

# Fit of catch data

Total catch



Total catch by fleet



# Catch residuals by fleet



1970

1980

1990

2000

2010

Offshore\_Trawl

FarNorth

SC\_Chile\_PS

N\_Chile

Residuals

1970

1980

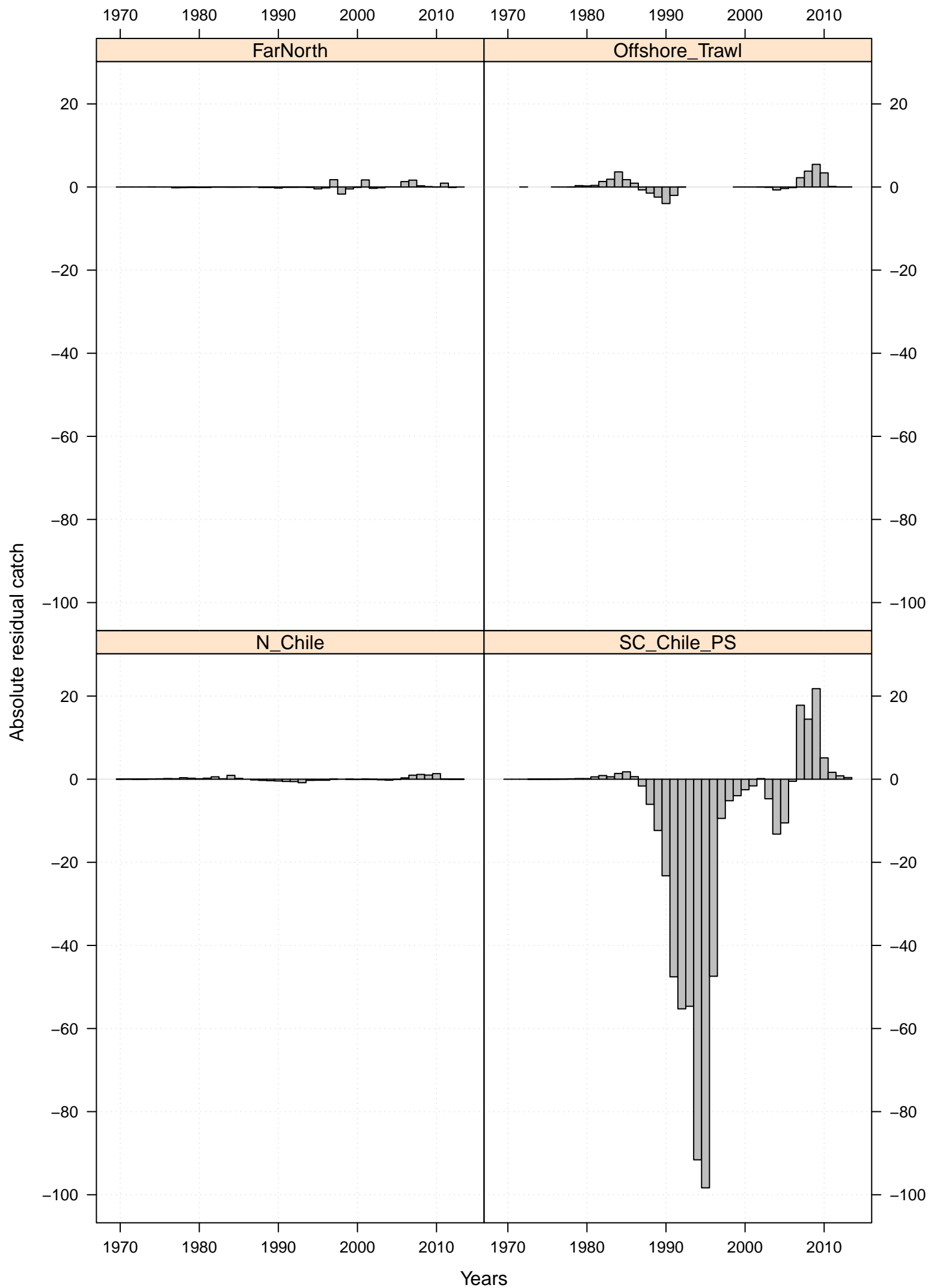
1990

2000

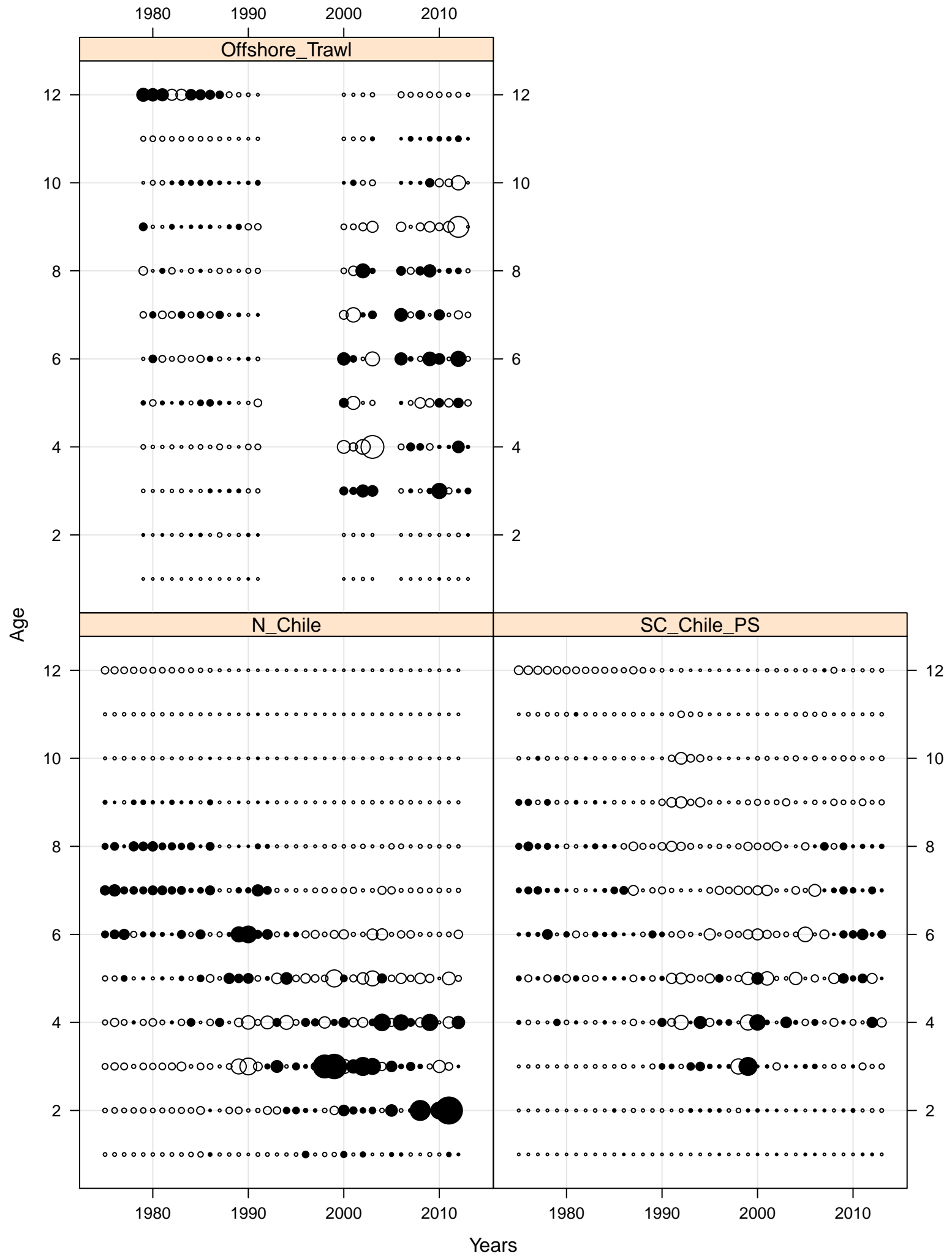
2010

Years

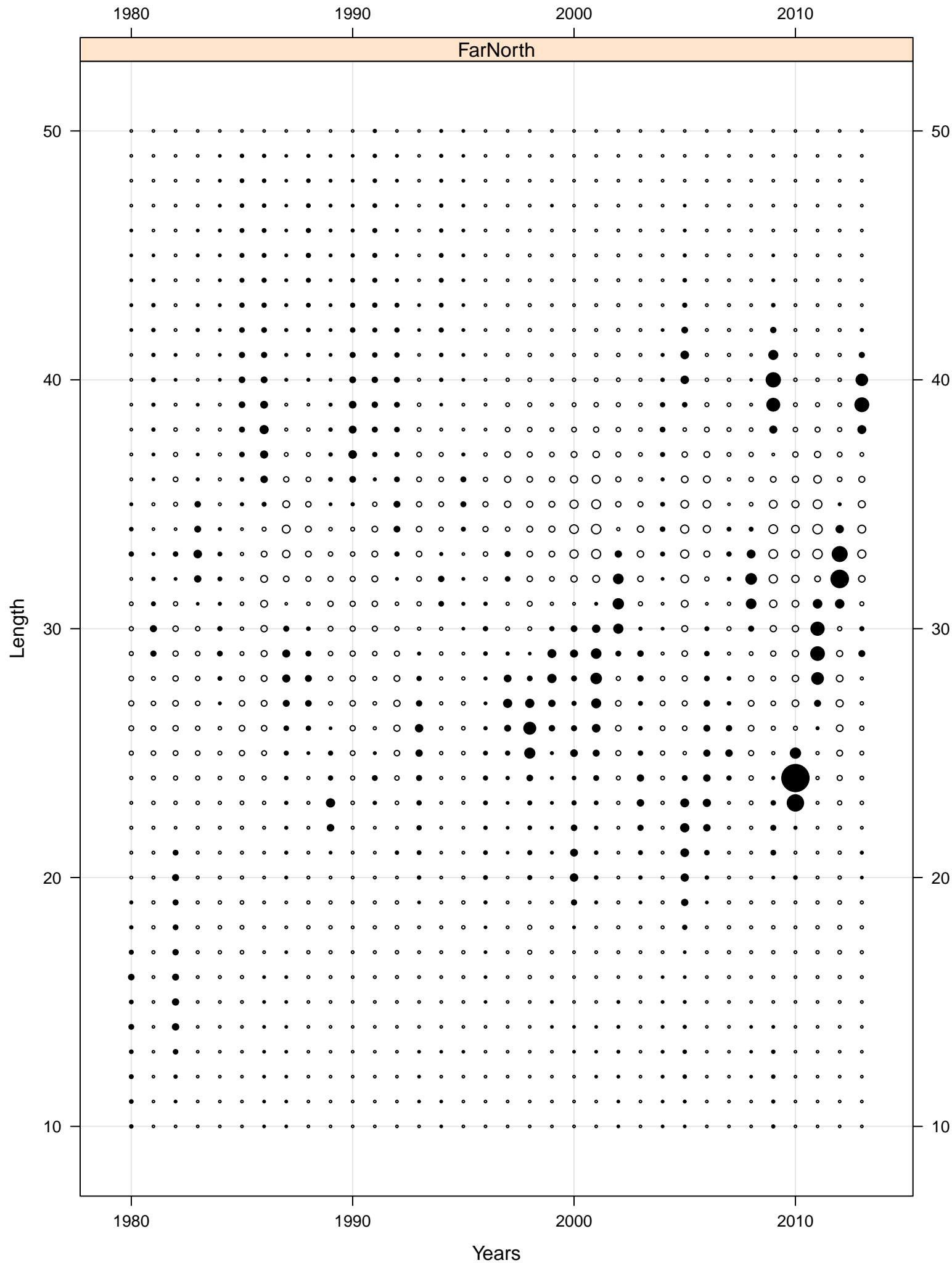
