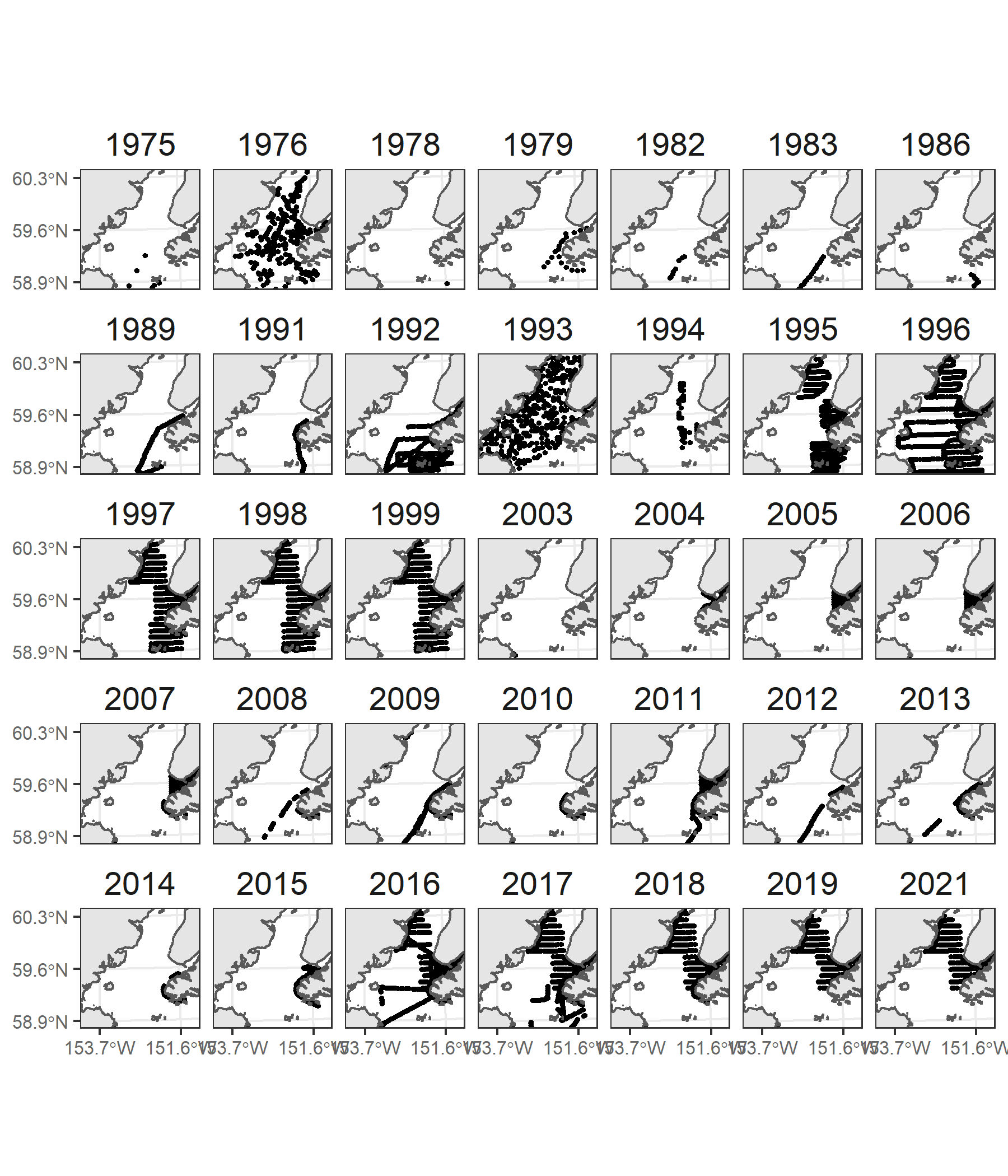
Supplementary Material

# Supplementary Figures and Tables

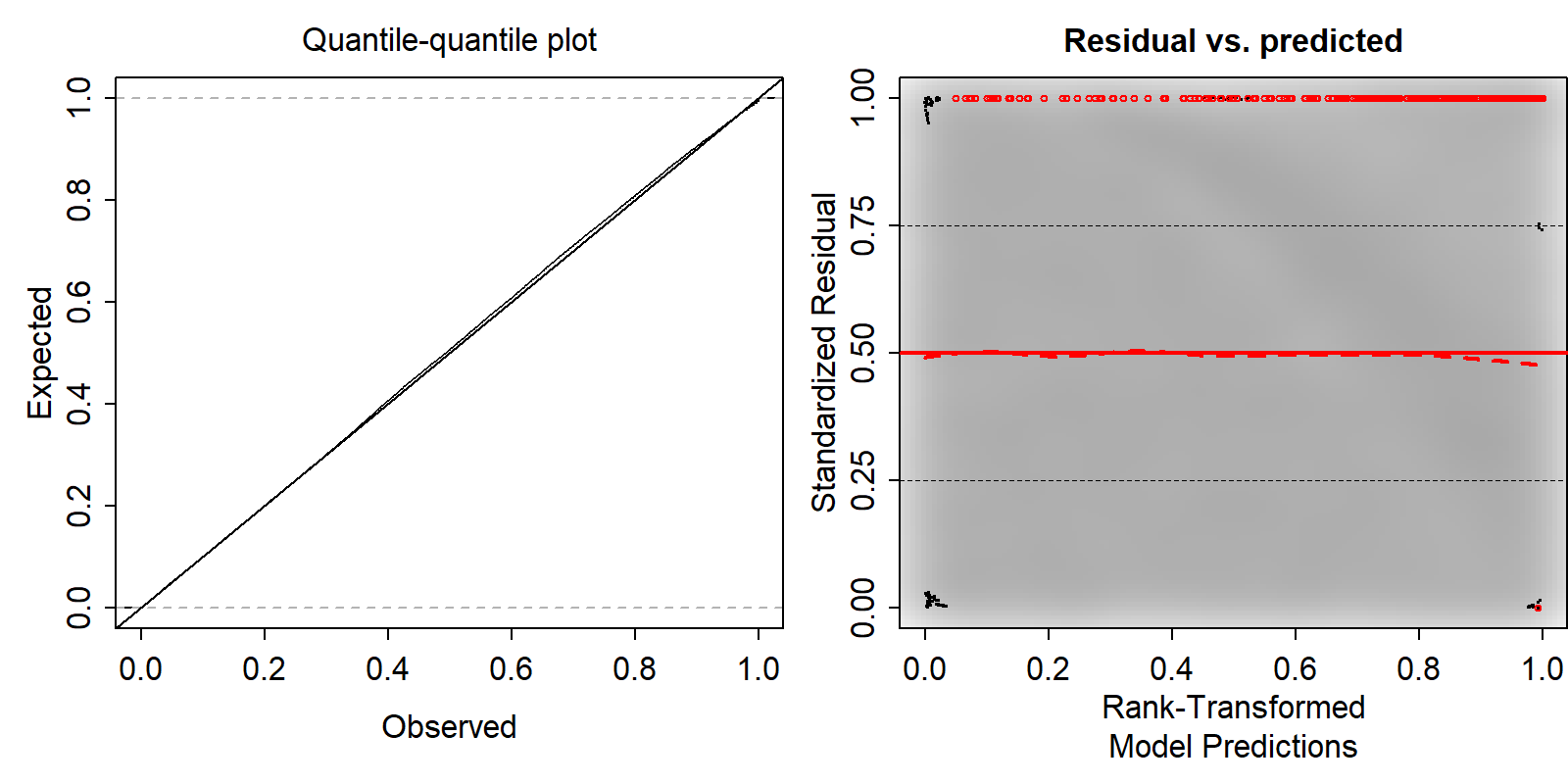
|  |  |  |
| --- | --- | --- |
| Table S1. Contributors of seabird survey data (n = number of transect segments) in lower Cook Inlet, Alaska. | | |
| Principal Investigator or Other Contributor | Years | n |
| Kathy Kuletz, Dan Cushing, Liz Labunski, Martin Renner | 2004-2018 | 2190 |
| John F. Piatt, Suzann Speckman, Gary Drew, Greg Snedgen | 1989-2003 | 1998 |
| Mayumi Arimitsu, John Piatt, Sarah Schoen, Caitlin Marsteller, Sam Stark | 2016-2021 | 997 |
| Beverly Agler | 1993-1994 | 563 |
| David Frazer | 1976 | 96 |
| Heather Coletti | 2006-2019 | 70 |
| Arthur Sowls | 1976 | 59 |
| Patrick Gould | 1976-1983 | 54 |
| Craig Harrison | 1976 | 45 |
| Denny Zwiefelhofer | 1989 | 40 |
| Ken Morgan, Kathleen Moore | 1996 | 35 |
| George L. Hunt | 1979 | 20 |
| John Wiens | 1976 | 19 |
| Doug Forsell | 1976-1982 | 9 |
| Anthony DeGange | 1976 | 8 |
| Karen Henderson, Collen Handel | 1975 | 7 |
| Patricia Baird | 1976 | 7 |
| Robert Day | 1986-1986 | 7 |
| James Bartonek | 1976 | 4 |
| Scott Hatch | 1975 | 3 |
| David Nysewander | 1978 | 2 |
| Mark Rauzon | 1976 | 2 |
| Juan Guzman | 1978 | 1 |
| Total | 1975 - 2021 | 6236 |

For more information on Supplementary Material and for details on the different file types accepted, please see [here](http://home.frontiersin.org/about/author-guidelines#SupplementaryMaterial). Figures, tables, and images will be published under a Creative Commons CC-BY licence and permission must be obtained for use of copyrighted material from other sources (including re-published/adapted/modified/partial figures and images from the internet). It is the responsibility of the authors to acquire the licenses, to follow any citation instructions requested by third-party rights holders, and cover any supplementary charges.

