

American Samoa Model Checks

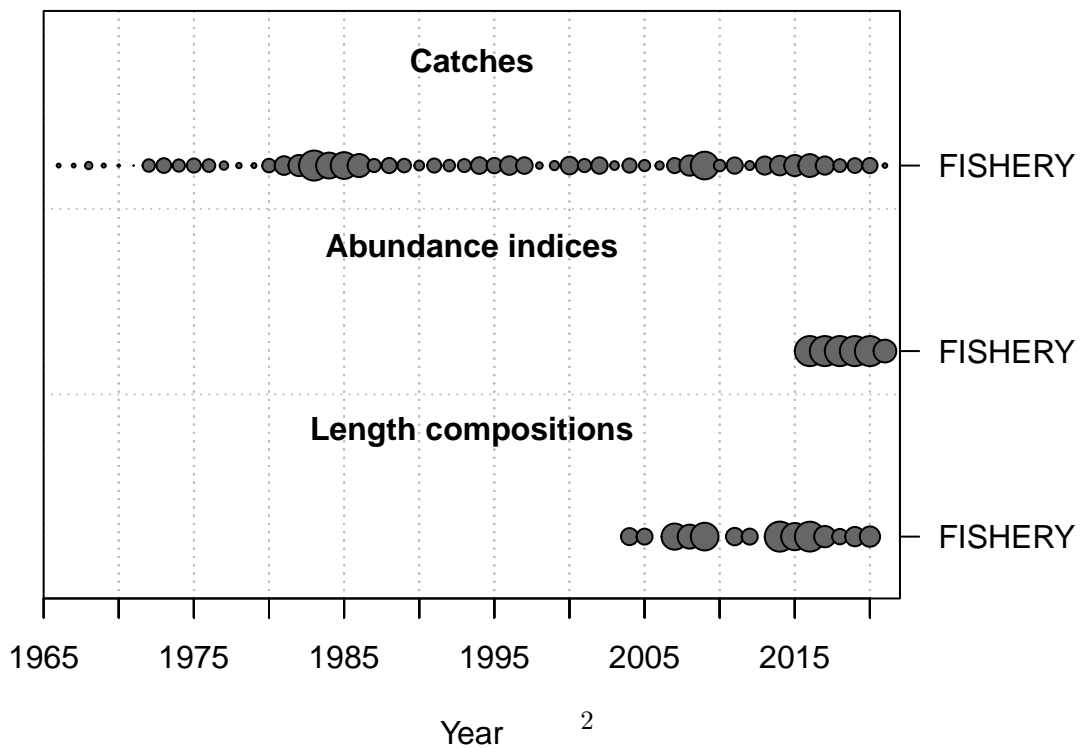
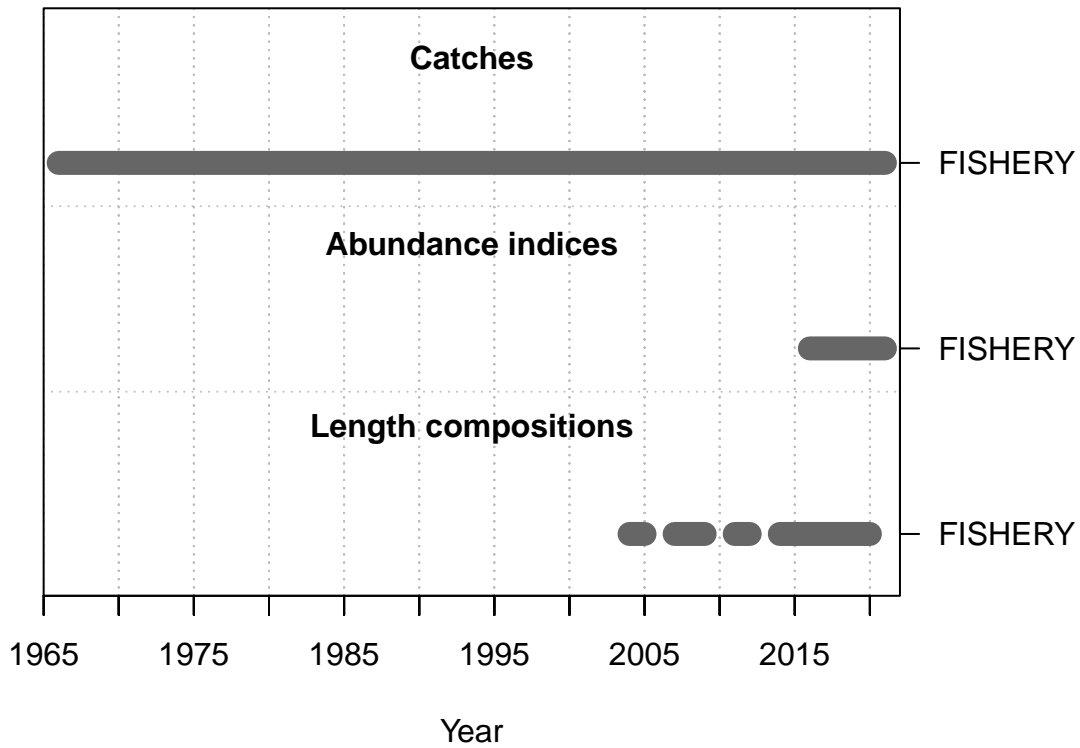
Meg Oshima

