

Alarming results of the 2015 Steller sea lion survey in three Russian Far East regions

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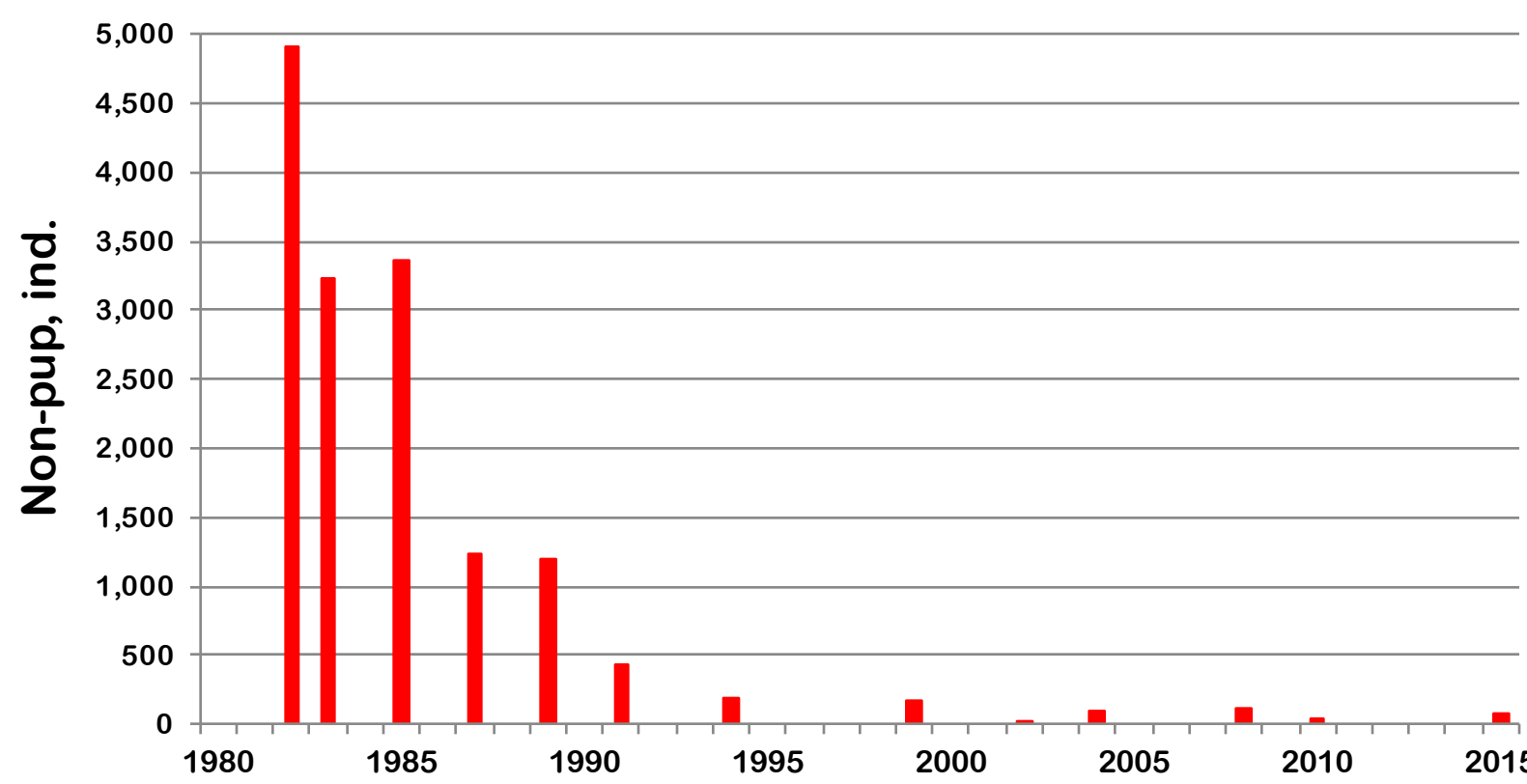
Abstract

