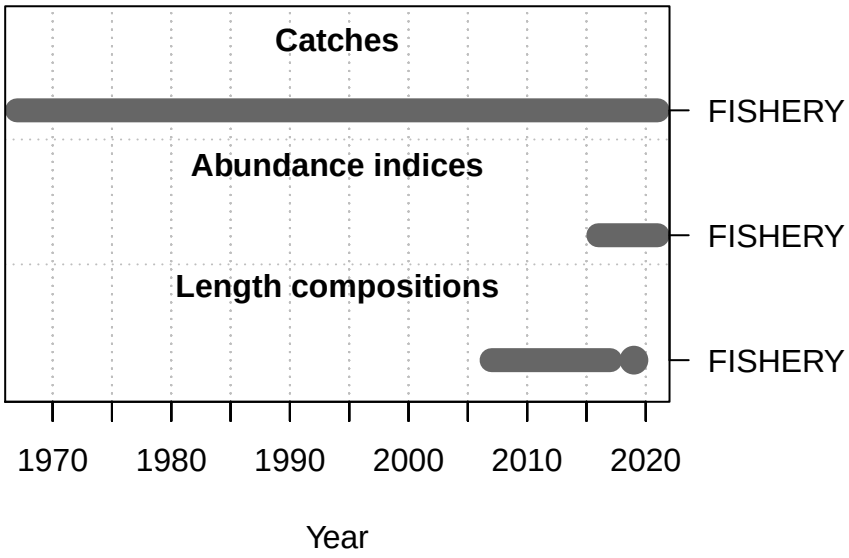
American Samoa Model Checks

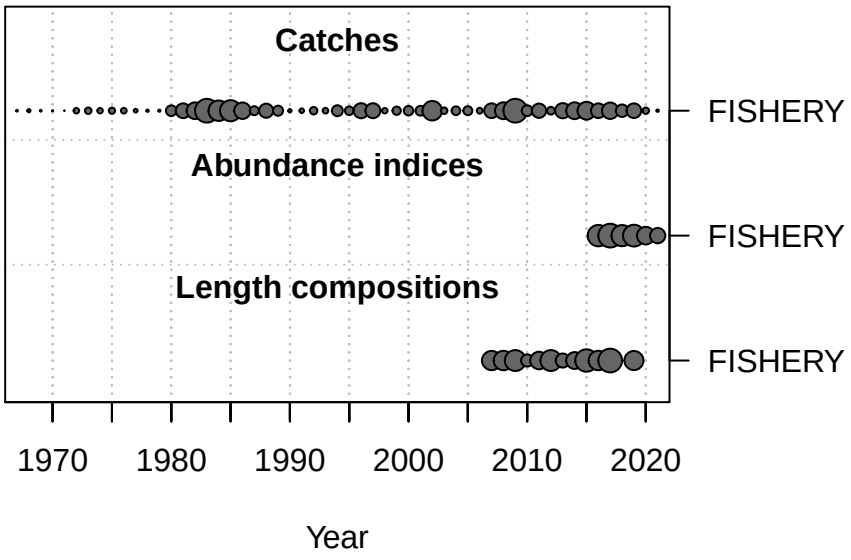
2022-08-25

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

Model Output

Input Data





Convergence Check

```
  Converged     MaxGrad
1      TRUE 2.42361e-06
```

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

