

## *TIM Diagnostics*

### MODEL STRUCTURE

Match/Mismatch: Matching

Population Structure: Metapopulation

Diagnostic Run: NO. Uses OBS values as data inputs

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

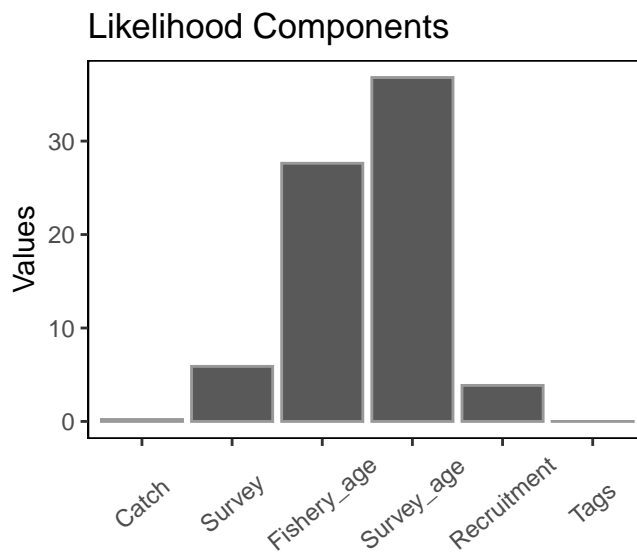
Run Time of Estimation: 0.1055 minutes

### OM Error Parameters

	Parameter	1	2
1	Sigma_Rec	0.4	0.4
2	Sigma_Rec_Apport	0.2	0.2
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 = 9.971944753921826



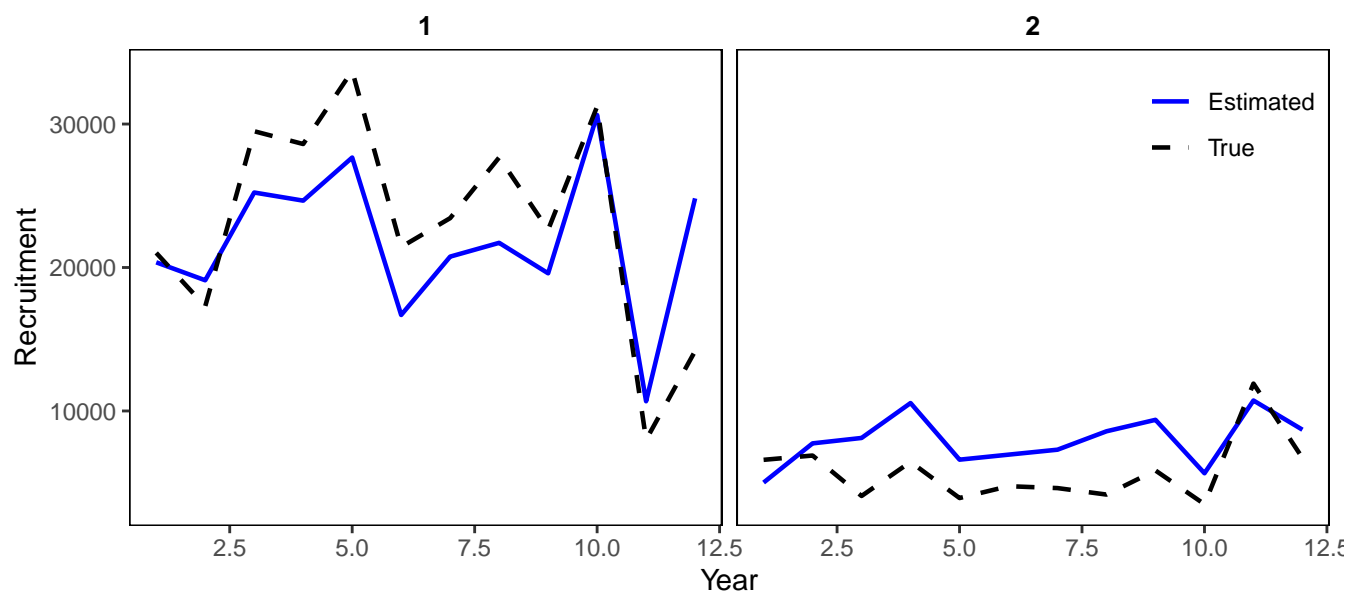
Estimated Parameter Values

	Parameter	1	2
1	q	0.00	0.00
2	R_ave	22992.90	8743.42
3	beta 1 fishery	5.12	4.85
4	beta 2 fishery	1.68	1.99
5	beta 3 fishery	NA	NA
6	beta 4 fishery	NA	NA
7	beta 1 survey	7.39	4.39
8	beta 2 survey	1.35	1.82
9	beta 3 survey	NA	NA
10	beta 4 survey	NA	NA

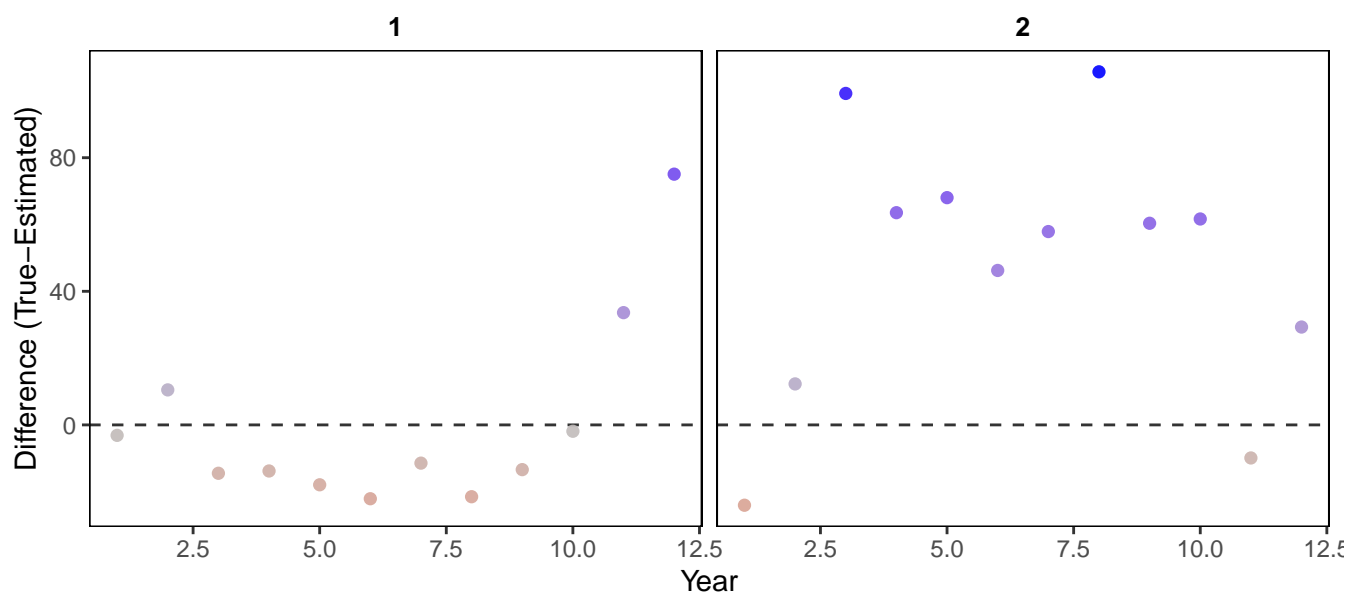
True Parameter Values

	Parameter	1	2
1	q	0.00	0.00
2	R_ave	21019.00	6596.00
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

