HARBOR SEAL MOVEMENT, DIVE, AND HAUL-OUT BEHAVIORS NEAR ADAK ISLAND, ALASKA

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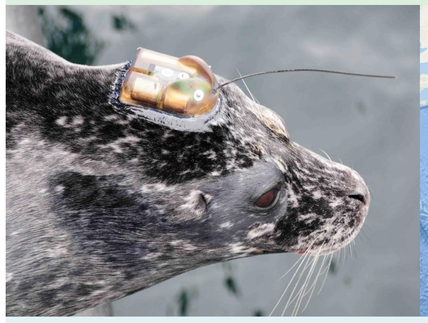
Introduction

Harbor seal (*Phoca vitulina*) counts in the Aleutian Islands declined by about 67% during the 1980s and 1990s. While considerable efforts have been made to understand concurrent declines of Steller sea lions (*Eumetopias jubatus*) and northern sea otters (*Enhydra lutris kenyoni*), no similar research has been conducted on harbor seals. In this study, we used satellite-linked telemetry tags to collect the first data on harbor seal movement, dive, and haul-out behaviors in the Aleutian Islands to provide an initial view of the spatial use, foraging behavior, and time budgets of this reduced and poorly documented population.

	Adult	Subadult	Pup	TOTAL
Female	7	3	0	10
Male	2	2	1	5
TOTAL	9	5	1	15

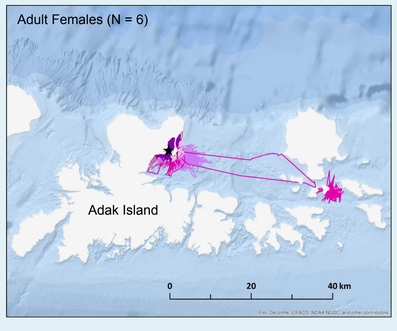
Methods

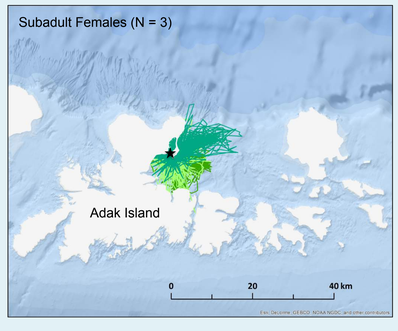
We captured 15 harbor seals in Clam Lagoon on Adak Island, Alaska during September 2-9, 2014. Age and sex ratios of captured seals were skewed towards adults and females (Table above). Satellite tags were attached to each seal's head and/or hind flipper depending on its size and pelage molt status. Head tags (N = 13), which record movement, dive, and haul-out data, transmitted for an average of 207 days (Range: 166-237). Flipper tags (N = 12), which record location and haul-out data, transmitted for an average of 190 days (Range: 16-371).

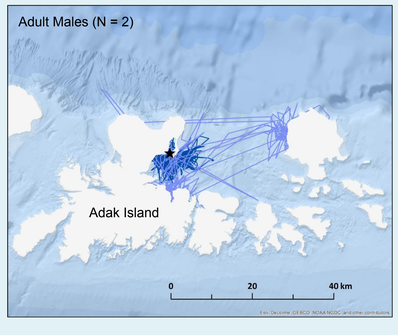


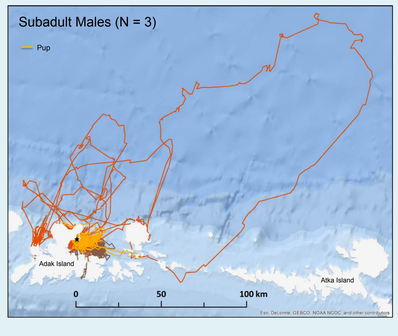
Results: Movement

Most seals' movements were quite limited during September–April, with 10 of 14 seals remaining within 25 km of Clam Lagoon and three more remaining within 45 km. Only one seal (a subadult male) was more wide-ranging, traveling up to 207 km from Clam Lagoon, including repeated trips off the continental shelf into the Bering Sea.



