

# American Samoa Model Checks

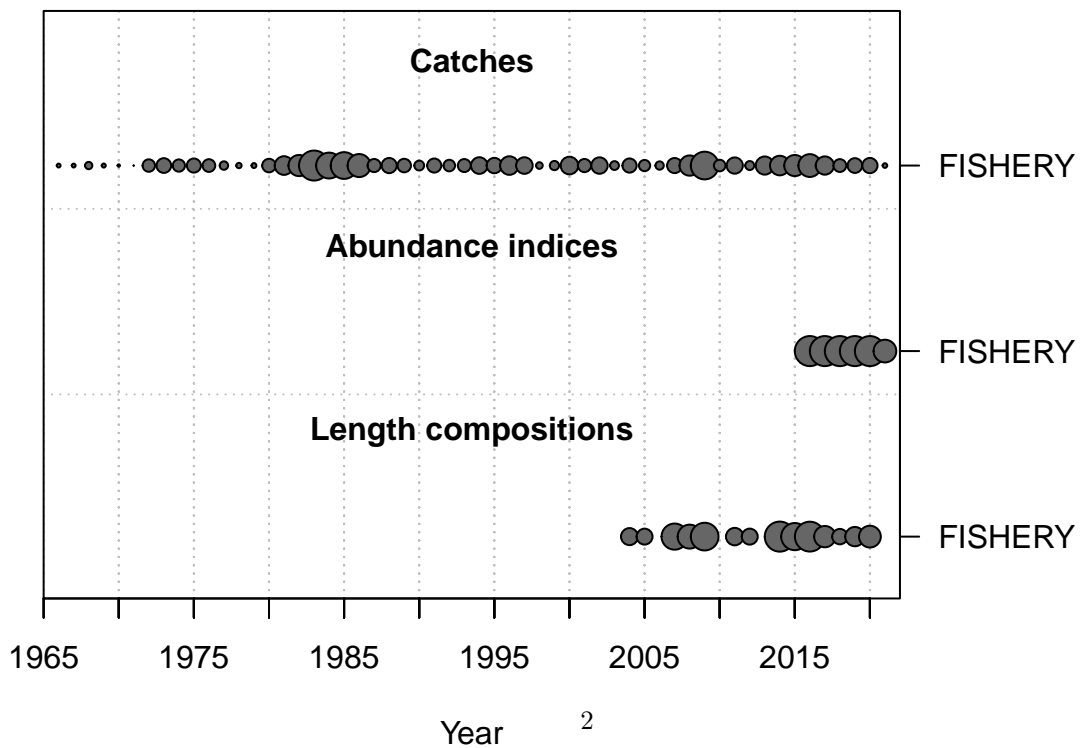
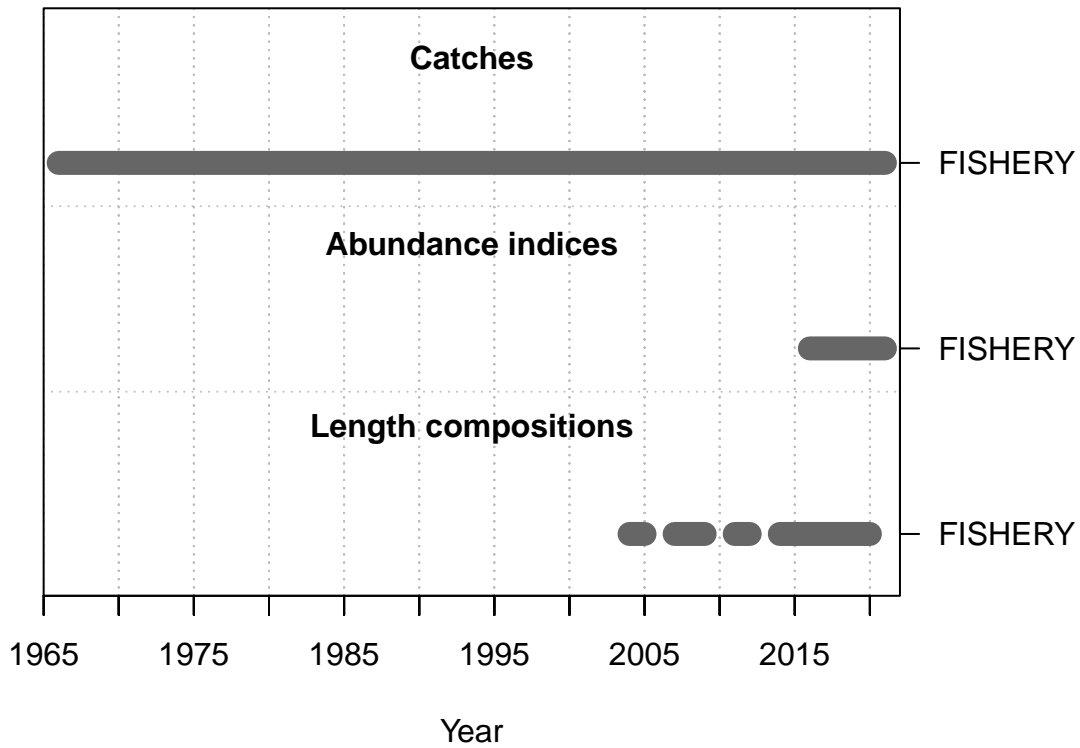
Meg Oshima

