American Samoa Model Checks

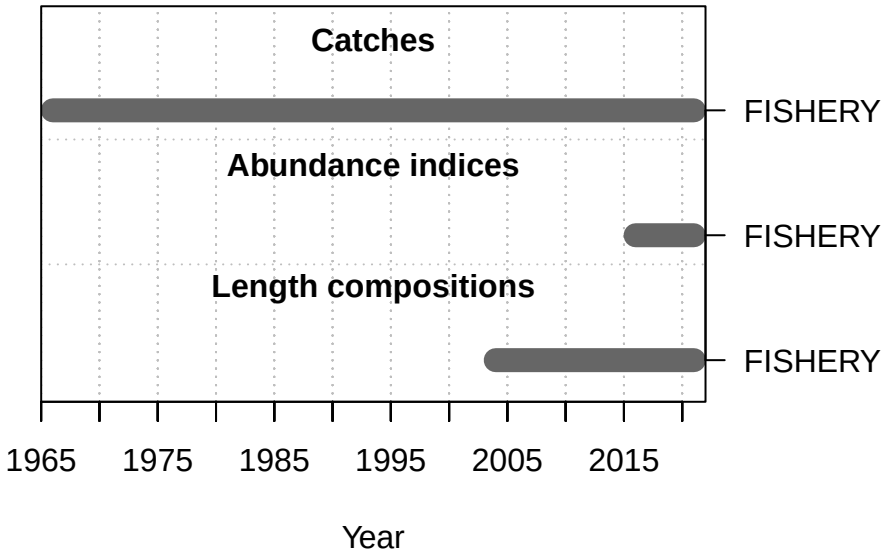
Marc Nadon and Meg Oshima

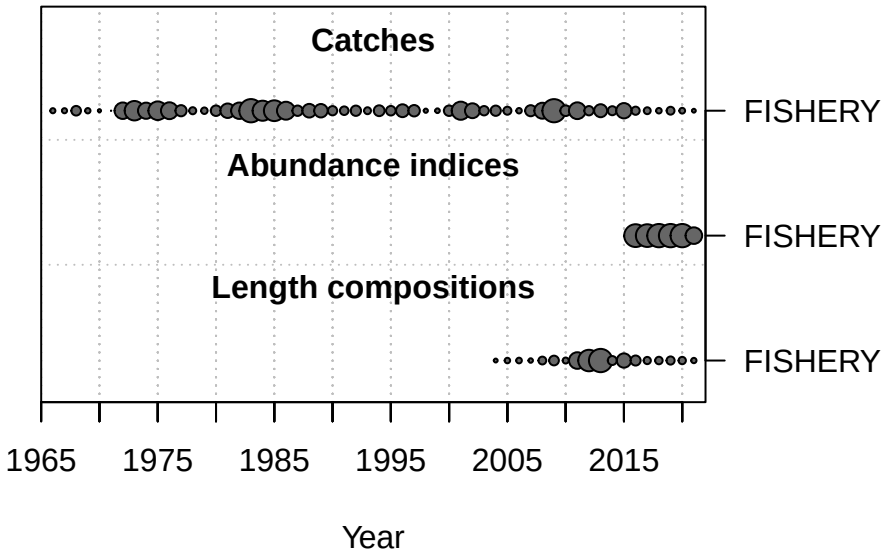
2023-01-10

This is a summary report for the LERU base model run.

Model Output

Input Data





Convergence Check

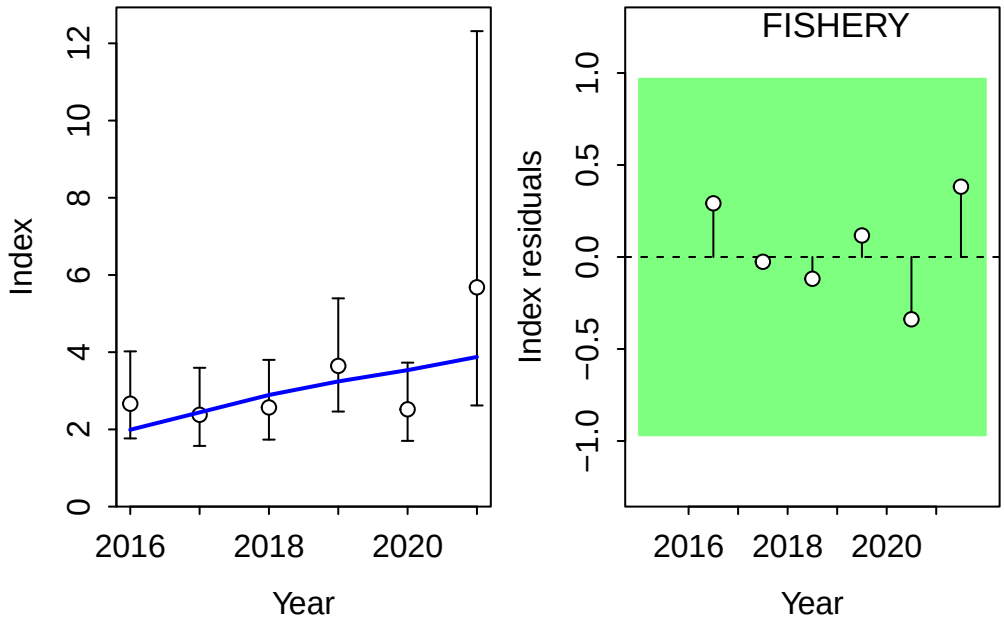
```
  Converged     MaxGrad
1      TRUE 1.25354e-05
```

```
[1] "1 NOTE:  Max data length bin: 38.5  < max pop len bins: 43; so will accumulate larger p
[2] "N warnings: 1"
```

