

# Fit of catch data

Total catch



Total catch by fleet



# Catch residuals by fleet

-0.03

-0.02

-0.01



0.01

0.02

0.03



1970

1980

1990

2000

2010

Offshore\_Trawl

FarNorth

SC\_Chile\_PS

N\_Chile

Residuals

1970

1980

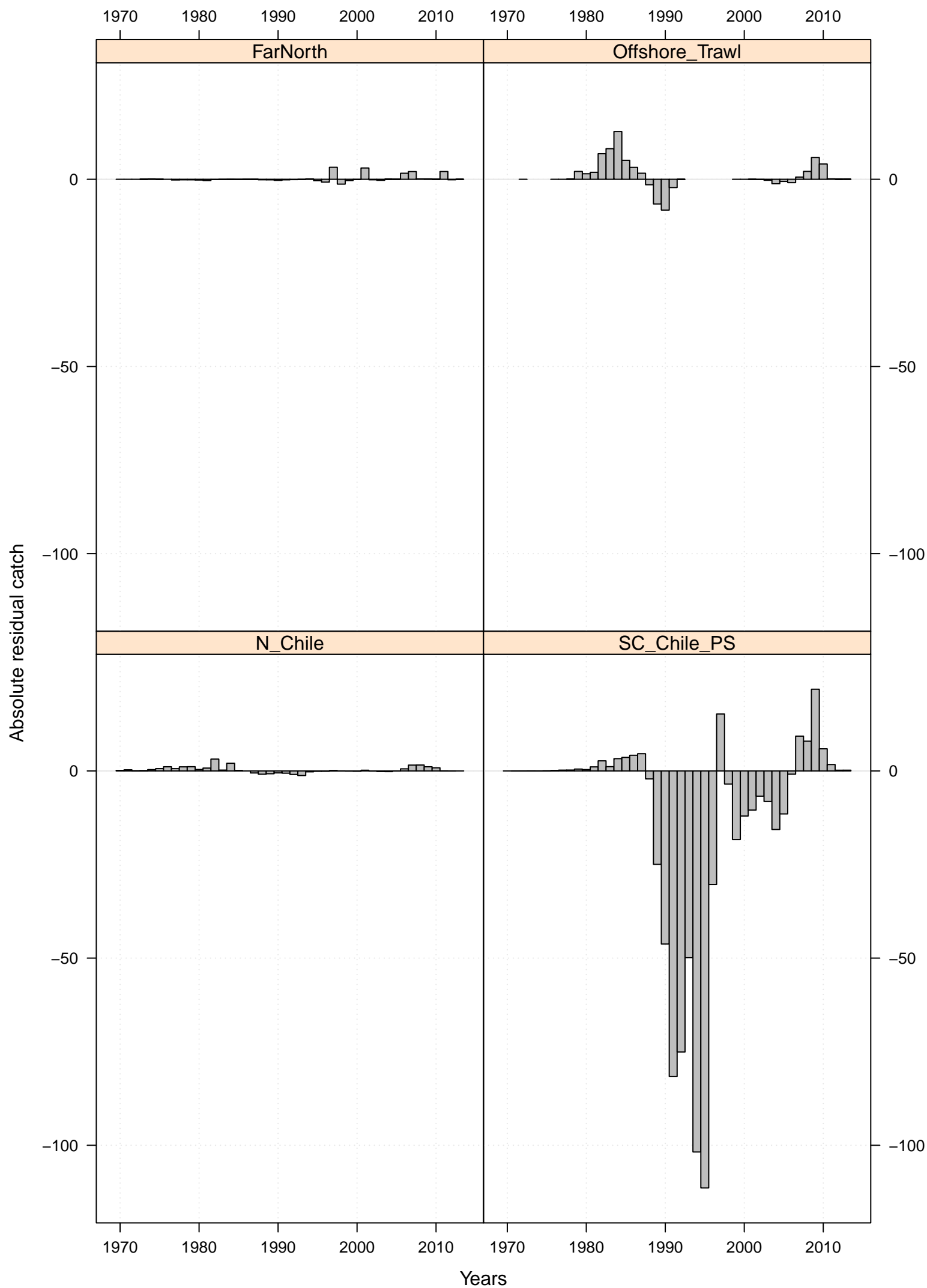
1990

2000

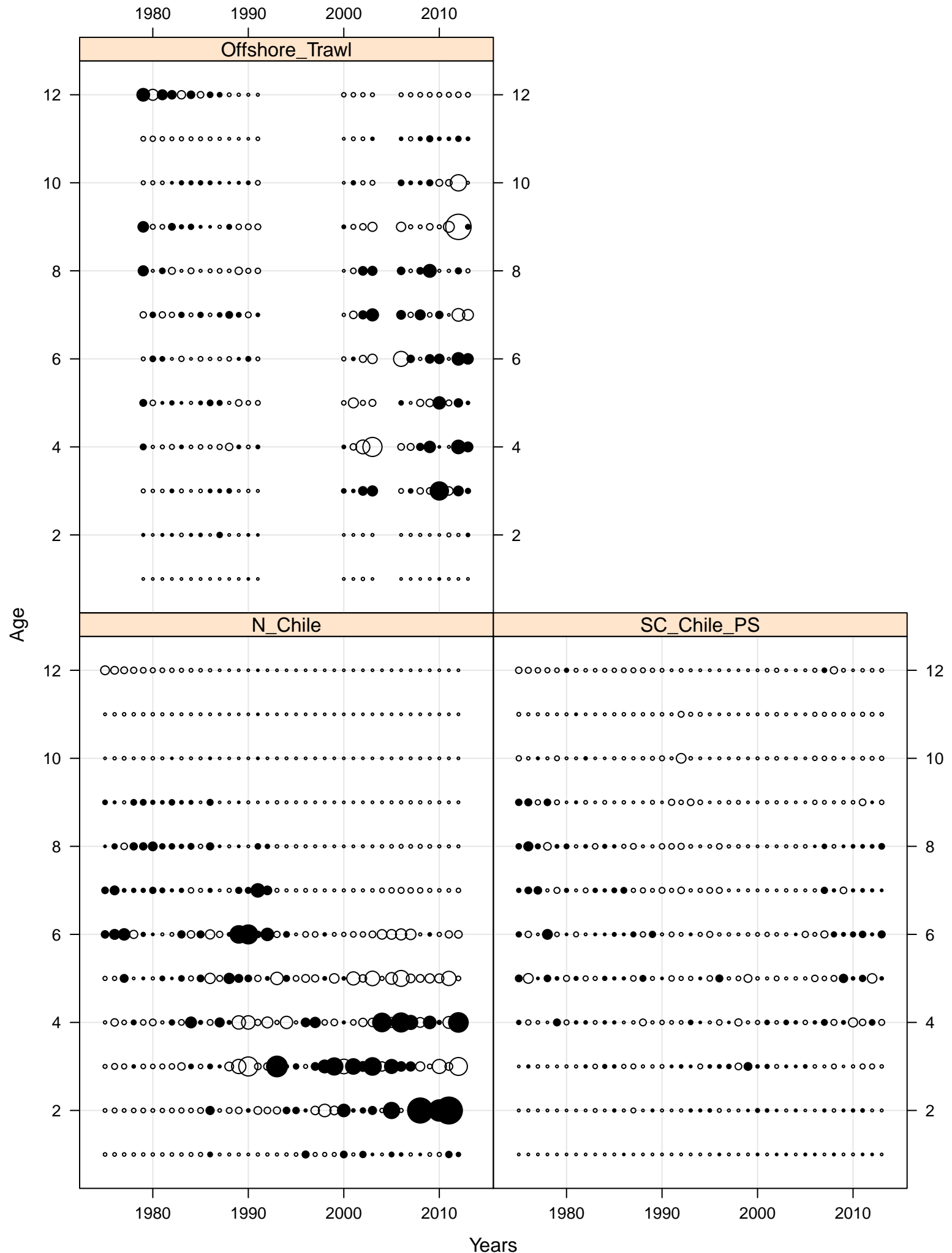
2010

Years

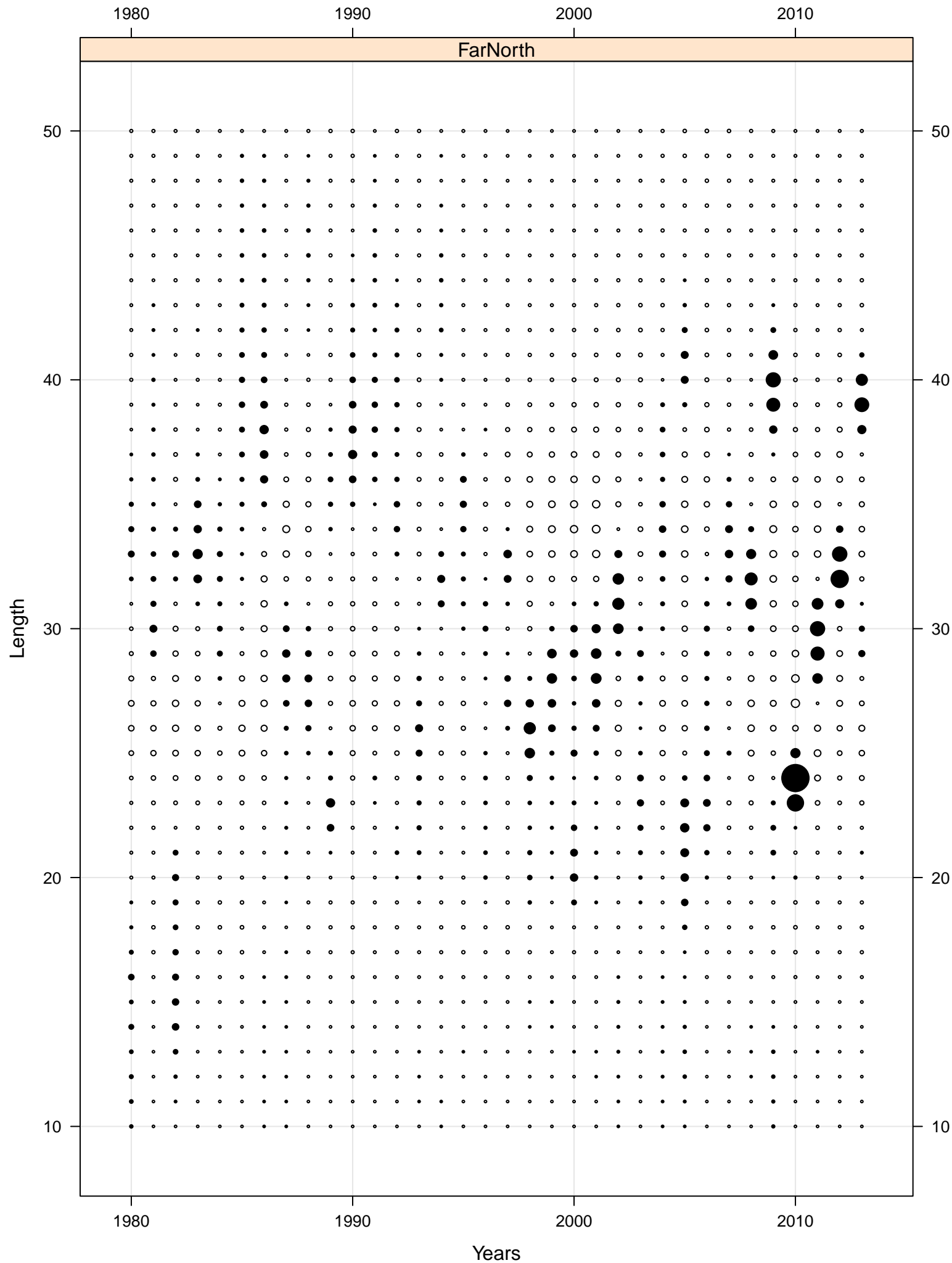
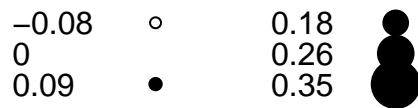
# Absolute residual catch by fleet



