

# American Samoa Model Checks

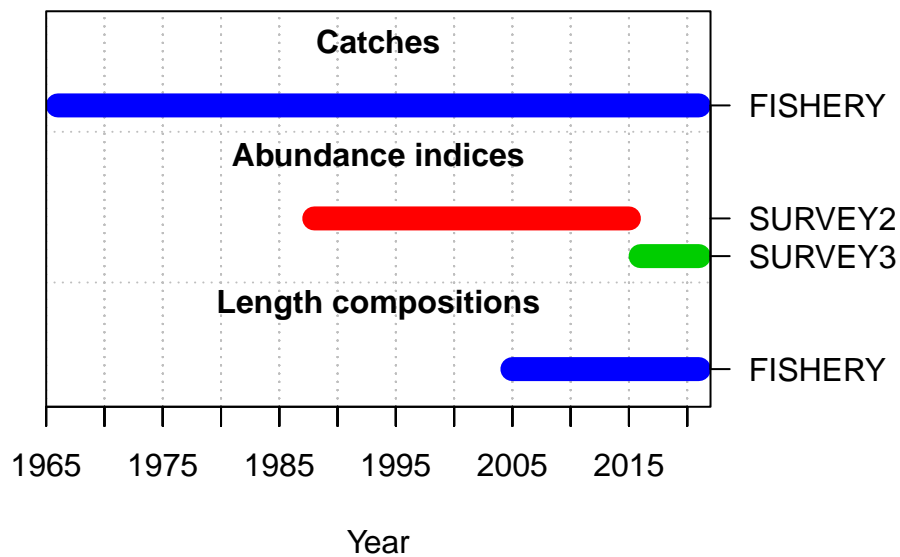
Marc Nadon and Meg Oshima

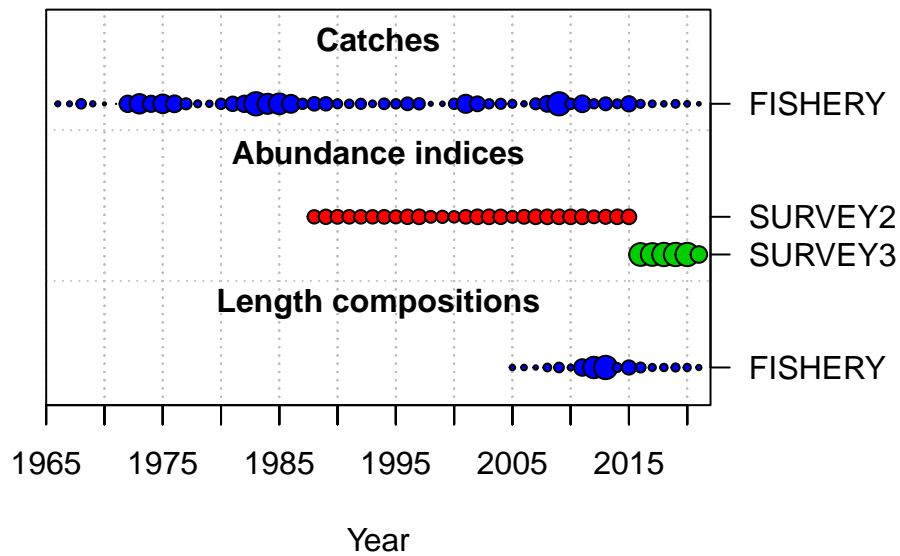
2023-02-14

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

## Model Output

### Input Data





### Convergence Check

```

Converged      MaxGrad
1      TRUE 9.75611e-05

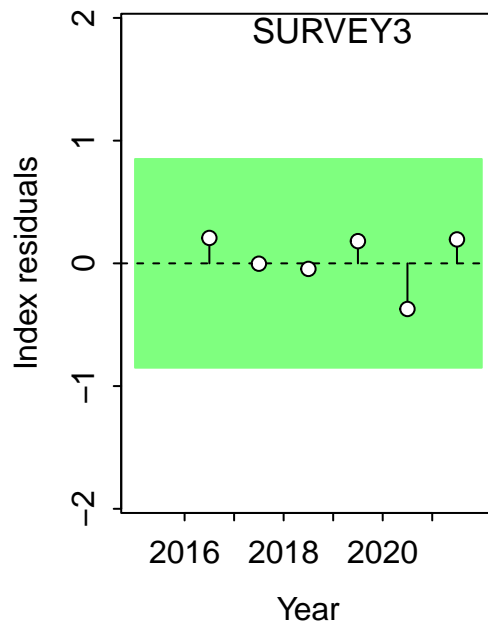
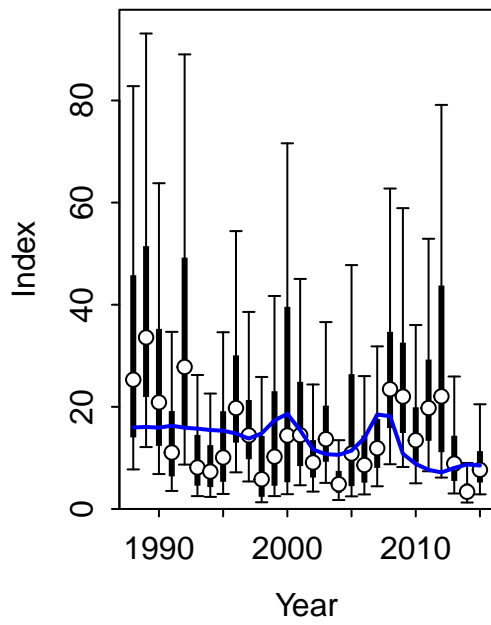
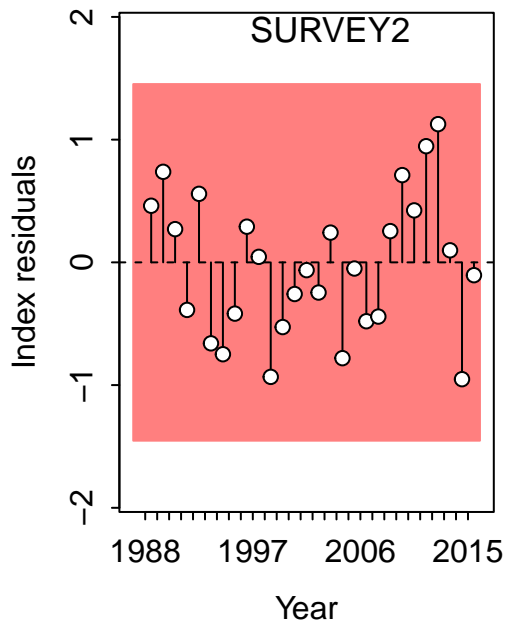
```

