

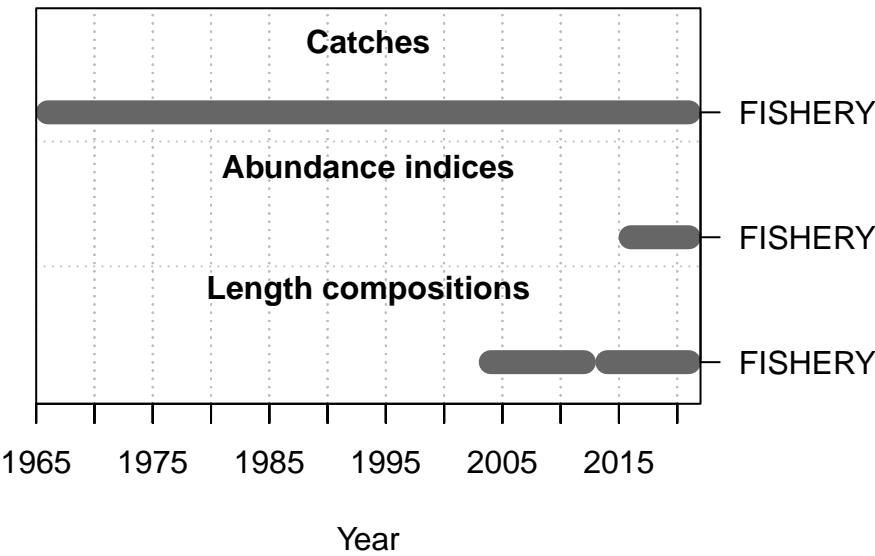
American Samoa Model Checks

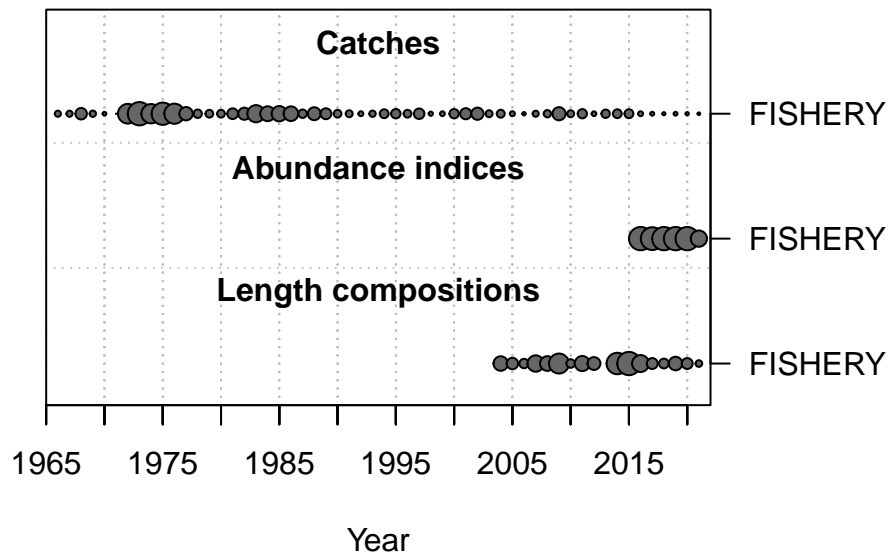
2022-08-25

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

Model Output

Input Data





Convergence Check

```

Converged      MaxGrad
1      TRUE 2.05269e-05

```

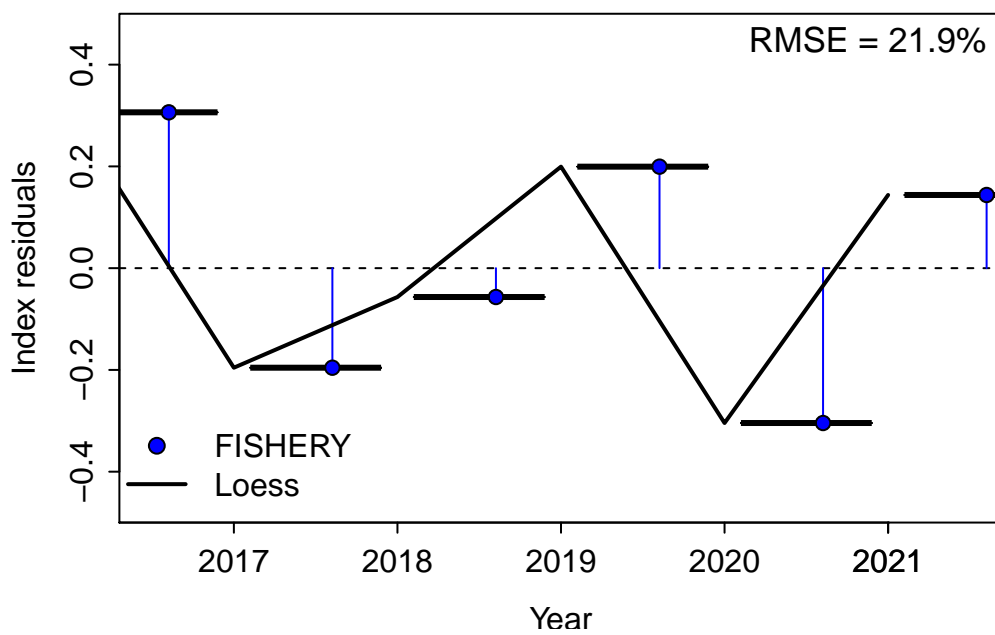
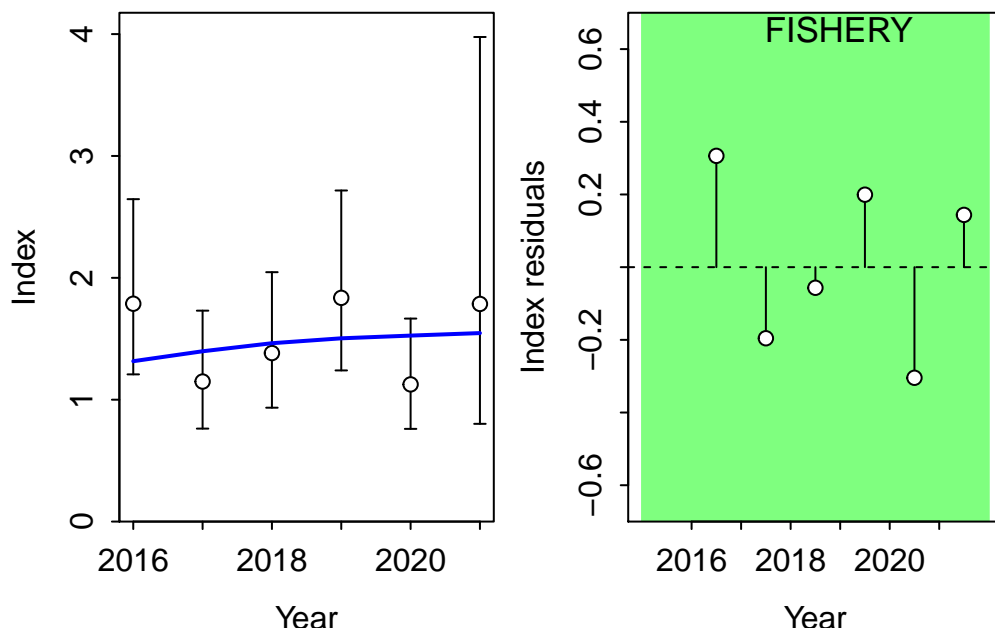
- [1] "1 NOTE: Max data length bin: 28 < max pop len bins: 31; so will accumulate larger pop
- [2] "2 warning: poor convergence in Fspr search 0.4 0.415453"
- [3] "3 warning: Fmult = 40 cannot get high enough to achieve low SPR target: 0.4; SPR achiev
- [4] "4 warning: poor convergence in Btarget search 4.96147 5.65737"
- [5] "5 warning: poor convergence in Fmsy, final dy/dy2= -0.00604779"
- [6] "6 Forecast F capped by max possible F from control file: 2.9"
- [7] "7 Forecast F capped by max possible F from control file: 2.9"
- [8] "N warnings: 7"

Fit to Model

CPUE

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

RMSE stats by Index:



Length Comp

| #Factor | Fleet | New_Var_adj | Type | Name |
|---------|-------|-------------|------|---------|
| 4 | 1 | 0.371275 | len | FISHERY |

