

Plots created using the 'r4ss' package in R

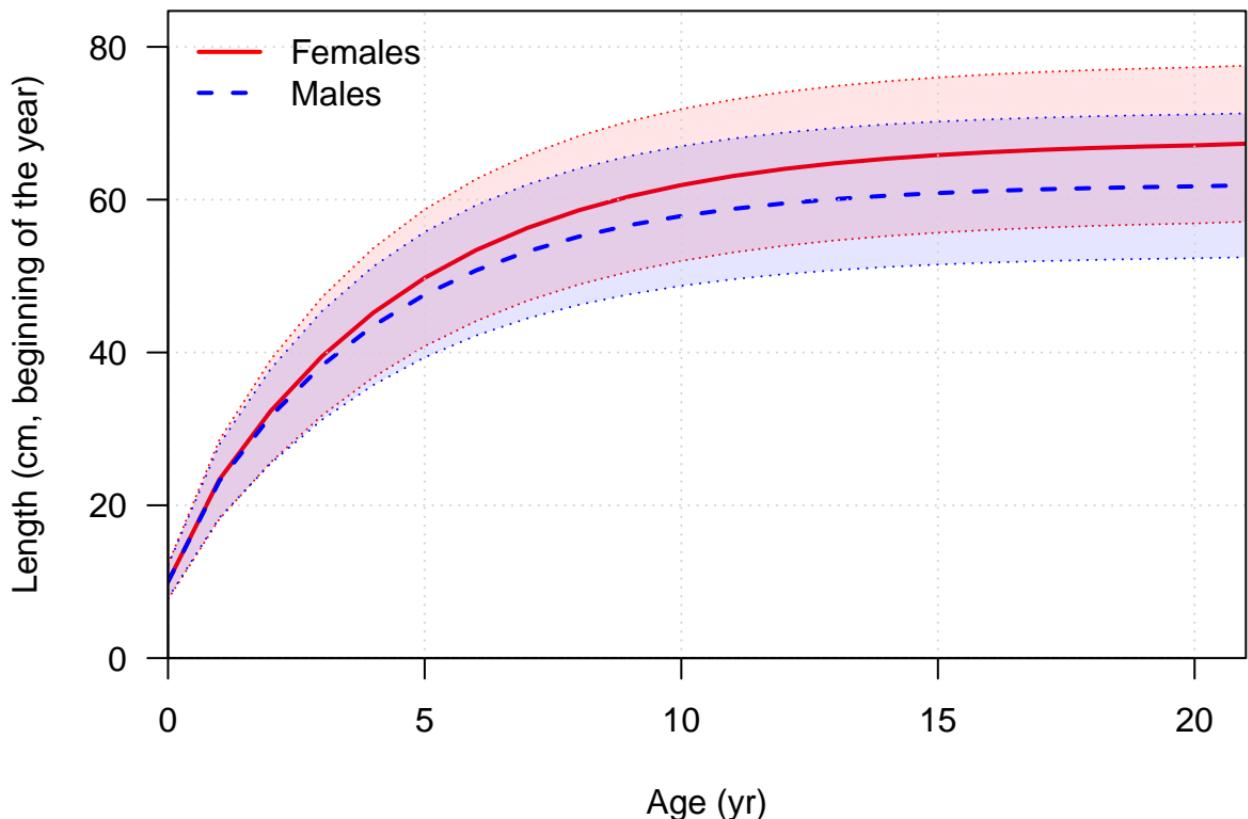
Stock Synthesis version: SS-V3.24U

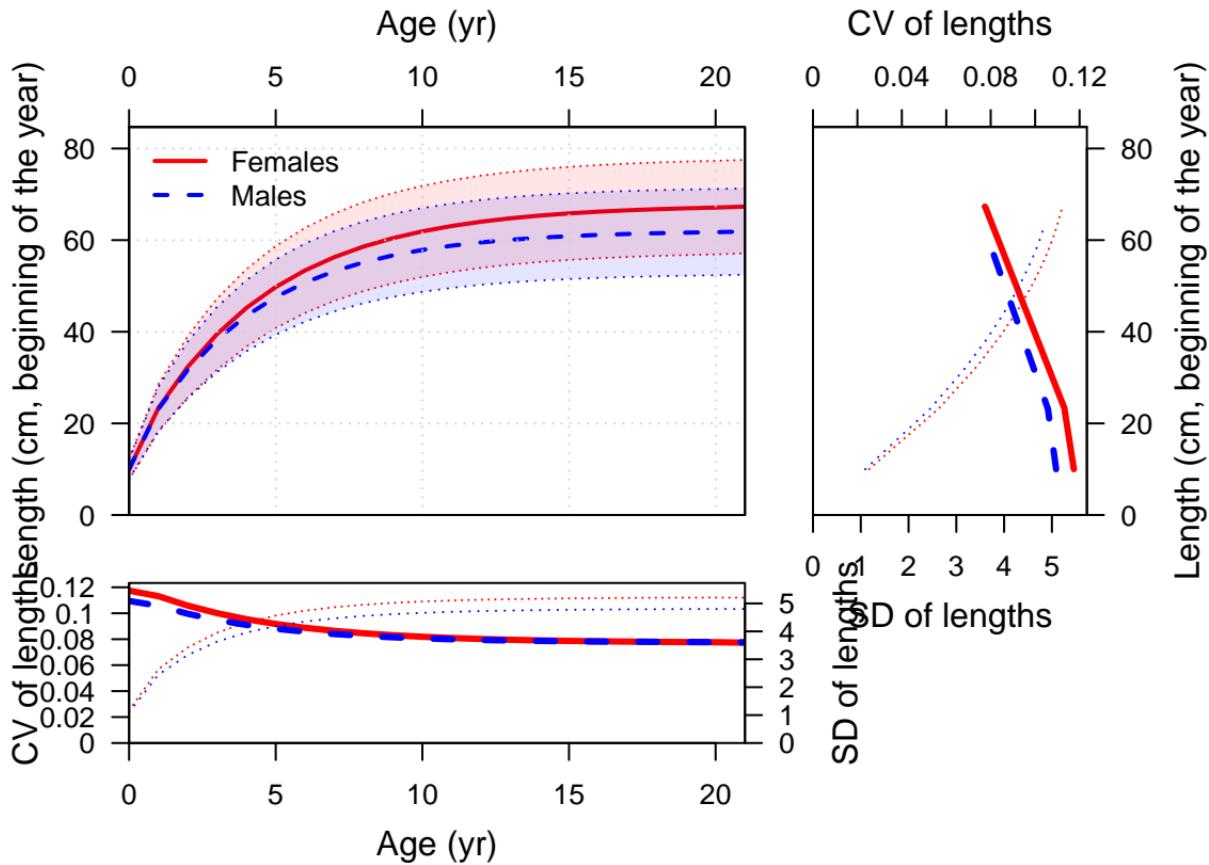
StartTime: Sat Apr 29 08:16:33 2017

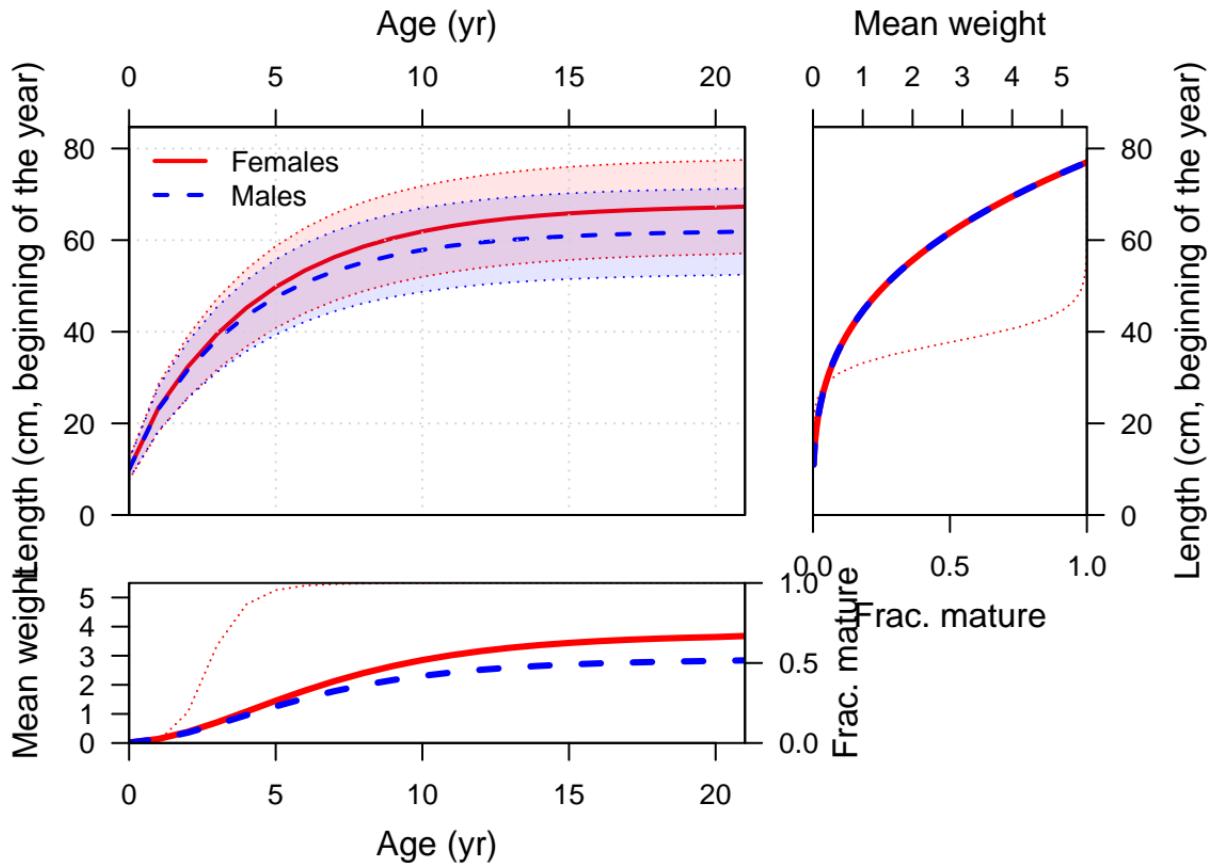
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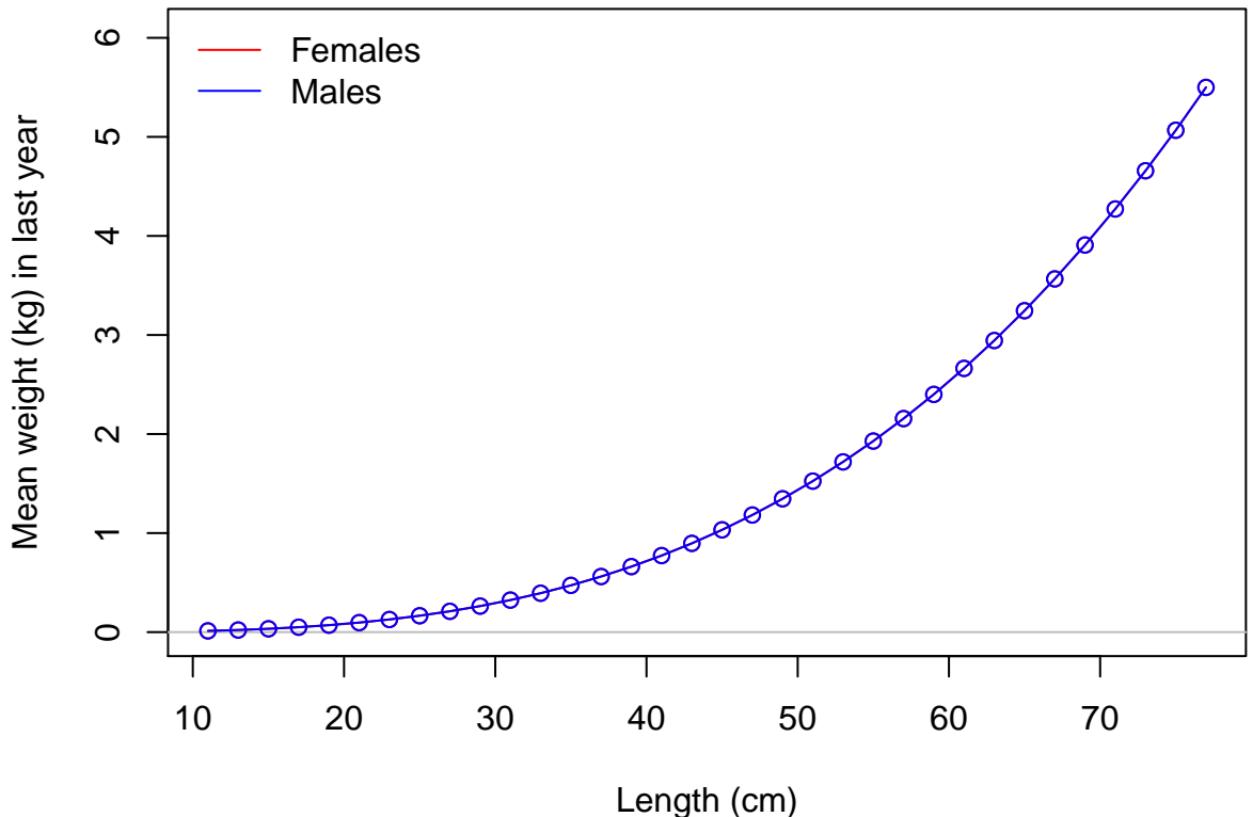
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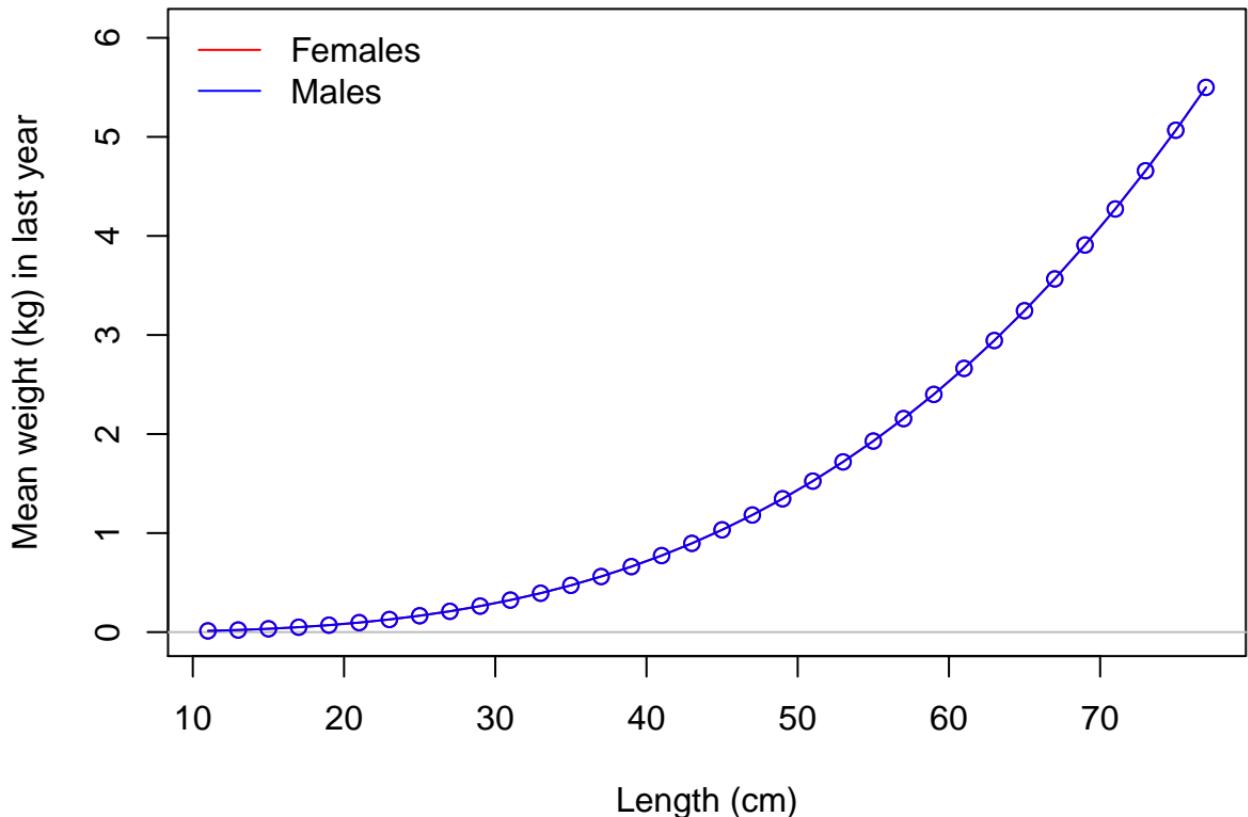
## Ending year expected growth (with 95% intervals)

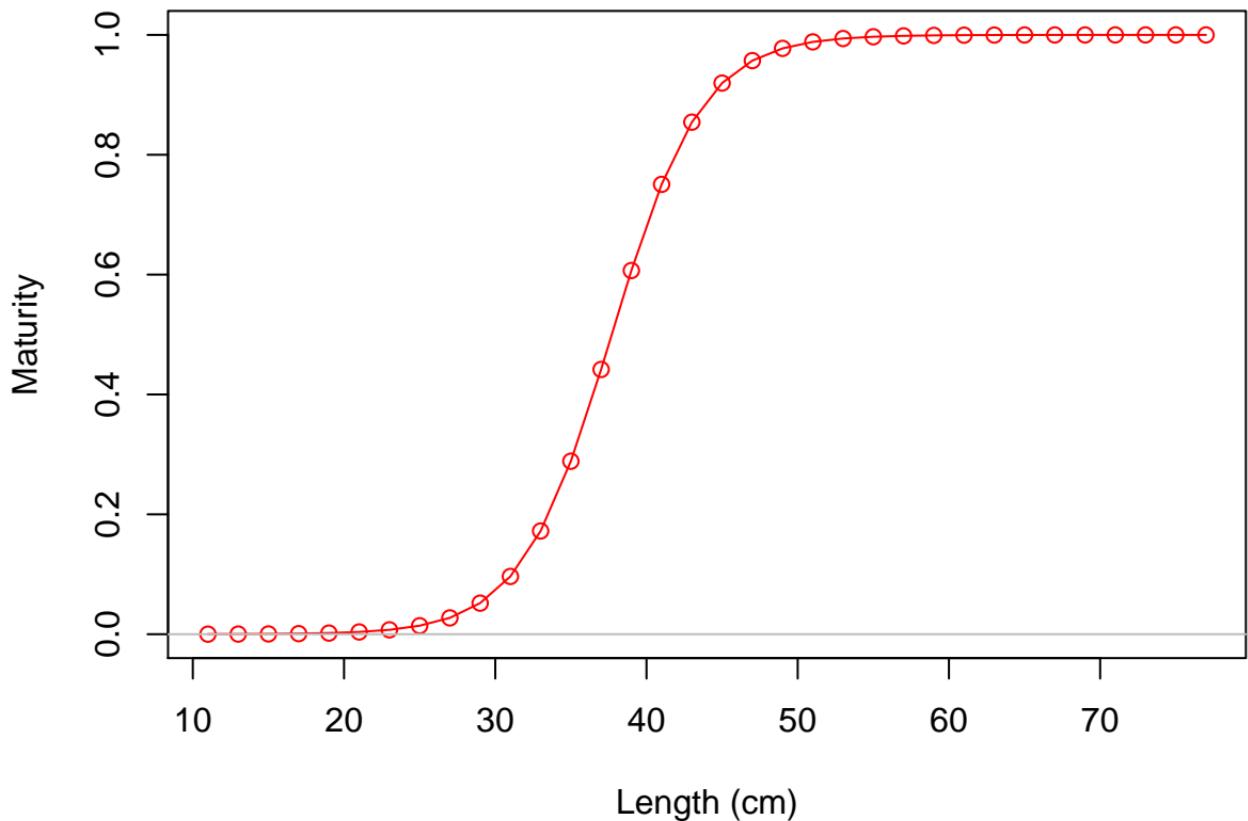


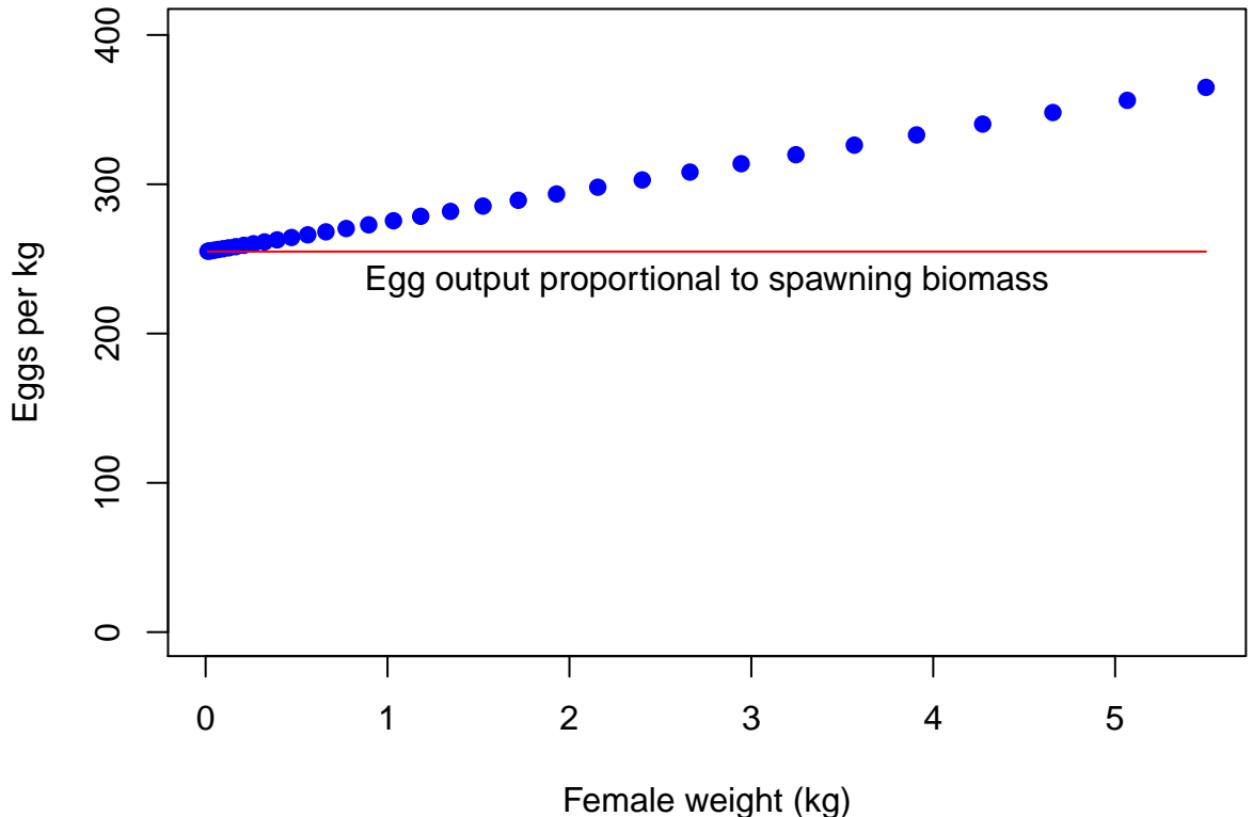


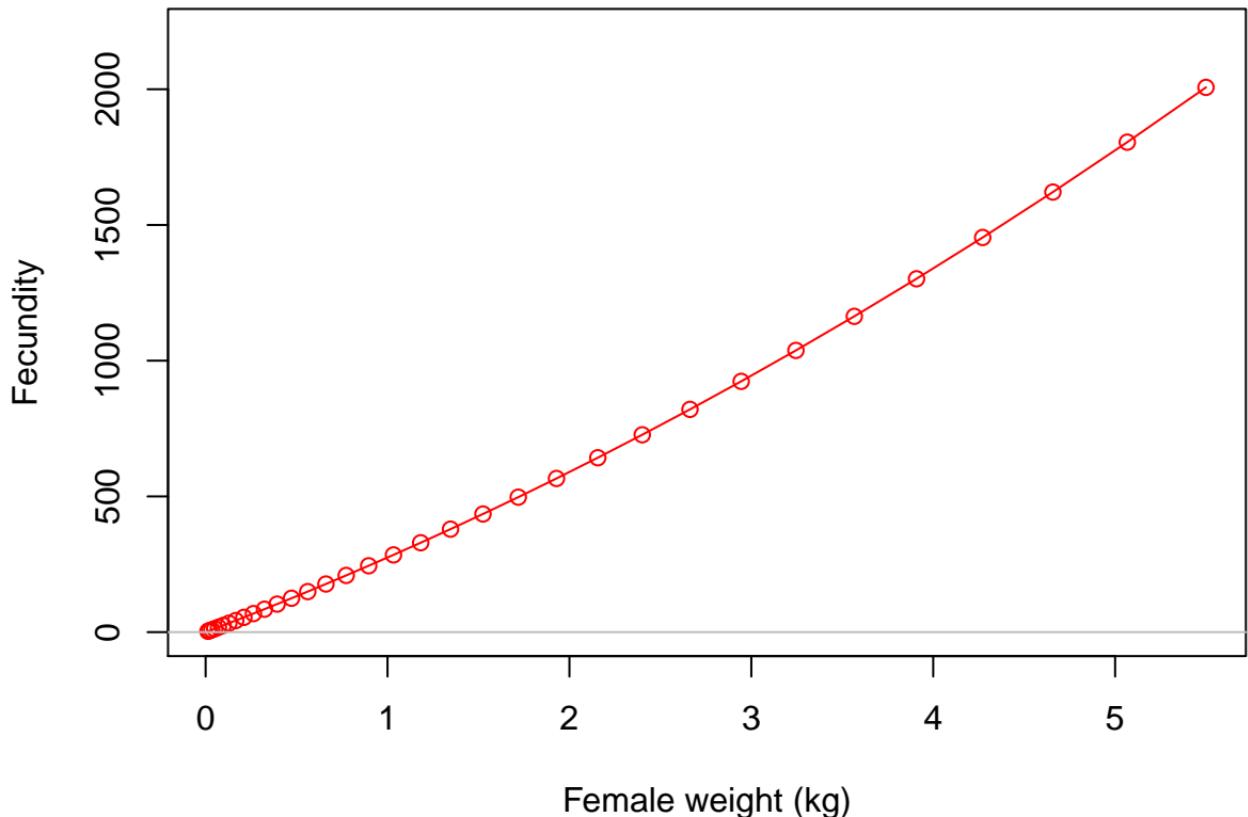


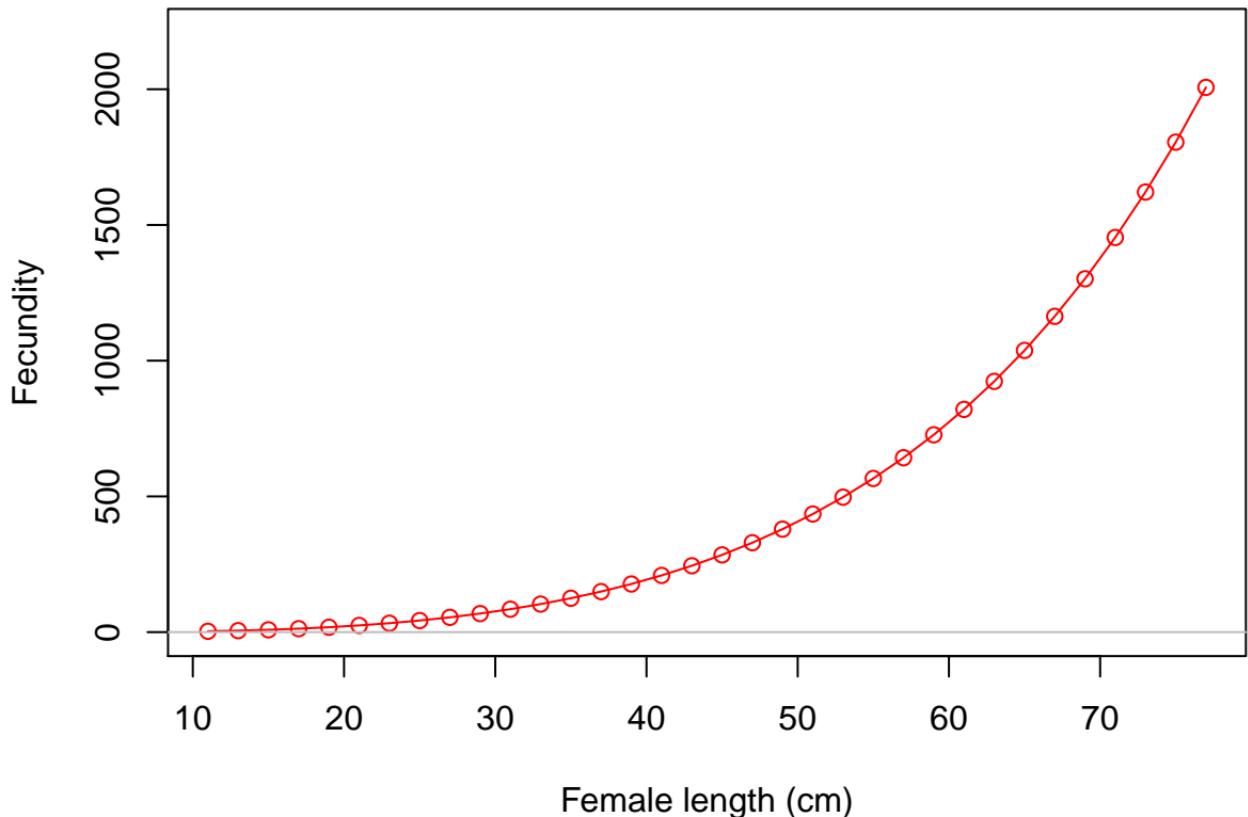


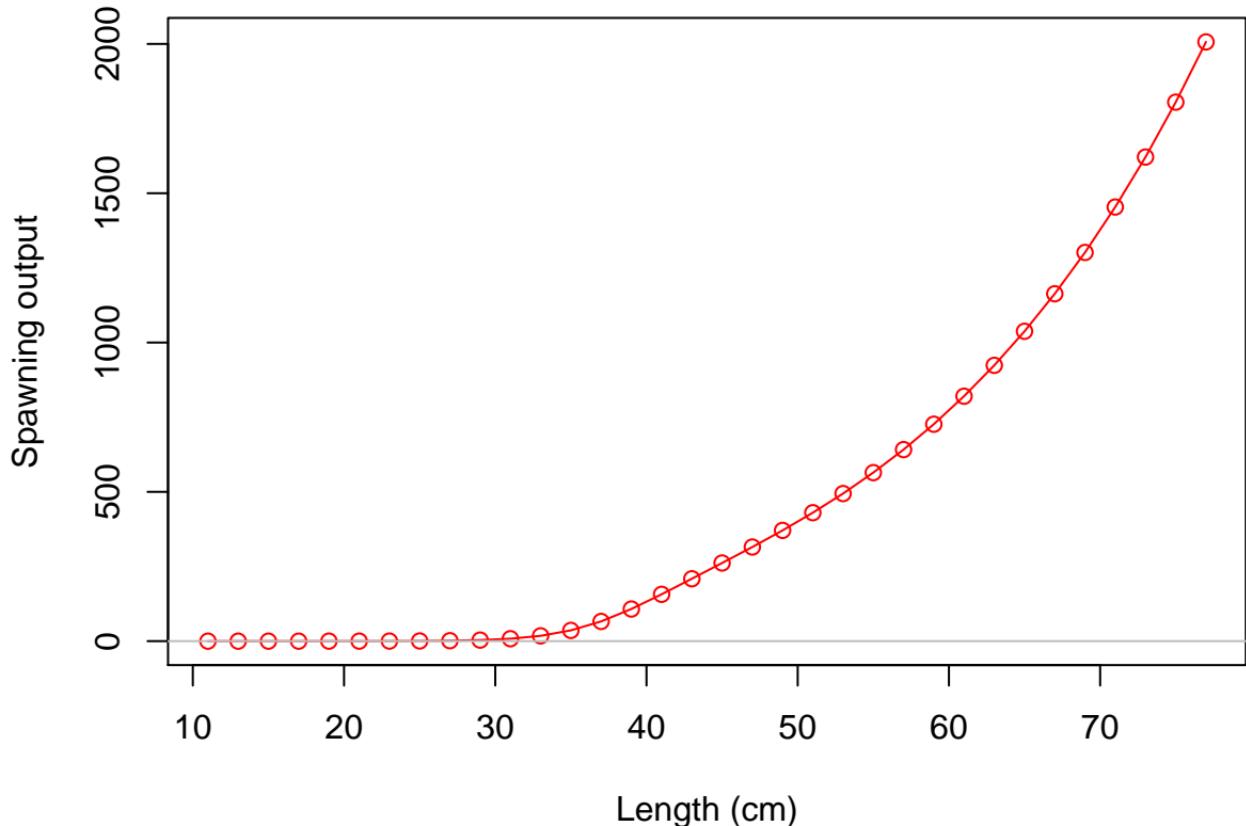




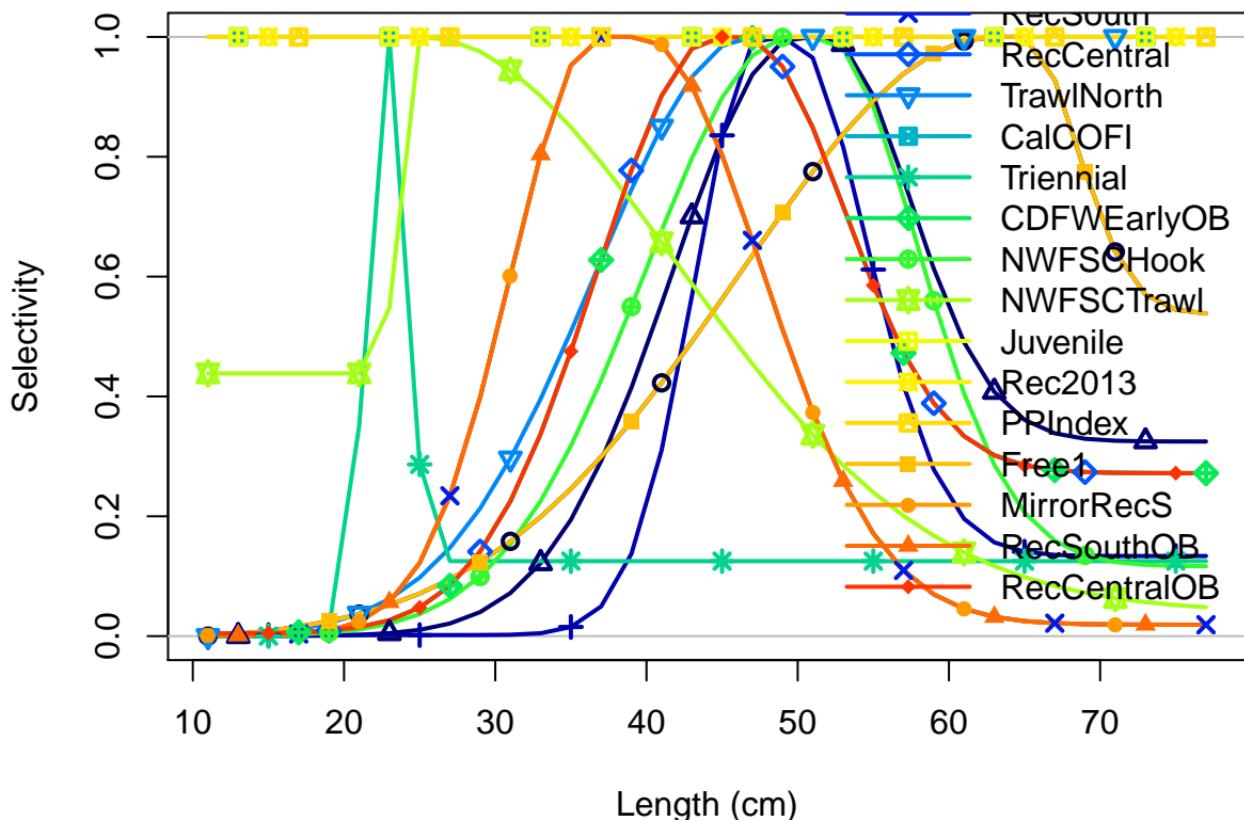




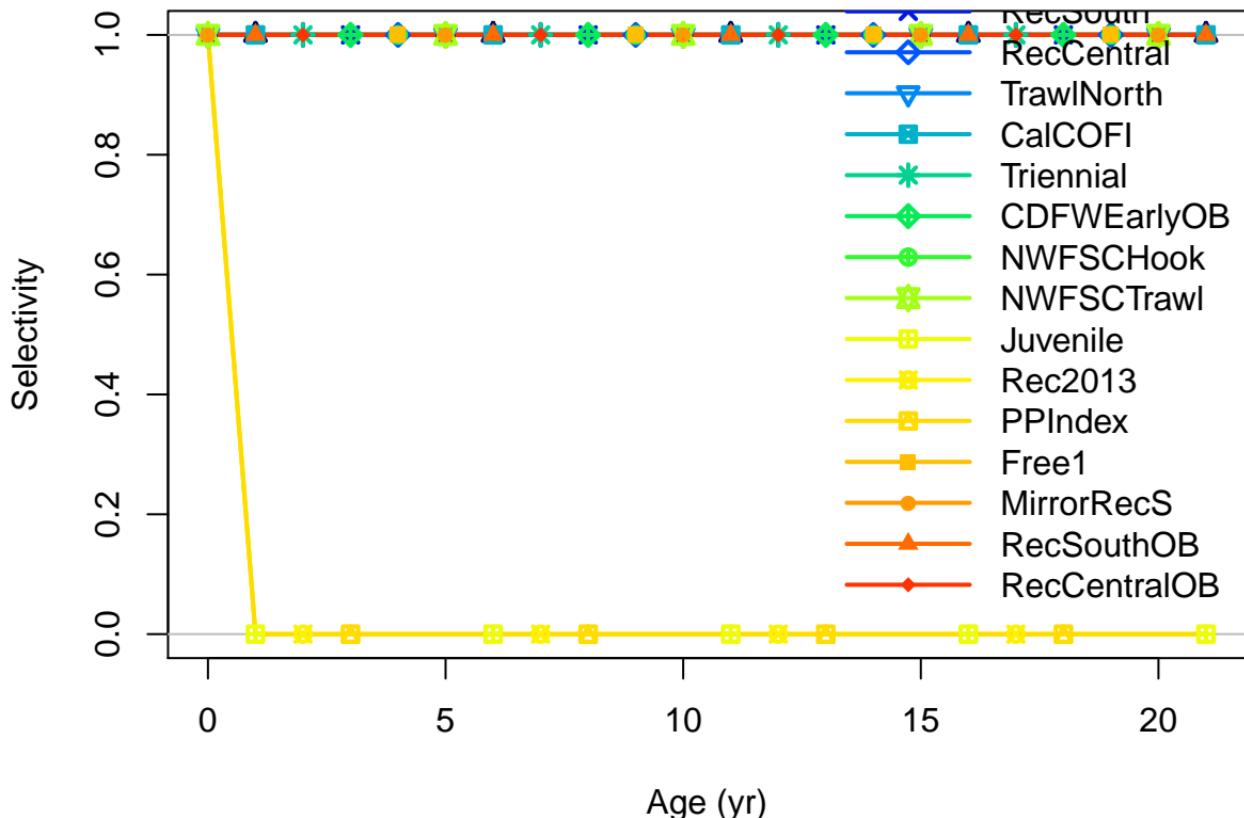




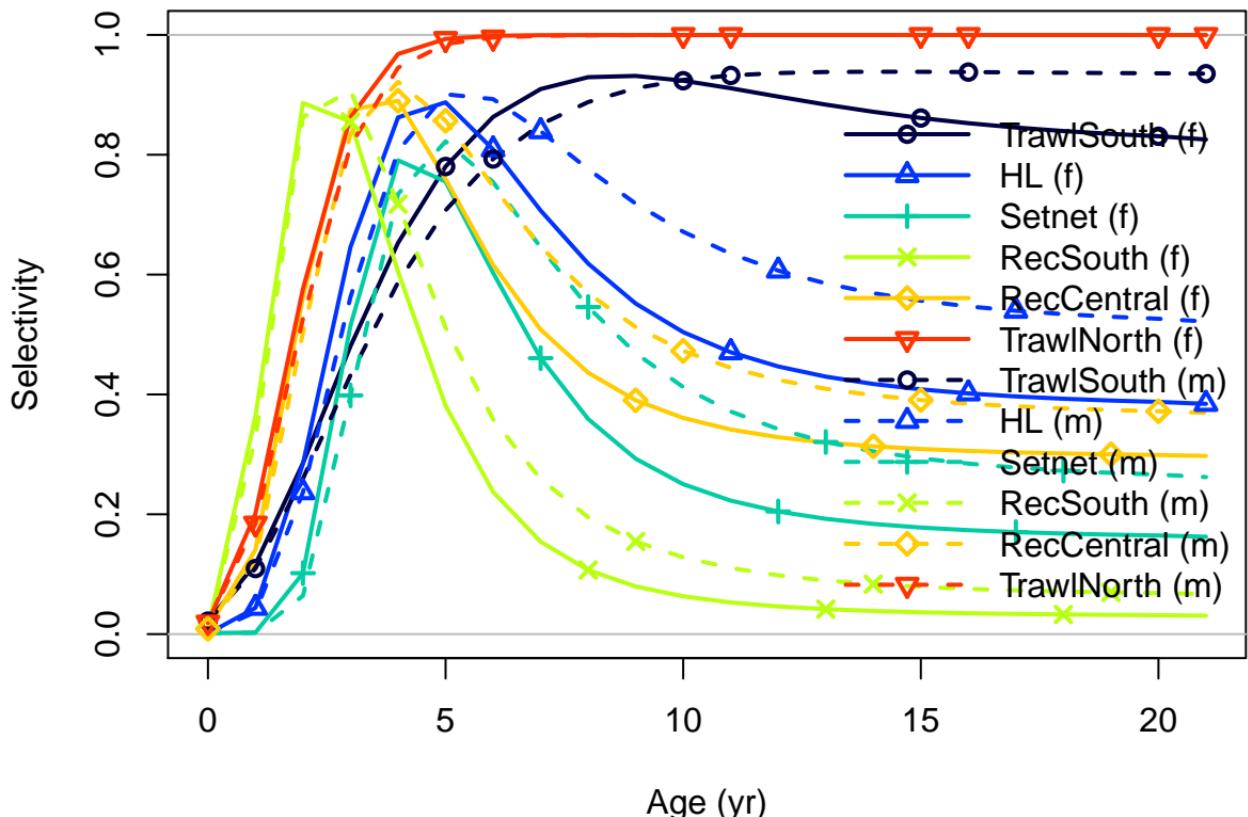
## Length-based selectivity by fleet in 2016



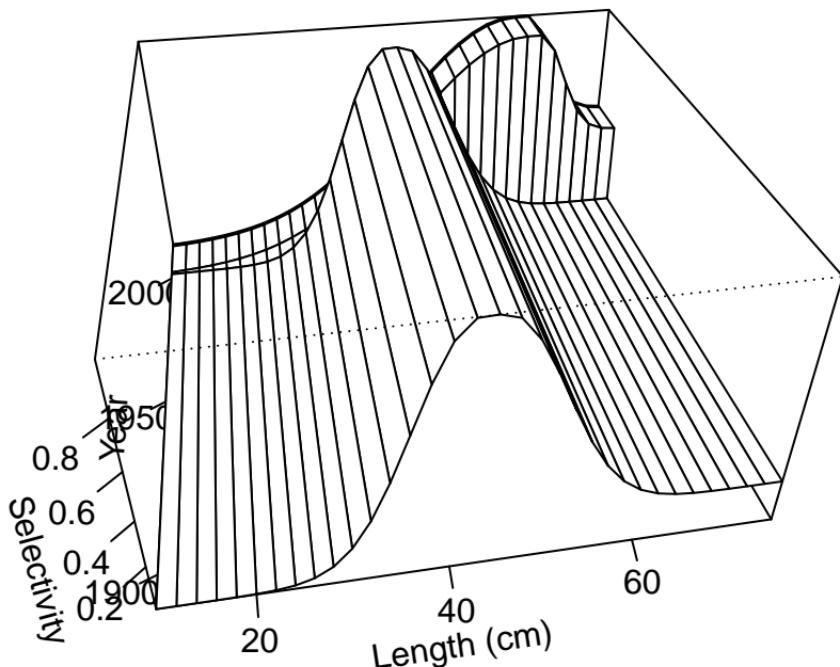
## Age-based selectivity by fleet in 2016



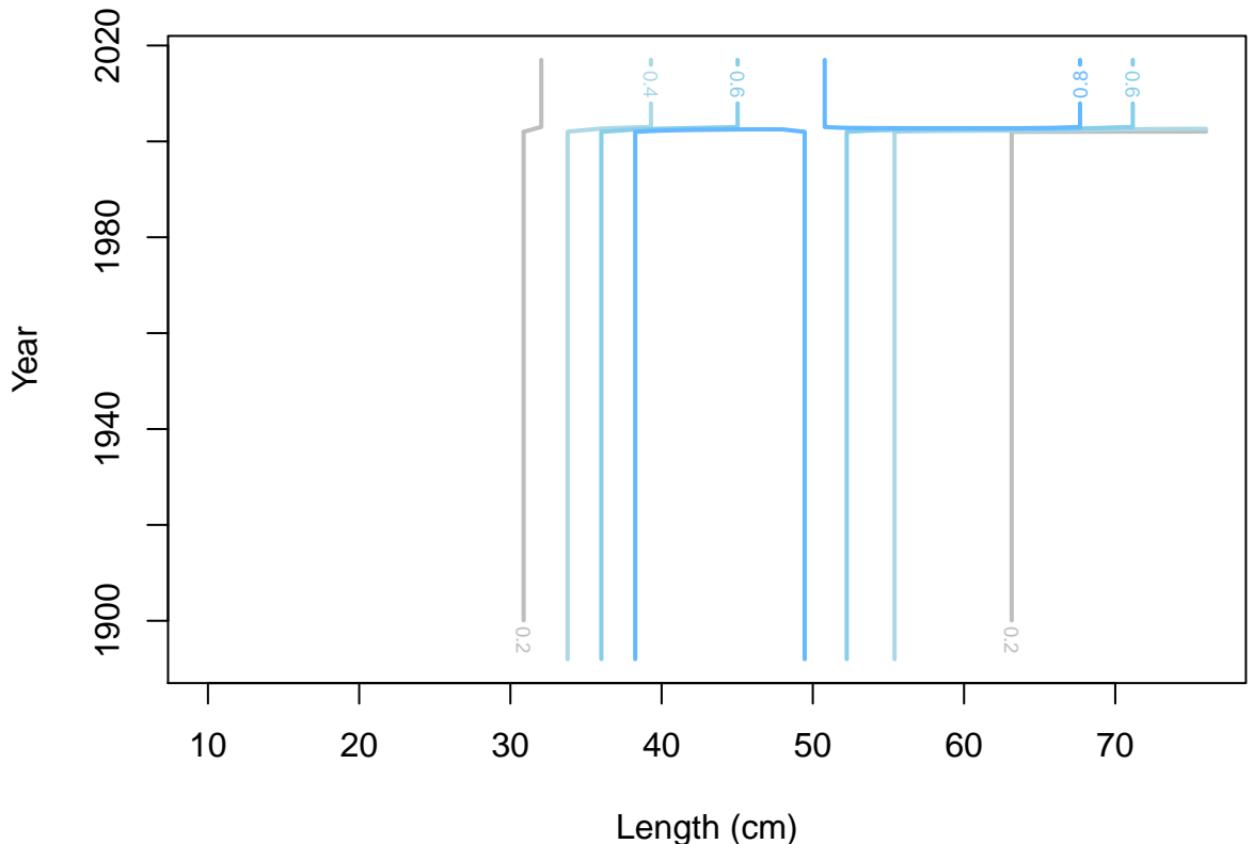
## Derived age-based from length-based selectivity by fleet in 2016



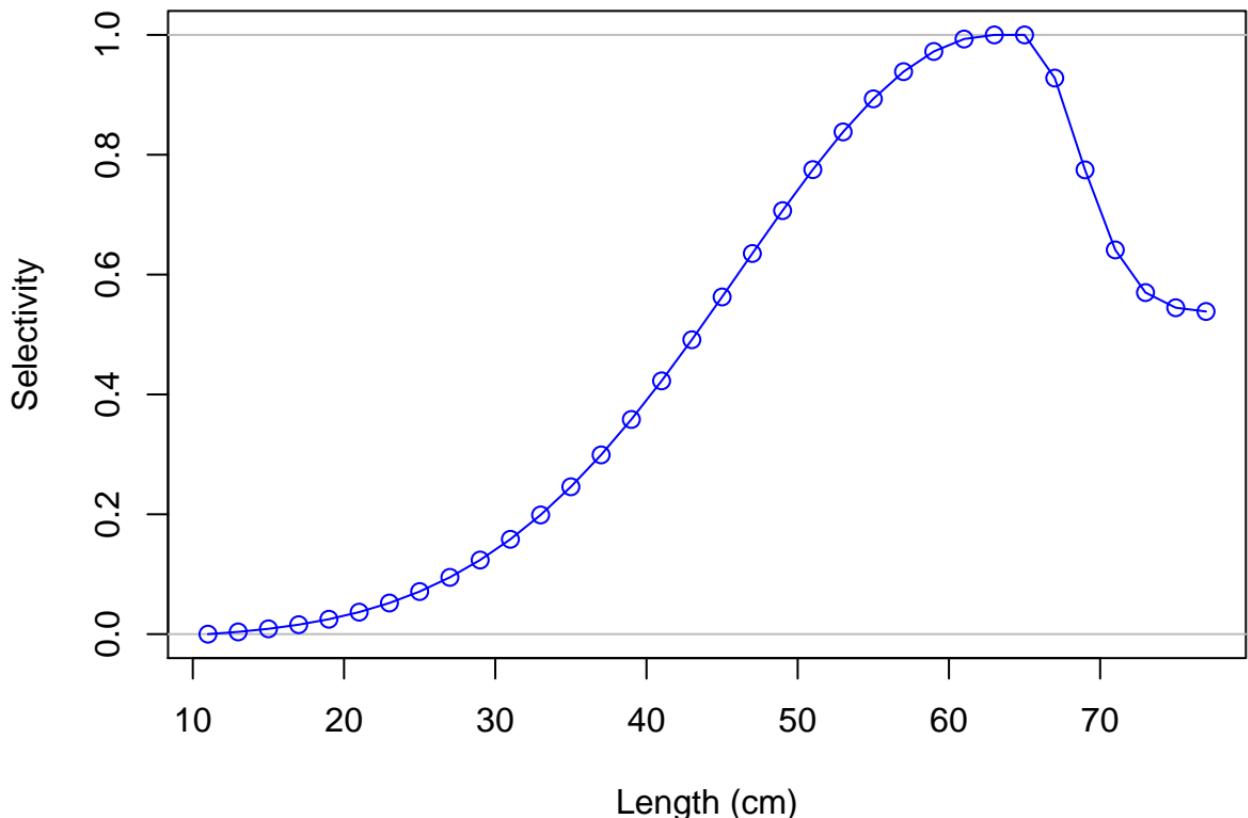
## Female time-varying selectivity for TrawlSouth



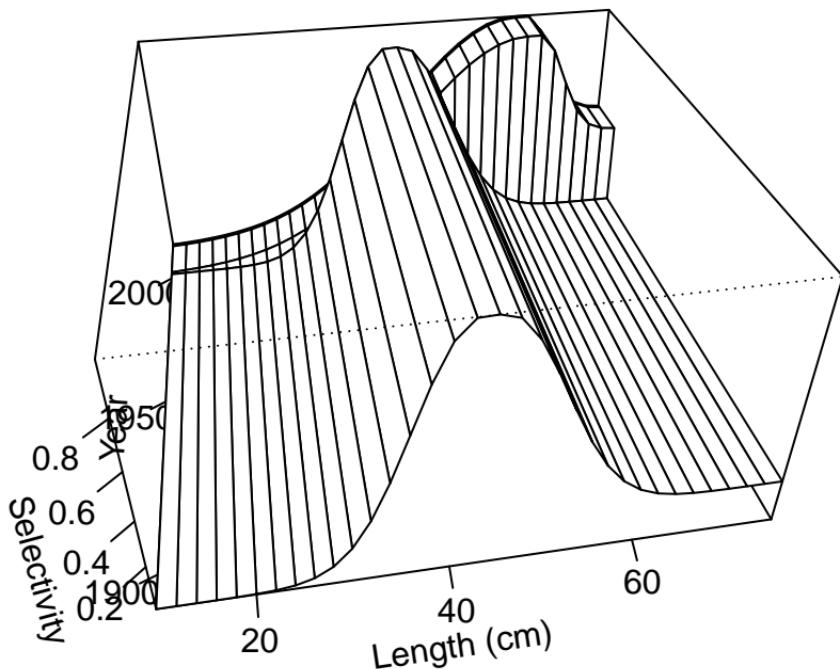
## Female time-varying selectivity for TrawlSouth



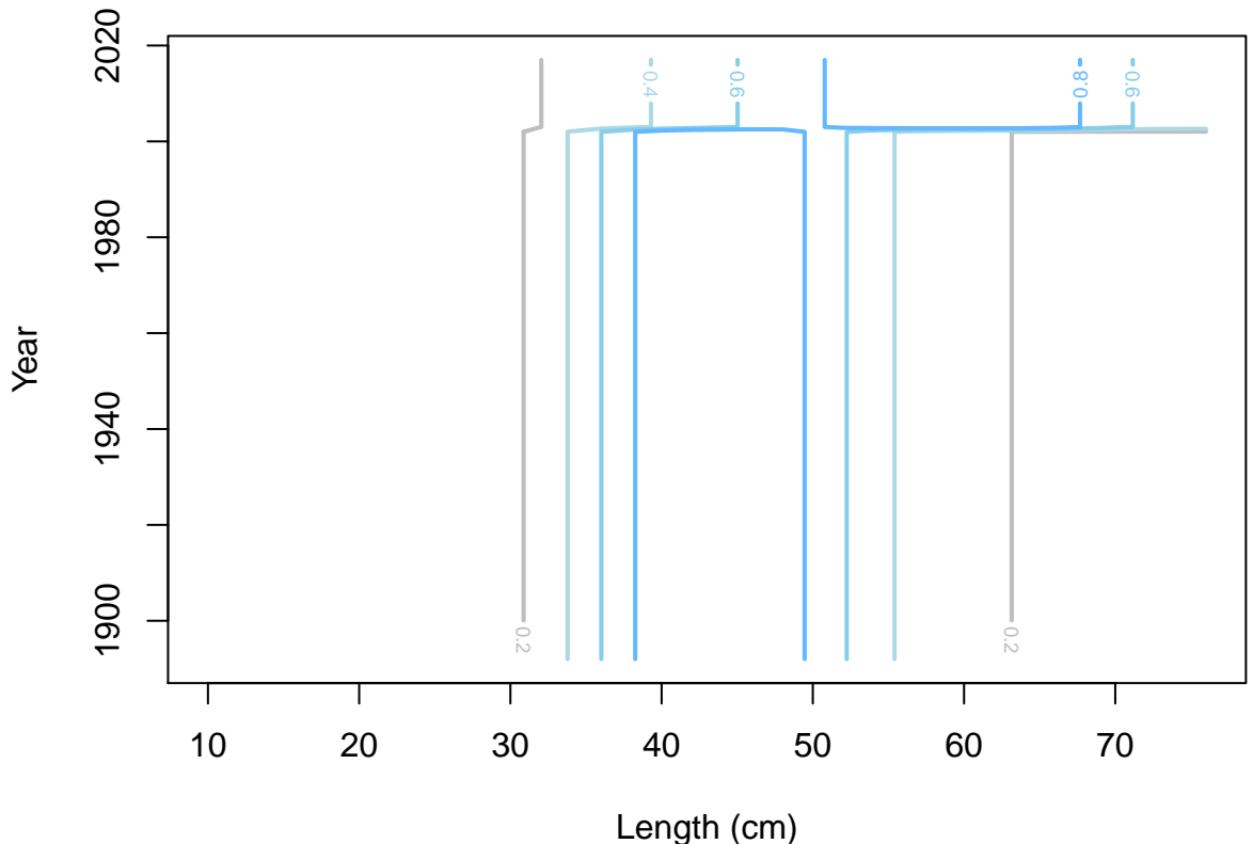
## Female ending year selectivity for TrawlSouth



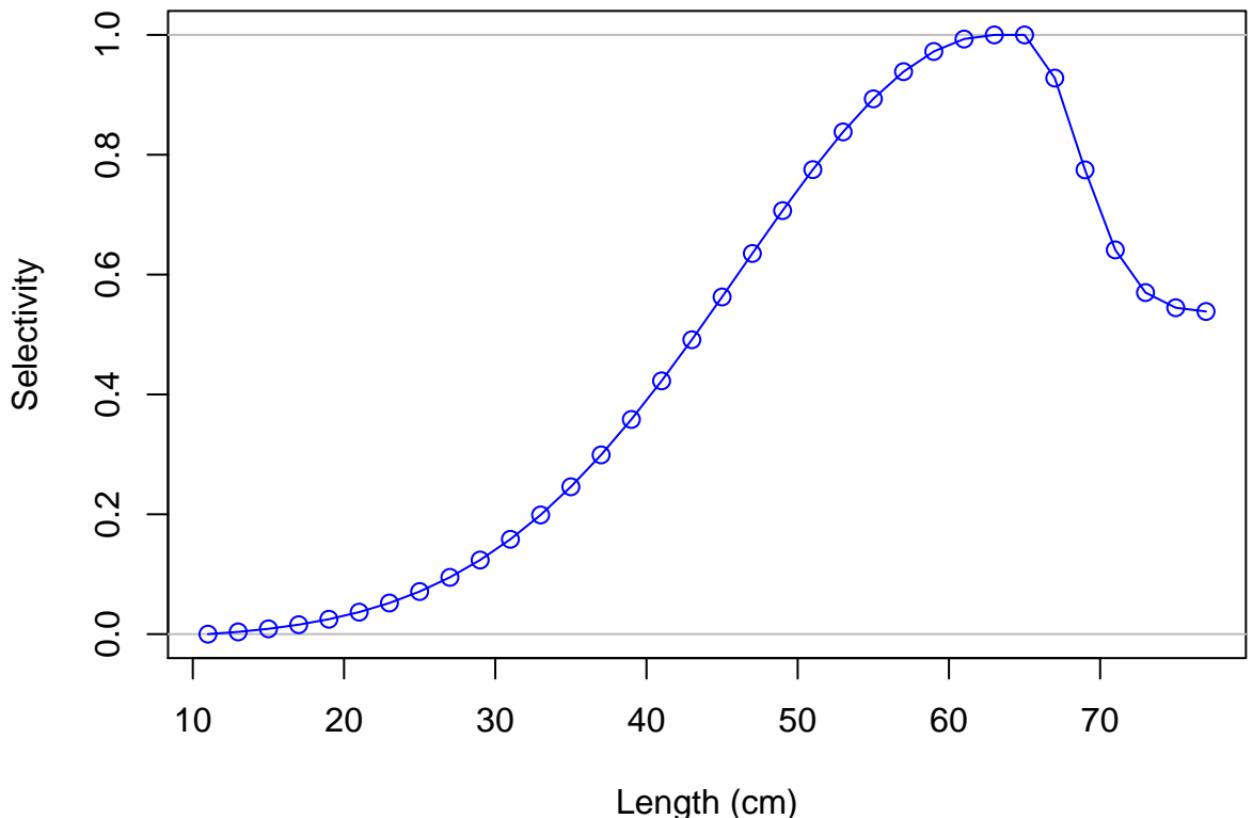
## Male time-varying selectivity for TrawlSouth



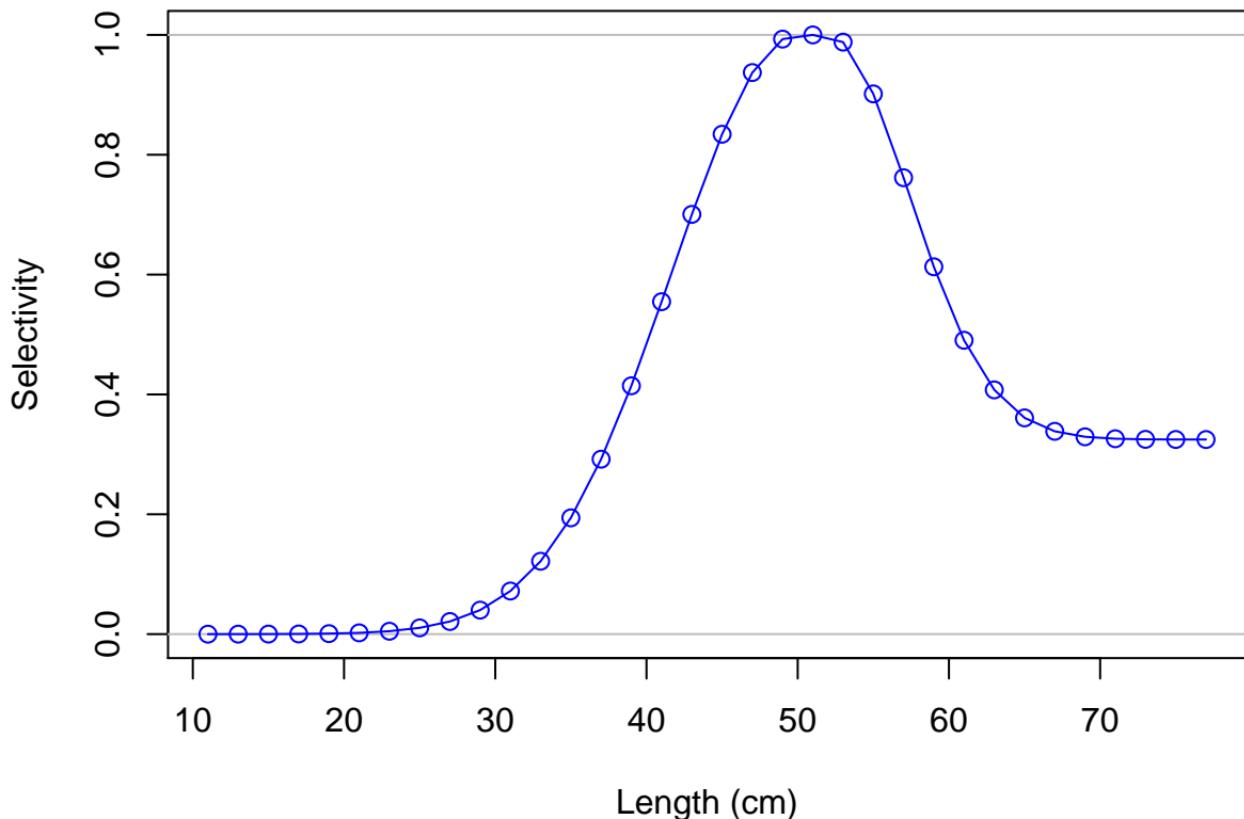
## Male time-varying selectivity for TrawlSouth



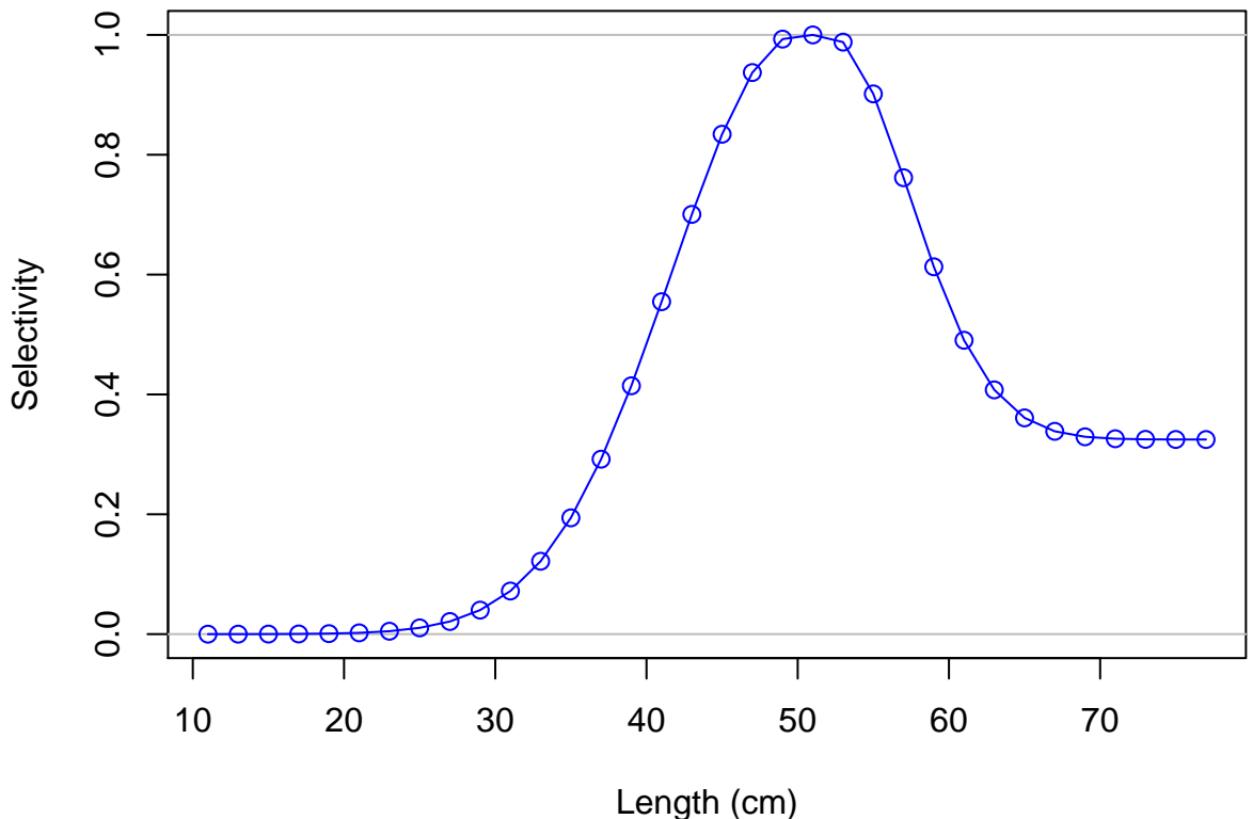
## Male ending year selectivity for TrawlSouth



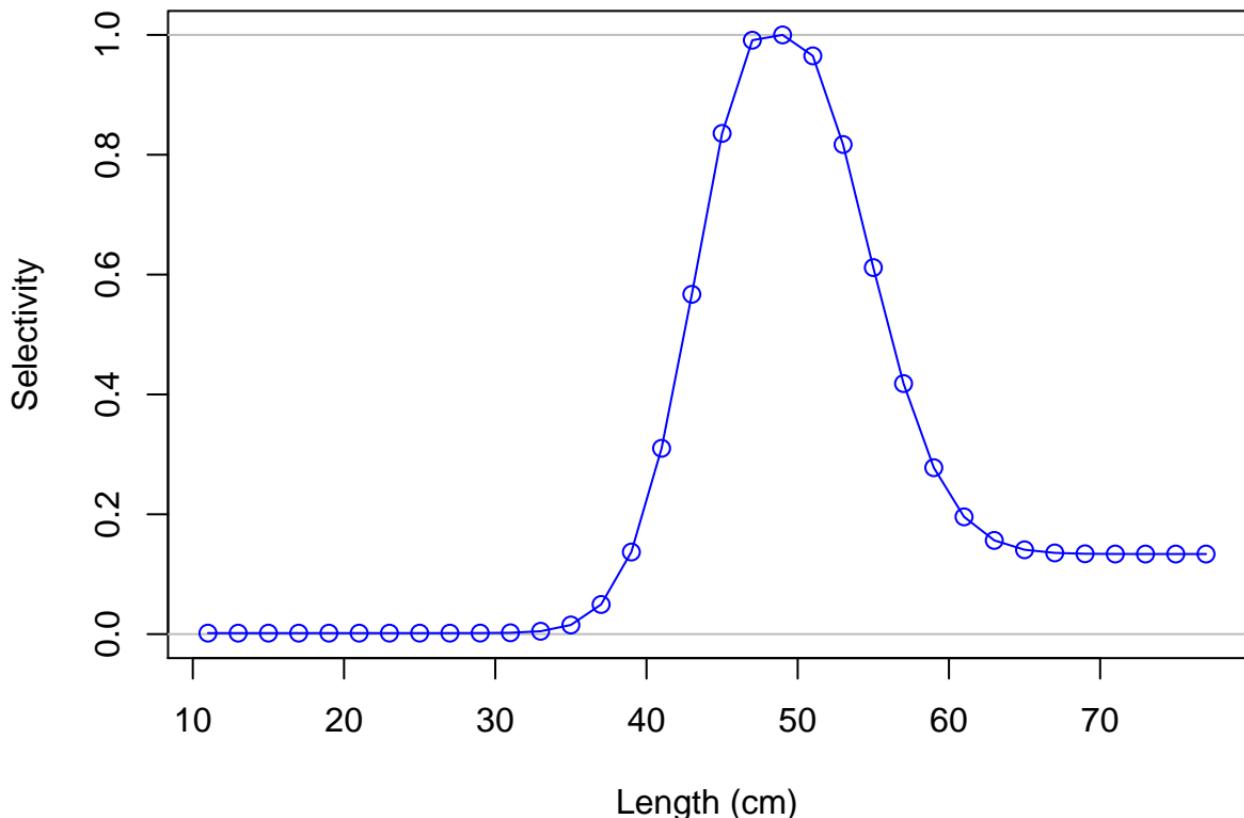
## Female ending year selectivity for HL



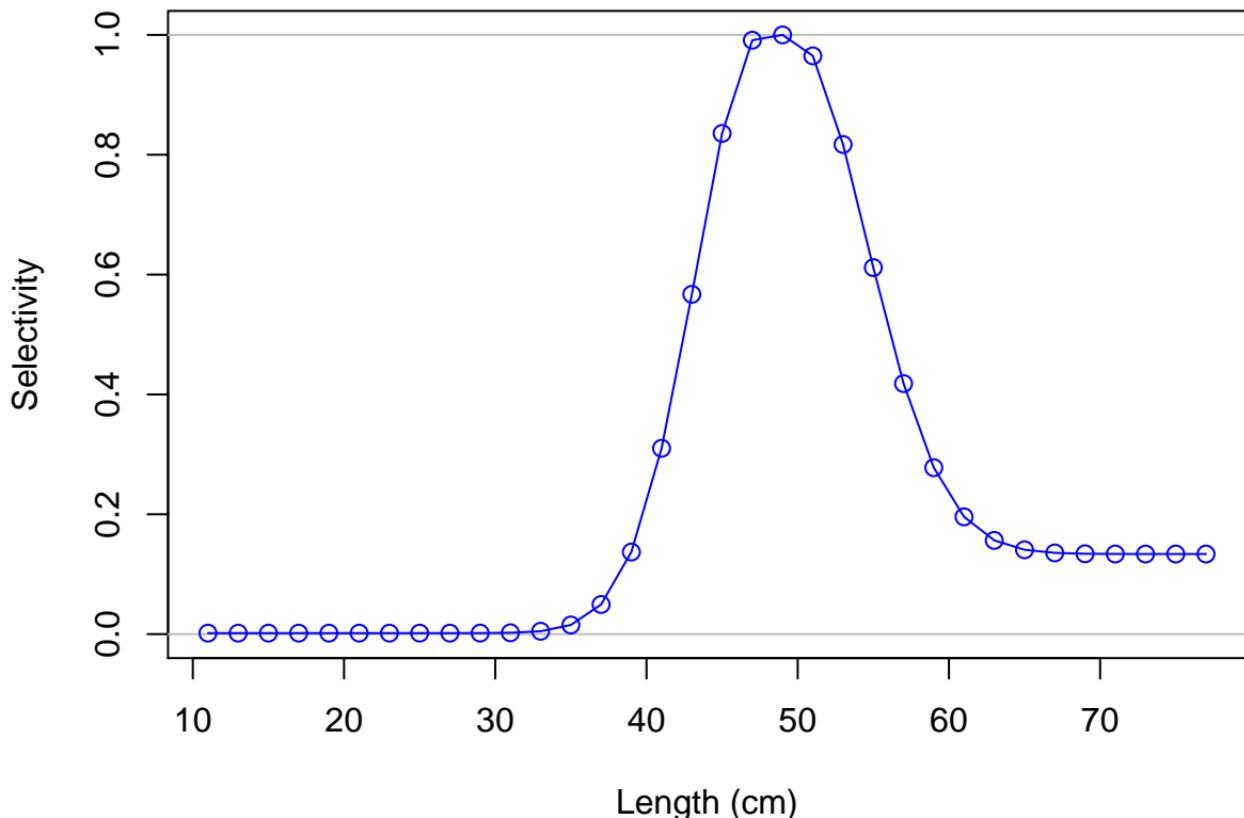
## Male ending year selectivity for HL



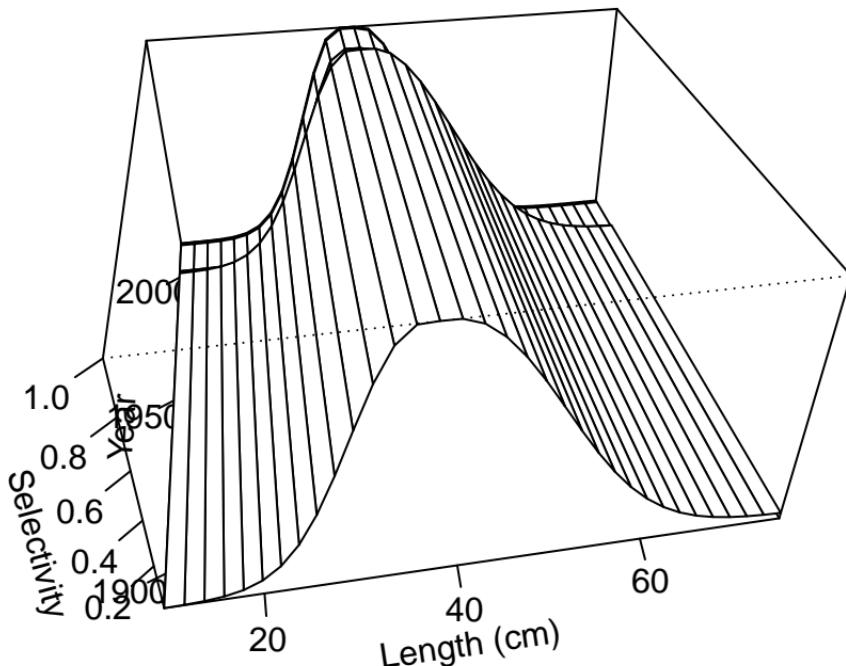
## Female ending year selectivity for Setnet



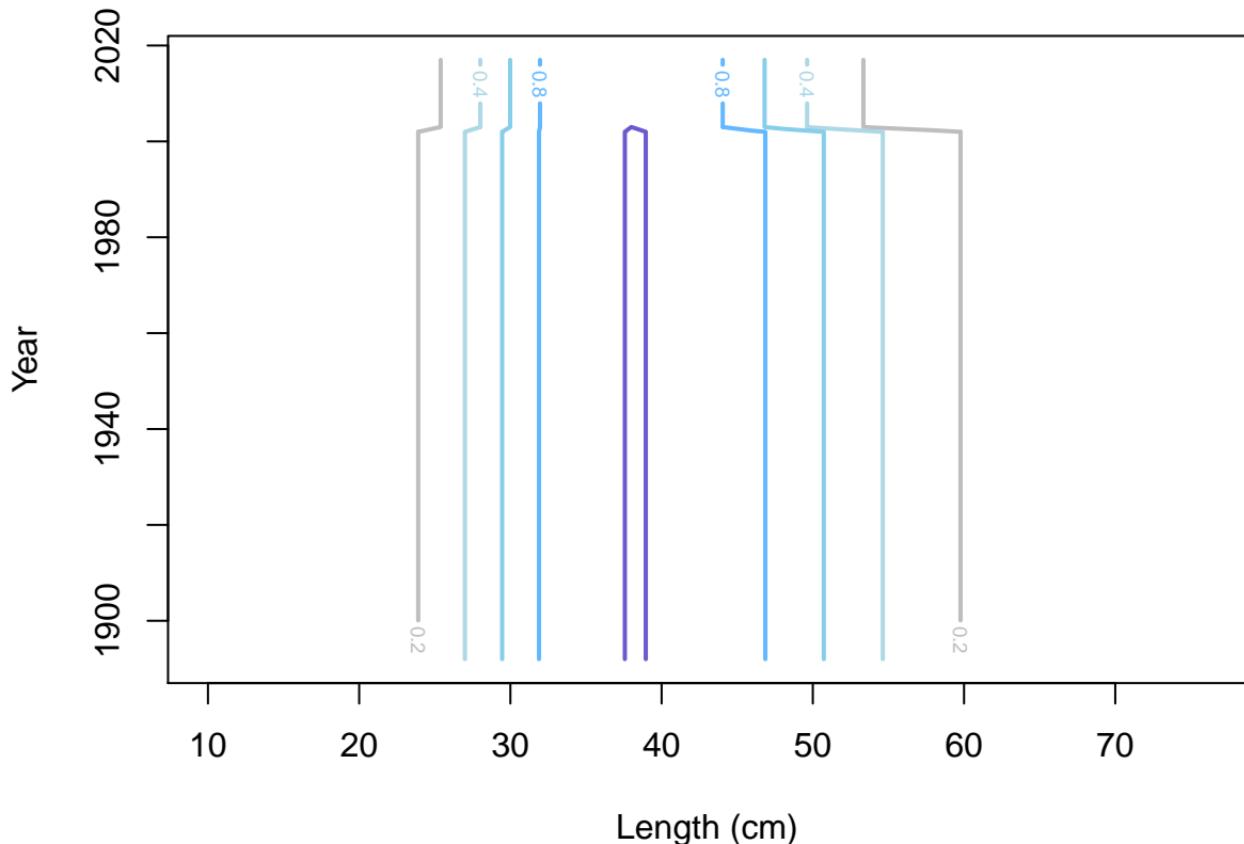
## Male ending year selectivity for Setnet



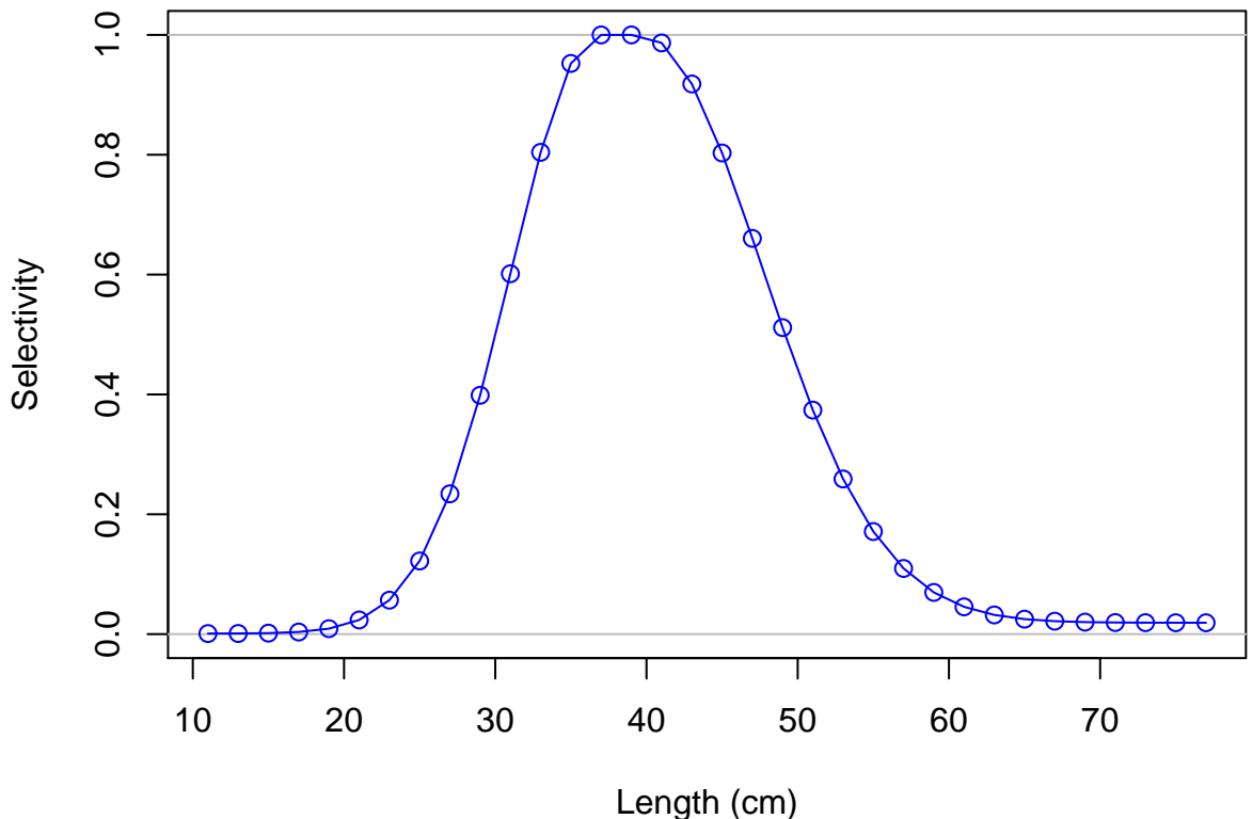
## Female time-varying selectivity for RecSouth



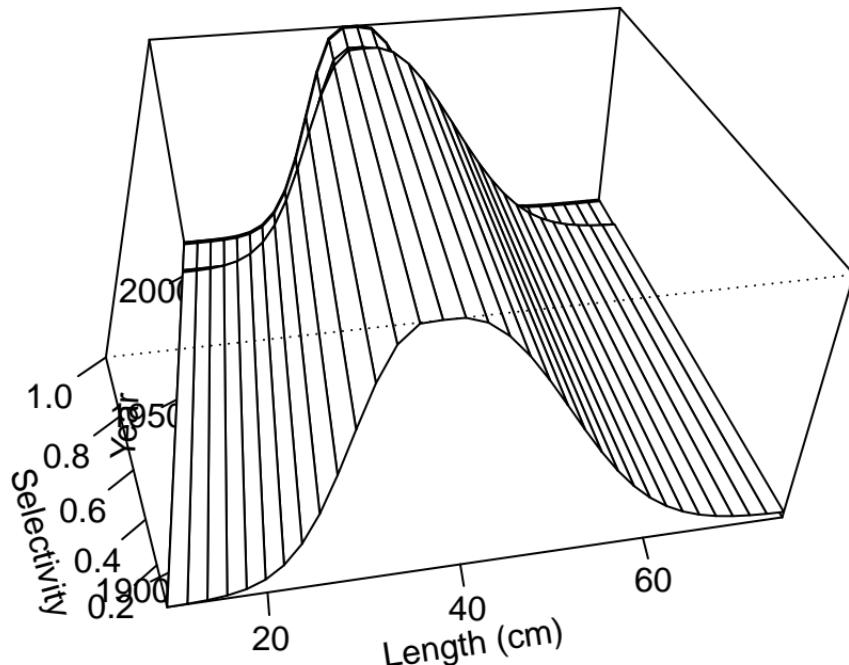
## Female time-varying selectivity for RecSouth



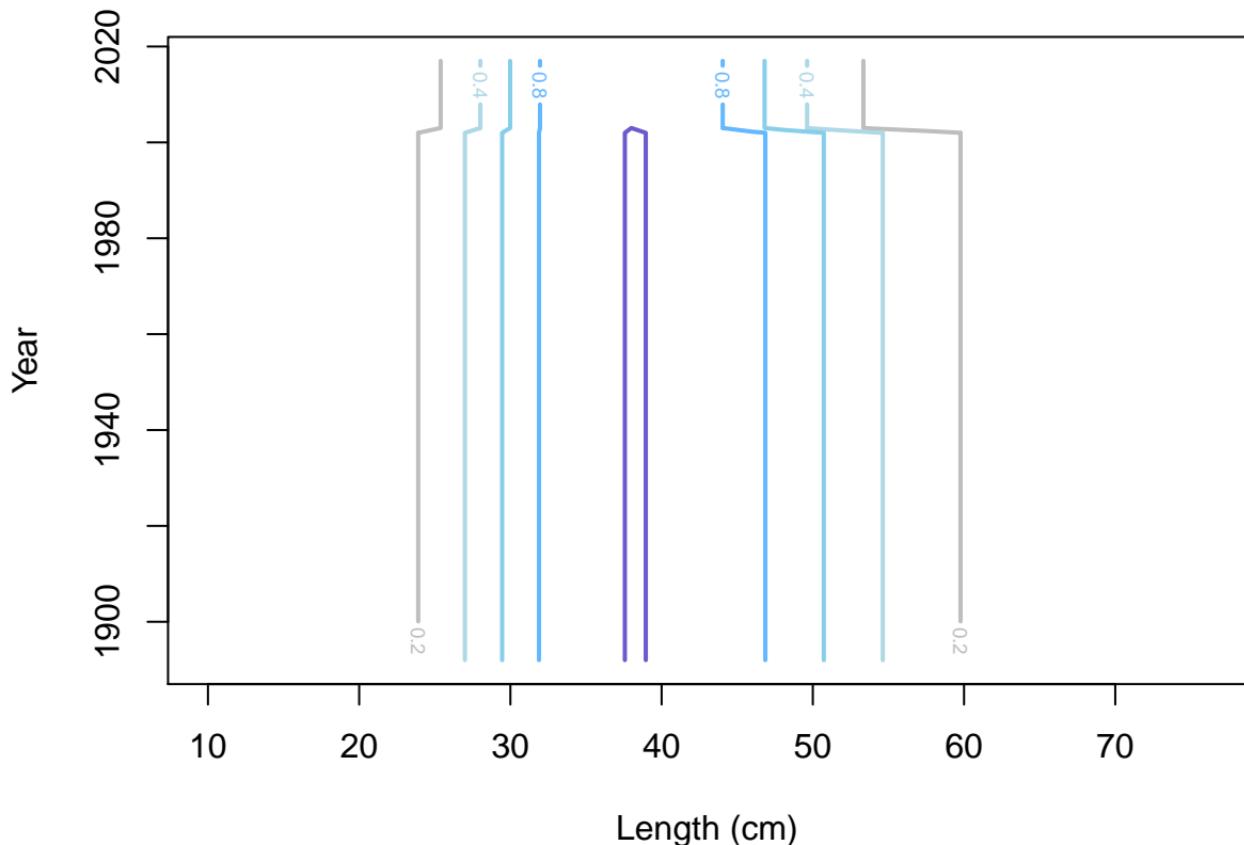
## Female ending year selectivity for RecSouth



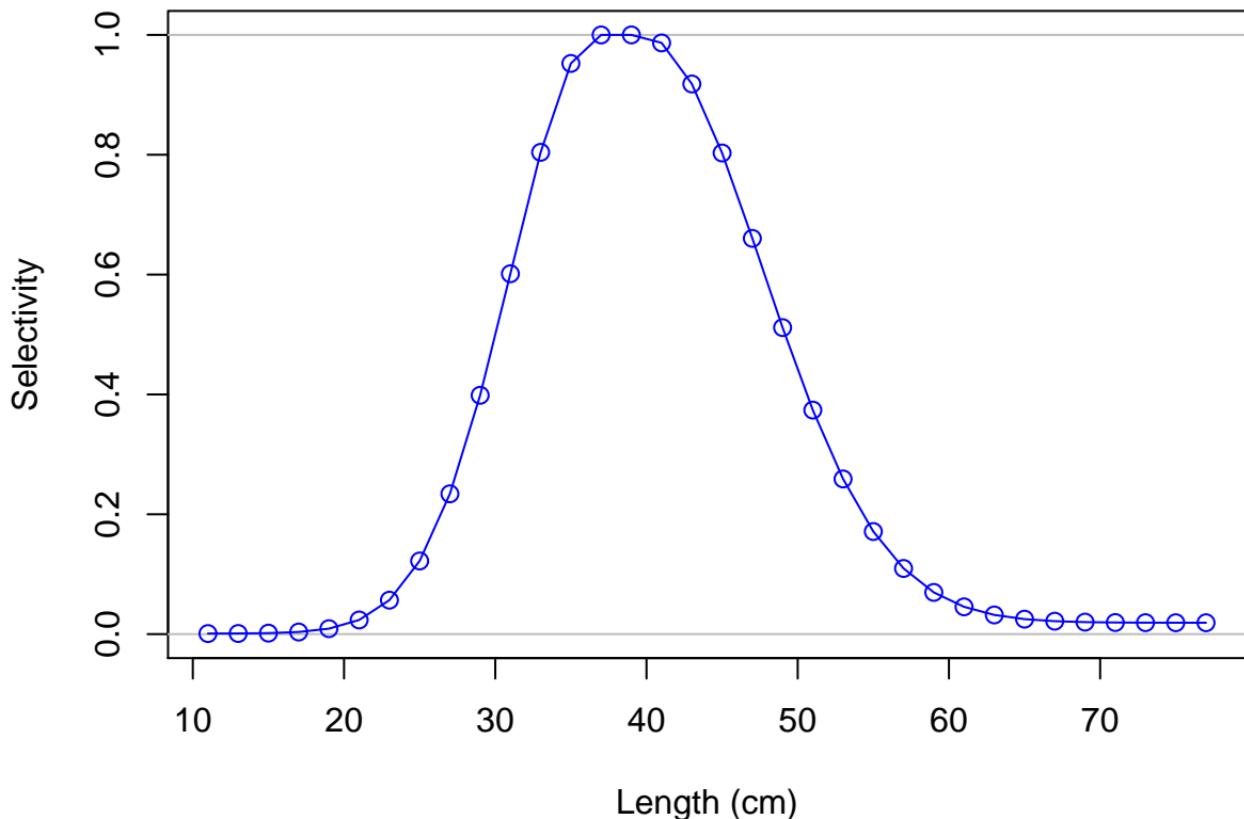
## Male time-varying selectivity for RecSouth



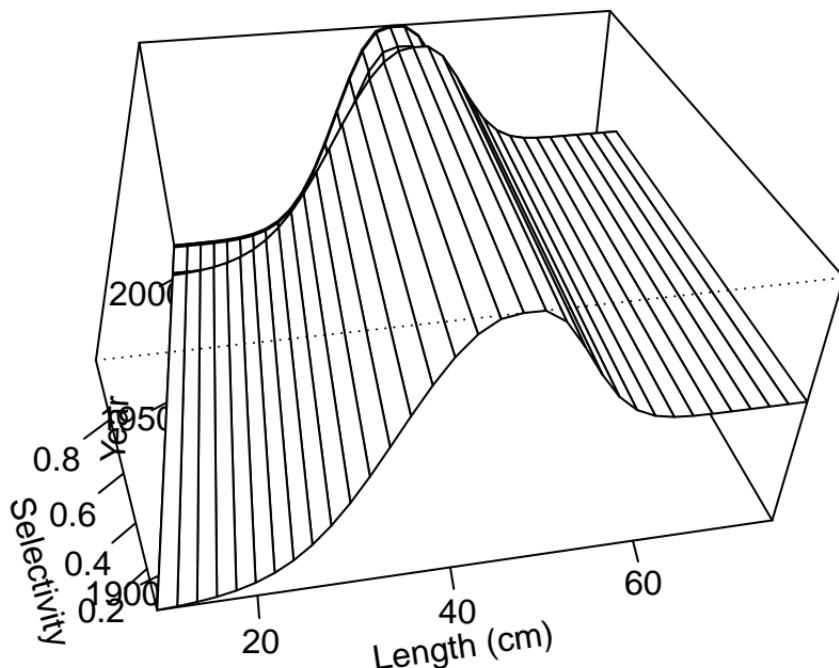
## Male time-varying selectivity for RecSouth



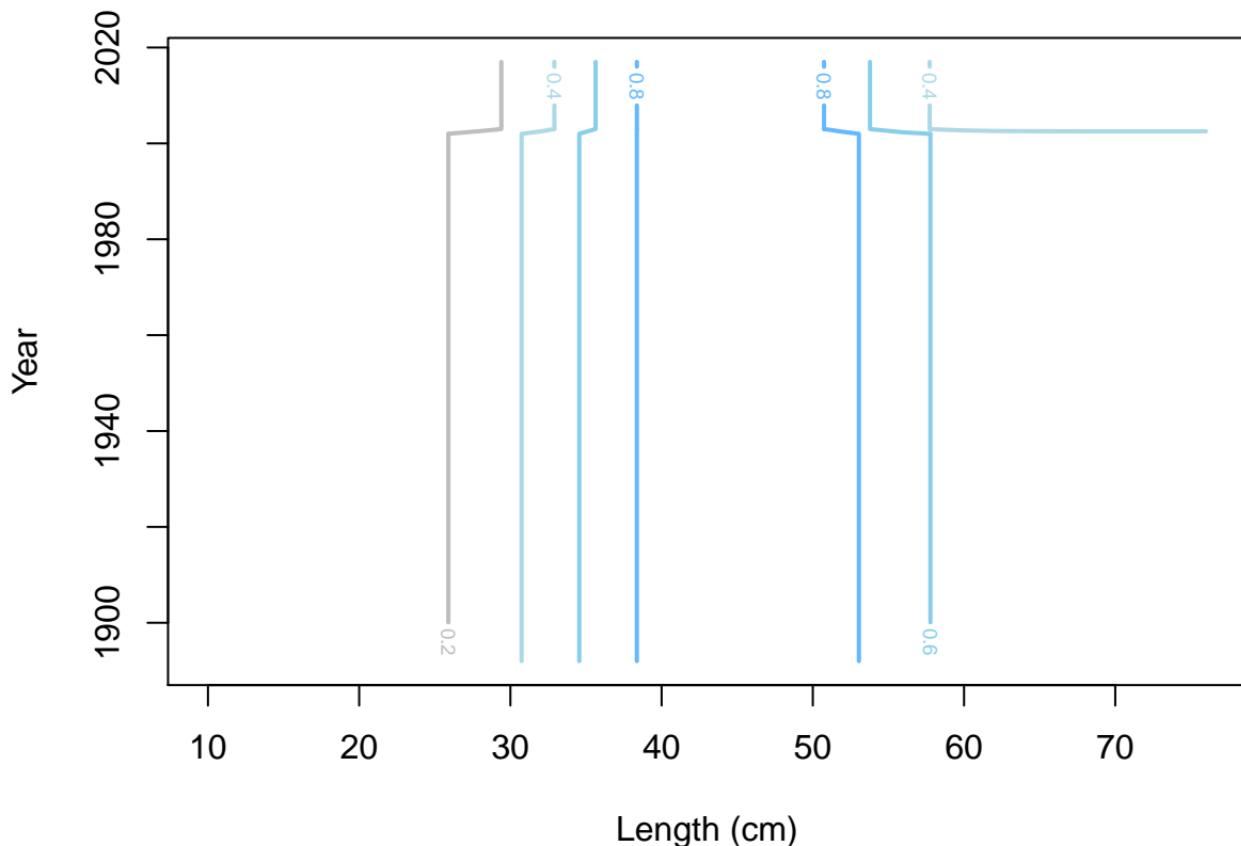
## Male ending year selectivity for RecSouth



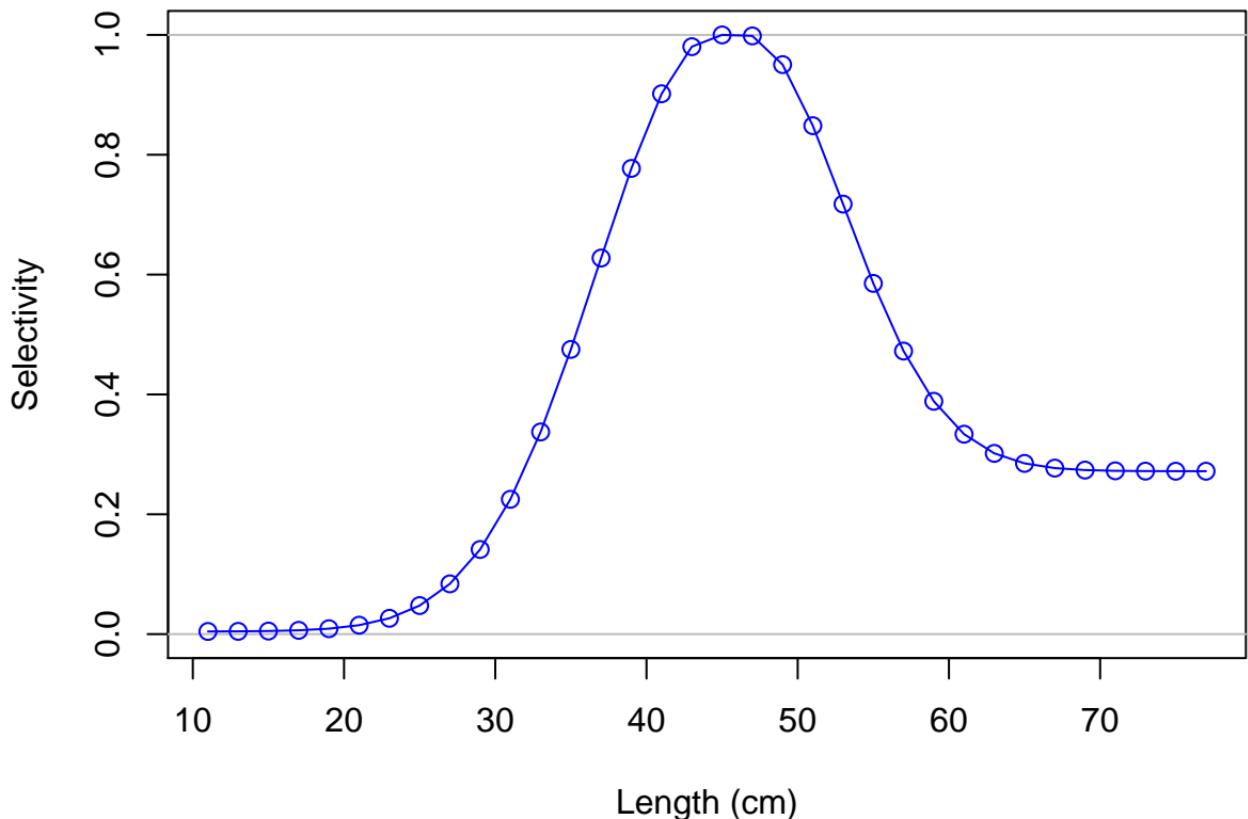
## Female time-varying selectivity for RecCentral



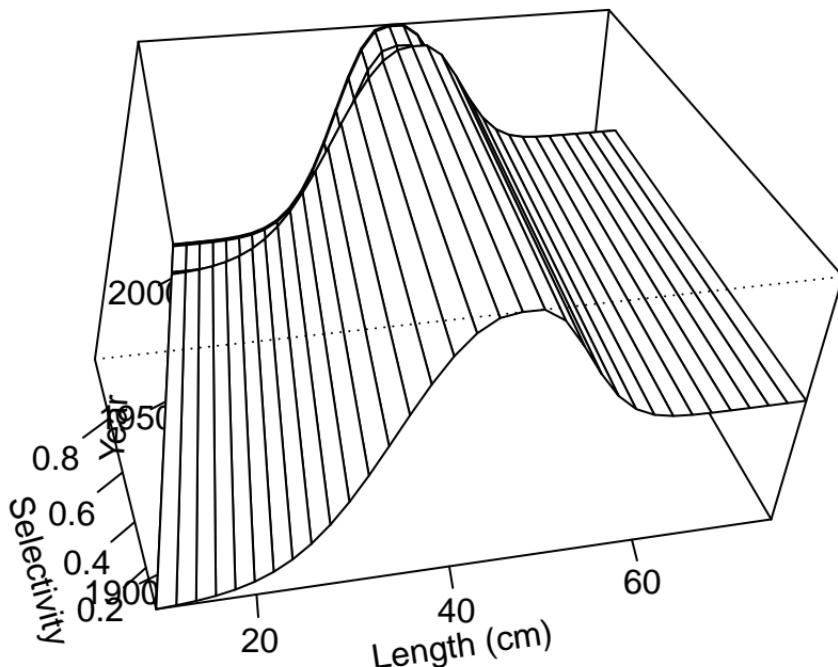
## Female time-varying selectivity for RecCentral



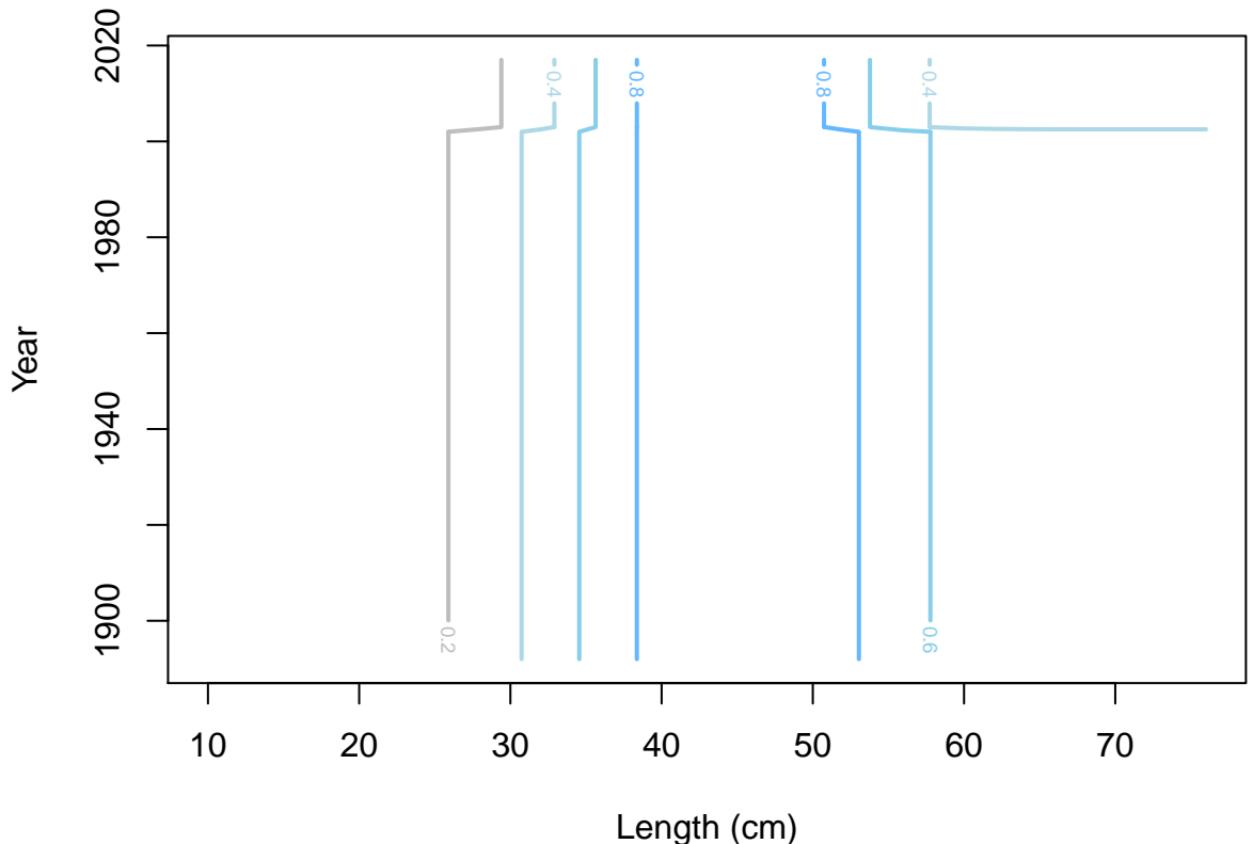
## Female ending year selectivity for RecCentral



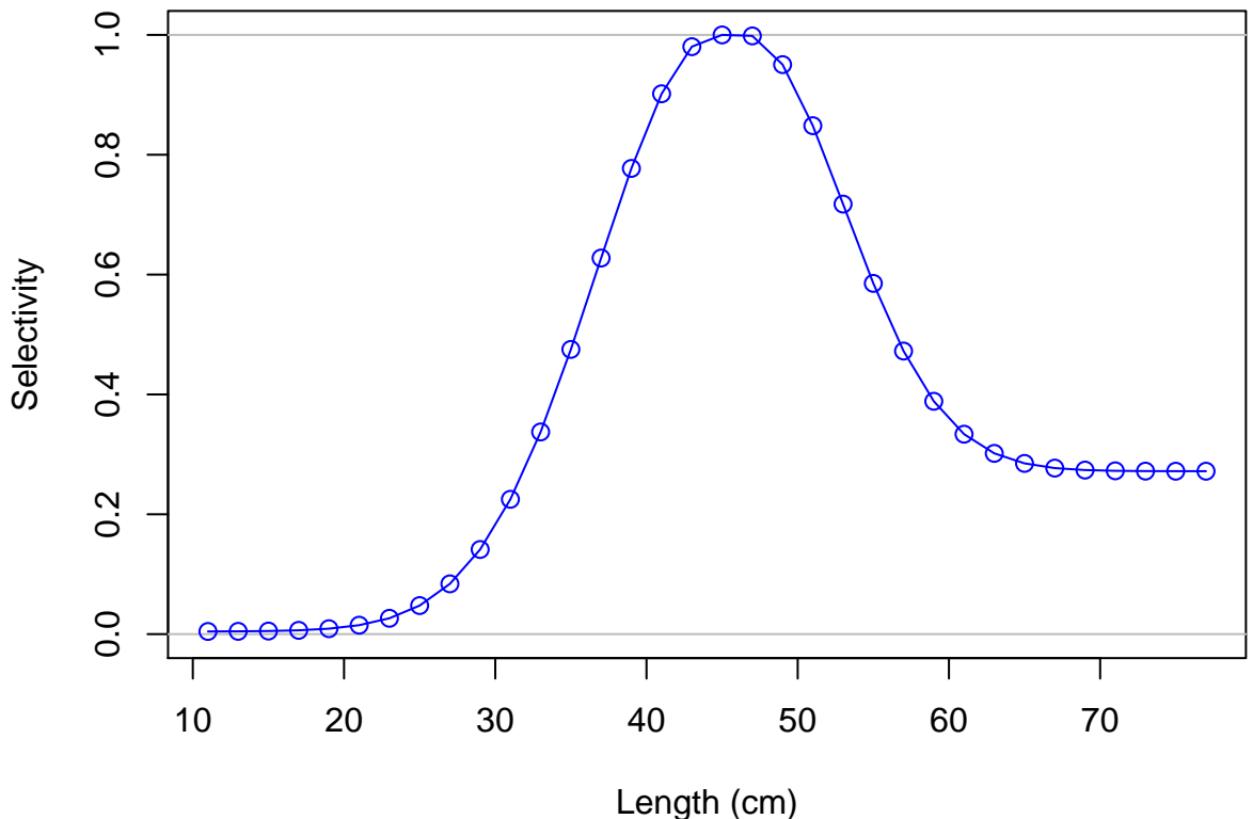
## Male time-varying selectivity for RecCentral



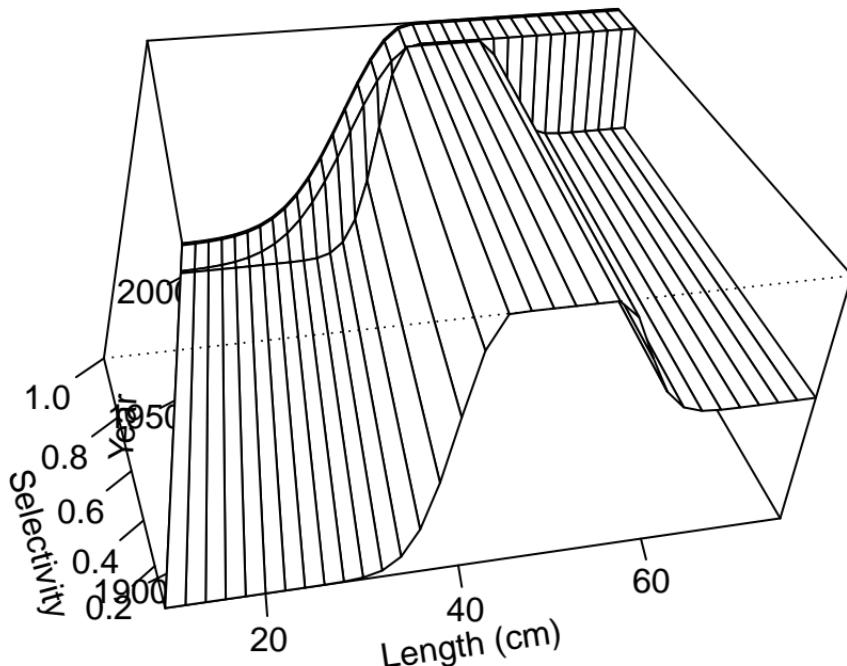
## Male time-varying selectivity for RecCentral



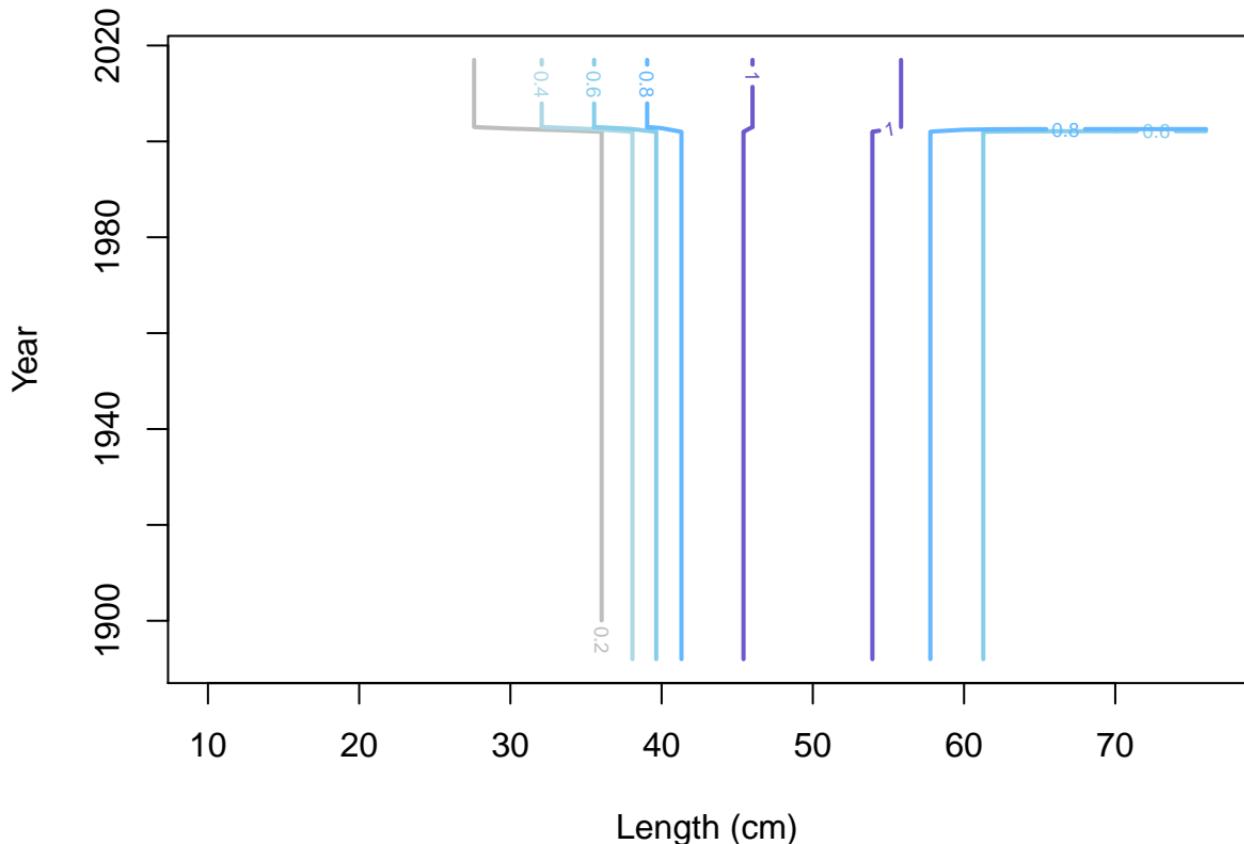
## Male ending year selectivity for RecCentral



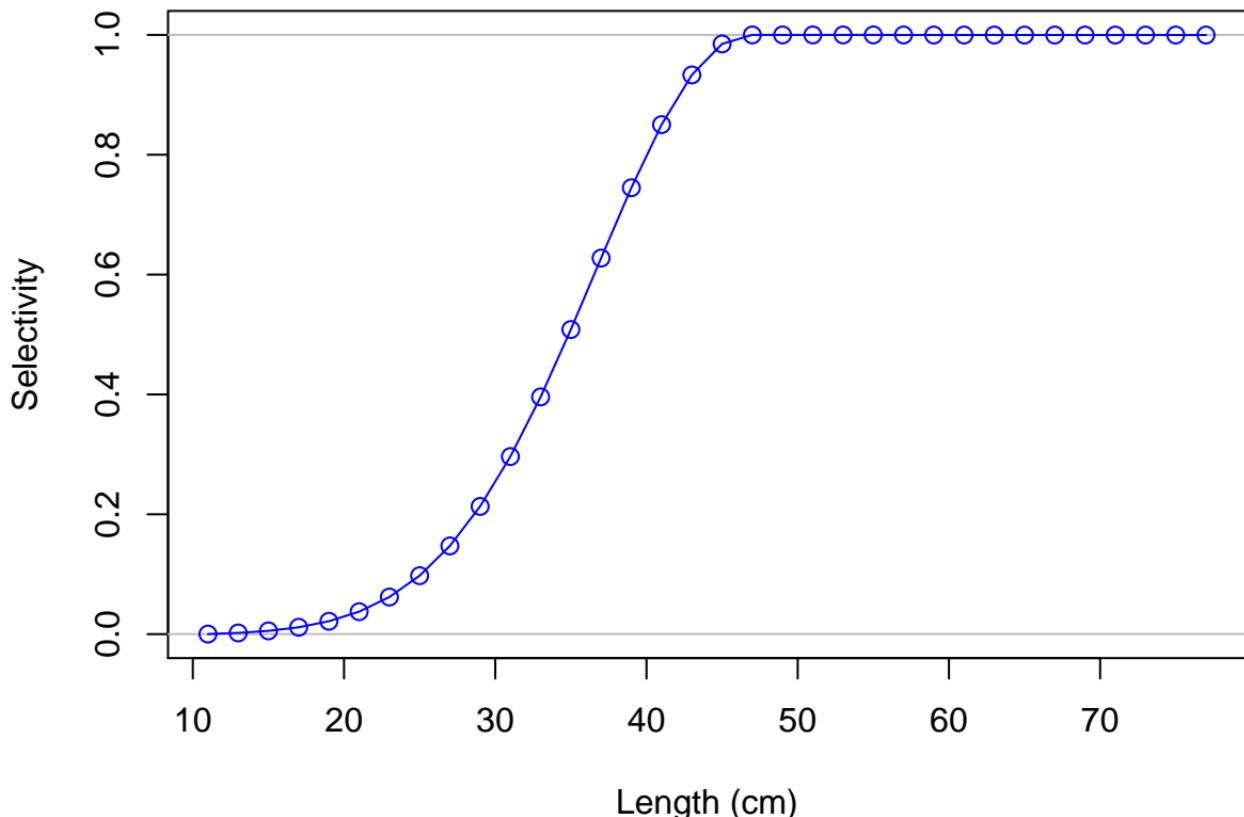
## Female time-varying selectivity for TrawlNorth



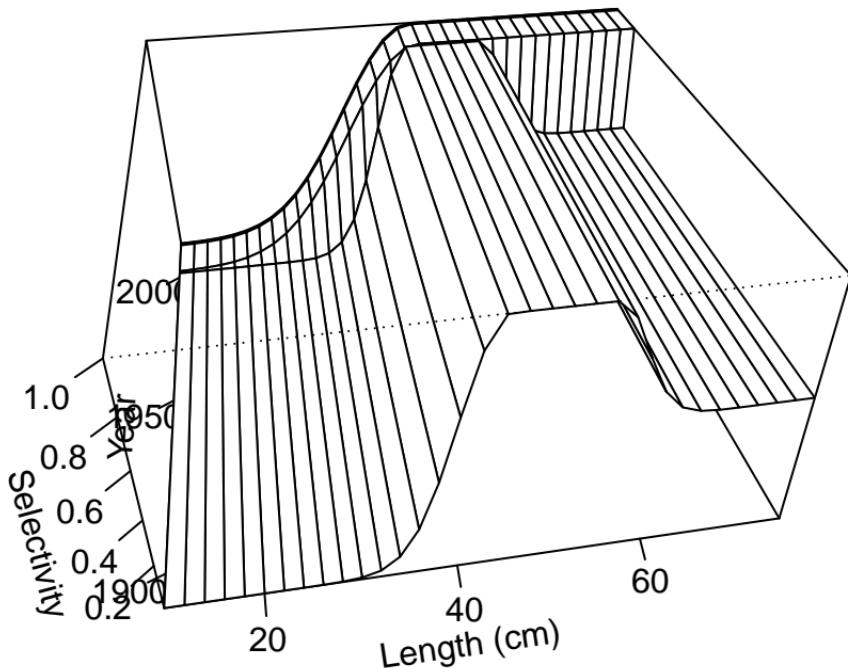
## Female time-varying selectivity for TrawlNorth



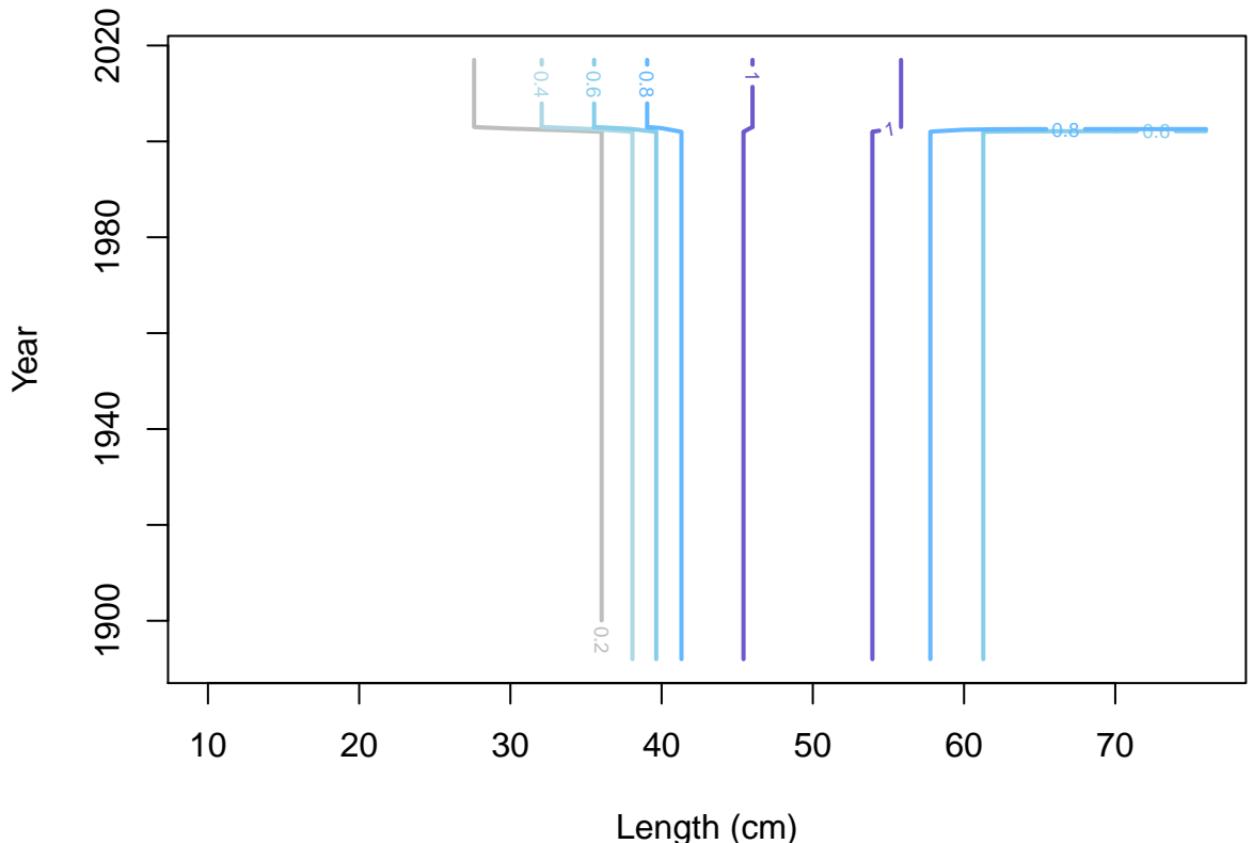
## Female ending year selectivity for TrawlNorth



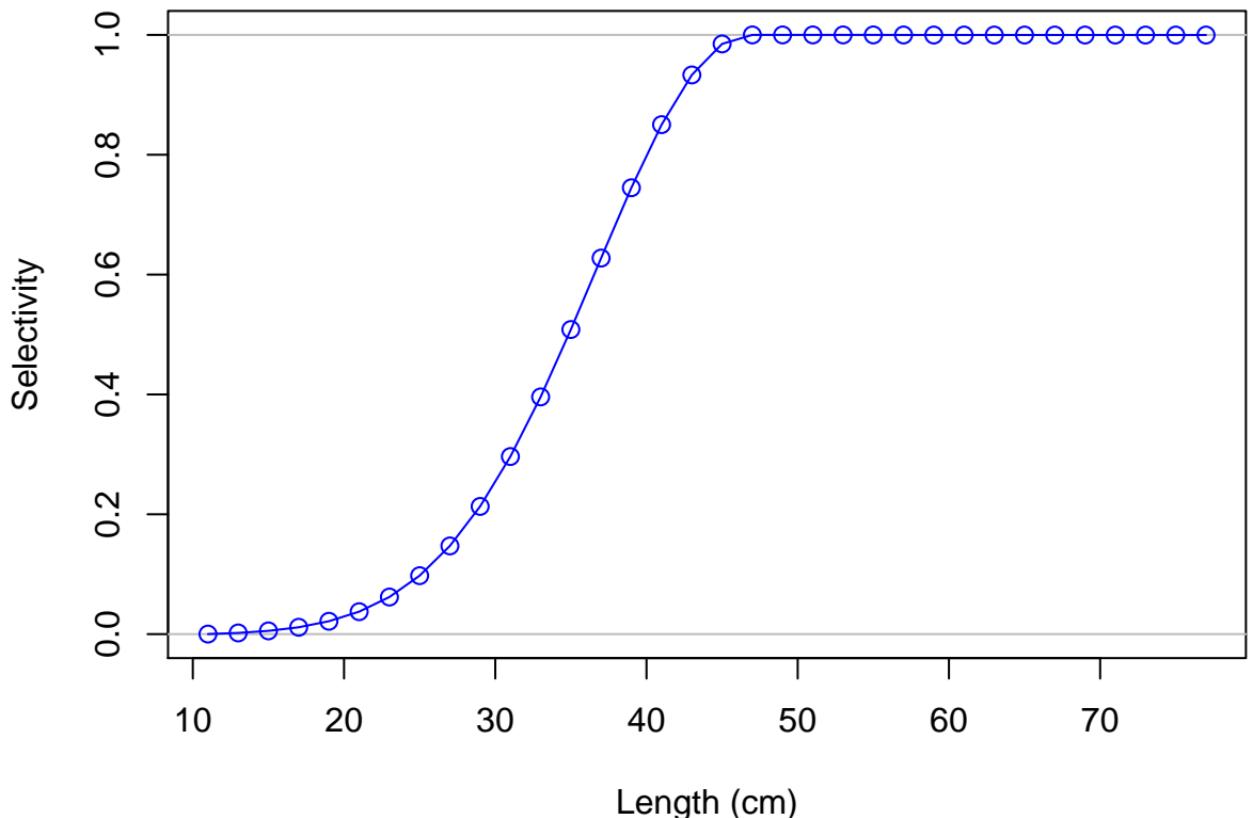
## Male time-varying selectivity for TrawlNorth



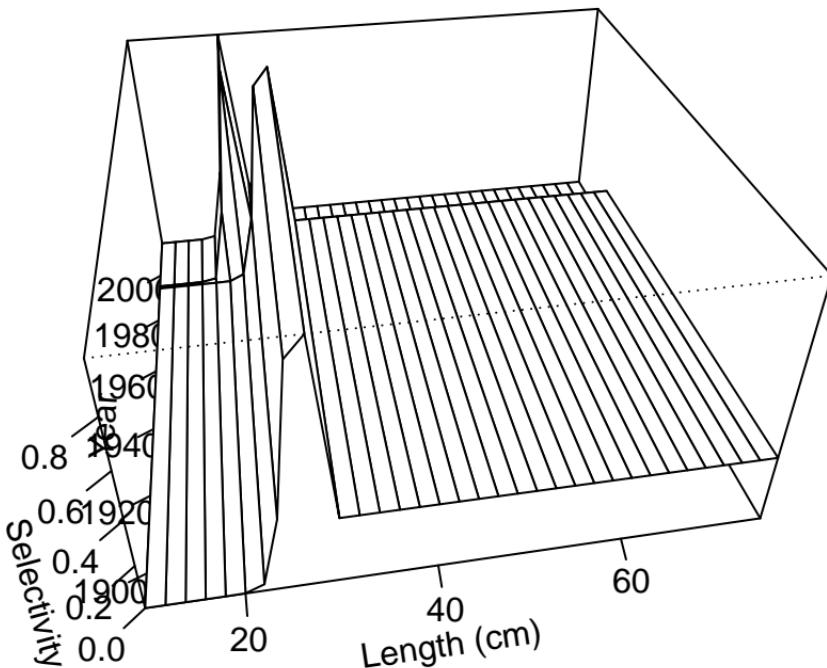
## Male time-varying selectivity for TrawlNorth



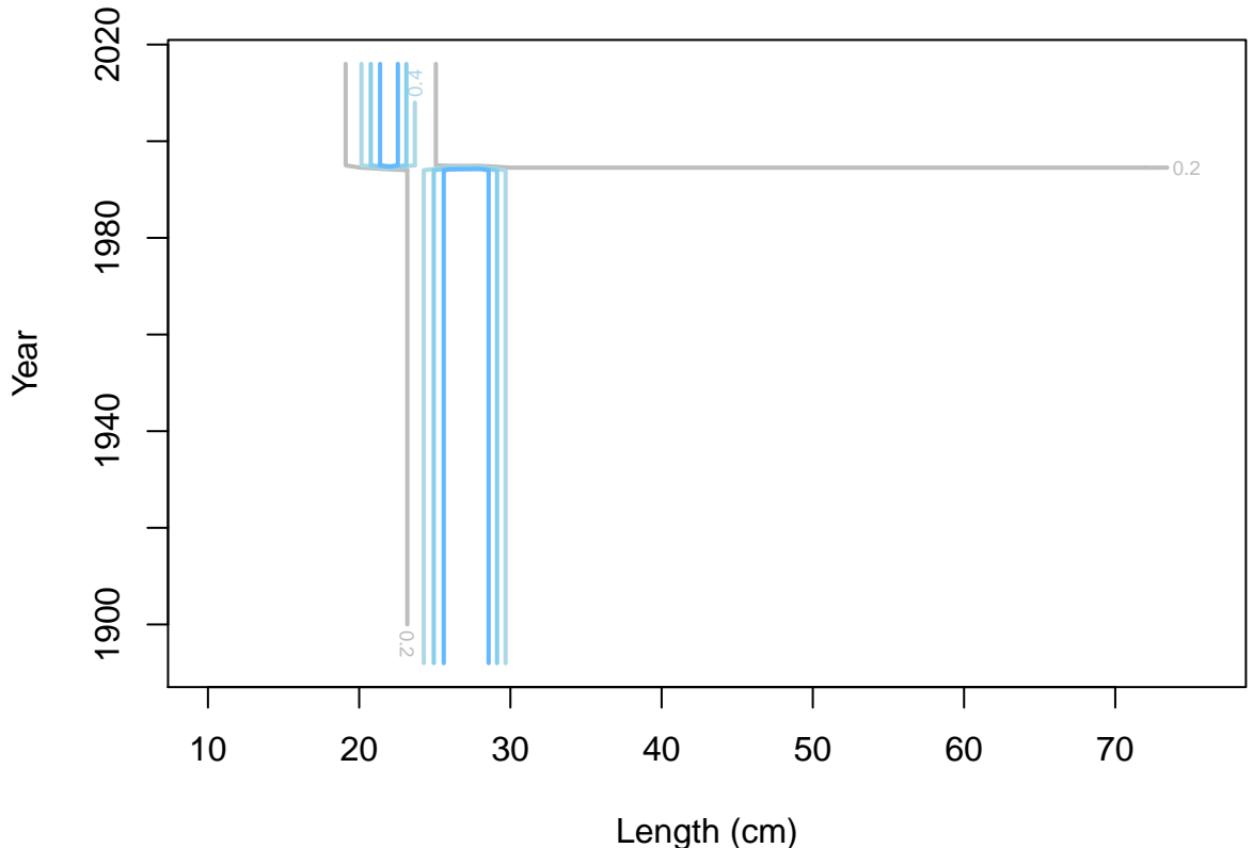
## Male ending year selectivity for TrawlNorth



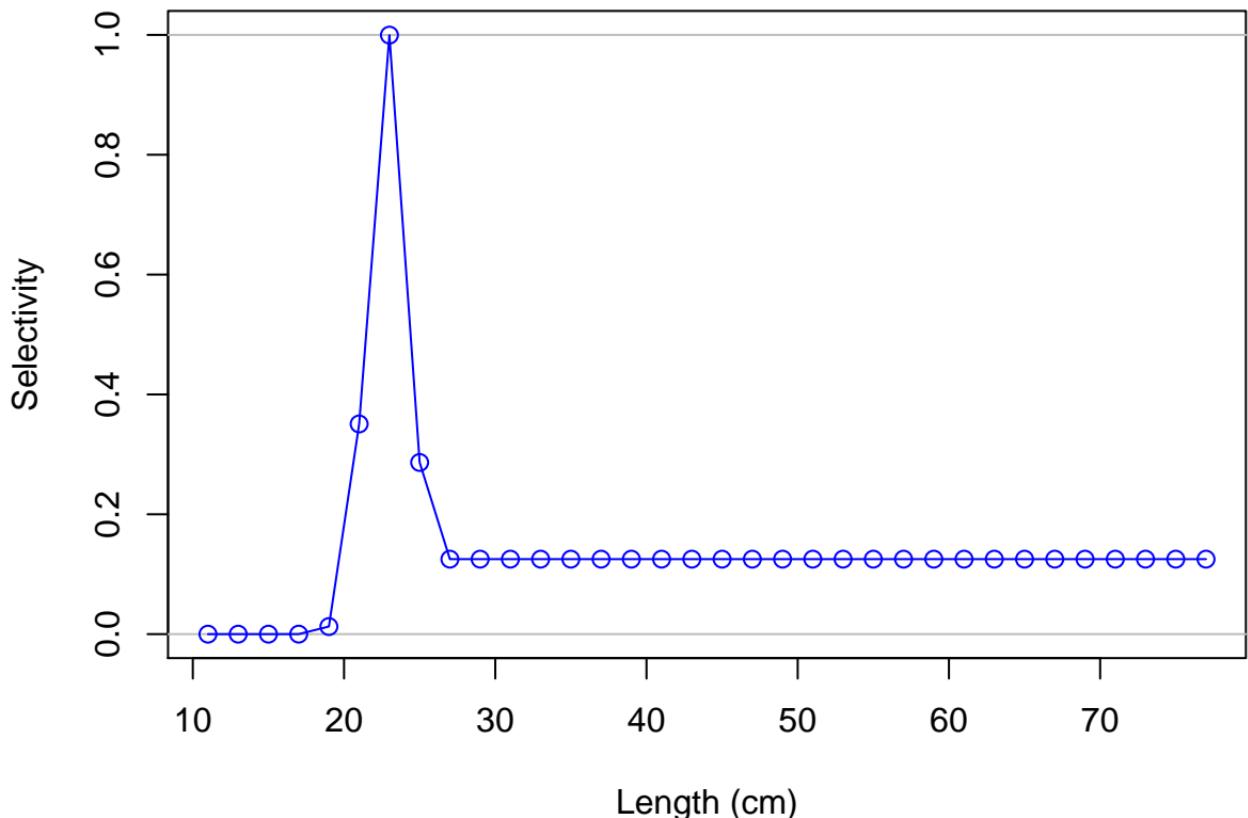
## Female time-varying selectivity for Triennial



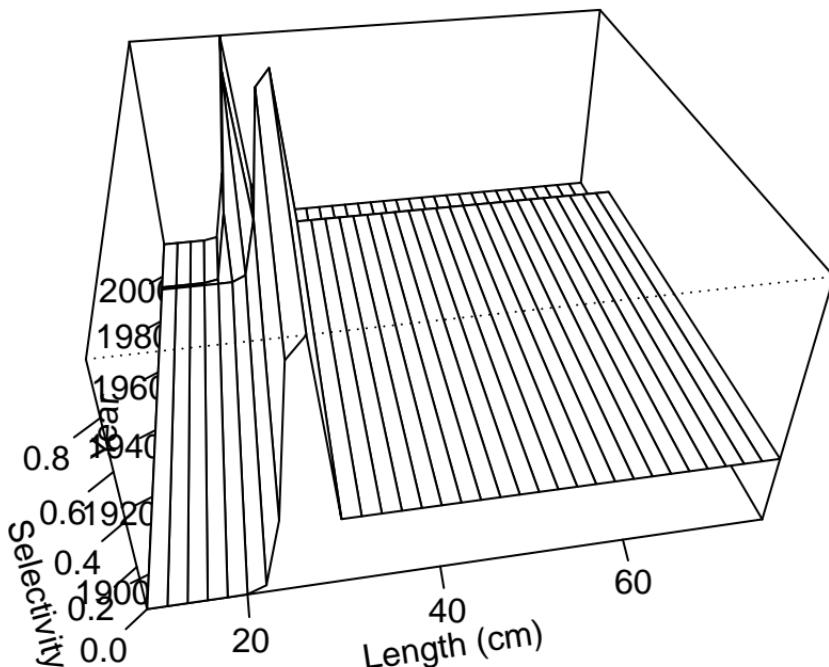
## Female time-varying selectivity for Triennial



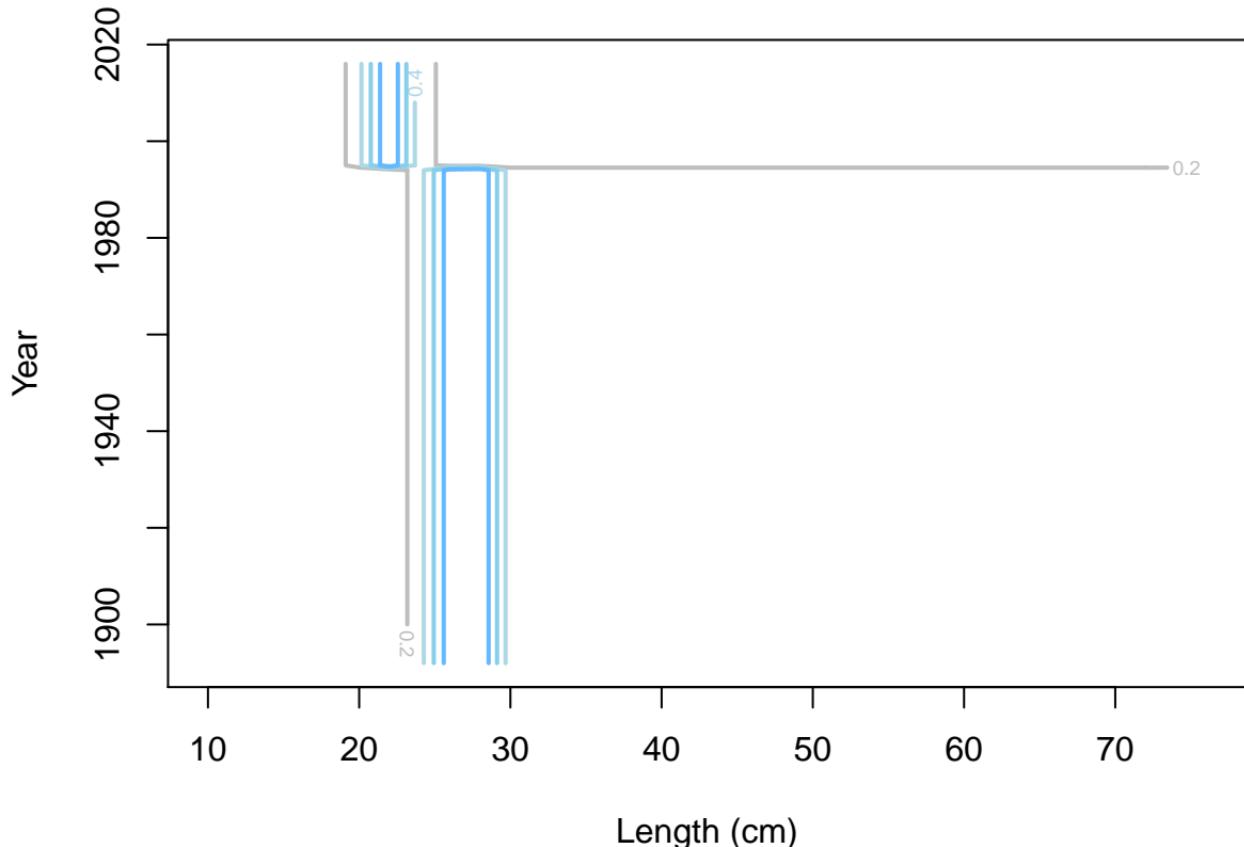
## Female ending year selectivity for Triennial



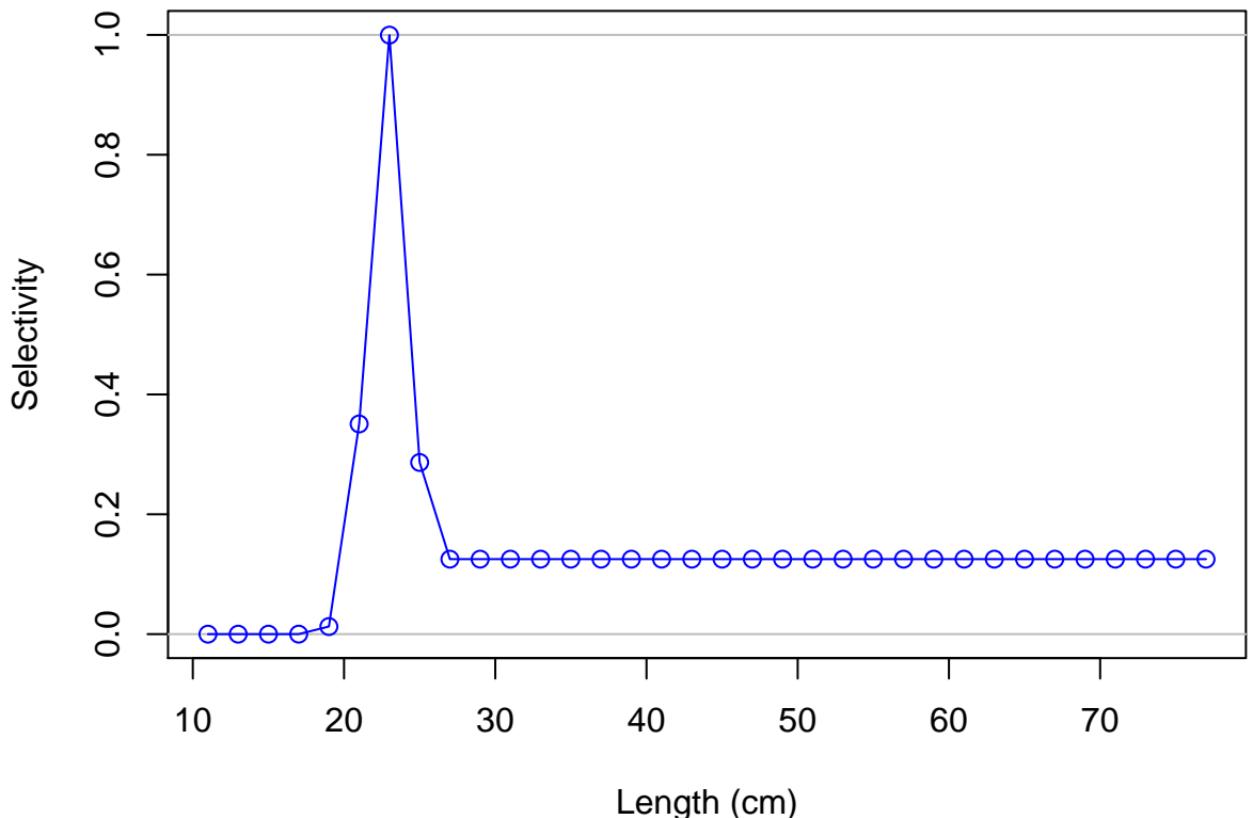
## Male time-varying selectivity for Triennial



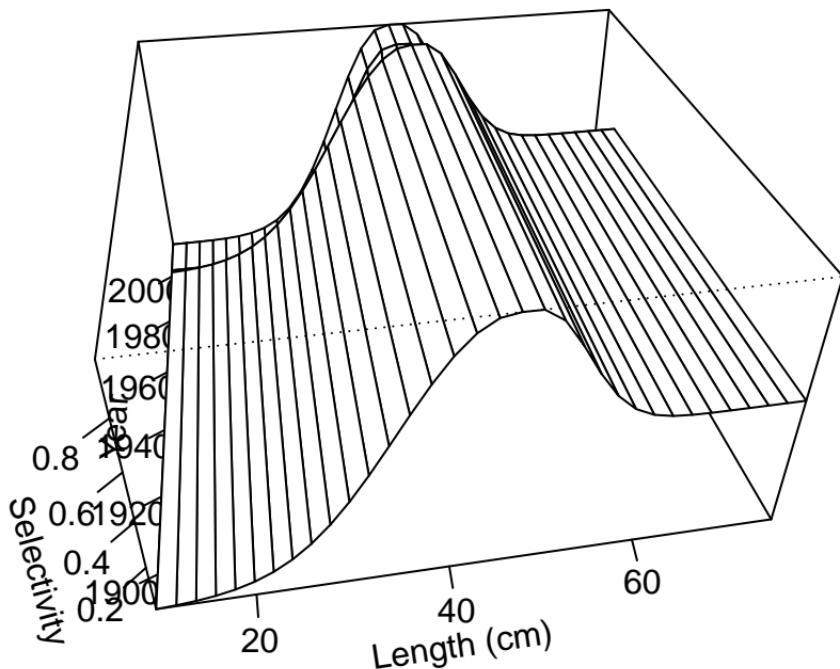
## Male time-varying selectivity for Triennial



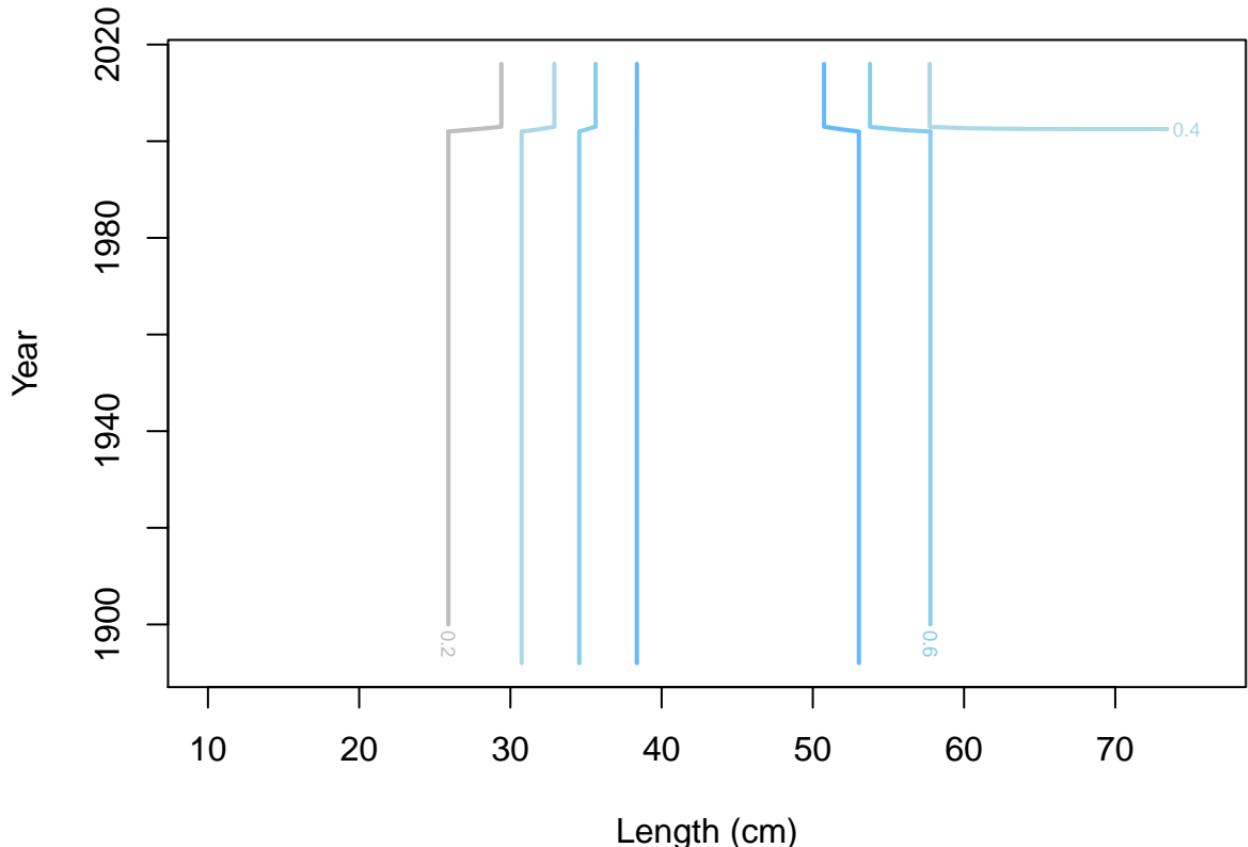
## Male ending year selectivity for Triennial



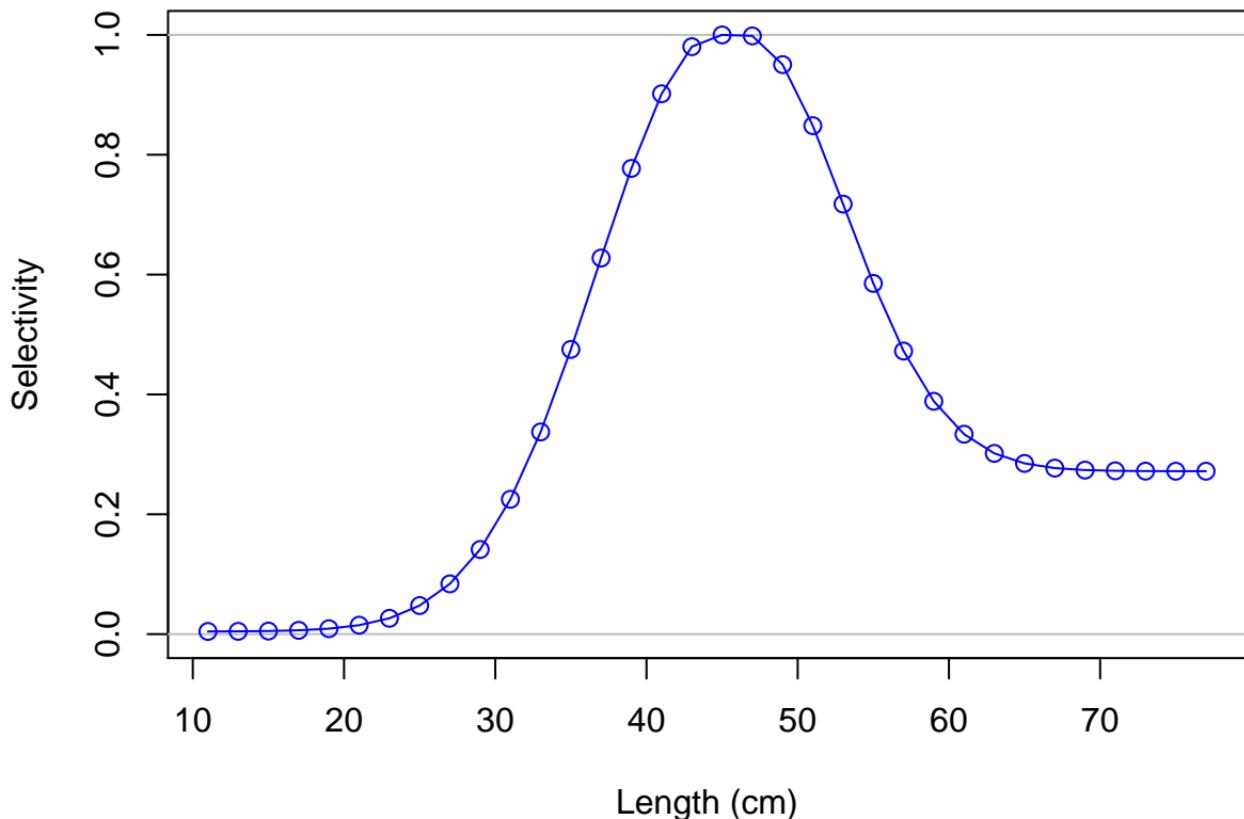
## Female time-varying selectivity for CDFWEarlyOB



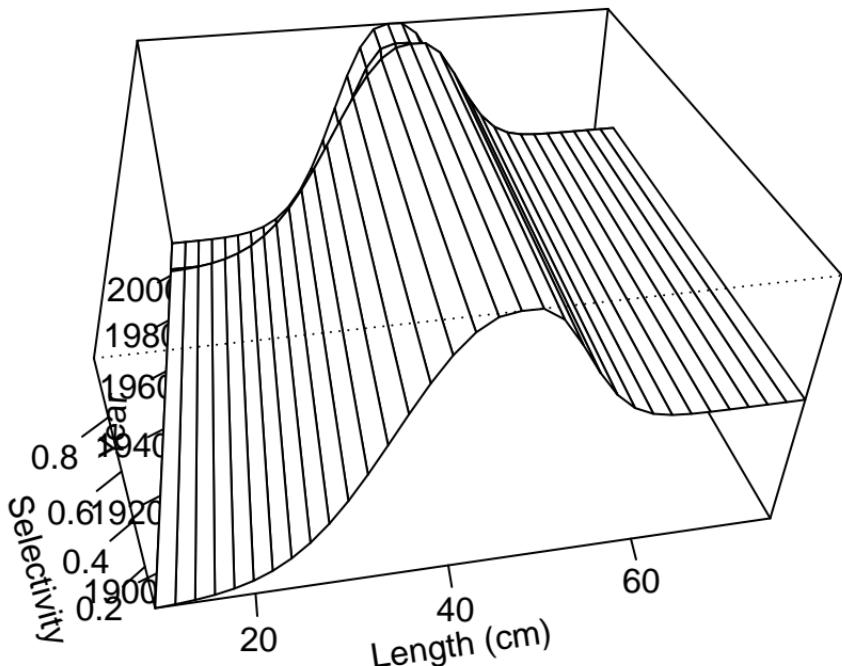
## Female time-varying selectivity for CDFWEarlyOB



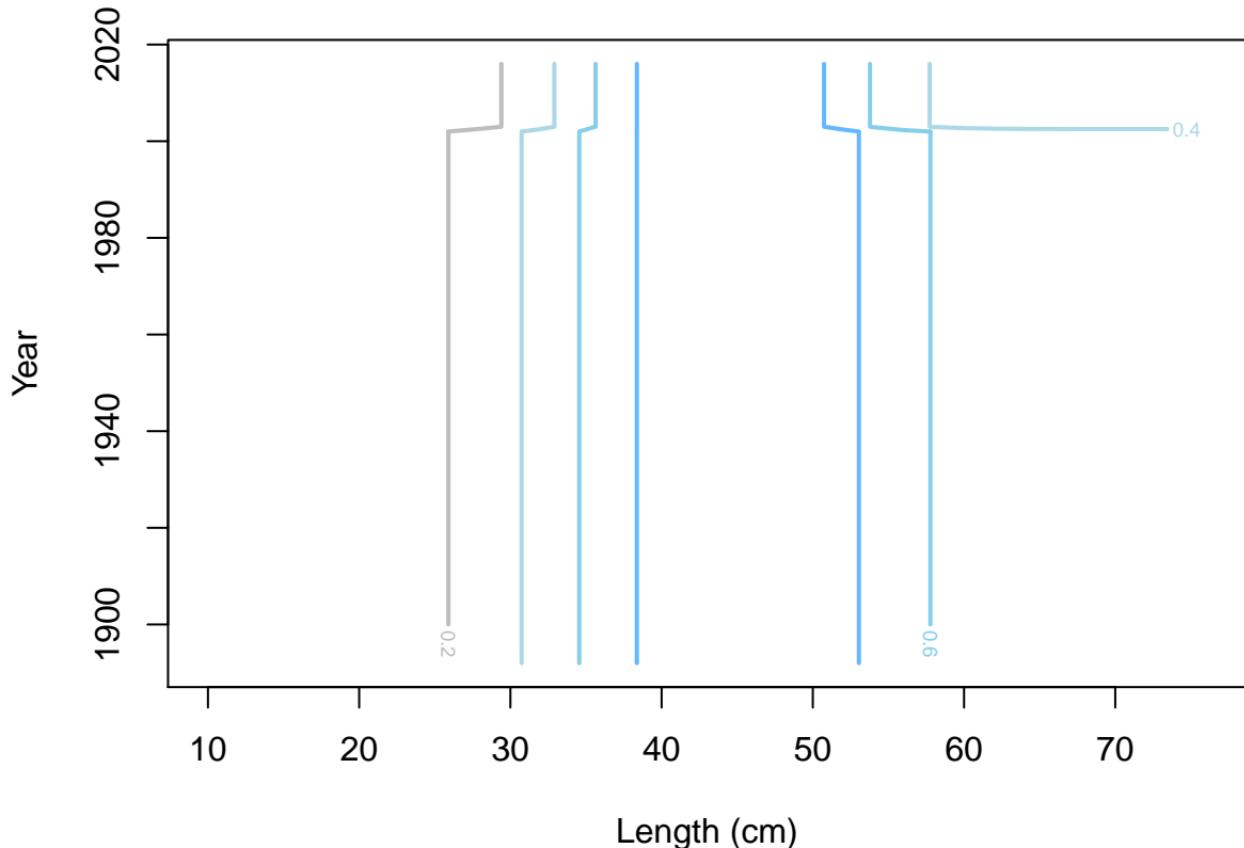
## Female ending year selectivity for CDFWEarlyOB