- [1] "1 NOTE: Max data length bin: 38.5 < max pop len bins: 43; so will accumulate larger p
- [2] "2 Main recdev biasadj is >2 times ratio of rmse to sigmaR"
- [3] " N parameters are on or within 1% of min-max bound: 1; check results, variance may be s
- [4] "N warnings: 2"

### Fit to Model

#### CPUE

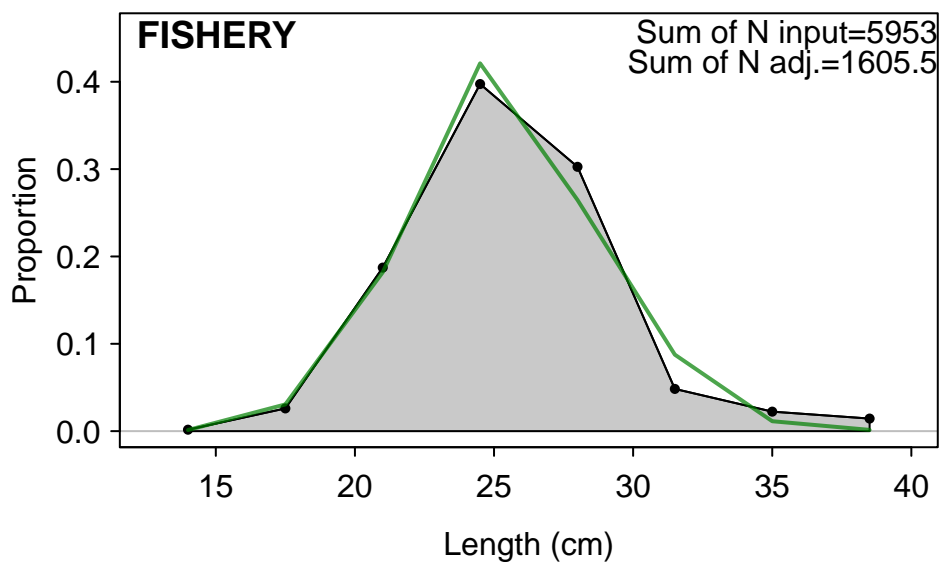
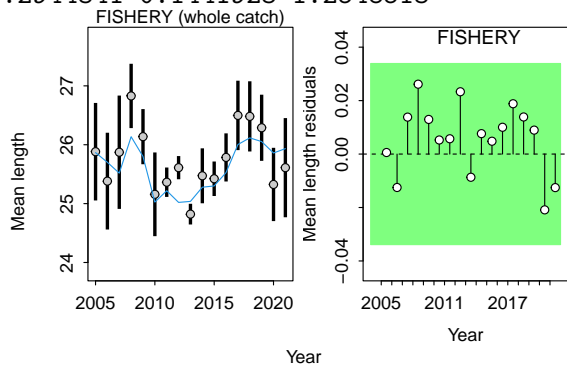
Fleet	RMSE.perc	Nobs
SURVEY2	56.0	28
SURVEY3	20.6	6
Combined	51.5	34



