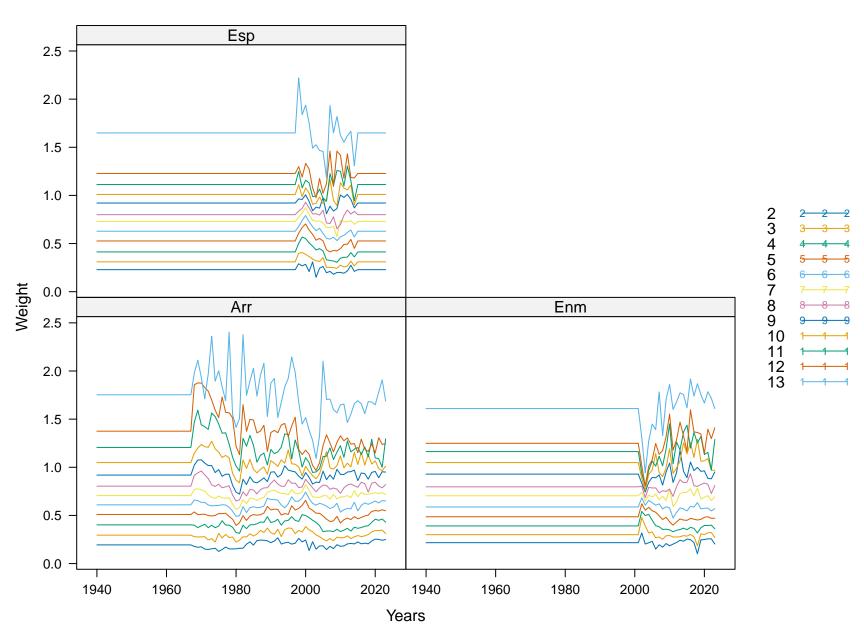
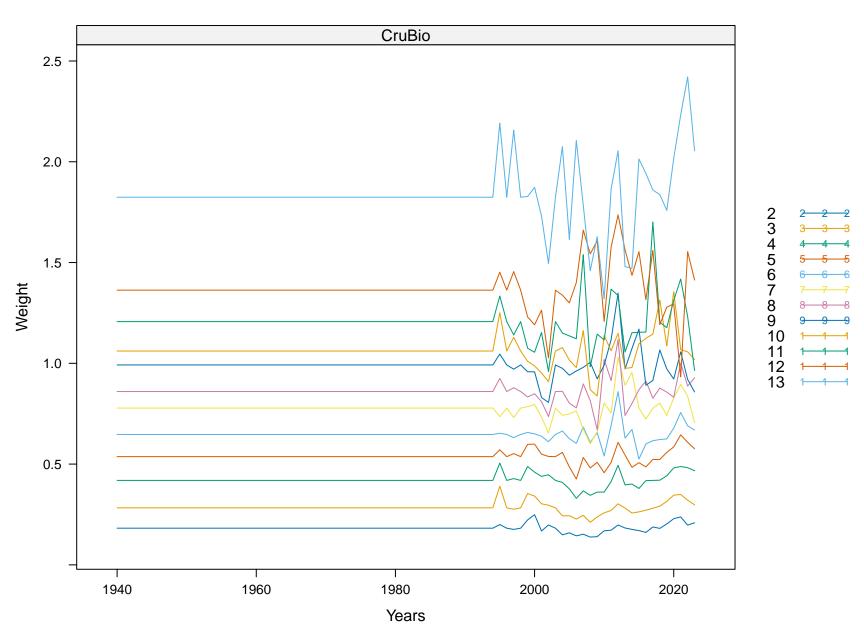
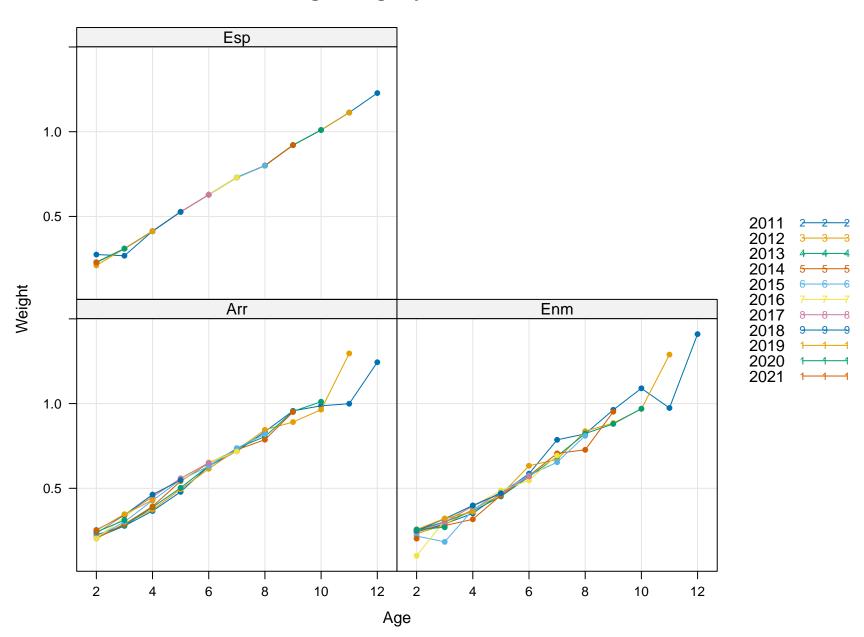
Weight at age in the fishery



