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Please find enclosed the Humane Observer Report for the 1989 Northern fur seal harvest. Overall the harvest went well.

Thank you for allowing Darlene and I to work with you during the harvest. We not only learned alot but had a great time. Tell your family hello. I hope we can work with you again next summer.

Sincerely,

Terry R. Spraker, DVM, Ph.D
Pathologist

Enclosure

TRS/cle

HUMANE OBSERVER REPORT
Northern Fur Seal Subsistence Harvest
St. Paul Island, Alaska
July - August, 1988

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 Pribilovians could freely take the meat of the harvested animals for food. On St. Paul Island, the commercial harvest for pelts ceased in 1984; thus a subsistence harvest began with only immature males taken for food. This subsistence harvest has continued for the last six years (1984-1989). The harvest is a remarkably well planned and orderly procedure. The young male seals are gathered, driven from their haulout area and held in a large pod. Five to 15 seals are then cut from this large pod and driven to a group of three to four men who stun the animals by hitting them on the skull or in the upper neck with a solid wooden club. The animals are dragged a short distance away from the killing area, and a person cuts the chest and heart open. The animal is skinned and then 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, 1986. This report will be limited to my observations of the humane activities of the harvest procedure for the time period of July and August 1989.

Multiple factors were evaluated during this harvest. These factors include: environmental conditions, methods of gathering

and herding of animals, and the harvesting of animals. These three areas will be discussed separately.

Fur seals (Callorhinus ursinus) were harvested from 10 July through 8 August 1989 from seven haulout areas (Gorbatch, Reef, Lukanin, Palovina, Zapadni, Northeast Point, Tolstoli). A total of 1332 subadult males were taken. No females were harvested (Table 1).

Environment condition

The environmental conditions of the harvest were monitored. These included the average air temperature, degree of precipitation, wind and cloud cover. The air temperature was taken when the drive began. The temperature ranged from 46°F to 57°F with an overall average of 49.8°F. Rain did not occur during the harvest and it was misty five times. A mild to moderate breeze was present eleven days and no wind was present five days. Cloud cover was heavy most of the time (eleven days) and, light and high five days (Table 2). Overall the weather conditions were a little cooler as compared to last year.

Gathering of animals

The gathering of the animals was started in the morning (from 9:30 - 10:30 a.m.). Ten to fifteen men would go to a specific haulout area and quickly form a line to prevent the seals access to the ocean. Then they herded the seals into several pods and drove them to the killing field. The estimated distance of the

drive ranged from 150 to 700 yards. The animals were driven an average of approximately 17.6 yards/minute. The animals were sometimes rested during this drive. The drives were about the same speed this year as compared to last year (16-17 yards/minute for 1988).

An estimated difficulty of the drive was graded on a scale from +, ++, +++, with + being the easiest, to +++ 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 except for Tolstoli. The degree of wetness to the grass/terrain was monitored and estimated. This was believed to be important, but the degree of importance was difficult to ascertain (Table 3).

One animal was found down during the drive on Zapadni, 5 August 89. This animal was found near a large rock in the path of the drive. This subadult male did show signs of opisthotonos and tremors for a few minutes. He was allowed to rest for ten to fifteen minutes and, after recovering, went back down to the water. It was speculated that this animal sustained a mild degree of head trauma during the drive and the pile-up of animals as they had to jump over this large rock.

Eleven cases of hyperthermia/over exertion were observed this year. All occurred during the drive on Tolstoli. The animals were driven about 700 yards over extremely steep terrain. Six animals died during the drive and three died during the harvest in the large holding pod and two were killed because their

temperatures were 108°F or greater and they appeared to be in a coma. In my opinion, Tolstoli should not be used as a harvest site. The drive is much too long and steep and there are other good areas that can easily be used.

During the 1984 and 1985 harvest, drives were recorded and they were much slower than the drive times observed for the last three years. The reason for this was undetermined. Another problem noticed during the drive is that the young boys who helped would occasionally harass the seals more than necessary. This has been a problem for the last three years.

Harvesting period

The harvesting period was characterized by holding the animals in a large pod approximately 30 to 40 yards from the stunning area. Two to three young boys usually held the seals, and one to two men would cut out a small pod and drive them to three or four men that did the stunning. The overall pod size averaged eight animals. Animal 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 animal would immediately drop. The animal was then 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 the last two years.

In regard to the animals that received double-hits and hits-escaped, it seemed as if a good percentage of them occurred when two animals were hit at one time. This could be reduced by taking a little more time to isolate the animal before stunning it. It also seemed that more double-hits/hits-escaped occurred when pod sizes were larger. This problem with double hits resulted in the killing of 1 four-year-old and 1 five-year-old male this year. Taking more time to isolate animals prior to stunning and having fewer animals in the pod would be helpful. One comment about this by most humane observers in the past is the inexperience of the stunner. They said the inexperienced caused a big problem with stunning. I am sure that experience does play a role, but what I observed was that the inexperienced stunner took fewer animals than the experienced ones. As inexperienced stunners spent more time on the killing line, he began to kill more animals. Experience does play a factor, but taking more time to isolate animals and having smaller pod sizes would decrease the number of double-hits and hits-escaped for both experienced and inexperienced stunners.