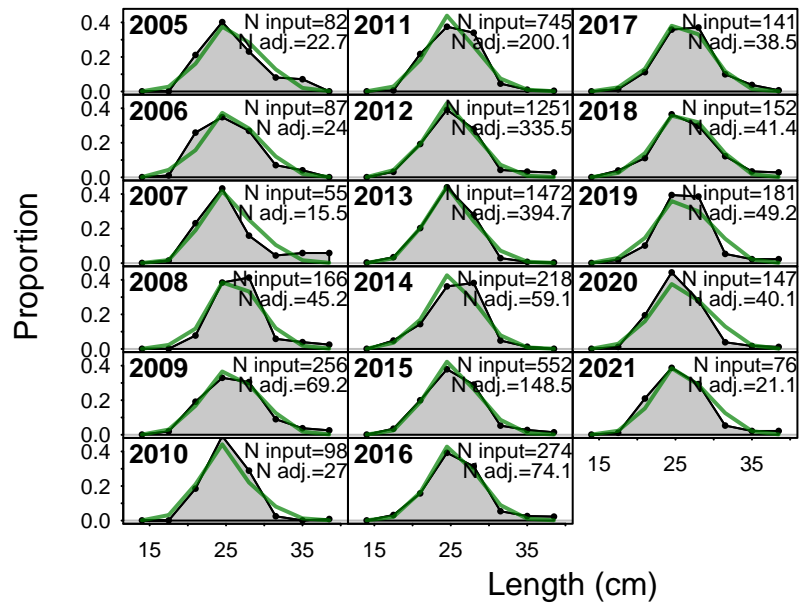
## Length Comp

Fleet	RMSE.perc	Nobs
FISHERY	1.4	17
Combined	1.4	17

w lo hi Index runs.p test sigma3.lo sigma3.hi type  
 0.2944341 0.1441923 1.2548513 1 FISHERY 0.212 Passed -0.03388699 0.03388699 len

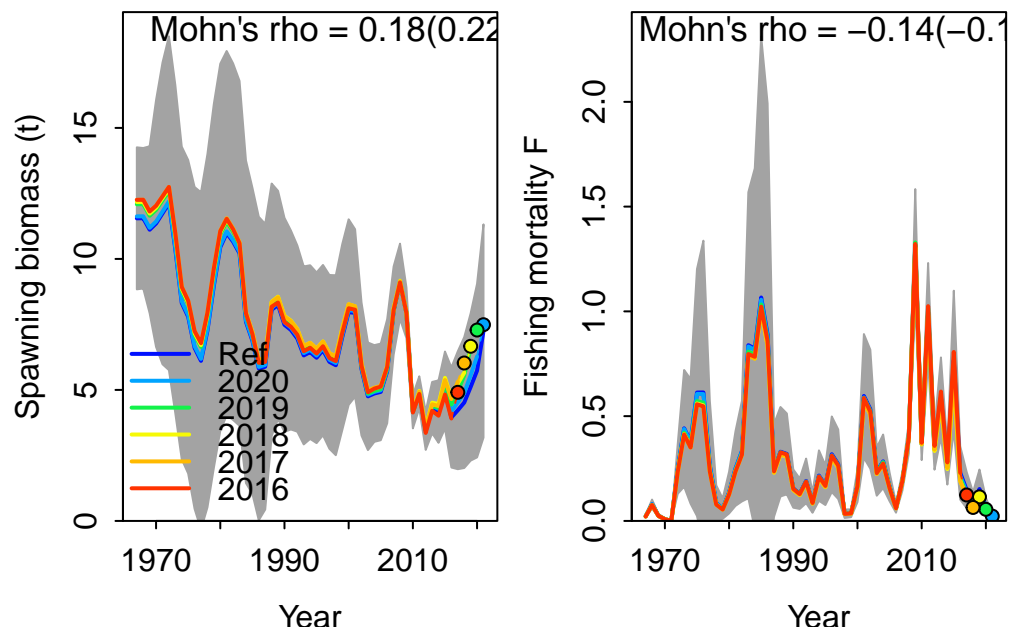


## Retrospective and Hindcasting



## Retrospective

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



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	type	peel	Rho	Forecast	Rho
1	F	2020	-0.0829300294	-0.02461897	
2	F	2019	-0.2211227402	-0.19012126	
3	F	2018	-0.2042868687	-0.24567735	
4	F	2017	-0.2141608865	-0.25043350	
5	F	2016	0.0009932217	-0.16087976	
6	F Combined		-0.1443014606	-0.17434617	

## Hindcasting

Plotting Hindcast Cross-Validation (one-step-ahead)

No observations in evaluation years to compute prediction residuals for Index SURVEY2

