

Ecography

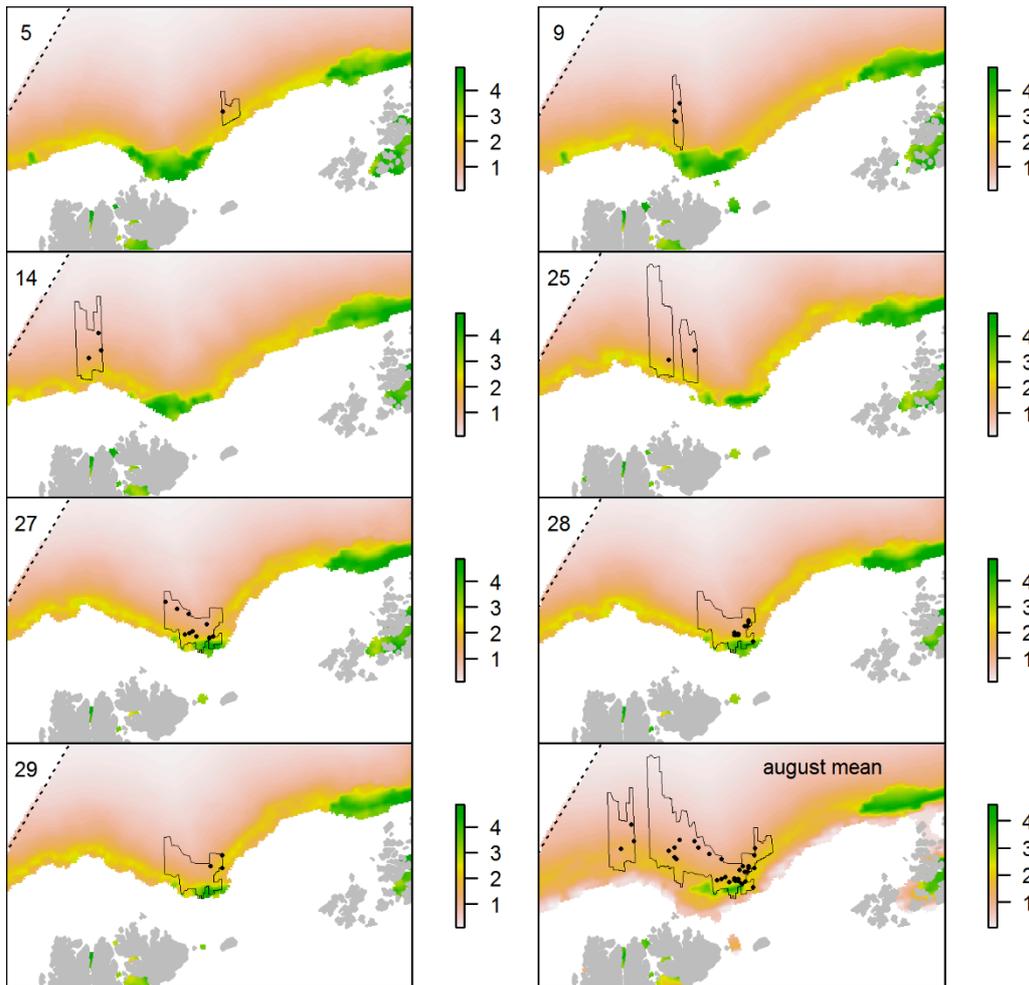
ECOG-03020

Lone, K., Merkel, B., Lydersen, C., Kovacs, K. M. and Aars, J. 2017. Sea ice resource selection models for polar bears in the Barents Sea subpopulation. – *Ecography* doi: 10.1111/ecog.03020

Supplementary material

Appendix 1:

Figure A1. Comparison of the predicted unscaled RSF values for polar bear distribution in the marginal ice zone in combination with the empirical distribution of polar bears (black points) seen during surveys in August 2015. In each panel, the RSF prediction for a certain day of the month is shown together with the area covered by parallel transects (outlined) and bears observed on that day. Area covered on 27, 28 and 29 August is shown together on all three days as these areas overlapped.



Appendix 2: Spatial K-fold validation plots

Figure A2. Spatial K-fold validation plots for November-March period. Each row has plots showing the spatial folds 1 to 5 for each model. RSF values are binned in equal-area bins (x-axis), and number of used positions predicted in each bin is on y-axis. The Spearman rank correlation between bin rank and number of used locations within each (equal area) bin for each is printed as header. We selected model 4 to have the best overall predictive performance.