Steller sea lion (SSL) abundance has stabilized at a low level or is slightly increasing in most regions of Alaska and Russia except the western part of the Aleutian chain. SSL continue to decline in the Commander (CI) and Near Islands (Western Aleutian Islands). In late June-early July 2015 we surveyed SSL rookeries and haulouts in the Russian part of the Western Bering Sea (WBS), Eastern Kamchatka (EK) and CI. Survey methods were similar to previous years. Depending on location, topography of the site, and the number of SSL present, researchers photographed and counted animals from the main boat, small skiff, or from shore locations high above the SSL. SSL were counted by age and sex group using binoculars. Digital photographs were used whenever possible to confirm visual counts. Forty-four SSL sites are known in the survey area. We visited 34 (77%) sites on which SSL were present sometime in the last 20-25 years. SSL were found on 18 (53%) surveyed sites. In the WBS SSL were hauled out at four (33%) locations, and the non-pup count was 89. In CI SSL were present at six (60%) sites where we counted 490 non-pups. At EK SSL used 8 (67%) sites and non-pup number there was 526. Pups were found at only six sites; four in CI and two in EK. Throughout all three survey areas we counted 1,105 non-pups, 242 live pups, and 11 dead pups. No dead non-pups were seen. Compared with the previous survey in 2010, total non-pup abundance at trend sites slightly increased (6%) while the pup number decreased by 24% in both EK and CI. Non-pup trends were different in all three areas, increasing by 56% in the WBS and 10% in EK, but decreasing by 3% at CI. The ten-year trend (2006-2015) was clearly negative in all three survey regions and for all SSL age and sex groups. The strong pup decline suggests that the negative abundance trend will continue in the near future. The large difference in pup and non-pup trends suggests that low natality is driving the decline.

