

American Samoa Model Checks

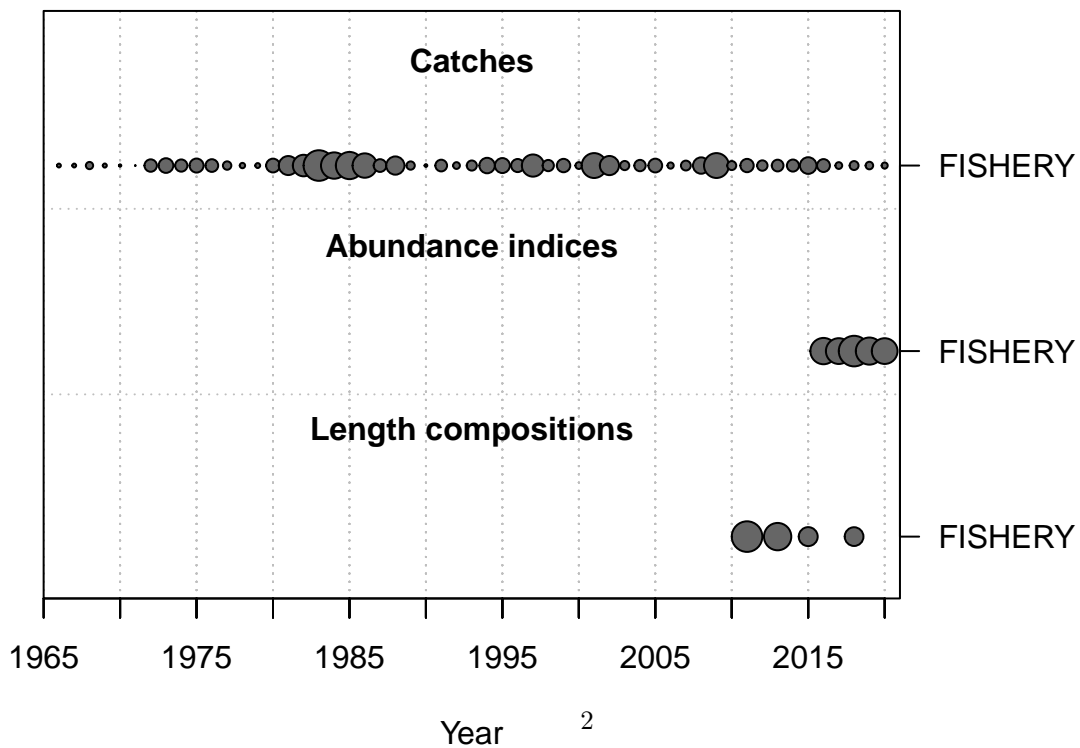
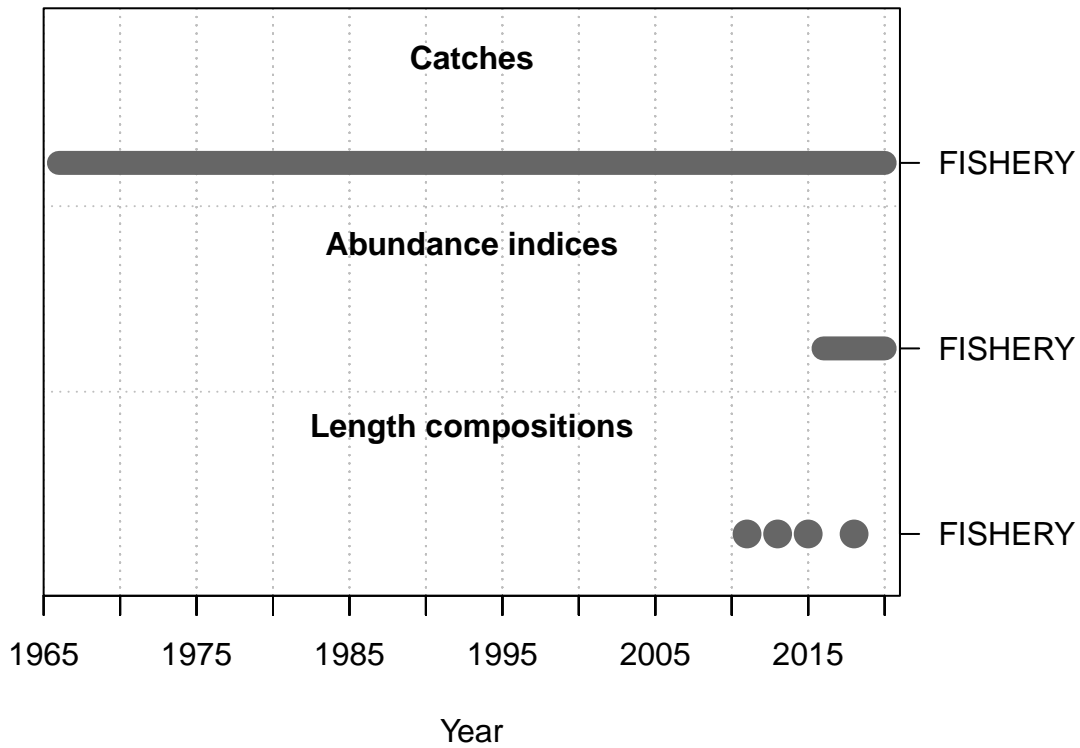
Meg Oshima

