

## *TIM Diagnostics*

### MODEL STRUCTURE

Match/Mismatch: Matching

Population Structure: Spatial Heterogeneity

Diagnostic Run: NO. Uses OBS values as data inputs

Residual plots represent RELATIVE difference;  $((\text{TRUE}-\text{ESTIMATED})/\text{TRUE}) \times 100$

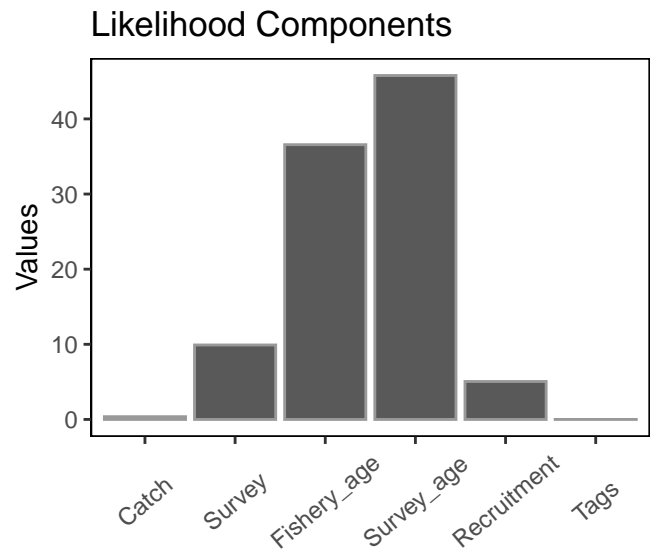
Run Time of Estimation: 0.04067 minutes

### OM Error Parameters

	Parameter	1	2
1	Sigma_Rec	0.4	NA
2	Sigma_Rec_Apport	0.2	NA
3	Sigma_F	0.2	0.2
4	Rec_Index_sigma	0.5	0.5
5	Survey_Sigma	0.2	0.2
6	Catch_Sigma	0.05	0.05
7	SIM_N_Catch	100	100
8	SIM_N_Survey	100	100

Model Converged

num gradient component = 5.34938843910433e



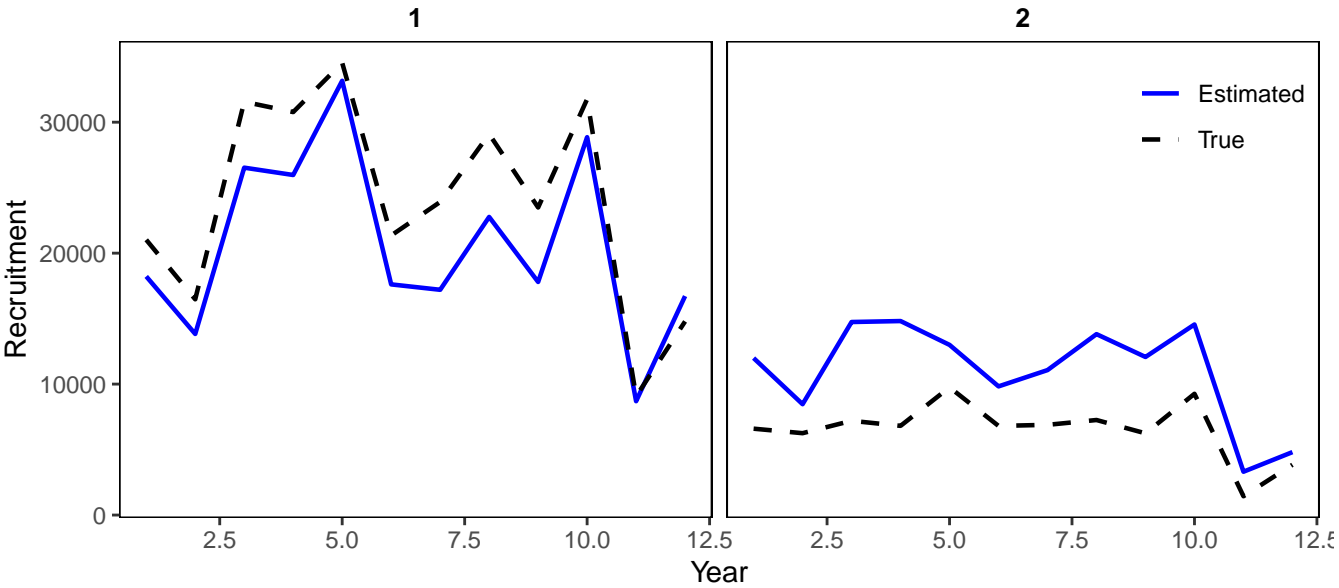
Estimated Parameter Values

	Parameter	1	2
1	q	0.00	0.00
2	R_ave	32282.40	32282.40
3	beta 1 fishery	5.15	5.06
4	beta 2 fishery	1.66	1.92
5	beta 3 fishery	NA	NA
6	beta 4 fishery	NA	NA
7	beta 1 survey	4.62	4.62
8	beta 2 survey	1.66	1.66
9	beta 3 survey	NA	NA
10	beta 4 survey	NA	NA

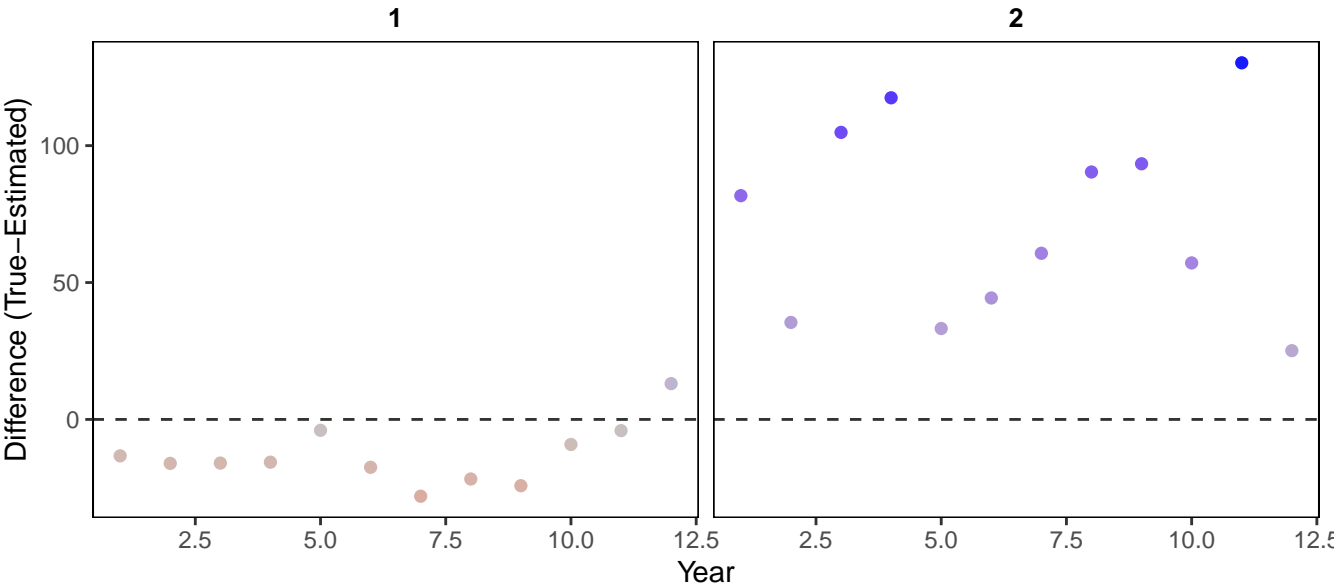
True Parameter Values

	Parameter	1	2
1	q	0.00	0.00
2	R_ave	27615.00	27615.00
3	beta 1 fishery	1.31	2.45
4	beta 2 fishery	3.76	3.16
5	beta 3 fishery	NA	NA
6	beta 4 fishery	NA	NA
7	beta 1 survey	2.51	1.81
8	beta 2 survey	2.31	2.64
9	beta 3 survey	NA	NA
10	beta 4 survey	NA	NA

