

# Catch residuals by fleet

-0.04  
-0.03  
-0.02

-0.01  
0.01  
0.02

Residuals

Offshore\_Trawl

FarNorth

SC\_Chile\_PS

N\_Chile

1970

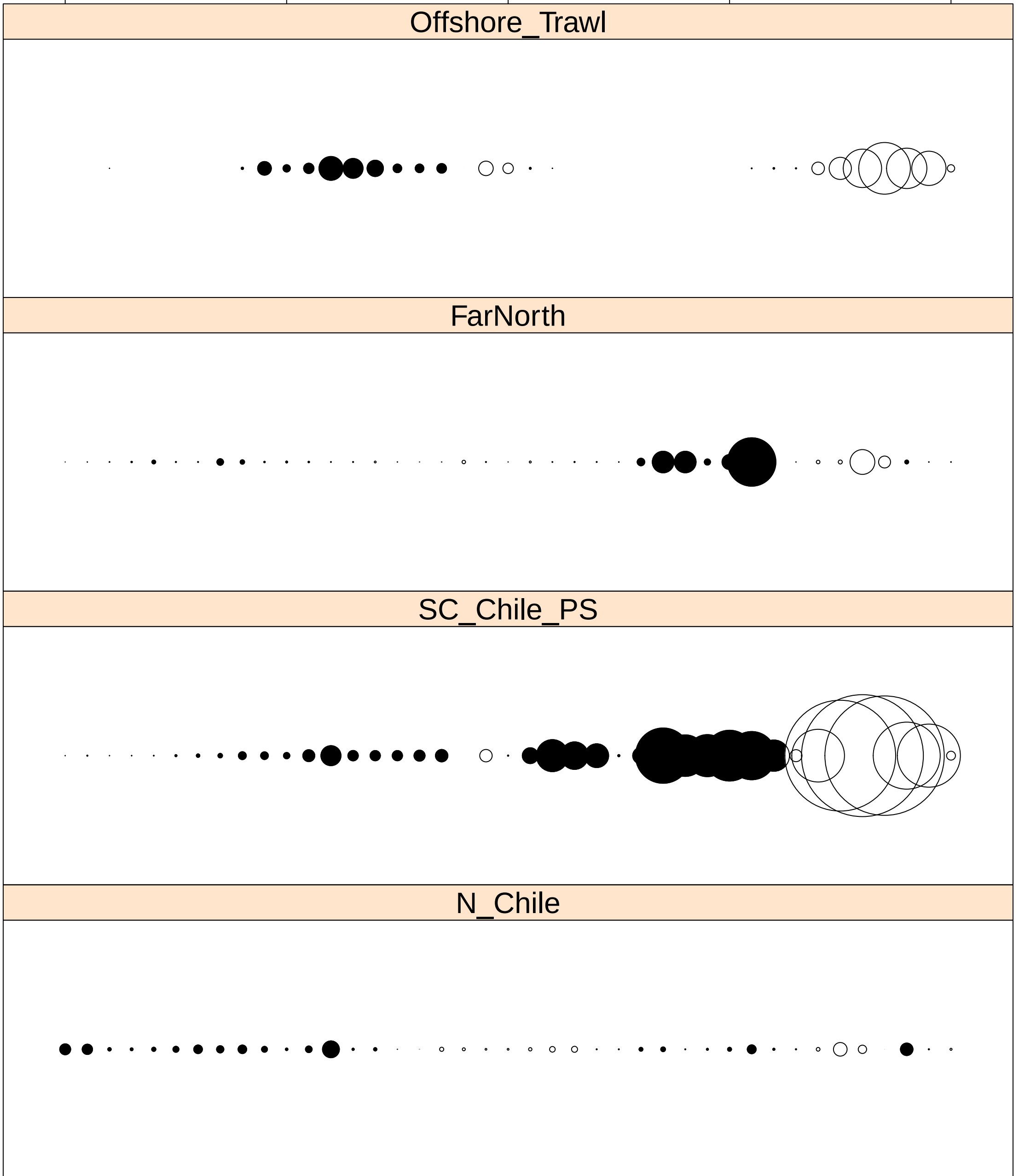
1980

1990

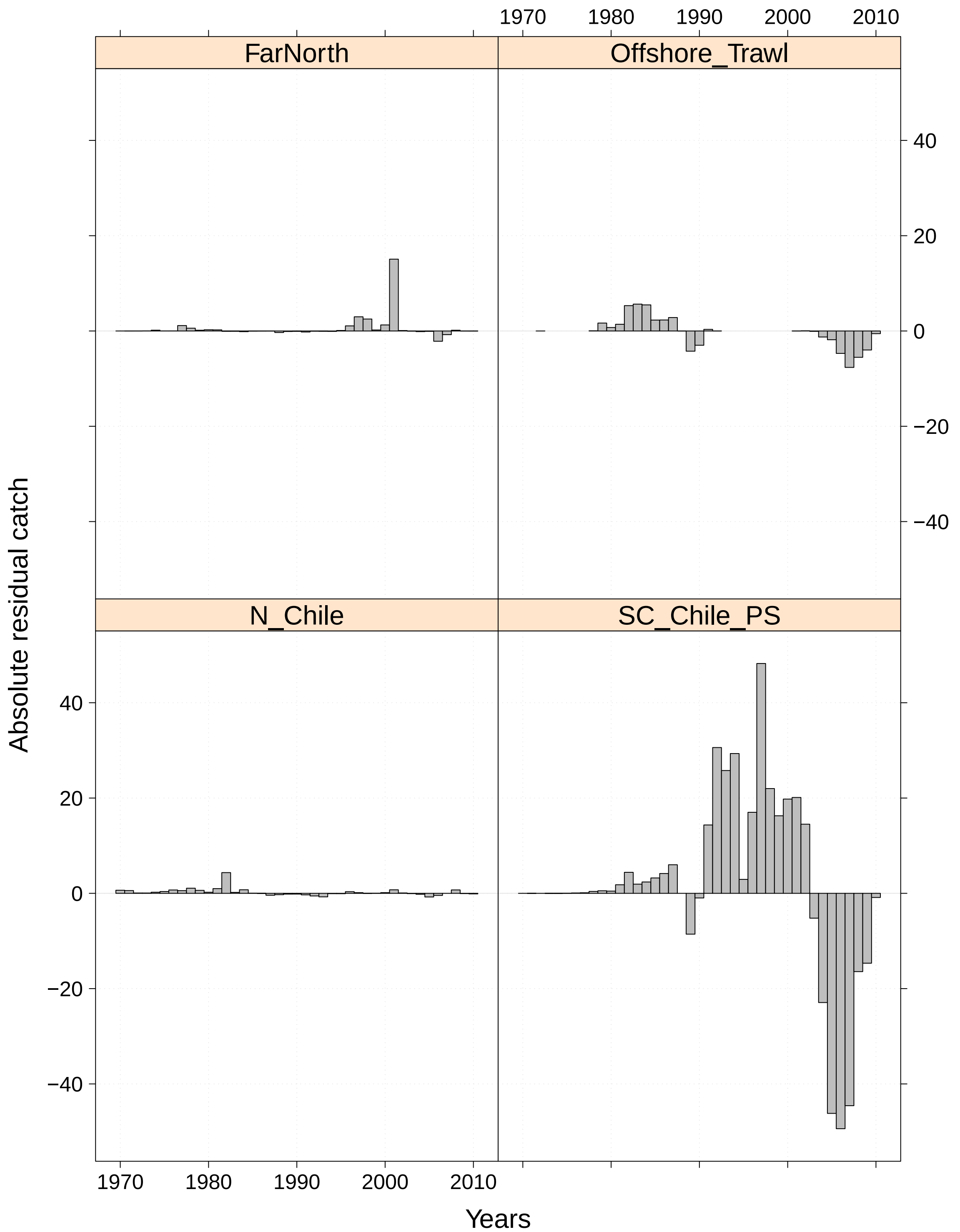
2000

2010

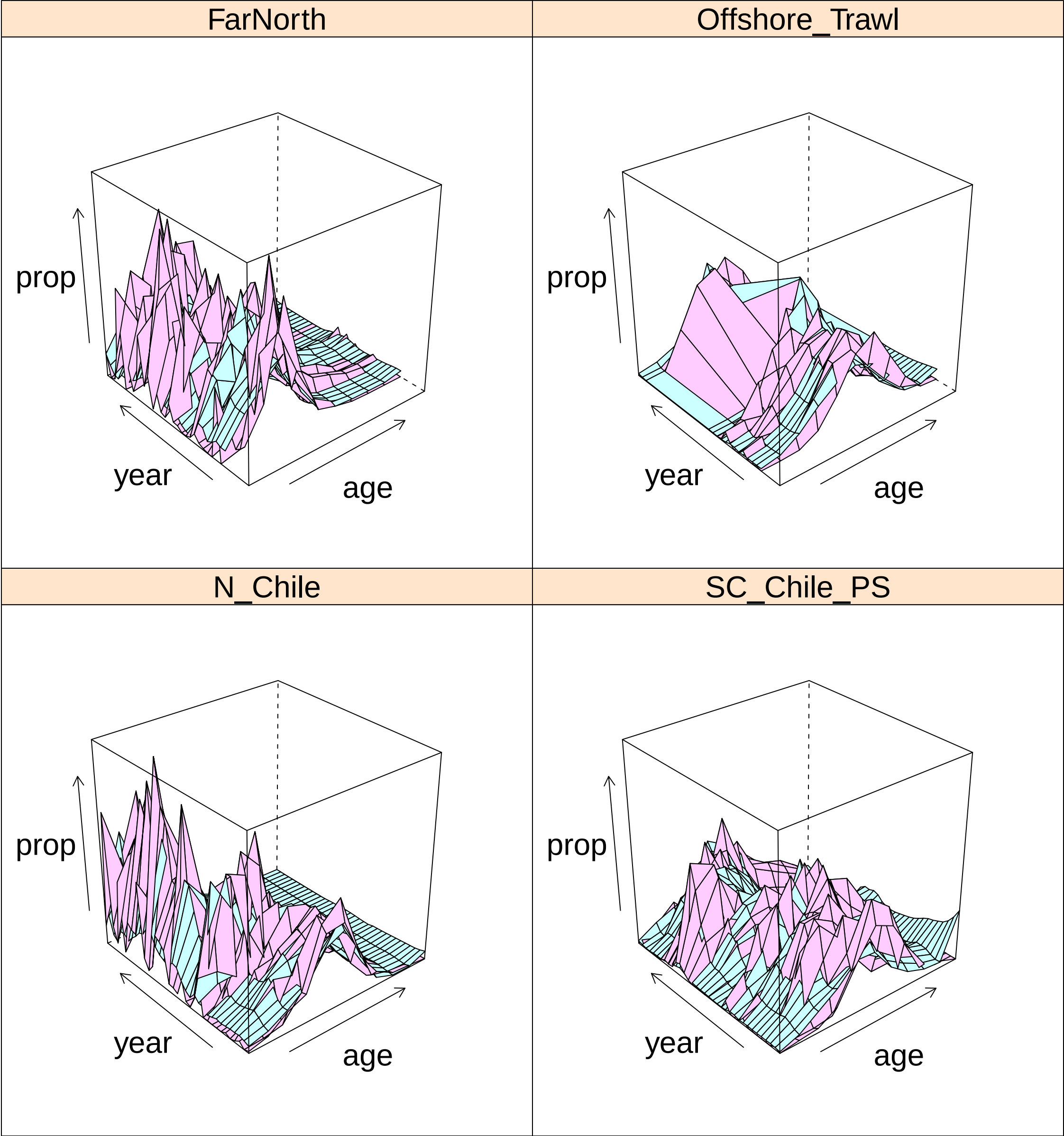
Years



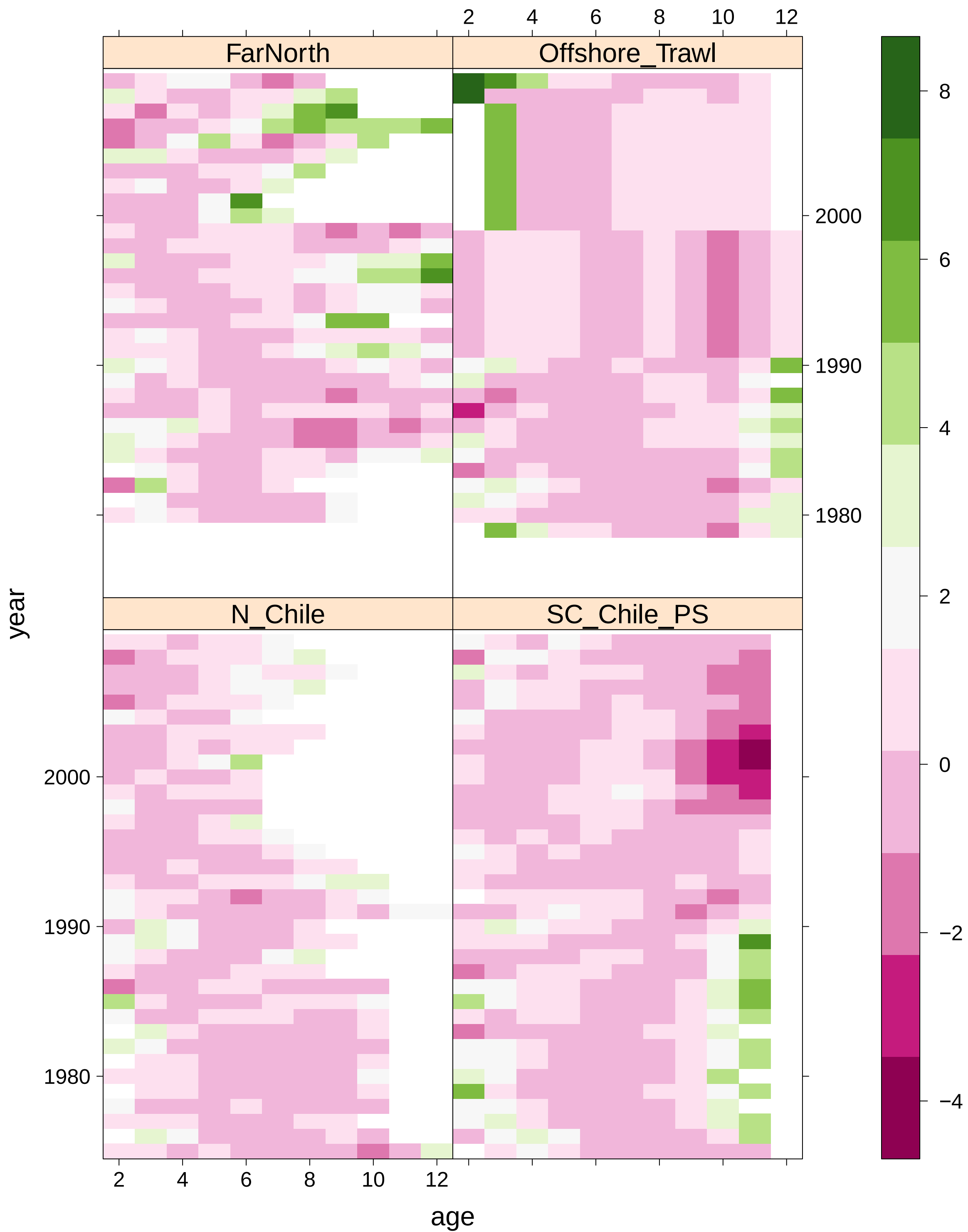
# Absolute residual catch by fleet



Proportions at age in the catch

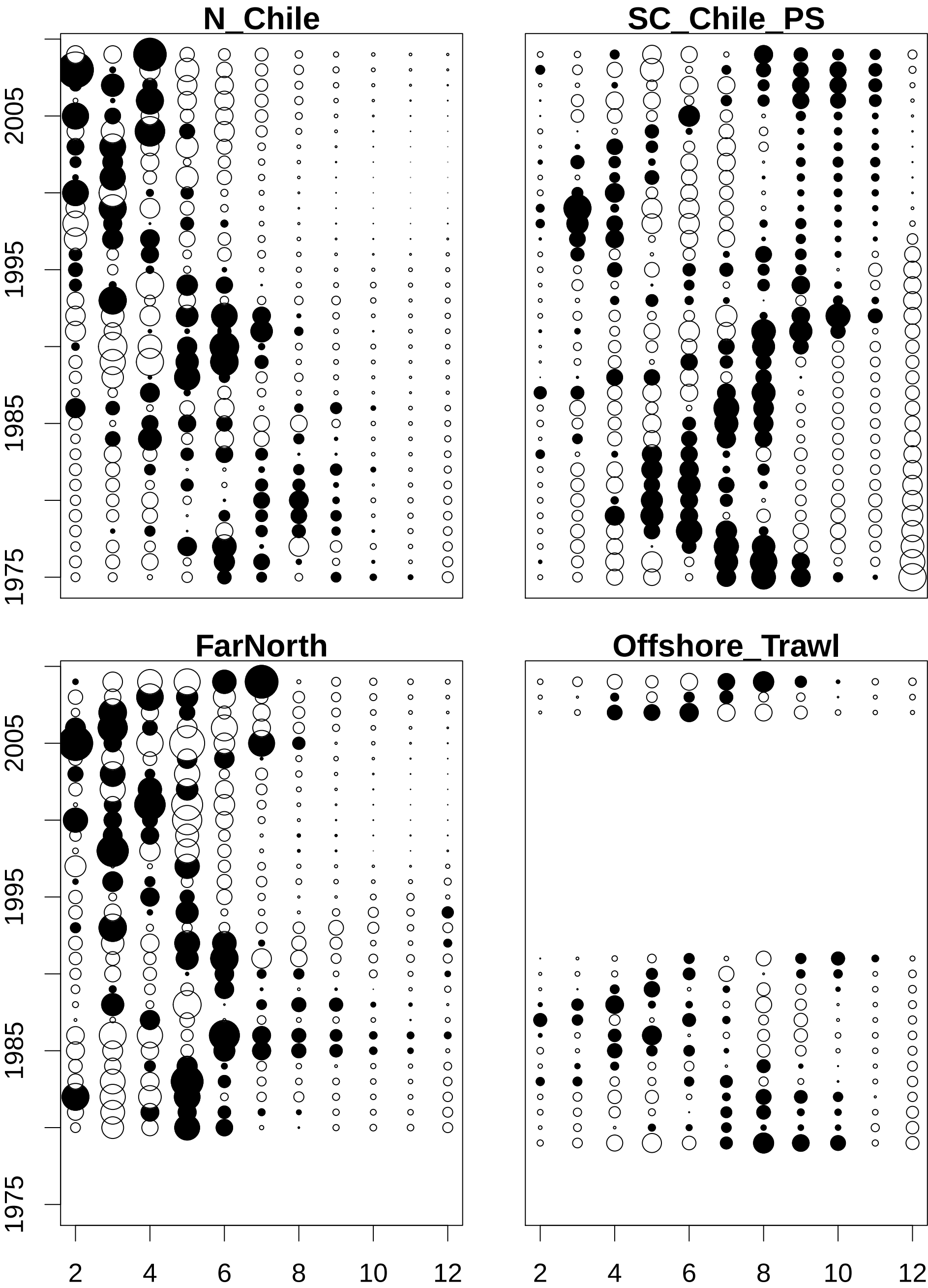


# Ratio modelled vs. observed prop. age in the catch



Residual catch at age by fleet

