

# American Samoa Model Checks

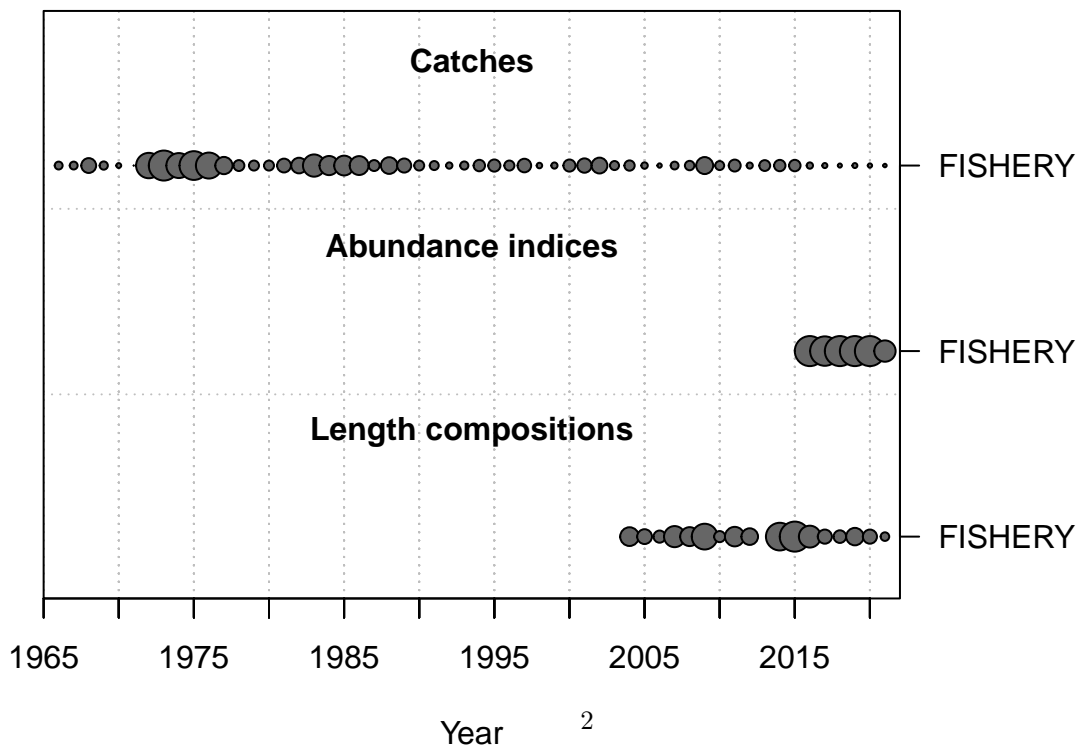
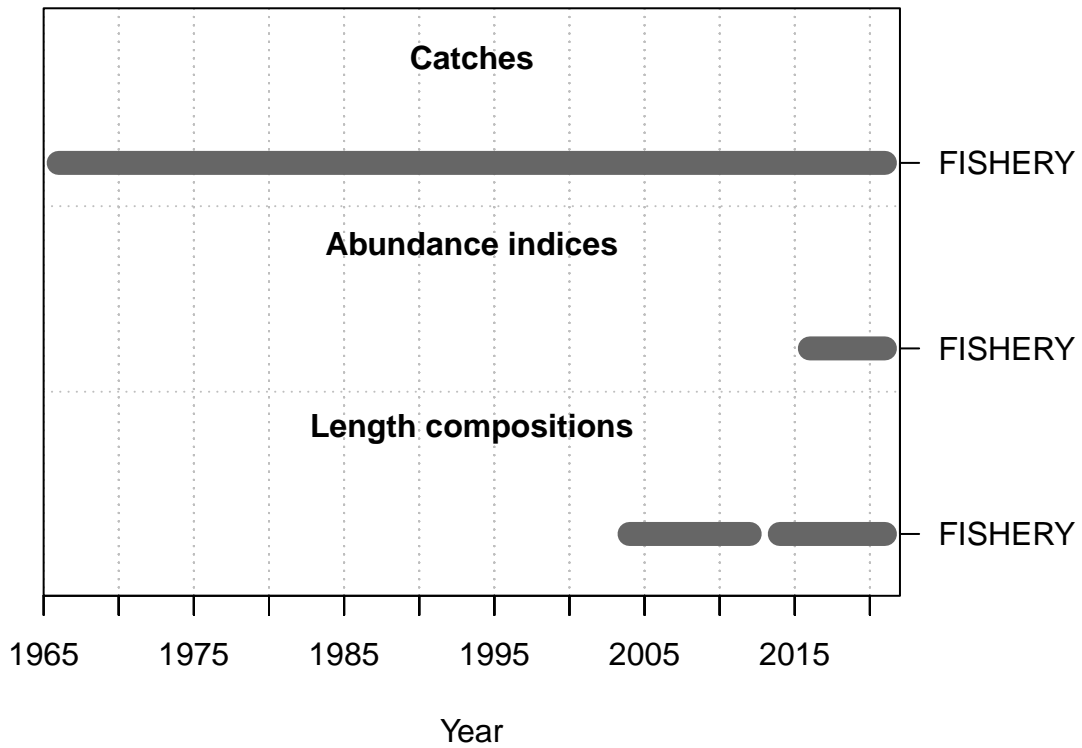
Meg Oshima

