

Alaska Fisheries Science Center
National Marine Mammal Laboratory
7600 Sand Point Way NE, Bin C15700
Seattle, Washington 98115-0070

(206) 526-4313

FAX: 526-6615

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F/AKC3:RT

MEMORANDUM FOR: The Record

FROM: Rod Towell and Rolf Ream

SUBJECT: 2008 northern fur seal pup production and adult male counts on the Pribilof Islands, Alaska.

Numbers of northern fur seal, *Callorhinus ursinus*, pups were estimated using a mark-recapture method, shear-sampling, on the Pribilof Islands during August 2008. We estimated 102,674 (SE = 1,084, Table 1) pups were born on St. Paul Island and 18,160 (SE = 288, Table 1) pups were born on St. George Island. To minimize disturbance, dead pup counts were only conducted at 4 sample rookeries on St. Paul Island and 3 sample rookeries on St. George Island. As in 2006, this change in the dead pup counting procedure resulted in a different protocol (ratio estimation) for the calculation of the estimate of pups born. The observed pup mortality rates of 5.3% on St. Paul Island and 5.4% on St. George Island were relatively low, yet higher than estimates obtained in 2004 and 2006. Pup production was estimated on Sea Lion Rock, a small island approximately 500 m from St. Paul Island, for the first time since 2002. The estimated number of pups born on Sea Lion Rock was 6,741 (SE = 80). Pup production on Sea Lion Rock decreased by 22.8% since the last estimate in 2002. The 2008 pup production estimate for St. Paul Island is 6.6% less than the estimate in 2006 (Figure 1). The 2008 pup production estimate for St. George Island is 6.4% greater than the estimate in 2006. The overall decrease in pup production for St. Paul and St. George Islands combined from 2006 to 2008 is approximately 4.9%. Since 1998 pup production on St. Paul Island has declined at an annual rate of 5.7% (SE = 0.38) and on the Pribilof Islands (St. Paul and St. George Islands) at an annual rate of 5.2% (SE = 0.40).

Adult male northern fur seals on St. Paul, and St. George Islands (Table 2) were counted over the period July 8 to 15, 2008. Counts of territorial males with females ("harem" males) on St. George increased by 8.2% compared to 2007. Idle males on St. George increased in comparison to 2007 by 14.1%. On St. Paul the idle males decreased by 4.2% and the "harem" males increased by 15.4% (Figure 2). Overall, the total number of adult males counted on the Pribilof Islands in 2008 increased by 4.6% from 2007 to 10,612. The total number of territorial males with females increased by 14.2% on the Pribilof Islands.

Table 1: Numbers of northern fur seal, *Callorhinus ursinus*, pups born on St. Paul Island, Alaska in 2008 by rookery. Estimates are shown for the numbers alive at the time of shearing and the estimated total number of pups born.

Rookery	Live	Born²
Lukanin	2,932	3,098
Kitovi	3,671	3,879
Reef	13,051	13,790
Gorbatch	9,019	9,530
Ardiguen	725	766
Morjovi	7,785	8,226
Vostochni	14,684	15,515
Polovina	2,438	2,576
Little Polovina ¹	49	52
Polovina Cliffs	8,643	9,132
Tolstoi	10,712	11,319
Zapadni Reef	4,657	4,921
Little Zapadni	7,593	8,023
Zapadni	11,212	11,847
Total	97,171	102,674
South	3,647	3,856
North	5,388	5,697
East Reef	1,344	1,421
East Cliffs	4,078	4,312
Staraya Artil	750	793
Zapadni	1,968	2,081
Total	17,175	18,160

¹ Live and dead pups for Little Polovina were estimated without shear-sampling to reduce disturbance to this small rookery.

² Pups born is calculated for each rookery using a ratio estimator for mortality and the live pup estimates.

