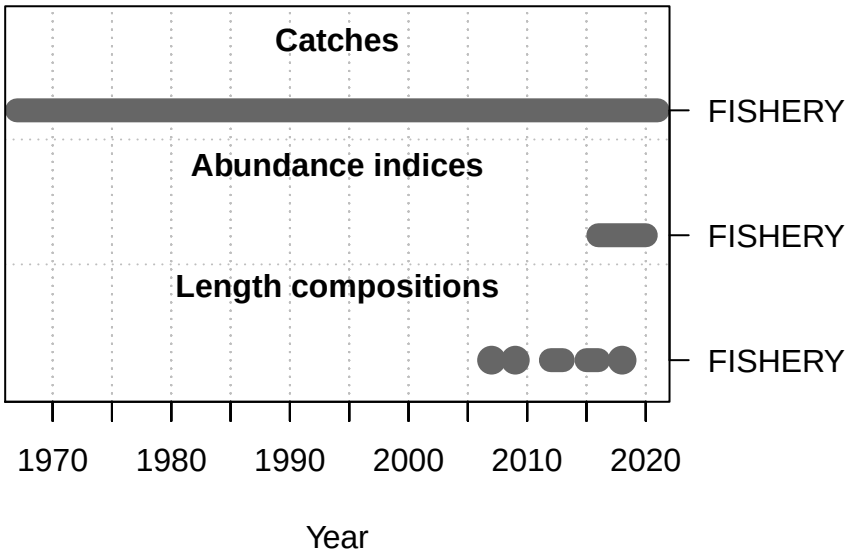
American Samoa Model Checks

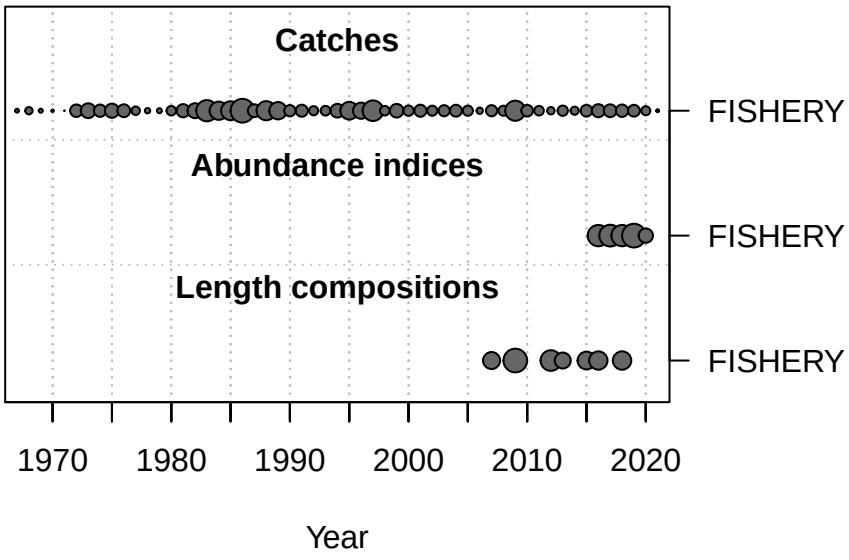
2022-08-30

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

Model Output

Input Data





Convergence Check

```
  Converged     MaxGrad
1      TRUE 2.29892e-05
```

```
[1] "1 NOTE:  Max data length bin: 65  < max pop len bins: 72; so will accumulate larger pop
[2] "N warnings: 1"
```

