American Samoa Model Checks

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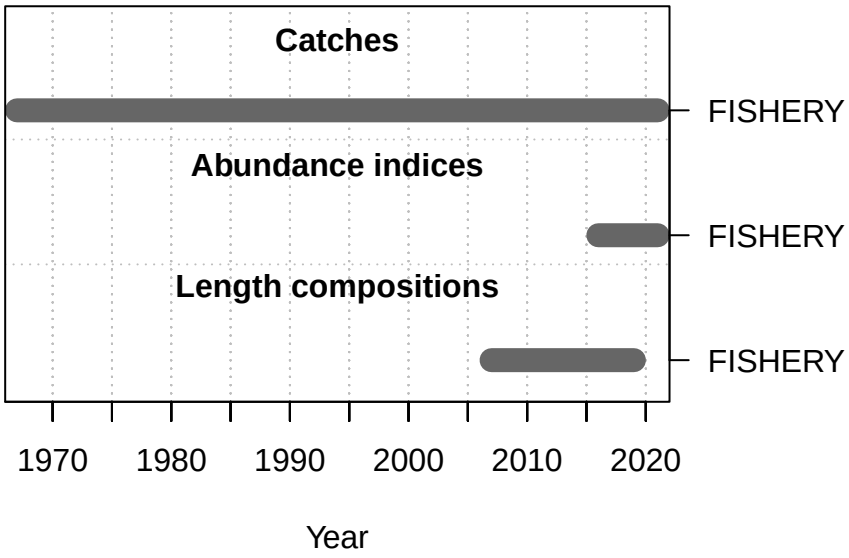
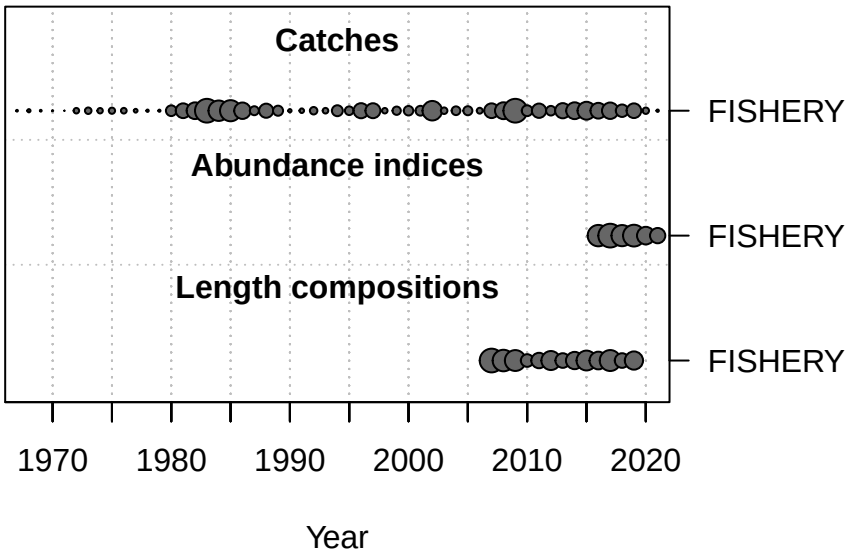
This is a summary report for the APRU base model run.

