



## 2016 Northern Fur Seal Tracking Study

*Report #2, August 18, 2016*

### Background

The northern fur seal population on the Pribilof Islands, Alaska has been experiencing an unexplained decline since the mid-1970s. Northern fur seals may be one of the most studied marine mammal species and yet significant data gaps still exist in our understanding of relationships between northern fur seals and their primary prey, walleye pollock. Because northern fur seals forage over a vast range (> 200km from the colony), one major obstacle is temporally and spatially aligning studies of fur seal foraging behavior with concurrent measures of prey availability. As part of a larger research program, NOAA Office of Research and NOAA Fisheries have teamed up with Sairdrones Inc. to use two autonomous, wind and solar powered, research vessels (Sairdrones) to examine fur seal foraging behavior in relation to prey availability. If successful, this project could be a significant step forward for our understanding of how the distribution and abundance of prey influence fur seal behavior, foraging success, and population trends. And these data, integrated within our larger northern fur seal research program, will be used to help make informed management and conservation decisions, which is vital as this population continues to decline. This work was conducted under authority of MMPA Permit for Scientific Research No. 14327 issued to the NMFS/AFSC National Marine Mammal Laboratory.

### Highlights

All northern fur seals with satellite-linked tracking instruments continue to transmit data about movement and dive patterns ( $n = 22$ , 8 additional instruments only record data). Based on estimated movement tracks from Argos position fixes and GPS locations each fur seal has completed 3 to 5 foraging trips between July 14 and August 18. Most foraging trips have occurred within the Sairdrone prey survey grid (Figure 1). Fur seal foraging trips outside of the prey survey grid were concentrated to the north and east of the grid.

Between July 15 and August 18, the Sairdrones completed two prey survey grids to measure walleye pollock distribution and abundance in the fur seals foraging range. Over the next few days (August 19 – 21) additional prey surveying will occur outside of the grid to cover the areas to north and east that are being used by the fur seals.

Limited dive depth data is being transmitted from the tracking instruments in histogram summaries of 6-hour periods. Initial analysis of dive behavior shows that fur seals are

predominantly diving between 30-39 m with some deeper dives reaching over 80 m (Figure 2). All data presented in this report are preliminary analyses and subject to change.

### **Additional Information**

Additional information about the 2016 Sairdrone Mission can be found at:

<http://www.afsc.noaa.gov/news/Sairdrone.htm> (Project press release)

<https://youtu.be/EholPRD-UJ4> (Project launch broadcast)

[http://www.afsc.noaa.gov/Science\\_blog/FurSeals\\_2016\\_main.htm](http://www.afsc.noaa.gov/Science_blog/FurSeals_2016_main.htm) (Alaska Fisheries Science Center Dispatches from the Field)

Figure 1. Estimated movement tracks of 22 adult female northern fur seals in relation to the Saldrone prey survey grid (orange thick lines) between July 14 and August 18. Fur seal tracks are based on Service Argos locations and GPS position fixes. Each colored line represents a different individuals' movements over three to five foraging trips.

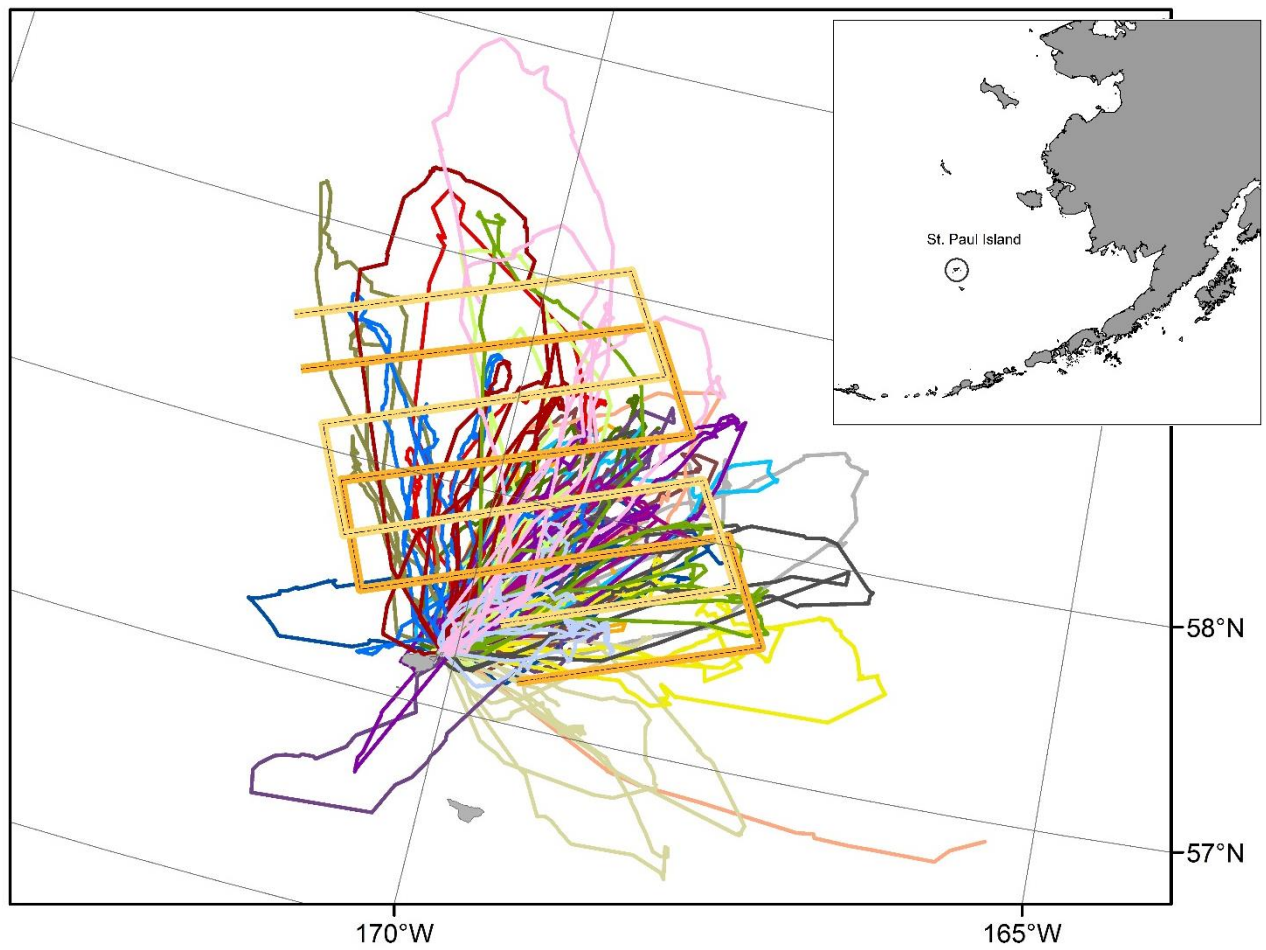


Figure 2. Dive depth histogram for all northern fur seals equipped with satellite-linked tracking instruments (n = 22) between July 14 and Aug 18. Dives predominantly occur between 30 and 39 meters with some deeper dives reaching over 80 meters.