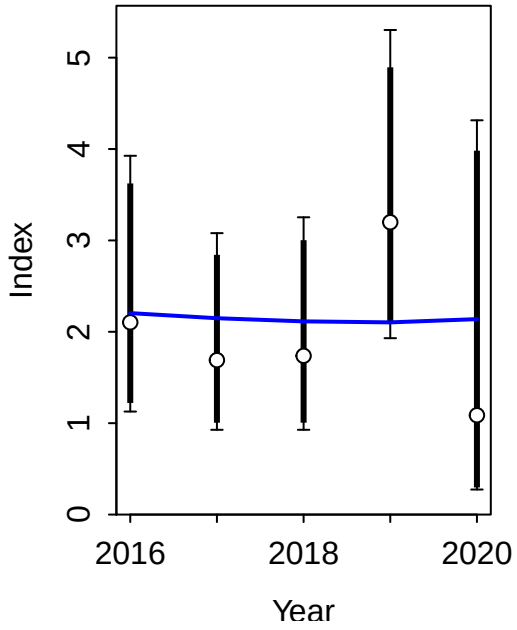
Fit to Model

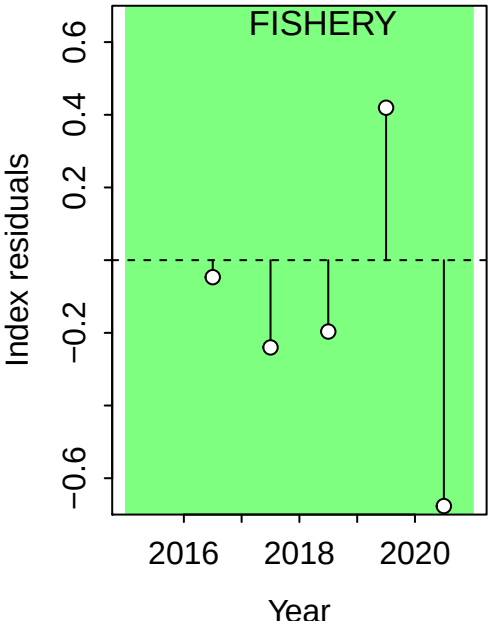
CPUE

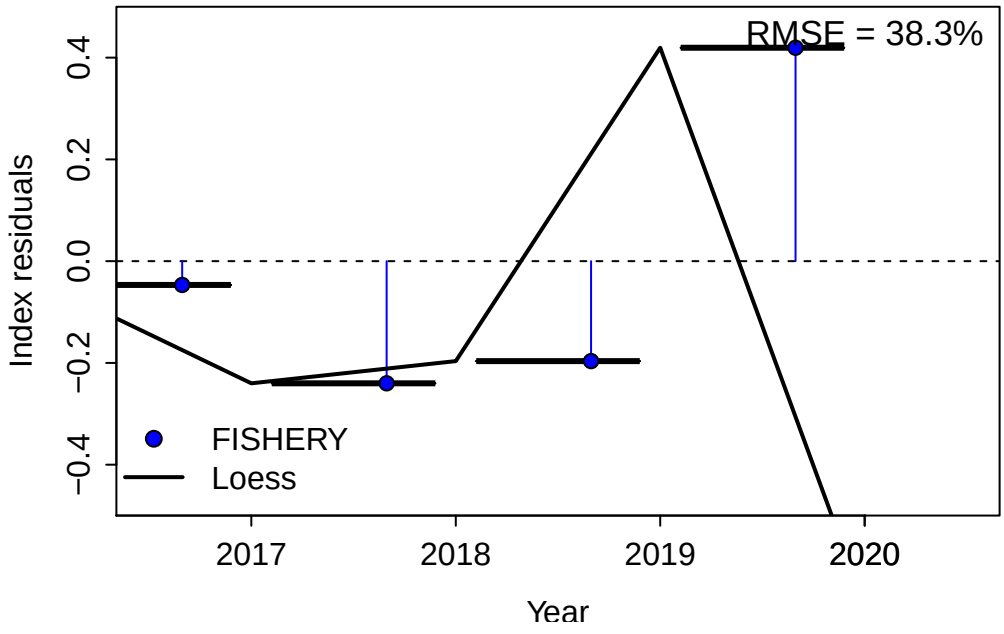
```
Residual Runs Test (/w plot) stats by Index:
```

```
RMSE stats by Index:
```

