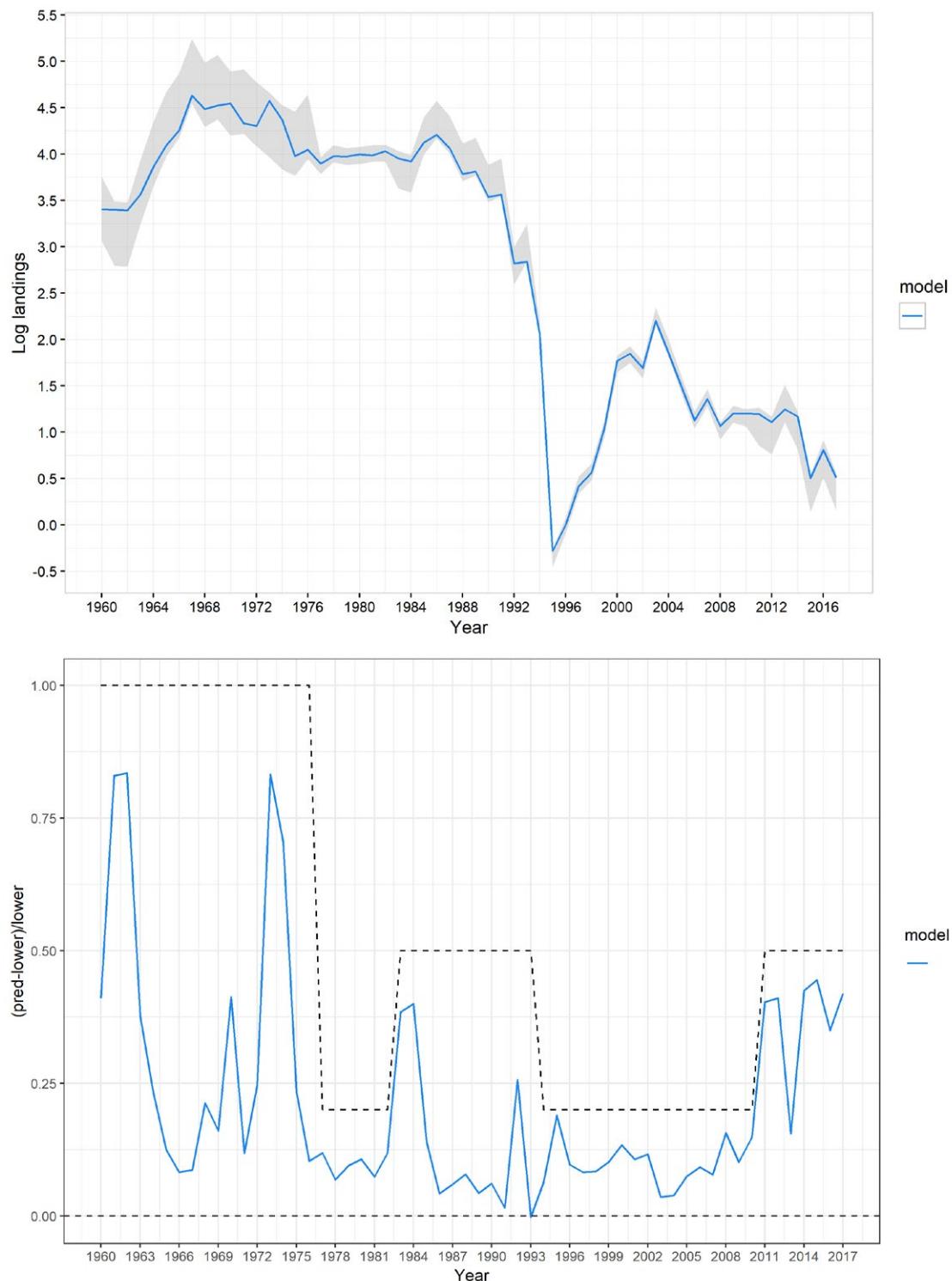
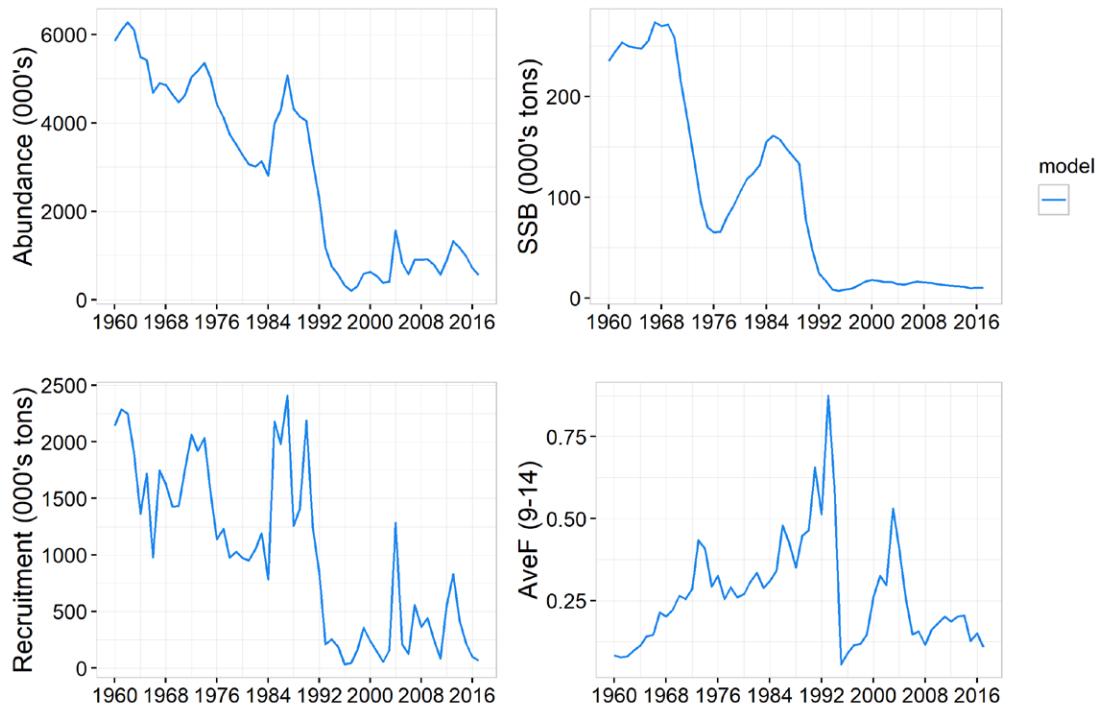