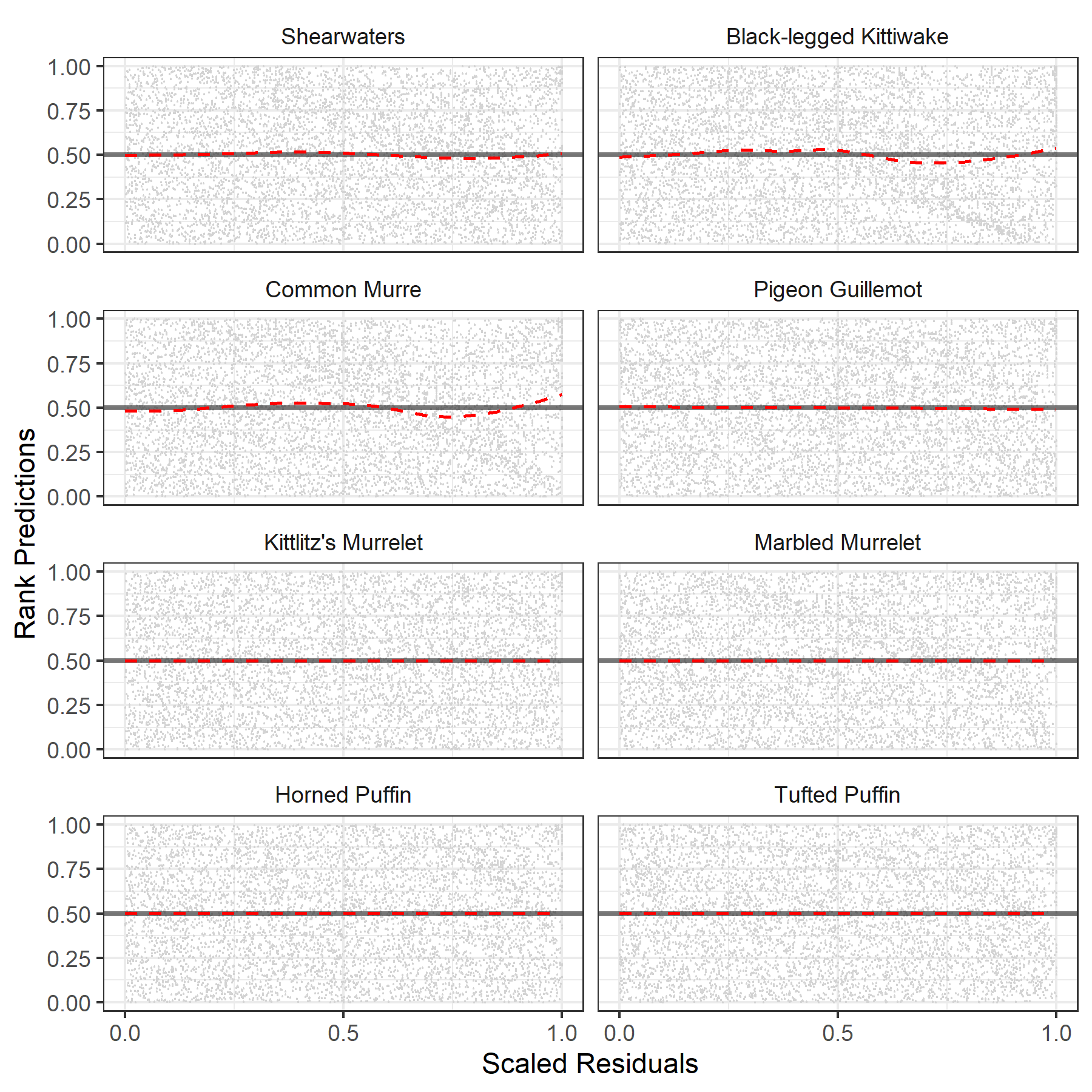
## Supplementary Figures



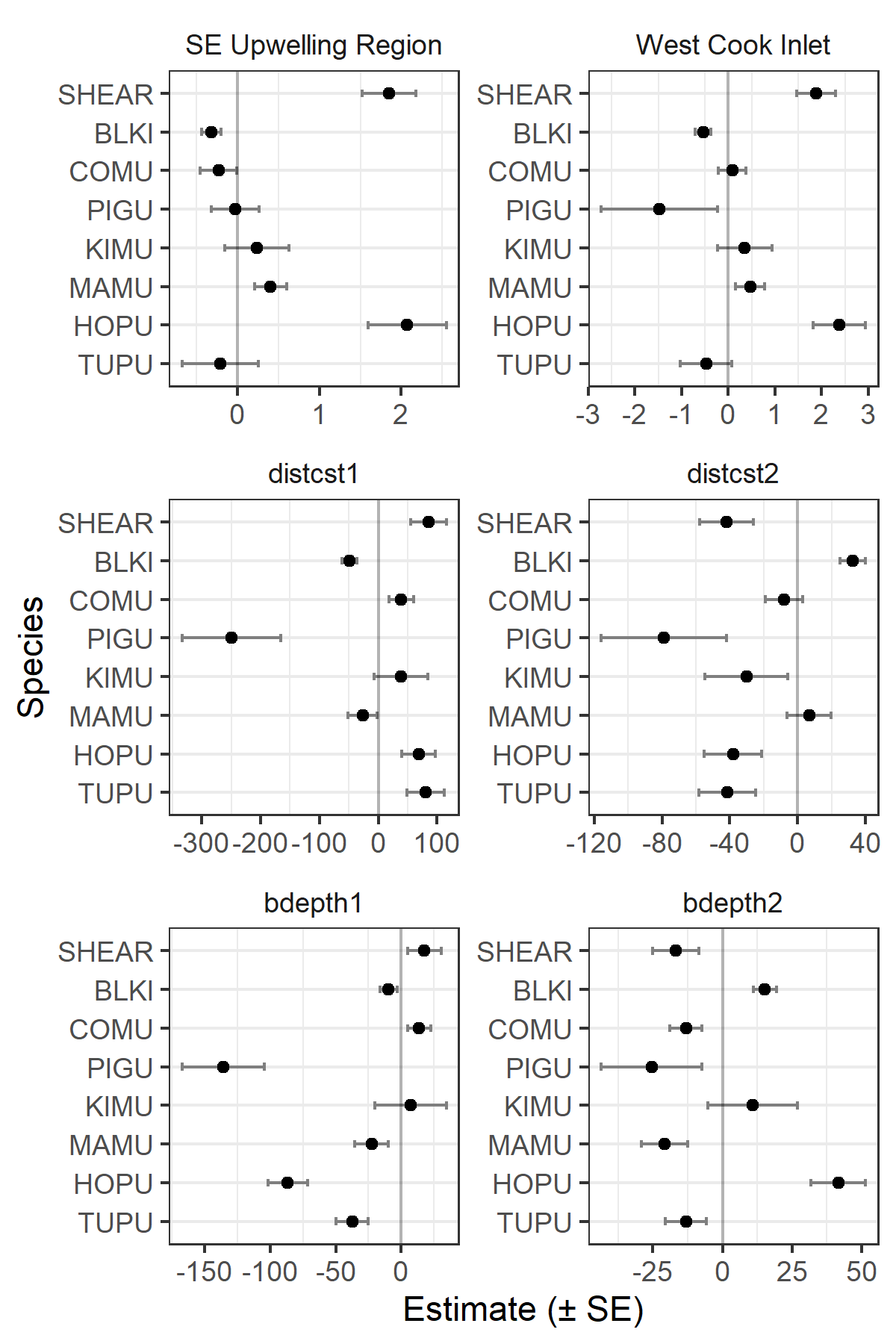
**Supplementary Figure 1.** Distribution of sampling effort by year in lower Cook Inlet, Alaska.