2022-08-11

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

Model Output

Input Data



Convergence Check

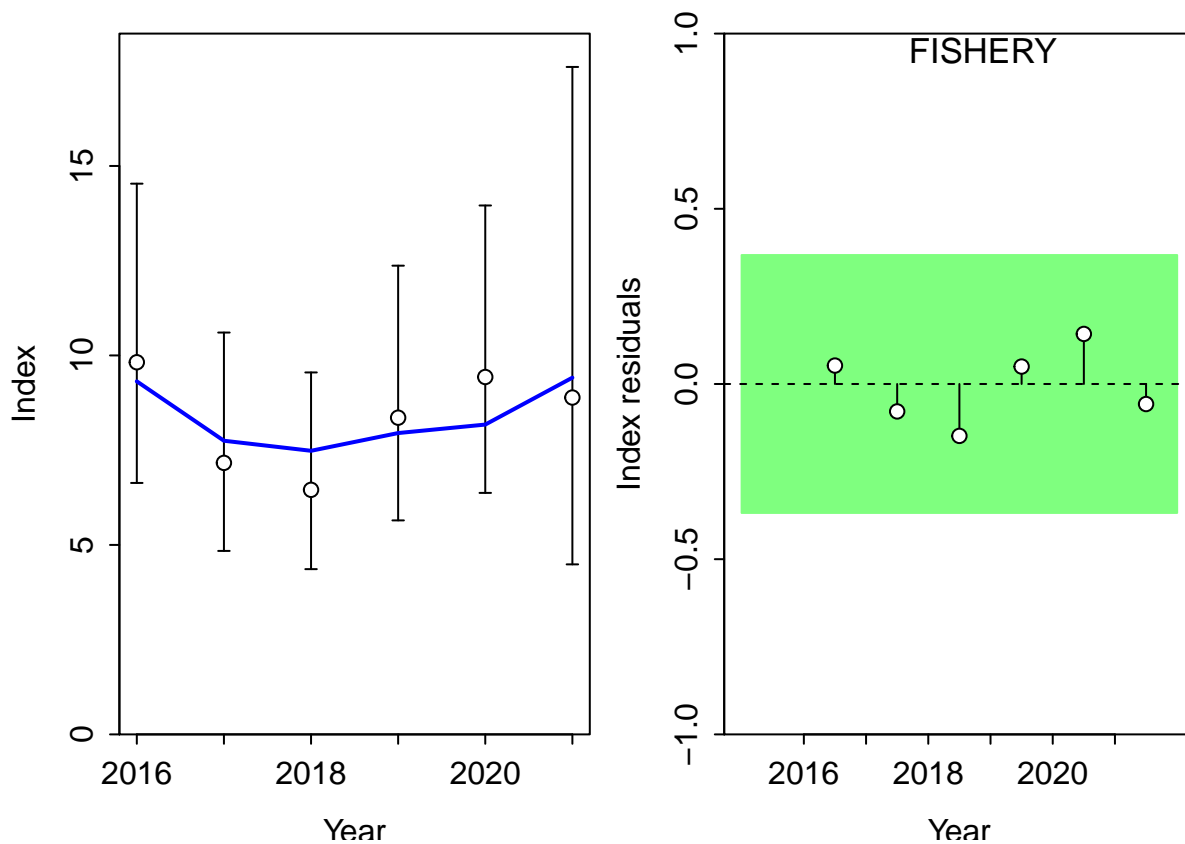
```
## Converged      MaxGrad
## 1      TRUE 6.80005e-05
```

```
## [1] "1 NOTE: Max data length bin: 85 < max pop len bins: 94; so will accumulate larger pop len bins"
## [2] "2 Minimum pop size bin:_1; is > L at Amin for sex: 1; Gpat: 1; L= 0"
## [3] "3 warning: poor convergence in Fmsy, final dy/dy2= -0.00555695"
## [4] " N parameters are on or within 1% of min-max bound: 2; check results, variance may be suspect"
## [5] "N warnings: 3"
```