# Residuals catch-at-age by fleet



# Residuals catch-at-length by fleet



# Age fits N\_Chile

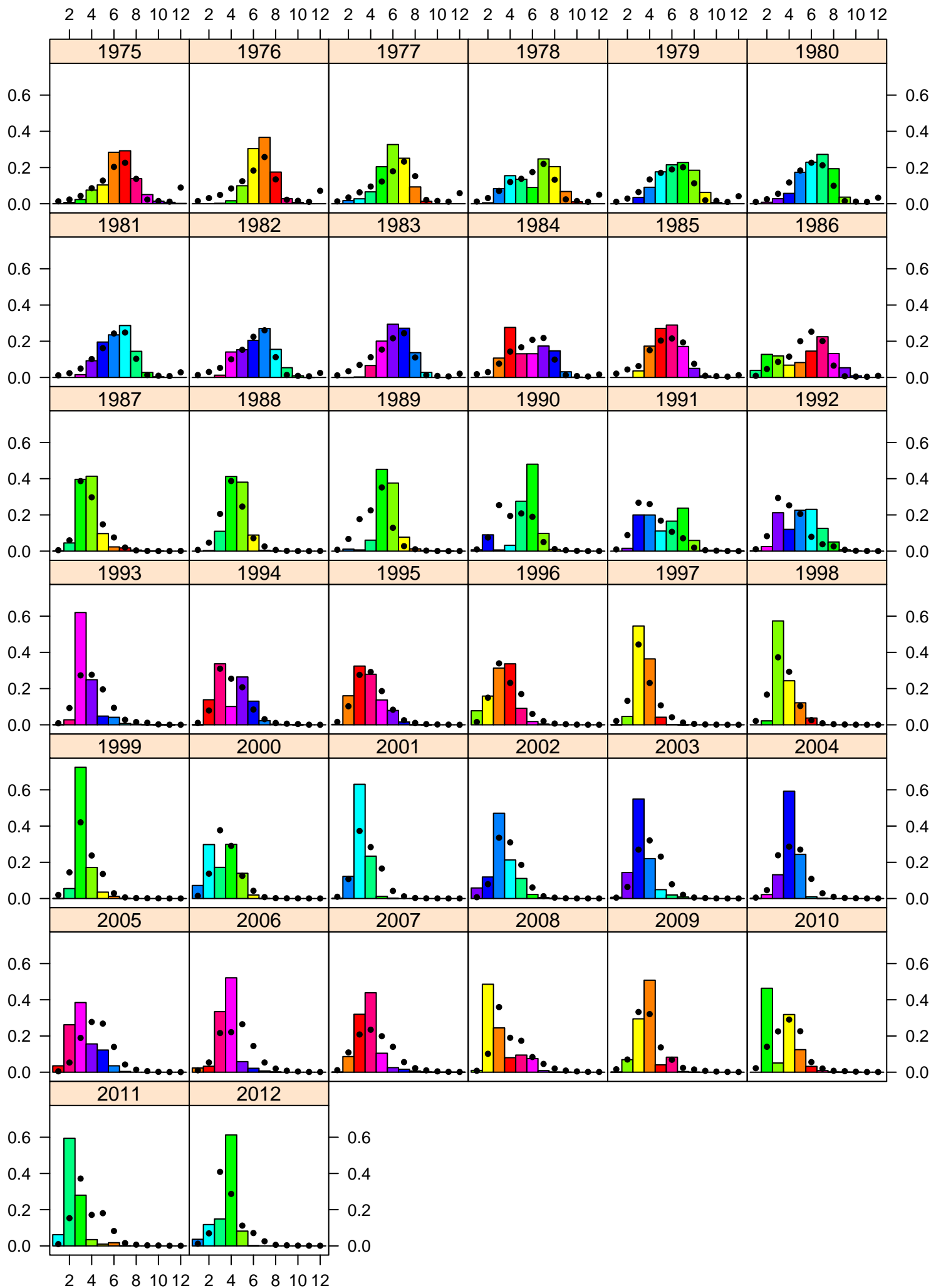
Observed



Predicted



Proportion at age



Age



# Age fits SC\_Chile\_PS

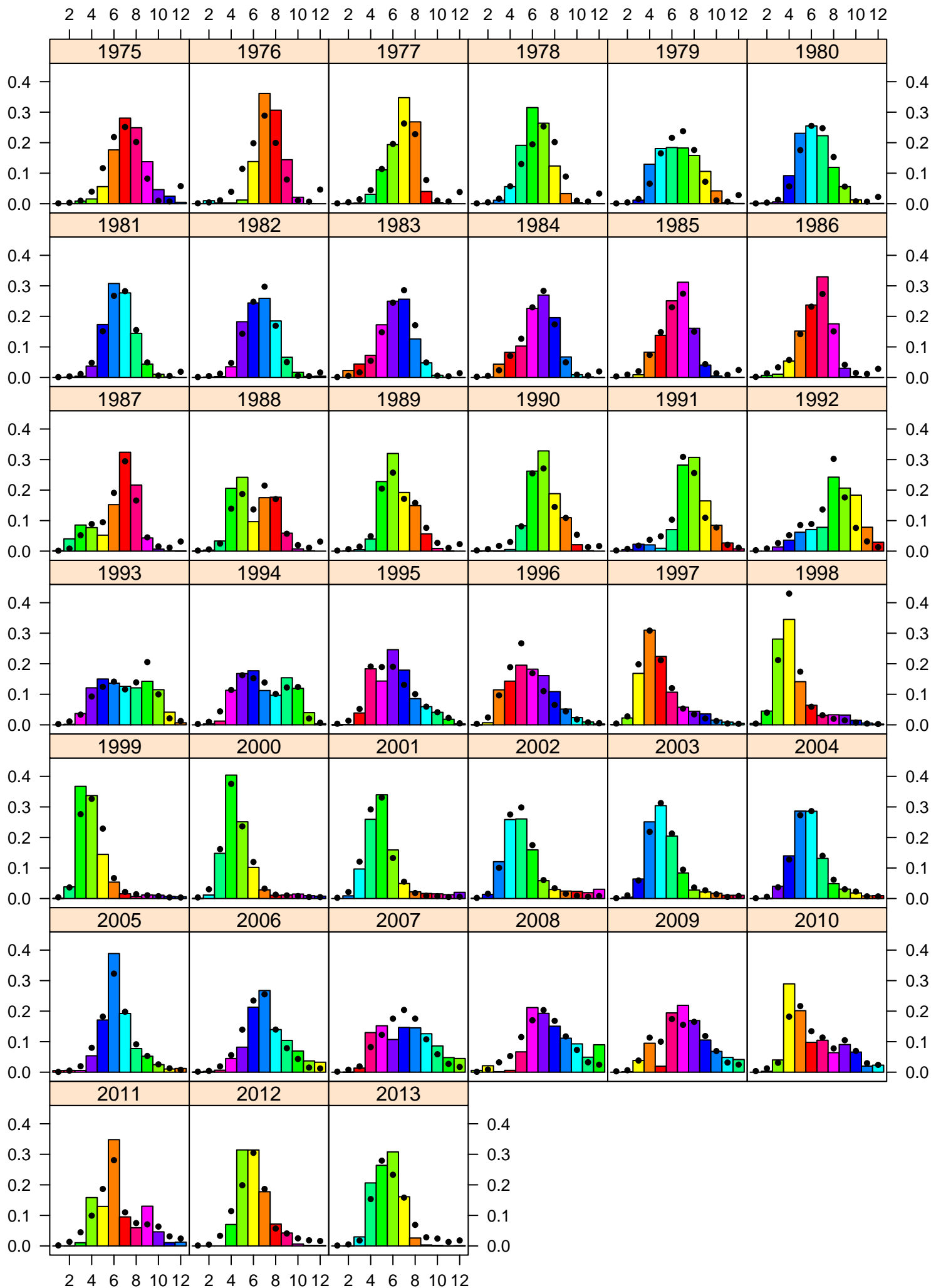
Observed



Predicted



Proportion at age



Age