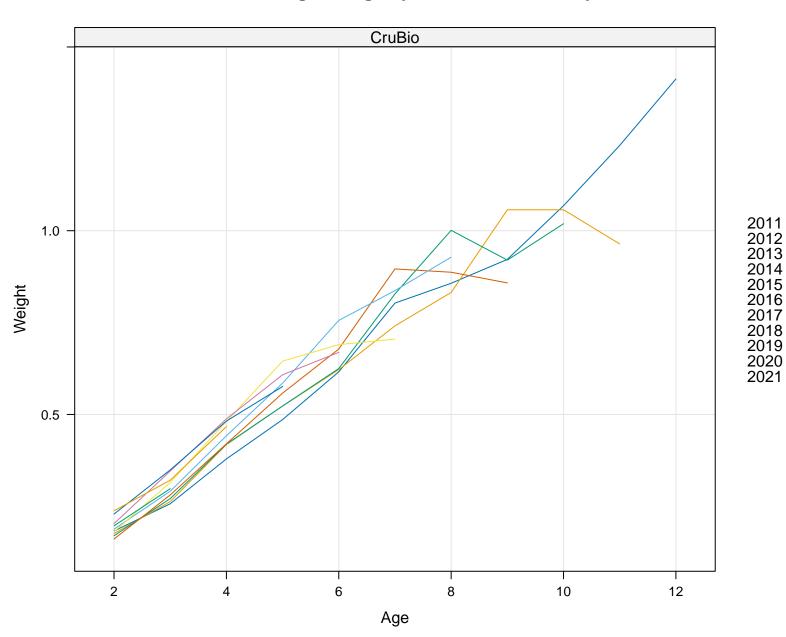
Weight at age in the survey



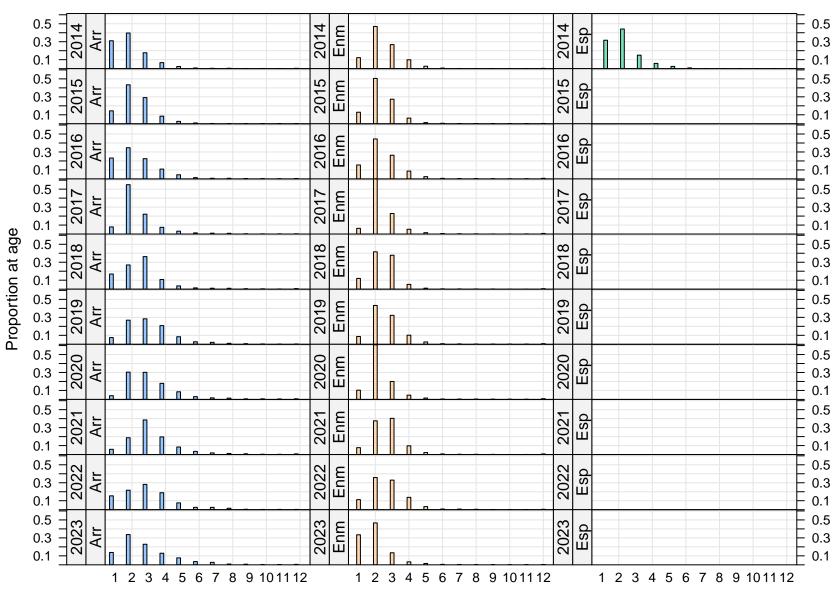
Weight at age by cohort in the fleet



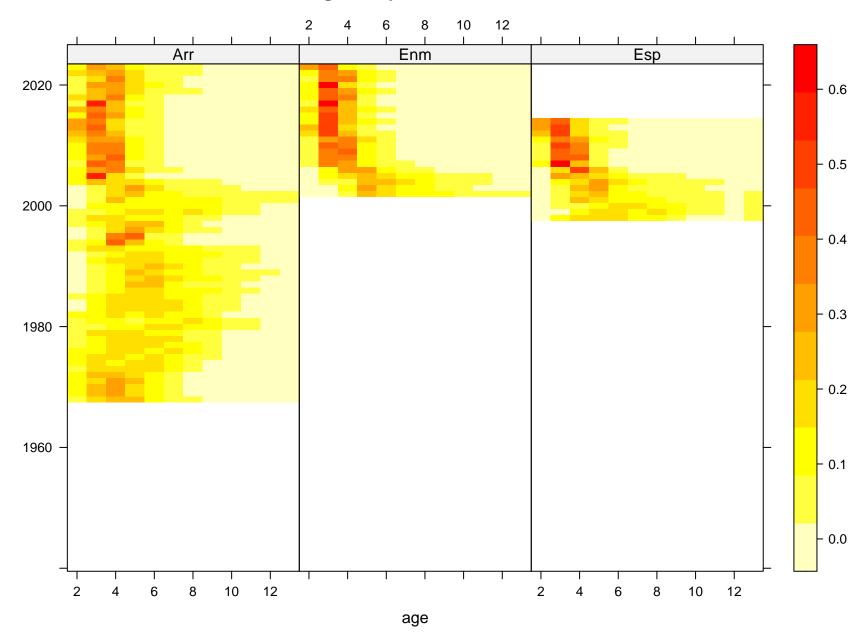
Weight at age by cohort in the survey



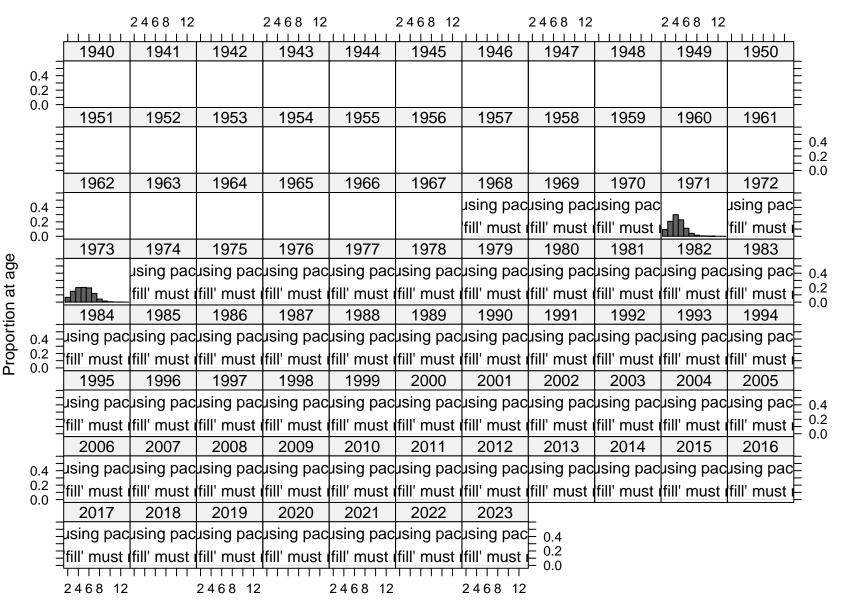
Age composition in fleets



Age composition in fleets

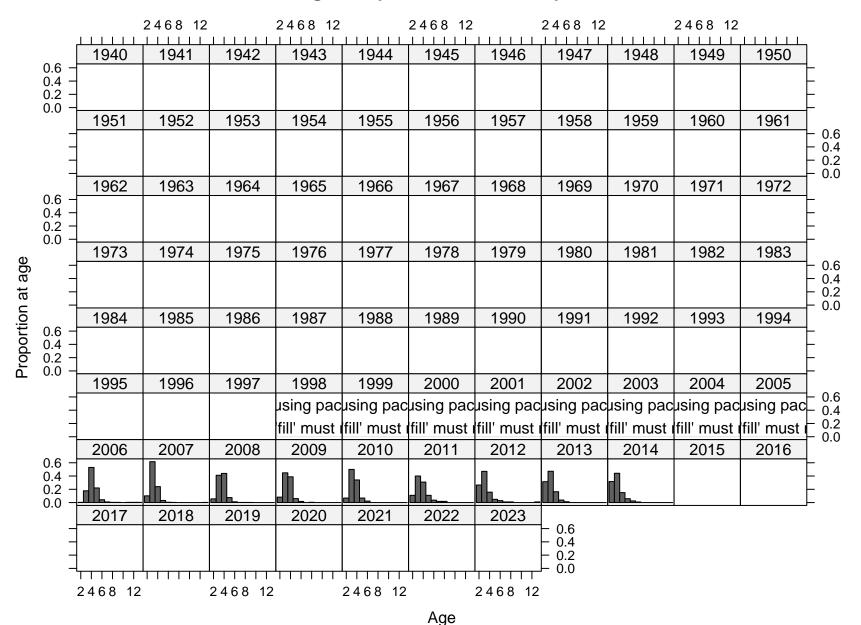


Age composition in fleets Arr