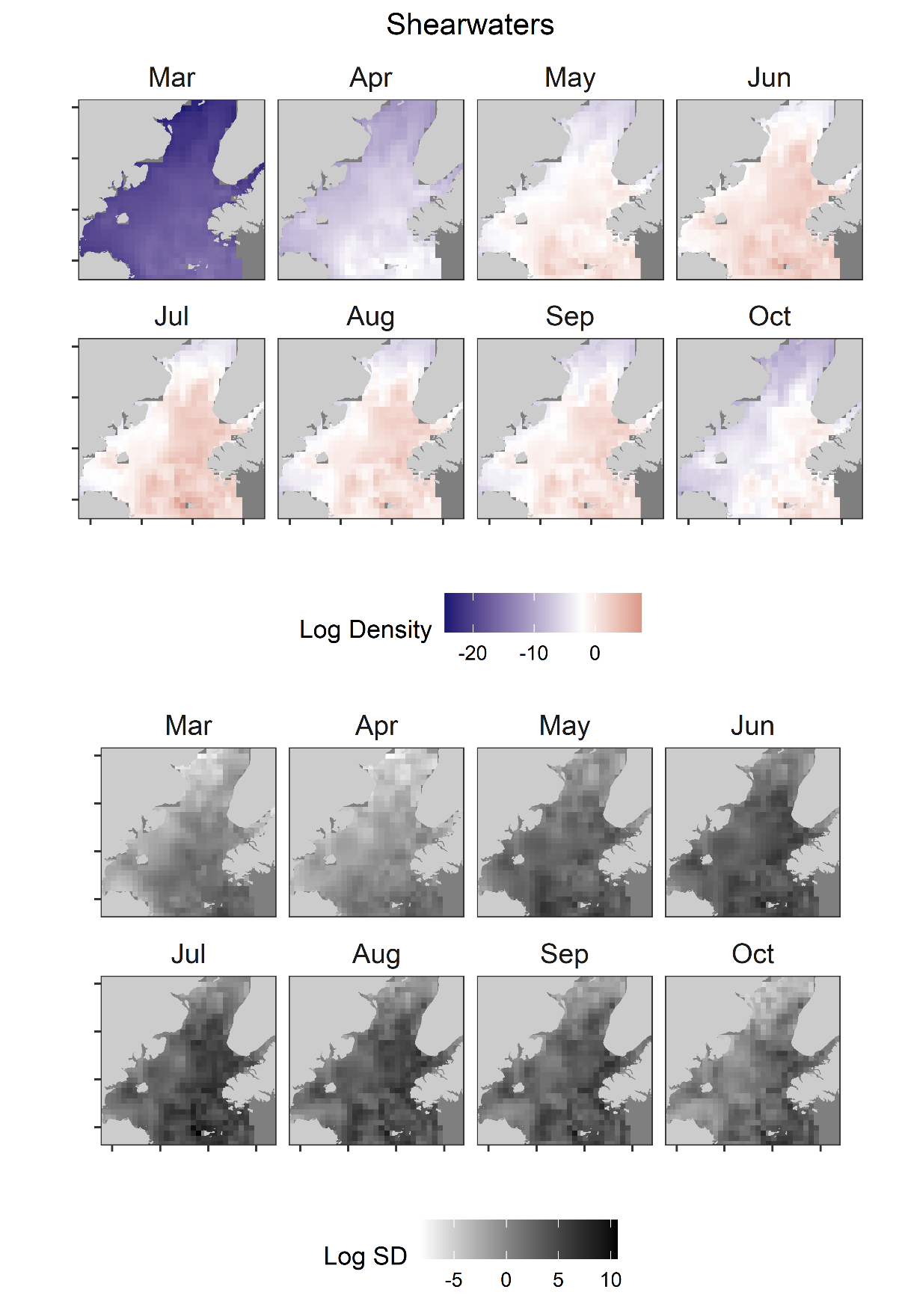
**Supplementary Figure 2.** Quantile residual model diagnostics of multispecies joint dynamic species distribution model of seabirds in Cook Inlet, Alaska.



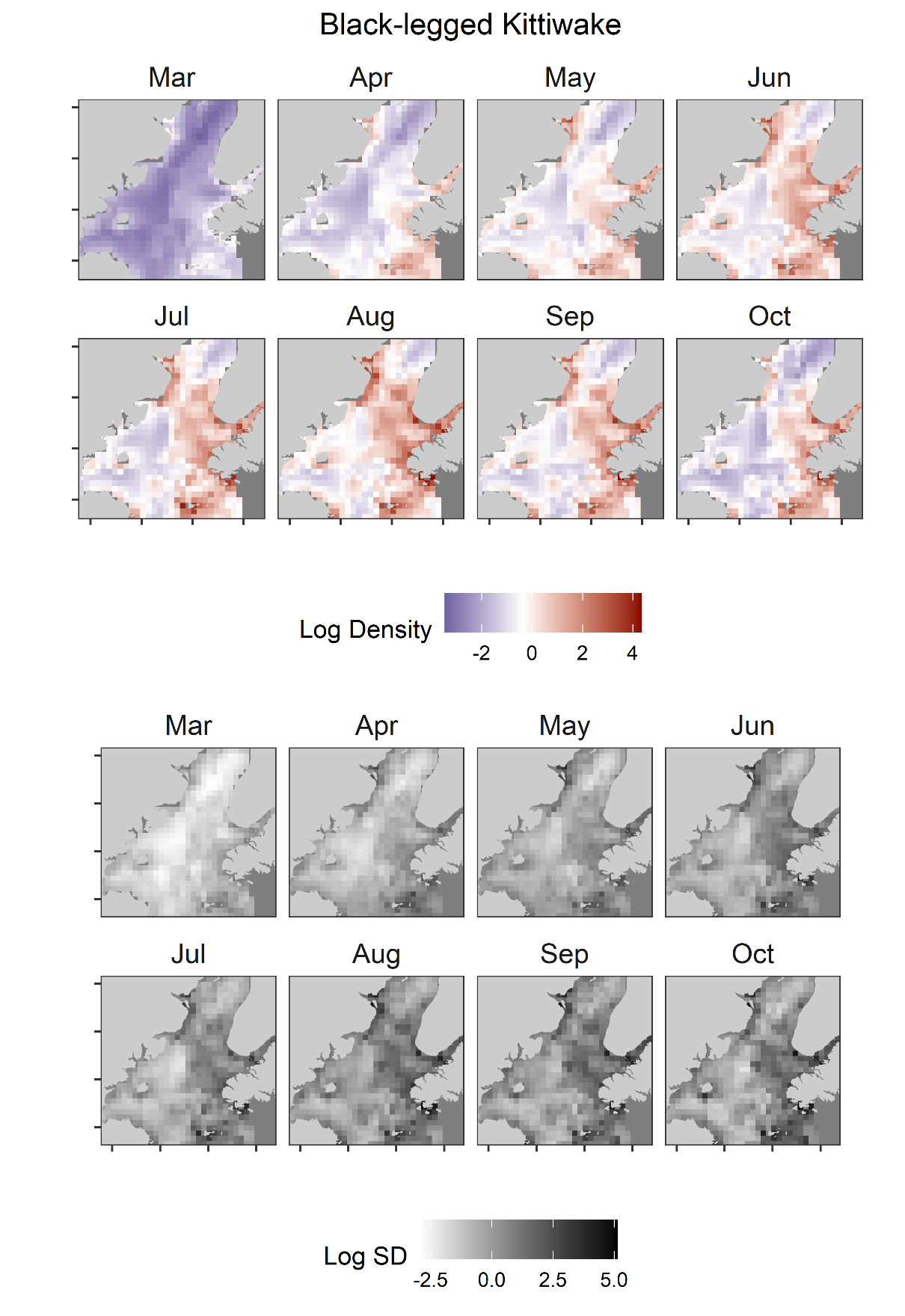
**Supplementary Figure 3.** Simulated DHARMa residuals of rank predictions for a joint dynamic species distribution model of seabirds in Cook Inlet, Alaska. Red dashed lines represent a GAM fit of rank predictions by scaled residuals scaled for each species.



