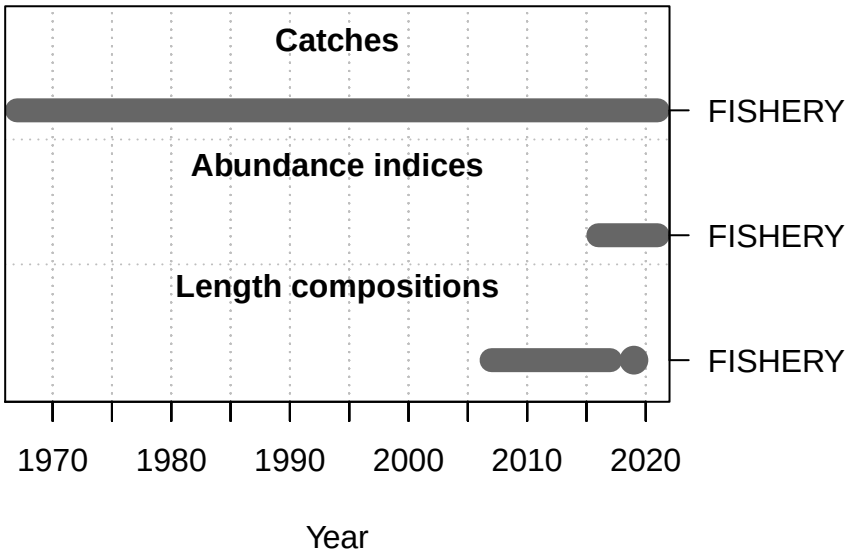
American Samoa Model Checks

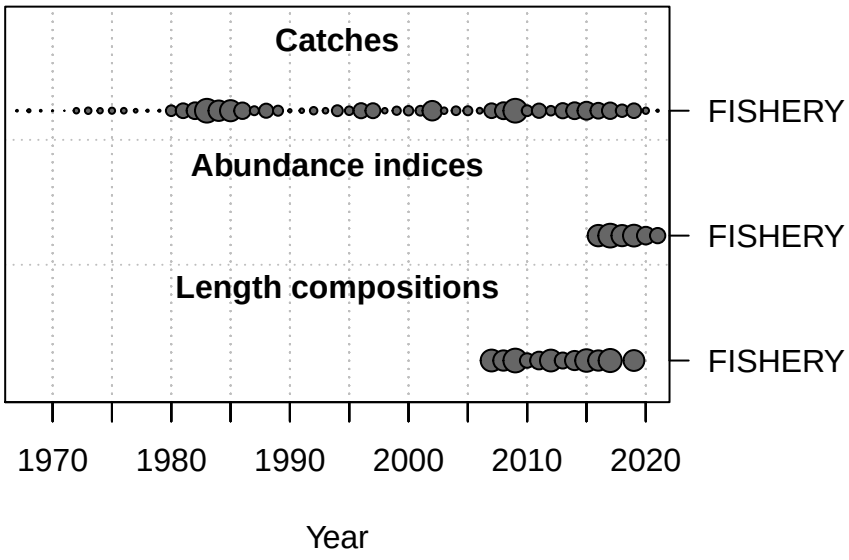
2022-10-07

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

Model Output

Input Data





Convergence Check

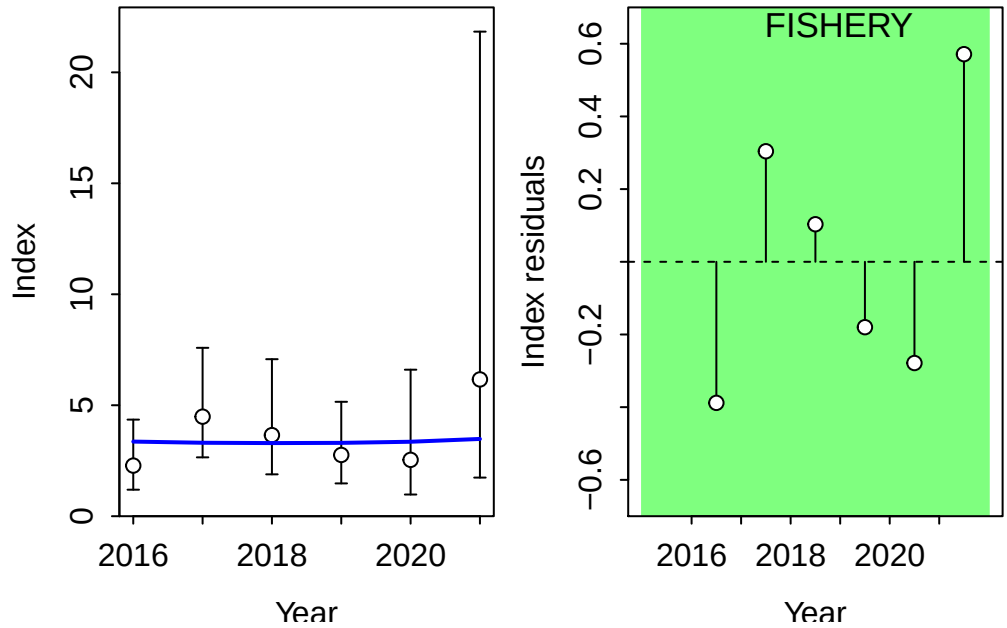
```
  Converged    MaxGrad
1      TRUE 3.1613e-05
```

```
[1] "1 NOTE:  Max data length bin: 90  < max pop len bins: 100; so will accumulate larger po
[2] "N warnings: 1"
```

