American Samoa Model Checks

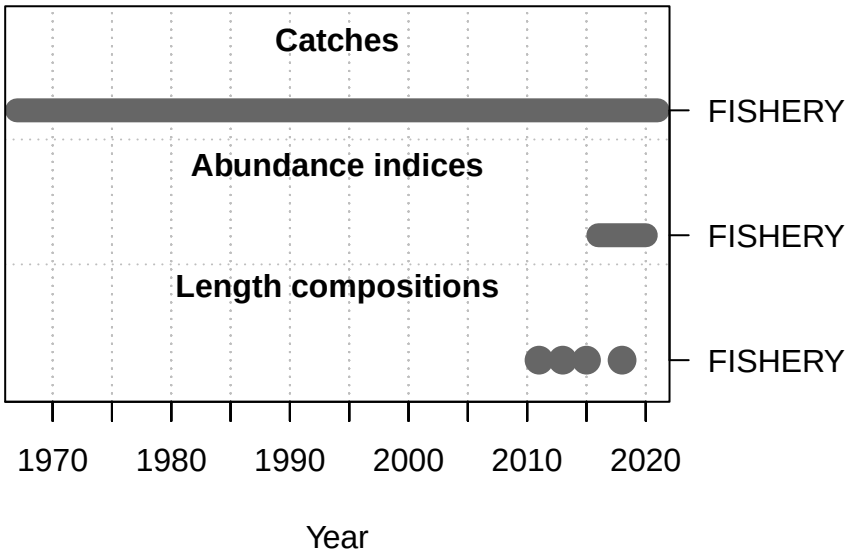
Marc Nadon and Meg Oshima

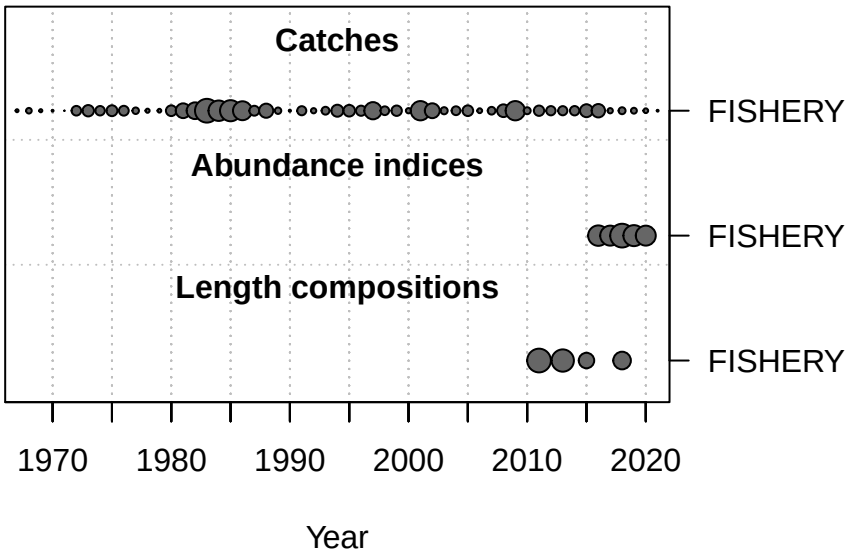
2023-01-10

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

Model Output

Input Data





Convergence Check

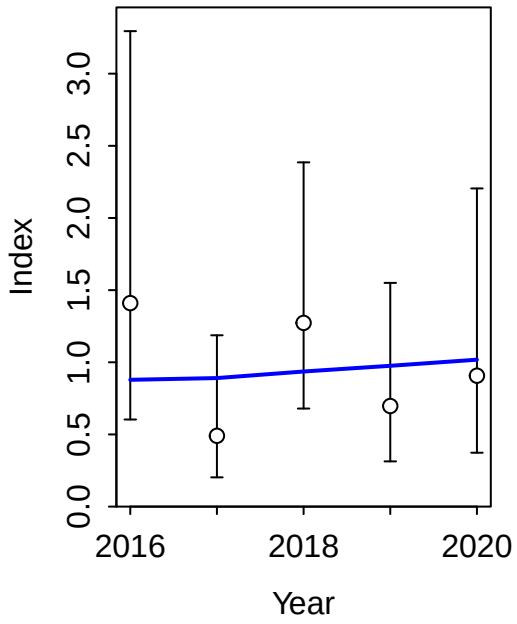
```
  Converged     MaxGrad
1      TRUE 5.21714e-05
```