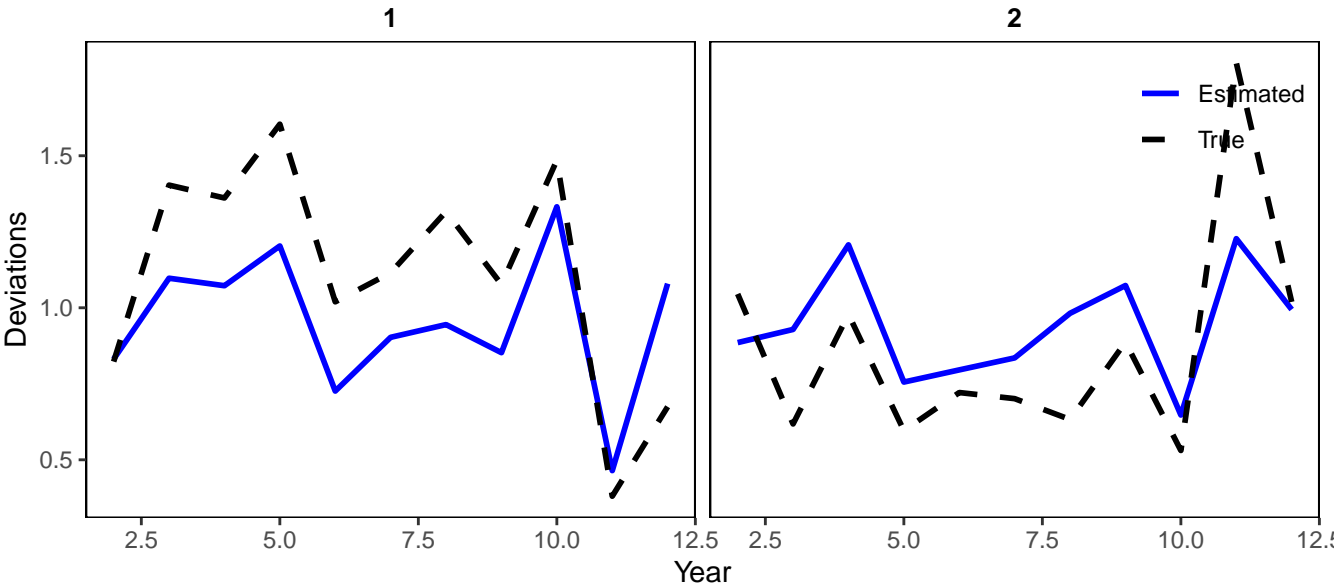
Recruitment Total



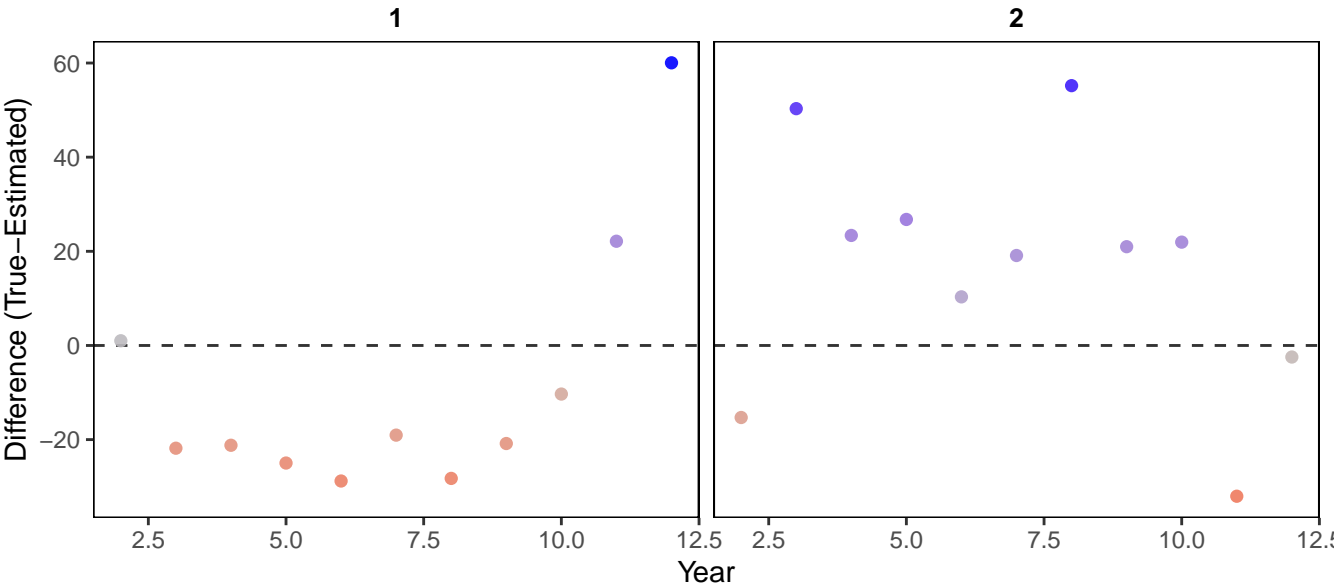
Recruitment Residuals



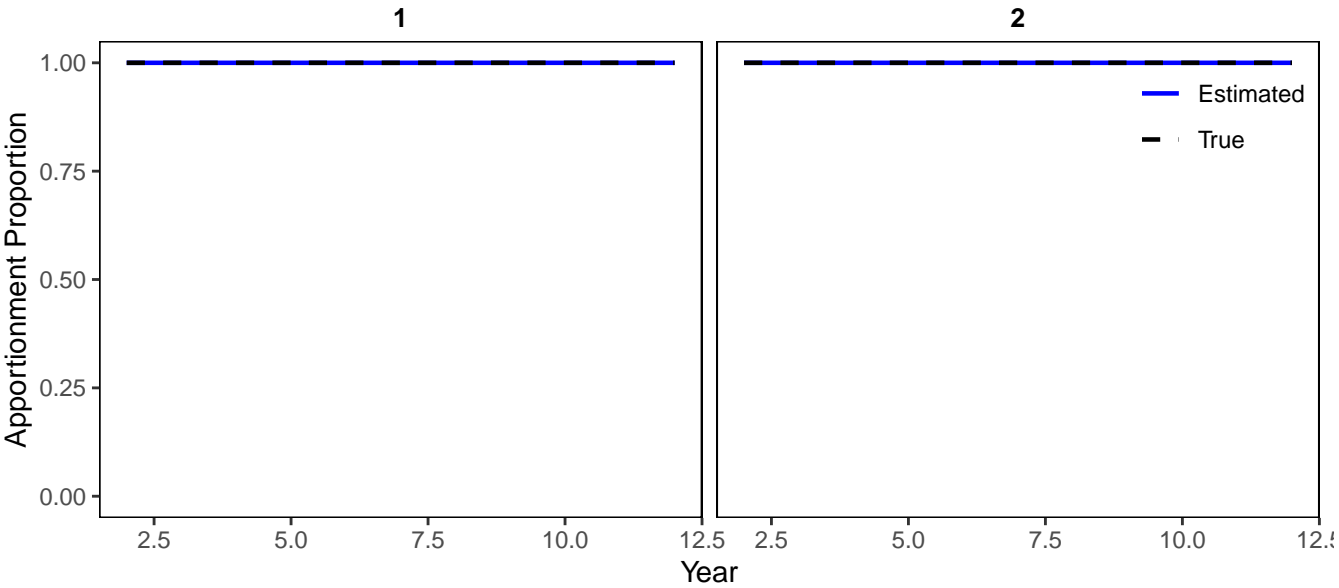
Recruitment Deviations



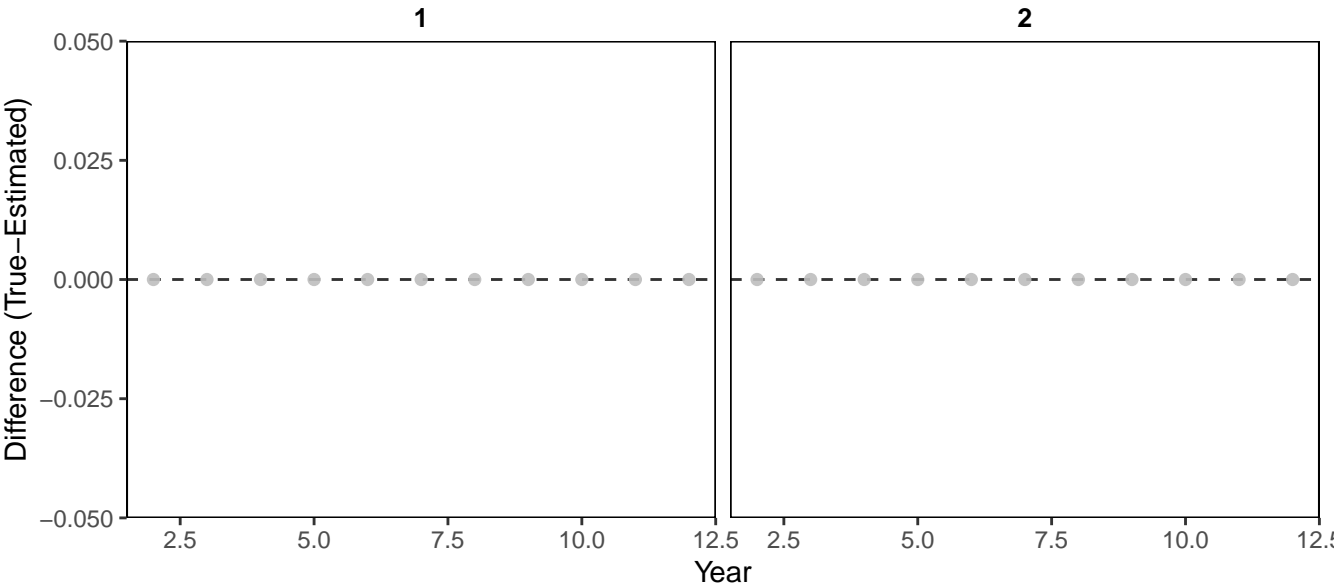