2022-08-12

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

## Model Output

### Input Data



## Convergence Check

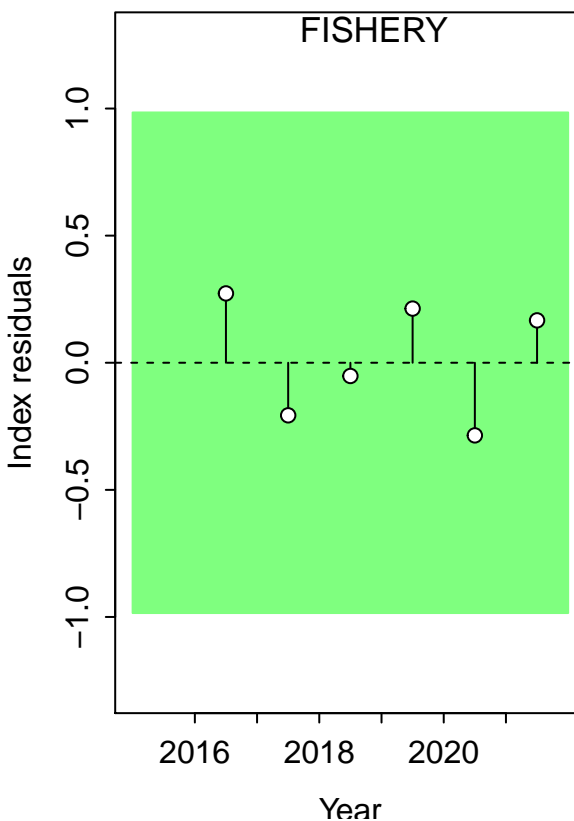
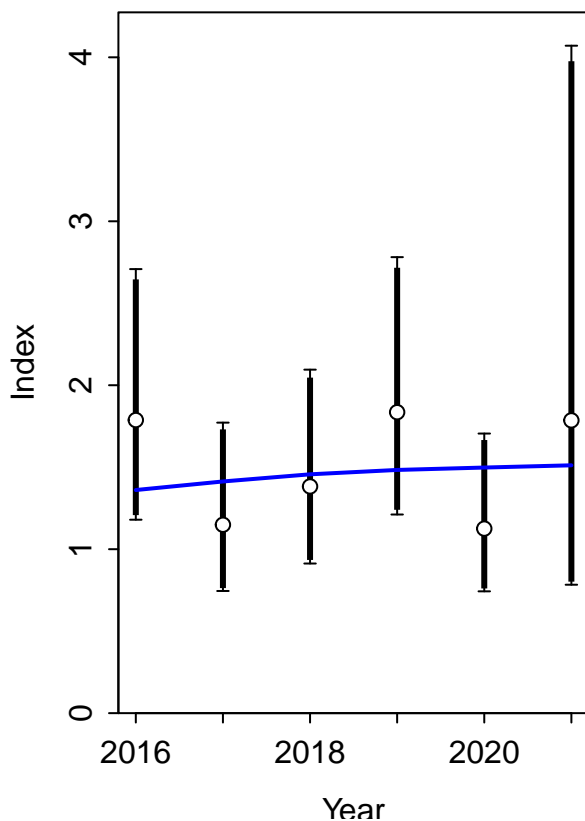
```
## Converged      MaxGrad
## 1      TRUE 2.60831e-05
```

```
## [1] "1 NOTE: Max data length bin: 28 < max pop len bins: 31; so will accumulate larger pop len bins"
## [2] "2 parameter init value is greater than parameter max 11.2 > 10 for parm: 2 ; search for <now ch"
## [3] "3 warning: poor convergence in Fspr search 0.4 0.441563"
## [4] "4 warning: Fmult = 40 cannot get high enough to achieve low SPR target: 0.4; SPR achieved is: 0"
## [5] "5 warning: poor convergence in Fmsy, final dy/dy2= -0.0298337"
## [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: 2; check results, variance may be suspect"
## [9] "N warnings: 7"
```