2022-08-10

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

Model Output

Input Data



Convergence Check

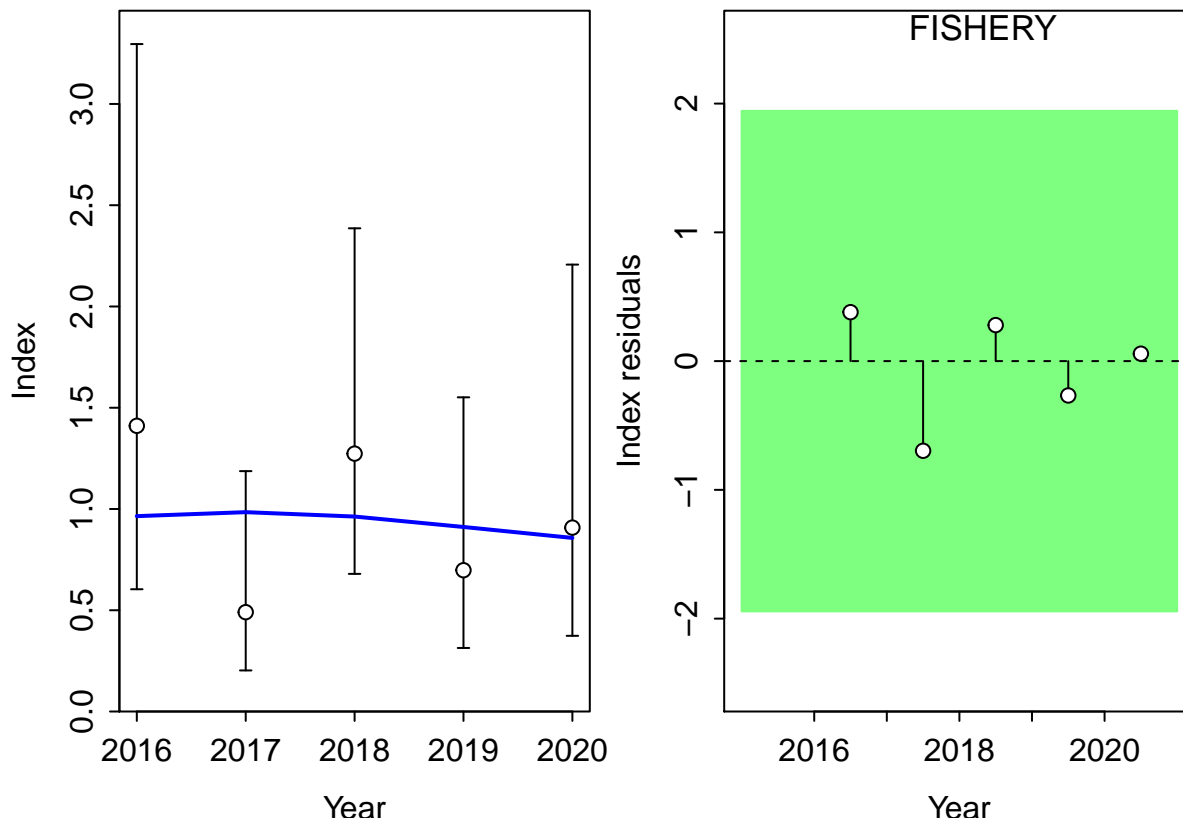
```
## Converged      MaxGrad
## 1      TRUE 1.42324e-05
```

```
## [1] "1 catch is 0.0 in endyr; this can cause problem in the benchmark and forecast calculations"
## [2] "2 NOTE: Max data length bin: 48 < max pop len bins: 53; so will accumulate larger pop len bins"
## [3] "3 parameter init value is less than parameter min 1 < 5 for parm: 2 ; search for <now check> in"
## [4] "4 warning: poor convergence in Fmsy, final dy/dy2= -0.00445179"
## [5] " N parameters are on or within 1% of min-max bound: 2; check results, variance may be suspect"
## [6] "N warnings: 4"
```

