

American Samoa Model Checks

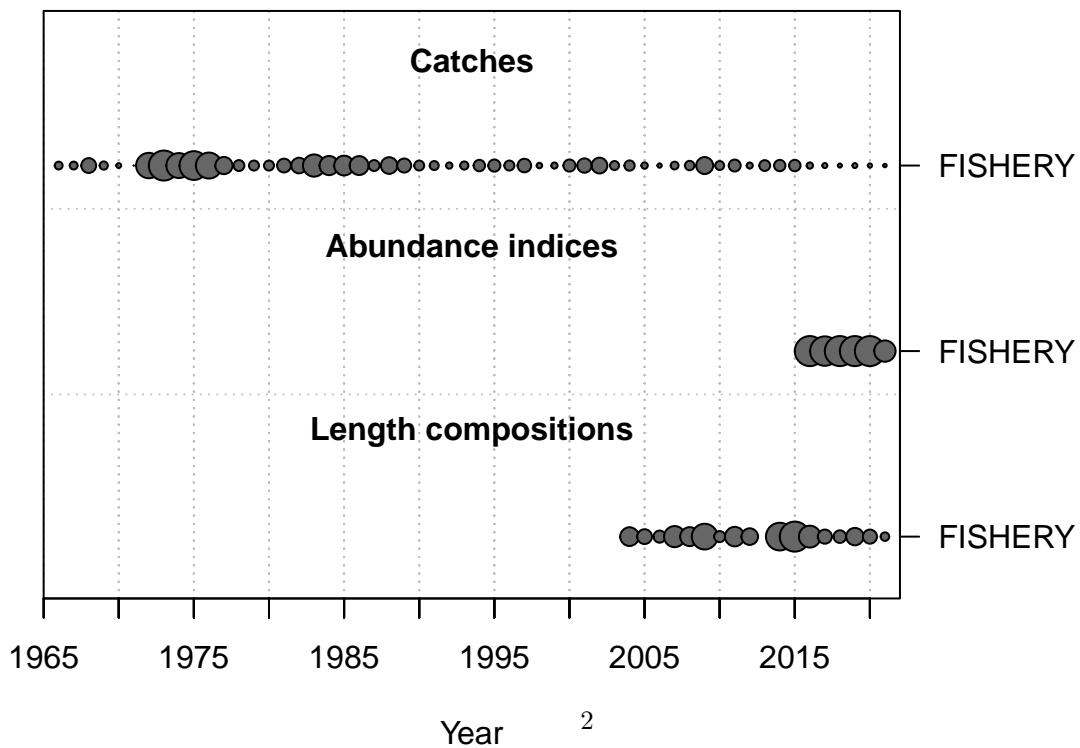
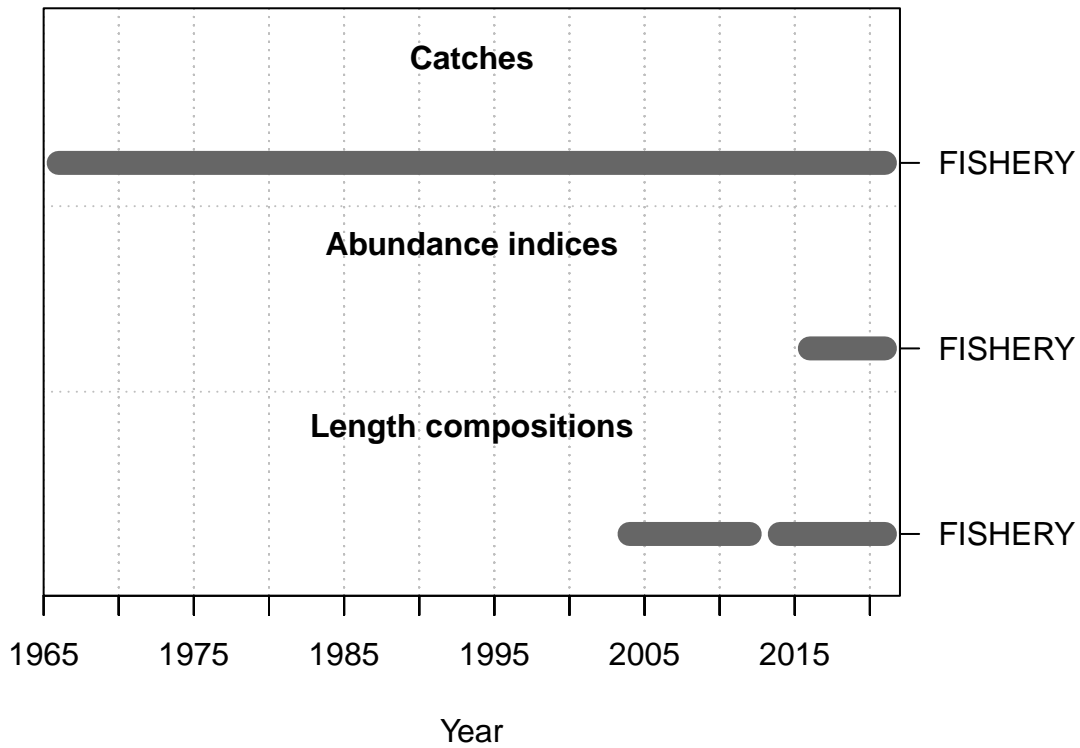
Meg Oshima