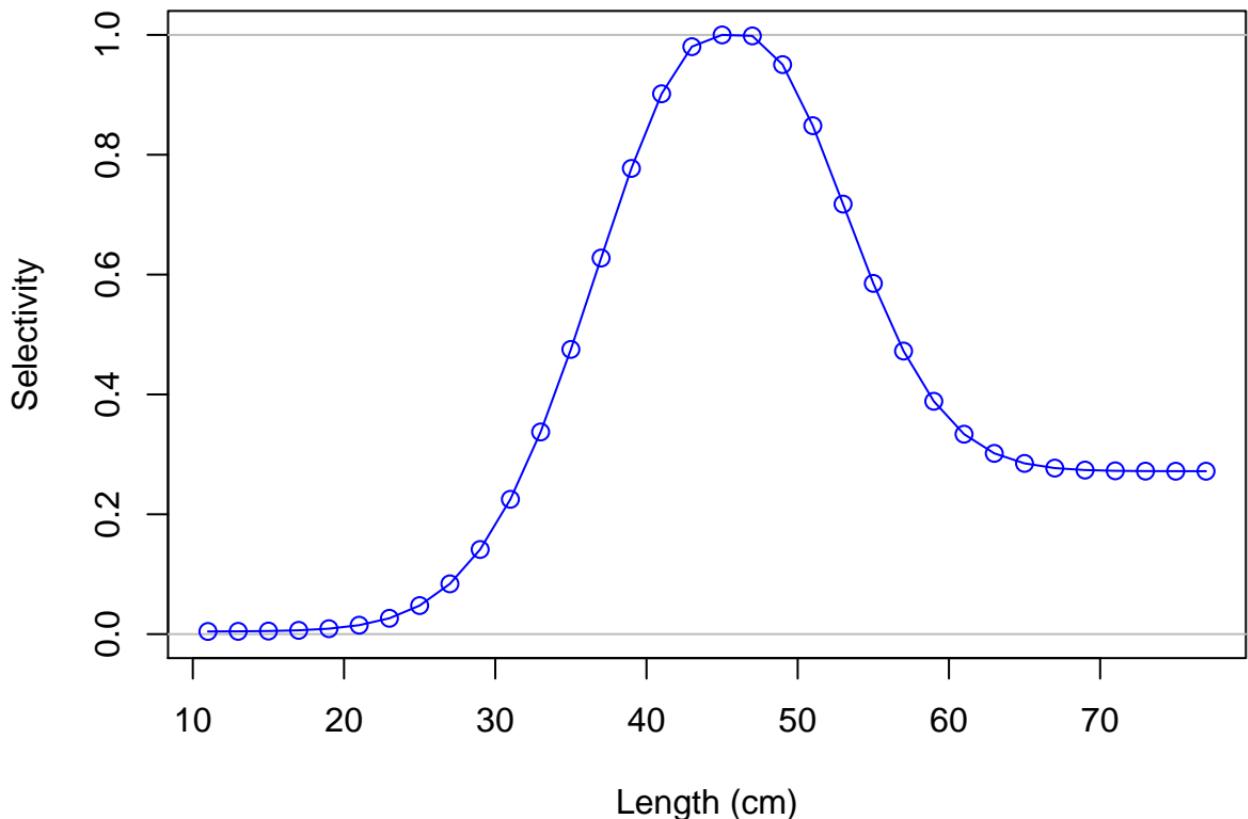
## Male time-varying selectivity for CDFWEarlyOB



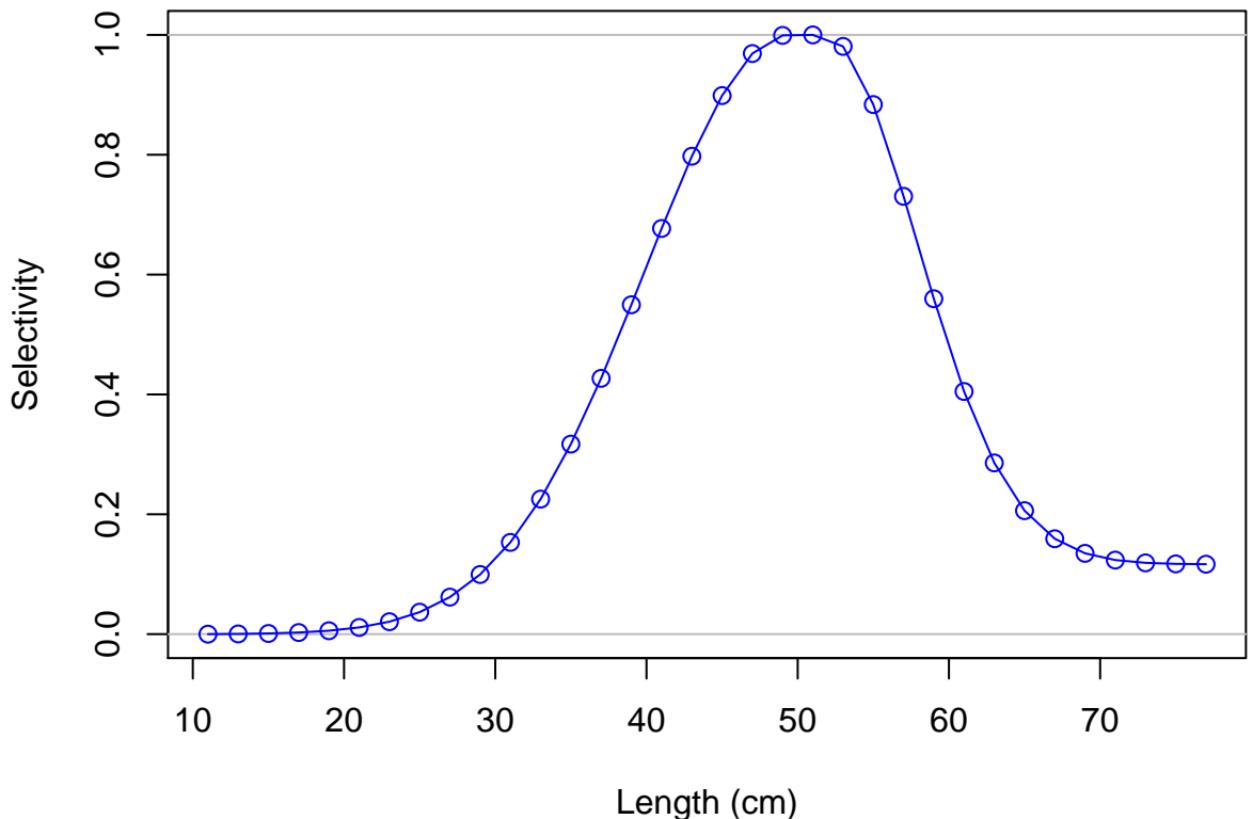
## Male time-varying selectivity for CDFWEarlyOB



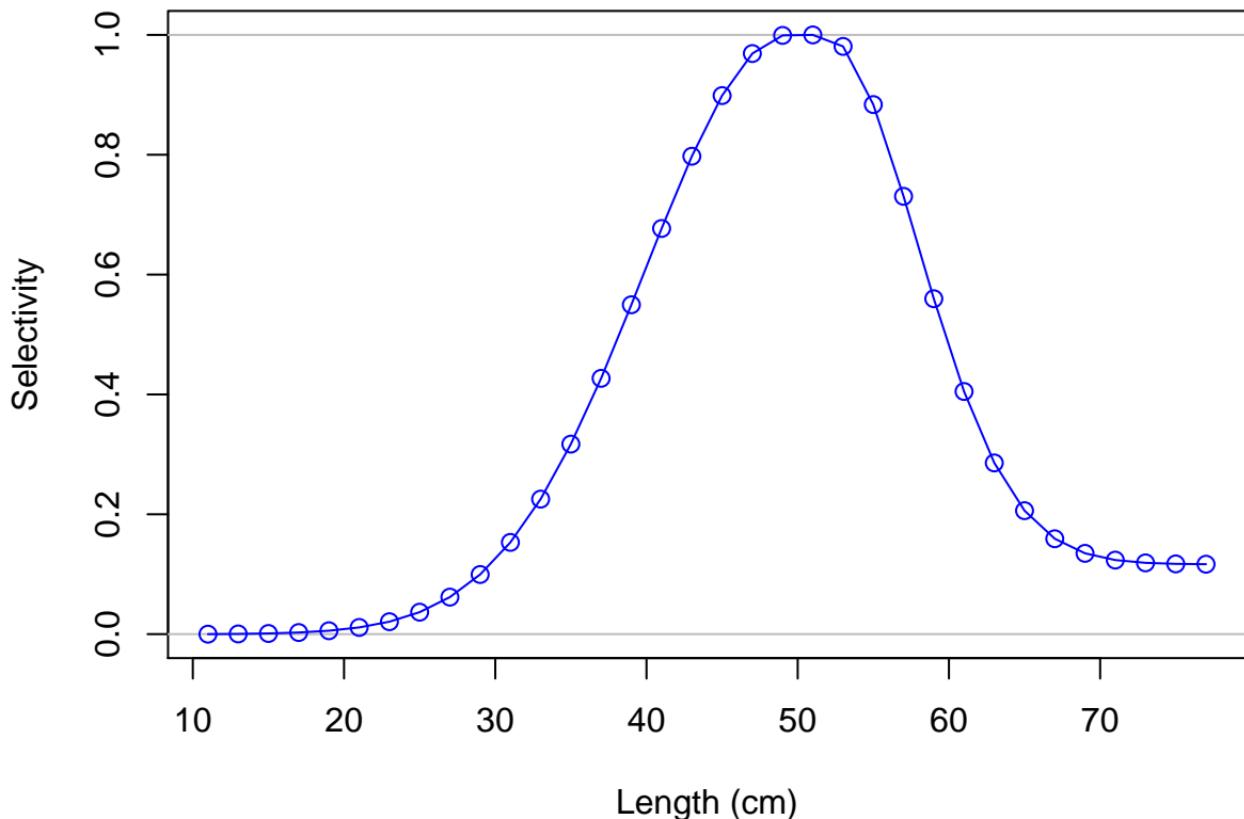
## Male ending year selectivity for CDFWEarlyOB



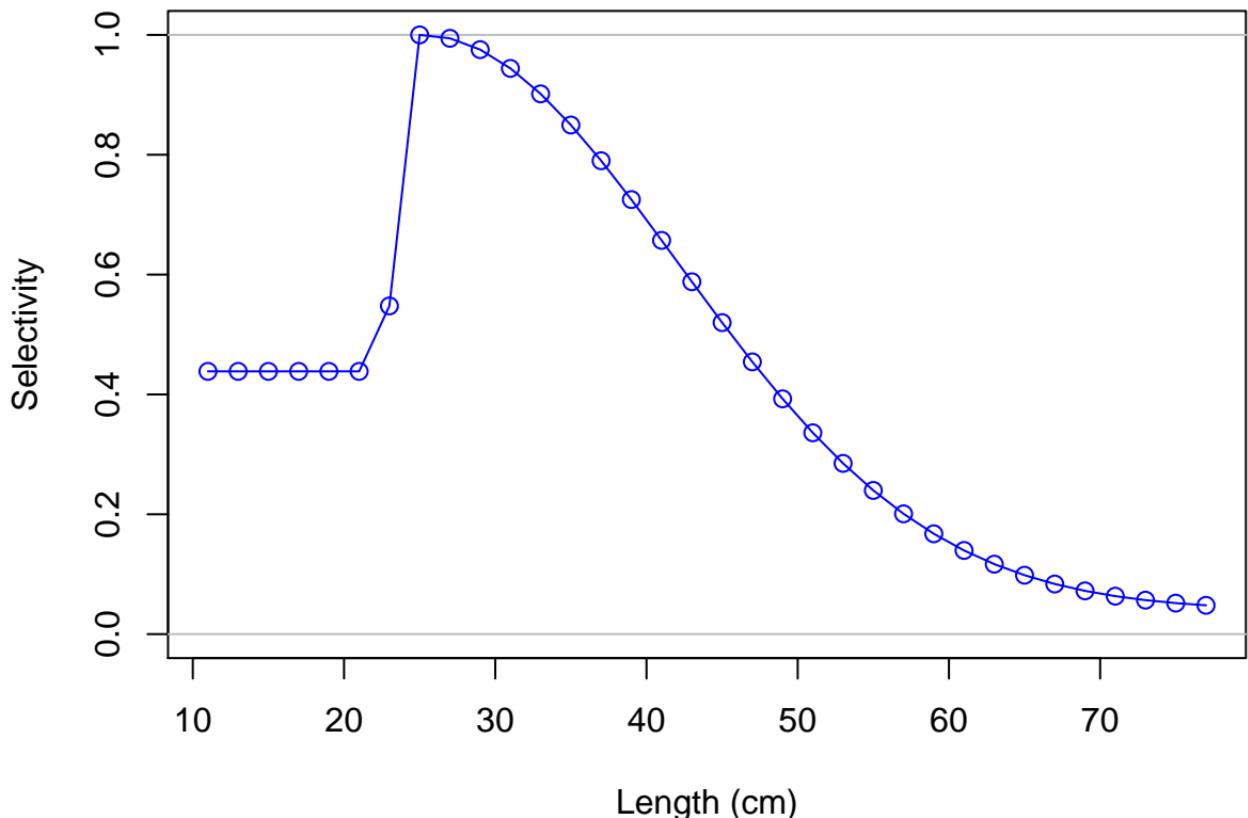
## **Female ending year selectivity for NWFSCHook**



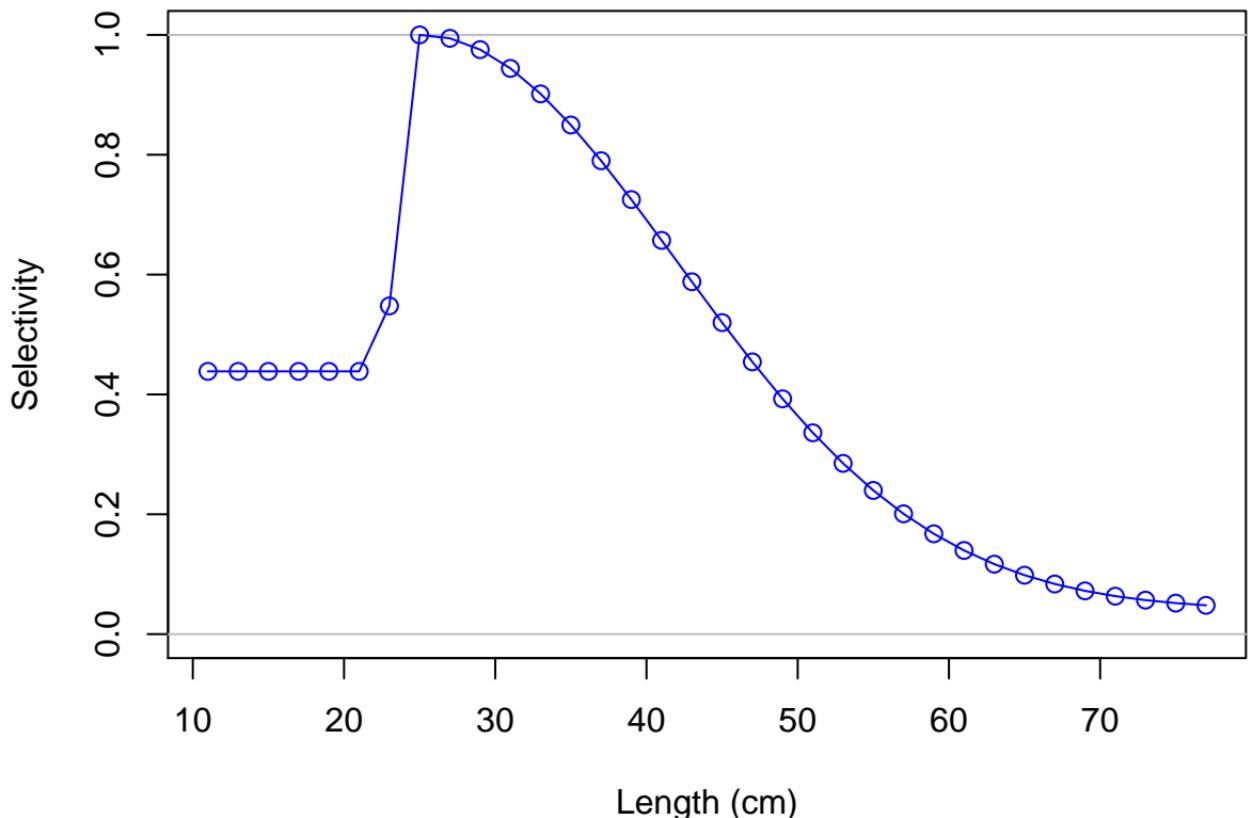
## Male ending year selectivity for NWFSCHook



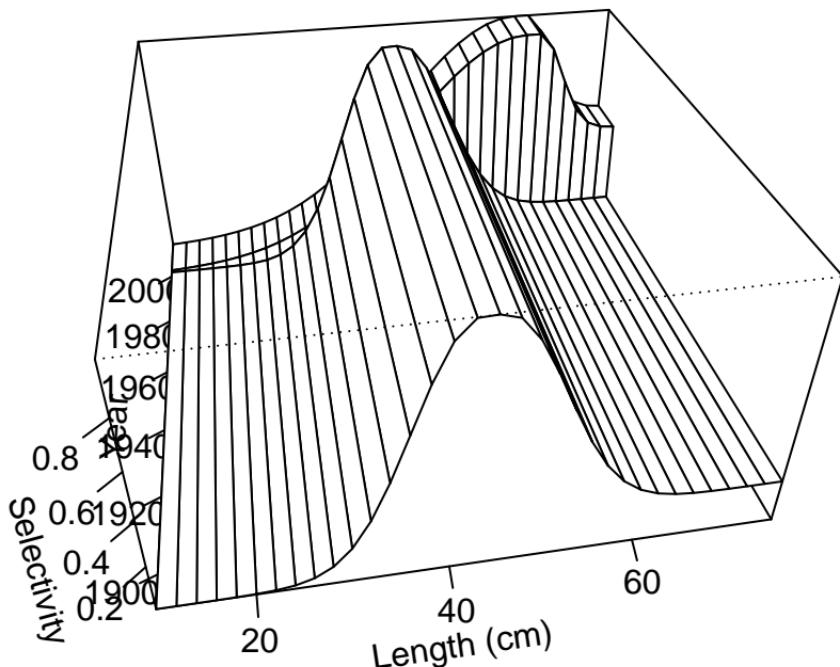
## Female ending year selectivity for NWFSC Trawl



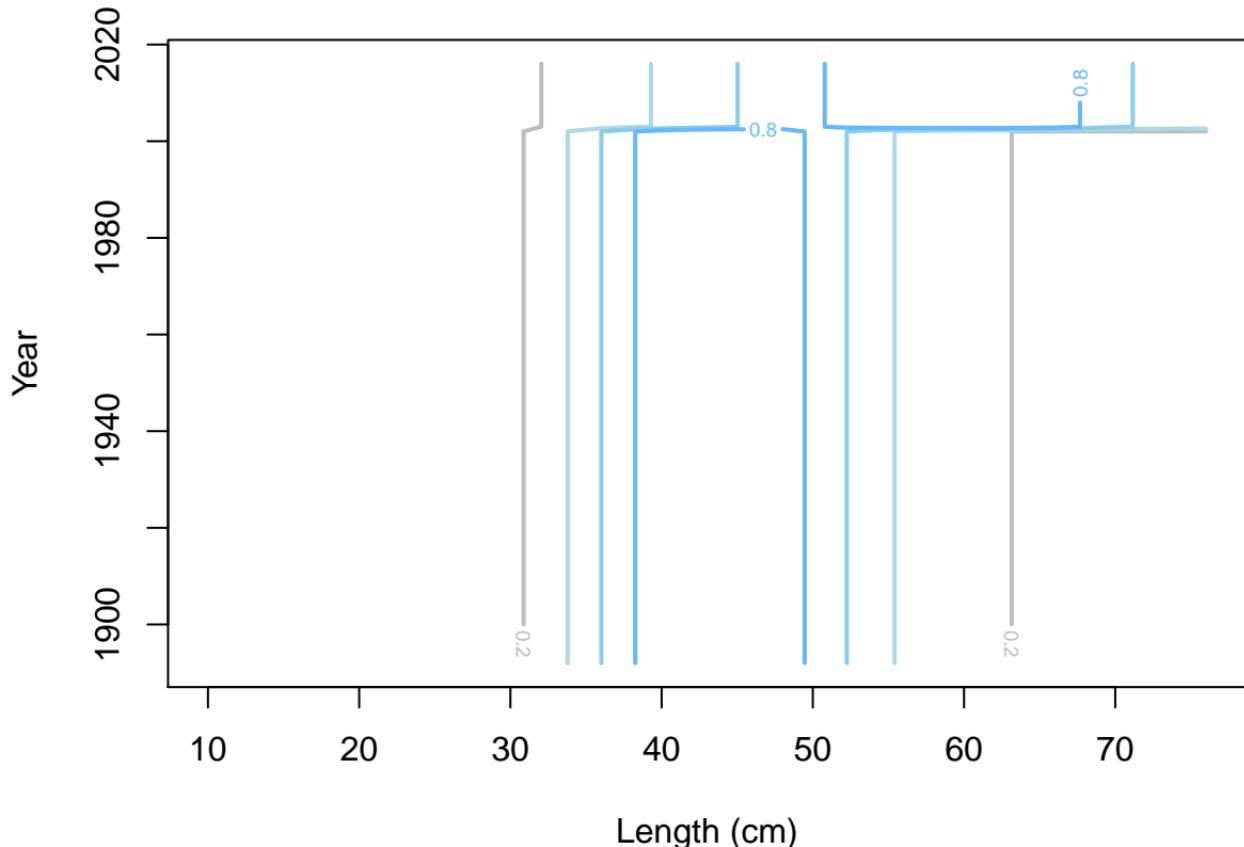
## Male ending year selectivity for NWFSC Trawl



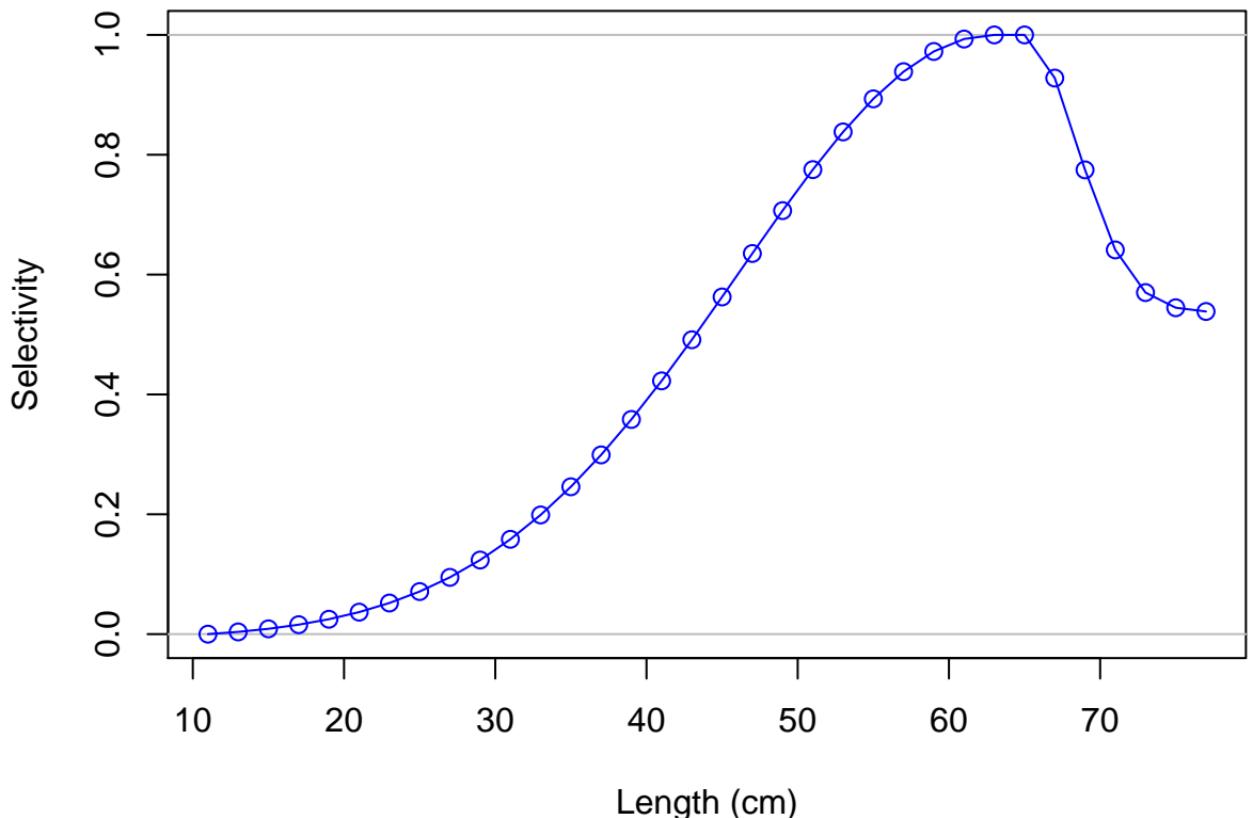
## Female time-varying selectivity for Free1



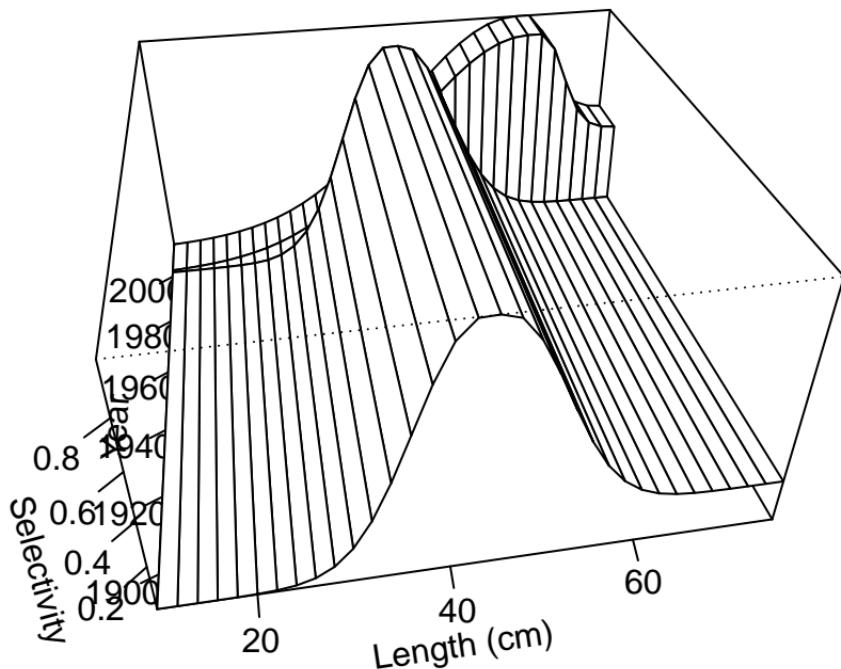
## Female time-varying selectivity for Free1



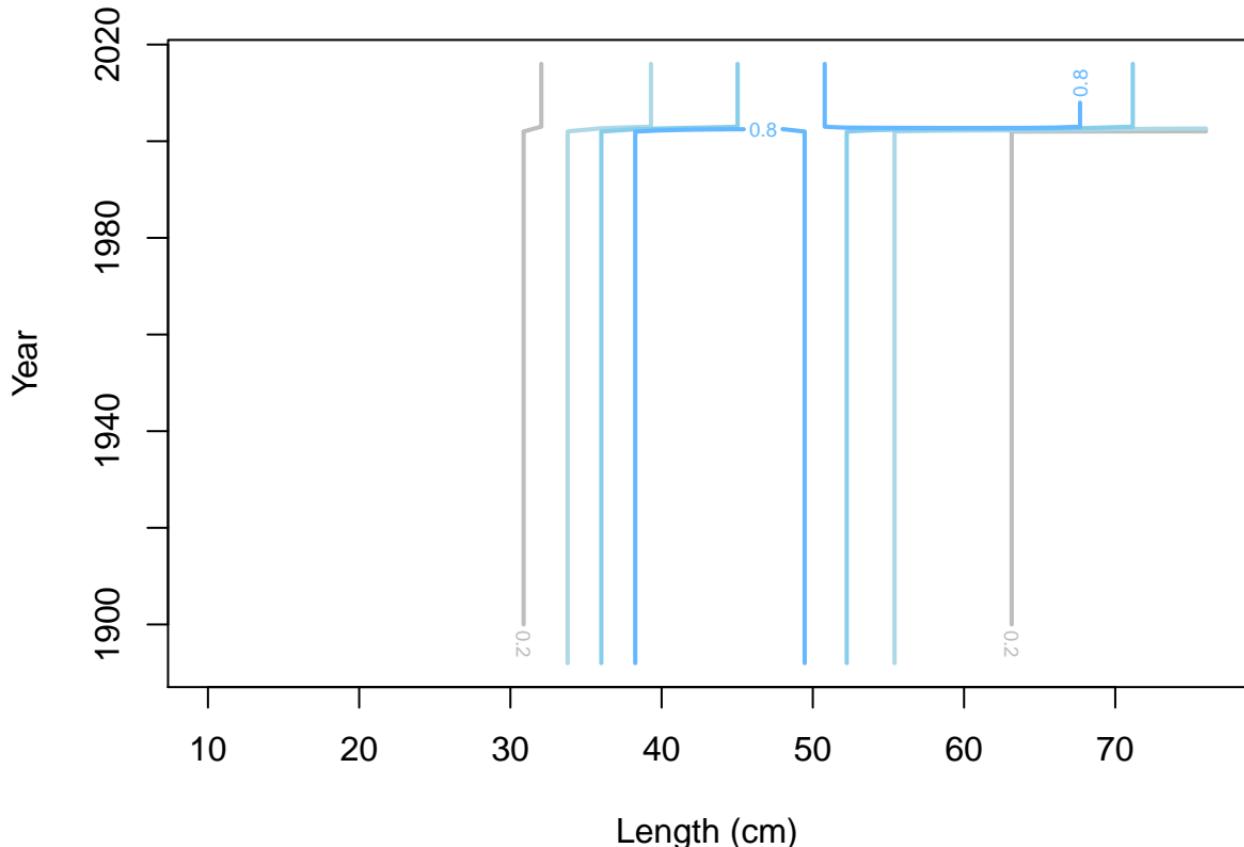
## Female ending year selectivity for Free1



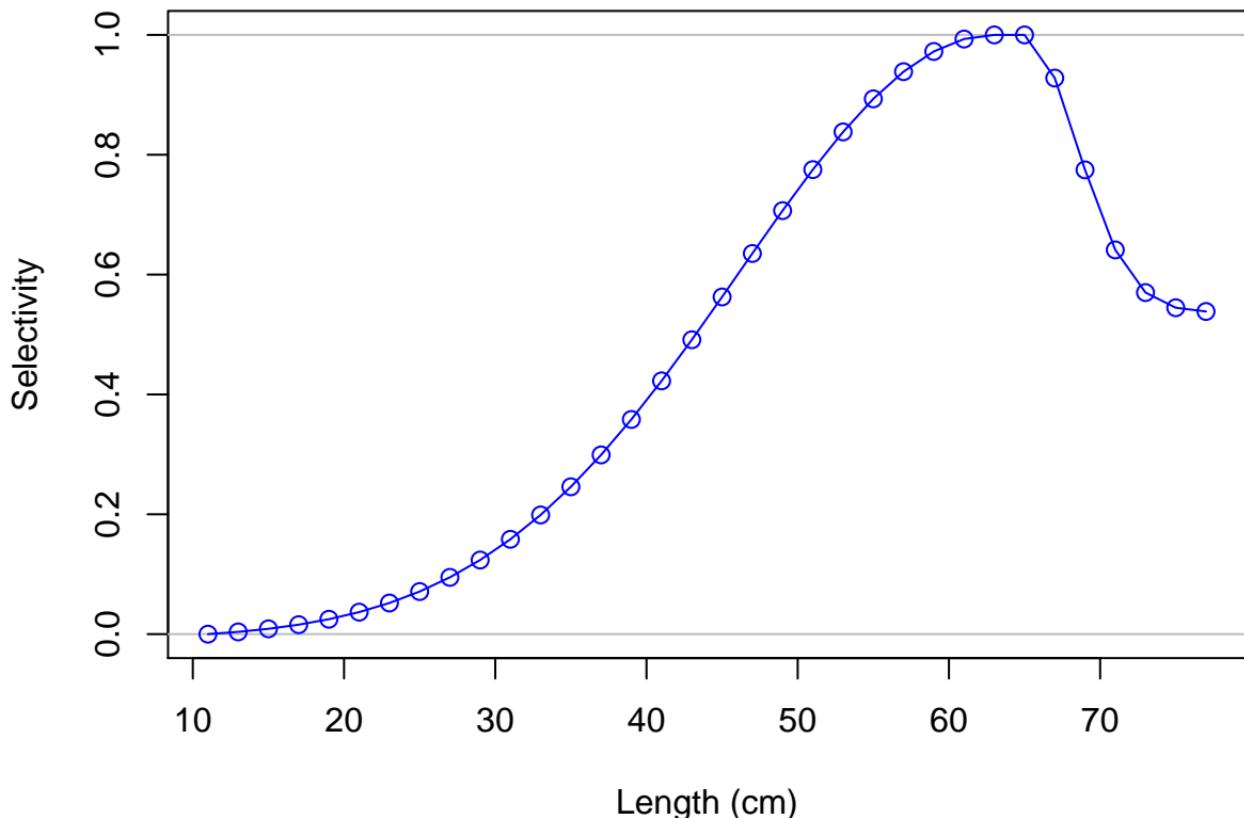
## Male time-varying selectivity for Free1



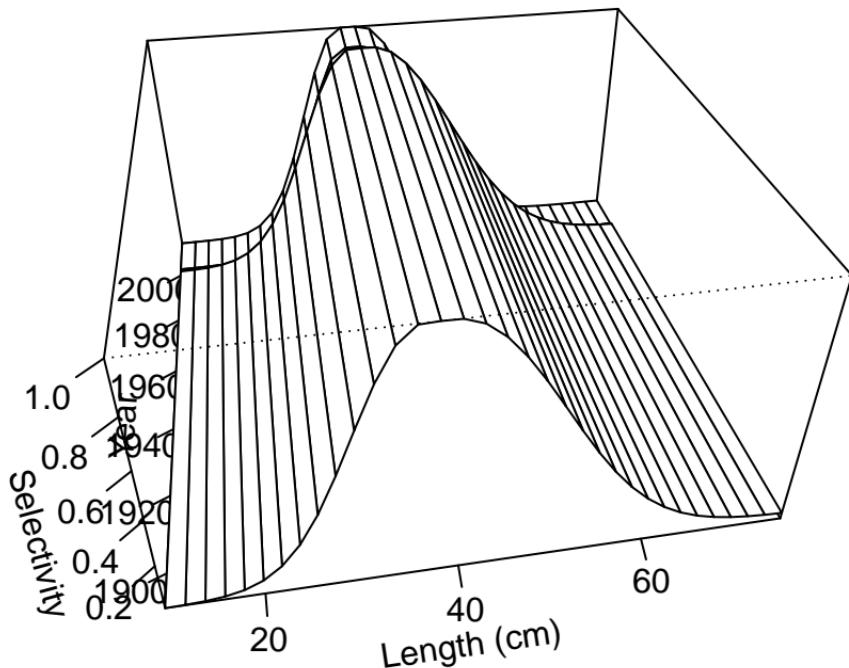
## Male time-varying selectivity for Free1



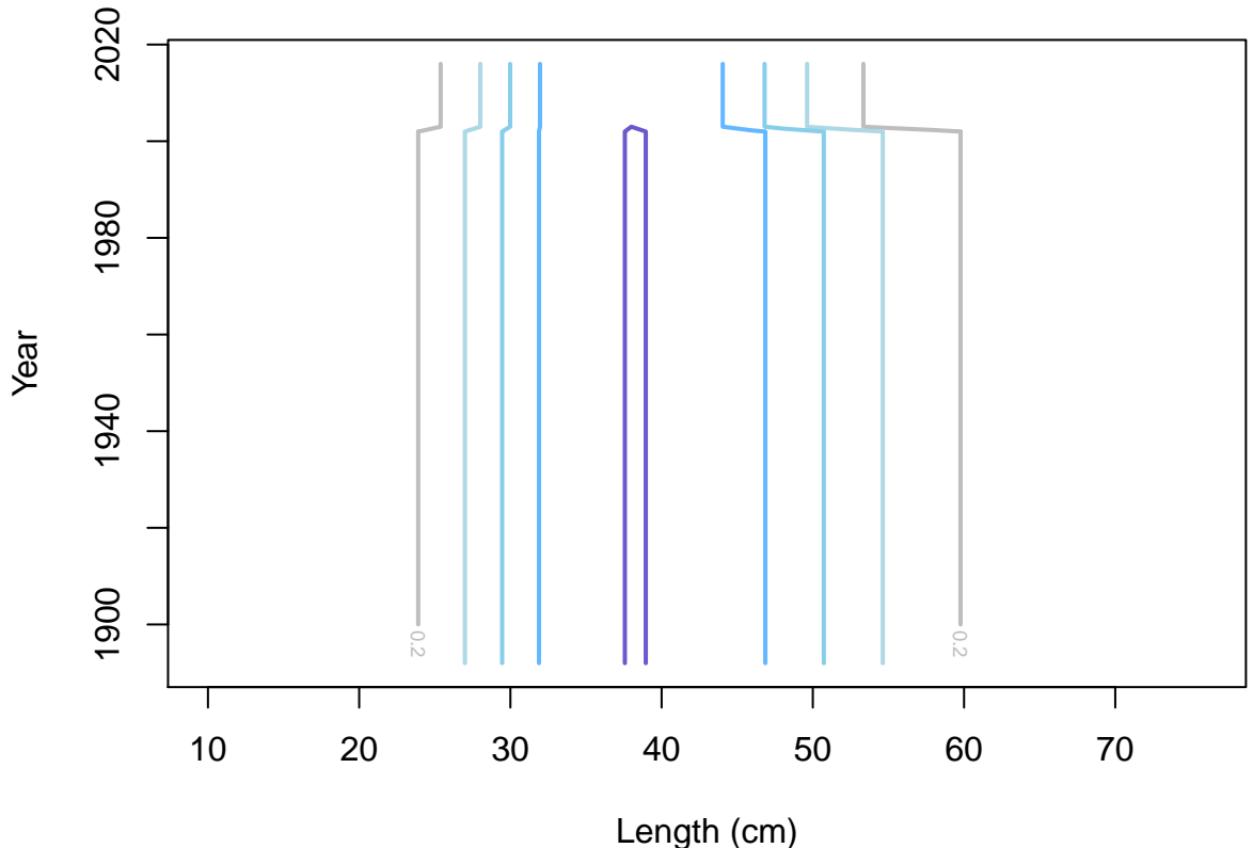
## Male ending year selectivity for Free1



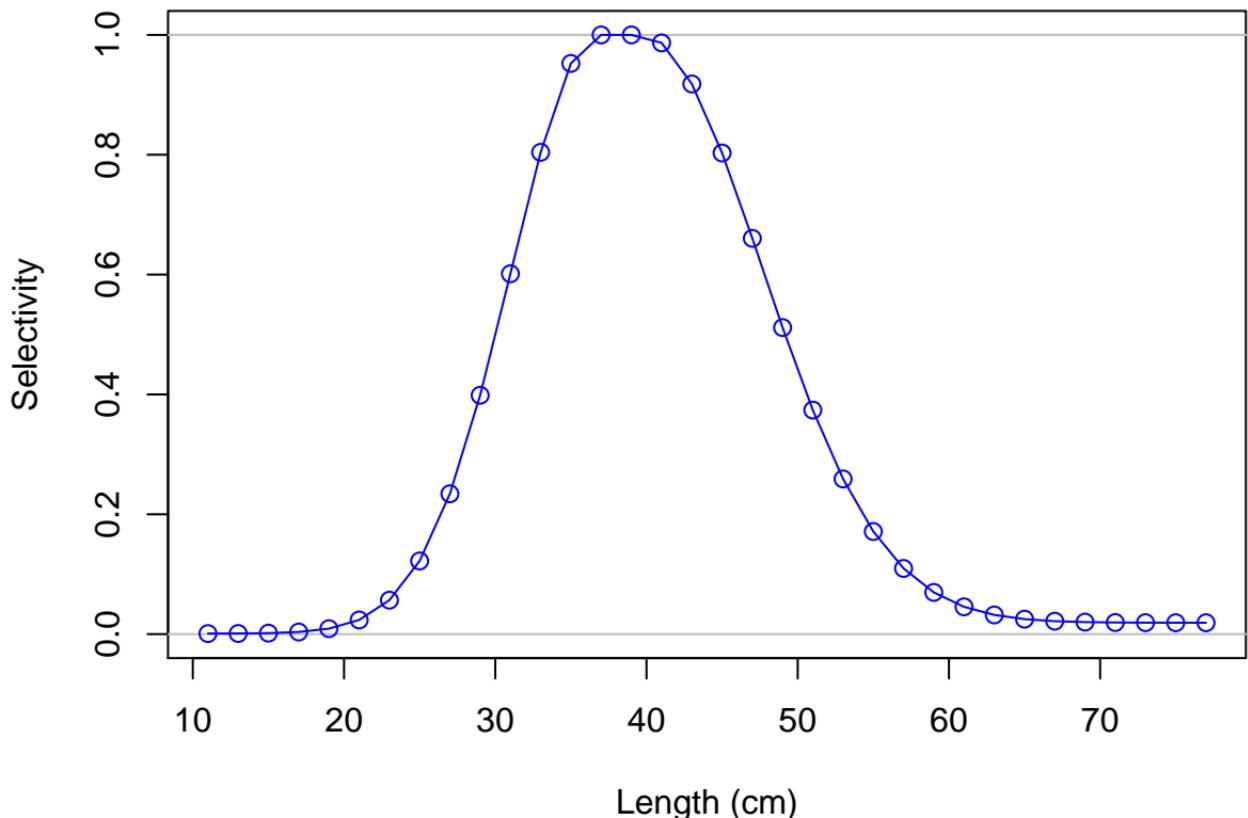
## Female time-varying selectivity for MirrorRecS



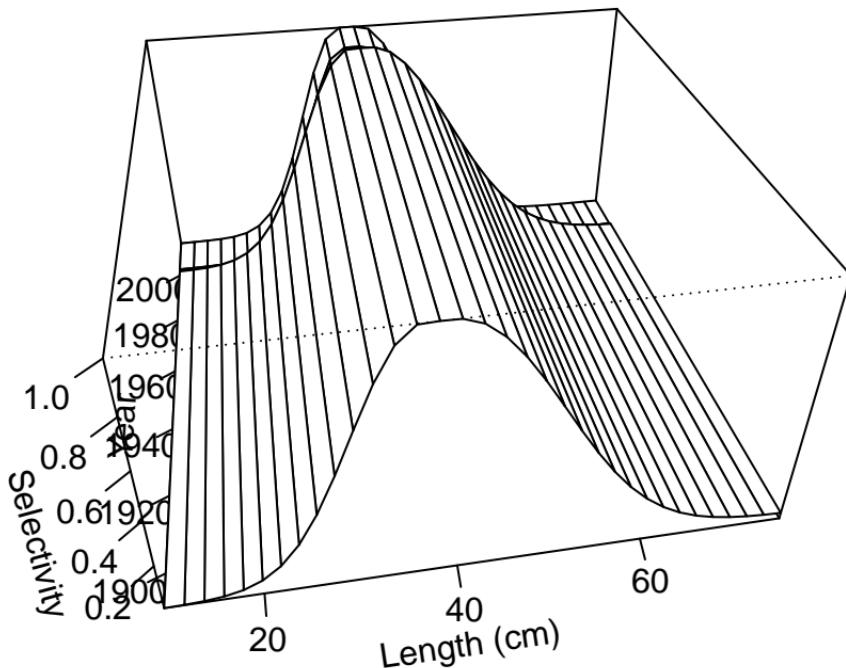
## Female time-varying selectivity for MirrorRecS



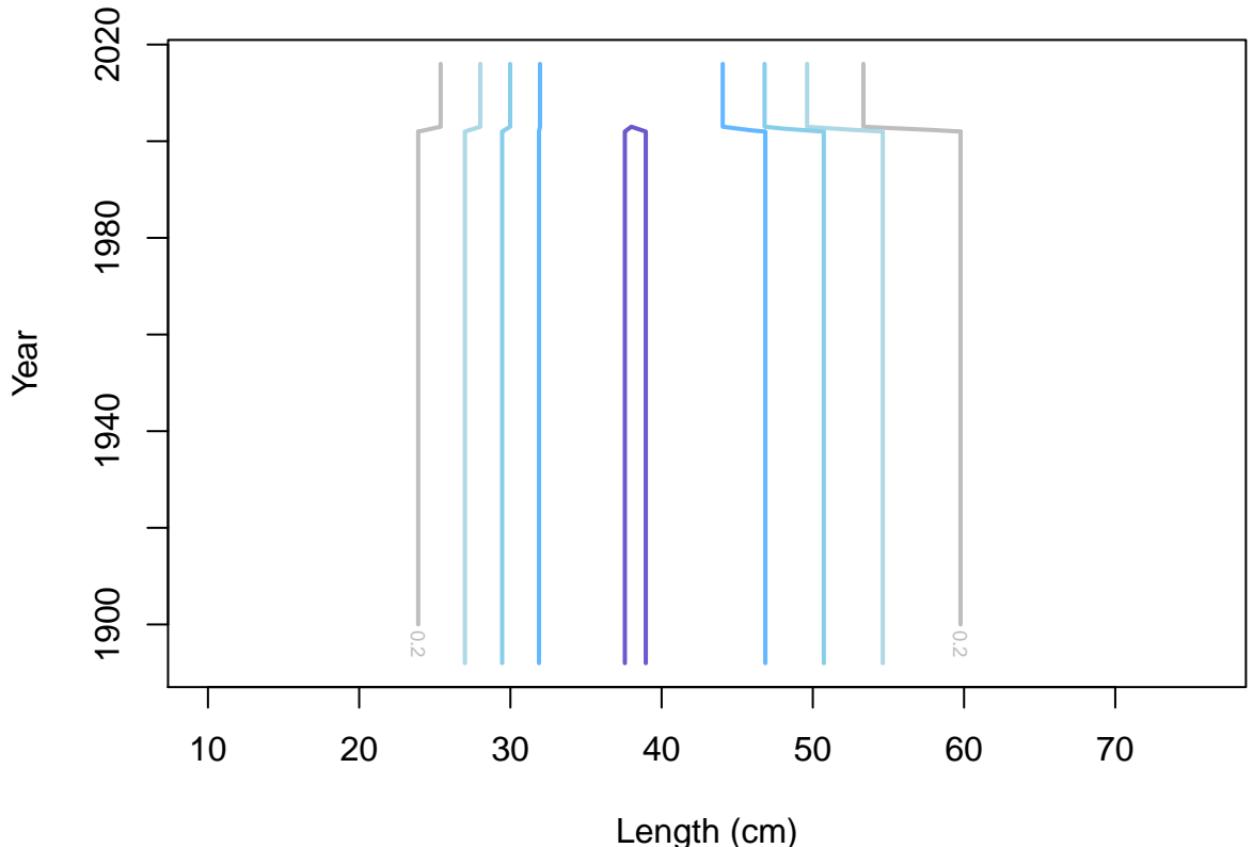
## Female ending year selectivity for MirrorRecS



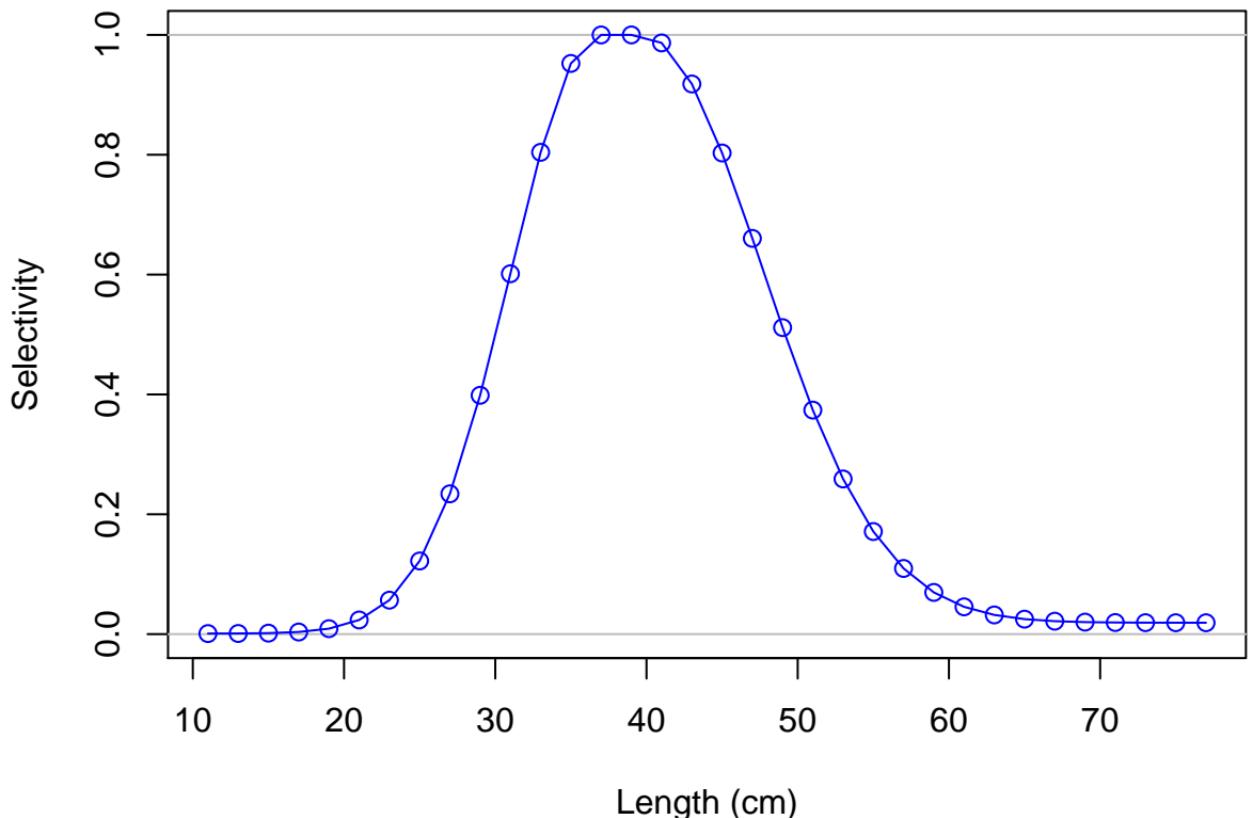
## Male time-varying selectivity for MirrorRecS



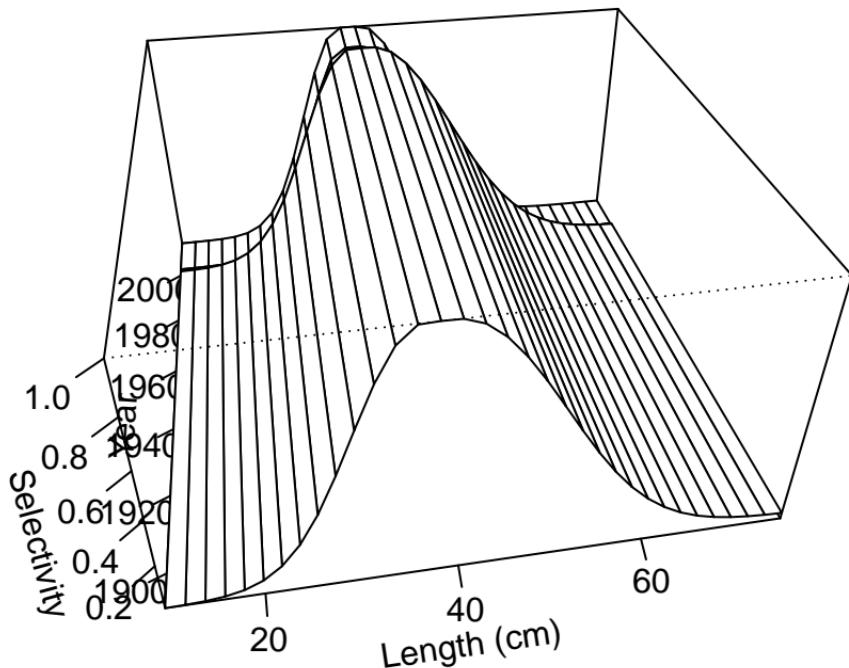
## Male time-varying selectivity for MirrorRecS



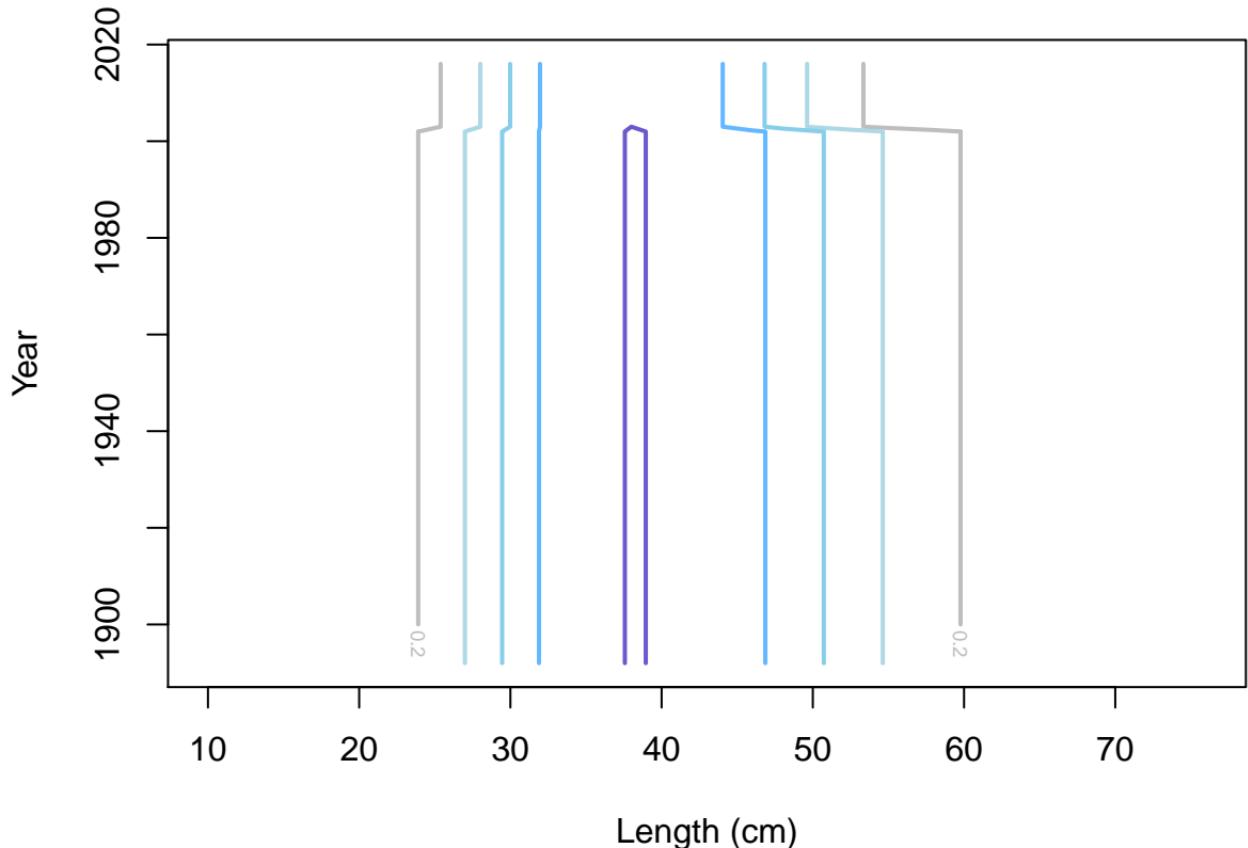
## Male ending year selectivity for MirrorRecS



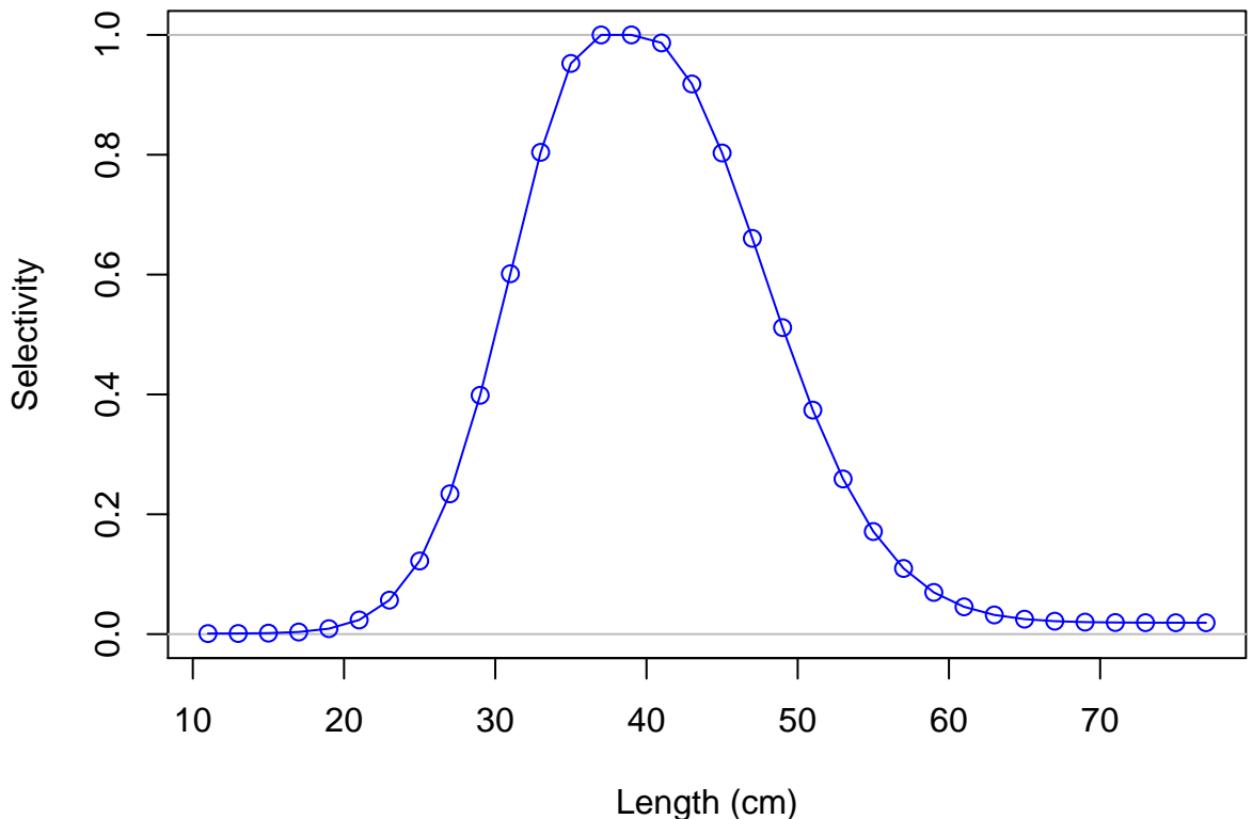
## Female time-varying selectivity for RecSouthOB



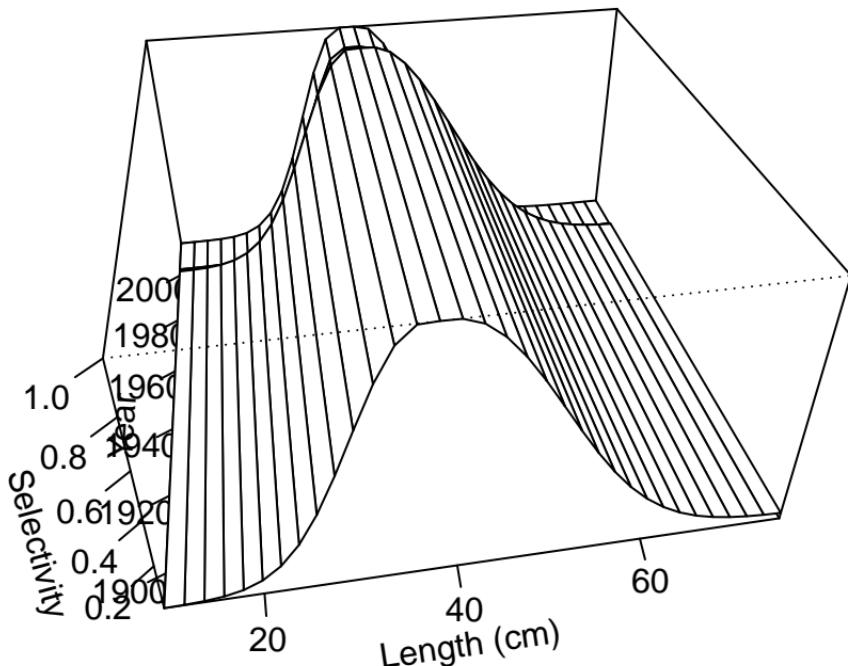
## Female time-varying selectivity for RecSouthOB



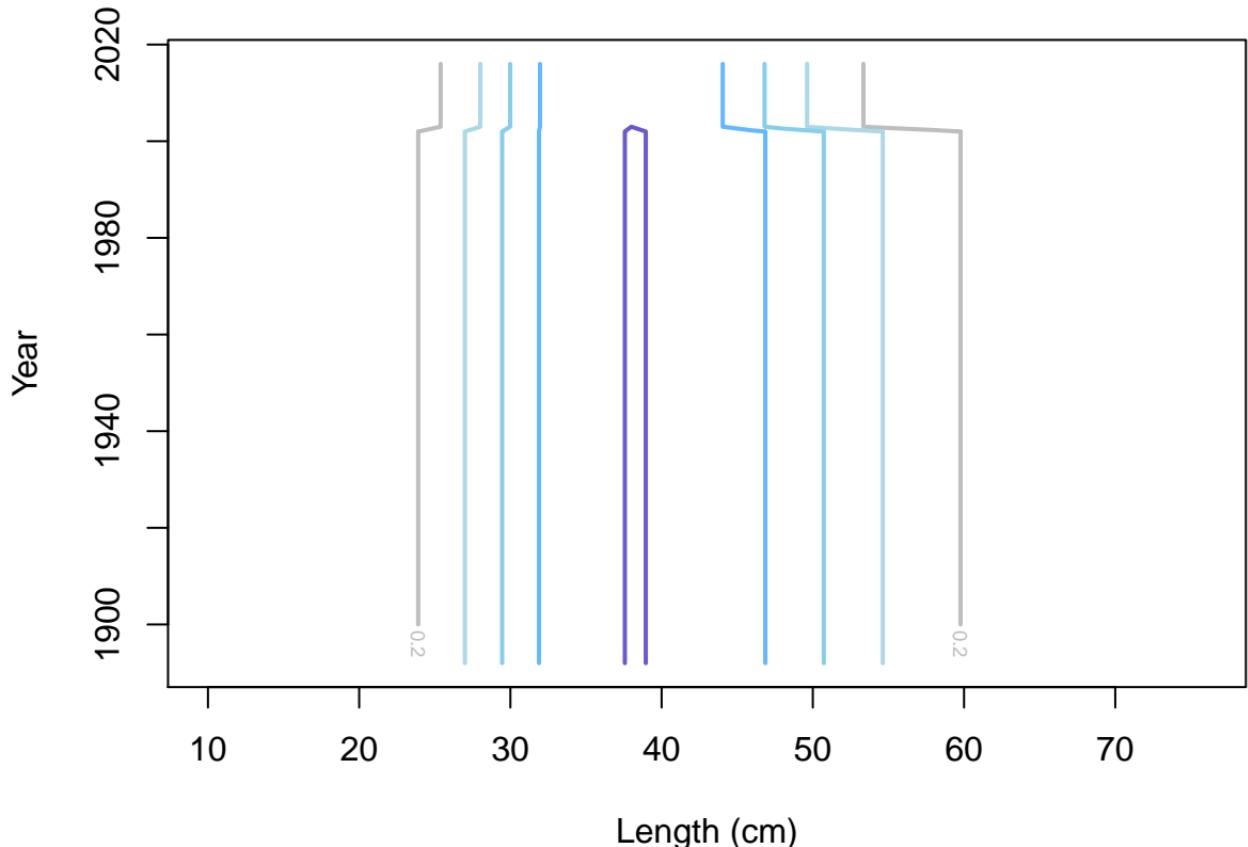
## Female ending year selectivity for RecSouthOB



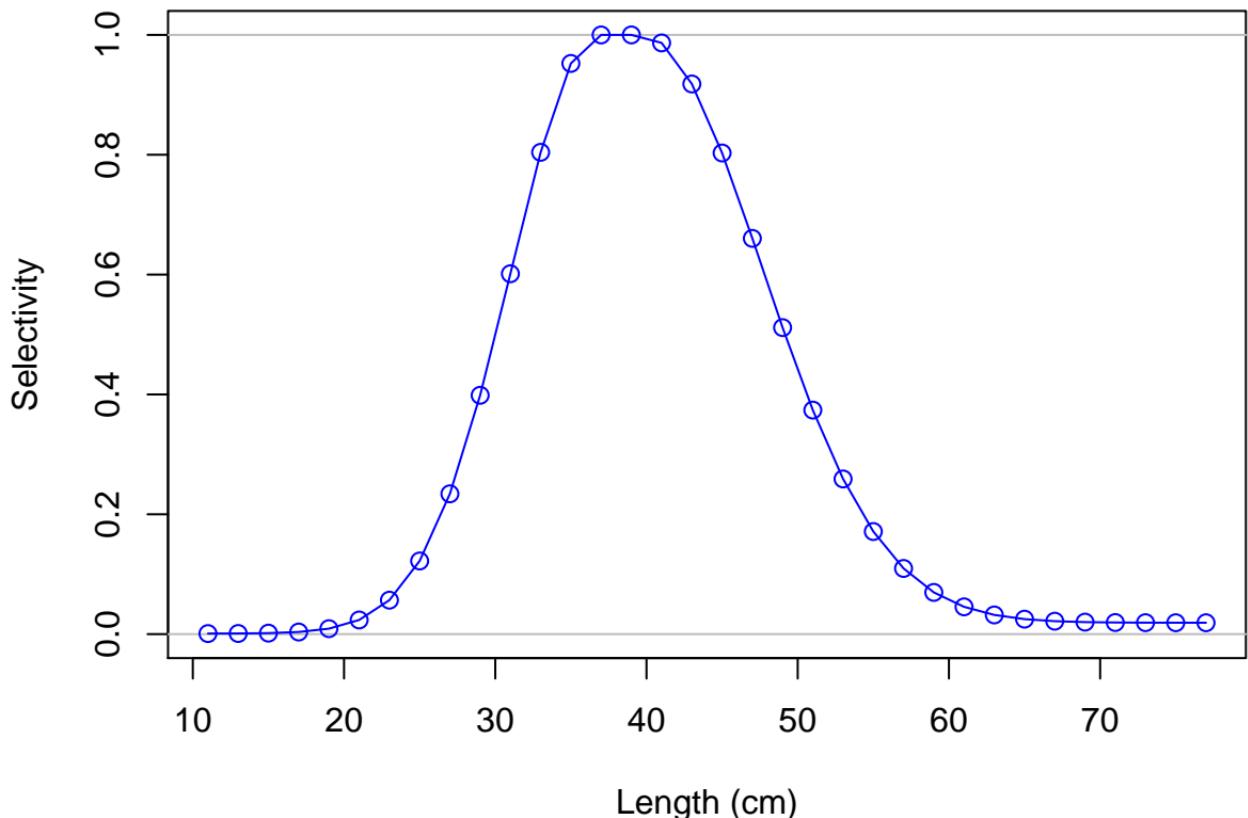
## Male time-varying selectivity for RecSouthOB



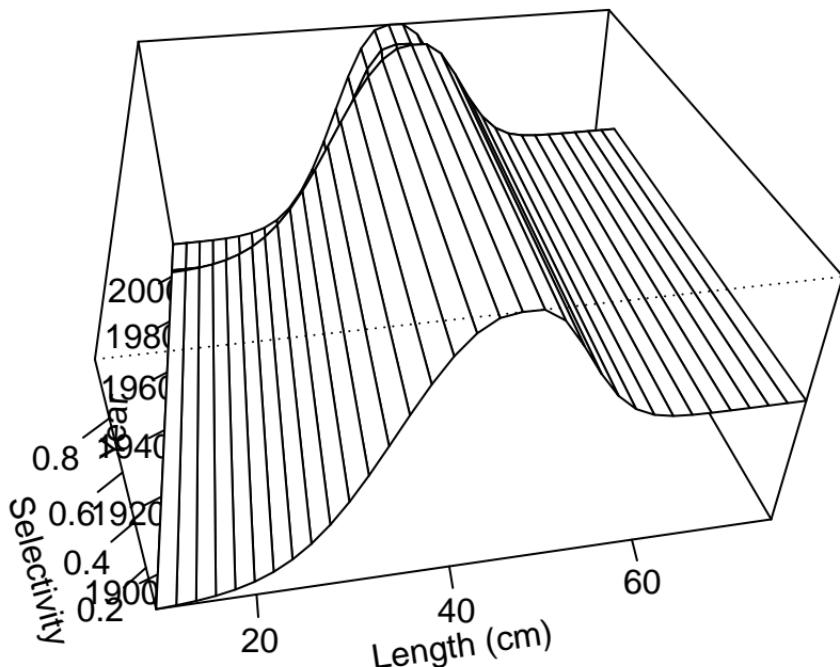
## Male time-varying selectivity for RecSouthOB



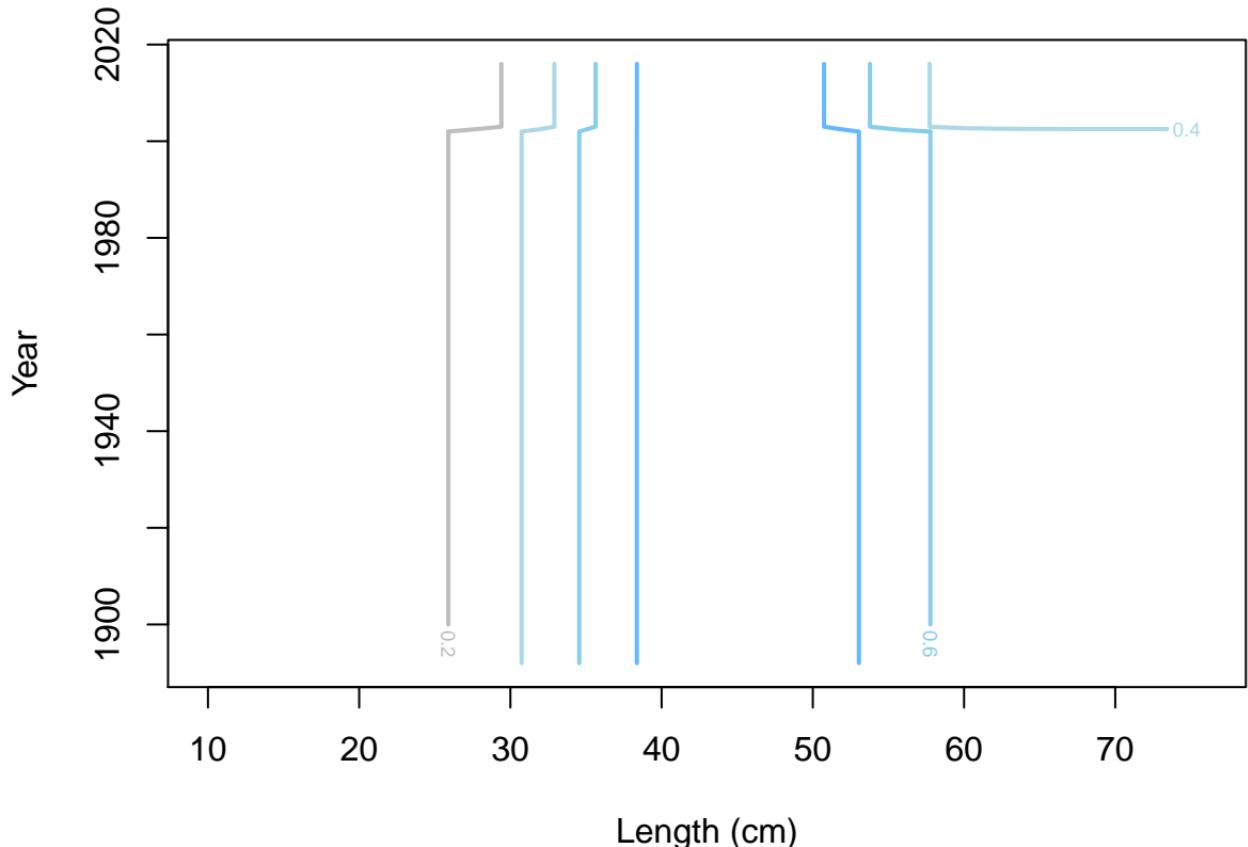
## Male ending year selectivity for RecSouthOB



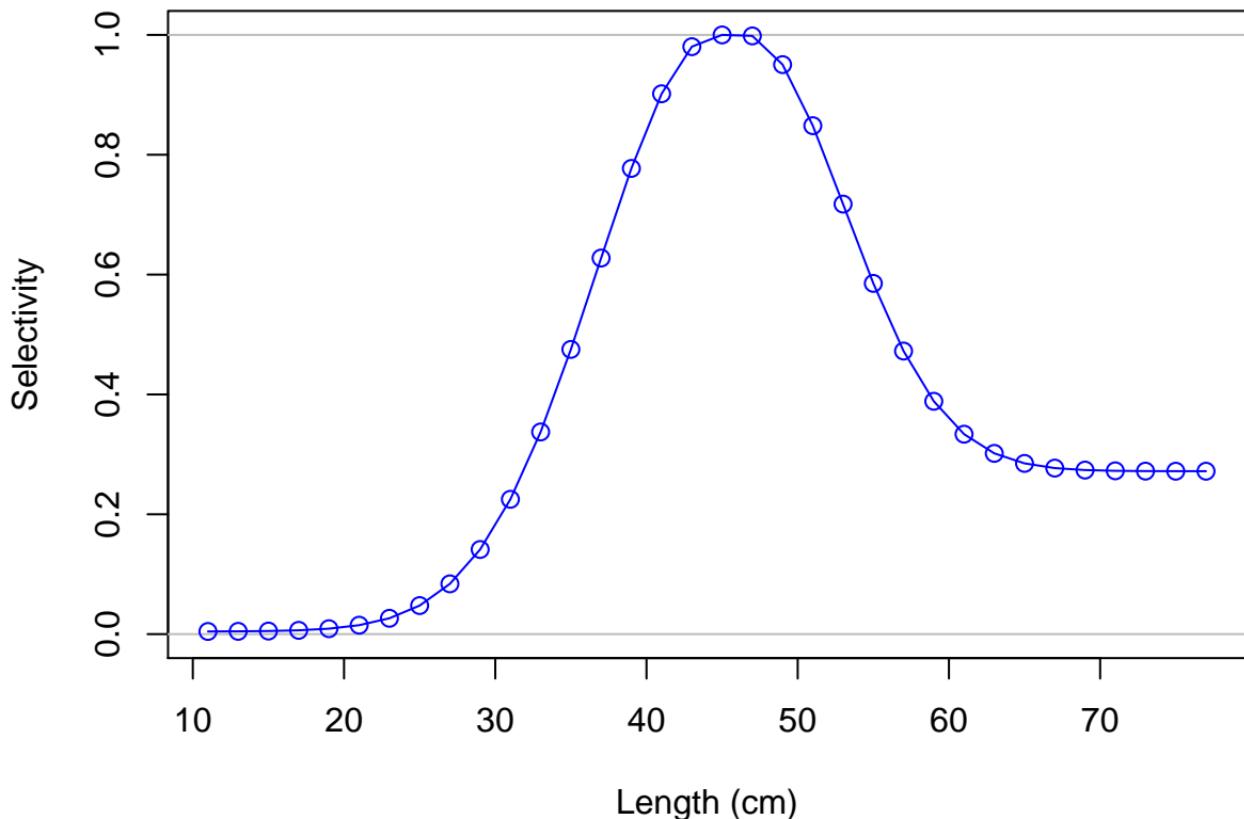
## Female time-varying selectivity for RecCentralOB



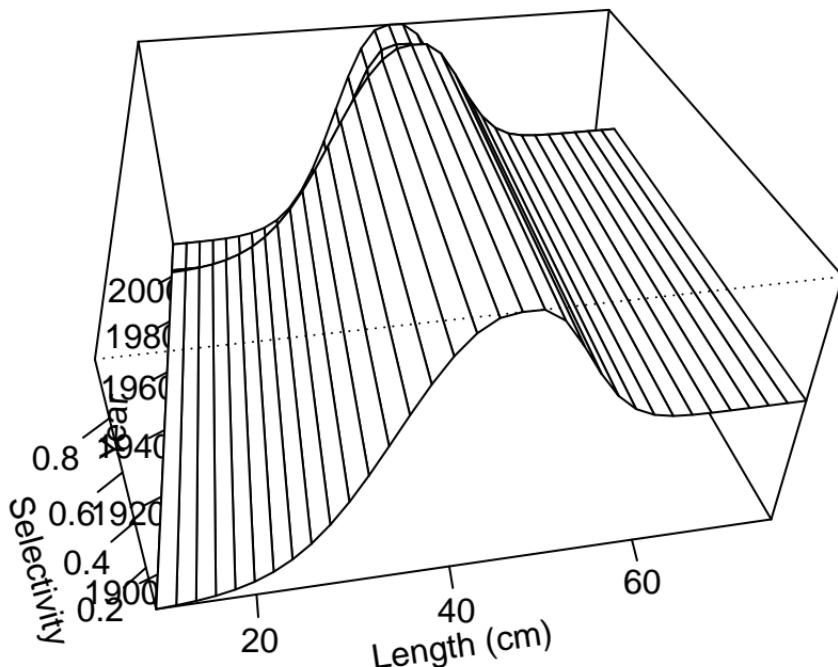
## Female time-varying selectivity for RecCentralOB



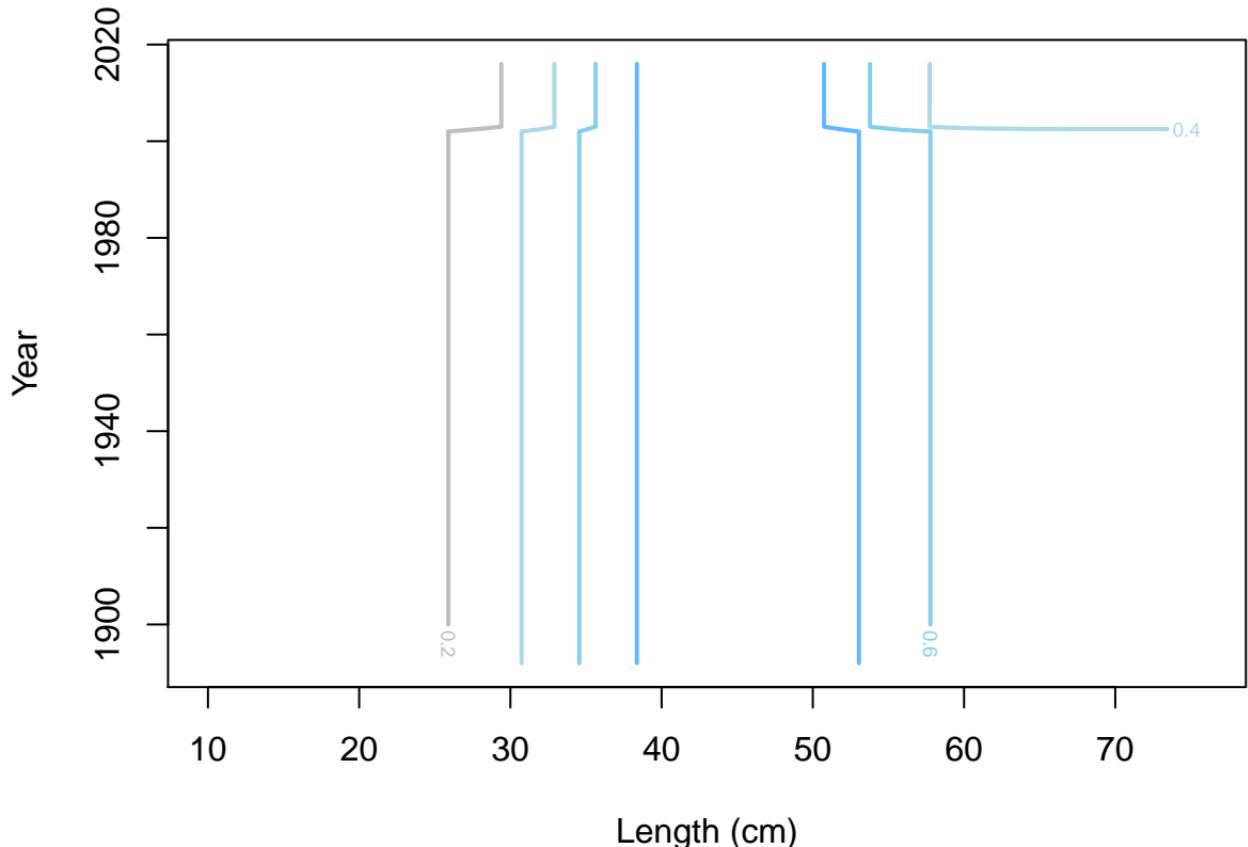
## Female ending year selectivity for RecCentralOB



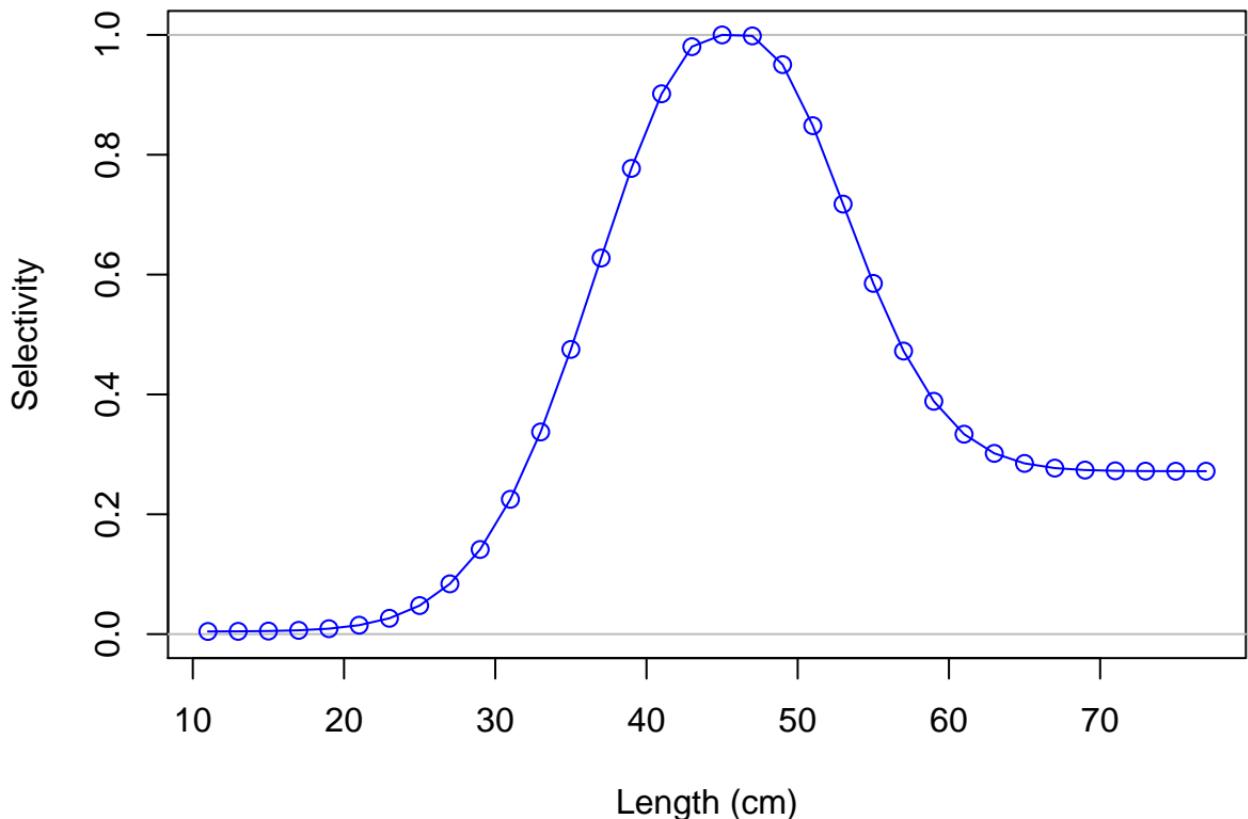
## Male time-varying selectivity for RecCentralOB



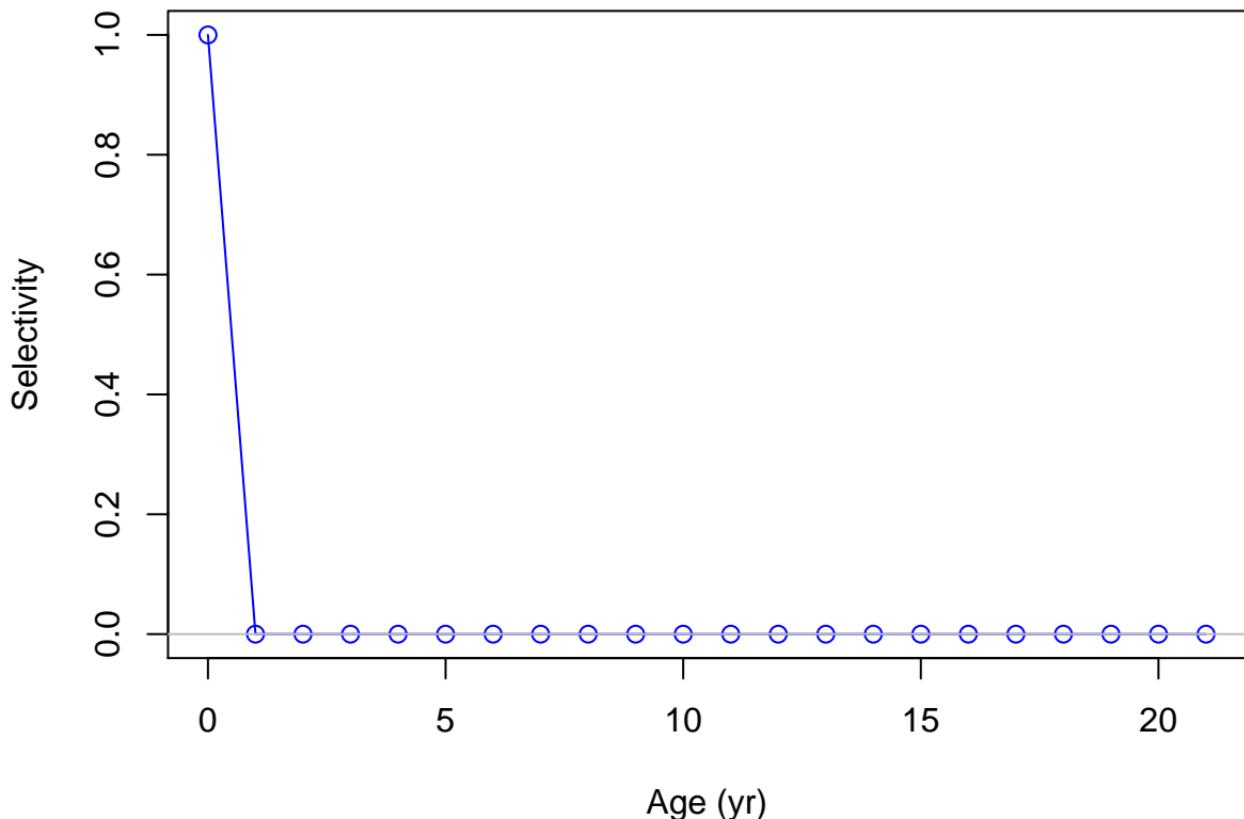
## Male time-varying selectivity for RecCentralOB



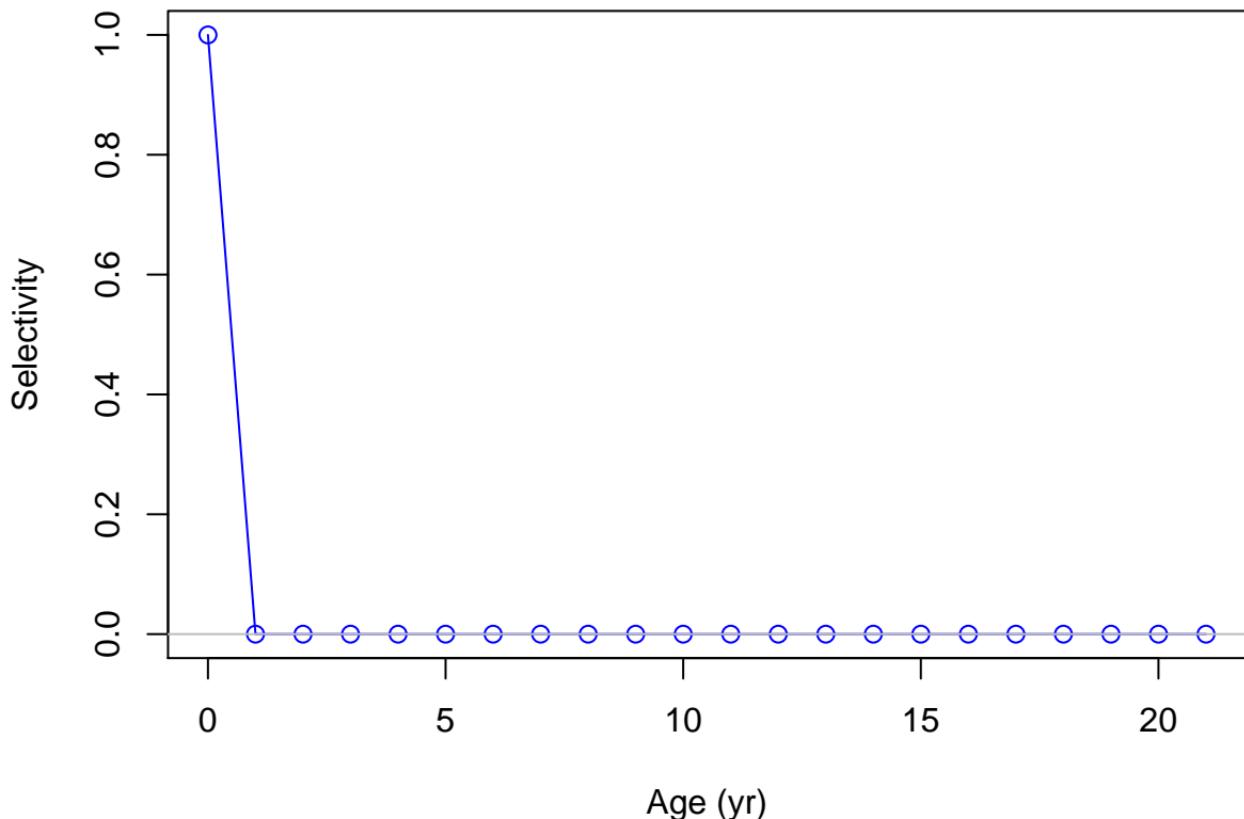
## Male ending year selectivity for RecCentralOB



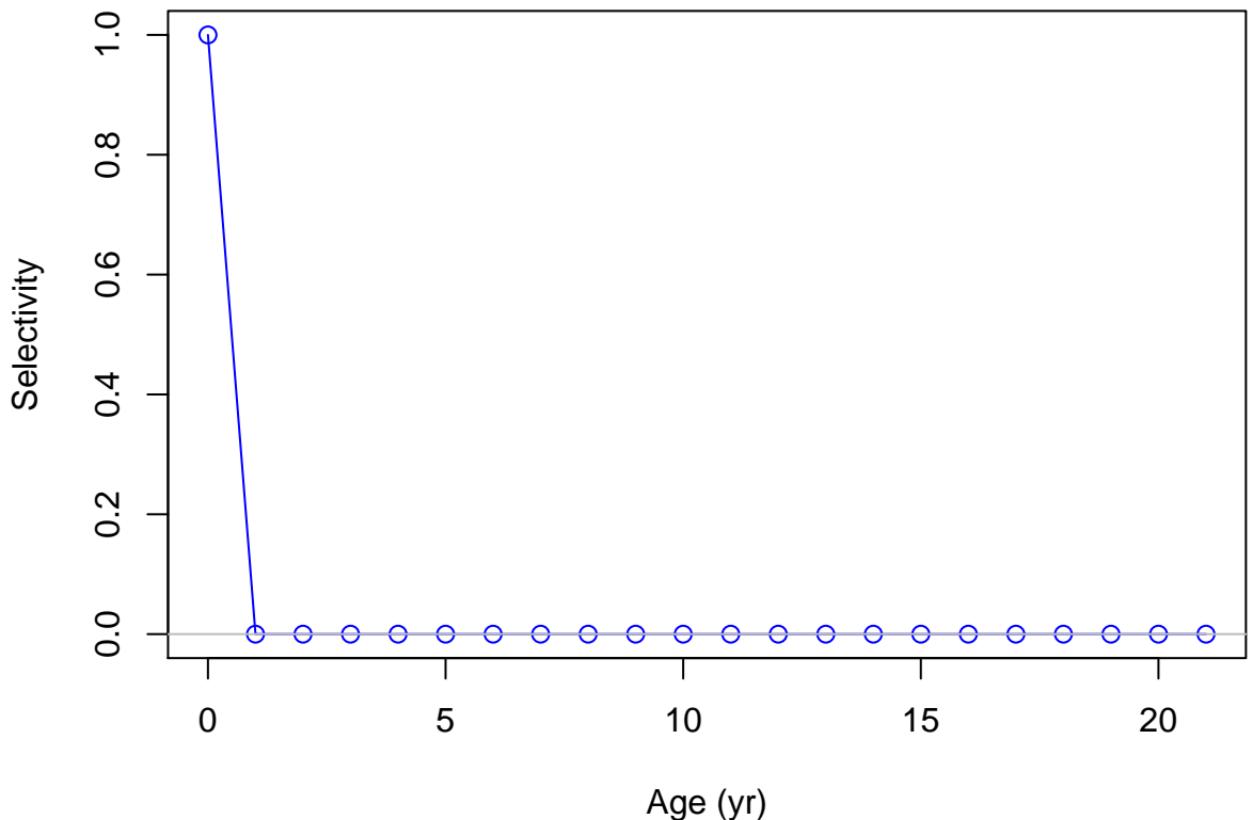
## Female ending year selectivity for Juvenile



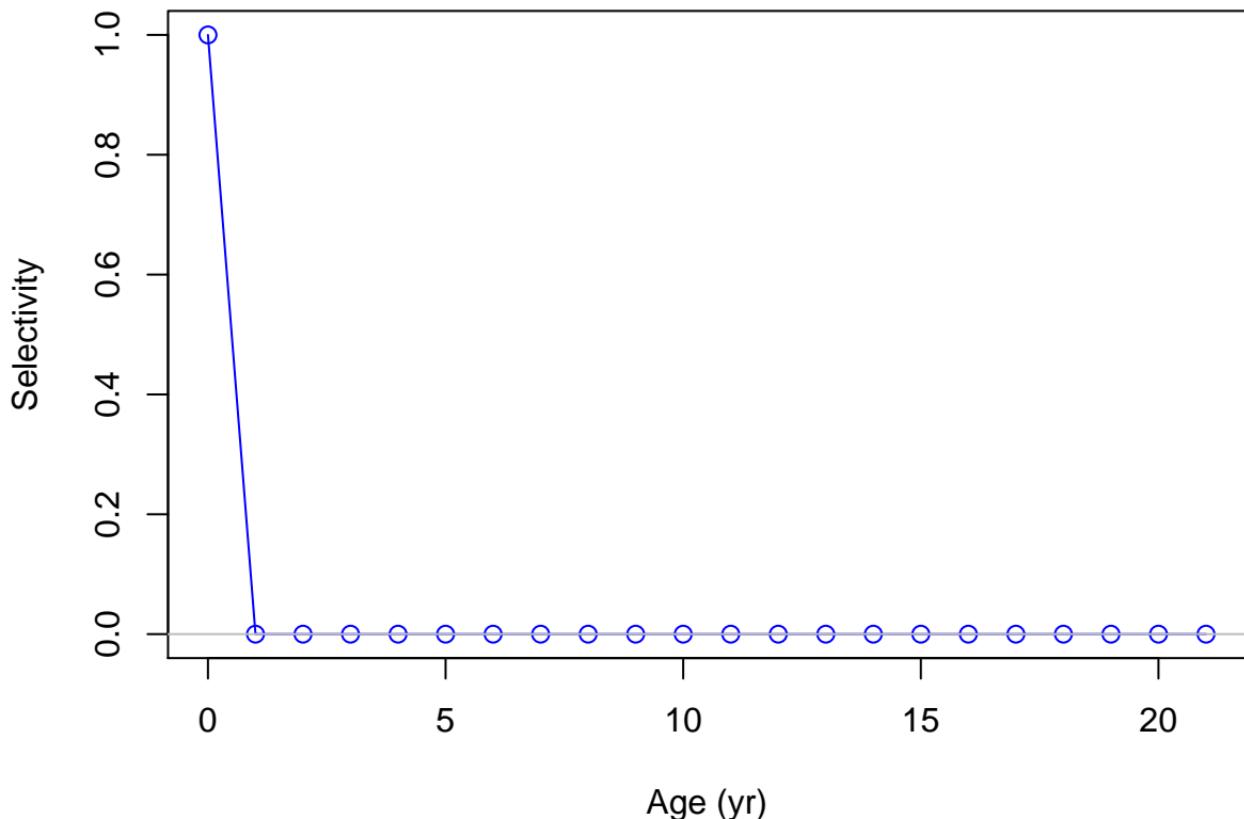
### Male ending year selectivity for Juvenile



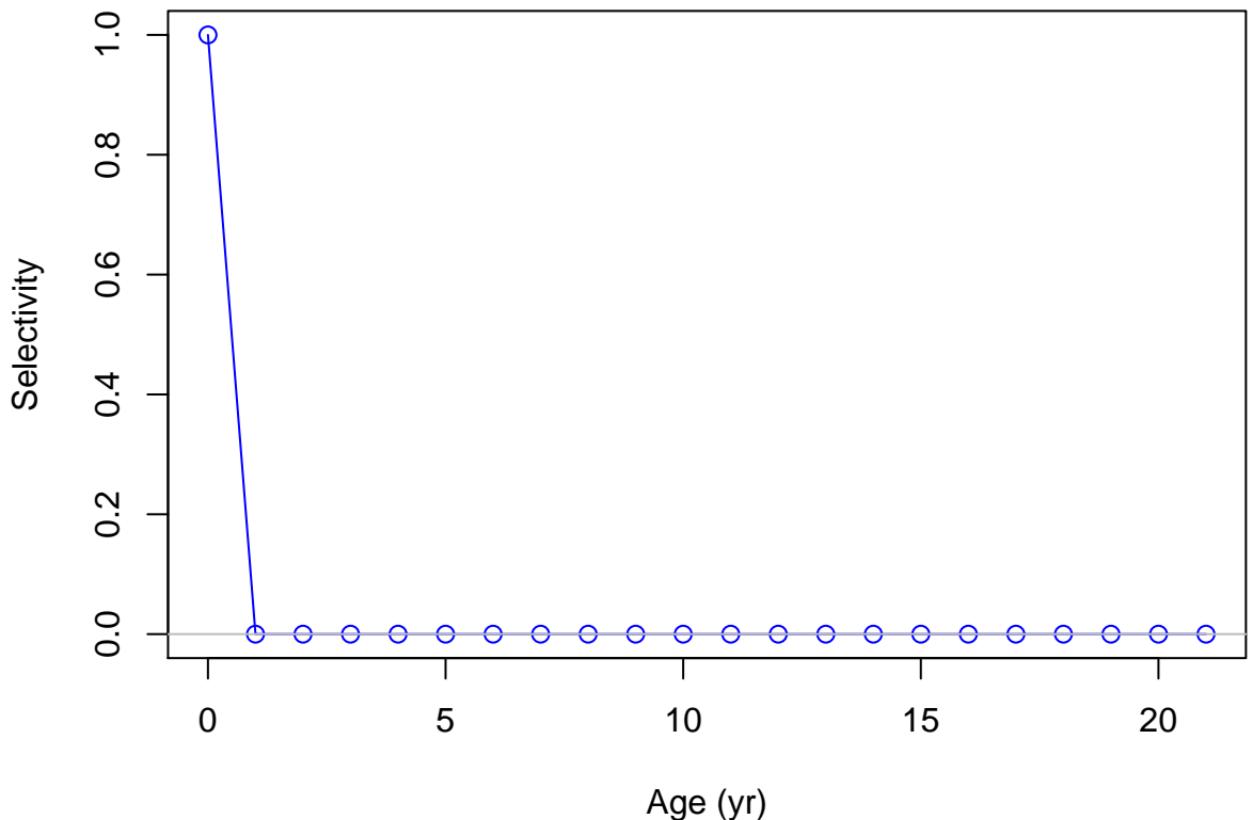
## Female ending year selectivity for Rec2013



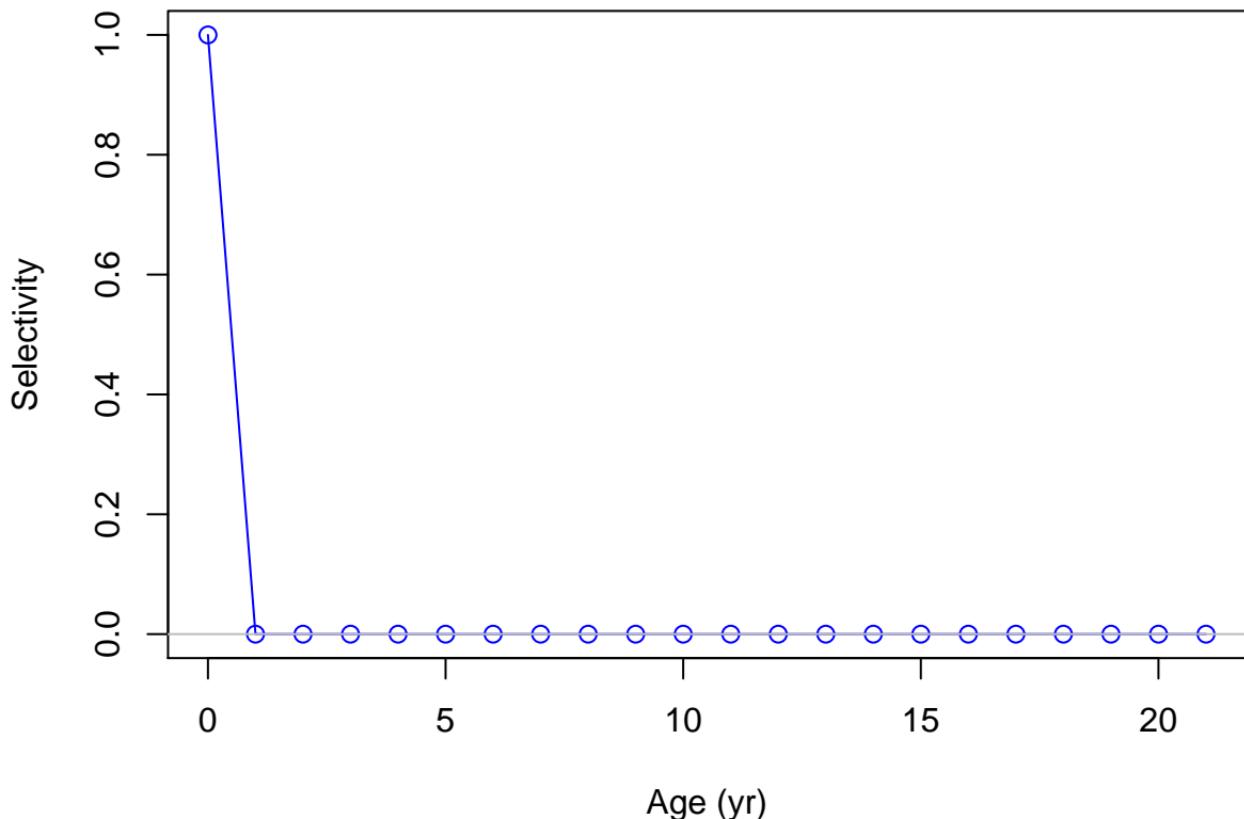
## Male ending year selectivity for Rec2013



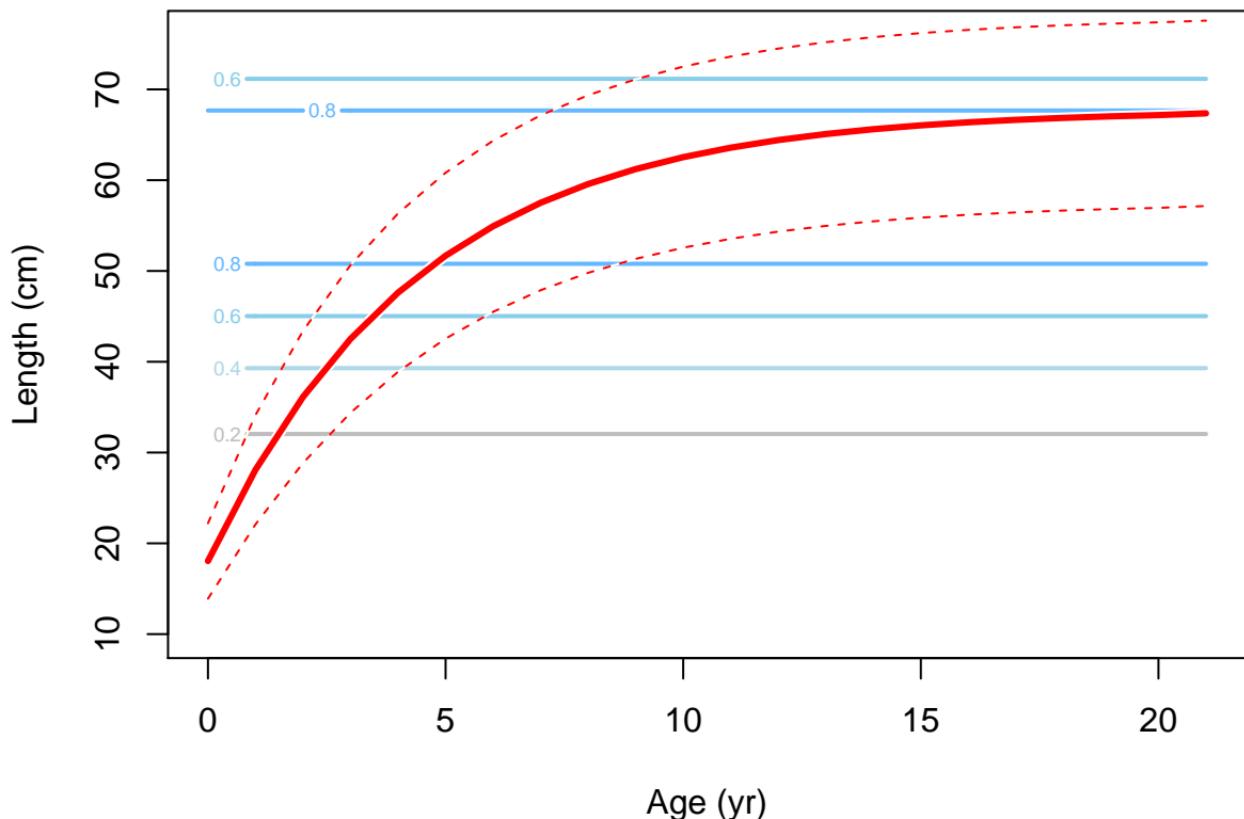
## Female ending year selectivity for PPIIndex



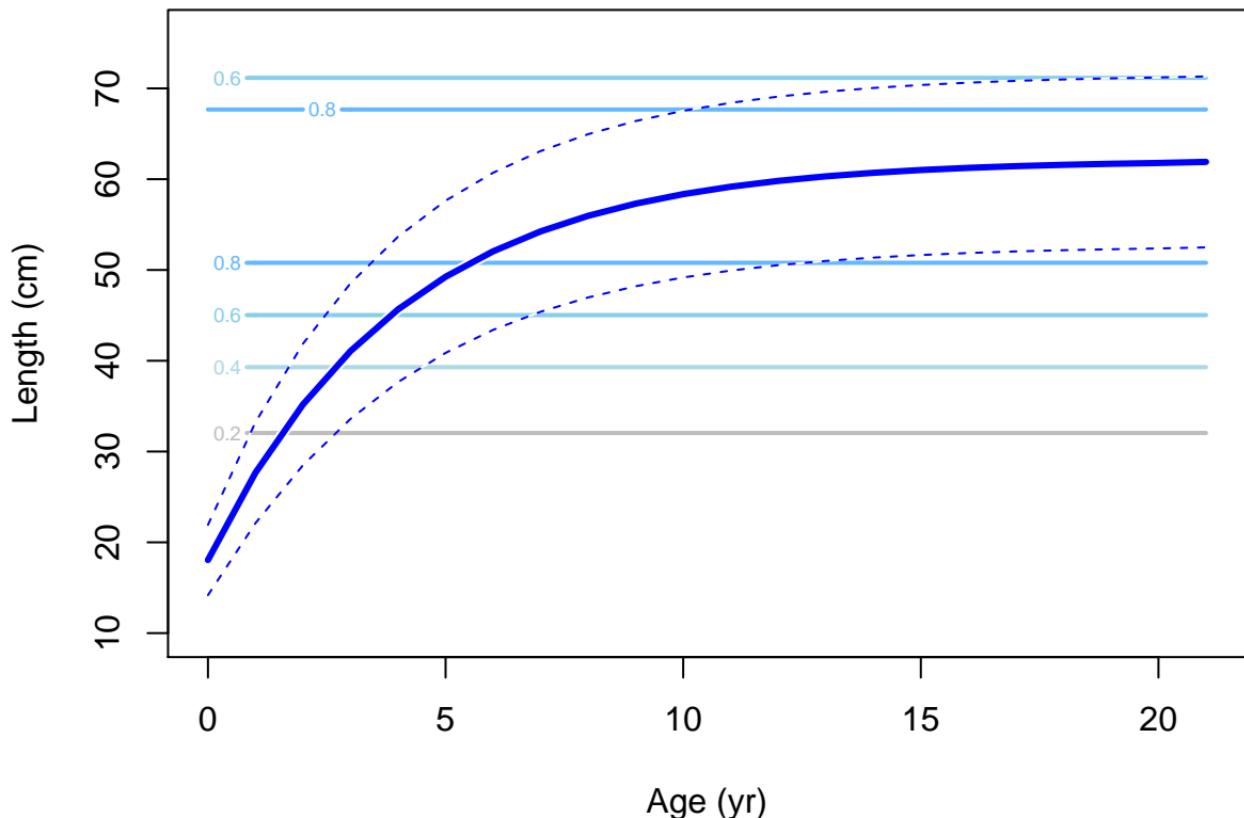
## Male ending year selectivity for PPIIndex



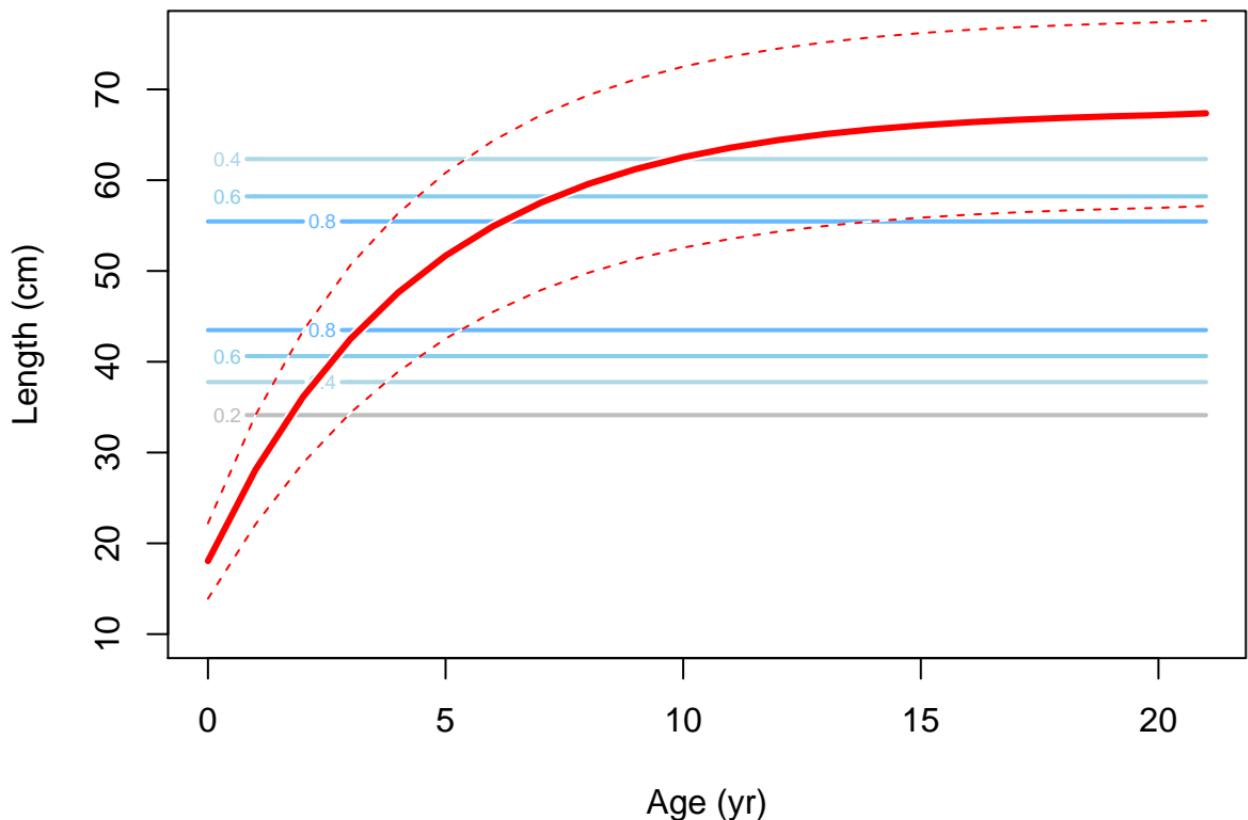
## Female ending year selectivity and growth for TrawlSouth



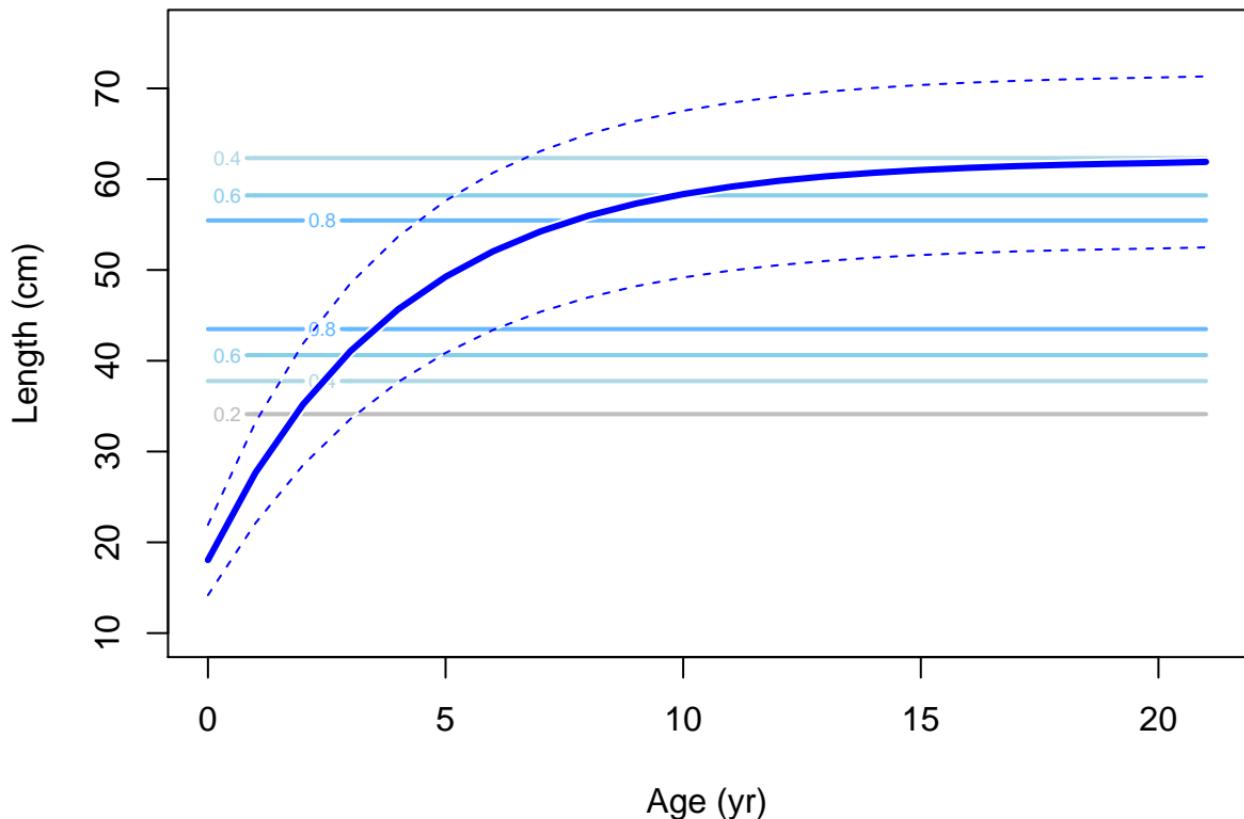
## Male ending year selectivity and growth for TrawlSouth



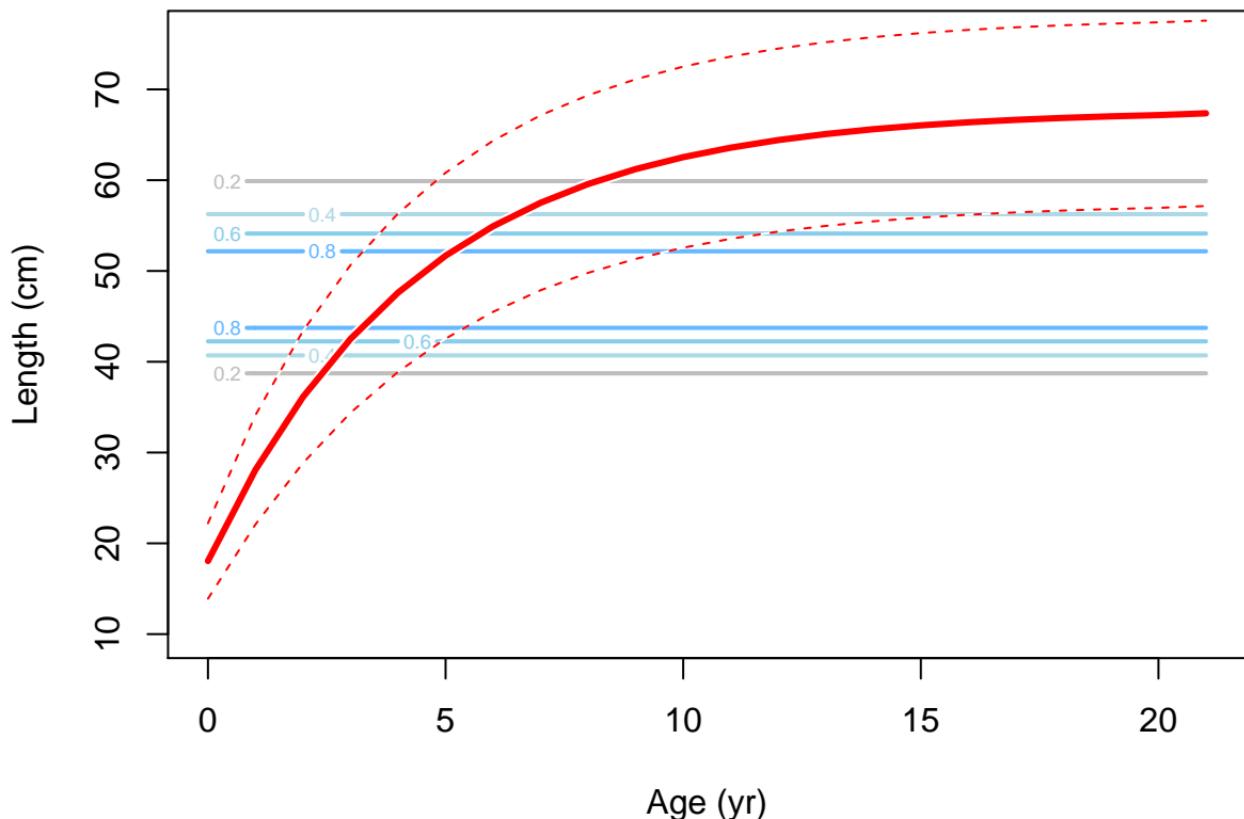
## Female ending year selectivity and growth for HL



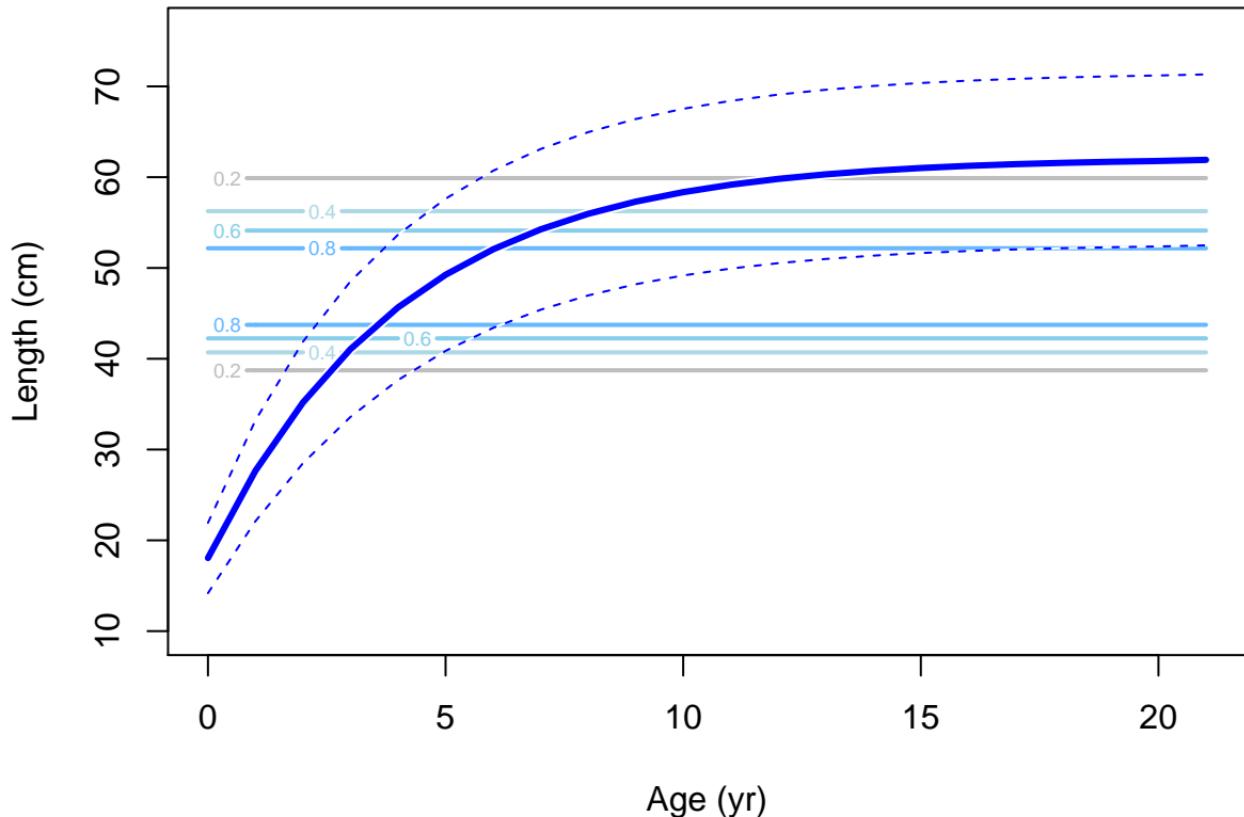
## Male ending year selectivity and growth for HL



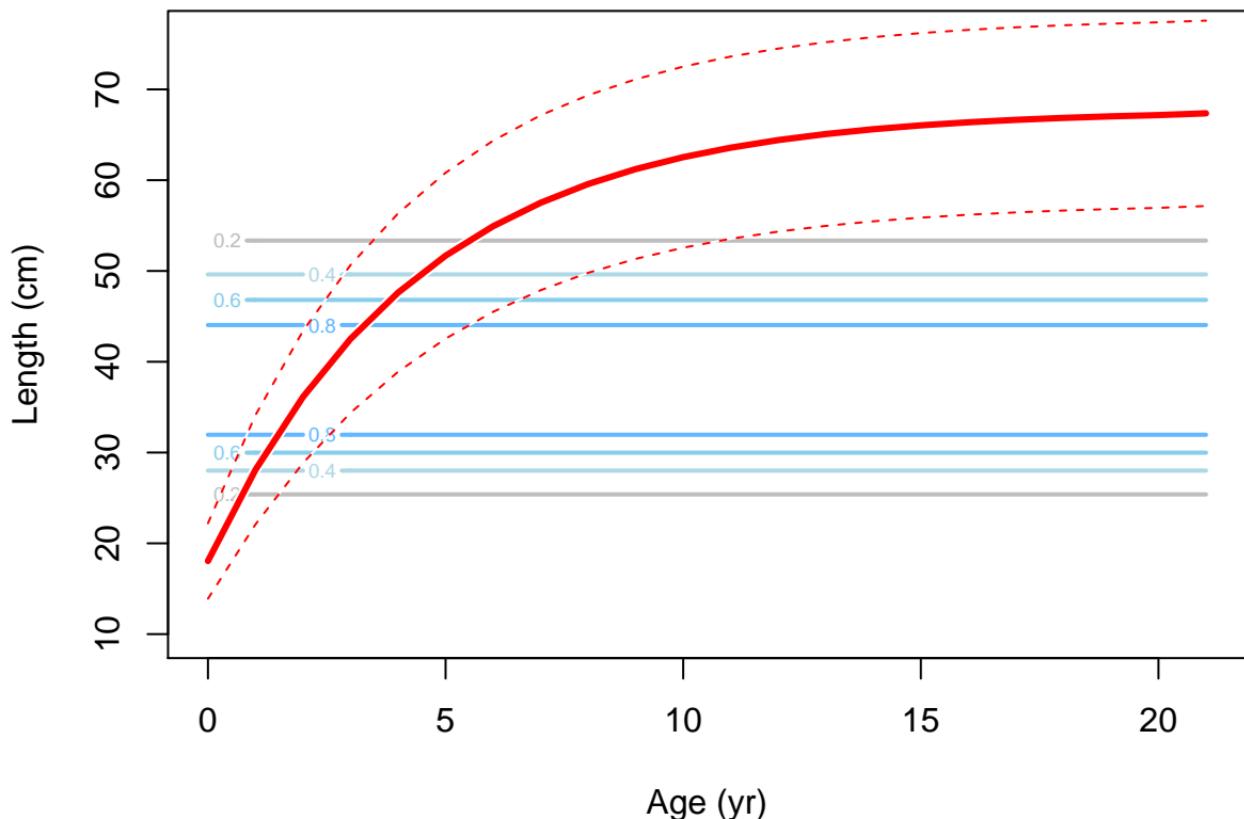
## Female ending year selectivity and growth for Setnet



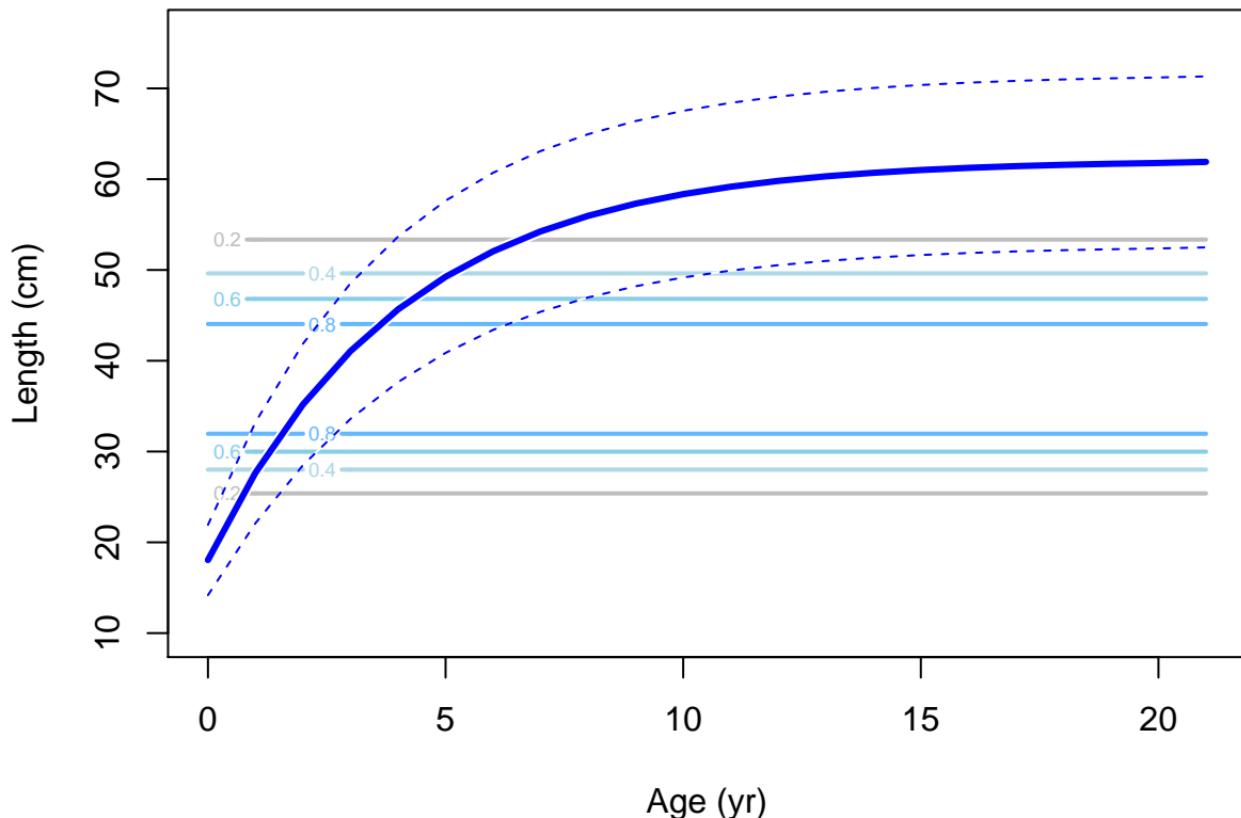
## Male ending year selectivity and growth for Setnet



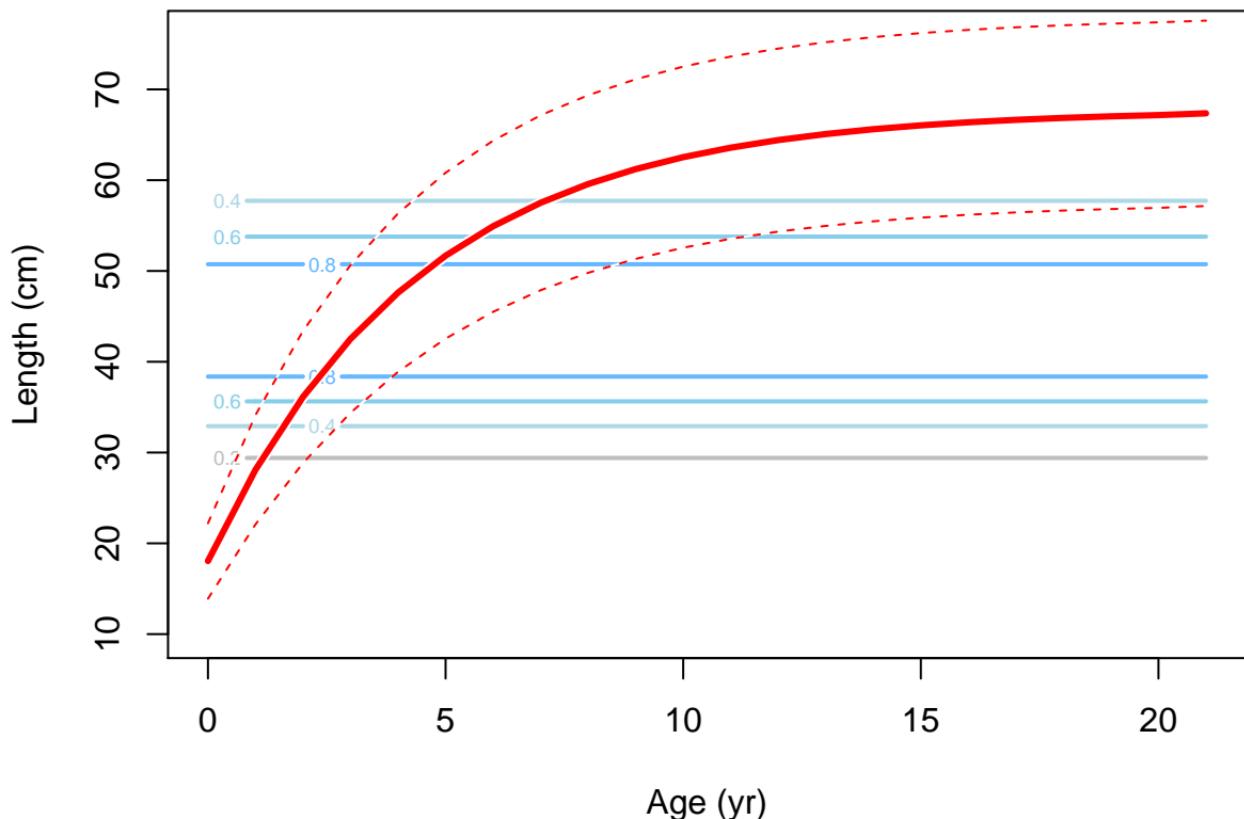
## Female ending year selectivity and growth for RecSouth



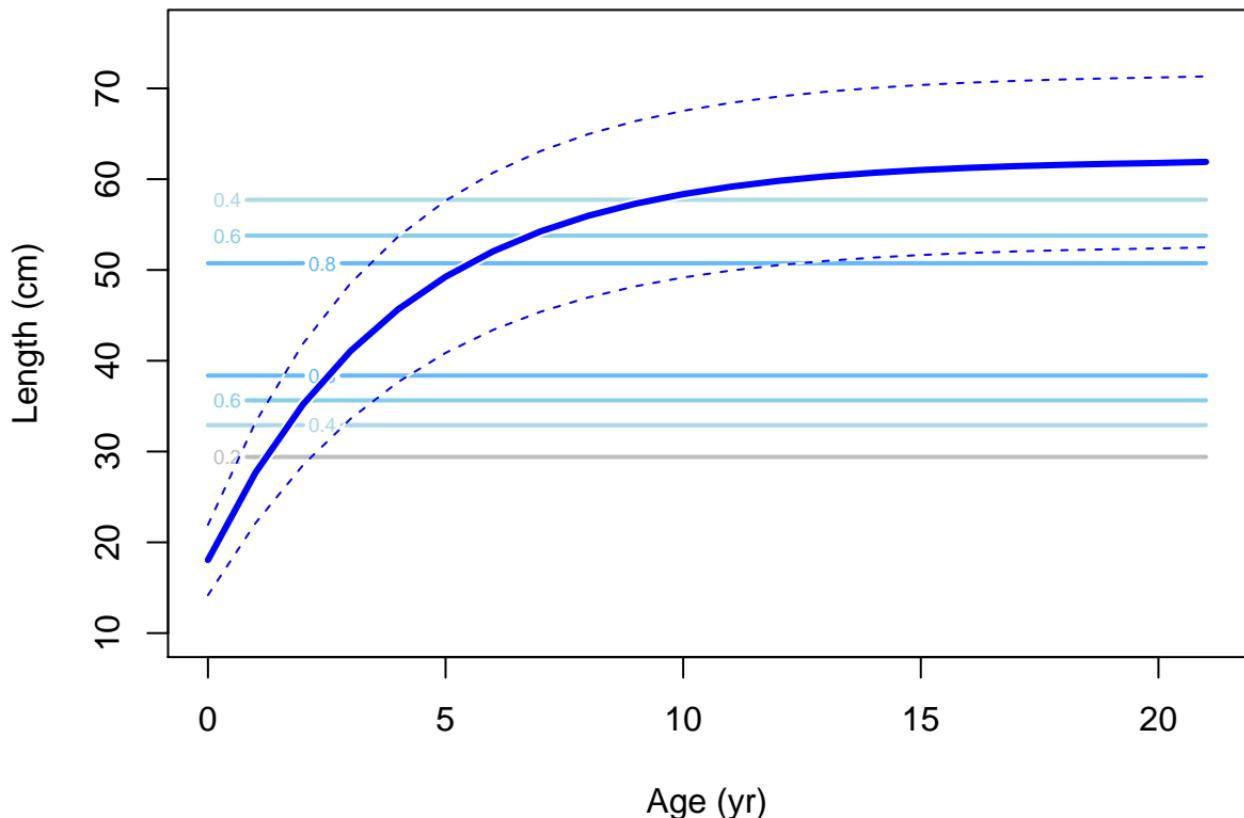
## Male ending year selectivity and growth for RecSouth



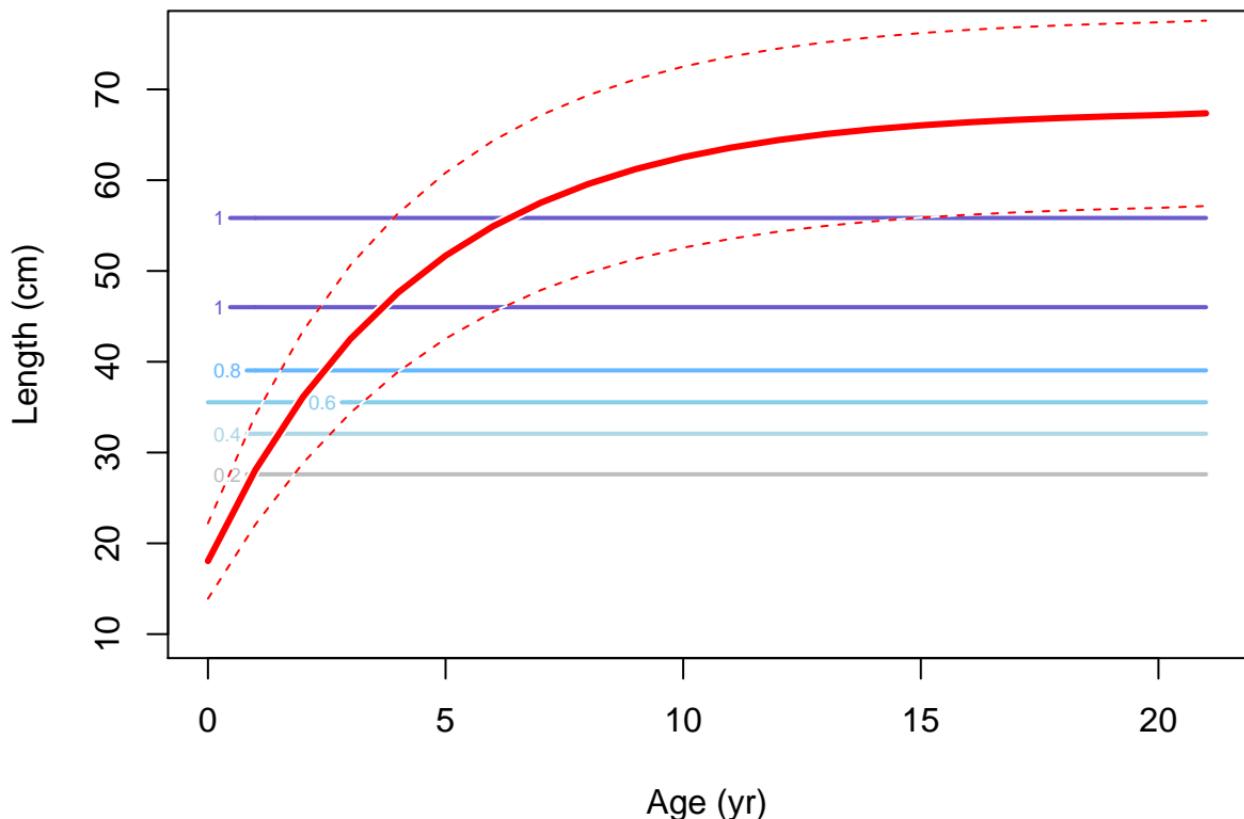
## Female ending year selectivity and growth for RecCentral



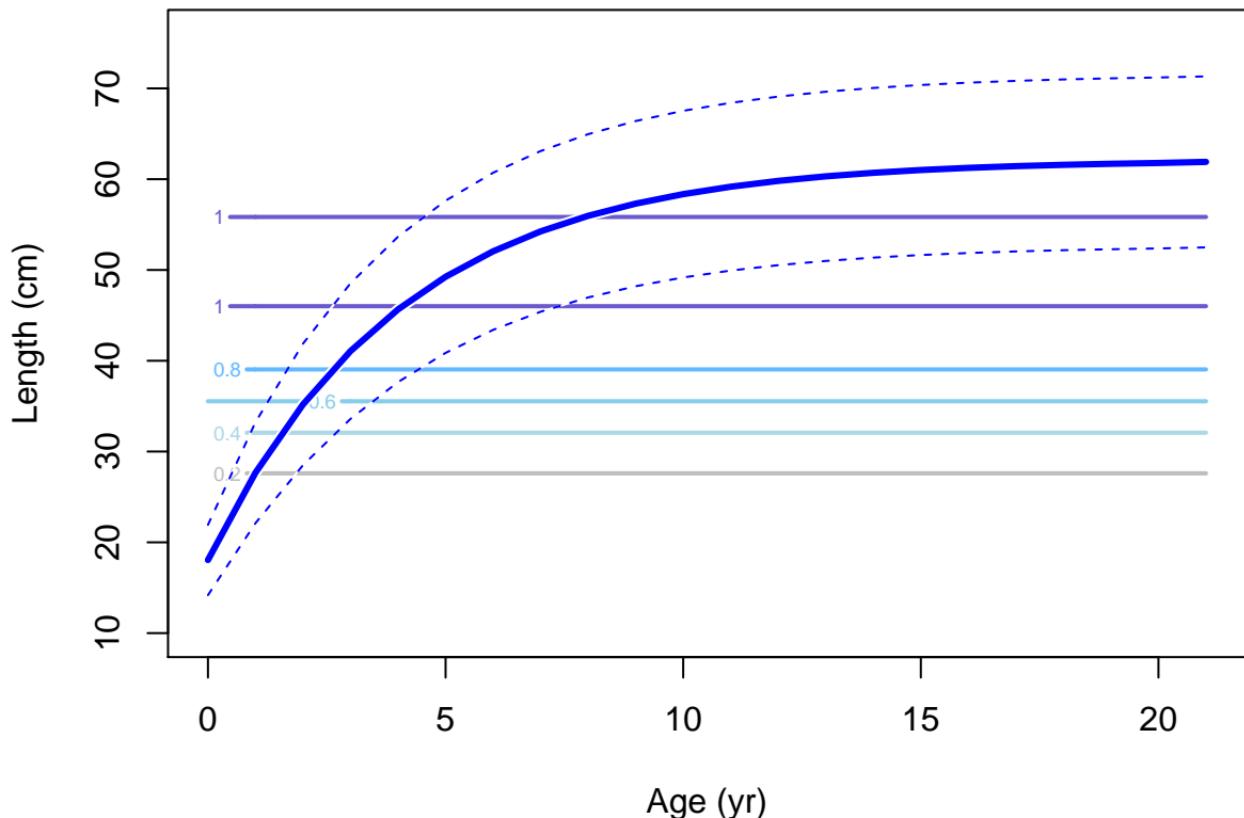
## Male ending year selectivity and growth for RecCentral



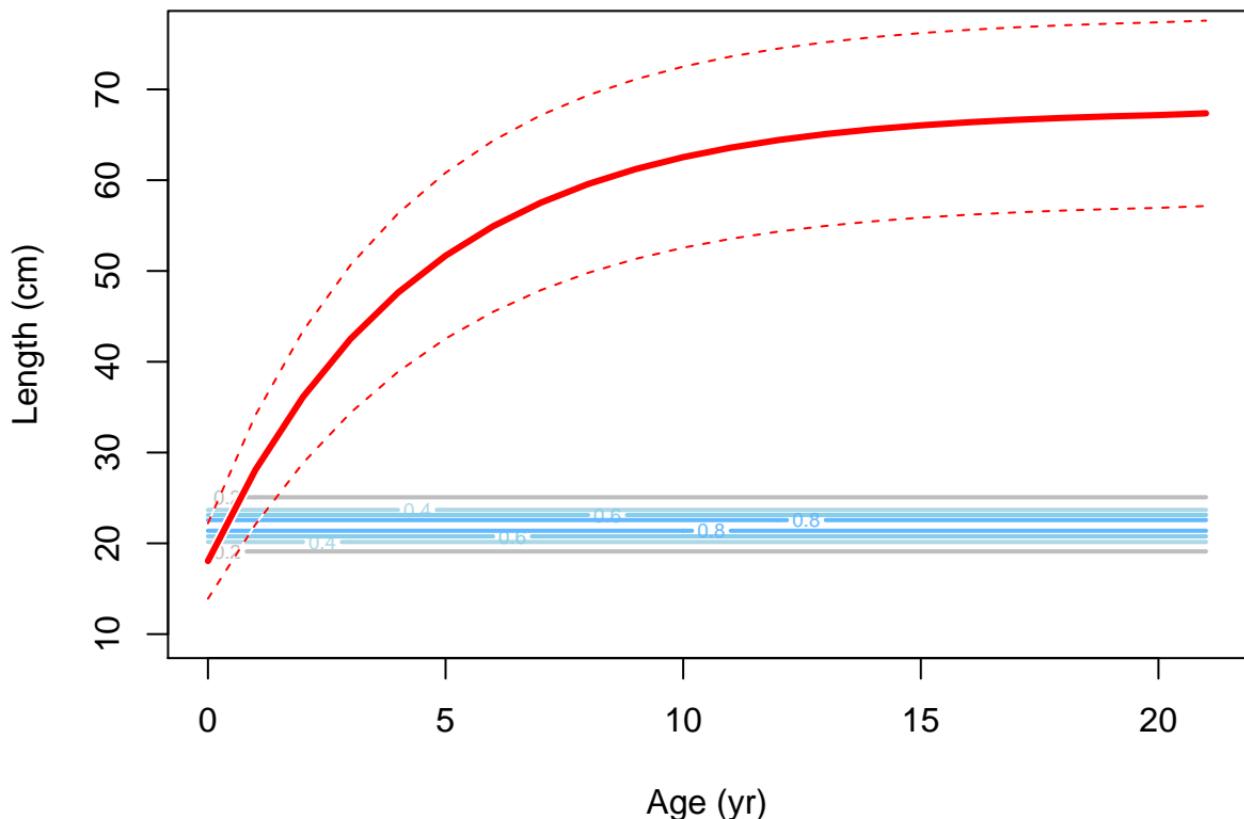
## Female ending year selectivity and growth for TrawlNorth



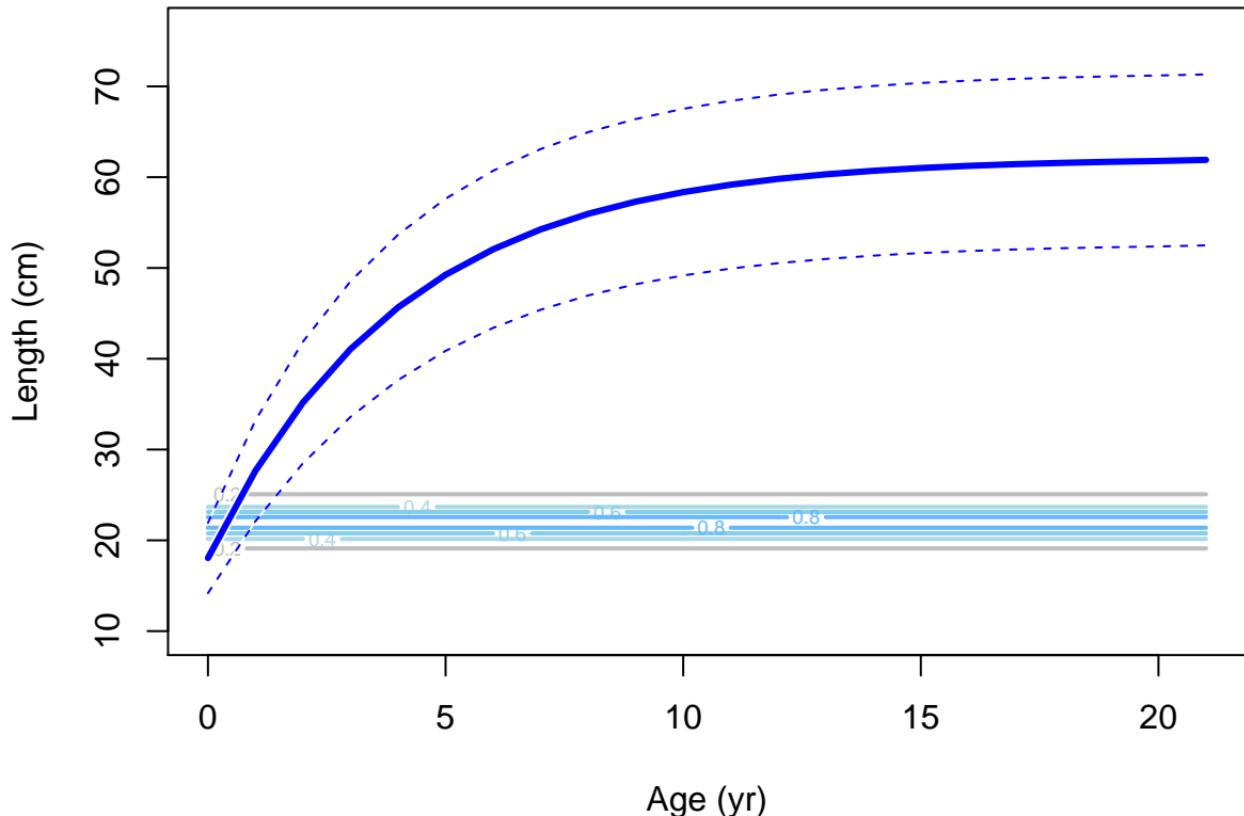
## Male ending year selectivity and growth for TrawlNorth



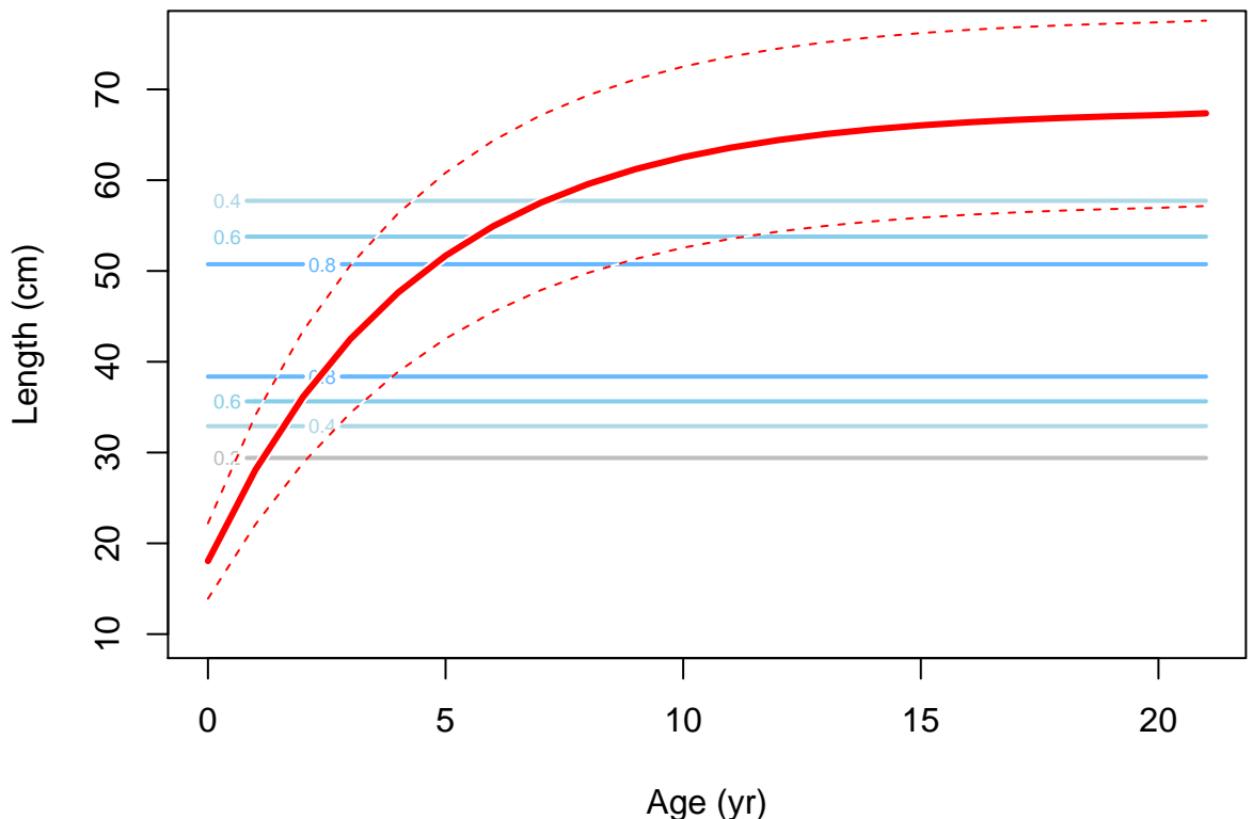
## Female ending year selectivity and growth for Triennial



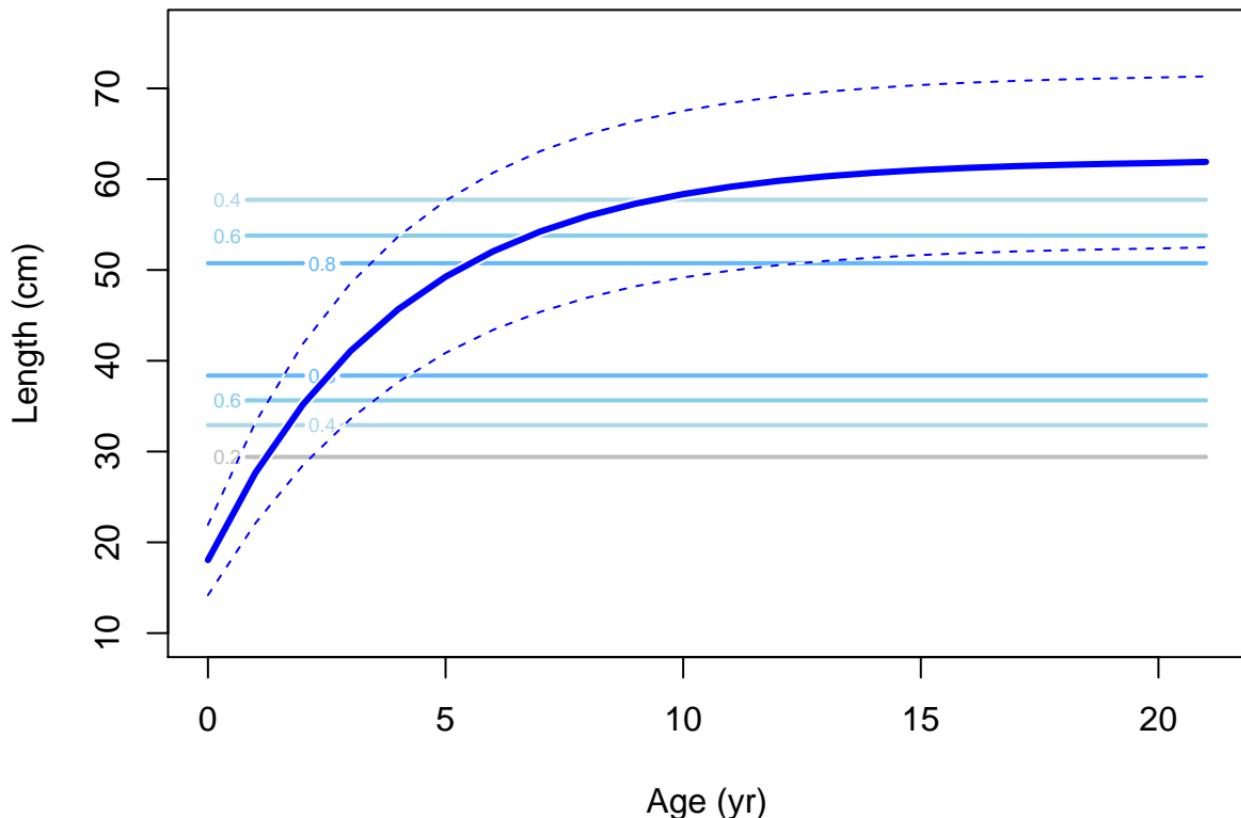
## Male ending year selectivity and growth for Triennial