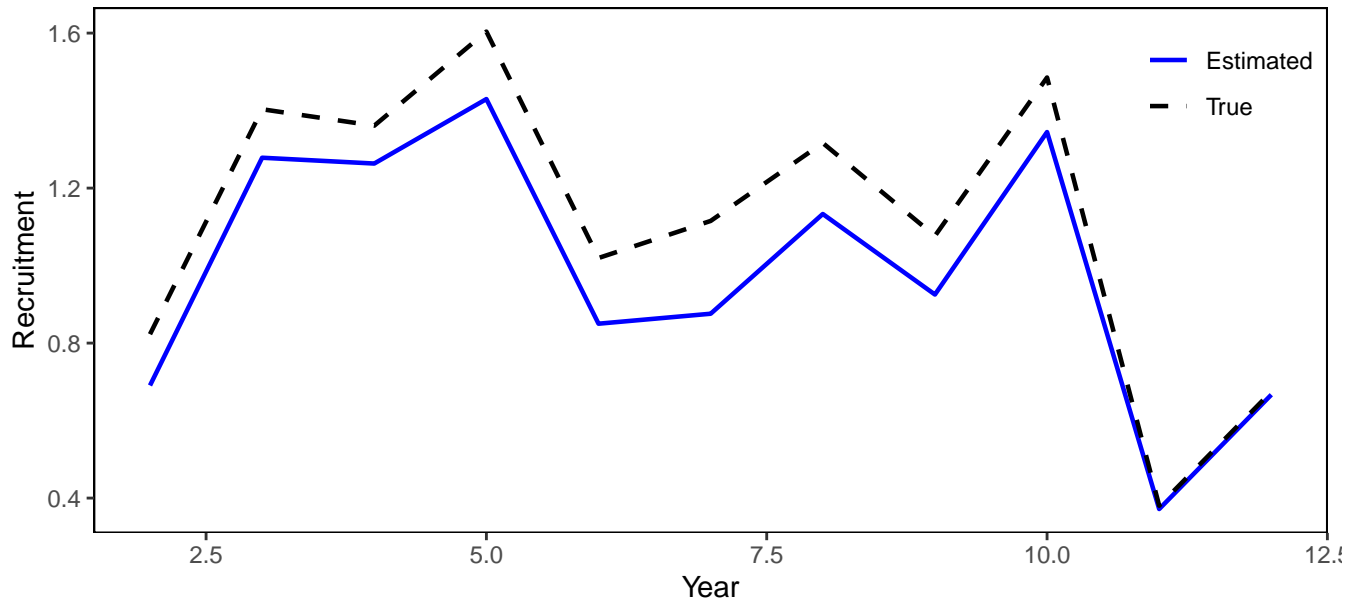
Recruitment Total



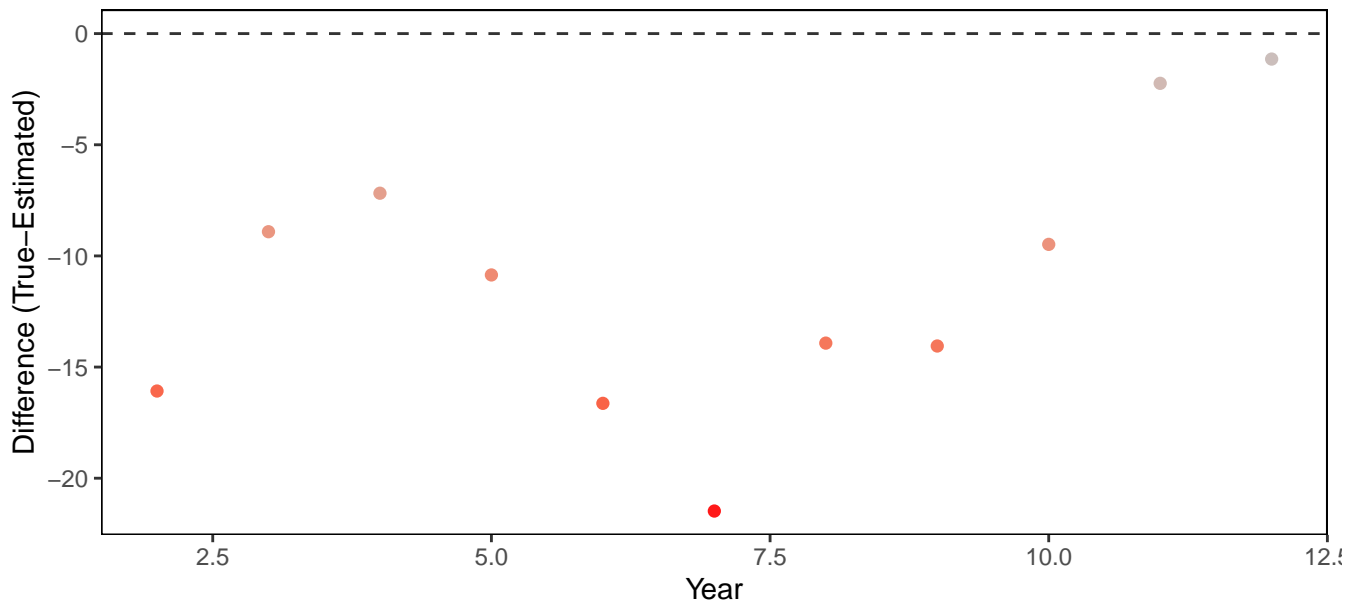
Recruitment Residuals



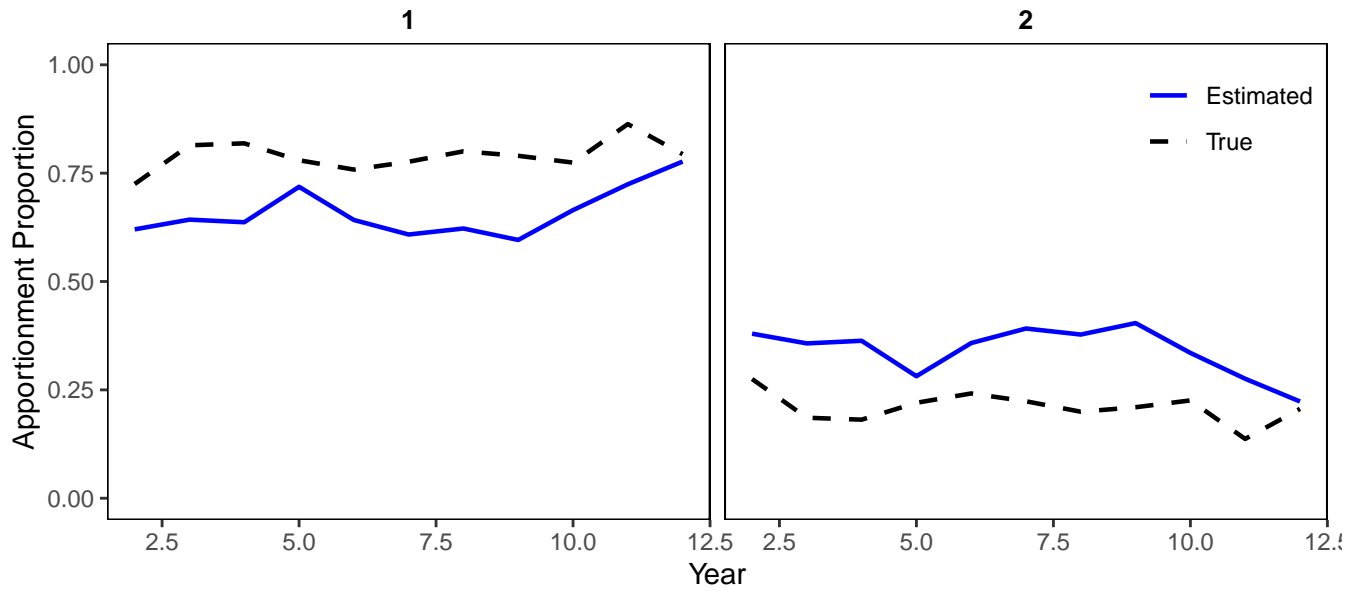
Recruitment Deviations



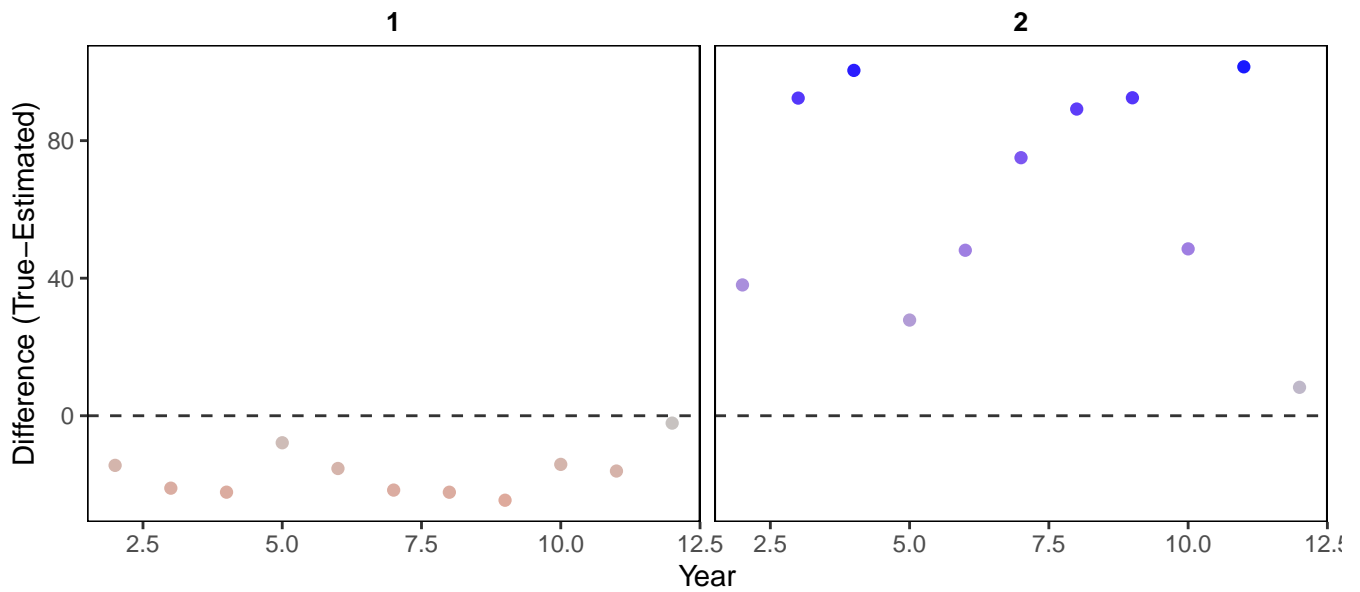
Recruitment Devs Residuals



