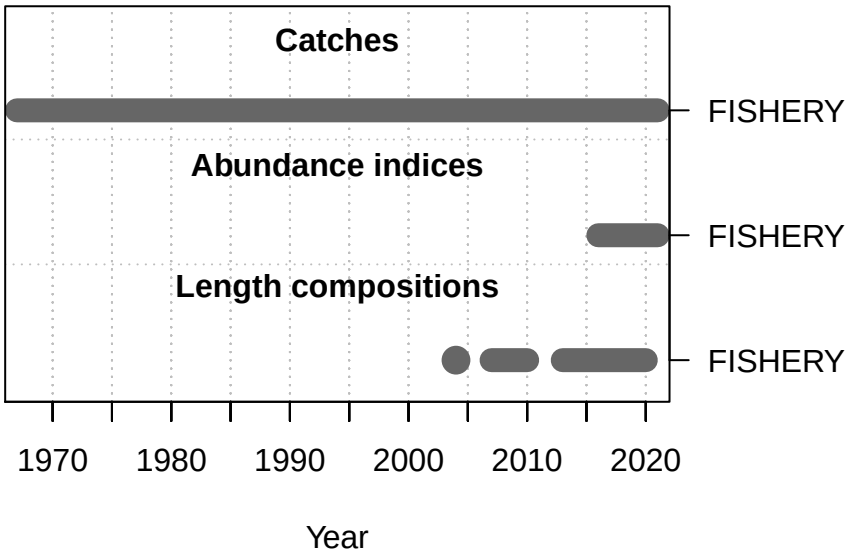
American Samoa Model Checks

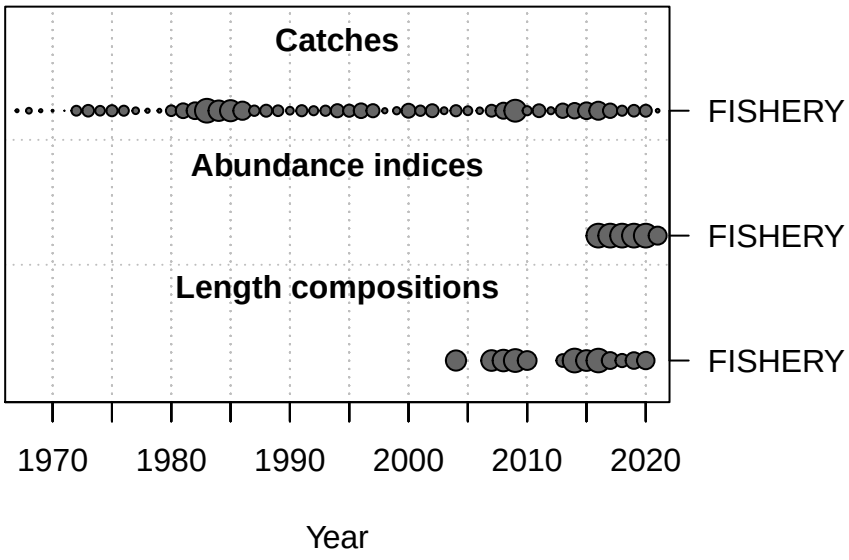
2022-10-07

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

Model Output

Input Data





Convergence Check

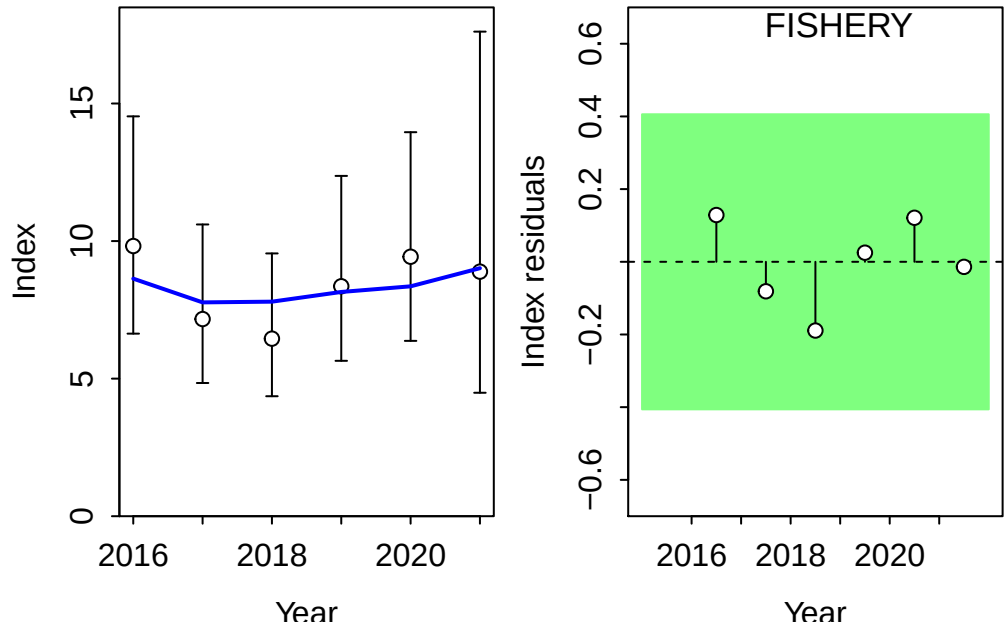
```
  Converged     MaxGrad
1      TRUE 6.21749e-06
```

```
[1] "1 NOTE:  Max data length bin: 85  < max pop len bins: 94; so will accumulate larger pop
[2] "N warnings: 1"
```

