

October 1993

Dr. Steve Zimmerman  
NVAA, National Marine  
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Dear Dr. Zimmerman:

Please find enclosed the Humane Observer Report for the 1993 Northern fur seal harvest on St. Paul Island, Alaska. Overall the harvest went well.

Sincerely,

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Pathologist

Encl.  
TRS/cle

HUMANE OBSERVER REPORT  
Northern Fur Seal Subsistence Harvest  
St. Paul Island, Alaska  
July-August, 1991  
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, other 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 ten years (1984-1993). The harvest is a well planned and orderly procedure. Young male Northern fur seals are gathered by driving them from their haul out area 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 three to four 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 animal is 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 fur seal harvest for July and August 1993.

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

Fur seals (Callorhinus ursinus) were harvested from 30 June through 6 August 1993 from eight haul out areas (Gorbatch, Zoltoi Sands, Kitoui, Lukanin, Polovina, Zapadni, Northeast Point and Zapadni Reef Sands). A total of 1518 subadult males were killed this year, no females were killed (Table 1).

#### ENVIRONMENTAL CONDITION

The environmental conditions of the harvest from 13 July through 6 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 48°F to 54°F, with an overall average of 50°F. Rain occurred only once during the harvest and it was misty 6 times. A mild to moderate breeze was present every day and wind speed varied from 5-19 knots with an overall mean of 12 knots. Cloud cover was heavy most of the time (17 days), light and high 1 day and sunny 2 days (Table 2). Overall the environmental conditions were similar to previous years.

#### GATHERING OF ANIMALS

The gathering of the animals was started in the morning from 10:30 am to 12:30 pm. Ten to fifteen men would go to a specific haul out area and quickly form a line along the shore thus preventing the seals access to the ocean. They then herded the seals into several pods and drove them to the killing field. The estimated distance of the drive ranged from 75 to 350 yards. Animals were driven from 14 to 33 yards/minute with an average of 20 yards/minute. The animals were usually rested during this drive. The drives were about the same speed this year as compared to previous years.

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. The degree of wetness to the grass/terrain was monitored and estimated as this is believed to be an important cooling factor for the animals (Table 3).

#### HARVESTING PERIOD

The harvesting period was characterized by holding the animals in a large pod approximately 30 to 40 yards from the stunning area. While a few young boys held the seals, one to two men would cut out a small pod 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 10% 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 from 98.8°F to 107.0°F. Two animals died in the holding pods and 4 were killed because they had a deep body core temperature of 106.6°F.

Hyperthermia has been a problem for the last seven years. About 0.5% to 1% of the animals harvested died or were killed because of hyperthermia. Hyperthermia is due to overheating associated with the activity of the animals. Predisposing factors include warm environmental temperatures, lack of cloud cover, no 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. I believe another predisposing factor to be the amount of rest an animal has had before the drive. For example, an animal that has just arrived on the rookery 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. The bottom line is that hyperthermia is a continuing problem. To avoid this problem animals need to be driven slowly, rested at least 10-15 minutes after the drive and the holding pods should be kept loose. If the environment temperature is 55°F, great care has to be taken during the harvest and if the temperature is  $\geq 60^\circ\text{F}$ , no cloud cover, wind or mist, the harvest should not be done that day. This year the number of animals that experienced hyperthermia was markedly reduced.

#### HEALTH STATUS

The health status of the animals was evaluated by examining viscera and carcasses throughout the harvest. Stomachs (865) 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 parasite load in the stomachs was light in 713 (82.4%), moderate in 8 (92%) and heavy in none. No parasites were found in 144 (16.7%) stomachs. A light load was considered to be from 1 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 1-2 mm in diameter. Using this definition of an ulcer, 100 (11.6%) animals (36.9%) had gastric ulcers and 117 (13.5) had evidence of healed ulcers. Stomachs contained squid beaks (33), otoliths (3), crab (1) and tamping death (1). One animal had abscesses in the subcutaneous tissues; probably secondary to bite wounds. One seal had been contaminated with oil. This animal had small tar balls on the hair of the chest. In general, the harvested animals seemed to be in fair body condition and healthy.

