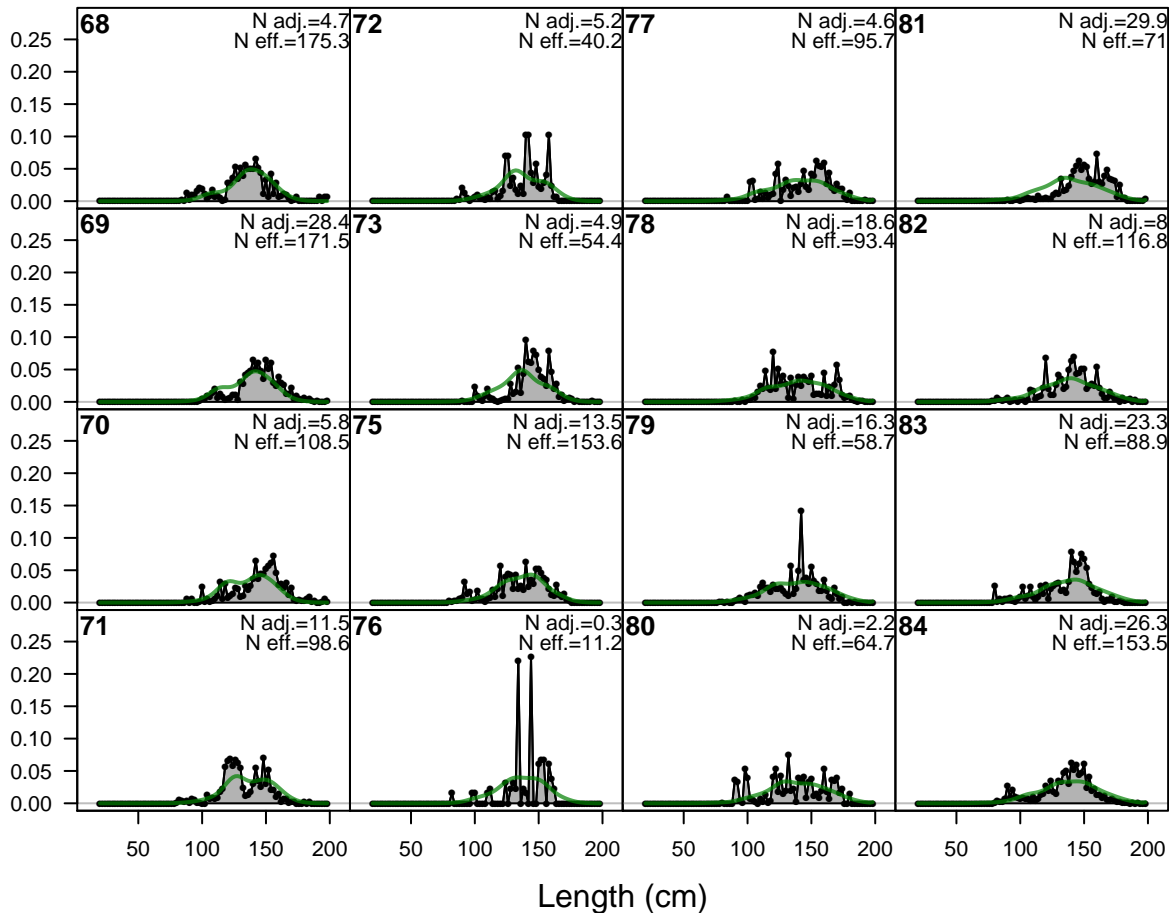
A4-LL-n (whole catch)



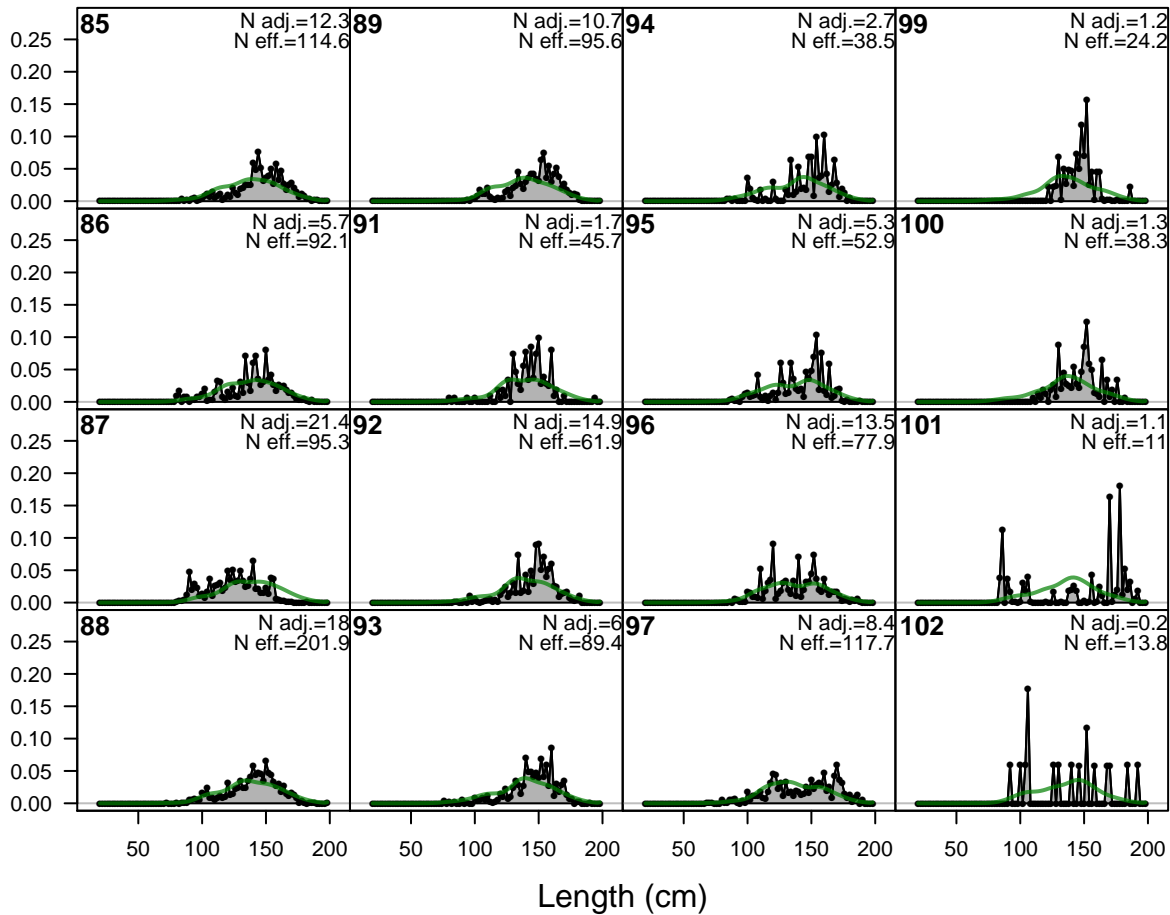
Proportion



Proportion

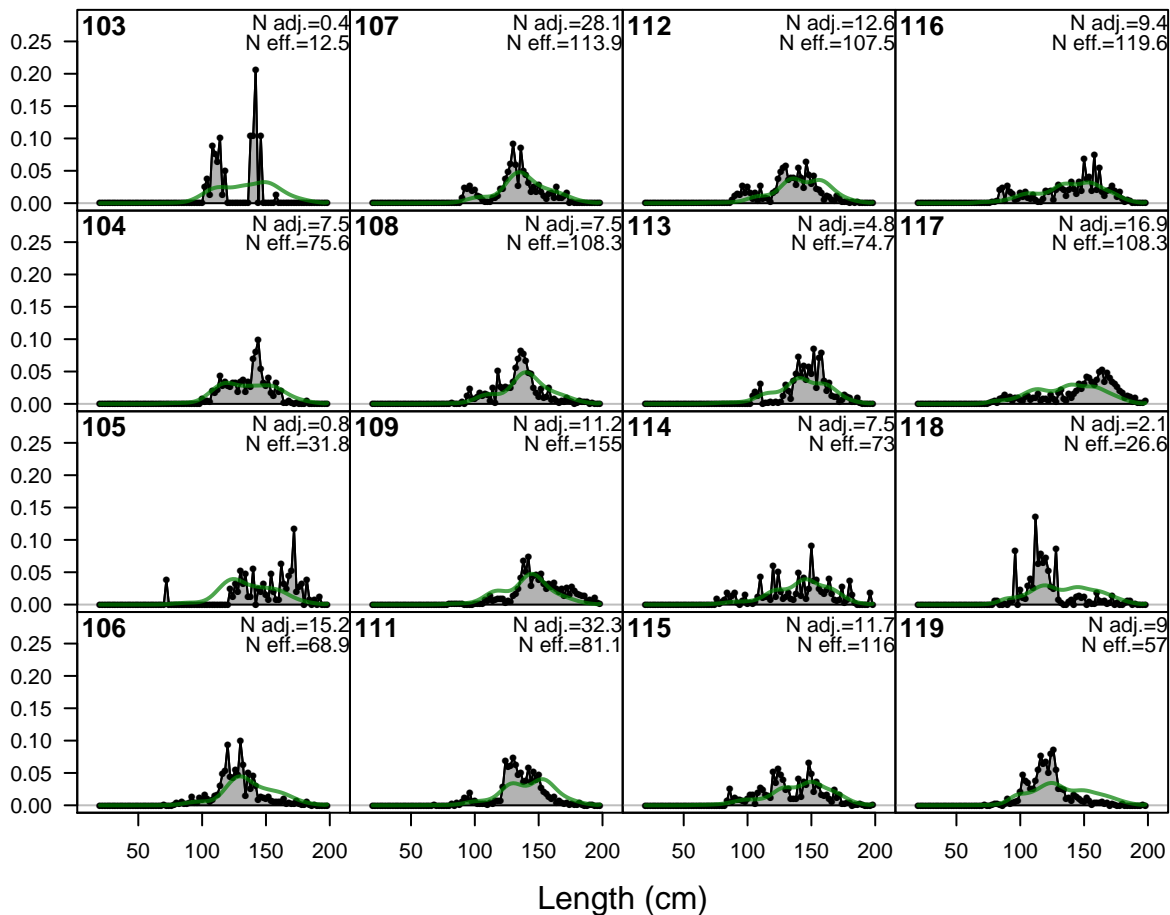


Proportion

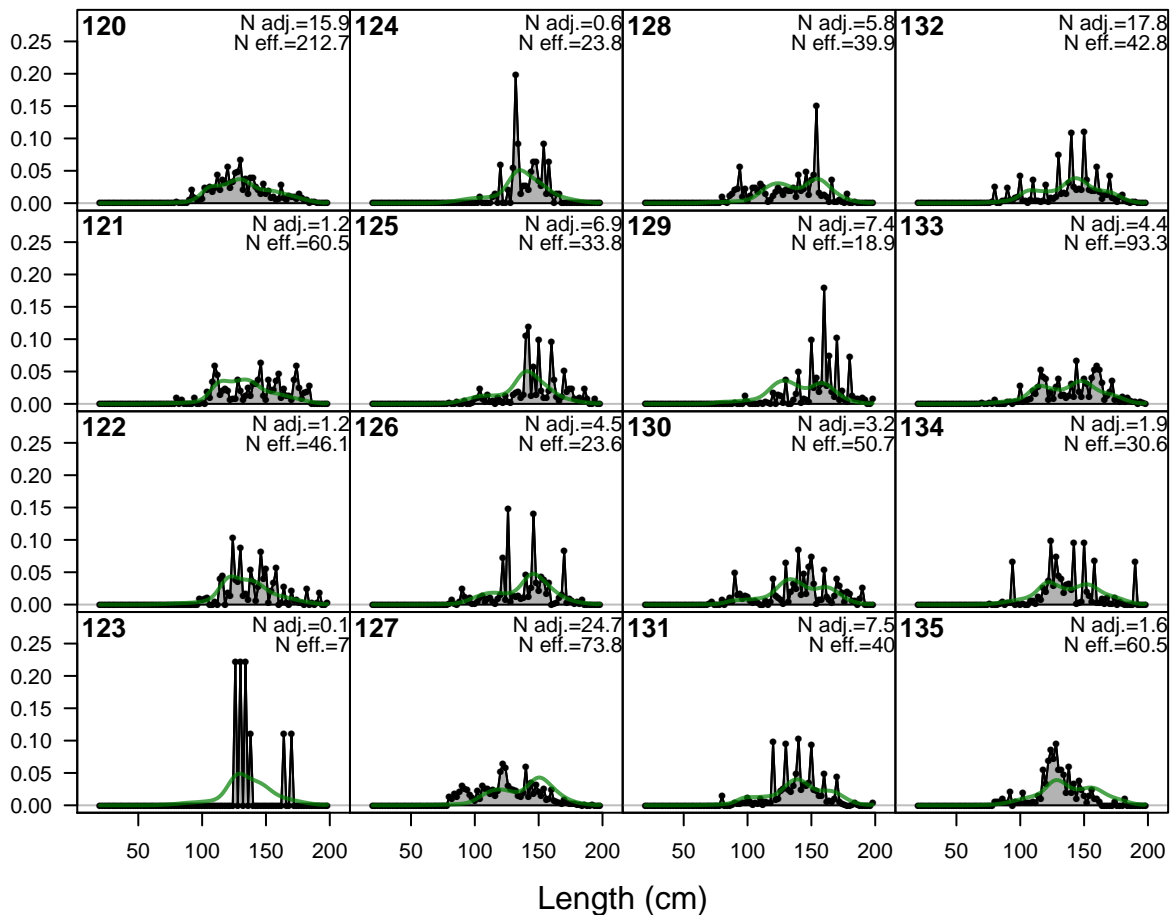




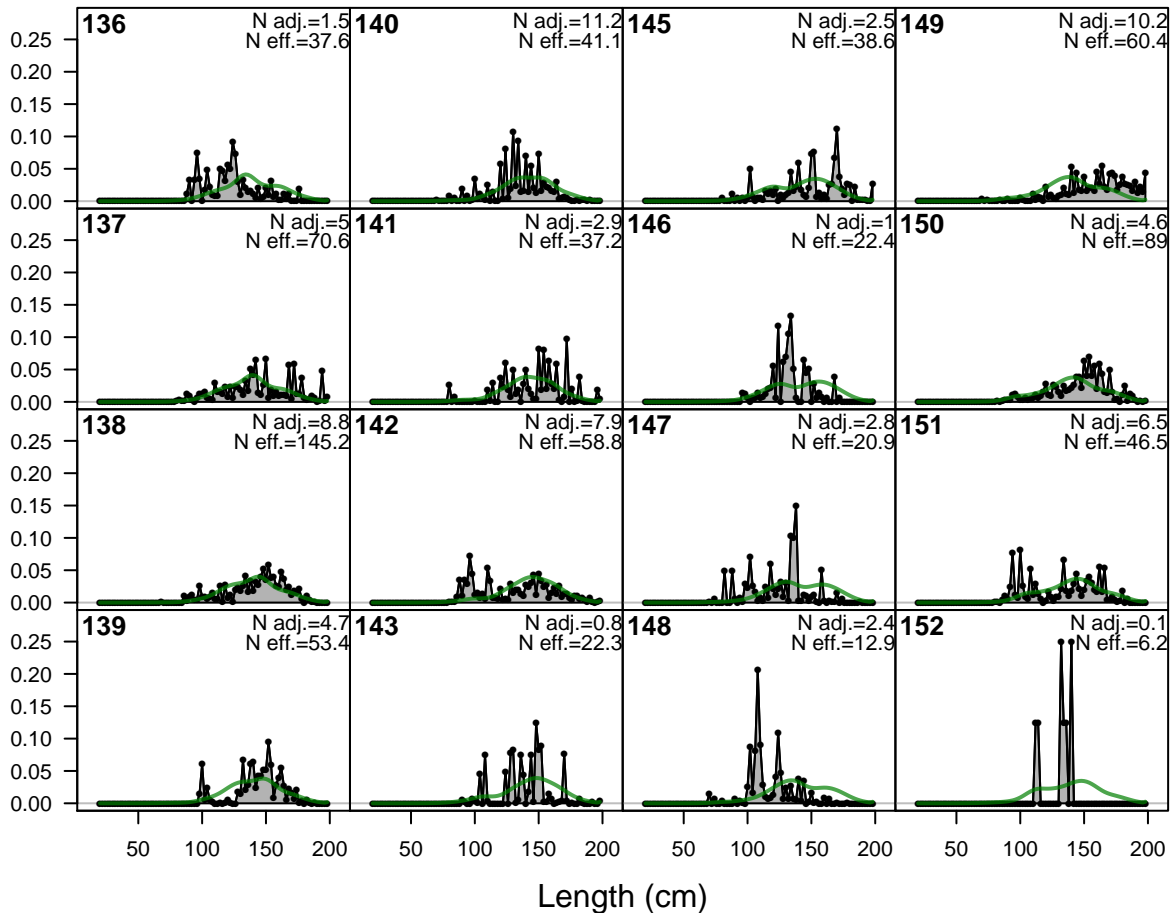
Proportion



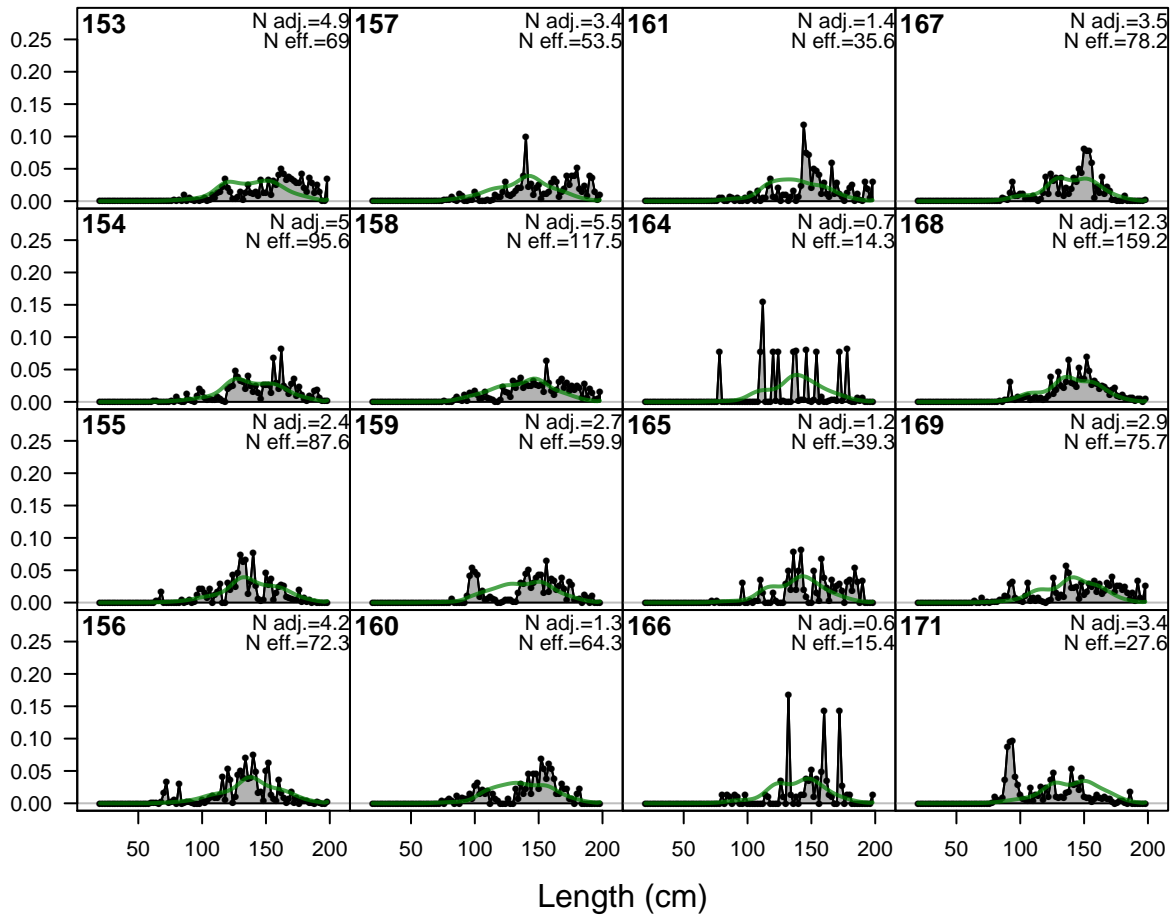
Proportion



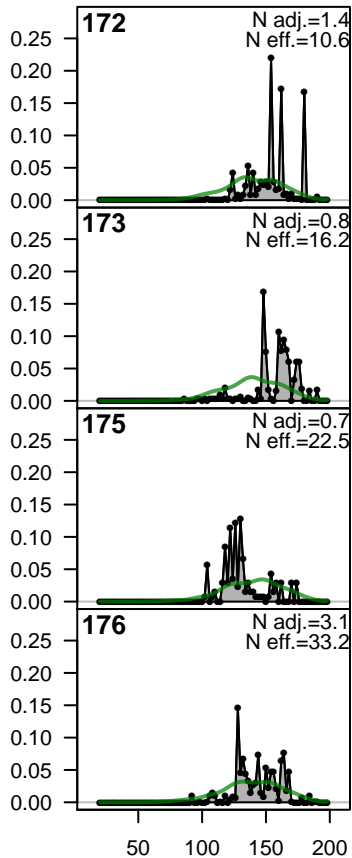
Proportion



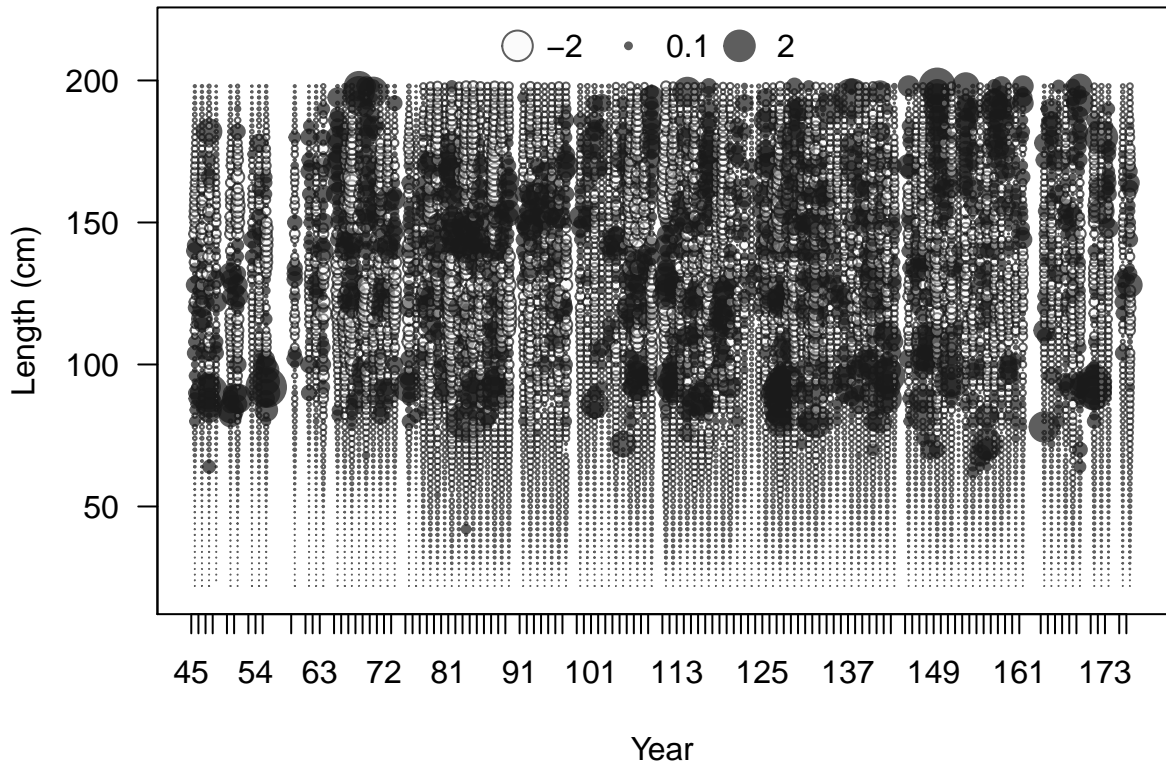
Proportion

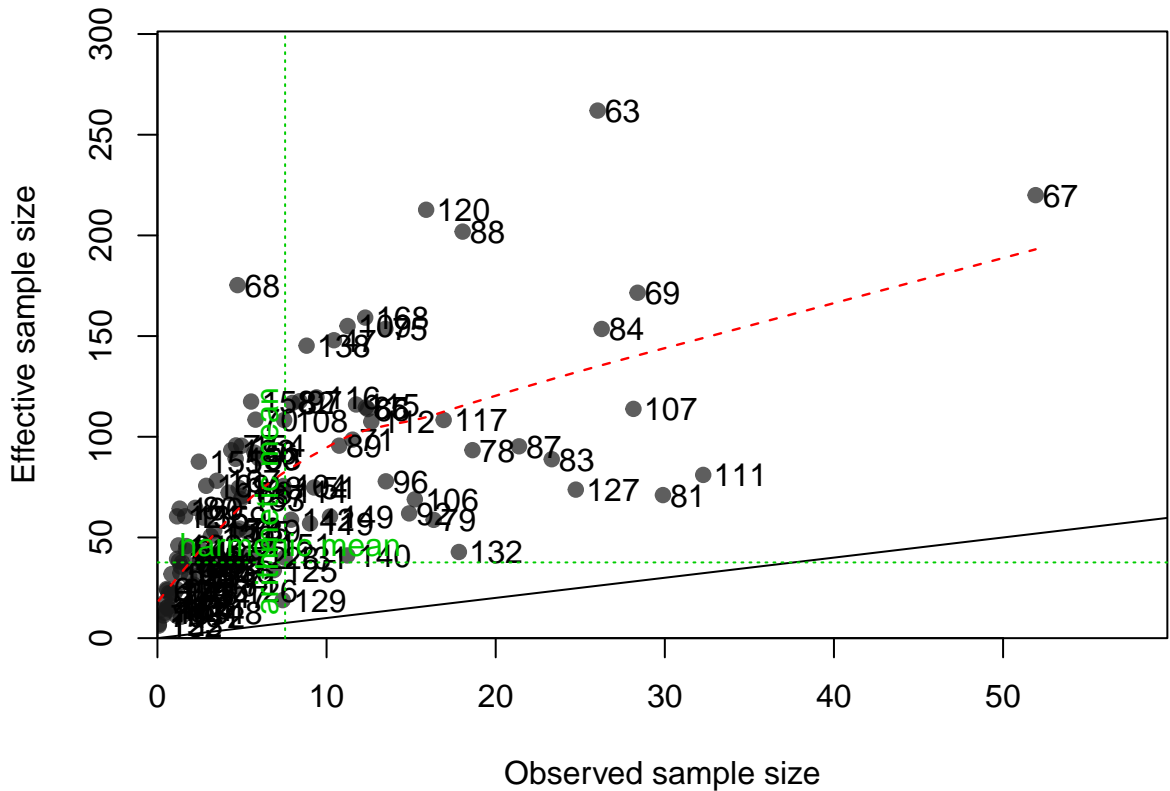


Proportion

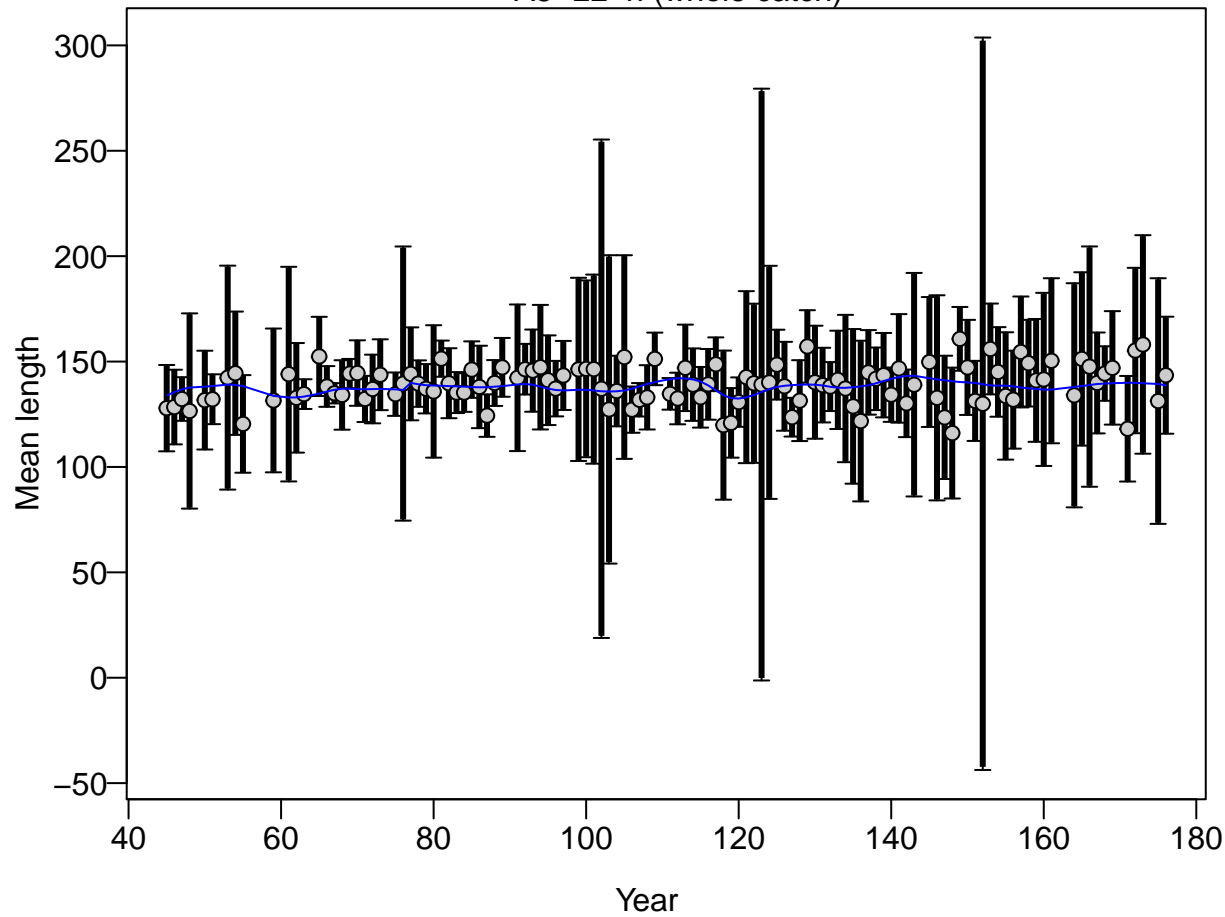


Length (cm)

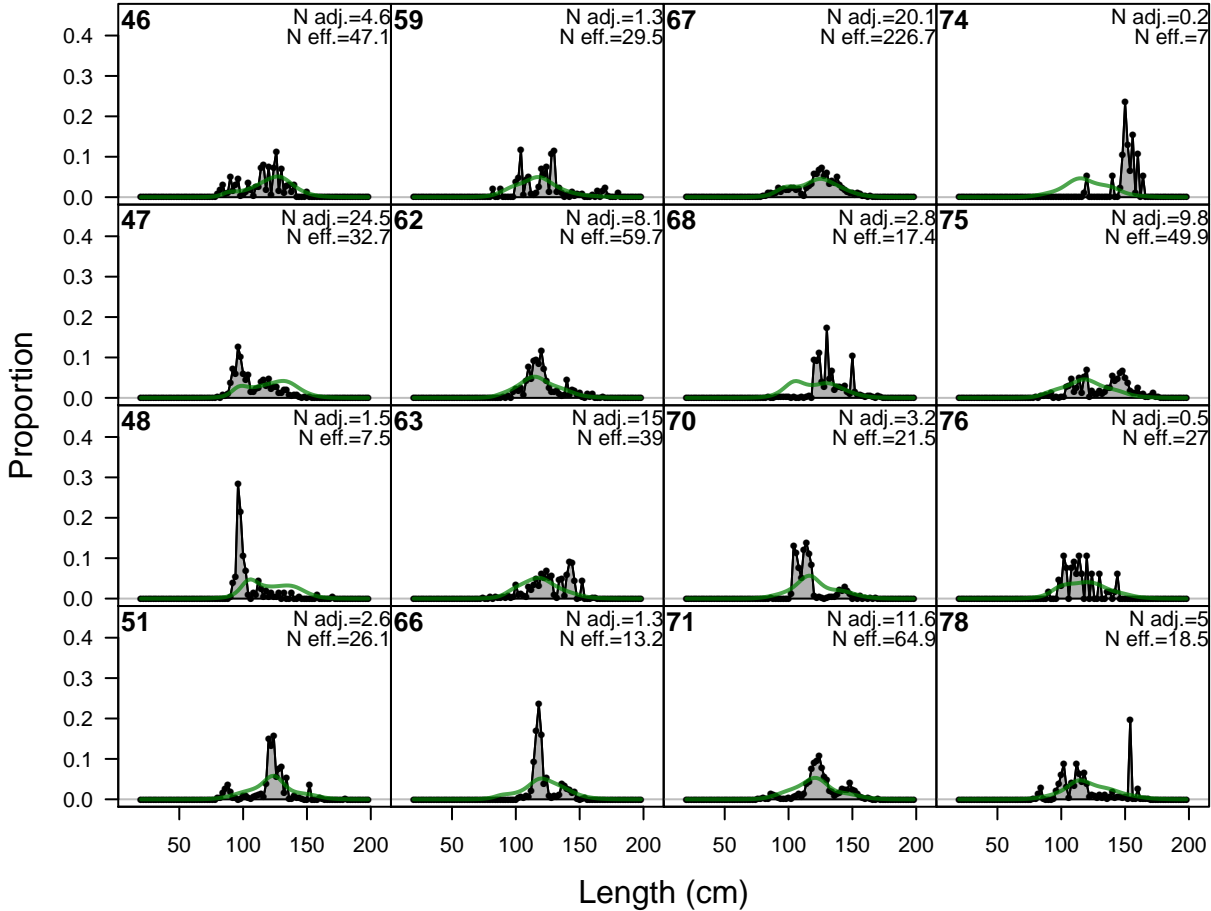




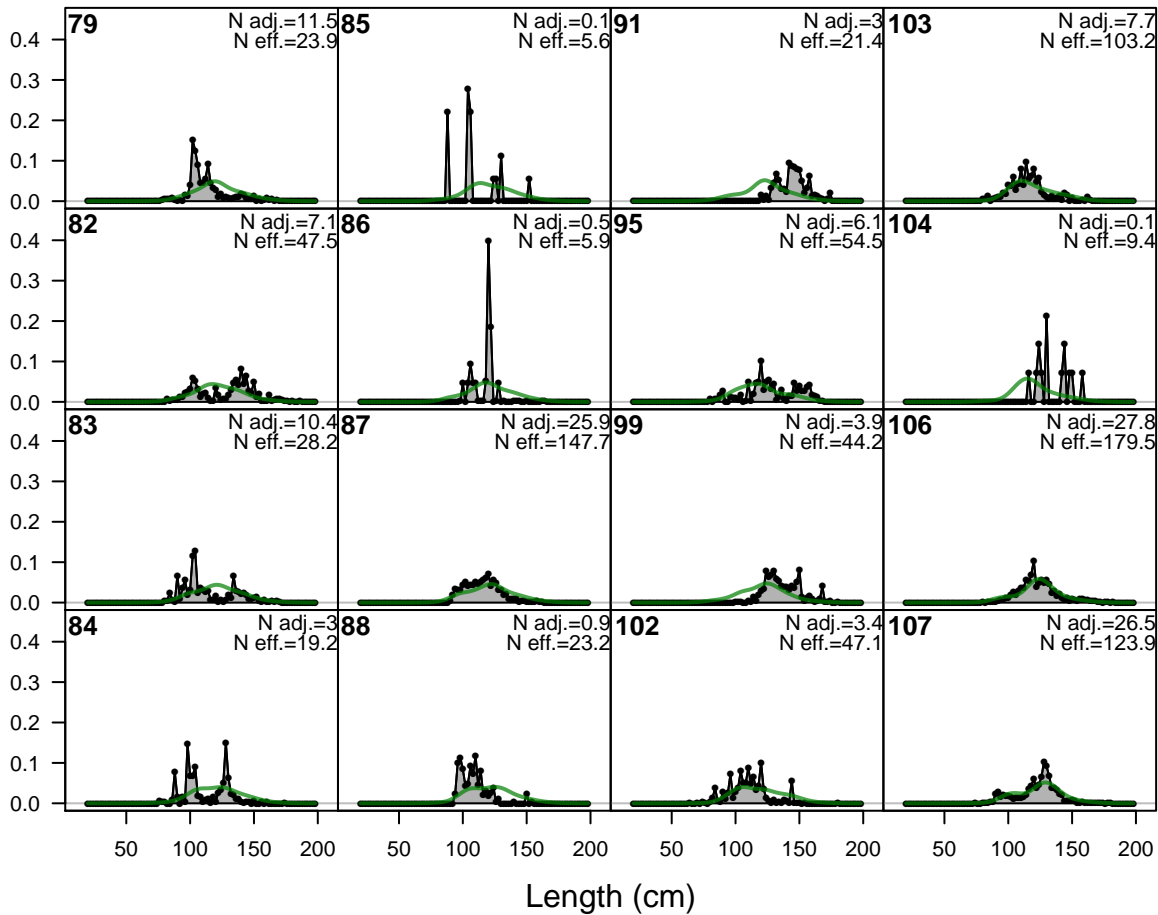
A5-LL-n (whole catch)



