24 August 2000

Mr. David Cormany
National Marine Fisheries Service
222 W.7th Ave. #43
Anchorage, Alaska 99513-7577

Dear Dave

Please find enclosed the Humane Observer Report for the 2000 northern fur seal subsistence harvest on St. Paul Island, Alaska.

The 2000 Northern fur seal harvest was humanely carried out this year except for the cases of hyperthermia. The harvest started on 5 July and ended on 8 August 2000, but there were only 14 harvest days. A total of 753 subadult males and one female were killed this year. There were four cases of hyperthermia this year. I believe hyperthermic cases could be prevented if methods as suggested in the main report are followed. Animals were gathered, handled, and killed in a humane fashion at all harvest. There was a problem with wastage again this year. There were at least four totes of frozen seal meat found stored in the Trident freezer adjacent to crab bait this summer and at least 8 carcasses, 7 hearts and numerous pieces of liver discarded at the blubber dump, with only the front flippers missing.

As like last year pelts were not found this season that had been contaminated with oil. In 1994:23 animals were found, in 1995:3 animals were found, in 1996:4 animals were found and in 1997:1 and 1998-2000:none.

I hope all of the work with the co-management organization is working out. Please keep me informed. Have a great day.

Sincerely

Terry R. Spraker, DVM, PhD, DACVP

HUMANE OBSERVER REPORT
Northern Fur Seal Subsistence Harvest
St. Paul Island, Alaska
July-August, 2000
Terry R. Spraker

INTRODUCTION

Northern fur seals (*Callorhinus ursinus*) have been harvested for their pelts for the last 200 years on the Pribilof Islands. During this time period, the native Privilovians could freely take the meat of the harvested animals for food. On St. Paul Island, the commercial harvest for pelts ceased in 1984; therefore a subsistence harvest began with only immature males taken for food. This subsistence harvest has continued for the last seventeen years (1984-2000). The harvest is a well planned and orderly procedure. Young male northern fur seals are gathered by driving them from their haulout areas to a specific killing field where they are held in a large pod. Five to ten seals are then cut from this large pod and driven to a group of four to five men who stun the animals by hitting them on the skull or upper neck with a solid wooden club. The animals are dragged a short distance away from the killing area where the chest and heart are cut open. The animals are then skinned and butchered for human consumption. For a more detailed description of the procedures of the harvest, see Humane Observer Report: Stoskopf 1984; Letcher, 1985; Dorsey, 1986; Zimmerman et. al., 1986. This report will be limited to my observations of the humane activities of the northern fur seal harvest for July and August 2000.

Multiple factors were evaluated during this harvest. These factors included environmental conditions, methods of gathering and herding the animals, and the harvesting of animals. These three areas will be discussed separately.

Northern fur seals (*Callorhinus ursinus*) were harvested 16

times on 14 days from 5 July through 8 August 2000 from eight haulout areas (Gorbatch:4 times, Polovina:3 times, Big Zapadni:3 times, Zapadni Reef Sands:2 times, Reef:once, Lukanin:once, Vostochni/West Side Story:-once, and Zolotoi Sands:-once). A total of 753 subadult male animals were killed this year. One female was killed this year from Polovina (00CuA-9 necropsy reports) on 21 July 2000 (Table 1).

ENVIRONMENTAL CONDITION

The environmental conditions of the harvest from 5 July through 8 August were monitored including the average air temperature, degree of precipitation, wind and cloud cover. The air temperature was taken when the drive began and ranged from 46°F to 50°F, with an overall average of 48°F. Rain did not occur during any of the harvests, it was misty eight times and the air was relative dry seven times. A breeze was present during every harvest. The wind speed varied from 5-30 knots with an overall average of 13 knots. Cloud cover was complete and low most of the time (10 days), complete and high on four days, broken and light/high only on one day (Table 2). The environmental conditions were slightly warmer this year as compared to previous years.