Supplementary Materials 3**Final model fit****Model fit**

Model	nparms	nll	AIC	BIC	conv	maxabs gr
	60	4524	9168	9470	rel	0.000

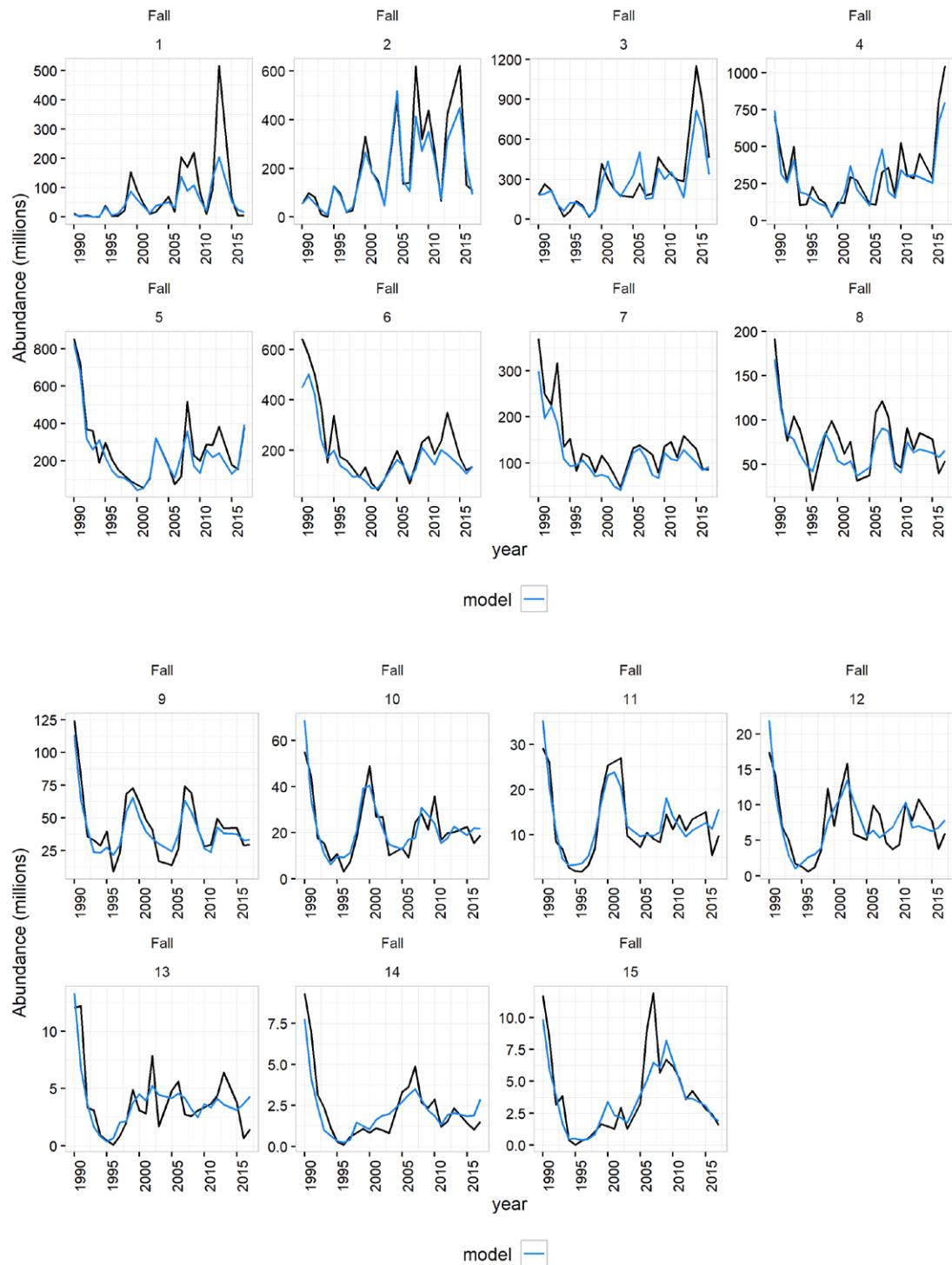
