American Samoa Model Checks

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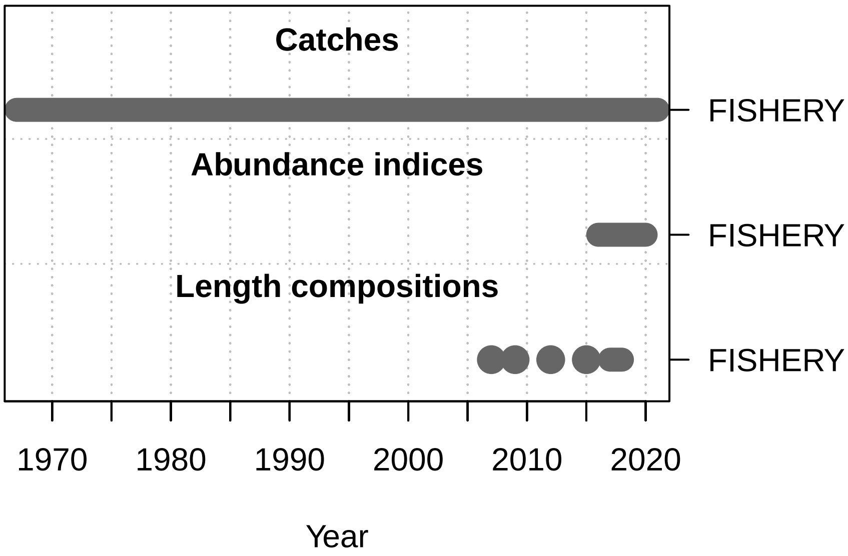
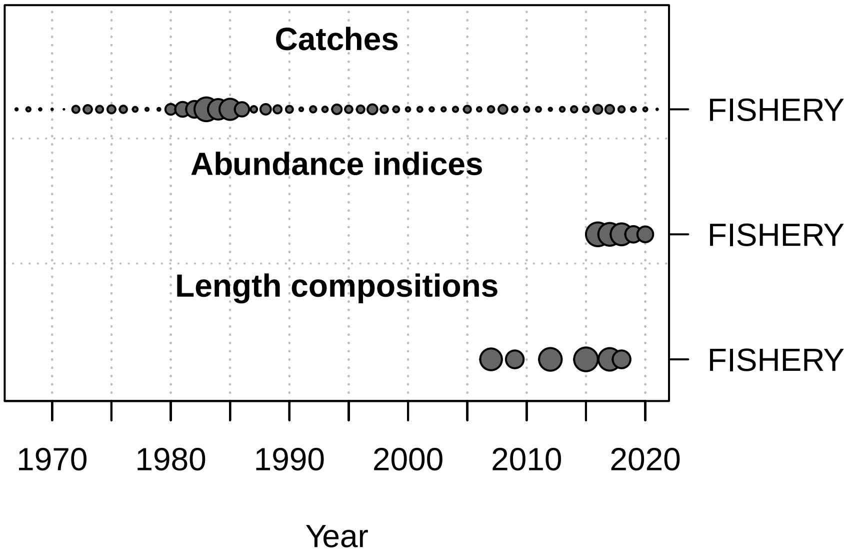
This is a summary report for the PRZO base model run.

Model Output

Input Data





Convergence Check

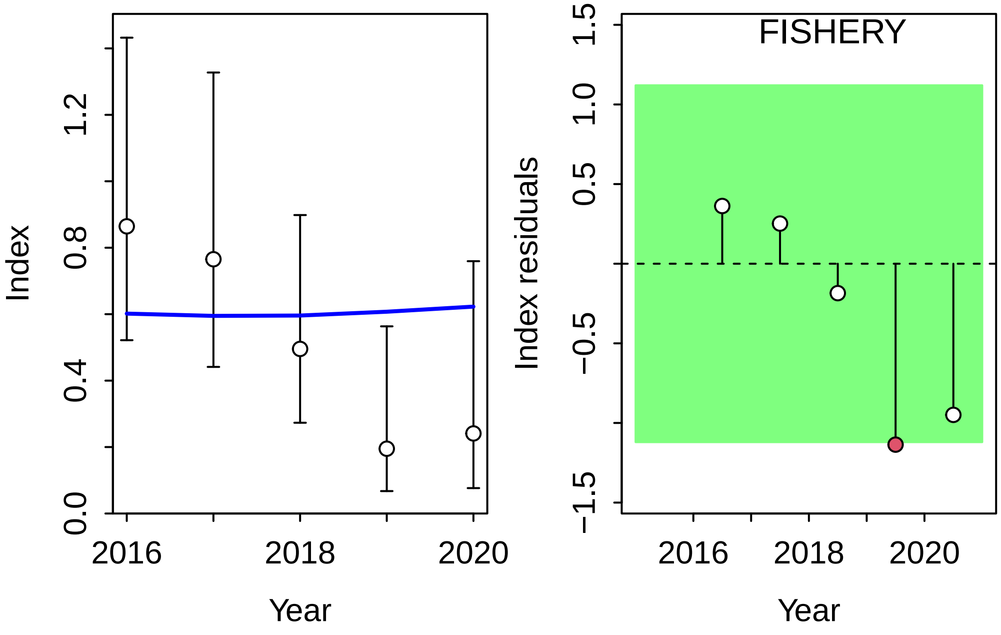
```
  Converged     MaxGrad
1      TRUE 5.23651e-06
```

```
[1] "1 NOTE:  Max data length bin: 40  < max pop len bins: 44; so will accumulate larger pop
[2] "N warnings: 1"
```