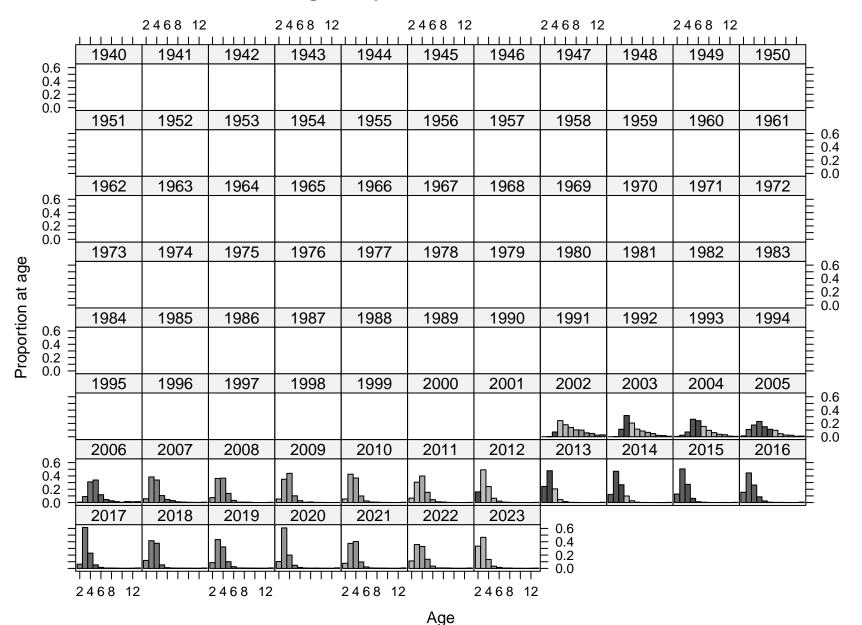


Age

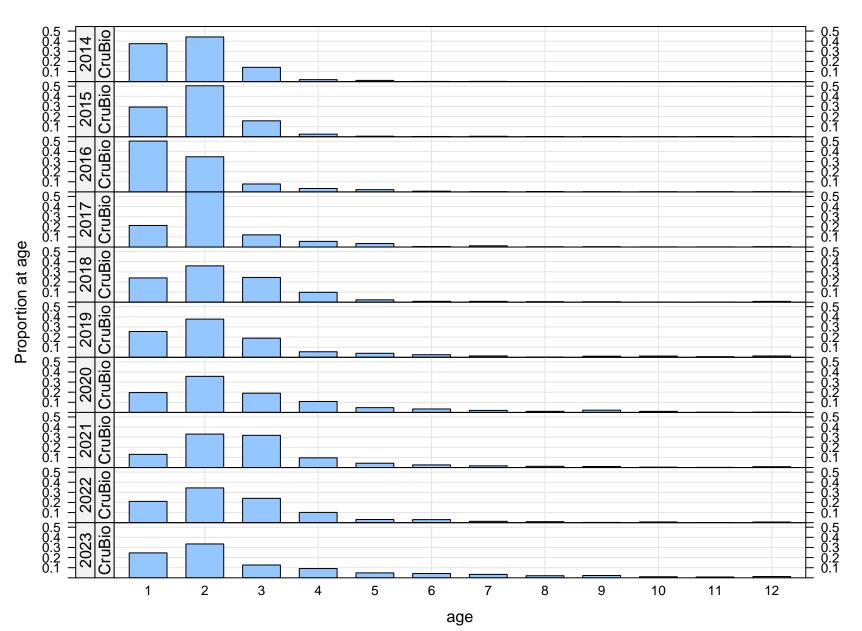
Age composition in fleets Esp



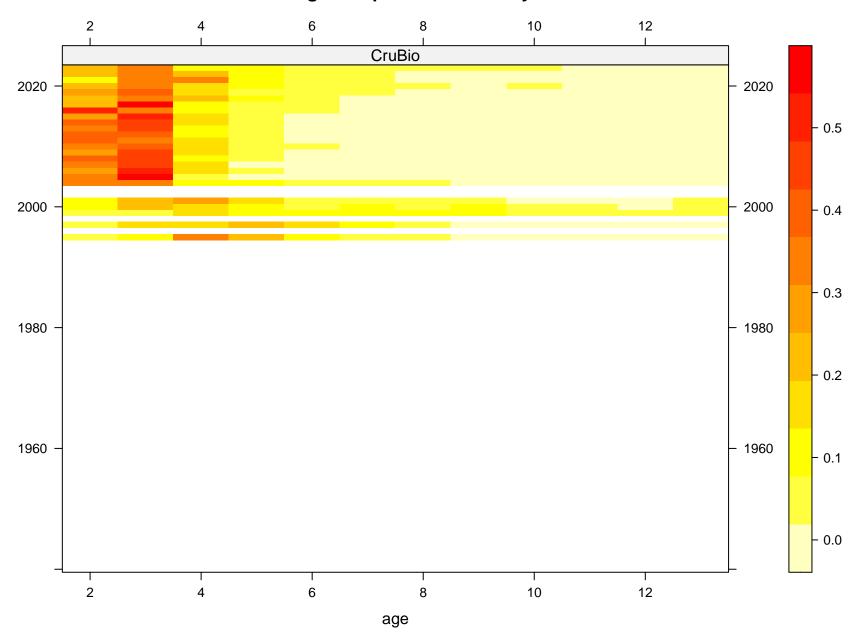
Age composition in fleets Enm



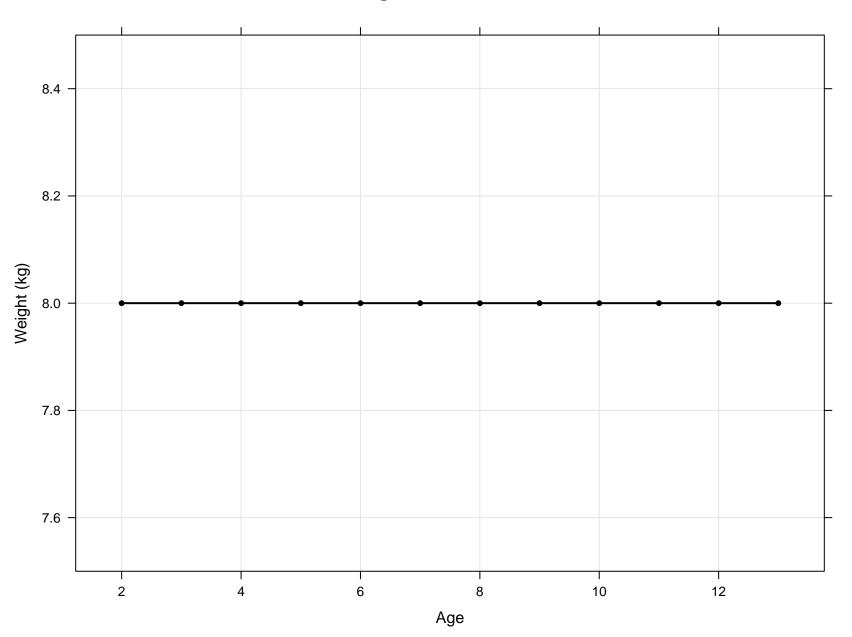
Age composition in surveys



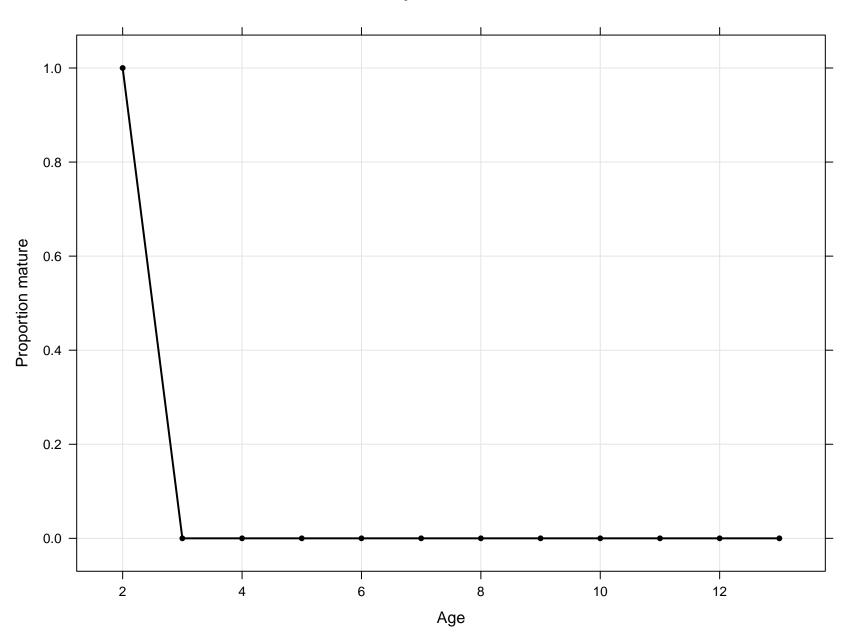
Age composition in surveys



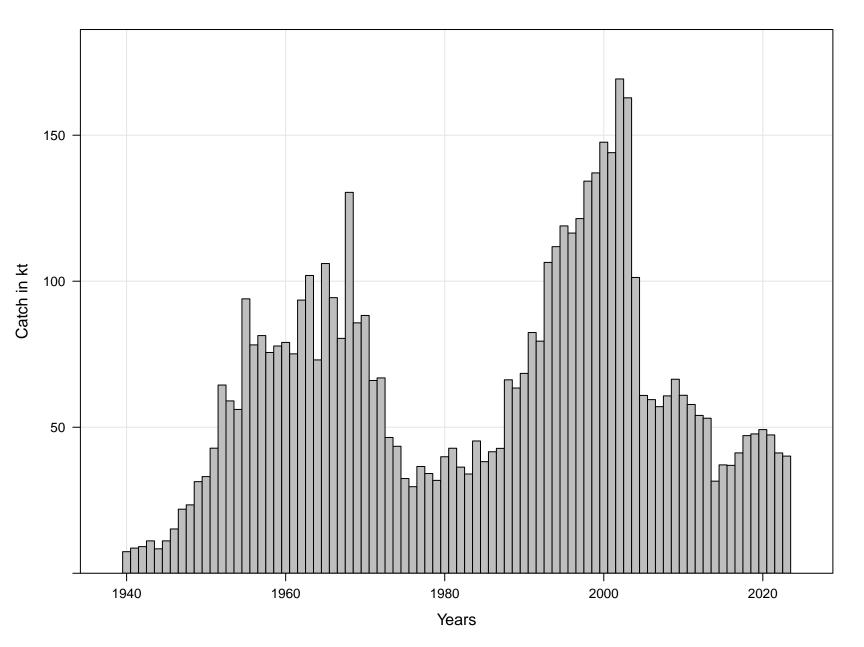
Weight in the stock