Model Output

Input Data





Convergence Check

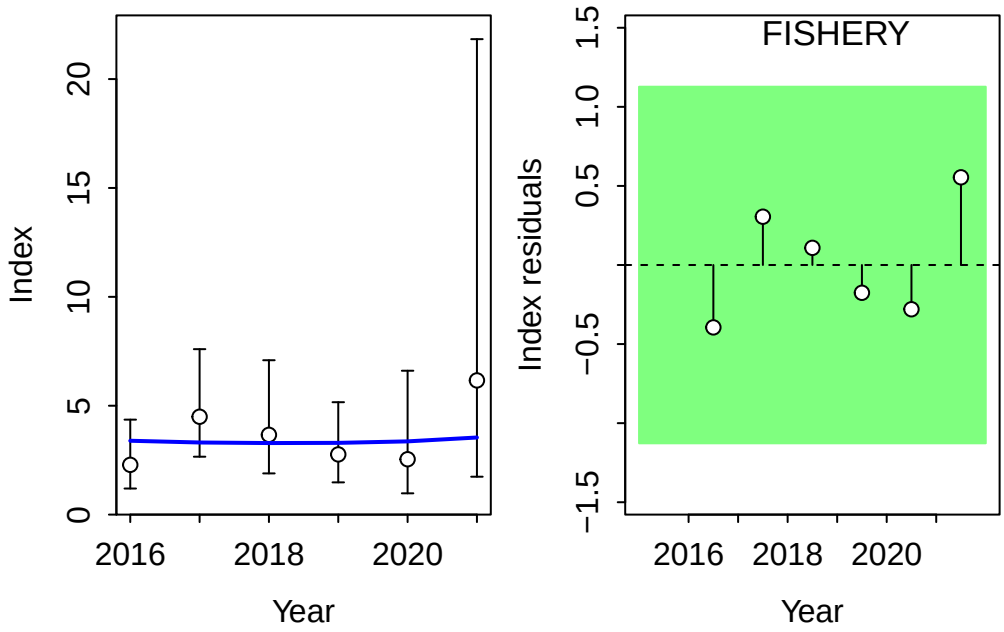
```
  Converged     MaxGrad
1      TRUE 9.72223e-06
```

```
[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

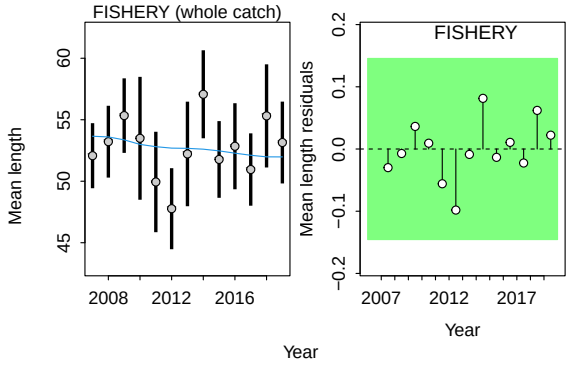
Fleet	RMSE.perc	Nobs
FISHERY	33.6	6
Combined	33.6	6

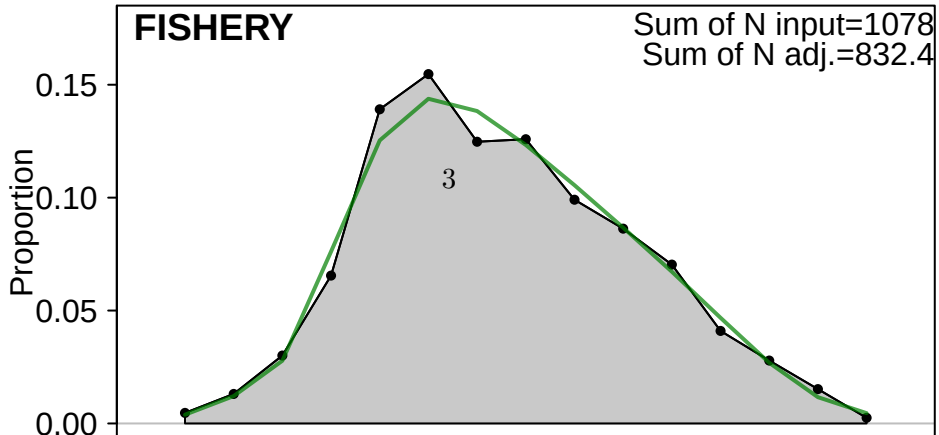


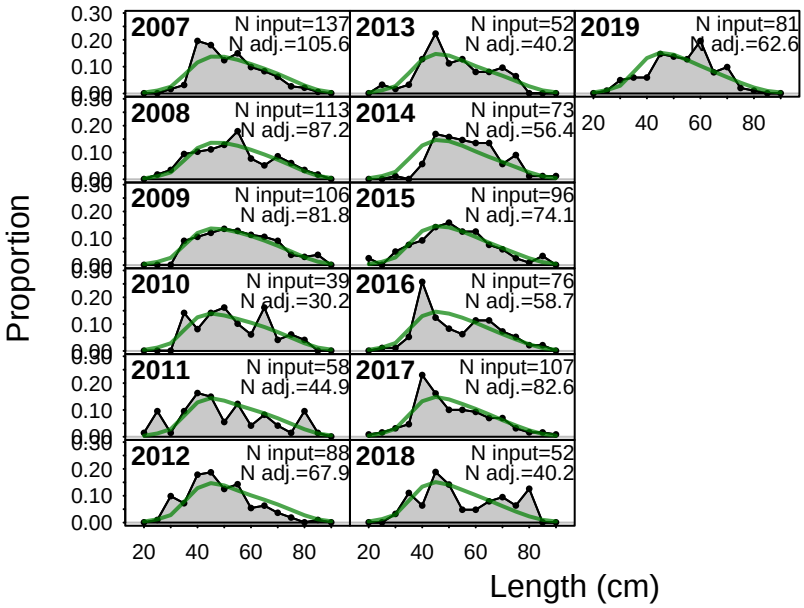
Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	4.6	13
Combined	4.6	13