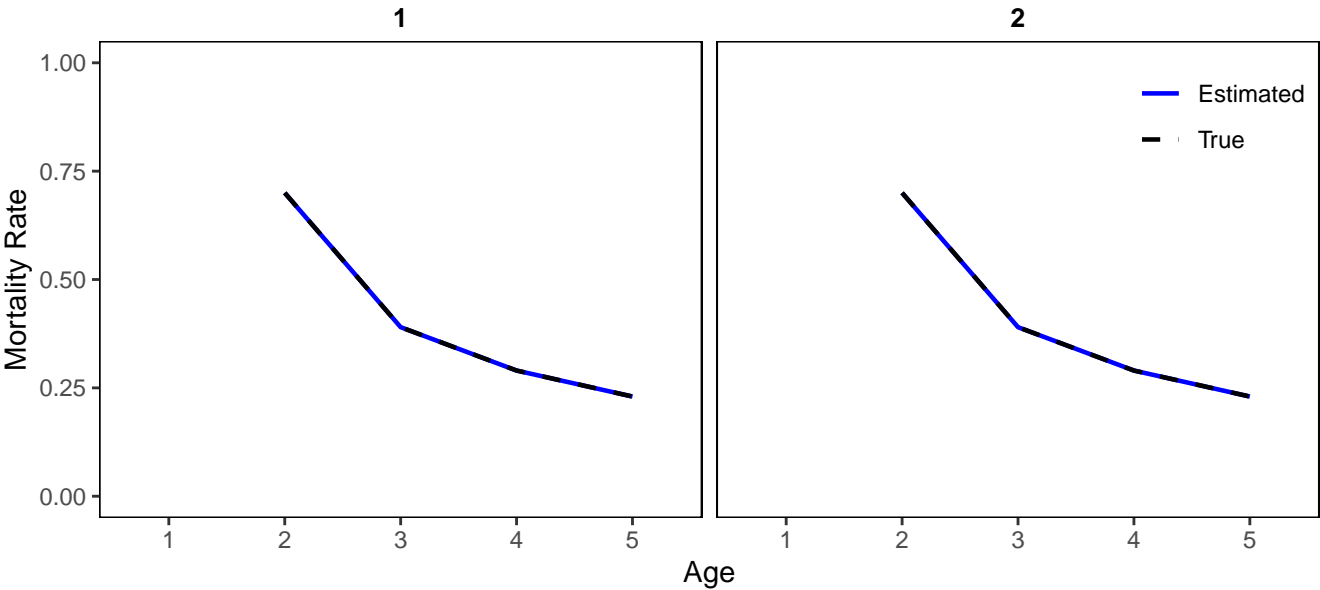
## Recruitment Apportionment



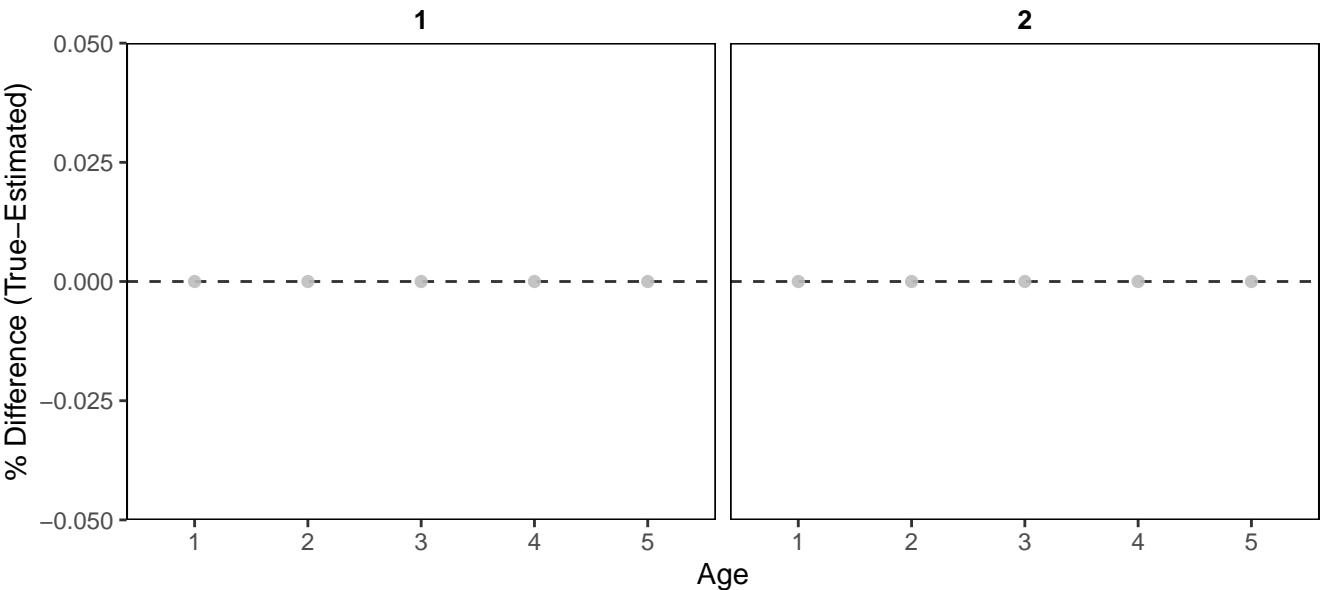
## Recruitment Apportionment Residuals



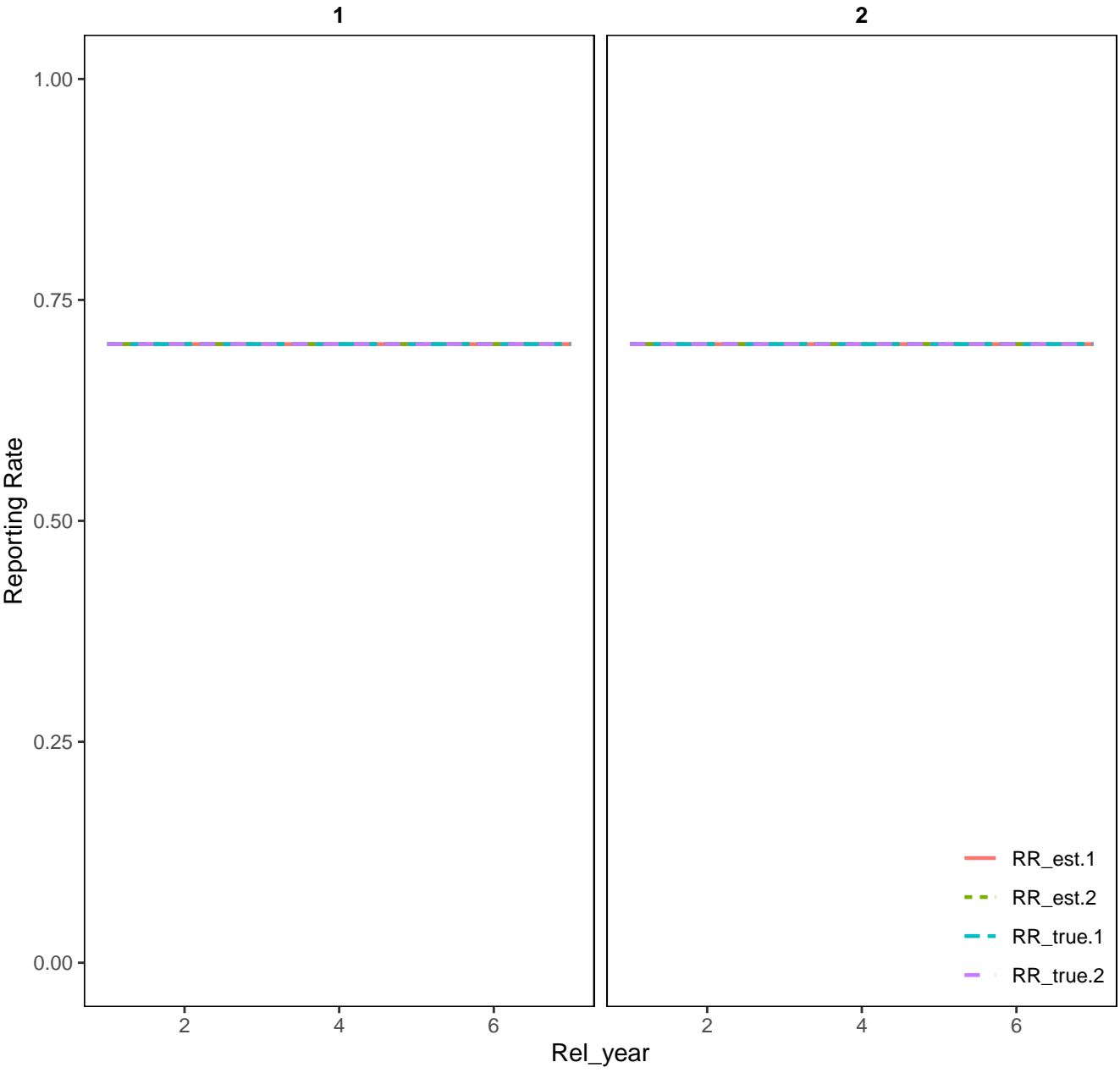
Mortality Rate



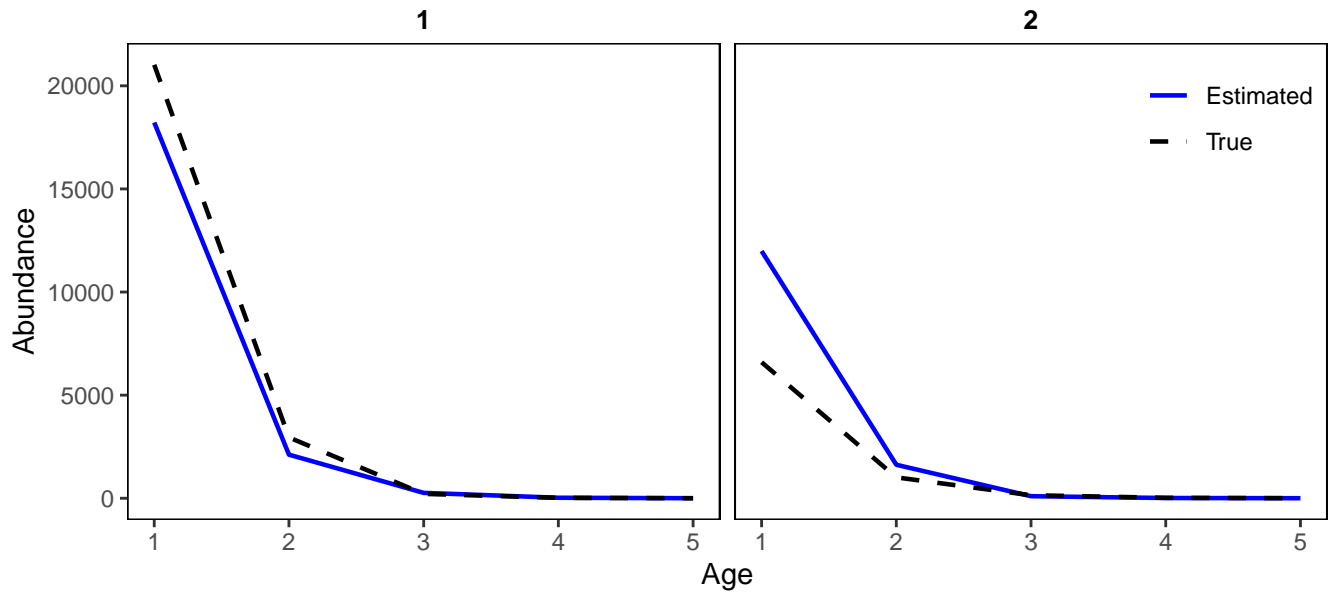
