



2015 Aleutian Islands Steller Sea Lion Tracking Study

Report #1, December 15, 2015

Background

In the western and western-central Aleutian Islands, Steller sea lion populations have declined drastically compared to eastern Aleutian Island and other areas. Understanding where marine mammals forage to obtain energy needed for growth and reproduction is necessary to evaluate the potential for competition with other predators (including humans) for resources, and gathering this information is especially crucial in the western and central Aleutian Islands where controversial large-scale commercial fisheries restrictions were enacted. As part of a continuing study to track foraging behavior and habitat use during the winter and spring, and to assess their health and condition status, we worked with colleagues from the Alaska Department of Fish and Game and the University of Alaska Fairbanks to capture adult female sea lions during September – October 2015. This work was conducted under authority of ESA/MMPA Permit for Scientific Research No. 18528 issued to the NMFS/AFSC National Marine Mammal Laboratory, and Permit No. 18537 issued to the Alaska Department of Fish and Game. Metadata describing the collected data will be found at NMFS Enterprise Data Management Program InPort Metadata Catalog records [17918](#) and [27455](#) when published.

Highlights

Four adult female sea lions were captured at three locations (Table 1; Figure 1); Amchitka Island/East Cape, Ulak Island/Hasgox Point (two captures) and Ship Rock (near Tanaga Island) using dart-delivered sedatives. Sedated sea lions were approached and anesthetized with isoflurane gas delivered through a field-portable anesthesia unit. Sea lions were examined, weighed, and measurements and samples were collected to assess health status. Each sea lion was outfitted with a SPLASH10-AF Argos-transmitting tag (manufactured by Wildlife Computers, Redmond, WA; use of trade names does not imply endorsement by the National Marine Fisheries Service, NOAA) that provide position estimates through Service Argos and collect fast-GPS snapshots (which convert to location estimates during data processing) in addition to measures of dive behavior. Three of the tags were programed to record metrics of individual dives made to depths >10 m, rather than as combined 6-hr histograms.

- Estimated movement tracks based on Argos position fixes and GPS locations for the periods indicated in Table 1 are shown in Figure 2. None left the capture region.
- Sea lion =33 captured at Amchitka Island made several offshore trips to the south of

Amchitka Island (Figures 2, 3). This deployment lasted 33 days; the sea lion was actively molting at the time of tag attachment and the tag has likely detached. The last data received were from a location near Semisopchnoi Island.

- Sea lion =34 was captured on Ulak Island, but moved to Amchitka Island shortly after release and remained there (Figures 2, 4). Her dive behavior (Figure 4) is mostly comprised of relatively shallow dives reflecting the nearshore habitat, with the exception of one trip to the north of Amchitka where she made multiple habitat dives with the deepest to 427 m.
- The deployment period for sea lion =35 was 16 days; this sea lion was actively molting at the time of capture and the tag has likely detached. She frequented the shelf southeast of Ulak Island (Figures 2, 5), with dive depths concentrated at 51-74 m (Figure 5).
- Sea lion =35 moved among Kanaga Sound, Kanaga Pass, Tanaga Pass and the Delarof Islands (Figures 2, 6).

Table 1. Summary data as of December 9, 2015 for Steller sea lion adult females captured in the central Aleutian Islands during autumn 2015.

Animal ID	Capture Date	Most recent data	Deployment duration (d)	Tag ID	Capture Location
=33	4-October	6-November	33	35222	Amchitka Island/East Cape
=34	5-October	9-December	64 (ongoing)	61088	Ulak/Hasgox Pt
=35	5-October	21-October	16	61081	Ulak/Hasgox Pt
=36	6-October	9-December	63 (ongoing)	61105	Kanaga/Ship Rock

