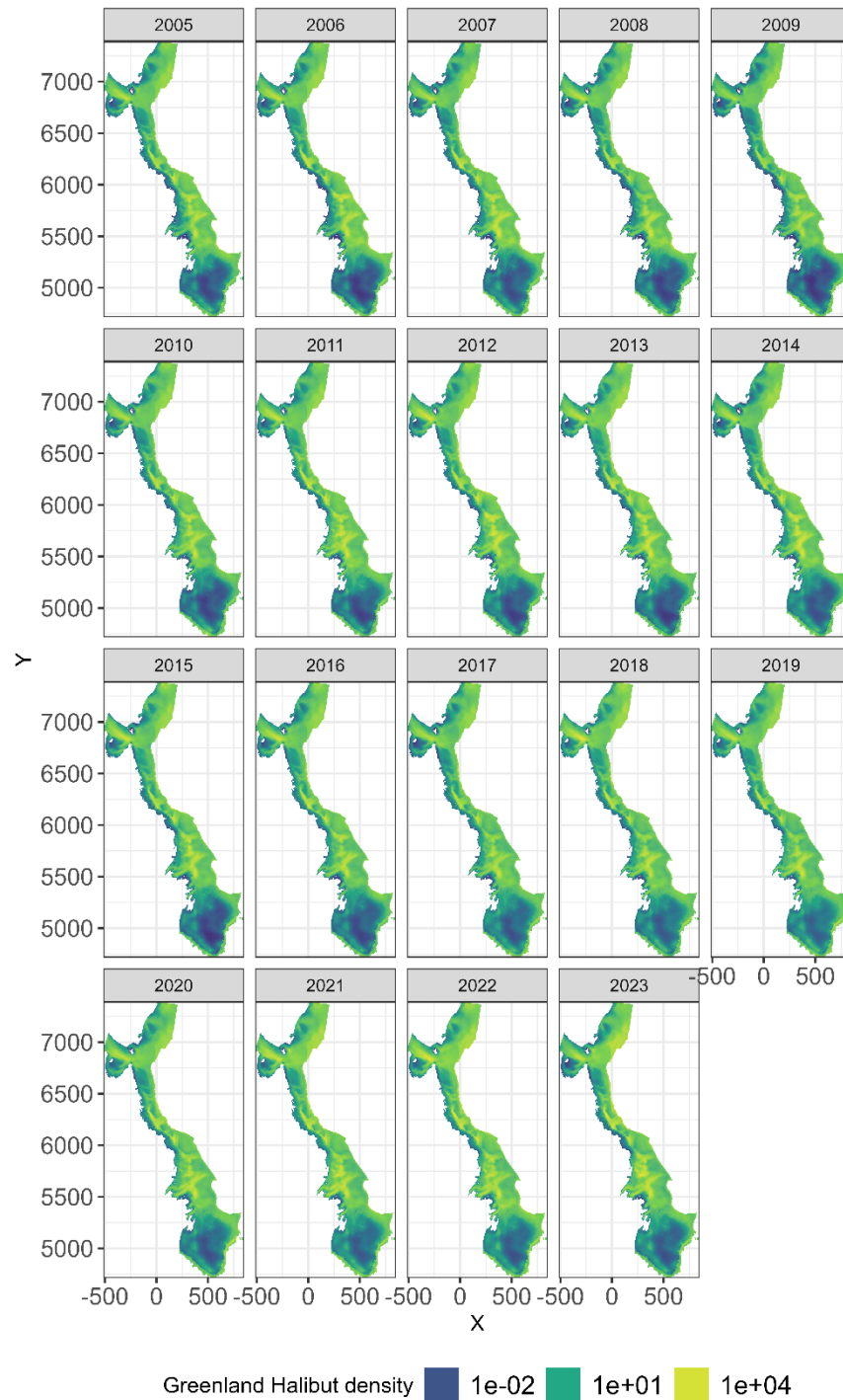**Supplemental material**

Fig. S1. Predictions of Greenland halibut density (kg/km^2) based on spatiotemporal modelling, 2005 to 2023; X and Y projected in UTM Zone 22N.
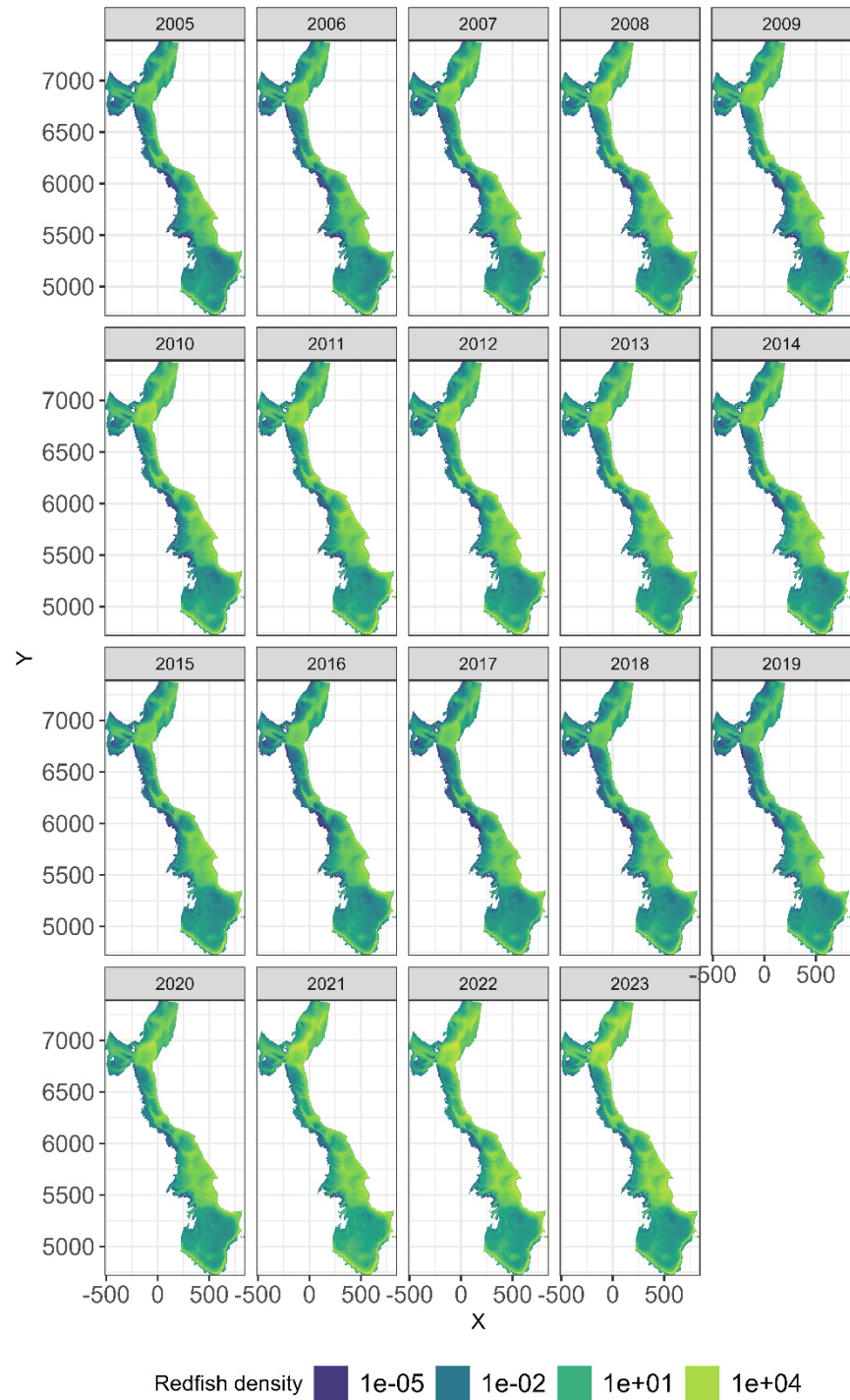