Fit to Model

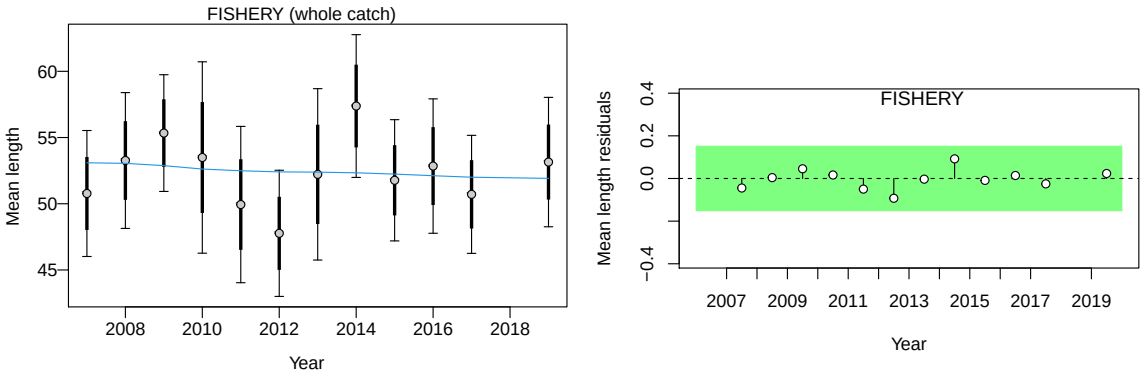
CPUE

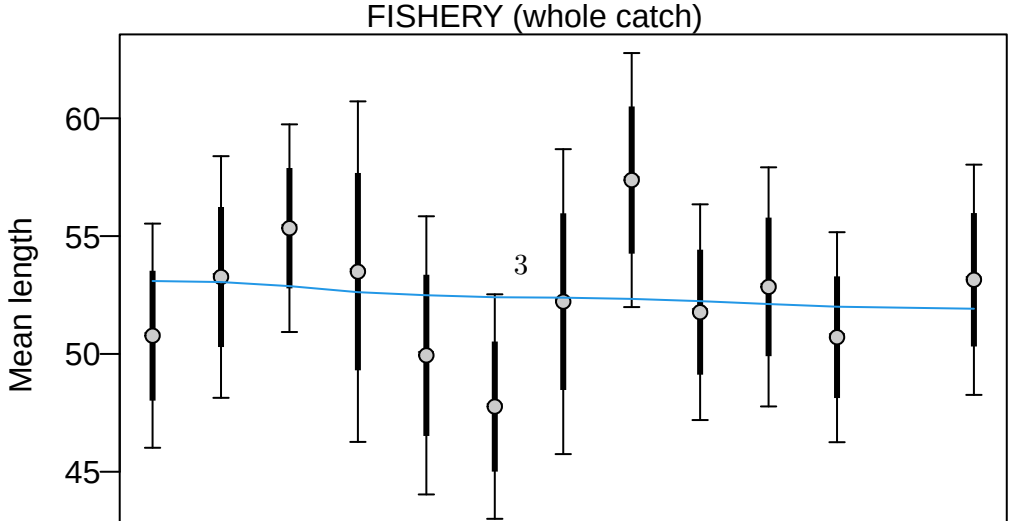
Fleet	RMSE.perc	Nobs
FISHERY	33.9	6
Combined	33.9	6