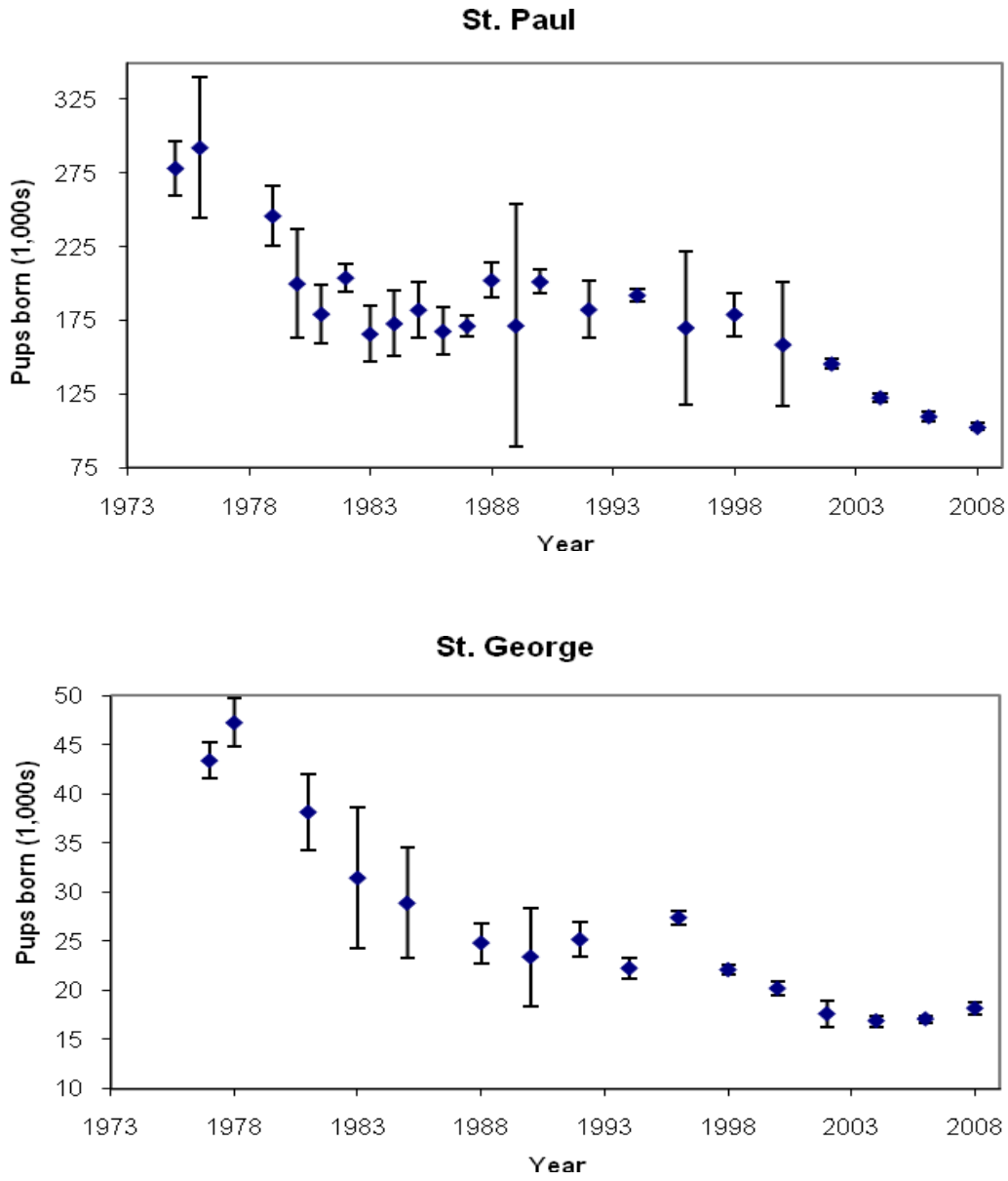


Figure 1. – Northern fur seal pups born on the Pribilof Islands 1975-2008. Error bars are approximate 95% confidence intervals.

Table 2.--Number of adult male northern fur seals counted, by rookery, Pribilof Islands, Alaska, July 2008.