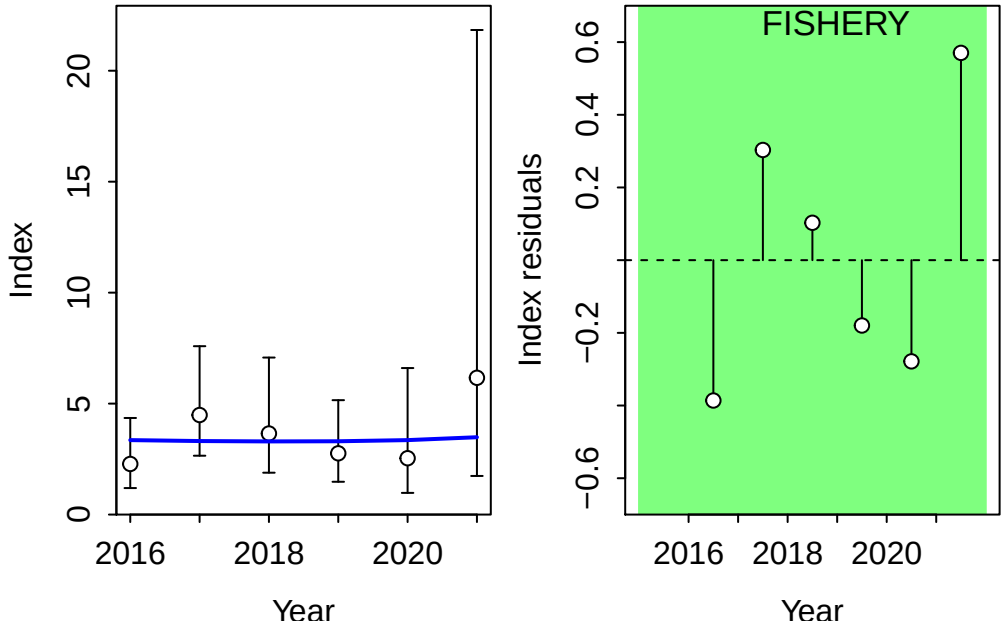
Fit to Model

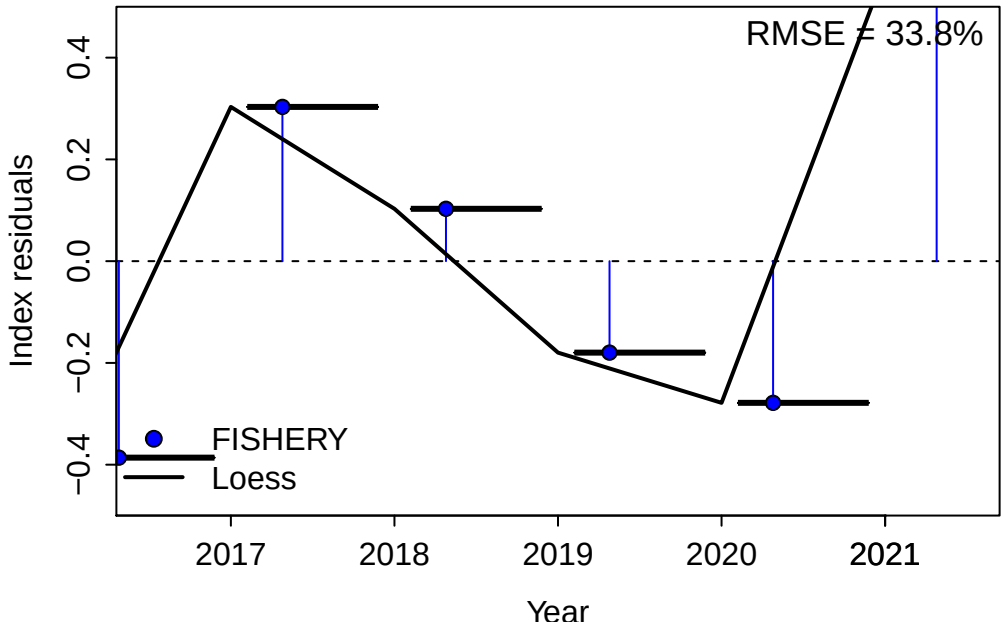
CPUE

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

```
RMSE stats by Index:
```

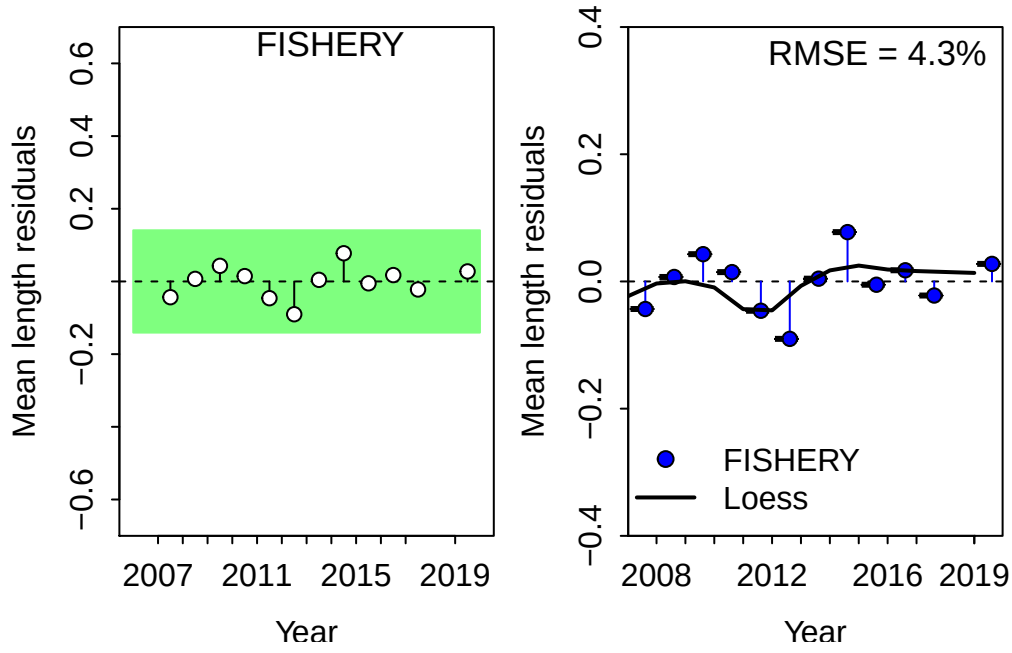
Length Comp


Index
0
5
10
15
20
2016
2018
2020
Year
Index residuals
−0.6
−0.2
0.2
0.4
0.6
FISHERY
2016
2018
2020
Year