Years



Ages

# Age fits N\_Chile

Observed

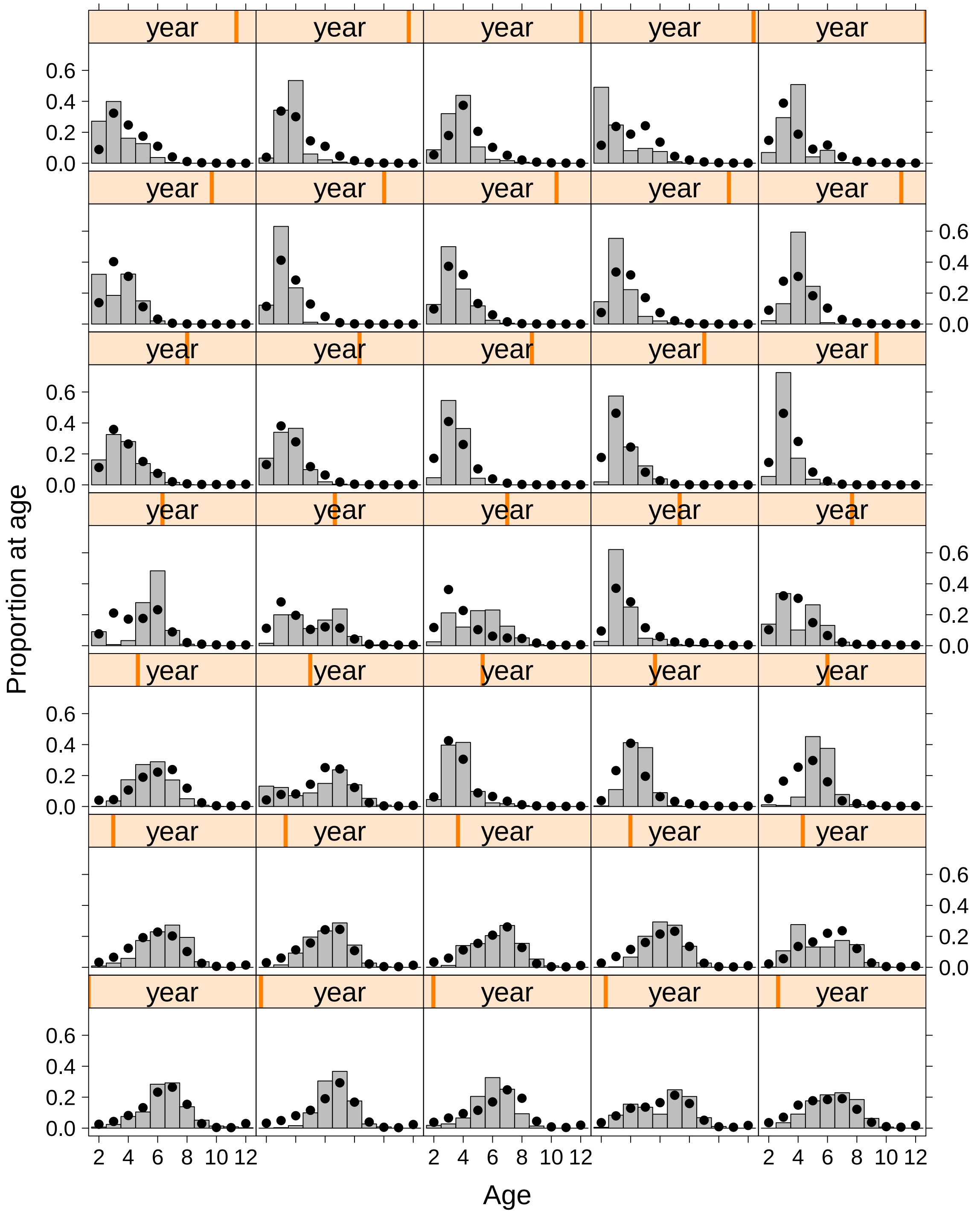


## Predicted



2 4 6 8 10 12

2 4 6 8 10 12



# Age fits SC\_Chile\_PS

Observed



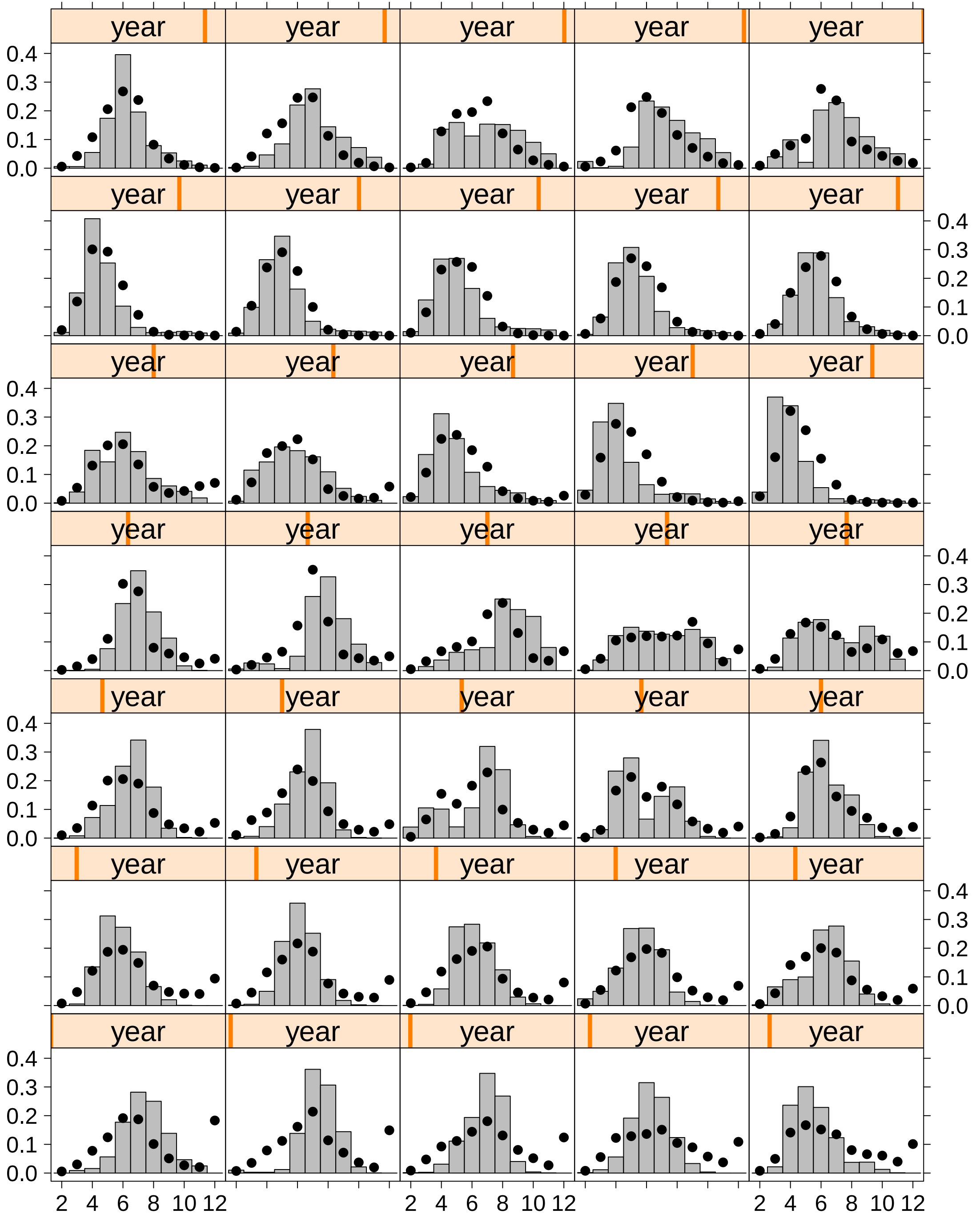
Predicted



2 4 6 8 10 12

2 4 6 8 10 12

Proportion at age



Age

# Age fits FarNorth

Observed



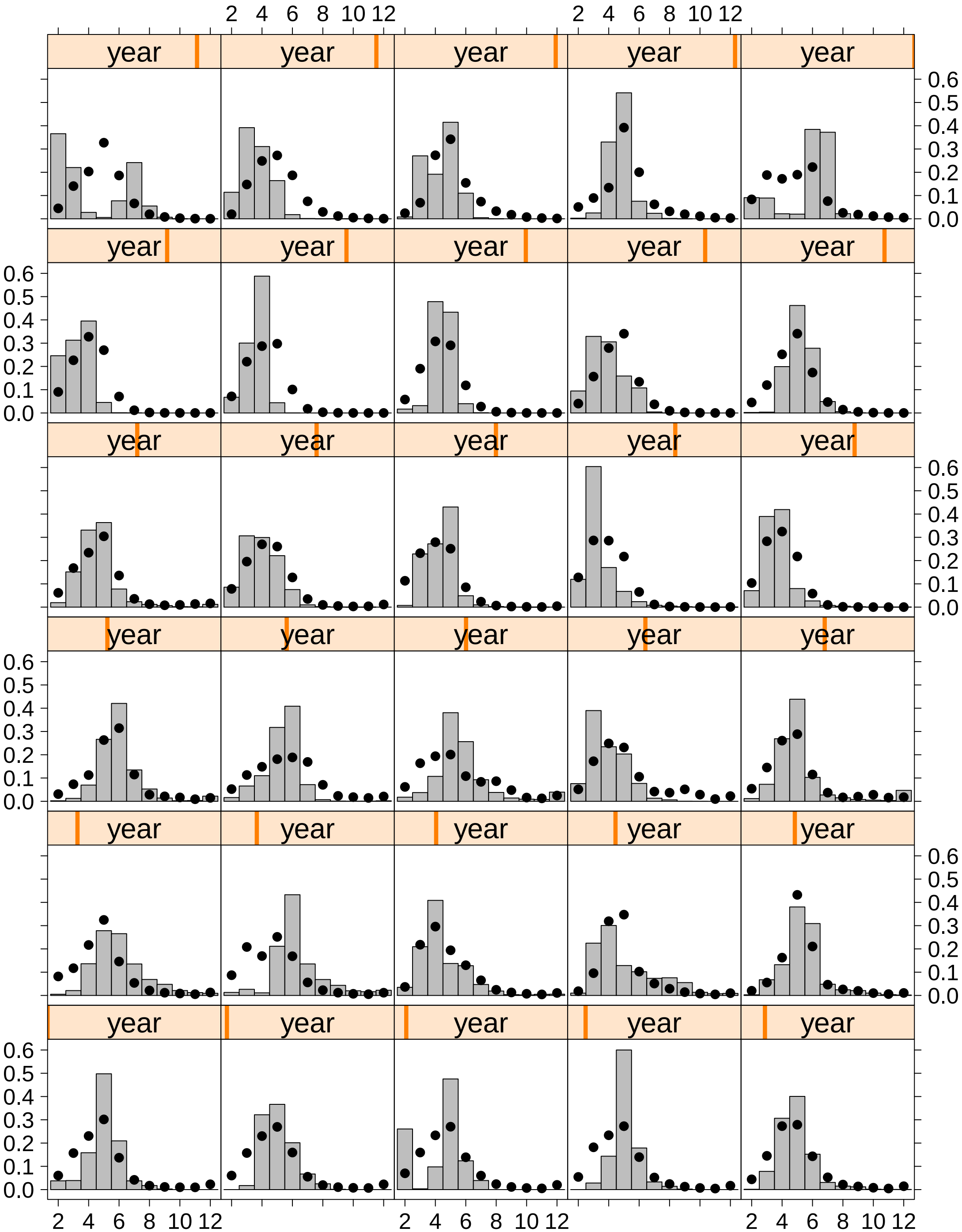
Predicted



2 4 6 8 10 12

2 4 6 8 10 12

Proportion at age

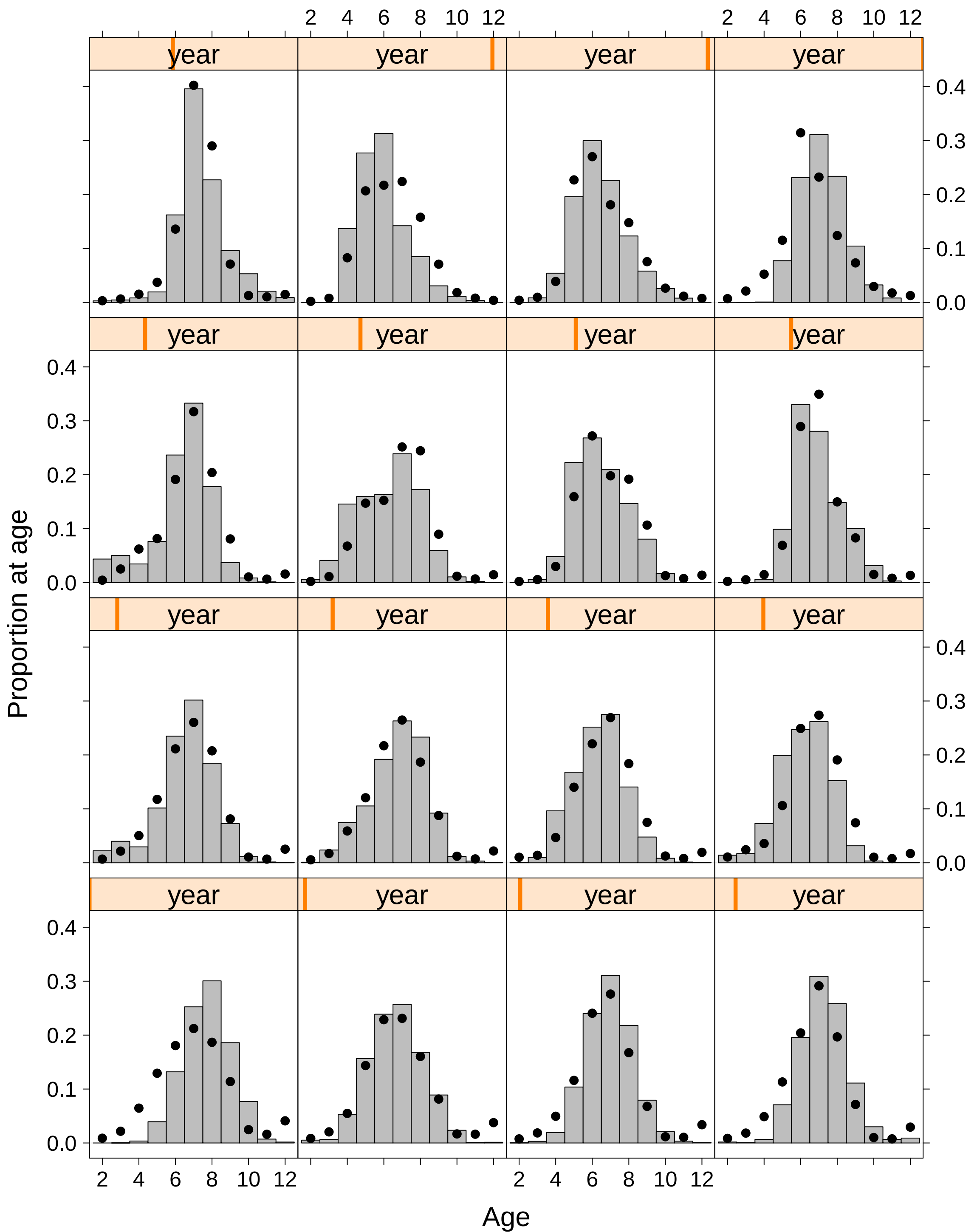