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

```

Index runs.p  test  sigma3.lo  sigma3.hi  type
1 FISHERY    0.962 Passed -0.02908396 0.02908396  len

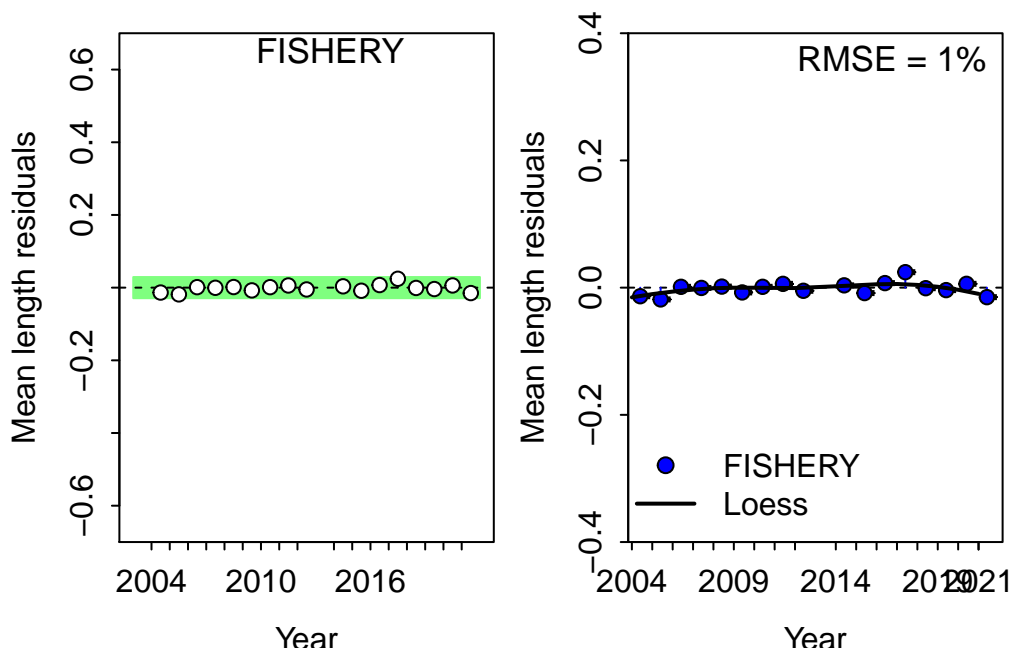
```

RMSE stats by Index:

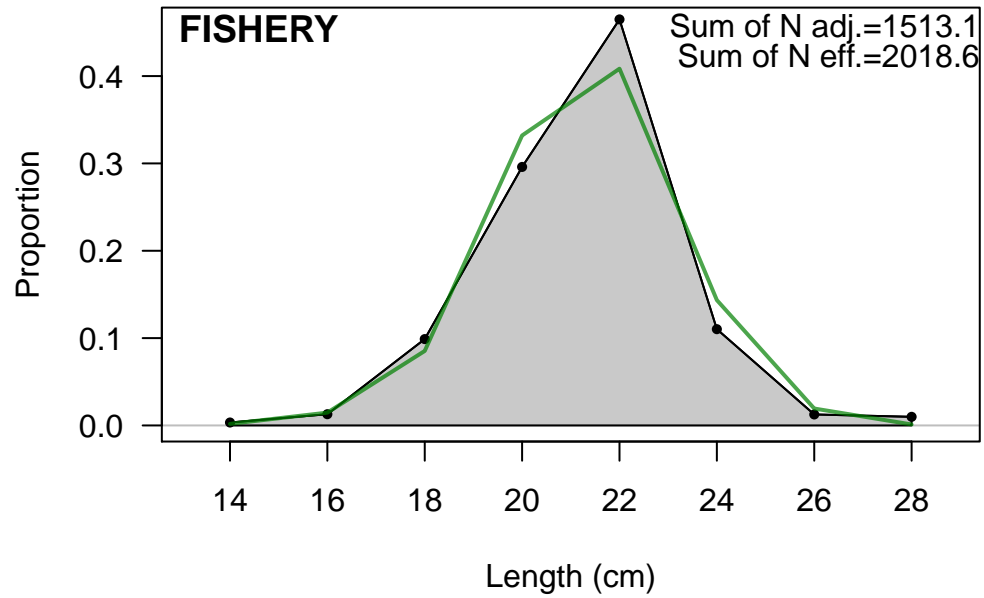
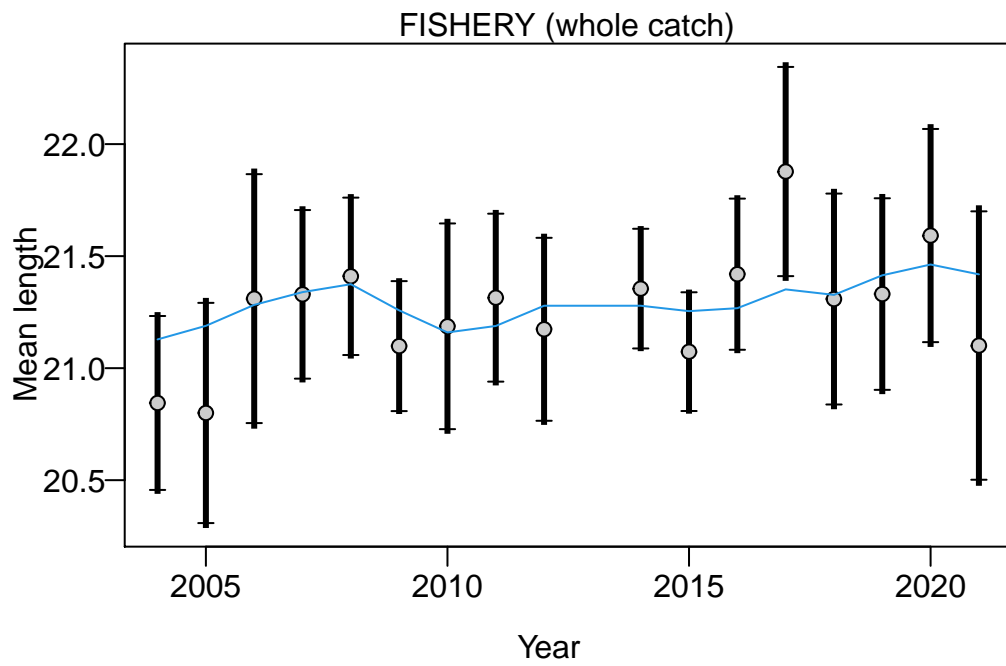
```

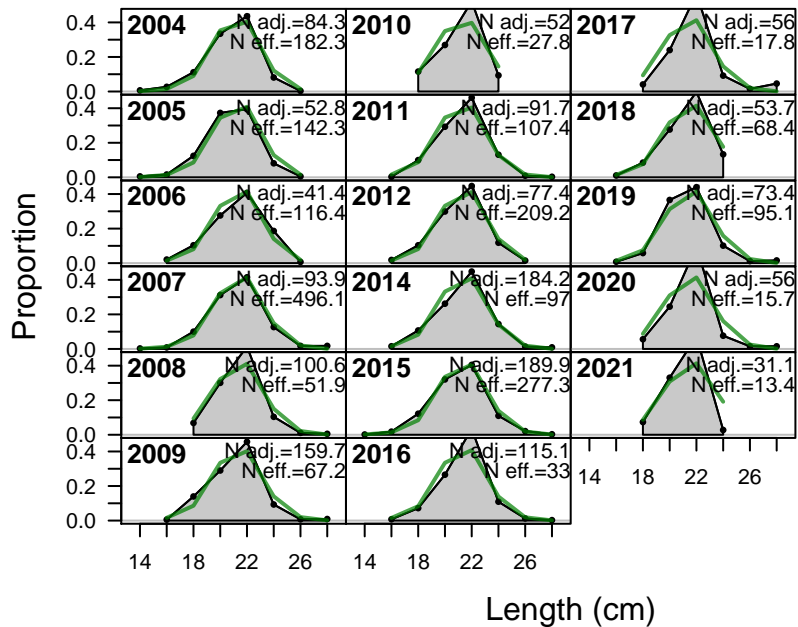
# A tibble: 2 x 3
  Fleet    RMSE.perc  Nobs
  <chr>      <dbl> <int>
1 FISHERY      1    17
2 Combined      1    17