Fig. S2. Predictions of redfish density (kg/km^2) based on spatiotemporal modelling, 2005 to 2023; X and Y projected in UTM Zone 22N.
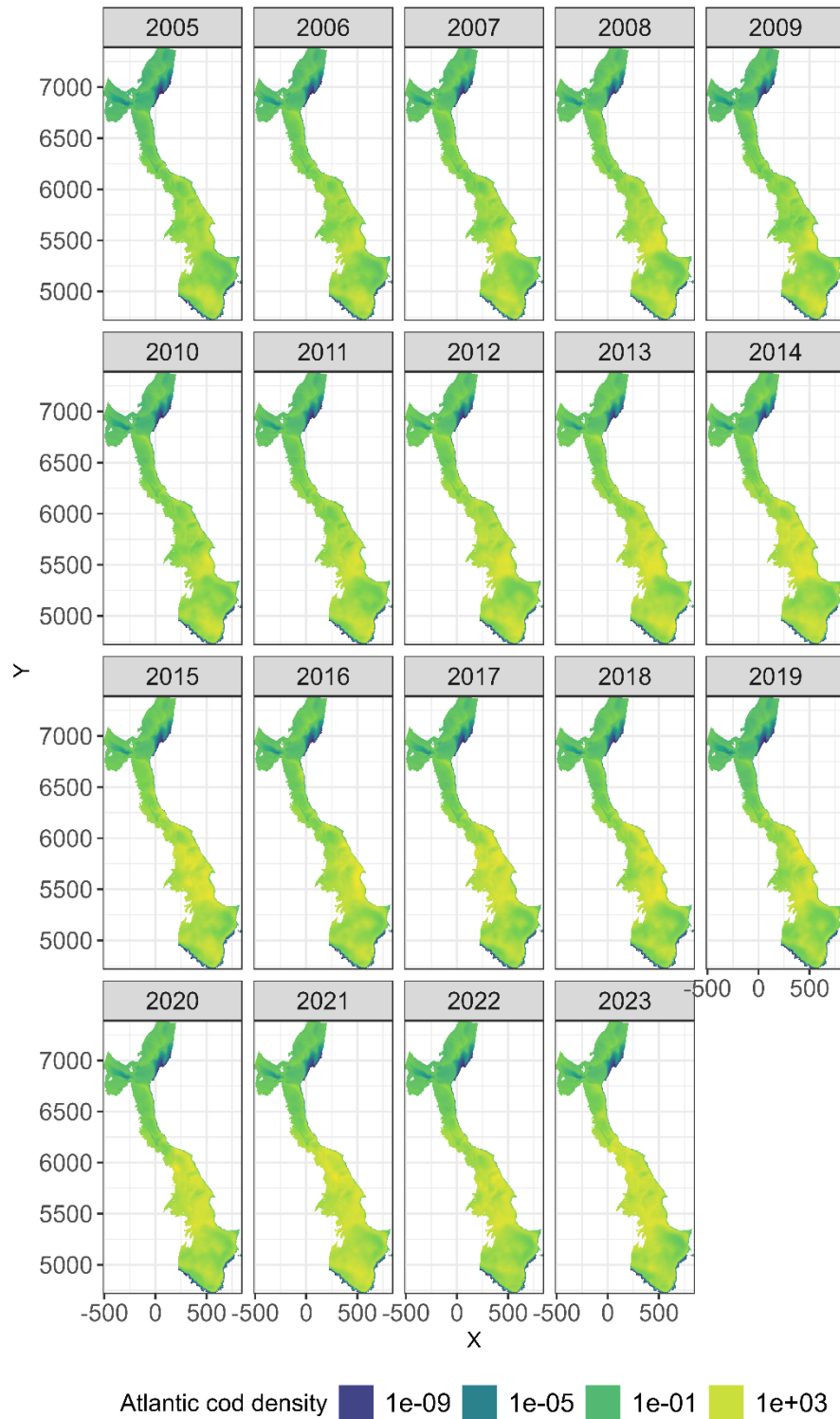
Fig. S3. Predictions of Atlantic cod density (kg/km^2) based on spatiotemporal modelling, 2005 to 2023; X and Y projected in UTM Zone 22N.