# Age fits Offshore\_Trawl

Observed



Predicted

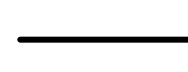


# Predicted and observed catches by fleet

Observed



Predicted



1970

1980

1990

2000

2010

Offshore\_Trawl

SC\_Chile\_PS

Tonnes

FarNorth

N\_Chile

4000

3000

2000

1000

0

1970

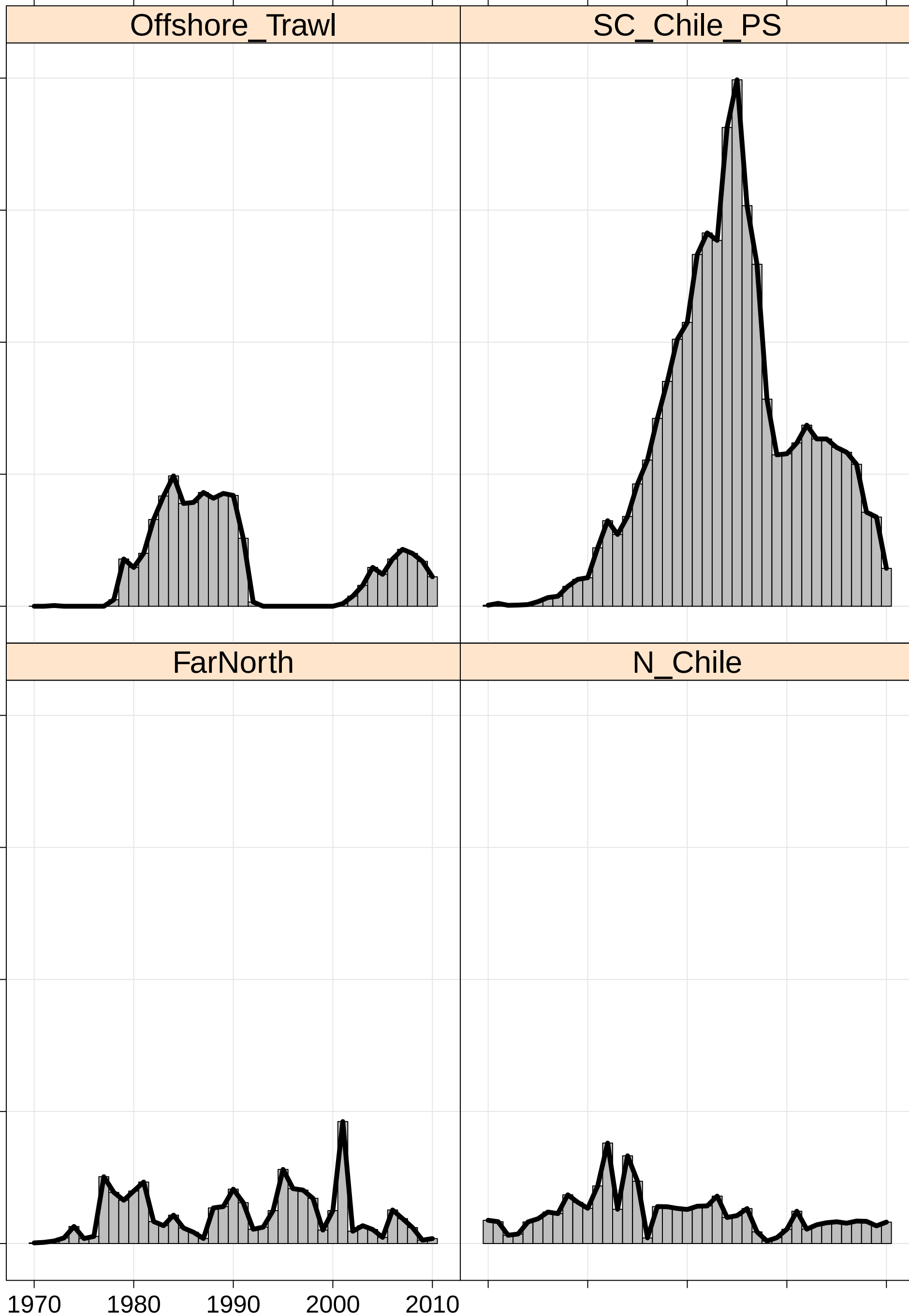
1980

1990

2000

2010

Years



# Predicted and observed indices

Observed



Predicted



1970 1980 1990 2000 2010

Chinese\_CPUE

EU\_CPUE

USSR\_CPUE

1.0  
0.8  
0.6  
0.4  