2022-08-10

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

Model Output

Input Data



Convergence Check

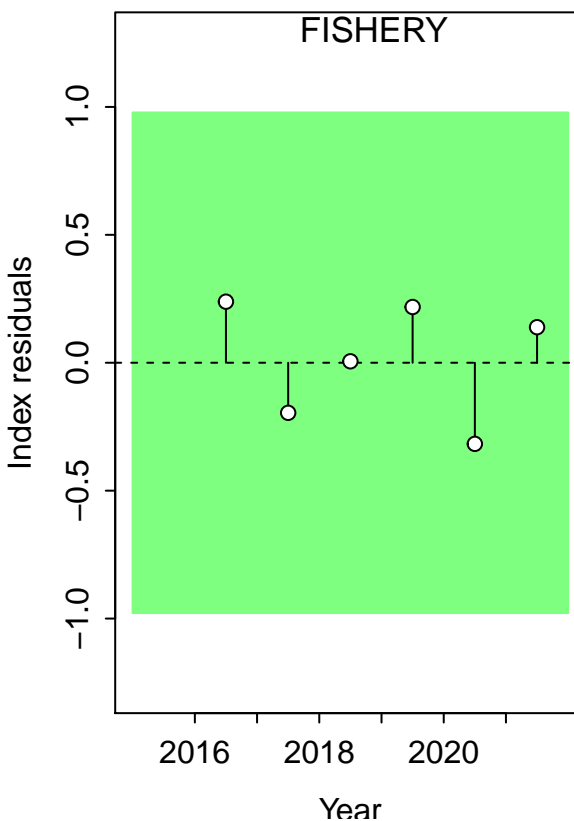
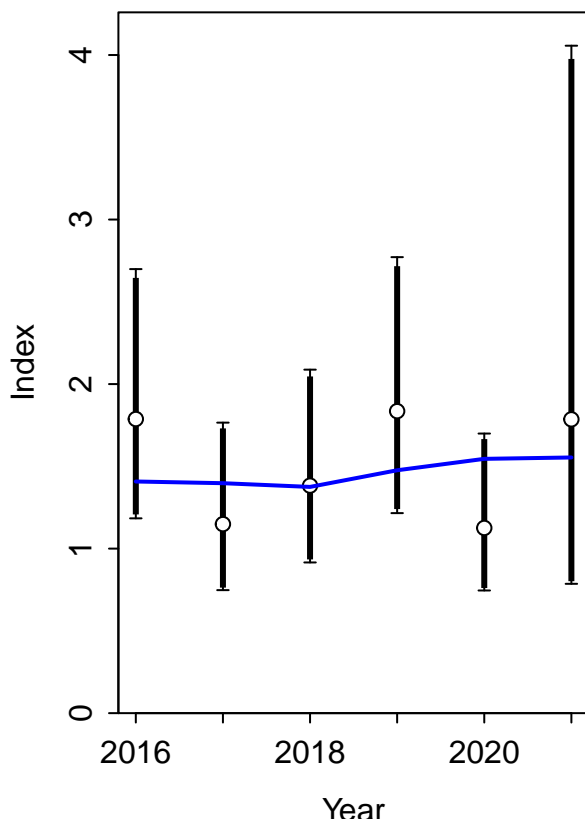
```
## Converged MaxGrad
## 1 TRUE 7.772e-05
```

```
## [1] "1 NOTE: Max data length bin: 28 < max pop len bins: 31; so will accumulate larger pop len bins"
## [2] "2 Main recdev biasadj is >2 times ratio of rmse to sigmaR"
## [3] "3 warning: poor convergence in Fspr search 0.4 0.435675"
## [4] "4 warning: Fmult = 40 cannot get high enough to achieve low SPR target: 0.4; SPR achieved is: 0.435675"
## [5] "5 warning: poor convergence in Fmsy, final dy/dy2= -0.0501476"
## [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 parameters are on or within 1% of min-max bound: 1; check results, variance may be suspect"
## [9] "N warnings: 7"
```

Fit to Model

CPUE

```
##
## Running Runs Test Diagnostics for Index
## Plotting Residual Runs Tests
```



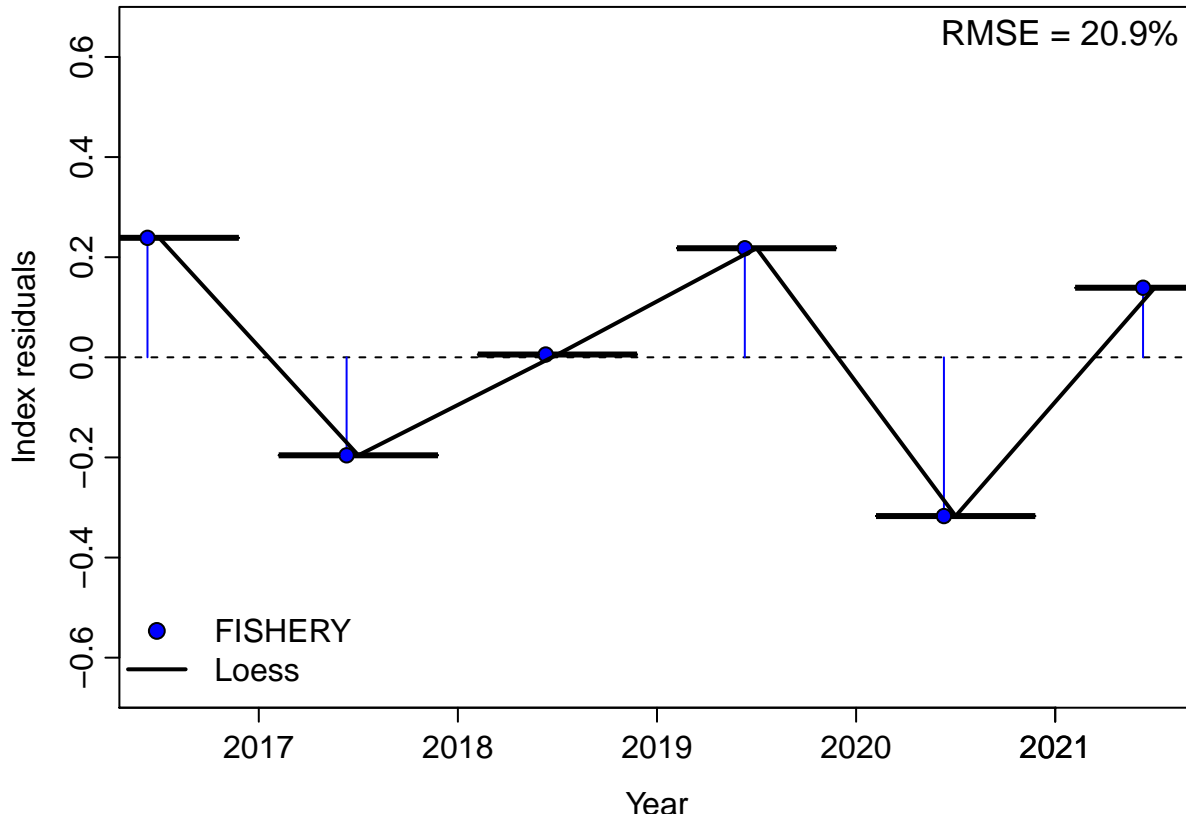
```
##
```

```
## Runs Test stats by Index:
## Plotting JABBA residual plot
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : Chernobyl! trL>n 6
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : Chernobyl! trL>n 6
```

```
## Warning in sqrt(sum.squares/one.delta): NaNs produced
```



```
##
## RMSE stats by Index:
```