Fit to Model

CPUE

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

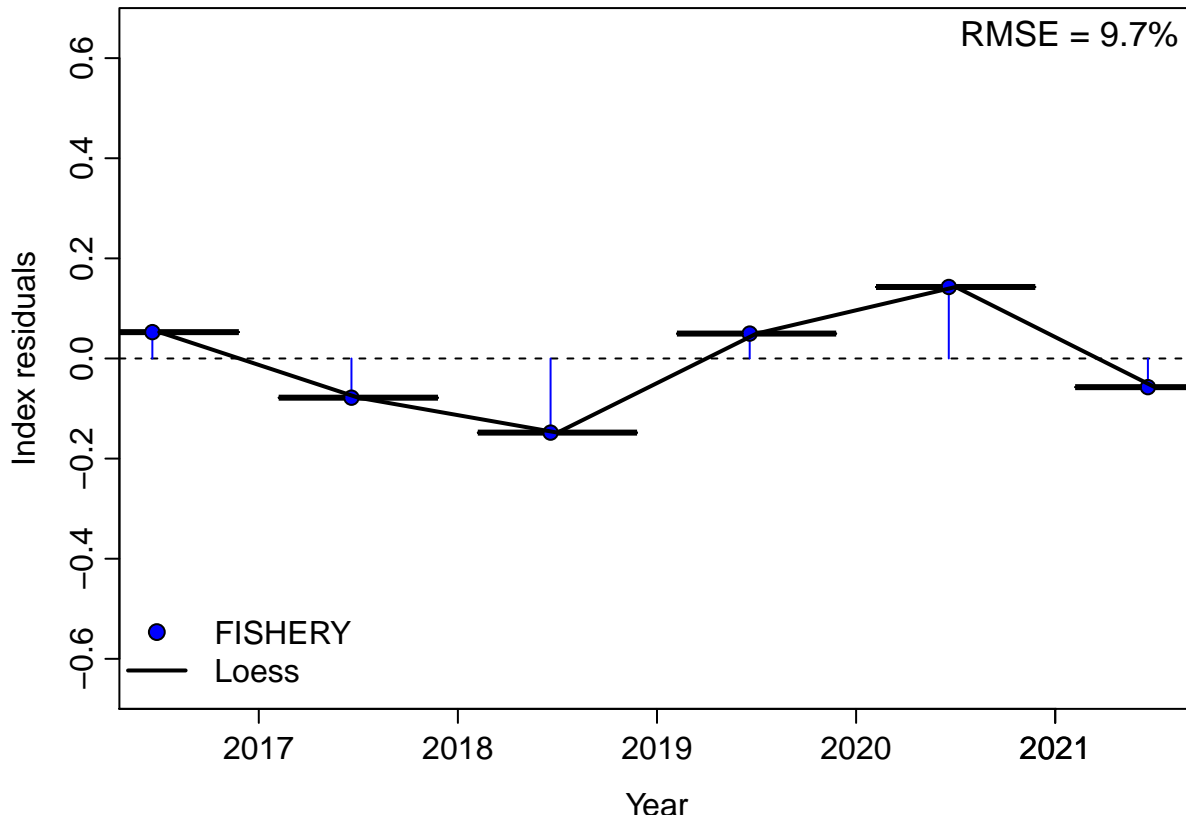


```
##
## Runs Test stats by Index:
## Plotting JABBA residual plot
```

```
## 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

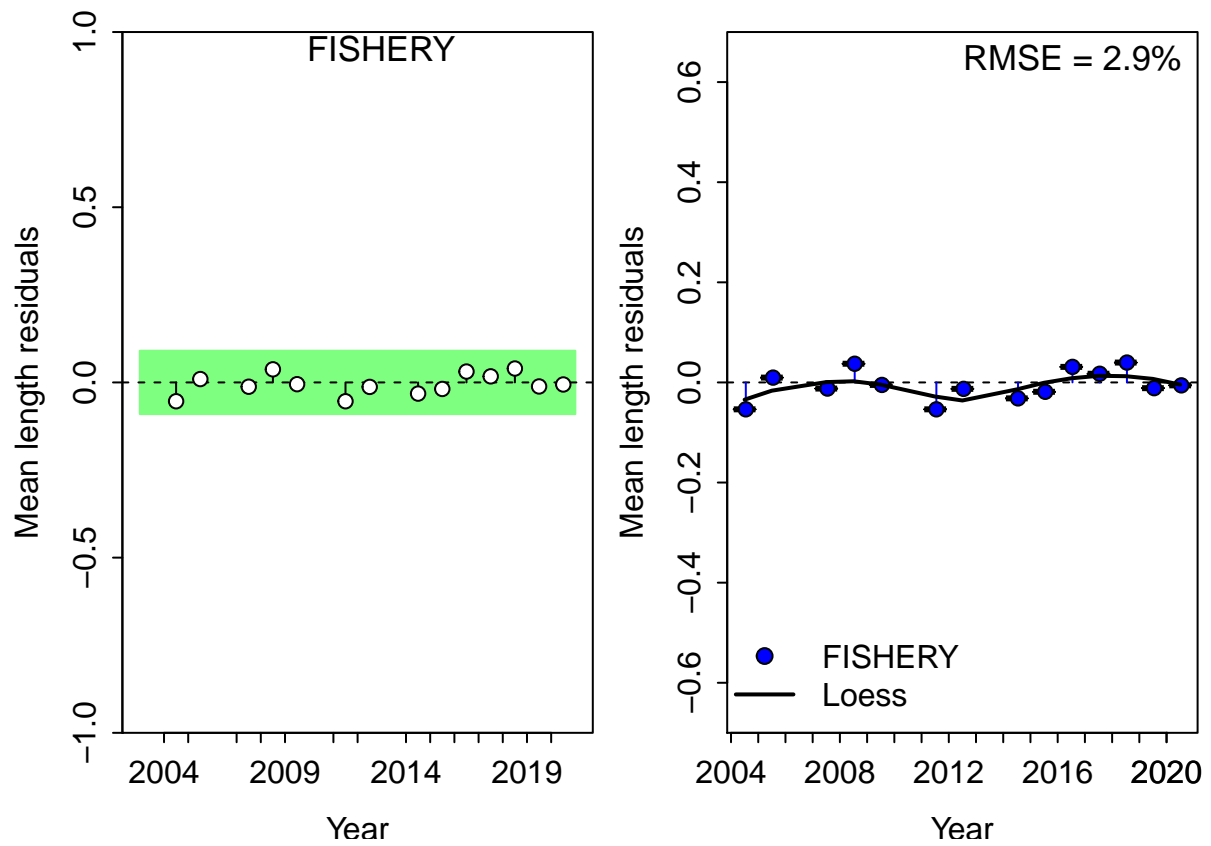
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.461202	len	FISHERY