Fit to Model

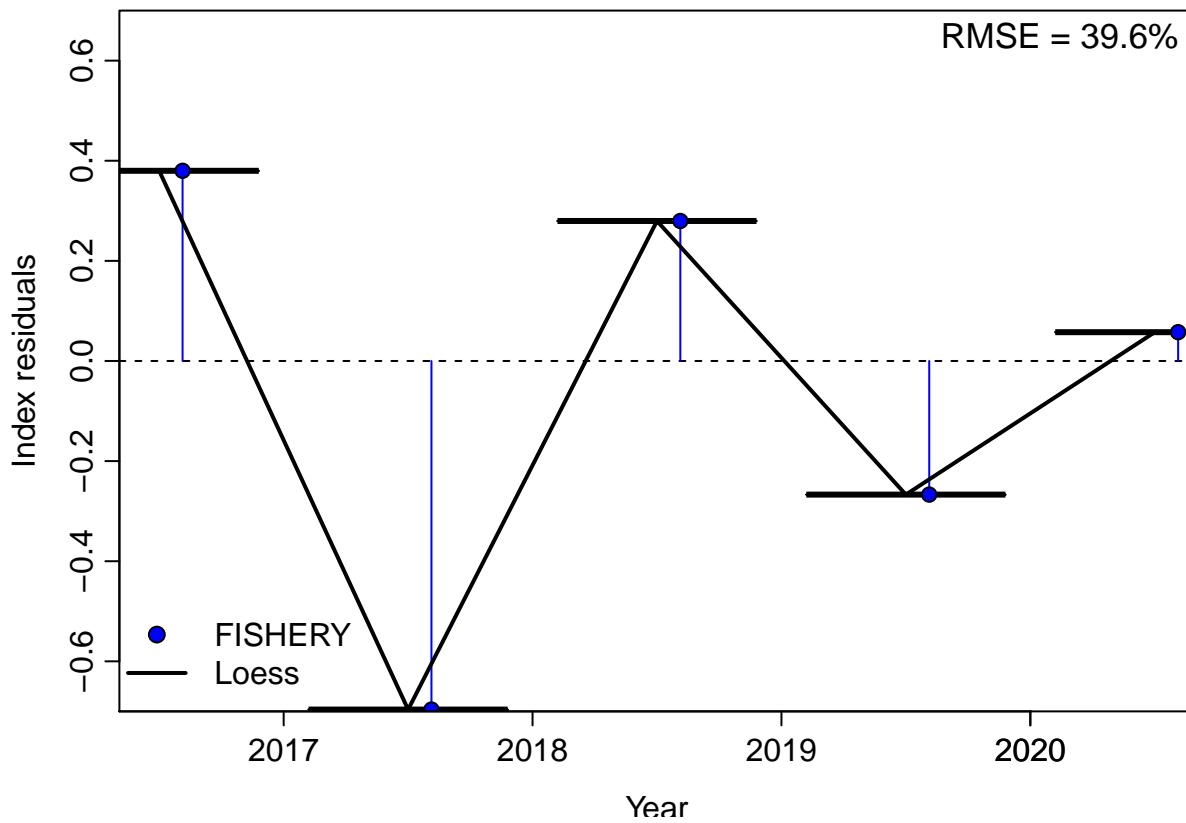
CPUE

```
##
## 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 radius
## 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	10.12125	len	FISHERY

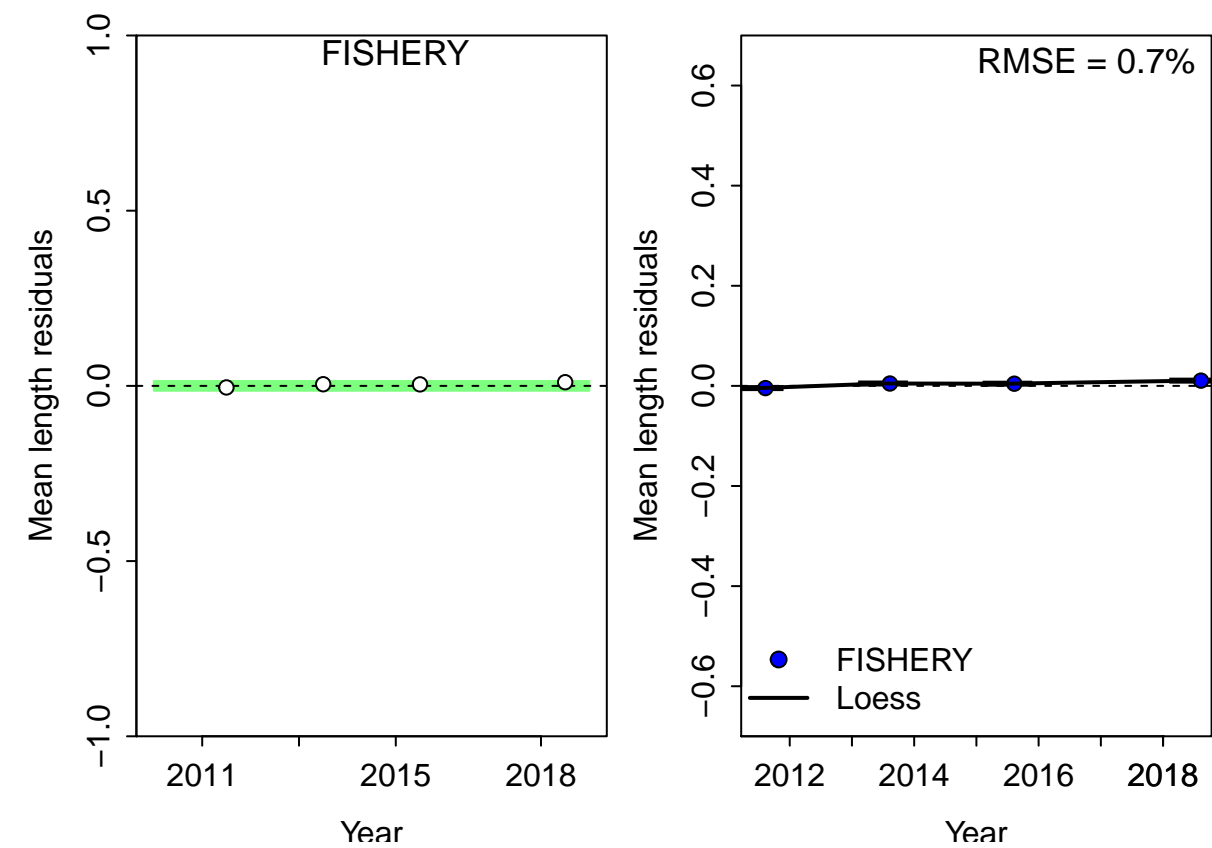
```
##
## Running Runs Test Diagnostics for Mean length
## Plotting Residual Runs Tests
```

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