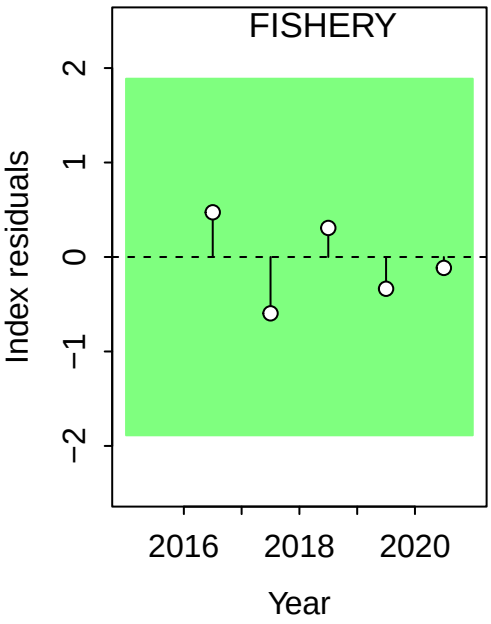
```
[1] "1 NOTE:  Max data length bin: 48  < max pop len bins: 53; so will accumulate larger pop
[2] "N warnings: 1"
```

Fit to Model

CPUE

Fleet	RMSE.perc	Nobs
FISHERY	40	5
Combined	40	5

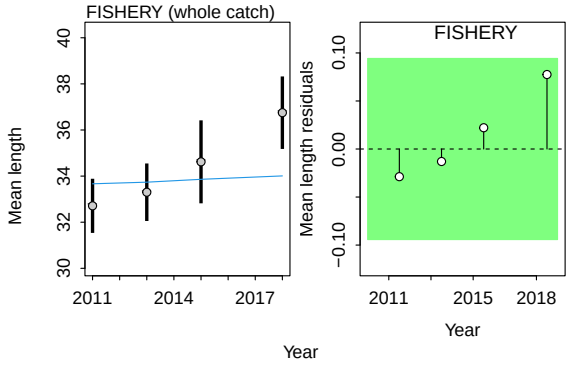


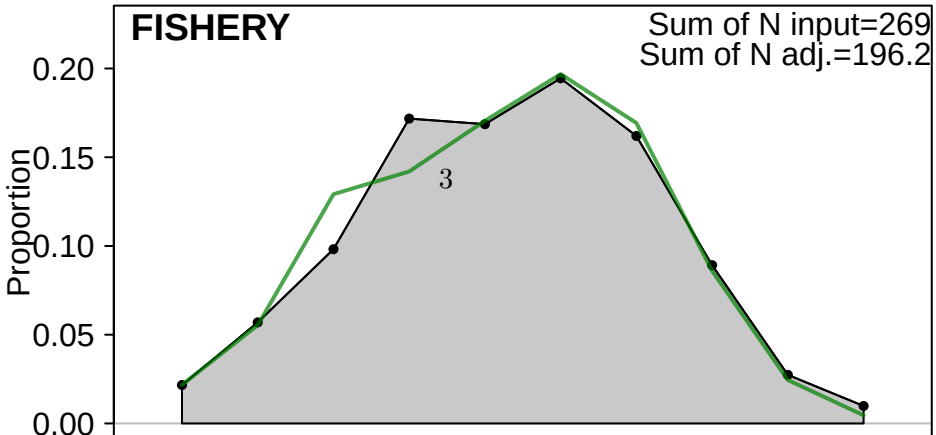


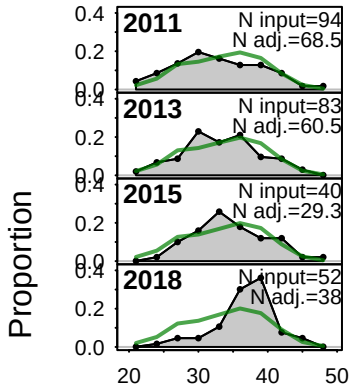
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	4.3	4
Combined	4.3	4

```
        w         lo         hi              Index runs.p   test   sigma3.lo  sigma3.hi type
0.1998108 0.1359171 4.6408203          1 FISHERY   0.11 Passed -0.09427357 0.09427357  len
```

