

American Samoa Model Checks

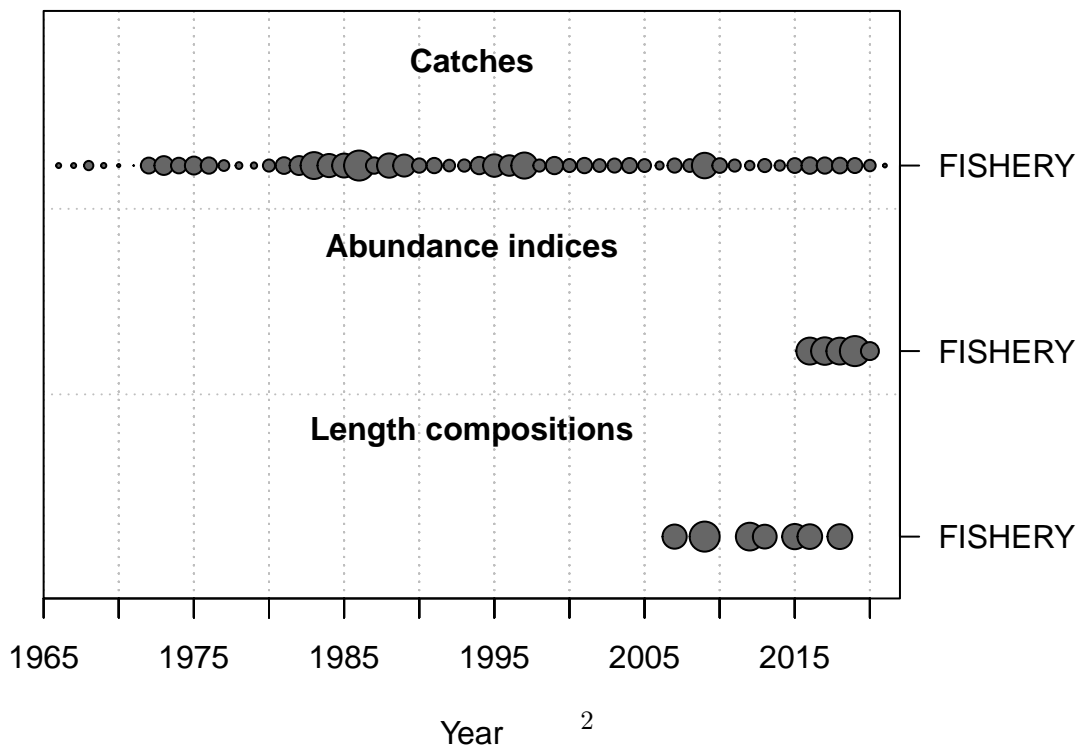
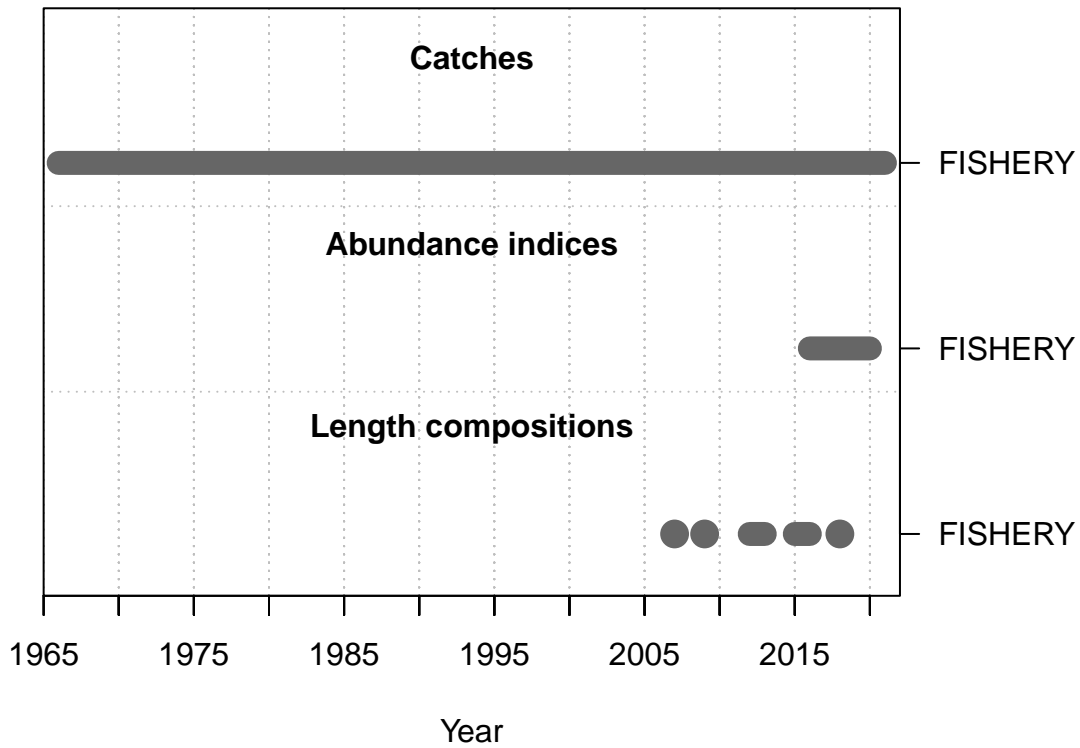
Meg Oshima