Length Comp

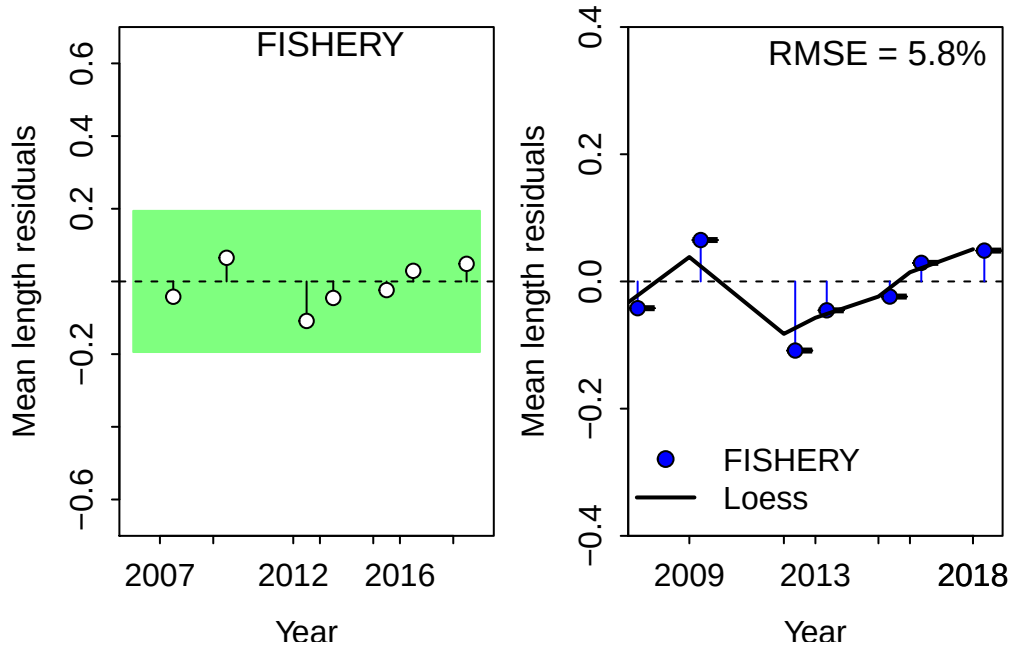

Index
0
1
2
3
4
5
2016
2018
2020
Year


FISHERY
Index residuals
−0.6
−0.2
0.2
0.4
0.6
2016
2018
2020
Year

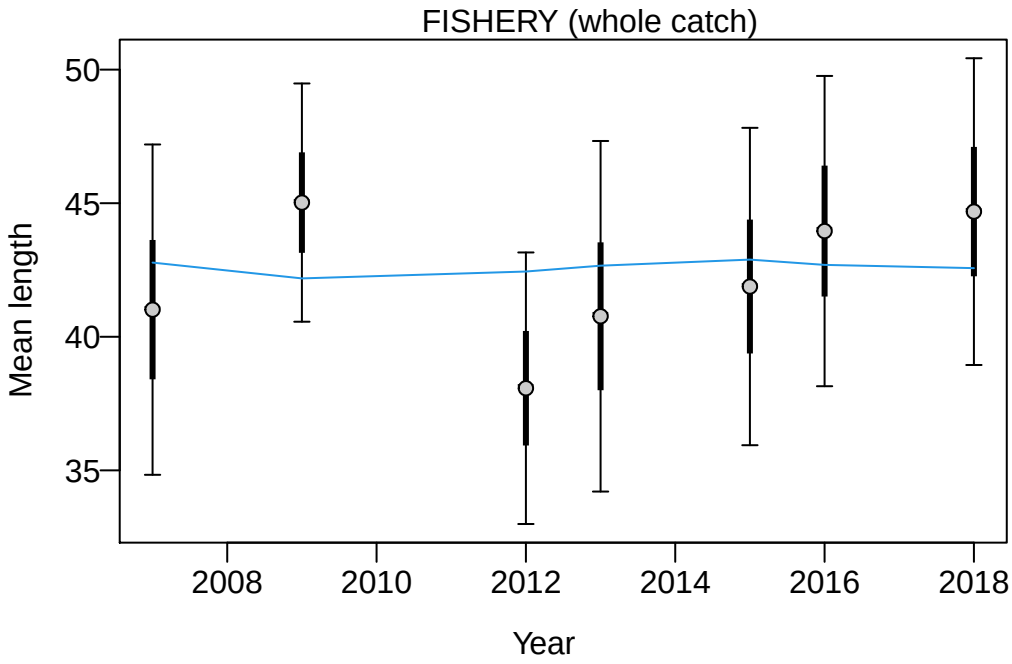

RMSE = 38.3%
Index residuals
−0.4
−0.2
0.0
0.2
0.4
FISHERY
Loess
2017
2018
2019
2020
Year

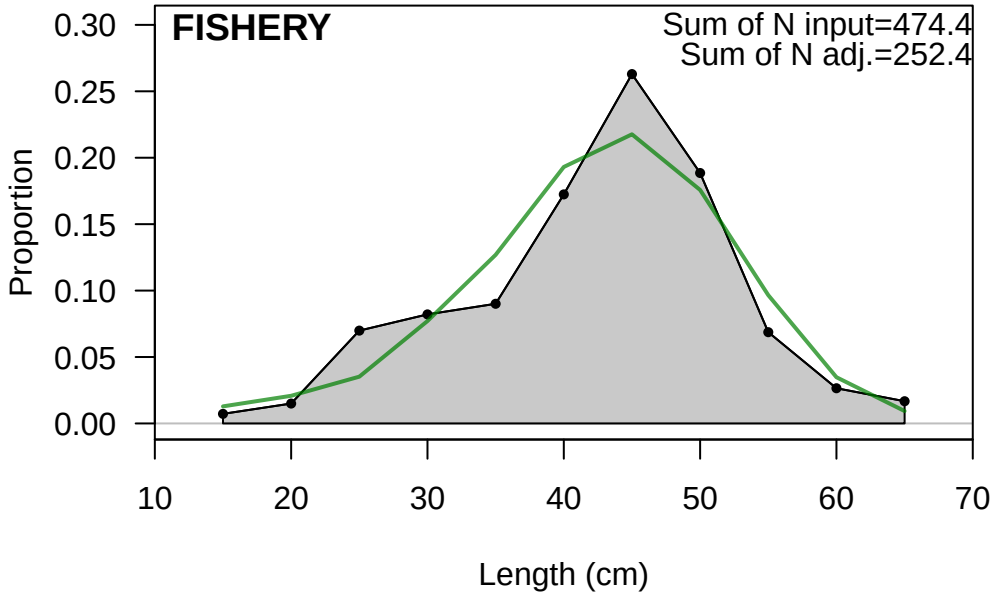
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.177933	len	FISHERY

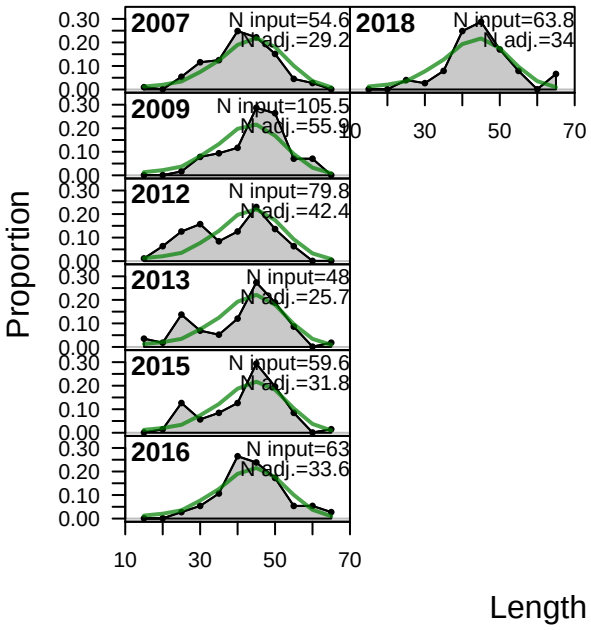
```
Residual Runs Test (/w plot) stats by Mean length:

    Index runs.p   test  sigma3.lo sigma3.hi type
1 FISHERY  0.358 Passed -0.1941716 0.1941716  len

RMSE stats by Index:

# A tibble: 2 x 3
  Fleet    RMSE.perc  Nobs
  <chr>        <dbl> <int>
1 FISHERY        5.8     7
2 Combined       5.8     7
```