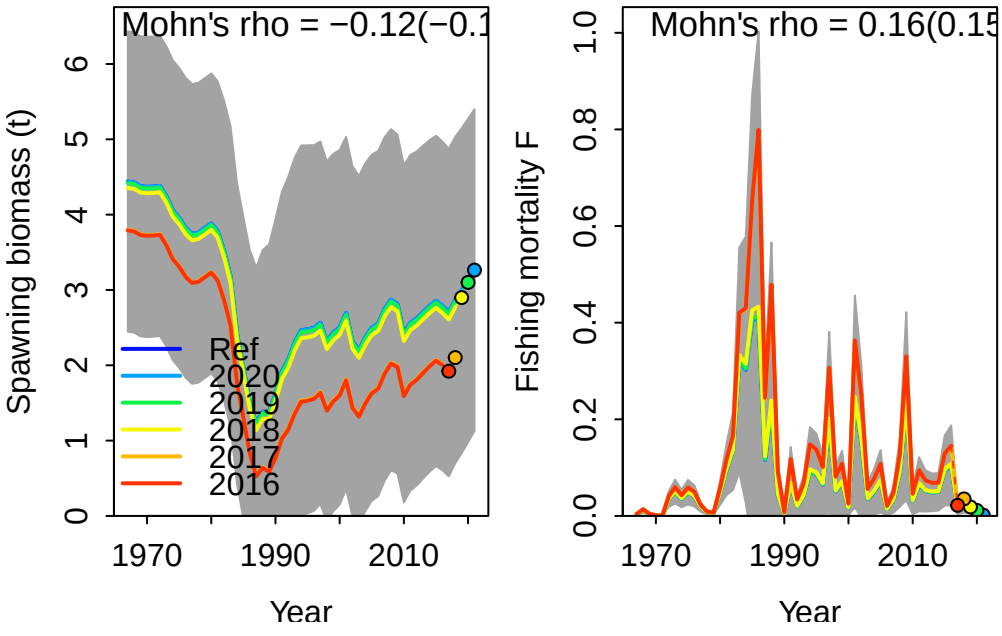






Retrospective

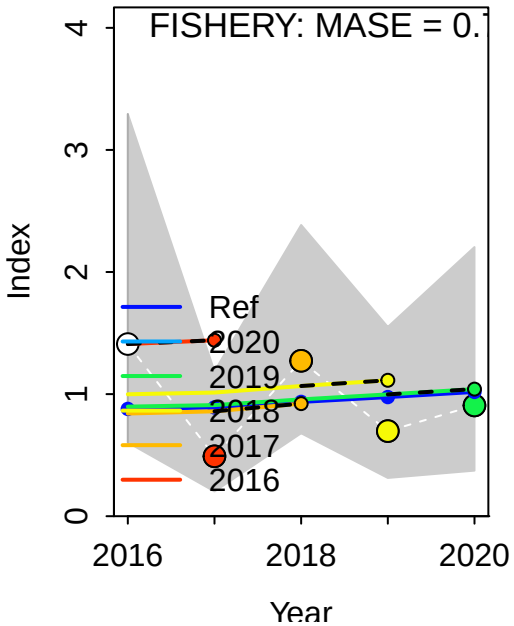
`Mohn's Rho stats, including one step ahead forecasts:`



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

  type     peel         Rho ForecastRho
1    F     2020 0.000000000 0.000000000
2    F     2019 0.007932411 0.007563589
3    F     2018 0.032476603 0.030969153
4    F     2017 0.368272863 0.340024282
5    F     2016 0.386819238 0.375575849
6    F Combined 0.159100223 0.150826575
```

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)

No observations in evaluation years to compute prediction residuals for Index FISHERY

MASE stats by Index:

    Index Season MASE MAE.PR MAE.base MASE.adj n.eval
1 FISHERY      1   NA     NA       NA       NA      0
```