## Fit to Model

### CPUE

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



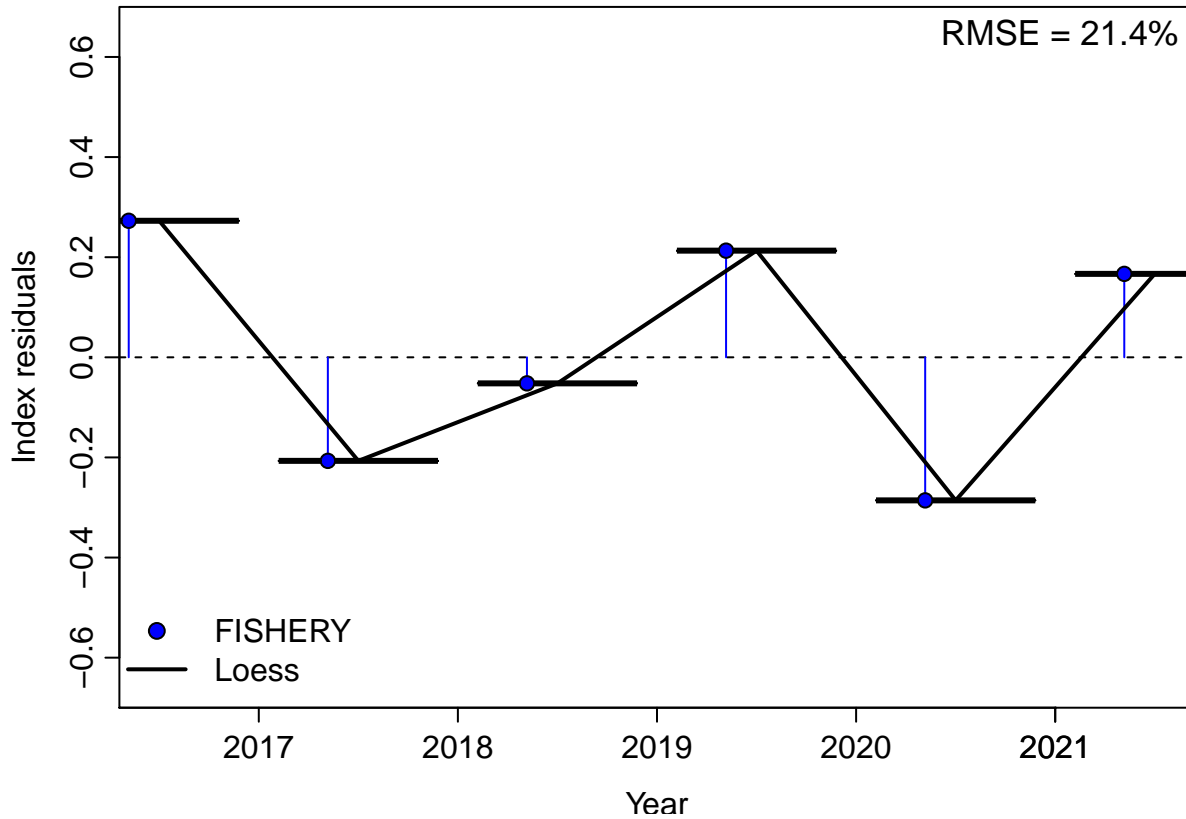
```
##
```

```
## 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

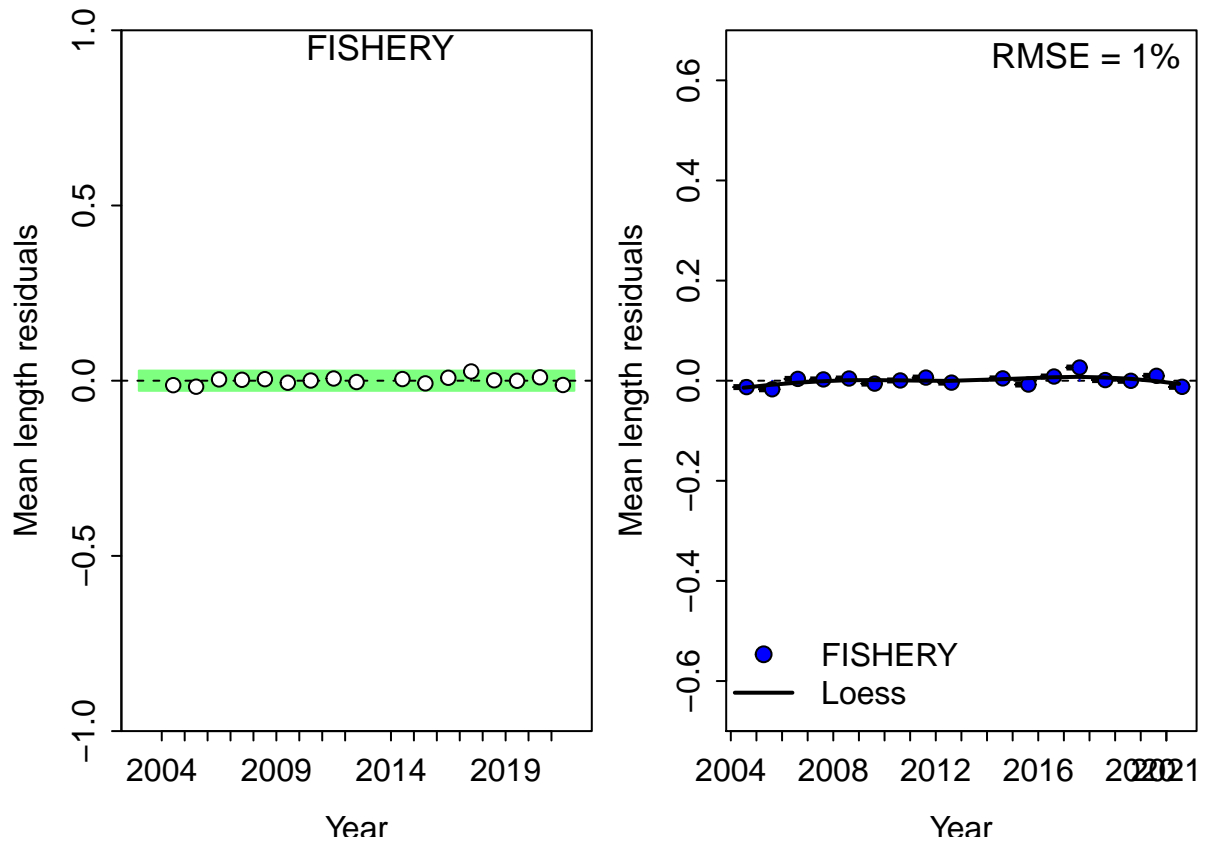
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.341108	len	FISHERY

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

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

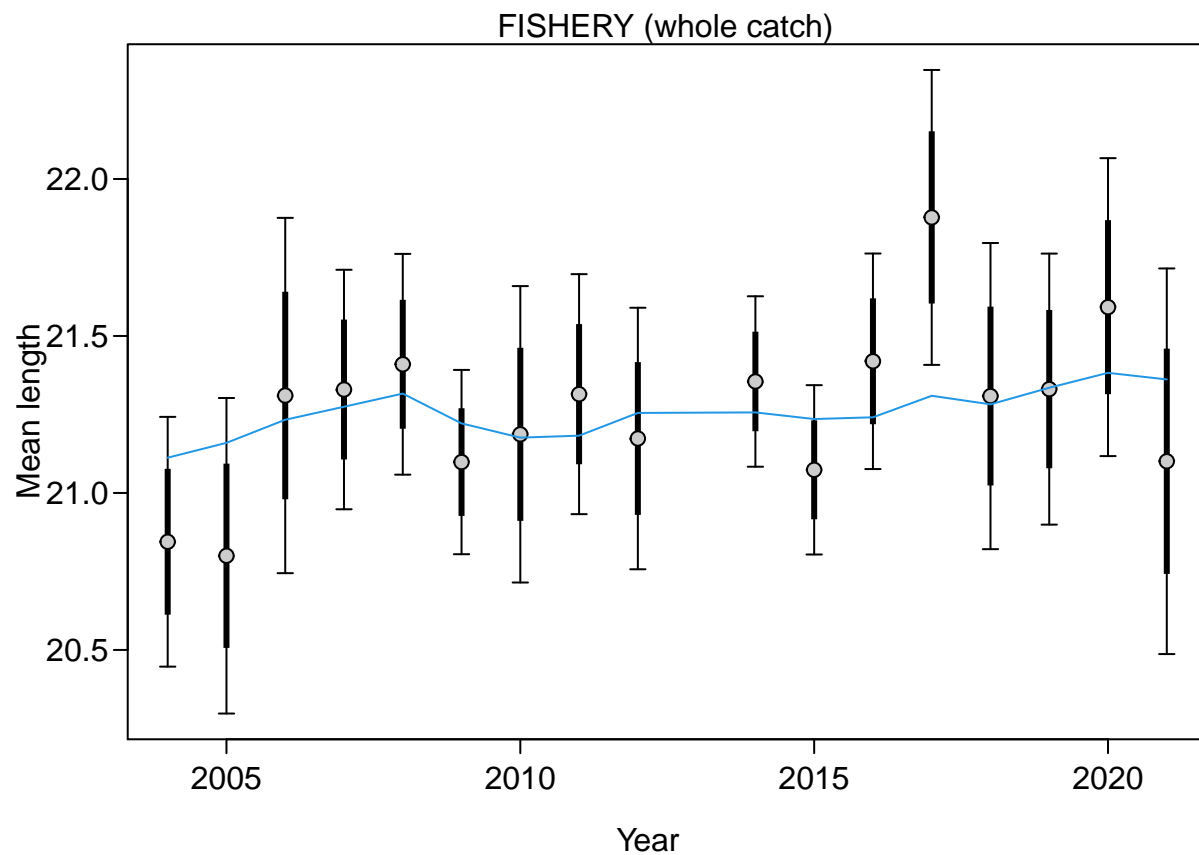
```
##      Index runs.p  test  sigma3.lo  sigma3.hi  type
## 1 FISHERY    0.82 Passed -0.02883303 0.02883303  len
```

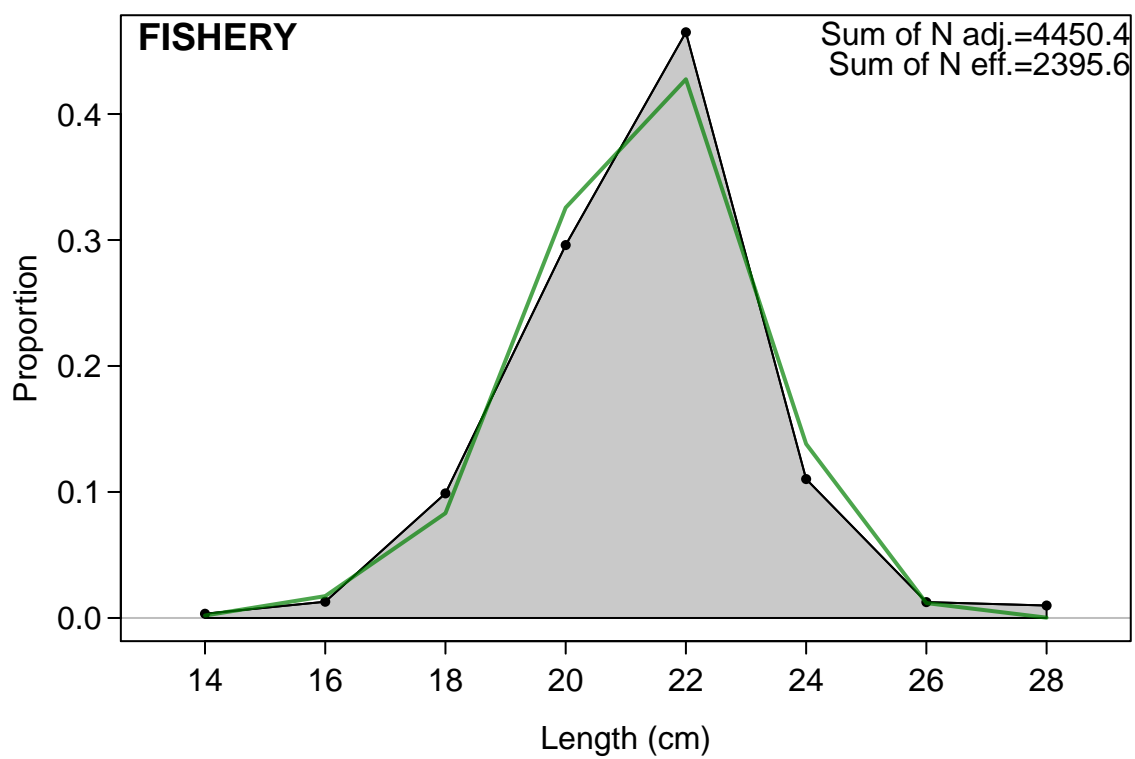
```
## Plotting JABBA residual plot
```

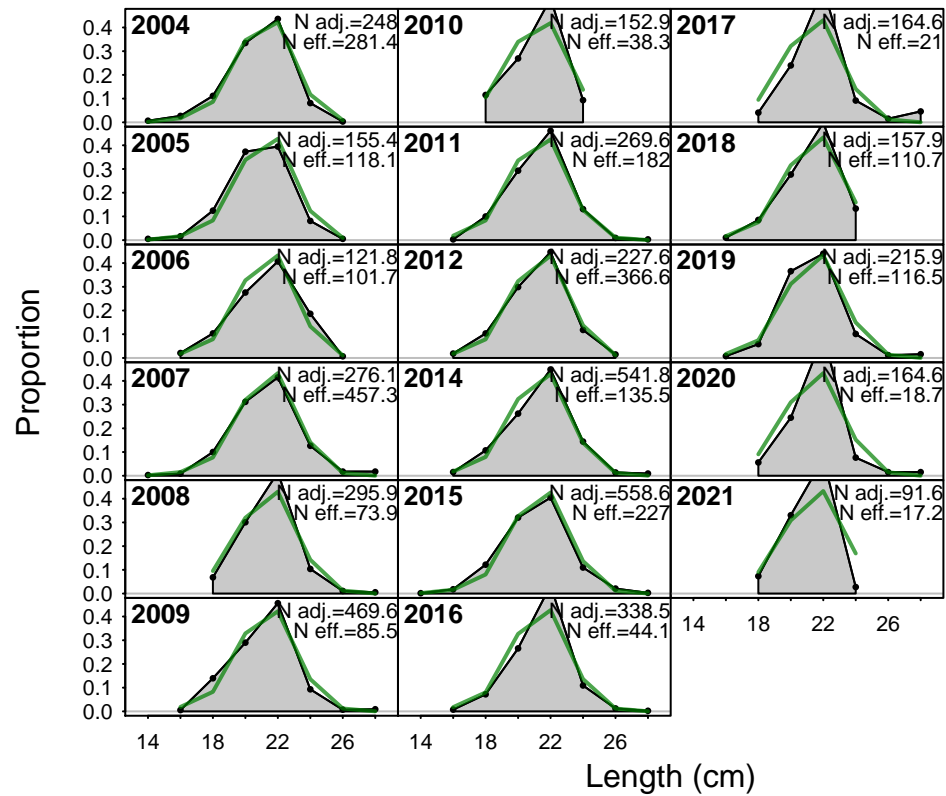