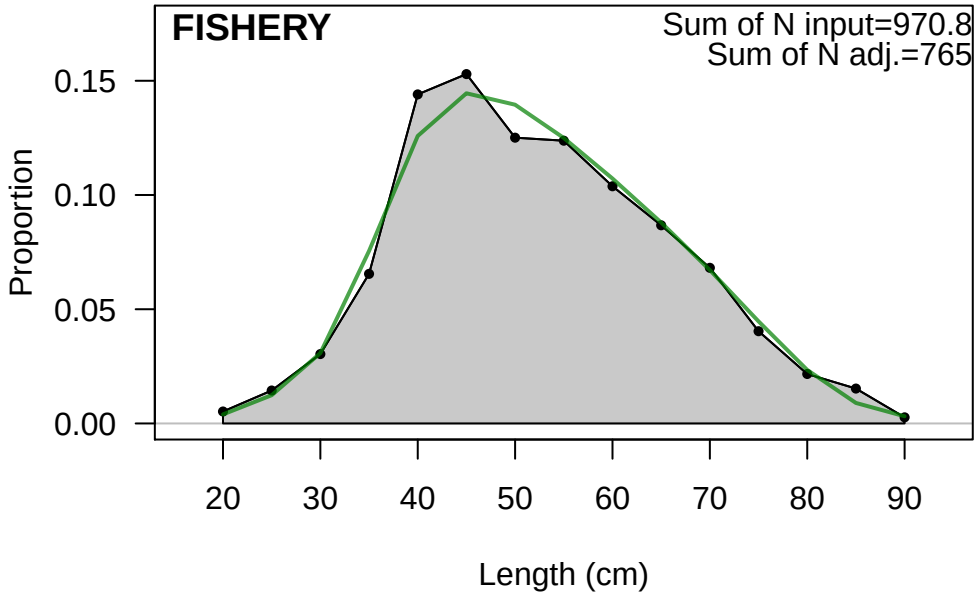


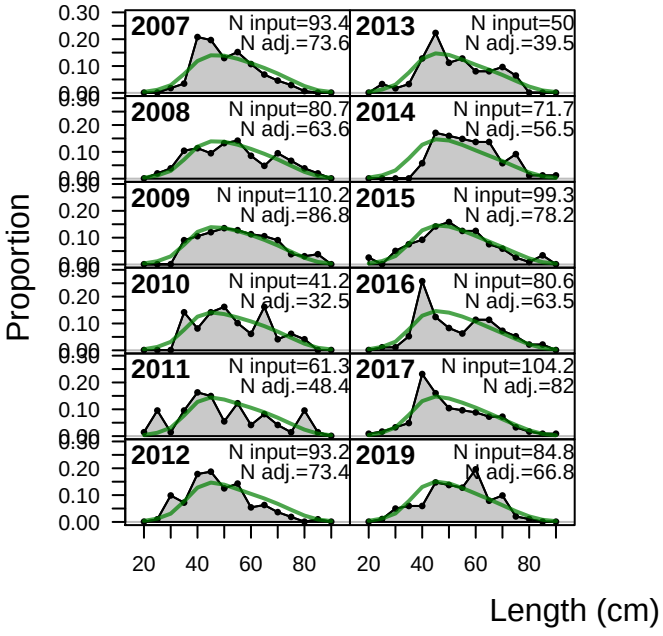
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	4.6	12
Combined	4.6	12



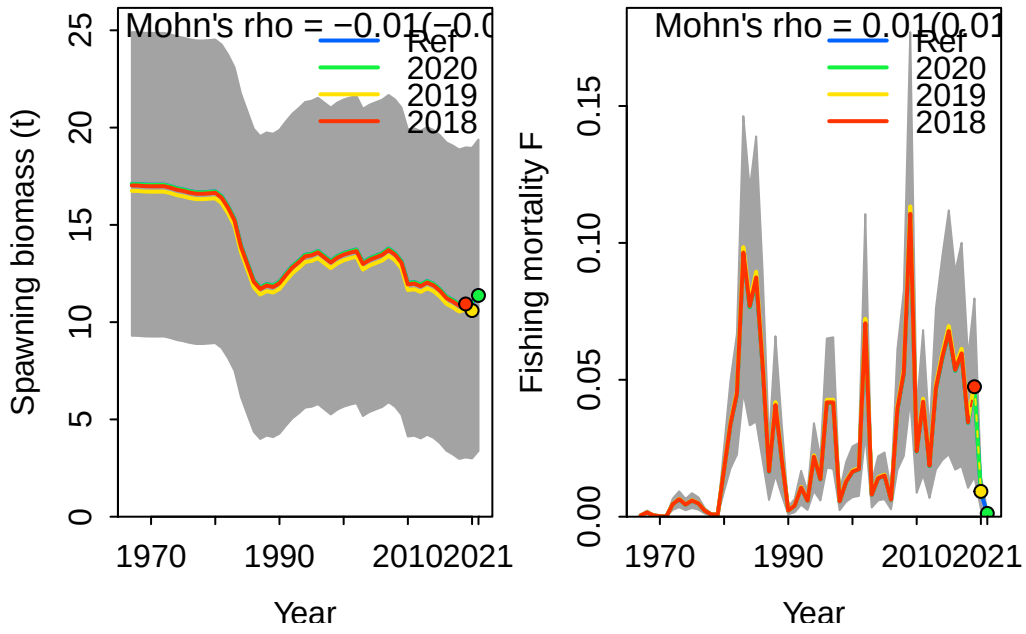



FISHERY
Sum of N input=970.8
Sum of N adj.=765
Proportion
0.15
0.10
0.05
0.00
20
30
40
50
60
70
80
90
Length (cm)