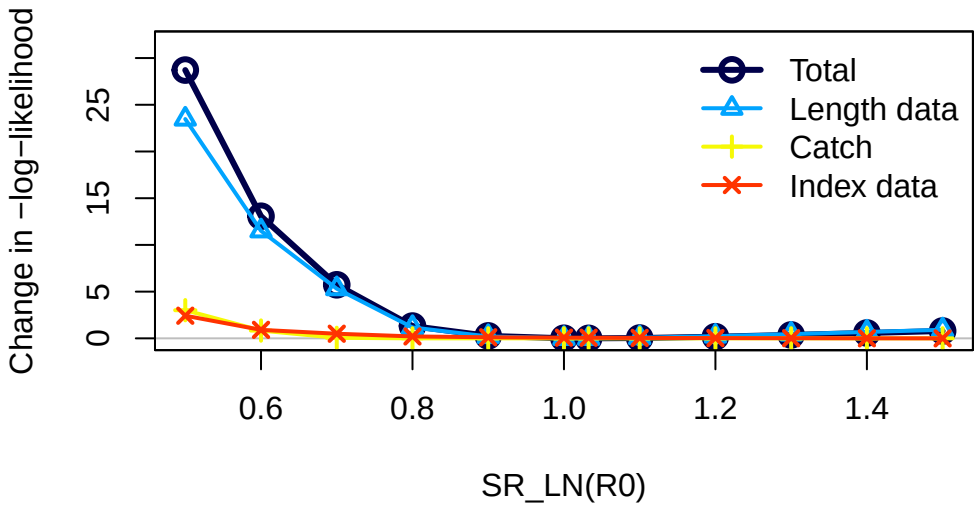


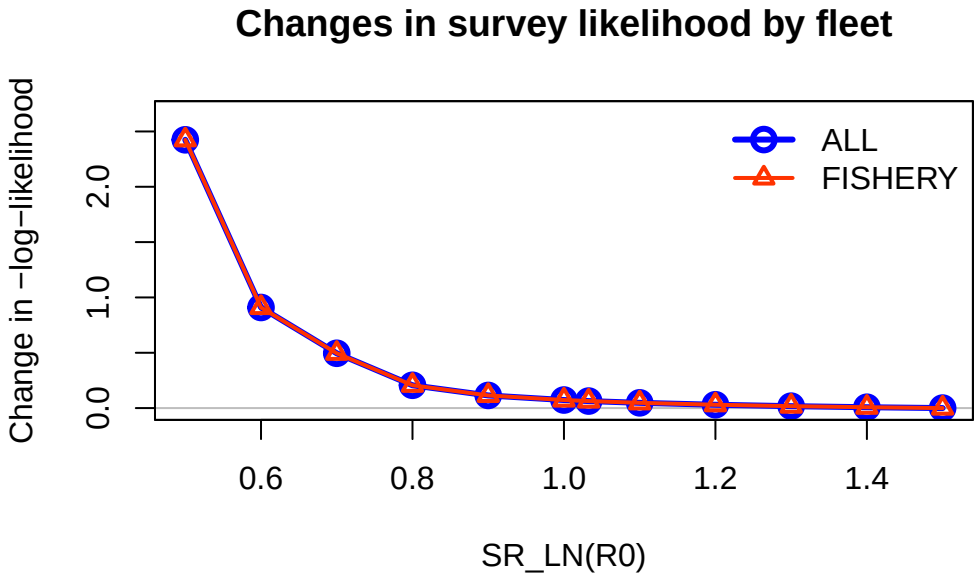
Recruitment Deviations

Likelihood Profile

```
[1] "SR_LN"
```

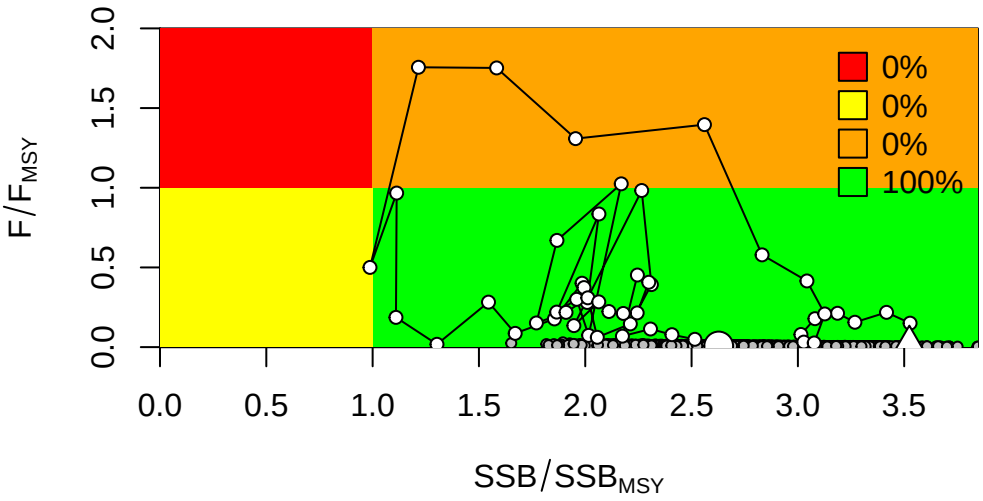
	frac_change	include	label
TOTAL	1.0000	TRUE	Total
Catch	0.1049	TRUE	Catch
Equil_catch	0.0000	FALSE	Equilibrium catch
Survey	0.0844	TRUE	Index data
Length_comp	0.8174	TRUE	Length data
Recruitment	0.0000	FALSE	Recruitment
InitEQ_Regime	0.0000	FALSE	Initital equilibrium recruitment
Forecast_Recruitment	0.0000	FALSE	Forecast recruitment
Parm_priors	0.0054	FALSE	Priors
Parm_softbounds	0.0003	FALSE	Soft bounds
Parm_devs	0.0000	FALSE	Parameter deviations
Crash_Pen	0.0000	FALSE	Crash penalty

