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Supplement of

Seasonal distribution of short-tailed shearwaters and their prey in the Bering and Chukchi seas

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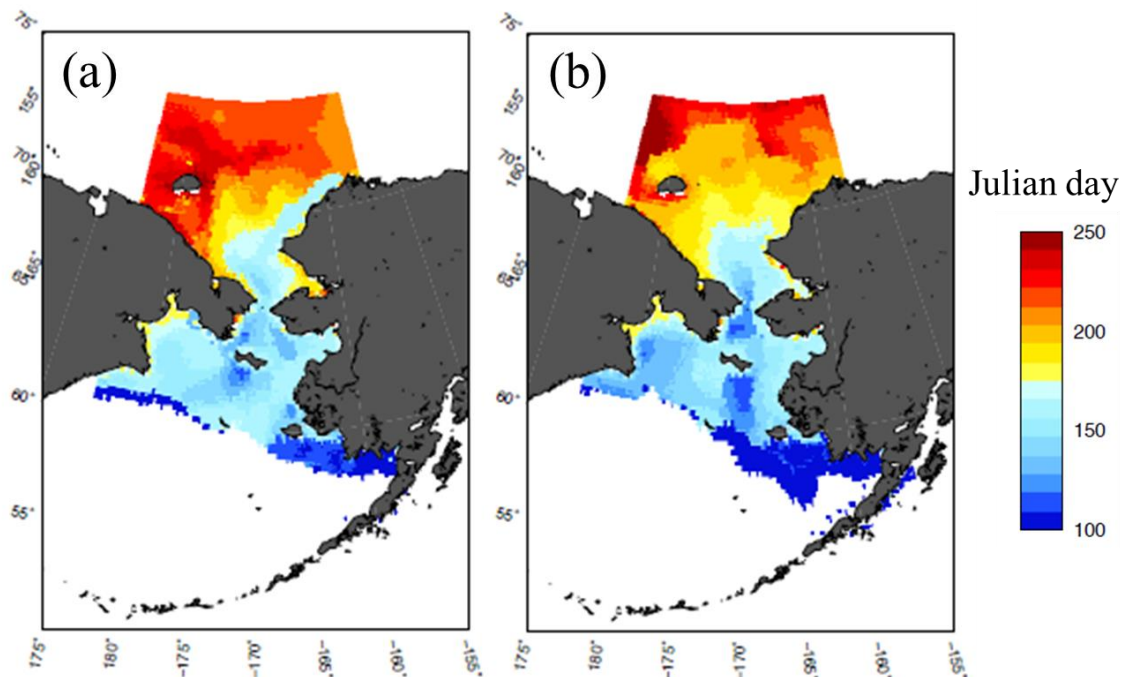


Figure S1. The timing of sea-ice retreat in 2012 (a) and 2013 (b). Different color shows Julian day. The timing of sea-ice retreat was defined by the first Julian day when sea-ice concentrations were below 10%, following Fujiwara et al. (2016). Daily sea-ice concentrations were obtained by the Defense Meteorological Satellite Program (DMSP) special sensor microwave imager (SSM/I) with 25 km spatial resolution.

Fujiwara, A., Hirawake, T., Suzuki, K., Eisner, L., Imai, I., Nishino, S., Kikuchi, T., and Saitoh, S.-I.: Influence of timing of sea ice retreat on phytoplankton size during marginal ice zone bloom period on the Chukchi and Bering shelves, *Biogeosciences*, 13, 115-131, doi:10.5194/bg-13-115-2016, 2016.