Retrospective and Hindcasting

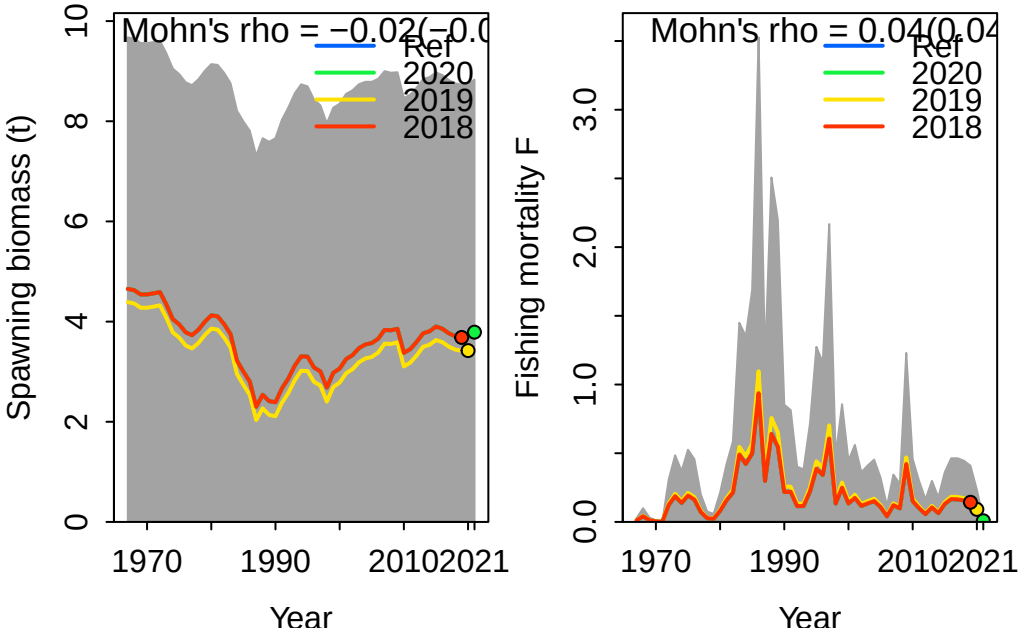

FISHERY (whole catch)
Mean length
50
45
40
35
2008
2010
2012
2014
2016
2018
Year


FISHERY
Sum of N input=474.4
Sum of N adj.=252.4
Proportion
0.30
0.25
0.20
0.15
0.10
0.05
0.00
10
20
30
40
50
60
70
Length (cm)



Retrospective

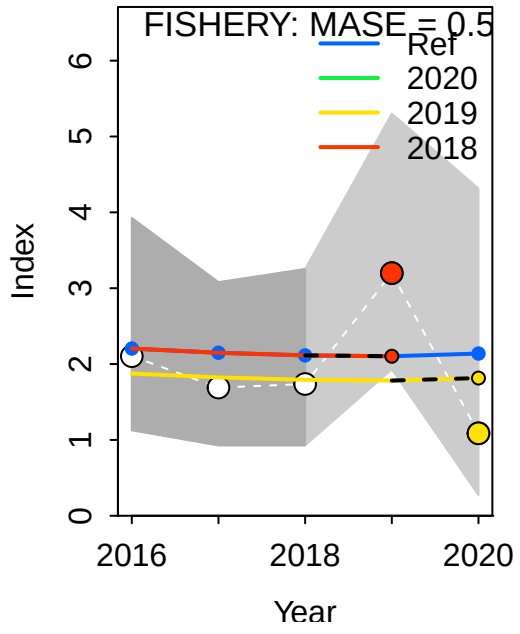
`Mohn's Rho stats, including one step ahead forecasts:`



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

  type     peel           Rho   ForecastRho
1    F     2020 -0.0001903139 -0.0001842189
2    F     2019  0.1091939960  0.1075394598
3    F     2018  0.0000000000  0.0000000000
4    F Combined  0.0363345607  0.0357850803
```

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
```