# Absolute residual catch by fleet



# Residuals catch-at-age by fleet



# Residuals catch-at-length by fleet



# Age fits N\_Chile

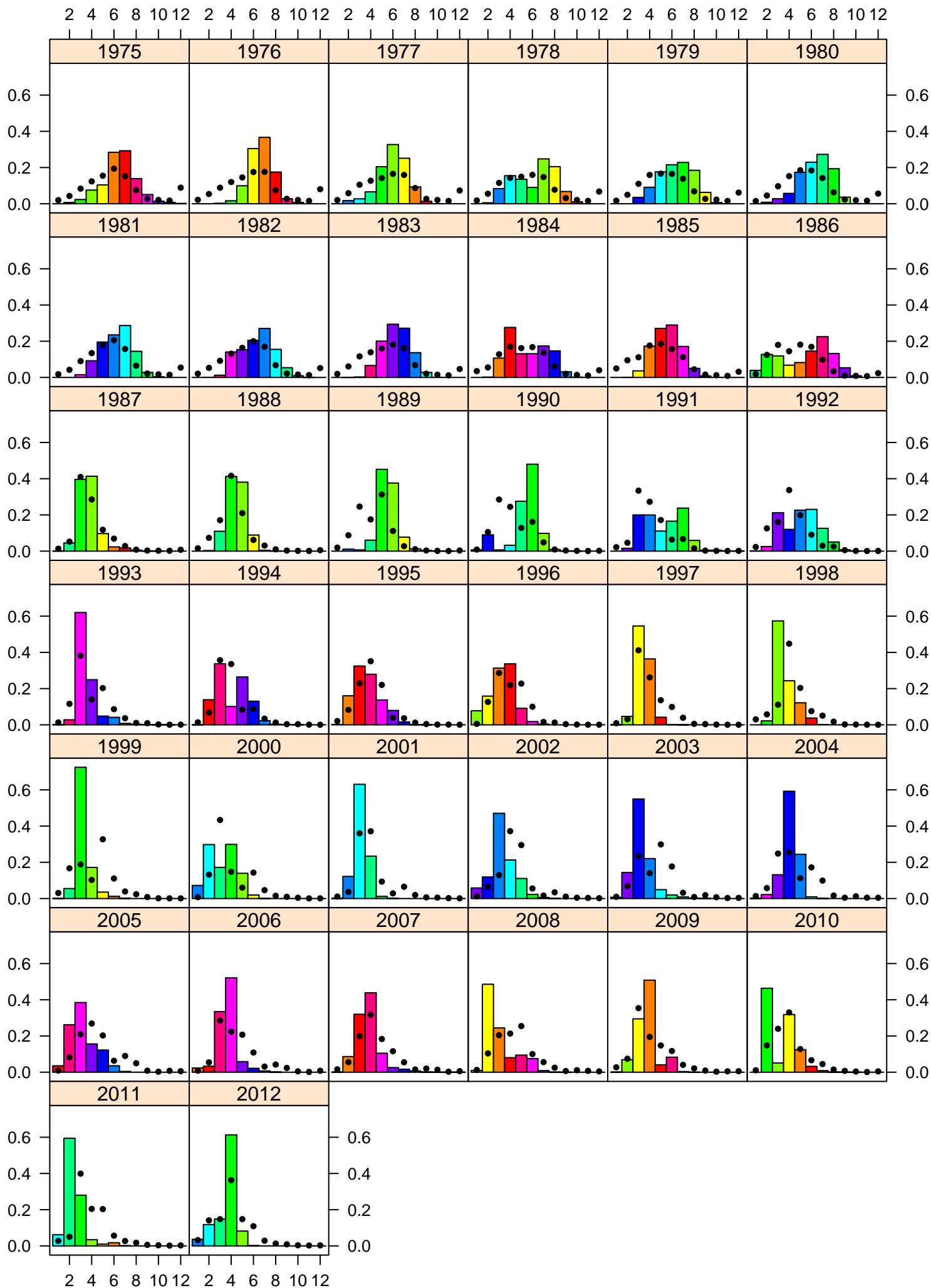
Observed



Predicted



Proportion at age



Age



# Age fits SC\_Chile\_PS

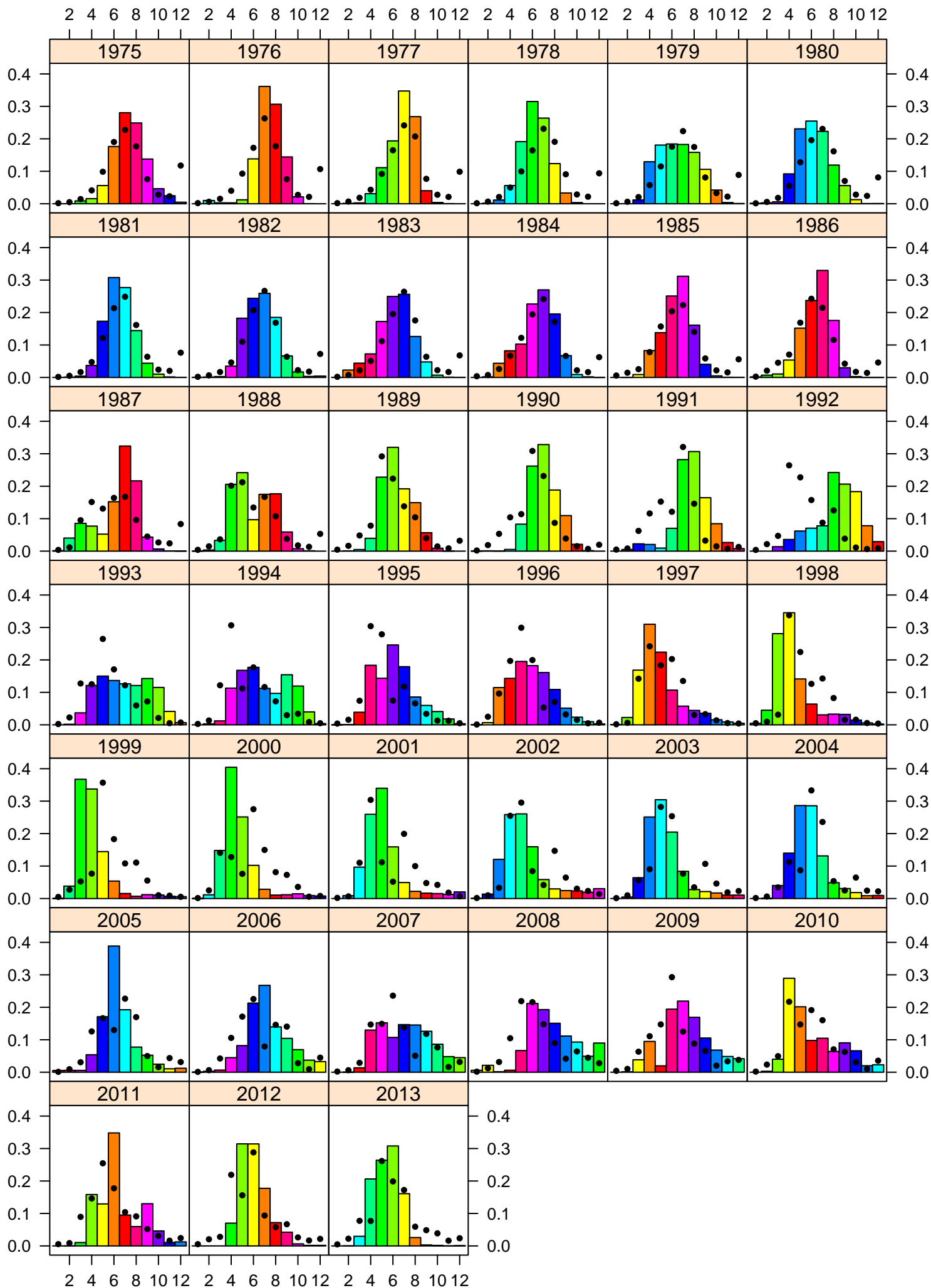
Observed



Predicted



Proportion at age