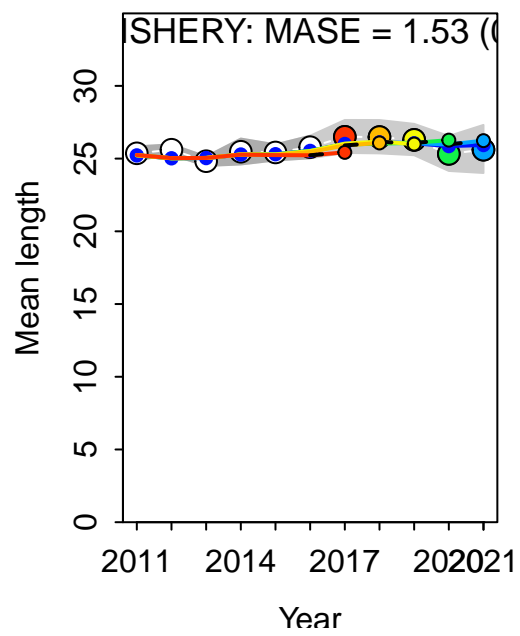
MASE stats by Index:

Plotting Hindcast Cross-Validation (one-step-ahead)

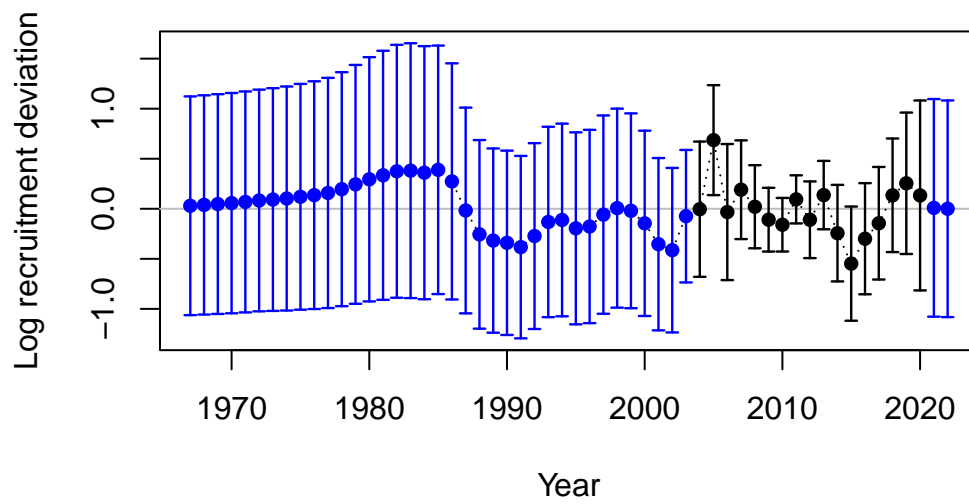
Computing MASE with all 5 of 5 prediction residuals for Index FISHERY

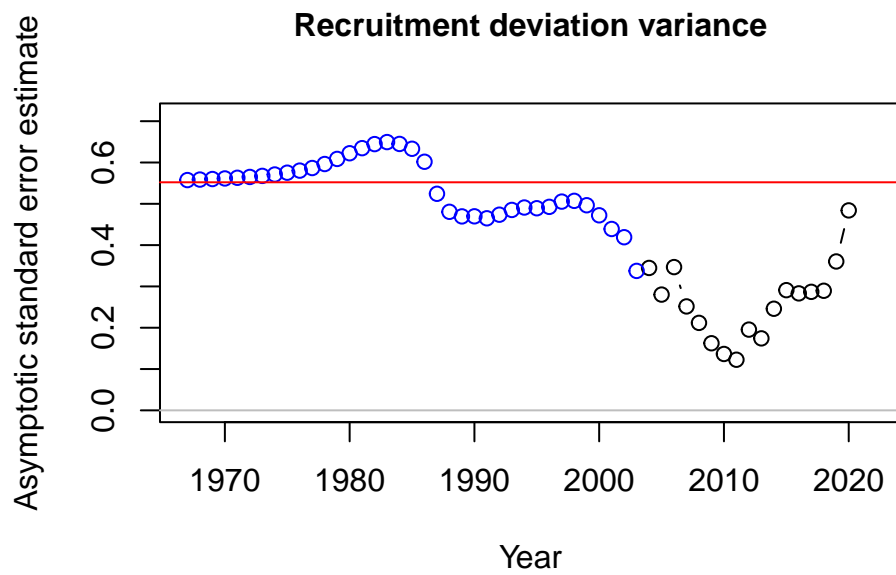
MASE stats by Index:

	Index	Season	MASE	MAE.PR	MAE.base	MASE.adj	n.eval
1	FISHERY	1	1.533899	0.02569405	0.01675081	0.2569405	5