Estimated landings

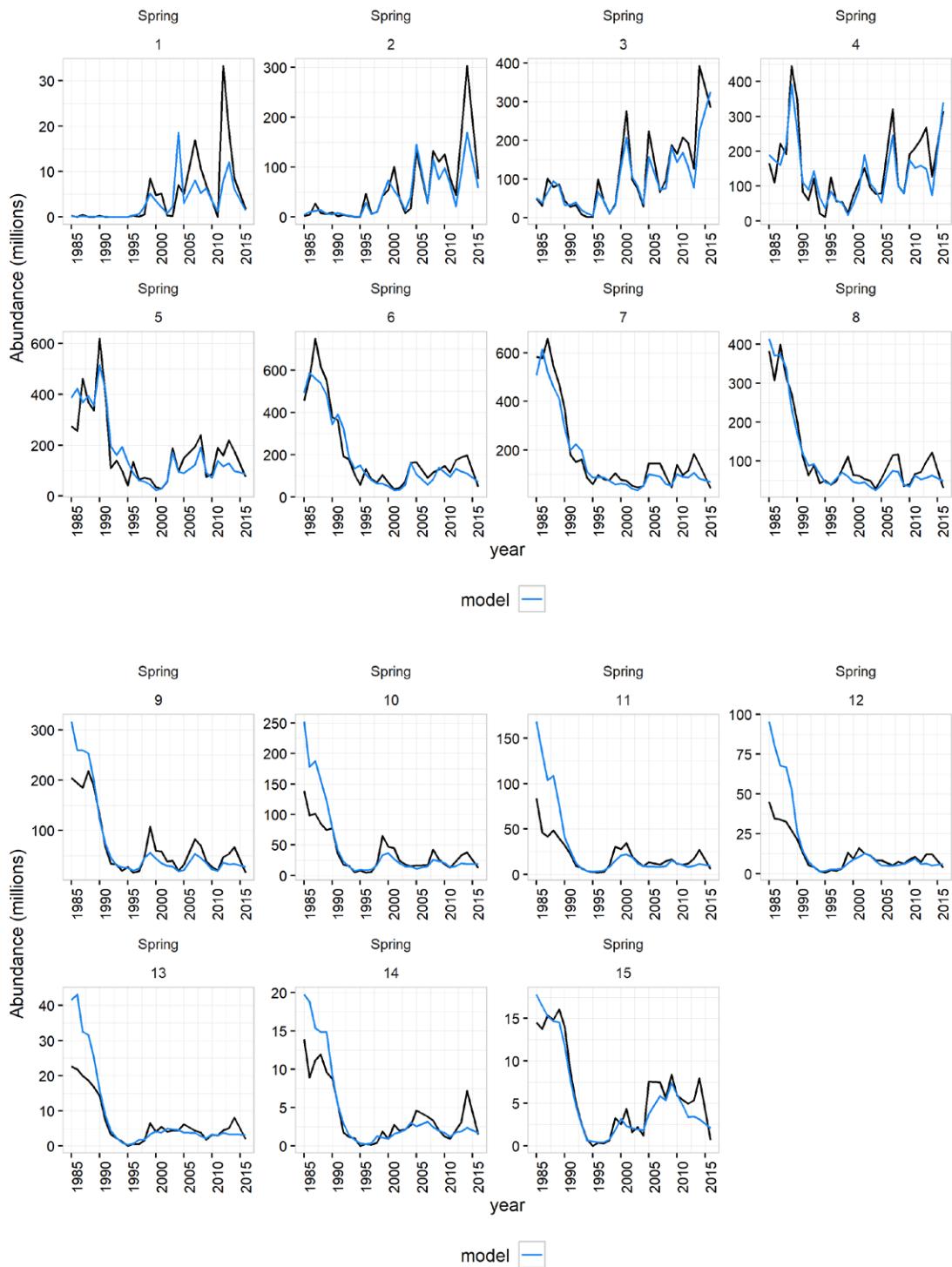


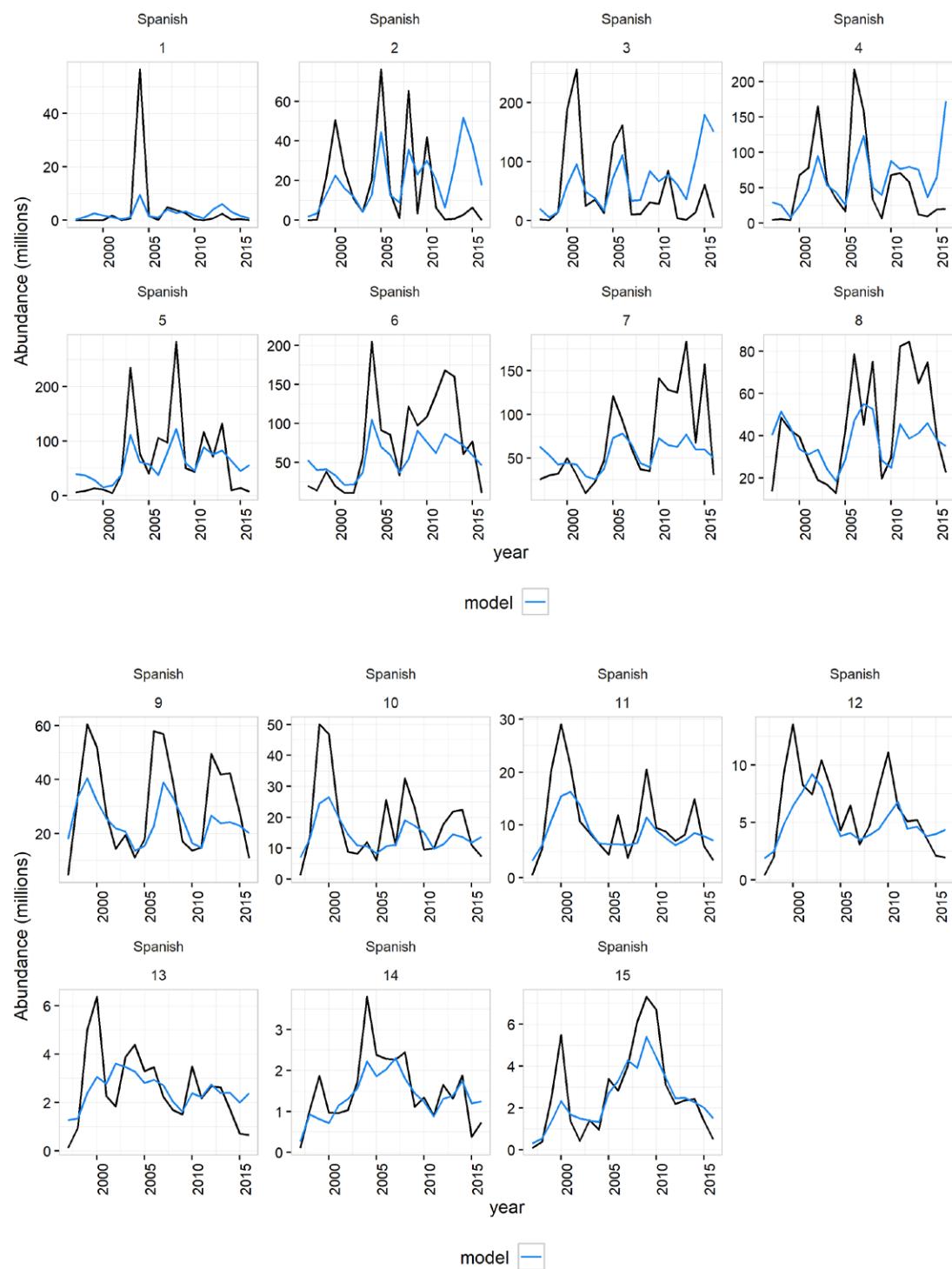
Estimated population processes

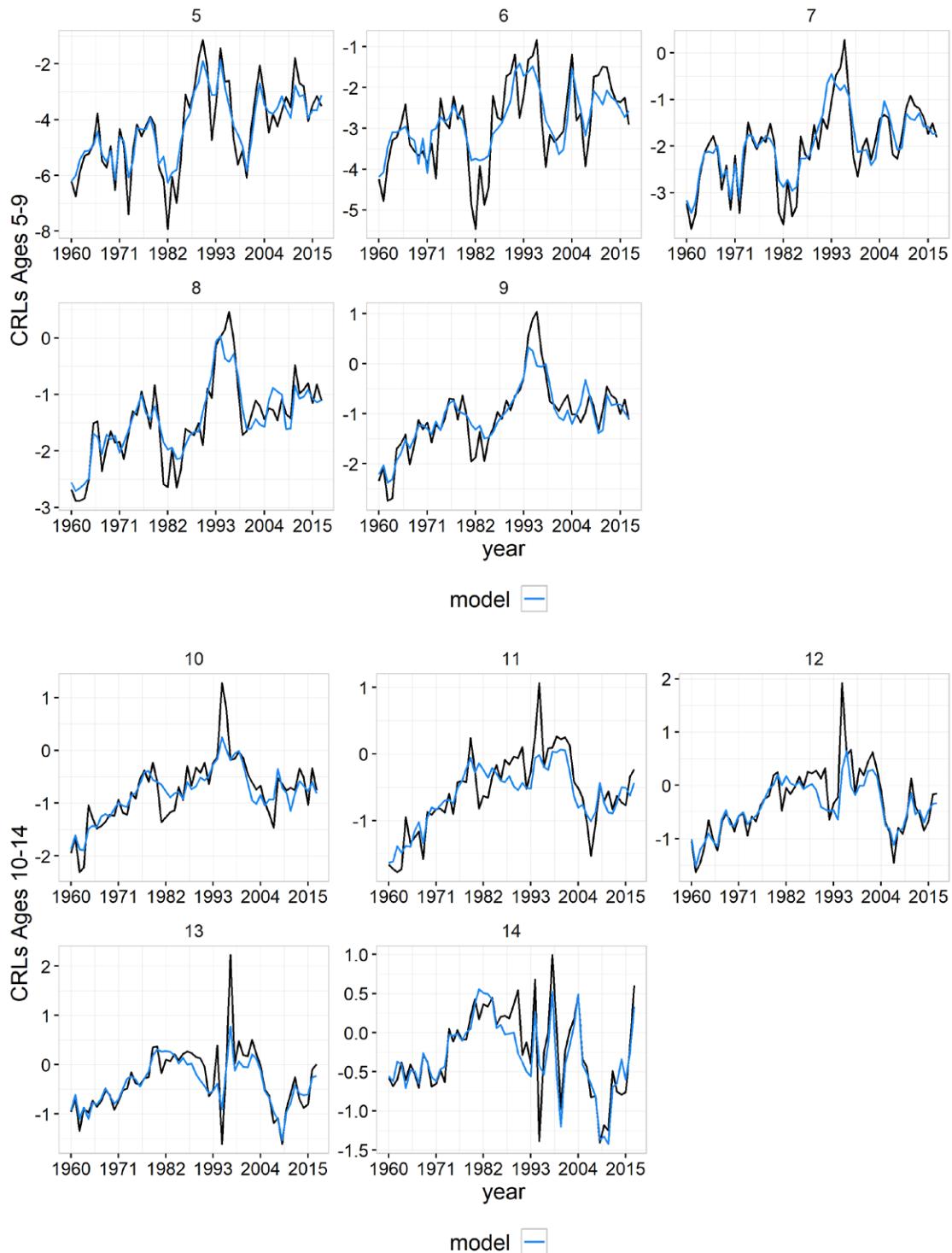