```
         w        lo        hi              Index runs.p   test  sigma3.lo sigma3.hi type
0.4931531 0.2737729 1.5950006          1 FISHERY  0.623 Passed -0.1455809 0.1455809  len
```

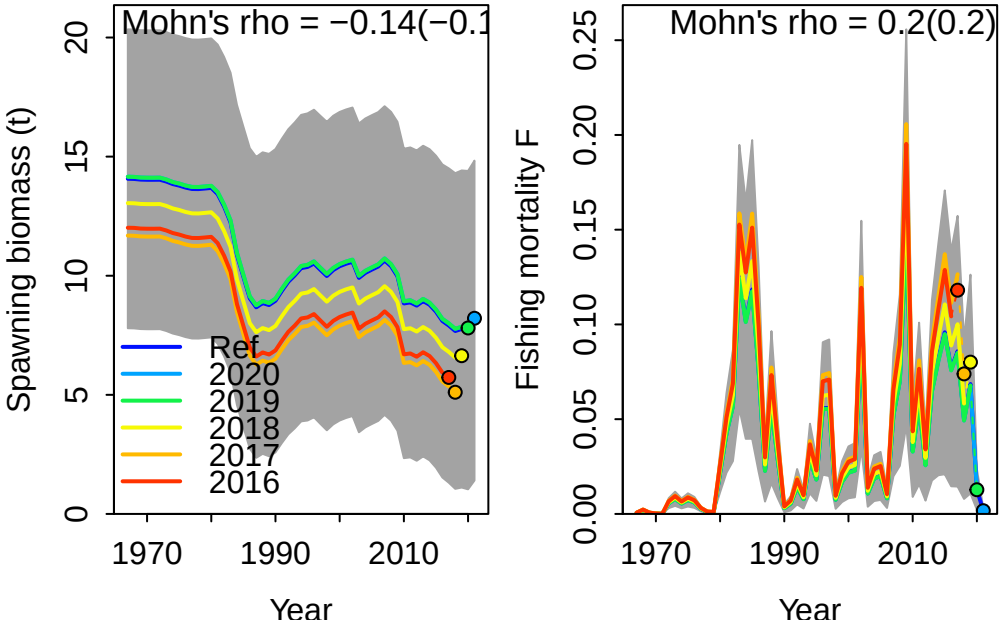






Retrospective

`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 -0.01160314 -0.01108056
2    F     2019 -0.01135500 -0.01117712
3    F     2018  0.16816140  0.16866324
4    F     2017  0.47285964  0.48204316