### Recruitment Deviations

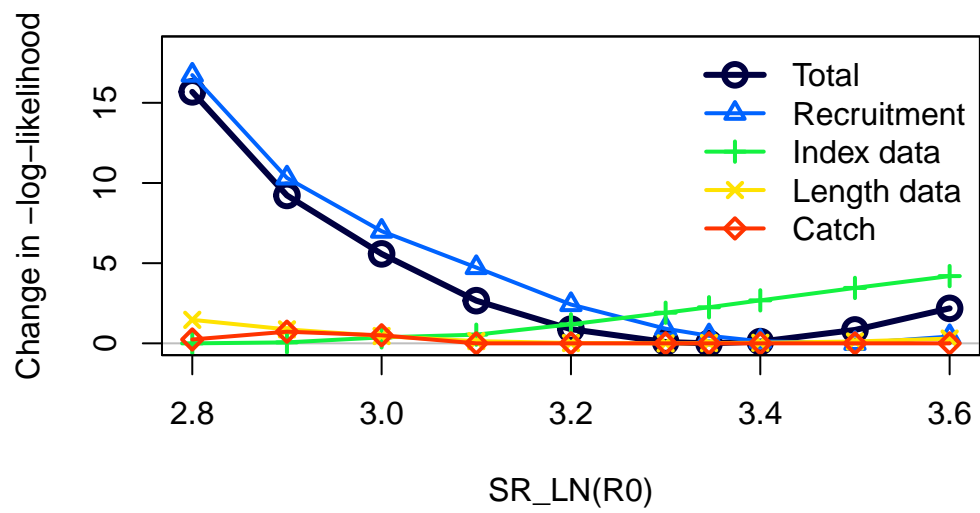




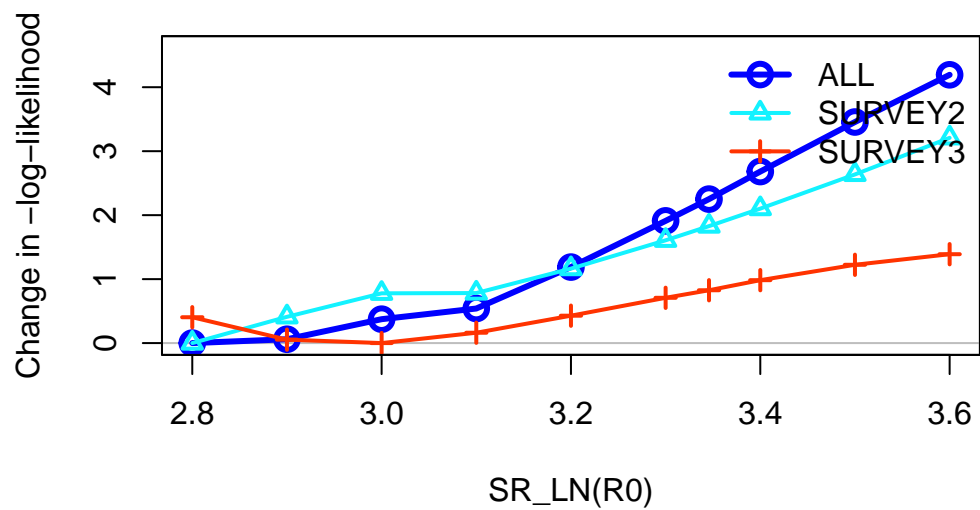
### Likelihood Profile

[1] "SR_LN"				
	frac_change	include	label	
TOTAL	1.0000	TRUE	Total	
Catch	0.0463	TRUE	Catch	
Equil_catch	0.0000	FALSE	Equilibrium catch	
Survey	0.2674	TRUE	Index data	
Length_comp	0.0934	TRUE	Length data	
Recruitment	1.0667	TRUE	Recruitment	
InitEQ_Regime	0.0000	FALSE	Initital equilibrium recruitment	
Forecast_Recruitment	0.0001	FALSE	Forecast recruitment	
Parm_priors	0.0013	FALSE	Priors	
Parm_softbounds	0.0000	FALSE	Soft bounds	
Parm_devs	0.0000	FALSE	Parameter deviations	
Crash_Pen	0.0000	FALSE	Crash penalty	