Length Comp

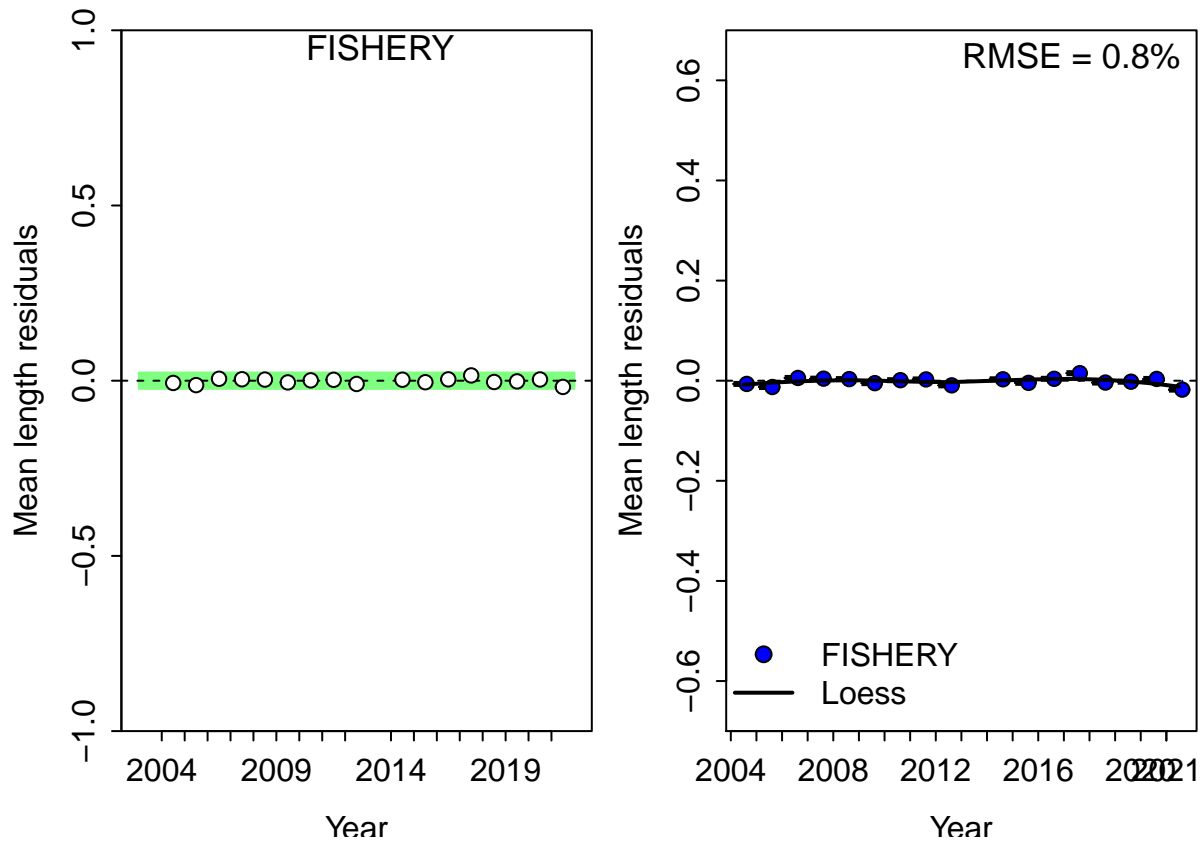
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.690855	len	FISHERY

```
##
## Running Runs Test Diagnostics for Mean length
## Plotting Residual Runs Tests
```

```
##
## Runs Test stats by Mean length:
```

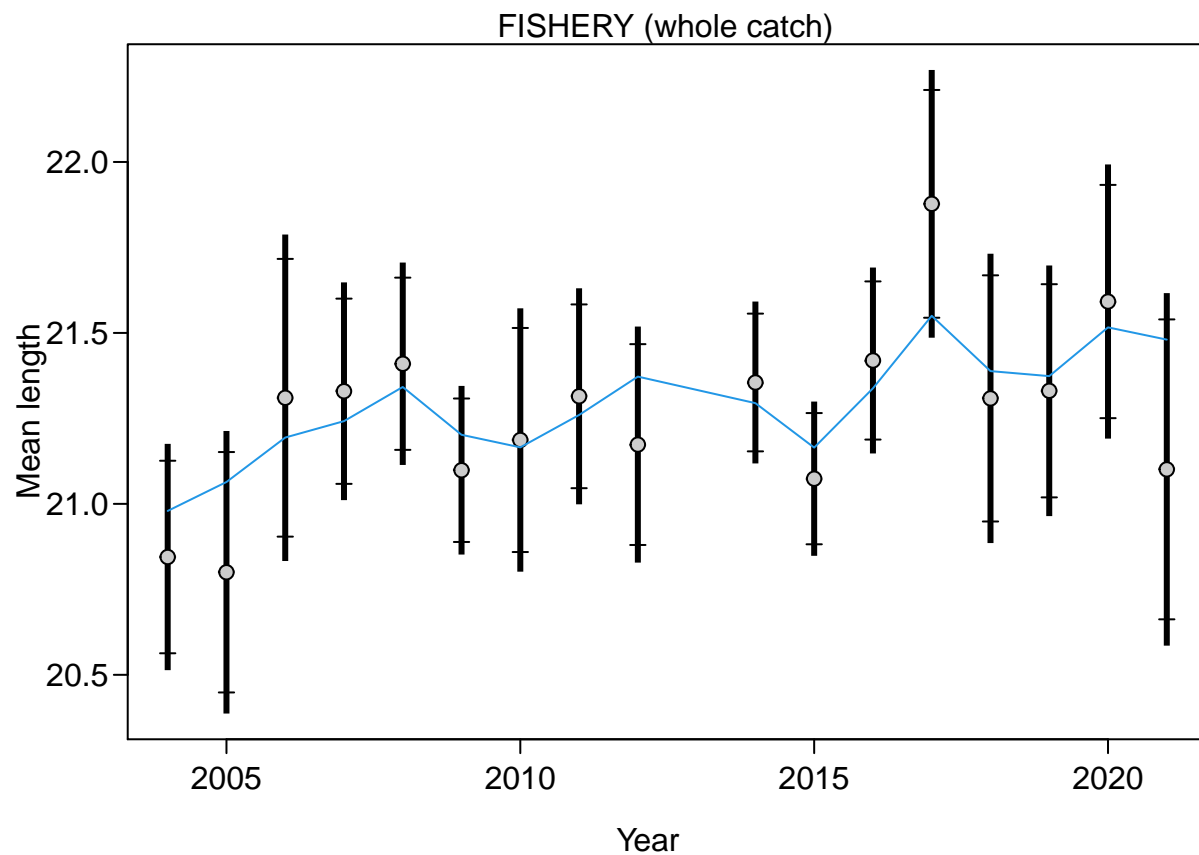
```
##      Index runs.p  test  sigma3.lo sigma3.hi type
## 1 FISHERY  0.779 Passed -0.0232903 0.0232903  len
```