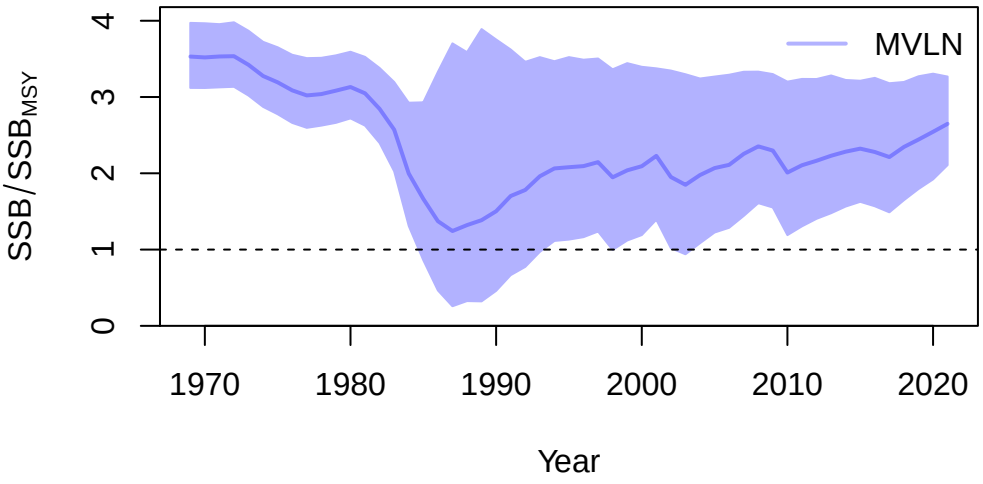


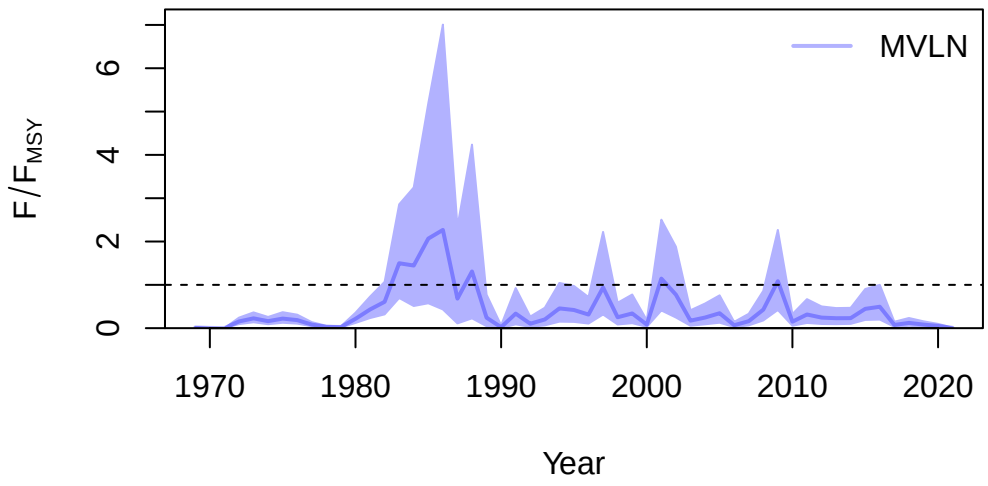


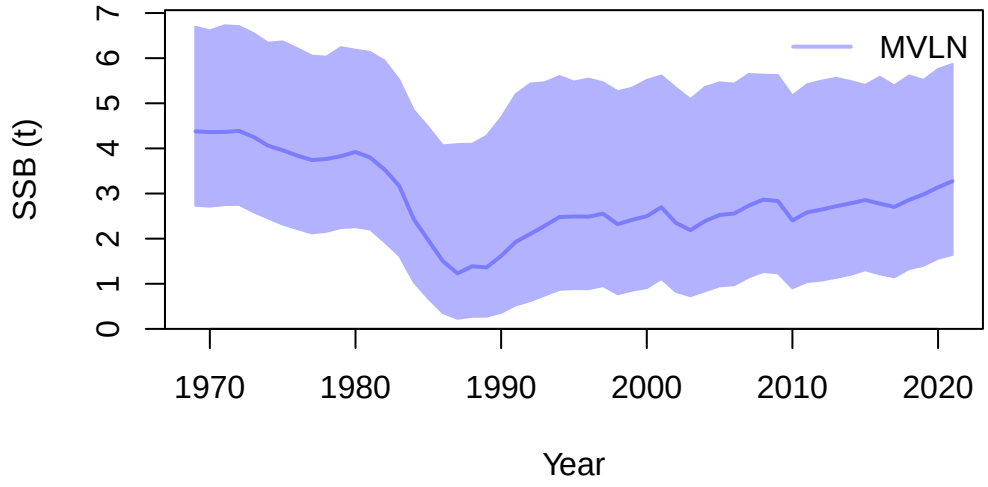