Fit to Model

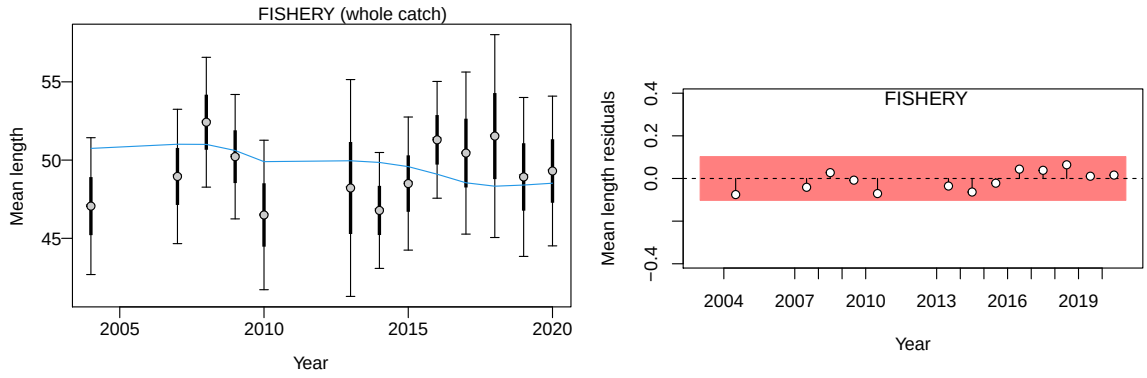
CPUE

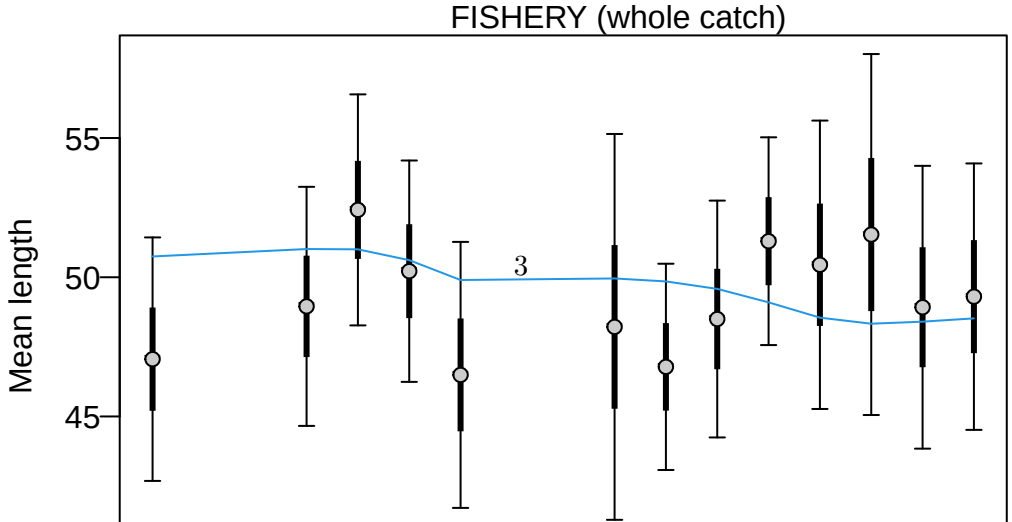
Fleet	RMSE.perc	Nobs
FISHERY	11.1	6
Combined	11.1	6