##      Index runs.p  test  sigma3.lo  sigma3.hi type
## 1 FISHERY  0.159 Passed -0.01386097 0.01386097 len

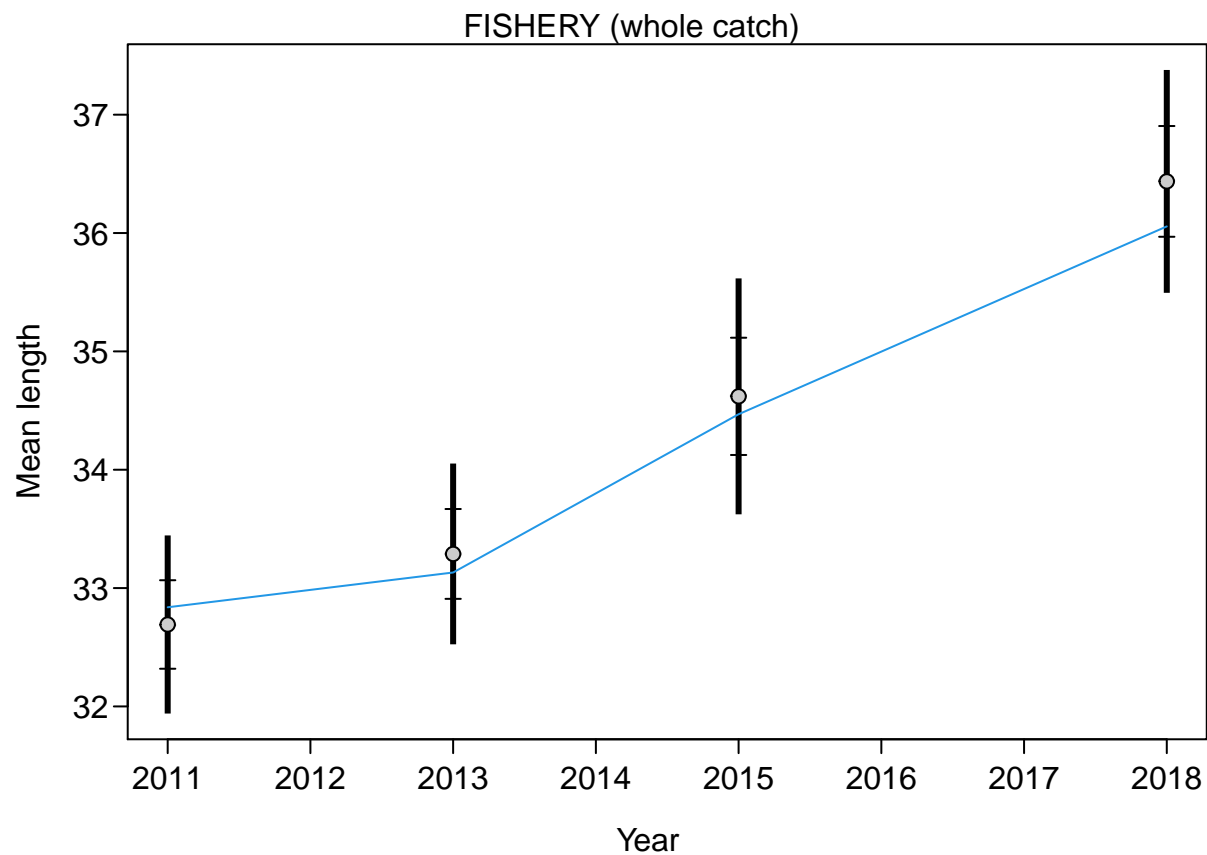
## Plotting JABBA residual plot

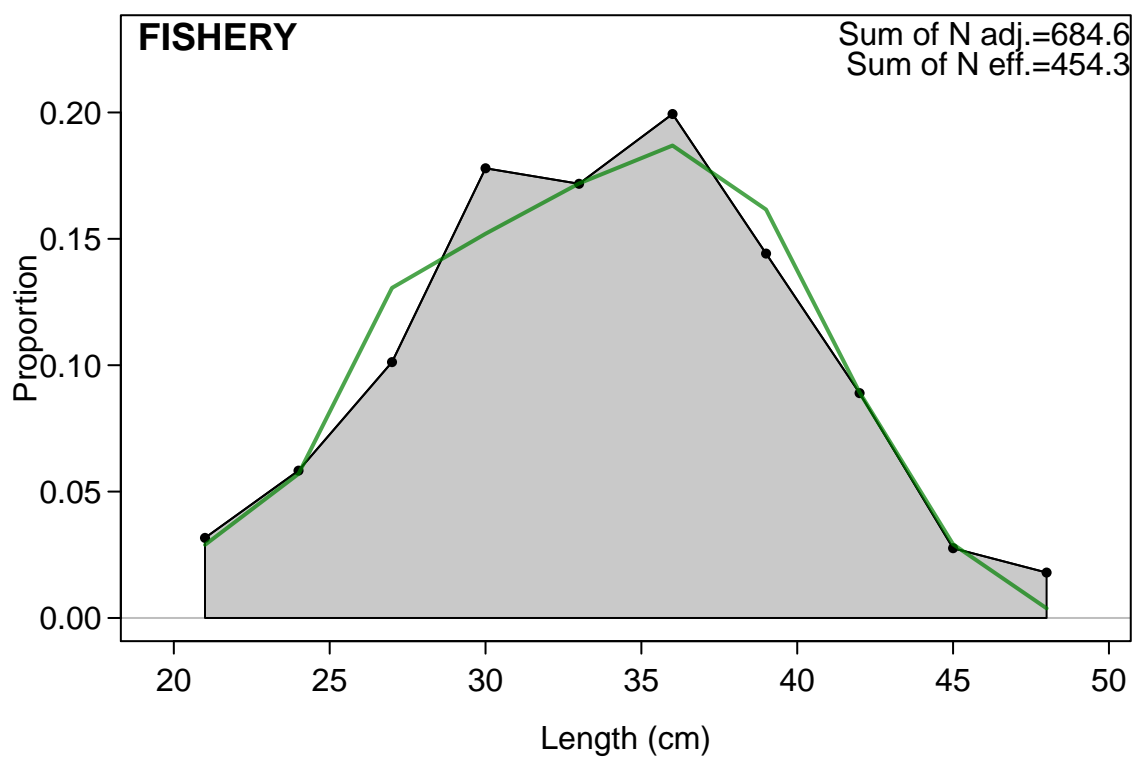
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : span too small. fe
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## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : reciprocal conditi
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```

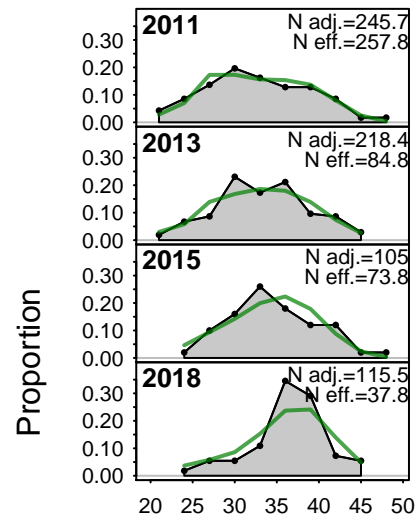