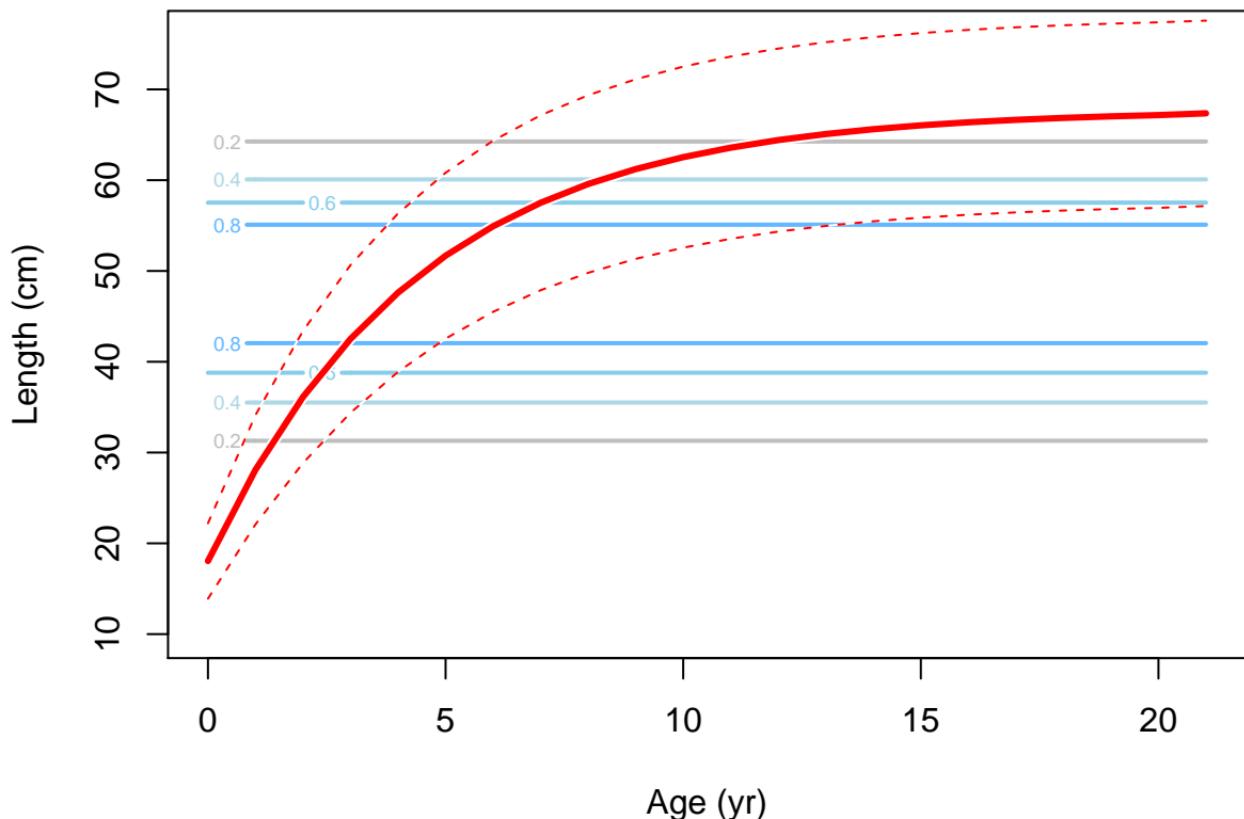
## Female ending year selectivity and growth for CDFWEarlyOB



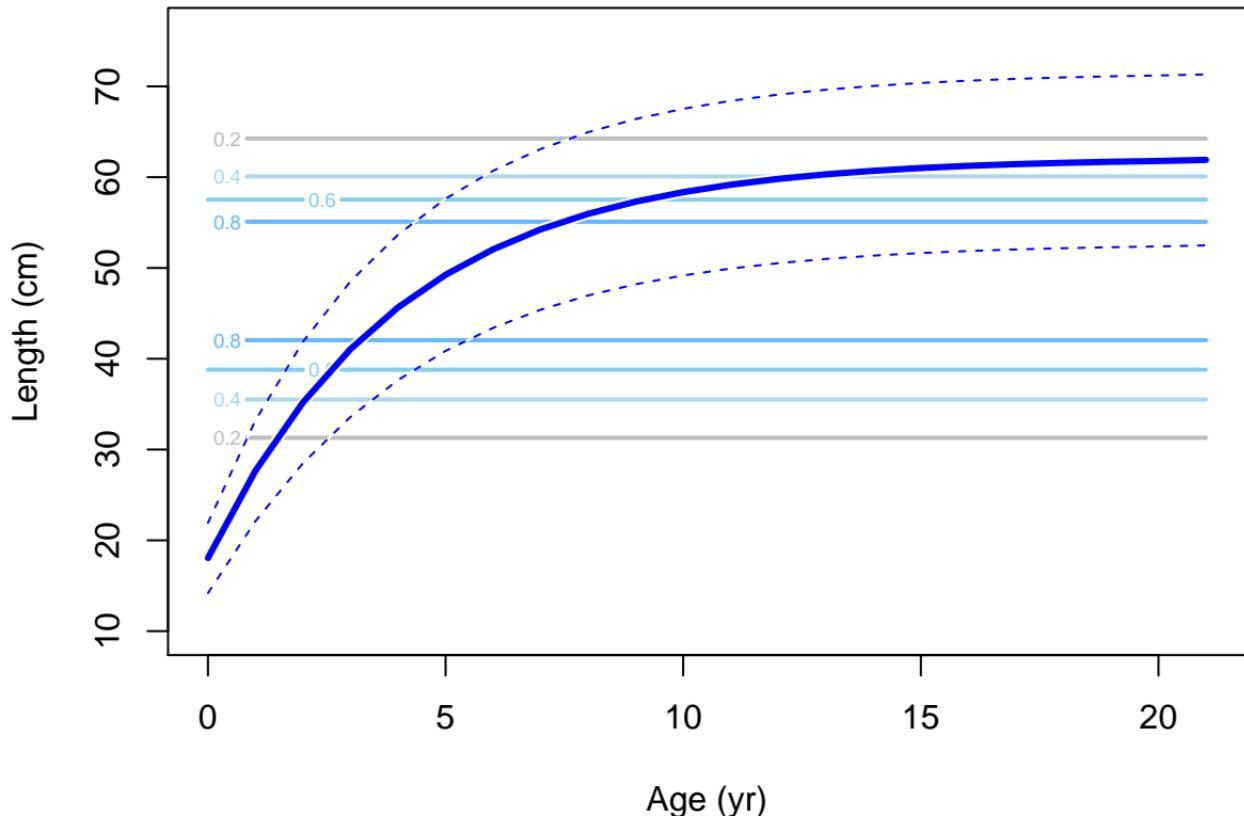
## Male ending year selectivity and growth for CDFWEarlyOB



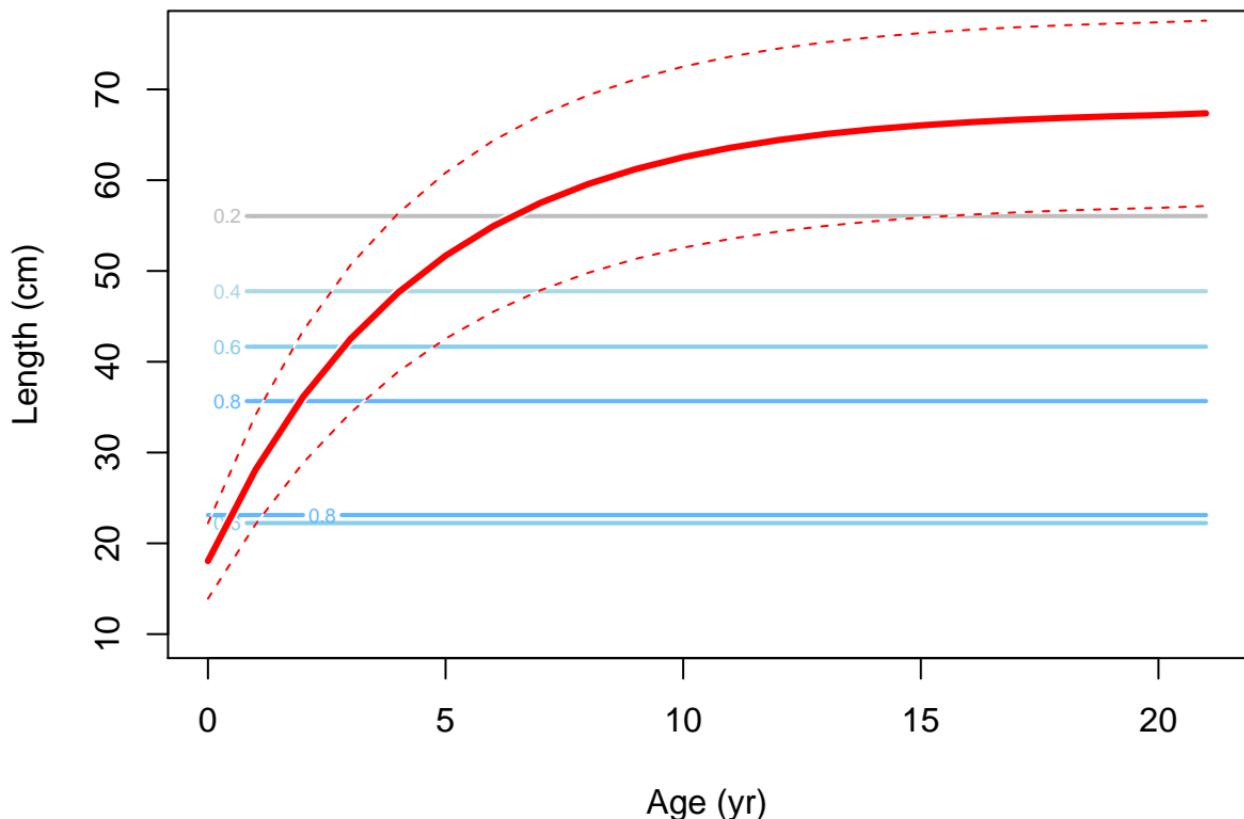
## Female ending year selectivity and growth for NWFSCHook



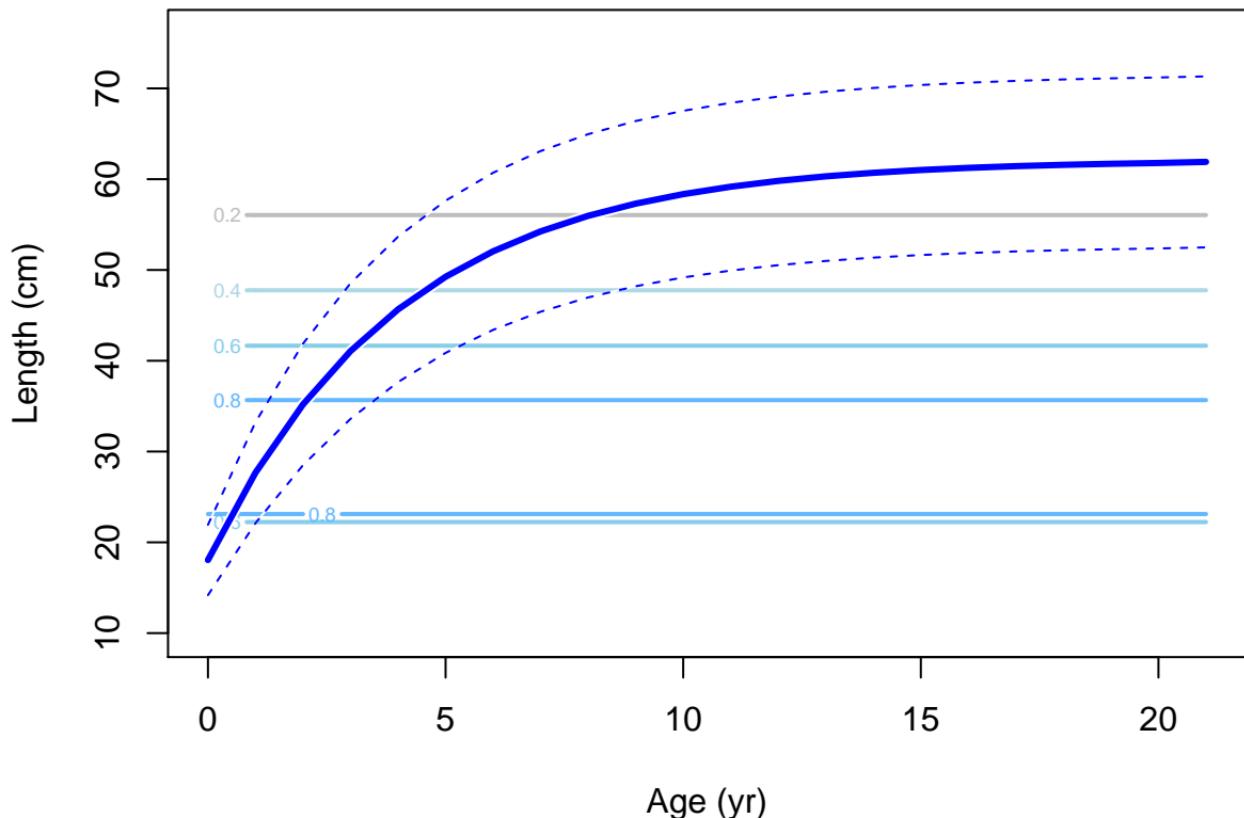
## Male ending year selectivity and growth for NWFSCHook



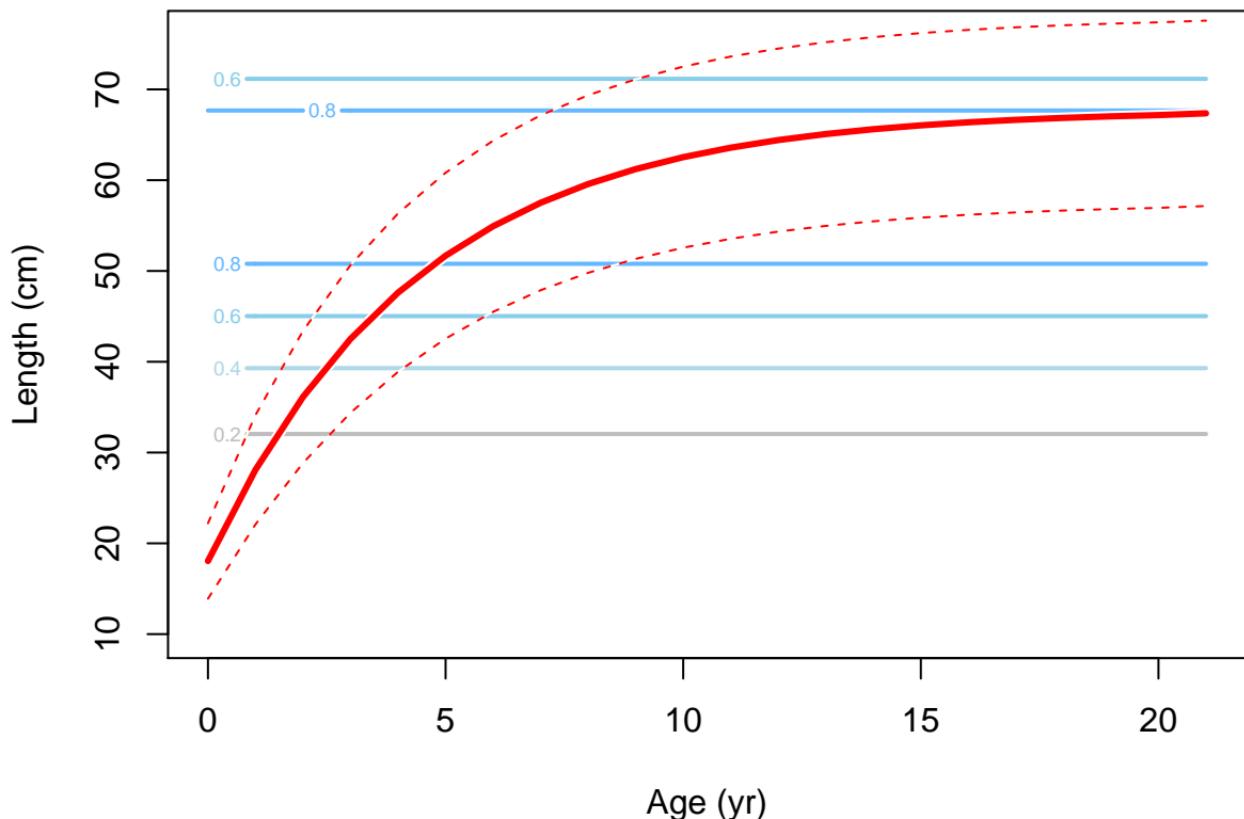
## Female ending year selectivity and growth for NWFSC Trawl



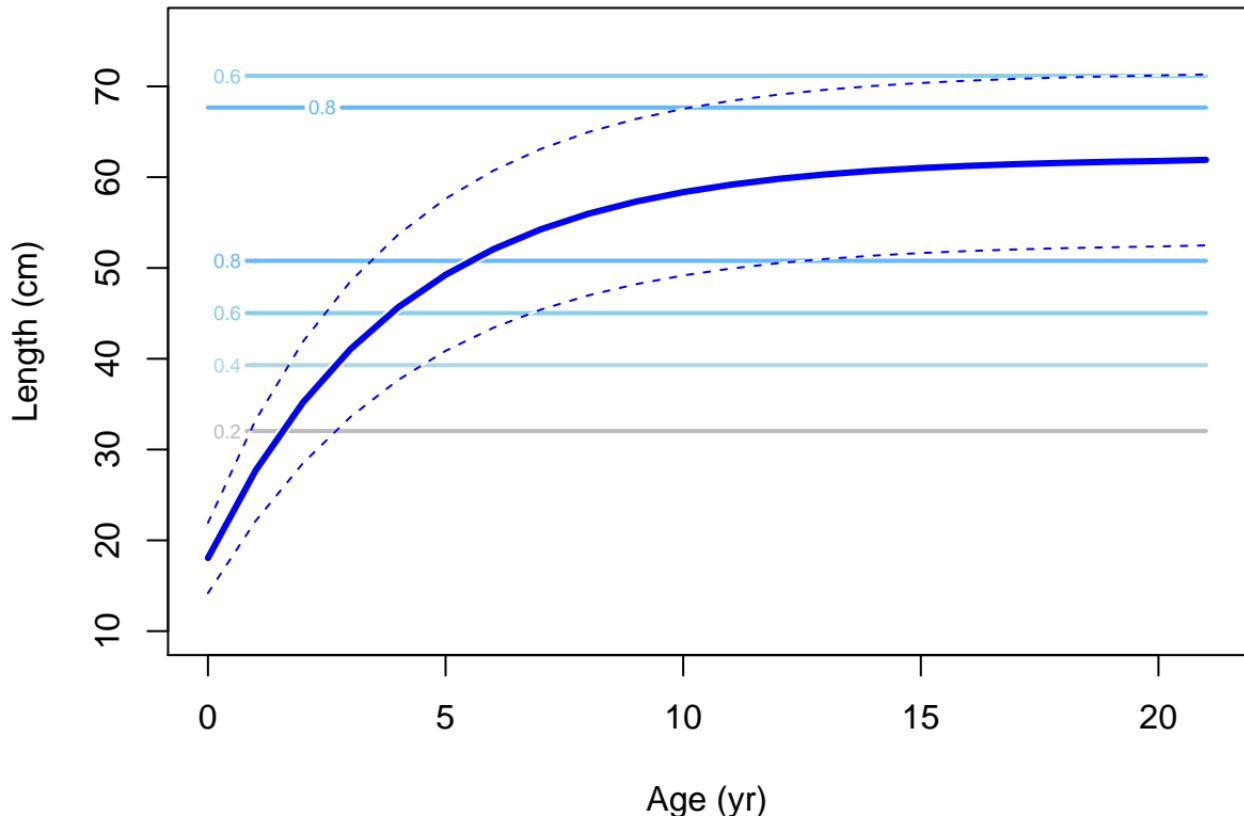
## Male ending year selectivity and growth for NWFSC Trawl



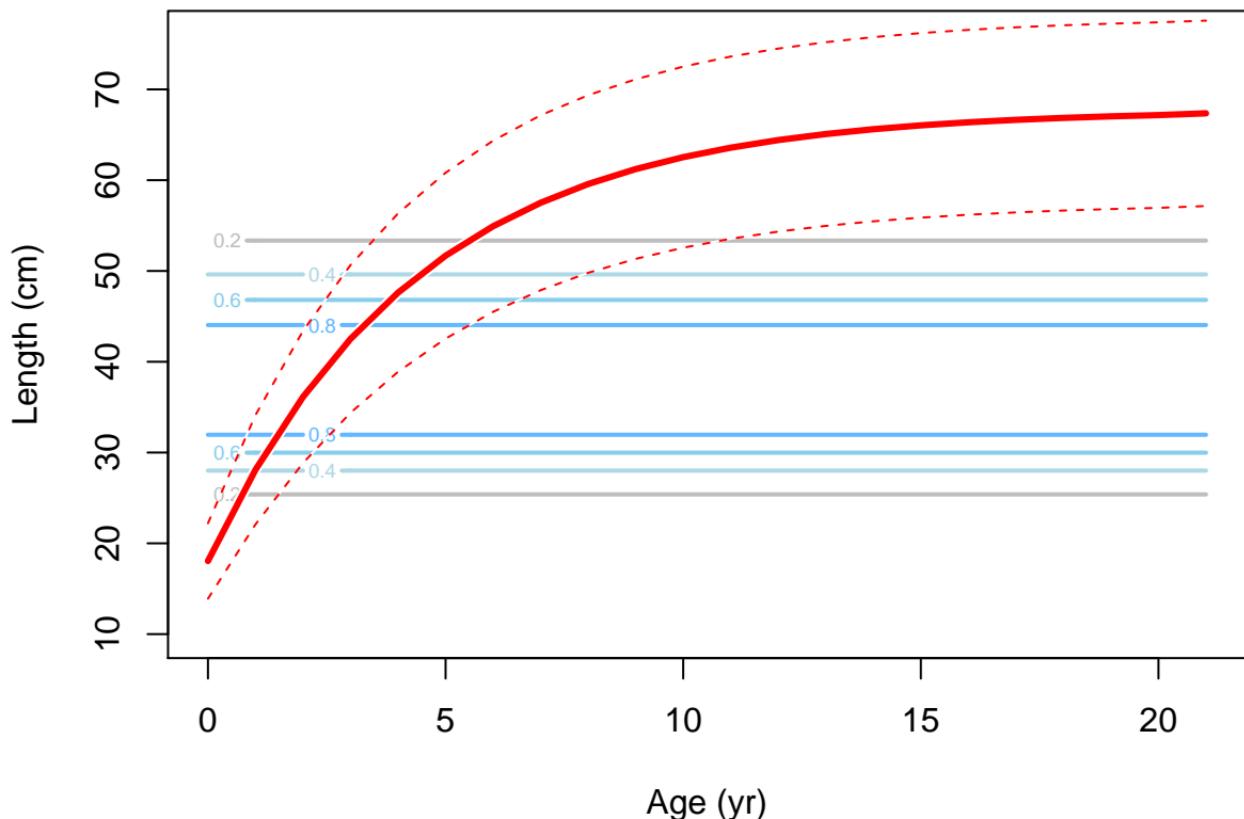
## Female ending year selectivity and growth for Free1



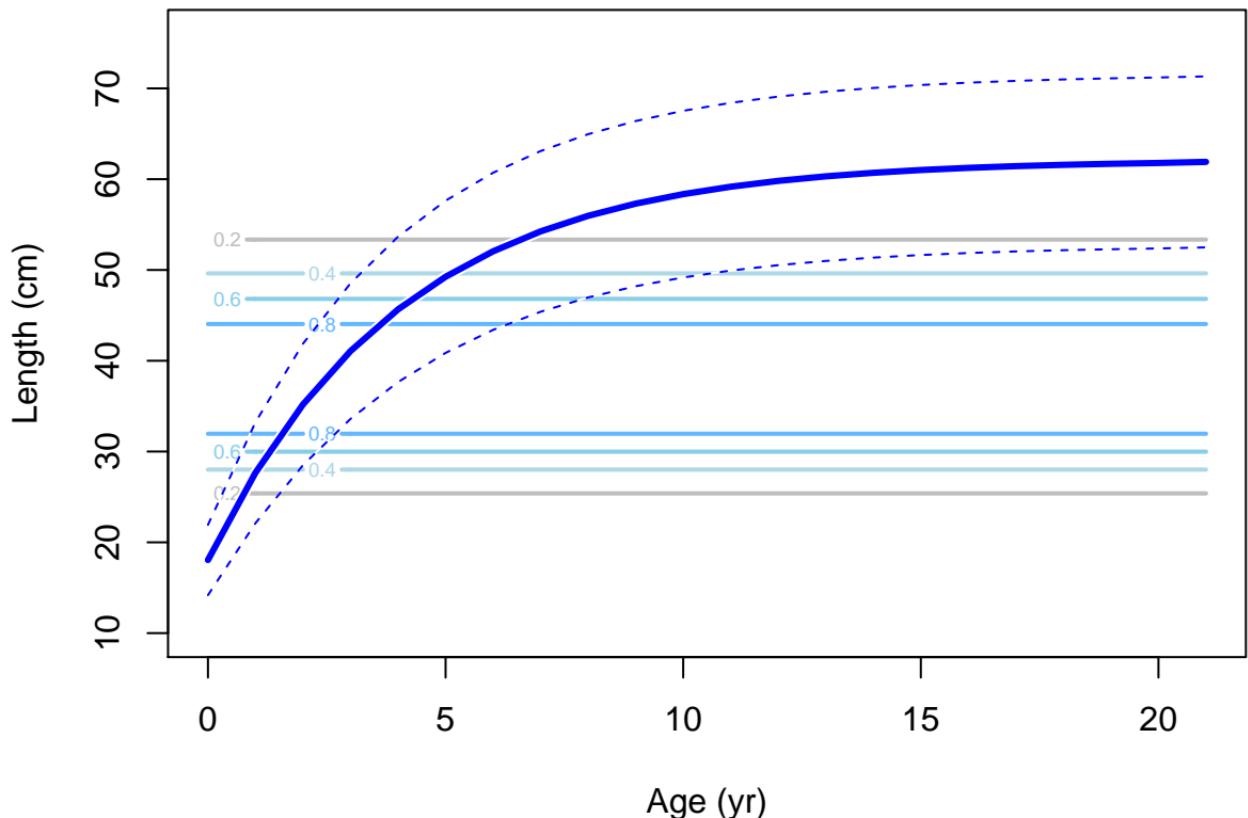
## Male ending year selectivity and growth for Free1



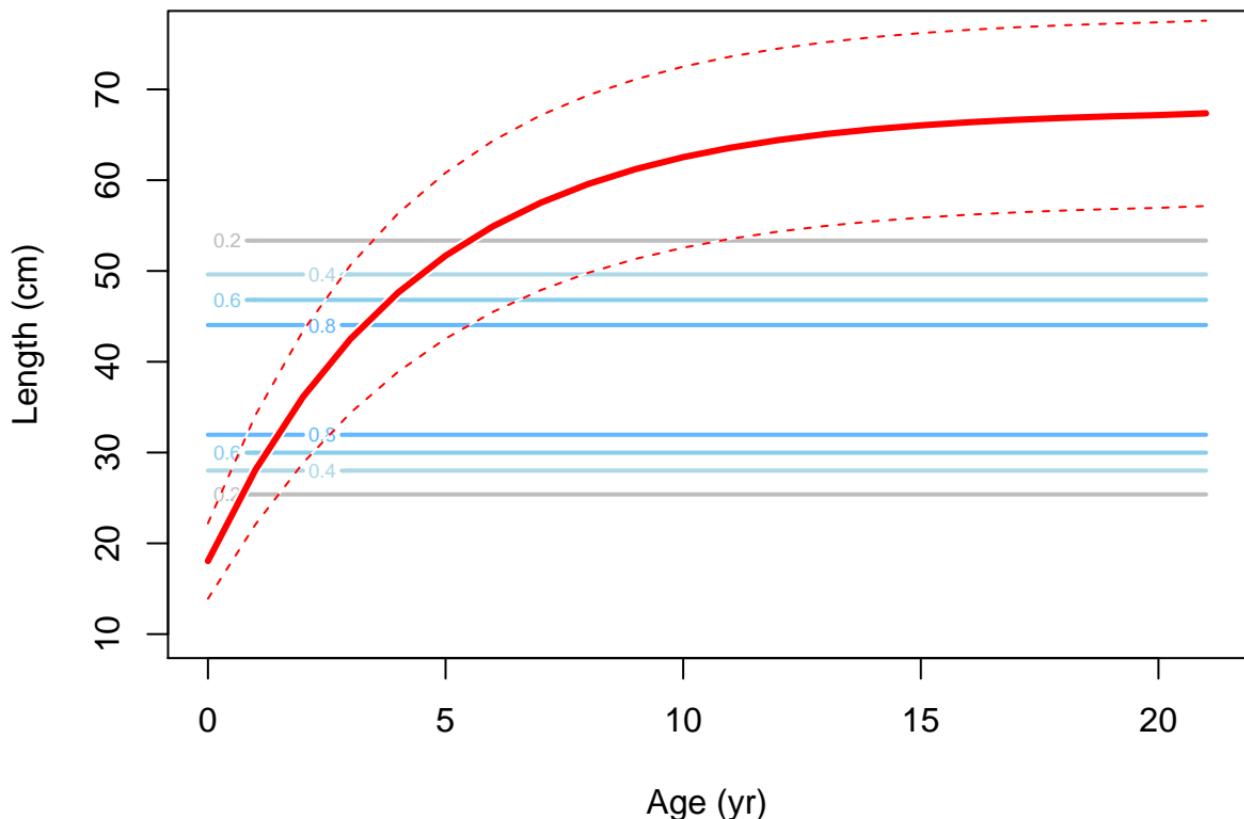
## Female ending year selectivity and growth for MirrorRecS



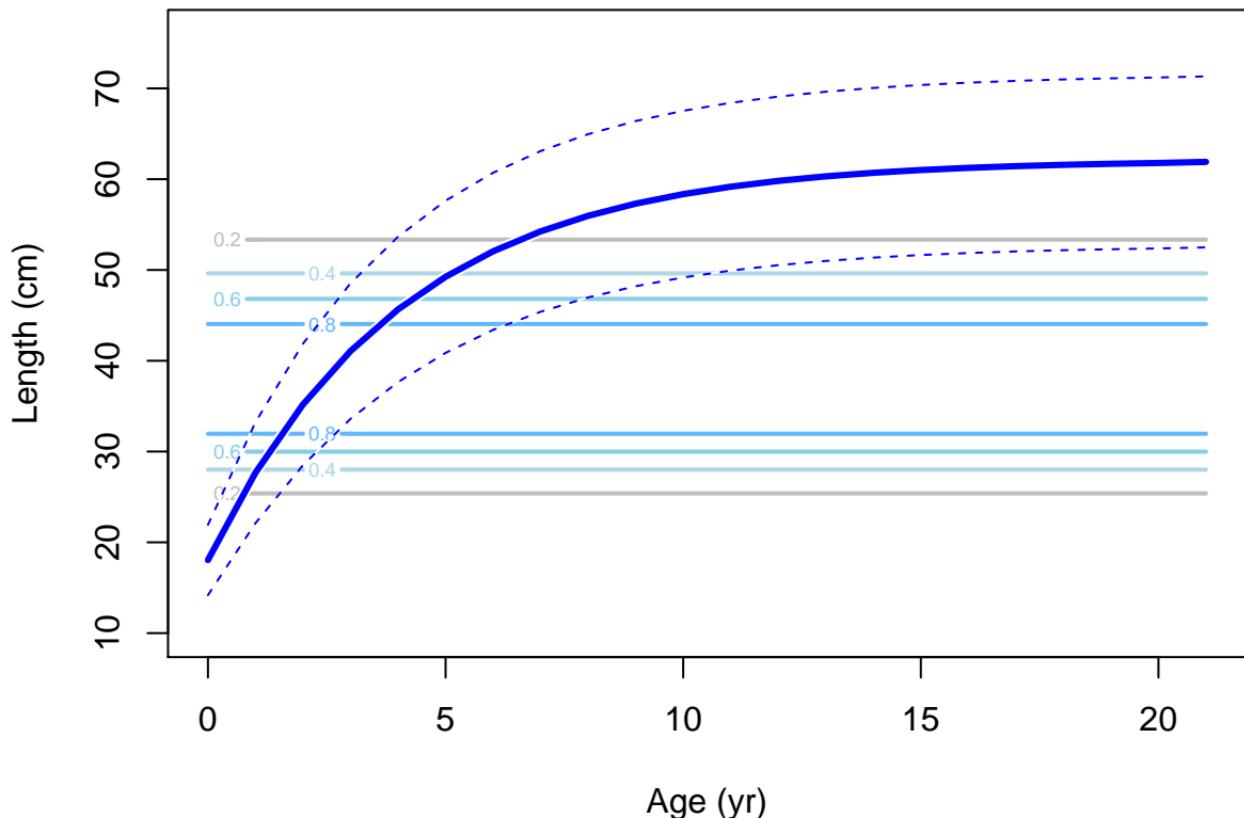
## Male ending year selectivity and growth for MirrorRecS



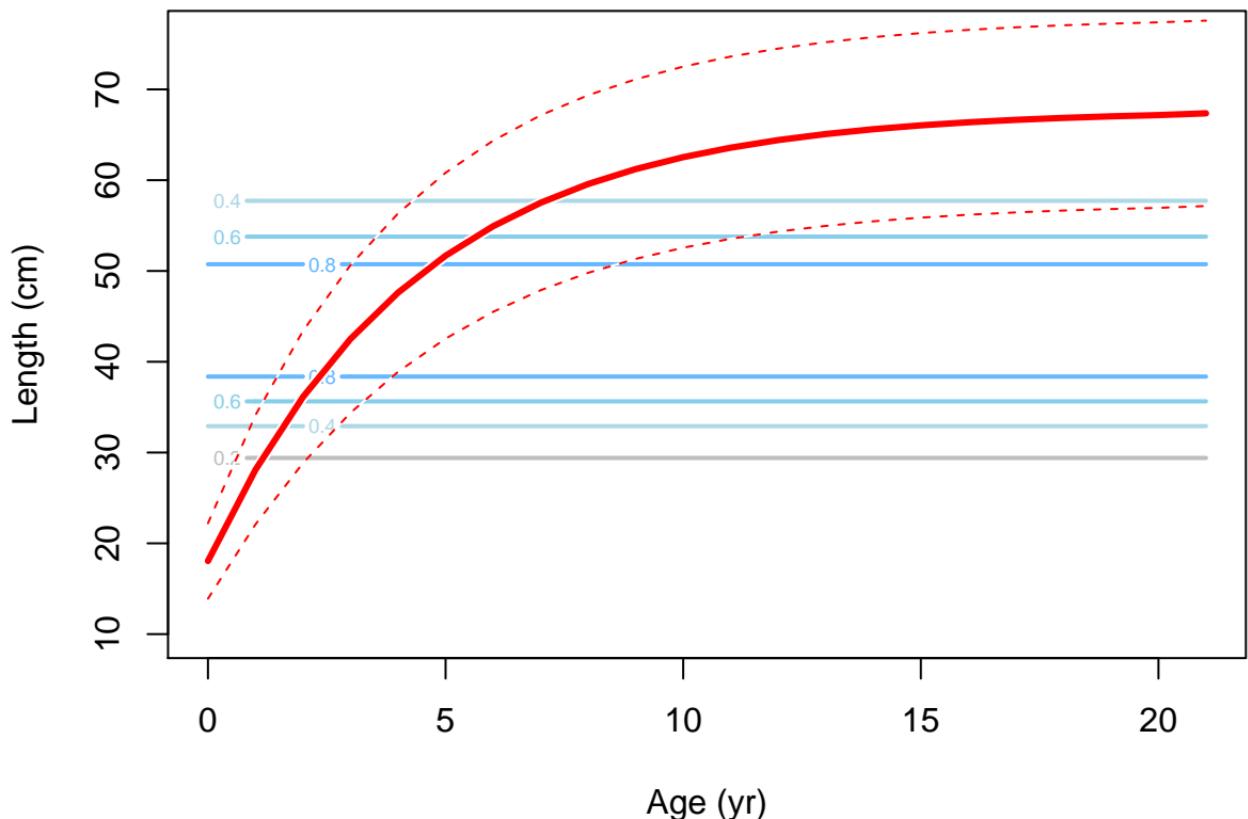
## Female ending year selectivity and growth for RecSouthOB



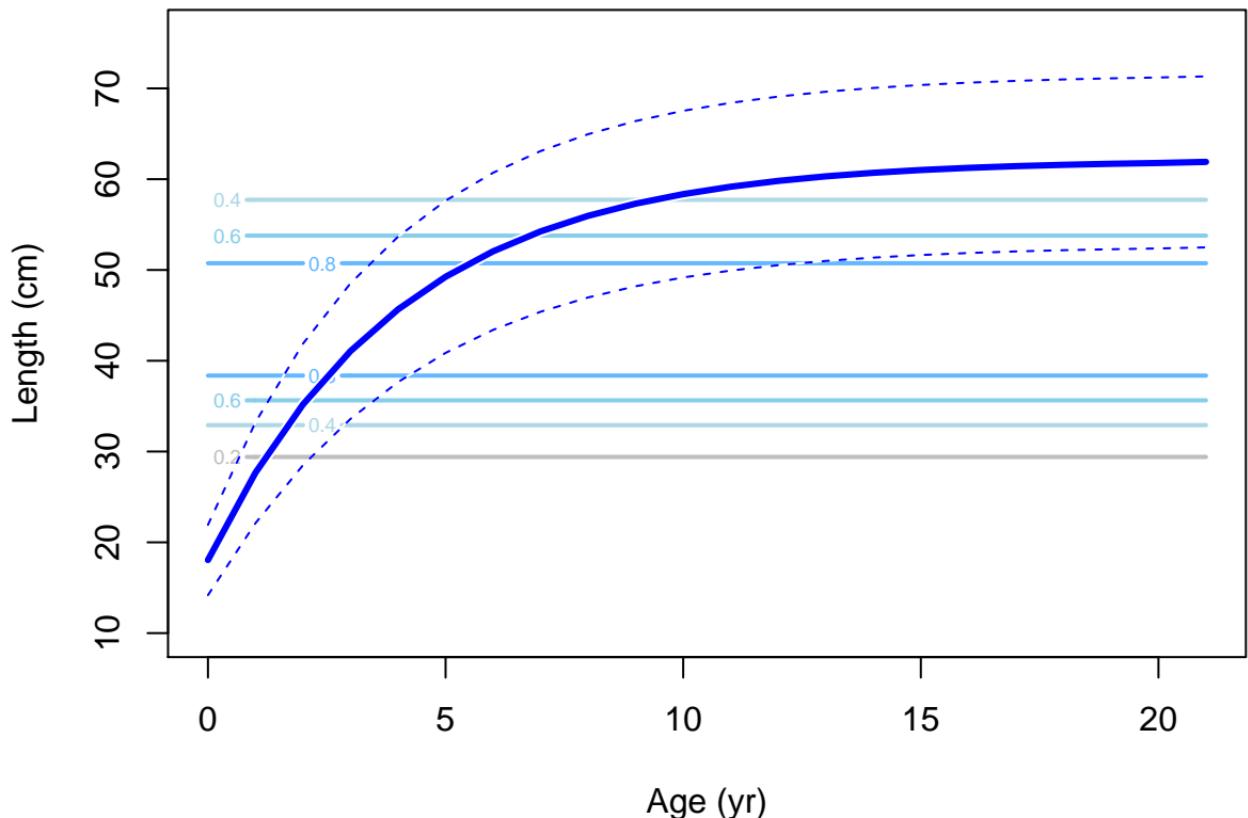
## Male ending year selectivity and growth for RecSouthOB



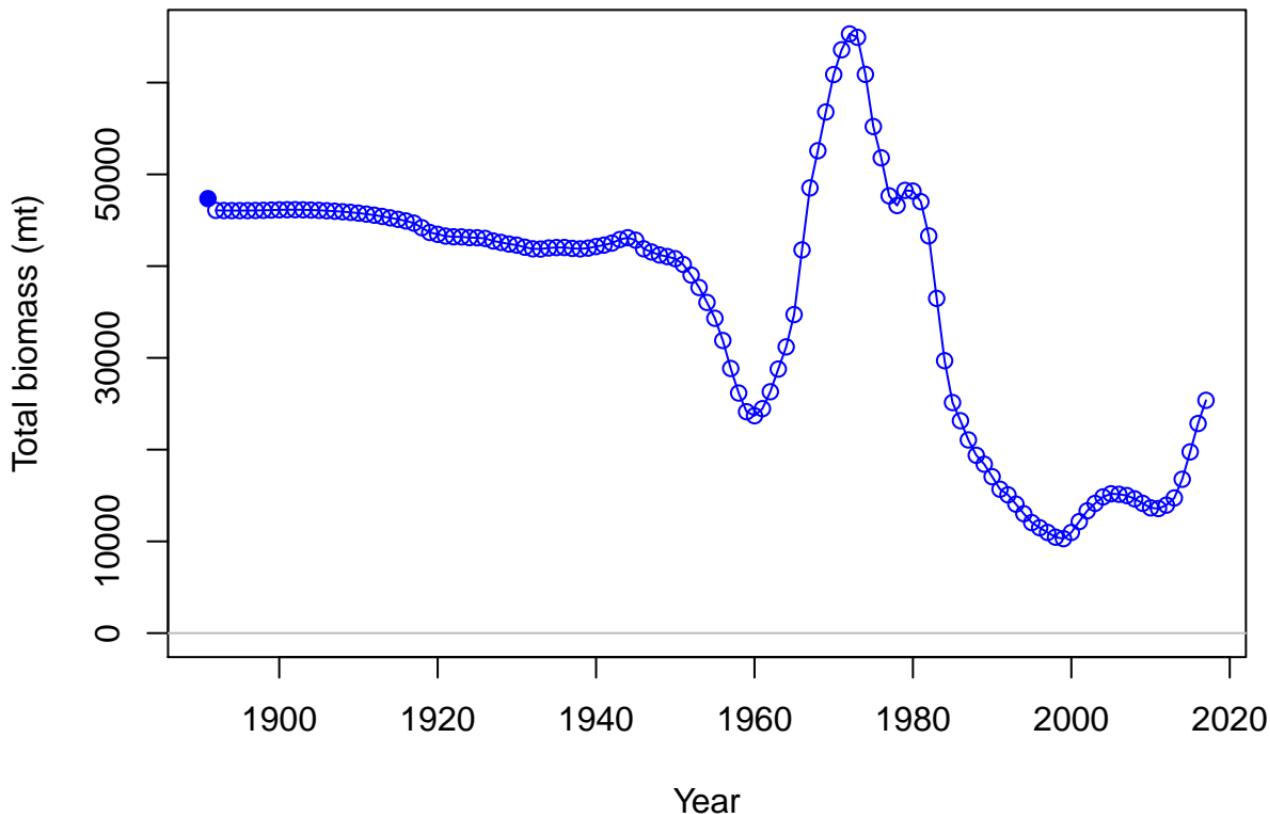
## Female ending year selectivity and growth for RecCentralOB



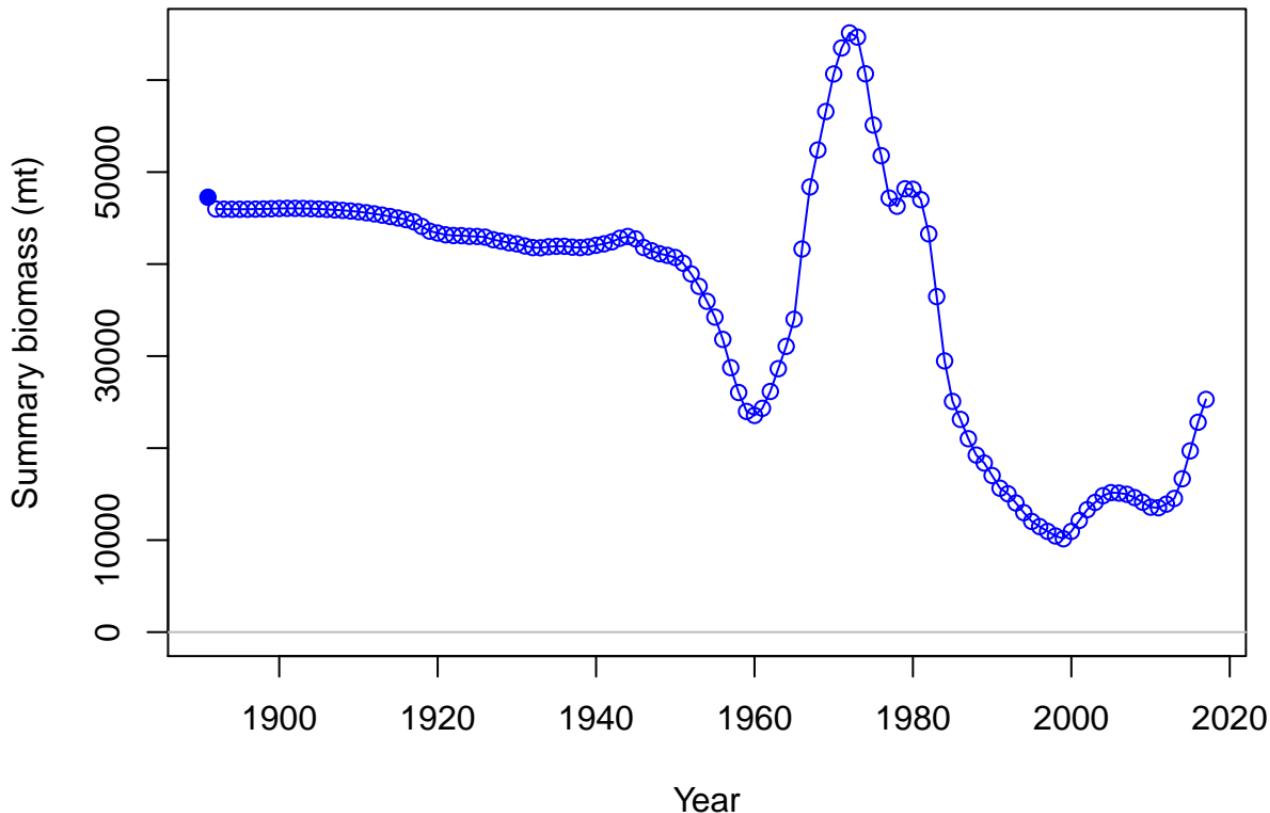
## Male ending year selectivity and growth for RecCentralOB



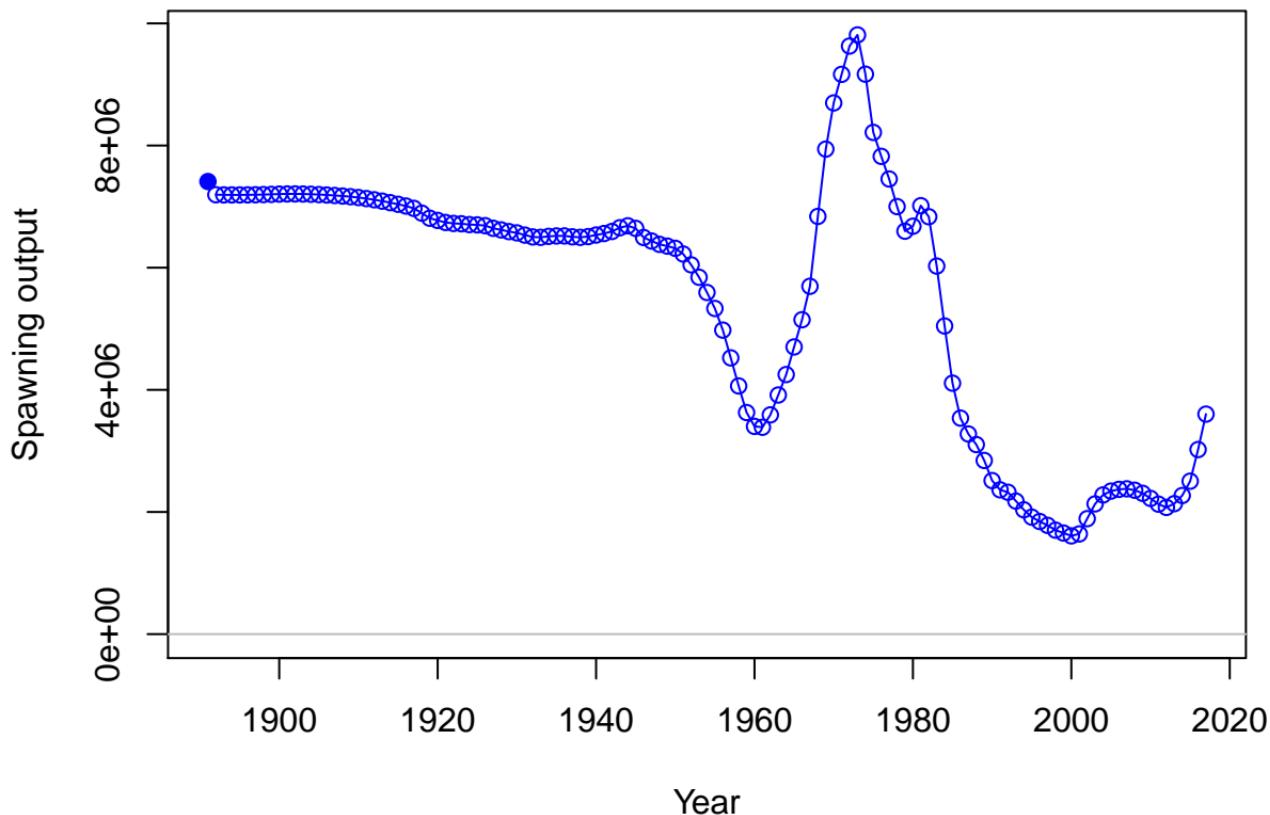
## Total biomass (mt)



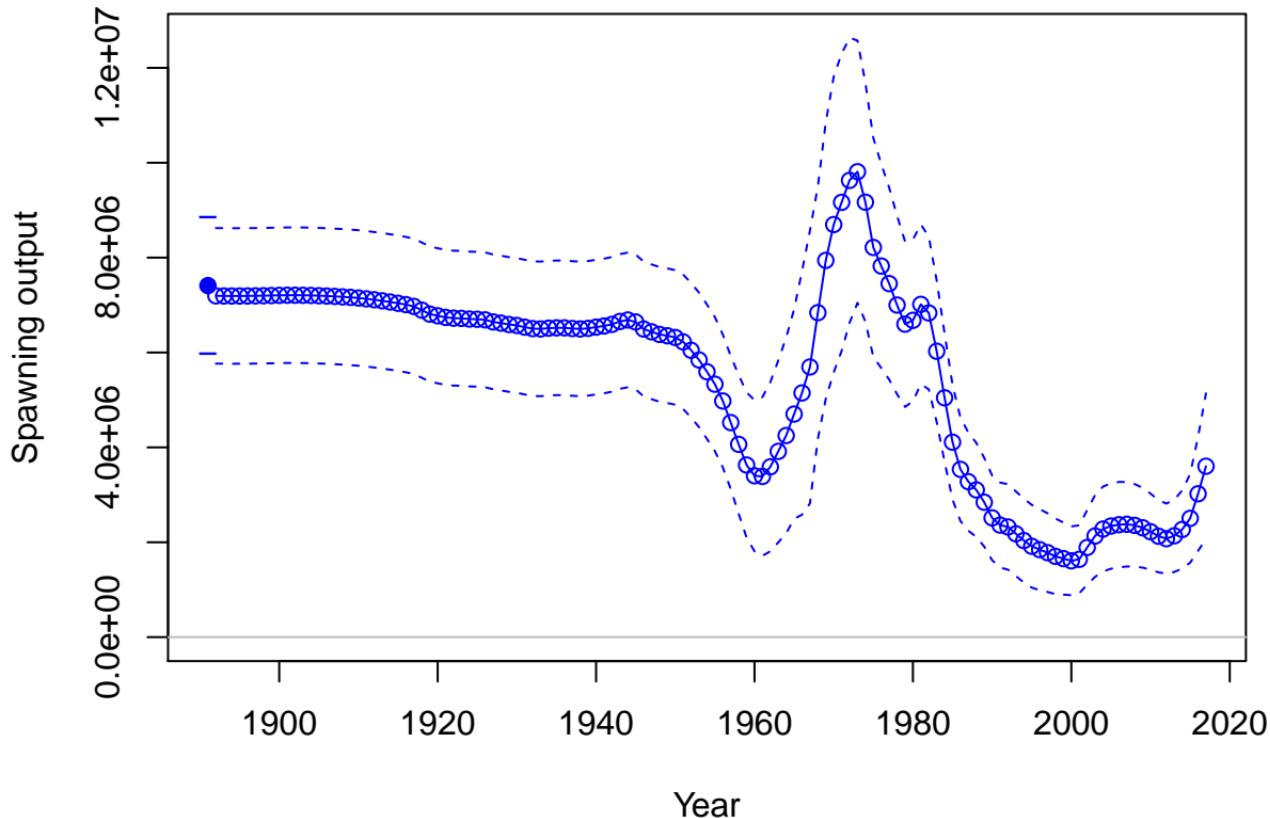
## Summary biomass (mt)



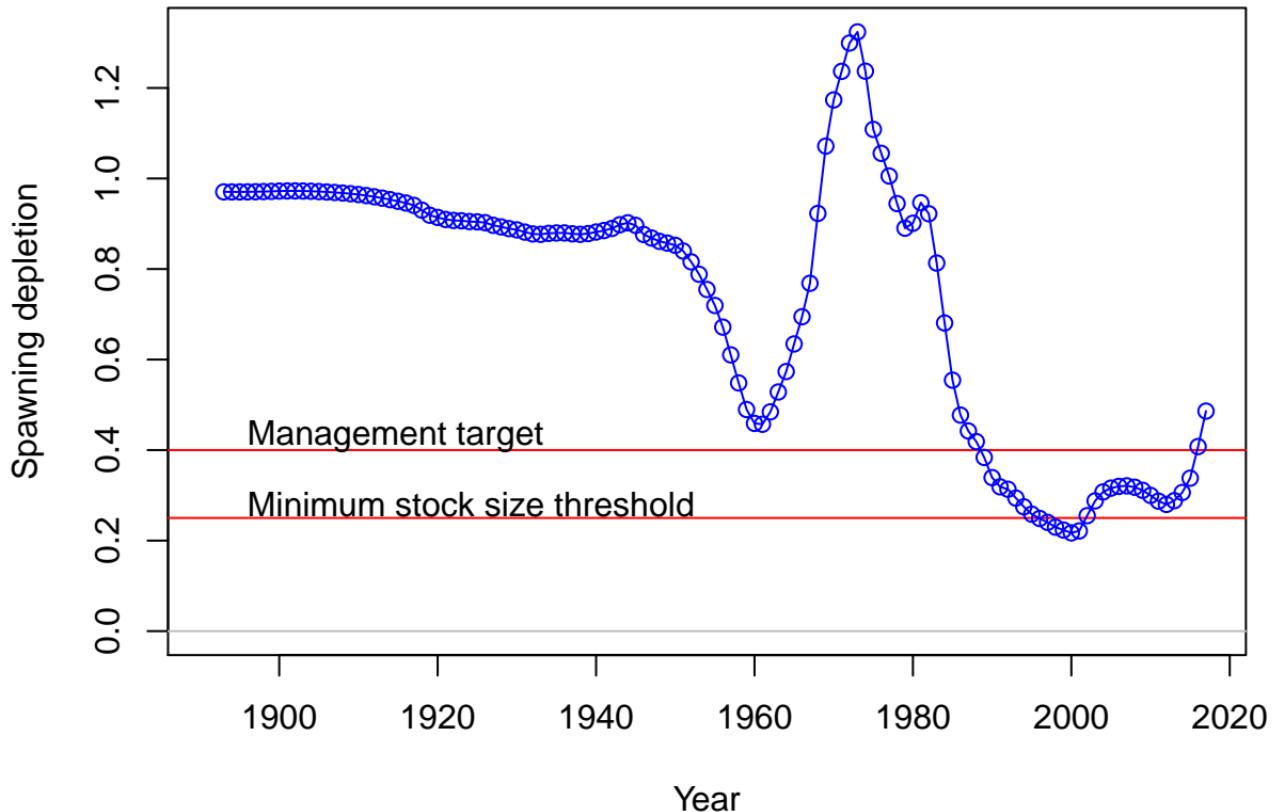
## Spawning output



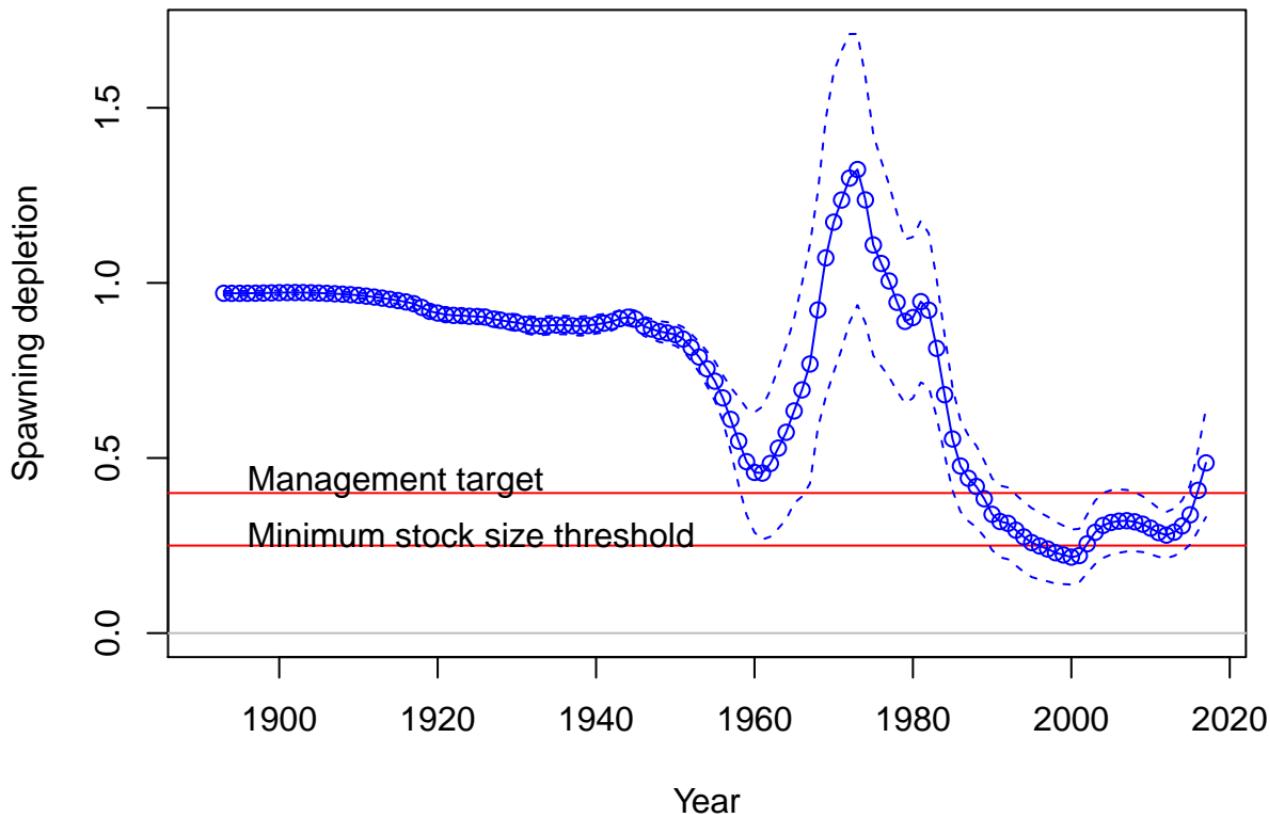
## Spawning output with ~95% asymptotic intervals



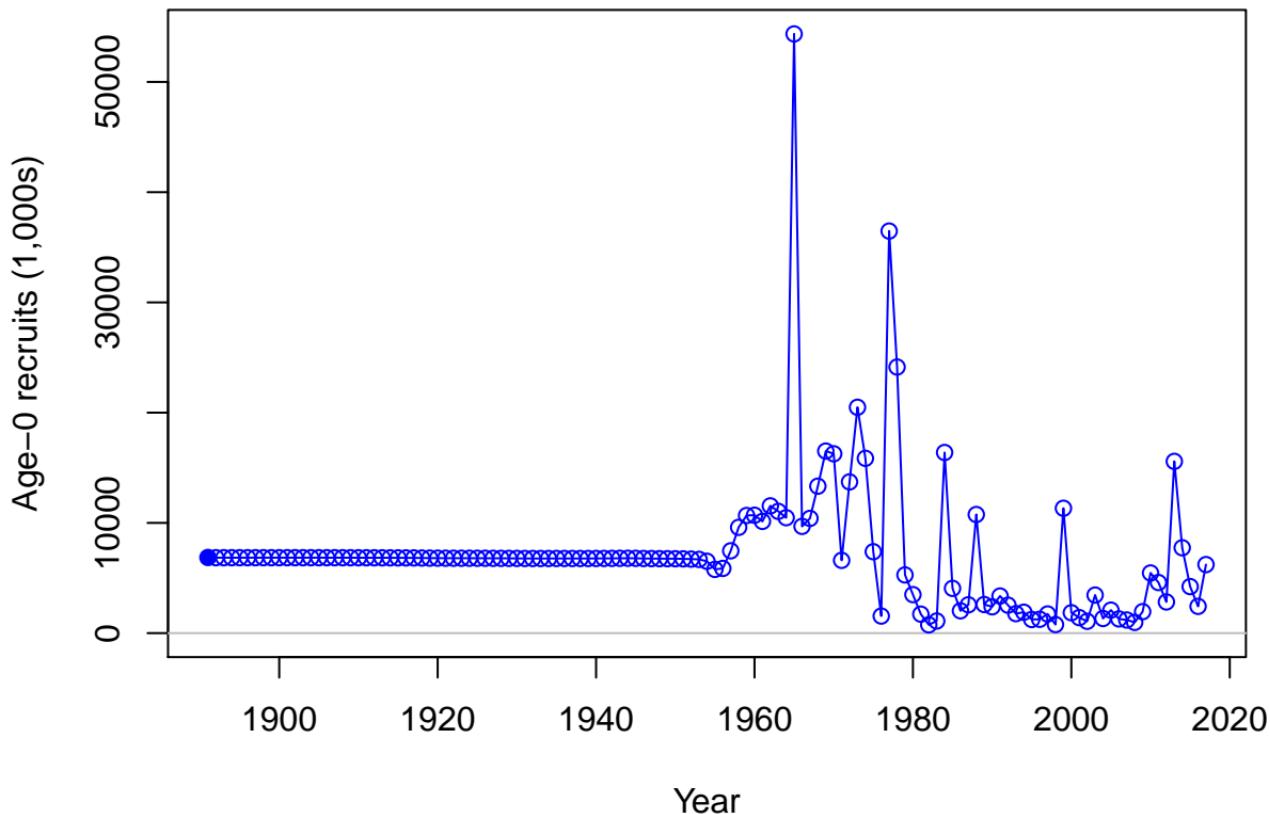
## Spawning depletion



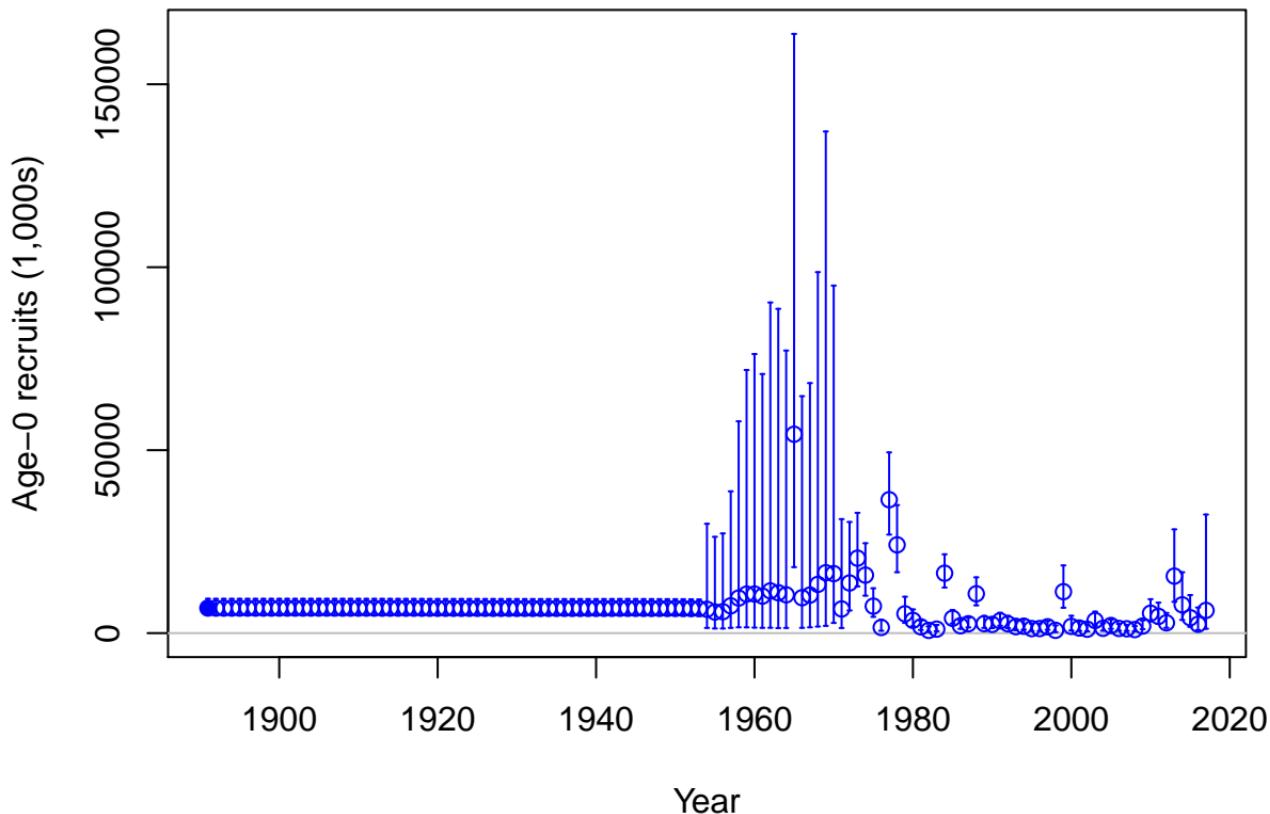
## Spawning depletion with ~95% asymptotic intervals

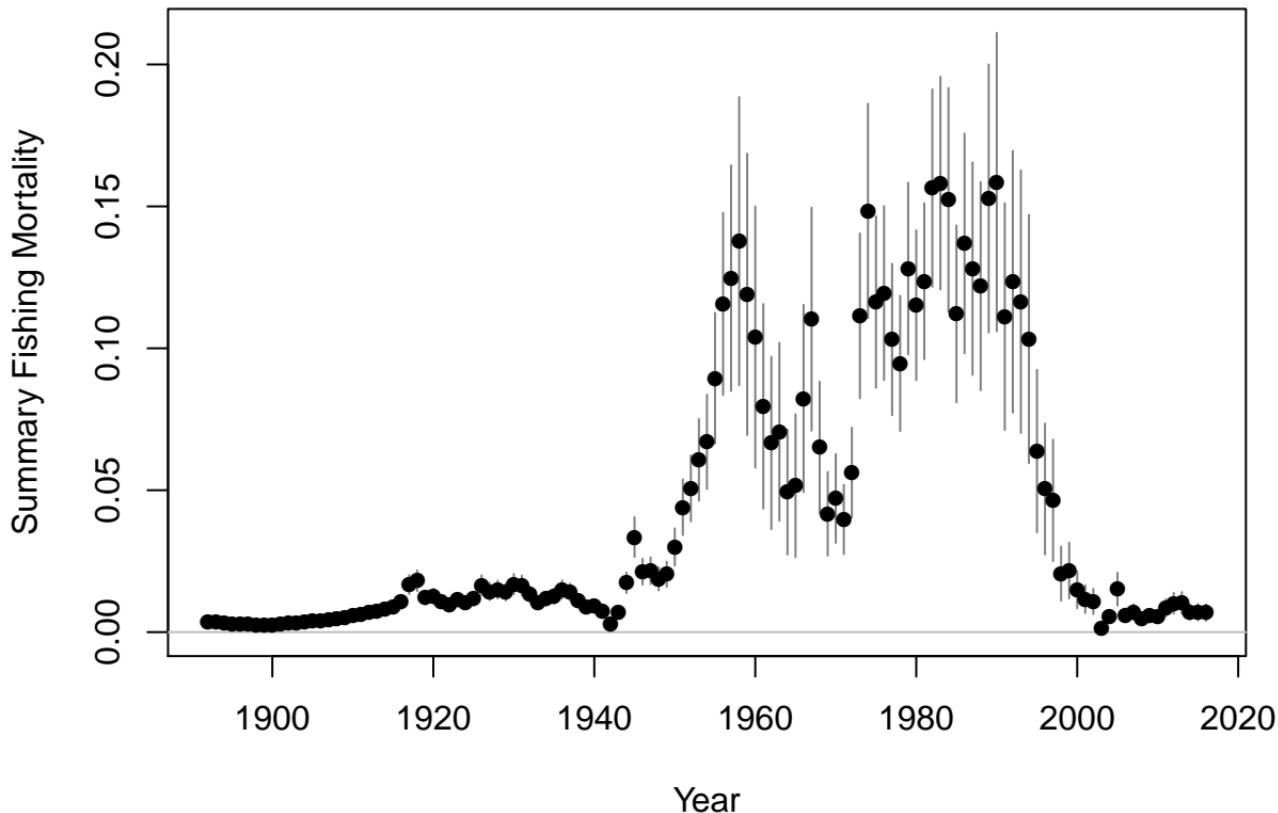


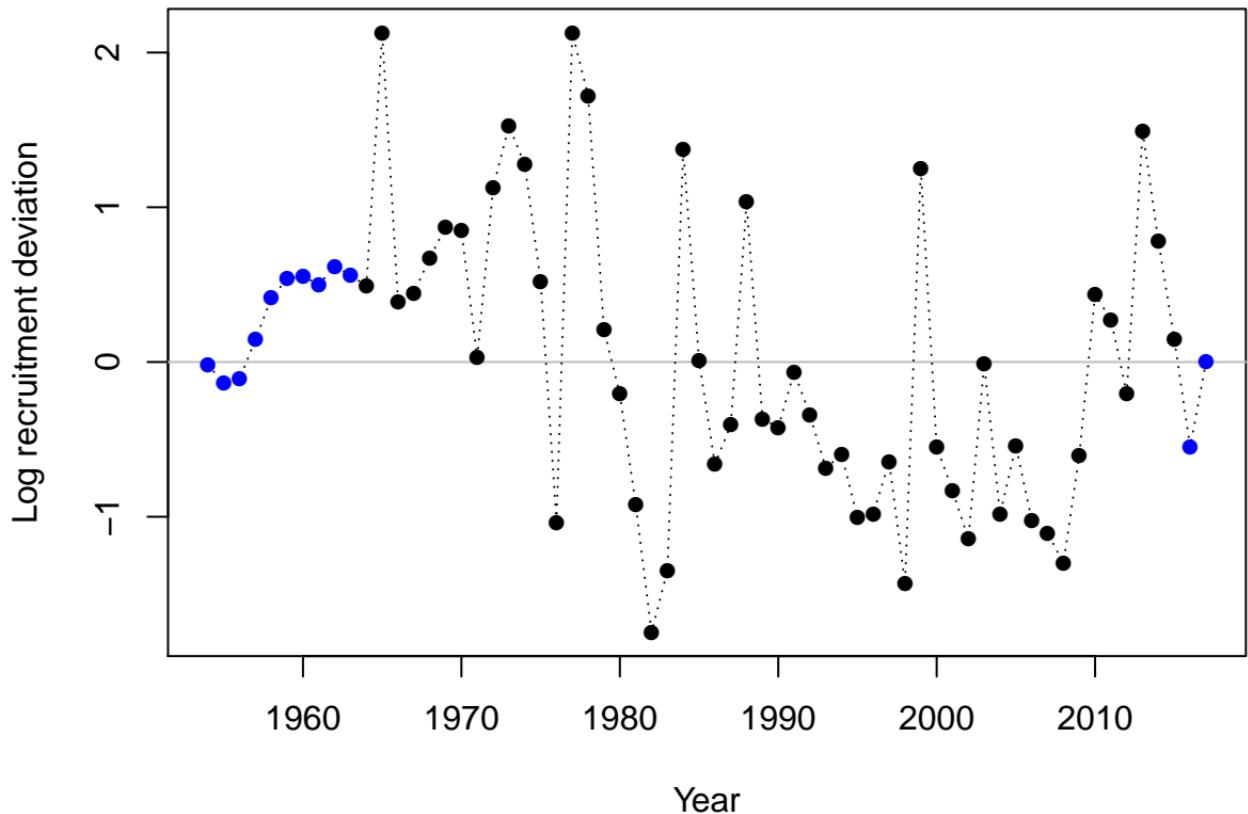
## Age-0 recruits (1,000s)