GATHERING OF ANIMALS

Five to eight men would go to a specific haulout area and quickly form a line along the shore thus preventing the seals access to the ocean. Then the seals were gathered into several pods and driven to the killing field. The animals were gathered between 11:27AM to 2:24PM this summer, but most drives began between 11:30AM to 1:30PM. Estimated distance of the drives ranged from 100 to 440 yards. Animals were driven from 15 to 35 yards/minute with an average of 25 yards/minute. The animals

were usually rested during the drive. The drives were similar this year as compared to previous years (Table 3).

An estimated difficulty of the drive was graded on a scale of 1+ to 3+, with 1+ being the easiest, and 3+ being the most difficult. These same paths have been used for driving seals to the killing field for several hundred years and were all fairly easy drives (Table 3). The degree of wetness to the grass and terrain was monitored and estimated as this is believed to be an important cooling factor for the animals. The grass was wet 12 days, moist 3 days, and dry one day. This was also similar as compared to previous years (Table 3).

HARVESTING PERIOD

The harvesting activity was characterized by holding the animals in a large pod approximately 20 to 30 yards from the stunning area. While a few young boys held the seals, three to four young men would cut out a small pod of seals and drive them to the stunners. The pod size usually was 5 to 8 animals. Animals were killed by hitting them on the skull at the level of the ears or over the 1st/2nd cervical vertebra. The majority of times, the animals were hit just once. These animals would immediately drop and were hit again on the skull. However, sometimes the first hit missed its mark and one or two more hits were required. The number of double- and triple- hits were not counted this year, but my overall impression was that the accuracy was about the same this year as in previous years.

Deep body core temperatures of approximately 15-20% of the animals were taken throughout each harvest. The temperatures were then divided into three equal time slots during the harvest for each day. The average body temperatures are presented in Table 4. Temperatures ranged in individual animals from 99.9°F to 110.0+°F. Four animals died due to hyperthermia this year.

Hyperthermia is due to overheating caused by over activity of the animals. Predisposing factors include warm environmental temperatures, lack of cloud cover and/or mist, dry grass, lack of wind, animals being driven too fast (especially uphill), long drives, animals being held too tight in the large holding pods, and having too much activity or moving around in the large holding pods. Another predisposing factor is the amount of rest an animal has had before the drive. For example, an animal that has just arrived on the haulout from a feeding trip may not be "fully rested" and, if they are subjected to a harvest/drive, become exhausted quicker than a totally rested animal.

To avoid hyperthermia harvest should be done in the morning instead of noon. Animals should be driven slowly and rested at least 15 minutes after the drive. The holding pods should be kept loose and the watch boys should not be throwing grass and other objects at the seals. If an animal lags behind during the gathering period they should be allowed to drop out of the pod. If the environment temperature is 55°F, great care has to be taken during the drive and the harvest, and if the temperature is $\geq$55°F, no cloud cover, wind or mist, the harvest should not be done that day. When the animals in the holding pod show early signs of hyperthermia (including, flipper fanning, open mouth breathing and lying down) the harvest should be stopped and the animals released slowly.

HEALTH STATUS

The health status of the animals was evaluated by examining viscera and carcasses throughout the harvest. Stomachs were opened and checked for parasites and ulcers. Gastric parasites were Contracaecum sp. and Anisakis sp., both of which have been reported previously in fur seals. The overall parasitic burden was comparable this year as in previous years. In general, the

harvested animals appeared to be in good body condition and healthy.

OIL CONTAMINATION OF ANIMALS

This year (as last year) animals were not found with oil on their pelts. The number of animals found with oil on their pelts has decreased since 1994 when 23 contaminated animals were found.

SUMMARY

This was typical year with three problems identified including hyperthermic animals (4), killing of females (1), and wastage or failure to use all the meat that was frozen from last years harvest and finding 8 carcasses in the dump. Four totes of frozen seal meat was found in the Trident freezer and 8 bags of fresh seal meat with only the flippers missing were found in the blubber dump this year. This amount of wastage is not acceptable in any type of subsistence harvest especially within a depleted species such as northern fur seals. The loss of the 4 animals due to hyperthermia can be prevented. Killing only one female is acceptable.

Points to be remembered to help prevent hyperthermia during the harvest include:

1. Drive the animals slowly to the killing field.
2. Do not harass the seals during the drive
3. If an animal drops behind during the drive let it stay and do not force the animal in the drive. These exhausted seals have a high probably of developing hyperthermia.
4. Rest the animals 10 to 15 minutes prior to the harvest.
5. Harvest in the morning; thus avoiding warmer afternoon

environmental temperatures.