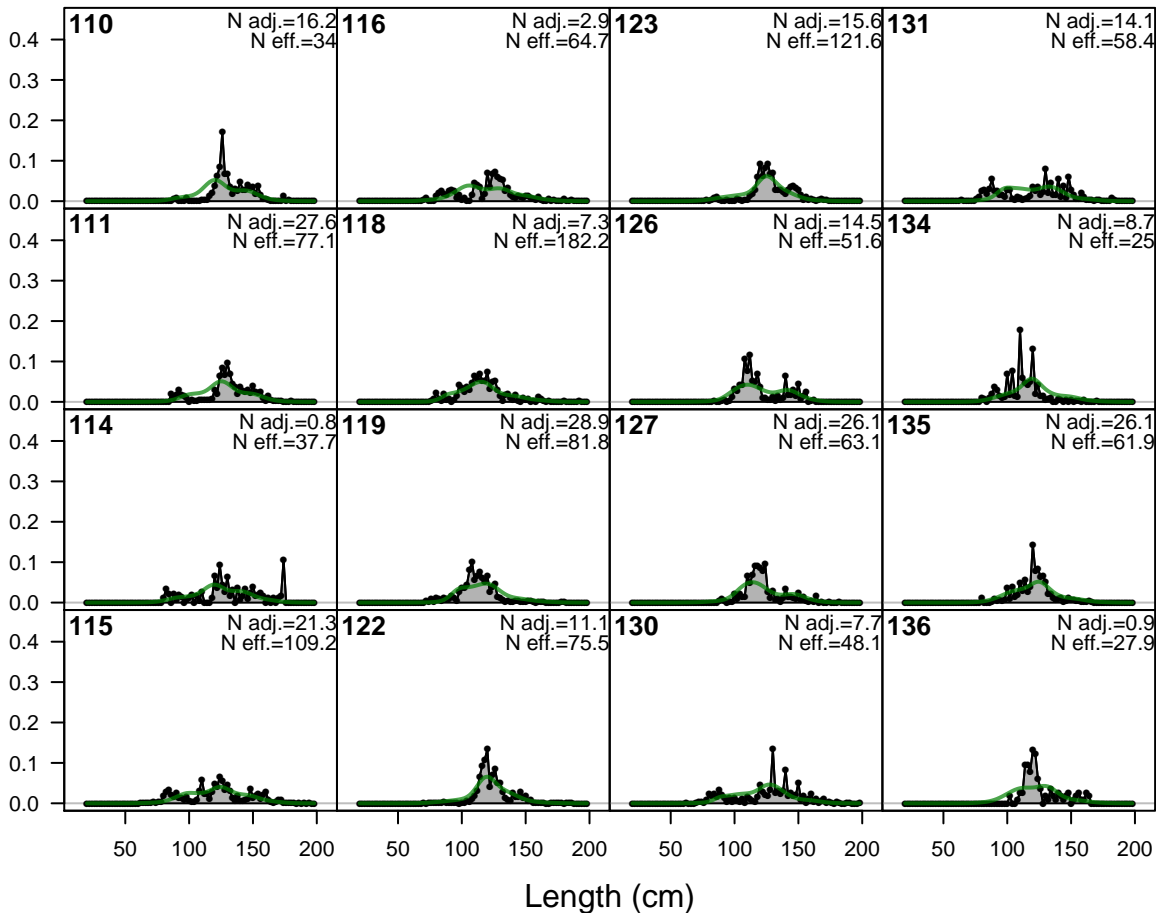




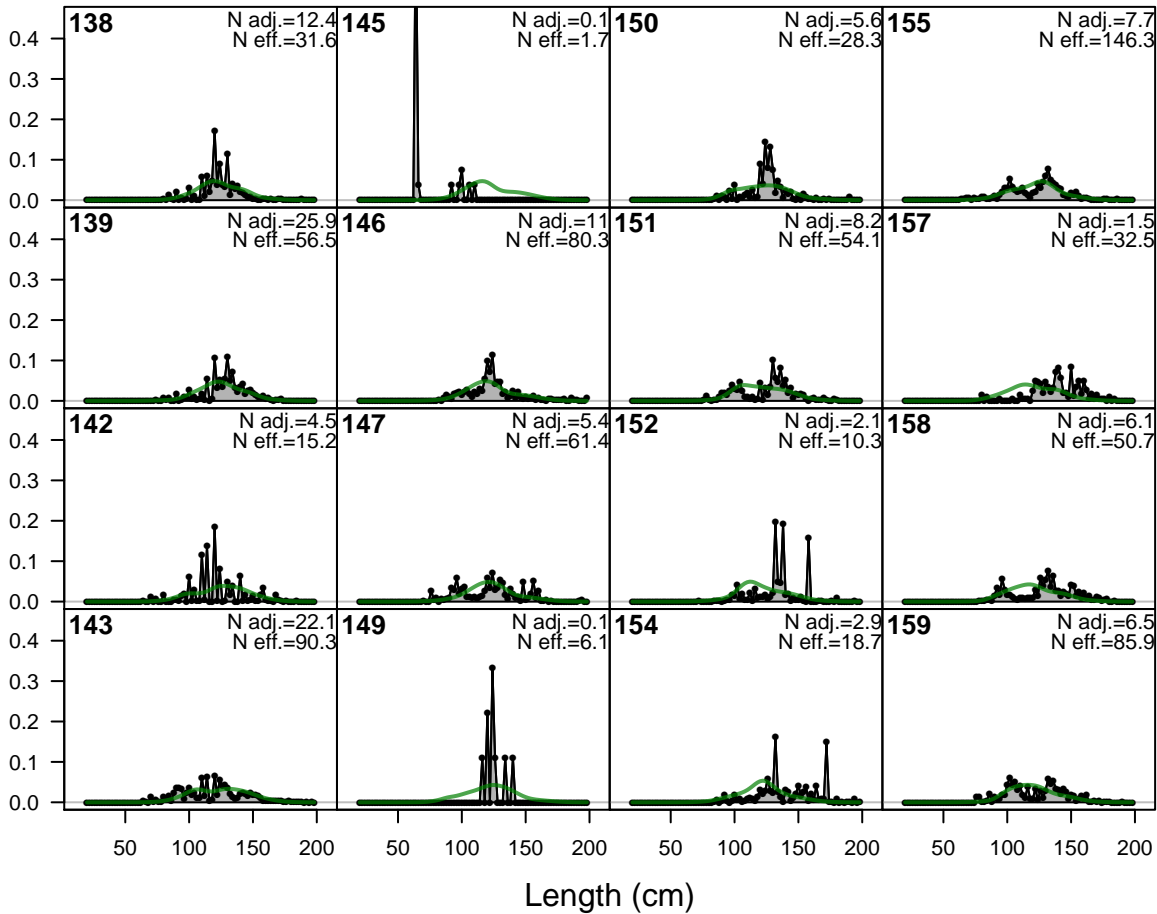
Proportion



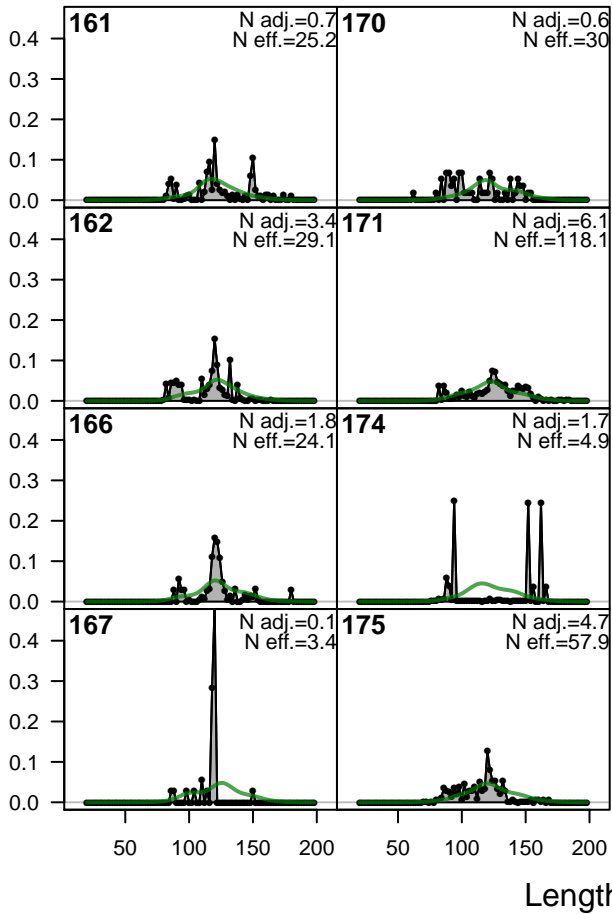
Proportion

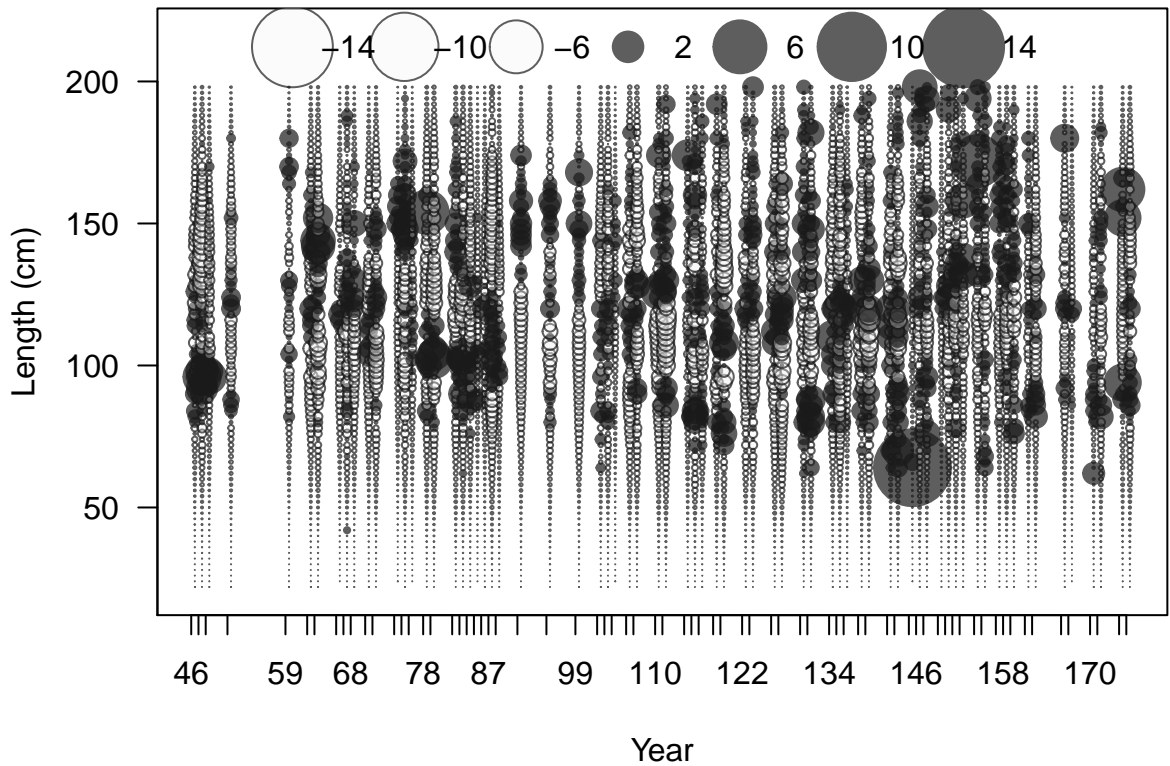


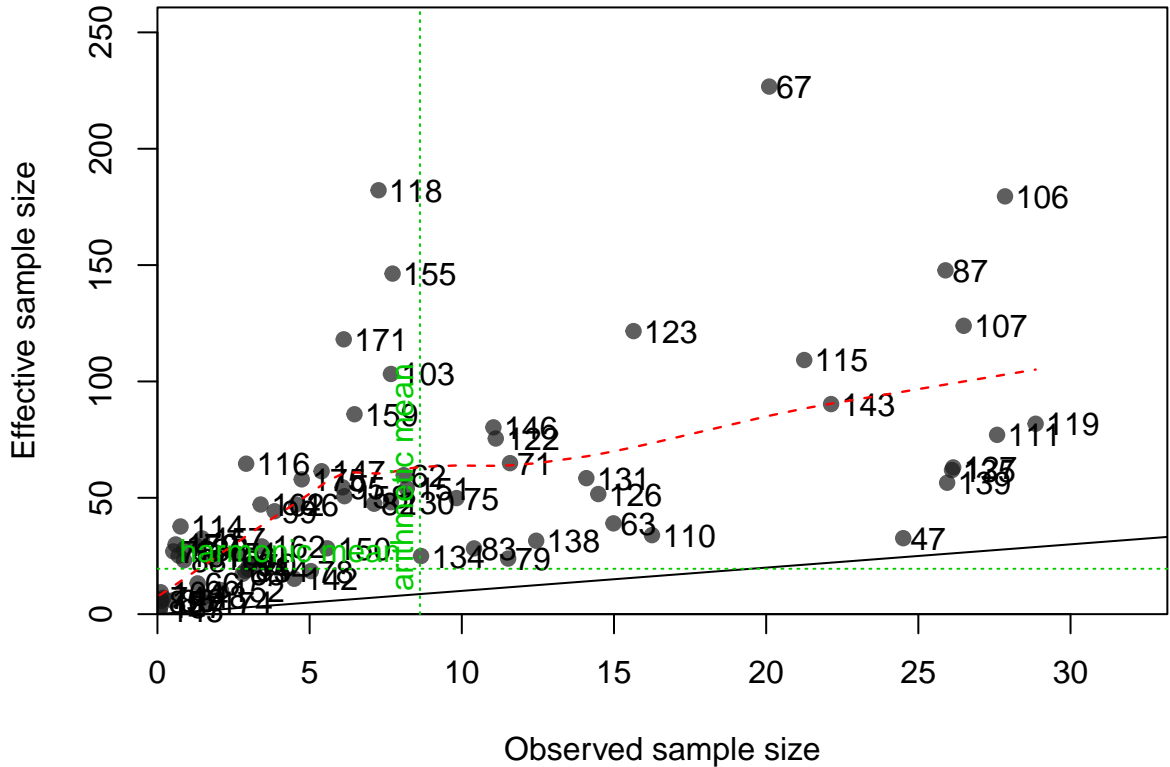
Proportion



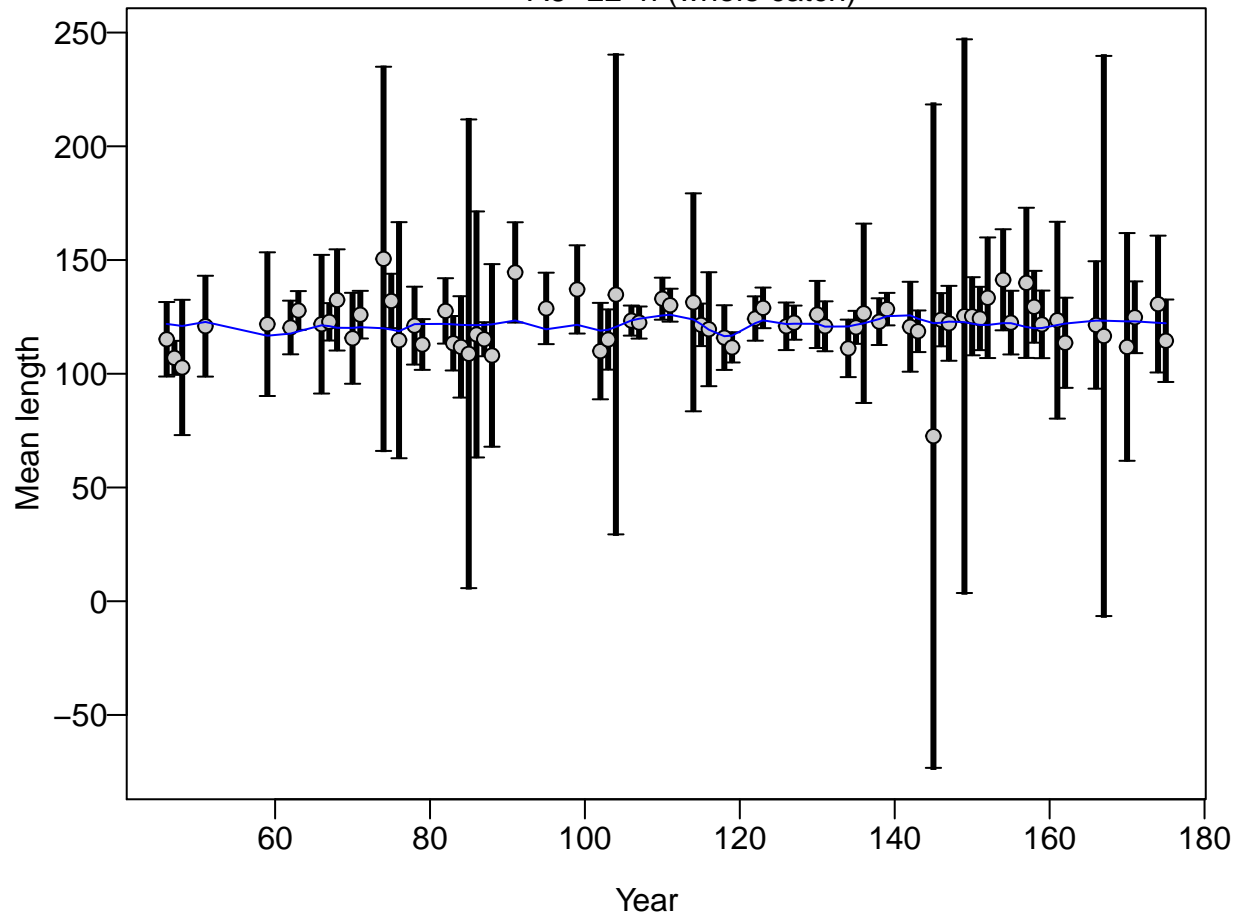
Proportion



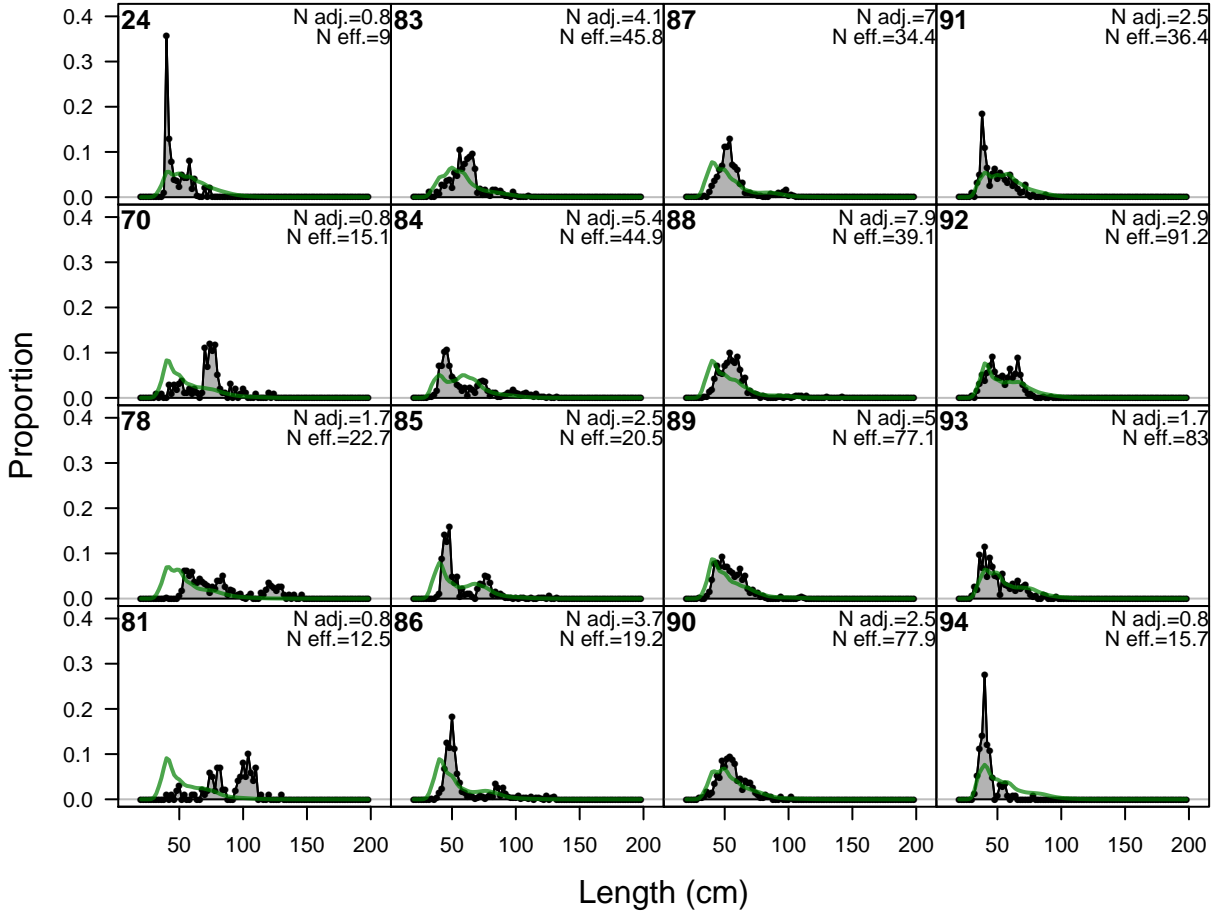




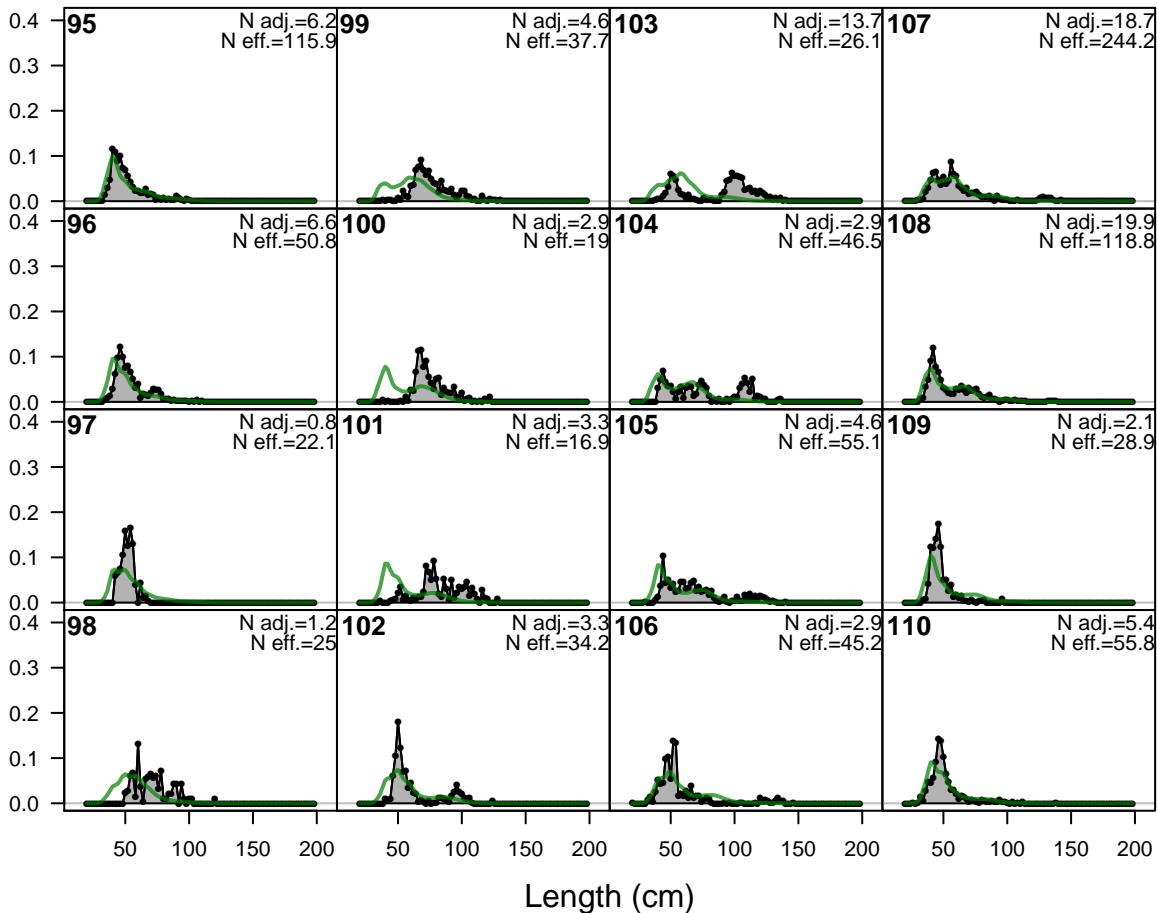
A6-LL-n (whole catch)



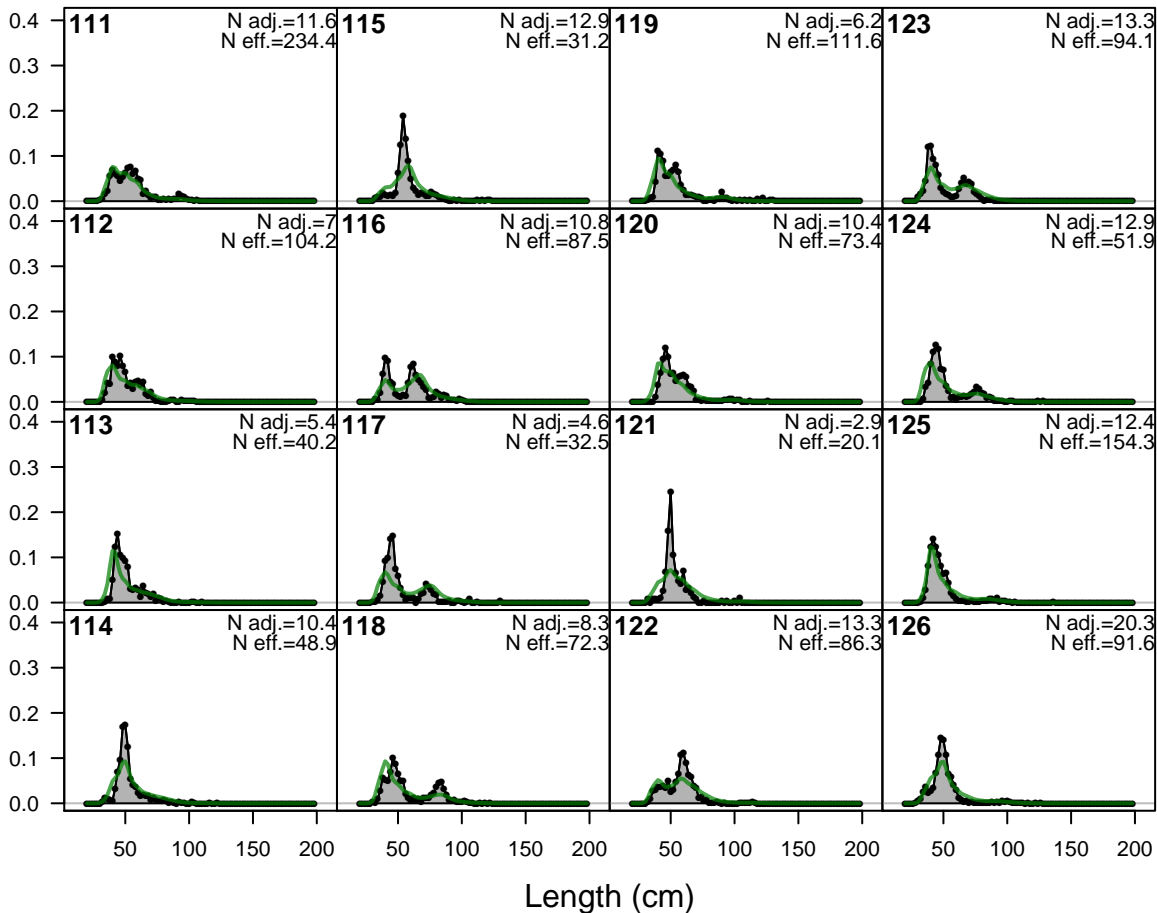




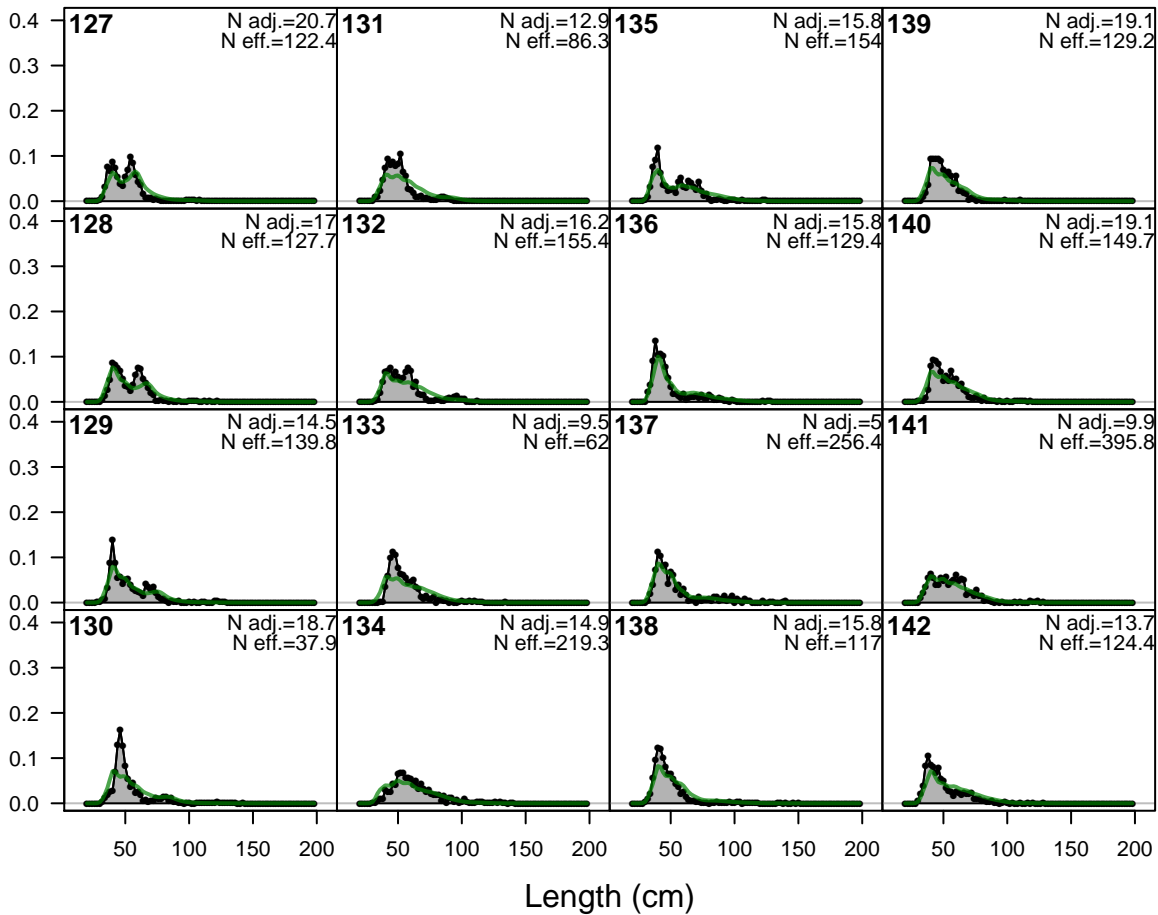
Proportion



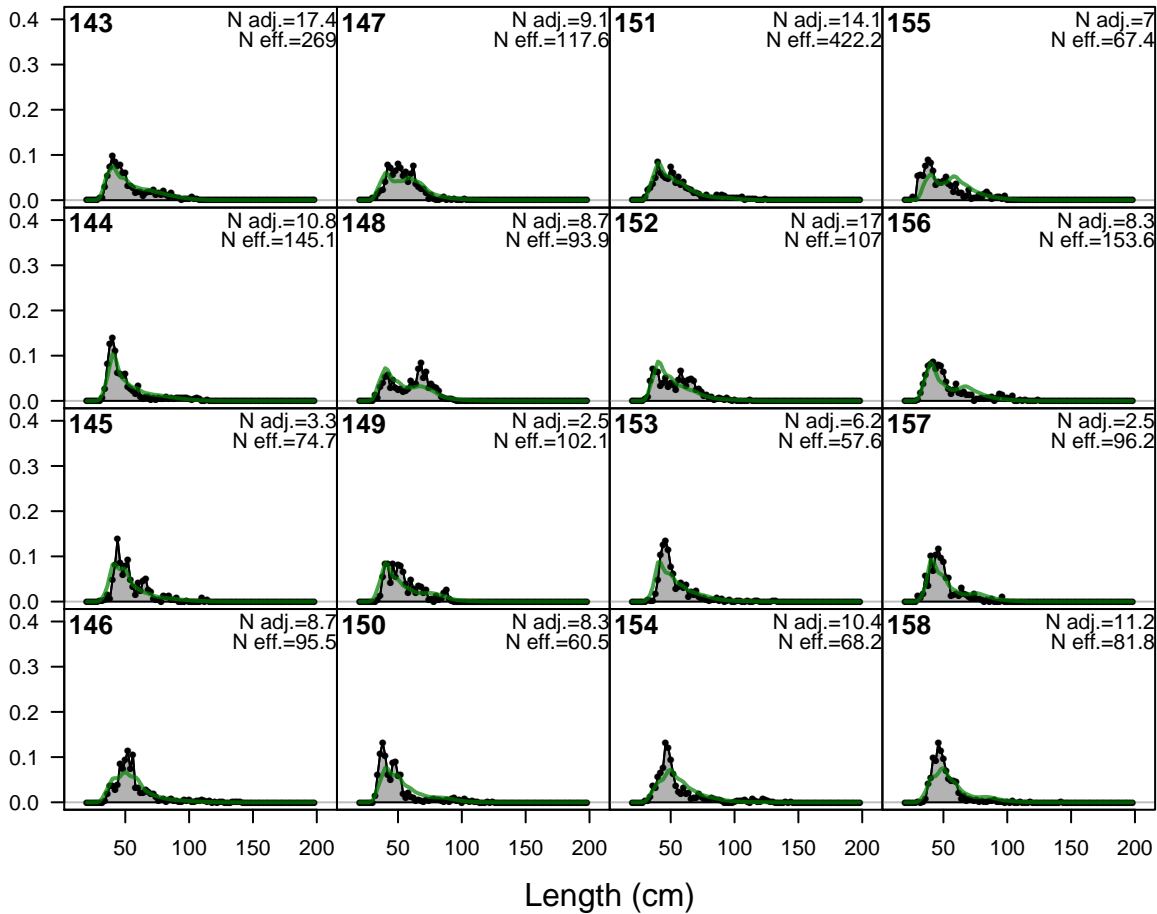
Proportion



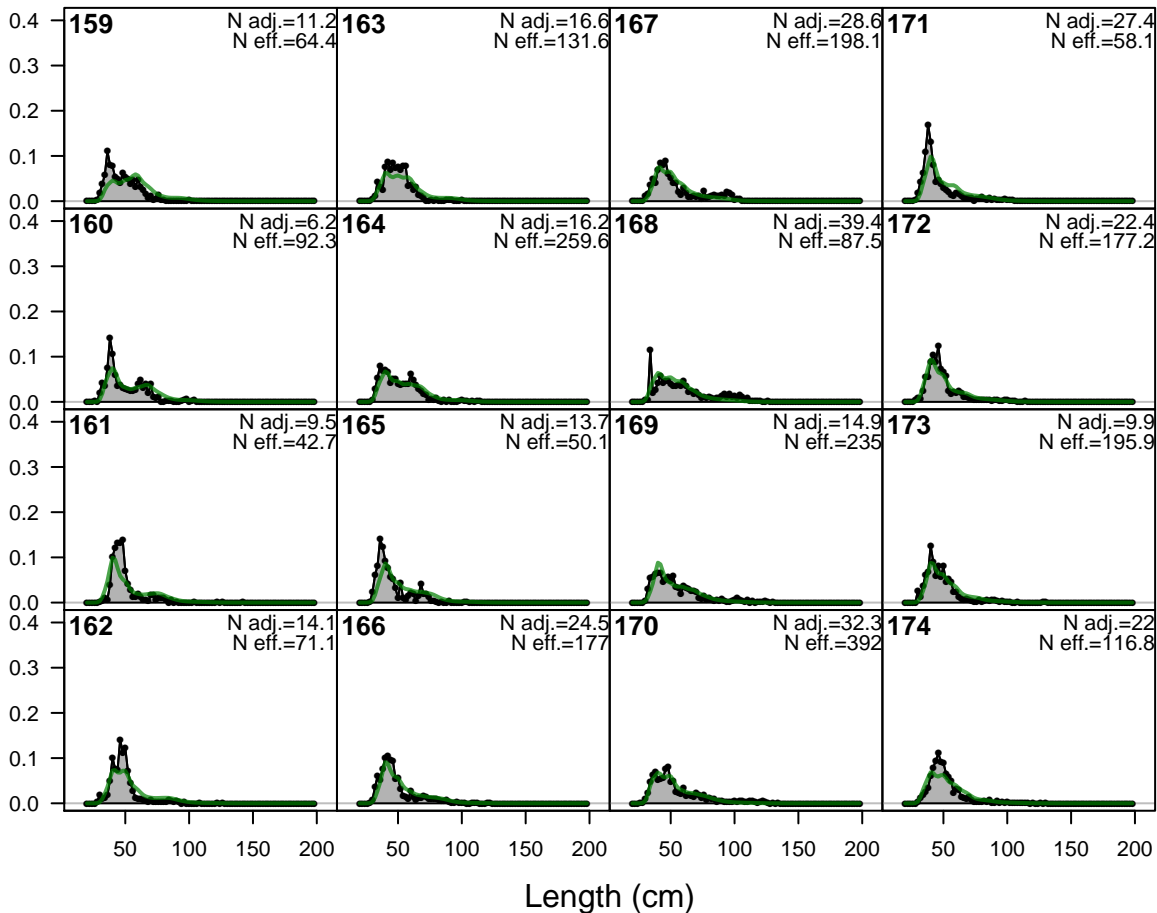
Proportion



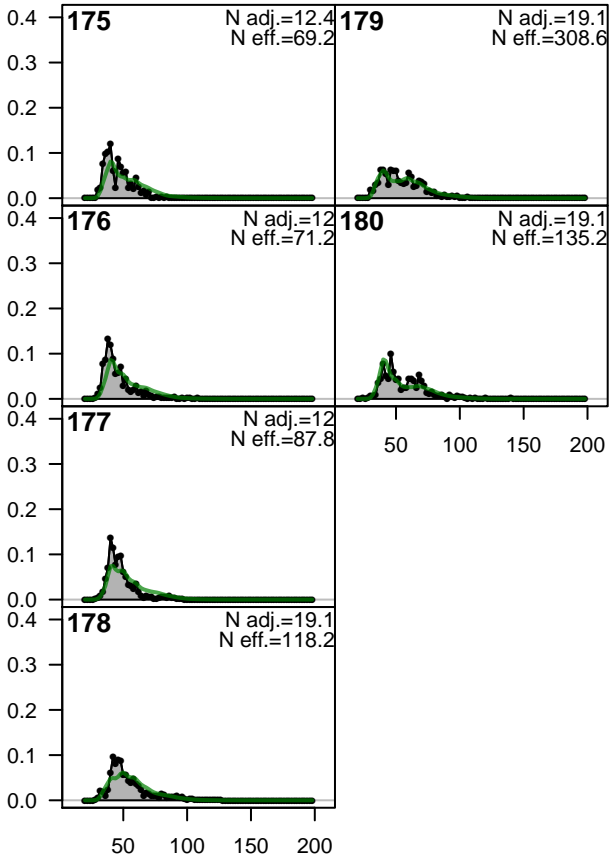
Proportion



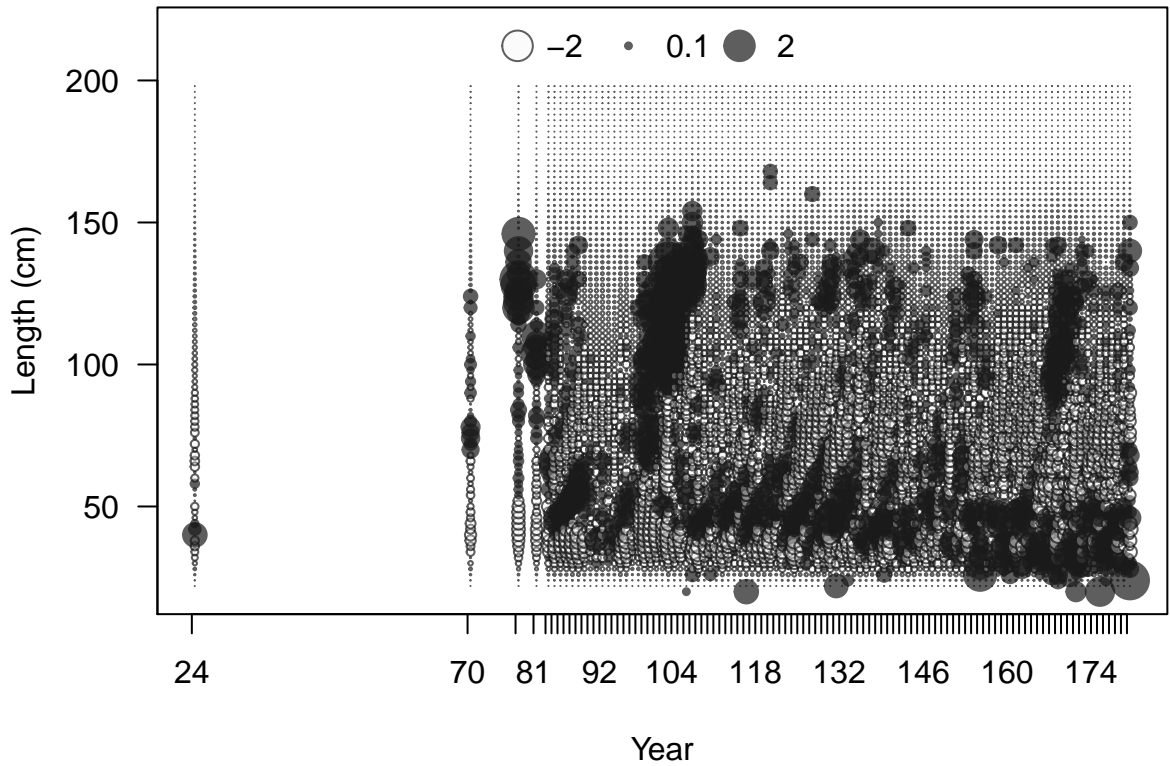
Proportion



Proportion

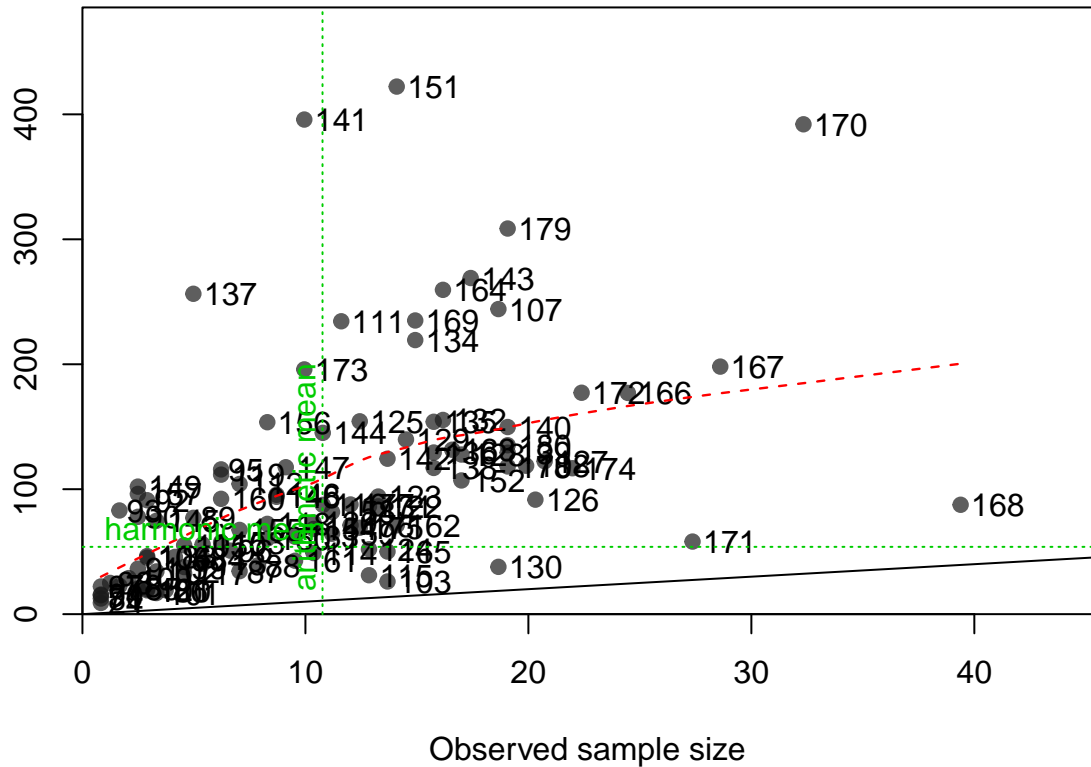


Length (cm)

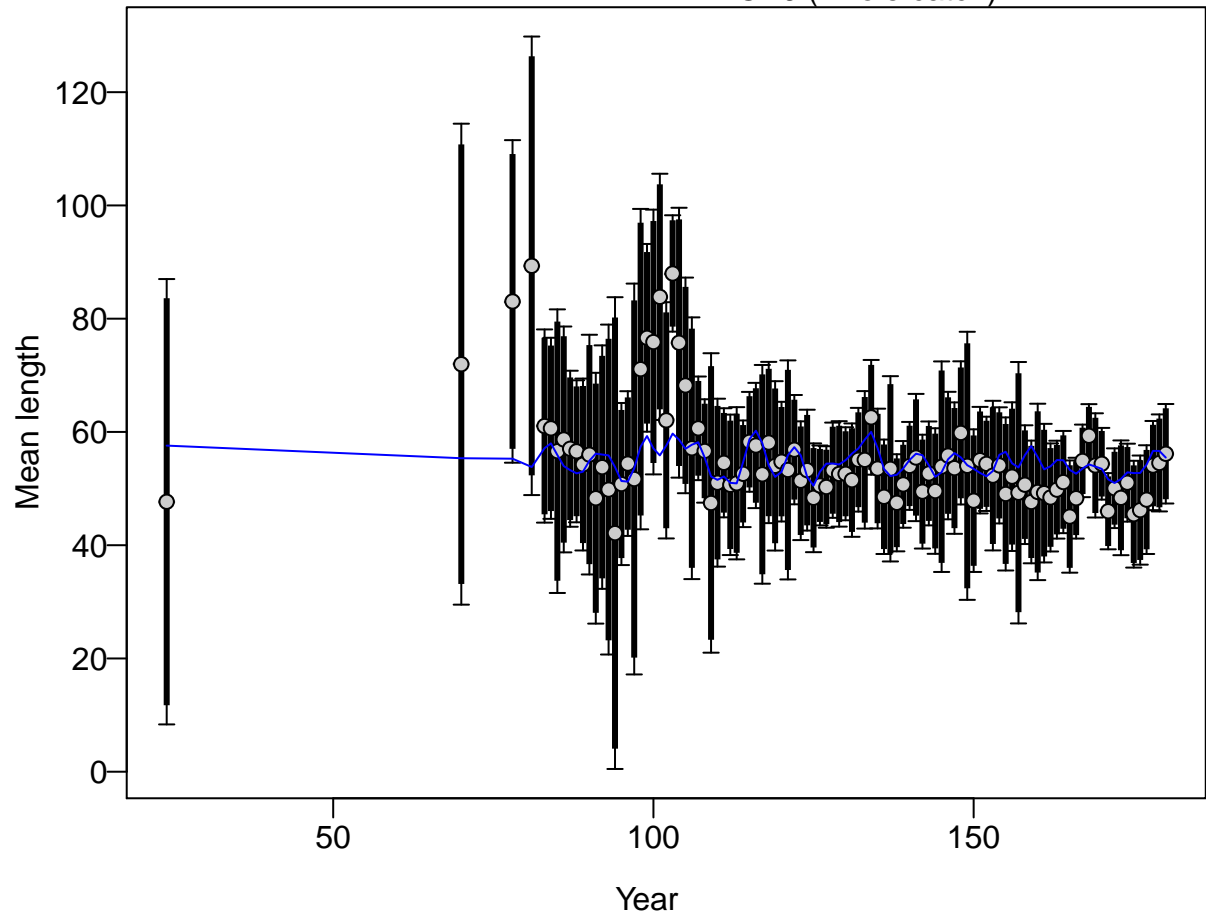




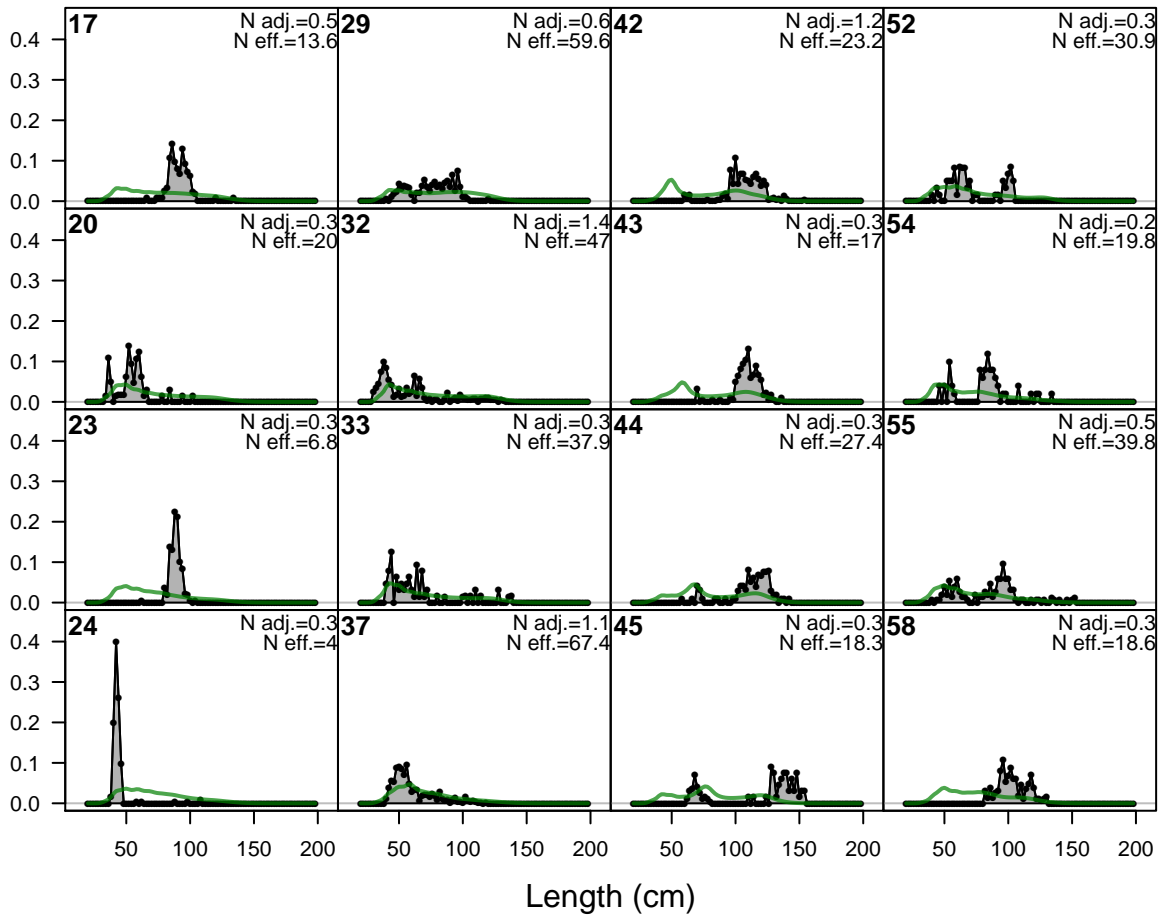
Effective sample size



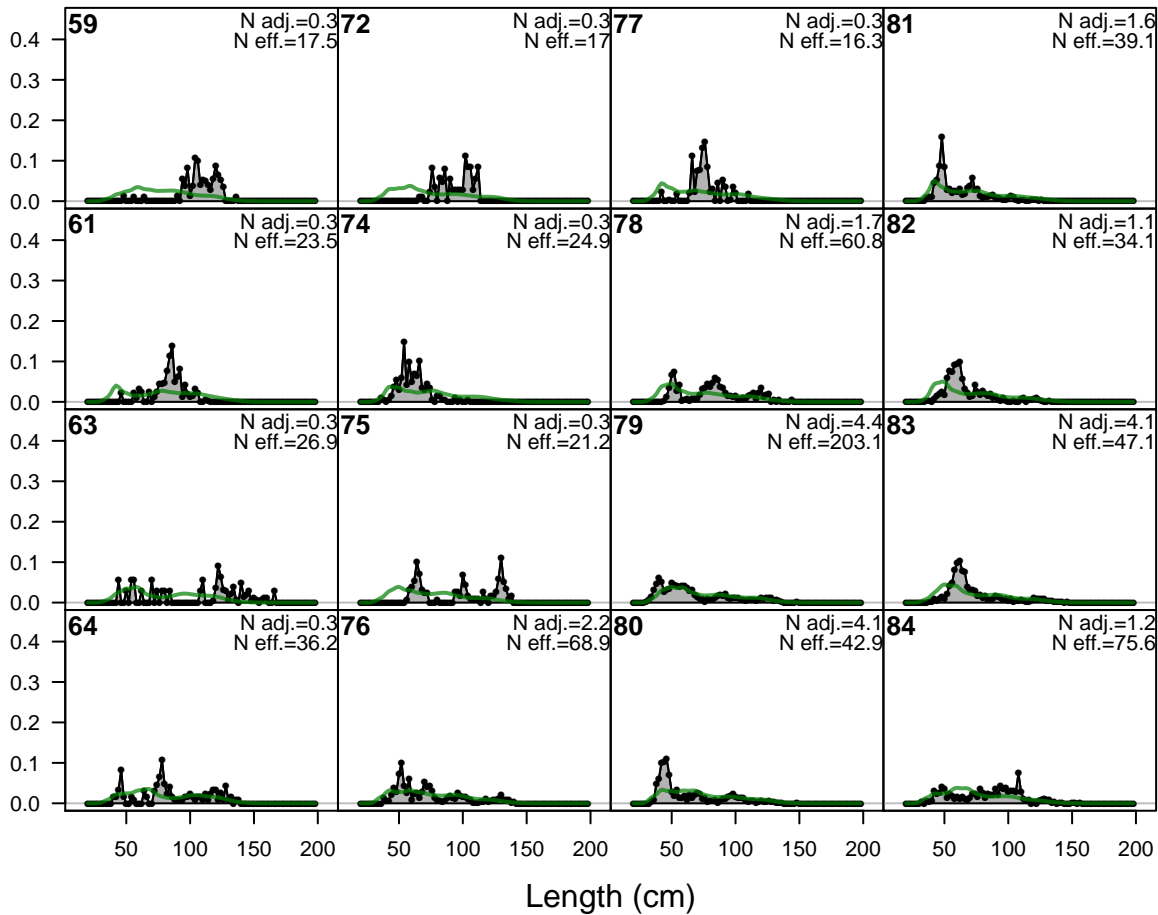
## A2-OBJ (whole catch)