```
##
## RMSE stats by Index:
```

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







## Retrospective and Hindcasting

### Retrospective

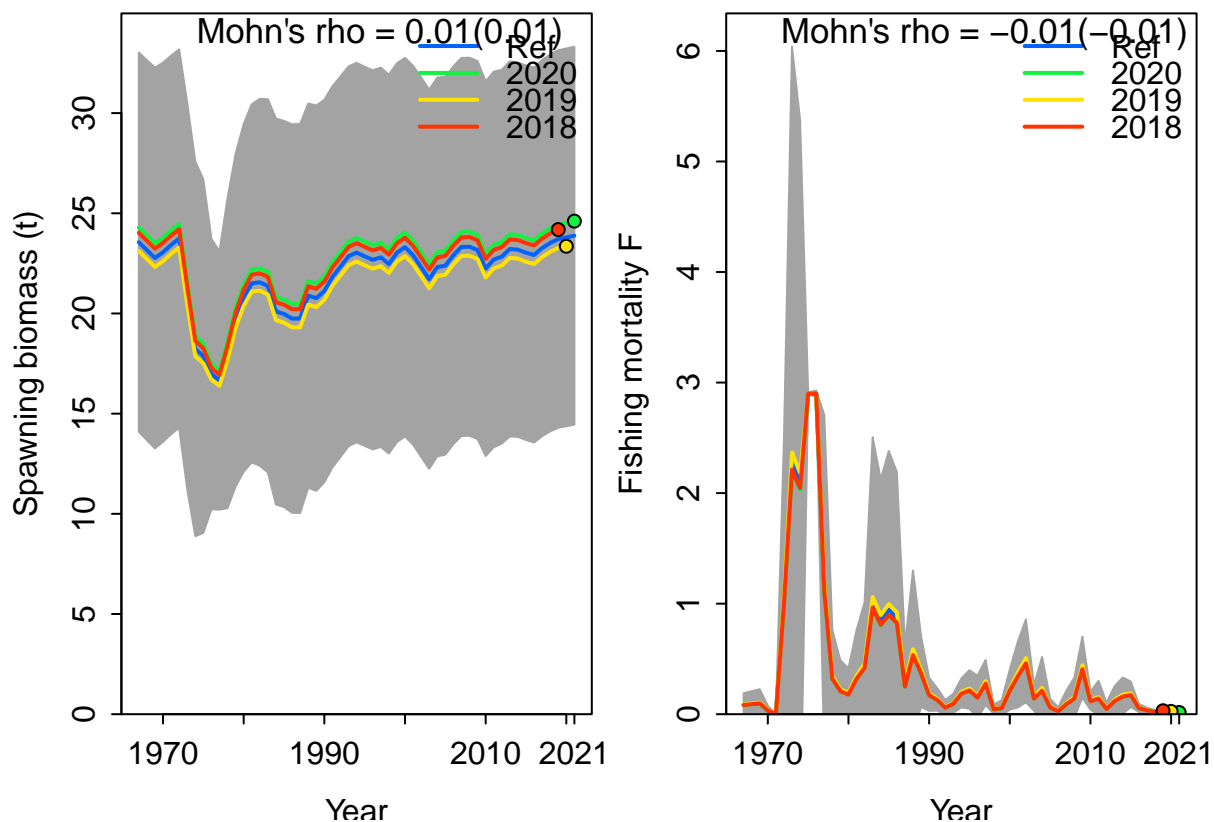
```
## Plotting Retrospective pattern
```