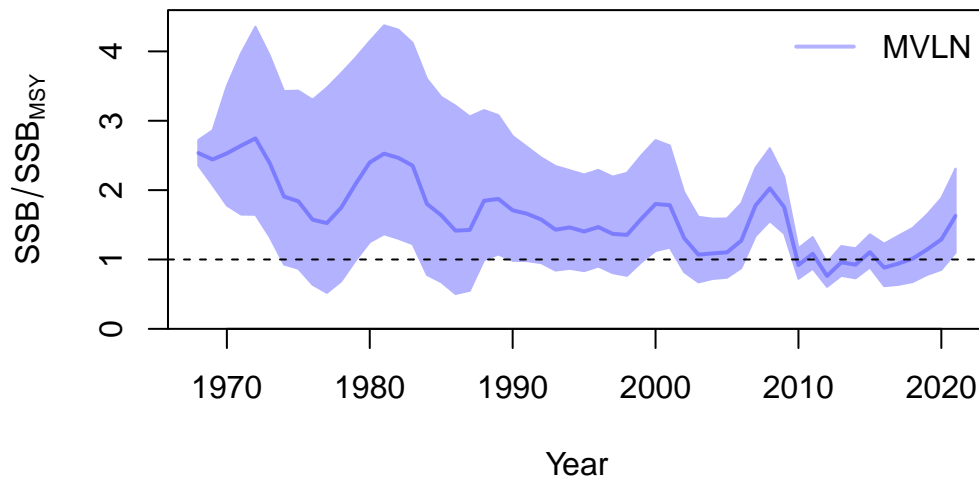
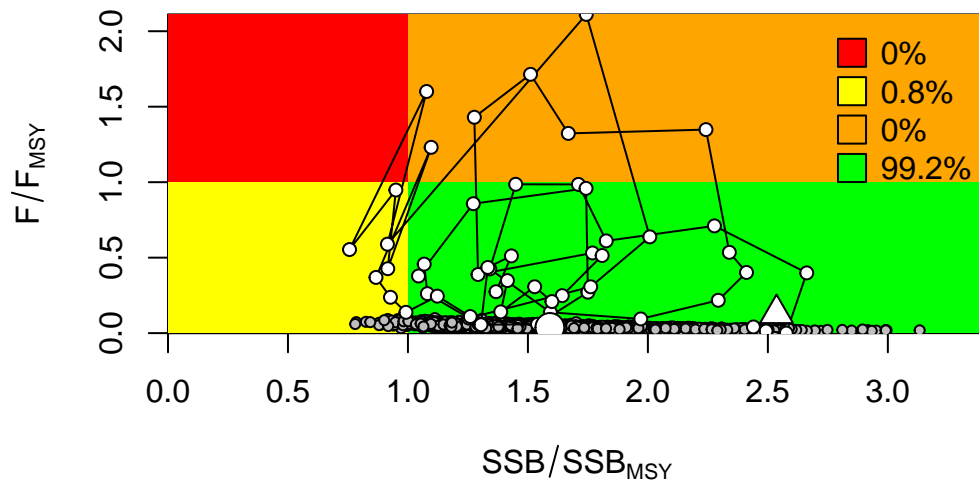


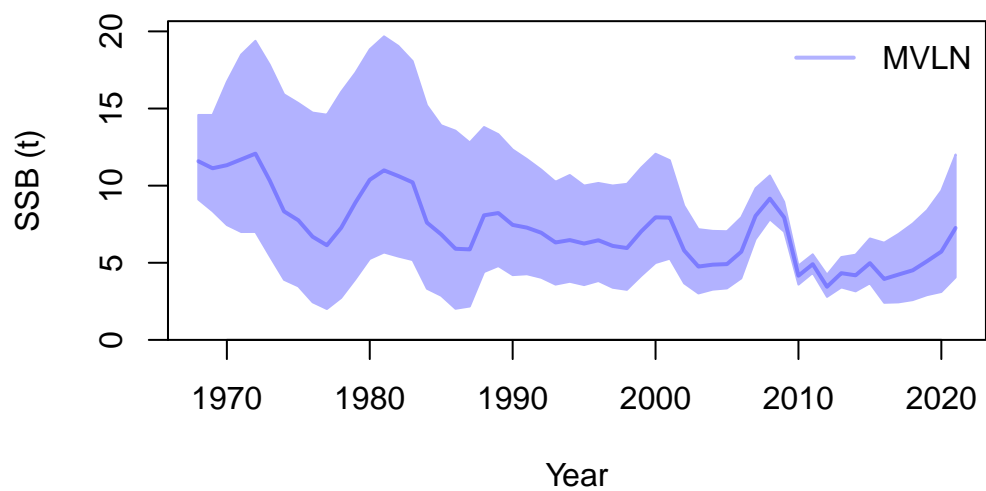
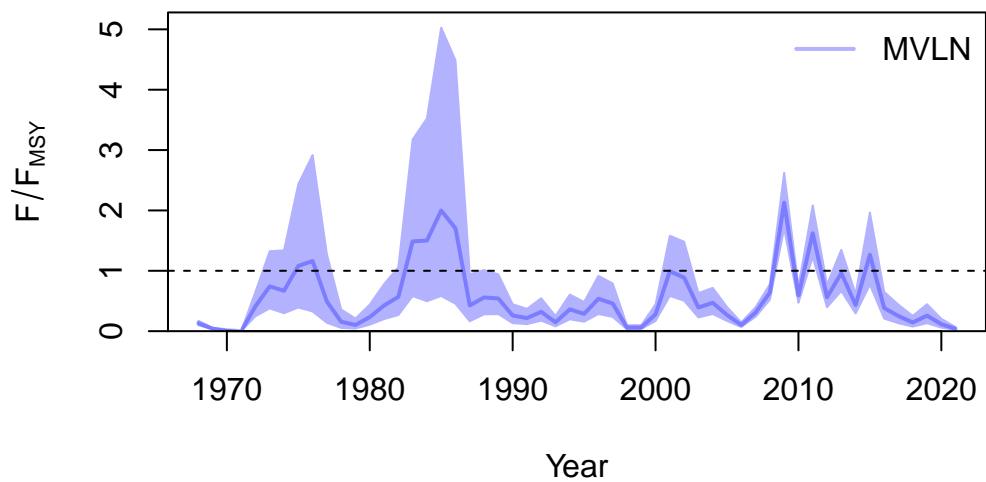
### Changes in survey likelihood by fleet