Recruitment Devs Residuals



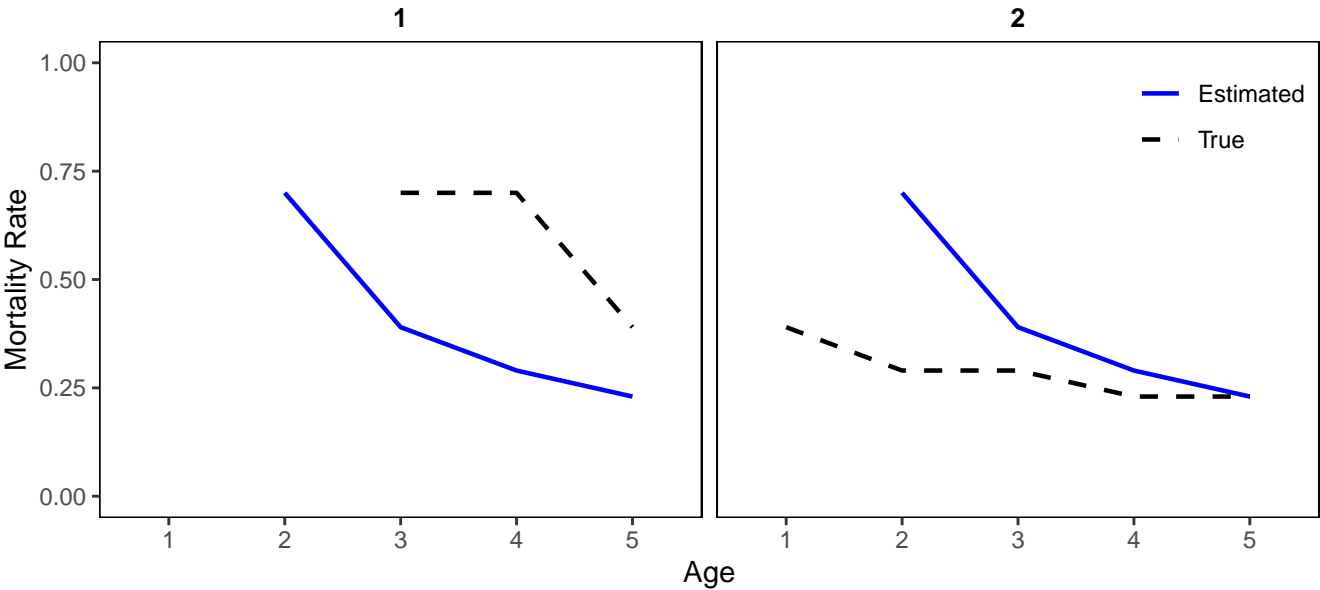
Recruitment Apportionment



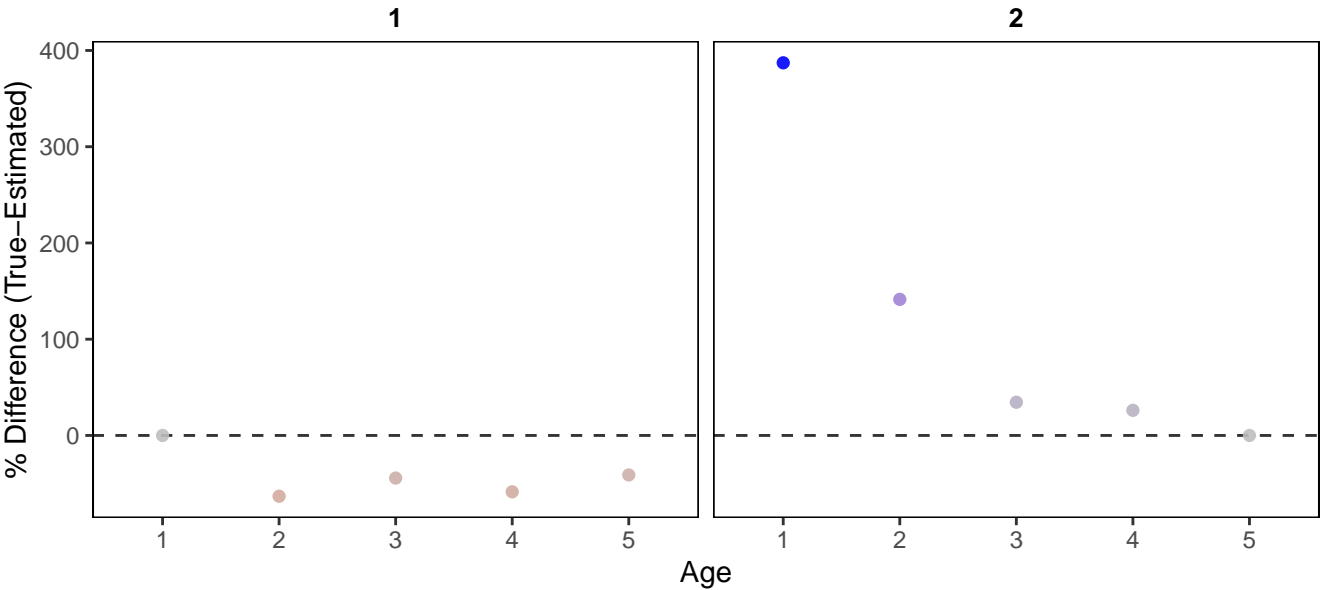
Recruitment Apportionment Residuals



Mortality Rate



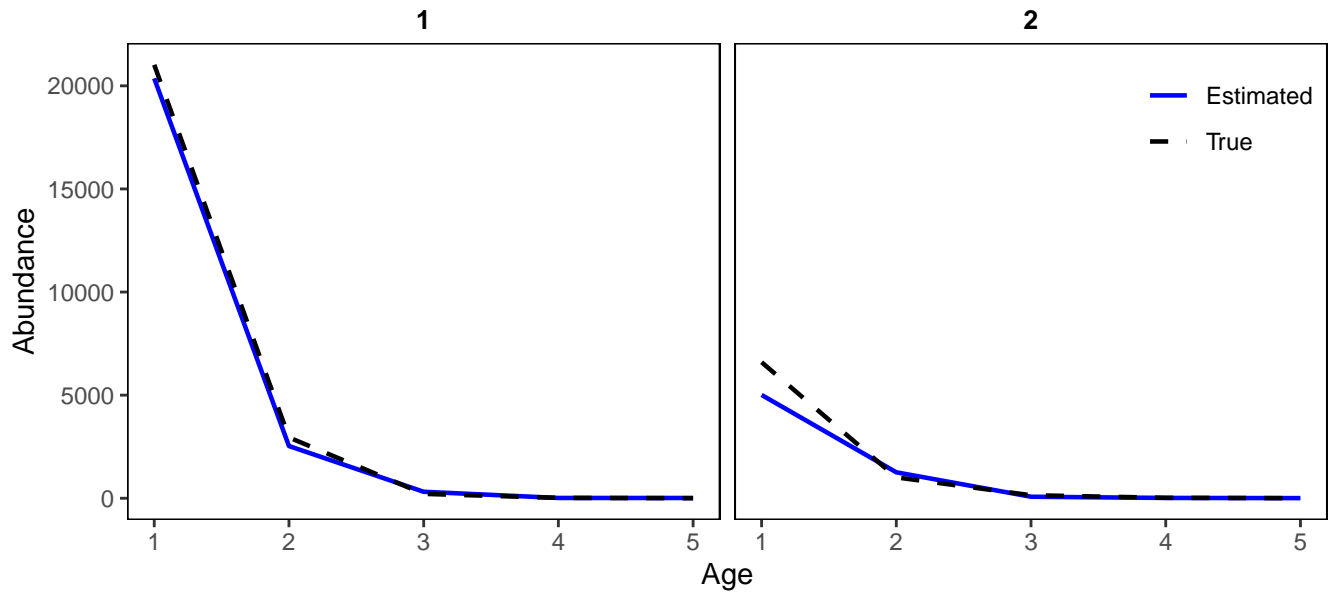
Mortality Rate Residuals



