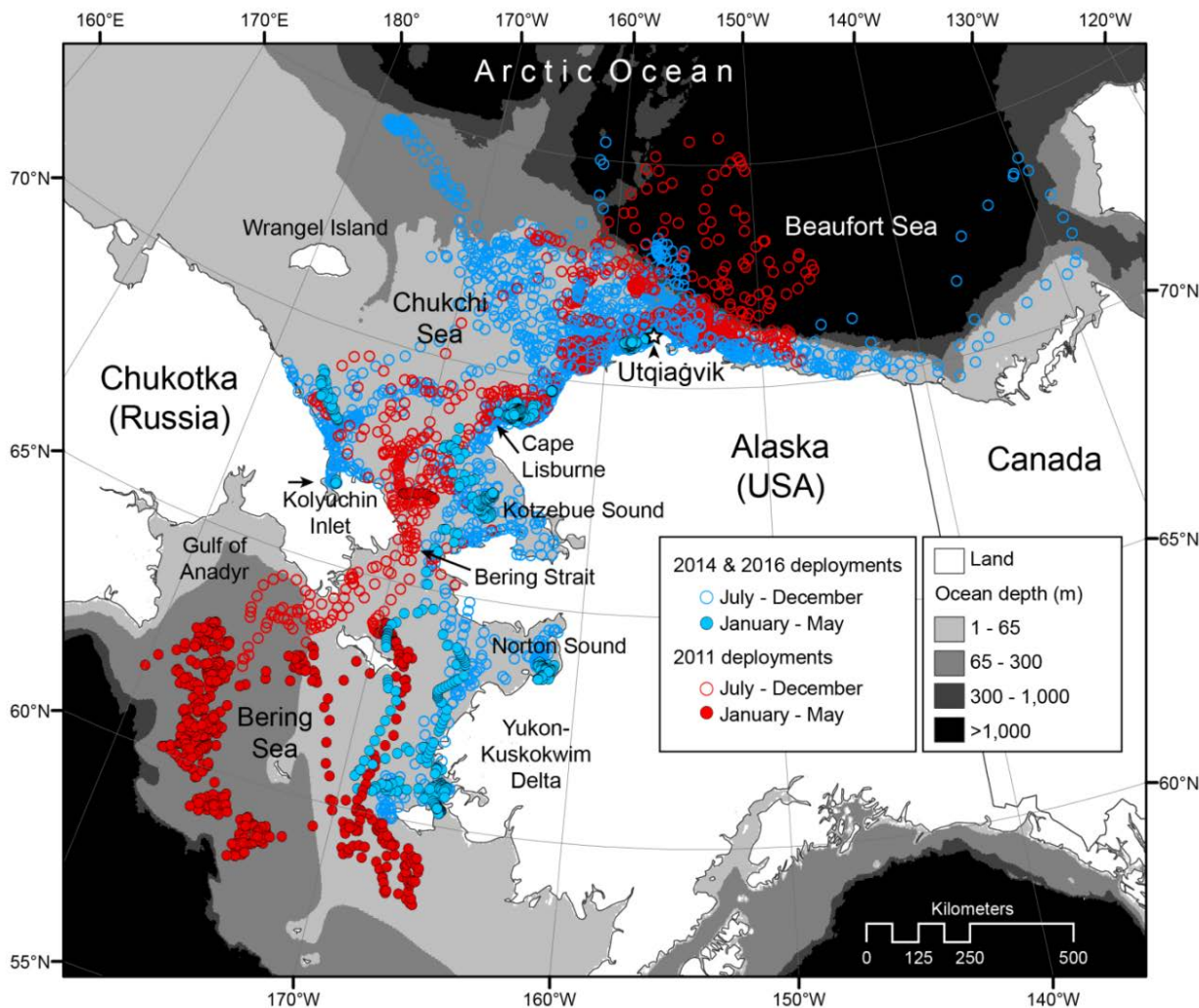




Natchiq or Ringed Seal seasonal movements, dives, and haulout behavior in the Beaufort, Chukchi, and Bering Seas (2011-2017)

Objective: We are monitoring the movements, habitat use, and behavior of ringed seals captured and satellite tagged near Utqiagvik. With this study, we are improving our understanding of ringed seal biology, which will better inform decision makers on the conservation and management of this important subsistence species.

Summary: Our results document that ringed seals tagged in Utqiagvik cover vast areas of the Beaufort, Chukchi, and Bering Seas (see map). Interestingly, most of the seals spent some time in the central basin, beyond the continental shelf and over very deep water (black region on map).



Map of ringed seal movements. Red circles are locations of seals tagged in 2011 and blue circles are locations of seals tagged in 2014 and 2016. Hollow circles are for locations in Jul-Dec and filled circles are for Jan-May locations. The black areas show very deep (> 3000 feet) ocean that is beyond the continental shelf.

This area is not typically considered to be high quality habitat for ringed seals. While in the central basin, ringed seals spent most of their time hauled out on the ice. This off-shelf haulout behavior occurred in the late summer and early fall, a period typically devoted to feeding to make up the lost energy spent on winter, breeding, and molting. Upon returning to the continental shelf, ringed seal daily activities were dominated by bottom diving, which we associated with feeding. We observed daily patterns in diving and haulout that related to light availability, suggesting a preference to hunt during periods with the most light. Collectively, the seals tagged in 2011 were smaller, in poorer body-condition, and had different habitat use patterns compared to seals tagged in subsequent years. These differences suggest that non-local seals of a different subgroup may have been tagged in 2011. If different subgroups respond to ecological change differently, this may be related to the unusual mortality event (UME) that occurred in 2011.

Acknowledgements: Many thanks to all who have helped with this study, including subsistence hunters in Utqiagvik and Wainwright. This ongoing project is funded by the NSB/Shell Baseline Studies Program. For more information, contact DWM biologist Andy Von Duyke at 852-0350 or email andrew.vonduyke@north-slope.org

Journal article: Von Duyke, A.L., D.C. Douglas, J. Herreman, and J. Crawford. Ringed seal (*Pusa hispida*) seasonal movements, dives, and haulout behavior in the Beaufort, Chukchi, and Bering Seas (2011-2017). *In Preparation*