```
##
```

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

```
## Plotting Retrospective pattern
```



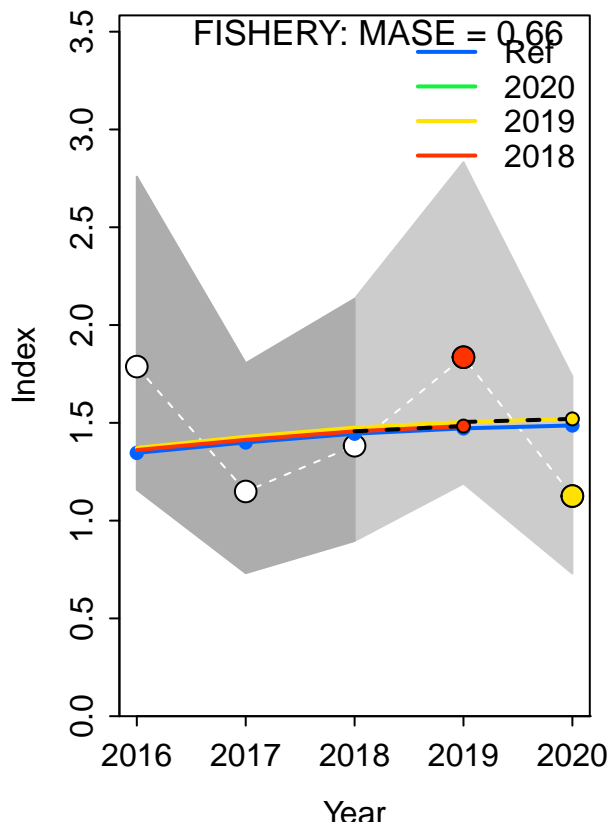


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	ForecastRho
## 1	F	2020	-0.035059981	-0.035218086
## 2	F	2019	0.041635890	0.040593847
## 3	F	2018	-0.031795861	-0.028476328
## 4	F Combined		-0.008406651	-0.007700189

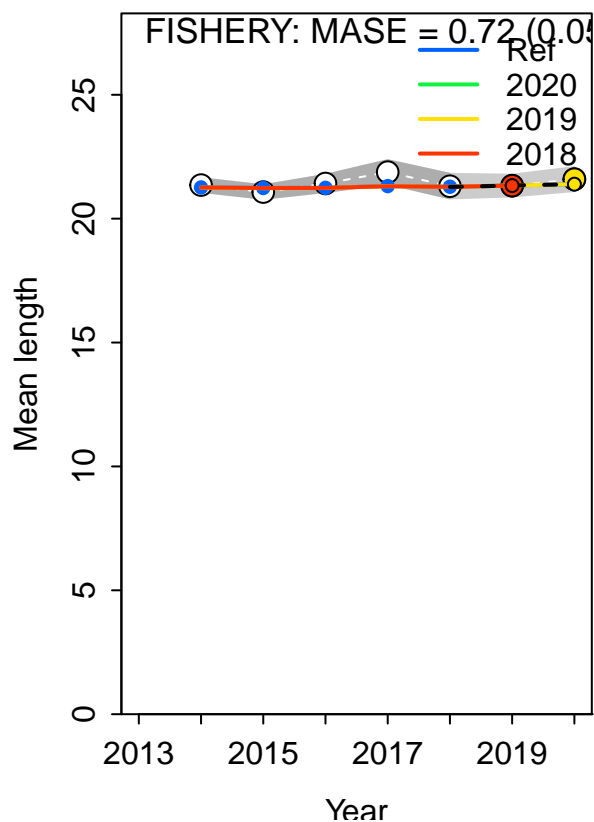
## Hindcasting

```
## 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

## Skipped SSplotrecdevs - no rec devs estimated

## Likelihood Profile

## [1] "SR\_LN"

## Parameter matching profile.string=SR\_LN: SR\_LN(R0)

## Parameter values (after subsetting based on input 'models'): 6.4, 6.6, 6.8, 7, 7.2, 7.4, 7.6, 6.8484

##

## 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	1.0528	TRUE	Catch
## Equil_catch	0.0000	FALSE	Equilibrium catch
## Survey	0.0970	TRUE	Index data
## Length_comp	0.8825	TRUE	Length data
## Recruitment	0.0000	FALSE	Recruitment