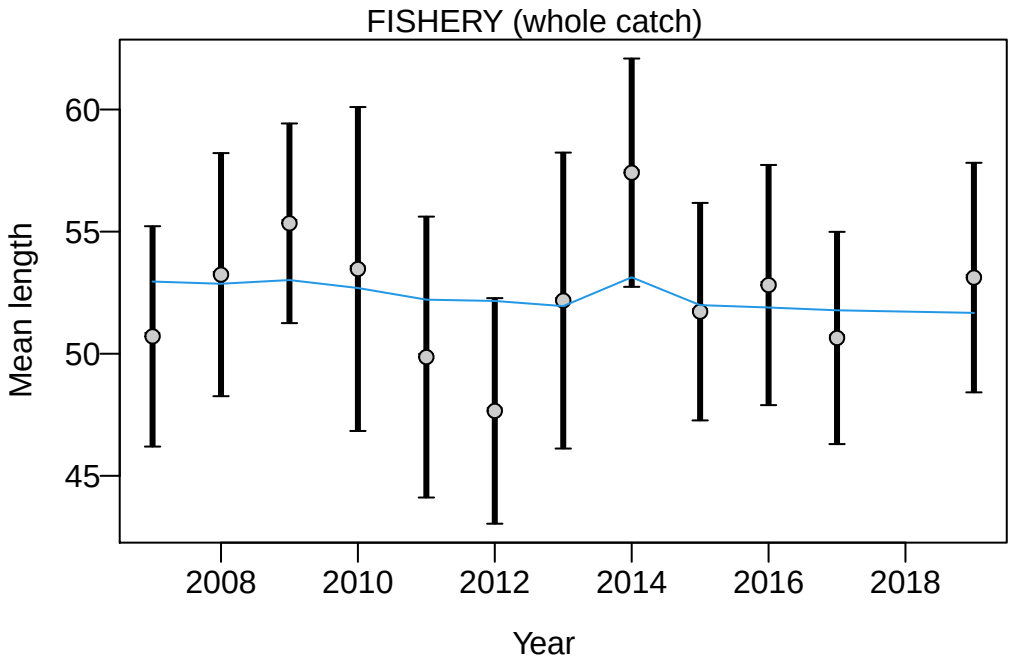

RMSE = 33.8%
Index residuals
−0.4
−0.2
0.0
0.2
0.4
FISHERY
Loess
2017
2018
2019
2020
2021
Year

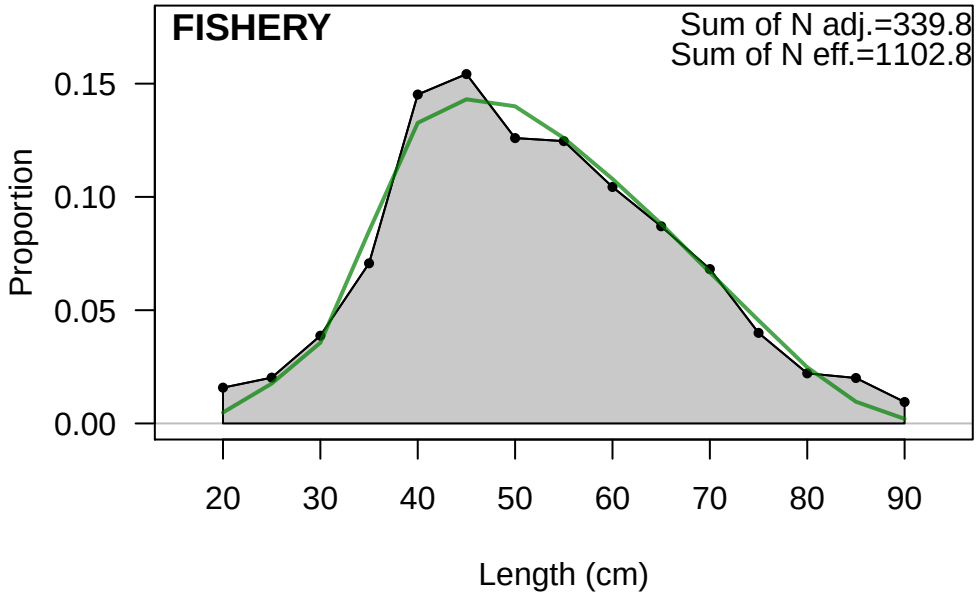
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.351807	len	FISHERY

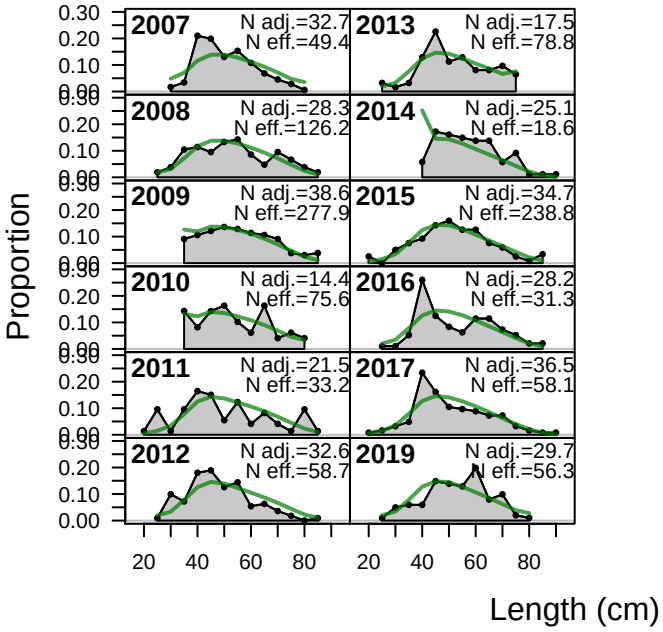
```
Residual Runs Test (/w plot) stats by Mean length:

    Index runs.p   test  sigma3.lo sigma3.hi type
1 FISHERY  0.767 Passed -0.1407421 0.1407421  len

RMSE stats by Index:

# A tibble: 2 x 3
  Fleet    RMSE.perc  Nobs
  <chr>        <dbl> <int>
1 FISHERY        4.3    12
2 Combined       4.3    12
```