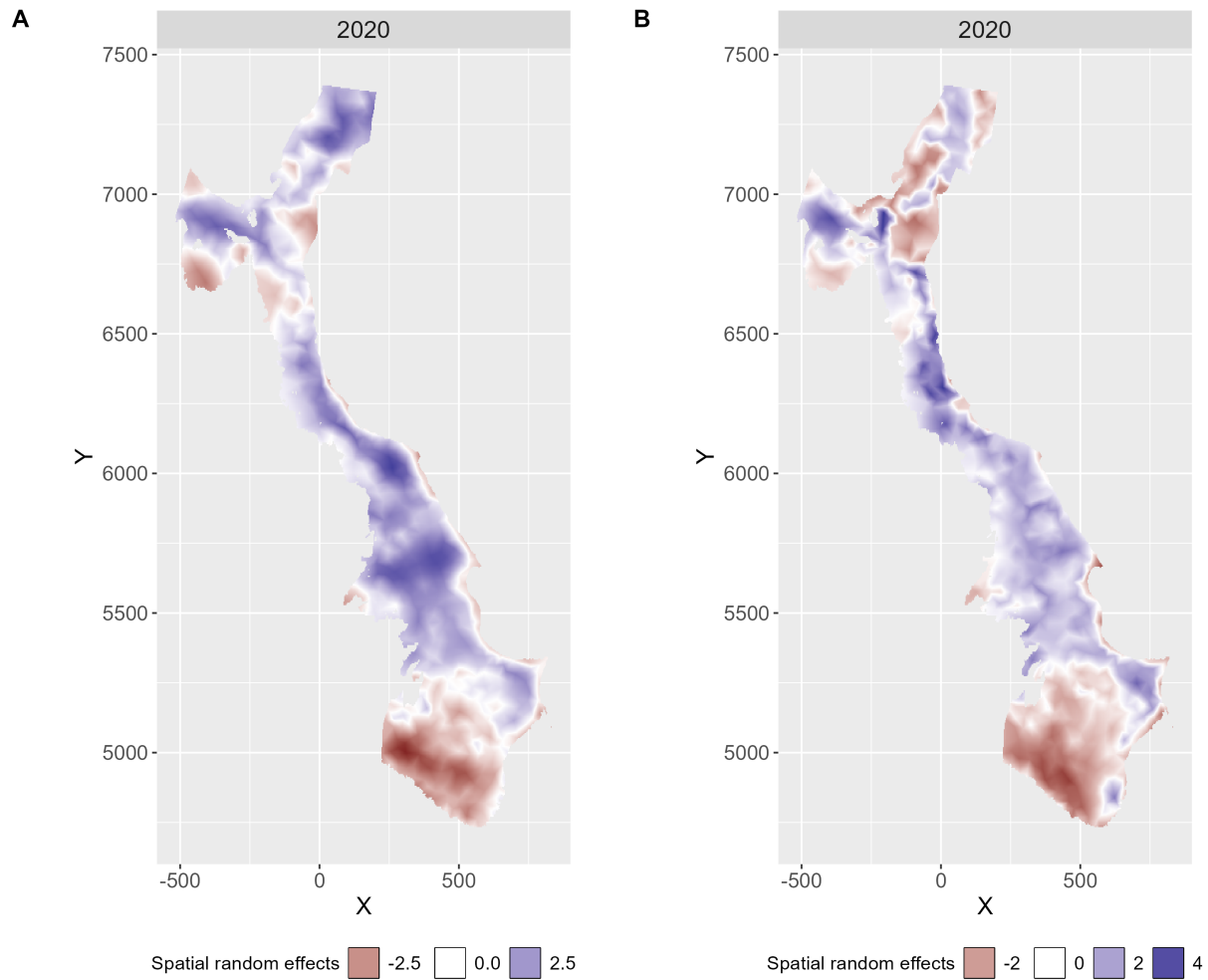
Fig. S4. Spatial random effects of northern shrimp spatiotemporal model. Both delta components (A – binomial, B – Gamma) are shown. Spatial random effects do not vary by year, so a single year (2020) is illustrated. X and Y projected in UTM Zone 22N.
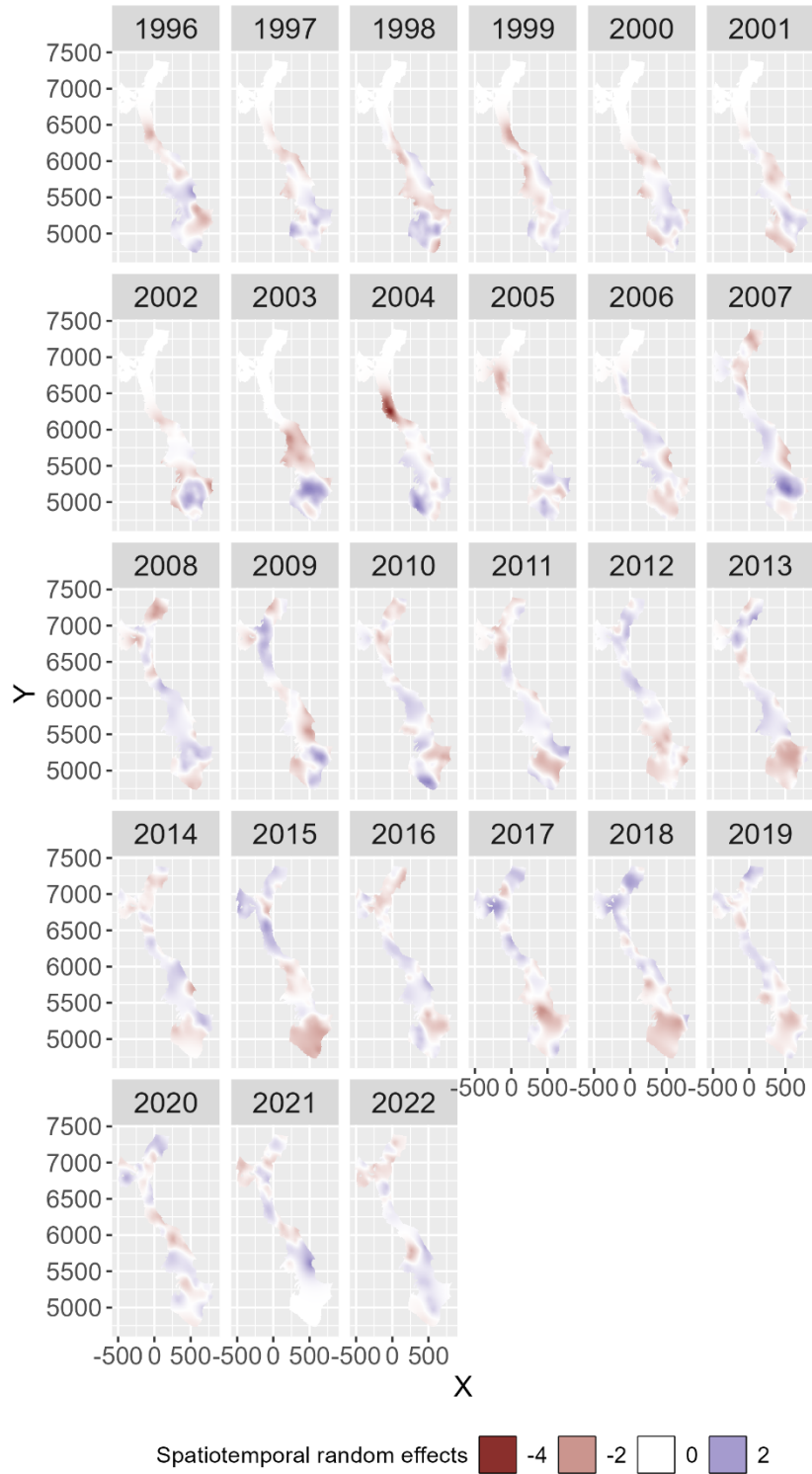
Fig. S5a. Spatiotemporal random effects of northern shrimp spatiotemporal model (binomial component). X and Y projected in UTM Zone 22N.
