

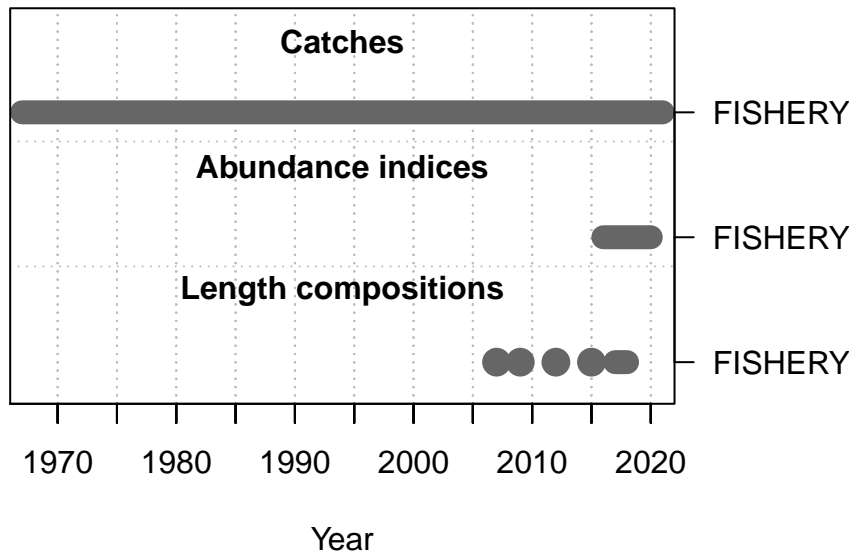
# American Samoa Model Checks

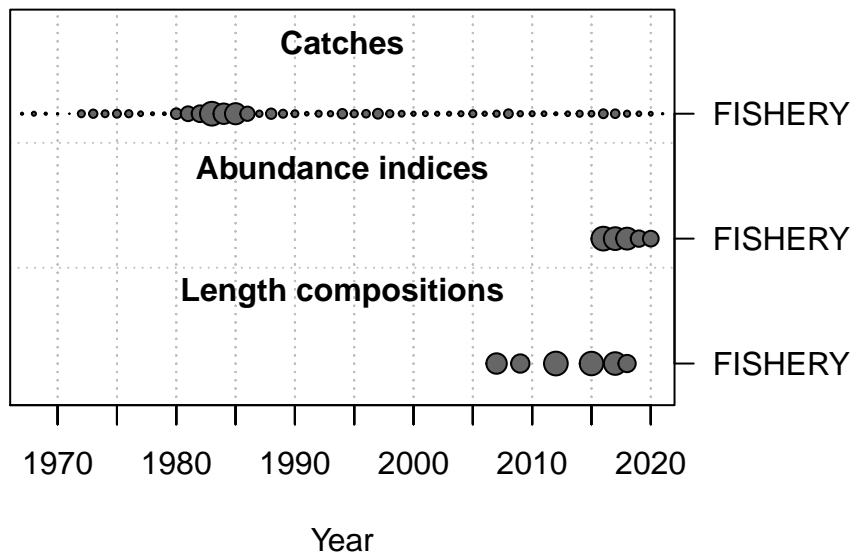
2022-09-21

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

## Model Output

### Input Data





### Convergence Check

```

Converged      MaxGrad
1      TRUE 3.84211e-05

```

```