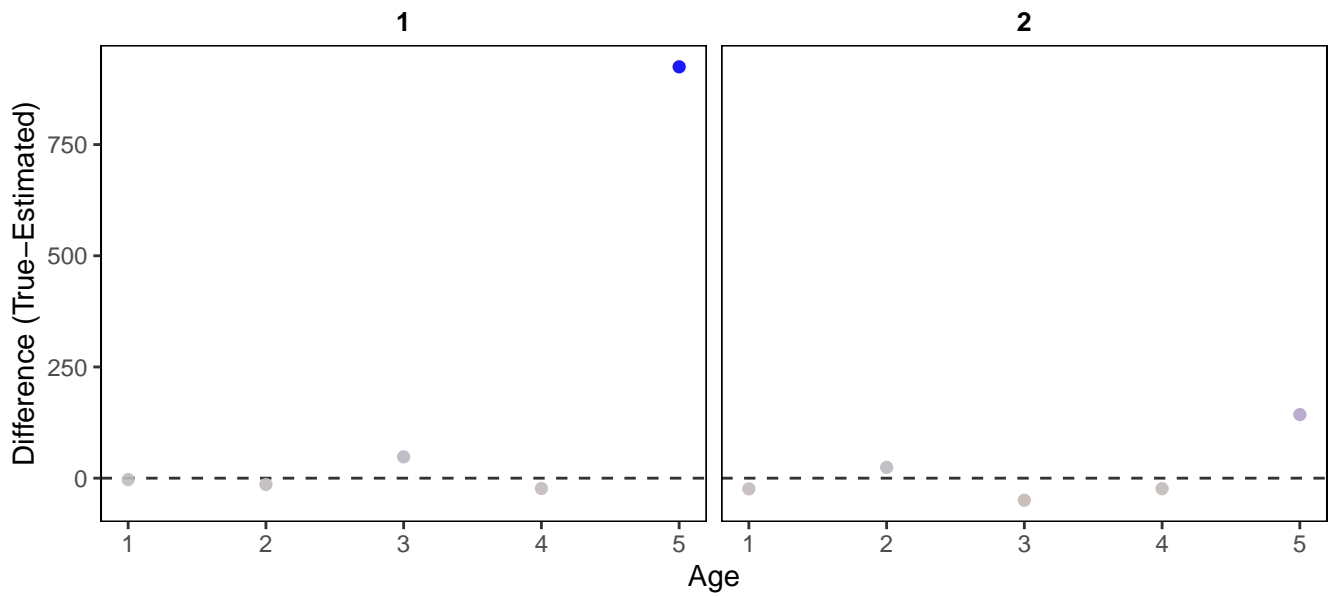
Reporting Rate



Initial Abundance

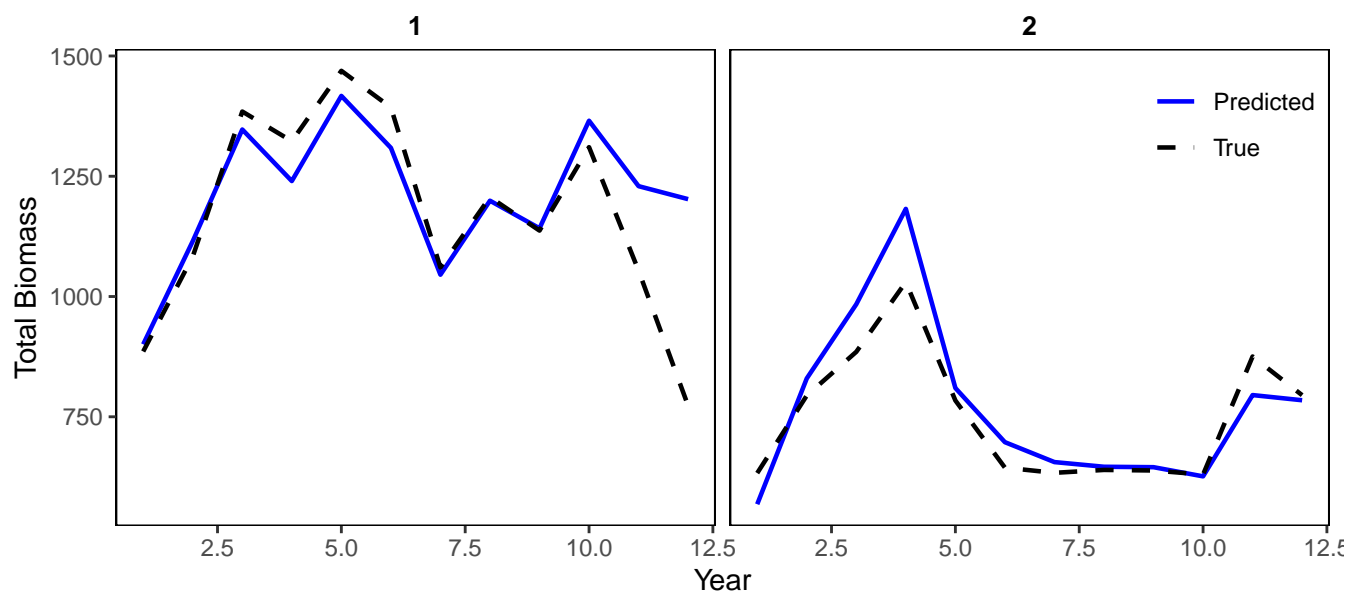


Initial Abundance Residuals

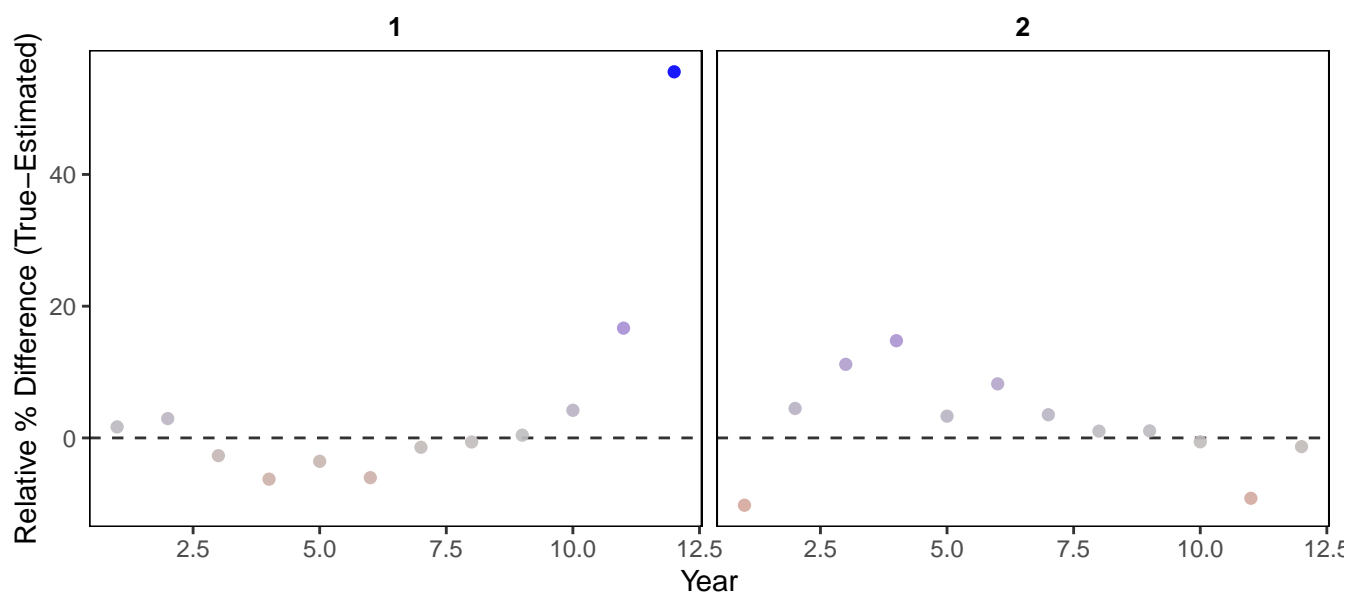




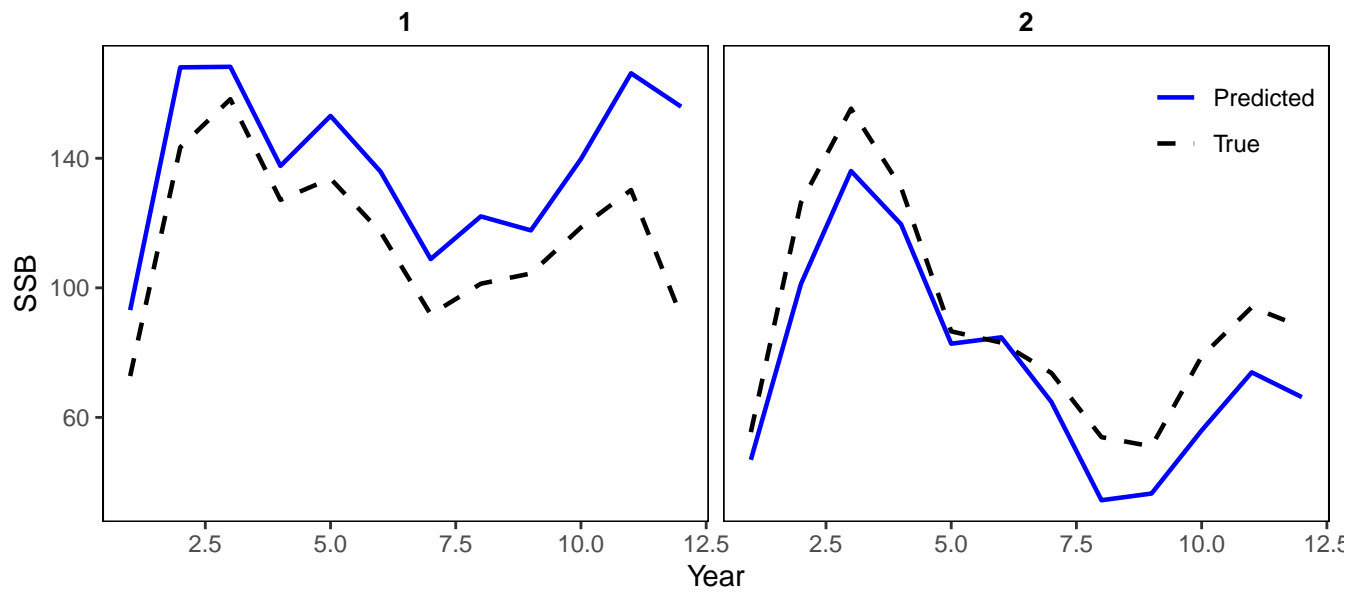
Total Biomass