5    F     2016  0.36085946  0.37500902
6    F Combined  0.19578447  0.20069155
```

Hindcasting

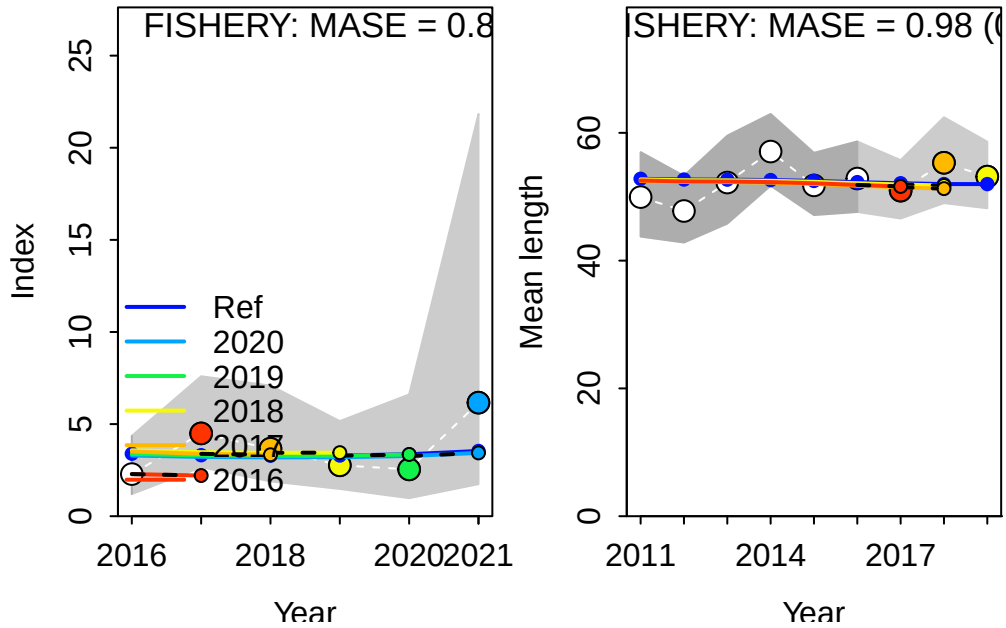
```
Plotting Hindcast Cross-Validation (one-step-ahead)

 Computing MASE with all 5 of 5  prediction residuals for Index FISHERY


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

 Computing MASE with only 3 of 5  prediction residuals for Index FISHERY

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



