Supplementary Table. Standard settings in the vector autoregressive spatiotemporal (VAST) model in the R package VAST for all scenarios in which different sampling designs were paired with the model-based estimator. The model was used to simulate bottom-trawl surveys in the Gulf of Alaska (GOA) in order to estimate abundance of 3 species and the variance in those abundance estimates. Variables in the model include $\varepsilon$, the spatiotemporal term for encounter probability; $\beta$, the spatiotemporal term for positive catch rates; and $\omega$, the independent spatiotemporal random field for positive catch rates. IID=independent and identically distributed.

| Setting | Function | Value |
|---|---|---|
| purpose | make settings | index |
| region | make settings | GOA survey grid (<1000 m, excl. untrawlable cells) |
| knot count | make settings | 500 |
| knot method | fit model | mesh |
| field configuration | make settings | $\varepsilon_1$=0; $\varepsilon_2$=IID; $\beta_1$=IID; $\beta_2$=IID; $\omega_1$=IID; $\omega_2$=IID |
| rho configuration | make settings | $\beta_1$=0; $\beta_2$=0; $\omega_1$=0; $\omega_2$=0 |
| anisotropy | make settings | on |
| vessel effects, catchability, covariates | fit model | none |