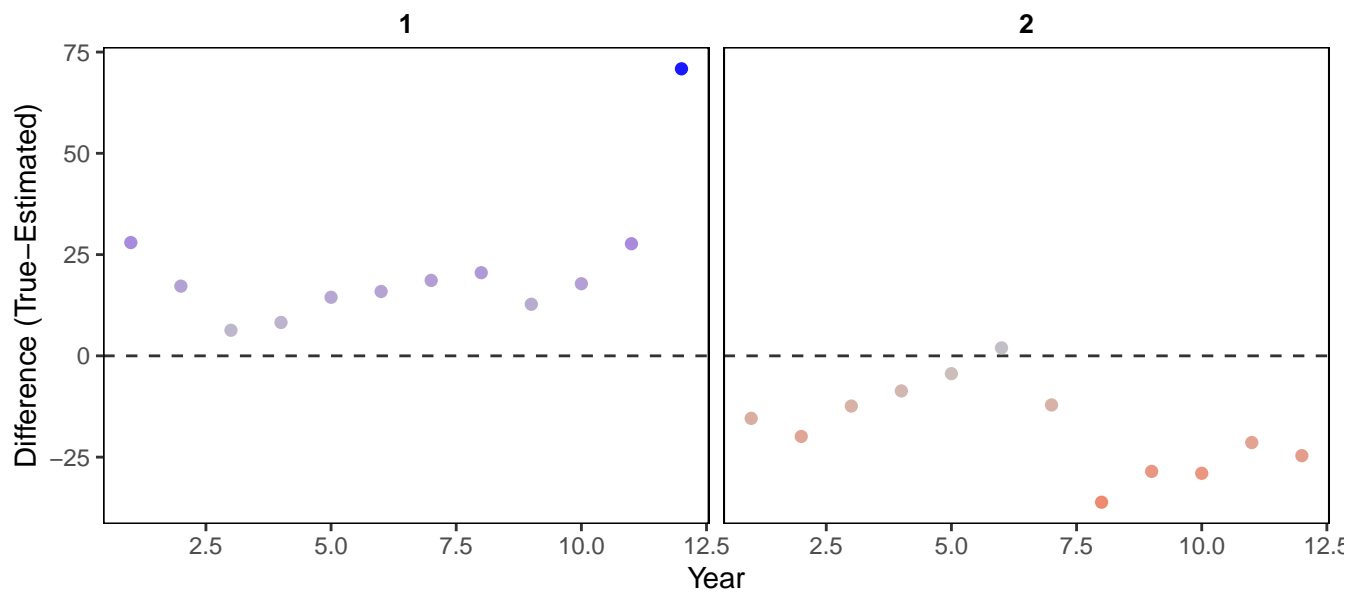
Biomass Residuals



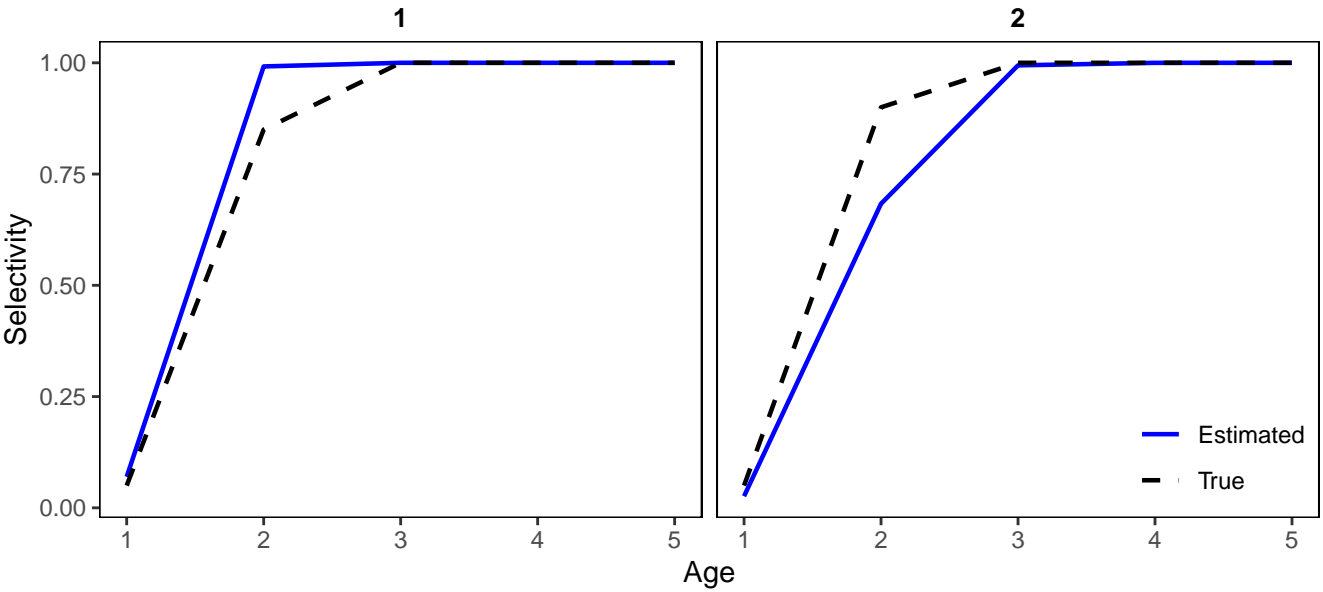
## SSB



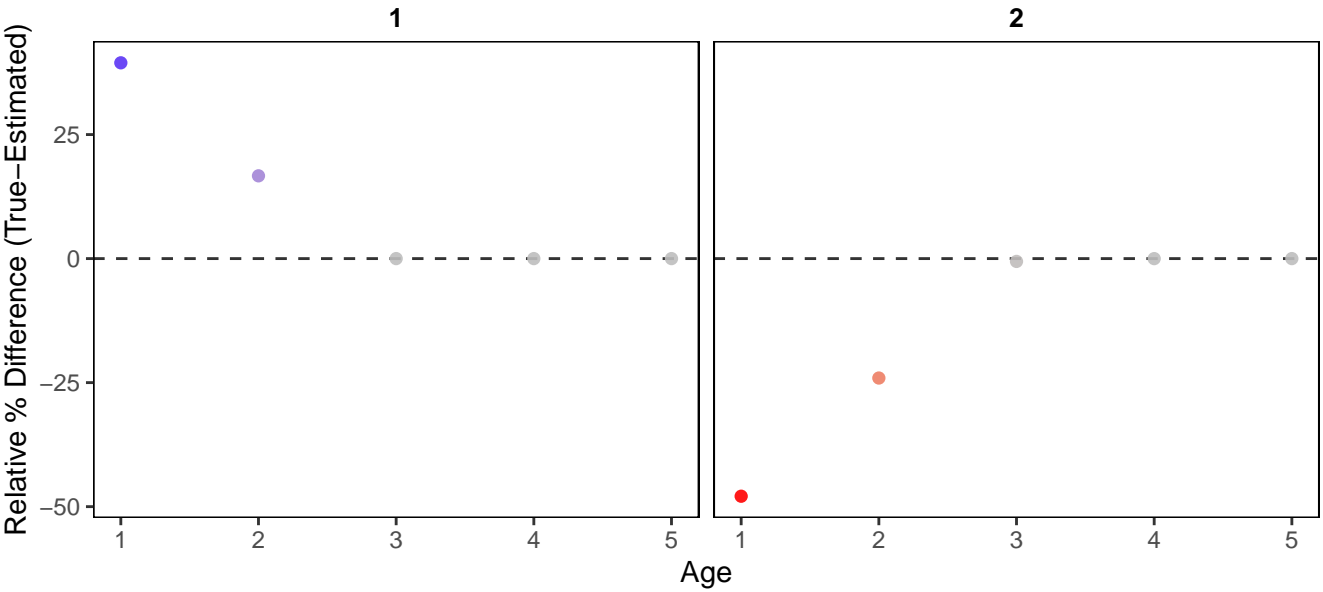
## SSB Residuals



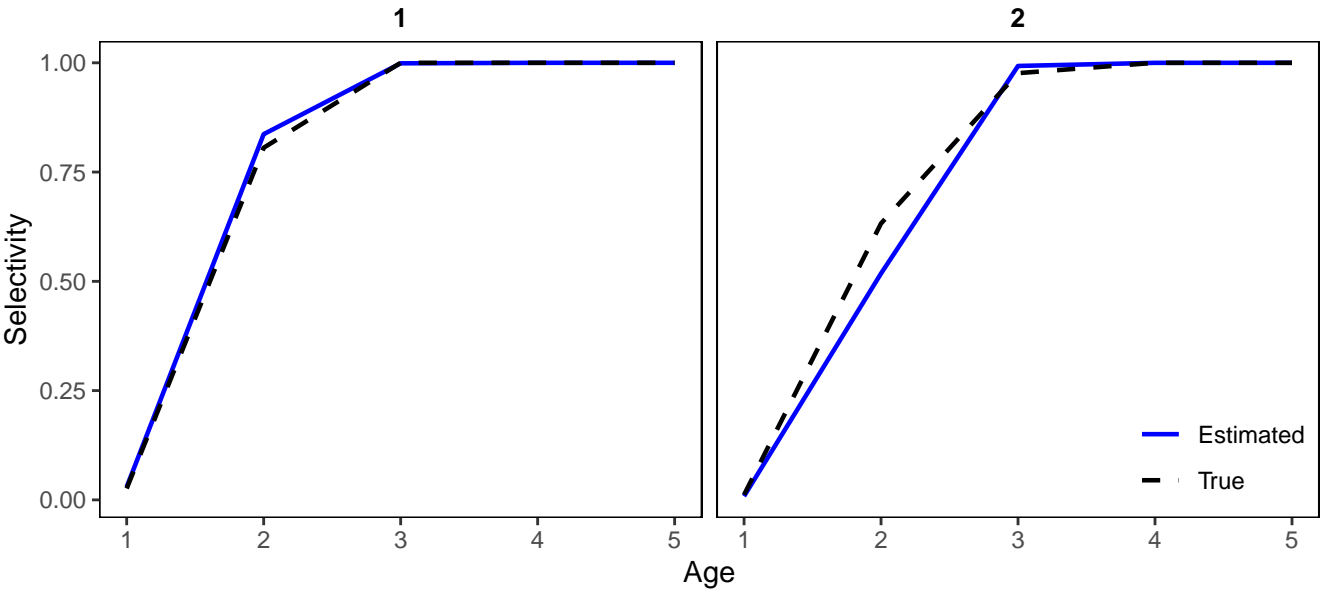
Survey Selectivity