[1] "1 NOTE:  Max data length bin: 40  < max pop len bins: 44; so will accumulate larger pop
[2] "N warnings: 1"

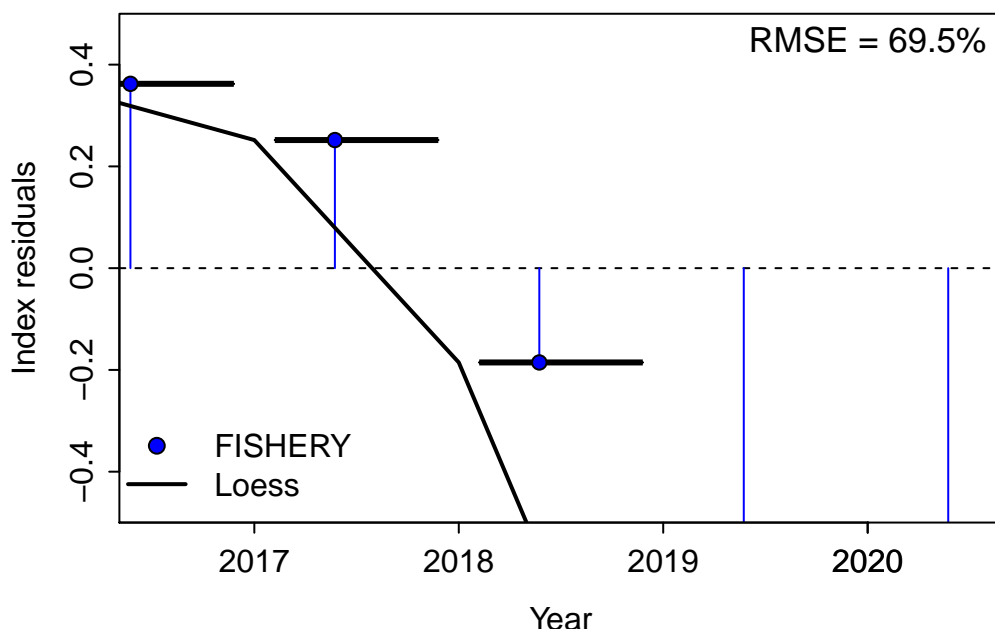
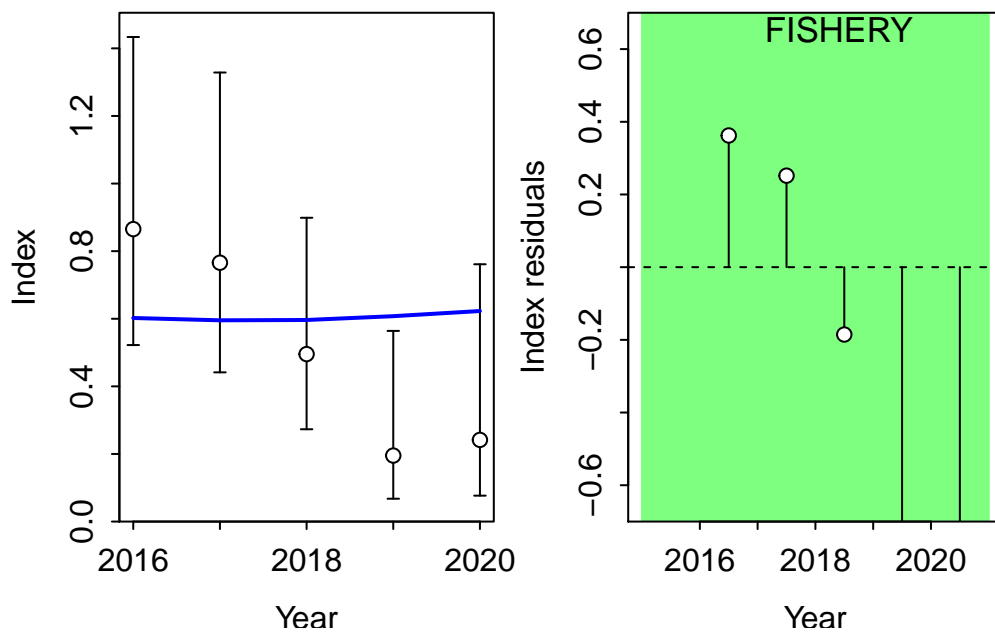
```

### Fit to Model

#### CPUE

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

RMSE stats by Index:



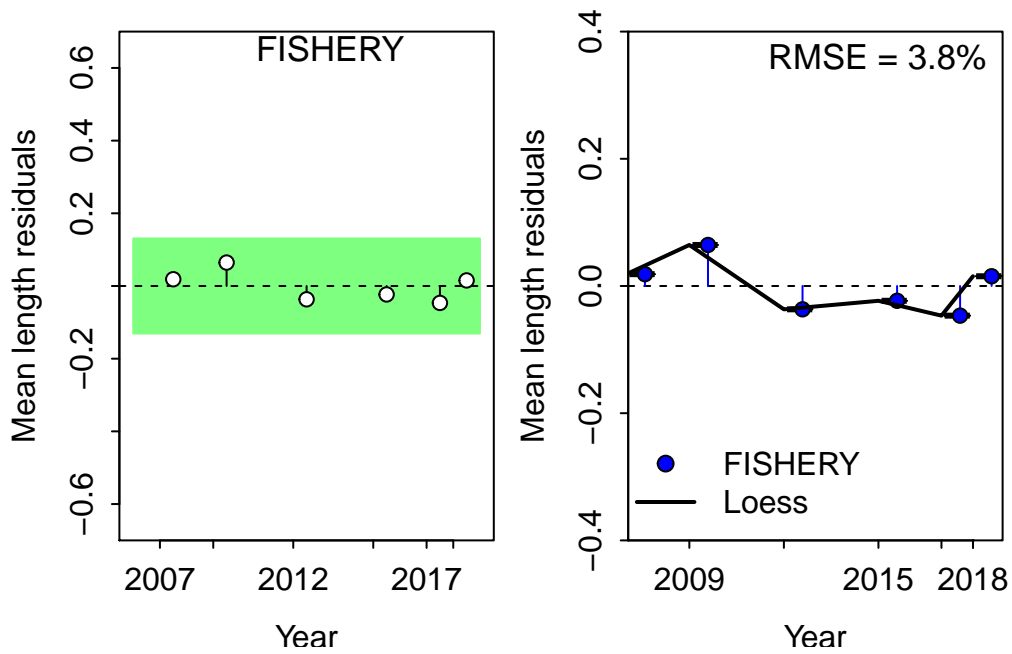
## Length Comp

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

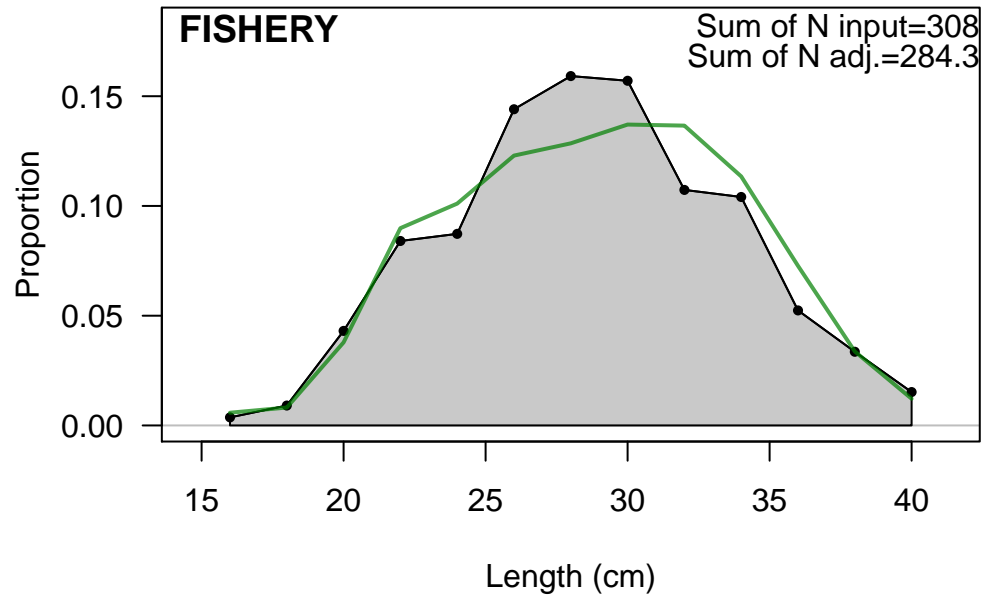
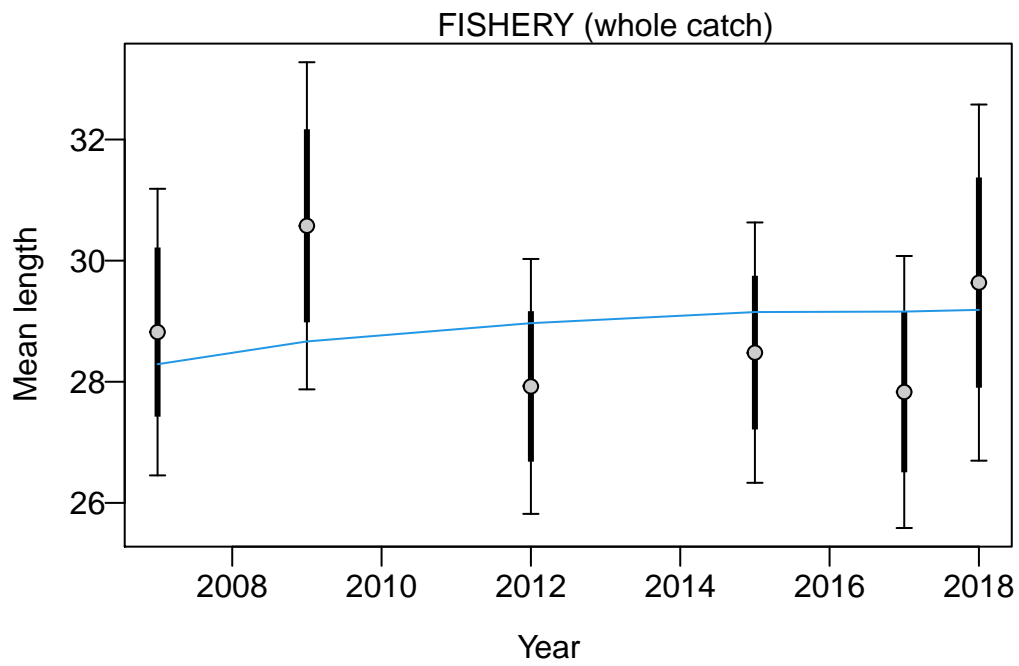
```
Index runs.p  test  sigma3.lo sigma3.hi type
1 FISHERY    0.181 Passed -0.1307708 0.1307708  len
```

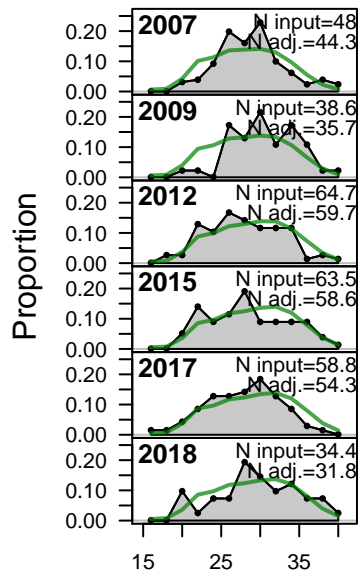
RMSE stats by Index:

```
# A tibble: 2 x 3
  Fleet    RMSE.perc  Nobs
  <chr>      <dbl> <int>
1 FISHERY      3.8     6
2 Combined      3.8     6
```