Proportion
2007 N input=93.4 N adj.=73.6
2013 N input=50 N adj.=39.5
2008 N input=80.7 N adj.=63.6
2014 N input=71.7 N adj.=56.5
2009 N input=110.2 N adj.=86.8
2015 N input=99.3 N adj.=78.2
2010 N input=41.2 N adj.=32.5
2016 N input=80.6 N adj.=63.5
2011 N input=61.3 N adj.=48.4
2017 N input=104.2 N adj.=82
2012 N input=93.2 N adj.=73.4
2019 N input=84.8 N adj.=66.8
0.30
0.20
0.10
0.00
20
40
60
80
Length (cm)

Retrospective

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

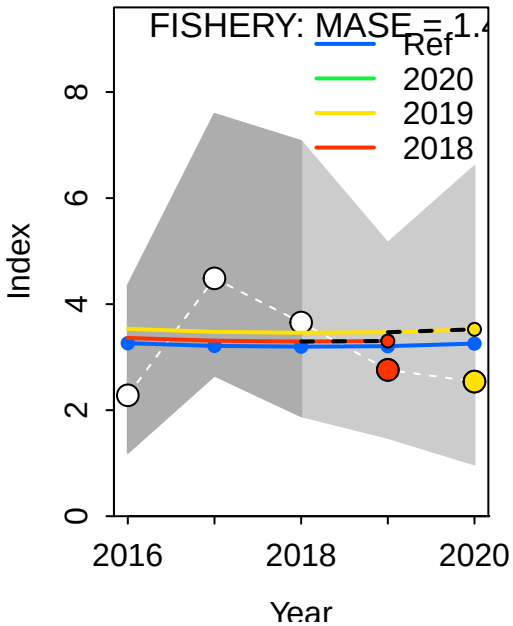



```
Mohn's Rho stats, including one step ahead forecasts:
```

	type	peel	Rho	ForecastRho
1	F	2020	0.0008493359	0.0008270888
2	F	2019	0.0354041445	0.0349796406
3	F	2018	0.0069902335	0.0069823839
4	F	Combined	0.0144145713	0.0142630378

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
```



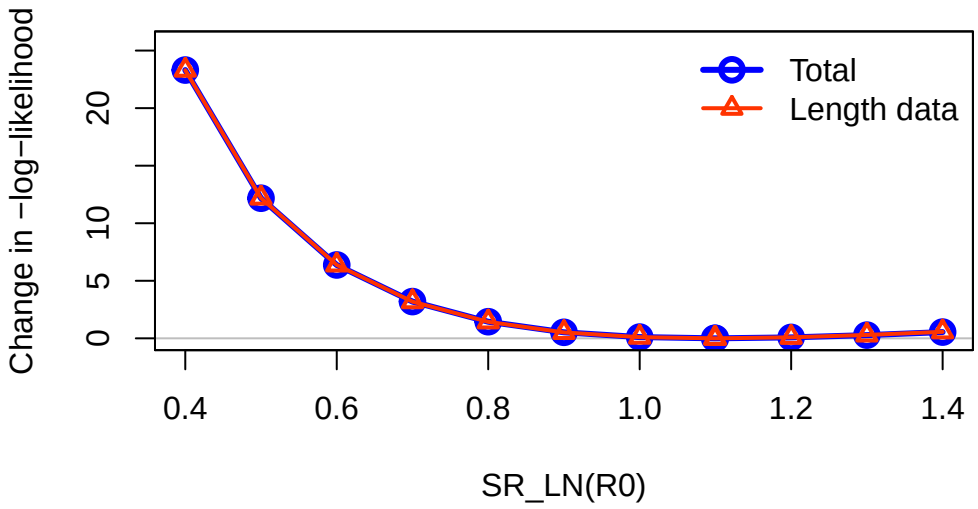

```
MASE stats by Index:
Plotting Hindcast Cross-Validation (one-step-ahead)