Another problem I observed during this period was that occasionally the large pod holders would seem to get bored and sometimes harass the seals more than necessary to hold them, or they would not pay attention to them and have to keep herding them back into the main pod. One suggestion here is to make sure the pod holders stay attentive and watch the seals a little closer. This has also been a problem for the last three years.

Deep body core temperatures of the animals were taken throughout the harvest from the first animal killed to the last. About ten to twenty percent of the animals were checked. 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. Average temperatures ranged from 99.2°F to 108.0°F. One day eleven animals died as a result of hyperthermia and over exertion. This occurred at Tolstoli (28 July 89). Six animals became hyperthermic during the drive but died during the following night. Three animal died in the holding pods and two animals were killed because they had a deep body core temperature of 108°F and 108.6°F and did not seem to recover after 30 to 45 minutes of rest. The primary reason for this high rate of death loss was due to the extensive length (700 yards) and difficult terrain (extremely hilly and steep) of the drive, and the warmth of the day (57°F). In my opinion, Tolstoli is not needed as a harvest site and is unacceptable for use in this harvest operation. The drive is much too stressful and is considered inhumane for the animals.

Suggestions I have in this area are that the animals should be rested 10-15 minutes before the harvest begins, and during the harvest, the large seal pod should be held "loosely" and not crowded too close together. If the environmental temperature is 60°F, the harvest should be canceled. All drives over 500 yards should <u>not</u> be done and Tolstoli <u>should</u> <u>not</u> be used as a harvest site.

Health status

The health status of the animals was evaluated by examining viscera and carcasses throughout the harvest. Stomachs (448) were opened and checked for parasites and ulcers. These gastric parasites were Contracaecum sp. and Anisakis sp. These have been reported previously in fur seals. The parasite load of the stomachs was light in all 448. A light load was considered to be from one to 25 parasites, 26 to 100 was moderate and over 100 was considered heavy. An ulcer was defined as a grossly visible crater in the gastric mucous at least 2mm in diameter. Using the definition of an ulcer, 274 animals (61.2%) had gastric ulcers. Last year 447 stomachs were examined and 43.9% had gastric ulcers. The significance of this finding was not determined. Nearly all animals had tapeworms in the caecum. These seemed to cause little harm. Three animals had abscesses in the subcutaneous tissue; probably secondary to bite wounds. Two "orange" animals were killed on 8 Aug. 1989 on Gorbatch. The reason for this orange discoloration was not determined, but probably is due to some type of metabolism within the animal or diet. In general, these harvested animals seemed to be in fair body condition and healthy.

In summary the harvest went well and was done in an orderly and humane fashion. Suggestions for future harvest include:

1) Drive the animals slower to the killing field.

2) Do not unnecessarily harass the seals during the drive.

3) Rest the animals 10 to 15 minutes prior to the harvest.

4) Do the harvest in the morning; thus avoiding warmer afternoon environmental temperatures.

5) Drive smaller pods to the stunner. Five to seven animals are good, but not 10 to 15 animals at a time.

6) Take a little more time to isolate the selected animals to be killed.

7) If environmental temperatures are 55°F to 60°F, give the seals frequent rests during the drive and keep the holding pods loose. If environmental temperature is 60°F or above, do not have a harvest.

8) Tolstoli is an unacceptable haulout area to drive animals from for the purpose of subsistence harvest. The drive is too long and steep and the drive is inhumane to the animals.

REFERENCES

1. Dorsey, A.S., 1986. Humane Observer Report, Pribilof Island Fur Seal Harvest. National Marine Fishery, Juneau Alaska.

2. Letcher, J.D., 1985. Humane Observer Report, Pribilof Fur Seal Harvest, National Marine Fishery, Juneau, Alaska.

3. Spraker, T.R., 1987. Humane Observer Report, Pribilof Fur Seal Harvest, National Marine Fishery, Juneau, Alaska.

4. Spraker, T.R., 1988. Humane Observer Report, Pribilof Fur Seal Harvest, National Marine Fishery, Juneau, Alaska.

5. Stoskopf, M.K., 1984. Humane Observer Report, Pribilof Fur Seal Harvest.

6. Zimmerman, S.T., and J.D. Letcher, 1986. The 1985 Subsistence Harvest of Northern Fur Seals, Callorhinus ursinus, in St. Paul Island, Alaska. Marine.

Table 1. Dates, location of and number of subadult Callorhinus ursinus harvested for subsistnace in St. Paul Island, Alaska, 1989.