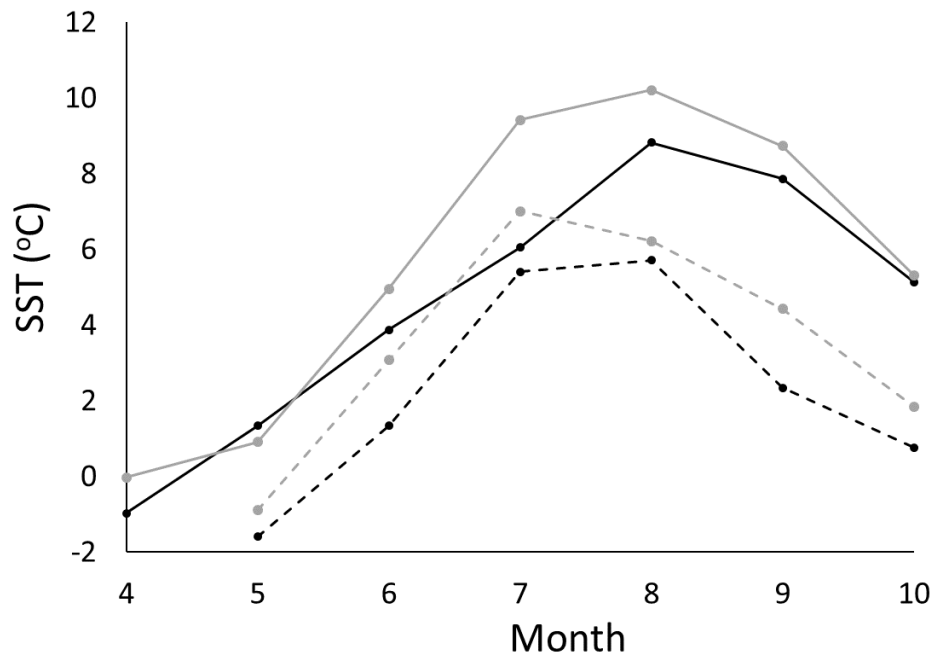


Figure S2. Seasonal changes in SST in the southeastern Bering Sea shelf ($56^{\circ}40$ N, $163^{\circ}52$ W, solid line) and southern Chukchi Sea ($68^{\circ}03$ N, $168^{\circ}50$ W, broken line) during 2012 (black line) and 2013 (gray line). Monthly SST data were obtained from moderate-resolution spectroradiometer/Aqua standard mapped images with a spatial resolution of approximately 9 km provided by Ocean Color website (<http://oceancolor.gsfc.nasa.gov>).

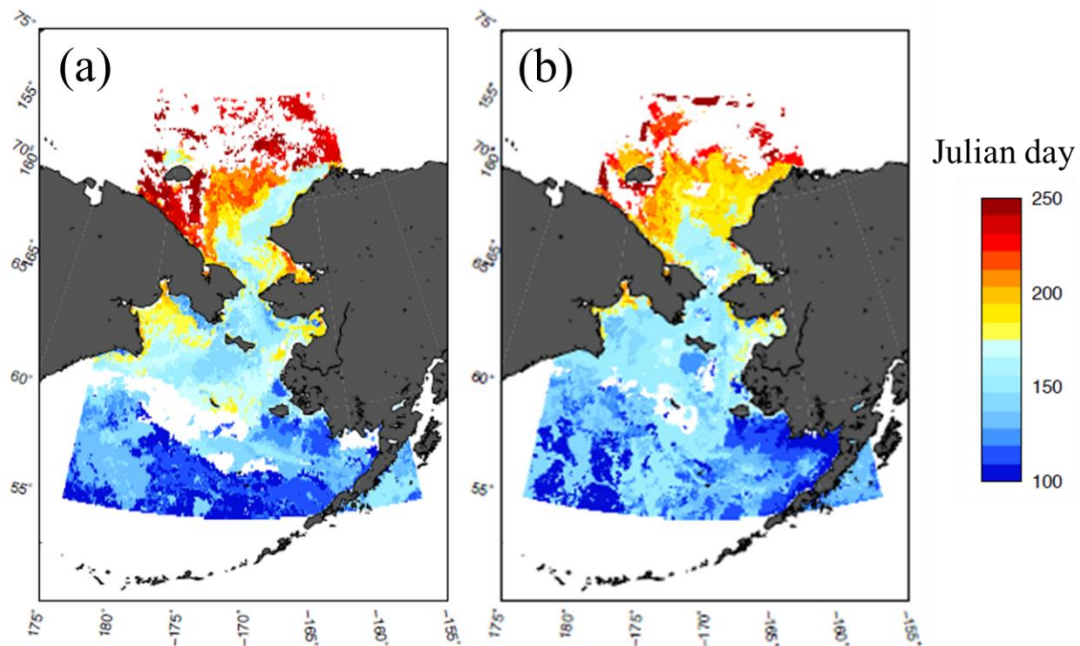


Figure S3. The timing of spring bloom indicated by Julian day when occurrence of Chl *a* maximum within 20 days after sea-ice retreat in (a) 2012 and (b) 2013. Different color shows Julian day. Daily chlorophyll *a* concentrations data were obtained from moderate-resolution spectroradiometer/Aqua standard mapped images with a spatial resolution of approximately 9 km provided by Ocean Color website (<http://oceancolor.gsfc.nasa.gov>). Missing value (i.e., cloud cover) shows in white color.