Fit to Model

CPUE

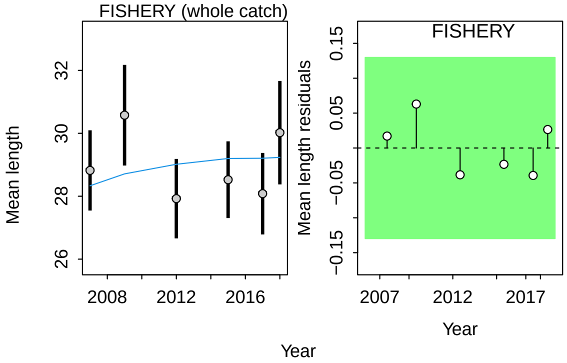
Fleet	RMSE.perc	Nobs
FISHERY	69.6	5
Combined	69.6	5

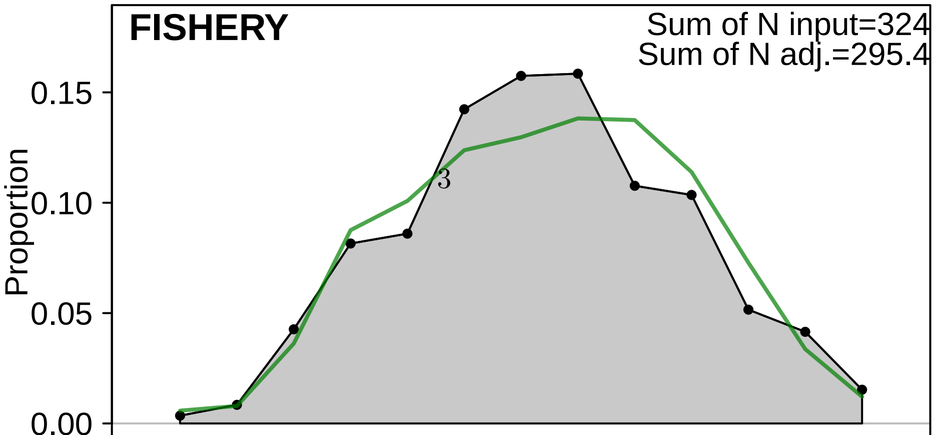


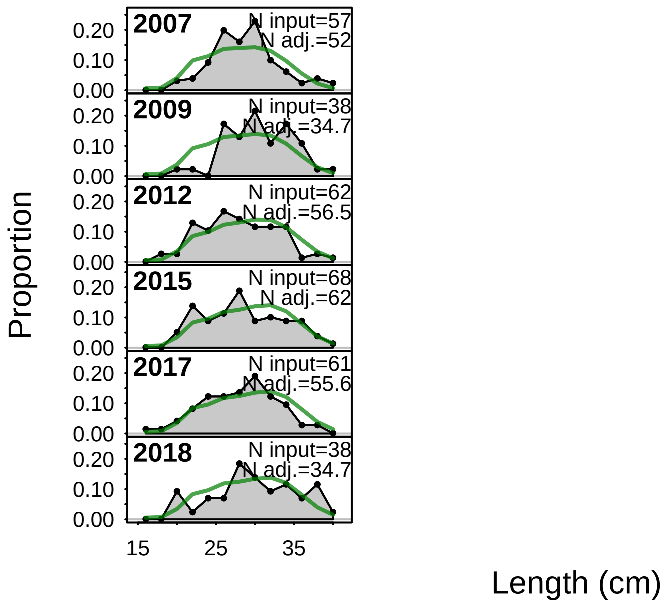
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	3.8	6
Combined	3.8	6

```
        w        lo        hi              Index runs.p   test  sigma3.lo sigma3.hi type
0.3540511 0.2421028 1.6116460          1 FISHERY  0.181 Passed -0.1297543 0.1297543  len
```