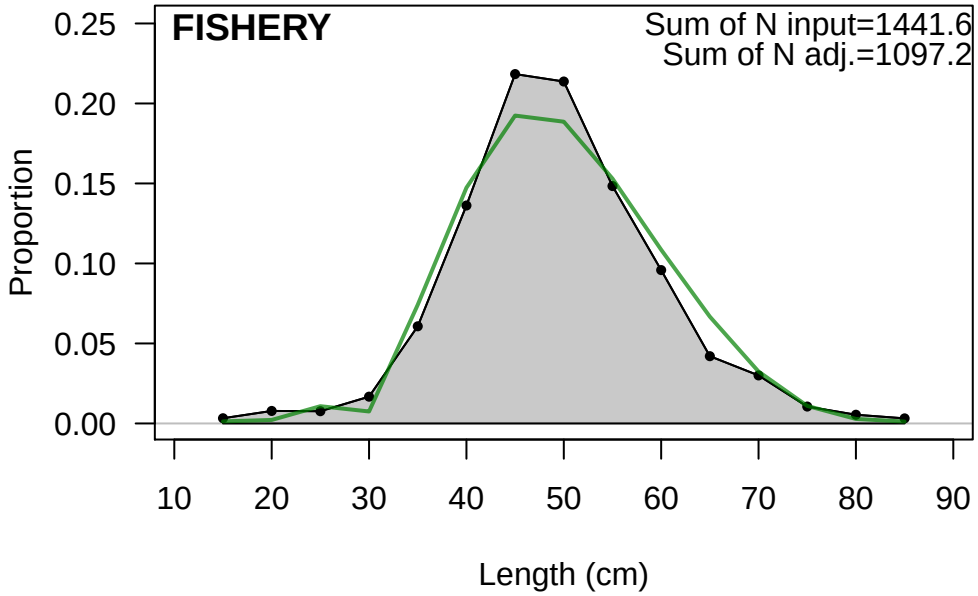


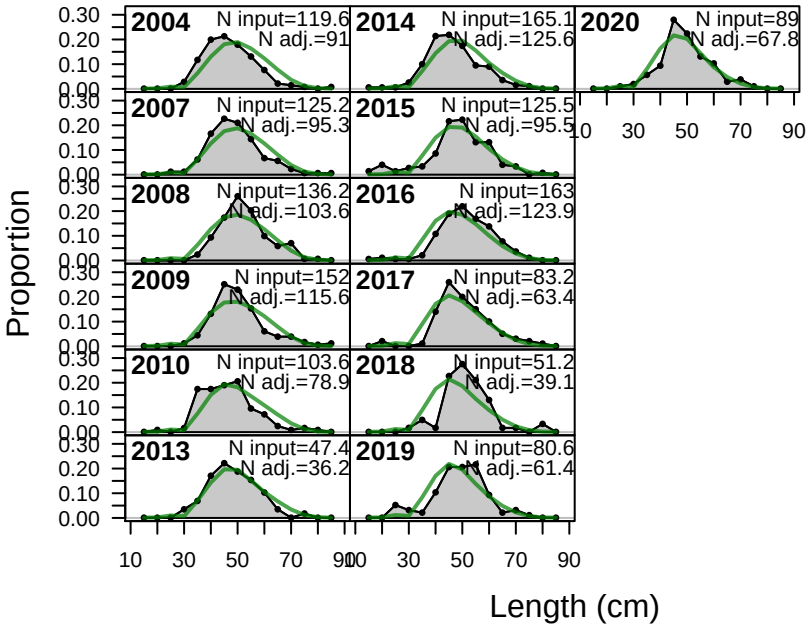
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	4.5	13
Combined	4.5	13



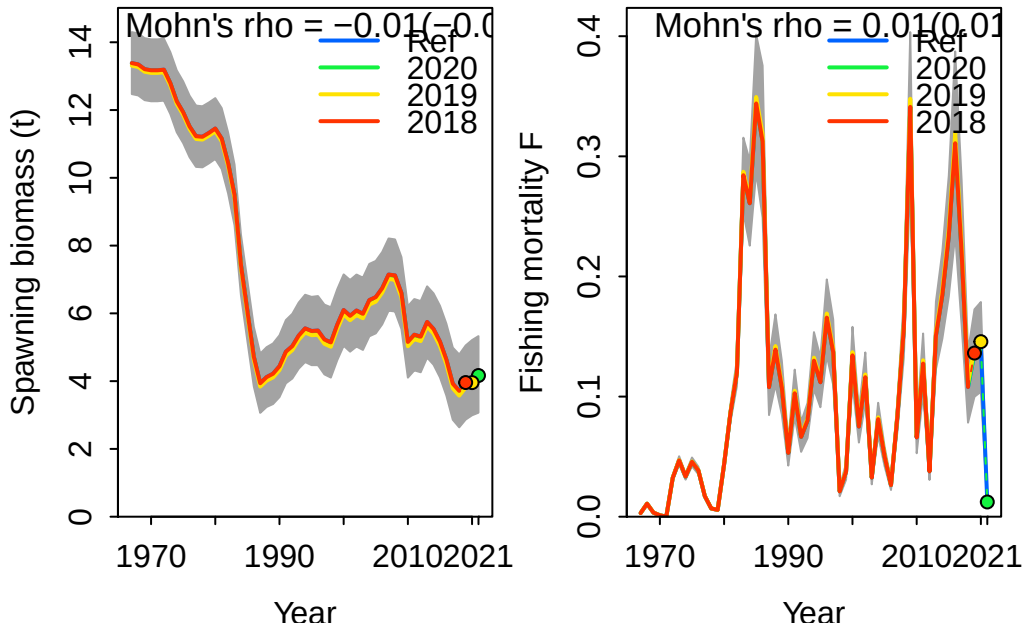



FISHERY
Sum of N input=1441.6
Sum of N adj.=1097.2
Proportion
0.25
0.20
0.15
0.10
0.05
0.00
10
20
30
40
50
60
70
80
90
Length (cm)


