

**The Subsistence Harvest of
Sub-Adult Laaquadan (Northern Fur Seals) on
St. Paul Island, Alaska in 2018**

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by

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INTRODUCTION

Laaqudan or northern fur seals (*Callorhinus ursinus*) are a vital resource for Unangan (Aleut people) of St. Paul Island, Alaska. The National Marine Fisheries Service (NMFS) manages the subsistence harvest of laaqudan 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 laaqudan 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 current regulations restrict subsistence harvest to sub-adult male seals less than 124.5 cm (approximately 2-4 years old) during a 47-day harvest season (June 23 to August 8). The subsistence harvest has occurred annually since 1985 with few modifications of 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 laaqudan and qawan (Steller sea lions) on St. Paul Island. The agreement includes roles and responsibilities of the ACSPI and NMFS in co-managing the subsistence harvest of laaqudan. The regulations and agreement are in the process of being revised to reflect the co-management process established under the MMPA and greater responsibility of the ACSPI to manage subsistence use and conserve laaqudan. 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 laaqudan as an important element of our co-management agreement with NMFS. Subsistence harvest reports can be found online at <https://www.fisheries.noaa.gov/alaska/marine-mammal-protection/northern-fur-seal-subsistence-harvest-estimates-and-reports>. In this report, the ACSPI describes how the Unangan of St. Paul Island have complied with the current federal regulations while conducting subsistence use activities in 2018.

METHODS

The subsistence harvest method involves organized herding of sub-adult male laaquadan. At a specific haulout area, five to ten volunteers quickly form a line along the shore to prevent laaquadan from escaping to the ocean. The round-up crew then gathers male laaquadan by driving them from their haulout areas inland to a specific killing field where they are held in a large group. Five to ten laaquadan are then separated from the large group and guided to a group of three to four volunteers who stun the laaquadan by hitting them on the skull or upper neck with a solid wooden club. The laaquadan are brought a short distance away from the killing area where the chest is immediately cut open and heart pierced, allowing exsanguination and a humane death. Laaquadan 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; Zimmerman and Melovidov, 1987; and Spraker, 1987-2010.

The 2018 harvests were scheduled to occur once or twice per week beginning on June 29 and ending on July 31. The ACSPI scheduled the last harvest on July 31 to avoid accidental taking of females that is more likely to occur after August 1 (ECO, unpubl. data). The ACSPI accepts requests for laaquadan for a period of one week before the scheduled day of the harvest, and concluding before the roundup of sub-adult males from the haulout. The ACSPI's Ecosystem Conservation Office (ECO) staff work with a harvest foreman and volunteers to fulfill the community requests for the week's harvest. ECO monitored and performed the humane observer functions for the subsistence laaquadan harvest for the ACSPI in accordance with the co-management agreement with NMFS (NMFS, 2000). In 2018 the subsistence harvest of laaquadan occurred during eight harvest events beginning on June 29 and ending on July 31, 2018.

RESULTS

Number and Sex of Harvested Animals

ECO staff make every effort to sex all harvested laaquadan during the skinning and butchering process. A total of 224 sub-adult male laaquadan were harvested on St. Paul Island from four different haulout areas (Table 1). One female laaquadan was accidentally struck and killed. No other mortality occurred during this year's harvest season. No haulout was harvested more than once per week (Appendix 1).

Table 1. Date, location, and number of male and female laaquadan killed during the subsistence harvest on St. Paul Island, Alaska in 2018.

Date	Location	Number Males Killed	Number Females Killed
29 June	Big Zapadni	15	0
6 July	Polovina	14	0
13 July	Big Zapadni	23	0
20 July	Polovina	39	0
27 July	Lukanin	30	1
30 July	Polovina	39	0
31 July	Big Zapadni	37	0
31 July	Zapadni Reef	27	0
Total		224	1

Harvest and Weather Conditions

Laaquadan were gathered between 08:50 and 09:14 am during seven of the harvests this season. On 31 July, a second haulout location was harvested with laaquadan gathered between 10:46 and 10:59 am. Drive durations ranged from 7 to 20 minutes with an average duration of 12 minutes (Appendix 1). Rest durations after herding ranged from 5 to 21 minutes with an average duration of 13 minutes (Appendix 1). To avoid mortality from hyperthermia, laaquadan were driven slowly and given adequate rest following herding towards the killing field. The resting duration was determined based on the behavioral signs of laaquadan held in the herded group; once laaquadan do not exhibit early signs of hyperthermia (e.g., flipper fanning, open mouth breathing, and lying down), subsequent harvest activities commenced.