Age

# Age fits Offshore\_Trawl

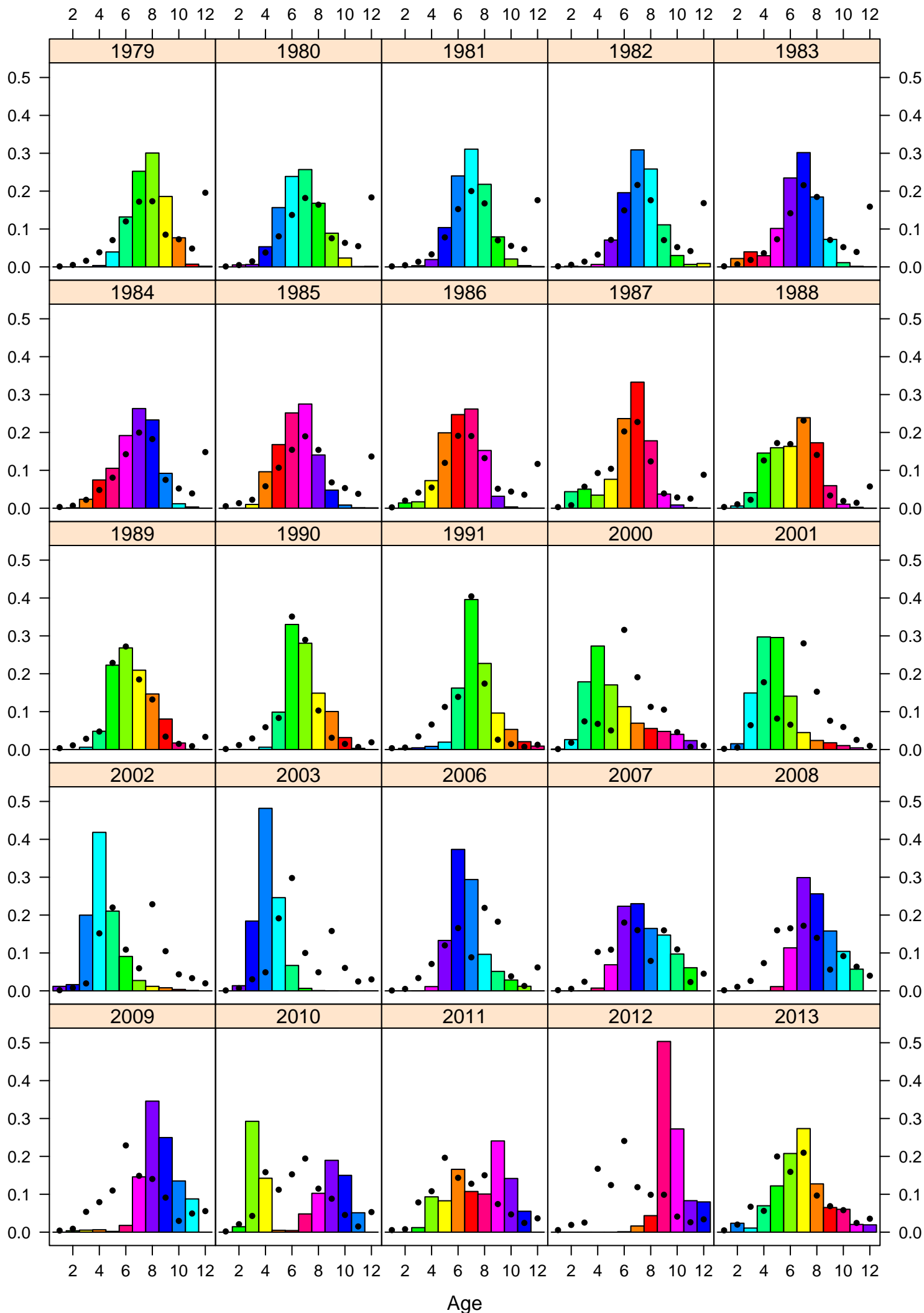
Observed



Predicted



Proportion at age



# Length fits FarNorth

Observed



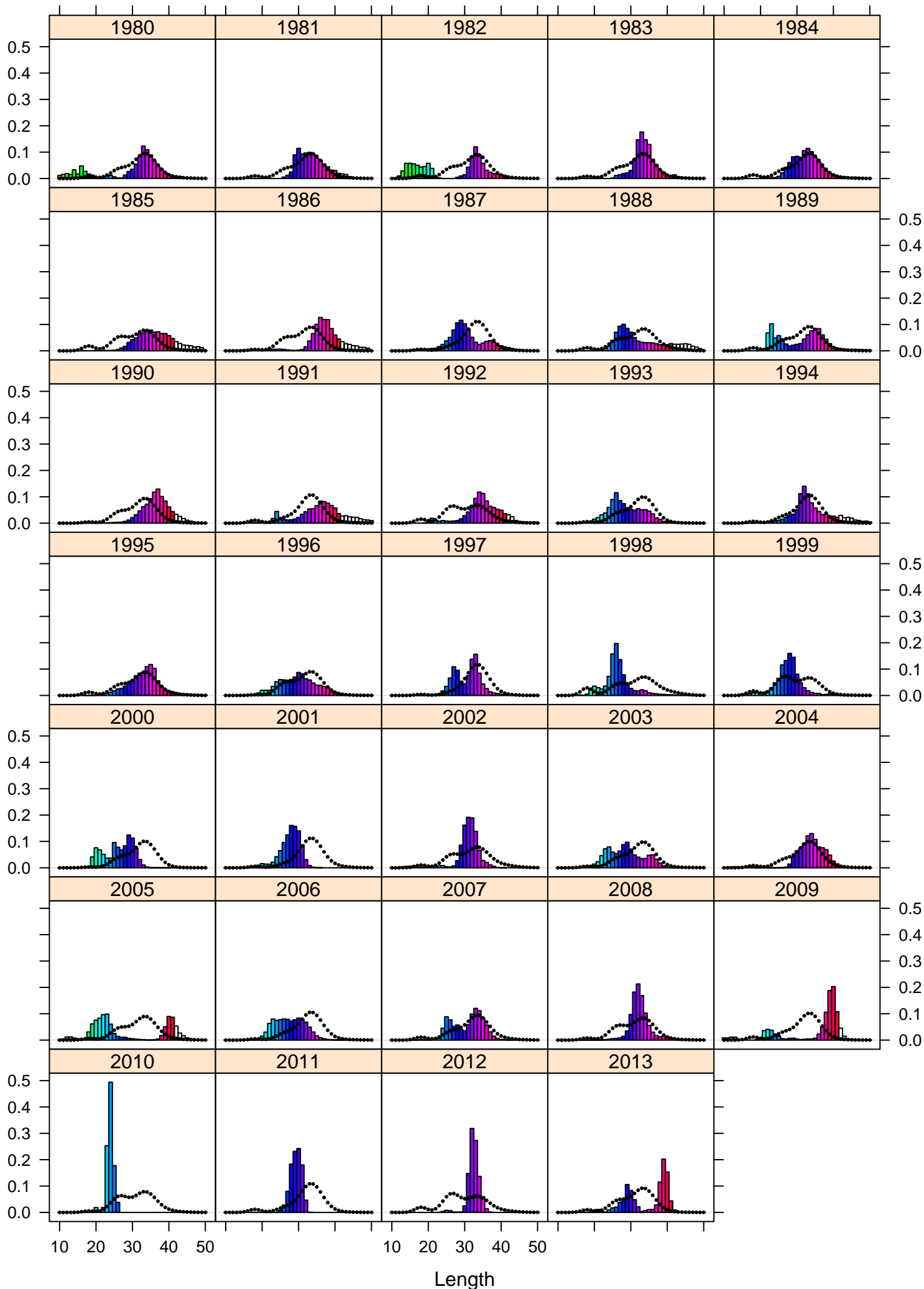
Predicted



10 20 30 40 50

10 20 30 40 50

Proportion at length



# Predicted and observed catches by fleet

Observed



Predicted



1970

