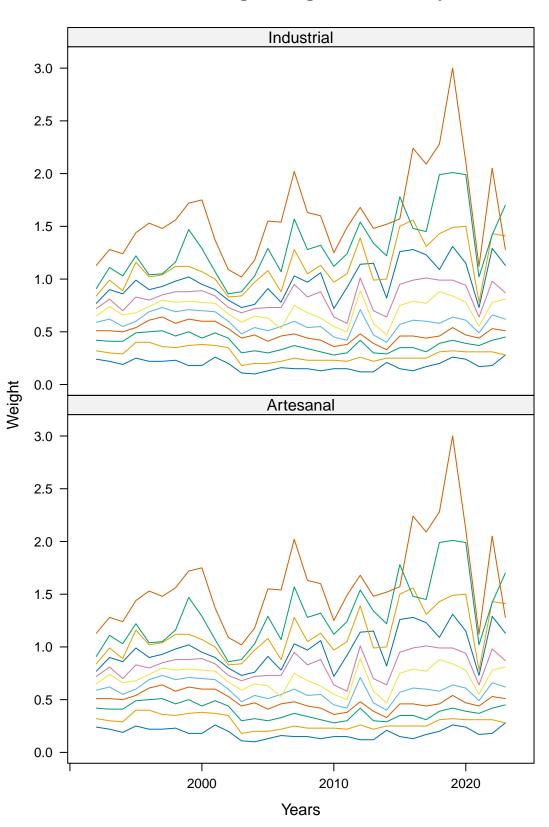
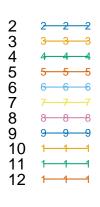
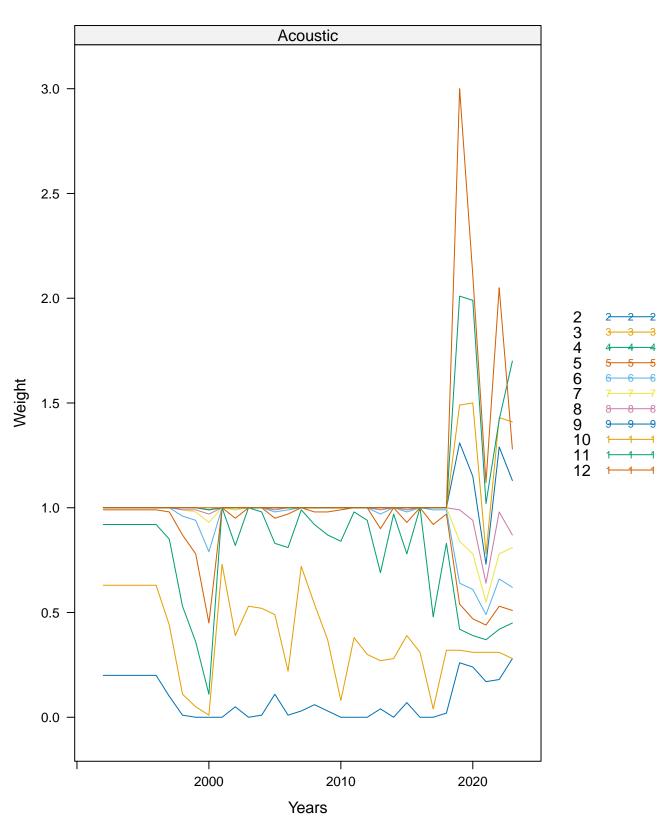
Weight at age in the fishery