0.2  
0.0

DEPM

Peru\_Acoustic

Peru\_CPUE

Index value

1.0  
0.8  
0.6  
0.4  
0.2  
0.0

Chile\_AcoustCS

Chile\_AcoustN

Chile\_CPUE

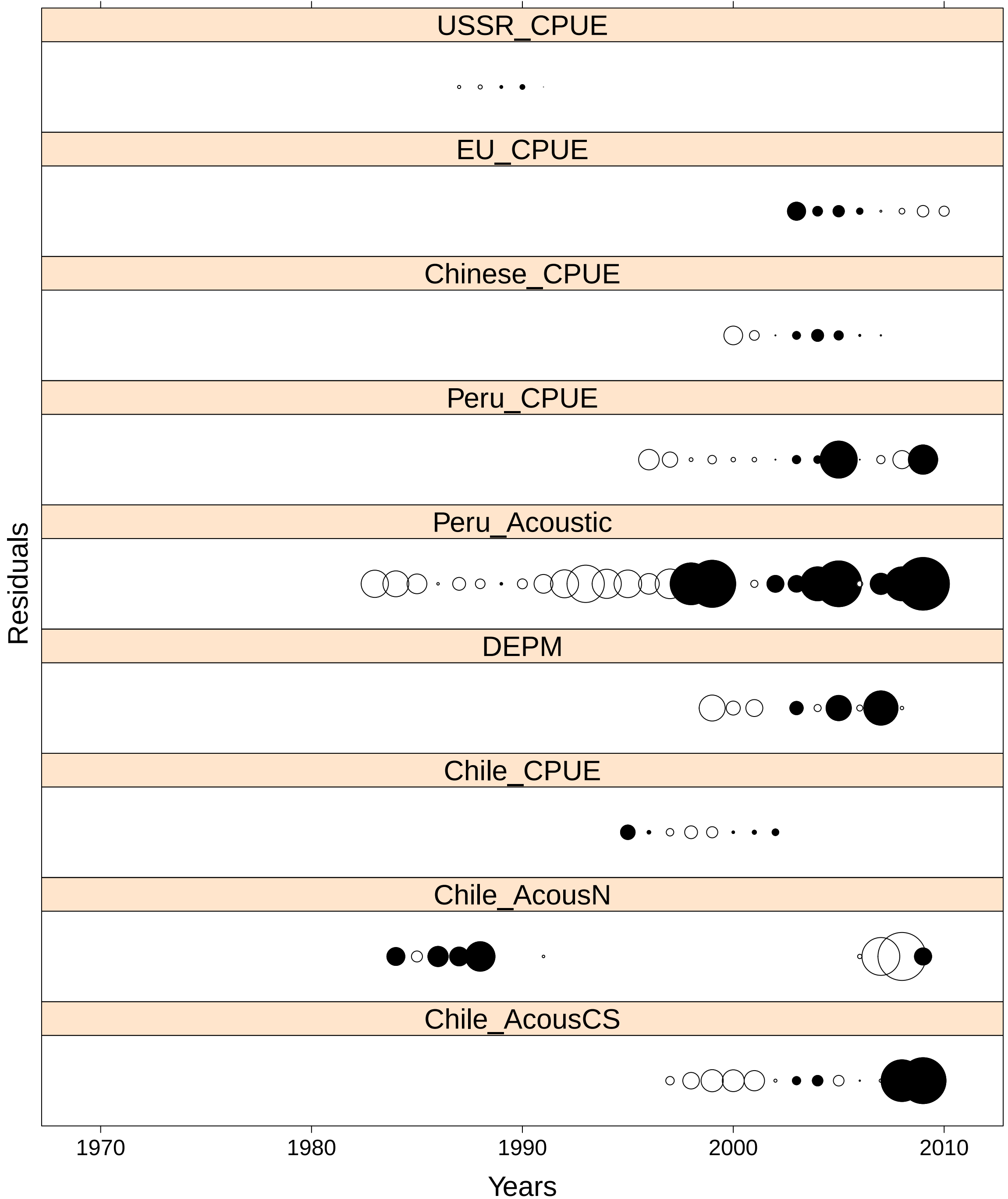
1.0  
0.8  
0.6  
0.4  
0.2  
0.0

1970 1980 1990 2000 2010

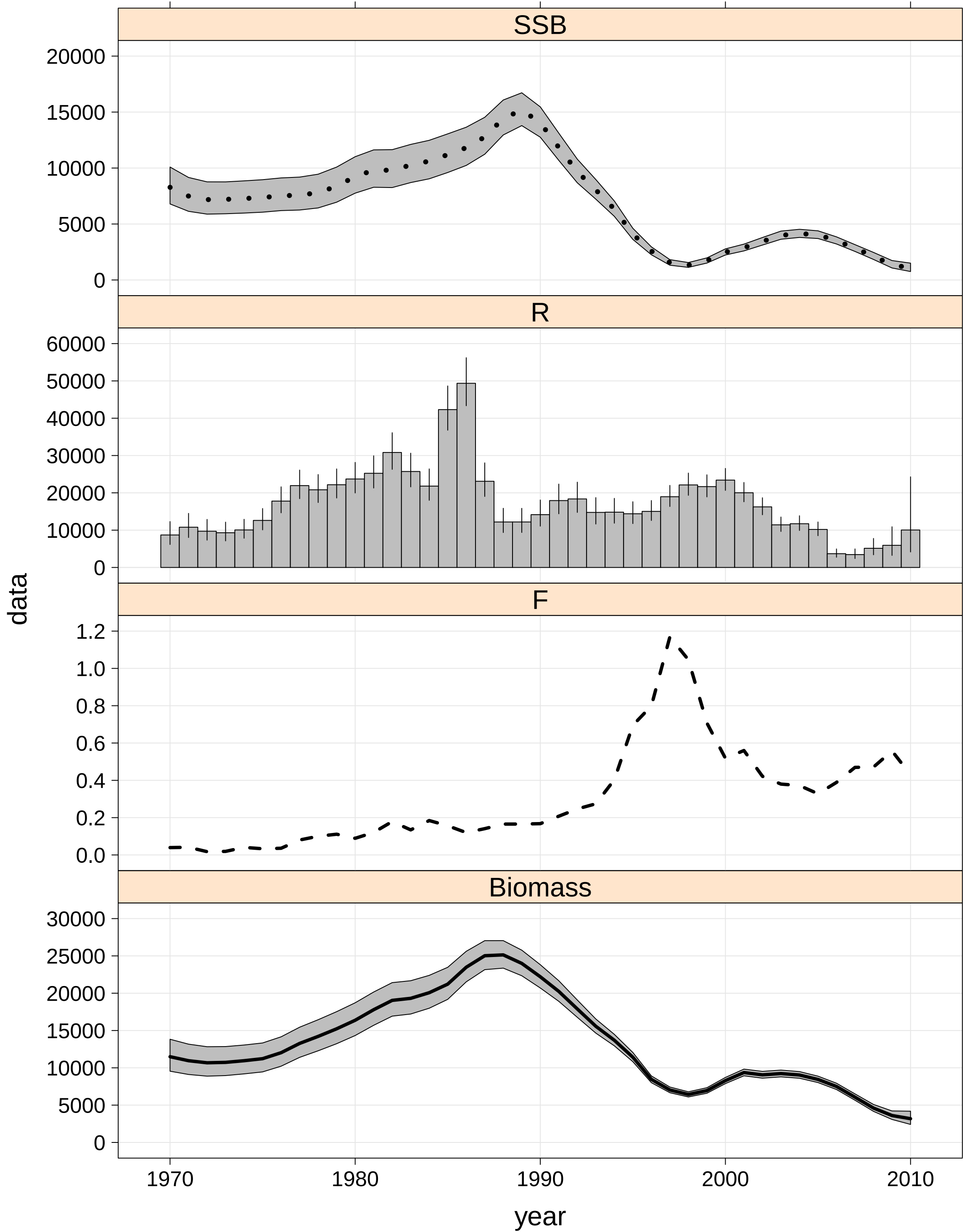
1970 1980 1990 2000 2010

Years

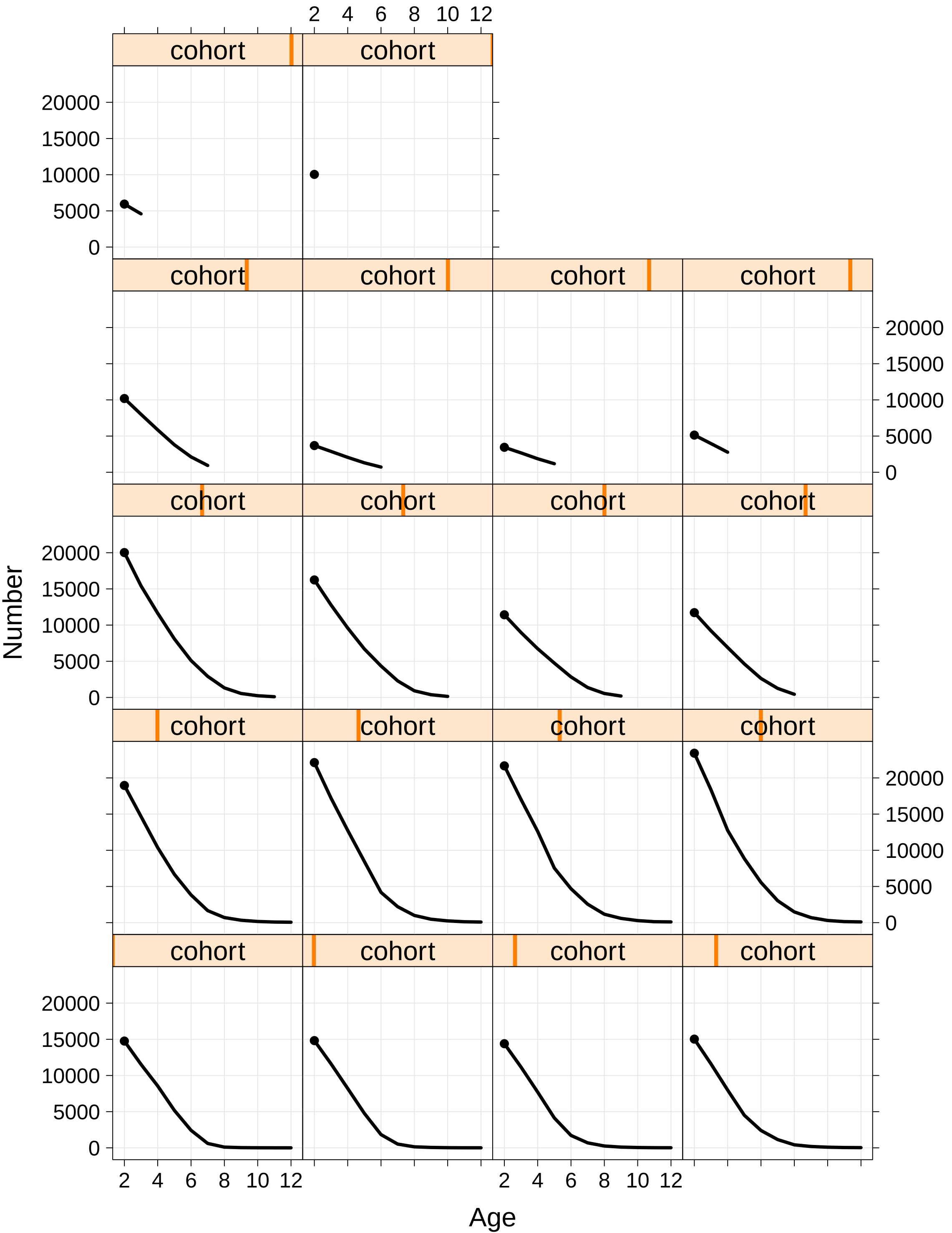
|       |                                                                                   |      |                                                                                     |
|-------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|
| -1.77 |  | 0.46 |  |
| -1.03 |                                                                                   | 1.2  |                                                                                     |
| -0.29 |                                                                                   | 1.94 |                                                                                     |