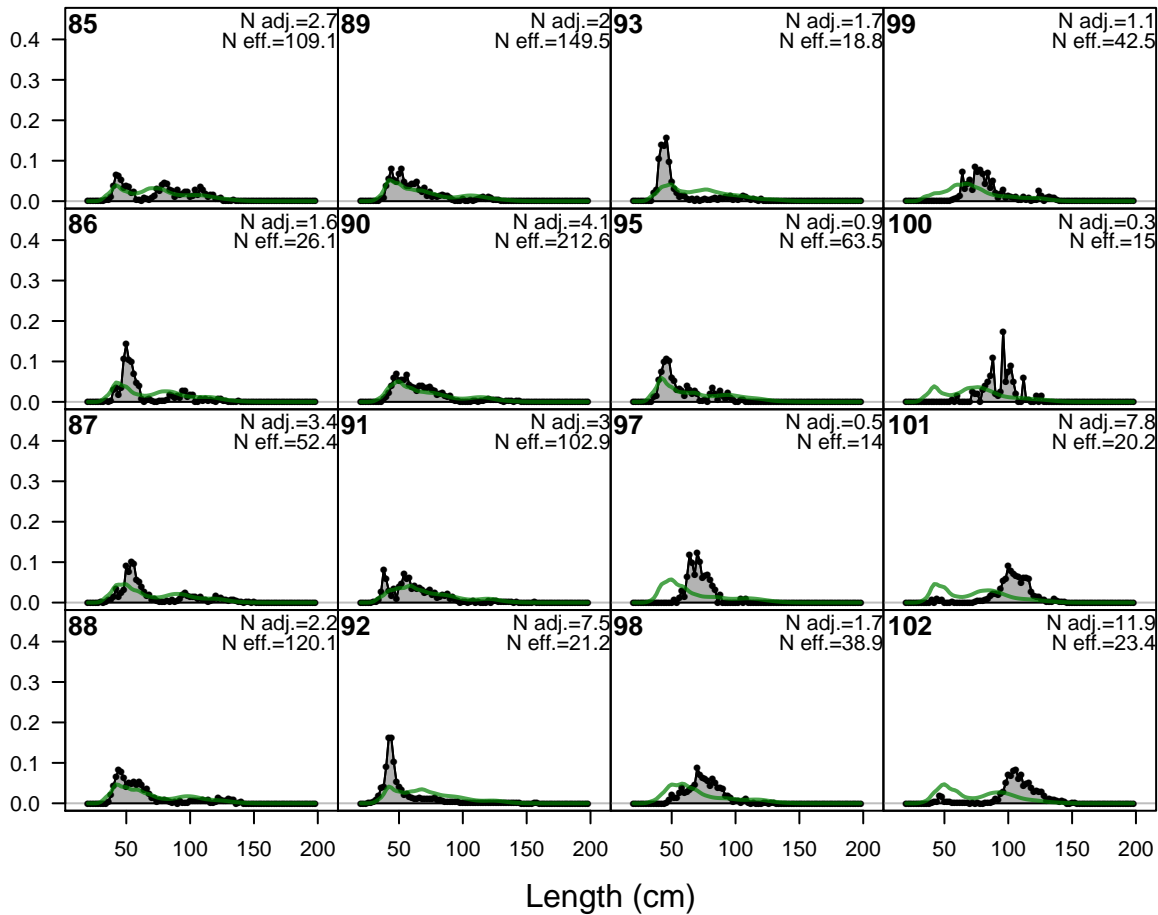
Proportion



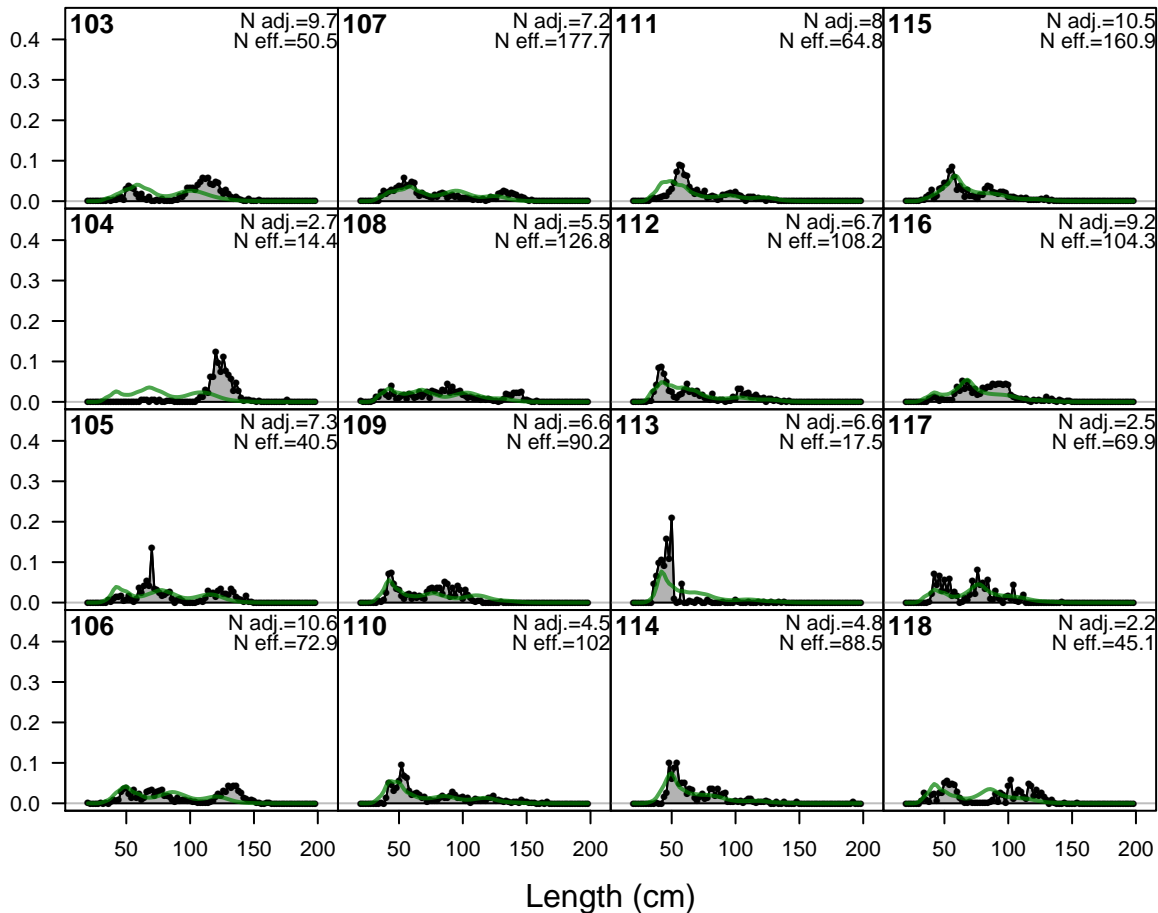
Proportion



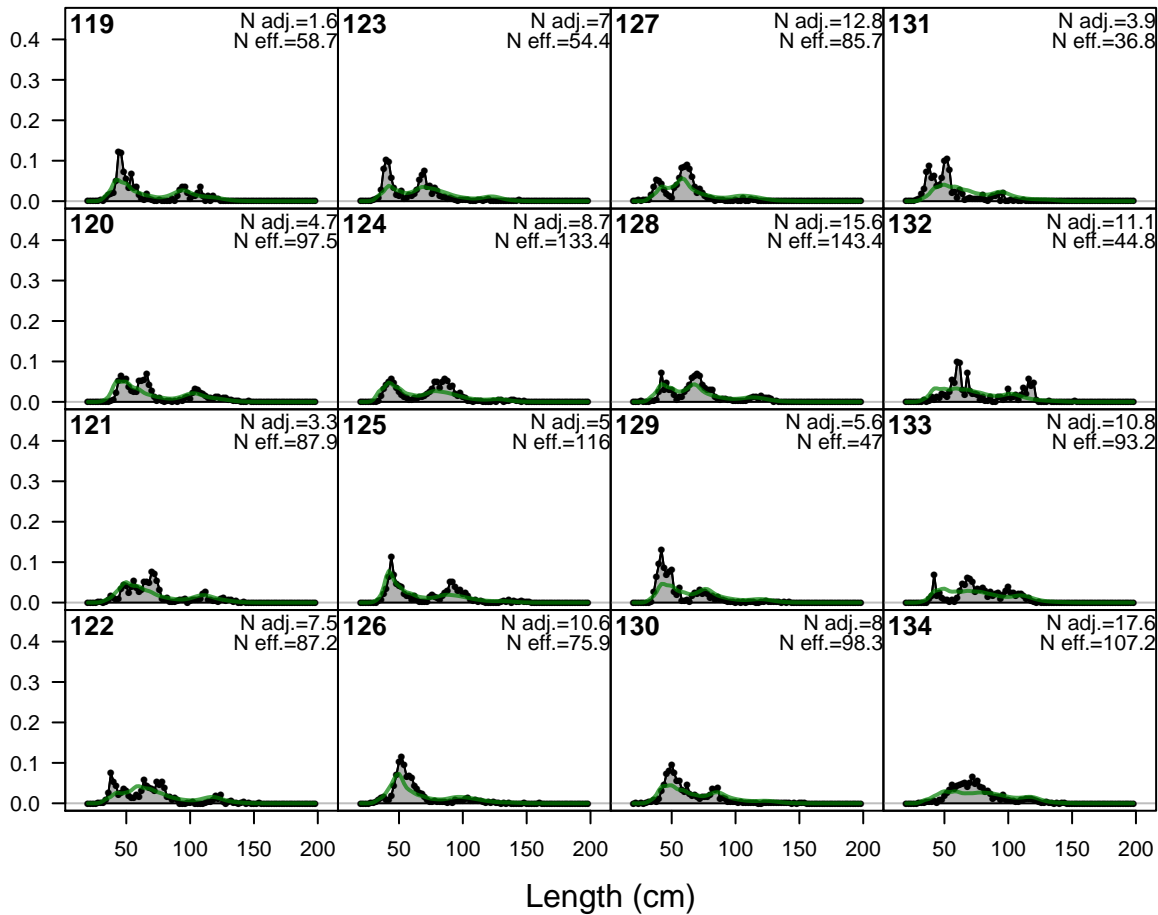
Proportion



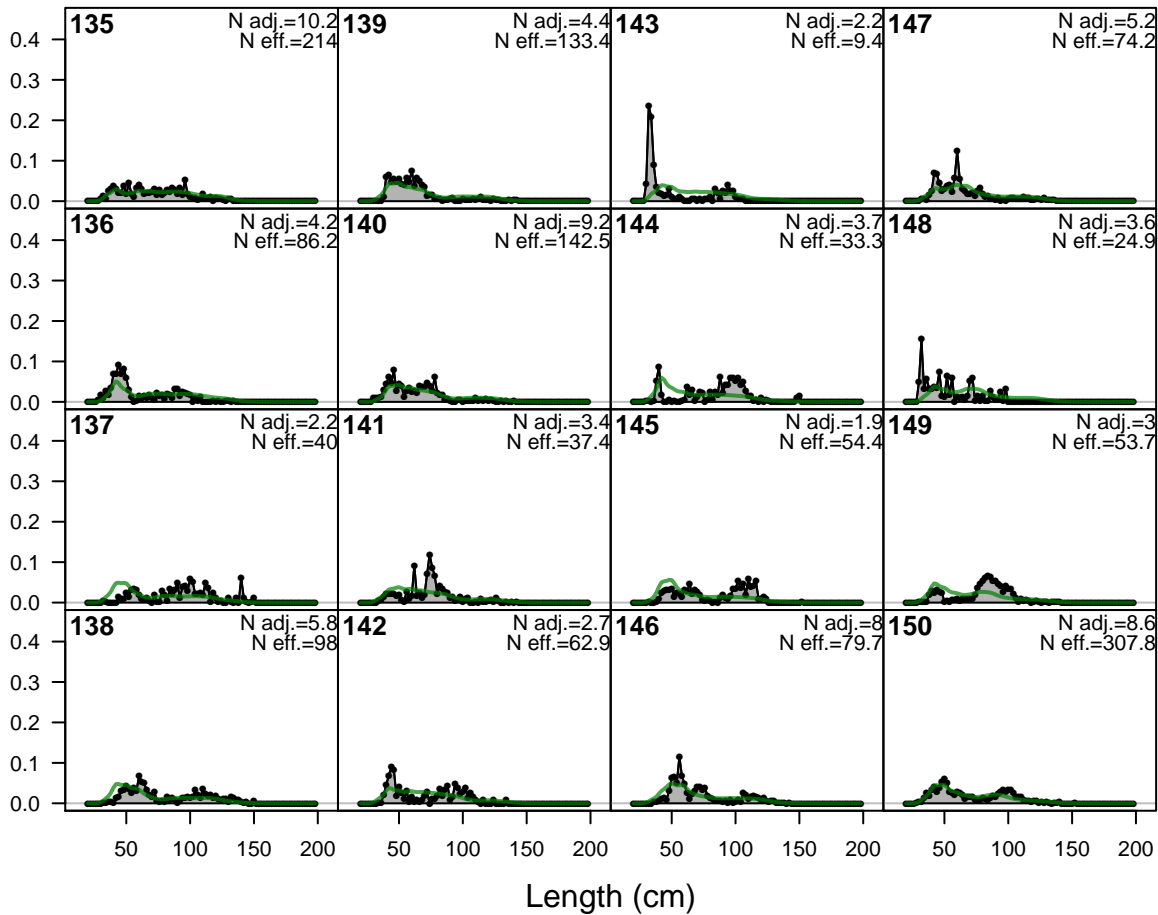
Proportion



Proportion

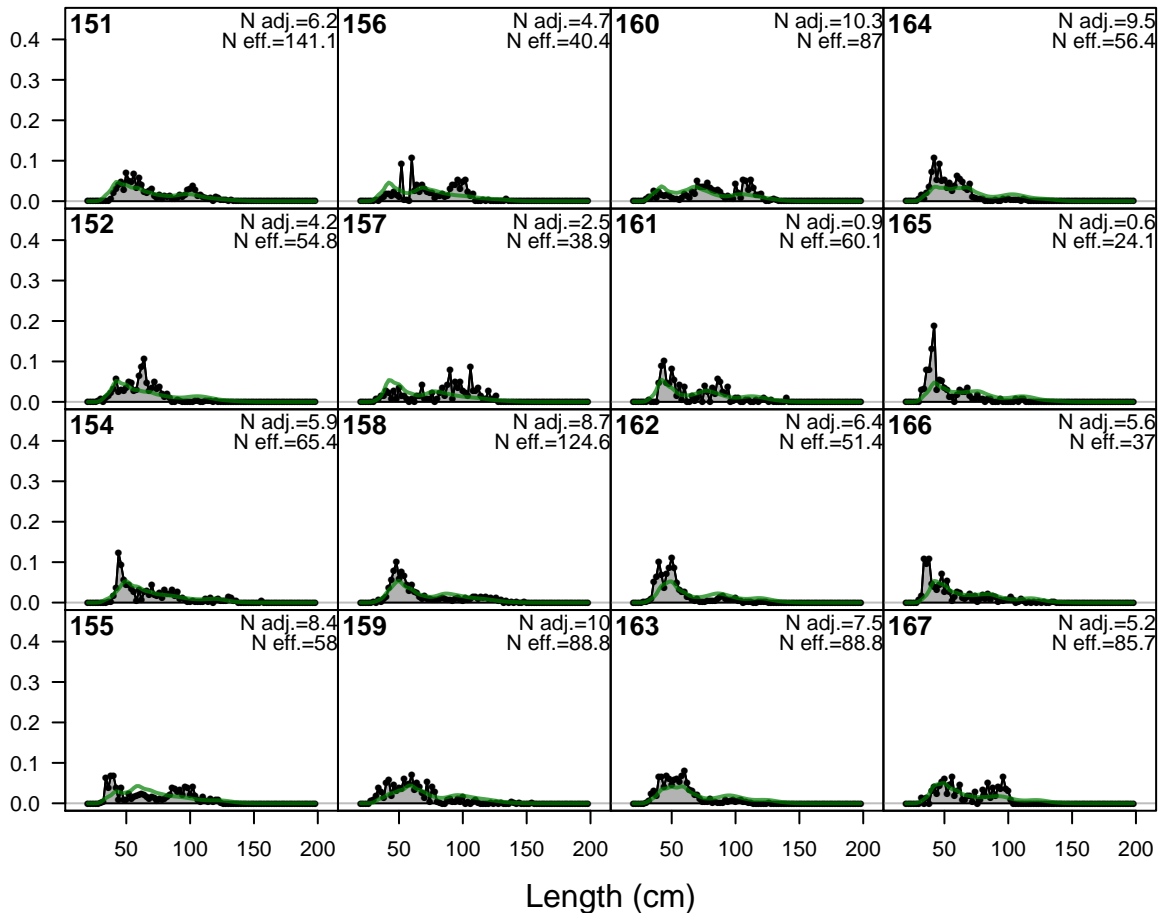


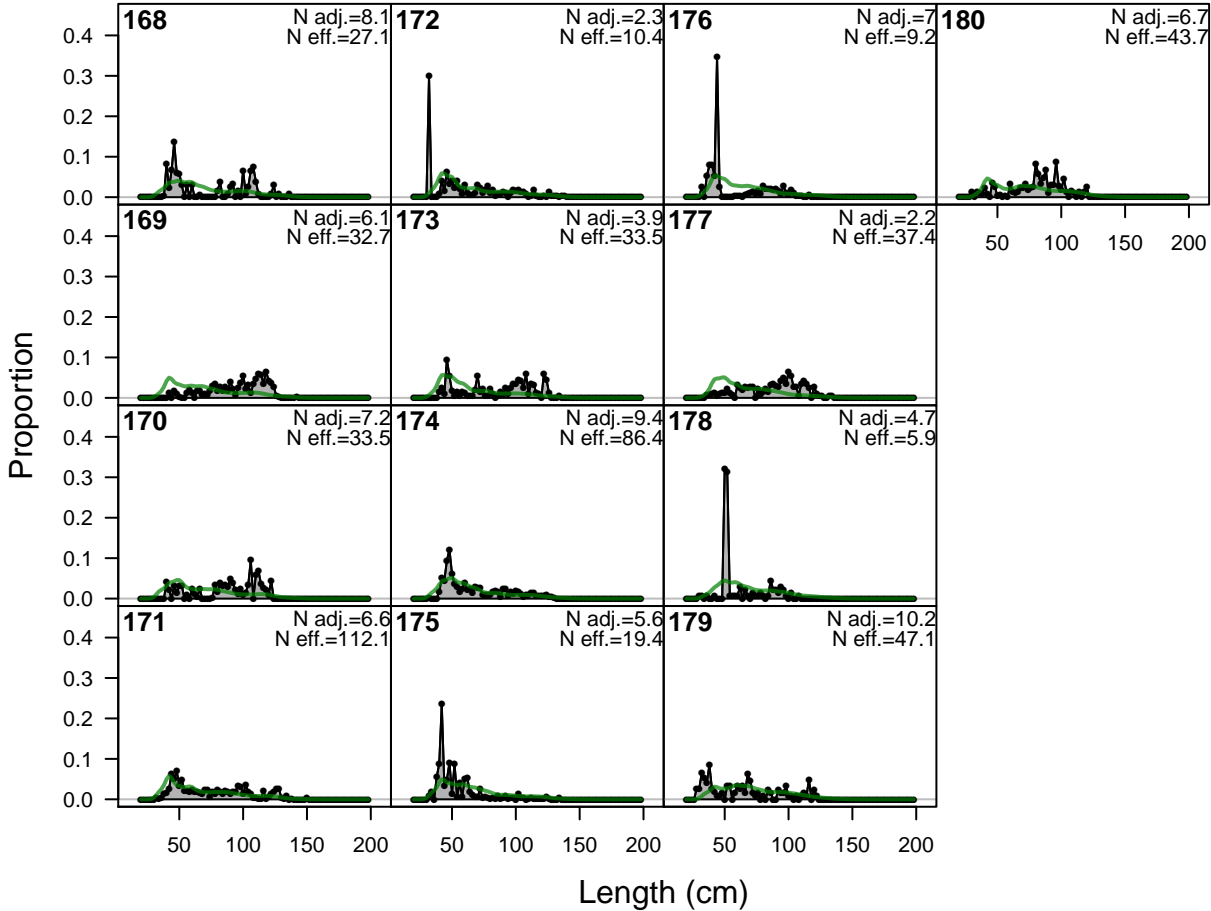
Proportion

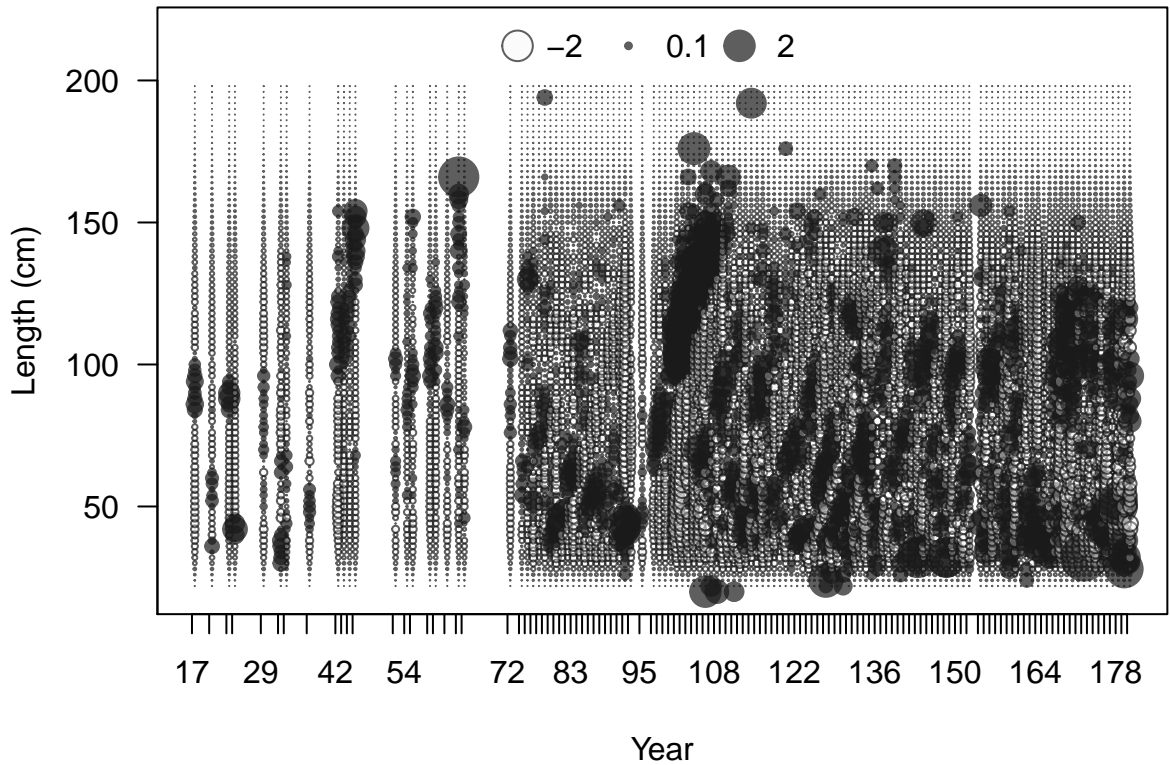


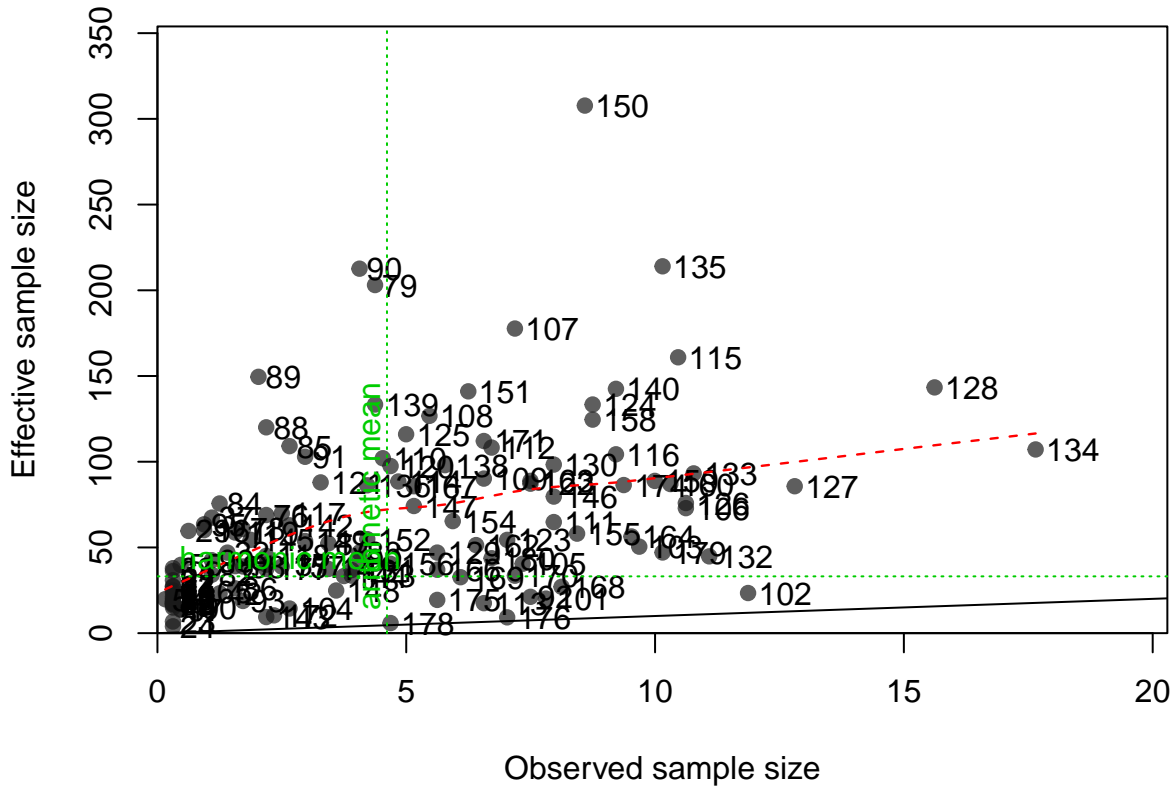


Proportion

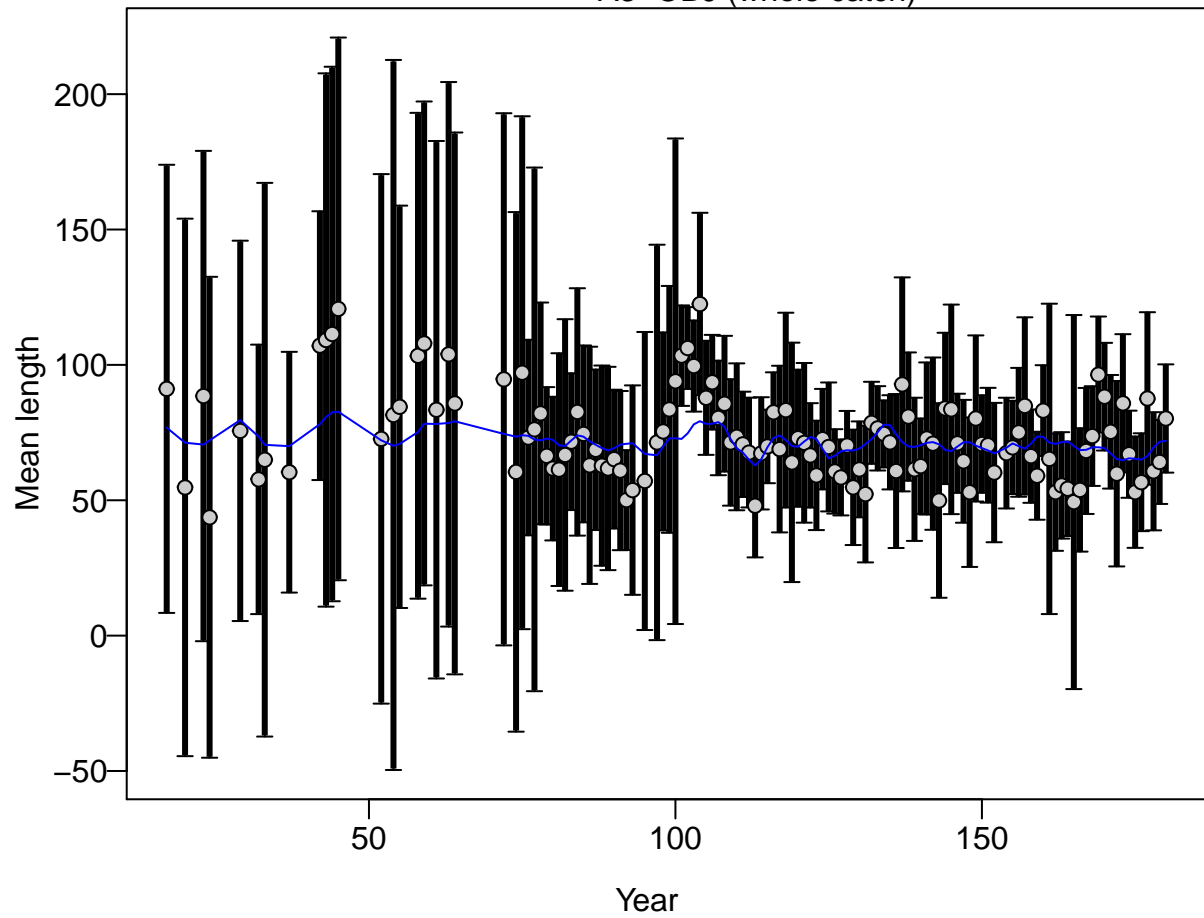




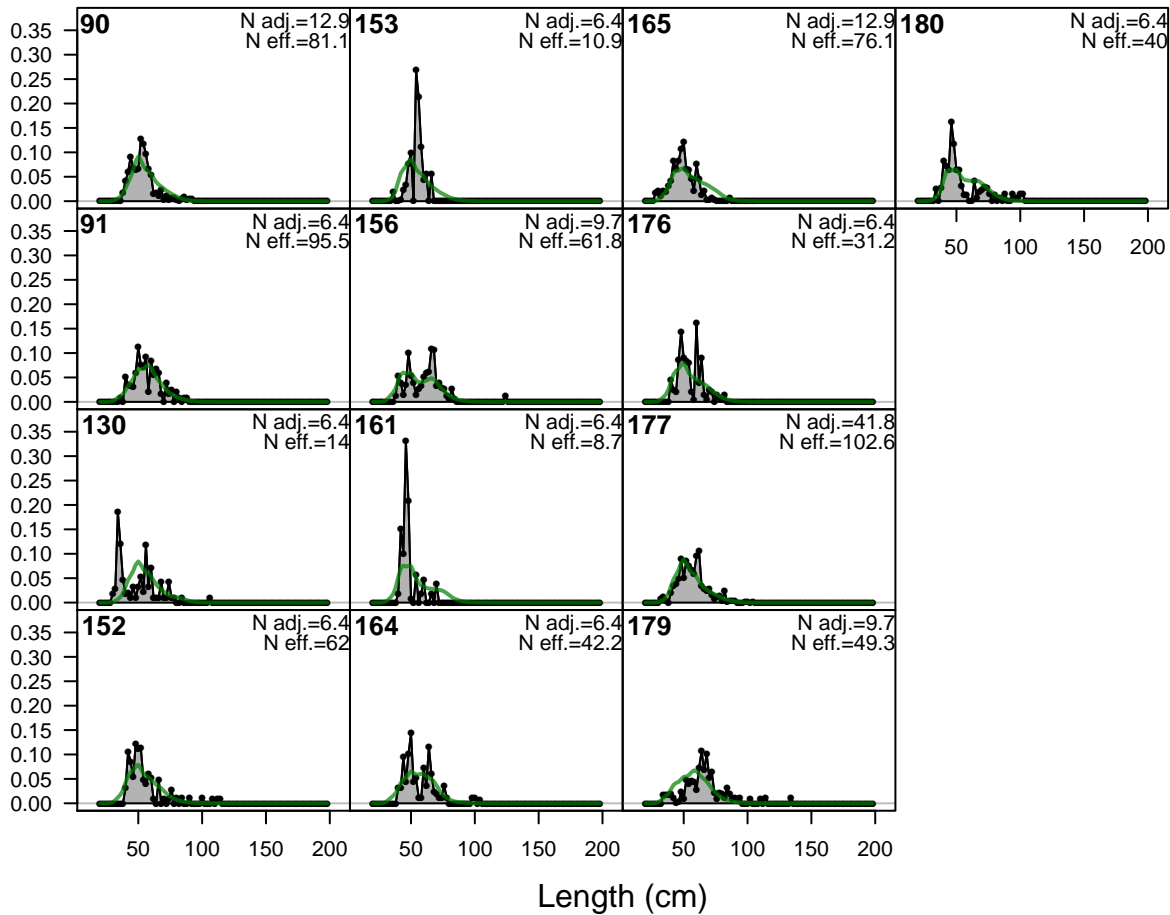


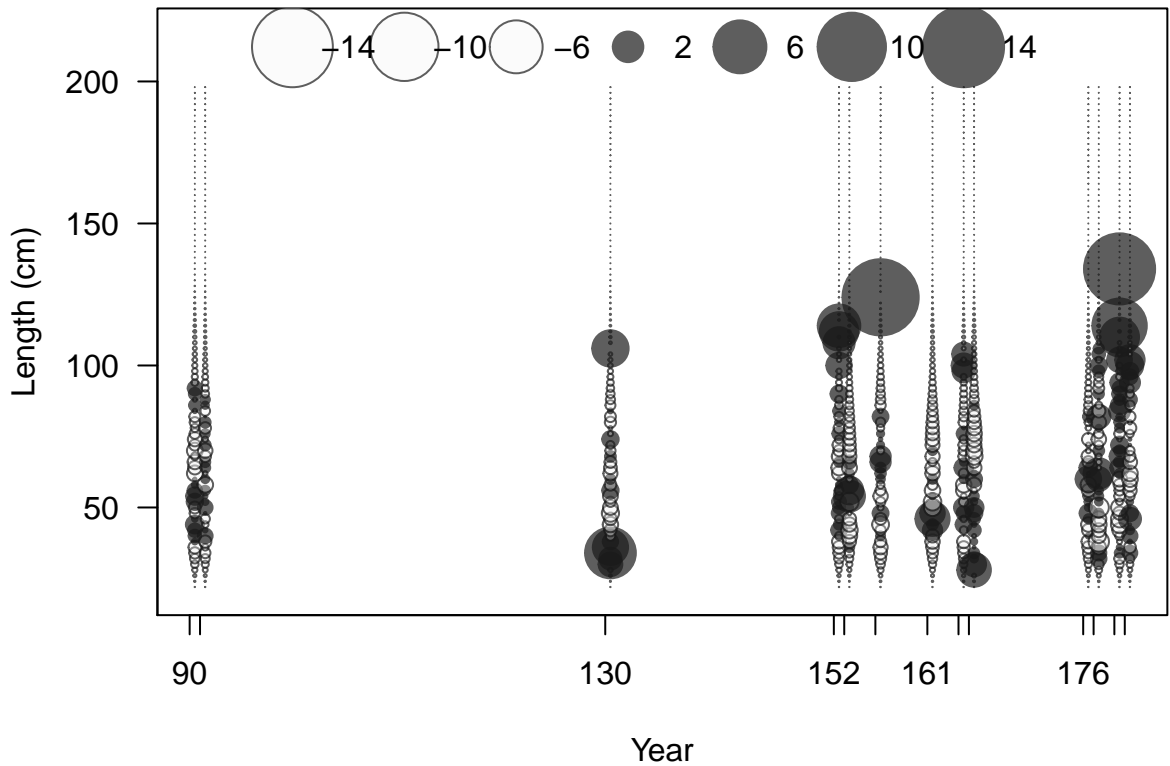


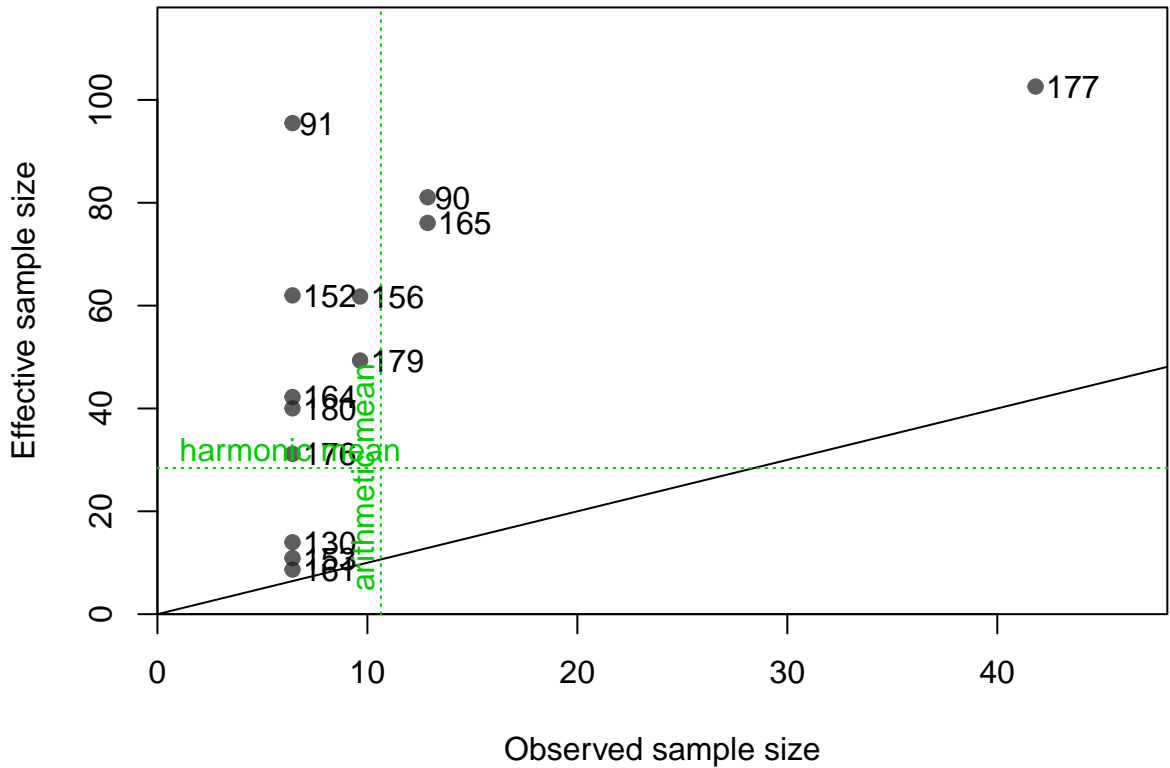
## A3-OBJ (whole catch)