2004 N input=119.6 N adj.=91
2014 N input=165.1 N adj.=125.6
2020 N input=89 N adj.=67.8
2007 N input=125.2 N adj.=95.3
2015 N input=125.5 N adj.=95.5
2008 N input=136.2 N adj.=103.6
2016 N input=163 N adj.=123.9
2009 N input=152 N adj.=115.6
2017 N input=83.2 N adj.=63.4
2010 N input=103.6 N adj.=78.9
2018 N input=51.2 N adj.=39.1
2013 N input=47.4 N adj.=36.2
2019 N input=80.6 N adj.=61.4
Proportion
0.30
0.20
0.10
0.00
10
30
50
70
90
Length (cm)

Retrospective

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

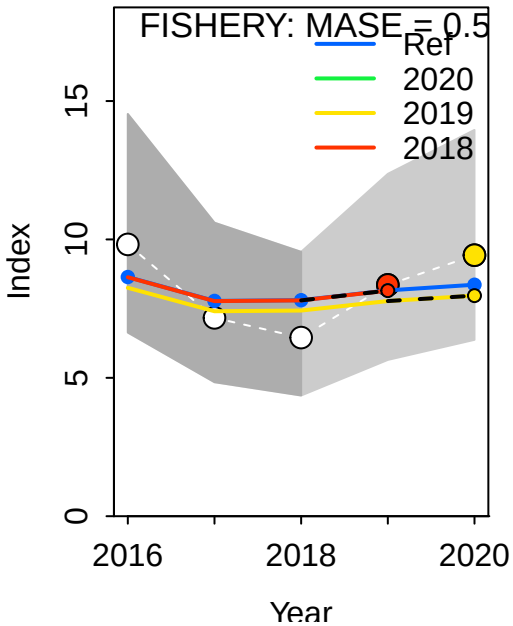



```
Mohn's Rho stats, including one step ahead forecasts:
```

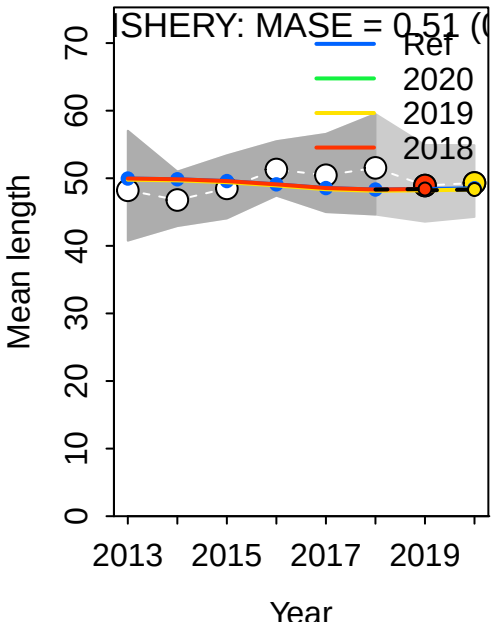
	type	peel	Rho	ForecastRho
1	F	2020	0.0058440226	0.0056097641
2	F	2019	0.0308802372	0.0309393594
3	F	2018	-0.0001203648	-0.0001101031
4	F	Combined	0.0122012983	0.0121463402

Hindcasting

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

 Computing MASE with only 2 of 3  prediction residuals for Index FISHERY

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



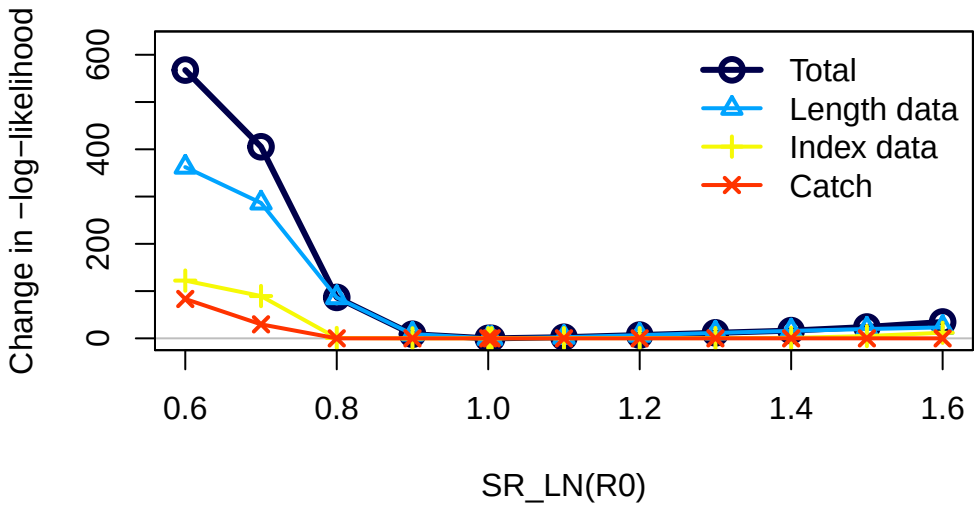

```
MASE stats by Index:
Plotting Hindcast Cross-Validation (one-step-ahead)

 Computing MASE with only 2 of 3  prediction residuals for Index FISHERY

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

MASE stats by Index:
```