Management Quantities

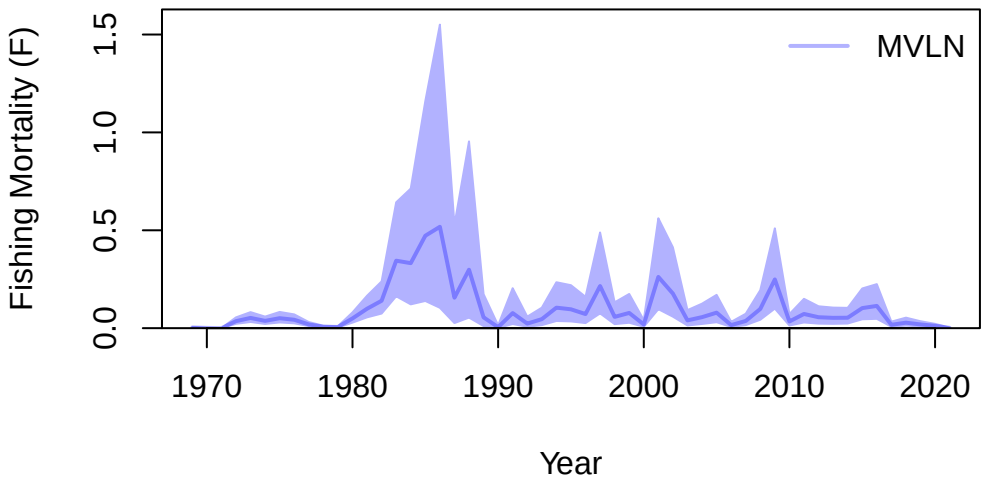
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F