2022-08-10

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

## Model Output

### Input Data



## Convergence Check

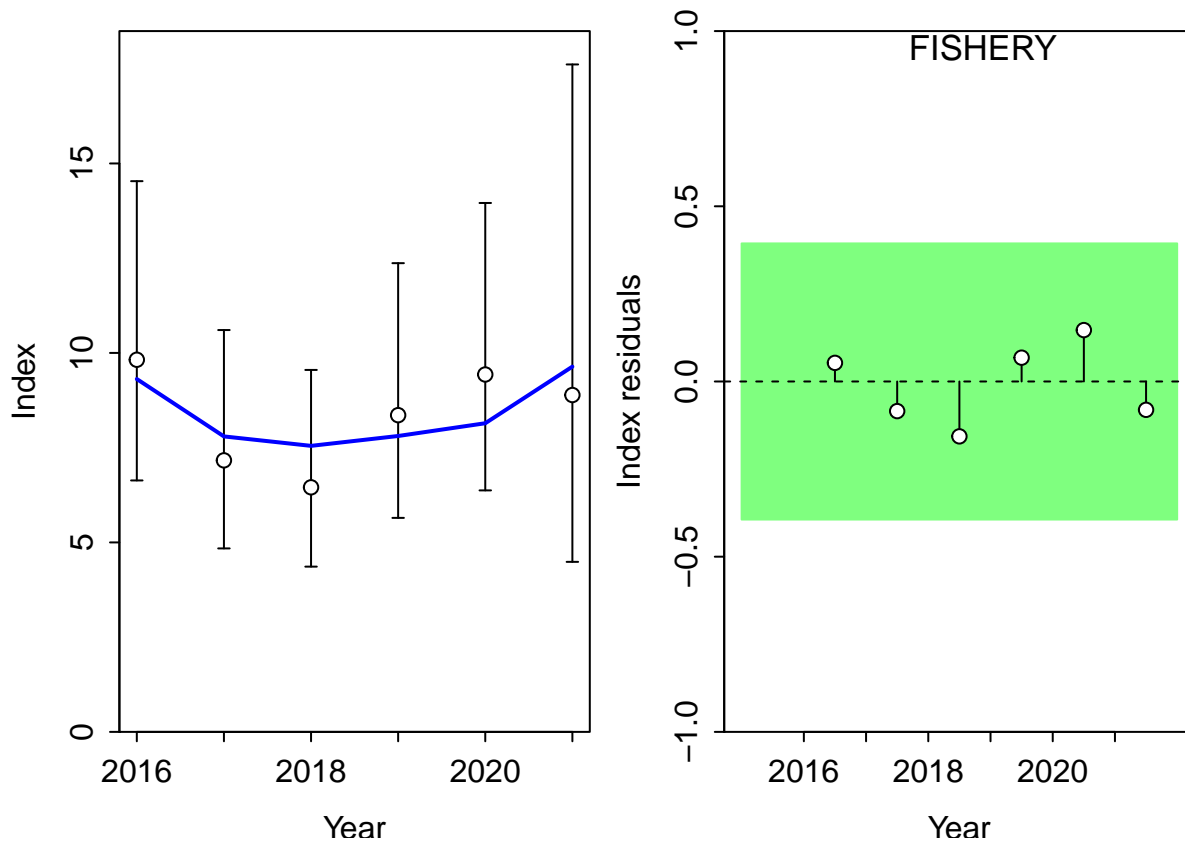
```
## Converged      MaxGrad
## 1      TRUE 3.62219e-05
```

```
## [1] "1 NOTE: Max data length bin: 85 < max pop len bins: 94; so will accumulate larger pop len bins"
## [2] "2 warning: poor convergence in Fmsy, final dy/dy2= -0.0058404"
## [3] " N parameters are on or within 1% of min-max bound: 2; check results, variance may be suspect"
## [4] "N warnings: 2"
```