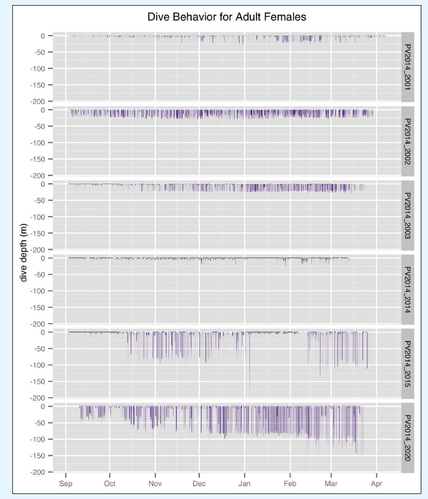


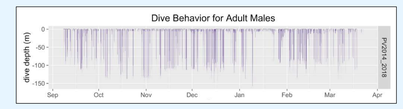


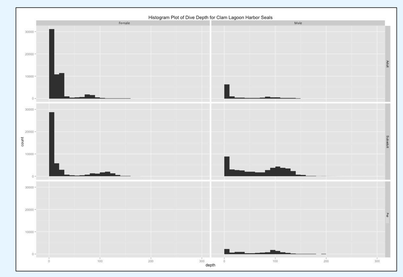


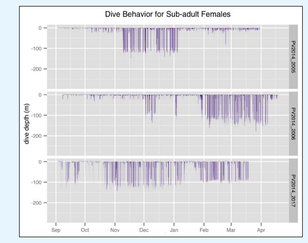
Results: Dive

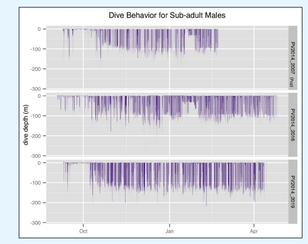
Seals primarily dove to two depth ranges: 0-30 m and 80-140 m. Females had a higher proportion of shallow dives than males and subadult males dove to deeper depths the most, with maximum dive depths of just over 200 m.





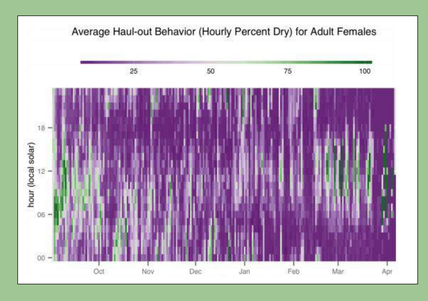


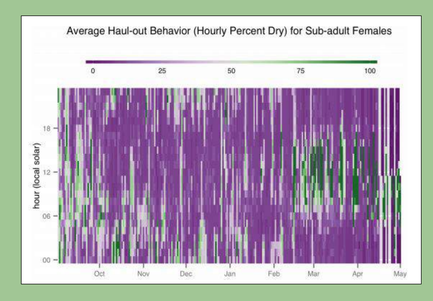


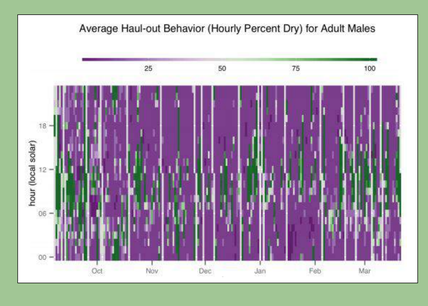


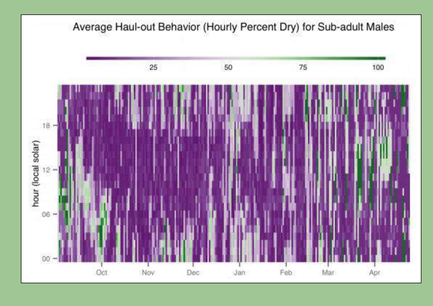
Results: Haul-out

Most seals reduced their haul-out duration in late September, marking the transition from their annual molt cycle to a period of increased foraging at sea. Females and subadult males increased their haul-out duration in mid-February and switched from a nighttime to daytime diel pattern. Adult males showed less of a seasonal pattern.









Discussion & Next Steps

- Preliminary analyses indicate that harbor seals near Adak behave similarly to seals in other parts of Alaska. Further analyses and comparisons are needed, however, to draw firm conclusions. The subadult male's repeated trips off the continental shelf are unusual for this species, which rarely travels into deep basin waters.
- We are in the process of expanding our dataset by tagging seals throughout the Aleutian Islands. An additional 30 seals were tagged in the eastern and central Aleutians in September 2015 and another tagging project will be conducted in the central and western Aleutians in September 2016.
- Changes to the satellite tags' programming will hopefully extend their battery life through spring and summer, allowing us to collect and analyze behavioral data over a full annual cycle.

Acknowledgments

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