Mortality Rate Residuals



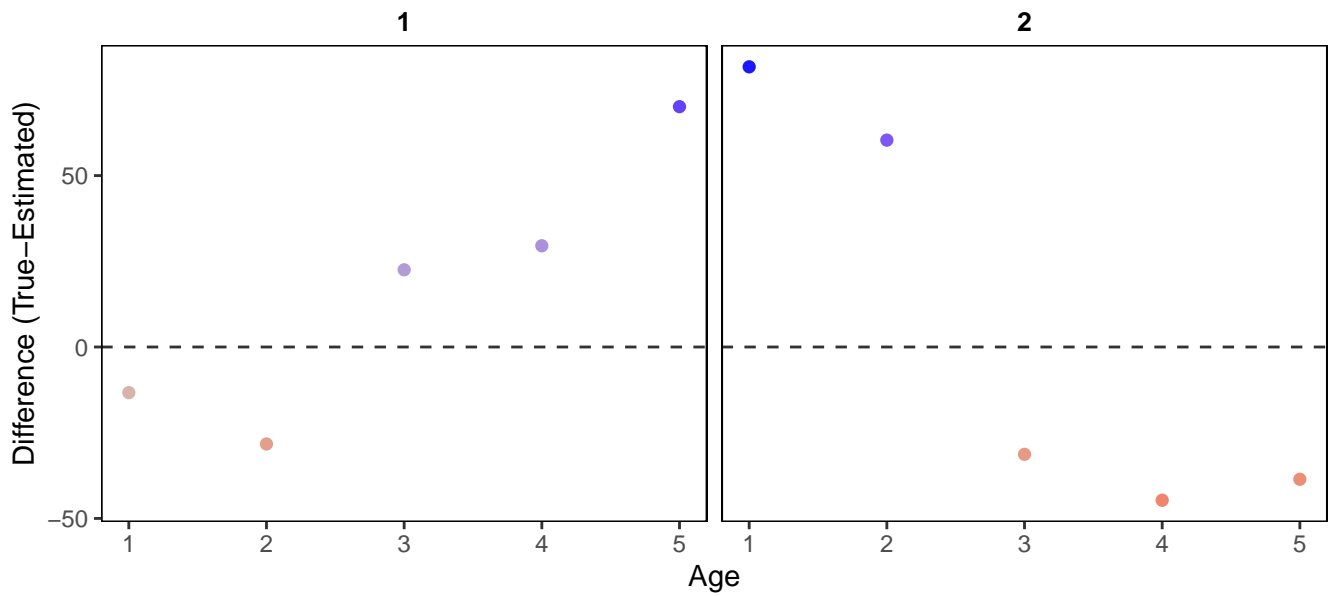
Reporting Rate



Initial Abundance

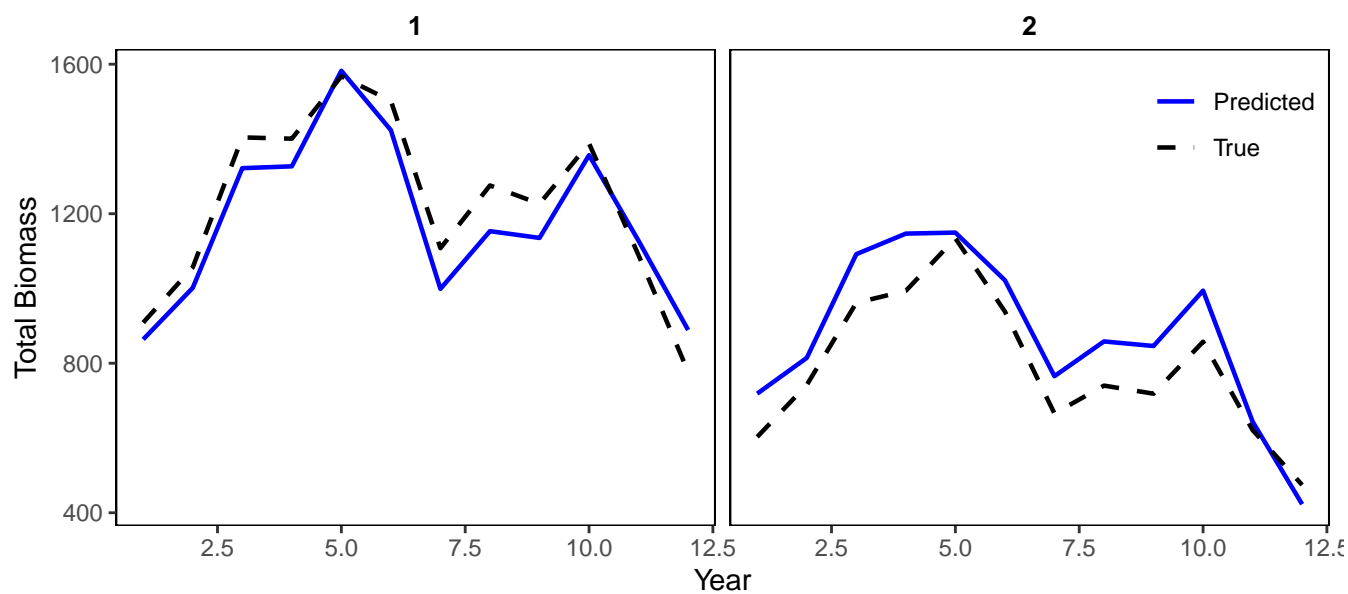


Initial Abundance Residuals

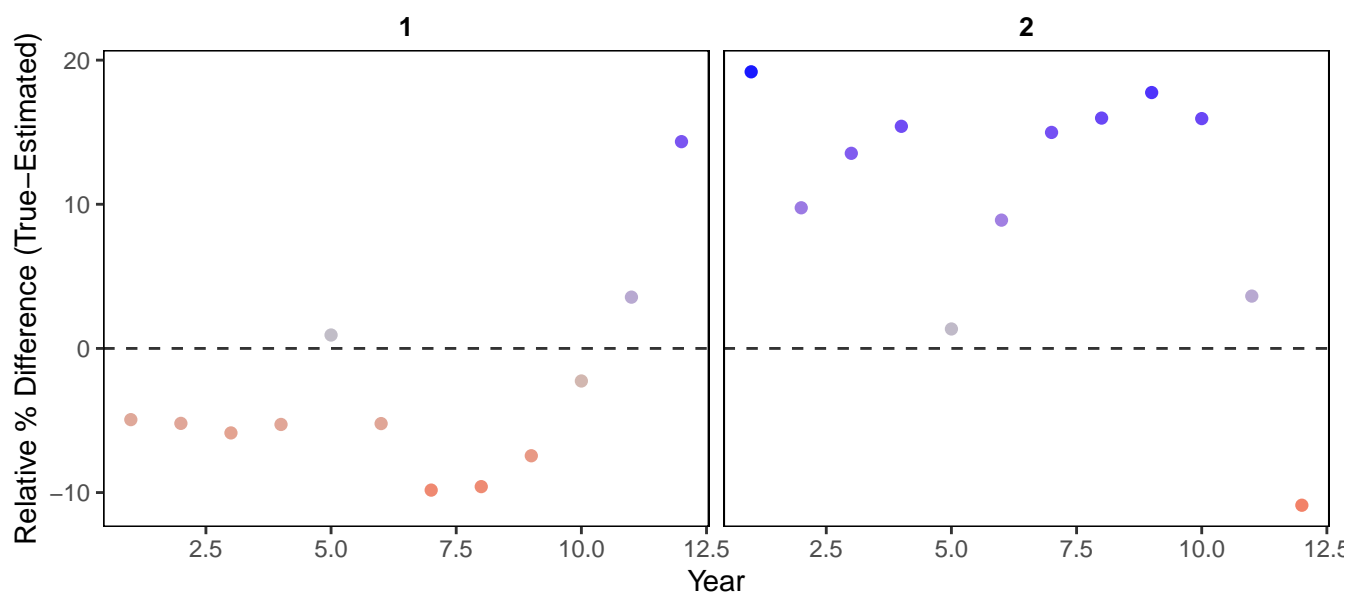




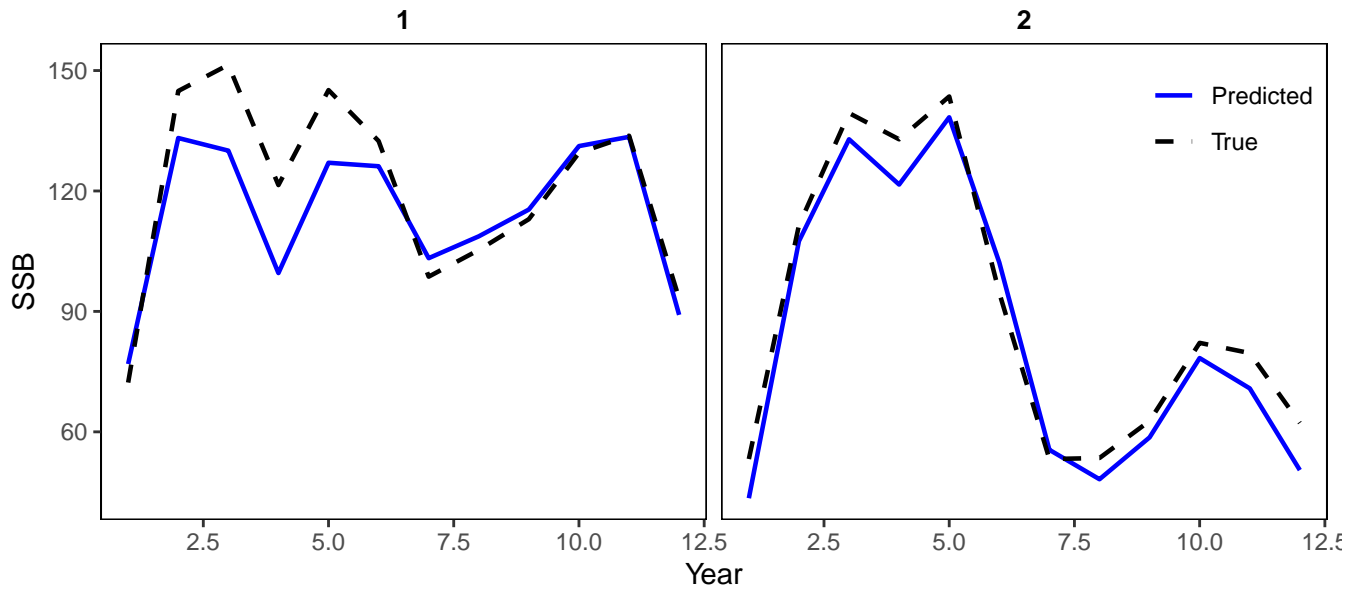