Fit to Model

CPUE

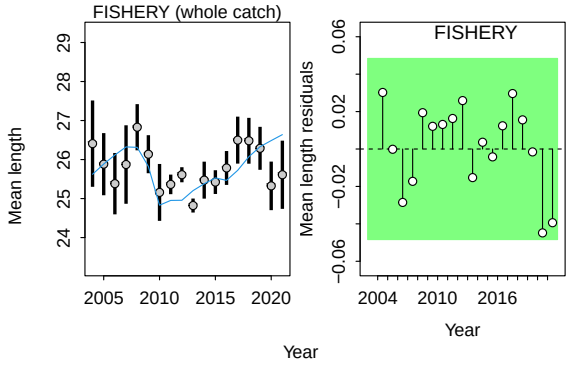
Fleet	RMSE.perc	Nobs
FISHERY	25	6
Combined	25	6

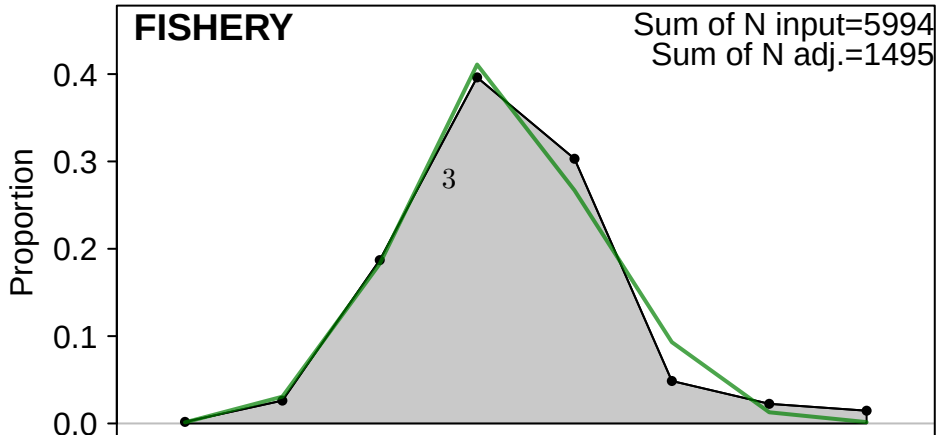


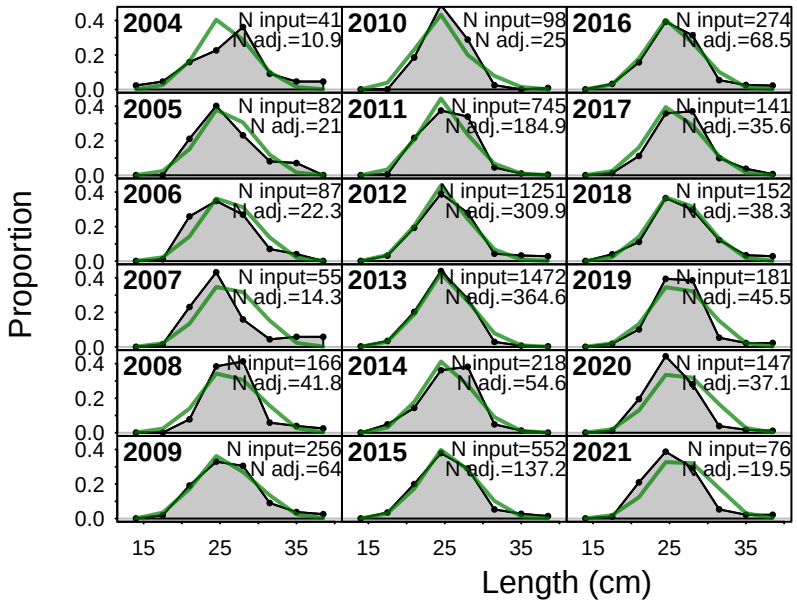
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	2.2	18
Combined	2.2	18

```
          w         lo         hi              Index runs.p   test   sigma3.lo  sigma3.hi type
0.1483887 0.0897315 0.4348387          1 FISHERY  0.176 Passed -0.04839996 0.04839996  len
```