Retrospective and Hindcasting

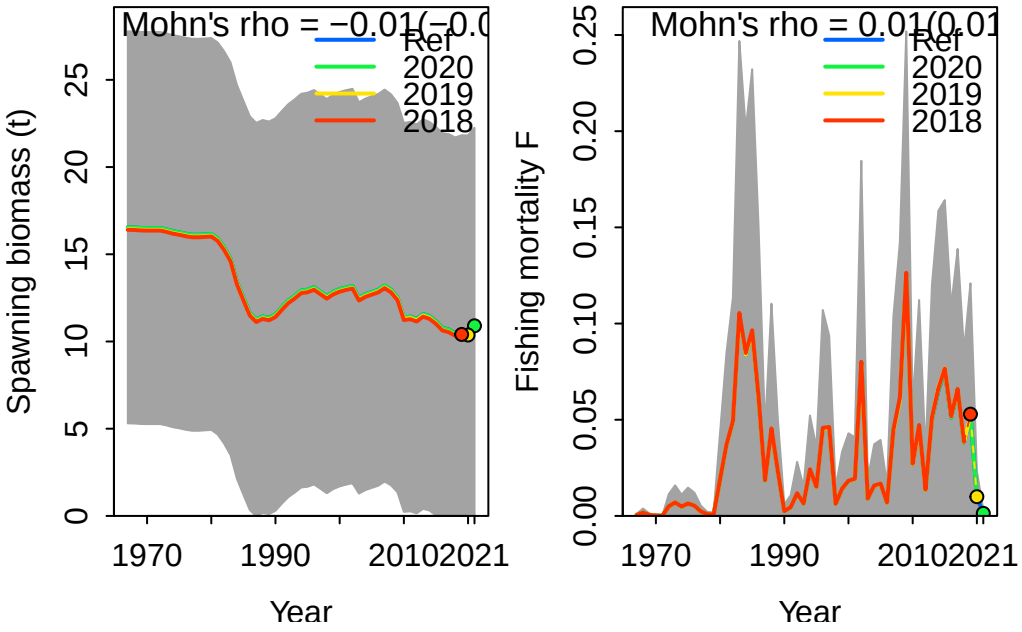

FISHERY (whole catch)
Mean length
60
55
50
45
2008
2010
2012
2014
2016
2018
Year


FISHERY
Sum of N adj.=339.8
Sum of N eff.=1102.8
Proportion
0.15
0.10
0.05
0.00
20
30
40
50
60
70
80
90
Length (cm)



Retrospective

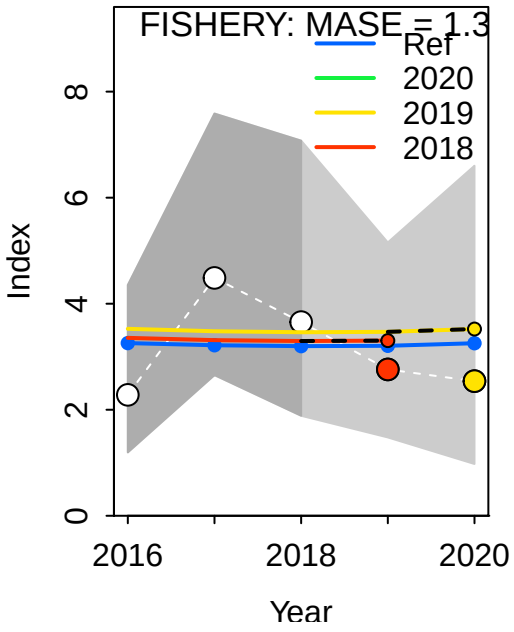
`Mohn's Rho stats, including one step ahead forecasts:`



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

  type     peel          Rho  ForecastRho
1    F     2020 -0.000288068 0.0005585885
2    F     2019  0.005631662 0.0068662931
3    F     2018  0.011976662 0.0075895076
4    F Combined  0.005773419 0.0050047964
```

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
```