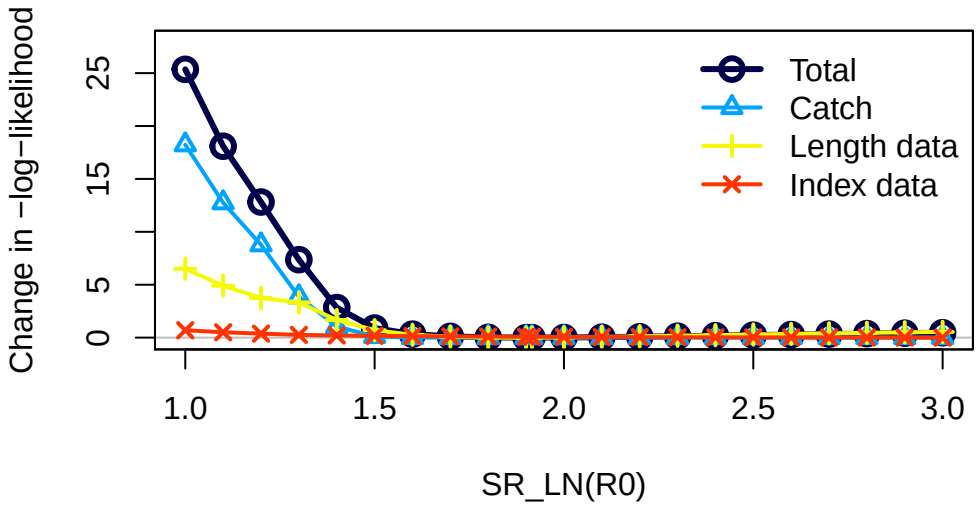

```
MASE stats by Index:
Plotting Hindcast Cross-Validation (one-step-ahead)

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

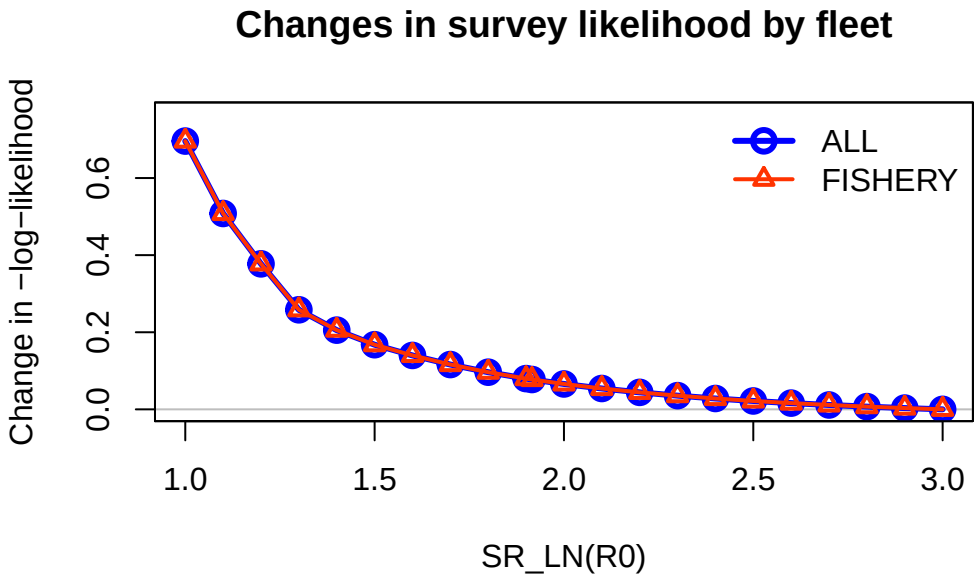
MASE stats by Index:

Recruitment Deviations

Likelihood Profile

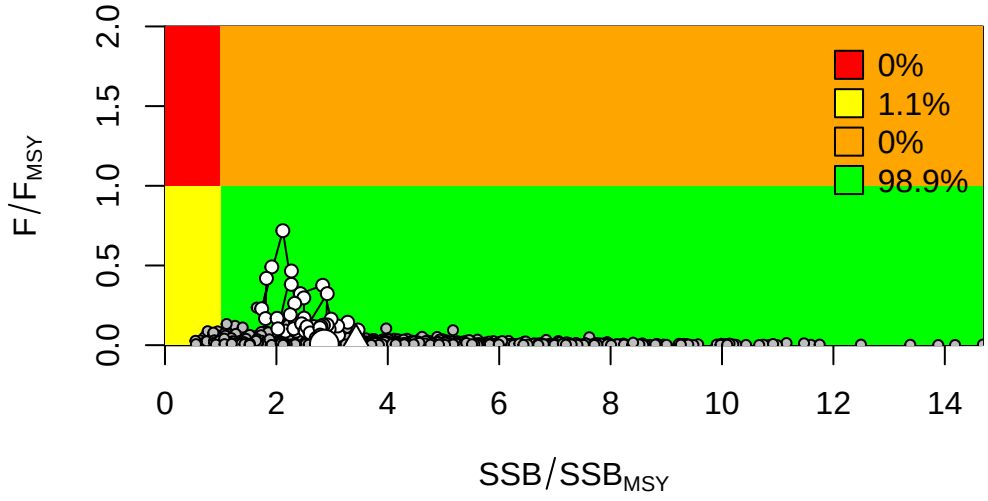
```
[1] "SR_LN"
                     frac_change include                          label
TOTAL                     1.0000    TRUE                          Total
Catch                     0.7188    TRUE                          Catch