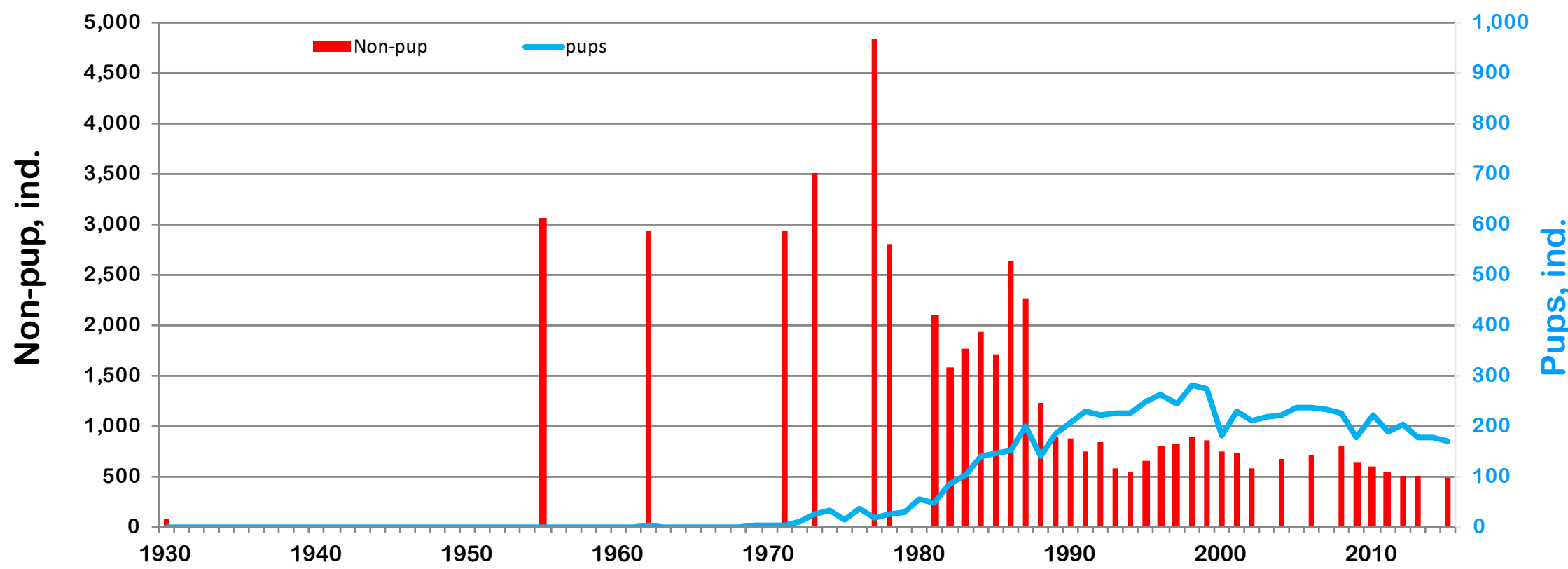


Counting SSL on digital photographs

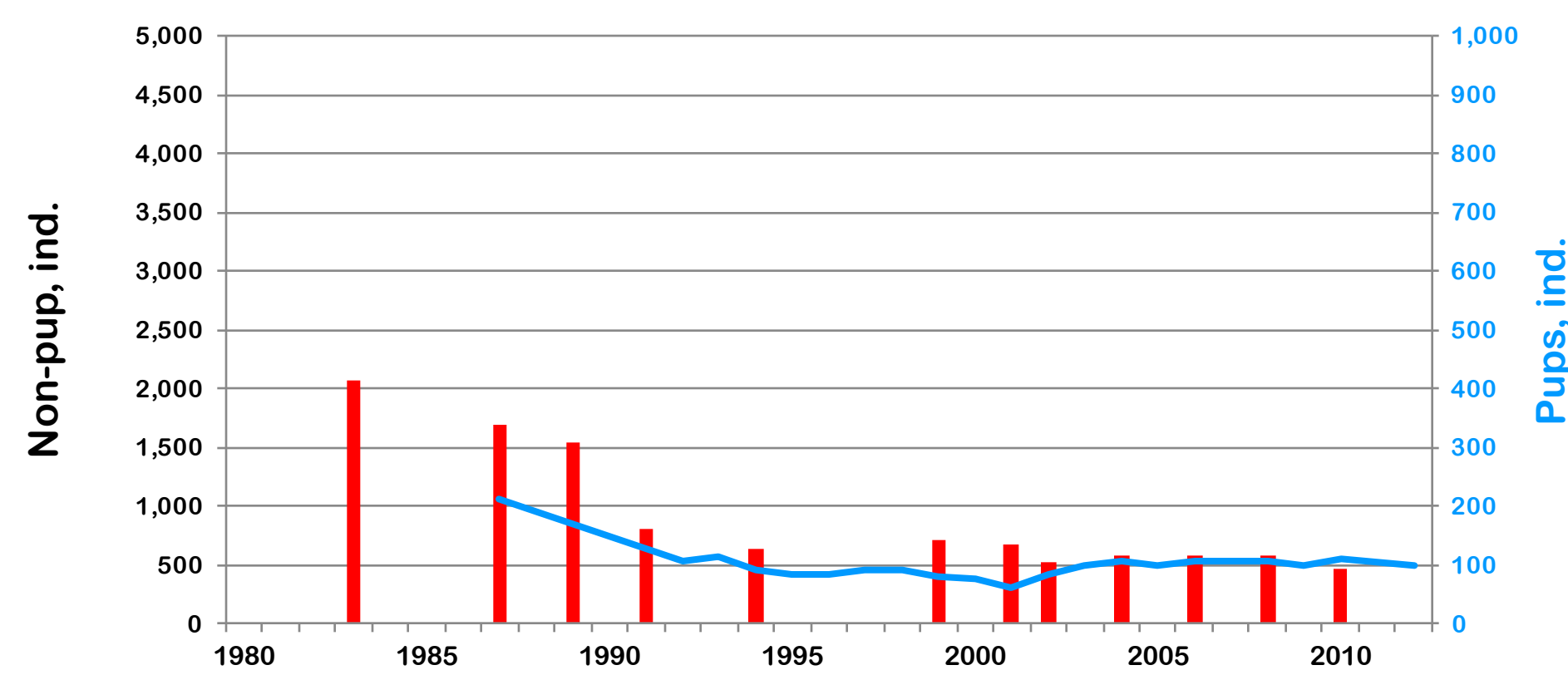
Historically available counts of Steller sea lion in three Russian Far East regions:



Western Bering Sea, 1980s - 2015



Commander Islands, 1930s - 2015



Eastern Kamchatka, 1980s - 2015

Conclusions

- 34 sites where SSL were seen at least once during the last 20-25 years were surveyed in June 17 – July 2, 2015.