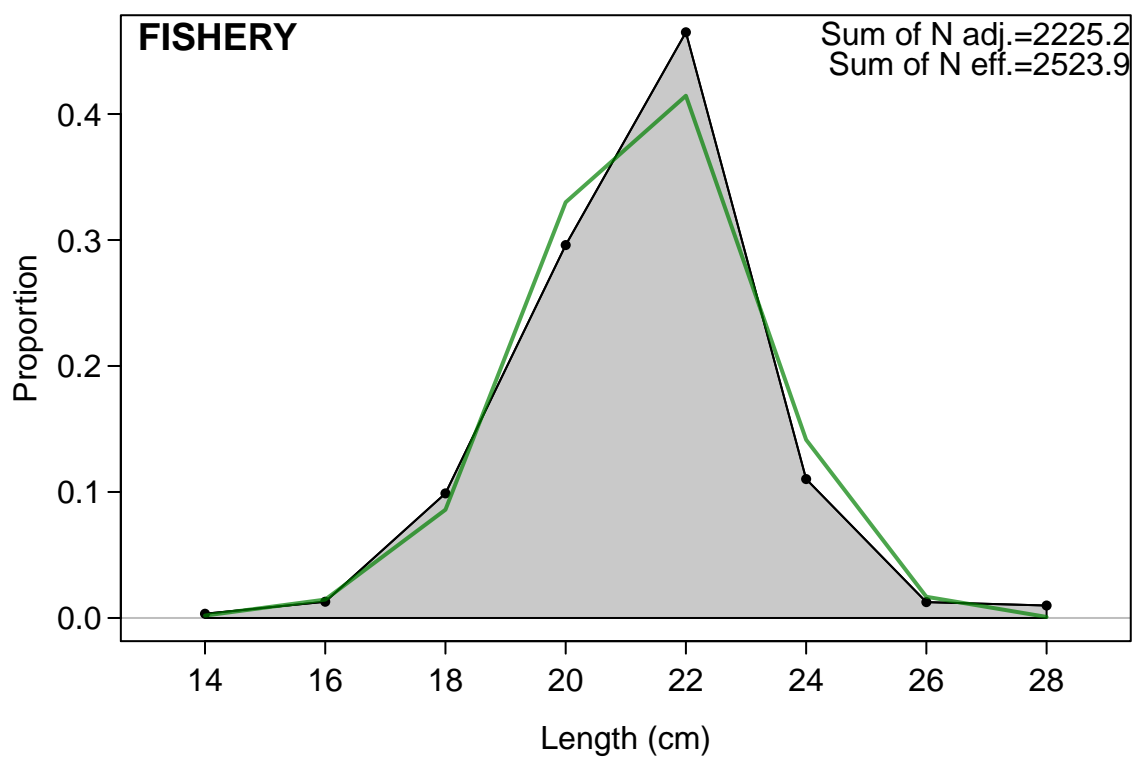
```
## Plotting JABBA residual plot
```

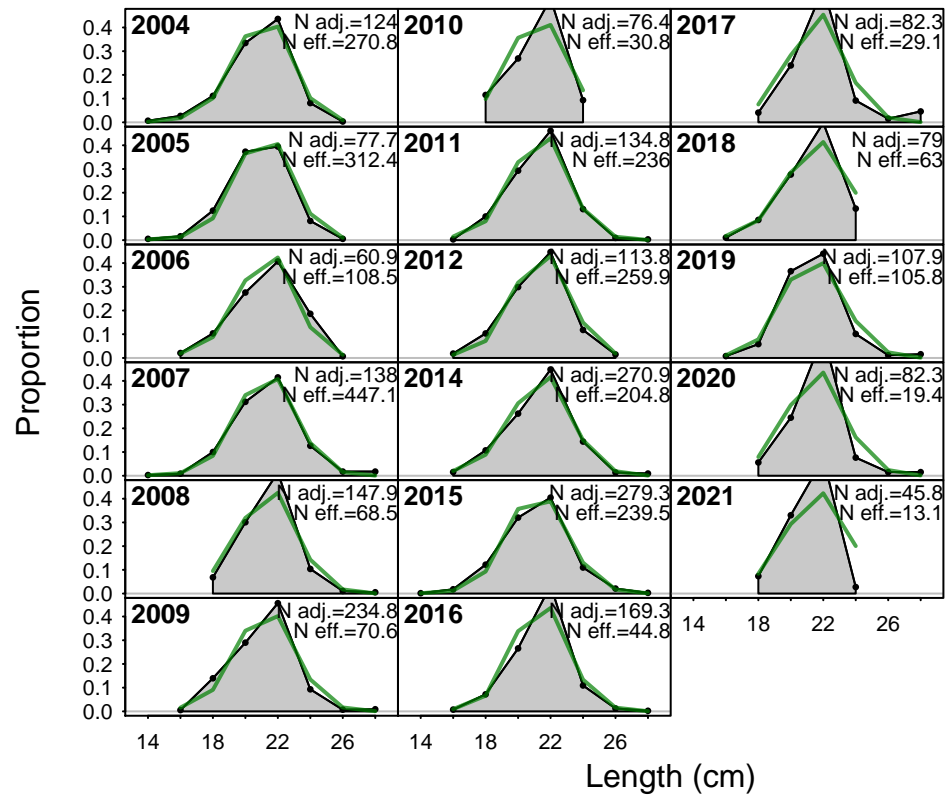


```
##
## RMSE stats by Index:
```

```
##      indices RMSE.perc nobs
## 1 FISHERY      0.8    17
## 2 Combined      0.8    17
```







