

Winter Steller Sea Lion Abundance in the Far Western Stock: Winter Use in the Commander Islands

Vladimir Burkanov^{1,2,5} Russel Andrews^{3,4} Donald Calkins⁵ and Thomas Gelatt¹

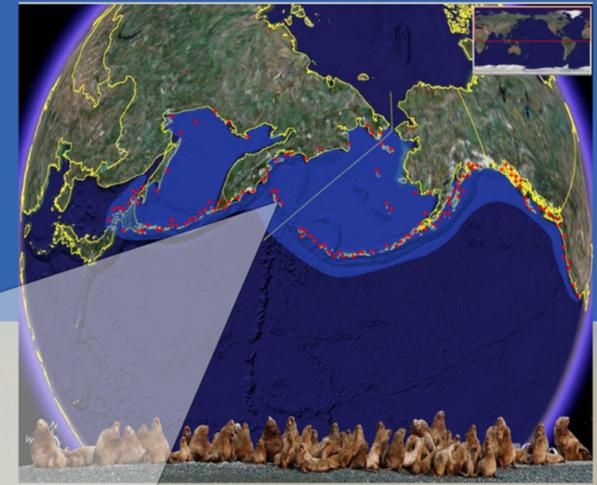
¹ National Marine Mammal Laboratory, AFSC, NMFS, NOAA 7600 Sand Point Way, NE, Building 4, Seattle, 98115, USA

² Kamchatka Branch of the Pacific Institute of Geography Russian Academy of Sciences, 6, Partizanskaya St., Petropavlovsk-Kamchatsky, 683000, Russia,

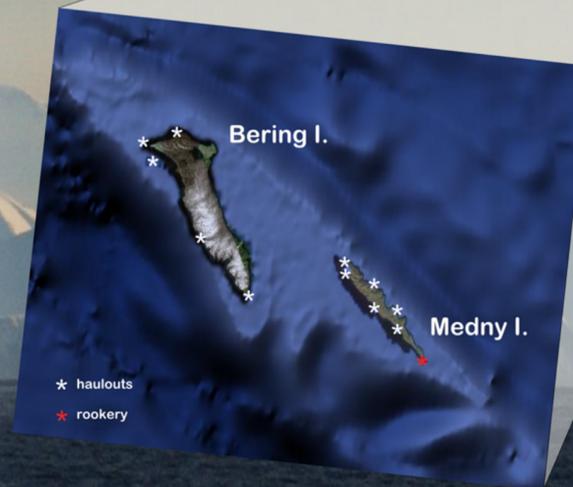
³ School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, PO Box 757220, Fairbanks, AK, 99775, USA

⁴ Alaska SeaLife Center, P.O. Box 1329, Seward, AK, 99664, USA

⁵ North Pacific Wildlife Consulting, LLC 12600 Elmore Rd, Anchorage, AK, 99516, US



Steller sea lions bred and were abundant on the Commander Islands in the mid-17th century when George Steller introduced the "sea beast" to European society. The species has inhabited the Commander Islands year-round for the past 260 years, although changes in the total number, seasonal occurrence, and age and sex structure of hauled out animals has occurred over time. In the 18th and early 19th centuries, Steller sea lions bred on both islands (Bering and Medny); but in the mid-19th century, they stopped breeding on the Commander Islands completely and were locally extinct by the early 20th century. The Steller sea lion population was re-established in the 1920s by immigration from other regions and one rookery was re-established on Medny Island in the 1970s, marking approximately 100 years since Steller sea lions had last bred in the region.



"The views expressed or implied here are those of the author's and do not necessarily reflect the policies of the National Marine Fisheries Service, NOAA, and Department of Commerce."

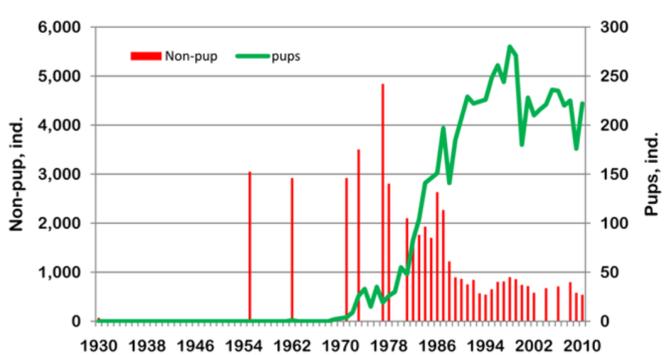


Figure 1. Steller sea lion abundance in Commander Islands, 1930-2010 (during breeding season)

Population data for Steller sea lions on the Commander Islands are only available since the 1930s (Figs.1 and 2) which indicated there were 2,000 – 3,000 males present in the late fall and winter. However, with the onset of the breeding season most of the sea lions left the islands with only a few juveniles remaining on the haulouts. Sharp increases in Steller sea lion abundance on the Commander Islands occurred during WWII and soon after (1942-1950) and by the mid-1950s, sea lions were present on the islands year-round. Count data revealed a maximum of 3,050 individuals mostly hauled out on Medny Island, but estimates were as high as 4,000-4,500 animals, with the greatest abundance seen in the winter-spring.