1980

1990

2000

2010

Offshore\_Trawl

SC\_Chile\_PS

4000

3000

2000

1000

0

FarNorth

N\_Chile

4000

3000

2000

1000

0

1970

1980

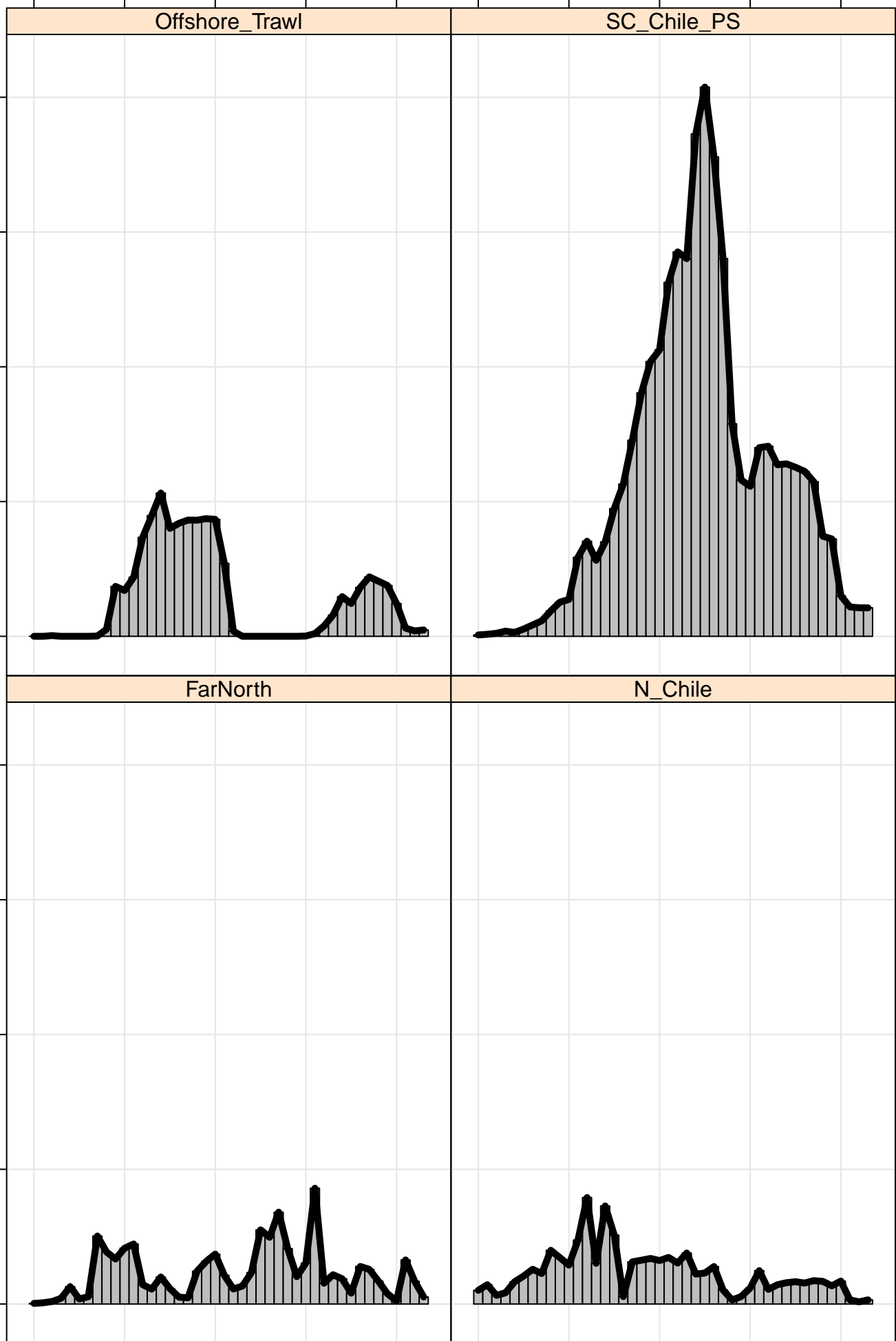
1990

2000

2010

Years

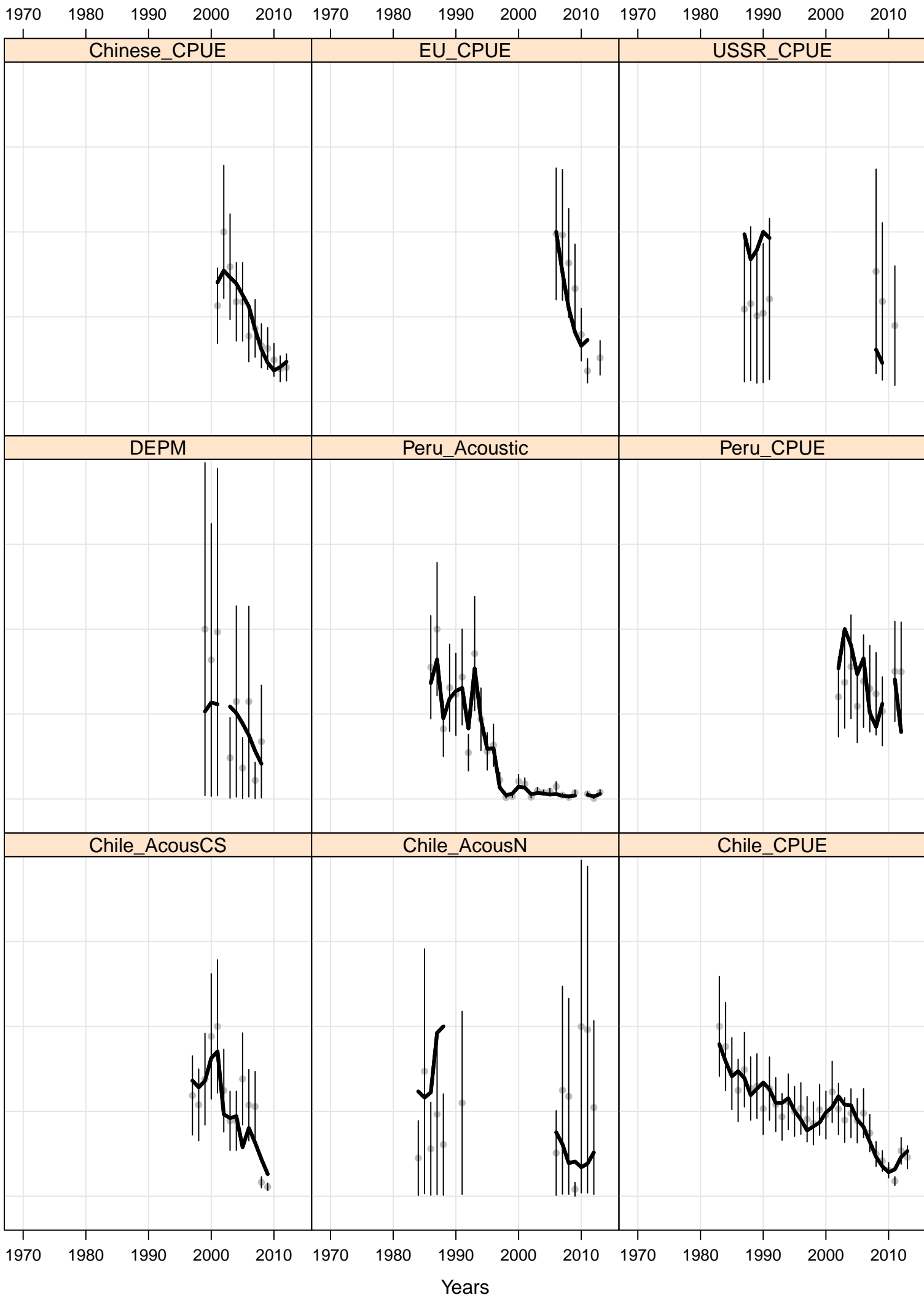
Thousand tonnes



# Fit of survey data

# Predicted and observed indices

Observed ● Predicted —



