

Glacier Bay Harbor Seal Overwinter Movement Update

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From September 11-15, 2007, satellite tags (Spot 5, Wildlife Computers) were attached to fifteen juvenile female harbor seals in Johns Hopkins Inlet in Glacier Bay National Park to determine over-winter movements and assess habitat use during the non-breeding season. The satellite tags were glued to the head and programmed to transmit location data and haulout statistics (% of each day spent hauled out) every other day. Locations from each seal were received via System Argos, downloaded, and processed using the Douglas Argos-Filter Algorithm which ingests satellite tracking data and flags improbable locations based on user-defined distance and velocity thresholds (Dave Douglas, USGS Alaska Science Center).

As of 30 June 2008, the satellite tags have been deployed for approximately 10 months and have transmitted ~12,409 locations from 15 individual seals. In general, the juvenile female seals have ranged throughout the inside waters of northern Southeast Alaska, the outer coast (from Sitka Sound to Icy Bay), and into Prince William Sound in southcentral Alaska (Figure 1). The mean cumulative distance traveled by tagged harbor seals from 11 September 2007 to 30 June 2008 was 1,770 km \pm 672 (range 621 – 3,296 km).

While some seals have made more extensive movements, other seals have remained primarily within the Glacier Bay/Icy Strait area. Ten of the fifteen (~67%) tags deployed in September transmitted till 1 May 2008 and 8 of the 15 (~53%) transmitted until 1 June 2008. Of the 8 tags that were still transmitting on 1 June, seven (~88%) of those seals returned to the Glacier Bay/Icy Strait area and six (~75%) seals have returned to Johns Hopkins Inlet where they were captured indicating strong fidelity to Glacier Bay. Over the last few weeks, the seals have begun to shed the tags as the annual molt begins.

Seal #PV07GB48 traveled to Prince William Sound (PWS) in late October and spent November, December, and part of January in PWS. In late January, she traveled to Cape Suckling and eventually back to the Icy Strait area and was most recently located near Lemesurier Island on 29 June 2008 (Figure 2), an estimated cumulative distance of ~3,295 km over the last ten months. The extensive migratory movement by this seal exceeds movements previously documented by harbor seals in Southeast Alaska.

In contrast, seal #PV07GB24 left Glacier Bay in October 2007 and has not returned since her departure travelling an estimated cumulative distance of ~2,367 km. Since November, she has been located primarily between the Alsek River area and Icy Bay with most locations occurring in the Yakutat Bay/Disenchantment Bay area (Figure 3), another important glacial ice site for harbor seals in northern Southeast Alaska.

In addition to the Glacier Bay/Icy Strait area and the outer coast, the Lynn Canal area also appears to be relatively important overwinter habitat for seals captured in Glacier Bay. Four seals traveled into Lynn Canal during the winter and spring utilizing areas in Berners and St. James Bays, and Lutak, Taiya, and Chilkat Inlets. In particular, seal # PV07GB15 left Glacier Bay in September and spent much of November through May in northern Lynn Canal and eventually returned to Johns Hopkins Inlet in May (Figure 4), an estimated cumulative travel distance of ~1,937 km. During April and May, locations from this seal were concentrated around Lutak Inlet, Mud Bay, and the mouth of the Katzehin River where eulachon, capelin, and herring spawn during spring.

Preliminary data from this study emphasize the importance of Glacier Bay National Park, particularly Johns Hopkins Inlet, as an important regional breeding site for harbor seals as seals captured in Johns Hopkins Inlet may range throughout northern Southeast Alaska and the eastern Gulf of Alaska during the non-breeding season. In addition, these data also underscore the importance of other glacial ice sites such as Disenchantment Bay and Icy Bay in the Gulf of Alaska as well as terrestrial haulout sites throughout northern Southeast Alaska. Data from this study will provide important information for the management and conservation of harbor seals in Glacier Bay and throughout Alaska for both the National Park Service and the National Marine Fisheries Service. Funding has been provided by NPS-NRPP, NPS, and National Marine Mammal Laboratory with capture and logistical assistance from Alaska Department of Fish & Game and Alaska Sealife Center. Data and figures are preliminary and should not be cited without the permission of the authors.