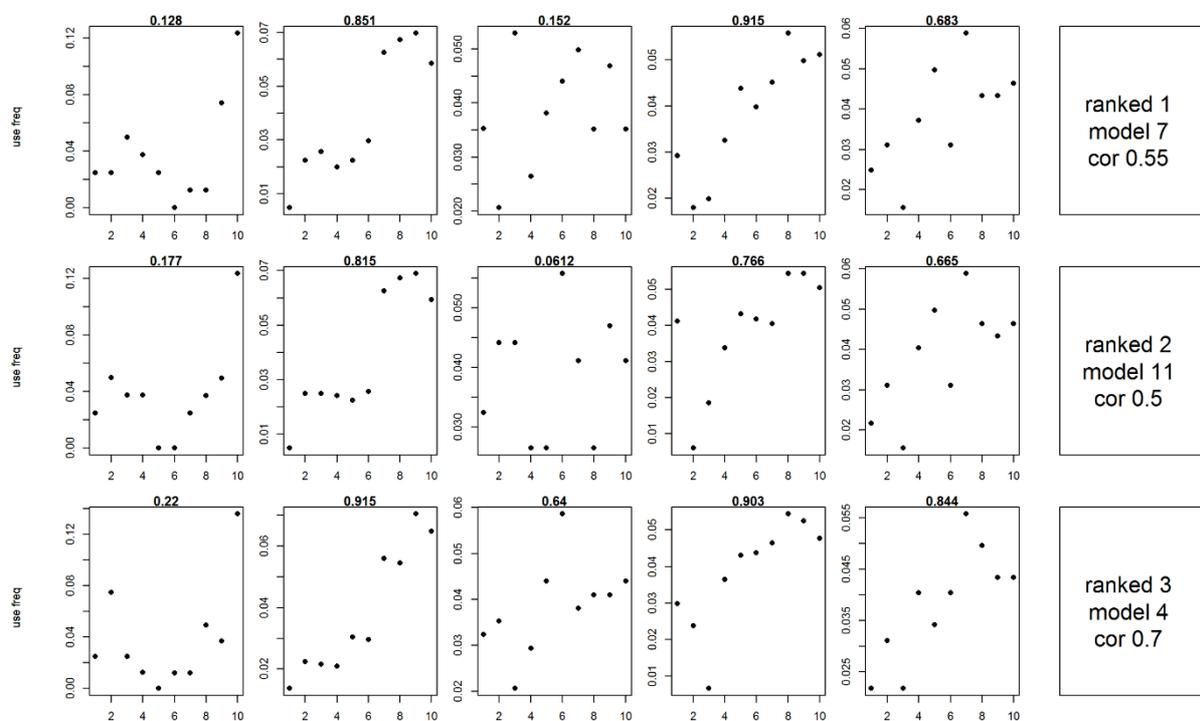
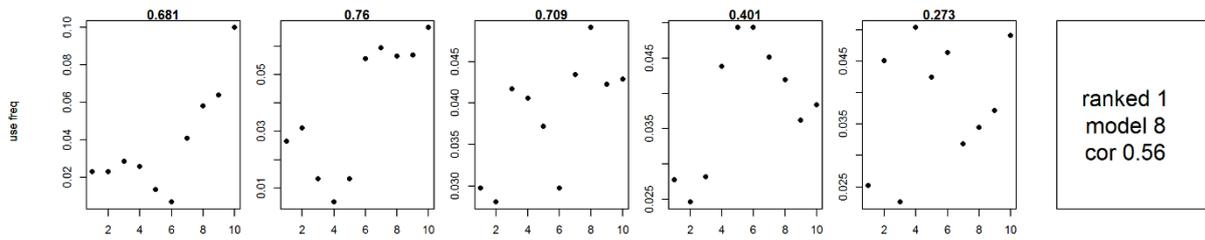


Figure A3. Spatial K-fold validation plots for the top models for the spring (April-July) period. Left to right the plots show the spatial folds 1 to 5. RSF values are binned in equal-area bins (x-axis), and number of used positions predicted in each bin is on y-axis. The Spearman rank correlation between bin rank and number of used locations within each (equal area) bin for each is printed as header.



Appendix 3: Model coefficients and predictions

Table A1. RSF coefficient estimates of top model in each season

		coefficient	robust se	z	P-value
Winter	Totcon	0.0933	0.01752	5.3	<0.001
	totcon ²	-0.0008	0.00012	-6.2	<0.001
	dist_ice.75	-0.0022	0.00069	-3.1	0.002
Spring	Totcon	0.0724	0.00675	10.7	<0.001
	totcon ²	-0.0006	0.00005	-11.6	<0.001
	dist_ice.15	-0.0008	0.00040	-1.9	0.054
	bathymetry	-0.0003	0.00008	-3.0	0.003
Autumn	Totcon	0.0339	0.00746	4.5	<0.001
	totcon ²	-0.0003	0.00006	-4.8	<0.001
	dist_ice.15	-0.0097	0.00109	-8.8	<0.001
	Shelf	0.6152	0.13940	4.4	<0.001

Figure A4. Comparison of RSF maps (normalized to range 0-1) for one date in each of our seasons, for two years with strongly contrasting sea ice conditions. The year 1996 had sea ice conditions that could be considered typical for the 1990s, whereas 2013 illustrates a recent situation with very low sea ice cover in the Barents Sea.