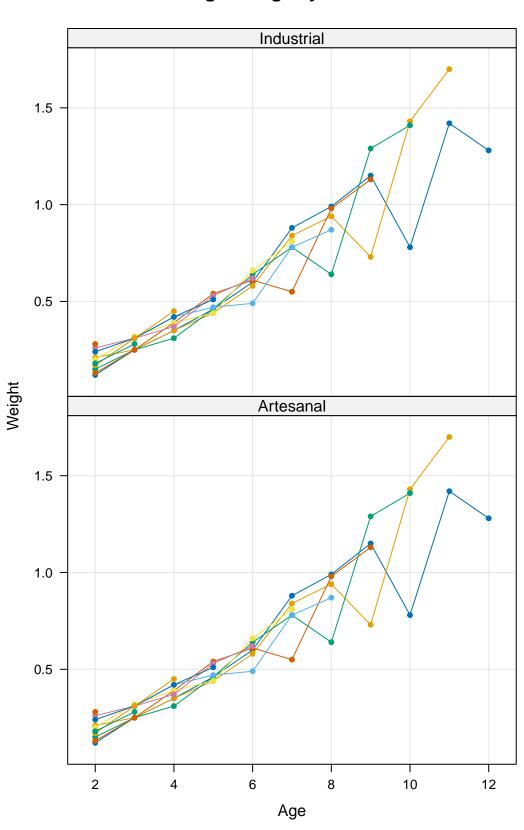


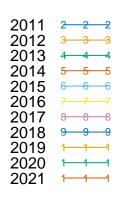


Weight at age in the survey

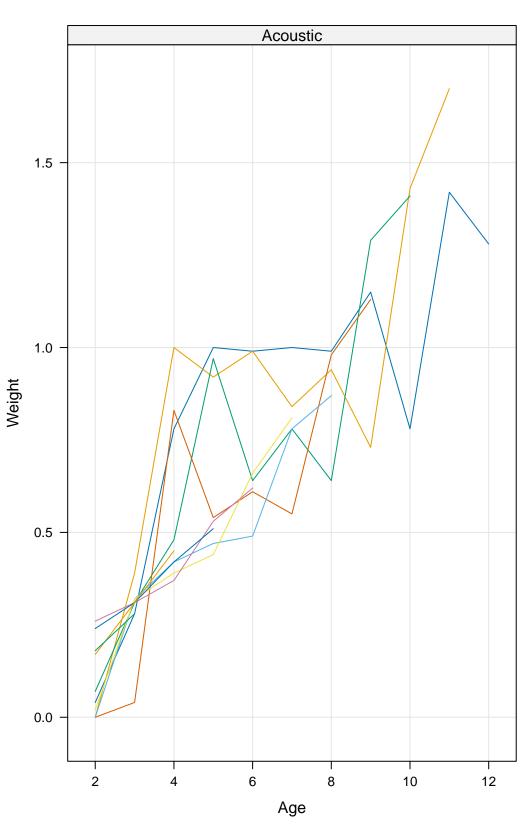


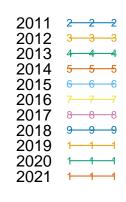
Weight at age by cohort in the fleet



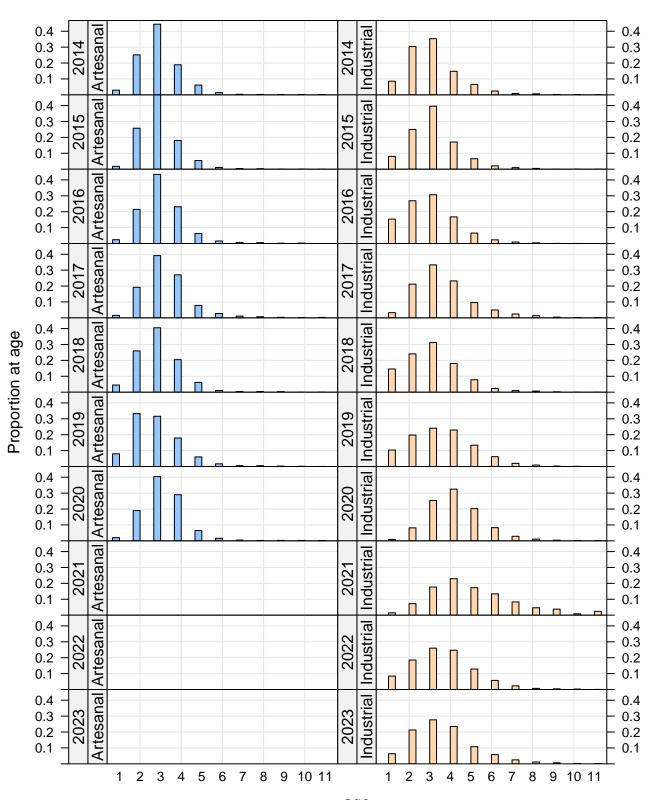


Weight at age by cohort in the survey

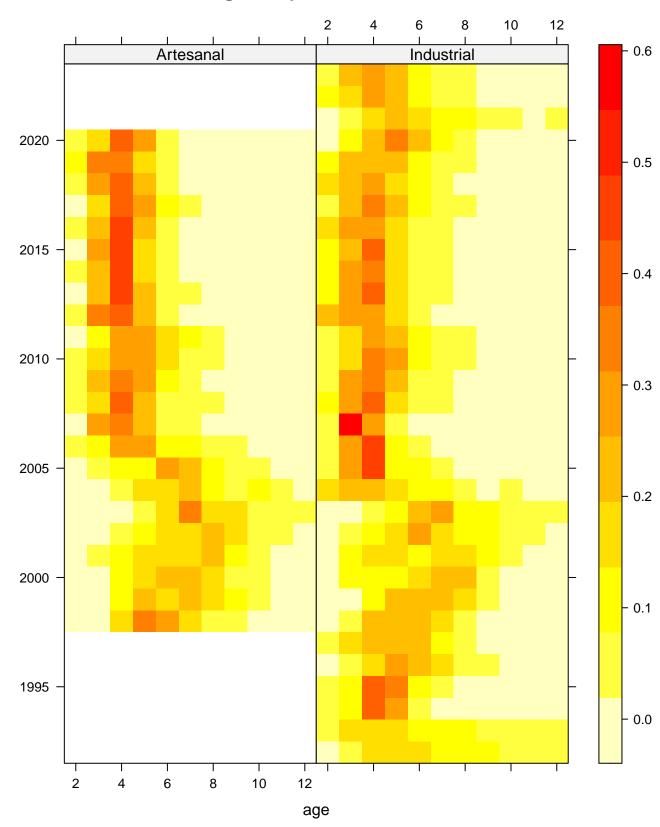




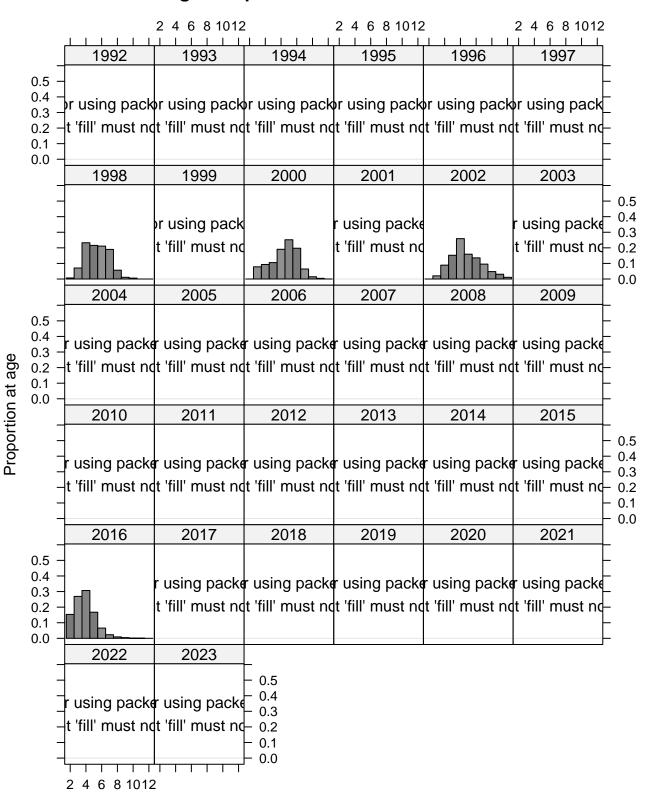
Age composition in fleets



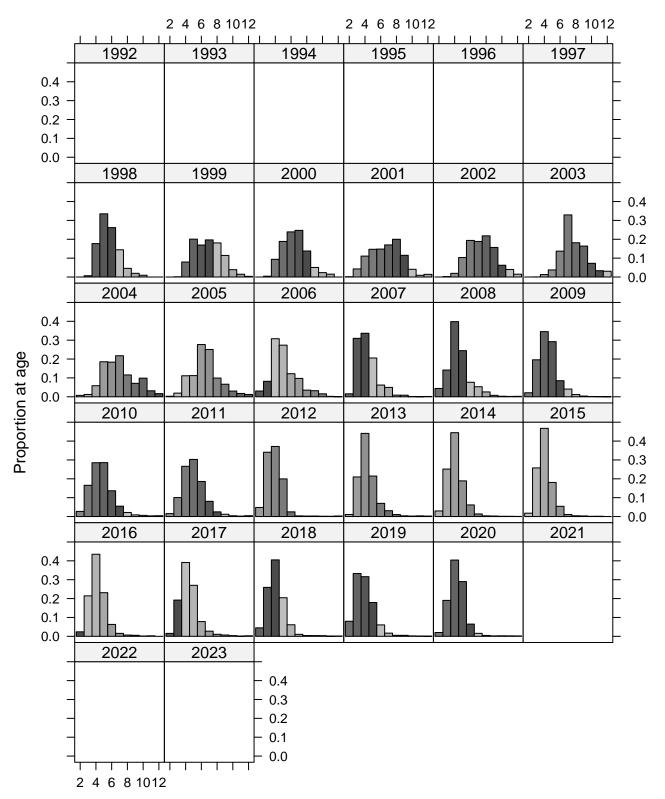
Age composition in fleets



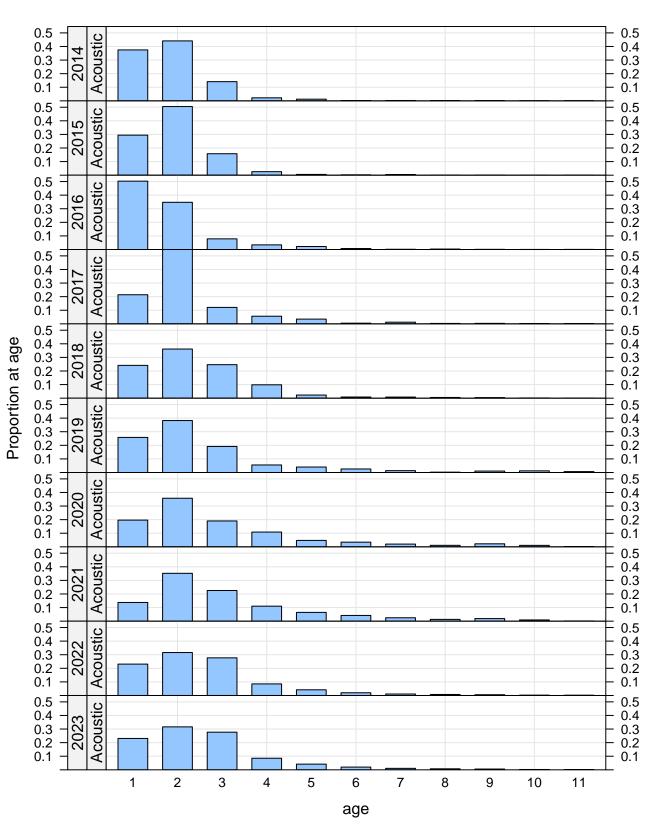
Age composition in fleets Industrial



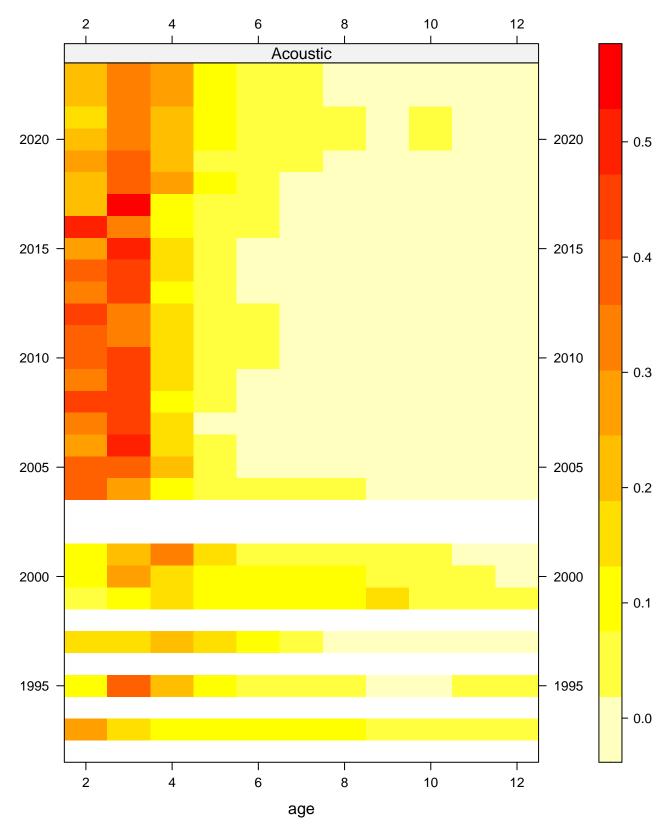
Age composition in fleets Artesanal



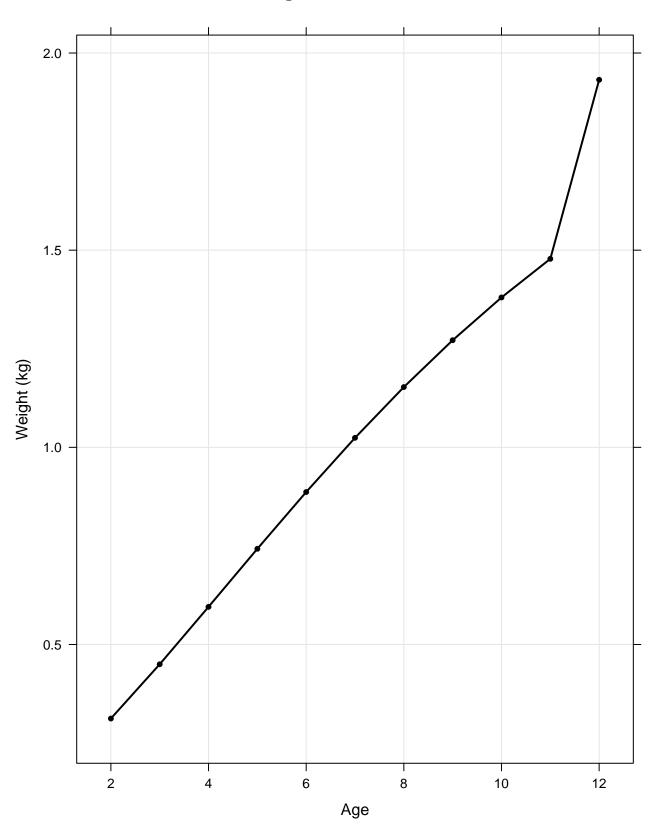
Age composition in surveys



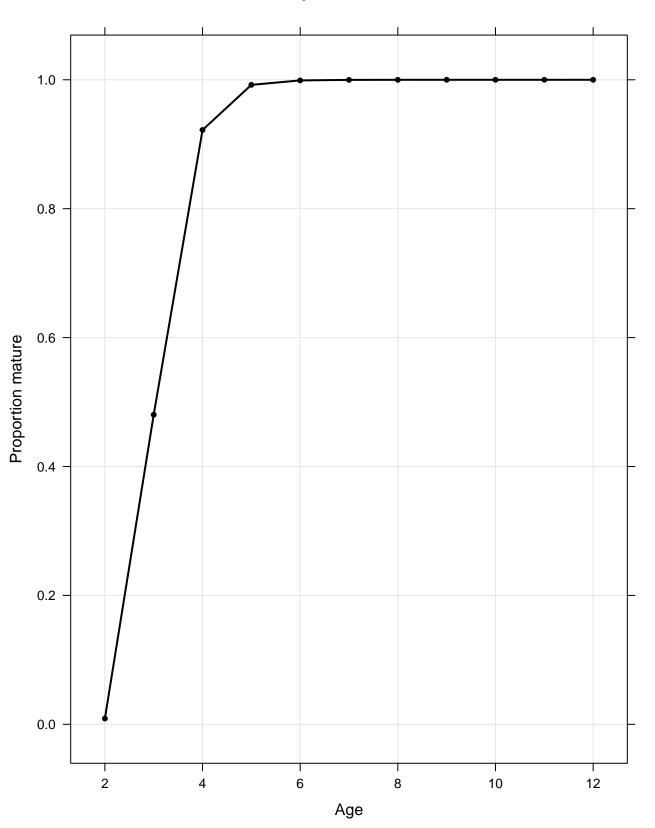
Age composition in surveys



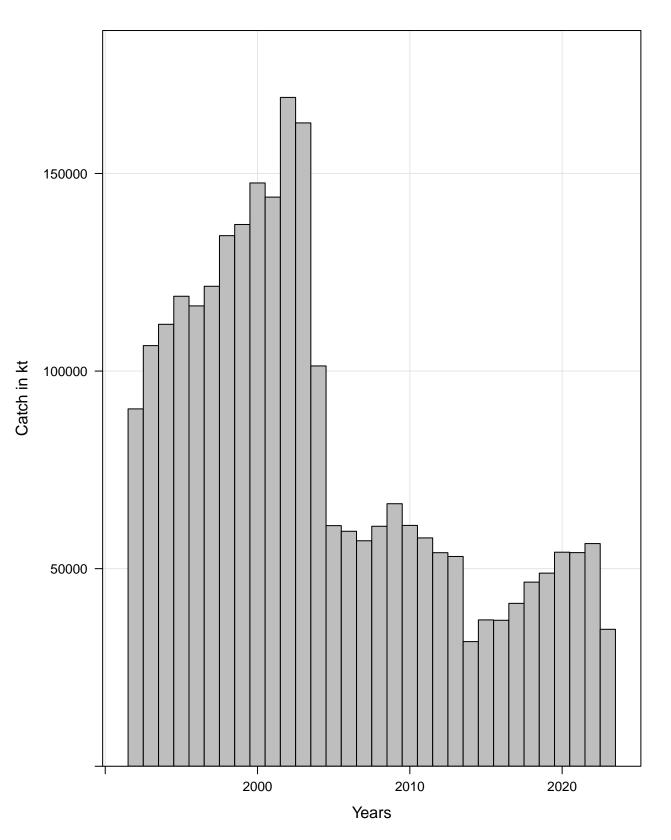
Weight in the stock



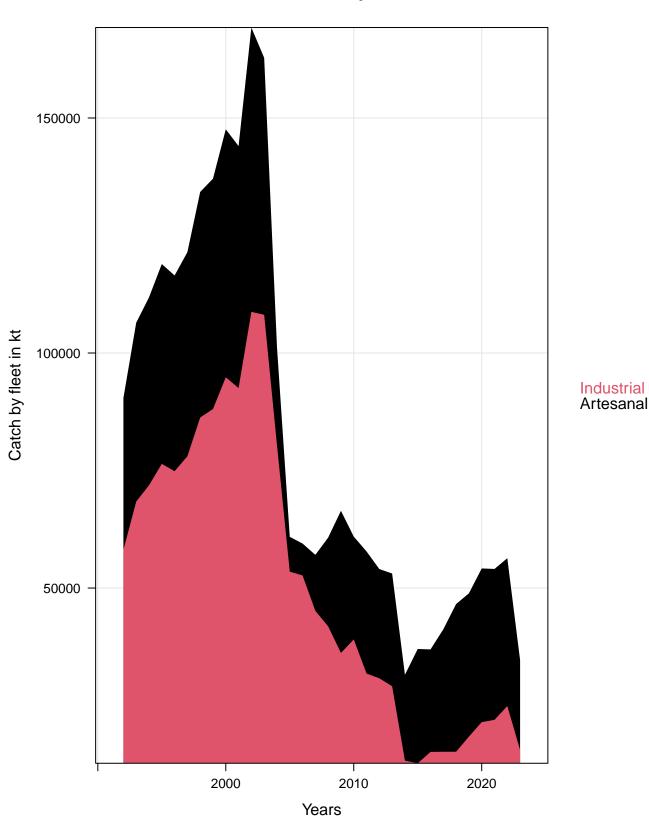