# Age fits Offshore\_Trawl

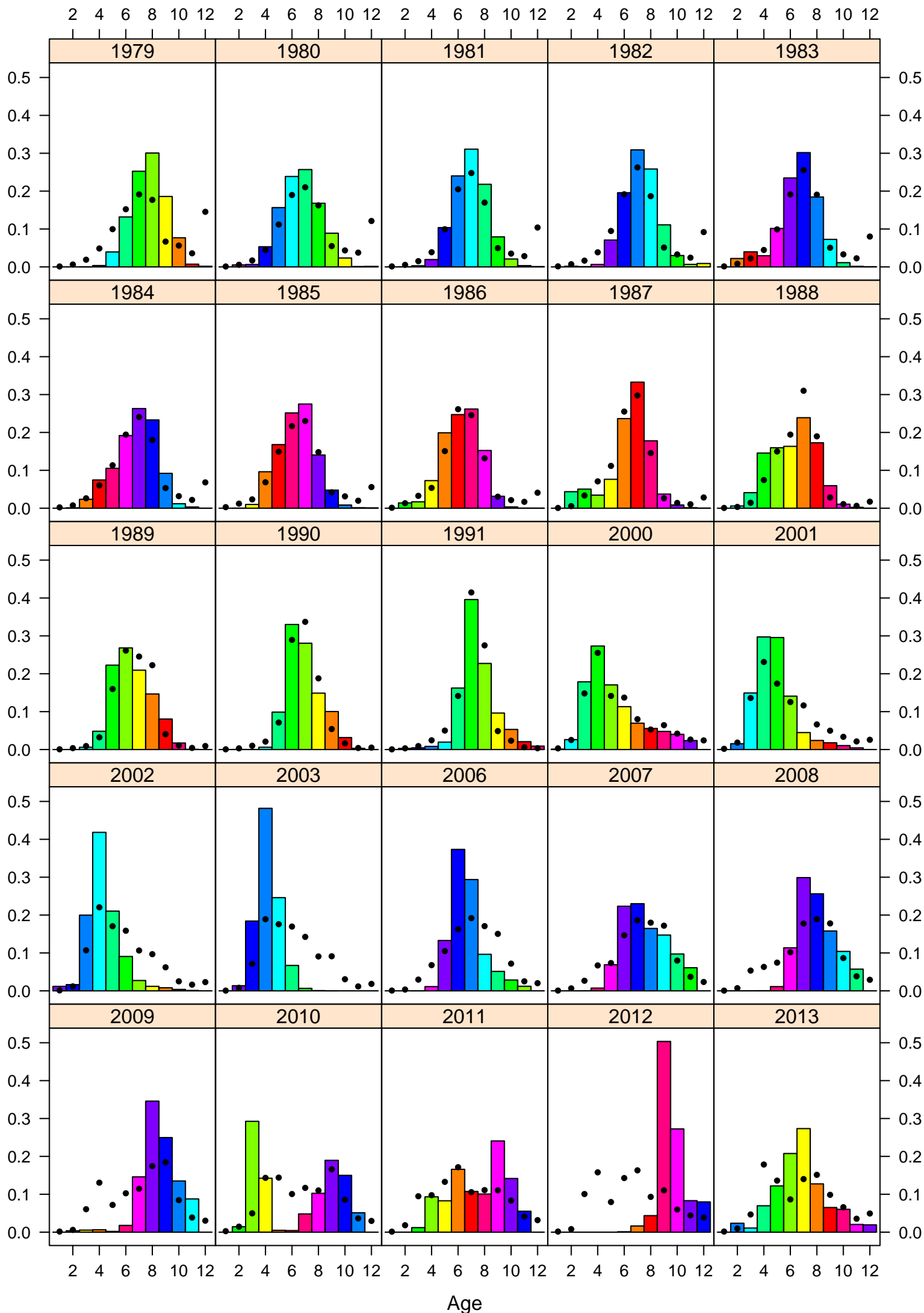
Observed



Predicted



Proportion at age



# Length fits FarNorth

Observed



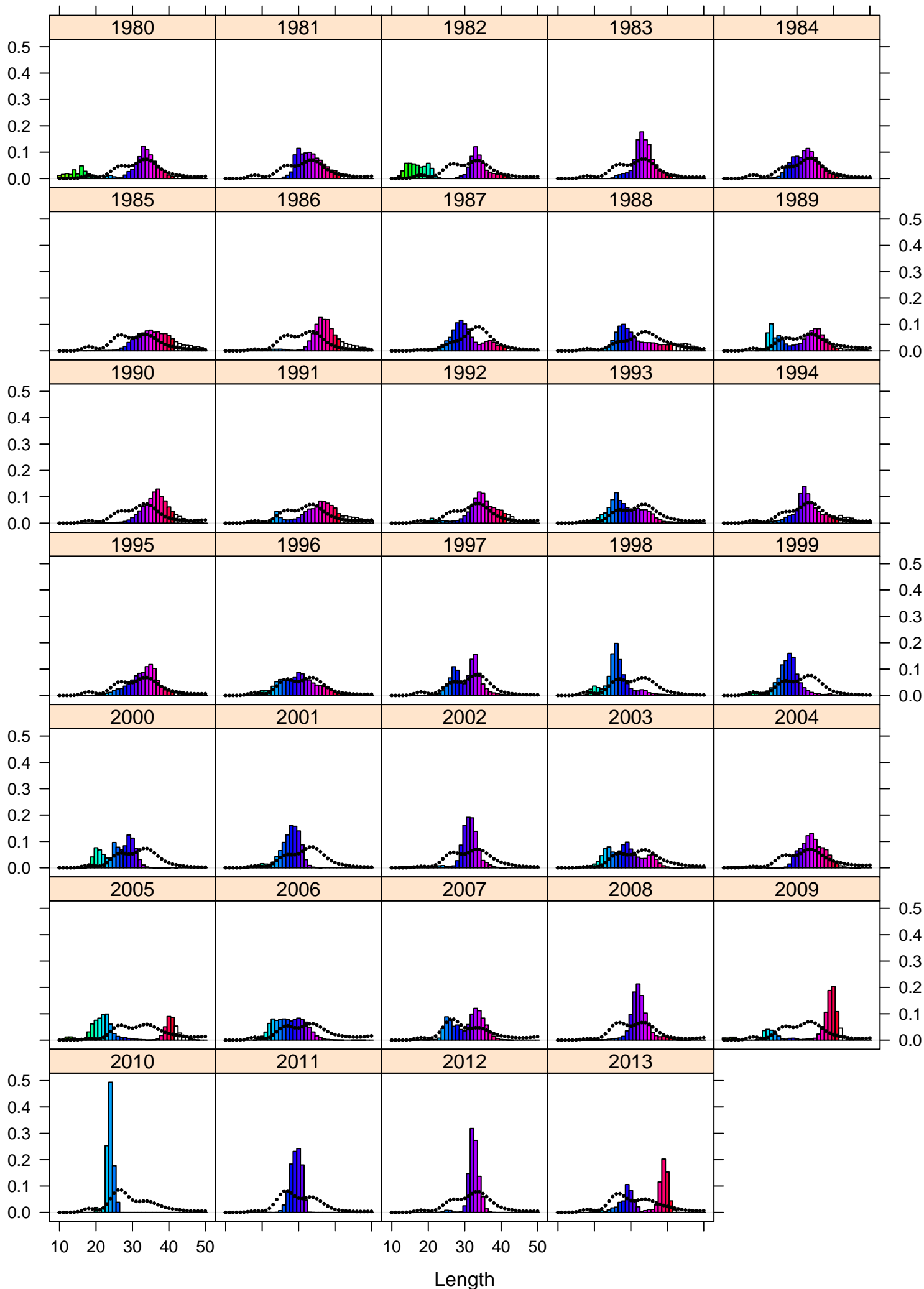
Predicted



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

FarNorth

N\_Chile

Thousand tonnes

4000

3000

2000

1000

0

4000

3000

2000

1000

0

1970