Equil_catch               0.0000   FALSE              Equilibrium catch
Survey                    0.0274    TRUE                     Index data
Length_comp               0.2569    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               0.0001   FALSE                         Priors
Parm_softbounds           0.0000   FALSE                    Soft bounds
Parm_devs                 0.0000   FALSE          Parameter deviations
Crash_Pen                 0.0000   FALSE                  Crash penalty
```

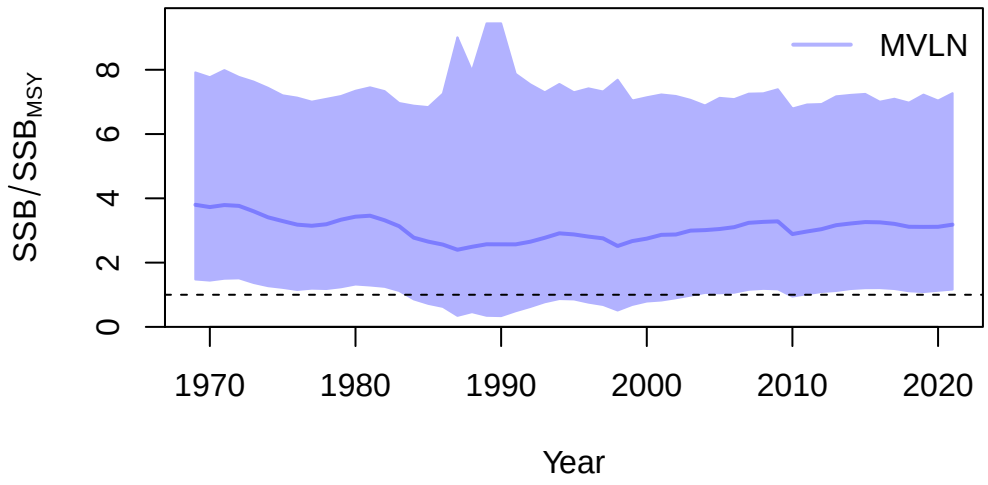


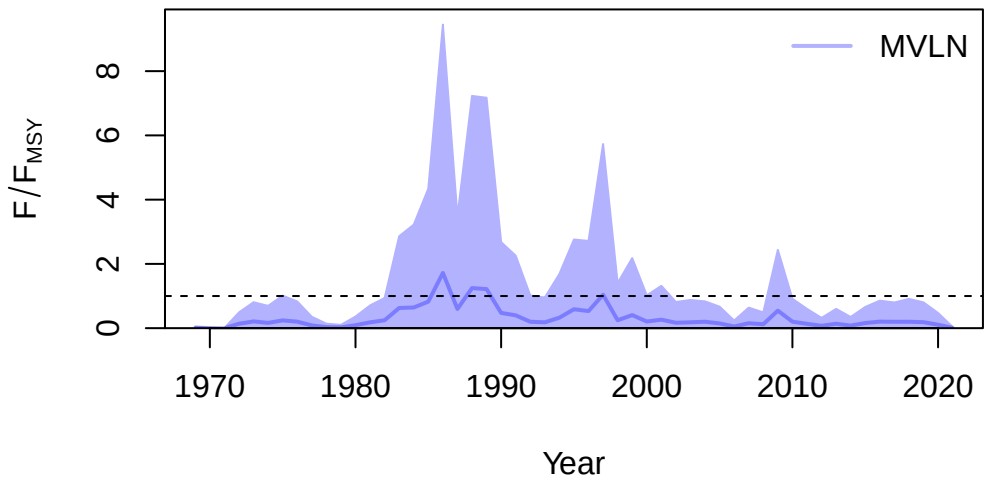


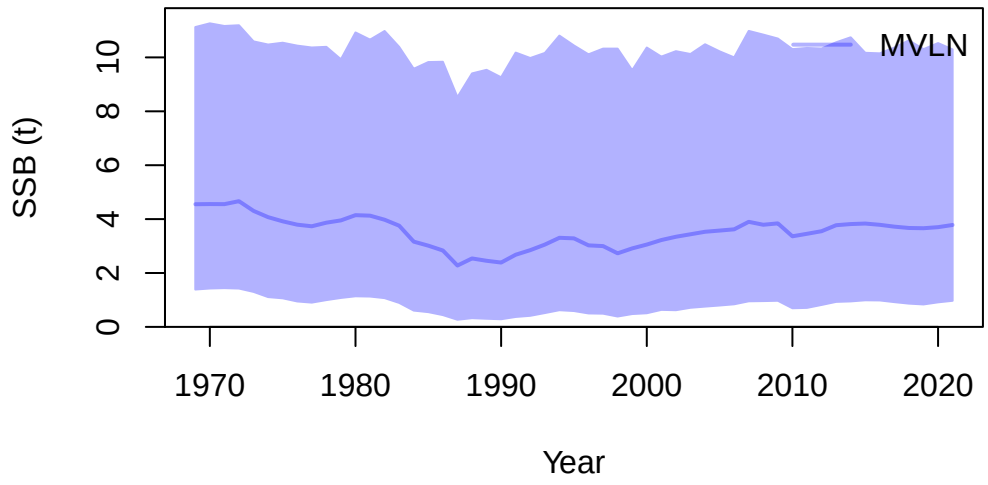
Management Quantities

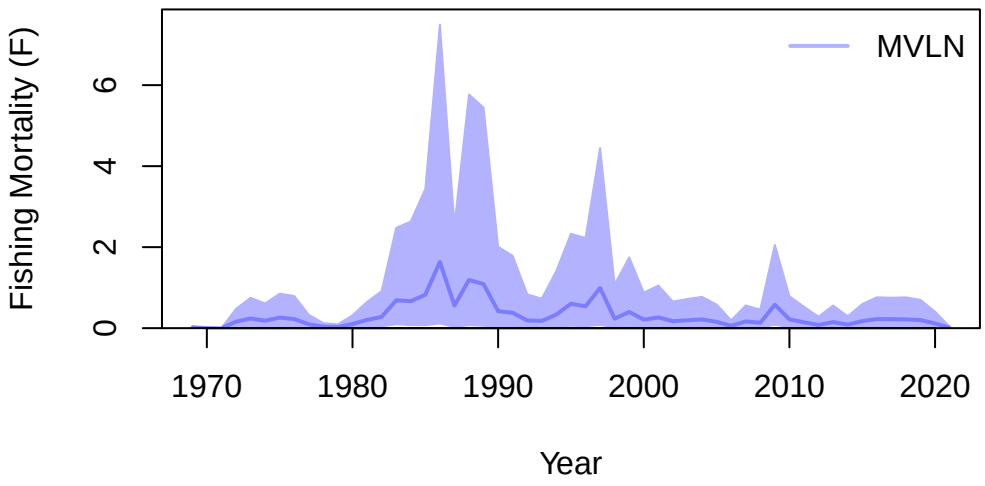
`starter.sso with Bratio: SSB/SSBMSY and F: _abs_F`


0%
1.1%
0%
98.9%
F/F_MSY
SSB/SSB_MSY
0.0
0.5
1.0
1.5
2.0
0
2
4
6
8
10
12
14


MVLN
SSB/SSB_MSY
Year
0
2
4
6
8
1970
1980
1990
2000
2010
2020

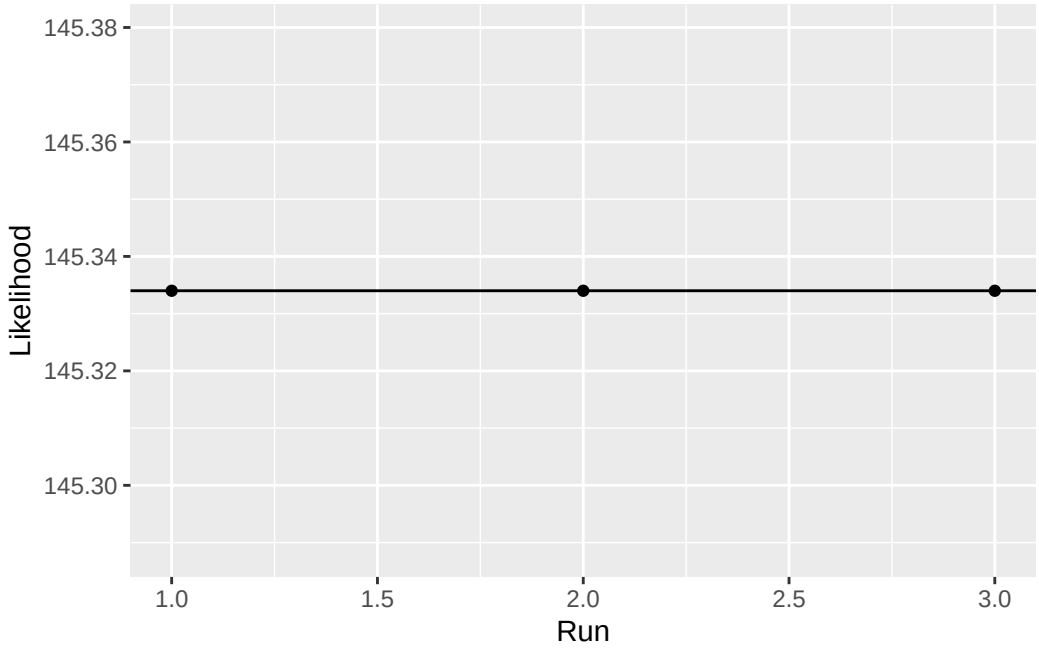

MVLN
F/F_MSY
0
2
4
6
8
1970
1980
1990
2000
2010
2020
Year

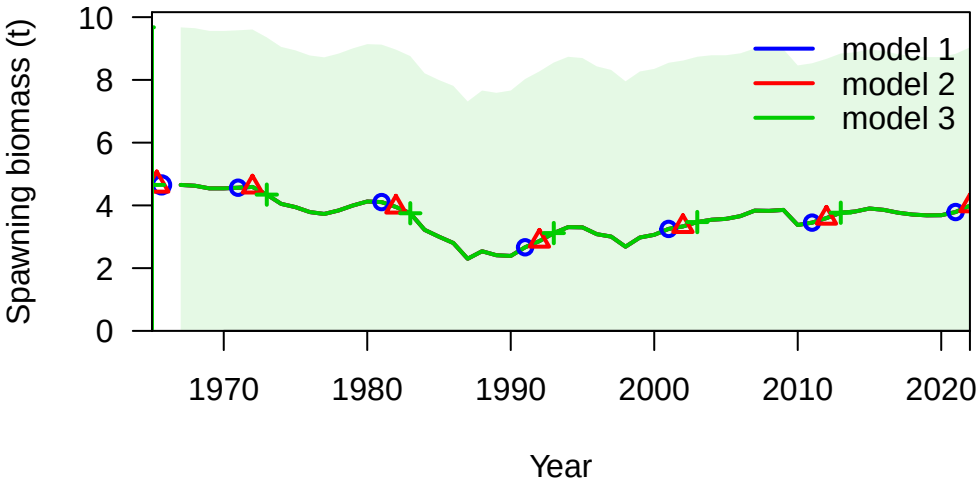

MVLN
SSB (t)