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

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

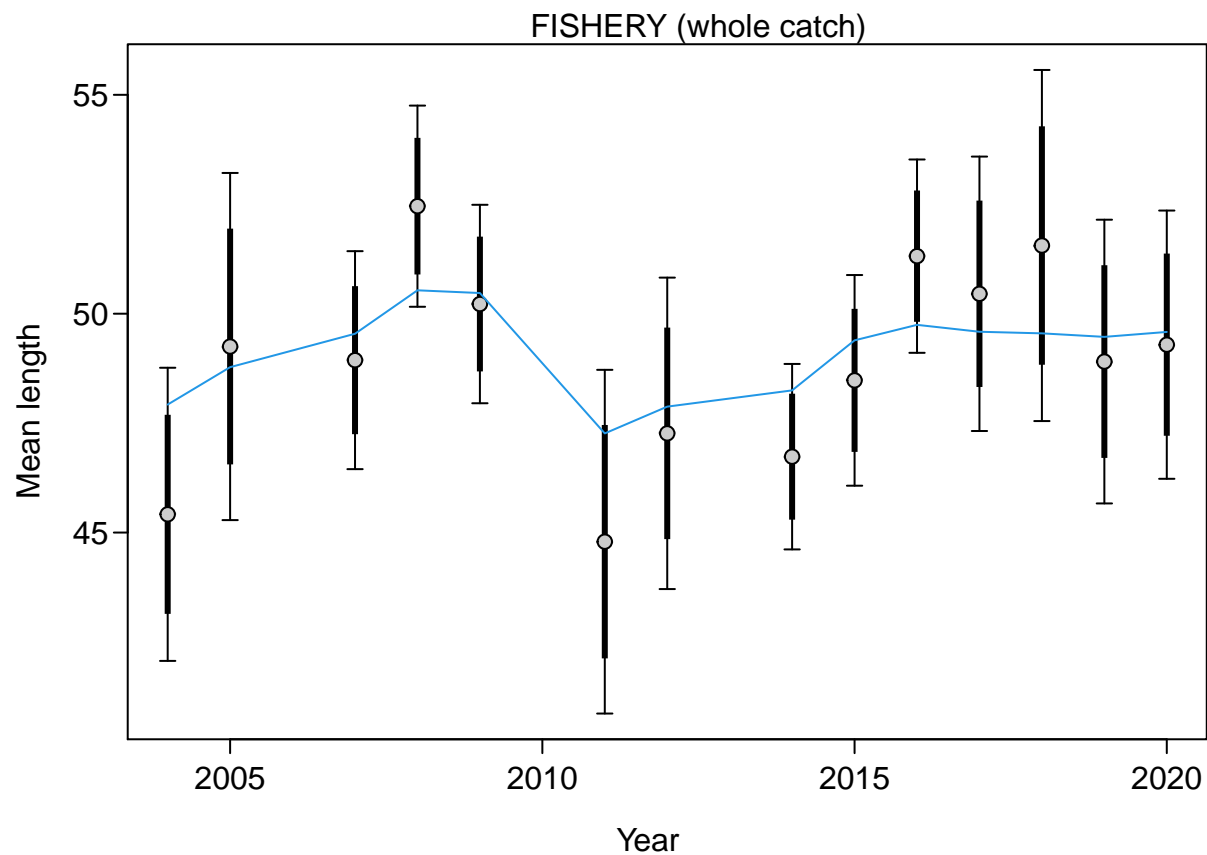
```
##      Index runs.p  test  sigma3.lo  sigma3.hi  type
## 1 FISHERY  0.397 Passed -0.09035894 0.09035894  len
```

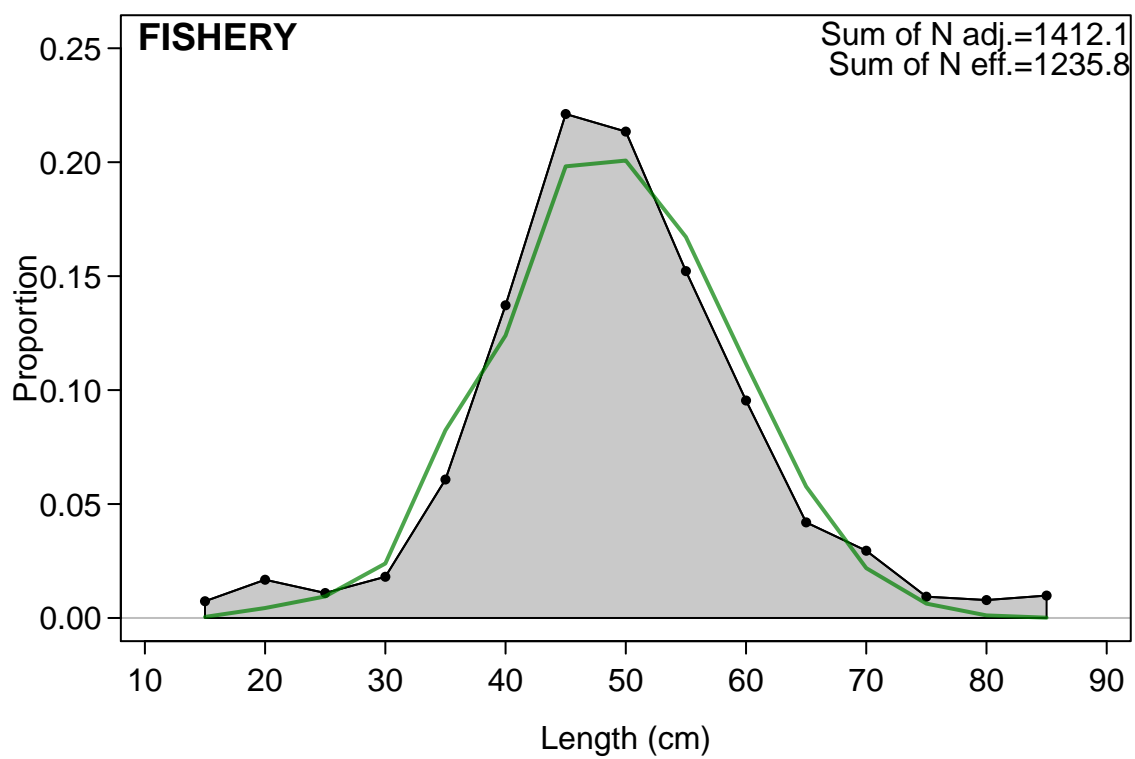
```
## Plotting JABBA residual plot
```

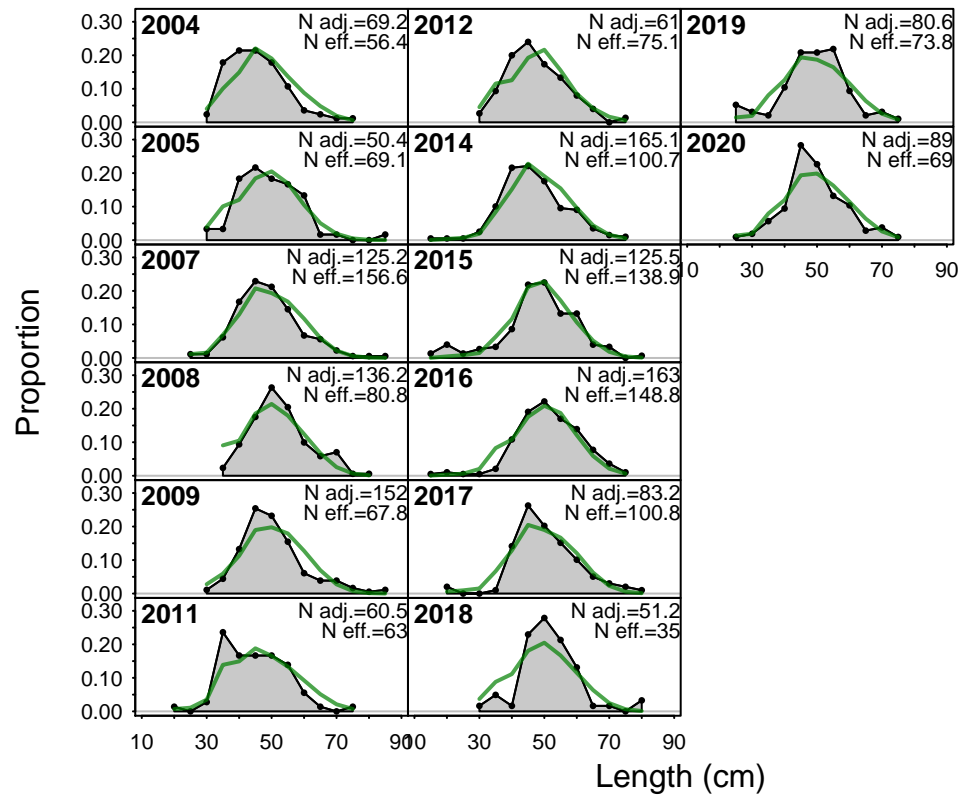


