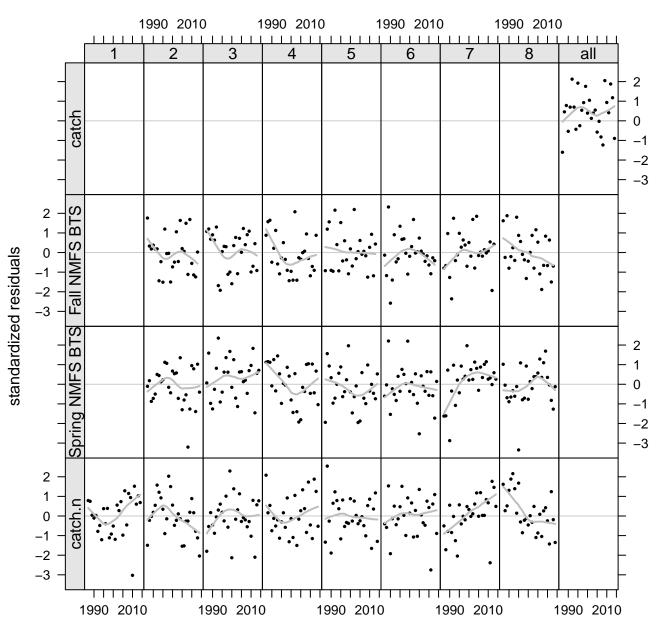
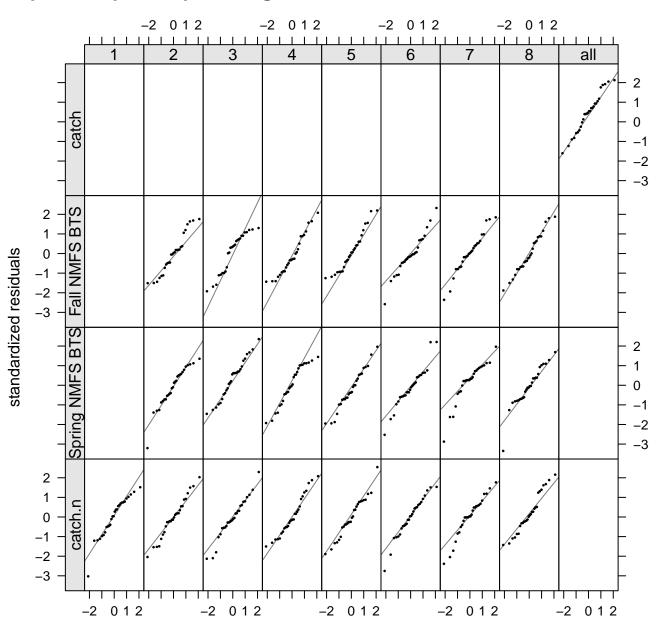
## log residuals of catch and abundance indices by age



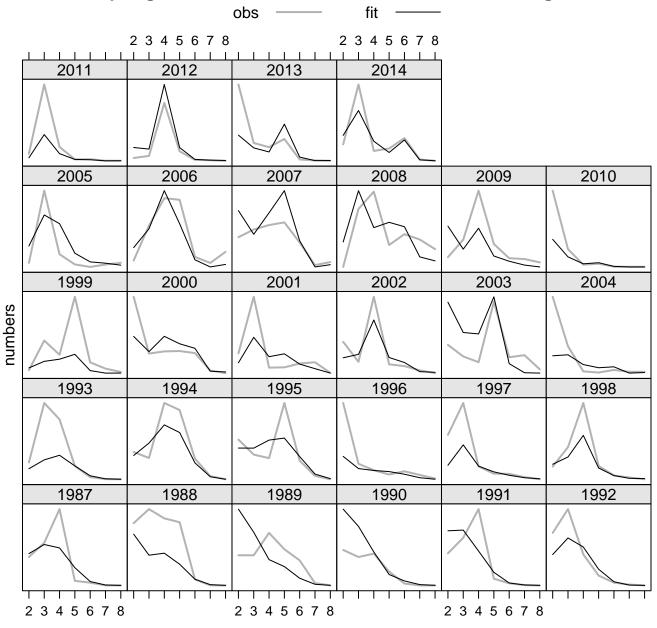
## quantile-quantile plot of log residuals of catch and abundance indices



#### fitted and observed catch-at-age obs fit numbers

age

#### Spring NMFS BTS: fitted and observed index-at-age



#### Fall NMFS BTS: fitted and observed index-at-age obs fit 2 3 4 5 6 7 8

2 3 4 5 6 7 8

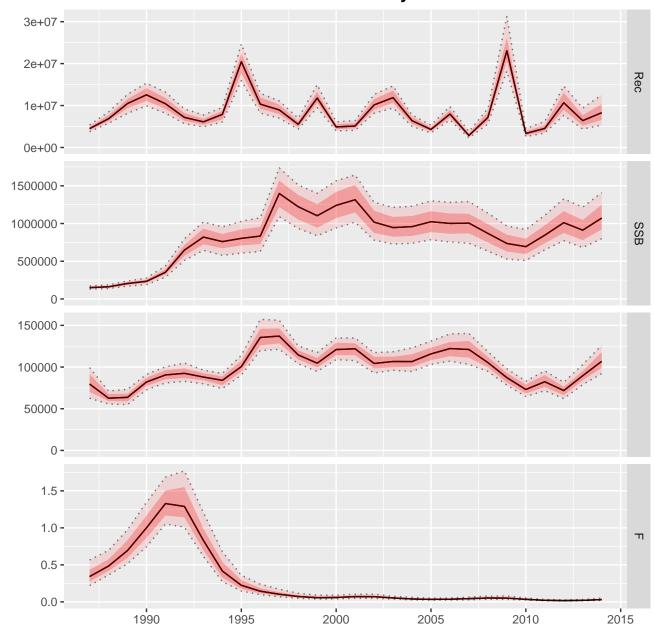
2 3 4 5 6 7 8

numbers

2 3 4 5 6 7 8

Retrospective 3e+07 -2e+07 -1e+07 **-**0e+00 -1500000 -SSB 1000000 -500000 -0 -4e+05 -3e+05 -2e+05 -1e+05 -0e+00 -1.5 -Harvest 1.0 -0.5 -0.0 -2000 1990 2010

Stock summary



# **Abundance indices predictions**