# Total Biomass



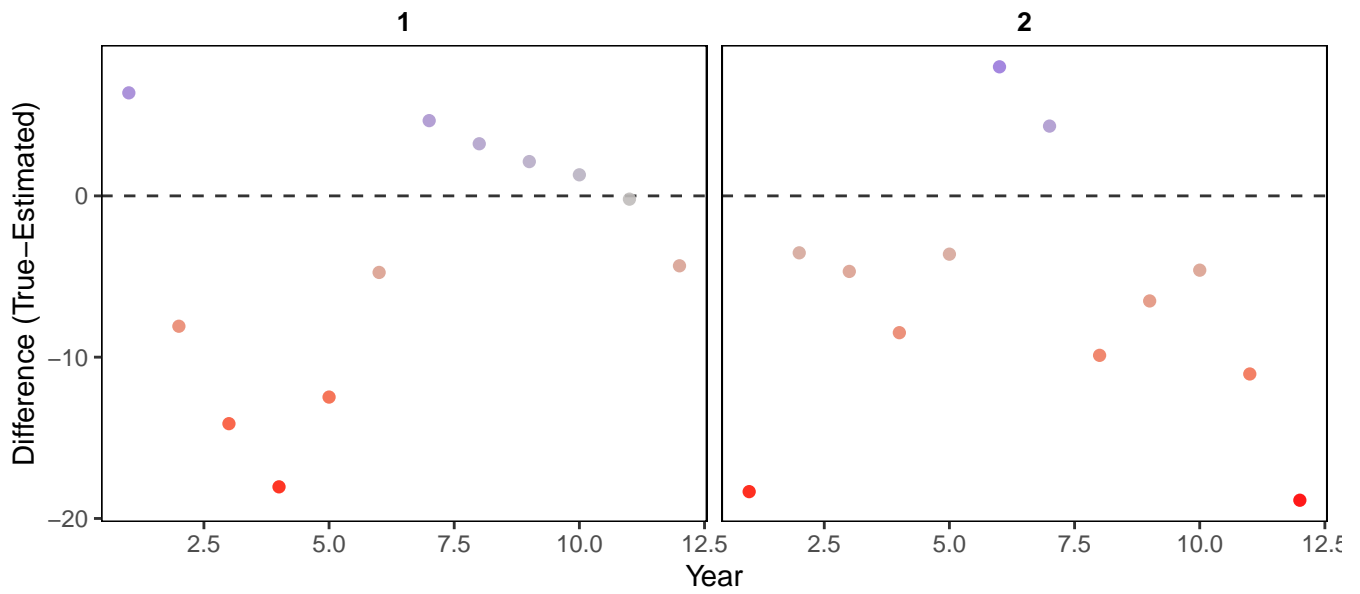
# Biomass Residuals



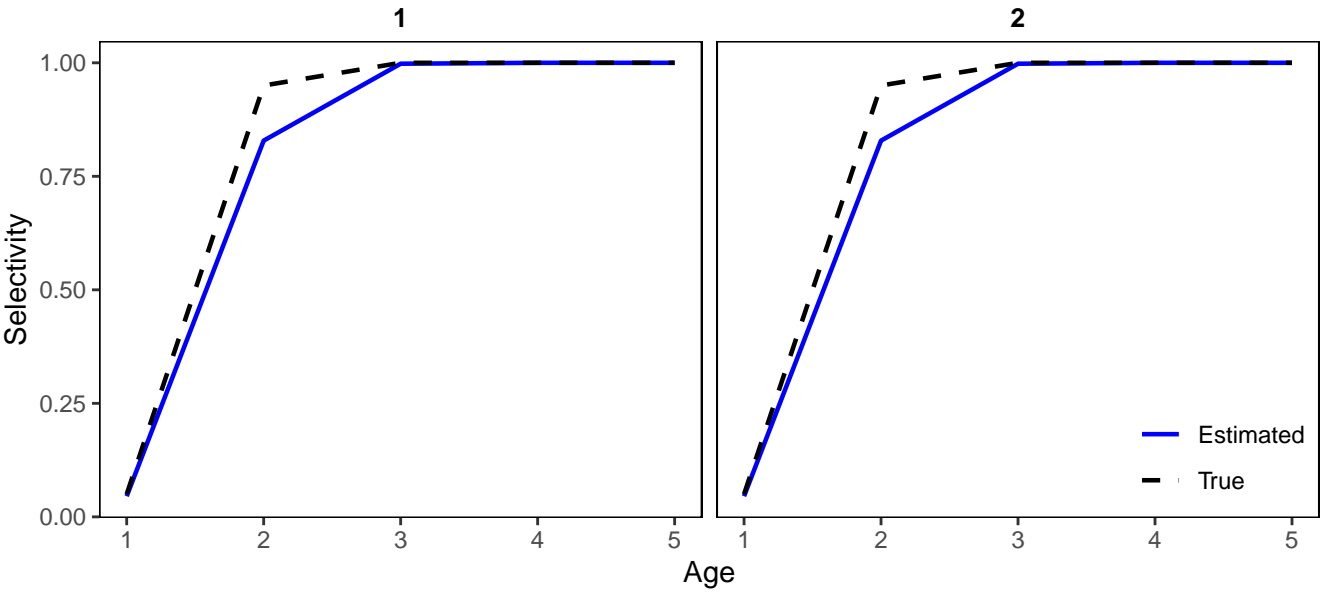
## SSB



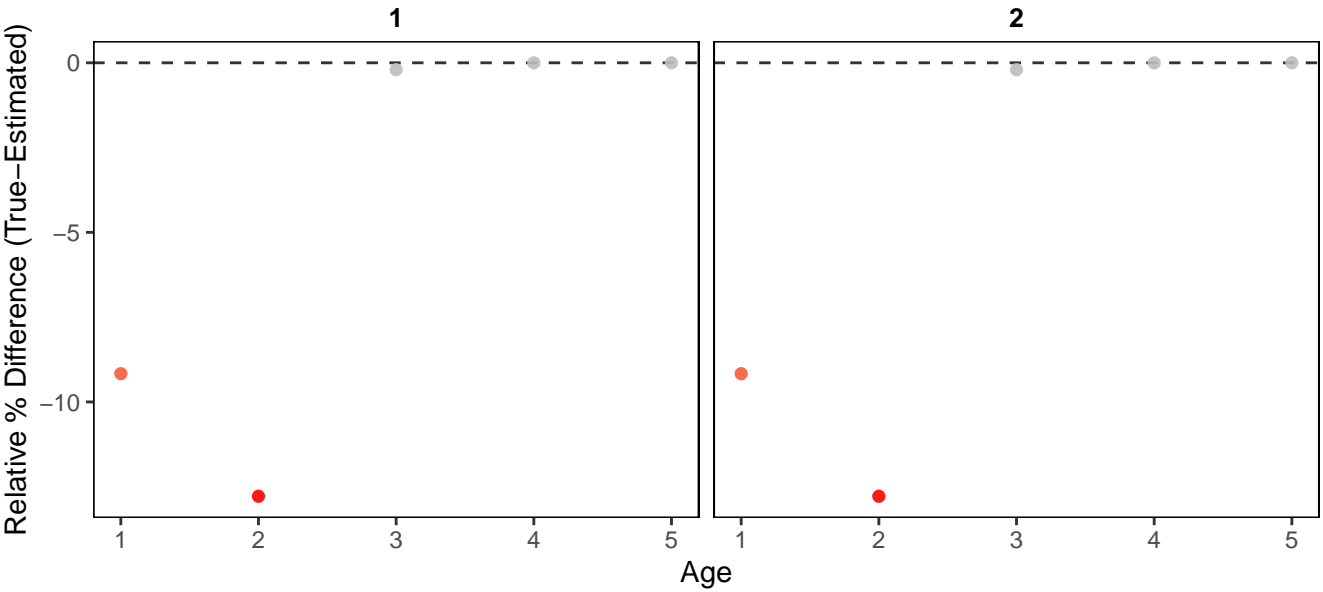
## SSB Residuals



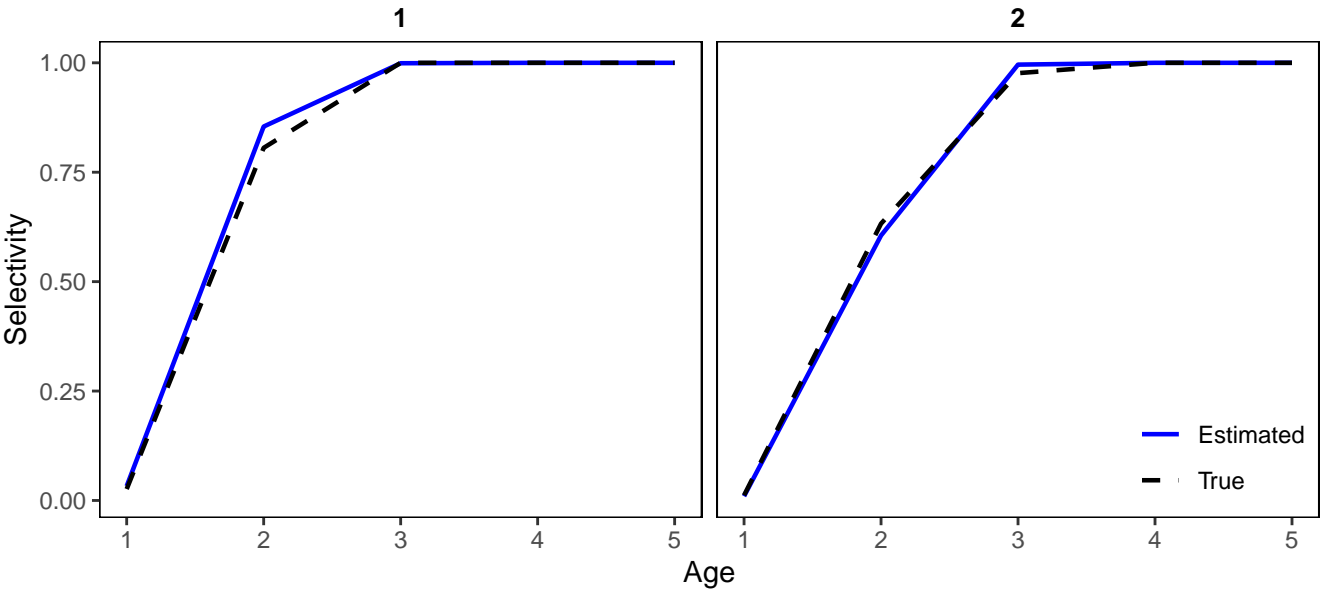