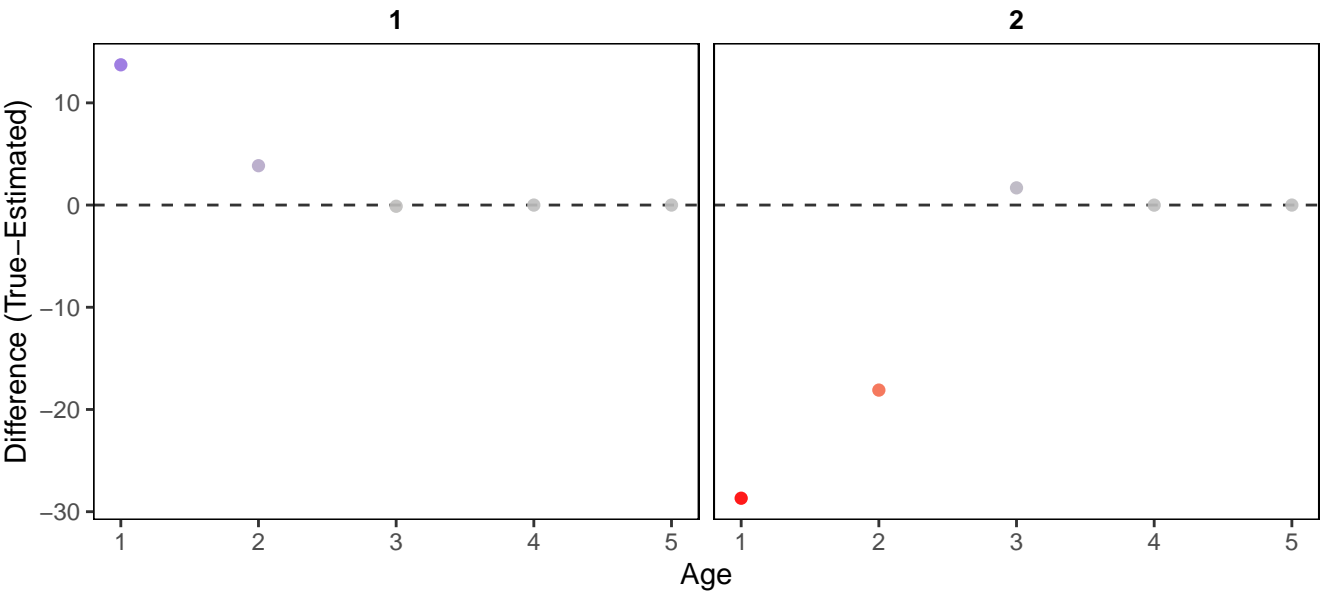
Survey Selectivity Residuals



Fishery Selectivity

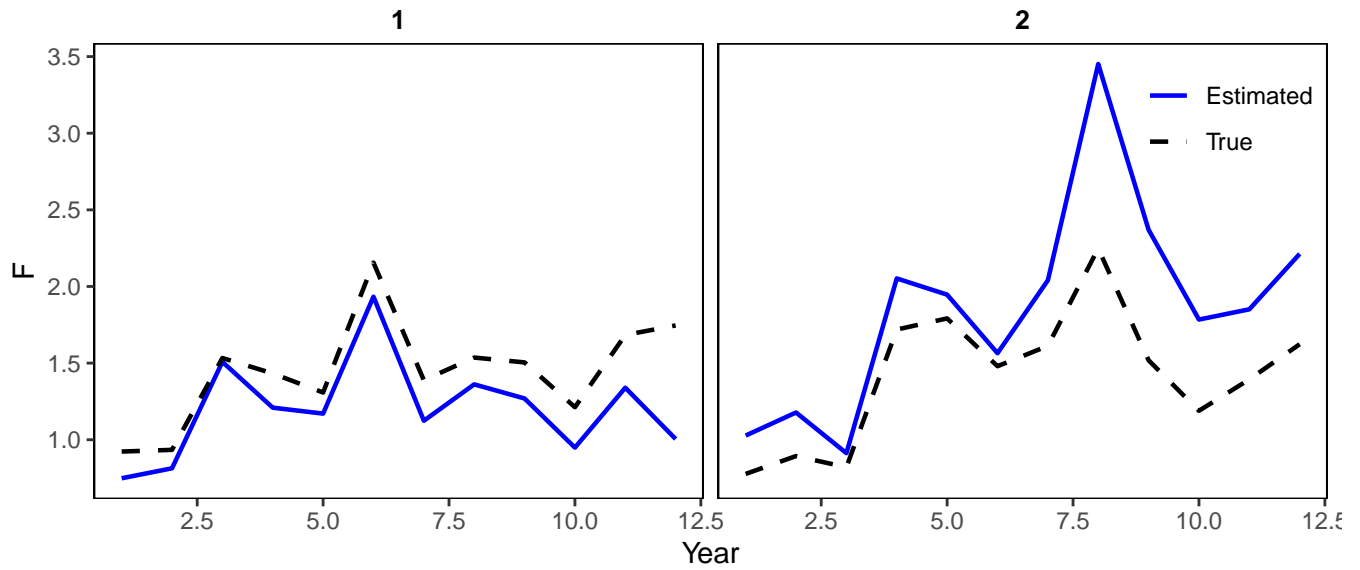


Fishery Selectivity Residuals

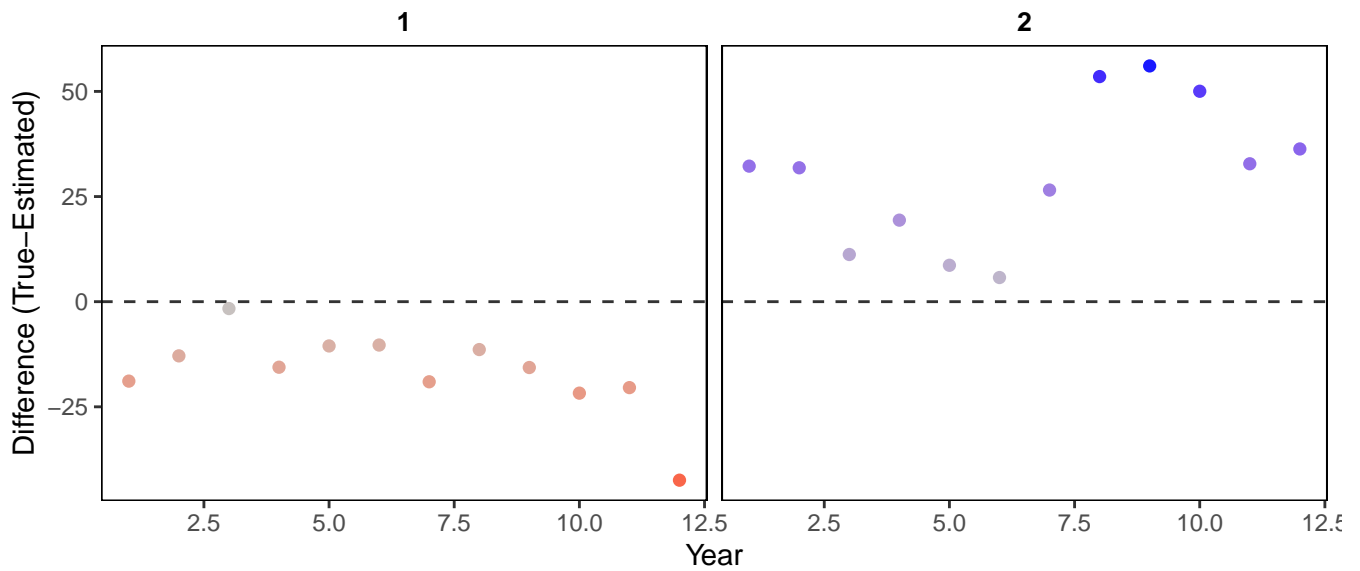


## Fishing Mortality

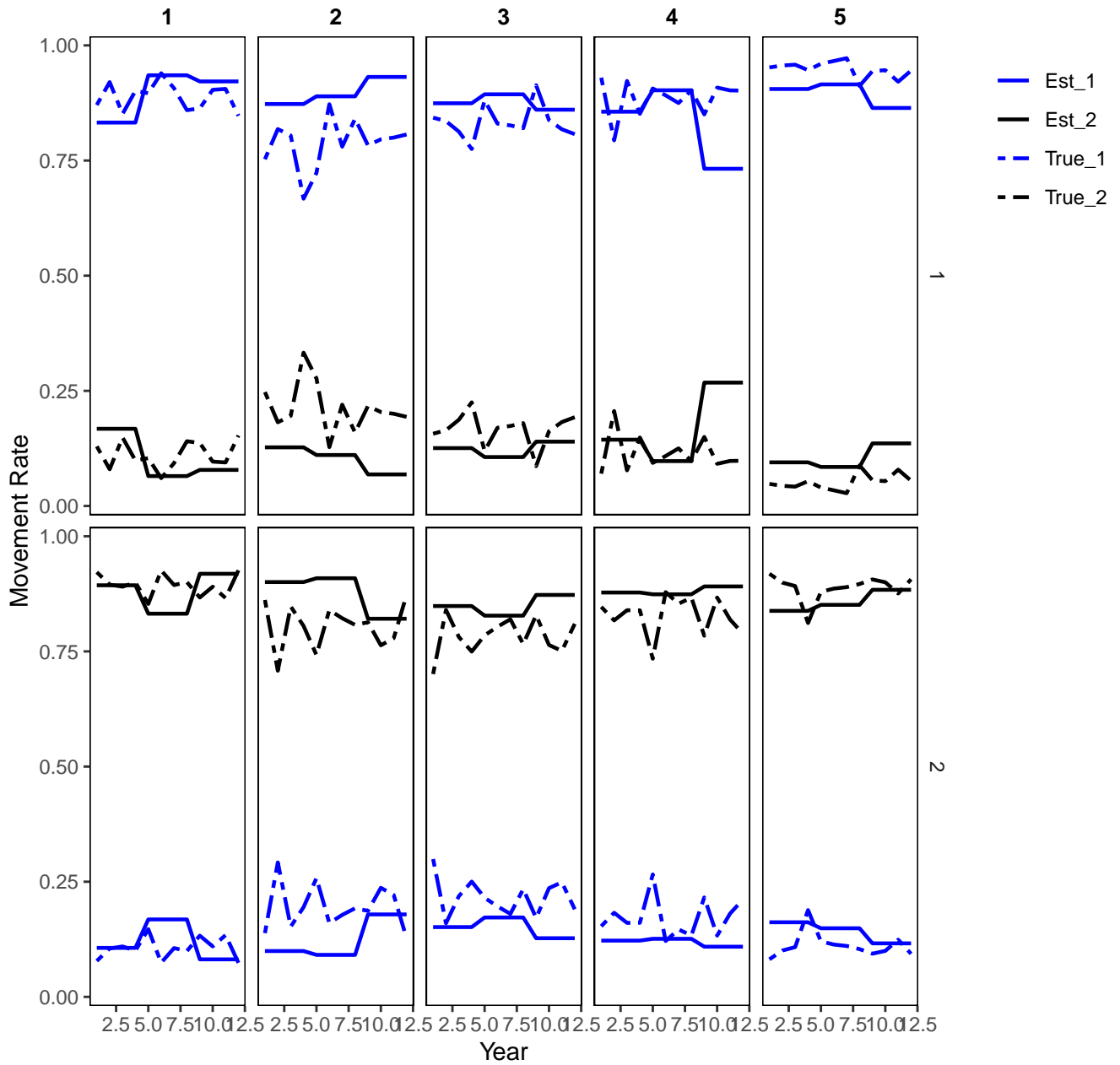