# Standardized survey residuals

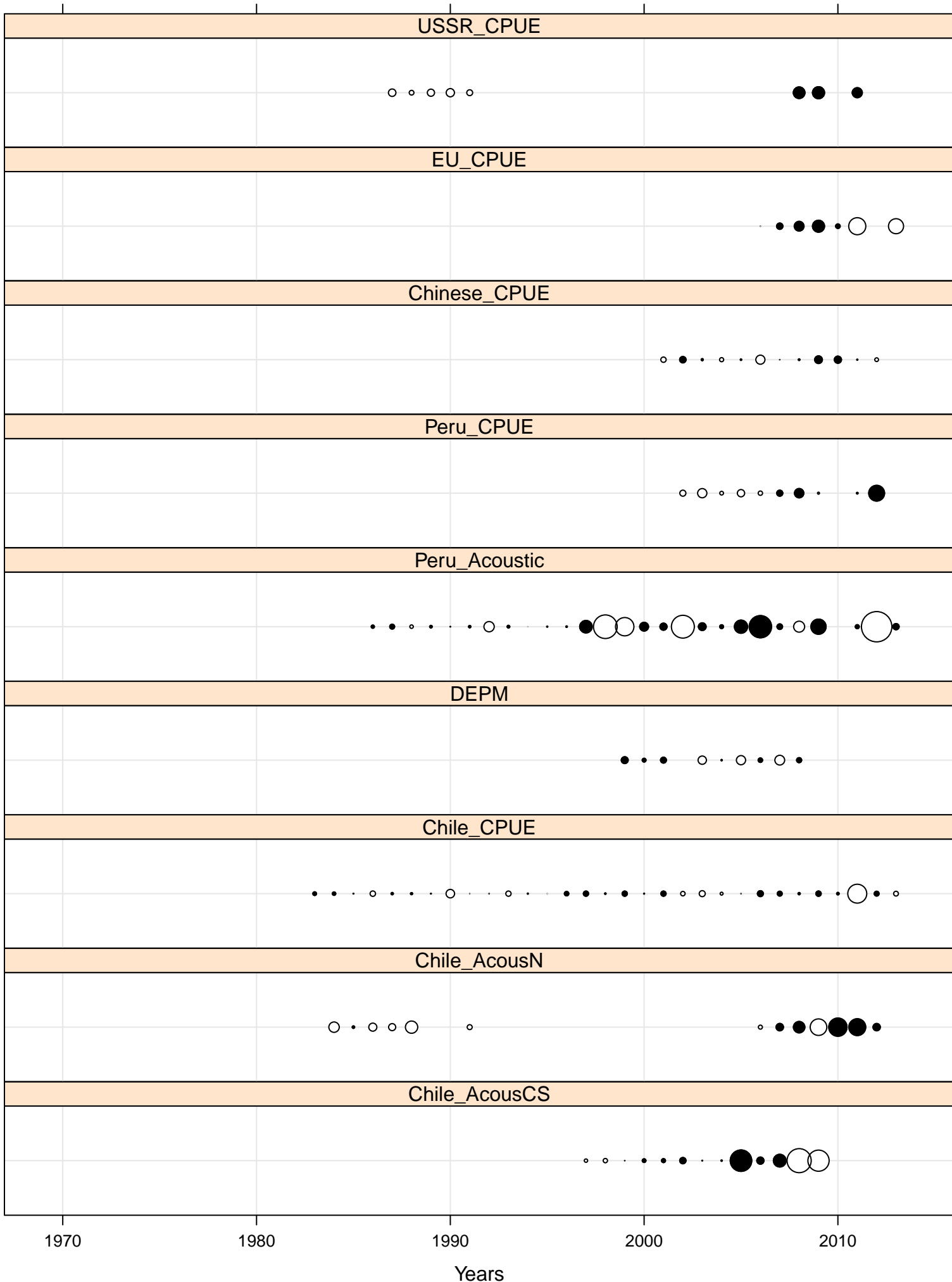
-6.24  
-4.08  
-1.92



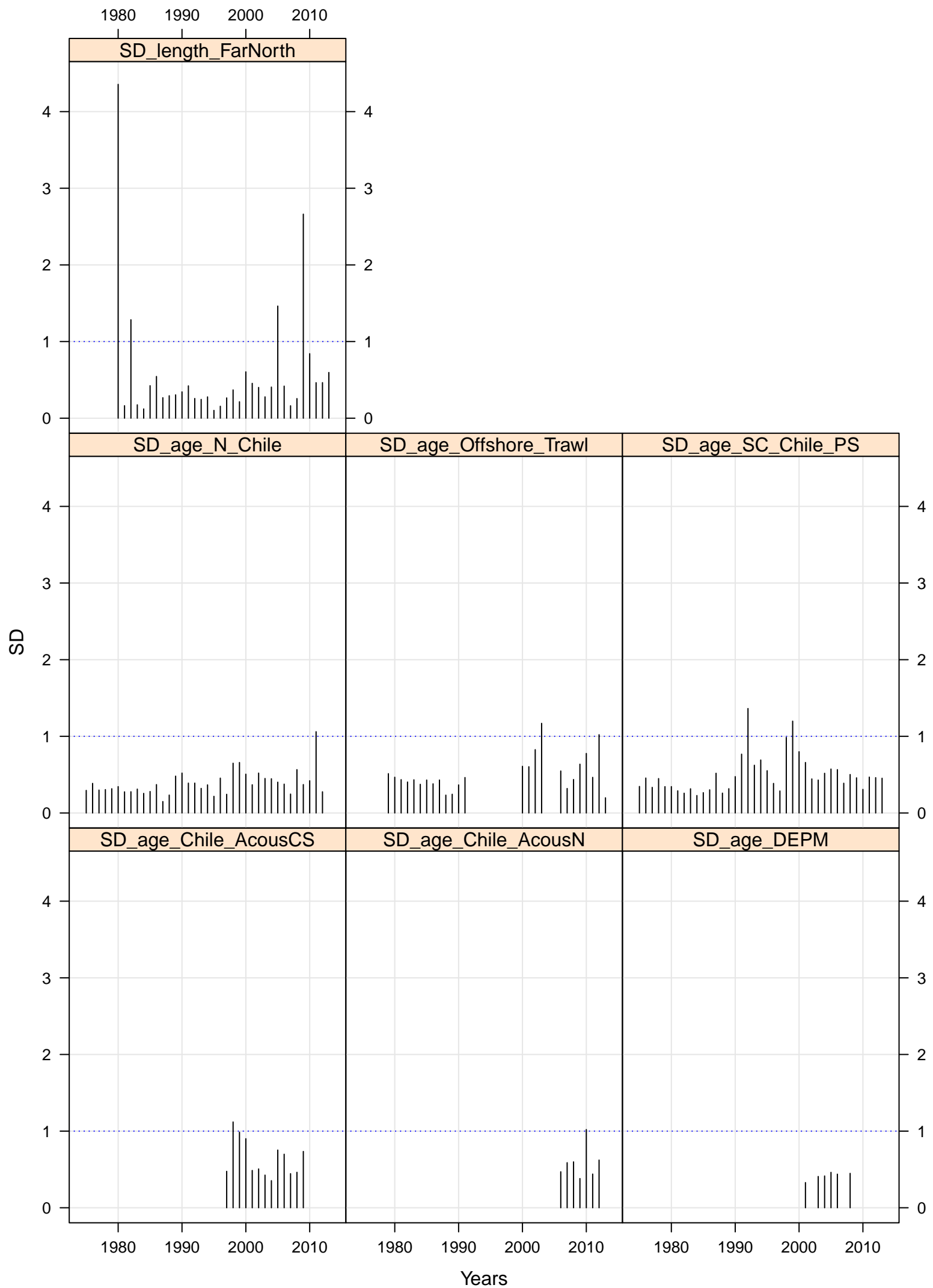
0.25  
2.41  
4.57



Log residuals



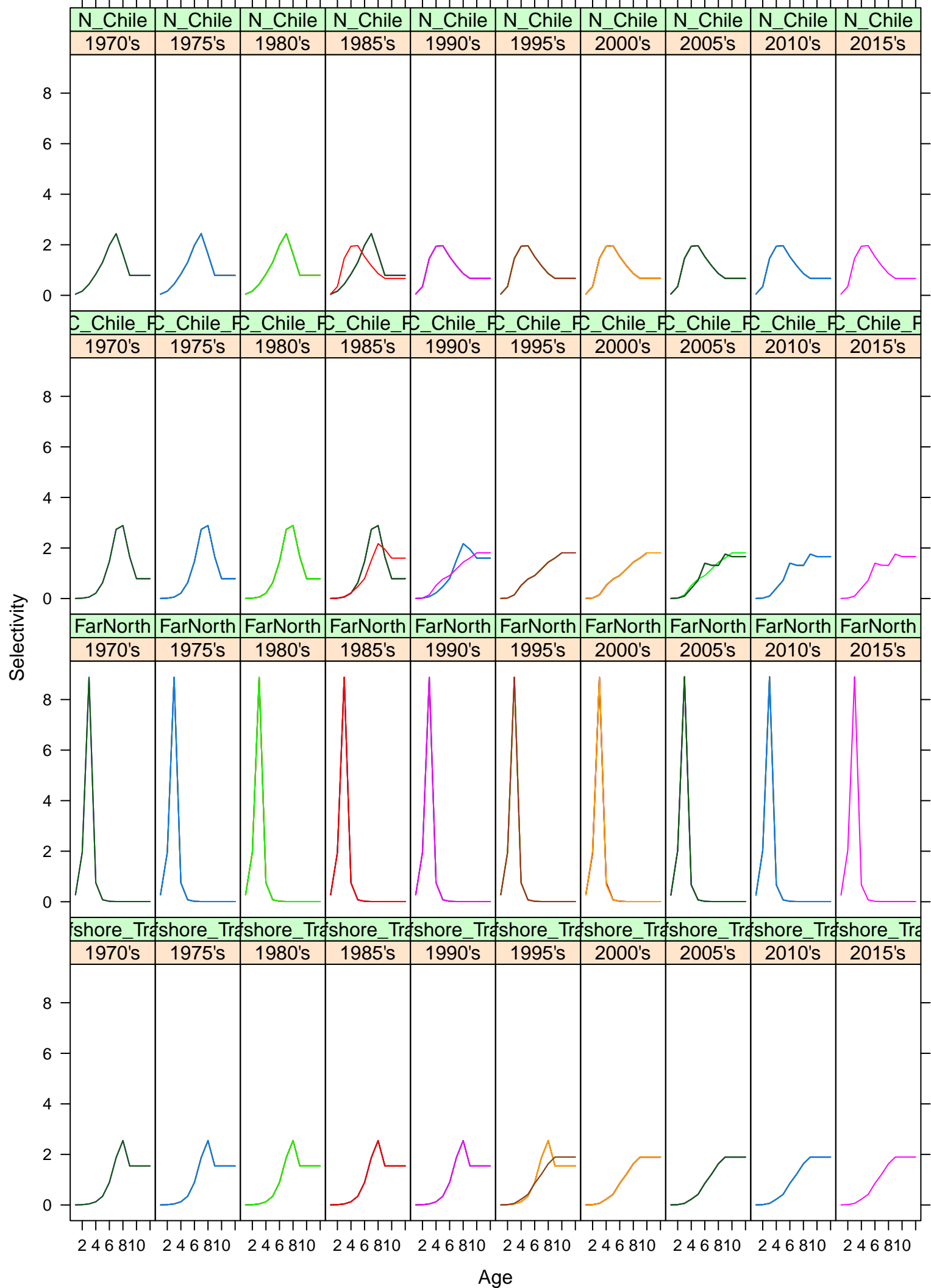
# SD per input series



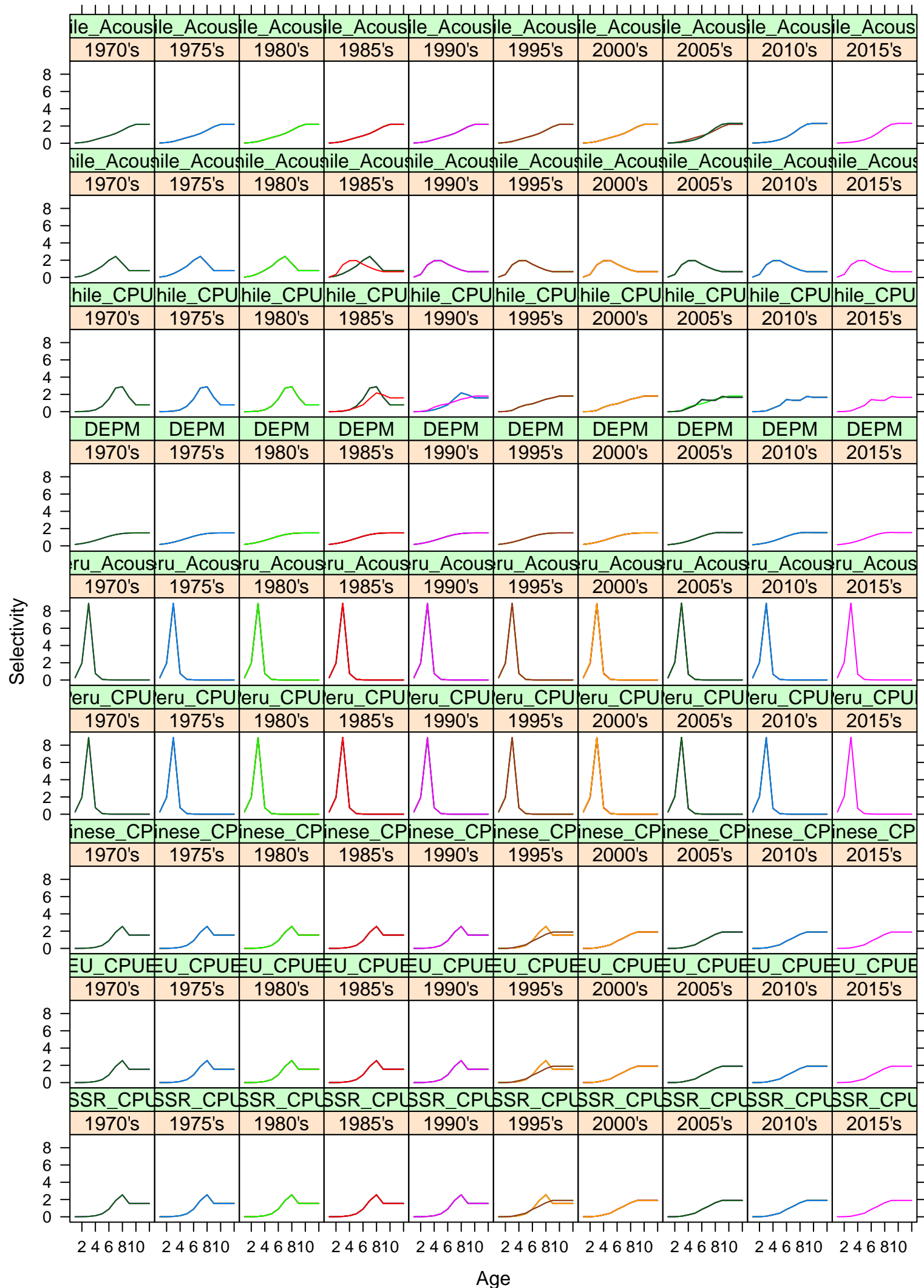


# Fleet & Survey sel & F

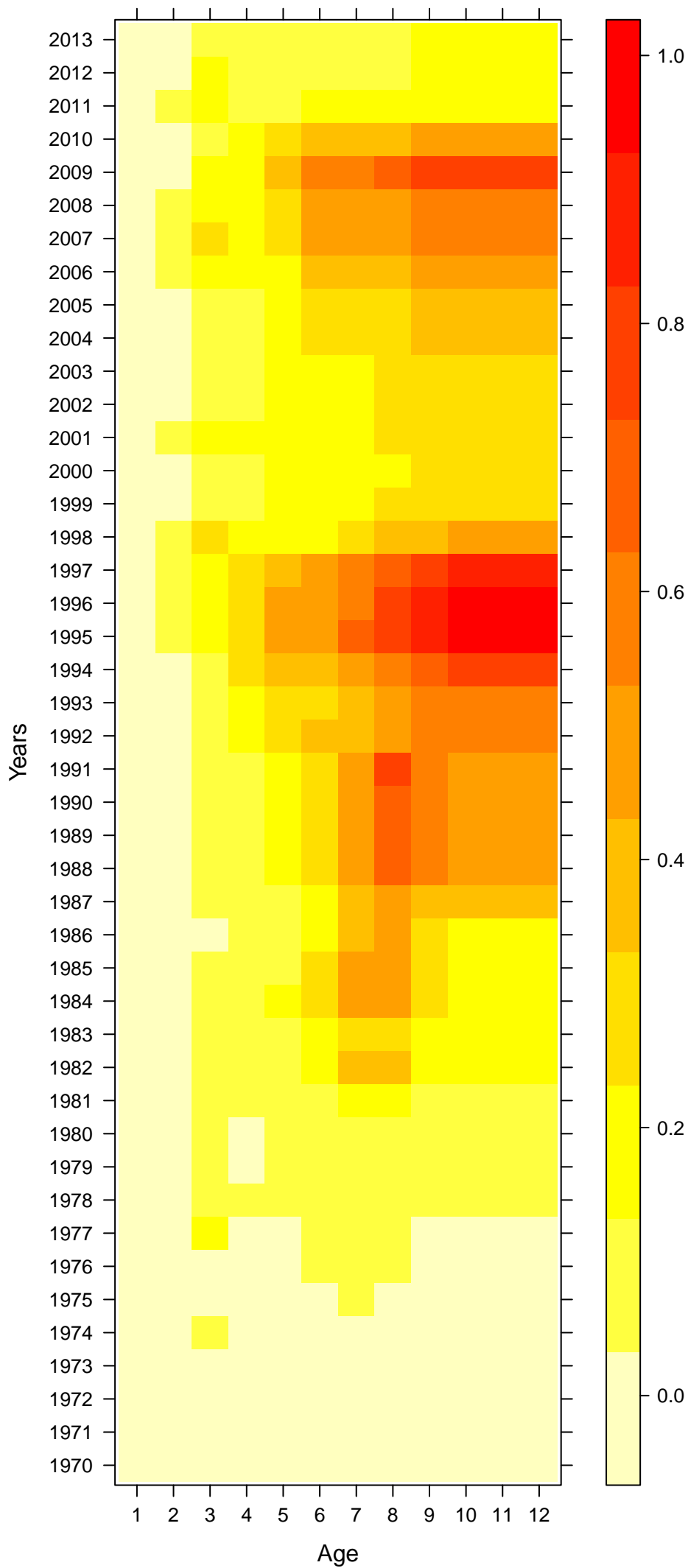