Survey Selectivity



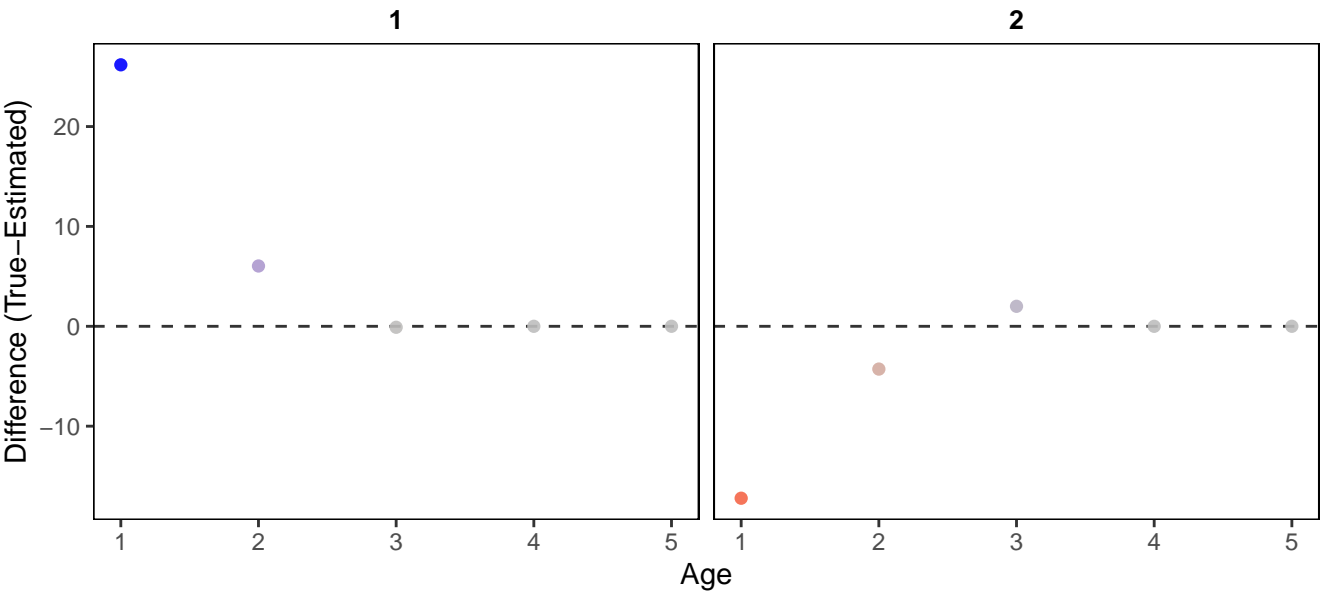
Survey Selectivity Residuals



Fishery Selectivity

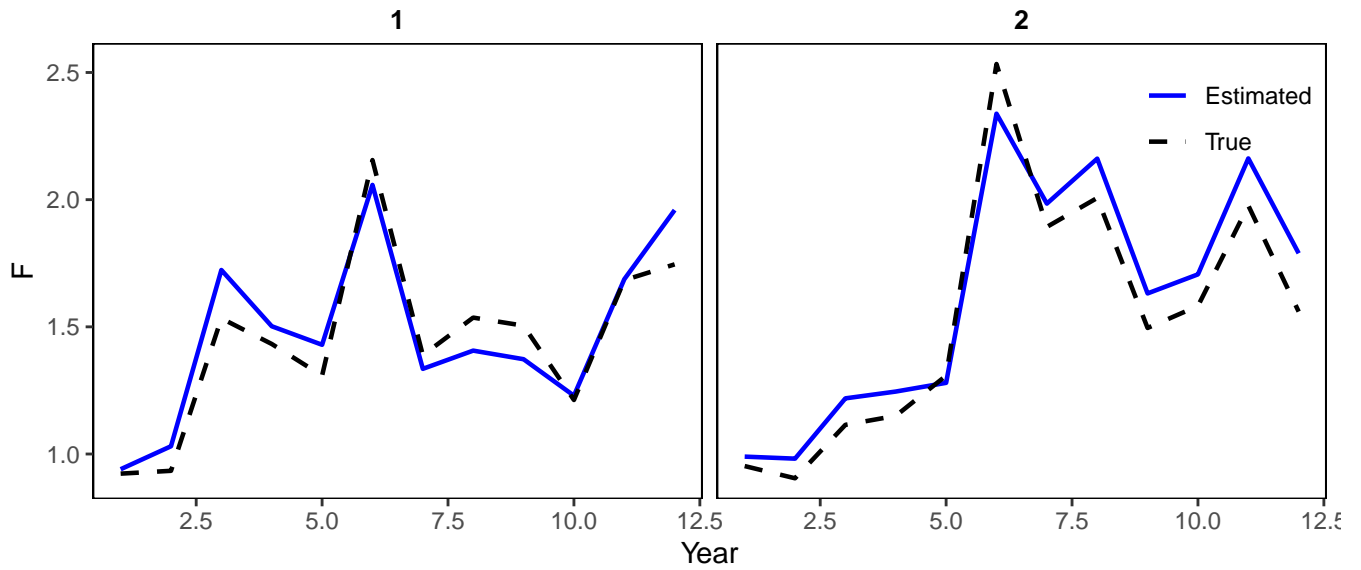


Fishery Selectivity Residuals

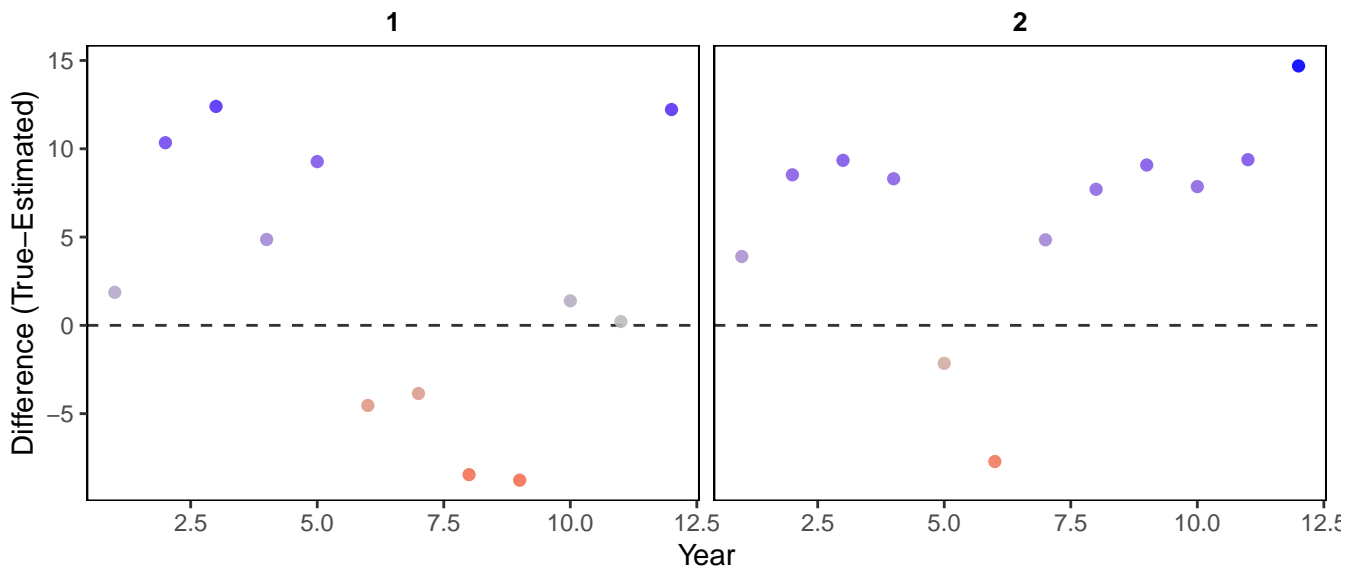


