

The Subsistence Harvest of Sub-Adult Northern Fur Seals on St. Paul Island, Alaska in 2016

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by

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INTRODUCTION

Northern fur seal (*Callorhinus ursinus*; laaqudañ in Unangam Tunuu) is a vital resource for Unangan (Aleut people) of St. Paul Island, Alaska. The National Marine Fisheries Service (NMFS) manages the subsistence harvest of northern fur seals under Federal regulations (50 CFR 216.71-.74) established under the Fur Seal Act (FSA). In 1985, when the commercial harvest for pelts ceased, NMFS determined that an emergency interim rulemaking was necessary to regulate a subsistence-only harvest of fur seals on St. Paul Island. The emergency interim rule maintained all aspects of the commercial harvest including the methods of killing (i.e., rounding up and clubbing followed by exsanguination), which were adopted in the 1986 final rule. The regulations restrict subsistence harvest to sub-adult male seals during a 47-day harvest season (June 23 to August 8). The subsistence harvest has occurred annually since 1985 with little changes to the regulations.

In June 2000, under the authority of Section 119 of the Marine Mammal Protection Act (MMPA), NMFS and the Aleut Community of St. Paul Island Tribal Government (ACSPI), a federally recognized tribe of Alaskan Natives, entered into a co-management agreement for northern fur seal and Steller sea lion on St. Paul Island. The agreement includes roles and responsibilities of the ACSPI and NMFS in co-managing the subsistence harvest. However, the regulations have yet to be revised to reflect the co-management process established under the MMPA. The regulations under the FSA continue to limit traditional subsistence practices of harvesting fur seals. Unangan have traditionally and historically engaged in subsistence hunting of fur seals in the spring and winter, and subsistence harvesting of laaqudaan (fur seal pups) in the fall. In 2007, the ACSPI petitioned NMFS to change the regulations to allow St. Paul Unangan greater flexibility to meet their customary and nutritional subsistence needs, and to manage the harvest under the authority of the co-management framework established under the MMPA rather than the authority of the 1986 final rule established under the FSA.

Since 2001 the ACSPI has monitored and reported on the subsistence harvest of fur seals for NMFS, an important element of our co-management agreement. Subsistence harvest reports can be found online at <https://alaskafisheries.noaa.gov/pr/fur-seal>. In this report, the ACSPI describes the subsistence harvest of sub-adult male fur seals on St. Paul Island in 2016.

METHODS

The ACSPI takes requests for seals from the community and the Ecosystem Conservation Office (ECO) department staff work with a harvest foreman and experienced sealers (volunteers) to fulfill the community's subsistence needs. ECO pre-scheduled harvests to occur twice a week during the 2016 season. Weekly harvests were then adjusted based on the availability of experienced sealers, availability of sub-adult males, and weather conditions.

The subsistence harvest method involves organized herding of sub-adult male northern fur seals. At a specific haulout area, five to ten sealers quickly form a line along the shore to prevent fur seal escape to the ocean. Male fur seals are then gathered by driving them from their haulout areas to a specific killing field where they are held in a large group. Five to ten seals are then separated from this large group and driven to a group of three to four men who stun the seals by hitting them on the skull or upper neck with a solid wooden club. The seals are dragged a short distance away from the killing area where the chest and heart are cut open, completing the process of humane killing. The seals are then skinned and butchered for human consumption. For a more detailed description of the harvest procedure, see the following humane observer reports: Stoskopf, 1984; Letcher, 1985; Dorsey, 1986; Zimmerman and Letcher, 1986; and Spraker, 1987-2010.

ECO staff monitored and performed the humane observer function for the harvest in accordance with the ACSPI's co-management agreement. ECO staff monitored and recorded the following information during the 2016 harvest season: number and sex of harvested seals, details of herding seals, environmental conditions, health condition of seals, number of entangled and flipper-tagged seals, and utilization of fur seal parts. ECO collected biological samples for the National Marine Mammal Tissue Bank (NMMTB) and the Marine Mammal Laboratory (MML), and managed the ACSPI's harvest-viewing permit program for non-tribal members. In 2016, the subsistence harvest of northern fur seals occurred on nine different days beginning on June 23 and ending on August 8.