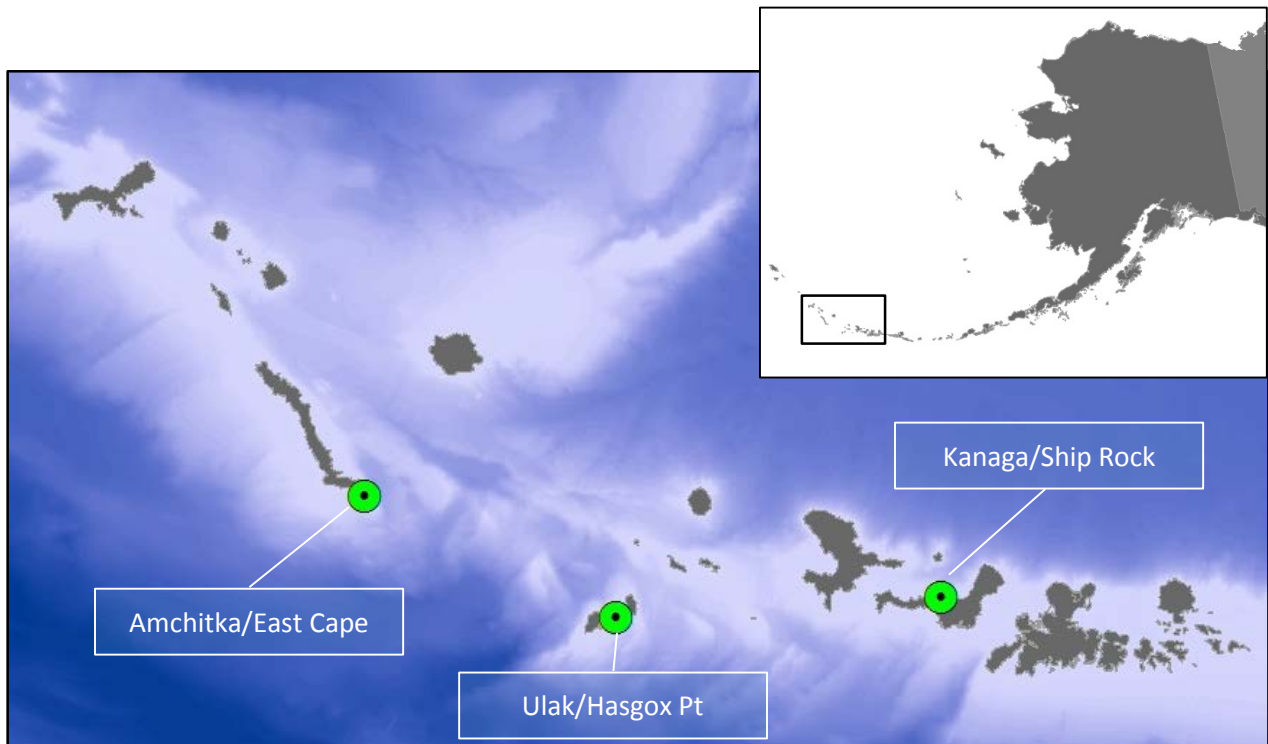


Figure 1. Study area and capture locations for 2015 adult female Steller sea lion tracking study.