#### SUMMARY

In summary the harvest went well and was done in an orderly and humane fashion. Points to be remembered during the harvest include:

1. Drive the animals slowly 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. Harvest in the morning; thus avoiding warmer afternoon environmental temperatures.
5. Drive small pods to the stunners. 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<sup>o</sup>F to 60<sup>o</sup>F, give the seals frequent rests during the drive and keep the holding pods loose. If environmental temperature is 60<sup>o</sup>F or above, do not have a harvest.
8. Try to "weed out" older bulls during the drive.

REFERENCES

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Table 1: Summary of date, location and number of fur seals killed during each harvest on St. Paul Island, Alaska 1993.

Dates	Location	No. Seals Killed		Running Total
		Males	Females	
30 June	Gorbatch	53	0	53
5 July	Kitoui	40	0	93
6 July	Zapadni	27	0	120
7 July	Polovina	48	0	168
8 July	Gorbatch	34	0	202
9 July	Zapadni	33	0	235
13 July	Zapadni	80	0	315
14 July	Polovina	45	0	360
15 July	Lukanin	33	0	393
18 July	Gorbatch	43	0	436
20 July	Polovina	36	0	472
21 July	Zapadni Reef	56	0	528
22 July	Kitovi	50	0	578
23 July	Gorbatch	51	0	629
24 July	Zapadni	68	0	697
26 July	Polovina	64	0	761
27 July	Zapadni Reef	41	0	802
28 July	Lukanin	60	0	862
29 July	Northeast Point	57	0	919
30 July	Zapadni	55	0	974
31 July	Gorbatch	106	0	1080
2 Aug	Polovina	70	0	1150
3 Aug	Zapadni	62	0	1212
4 Aug	Lukanin	68	0	1280
5 Aug	Zapadni	94	0	1374
6 Aug	Zoltoli Sands	144	0	1518

Table 2: Summary of environmental conditions during the 1993 fur seal harvest on St. Paul Island, Alaska.

Date	Location	Air temp. °F	Precipitation	Wind Knots	Cloud Cover
13 July	Zapadni	50	None	15	Complete
14 July	Poiovina	48	None	11	Complete
15 July	Lukanin	48	Misty	10	Complete
16 July	Gorbatch	48	None	11	Complete
20 July	Poiovina	49	Rain	21	Complete
21 July	Zapadni	53	None	19	Sunny
22 July	Kitovi	54	None	5	Sunny
23 July	Gorbatch	48	Misty	6	Complete
24 July	Zapadni	52	None	12	Complete
26 July	Poiovina	52	None	5	Light
27 July	Zapadni Reef	50	Misty	7	Complete
28 July	Lukanin	52	None	12	Complete
29 July	Northeast Pt	52	None	14	Complete
30 July	Zapadni	50	None	13	Complete
31 July	Gorbatch	50	Misty	15	Complete
2 Aug	Poiovina	51	None	6	Complete
3 Aug	Zapadni Reef	51	Misty	13	Complete
4 Aug	Lukanin	50	None	10	Complete
5 Aug	Zapadni	51	Misty	11	Complete
6 Aug	Zoltoli Sands	52	None	9	Complete

Table 3: Summary of activity during the drive of the fur seals to the harvest area during the subsistence harvest, St. Paul Island, Alaska 1993.