Survey fits

Fall

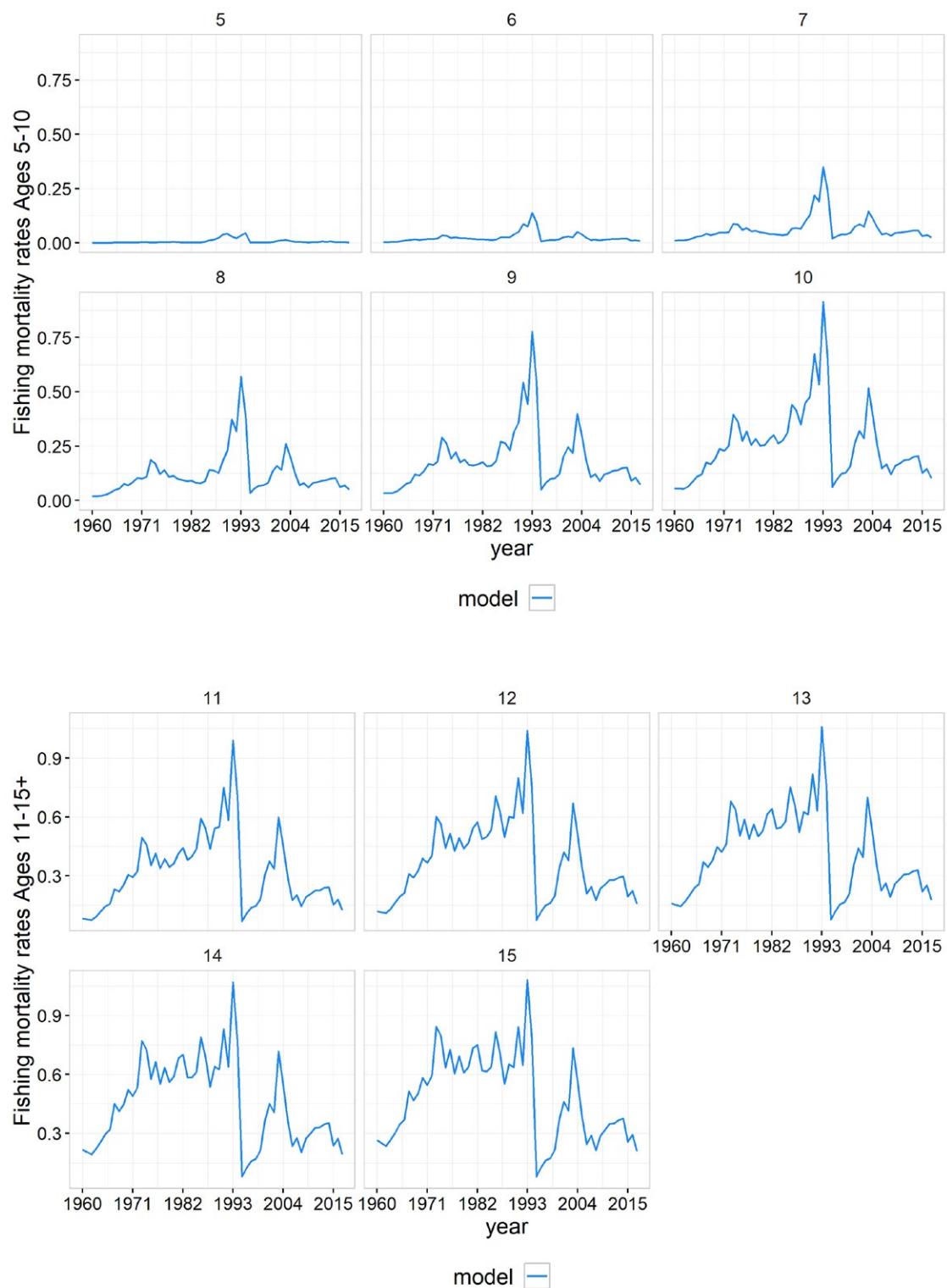


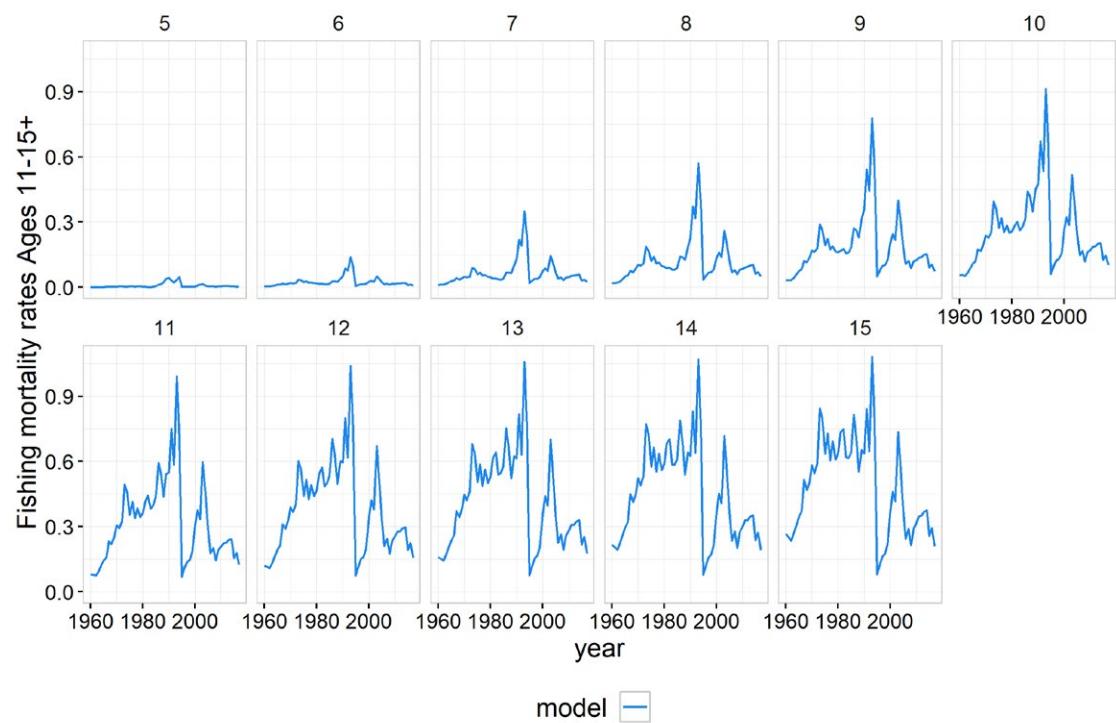
Spring

Spanish

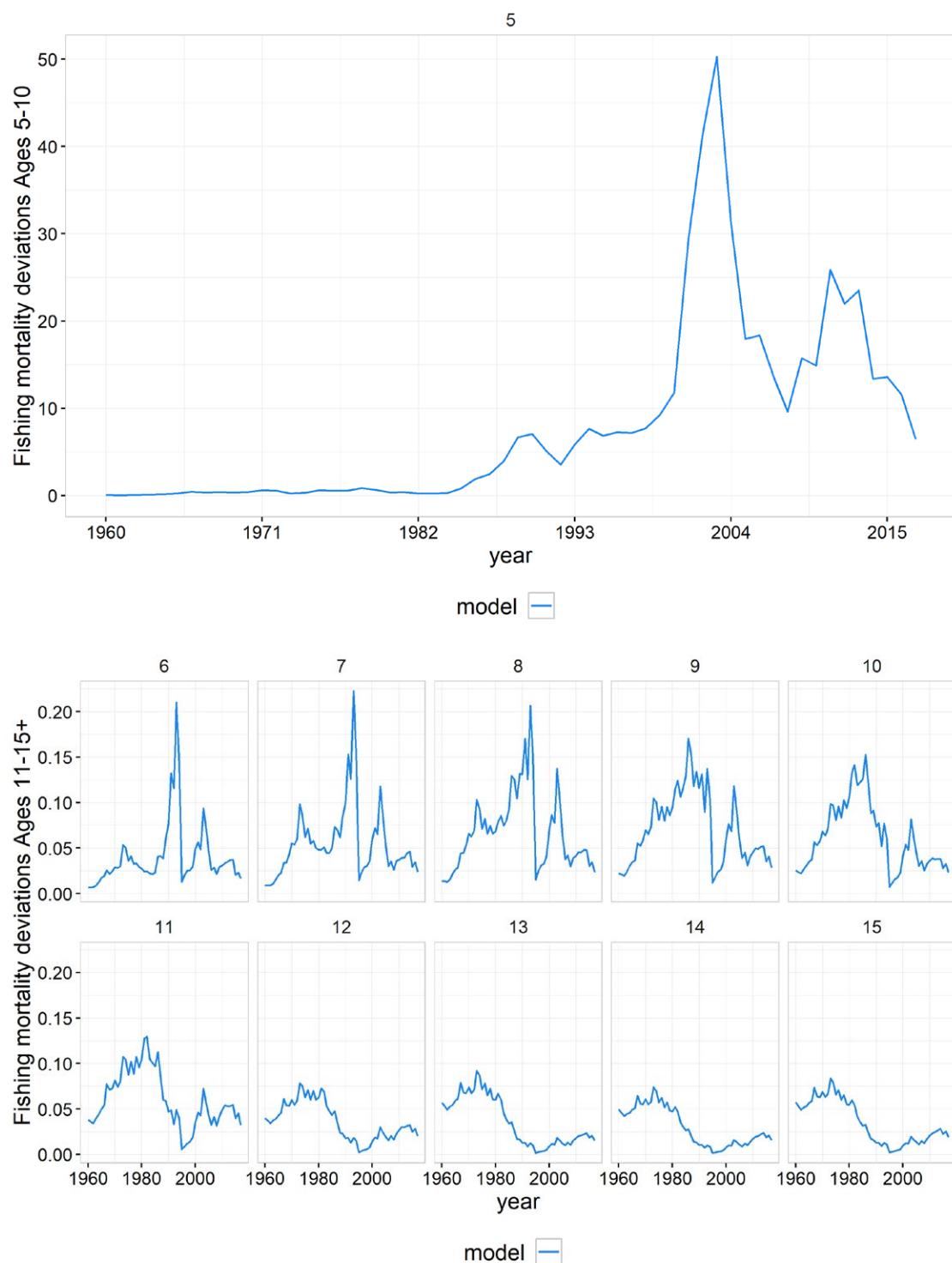
Crl fits