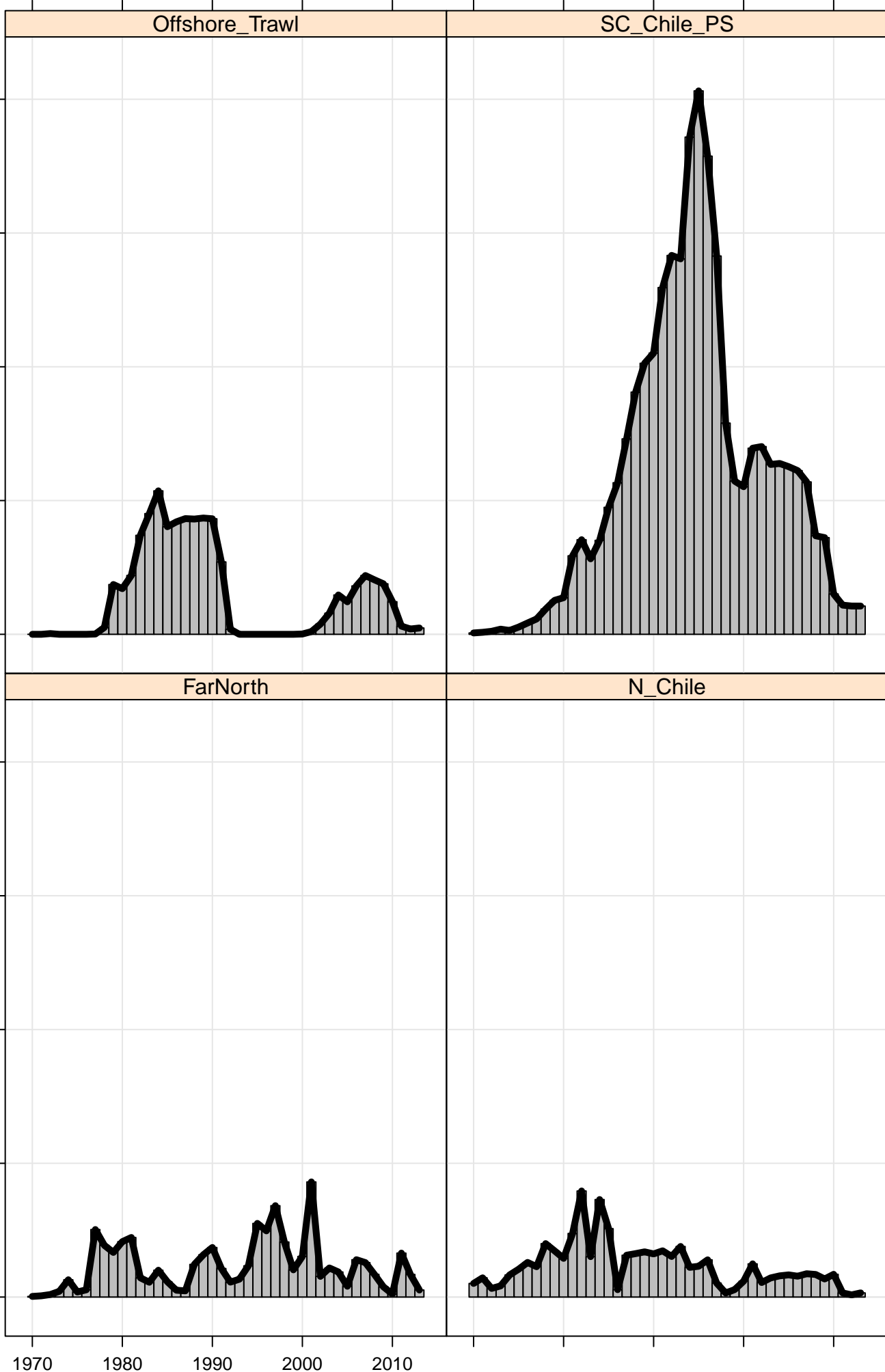
1980

1990

2000

2010

Years



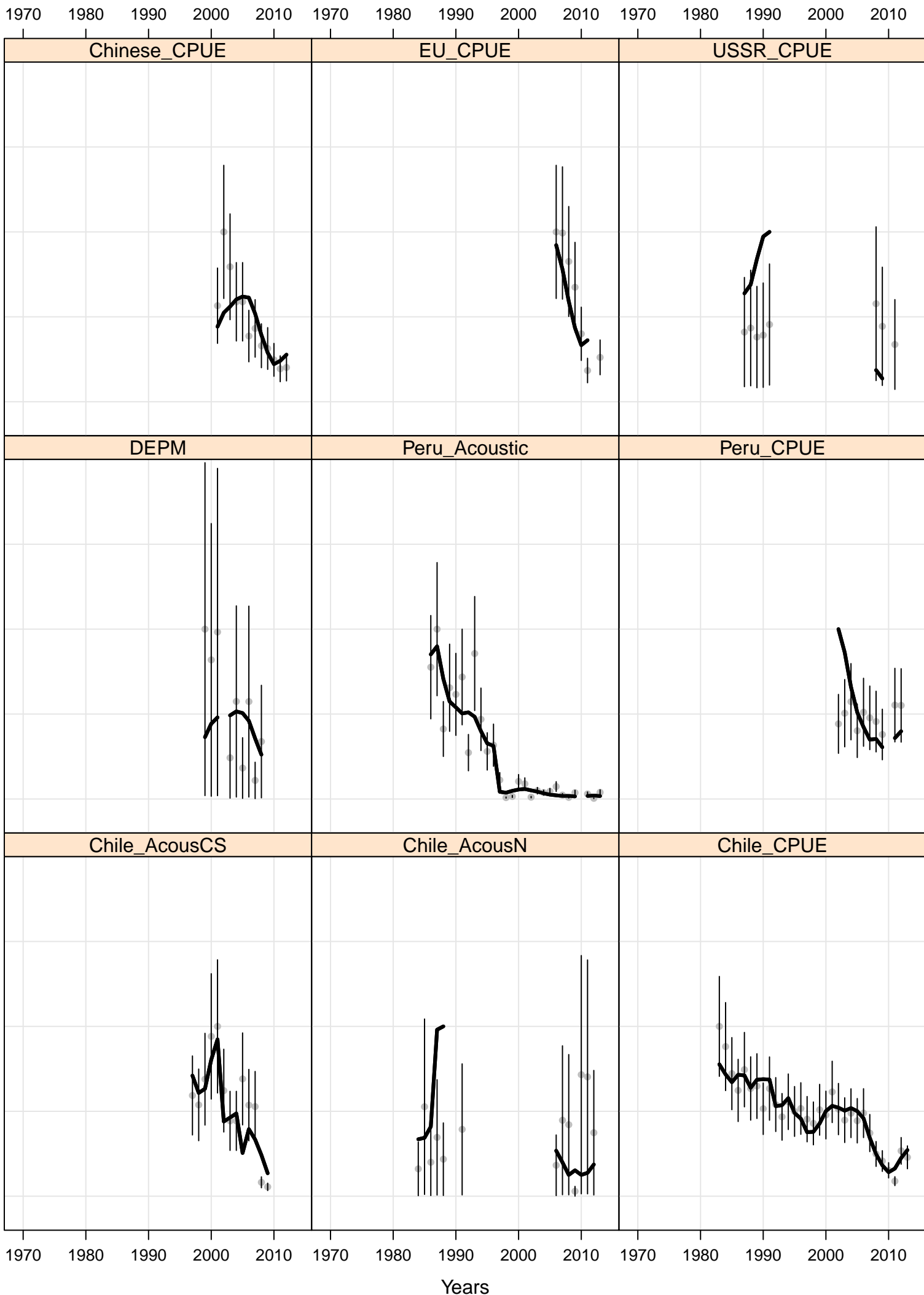
# Fit of survey data

# Predicted and observed indices

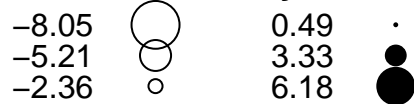
Observed



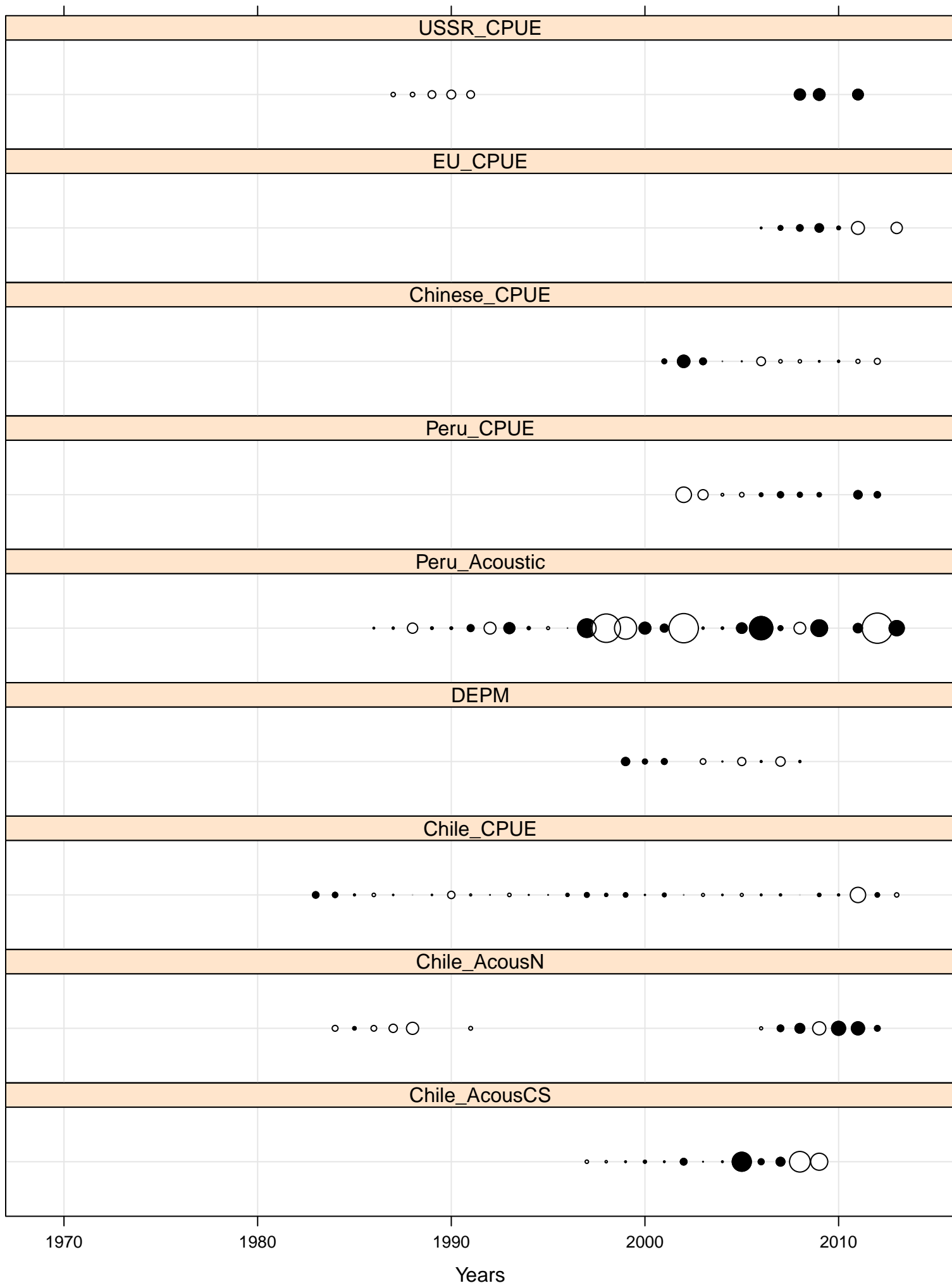
Predicted



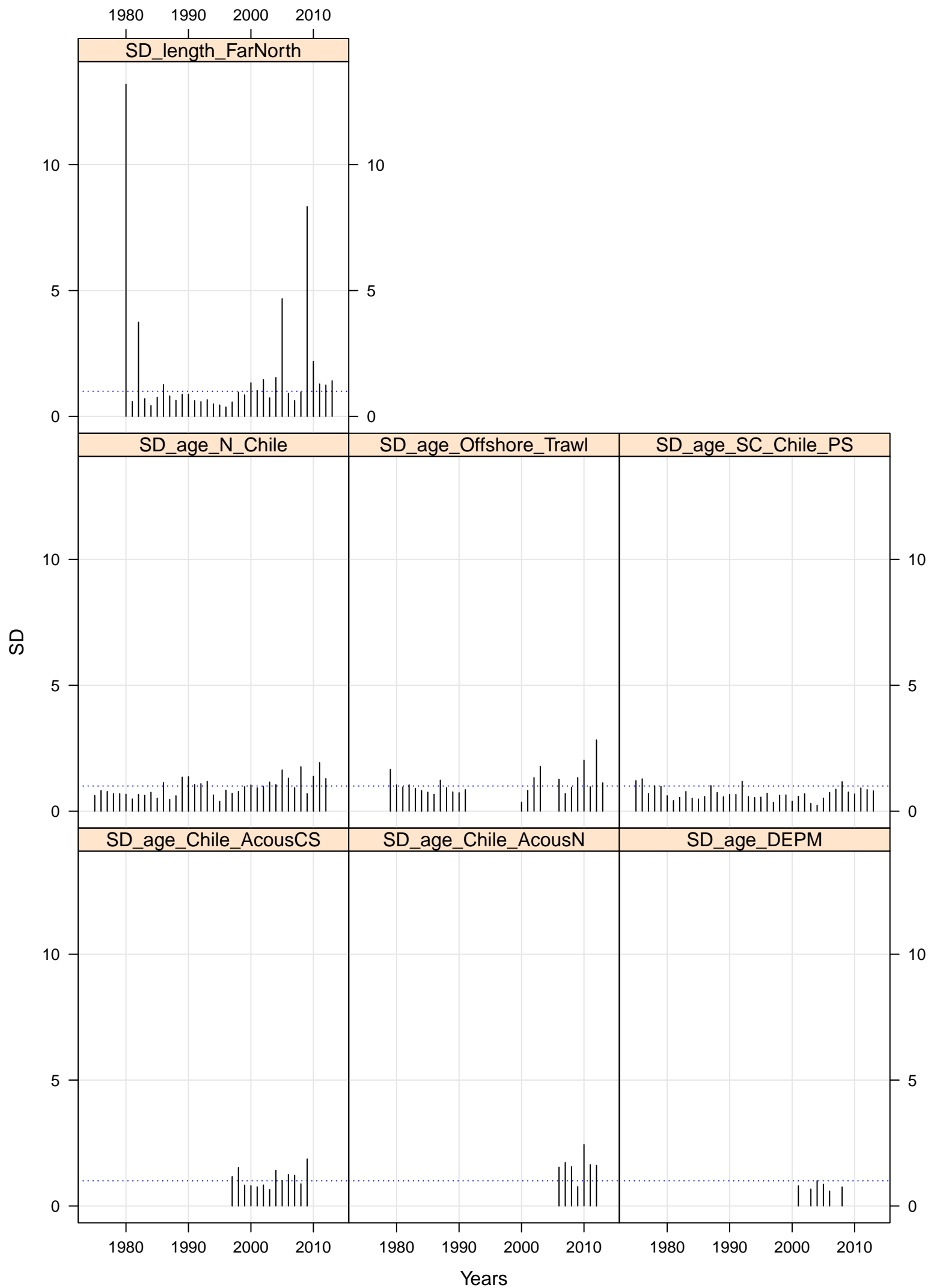