2022-08-10

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

Model Output

Input Data



Convergence Check

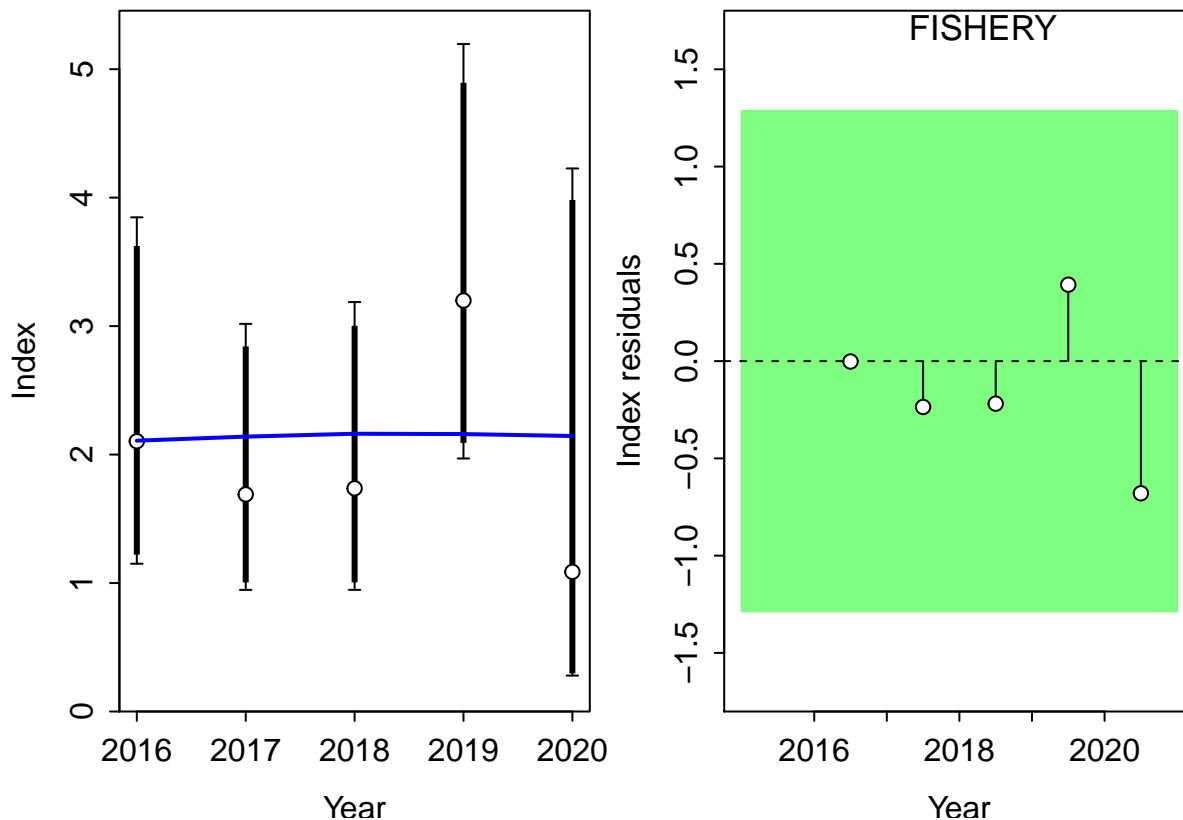
```
## Converged      MaxGrad
## 1      TRUE 7.36708e-06
```

```
## [1] "1 NOTE: Max data length bin: 65 < max pop len bins: 72; so will accumulate larger pop len bins"
## [2] "2 Main recdev biasadj is >2 times ratio of rmse to sigmaR"
## [3] "3 Early recdev biasadj is >2 times ratio of rmse to sigmaR"
## [4] "4 warning: poor convergence in Fmsy, final dy/dy2= -0.00141533"
## [5] " N parameters are on or within 1% of min-max bound: 1; check results, variance may be suspect"
## [6] "N warnings: 4"
```

Fit to Model

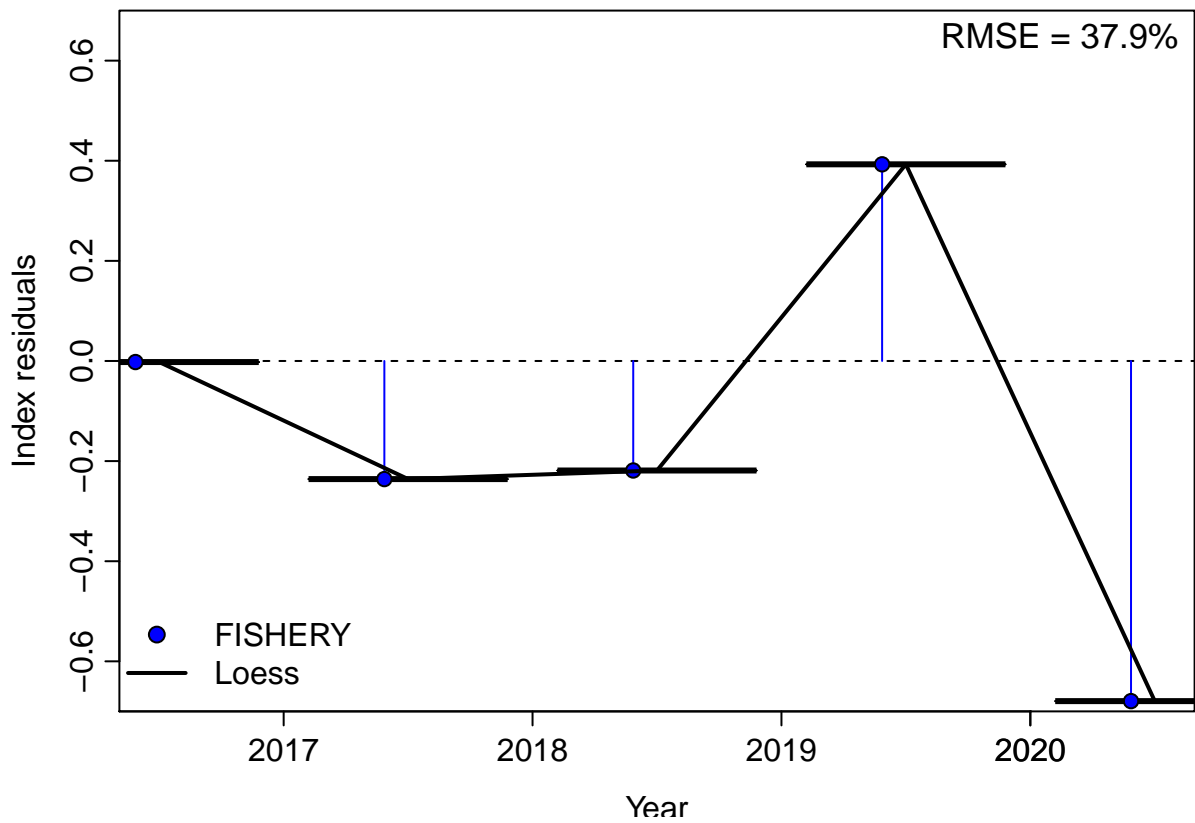
CPUE

```
##
## 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, : span too small. fe
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : pseudoinverse used
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : neighborhood radiu
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : reciprocal conditi
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : There are other ne
```