### Fully selected F by Year



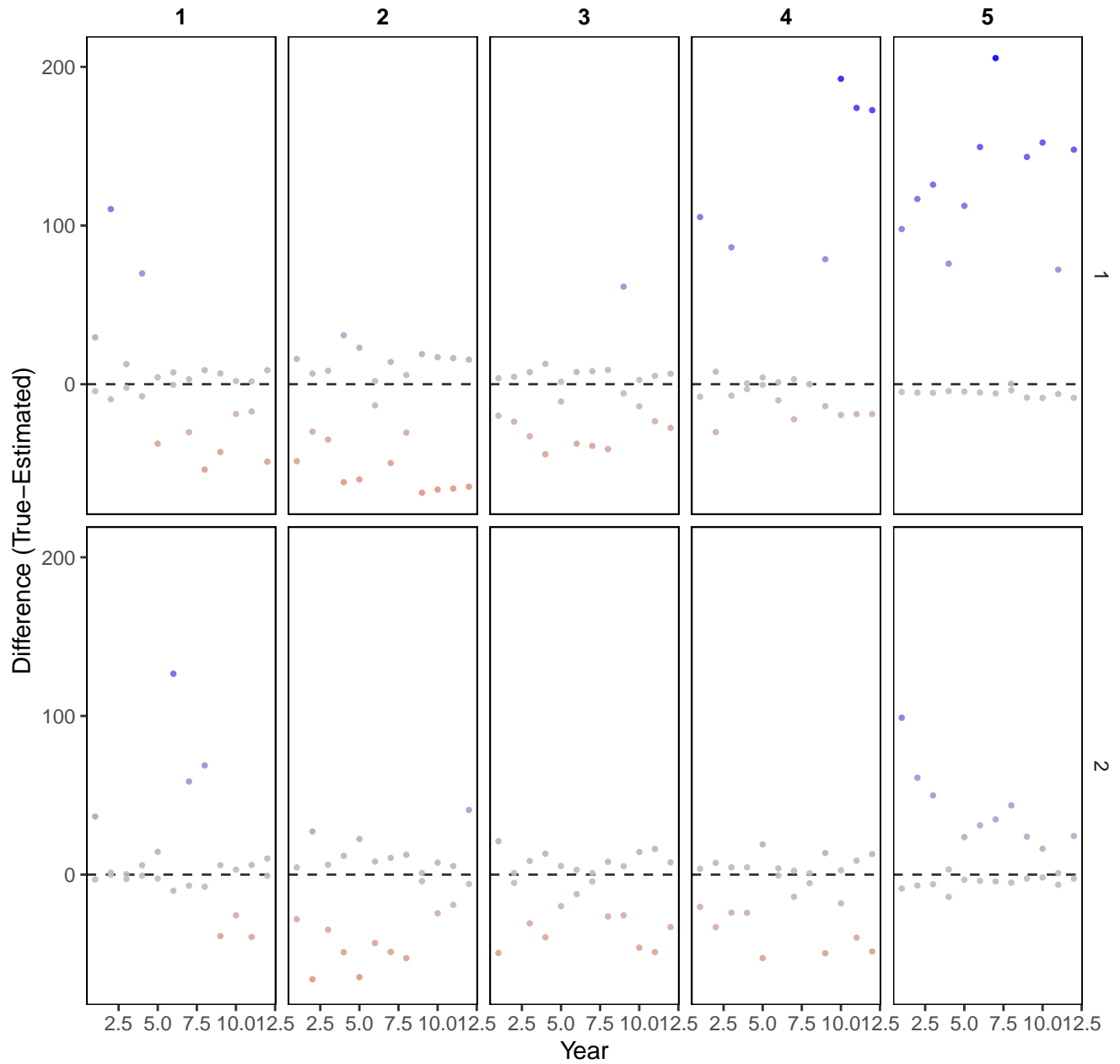
### Fully Selected F Residuals



Yearly Movement Rate

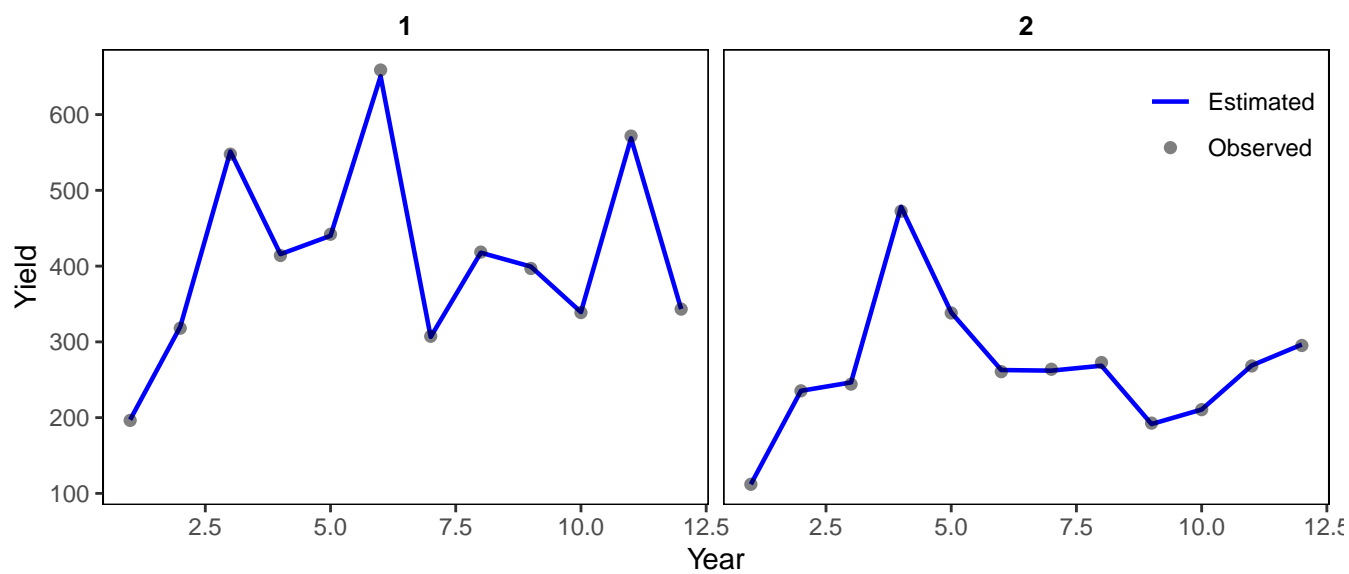


## Yearly Movement Rate Residuals

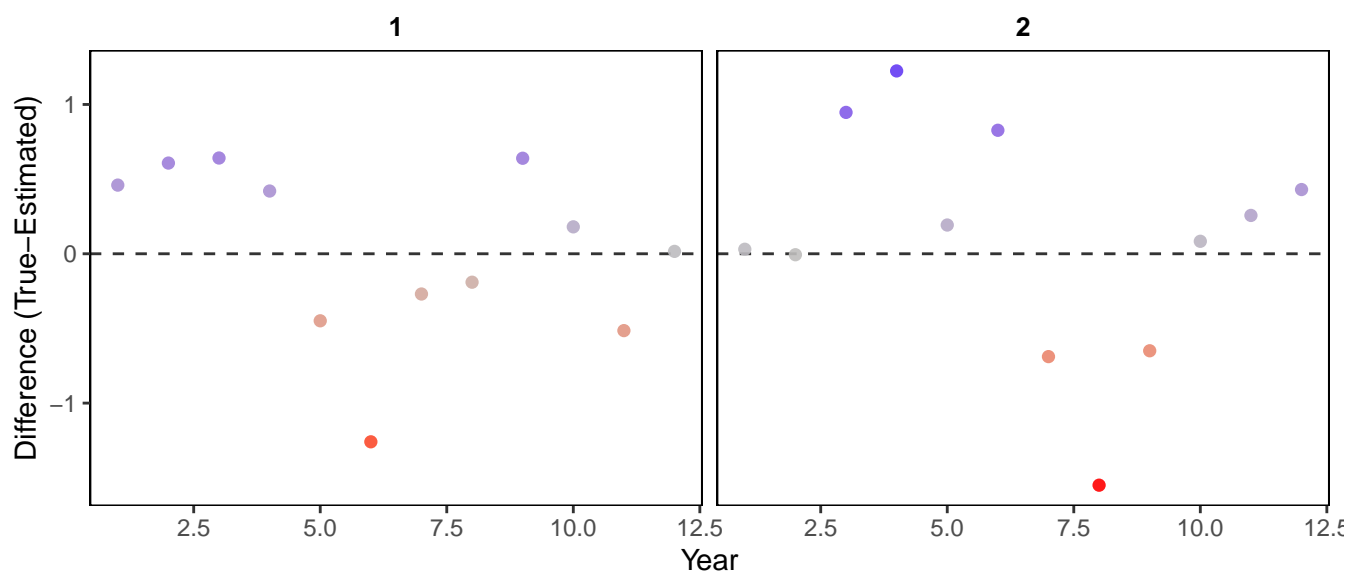