```
##
## RMSE stats by Index:

##   indices RMSE.perc nobs
## 1  FISHERY      2.9   14
## 2 Combined      2.9   14
```







Retrospective and Hindcasting

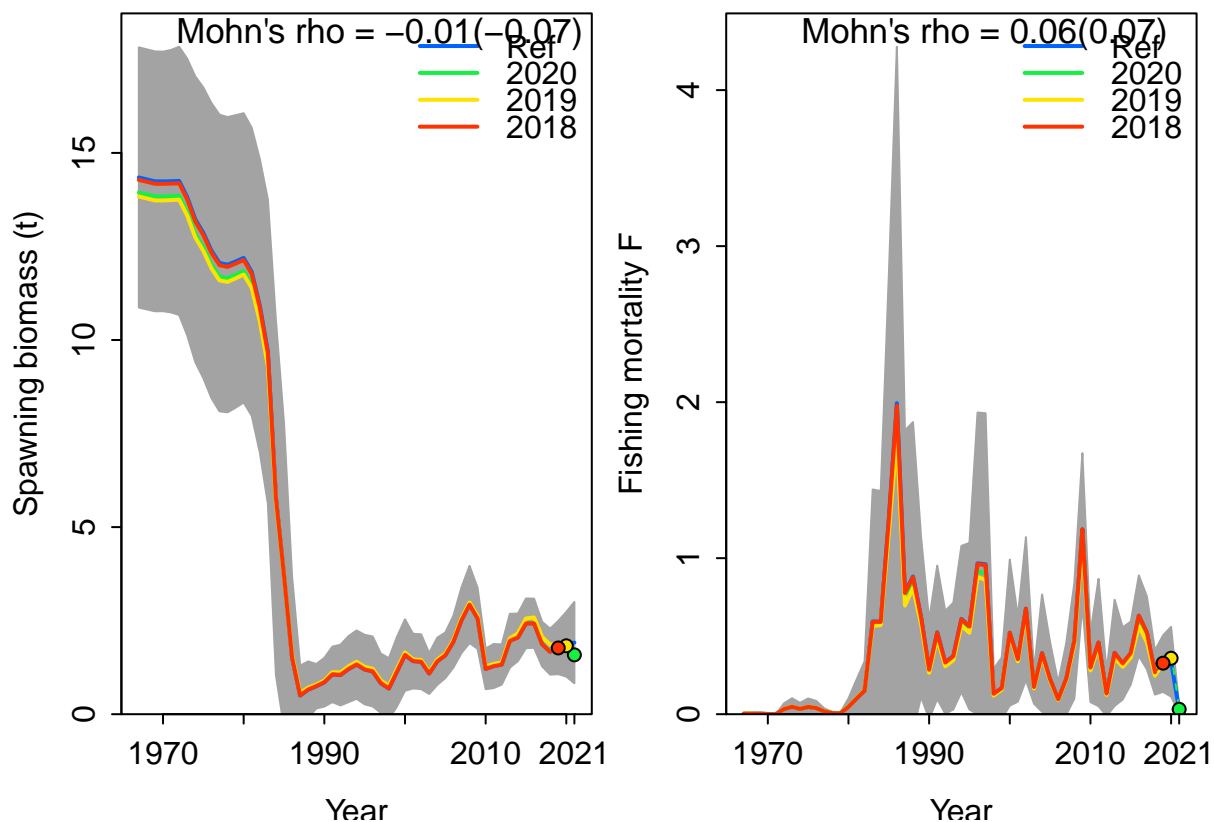
Retrospective

Plotting Retrospective pattern

##

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

Plotting Retrospective pattern

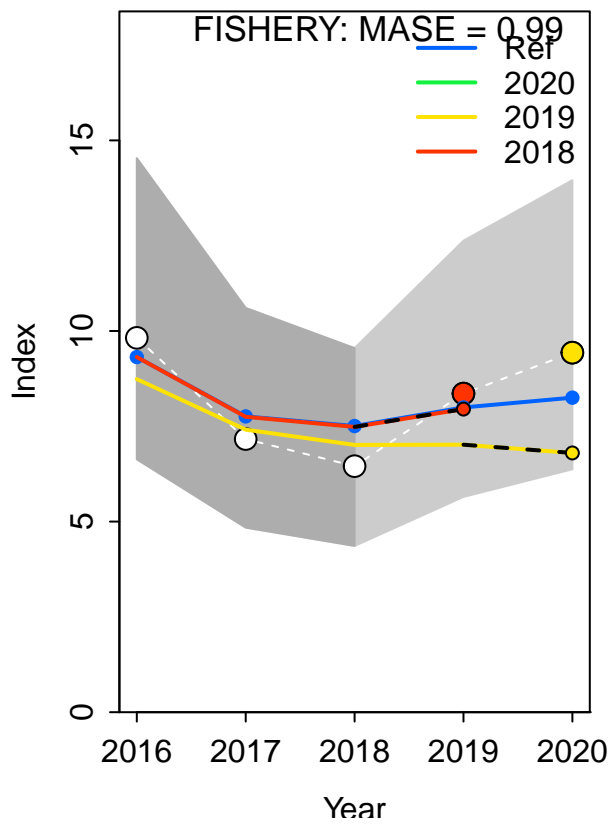


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	ForecastRho
## 1	F	2020	0.177554055	0.135189424
## 2	F	2019	0.008035836	0.066389079
## 3	F	2018	0.005667631	0.009267606
## 4	F Combined		0.063752507	0.070282036

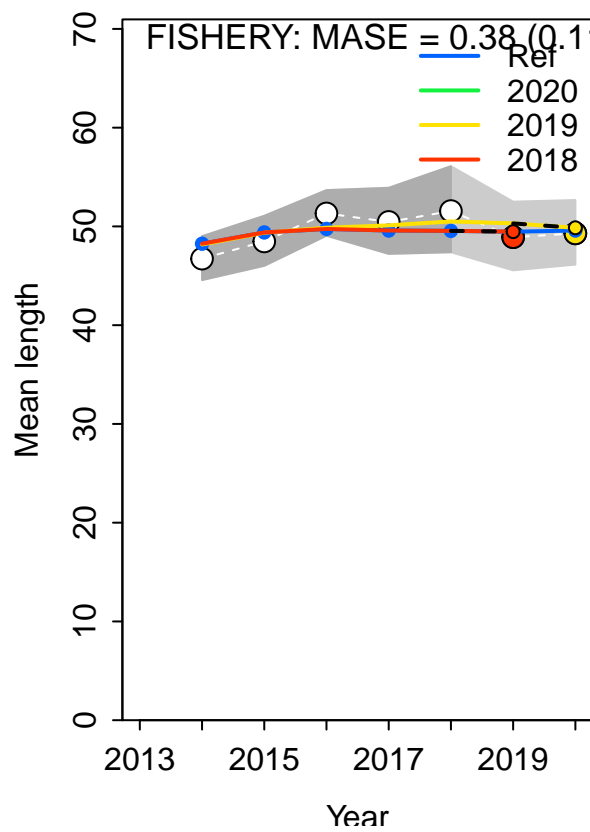
Hindcasting

```
## 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
```

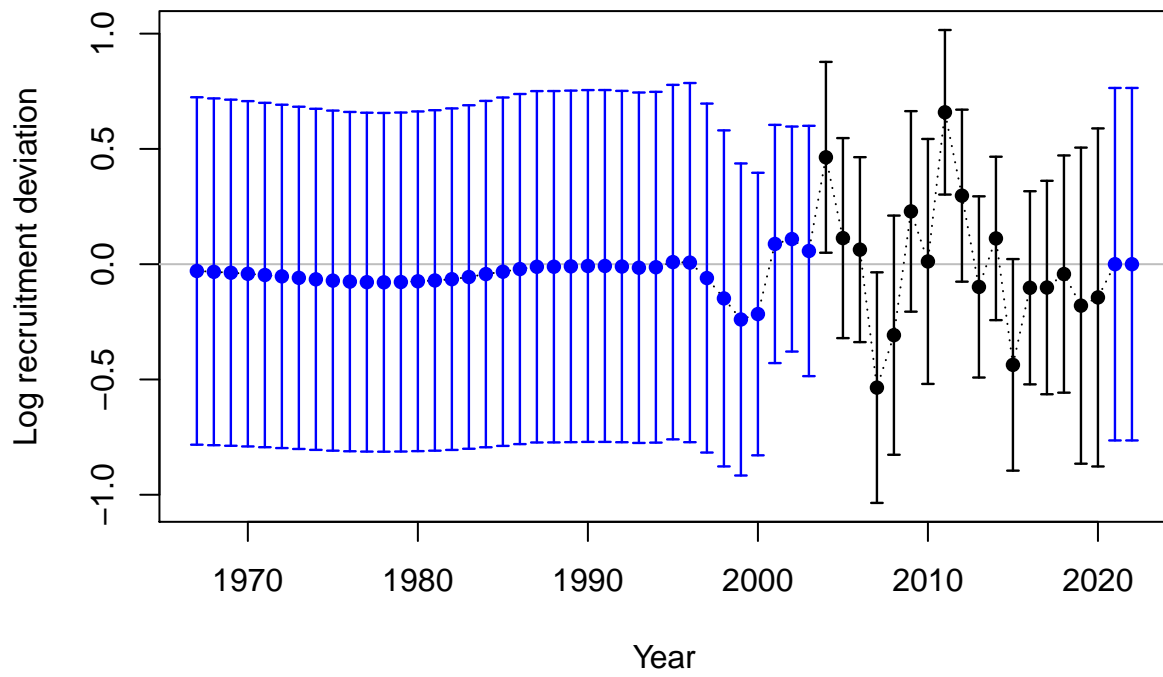


```
##
## MASE stats by Index:
## Plotting Hindcast Cross-Validation (one-step-ahead)
##
## Computing MASE with only 2 of 3 prediction residuals for Index FISHERY
##
## Warning: Unequal spacing of naive predictions residuals may influence the interpretation of MASE