```



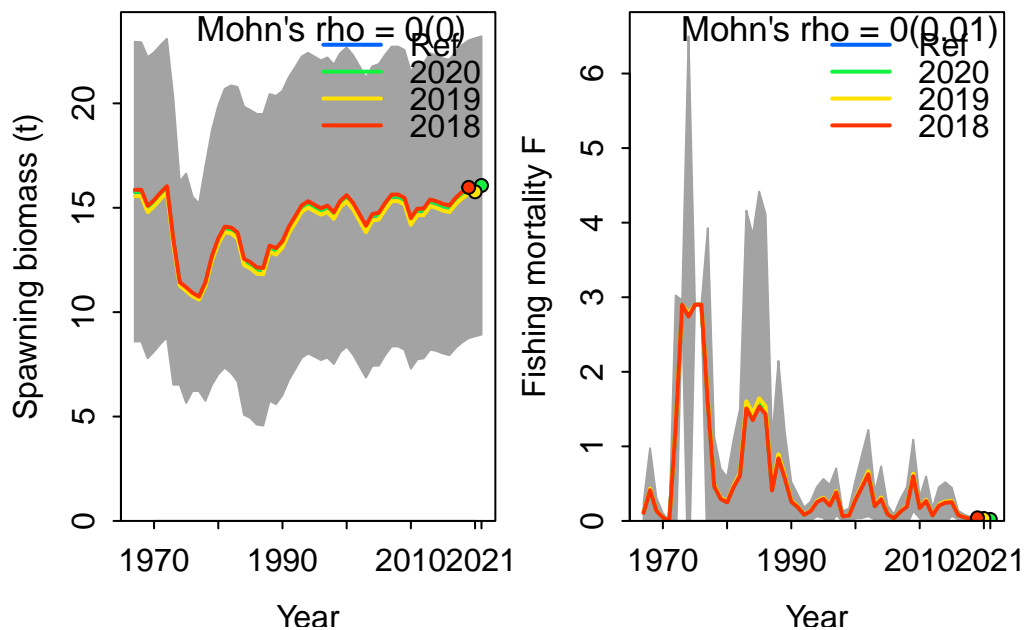
Retrospective and Hindcasting





Retrospective

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



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

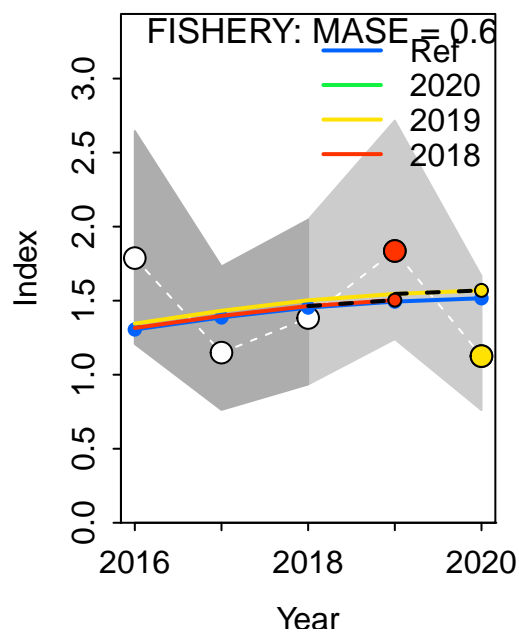
| | type | peel | Rho | ForecastRho |
|---|------------|------|--------------|--------------|
| 1 | F | 2020 | -0.001362535 | 0.000771404 |
| 2 | F | 2019 | 0.028260248 | 0.028858680 |
| 3 | F | 2018 | -0.013660706 | -0.012168732 |
| 4 | F Combined | | 0.004412336 | 0.005820451 |

