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MEMORANDUM FOR: Record

FROM: John Sease

SUBJECT: Steller Sea Lion Survey Results, June and July 2000

The National Marine Fisheries Service (NMFS) and the Alaska Department of Fish and Game (ADF&G) conducted surveys of Steller sea lion pups and non-pups during June and July 2000 from Southeast Alaska to the western Aleutian Islands. The NMFS aerial survey occurred during 11-20 June and covered Cape St. Elias in the eastern Gulf of Alaska to Attu Island in the western Aleutian Islands. This includes almost the entire western stock of Steller sea lions in Alaska. Aerial survey counts, which are made from photographs, are of all adult and juvenile sea lions, animals 1 or more years old. The NMFS counted pups at selected rookeries during ship-based field work from 20 June to 6 July. At the time of this memorandum, results from ADF&G for Southeast Alaska are not available.

### **Aerial Survey for Adult and Juvenile Sea Lions**

Numbers of adult and juvenile sea lions in the western stock in Alaska (west of 144 W long.) continued to decline from 1998 to 2000 (Figure 1). Counts at 30 **Trend Rookeries** (13,271 non-pups) declined by 7.6% since 1998 (14,368) and 18.9% since 1996 (16,358). The estimated annual decline from 1990 to 2000 was 5.2%. At 82 **Rookery and Haul-out Trend Sites** (18,193: Table 1), the decline was 9.8% since 1998 (20,180) and 18.1% since 1996 (22,223), with an average annual decline of 5.2% since 1990. Trend sites are those consistently surveyed since the 1970s, thus allowing analysis of trends over relatively long periods of time. The aerial survey includes many sites (primarily haulouts) and 35-40% more animals than those at the Trend Sites alone. Consistent survey coverage of these non-trend sites allows meaningful comparison of all surveyed sites beginning in 1991. The count of 25,227 non-pups at **All Surveyed Sites** (n=264) represented declines of 13.8% from 1998 (29,257) and 17.6% from 1996



(30,622) with an average annual rate of decline since 1991 of 4.0%. Totals for **All Surveyed Sites** and **Rookery and Haul-out Trend Sites** include 1999 counts for the eastern Gulf of Alaska, which was not surveyed completely in 1998.

The Kenai to Kiska subarea is another geographical region used as a population index. For 26 **Trend Rookeries**, the June 2000 count (11,678) was a decline of 2.6% from 1998 (11,994) and 16.0% from 1996 (13,905). The average annual decline at Trend Rookeries in the Kenai to Kiska region was 4.8% for 1990 to 2000. Non-pup numbers at 69 **Rookery and Haul-out Trend Sites** (15,228) decreased by 6.7% from 1998 (16,315) and 14.9% from 1996 (17,900). The average annual decline at all Trend Sites was 4.0% for 1990 to 2000. For **All Surveyed Sites** (n=227) from Kenai to Kiska, the June 2000 count (21,301) declined 12.4% from 1998 (24,318) and 13.5% from 1996 (24,625), or approximately 2.5% per year from 1991 to 2000.

The relatively greater decline for the western stock as a whole compared to the Kenai to Kiska index area was driven by the declines in the western Aleutian Islands (Buldir and the Near Islands): 44% at **Trend Sites** and 42% at **All Surveyed Sites**. Trends have been variable in other regions, as illustrated by the regional counts at **Rookery and Haul-out Trend Sites** (Table 1, Figure 2). The western Gulf of Alaska and eastern Aleutian Islands, despite declines during recent surveys, are at or near their numbers from the early 1990s. The average rates of change for these regions during the decade has been below 3% for **Rookery and Haul-out Trend Sites** and **Trend Rookeries** and zero [non-significant regression of  $\ln(\text{count}) \times \text{year}$ ] for **All Surveyed Sites**. Although the June 2000 counts for Southeast Alaska are not available at this time, counts for this region have been increasing by approximately 2% per year.