Maturity in the stock



Total catch



Total catch by fleet

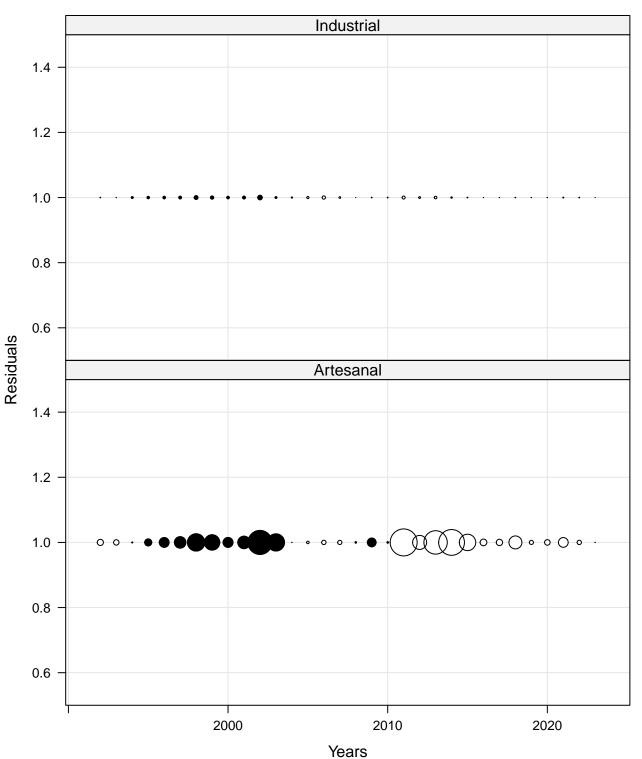


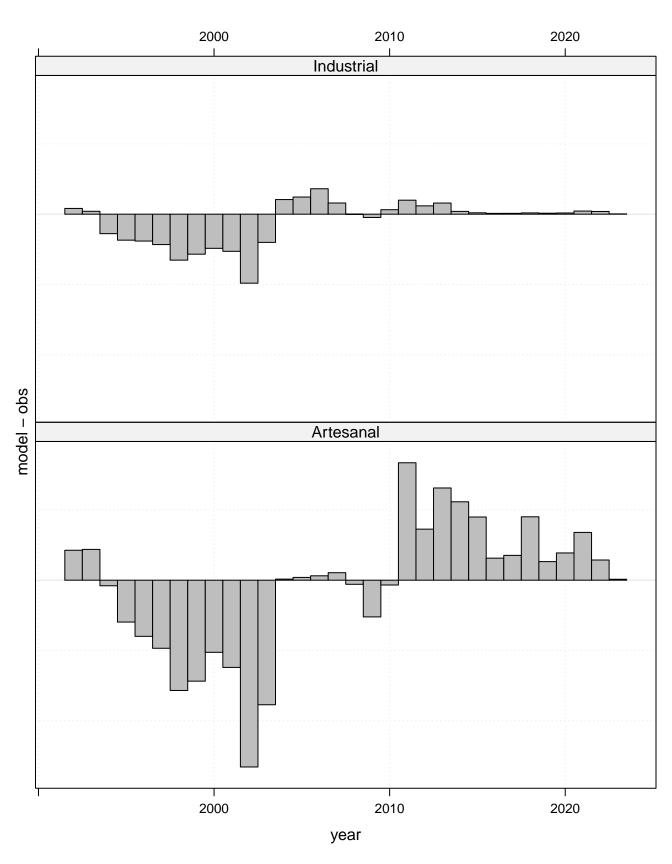
Catch residuals by fleet

-0.28 -0.17 -0.07

0.04 0.14 0.25





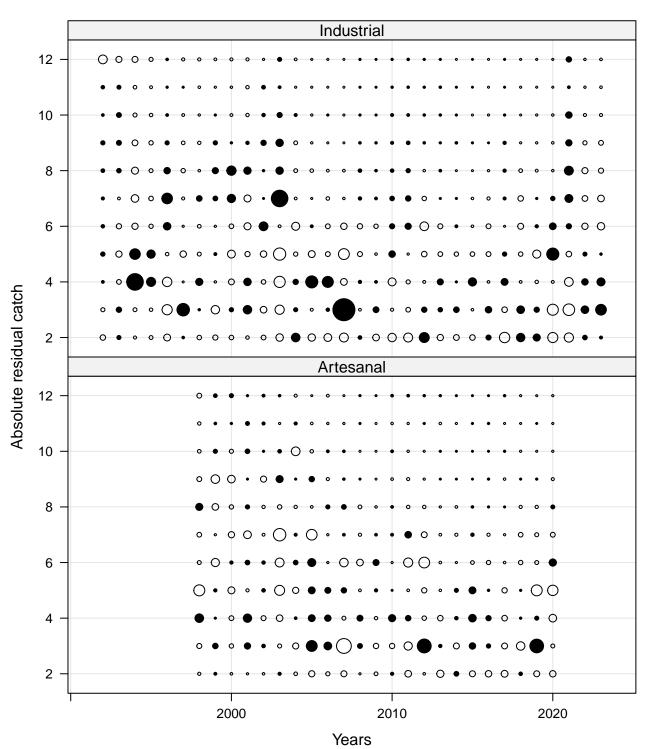


Absolute residual catch by fleet

-0.07 ○ -0.03 ∘ 0.01 ·

0.05



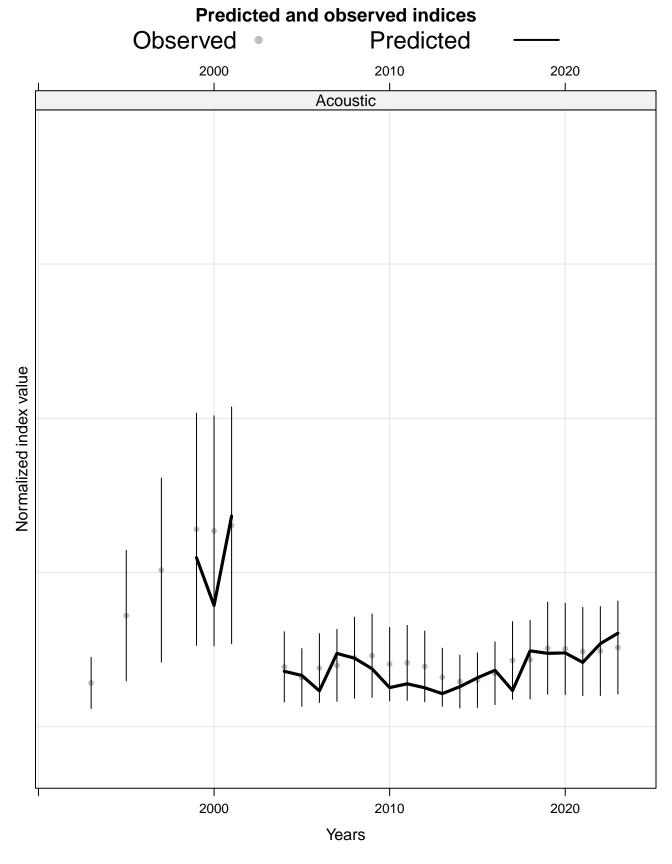


Observed **Predicted** 2 4 6 8 10122 4 6 8 10122 4 6 8 10122 4 6 8 10122 4 6 8 10122 4 6 8 1012 1994 1992 1993 1995 1996 1997 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 1998 1999 2000 2001 2002 2003 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2004 2005 2006 2007 2008 2009 0.5 0.5 0.4 0.4 0.3 0.3 Proportion at age 0.2 0.2 0.1 0.1 0.0 0.0 2012 2013 2010 2011 2014 2015 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2016 2017 2018 2019 2020 2021 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2022 2023 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2 4 6 8 10122 4 6 8 1012