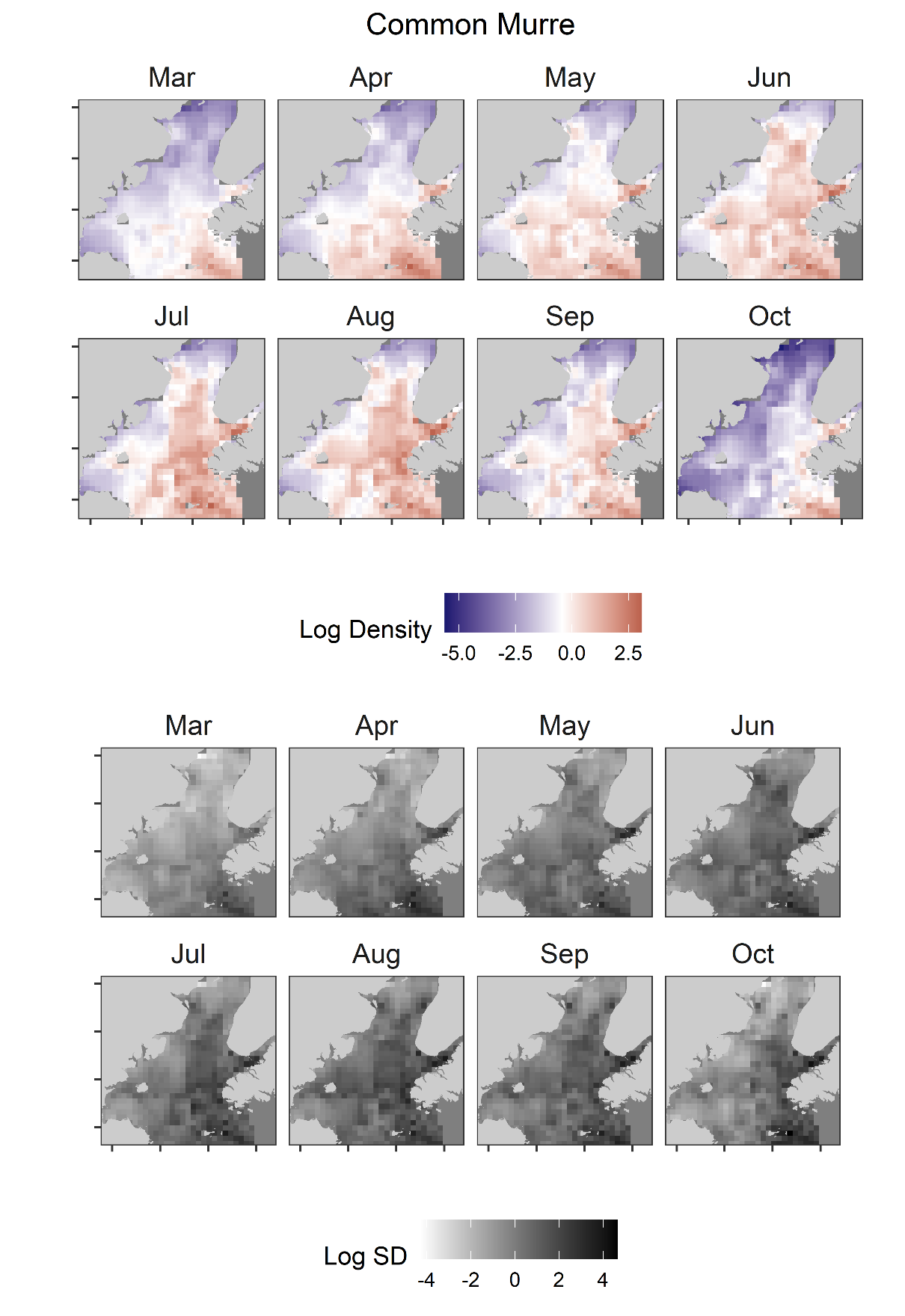
**Supplementary Figure 4.** Parameter estimates for habitat covariates. Abbreviations: SHEAR, dark shearwaters; BLKI, black-legged kittiwake; COMU, common murre; PIGU, pigeon guillemot; KIMU, Kittlitz’s murrelet; MAMU, marbled murrelet; HOPU, horned puffin; TUPU, tufted puffin; distcst, distance to coast; bdepth, bottom depth.