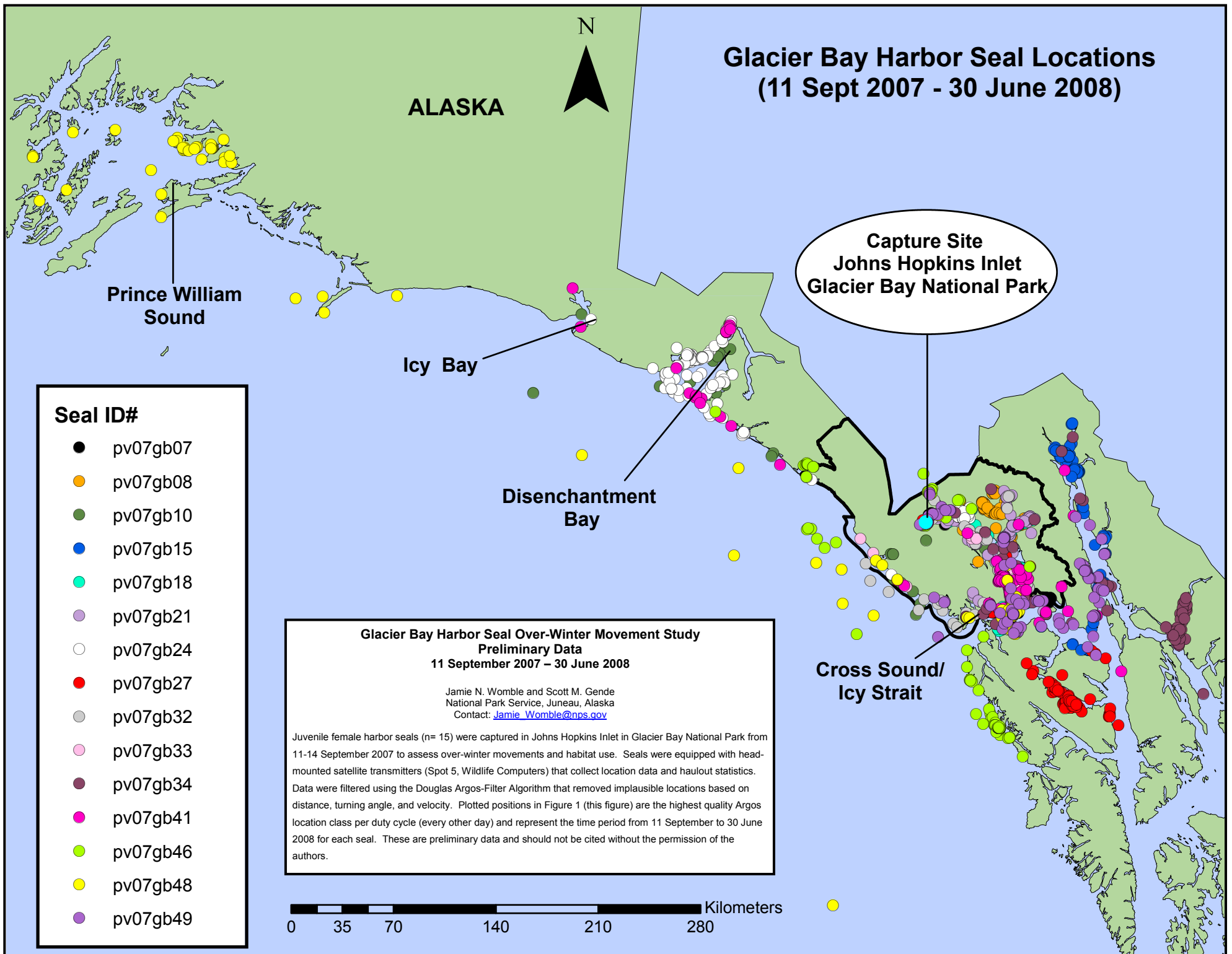


Figure 1. Plotted positions are the highest quality Argos location per duty cycle (every other day) for each seal.