# Standardized survey residuals



Log residuals



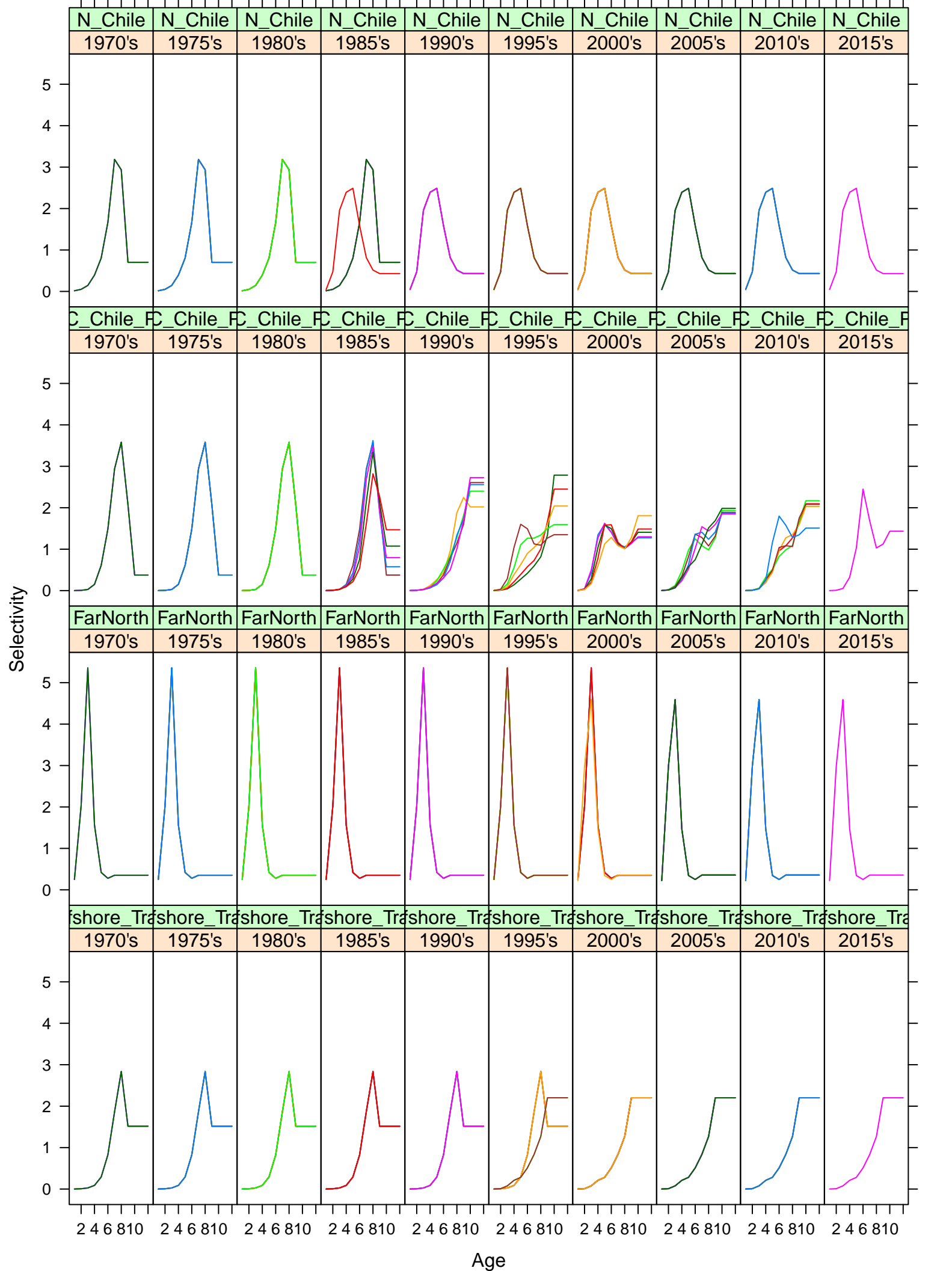
# SD per input series





# Fleet & Survey sel & F

# Selectivity of the Fishery by Pentad

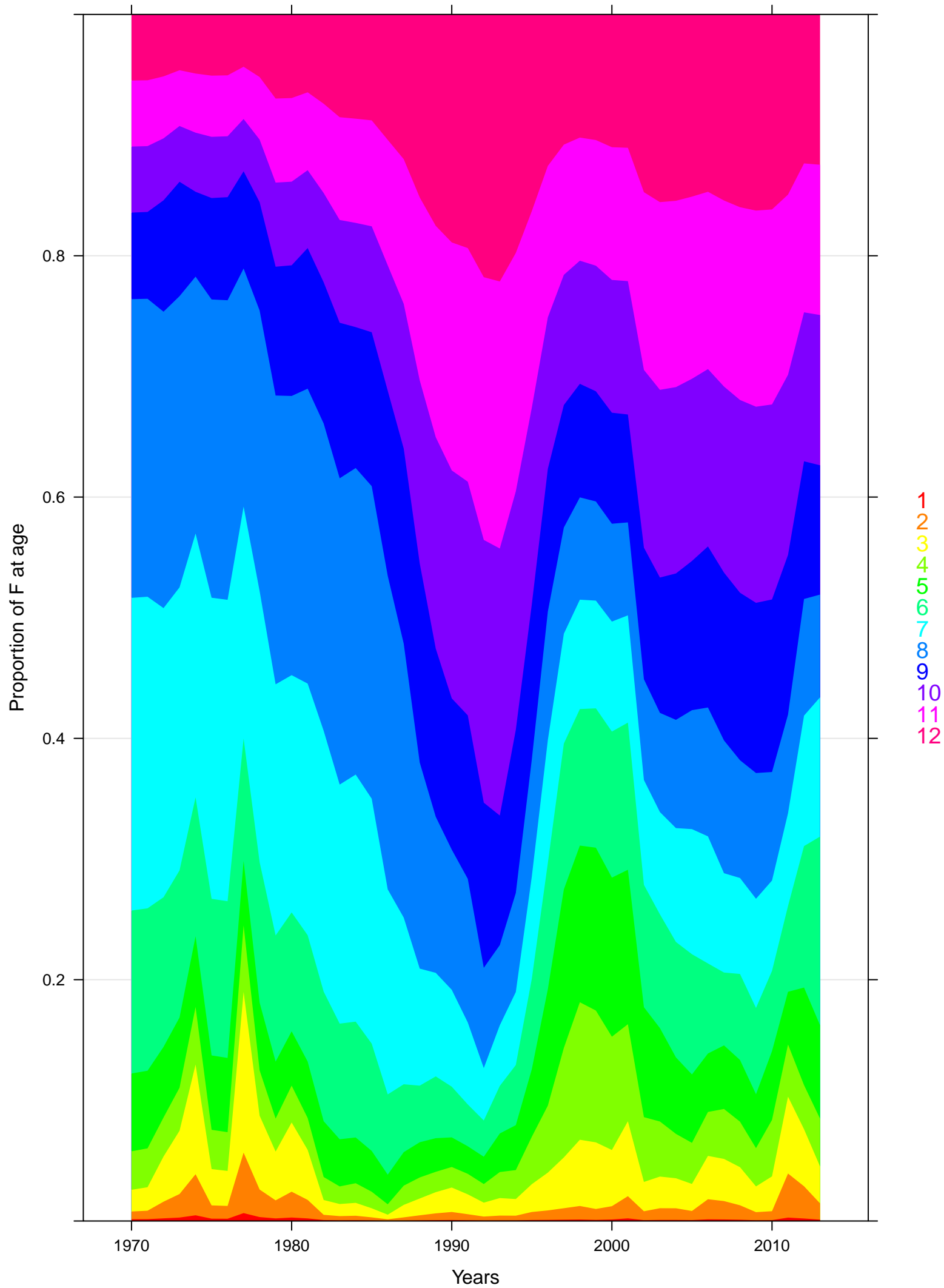




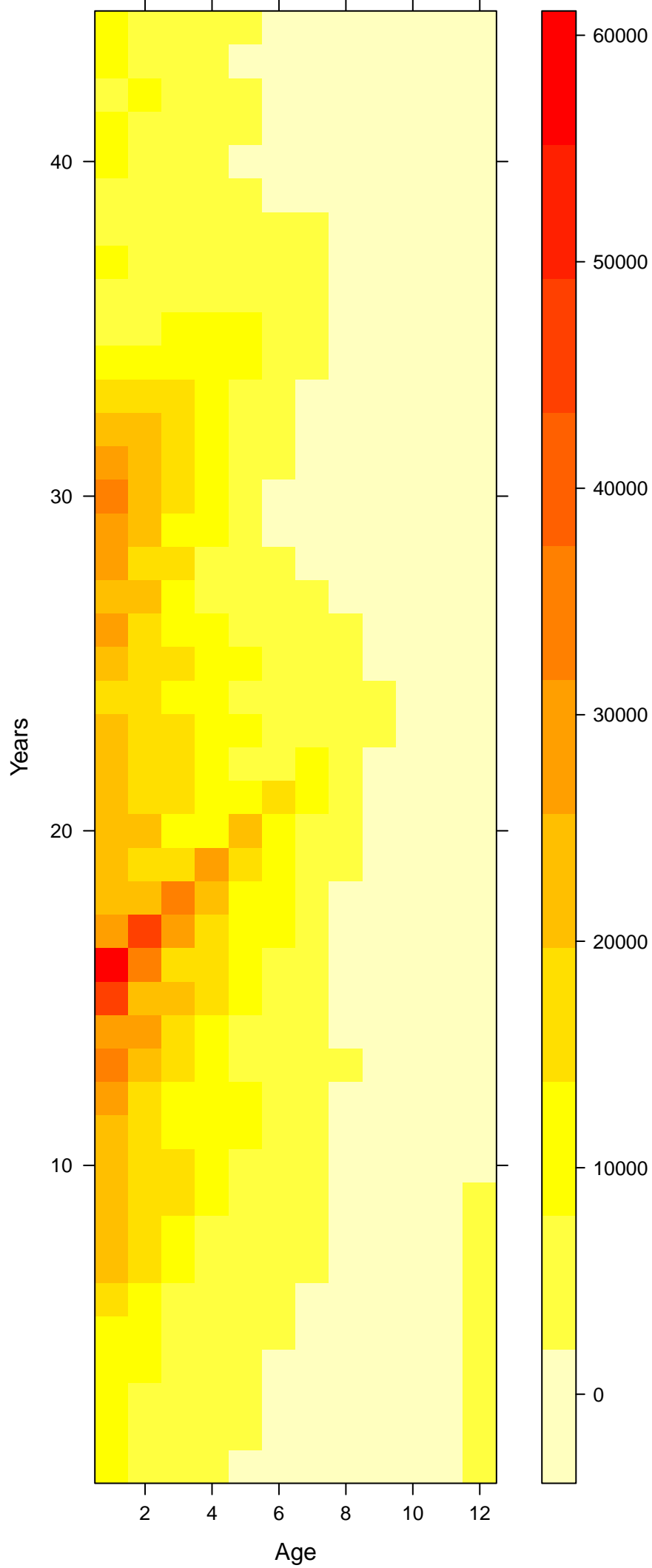
## F at age



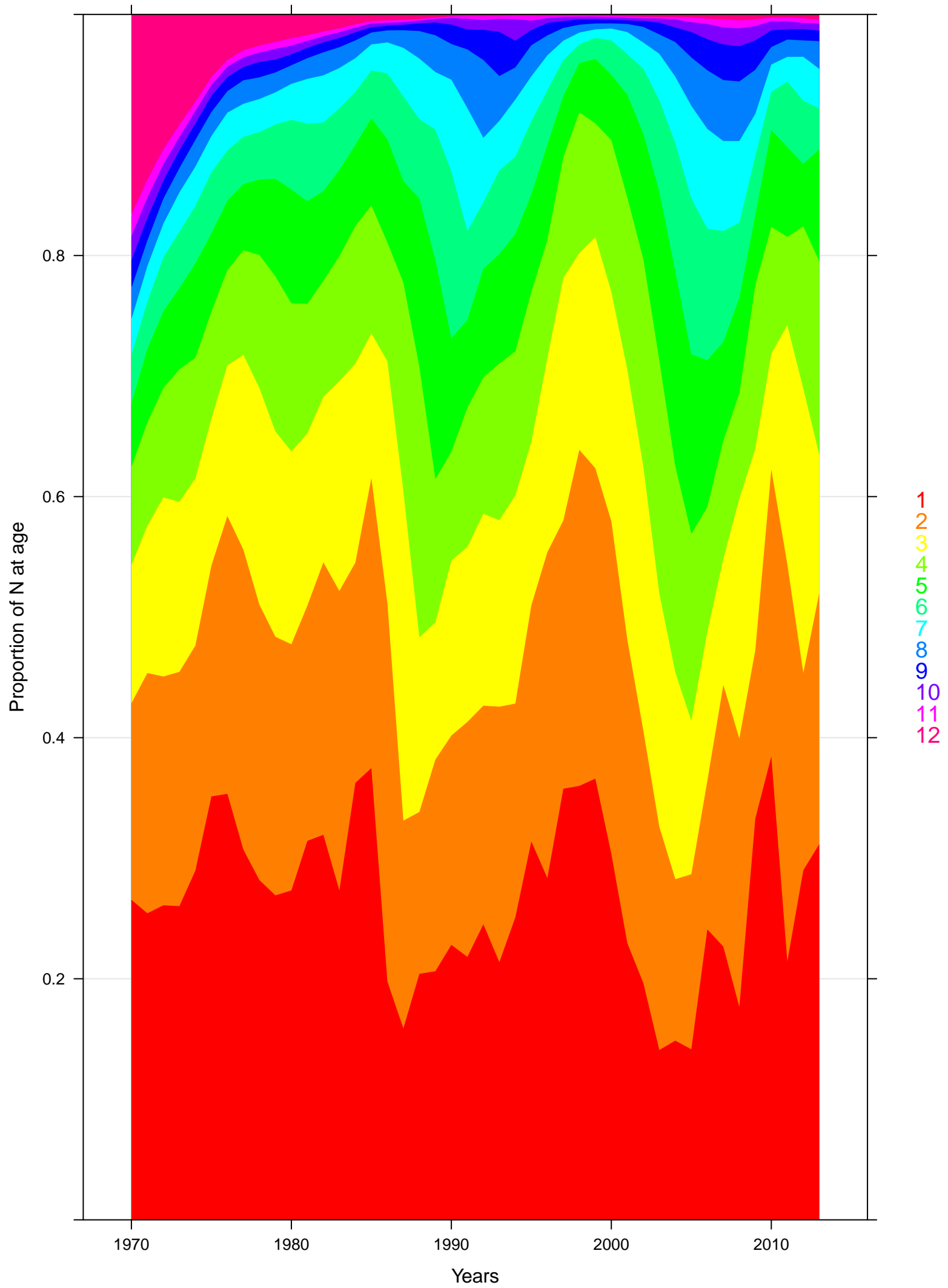
F proportion at age



N at age