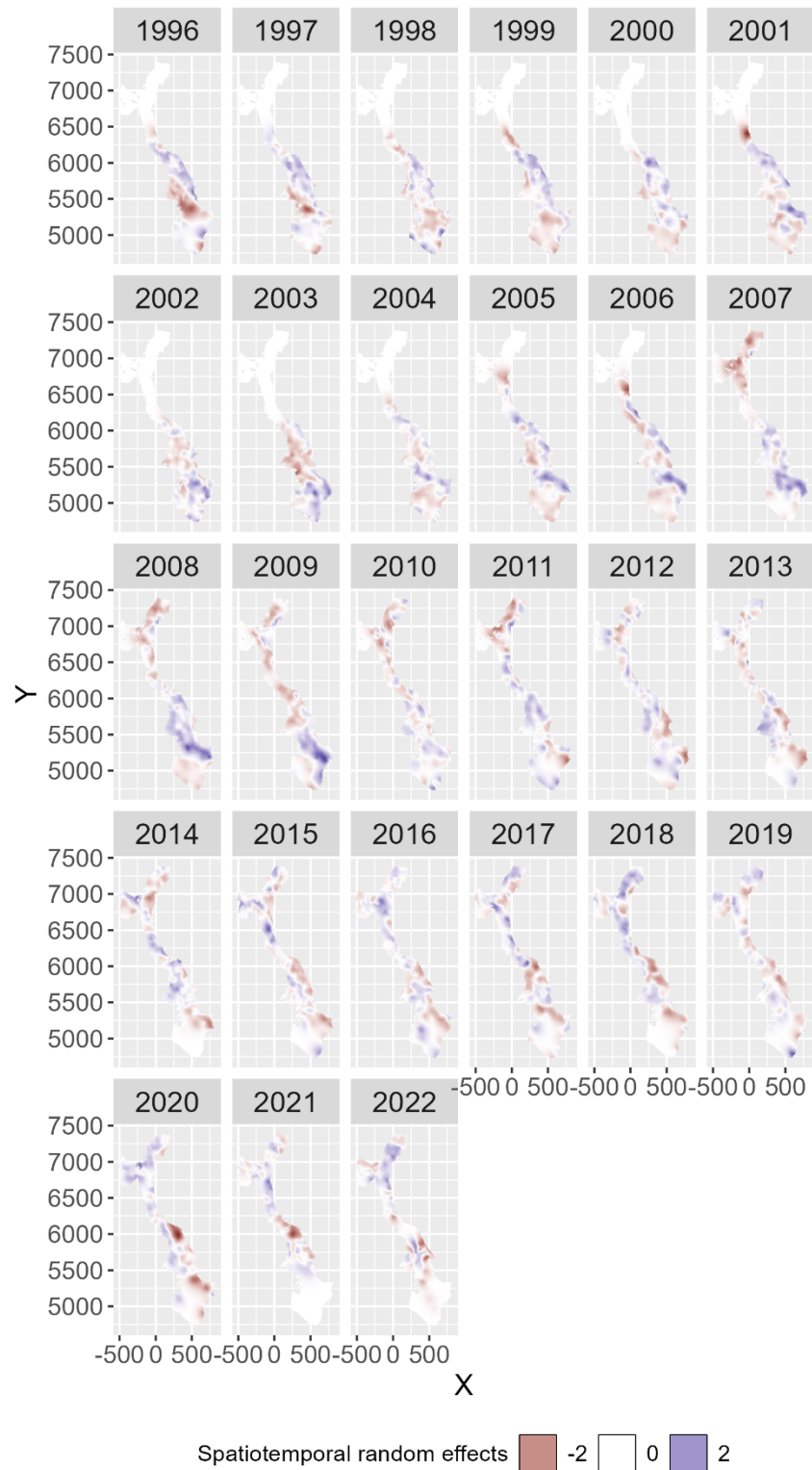
Fig. S5b. Spatiotemporal random effects of northern shrimp spatiotemporal model (Gamma component). X and Y projected in UTM Zone 22N.