## Fit to Model

### CPUE

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

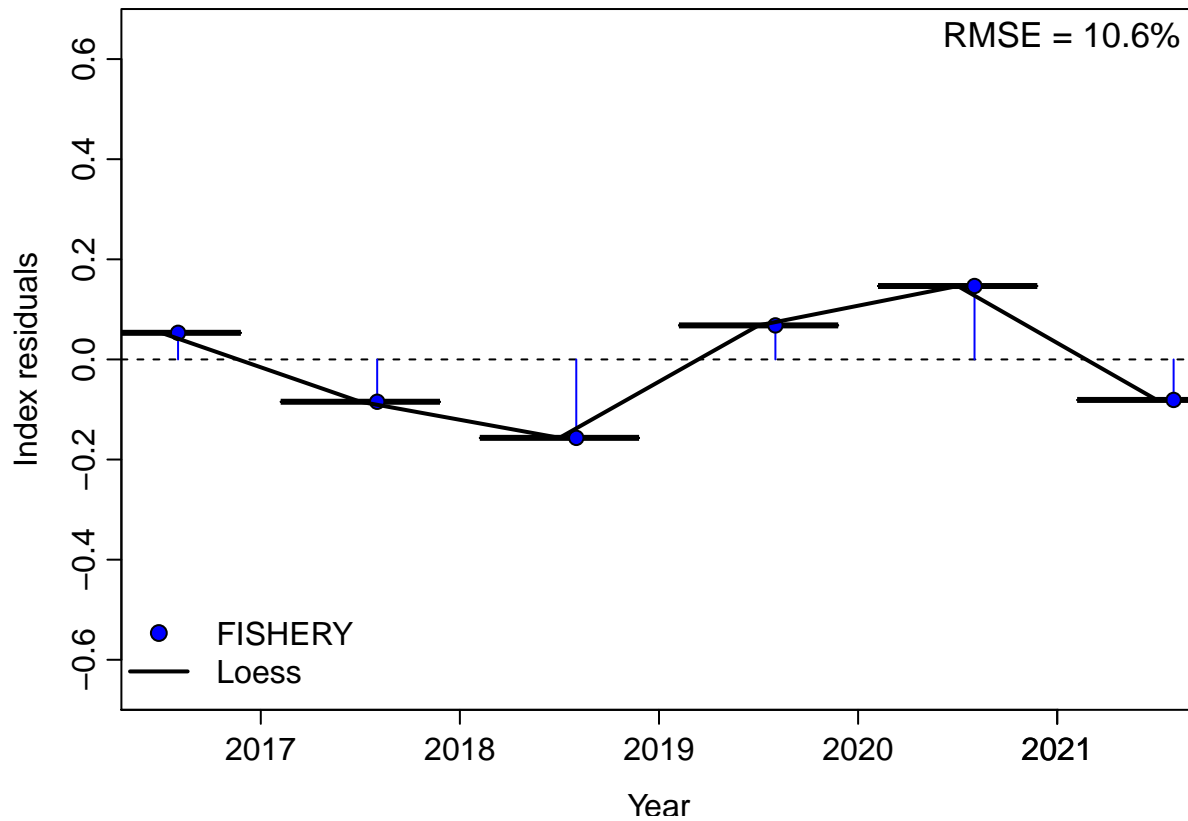


```
##
## Runs Test stats by Index:
## Plotting JABBA residual plot
```

```
## 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

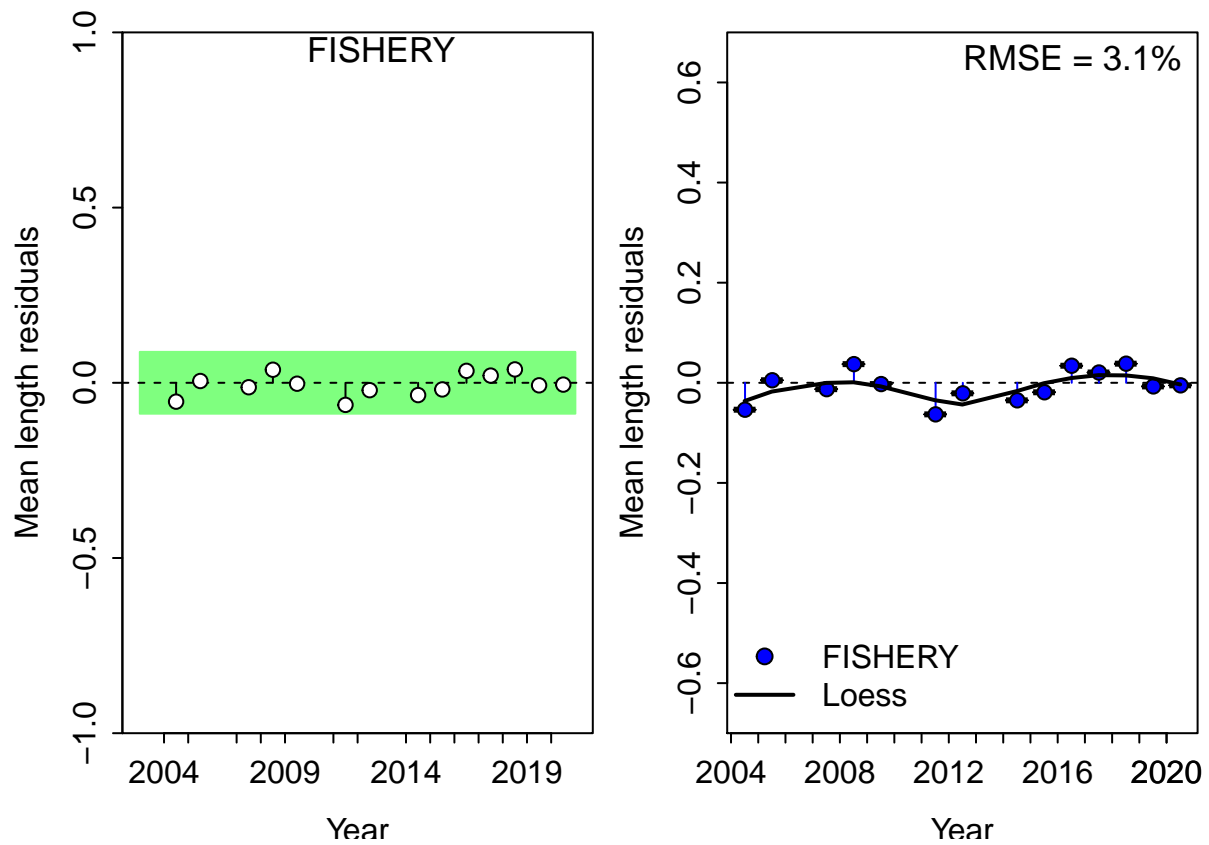
#Factor	Fleet	New_Var_adj	Type	Name
4	1	0.40426	len	FISHERY

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

##
## Runs Test stats by Mean length:

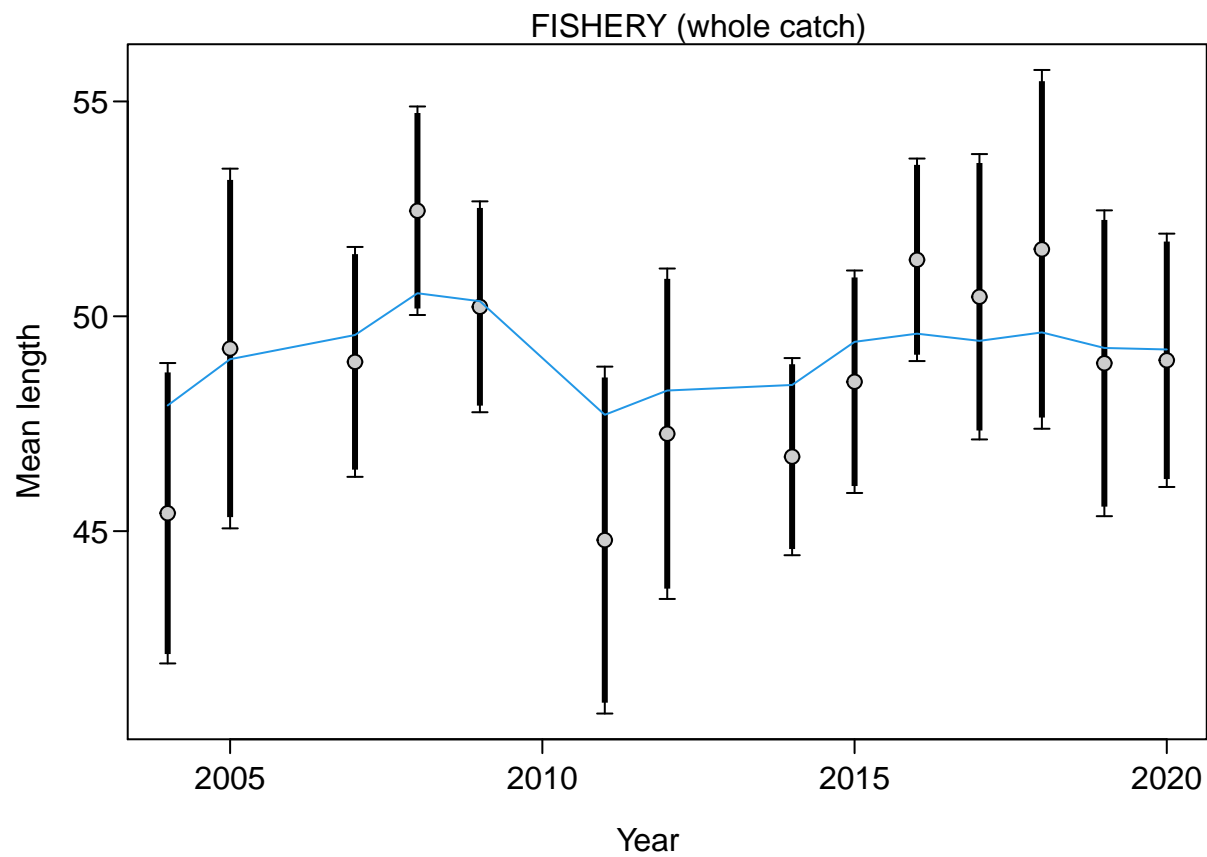
##      Index runs.p  test  sigma3.lo  sigma3.hi  type
## 1 FISHERY  0.397 Passed -0.08815666 0.08815666  len

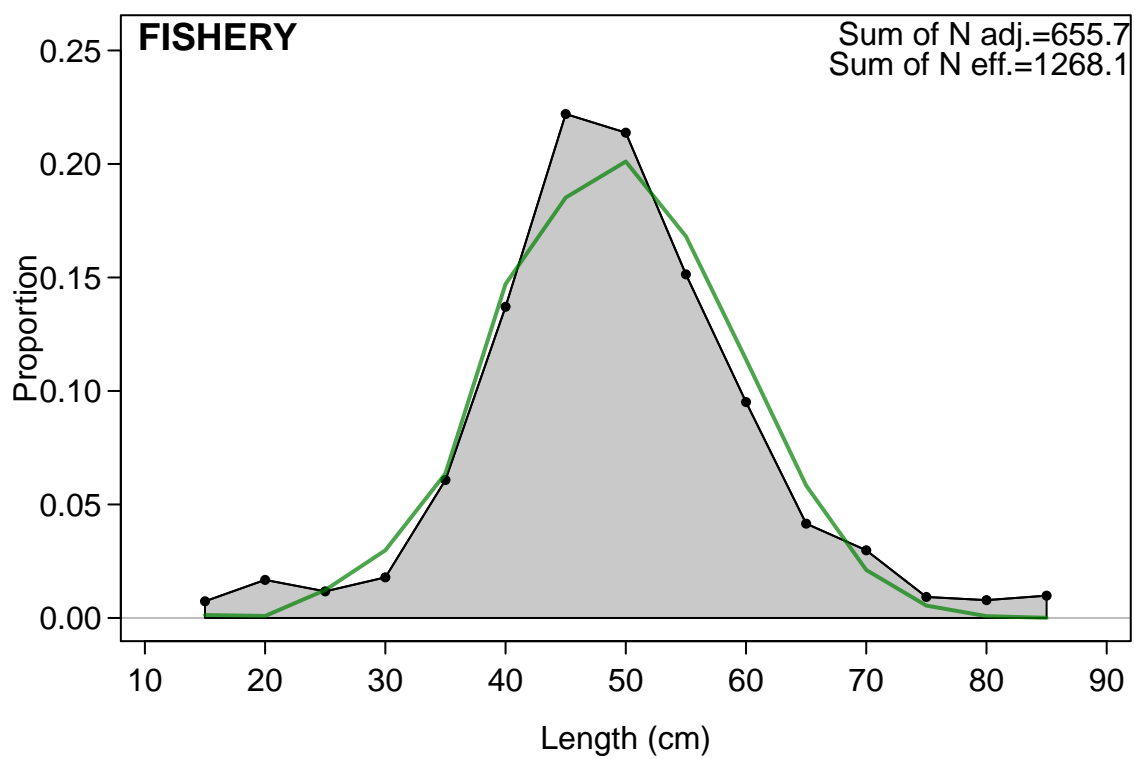
## Plotting JABBA residual plot
```