Retrospective and Hindcasting

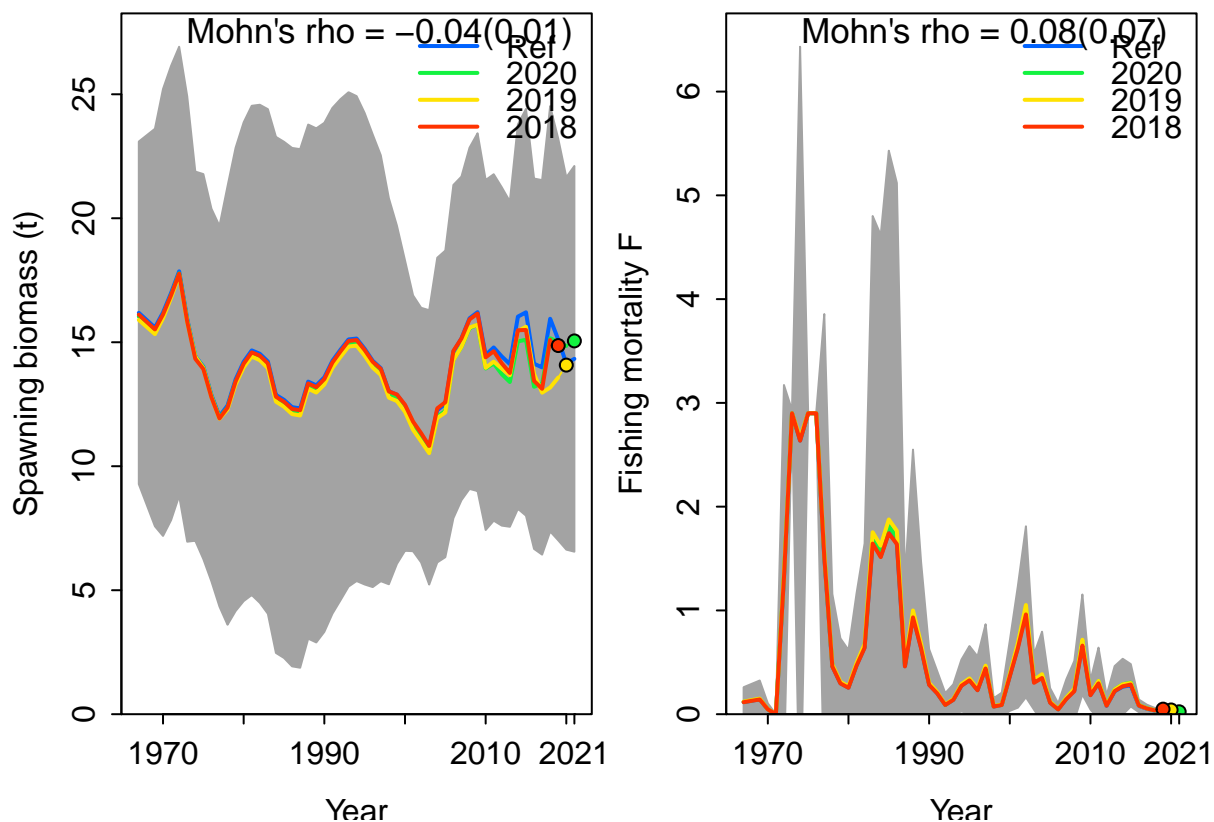
Retrospective

Plotting Retrospective pattern

##

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

Plotting Retrospective pattern

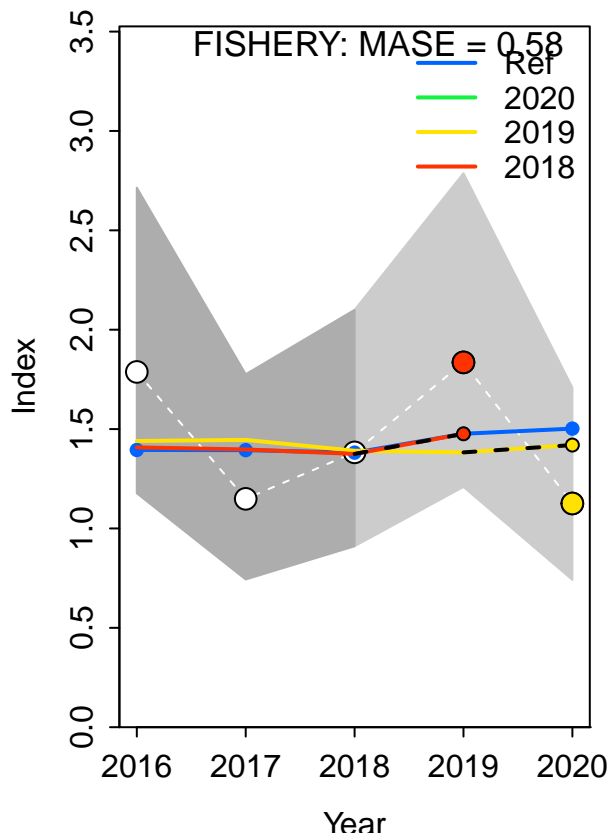


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	Forecast	Rho
## 1	F	2020	0.02816508	-0.01522215	
## 2	F	2019	0.17301489	0.16746948	
## 3	F	2018	0.05119731	0.04906931	
## 4	F Combined		0.08412576	0.06710555	

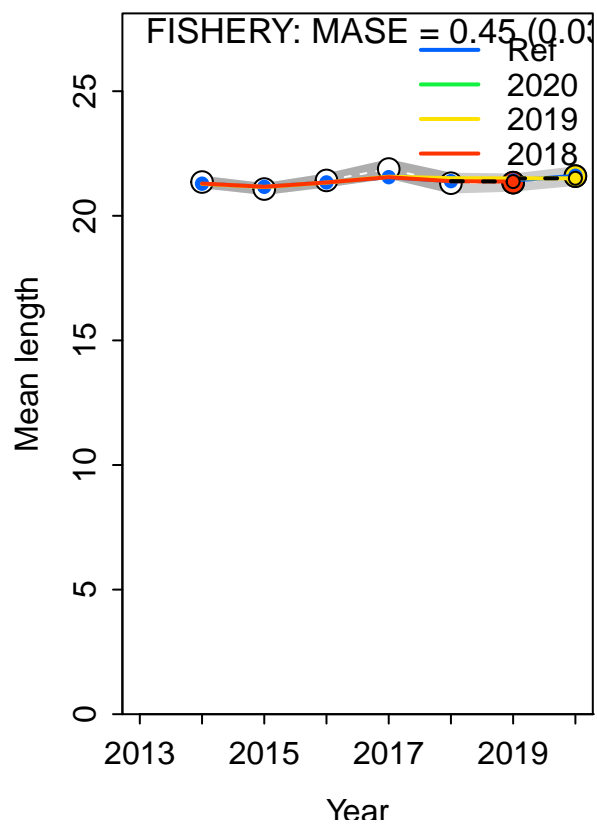
Hindcasting

```
## 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
```

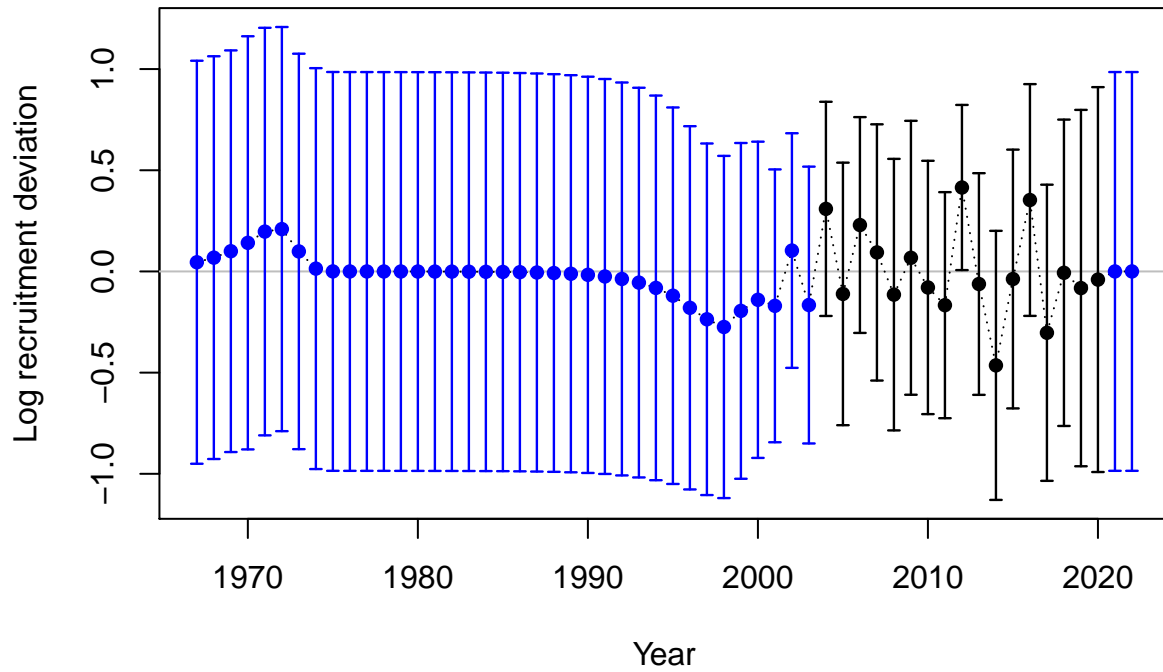


```
##
## MASE stats by Index:
## Plotting Hindcast Cross-Validation (one-step-ahead)
##
## Computing MASE with only 2 of 3 prediction residuals for Index FISHERY
##
## Warning: Unequal spacing of naive predictions residuals may influence the interpretation of MASE

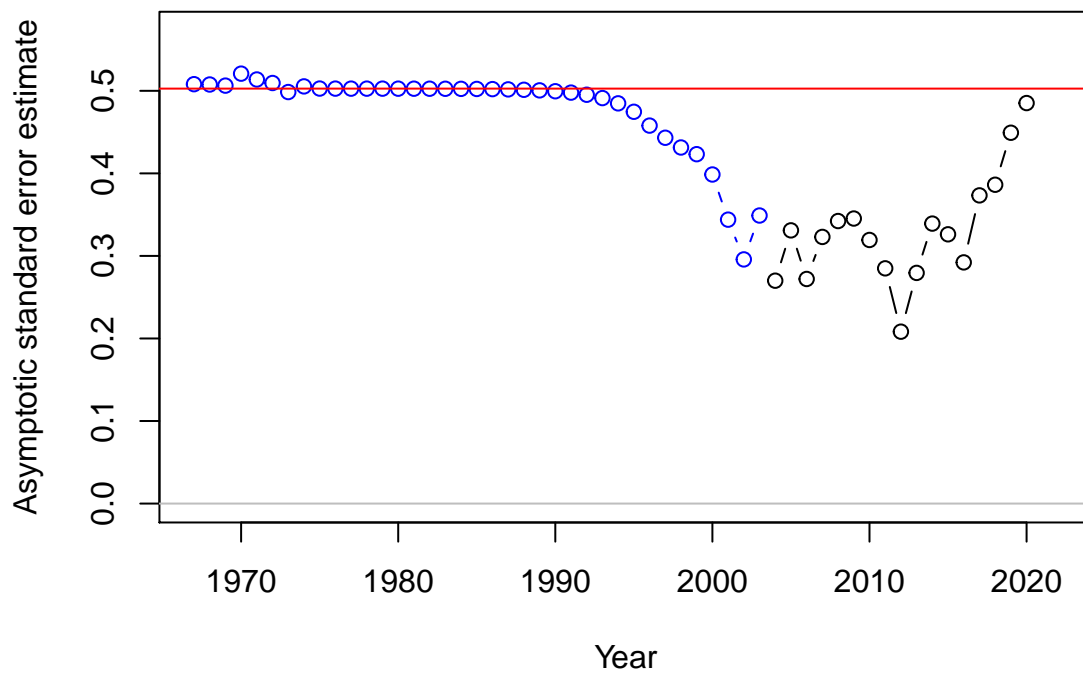
##
## MASE stats by Index:
```