## **Pup Counts**

The NMFS counted Steller sea lion pups at four rookeries in the eastern Aleutian Islands (Yunaska, Adugak, Bogoslof, Akun) and five rookeries in the Gulf of Alaska (Pinnacle, Atkins, Chirikof, Outer I., and Fish I.) during 20 June to 6 July 2000. From 1998 to 2000, three rookeries decreased by a combined loss of 125 pups, two rookeries increased by a combined total of 47 pups, and four rookeries showed no change. Our overall impression was of no appreciable change in pup counts at these sites over the past two years. Importantly, pups and rookeries looked “healthy.” The NMFS also counted pups at three haul-out sites: The Whaleback (12 pups), Lighthouse Rocks (5), and the Chiswell Islands (58). The NMFS also branded pups at Marmot I. (107) and Sugarloaf I. (151).

cc: James Balsiger, James Coe, Douglas DeMaster, Thomas Loughlin

Table 1.--Counts of adult and juvenile (non-pup) Steller sea lions observed at **ROOKERY AND HAUL-OUT TREND SITES** in seven subareas of Alaska during June and July aerial surveys from 1990 to 2000, including overall percent change between the count for each year and the count for 2000. Results from the ADF&G survey in Southeast Alaska were not available when this report was prepared.

Year	Gulf of Alaska			Aleutian Islands			Kenai to Kiska (n=69)	Western stock (n=82)
	Eastern (n=9)	Central (n=15)	Western (n=9)	Eastern (n=11)	Central (n=34)	Western (n=4)		
1990	5,444 ( 65%)	7,050 ( 56%)	3,915 ( 27%)	3,801 (+ 1%)	7,988 ( 32%)	2,327 ( 54%)	22,754 ( 33.1%)	30,525 ( 40.4%)
1991	4,596 ( 59%)	6,273 ( 50%)	3,734 ( 24%)	4,231 ( 9%)	7,499 ( 28%)	3,085 ( 65%)	21,737 ( 29.9%)	29,418 ( 38.2%)
1992	3,738 ( 49%)	5,721 ( 46%)	3,720 ( 24%)	4,839 ( 21%)	6,399 ( 15%)	2,869 ( 63%)	20,679 ( 26.4%)	27,286 ( 33.3%)
1994	3,369 ( 44%)	4,520 ( 31%)	3,982 ( 29%)	4,421 ( 13%)	5,790 ( 6%)	2,037 ( 47%)	18,713 ( 18.6%)	24,119 ( 24.6%)
1996	2,133 ( 11%)	3,915 ( 20%)	3,741 ( 24%)	4,716 ( 19%)	5,528 ( 2%)	2,190 ( 51%)	17,900 ( 14.9%)	22,223 ( 18.1%)
1998	1,952 <sup>1</sup> ( 3%)	3,346 ( 7%)	3,361 ( 15%)	3,847 ( <1%)	5,761 ( 6%)	1,913 ( 44%)	16,315 ( 6.7%)	20,180 ( 9.8%)
2000	1,894	3,117	2,842	3,842	5,427	1,071	15,228	18,193

<sup>1</sup> 1999 counts for the eastern Gulf of Alaska.

Table 2.--Counts of adult and juvenile (non-pup) Steller sea lions observed at **ALL SURVEYED ROOKERY AND HAUL-OUT SITES** in seven subareas of Alaska during June and July aerial surveys from 1991 to 2000, including overall percent change between the count for each year and the count for 2000. Results from the ADF&G survey in Southeast Alaska were not available when this report was prepared.

Year	Gulf of Alaska			Aleutian Islands			Kenai to Kiska (n=227)	Western stock (n=264)
	Eastern (n=25)	Central (n=55)	Western (n=37)	Eastern (n=54)	Central (n=81)	Western (n=12)		
1991	4,812 ( 53%)	7,715 ( 39%)	5,341 ( 14%)	5,291 ( 6%)	8,966 ( 22%)	4,923 ( 66%)	27,313 ( 22.0%)	37,048 ( 31.9%)
1992	4,360 ( 48%)	7,330 ( 36%)	5,502 ( 17%)	5,715 ( 13%)	8,307 ( 16%)	4,533 ( 64%)	26,854 ( 20.7%)	35,747 ( 29.4%)
1994	3,997 ( 43%)	6,795 ( 31%)	5,719 ( 20%)	6,055 ( 17%)	7,426 ( 6%)	3,369 ( 51%)	25,995 ( 18.1%)	33,361 ( 24.4%)
1996	2,586 ( 12%)	5,751 ( 18%)	5,724 ( 20%)	5,969 ( 16%)	7,181 ( 2%)	3,411 ( 52%)	24,625 ( 13.5%)	30,622 ( 17.6%)
1998	2,072 <sup>1</sup> (+10%)	4,971 ( 5%)	5,855 ( 22%)	5,803 ( 14%)	7,689 ( 9%)	2,867 ( 42%)	24,318 ( 12.4%)	29,257 ( 13.8%)
2000	2,274	4,711	4,577	5,000	7,013	1,652	21,301	25,227

<sup>1</sup> 1999 counts for the eastern Gulf of Alaska.

