Point Lay August 2011 Field Radio-Tagging Report

USGS Alaska Science Center, Walrus Research Project

Background:

The vast majority of female and young Pacific walruses occupy continental shelf waters of the Chukchi Sea throughout the summer and autumn. Historically, sea ice persisted year-round in the Chukchi Sea and walruses rested on the southern margins of the pack ice over the continental shelf. In four of the last five years in the eastern Chukchi Sea, the sea ice disappeared from over the continental shelf in early autumn, prompting thousands of walruses to travel inland to the northwest coast of Alaska and rest on shore. Resting on shore and foraging from shore are novel behaviors for female Pacific walruses and have unknown consequences for walrus energetics, which could adversely affect calf survival. USGS is conducting studies to better understand these consequences. Results of these studies will provide the public, subsistence users, and managers with a greater understanding of walrus habitat use patterns in the Chukchi Sea, as well as insights on energetic and demographic consequences of resting and foraging from shore.

Methods:

Between 2011 August 23 and 25, we attached satellite radio-tags to 34 walruses as they rested on the coast of a barrier island 5 miles NNW of Point Lay, Alaska (69.79N 163.02W). USGS biologists and a Point Lay resident (Warren Harding-Lampe) stealthily crawled to within 10 meters of walruses and deployed radio-tags with crossbows (Jay et al 2006). All radio-tags transmitted hourly haulout and foraging behavior status along with the signals used to estimate locations (Telonics LPT-145 manufactured by Telonics of Mesa, Arizona) and were fit with USGS standard sub-dermal anchors (Jay et al 2006). The Argos satellite data collection system provided records of transmissions received by polar orbiting satellites and estimated geographic locations of tagged walruses based on the transmission Doppler shifts recorded by instruments onboard satellites receiving the transmission signal (CLS 2011). Because locations derived from Doppler shift data suffer variable inaccuracies, we filtered locations with a plausibility test based on reported quality of the location estimate, the nominal maximum walrus swim speed, spatial redundancy, and turn angles (see Udevitz et al. 2009 for details).

Results:

Of the 34 deployed transmitters, 33 provided tracking data (Figure 1). Within a day of deployment, some walruses began foraging trips; and most were on foraging trips by 5 September. Foraging trips were either limited to within 35 km (22 miles) of the haulout, extended 70 km (44 miles) SW into Ledyard Bay, or extended out to a region 225 km (140 miles) to the north, just south of Hana Shoal. Walruses moved between foraging regions and the barrier island haulout throughout

September and into October. By 19 September, the first of 4 tagged walruses moved to Cape Serdtse-Kamen in Russia.

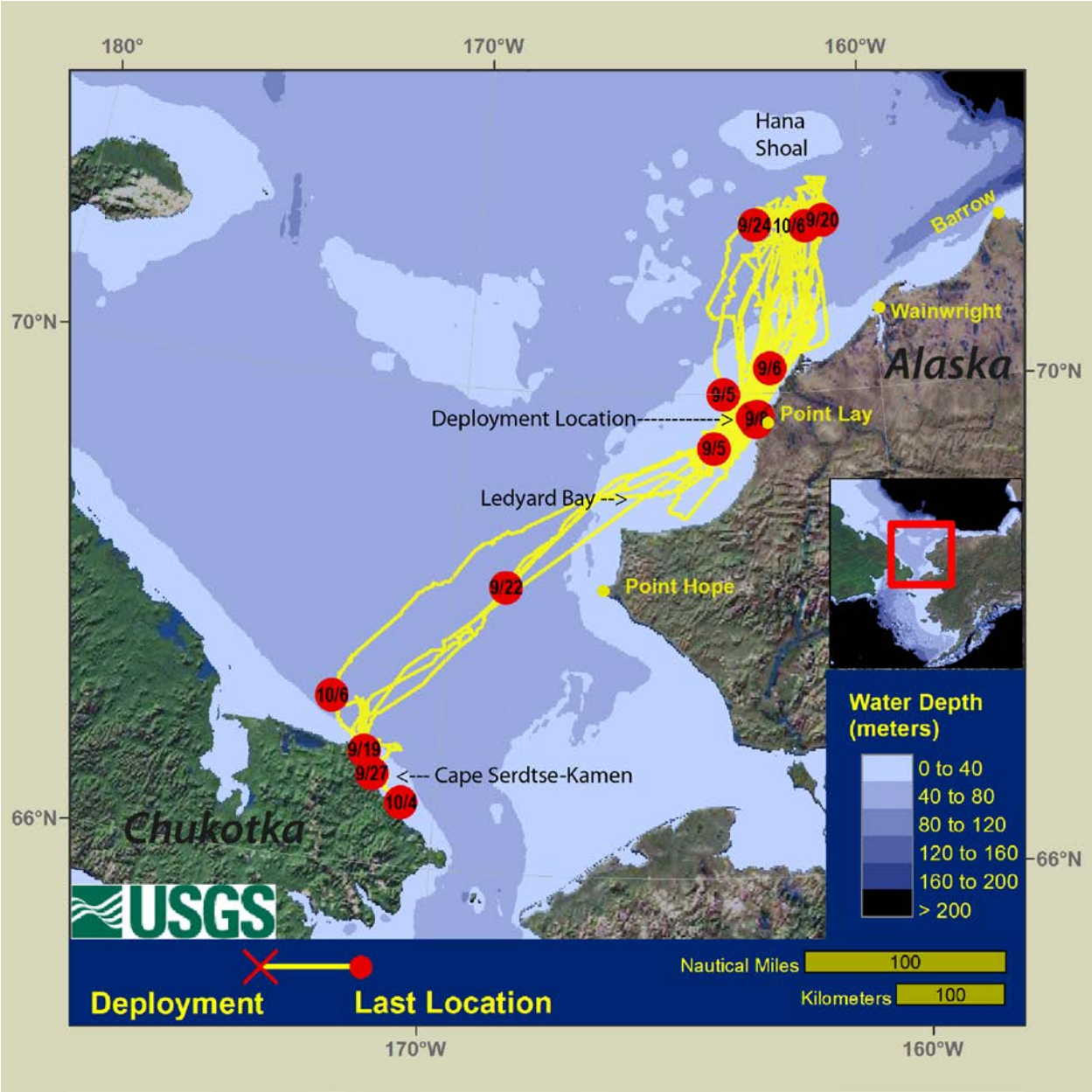

Figure 1. Tracks of walruses that were instrumented with satellite radio-tags on shore at a barrier island near Point Lay in late August 2011.

References

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