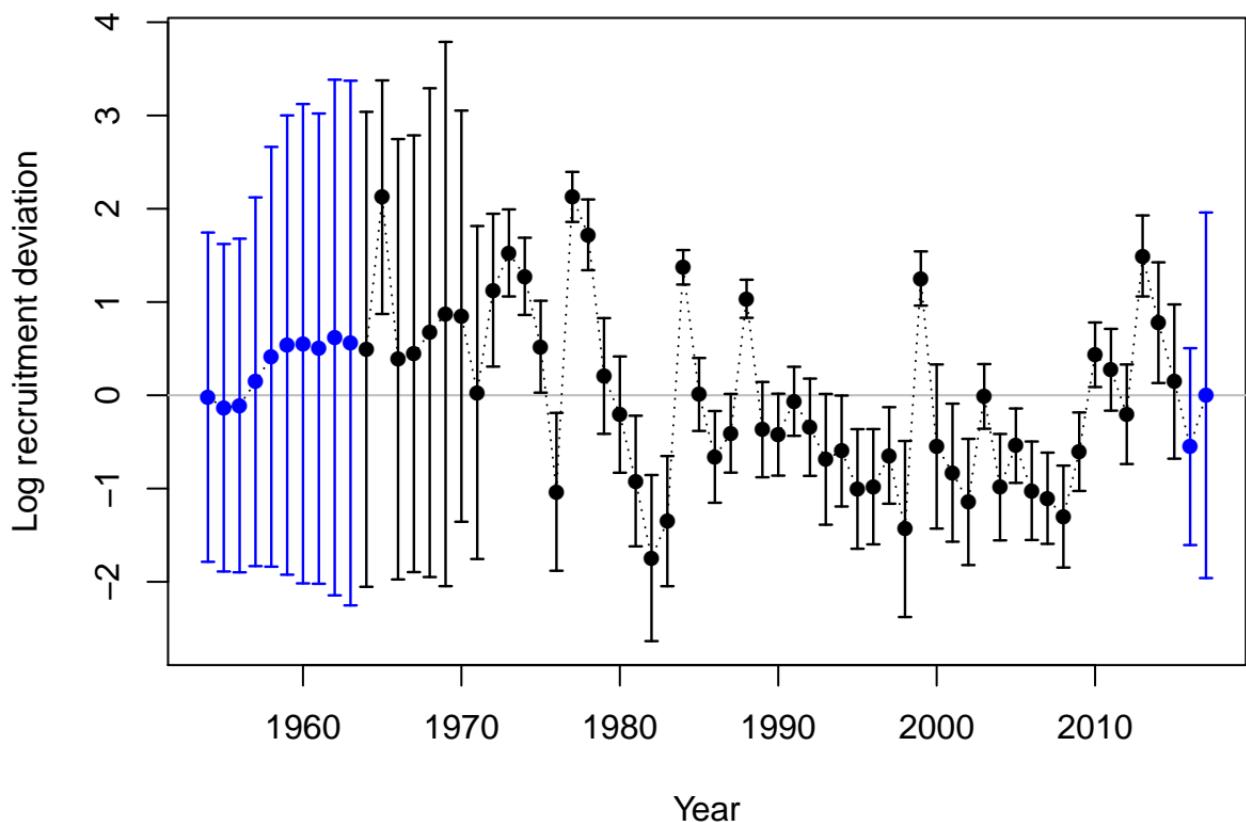


## Age-0 recruits (1,000s) with ~95% asymptotic intervals

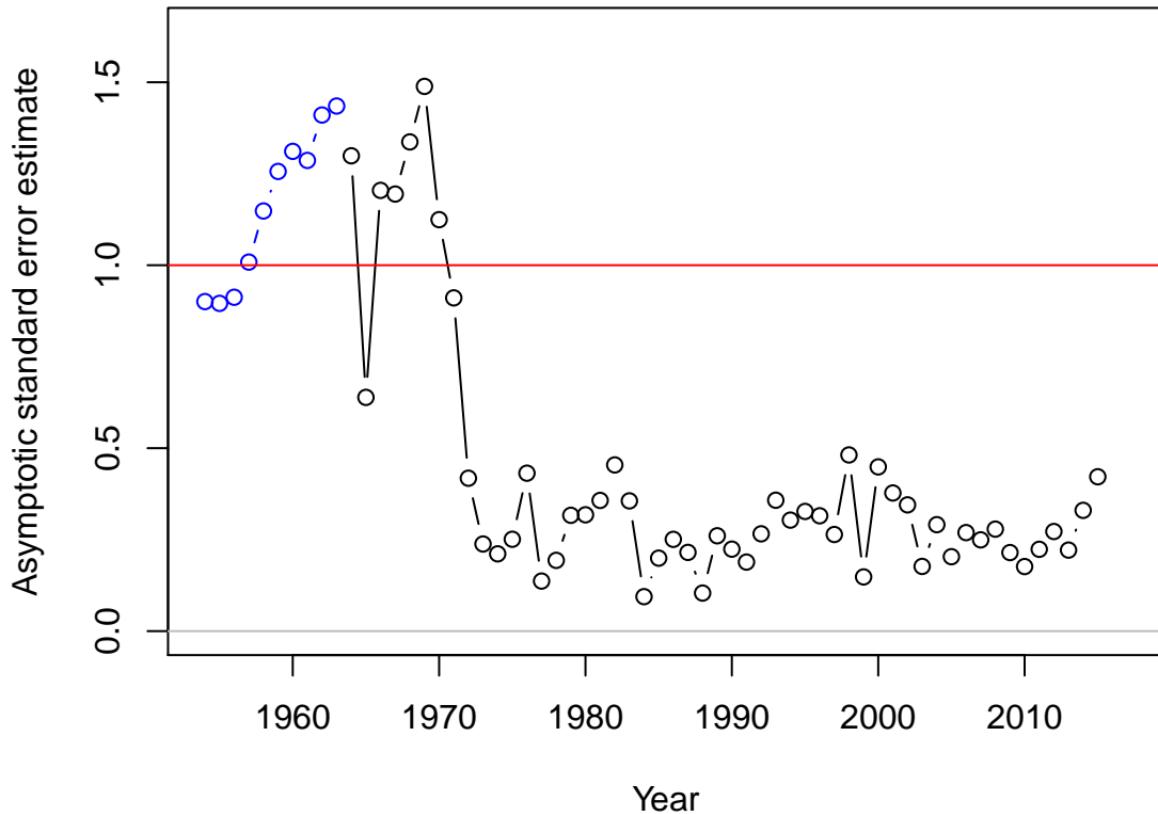


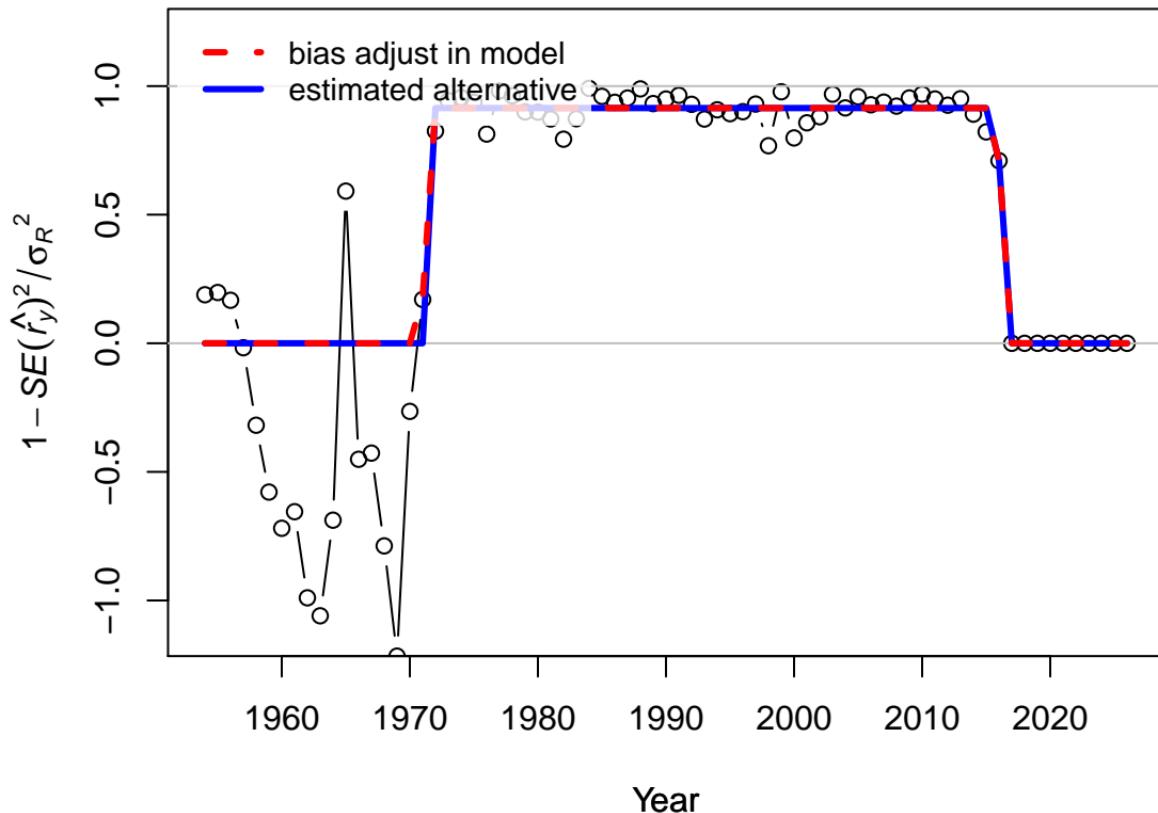


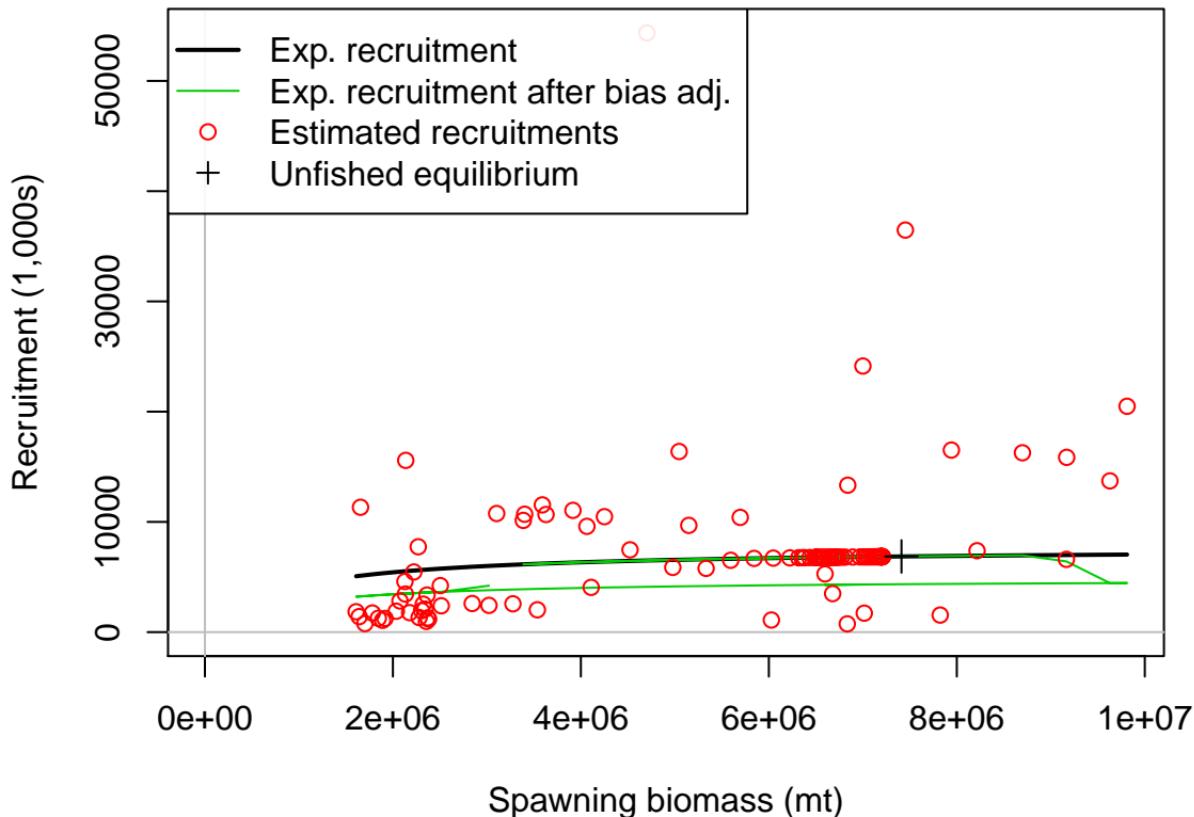


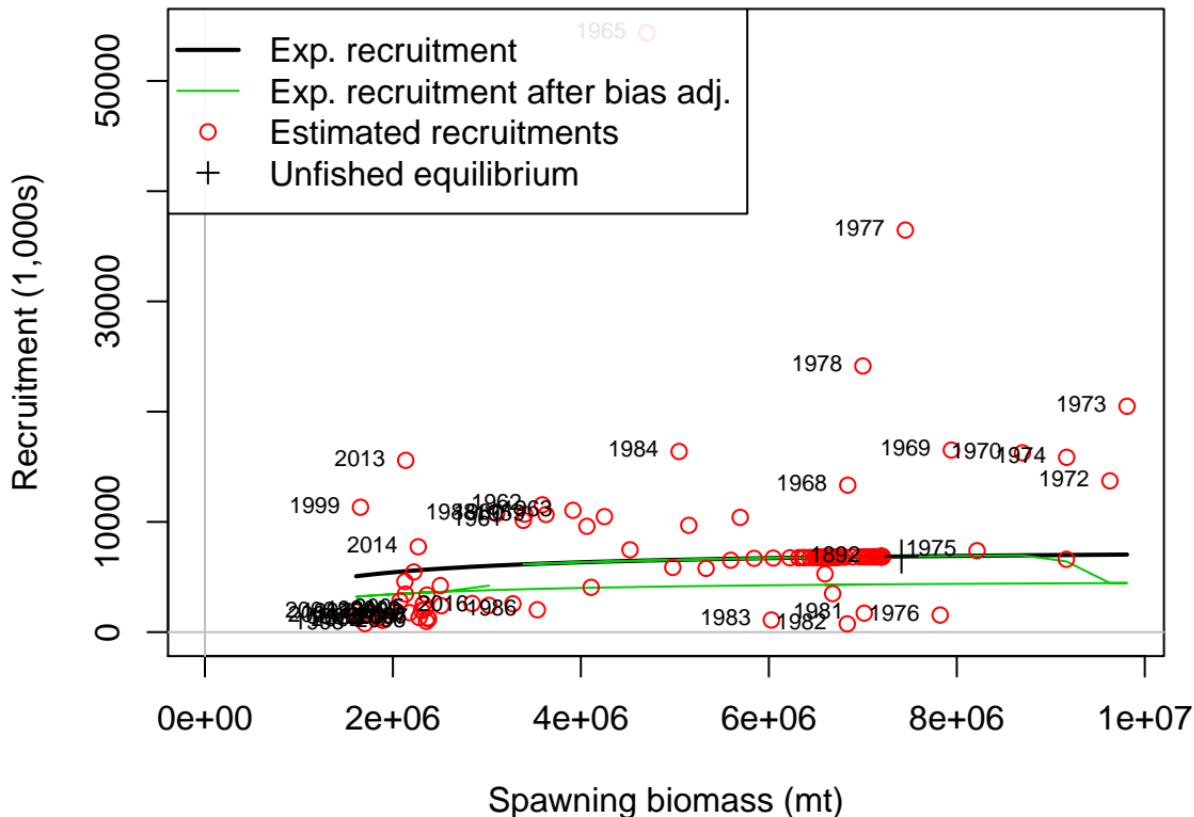


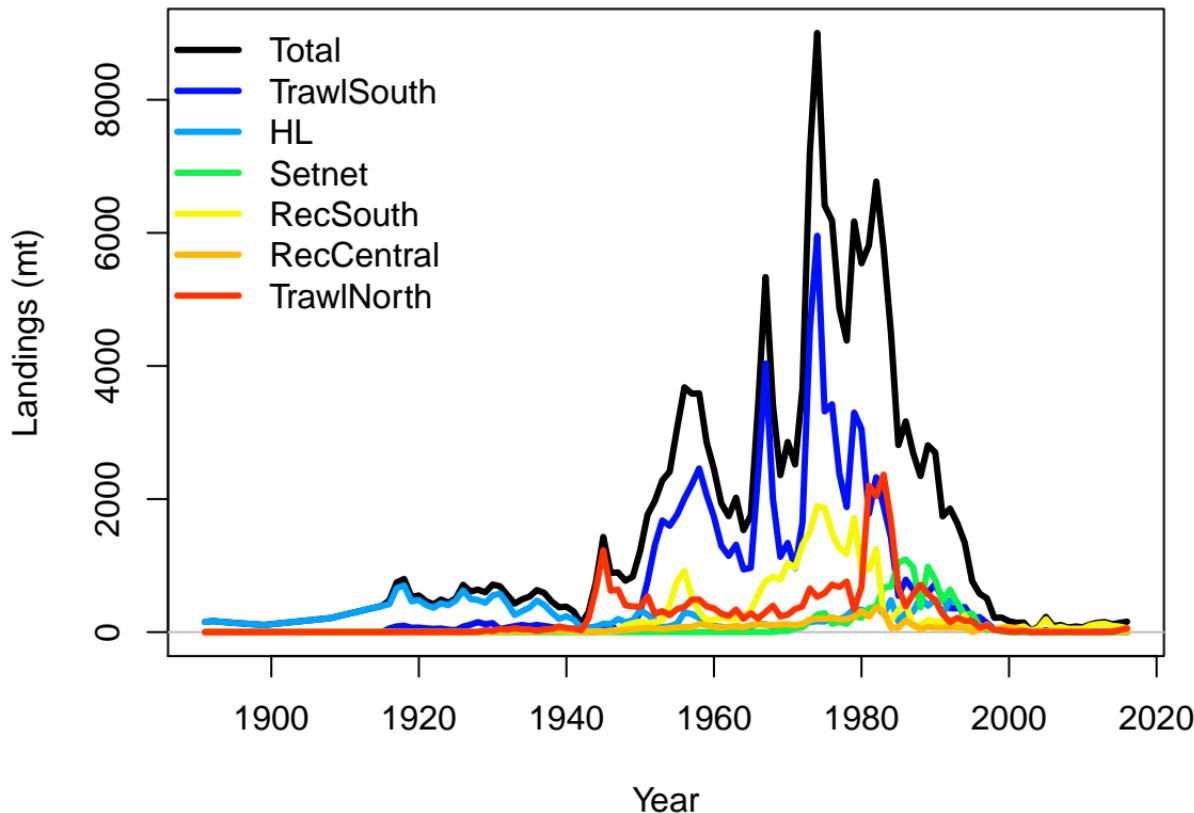
## Recruitment deviation variance

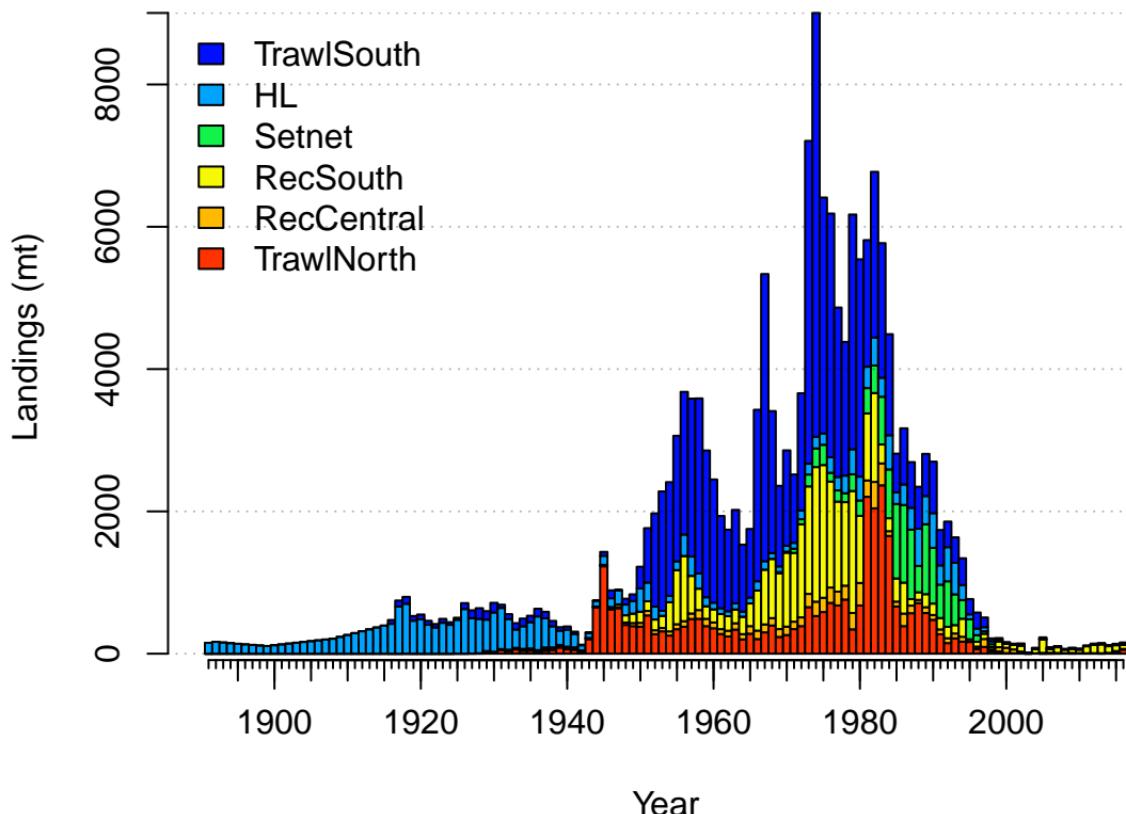


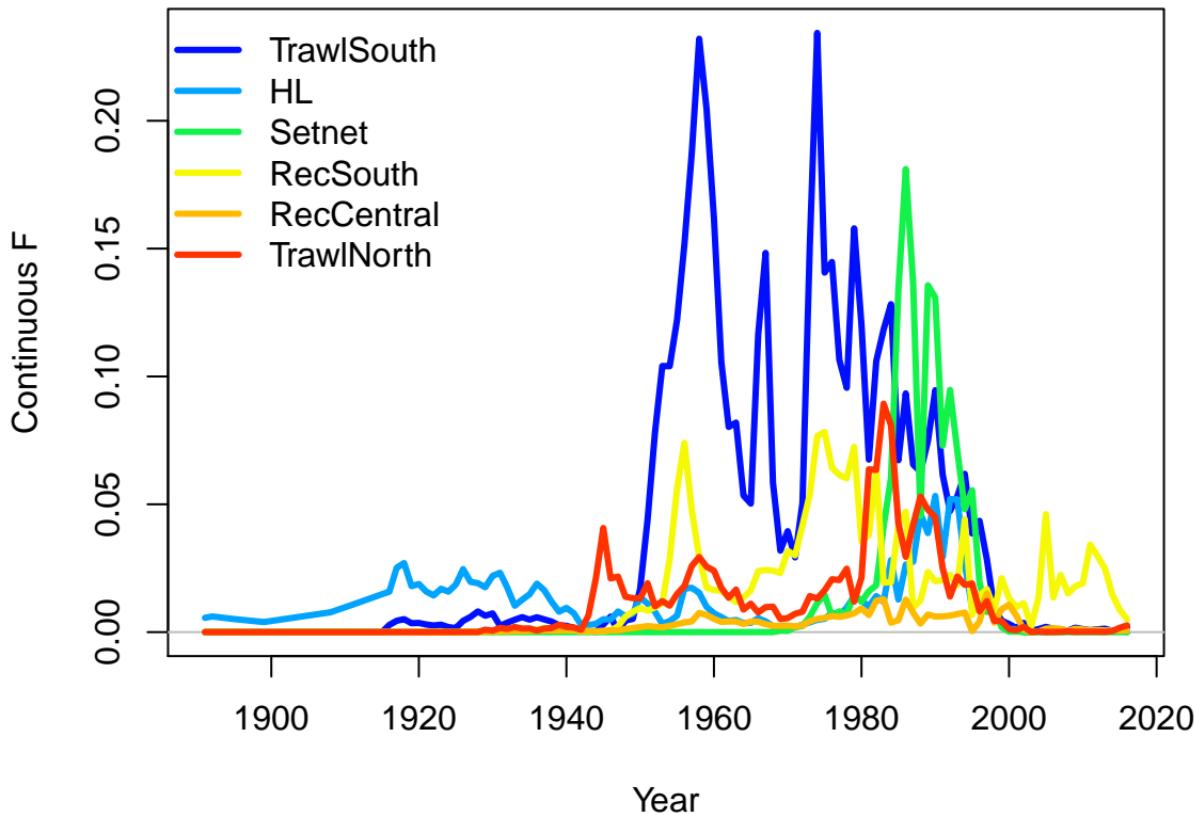


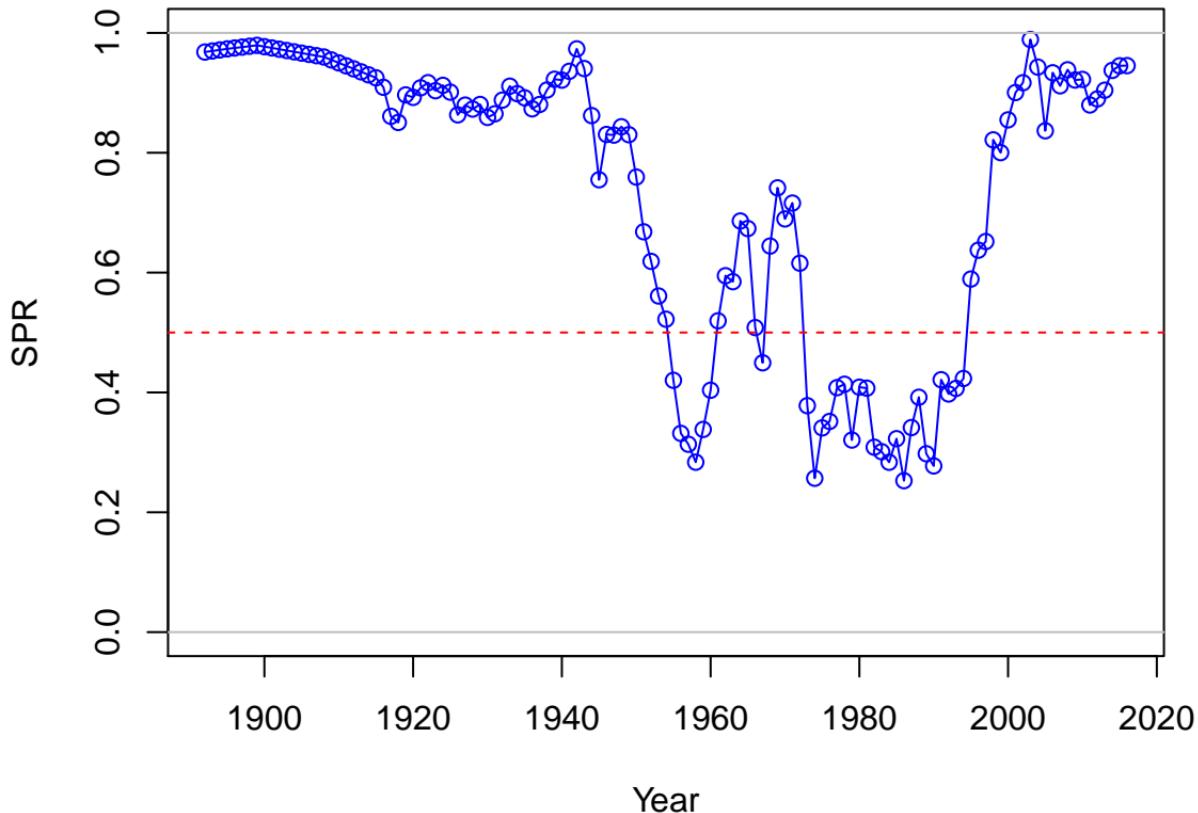


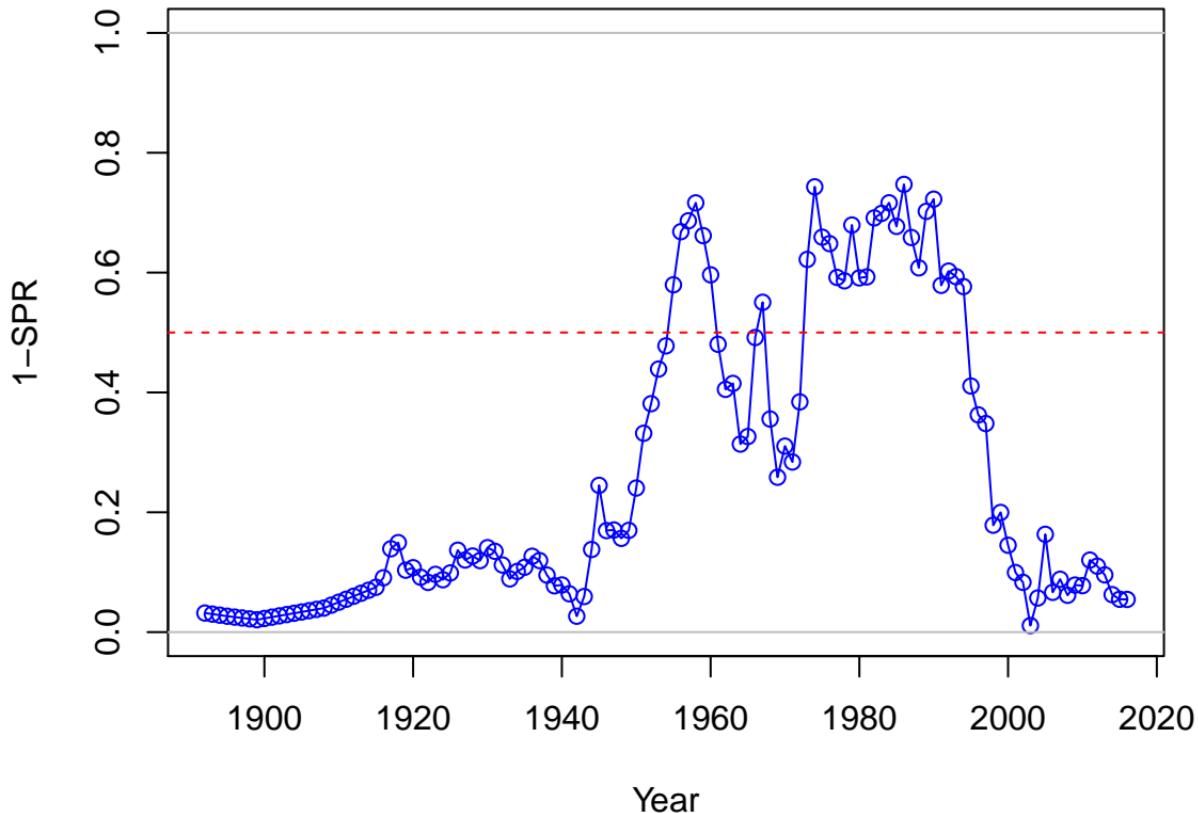


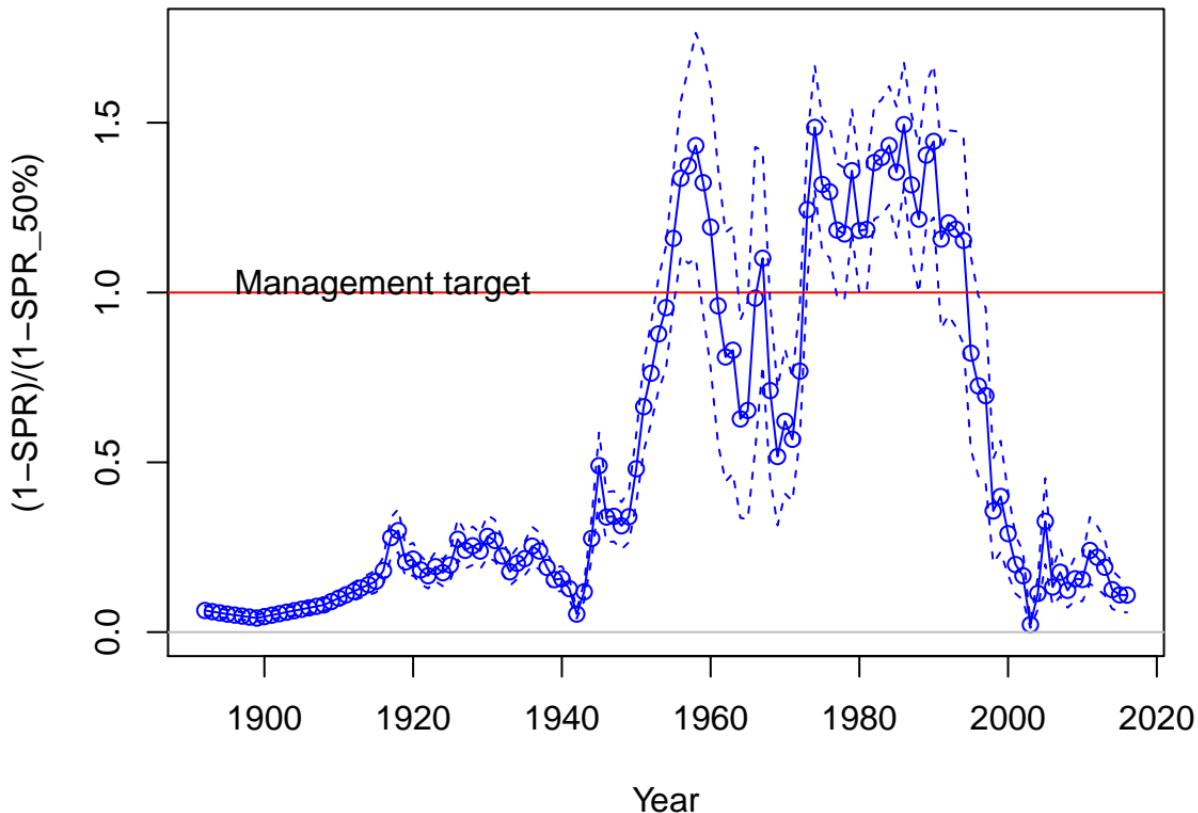


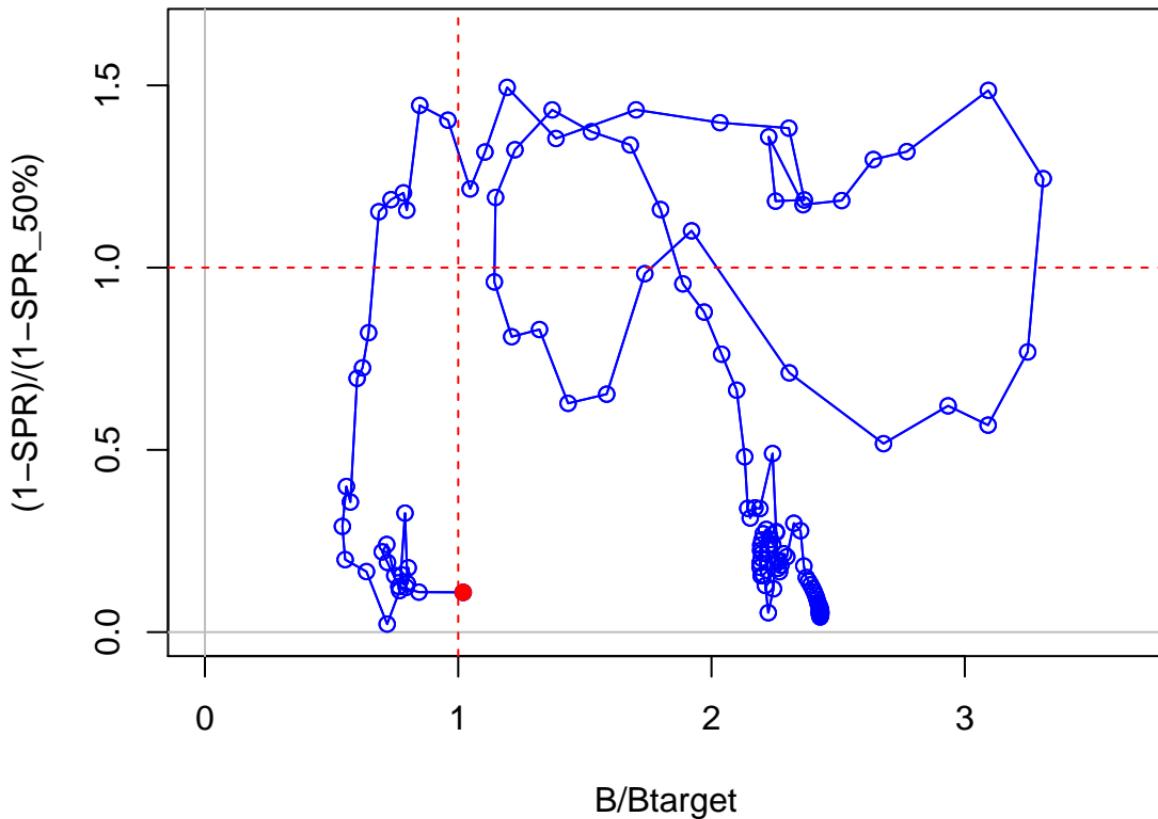




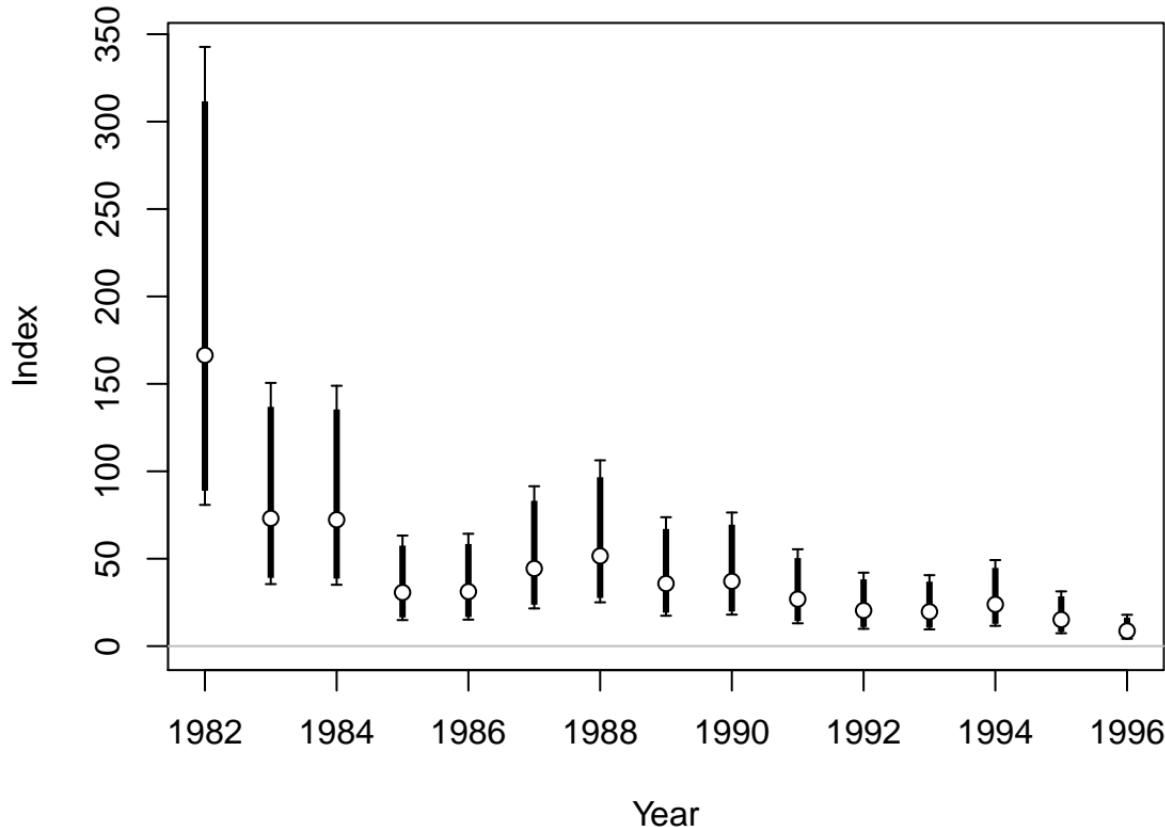




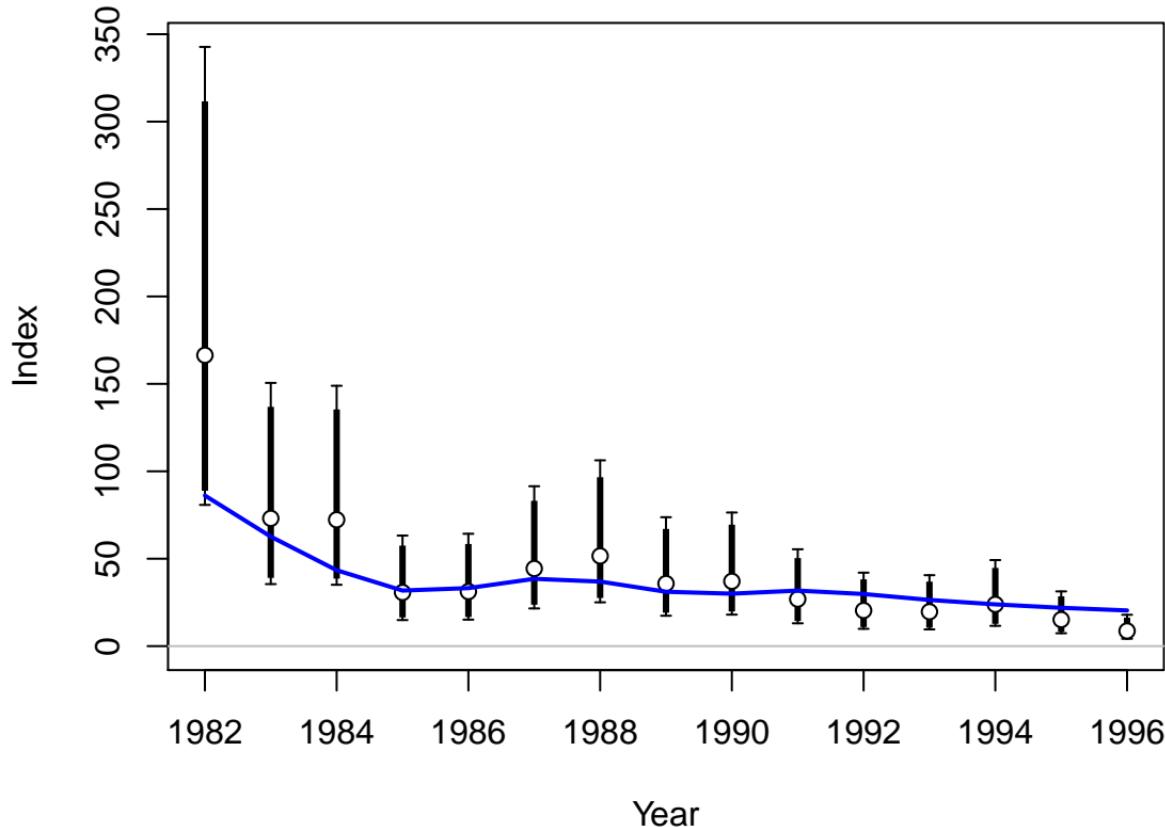




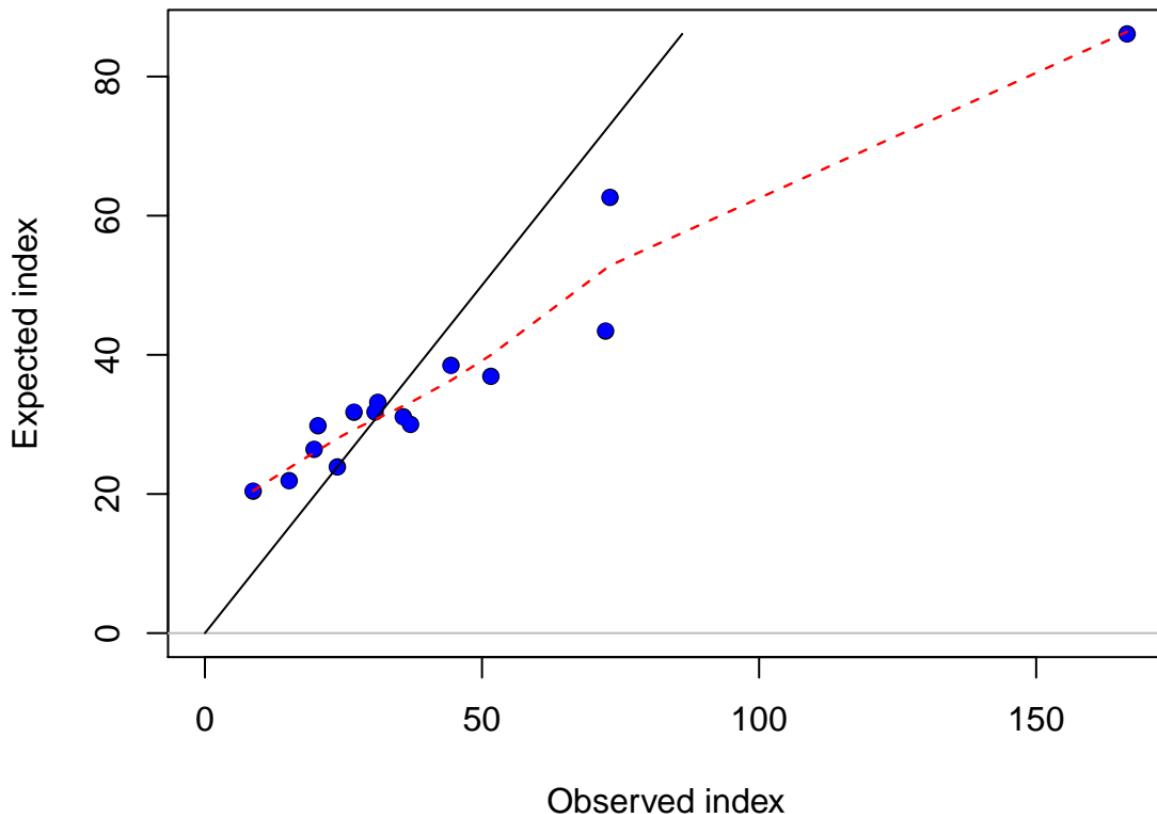
## Index TrawlSouth



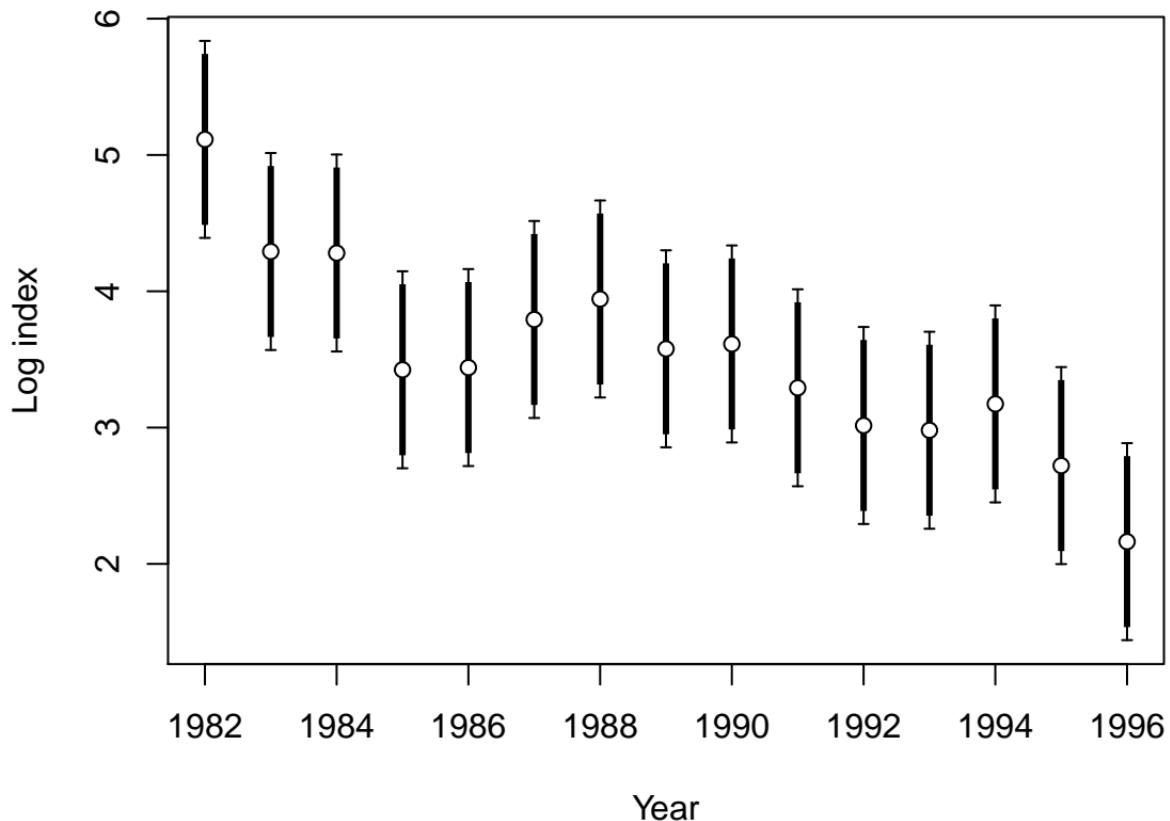
## Index TrawlSouth



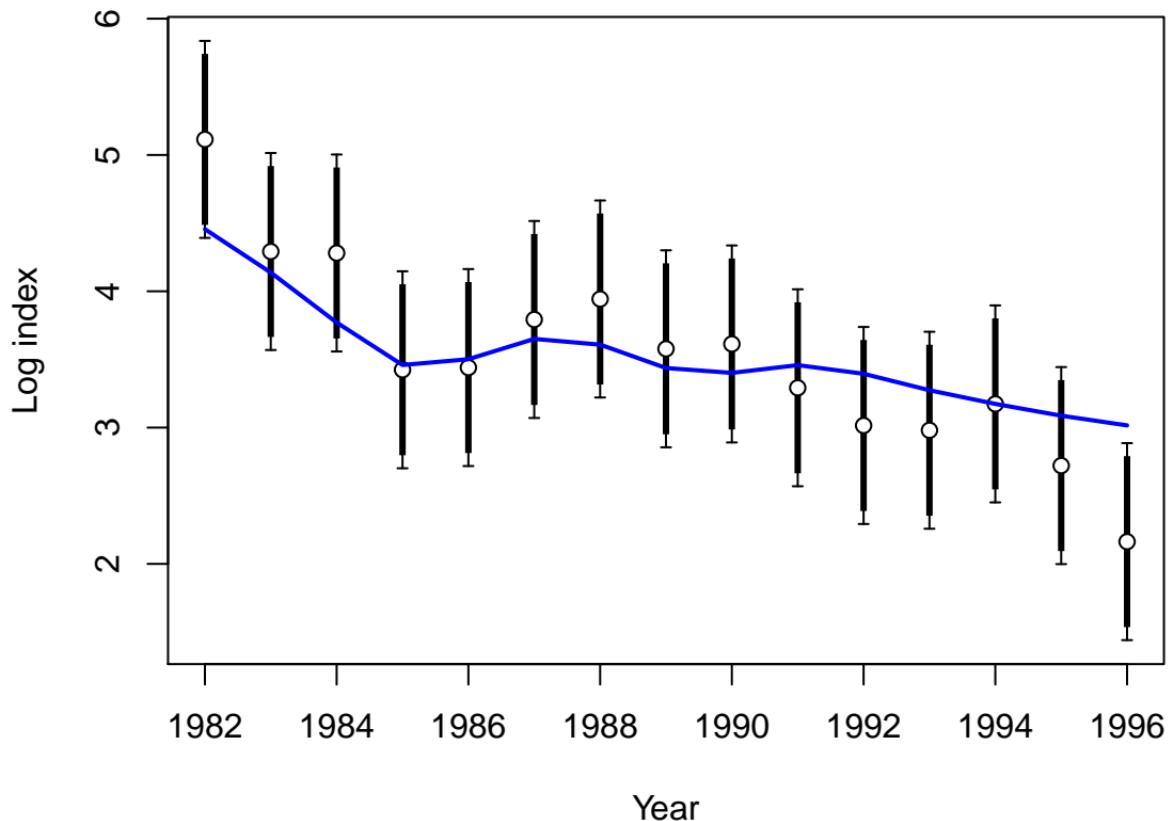
## Index TrawlSouth



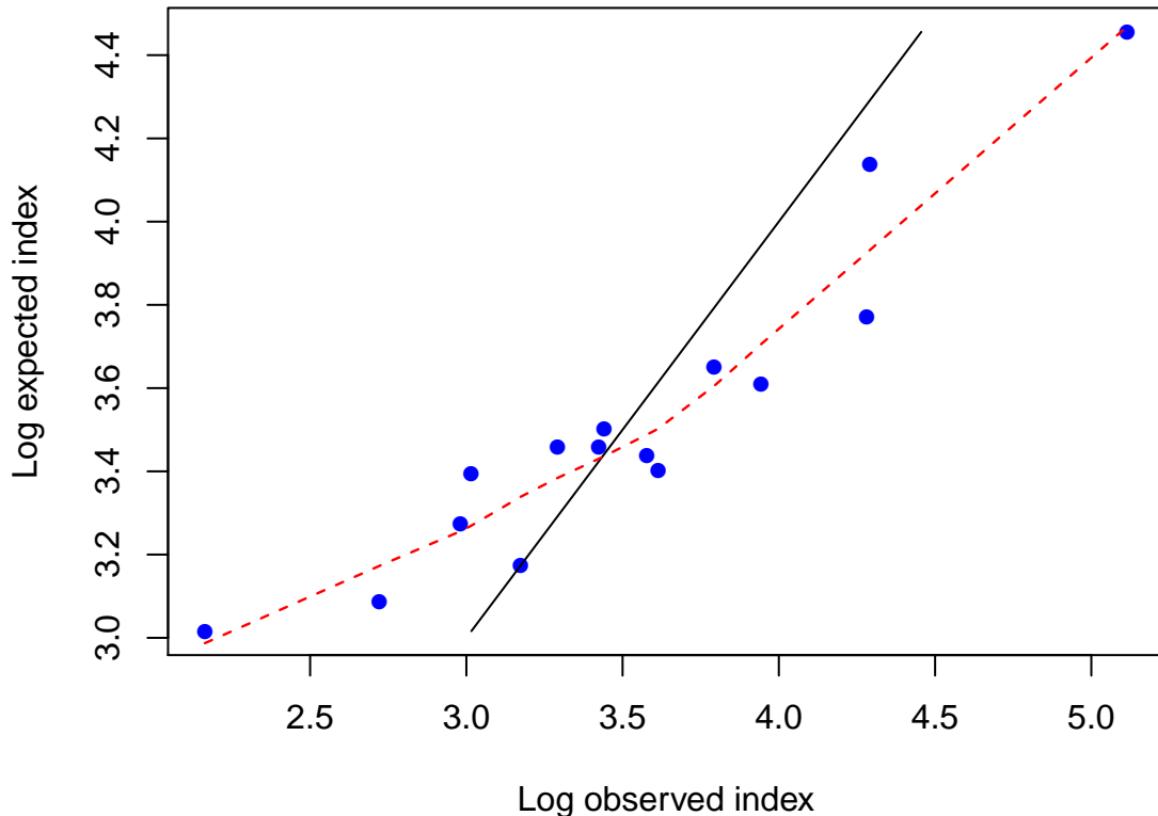
## Log index TrawlSouth



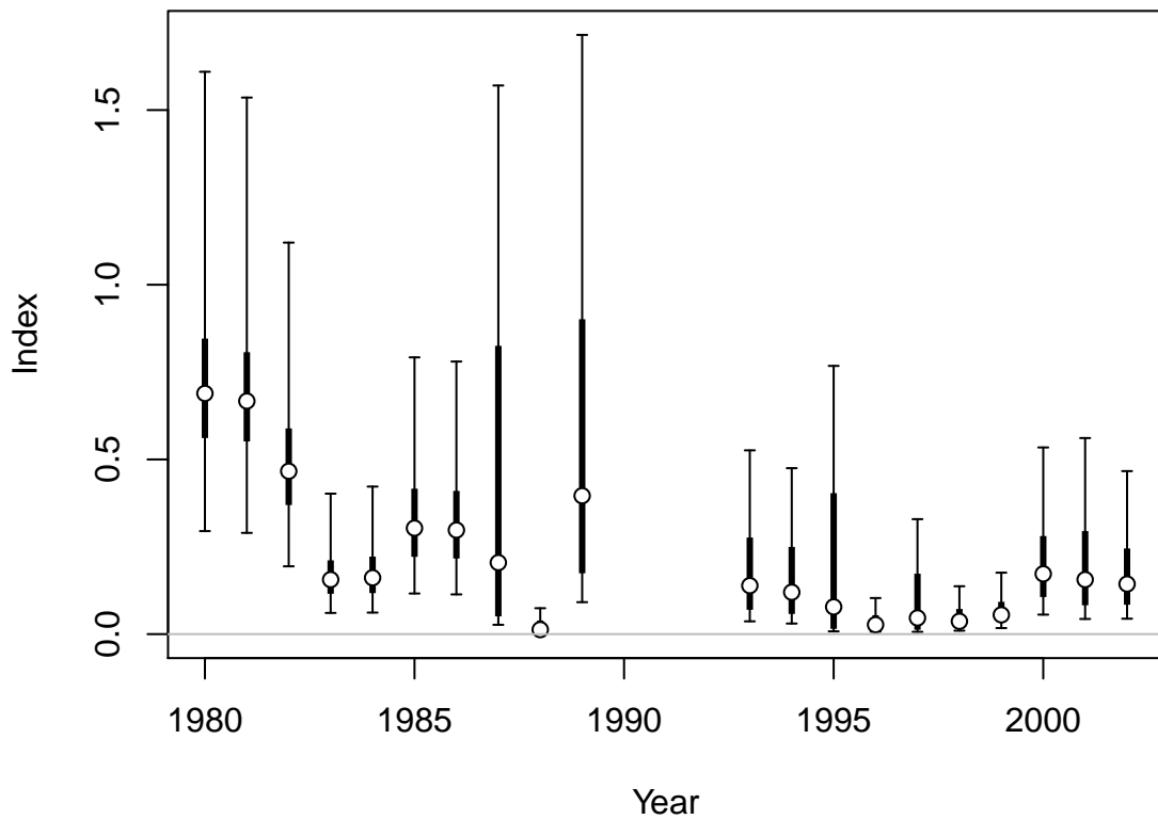
## Log index TrawlSouth



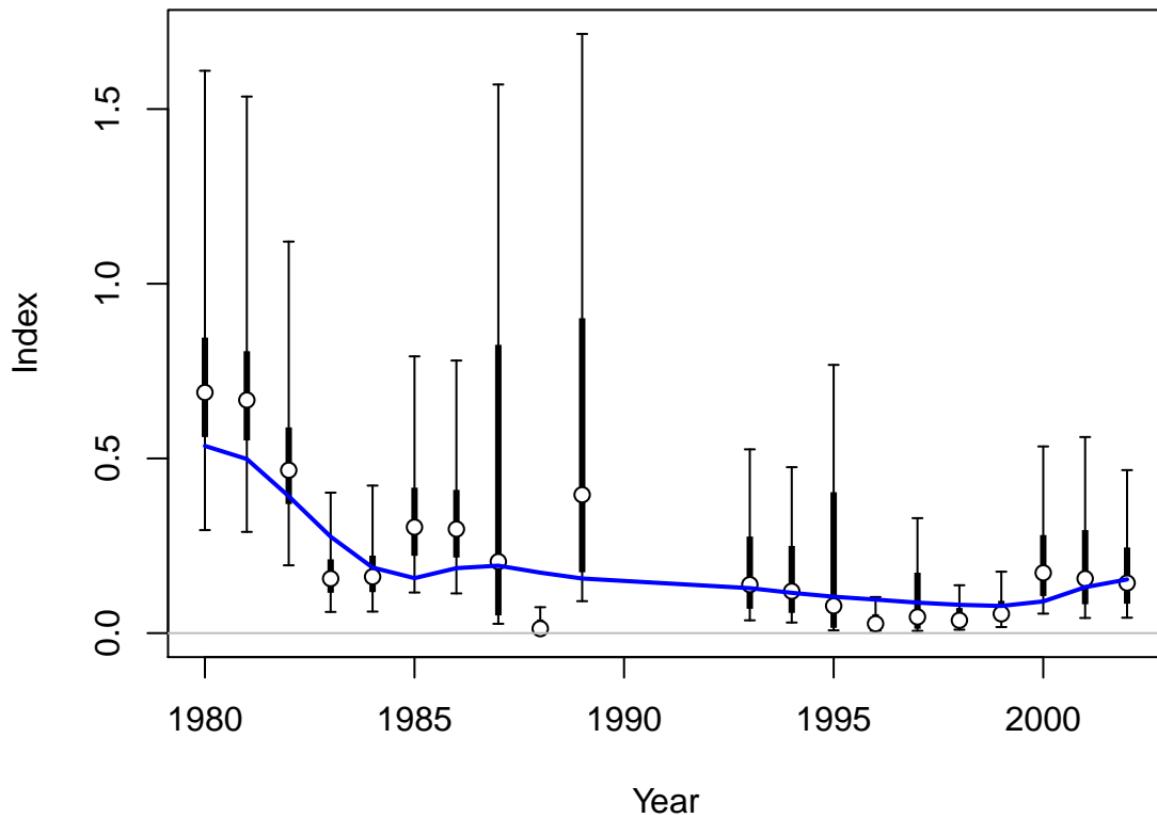
## Log index TrawlSouth



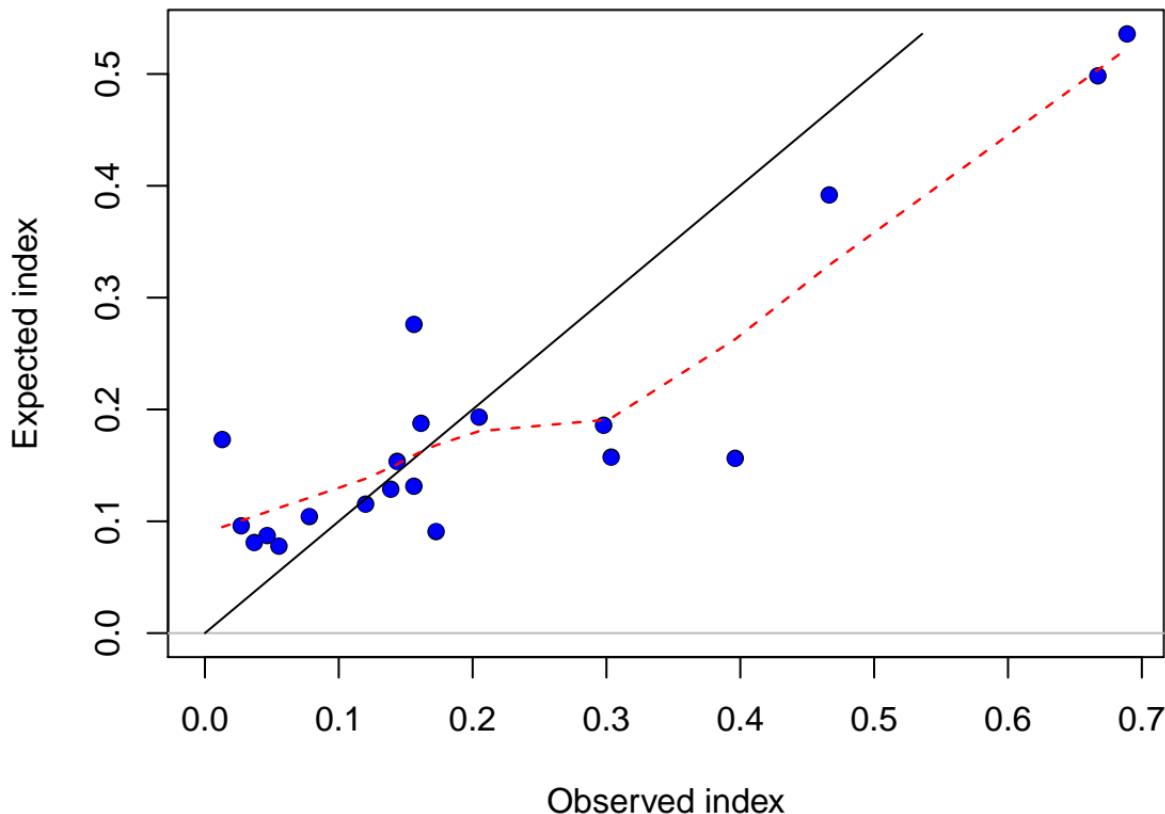
## Index RecSouth



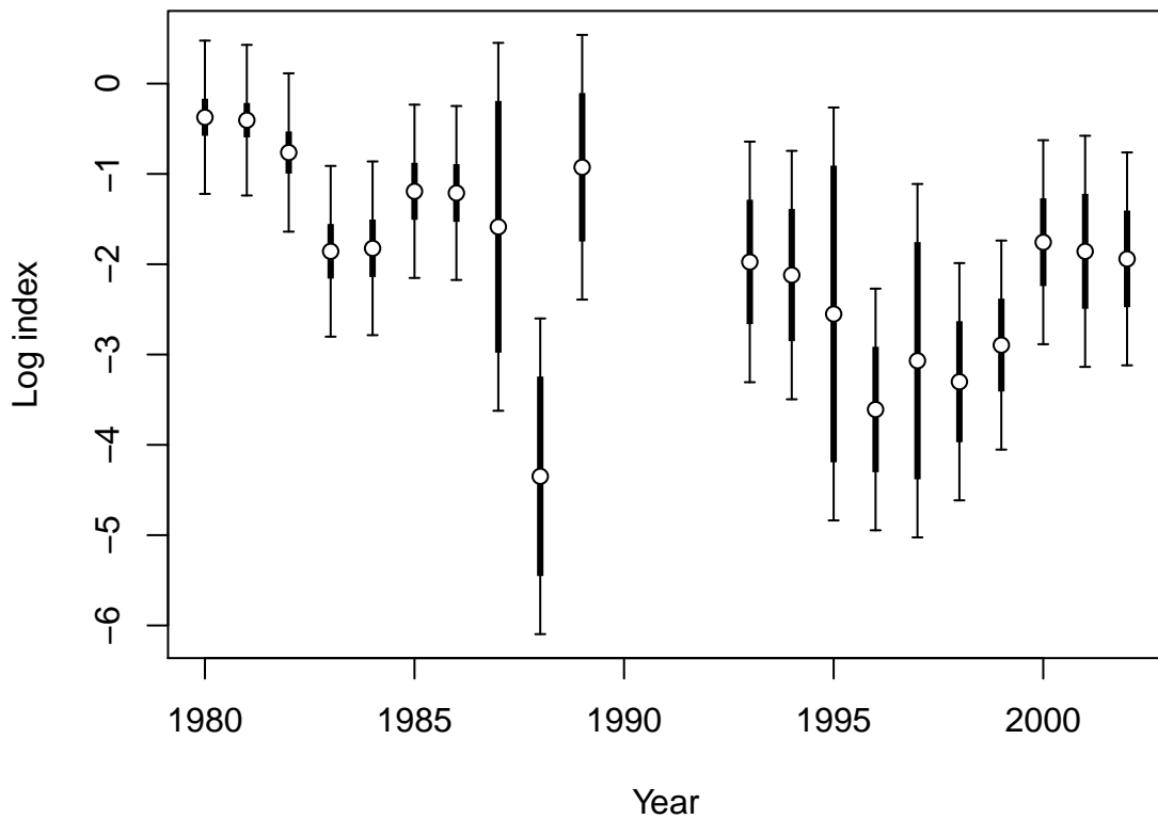
## Index RecSouth



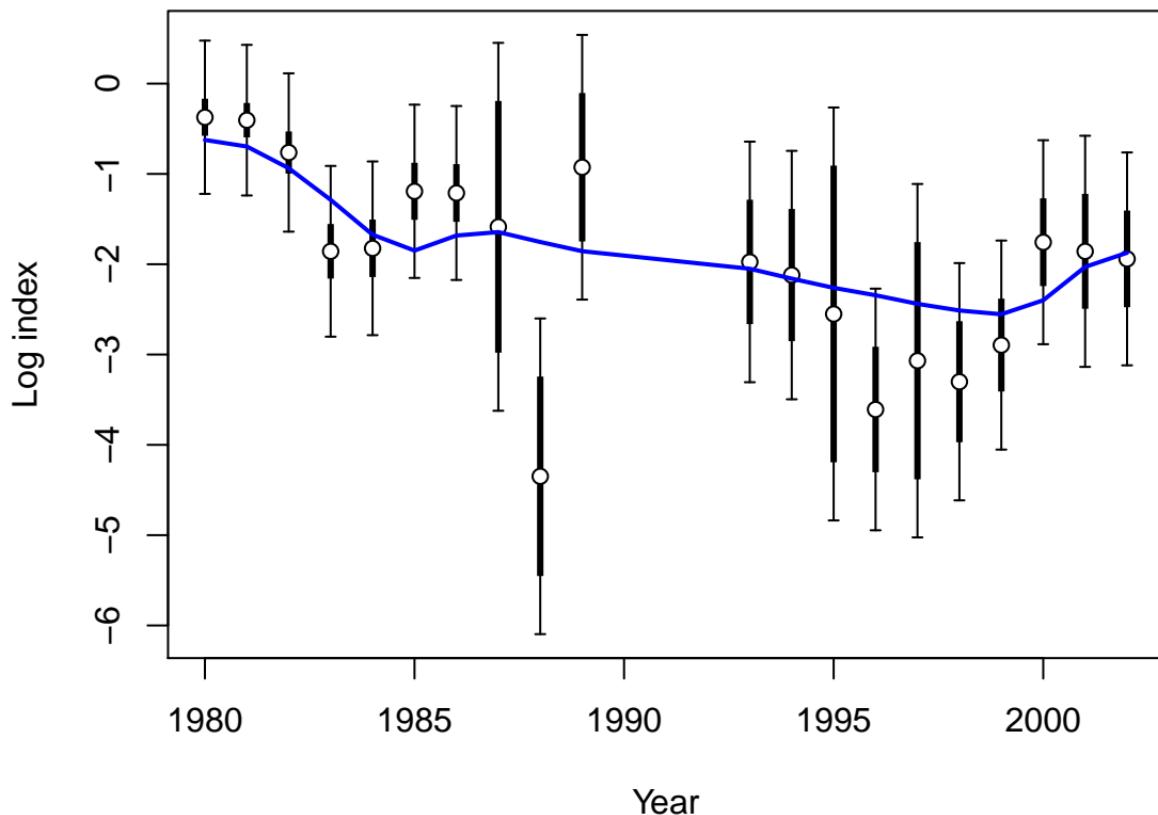
## Index RecSouth



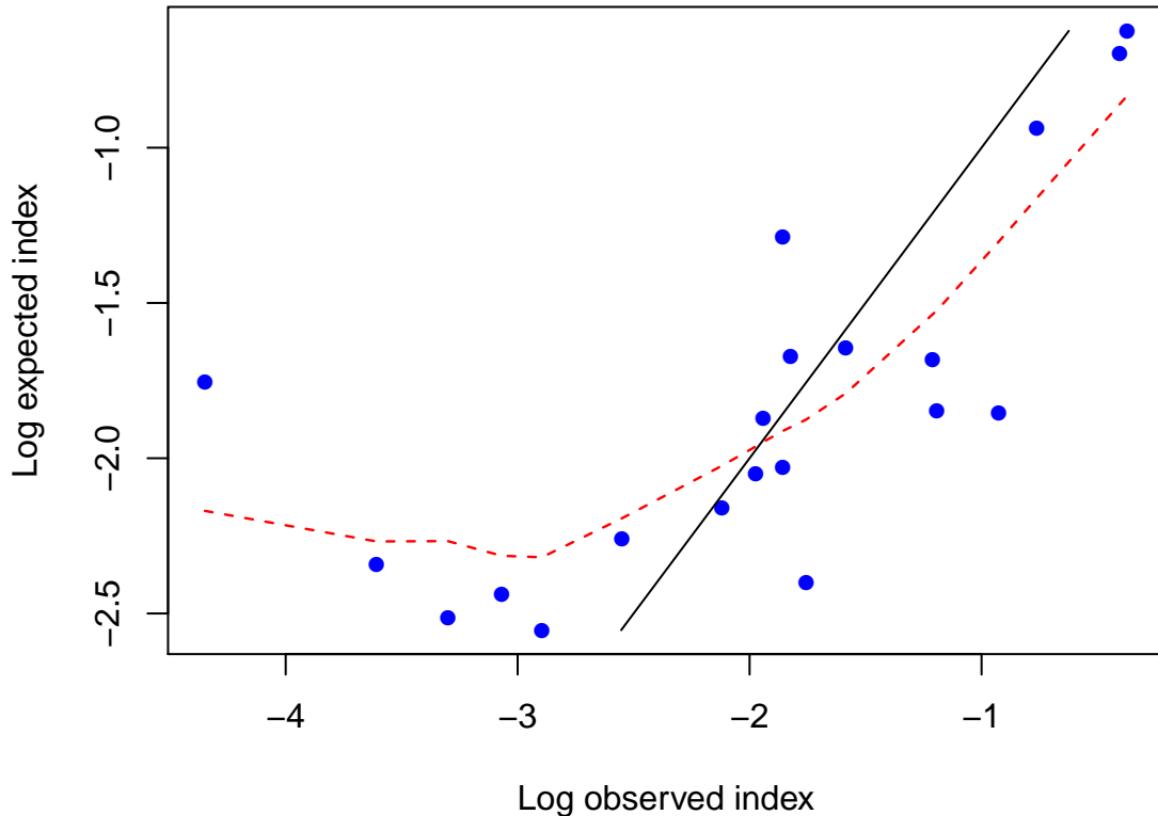
## Log index RecSouth



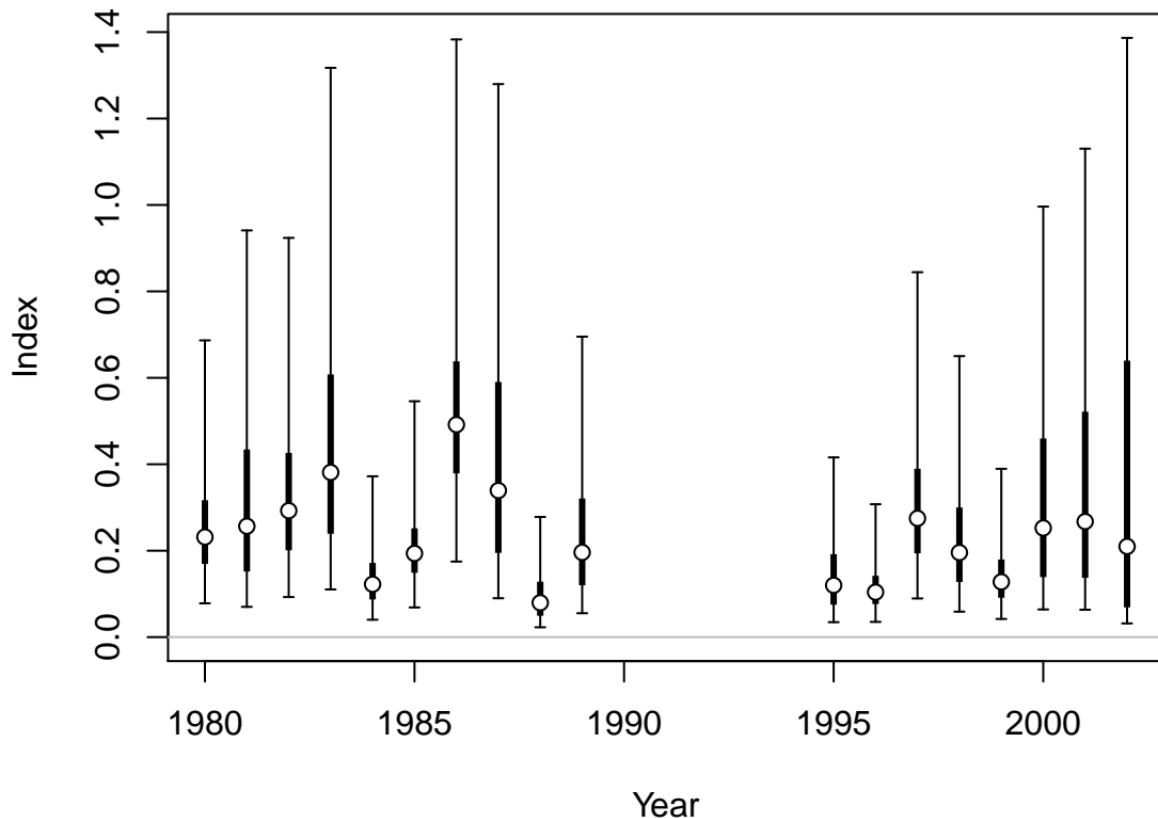
## Log index RecSouth



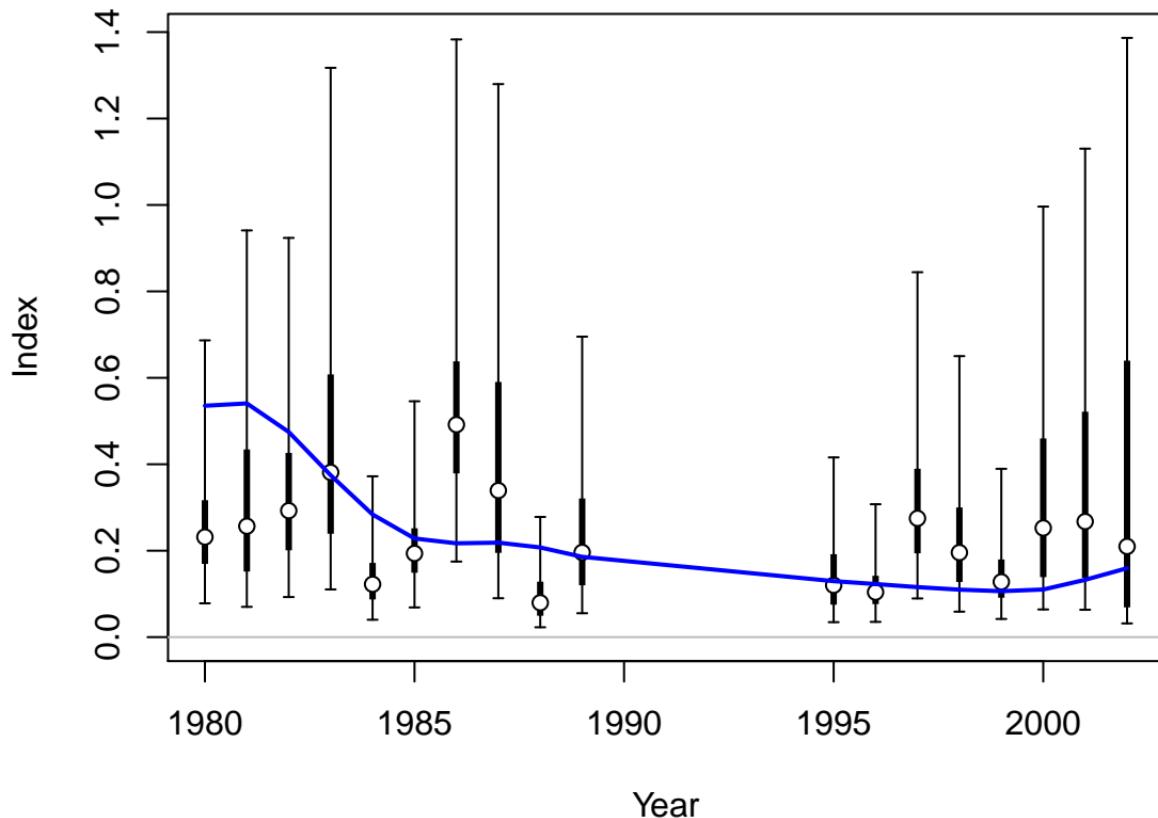
## Log index RecSouth



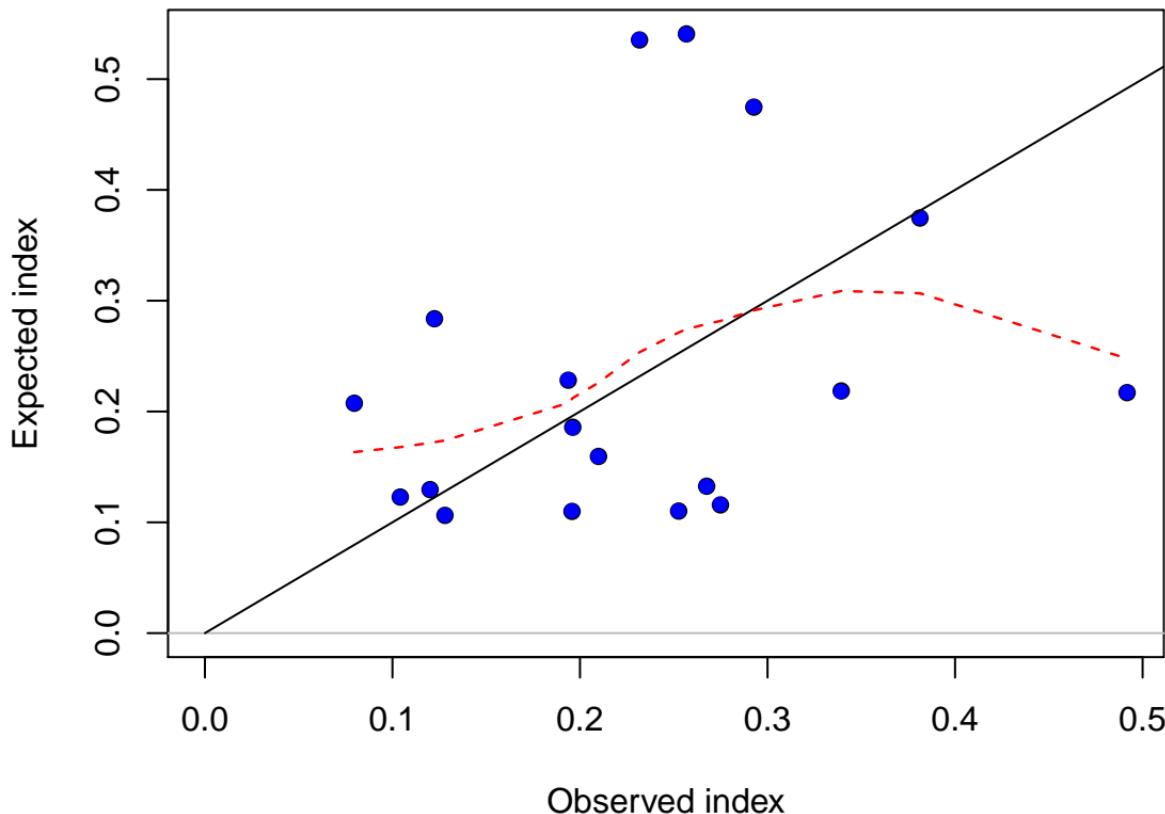
## Index RecCentral



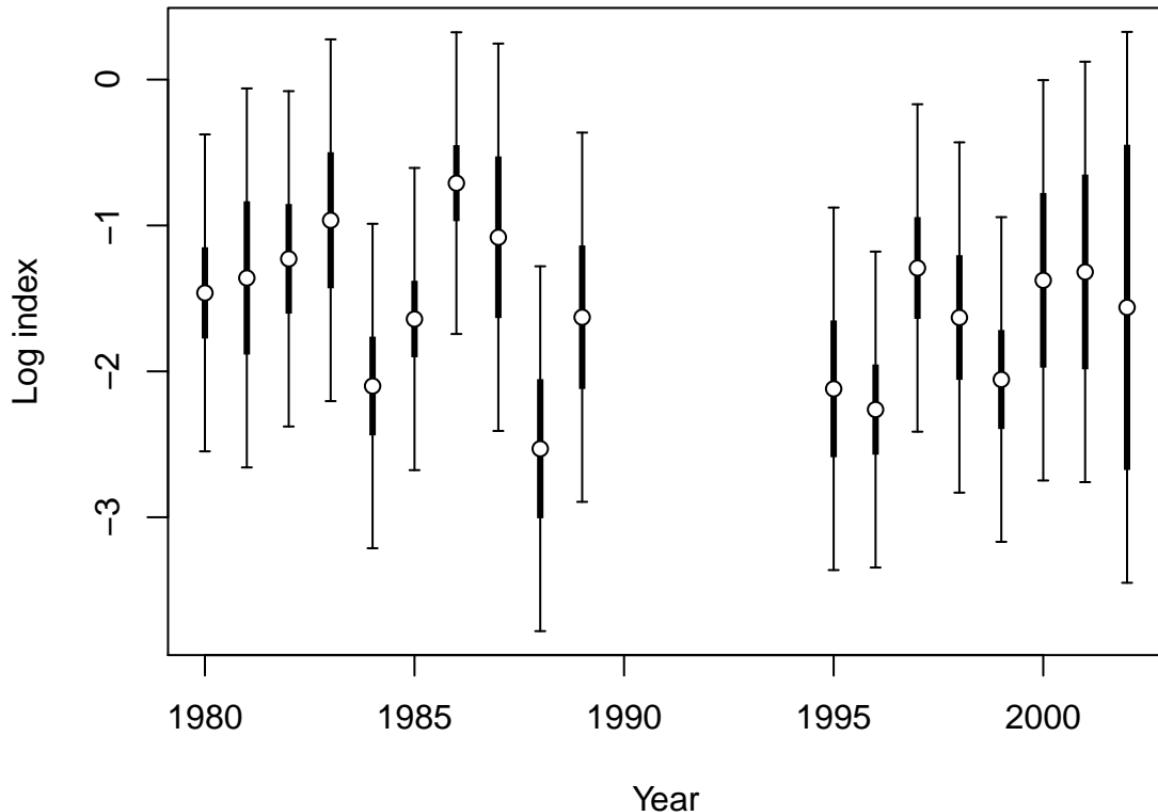
## Index RecCentral



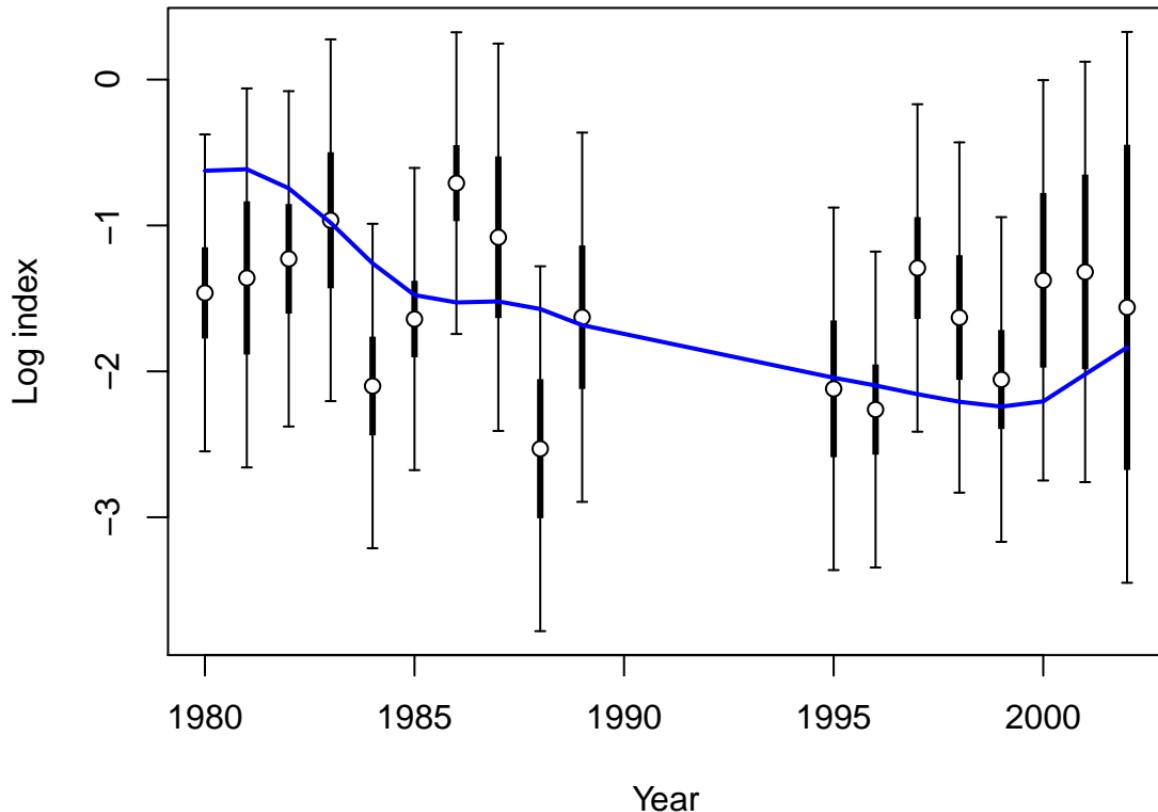
## Index RecCentral



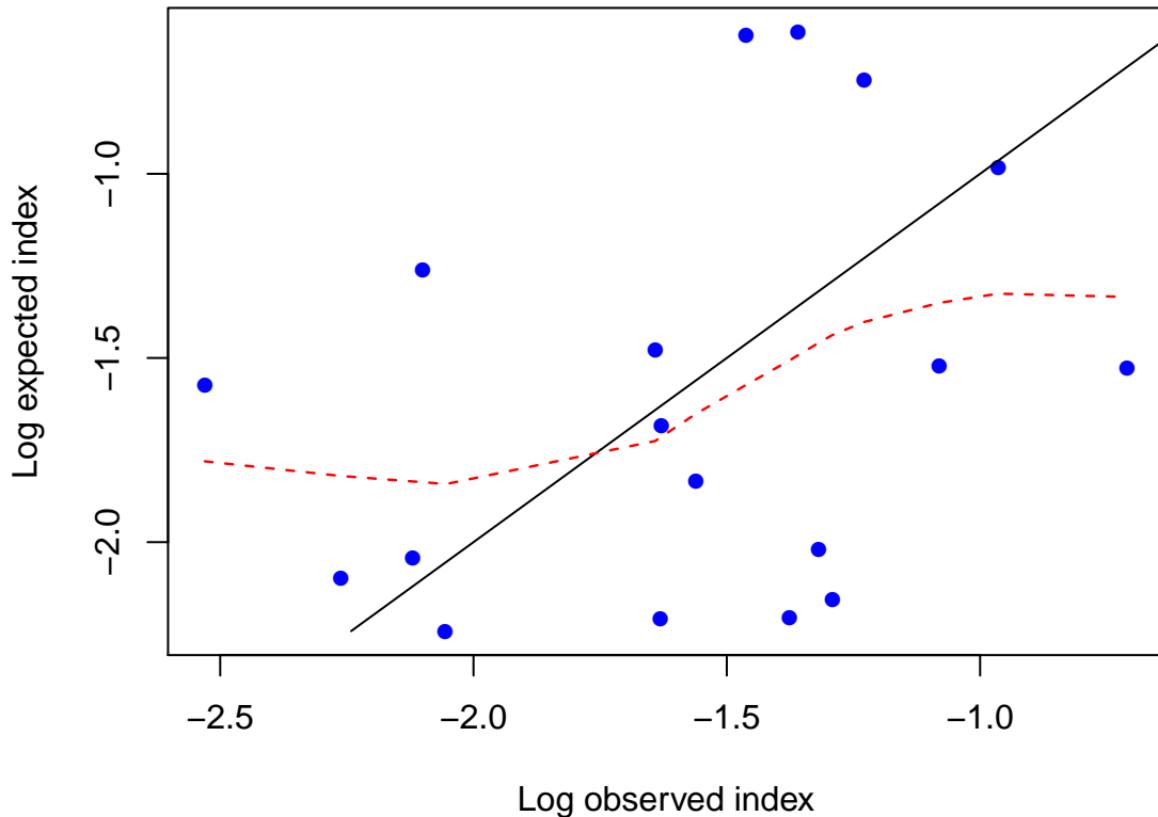
## Log index RecCentral



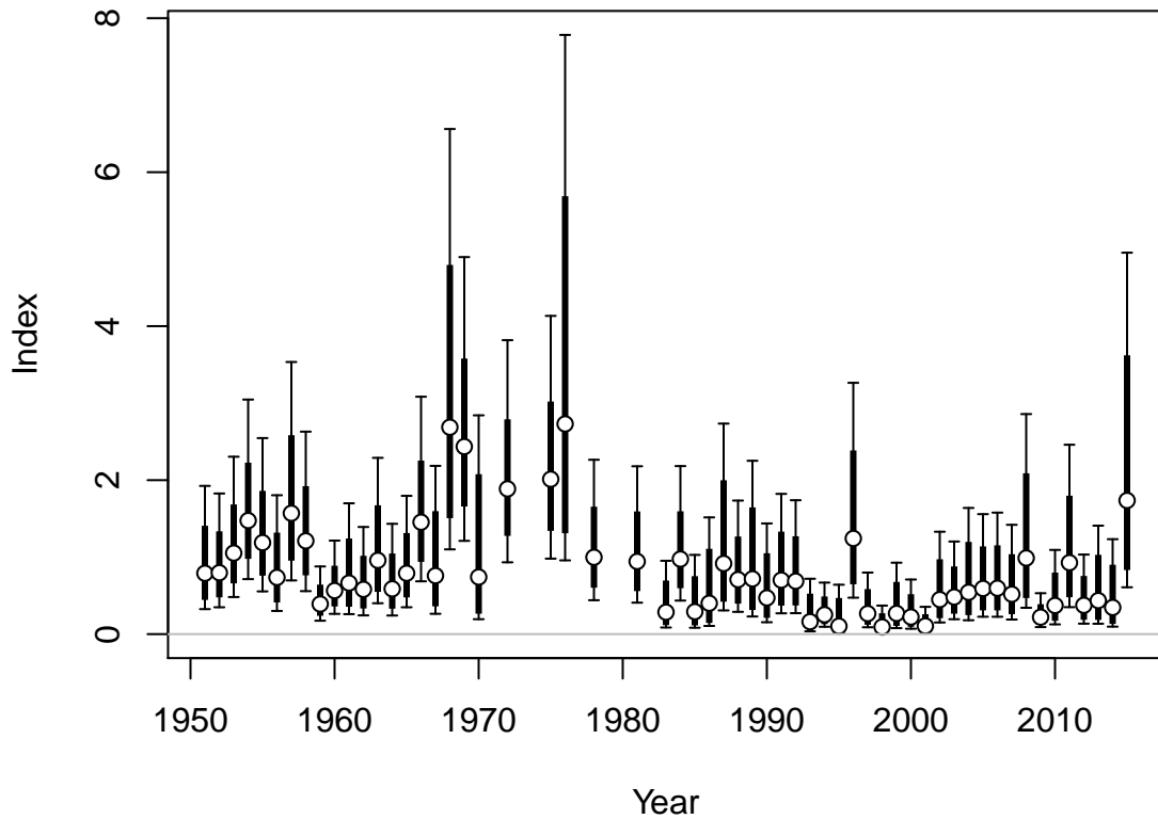
## Log index RecCentral



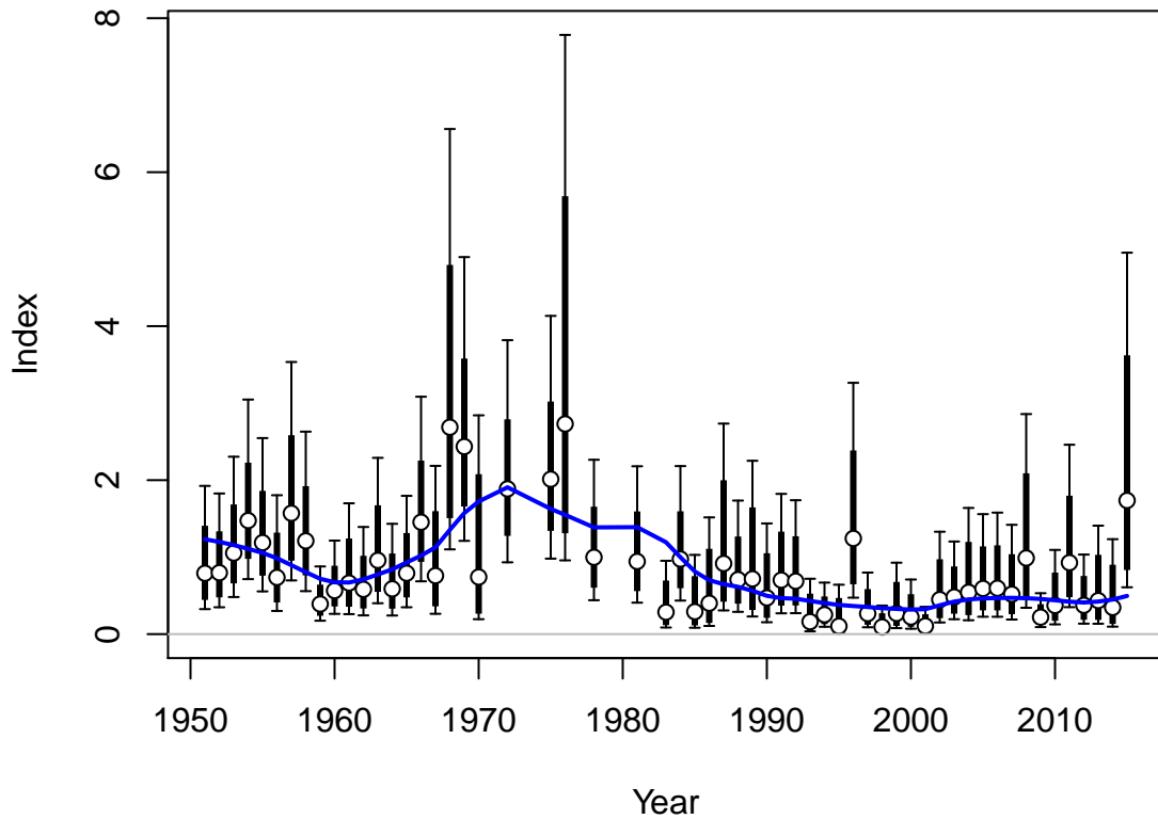
## Log index RecCentral



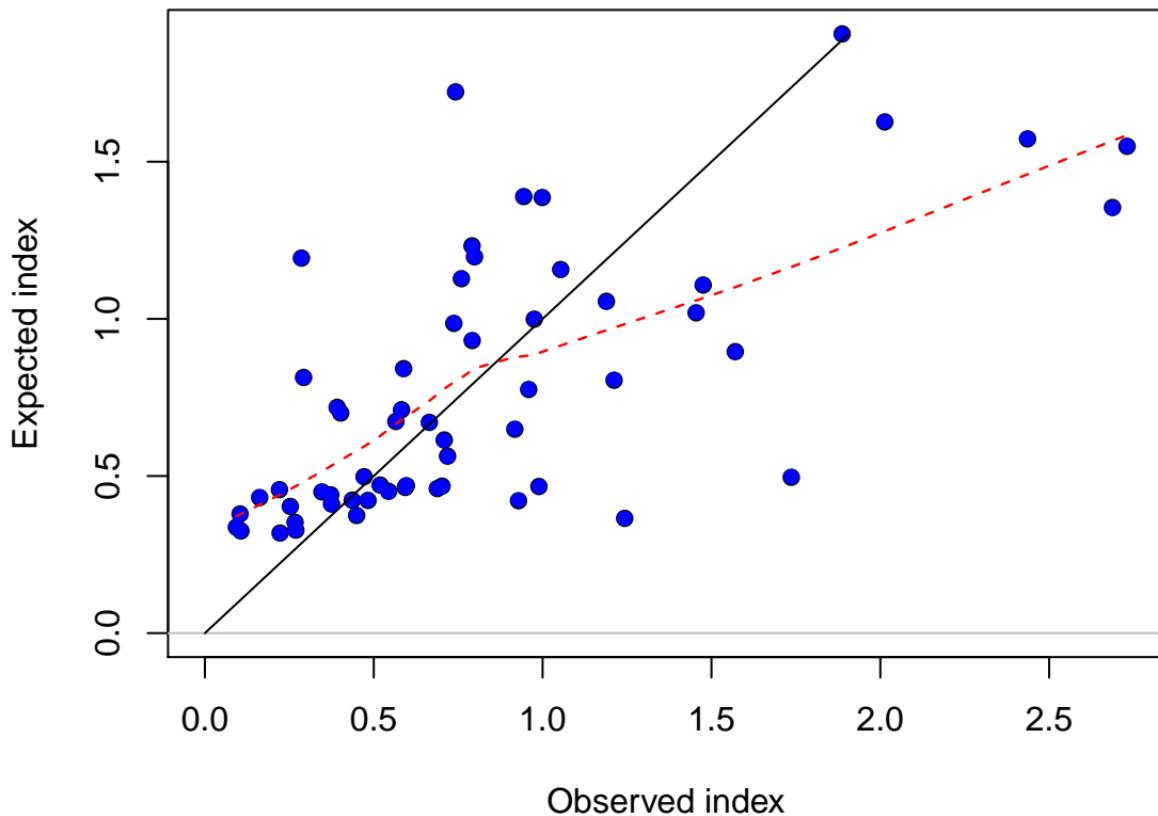
## Index CaCOFI



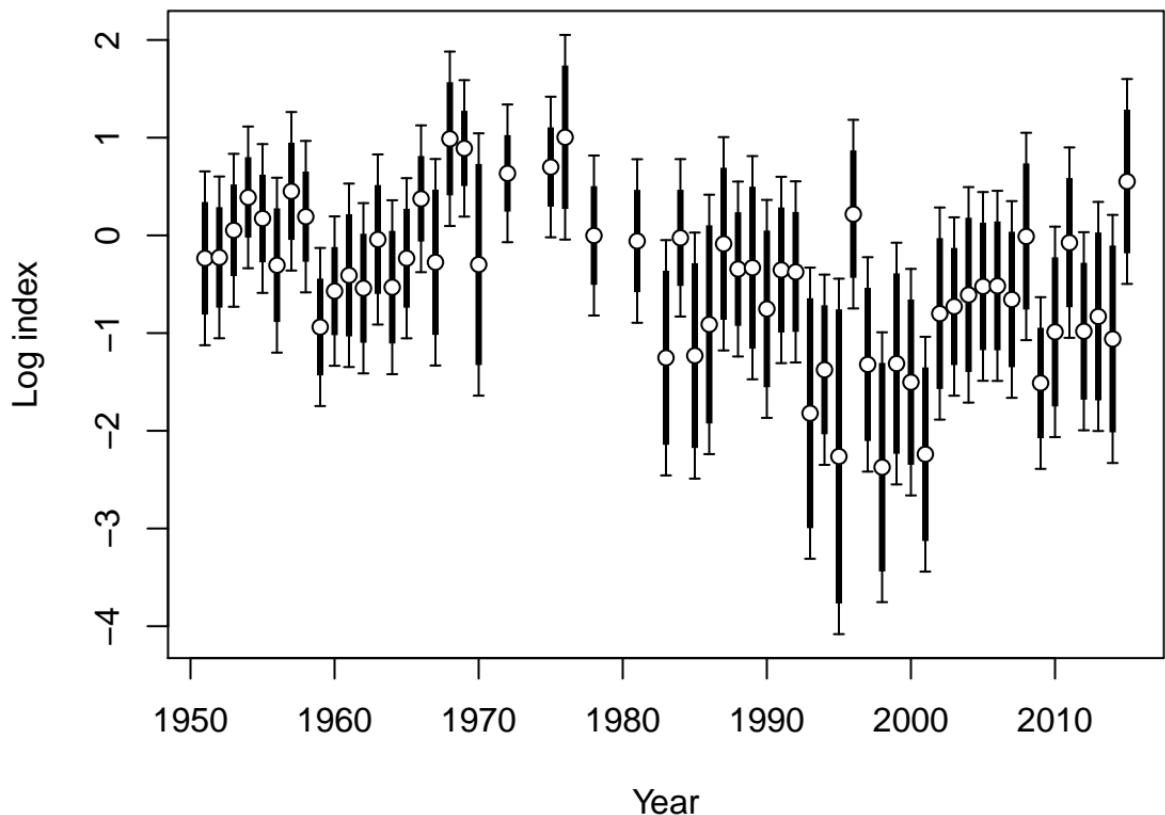
## Index CaCOFI



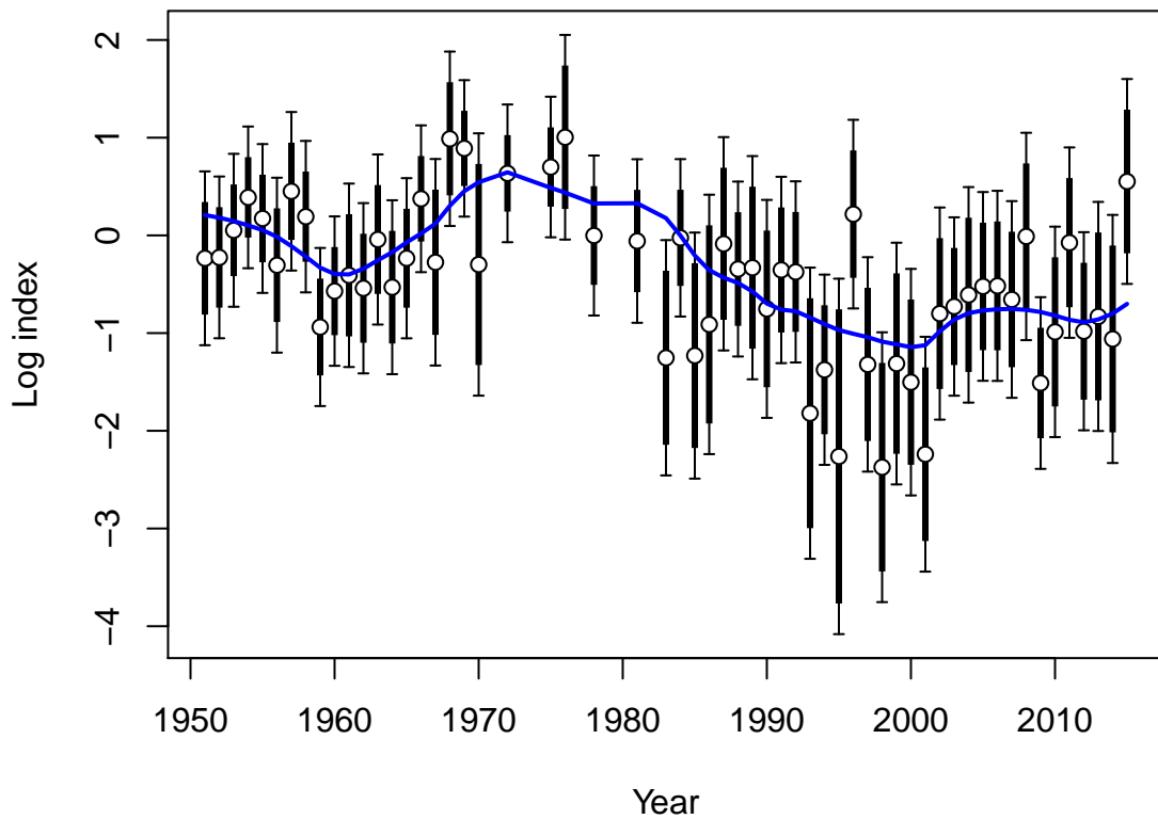
## Index CalCOFI



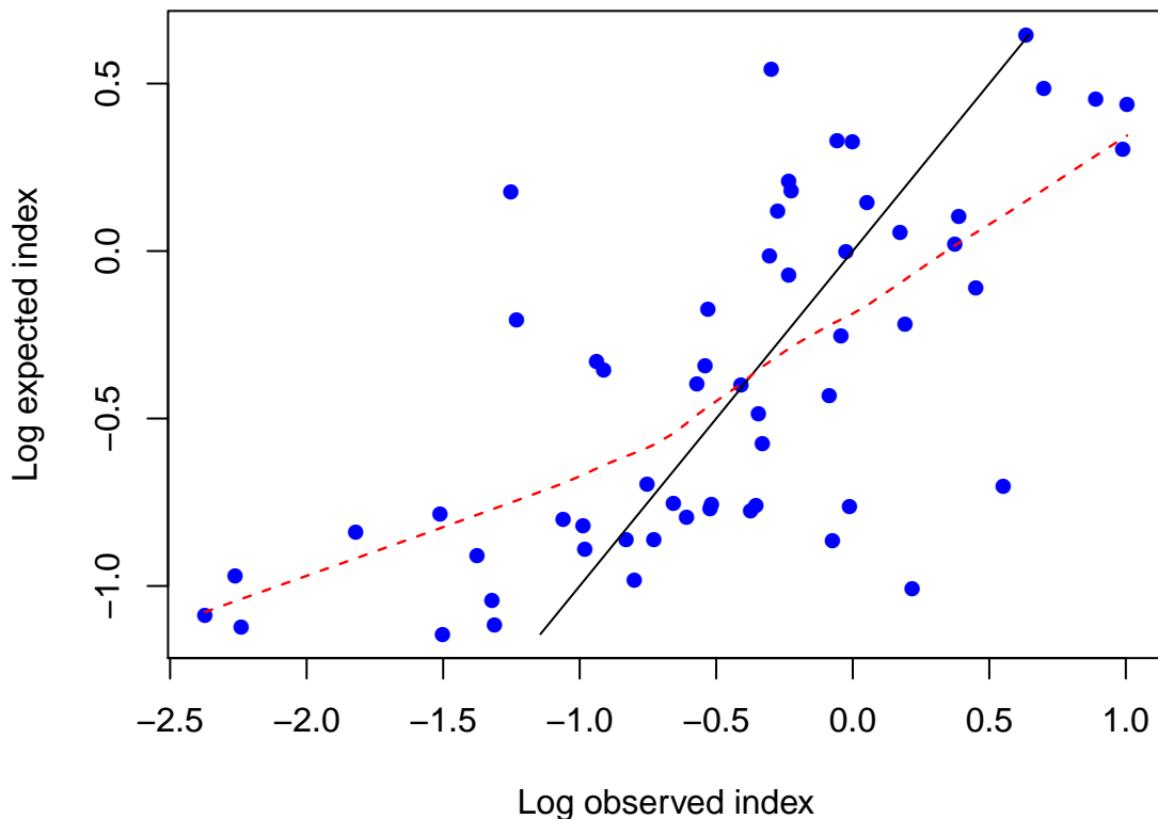
## Log index CalCOFI



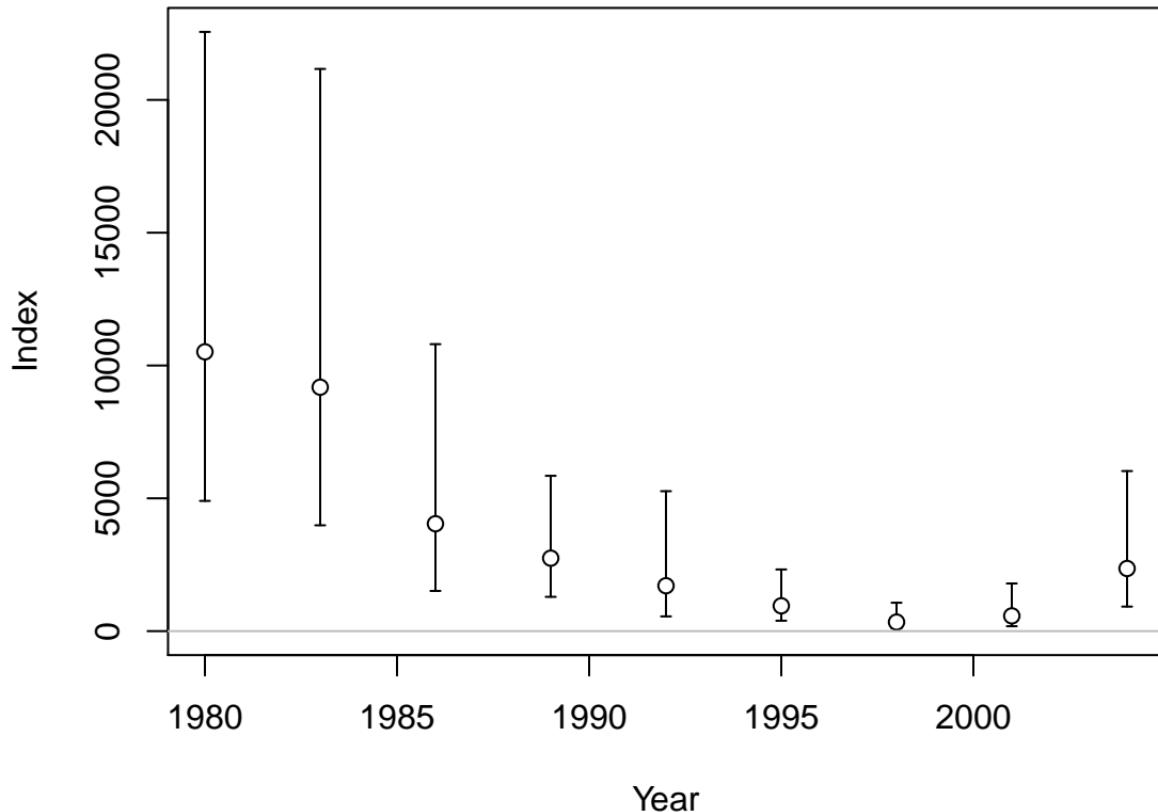
## Log index CalCOFI



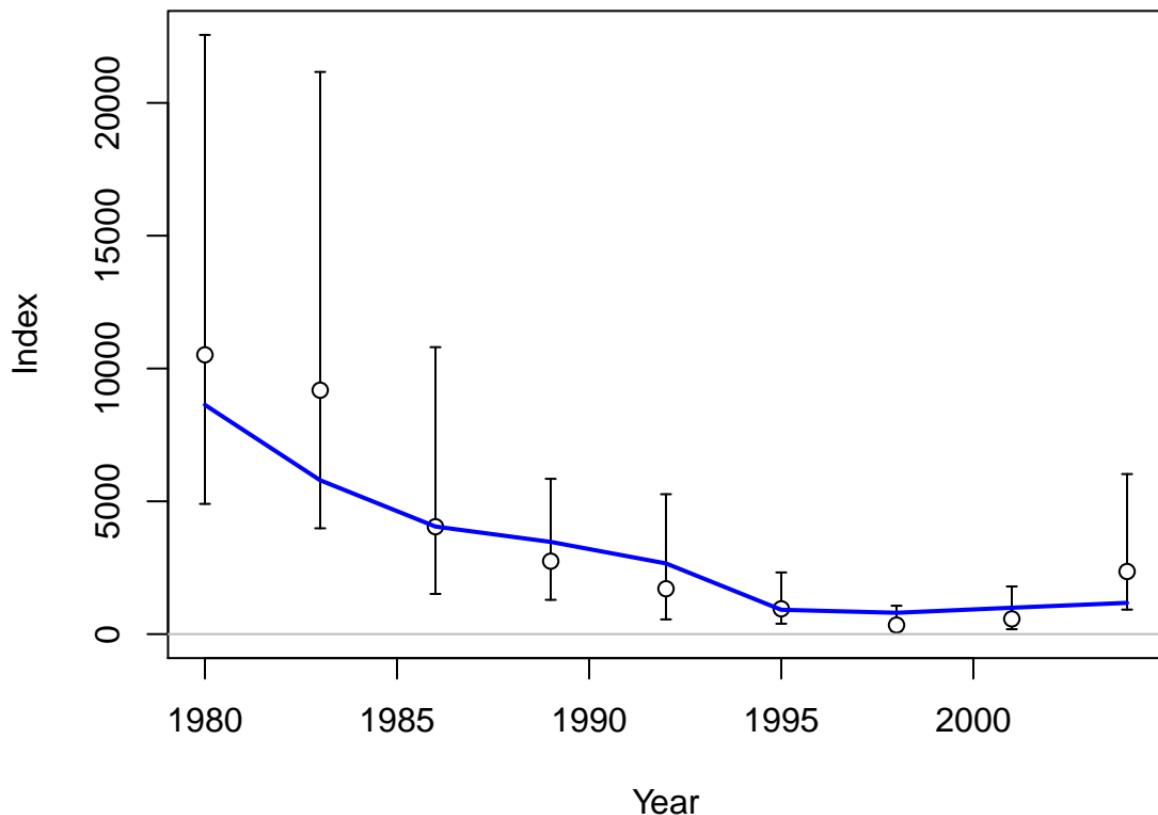
## Log index CalCOFI



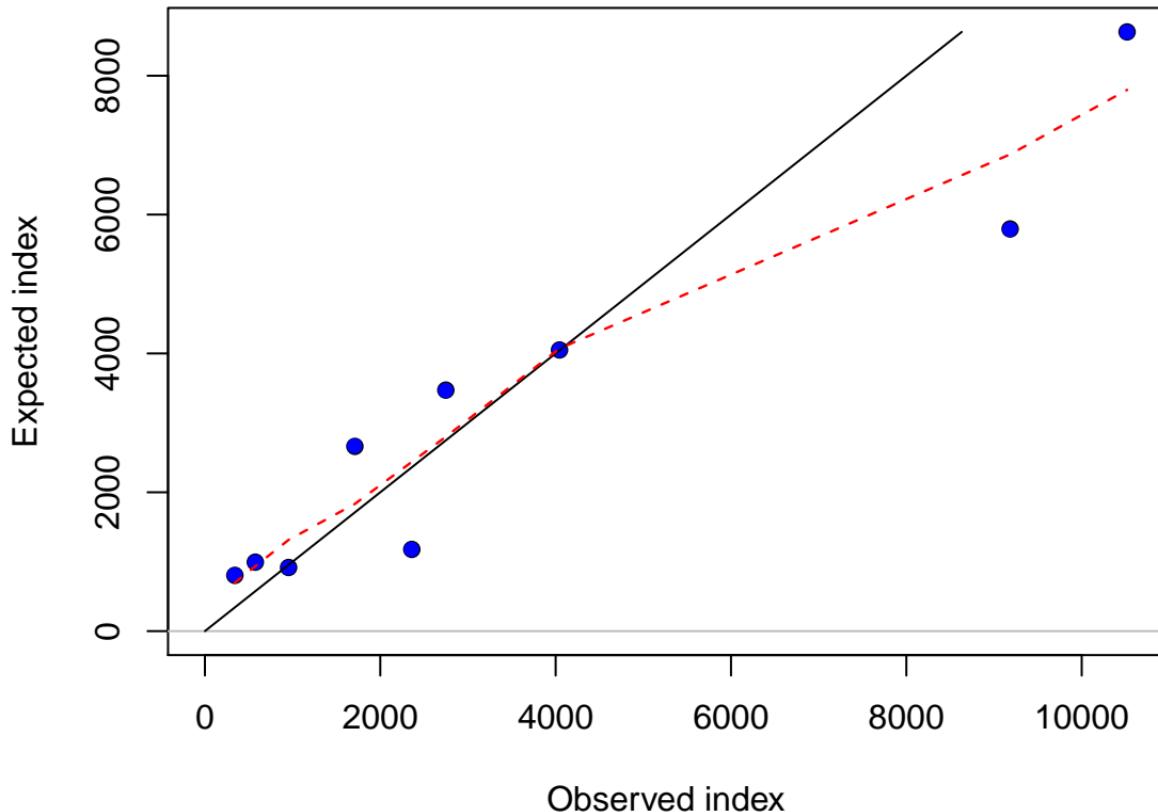
## **Index Triennial**



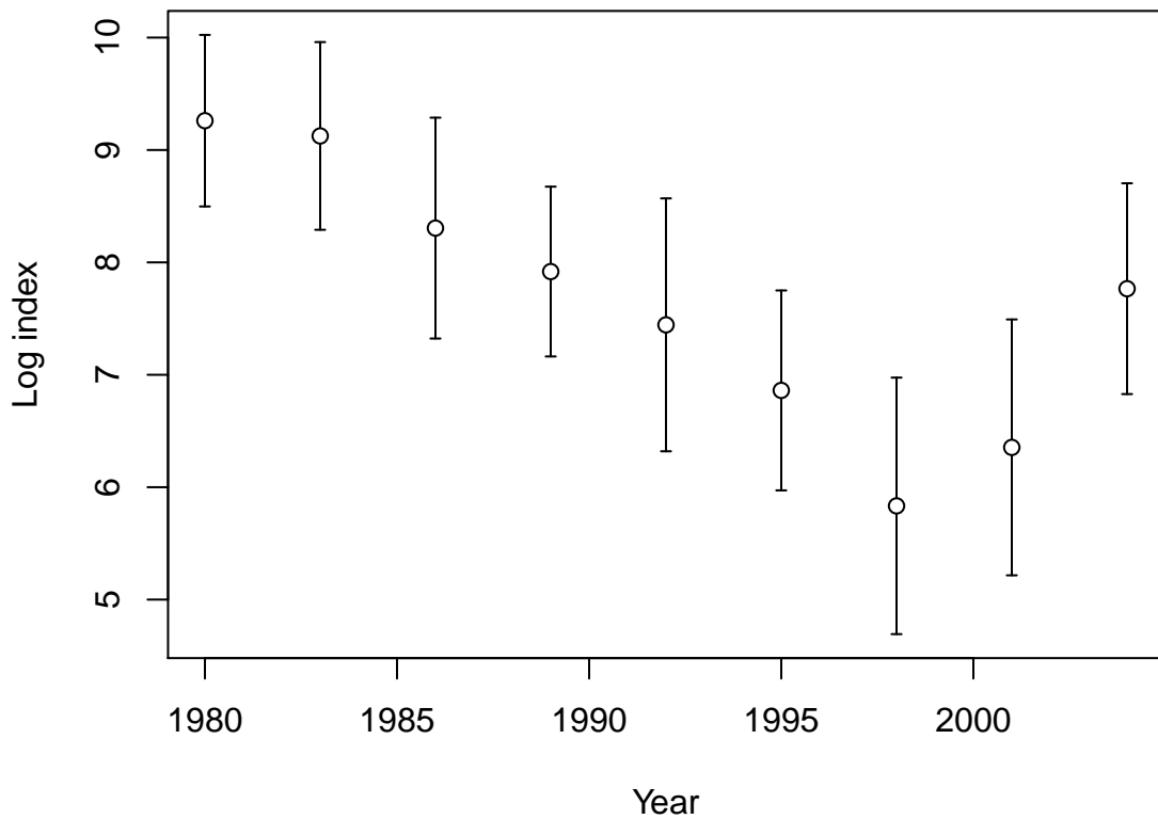
## Index Triennial



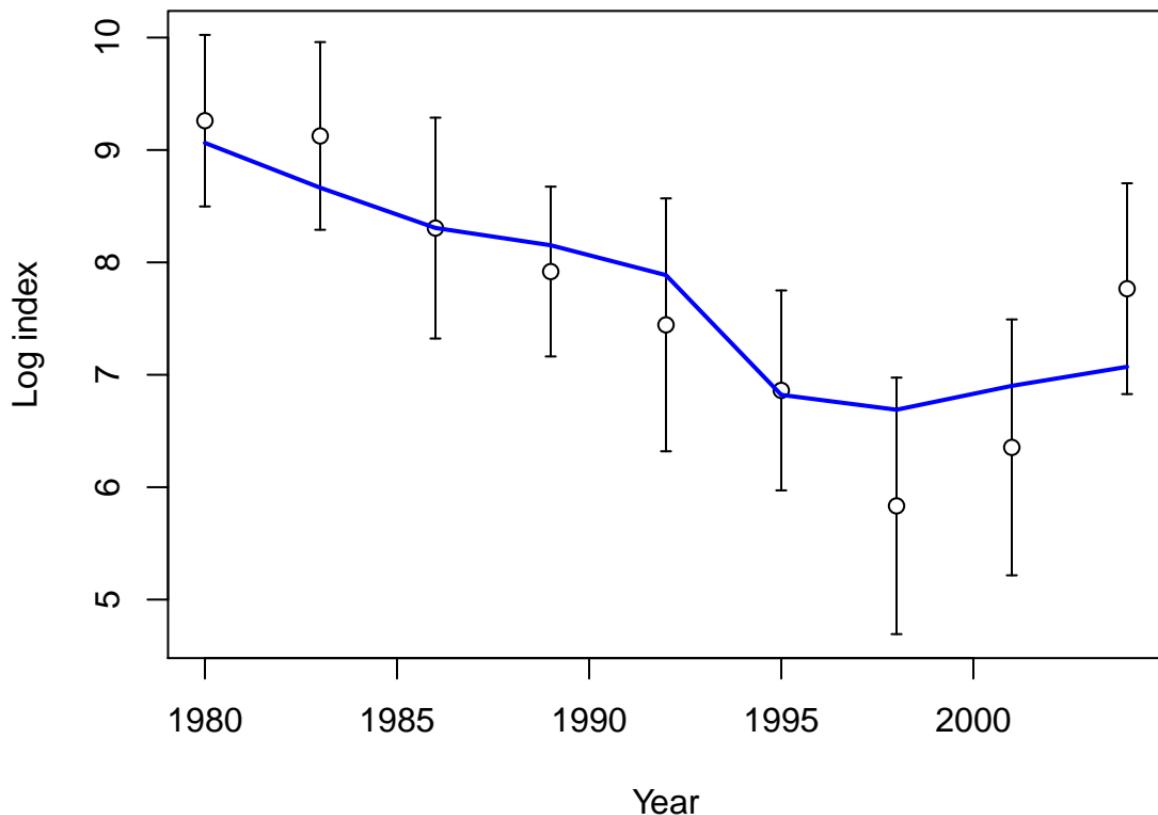
## **Index Triennial**



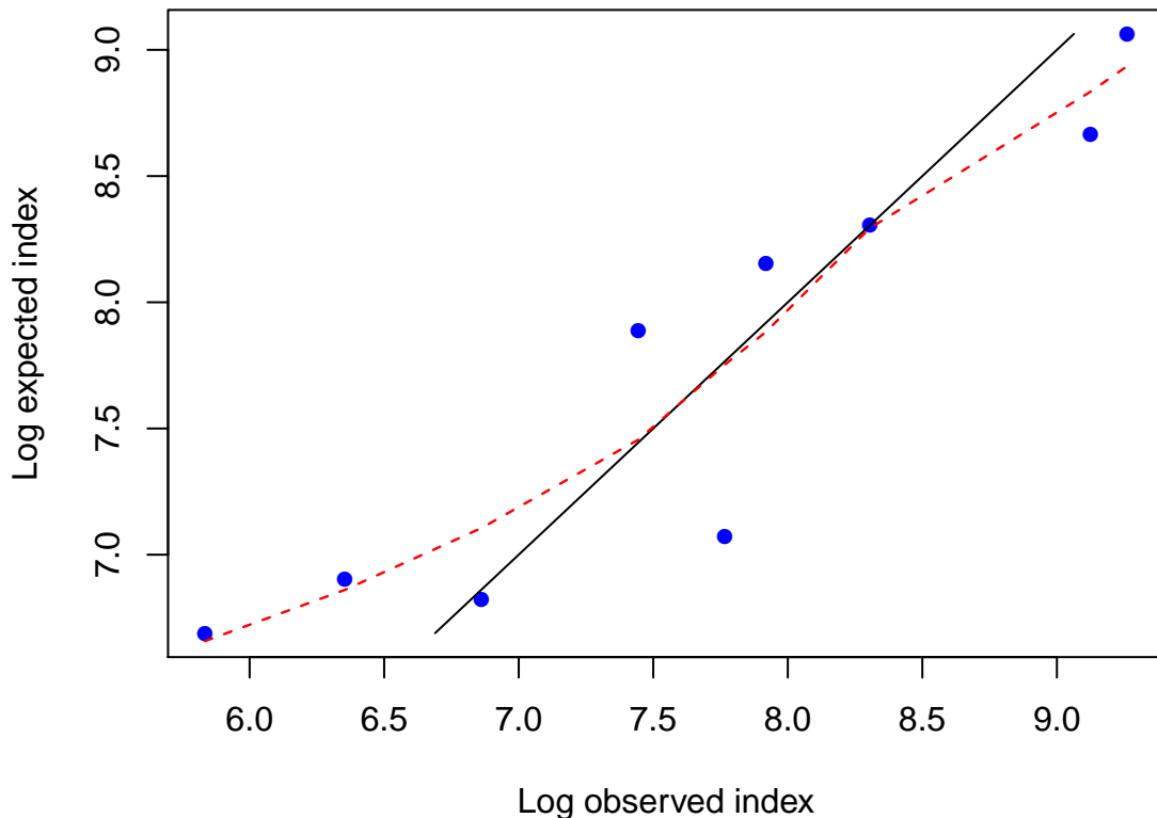
## Log index Triennial



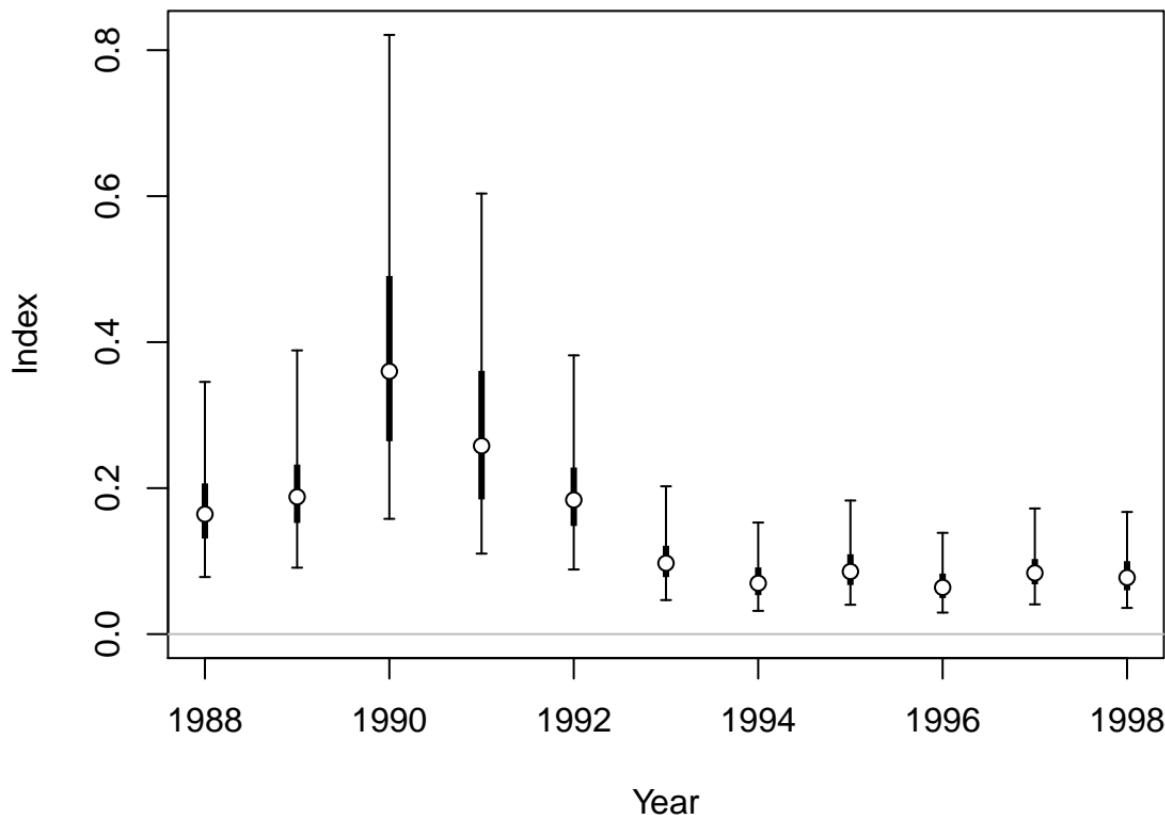
## Log index Triennial



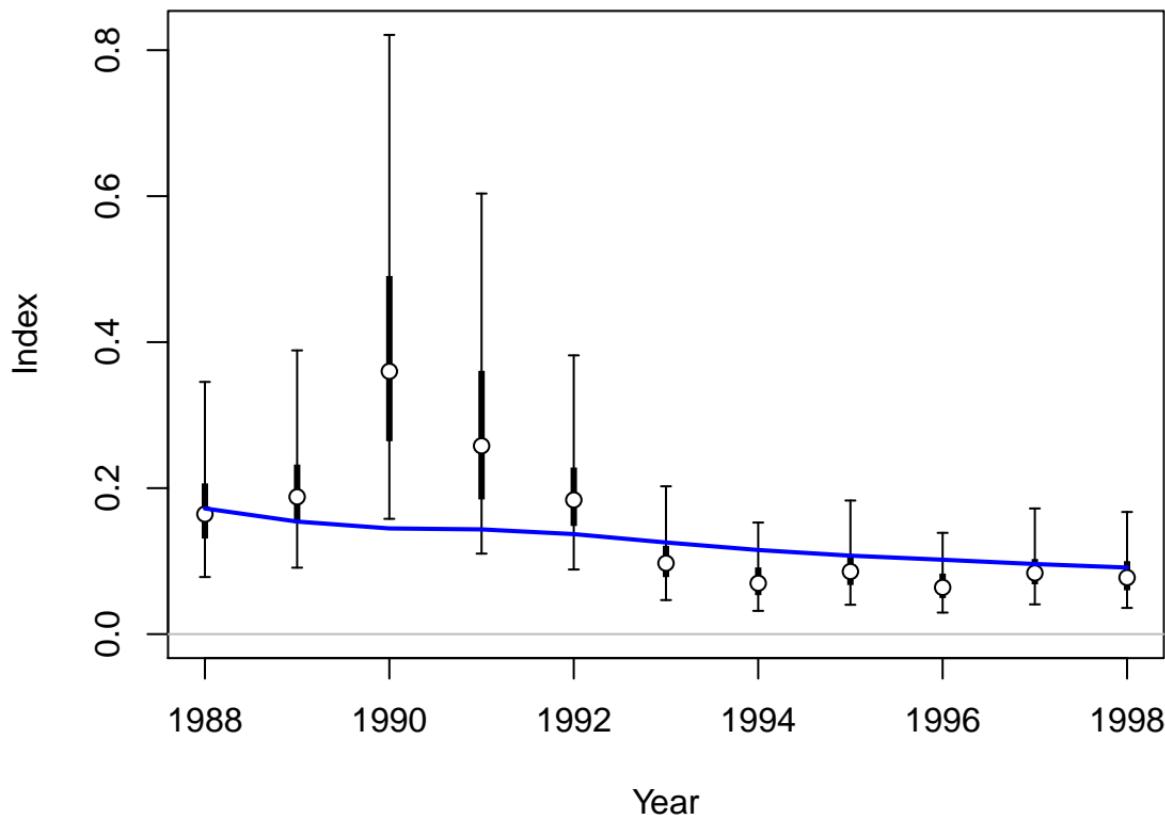
### Log index Triennial



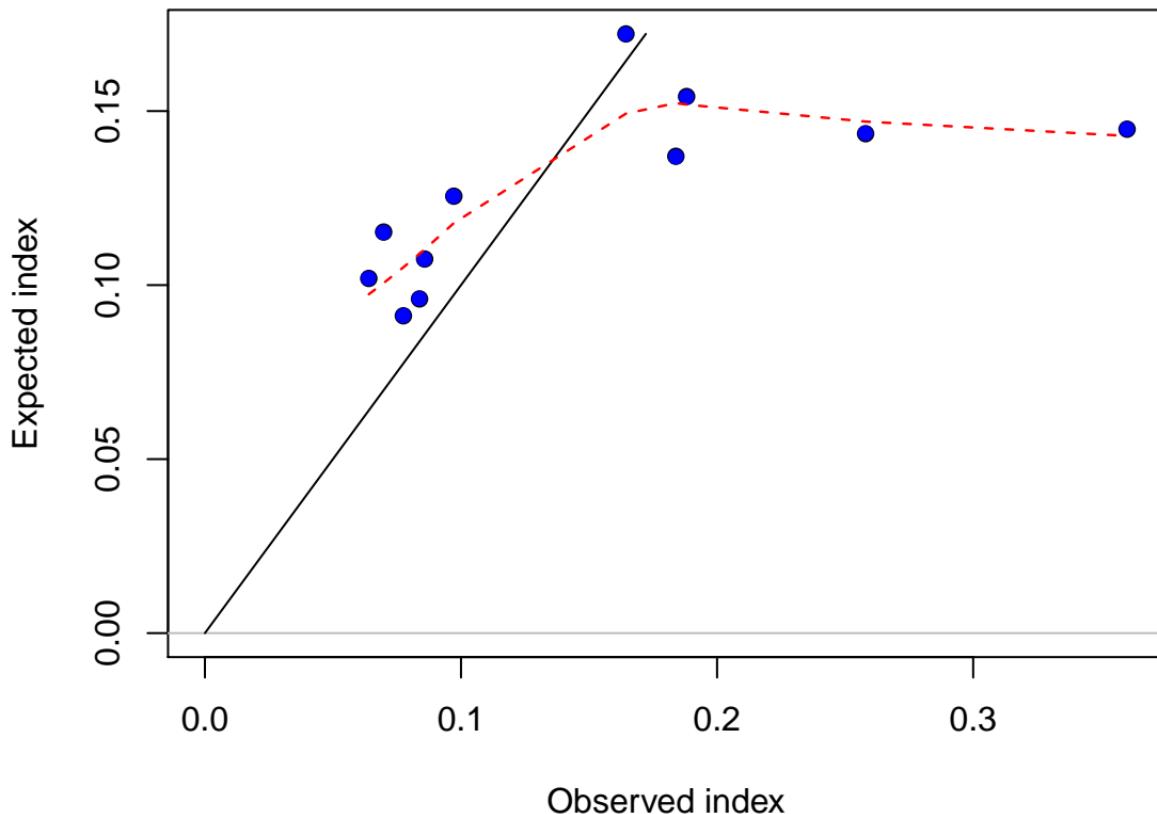
### Index CDFWEarlyOB



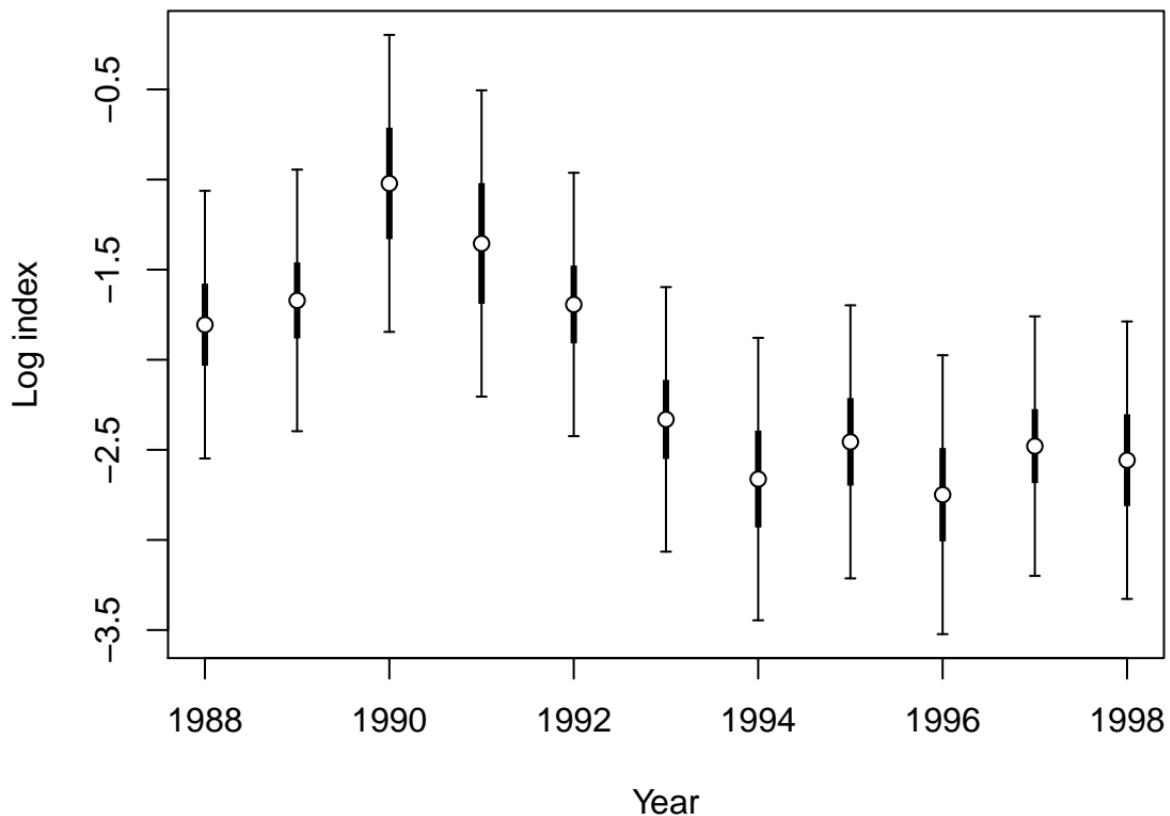
### Index CDFWEarlyOB



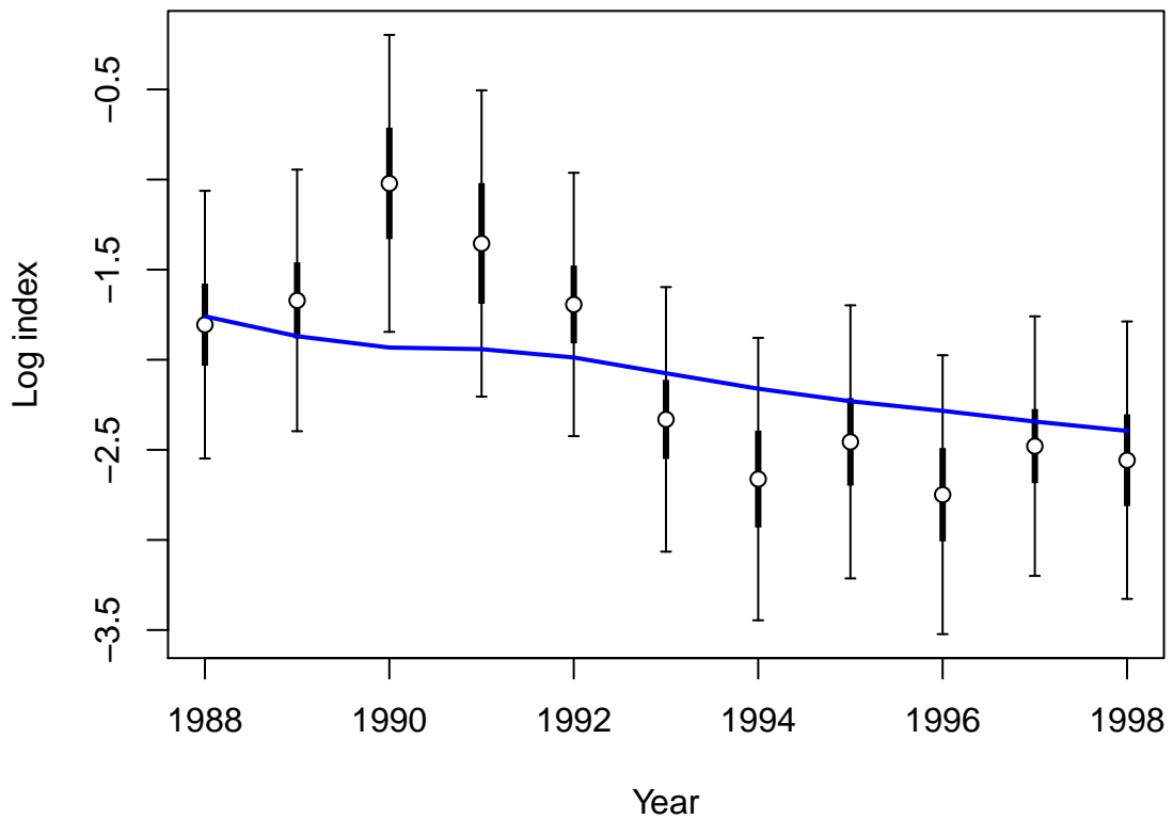
### Index CDFWEarlyOB



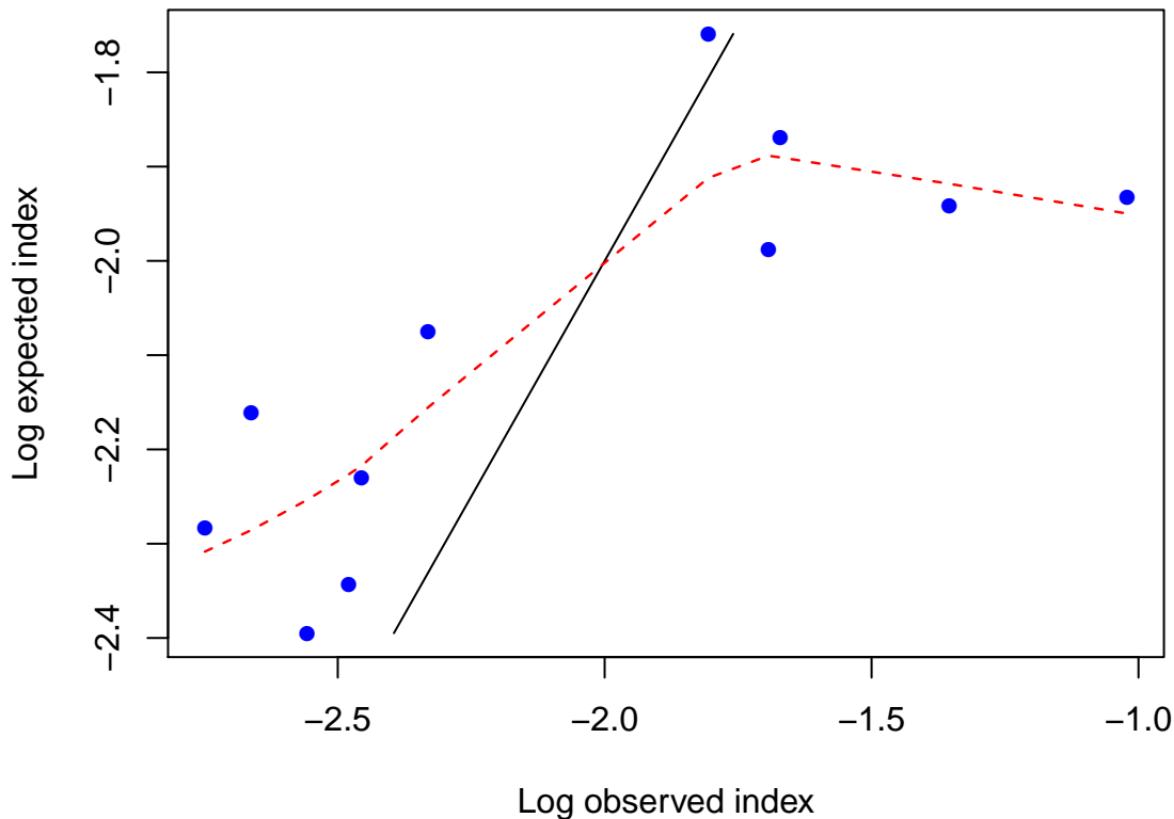
### Log index CDFWEarlyOB



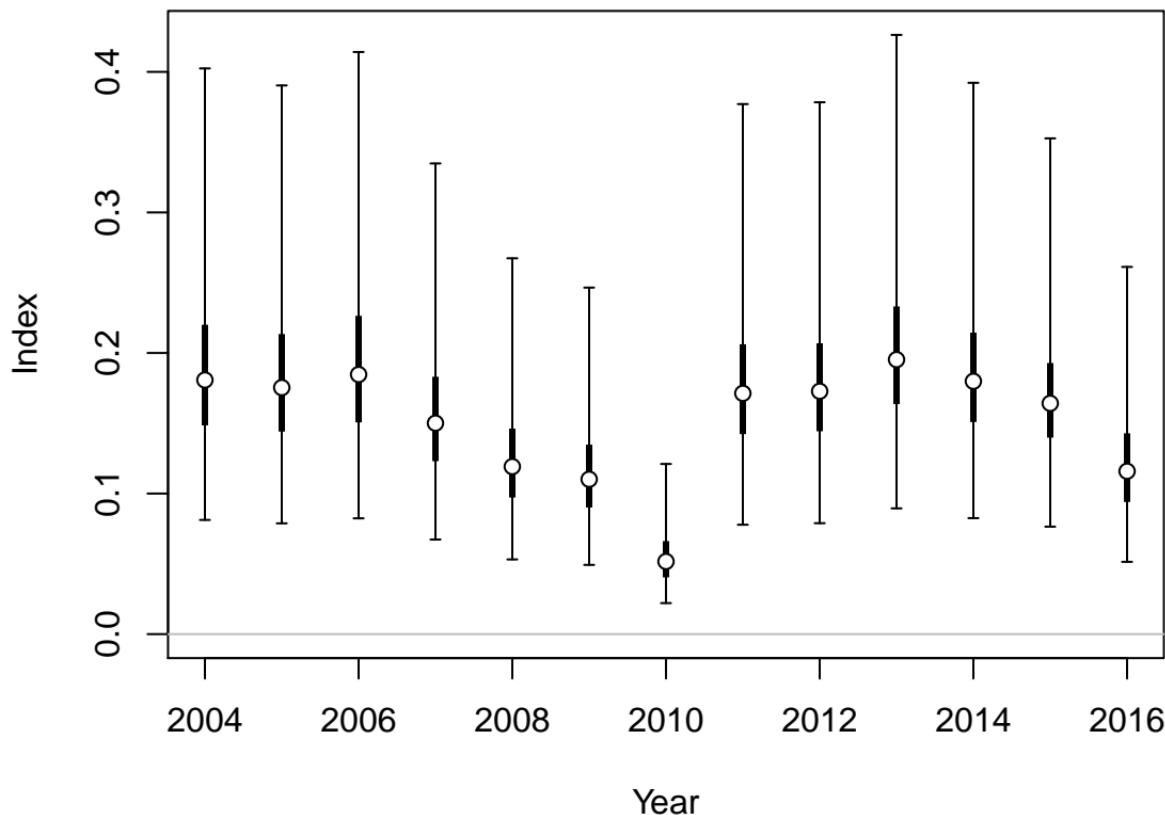
### Log index CDFWEarlyOB



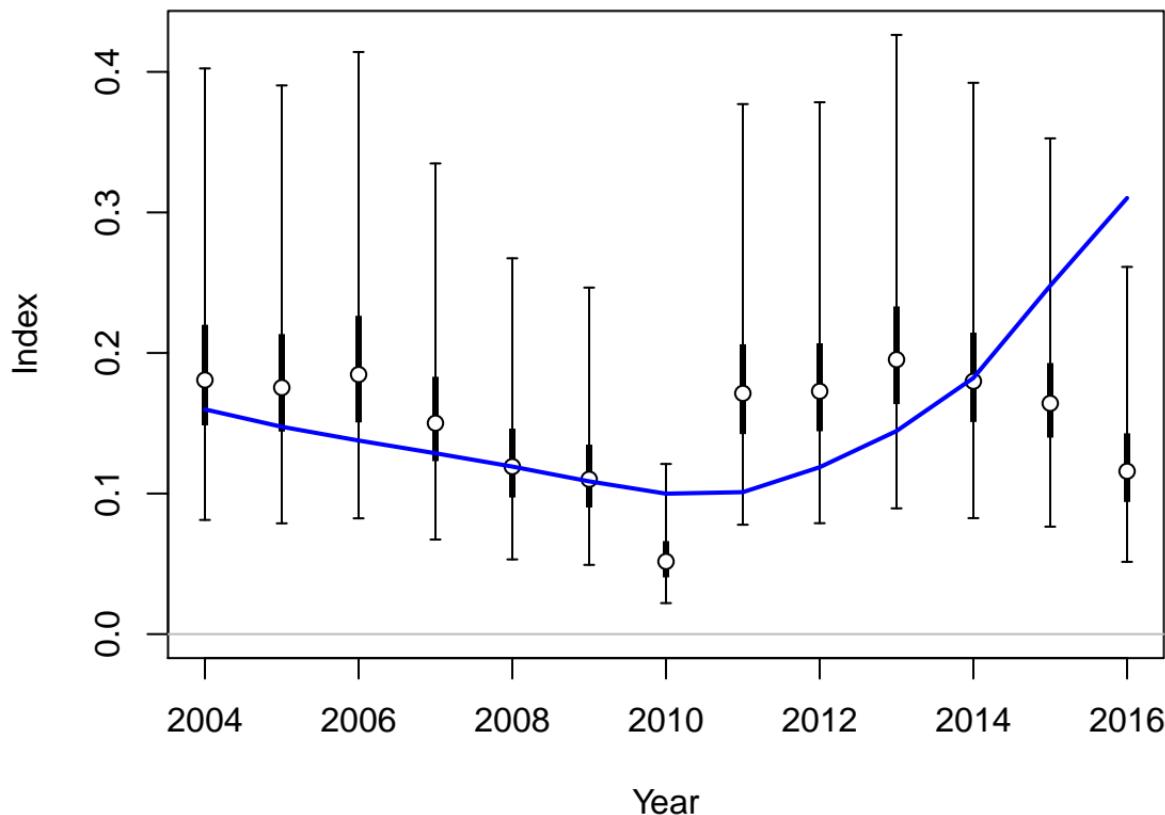
### Log index CDFWEarlyOB



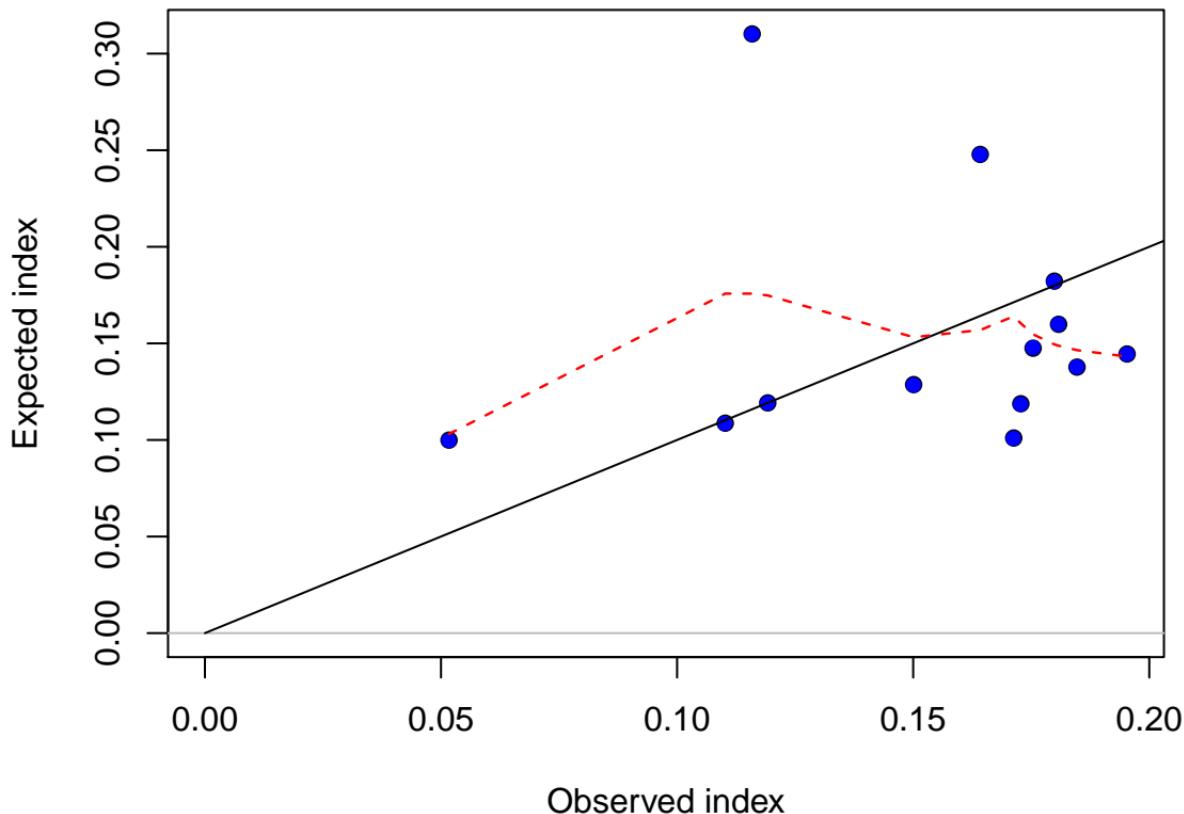
## Index NWFSCHook



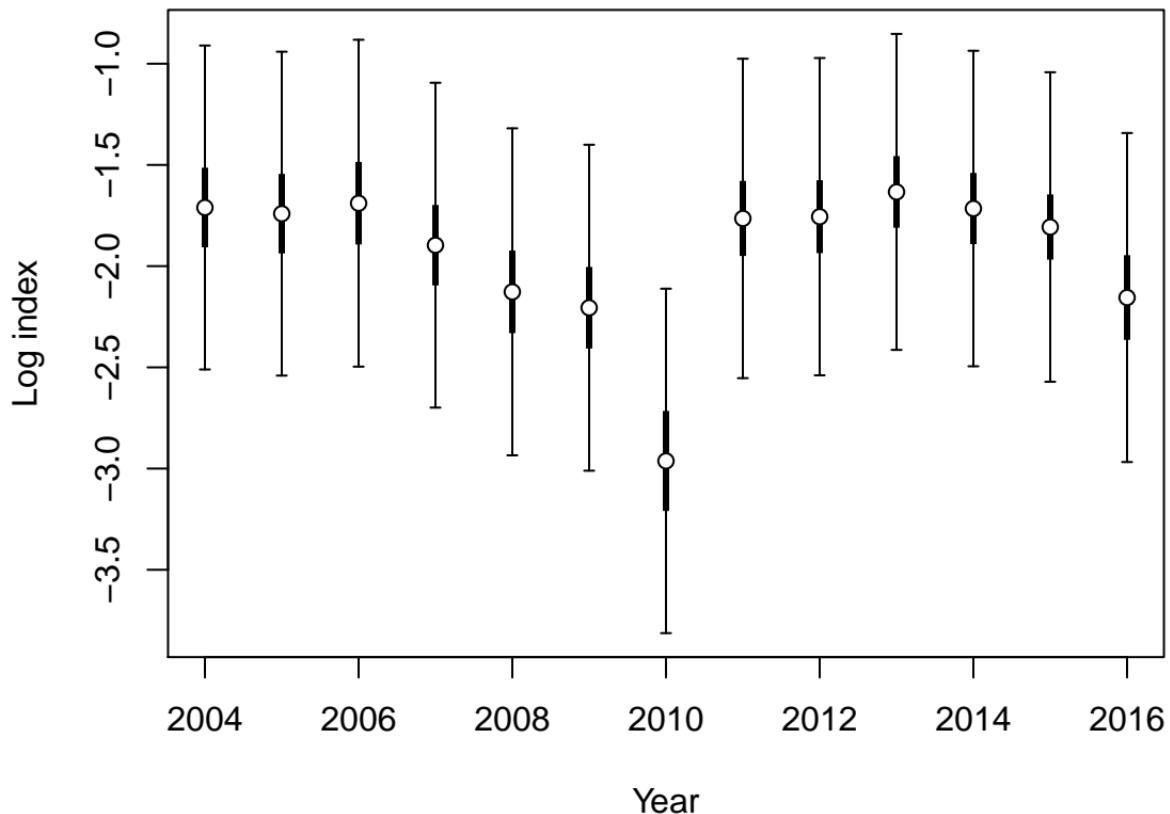
## Index NWFSCHook



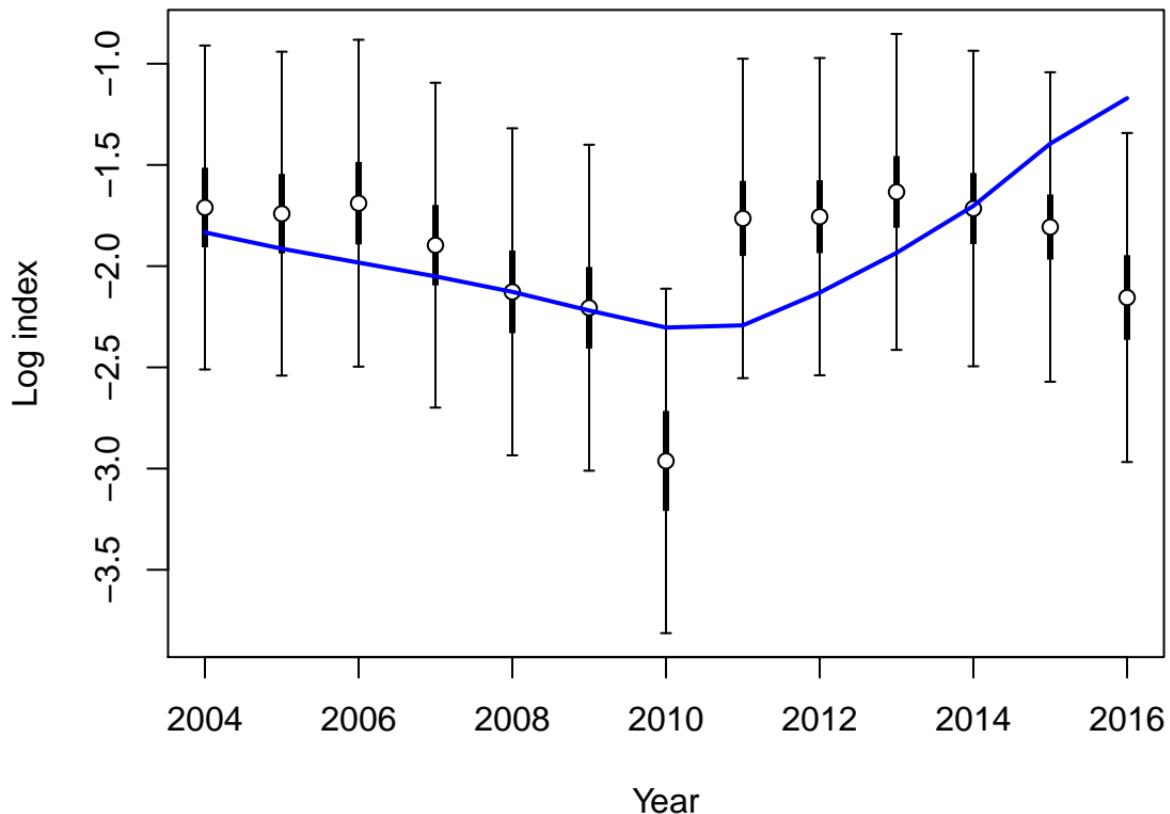
### Index NWFSChook



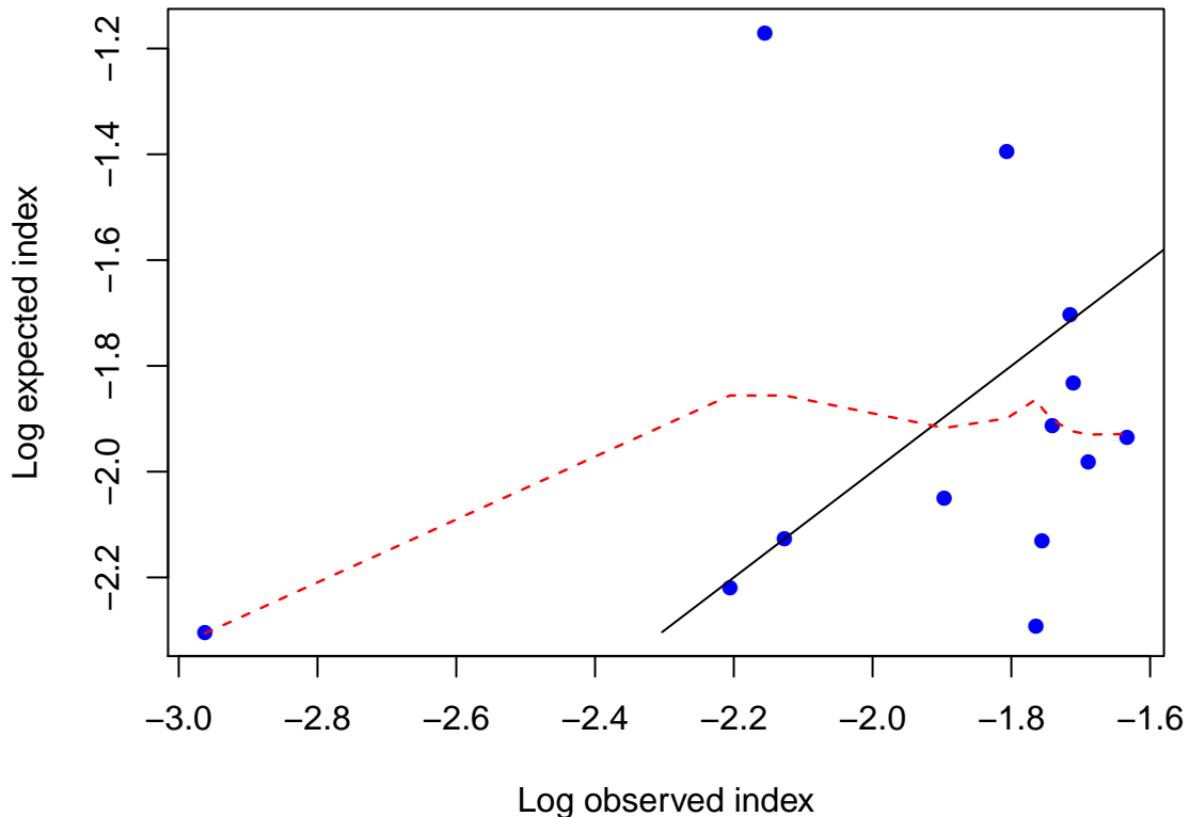
## Log index NWFSCHook



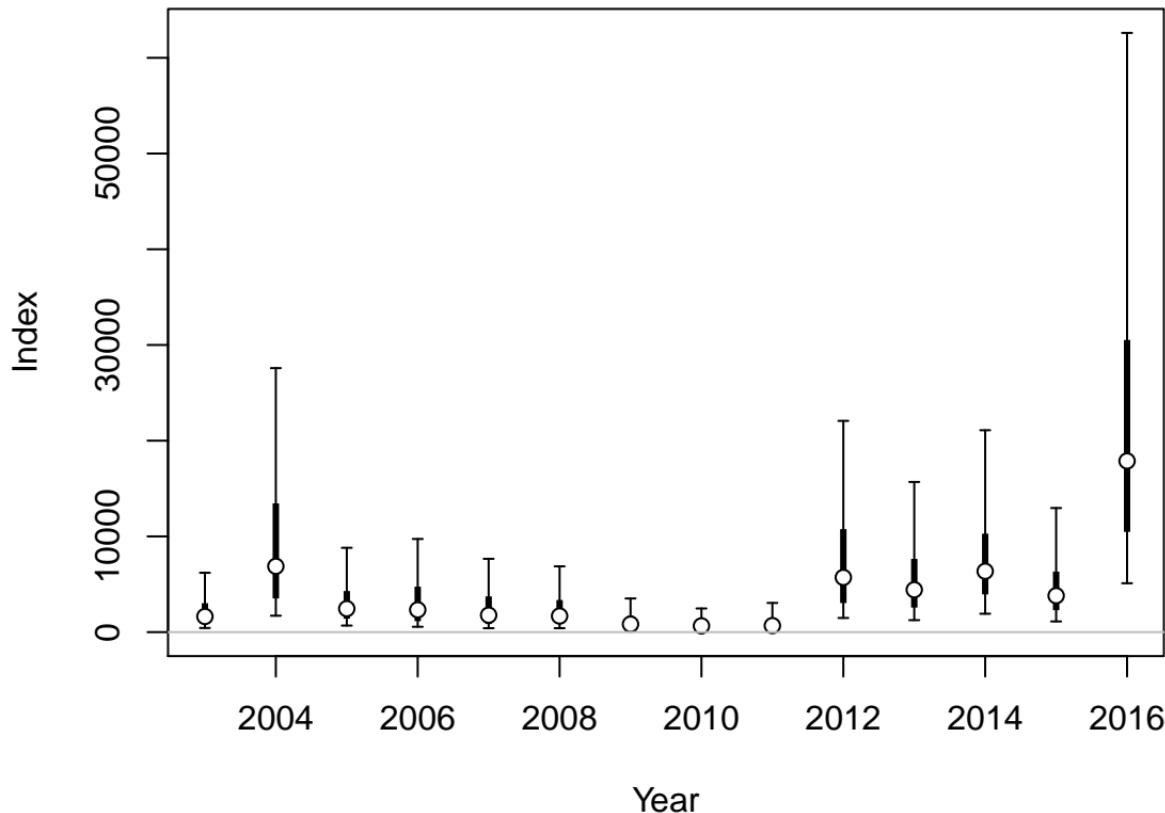
## Log index NWFSCHook



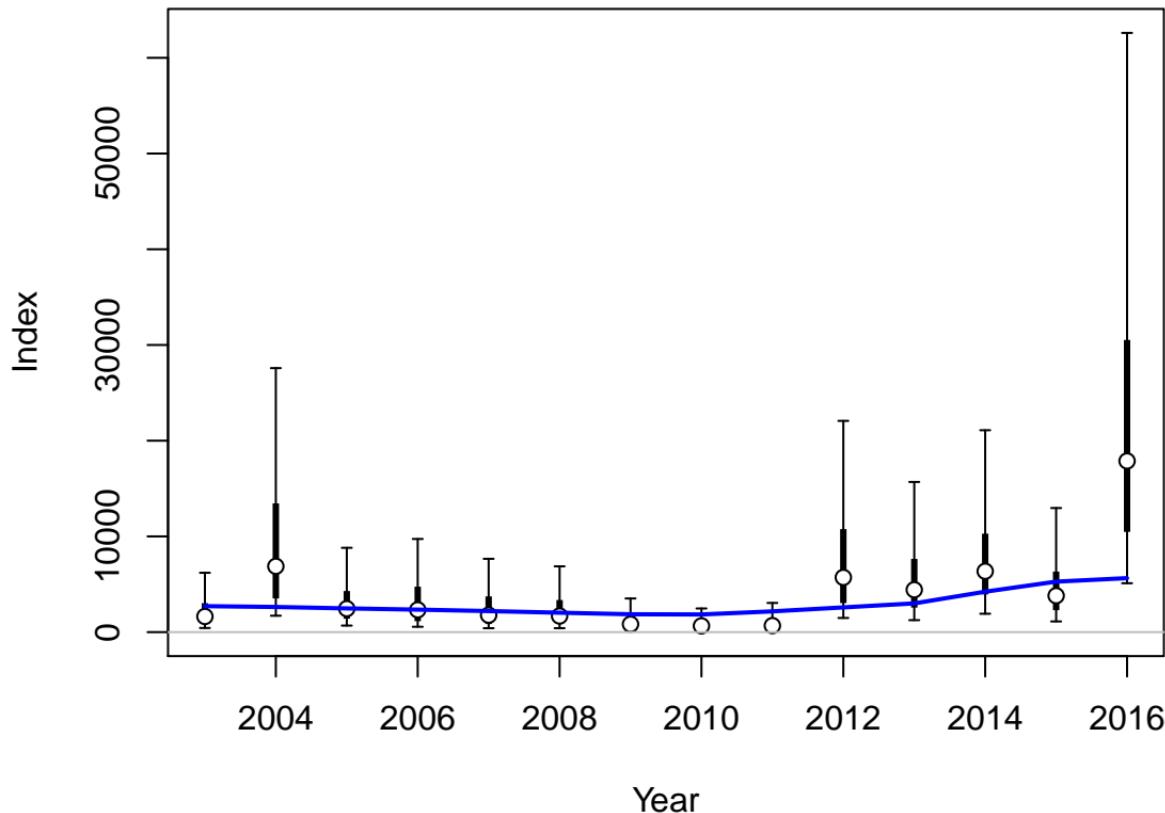
### Log index NWFSCHook



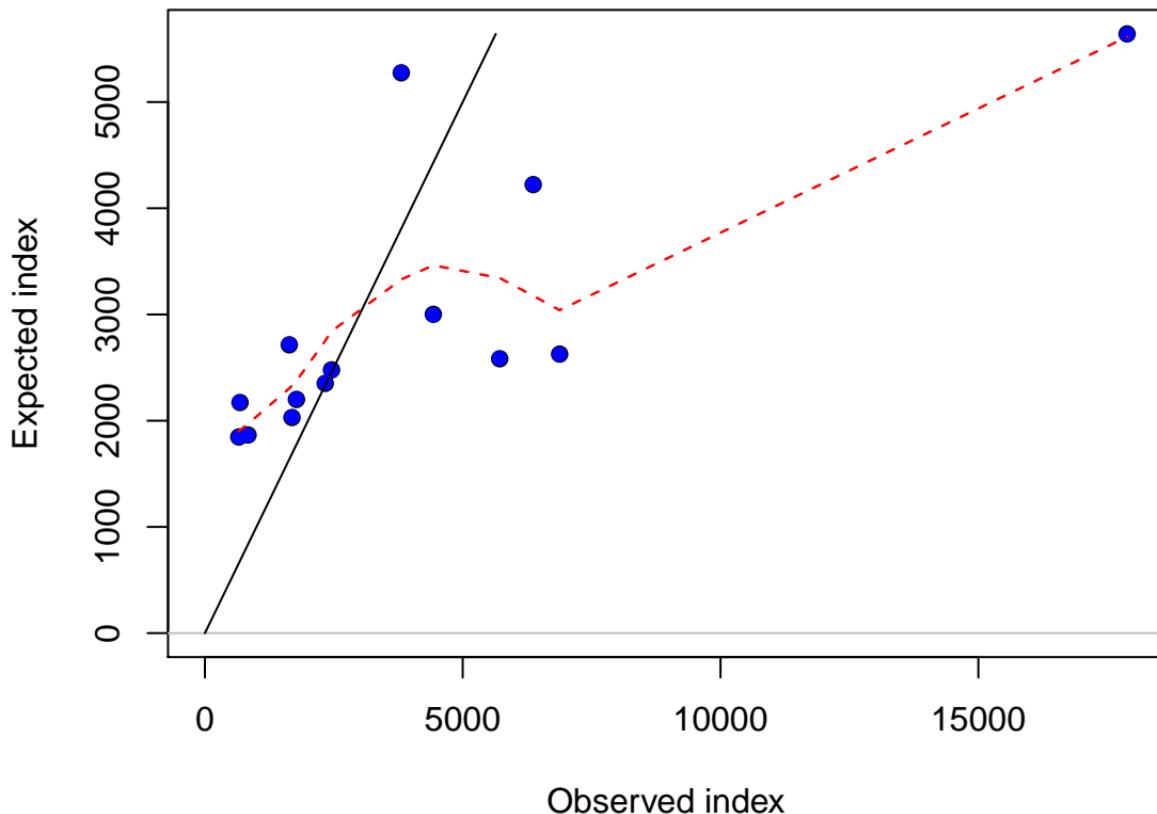
## Index NWFSC Trawl



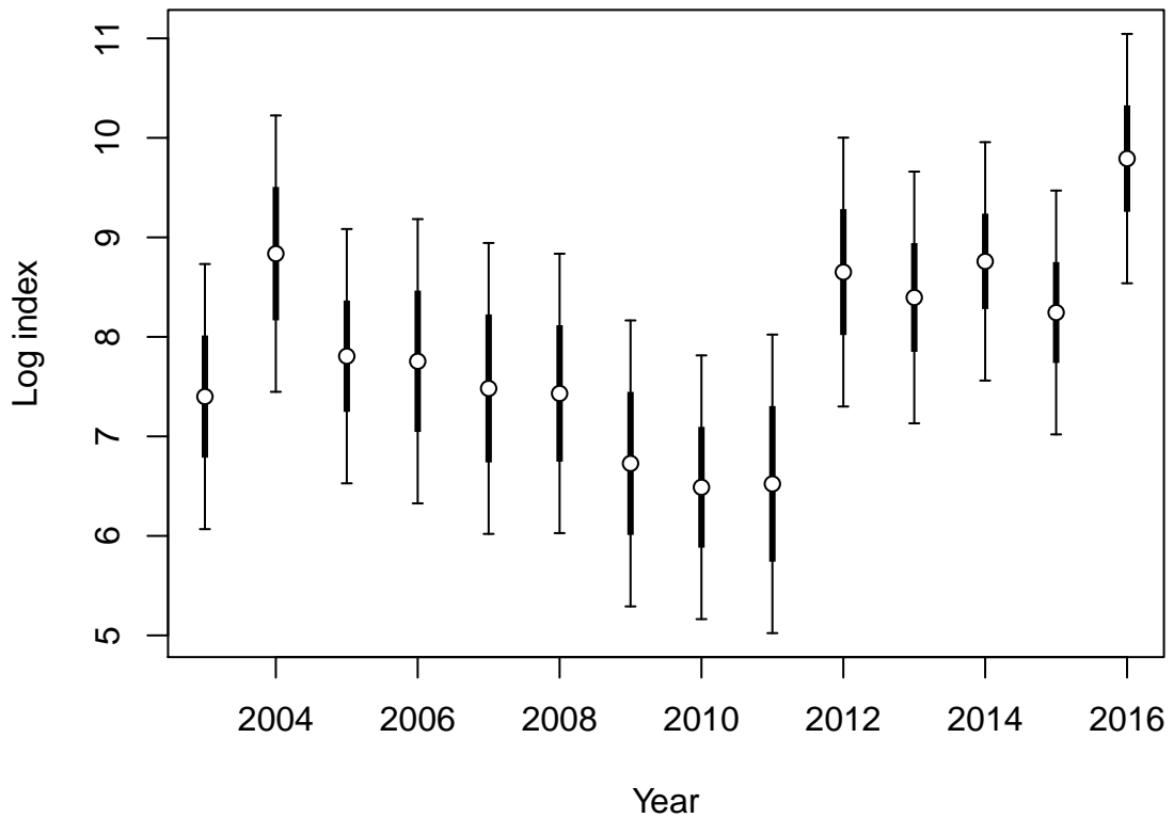
## Index NWFSC Trawl



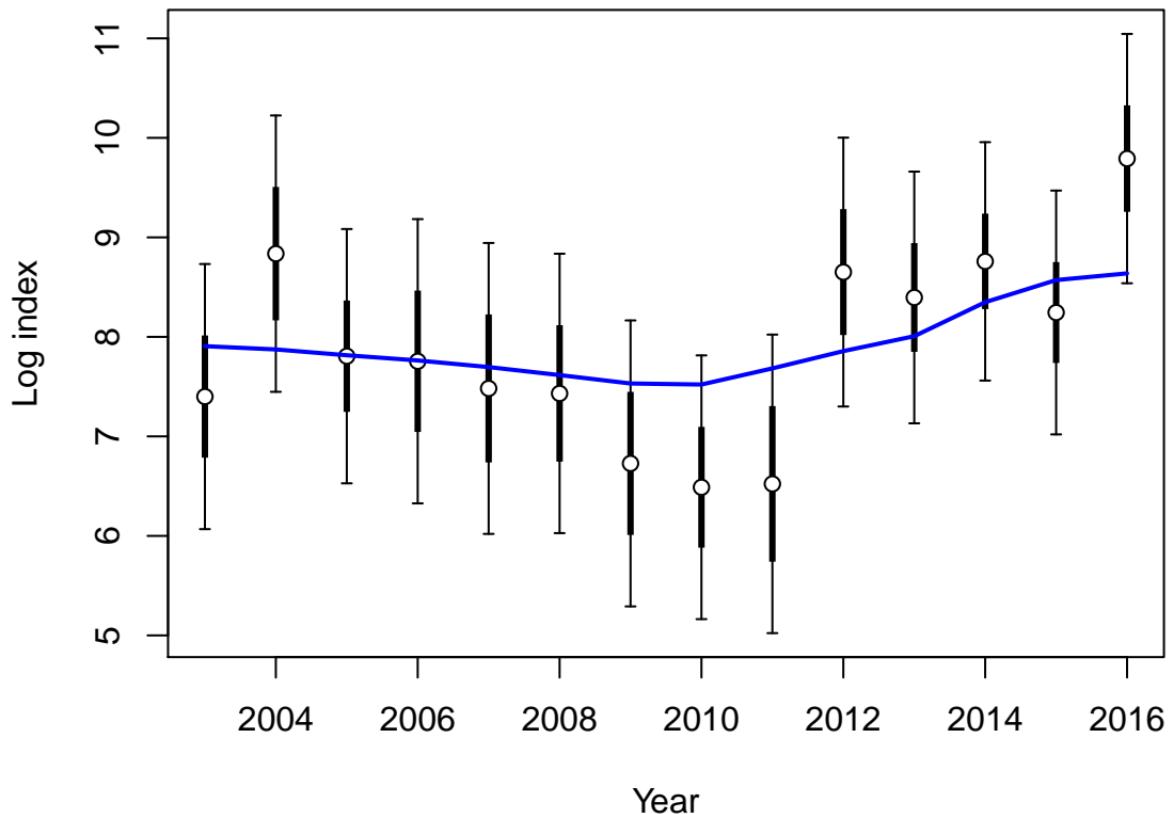
### Index NWFSC Trawl



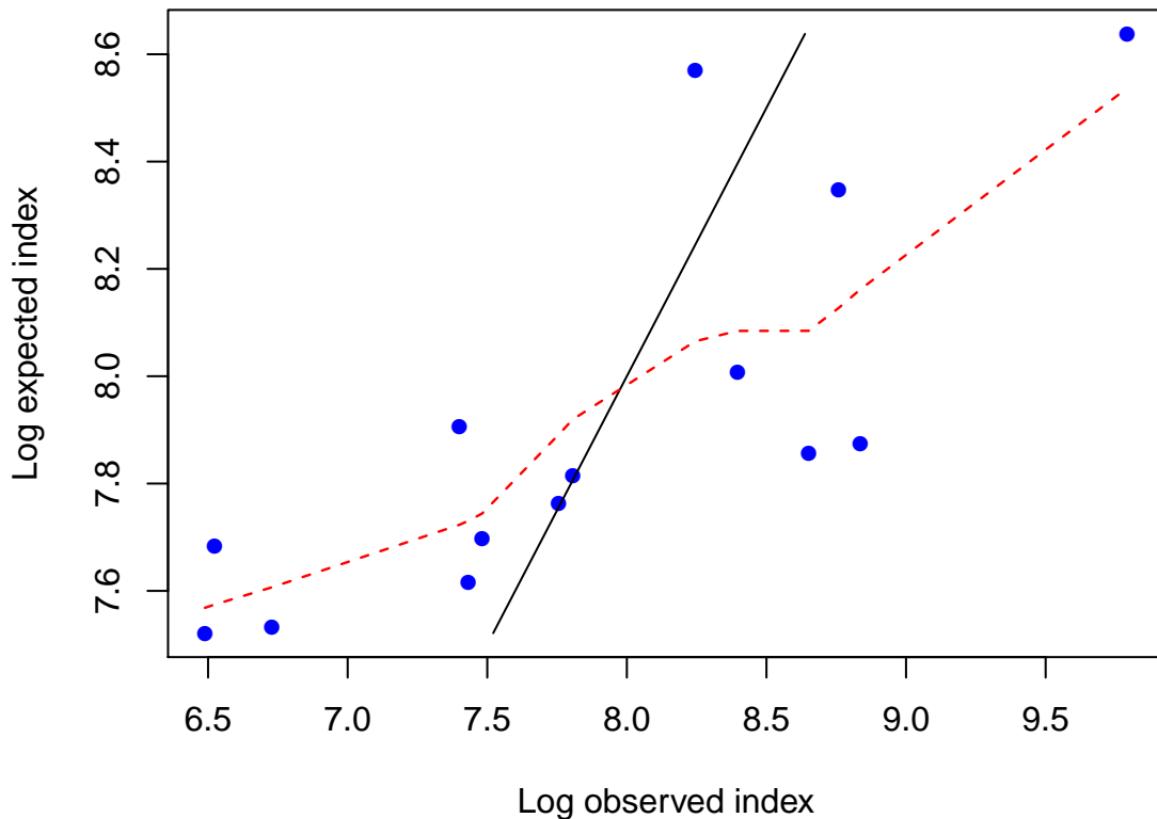
## Log index NWFSC Trawl



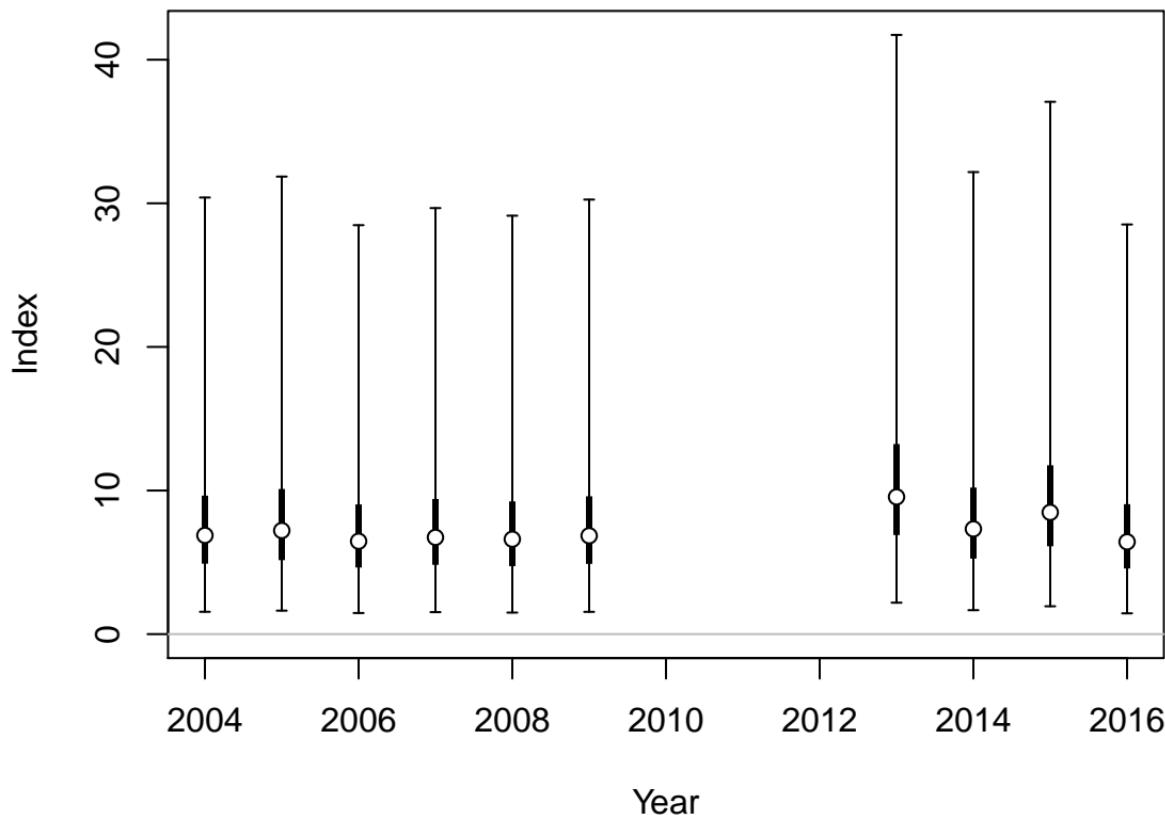
## Log index NWFSC Trawl



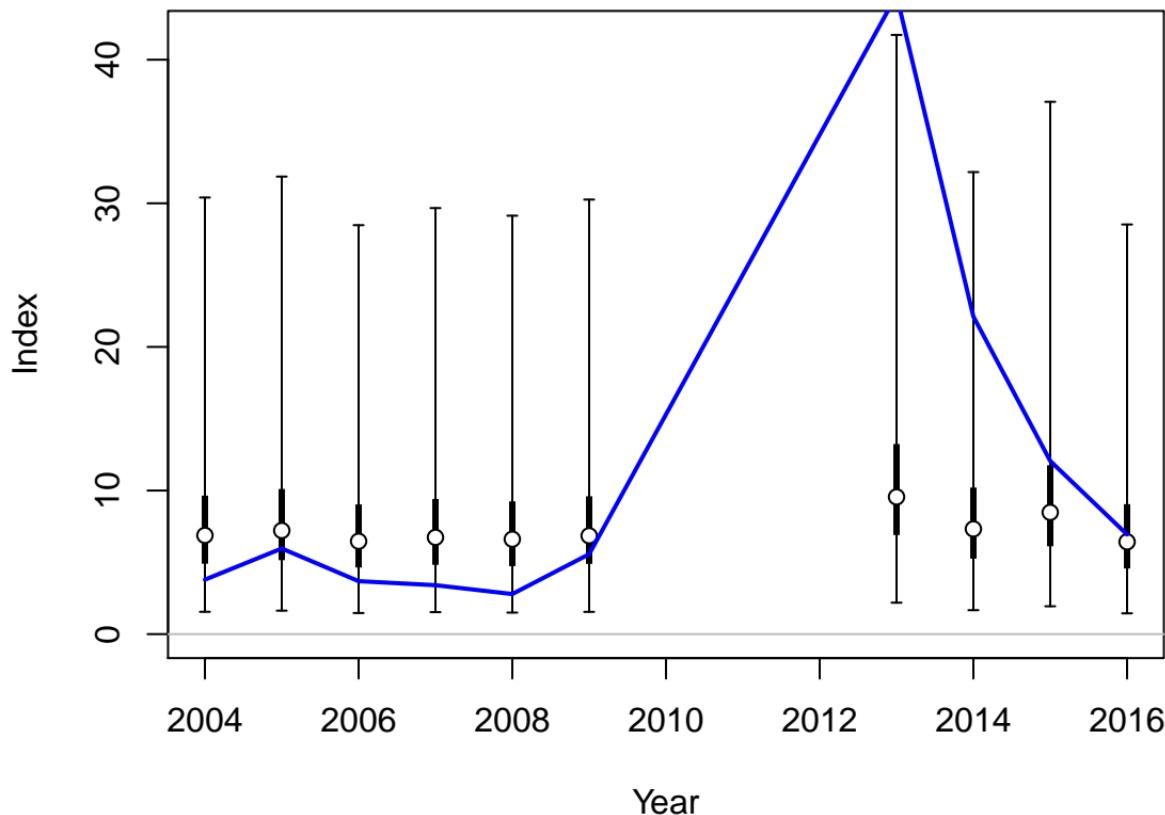
## Log index NWFSC Trawl



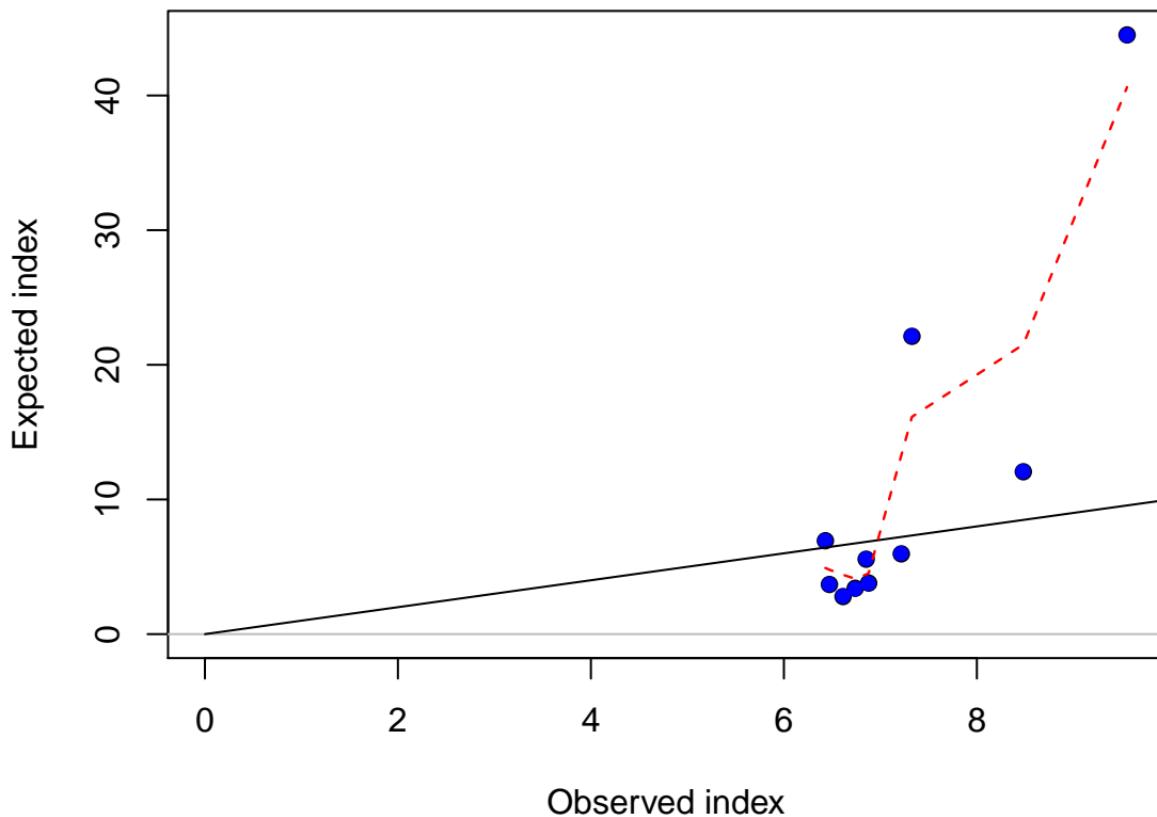
## **Index Juvenile**



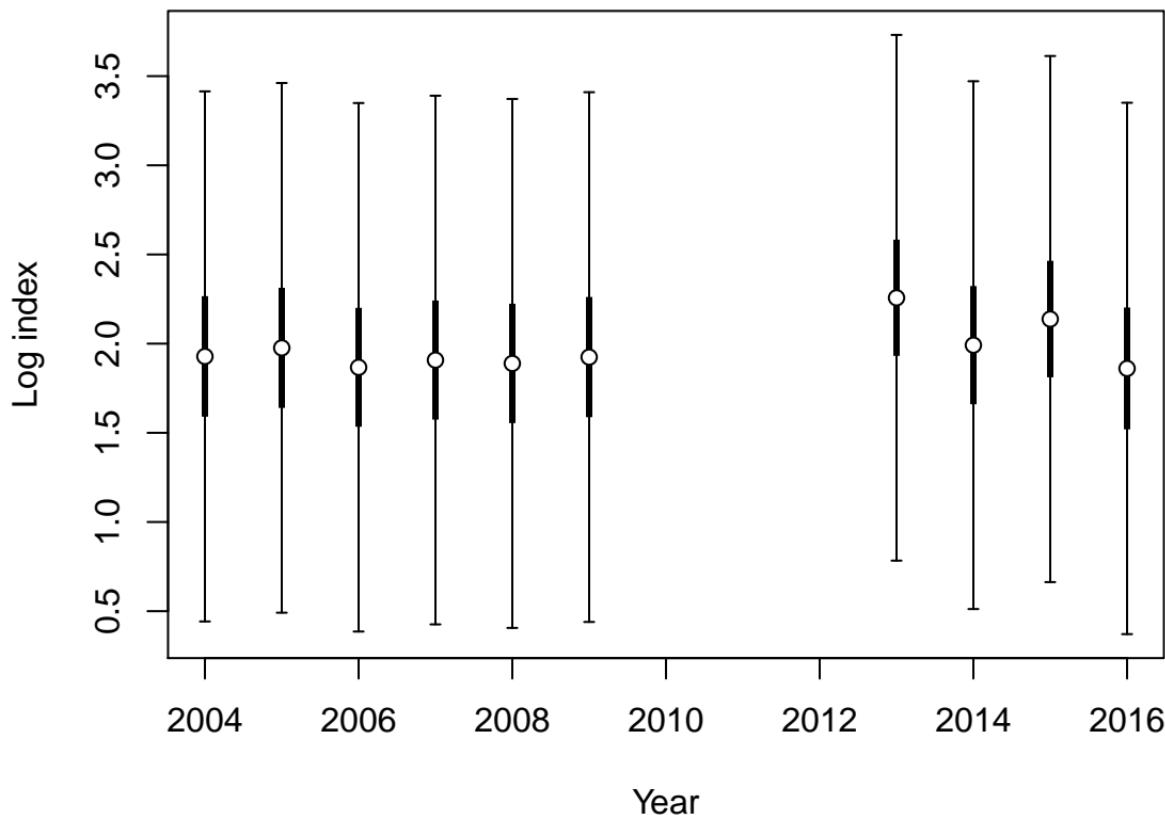
## Index Juvenile



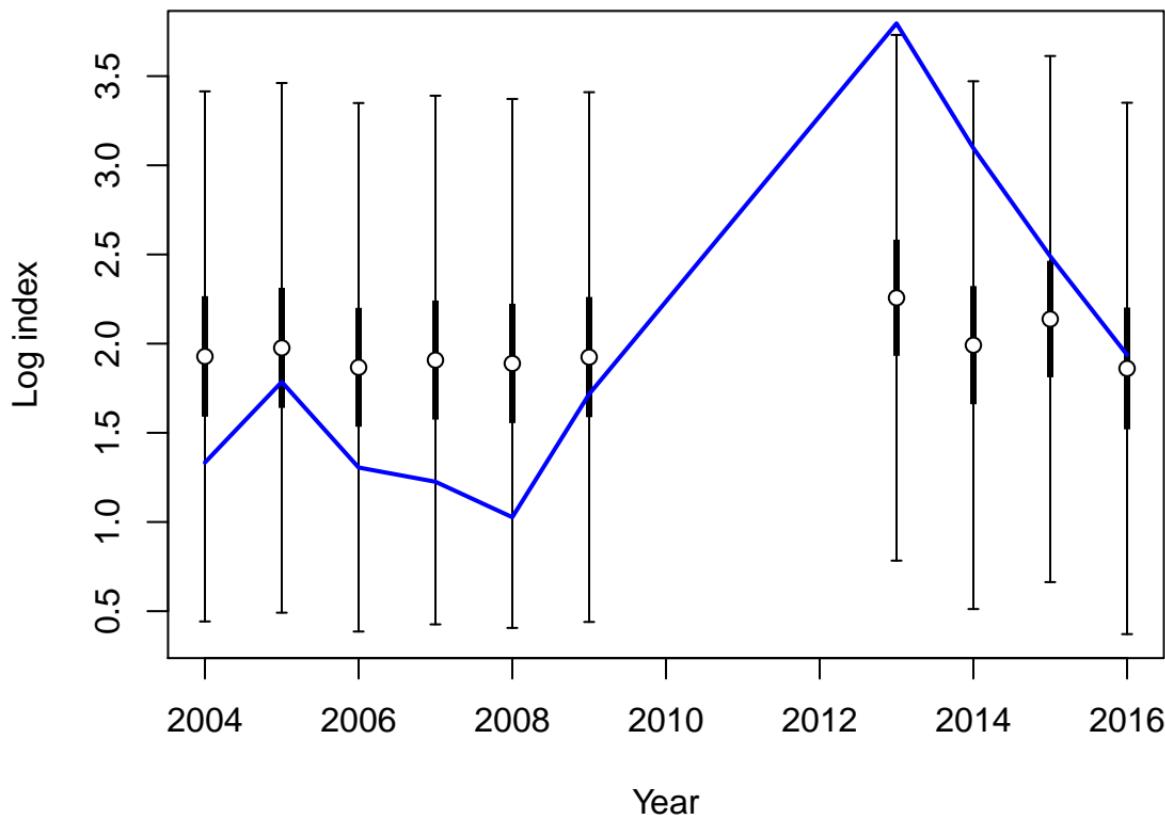
## Index Juvenile



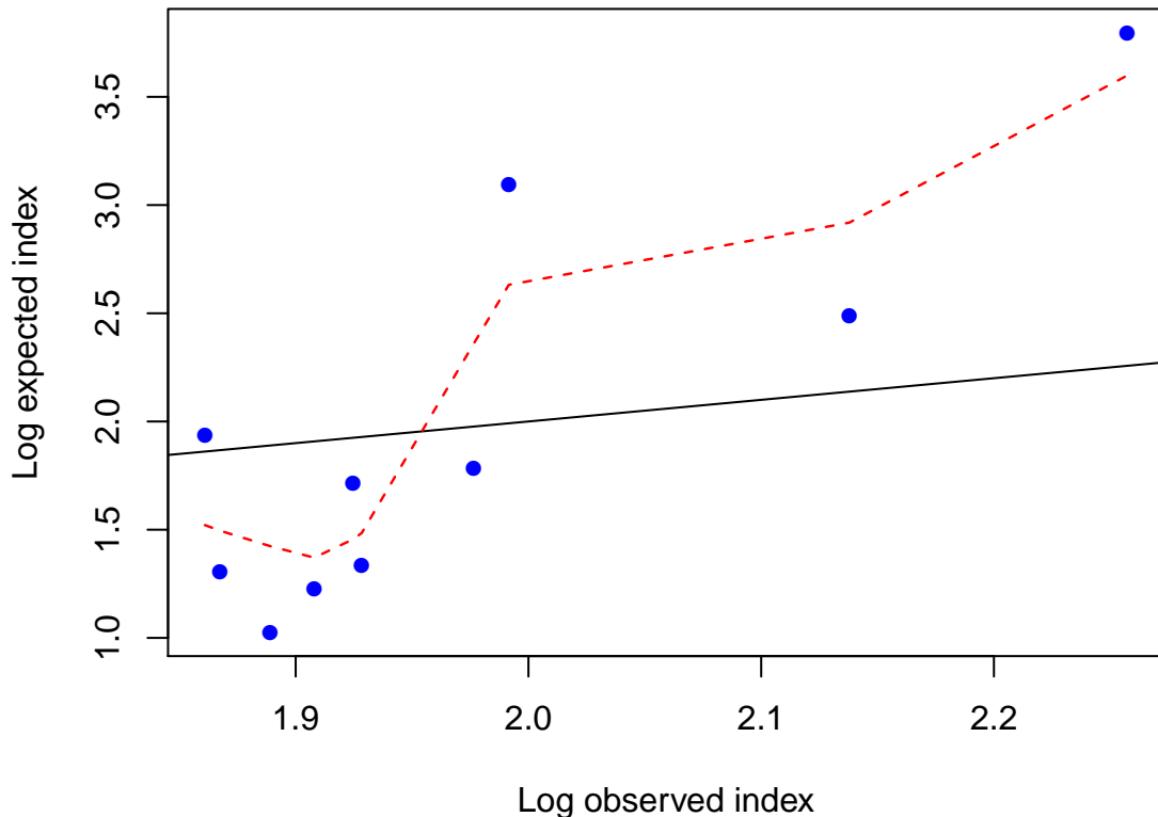
## Log index Juvenile



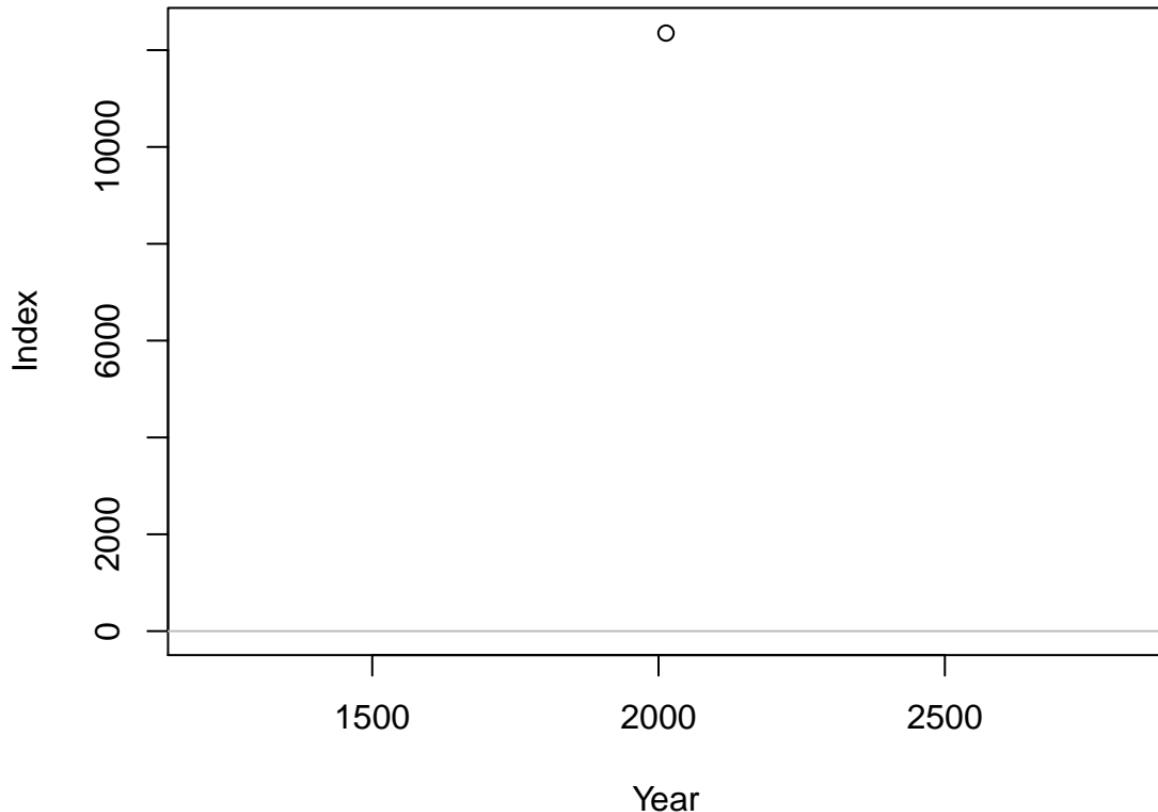
## Log index Juvenile



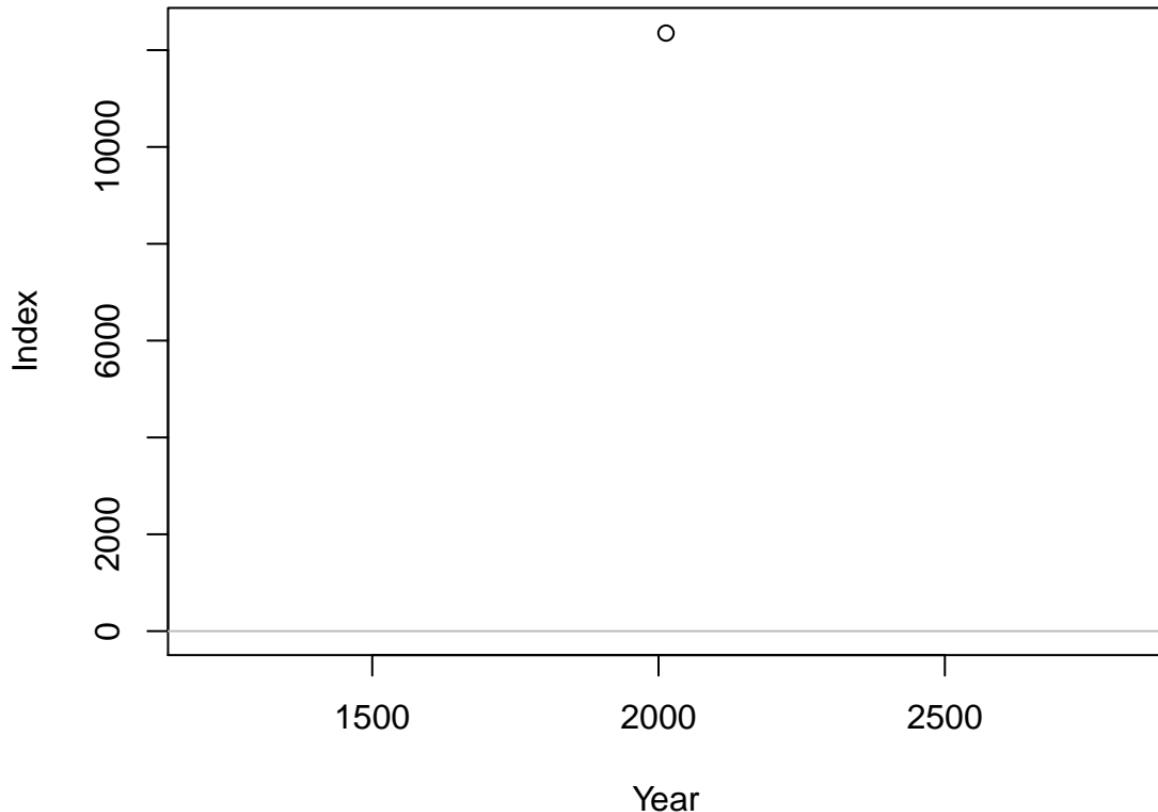
## Log index Juvenile



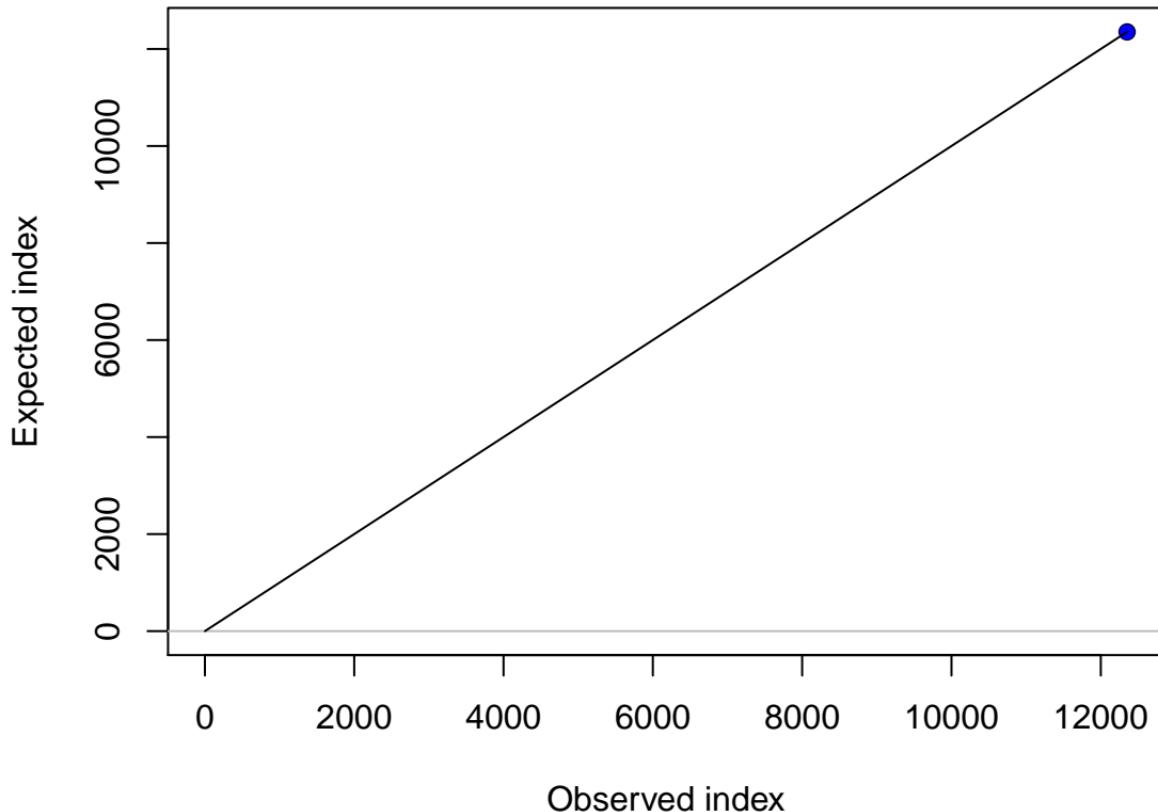
## **Index Rec2013**



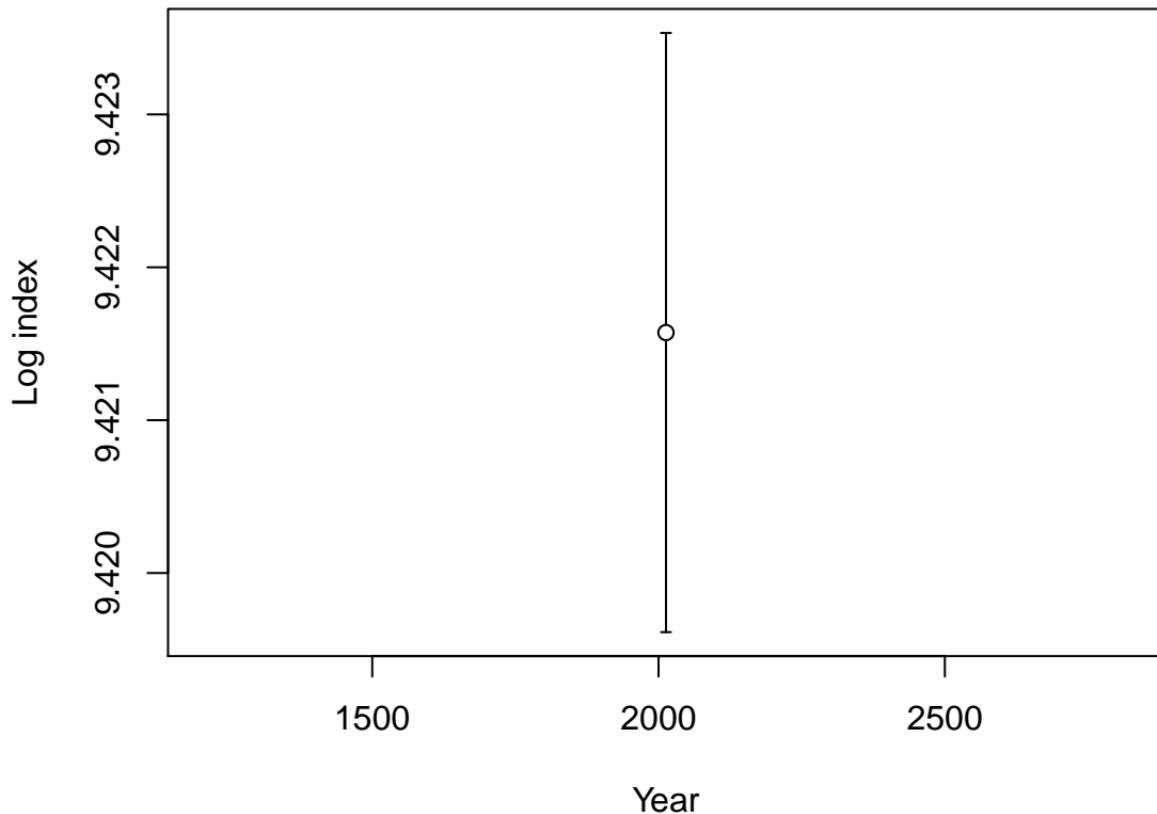
## **Index Rec2013**



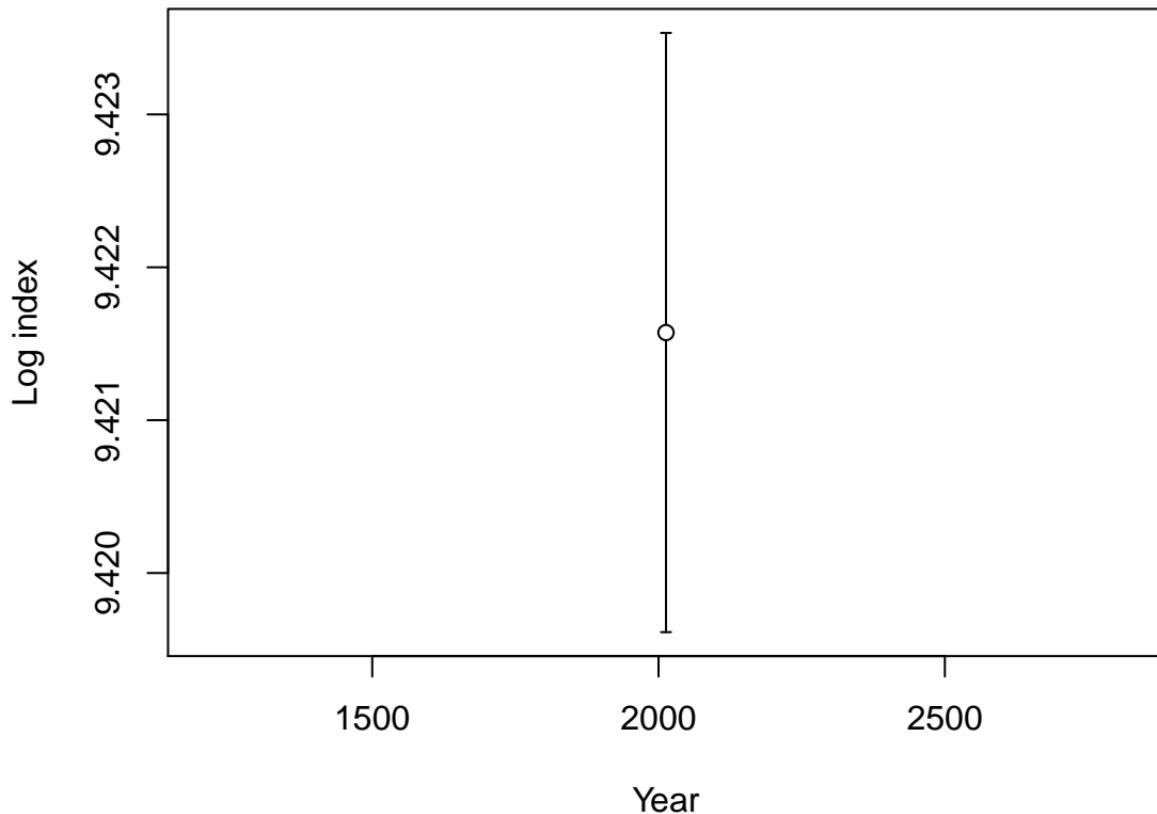
## **Index Rec2013**



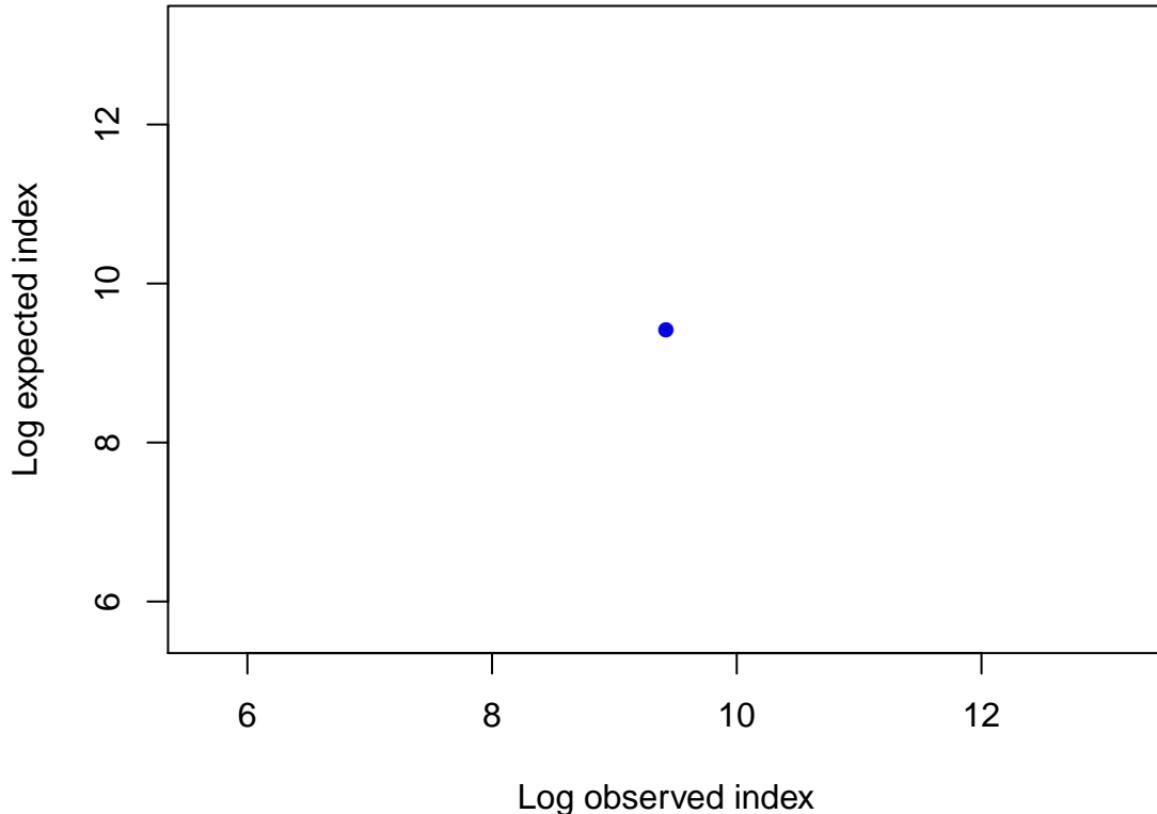
## Log index Rec2013



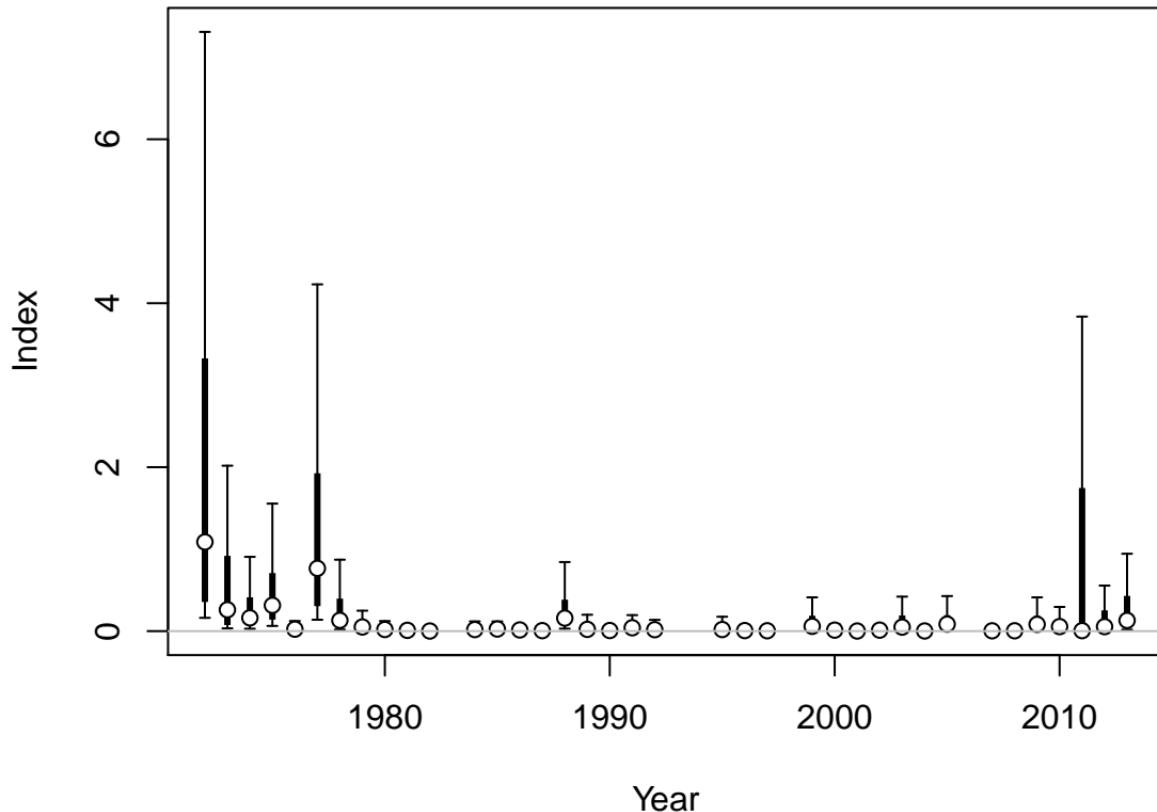
## Log index Rec2013



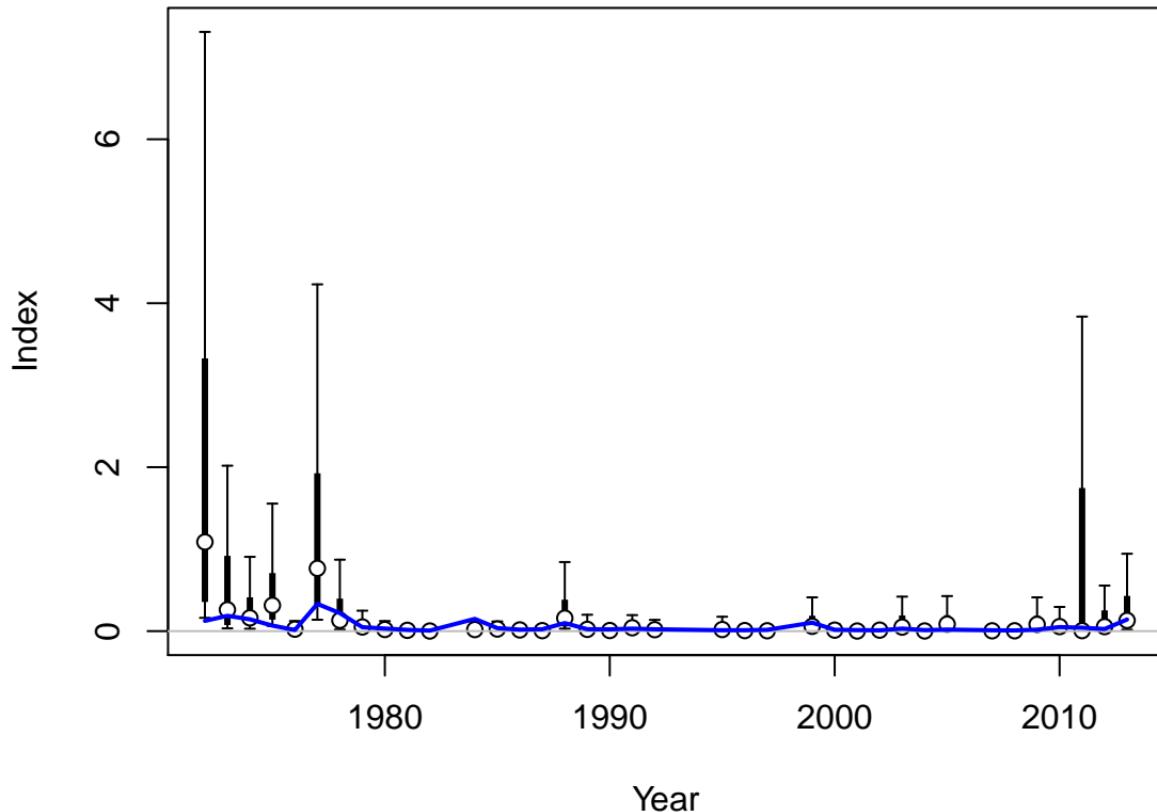
### Log index Rec2013



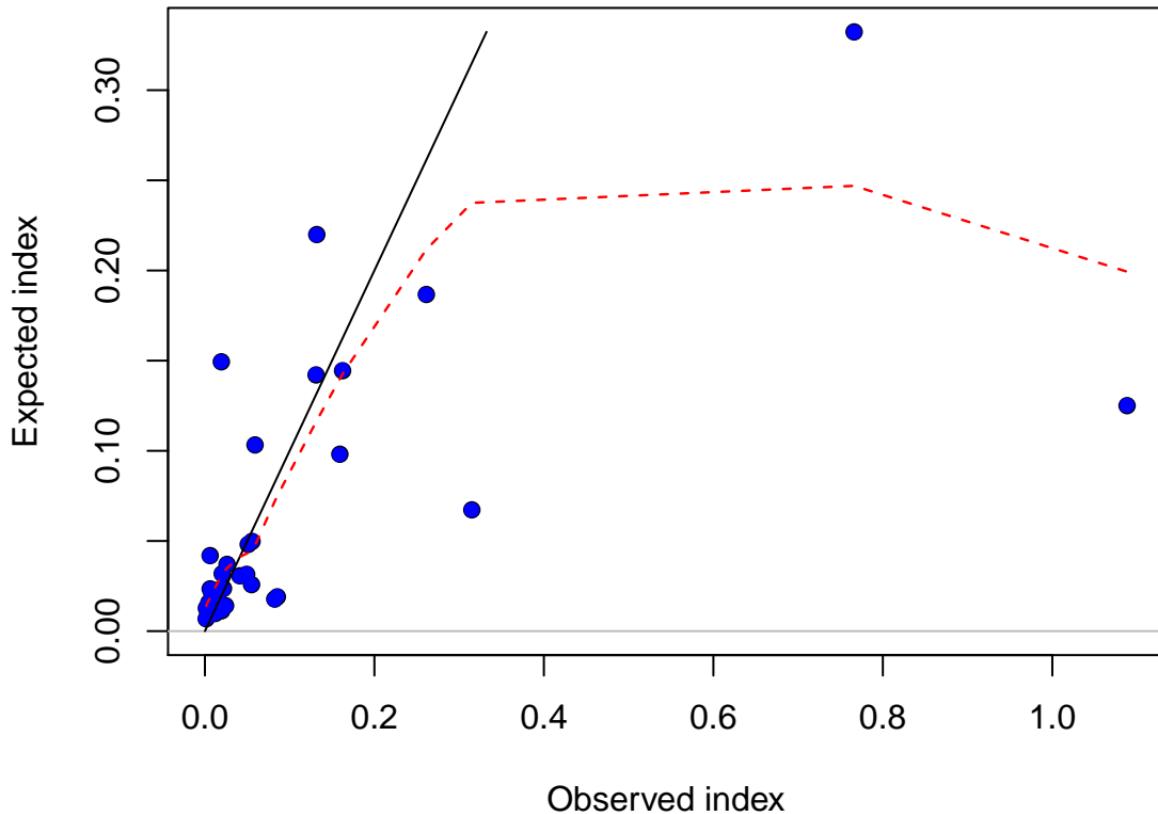
## Index PPIIndex



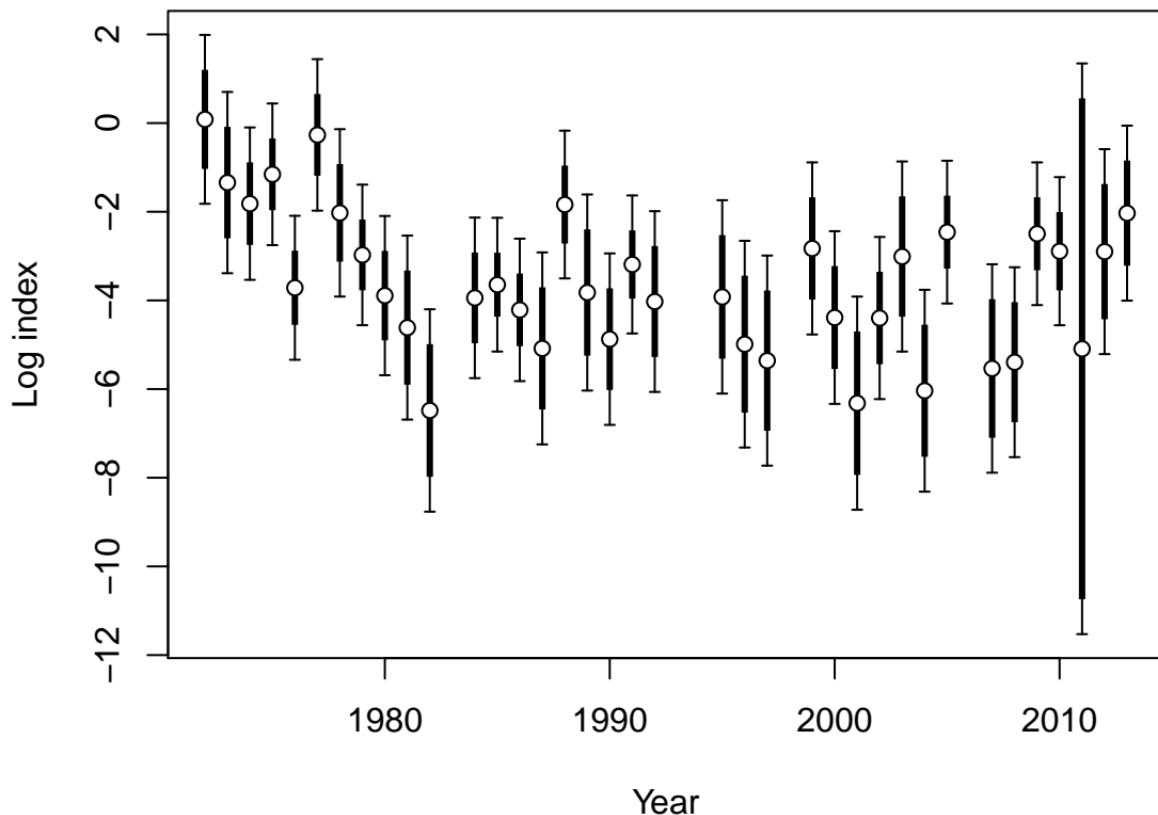
## Index PPIIndex



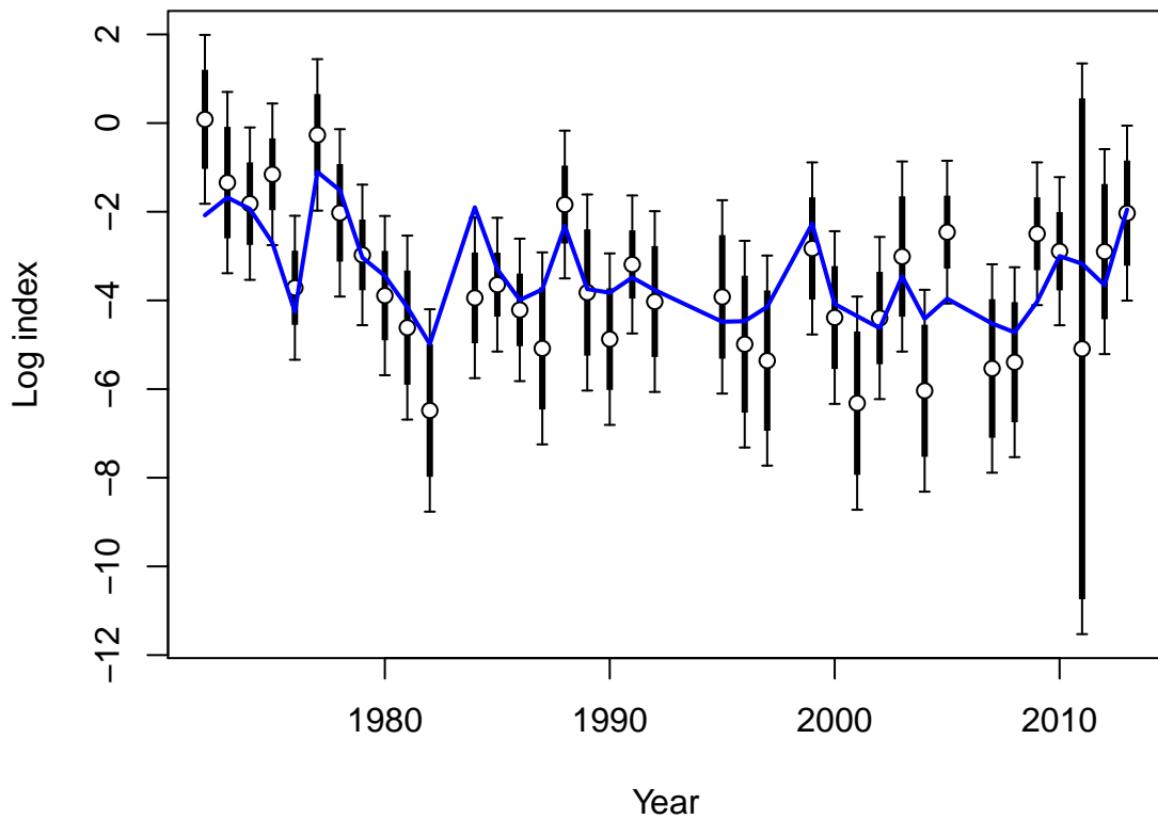