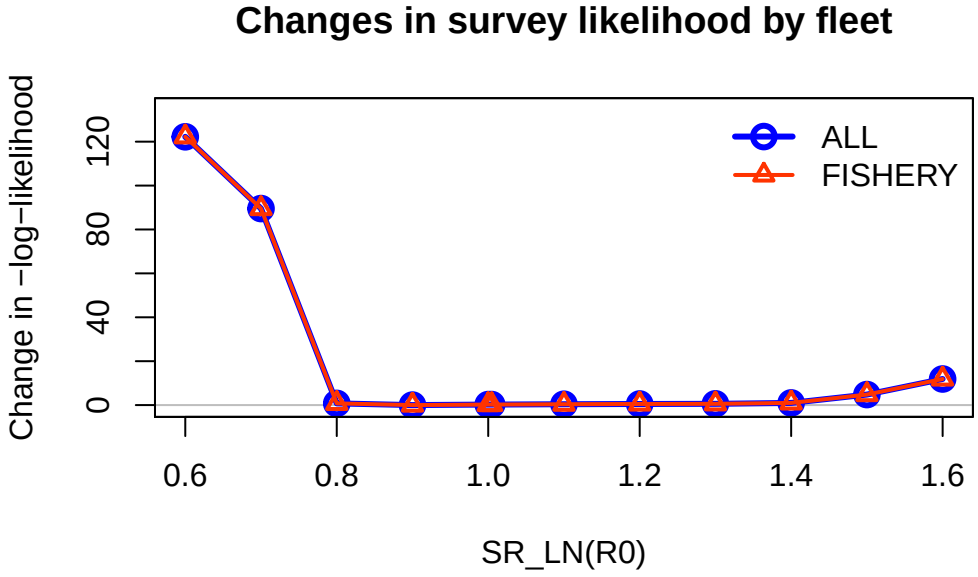


Recruitment Deviations

Likelihood Profile

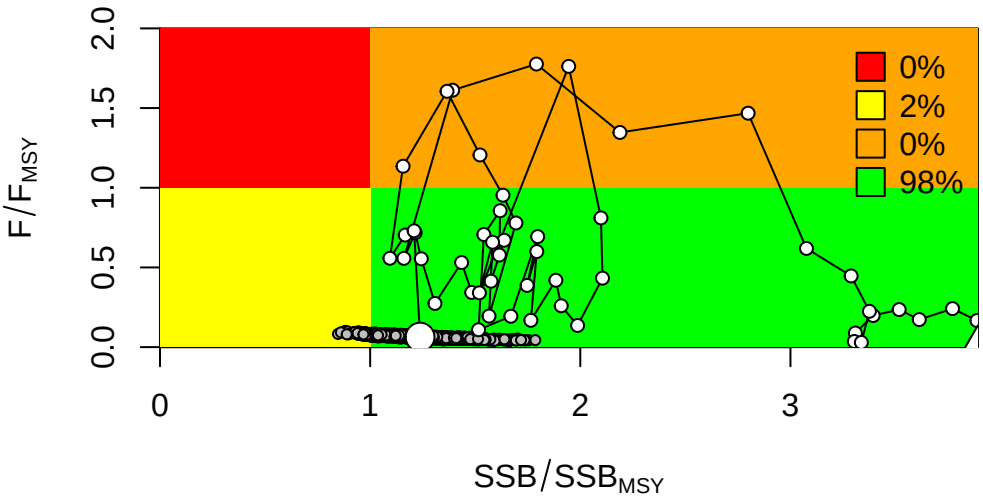
```
[1] "SR_LN"
                     frac_change include                          label
TOTAL                     1.0000    TRUE                          Total
Catch                     0.1468    TRUE                          Catch
Equil_catch               0.0000   FALSE              Equilibrium catch
Survey                    0.2153    TRUE                     Index data
Length_comp               0.6384    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               0.0003   FALSE                         Priors
Parm_softbounds           0.0000   FALSE                   Soft bounds
Parm_devs                 0.0000   FALSE          Parameter deviations
Crash_Pen                 0.0000   FALSE                  Crash penalty
```