## Fishing Mortality

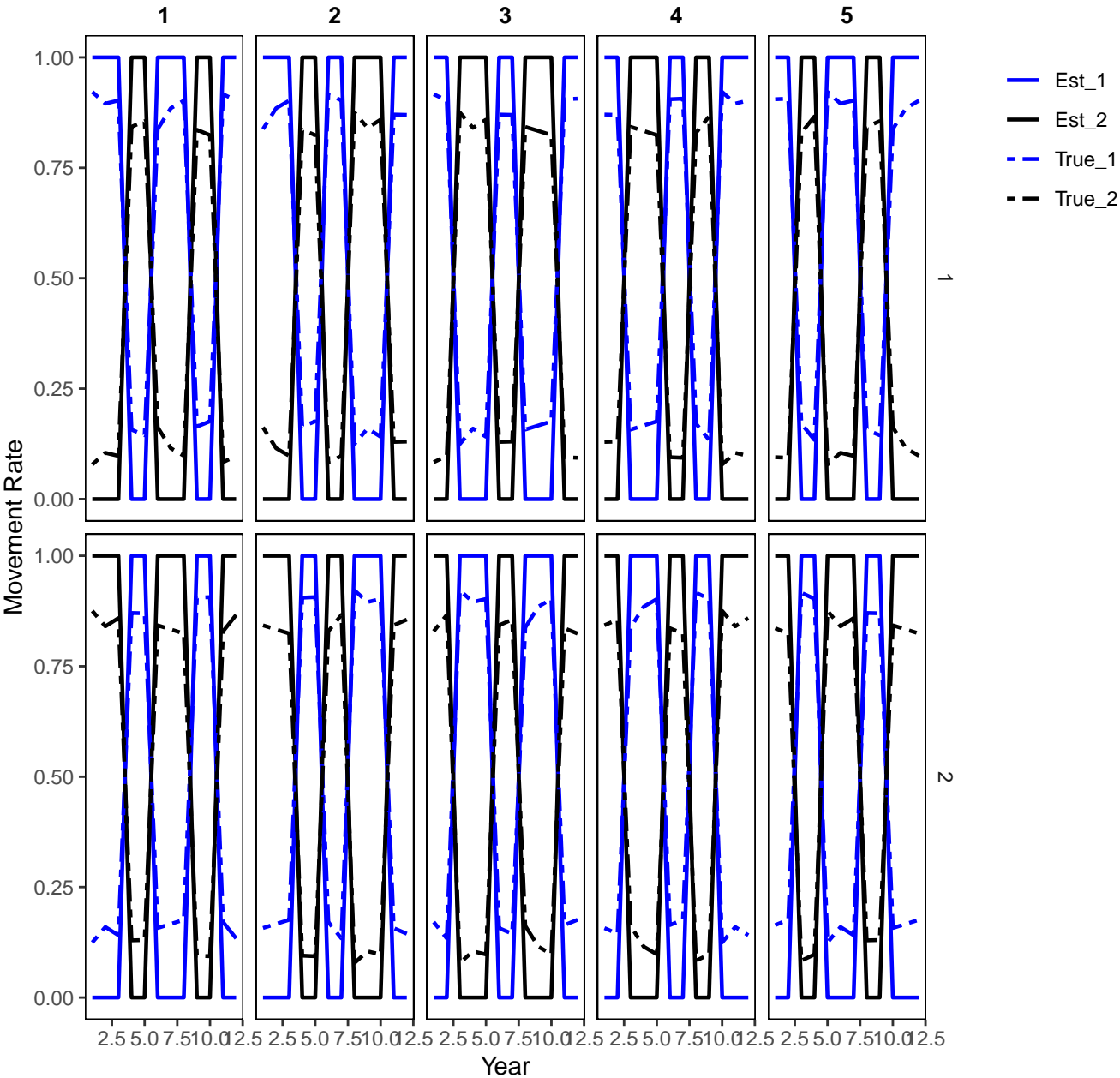
### Fully selected F by Year



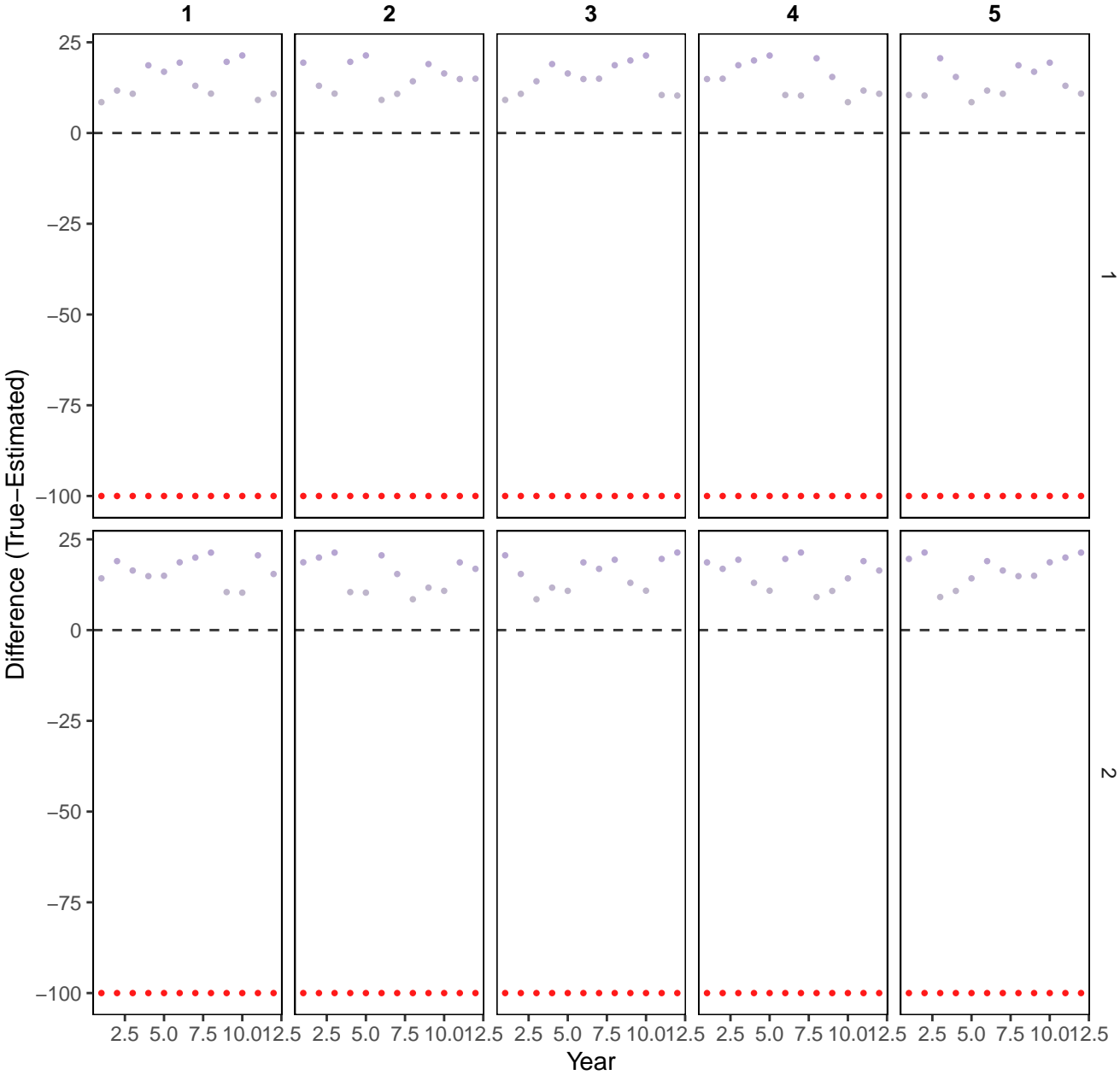
### Fully Selected F Residuals



Yearly Movement Rate

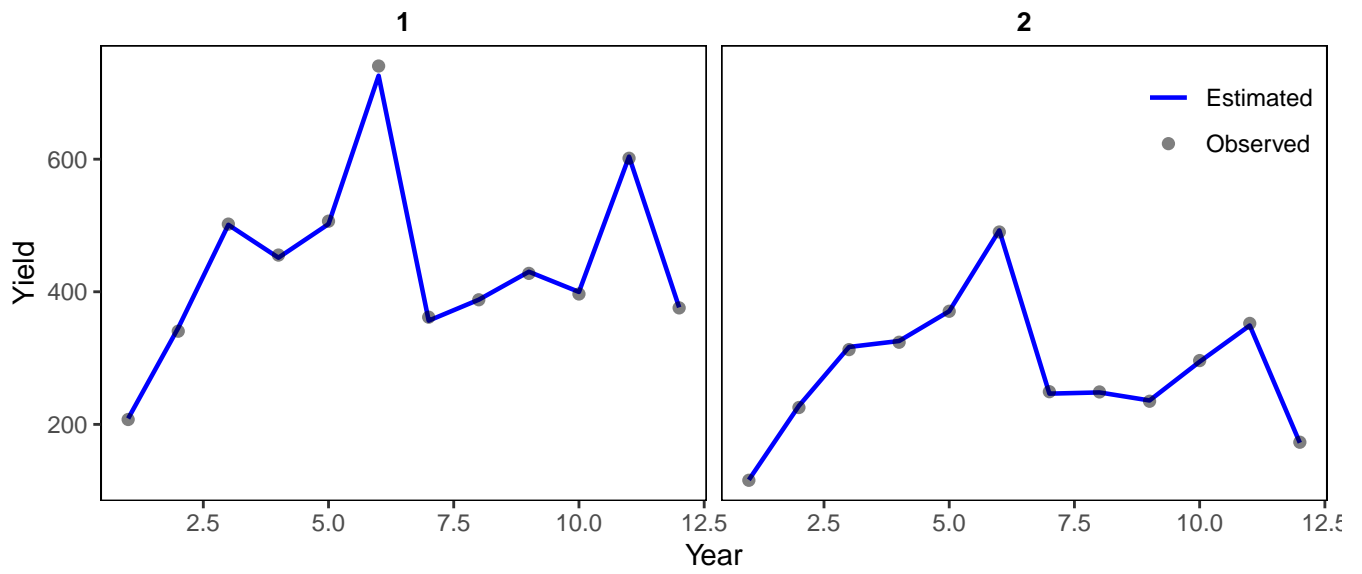


Yearly Movement Rate Residuals