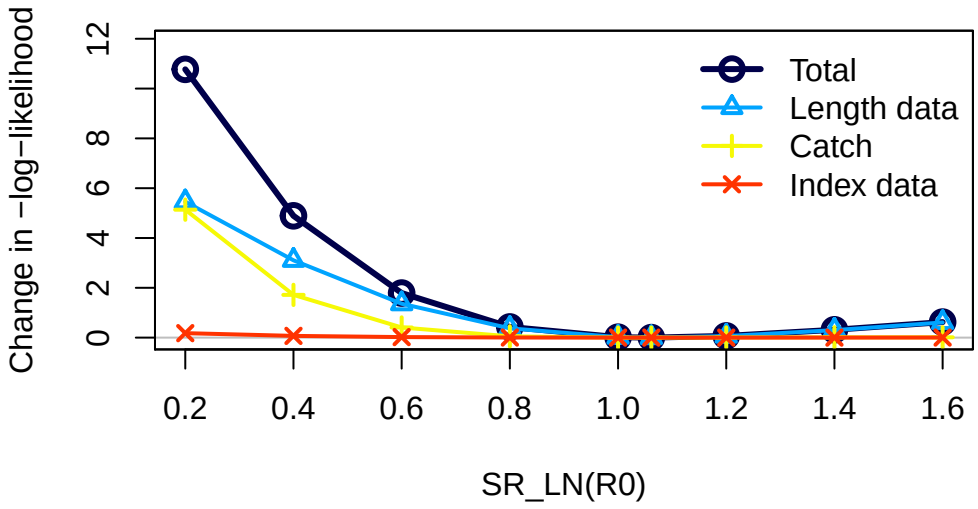

```
MASE stats by Index:
Plotting Hindcast Cross-Validation (one-step-ahead)

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

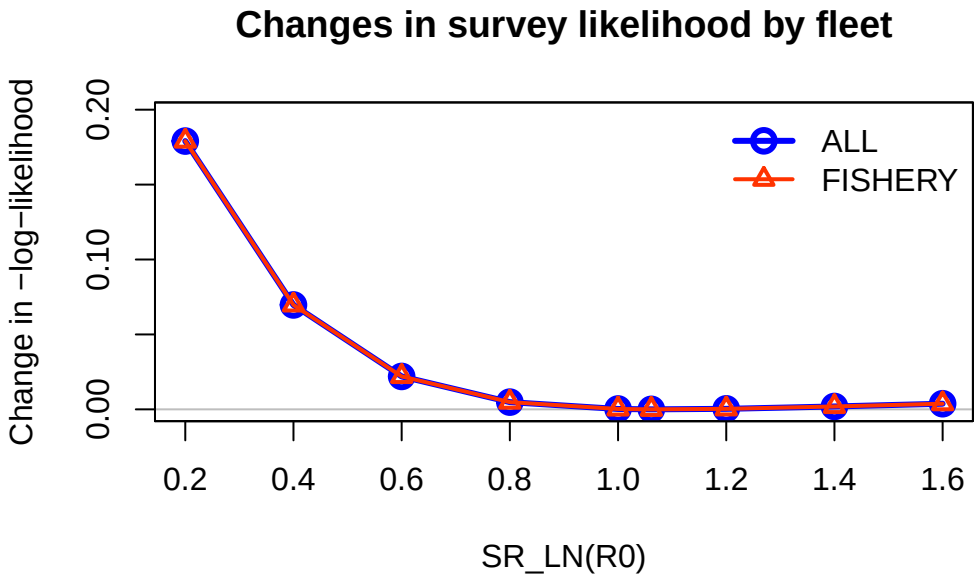
MASE stats by Index:

Recruitment Deviations

Likelihood Profile

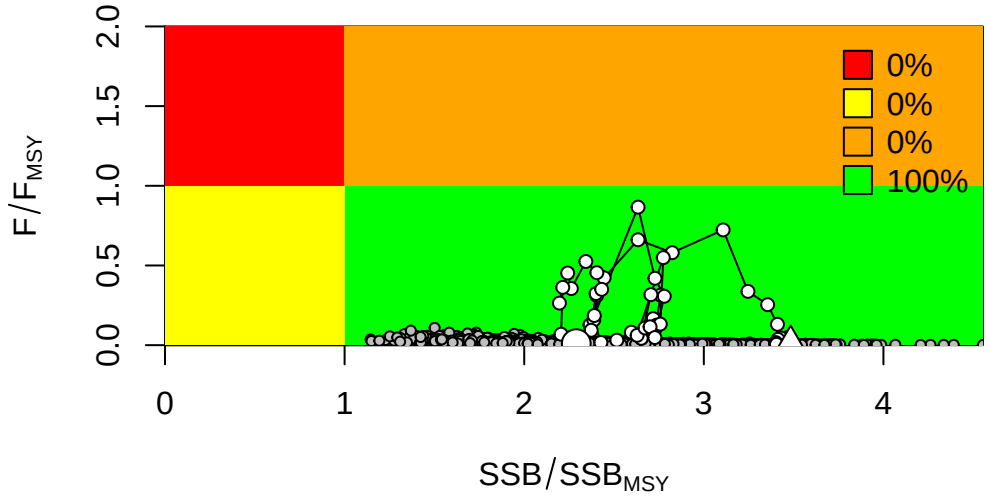
```
[1] "SR_LN"
                     frac_change include                          label
TOTAL                     1.0000    TRUE                          Total