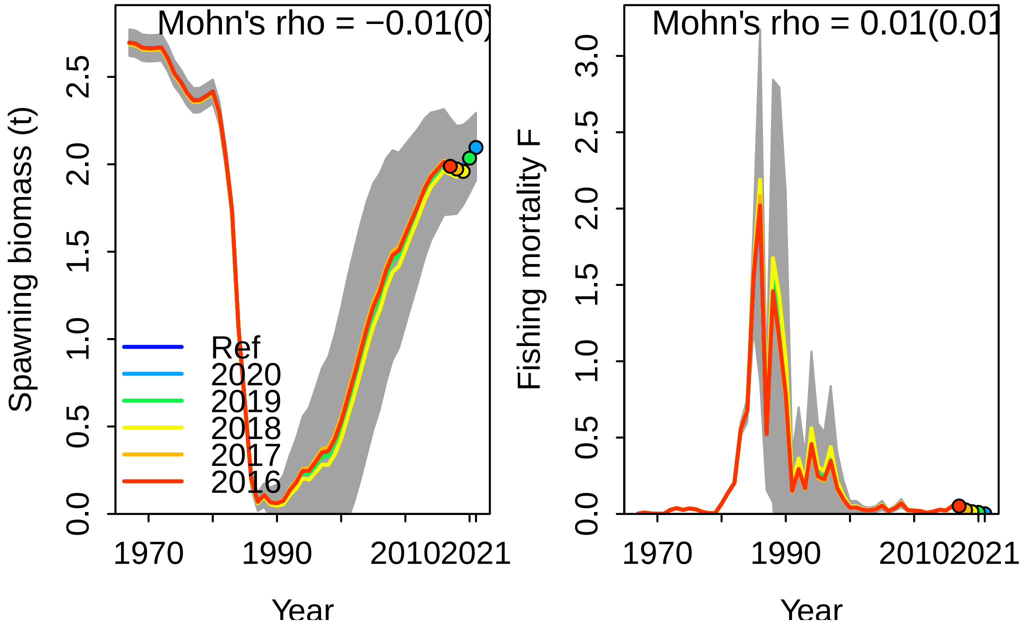






Retrospective

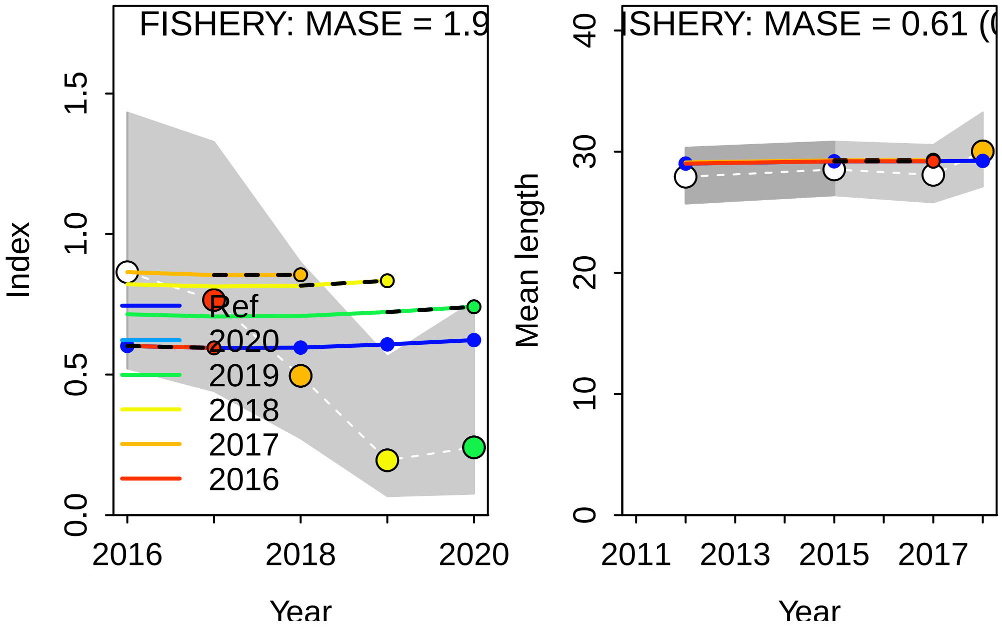
```
Mohn's Rho stats, including one step ahead forecasts:
```



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

  type     peel          Rho  ForecastRho
1    F     2020  0.002661069  0.002402287
2    F     2019  0.006118562  0.005519253
3    F     2018  0.021304622  0.019213366
4    F     2017 -0.001681905 -0.001197142
5    F     2016  0.000000000  0.000000000
6    F Combined  0.005680470  0.005187553
```

Hindcasting

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

 Computing MASE with only 4 of 5  prediction residuals for Index FISHERY

 Warning:  Unequal spacing of naive predictions residuals may influence the interpretation o


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

 Computing MASE with only 1 of 5  prediction residuals for Index FISHERY

 Warning:  Unequal spacing of naive predictions residuals may influence the interpretation o
```