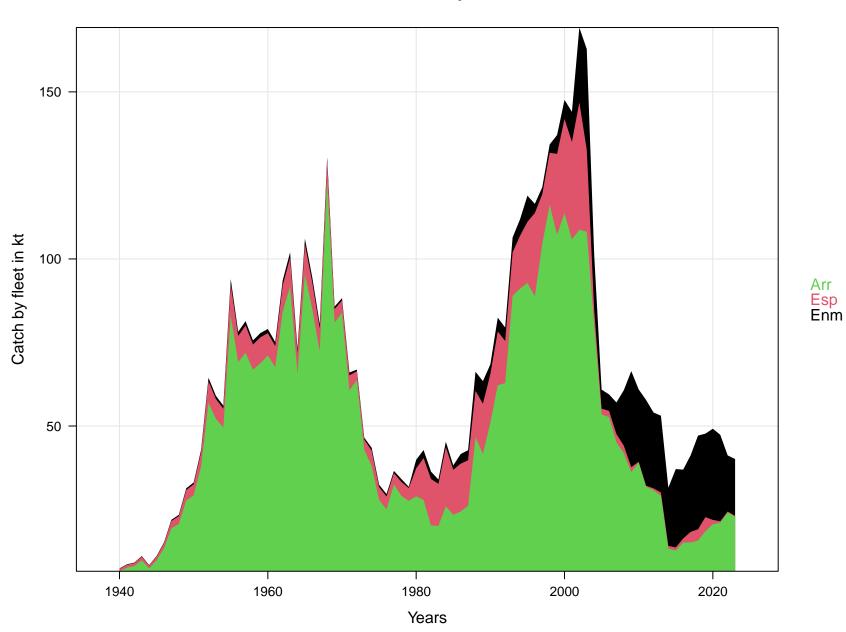
Maturity in the stock



Total catch

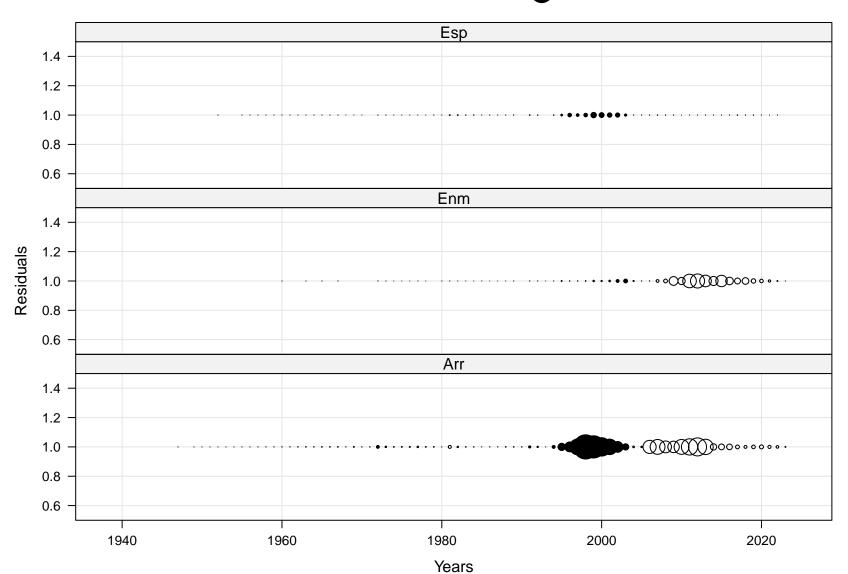


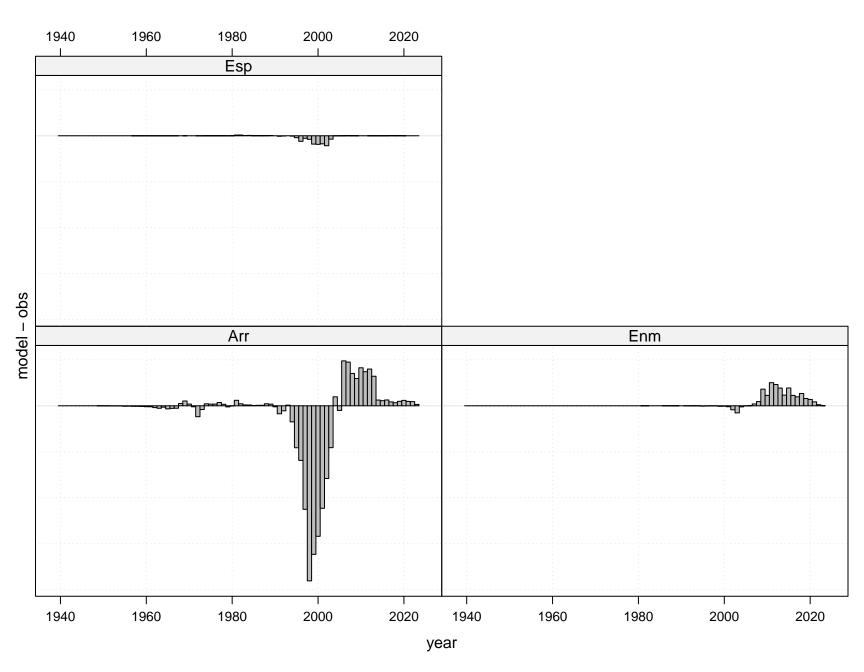
Total catch by fleet



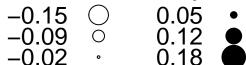
Catch residuals by fleet

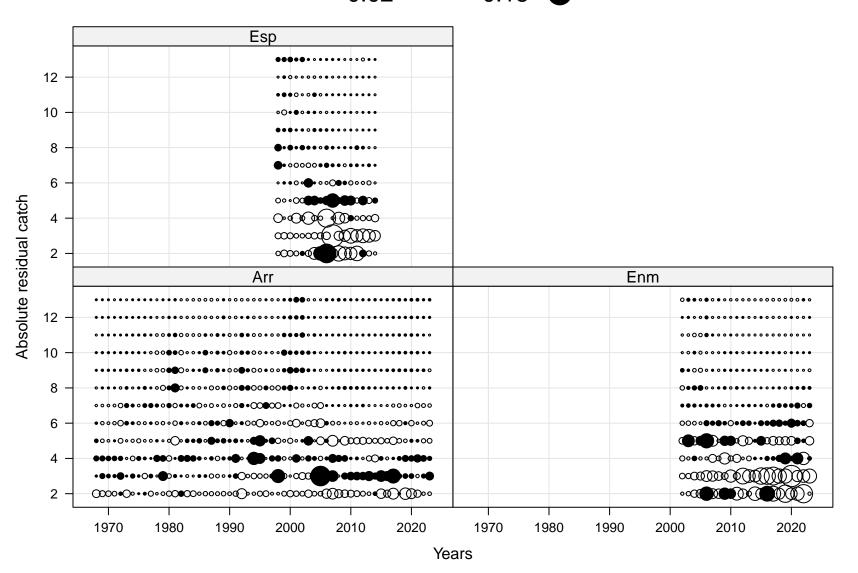
 $\begin{array}{cccc} -0.02 & \bigcirc & & 0.01 \\ -0.01 & \circ & & 0.02 \\ 0 & & & 0.03 \end{array}$