Age fits Industrial

Age fits Artesanal Observed **Predicted** 2 4 6 8 10 122 4 6 8 10 122 4 6 8 10 122 4 6 8 10 122 4 6 8 10 12 1998 1999 2000 2001 2002 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2003 2004 2005 2006 2007 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2009 2010 2011 2012 2008 Proportion at age 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2013 2015 2014 2016 2017 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2018 2019 2020 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 8 10 122 4 6 8 10 122 4 6 8 10 12 6 Age

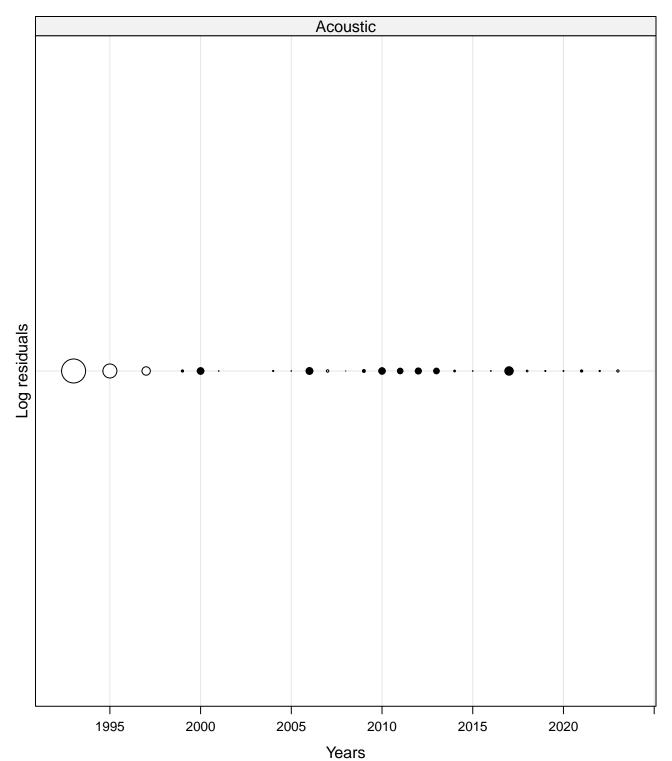
Predicted and observed catches by fleet Observed **Predicted** Industrial 100000 80000 -60000 40000 20000 -Thousand tonnes Artesanal 100000 -80000 60000 -40000 -20000 -2000 2010 2020 Years