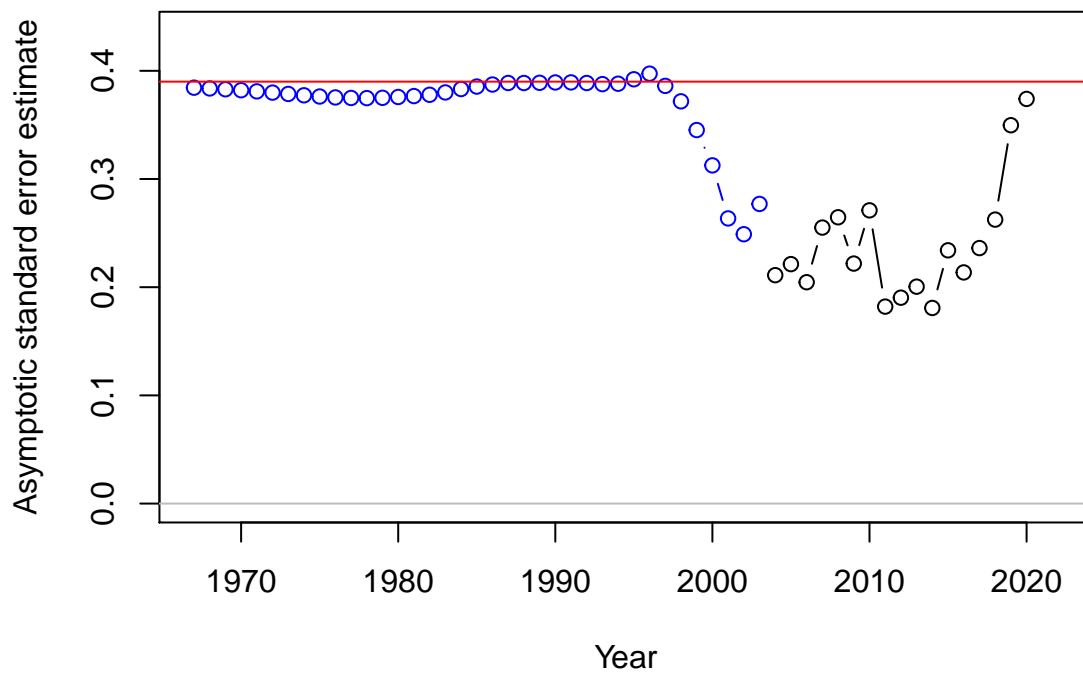
##
## MASE stats by Index:
```



Recruitment Deviations



Recruitment deviation variance



Likelihood Profile

```
## [1] "SR_LN"

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

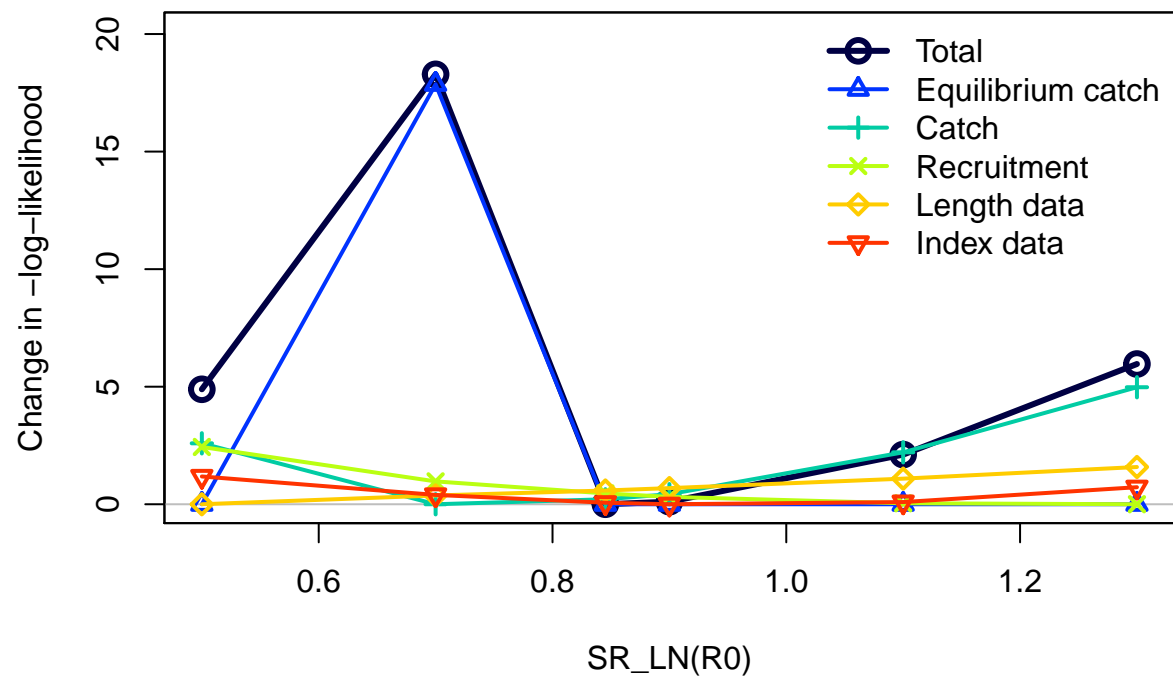
## Parameter values (after subsetting based on input 'models'): 0.5, 0.7, 0.9, 1.1, 1.3, 0.845241

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

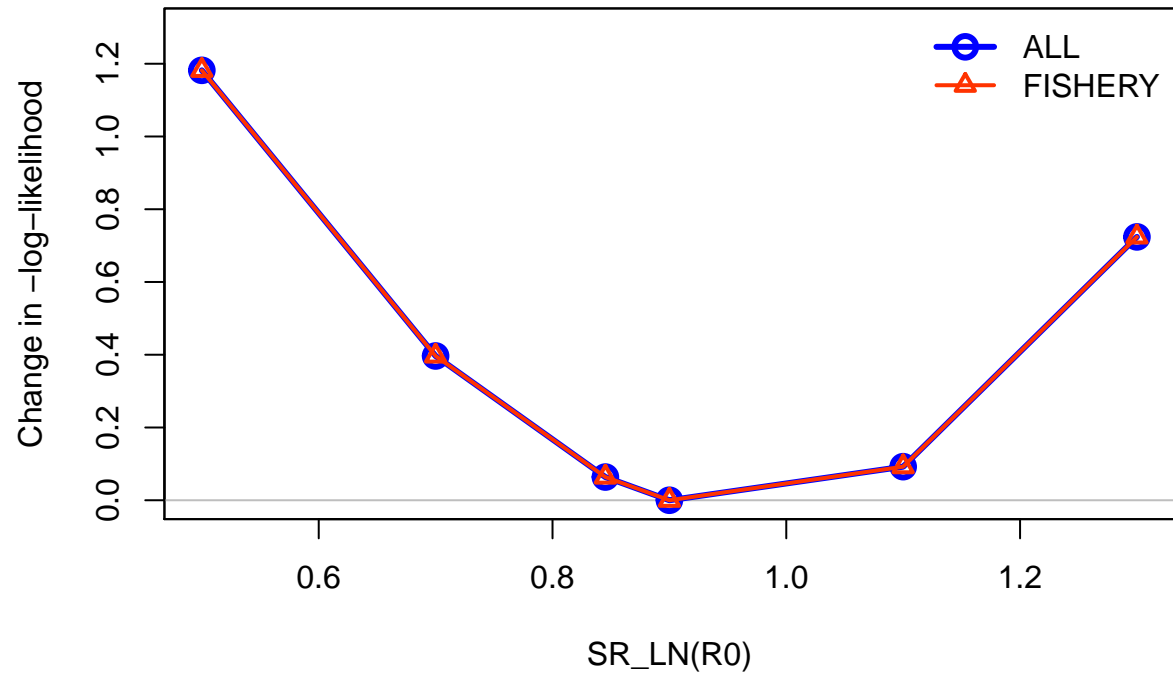
##
##          frac_change include          label
## TOTAL          1.0000   TRUE          Total
## Catch          0.2721   TRUE          Catch
## Equil_catch    0.9769   TRUE    Equilibrium catch
## Survey        0.0646   TRUE          Index data
## Length_comp    0.0866   TRUE          Length data
## Recruitment    0.1332   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'): 0.5, 0.7, 0.9, 1.1, 1.3, 0.845241,