Recruitment Deviations



Recruitment deviation variance



Likelihood Profile

```
## [1] "SR_LN"

## Parameter matching profile.string=SR_LN: SR_LN(R0)

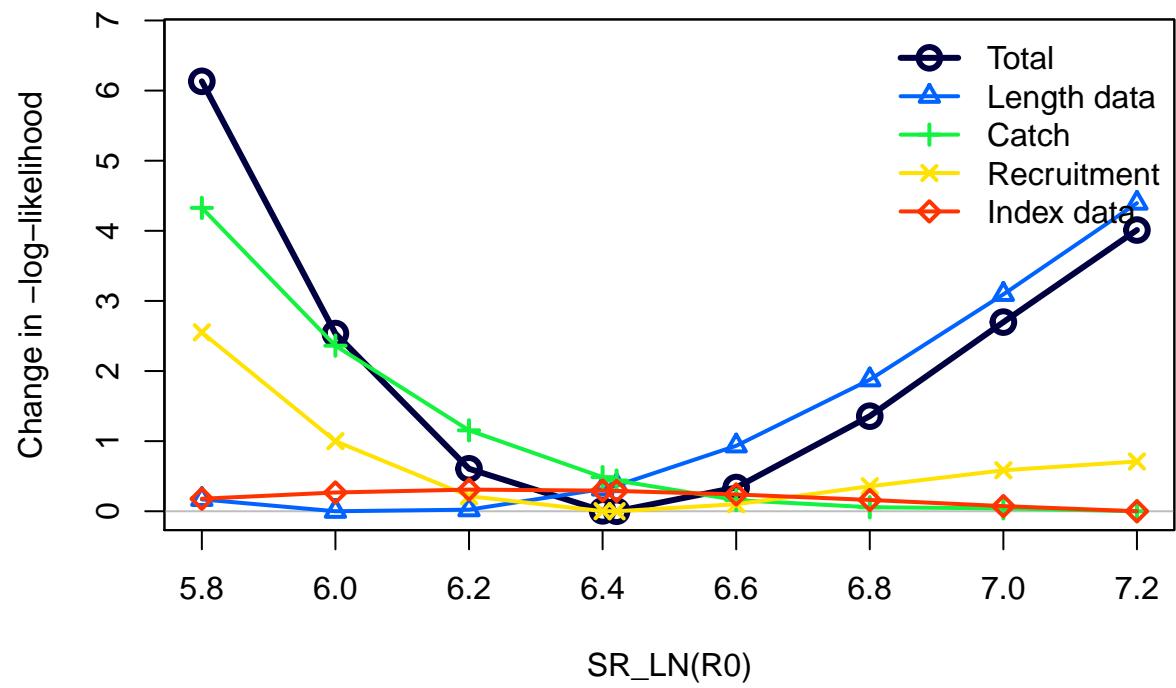
## Parameter values (after subsetting based on input 'models'): 5.8, 6, 6.2, 6.4, 6.6, 6.8, 7, 7.2, 6.4

##
## Likelihood components showing max change as fraction of total change.
## To change which components are included, change input 'minfraction'.

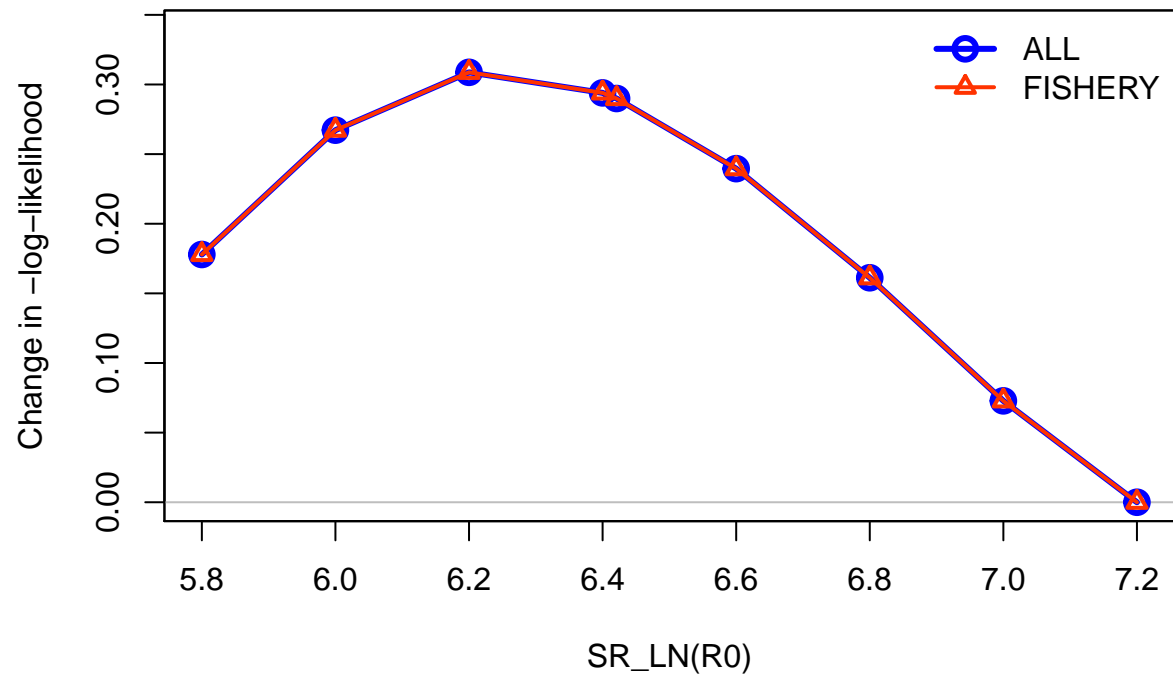
##
##          frac_change include          label
## TOTAL          1.0000   TRUE          Total
## Catch          0.7057   TRUE          Catch
## Equil_catch    0.0000  FALSE      Equilibrium catch
## Survey        0.0503   TRUE          Index data
## Length_comp    0.7168   TRUE          Length data
## Recruitment    0.4162   TRUE          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

## Parameter matching profile.string = 'SR_LN': 'SR_LN(R0)
## Parameter values (after subsetting based on input 'models'): 5.8, 6, 6.2, 6.4, 6.6, 6.8, 7, 7.2, 6.4

## Fleet-specific likelihoods showing max change as fraction of total change.
## To change which components are included, change input 'minfraction'.
##          frac_change include
## prof.table....c.1.3..      1   TRUE
```