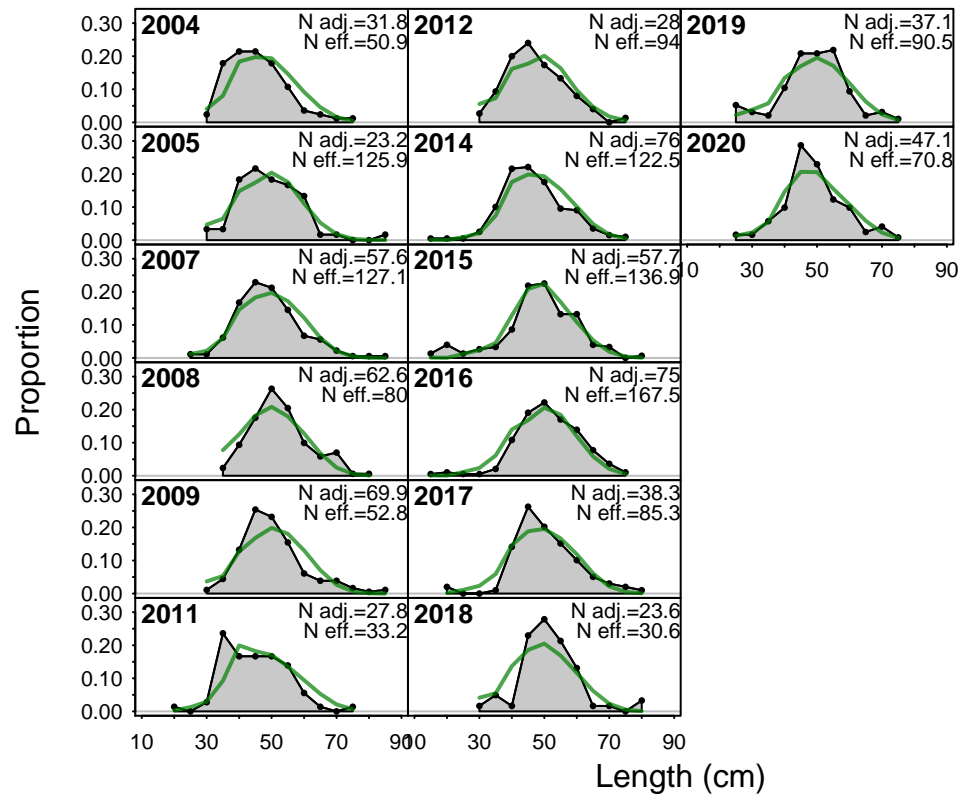


```
##
## RMSE stats by Index:

##   indices RMSE.perc nobs
## 1  FISHERY      3.1    14
## 2 Combined      3.1    14
```