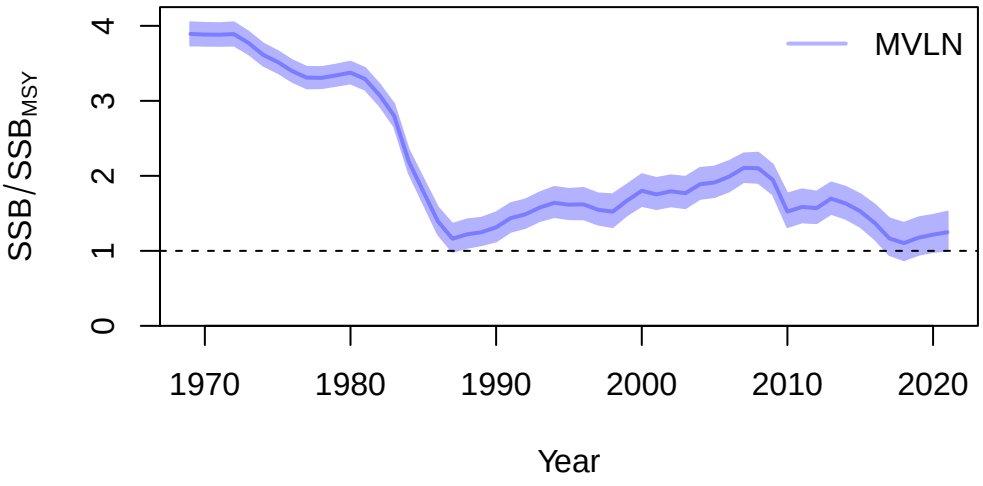


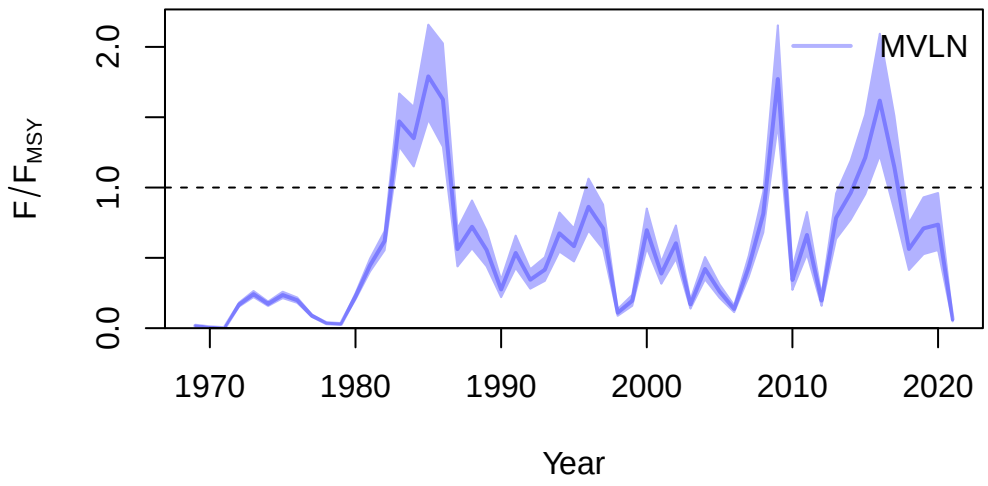


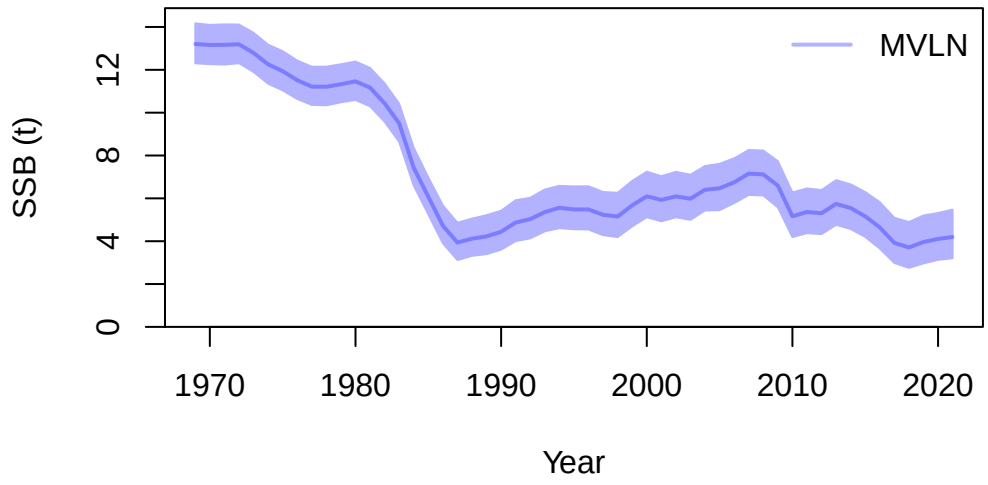
Management Quantities

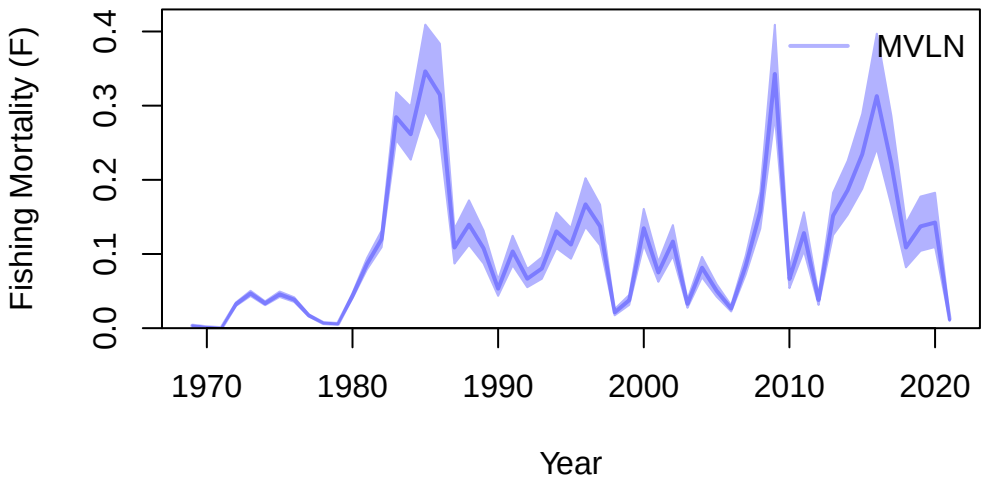
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F