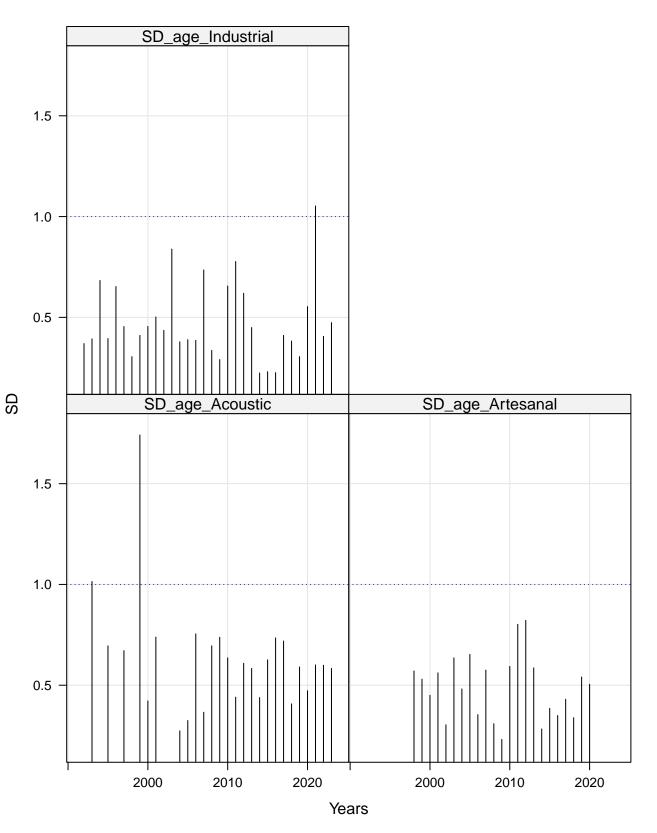
Age fits Acoustic Observed **Predicted** 2 4 6 8 10 122 4 6 8 10 122 4 6 8 10 122 4 6 8 10 122 4 6 8 10 12 1993 1995 1997 1999 2000 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2001 2004 2005 2006 2007 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2008 2009 2010 2011 2012 0.5 0.5 0.4 0.4 0.3 0.3 Proportion at age 0.2 0.2 0.1 0.1 0.0 0.0 2013 2014 2015 2016 2017 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2018 2019 2020 2021 2022 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 2023 0.5 0.5 0.4 0.4 0.3 0.3 0.2 0.2 0.1 0.1 0.0 0.0 8 10 12 2 4 6