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



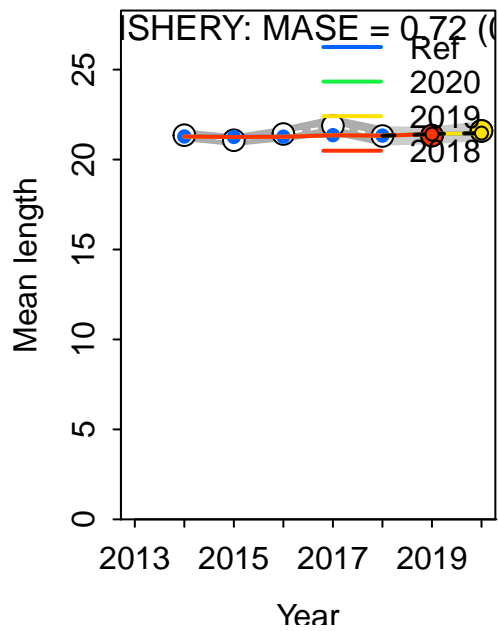
MASE stats by Index:

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

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:



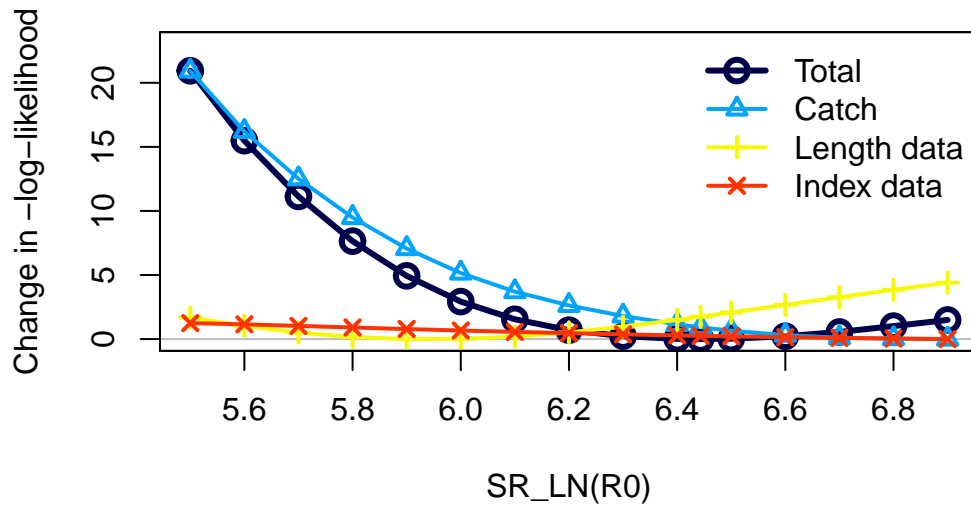
Recruitment Deviations

Likelihood Profile

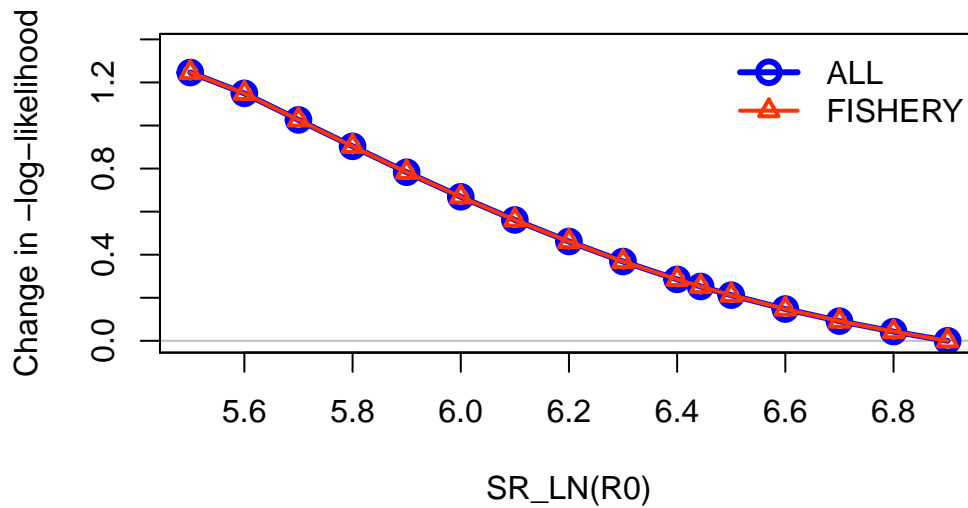
[1] "SR_LN"

| | frac_change | include | label |
|----------------------|-------------|---------|----------------------------------|
| TOTAL | 1.0000 | TRUE | Total |
| Catch | 0.9992 | TRUE | Catch |
| Equil_catch | 0.0001 | FALSE | Equilibrium catch |
| Survey | 0.0595 | TRUE | Index data |
| Length_comp | 0.2103 | 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 |

