

The Subsistence Harvest of Sub-Adult Northern Fur Seals on St. Paul Island, Alaska in 2010

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by

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INTRODUCTION

Northern fur seals (*Callorhinus ursinus*), laqudadax, have been harvested for their pelts for the last 250 years on the Pribilof Islands. During this time period, the native Pribilovians could freely take the meat of the harvested animals for food. Traditionally, Unangan (Aleuts) hunted seals at sea in the Aleutian Islands and use of the whole animal was practiced out of necessity and respect. The commercial harvesting of large numbers of fur seals on the Pribilof Islands was foreign to the traditional value systems of indigenous peoples of the Bering Sea. Unangan sealers participated in a commercial harvest that was contrary to their traditional values and beliefs, and dealt with the alteration of customary “one-with-one” hunting. They attempted to impress their conservative, subsistence-based principles for respectful controls as best they could in the commercial harvest process. For example, Unangan sealers strongly opposed the scientific and commercial harvest of females that led to the population decline for the following 15-20 years.

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 twenty-seven years (1984-2010) and is an important customary traditional food for Unangan of St. Paul Island, Alaska. The National Marine Fisheries Service and Aleut Community of St. Paul Island Tribal Government work together in recent efforts to safeguard the existence of the northern fur seal. Documentation plays an important role in this effort and this report will assist in this process.

The harvest is a well-planned and orderly activity, implemented similarly to the commercial harvest for pelts only on a smaller scale in order to meet the community’s needs. Young male northern fur seals are gathered by driving them from their haul-out 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 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 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 and Letcher 1986; Spraker 1987-2005.

Today Unangan sealers must balance the present subsistence sub-adult male fur seal harvest

on the Pribilofs with the interest to reintroduce traditional management and regulation of harvests. This balance must accommodate and transition with the current needs of the Aleut Community of St. Paul Island within the context of the current and transitioning population dynamics of northern fur seals and the dramatic environmental changes occurring in the Bering Sea. The compilation and reporting of fur seal subsistence harvest information is an important element of this balance.

METHODS

The Tanam Amgiġnaan (Island Sentinels) of the Ecosystem Conservation Office (ECO) monitored and performed the humane observer functions for the 2010 subsistence fur seal harvest for the Aleut Community of St. Paul Island in accordance with their respective Co-management Agreements and contracts with the National Marine Fisheries Service. Tanam Amgiġnaan monitored, recorded, and evaluated multiple factors for this harvest:

1. Environmental conditions,
2. Methods of gathering and herding the animals,
3. The number of sub-adult male fur seals harvested,
4. Incidence of by-products and waste during the harvest process,
5. The occurrence of males 124.5 cm or more in length,
6. Female seals killed during the harvest operation,
7. The number of seal deaths due to overheating,
8. Number of seals entangled in marine debris and the number of seals disentangled,
9. Evidence of oil contaminated seal pelts,
10. Other types of fur seal mortality,
11. Any other unusual conditions related to the harvest,
12. Research conducted during the harvest and visitors requesting to view the harvest.

RESULTS

Fur Seals Harvested

Northern fur seals were gathered and harvested eight times this year, twice from Polovina Haulout on 02 July and 04 August 2010, once from Big Zapadni Haulout on 09 July 2010, once from Morjovi Haulout on 16 July 2010, once from Zapadni Reef Haulout on 23 July 2010, once from Reef Haulout on 30 July 2010, once from Little Zapadni Haulout on 05 August 2010, and

once from Gorbatch Haulout on 06 August 2010. A total of 357 sub-adult male animals were killed this season. No females were killed in the harvest this year (Table 1).

Table 1.--Date, location, and number of northern fur seals killed during the subsistence harvest on St. Paul Island, Alaska in 2010.