Proportion at age



# Fishery mean age

Observed



Modelled



SC\_Chile\_PS

10

8

6

4

2

N\_Chile

Offshore\_Trawl

10

8

6

4

2

1980

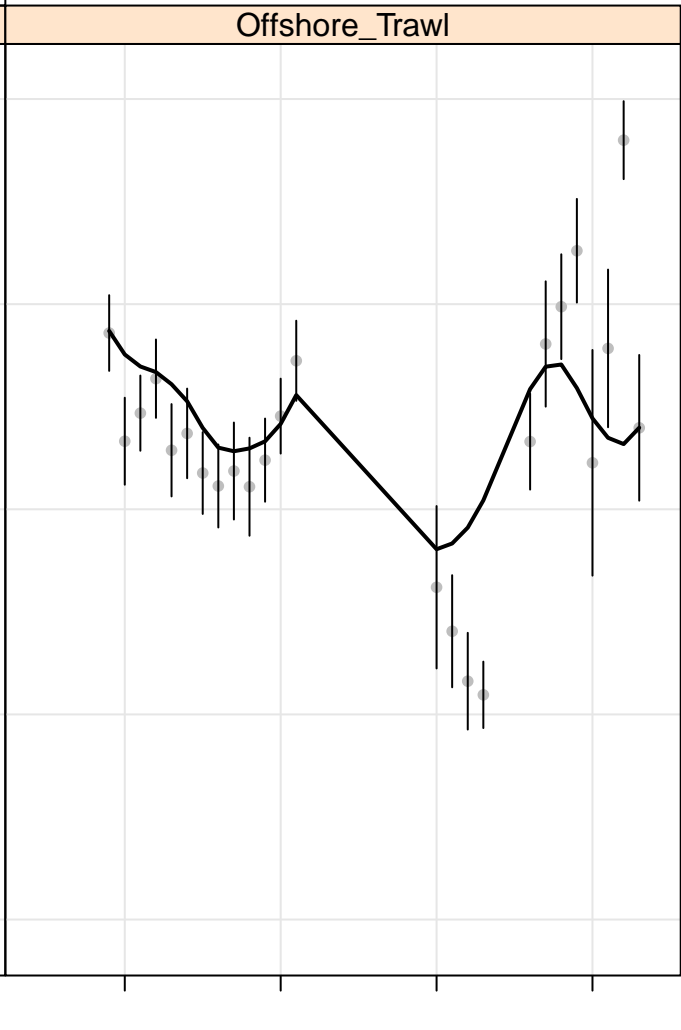
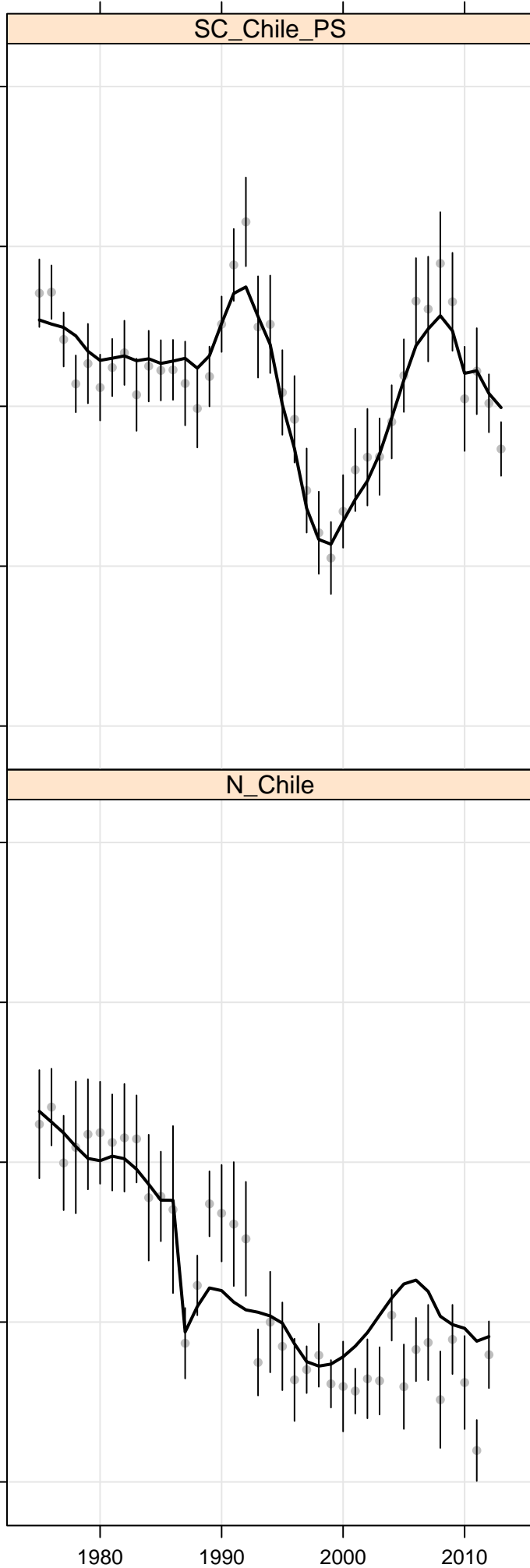
1990

2000

2010

Years

Age





# Fishery mean length

Observed



Modelled



FarNorth

Length (cm)