## Retrospective and Hindcasting

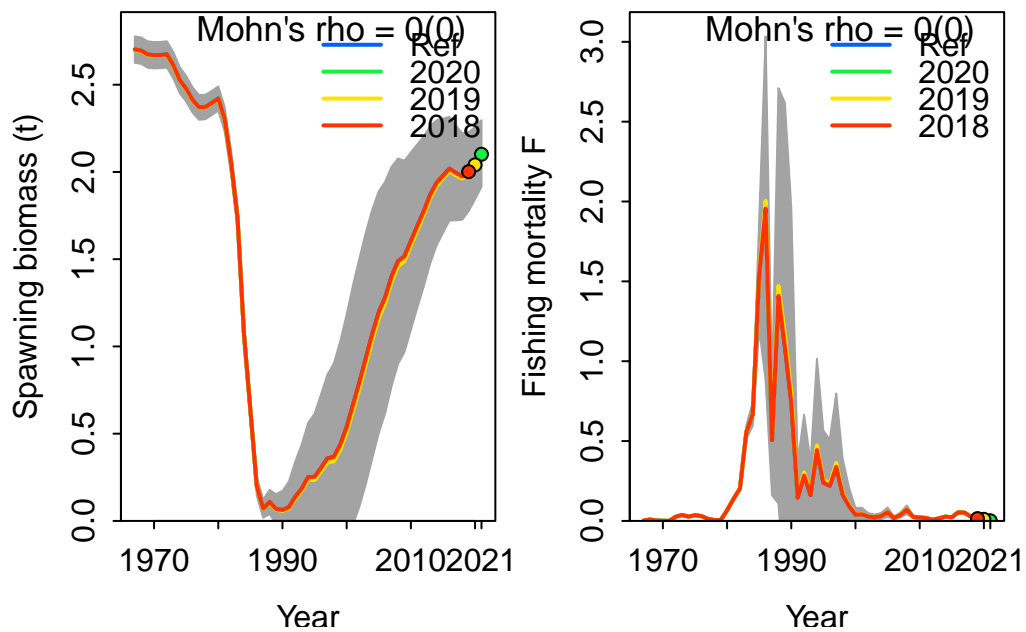




Length (cm)

## Retrospective

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



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

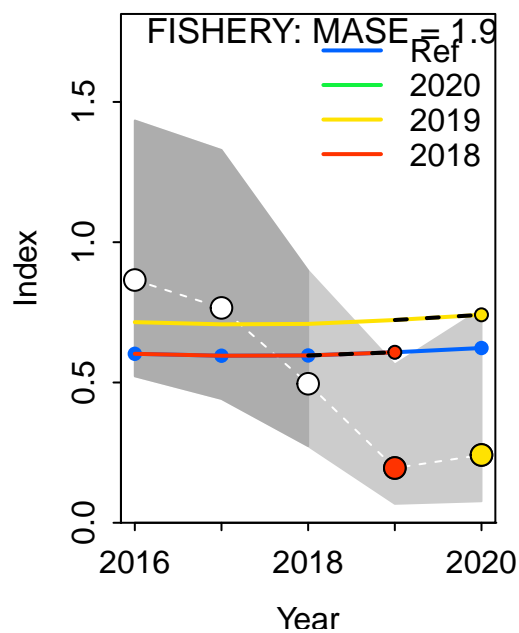
|   | type       | peel | Rho         | ForecastRho |
|---|------------|------|-------------|-------------|
| 1 | F          | 2020 | 0.002477553 | 0.002237983 |
| 2 | F          | 2019 | 0.005691775 | 0.005123580 |
| 3 | F          | 2018 | 0.000000000 | 0.000000000 |
| 4 | F Combined |      | 0.002723109 | 0.002453854 |

## 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 of



MASE stats by Index:

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

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

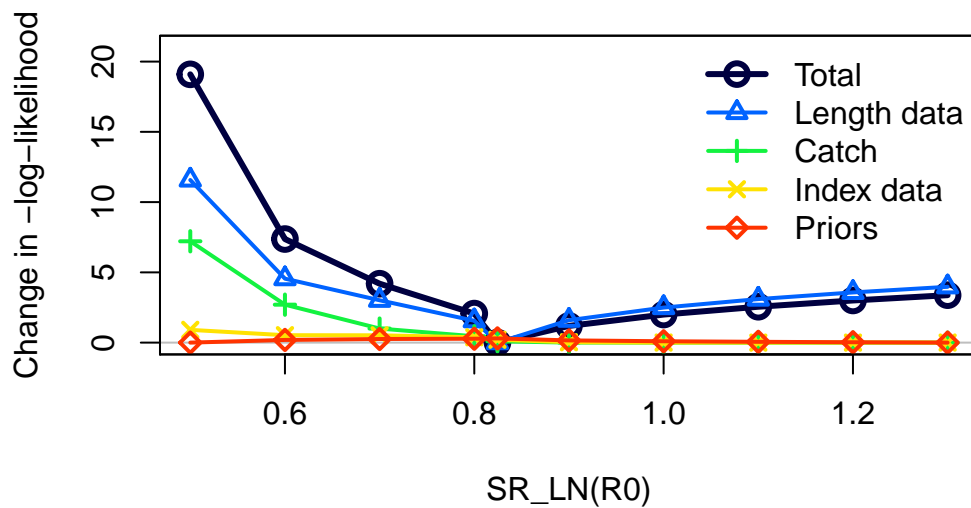
MASE stats by Index:

## Recruitment Deviations

### Likelihood Profile

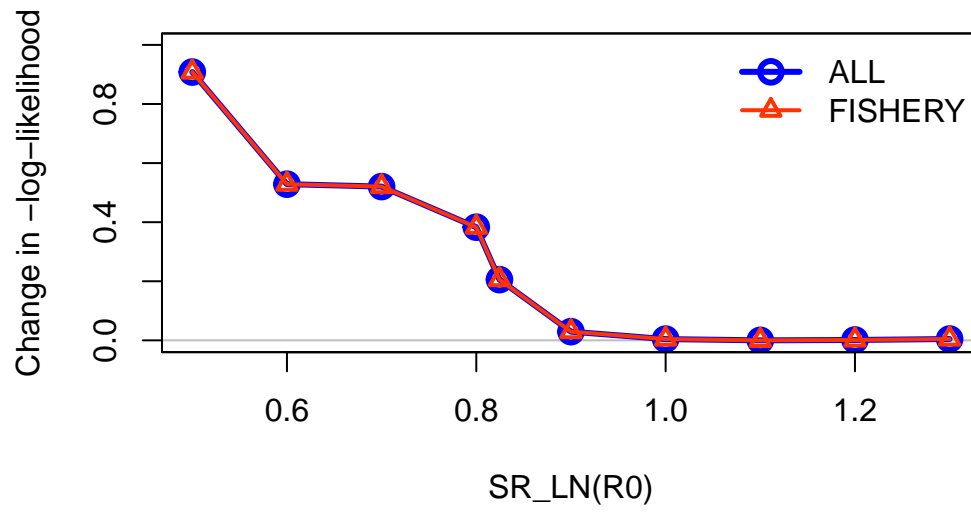
[1] "SR\_LN"

|                      | frac_change | include | label                            |
|----------------------|-------------|---------|----------------------------------|
| TOTAL                | 1.0000      | TRUE    | Total                            |
| Catch                | 0.3777      | TRUE    | Catch                            |
| Equil_catch          | 0.0000      | FALSE   | Equilibrium catch                |
| Survey               | 0.0476      | TRUE    | Index data                       |
| Length_comp          | 0.6061      | 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          | 0.0158      | TRUE    | Priors                           |
| Parm_softbounds      | 0.0000      | FALSE   | Soft bounds                      |
| Parm_devs            | 0.0000      | FALSE   | Parameter deviations             |
| Crash_Pen            | 0.0000      | FALSE   | Crash penalty                    |