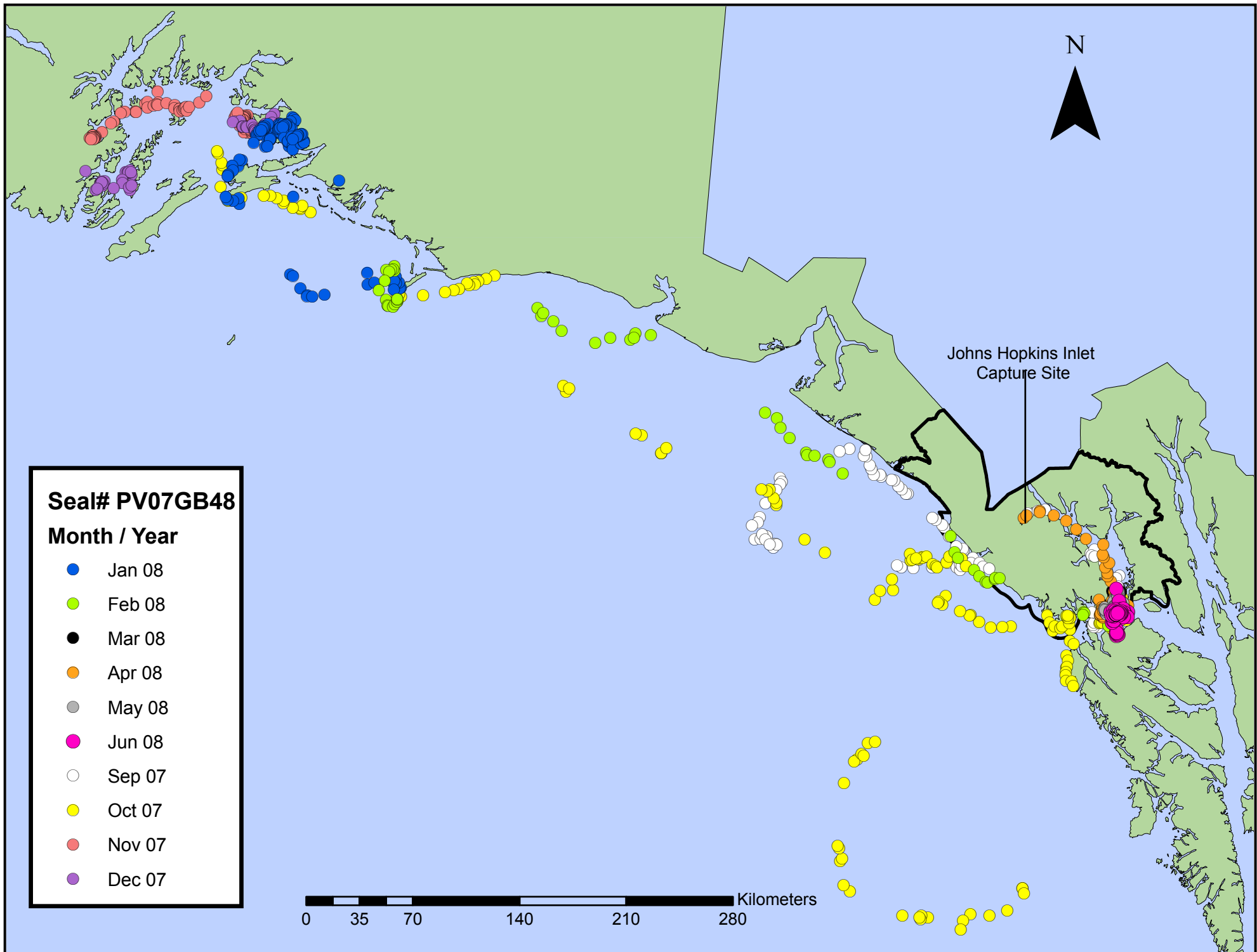


Figure 2. Plotted positions are filtered satellite telemetry locations for each month for seal # PV07GB48 from 11 September 2007 to 30 June 2008.