Summer Steller sea lion abundance on the Commander Islands was estimated at roughly 3,000 individuals during late June 1962, with females becoming more frequent. A survey of all haulouts in March/April 1965 produced an estimate of 10,000 sea lions; a census of the same haulouts in summer yielded only 2,300. In February 1968, 10,850 Steller sea lions were counted, whereas in September of the same year there were only 1,742 individuals.

By 1978, there were changes in seasonal population dynamics of Steller sea lions on the Commander Islands. The census conducted over the same March/April dates as in 1965 demonstrated a sharp decline in sea lions wintering on the islands. The count in 1978 totaled only 2,646 sea lions, which was about one-third of the estimates in 1965 and 1968. A similar number of Steller sea lions (~2,600) remained on the Commander Islands in the summer of 1978. Steller sea lion abundance then declined by an average of 17.3 % per year until 1982.

Between 1982 and 1986, summer time abundance increased by 67.0%, but dwindled again by 1990 with the greatest decline (-46.1%) occurring in the winter of 1987-1988. After 1988, no noteworthy differences in the abundance of Steller sea lions between winter and summer were recorded. In contrast, their numbers during the breeding season were somewhat higher than in winter or spring, suggesting that unlike the seasonal pattern observed during 1910-1930s, some Steller sea lions breeding on the Islands migrated to other regions in winter.

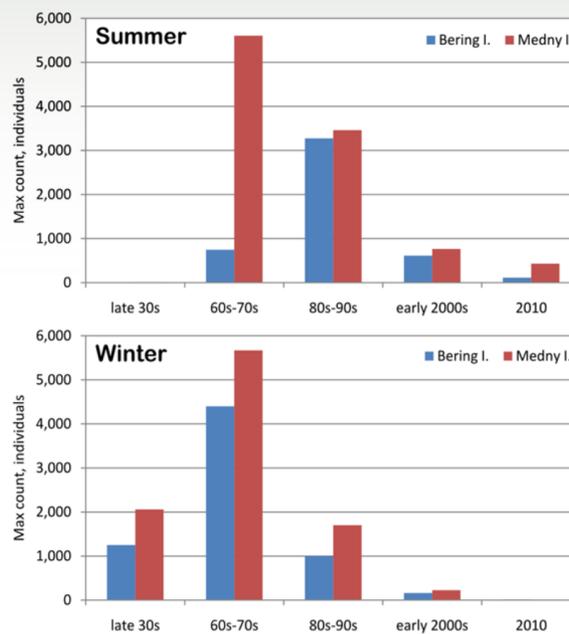


Figure 2. Changes in abundance of Steller sea lion in Commander Islands, 1930s-2010 (max count)



Figure 3. Summer vs Winter max Steller sea lion count on Medny I., 1980-2010

In the summer of 2010, there were 500-600 non-pup Steller sea lions on the Commander Islands. After a 20% decline in pup production in 2009, pup numbers returned to the average annual level seen for the previous 10 years (222 pups in 2010). After a 20-year gap of fall observations on Medny Island, surveys were again conducted from summer through November 2010. Abundance rapidly decreased in October and all sea lions unexpectedly departed in early November. This abandonment of Medny Island in fall had not been documented over the last 100 years. Only 20-30 Steller sea lions hauled out in early November 2010 at the NW end of Bering Island. In 2009, Steller sea lions left NW Bering Island in early December.



Winter haul out on Ariy Rock, Bering Island, March 2005

The cause of the shift in seasonal habitat use in the Commander Islands is unknown, but could be due to seasonal changes in prey abundance and distribution. The Commander Islands have been protected by a 30-mile wide no-fishing zone since the late 1950s, so the change is not likely related to local commercial fishing. Future research will include fall-winter abundance surveys to monitor Steller sea lion use of these sites.

Yugo-Vostochny Steller sea lion rookery at Medny Island in June (A) and November (B) 2010



Alaska SeaLife Center®
windows to the sea