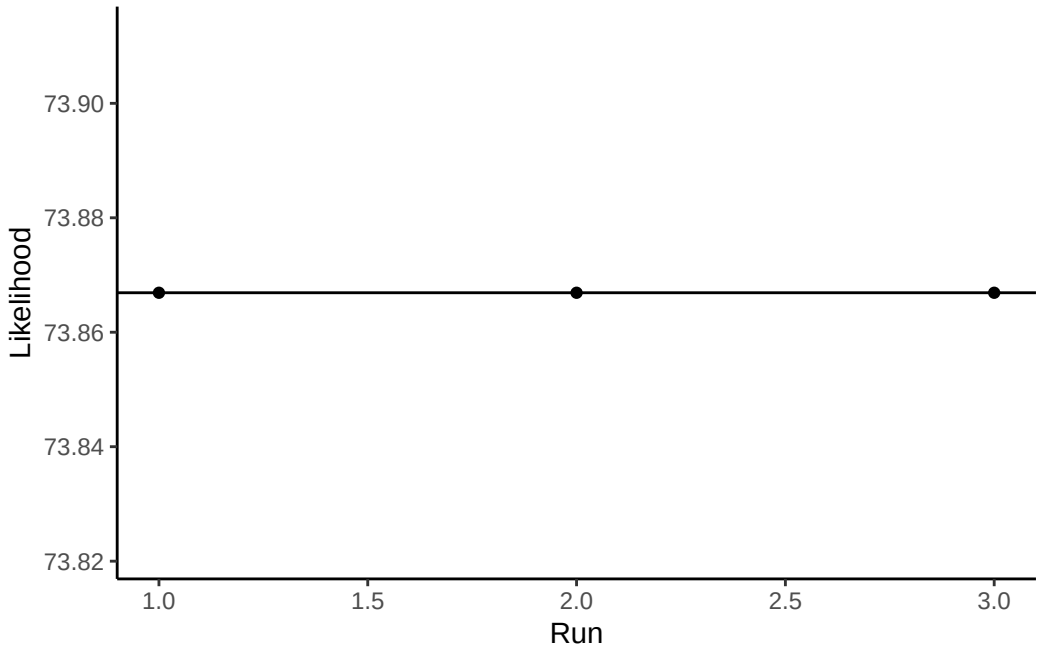

MVLN
F/F_MSY
0
2
4
6
1970
1980
1990
2000
2010
2020
Year

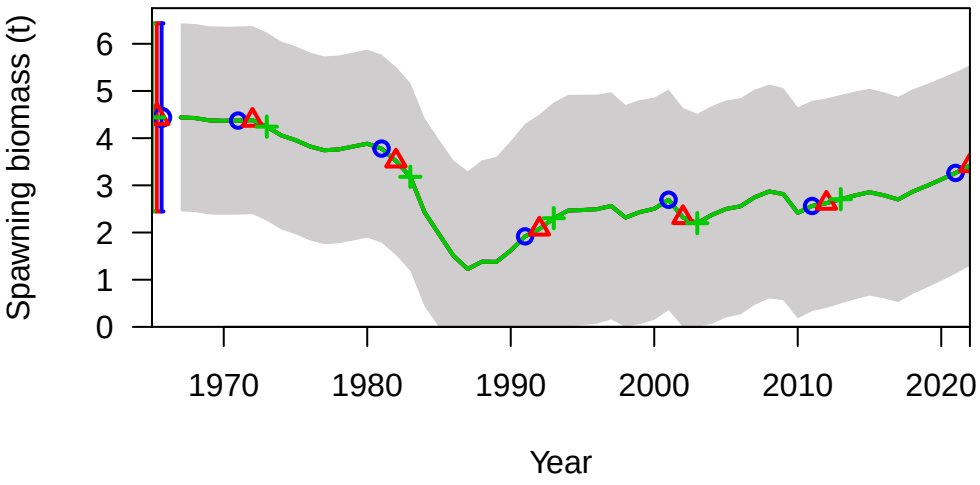

MVLN
SSB (t)
0
1
2
3
4
5
6
7
1970
1980
1990
2000
2010
2020
Year

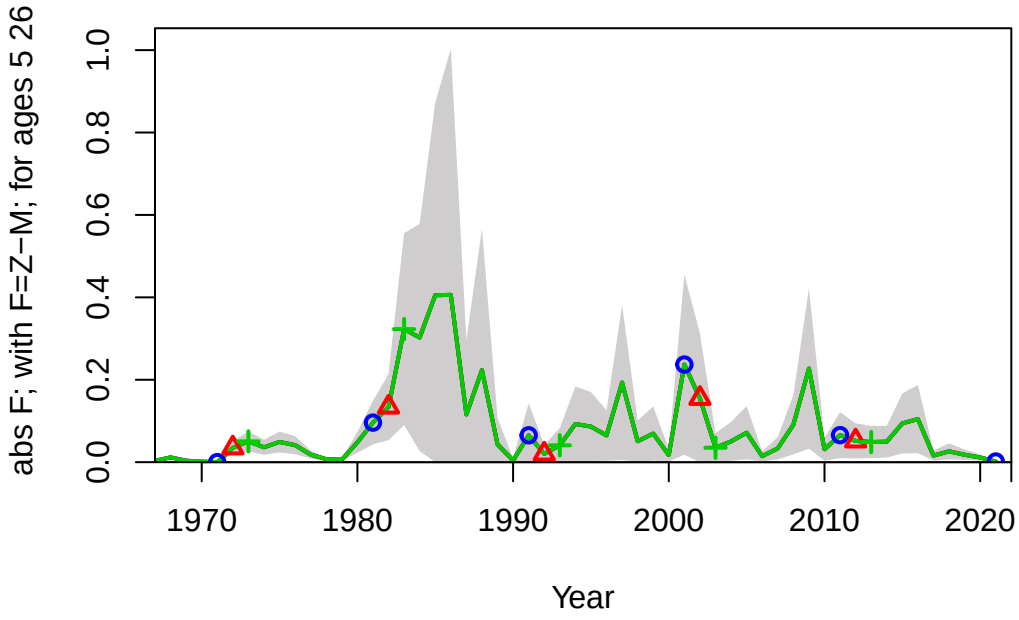


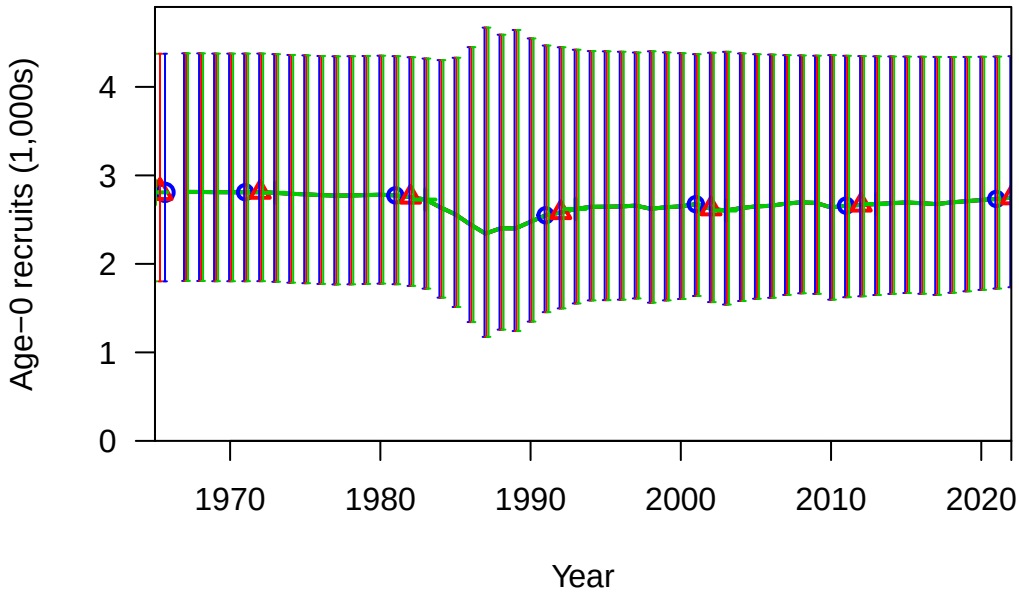

```
null device
          1
```

Jitter

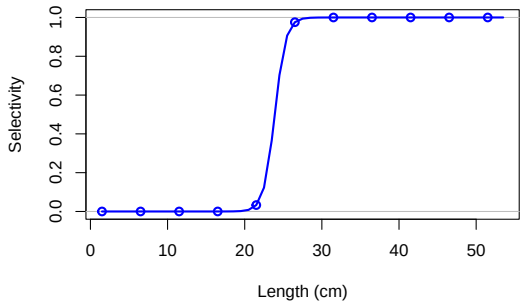

Likelihood
73.90
73.88
73.86
73.84
73.82
1.0
1.5
2.0
2.5
3.0
Run

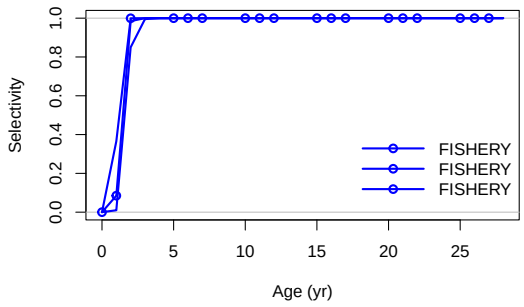

Spawning biomass (t)