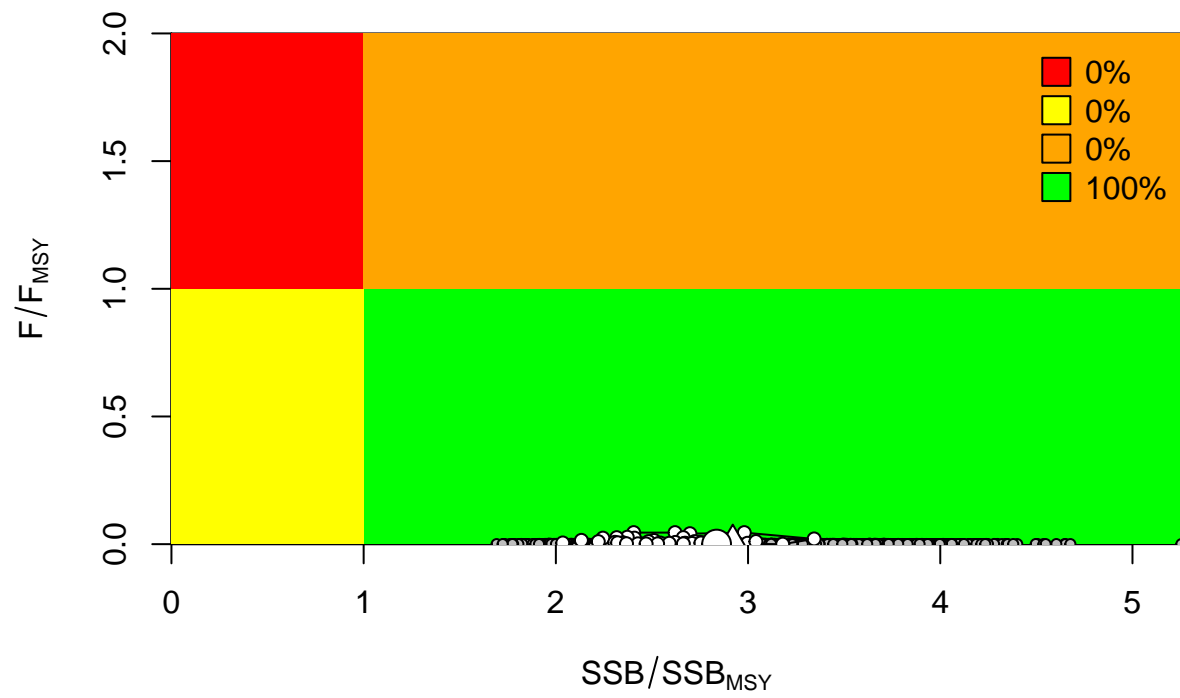


Changes in survey likelihood by fleet

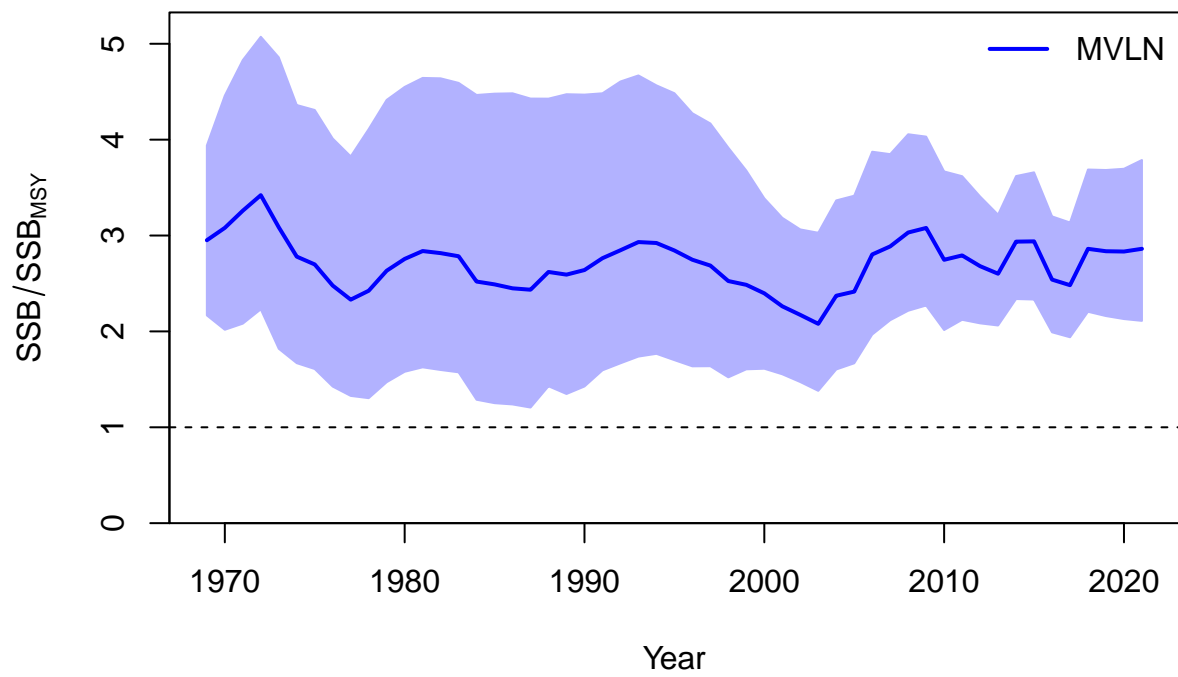


Management Quantities

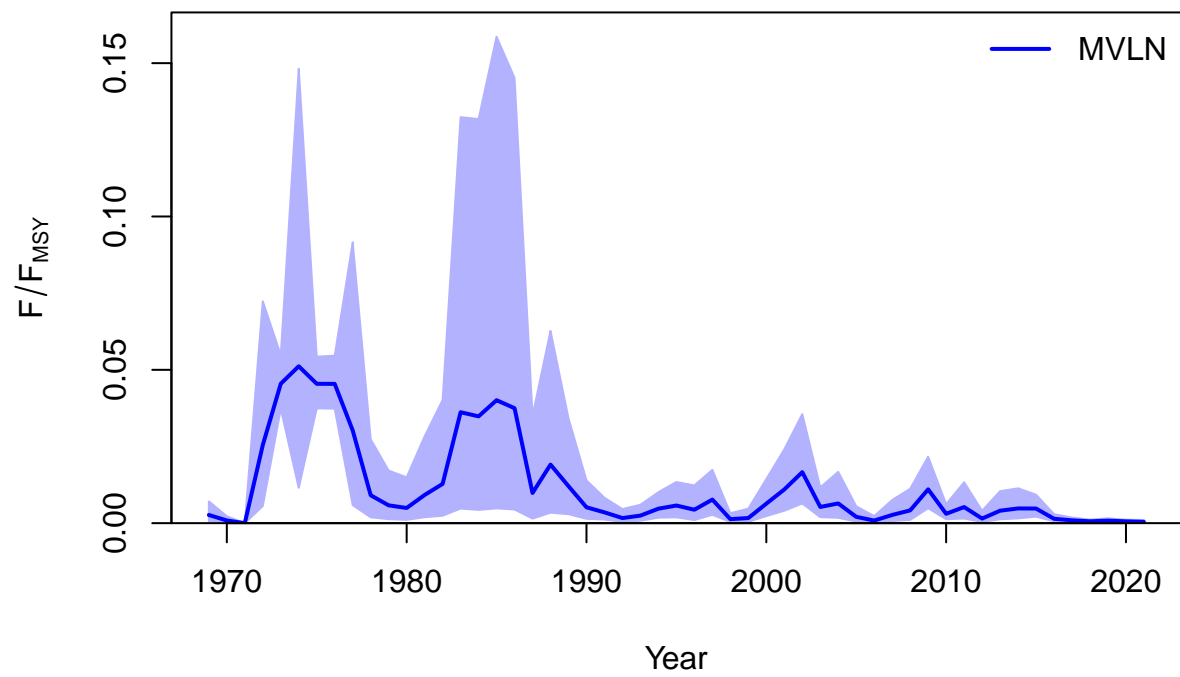
```
##  
## starter.sso with Bratio: SSB/SSBMSY and F: _abs_F  
##
```