Years

35

30

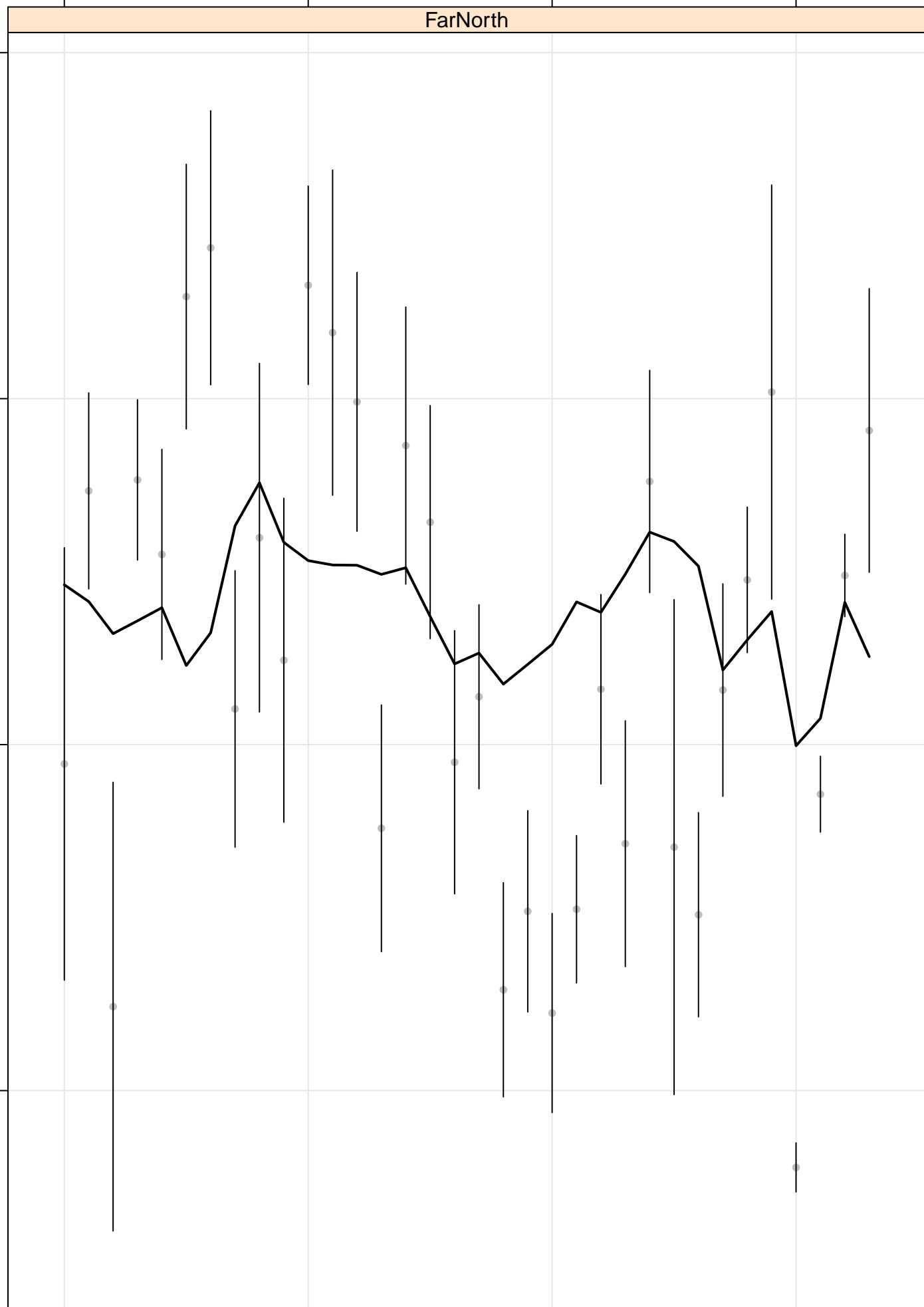
25

1980

1990

2000

2010



# Survey mean age

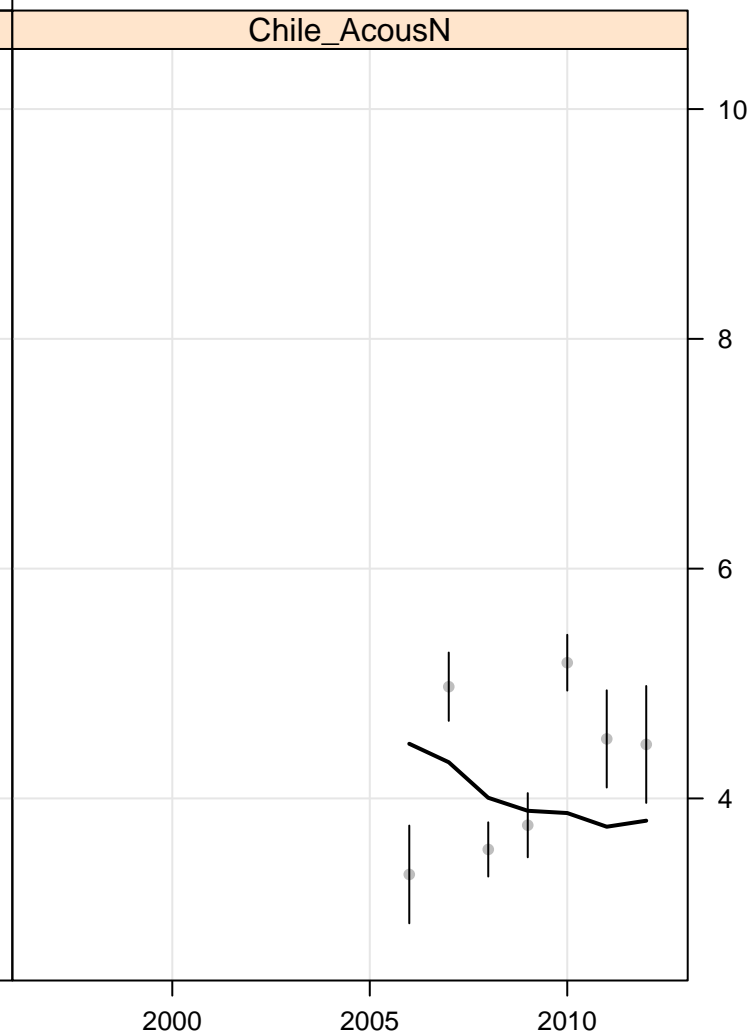
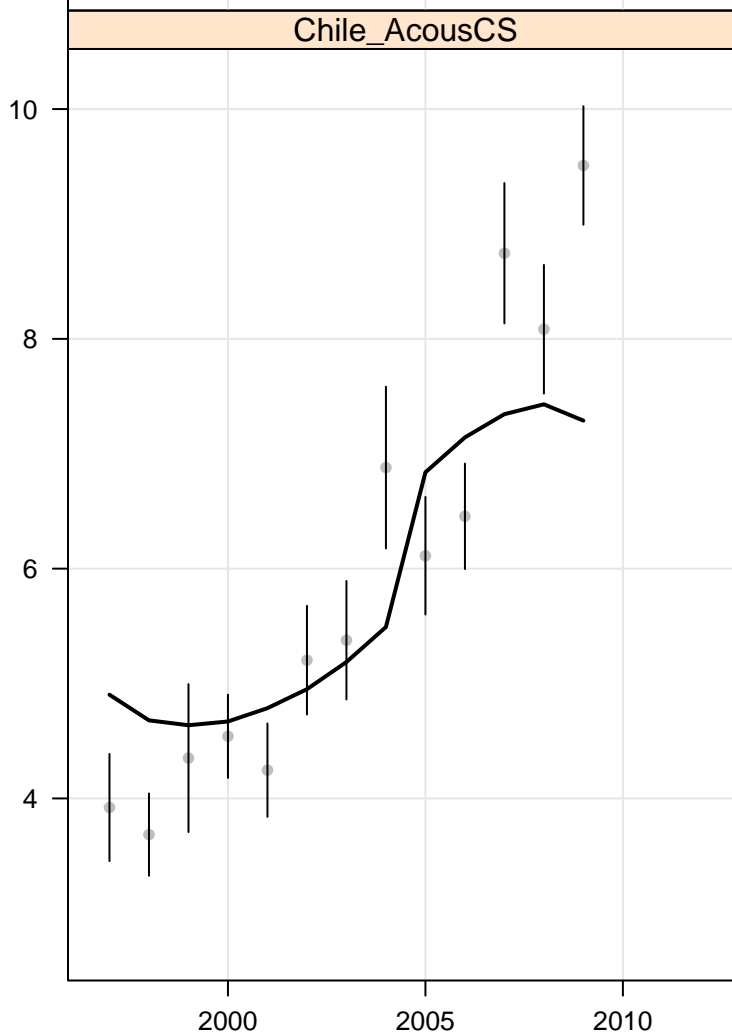
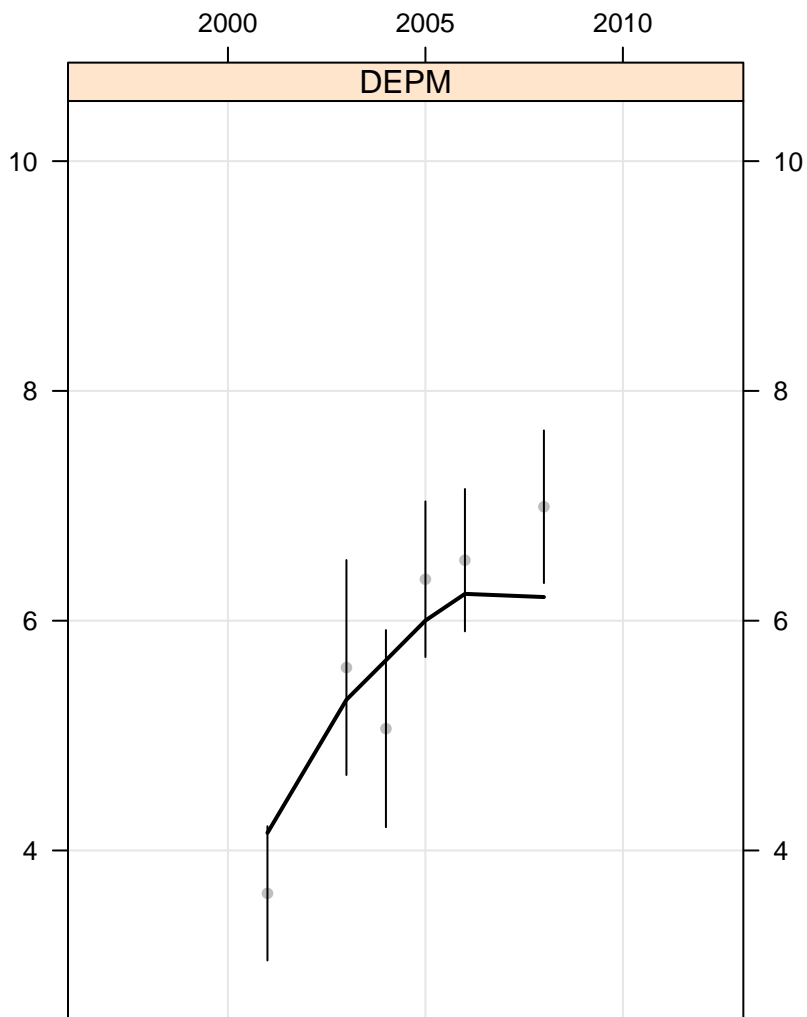
Observed