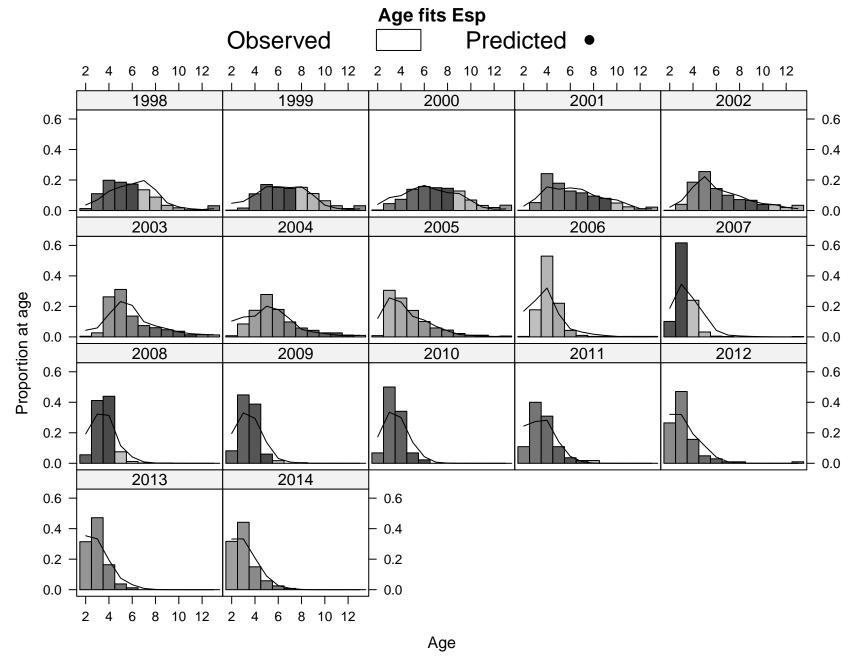


Absolute residual catch by fleet



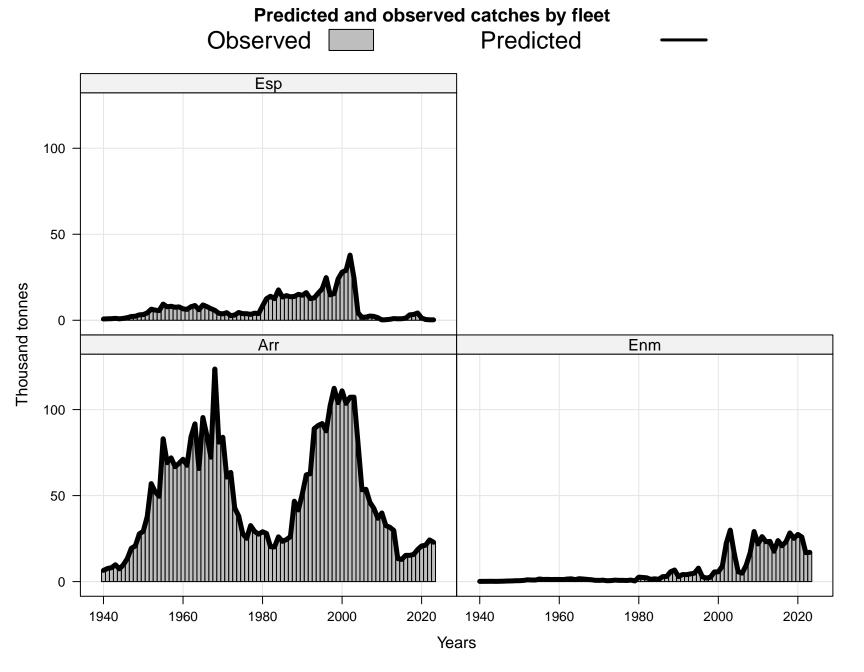


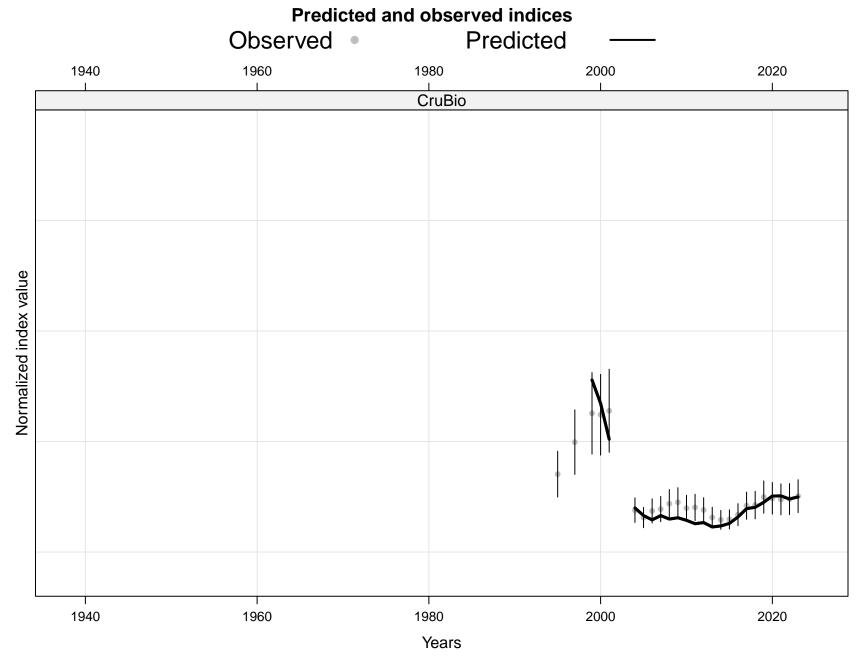
Age fits Arr Predicted • Observed 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 1968 1969 1970 1971 1972 1973 1974 1975 0.4 0.4 0.2 0.2 0.0 0.0 1976 1977 1978 1979 1980 1981 1982 1983 0.4 0.4 0.2 0.2 0.0 0.0 1984 1985 1986 1987 1988 1989 1990 1991 0.4 0.4 0.2 0.2 Proportion at age 0.0 0.0 1993 1994 1995 1992 1996 1997 1998 1999 0.4 0.4 0.2 0.2 0.0 0.0 2001 2002 2003 2005 2006 2000 2004 2007 0.4 0.4 0.2 0.2 0.0 0.0 2008 2009 2010 2011 2012 2013 2014 2015 0.4 0.4 0.2 0.2 0.0 0.0 2016 2017 2018 2019 2020 2021 2022 2023 0.4 0.4 0.2 0.2 0.0 0.0 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 Age



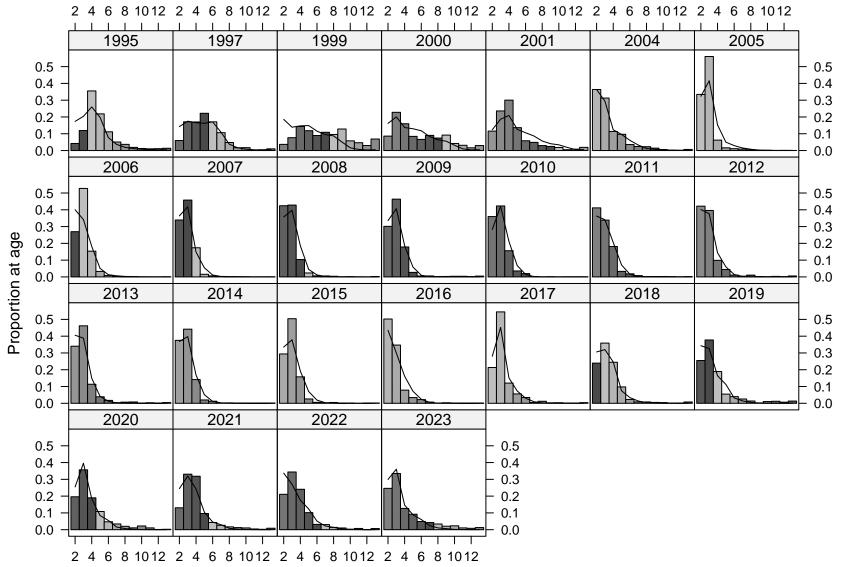
Observed Predicted • 2 4 6 8 10 12 2 6 8 10 12 8 10 12 8 10 12 6 8 10 12 2 4 6 8 10 12 6 4 2007 2002 2003 2004 2005 2006 0.6 0.6 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2008 2009 2010 2011 2012 2013 0.6 0.6 0.5 0.5 0.4 0.4 0.3 0.3 Proportion at age 0.2 0.2 0.1 0.1 0.0 0.0 2017 2018 2014 2015 2016 2019 0.6 0.6 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2021 2020 2022 2023 0.6 0.6 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 6 8 10 12 2 6 8 10 12 6 10 12 6 8 10 12 2 8 Age

Age fits Enm





Age fits CruBio
Observed Predicted •
4 6 8 1012 2 4 6 8 1012 2 4 6 8 1012 2 2 4 6 8 1012 2