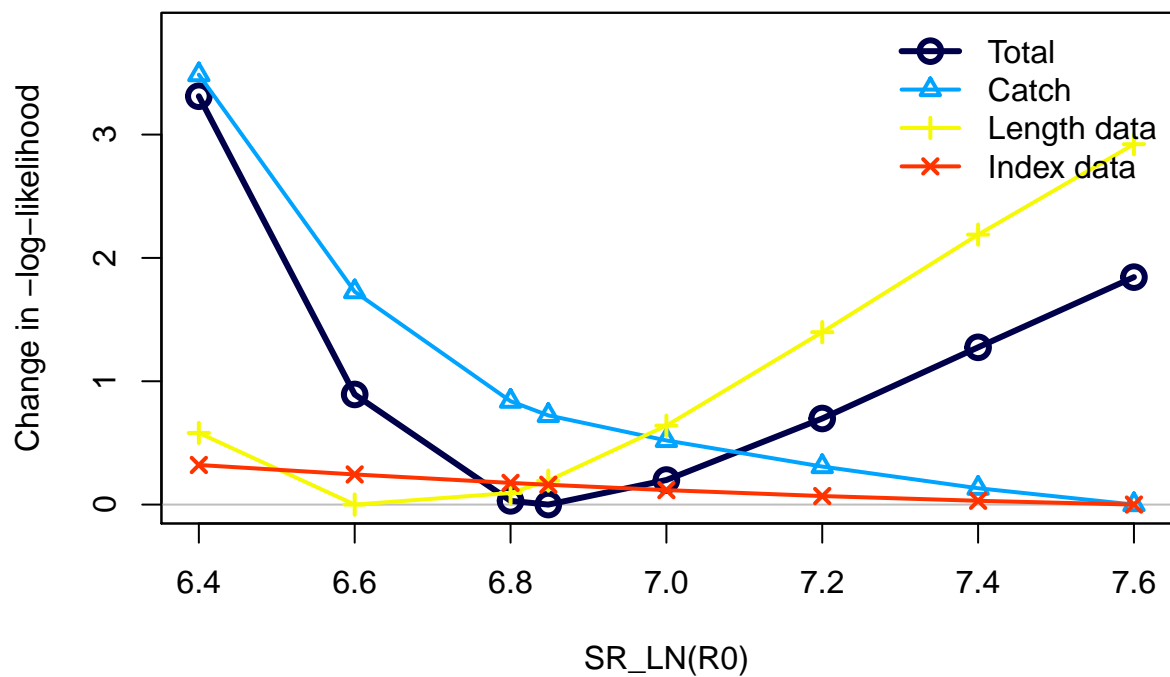
```

## 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

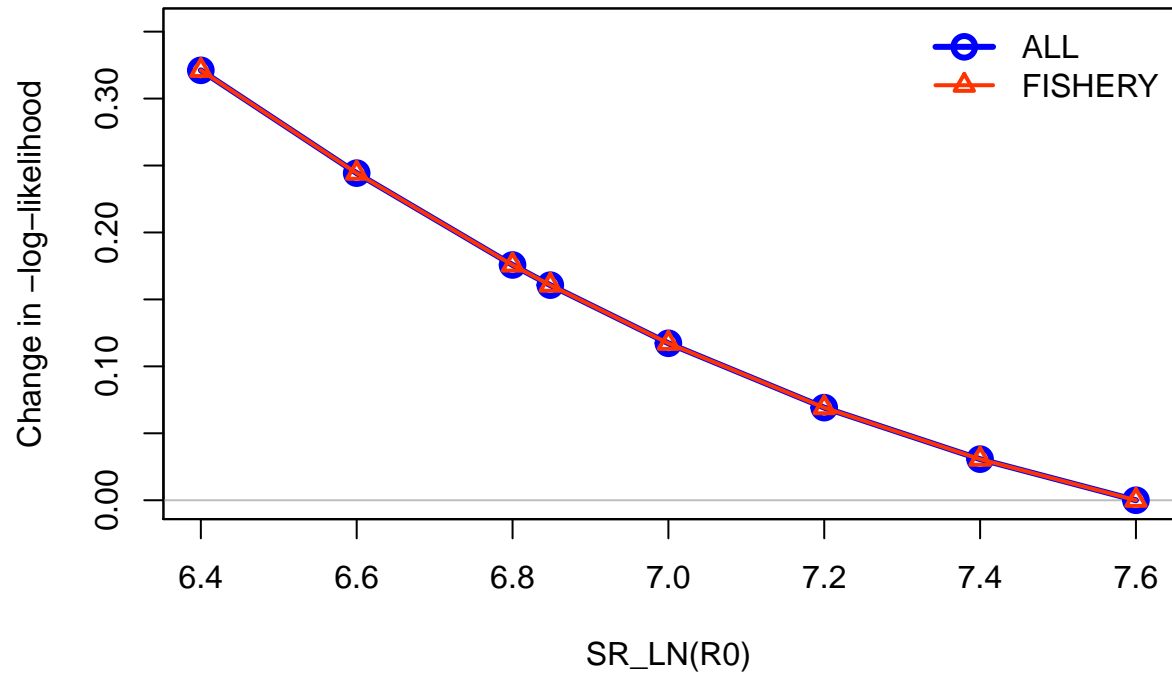
## Parameter matching profile.string = 'SR_LN': 'SR_LN(R0)
## Parameter values (after subsetting based on input 'models'): 6.4, 6.6, 6.8, 7, 7.2, 7.4, 7.6, 6.8484

## 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