## 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
```

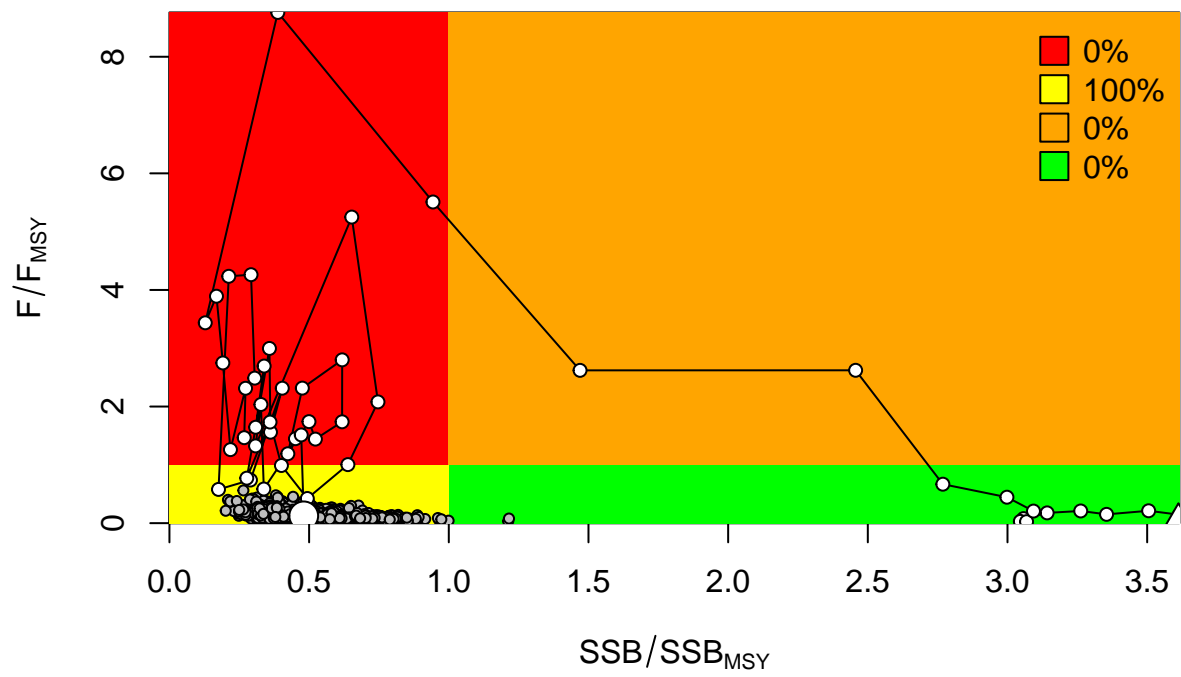


Changes in survey likelihood by fleet

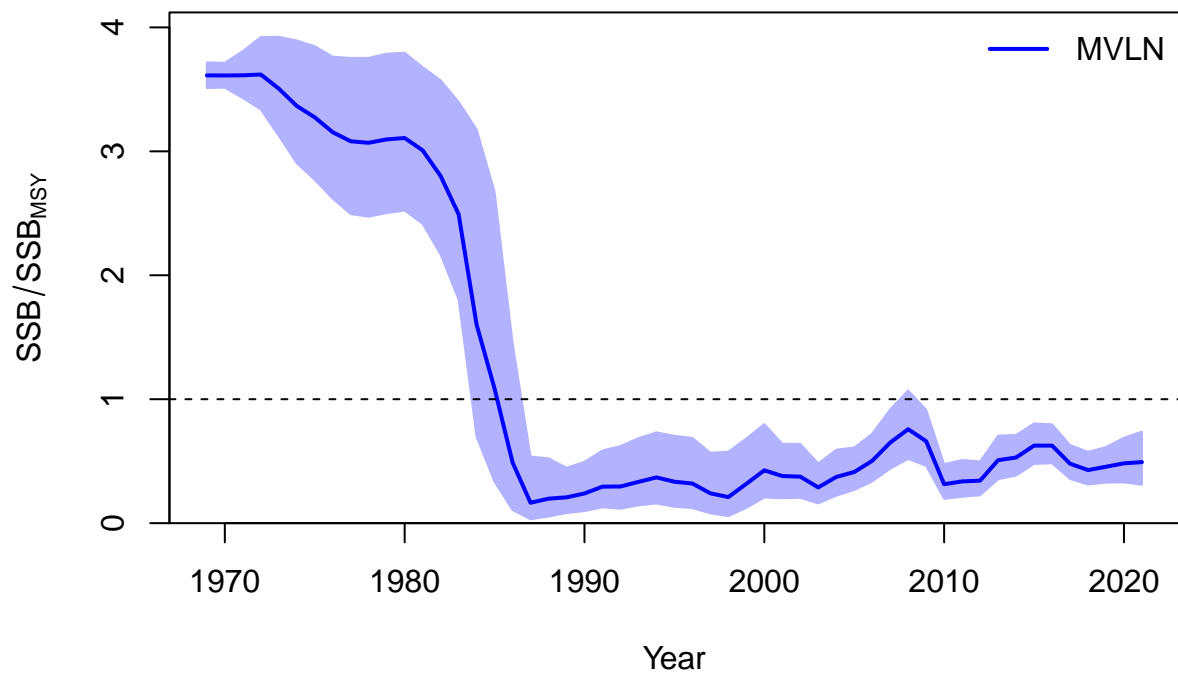


Management Quantities

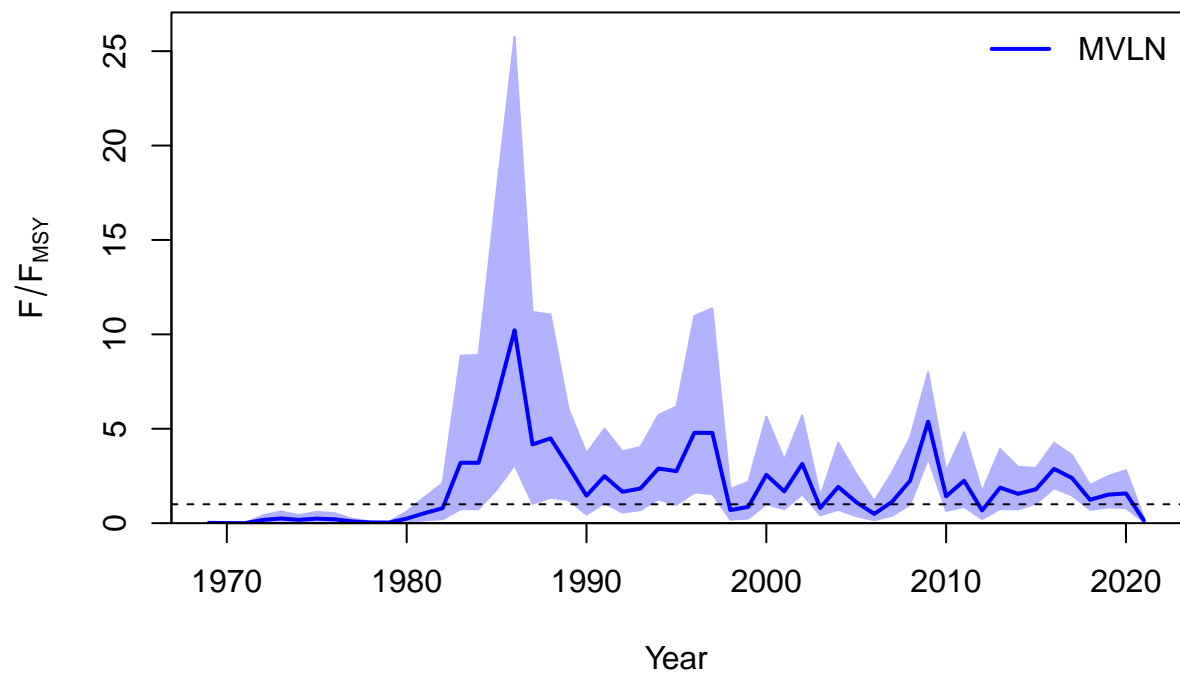
```
##  
## starter.sso with Bratio: SSB/SSBMSY and F: _abs_F  
##
```