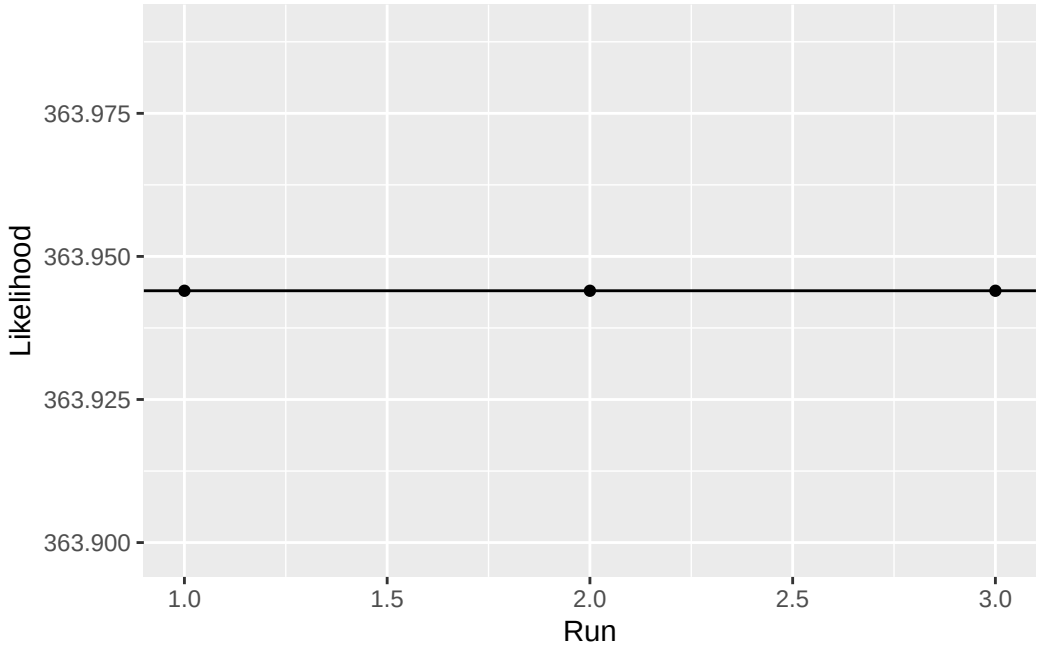

MVLN
F/F_MSY
0.0
1.0
2.0
1970
1980
1990
2000
2010
2020
Year

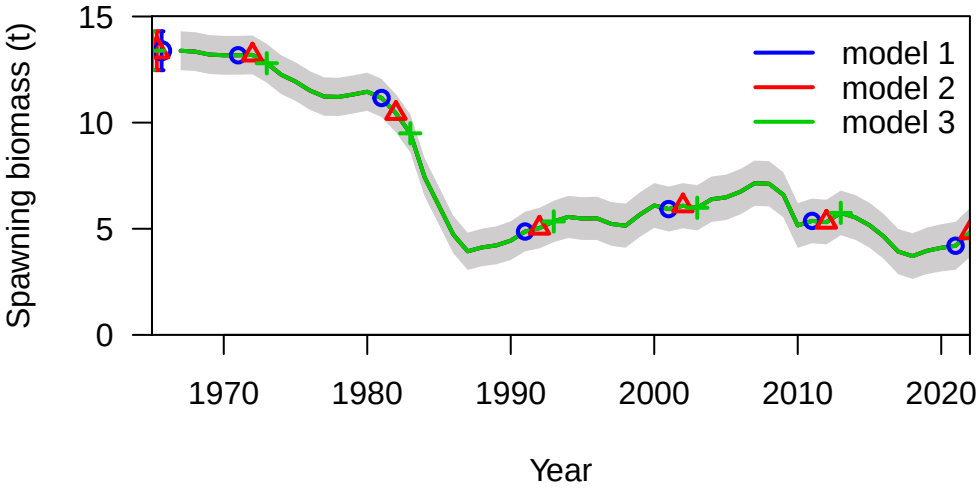

MVLN
SSB (t)
0
4
8
12
1970
1980
1990
2000
2010
2020
Year

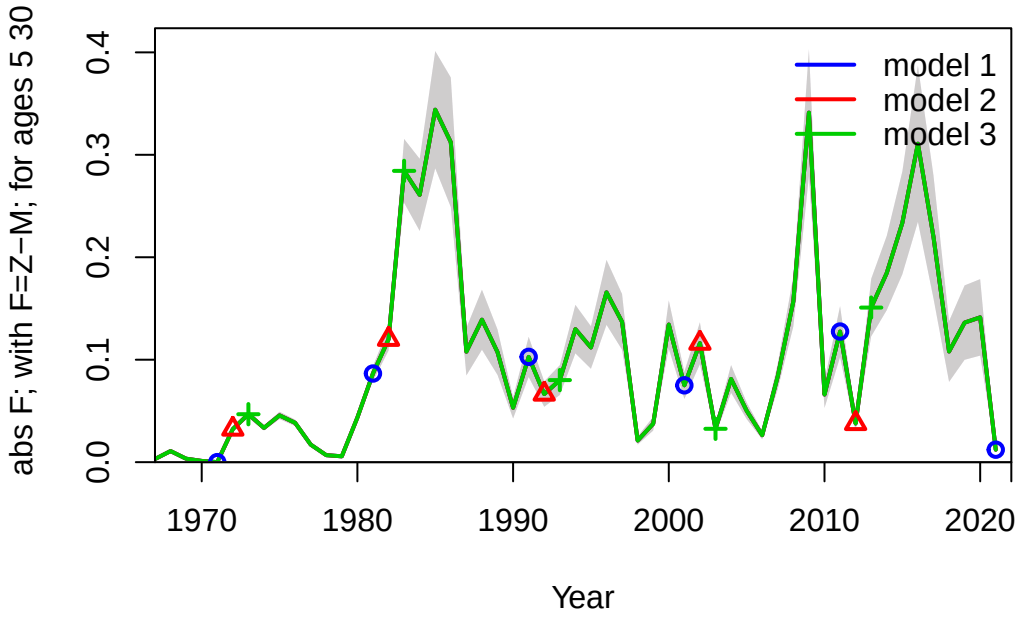


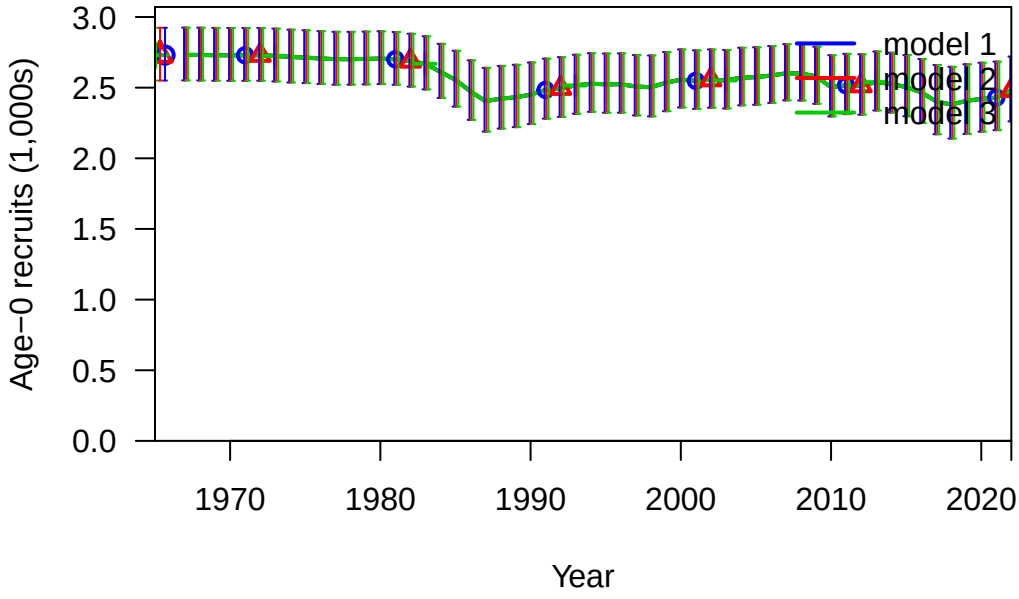

```
null device
          1
```

Jitter


363.975
363.950
363.925
363.900
Likelihood
1.0
1.5
2.0
2.5
3.0
Run


15
10
5
0
Spawning biomass (t)
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3


abs F; with F=Z−M; for ages 5 30
0.0
0.1
0.2
0.3
0.4
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3


Age−0 recruits (1,000s)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3