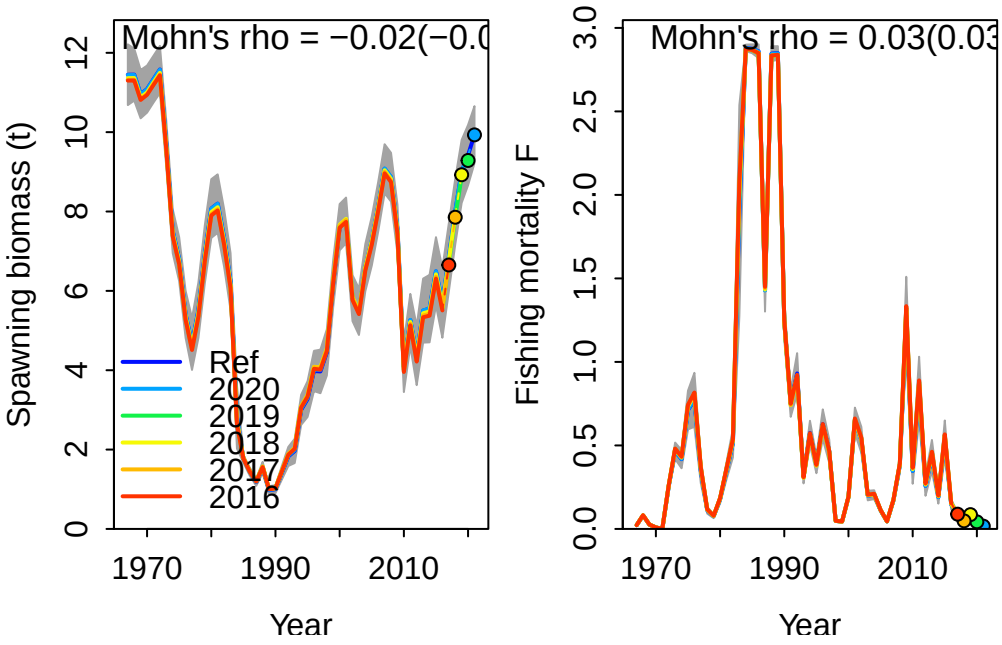






Retrospective

`Mohn's Rho stats, including one step ahead forecasts:`



```
Mohn's Rho stats, including one step ahead forecasts:

  type     peel         Rho ForecastRho
1    F     2020 0.002308842 0.002307133
2    F     2019 0.029191614 0.027221564
3    F     2018 0.022409665 0.020645197
4    F     2017 0.037215534 0.032178695
5    F     2016 0.051887049 0.044086076
6    F Combined 0.028602541 0.025287733
```

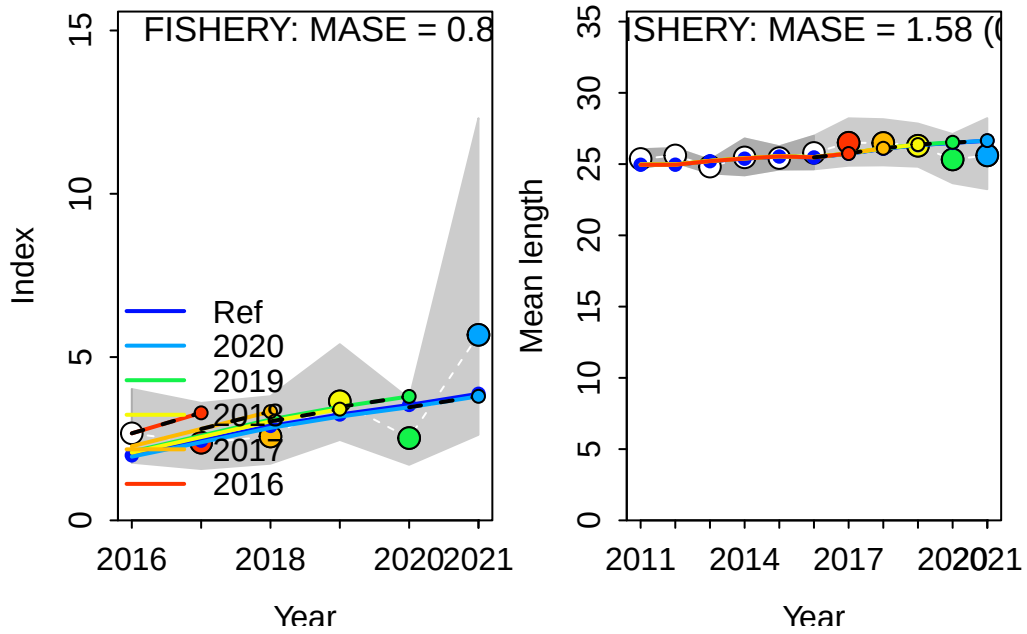
Hindcasting

```
Plotting Hindcast Cross-Validation (one-step-ahead)

 Computing MASE with all 5 of 5  prediction residuals for Index FISHERY


MASE stats by Index:
Plotting Hindcast Cross-Validation (one-step-ahead)

 Computing MASE with all 5 of 5  prediction residuals for Index FISHERY
```