# Selectivity of the Fishery by Pentad



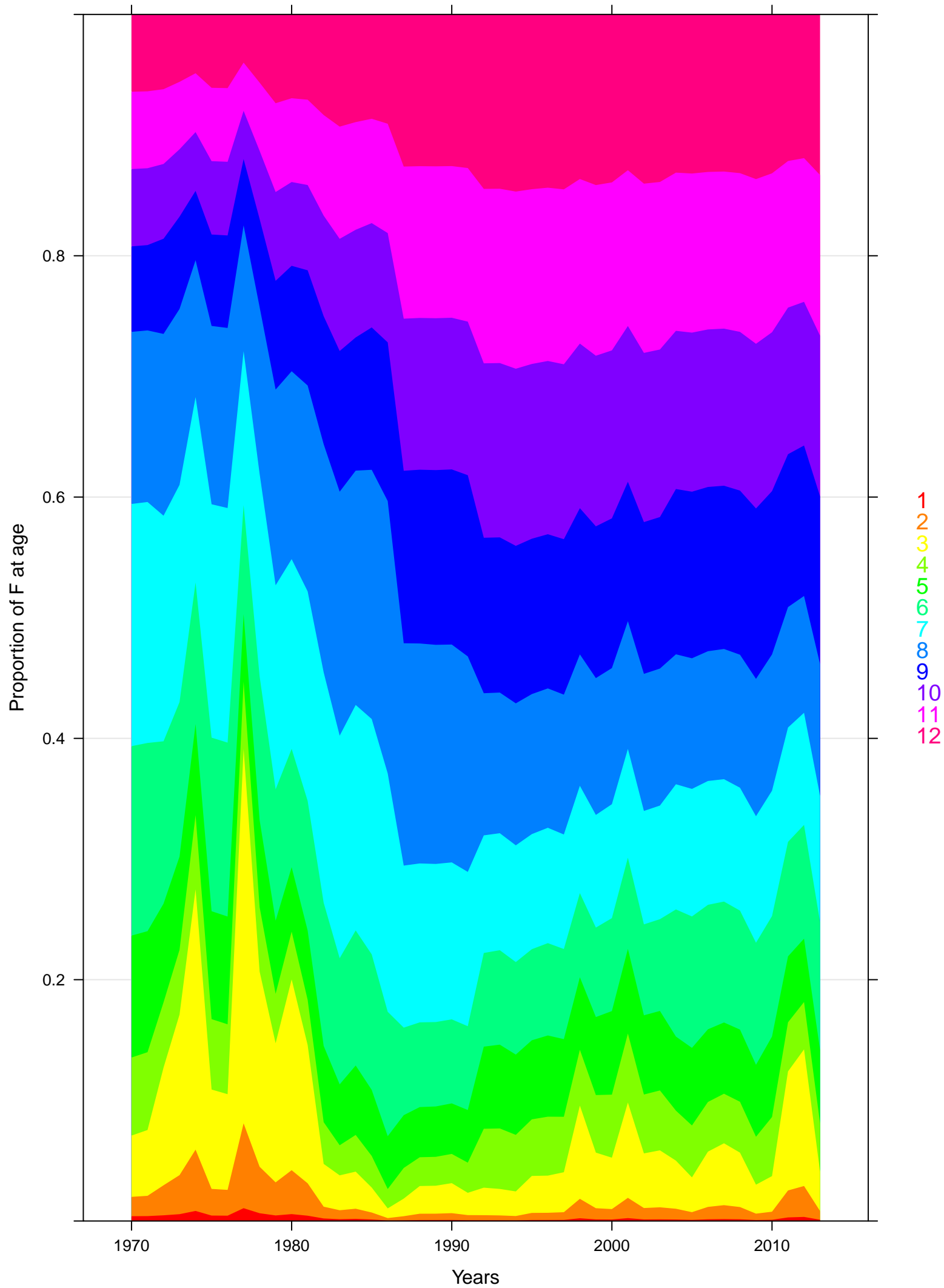
## Selectivity of the survey by Pentad



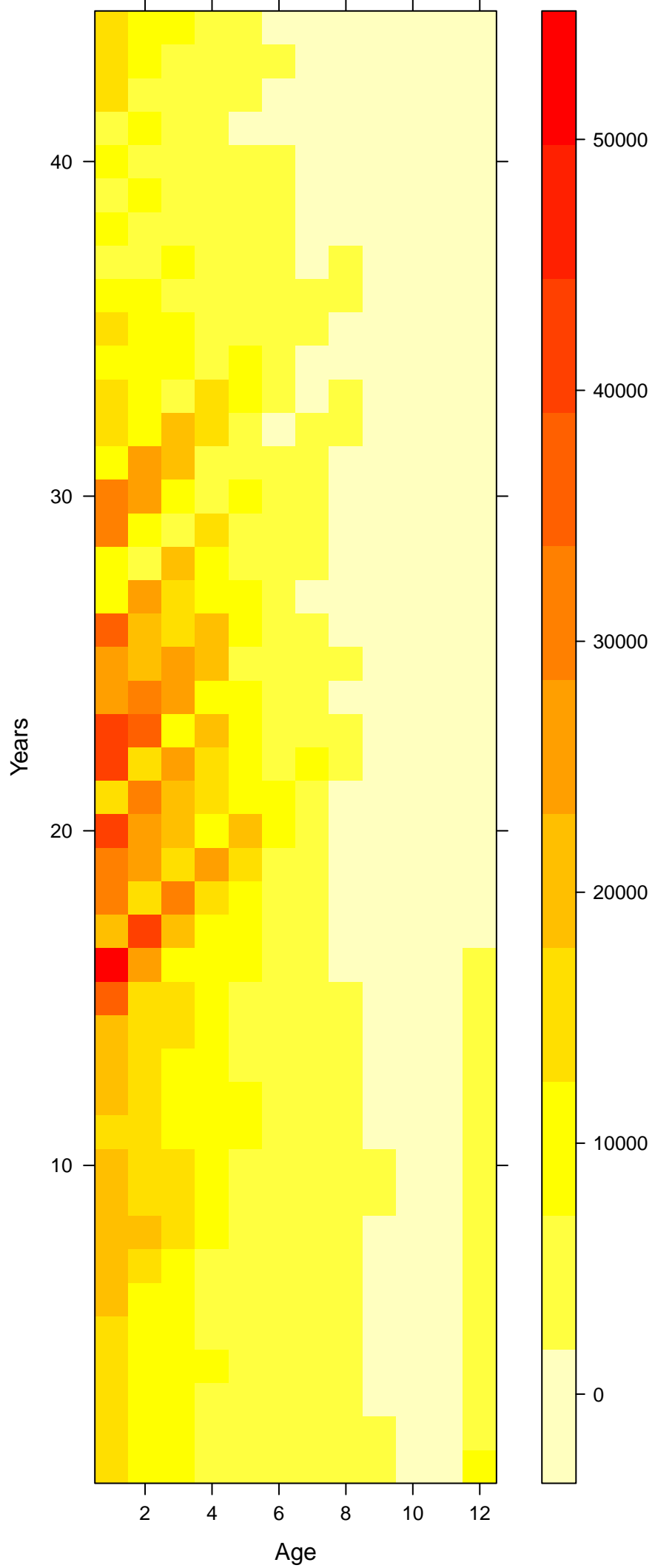
## F at age



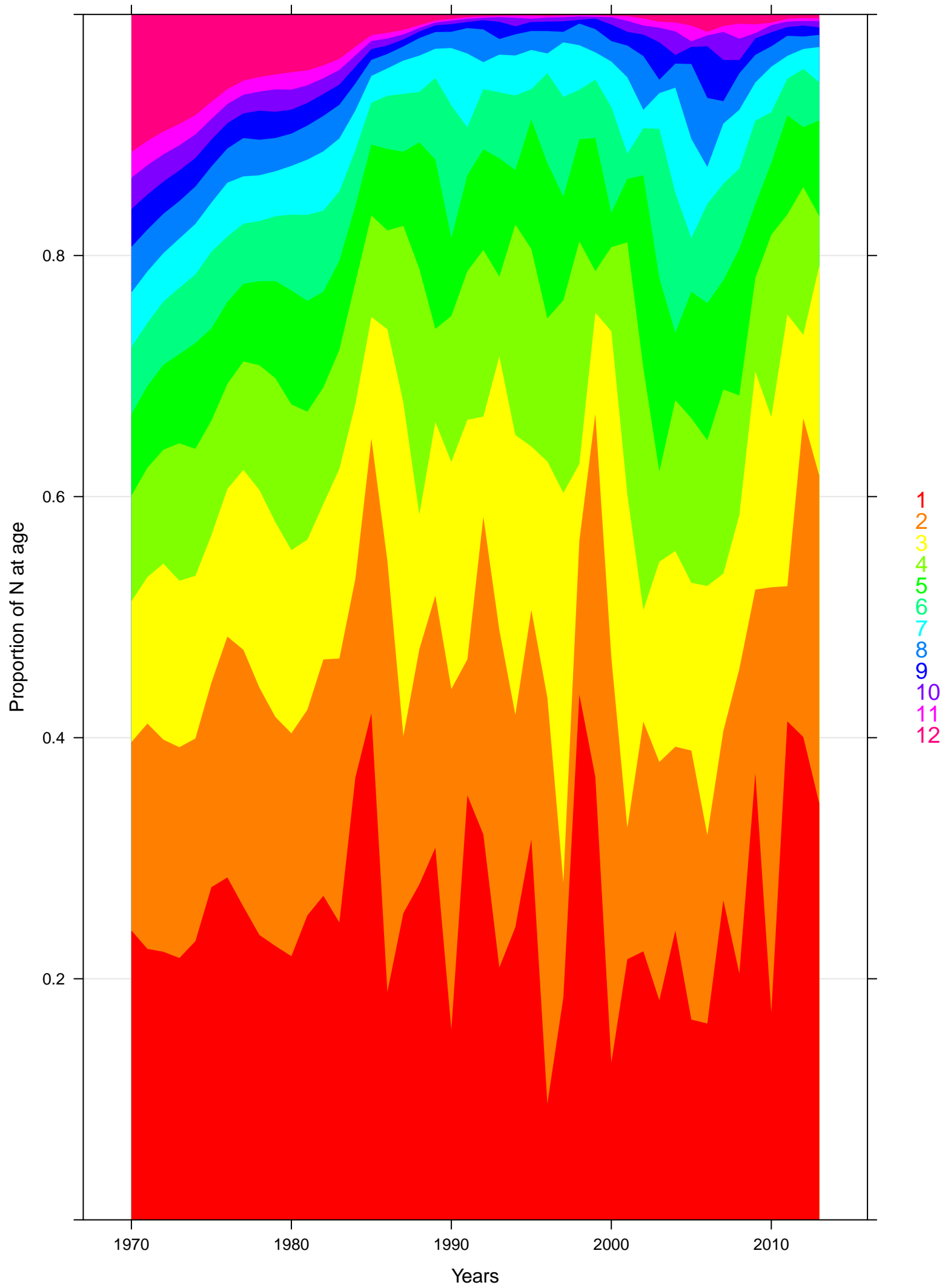
### F proportion at age



N at age



Proportion at age



# Fishery mean age

Observed



Modelled