RESULTS

Number and Sex of Harvested Seals

A total of 308 sub-adult male fur seals were harvested on St. Paul Island from three different haulout areas. One female fur seal was accidentally killed this season. No other mortality

occurred during this year’s harvest season. No haulout area was harvested more than once per week (Table 1).

Table 1. Date, location, and number of male and female northern fur seals killed during the subsistence harvest on St. Paul Island, Alaska in 2016.

Date	Location	Number Males Killed	Number Females Killed
23 June	Big Zapadni	23	0
01 July	Polovina	28	0
15 July	Polovina	22	0
21 July	Big Zapadni	25	0
22 July	Polovina	24	0
29 July	Lukanin	17	0
29 July	Polovina	10	0
04 August	Big Zapadni	51	0
05 August	Polovina	49	0
08 August	Gorbach	0	0
08 August	Big Zapadni	59	1
Total		308	1

Details of Herding Seals

Fur seals were herded between 08:42 and 09:05 during nine of the harvests this season. On 29 July, an additional harvest was conducted starting at 10:20 to fulfill the request for seals that day. Fur seals were usually rested during and immediately after herding. Herding durations ranged from 8 to 26 minutes with an average duration of 14 minutes. Rest durations (after herding) ranged from 4 to 26 minutes with an average duration of 12 minutes (Appendix 1).

Environmental Conditions

The following environmental conditions were monitored prior to the herding of fur seals: air temperature, wind speed, wind direction, weather conditions, and degree of wetness of grass. Air temperatures ranged from 45.0°F to 55.0°F, with an overall average temperature of 51.0°F. Wind speed varied from 1-3 mph to 13-18 mph with an overall average wind speed of 6-10 mph. Degree of wetness of the grass at each harvest area was estimated and recorded; wet grass is

believed to be an important cooling factor for fur seals. The grass was either damp or wet at each of the killing fields (Appendix 1).

Health Condition of Seals

The health condition of harvested seals was evaluated by measuring the deep body core temperature, examining the viscera and carcass, and by measuring the body length and blubber thickness. Deep body core temperatures were measured for approximately 27% - 83% of harvested seals during each harvest. Individual fur seal temperatures ranged from 93.5°F to 104.6°F with an overall average temperature of 100.8°F. No cases of mortality due to hyperthermia were observed during the season (Table 2). All harvested seals appeared to be healthy based on visual inspections of the viscera and carcass. No pelts were observed with oil contamination. Body length measurements, blubber thickness, and canine teeth were collected from 230 fur seals (74% of total harvested). Body length measurements and blubber thickness were collected to assess body condition of harvested seals. Body length was measured using a metal caliper placed over the animals, measuring from the tip of the nose to the tip of the tail, to the nearest 0.5 centimeter. The minimum body length measured was 93.5 cm, the maximum body length was 127.0 cm, and the average body length was 106.0 cm. Three sub-adult male fur seals greater than 124.5 cm in length were harvested this season. These three seals were determined to be 4 years old (see Appendix 2). Blubber thickness was measured where the chest was cut open using a small ruler to the nearest millimeter. Body length and blubber thickness measurements were recorded in a field notebook with an associated sample number. A ziplock bag labeled with the sample number was then inserted into the animal's mouth. Once the seals had been butchered, the heads with ziplock bags were collected and the jaws removed. Jaws were inserted into the numbered bags and later boiled to extract the upper canine teeth. Canines were visually inspected for growth rings to estimate the age of individual animals and to assess length-at-age (Appendix 2). Teeth were aged independently by ECO staff in St. Paul and then shipped to MML for validation and archival.

Table 2. Date, location, average deep body core temperature, and number of hyperthermic seals during the northern fur seal subsistence harvest on St. Paul Island, Alaska in 2016.

Date	Location	Average Deep Body Core Temperature (°F)	Number of Hyperthermic Seals
23 June	Big Zapadni	99.8	0
01 July	Polovina	100.9	0
15 July	Polovina	100.4	0
21 July	Big Zapadni	102.8	0
22 July	Polovina	99.8	0
29 July	Lukanin	100.4	0
29 July	Polovina	100.4	0
04 August	Big Zapadni	100.7	0
05 August	Polovina	100.7	0
08 August	Gorbatch	-	0
08 August	Big Zapadni	102.1	0

Number of Entangled and Flipper-Tagged Seals

No male fur seals with entangling debris or tags were harvested. One entangled male fur seal was observed this season. The seal was disentangled and released on 04 August at Big Zapadni. Three flipper-tagged fur seals were observed this season. Two sub-adult male seals with white Allflex narrow flipper tags numbered 3952E on the left front flipper and 2764E on the left front flipper were sighted in a pod and released on 23 June at Big Zapadni. The right flippers of these two animals were not observed to determine whether the other tags were present. One sub-adult male seal with white Allflex narrow flipper tags numbered 3734E on both flippers was observed on 08 August at Big Zapadni.

