



## 2016 Northern Fur Seal Tracking Study

*Report #3, September 19, 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 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 Saildrone Inc. to use two autonomous, wind and solar powered, research vessels (Saildrones) 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

Twenty of the 22 satellite-linked tracking instruments on the northern fur seals continue to transmit data. Instruments can stop transmitting for a number of reasons, such as exhausted battery, broken antenna, attachment failure, and animal mortality. Based on estimated movement tracks from Argos position fixes and GPS locations the fur seals have completed on average 8 foraging trips (range: 5-10) between July 14 and September 06 (Figure 1). Researchers will return to St. Paul Island on September 21 to begin recovery of the satellite tracking instruments and high resolution data that was recorded over the tracking period.

Between July 15 and August 18, the Saildrones completed two prey survey grids to measure walleye pollock distribution and abundance in the fur seals foraging range (Figure 1). Once the grids were completed, additional prey sampling occurred to the north and to the east of the survey grid to cover areas used by the tracked fur seals (August 19-22). On September 3, the Saildrones completed the 2016 mission and were recovered in Dutch Harbor, AK.

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 continue to dive predominantly 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/EhoI PRD-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)

<http://www.pmel.noaa.gov/itae/> (Pacific Marine Environmental Laboratory Sairdrone updates)

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 September 06. Fur seal tracks are based on Service Argos locations and GPS position fixes. Each colored line represents a different individuals' movements over five to ten foraging trips.

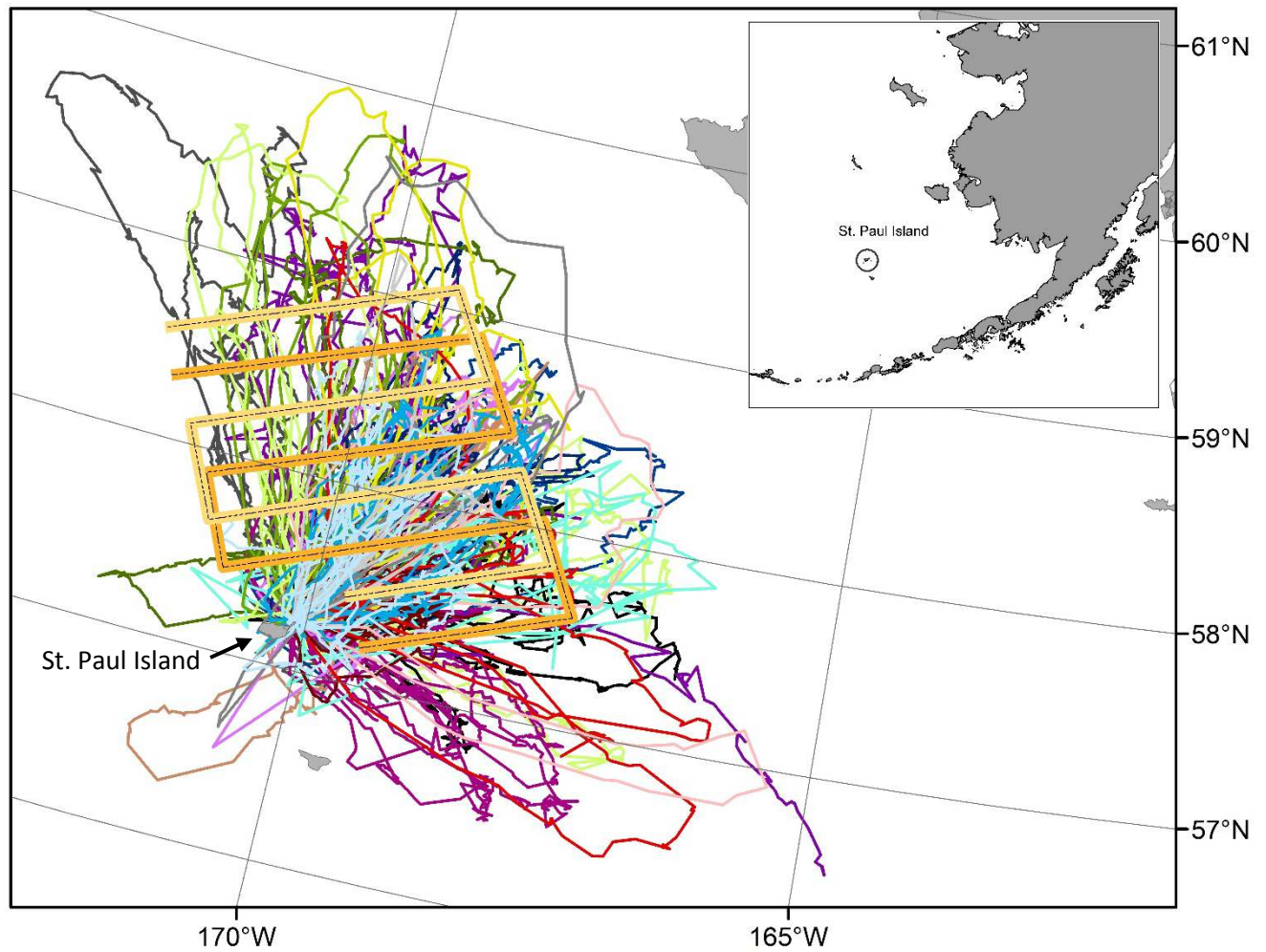


Figure 2. Dive depth histogram for all northern fur seals equipped with satellite-linked tracking instruments (n = 22) between July 14 and September 06. Dives predominantly occurred between 30 and 39 meters with some deeper dives reaching over 80 meters.