Standardized survey residuals

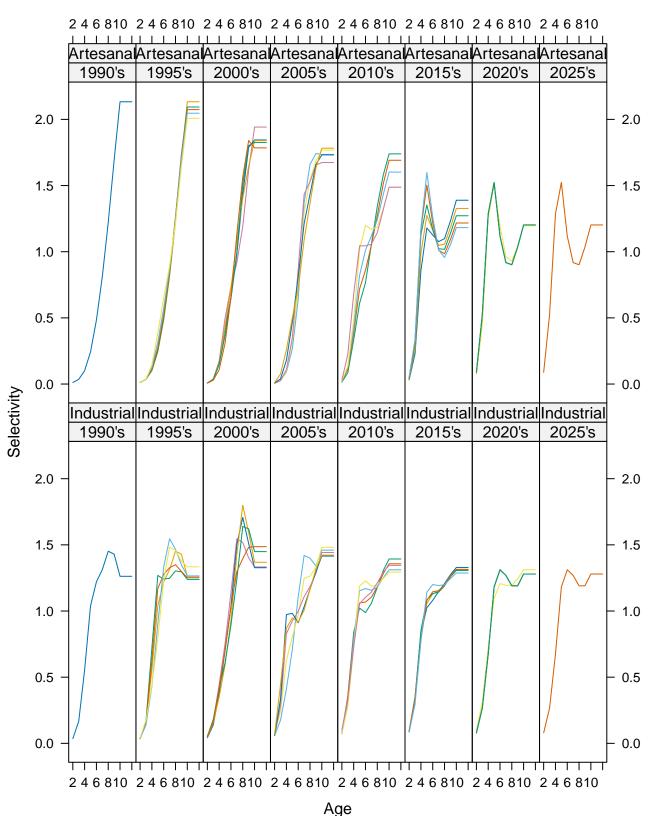
-5.96 -4.36 -2.75 -1.14 0.46 2.07



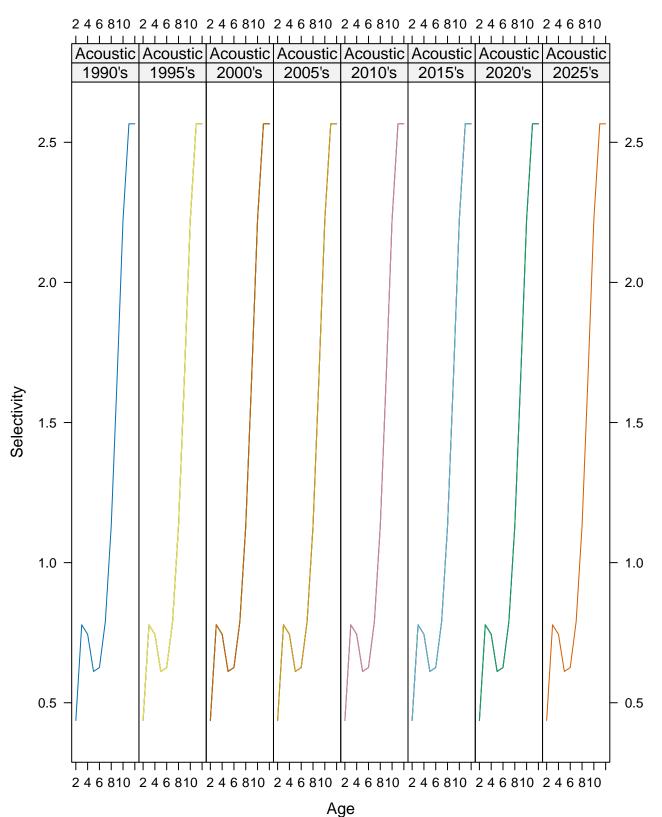
SD per input series



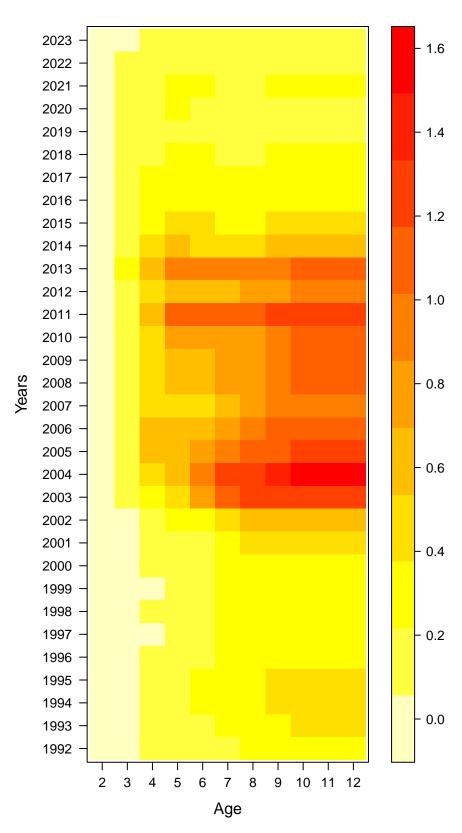
Selectivity of the Fishery by Pentad



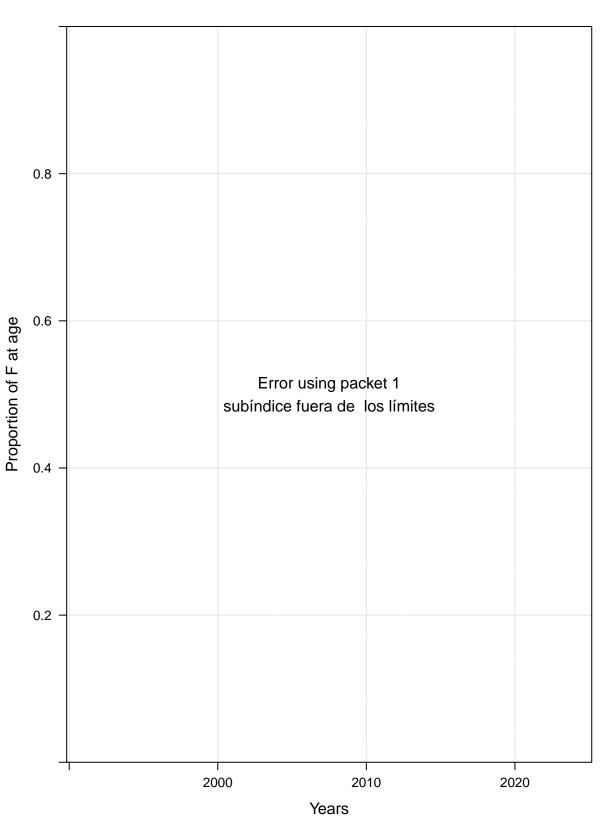
Selectivity of the survey by Pentad



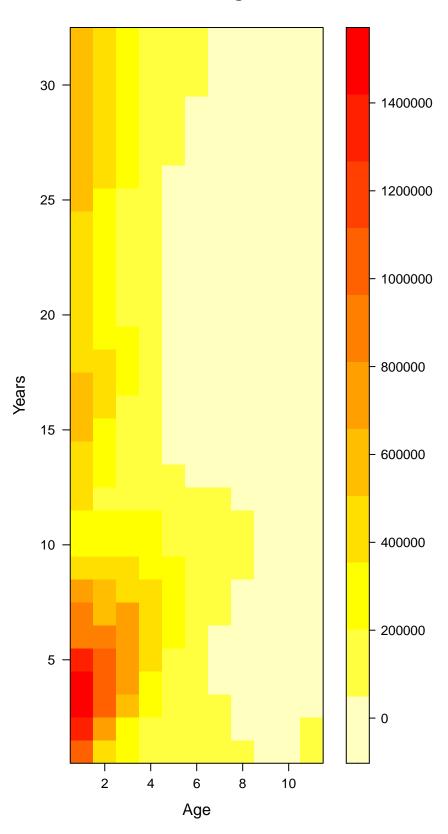
F at age



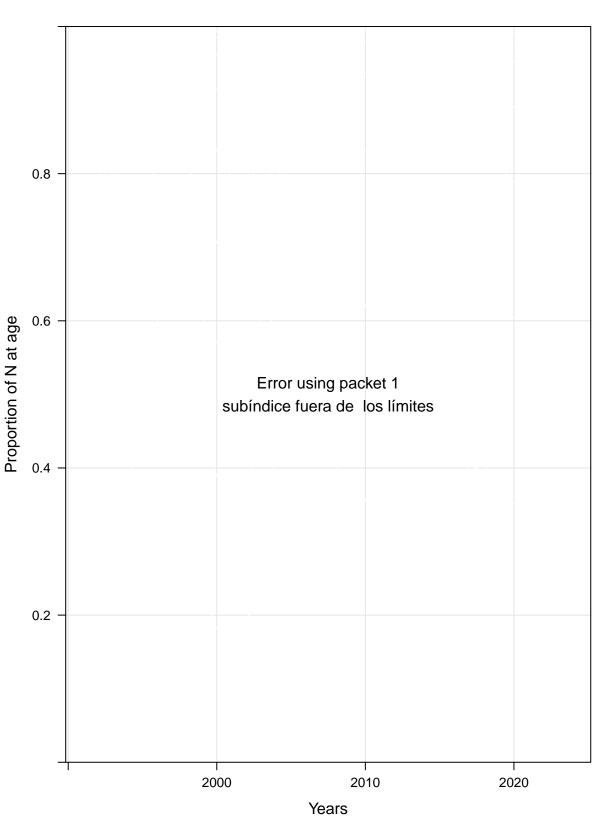