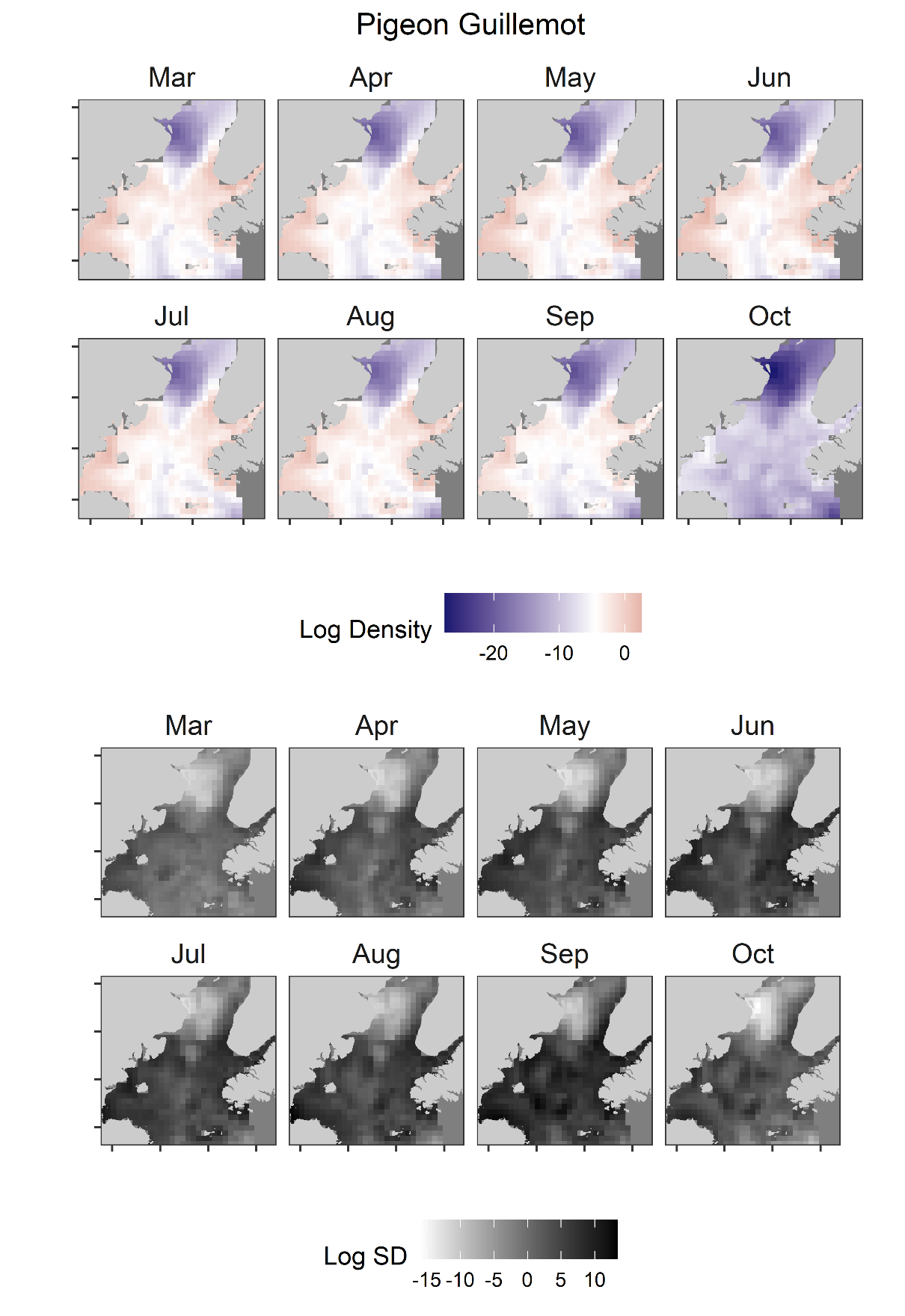
**Supplementary Figure 5.** Monthly predicted log density (color, median = white) and log SD (greyscale) of shearwaters in Cook Inlet, Alaska.



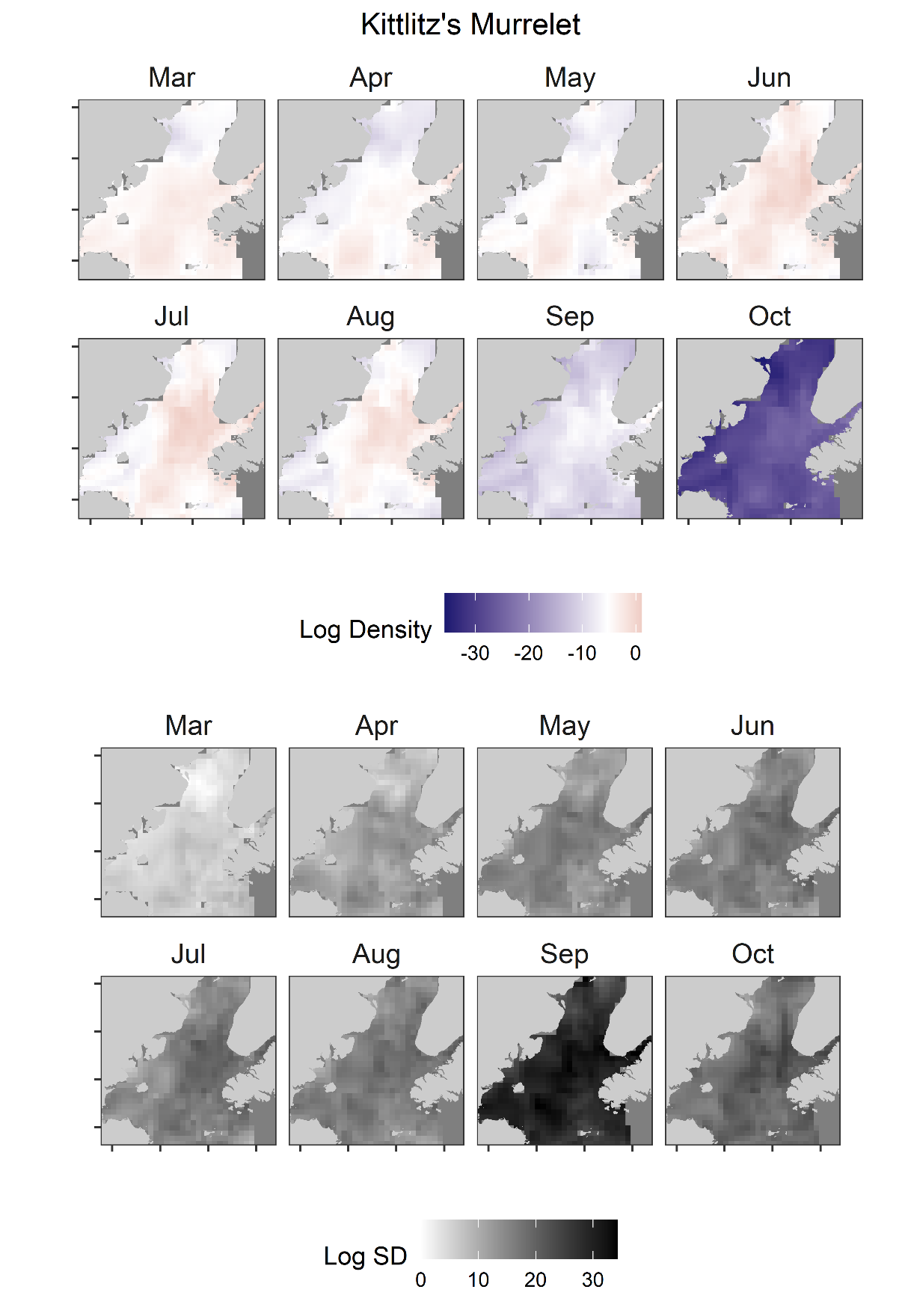
**Supplementary Figure 6.** Monthly predicted log density (color, median = white) and log SD (grey scale) of black-legged kittiwake in Cook Inlet, Alaska.