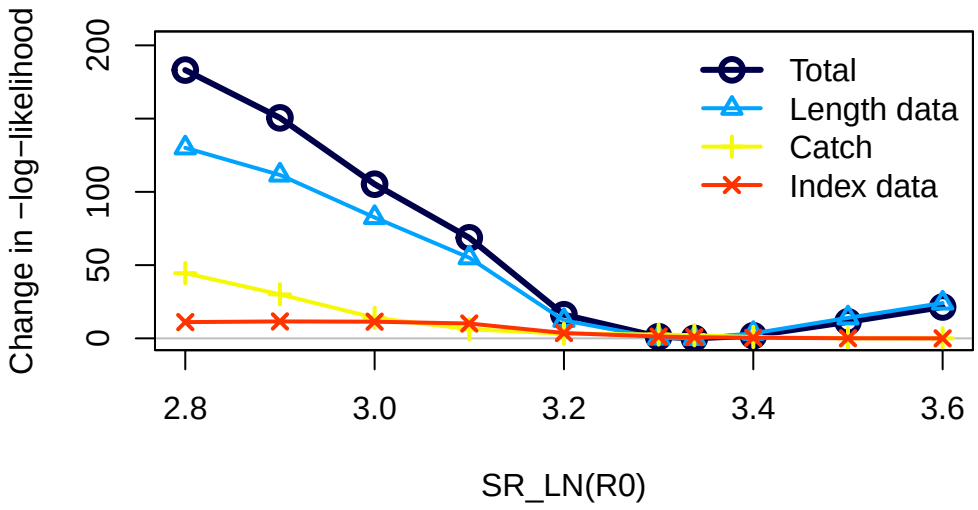
MASE stats by Index:

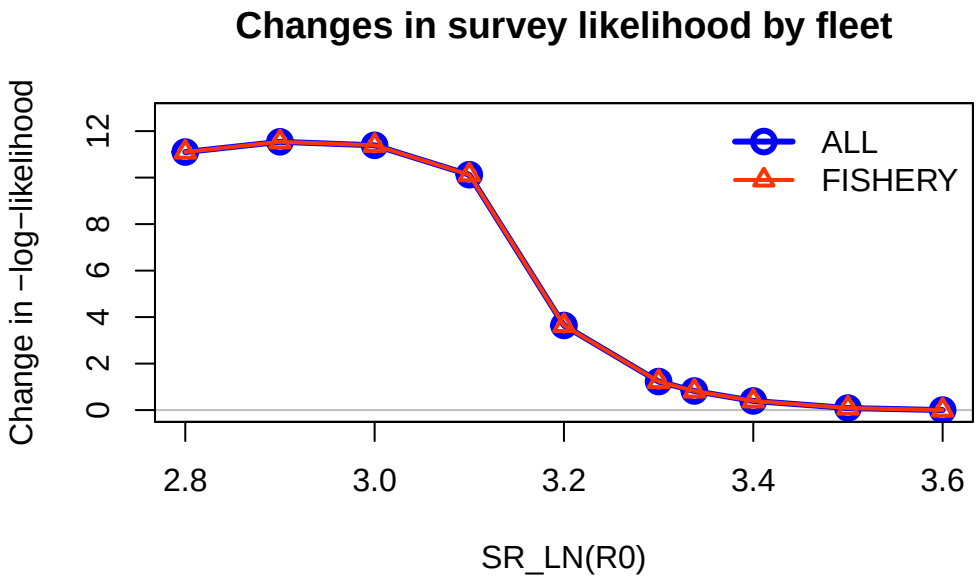
```
    Index Season     MASE     MAE.PR   MAE.base  MASE.adj n.eval
1 FISHERY      1 1.582647 0.02651062 0.01675081 0.2651062      5
```