```
##
## RMSE stats by Index:

##      indices RMSE.perc nobs
## 1 FISHERY      0.7      4
## 2 Combined      0.7      4
```







Retrospective and Hindcasting

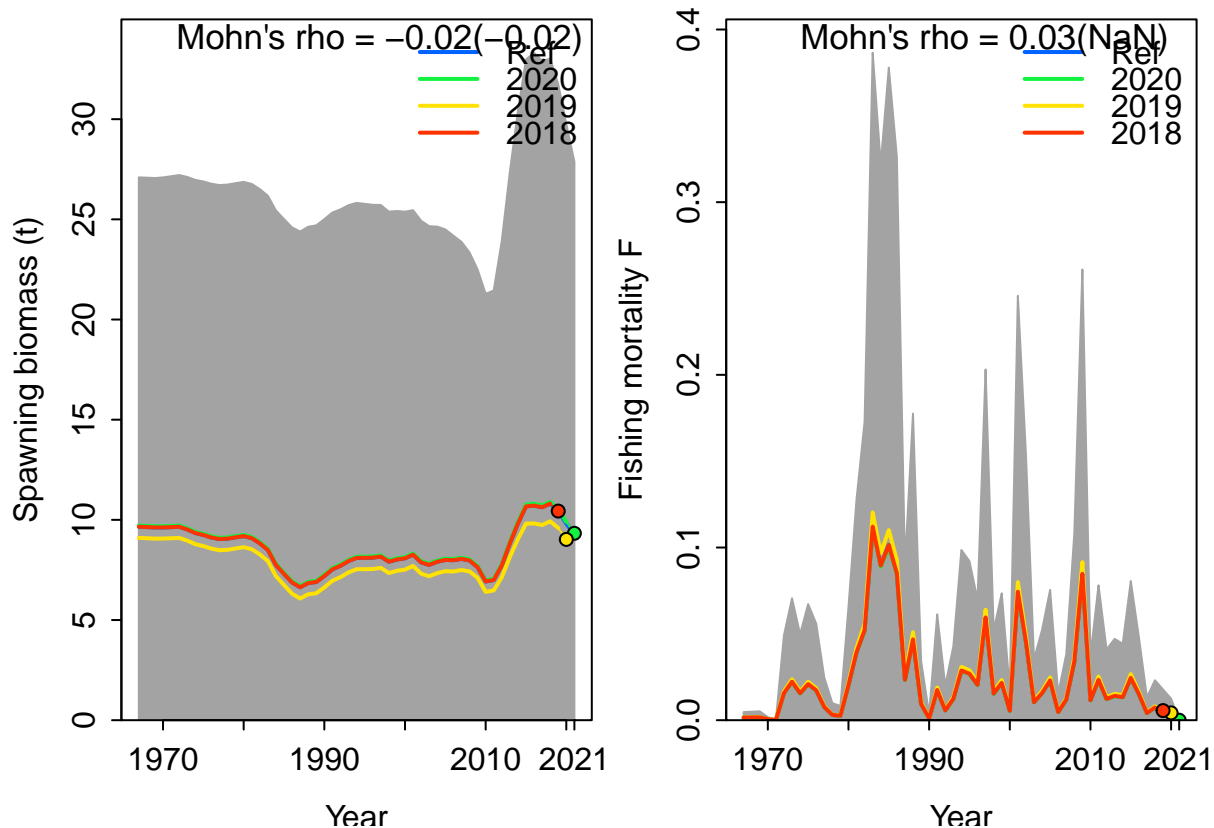
Retrospective

Plotting Retrospective pattern

##

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

Plotting Retrospective pattern

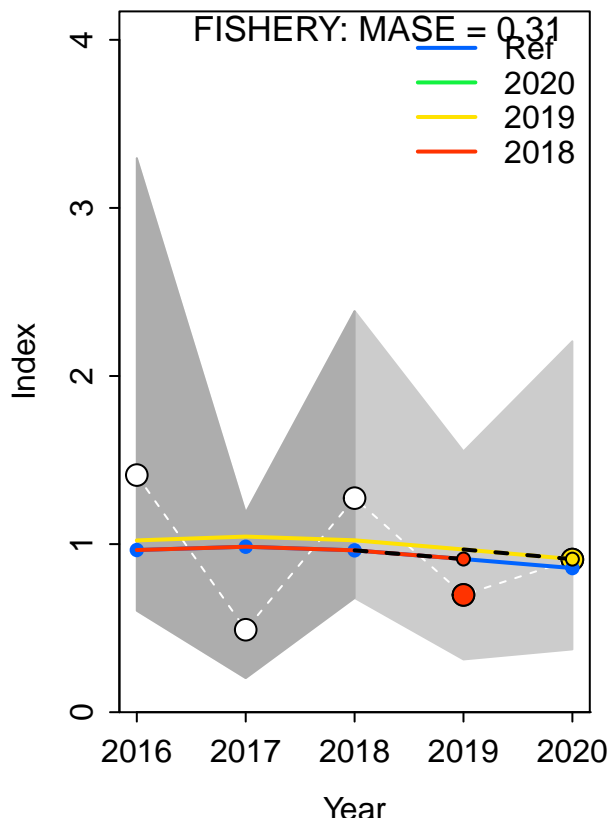


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	Forecast	Rho
## 1	F	2020	-0.007753492		NaN
## 2	F	2019	0.087173523	0.08814199	
## 3	F	2018	0.000000000	0.000000000	
## 4	F Combined		0.026473344		NaN

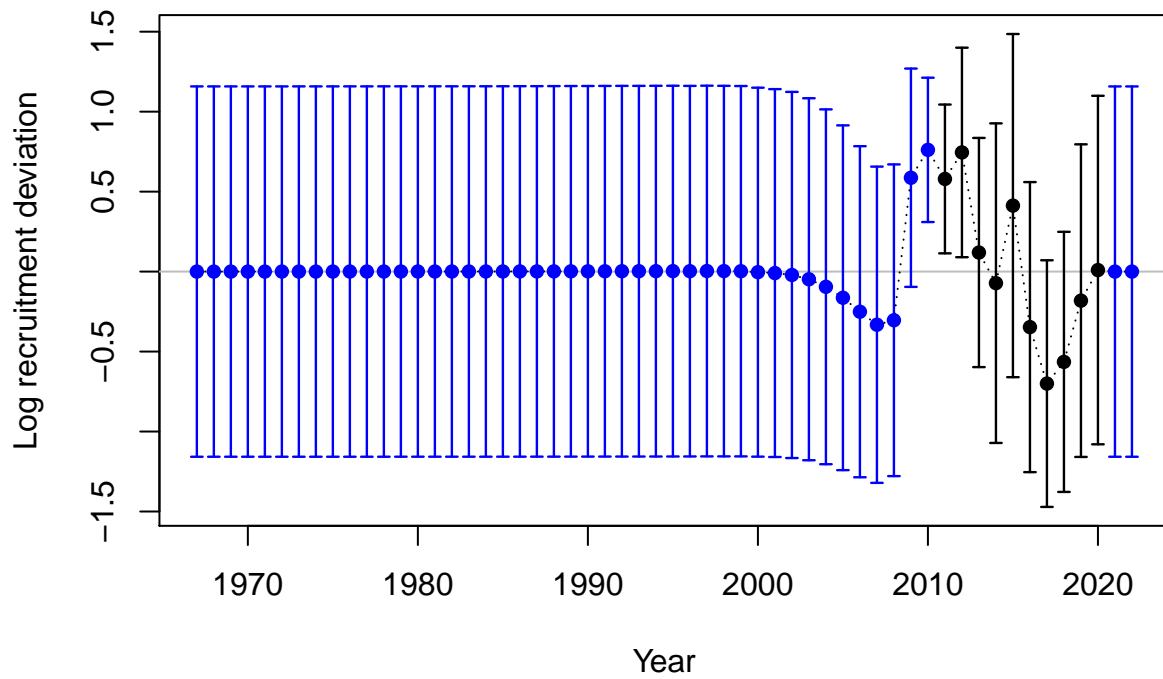
Hindcasting

```
## 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
```

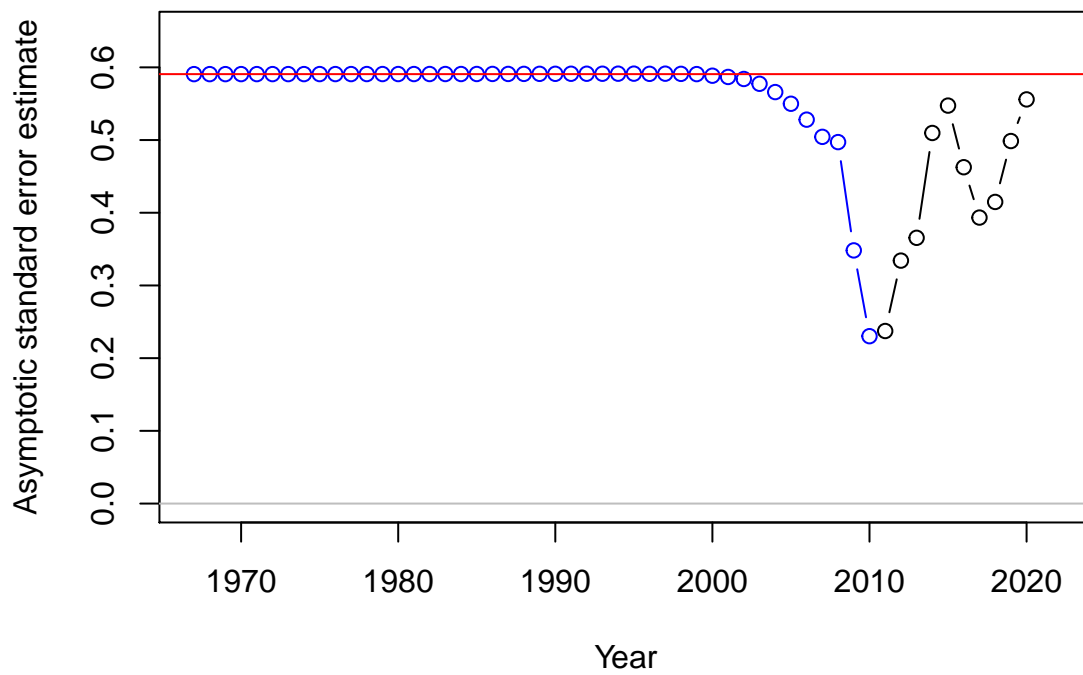