### Index PPIIndex



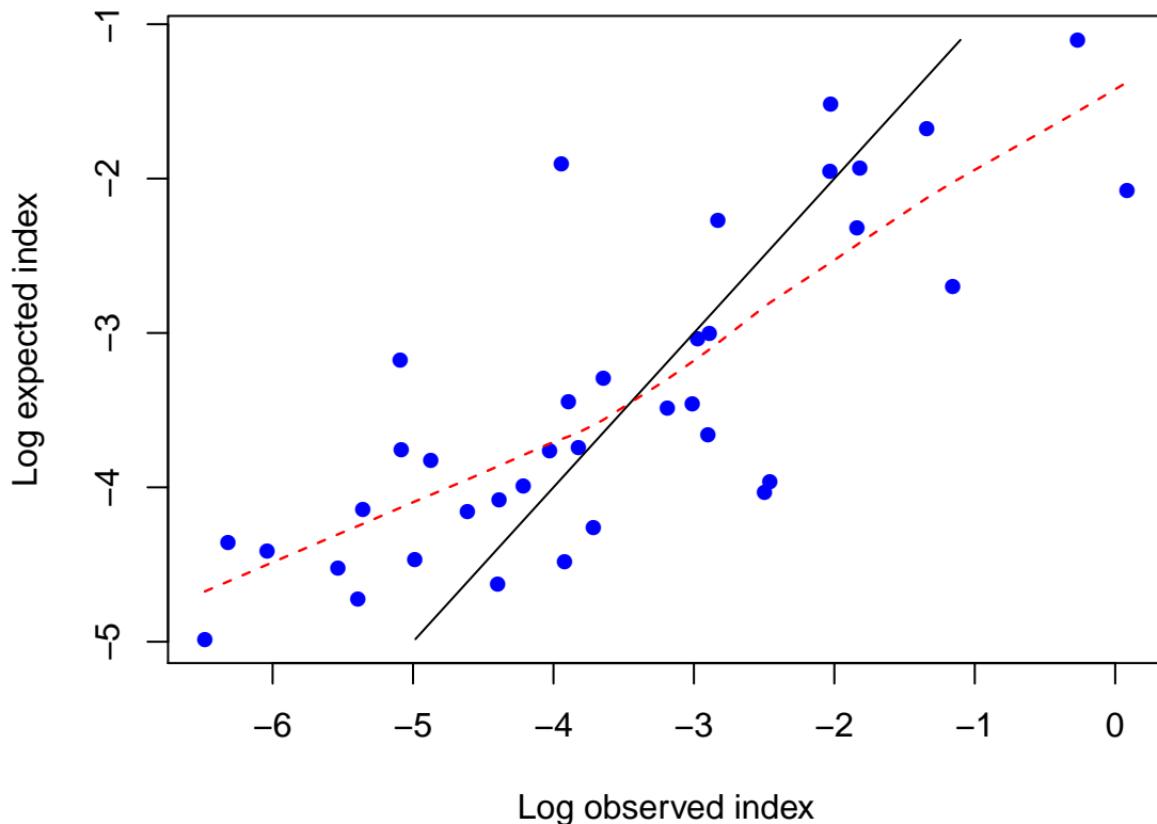
## Log index PPIIndex



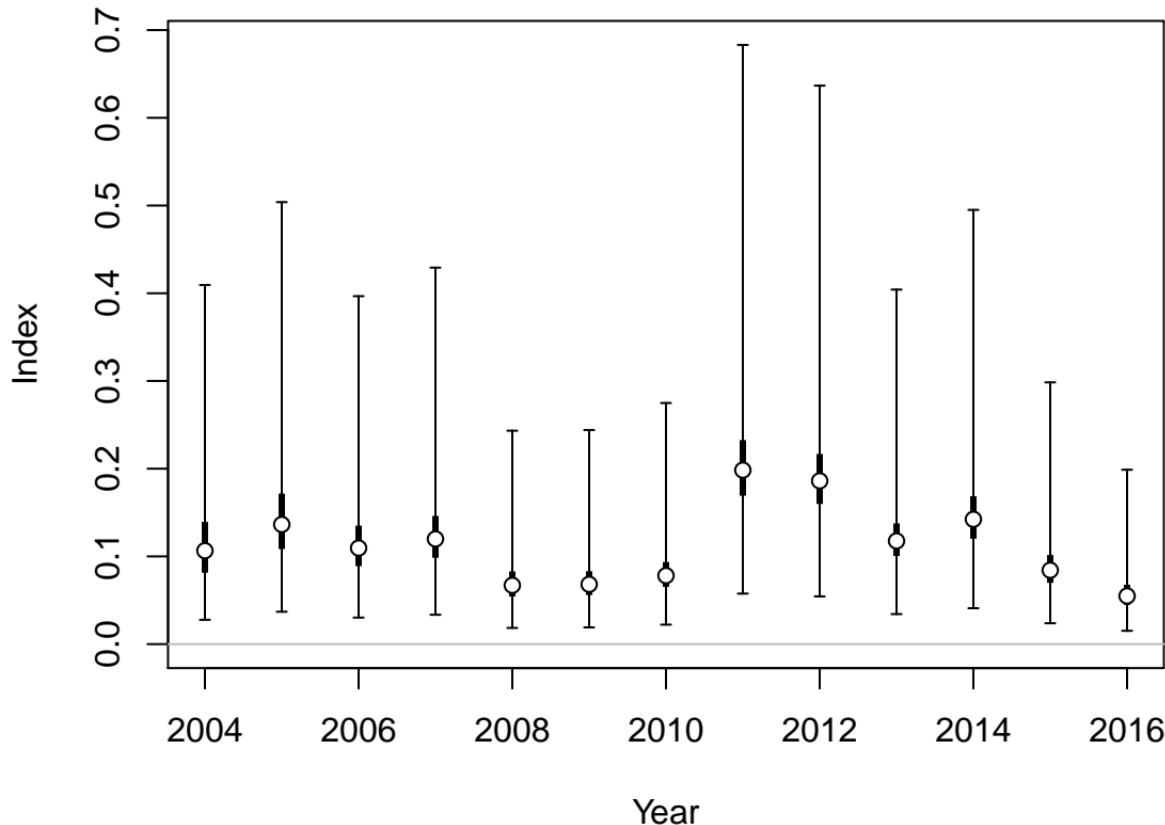
## Log index PPIIndex



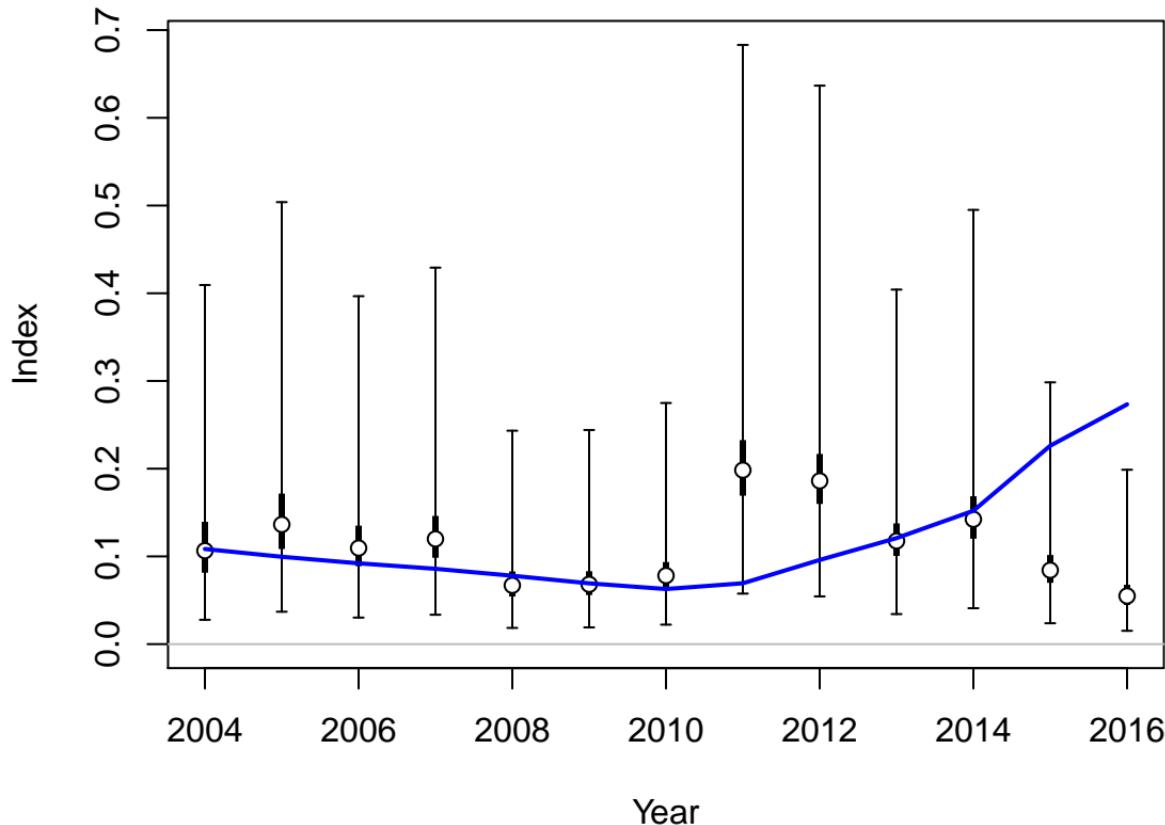
### Log index PPIIndex



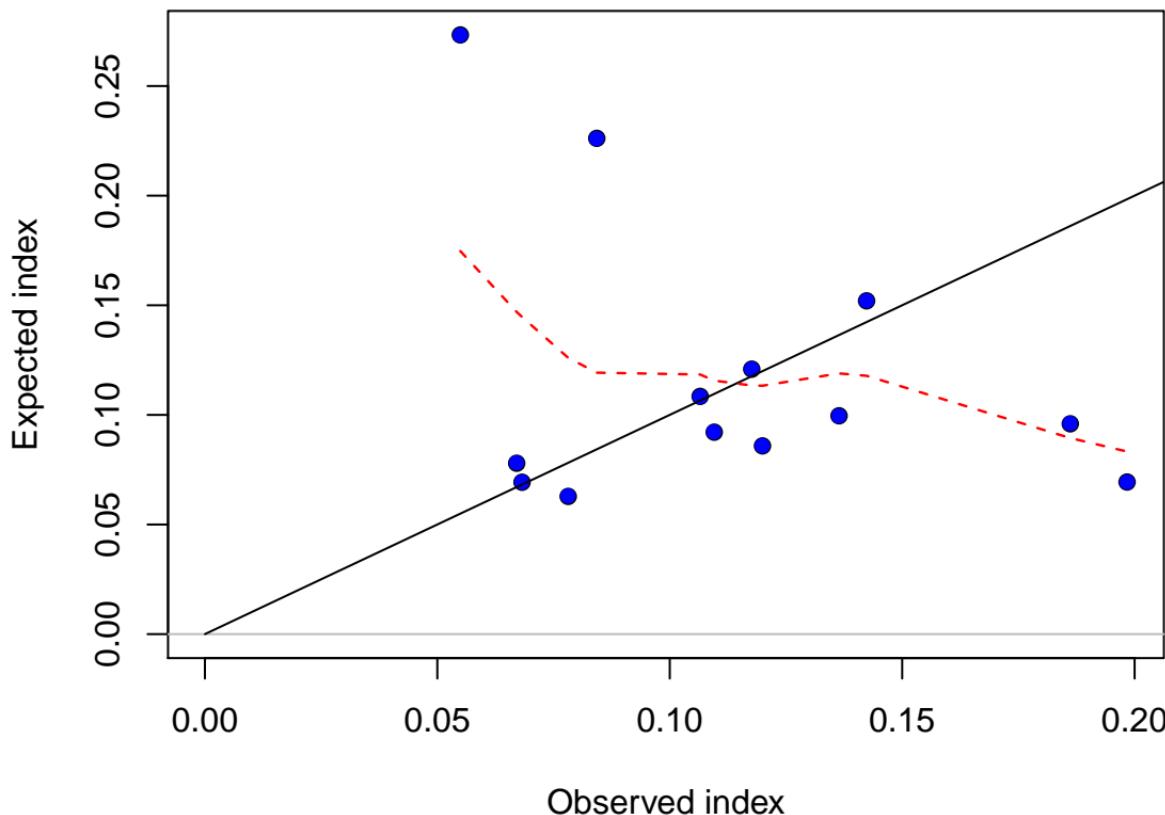
### Index RecSouthOB



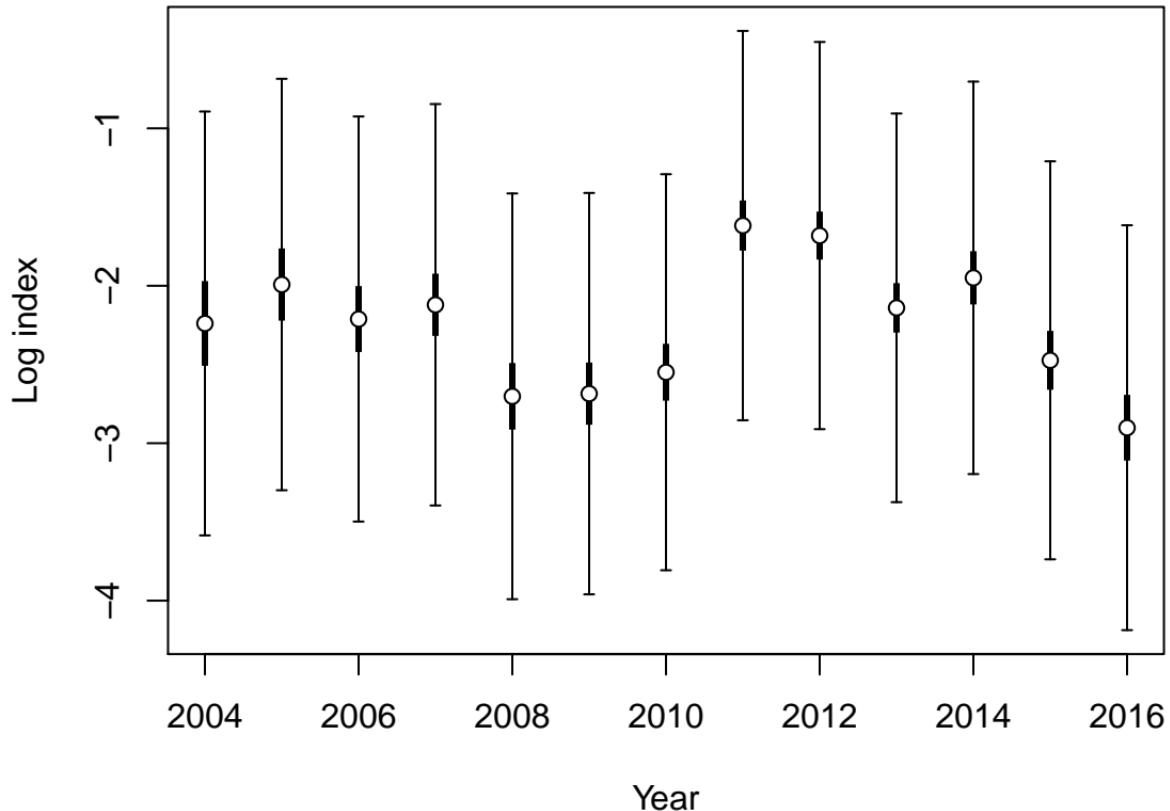
## Index RecSouthOB



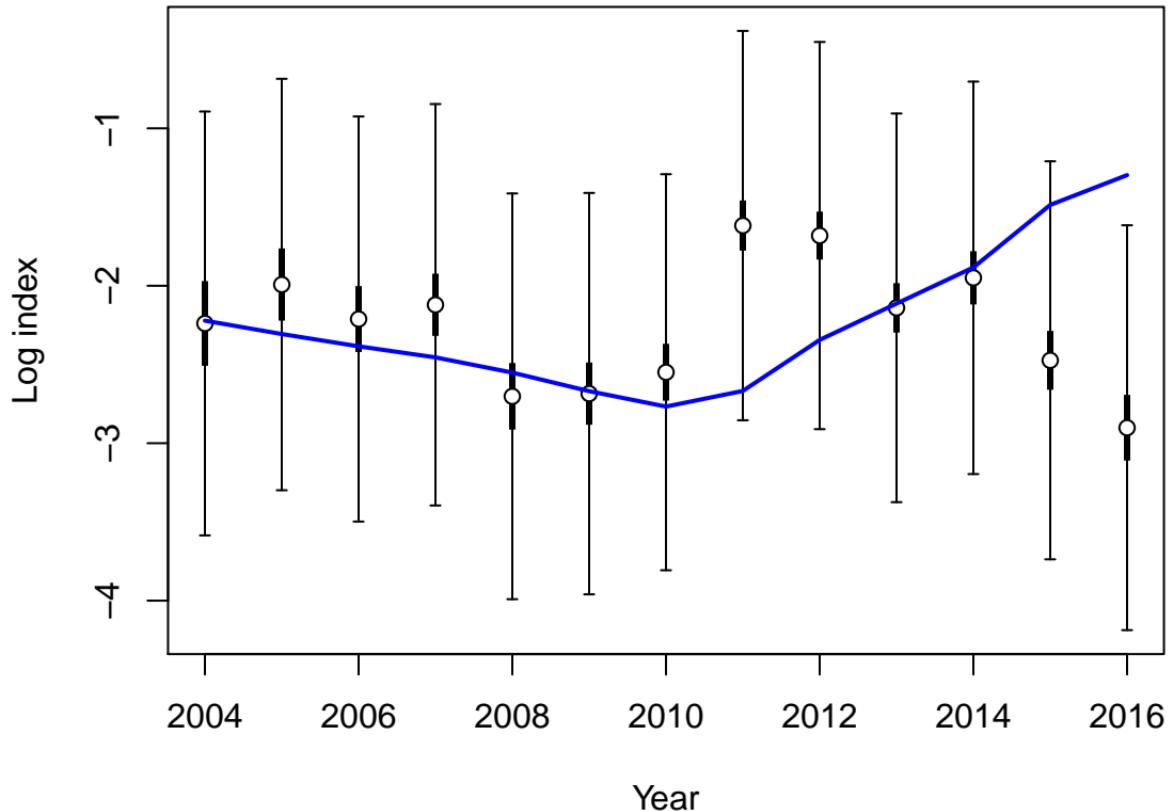
### Index RecSouthOB



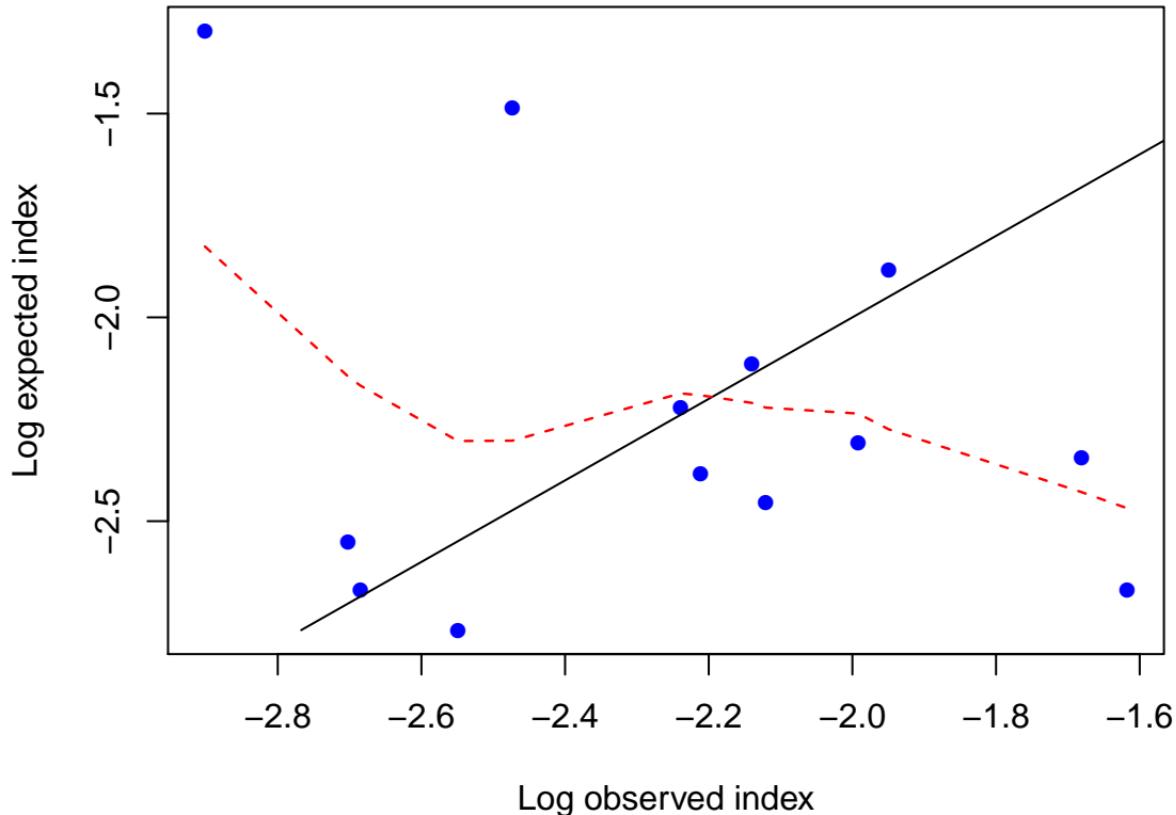
## Log index RecSouthOB



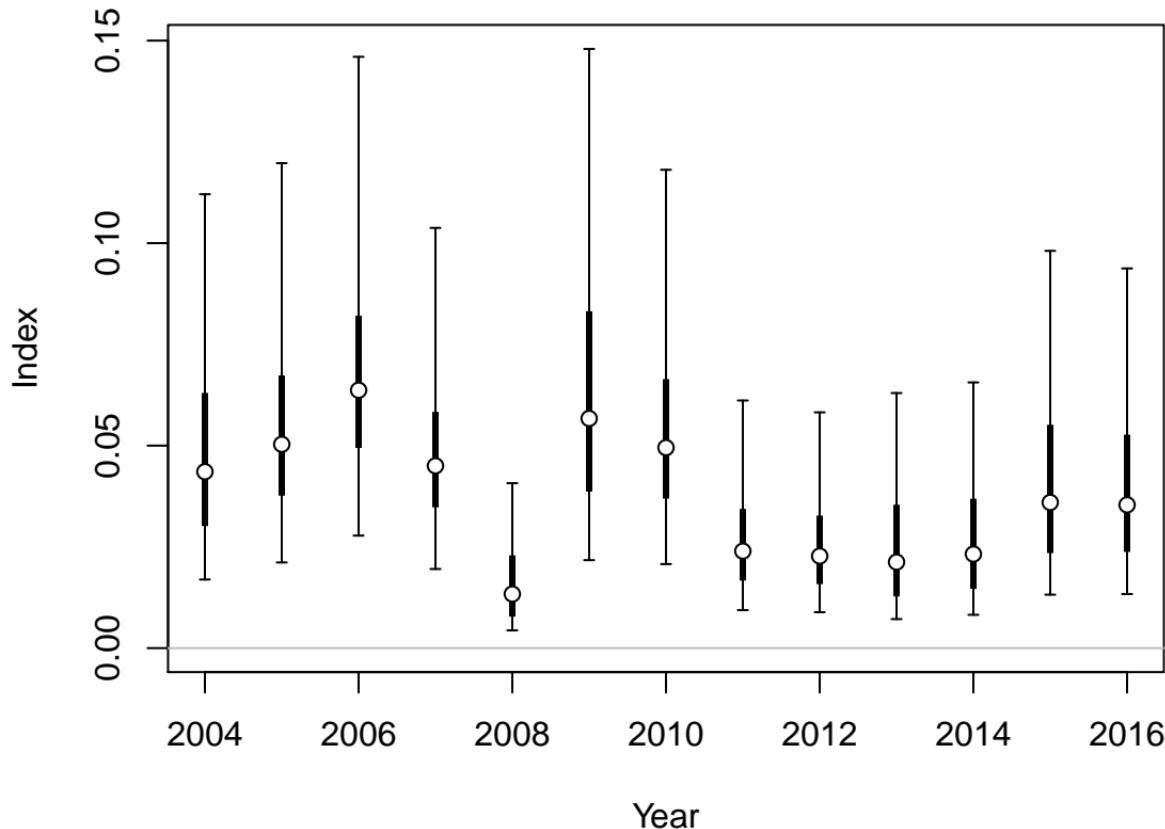
## Log index RecSouthOB



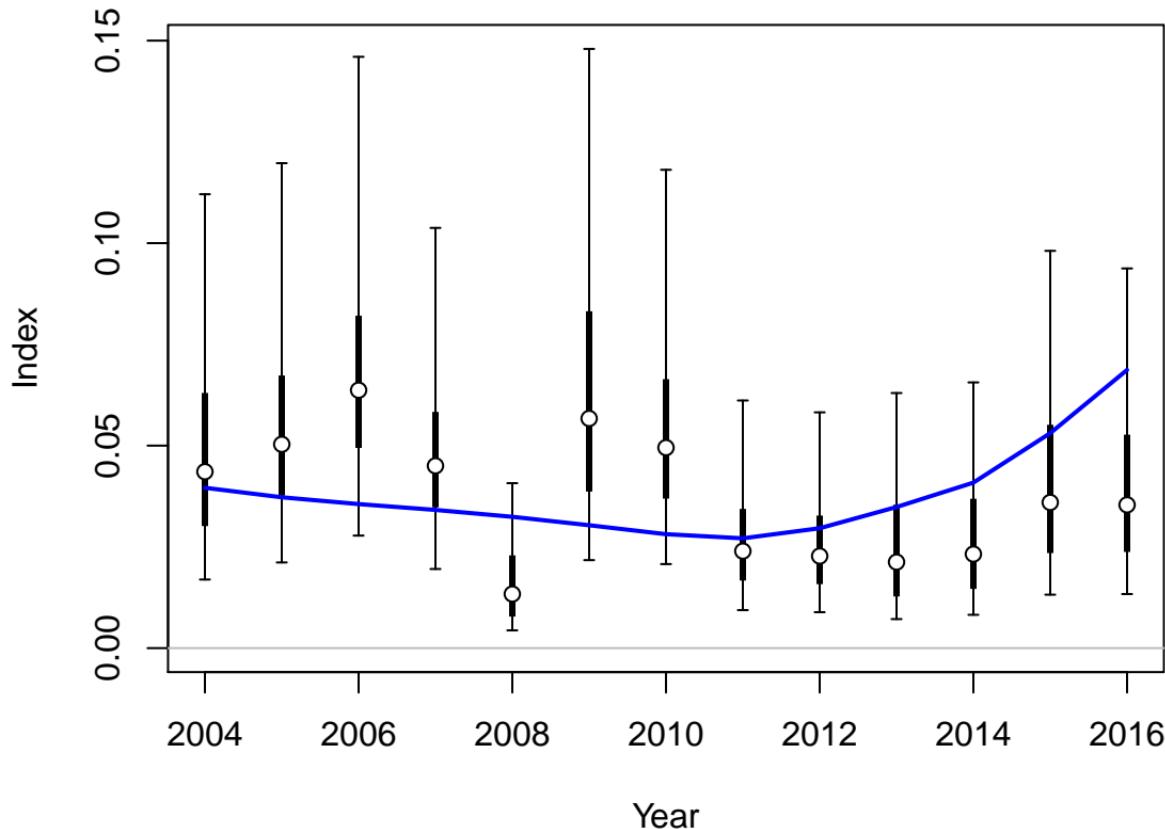
### Log index RecSouthOB



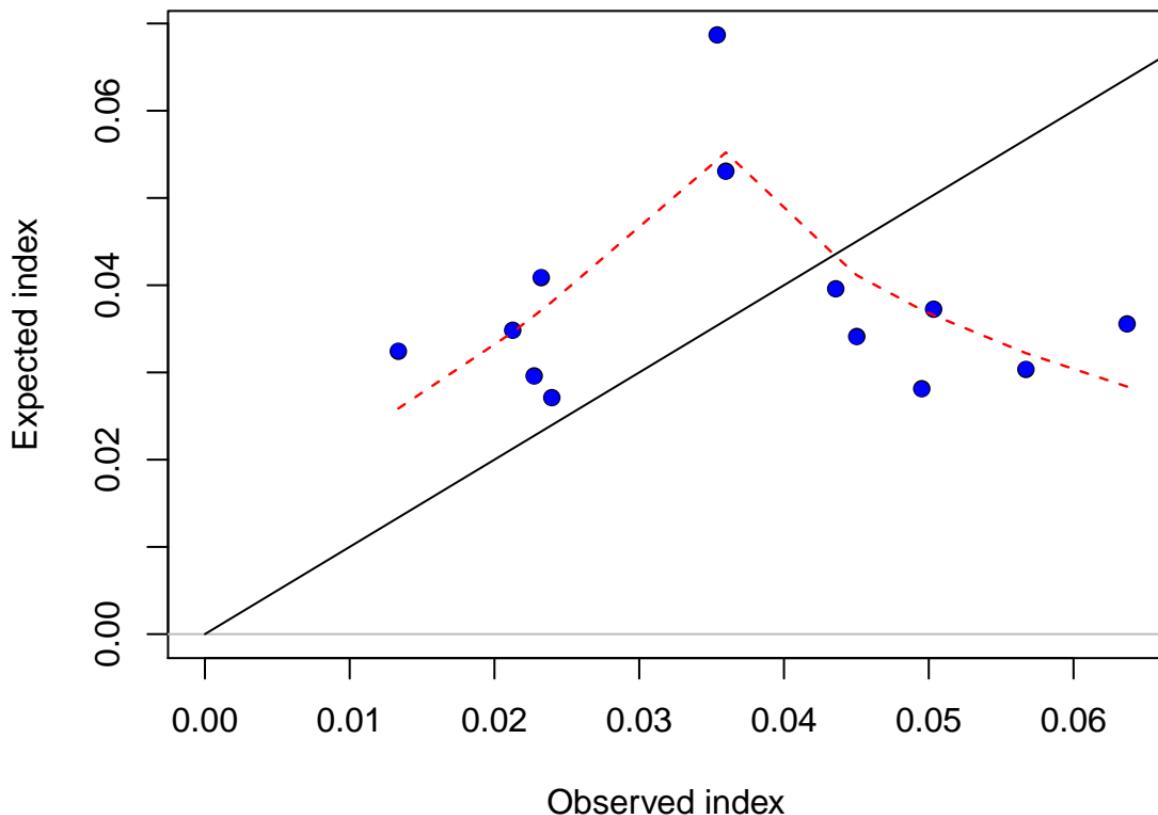
## Index RecCentralOB



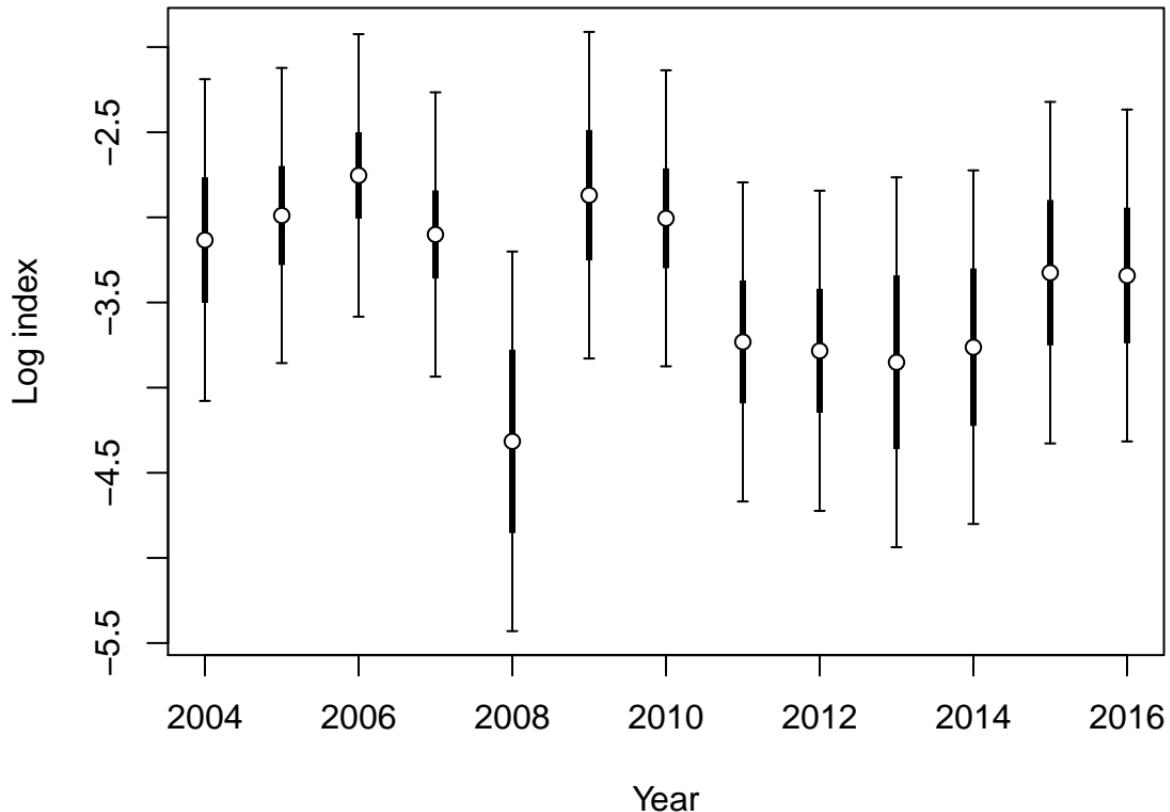
## Index RecCentralOB



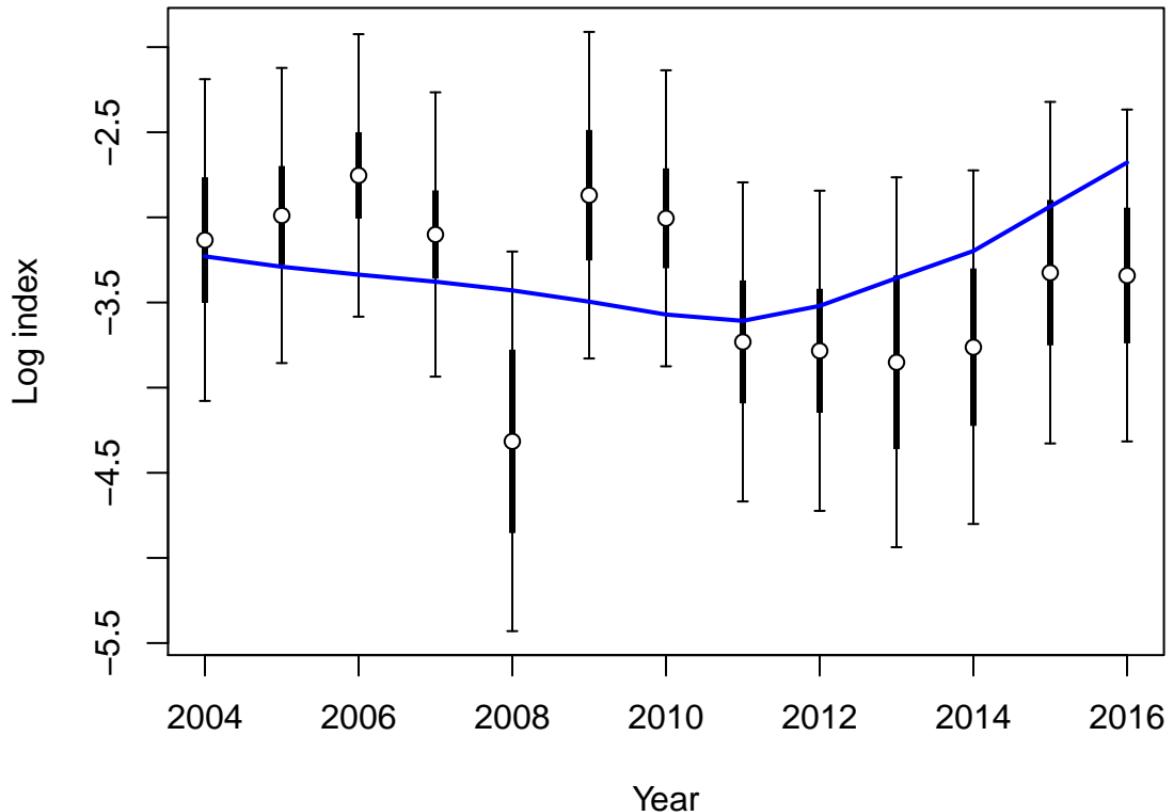
## Index RecCentralOB



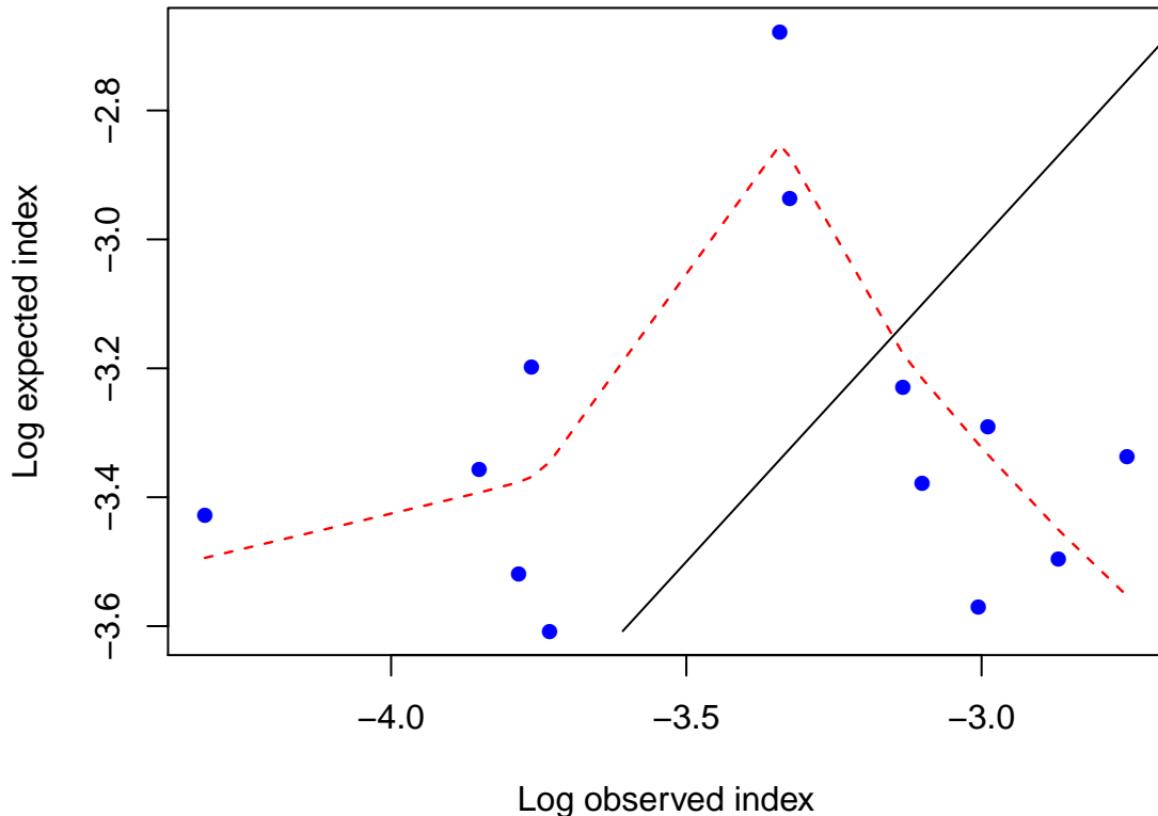
## Log index RecCentralOB



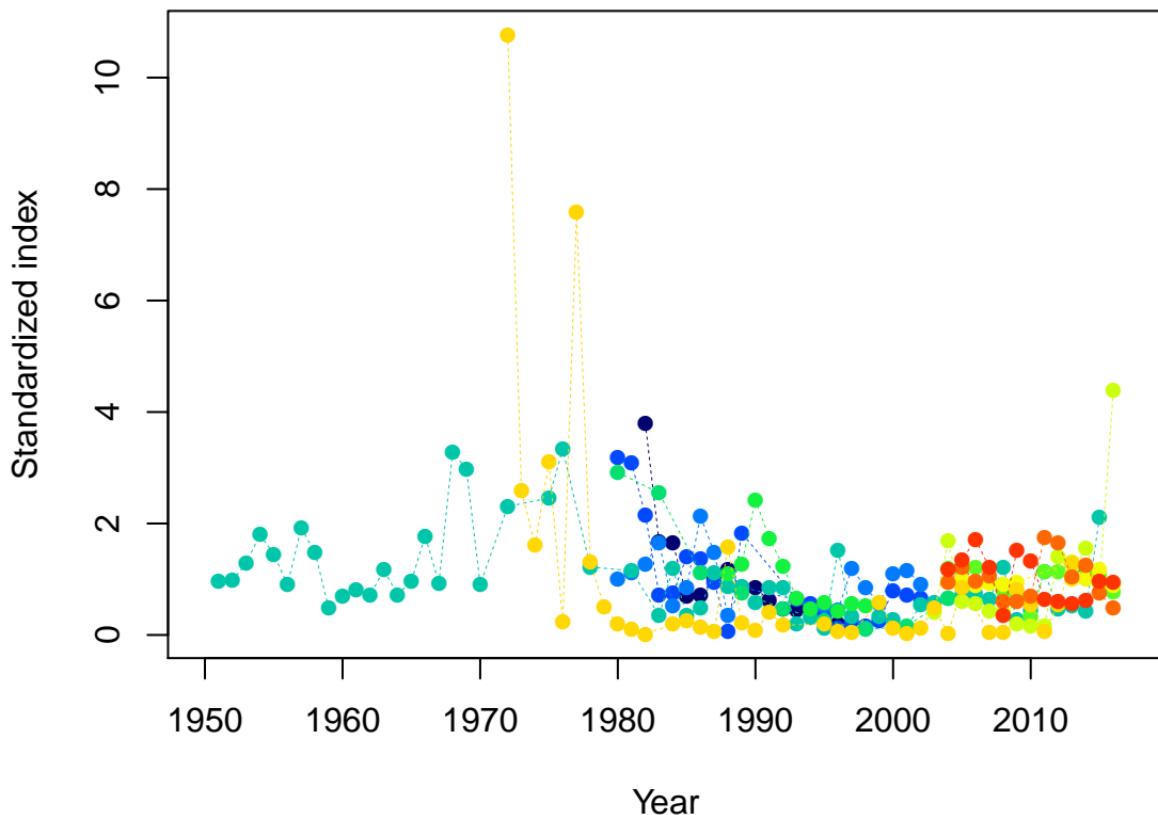
## Log index RecCentralOB



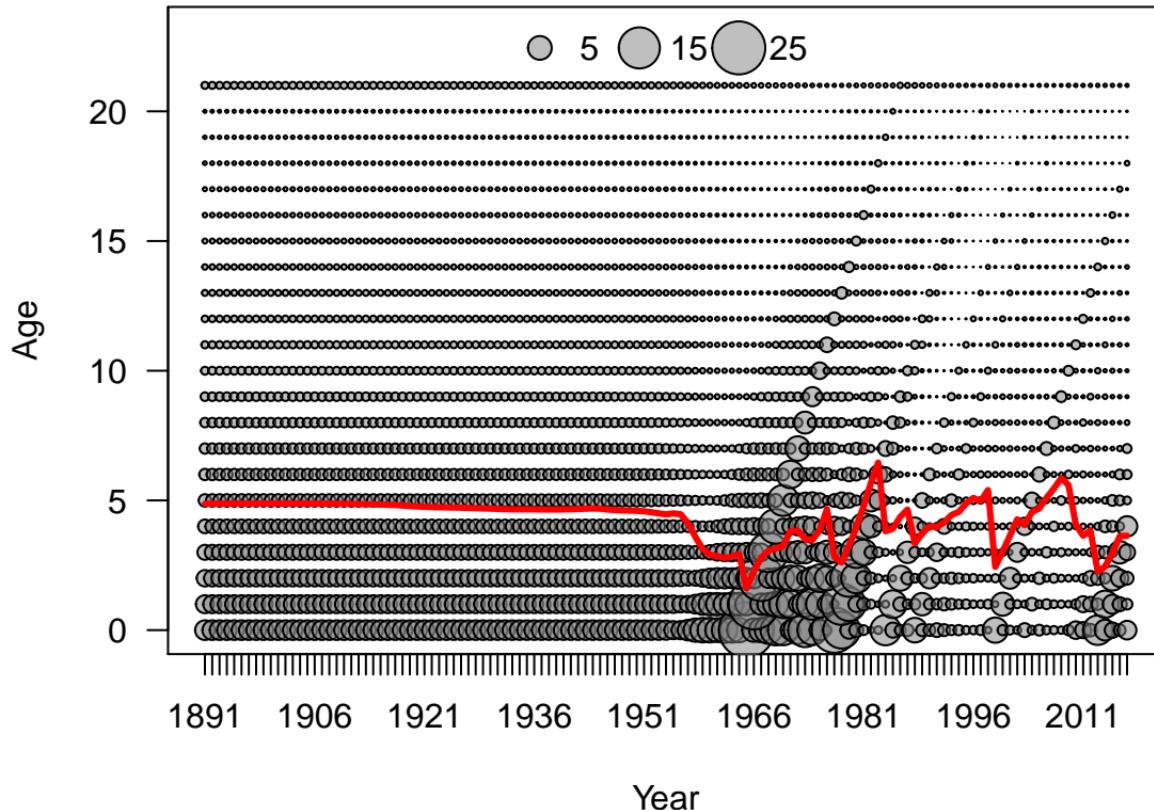
## Log index RecCentralOB



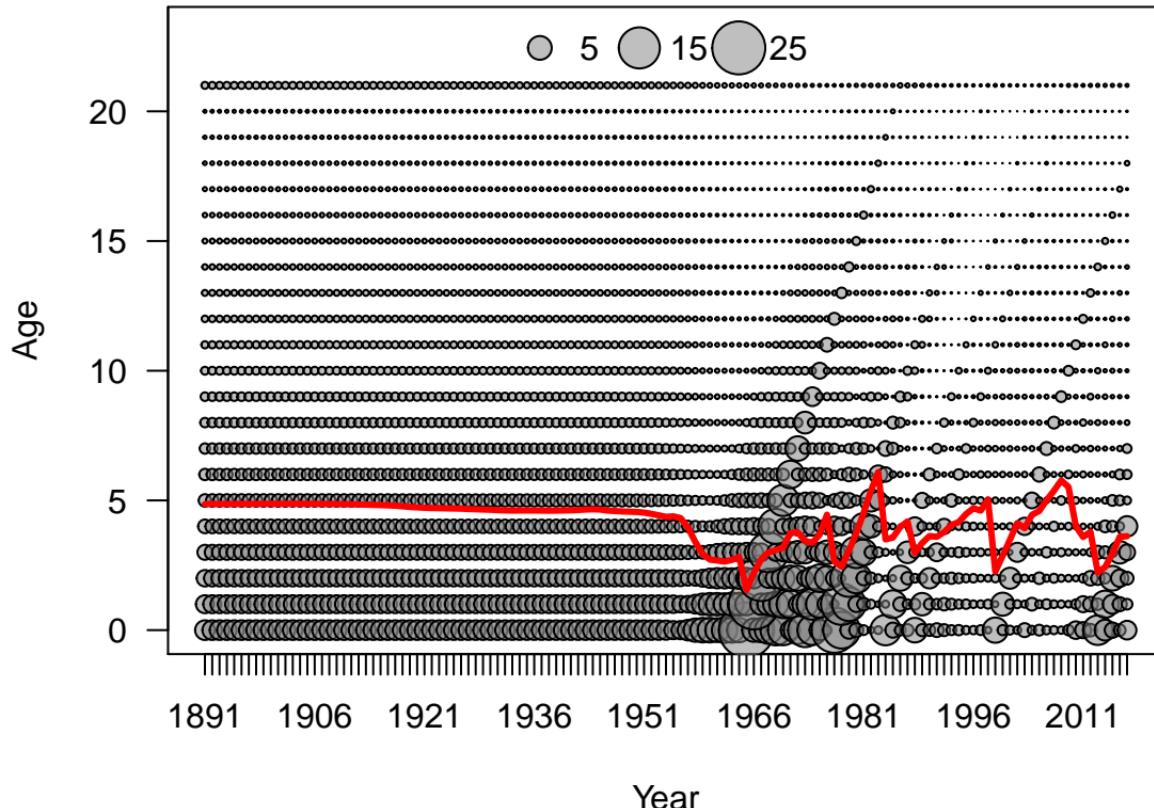
## All cpue plot



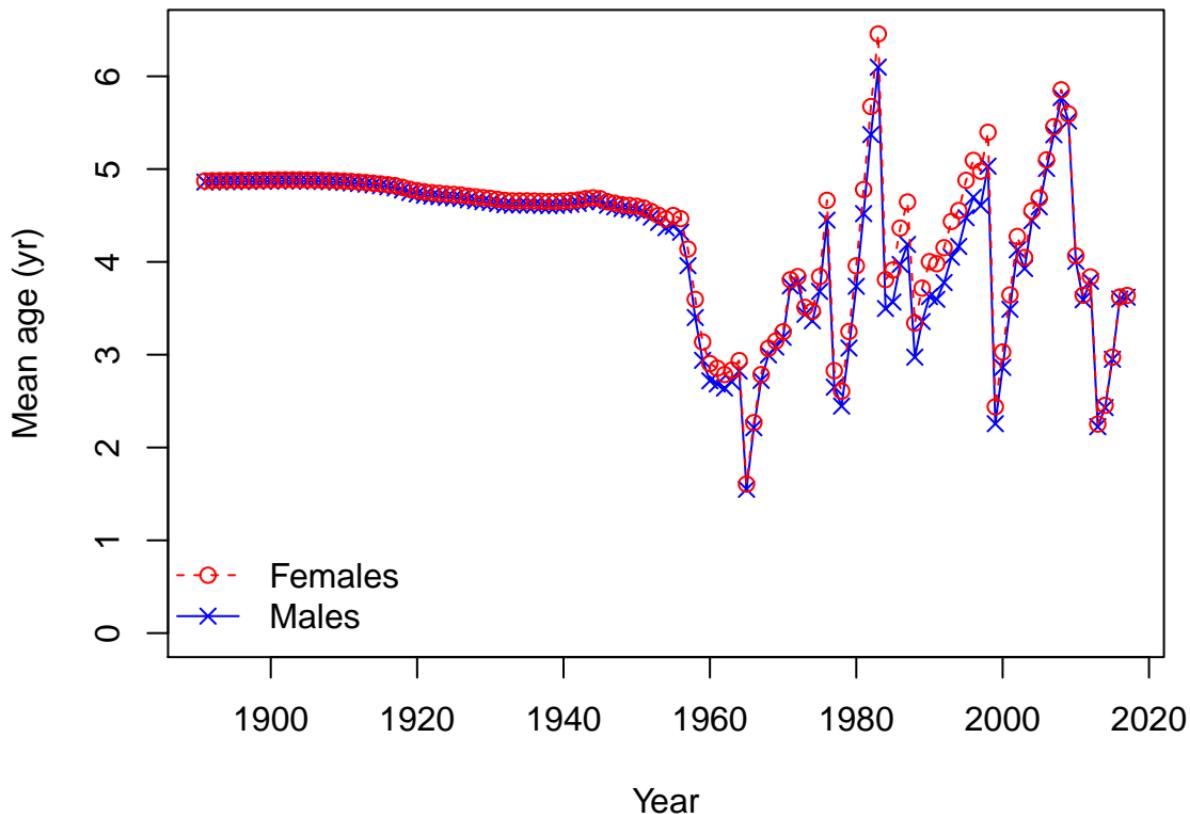
## Beginning of year expected numbers at age of females in (max ~ 27.2 million)



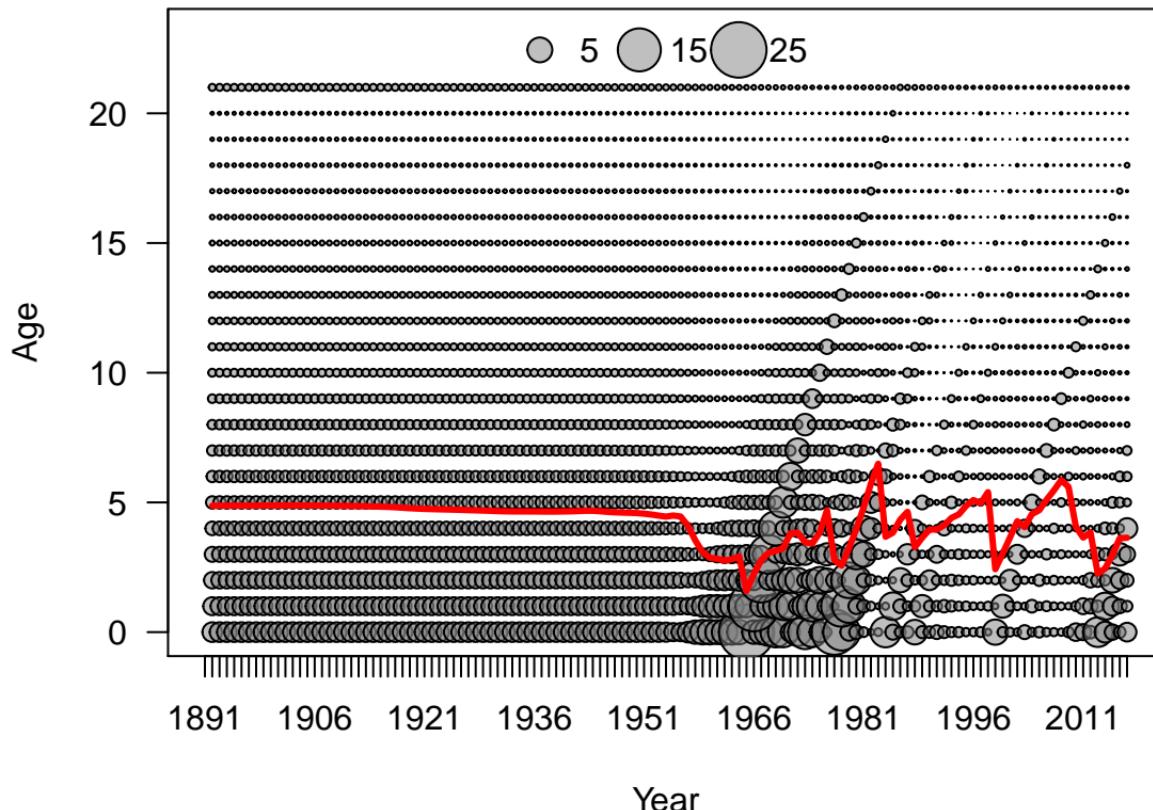
## Beginning of year expected numbers at age of males in (max ~ 27.2 million)



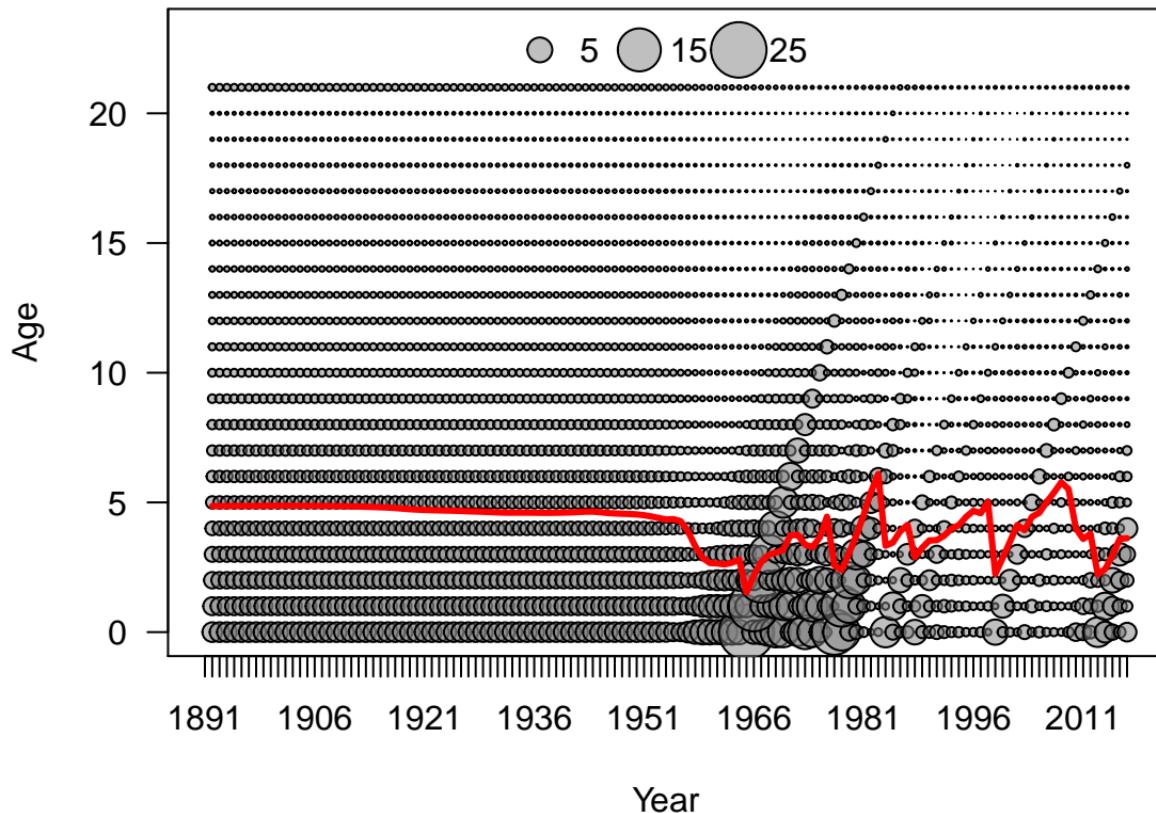
## Beginning of year mean age in the population



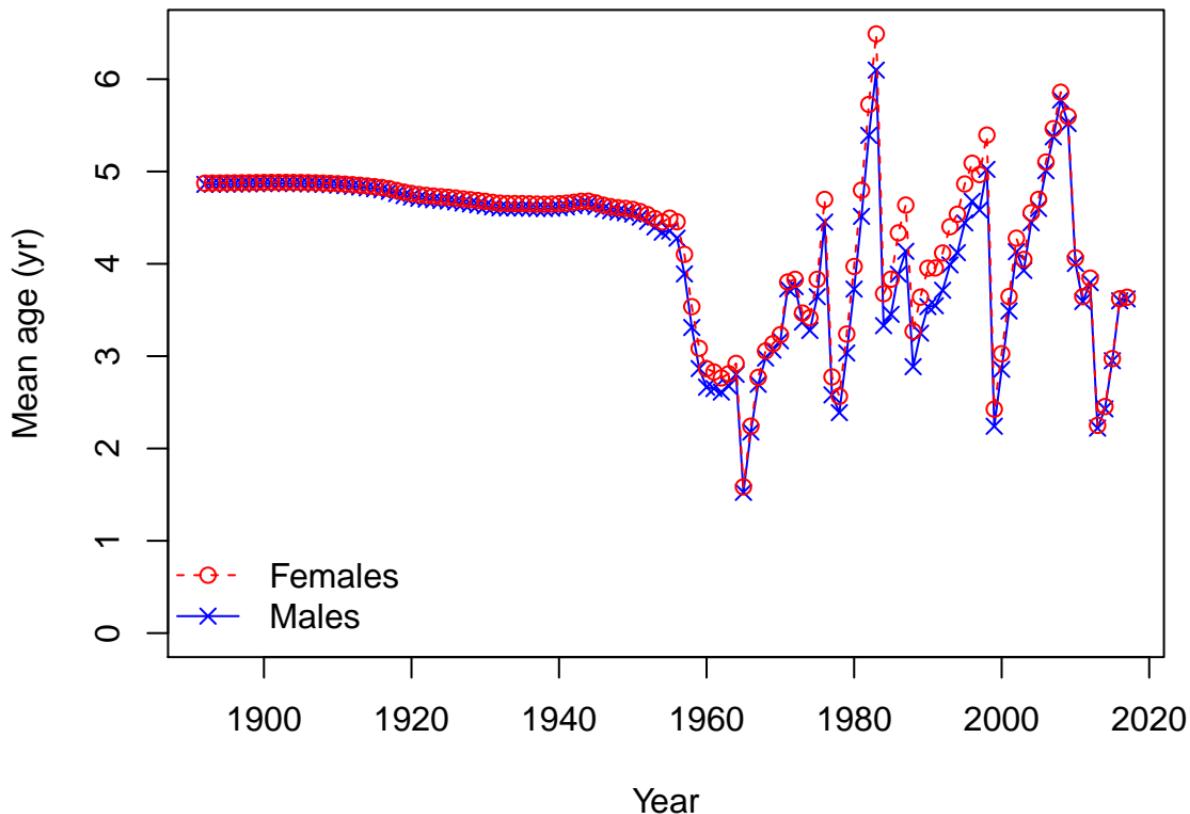
## Middle of year expected numbers at age of females in (max ~ 24.8 million)



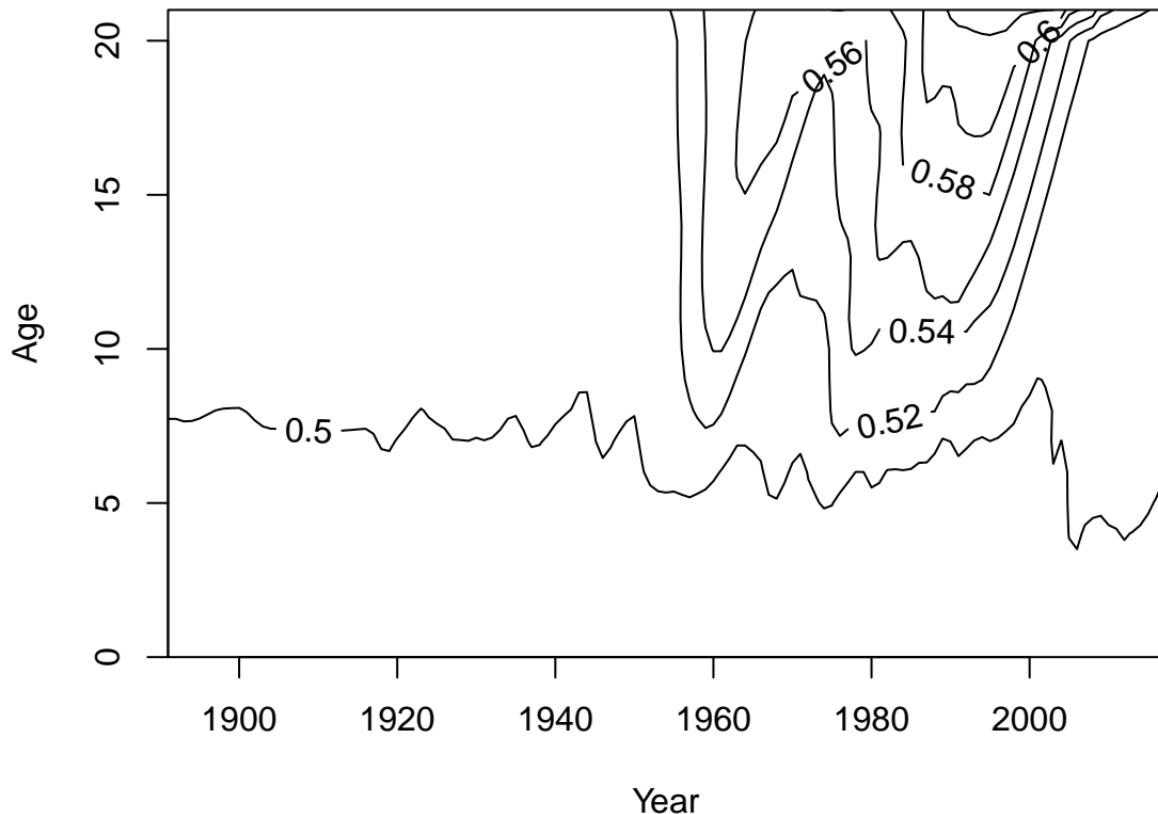
## Middle of year expected numbers at age of males in (max ~ 24.8 million)



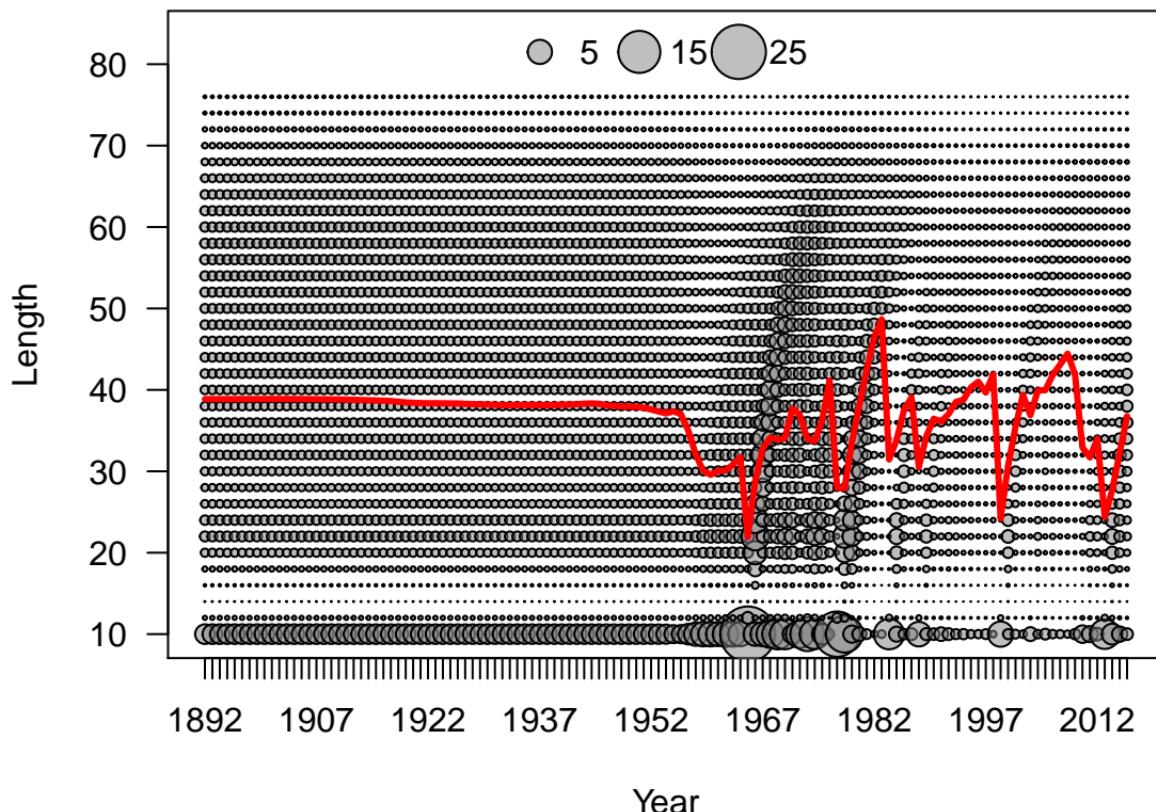
## Middle of year mean age in the population



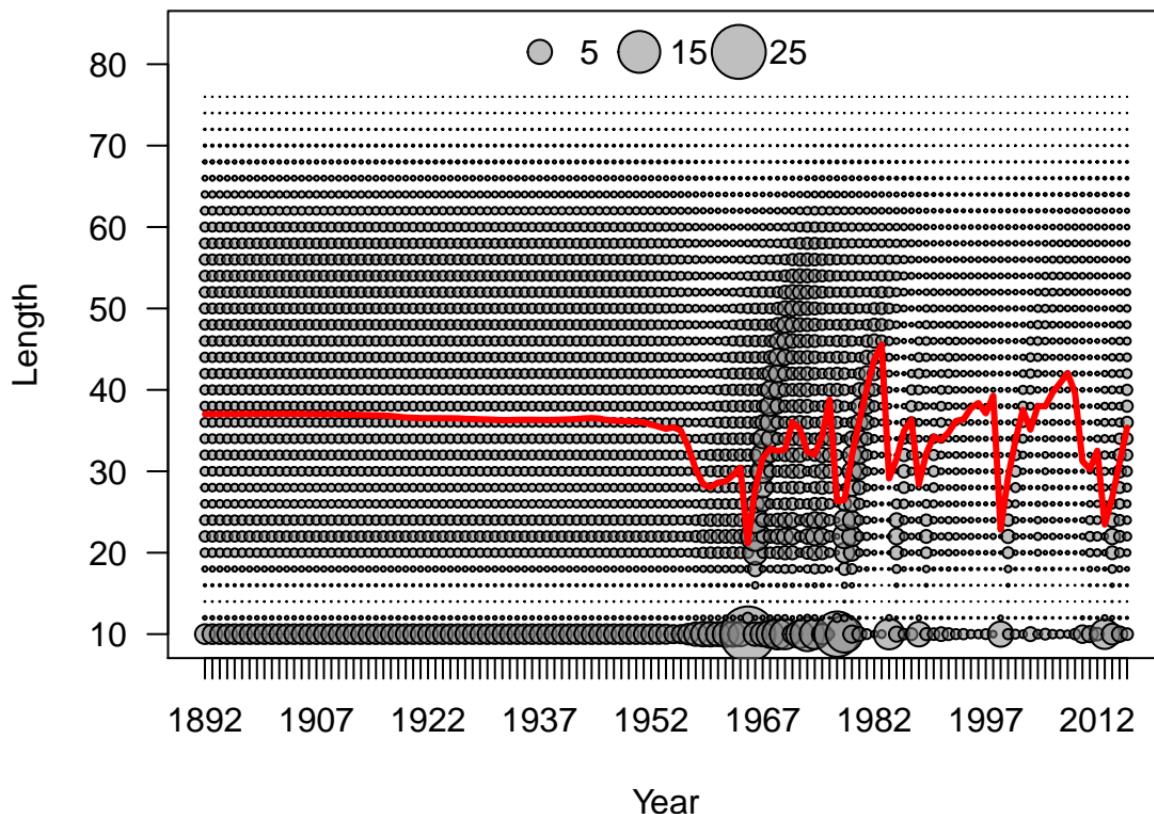
## Fraction female in numbers at age



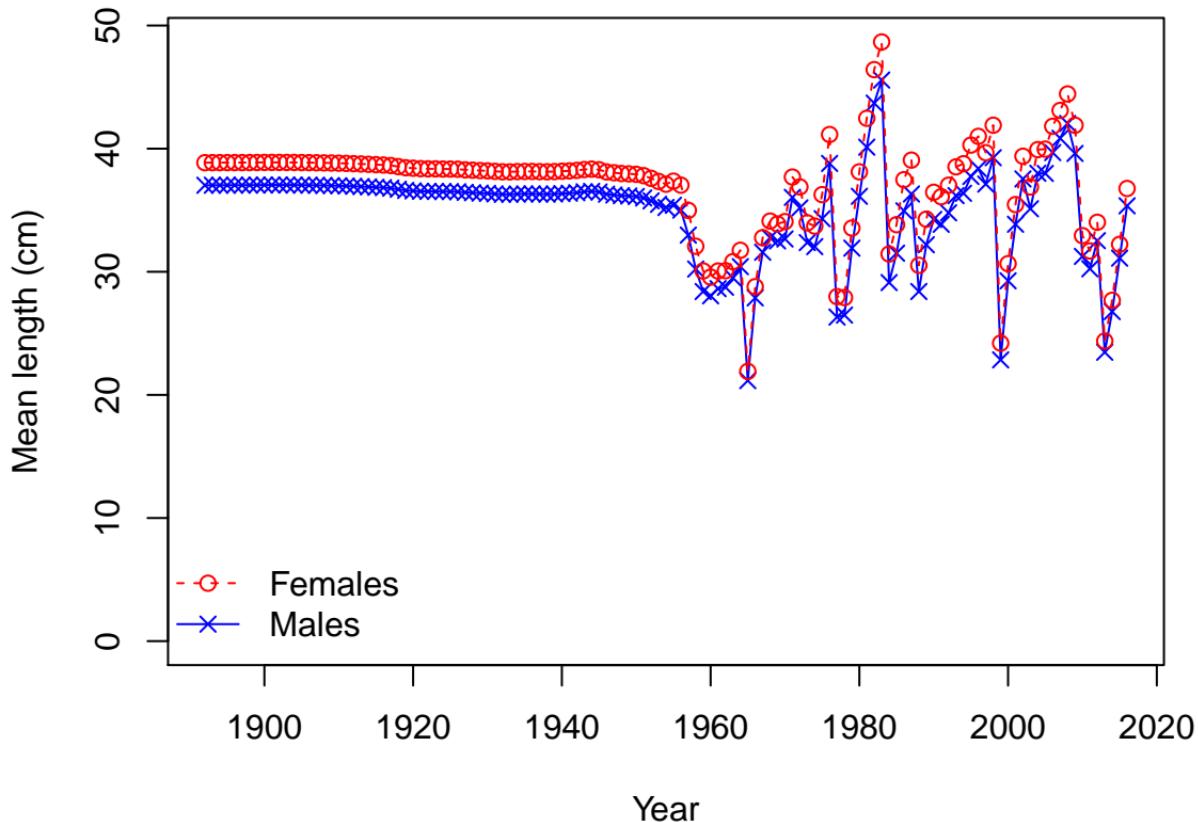
## Beginning of year expected numbers at length of females in (max ~ 26.0 million)



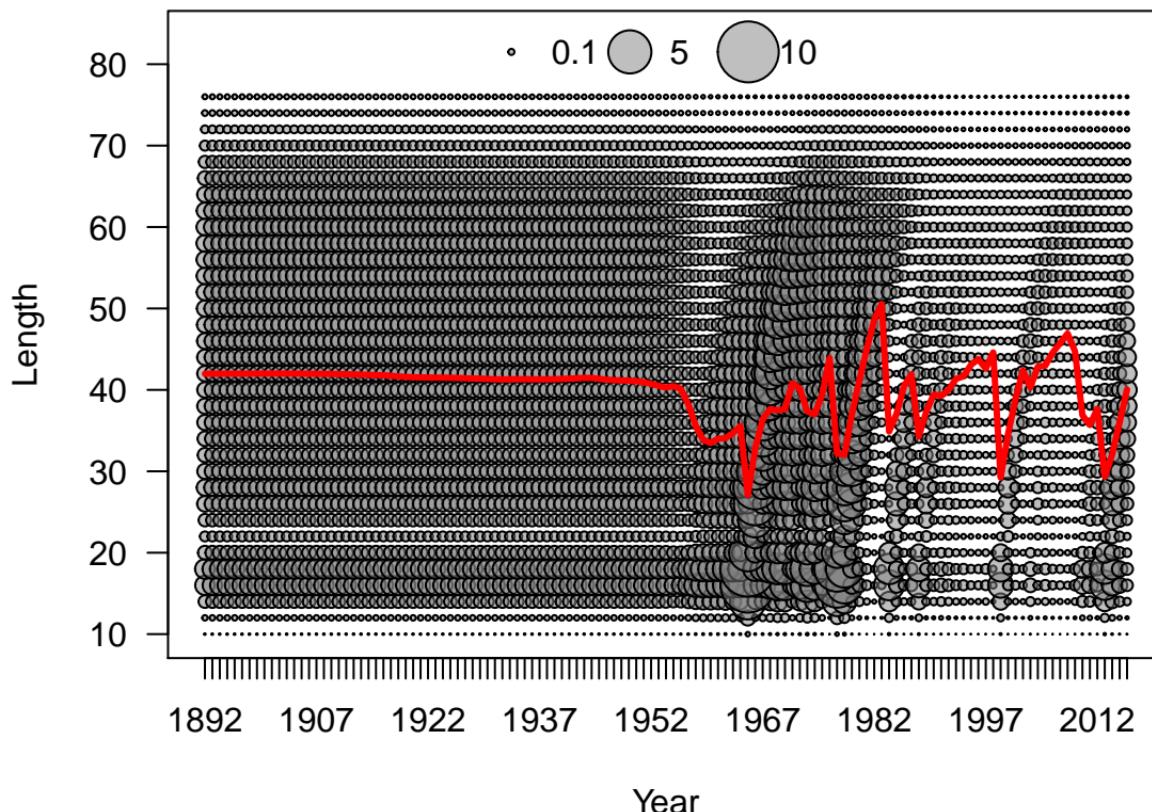
## Beginning of year expected numbers at length of males in (max ~ 26.3 million)



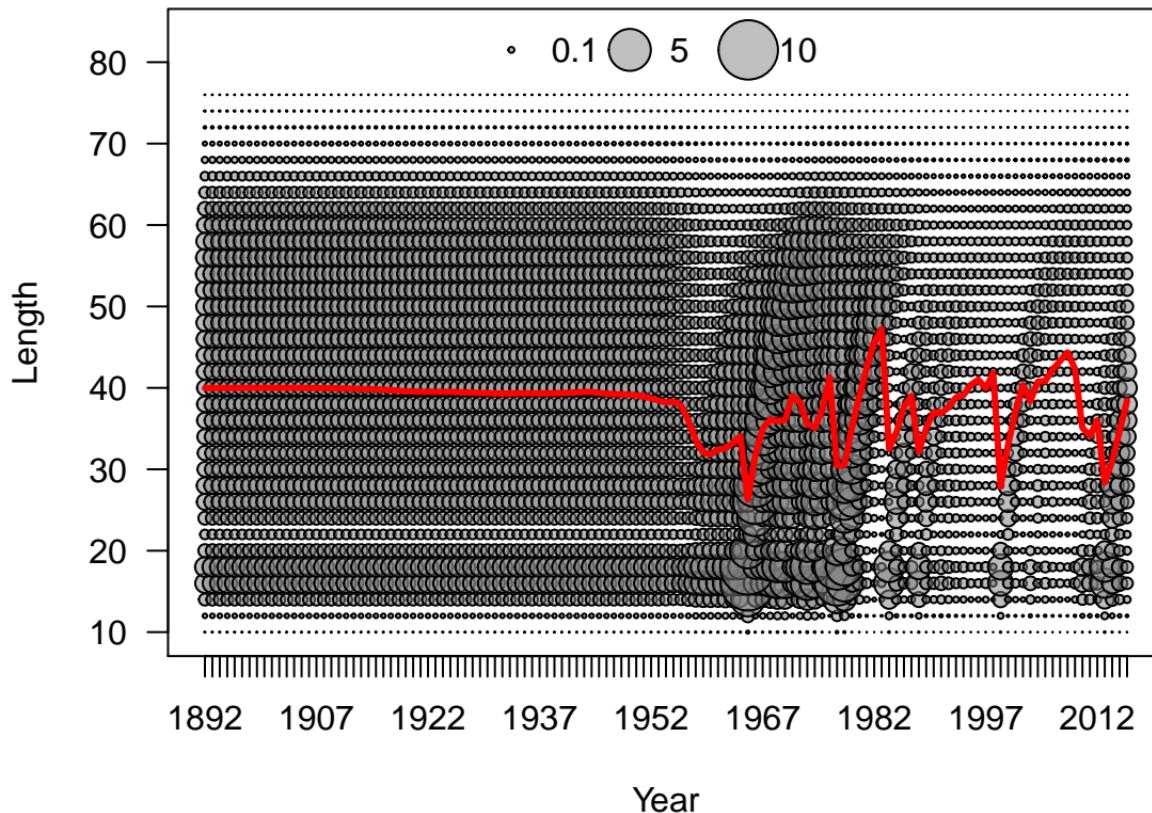
## Beginning of year mean length (cm) in the population



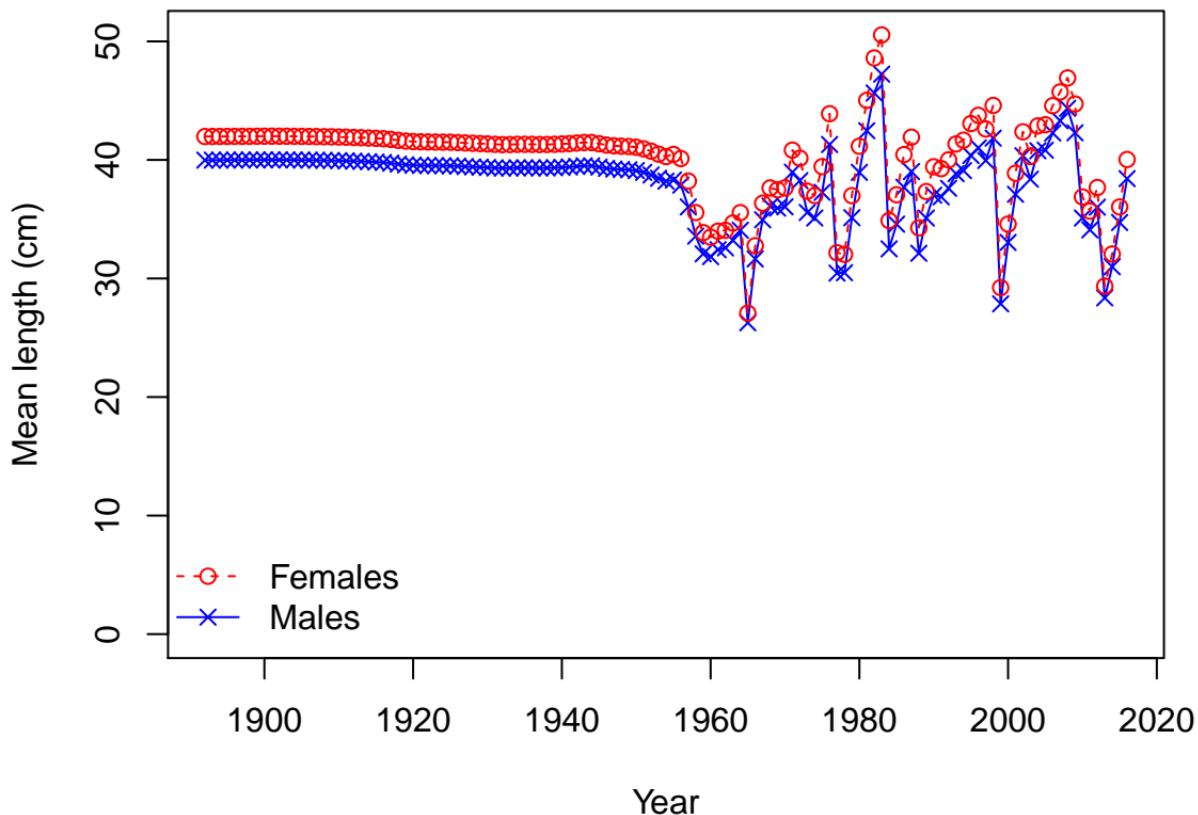
## Middle of year expected numbers at length of females in (max ~ 8.2 million)



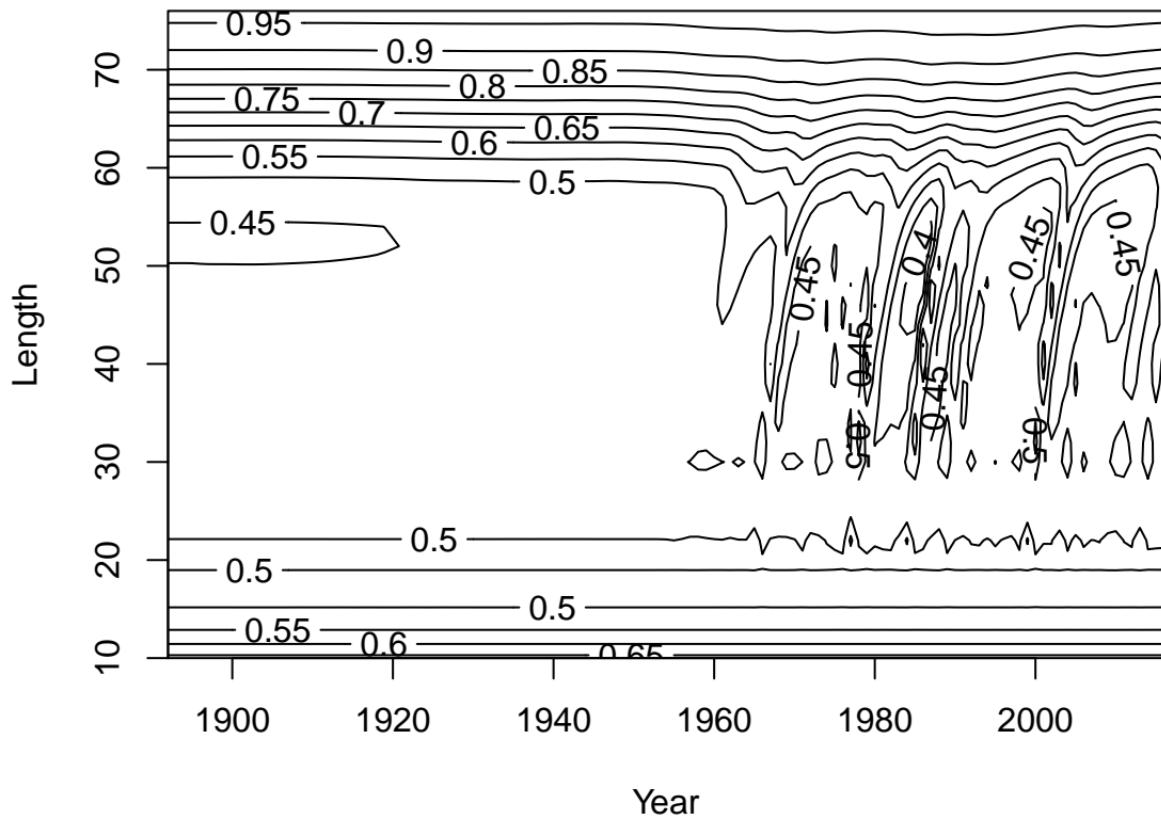
## Middle of year expected numbers at length of males in (max ~ 8.7 million)



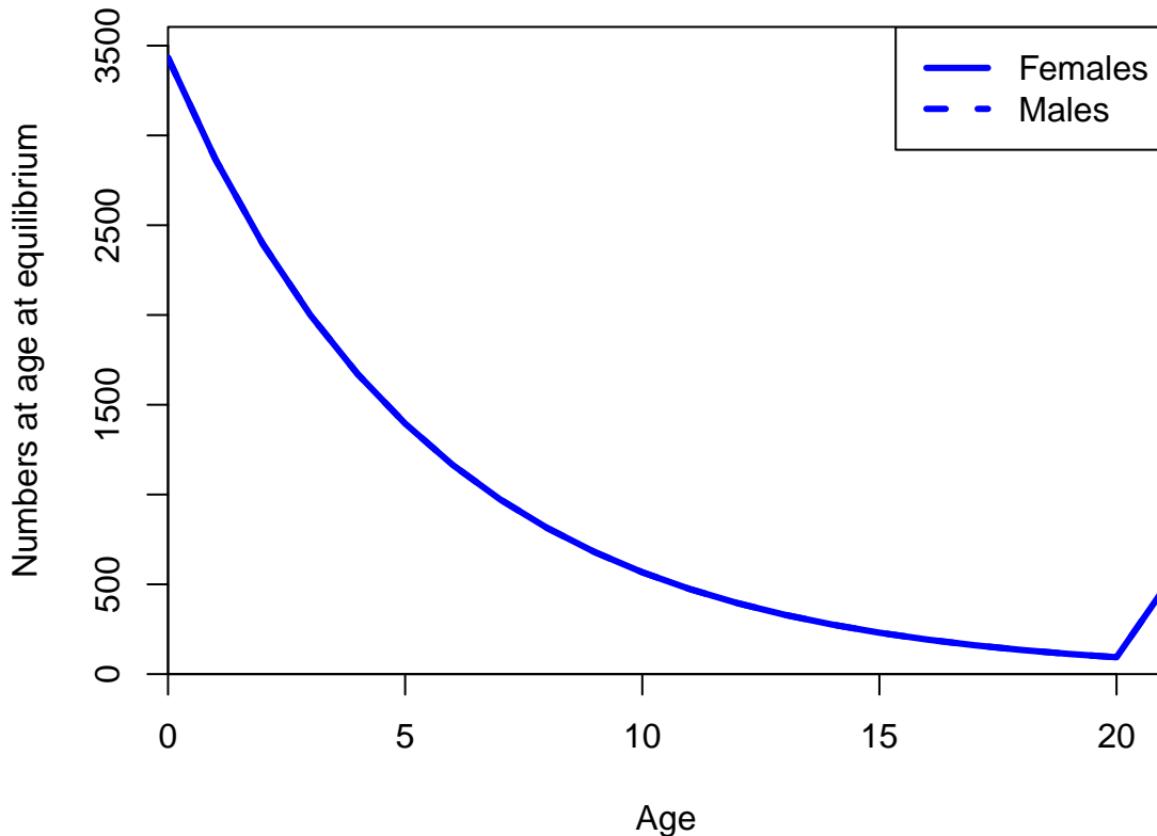
## Middle of year mean length (cm) in the population



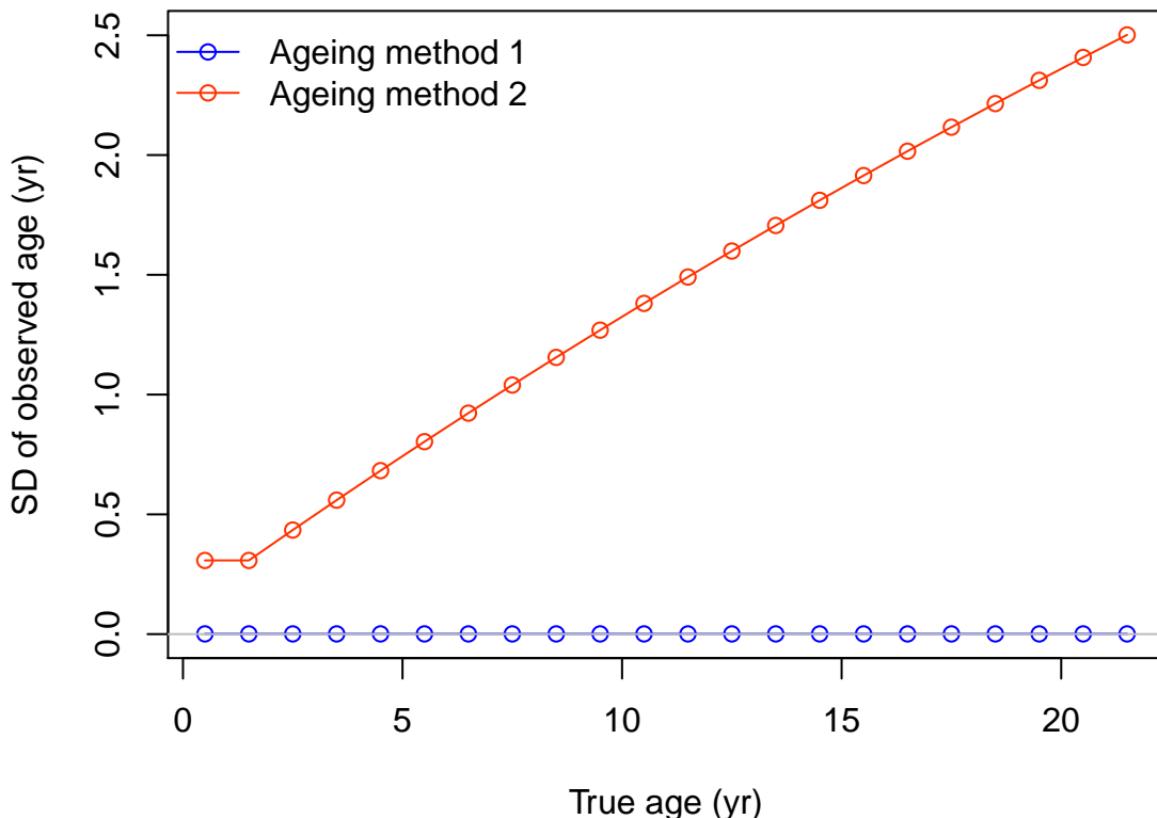
## Fraction female in numbers at length



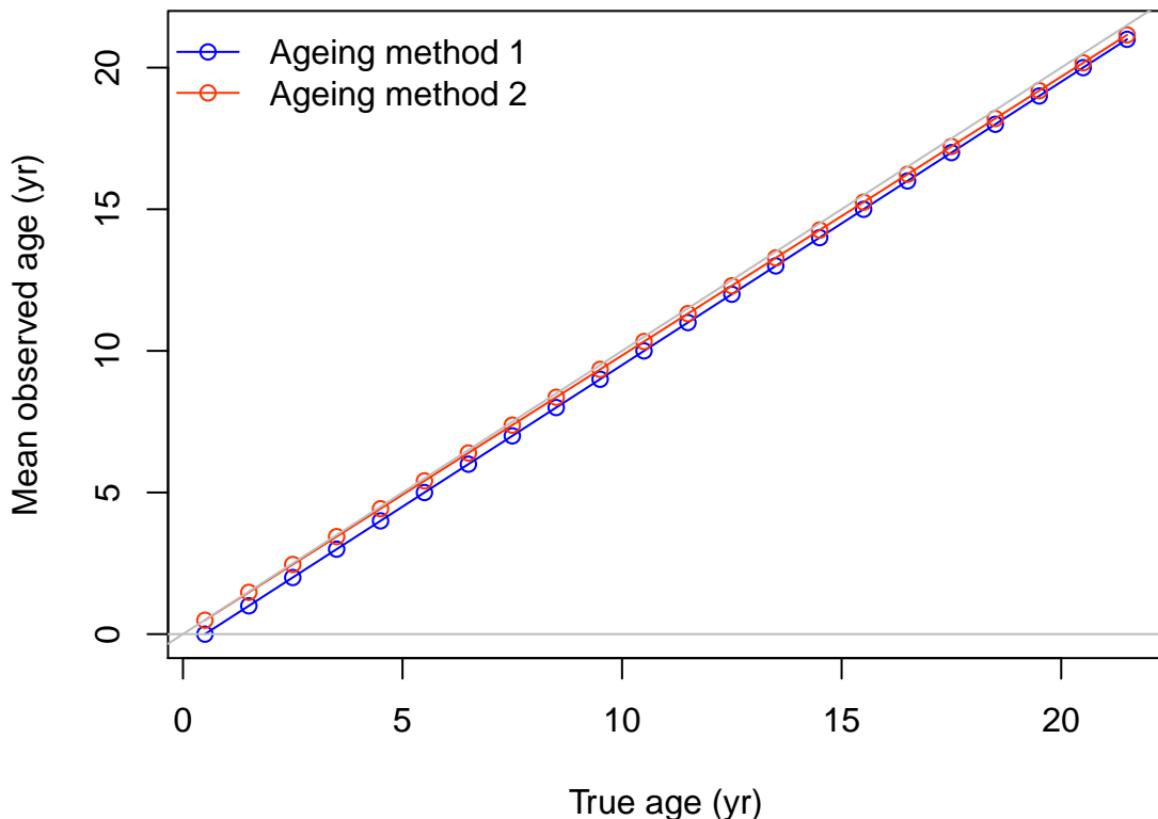
## Equilibrium age distribution



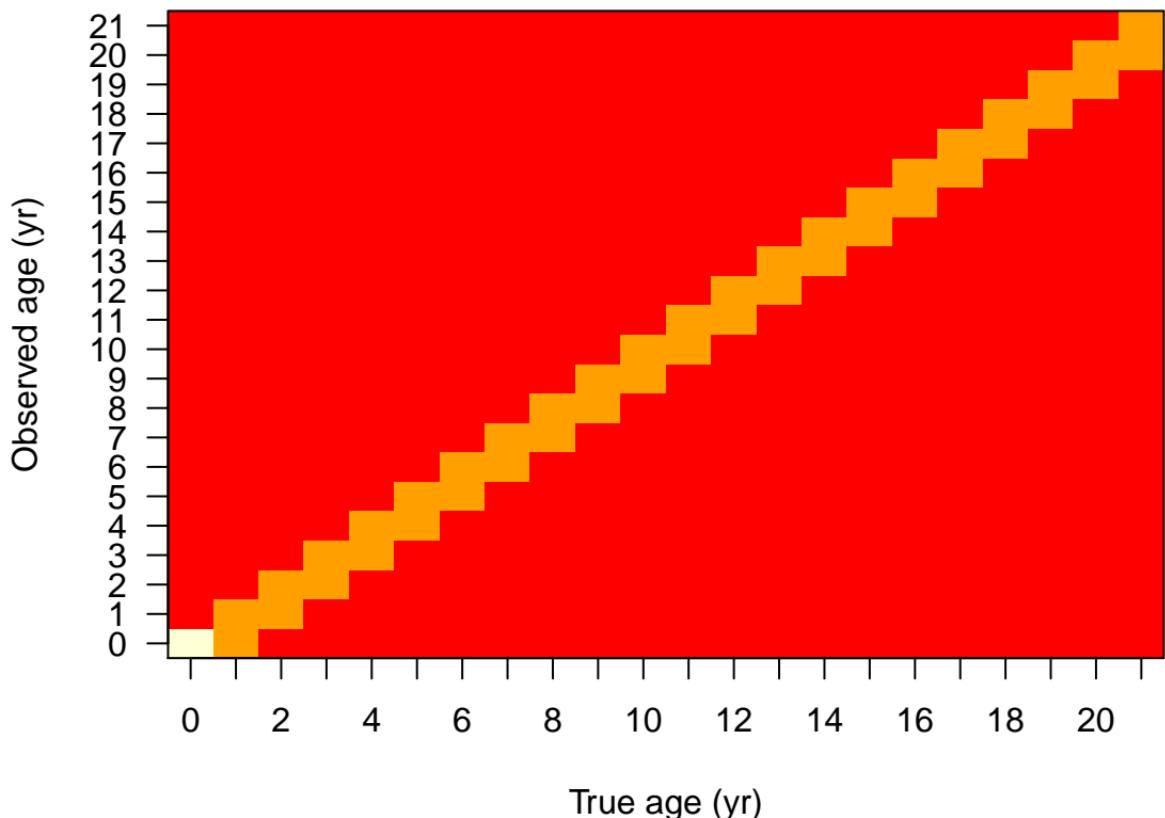
## Ageing imprecision



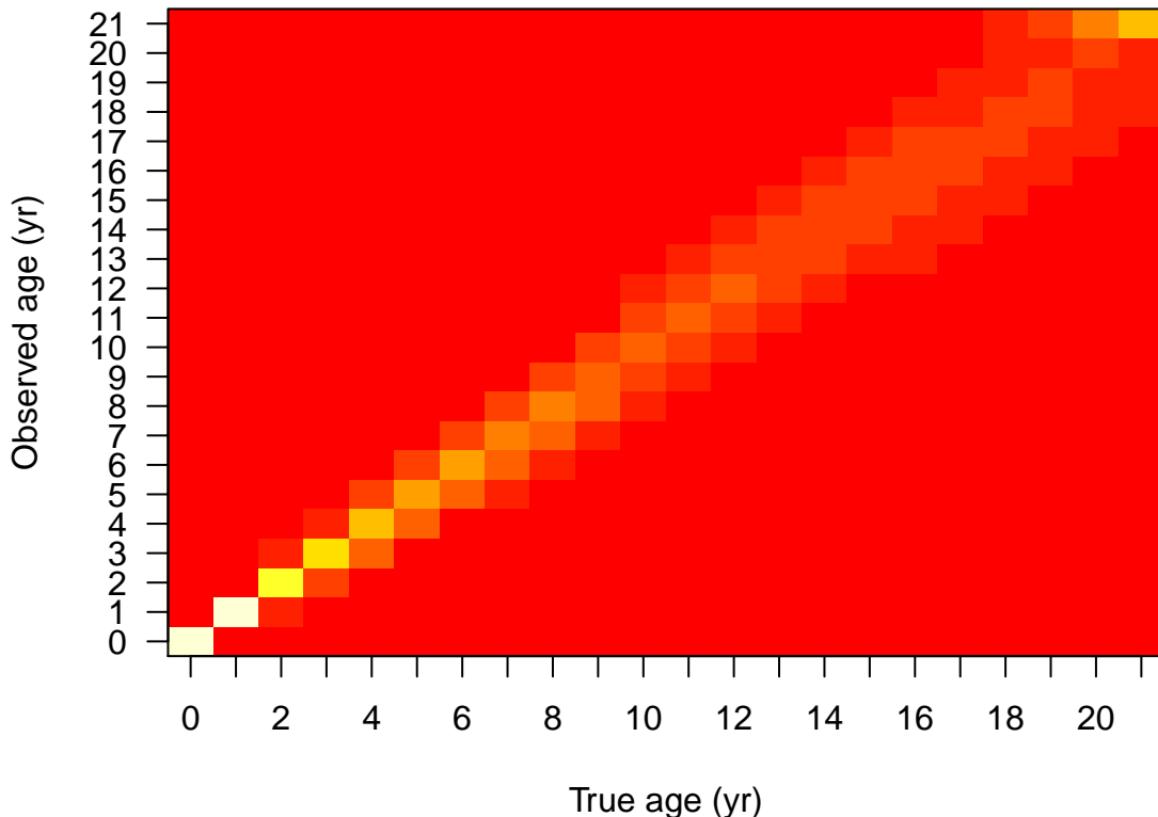
## Ageing imprecision



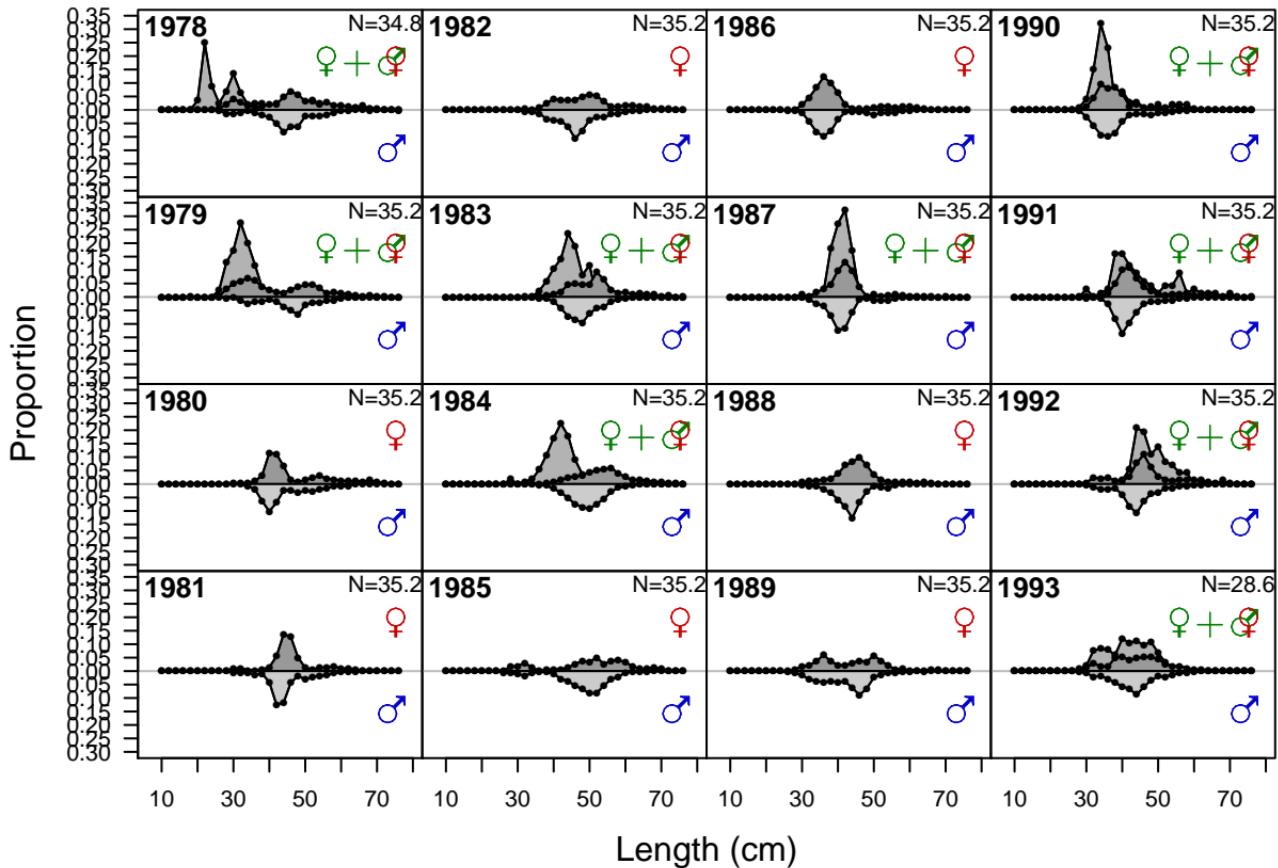
## Ageing imprecision: matrix for method 1



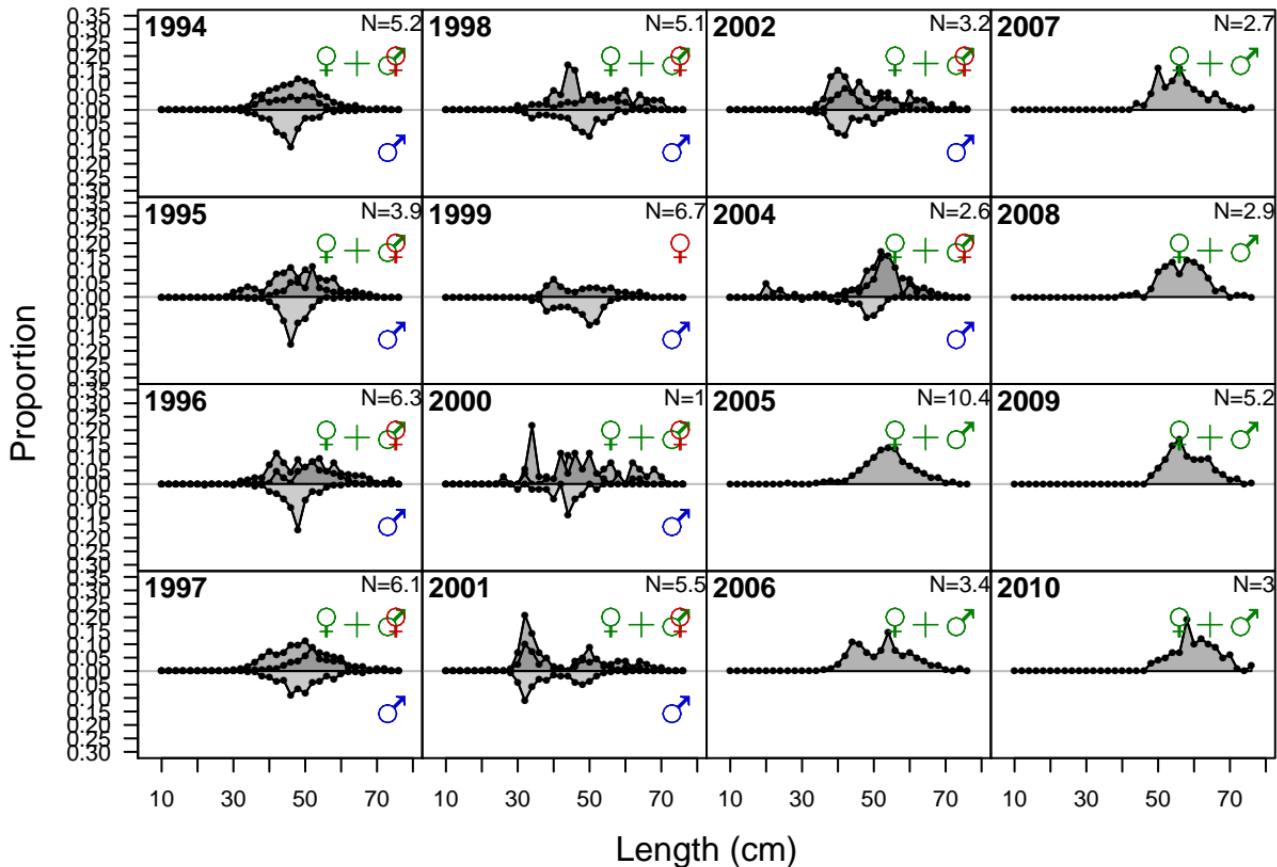
## Ageing imprecision: matrix for method 2



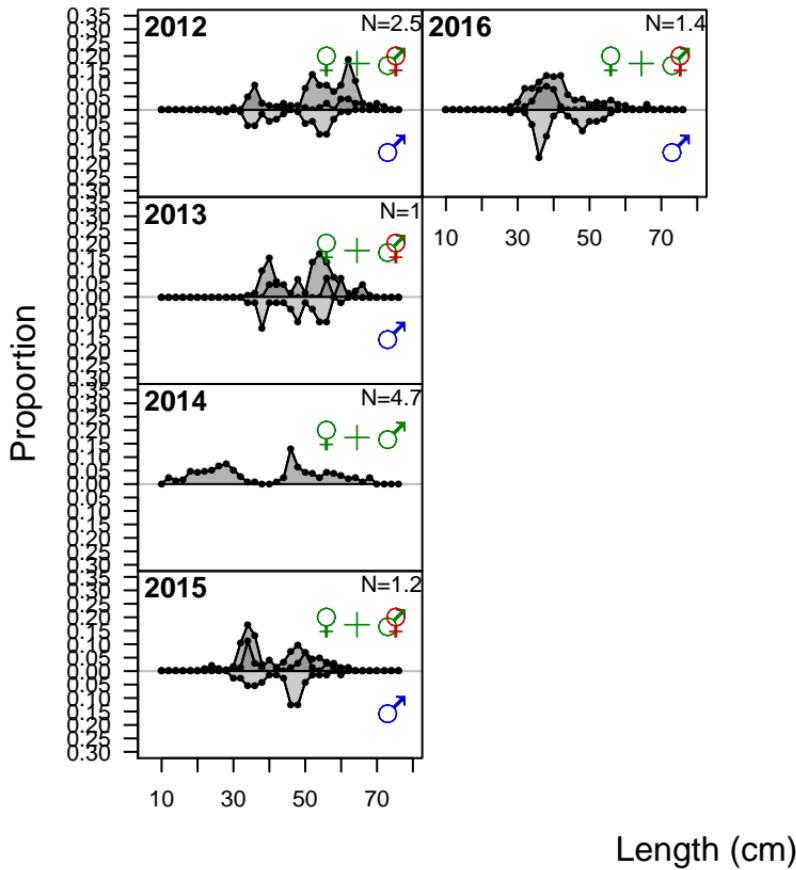
## length comp data, whole catch, TrawlSouth



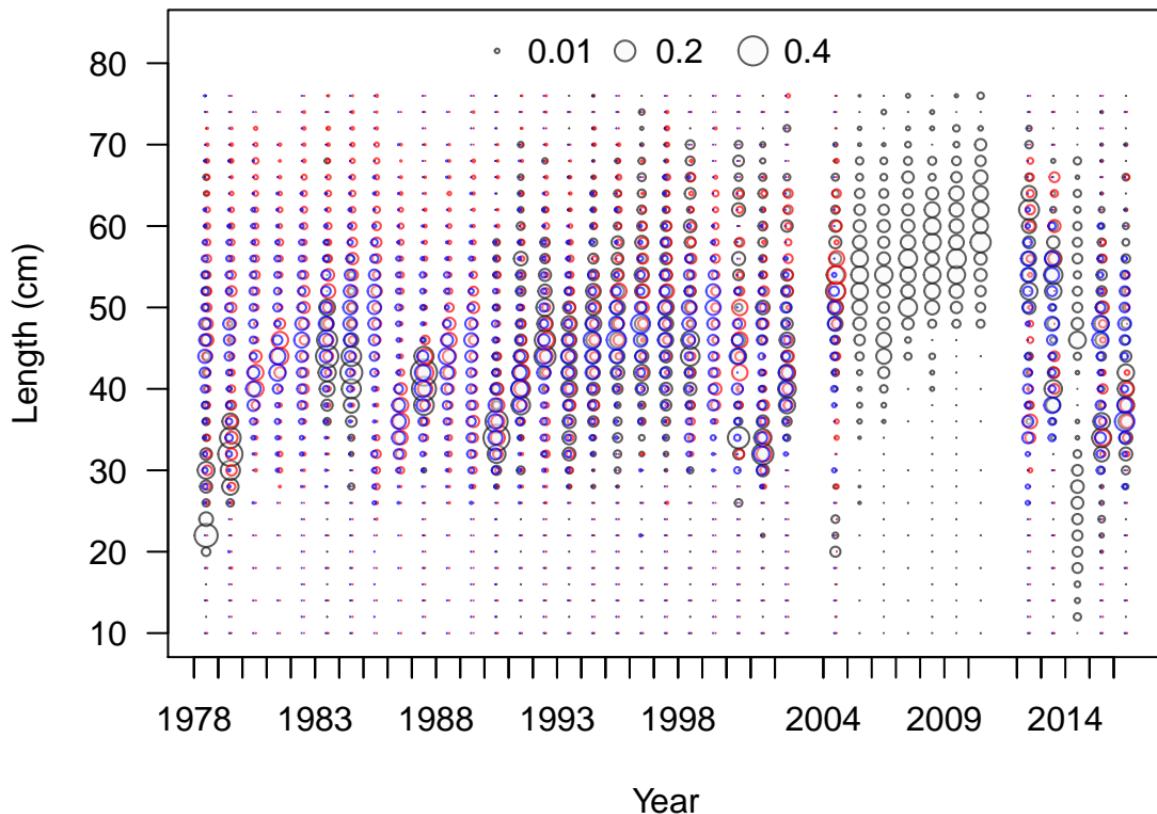
## length comp data, whole catch, TrawlSouth



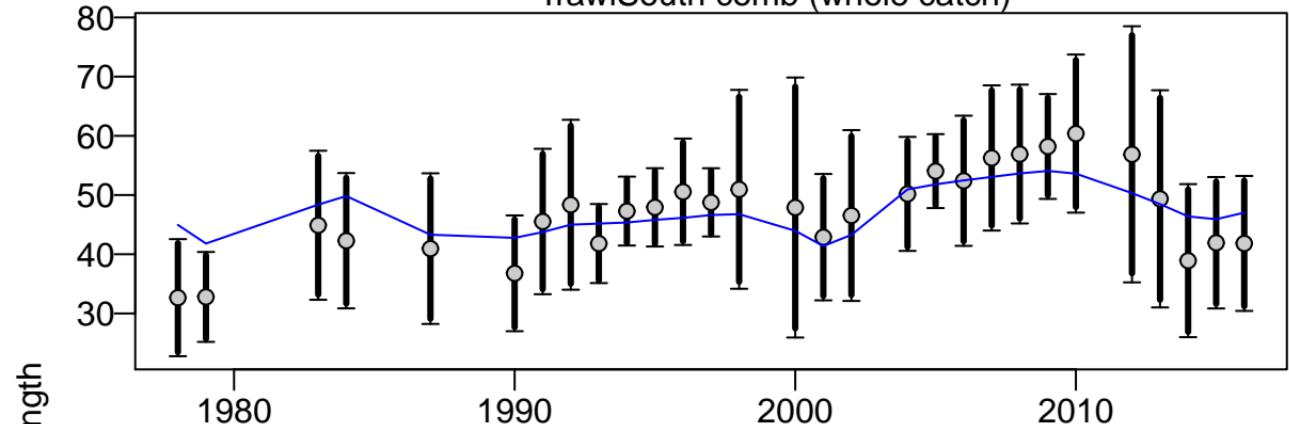
## length comp data, whole catch, TrawlSouth



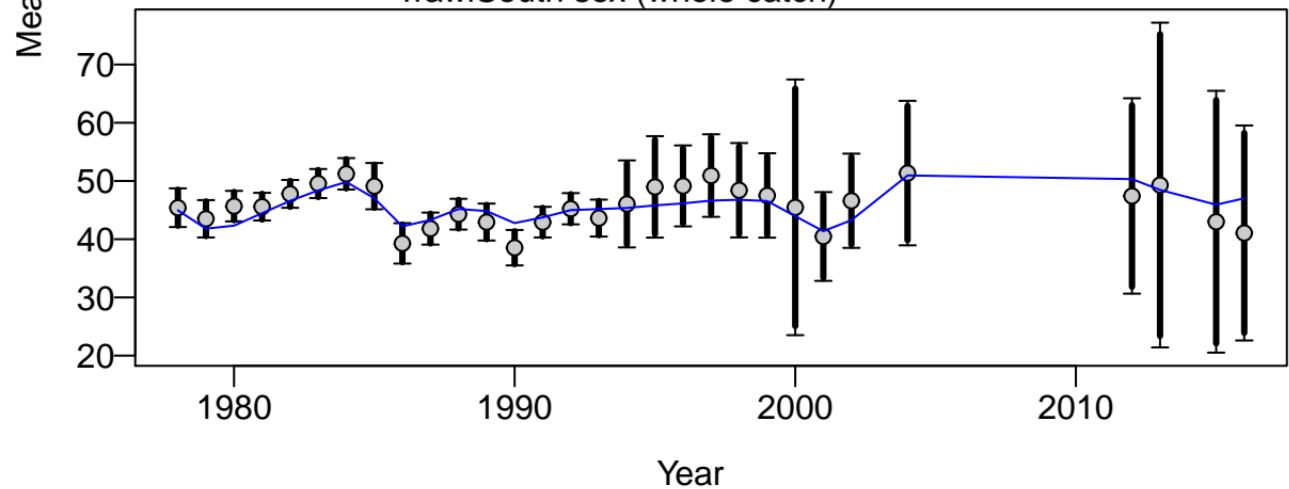
### length comp data, whole catch, TrawlSouth (max=0.32)



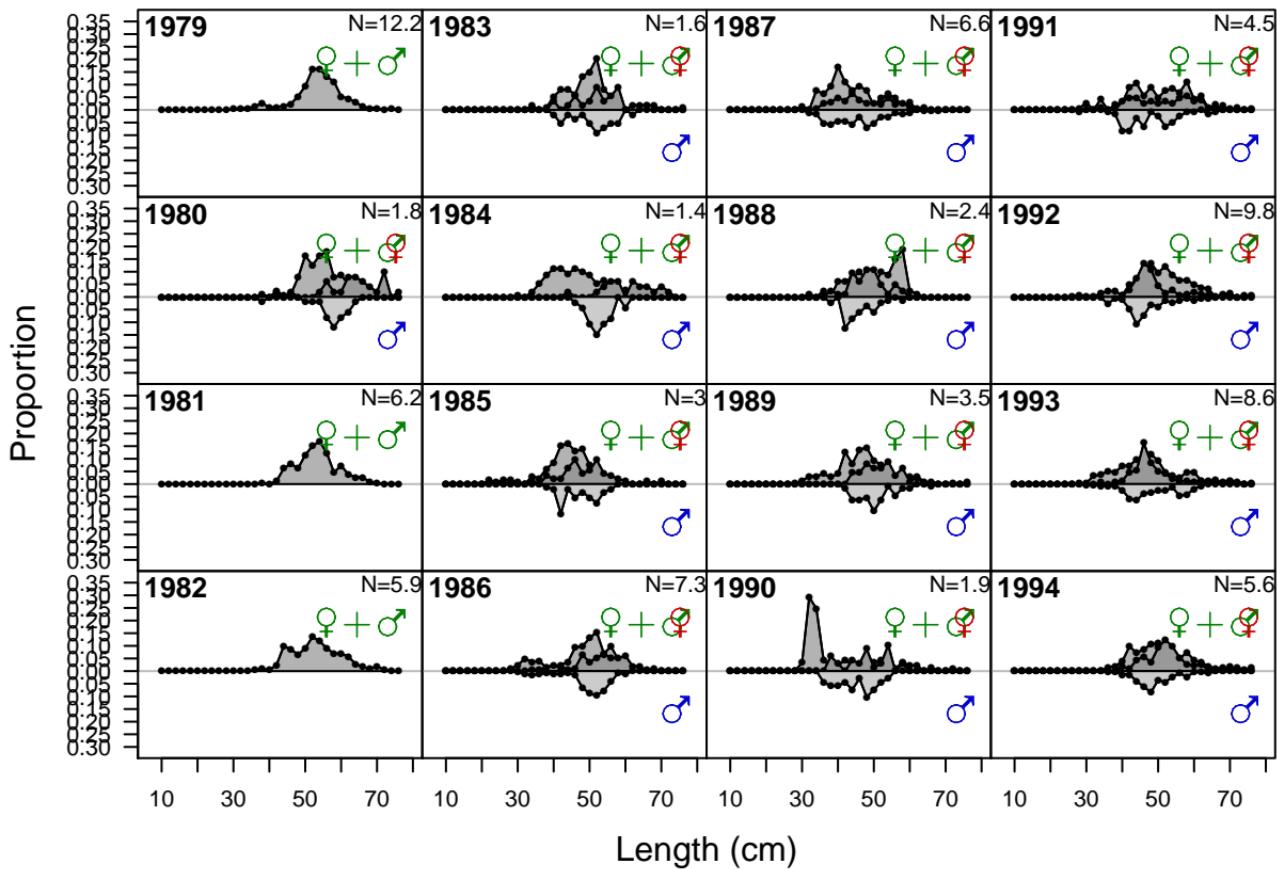
TrawlSouth comb (whole catch)



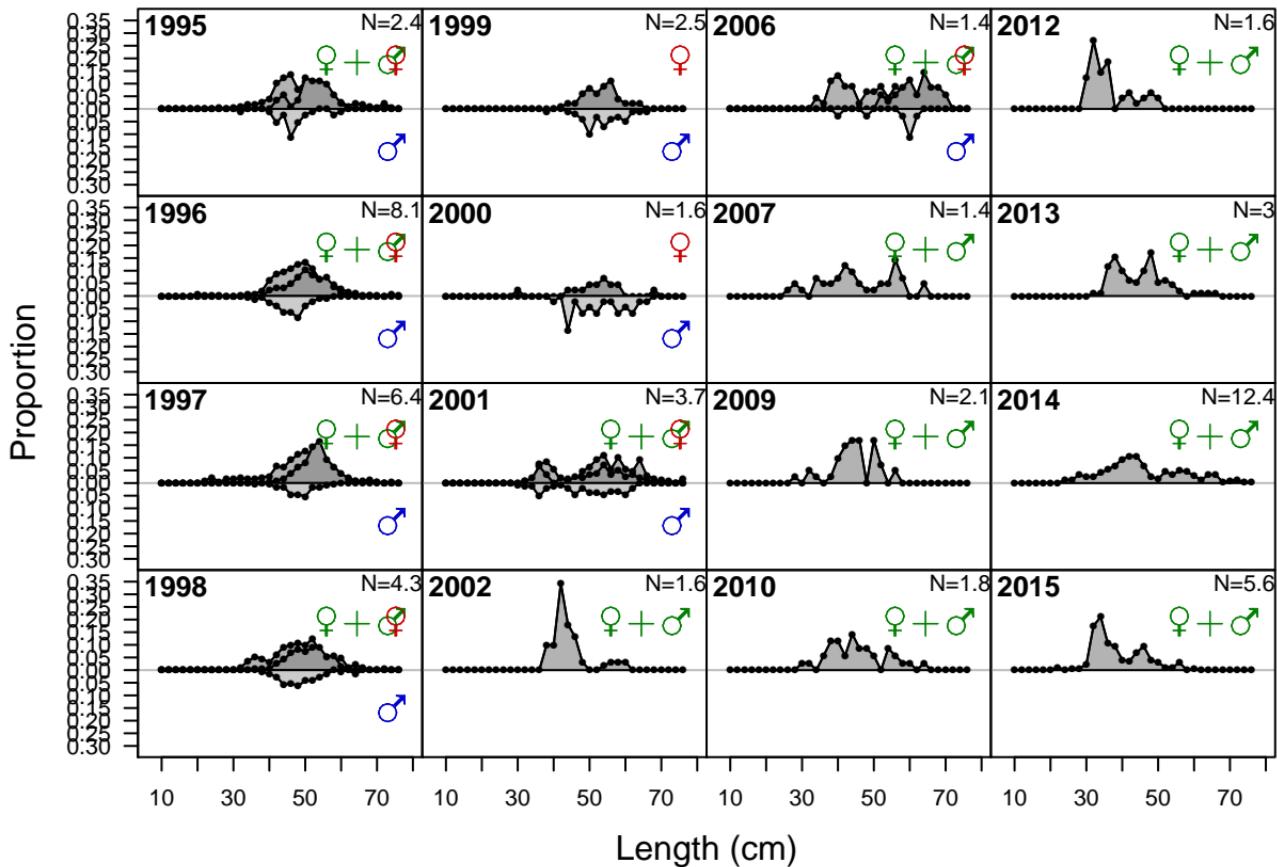
TrawlSouth sex (whole catch)



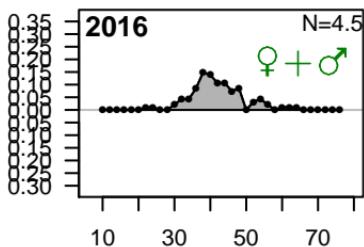
## length comp data, whole catch, HL



## length comp data, whole catch, HL

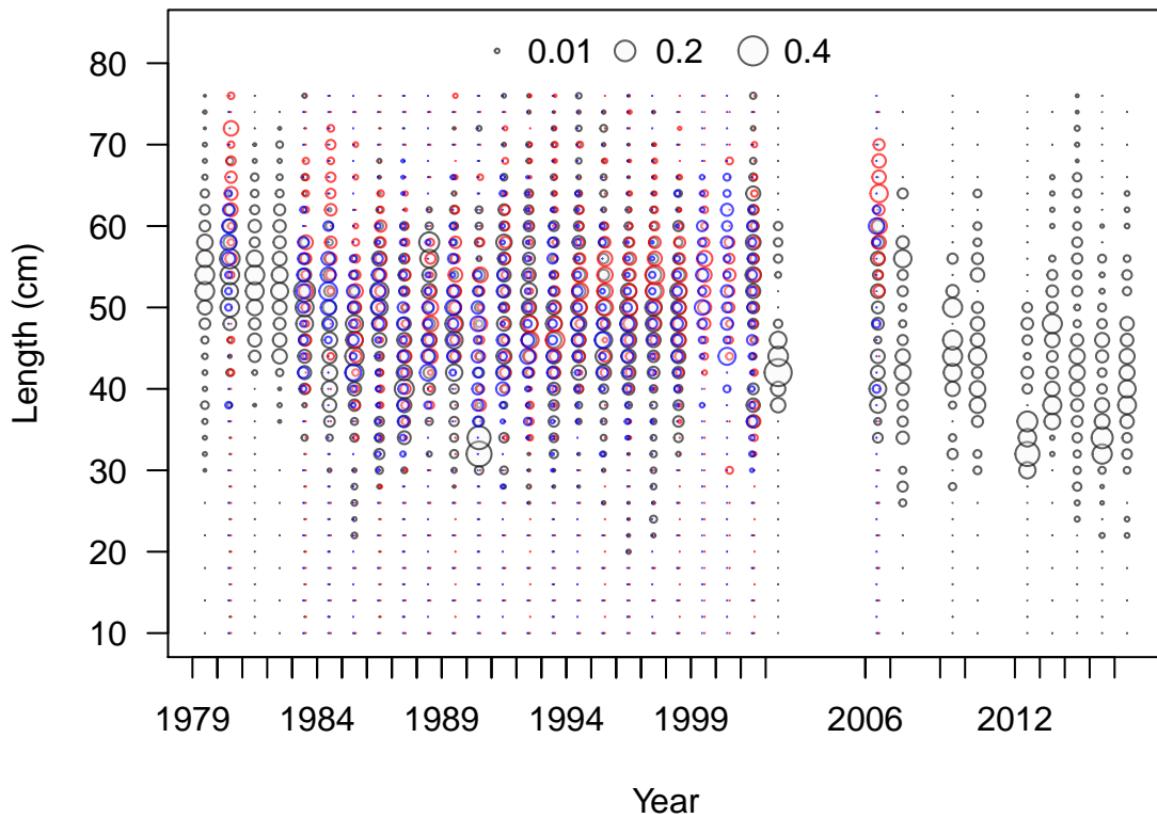


## length comp data, whole catch, HL

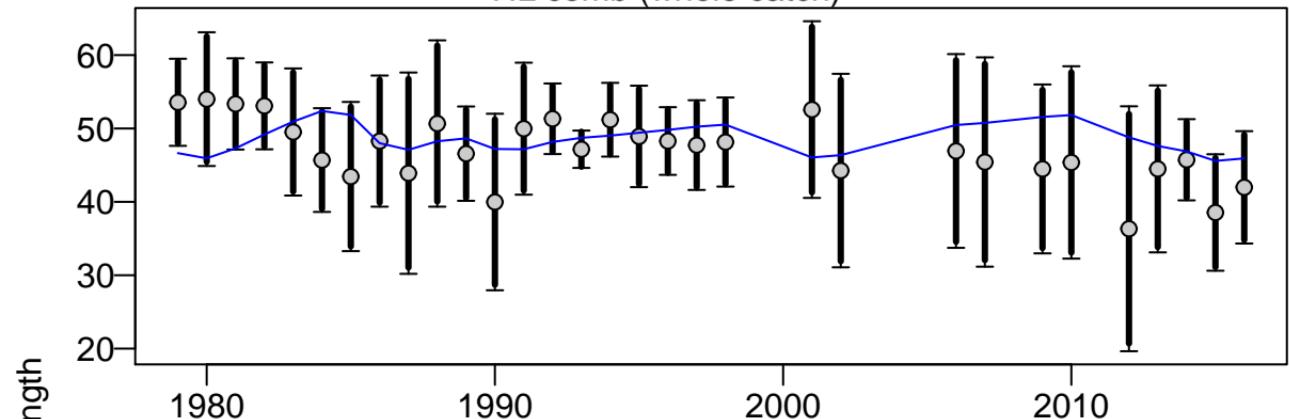


Length (cm)

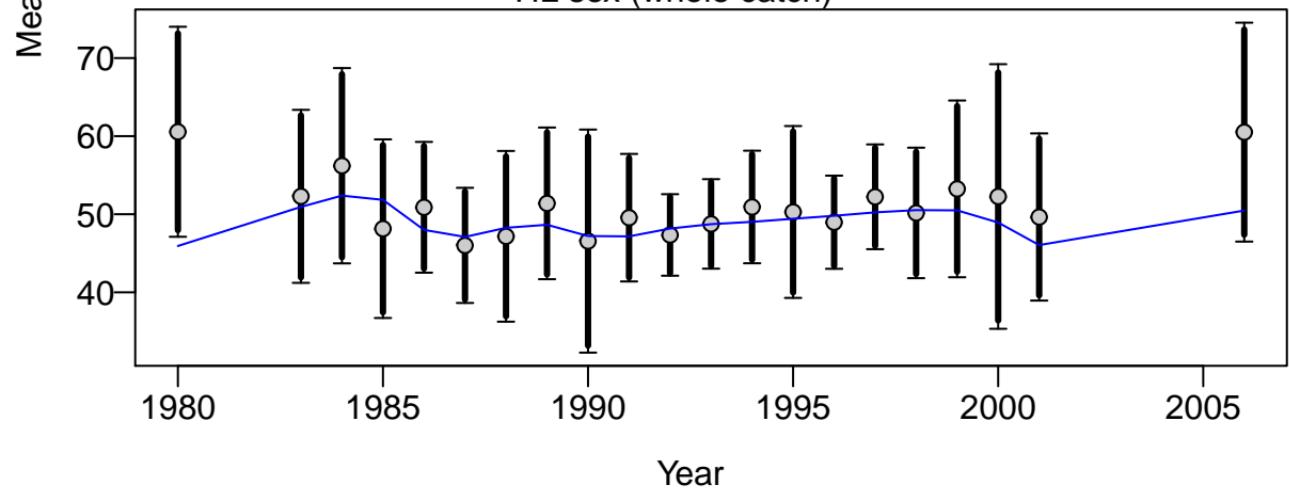
### length comp data, whole catch, HL (max=0.34)



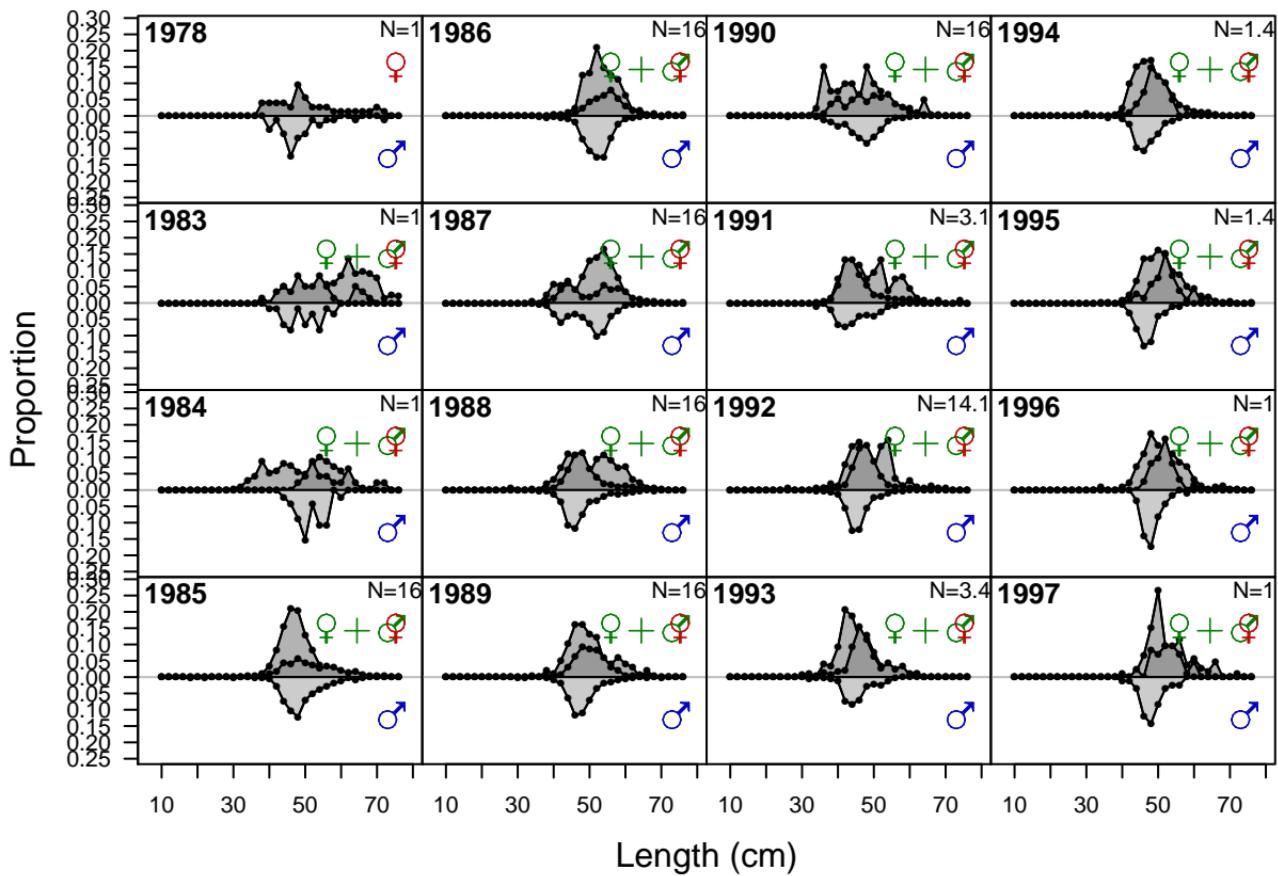
HL comb (whole catch)



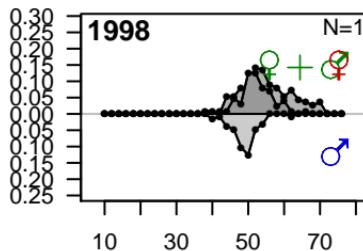
HL sex (whole catch)



## length comp data, whole catch, Setnet

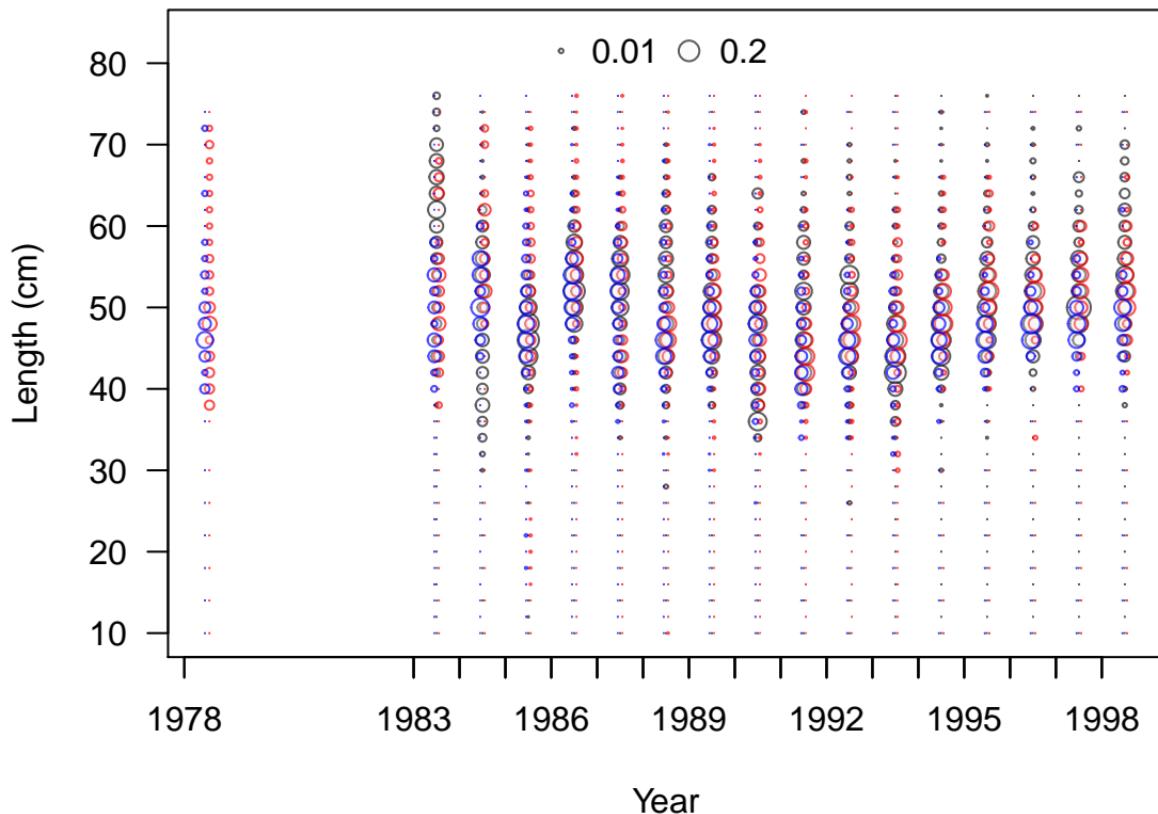


## length comp data, whole catch, Setnet

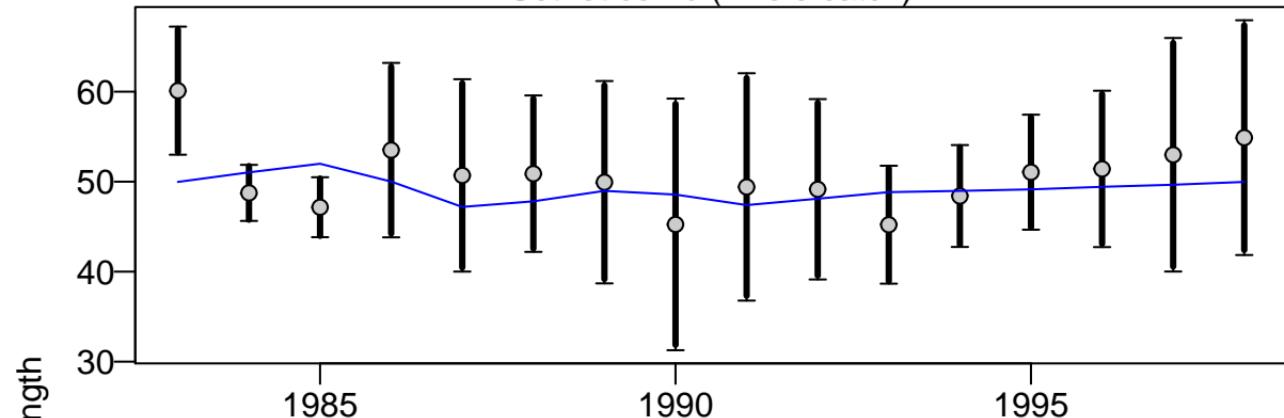


Length (cm)

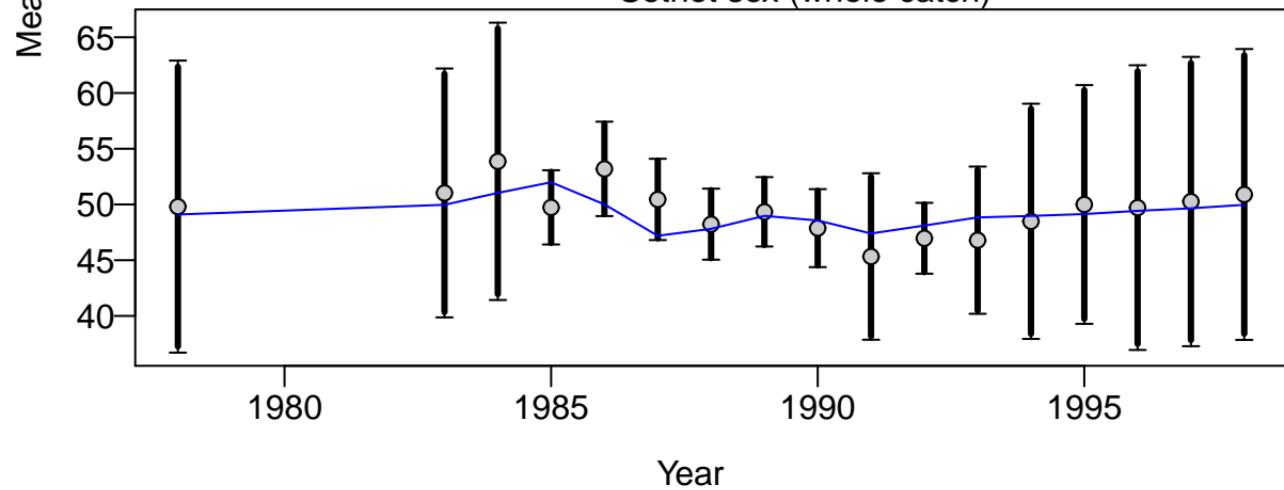
## length comp data, whole catch, Setnet (max=0.27)



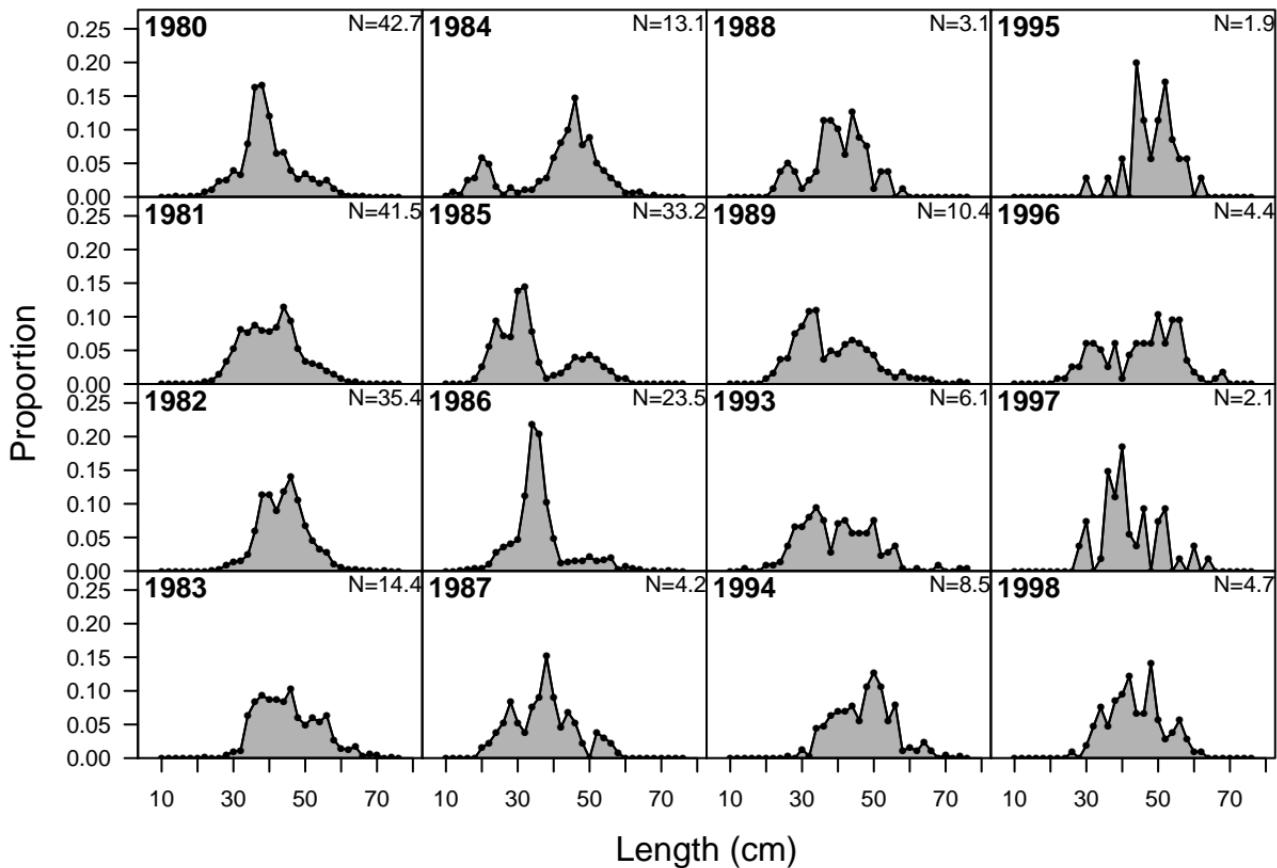
### Setnet comb (whole catch)



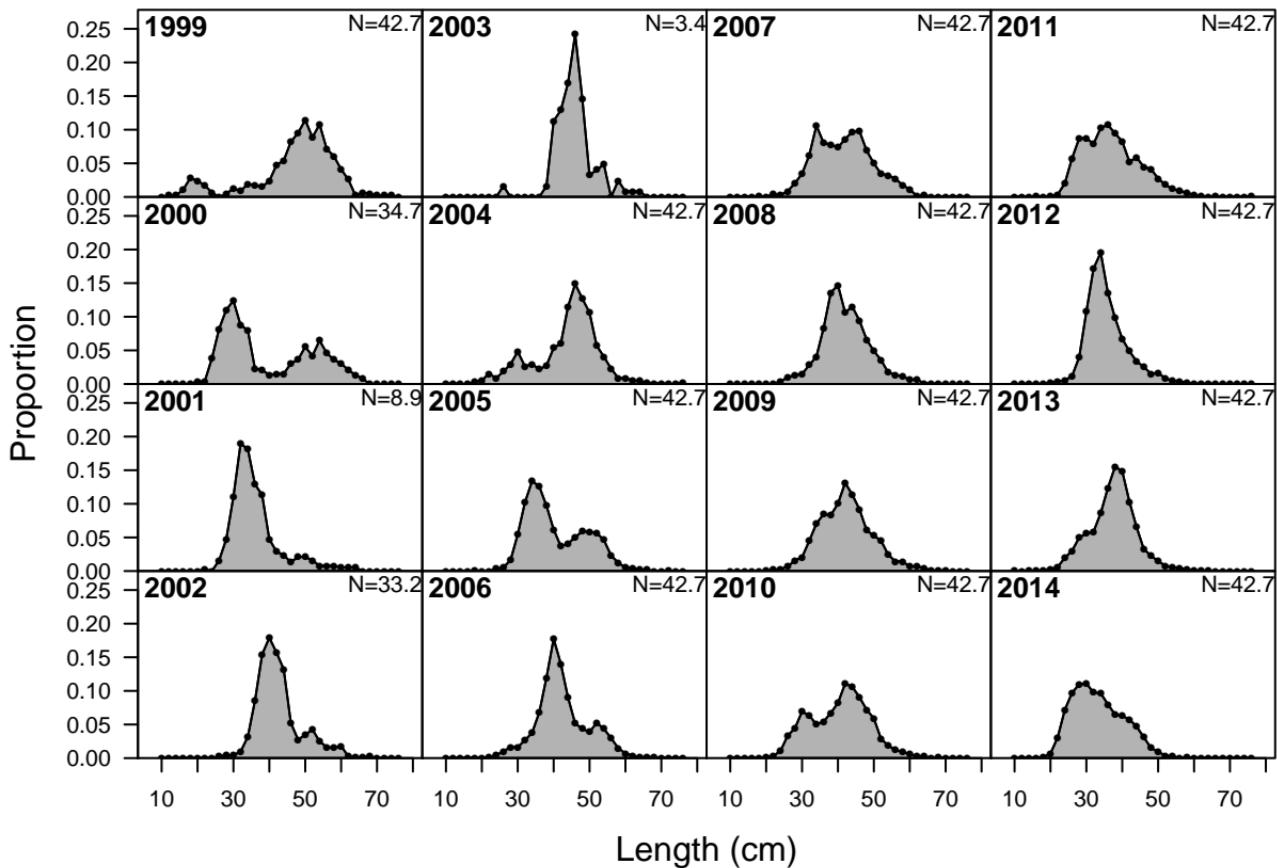
### Setnet sex (whole catch)



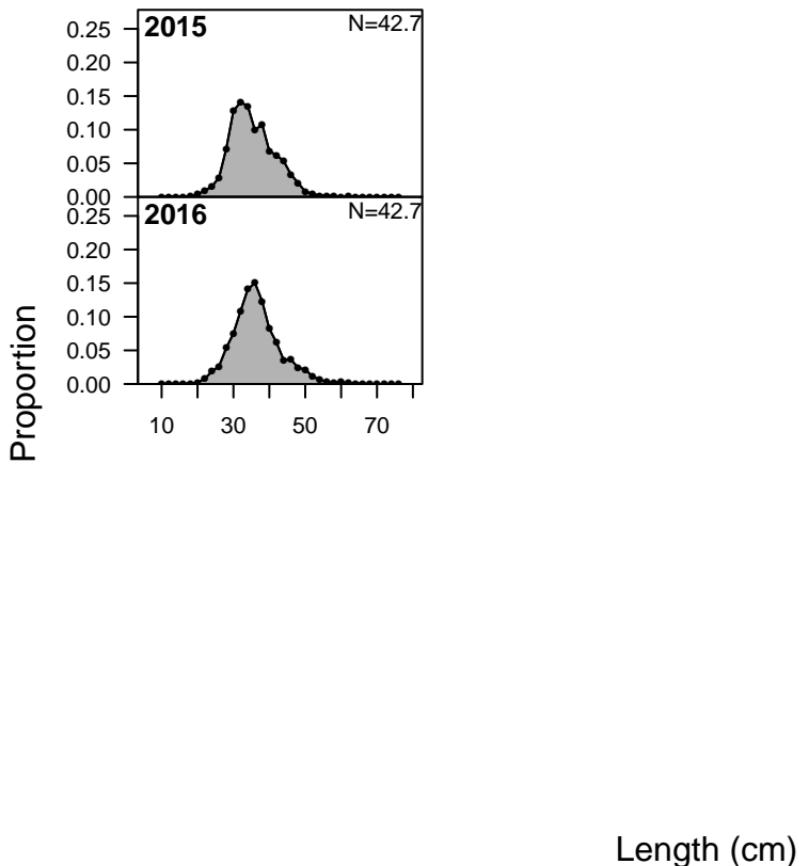
## length comp data, whole catch, RecSouth



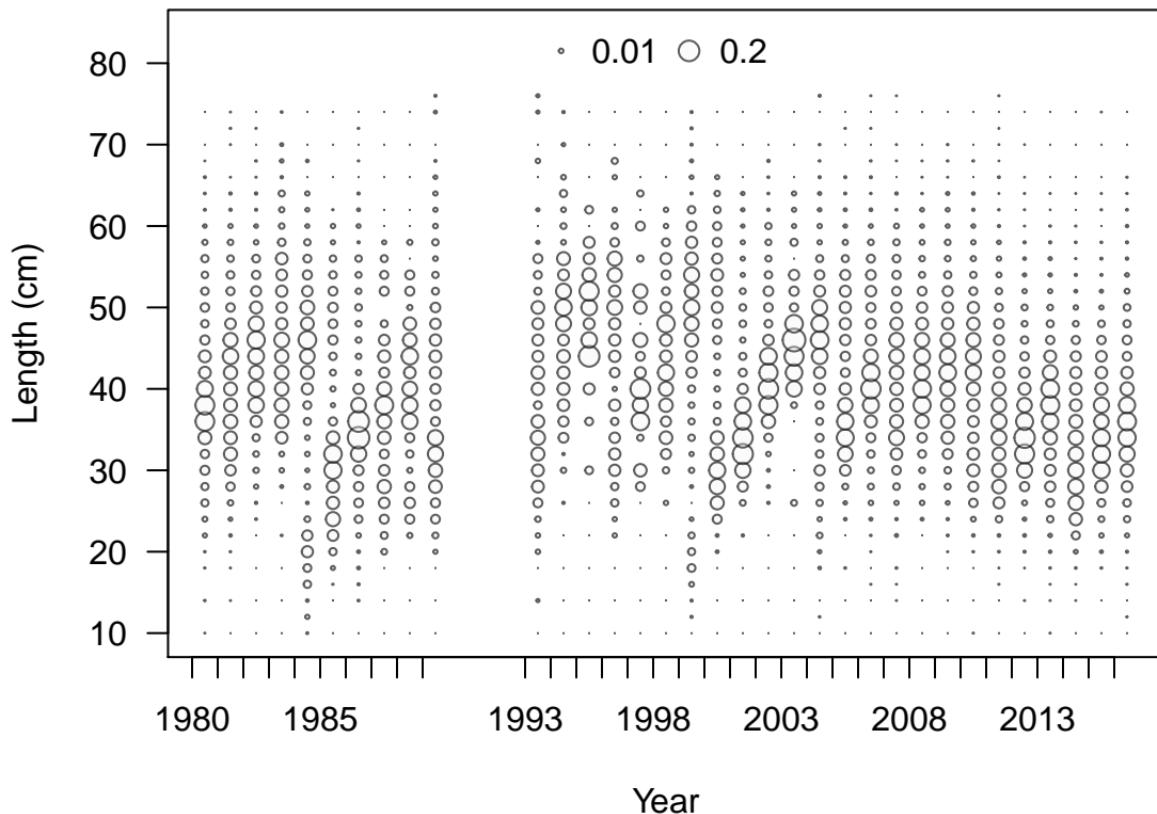
## length comp data, whole catch, RecSouth



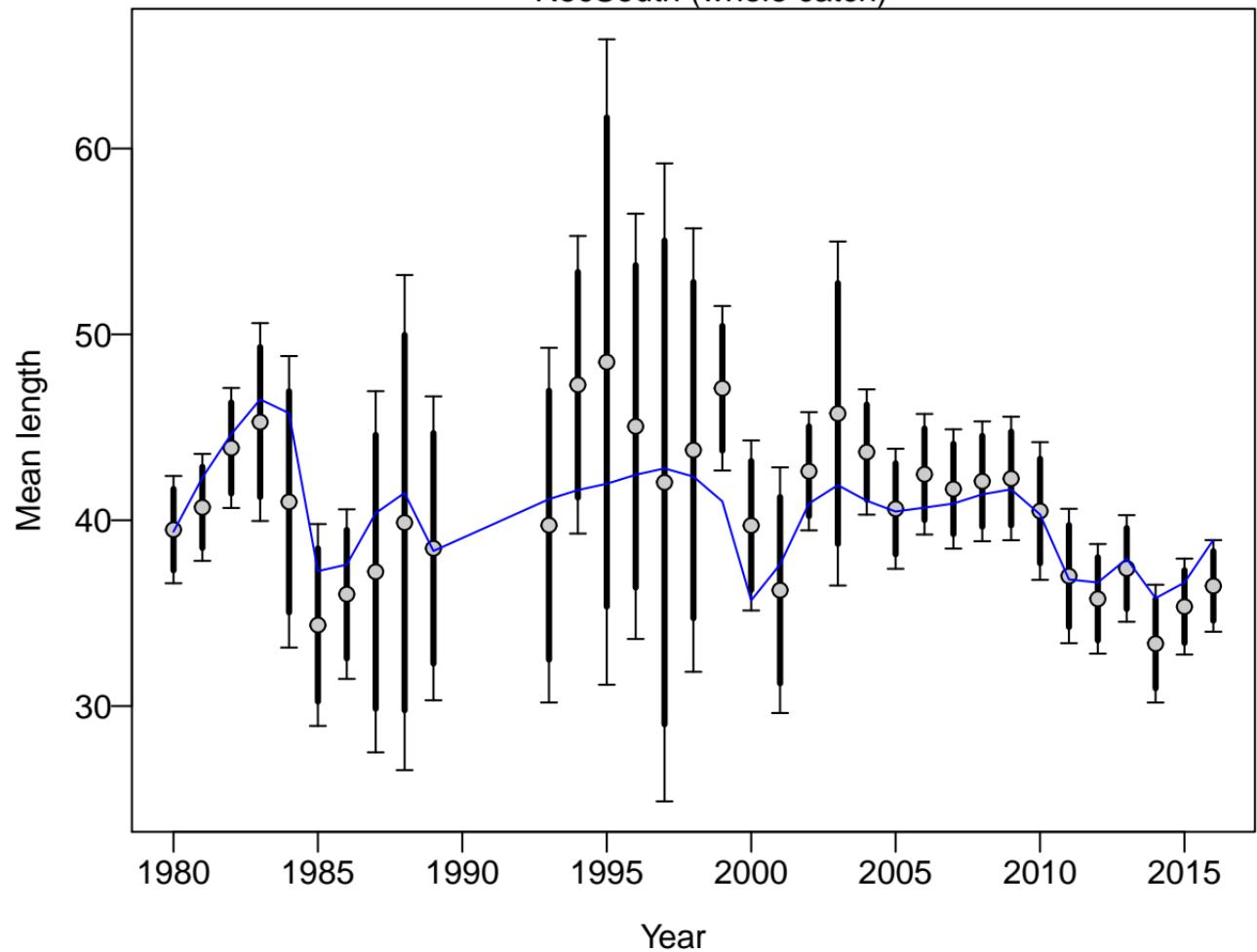
## length comp data, whole catch, RecSouth



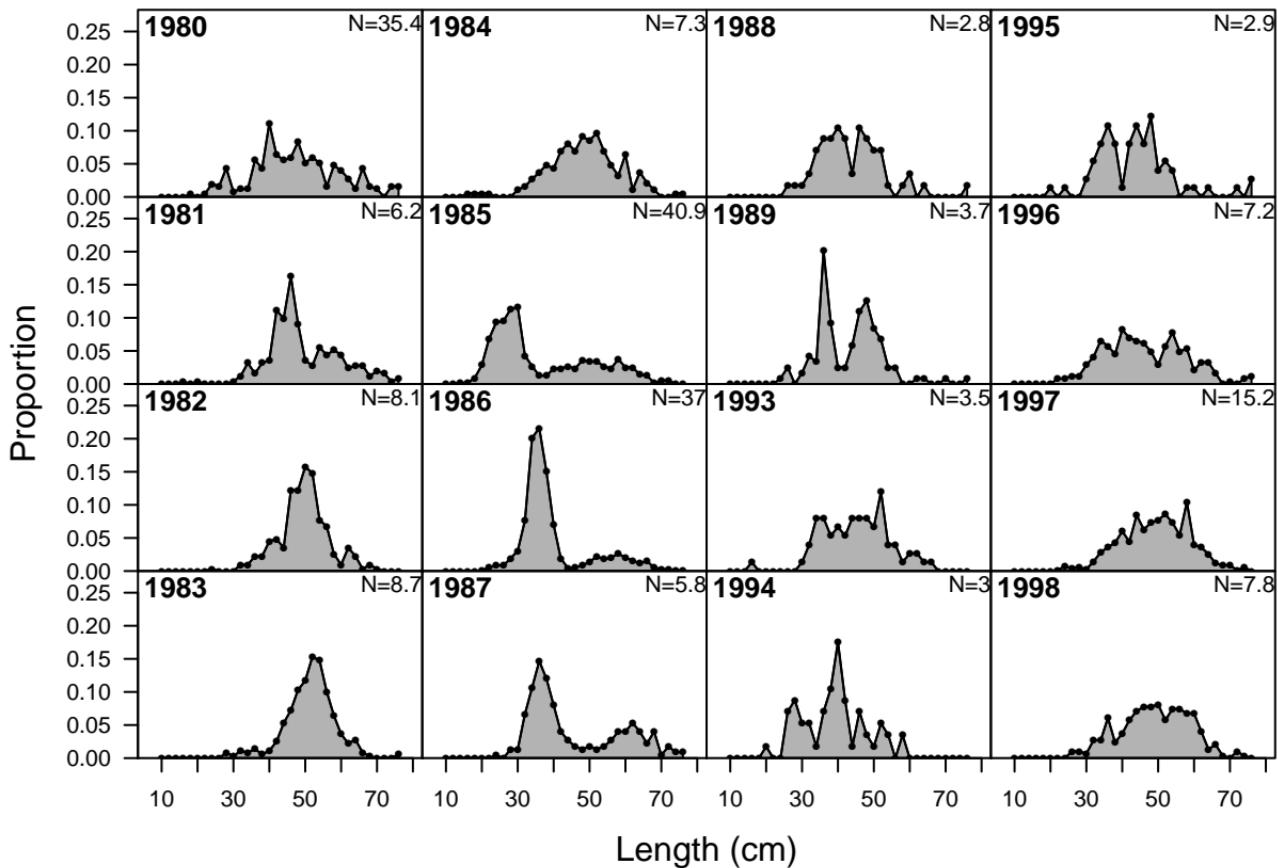
### length comp data, whole catch, RecSouth (max=0.24)