F proportion at age



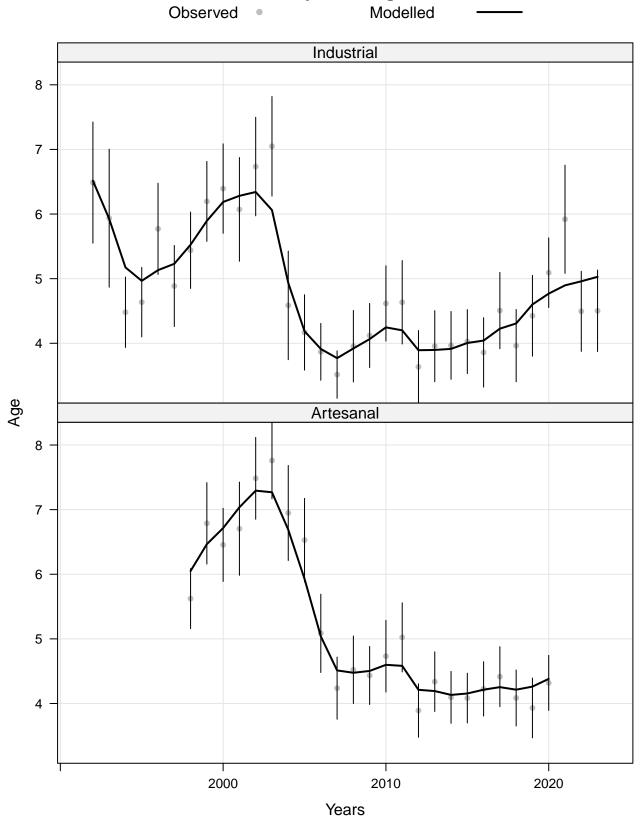




Proportion at age

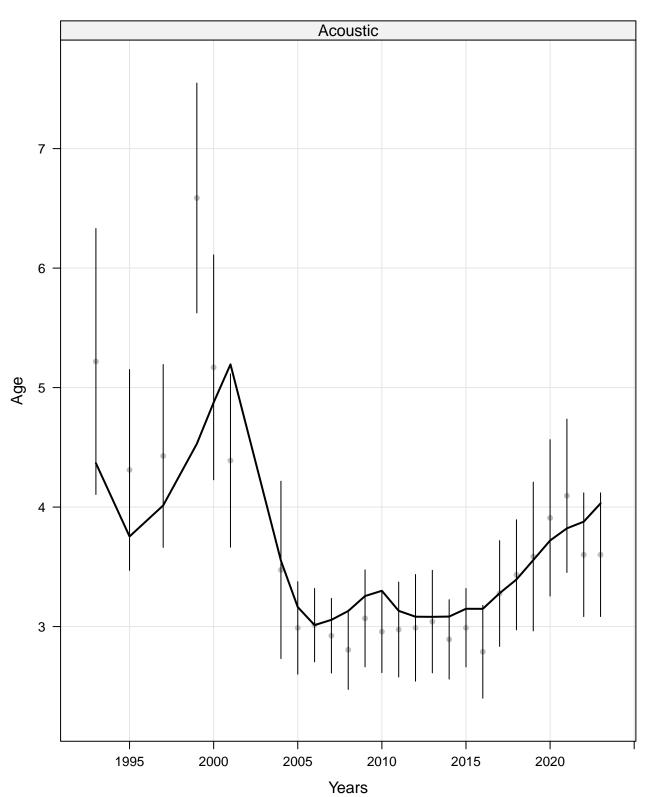


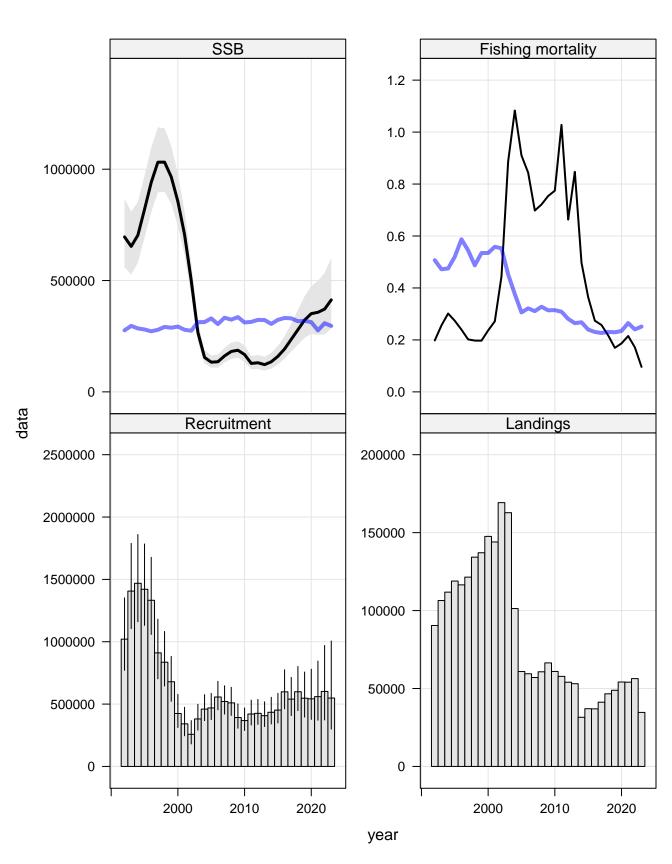
Fishery mean age

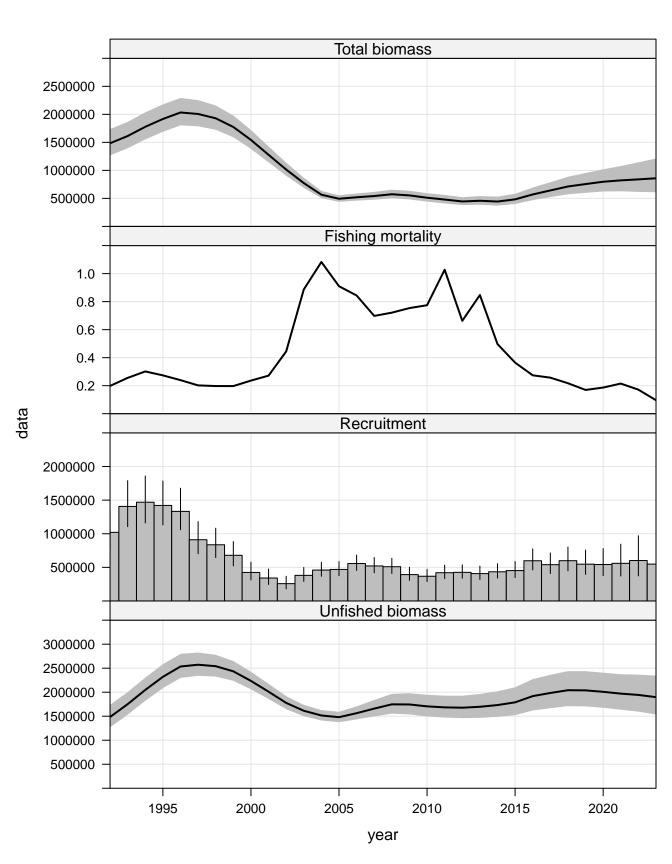


Survey mean age

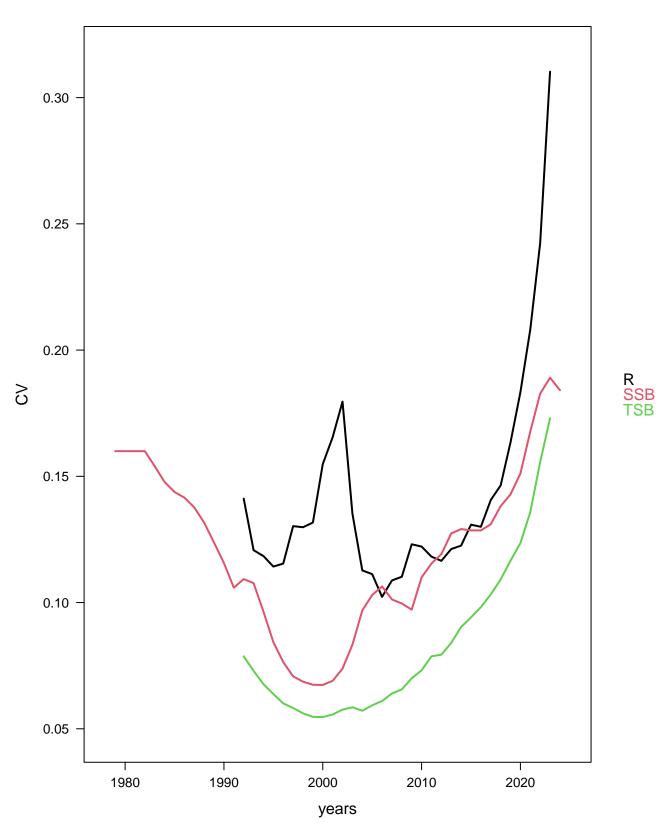




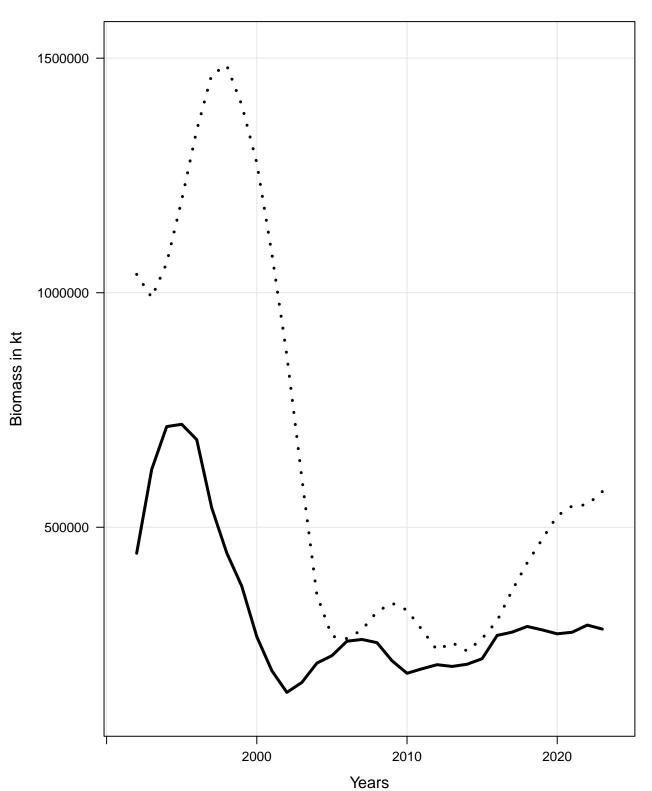




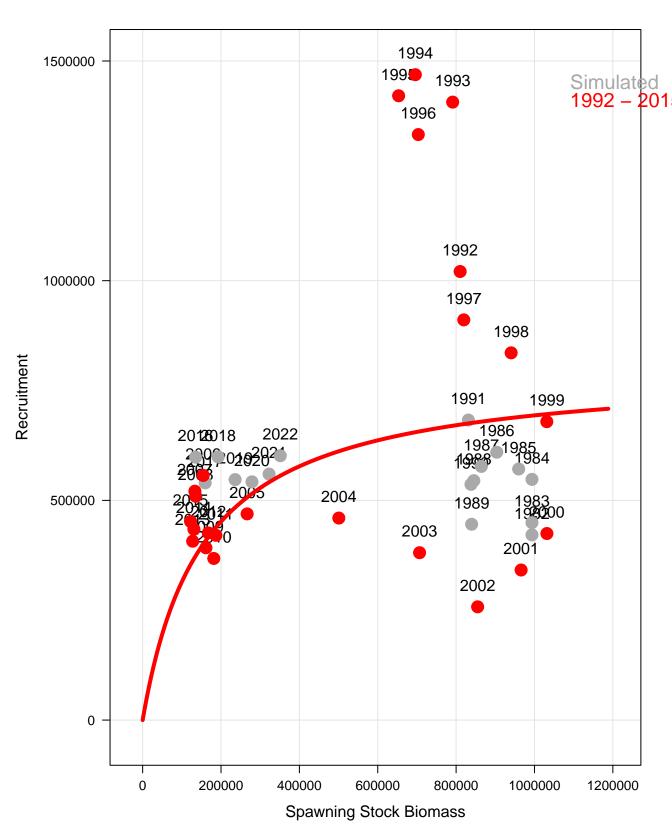
