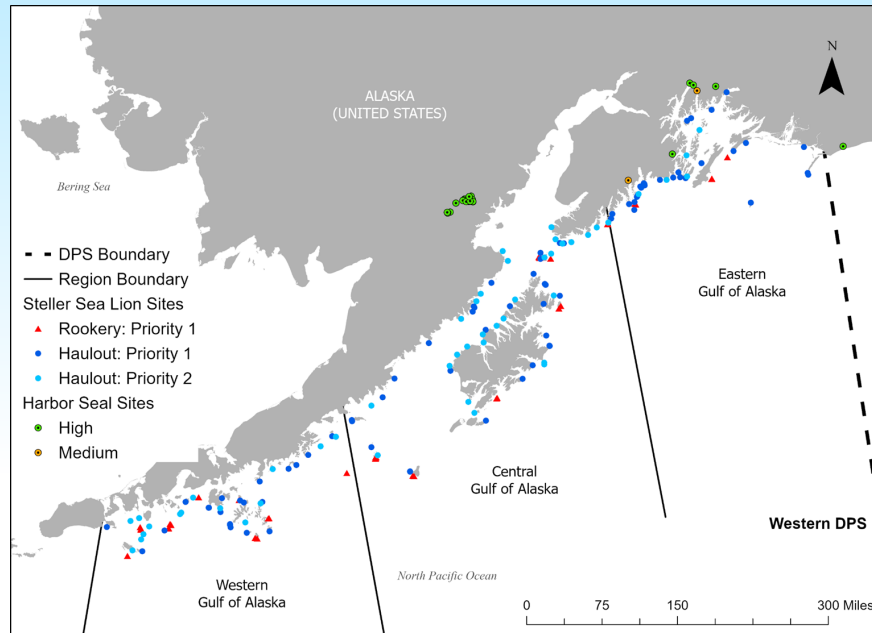




Aerial Surveys of Steller Sea Lions and Harbor Seals in Alaska

21 June – 12 July 2024



Map showing target Steller sea lion and harbor seal sites across the survey area.

Who is conducting the research?

Scientists from NOAA Fisheries' Alaska Fisheries Science Center (AFSC), in collaboration with the University of Washington's Cooperative Institute for Climate, Ocean, & Ecosystem Studies (CICOES) and NOAA's Office of Marine and Aviation Operations, will be conducting the research.

This is the first joint Steller sea lion and harbor seal aerial survey conducted by the Alaska Ecosystems Program (AEP) and Polar Ecosystems Program (PEP) at the AFSC Marine Mammal Laboratory.

What is the objective?

We will conduct aerial surveys to collect high-resolution images of Steller sea lions and harbor seals. Steller sea lion adults, juveniles, and pups will be counted from survey imagery and the results will be used to update regional count estimates and population trends. Harbor seal surveys will focus on glacial fjord habitats, where seals haul-out on ice, and seals present in Iliamna Lake. The Iliamna Lake surveys will provide critical data on the number of harbor seal pups which, along with counts of other age classes, are key for estimating the number of seals in the lake.

Where is the survey area and how are the data collected?

The survey will occur across the Gulf of Alaska and Iliamna Lake. We plan to visit all known Steller sea lion rookeries and haulouts in the Gulf of Alaska, seven harbor seal sites in glacial fjord habitats, and 23 harbor seal sites in Iliamna Lake. Most regions will be surveyed only once with the exception of Iliamna Lake, which will be surveyed up to four times.

Flights will be conducted aboard a NOAA Twin Otter aircraft (tail number N56RF) based out of Anchorage and Kodiak. Survey methods vary by species and region:

- Steller sea lions: use forward motion compensation (FMC) camera mount system to take vertical images at 750-800 feet.
- Glacial fjord harbor seals: use FMC system to take vertical images at 1,500-2,000 feet.
- Iliamna Lake harbor seals: use handheld digital camera to take oblique images at 750 feet.

When the survey is complete, AEP (Steller sea lions) and PEP (harbor seals) staff will process and count imagery in Seattle.

Proposed Schedule for 2024 Aerial Surveys of Steller Sea Lions and Harbor Seals in Alaska

Survey team travels to Anchorage for equipment installation	21-22 June
Team surveys/transits to Kodiak	23 June
Team surveys sites from Kodiak	24 June – 10 July
Final survey day, team returns to Anchorage	11 July
Survey team de-installs equipment and returns to Seattle	12 July

Why are the data important?

The Alaska Fisheries Science Center has conducted aerial surveys of Steller sea lions since the 1970s. Annual surveys are vital to monitoring the population and assessing trends over time. Surveys of the western Distinct Population Segment are especially important as this population is listed as endangered under the Endangered Species Act. We will also use Steller sea lion count data to explore potential relationships between warm water temperatures in the Gulf of Alaska and trends in pup production, adult survival, and juvenile survival.

Harbor seals are culturally and economically important to Alaska Native communities and provide critical insights into the health of coastal regions in Alaska. Population trends of harbor seals are closely linked to climate warming-related changes in ecosystems, including warming events, tidewater glacier retreat, and ecosystem shifts. Glacial fjord habitats of Alaska, where seals haul out to rest and raise pups on ice, are especially vulnerable to warming temperatures and monitoring these sites is part of the NOAA Fisheries Climate Science Strategy's objectives to track ecosystem health and provide early warning of climate-related changes. Iliamna Lake is a unique freshwater ecosystem where harbor seals are present year round. These seals are important to our long-term monitoring of harbor seals in Alaska because of their relatively small population size and key importance to local communities.

How do you plan to communicate research results?

Steller sea lion results will be summarized in an [AFSC Processed Report](#) that is also available on the NOAA Fisheries [Steller Sea Lion Survey Reports website](#). Harbor seal survey results will also be summarized in an AFSC Processed Report and included in future updates to the Alaska harbor seal Stock Assessment Reports.



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June 2024

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