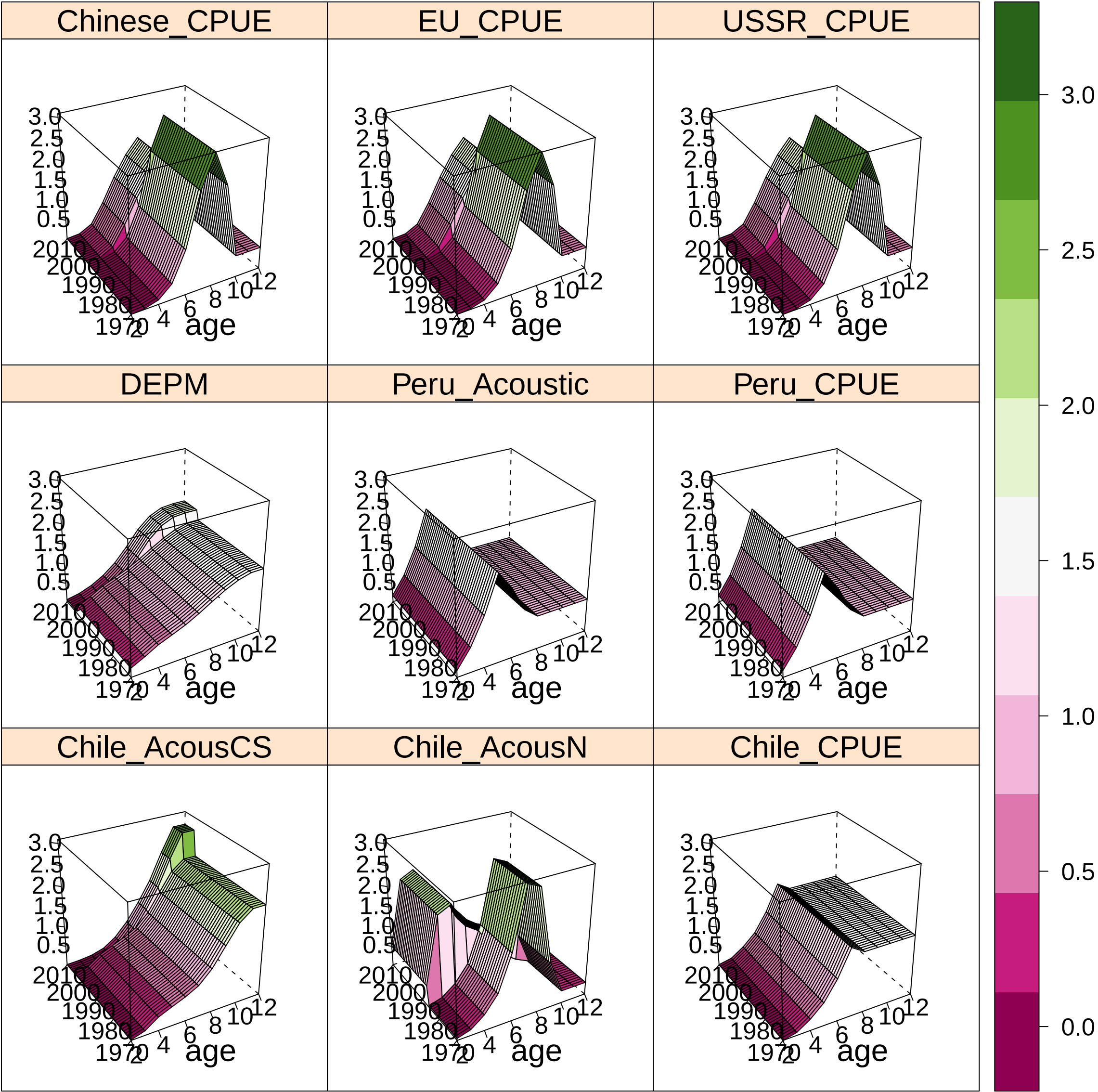
# Summary sheet



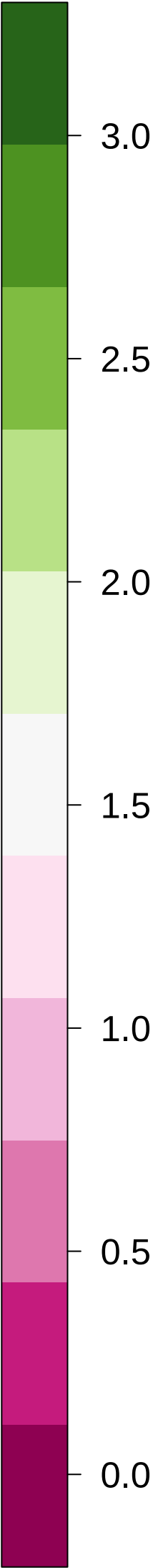
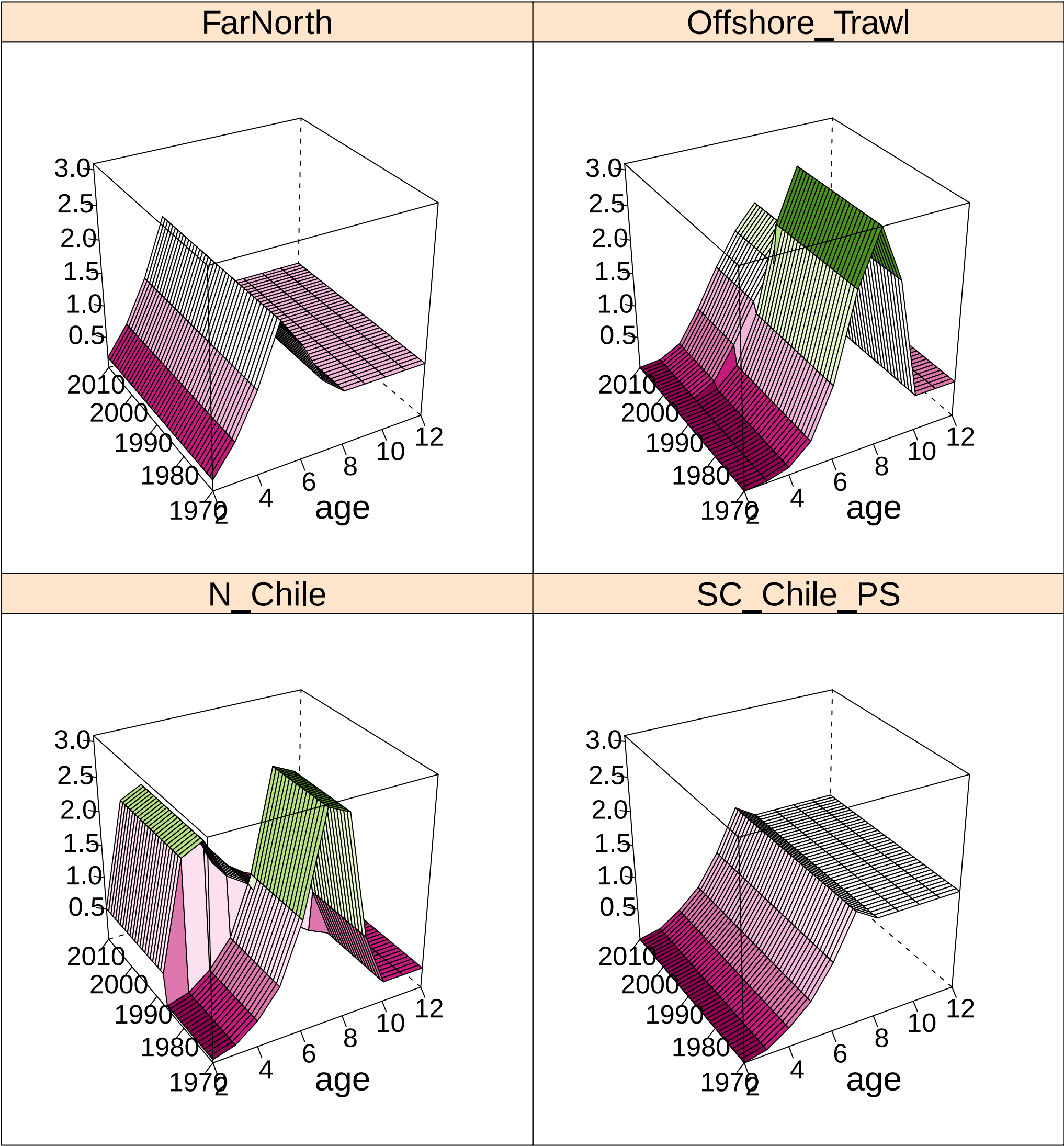
Cohort at age in year (1991 – 2010)