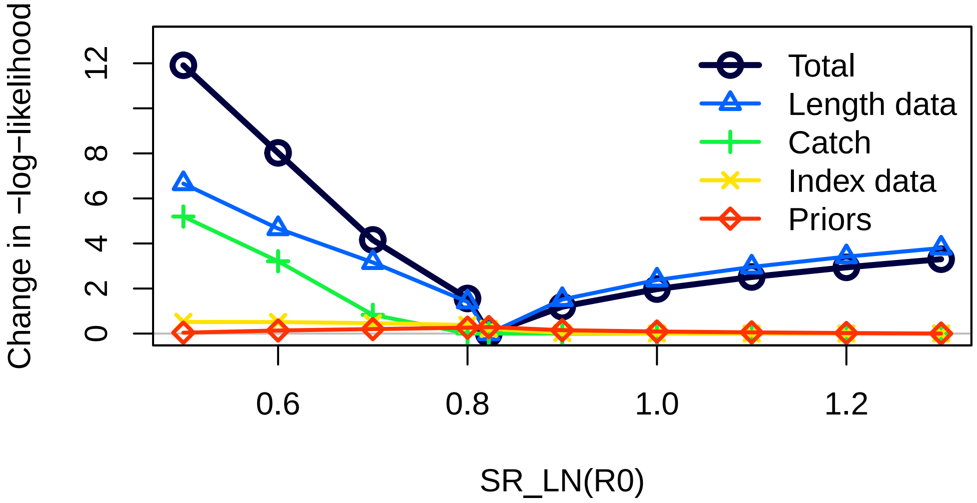
```
MASE stats by Index:

    Index Season      MASE     MAE.PR   MAE.base  MASE.adj n.eval
1 FISHERY      1 0.6105972 0.04077207 0.06677409 0.4077207      1
```

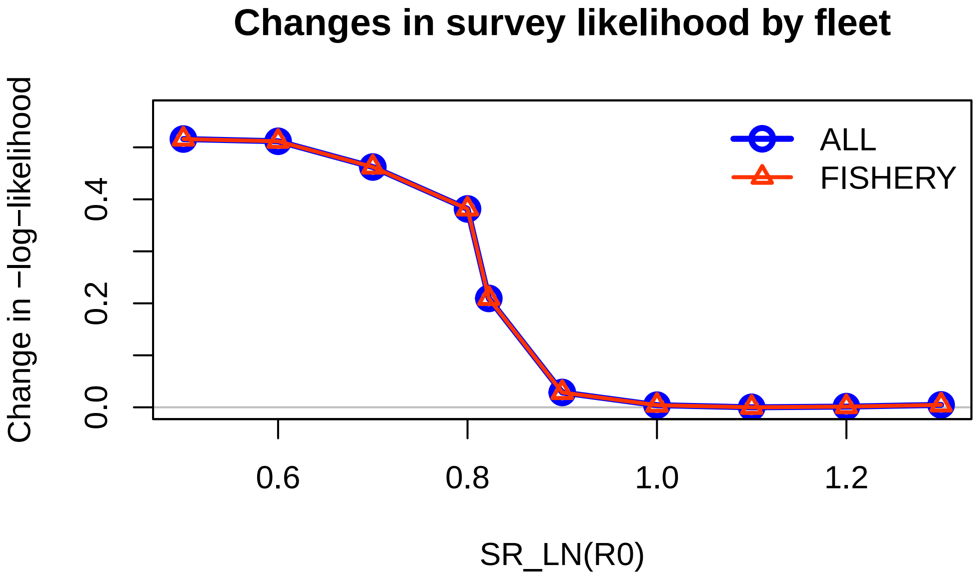
Recruitment Deviations

Likelihood Profile

```
[1] "SR_LN"
                     frac_change include                           label
TOTAL                     1.0000    TRUE                           Total
Catch                     0.4363    TRUE                           Catch
Equil_catch               0.0000   FALSE               Equilibrium catch
Survey                    0.0433    TRUE                      Index data
Length_comp               0.5590    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               0.0243    TRUE                          Priors
```