6. Drive small pods to the stunners. Five to seven animals are good, but not 10 to 15 animals at a time.
7. Take a little more time to isolate the selected animals to be killed.
8. If environmental temperatures are $\geq 45^{\circ}F$, give the seals frequent rests during the drive and keep the holding pods loose. If environmental temperature is $\geq 55^{\circ}F$, do not have a harvest.
9. Try to "weed out" (release) older animals and females during the drive.
10. When the animals in the holding pod show early signs of hyperthermia (including, flipper fanning, open mouth breathing and lying down) the harvest should be stopped and the animals released slowly.
11. Discuss driving plans with drivers before drive starts. If driving plans are changed during a drive because not enough animals are gathered or two many big bulls or females are in the group, the animals should be released in a safe area not near cliffs. I am not sure what to do if animals are running towards a cliff. My impression is that they probably should be left alone and not disturbed. I think the animals if not pushed will avoid them, but if scared will jump quickly.
12. Do not allow intoxicated persons to work in any of the positions at the harvest or even to be on the killing field because of the disruption that they cause and the danger to themselves and others especially if they have a knife.

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Table 1. Table of dates, locations and number of northern fur seals killed during the subsistence harvest on St. Paul Island, Alaska July-August, 2000.

DATE	LOCATION	SEALS KILLED MALES	SEALS KILLED FEMALE	RUNNING TOTAL KILLED
5 July	Gorbatch/Reef*	31	0	31
10 July	Polovina	42	0	73
14 July	Big Zapadni	44	0	117
17 July	Zapadni Sands	61	0	178
19 July	Gorbatch	51	0	229
21 July	Polovina	34	1	264
22 July	Lukanin	41	0	305
1 Aug	Big Zapadni	58	0	363
2 Aug	Zapadni Sands	33	0	396
3 Aug	Polovina	59	0	455
4 Aug	Gorbatch	46	0	501
5 Aug	Vostochni	45	0	546
7 Aug	Big Zapadni	85	0	631
8 Aug	Zolotoi Sands	70	0	701
8 Aug	Gorbatch	53	0	754
Total		753	1	754

* On 5 July seals were gathered from two haulout areas, Gorbatch and Reef.

Table 2. Summary of environmental conditions during the northern fur seal subsistence harvest on St. Paul Island, Alaska July-August 2000.

DATE	LOCATION	AIR TEMP (F)	PRECIP-ITATION	WIND/KNOTS & DIRECTION	CLOUD COVER
5 July	Gorbatch/Reef	46	misty	16 NE	Complete/low
10 July	Polovina	46	misty	16 SE	Complete/low
14 July	Big Zapadni	47	none	15 S	Complete/high
17 July	Zapadni Sands	47	misty	14 W	Complete/low
19 July	Gorbatch	48	none	14 W	Complete/high
21 July	Polovina	49	none	5 N	Broken/high
22 July	Lukanin	48	none	9 E	Complete/high
1 Aug	Big Zapadni	48	misty	30 NW	Complete/low
2 Aug	Zapadni Sands	48	misty	11 E	Complete/low
3 Aug	Polovina	50	misty	16 SW	Complete/low
4 Aug	Gorbatch	49	none	12 SW	Complete/low
5 Aug	Vostochni	48	none	11 S	Complete/high
7 Aug	Big Zapadni	48	none	6 W	Complete/low
8 Aug	Zolotoi Sands	48	misty	9 SW	Complete/low
8 Aug	Gorbatch	48	misty	11 S	Complete/low

Table 3: Summary of activity during the drive of northern fur seals to the killing fields during the subsistence harvest, St. Paul Island, Alaska July-August 2000.