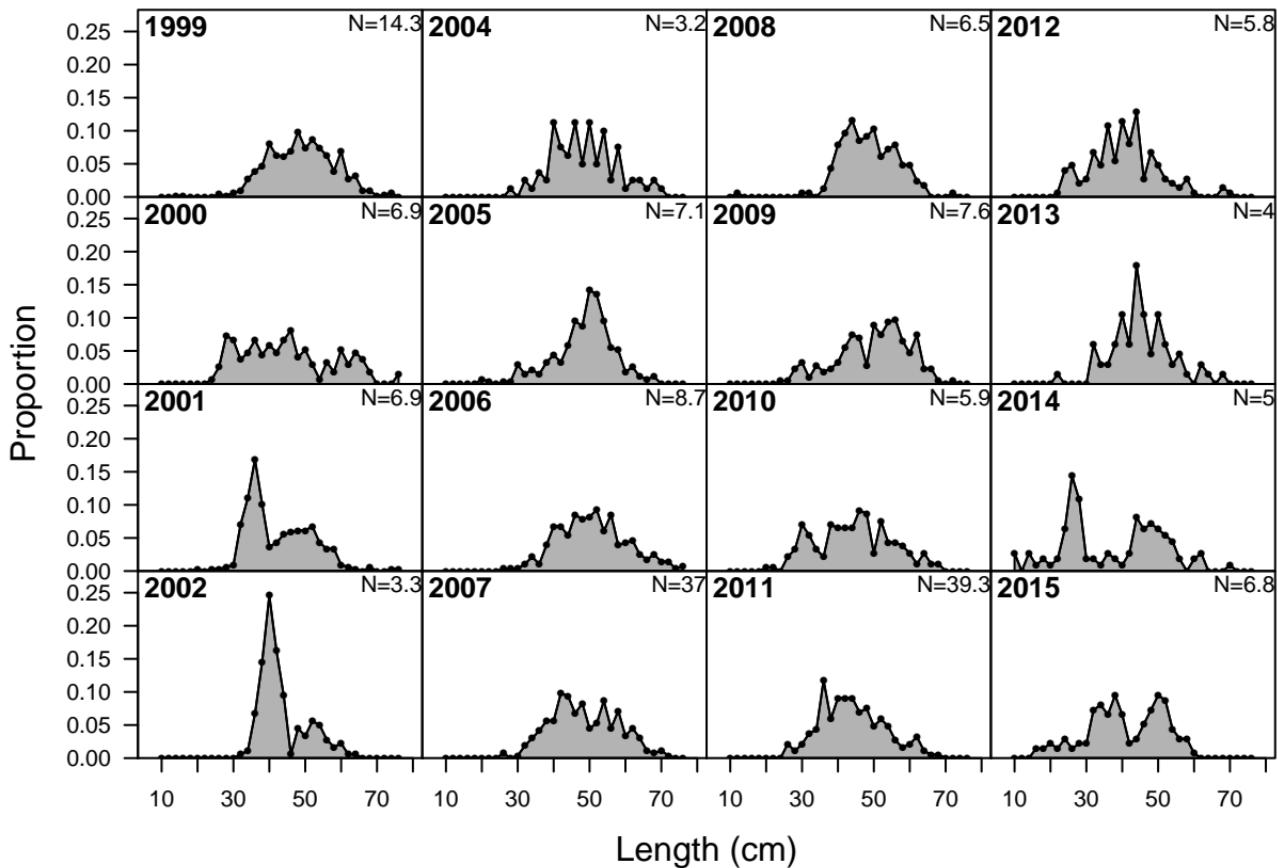
# RecSouth (whole catch)



## length comp data, whole catch, RecCentral

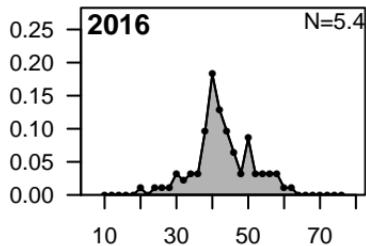


## length comp data, whole catch, RecCentral



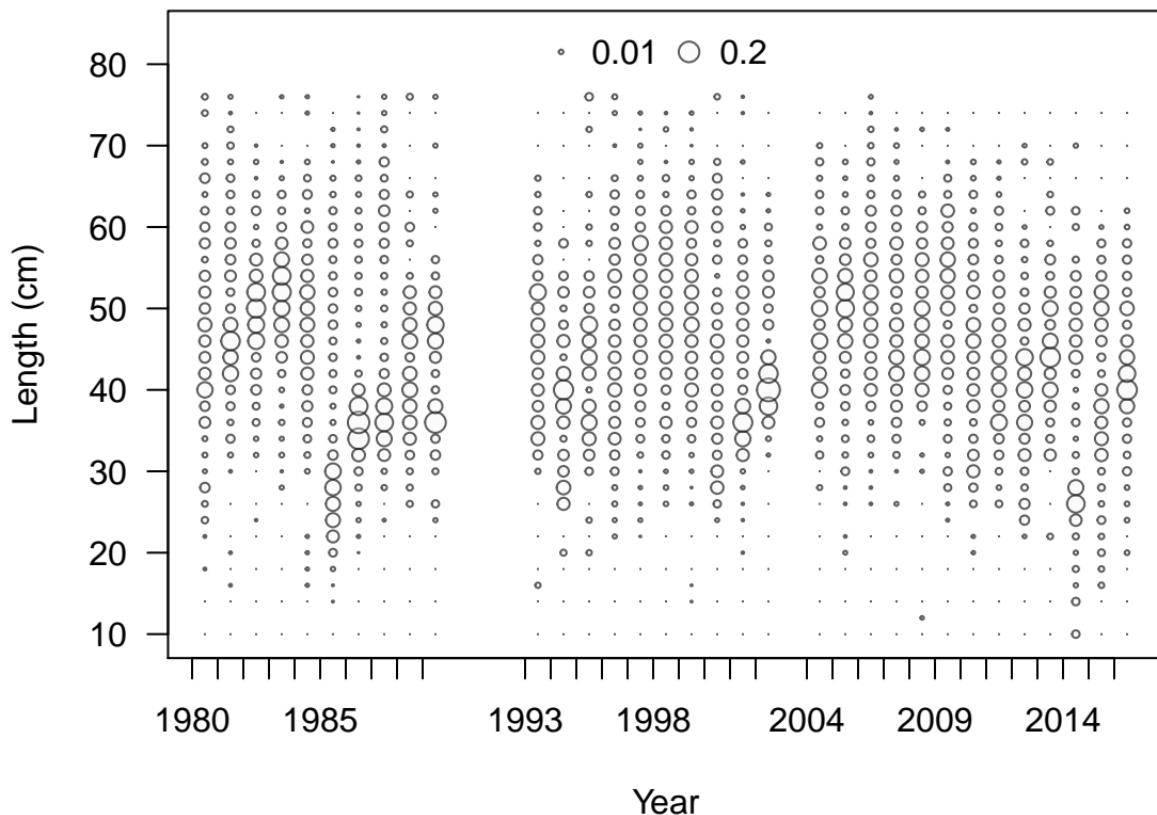
## length comp data, whole catch, RecCentral

Proportion

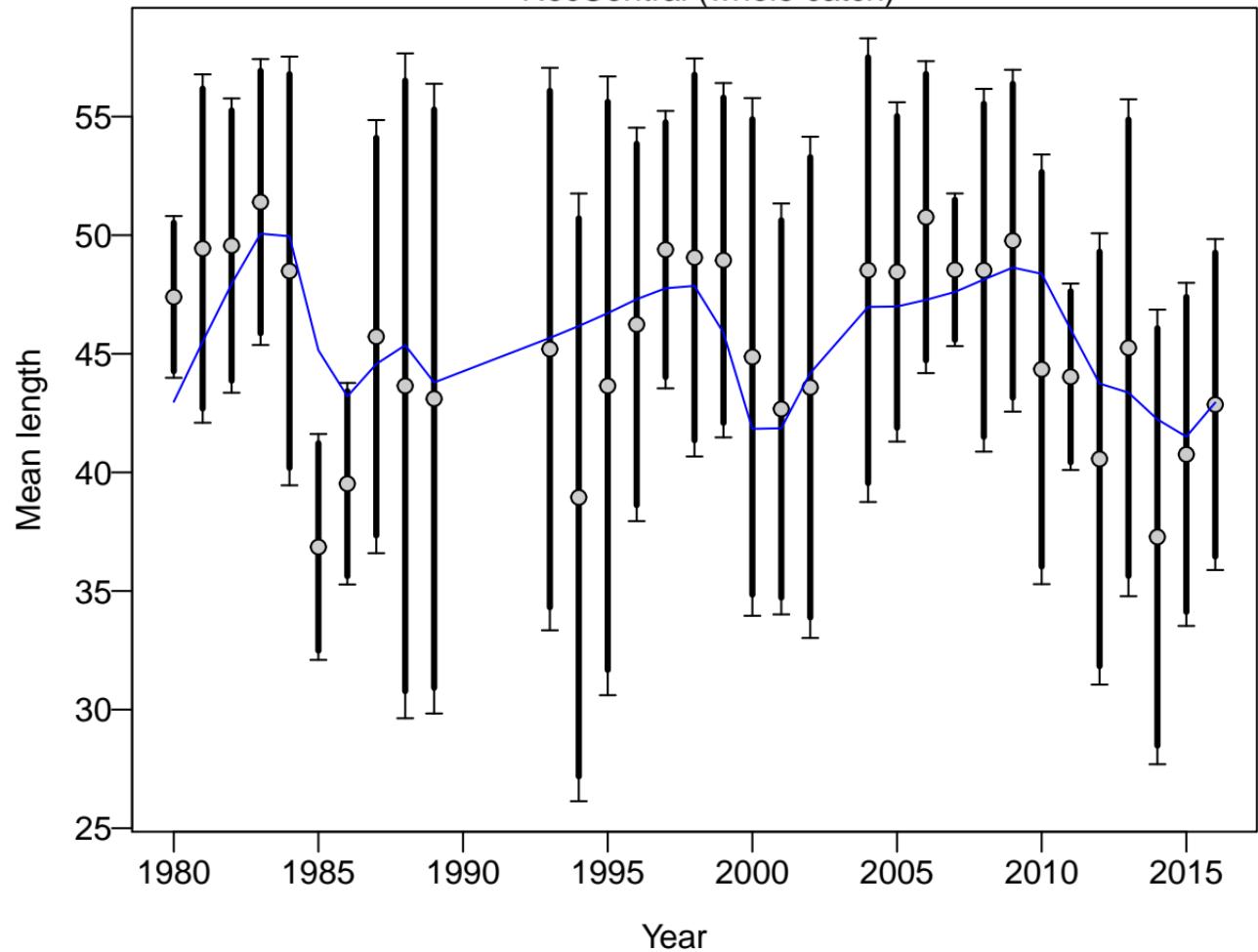


Length (cm)

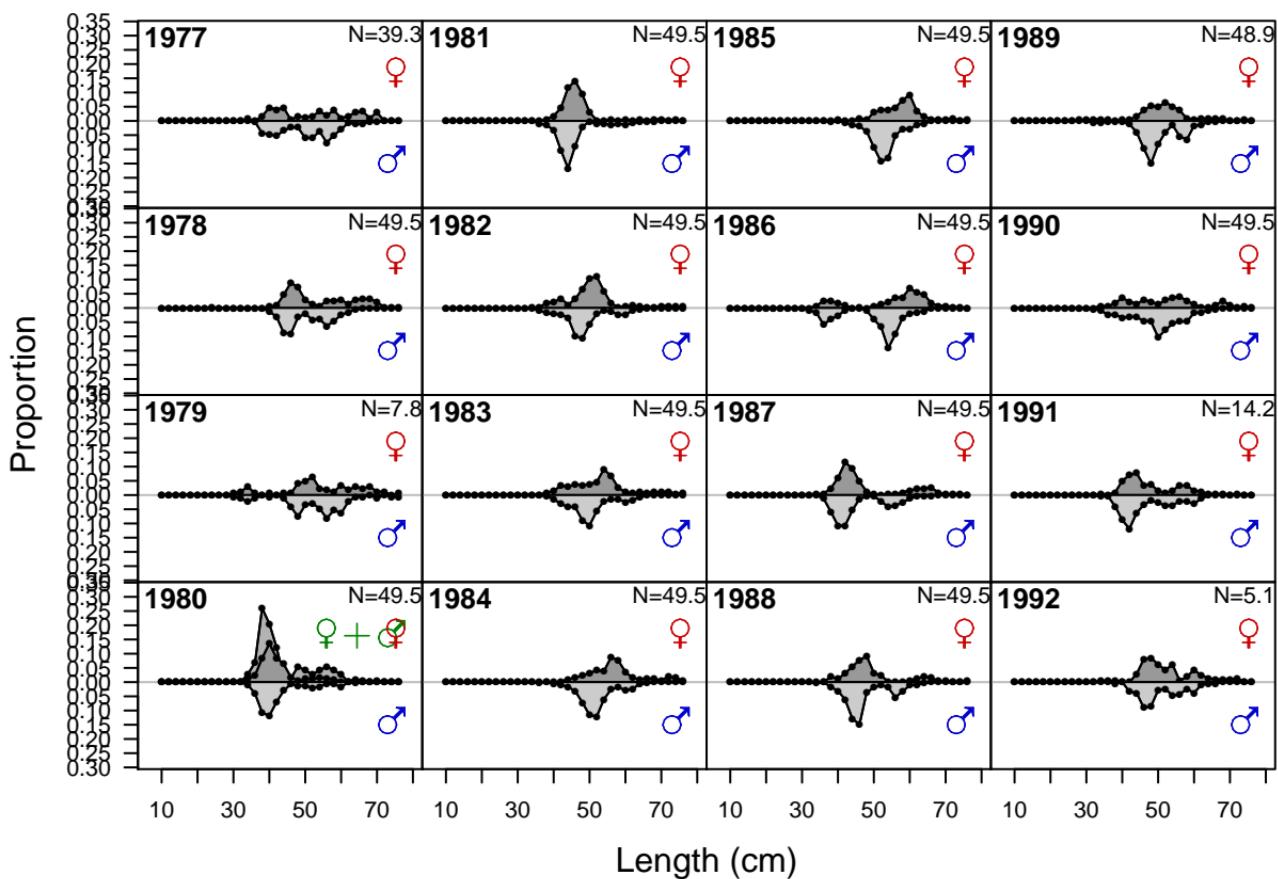
### length comp data, whole catch, RecCentral (max=0.25)



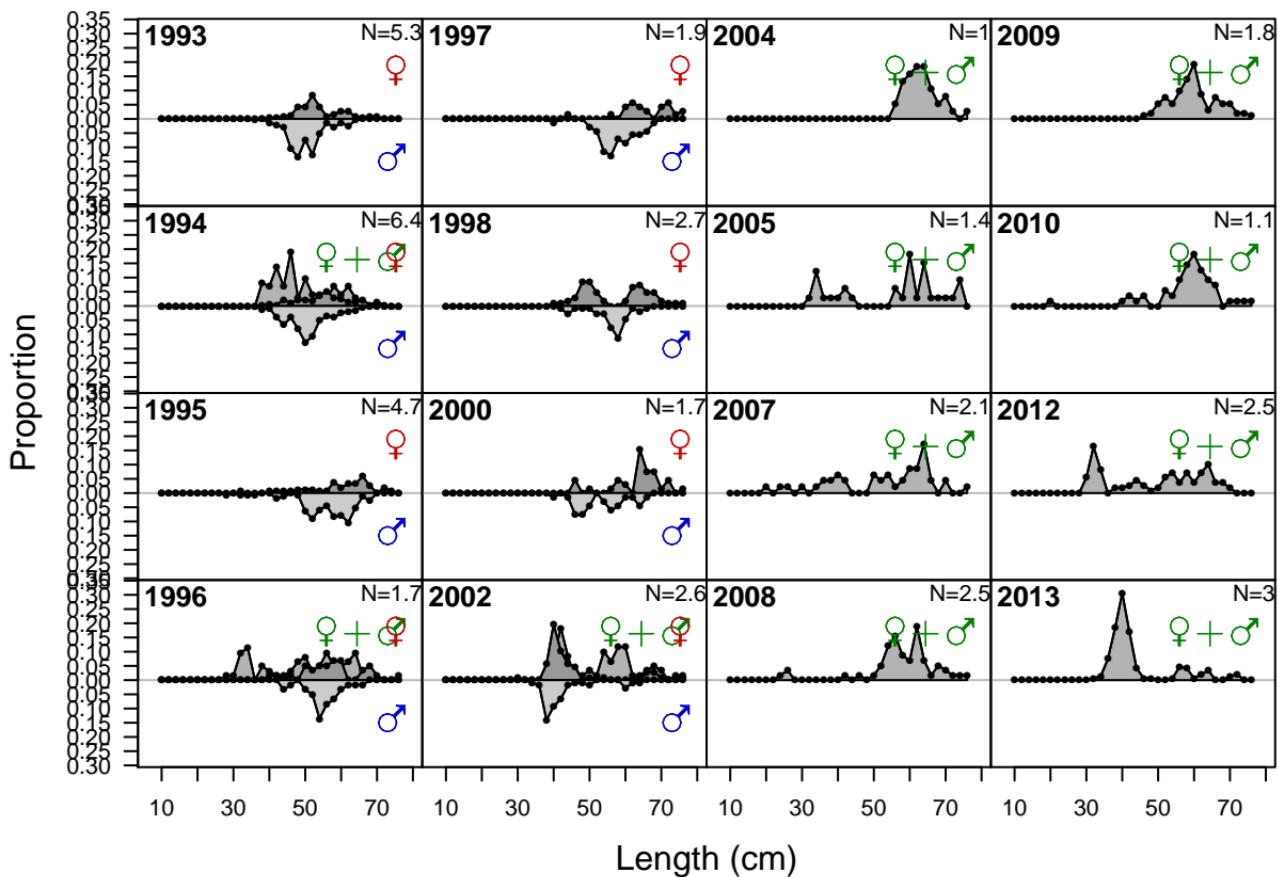
### RecCentral (whole catch)



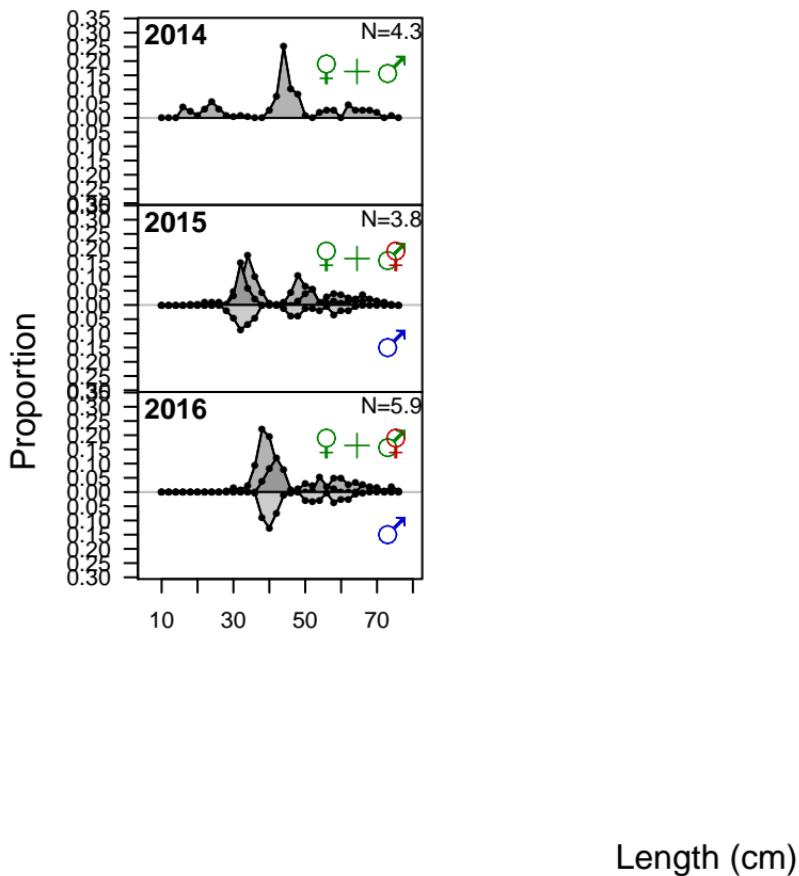
## length comp data, whole catch, TrawlNorth



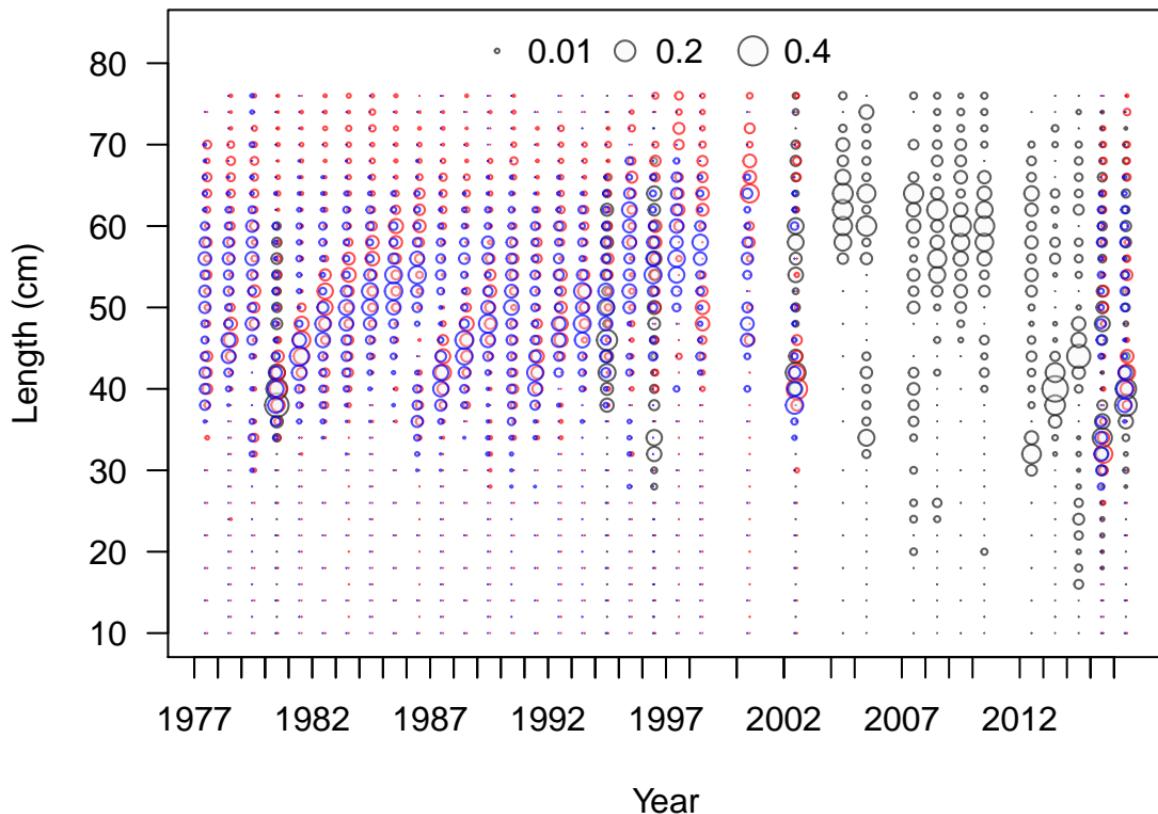
## length comp data, whole catch, TrawlNorth



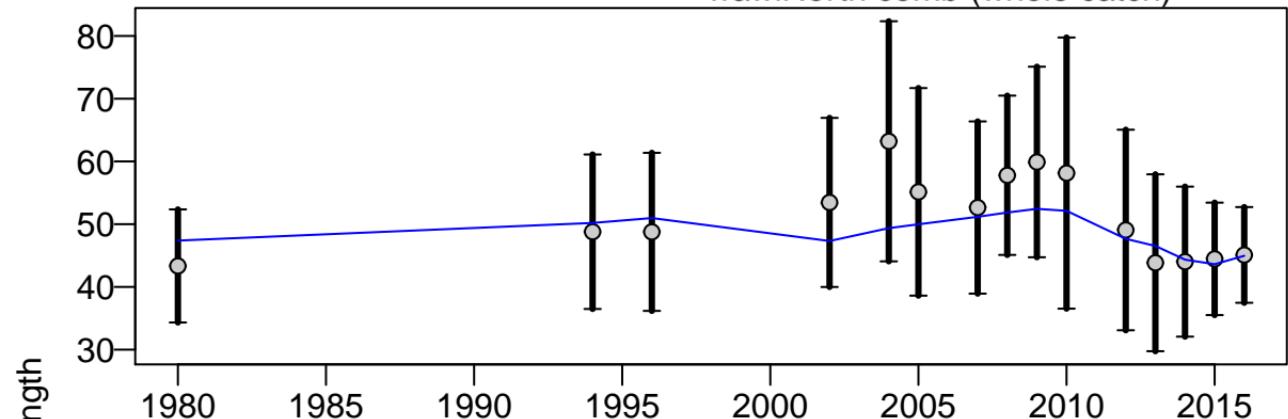
## length comp data, whole catch, TrawlNorth



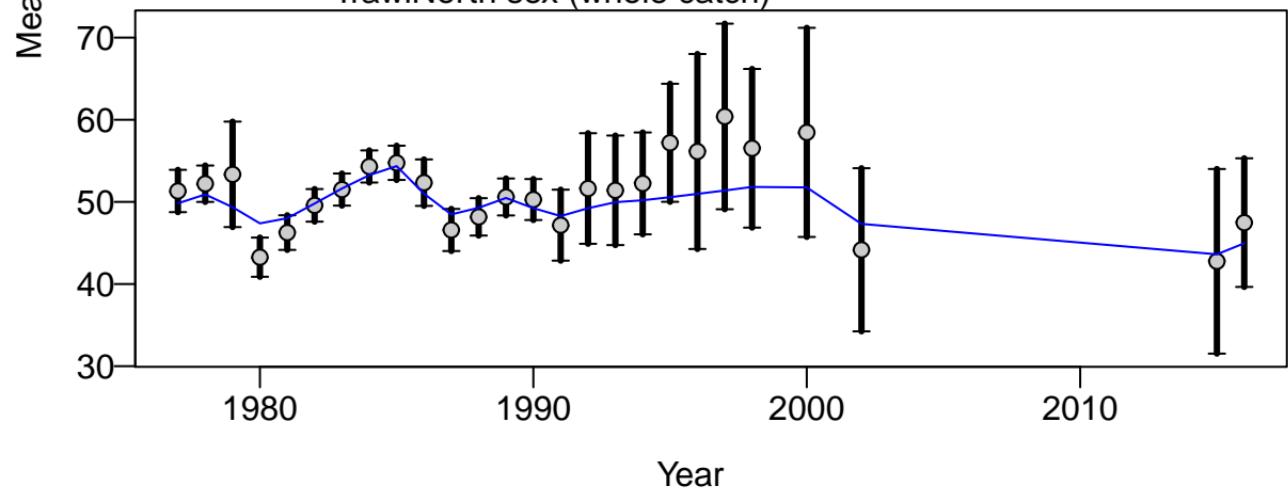
### length comp data, whole catch, TrawlNorth (max=0.31)



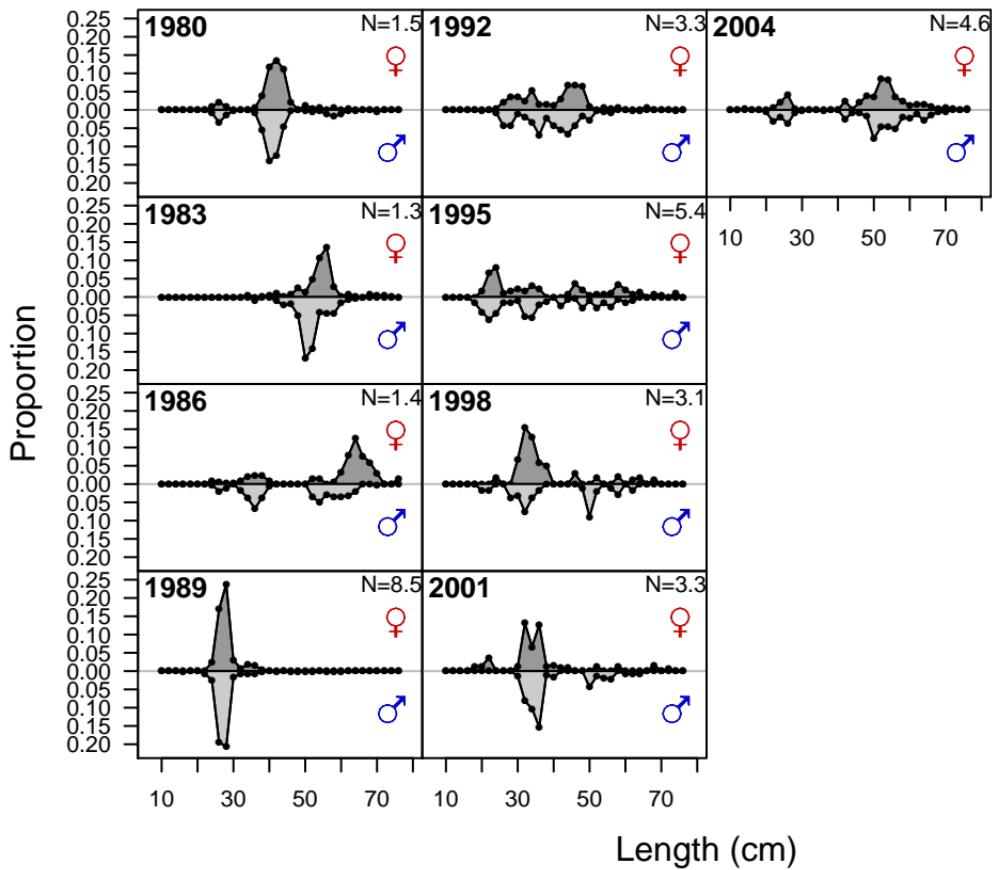
### TrawlNorth comb (whole catch)



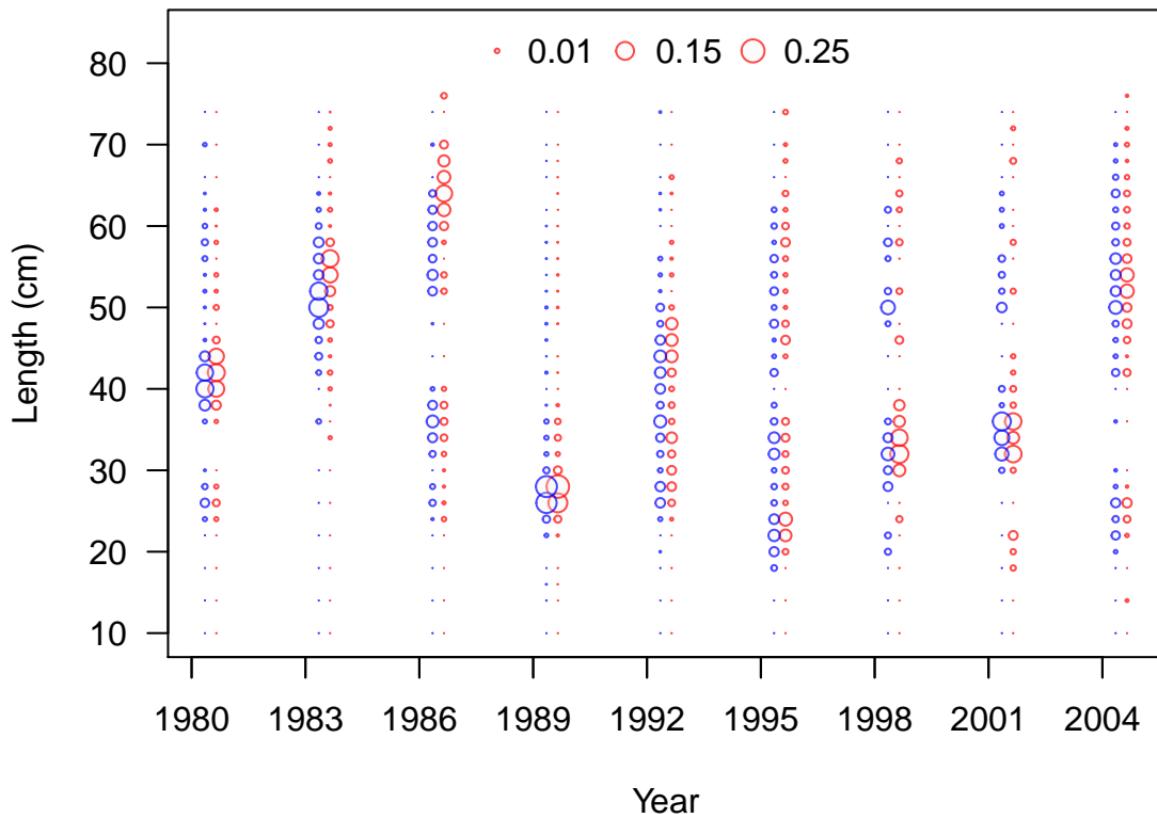
### TrawlNorth sex (whole catch)



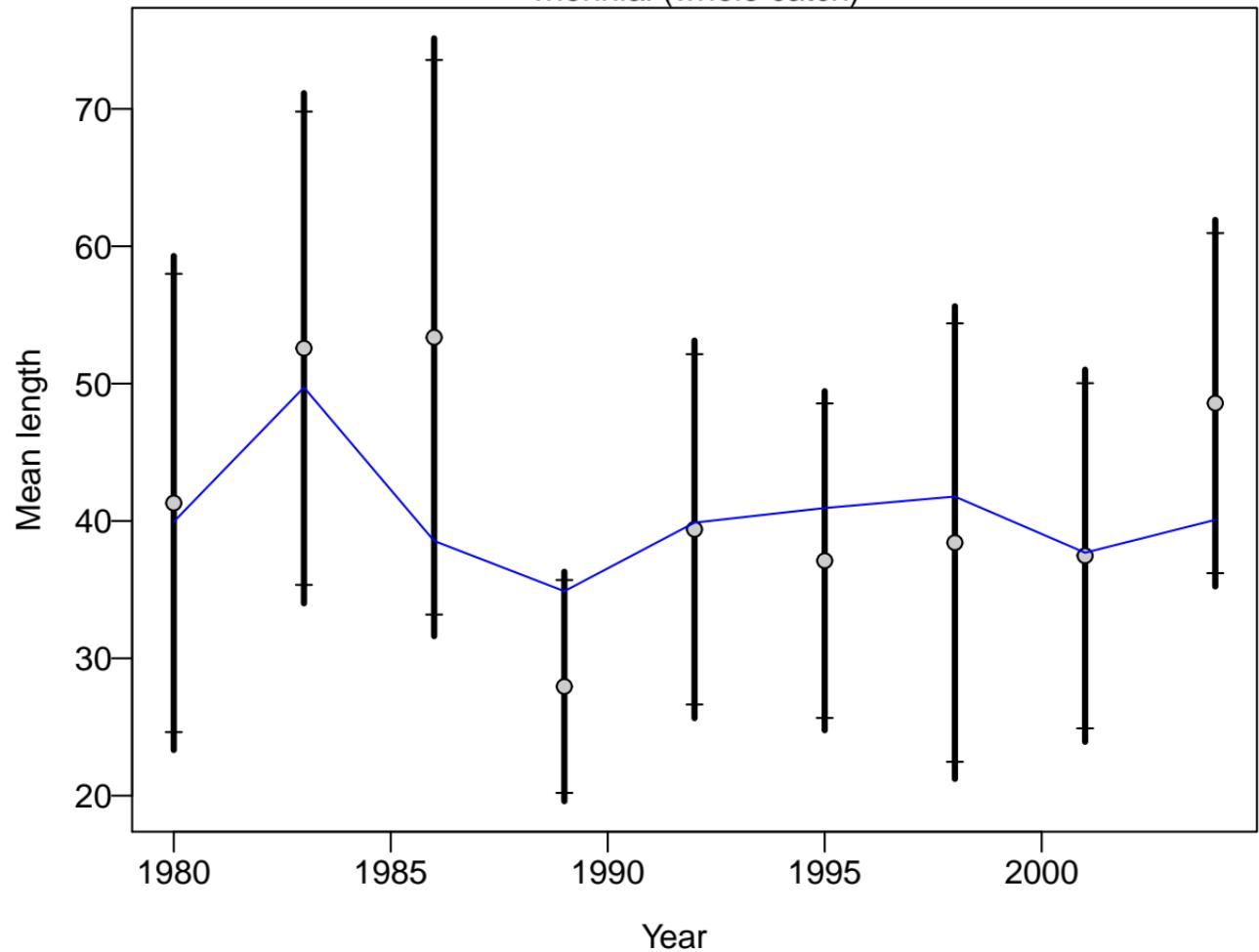
## length comp data, whole catch, Triennial



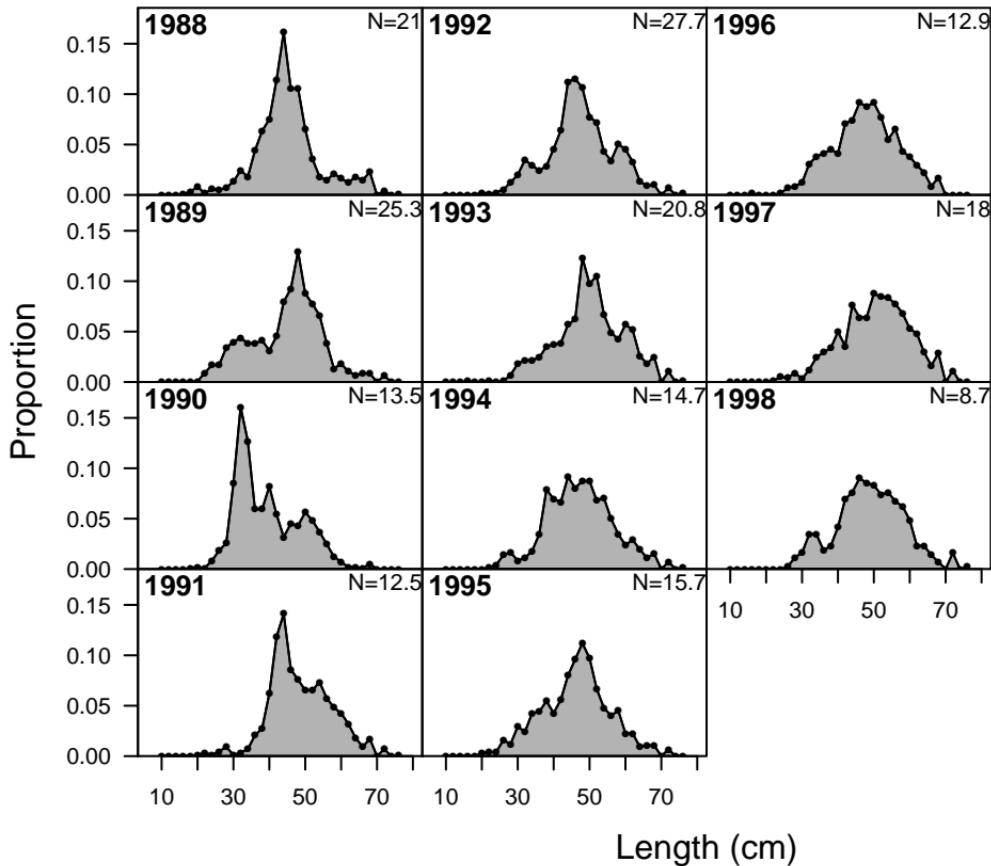
### length comp data, whole catch, Triennial (max=0.24)



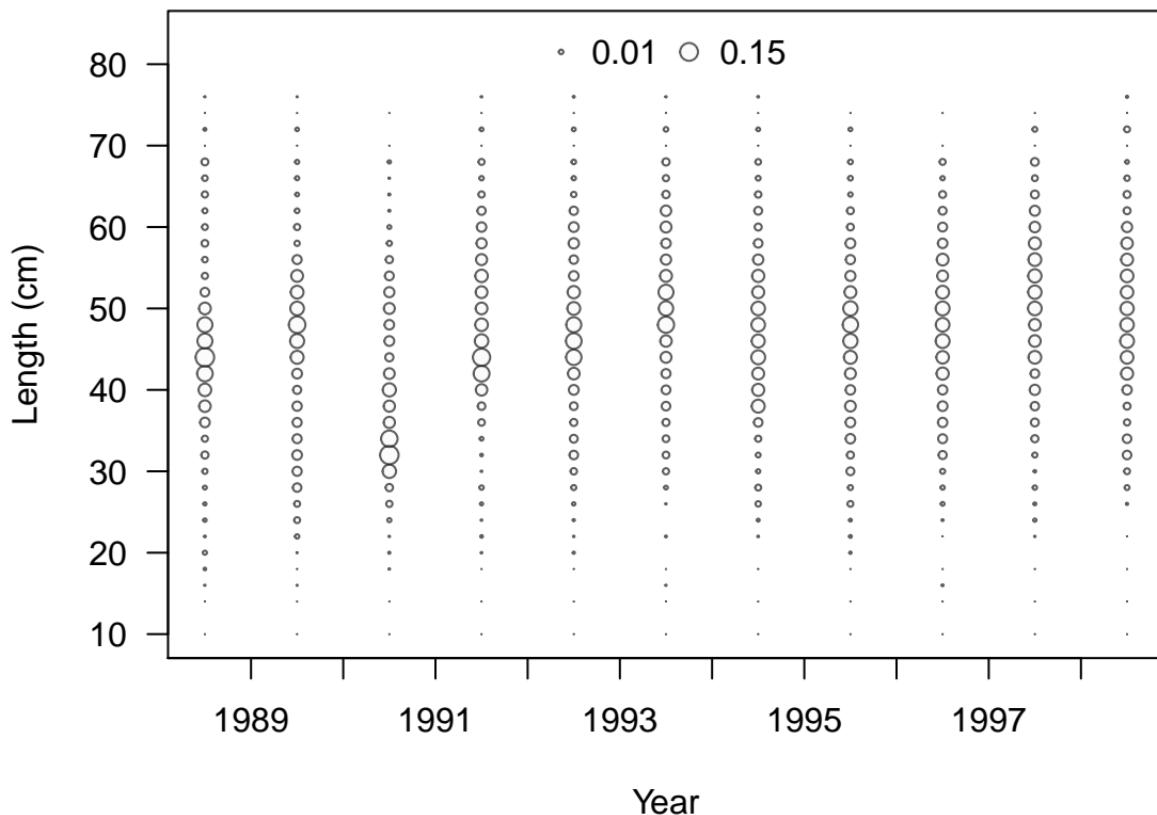
### Triennial (whole catch)



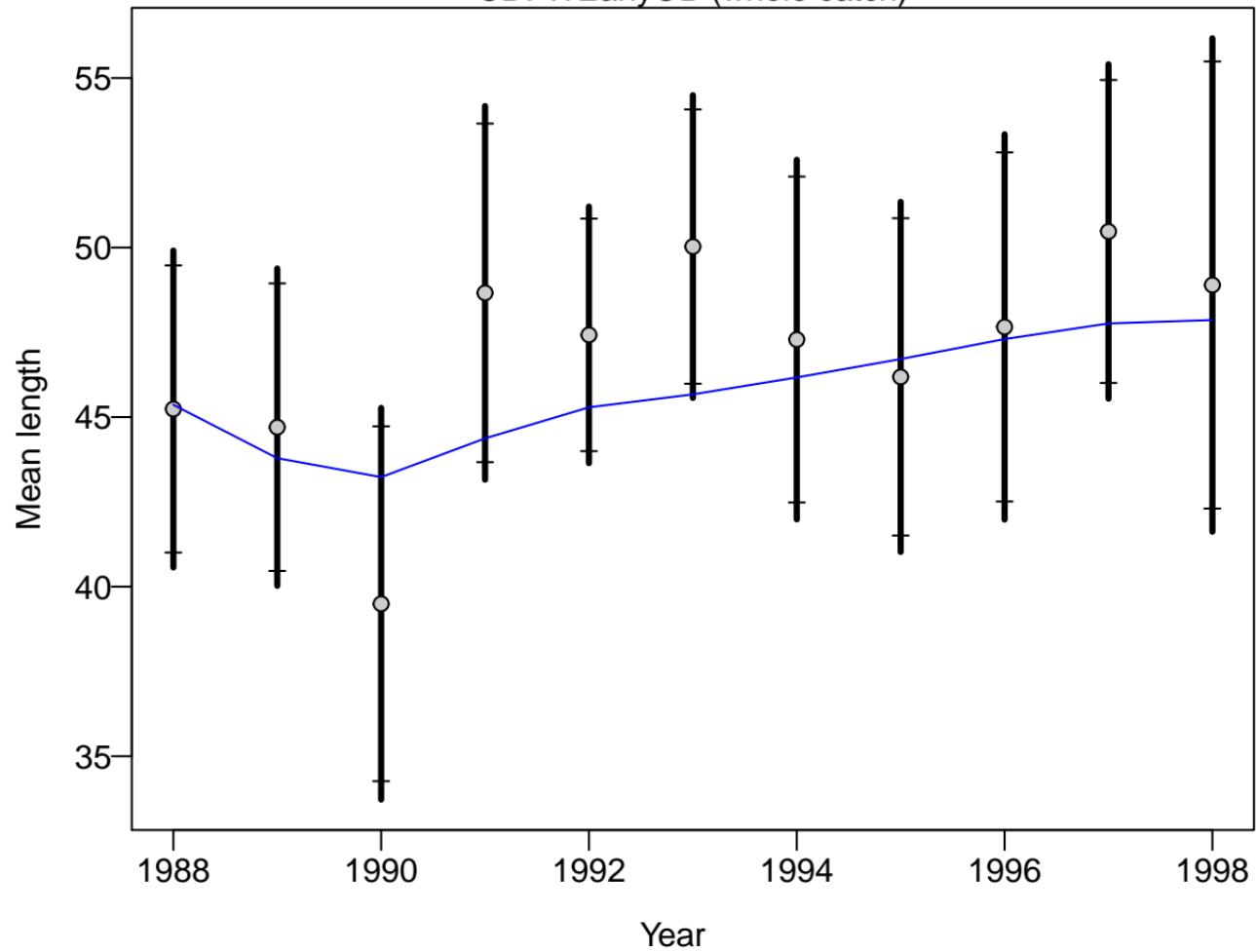
## length comp data, whole catch, CDFWEarlyOB



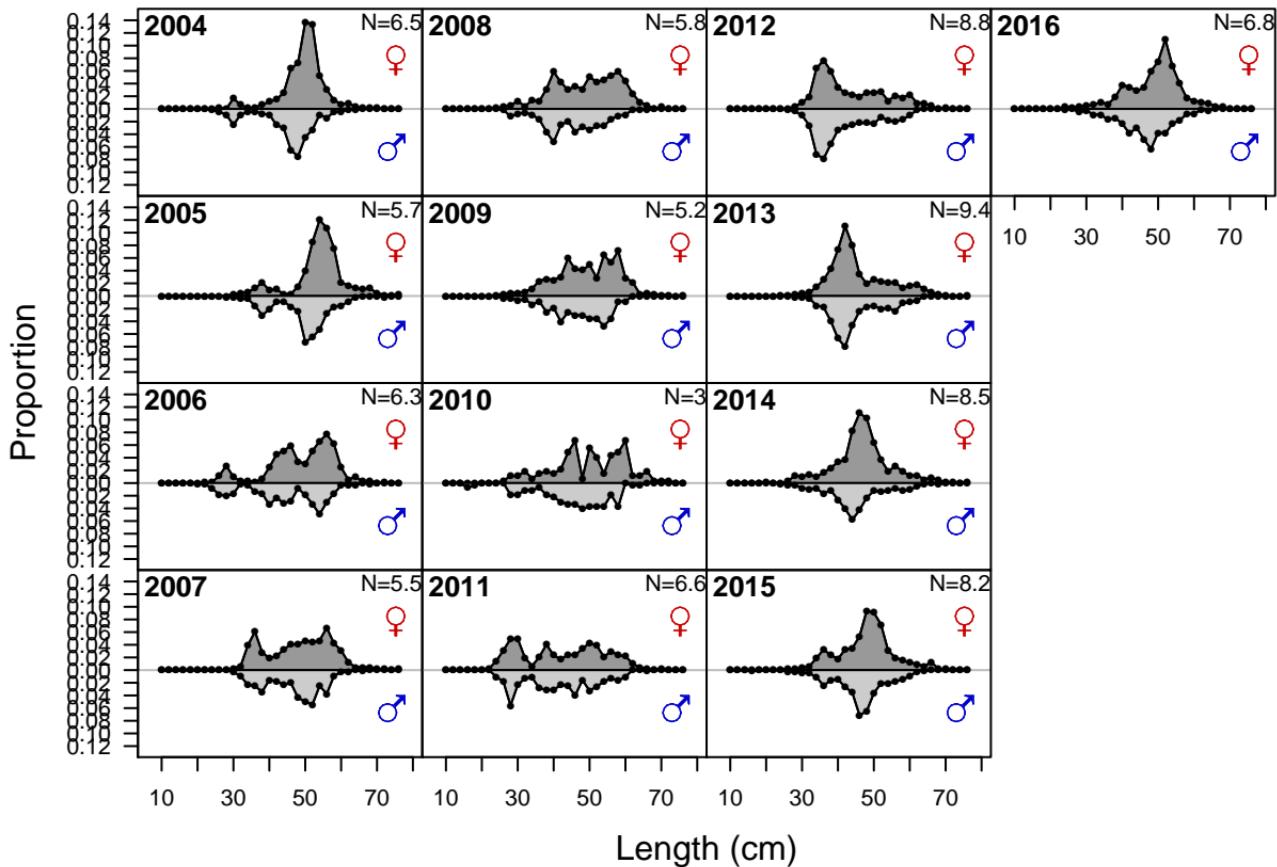
## length comp data, whole catch, CDFWEarlyOB (max=0.16)



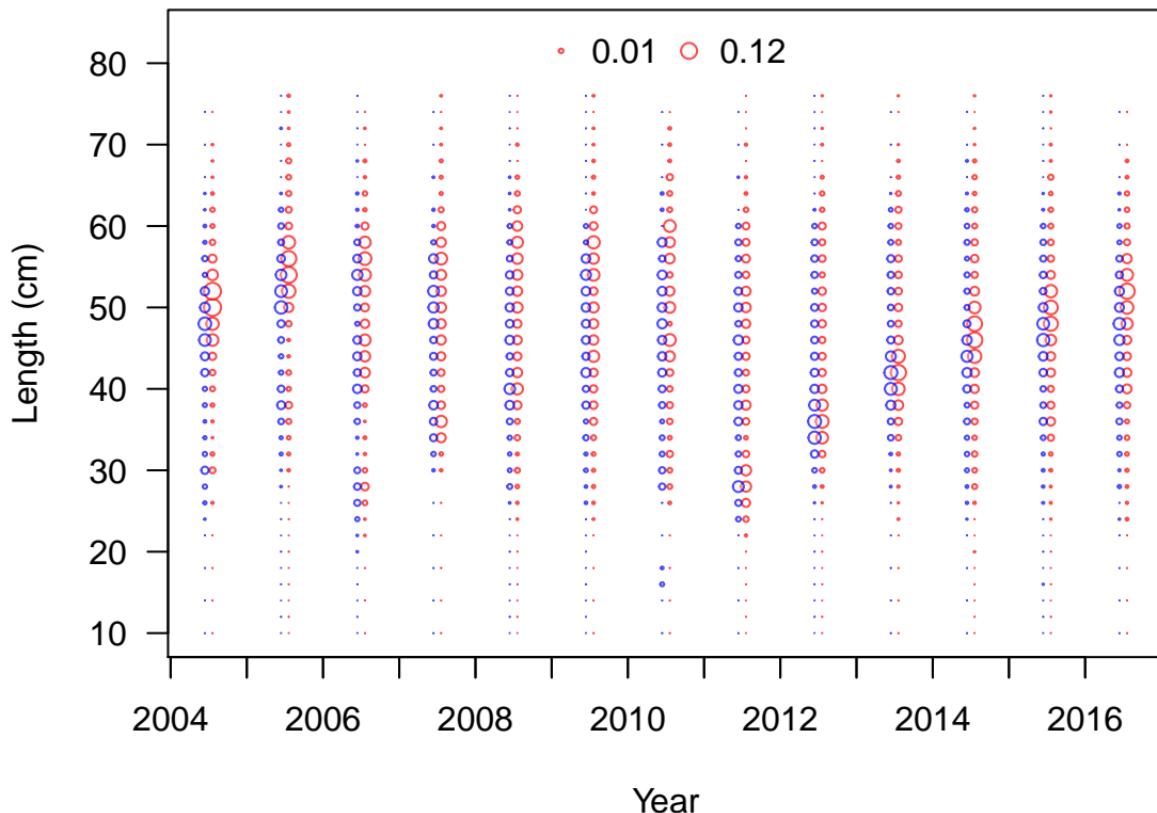
### CDFWEarlyOB (whole catch)



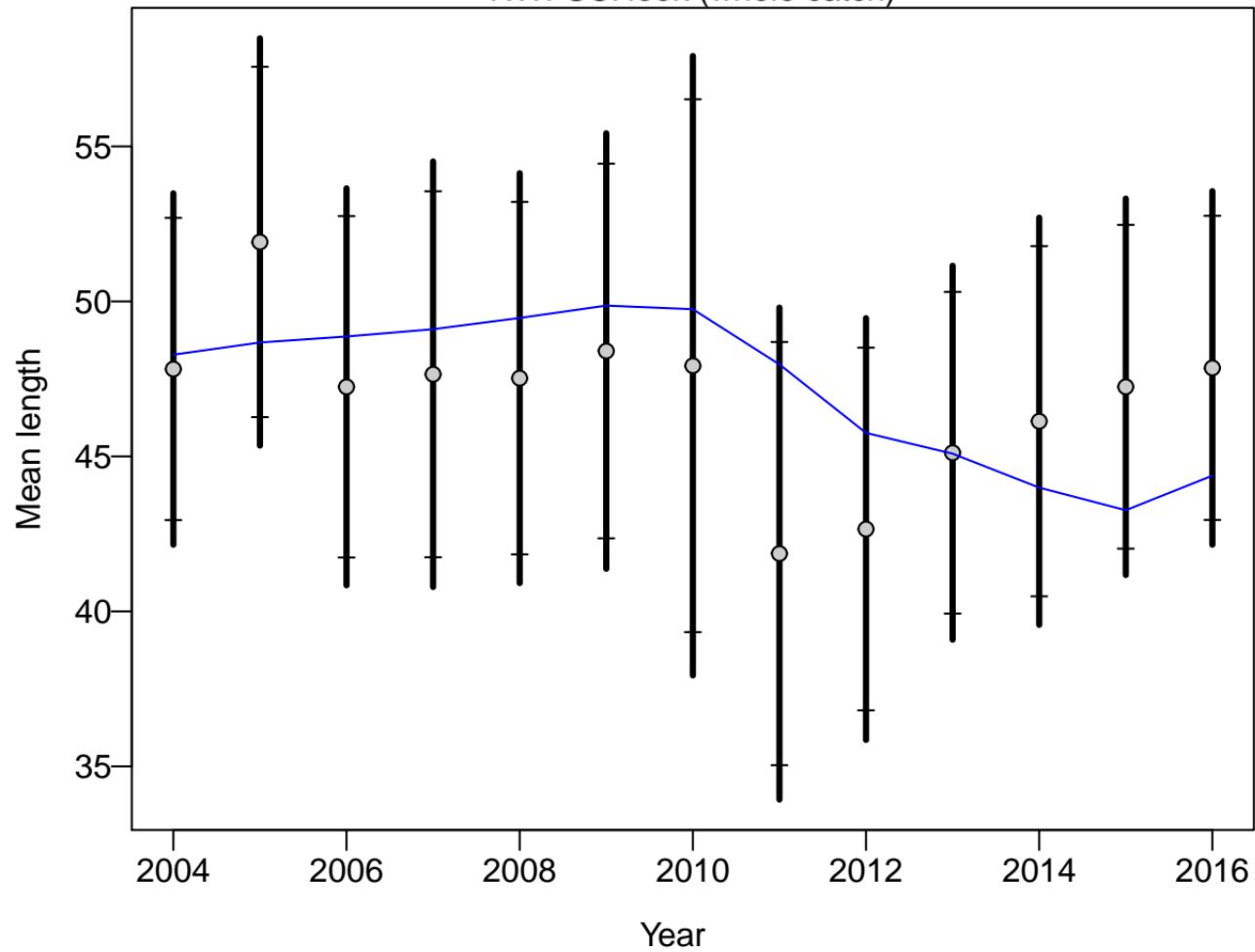
## length comp data, whole catch, NWFSCHook



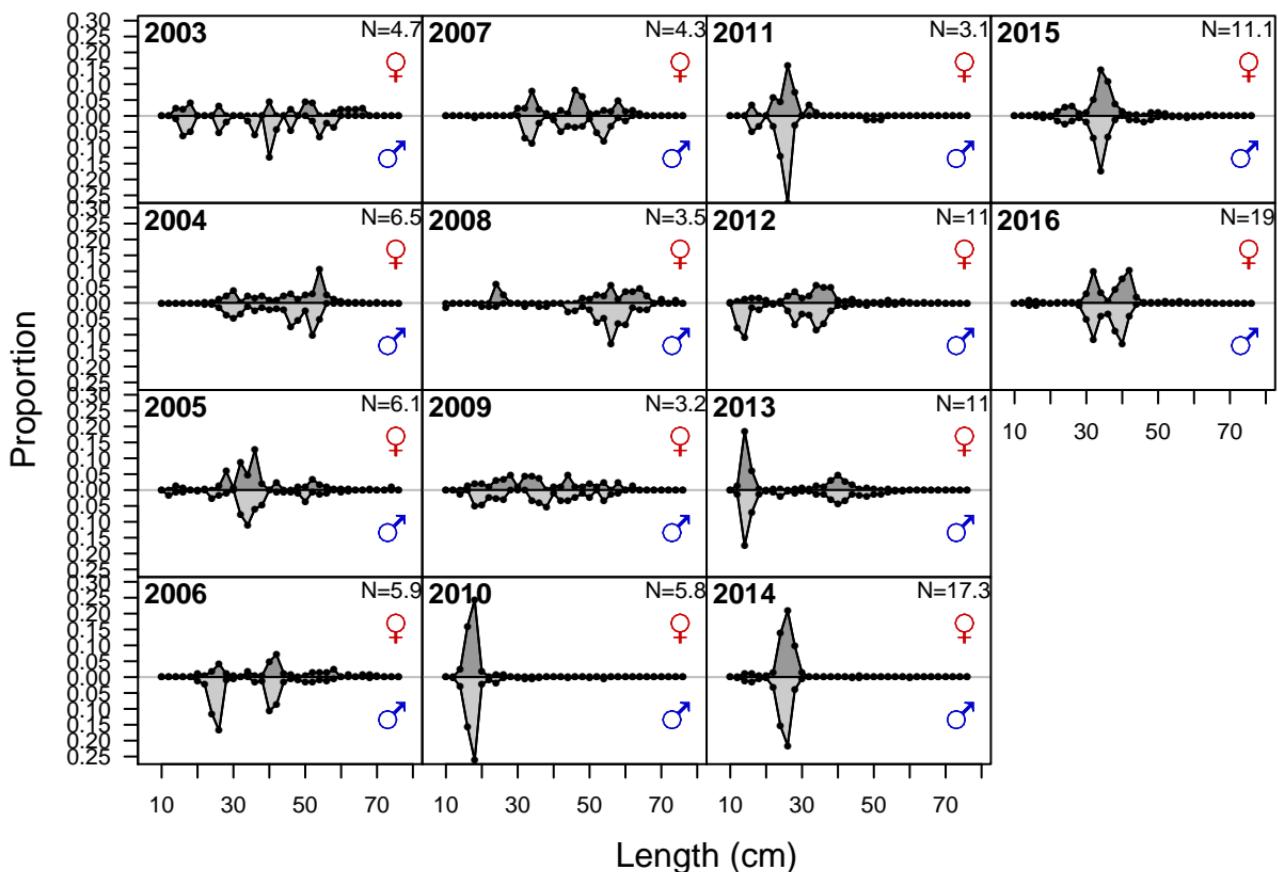
## length comp data, whole catch, NWFSCHook (max=0.14)



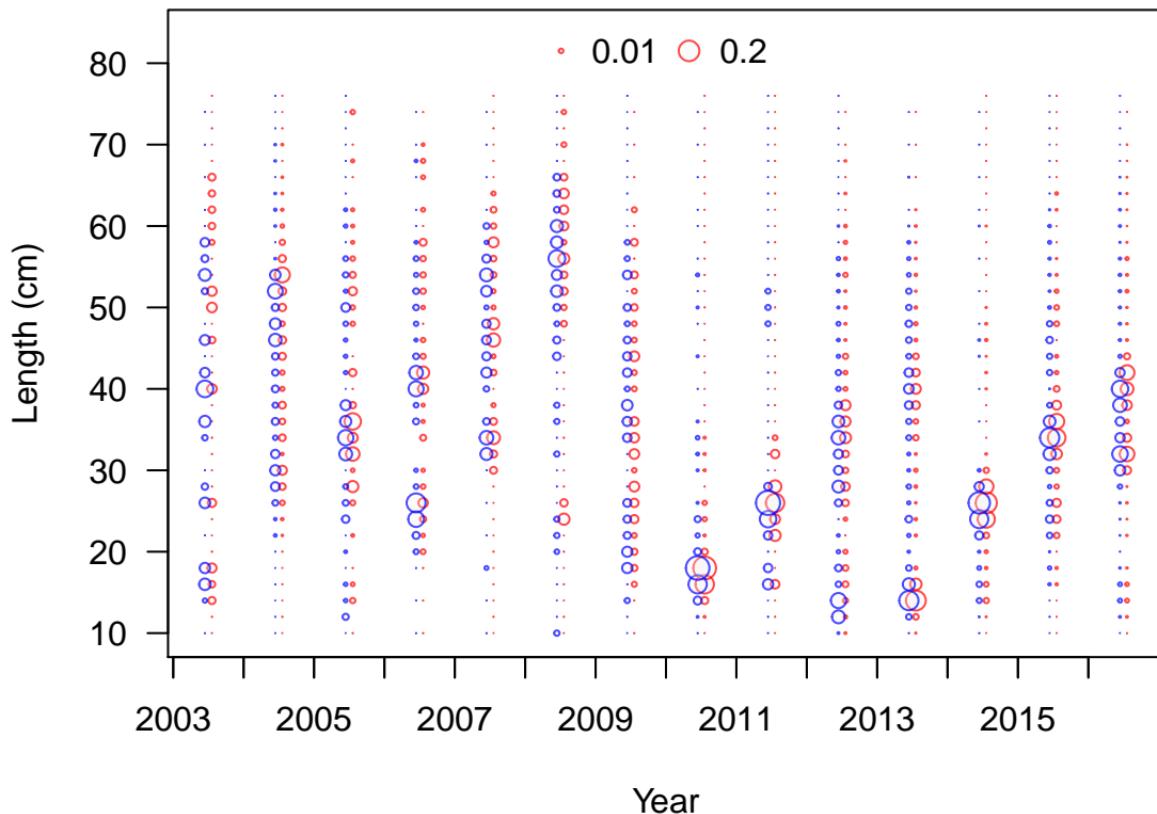
### NWFSCHook (whole catch)



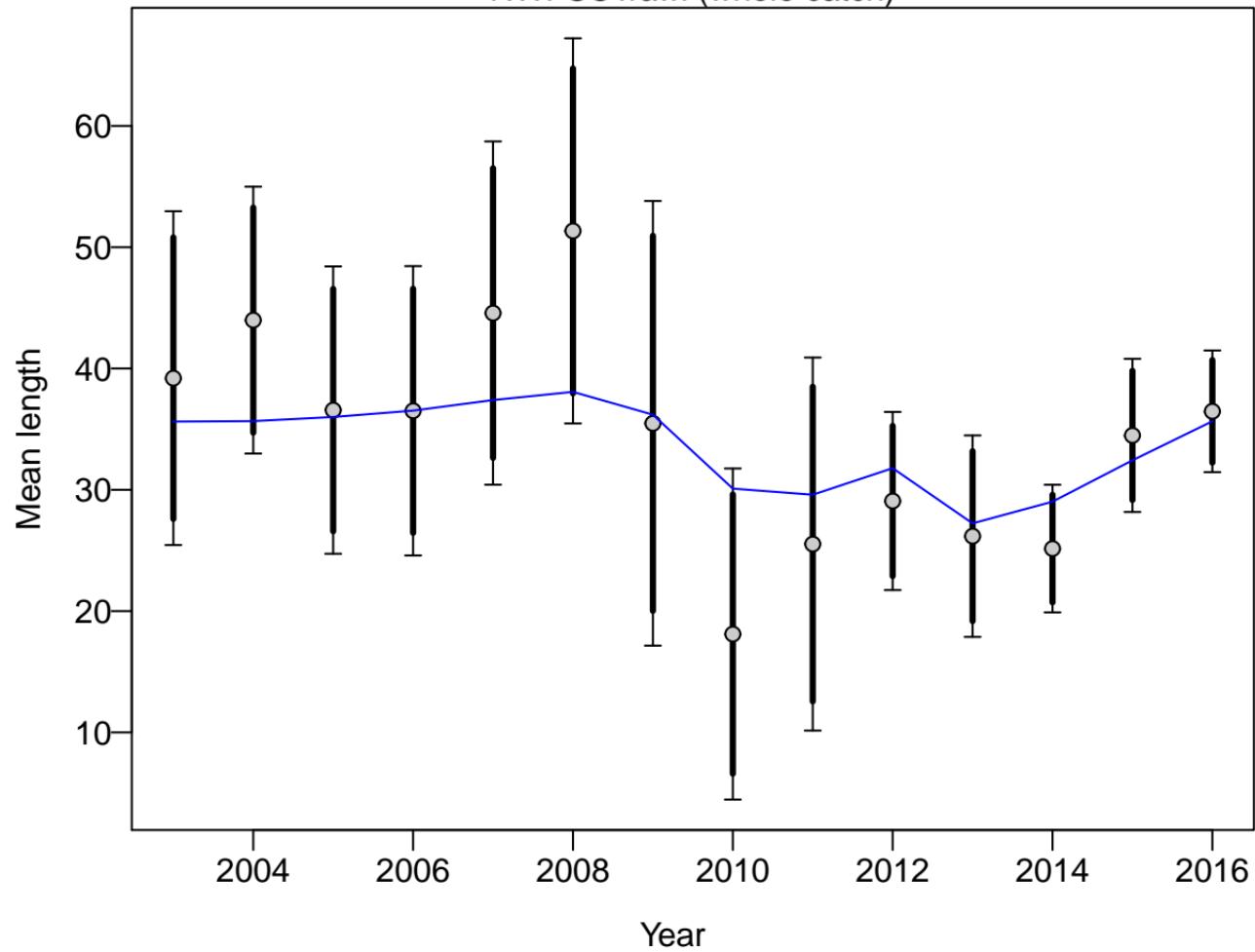
## length comp data, whole catch, NWFSC Trawl



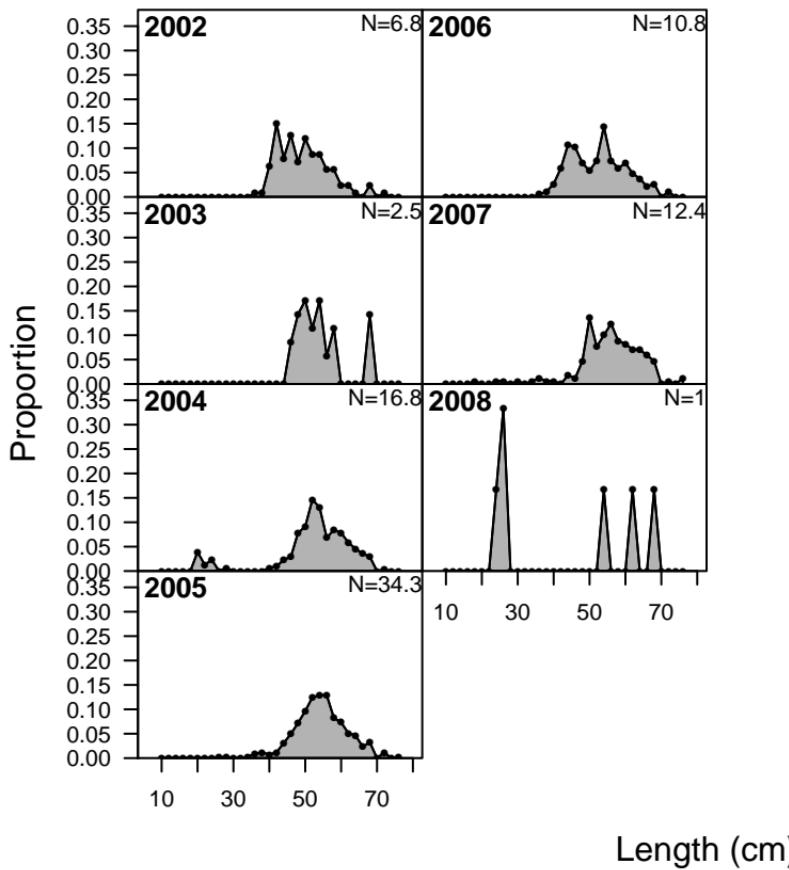
## length comp data, whole catch, NWFSC Trawl (max=0.27)



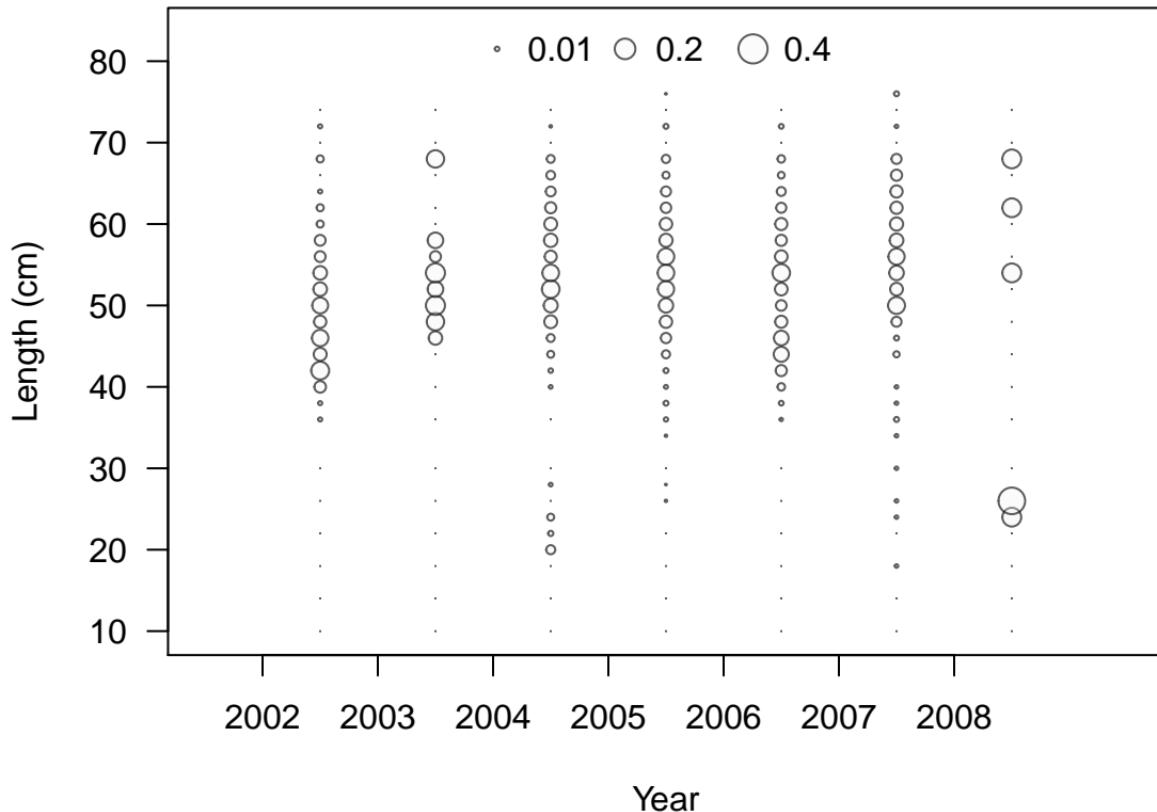
### NWFSCTrawl (whole catch)



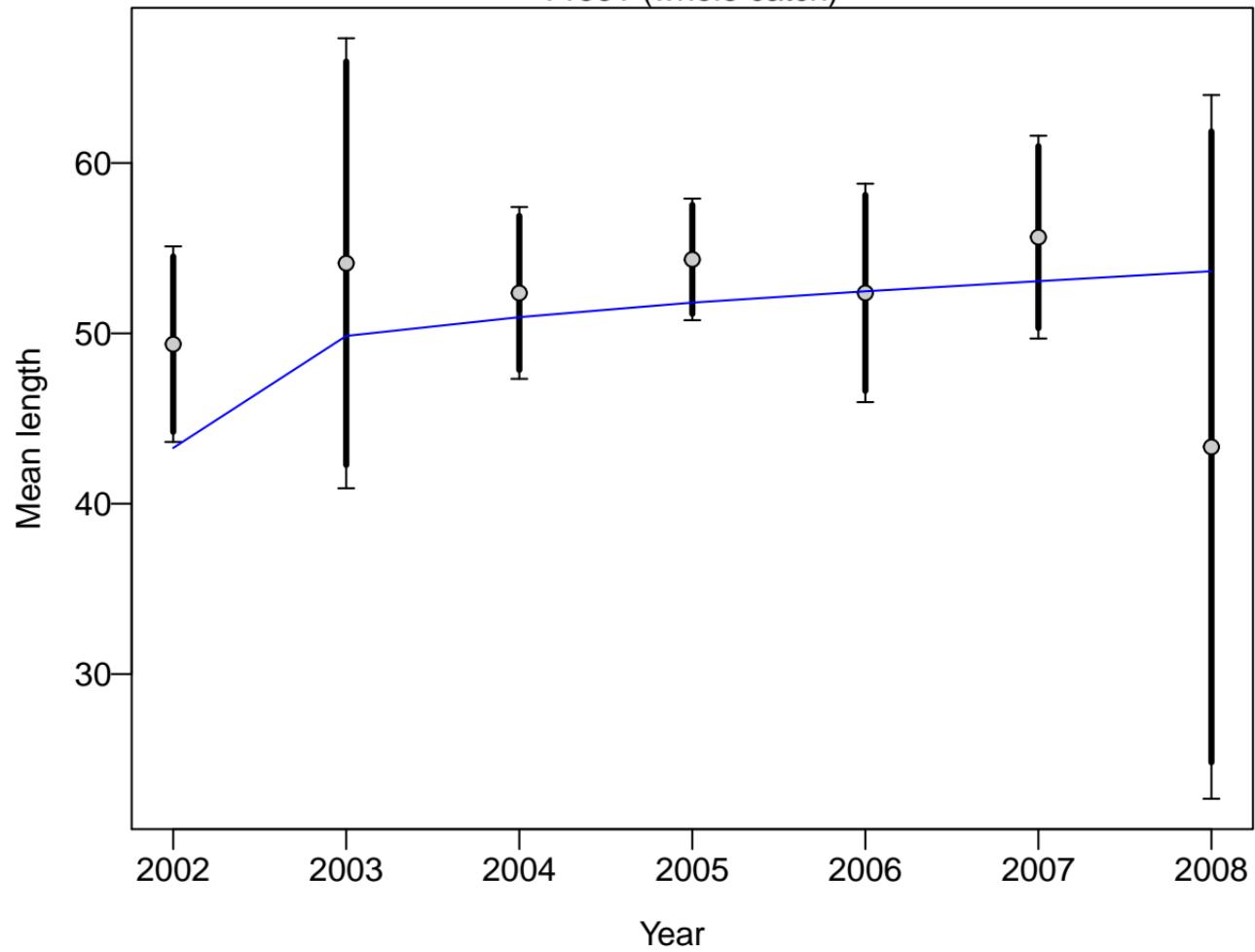
## length comp data, whole catch, Free1



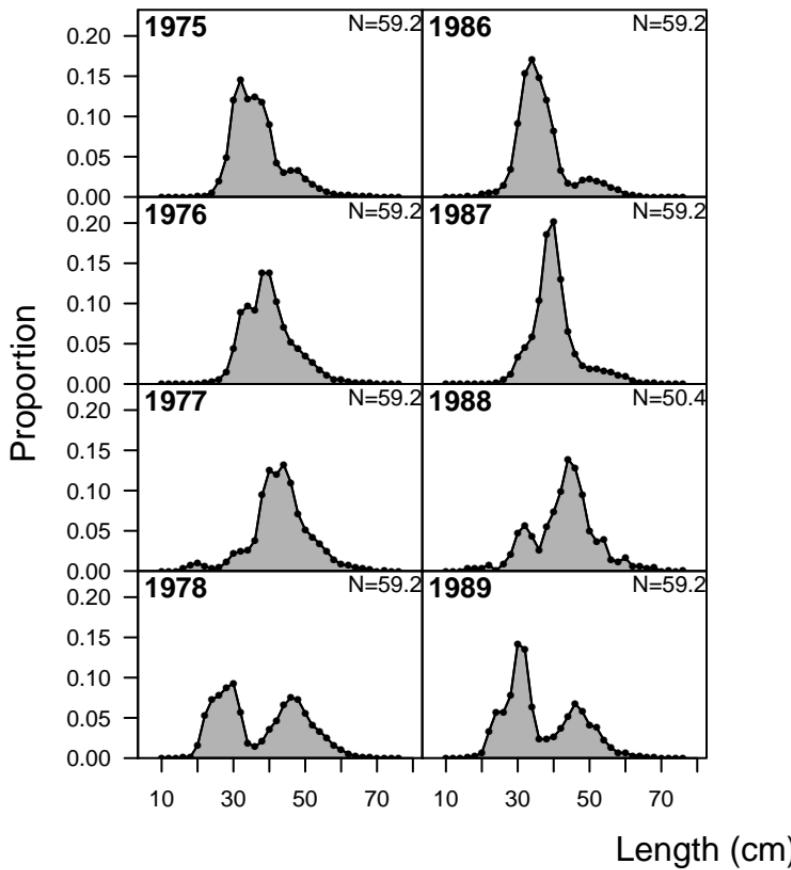
### length comp data, whole catch, Free1 (max=0.33)



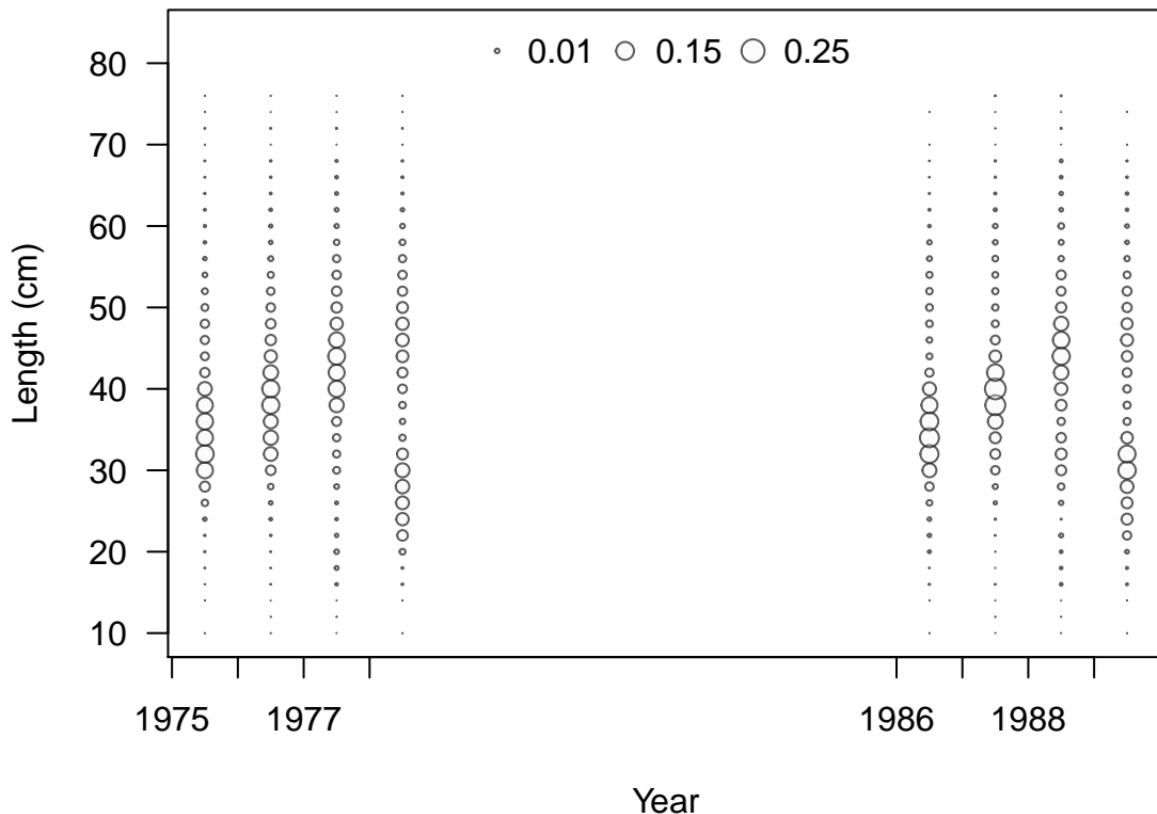
### Free1 (whole catch)



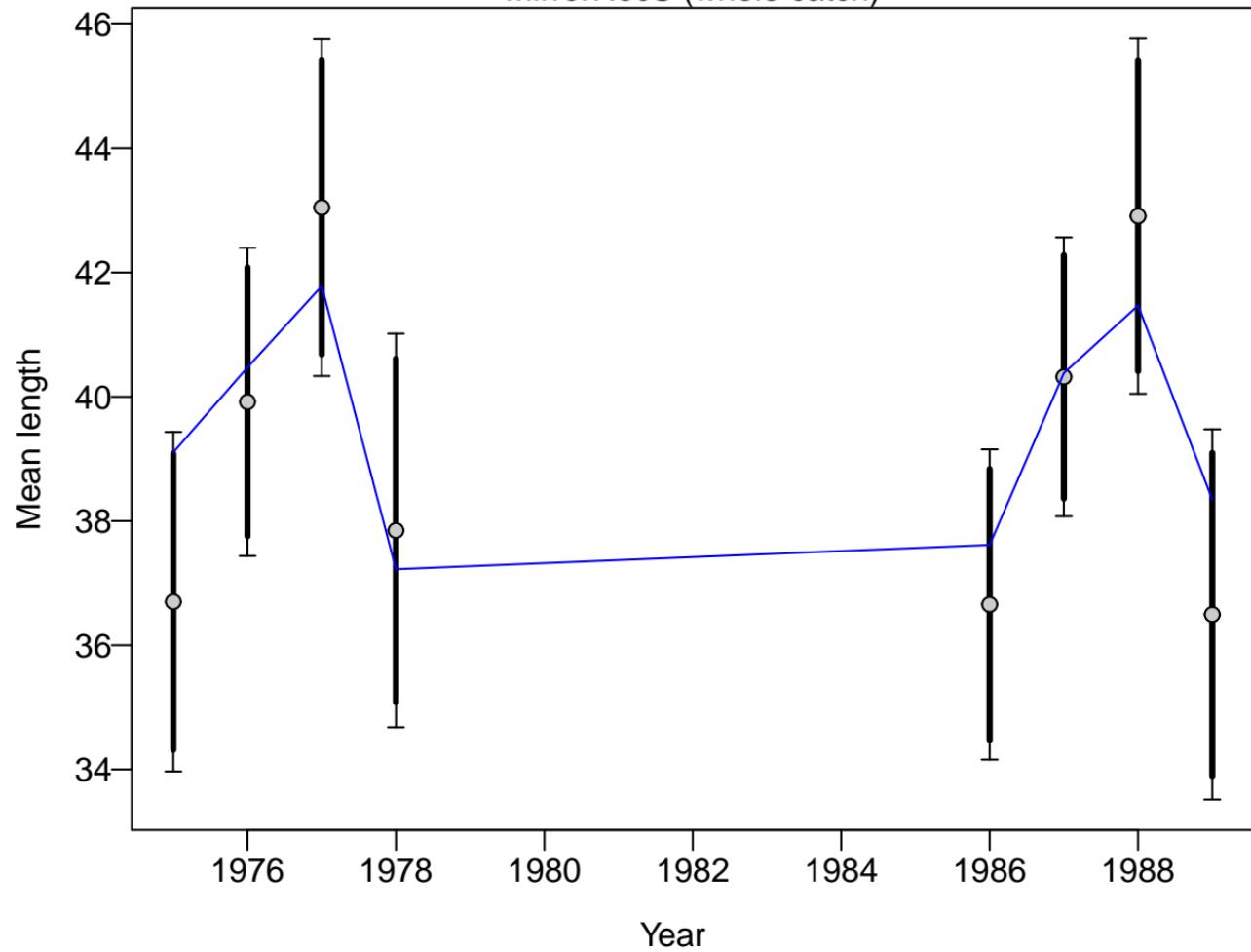
## length comp data, whole catch, MirrorRecS



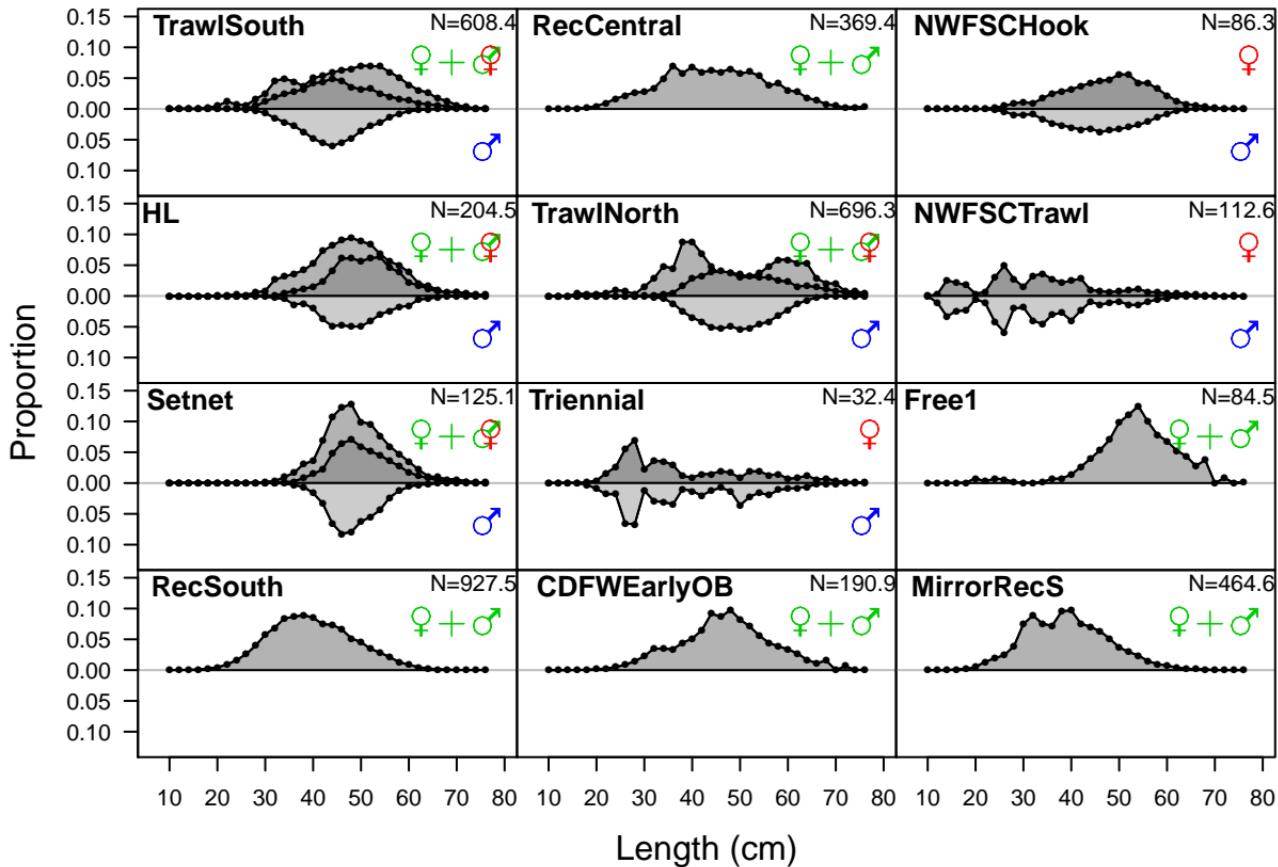
### length comp data, whole catch, MirrorRecS (max=0.2)



### MirrorRecS (whole catch)

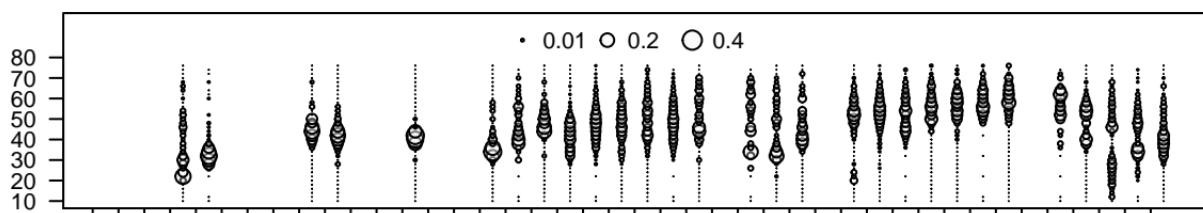


## length comp data, whole catch, aggregated across time by fleet

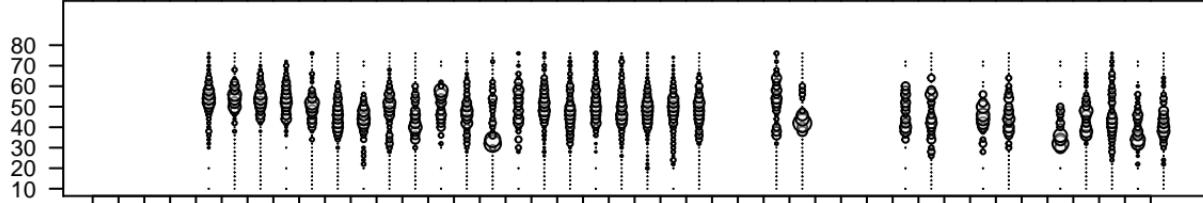


# length comp data, sexes combined, whole catch, comparing across fleets

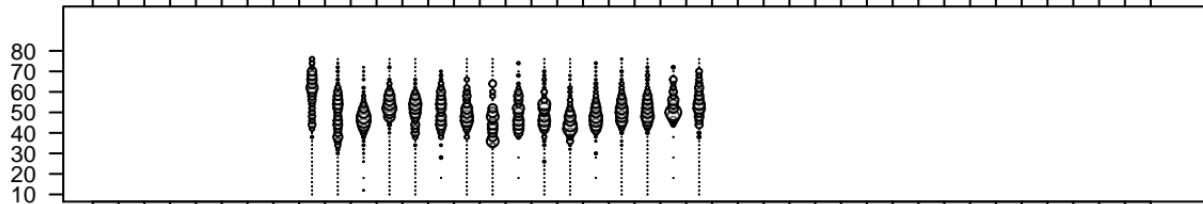
TrawlSouth



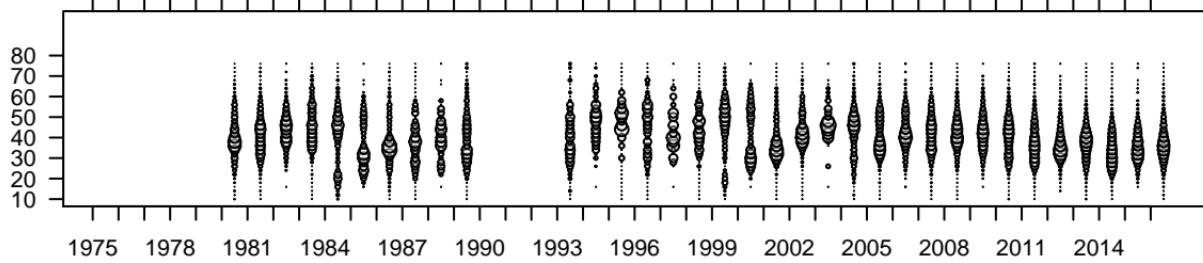
HL



Setnet



RecSouth

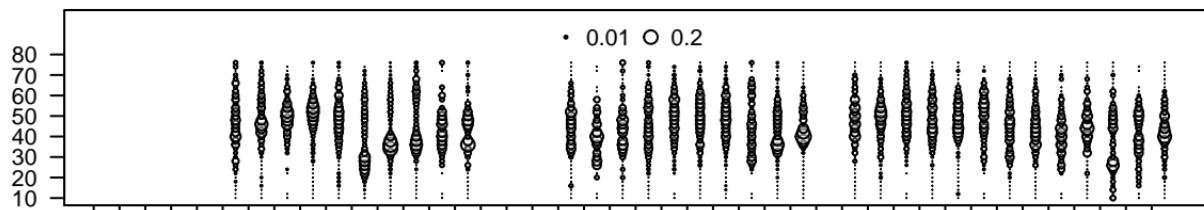


1975 1978 1981 1984 1987 1990 1993 1996 1999 2002 2005 2008 2011 2014

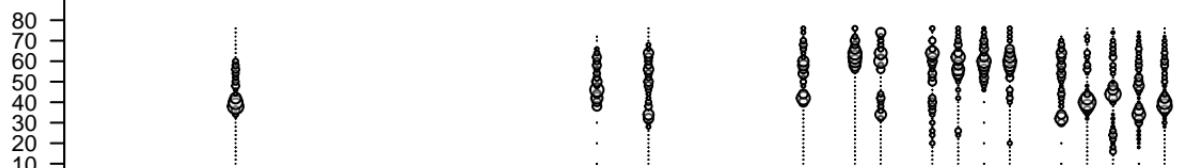
Year

# length comp data, sexes combined, whole catch, comparing across fleets

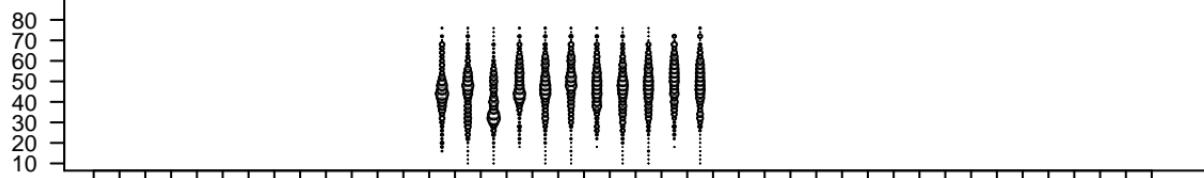
RecCentral



Trawl/North



CDFWEarlyOB



Free1



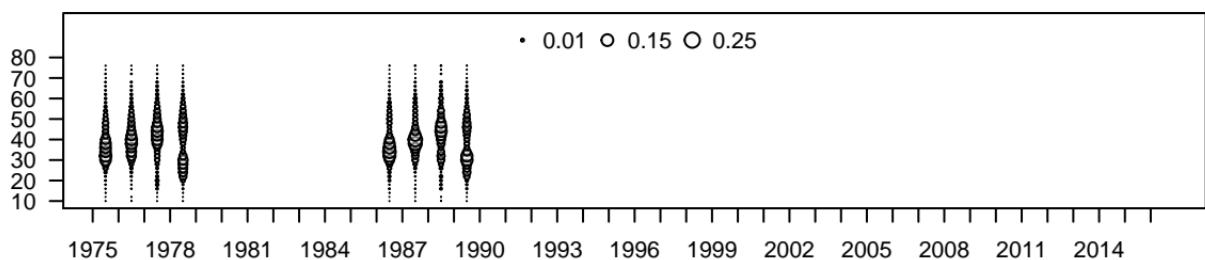
1975 1978 1981 1984 1987 1990 1993 1996 1999 2002 2005 2008 2011 2014

Year

• 0.01 ○ 0.2

# length comp data, sexes combined, whole catch, comparing across fleets

MirrorRecS

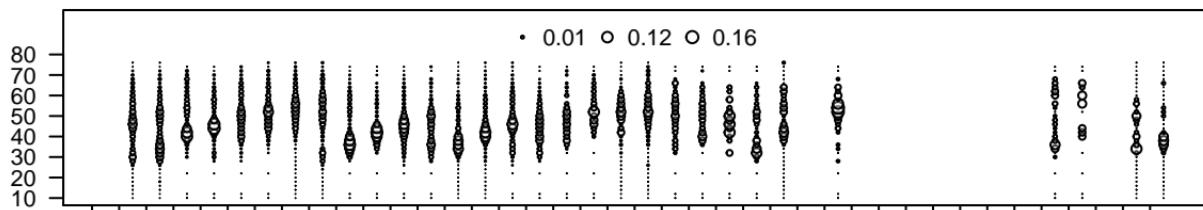


Length (cm)

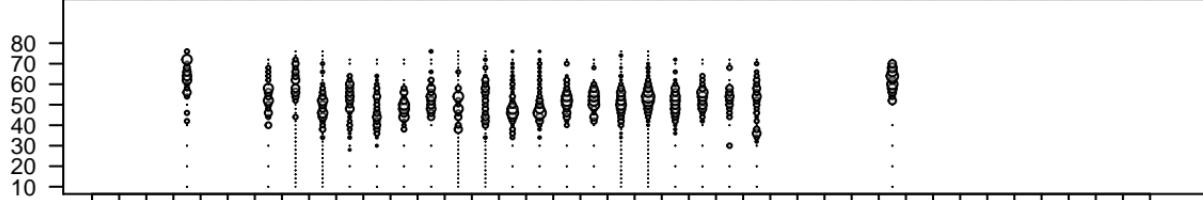
Year

# length comp data, female, whole catch, comparing across fleets

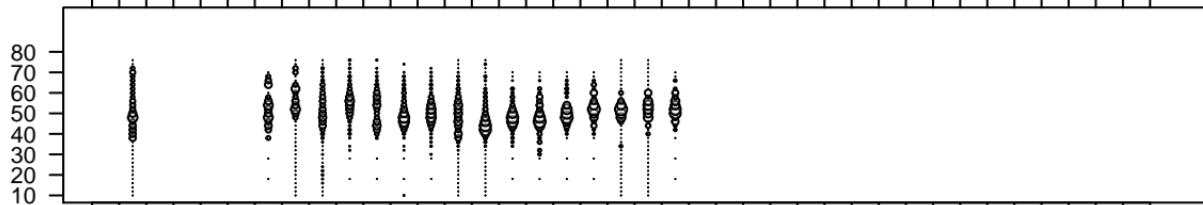
TrawlSouth



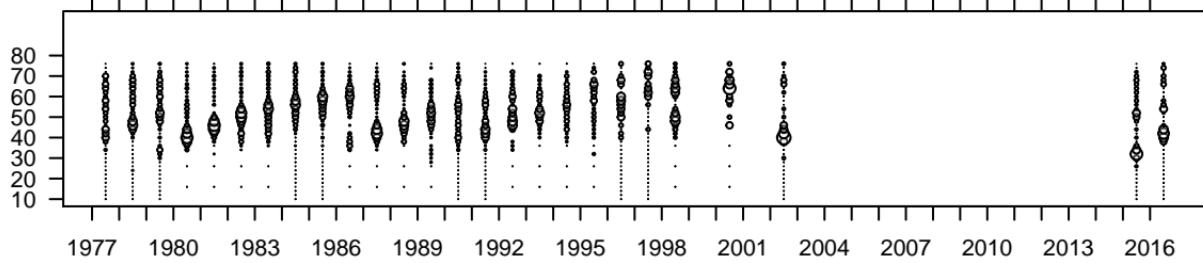
HL



Setnet

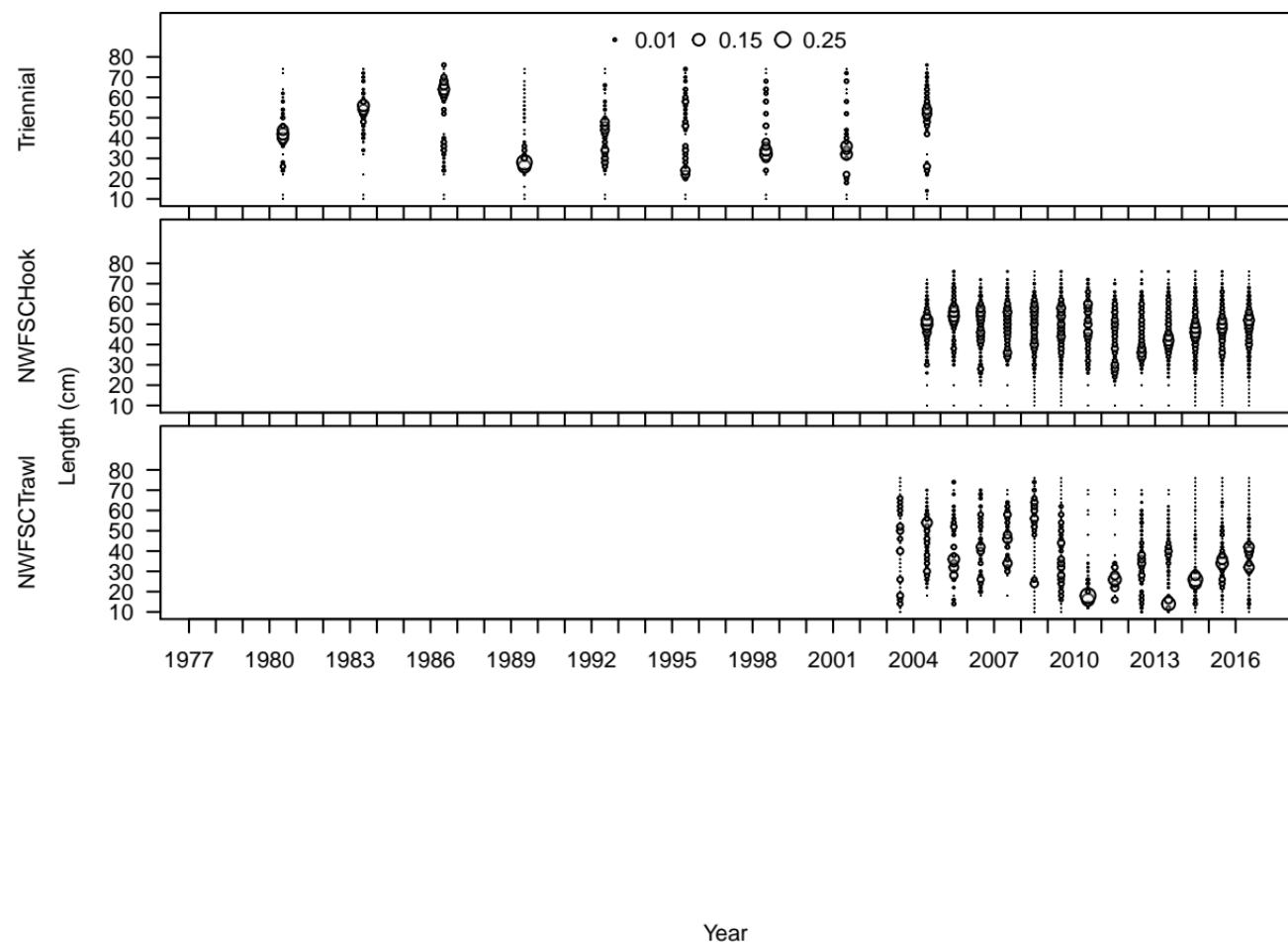


TrawlNorth



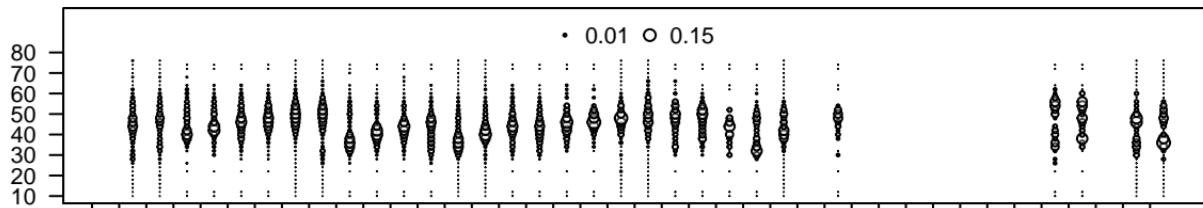
Year

### length comp data, female, whole catch, comparing across fleets

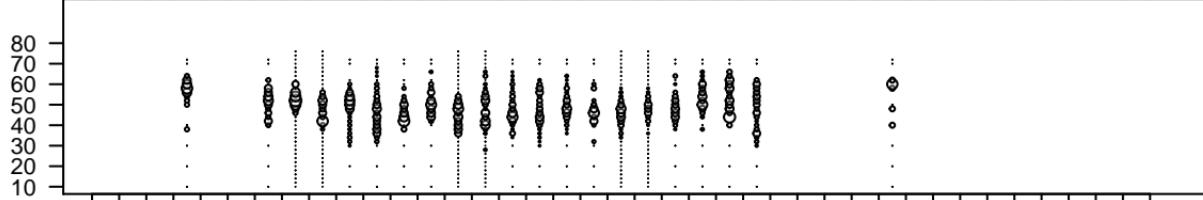


# length comp data, male, whole catch, comparing across fleets

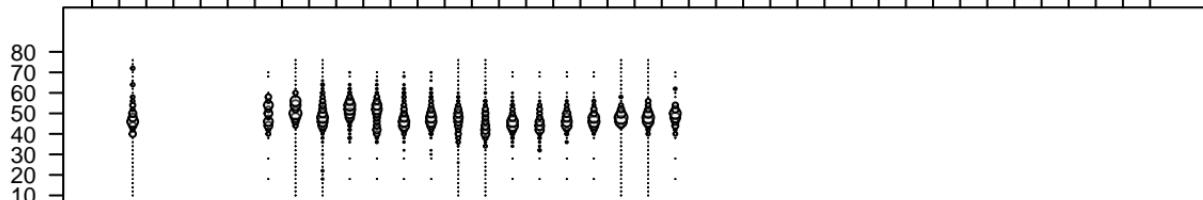
TrawlSouth



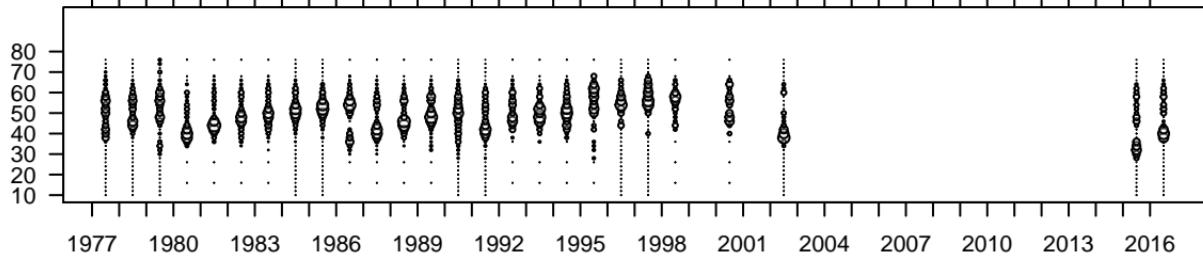
HL



Setnet



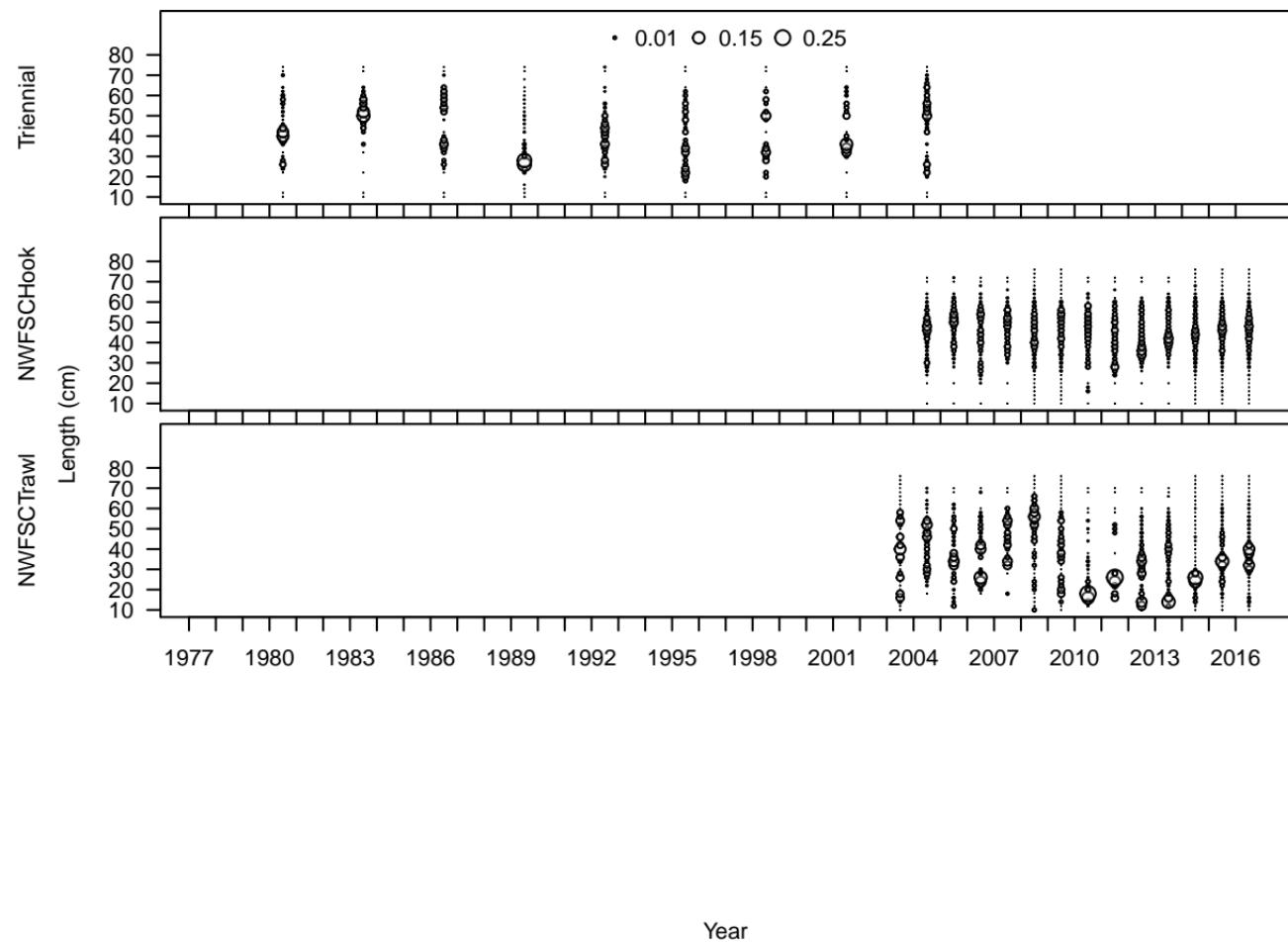
TrawlNorth



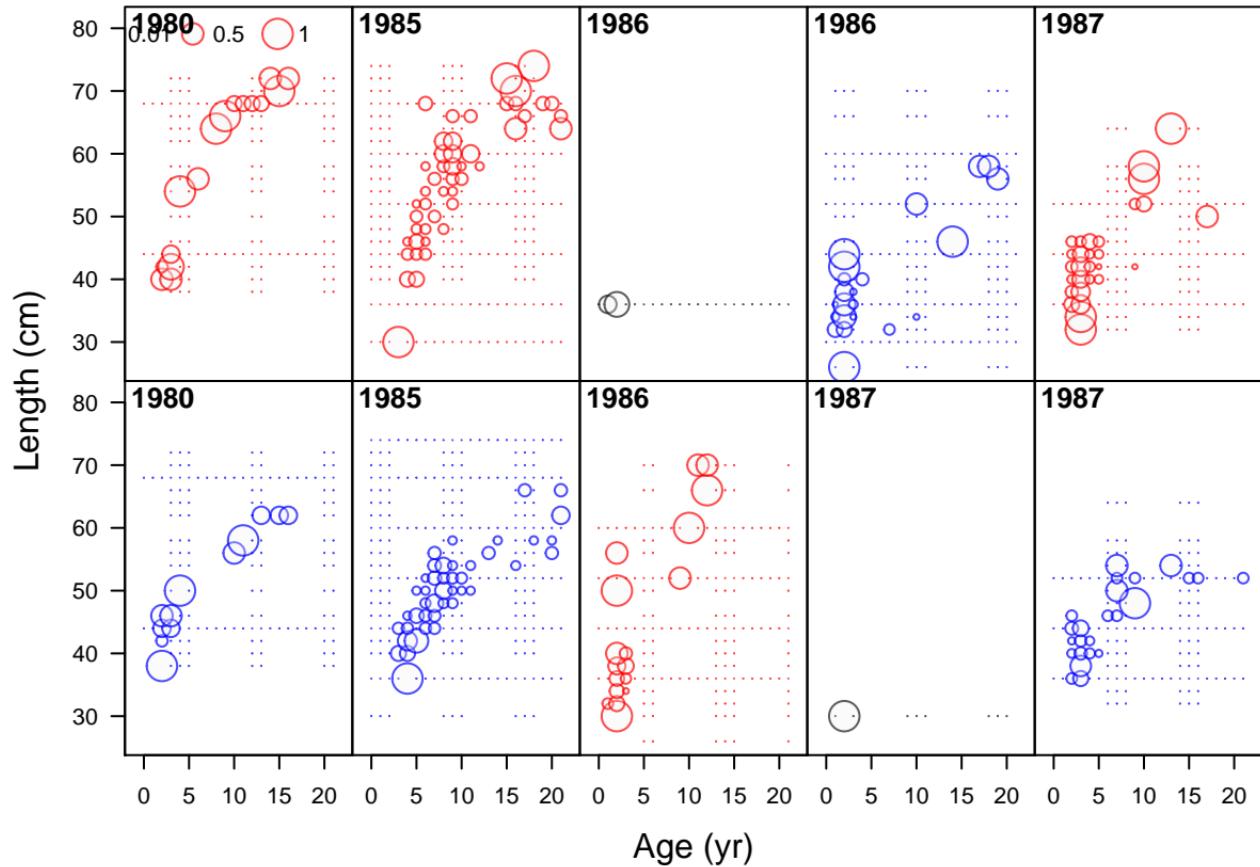
1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016

Year

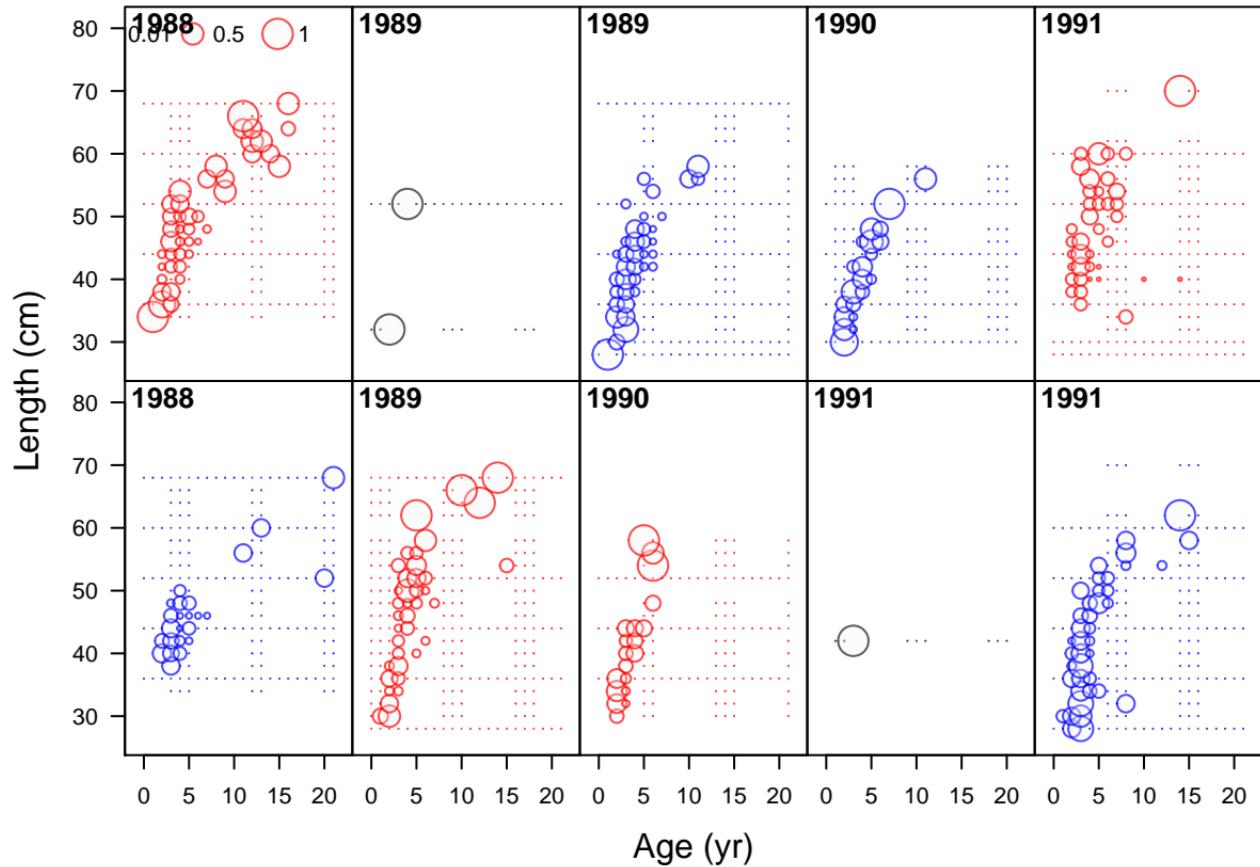
### length comp data, male, whole catch, comparing across fleets



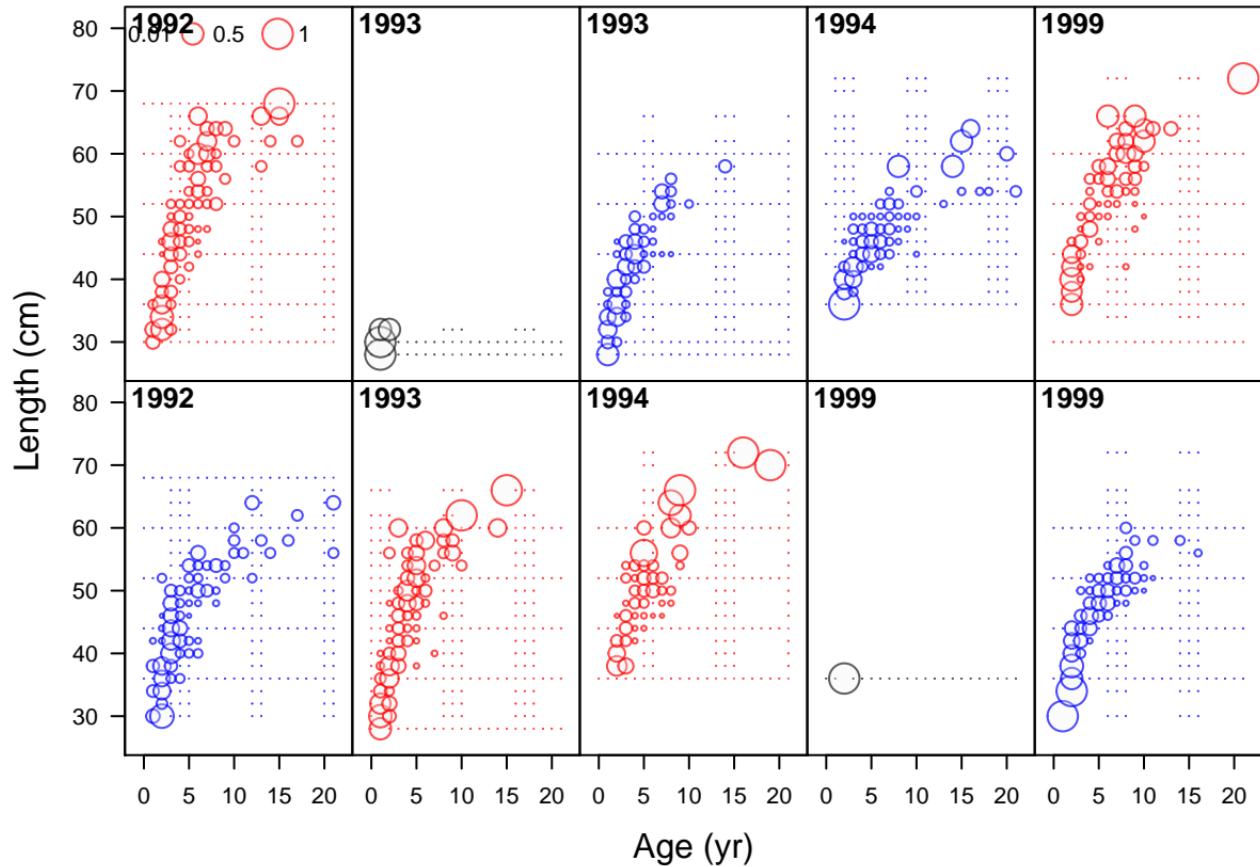
## conditional age-at-length data, whole catch, TrawlSouth (max=1)



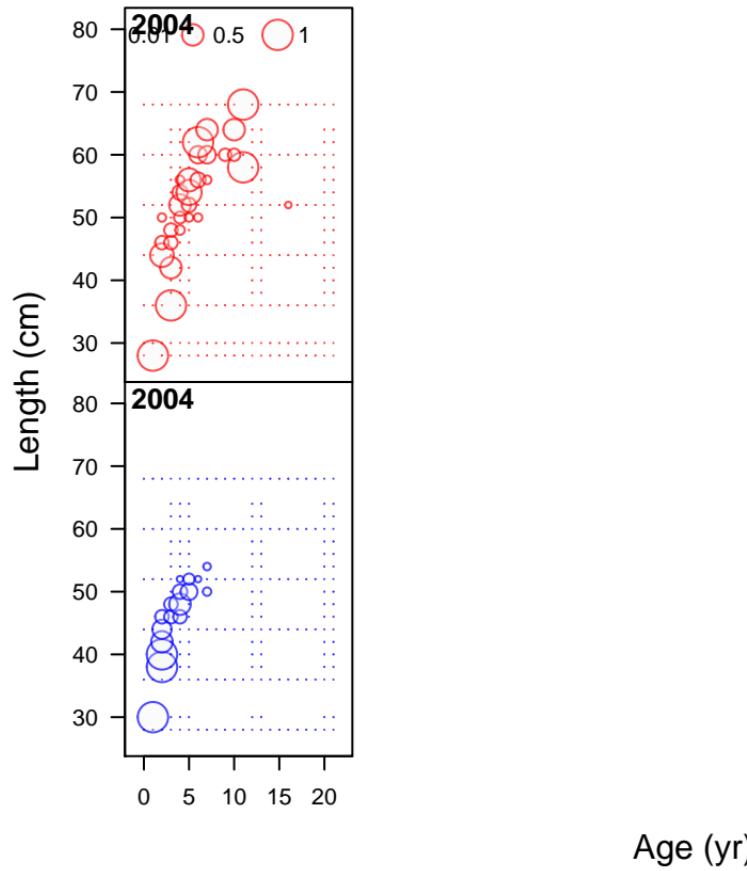
## conditional age-at-length data, whole catch, TrawlSouth (max=1)



## conditional age-at-length data, whole catch, TrawlSouth (max=1)

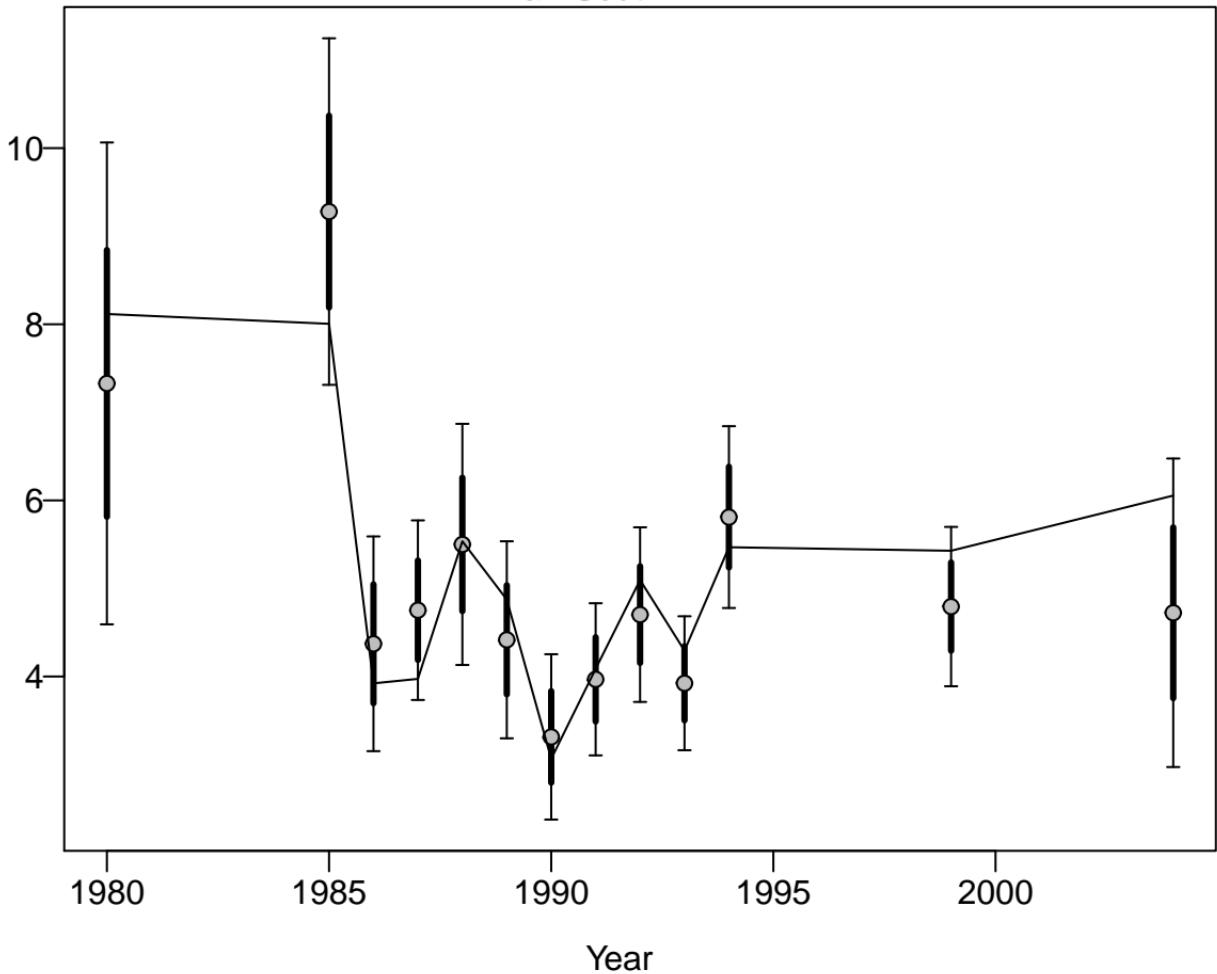


## conditional age-at-length data, whole catch, TrawlSouth (max=1)

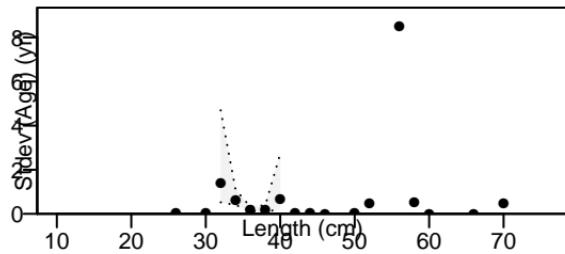
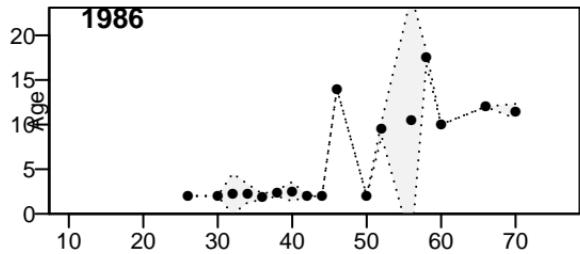
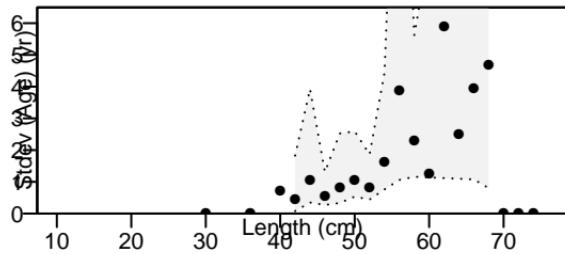
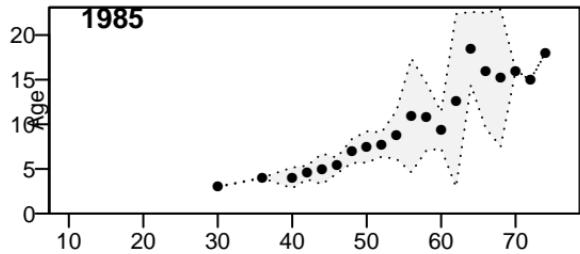
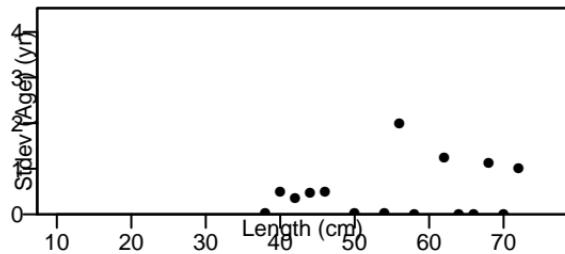
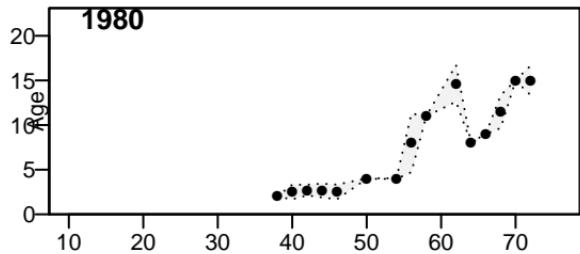


# TrawlSouth

Mean age

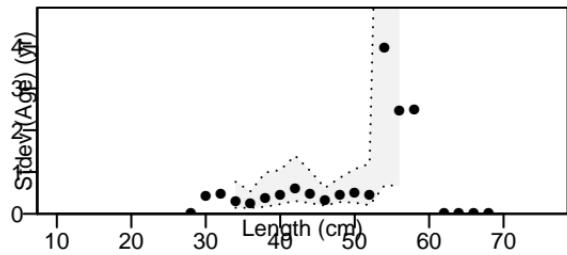
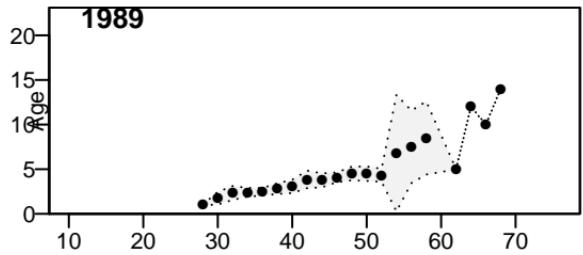
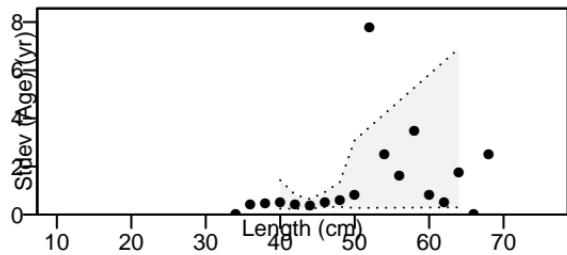
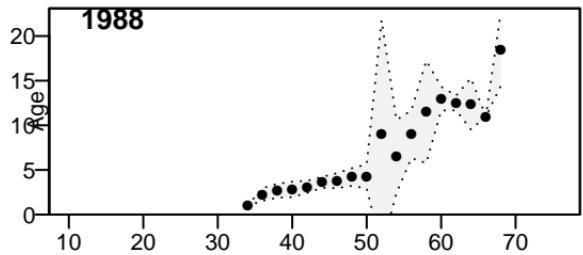
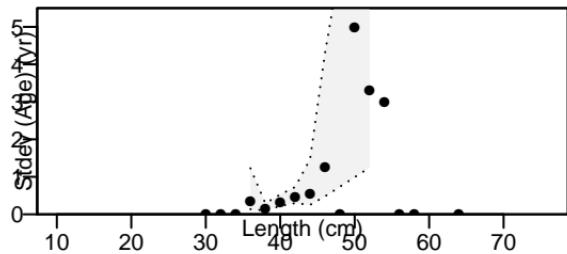
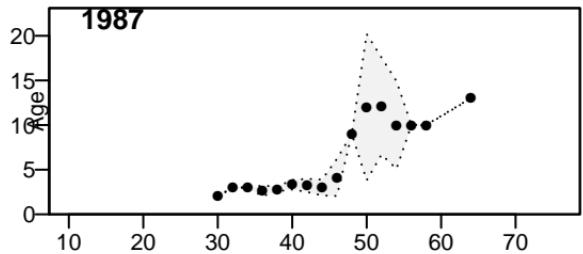


## Conditional AAL plot, whole catch, TrawlSouth



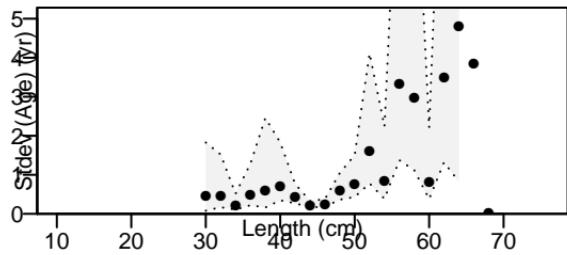
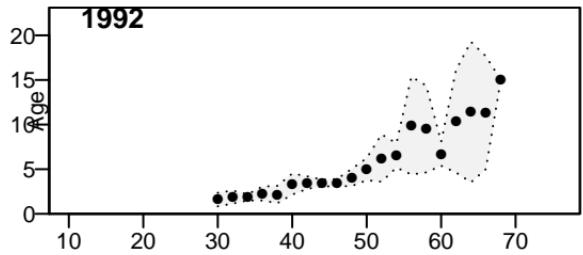
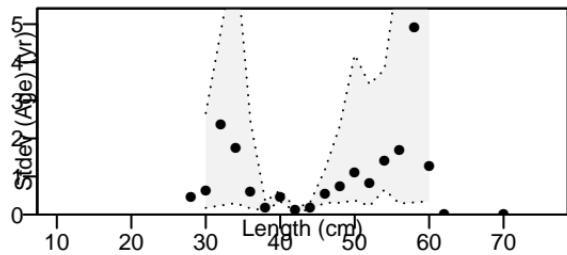
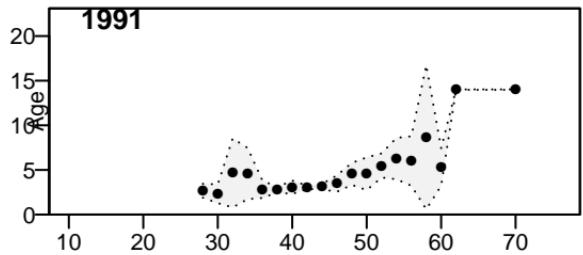
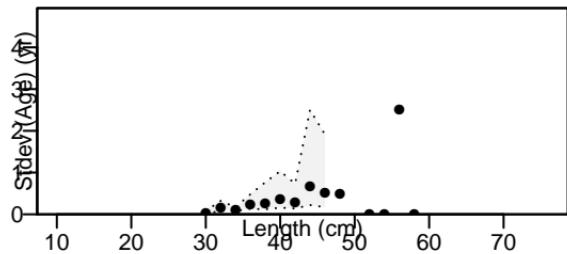
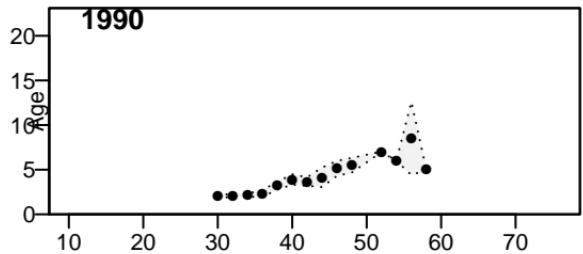
Length (cm)

### Conditional AAL plot, whole catch, TrawlSouth



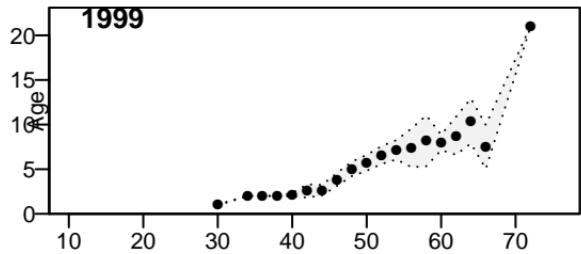
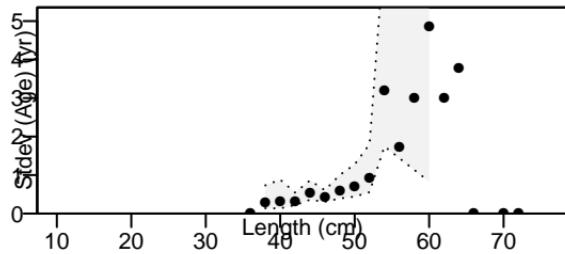
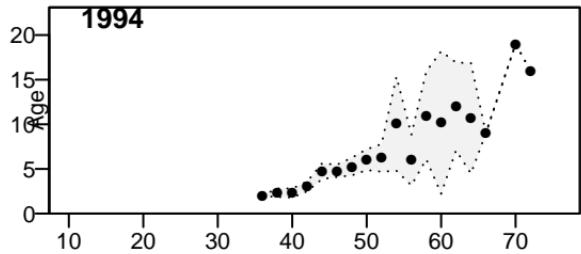
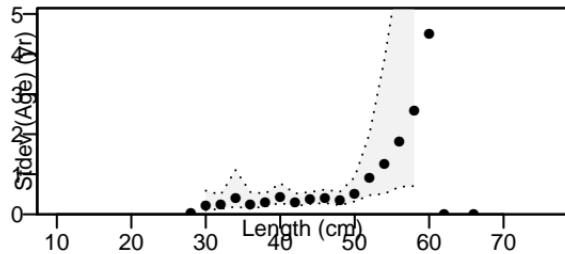
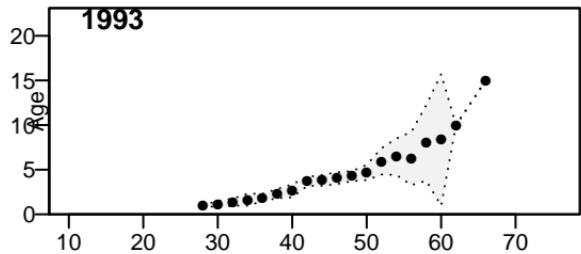
Length (cm)

## Conditional AAL plot, whole catch, TrawlSouth

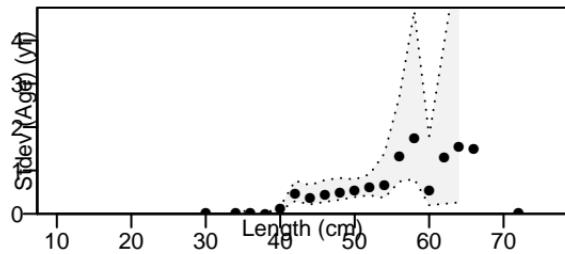


Length (cm)

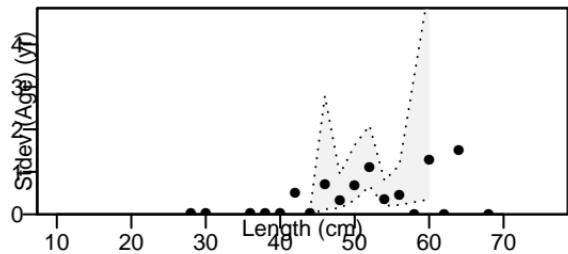
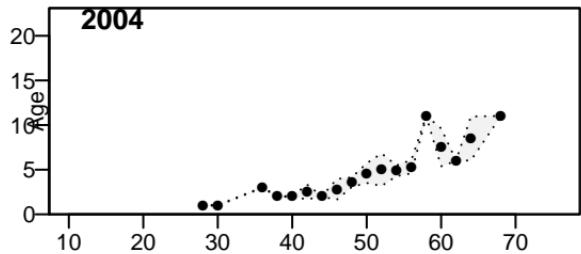
### Conditional AAL plot, whole catch, TrawlSouth



Length (cm)

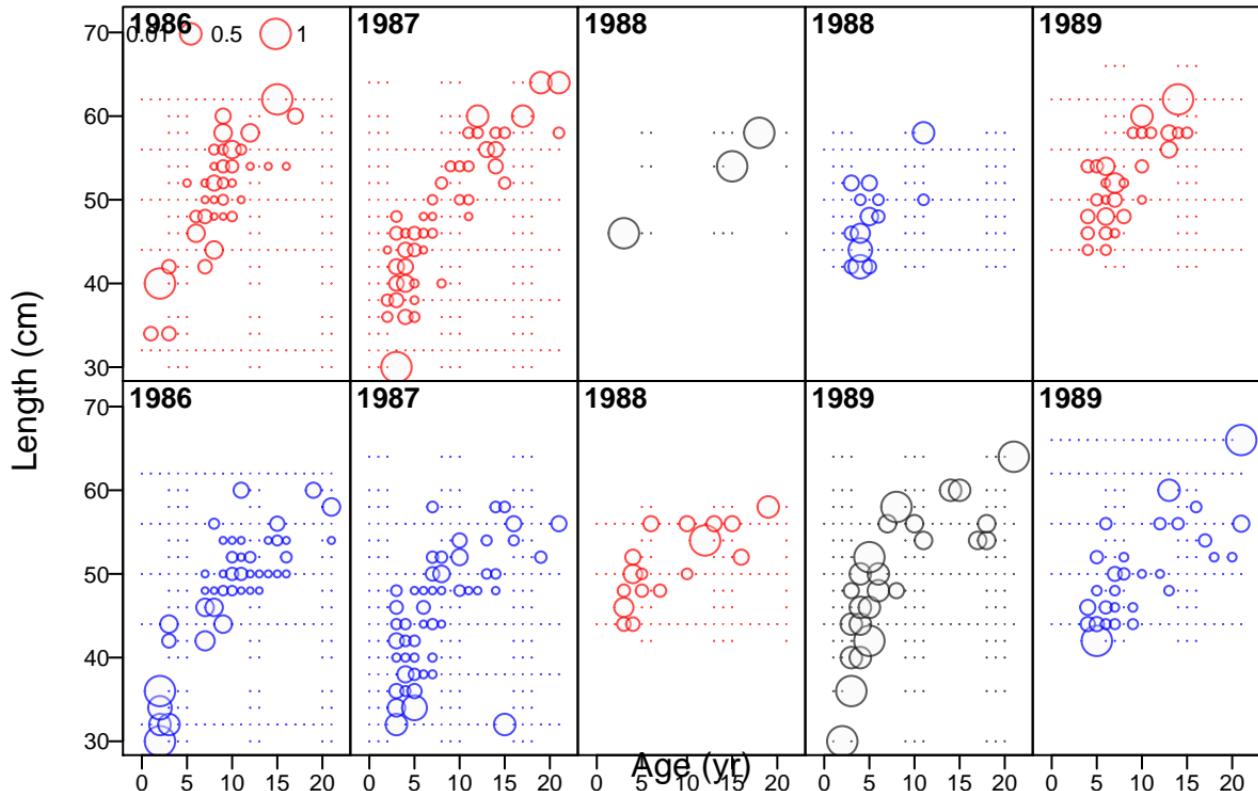


### Conditional AAL plot, whole catch, TrawlSouth

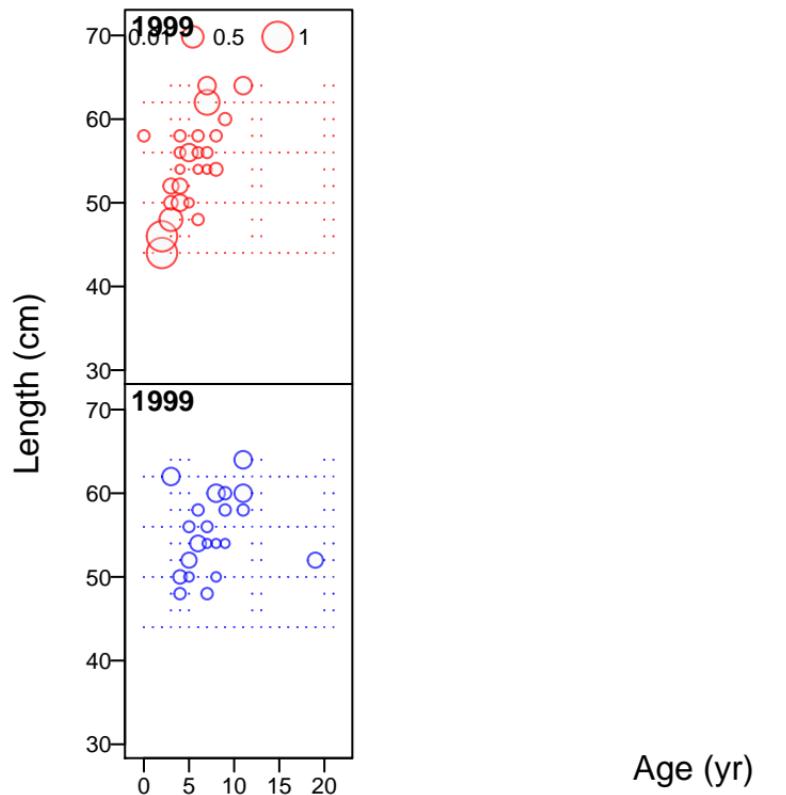


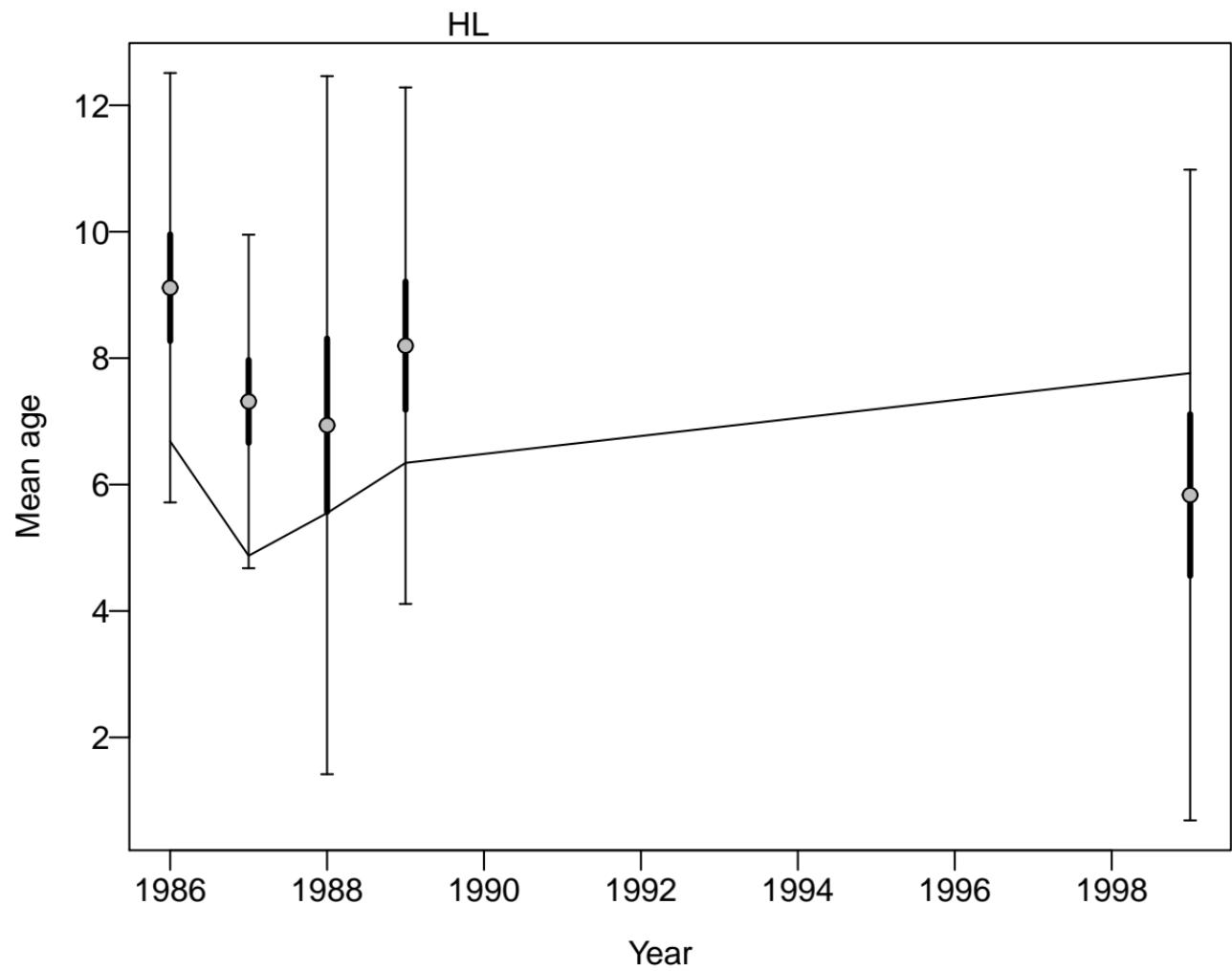
Length (cm)

## conditional age-at-length data, whole catch, HL (max=1)

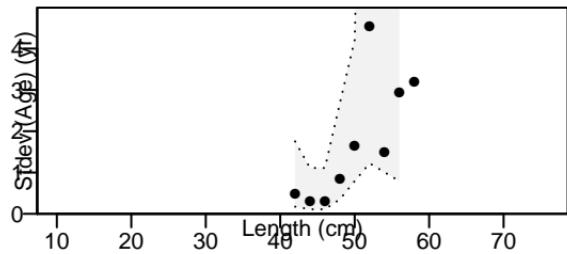
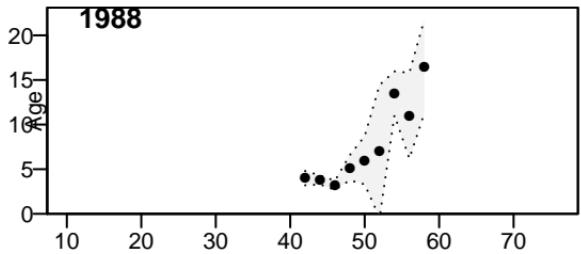
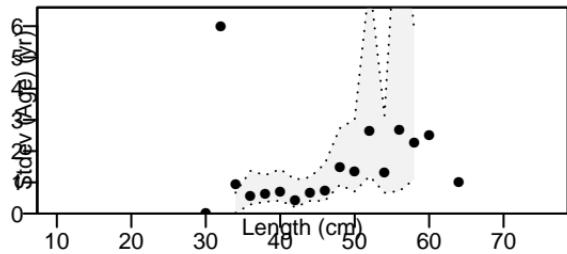
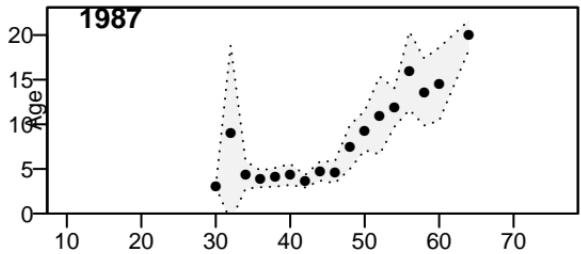
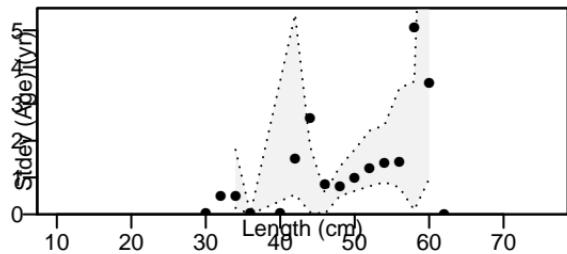
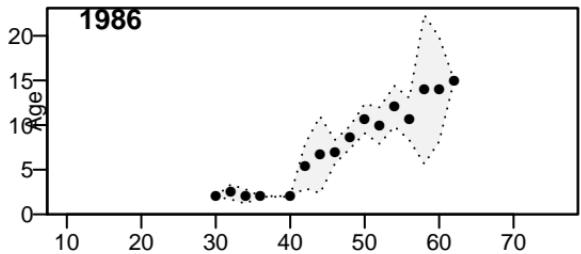


**conditional age-at-length data, whole catch, HL (max=1)**



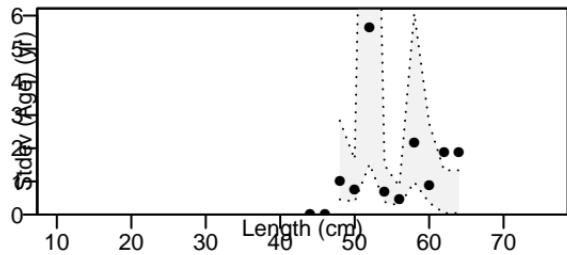
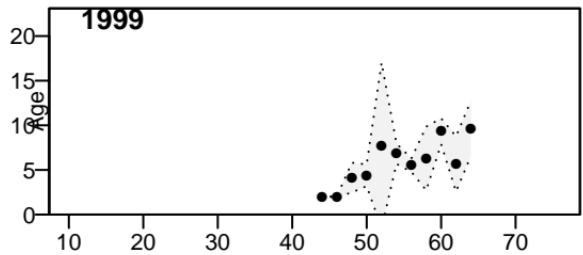
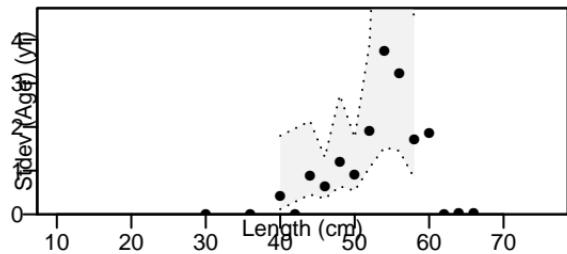
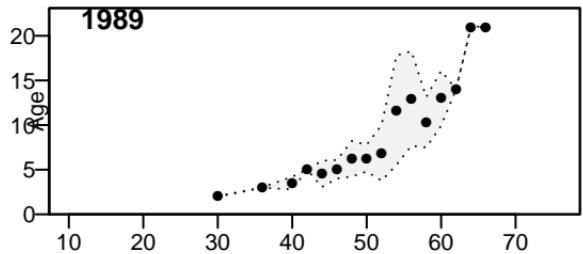