6
5
4
3
2
1
0
1970
1980
1990
2000
2010
2020
Year

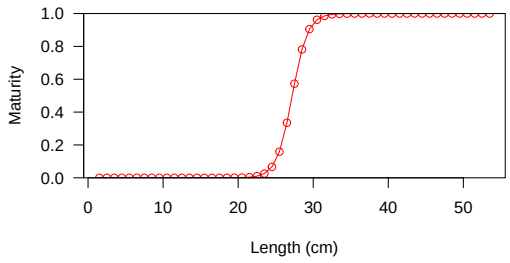


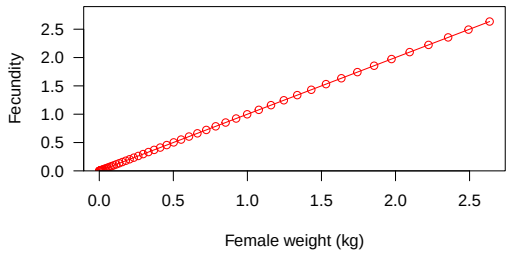


Selectivity and Maturity


Selectivity
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
Length (cm)


Selectivity
0.0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
Age (yr)
FISHERY
FISHERY
FISHERY


Maturity
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
Length (cm)


Fecundity
0.0
0.5
1.0
1.5
2.0
2.5
0.0
0.5
1.0
1.5
2.0
2.5
Female weight (kg)