Catch                     0.4769    TRUE                          Catch
Equil_catch               0.0000   FALSE              Equilibrium catch
Survey                    0.0166    TRUE                     Index data
Length_comp               0.5066    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               0.0000   FALSE                         Priors
Parm_softbounds           0.0000   FALSE                    Soft bounds
Parm_devs                 0.0000   FALSE          Parameter deviations
Crash_Pen                 0.0000   FALSE                 Crash penalty
```

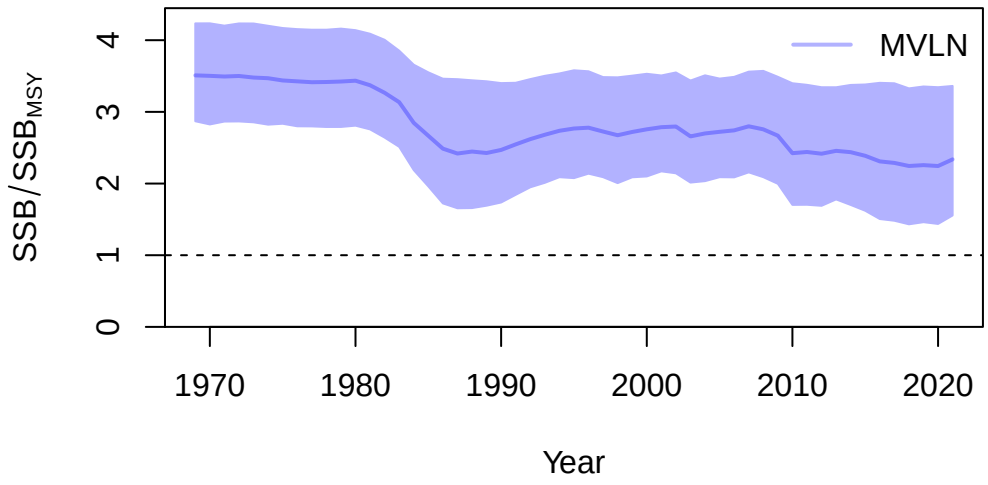


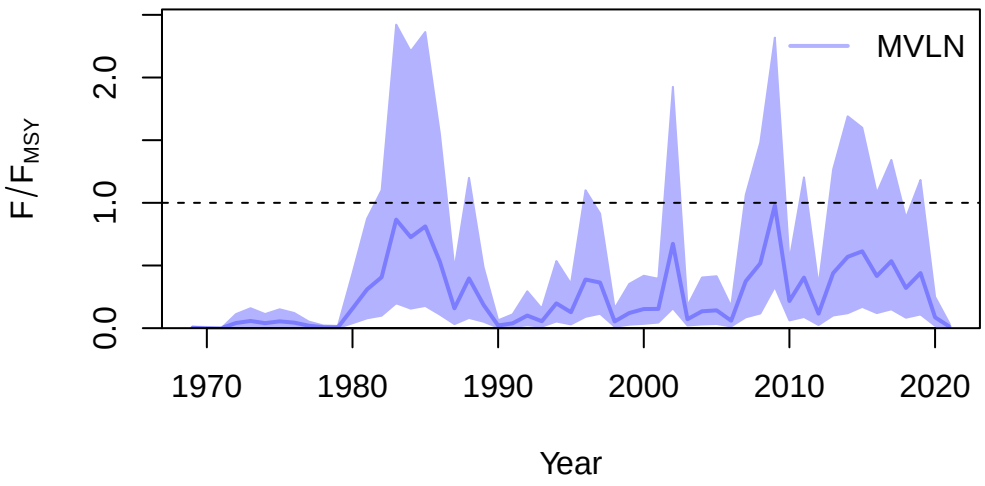


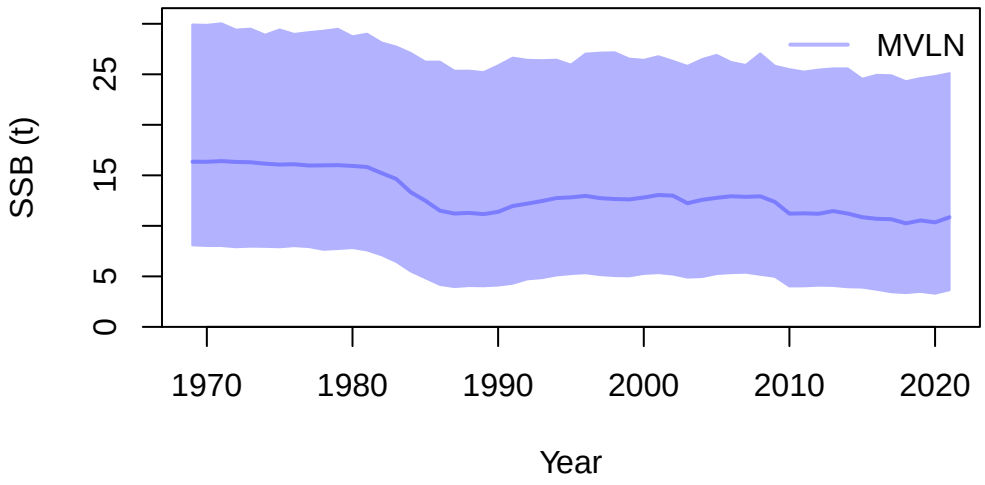
Management Quantities

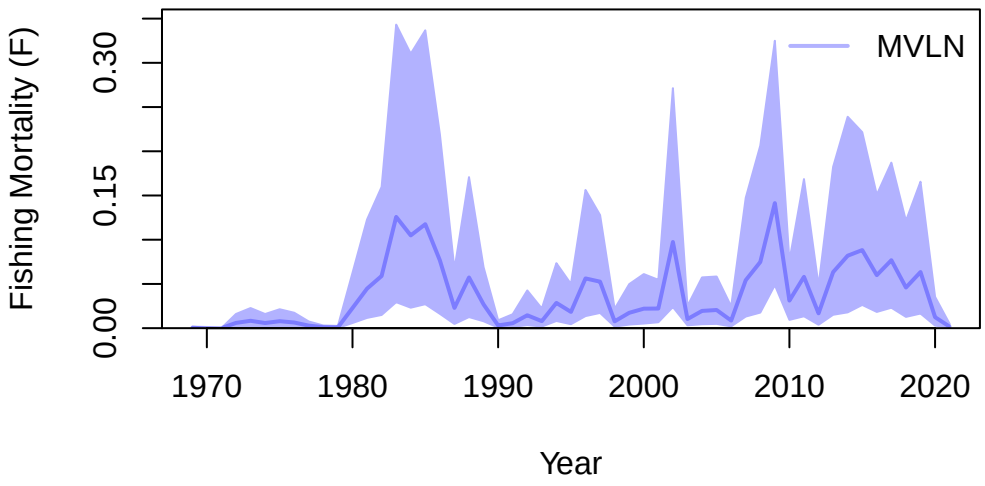
```
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F
```


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
4
1970
1980
1990
2000
2010
2020

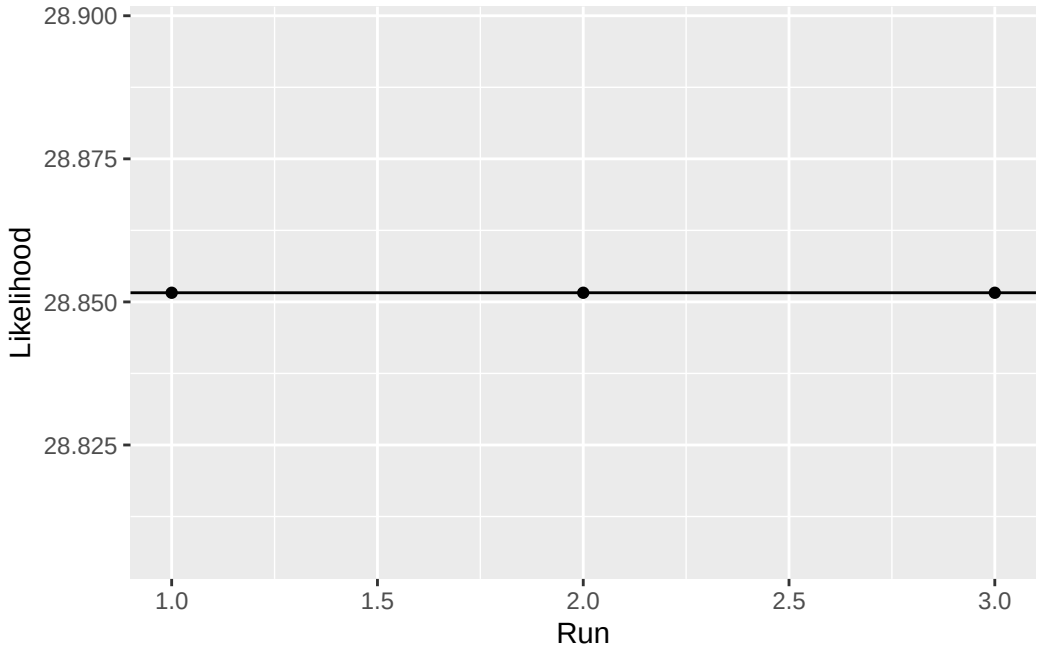

MVLN
F/F_MSY
0.0
1.0
2.0
1970
1980
1990
2000
2010
2020
Year

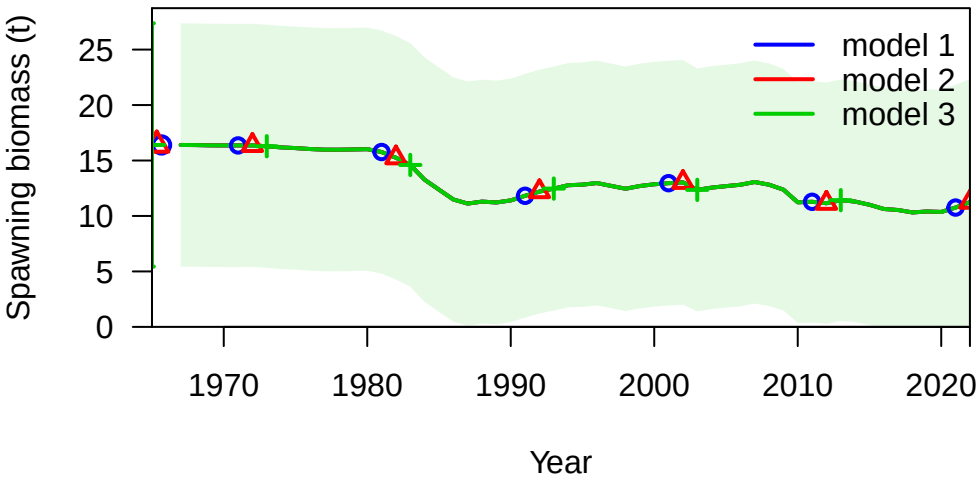