```

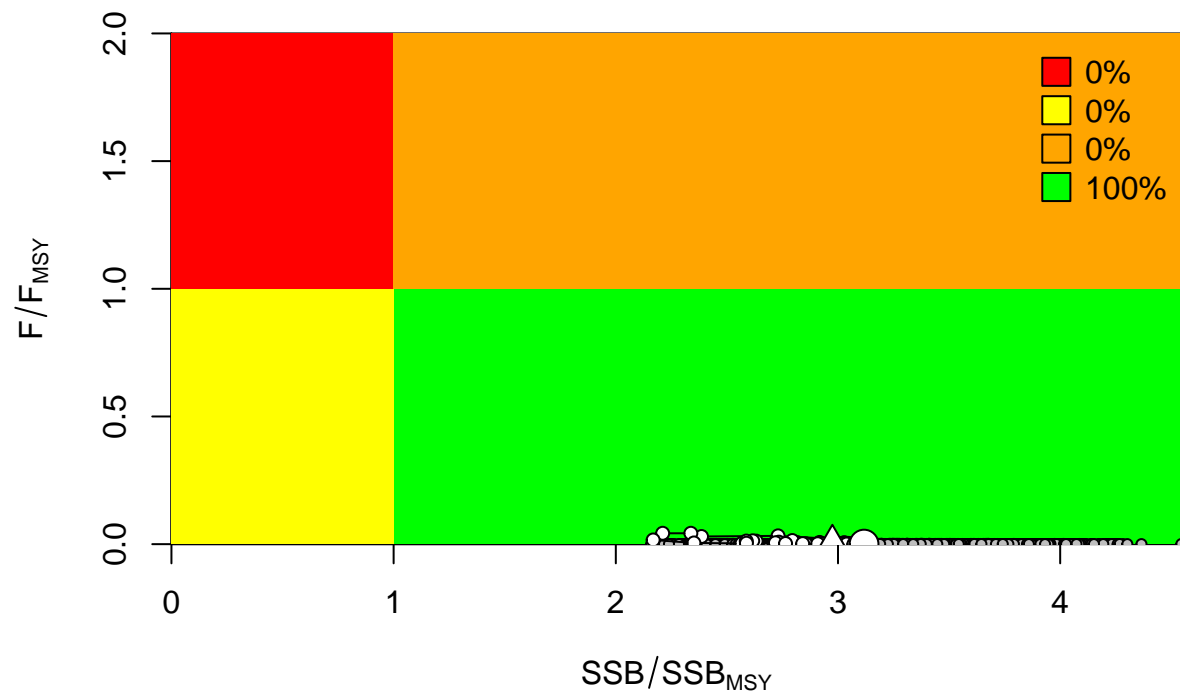


### Changes in survey likelihood by fleet

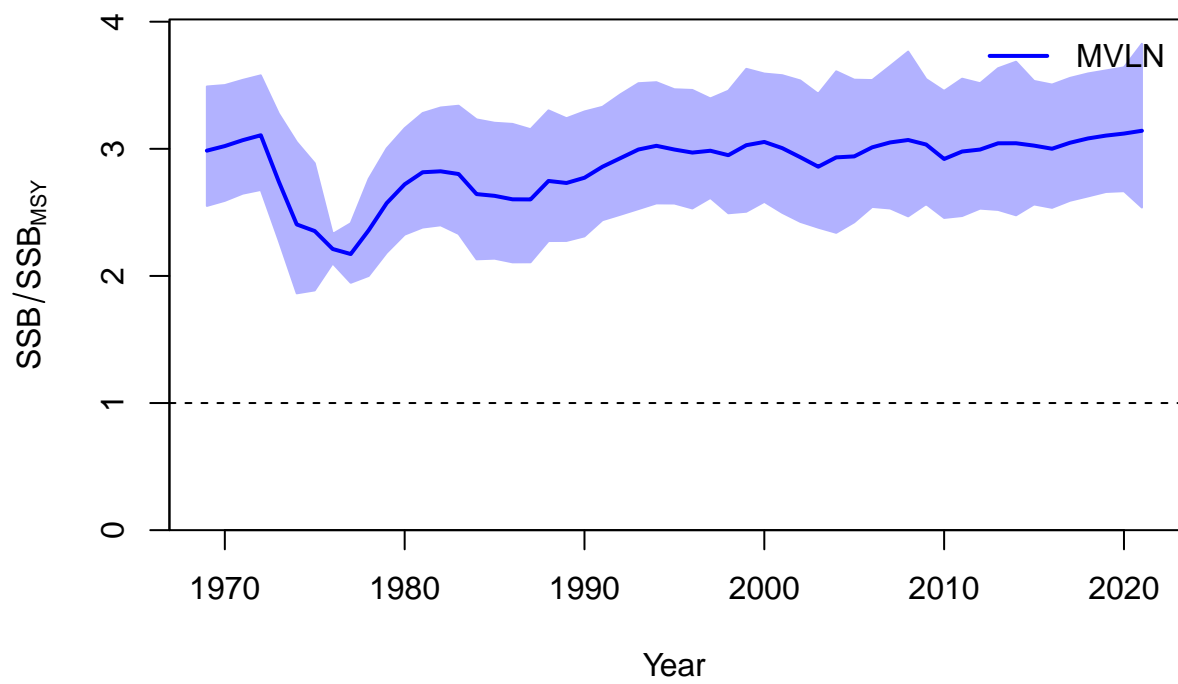


### Management Quantities

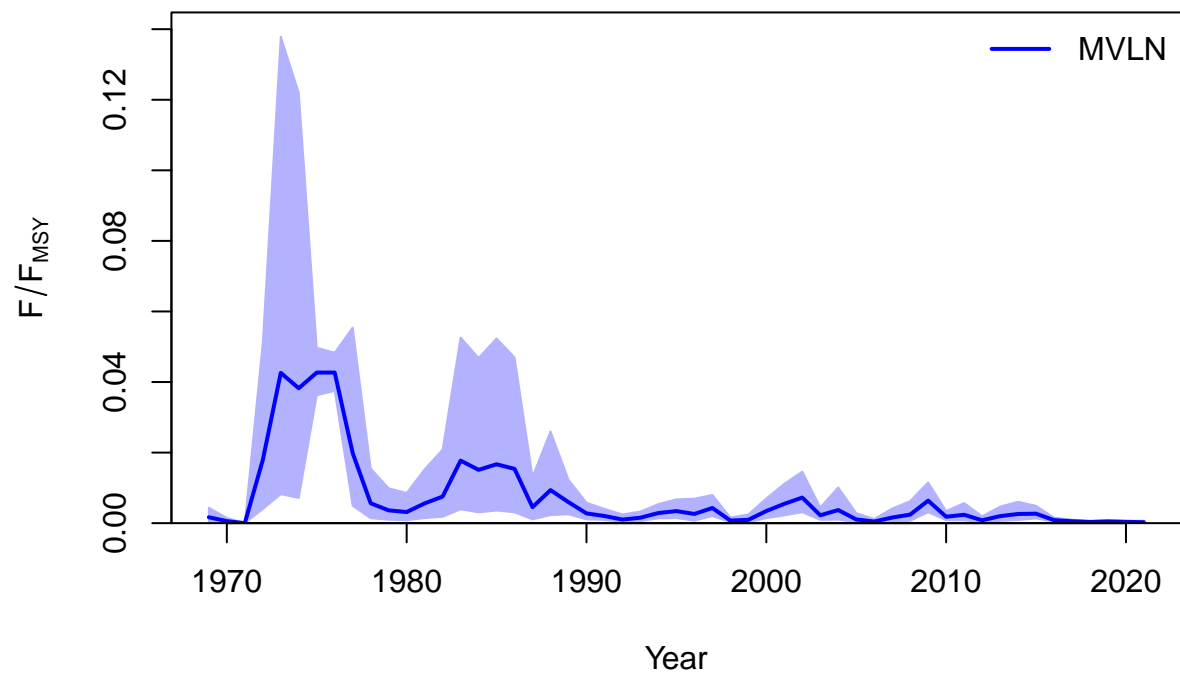
```
##  
## starter.sso with Bratio: SSB/SSBMSY and F: _abs_F  
##
```