```
##
## MASE stats by Index:
## Plotting Hindcast Cross-Validation (one-step-ahead)
##
## No observations in evaluation years to compute prediction residuals for Index FISHERY
##
## MASE stats by Index:
```

Recruitment Deviations



Recruitment deviation variance



Likelihood Profile

```
## [1] "SR_LN"

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

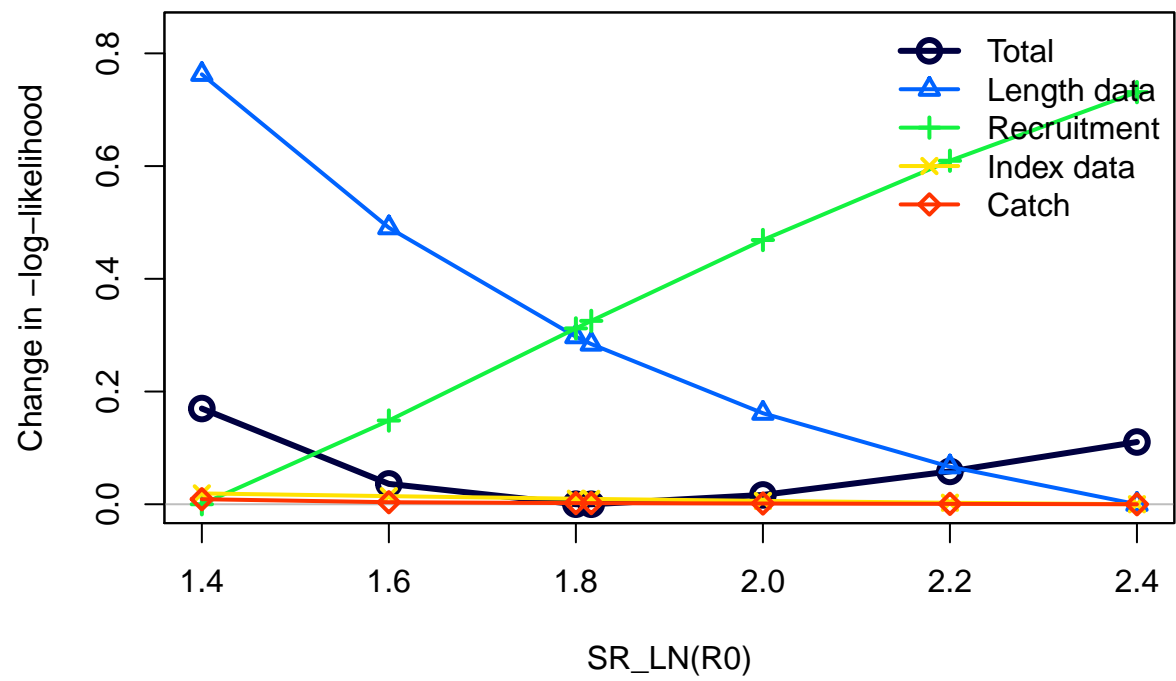
## Parameter values (after subsetting based on input 'models'): 1.4, 1.6, 1.8, 2, 2.2, 2.4, 1.81645

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

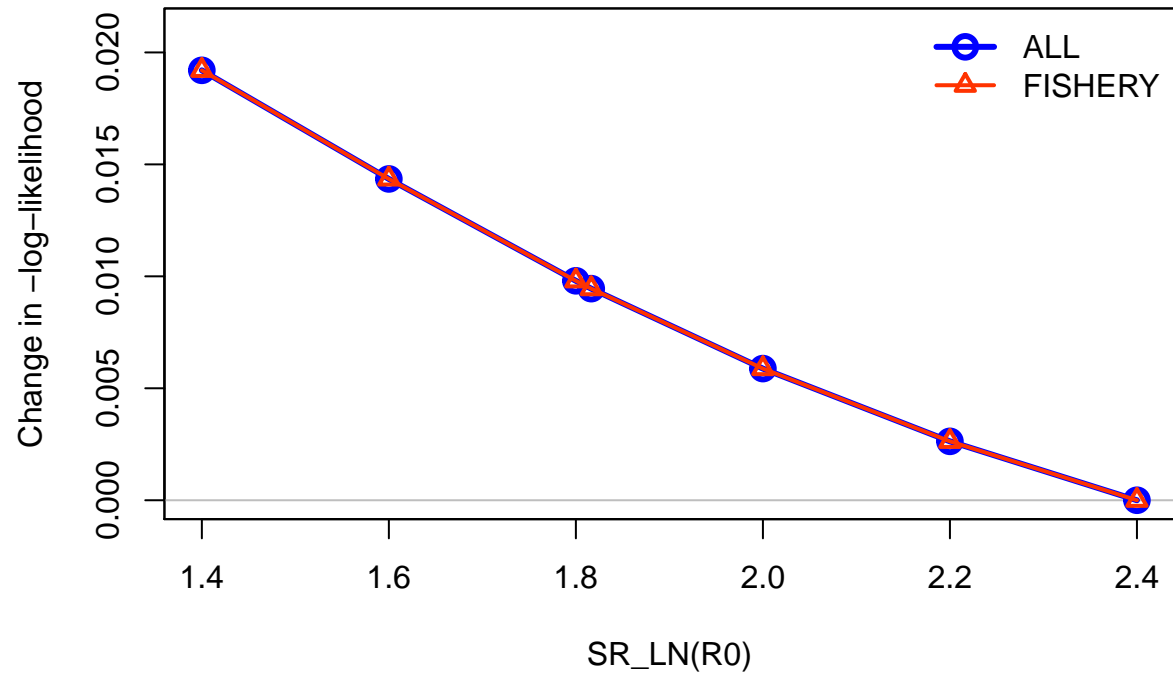
##
##          frac_change include          label
## TOTAL          1.0000   TRUE          Total
## Catch          0.0525   TRUE          Catch
## Equil_catch    0.0000  FALSE Equilibrium catch
## Survey        0.1131   TRUE          Index data
## Length_comp    4.4923   TRUE          Length data
## Recruitment    4.3064   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 0.0012  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'): 1.4, 1.6, 1.8, 2, 2.2, 2.4, 1.81645,

