United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Kodiak National Wildlife Refuge
1390 Buskin River Road Kodiak, Alaska 99615-0323
(907) 487-2600

Federal Subsistence Activity Report
Kodiak National Wildlife Refuge, September 2021 – January 2022

Subsistence Permit Summary

Federal subsistence regulations afford opportunity for rural residents of the Kodiak area to harvest Sitka black-tailed deer, Roosevelt elk, and brown bear on Kodiak Refuge lands. Harvest opportunity for bear is restricted to residents of selected village communities. In complement, federal subsistence regulations afford opportunity to harvest fish and shellfish. Most fish permittees target sockeye and coho salmon of inshore marine waters under jurisdiction of Alaska Maritime Refuge. Federal subsistence permits can be obtained at the Refuge's headquarters office. Permittees are required to carry their Federal subsistence permits, current state licenses, harvest tickets (deer), and locking tags (bear) while hunting or fishing.

Table 1. Federal subsistence permits issued and reported harvest (#), Kodiak Area, 2012-2021 regulatory years.

Species	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22[2]
Bear	4 (0)	3 (0)	6 (3)	3 (0)	3 (1)	0 (0)	1 (0)	2 (1)	1 (1)
Deer[1]	46 (21)	48 (39)	39 (51)	50 (66)	66 (15)	25 (12)	40 (19)	45 (19)	32(0)
Elk	5 (2)	9 (1)	4 (2)	6 (0)	7 (1)	8 (0)	5 (1)	11 (5)	19 (3)
Fish	8 (36)	20 (117)	19 (63)	51(241)	56 (560)	30 (55)	43 (153)	28 (222)	18 (104)

[1]Multiple deer eligible to be harvested per permit.
[2]Preliminary permits issued and harvest reported.

Brown Bear

Population Assessment

As reported previously, 2021 surveys were completed for two of eight regional monitoring areas on Kodiak Island. Results indicated that the abundance of bears observed in the Kiliuda unit was within the target range for regional management objectives; however, bear abundance was not within target range in the nearby Shearwater unit. These results along with management recommendations are described in a recently issued agency report. Recommendations for Shearwater are twofold: resurvey it within three years and, to increase survival of adult females, consider instating a skull size minimum for allowable harvest of females without dependent young. Plans for 2022 cooperative surveys of bear abundance and composition have been formulated. Goals include late May survey of abundance in two regional areas (Spiridon and Terror units), and summer survey of composition and productivity in selected salmon streams where bears congregate in SW Kodiak Island.

Bear-Berry Monitoring

Primary focus the last few months has been management of the 2021 dataset and analysis of the long-term dataset (2015-2021). Some preliminary analysis has been completed and comprehensive results will be forthcoming in spring. We will provide the Council with highlights of results at its next 2022 meeting. Meanwhile, plans have been set for continued monitoring fieldwork in 2022.

Sitka Black-tailed Deer

Preliminary assessment suggests that winter 2021-2022 weather conditions could decrease rates of over-winter survival, particularly of fawns, in western Kodiak Island. This assessment is based on observation of early onset of exceptionally cold weather (mid-November) coupled with periodic occurrence of ice ground cover restricting access to forage. The last severe winter and substantial over-winter mortality occurred in western and northern Kodiak Island in winter 2019-2020. Archipelago deer populations are regulated primarily by variation in winter severity.

Mountain Goat

In 2021, biologists with the ADF&G surveyed approximately 15% of known goat summer range on Kodiak Island during August. Of the 562 goats counted, 456 were adults and 106 were kids. The ADF&G issued 308 drawing permits and 1,257 registration permits. To date (19 Jan 2022), 103 goats have been harvested by drawing hunts, and 139 goats have been harvested by registration hunt. Some additional harvest may occur in registration hunt 480 before the March 31 close of the hunting season.

Northern Sea Otter

The Service's Marine Mammal Division provided the following hunter harvest data for the Kodiak Area.

Table 2. Native Alaska hunter harvest of northern sea otter by village community and calendar year in Kodiak Area, 1989-2021.