Selectivity at age in surveys

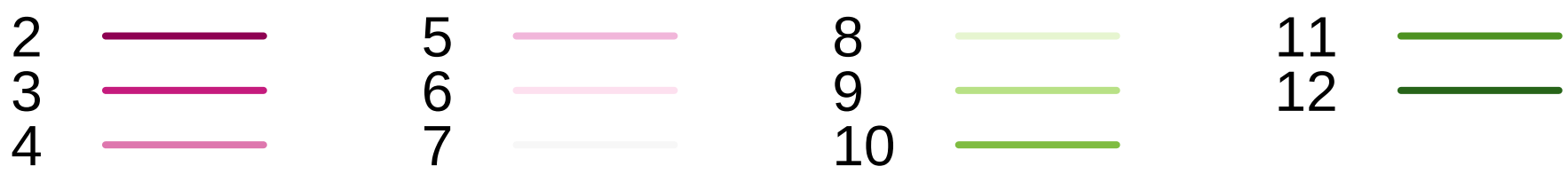


Selectivity at age in fleets



# Weight at age in the fishery

## Ages



1970 1980 1990 2000 2010

FarNorth

Offshore\_Trawl

Weight

N\_Chile

SC\_Chile\_PS

2.0  
1.5  
1.0  
0.5  
0.0

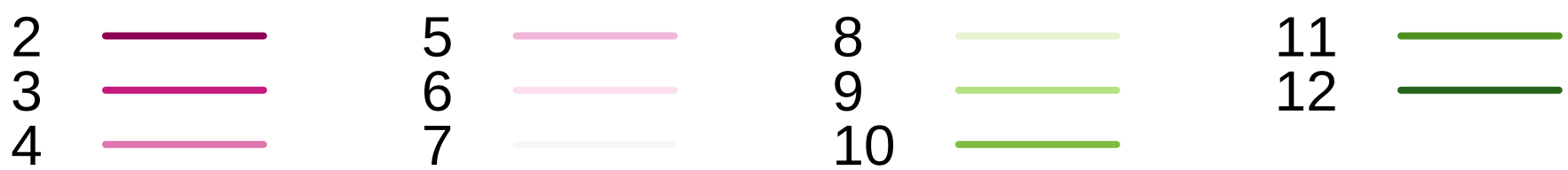
2.0  
1.5  
1.0  
0.5  
0.0

1970 1980 1990 2000 2010

Years

# Weight at age in the survey

Ages



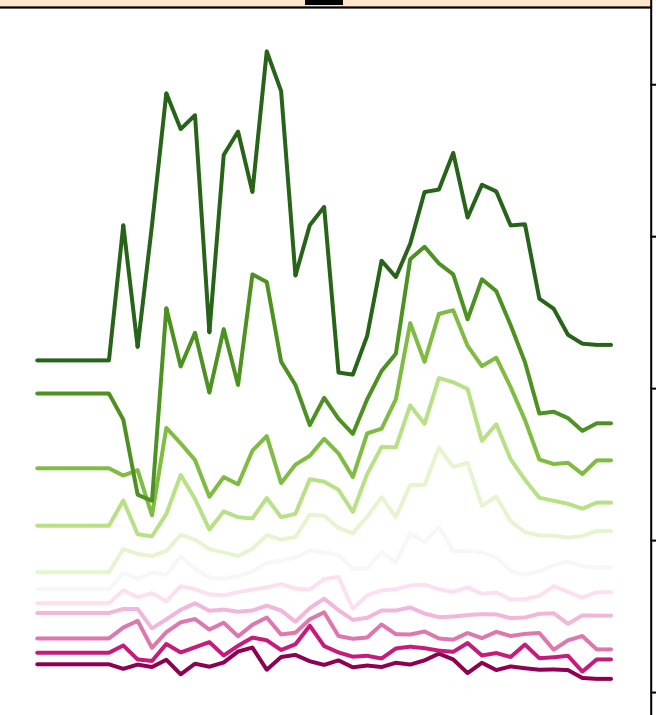
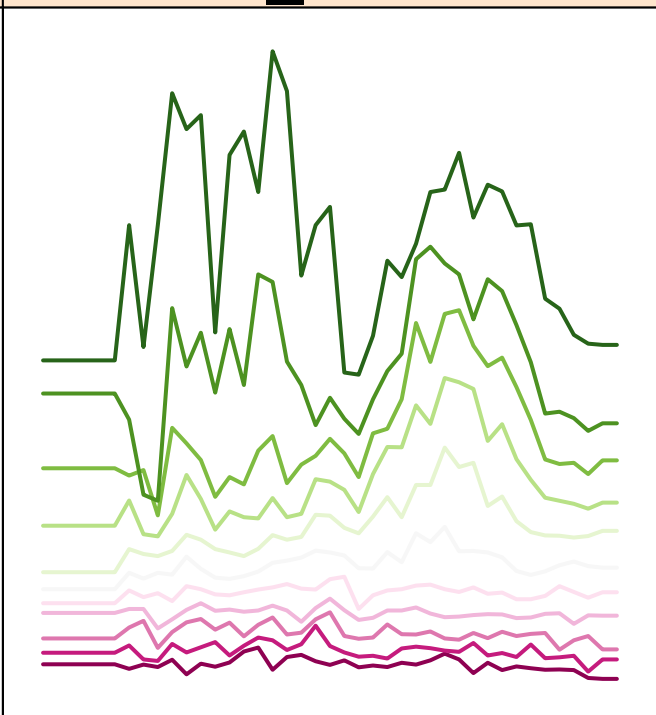
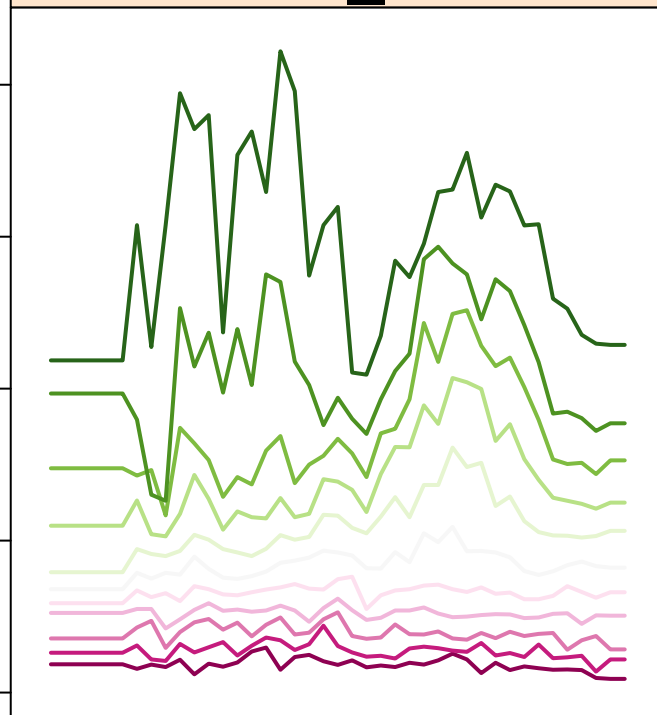
1970 1980 1990 2000 2010

Chinese\_CPUE

EU\_CPUE

USSR\_CPUE

2.0  
1.5  
1.0  
0.5  
0.0



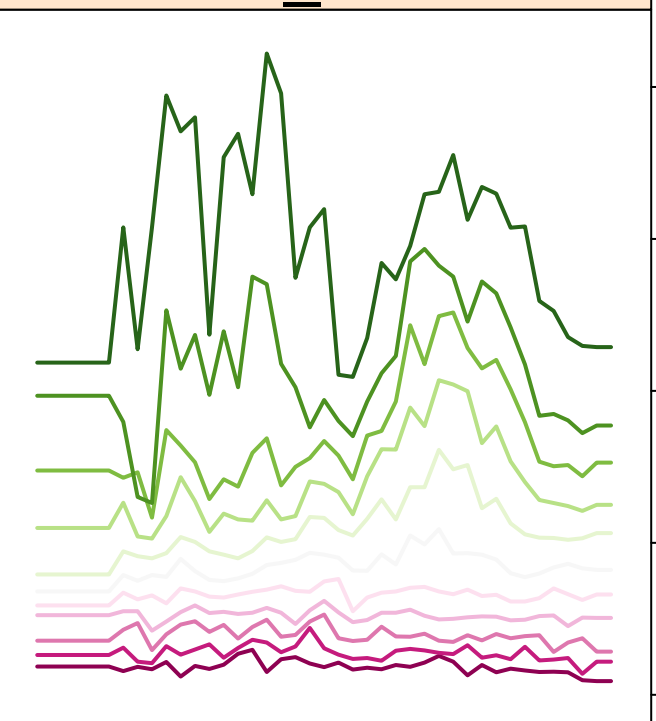
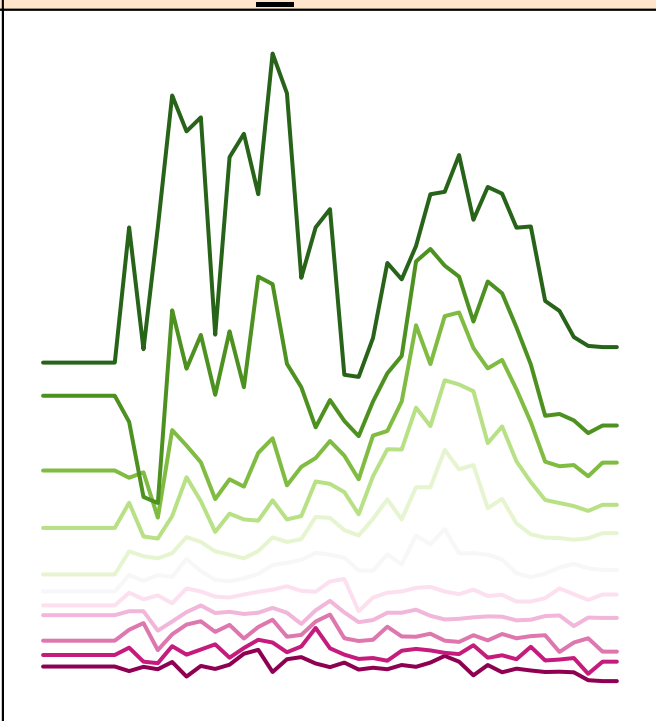
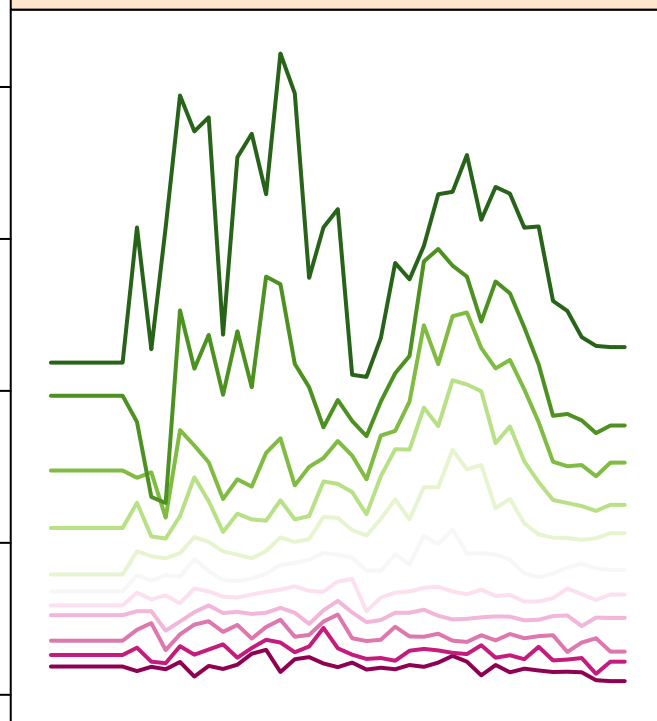
DEPM