The following weather conditions were monitored prior to each harvest: air temperature, wind speed, wind direction, and grass conditions. Air temperatures were measured before laaquadan were herded and ranged from 45° F to 48° F, with an average temperature of 47° F. Wind speed varied from 1-3 mph to 19-24 mph with an average wind speed of 10-14 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 laaquadan. The grass was damp or wet at each of the killing fields during all harvests (Appendix 1).

Biological Sample Collections

ECO staff collected samples from a proportion of total harvested laaquadan to assess body

condition and contaminant loads. The following samples and measurements were collected: canine teeth, vibrissae, body length, blubber thickness, blubber, liver, blood, muscle and fur. Canine teeth were collected for age estimation. Vibrissae were archived for future stable isotope analysis to assess seasonal feeding trends pending additional funding. Body length and blubber thickness measurements provide information on sub-adult male laaquadan body condition, including length-at-age (estimated from the collected teeth). Blubber and liver samples were collected for the Alaska Marine Mammal Tissue Archival Project (AMMTAP), an interagency project involving the collection, archival and analysis of tissues from marine mammals from Alaska for retrospective research on contaminant levels and animal health. Blood, muscle, and fur were collected for Dr. Lorrie Rea (Research Professor, Water and Environmental Research Center, UAF) to assess mercury concentrations in sub-adult male laaquadan.

Canine teeth and vibrissae were collected from 205 laaquadan, body length measurements were collected from 207 laaquadan, and blubber thickness measurements were collected from 160 laaquadan during this year's harvest season. The teeth were aged independently in St. Paul and sent to the Marine Mammal Laboratory (MML) for aging and archival in early October. In March 2019 MML was reviewing and aging the teeth received from the 2018 St. Paul harvest and identified a female based on the teeth. The female was harvested at Lukanin on July 27, 2018. Based on this finding the 2018 harvest report has been revised.

The overall laaquadan length statistics were as follows: the minimum length was 93.5 cm, the maximum length was 126.5 cm, and the average length was 107.0 cm. Blubber and liver samples were collected from five harvested laaquadan (Appendix 1). Samples were processed immediately in the NOAA laboratory facility following the *Tissue Sampling Protocol for the National Marine Mammal Tissue Bank* (Becker et al. 1999). Samples were shipped to Hollings Marine Laboratory in Charleston, S.C. for long term storage in early October. Blood, muscle and fur were collected from 20 harvested laaquadan, including from 5 laaquadan sampled for blubber and liver. ECO staff processed all samples immediately after each harvest in the NOAA lab following the appropriate protocol. Samples will be archived in ECO until they can be shipped to Dr. Lorrie Rea for analysis.

Entangled and Flipper-Tagged Animals

One entangled male laaquadan was observed during the harvest season. The animal was captured, disentangled and released (Appendix 1). ECO staff completed and submitted a Level A

form for this animal to the NMFS Alaska Regional Stranding Coordinator and Technical Monitor.

Three tagged sub-adult males were observed during the harvest season. One tagged male (4927E both flippers) was sighted at Big Zapadni on 13 July and two tagged seals (5261E both flippers and 0830X both flippers) were sighted at Zapadni Reef on 31 July. All tag numbers were read by at least two people and recorded by ECO staff in the field prior to the animals being released (Appendix 1).

Utilization of Animal Parts

Some laaquadan pelts, esophagus, whiskers, bones and teeth were taken for the creation of arts and crafts on St. Paul Island during this year's harvest. The harvest was not accomplished in a wasteful manner under §216.71(b).

Harvest-Viewing Permits

The Aleut Community of St. Paul Island 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 laaquadan harvest. The ACSPI issued a total of 50 permits to non-tribal members this harvest season. All permits were completed by ACSPI staff and verified before harvest activities commenced by ECO staff.

DISCUSSION

This report has been revised to include the one female laaquadan accidentally struck and killed. In the future ECO will mark laaquadan while sexing during the skinning and butchering process to ensure that 100% of harvested laaquadan are sexed. ECO will also create a process for verifying teeth to identify female teeth prior to shipping the teeth to MML as a quality control measure.

In recent years our community has observed rapid and dramatic changes in the distribution and abundance of laaquadan. Since 1998 pup production on St. Paul Island has declined by 57.7%, or at an annual rate of 4.09% (SE = 0.34; Towell et al. 2018). In comparison, harvests of laaquadan on St. Paul Island have declined by 82.6% (Figure 1) since 1998. The reasons for the recent decline in pup production are poorly understood and the identification of factors that may influence laaquadan population dynamics are a high priority for resource managers at both the

local and regional levels. As the primary customary/ traditional users of laaqudan and qawan in the Bering Sea region, the ACSPI is committed to long term sustainable use of these animals for cultural continuity, food, clothing, arts and crafts.