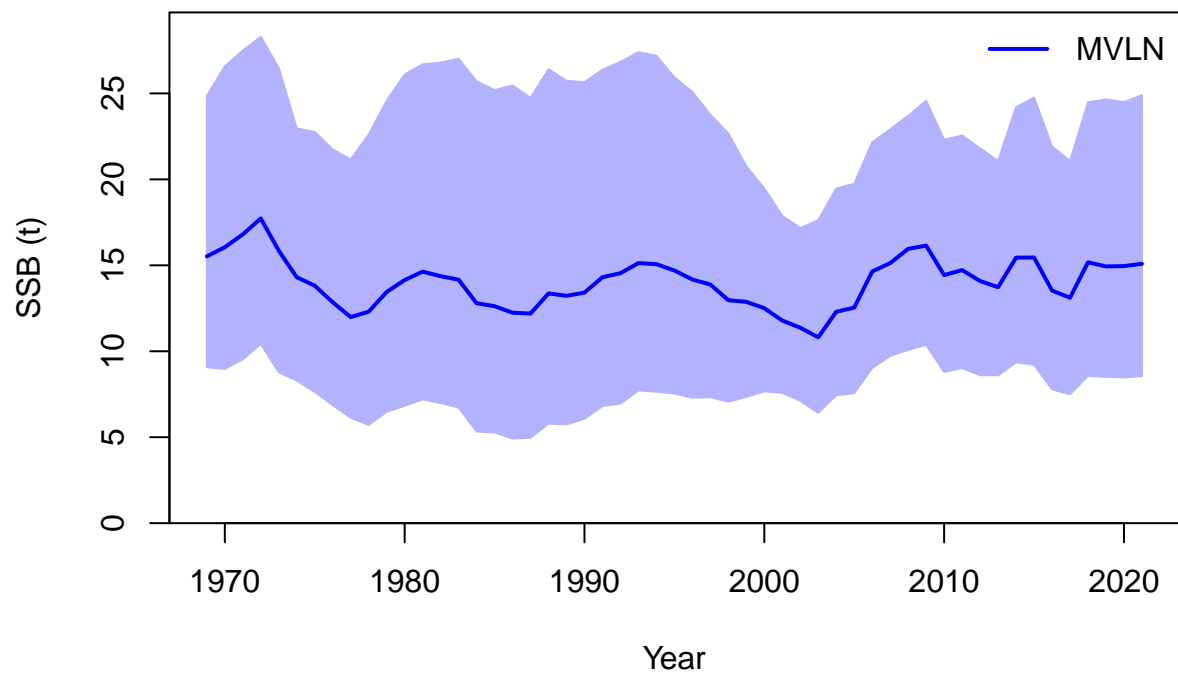
 ## Plot Comparison of stock



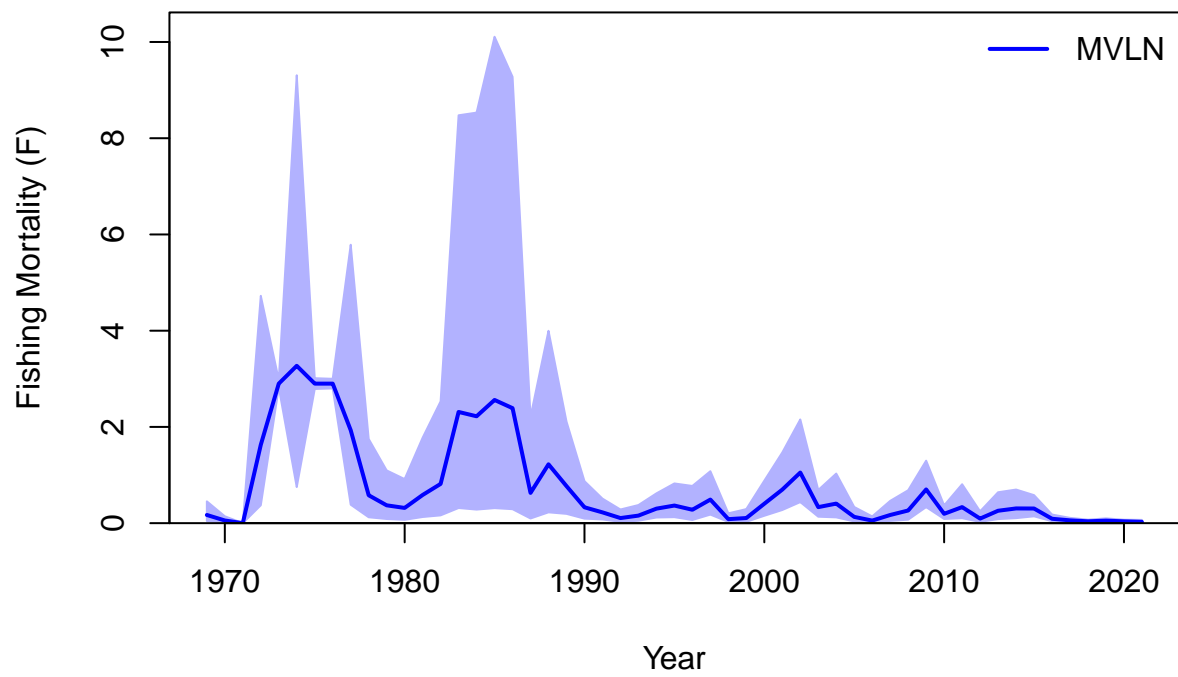
```
##  
## Plot Comparison of harvest
```



Plot Comparison of SSB



Plot Comparison of F



```
## RStudioGD  
## 2
```

Jitter