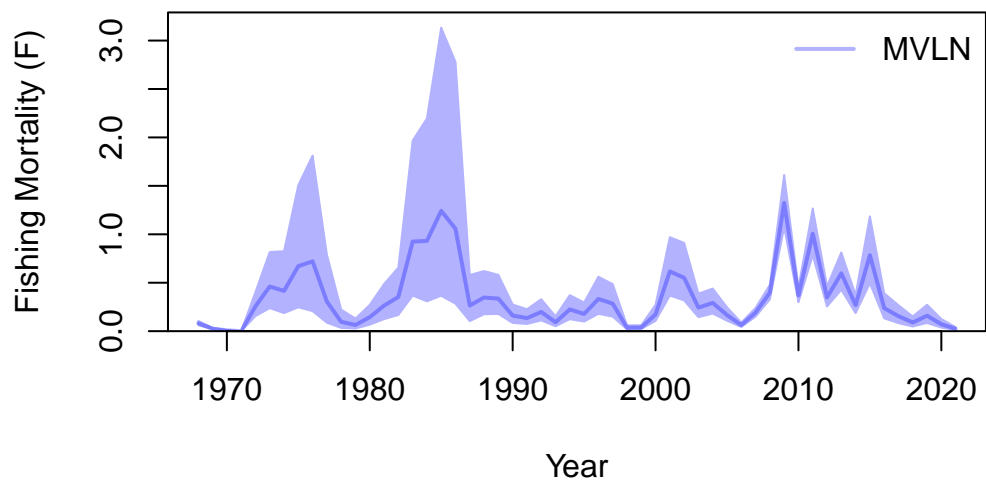


Management Quantities

starter.sso with Bratio: SSB/SSB<sub>MSY</sub> and F: \_abs\_F

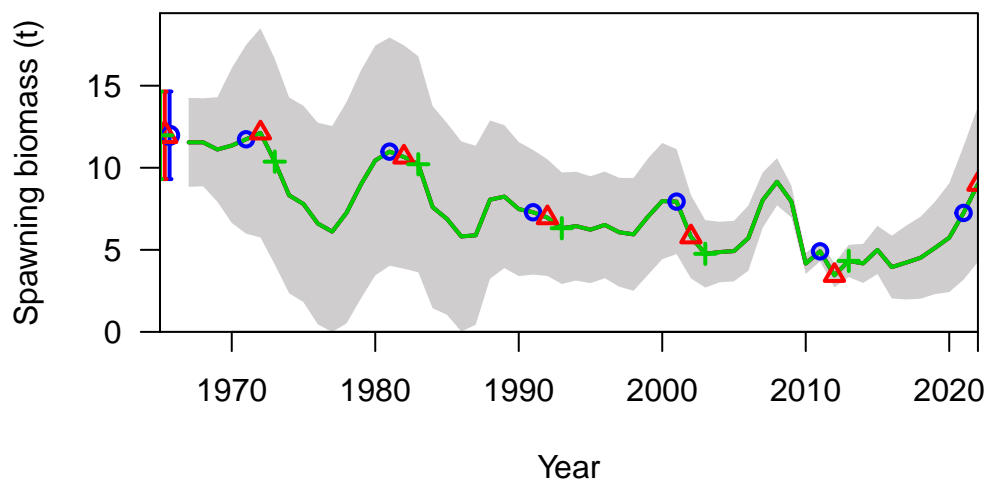
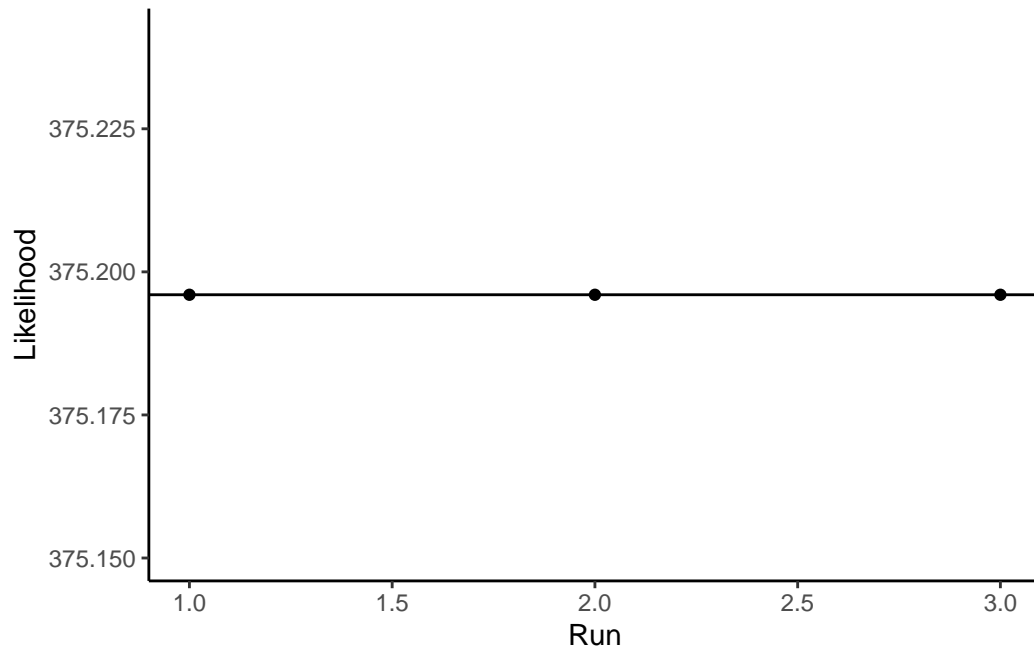