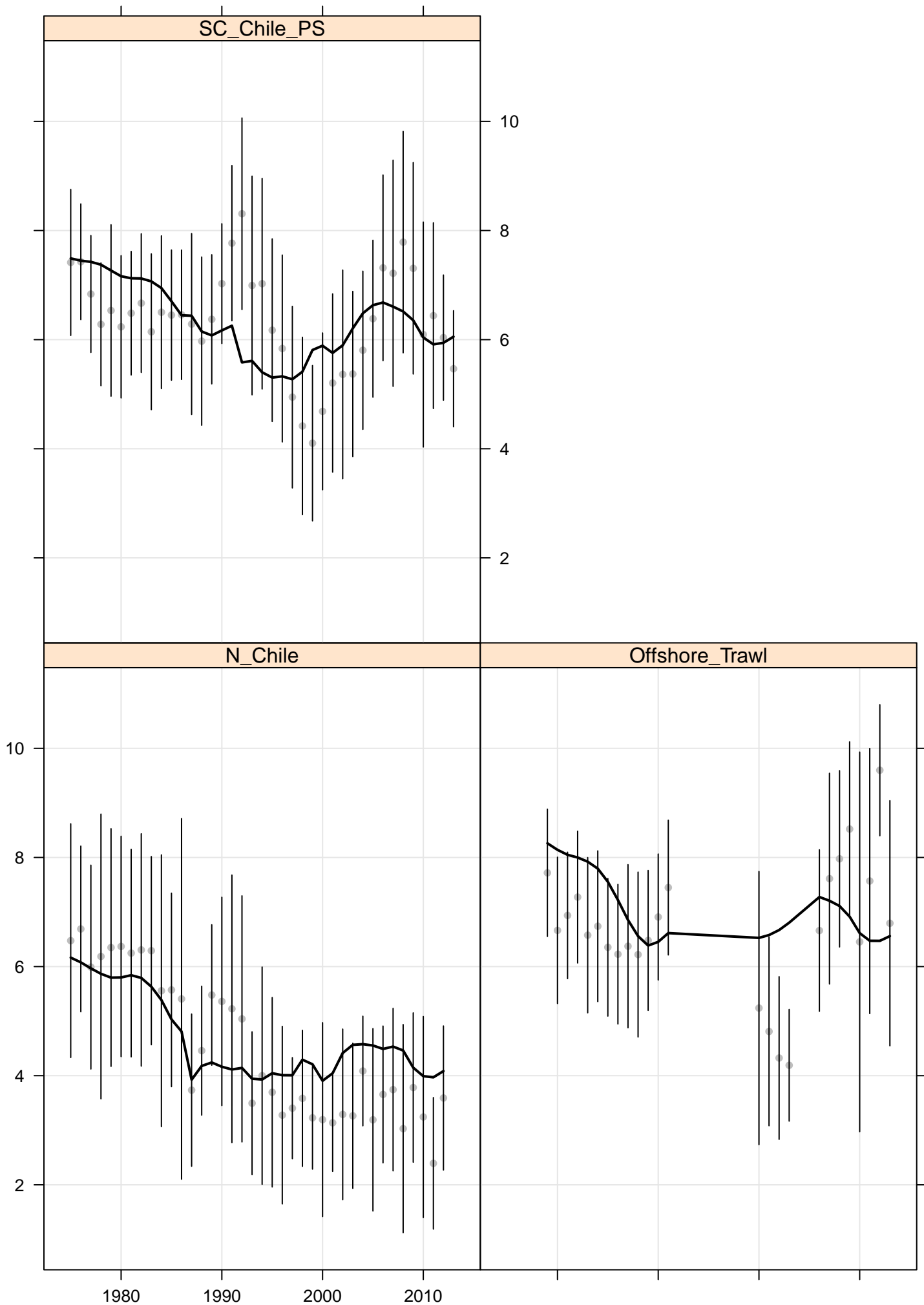
SC\_Chile\_PS

N\_Chile

Offshore\_Trawl

Age

Years



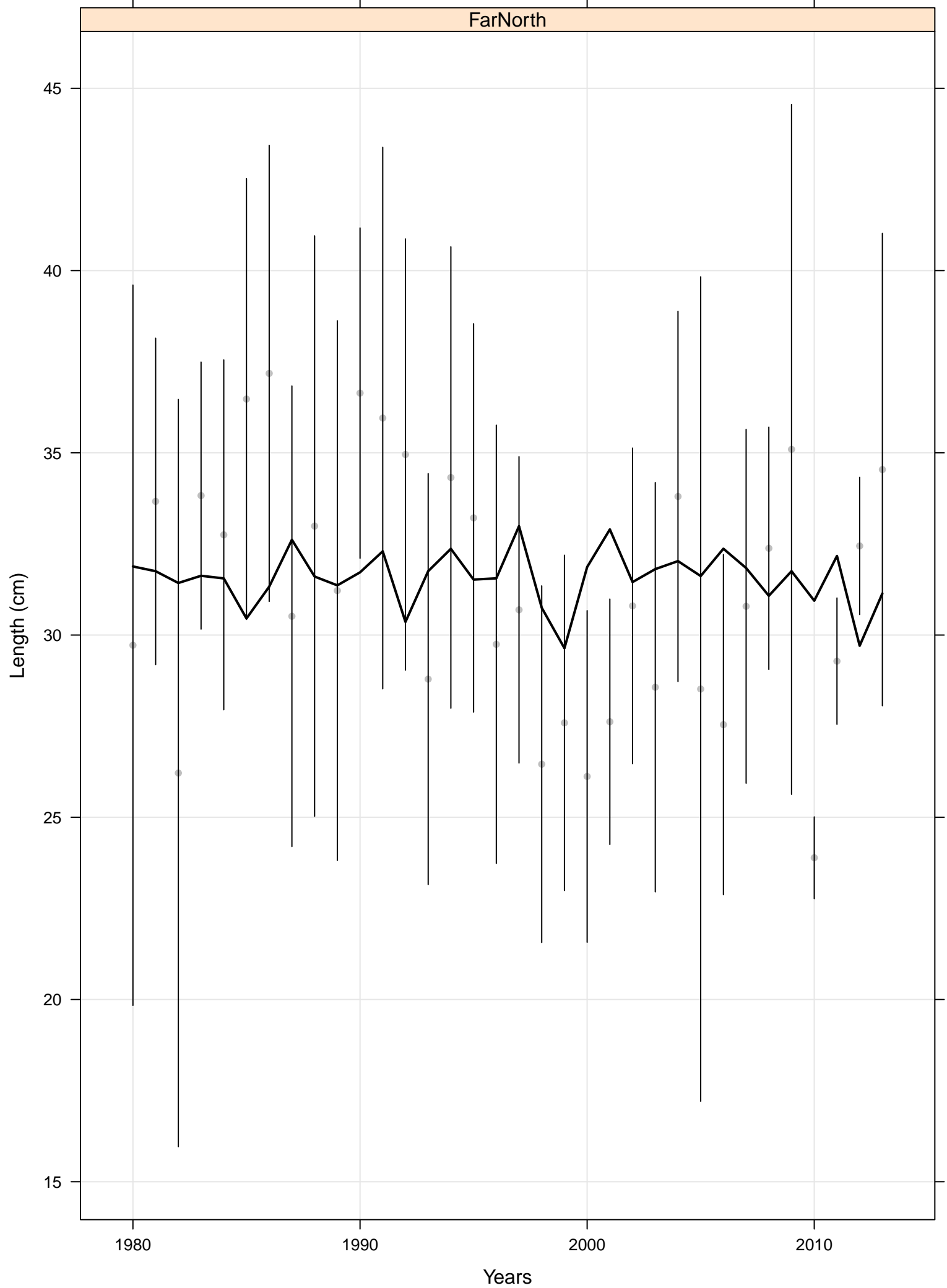


# Fishery mean length

Observed



Modelled



# Survey mean age

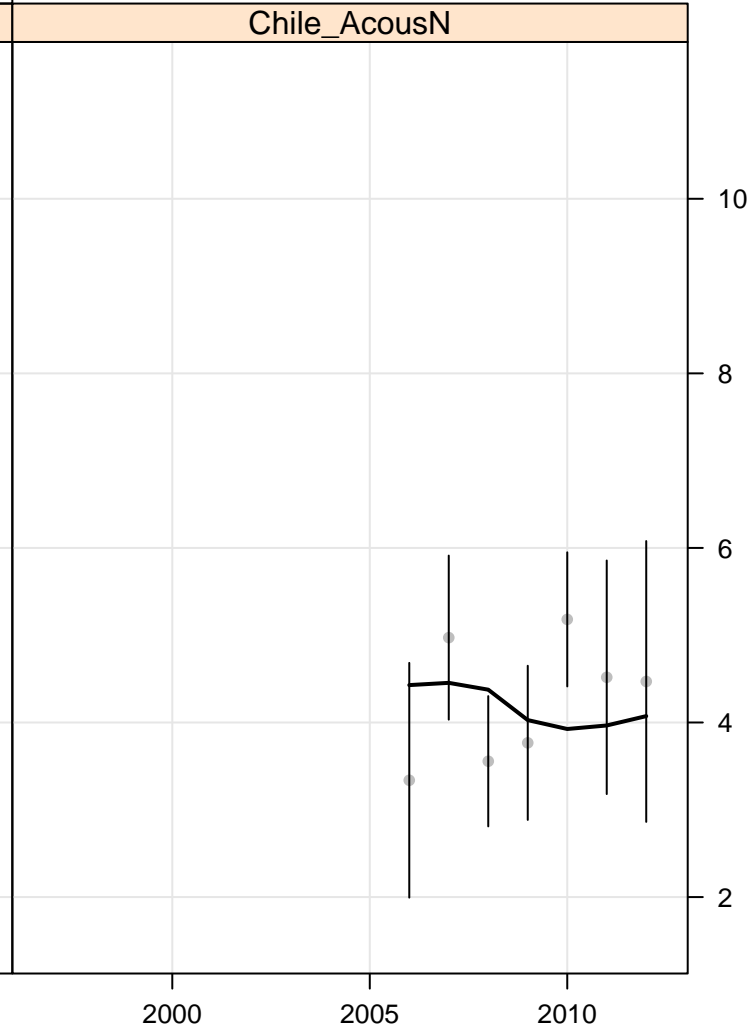
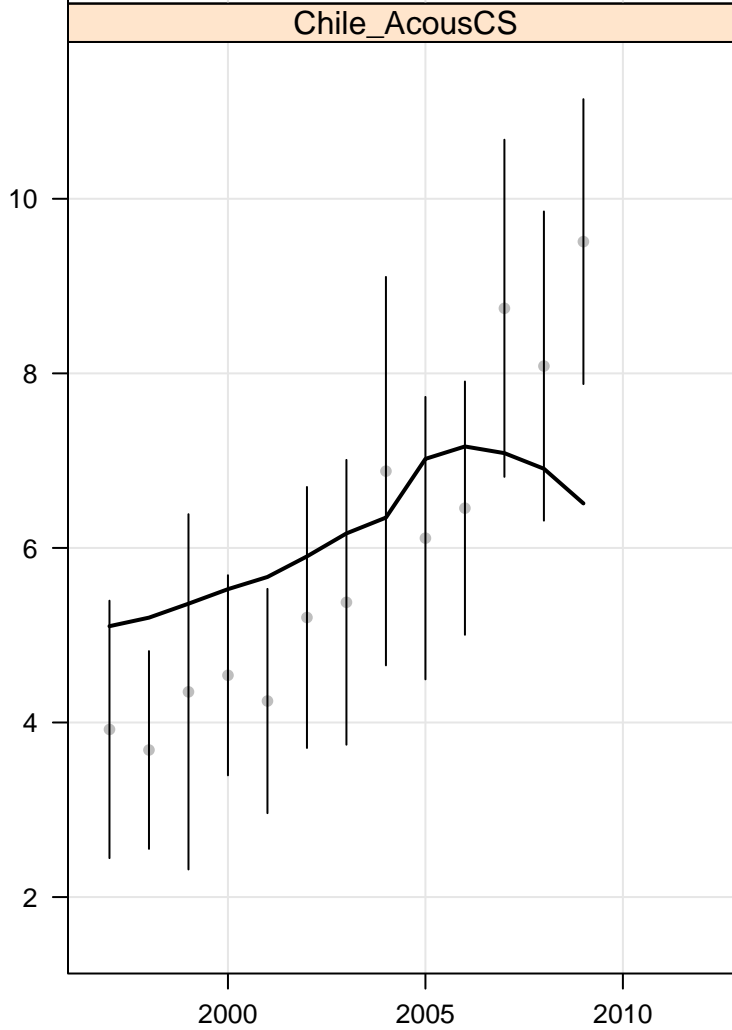
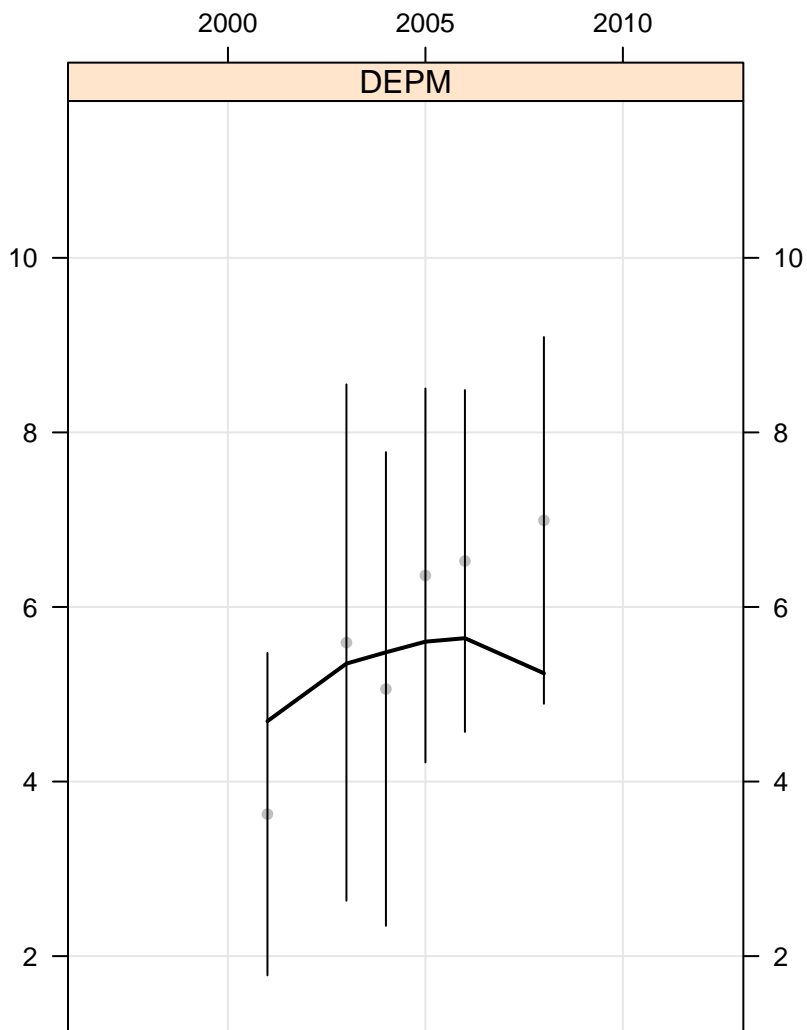
Observed