DATE	LOCATION	DURATION OF DRIVE (min)	ESTIMATED DISTANCE OF DRIVE (yards)	ESTIMATED SPEED OF DRIVE B yards/min	TERRAIN TYPE AND WETTNESS OF GRASS, (OVERALL DIFFICULTY OF DRIVE)
5 July	Gorbatch/ Reef	4/5	120/125	30/25	uphill-dirt, flat-grass wet (+)
10 July	Polovina	5	125	25	uphill-dirt, flat-grass wet (+)
14 July	Big Zapadni	13	250	19	downhill-dirt, flat- sand and grass, wet, (+)
17 July	Zapadni Sands	8	225	28	flat-sandy, grass-wet (+)
19 July	Gorbatch	5	100	25	uphill-dirt, flat-grass wet (+)
21 July	Polovina	6	140	23	uphill-dirt, flat-grass moist (+)
22 July	Lukanin	17	330	22	flat-grass, dry (+)
1 Aug	Big Zapadni	20	440	18	downhill-dirt, flat- sand and grass, wet, (++)
2 Aug	Zapadni Sands	6	200	33	sandy-uphill, flat-grass wet (+)
3 Aug	Polovina	4	130	33	uphill-dirt, flat-grass wet (+)
4 Aug	Gorbatch	4	100	30	flat-grass, moist (+)
5 Aug	Vostochni	10	150	15	flat-grass, moist (+)
7 Aug	Big Zapadni	15	350	23	downhill-dirt, flat- sand and grass, wet (++)
8 Aug	Zoltoli Sands	21	375	18	uphill-sand, hilly-sand/grass wet (+++)
8 Aug	Gorbatch	5	175	35	uphill-dirt, flat grass wet (+)

Table 4: Summary of deep body core temperature and number of animals suffering from hyperthermia during the northern fur seal subsistence harvest on St. Paul Island July-August 2000.

DATE	LOCATION	REST TIME (min)	AVERAGE DEEP BODY CORE TEMP F° (First 1/3)	AVERAGE DEEP BODY CORE TEMP F° (Middle 1/3)	AVERAGR DEEP BODY CORE TEMP F° (Last 1/3)	HYPER-THERMIC ANIMALS
5 July	Gorbatch/Reef	21/14	101.2	103.0	103.4	0
10 July	Polovina	16	101.8	101.0	101.3	0
14 July	Big Zapadni	13	103.4	102.9	102.7	0
17 July	Zapadni Sands	10	101.0	101.7	103.2	1
19 July	Gorbatch	10	102.3	101.0	103.4	1
21 July	Polovina	12	102.7	104.5	104.1	2
22 July	Lukanin	17	103.1	NT	104.1	0
1 Aug	Big Zapadni	13	101.6	101.3	101.7	0
2 Aug	Zapadni Sands	8	102.0	NT	103.3	0
3 Aug	Polovina	13	102.0	103.1	103.0	0
4 Aug	Gorbatch	11	101.8	103.0	104.0	0
5 Aug	Vostochni	8	103.3	104.1	102.4	0
7 Aug	Big Zapadni	14	102.8	102.7	103.8	0
8 Aug	Zolotoi Sands	13	102.7	103.1	103.9	0
8 Aug	Gorbatch	18	103.7	103.1	103.8	0

NT = Temperature Not Recorded

Table 5: Summary of the rate of kill of northern fur seals during the subsistence harvest on St. Paul Island July-August 2000.

DATE	LOCATION	NUMBER OF ANIMALS KILLED	LENGTH OF TIME OF HARVEST (minutes)	AVERAGE NO. OF ANIMALS KILLED PER MINUTE OF HARVEST
5 July	Gorbatch	31	49	0.6
10 July	Polovina	42	85	0.5
14 July	Big Zapadni	44	38	1.2
17 July	Zapadni Sands	61	68	0.9
19 July	Gorbatch	51	46	1.1
21 July	Polovina	31	48	0.6
22 July	Lukanin	41	31	1.3
1 Aug	Big Zapadni	58	74	0.8
2 Aug	Zapadni Sands	33	35	0.9
3 Aug	Polovina	59	90	0.7
4 Aug	Gorbatch	45	66	0.7
5 Aug	Vostochni	45	41	1.1
7 Aug	Big Zapadni	85	123	0.7
8 Aug	Zolotoi Sands	70	70	0.8
8 Aug	Gorbatch	53	53	1.1