Peru\_Acoustic

Peru\_CPUE

Weight

2.0  
1.5  
1.0  
0.5  
0.0

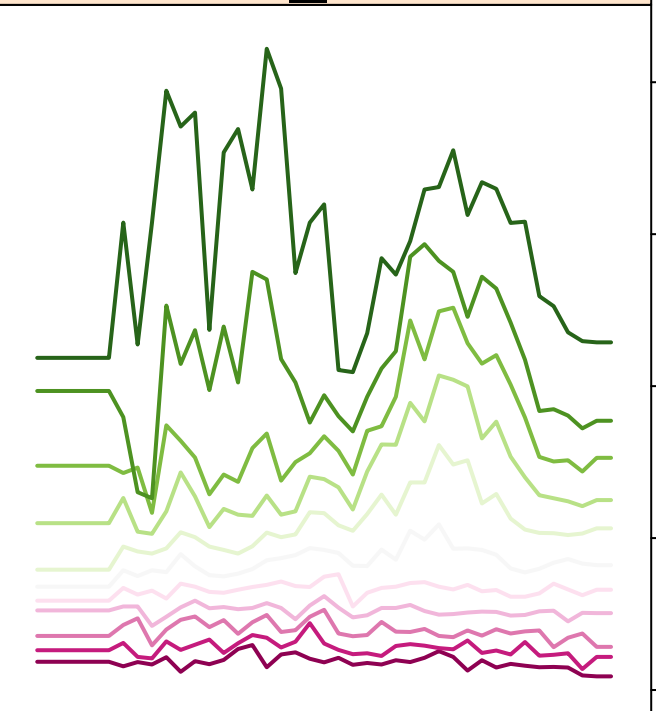
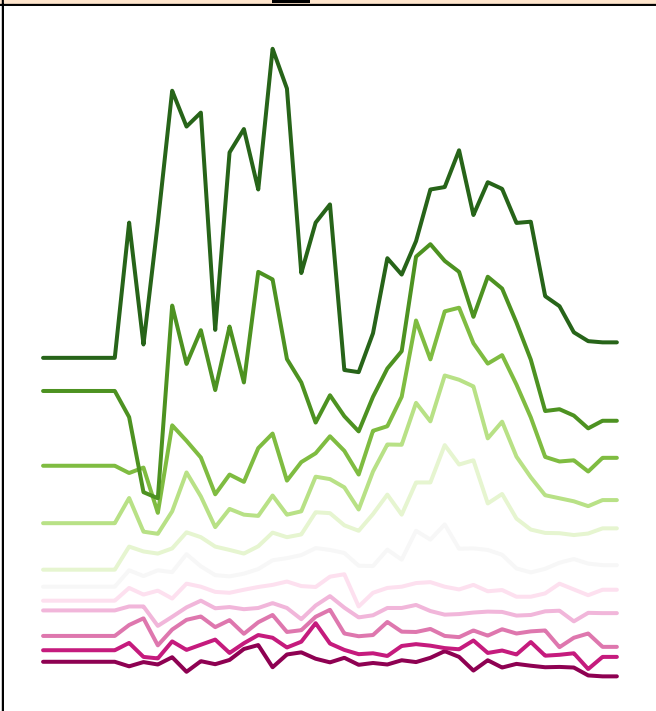
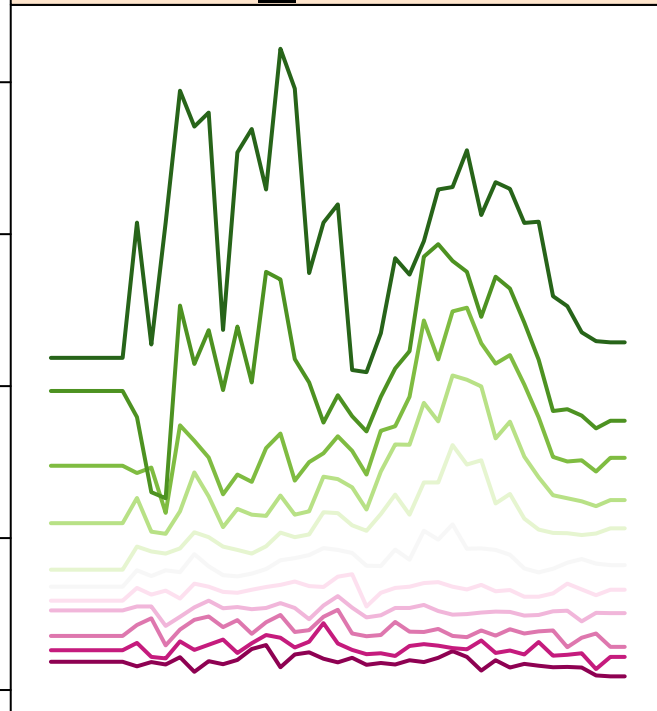


Chile\_AcoustCS

Chile\_AcoustN

Chile\_CPUE

2.0  
1.5  
1.0  
0.5  
0.0



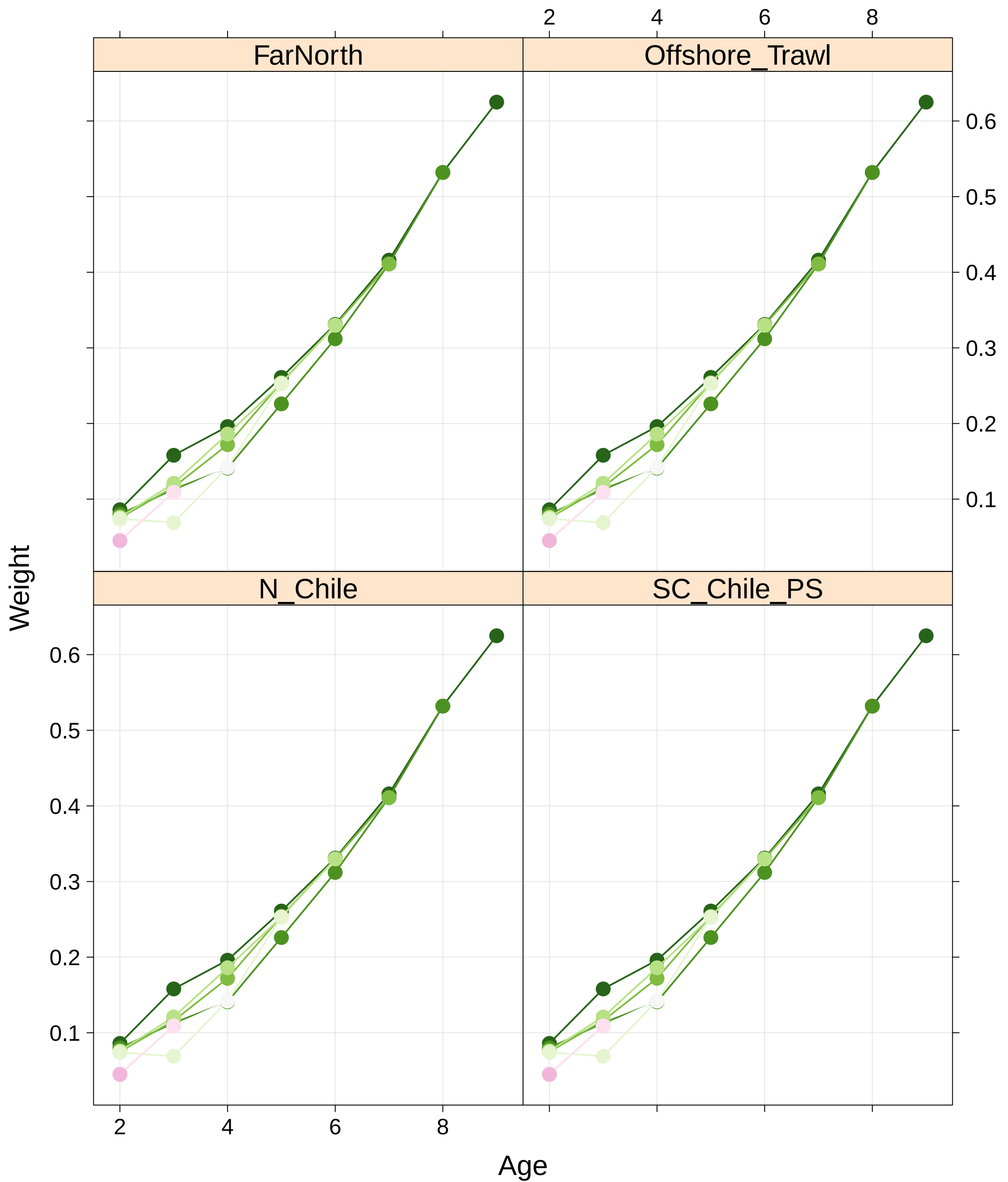
1970 1980 1990 2000 2010

1970 1980 1990 2000 2010

Years

# Weight at age by cohort in the fleet

## Cohort



# Weight at age by cohort in the survey

Cohort