- SSL were present at 18 (53%) of surveyed sites.

- A total 1,105 non-pups, 242 live pups, and 11 dead pups were counted at all locations.

- SSL non-pup abundance is slightly increased (6%) but pup production severely decreased (-24%) compared with previous similar survey in 2010.

- Ten year trend in abundance for both non-pups and pups was negative, but rate of decline was different in different regions.

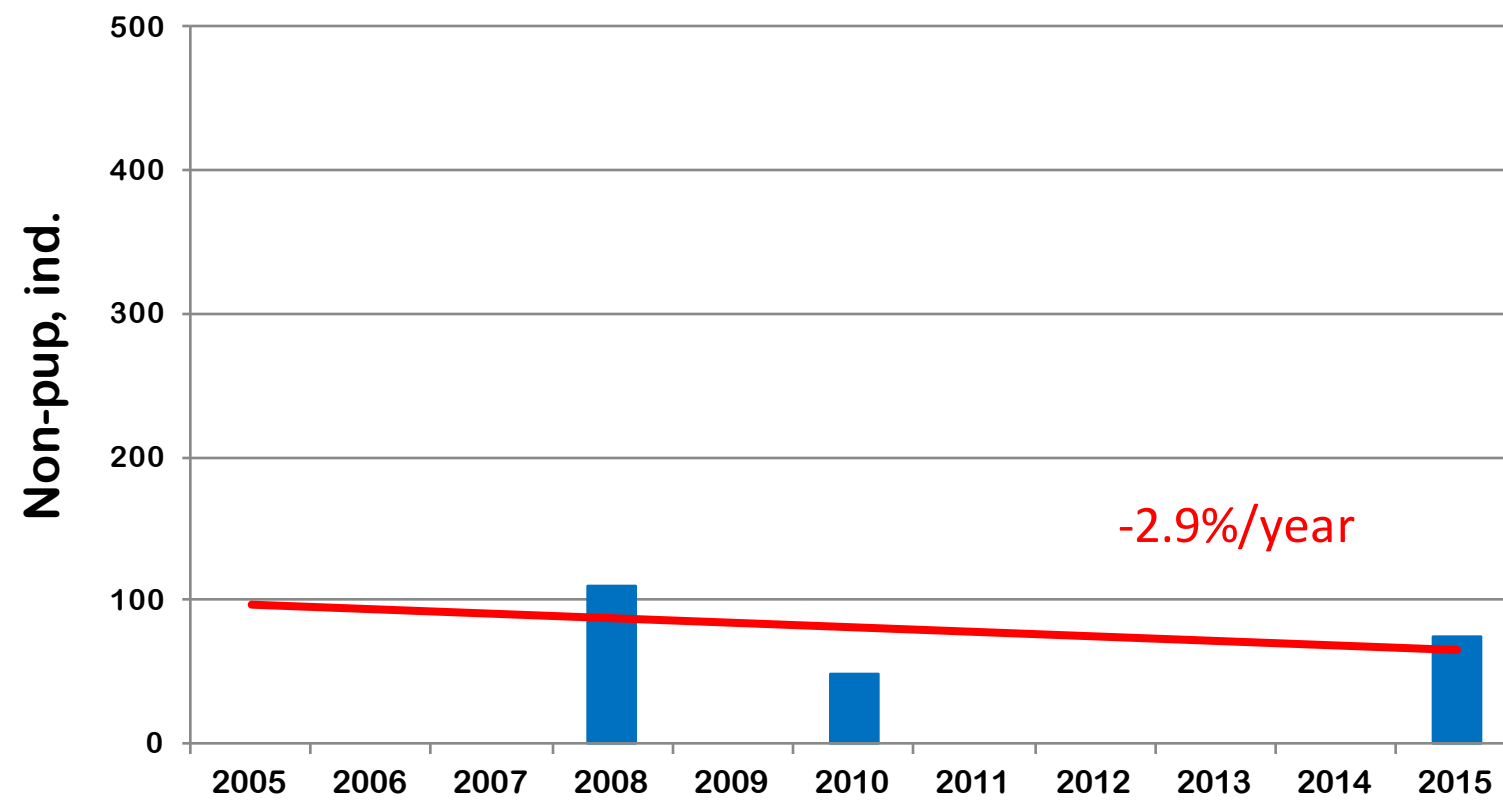
- The strong pup decline suggests that the negative abundance trend will continue in the near future.