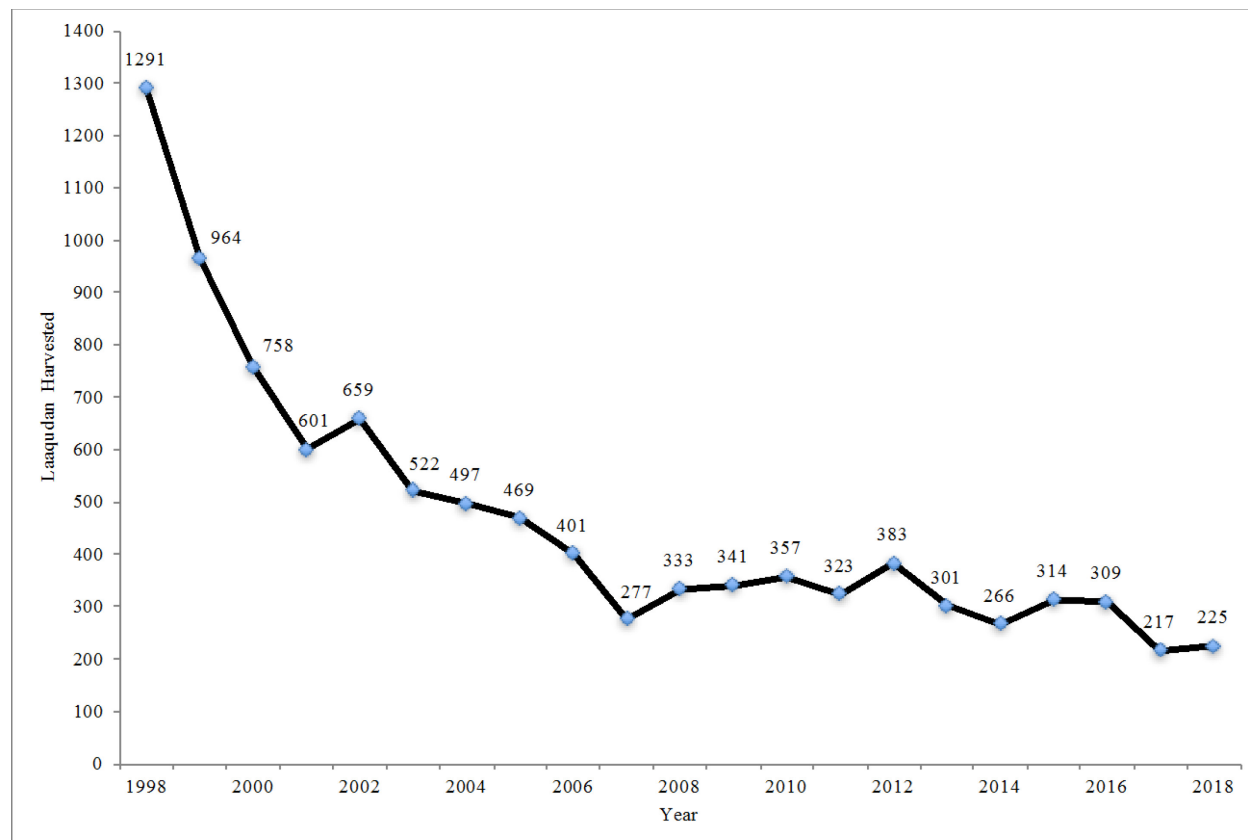


Figure 1. Subsistence harvests of laaqudan, St. Paul Island, Alaska, 1998 – 2018.

CONCLUSION

In summary, eight harvests were conducted during the 2018 harvest season. This was the first year that ACSPI concluded harvests on 31 July to avoid accidentally taking females that tends to occur after August 1; the community expressed support for this action. A total of 224 sub-adult male laaqudan were harvested, and one female accidentally struck and killed. Zero cases of mortality due to hyperthermia occurred, no inhumane acts were observed during the harvest, and the harvest was not conducted in a wasteful manner.

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APPENDIX

Appendix 1. Laaquadan harvest monitoring log for St. Paul Island, Alaska in 2018. All samples were collected in accordance with NMFS Permit 19436.