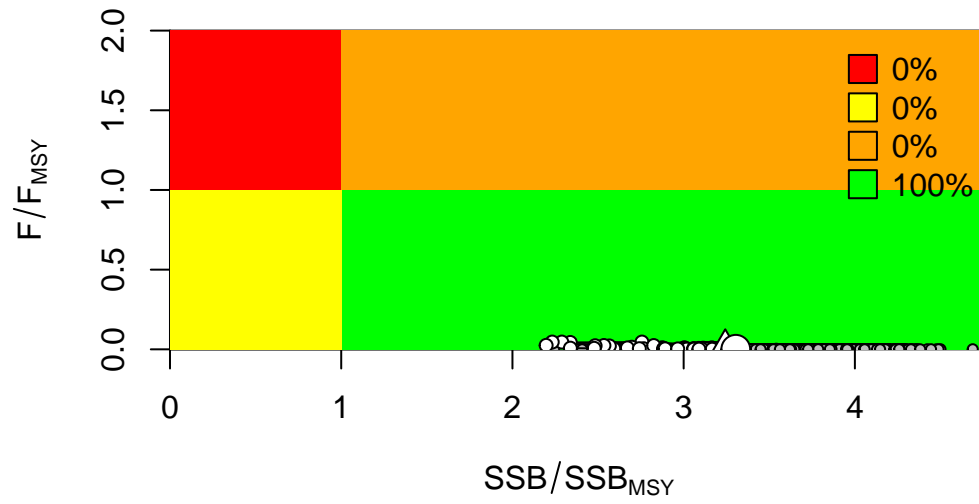


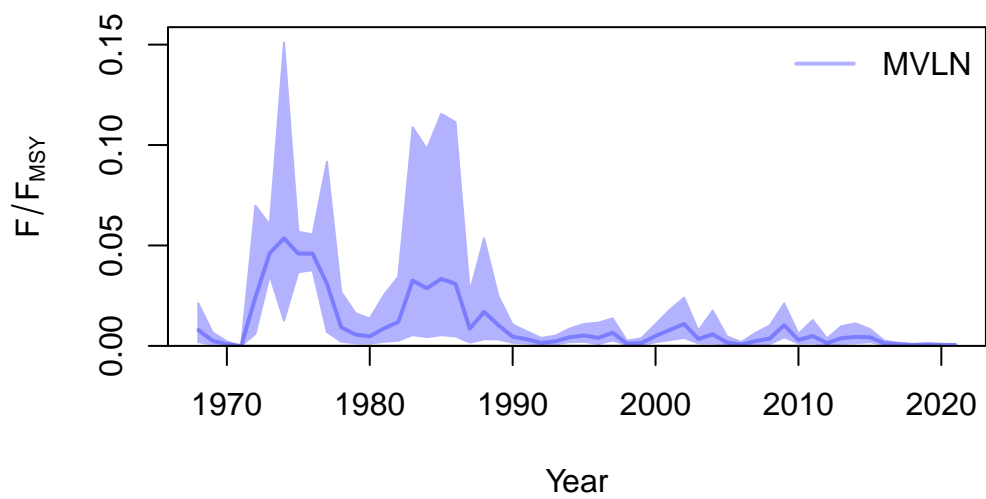
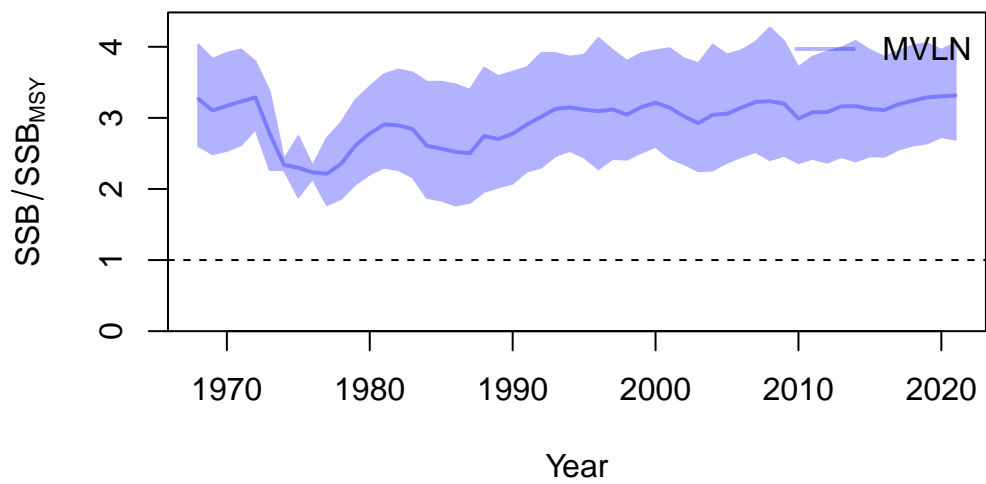
Changes in survey likelihood by fleet