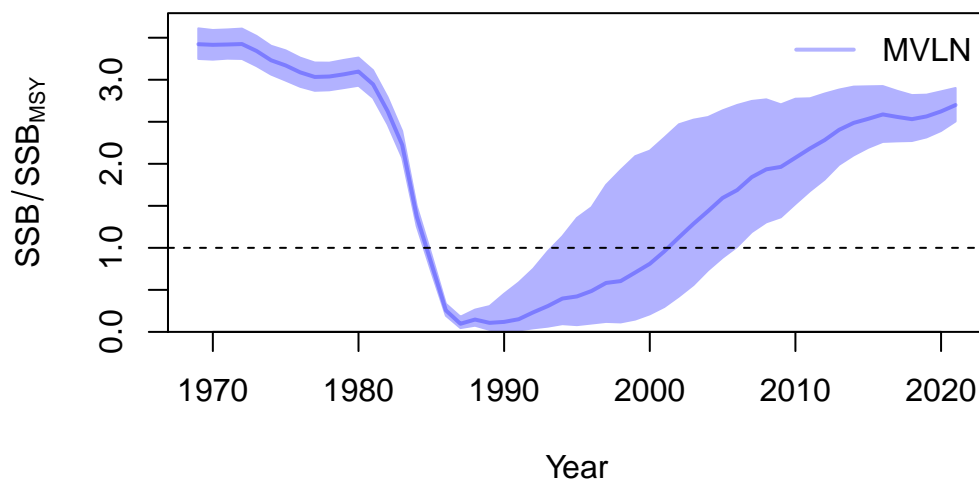
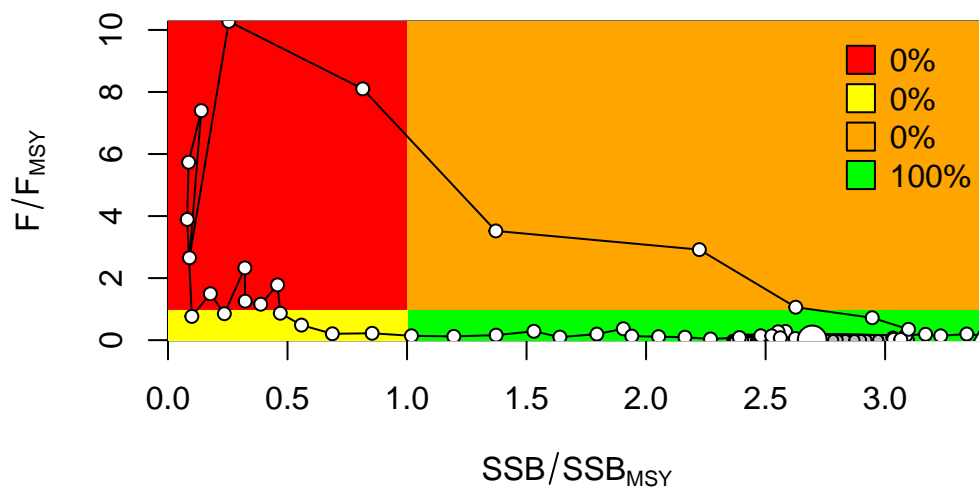