## Retrospective and Hindcasting

### Retrospective

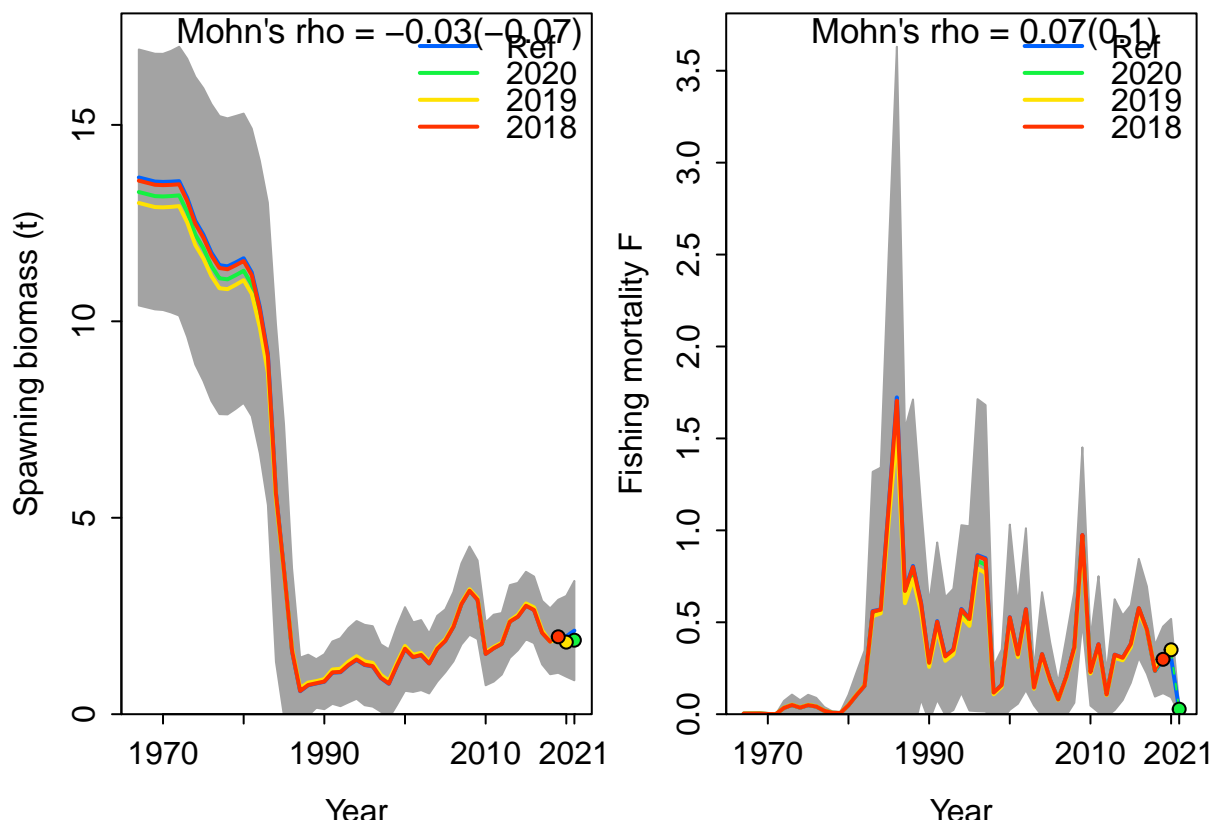
## Plotting Retrospective pattern

##

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

## Plotting Retrospective pattern



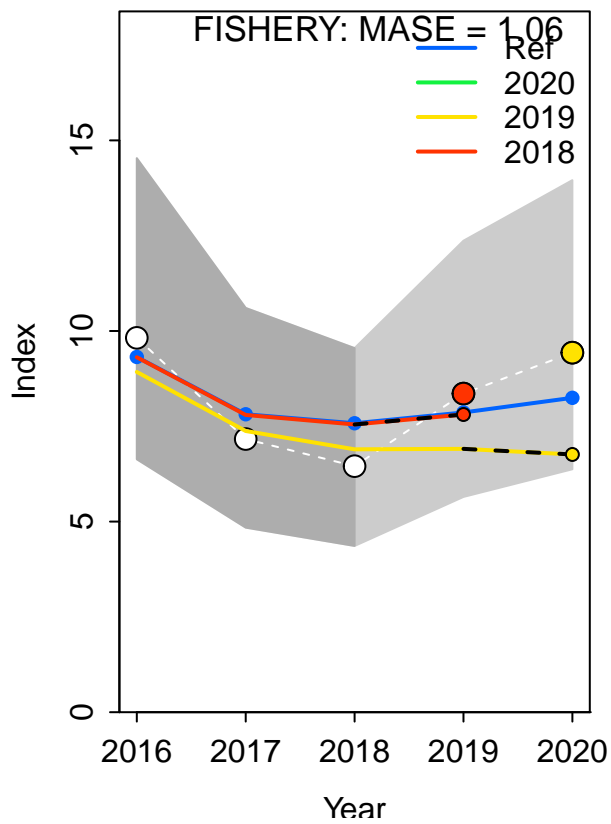


```
##
## Mohn's Rho stats, including one step ahead forecasts:
```

##	type	peel	Rho	ForecastRho
## 1	F	2020	0.107750126	0.13282855
## 2	F	2019	0.090533378	0.14681503
## 3	F	2018	0.006180217	0.01061136
## 4	F Combined		0.068154574	0.09675165

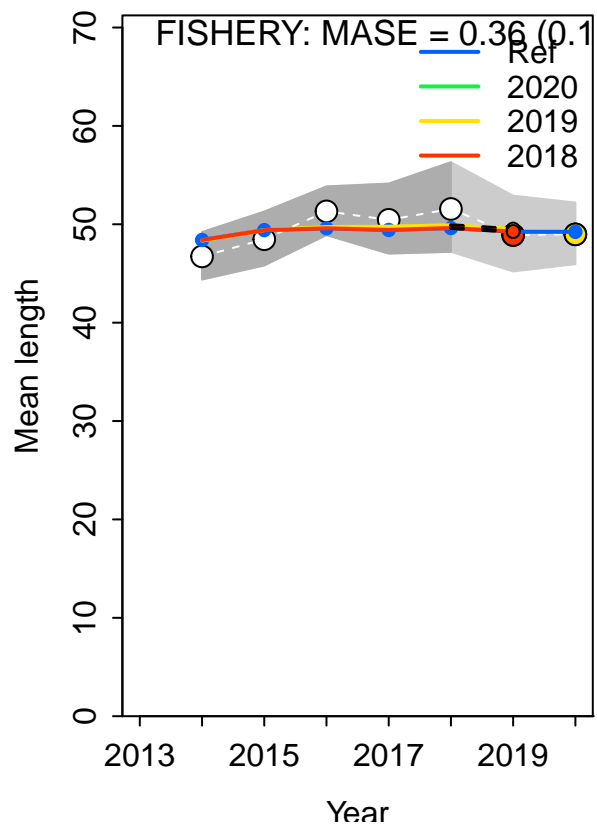
## Hindcasting

```
## 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
```

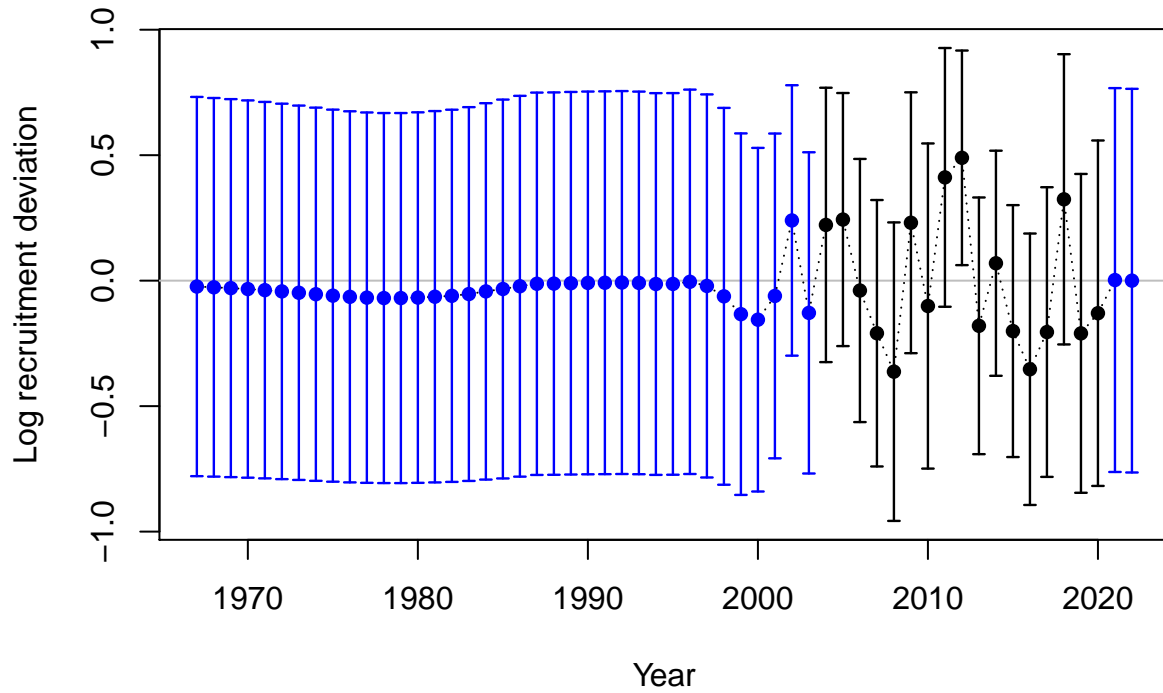


```
##
## MASE stats by Index:
## Plotting Hindcast Cross-Validation (one-step-ahead)
##
## Computing MASE with only 2 of 3 prediction residuals for Index FISHERY
##
## Warning: Unequal spacing of naive predictions residuals may influence the interpretation of MASE

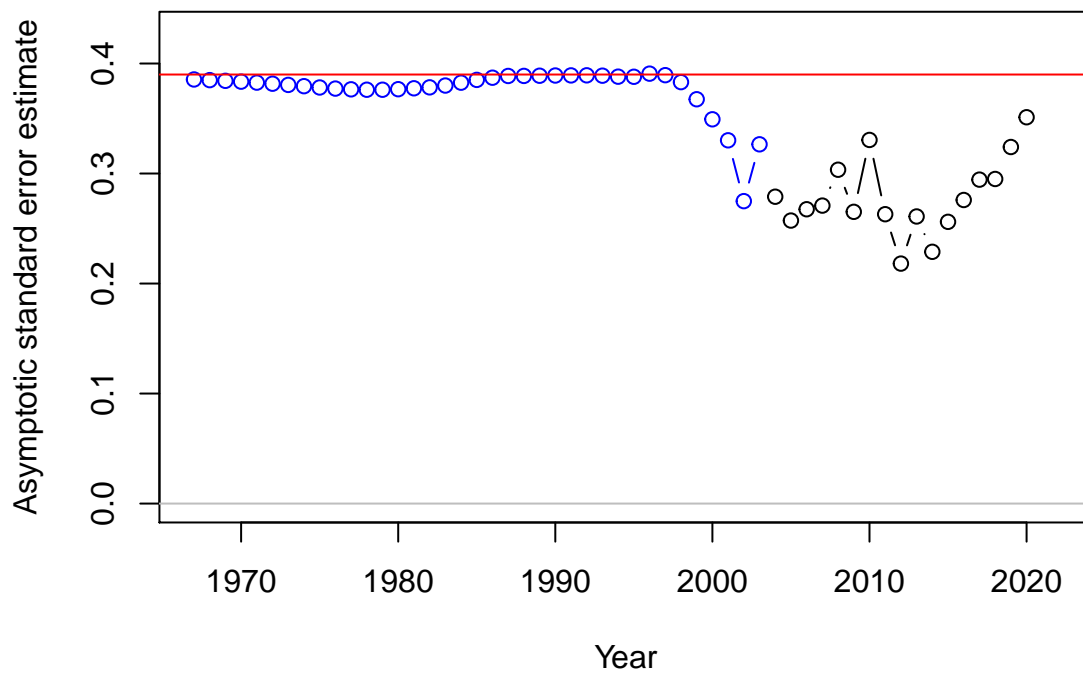
##
## MASE stats by Index:
```