Recruitment Deviations

Likelihood Profile

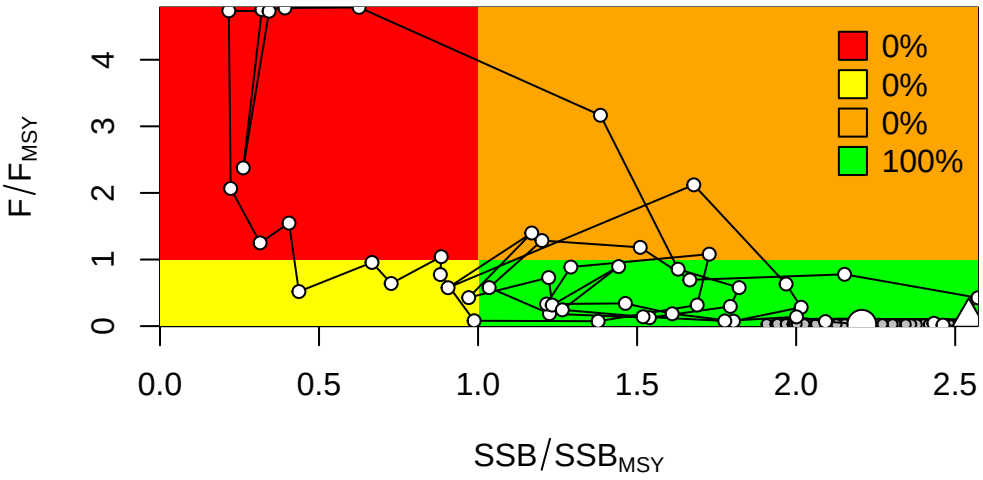
```
[1] "SR_LN"
                     frac_change include                           label
TOTAL                     1.0000    TRUE                           Total
Catch                     0.2429    TRUE                           Catch
Equil_catch               0.0000   FALSE                Equilibrium catch
Survey                    0.0630    TRUE                       Index data
Length_comp               0.7102    TRUE                     Length data
Recruitment               0.0000   FALSE                     Recruitment
InitEQ_Regime             0.0000   FALSE Initital equilibrium recruitment
Forecast_Recruitment      0.0000   FALSE             Forecast recruitment
Parm_priors               0.0026   FALSE                           Priors
Parm_softbounds           0.0001   FALSE                     Soft bounds
Parm_devs                 0.0000   FALSE             Parameter deviations
Crash_Pen                 0.0000   FALSE                    Crash penalty
```