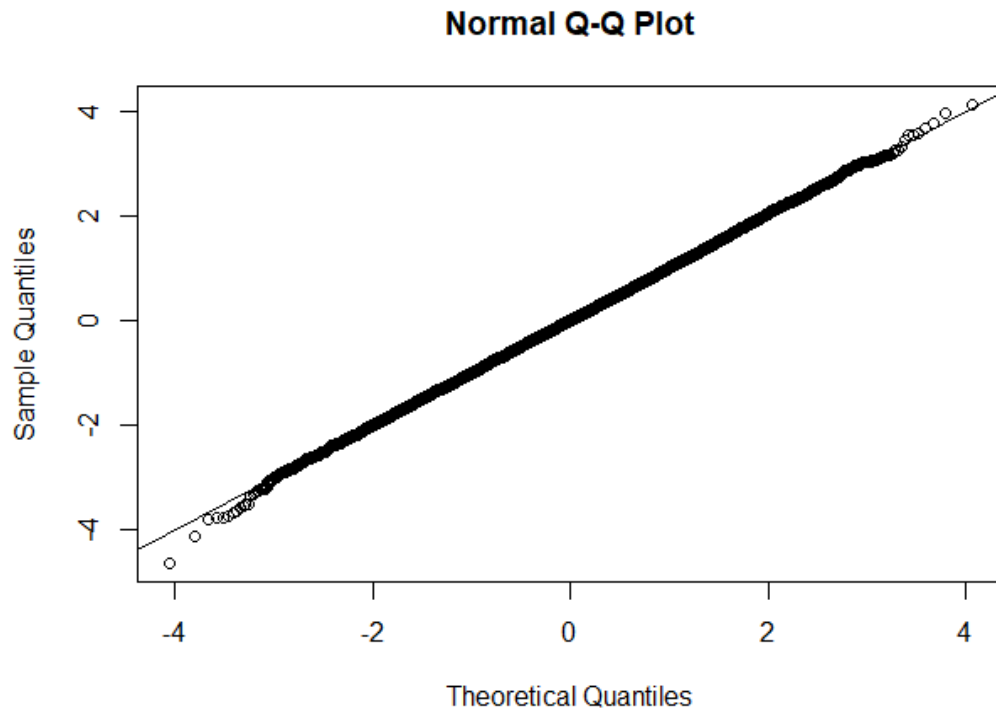
Normal Q-Q Plot

Fig. S6. Quantile-quantile (Q-Q) plot of northern shrimp spatiotemporal model, binomial component.
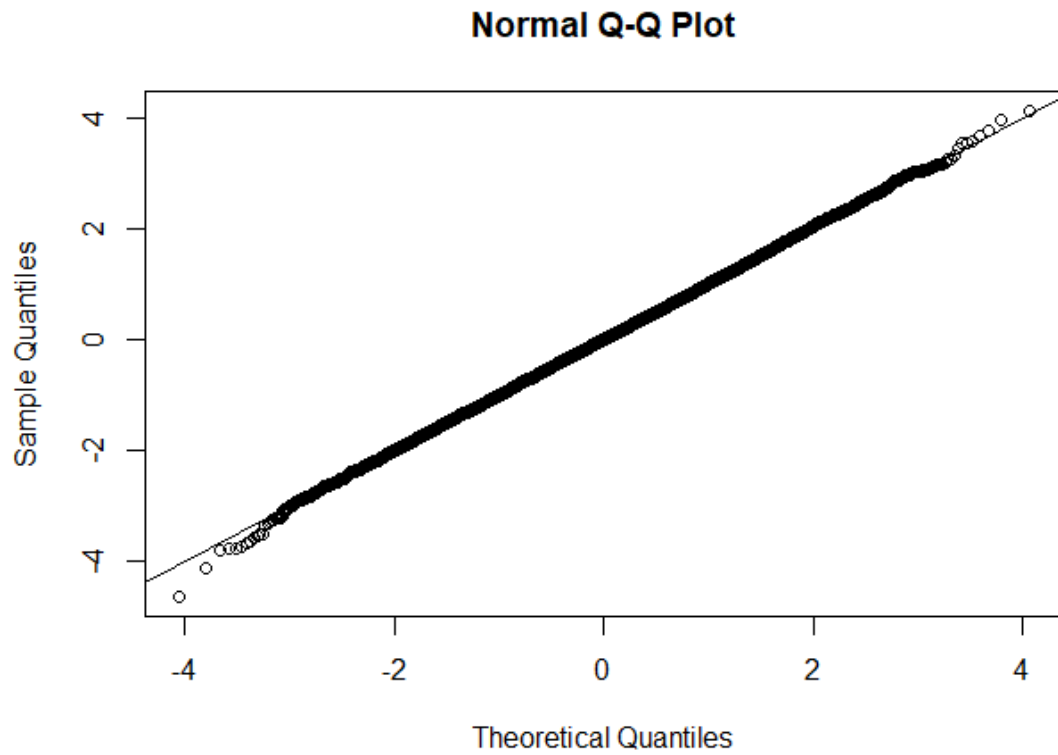
Fig. S7. Quantile-quantile (Q-Q) plot of northern shrimp spatiotemporal model, Gamma component.