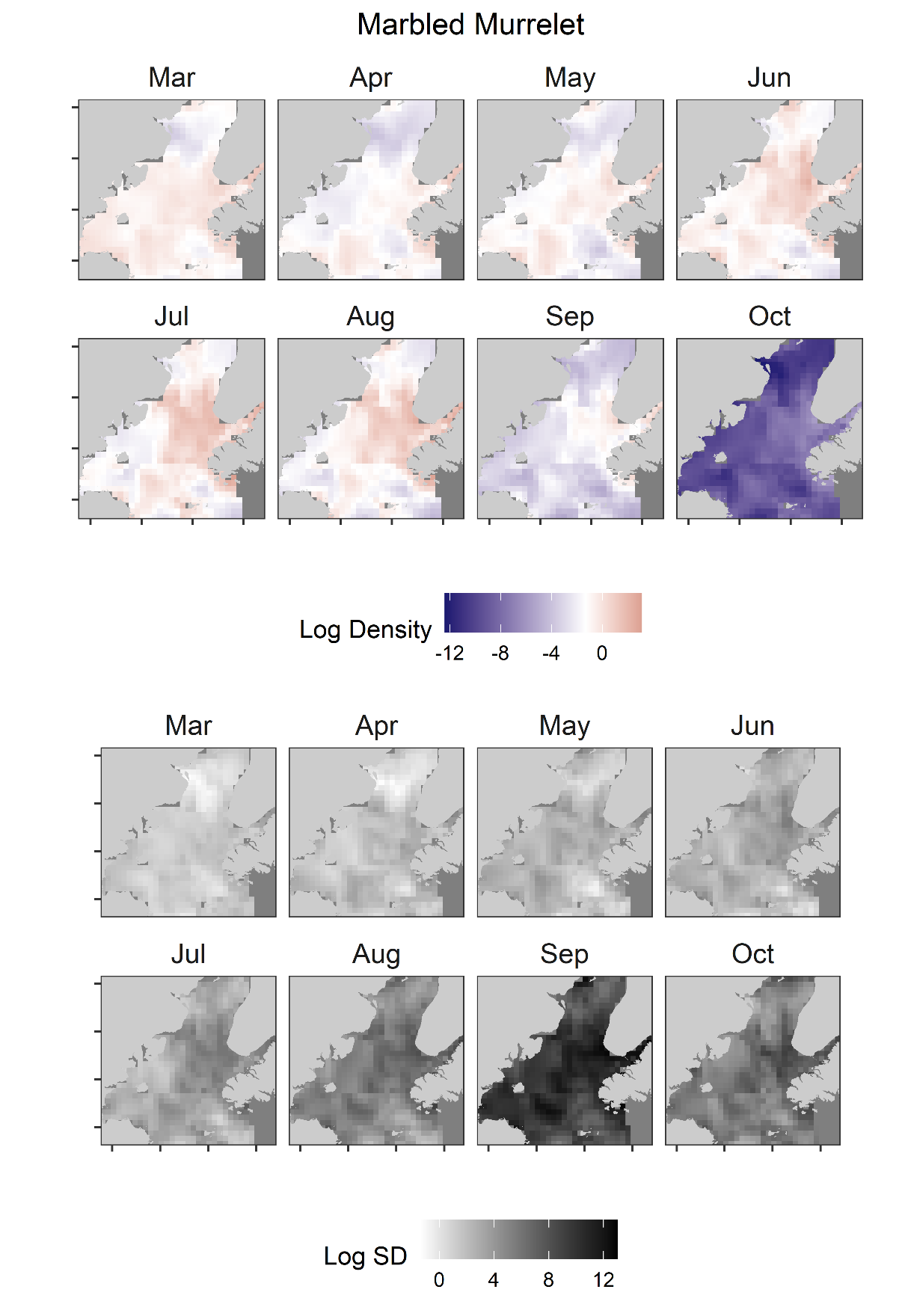
**Supplementary Figure 7.** Monthly predicted log density (color, median = white) and log SD (grey scale) of common murre in Cook Inlet, Alaska.



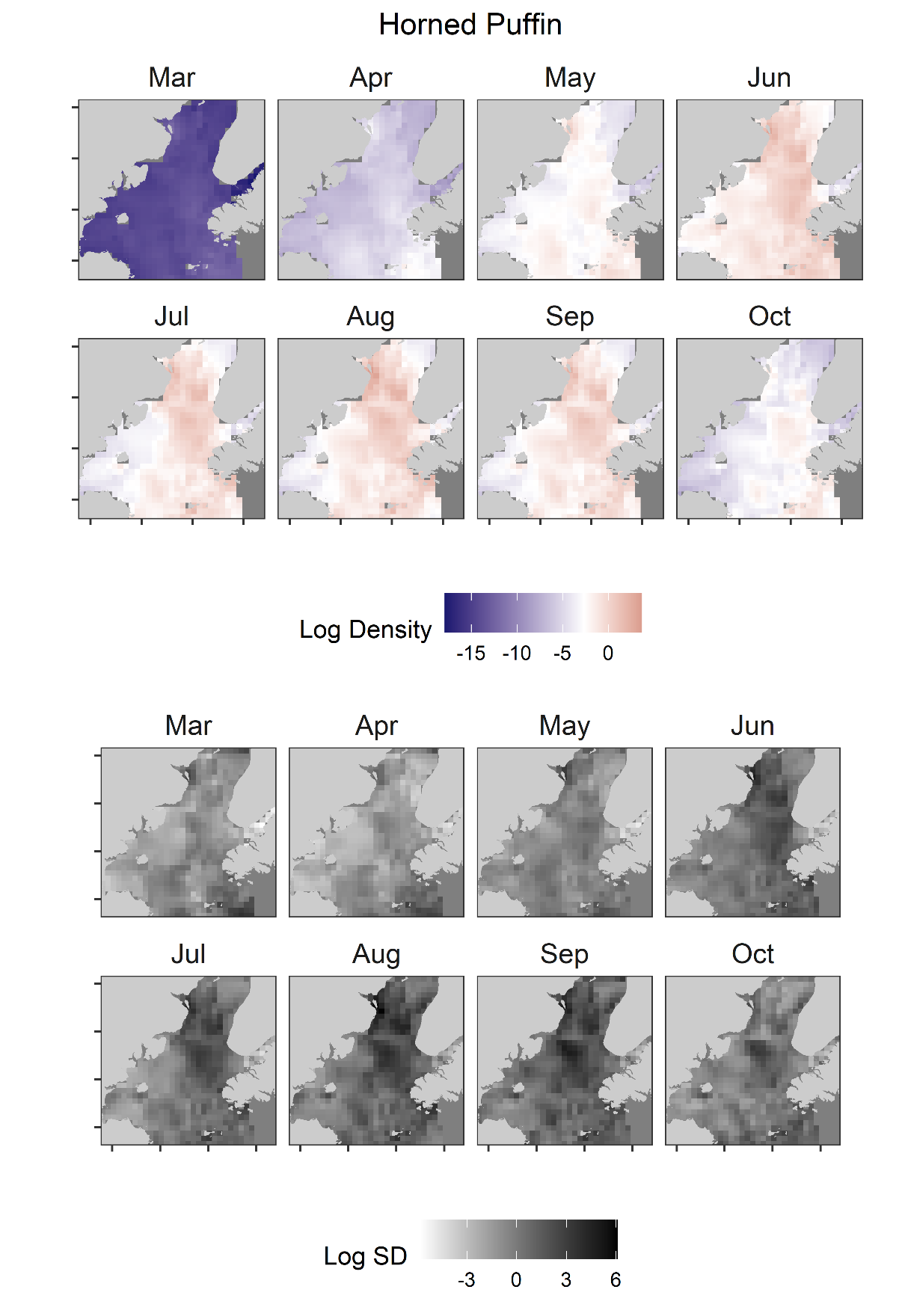
**Supplementary Figure 8.** Monthly predicted log density (color, median = white) and log SD (grey scale) of pigeon guillemot in Cook Inlet, Alaska.