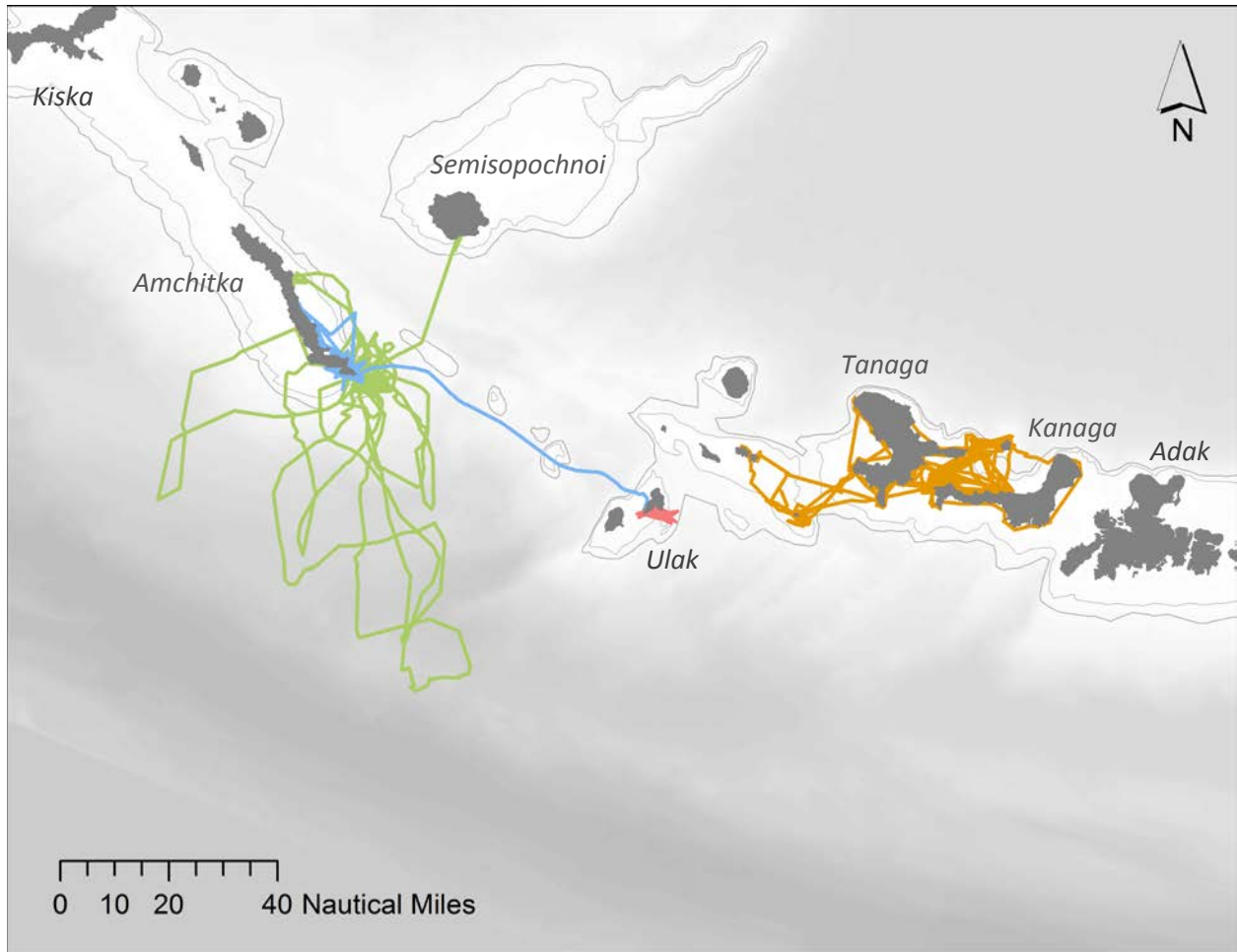


Figure 2. Estimated movement tracks of adult female Steller sea lions =33 (green), =34 (blue), =35 (coral) and =36 (orange) for the periods listed in Table 1. Tracks based on Service Argos and GPS position fixes. Shaded bathymetry with 200m and 500m contours indicated.