Utilization of Fur Seal Parts

Whiskers, ears, and teeth were collected by community members during this year's harvest for the creation of arts and crafts. The ACSPI also salvaged esophagus and 90 pelts for arts and crafts. The harvest was not accomplished in a wasteful manner under §216.71(b).

Biological Sample Collection

Since 2014 ECO has been collecting blubber and liver samples for long term banking in the NMMTB through the Alaska Marine Mammal Tissue Archival Project (AMMTAP) for

retrospective contaminant analysis. ECO staff collected 300 g samples of blubber and liver from eight harvested fur seals. Samples were collected from one animal per harvest day, except for 08 August (see Appendix 2). Samples were processed immediately on island, packaged into Teflon jars, labeled, and stored in a -80°C freezer. Samples were then shipped in a dry shipper to Hollings Marine Laboratory in Charleston, S.C. for long term banking. AMMTAP will report scientific information resulting from analysis of tissues back to ECO. In addition to blubber and liver samples ECO staff collected fur, blood, and whiskers for MML from the same eight animals. A Memorandum of Agreement (MOA) was entered with Ms. Tonya Zeppelin with MML for the collection of these samples. ECO collected the samples, processed the blood, labeled the samples, and stored the samples in ECO's -80°C freezer until Ms. Zeppelin obtained the samples. Whiskers and blood will be used to look at variation in stable isotopes between haulouts to determine feeding location of the sub-adult males throughout the year and to look at feeding locations throughout the animal's lifespan. Fur and blood will be used to characterize the prevalence of mercury in the northern fur seal population on St. Paul Island. Per the MOA with Ms. Zeppelin, she will provide ECO with an annual report of the results of the analysis of the tissues collected. Any questions regarding this research project should be addressed to Ms. Zeppelin (tonya.zeppelin@noaa.gov).

Harvest-Viewing Permit Program

The ACPSI has a tribal ordinance that requires non-tribal members, except those who are legally married to a tribal member, to obtain a permit to observe the fur seal harvest. The ACSPI issued a total of 33 permits to non-tribal members this harvest season.

DISCUSSION

The current regulations limit the harvest of fur seals to a short 47-day period between June 23 and August 8. Subsistence harvest opportunities thus overlap with the local halibut fishing season that many community members rely on for their livelihood. As many families rely on both resources, they currently must choose between earning income from fishing or obtaining fur seal meat as food. This reality has forced many community members who are experienced sealers to sacrifice sealing to pay bills. However, not just anyone can harvest fur seals. The regulations stipulate that "no fur seal may be taken except by experienced sealers". This requirement makes it difficult to schedule harvests and restricts the teaching of new and young

harvesters based on the availability of experienced sealers to both participate and train. Furthermore, in recent years our community has observed rapid and dramatic changes in the distribution and abundance of fur seals, which has forced the ACSPI to alter and adapt subsistence harvests to meet subsistence needs. The fact is that St. Paul, the Pribilofs, and the Bering Sea are center stage for climate change. Our community members are constantly adapting to increasing unpredictability in subsistence resources on which they base their survival.