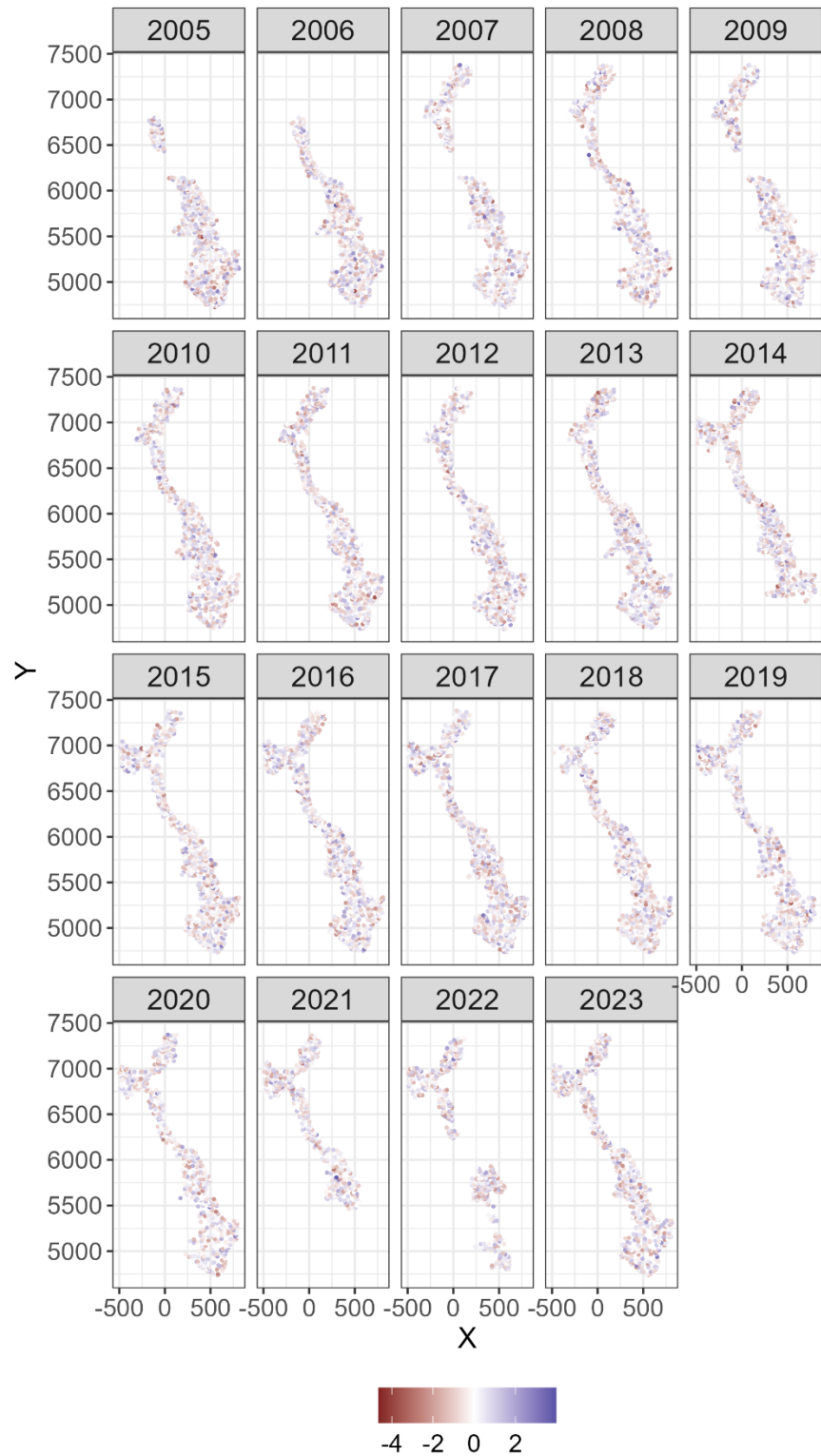
Fig. S8. Map of annual residuals based on northern shrimp spatiotemporal model, 2005 to 2023, binomial component. X and Y projected in UTM Zone 22N.
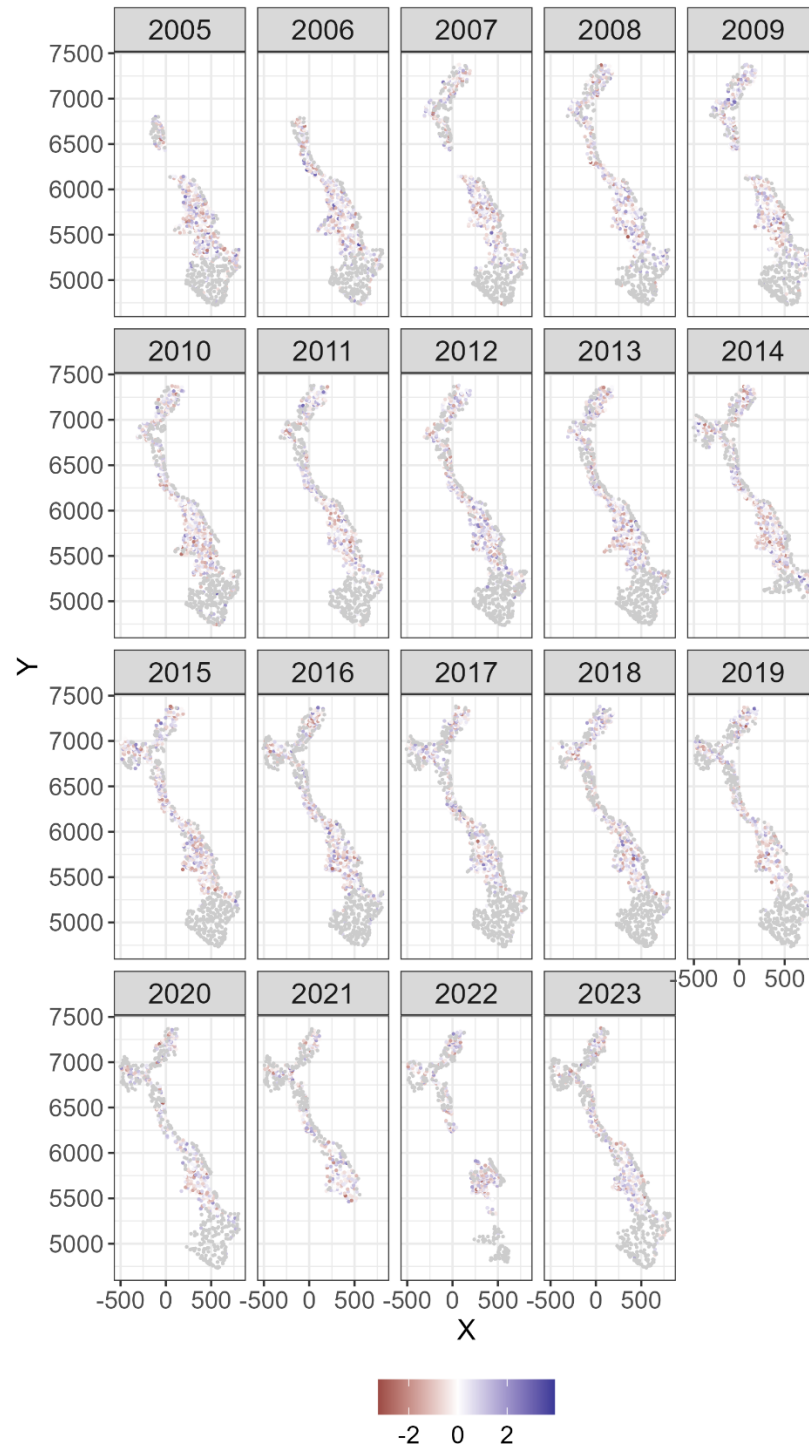
Fig. S9. Map of annual residuals based on northern shrimp spatiotemporal model, 2005 to 2023, Gamma component. Grey points represent survey locations without northern shrimp, and therefore not used in the Gamma model (NAs). X and Y projected in UTM Zone 22N.