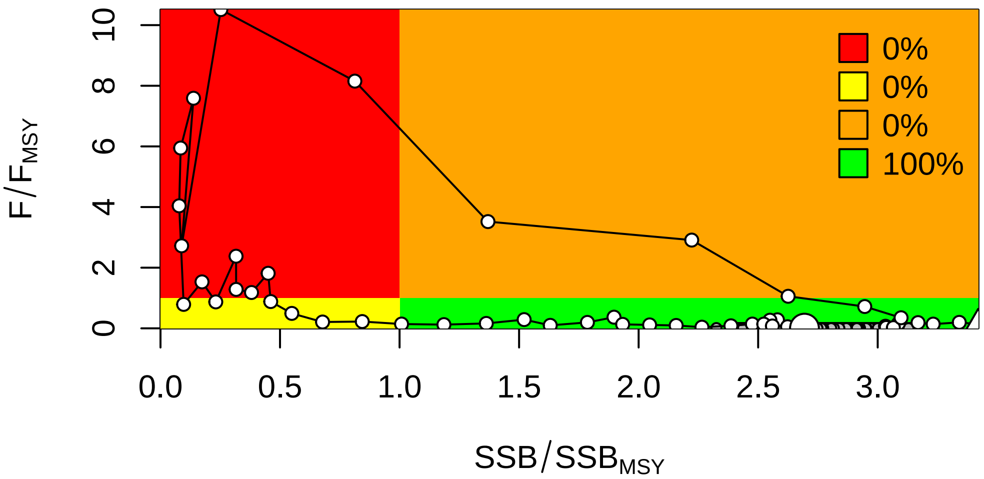
```
Parm_softbounds            0.0000   FALSE                 Soft bounds
Parm_devs                  0.0000   FALSE        Parameter deviations
Crash_Pen                  0.0000   FALSE               Crash penalty
```