Date	Location	Number killed male	Number killed female
02 July	Polovina	25	0
09 July	Big Zapadni	21	0
16 July	Morjovi	52	0
23 July	Zapadni Reef	40	0
30 July	Reef	42	0
04 August	Polovina	32	0
05 August	Little Zapadni	51	0
06 August	Gorbatch	94	0
Total		357	0

Environmental Conditions

The environmental conditions of the harvest that were monitored included air temperature, degree of precipitation, wind and cloud cover. Air temperature was taken when the drive began and ranged from 41° F to 48° F, with an overall average of 44.5° F. The air was relative dry three times and moist five times. A breeze was present at all harvests. The wind speed varied from 1-3 mph to 19-24 mph with an overall average of 8-12 mph. Cloud cover was complete and high twice and complete and low five times, and sunny once (Table 2). The environmental conditions were similar to previous years.

Table 2.--Date, location, and summary of environmental conditions during the northern fur seal subsistence harvest on St. Paul Island, Alaska in 2010.

Date	Location	Air temp. (F°)	Precipitation	Wind speed (mph)/direction	Cloud cover
02 July	Polovina	41	Misty	1-3/ ESE	Complete/low
09 July	Big Zapadni	41	None	13-18/ NNE	None
16 July	Morjovi	43	None	4-7/ E	Complete/high
23 July	Zapadni Reef	43	Rainy	19-24/ W	Complete/low
30 July	Reef	46	Misty	8-12/ NE	Complete/low
04 August	Polovina	48	None	1-3/ SW	Complete/high
05 August	Little Zapadni	46	Misty	8-12/ S	Complete/low
06August	Gorbatch	48	Misty	13-18/ SW	Complete/low

Gathering of Animals

Five to ten harvesters would go to a specific haul-out area and quickly form a line along the shore thus preventing the fur seals access to the ocean. Then the seals were gathered into several pods and driven to the killing field. Gathering of the animals started between 08:30 and 09:00 this season. Estimated distances of the drives ranged from 75 to 250 yards. The animals were usually rested during and immediately after the drive. The drives were similar this year as compared to previous years (Table 3).

These same paths have been used for driving seals to the killing field for at least a hundred years and are characterized in 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 twice and moist six times.

Table 3.--Date, location, estimated distance, terrain type, and wetness of grass during the drive of northern fur seals to the killing field during the subsistence harvest on St. Paul Island, Alaska in 2010.

Date	Location	Estimated drive distance (yards)	Terrain type; Wetness of grass
02 July	Polovina	150	Up hill sandy/dirt, flat grass; grass moist
09 July	Big Zapadni	250	Flat sandy, flat grass, up hill grass, flat grass; grass moist
16 July	Morjovi	100	Flat sandy, flat grass; grass moist
23 July	Zapadni Reef	150	Uphill sandy/dirt, flat grass, wet
30 July	Reef	100	Uphill sandy/dirt, flat grass; grass moist
04 August	Polovina	150	Up hill sandy/dirt, flat grass; grass moist
05 August	Little Zapadni	75	Flat sandy/dirt, flat grass; grass wet
06 August	Gorbatch	150	Uphill sandy/dirt, down hill grass, flat grass; grass moist

Harvesting Period and Hyperthermia

The harvesting activity was characterized by holding the animals in a large pod approximately 10 to 20 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 8 to 15 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 overall the accuracy was about the same this year as in previous years.

Deep body core temperatures of approximately 30-50% 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 95.7° F to 111.7° F. Cases of hyperthermia were not found this season.

Table 4.--Date, location, summary of the deep body core temperatures, and number of seals dying from hyperthermia during the northern fur seal subsistence harvest on St. Paul Island, Alaska in 2010.

Date	Location	Average deep body core temperature (°F)			Number of hyper thermic animals
		Beginning of harvest	Middle of harvest	End of harvest	
02 July	Polovina	99.8	103.5	102.2	0
09 July	Big Zapadni	102.2	102.6	-	0
16 July	Morjovi	100.7	100.4	102.5	0
23 July	Zapadni Reef	99.5	100.7	100.7	0
30 July	Reef	100.8	102.5	102.5	0
04 August	Polovina	100.5	101.2	100.9	0
05 August	Little Zapadni	100.9	99.8	100.8	0
06 August	Gorbatch	101.7	102.8	102.9	0

Fur seals can die due to hyperthermia (overheating) during the round up and drive of the seals to the killing field or during the harvest. 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 haul-out from a feeding trip may not be "fully rested" and, if they are subjected to a harvest/drive, may become exhausted quicker than a totally rested animal.