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

MASE stats by Index:
```

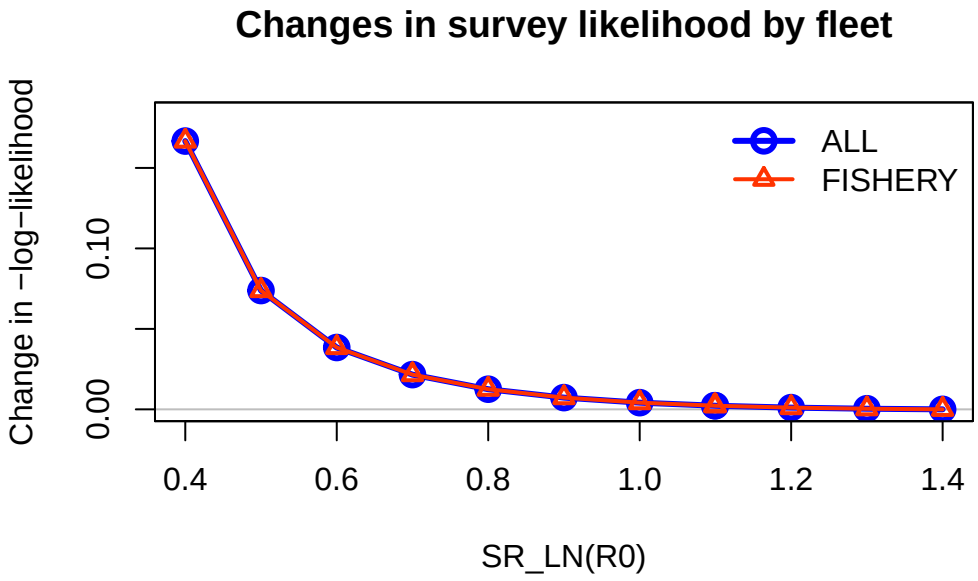
Recruitment Deviations

Likelihood Profile