## 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
```

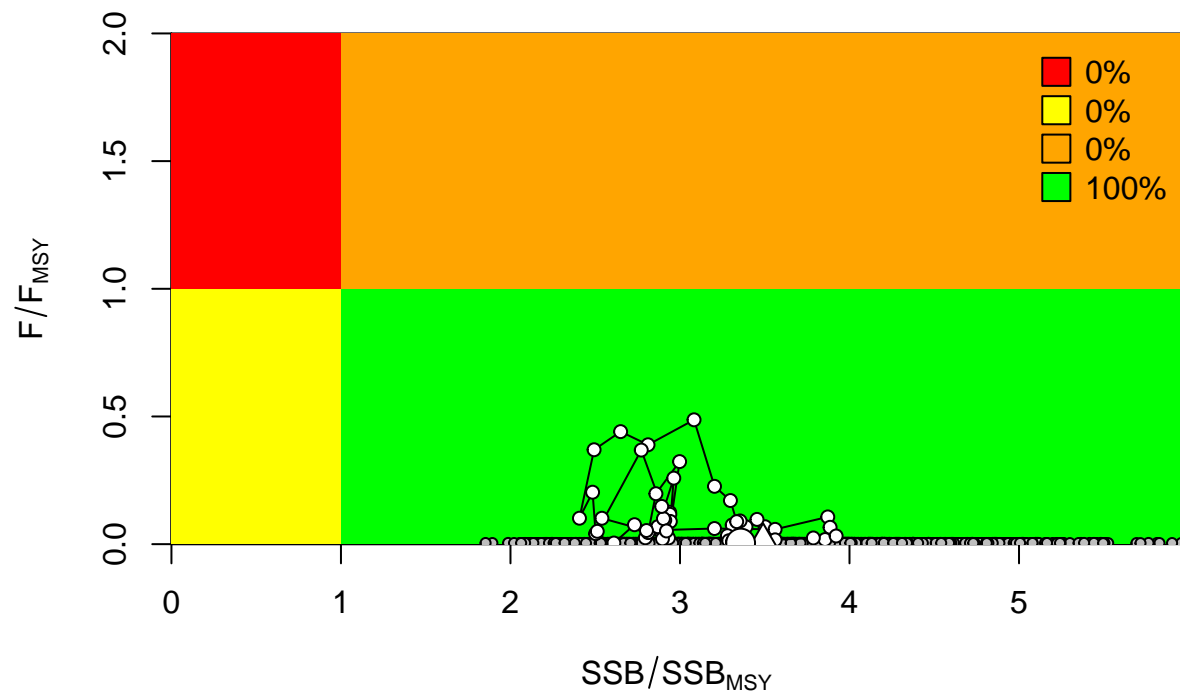


Changes in survey likelihood by fleet

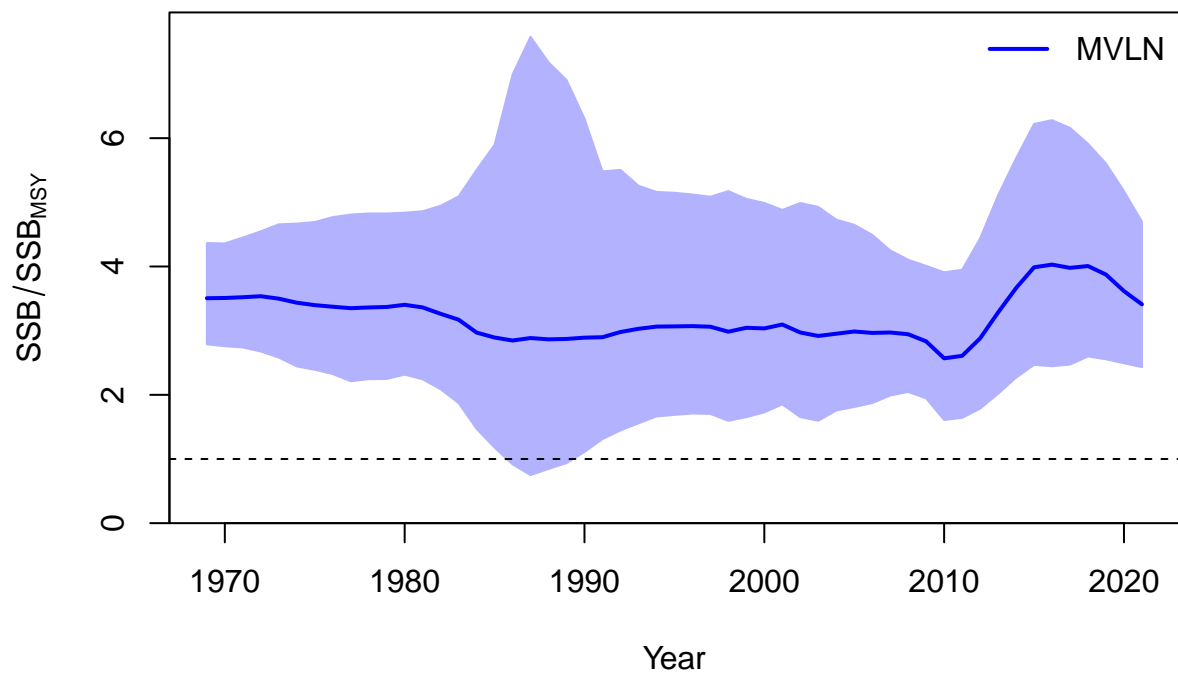


Management Quantities

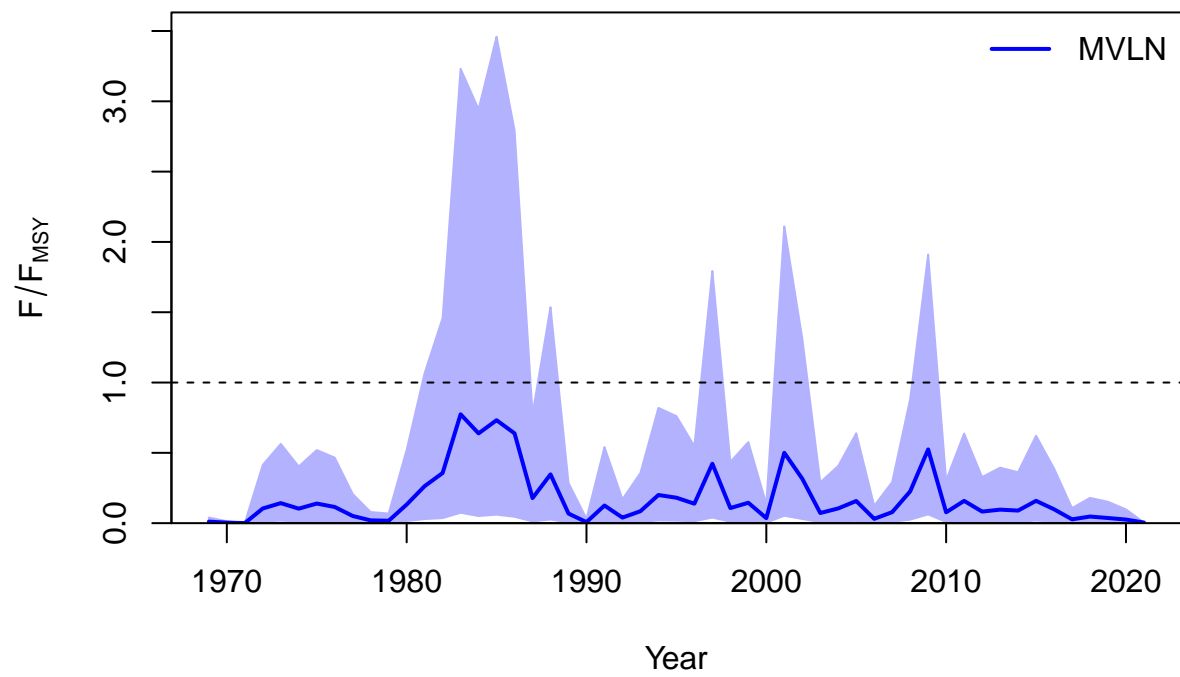
```
##  
## starter.sso with Bratio: SSB/SSBMSY and F: _abs_F  
##
```