##  
## Plot Comparison of stock

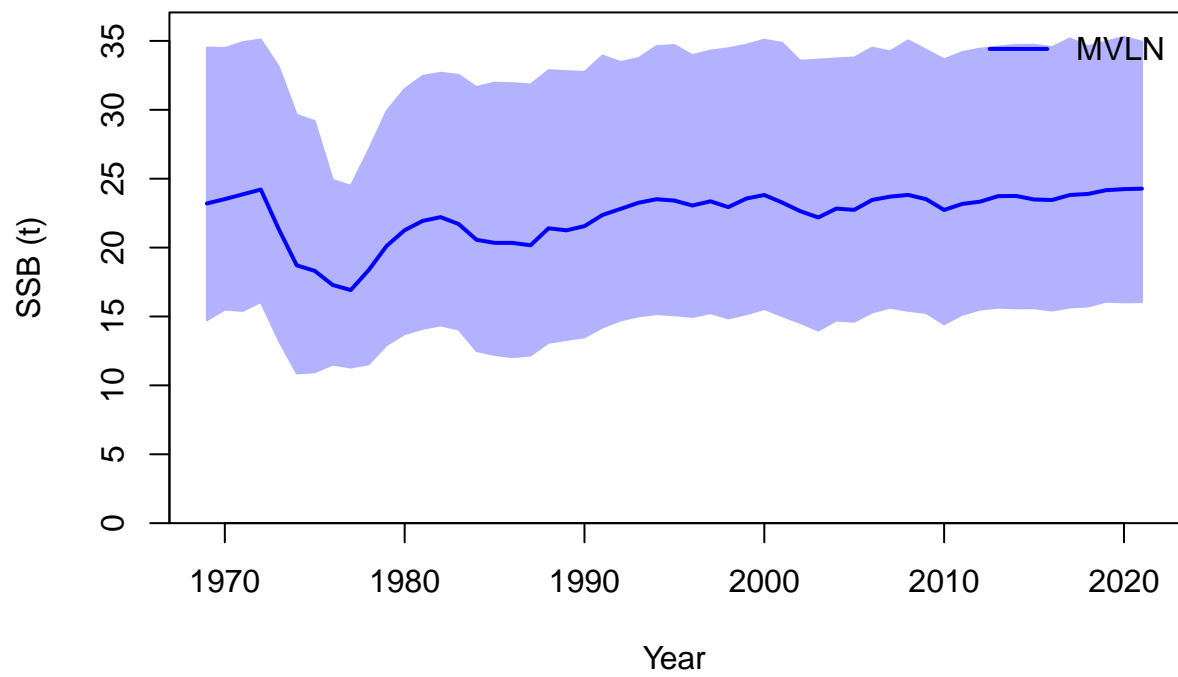


##  
## Plot Comparison of harvest

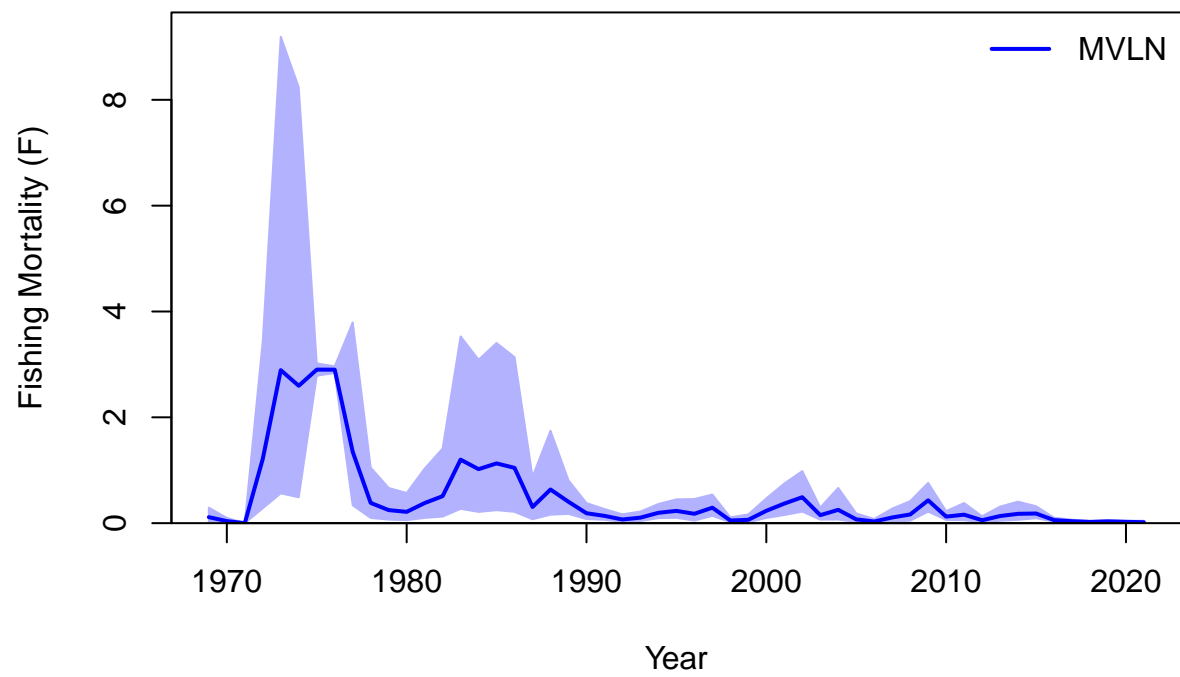


##  
## Plot Comparison of SSB





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



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

## Jitter