```
[1] "SR_LN"
                    frac_change include                            label
TOTAL                    1.0000    TRUE                            Total
Catch                    0.0000   FALSE                            Catch
Equil_catch              0.0000   FALSE                  Equilibrium catch
Survey                   0.0072   FALSE                       Index data
Length_comp              0.9997    TRUE                      Length data
Recruitment              0.0000   FALSE                      Recruitment
InitEQ_Regime            0.0000   FALSE Initital equilibrium recruitment
```

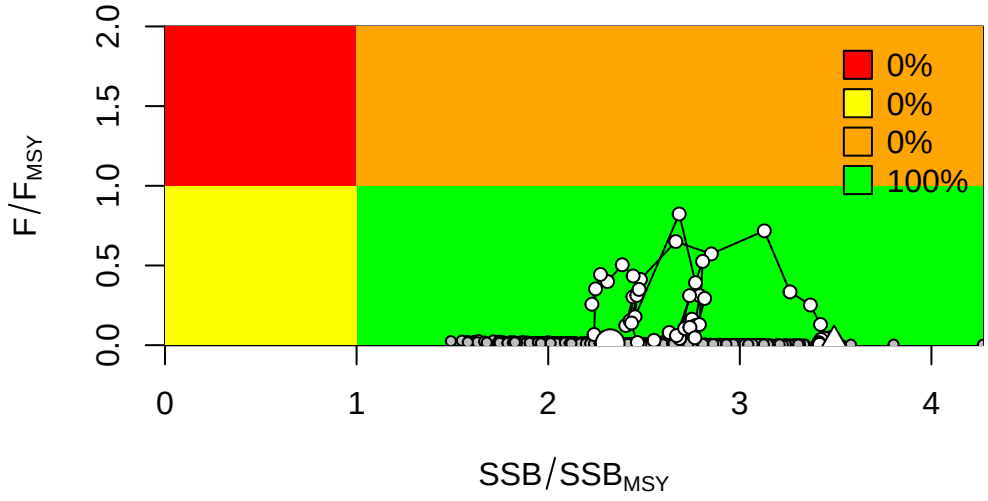
```
Forecast_Recruitment      0.0000   FALSE            Forecast recruitment