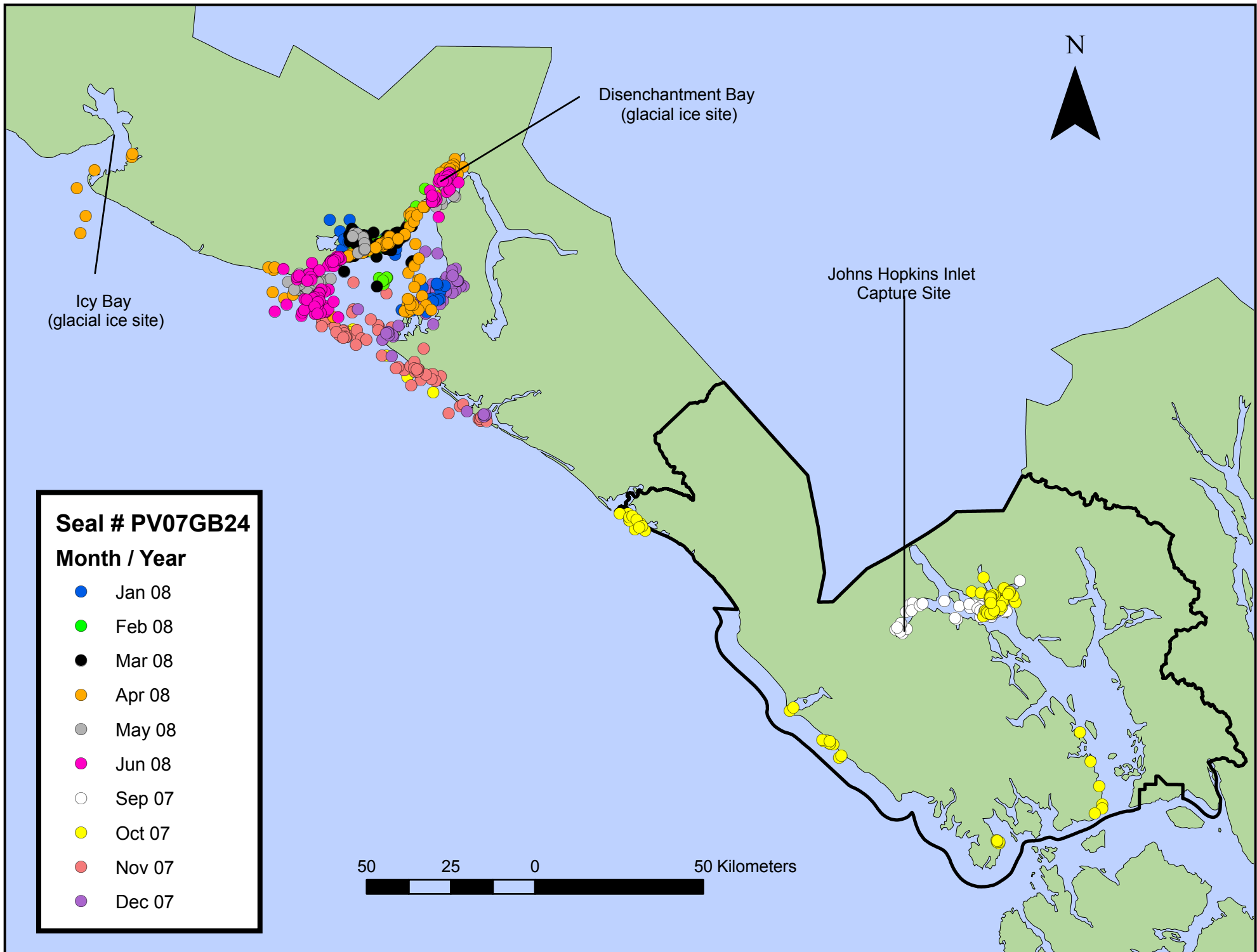


Figure 3. Plotted positions are filtered satellite telemetry locations for each month for seal # PV07GB24 from 11 September 2007 to 30 June 2008.