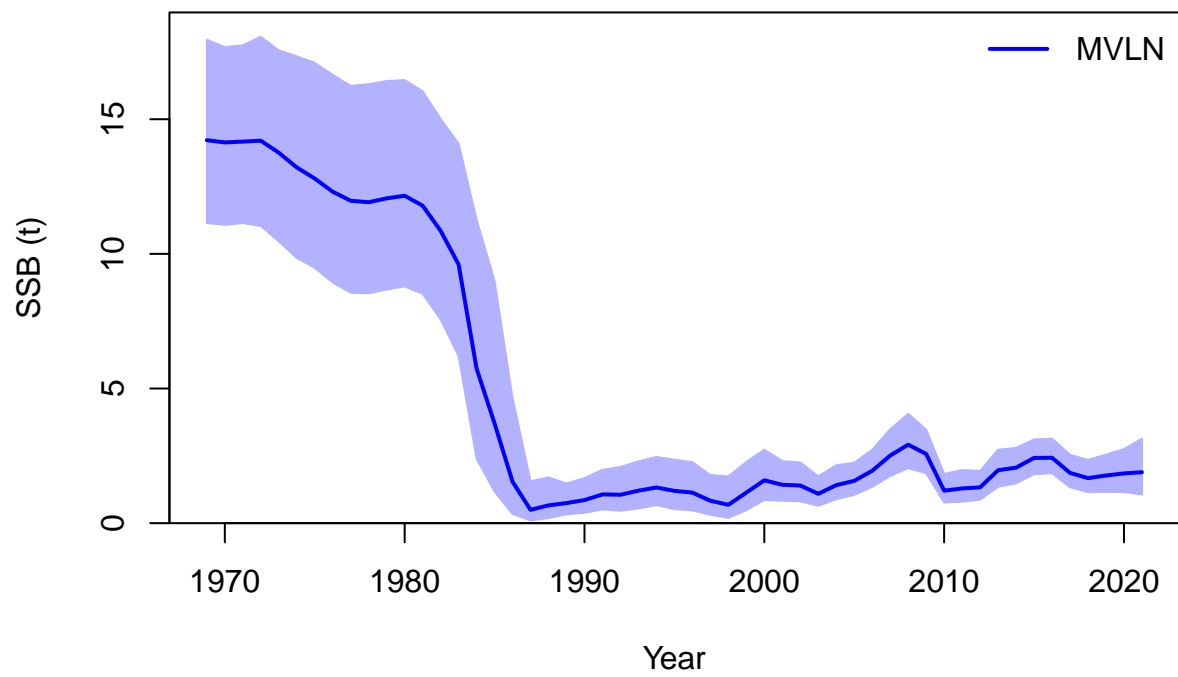
Plot Comparison of stock



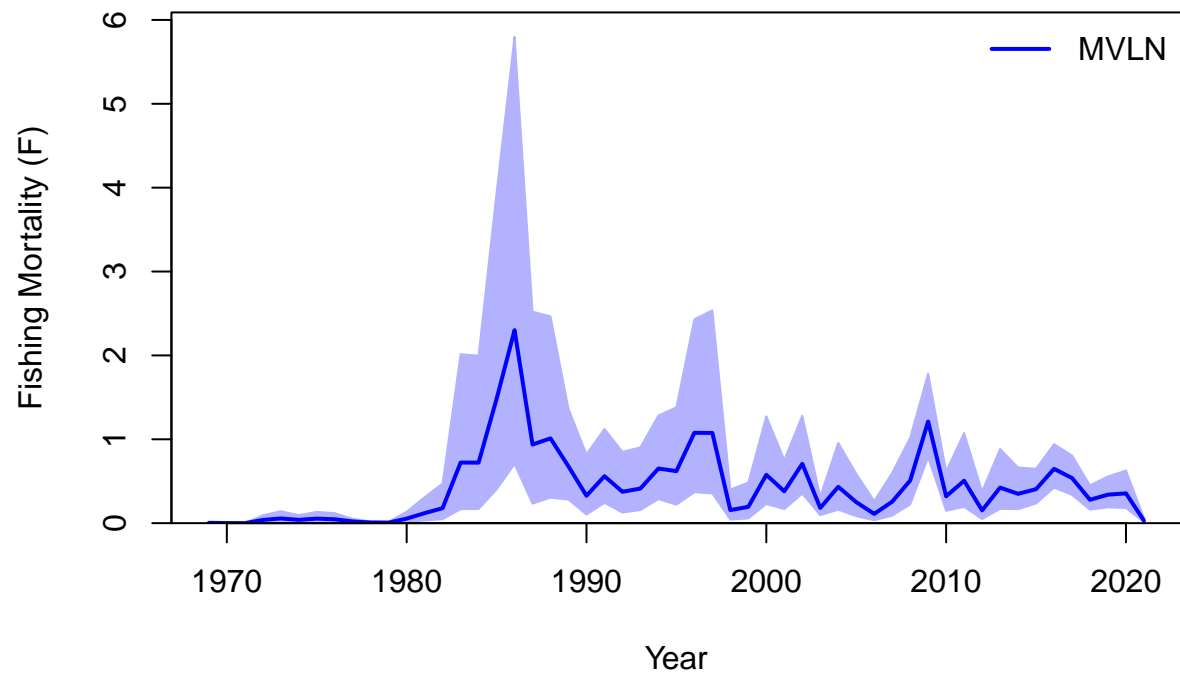
```
##  
## Plot Comparison of harvest
```



Plot Comparison of SSB



Plot Comparison of F



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

Jitter