Parm_priors               0.0070   FALSE                          Priors
Parm_softbounds           0.0000   FALSE                    Soft bounds
Parm_devs                 0.0000   FALSE            Parameter deviations
Crash_Pen                 0.0000   FALSE                   Crash penalty
```

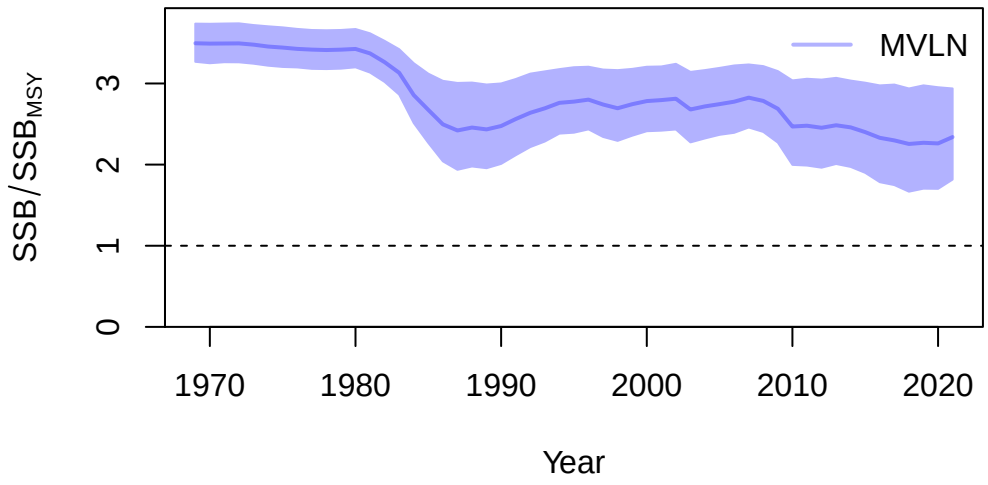


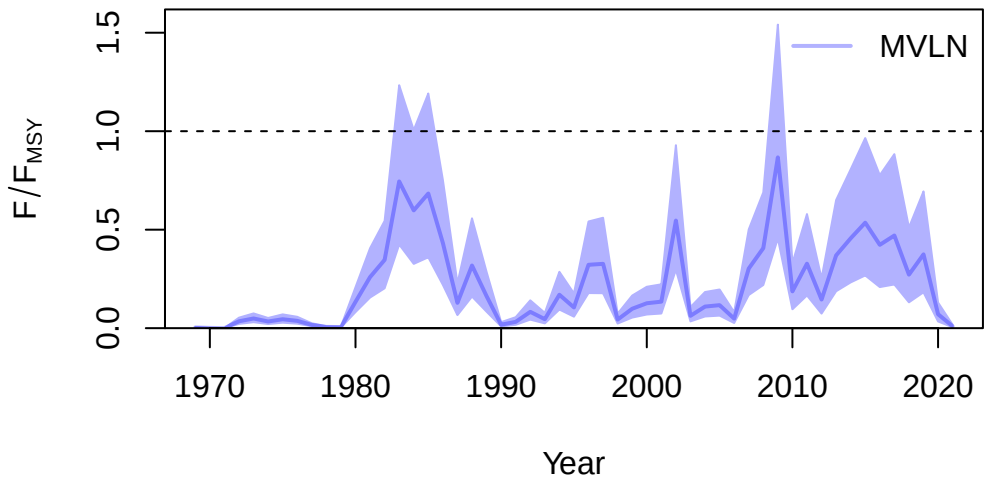


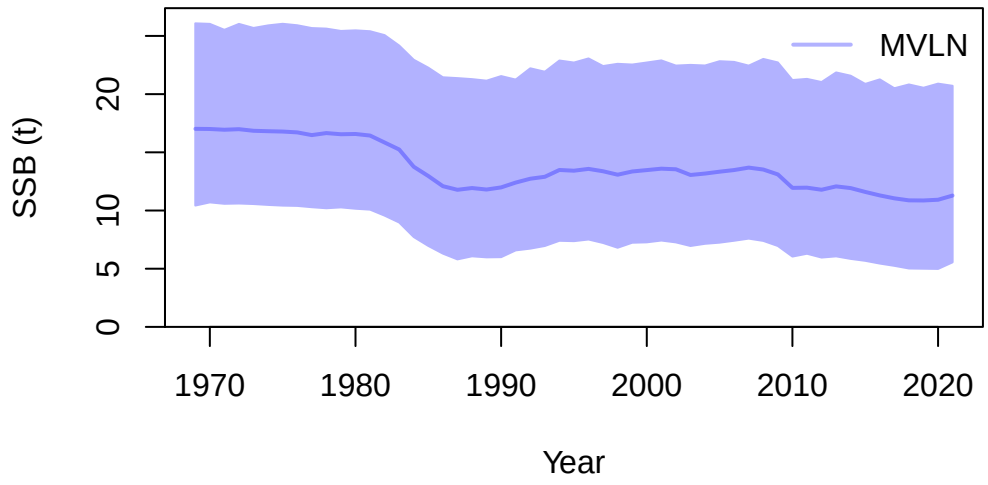
Management Quantities

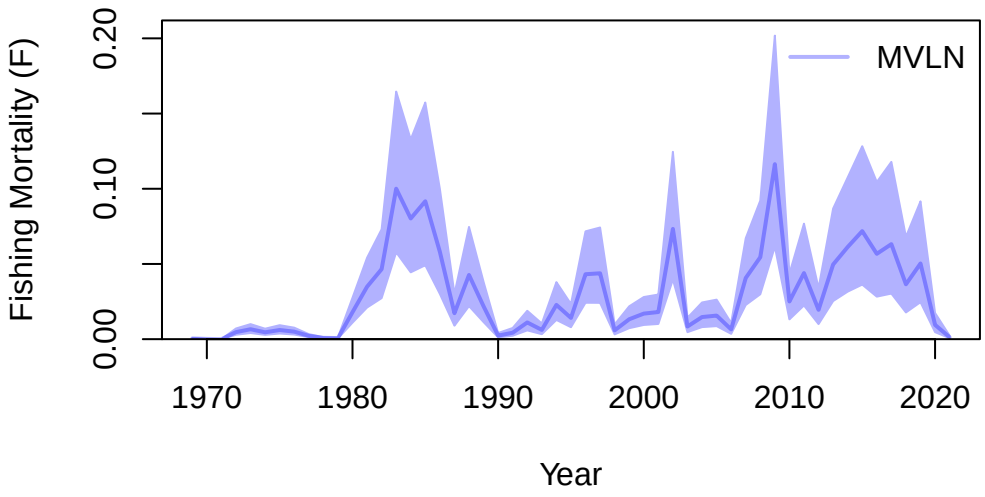
```
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F
```


0%
0%
0%
100%
F/F_MSY
SSB/SSB_MSY
0.0
0.5
1.0
1.5
2.0
0
1
2
3
4


MVLN
SSB/SSB_MSY
Year
0
1
2
3
1970
1980
1990
2000
2010
2020