## Recruitment Deviations



## Recruitment deviation variance



## Likelihood Profile

```
## [1] "SR_LN"

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

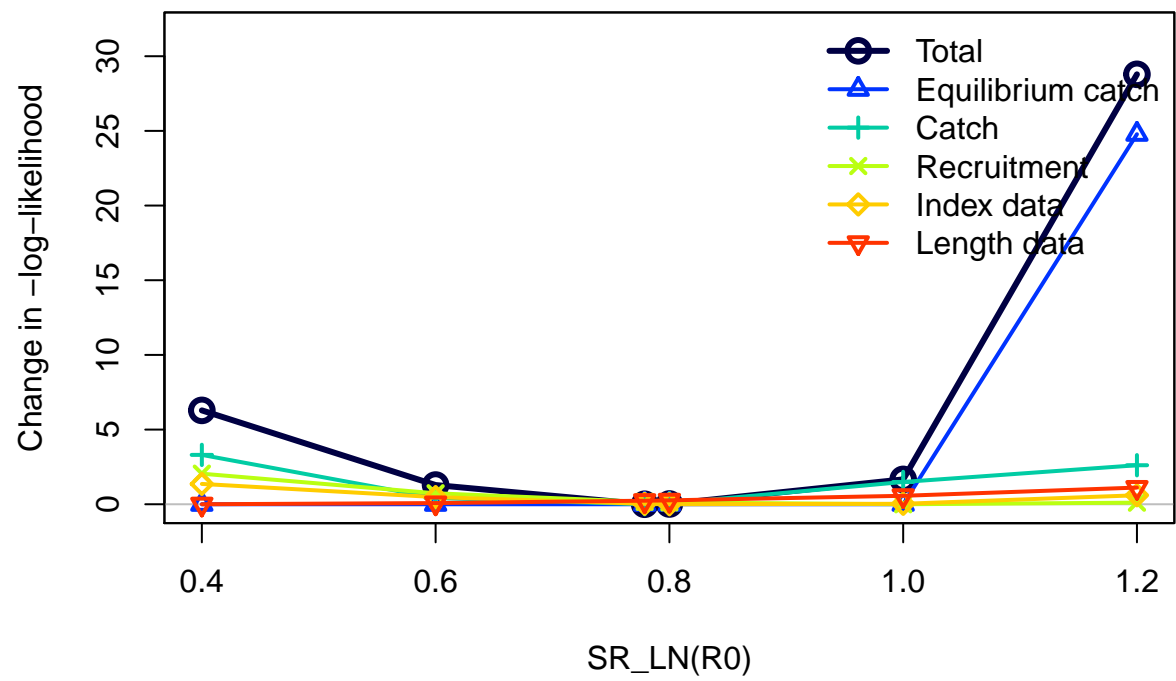
## Parameter values (after subsetting based on input 'models'): 0.4, 0.6, 0.8, 1, 1.2, 0.778832

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

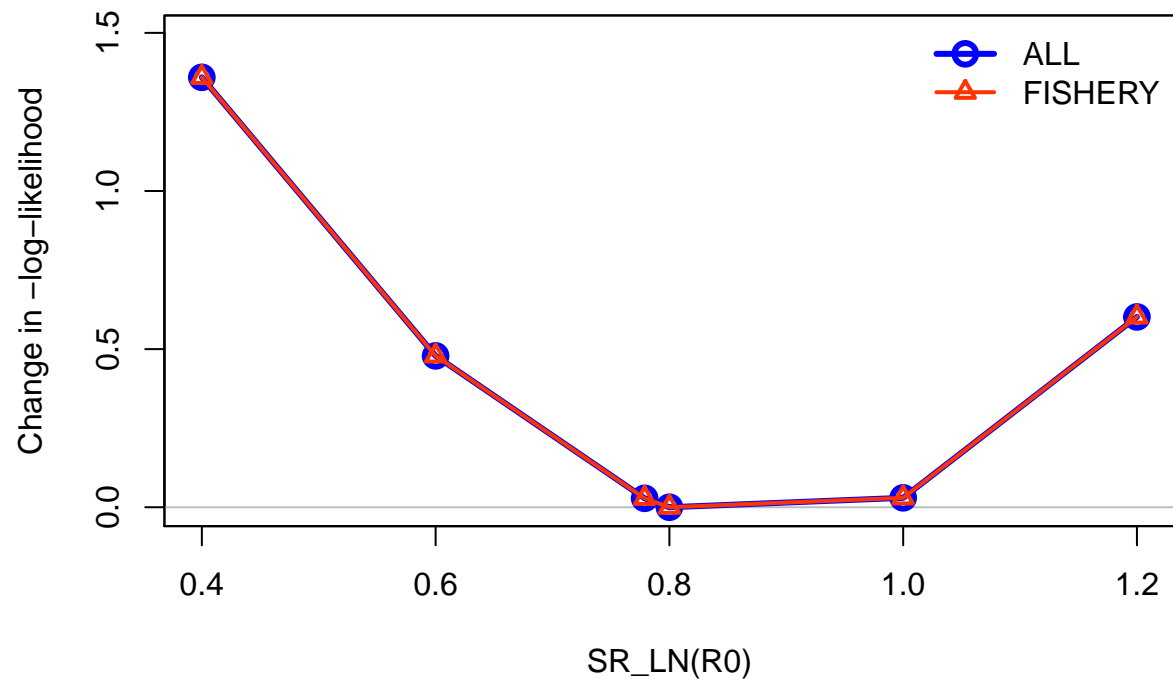
##          frac_change include          label
## TOTAL          1.0000   TRUE          Total
## Catch          0.1148   TRUE          Catch
## Equil_catch    0.8607   TRUE    Equilibrium catch
## Survey        0.0472   TRUE          Index data
## Length_comp    0.0387   TRUE          Length data
## Recruitment    0.0711   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'): 0.4, 0.6, 0.8, 1, 1.2, 0.778832,

## 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
```