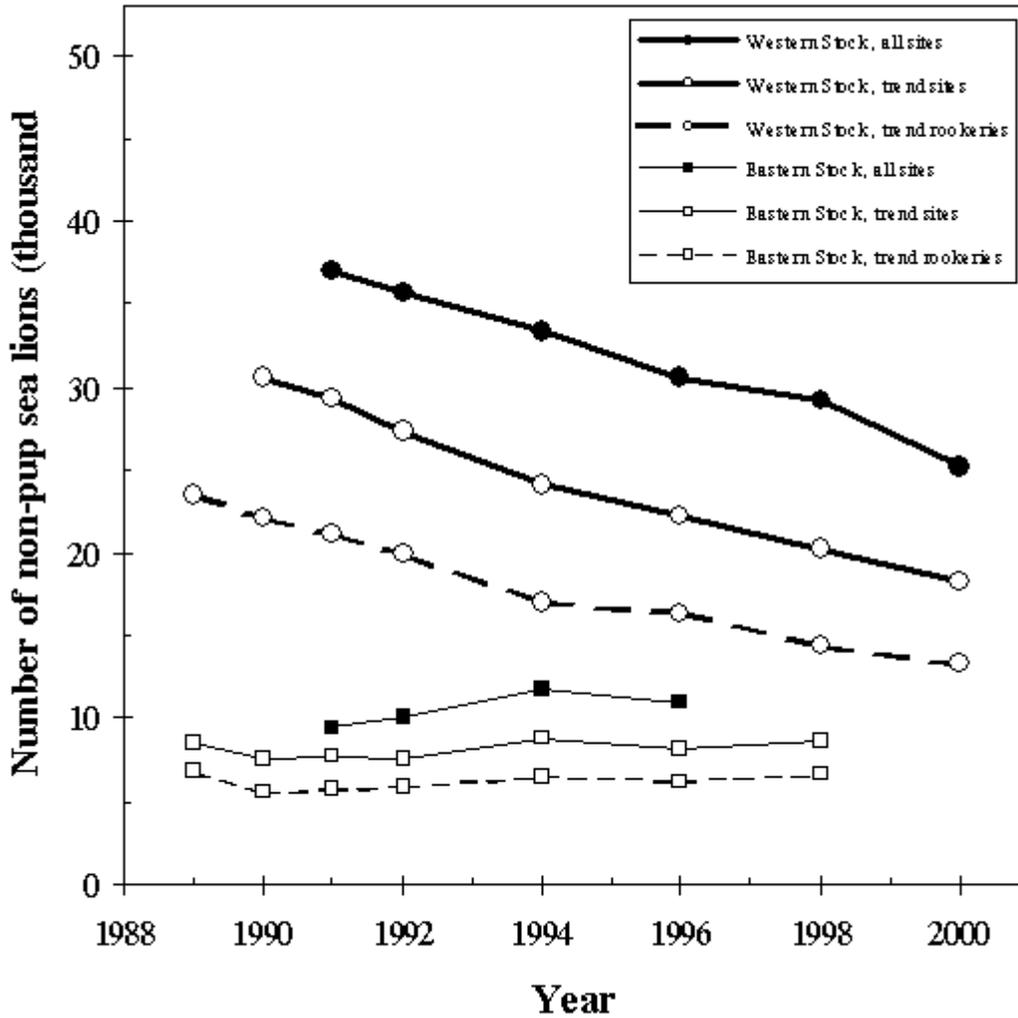


Figure 1.--Counts of non-pup (adult and juvenile) Steller sea lions at **All Surveyed Sites, Rookery and Haul-out Trend Sites, and Trend Rookeries** for the western stock and eastern stock (Southeast Alaska) from June aerial surveys in Alaska, 1989 to 2000. Results from the ADF&G survey in Southeast Alaska were not available when this report was prepared.