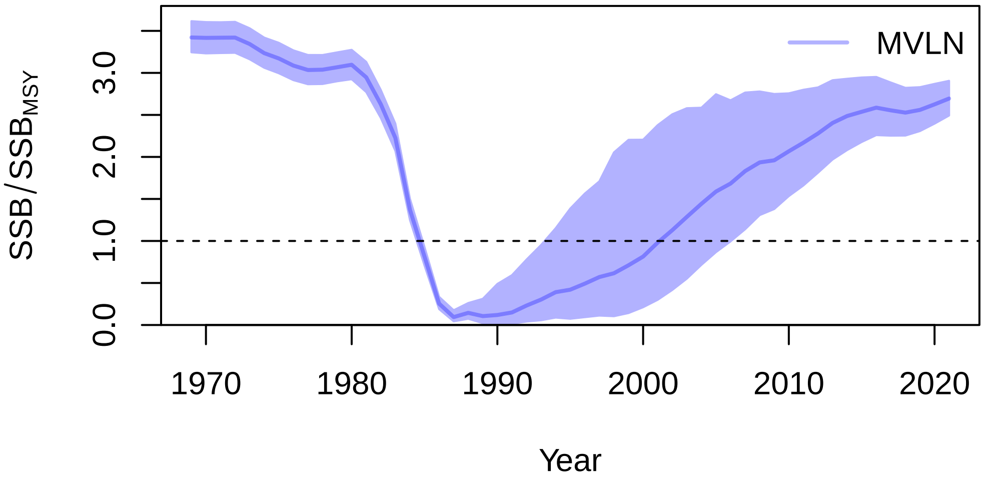


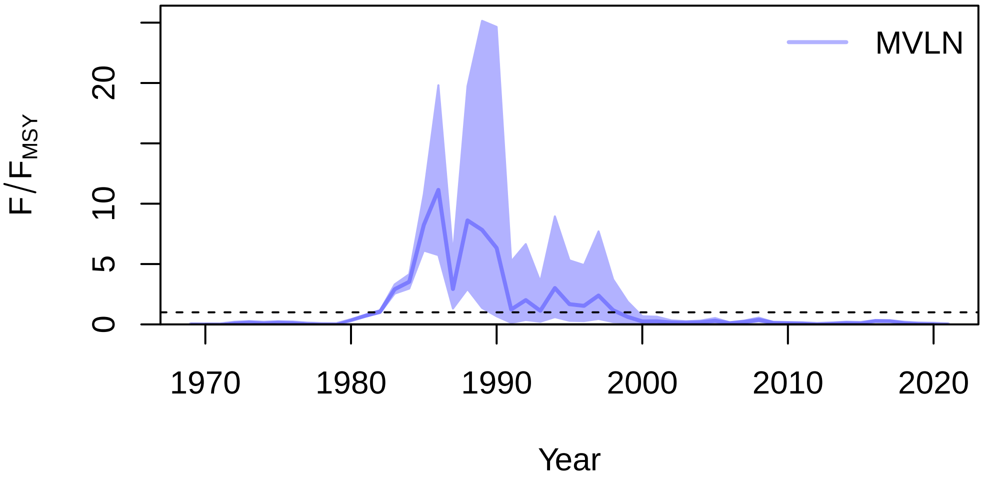

Changes in survey likelihood by fleet

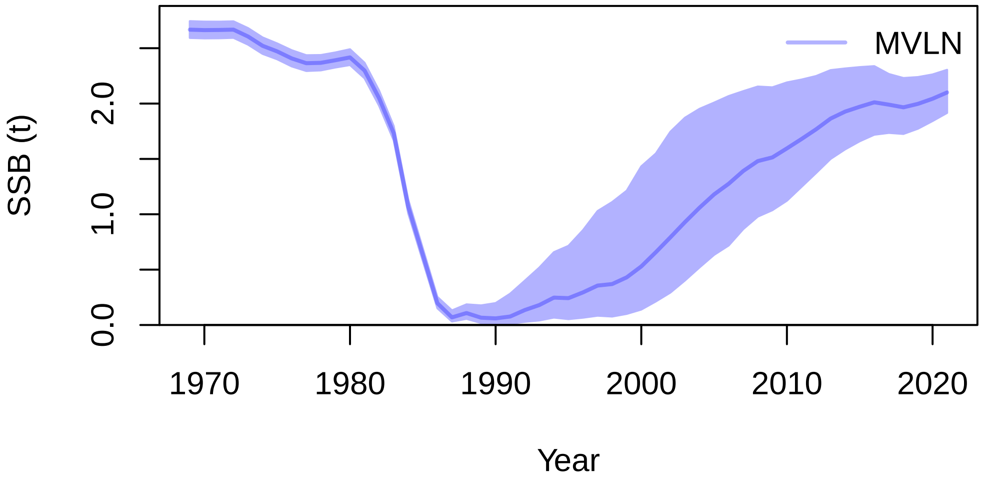
Management Quantities

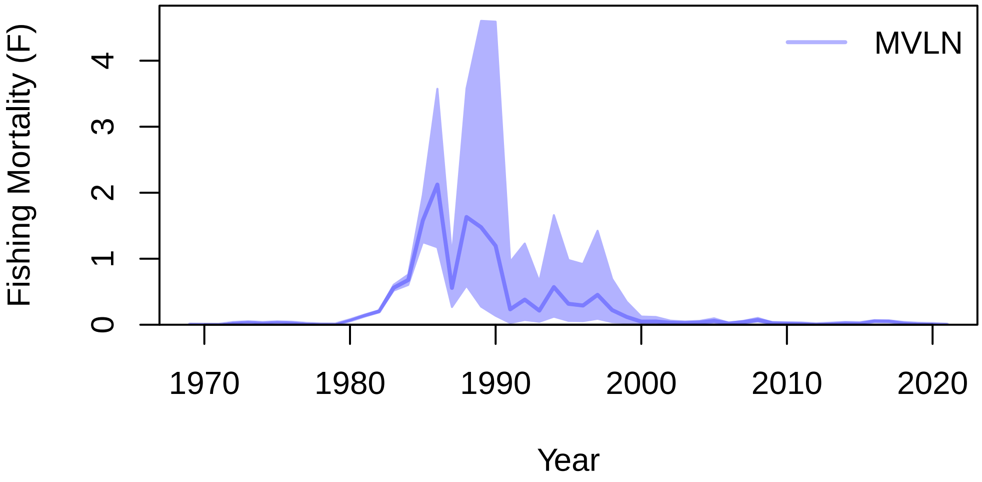
```
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F
```