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

Length Comp

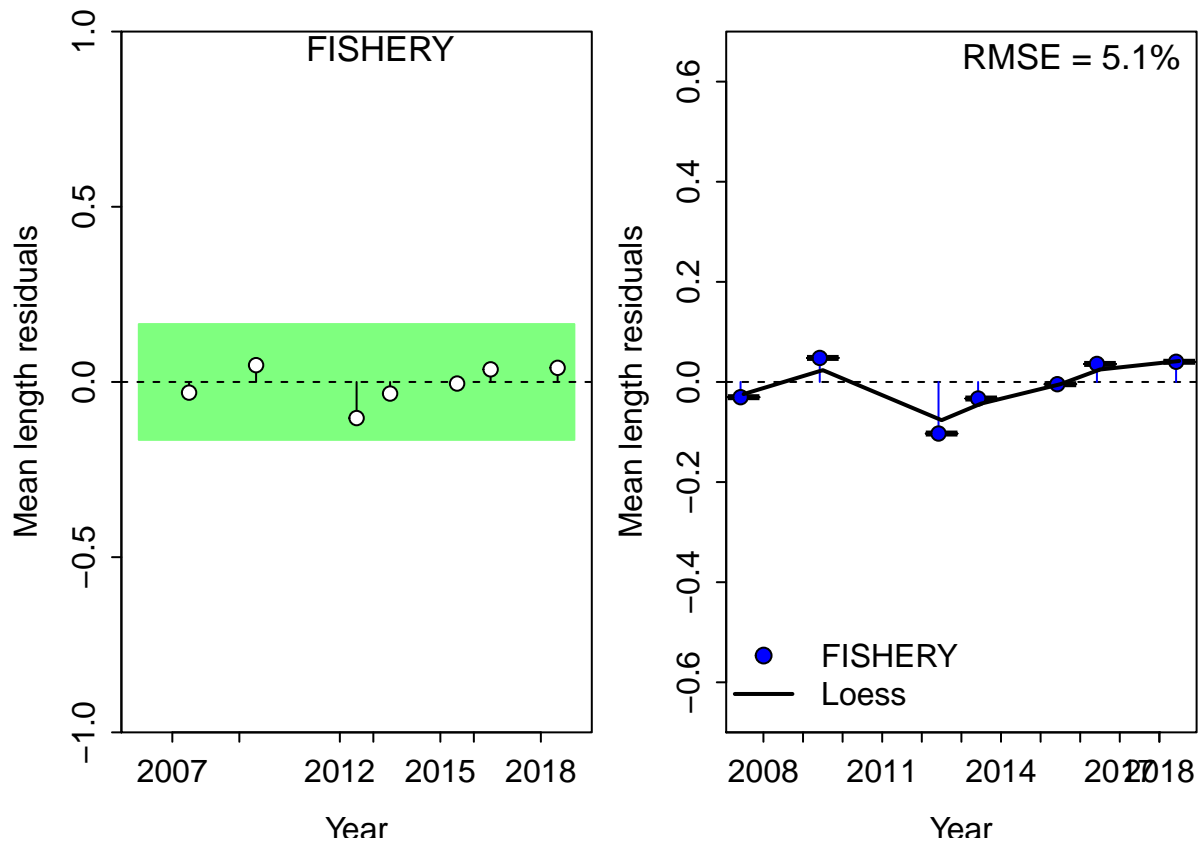
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.224899	len	FISHERY

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

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

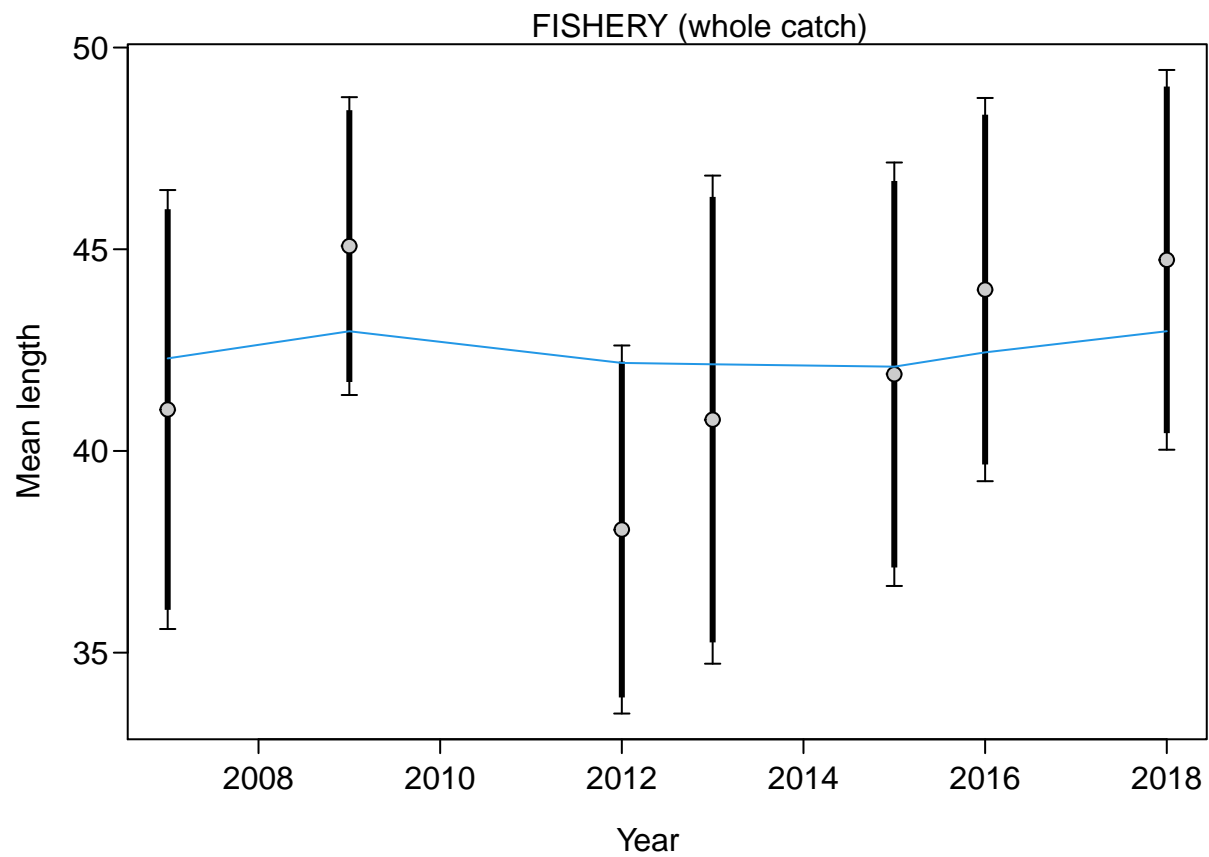
##      Index runs.p  test  sigma3.lo sigma3.hi type
## 1 FISHERY  0.358 Passed -0.1652344 0.1652344  len