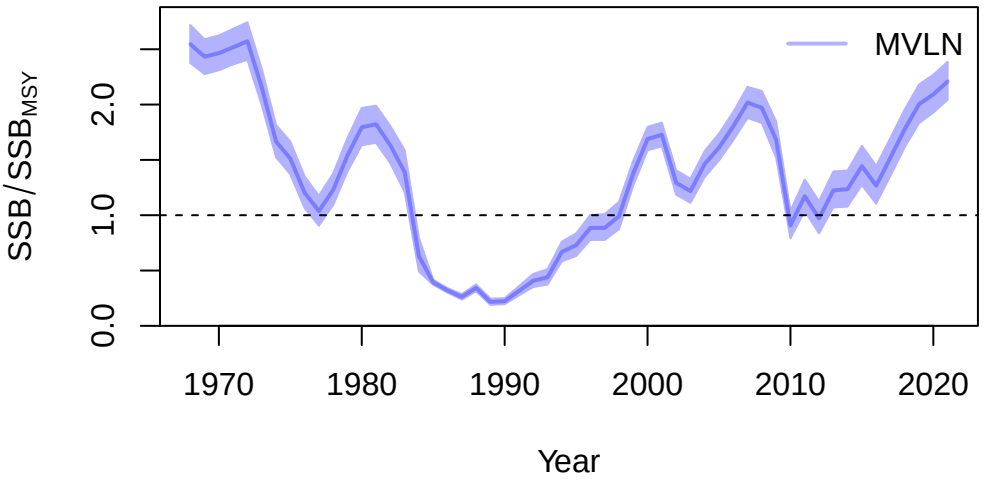


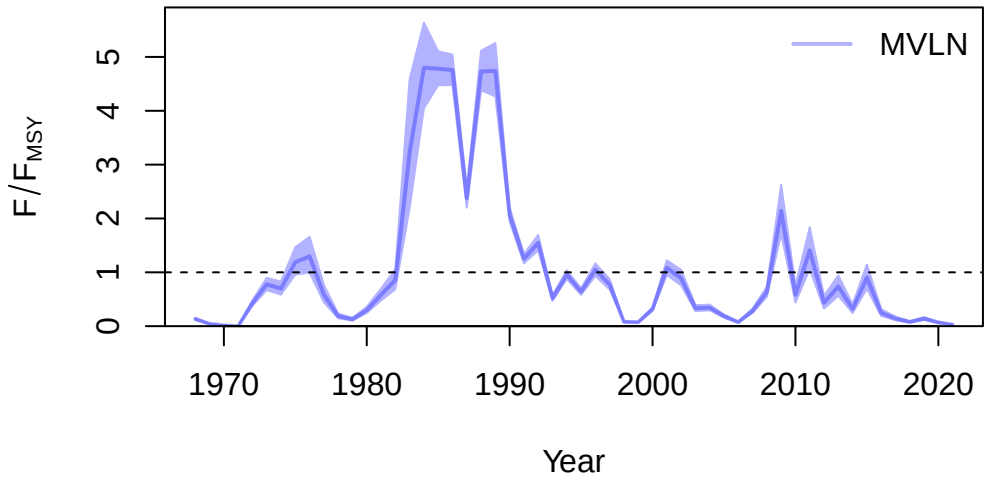


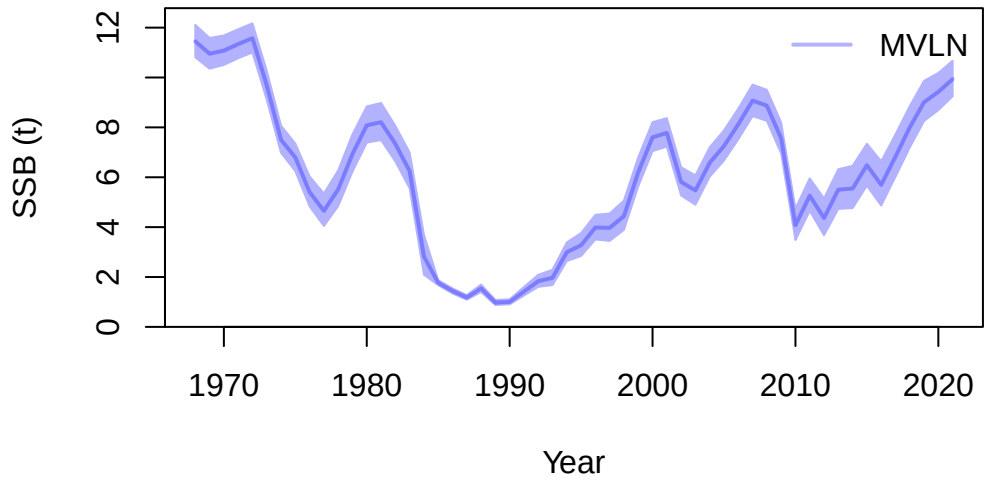
Management Quantities

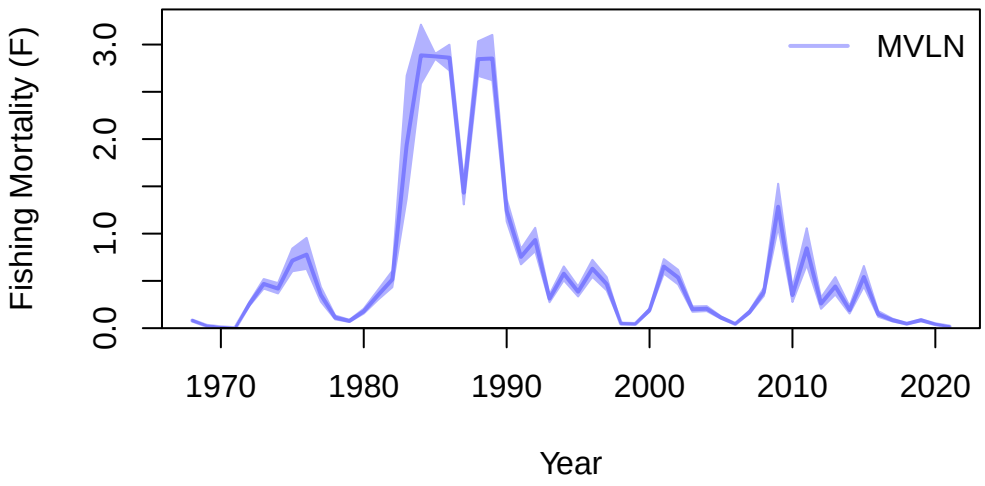
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F