Proportion

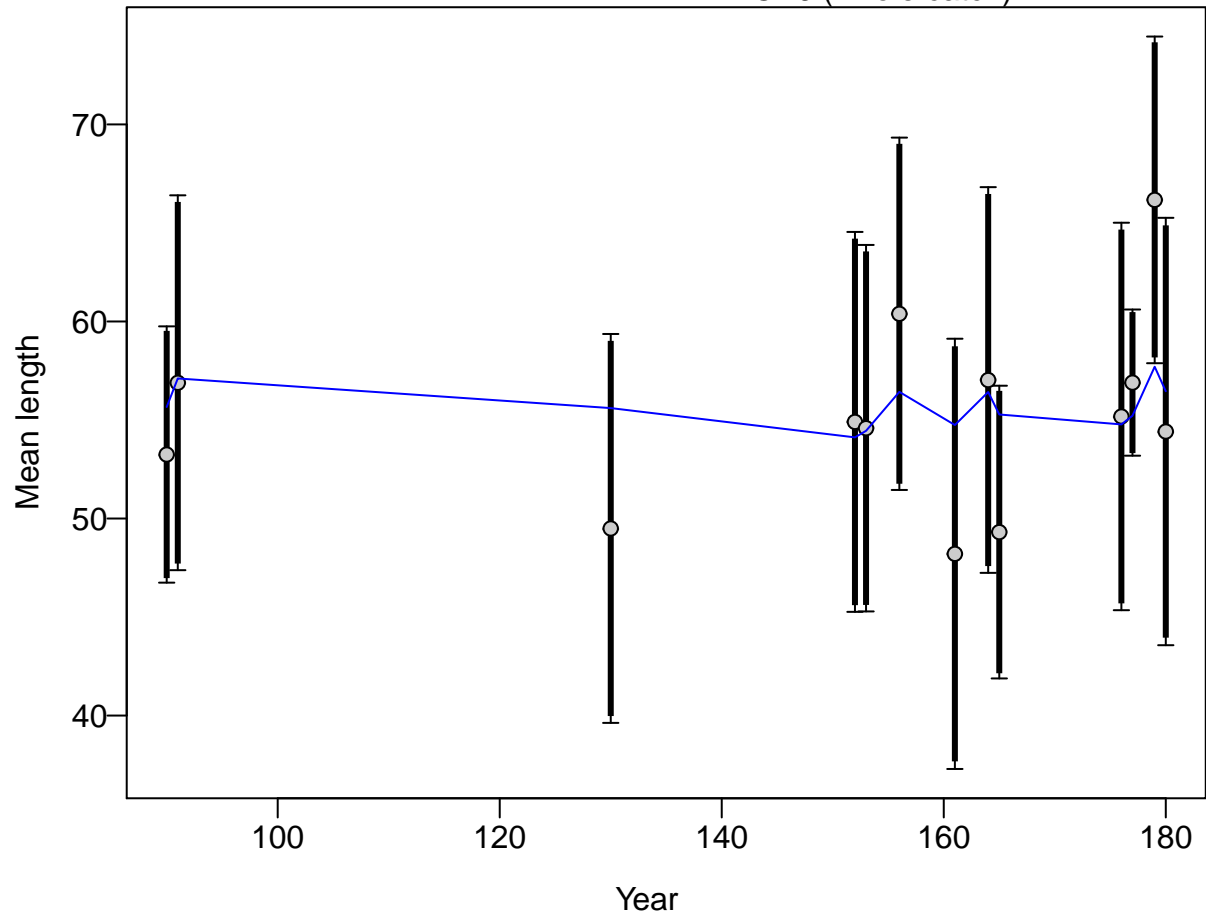




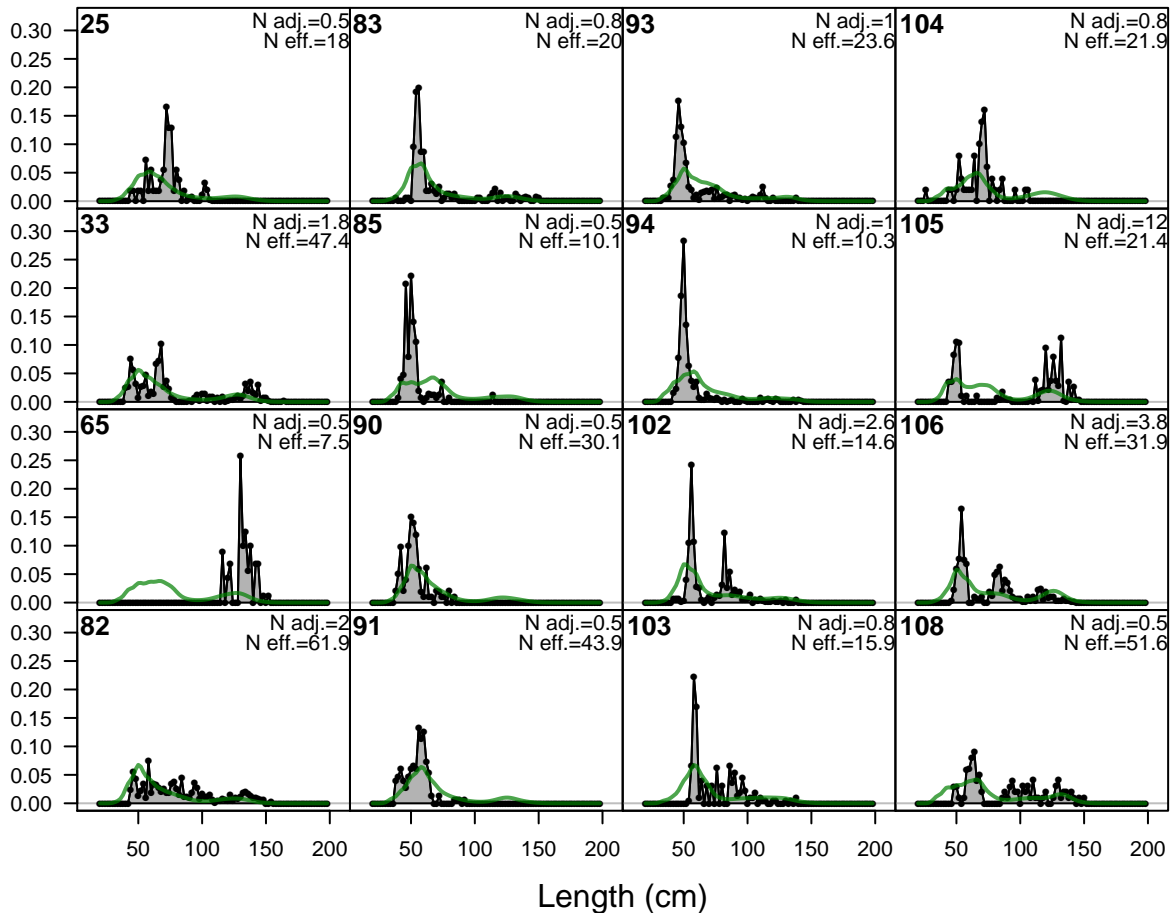




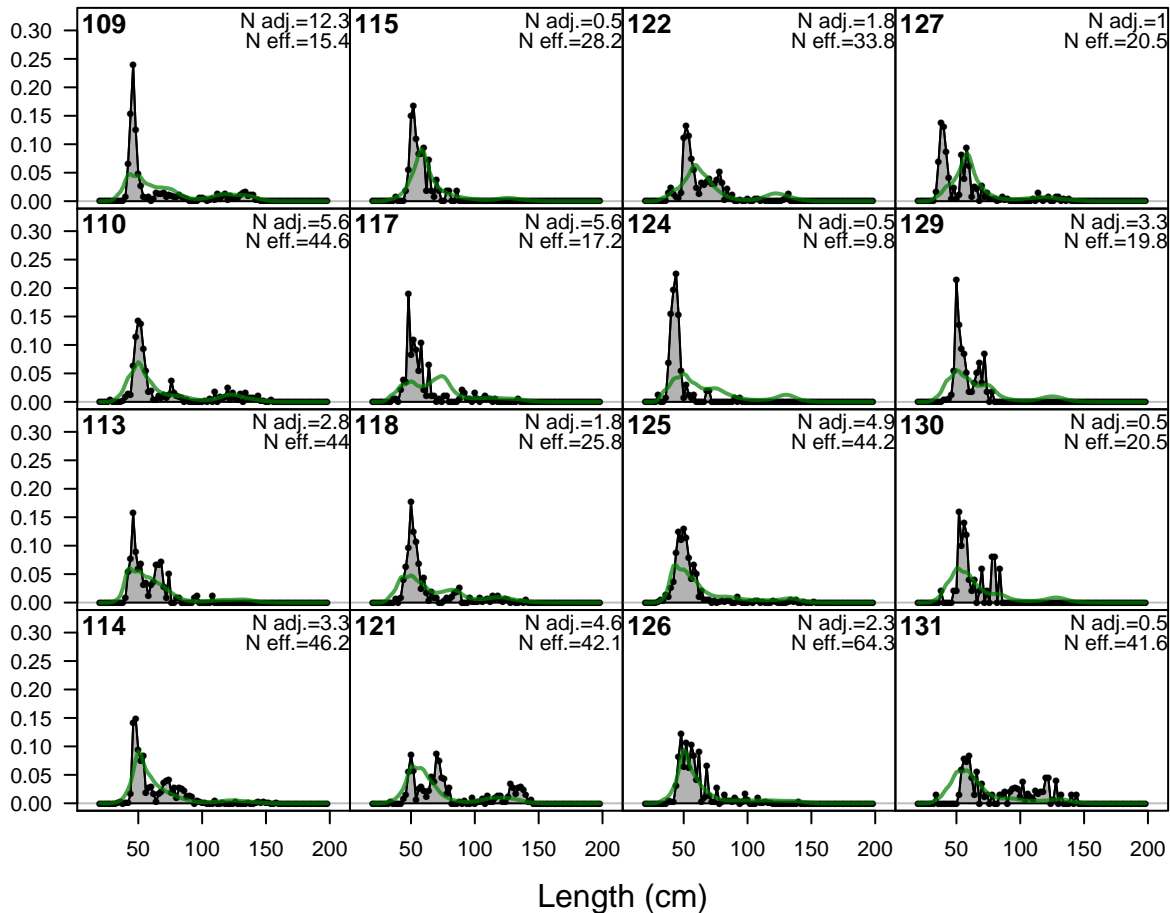
## A4-OBJ (whole catch)



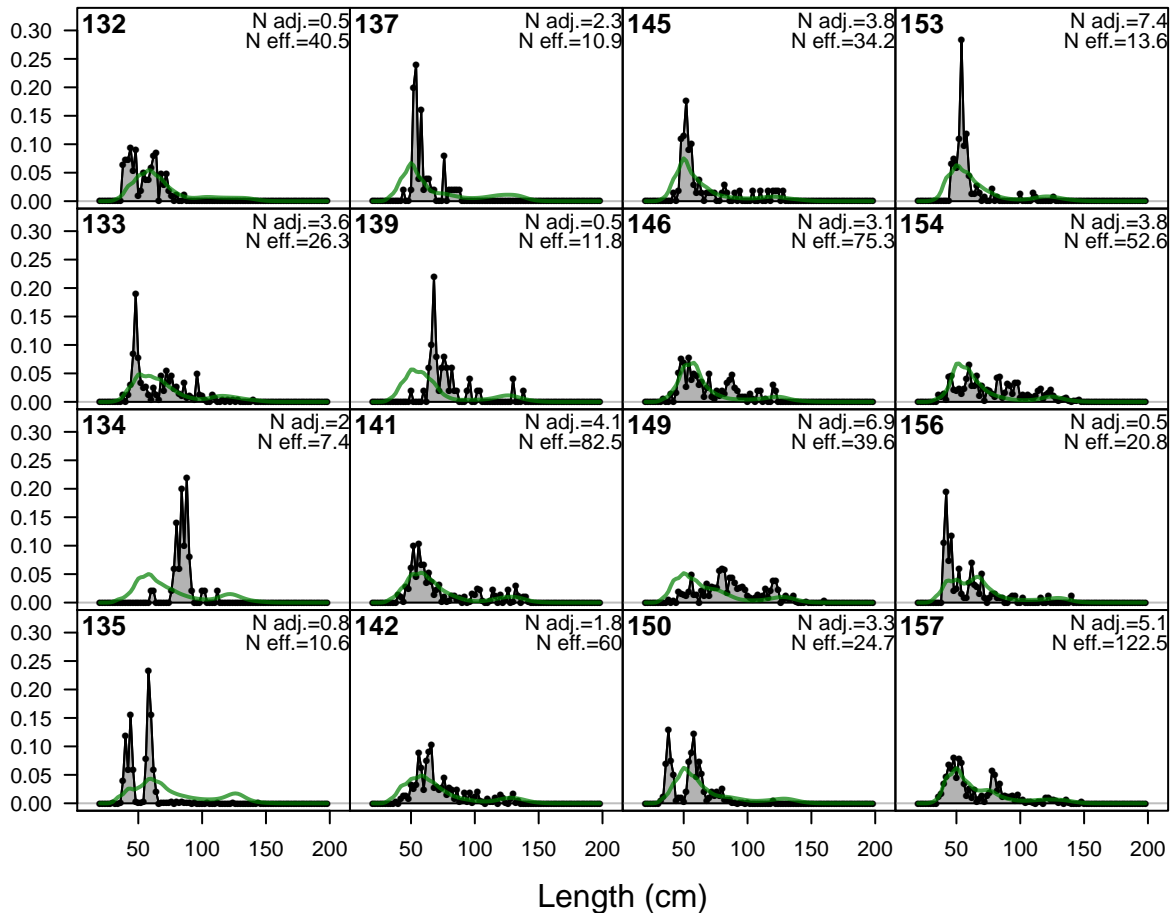
Proportion



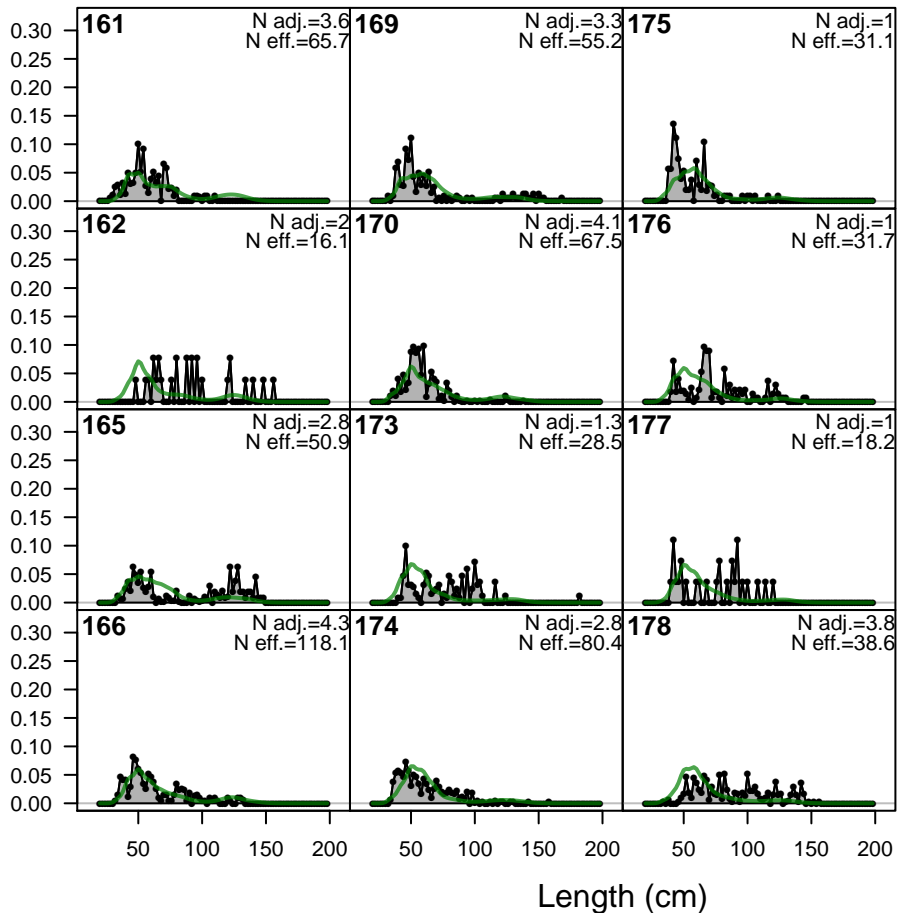
Proportion

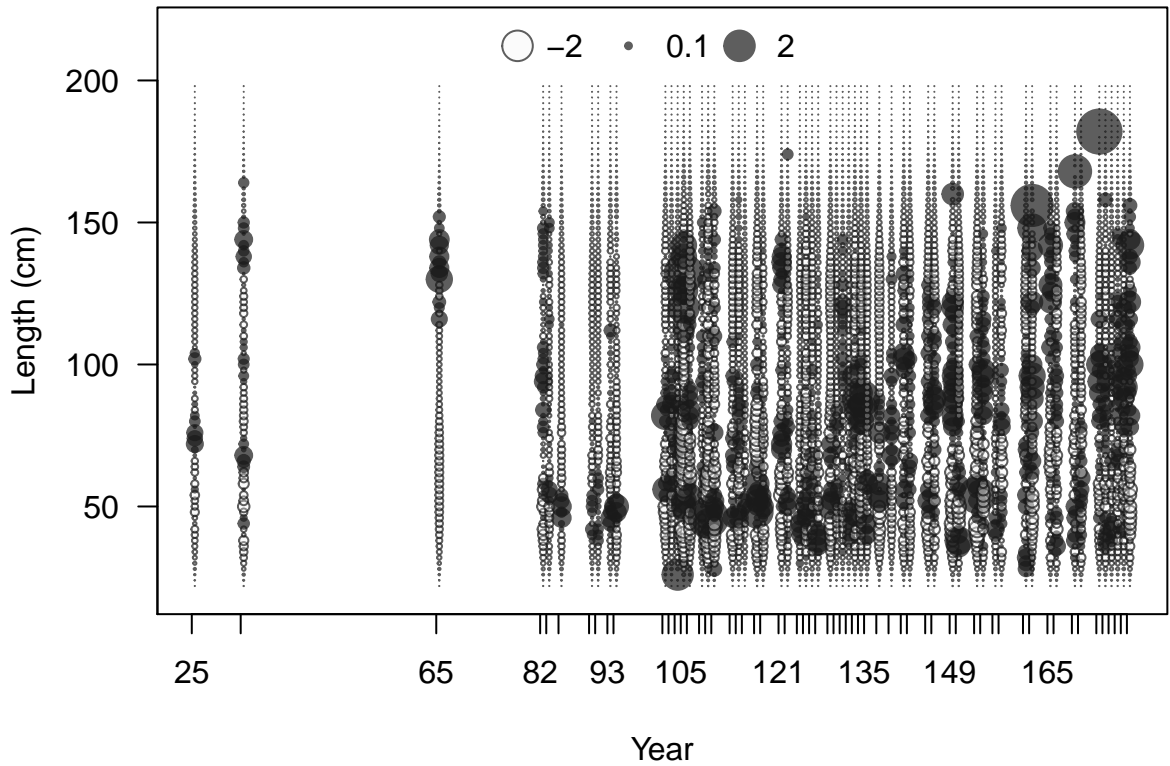


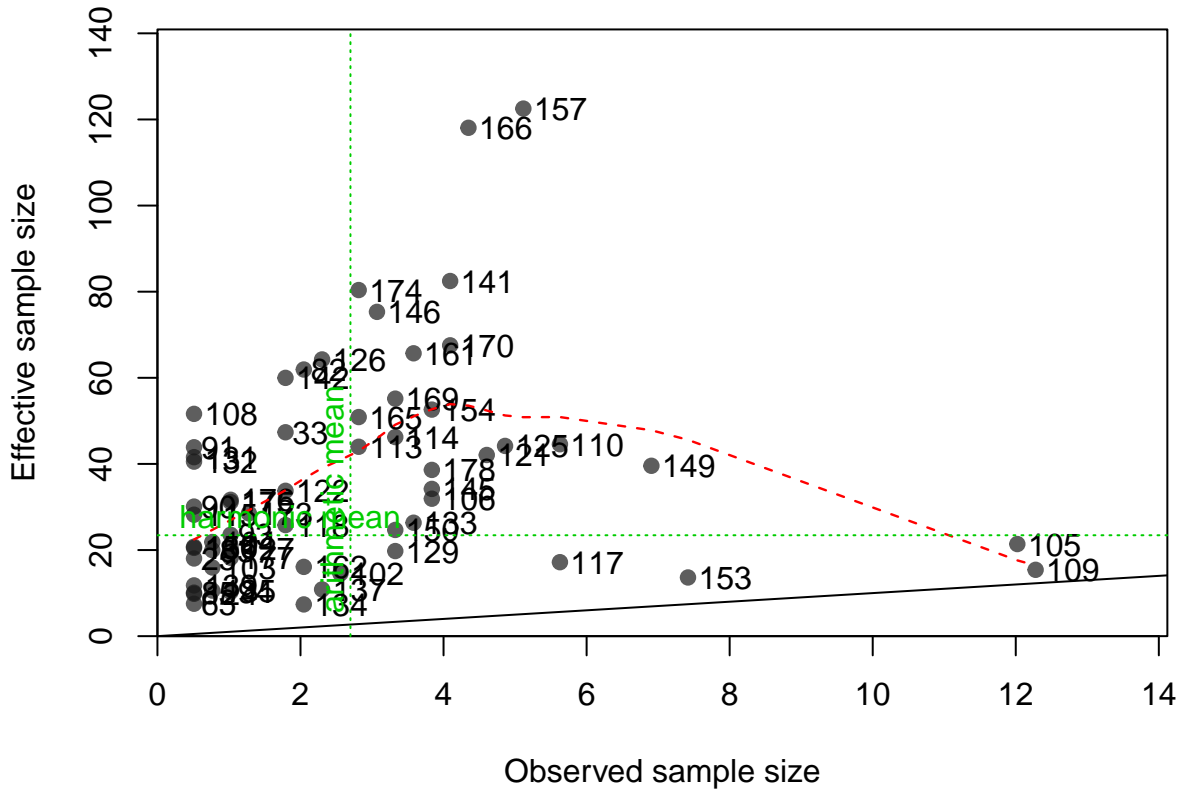
Proportion



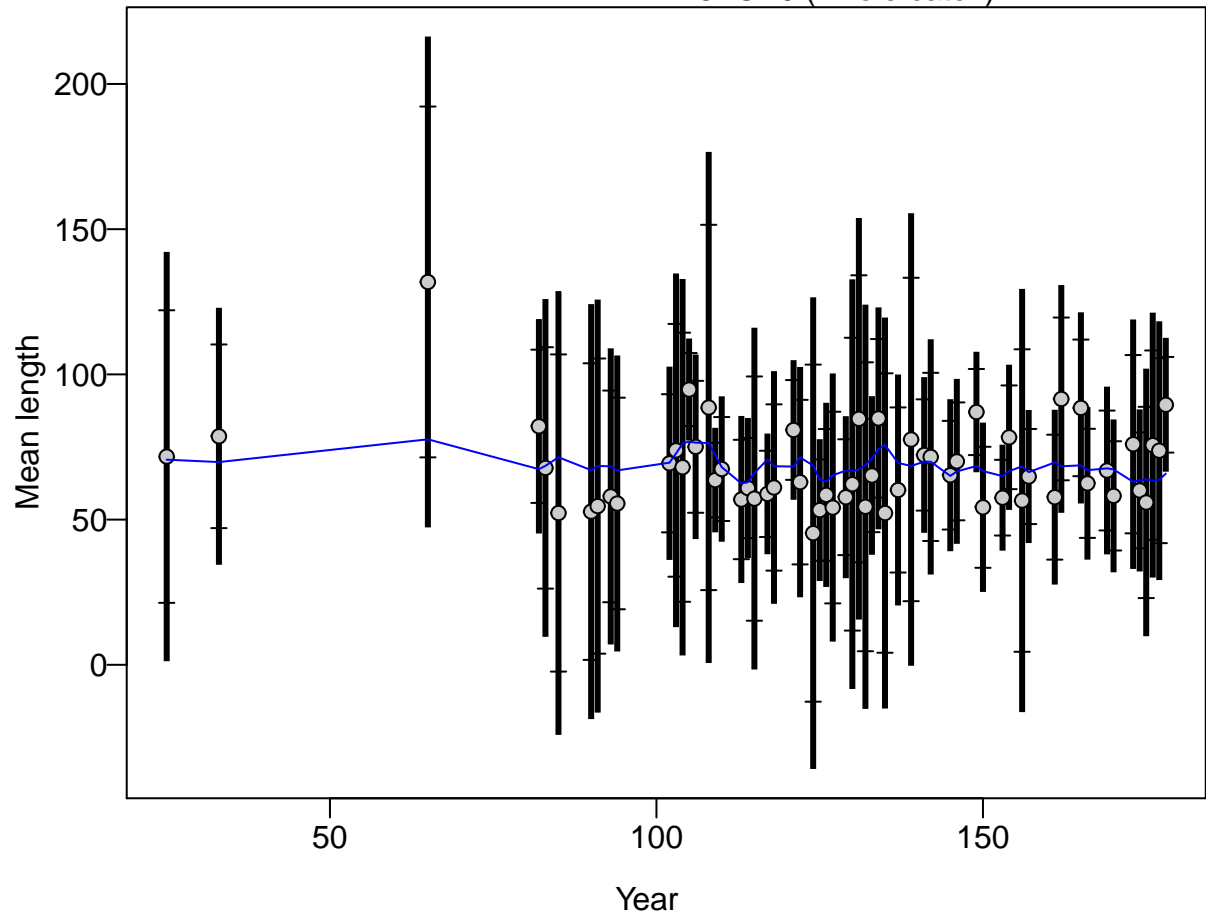
Proportion





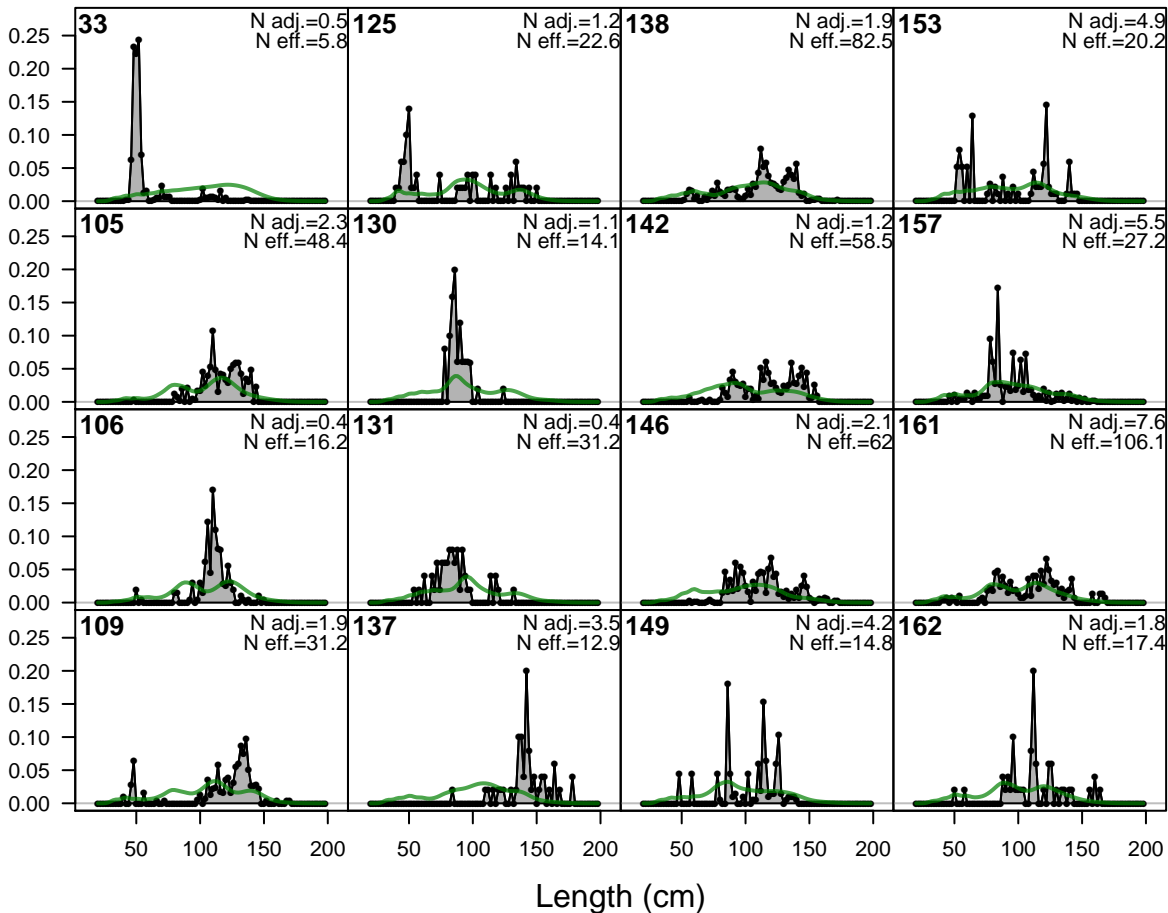


## A5-OBJ (whole catch)

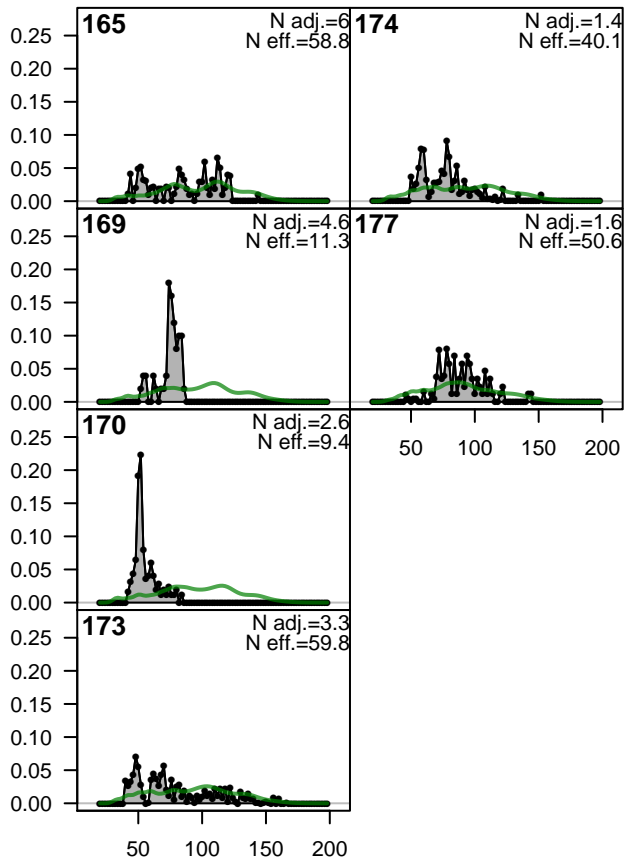




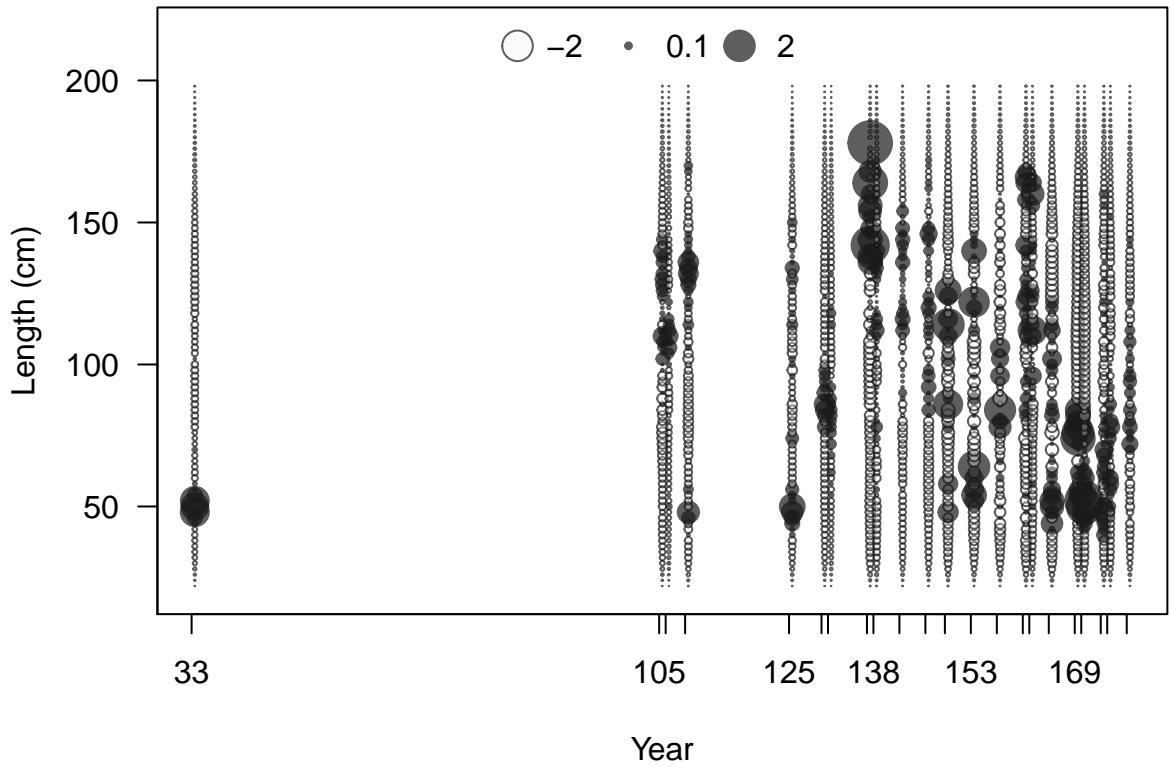
Proportion

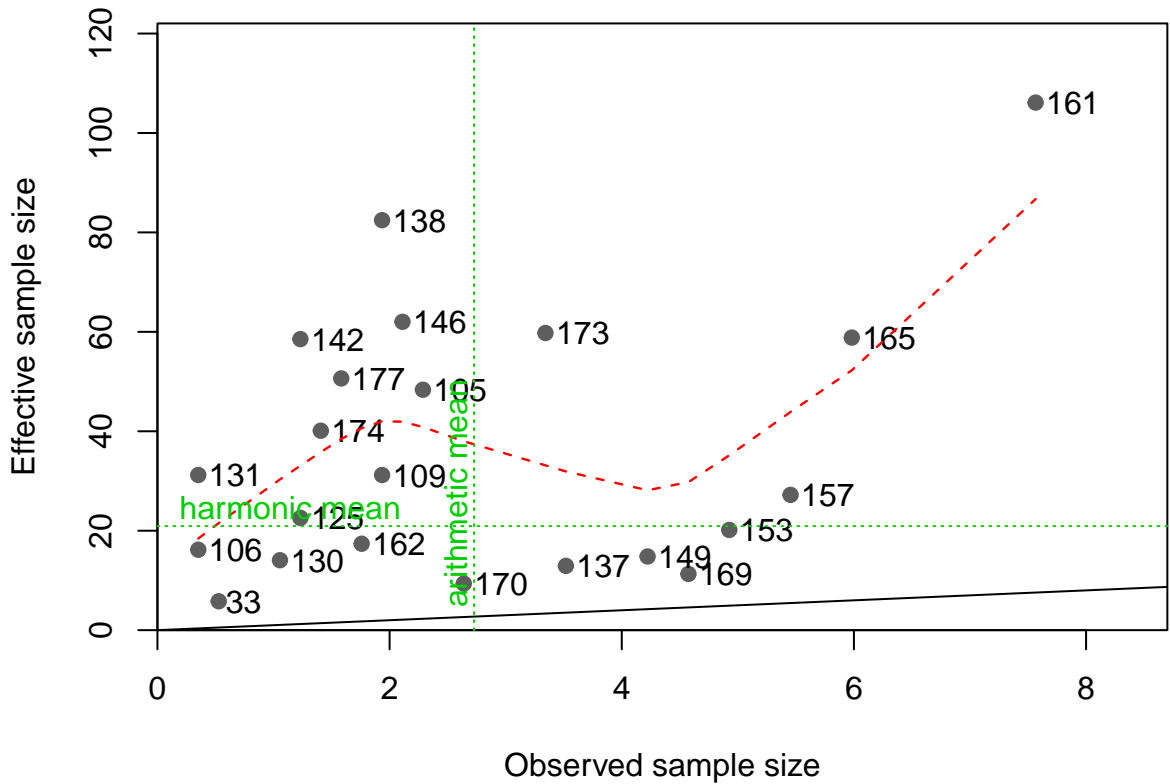


Proportion

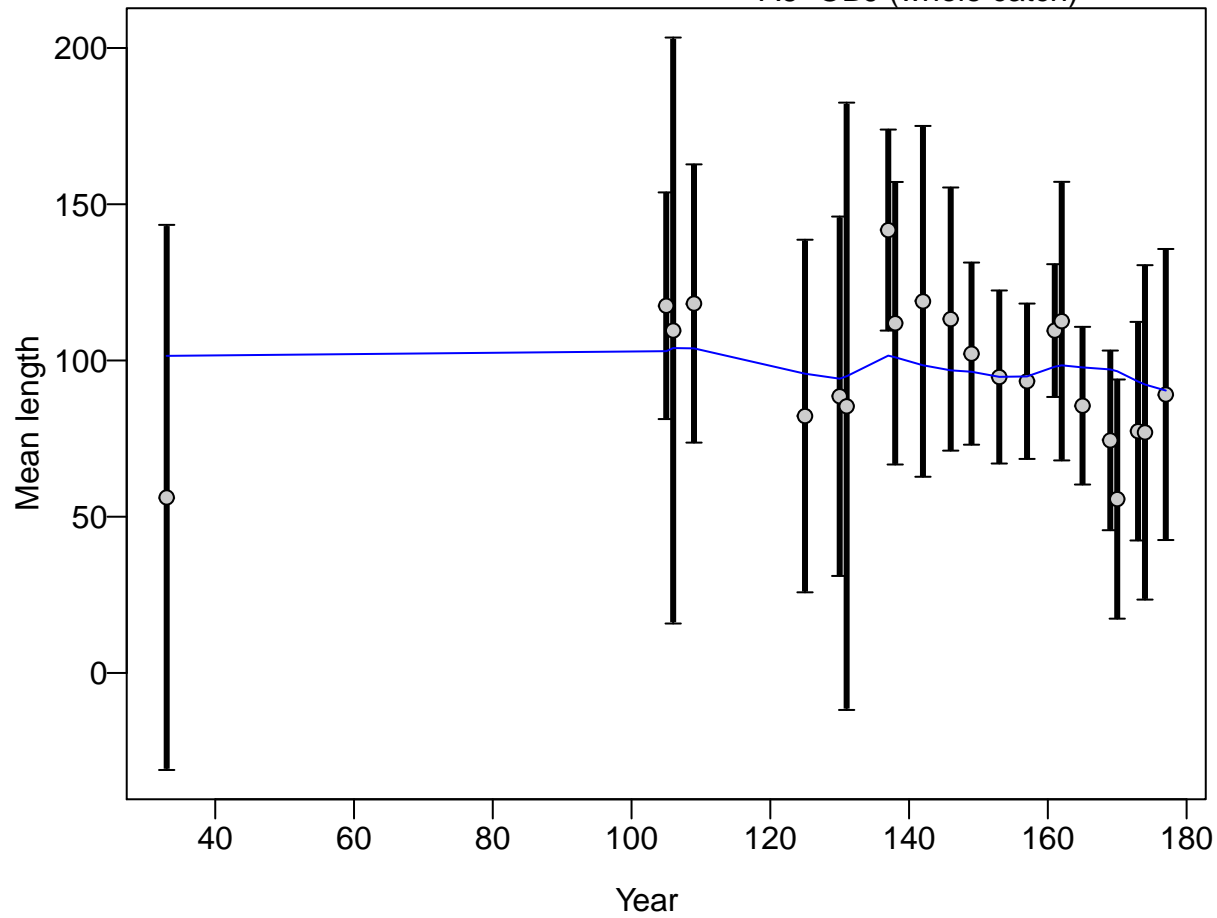


Length (cm)

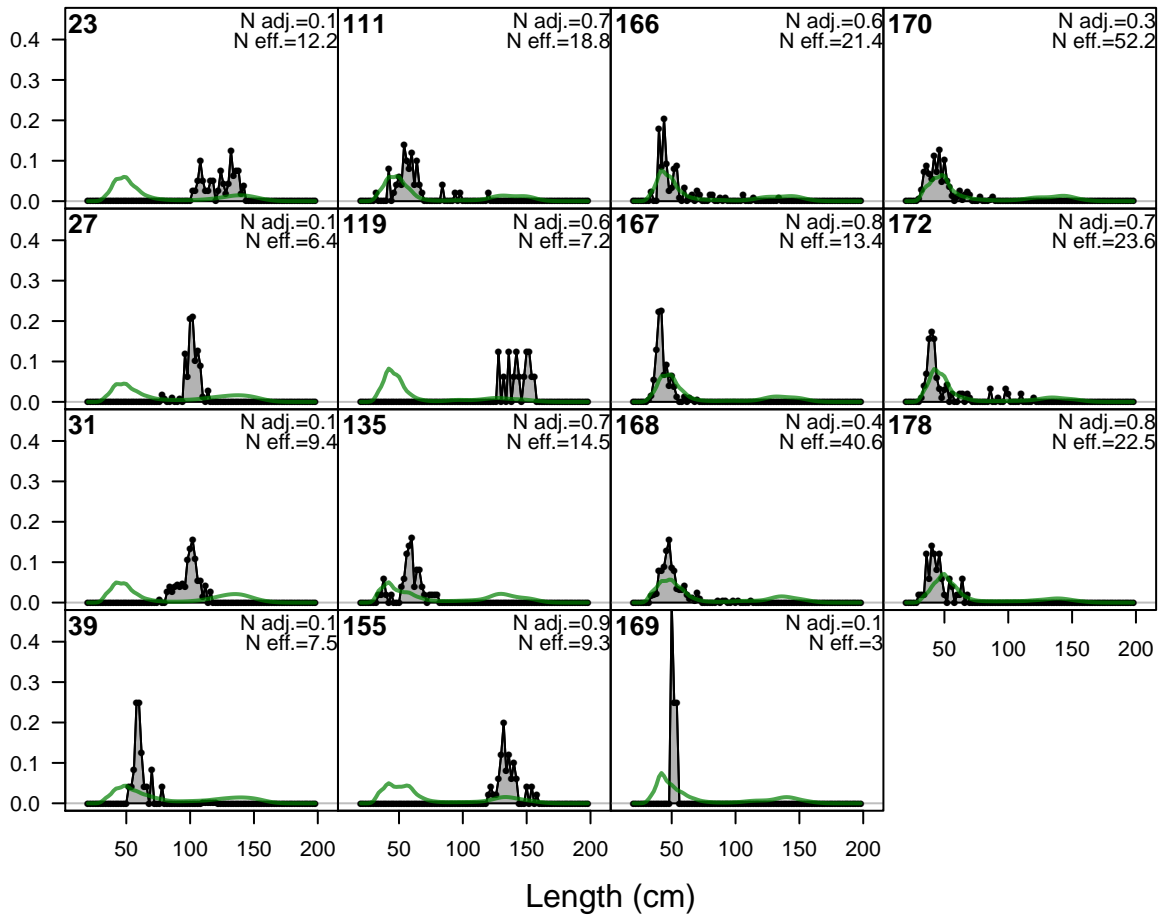


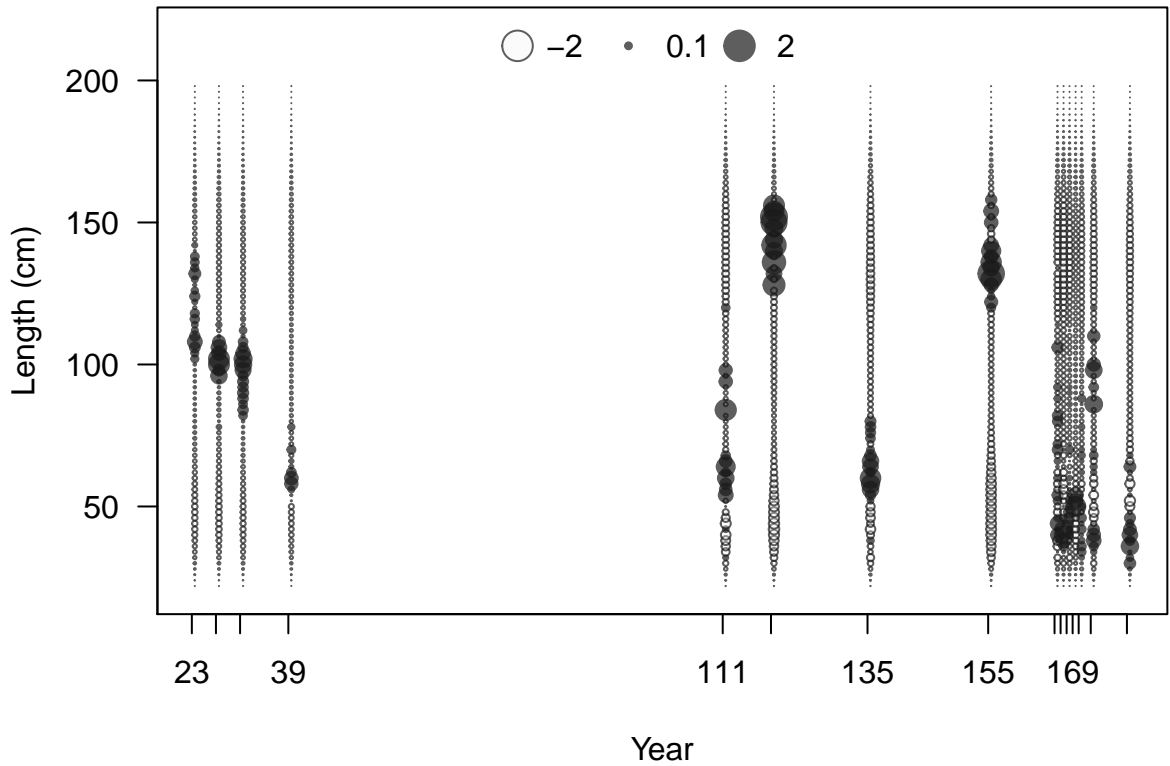


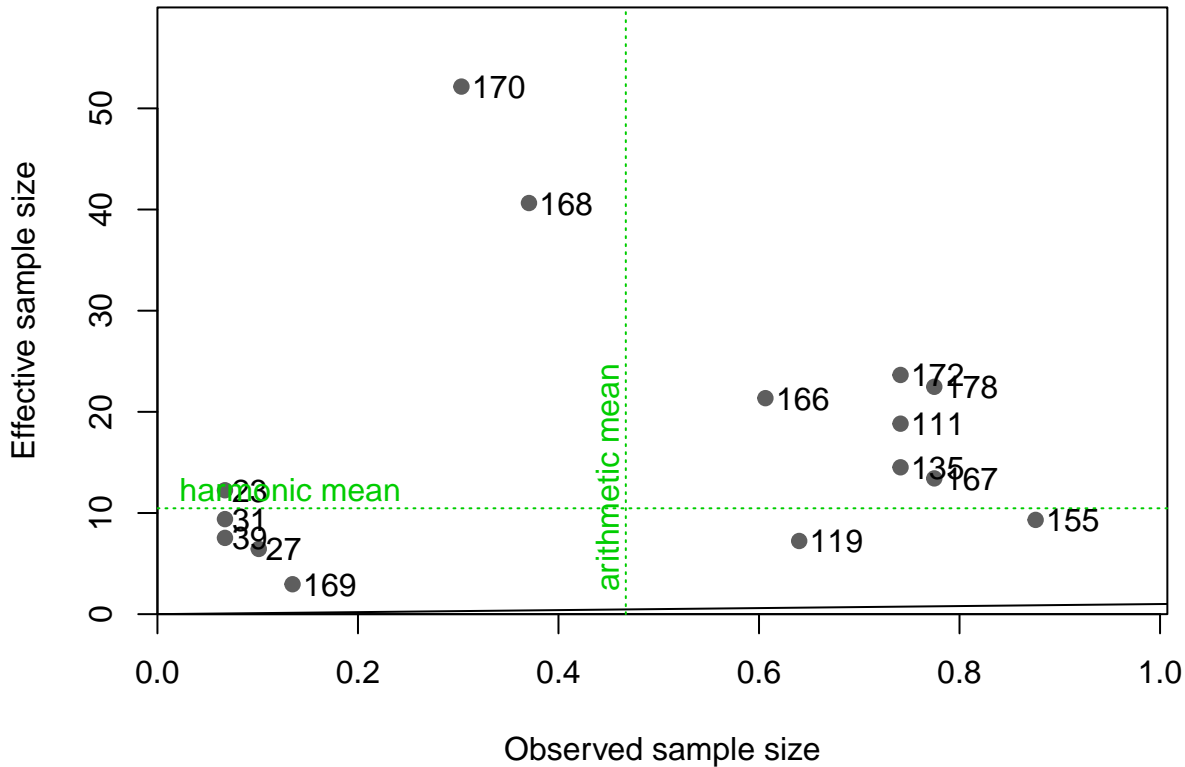
## A6-OBJ (whole catch)