MVLN
SSB (t)
0
5
15
25
1970
1980
1990
2000
2010
2020
Year

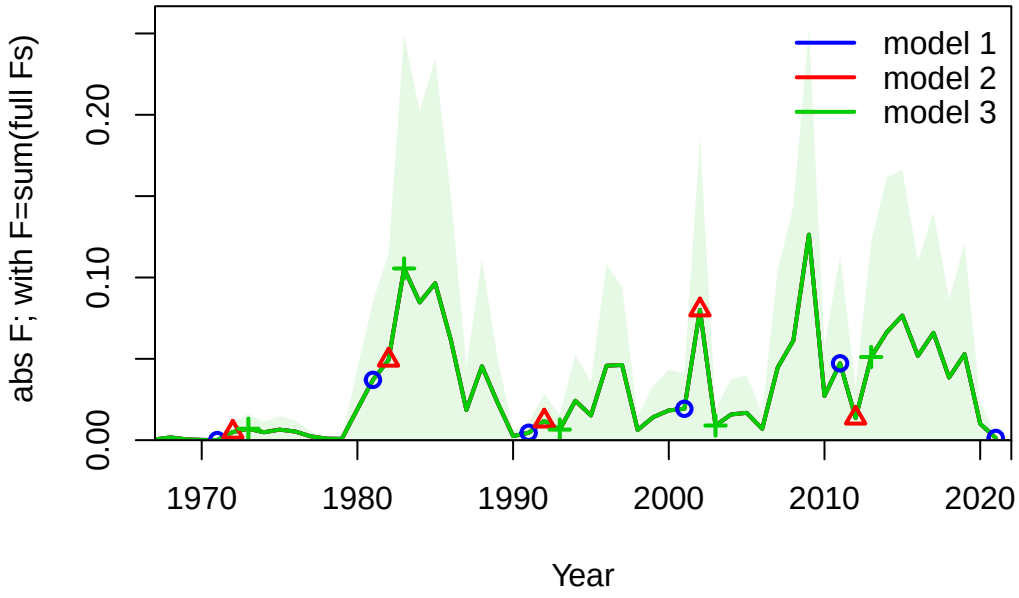


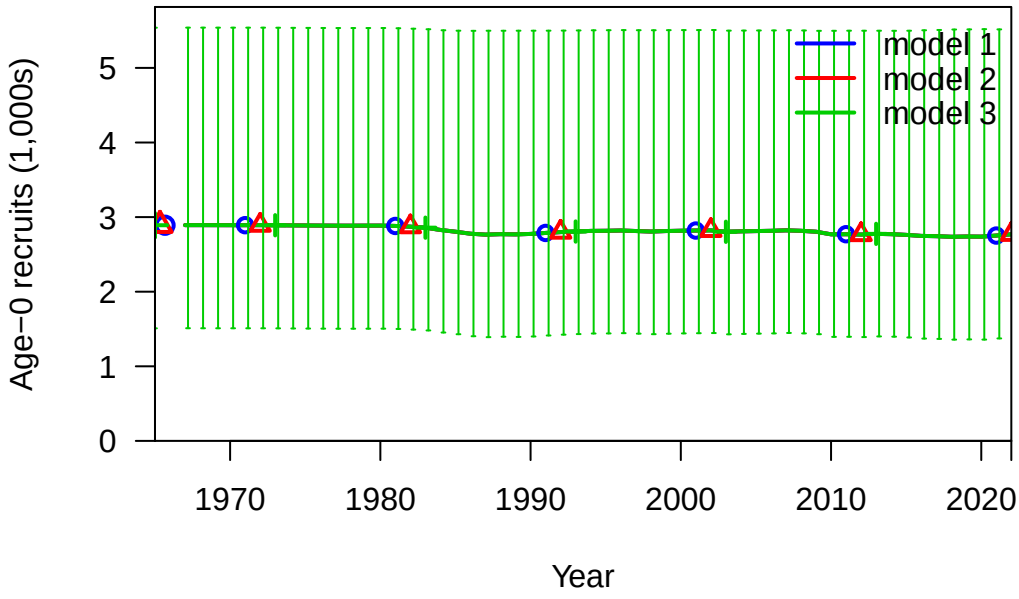

```
null device
          1
```

Jitter


28.900
28.875
28.850
28.825
Likelihood
1.0
1.5
2.0
2.5
3.0
Run


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


abs F; with F=sum(full Fs)
0.00
0.10
0.20
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3


Age−0 recruits (1,000s)
0
1
2
3
4
5
1970
1980
1990
2000
2010
2020
Year
model 1
model 2
model 3