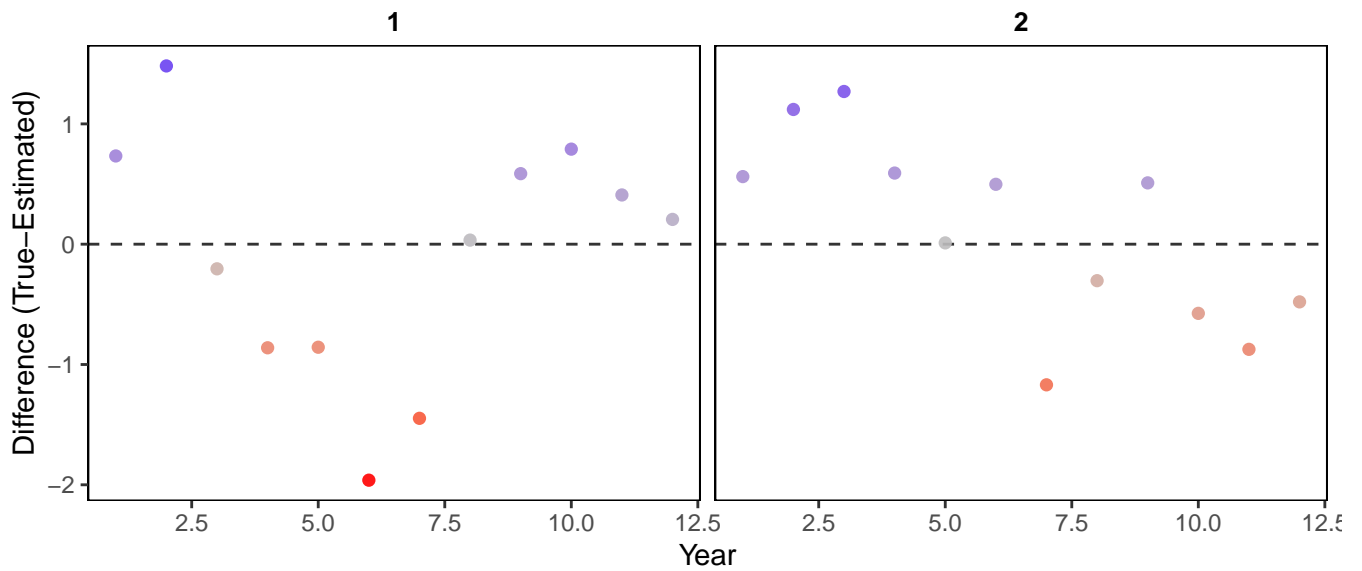


## Fits to Data

Yield



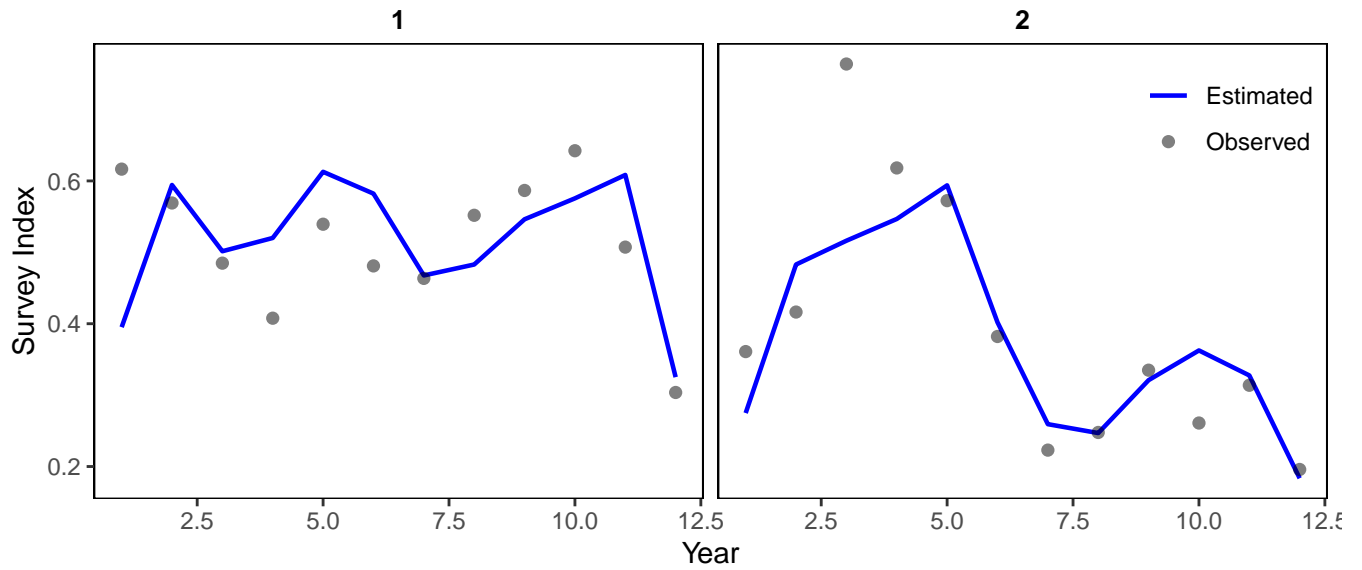
Yield Residuals



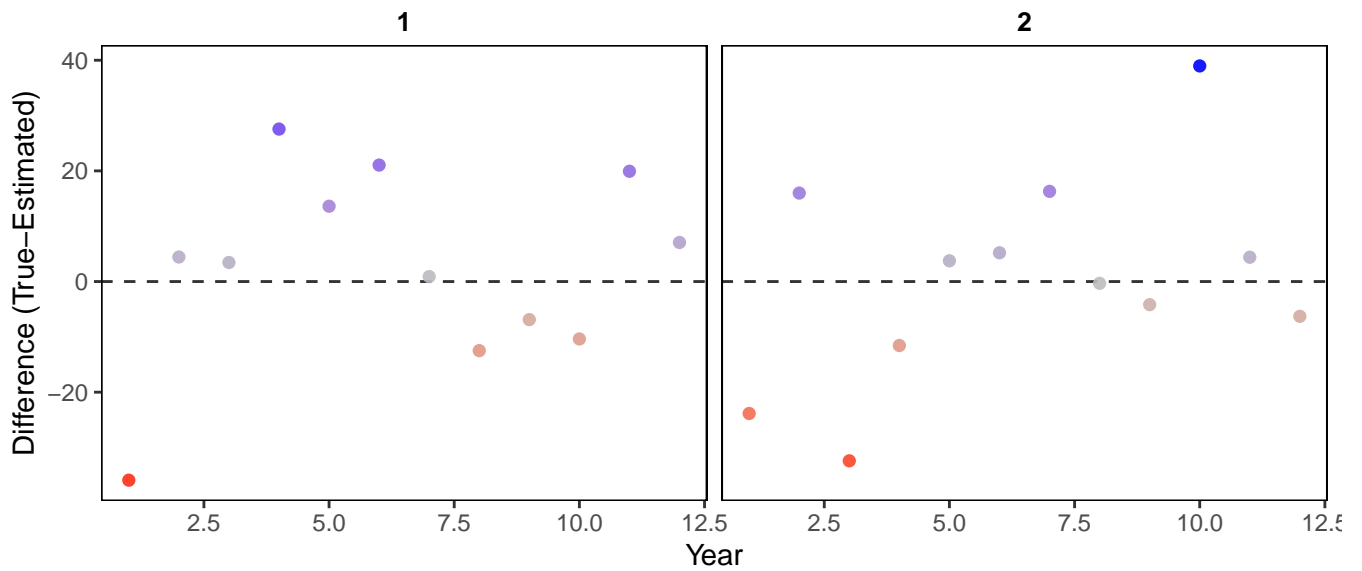


## Fits to Data continued

### Survey Biomass



### Survey Index Residuals



Fits to Data continued