Proportion

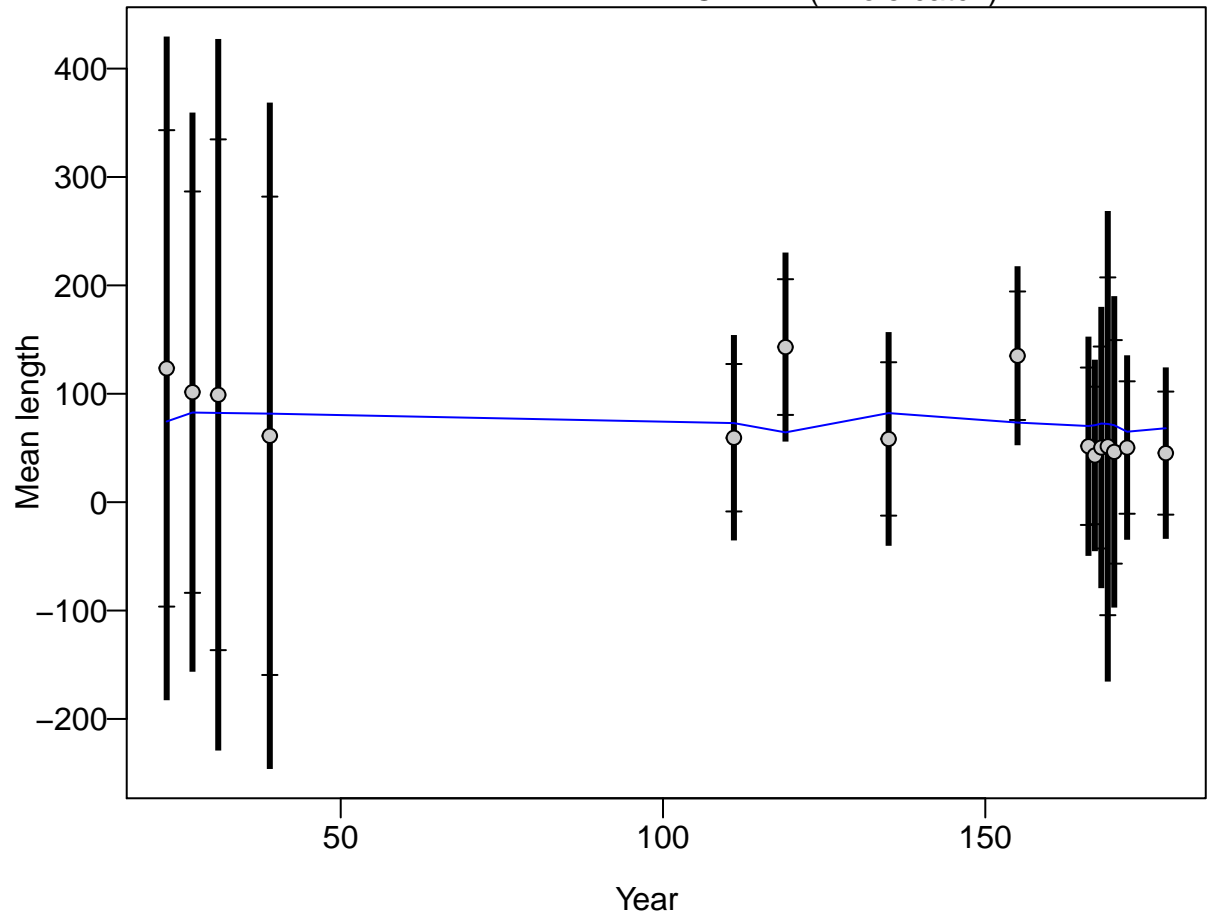




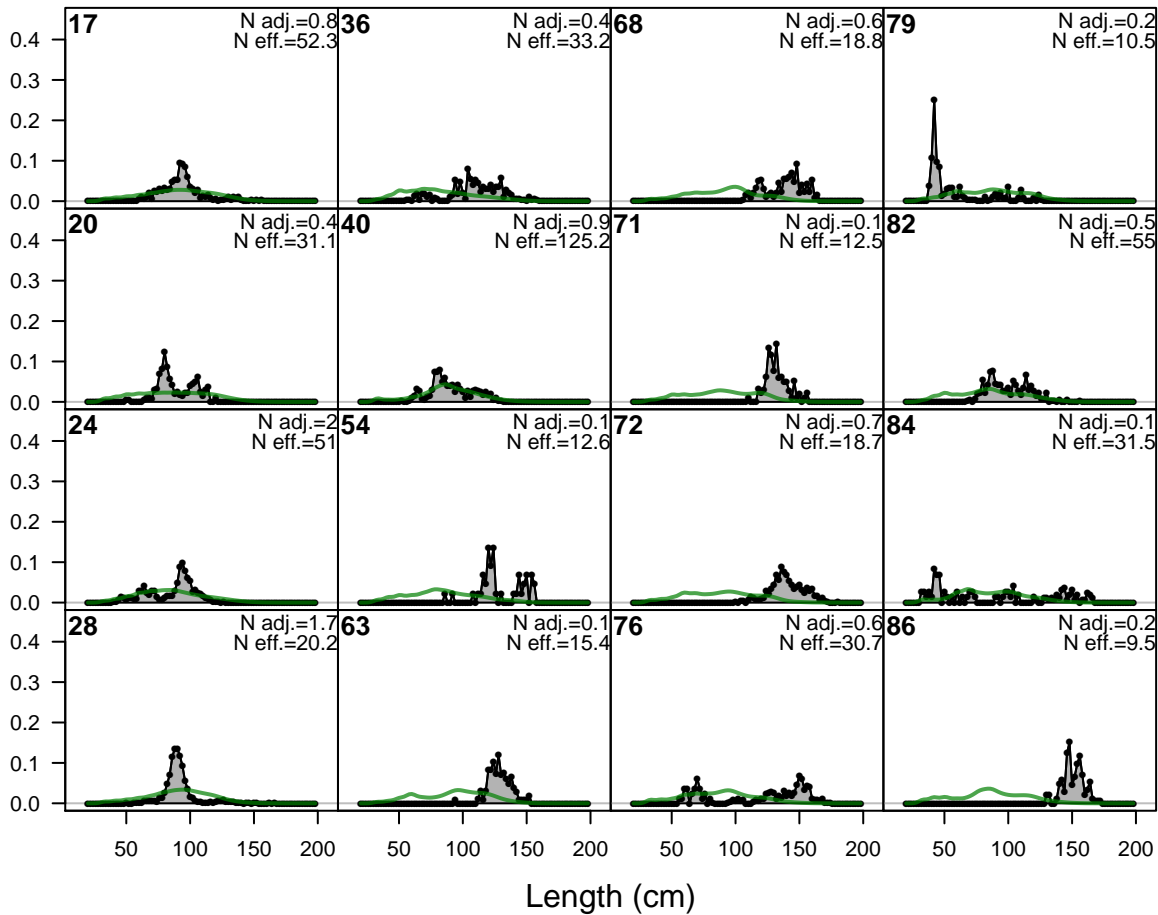




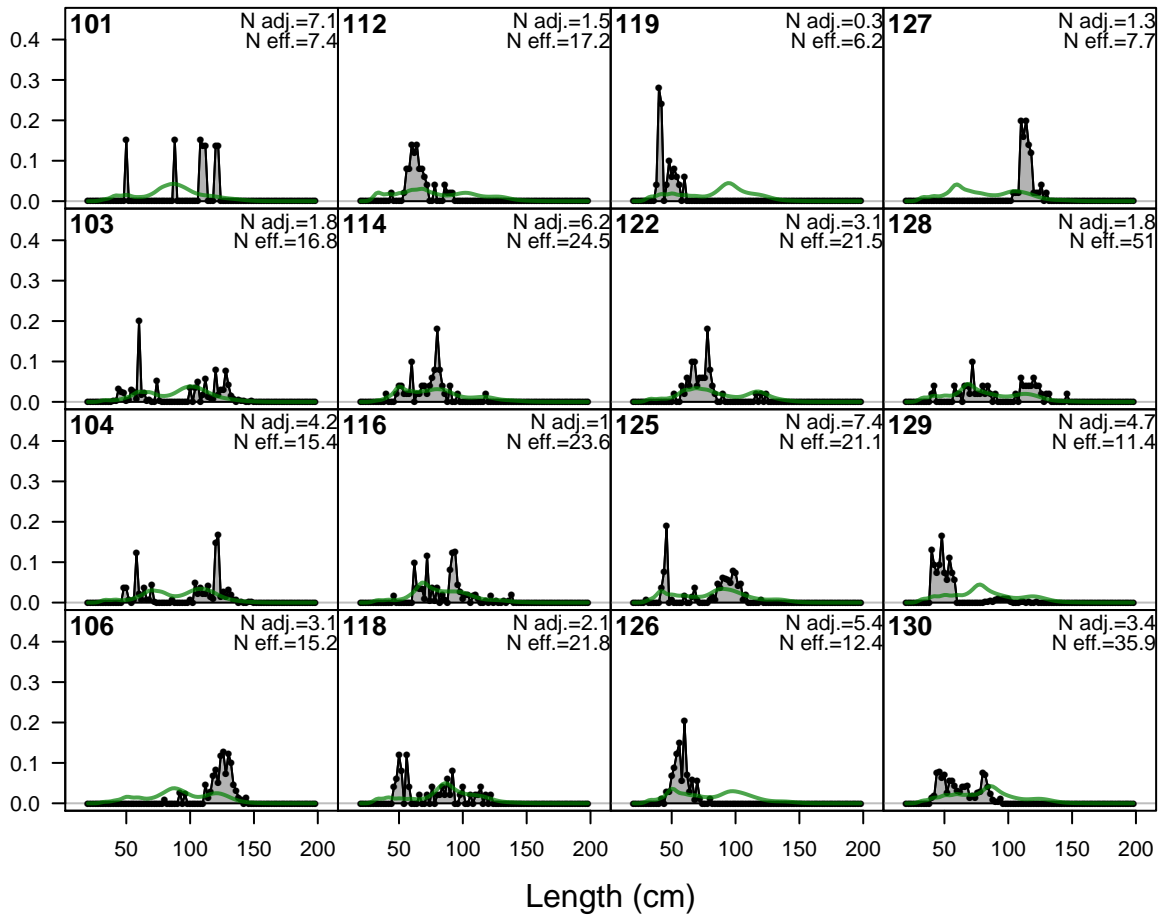
A2-NOADEL (whole catch)



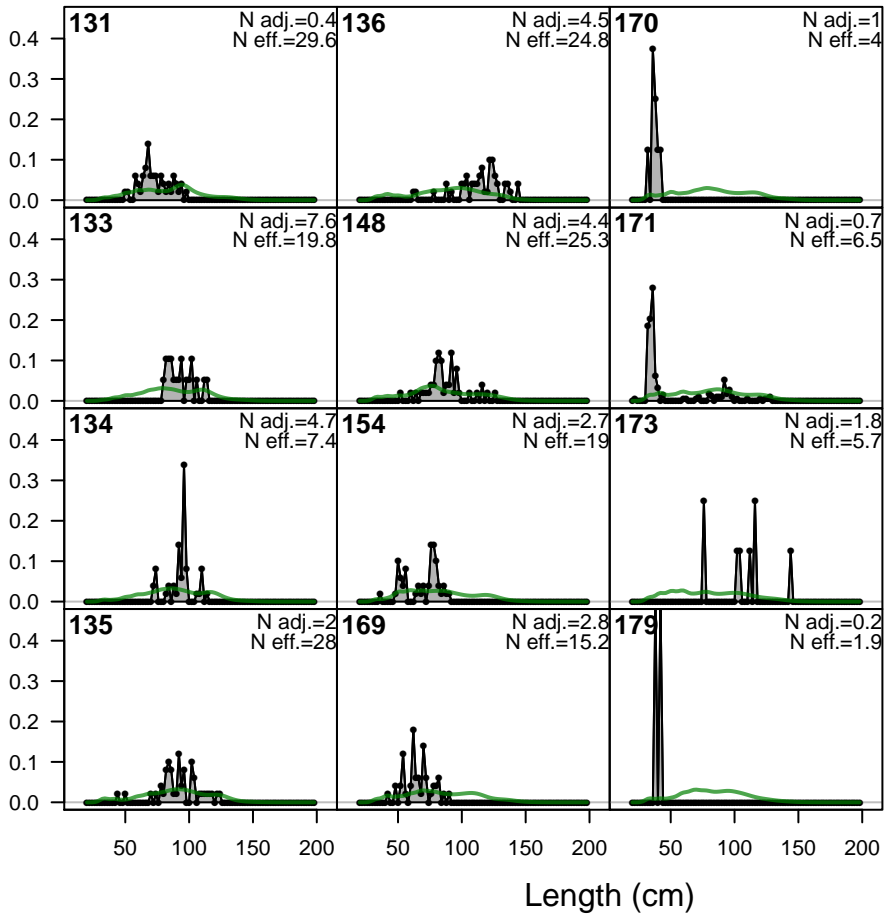
Proportion

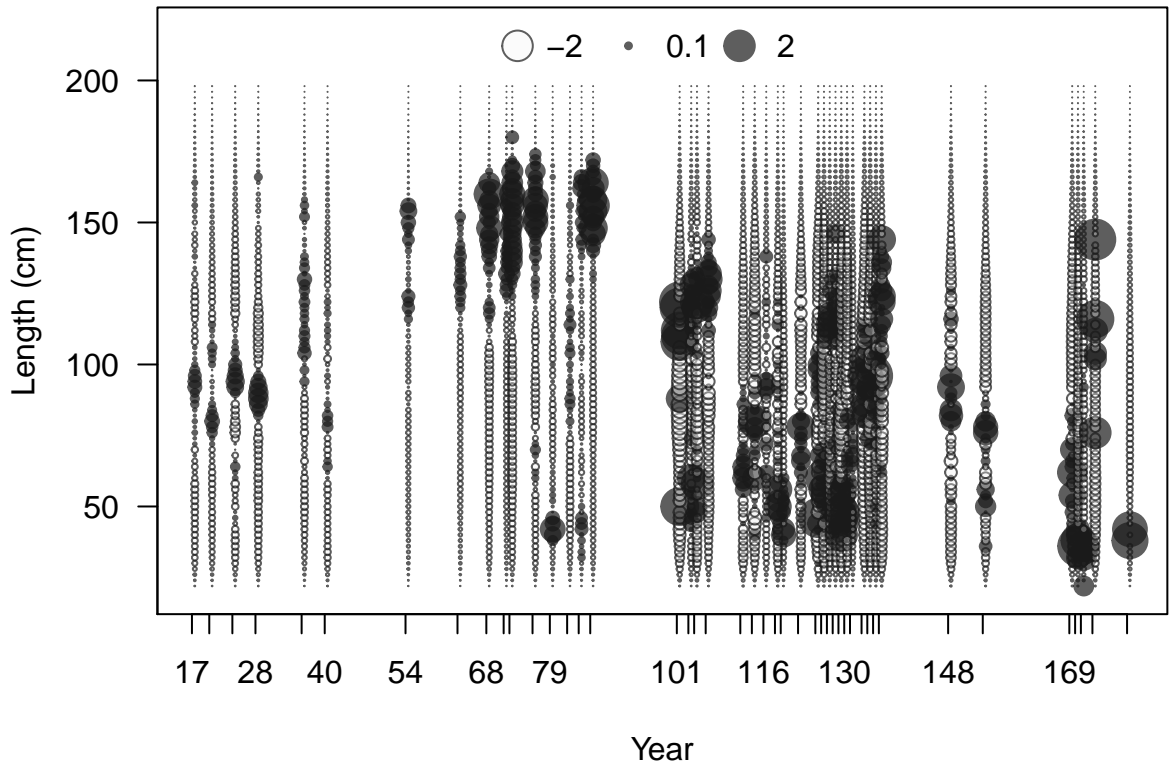


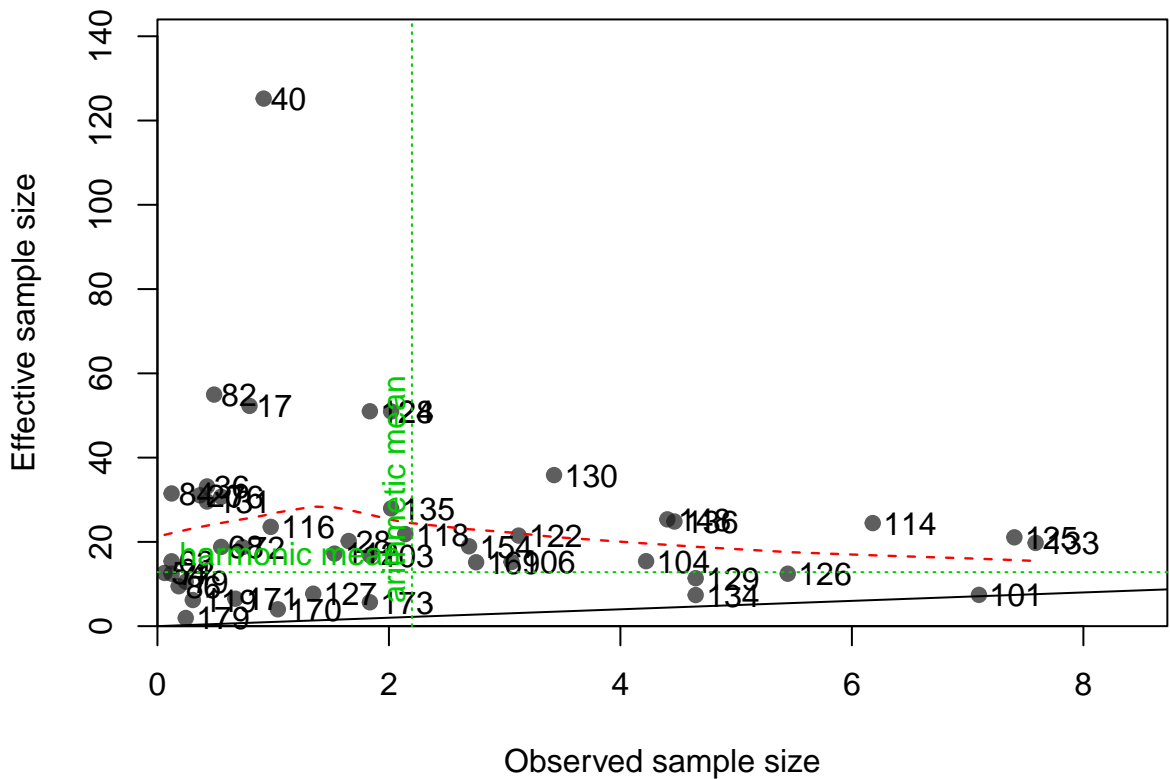
Proportion



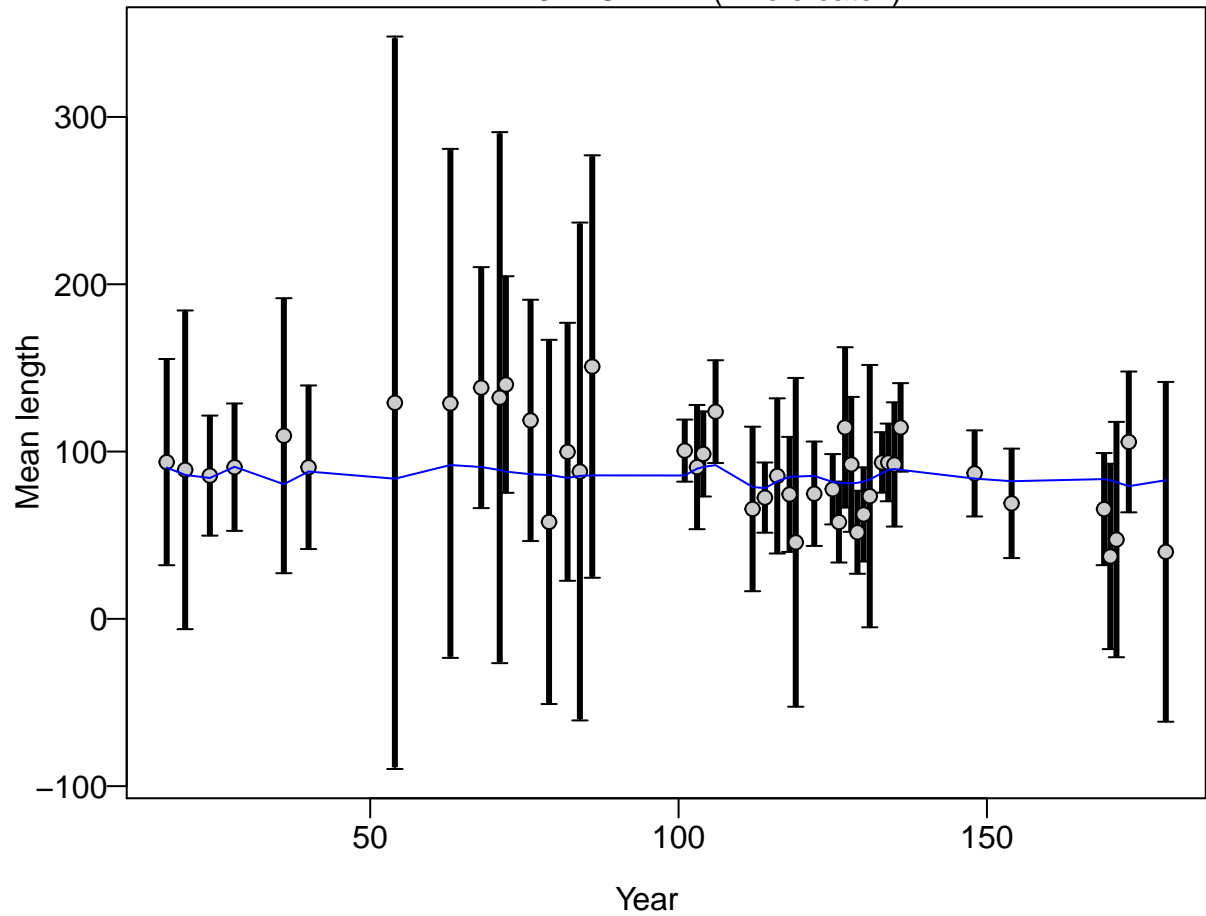
Proportion

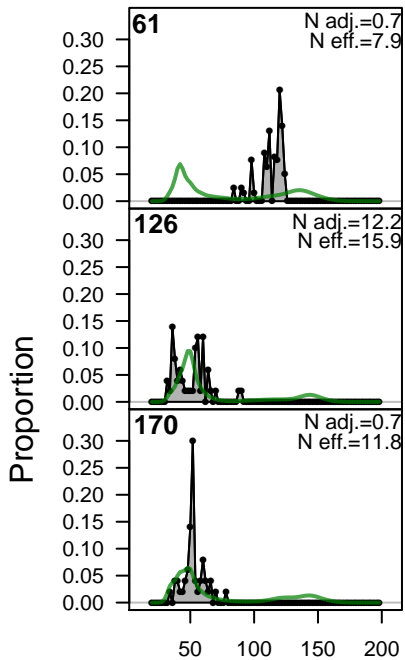






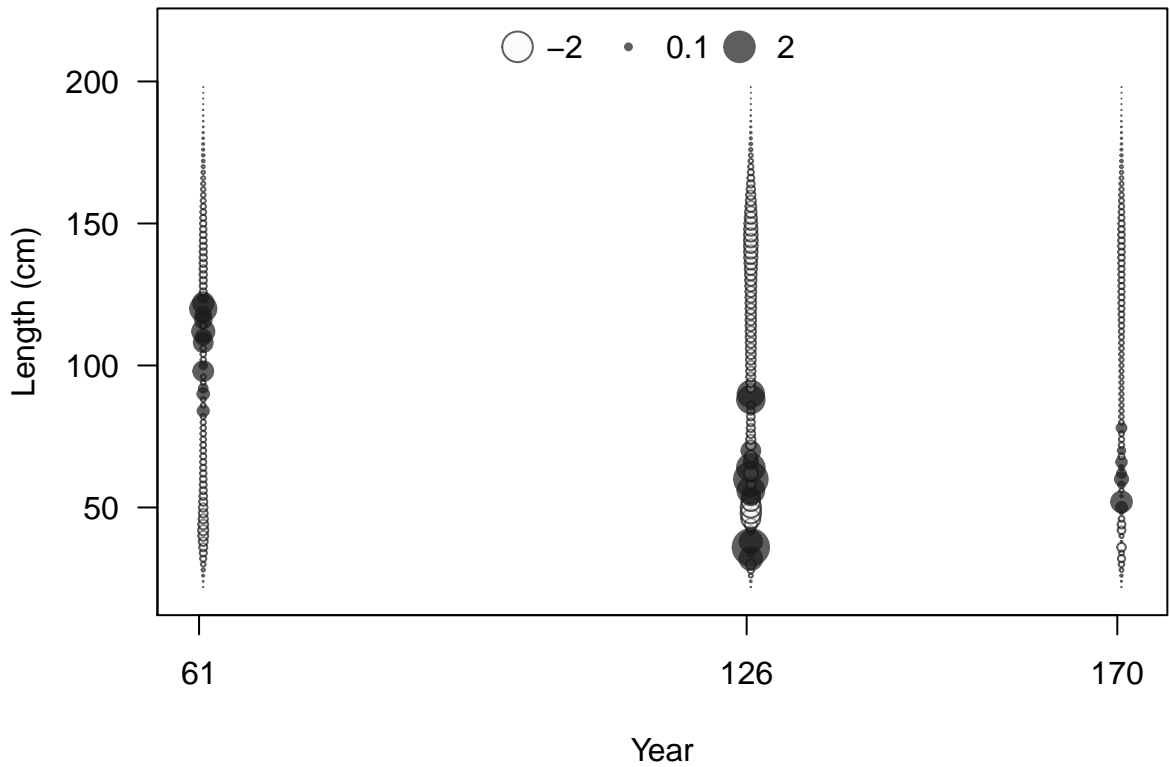
A3-NOADEL (whole catch)

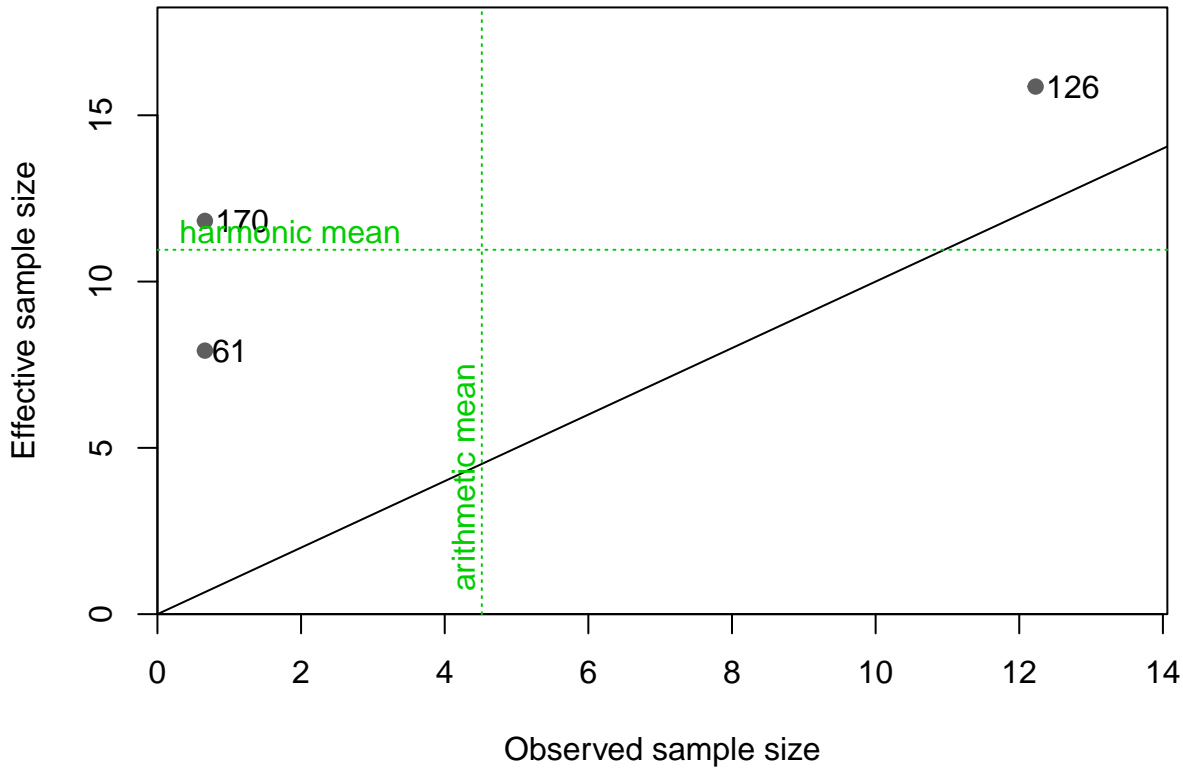




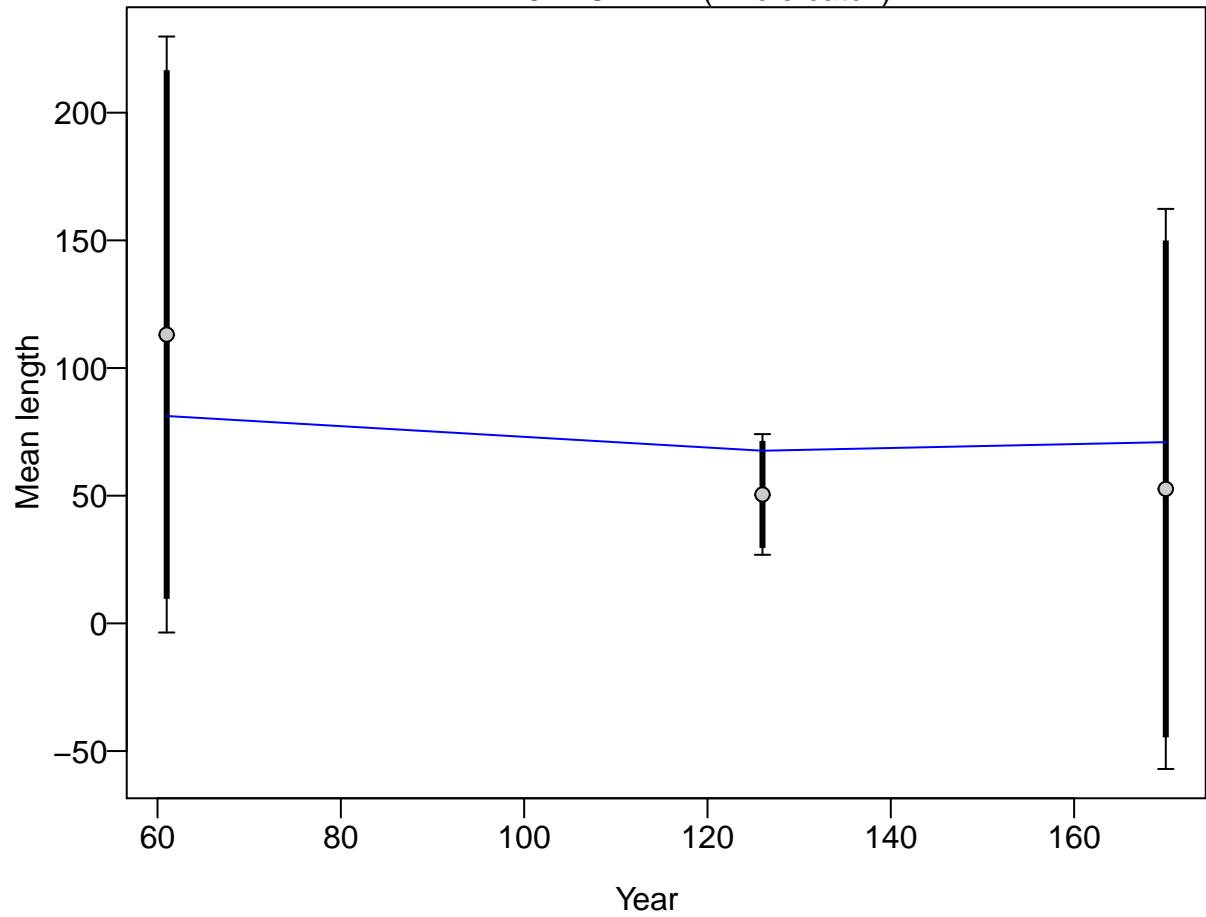
Length (cm)



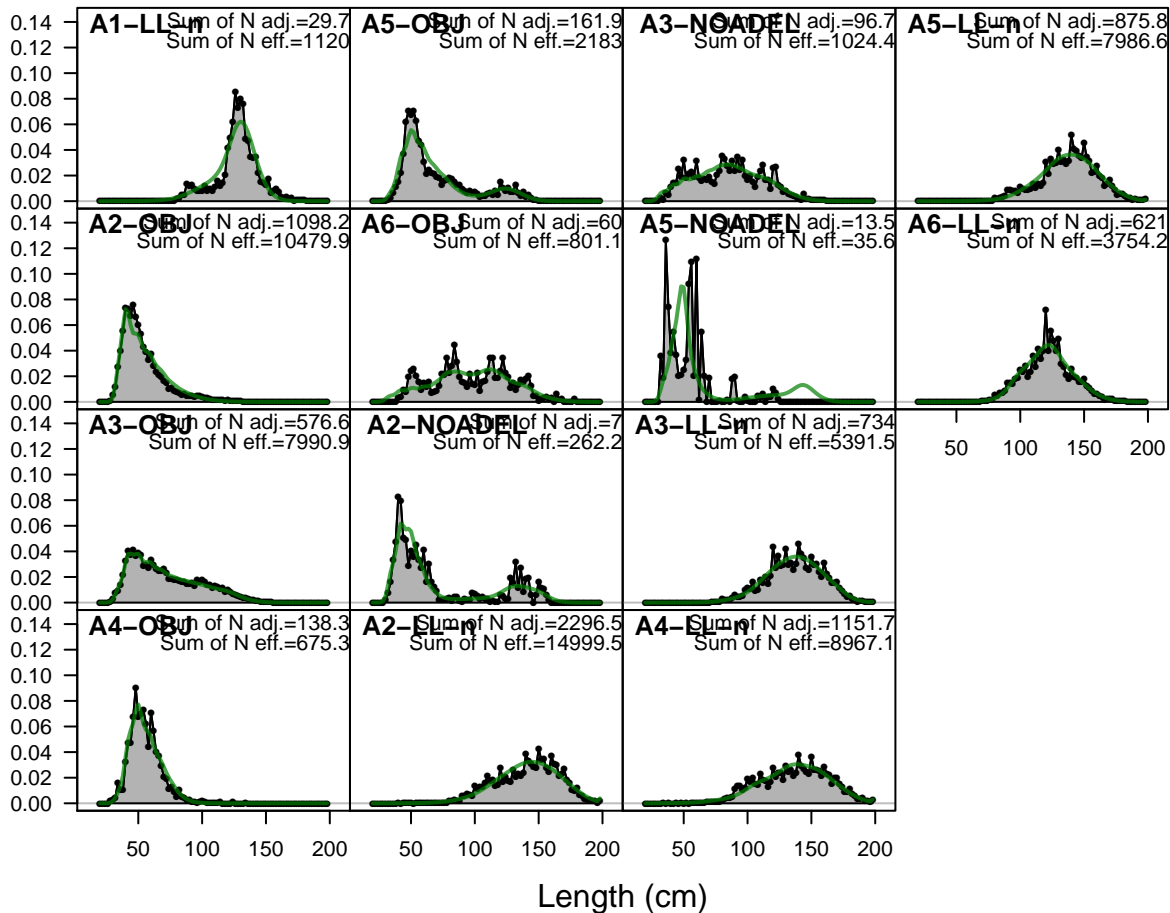




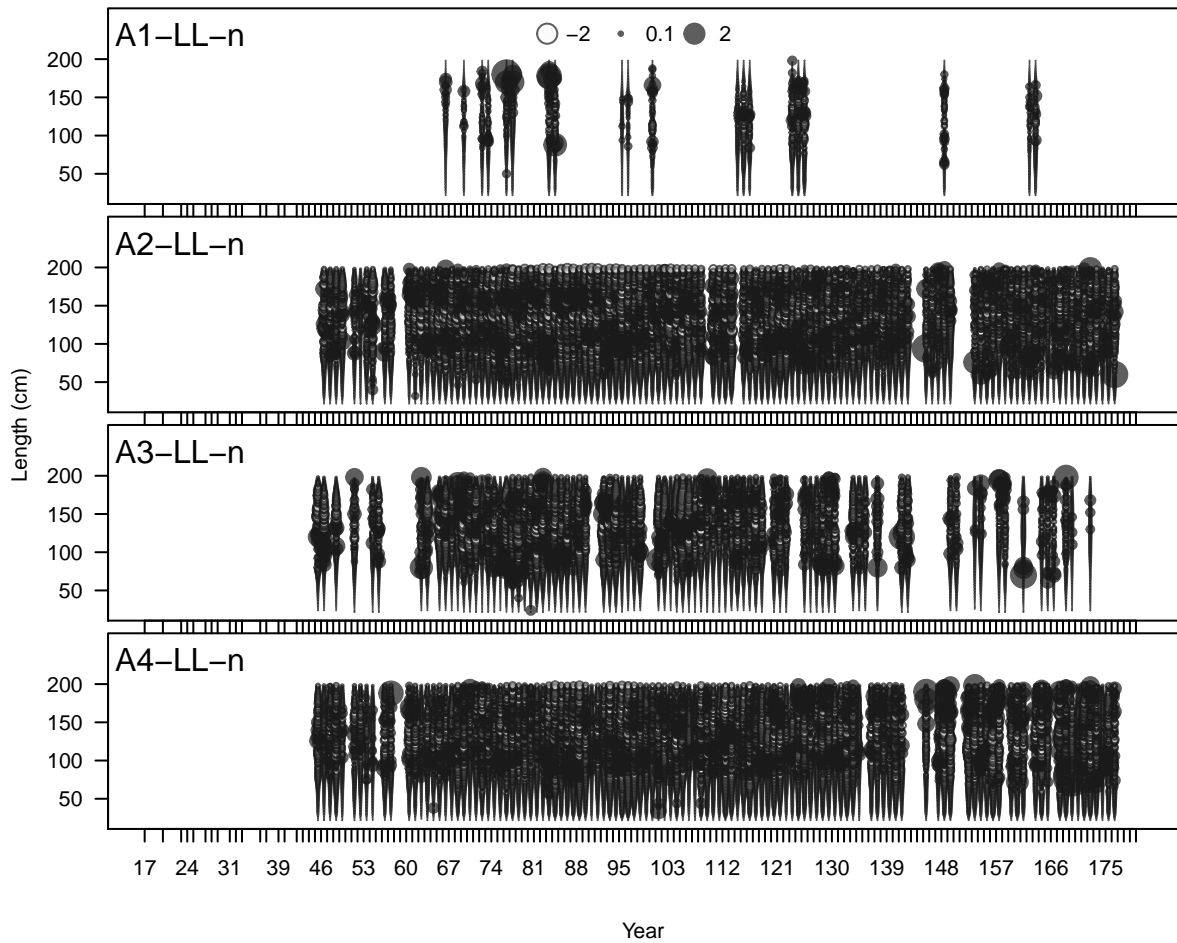
A5-NOADEL (whole catch)

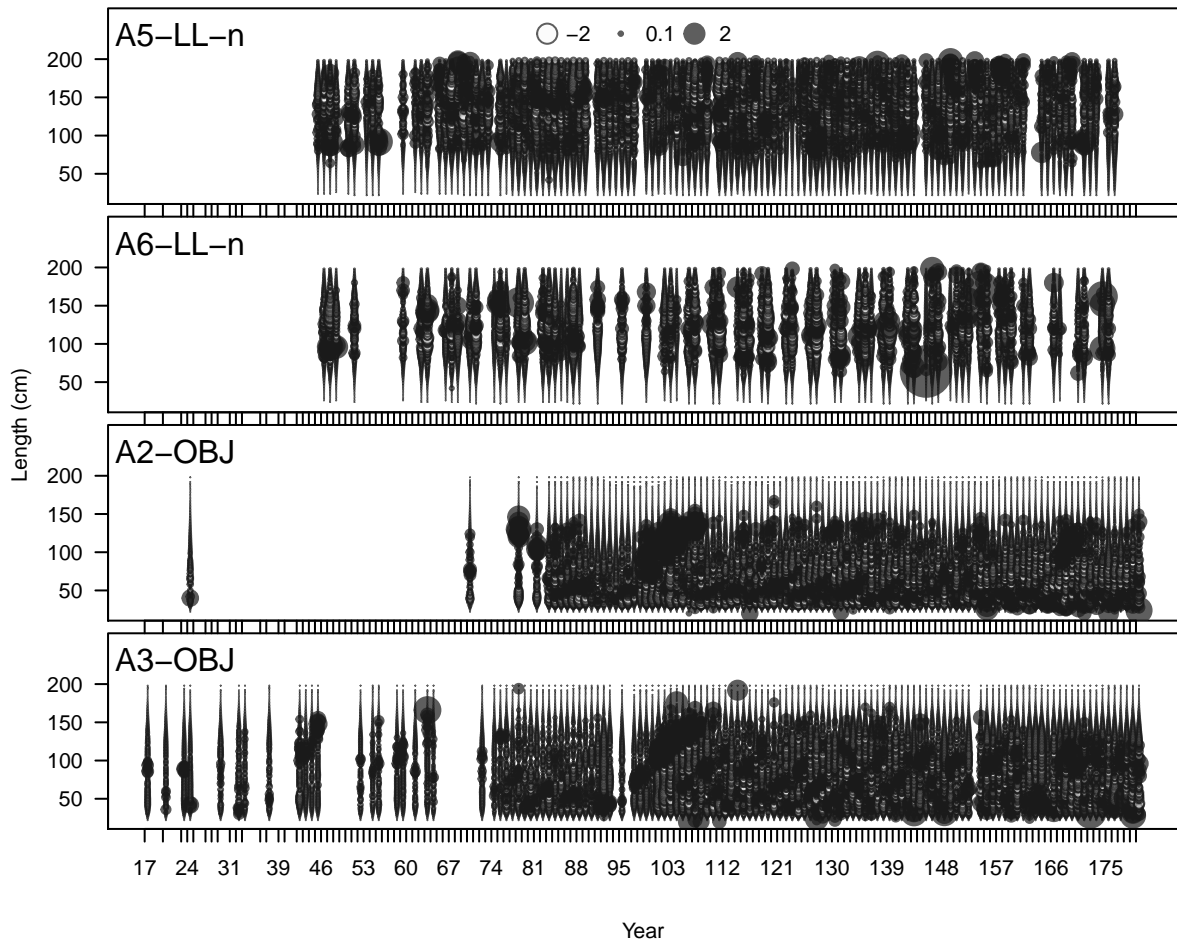


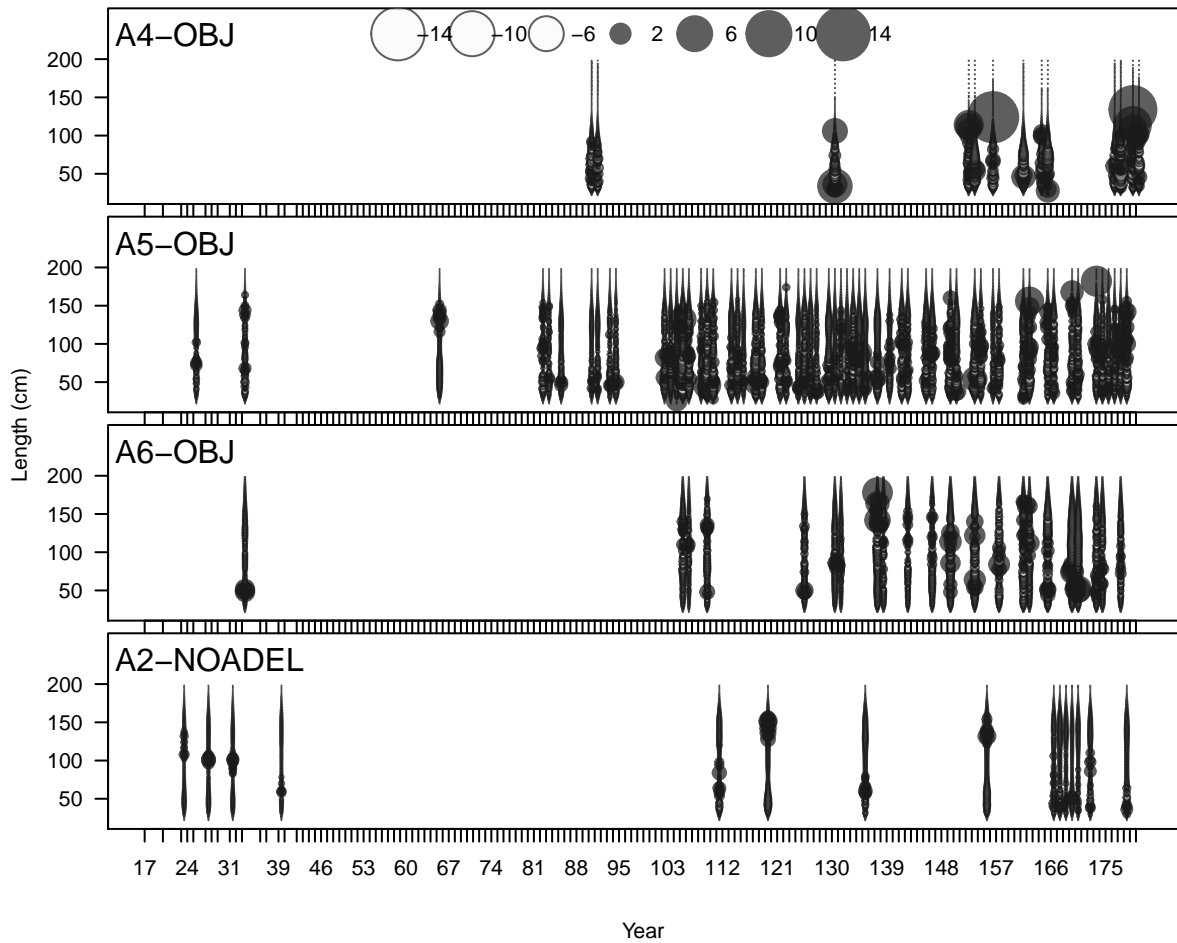
Proportion

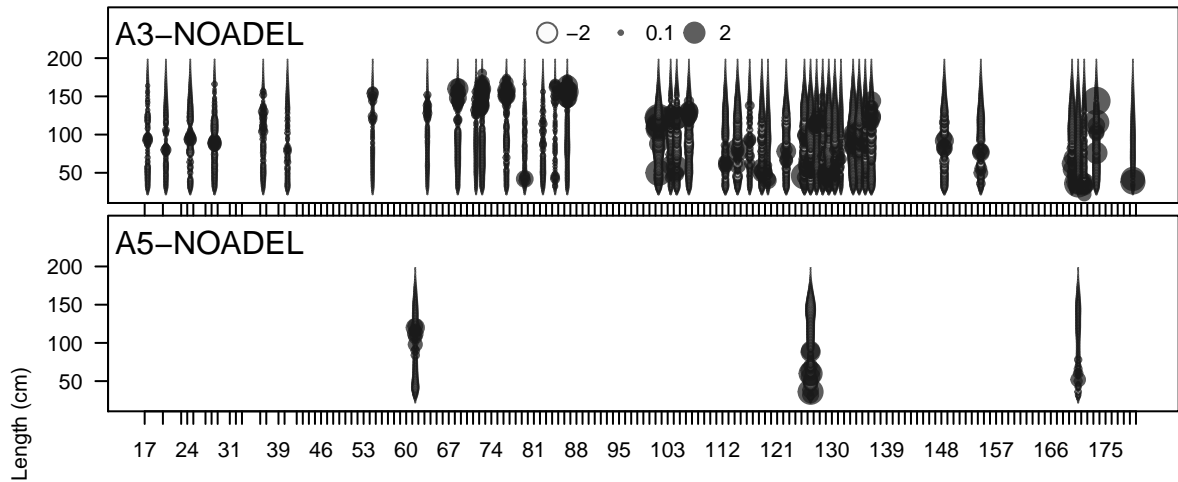


Length (cm)