Dates	Location	Total # Seals Killed		Running Total
		Males	Females	
10 July	Gorbatch	66	0	66
11 July	Lukanin	72	0	138
14 July	Zapadni	102	0	240
17 July	Polovina	57	0	297
18 July	Northeast Pnt.	20	0	317
19 July	Gorbatch	89	0	406
21 July	Zapadni	62	0	468
24 July	Polovina	71	0	539
26 July	Lukanin	55	0	594
27 July	Reef	54	0	648
28 July	Tolstoli	87	0	735
31 July	Polovina	46	0	781
4 Aug	Reef	93	0	874
5 Aug	Zapadni	65	0	939
7 Aug	Northeast Pnt.	126	0	1065
8 Aug	Gorbatch	267	0	1332

Table 2. Summary of environmental conditions during the 1989 subsistence harvest, St. Paul Island, Alaska.

Date	Location	Air temp.	Precipitation	Wind	Cloud Cover
10 July	Gorbatch	45	none	mild	heavy, misty
11 July	Lukanin	45	none	mild	heavy, misty
14 July	Zapadni	55	none	mild	heavy, misty
17 July	Polovina	47	none	mild	moderate
18 July	Northeast Pt.	56	none	mild	heavy, misty
19 July	Reef	46	none	mild	light
21 July	Zapadni	47	none	none	light
24 July	Polovina	48	none	mild	high, light
26 July	Lukanin	46	none	none	heavy
27 July	Reef	47	none	none	heavy, low
28 July	Tolstoli	57	none	none	high
31 July	Polovina	48	none	mild	heavy
4 Aug.	Gorbatch	54	none	mod.	heavy, low
5 Aug.	Zapadni	56	none	mild	heavy, misty
7 Aug.	Northeast Pt.	50	none	none	heavy, low
8 Aug.	Gorbatch	49	none	mild	light

Table 3. Summary of data for the humane gathering of subadult Northern fur seals during the 1989 harvest on St. Paul Island, Alaska.

Date	Location	Duration of drive (mins)	Estimated Distance (yards)	Estimated Speed (yds/mins)	Terrain Type	Terrain Moisture
10 July	Gorbatch	12	150	13	++	wet
11 July	Lukanin	10	200	20	++	wet
14 July	Zapadni	10	200	20	++	moist
17 July	Polovina	NR[1]	175	NR	+	wet
18 July	NE Point	16	400	25	+	wet
19 July	Reef	13	150	12	++	wet
21 July	Zapadni	12	200	17	++	moist
24 July	Polovina	10	175	18	+	dry
26 July	Lukanin	NR	200	NR	++	wet
27 July	Reef	15	200	13.3	++	wet
28 July	Tolstoli	NR	700	NR	+++[2]	dry
31 July	Polovina	7	150	21	+	wet
4 Aug.	Gorbatch	14	200	14	++	moist
5 Aug.	Zapadni	12	250	21	++	wet
7 Aug.	NE Point	18	450	25	+	wet
8 Aug.	Gorbatch	15	150	10	++	wet

[1] NR = Not recorded

[2] Eleven animals died due to hypothermia.

Table 4. Summary of the time interval between the end of the drive and starting of harvest, body temperatures, length of times of harvest and rate of kill.

Date	Location	End of Drive to start of Harvest (min)	Average Deep Body Core Temperature						Length of Time of Harvest (min)	Average # Animals Killed per minute
			1st 1/3		mid 1/3		last 1/3			
10 Jul	Gorbath	5	99.7	4	101.0	4	101.4	4	105	.63
11 Jul	Lukanin	4	102.1	5	100.0	2	102.3	2	78	.92
14 Jul	Zapadni	8	102.7	5	104.5	3	103.4	6	90	1.13
17 Jul	Polovina	NT	100.7	4	100.6	1	101.4	3	86	.66
18 Jul	NE Point	17	100.0	1	99.9	1	0	0	25	.80
19 Jul	Reef	3	100.7	4	101.6	6	103.4	2	134	.66
21 Jul	Zapadni	11	102.5	4	102.5	3	102.9	3	108	.57
24 Jul	Polovina	10	103.9	3	102.1	4	103.9	5	110	.65
26 Jul	Lukanin	NT	101.1	3	101.9	2	103.4	2	75	.73
27 Jul	Reef	9	102.2	3	103.1	3	103.3	2	76	.71
28 Jul	Tolstoli	NT	103.9	4	104.1	3	103.5	9	100	.87
31 Jul	Polovina	8	101.3	3	101.3	3	103.5	2	65	.71
4 Aug	Grobatch	7	103.4	2	102.8	2	103.9	2	95	.98
5 Aug	Zapadni	23	103.8	2	102.8	2	104.4	2	70	.93
7 Aug	NE Point	15	100.8	3	101.1	4	101.5	8	155	.81
8 Aug	Grobatch	10	102.1	7	102.4	5	101.8	7	200	1.38