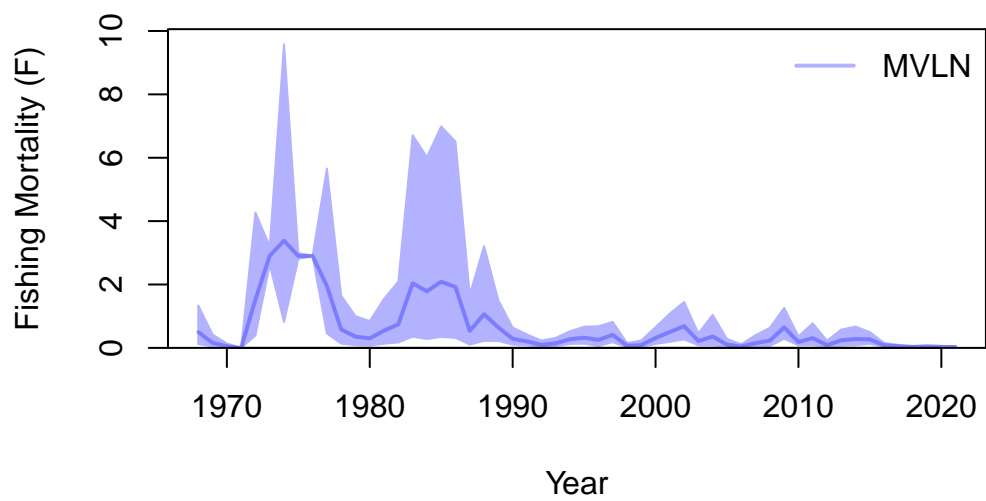
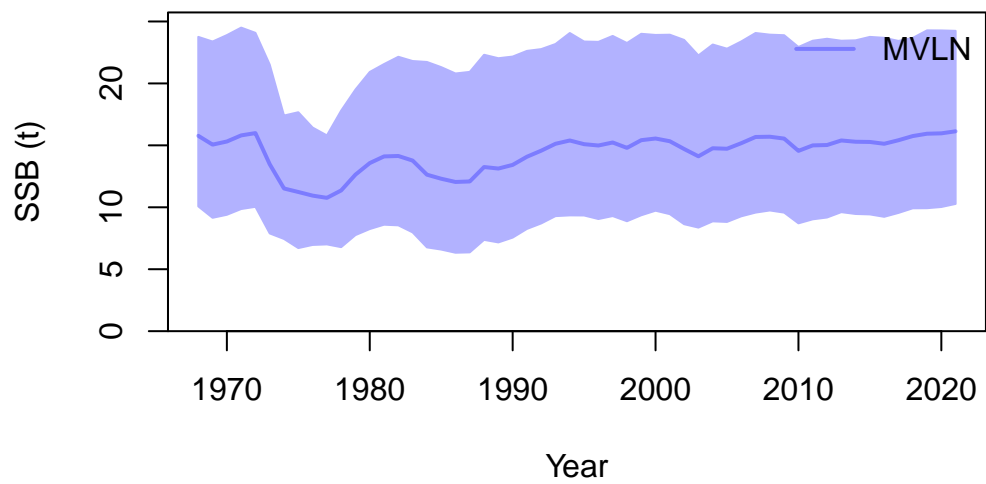


Management Quantities

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







null device
1

Jitter