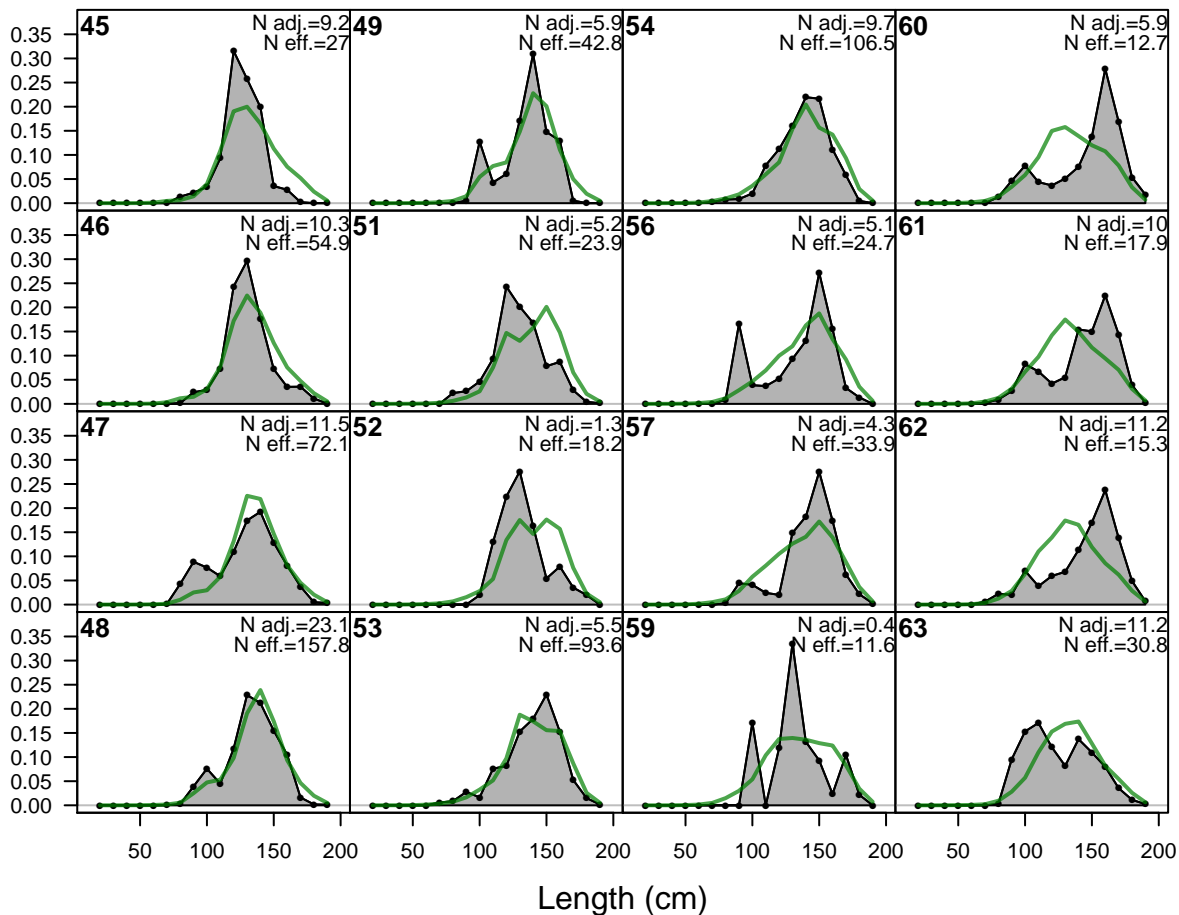




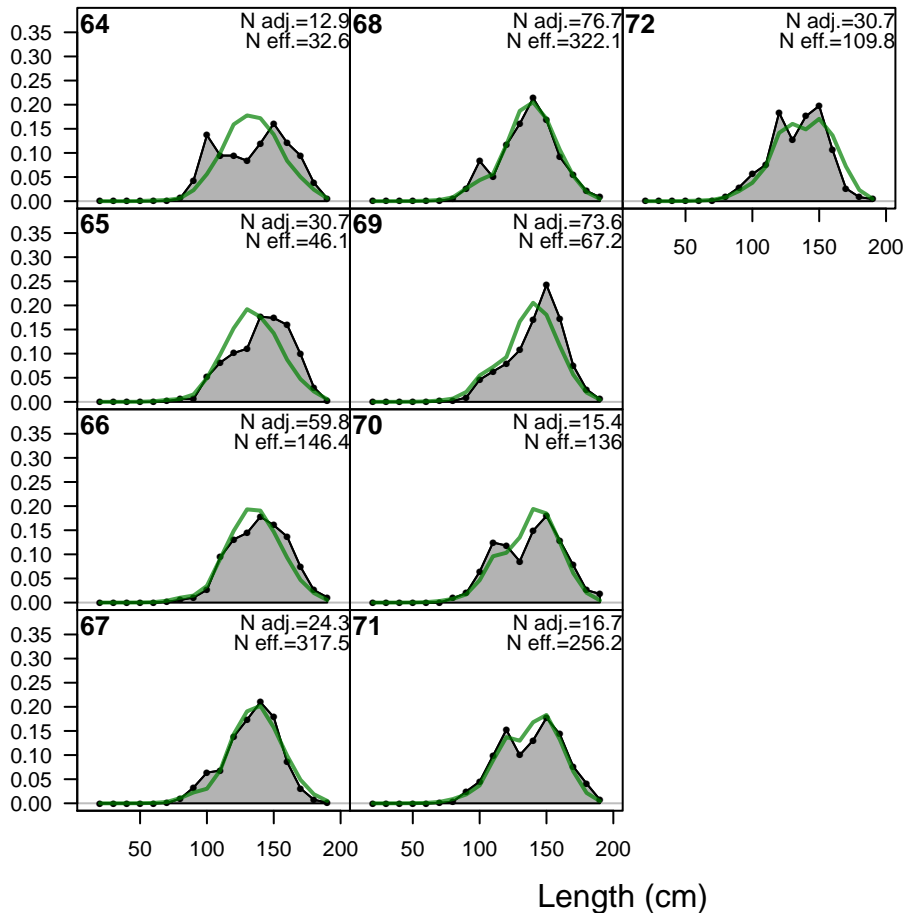
Year

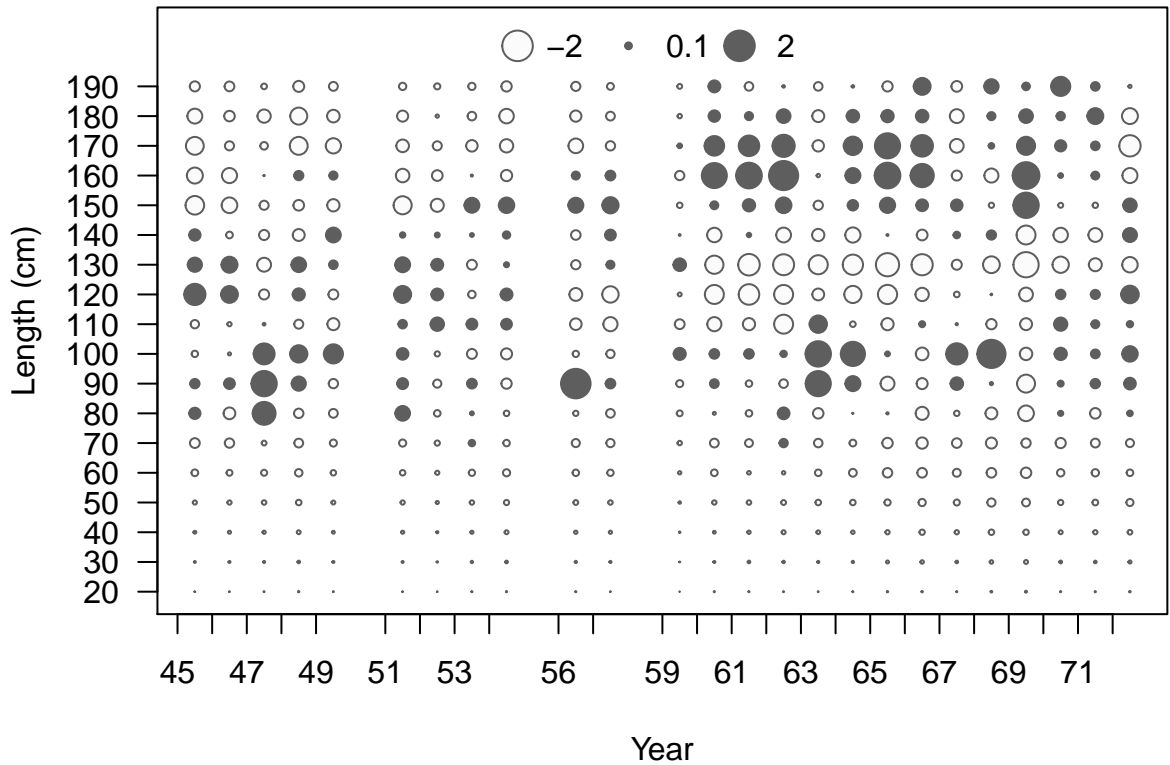


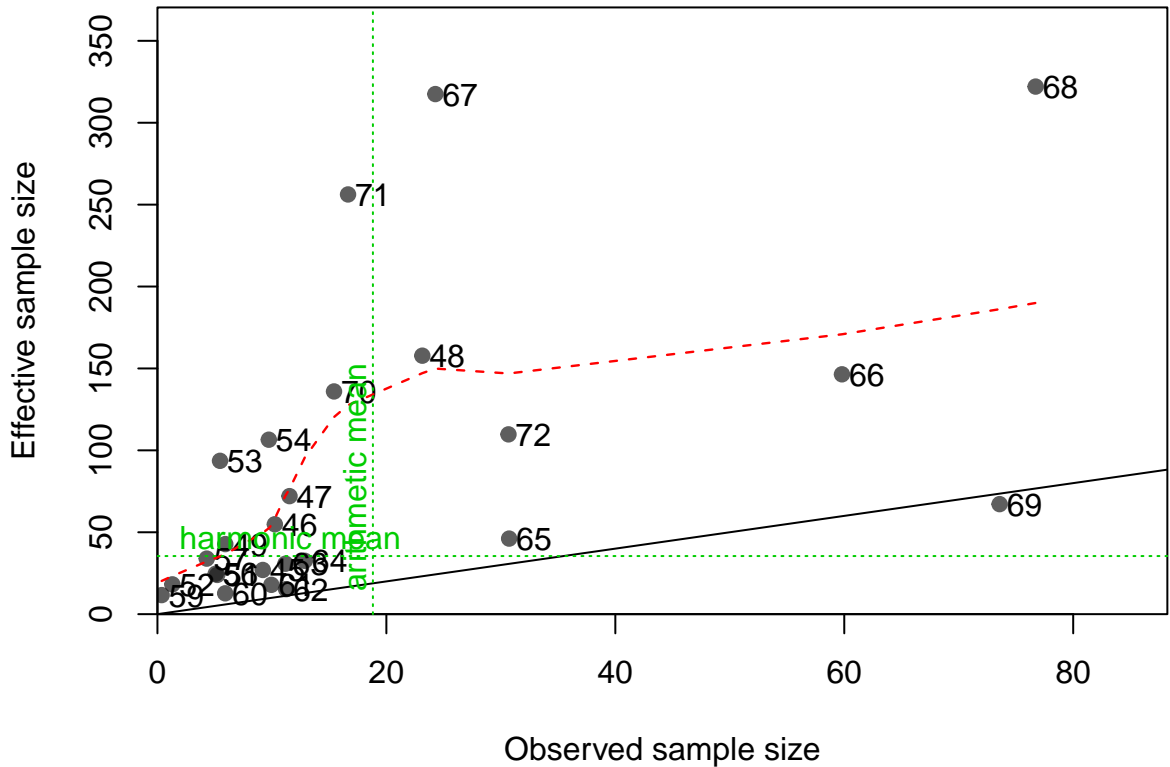
Proportion



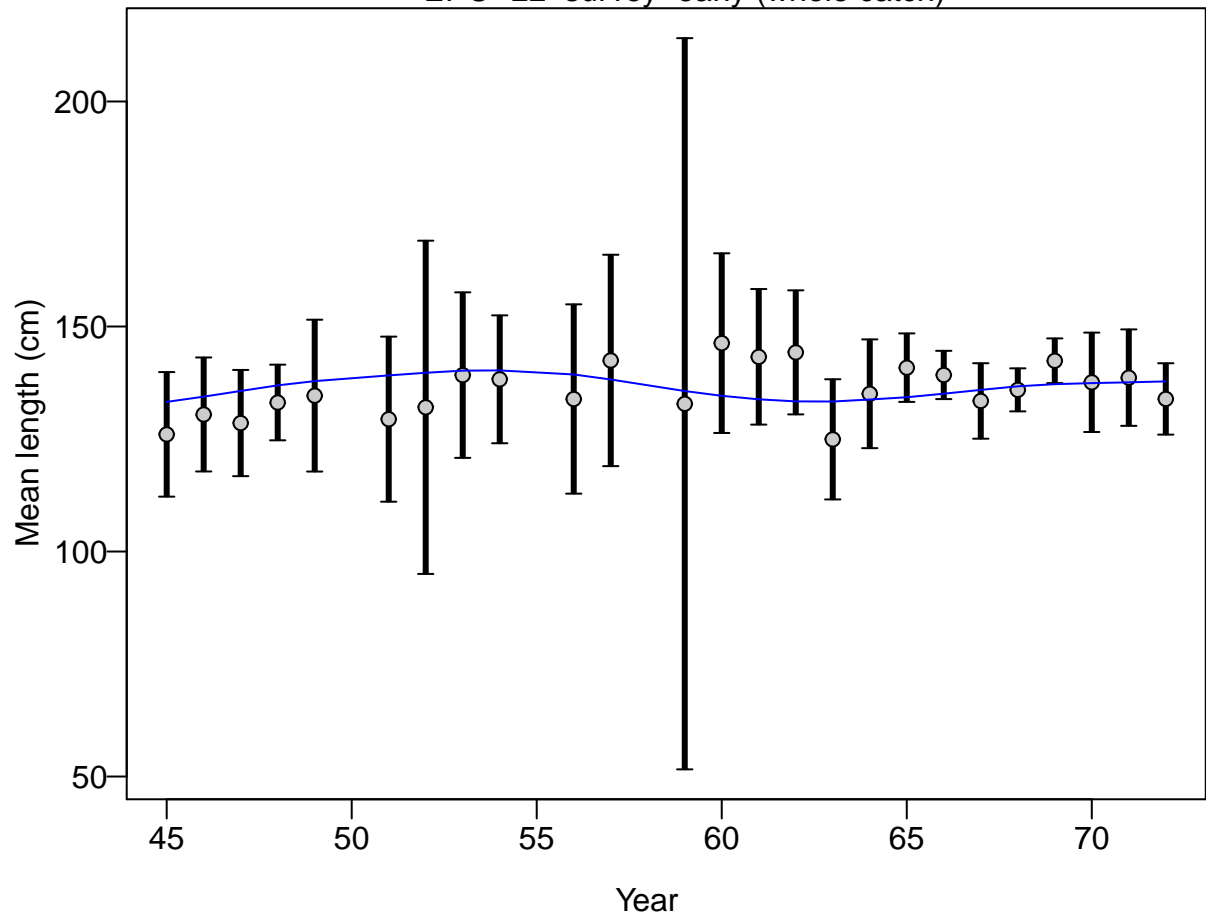
Proportion



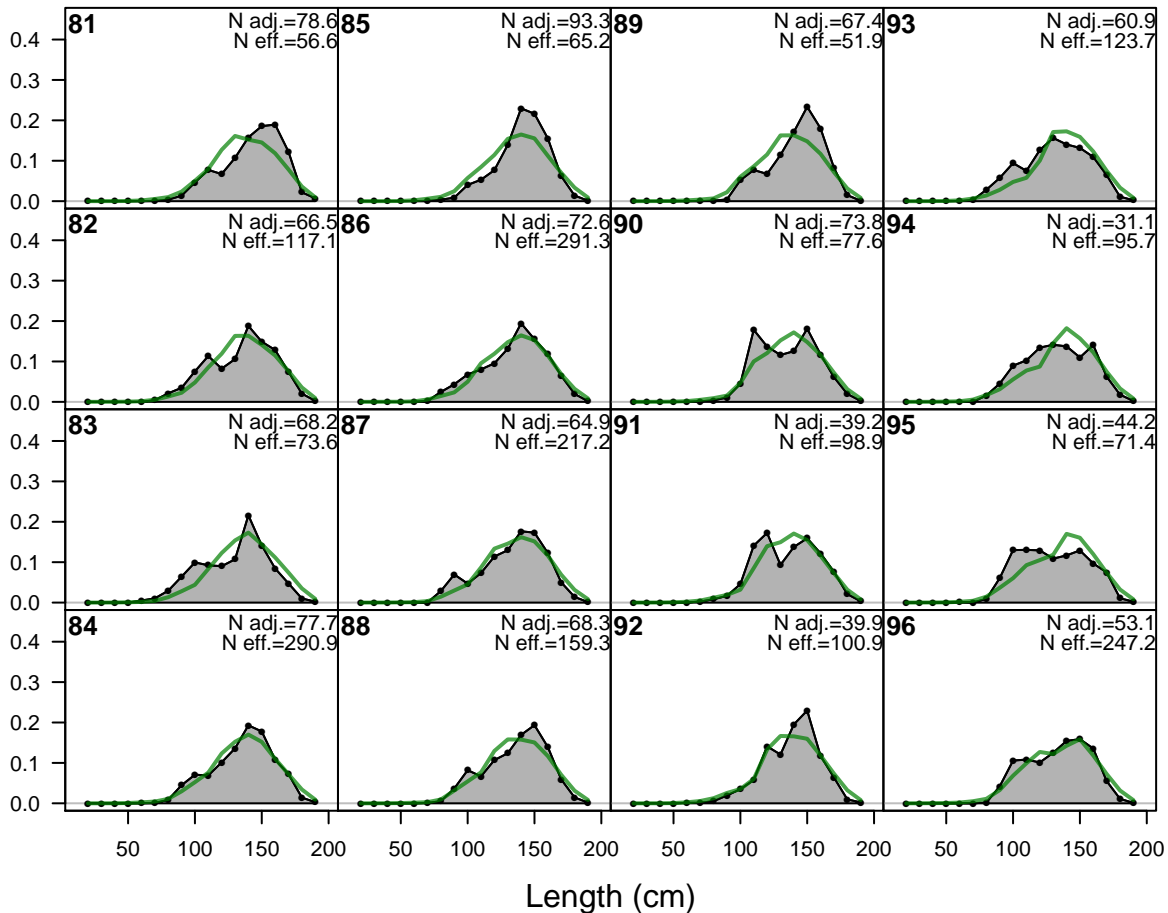




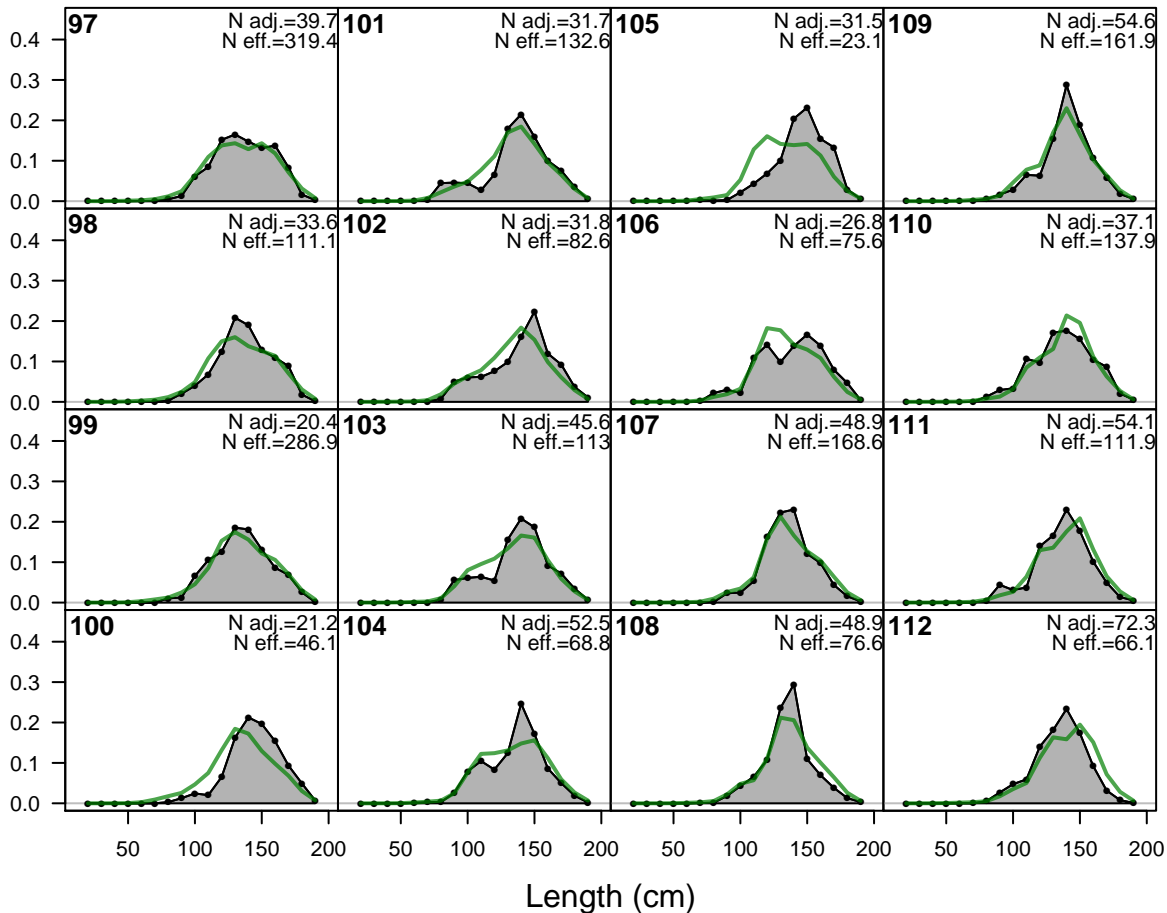
EPO-LL-survey-early (whole catch)



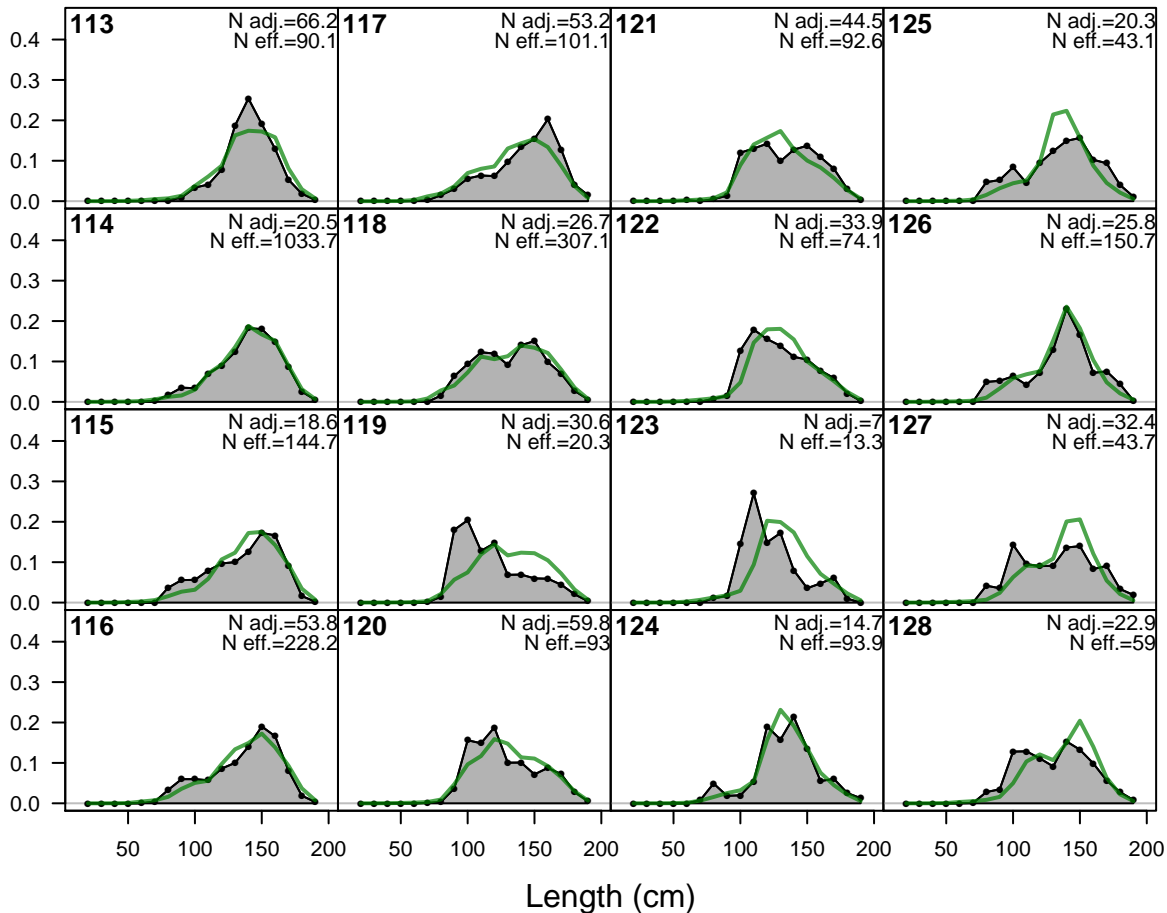
Proportion



Proportion

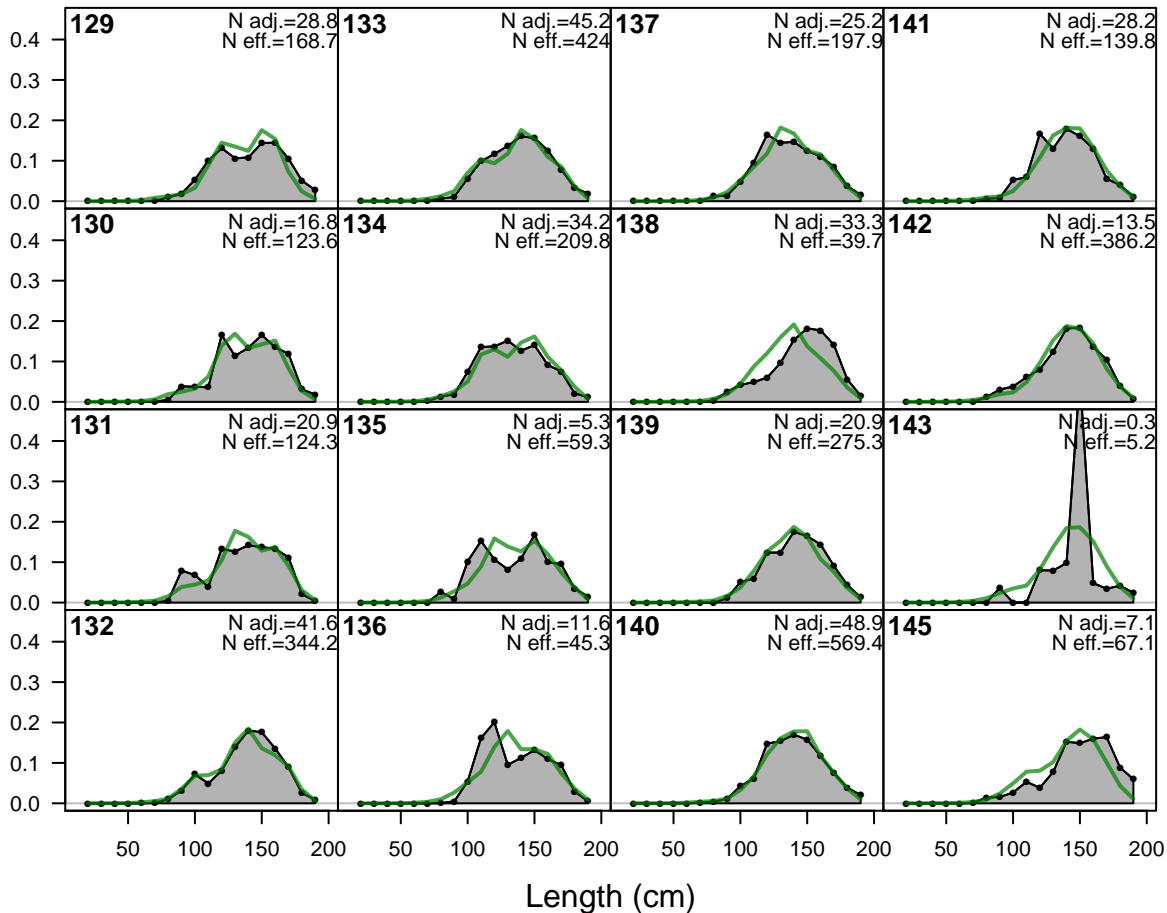


Proportion

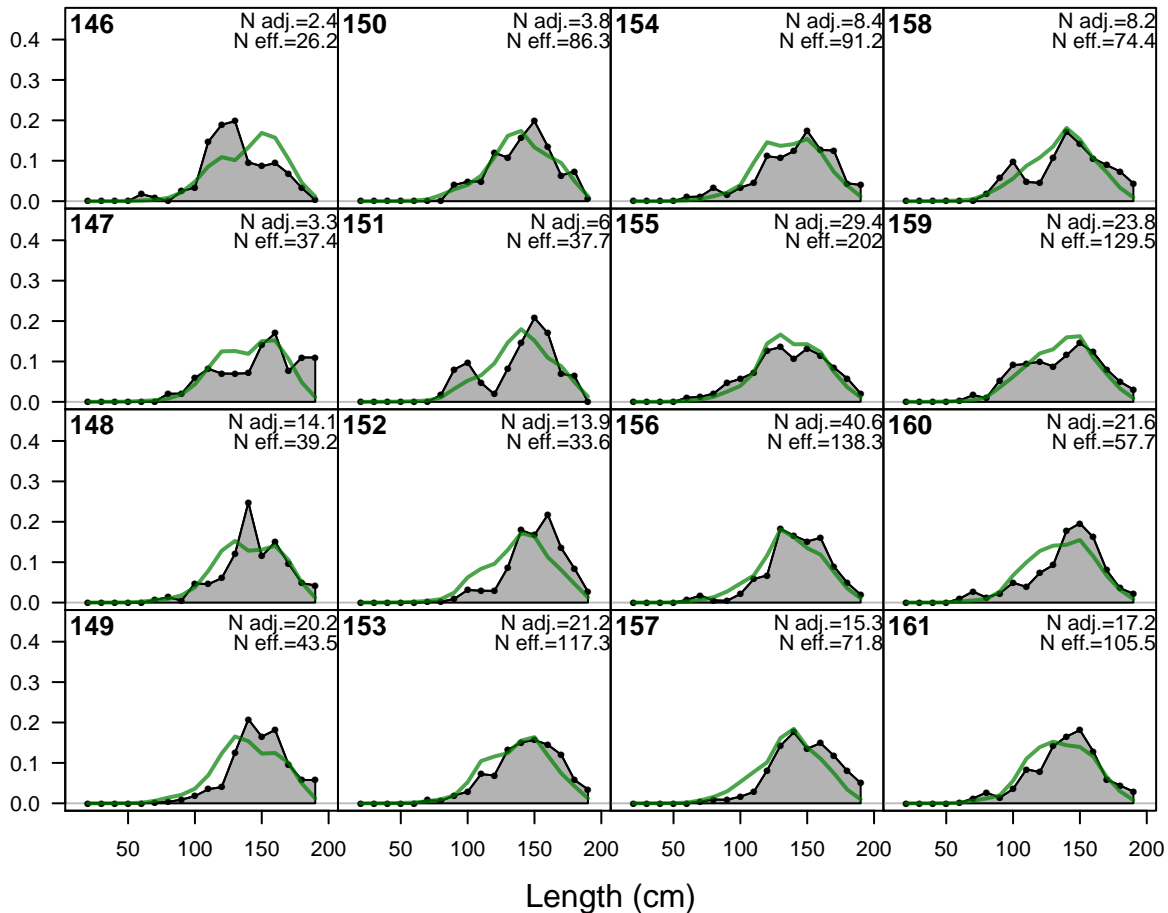




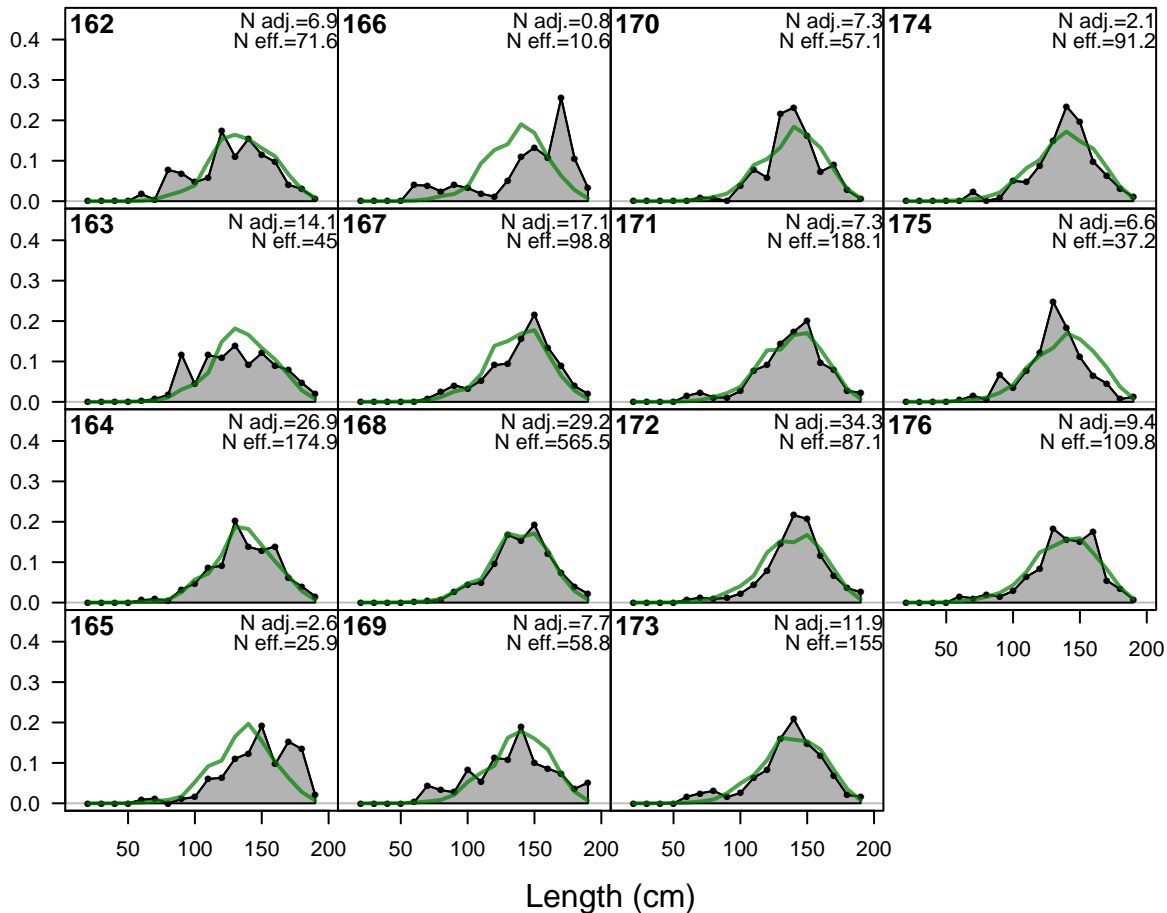
Proportion

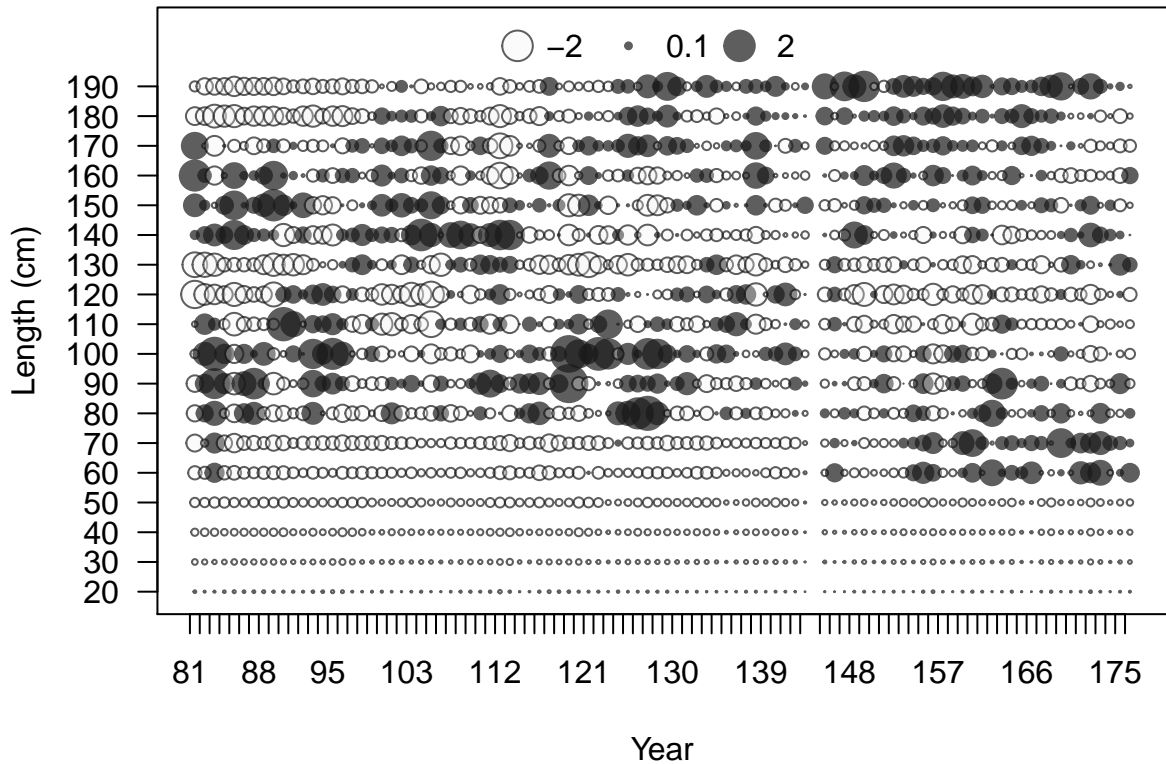


Proportion

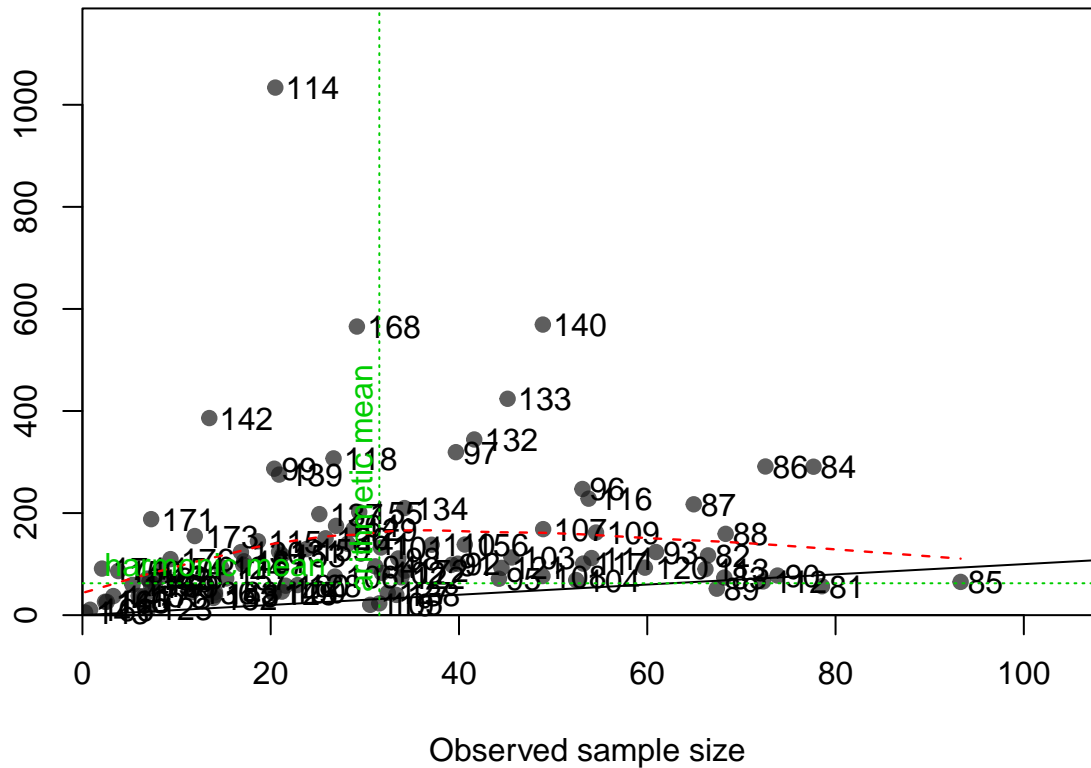


Proportion

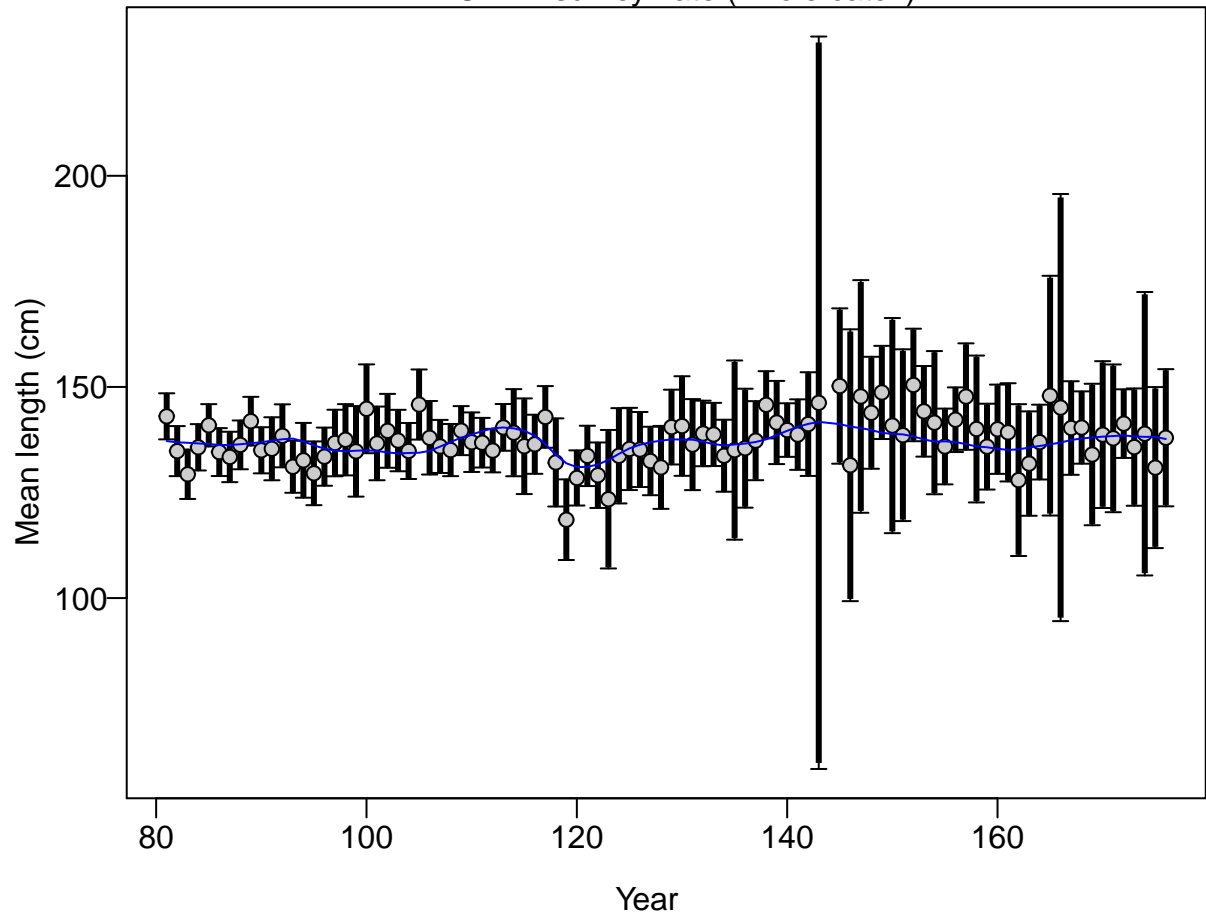




Effective sample size



EPO-LL-survey-late (whole catch)