Harvest Counts									
Harvest Date	Harvest Location	SAMs Harvested	SAMs Released	Females Stunned	Females Killed	Adult Males Stunned	Adult Males Killed	Adult Males Released	Heat Strokes
29-Jun-18	Big Zapadni	15	63	0	0	0	0	0	0
6-Jul-18	Polovina	14	325	0	0	0	0	0	0
13-Jul-18	Big Zapadni	23	133	0	0	0	0	0	0
20-Jul-18	Polovina	39	217	0	0	0	0	0	0
27-Jul-18	Lukanin	30	125	0	1	0	0	6	0
30-Jul-18	Polovina	39	227	0	0	0	0	0	0
31-Jul-18	Big Zapadni	37	113	0	0	0	0	0	0
31-Jul-18	Zapadni Reef	27	203	0	0	0	0	0	0

Harvest Conditions						
Harvest Date	Harvest Location	Temp (F)	Wind Speed	Wind Direction	Weather Conditions	Grass Condition
29-Jun-18	Big Zapadni	45.0	8-12 mph	W	overcast/ fog/ mist	damp
6-Jul-18	Polovina	46.0	1-3 mph	SE	overcast/ fog/ mist	wet
13-Jul-18	Big Zapadni	46.0	8-12 mph	W	overcast/ drizzle	wet
20-Jul-18	Polovina	48.0	8-12 mph	E	overcast	damp
27-Jul-18	Lukanin	45.0	8-12 mph	SE	drizzle/ fog/ mist	wet
30-Jul-18	Polovina	48.0	19-24 mph	SE	overcast/ fog/ mist	damp
31-Jul-18	Big Zapadni	48.0	13-18 mph	S	drizzle/ fog/ mist	damp
31-Jul-18	Zapadni Reef	48.0	13-18 mph	S	drizzle/ fog/ mist	wet

Harvest Conditions								
Harvest Date	Harvest Location	Harvest Start Time	Harvest End Time	Drive Start Time	Drive End Time	Drive Duration (min)	Pod 1 Start Time	Rest Duration (min)
29-Jun-18	Big Zapadni	8:31	10:36	8:54	9:01	0:07	9:22	0:21
6-Jul-18	Polovina	8:34	11:00	8:56	9:04	0:08	9:23	0:19
13-Jul-18	Big Zapadni	8:44	10:35	8:58	9:14	0:16	9:25	0:11
20-Jul-18	Polovina	8:42	11:00	8:57	9:06	0:09	9:18	0:12
27-Jul-18	Lukanin	8:42	10:58	8:50	9:10	0:20	9:24	0:14
30-Jul-18	Polovina	8:34	10:43	8:50	9:04	0:14	9:09	0:05
31-Jul-18	Big Zapadni	8:35	10:30	8:51	9:05	0:14	9:18	0:13
31-Jul-18	Zapadni Reef	10:32	12:10	10:46	10:59	0:13	11:10	0:11

Entanglement Counts and Tagged Seals								
Harvest Date	Harvest Location	SAMs Entangled	SAMs Disentangled	SAMs Scarred	SAMs Tagged	Adult Males Entangled	Adult Males Disentangled	Adult Males Scarred
29-Jun-18	Big Zapadni	0	0	0	0	0	0	0
6-Jul-18	Polovina	2	0	0	0	0	0	0
13-Jul-18	Big Zapadni	0	0	0	1	0	0	0
20-Jul-18	Polovina	1	1	0	0	0	0	0
27-Jul-18	Lukanin	0	0	0	0	0	0	0
30-Jul-18	Polovina	0	0	0	0	0	0	0
31-Jul-18	Big Zapadni	0	0	0	0	0	0	0
31-Jul-18	Zapadni Reef	0	0	0	2	0	0	0

Biological Sample Collections (AMMTAP)							
Harvest Date	Harvest Location	Biosample ID Number	Sample Number	Sample Type	Sample Amount (g)	Sample Count	Sampler Initials
29-Jun-18	Big Zapadni	SNPNFS1801	-	Blubber	-	-	-
29-Jun-18	Big Zapadni	SNPNFS1801	-	Liver	-	-	-
6-Jul-18	Polovina	SNPNFS1802	28	Blubber	181	2	APL
6-Jul-18	Polovina	SNPNFS1802	-	Liver	-	-	-
13-Jul-18	Big Zapadni	SNPNFS1803	51	Blubber	309	2	APL
13-Jul-18	Big Zapadni	SNPNFS1803	51	Liver	319	2	APL
20-Jul-18	Polovina	SNPNFS1805	87	Blubber	306	2	APL
20-Jul-18	Polovina	SNPNFS1805	87	Liver	316	2	APL
27-Jul-18	Lukanin	SNPNFS1807	118	Blubber	295	2	APL
27-Jul-18	Lukanin	SNPNFS1807	118	Liver	324	2	APL
30-Jul-18	Polovina	SNPNFS1808	148	Blubber	279	2	APL
30-Jul-18	Polovina	SNPNFS1808	148	Liver	306	2	APL
31-Jul-18	Big Zapadni	SNPNFS1809	-	Blubber	-	-	-
31-Jul-18	Big Zapadni	SNPNFS1809	-	Liver	-	-	-
31-Jul-18	Zapadni Reef	SNPNFS1810	-	Blubber	-	-	-
31-Jul-18	Zapadni Reef	SNPNFS1810	-	Liver	-	-	-