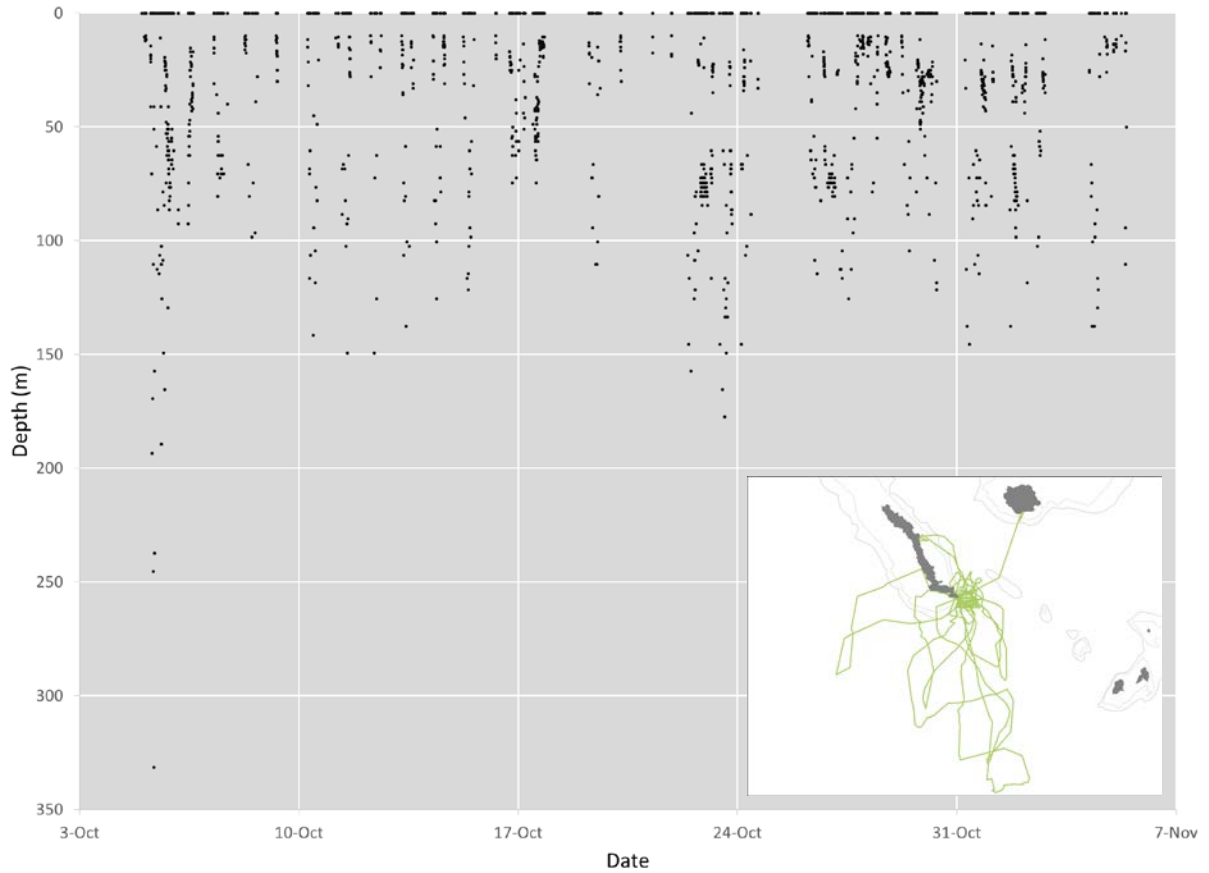


Figure 3. Maximum dive depths for adult female Steller sea lion =33 during the October 4 – November 6 deployment period. Each point represents the maximum depth reached for an individual dive for dives >10 m deep. Inset shows detail of estimated movements.