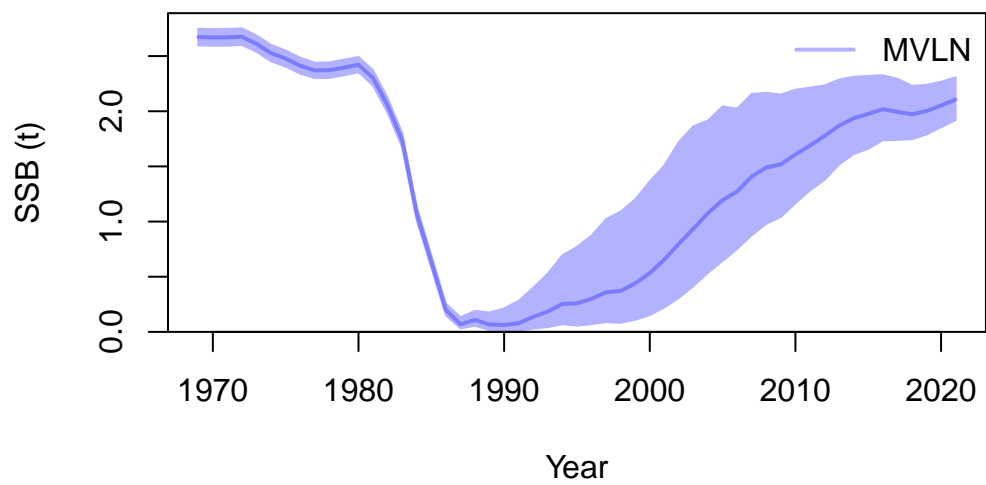
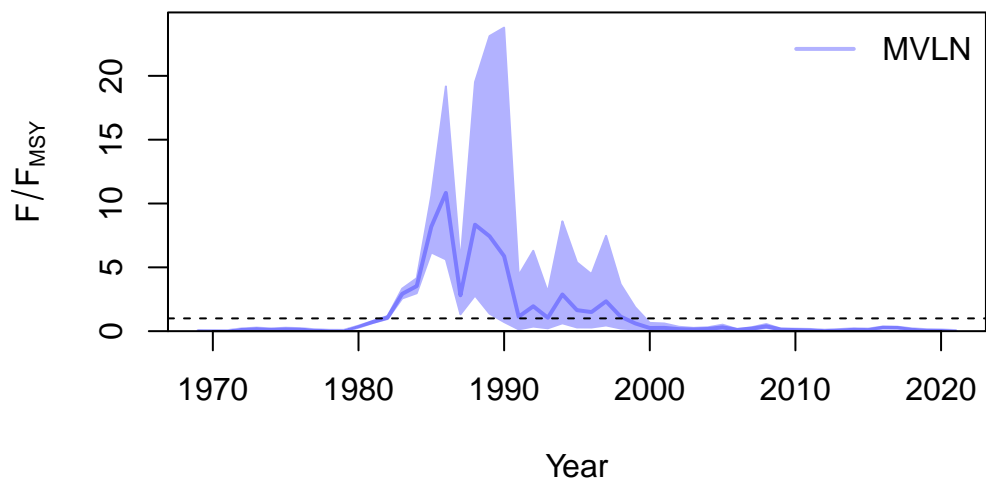
## Changes in survey likelihood by fleet

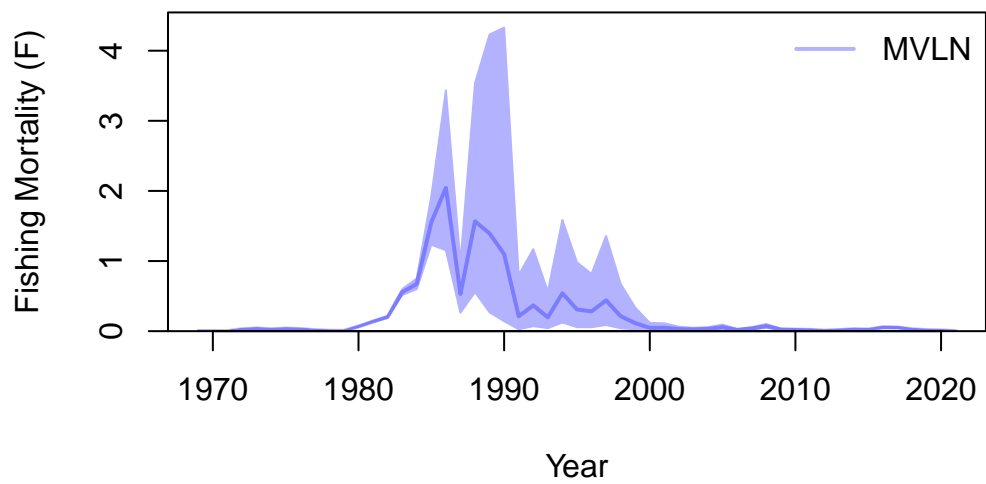


## Management Quantities

starter.sso with Bratio:  $SSB/SSB_{MSY}$  and F:  $_{abs\_F}$







null device  
1

**Jitter**