### Conditional AAL plot, whole catch, HL



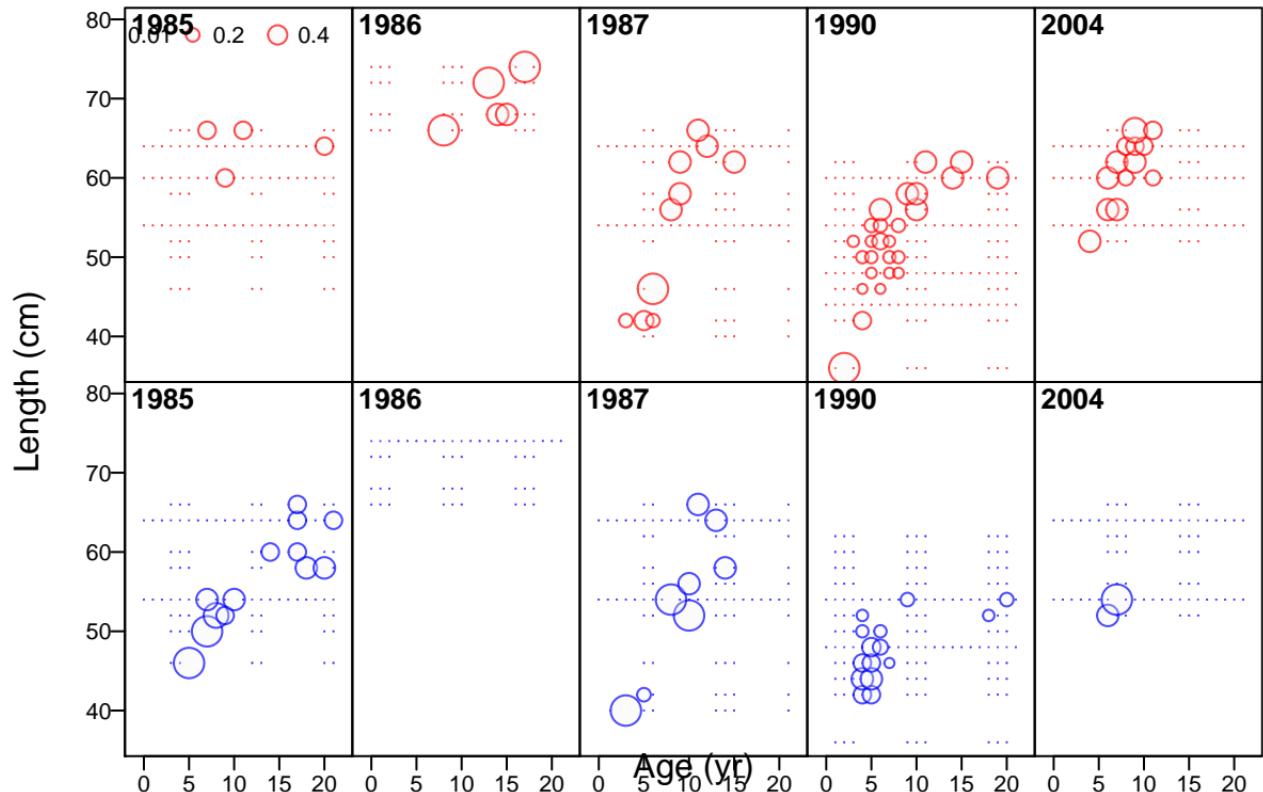
Length (cm)

### Conditional AAL plot, whole catch, HL



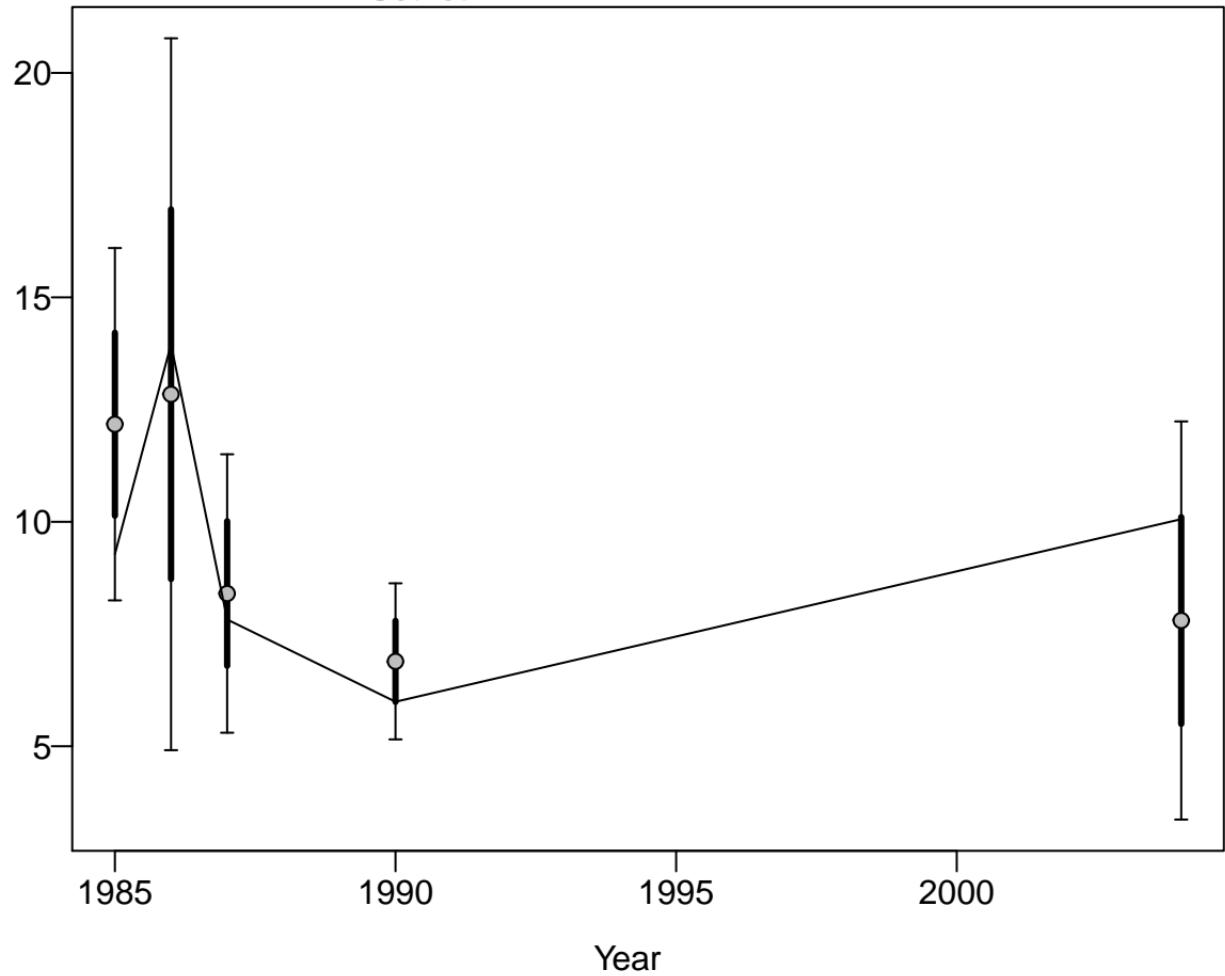
Length (cm)

## conditional age-at-length data, whole catch, Setnet (max=1)

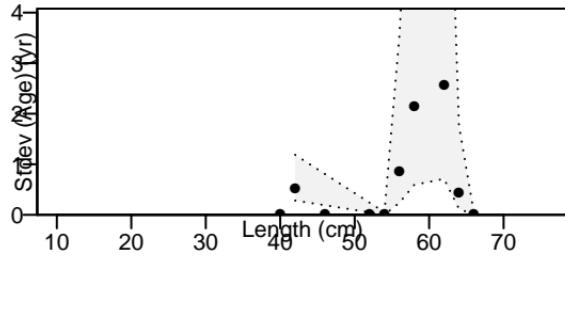
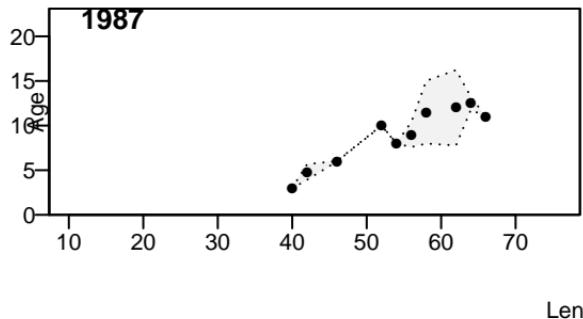
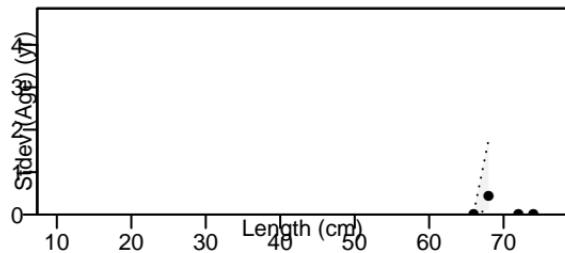
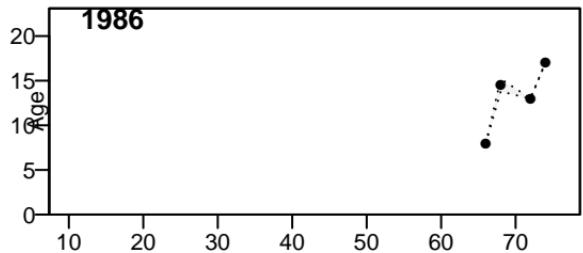
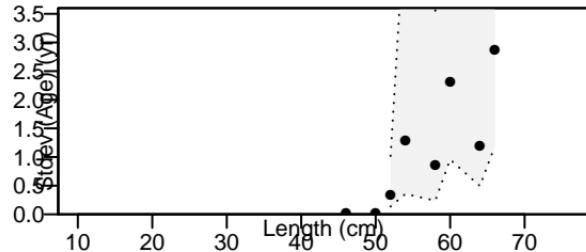
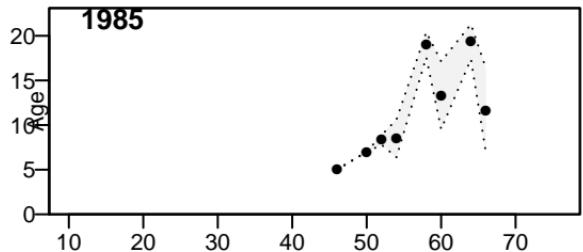


# Setnet

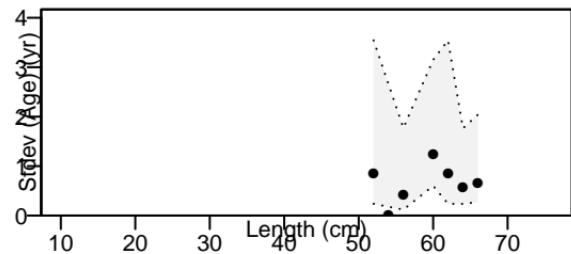
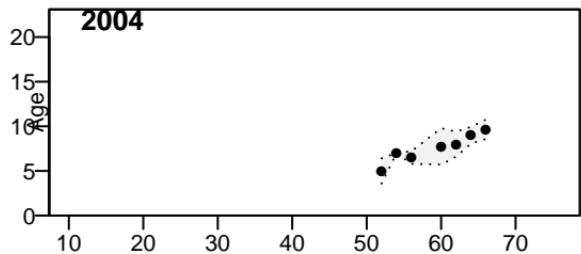
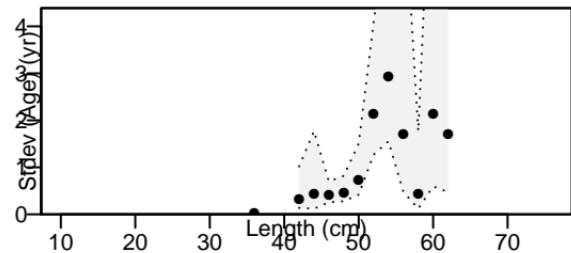
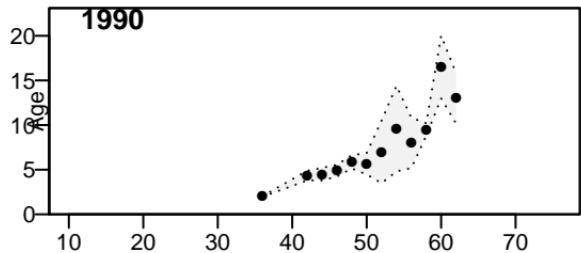
Mean age



### Conditional AAL plot, whole catch, Setnet

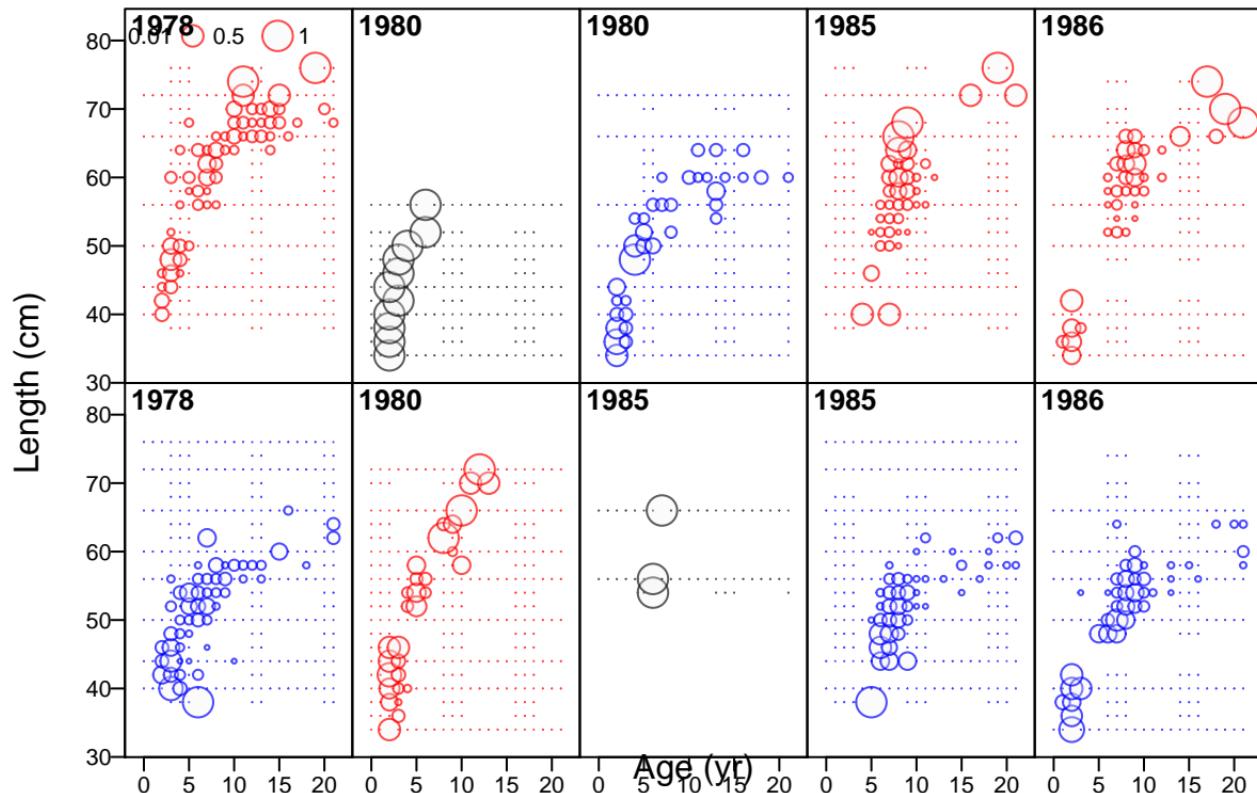


### Conditional AAL plot, whole catch, Setnet

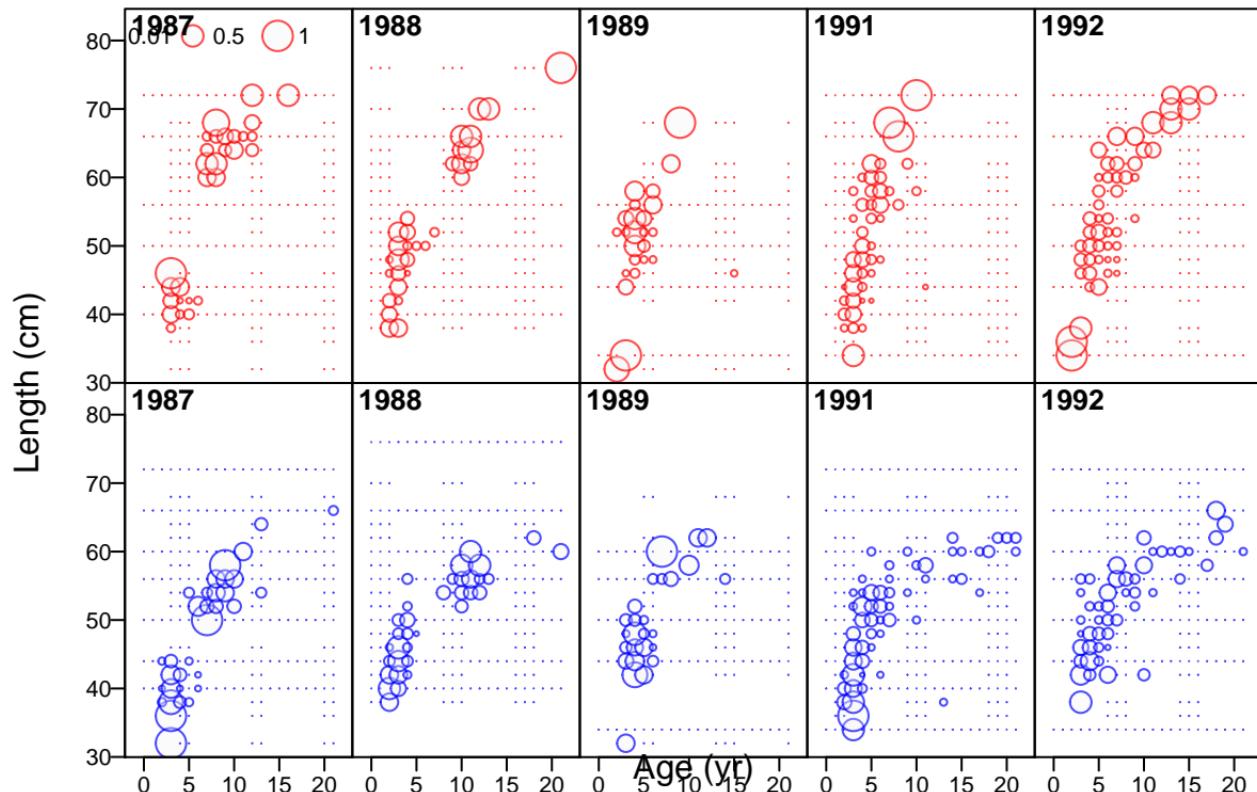


Length (cm)

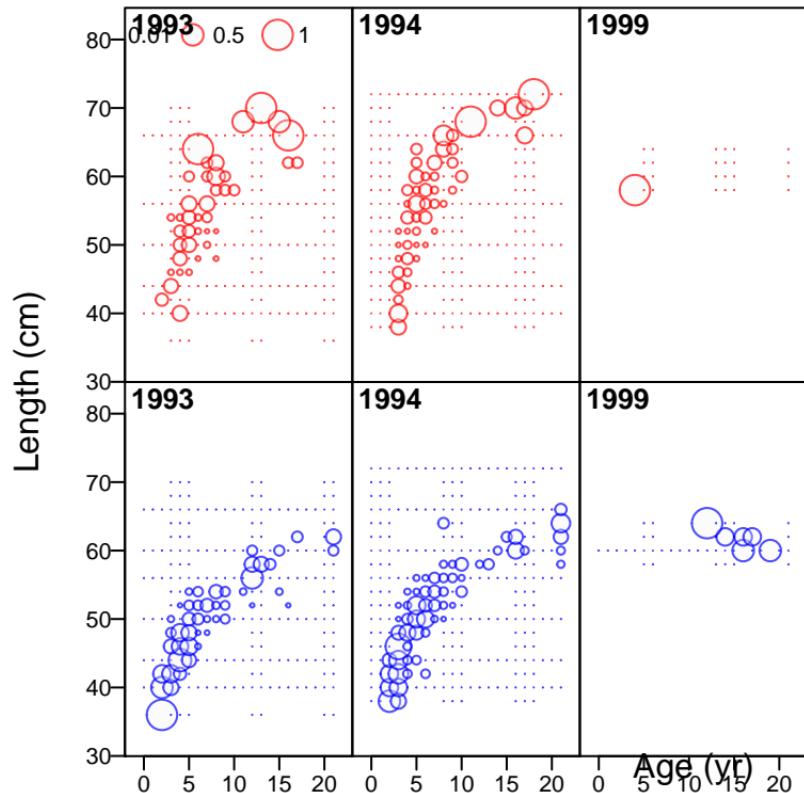
## conditional age-at-length data, whole catch, TrawNorth (max=1)



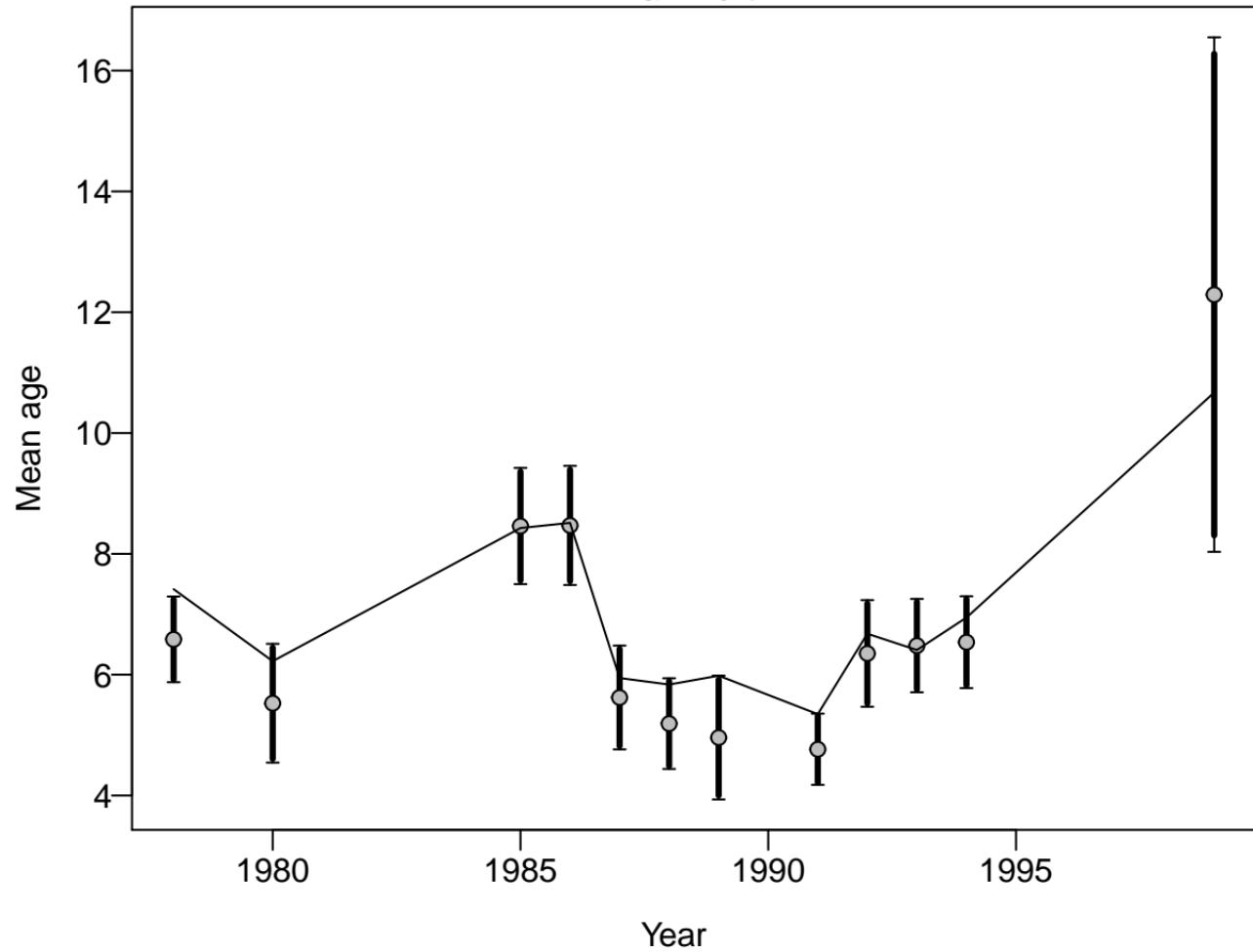
## conditional age-at-length data, whole catch, TrawNorth (max=1)



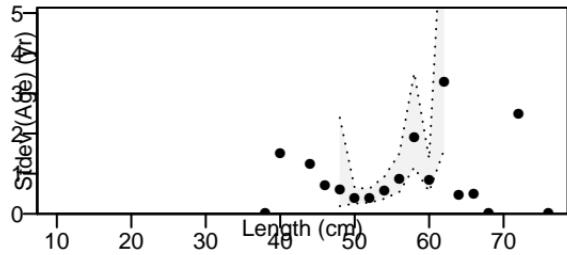
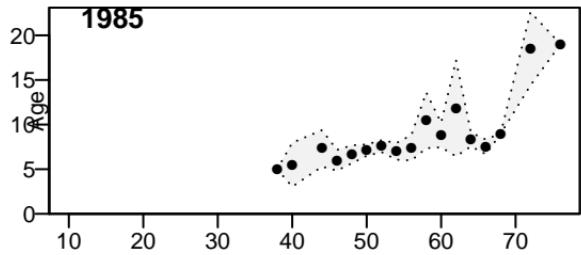
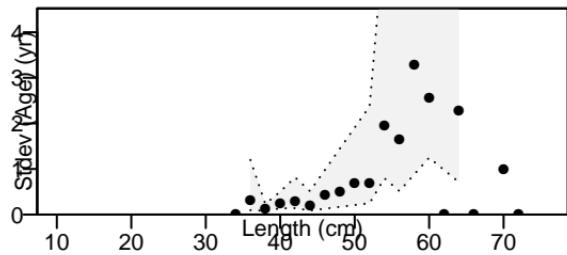
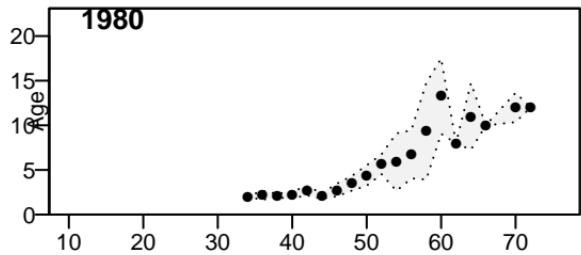
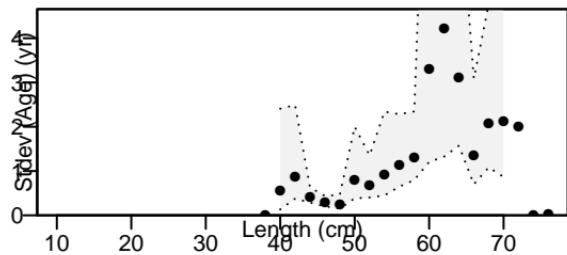
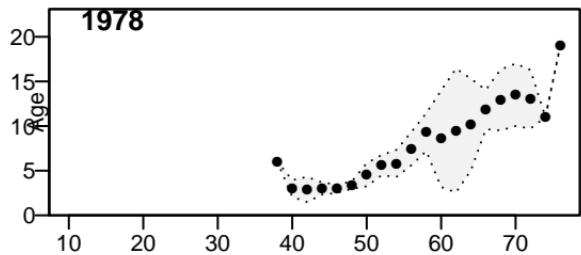
## conditional age-at-length data, whole catch, TrawNorth (max=1)



# TrawlNorth

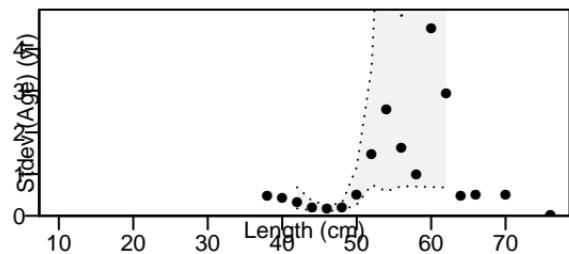
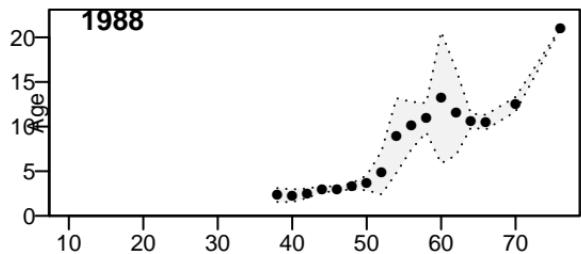
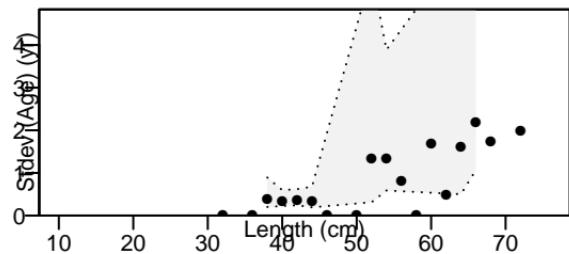
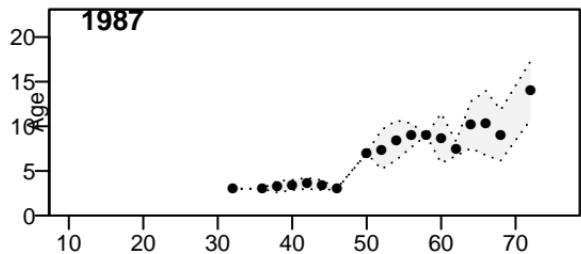
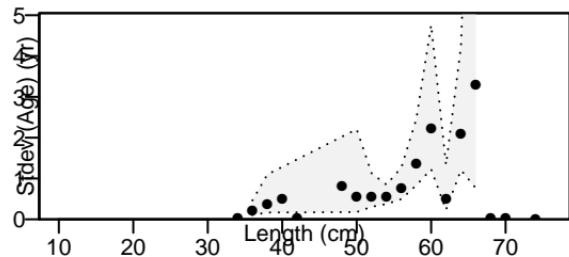
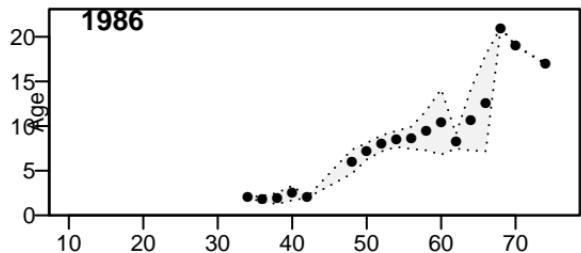


### Conditional AAL plot, whole catch, TrawlNorth



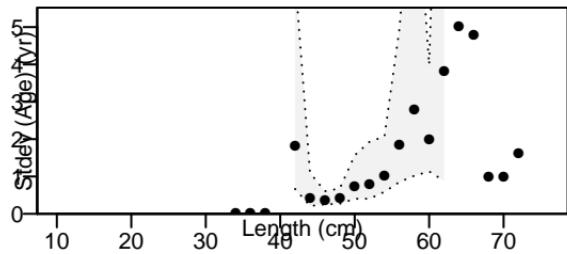
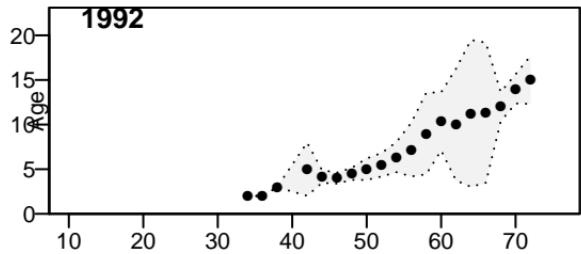
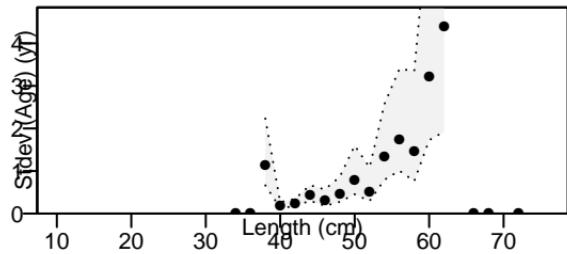
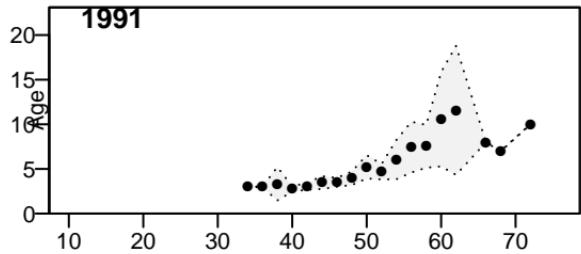
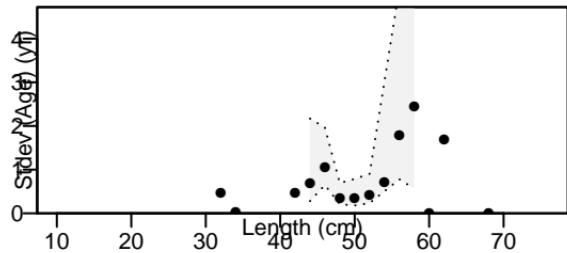
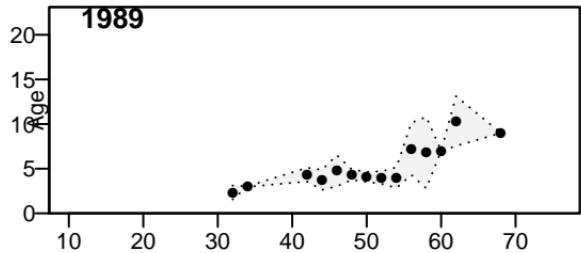
Length (cm)

### Conditional AAL plot, whole catch, TrawlNorth



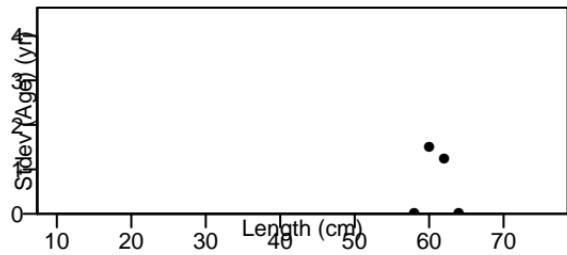
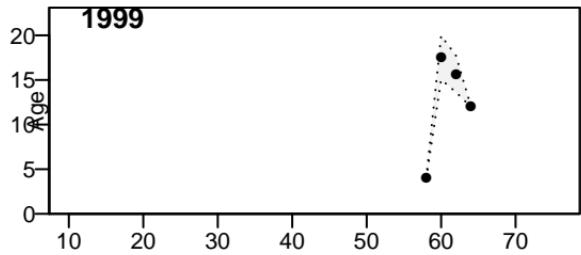
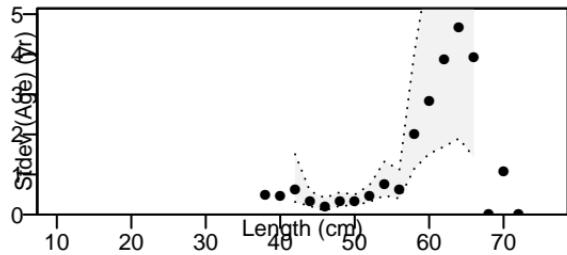
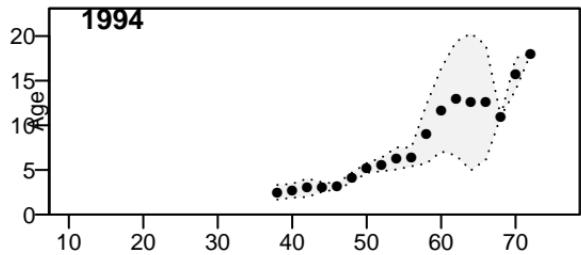
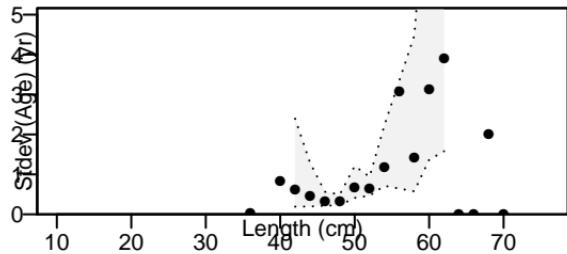
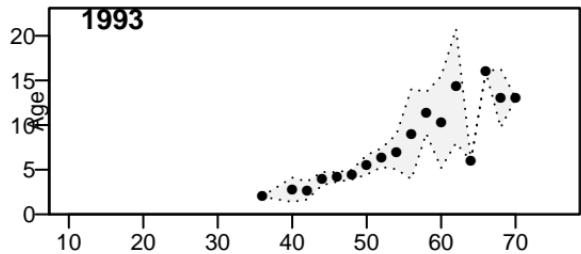
Length (cm)

### Conditional AAL plot, whole catch, TrawlNorth



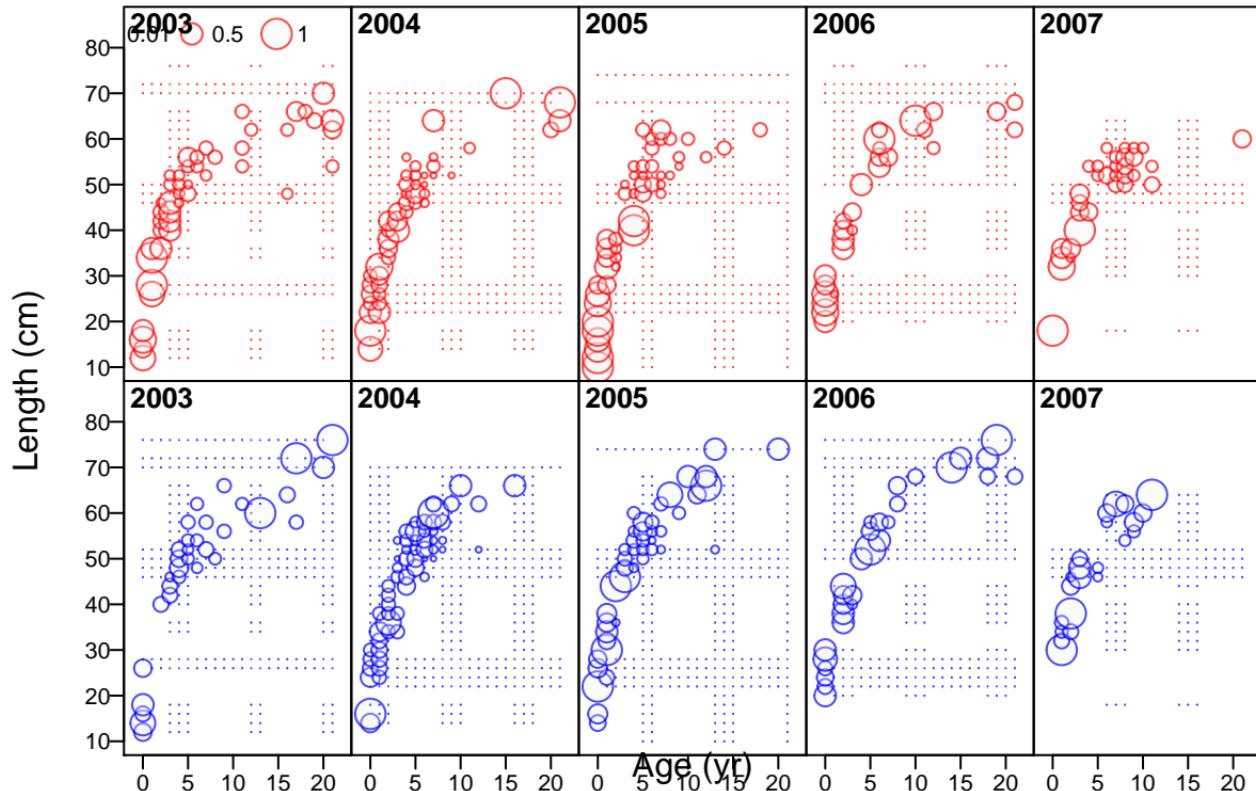
Length (cm)

### Conditional AAL plot, whole catch, TrawlNorth

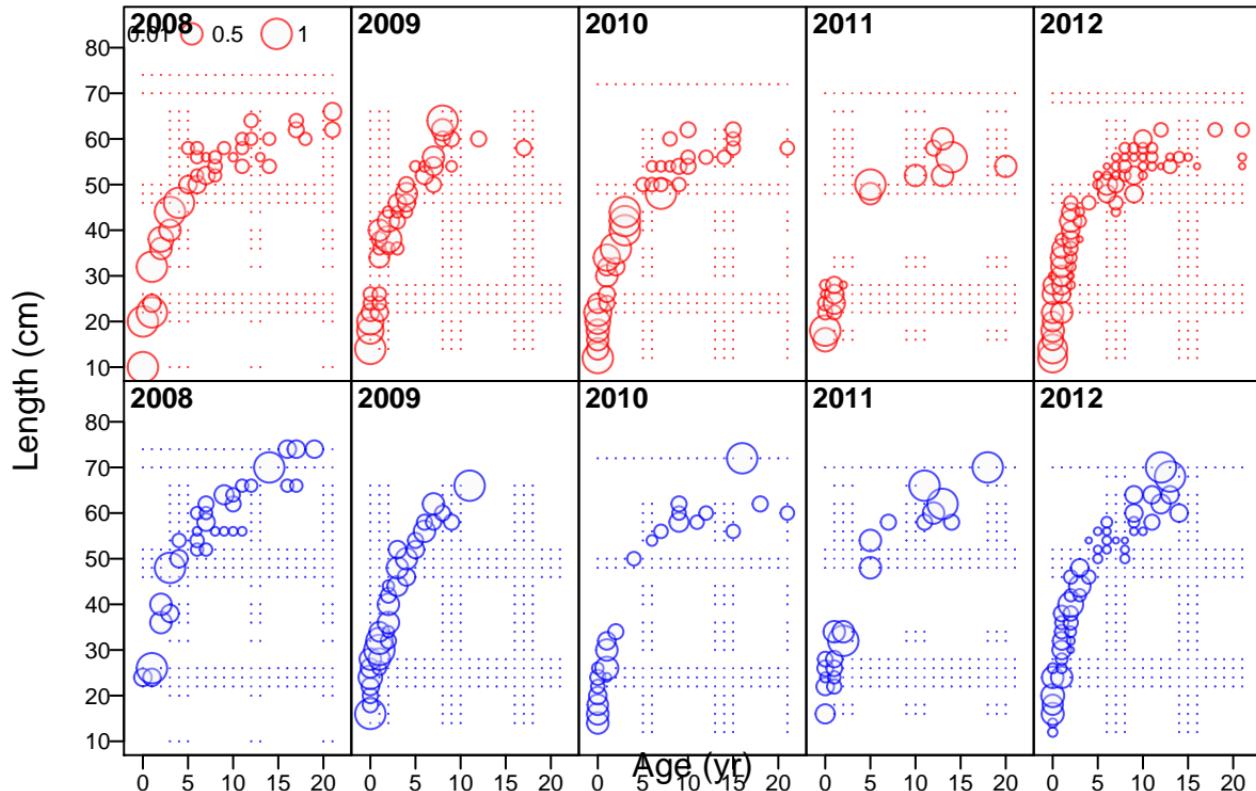


Length (cm)

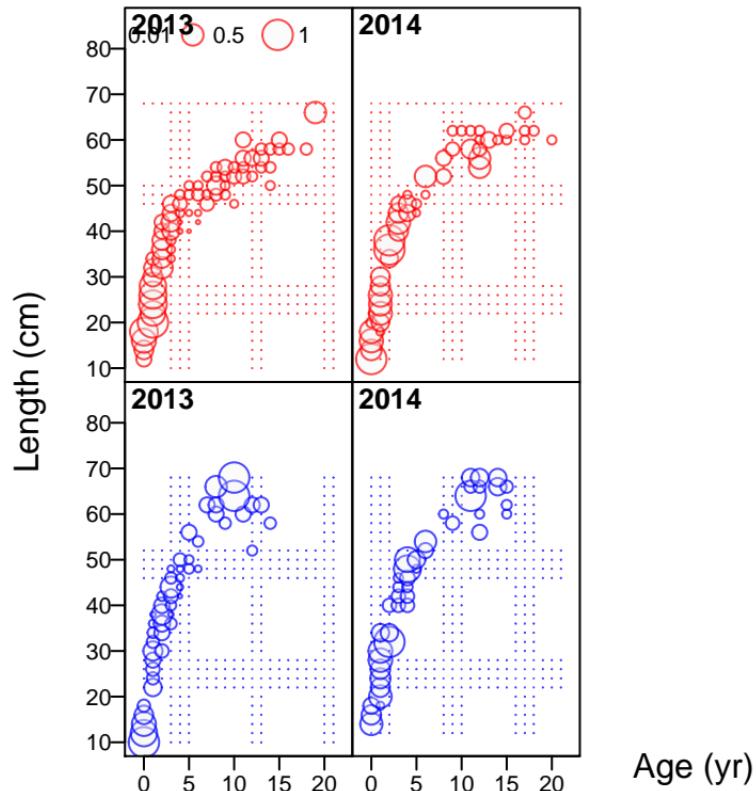
## conditional age-at-length data, whole catch, NWFSC Trawl (max=1)



## conditional age-at-length data, whole catch, NWFSC Trawl (max=1)

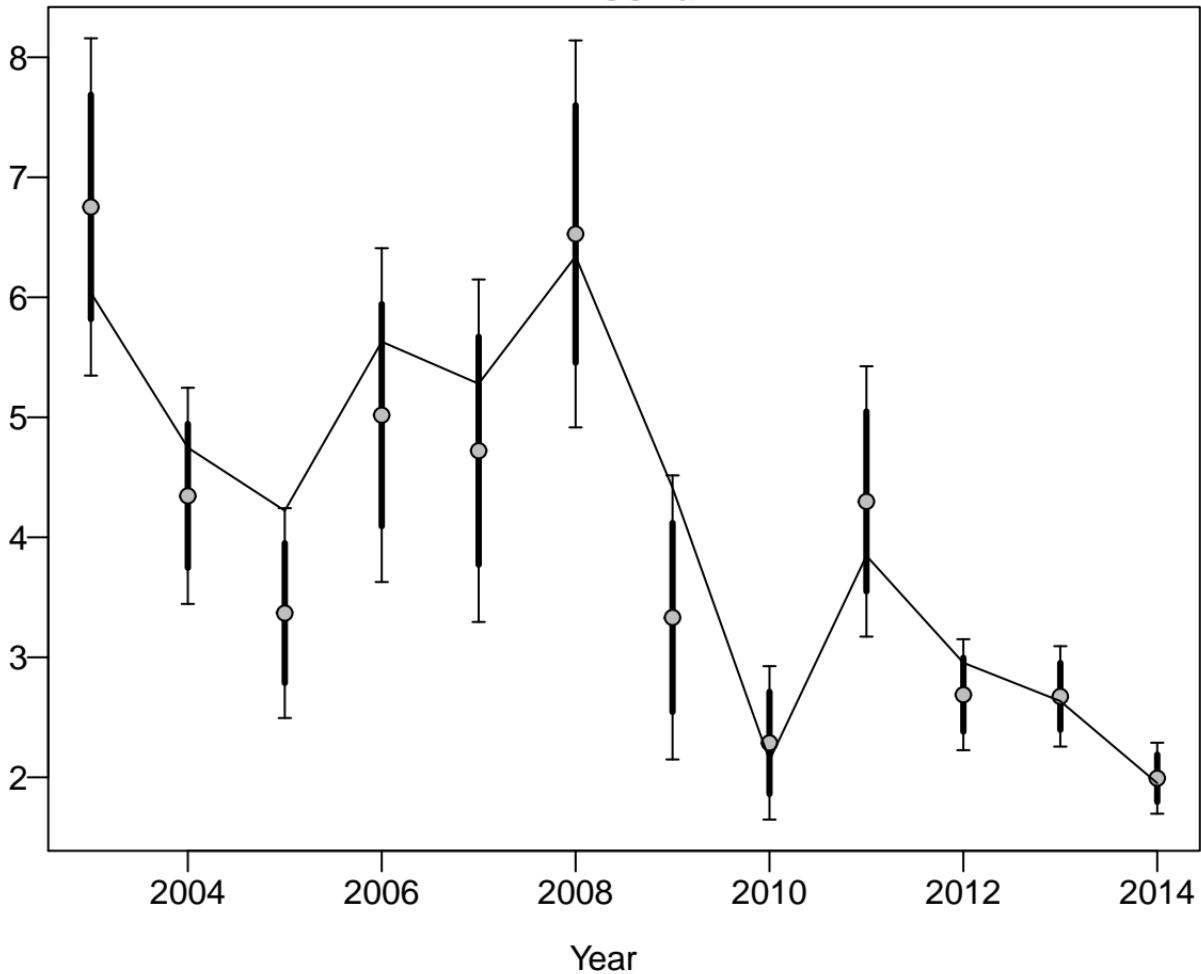


## conditional age-at-length data, whole catch, NWFSC Trawl (max=1)

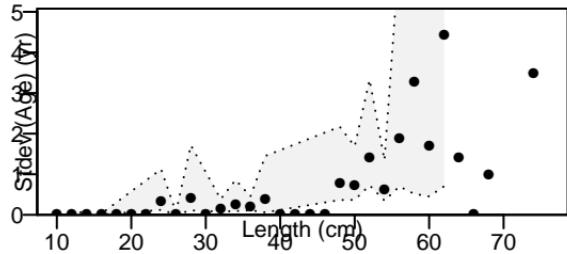
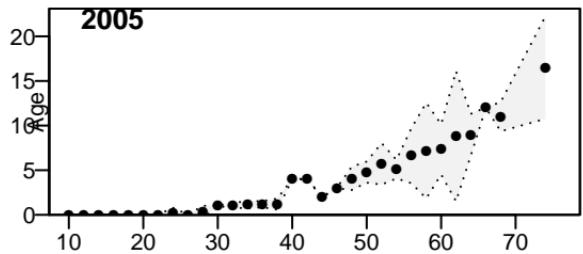
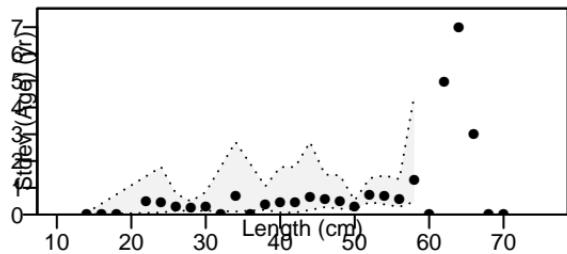
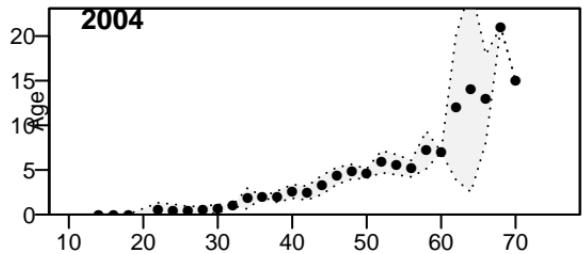
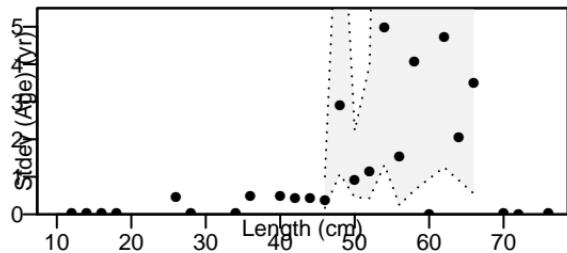
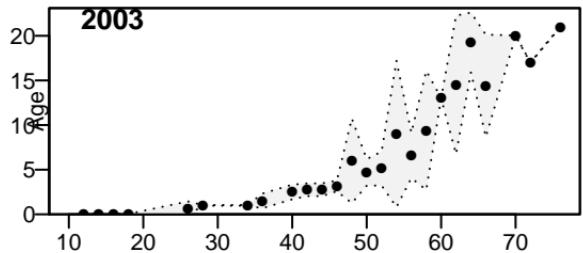


### NWFSC Trawl

Mean age

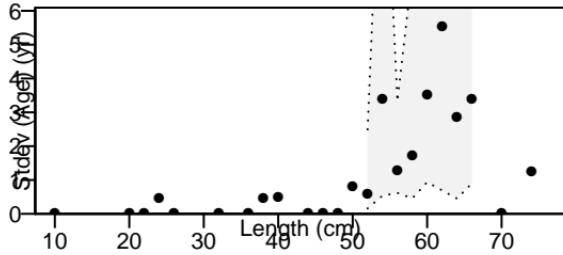
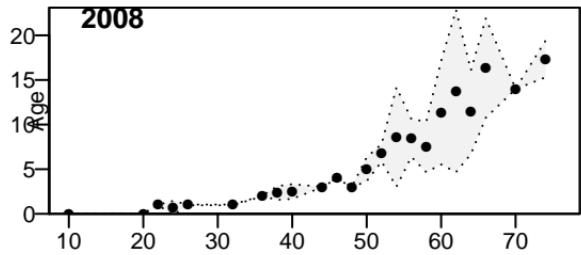
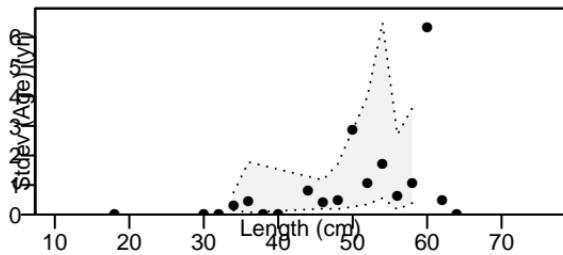
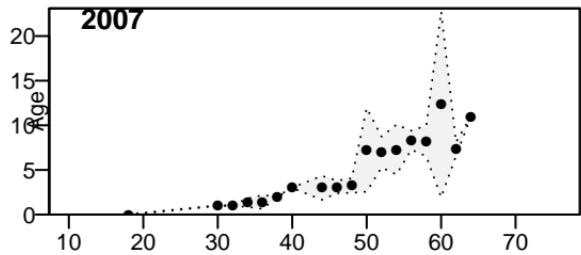
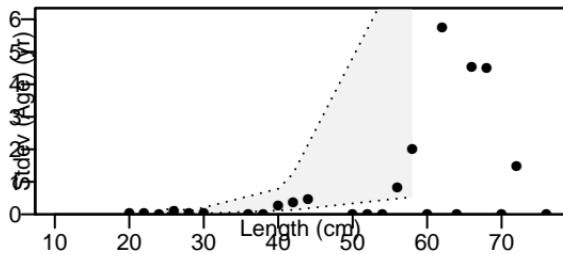
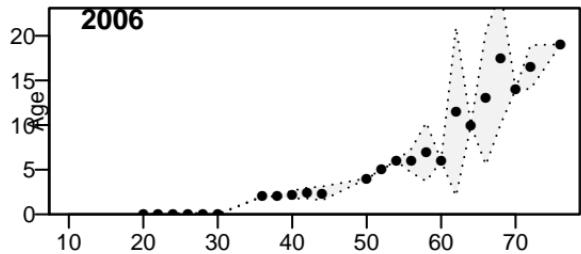


### Conditional AAL plot, whole catch, NWFSC Trawl



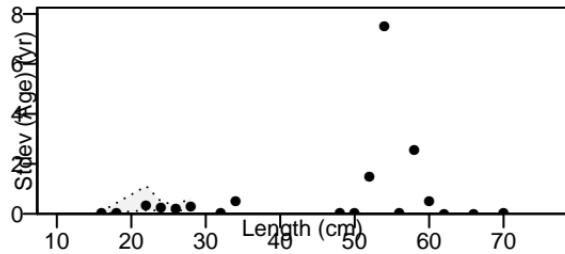
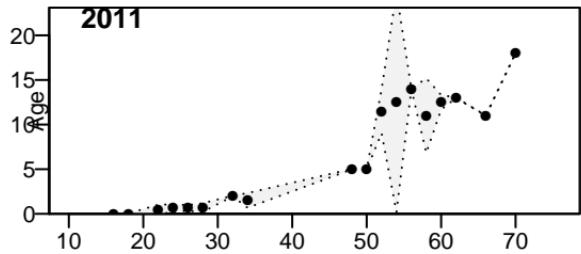
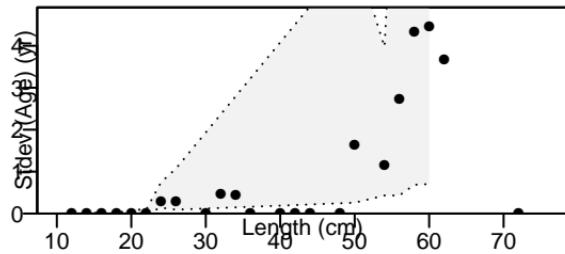
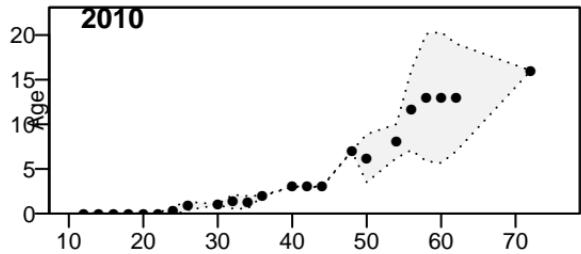
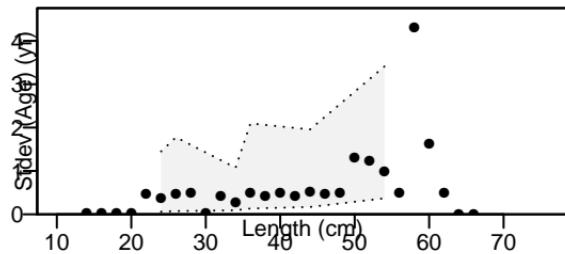
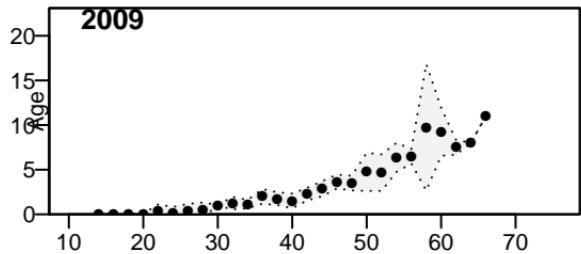
Length (cm)

### Conditional AAL plot, whole catch, NWFSC Trawl



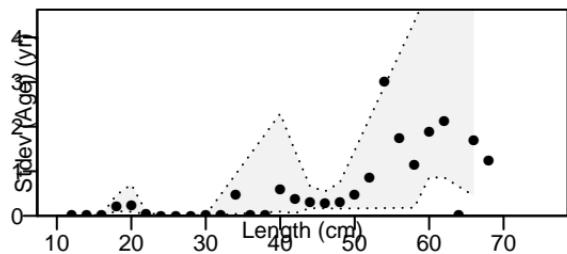
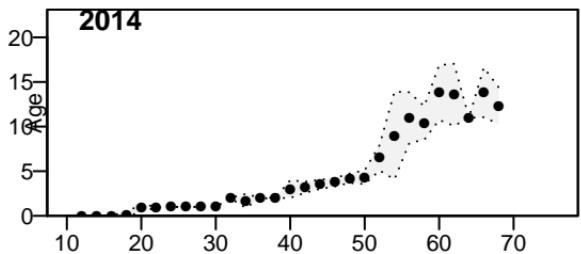
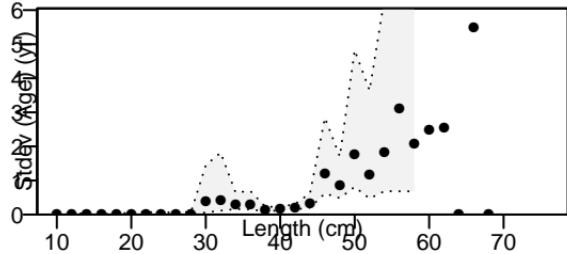
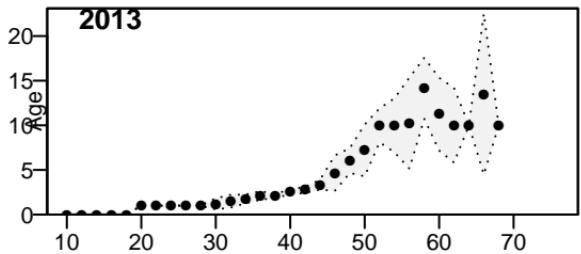
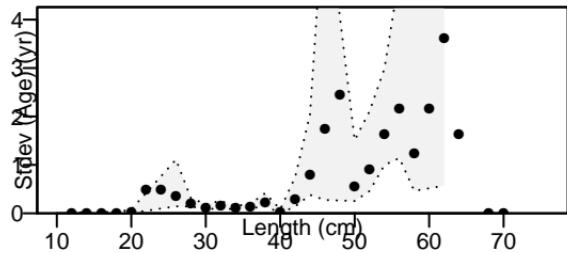
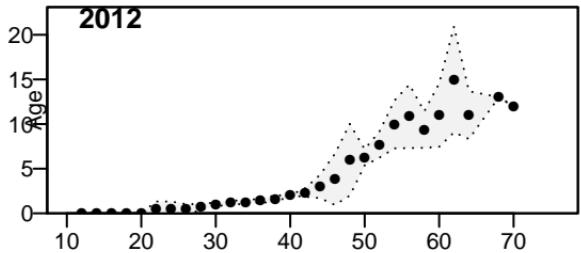
Length (cm)

### Conditional AAL plot, whole catch, NWFSC Trawl



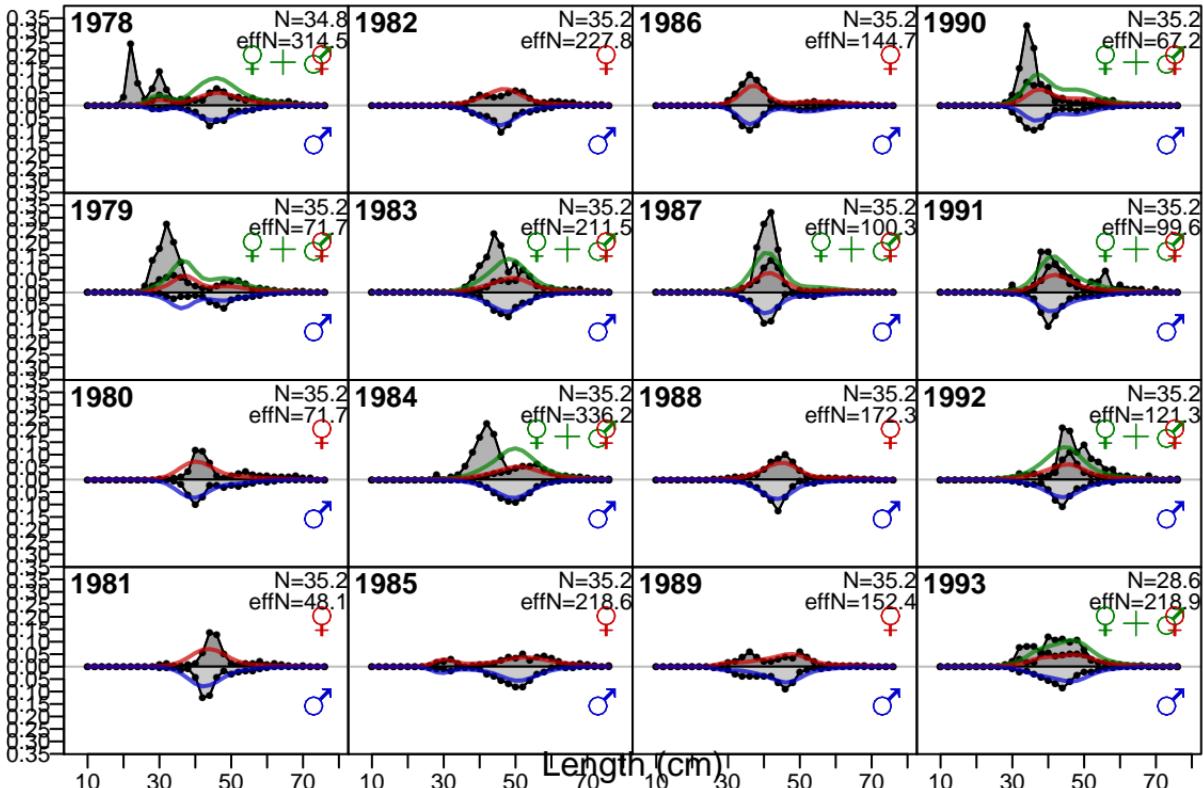
Length (cm)

### Conditional AAL plot, whole catch, NWFSC Trawl



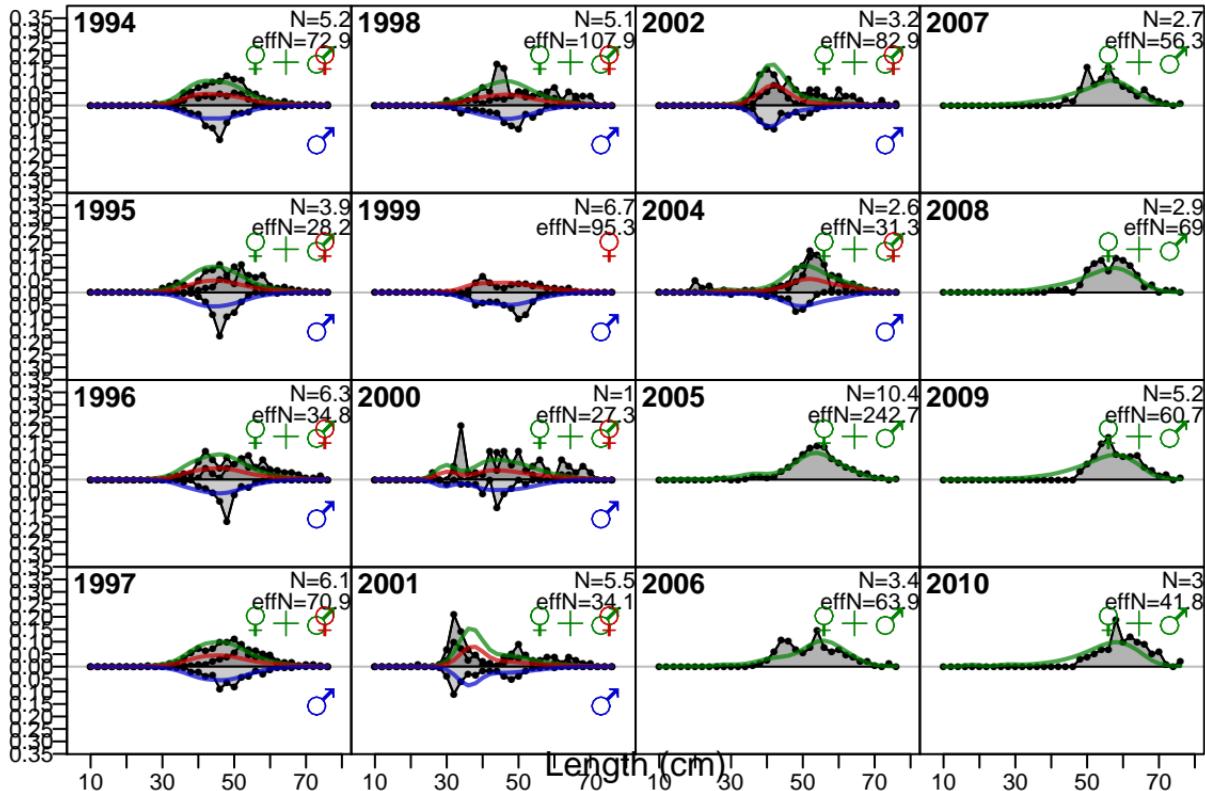
Length (cm)

## length comps, whole catch, TrawlSouth

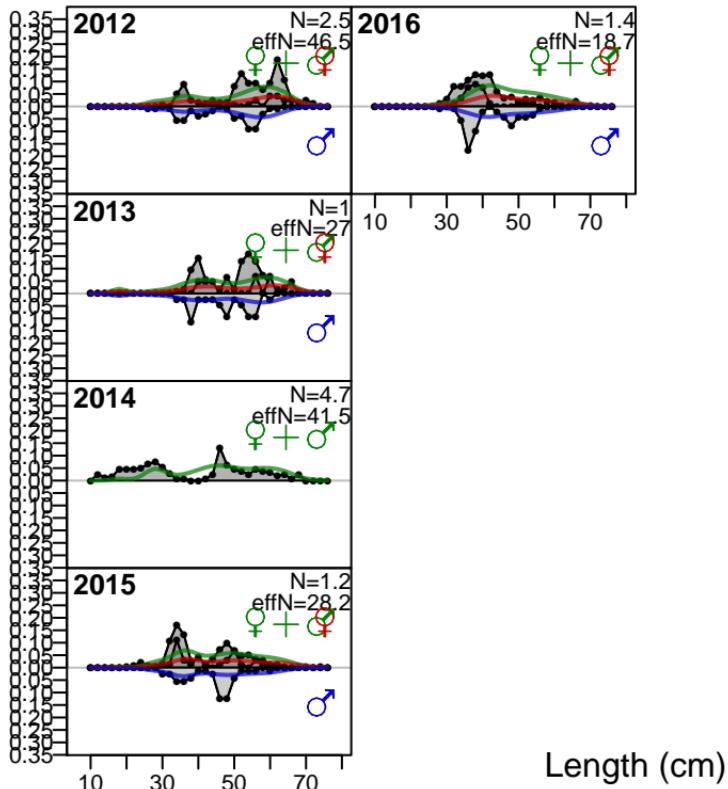


## length comps, whole catch, TrawlSouth

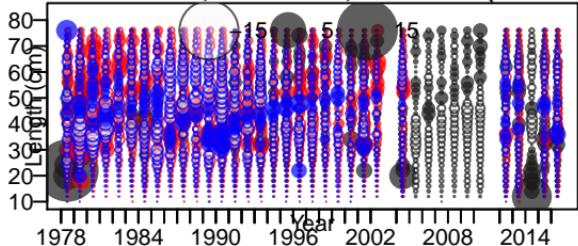
Proportion



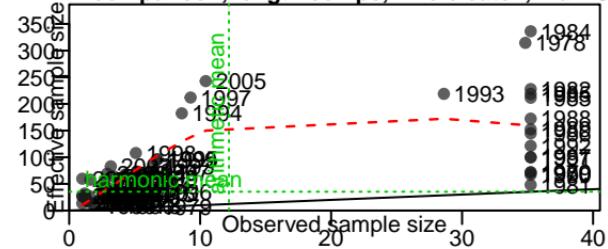
## length comps, whole catch, TrawlSouth



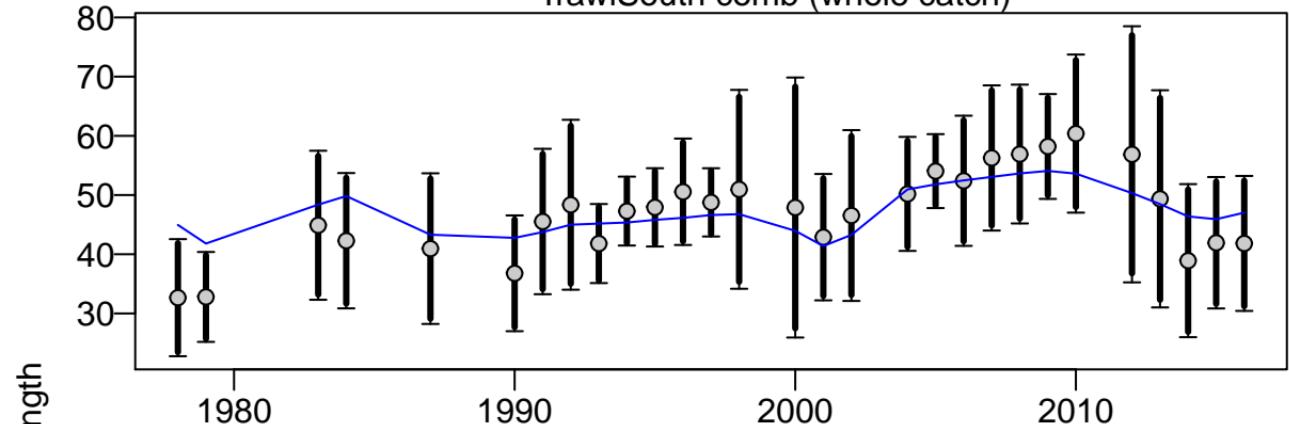
### Pearson residuals, whole catch, TrawlSouth (max=15.65)



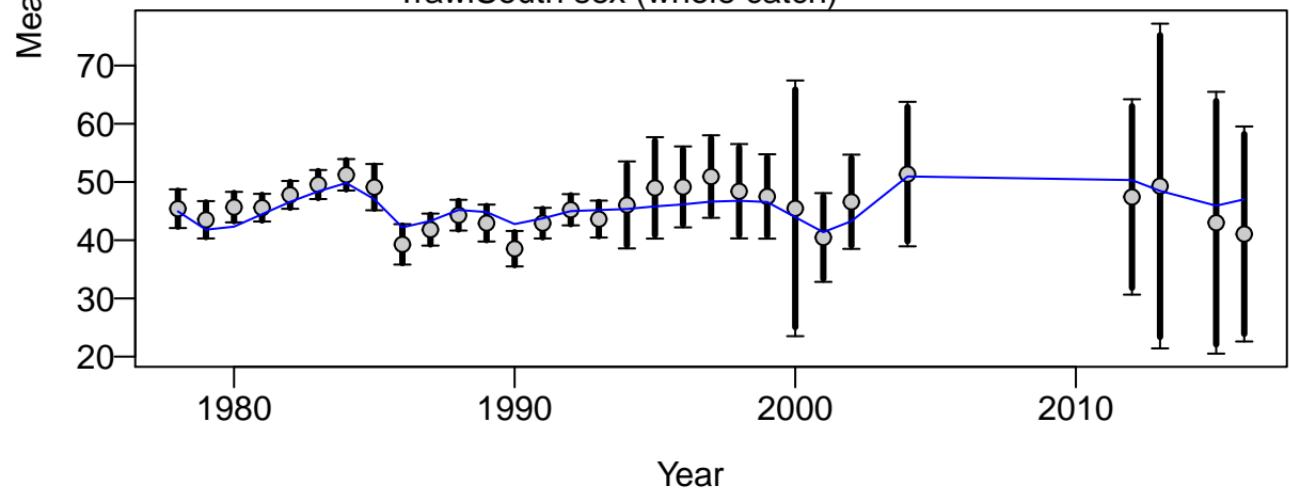
### N-EffN comparison, length comps, whole catch, TrawlSo



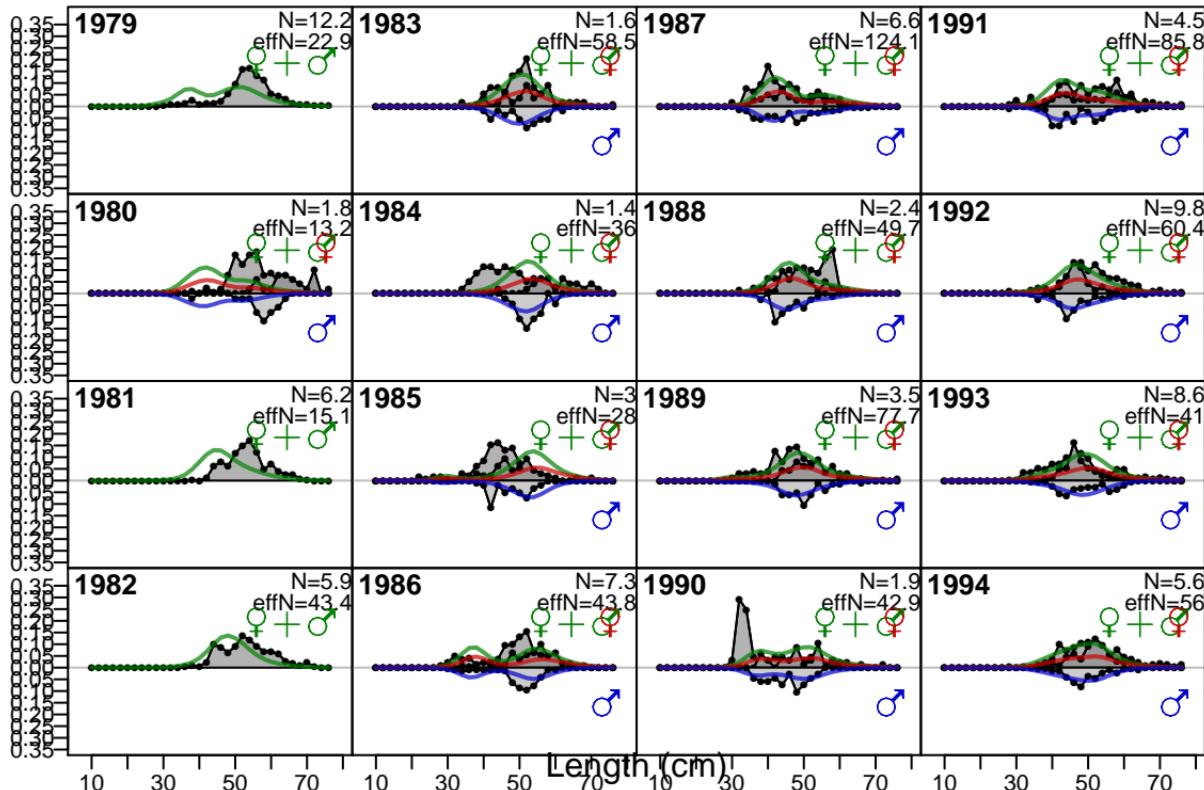
TrawlSouth comb (whole catch)



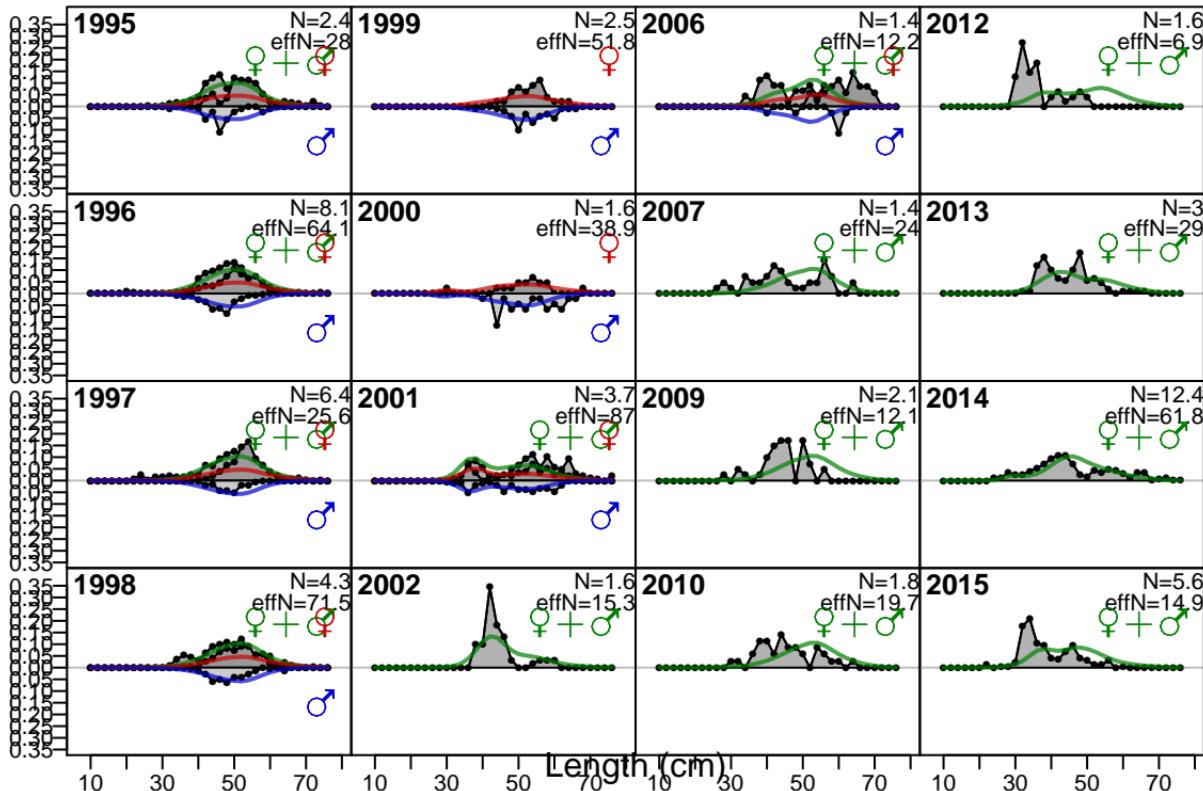
TrawlSouth sex (whole catch)



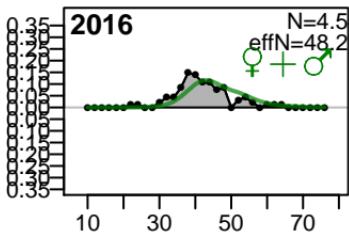
## length comps, whole catch, HL



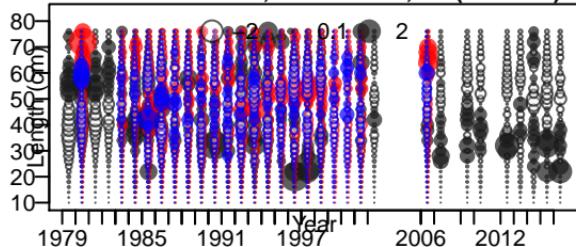
## length comps, whole catch, HL



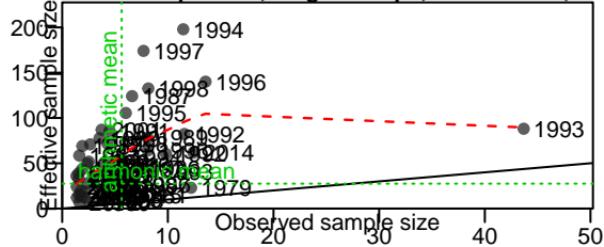
## length comps, whole catch, HL



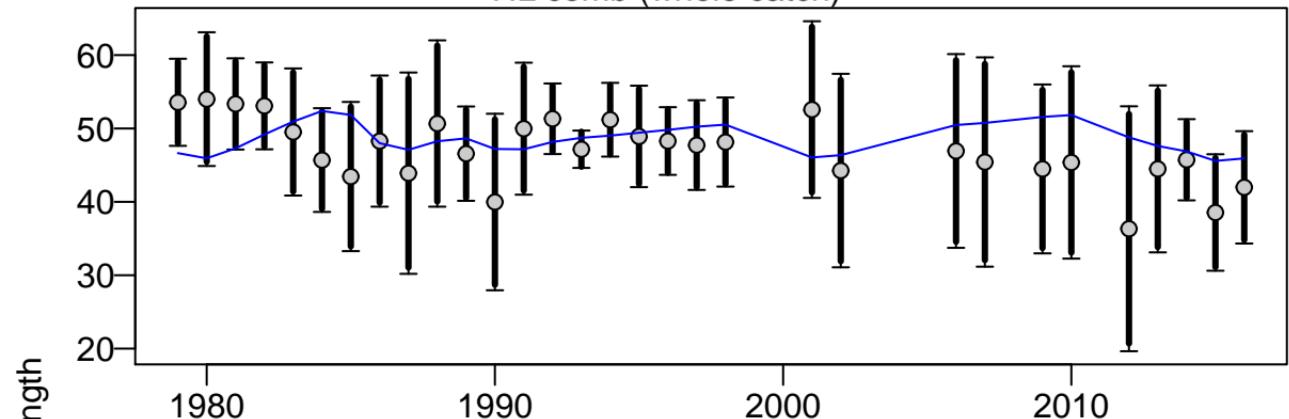
### Pearson residuals, whole catch, HL (max=3.2)



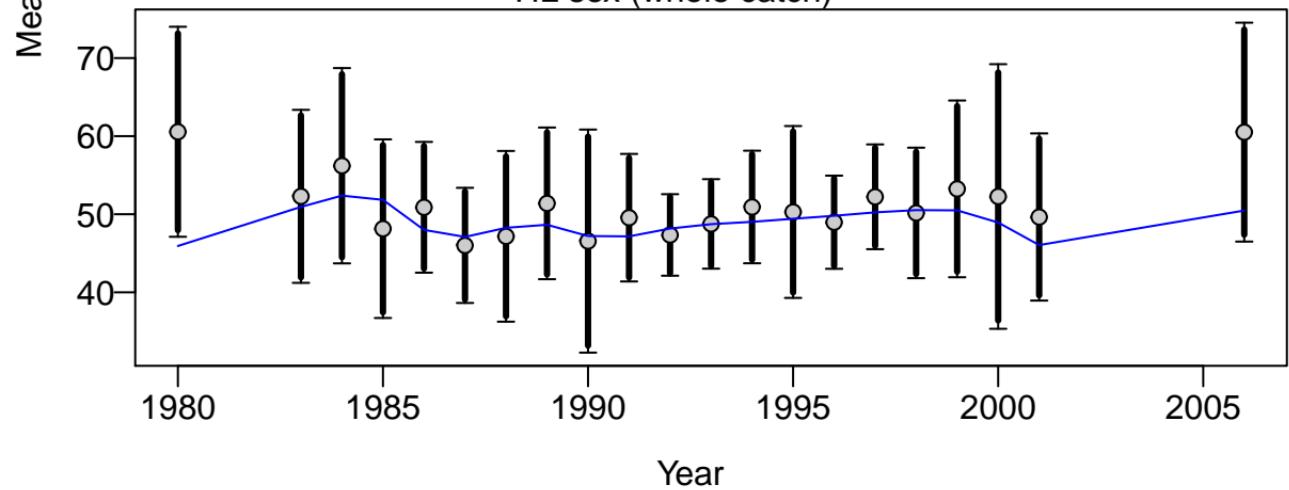
### N-EffN comparison, length comps, whole catch, HL



HL comb (whole catch)

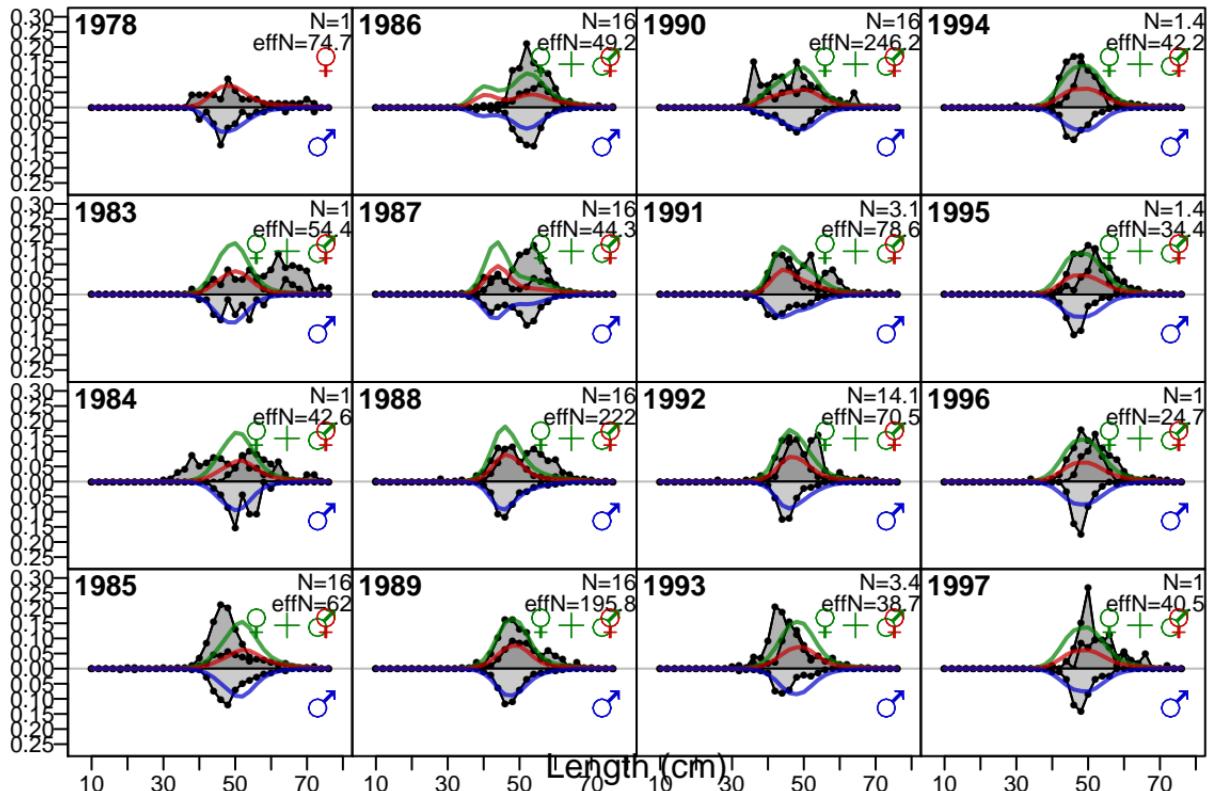


HL sex (whole catch)

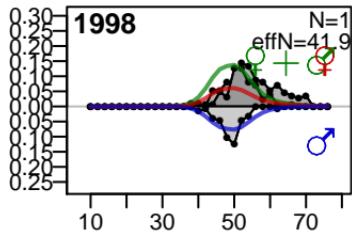


## length comps, whole catch, Setnet

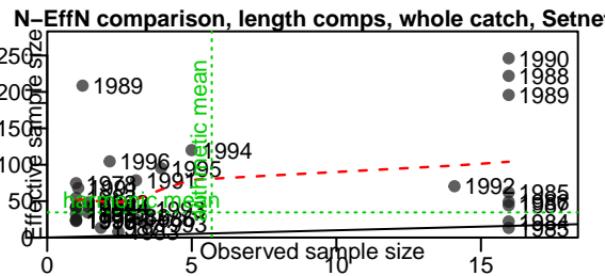
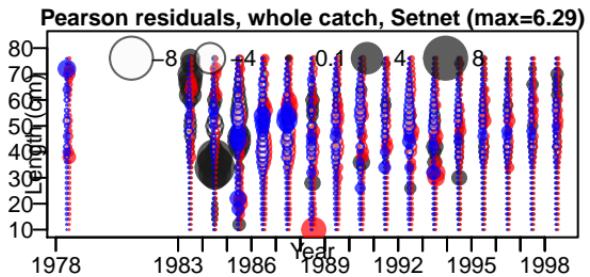
Proportion



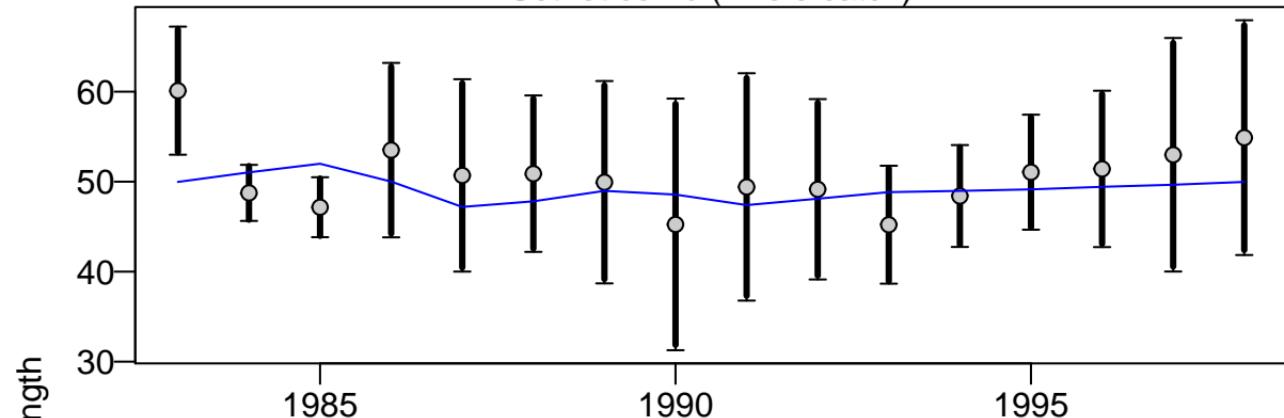
## length comps, whole catch, Setnet



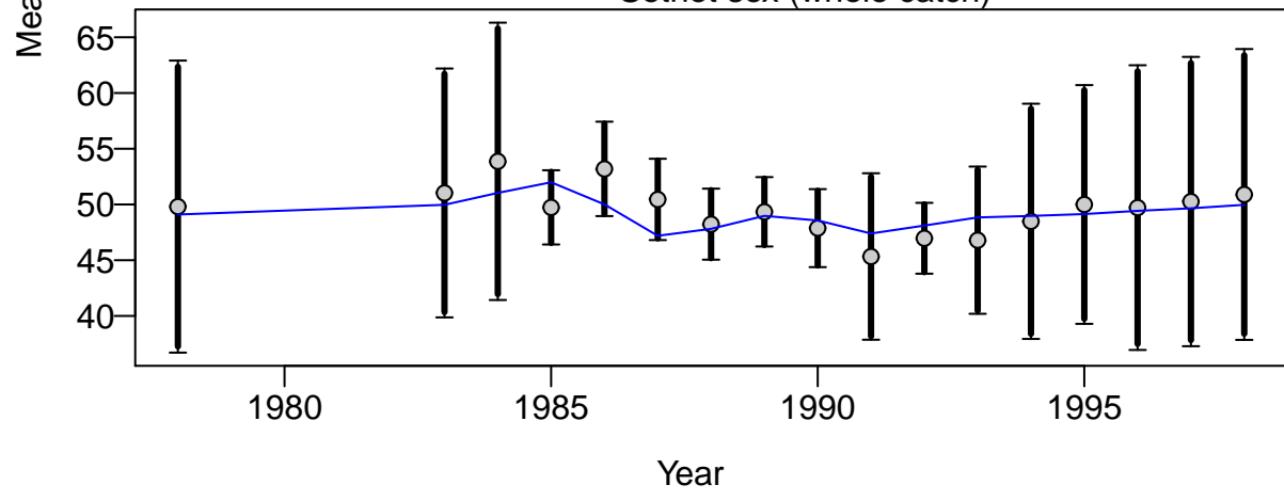
Length (cm)



### Setnet comb (whole catch)

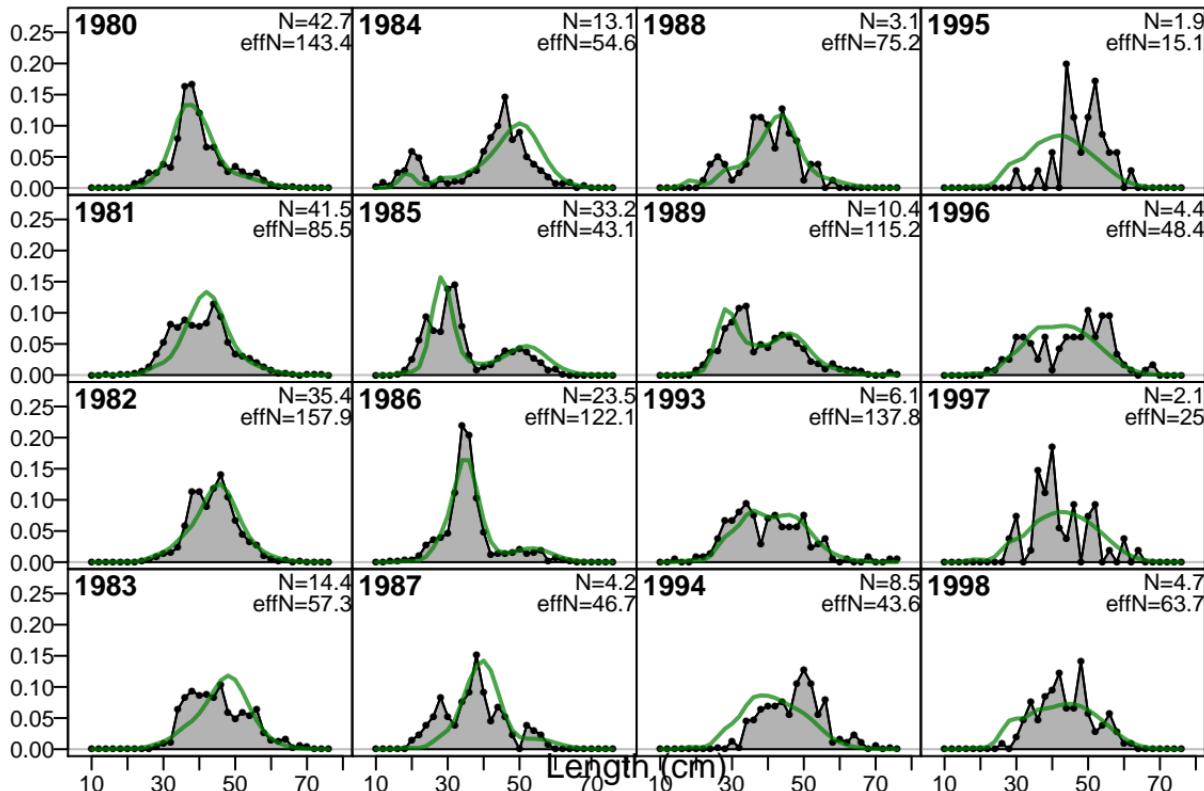


### Setnet sex (whole catch)



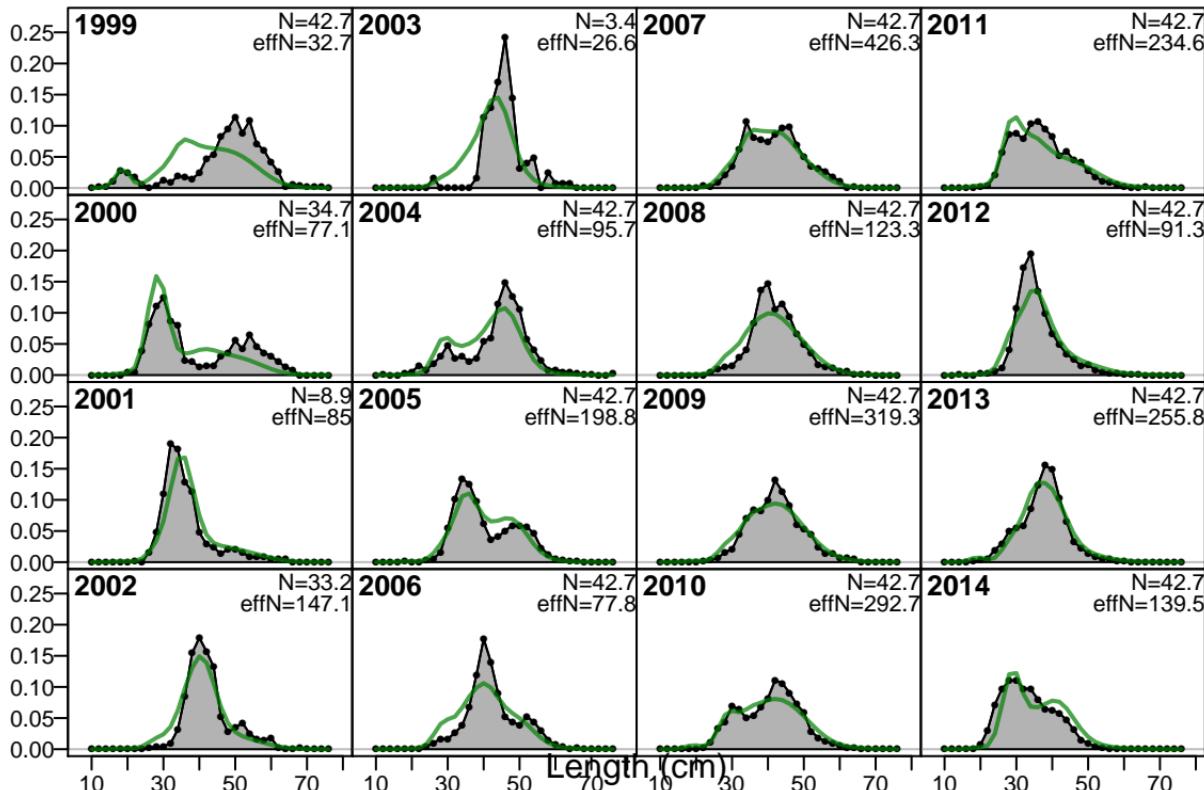
## length comps, whole catch, RecSouth

Proportion

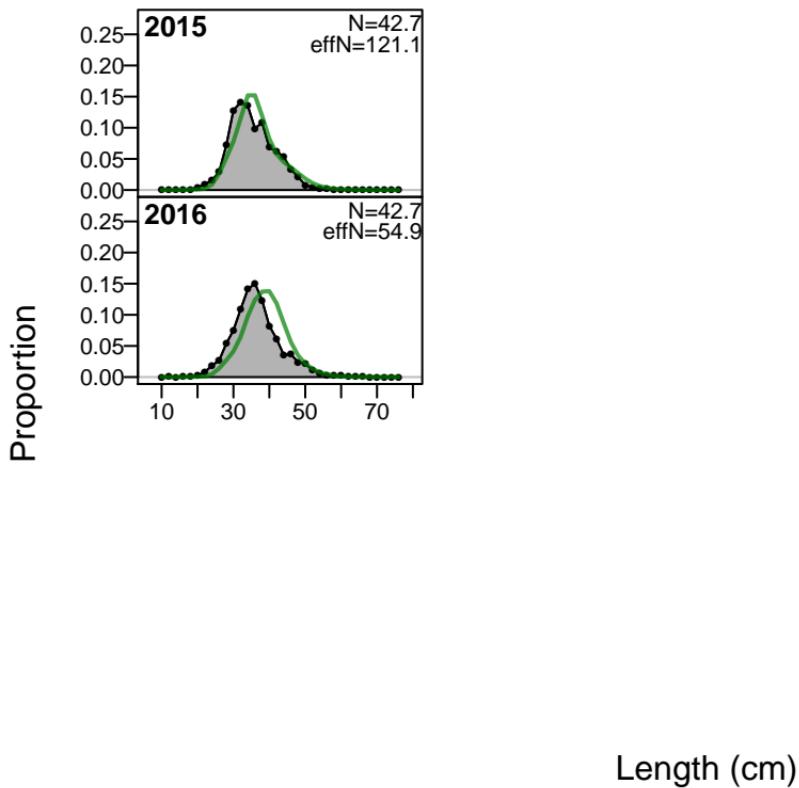


## length comps, whole catch, RecSouth

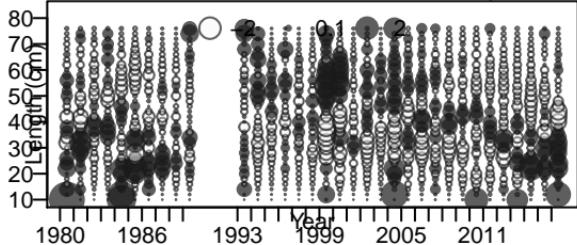
Proportion



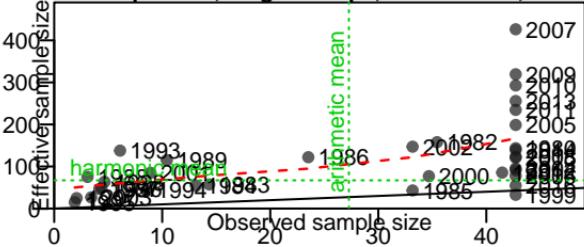
## length comps, whole catch, RecSouth



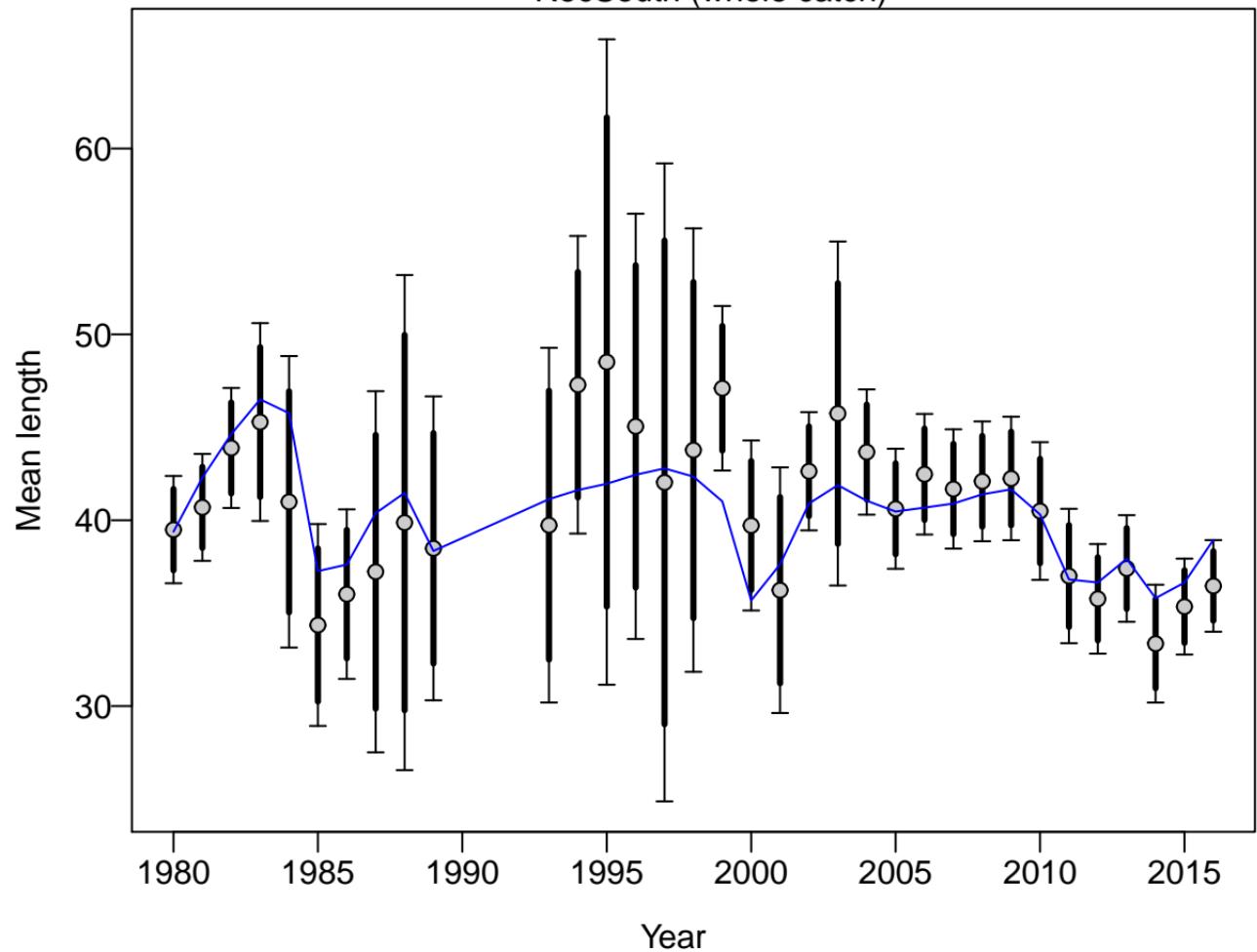
**Pearson residuals, whole catch, RecSouth (max=4.96)**



**N-EffN comparison, length comps, whole catch, RecSou**

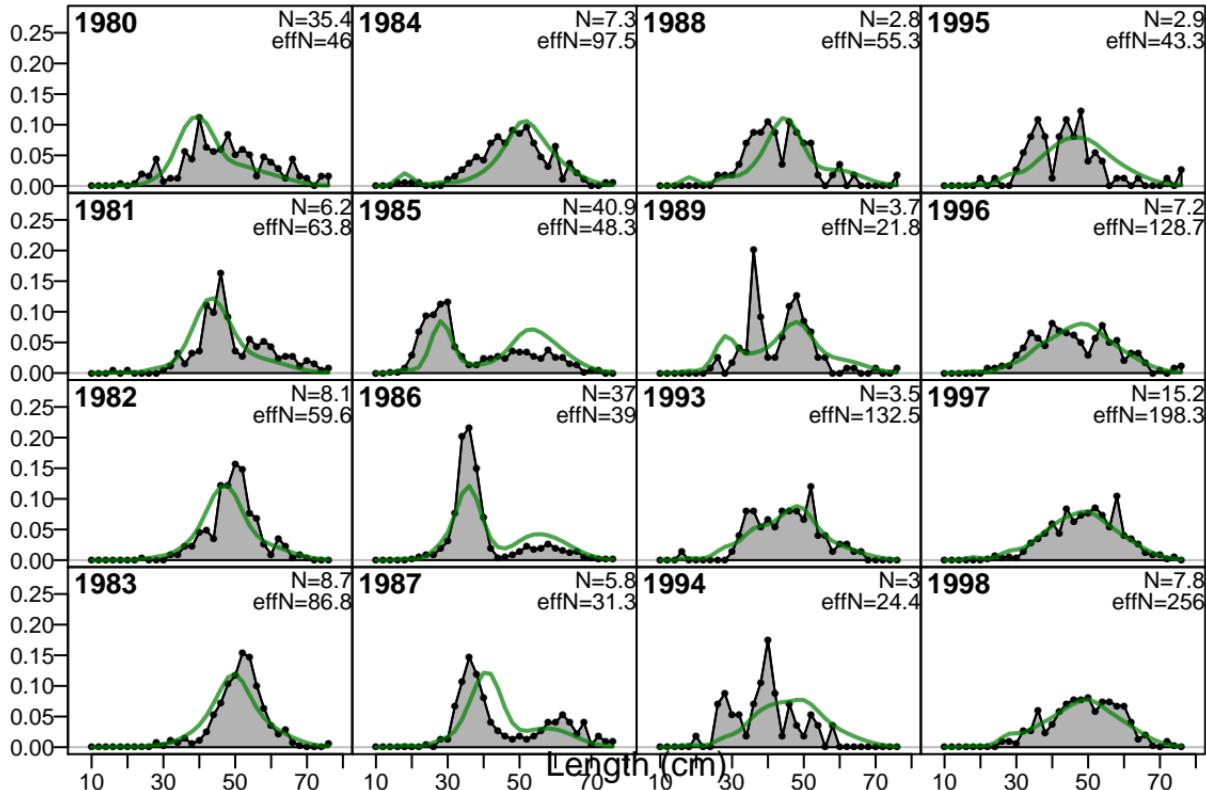


### RecSouth (whole catch)



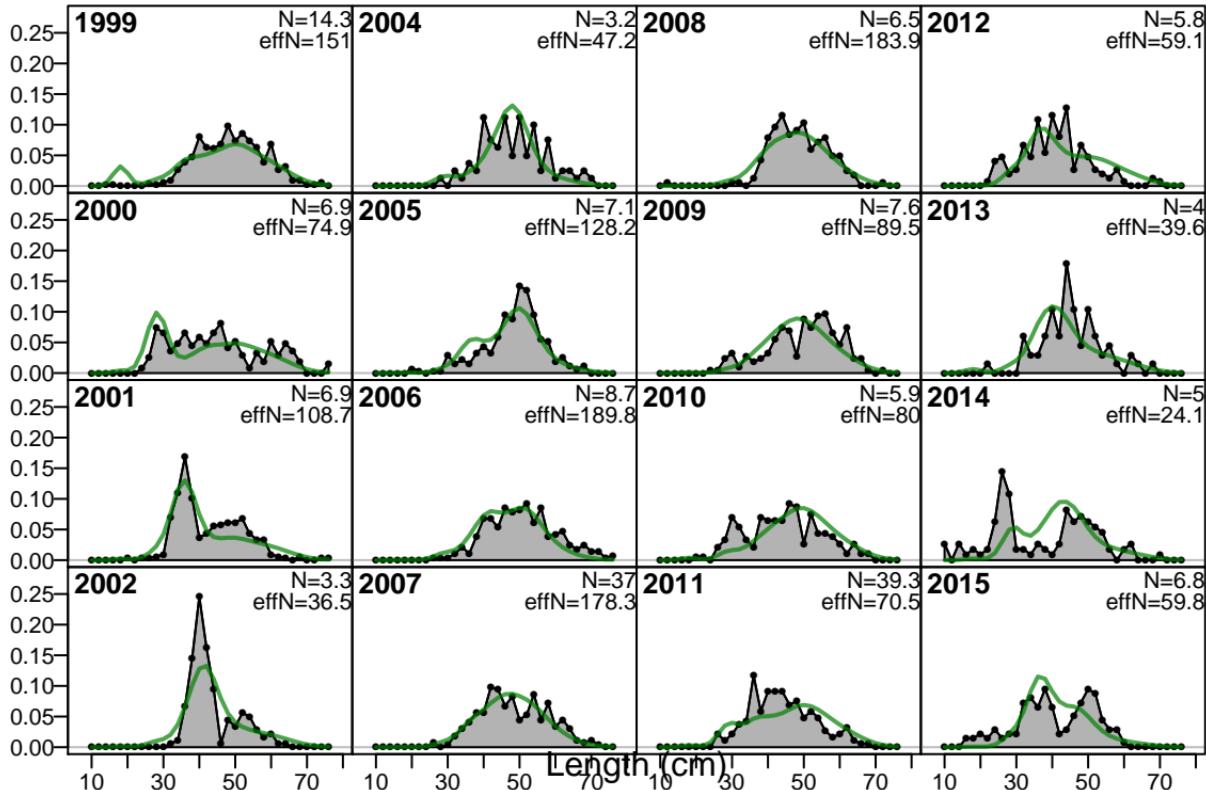
## length comps, whole catch, RecCentral

Proportion

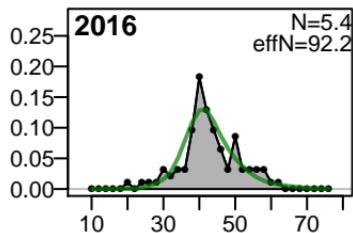


## length comps, whole catch, RecCentral

Proportion



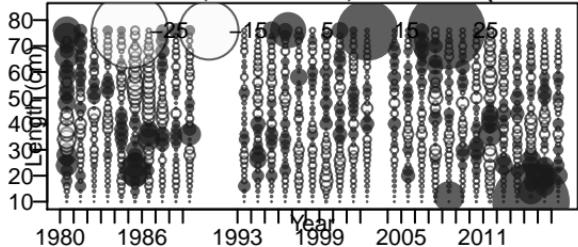
## length comps, whole catch, RecCentral



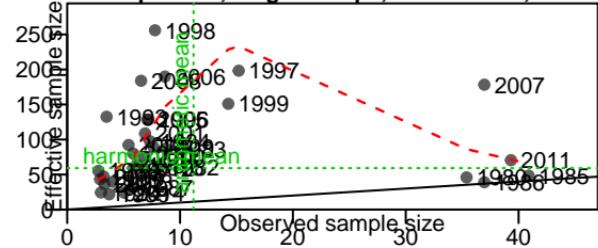
Proportion

Length (cm)

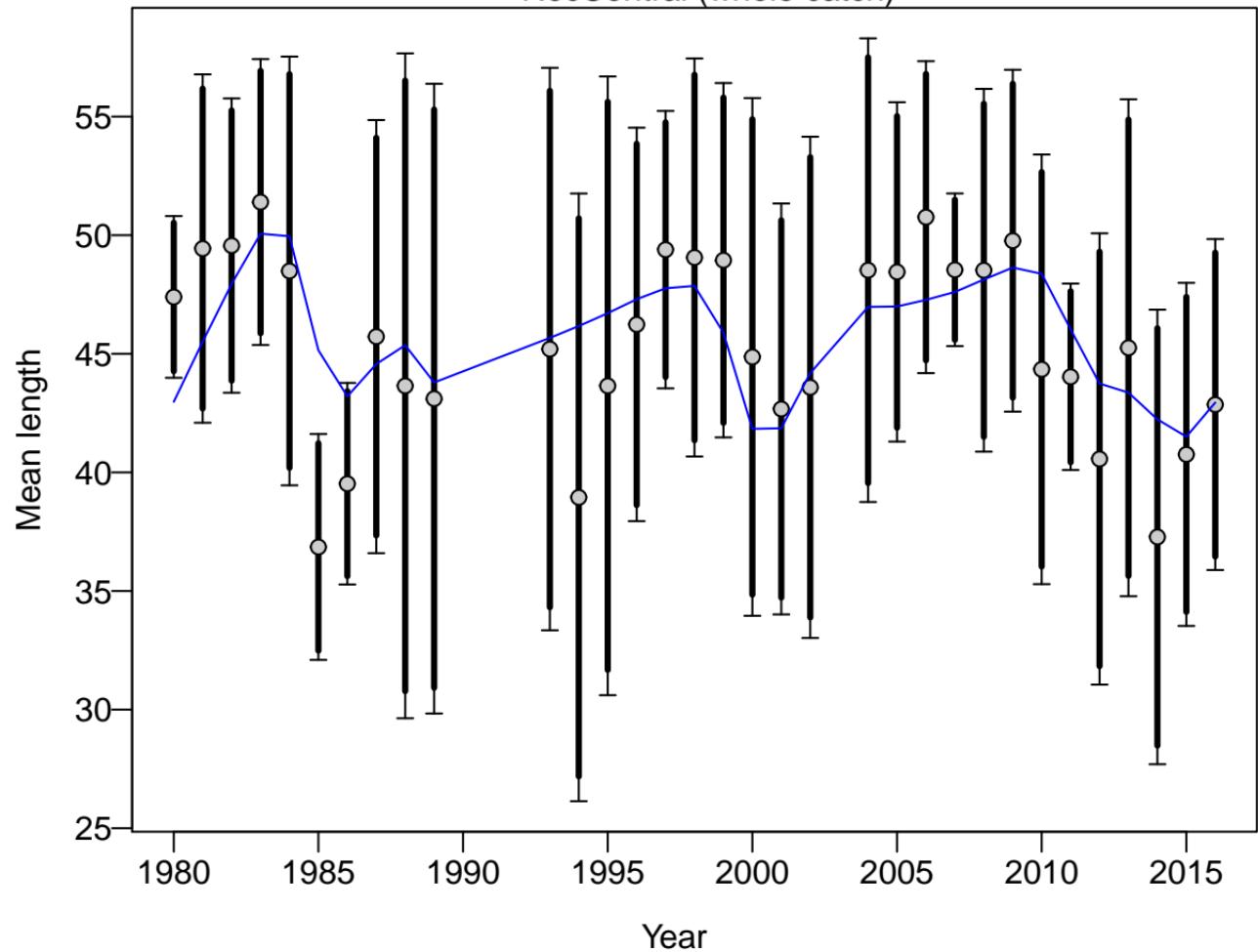
### Pearson residuals, whole catch, RecCentral (max=24.47)



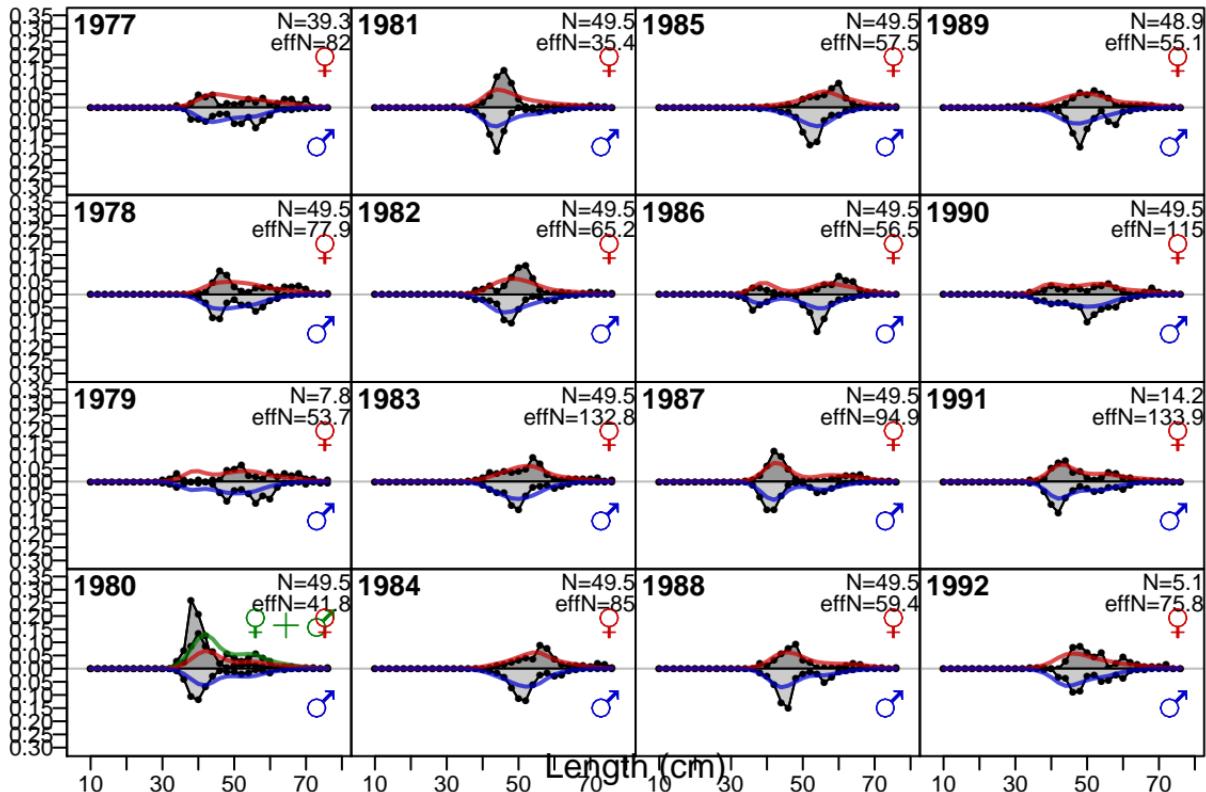
### N-EffN comparison, length comps, whole catch, RecCent



### RecCentral (whole catch)

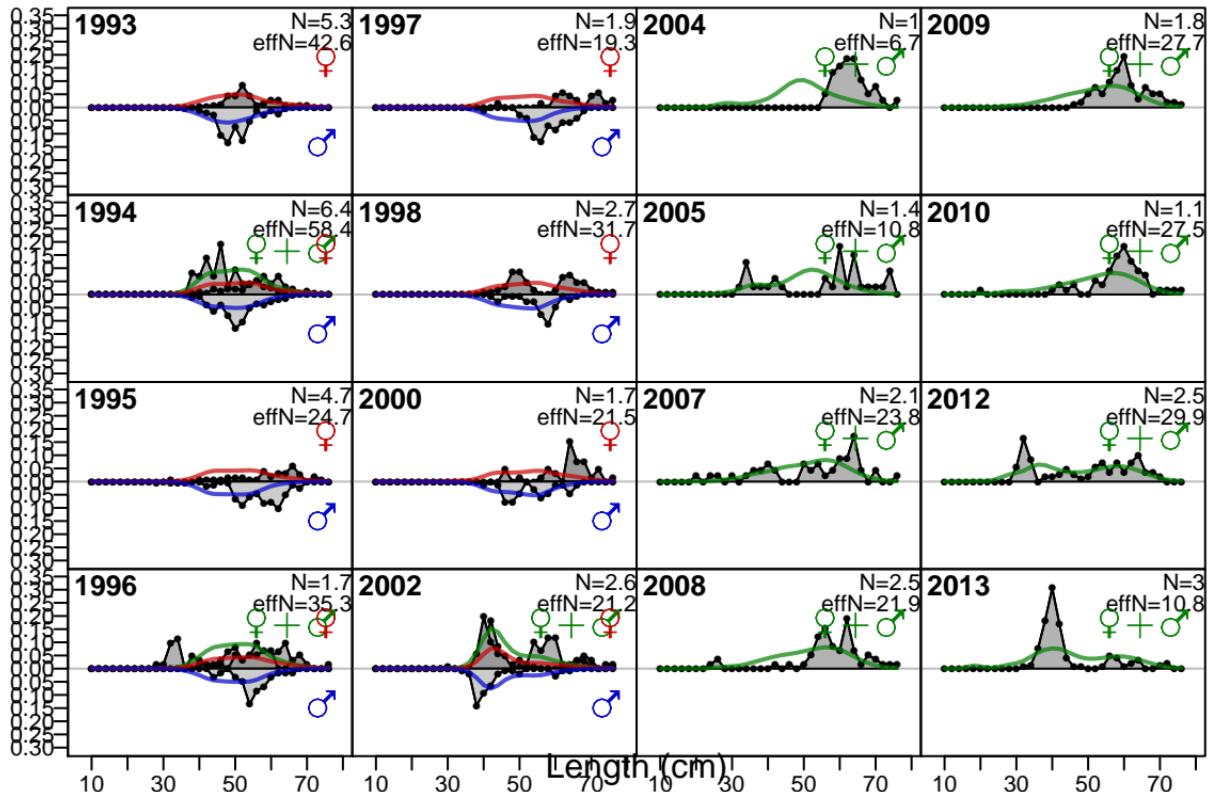


## length comps, whole catch, TrawlNorth

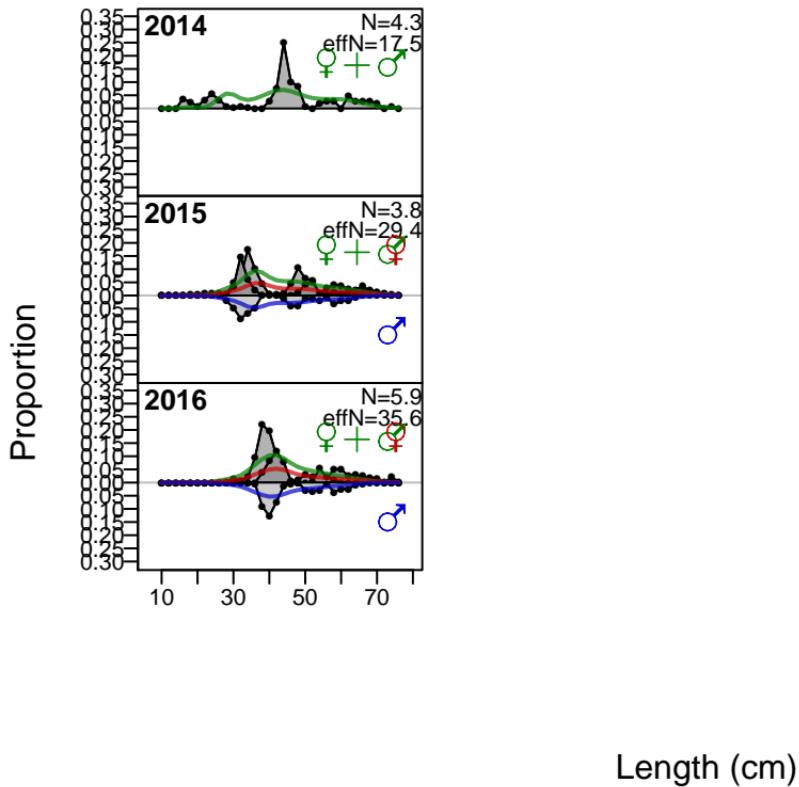


## length comps, whole catch, TrawlNorth

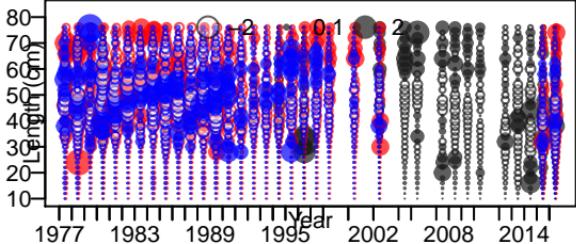
Proportion



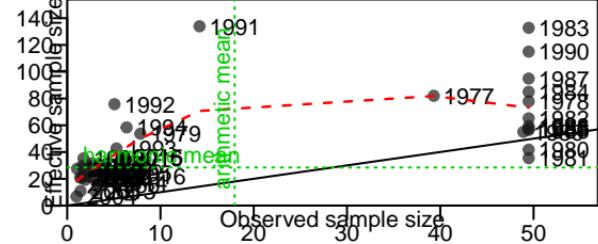
## length comps, whole catch, TrawlNorth



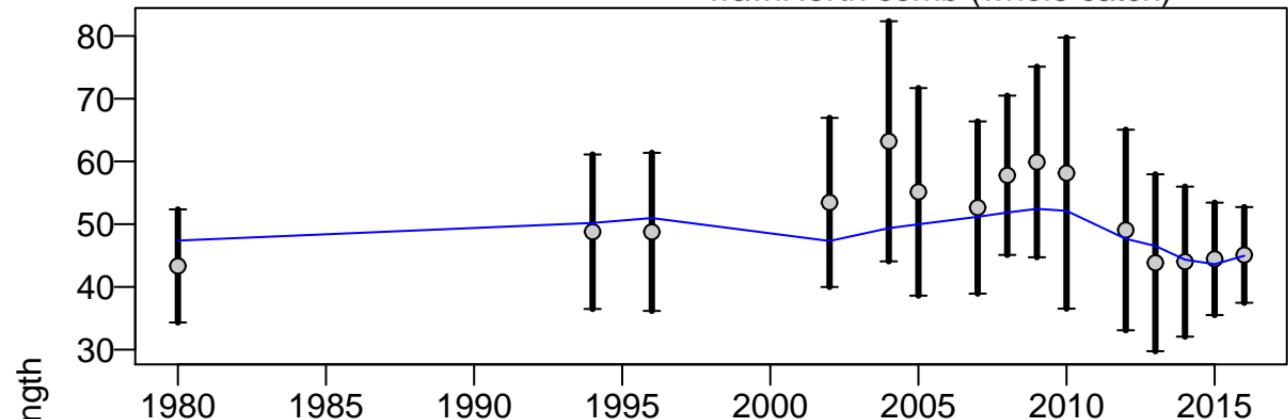
### Pearson residuals, whole catch, TrawlNorth (max=2.92)



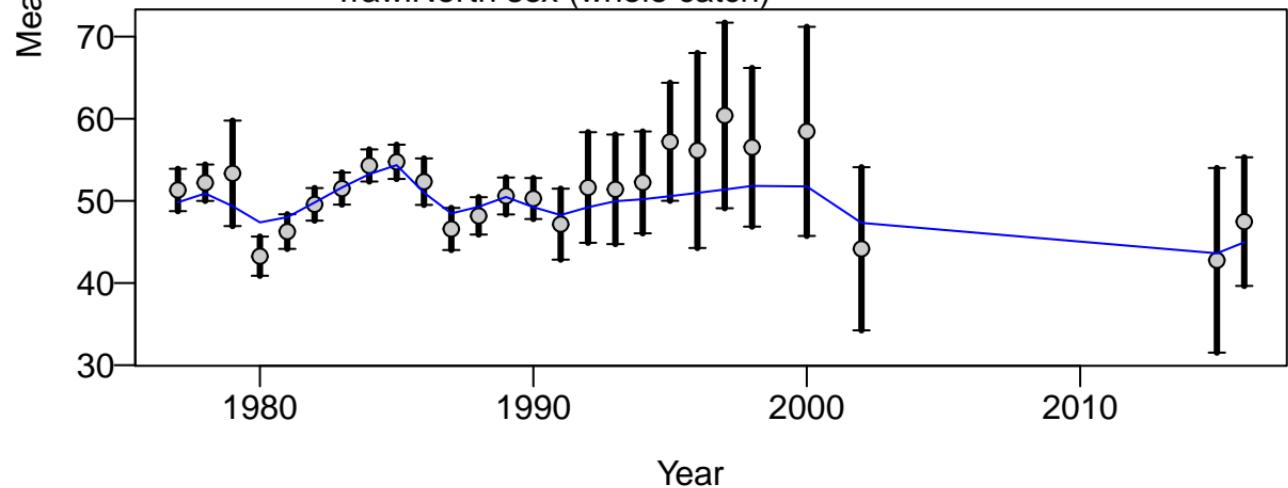
### N-EffN comparison, length comps, whole catch, TrawlNo



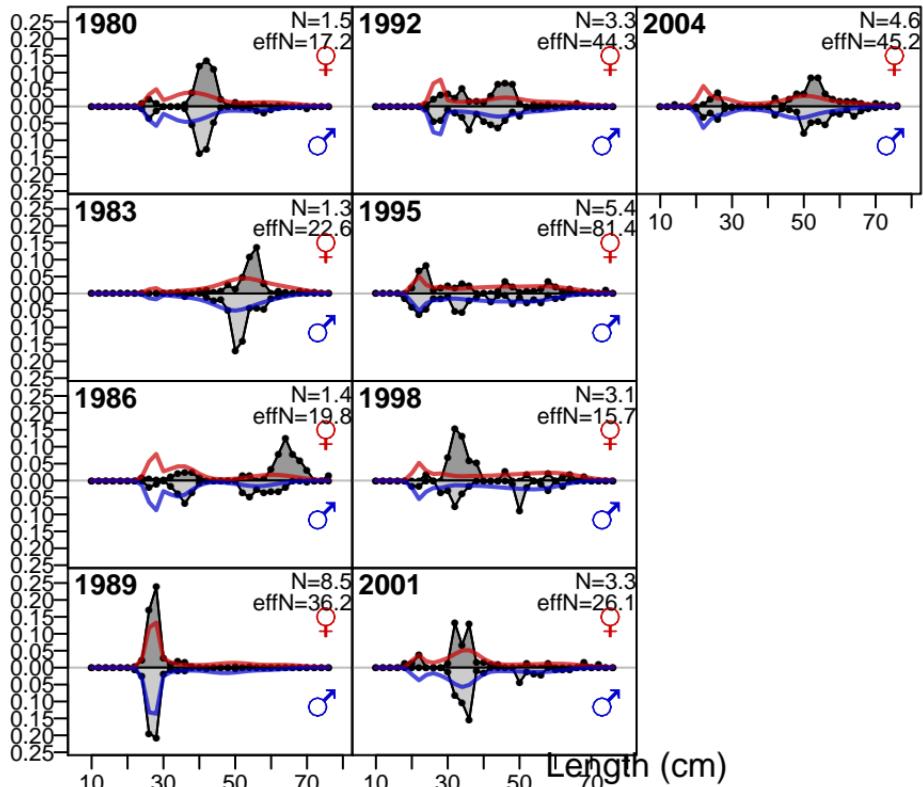
### TrawlNorth comb (whole catch)

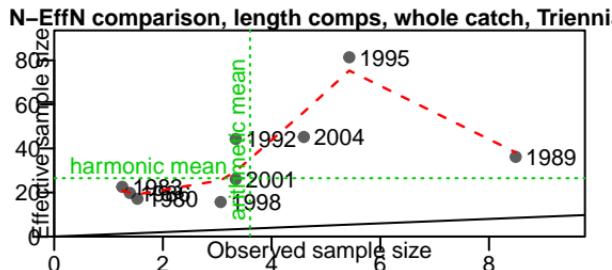
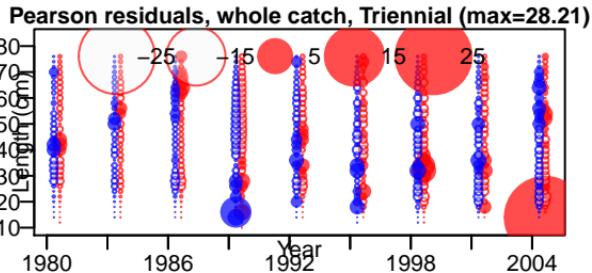


### TrawlNorth sex (whole catch)

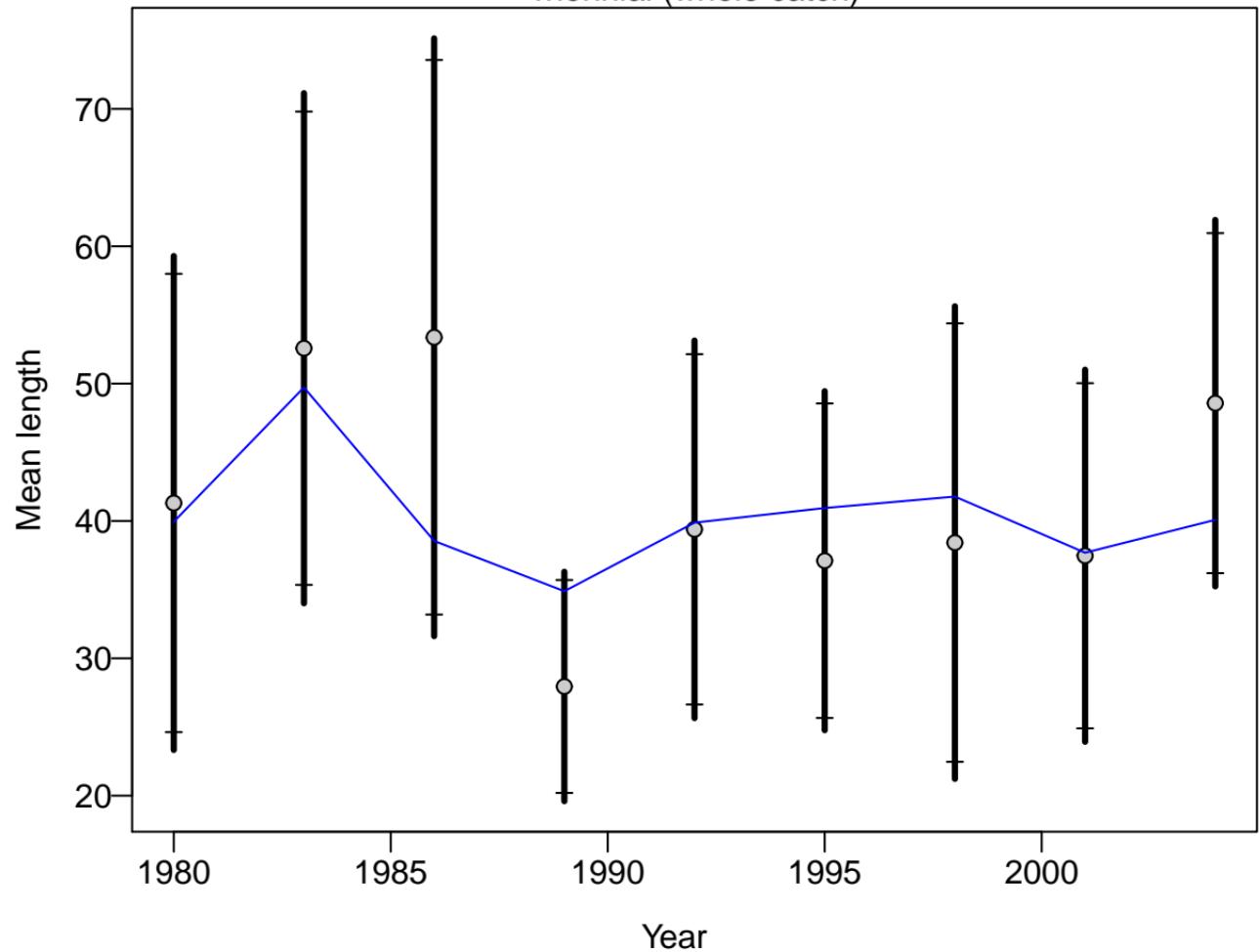


## length comps, whole catch, Triennial



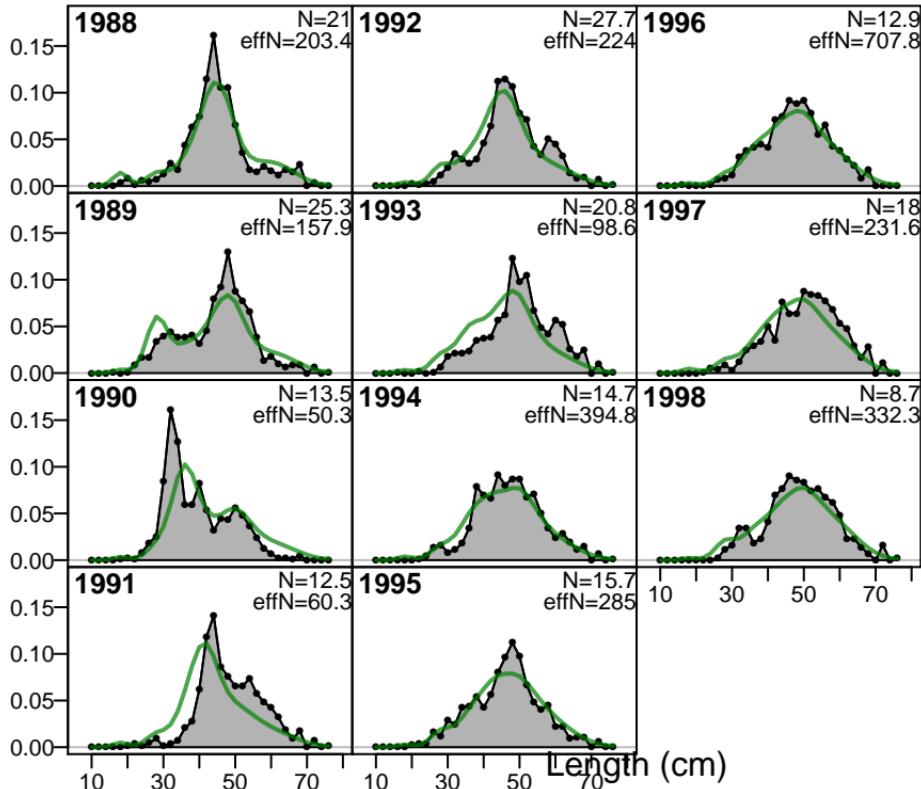


### Triennial (whole catch)

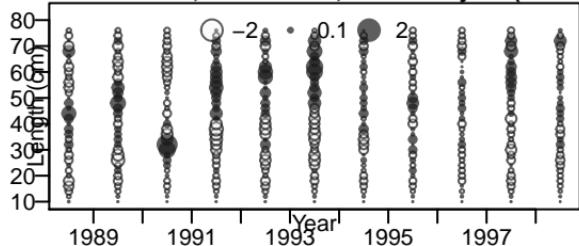


## length comps, whole catch, CDFWEarlyOB

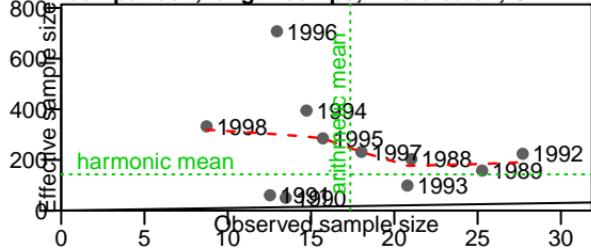
Proportion



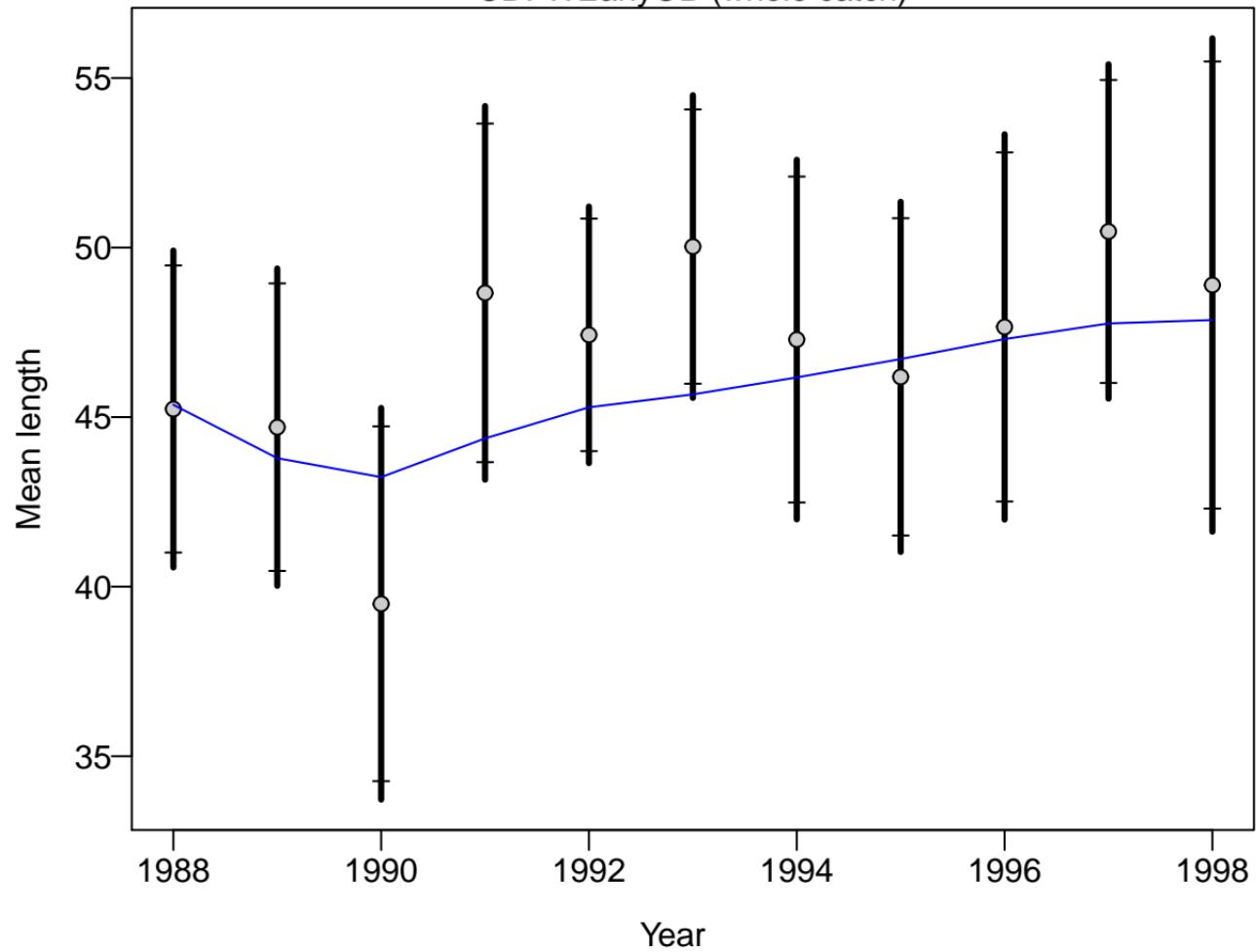
Pearson residuals, whole catch, CDFWEarlyOB (max=1.5)



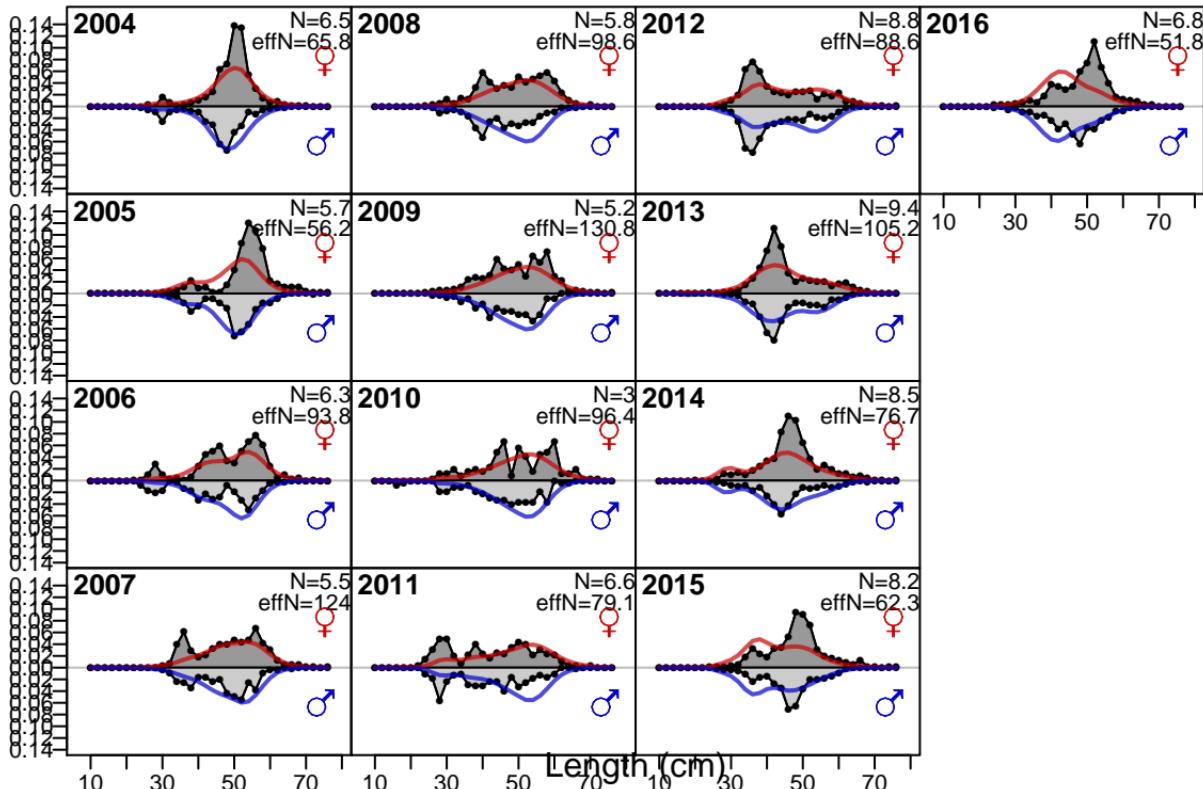
N-EffN comparison, length comps, whole catch, CDFWEar



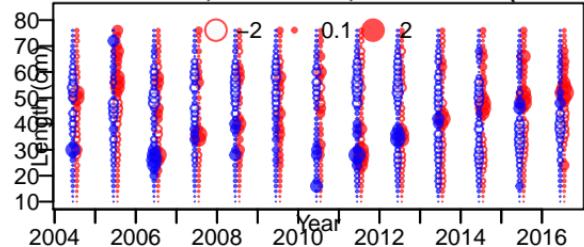
### CDFWEarlyOB (whole catch)



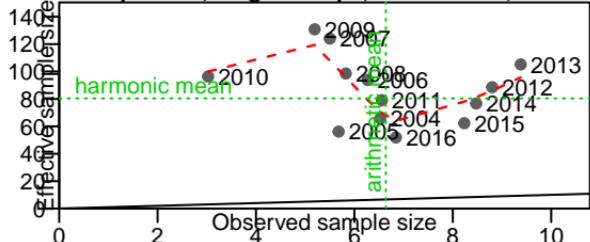
## length comps, whole catch, NWFSCHook



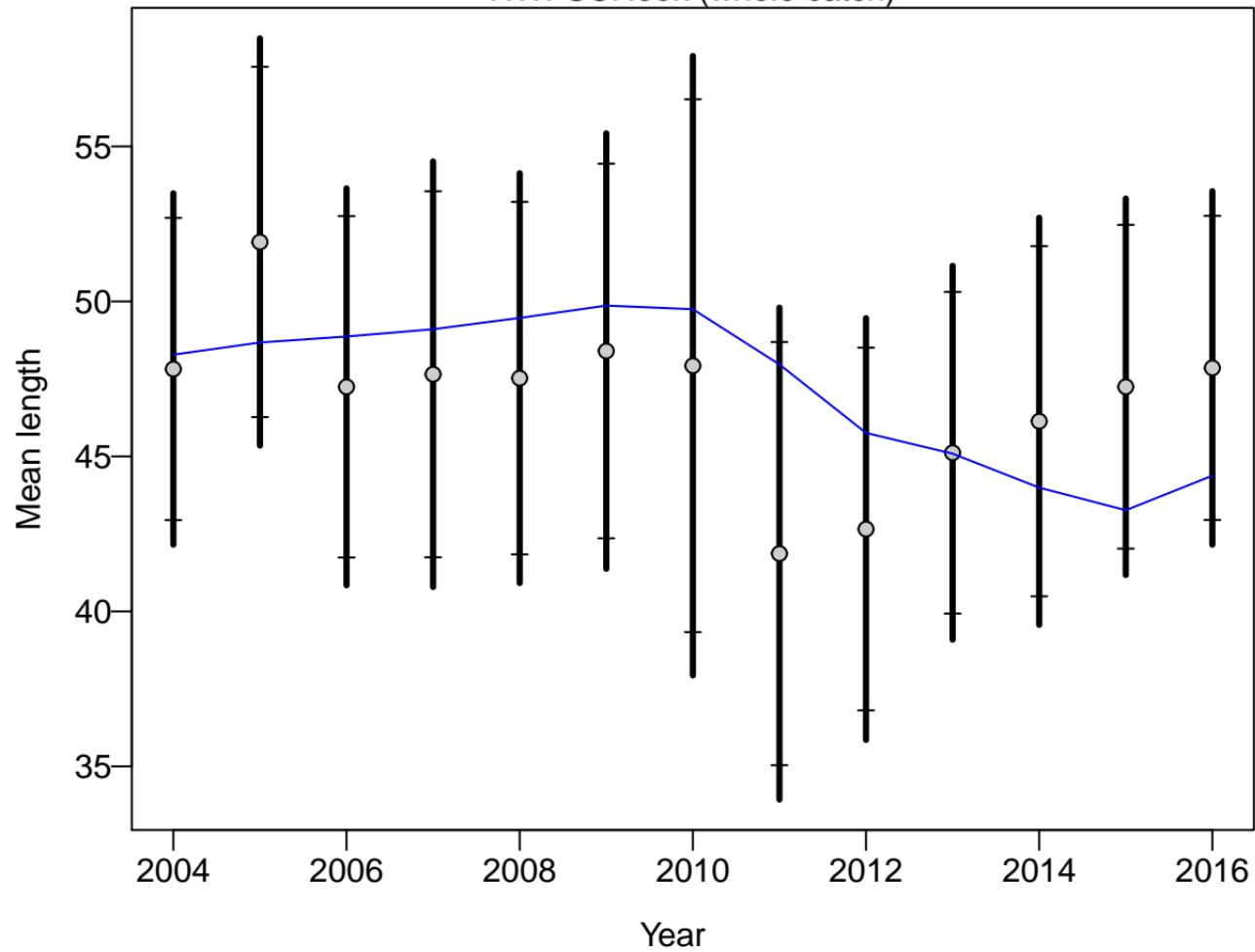
### Pearson residuals, whole catch, NWFSC Hook (max=1.2)



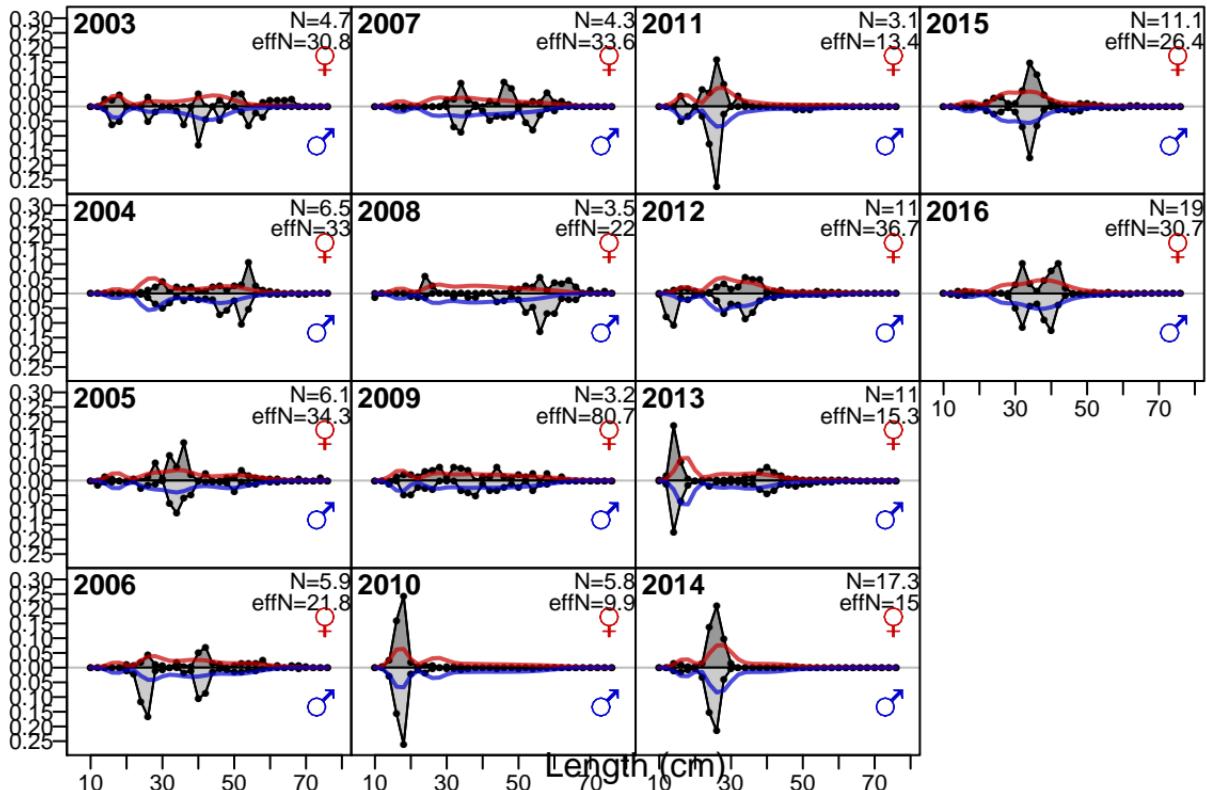
### N-EffN comparison, length comps, whole catch, NWFSC H