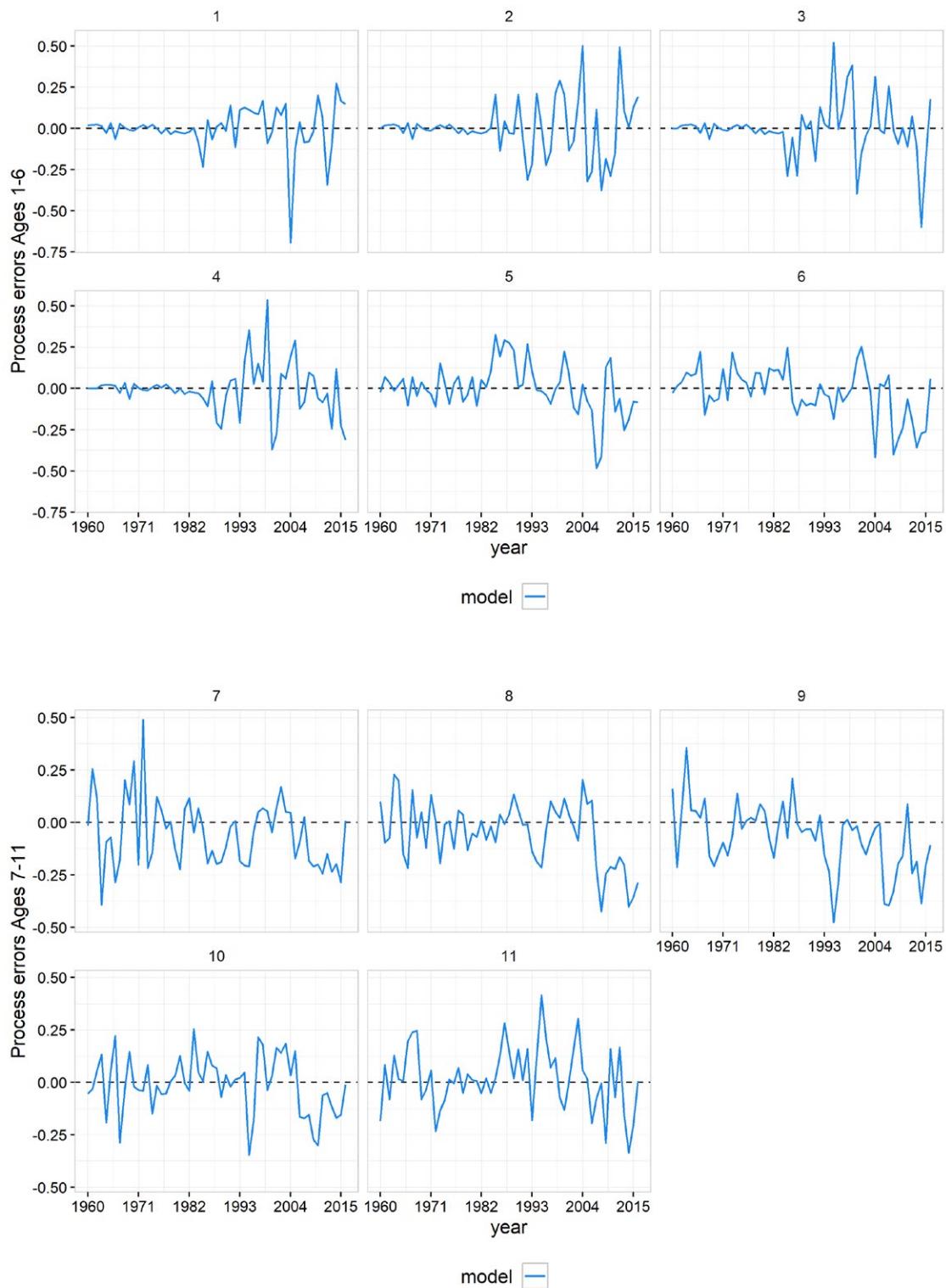
Fishing mortality rates

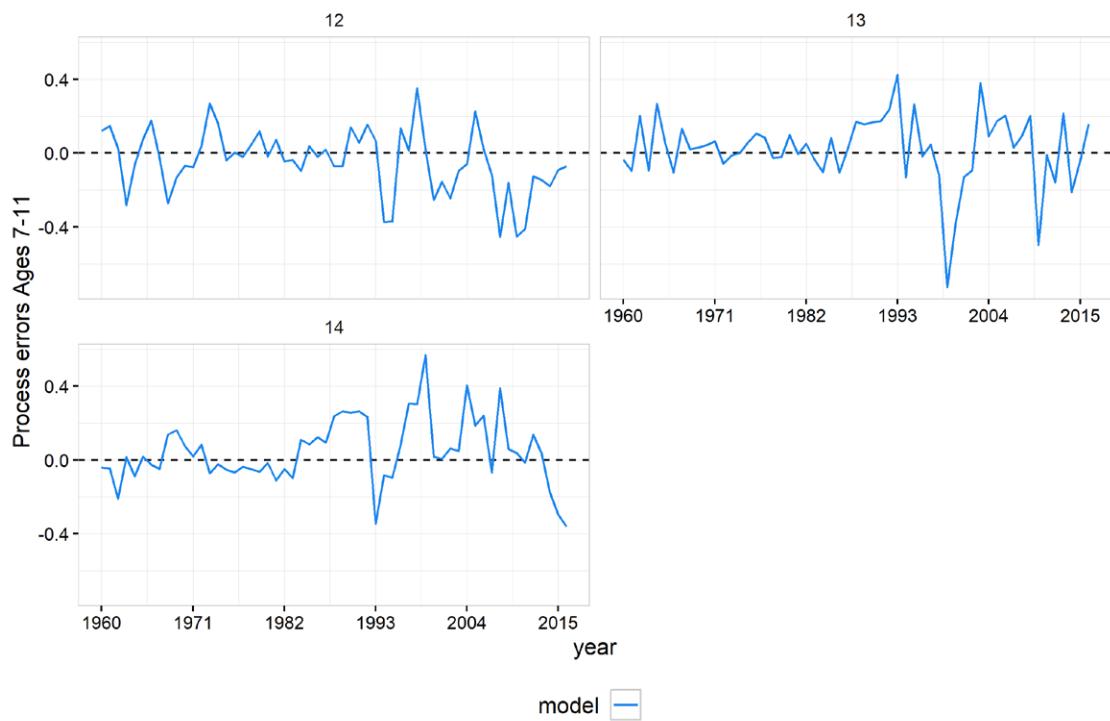




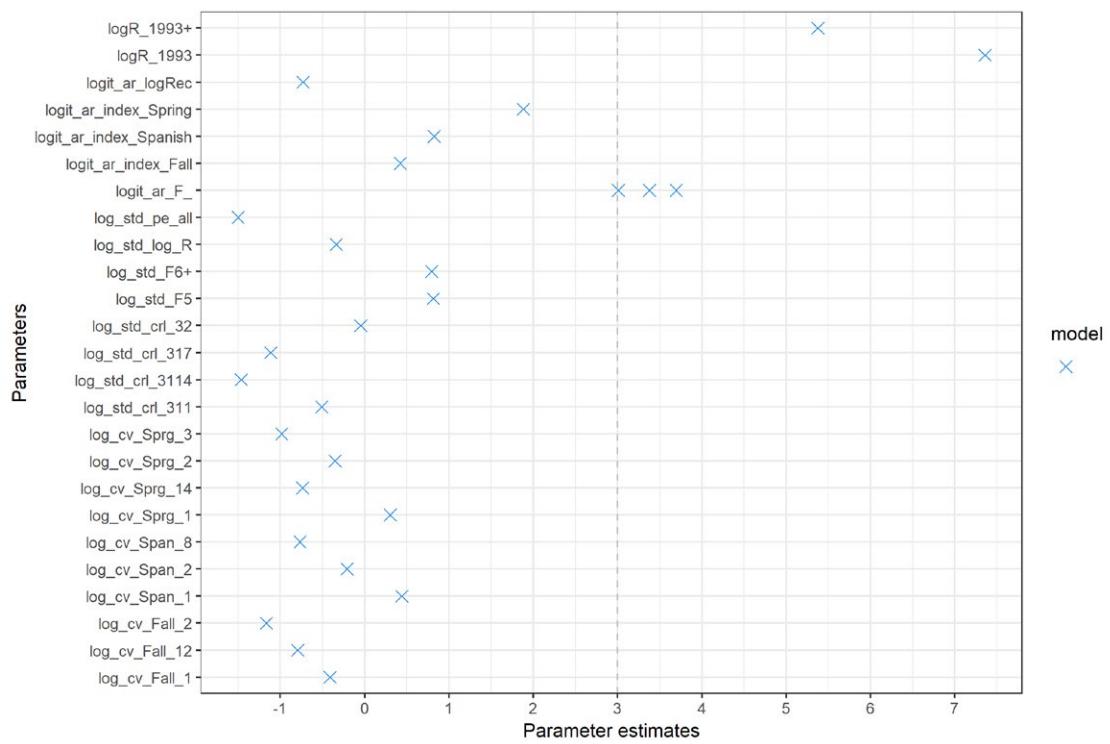
Fishing mortality deviations