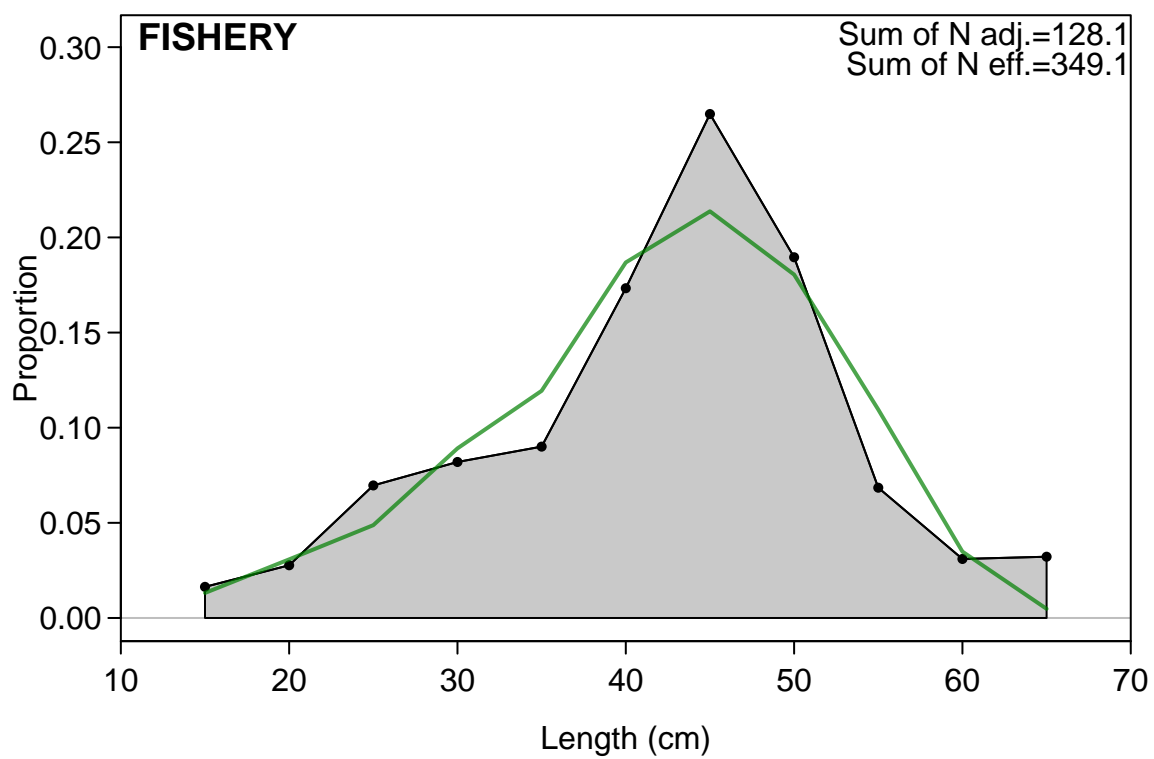
## Plotting JABBA residual plot
```

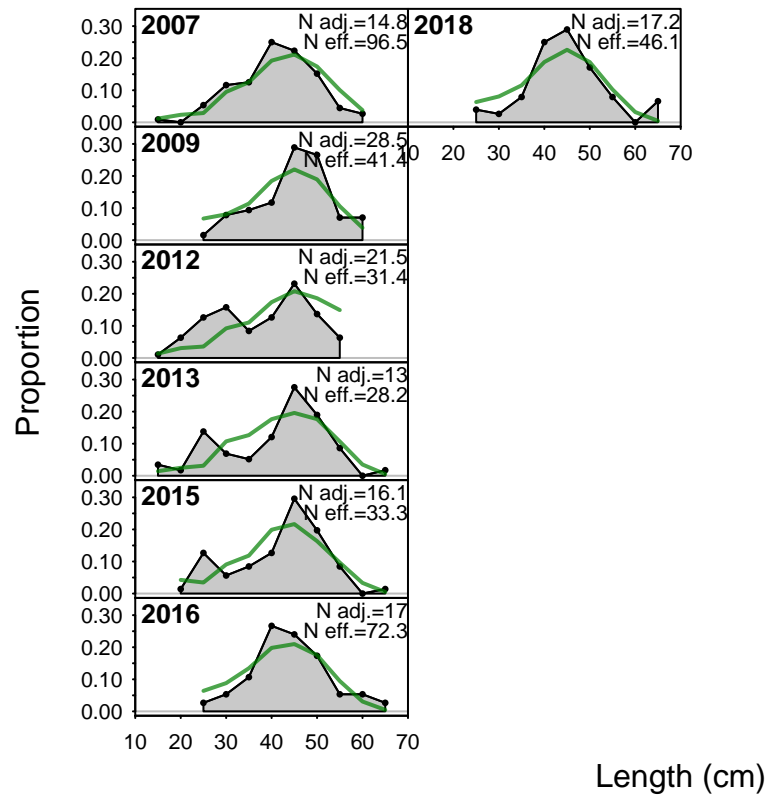


```
##
## RMSE stats by Index:

##      indices RMSE.perc nobs
## 1 FISHERY      5.1      7
## 2 Combined      5.1      7
```







Retrospective and Hindcasting

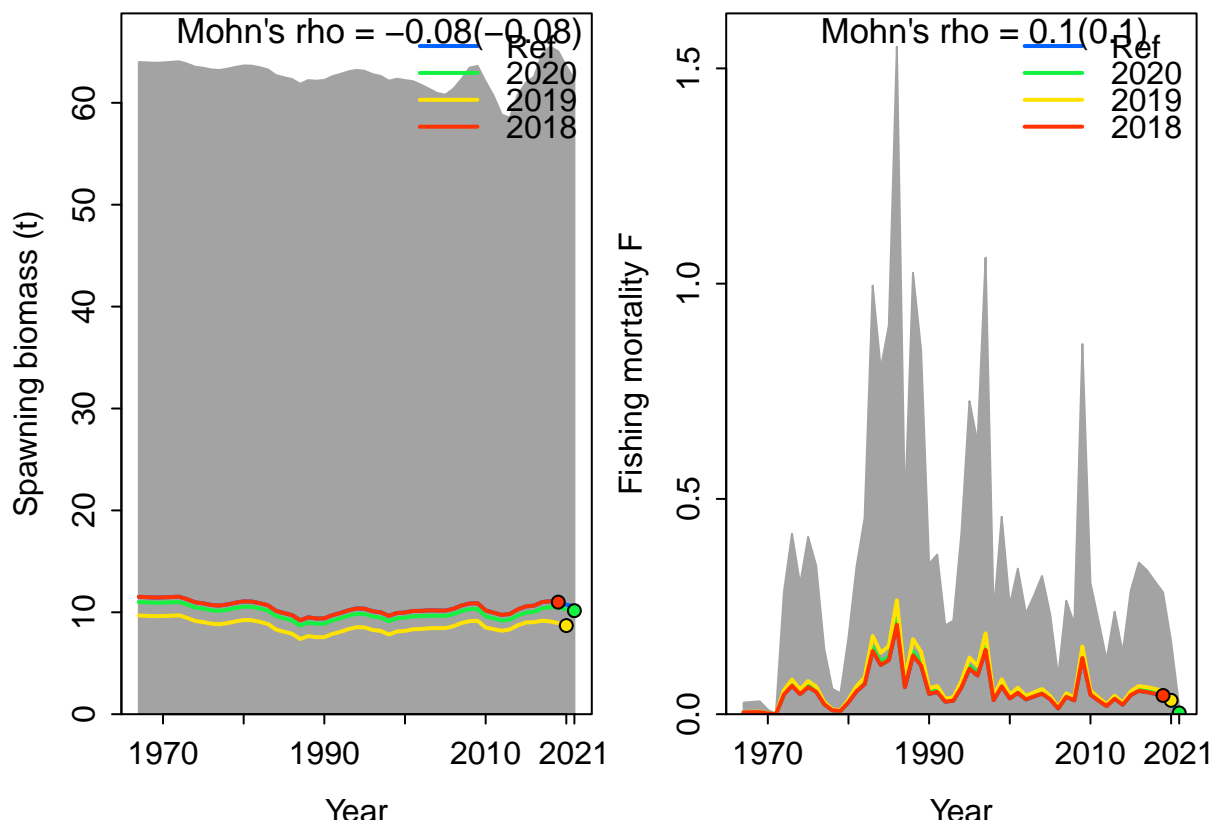
Retrospective

Plotting Retrospective pattern

##

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

Plotting Retrospective pattern

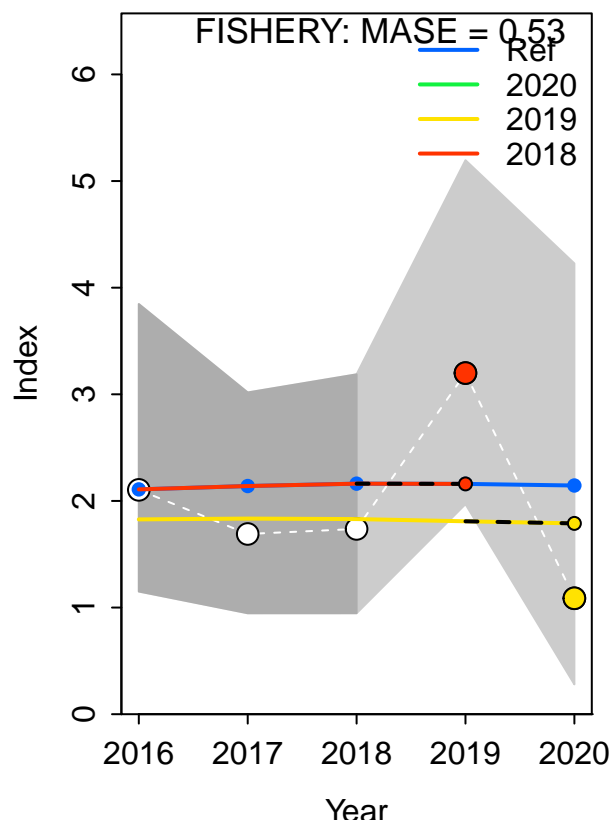


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	Forecast	Rho
## 1	F	2020	0.05344035	0.05201467	
## 2	F	2019	0.24823460	0.24844607	
## 3	F	2018	0.00000000	0.00000000	
## 4	F Combined		0.10055832	0.10015358	

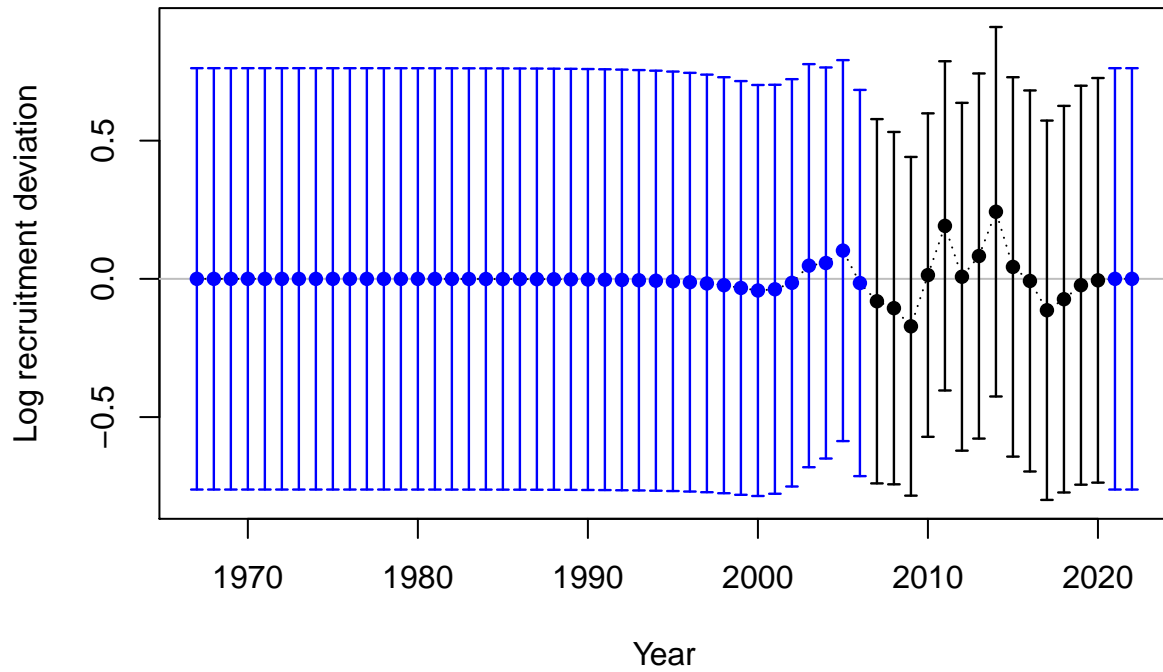
Hindcasting

```
## 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
```

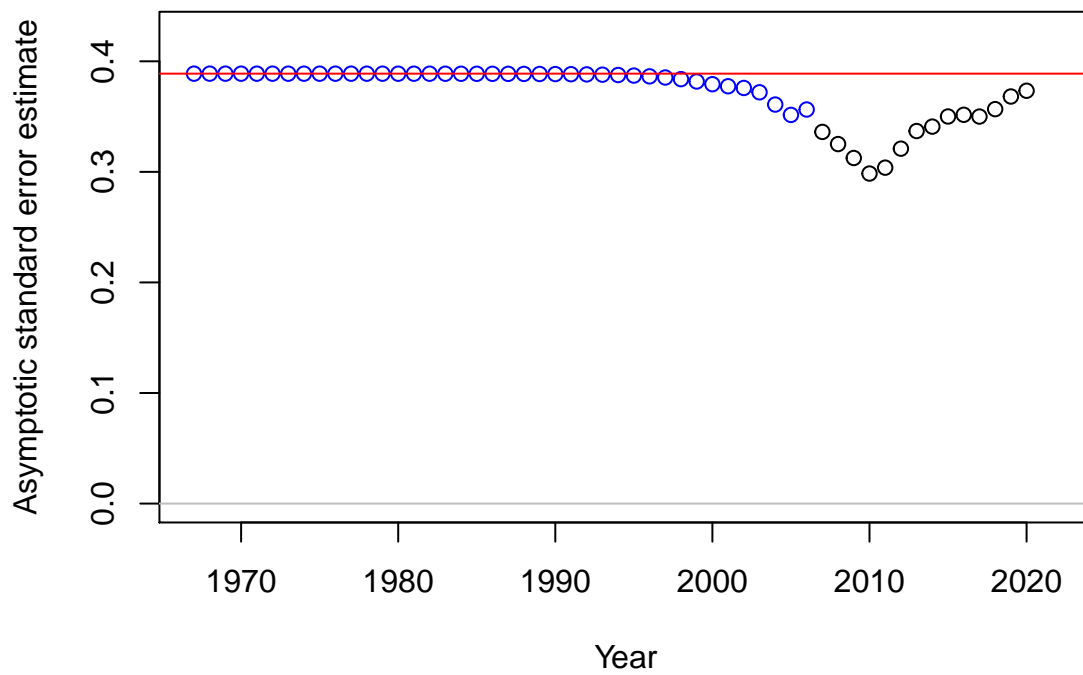