Modelled



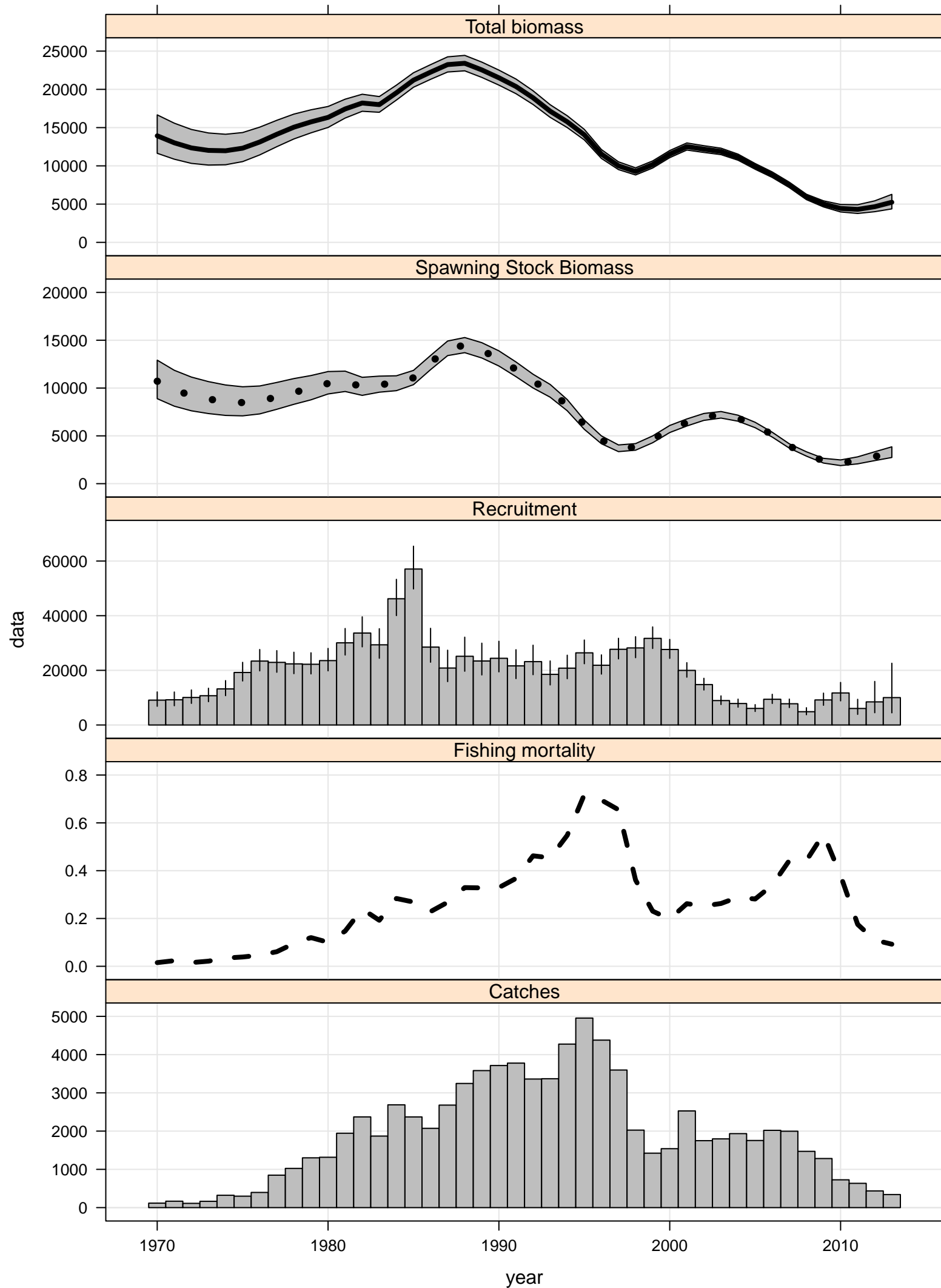
Age



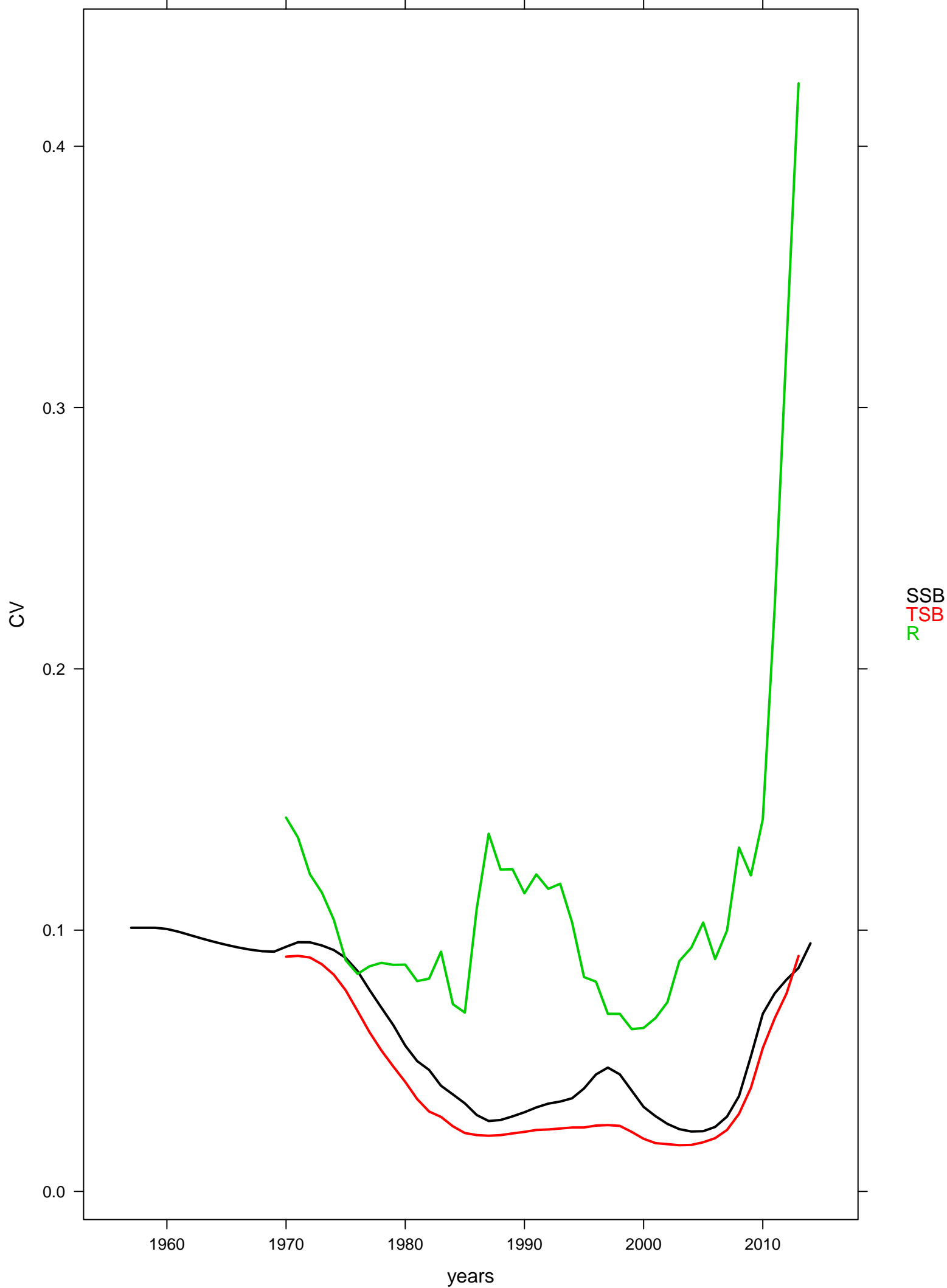
Years

# Stock summary

# Summary sheet



Uncertainty of key parameters



# Mature – Immature fish

Mature . . . .

Immature —

Biomass in kt

20000

15000

10000

5000

0

1970

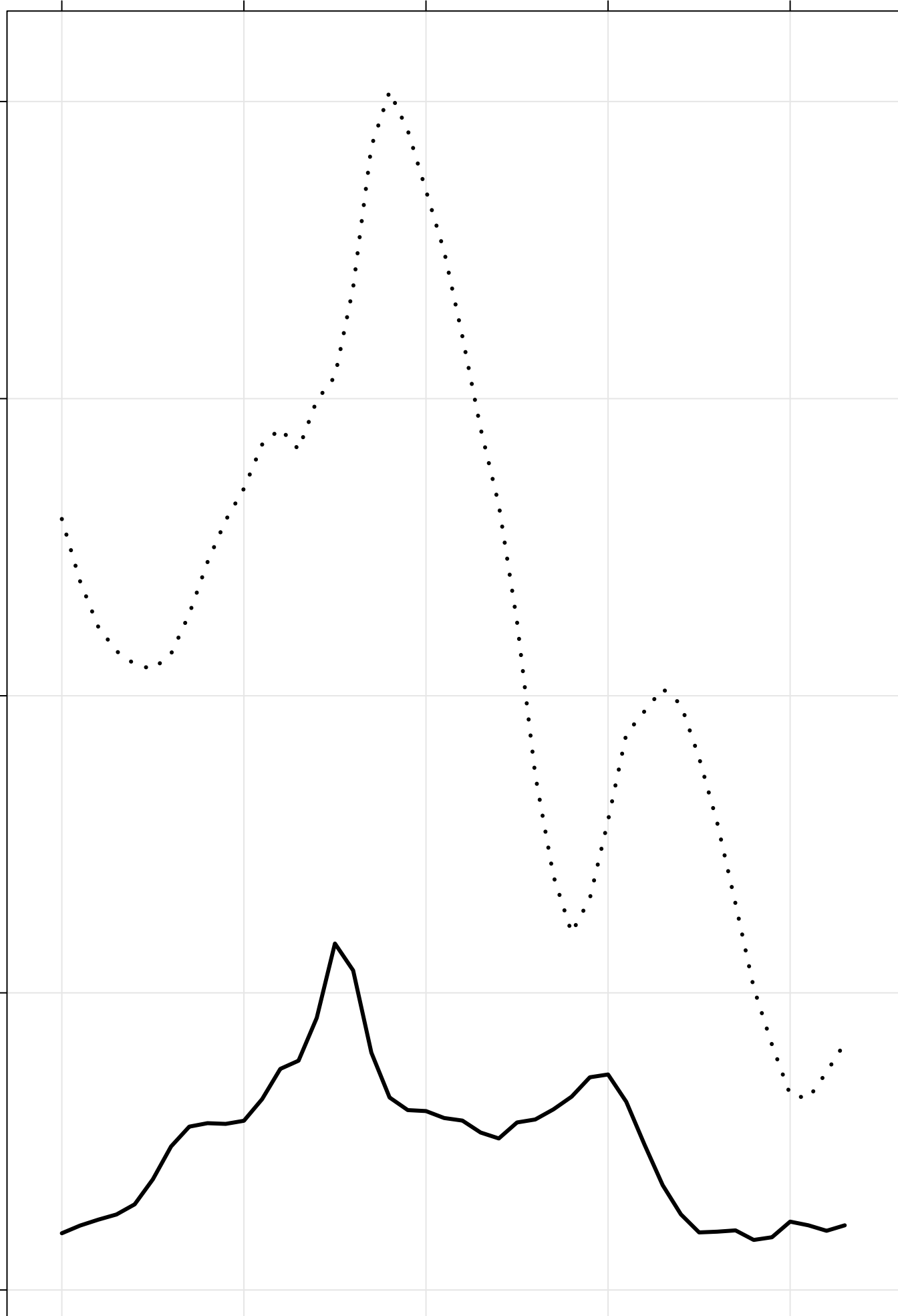
1980

1990

2000

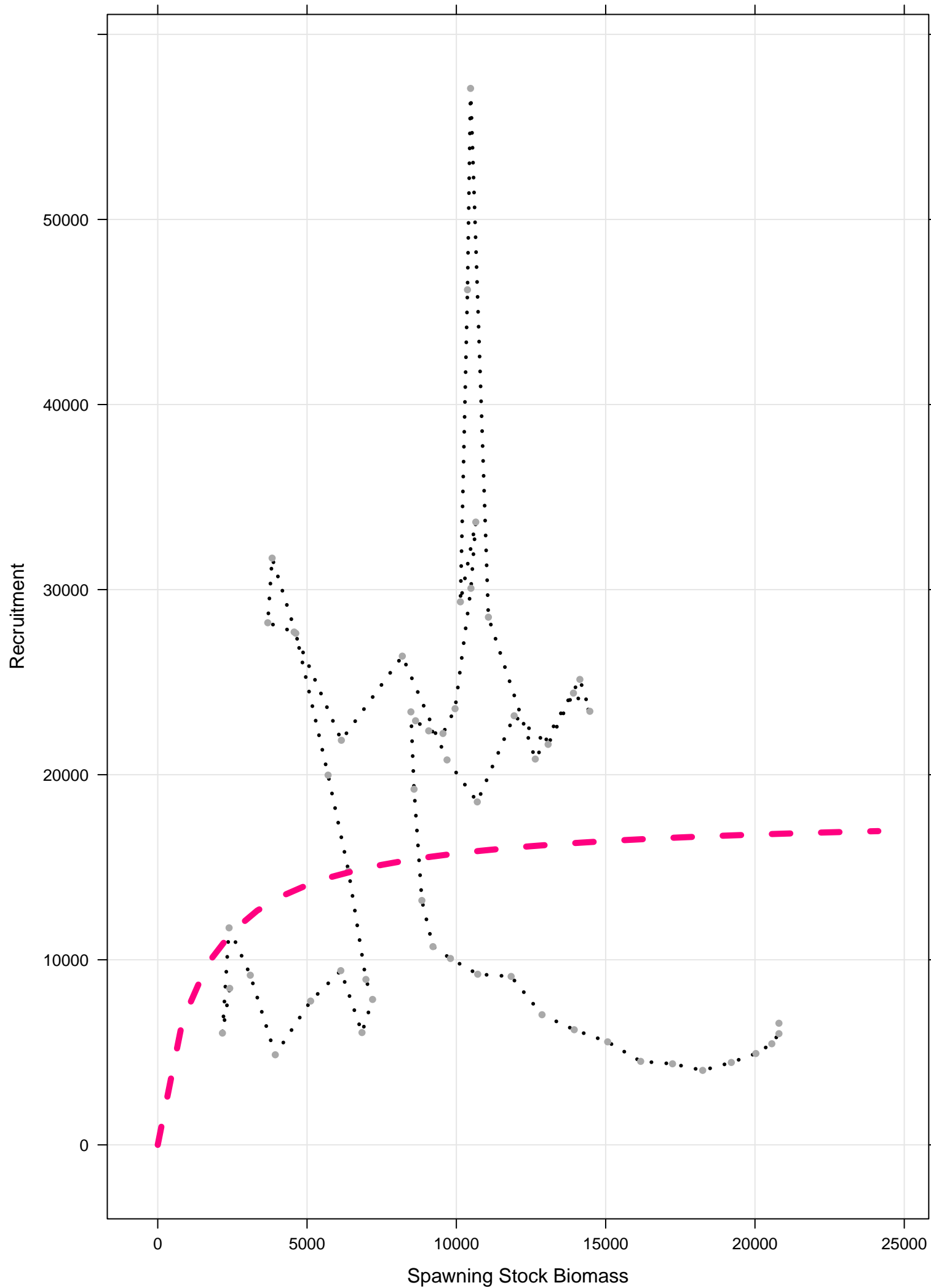
2010

Years



# Stock Recruitment

Observed    ●    .....    Modelled    - - -



# Fished vs. unfished biomass

Fished



Unfished



Total biomass

40000  
30000  
20000  
10000

1970

1980

1990

2000

2010

Years