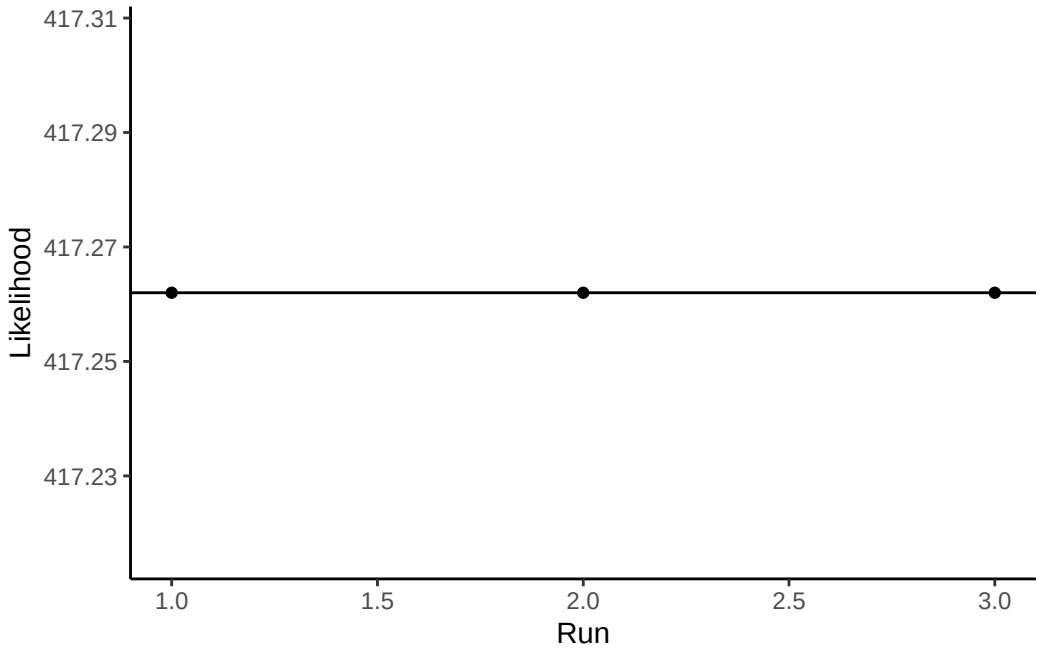

MVLN
F/F_MSY
0
1
2
3
4
5
1970
1980
1990
2000
2010
2020
Year

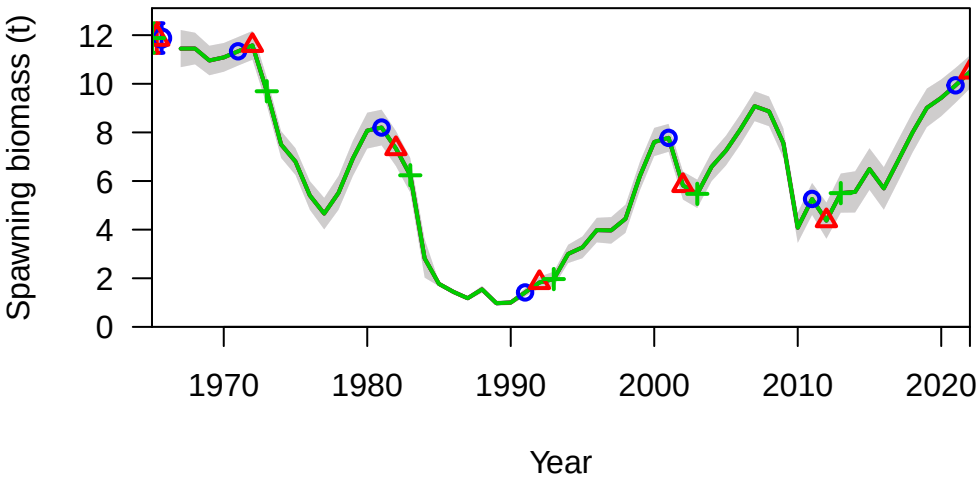

MVLN
SSB (t)
0
2
4
6
8
12
1970
1980
1990
2000
2010
2020
Year

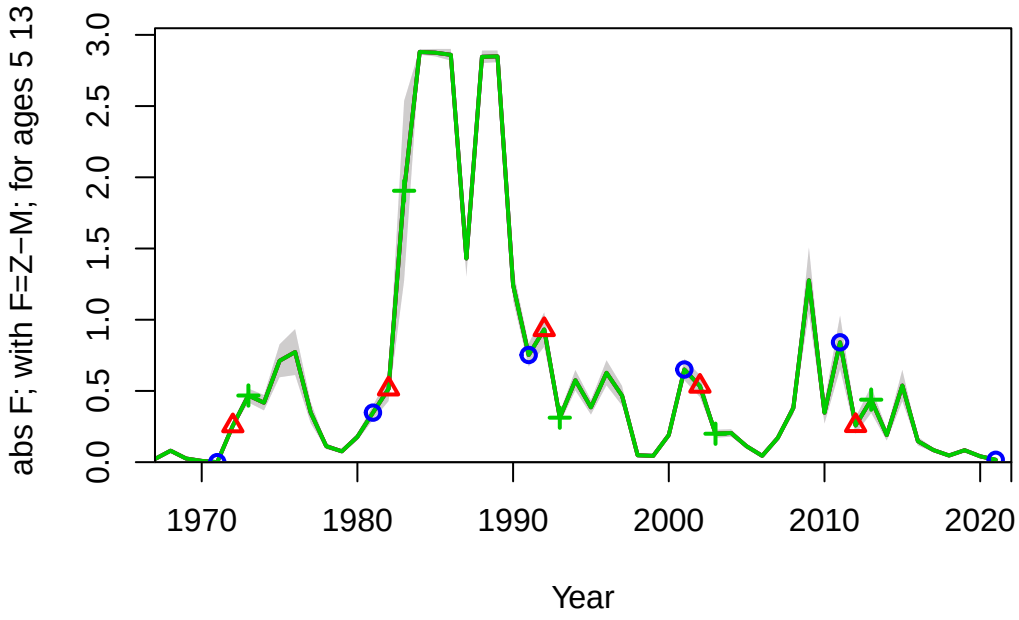


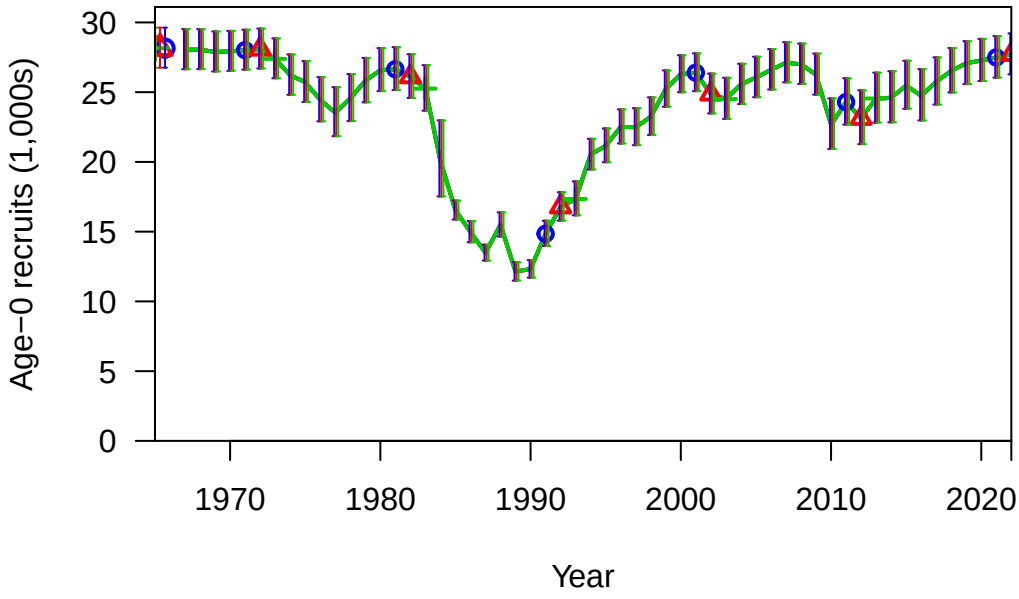

```
null device
          1
```

Jitter

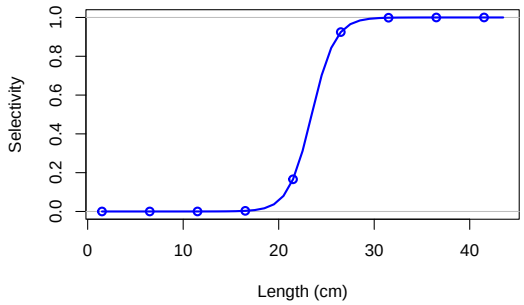

417.31
417.29
417.27
417.25
417.23
Likelihood
1.0
1.5
2.0
2.5
3.0
Run

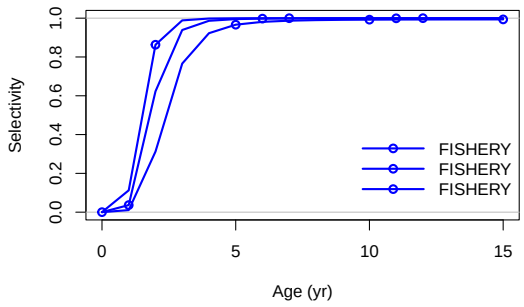