Uncertainty of key parameters





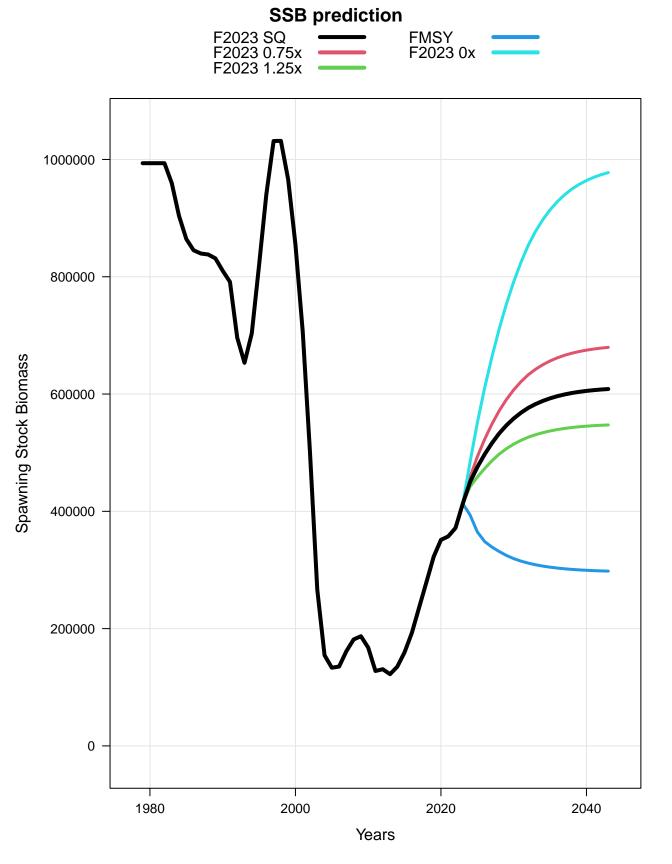


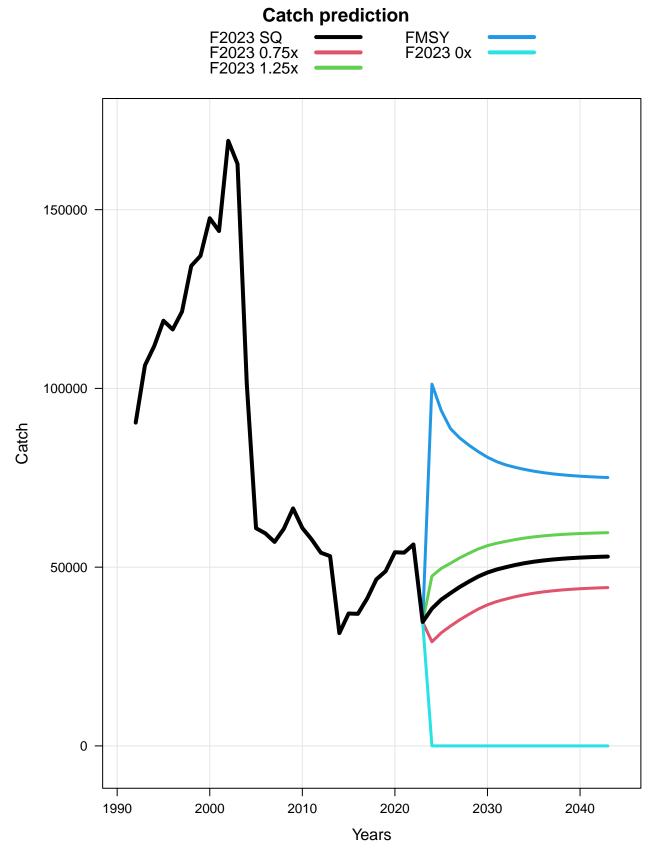
Stock Recruitment



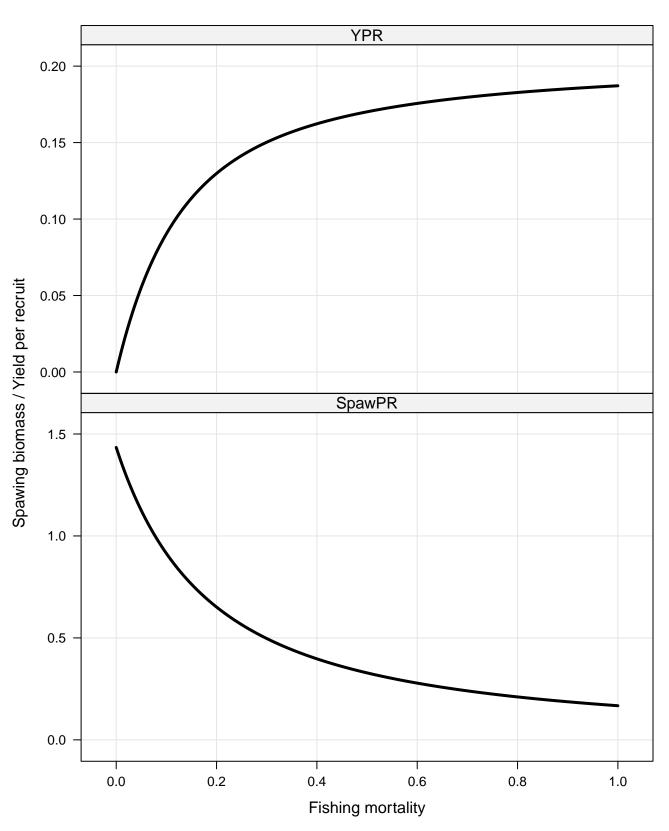
Comparing fished with unfished biomass Fished — Unfished ····

Years

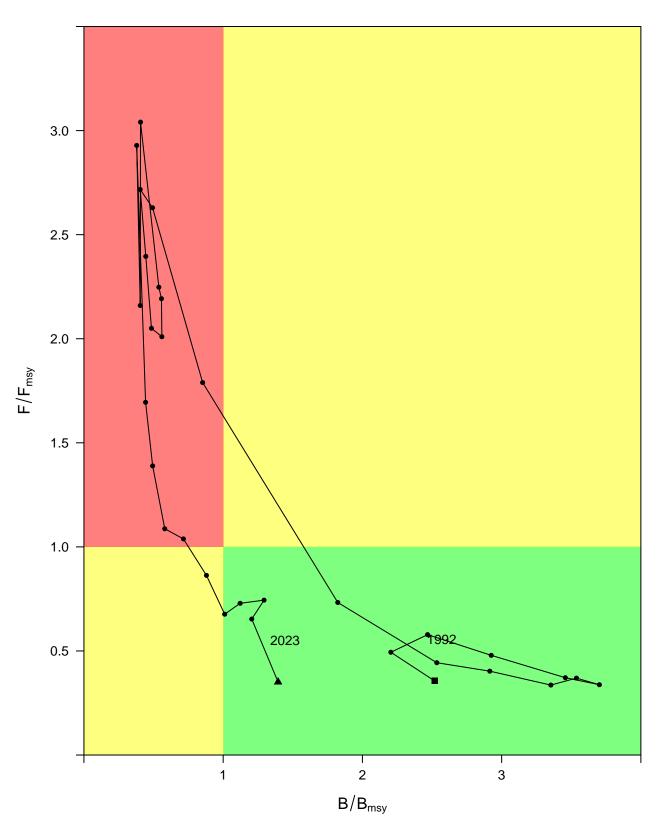


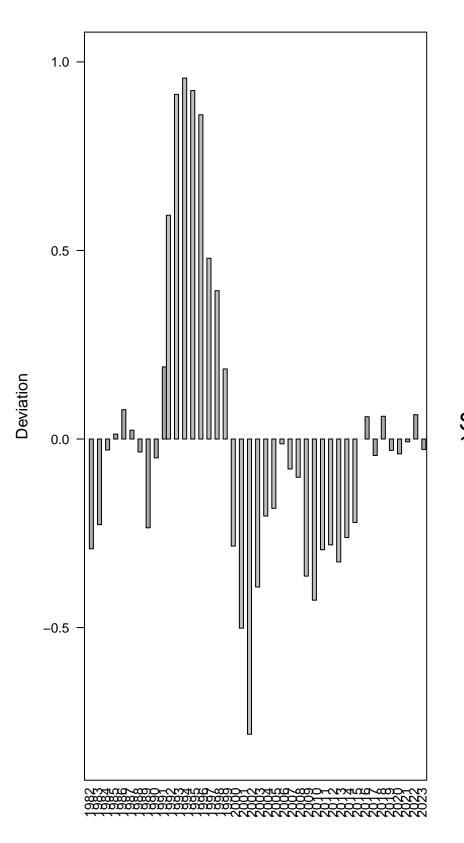


Yield and spawing stock biomass per recruit



Kobe plot





Simulated 1992 – 2015