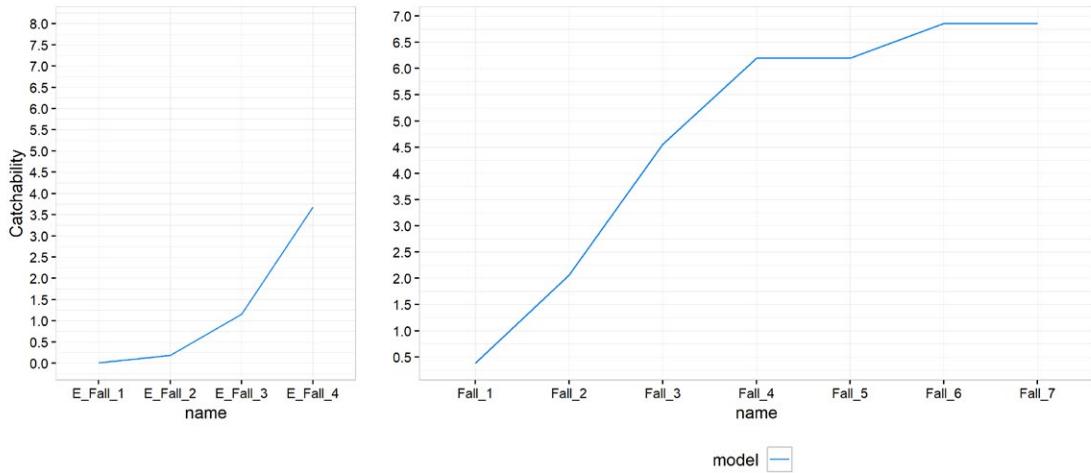
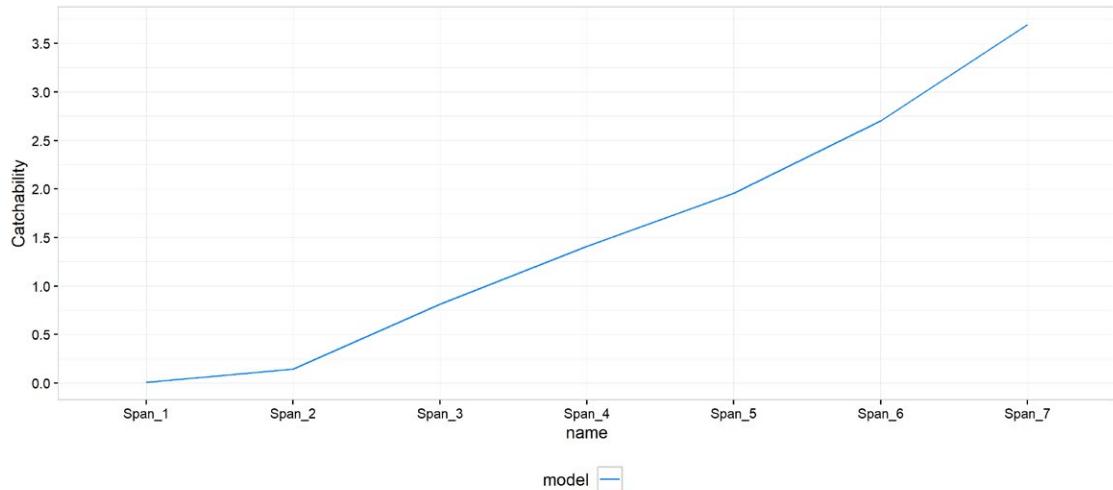


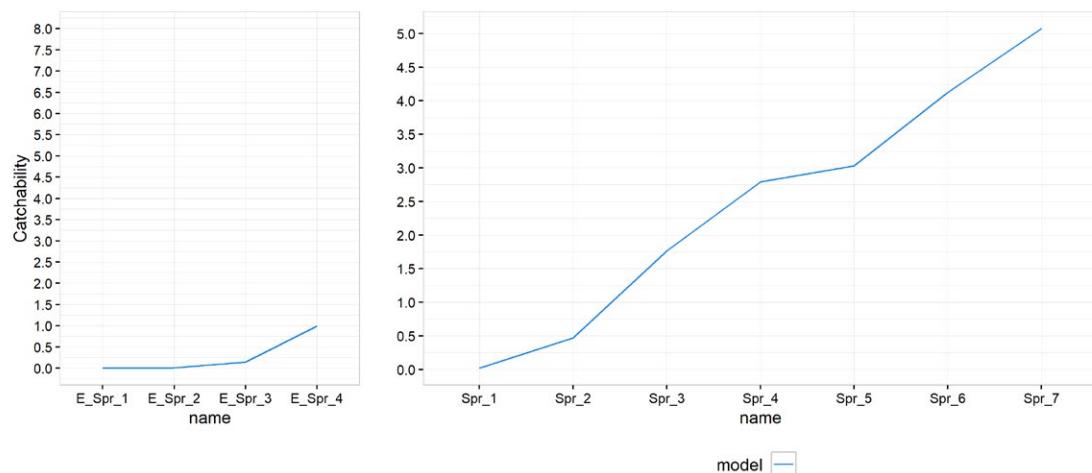
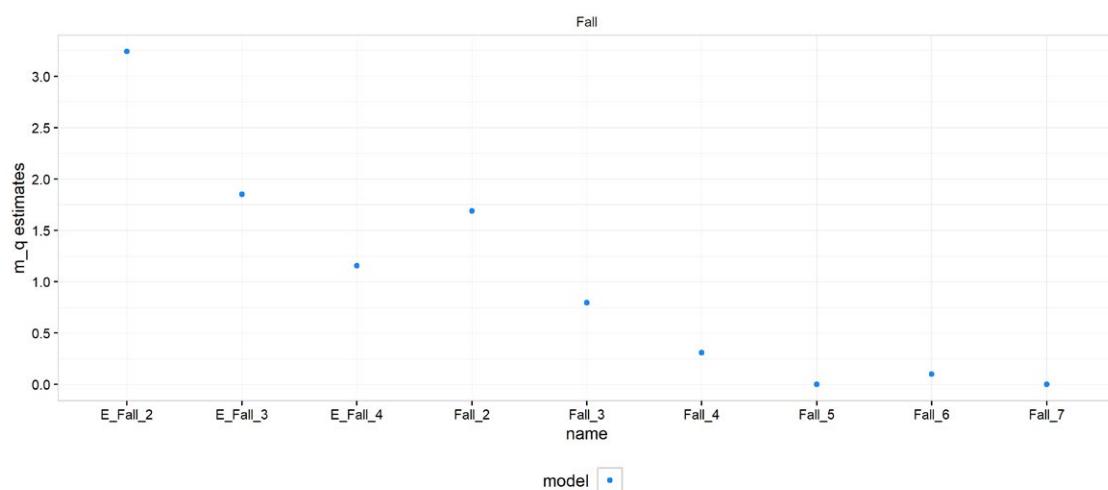
Process error