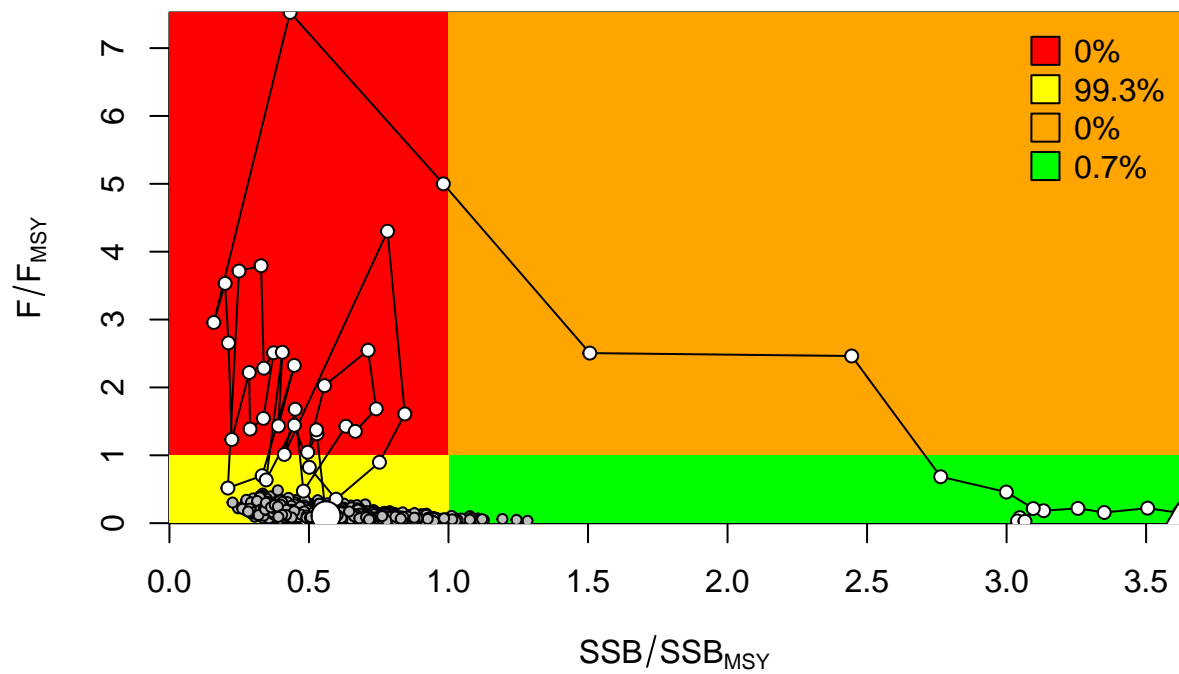


### Changes in survey likelihood by fleet



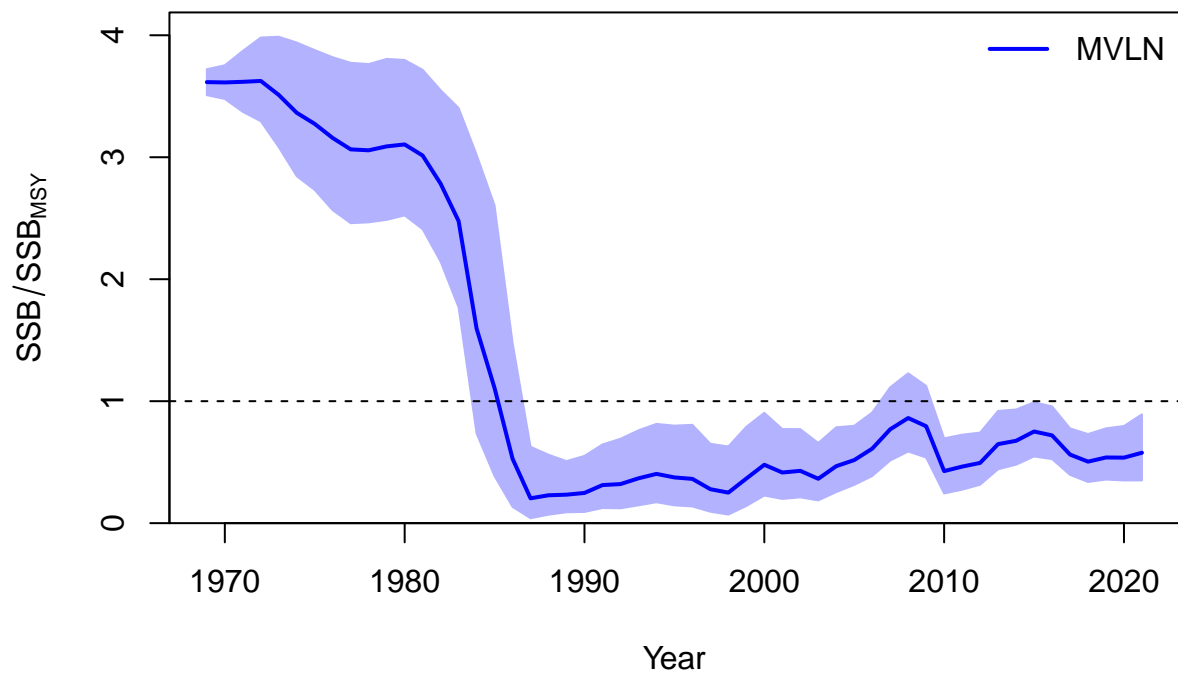
### Management Quantities

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

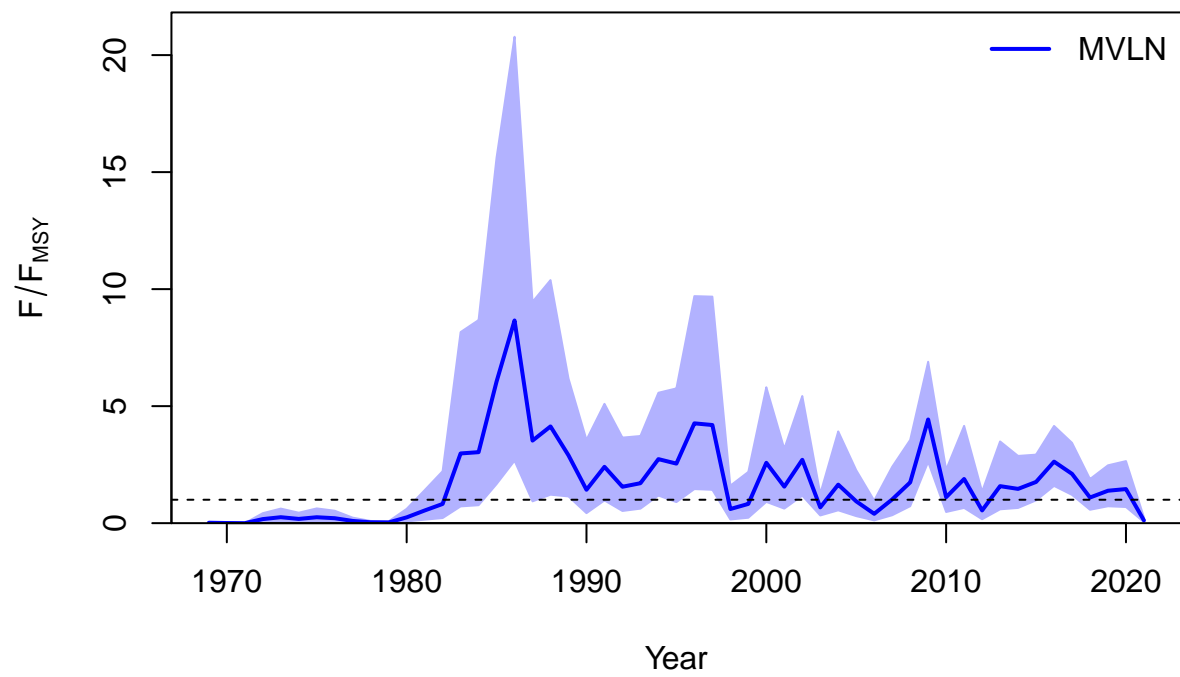