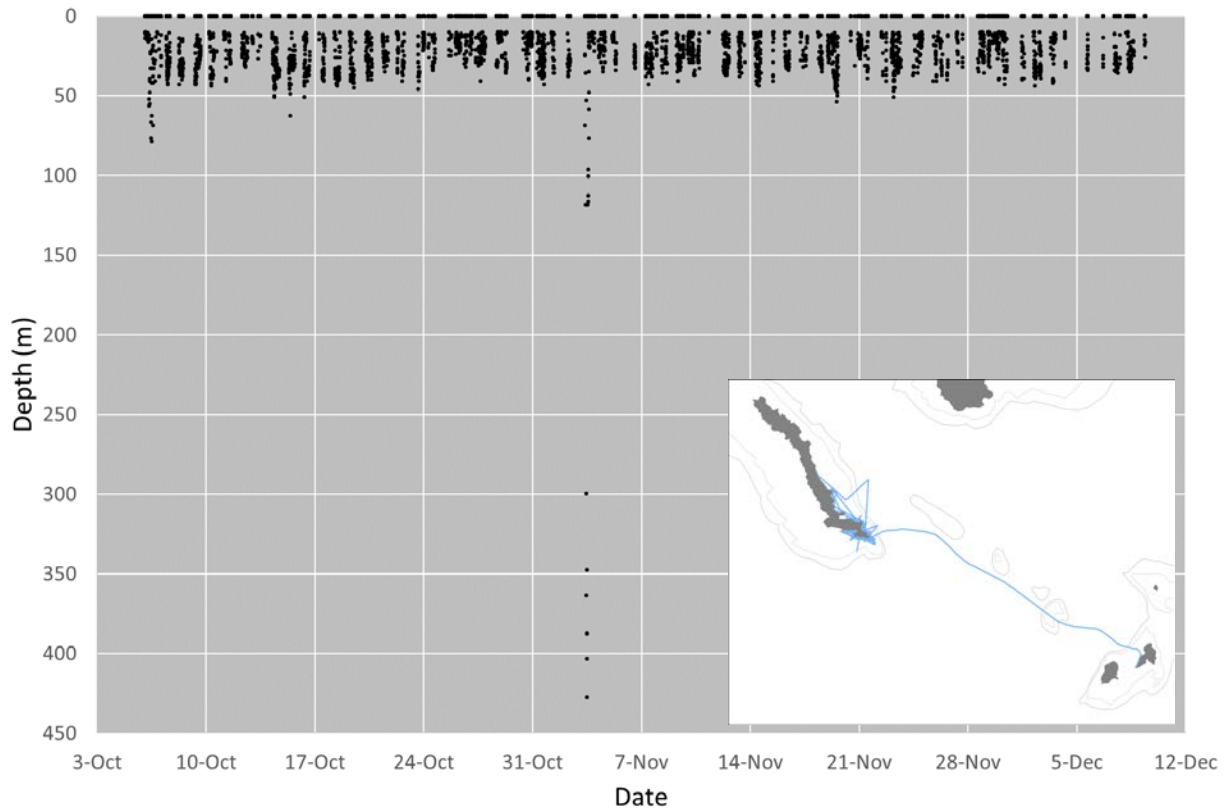


Figure 4. Maximum dive depths for adult female Steller sea lion =34 for the deployment period of October 4 – December 9, 2015. Each point represents the maximum depth reached for an individual dive for dives >10 m deep. Inset shows detail of estimated movements.