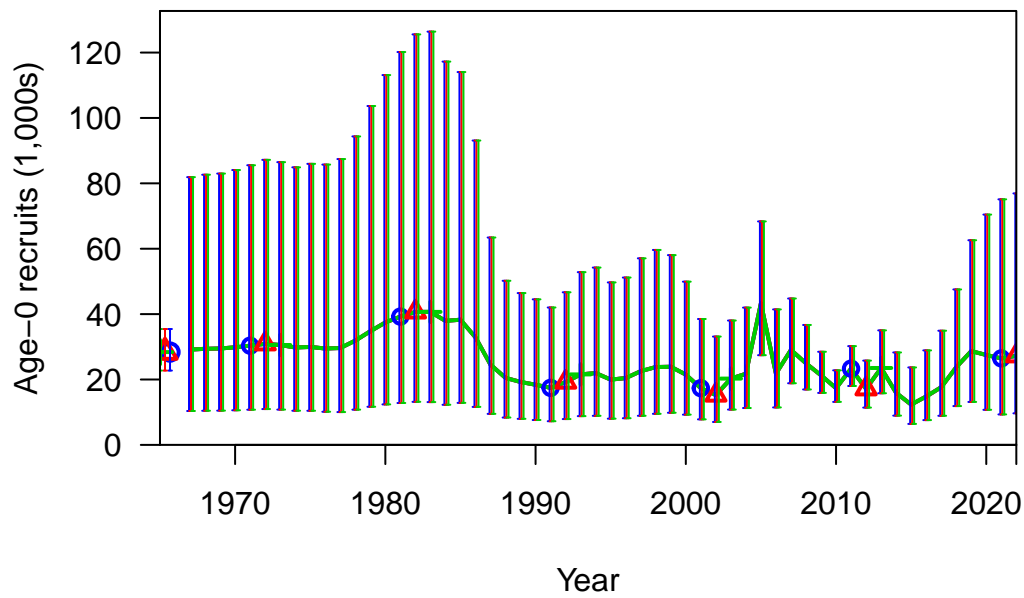
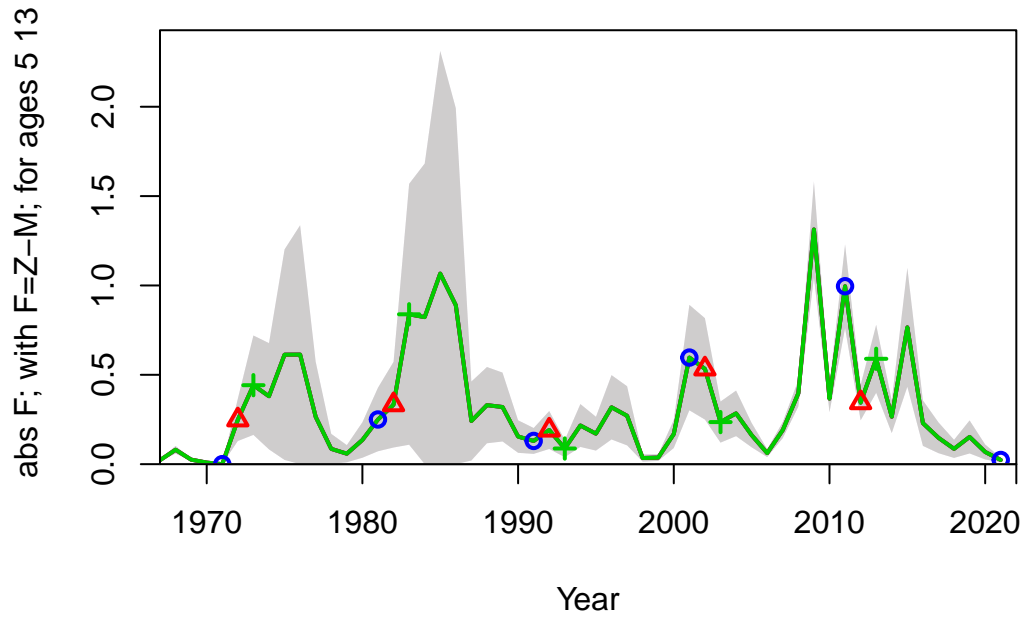




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1

**Jitter**





### Selectivity and Maturity