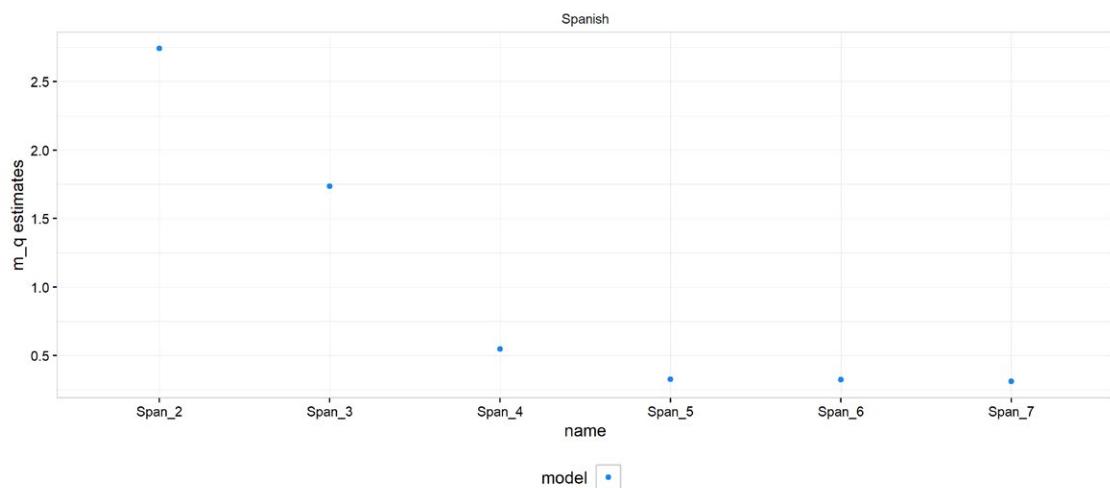
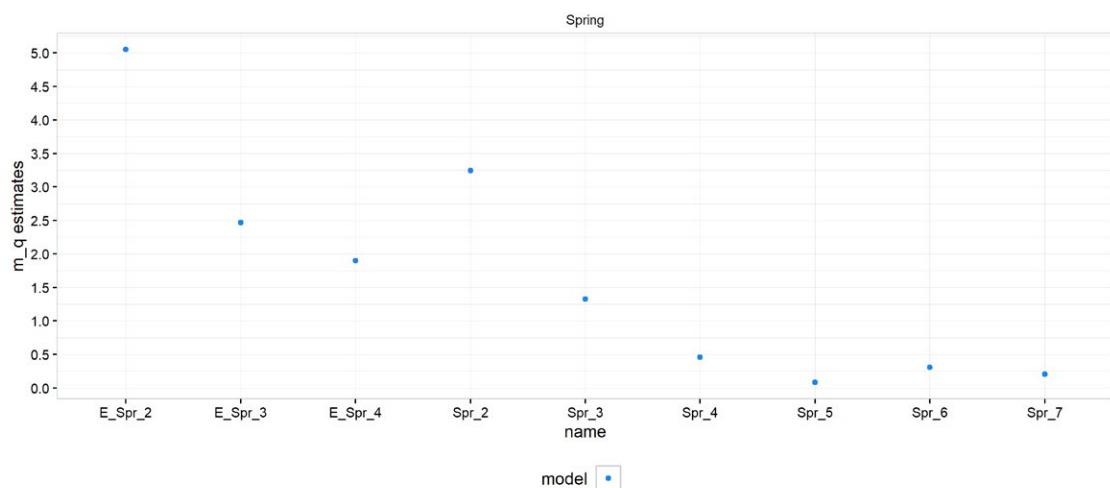