```
##
## MASE stats by Index:
## Plotting Hindcast Cross-Validation (one-step-ahead)
##
## No observations in evaluation years to compute prediction residuals for Index FISHERY
##
## MASE stats by Index:
```

Recruitment Deviations



Recruitment deviation variance



Likelihood Profile

```
## [1] "SR_LN"

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

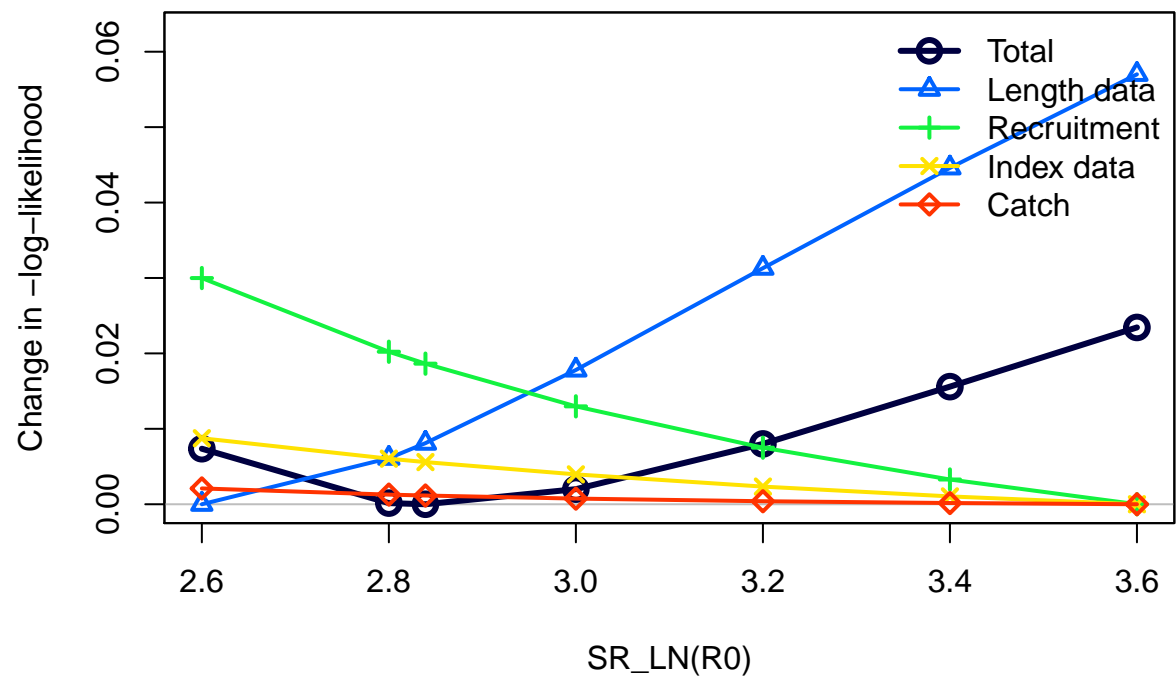
## Parameter values (after subsetting based on input 'models'): 2.6, 2.8, 3, 3.2, 3.4, 3.6, 2.83913

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

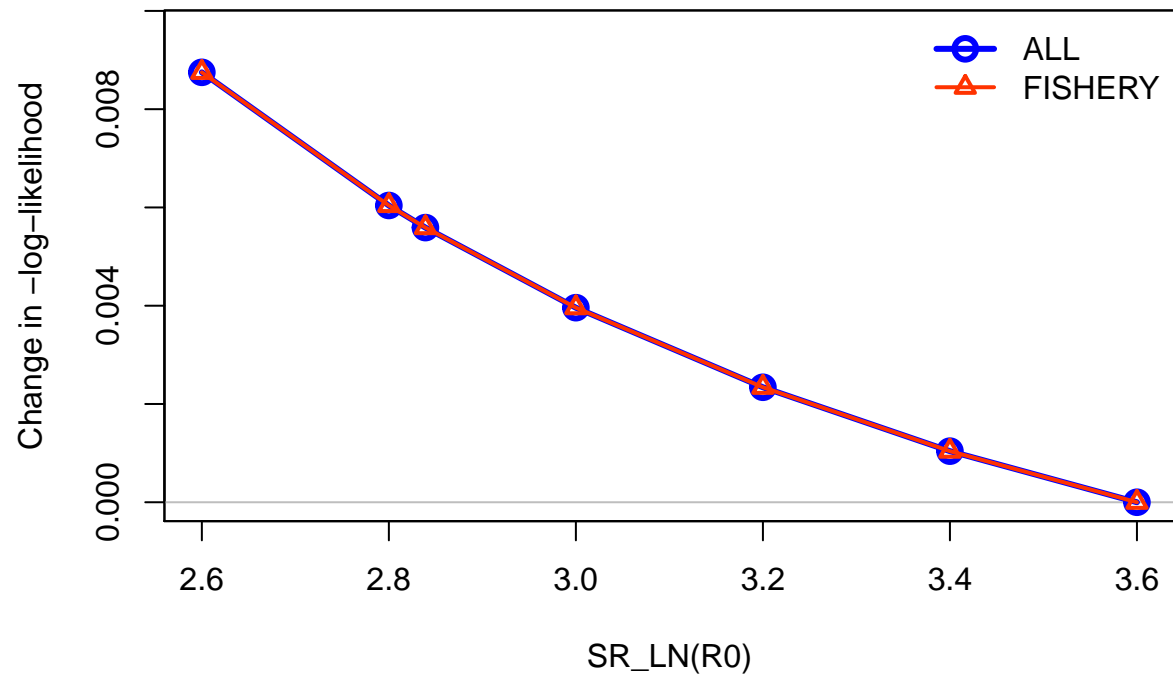
##
##          frac_change include          label
## TOTAL          1.0000   TRUE          Total
## Catch          0.0895   TRUE          Catch
## Equil_catch    0.0000  FALSE      Equilibrium catch
## Survey        0.3733   TRUE          Index data
## Length_comp   2.4317   TRUE          Length data
## Recruitment    1.2794   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 0.0005  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'): 2.6, 2.8, 3, 3.2, 3.4, 3.6, 2.83913,