Counts for western part of the Bering Sea are available only from the early 1980s when SSL declines had already occurred in the major part of Western stock. During the first aerial survey in this region in early June 1982 the SSL were found at 6 of 9 surveyed sites in total number almost 5,000 individuals. Compared to survey results in 2015 the total number of SSL in this region decreased over 98% since 1982. There is no historical information available on pup birth nor breeding of SSL in this region in the past.

Georg Steller first described the SSL as a new species for European science in 1742. SSL bred at that time at least on Bering Island. In mid-19th century the SSL stopped breeding at the Commander Islands and their abundance quickly decreased, likely due to overharvest. In late 19th century Leonhard Stejneger counted the SSL as almost extinct in this region. SSL abundance rapidly increased in the region during and soon after WWII, reaching a maximum of 4,840 non-pups in summer 1977. First pup was found on Medny I. in the early 1960s, but pup production started to build up in late 1970s reaching a maximum of 280 pups in 1998. Compared to maximum counts in 2015 the number of non-pups decreased 90%, and number of pups decreased 40%.

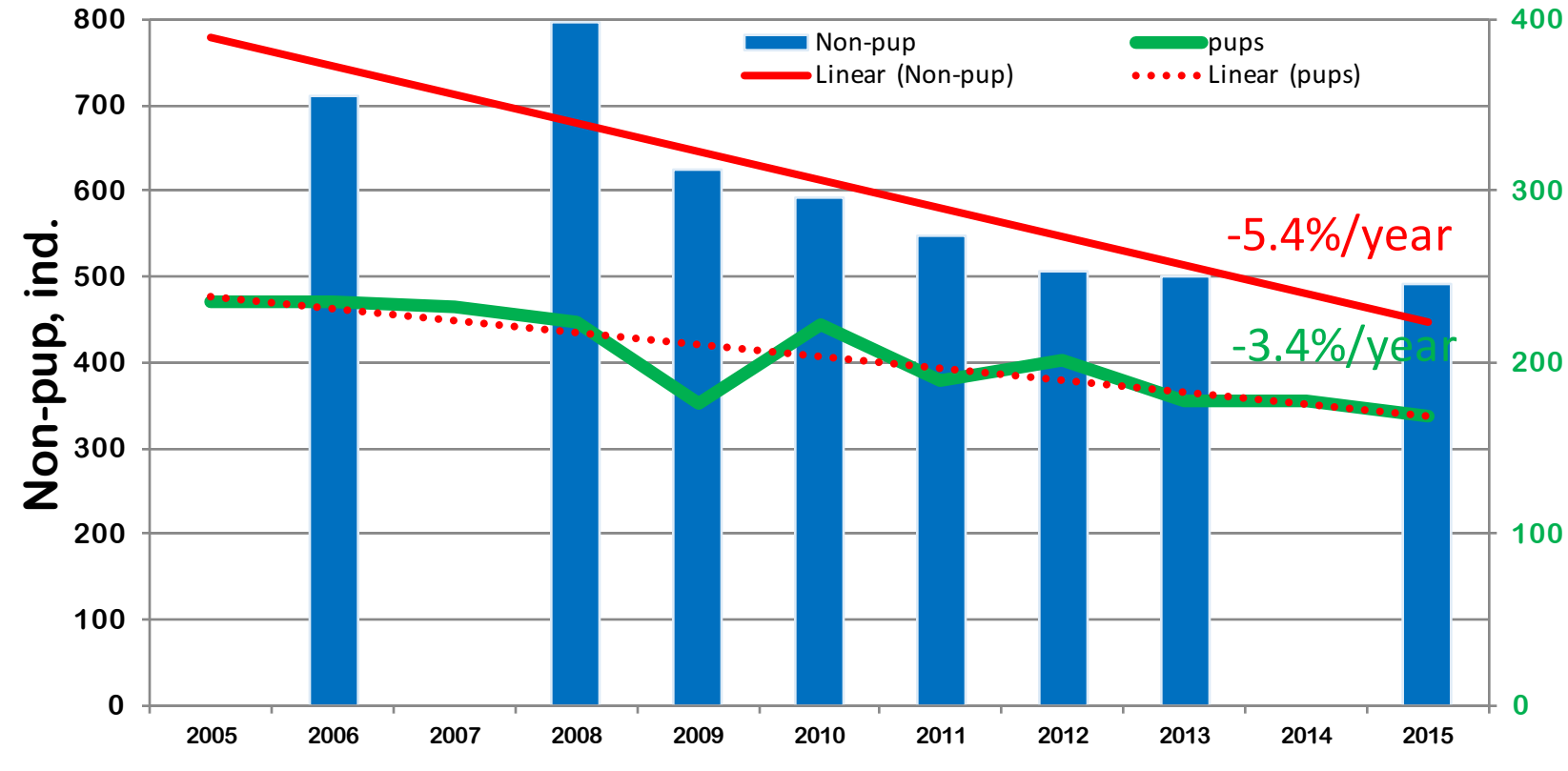
SSL was a common species in Eastern Kamchatka in the first half of 18th century and regularly harvested by local indigenous people. Nevertheless, the first historical information on breeding of SSL in this region is available only from the early 20th Century and abundance data since the early 1980s. In June 1983 about 2000 non-pups were counted in the region, and 211 pups were counted in 1987. Numbers decreased rapidly in the late 1980s, and currently non-pup abundance is about 25%, and pup production only 46%, of maximum counts from the 1980s.

Steller sea lion trend sites counts, 2005-2015:



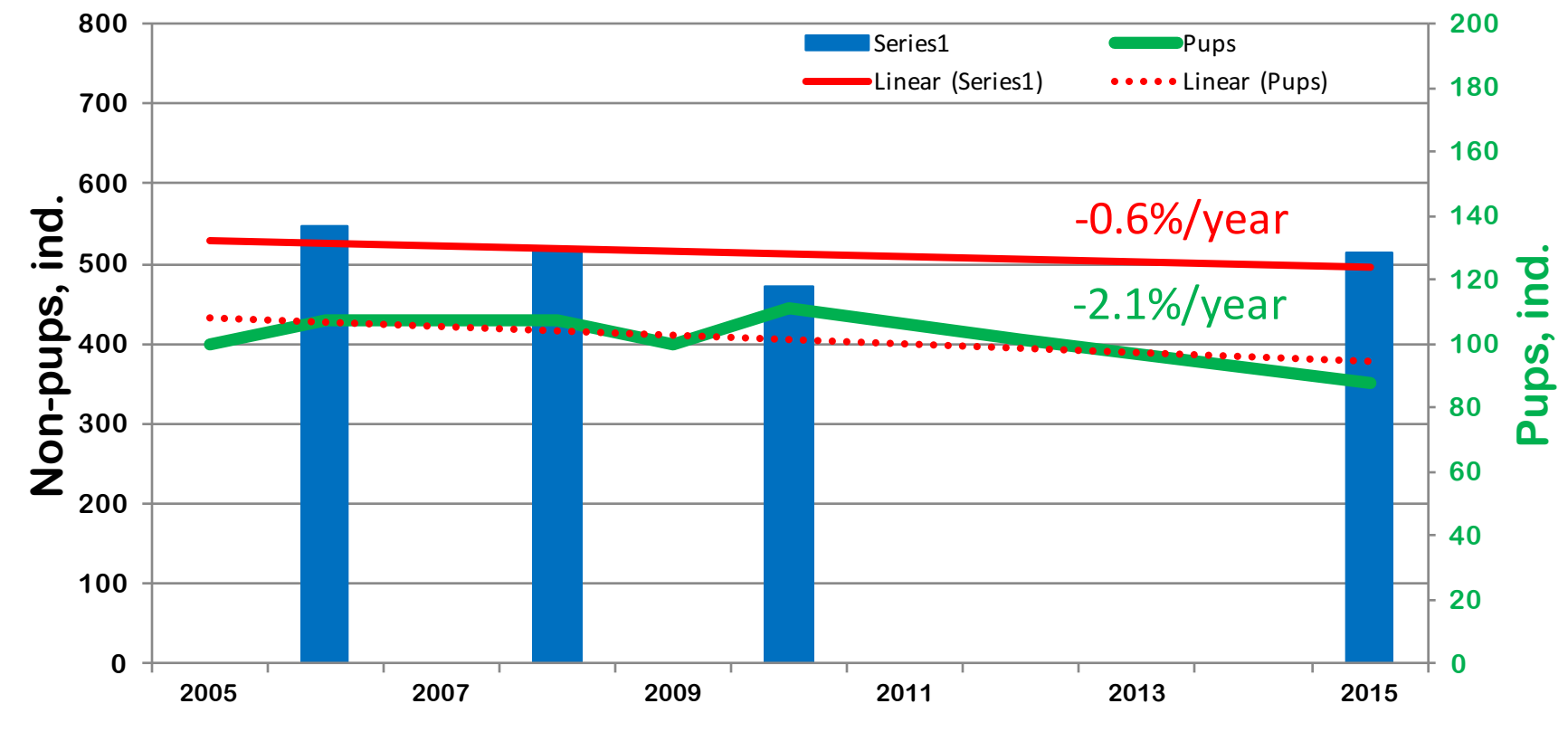
Western Bering Sea

In 2015 a total of 11 of 15 SSL sites were visited during June 23-28 in the WBS, and 89 SSL were found at 4 sites. A total of 74 SSL were counted at six trend sites. No pups nor any dead animals were observed in the region. SSL abundance on trend sites increased 54% compared to a previous similar survey in 2010. Only three surveys were conducted in the region during last 10 years, and the decadal trend in SSL abundance is negative with an annual decline of 2.9%.



Commander Islands

A total 10 of 11 SSL sites were surveyed on June 20 – July 1, 2015 in the Commander Islands. SSL were present at 6 locations where 490 non-pups were hauled out, and a total of 169 pups were born at four sites. Eleven pups died during first month of their lives or were born dead. Pup mortality in 2015 was 6.5% which is higher than in previous years. Non-pup and pup counts were the lowest for the last 10 years. Compared to 2006 the pup production in 2015 dropped 28% and non-pup count 31%. Annual trend in abundance in 2006-2015 for non-pups was -5.4% and for pups -3.4%.



Eastern Kamchatka

A total of 13 of 17 known SSL sites were surveyed on June 17-July 2, 2015 along the Eastern Kamchatka. SSL were found at 8 sites, where 526 non-pup and 88 pups were counted. Only three pups and no non-pups were found dead. Numbers of non-pups on trend sites increased by 11% compared with a previous survey in 2010, but decreased by 6% compared with the 2006 survey. The ten-year trend (2006-2015) in non-pup abundance was slightly negative with an annual decrease 0.6% per year. Pup production was the lowest for the last 10 years; it dropped by 18% compared to 2006; the ten-year trend in pup production was negative at -2% per year.

Acknowledgements

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