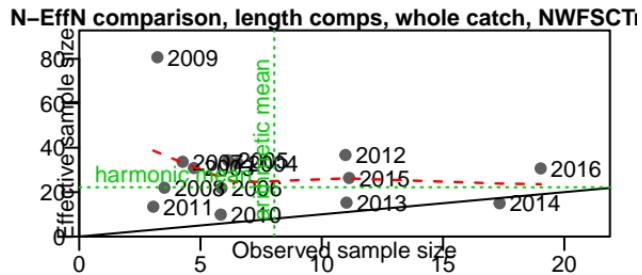
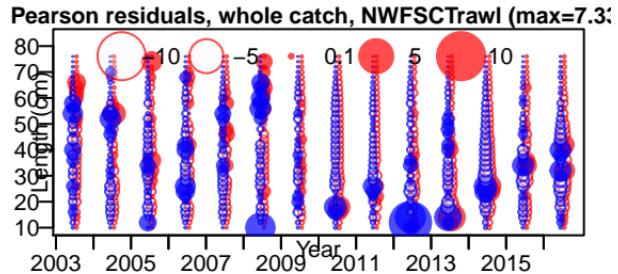


### NWFSCHook (whole catch)

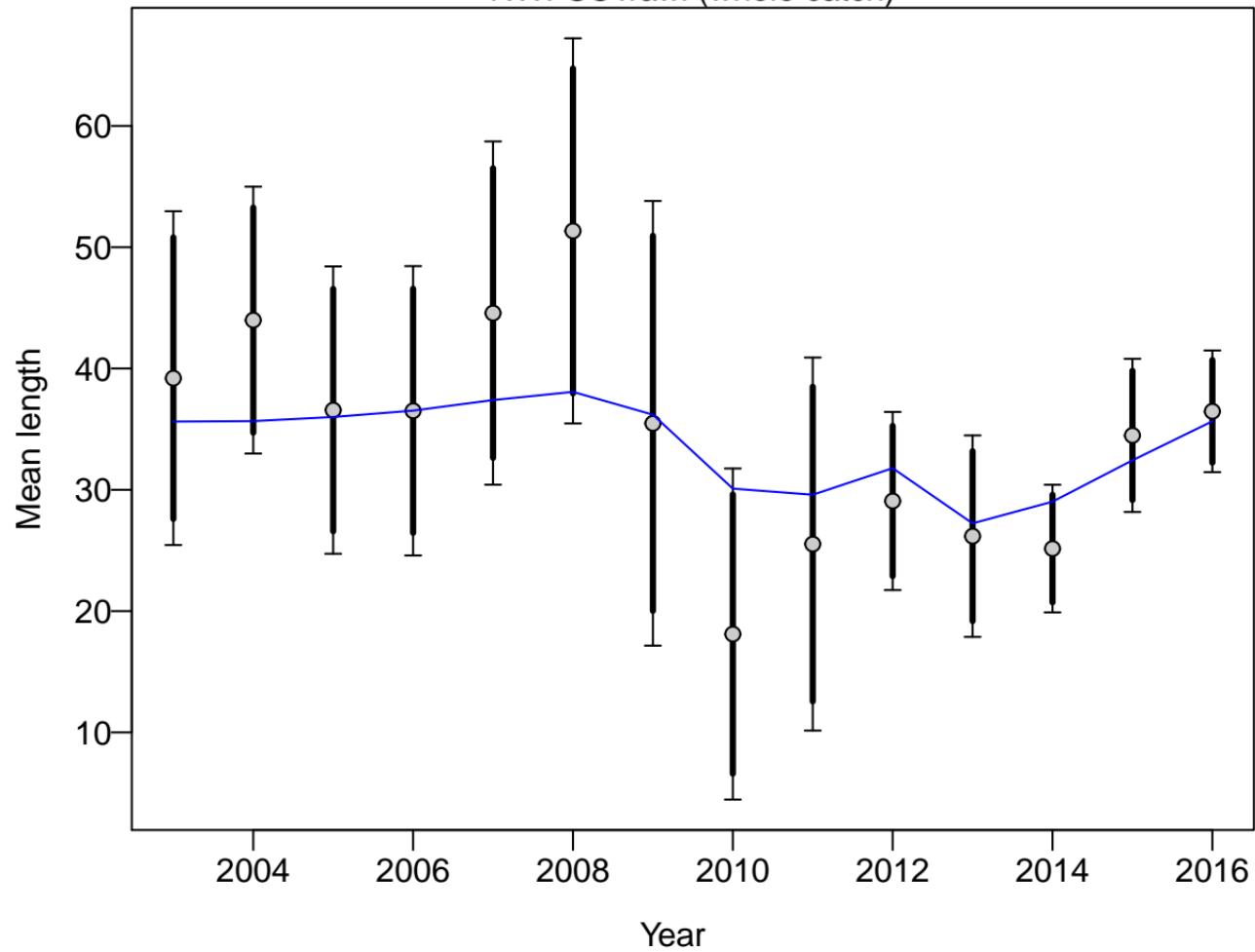


## length comps, whole catch, NWFSC Trawl



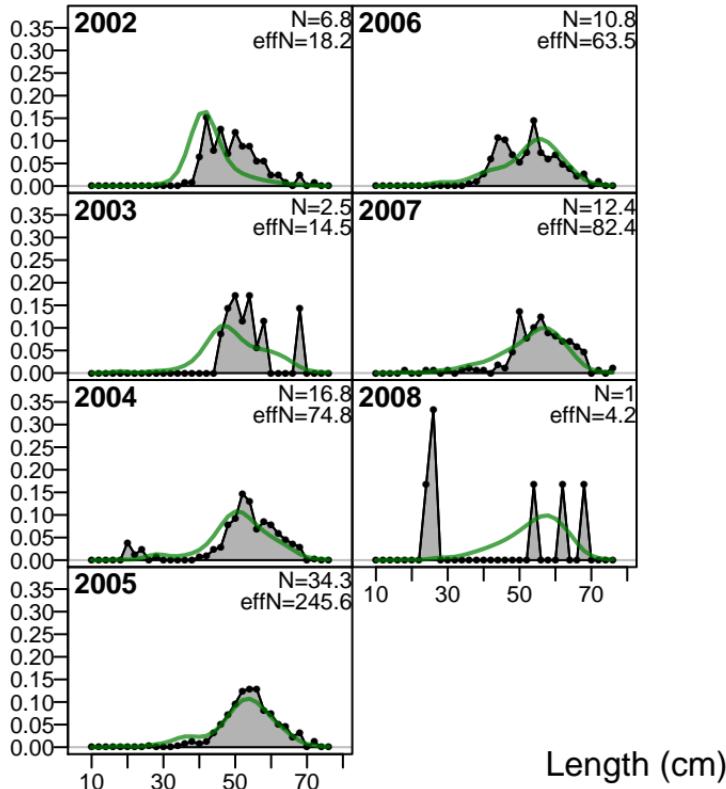


### NWFSCTrawl (whole catch)

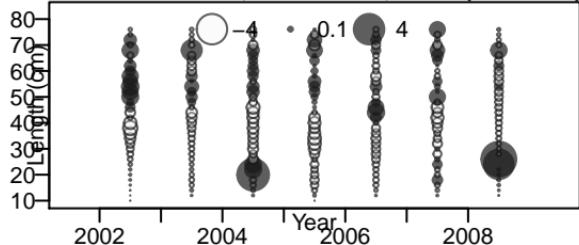


## length comps, whole catch, Free1

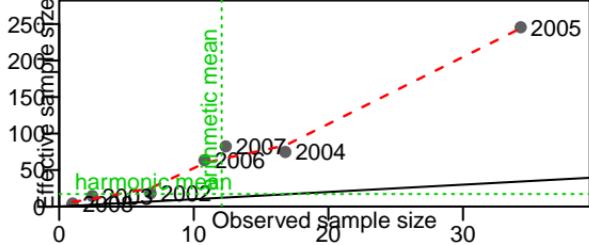
Proportion



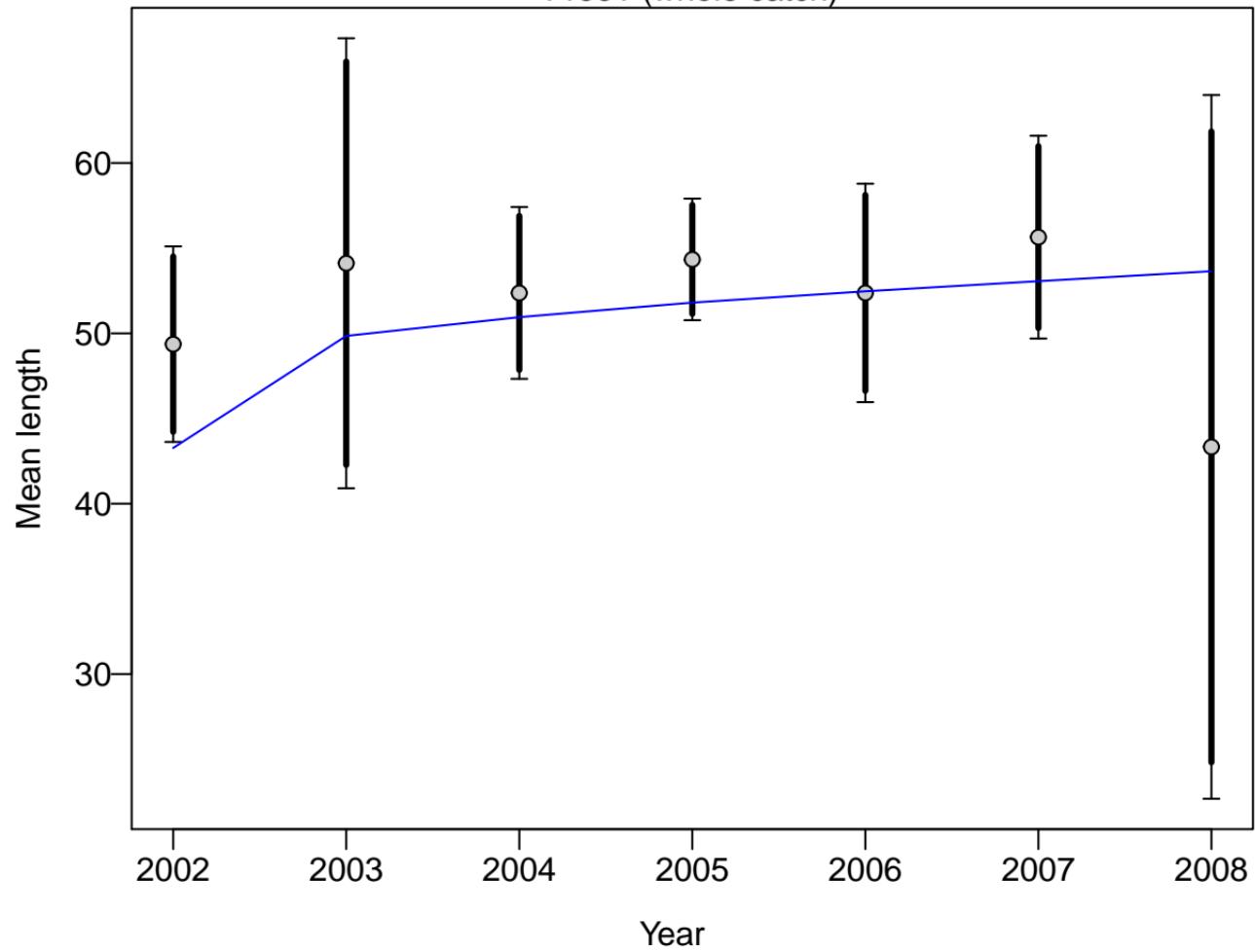
### Pearson residuals, whole catch, Free1 (max=5.23)



### N-EffN comparison, length comps, whole catch, Free1

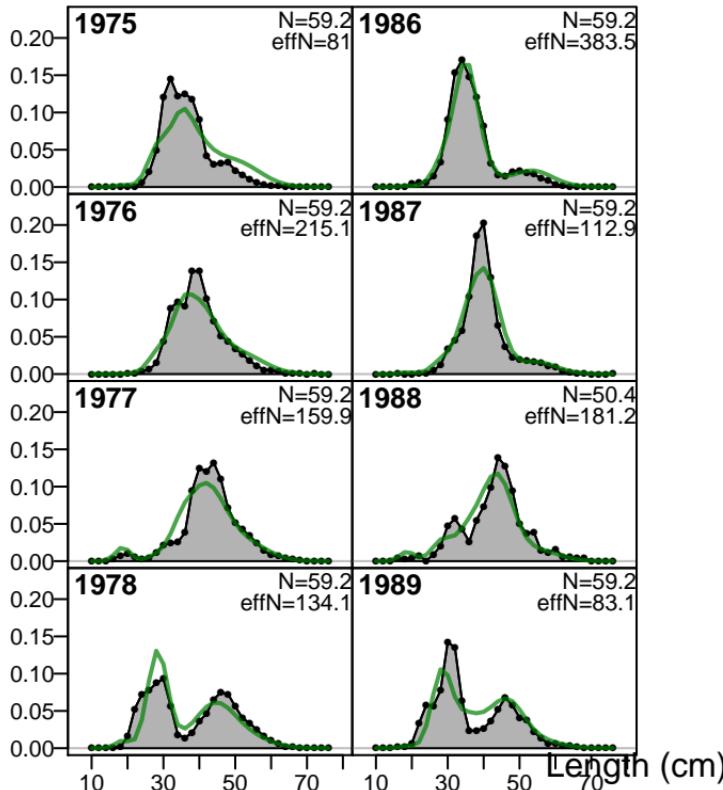


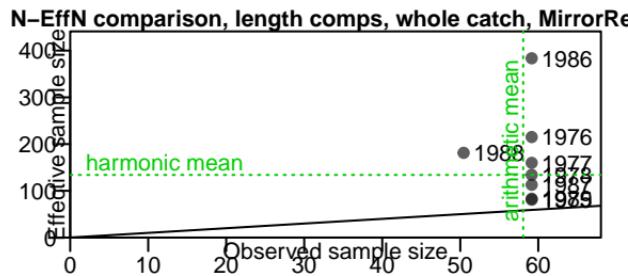
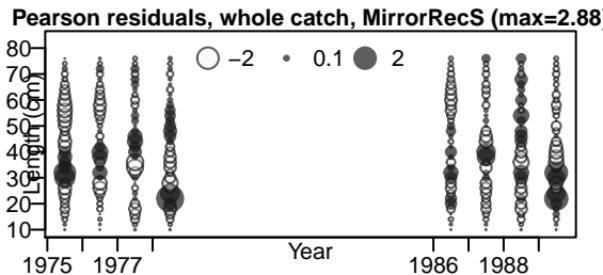
### Free1 (whole catch)



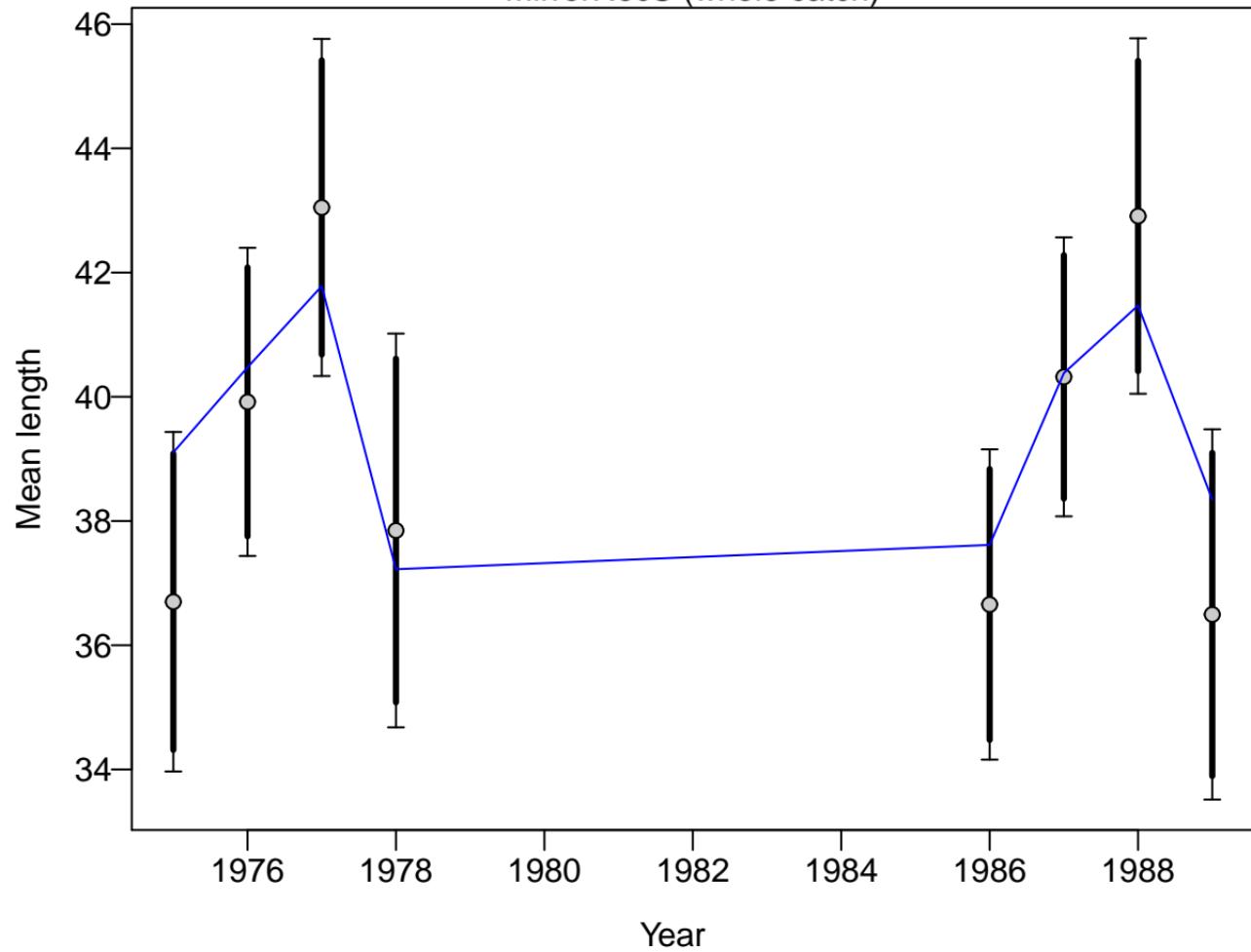
## length comps, whole catch, MirrorRecS

Proportion



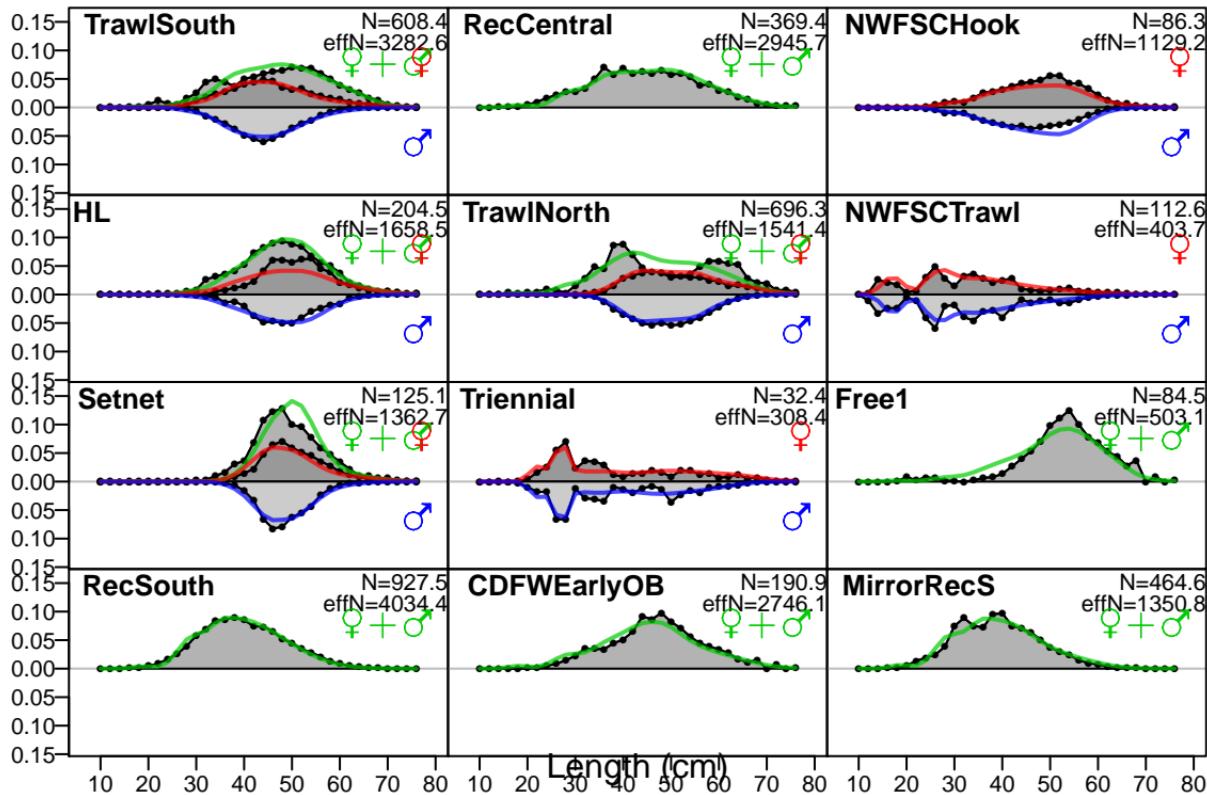


### MirrorRecS (whole catch)



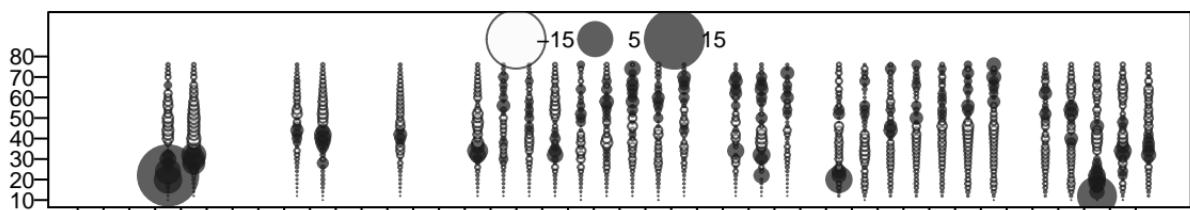
## length comps, whole catch, aggregated across time by fleet

Proportion

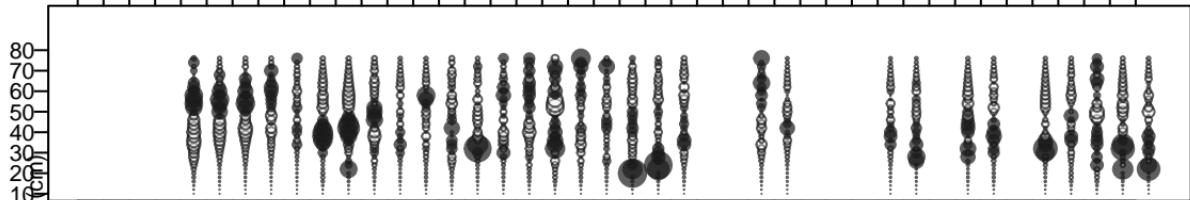


# Pearson residuals, sexes combined, whole catch, comparing across fleets

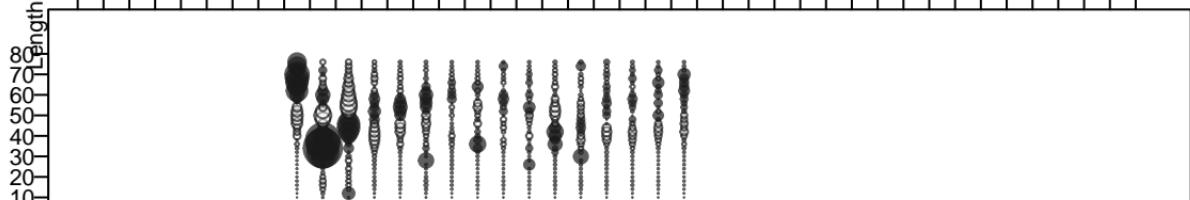
outh



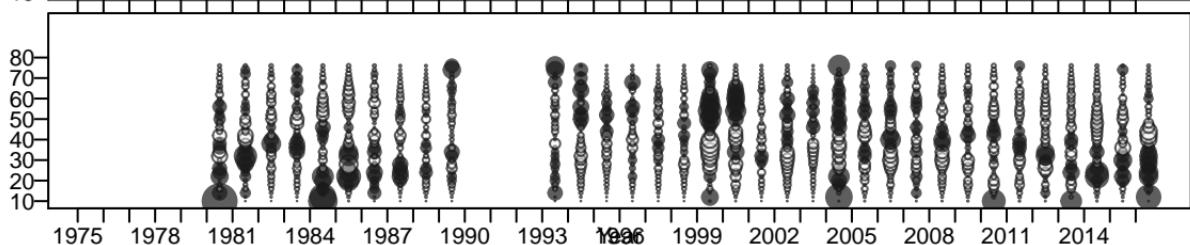
HL



etnet

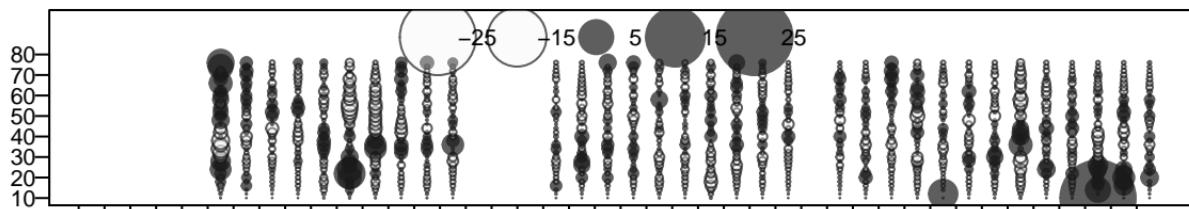


outh



# Pearson residuals, sexes combined, whole catch, comparing across fleets

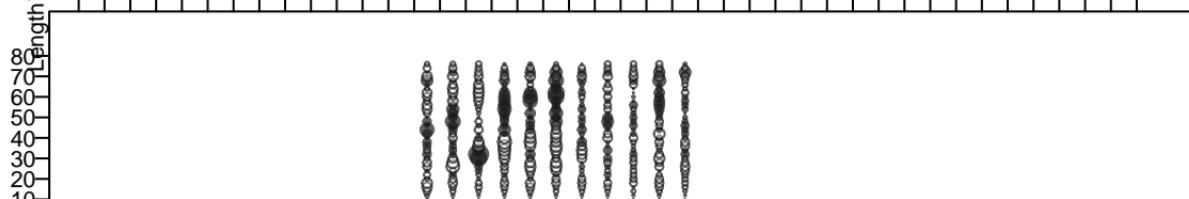
Central



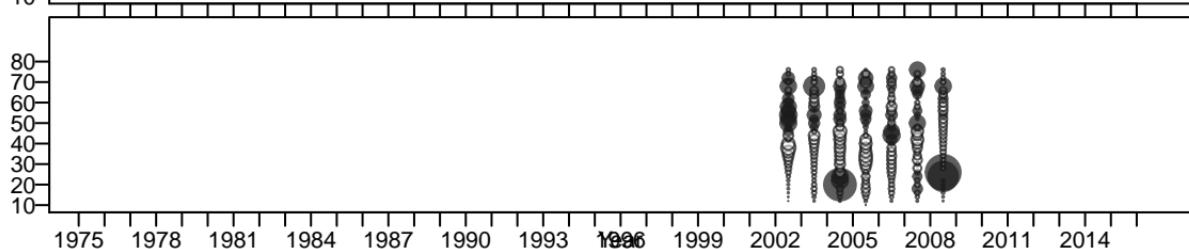
North



YOB



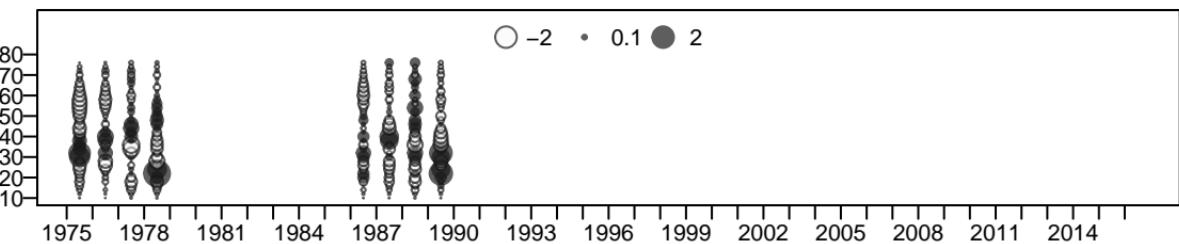
ree1



1975 1978 1981 1984 1987 1990 1993 1996 1999 2002 2005 2008 2011 2014

### Pearson residuals, sexes combined, whole catch, comparing across fleets

ecS

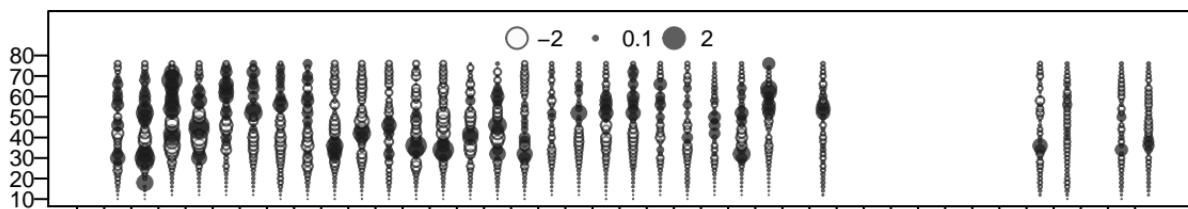


Length (cm)

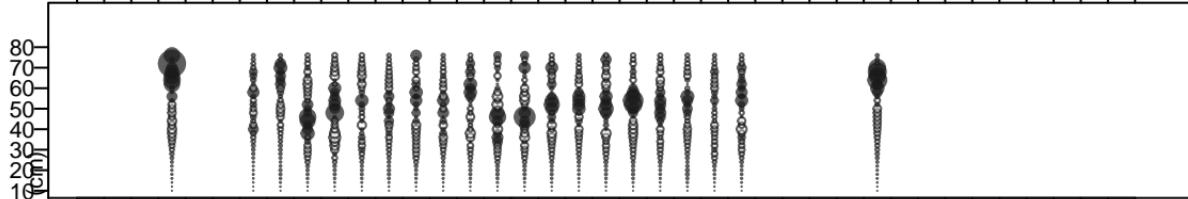
Year

## Pearson residuals, female, whole catch, comparing across fleets

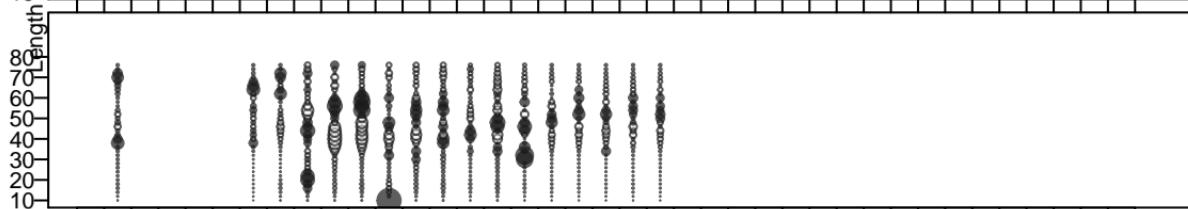
south



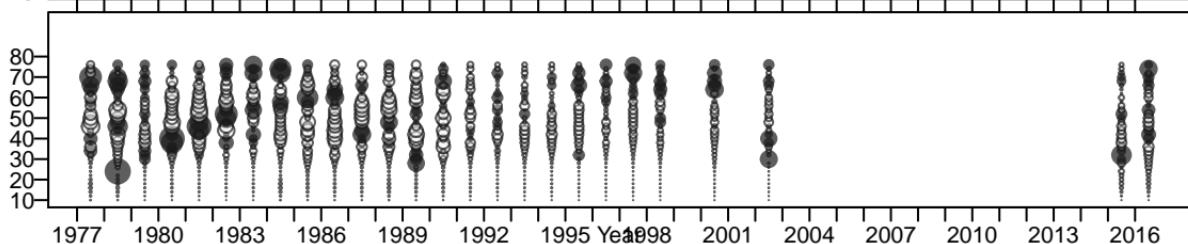
HL



net

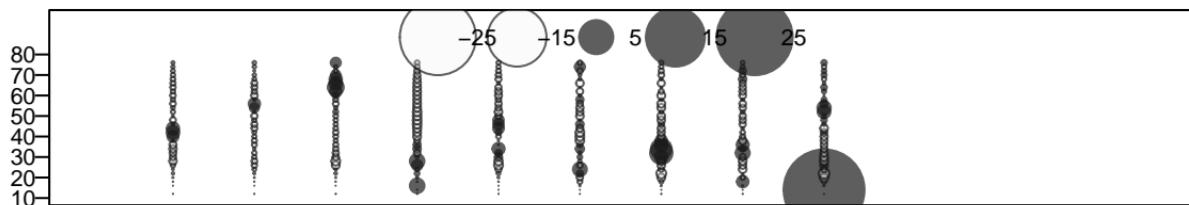


orth

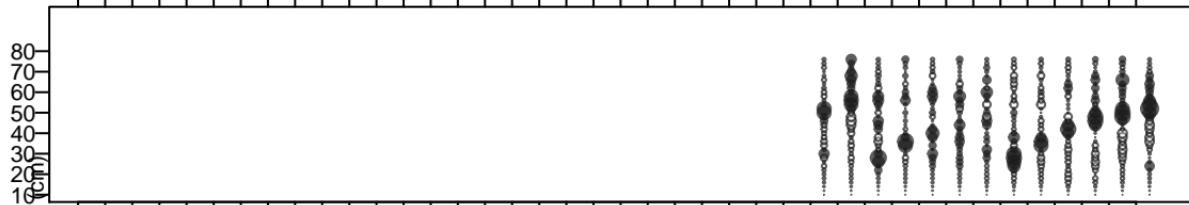


## Pearson residuals, female, whole catch, comparing across fleets

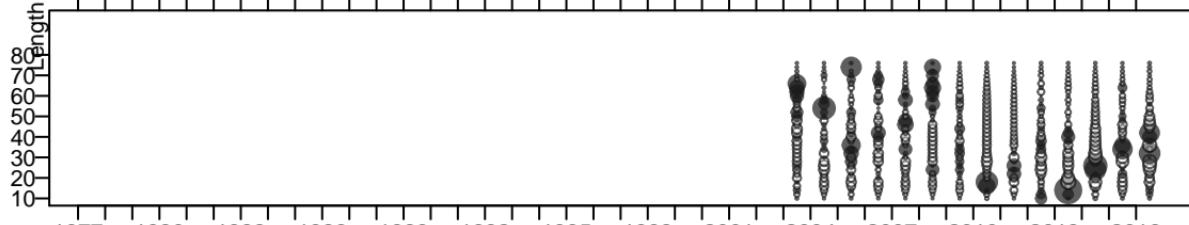
annual



look



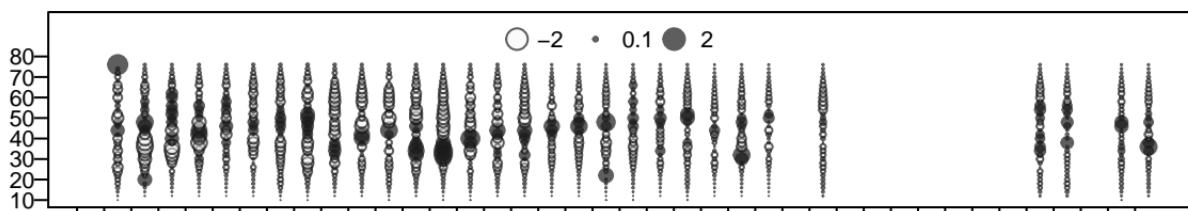
rawl



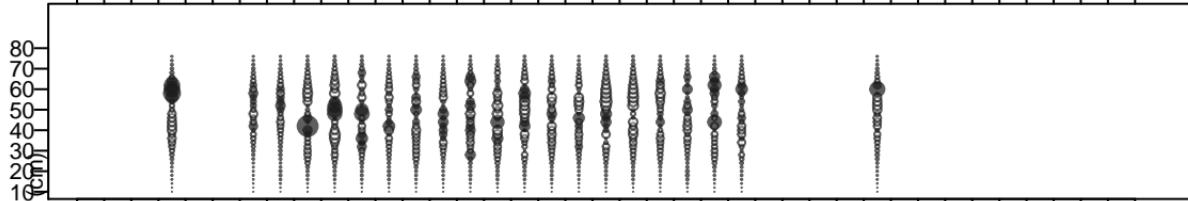
Year

## Pearson residuals, male, whole catch, comparing across fleets

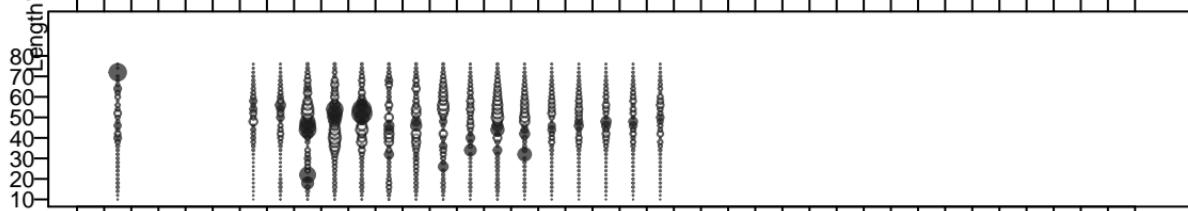
south



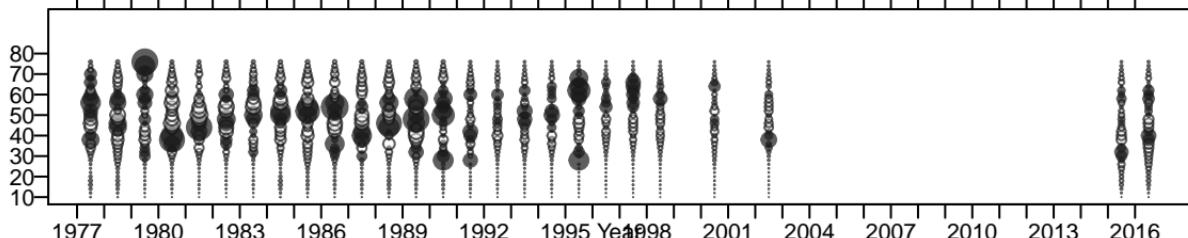
HL



net

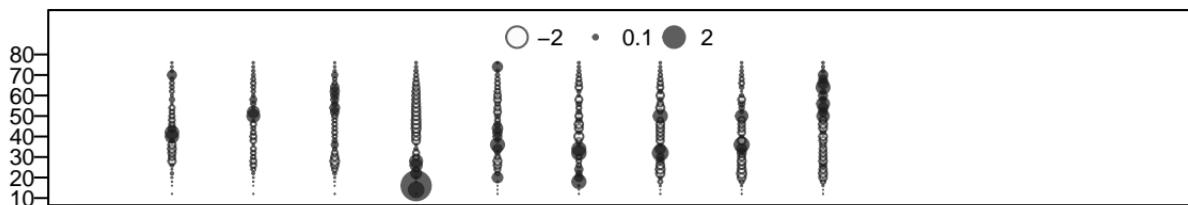


orth

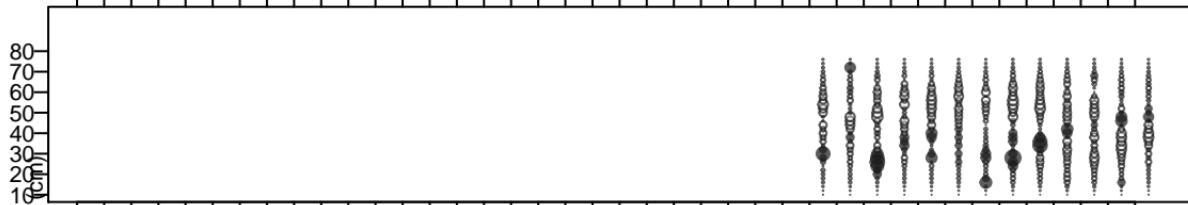


## Pearson residuals, male, whole catch, comparing across fleets

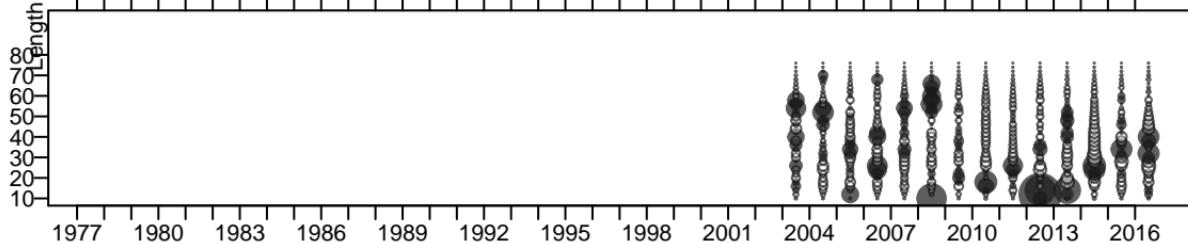
annual



look

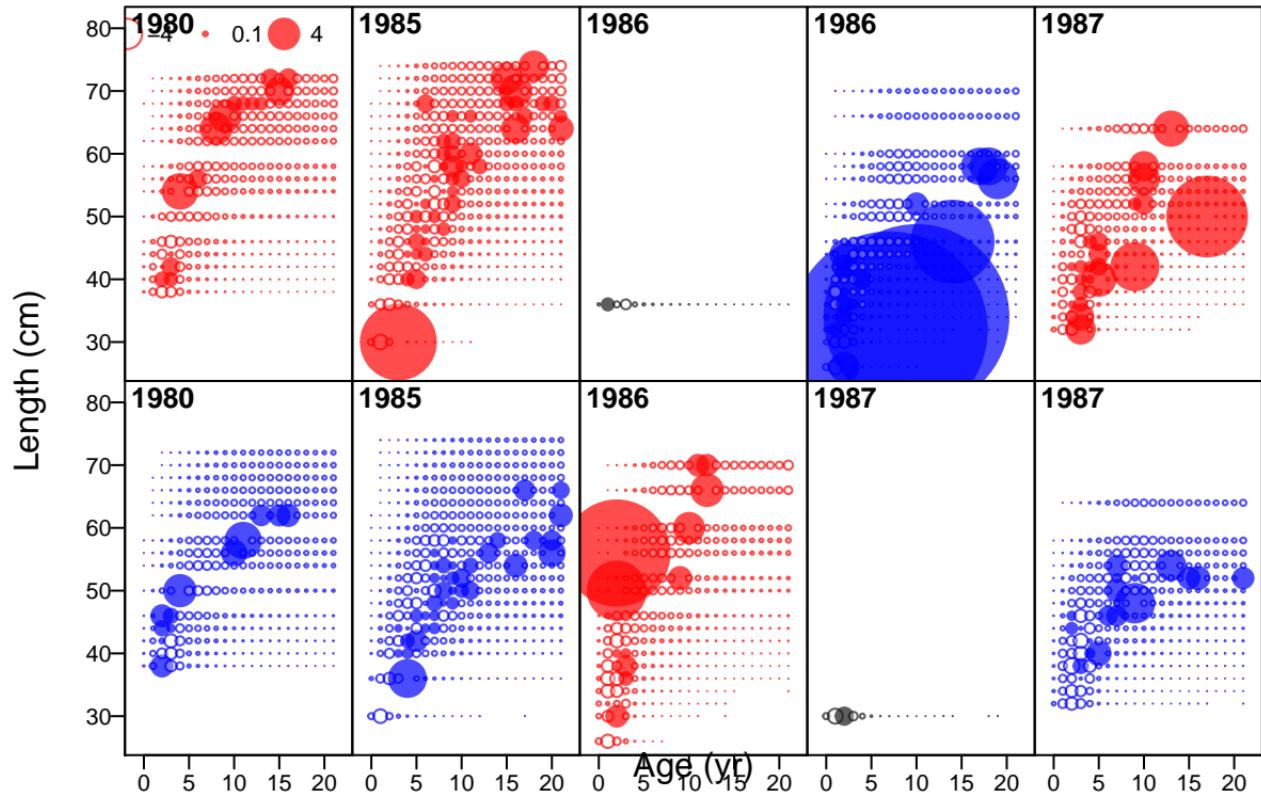


rawl

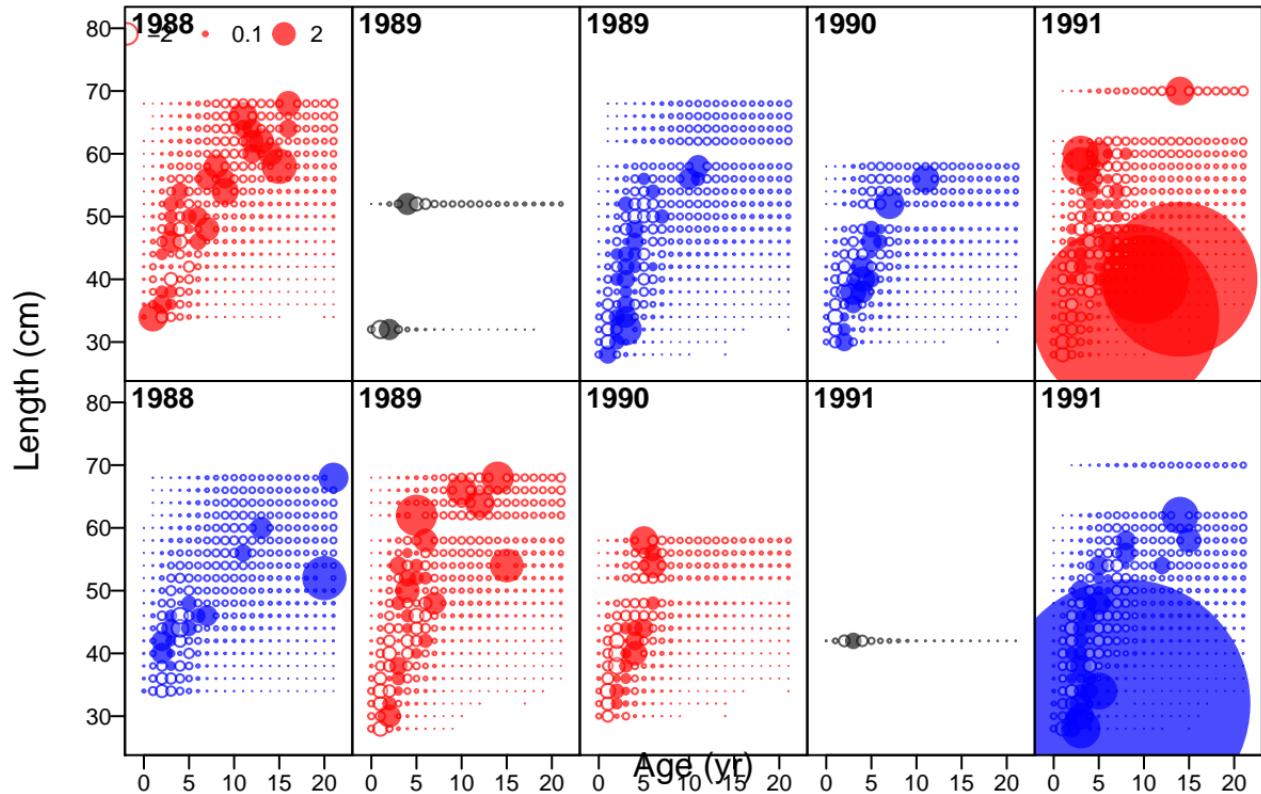


Year

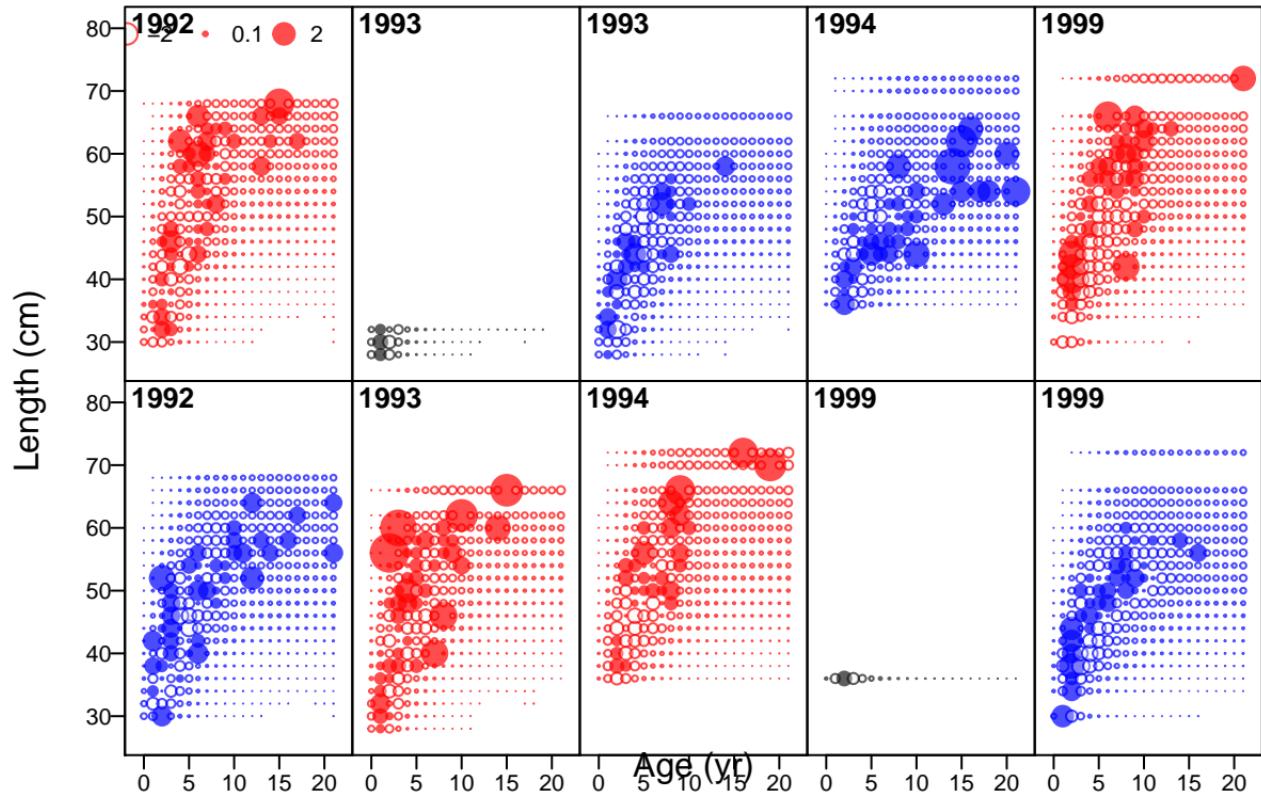
## Pearson residuals, whole catch, TrawlSouth (max=263.11)



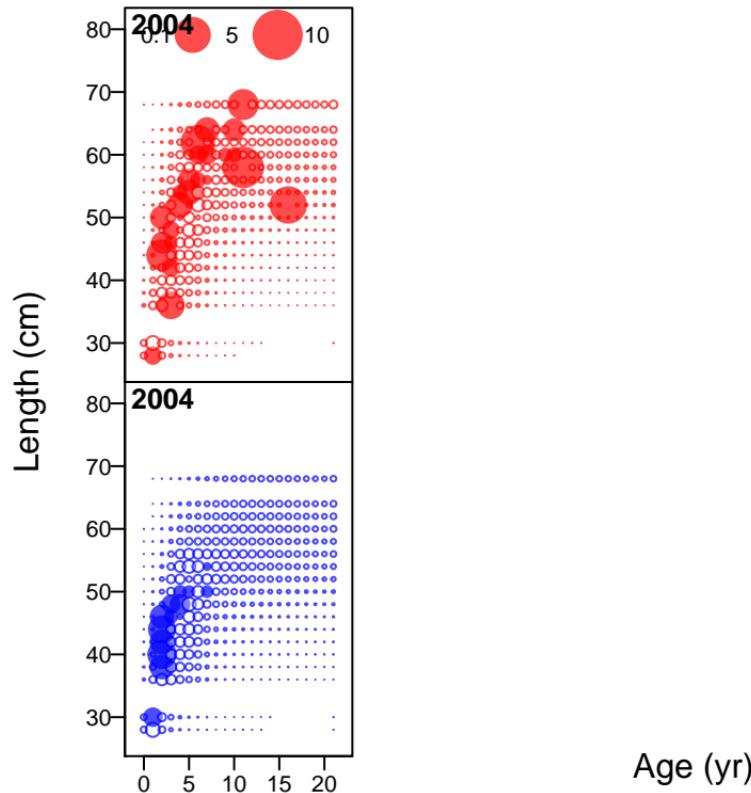
## Pearson residuals, whole catch, TrawlSouth (max=263.11)



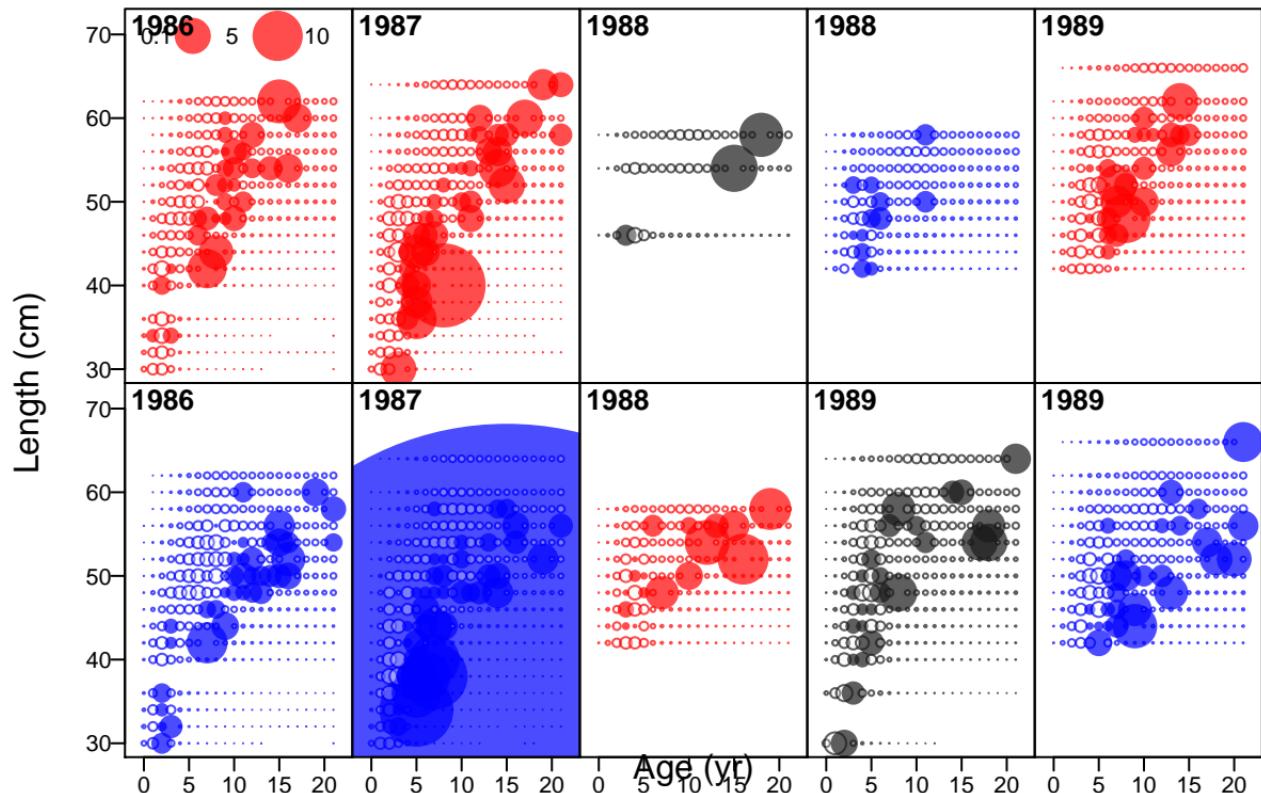
## Pearson residuals, whole catch, TrawlSouth (max=263.11)



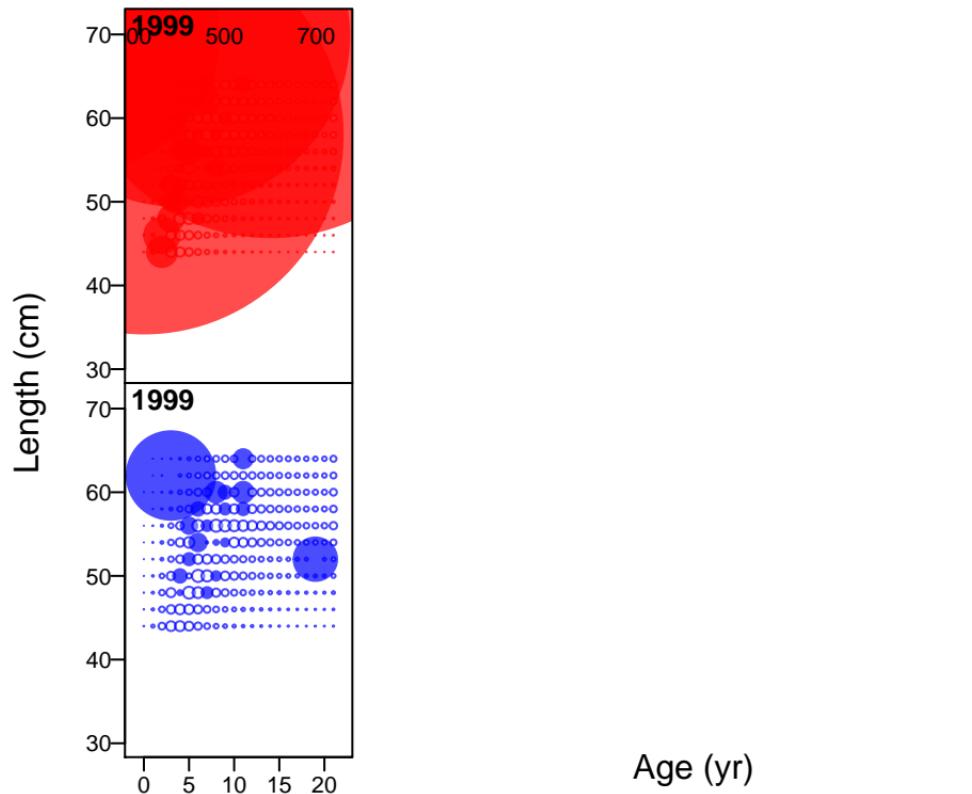
## Pearson residuals, whole catch, TrawlSouth (max=263.11)



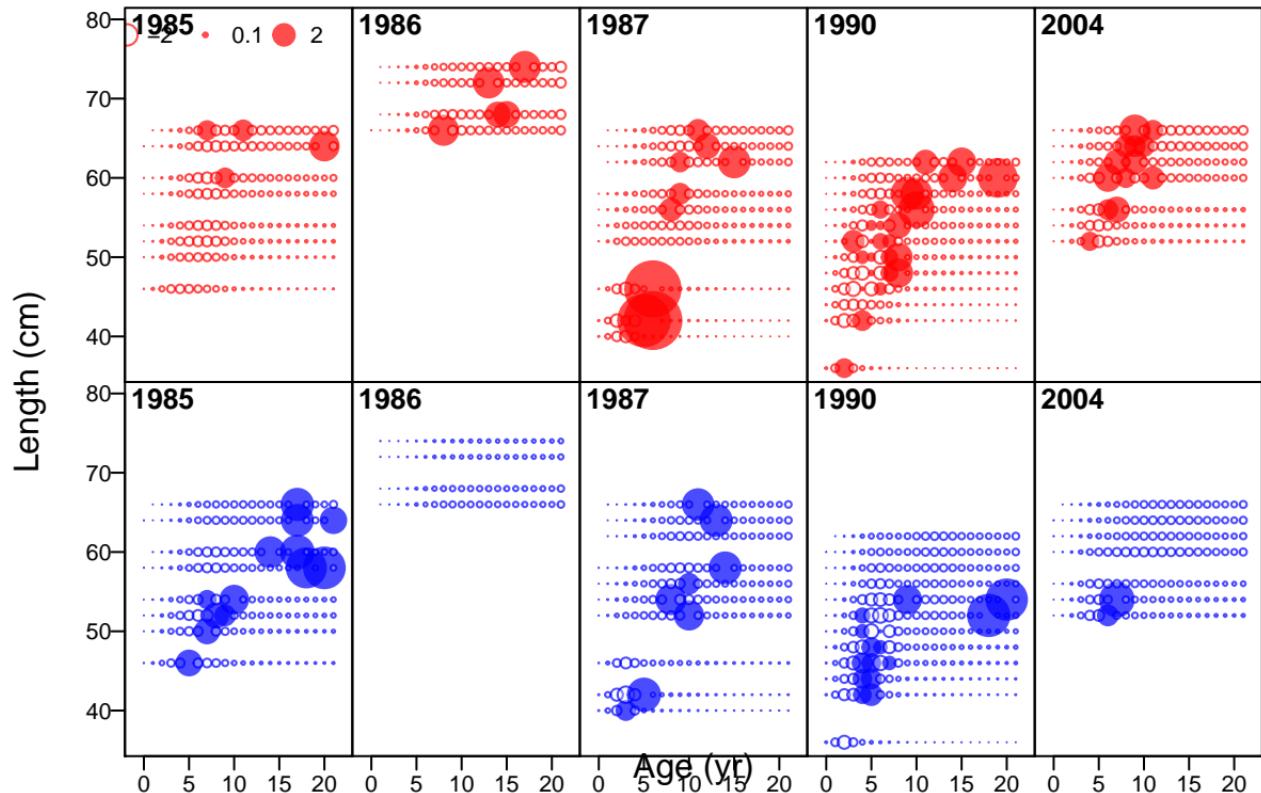
## Pearson residuals, whole catch, HL (max=1574.28)



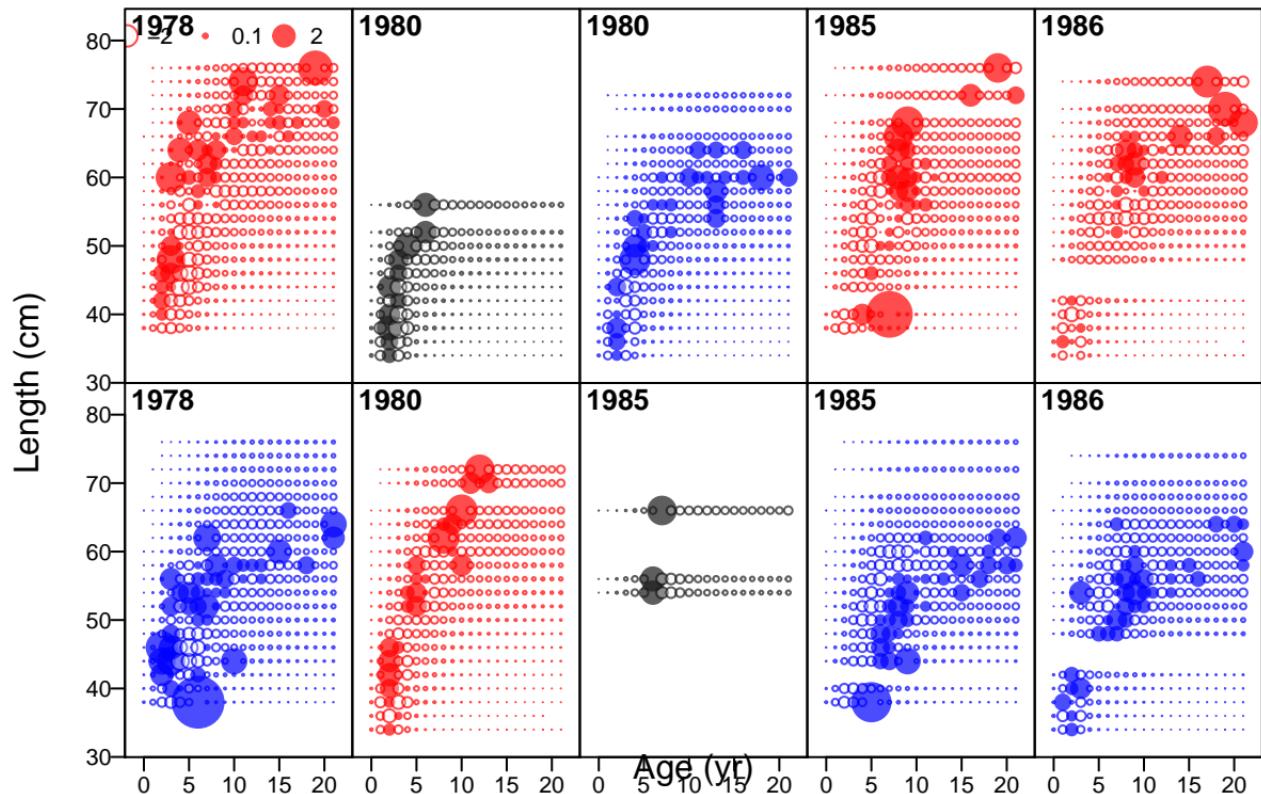
## Pearson residuals, whole catch, HL (max=1574.28)



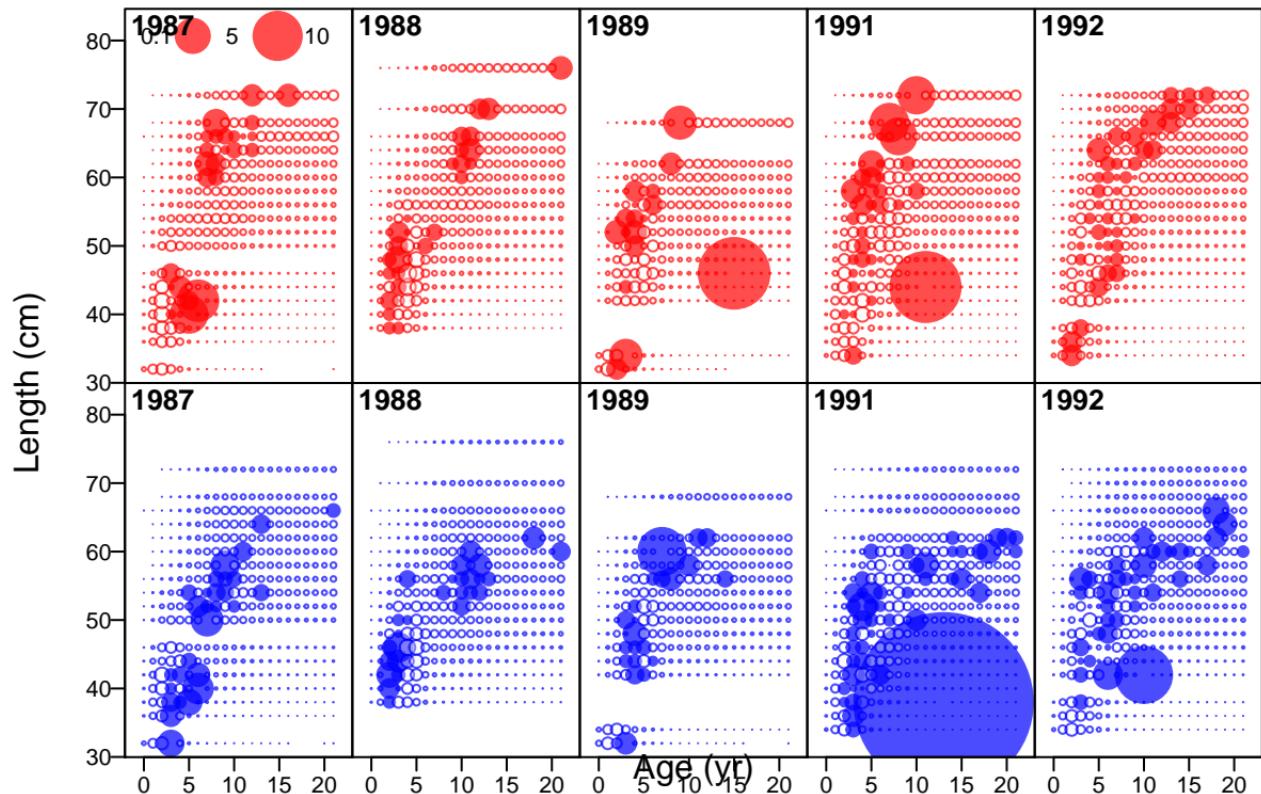
## Pearson residuals, whole catch, Setnet (max=13.93)



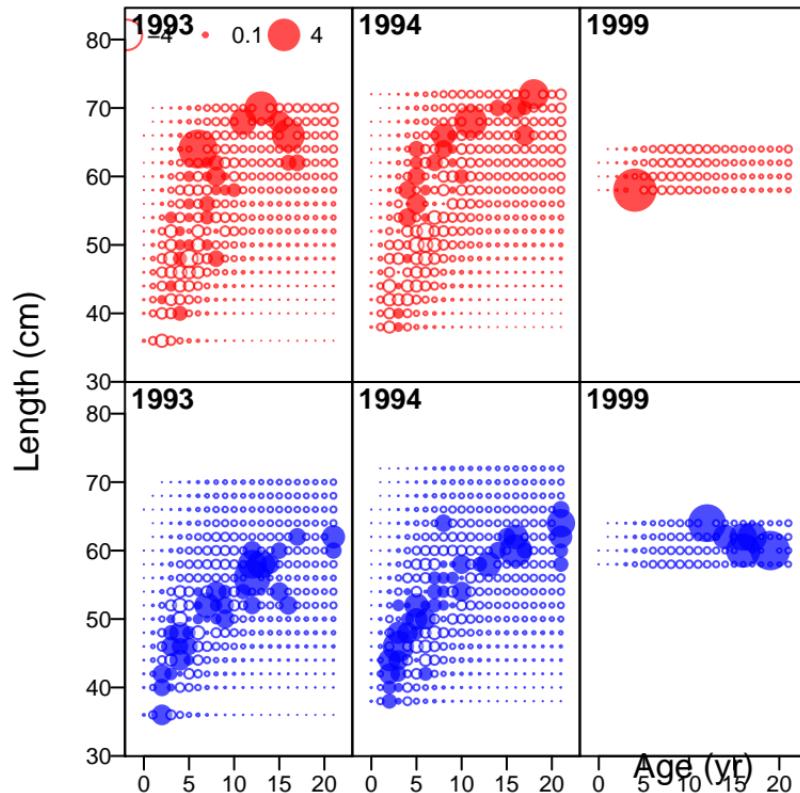
## Pearson residuals, whole catch, TrawlNorth (max=137.01)



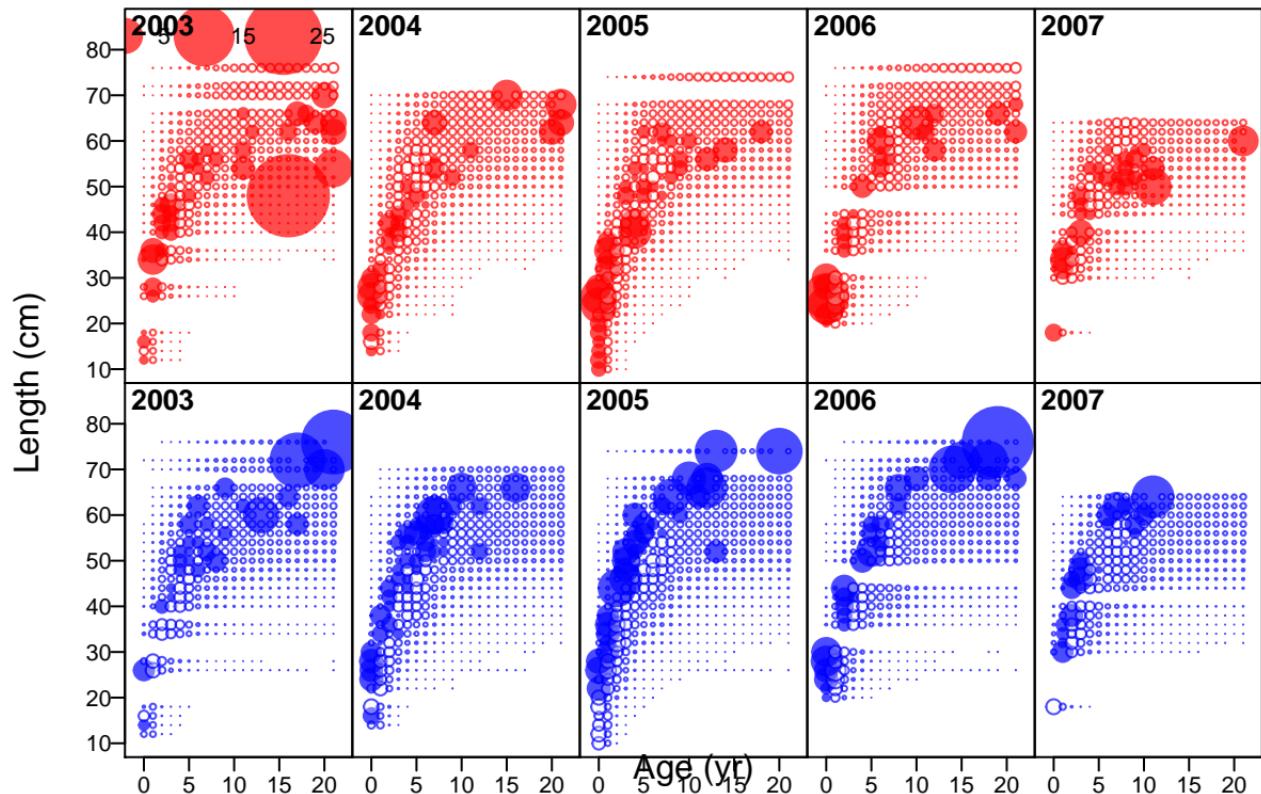
## Pearson residuals, whole catch, TrawlNorth (max=137.01)



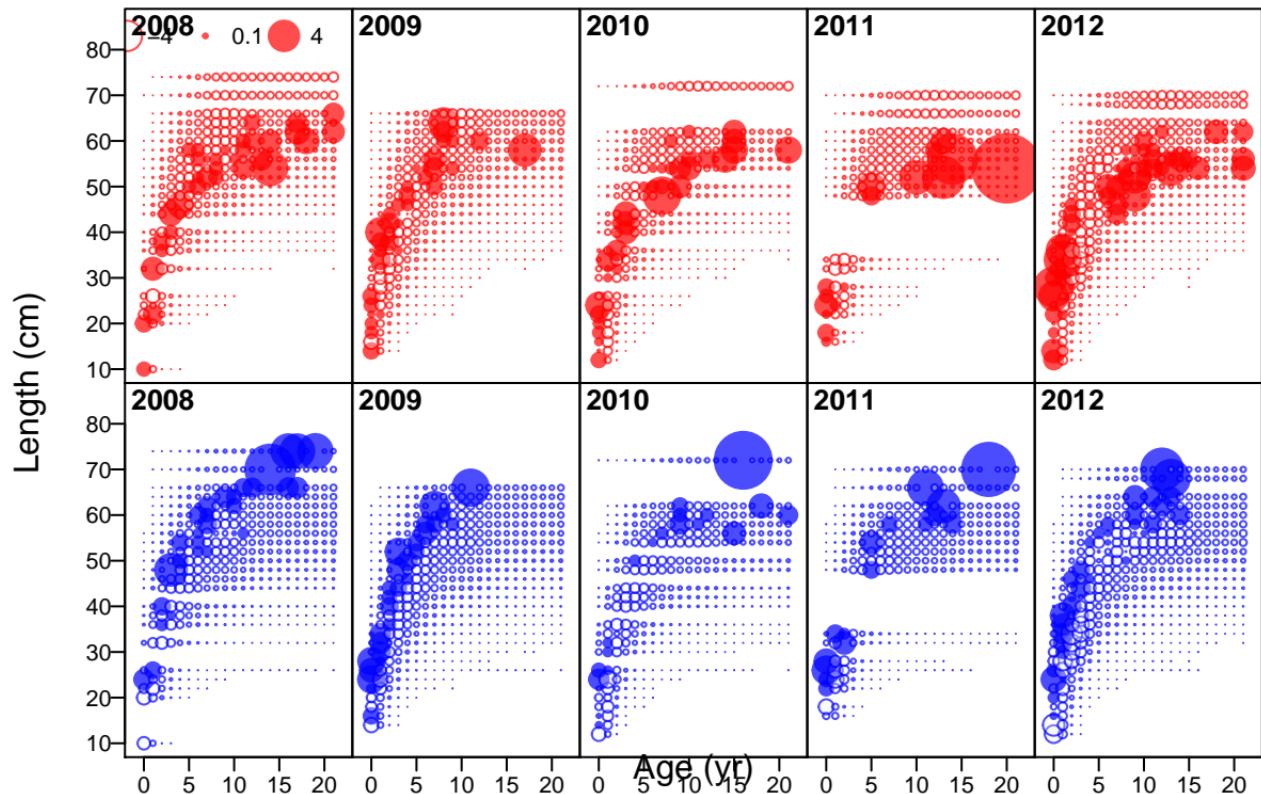
## Pearson residuals, whole catch, TrawlNorth (max=137.01)



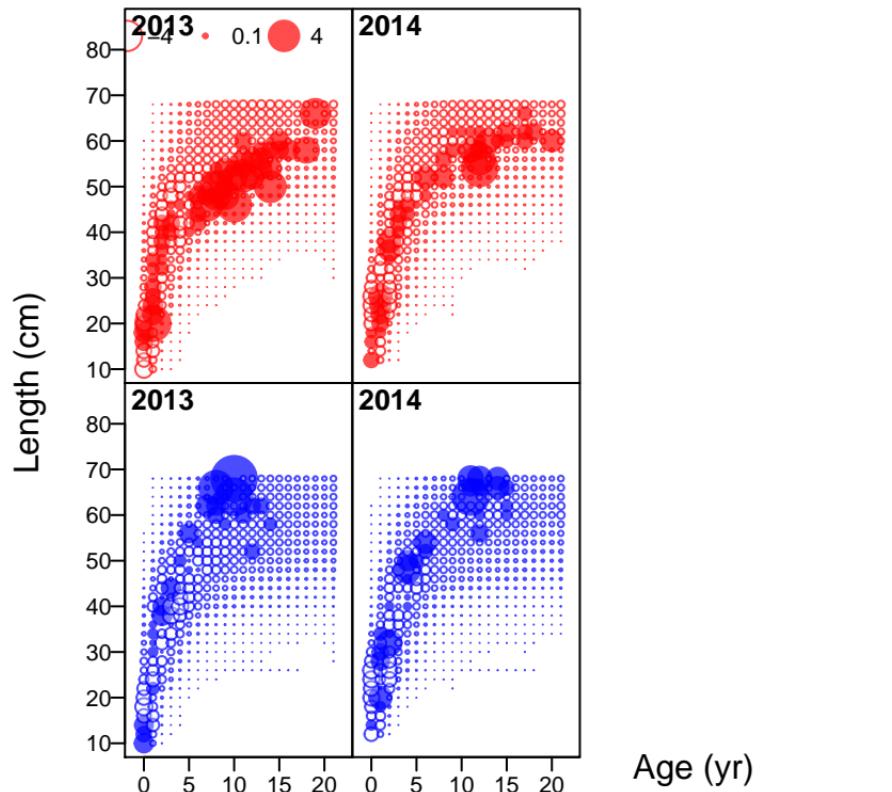
## Pearson residuals, whole catch, NWFSC Trawl (max=28.5)



## Pearson residuals, whole catch, NWFSC Trawl (max=28.5)

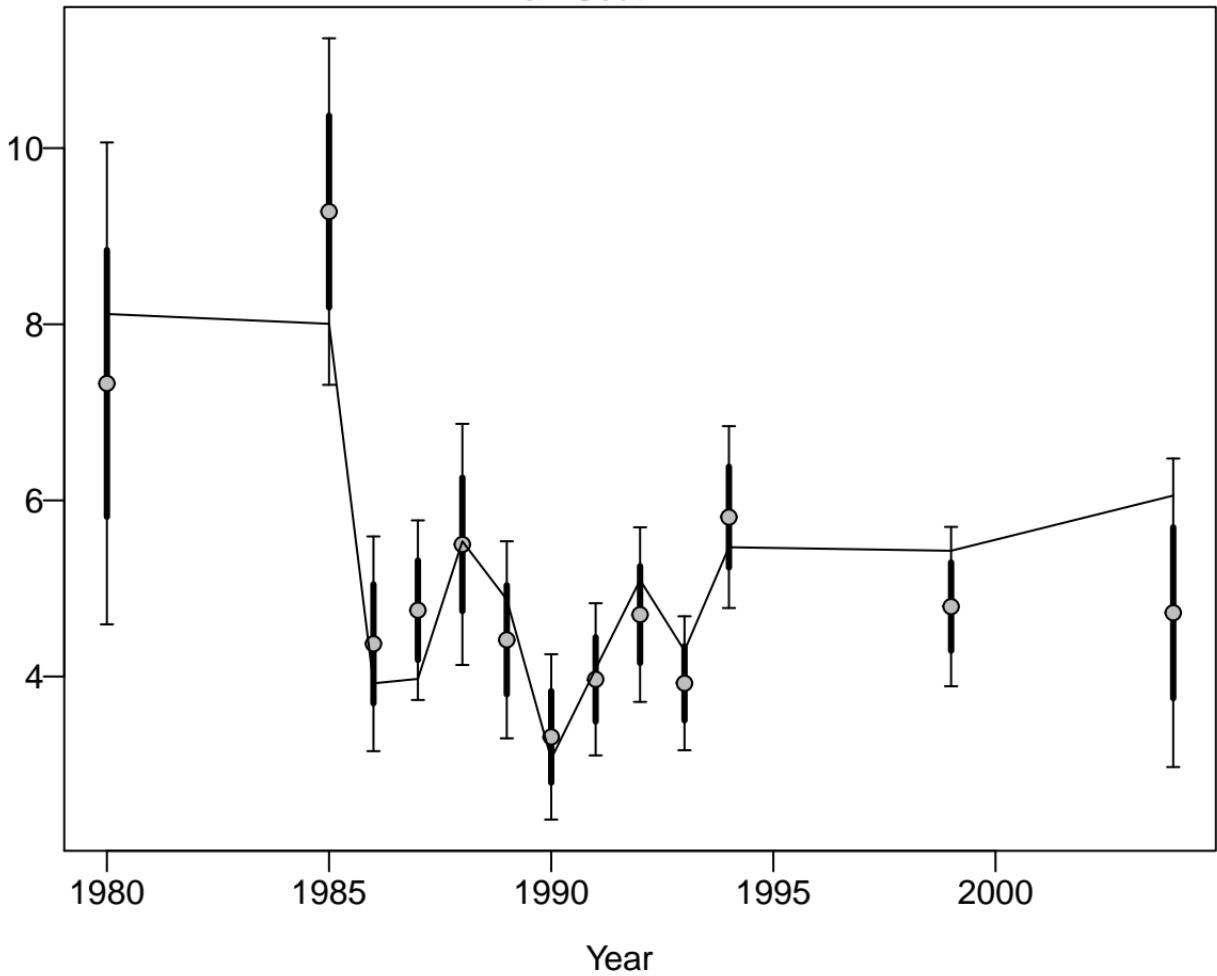


## Pearson residuals, whole catch, NWFSC Trawl (max=28.5)

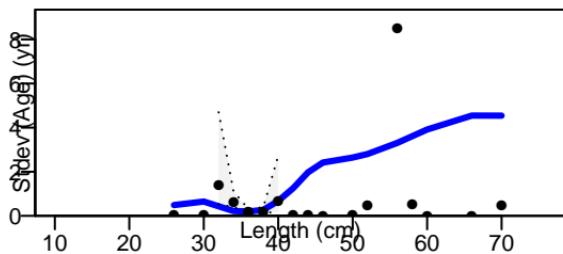
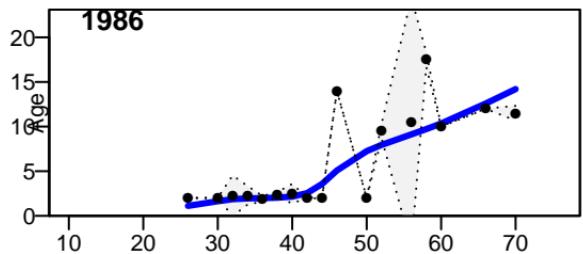
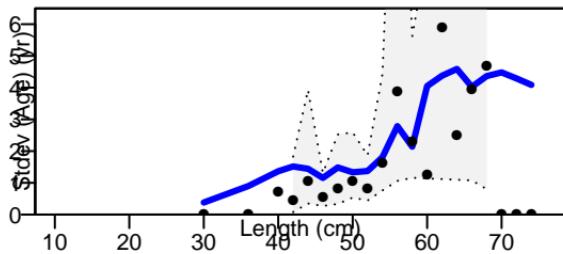
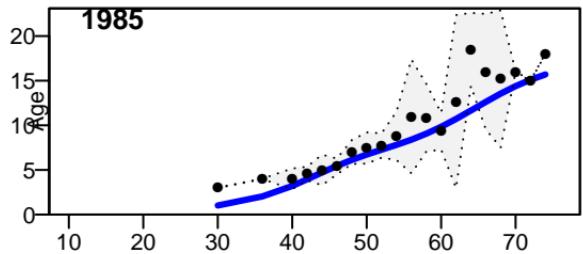
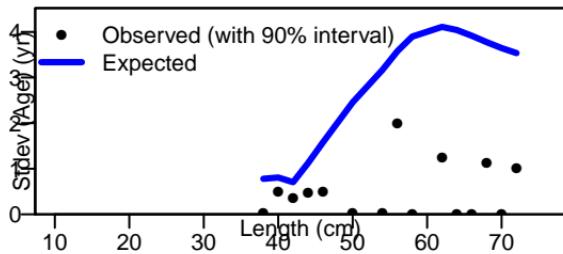
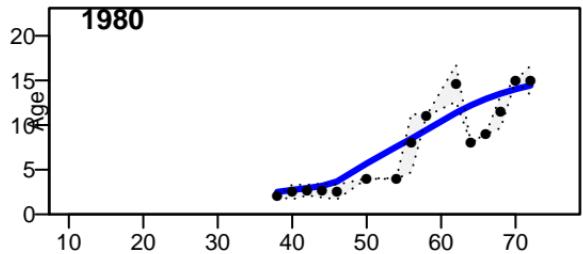


# TrawlSouth

Mean age

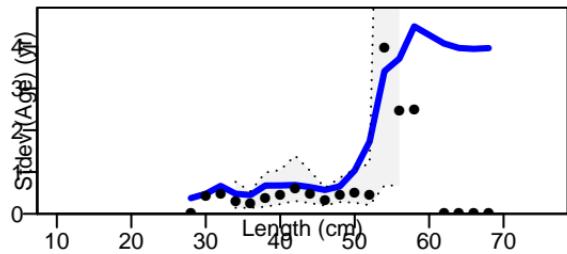
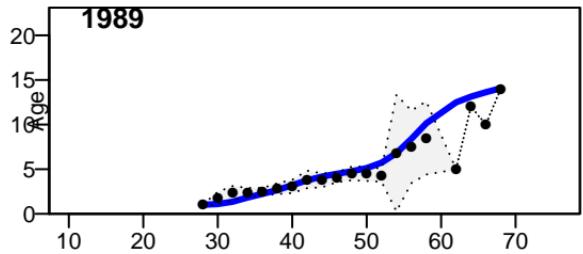
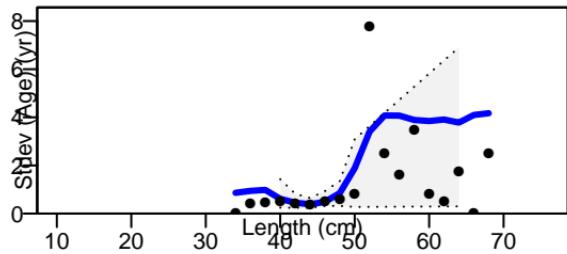
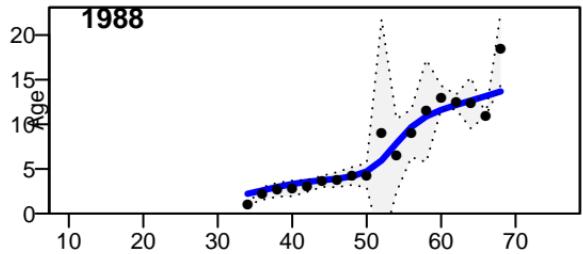
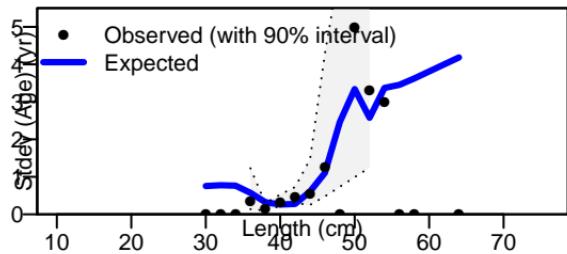
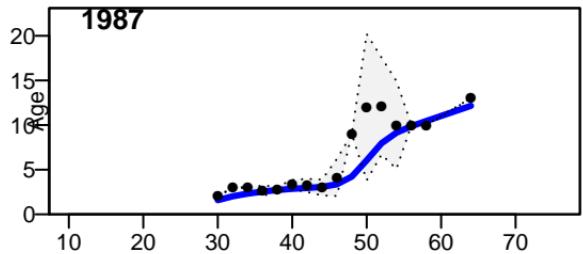


## Conditional AAL plot, whole catch, TrawlSouth



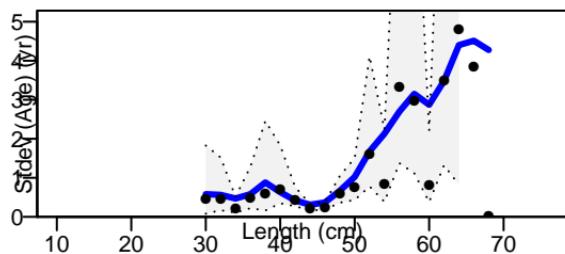
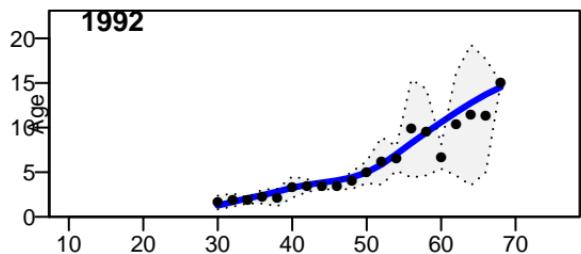
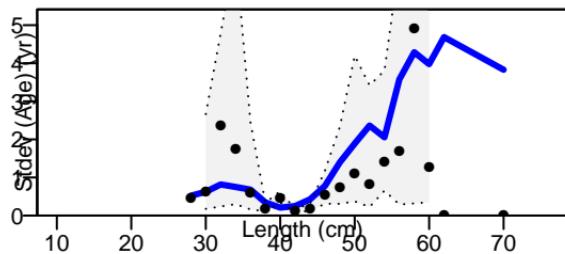
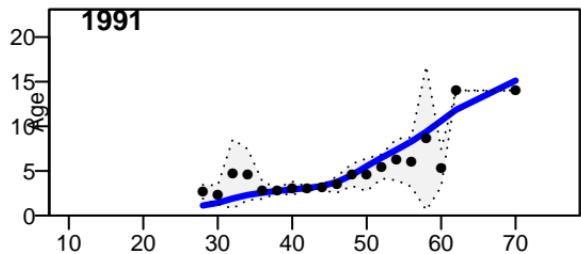
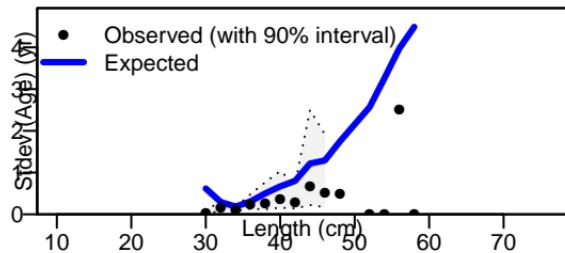
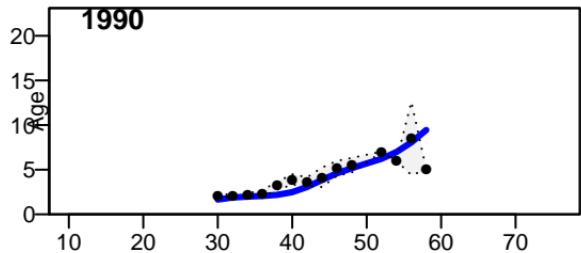
Length (cm)

## Conditional AAL plot, whole catch, TrawlSouth



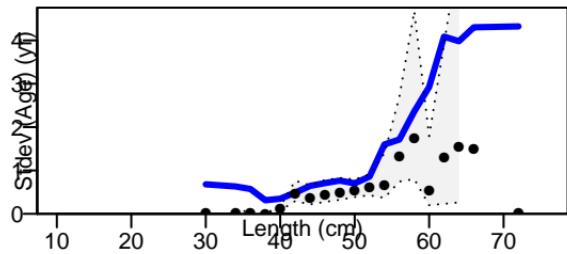
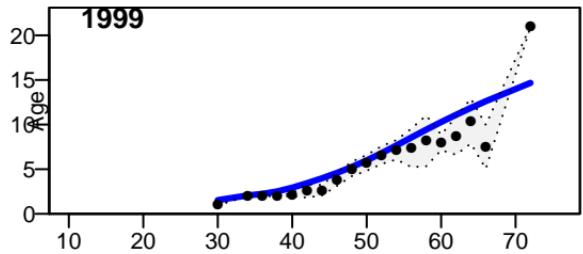
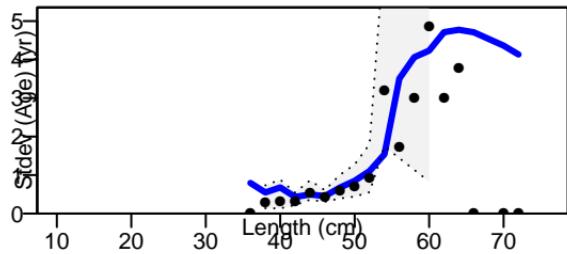
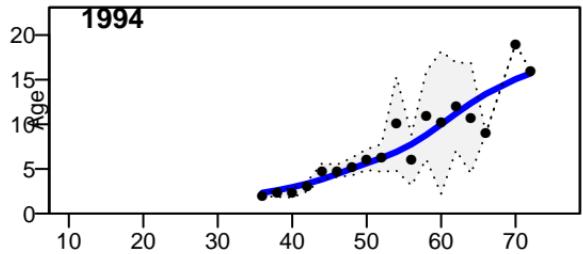
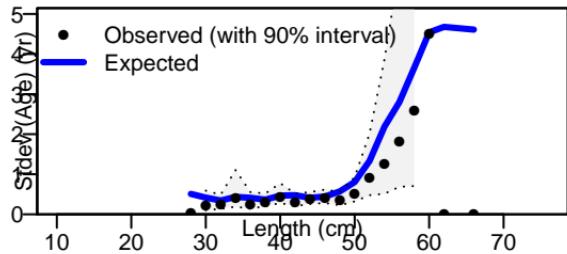
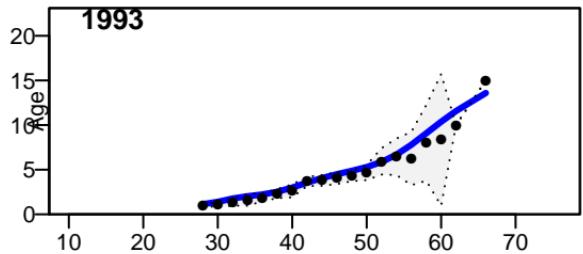
Length (cm)

## Conditional AAL plot, whole catch, TrawlSouth



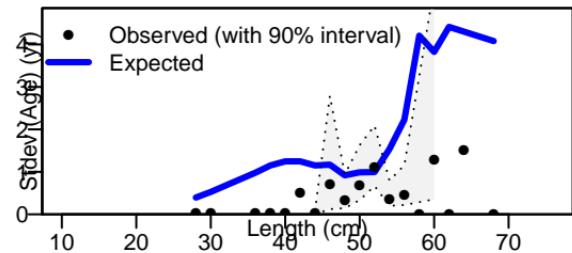
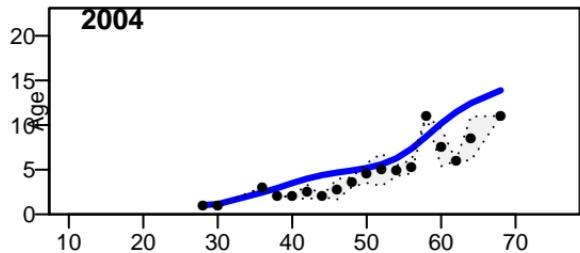
Length (cm)

## Conditional AAL plot, whole catch, TrawlSouth

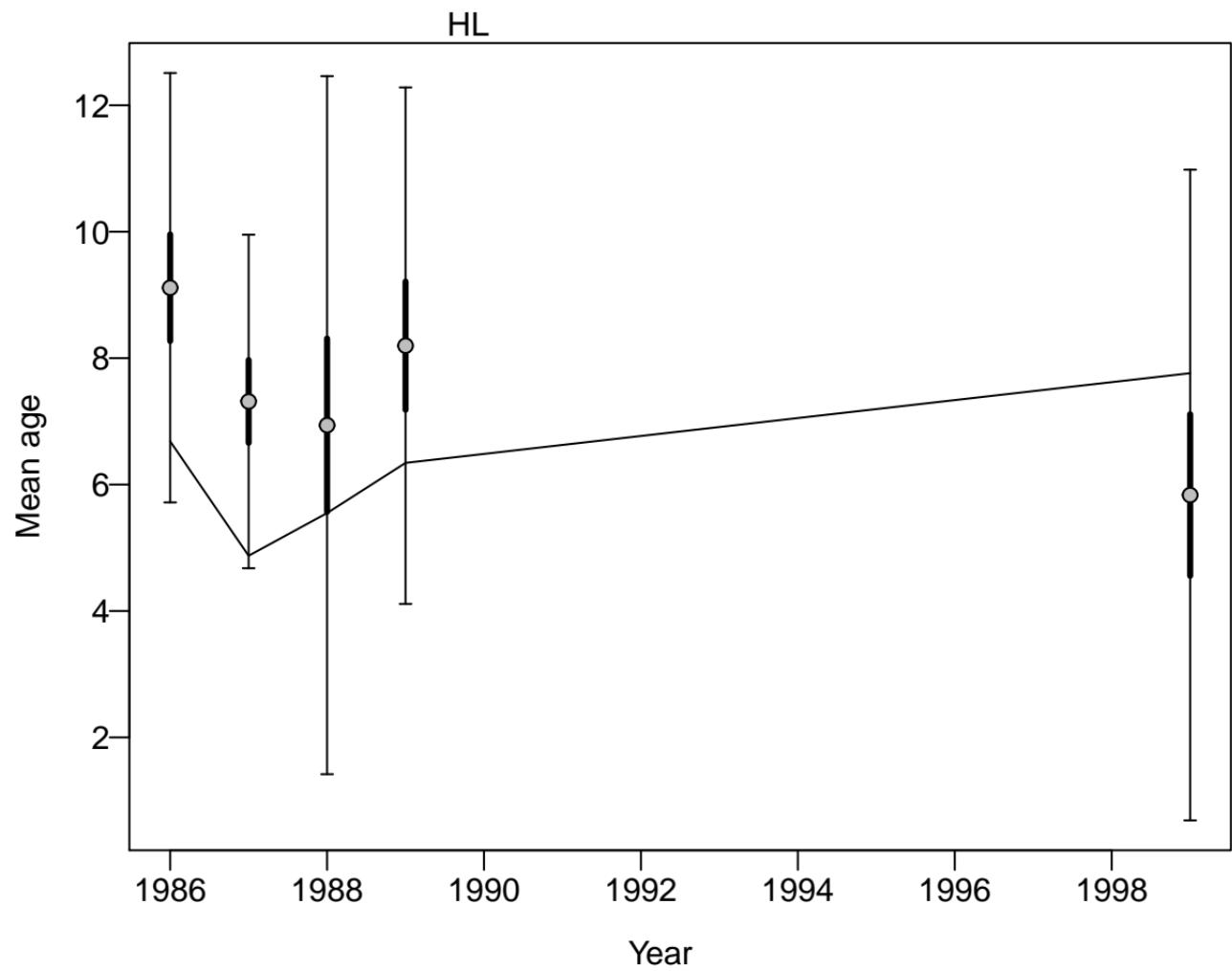


Length (cm)

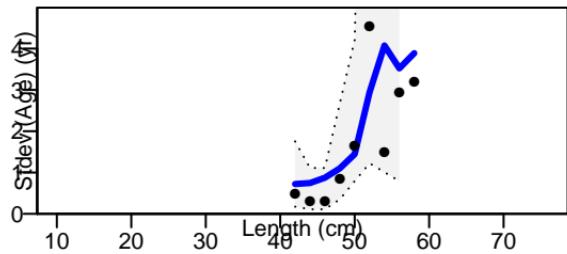
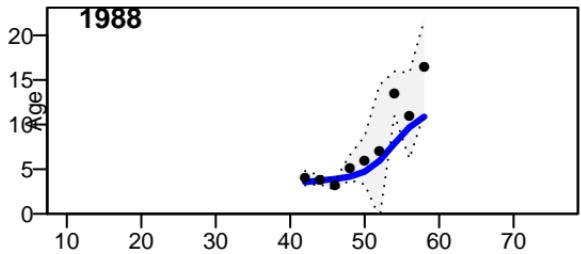
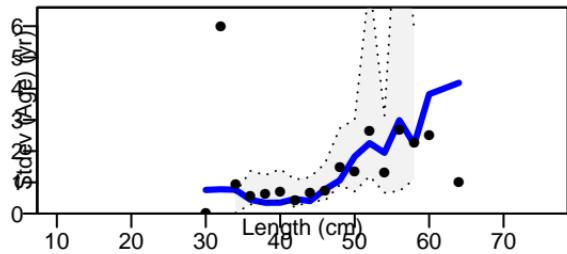
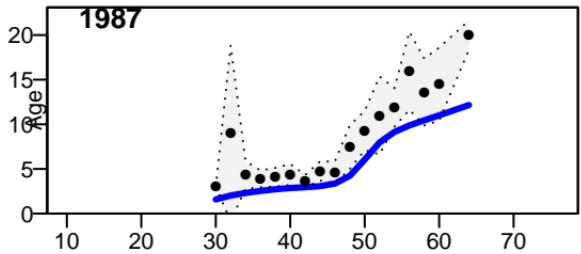
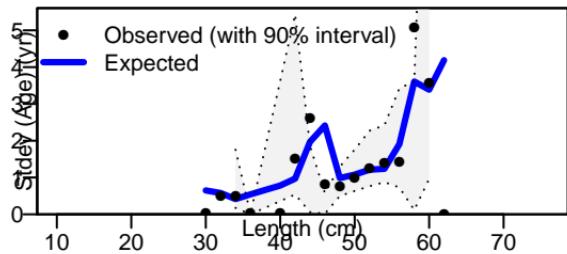
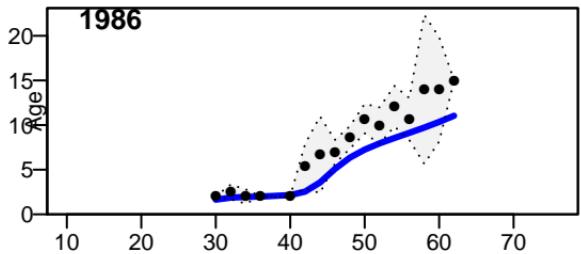
## Conditional AAL plot, whole catch, TrawlSouth



Length (cm)

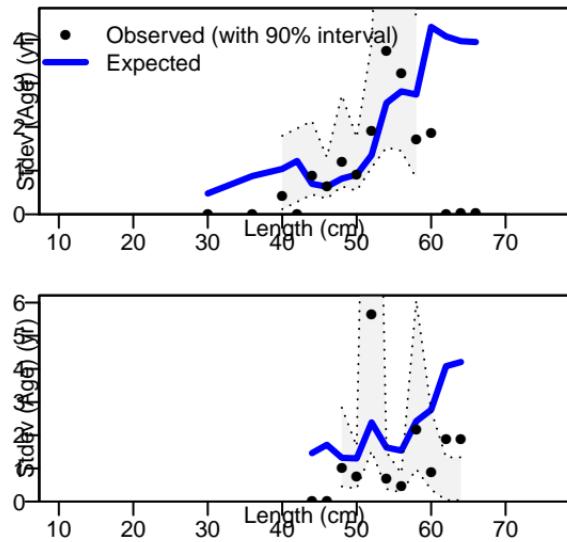
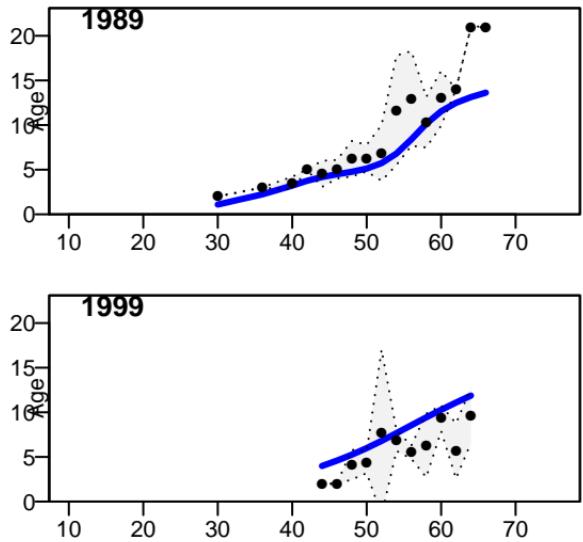


### Conditional AAL plot, whole catch, HL



Length (cm)

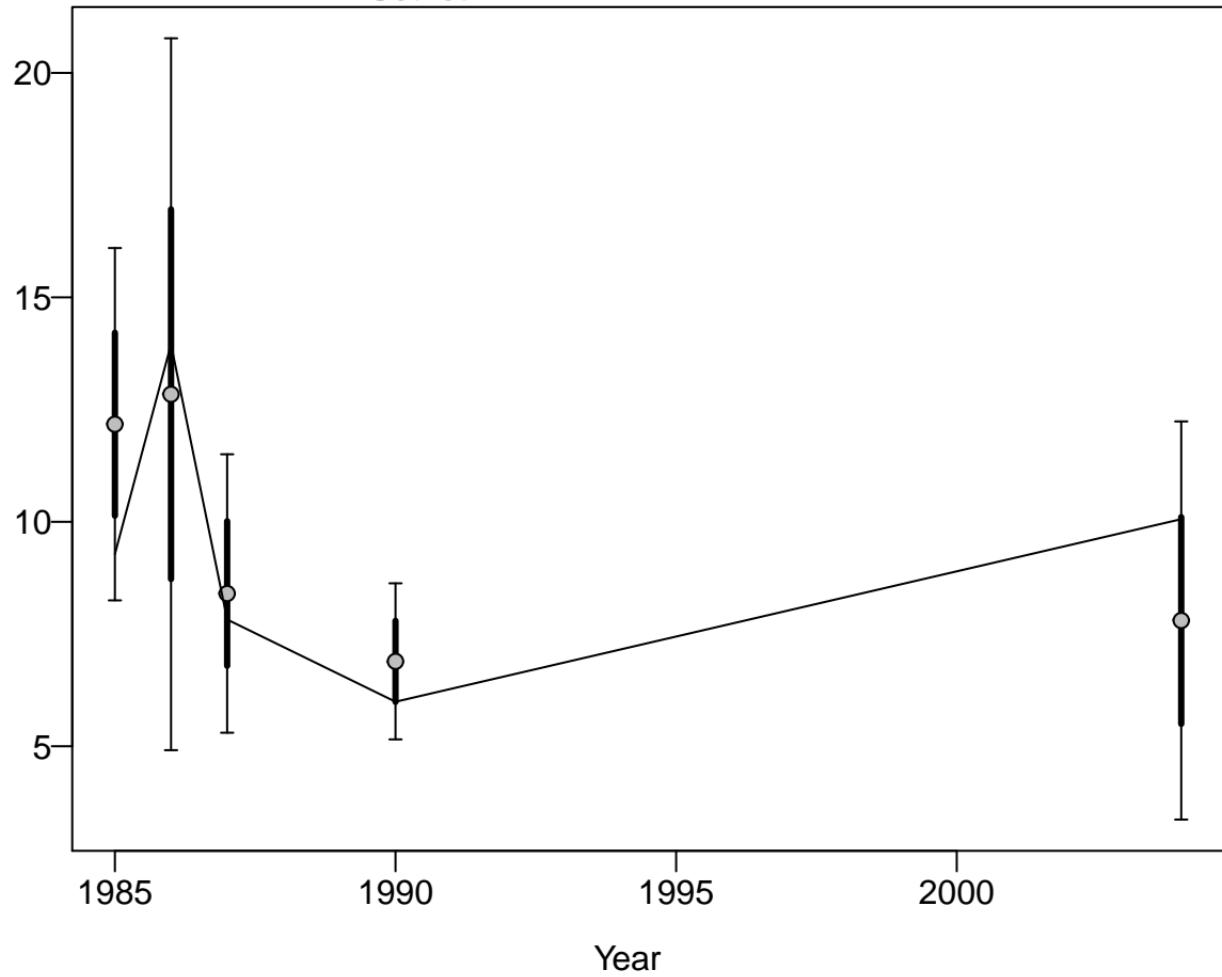
### Conditional AAL plot, whole catch, HL



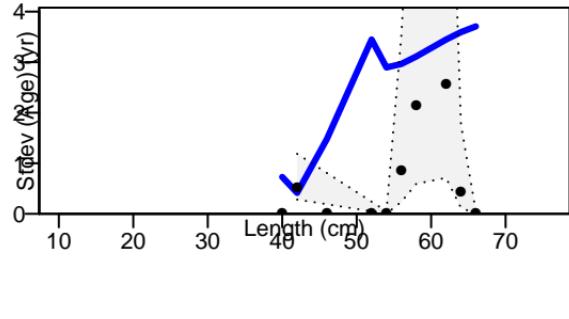
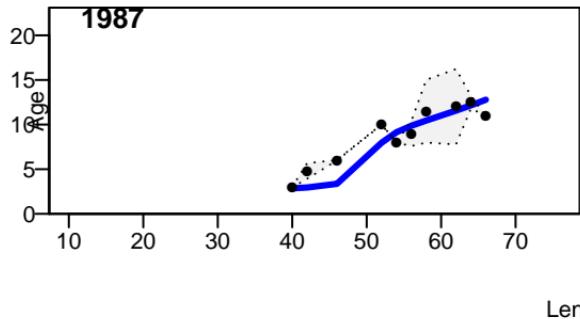
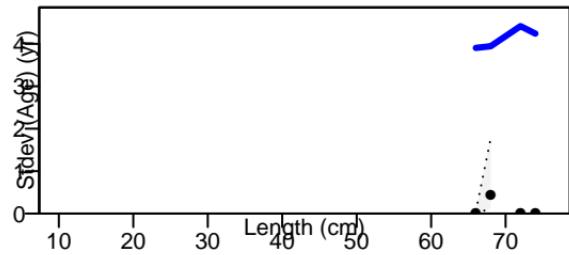
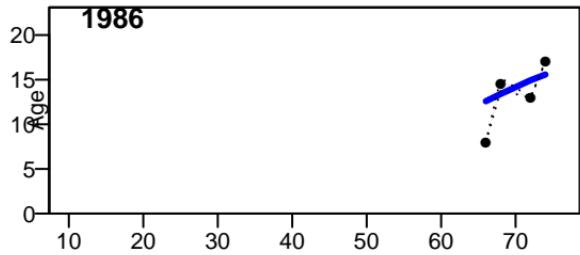
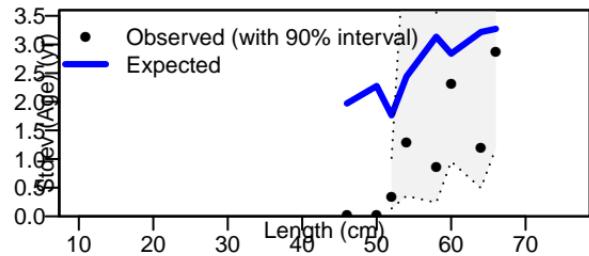
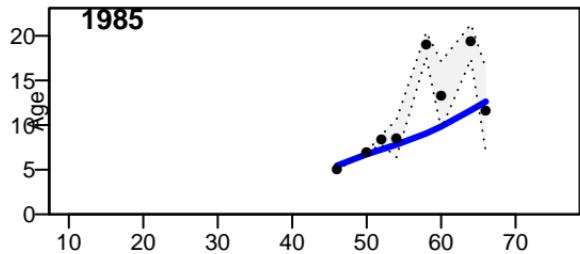
Length (cm)

# Setnet

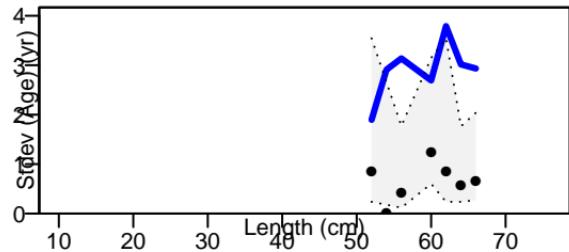
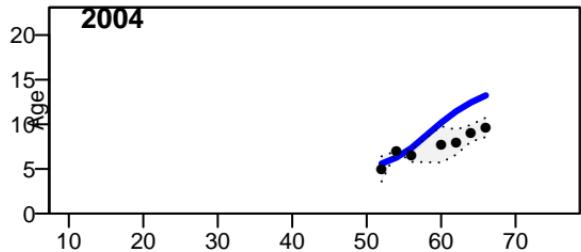
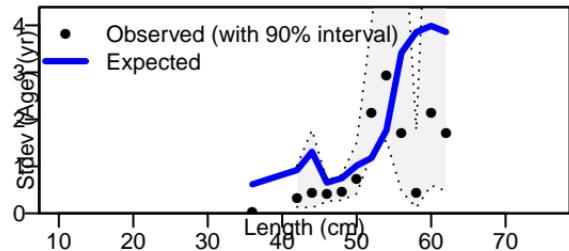
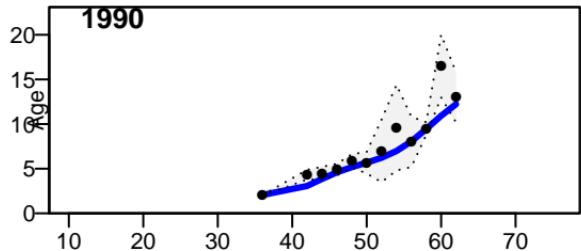
Mean age



### Conditional AAL plot, whole catch, Setnet

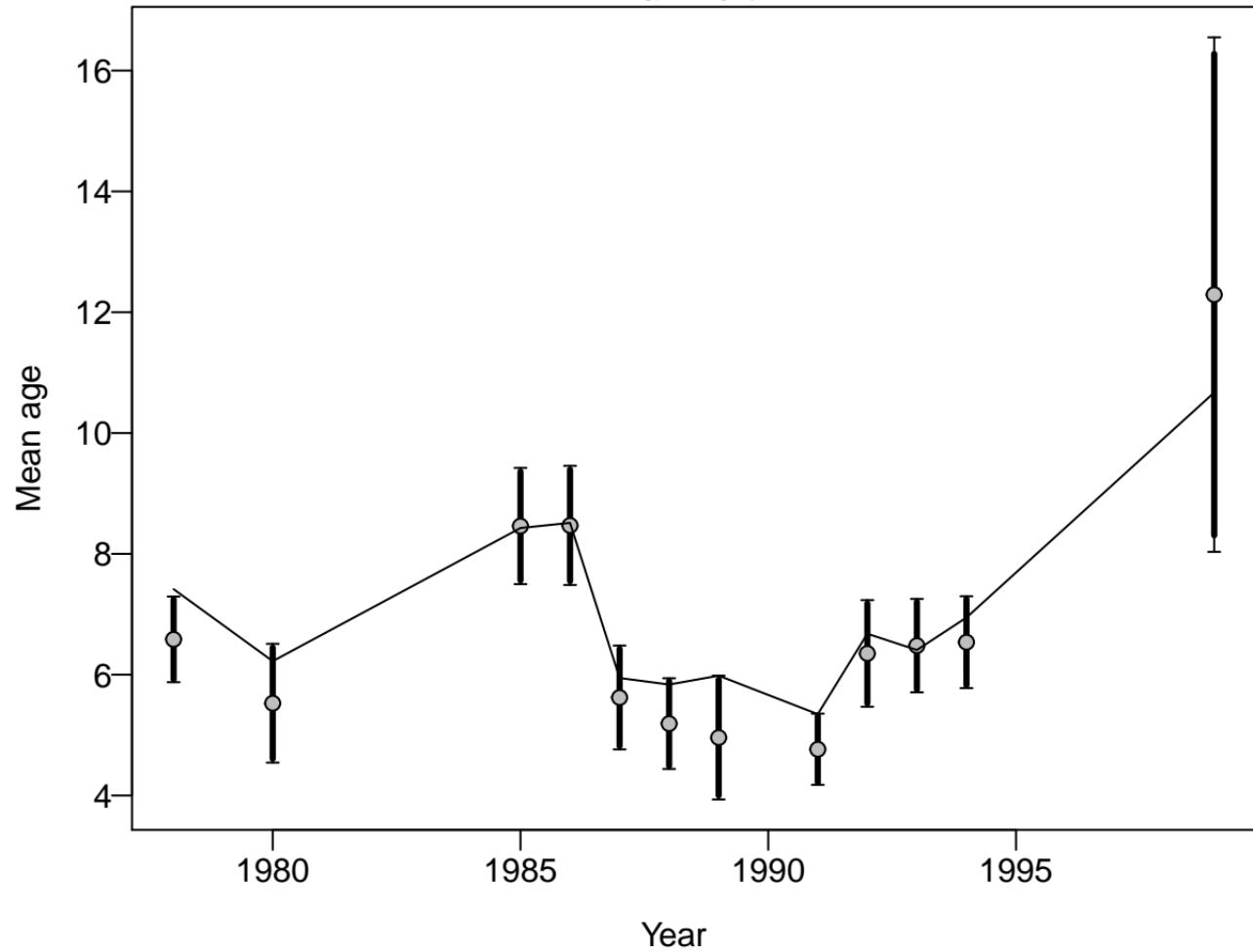


### Conditional AAL plot, whole catch, Setnet

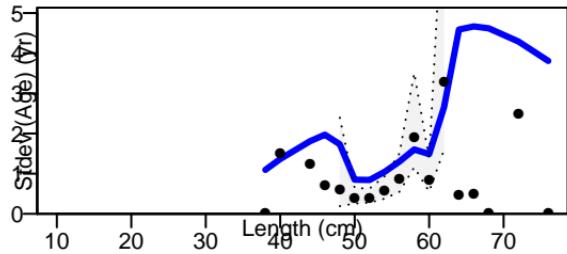
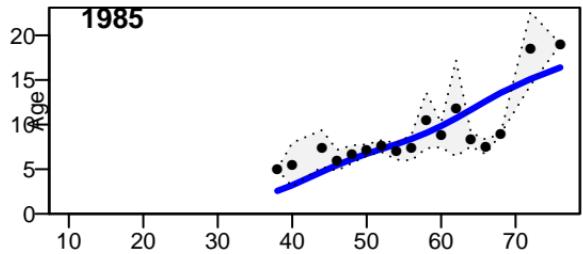
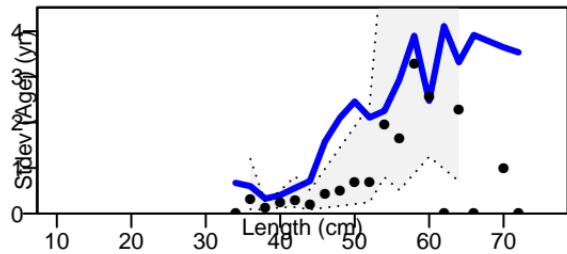
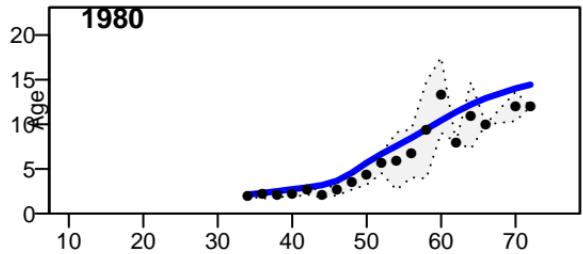
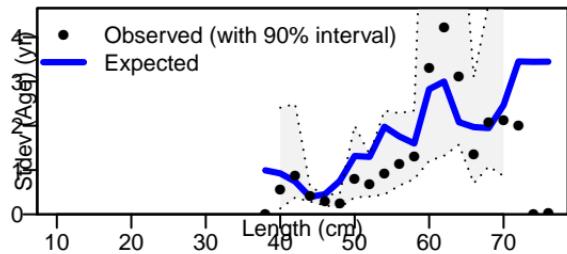
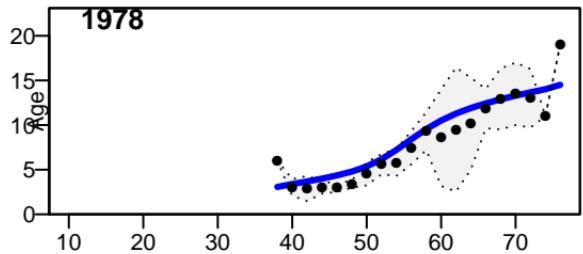


Length (cm)

# TrawlNorth

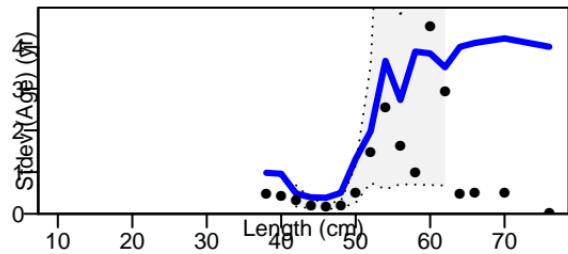
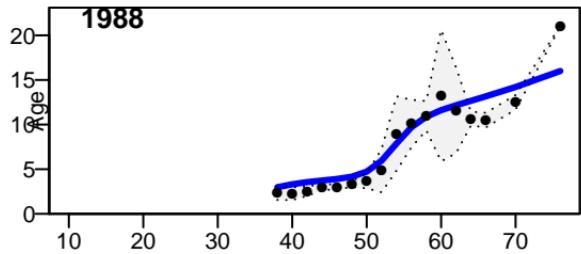
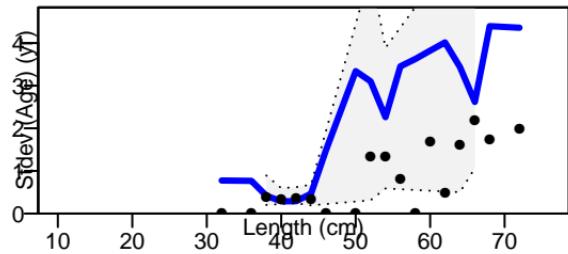
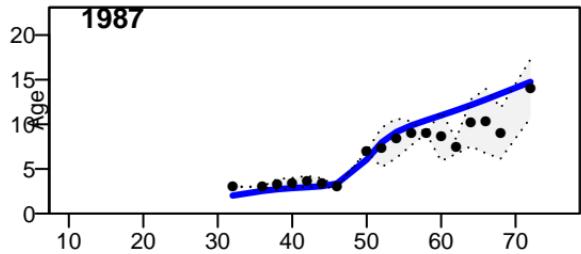
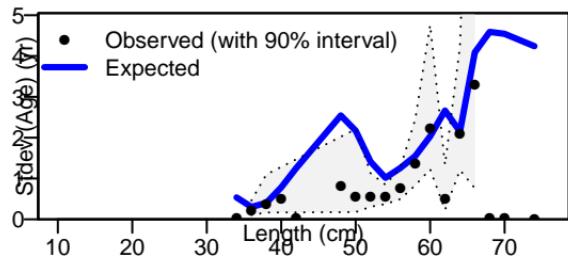
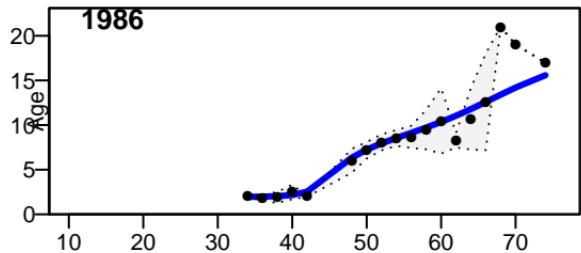


## Conditional AAL plot, whole catch, TrawlNorth



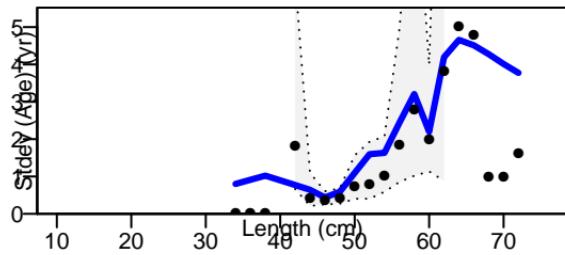
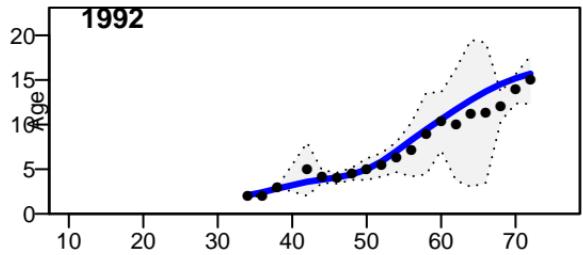
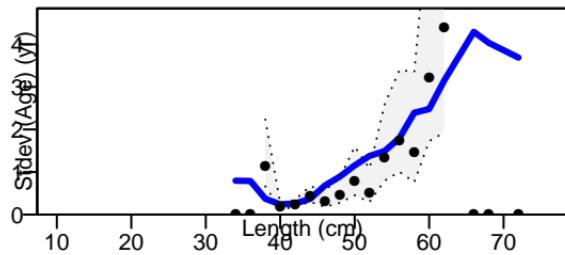
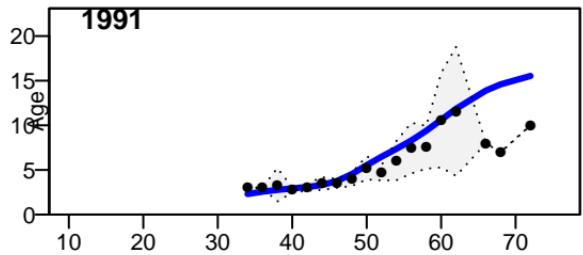
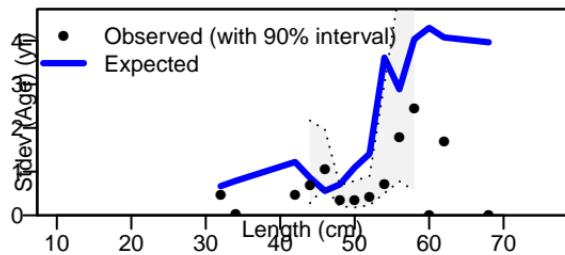
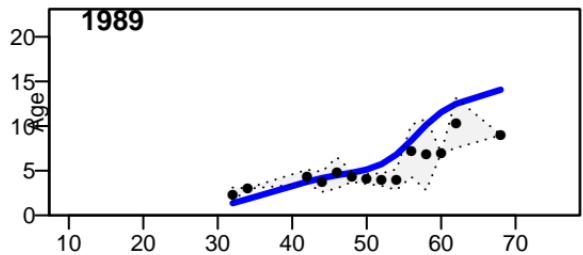
Length (cm)

### Conditional AAL plot, whole catch, TrawlNorth



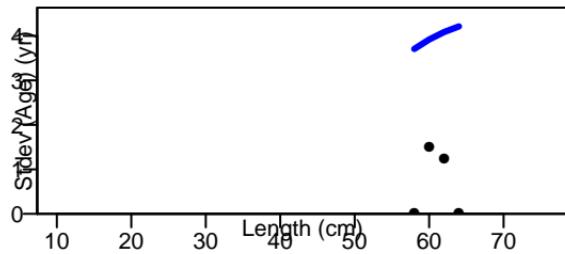
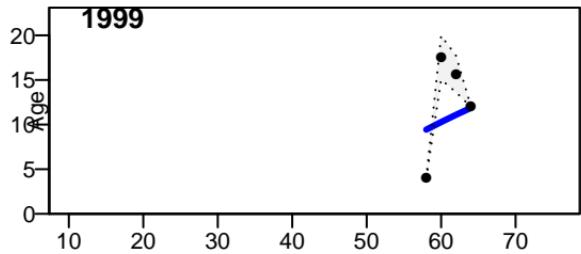
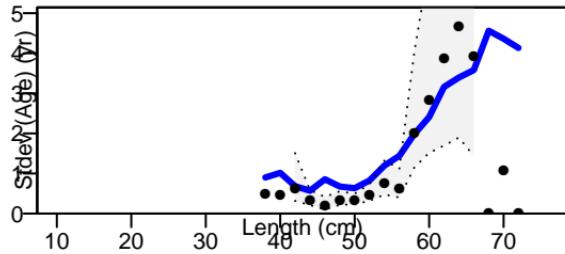
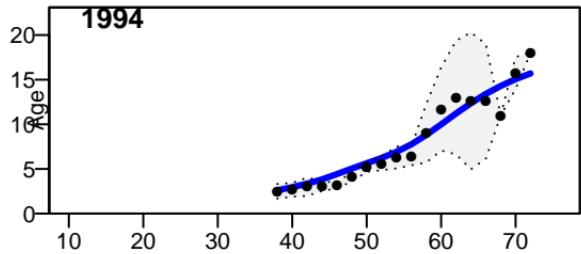
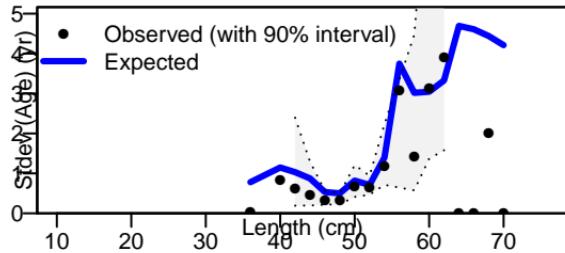
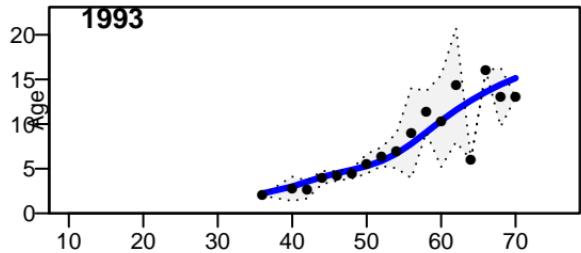
Length (cm)

## Conditional AAL plot, whole catch, TrawlNorth



Length (cm)

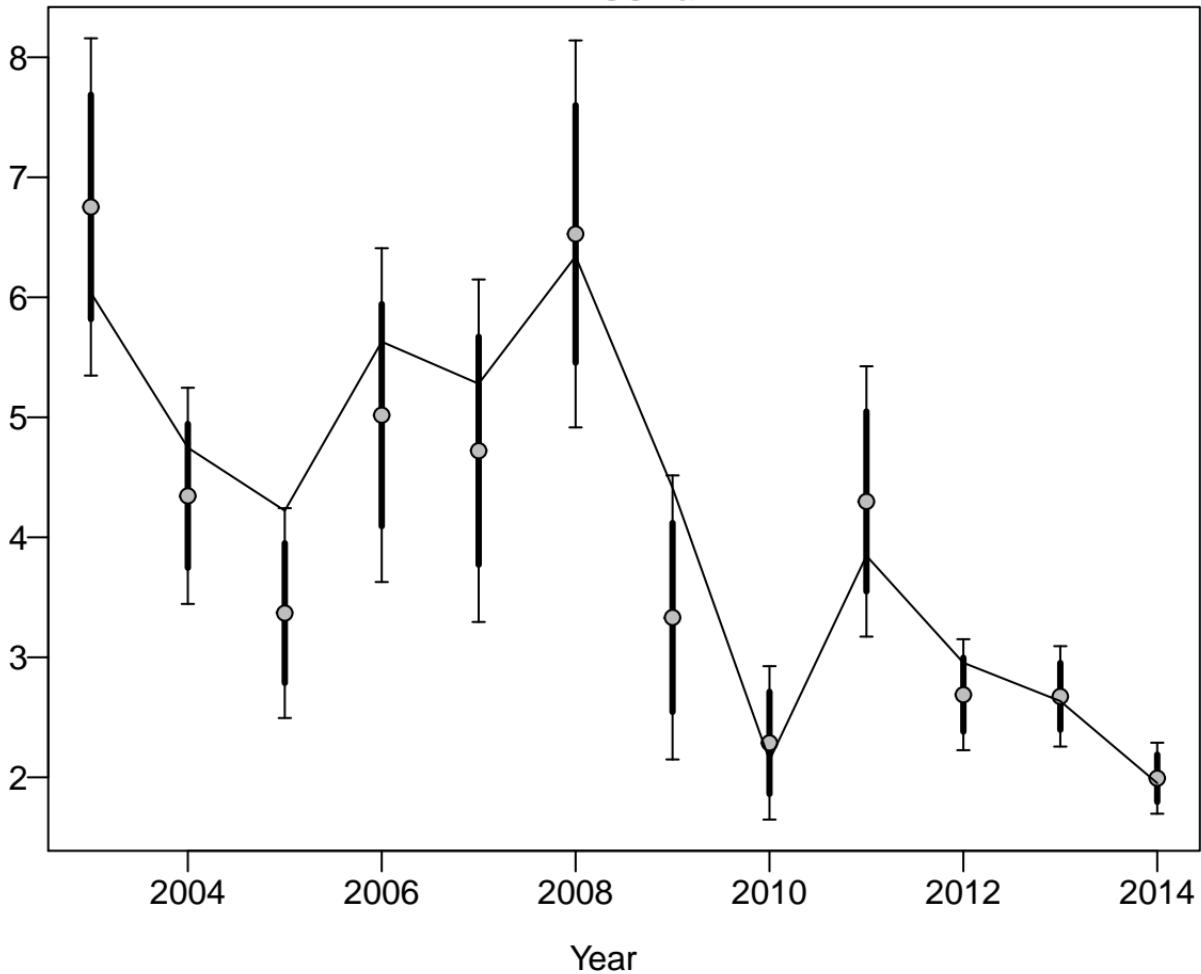
### Conditional AAL plot, whole catch, TrawlNorth



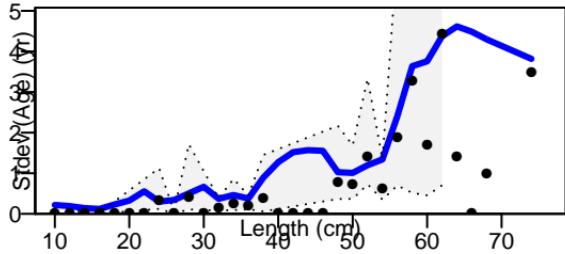
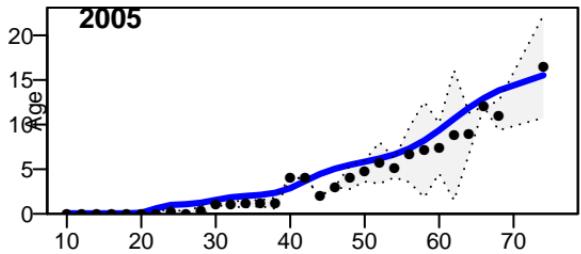
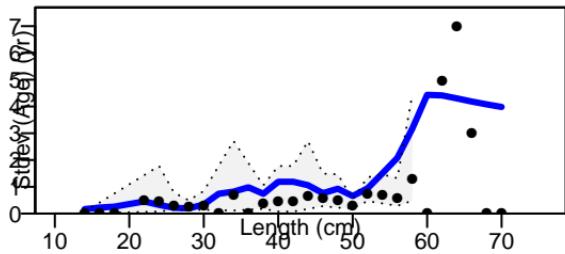
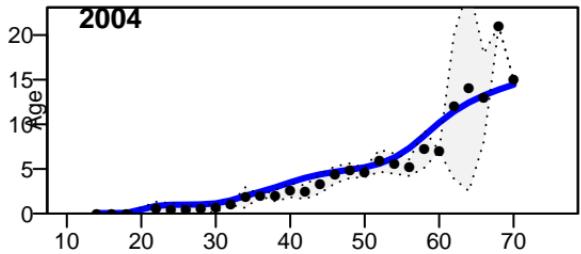
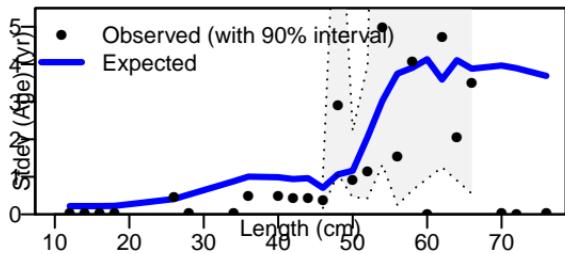
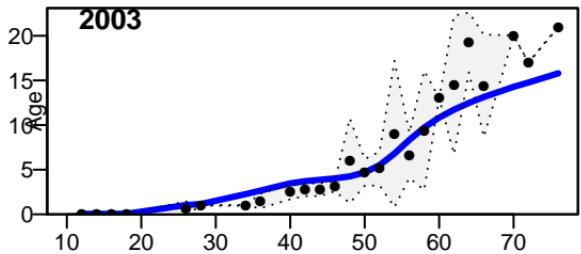
Length (cm)

### NWFSC Trawl

Mean age

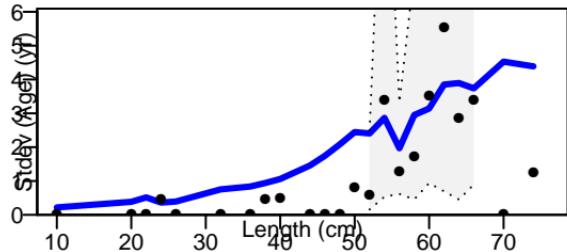
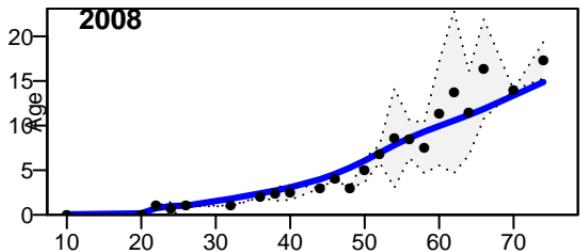
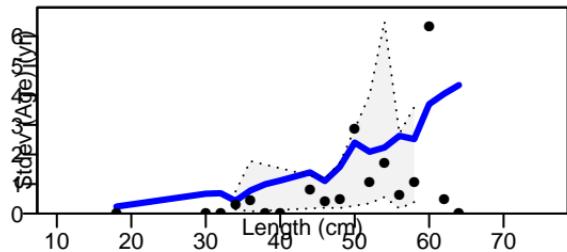
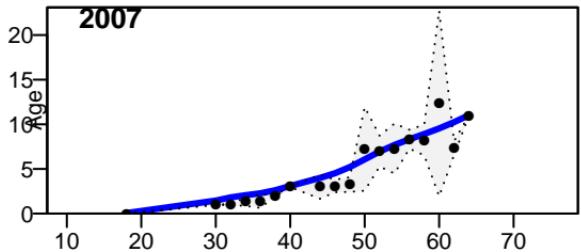
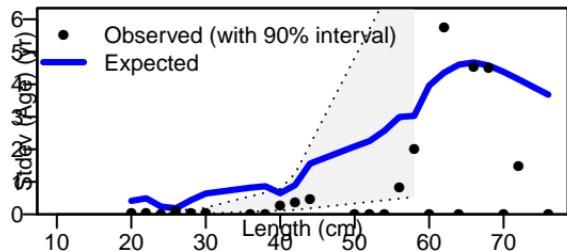
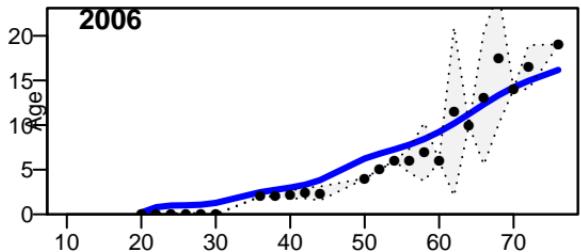


### Conditional AAL plot, whole catch, NWFSC Trawl



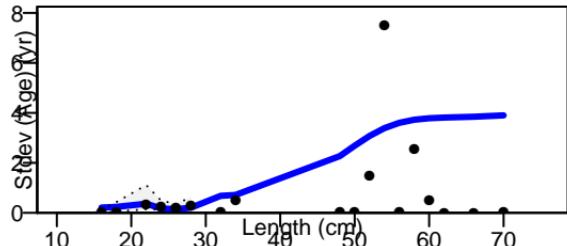
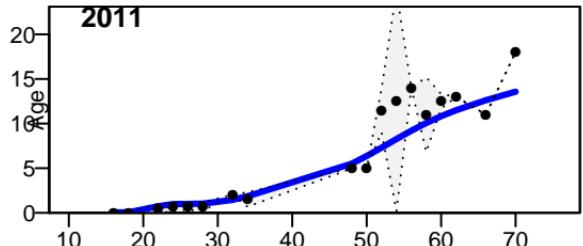
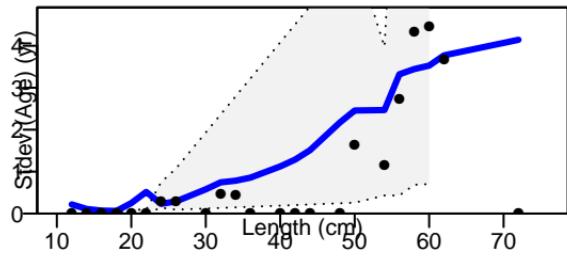
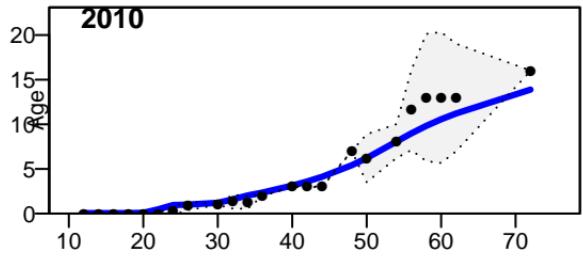
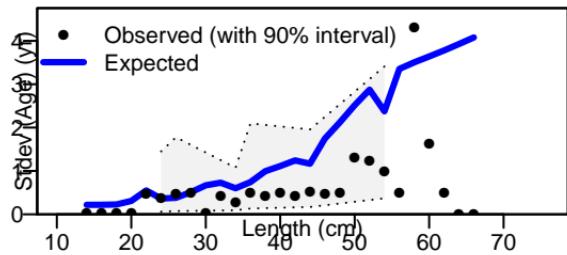
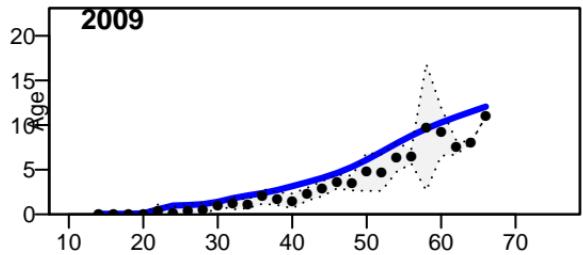
Length (cm)

### Conditional AAL plot, whole catch, NWFSC Trawl



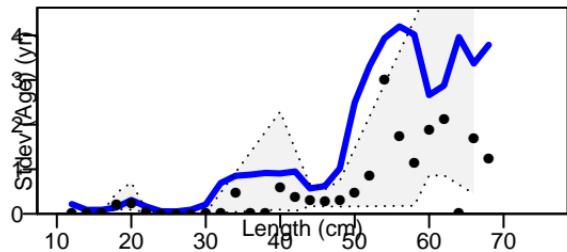
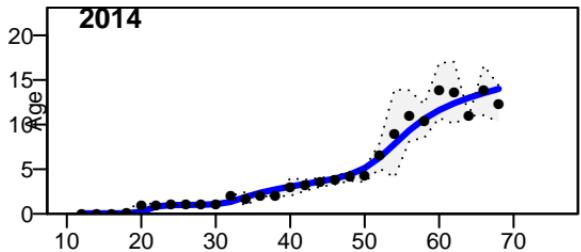
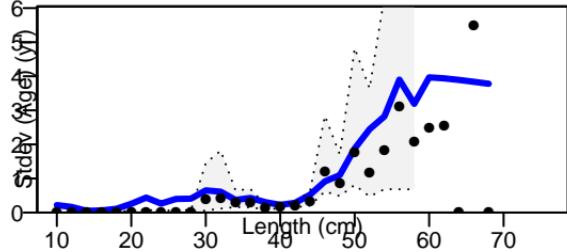
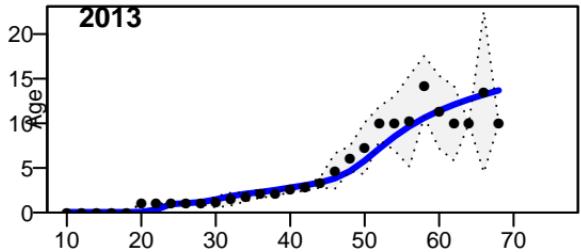
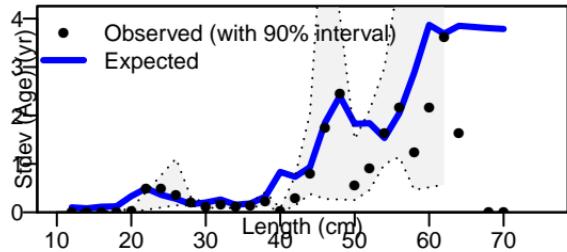
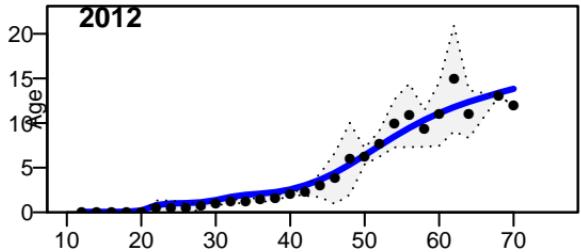
Length (cm)

## Conditional AAL plot, whole catch, NWFSC Trawl

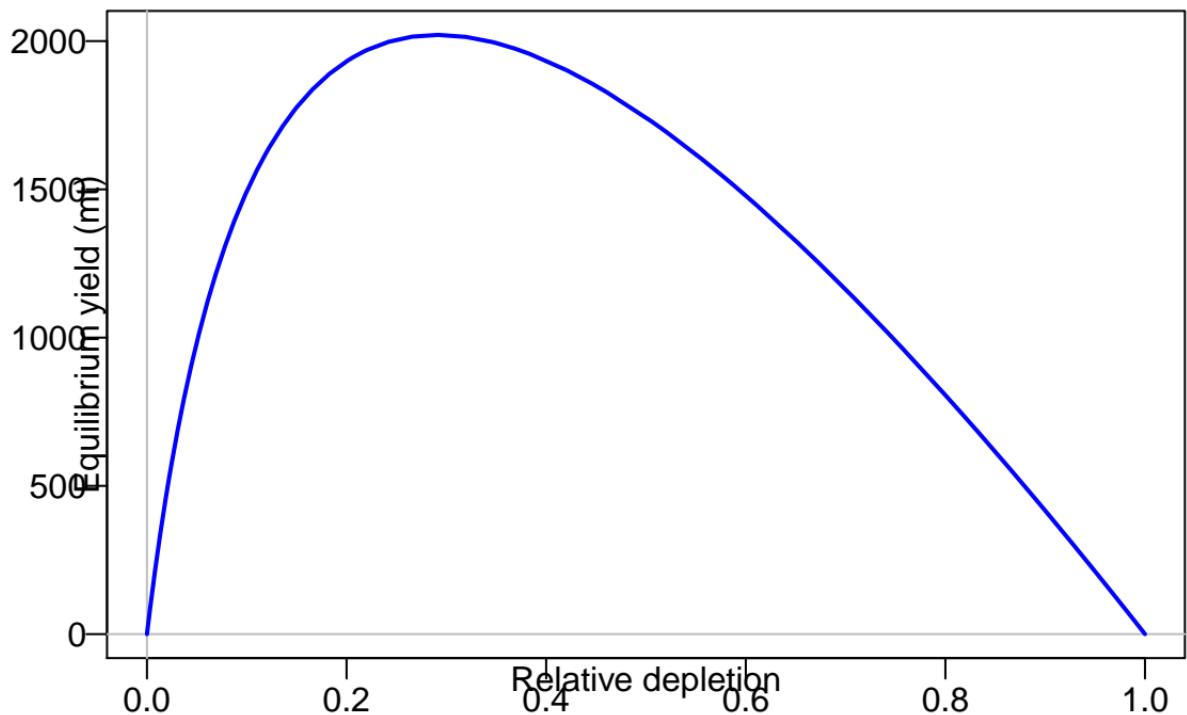


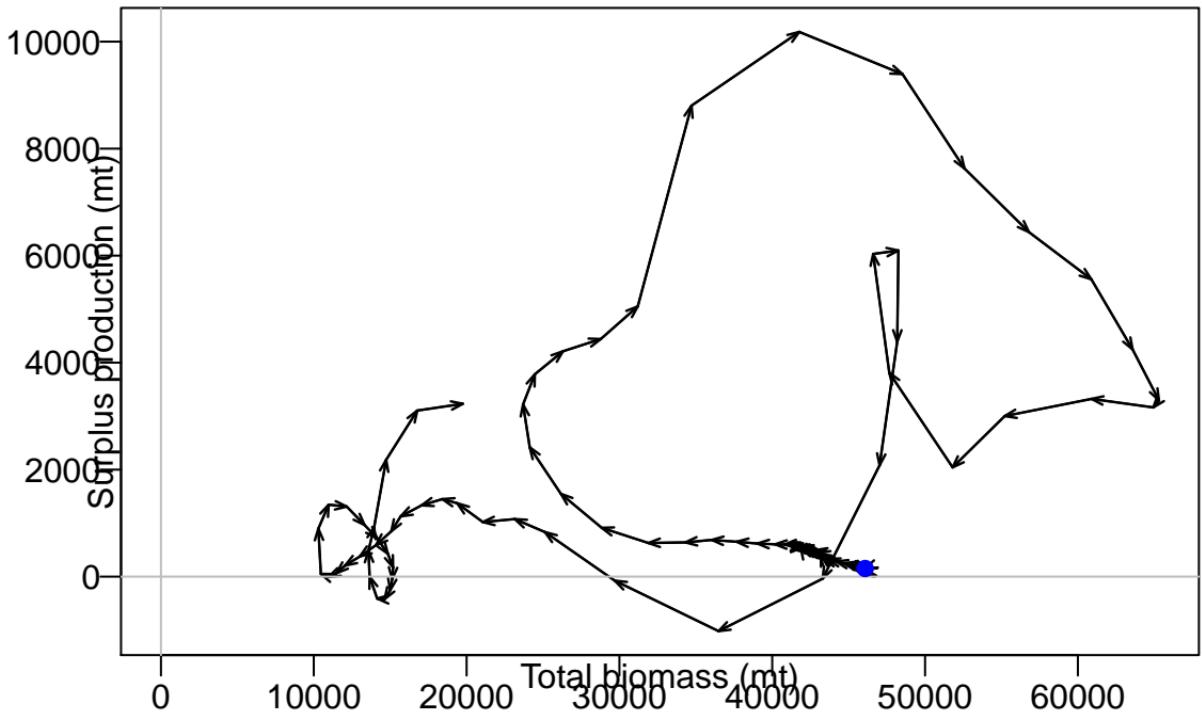
Length (cm)

## Conditional AAL plot, whole catch, NWFSC Trawl

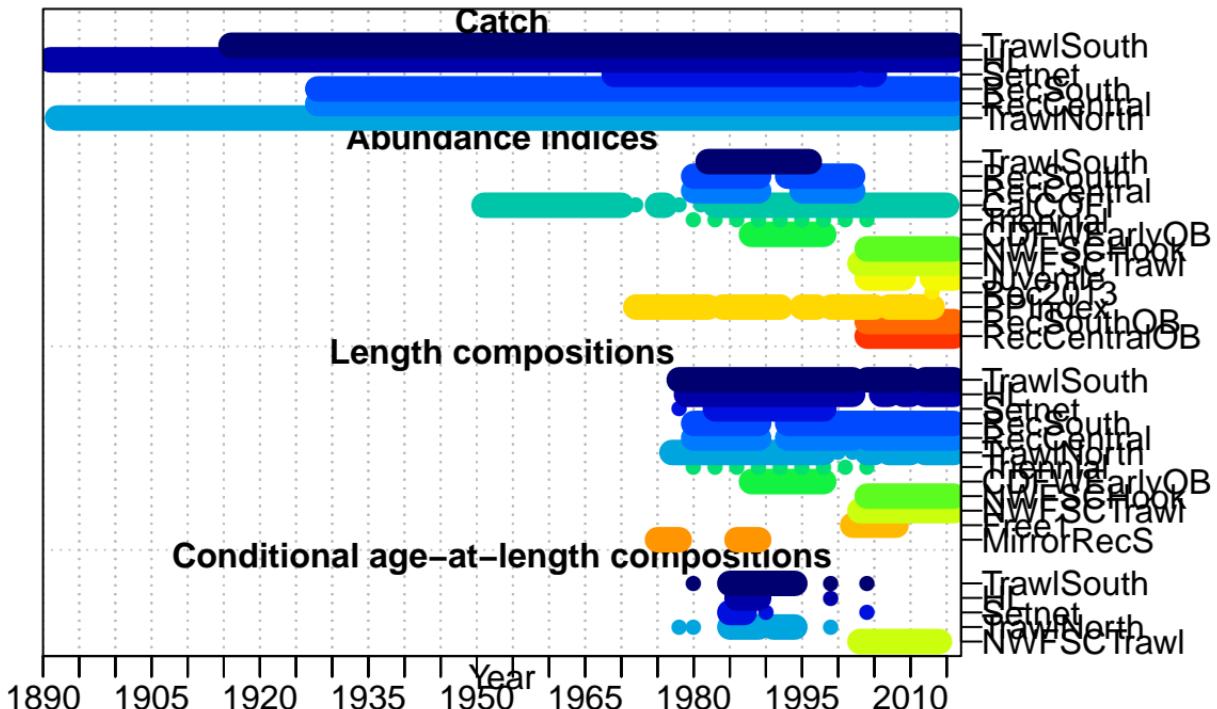


Length (cm)





## Data by type and year



Data by type and year, circle area is relative to precision within data type