## Fits to Data

Yield



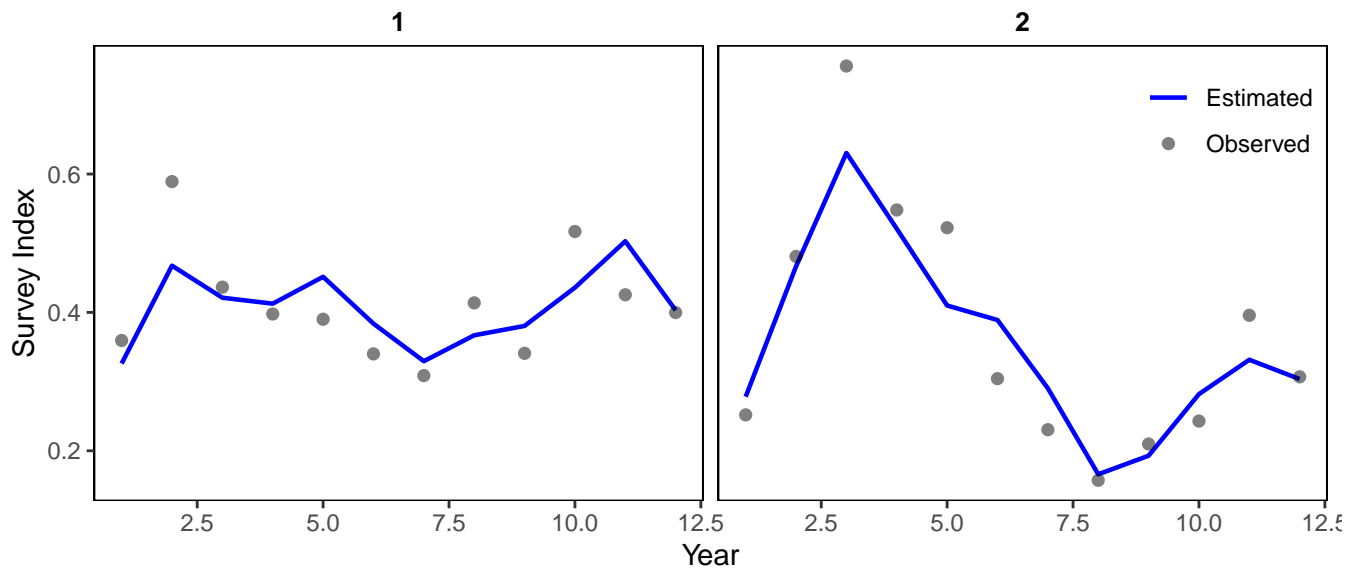
Yield Residuals



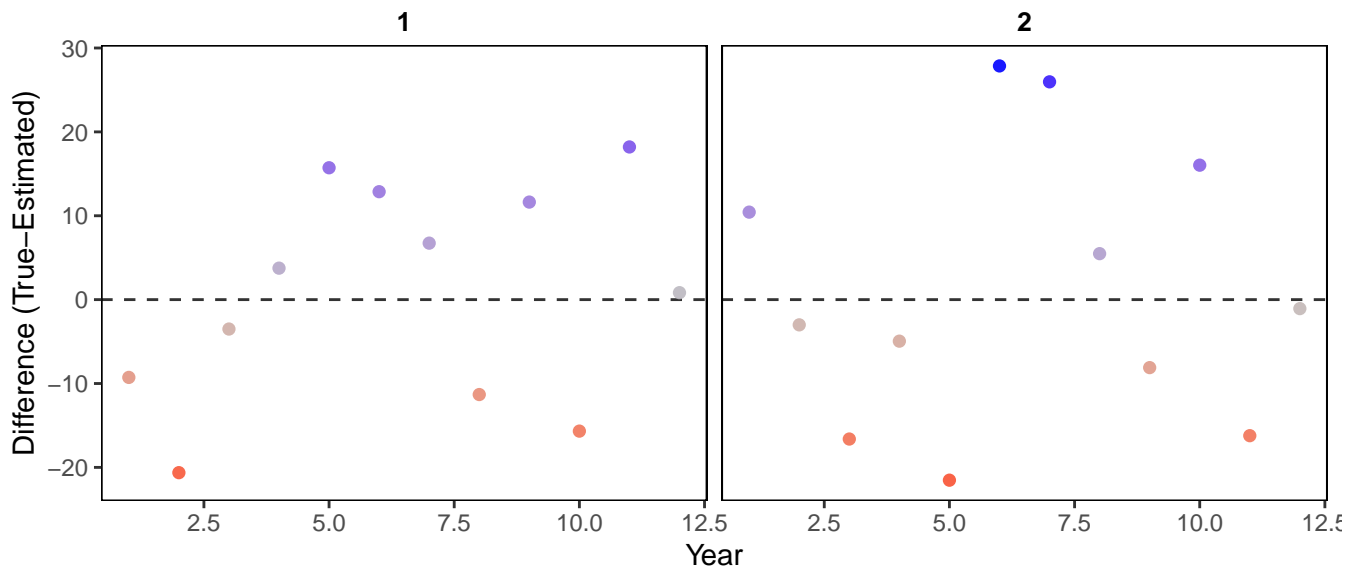


## Fits to Data continued

### Survey Biomass



### Survey Index Residuals



Fits to Data continued