Date	Location	Duration of Drive (Minutes)	Estimated Distance of Drive	Estimated Speed of Drive Yards/Min	Terrain Type	Terrain Moisture
				Yards/Min		
13 July	Zapadni	25	350	14	++	Moist
14 July	Polovina	10	225	23	+	Moist
15 July	Lukanin	10	75	18	++	Wet
16 July	Gorbatch	5	100	20	++	Wet
20 July	Polovina	11	150	14	+	Wet
21 July	Zapadni	10	175	18	++	Dry
22 July	Kitovi	NT	NT	NT	+	Moist
23 July	Gorbatch	5	150	30	++	Wet
24 July	Zapadni	15	275	18	++	Dry
26 July	Polovina	6	200	33	+	Wet
27 July	Zapadni Reef	8	200	25	+	Wet
28 July	Lukanin	10	200	20	++	Wet
29 July	Northeast Point	19	275	14	+	Wet
30 July	Zapadni	14	350	25	++	Wet
31 July	Gorbatch	8	150	19	++	Wet
2 Aug	Polovina	5	100	20	+	Wet
3 Aug	Zapadni Reef	10	150	15	+	Wet
4 Aug	Lukanin	12	250	21	++	Wet
5 Aug	Zapadni	17	250	15	++	Wet
6 Aug	Zoltoli Sand	24	350	15	++	Wet

Table 4: Summary of deep body core temperature and number of animals suffering from hyperthermia during the 1993 fur seal subsistence harvest on St Paul Island.

Date	Location	End of Drive To Start of Harvest (Min. of Rest)	Average Deep Body Core Temperature			Number of Deaths due to Hyperthermia
			First 1/3	Middle 1/3	Last 1/3	
13 July	Zapadni	20	101.5	102.1	103.1	0
14 July	Polovina	10	103.6	101.7	102.4	0
15 July	Lukanin	15	101.8	100.7	102.4	0
16 July	Gorbatch	15	100.2	101.7	102.3	0
20 July	Polovina	2	98.1	101.9	100.4	0
21 July	Zapadni	13	103.7	103.6	106.5	2
22 July	Kitovi	NT	102.1	102.0	103.4	0
23 July	Gorbatch	9	101.3	NT	101.5	0
24 July	Zapadni	7	103.3	101.3	104.0	0
26 July	Polovina	5	101.4	102.4	103.1	0
28 July	Zapadni Reef	7	101.6	NT	101.3	0
28 July	Lukanin	7	101.4	101.7	103.0	0
29 July	Northeast Point	12	103.1	102.6	103.1	0
30 July	Zapadni	15	101.8	NT	103.3	0
31 July	Gorbatch	3	101.3	104.2	103.2	0
2 Aug	Polovina	19	101.9	102.2	102.9	0
3 Aug	Zapadni Reef	7	101.9	103.3	104.1	0
4 Aug	Lukanin	10	102.6	101.5	103.4	0
5 Aug	Zapadni	12	102.0	101.7	101.8	0
6 Aug	Zoltoli Sands	15	101.4	102.3	102.9	0

NT = No Temperature Recorded

Table 5: Summary of the rate of kill of Northern Fur seals during the 1993 subsistence harvest on St. Paul Island.

Date	Location Number Killed	Length of Time of Harvest (Minutes)	Average No. Animals Killed per Minute
13 July	Zapadni - 80	133	0.6
14 July	Polovina - 45	78	0.6
15 July	Lukanin - 33	66	0.5
16 July	Gorbatch - 43	57	0.8
20 July	Polovina - 36	44	0.8
21 July	Zapadni - 56	64	0.9
22 July	Kitovi - 50	41	1.2
23 July	Gorbatch - 51	28	1.8
24 July	Zapadni - 68	45	1.5
26 July	Polovina - 64	67	1.0
27 July	Zapadni Reef Sands - 41	25	1.6
28 July	Lukanin - 60	67	0.9
29 July	Northeast Point - 57	46	1.2
30 July	Zapadni - 55	26	2.1
31 July	Gorbatch - 106	90	1.2
2 Aug	Polovina - 70	57	1.2
3 Aug	Zapadni Reef Sands - 62	73	0.8
4 Aug	Lukanin - 68	52	1.3
5 Aug	Zapadni - 94	102	0.9
6 Aug	Zoltoli Sands 144	111	1.3