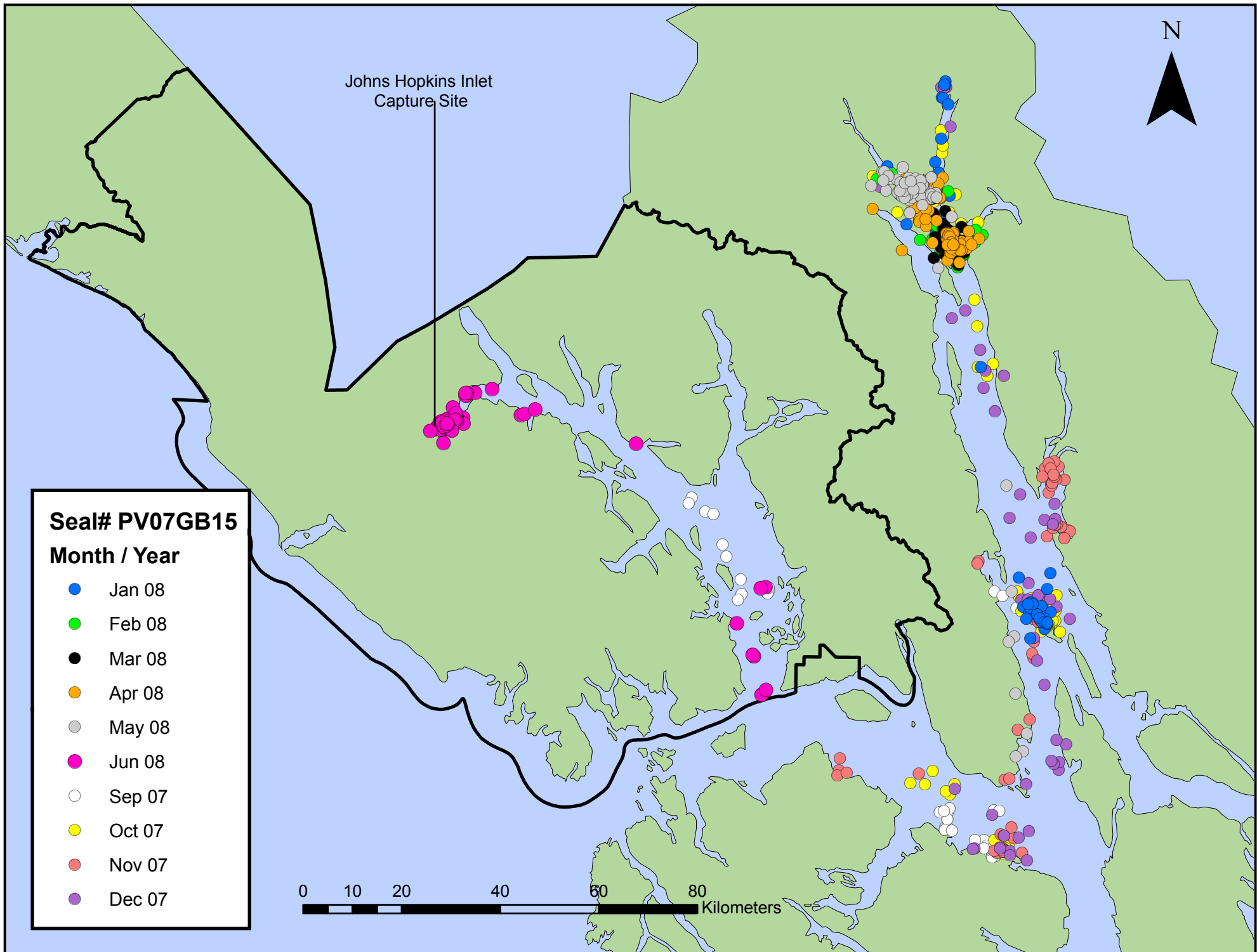


Figure 4. Plotted positions are filtered satellite telemetry locations for each month for seal # PV07GB15 from 13 September 2007 to 15 June 2008.