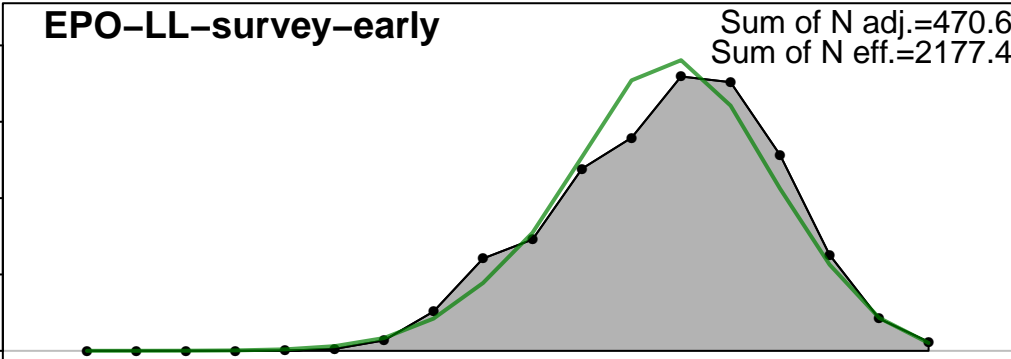


### EPO-LL-survey-early

Sum of N adj.=470.6  
Sum of N eff.=2177.4

Proportion

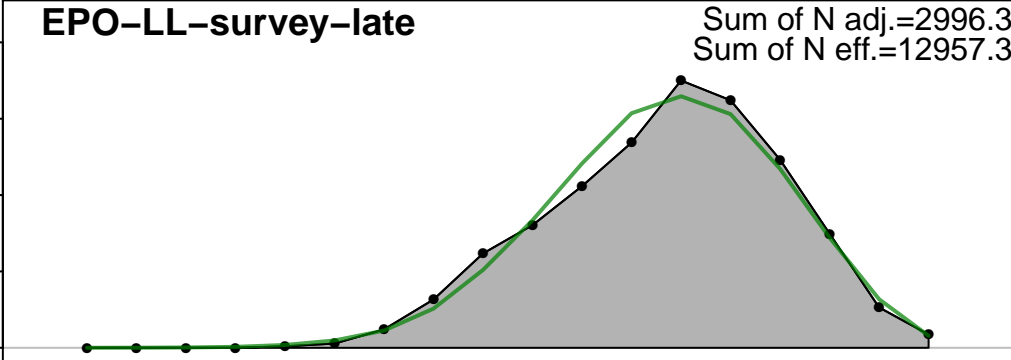
0.20  
0.15  
0.10  
0.05  
0.00



### EPO-LL-survey-late

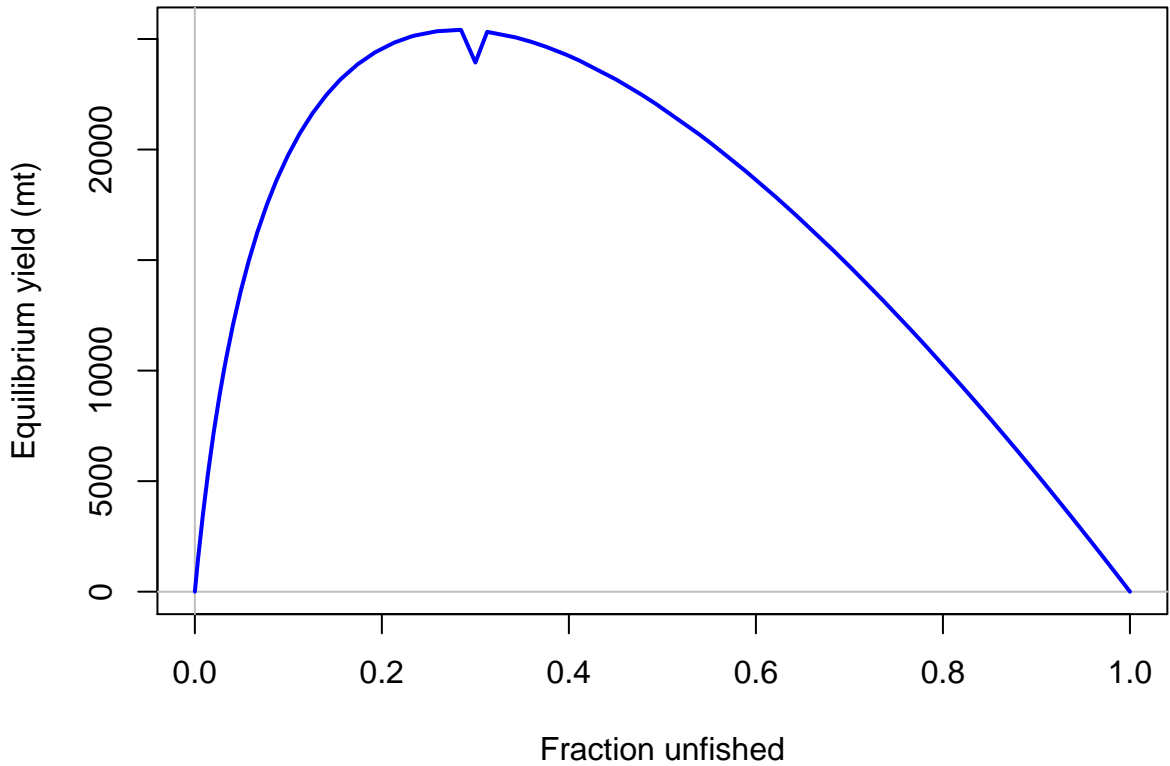
Sum of N adj.=2996.3  
Sum of N eff.=12957.3

0.20  
0.15  
0.10  
0.05  
0.00

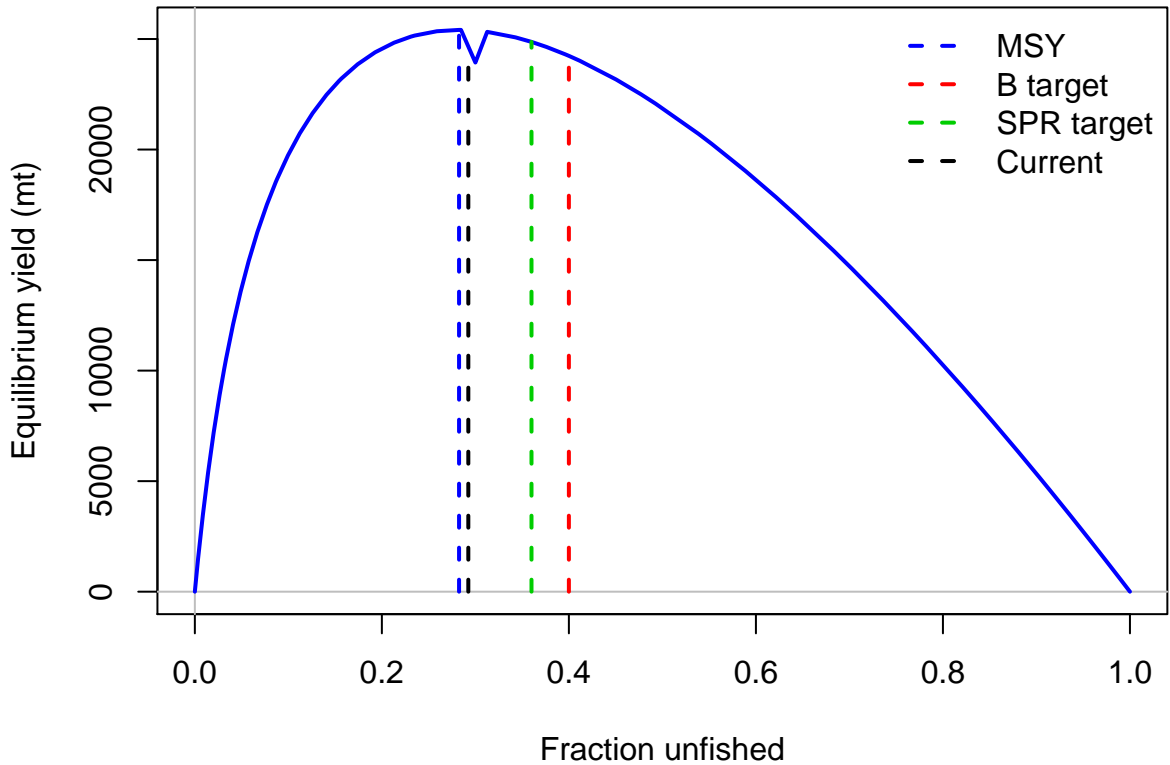


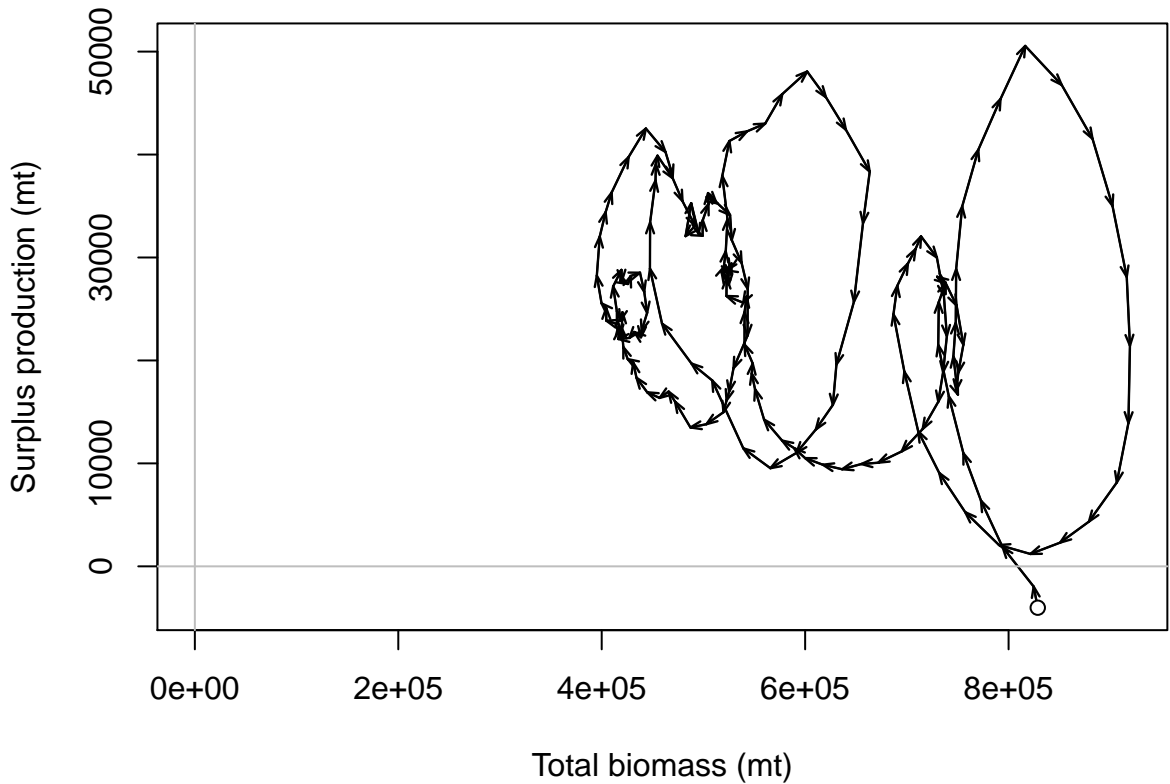
Length (cm)

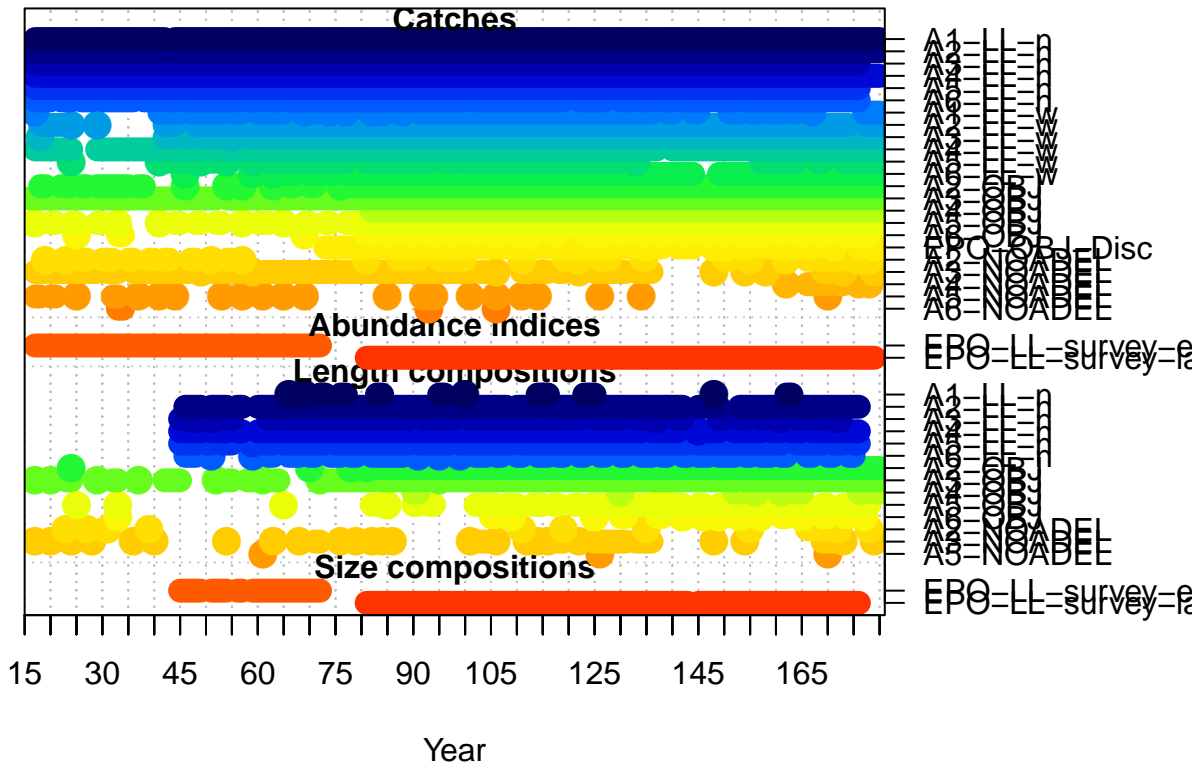
50 100 150 200

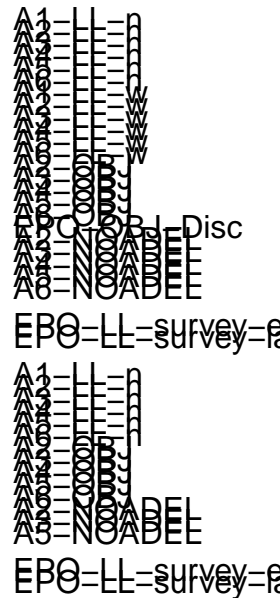
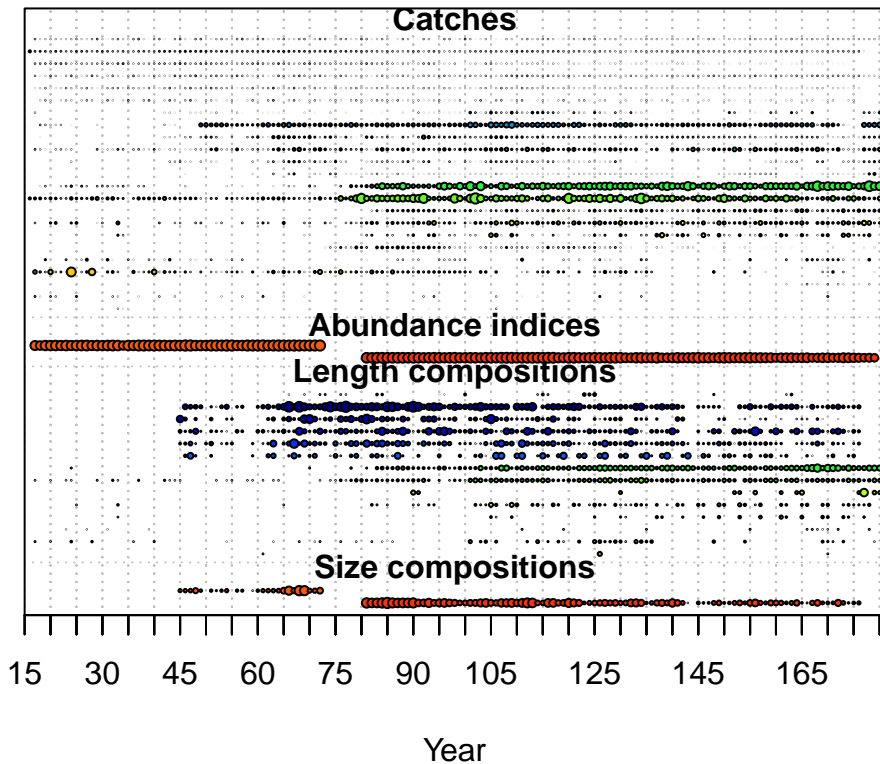




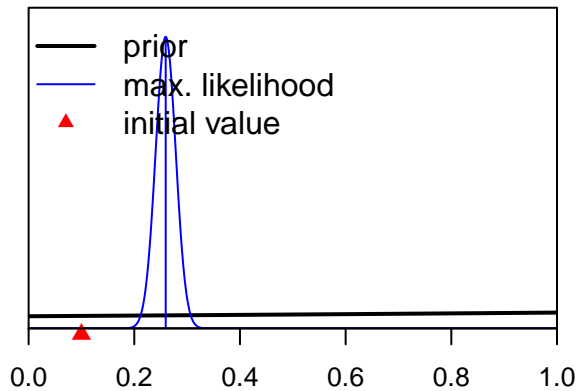




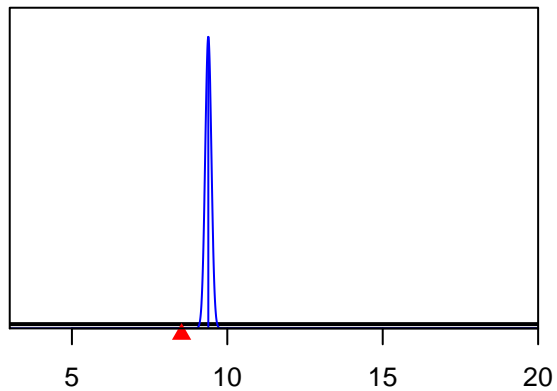




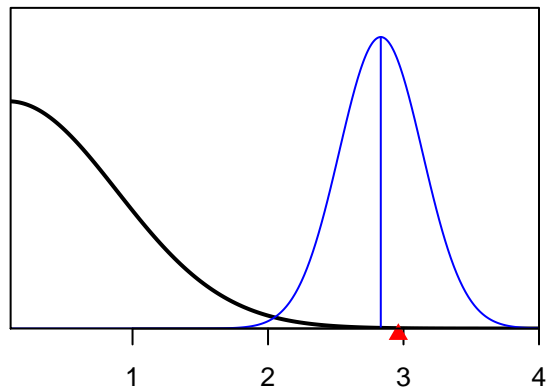
NatM\_p\_3\_Fem\_GP\_1



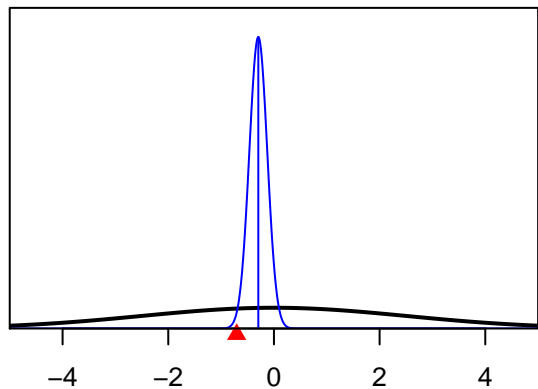
SR\_LN(R0)



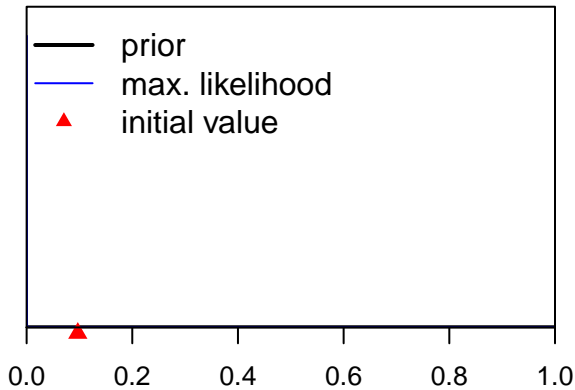
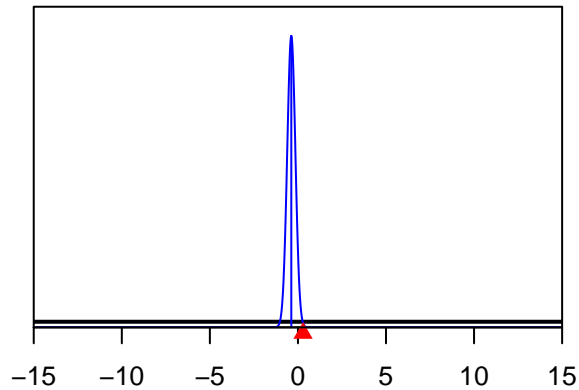
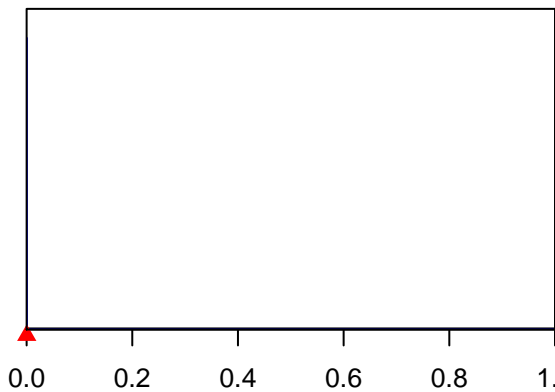
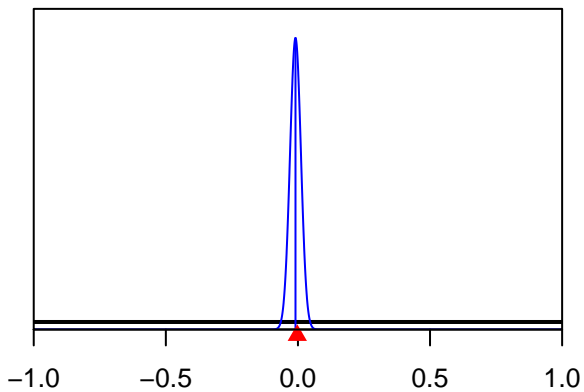
SD\_young\_Fem\_GP\_1



SR\_regime\_BLK1add\_16

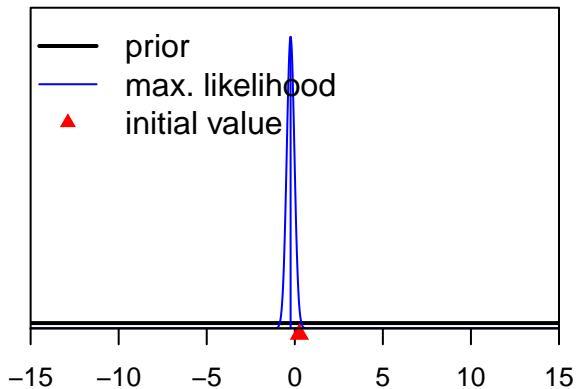


Parameter value

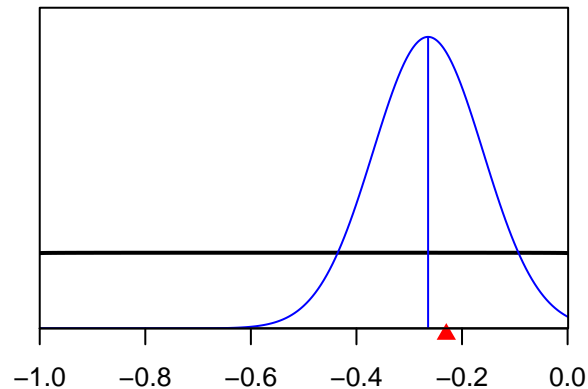
**InitF\_seas\_1\_flt\_2A2-LL-n****LnQ\_base\_EPO-LL-survey-early(24)****InitF\_seas\_1\_flt\_14A3-OBJ****Q\_extraSD\_EPO-LL-survey-early(24)**

Parameter value

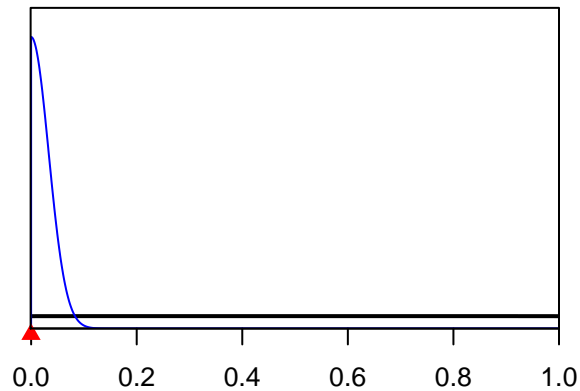
LnQ\_base\_EPO-LL-survey-late(25)



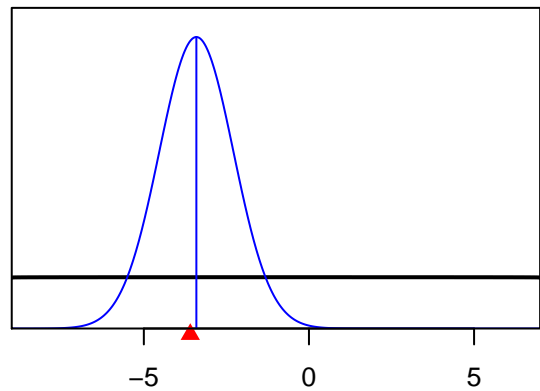
SizeSpline\_GradHi\_A1-LL-n(1)



SizeSpline\_GradLo\_A1-LL-n(1)

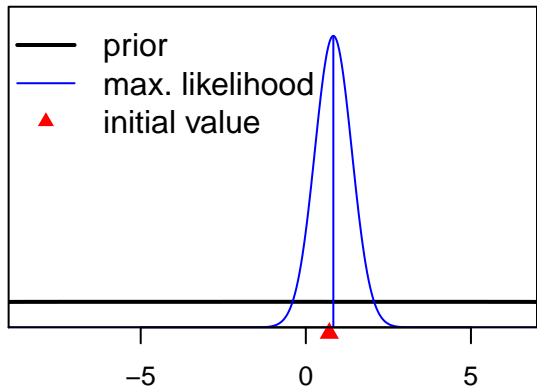


SizeSpline\_Val 2\_A1-LL-n(1)

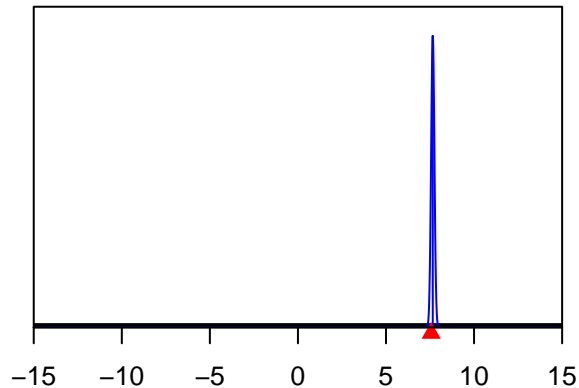


Parameter value

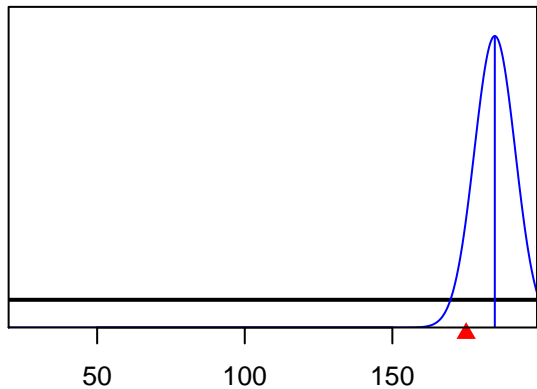
SizeSpline\_Val\_4\_A1-LL-n(1)



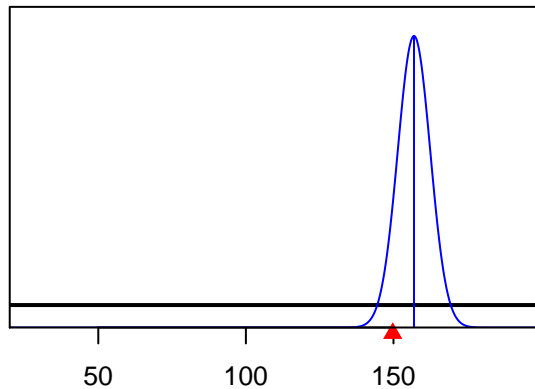
Size\_DbIN\_ascend\_se\_A2-LL-n(2)



Size\_DbIN\_peak\_A2-LL-n(2)



Size\_DbIN\_peak\_A3-LL-n(3)

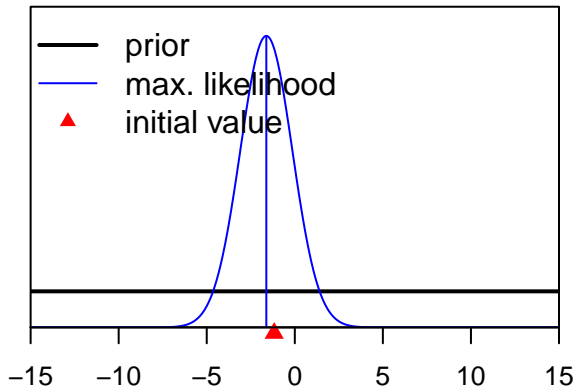


Parameter value

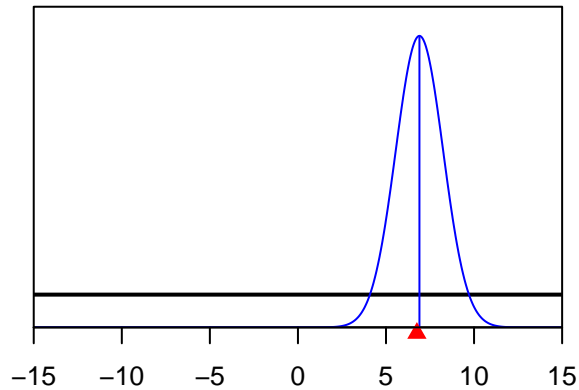
Density



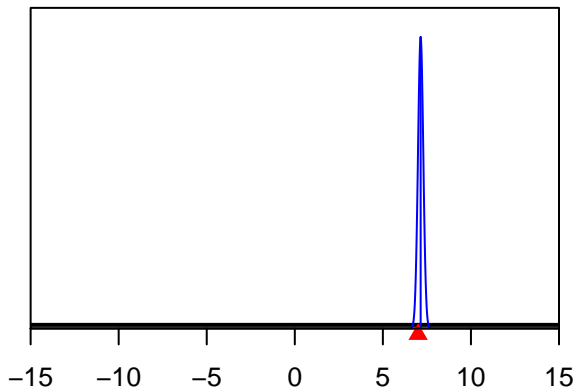
Size\_DbIN\_top\_logit\_A3-LL-n(3)



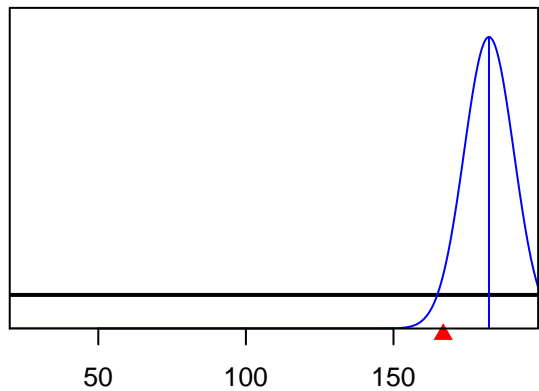
Size\_DbIN\_descend\_se\_A3-LL-n(3)



Size\_DbIN\_ascend\_se\_A3-LL-n(3)

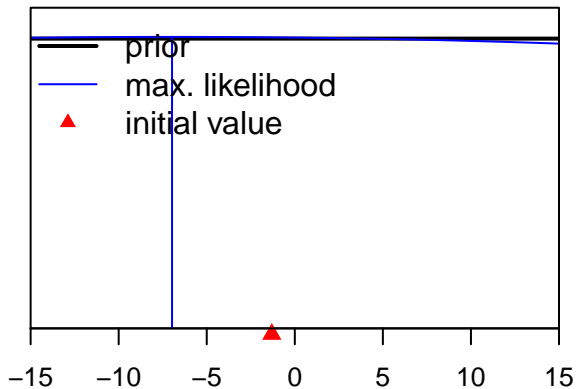


Size\_DbIN\_peak\_A4-LL-n(4)

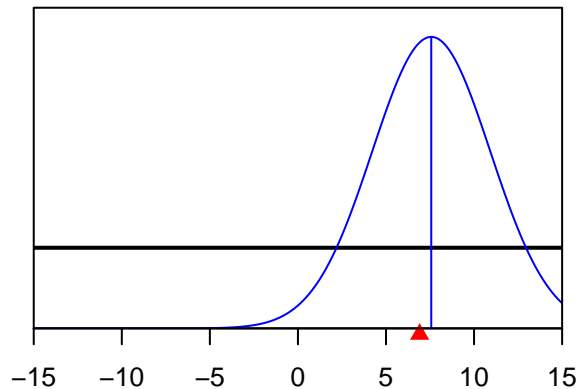


Parameter value

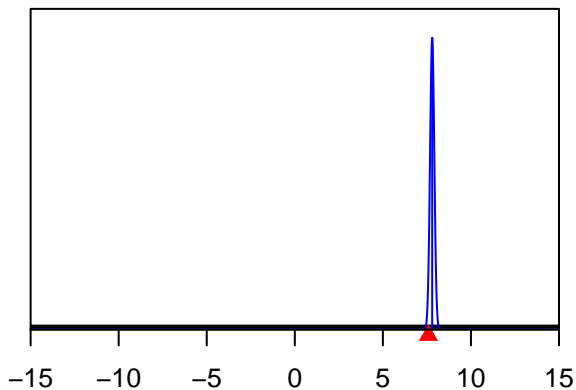
Size\_DbIN\_top\_logit\_A4-LL-n(4)



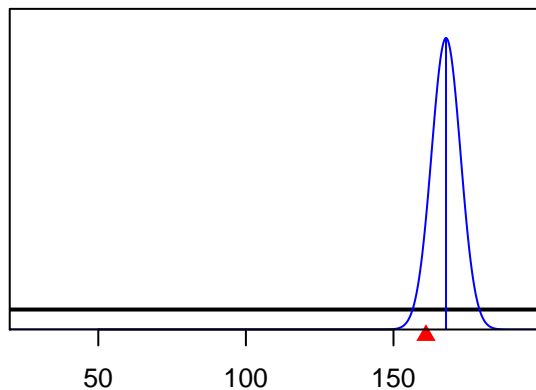
Size\_DbIN\_descend\_se\_A4-LL-n(4)



Size\_DbIN\_ascend\_se\_A4-LL-n(4)

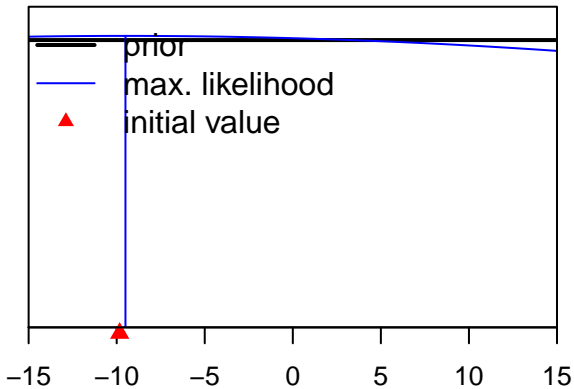


Size\_DbIN\_peak\_A5-LL-n(5)

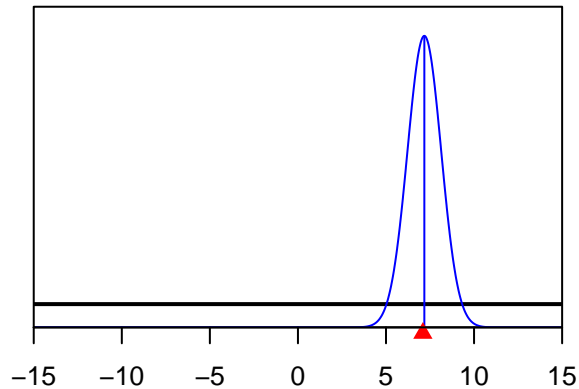


Parameter value

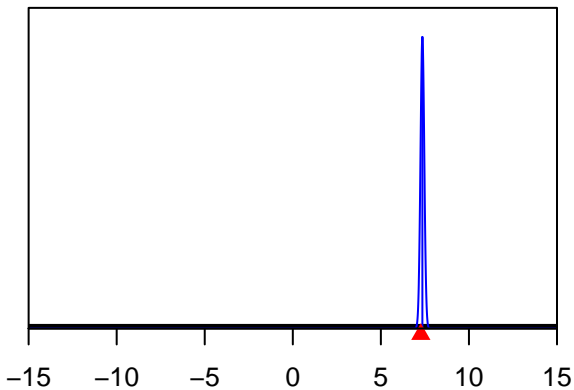
Size\_DbIN\_top\_logit\_A5-LL-n(5)



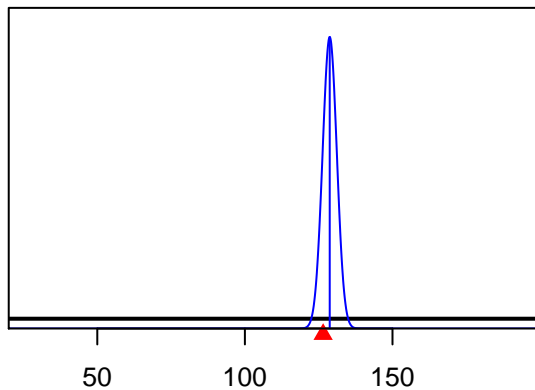
Size\_DbIN\_descend\_se\_A5-LL-n(5)



Size\_DbIN\_ascend\_se\_A5-LL-n(5)

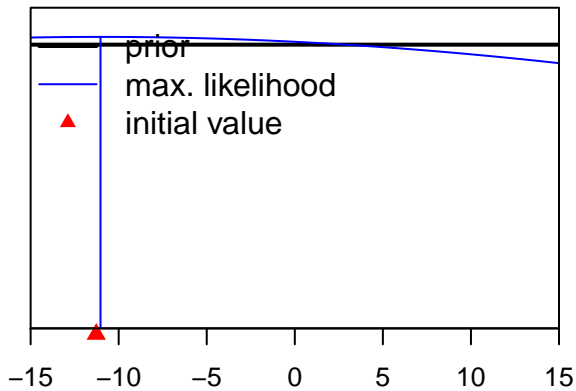


Size\_DbIN\_peak\_A6-LL-n(6)

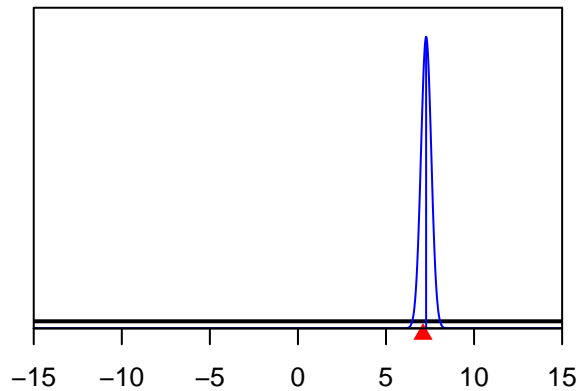


Parameter value

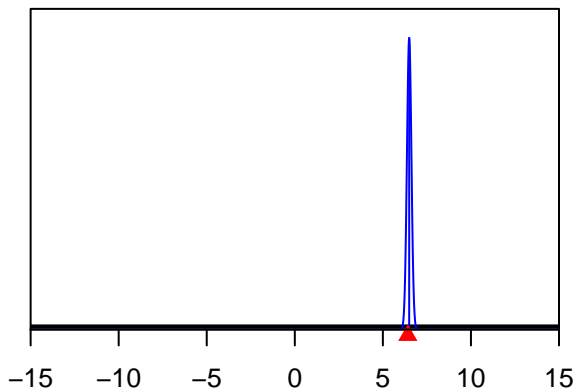
Size\_DbIN\_top\_logit\_A6-LL-n(6)



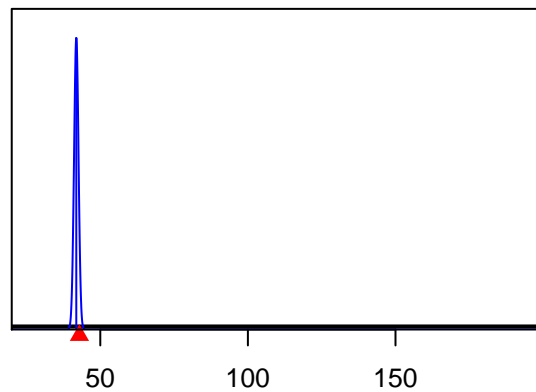
Size\_DbIN\_descend\_se\_A6-LL-n(6)



Size\_DbIN\_ascend\_se\_A6-LL-n(6)

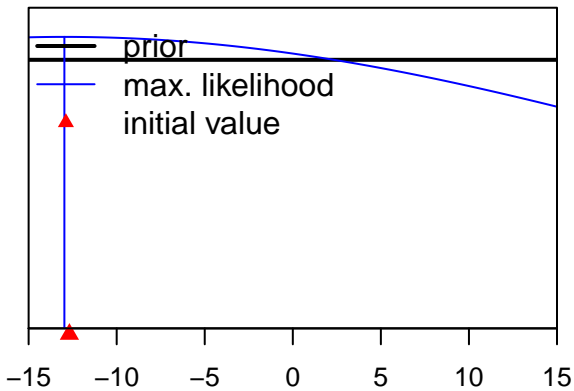


Size\_DbIN\_peak\_A2-OBJ(13)