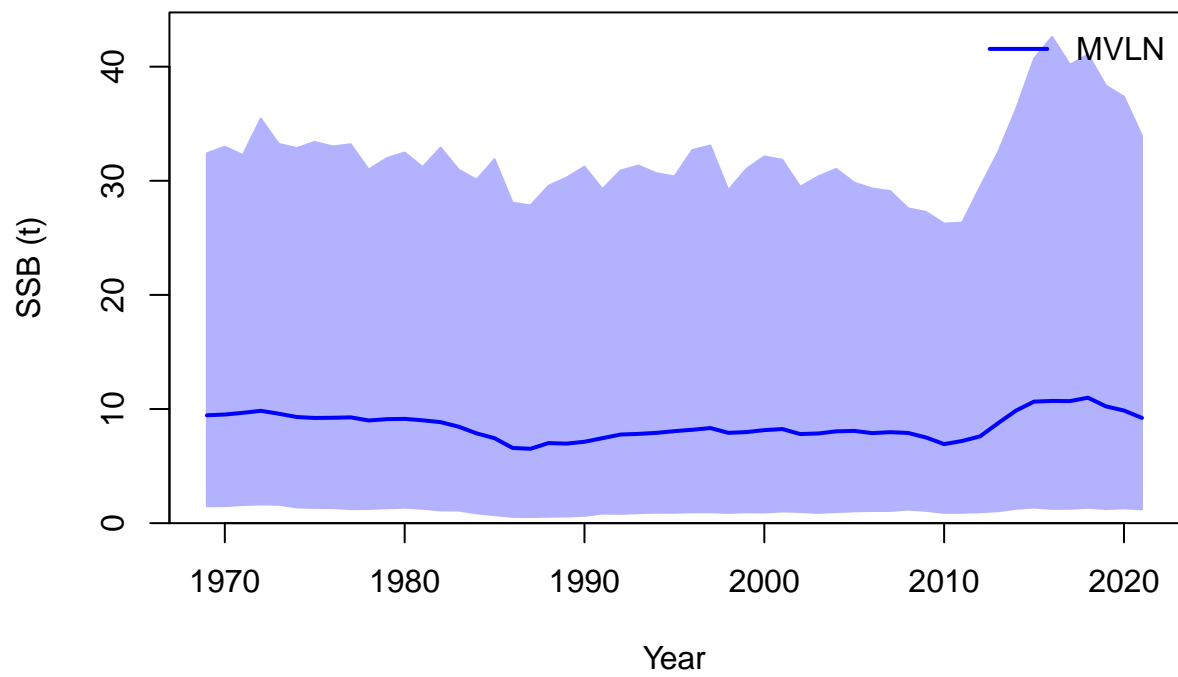
Plot Comparison of stock



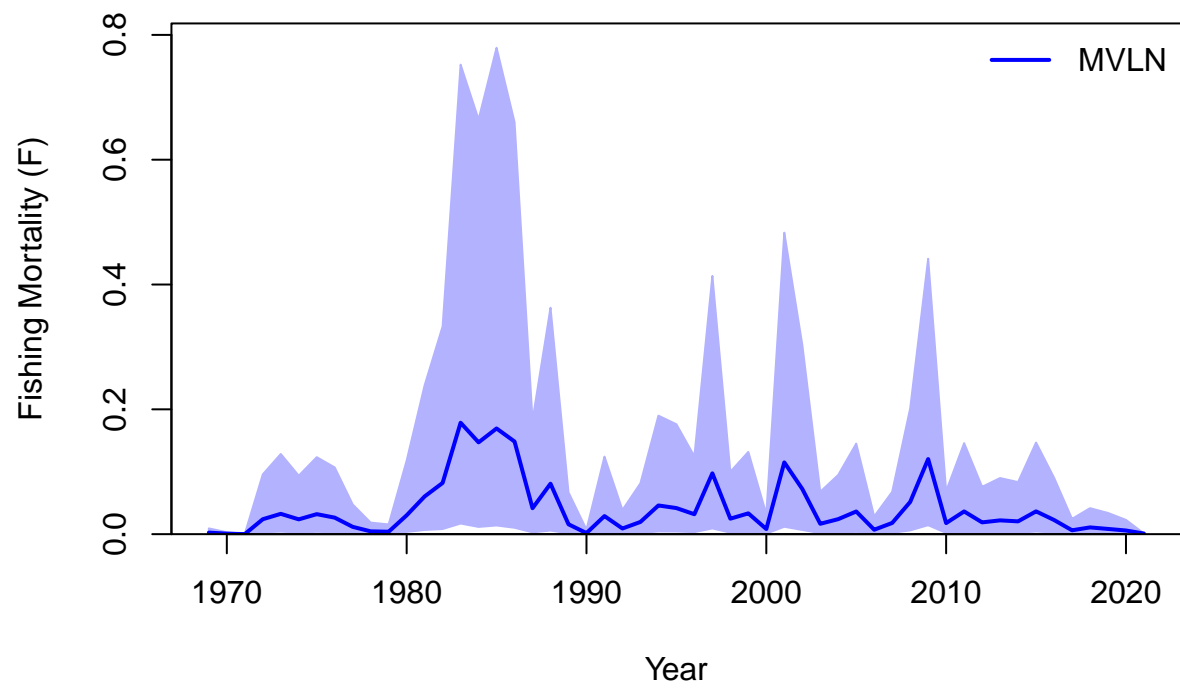
```
##  
## Plot Comparison of harvest
```

Plot Comparison of SSB



Plot Comparison of F



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

Jitter