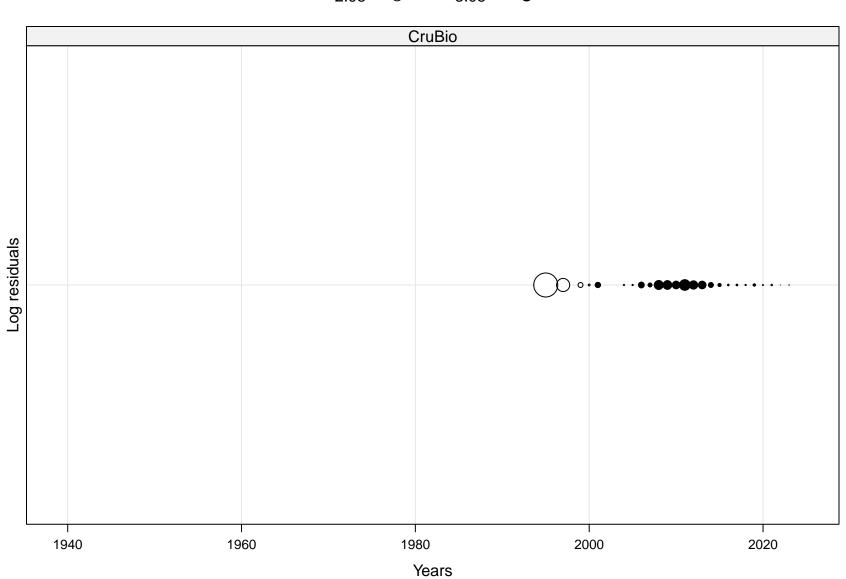


Age

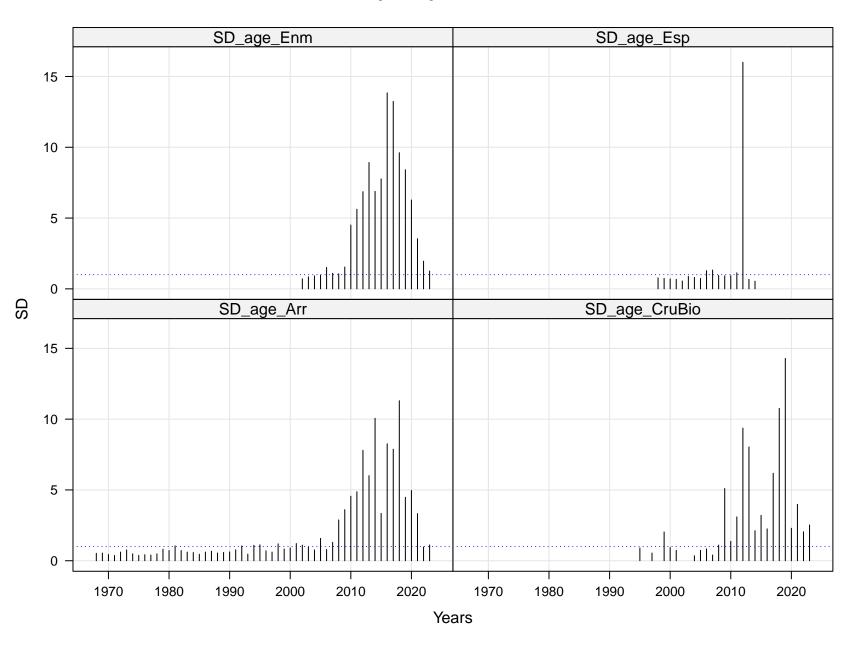
Standardized survey residuals

-6.99 -4.99 -2.98

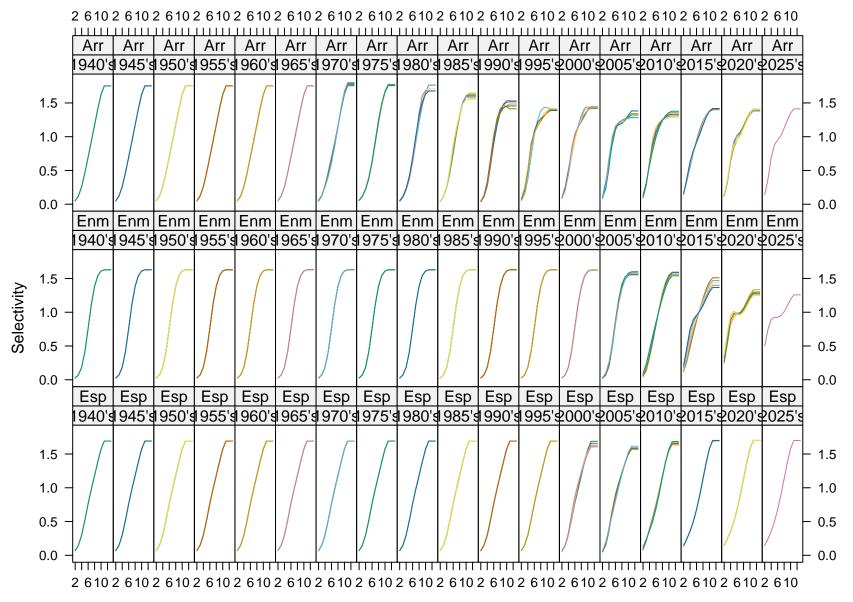
-0.97 1.04 3.05



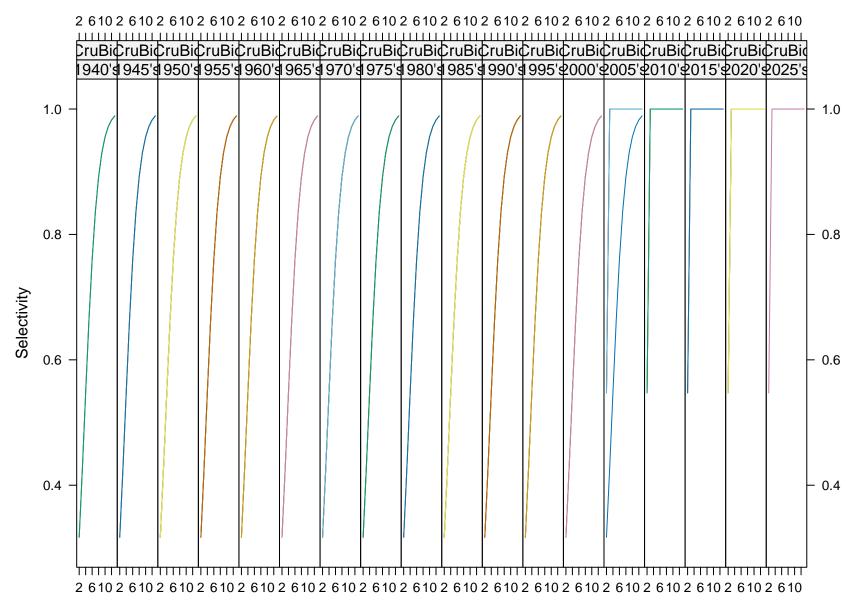
SD per input series



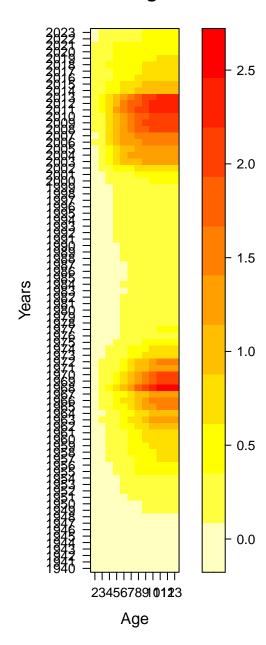
Selectivity of the Fishery by Pentad



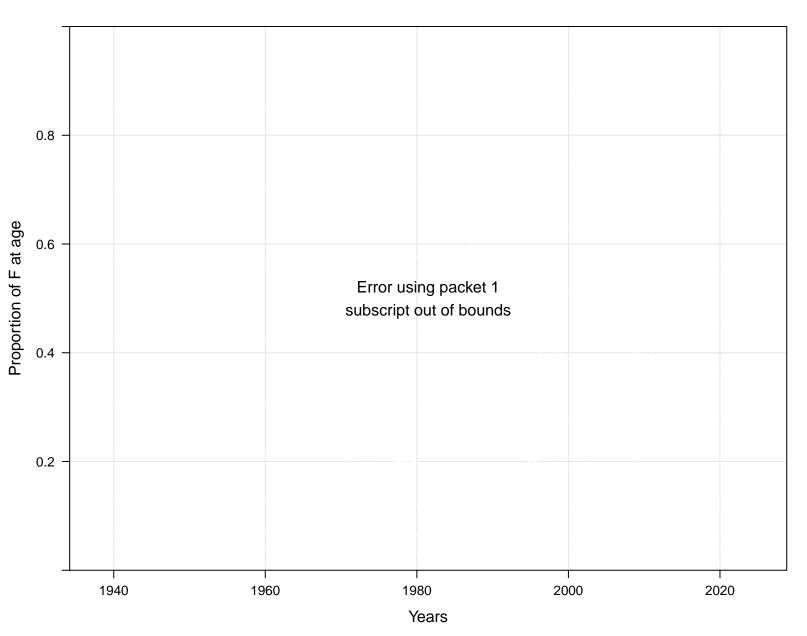
Selectivity of the survey by Pentad

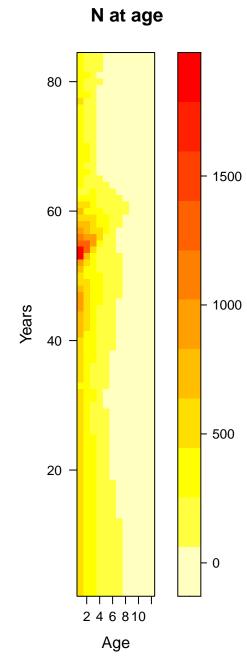


F at age

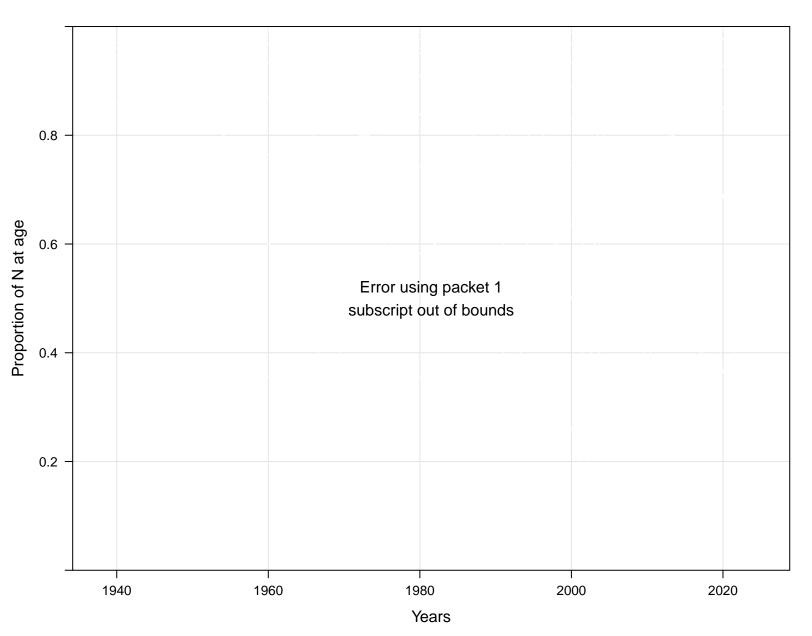