Modelled



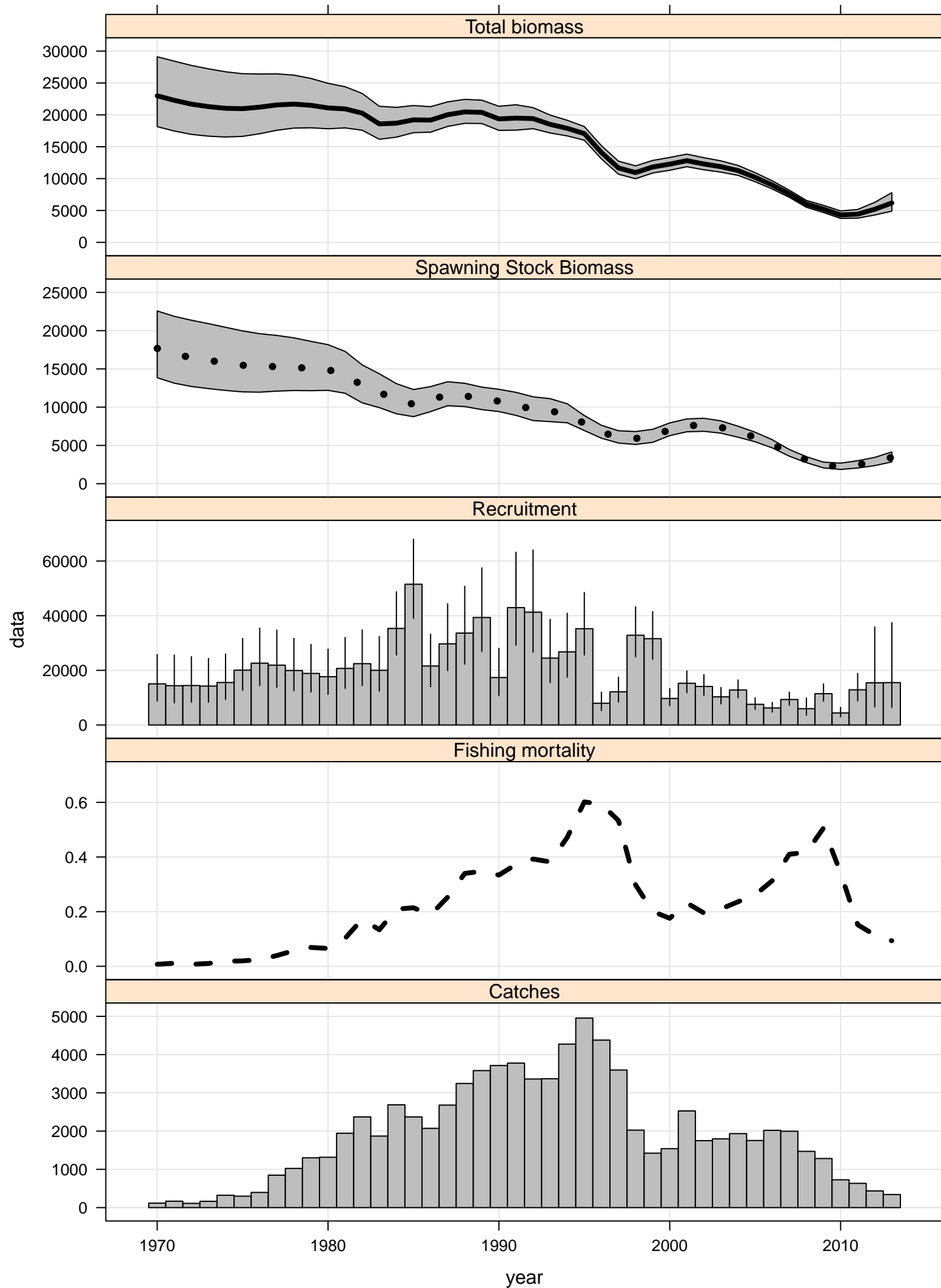
Age



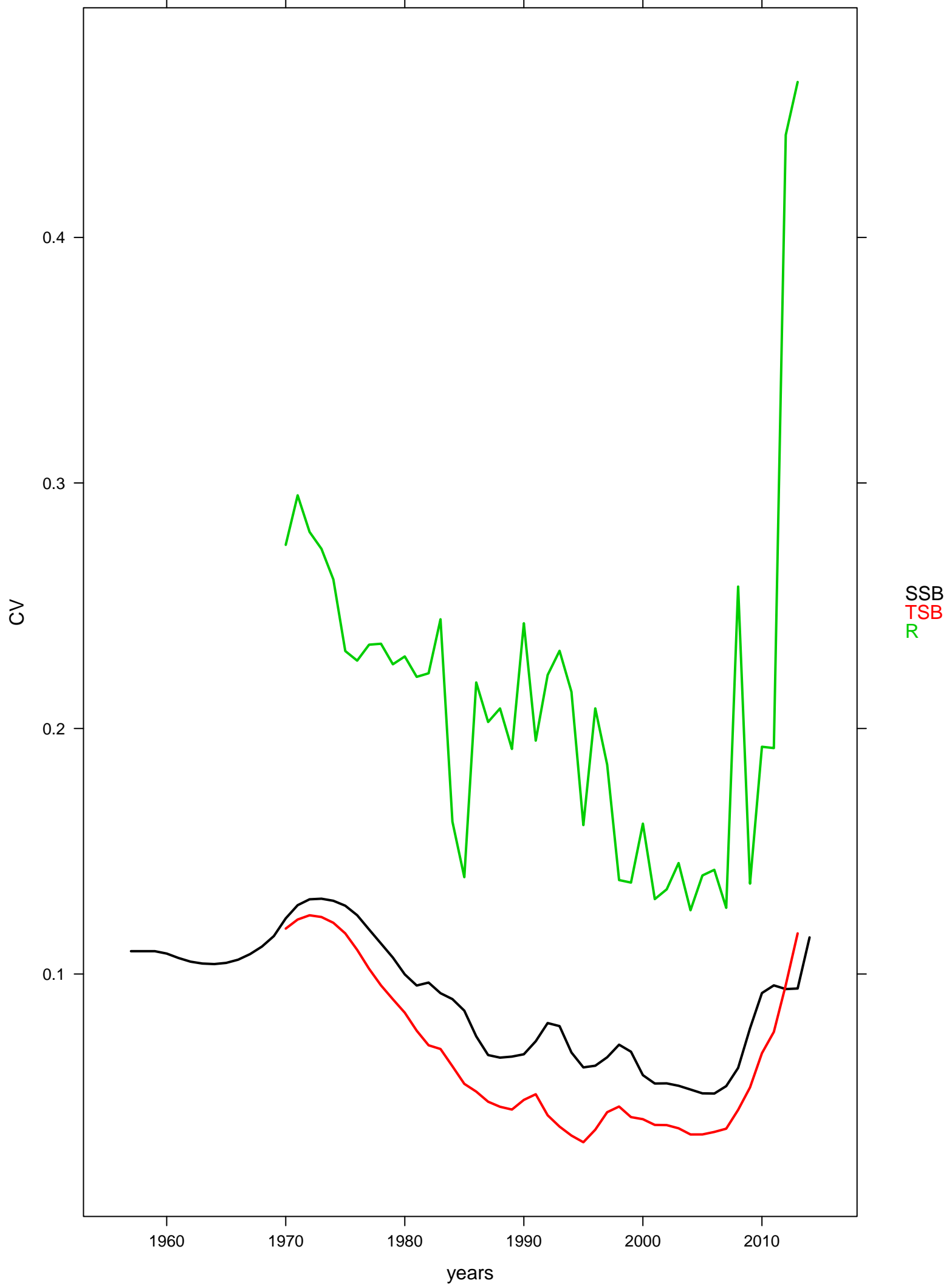
Years

# Stock summary

# Summary sheet



Uncertainty of key parameters



# Mature – Immature fish

Mature . . . .

Immature —

Biomass in kt

20000

15000

10000

5000

0

1970

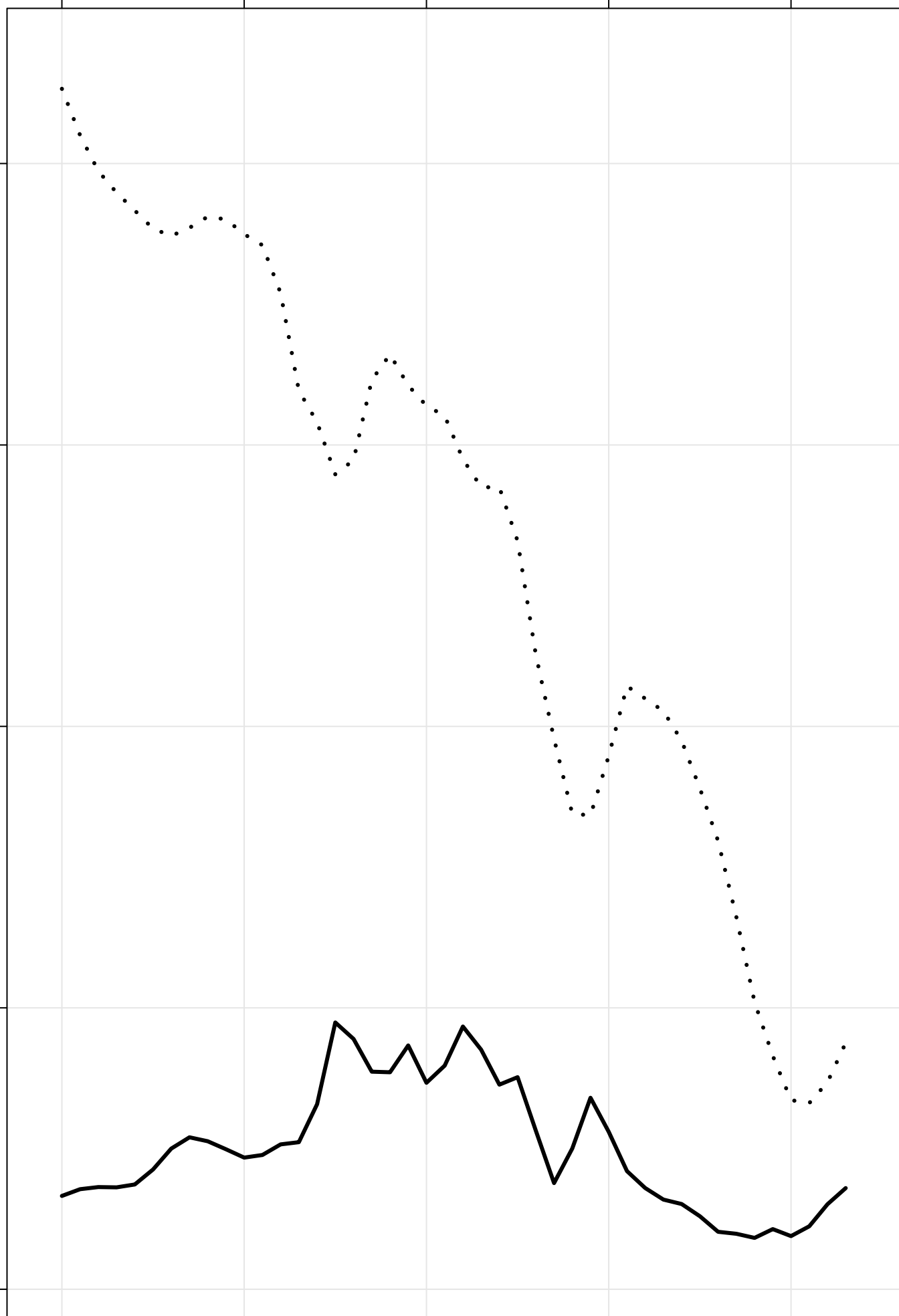
1980

1990

2000

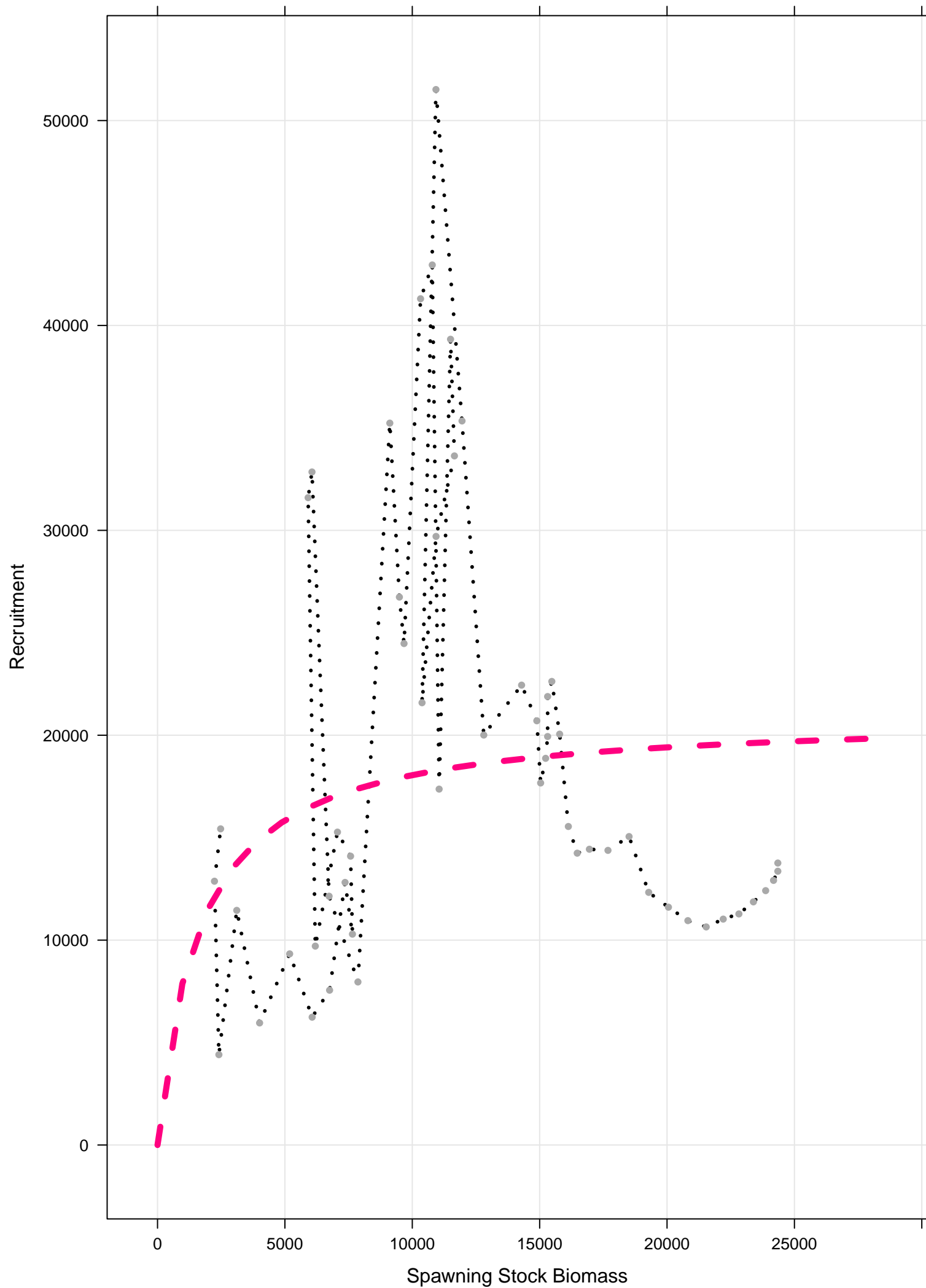
2010

Years



# Stock Recruitment

Observed    ●    .....    Modelled    - - -



# Fished vs. unfished biomass

Fished



Unfished



Total biomass

50000  
40000  
30000  
20000  
10000

1970

1980

1990

2000

2010

Years