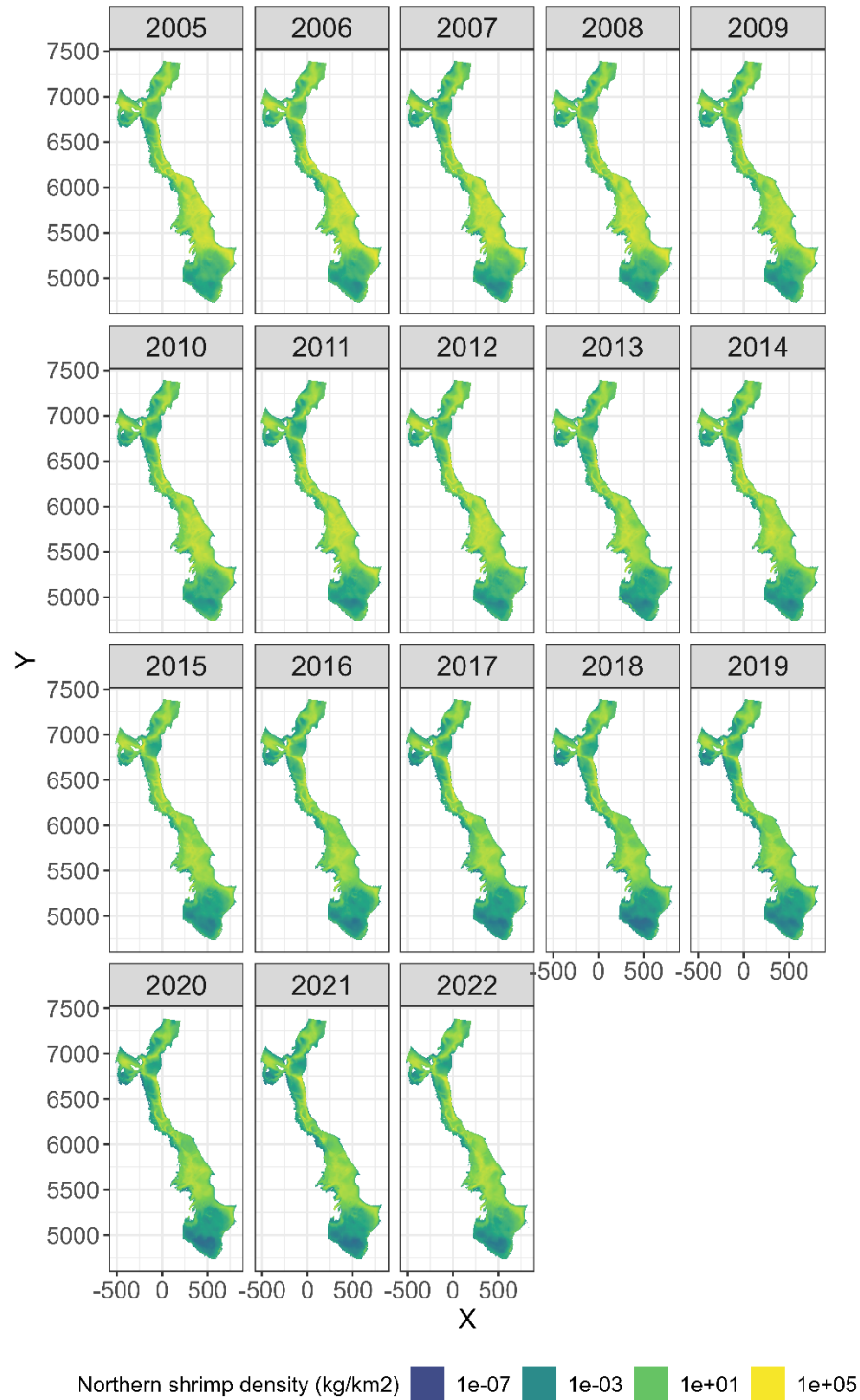
Fig. S10. Predictions of fishable northern shrimp density based on spatiotemporal modelling presented on the log scale, 2005 to 2022. X and Y projected in UTM Zone 22N.
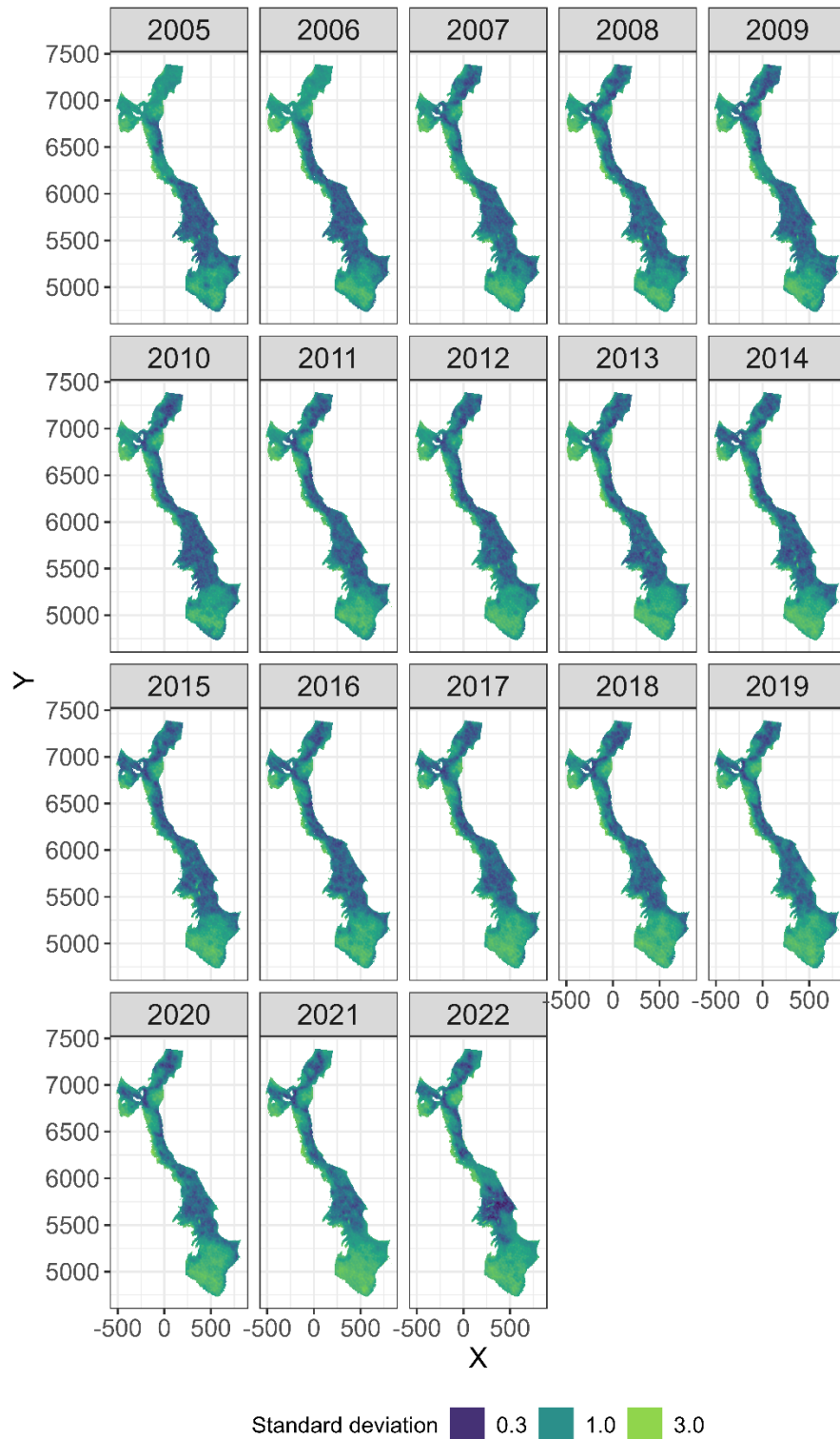
Fig. S11. Uncertainty associated with predictions