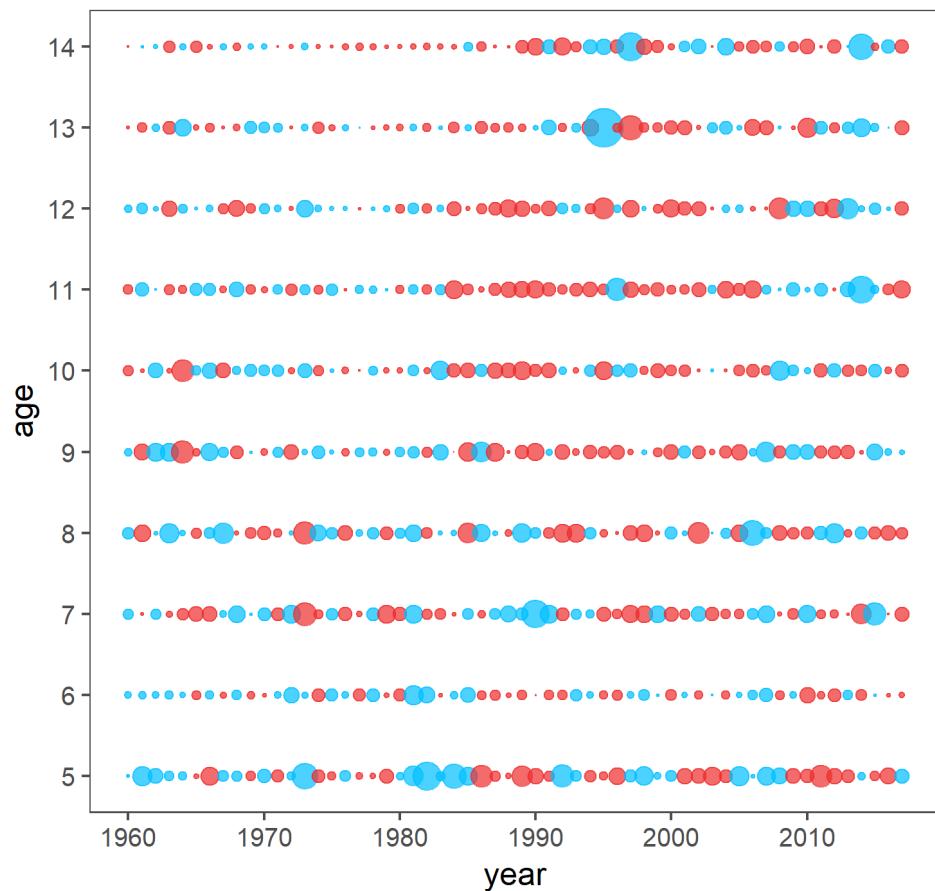
Parameter estimates

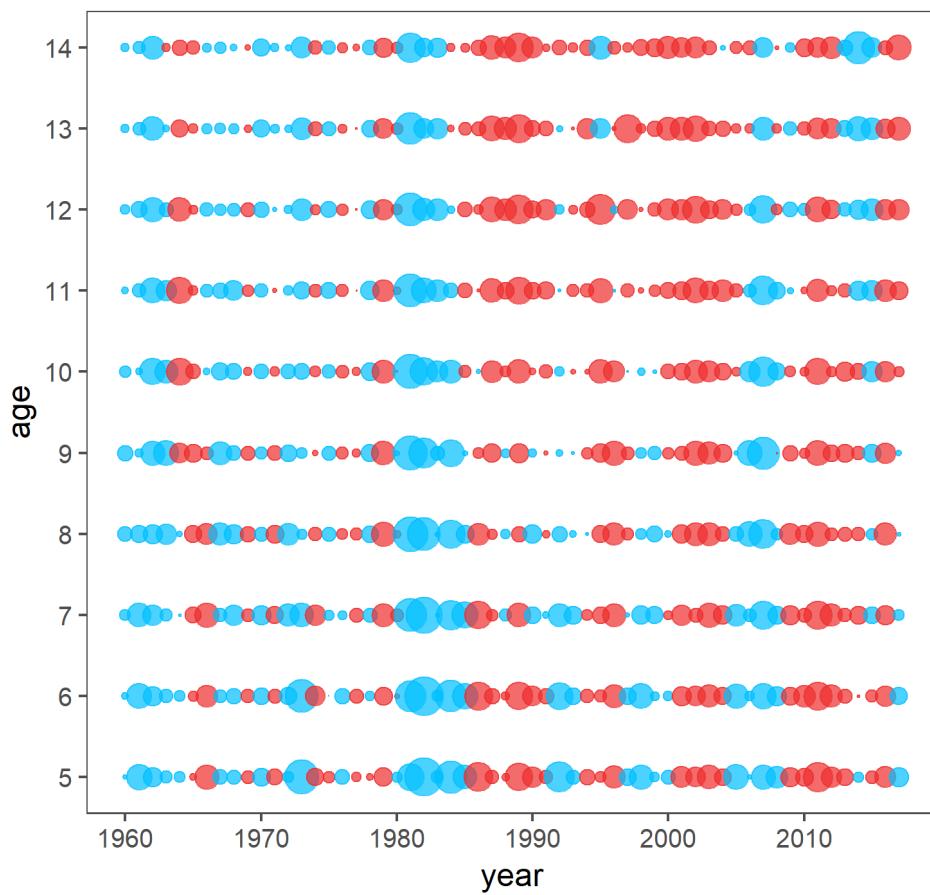


Catchability estimates**Fall****Spanish**

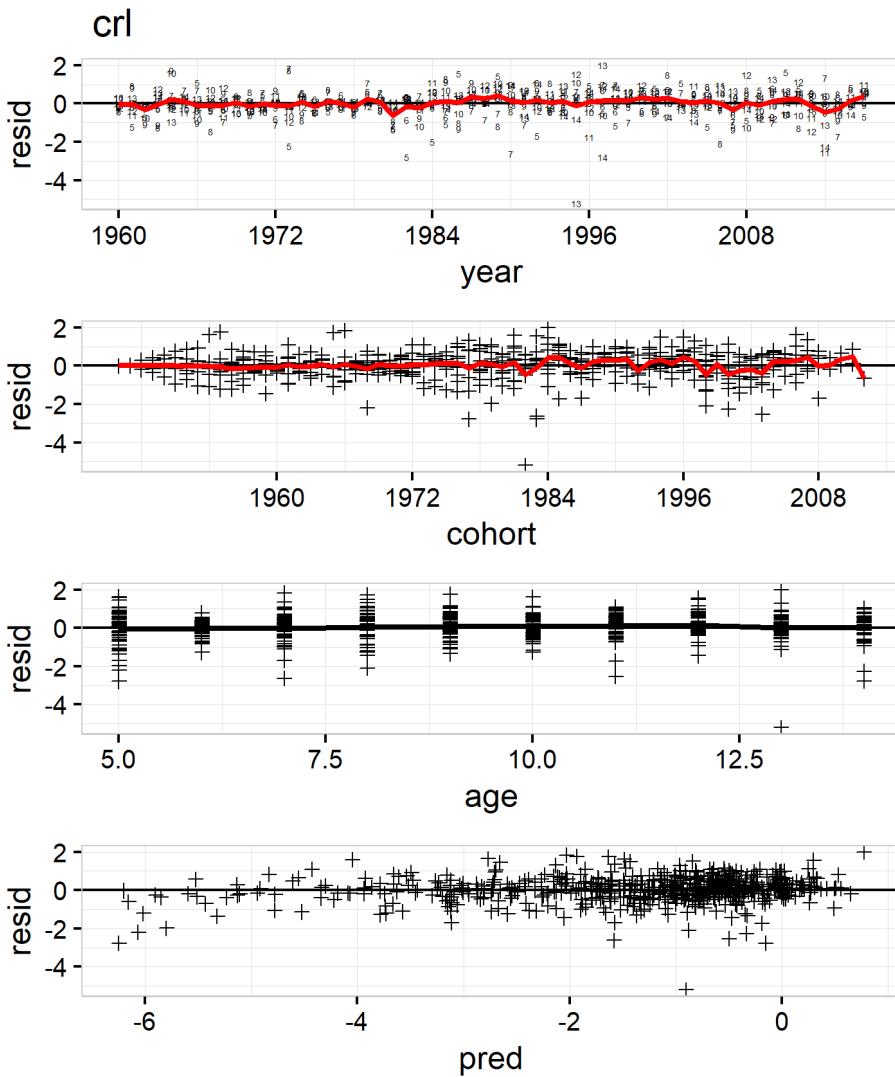
Spring**m_q estimates****Fall**

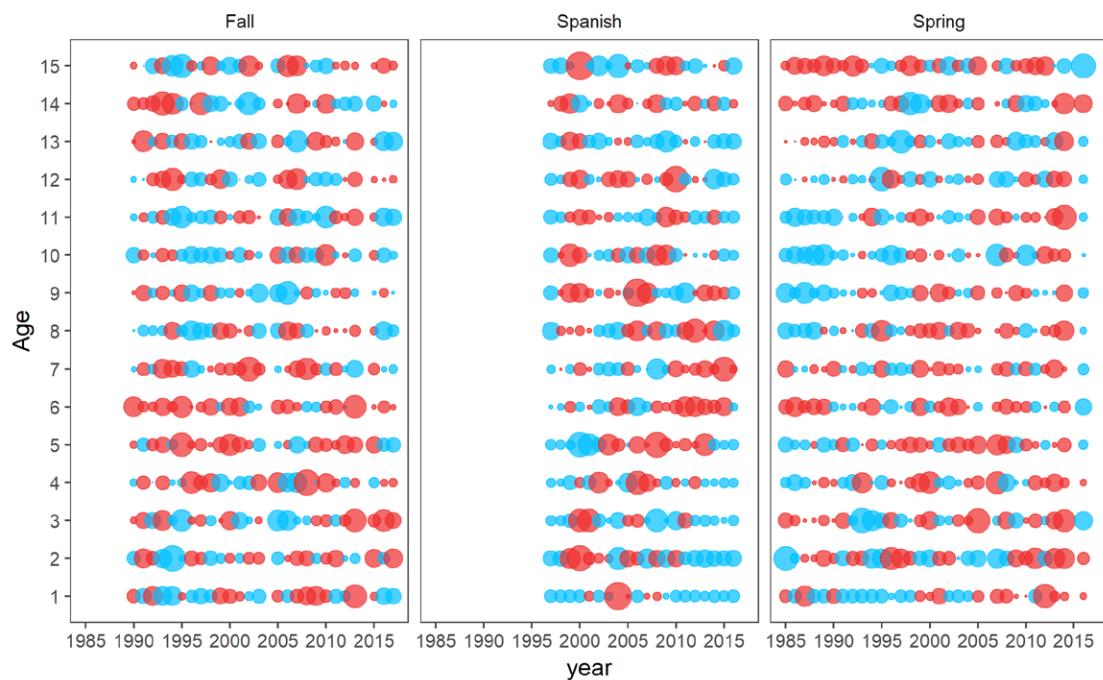
Spanish**Spring**

CRL residuals

Pearson CRL residuals

Four panel crl residuals



Survey residuals**Standardized survey residuals (red = positive, blue= negative)***Fall*

Four panel survey residuals