MASE stats by Index:

```
    Index Season      MASE     MAE.PR   MAE.base  MASE.adj n.eval
1 FISHERY      1 0.9789088 0.05173155 0.05284614 0.5173155      3
```

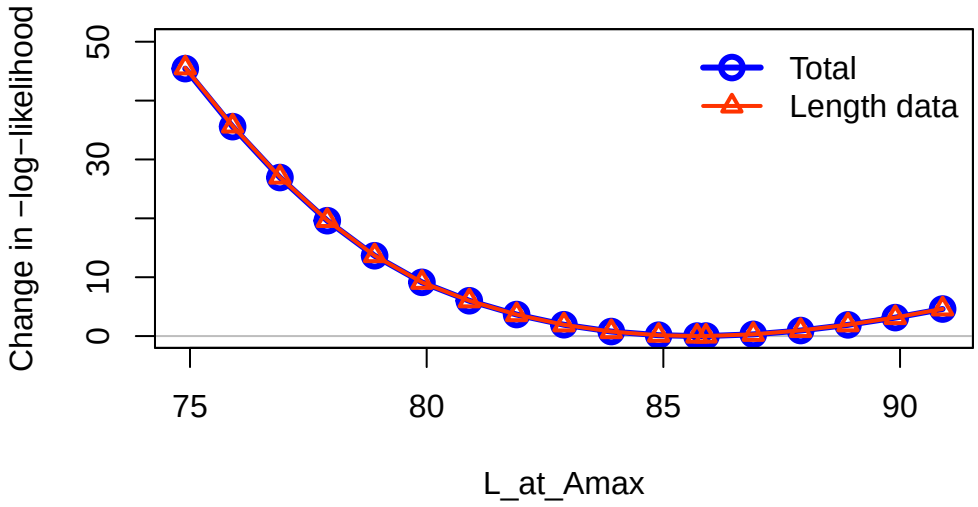
Recruitment Deviations

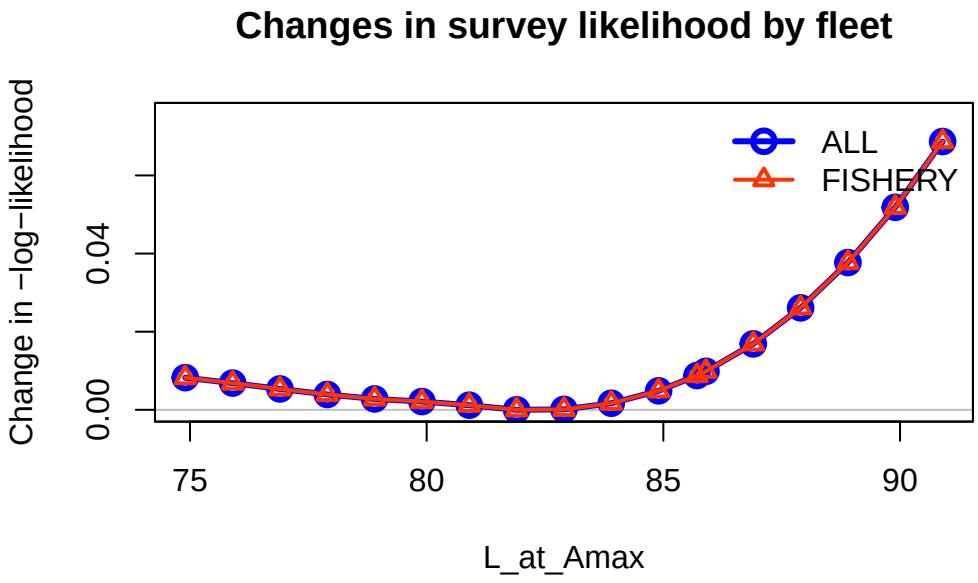
Likelihood Profile

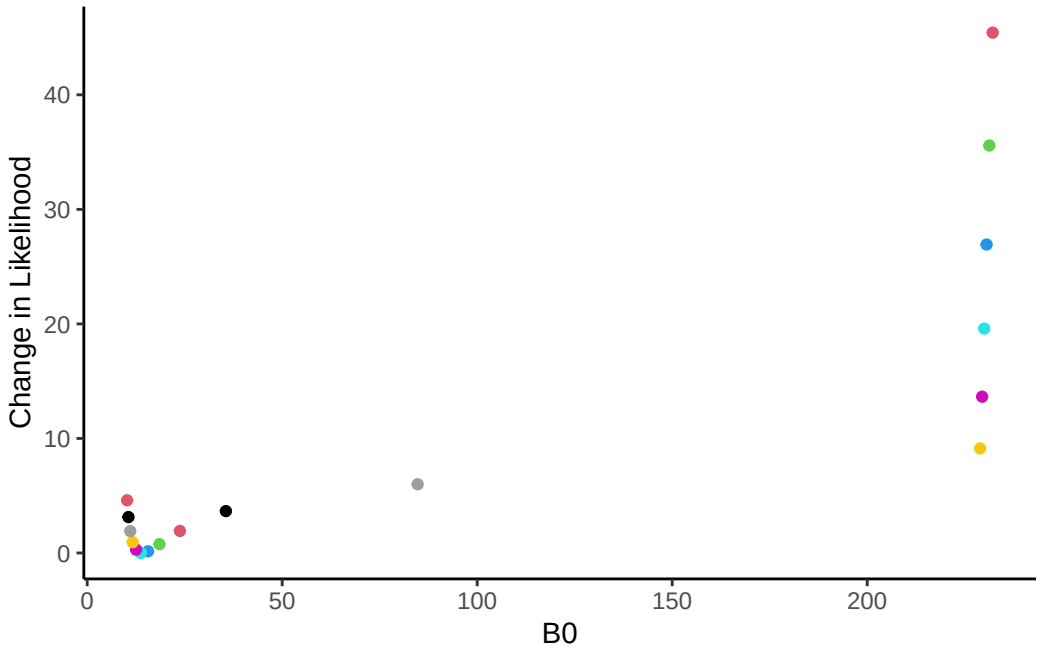
```
[1] "L_at_Amax"
```

	frac_change	include	label
TOTAL	1.0000	TRUE	Total
Catch	0.0000	FALSE	Catch
Equil_catch	0.0000	FALSE	Equilibrium catch