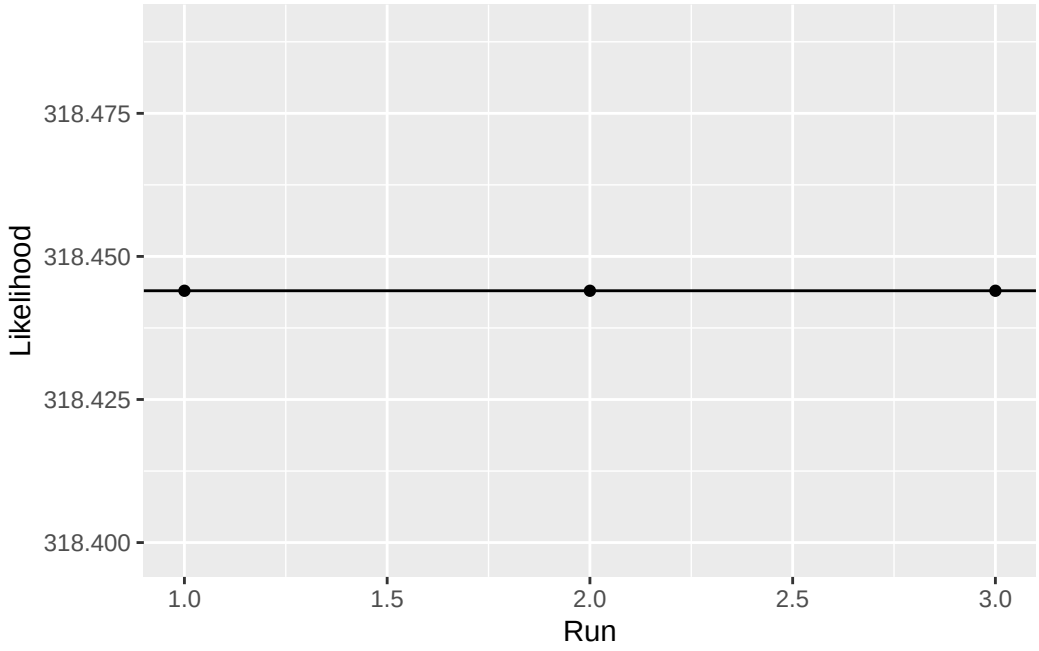

MVLN
F/F_MSY
0.0
0.5
1.0
1.5
1970
1980
1990
2000
2010
2020
Year

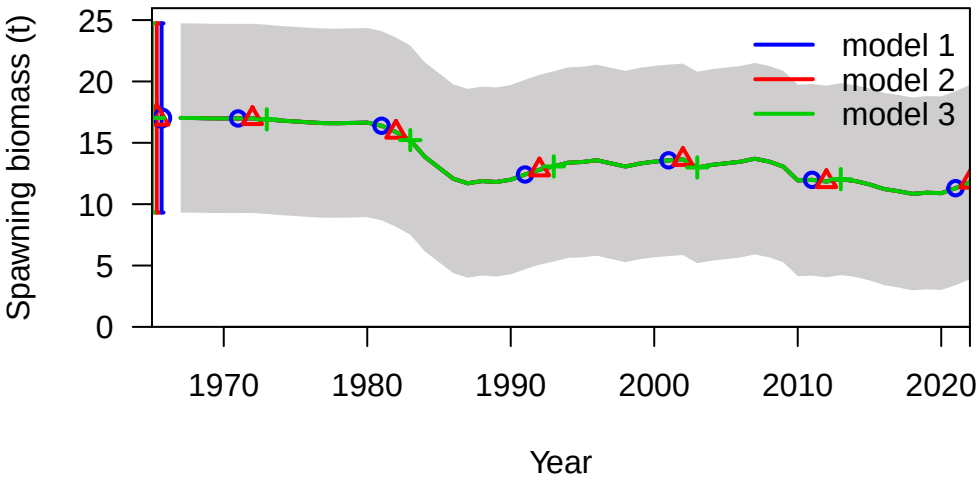

MVLN
SSB (t)
0
5
10
20
1970
1980
1990
2000
2010
2020
Year

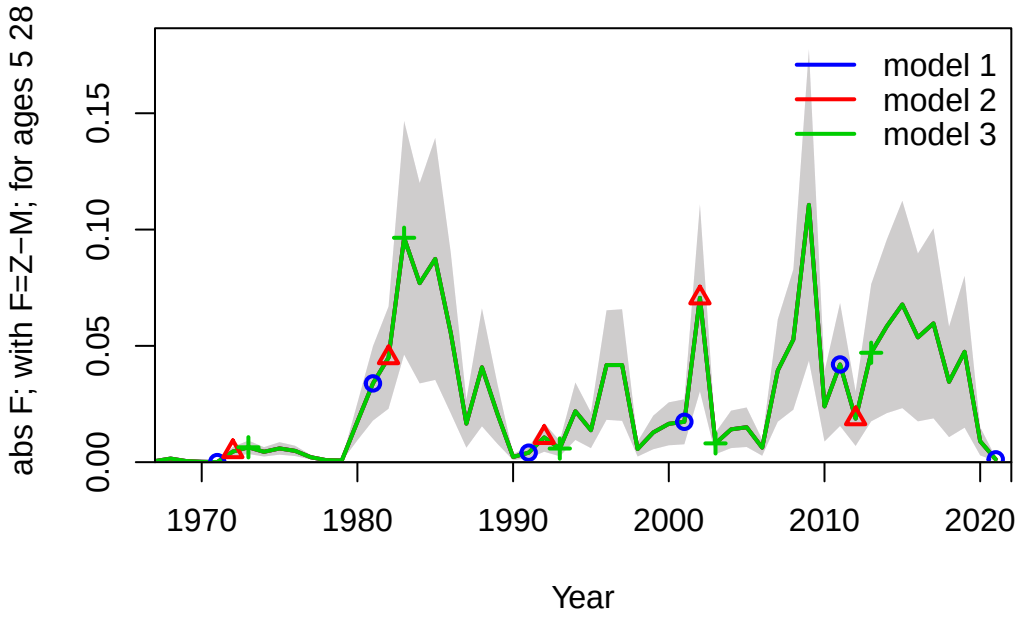


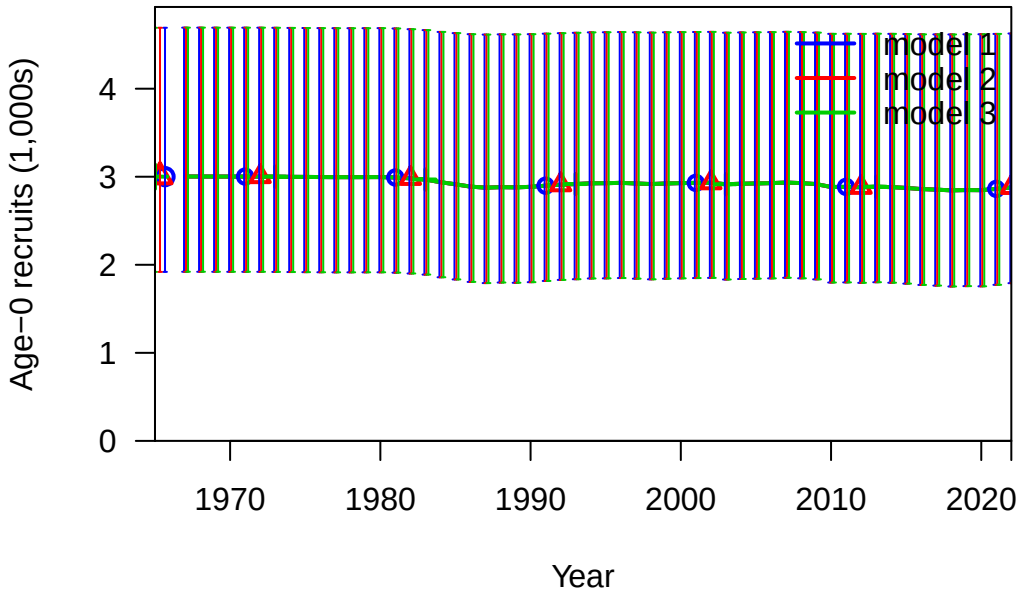

```
null device
          1
```

Jitter


318.475
318.450
318.425
318.400
Likelihood
1.0
1.5
2.0
2.5
3.0
Run


25
20
15
10
5
0
Spawning biomass (t)
model 1
model 2
model 3
1970
1980
1990
2000
2010
2020
Year


abs F; with F=Z−M; for ages 5 28
0.00
0.05
0.10
0.15
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3


Age−0 recruits (1,000s)
0
1
2
3
4
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3