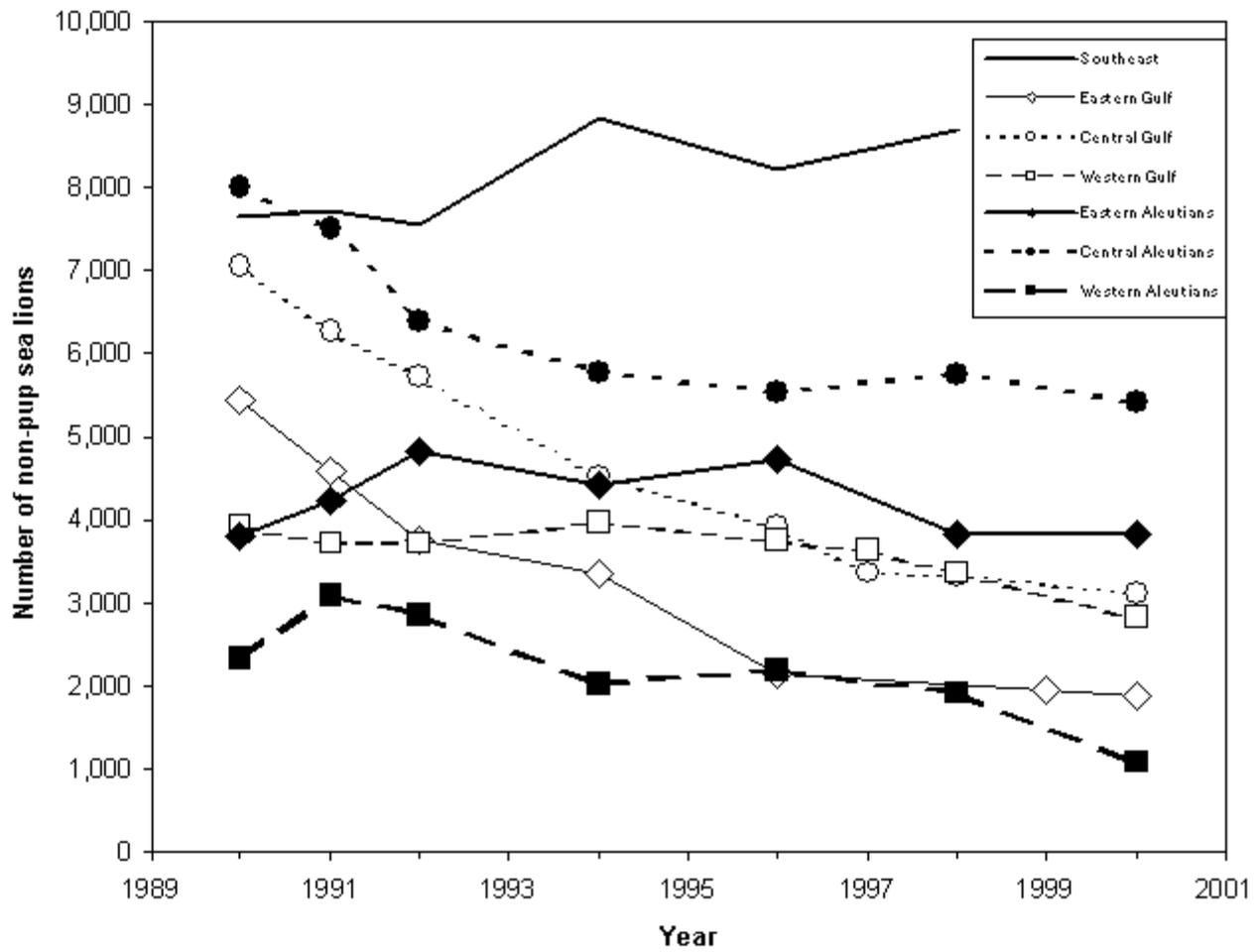


Figure 2.—Numbers of non-pup Steller sea lions at **Rookery and Haul-out Trend Sites** in seven regions of Alaska, from June aerial surveys 1990 to 2000. Results from Southeast Alaska for June 2000 were not available when this figure was prepared.