F proportion at age





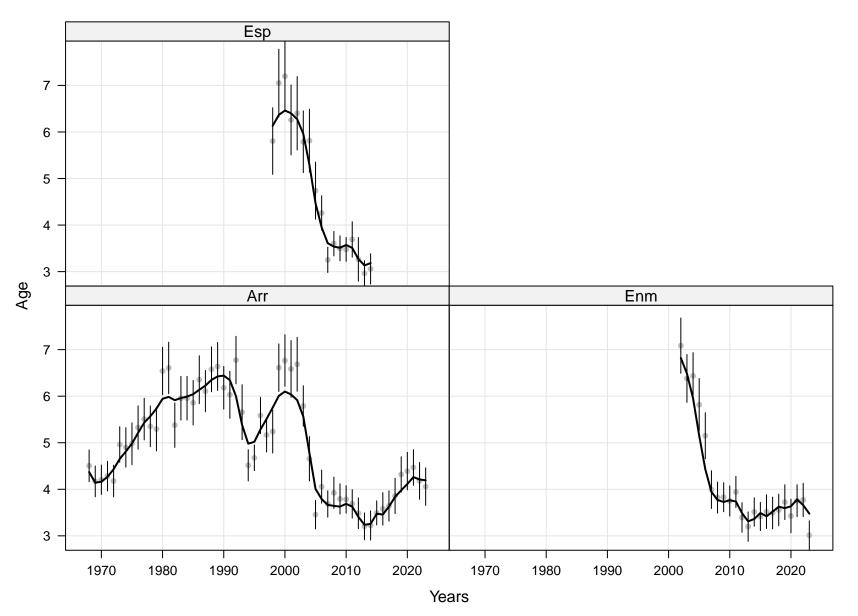
Proportion at age



Fishery mean age

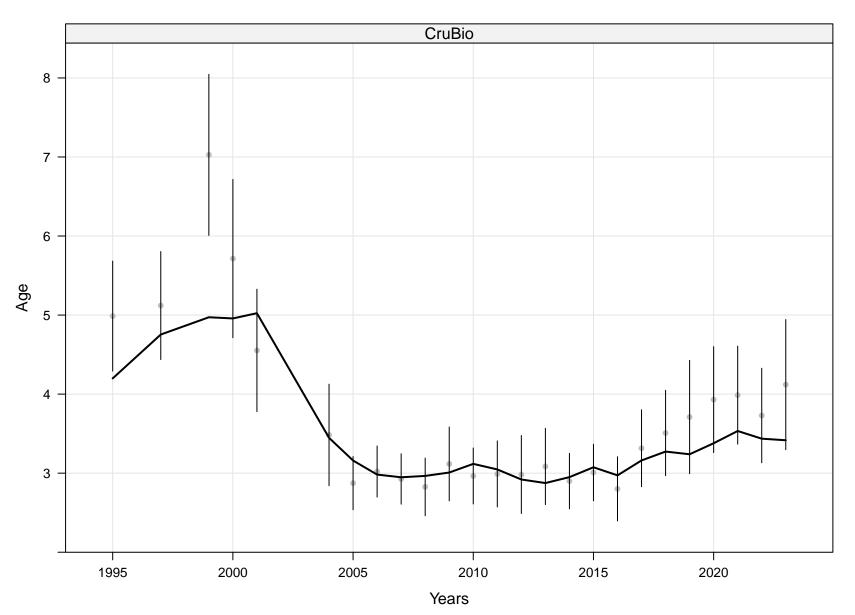
Modelled

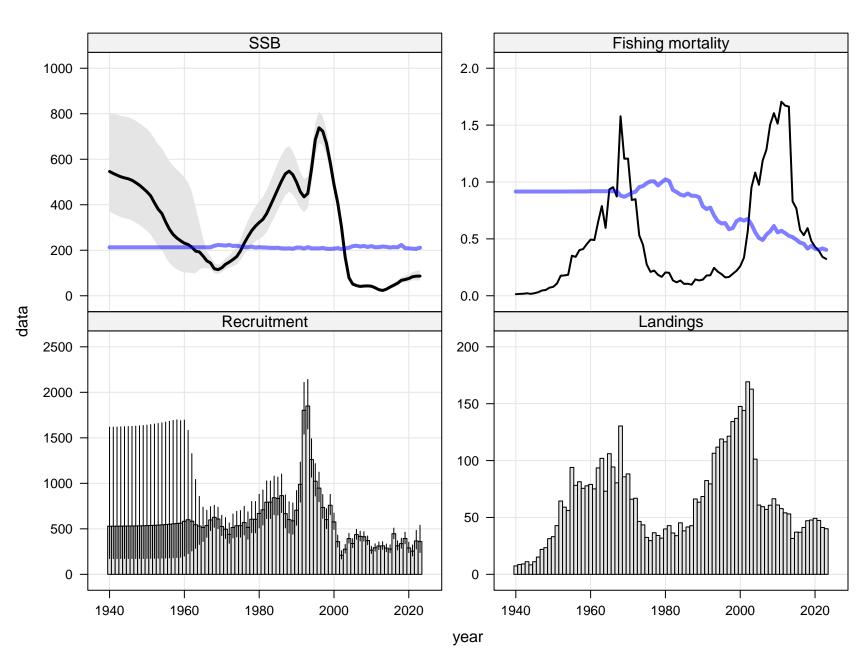
Observed

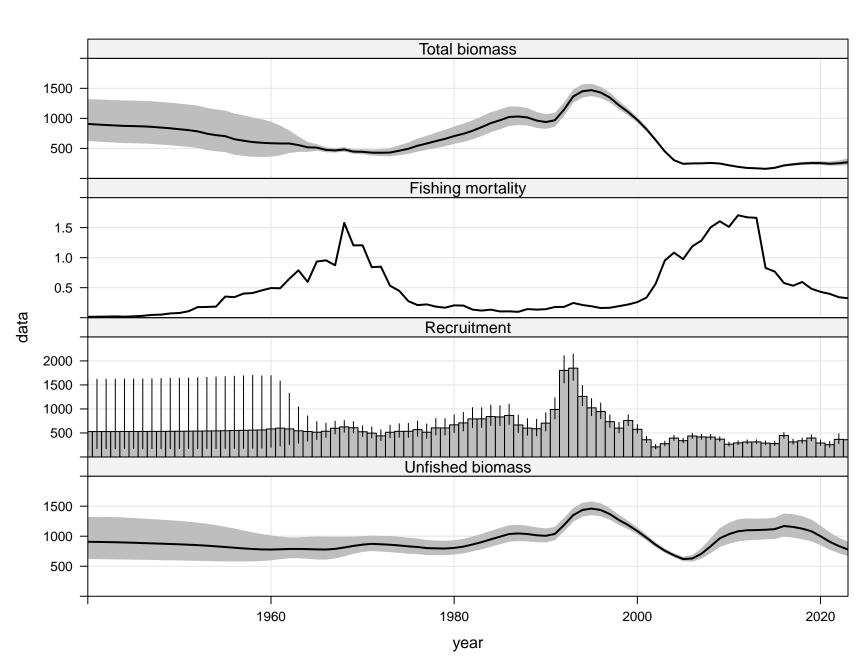


Survey mean age

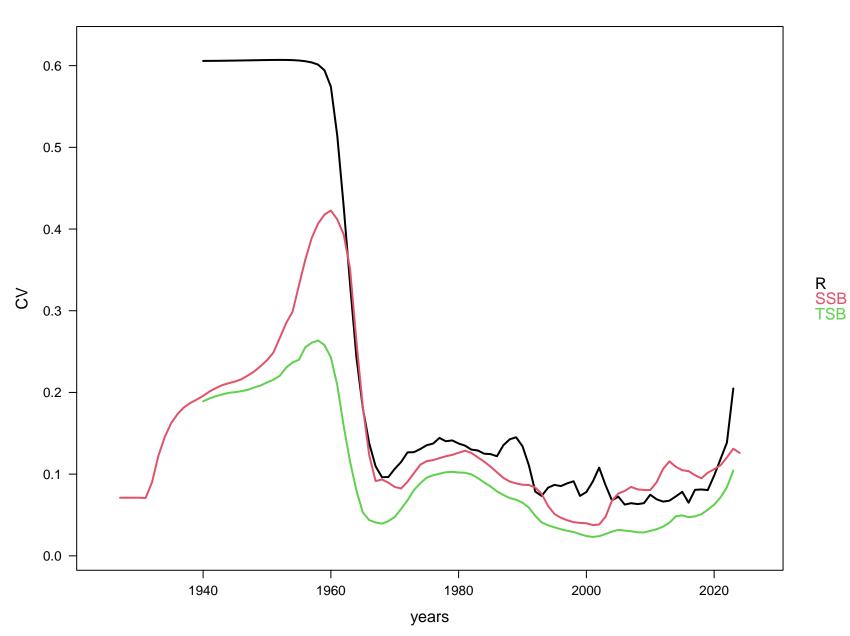
Observed • Modelled —





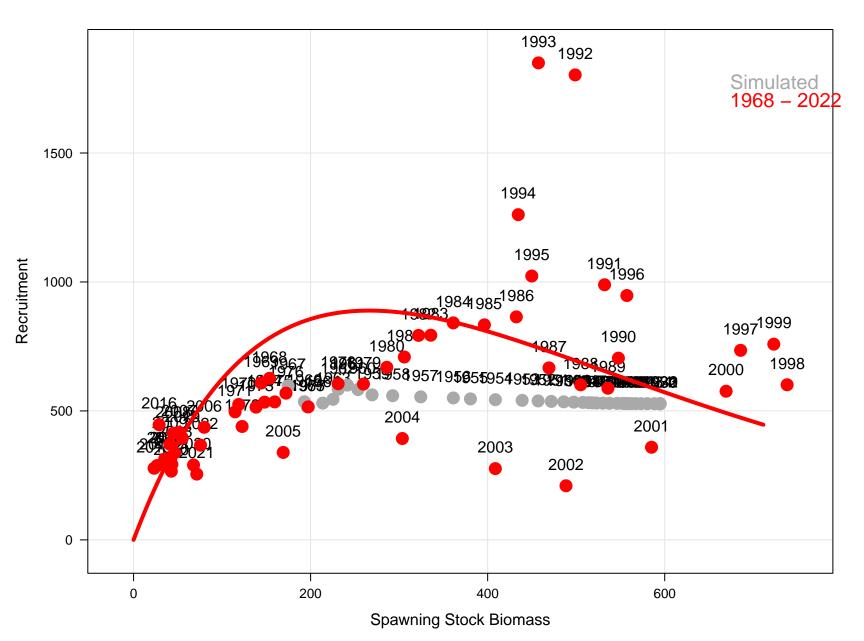


Uncertainty of key parameters



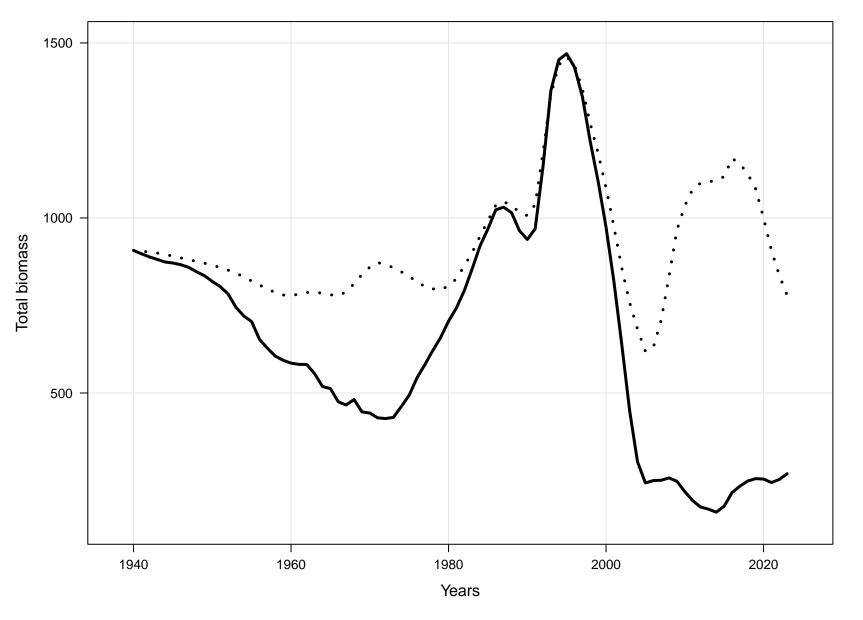
Mature - Immature fish Mature · · · · **Immature** 1000 -800 600 Biomass in kt 400 200 1940 1960 2000 2020 1980 Years