Spawning biomass (t)
12
10
8
6
4
2
0
1970
1980
1990
2000
2010
2020
Year

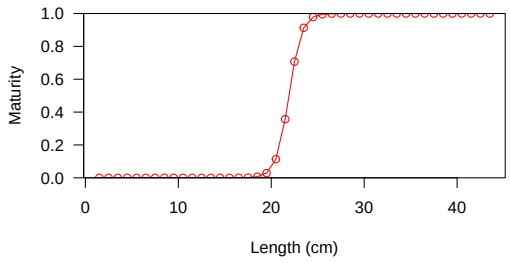


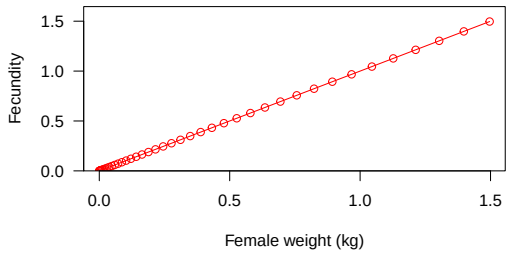


Selectivity and Maturity


Selectivity
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
Length (cm)


Selectivity
0.0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
Age (yr)
FISHERY
FISHERY
FISHERY


Maturity
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
Length (cm)


Fecundity
0.0
0.5
1.0
1.5
0.0
0.5
1.0
1.5
Female weight (kg)