0
2
4
6
8
10
1970
1980
1990
2000
2010
2020
Year

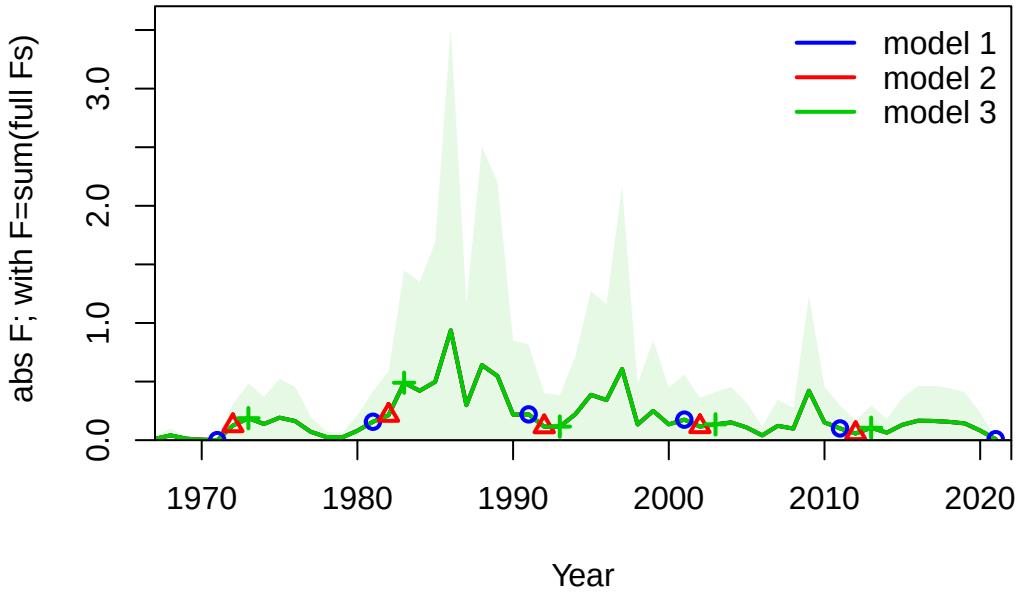


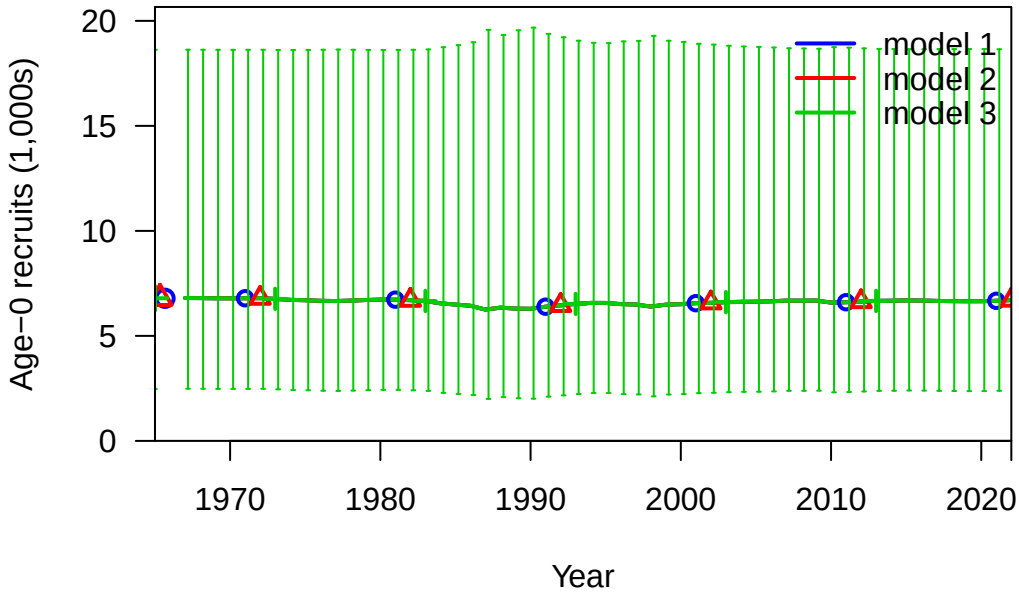

```
null device
          1
```

Jitter


145.38
145.36
145.34
145.32
145.30
Likelihood
1.0
1.5
2.0
2.5
3.0
Run


10
8
6
4
2
0
Spawning biomass (t)
model 1
model 2
model 3
1970
1980
1990
2000
2010
2020
Year


abs F; with F=sum(full Fs)
0.0
1.0
2.0
3.0
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3


Age−0 recruits (1,000s)
0
5
10
15
20
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3