MVLN
SSB/SSB_{MSY}
0.0
1.0
2.0
3.0
1970
1980
1990
2000
2010
2020
Year

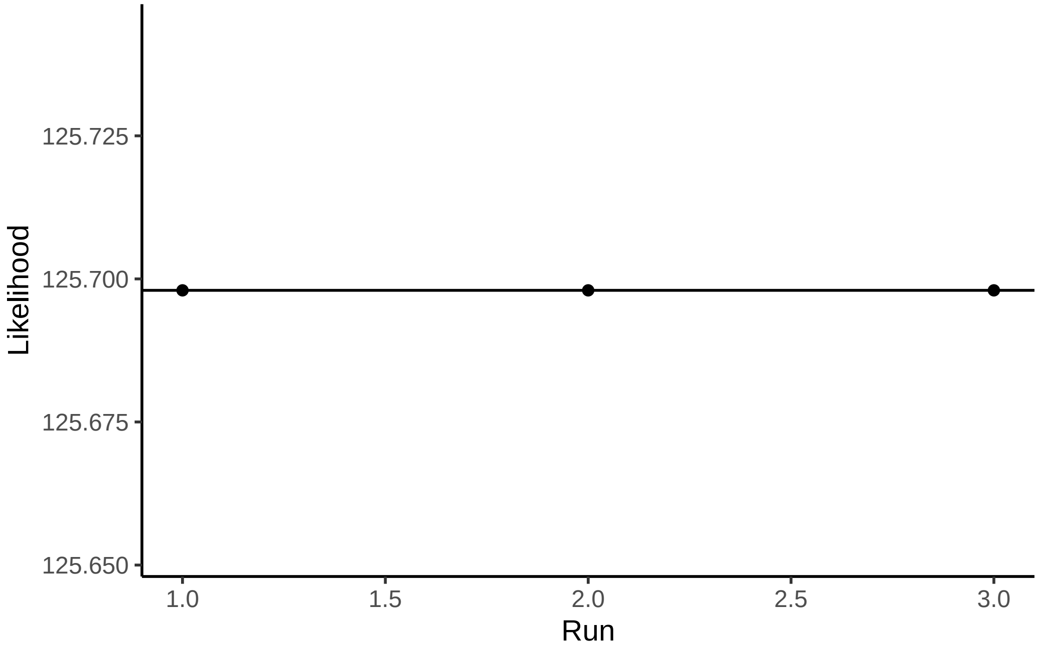

MVLN
F/F_{MSY}
0
5
10
20
1970
1980
1990
2000
2010
2020
Year



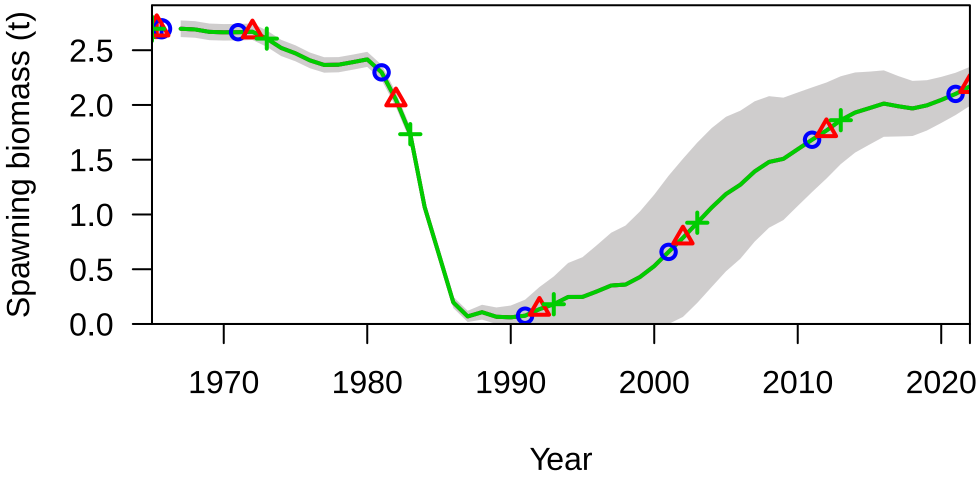


```
null device
          1
```

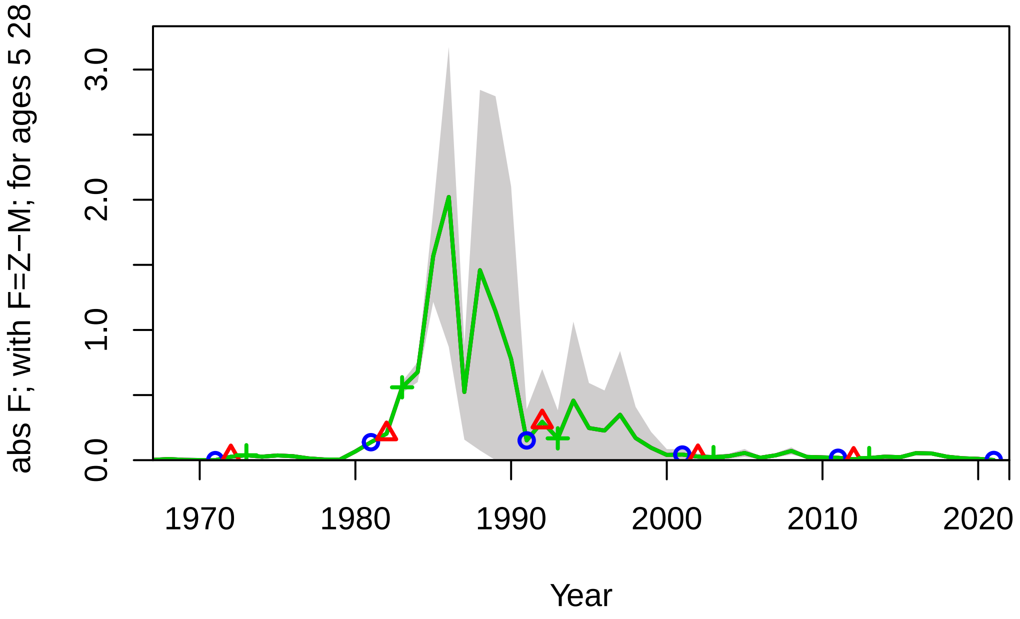
Jitter

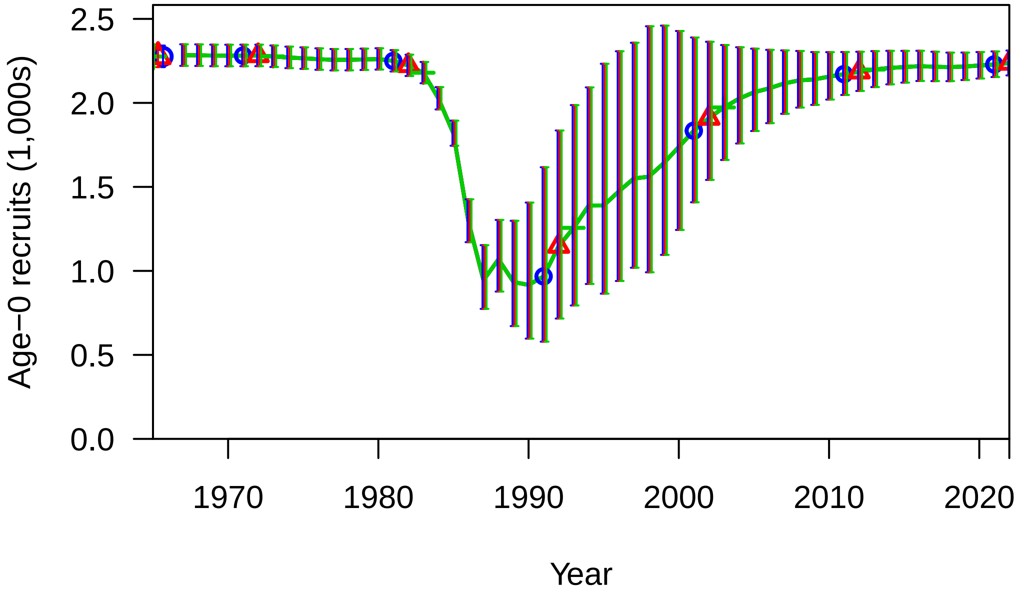


Likelihood
125.725
125.700
125.675
125.650
1.0
1.5
2.0
2.5
3.0
Run

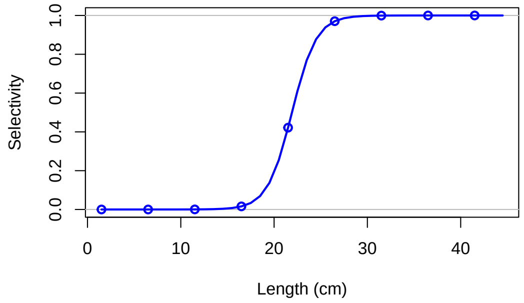