##  
## Plot Comparison of stock

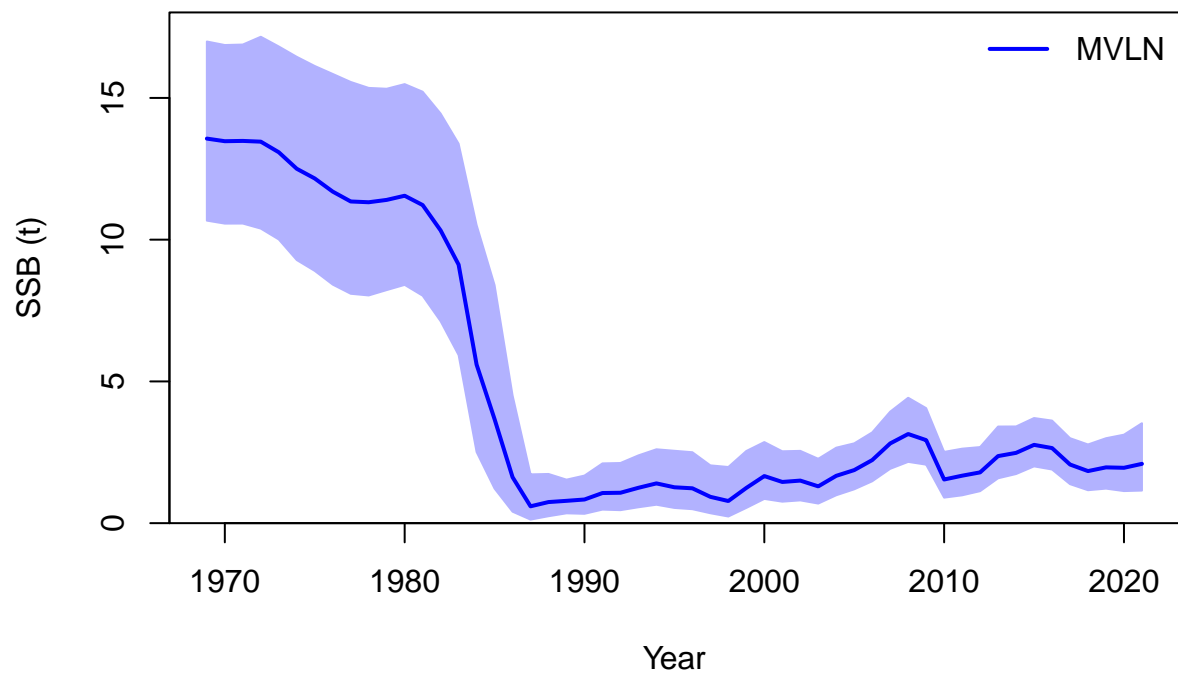




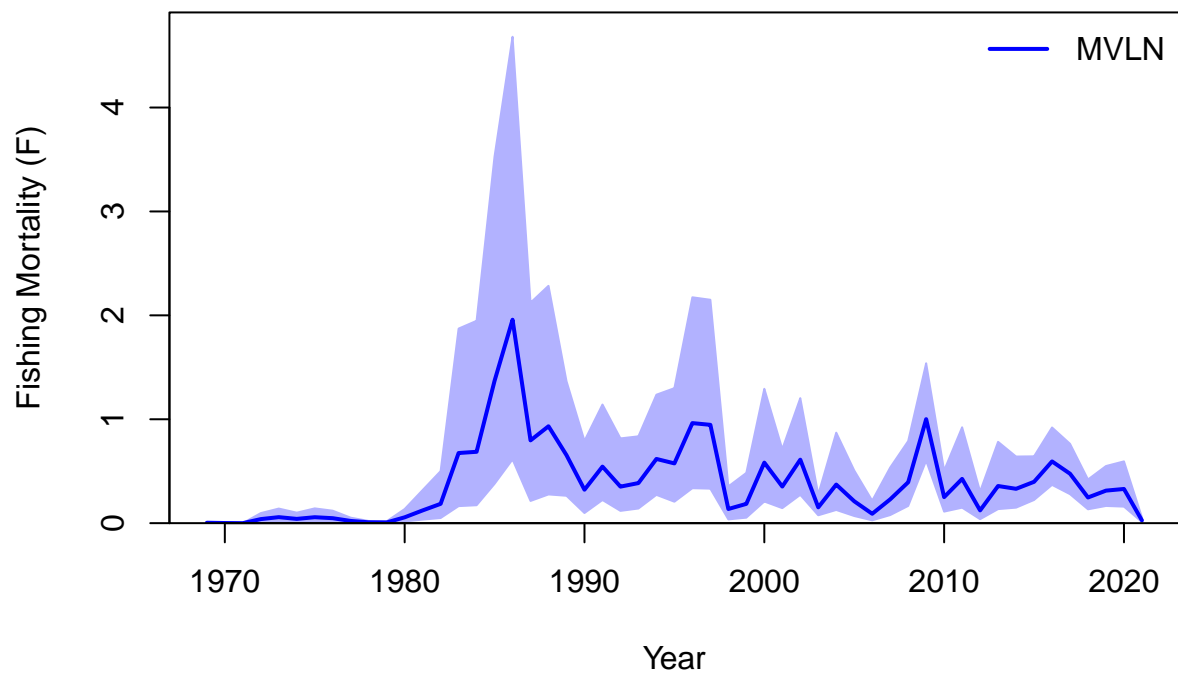
```
##  
## Plot Comparison of harvest
```



##  
## Plot Comparison of SSB



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



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

**Jitter**