Village	1989-2016	2017	2018	2019	2020	2021	Total
Afognak	0	8	7	2	3	0	20
Akhiok	4	0	0	1	0	0	5
Kodiak	1,248	51	14	39	10	47	1,409
Larsen Bay	259	4	11	0	0	0	274
Old Harbor	171	4	0	1	2	1	179
Ouzinkie	40	112	262	19	29	0	462
Port Lions	667	32	58	10	25	0	792
Total Kodiak	2,389	99	90	53	69	48	2,748
Total Statewide	24,651	1,543	1,560	1,626	1,207		31,111

Migratory Birds

Aleutian and Arctic Tern Research

Jill Tengeres, graduate student at Oregon State University, and Kodiak NWR Bird Biologist Robin Corcoran will present results from the Kodiak Archipelago Aleutian and Arctic tern monitoring and research program at the annual Pacific Seabird Group (Virtual) Meeting from 23-25 February 2022. Jill will present "What factors influence the daily nest survival rates of Aleutian Tern (*Onychoprion aleuticus*) nests on Kodiak Island, Alaska?"

Common Murre Die-off of 2015-2016

Kodiak NWR Bird Biologist Robin Corcoran recently published an article in the Wilson Journal of Ornithology (WJO) "Common Murre (*Uria aalge*) die-off in the Kodiak Archipelago, Alaska, April 2015–April 2016". The article presents an estimate of the number of dead murres that washed ashore on beaches adjacent to the city of Kodiak and details a massive inshore movement of common murres just prior to the die-off. The increase in common murre density close to shore is based on analysis of the June and August Kodiak NWR nearshore marine bird and mammal survey data and is the first to quantify increases in nearshore density prior to a seabird die-off event, something that has been noted anecdotally prior to several previous die-offs. The article is available on-line at: https://meridian.allenpress.com/wjo/article-abstract/133/1/136/468900/Common-Murre-Uria-aalge-die-off-in-the-Kodiak?redirectedFrom=fulltext.The article was also featured on the WJO blog at: https://wilsonsociety.org/2021/12/13/guest-post-documenting-a-seabird-die-off/.

Nearshore Marine and Mammal Bird Surveys

We are currently recruiting interns to assist with the June and August 2022 re-survey of the west side of Kodiak Island from Viekoda Bay southwest to Ayakulik Island. This region was previously surveyed in 2013 and 2016.

Tufted and Horned Puffin Research

Kodiak NWR is partnering with Oregon State University Department of Fisheries, Wildlife, and Conservation Sciences (PhD student Katie Stoner working with advisor Dr. Don Lyons) to initiate a new research project focused on puffins, populations of which might be declining in the Gulf of Alaska. We plan to use an extensive existing dataset collected by Kodiak NWR to compare survey methodologies, estimate trends, and evaluate marine space use of tufted and horned puffins breeding in the Archipelago. We also plan to deploy geolocation devices and analyze tissue samples to collect new data on non-breeding distributions and diet to inform threats to species persistence.

Kodiak and Narrow Cape/Kalsin Bay Christmas Bird Counts

Several members of the Kodiak NWR staff participate in the two Citizen Science Christmas Bird Counts (CBC) held annually along the road system adjacent to the city of Kodiak. The Kodiak count circle, which extends from Monashka Bay in the north to Mayflower Beach in the south has been run continuously for 49 years. The Kodiak NWR refuge research vessel, the Ursa Major II, staff, and volunteers survey the marine waters of Chiniak Bay for this count, and many other refuge staff lead and participate in upland birding groups. Typically, the Kodiak CBC has the highest species diversity in the state of Alaska, as well as some of the highest participation

levels (often 70-80 people). The Narrow Cape/Kalsin Bay CBC held two weeks after the Kodiak CBC is a much smaller effort, with only 15-25 participants. This circle extends from Cape Chiniak and Kalsin Bay on the north, south to Narrow Cape and Pasagshak Bay, and has been run continuously for 41 years. For the third year in a row Kodiak NWR Bird Biologist Robin Corcoran has been the organizer/compiler for the Narrow Cape/Kalsin Bay CBC. The CBCs offer an interesting one-day snapshot of wintering bird populations in our region and contribute data to a continent-wide program which currently has over 2500 active counts each year. Christmas Bird Count data are publicly available at: https://netapp.audubon.org/CBCObservation/

Salmon Fisheries

Please note that results of salmon counts presented below were provided by the Alaska Department of Fish and Game (ADF&G).