of fishable northern shrimp density, 2005 to 2022 (based on northern shrimp spatiotemporal model).
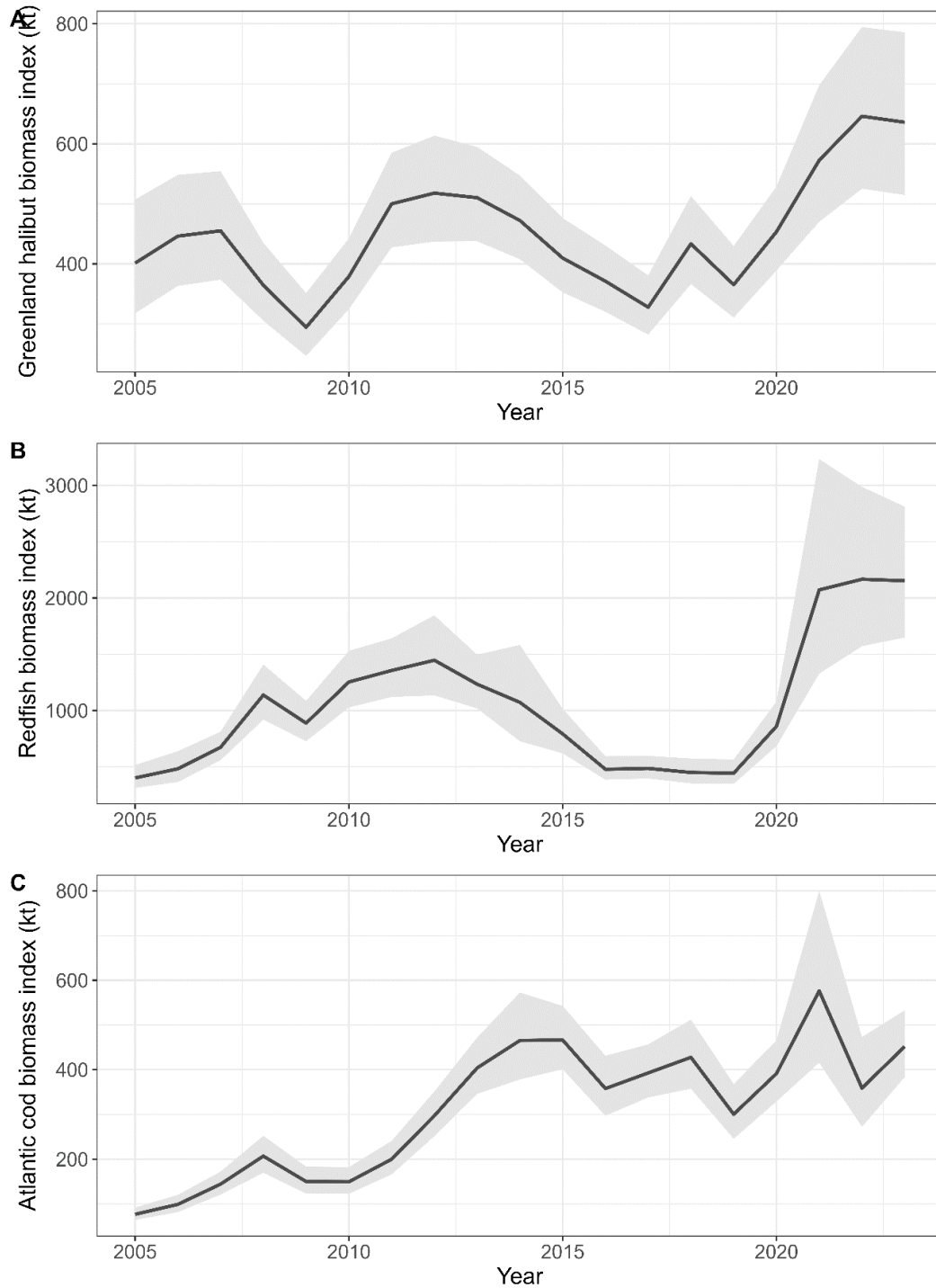
Fig. S12. Biomass indices (kilotonnes – kt) of Greenland halibut (A), redfish (B), and Atlantic cod (C) from 2005 to 2023 based on spatiotemporal modelling.