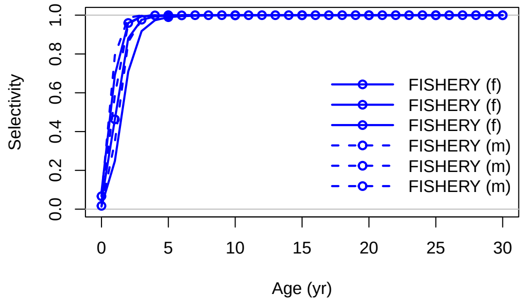
Spawning biomass (t)
2.5
2.0
1.5
1.0
0.5
0.0
1970
1980
1990
2000
2010
2020
Year

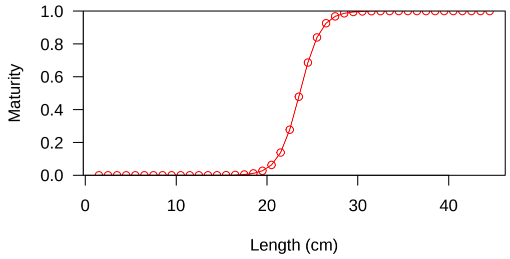


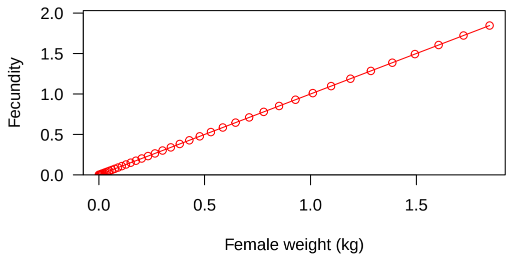


Selectivity and Maturity


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
FISHERY (f)
FISHERY (f)
FISHERY (f)
FISHERY (m)
FISHERY (m)
FISHERY (m)
0
5
10
15
20
25
30
Age (yr)


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
2.0
0.0
0.5
1.0
1.5
Female weight (kg)