Western Area

Although the Karluk River did not meet its lower escapement goal for the early-run (128,423 fish) in 2021, reports from subsistence users indicated that they were able to meet their harvest along the western coast from Uyak Bay down to Halibut Cove. The Olga Bay district recorded a strong sockeye salmon return for the almost the entire year. Frazer and Upper Station recorded escapement counts above the upper escapement goal, early and late runs (Upper Station).

Escapement of Chinook salmon to the Karluk River was below the lower escapement goal for the first time since 2017. Returns of Chinook salmon to the Ayakulik River failed to meet the lower escapement goal for the fifth consecutive year. In response, the ADF&G has continued to implement conservation measures including a requirement of commercial salmon fishers to return unharmed to the ocean any Chinook salmon caught that exceed 25 inches and, in rivers, to disallow harvest of Chinook salmon by recreational sport anglers.

Northern Area

In the Afognak Lake (Litnik) drainage, sockeye salmon returns totaling 31,997 fish met the escapement goal (20,000 to 50,000 fish). The sockeye salmon returning to the Buskin River system was very poor, 2,273 fish. Subsistence users had to travel to other areas such as Pasagshak, Litnik, Ouzinkie, or Port Lions, to meet their subsistence sockeye needs.

Akalura Creek Salmon Escapement Monitoring

The Refuge initiated this survey in 2015 in response to concern about trend of diminished escapement and availability of sockeye salmon for human and brown bear subsistence. In 2021, monitoring started on June 14 and concluded on September 25. This project includes a combination of automated time-lapse photography and video to document fish passing over panels mounted on the stream substrate. In the office, salmon are enumerated from time-lapse digital images and associated video is used to calibrate time-lapse counts. The data from 2021 is currently being analyzed by a biometrician. Results will be reported at the Council's next meeting. We plan to continue monitoring escapement to Akalura Lake in 2022.

Table 3. Estimated escapement of late-run sockeye salmon to Akalura Lake, Kodiak Island, 2015-2020.

Year	Escapement	Lower CL1	Upper CL[1]
2015	22,404	18,961	26,369
2016	32,869	26,762	37,220
2017	6,259	5,256	7,685
2018	5,461	4,683	6,290
2019	2,080	1,668	2,665
2020	344	270	467

[1]Confidence limit

Education, Outreach, and Other Noteworthy Activity

Alaska Migratory Bird Calendar Contest

The 2022 calendar has recently been released featuring the theme "Bird in Languages and Stories". Calendars have been mailed to all rural school and homeschool students and were mailed to Tribal Councils and other organizations the week of January 18. The contest theme for the 2023 calendar has been announced, which is "Fill Your Bill: The Neat Beaks of Alaska's Migratory Birds".

Kodiak Refuge Science and Summer Salmon Camp

In 2021, we were not able to deliver Salmon Camp, the long-running environmental education program, in person. To bridge this gap, Shelly Lawson (USFWS Education Specialist) and Amy Peterson (Community Affairs Liaison) coordinated with rural school teachers to provide monthly nature-themed lessons - including related science and art supplies to teachers and homeschool families. All rural school classrooms and remote homeschool families were included. Lesson topics varied from owls, swans to trees and more. We plan to continue offering monthly programs throughout the school year.

Programs in the Road System of Kodiak

The Kodiak Refuge provided free, weekly environmental education programs outdoors, in person from June-August. These programs were created and led by a variety of USFWS permanent staff, seasonal staff and volunteers. Some events included partners such as a program on invasive species featuring interactive booths hosted by KANA, Sun'aq Tribe of Kodiak, UAF Marine Advisory Agents, Soil and Water Conservation District and others. September through November, we transitioned from providing in person programs to providing free weekly kits for families to take home. In December, due to a decrease in staffing, we switched to providing education kits monthly instead of weekly and plan to continue this through the school year.

Update on Refuge Personnel Vacancies

We are pleased to announce the hiring of Fallon Windsor as the Administrative Support Assistant, and Natalie Velez-Suarez as Wildlife Refuge Specialist (new position). Though Fallon will work primarily as travel arranger for FWS employees in the Alaska, she also will serve as the go-to person for federal subsistence permitting at the Refuge. As Wildlife Refuge Specialist, Natalie will assist a wide array of refuge management activities in addition to periodically providing support to biological monitoring projects.