To avoid hyperthermia seals should be driven slowly, given a chance to rest after the drive, and the holding pods should be kept loose. The duration of a resting period should be determined based on the behavioral signs of the seals held in the pods. Once the seals do not

exhibit early signs of hyperthermia (including flipper fanning, open mouth breathing, and lying down) then subsequent harvest activities can commence. 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 $\geq 60^\circ\text{F}$, with 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 the harvest should be stopped.

Health Status

The health status of the animals was evaluated by examining viscera and carcasses throughout the harvest.

Oil Contamination

This year (same 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. In 1994: 23 seals, in 1995: 3 seals, in 1996: 4 seals and in 1997: 1 seal were found with oil contamination. From 1998 to 2010 pelts of seals were not found with oil contamination.

By-products and Waste

Fur seal pelts, throats, teeth, and whiskers were taken for the creation of arts and crafts on St. Paul Island during the 2010 subsistence fur seal harvest. No waste occurred on the harvest field under 50 CFR §216 Subpart F.

Males 124.5 cm or More in Length and Female Seals Killed or Struck

Precautions are taken to avoid the killing of males 124.5 cm or more in length and females. Males harvested are not measured; however, the length limit was to prevent harvesting of older males (≥ 5 years old). Aging of the upper canine teeth by the National Marine Mammal Laboratory (NMML) in Seattle indicates that there have been no 5-year old seals harvested during the subsistence period, indicating that sealers are able to estimate the age of fur seals. No 5-year old or older seals were harvested. Additionally, no female fur seals were struck and/or killed during this year's harvest.

Entanglement

No entangled male seals were observed during this year's subsistence fur seal harvest.

Other Mortality

No other fur seal mortality occurred during this year's subsistence fur seal harvest.

Anomalies

No anomalies occurred during this year's subsistence fur seal harvest.

Research

Research projects were conducted in conjunction with the subsistence harvests on St. Paul Island. Island Sentinels collected snouts and extracted upper canine teeth for NMML. NMML processes the canine teeth for estimating the age composition of the harvest. Upper canines were taken randomly by sampling every 5th seal at each harvest. A total of 78 snouts (~22% of the harvest) with upper canines intact were collected and processed prior to shipping.

A Memorandum of Agreement (MOA2010-01) was entered into with Bobette Dickerson with NMML to collect fur seal samples for prevalence of potentially reproductively harmful diseases during this year's harvest.

DISCUSSION AND CONSIDERATIONS

Points to be Remembered During the Harvest

1. Drive the animals slowly to the killing field.
2. Do not unnecessarily harass the seals during the drive.
3. If an animal lags behind during the drive, leave it alone, because this animal is already exhausted because it has probably just returned from a feeding trip. These are the animals that will develop hyperthermia first and most likely die.
4. Rest the animals 10 to 15 minutes prior to the harvest.
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. This will reduce the number of 5-year old seals killed.
7. If environmental temperatures are 50° F to 55° F, give the seals frequent rests during the drive and keep the holding pods loose. If environmental temperature is 55° F or above, do not have a harvest. If the temperature is 50° F with no wind a harvest should not take place.
8. Try to "weed out" (release) older animals and females during the drive.
9. When the animals in the holding pod show early signs of hyperthermia (e.g. flipper fanning, open mouth breathing, and lying down) the seal should be rested or the harvest should be stopped and the animals released slowly.
10. Discuss driving plans with drivers before drive starts. If drive plans change during the drive because not enough animals are gathered or too many big bulls or females are in the group, the animals should be released in a safe area not near cliffs.

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