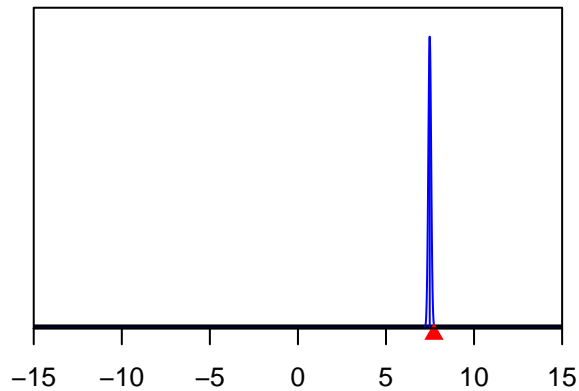


Parameter value

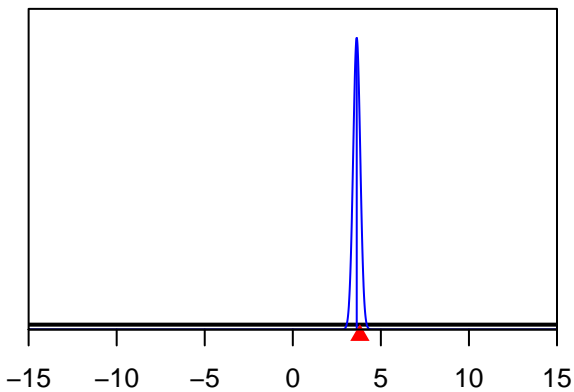
Size\_DbIN\_top\_logit\_A2-OBJ(13)



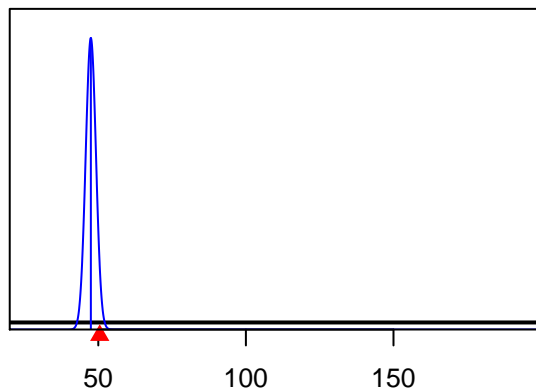
Size\_DbIN\_descend\_se\_A2-OBJ(13)



Size\_DbIN\_ascend\_se\_A2-OBJ(13)

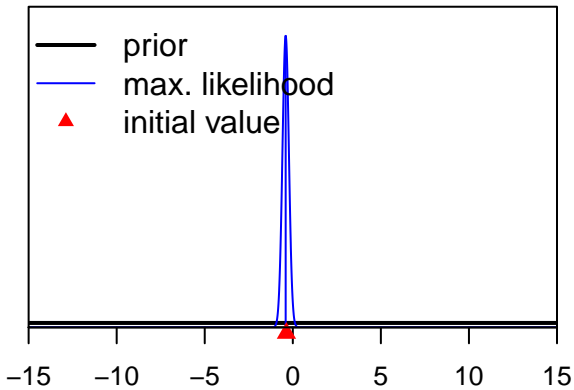


Size\_DbIN\_peak\_A3-OBJ(14)

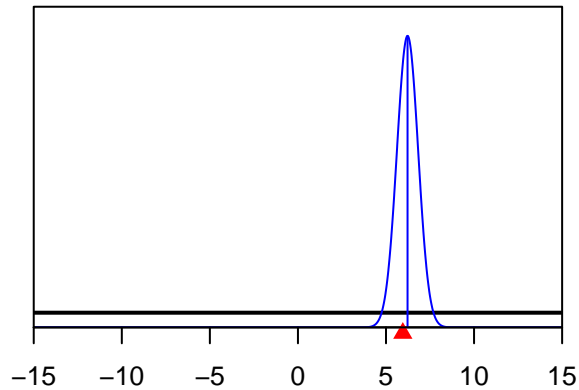


Parameter value

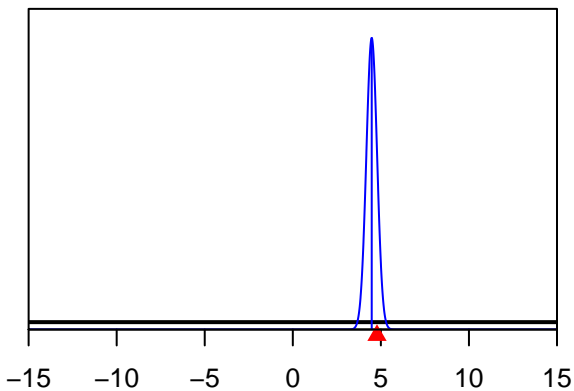
Size\_DbIN\_top\_logit\_A3-OBJ(14)



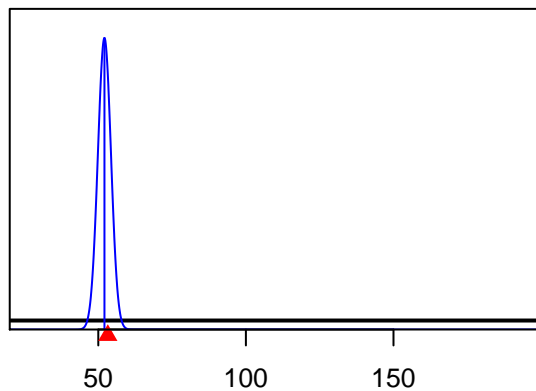
Size\_DbIN\_descend\_se\_A3-OBJ(14)



Size\_DbIN\_ascend\_se\_A3-OBJ(14)

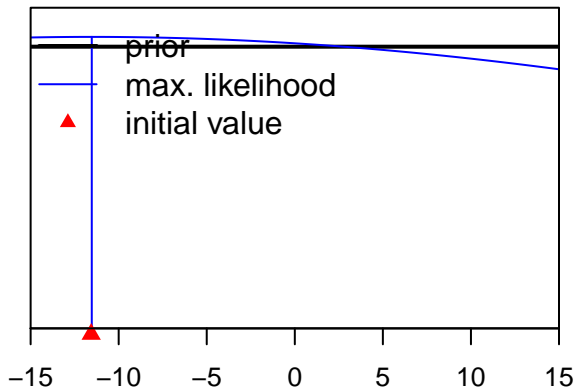


Size\_DbIN\_peak\_A4-OBJ(15)

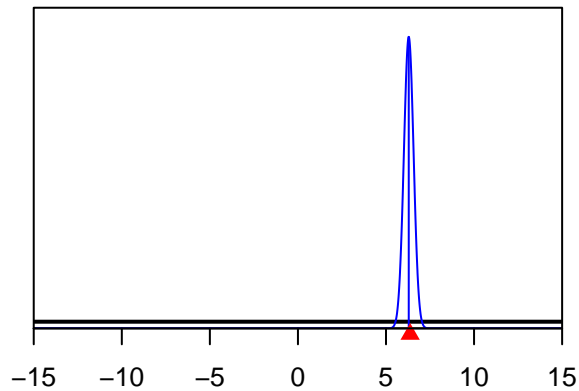


Parameter value

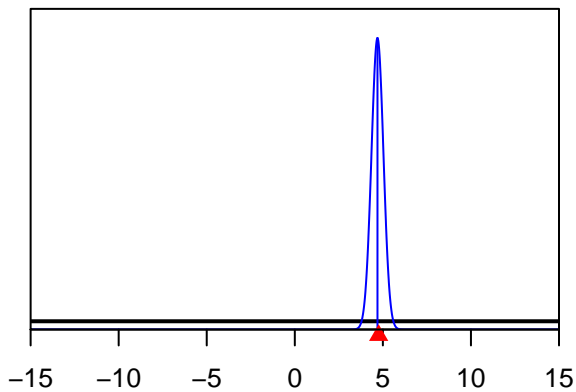
Size\_DbIN\_top\_logit\_A4-OBJ(15)



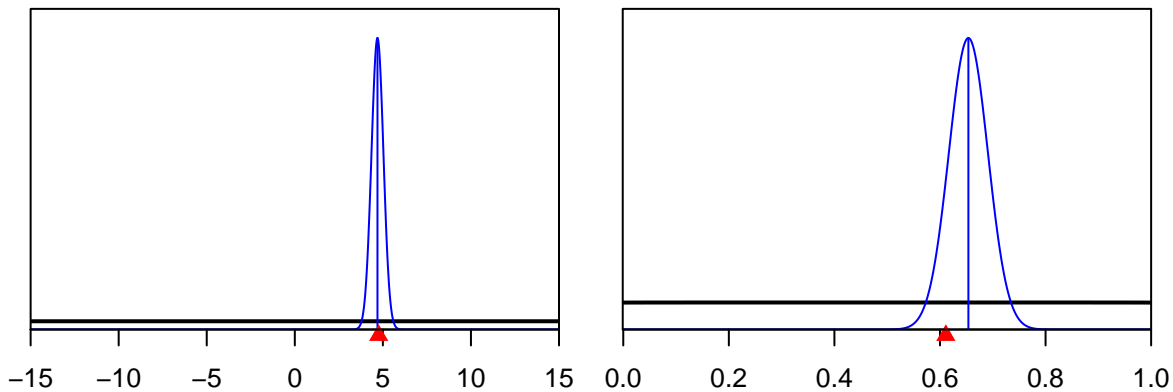
Size\_DbIN\_descend\_se\_A4-OBJ(15)



Size\_DbIN\_ascend\_se\_A4-OBJ(15)

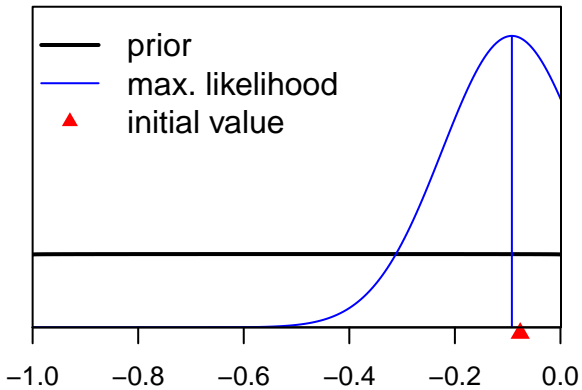


SizeSpline\_GradLo\_A5-OBJ(16)

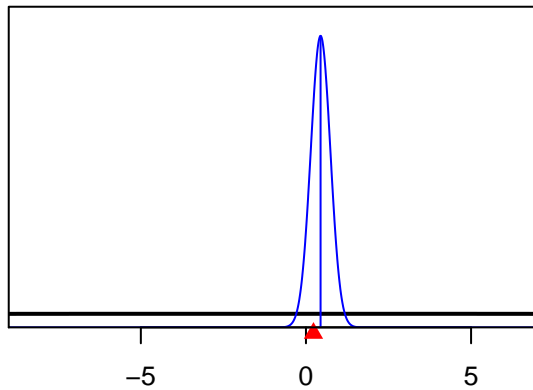


Parameter value

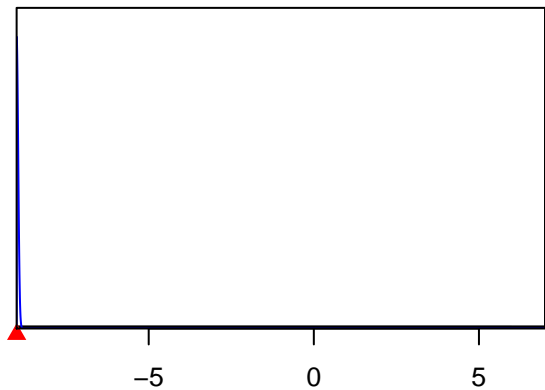
SizeSpline\_GradHi\_A5-Obj(16)



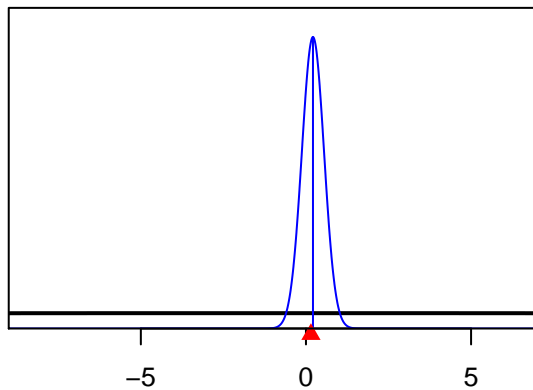
SizeSpline\_Val\_2\_A5-Obj(16)



SizeSpline\_Val\_1\_A5-Obj(16)



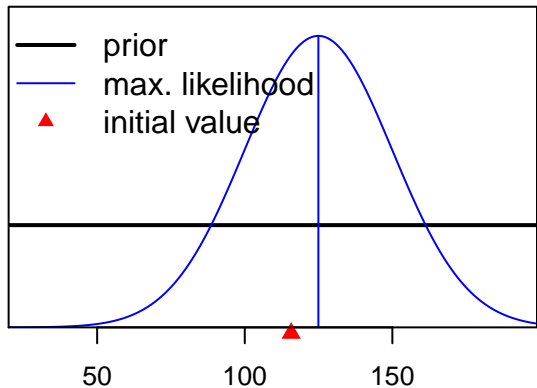
SizeSpline\_Val\_4\_A5-Obj(16)



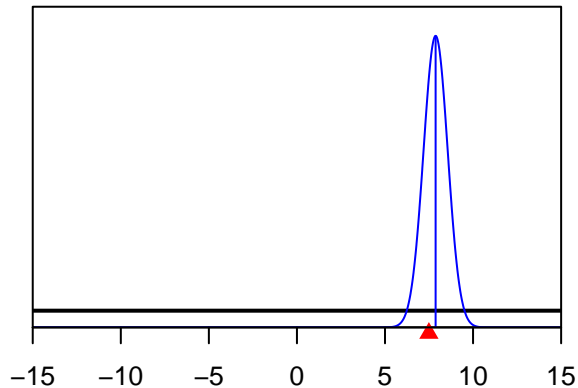
Parameter value



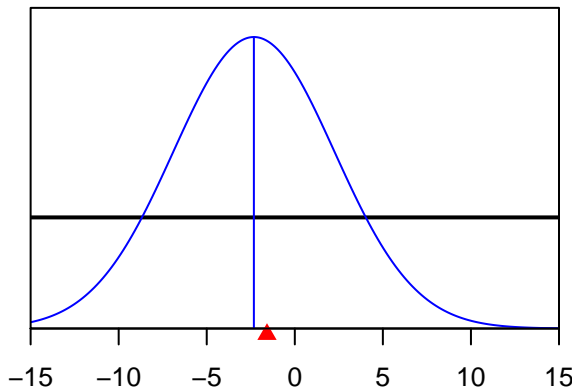
Size\_DbIN\_peak\_A6-OBJ(17)



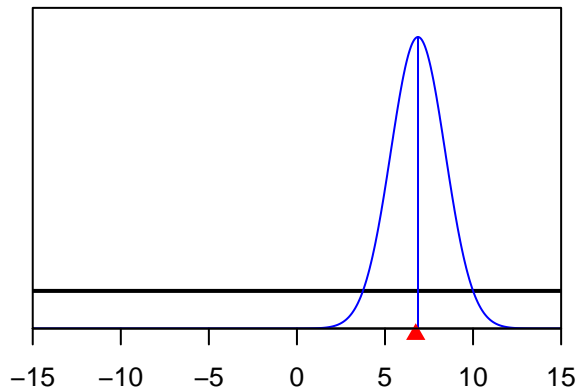
Size\_DbIN\_ascend\_se\_A6-OBJ(17)



Size\_DbIN\_top\_logit\_A6-OBJ(17)



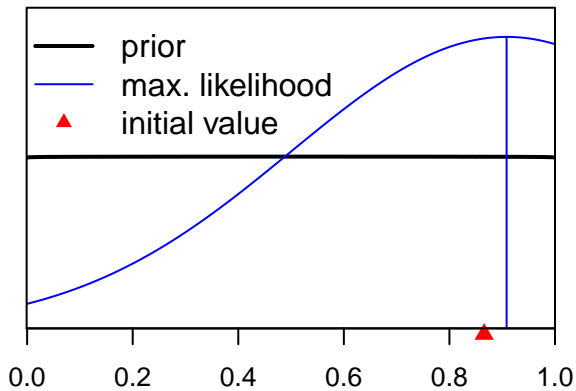
Size\_DbIN\_descend\_se\_A6-OBJ(17)



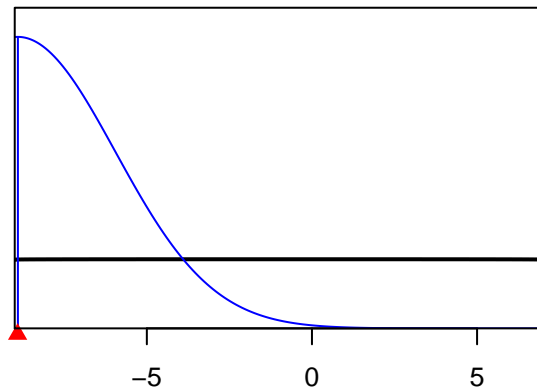
Parameter value

Density

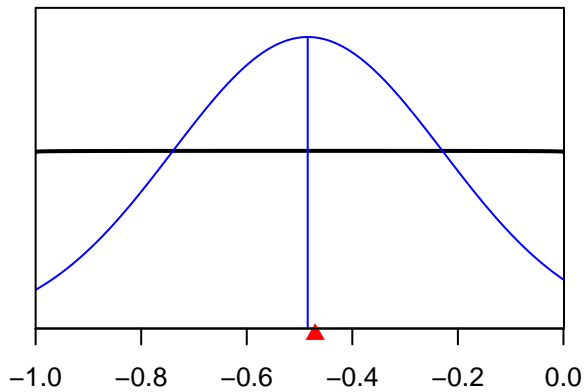
SizeSpline\_GradLo\_A2-NOADEL(19)



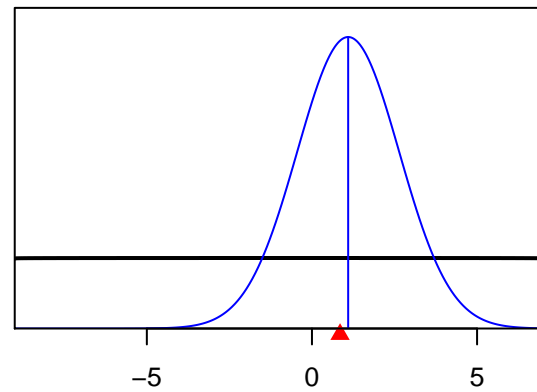
SizeSpline\_Val\_1\_A2-NOADEL(19)



SizeSpline\_GradHi\_A2-NOADEL(19)

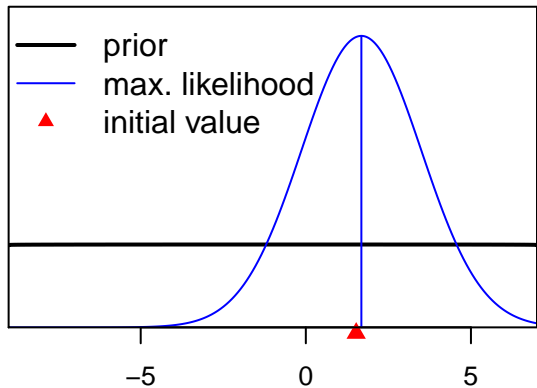


SizeSpline\_Val\_2\_A2-NOADEL(19)

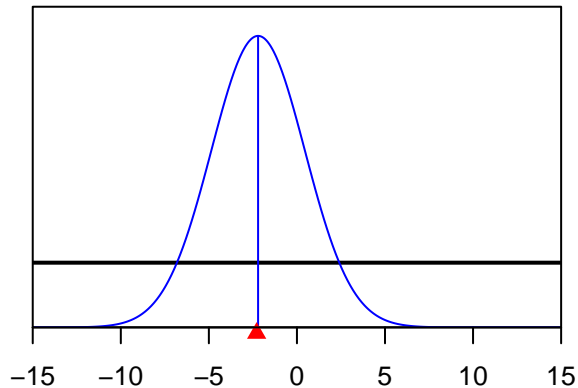


Parameter value

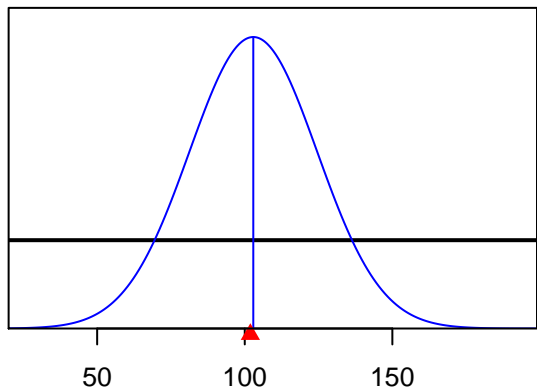
SizeSpline\_Val\_4\_A2-NOADEL(19)



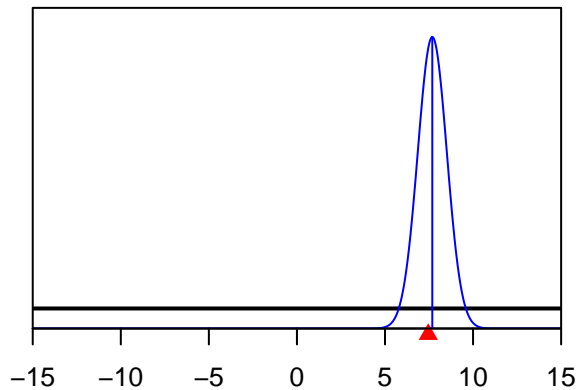
Size\_DbIN\_top\_logit\_A3-NOADEL(20)



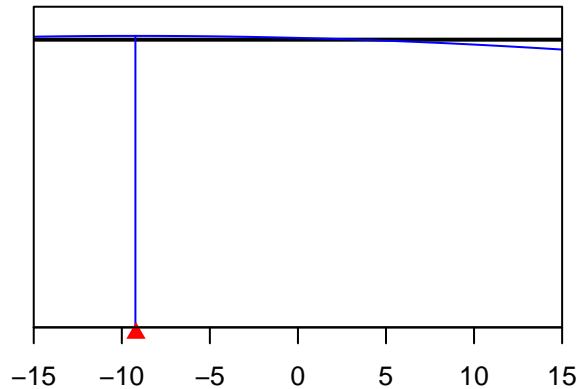
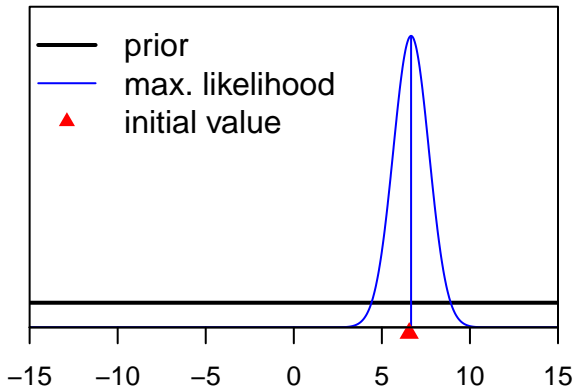
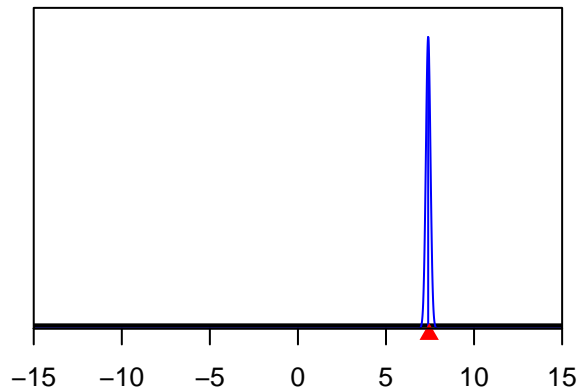
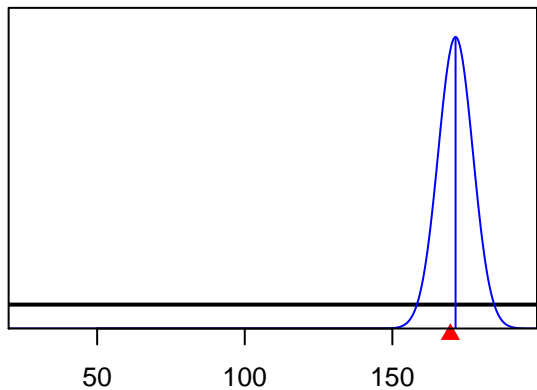
Size\_DbIN\_peak\_A3-NOADEL(20)



Size\_DbIN\_ascend\_se\_A3-NOADEL(20)

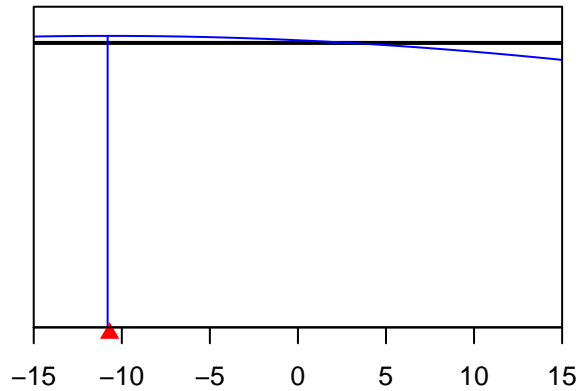
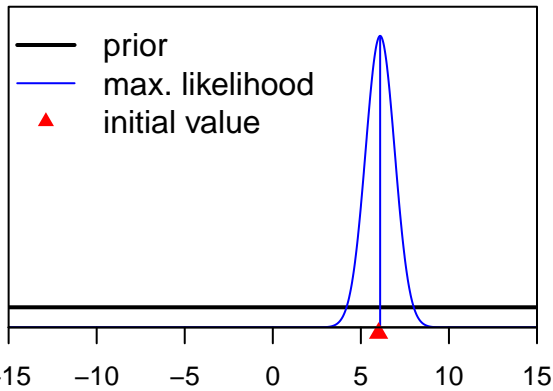


Parameter value

**Size\_DbIN\_descend\_se\_A3-NOADEL(20)****Size\_DbIN\_top\_logit\_EPO-LL-survey-early(24)****Size\_DbIN\_peak\_EPO-LL-survey-early(24)****ize\_DbIN\_ascend\_se\_EPO-LL-survey-early(24)**

Parameter value

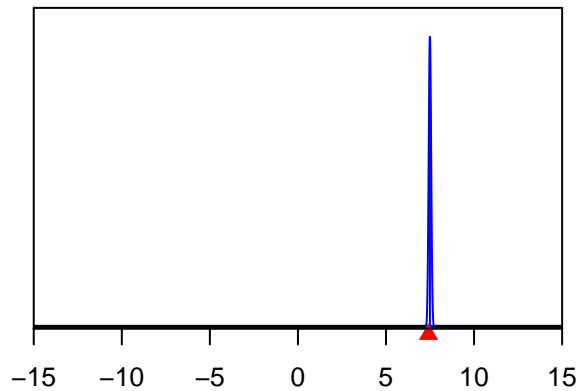
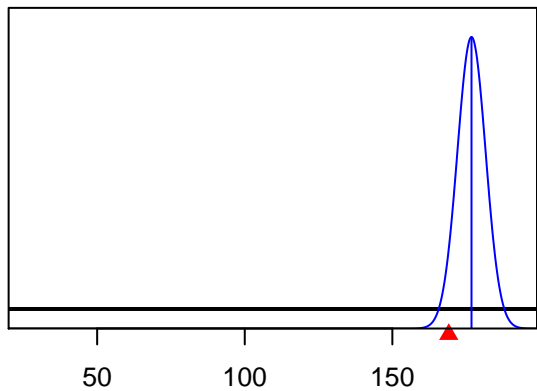
ze\_DbIN\_descend\_se\_EPO-LL-survey-early(2) Size\_DbIN\_top\_logit\_EPO-LL-survey-late(25)



Density

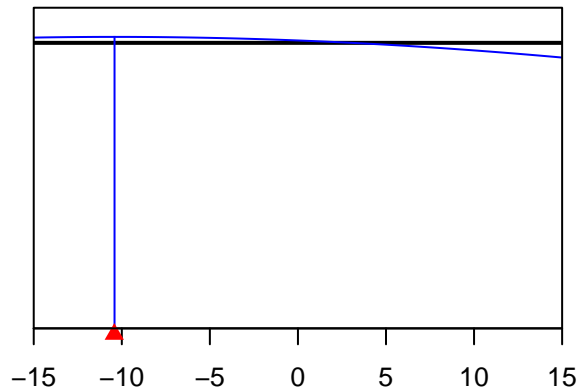
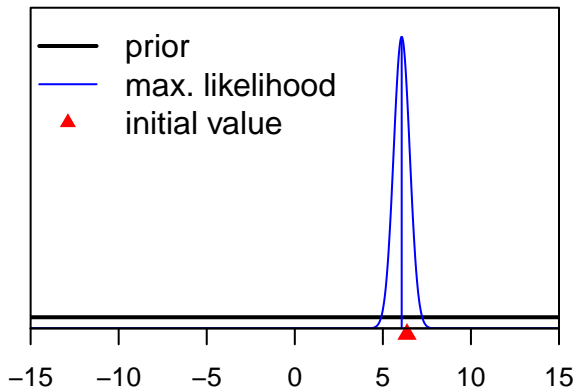
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Size\_DbIN\_ascend\_se\_EPO-LL-survey-late(25)



Parameter value

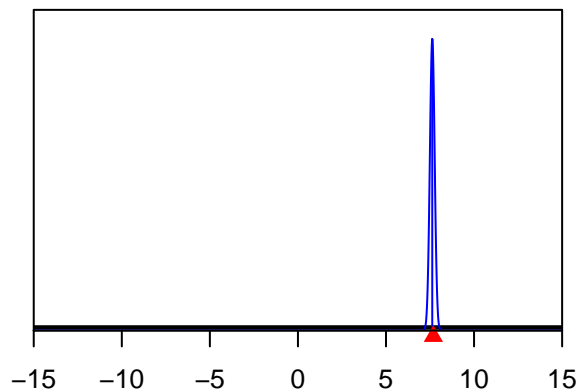
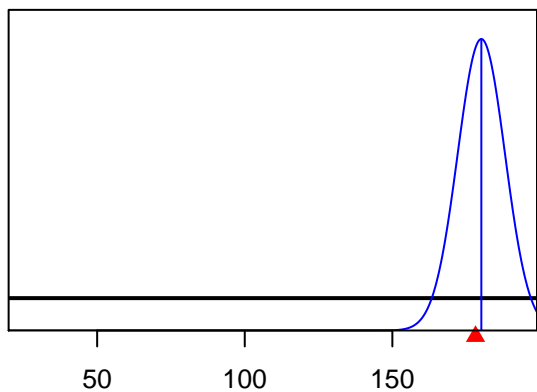
ize\_DbIN\_descend\_se\_EPO-LL-survey-late(2)Size\_DbIN\_top\_logit\_A2-LL-n(2)\_BLK2repl\_17



Density

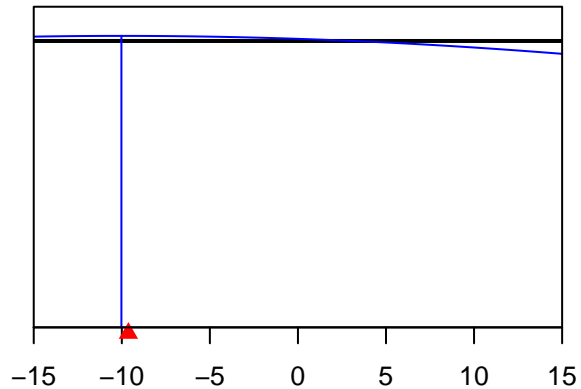
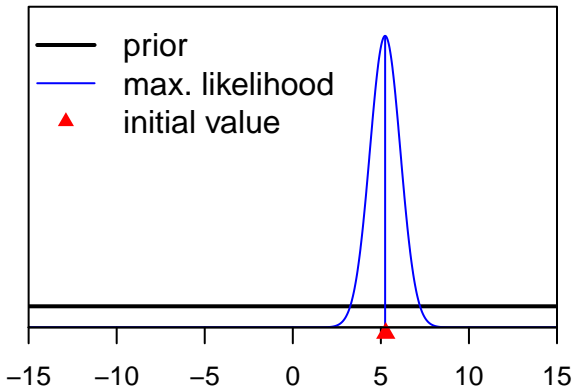
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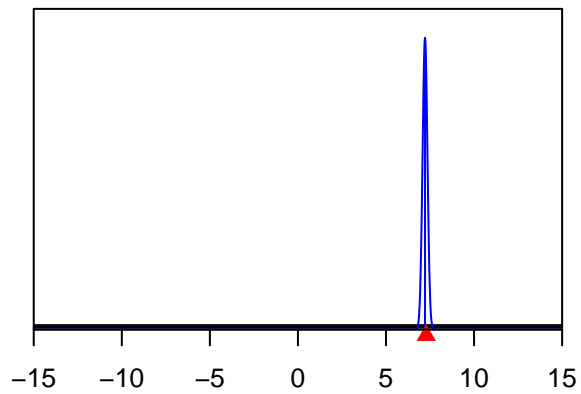
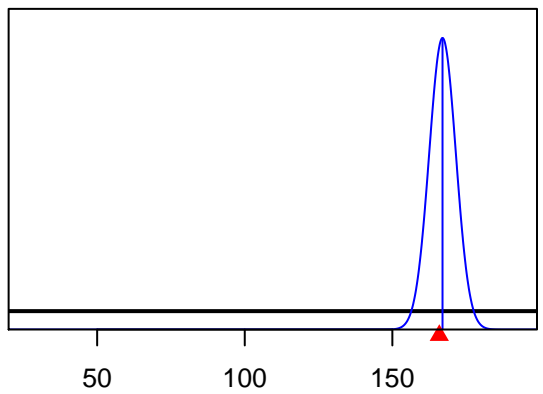
Parameter value

ize\_DbIN\_descend\_se\_A2-LL-n(2)\_BLK2repl\_Size\_DbIN\_top\_logit\_A3-LL-n(3)\_BLK2repl\_17



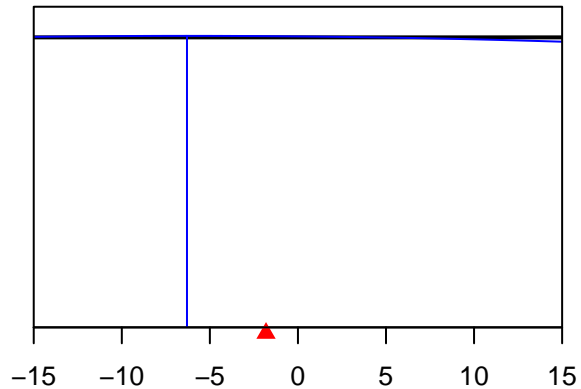
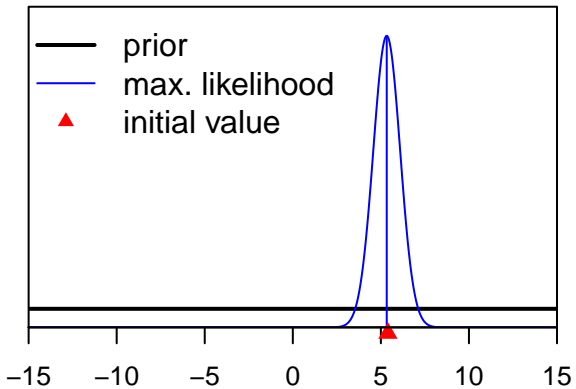
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Parameter value

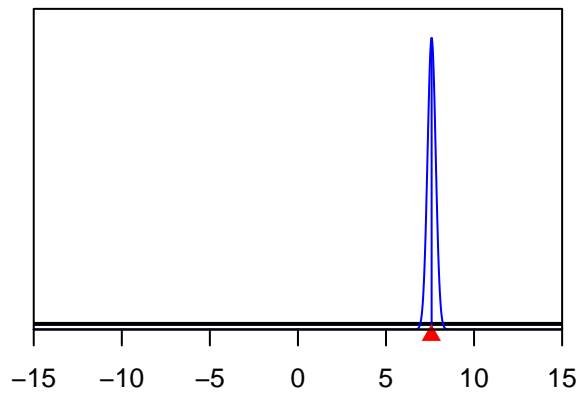
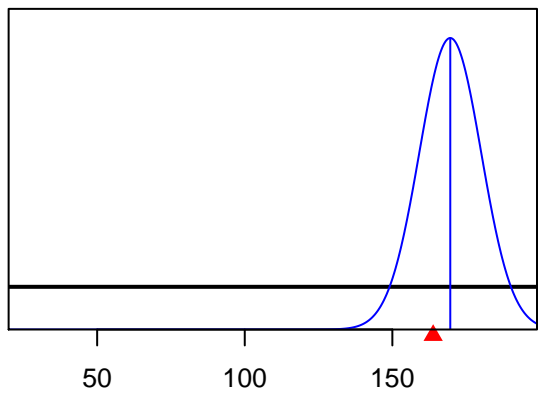
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Density

Size\_DbIN\_peak\_A4-LL-n(4)\_BLK2repl\_17

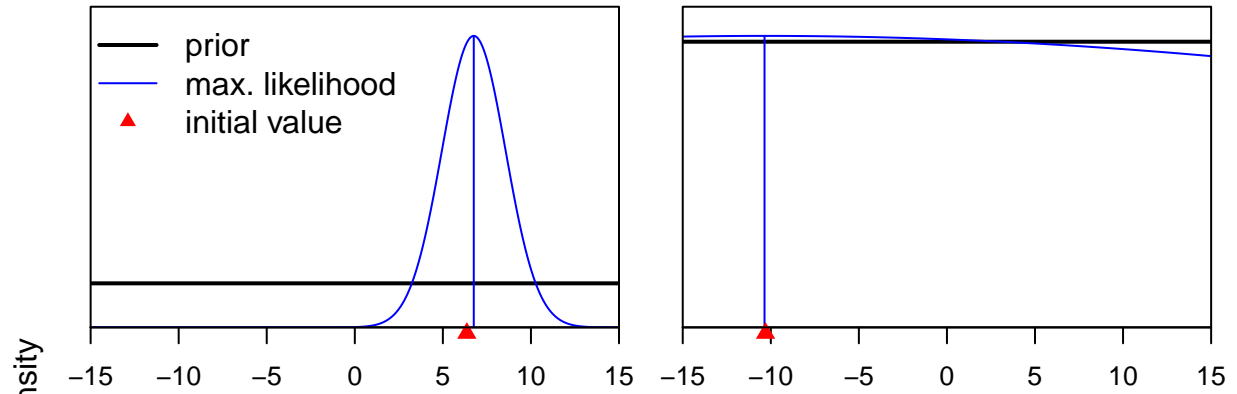
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Parameter value

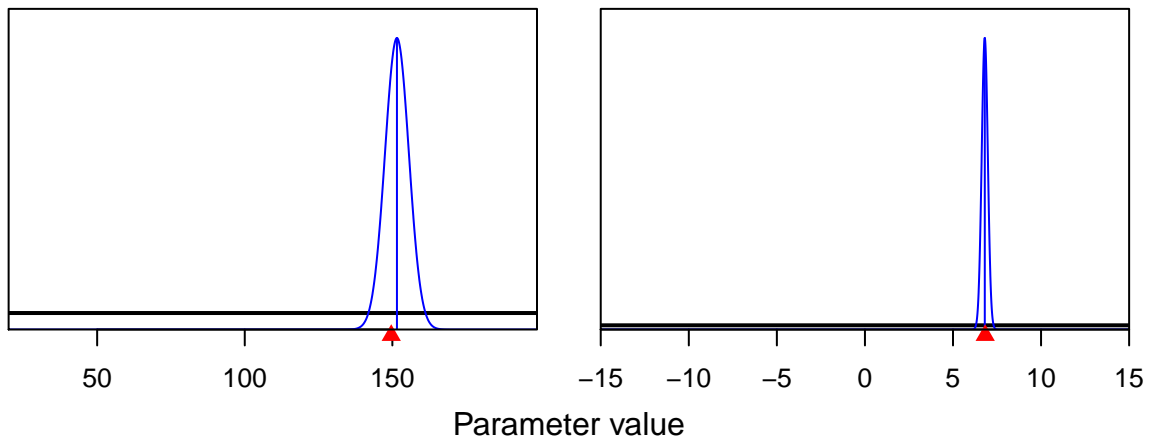


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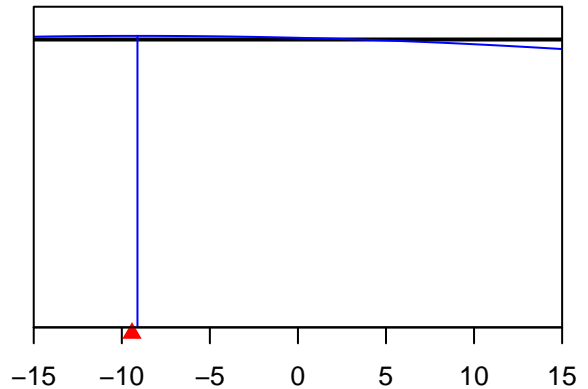
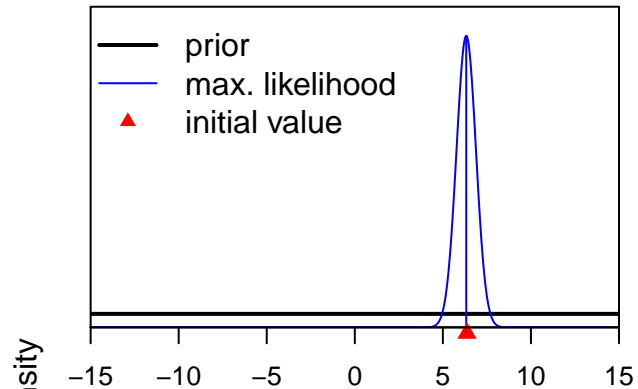


Size\_DbIN\_peak\_A5-LL-n(5)\_BLK2repl\_17

ize\_DbIN\_ascend\_se\_A5-LL-n(5)\_BLK2repl\_17

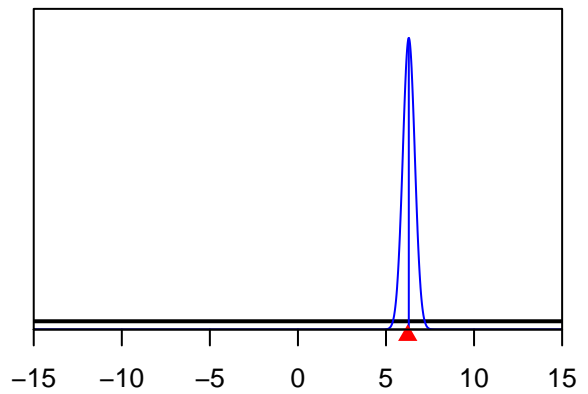
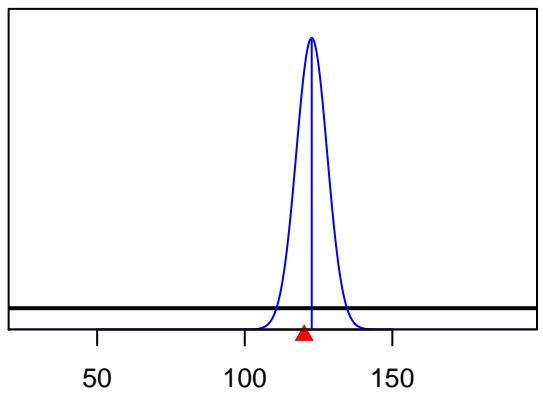


ize\_DbIN\_descend\_se\_A5-LL-n(5)\_BLK2repl\_Size\_DbIN\_top\_logit\_A6-LL-n(6)\_BLK2repl\_17



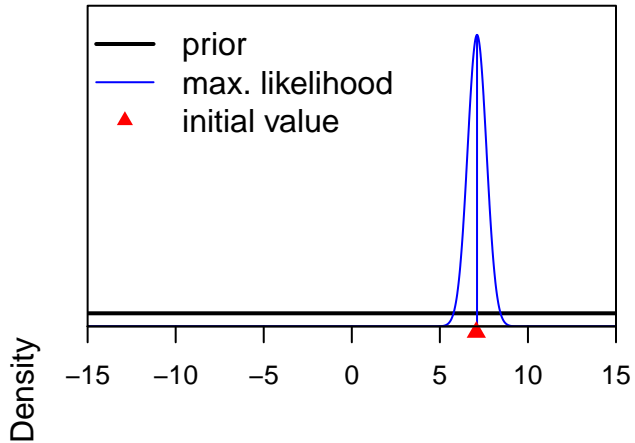
Size\_DbIN\_peak\_A6-LL-n(6)\_BLK2repl\_17

ize\_DbIN\_ascend\_se\_A6-LL-n(6)\_BLK2repl\_17



Parameter value

ize\_DbIN\_descend\_se\_A6-LL-n(6)\_BLK2repl\_1



Parameter value