## 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
```

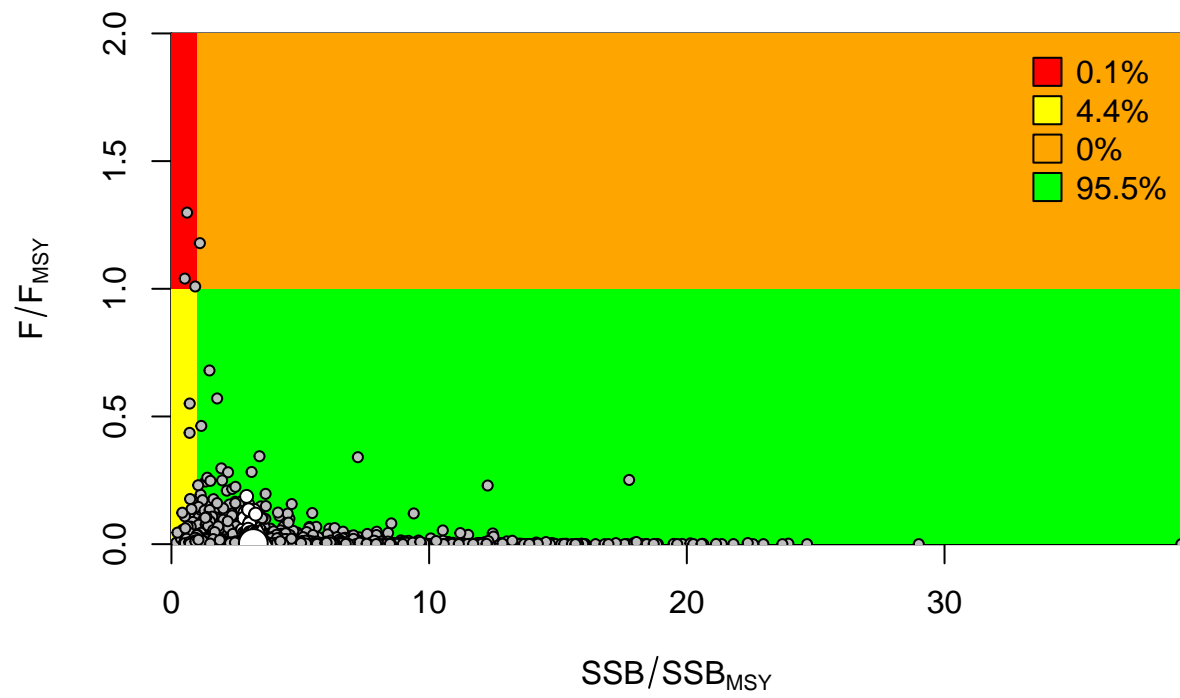


Changes in survey likelihood by fleet

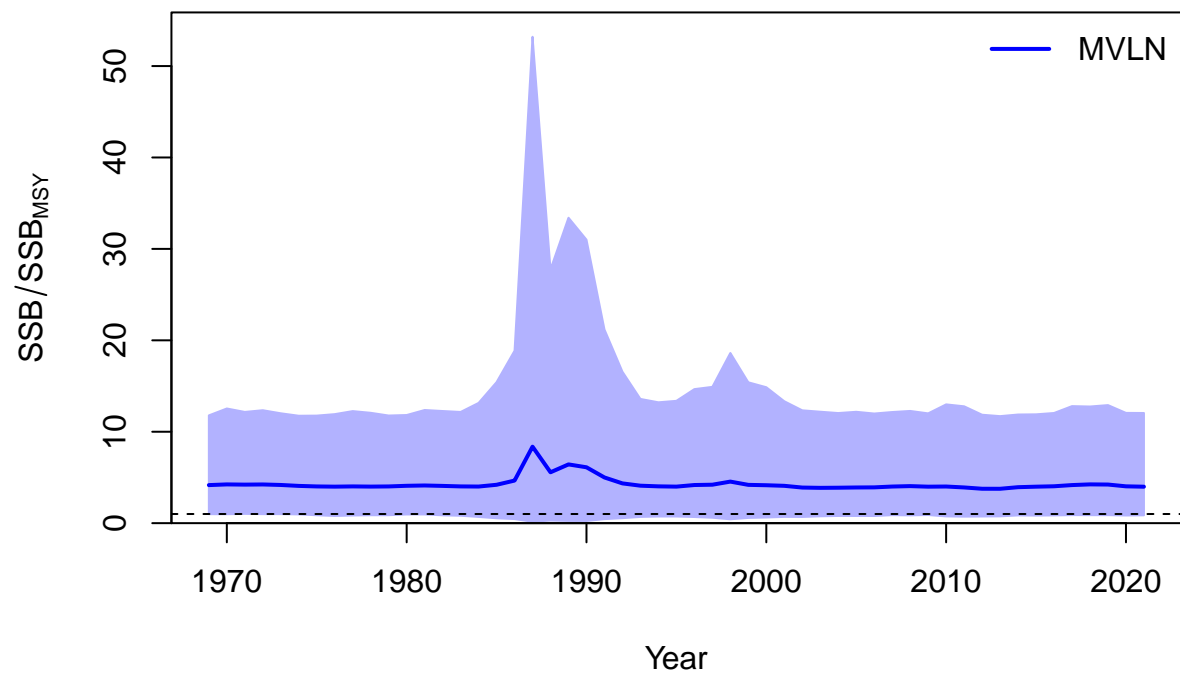


Management Quantities

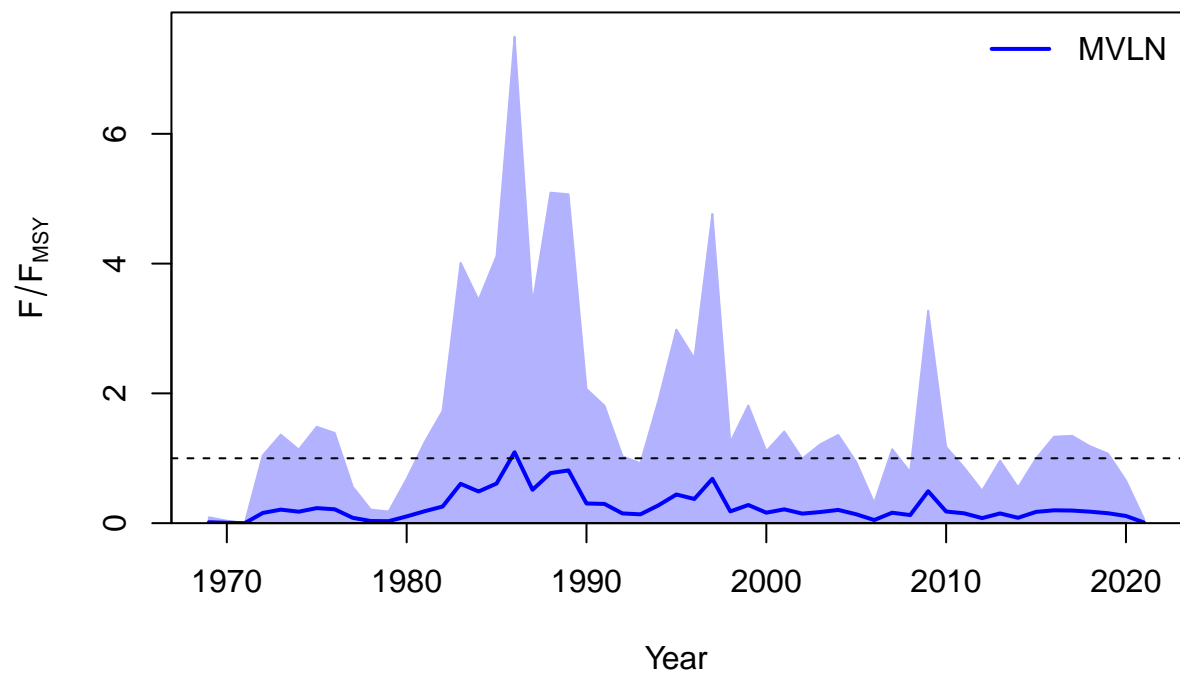
```
##  
## starter.sso with Bratio: SSB/SSBMSY and F: _abs_F  
##
```