Survey	0.0015	FALSE	Index data
Length_comp	1.0031	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	0.0034	FALSE	Priors

```
Parm_softbounds          0.0000   FALSE                  Soft bounds
Parm_devs                0.0000   FALSE          Parameter deviations
Crash_Pen                0.0000   FALSE                  Crash penalty
```

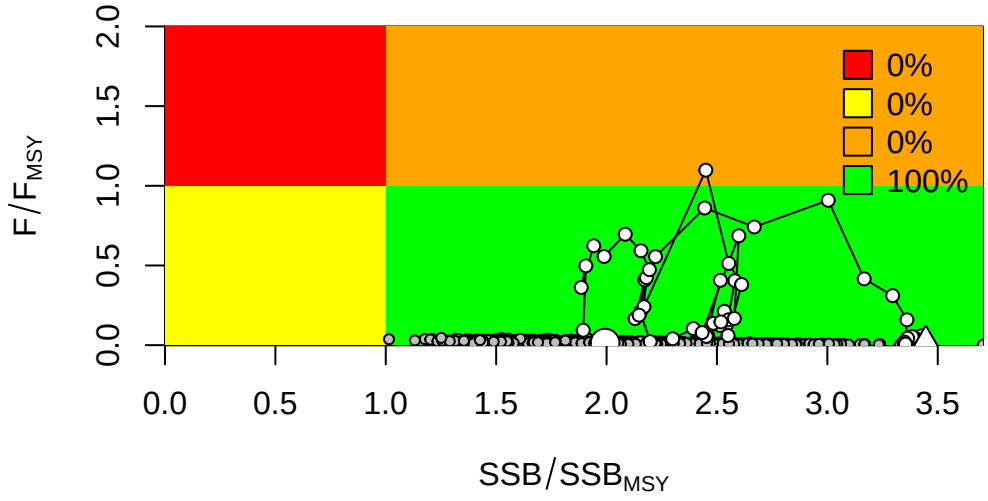


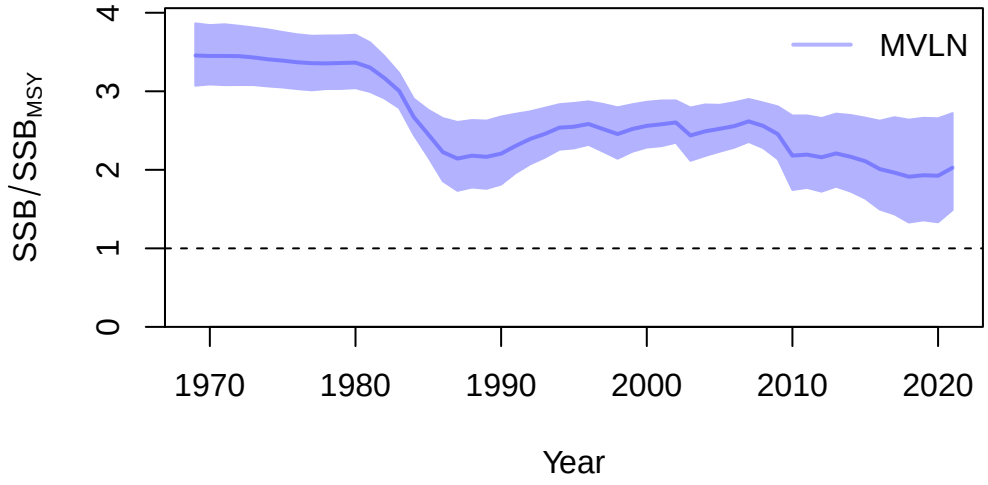