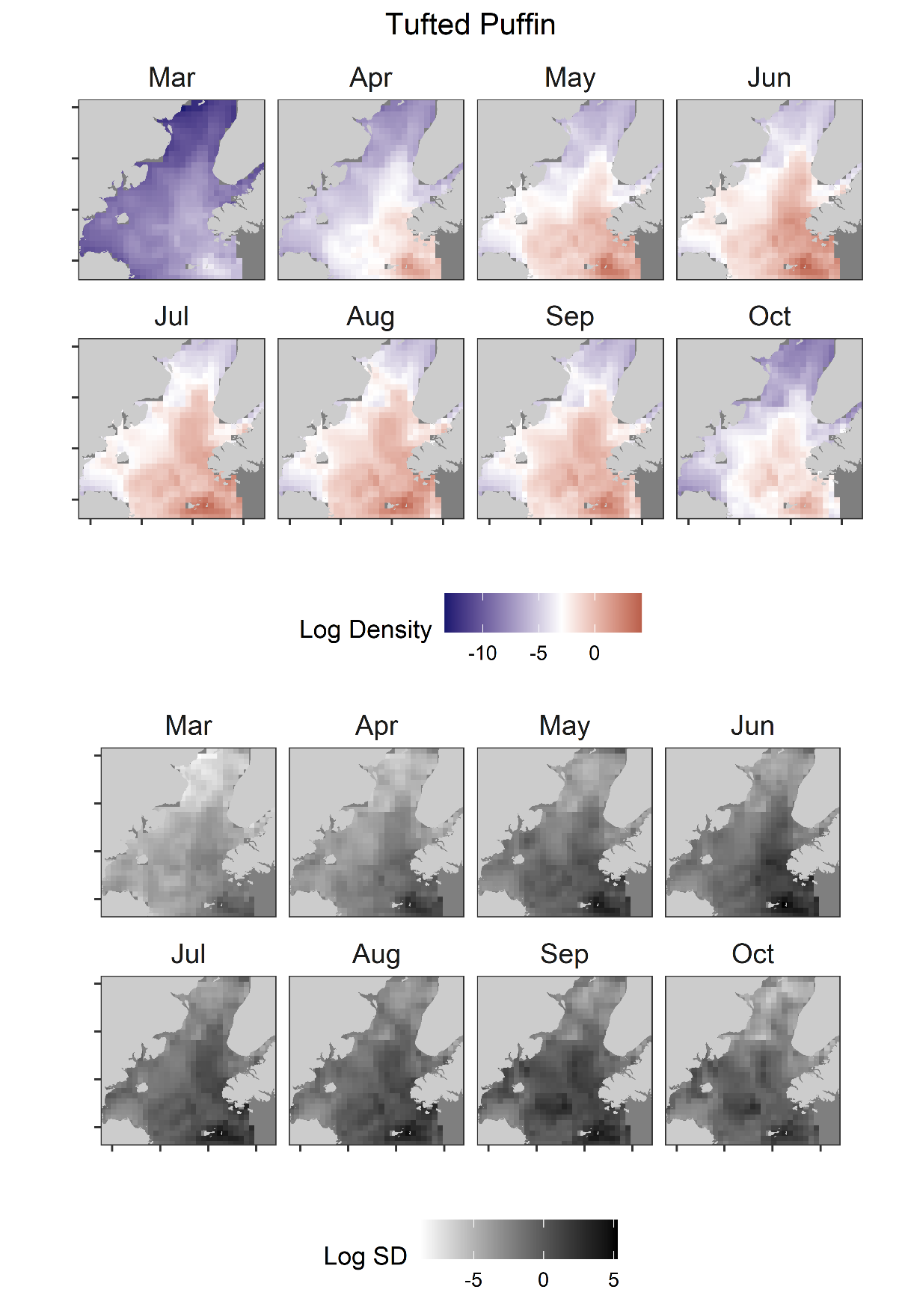
**Supplementary Figure 9.** Monthly predicted log density (color, median = white) and log SD (grey scale) of Kittlitz’s murrelet in Cook Inlet, Alaska.



**Supplementary Figure 10.** Monthly predicted log density (color, median = white) and log SD (grey scale) of marbled murrelet in Cook Inlet, Alaska.



**Supplementary Figure 11.** Monthly predicted log density (color, median = white) and log SD (grey scale) of horned puffin in Cook Inlet, Alaska.



**Supplementary Figure 12.** Monthly predicted log density (color, median = white) and log SD (grey scale) of tufted puffin in Cook Inlet, Alaska.