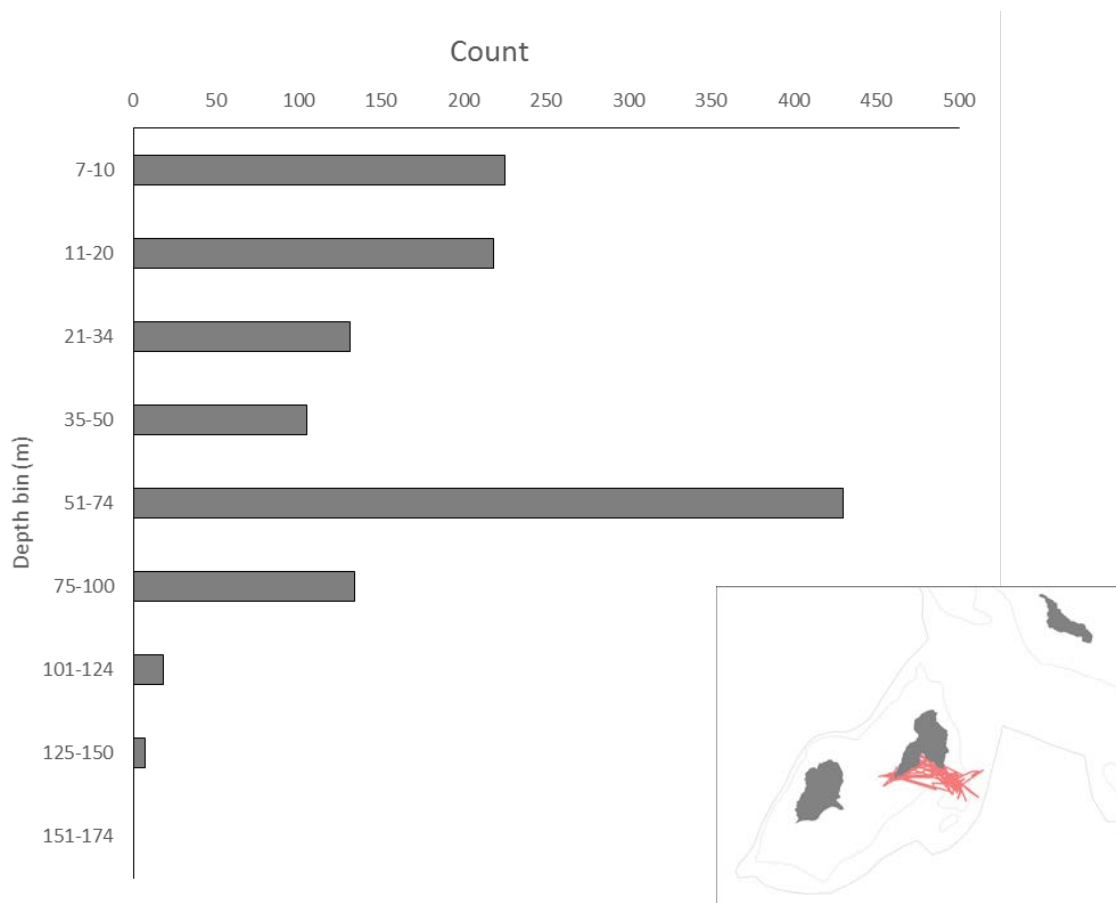


Figure 5. Dive depth histogram for adult female Steller sea lion #35 for the deployment period of October 5 – 21. Inset shows detail of estimated movements.

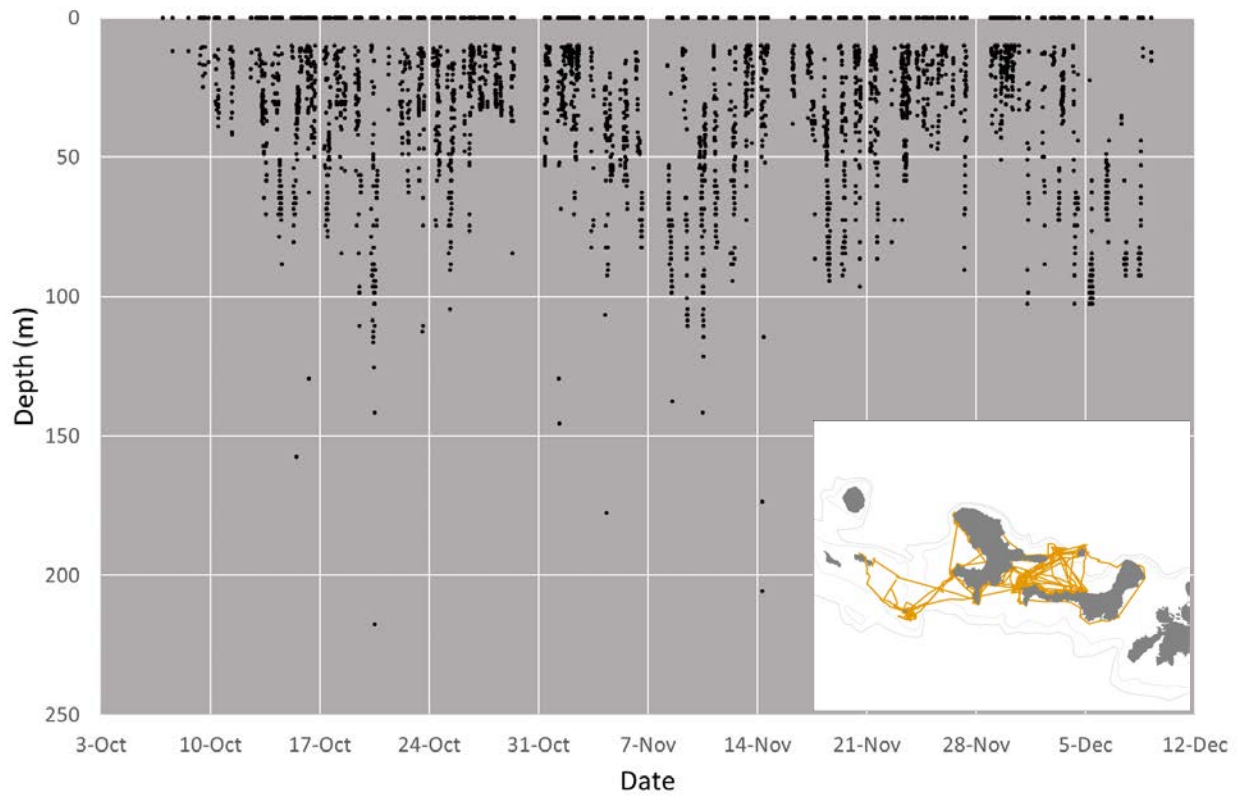


Figure 6. Maximum dive depths for adult female Steller sea lion =36 for the deployment period of October 6 – December 9, 2015. Each point represents the maximum depth reached for an individual dive for dives >10 m deep. Inset shows detail of estimated movements.