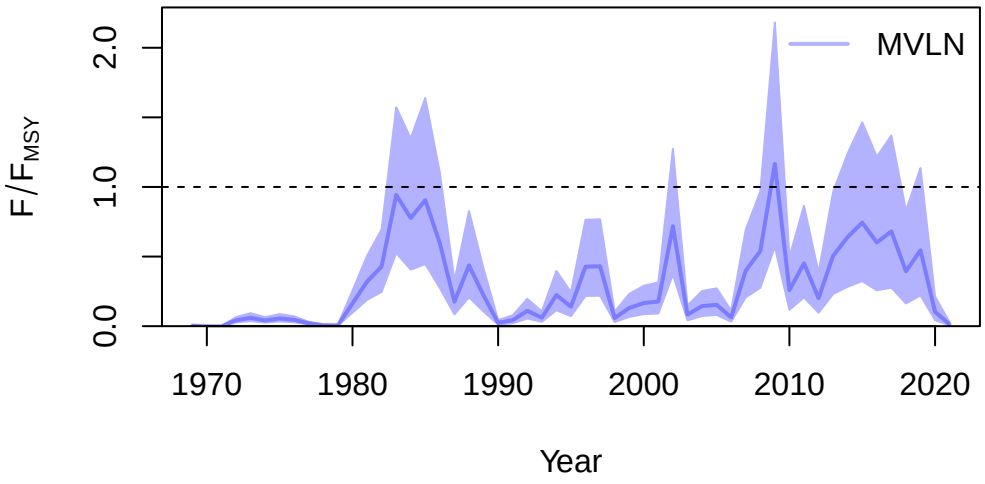


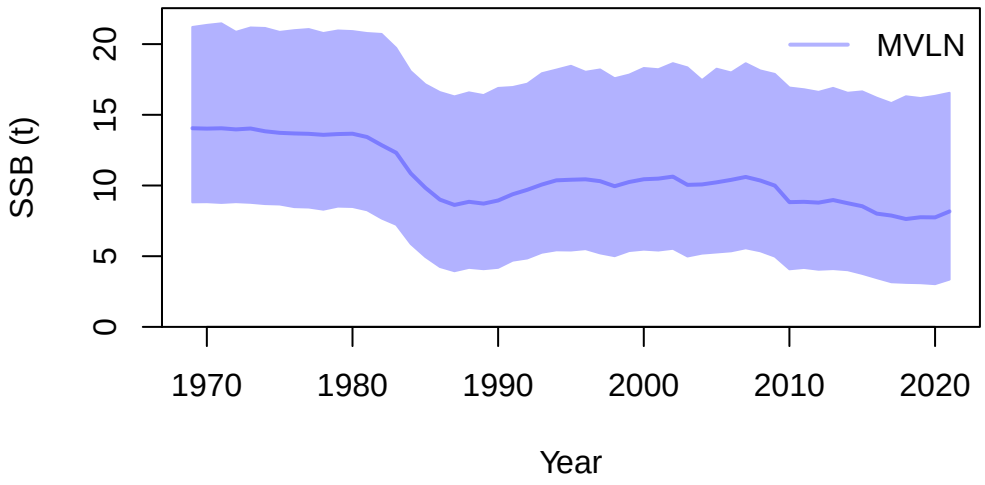
Management Quantities

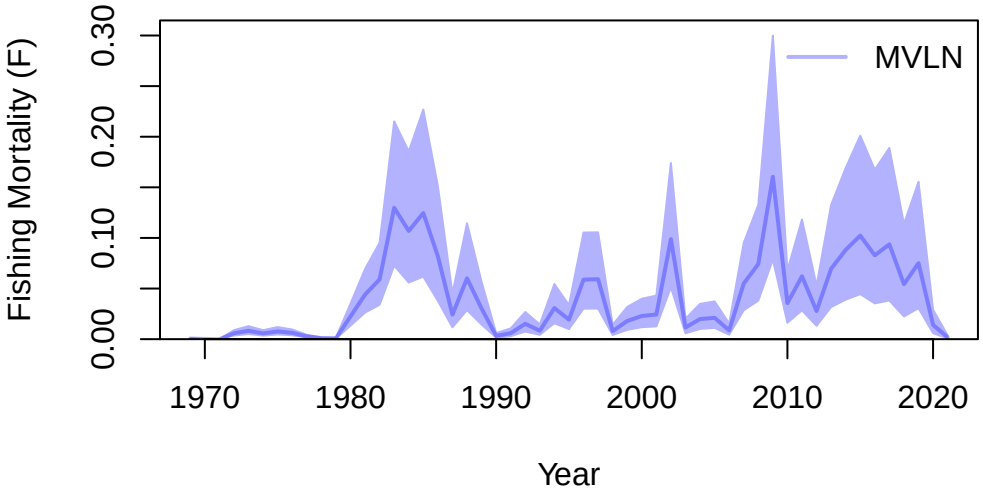
```
starter.sso with Bratio: SSB/SSBMSY and F: _abs_F
```


0%
0%
0%
100%
F/F_MSY
SSB/SSB_MSY
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


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
10
15
20
1970
1980
1990
2000
2010
2020
Year

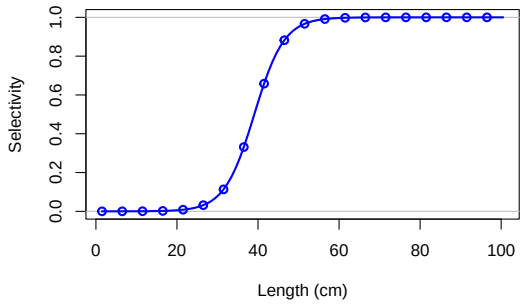


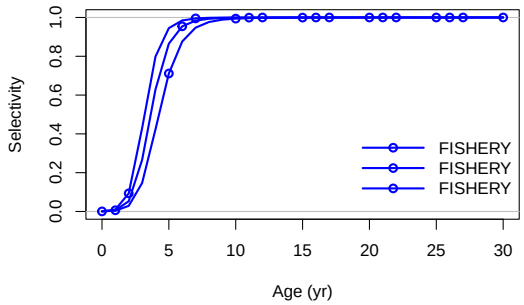