This harvest season the ACSPI had to cancel six harvests due to lack of experienced sealers, and had to conduct seal harvests at multiple haulout sites in a single day on two occasions (29 July and 08 August) to fulfill the community's subsistence needs due to low densities of sub-adult (1-3 years old) male seals. On 29 July, the ACSPI held a harvest at Lukanin but had to conduct an additional harvest at Polovina to fulfill the request for seals that day. On 08 August, the ACSPI attempted to hold a harvest at Gorbach, but had to release the rounded up seals and move to another location due to lack of sub-adult males and proportionally high numbers of older larger males (which are prohibited from being taken under the regulations, see §216.72(e)(5)). Furthermore, the average air temperature this harvest season was 51.0°F. Air temperature is an important factor to consider when scheduling harvest activities. The regulations require that the scheduling of the harvest must be such as to minimize stress (including heat stress) to harvested animals. Warm air temperature is one of the predisposing factors for overheating in fur seals, which can lead to hyperthermia and possibly death. To prevent fur seal mortality due to hyperthermia during harvest activities harvests should be canceled if the air temperature is 55°F or higher. Harvests should also be canceled if the air temperature is 50°F or higher with no wind. According to weather history for St. Paul Island from Weather Underground (www.wunderground.com) the average mean temperatures during the 2014 - 2016 harvest seasons (June 23 to August 8) were warmer compared to previous year's during the same period (Figure 1). Although no harvests this season were canceled due to warm air temperatures, the increasing trend in recent years may make it more difficult for our community to alter and adapt subsistence harvests within the inflexible harvest regulations established over 30 years ago during the short summer season to meet subsistence needs. In addition, higher air temperatures and long or difficult drives between the hauling ground and killing field also increases the probability of overheating during the harvest, such that harvests

may be concentrated at fewer locations rather than being spread more evenly across the population.

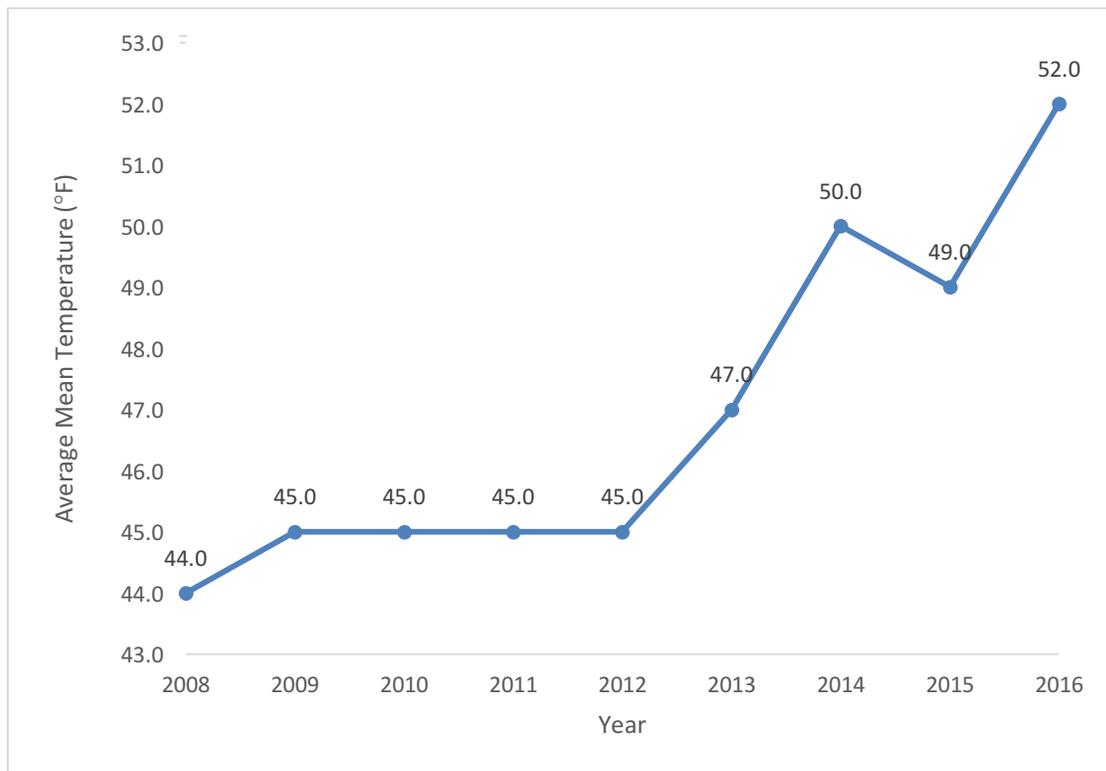


Figure 1. Average mean temperatures (°F) recorded during the harvest season (June 23 to August 8) from 2008 - 2016 on St. Paul Island, Alaska.

CONCLUSION

In conclusion, ten harvests were conducted this season with a total of 308 sub-adult male fur seals harvested, and one female accidentally struck and killed. No cases of mortality due to hyperthermia were found, no inhumane acts were observed during the harvest, and the harvest was not accomplished in a wasteful manner in 2016.

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