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To: Molly McCammon
Oil Spill Trustee Council

From: Kathy Frost KMF
Division of Wildlife Conservation, ADF&G

Subject: Progress Report - PWS Harbor Seals

This is an update on field and other work conducted by the harbor seal restoration project (94064) during late August and September 1994.

Aerial Surveys: Aerial surveys of harbor seals were conducted during 22-25 August and 5-9 September to coincide with suitable low tide series during the harbor seal molting period. The objective of the surveys was to make replicate counts of harbor seals at 25 trend count sites in Prince William Sound. These counts will be compared with counts of the same sites in previous years in order to estimate the trend in seal numbers.

Surveys were conducted by me. The survey aircraft was an amphibious Cessna 185 aircraft. Steve Ranney of Fishing and Flying in Cordova was the pilot for all surveys. Surveys were flown on morning tides ranging from -1.3 ft to +1.1 ft. and began approximately 1.5 hours before low tide and ended about 1.5 hours after low tide. Winds were generally less than 15 knots, skies partly cloudy to clear, and temperatures in the low 50s (August) to mid 40s (September).

The mean total count for seven complete surveys was 685 (range 446-953), or about 11% fewer seals than were counted in 1993. The mean count for oiled sites in 1994 was higher than in 1993 (240 vs 206), while at unoiled sites it was lower (445 vs 568). There was a large and consistent difference in counts between the first and second periods, with counts during the second period about 40% lower. The reason for this difference is unknown but was not immediately obvious.

Trend Analysis and Monitoring Protocol: During late August, Dr. Tim Gerrodette of Southwest Fisheries Center (NOAA/NMFS) travelled to Alaska to meet with harbor seal project personnel about trend count analysis, power analysis of 1984-1994 harbor seal survey data, possible modifications to survey design, and development of a harbor seal monitoring protocol. Dr. Gerrodette provided software developed for trend analysis in other species and worked with Jay Ver Hoef of ADF&G to customize this software for PWS

harbor seals. In addition, he participated in September PWS harbor seal surveys, based out of Cordova, in order to become familiar with survey methodology and design.

Seal Tagging and Physiology: During 16-23 September, field work was conducted to capture harbor seals in Prince William Sound. The objectives of the trip were to attach satellite tags to six adults and six subadults; to collect morphometrics data on all seals that were caught; and to collect samples for genetics studies, stable and fatty acid analyses, and blood chemistry. The field party consisted of Kathy Frost, Lloyd Lowry, Rob DeLong, Jay Ver Hoef, and Dan Reed (ADF&G); Vladimir Burkanov (Kamchatka Institute of Ecology and Nature Management/Russian Academy of Sciences); Brian Fadely (University of Alaska Fairbanks); and Randy Davis (Texas A & M University). Catching operations were conducted in southwestern PWS (Channel Island, Stockdale Harbor, Port Chalmers) and in eastern PWS (Gravina Island, Olsen Bay).

Our base of operations was the research vessel Pacific Star. Seal catching was conducted using 21-ft and 17-ft Boston Whalers and a 16-ft rubber raft. In general the weather was poor. Small craft advisories or gale warnings were in effect during most of the time we were in the field. Despite these conditions, we were able to find areas where local weather was better and were able to work on most days. A 300 ft long, 24 ft deep, 12-inch stretch mesh net was deployed at high speed to encircled seals hauled on rocks or in the water nearby. Entangled seals were brought into the boats where they were placed into individual stocking nets and either taken to the beach or returned to the Pacific Star for processing.

In total, we caught and sampled 26 seals (13 each males and females) and attached PTTs to 12 of these (8 females and 4 males, Table 1). Sex was determined, age estimated, seals were measured and weighed, and flipper tags were attached. Blubber biopsy samples for fatty acid analysis and skin samples for genetics studies were obtained from all seals. Whiskers for stable isotope analysis were obtained from 25 of 26 seals, and blood from 24.

As of 26 September, all ? PTTs were transmitting data to the satellite and providing information about location, dive depth and duration, and haulout behavior. Blubber samples have been sent to Dr. Sara Iverson at Dalhousie University for fatty acid analysis. Whiskers for stable isotope analysis have been provided to Amy Hirons, a graduate student of Dr. Don Schell at University of Alaska Fairbanks. Skin samples will be sent to Dr. Greg O'Corry Crowe at Southwest Fisheries Center for genetics analysis. Blood serum and plasma will be analyzed by Brian Fadely and Dr. Mike Castellini at University of Alaska Fairbanks.

cc: Jerome Montague
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Table 1. Harbor seals captured and sampled during field activities conducted in Prince William Sound, September 1994.

Specimen Number	Tagging Date	Capture Location	Sex	Age Class	PTT	Std L (cm)	Ax G (cm)	Wt (kg)
PWSHS-11-94	9/18/94	Channel Is	F	Ad	11041	117.0	98.0	61.6
PWSHS-12-94	9/18/94	Channel Is	F	Sub	2286	102.0	71.5	27.9
PWSHS-13-94	9/18/94	Channel Is	M	Sub	none	108.0	78.7	36.2
PWSHS-14-94	9/18/94	Channel Is	M	Ad	2282	121.0	97.7	56.9
PWSHS-15-94	9/18/94	Channel Is	F	Sub	none	106.0	79.0	30.3
PWSHS-16-94	9/18/94	Channel Is	F	Sub	none	118.0	78.0	33.8
PWSHS-17-94	9/18/94	Channel Is	M	Sub	none	117.0	90.0	42.3
PWSHS-18-94	9/18/94	Channel Is	M	Sub	none	120.0	83.8	43.8
PWSHS-19-94	9/18/94	Channel Is	M	Sub	none	128.0	83.0	44.5
PWSHS-20-94	9/18/94	Channel Is	F	Sub	none	95.0	76.0	28.9
PWSHS-21-94	9/18/94	Channel Is	M	Sub	11043	110.0	82.0	35.7
PWSHS-22-94	9/18/94	Channel Is	M	Sub	none	107.0	72.0	34.2
PWSHS-23-94	9/18/94	Channel Is	M	Ad	2280	143.0	94.8	62.4
PWSHS-24-94	9/19/94	Gravina Is	F	Ad	11040	131.0	97.0	64.9
PWSHS-25-94	9/19/94	Gravina Is	F	Pup	none	96.3	73.5	25.7
PWSHS-26-94	9/19/94	Gravina Is	M	Sub	11042	121.5	78.0	36.1
PWSHS-27-94	9/22/94	P Chalmers	F	Ad	2281	141.0	104.0	72.6
PWSHS-28-94	9/22/94	P Chalmers	M	Ad	none	141.0	125.0	105.7
PWSHS-29-94	9/22/94	P Chalmers	M	Pup	none	103.0	70.0	17.0
PWSHS-30-94	9/22/94	P Chalmers	F	Ad	11039	141.0	113.0	71.6
PWSHS-31-94	9/22/94	P Chalmers	F	Sub	11044	120.0	87.0	37.5
PWSHS-32-94	9/22/94	P Chalmers	F	Ad	none	132.0	109.9	72.7
PWSHS-33-94	9/22/94	P Chalmers	F	Sub	2283	119.0	85.0	40.5
PWSHS-34-94	9/22/94	P Chalmers	M	Ad	none	132.0	99.0	70.0
PWSHS-35-94	9/22/94	P Chalmers	F	Ad	2284	129.0	102.0	55.4
PWSHS-36-94	9/22/94	P Chalmers	M	Ad	none	154.0	121.0	111.8