```
null device
          1
```

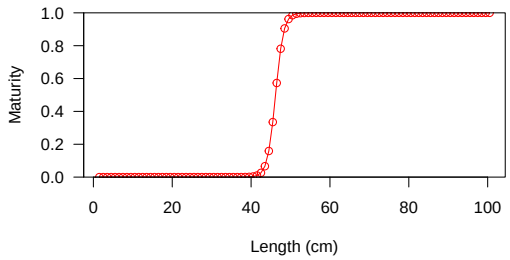
Jitter

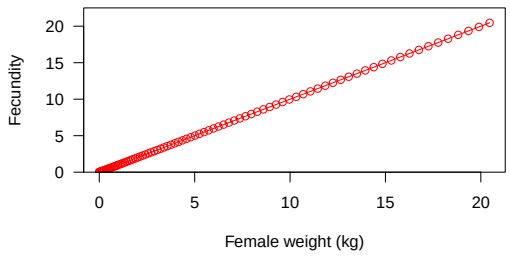
```
[1] "No jitter runs were found."
```

Selectivity and Maturity




Selectivity
0.0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
30
Age (yr)
FISHERY
FISHERY
FISHERY


Maturity
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100
Length (cm)


Fecundity
0
5
10
15
20
0
5
10
15
20
Female weight (kg)