Rookery	Date (July)	Class of adult male ^a			Total
		2	3	5	
<u>St. Paul Island</u>					
Lukanin	9	36	84	152	272
Kitovi	9	65	158	167	390
Reef	12	175	491	469	1,135
Gorbatch	12	73	341	428	842
Ardiguen	12	10	65	6	81
Morjovi	12	109	344	463	916
Vostochni	13/14	155	959	561	1,675
Polovina	15	22	108	139	269
Little Polovina	15	0	3	186	189
Polovina Cliffs	15	86	386	109	581
Tolstoi	10	157	363	271	791
Zapadni Reef	9	77	146	173	396
Little Zapadni	10	132	241	164	537
Zapadni	11	145	430	520	1,095
Island total		1,242	4,119	3,808	9,169
<u>St. George Island</u>					
South	8	41	166	24	231
North	10	97	264	112	473
East Reef	11	16	66	36	118
East Cliffs	11	44	202	80	326
Staraya Artil	9	14	34	64	112
Zapadni	9	26	73	84	183
Island total		238	805	400	1,443

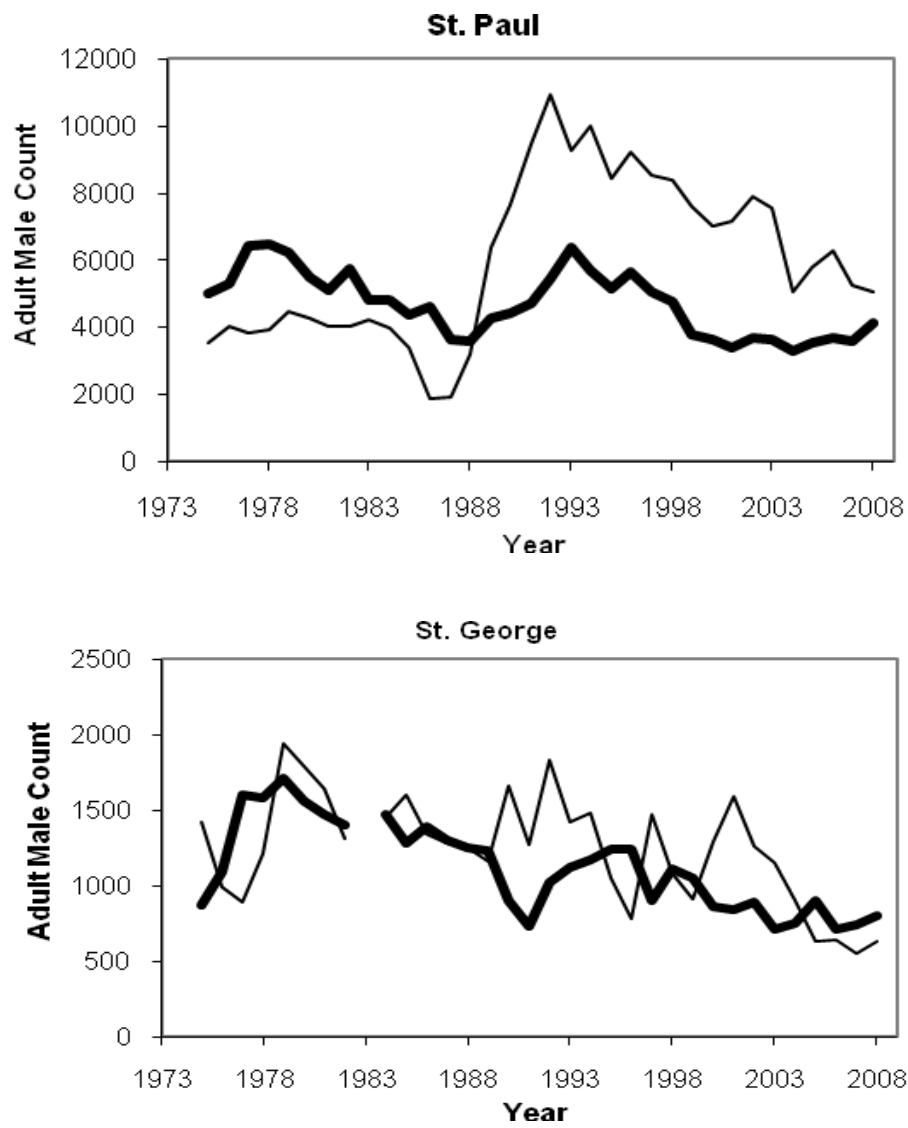


Figure 2. – Northern fur seal adult males (harem – thick line, idle – thin) counted on the Pribilof Islands 1975-2008.