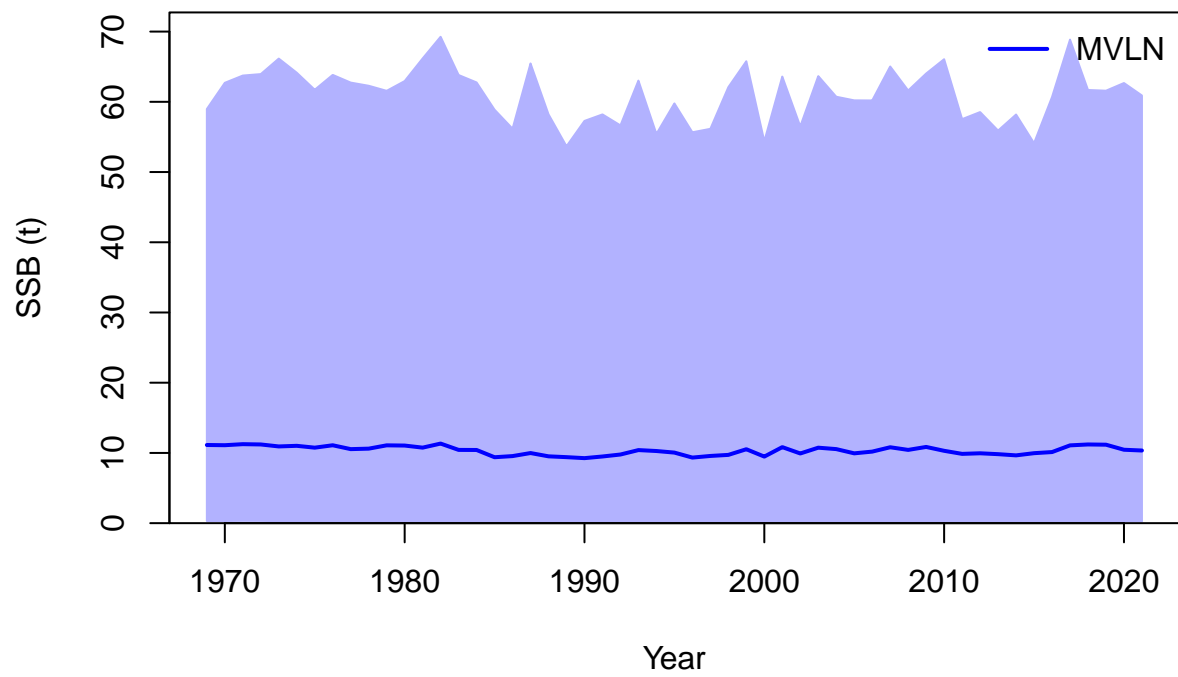
 ## Plot Comparison of stock



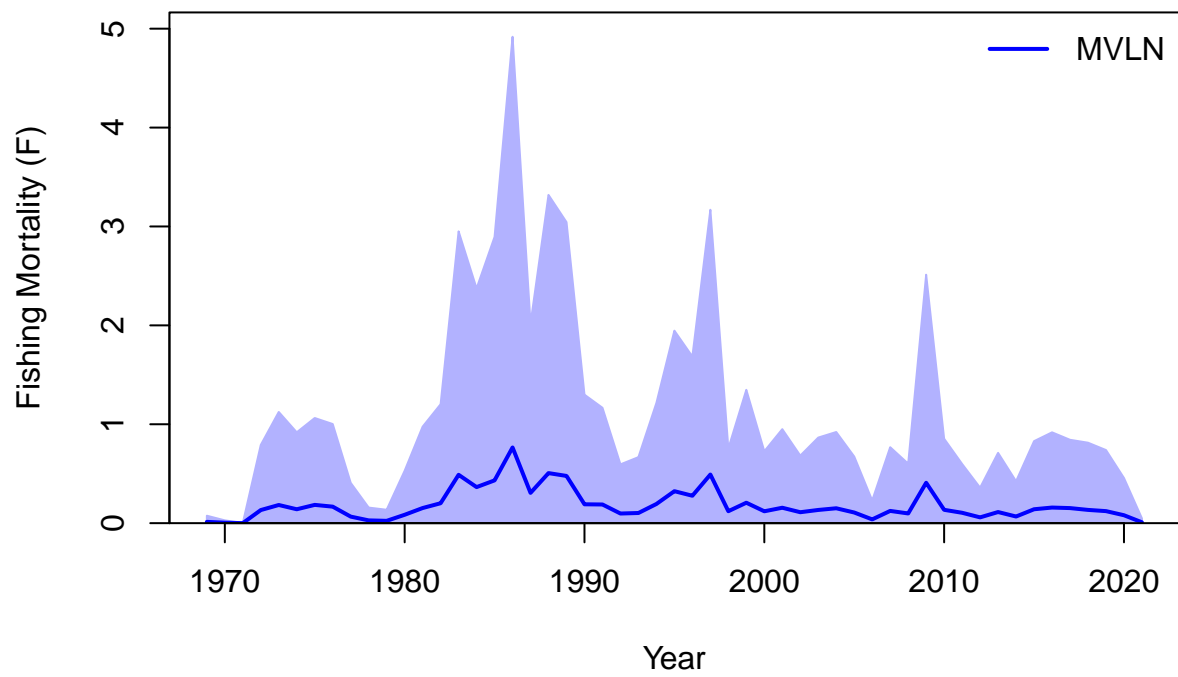
```
##  
## Plot Comparison of harvest
```

Plot Comparison of SSB



```
##  
## Plot Comparison of F
```



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

Jitter