Stock Recruitment



Comparing fished with unfished biomass



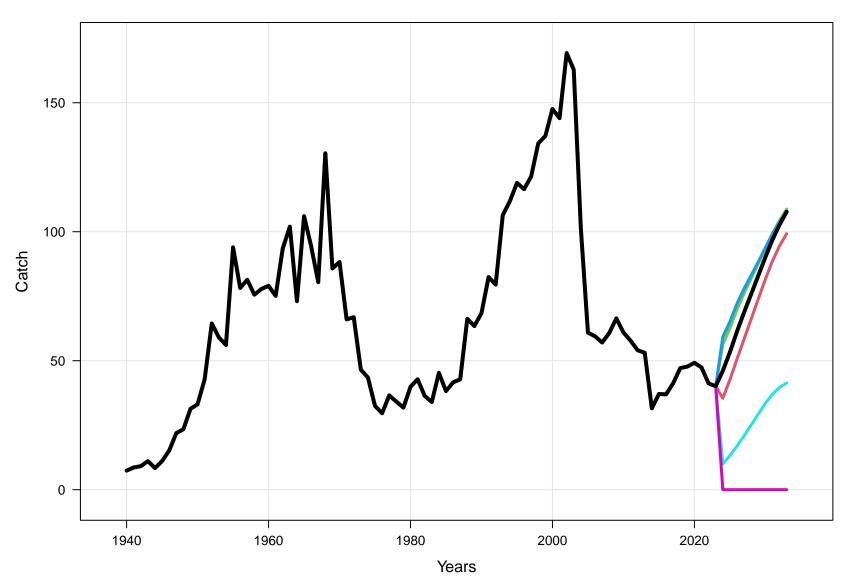


SSB prediction F2023 SQ F2023 0.75x F2023 1.25x FMSY TAC2023 F2023 0x 600 Spawning Stock Biomass 400 200 0 -2000 2020 1940 1960 1980

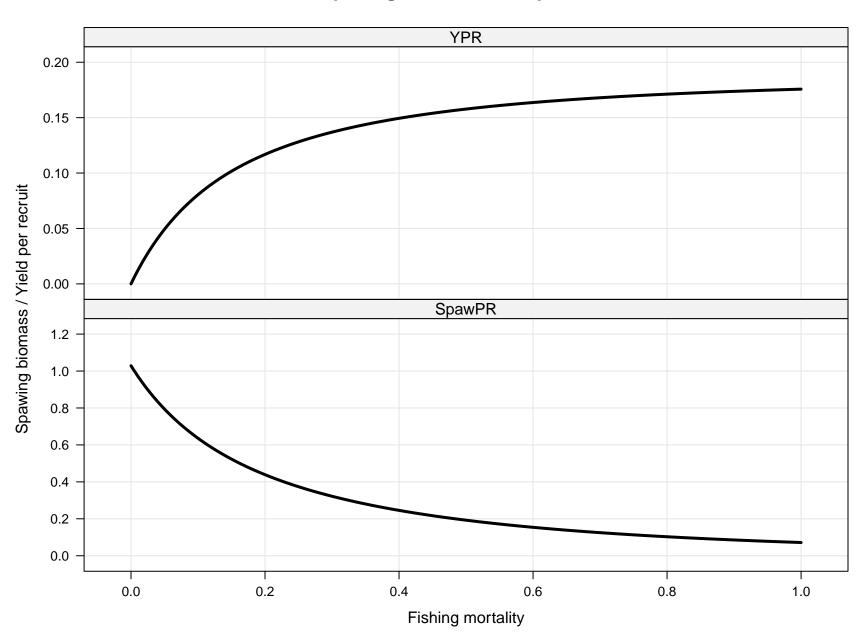
Years

Catch prediction

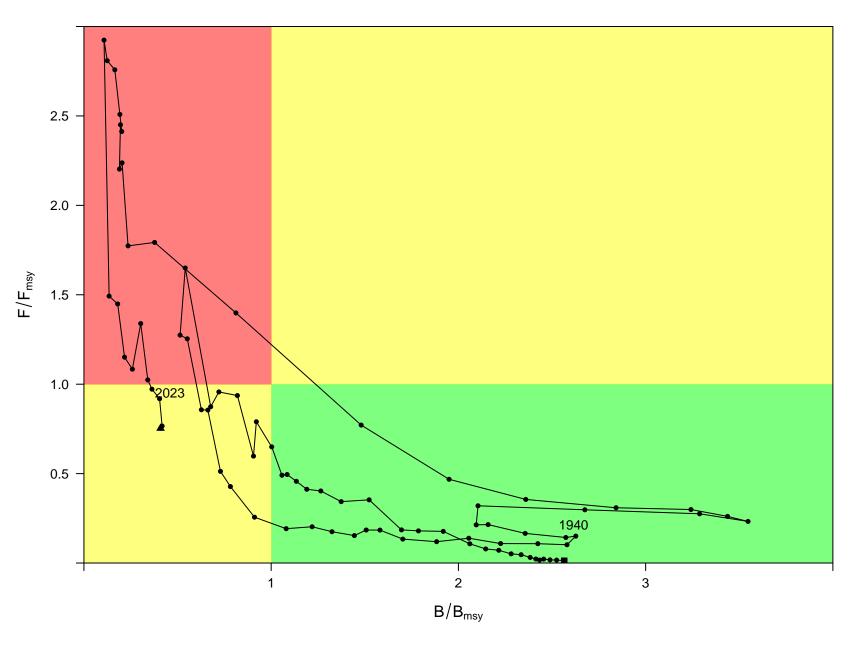


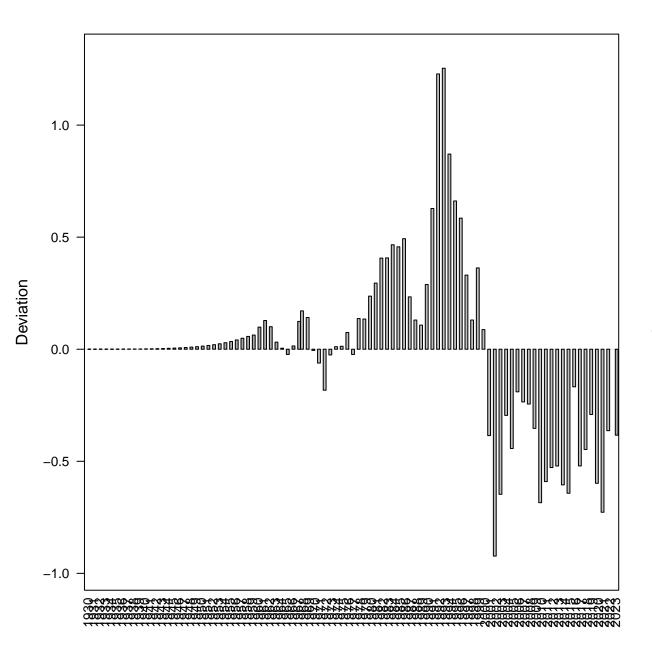


Yield and spawing stock biomass per recruit



Kobe plot





Simulated 1968 – 2022

