YUKON-KUSKOKWIM DELTA SUBSISTENCE REGIONAL ADVISORY COUNCIL

Meeting Materials

October 6-8, 2021
via teleconference

What's Inside

On the cover...

Arctic fox shedding its long winter fur
Kigigak, AK

Yukon Delta NWR photo

What's Inside

YUKON-KUSKOKWIM DELTA SUBSISTENCE REGIONAL ADVISORY COUNCIL

BY TELECONFERENCE ONLY

October 6-8, 2021
Convening at 9:00 am daily

TELECONFERENCE: call the toll free number: 1-866-326-9183, then when prompted enter the passcode: 48576438.

PUBLIC COMMENTS: Public comments are welcome for each agenda item and for regional concerns not included on the agenda. The Council appreciates hearing your concerns and knowledge.

PLEASE NOTE: These are estimated times and the agenda is subject to change. Contact staff for the current schedule. Evening sessions are at the call of the chair.

AGENDA

*Asterisk identifies action item.

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   Vice-Chair (*New Chair*)

   Secretary (*New Chair*)
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   Chair's Report
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   John Andrew – 15 year award

   Retirement recognition for Robert Aloysius – 18 year award
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(Time limit of 15 minutes unless approved in advance)

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2021 Kuskokwim River Postseason Salmon Report (*USFWS/ADF&G*)

Bureau of Land Management (*Bonnie Million*)

Alaska Department of Fish and Game (*ADF&G*)

Office of Subsistence Management

12. Future Meeting Dates*

Confirm Winter 2022 meeting date and location 267

Select Fall 2022 meeting date and location 268

13. Closing Comments

14. Adjourn (*Chair***)**

To call into the meeting, dial the toll free number: 1-866-326-9183, then when prompted enter the passcode: 48576438.

Reasonable Accommodations

The Federal Subsistence Board is committed to providing access to this meeting for all participants. Please direct all requests special accommodation needs to Eva Patton, 907-444-4851, eva_patton@fws.gov, or 800-877-8339 (TTY), by close of business on September 28, 2021.

REGION 5
Yukon-Kuskokwim Delta Regional Advisory Council

Seat	Yr Apptd *Term Expires*	Member Name & Address	Represents
1	2020 ***2022***	**Henry Parks** *Nunapitchuk*	Subsistence
2	2020 ***2022***	**Norma T. Evan** *Marshall*	Subsistence
3	2006 ***2022***	**John W. Andrew** *Kwethluk*	Subsistence
4	2019 ***2022***	**Thomas G. Alstrom** **Vice Chair** *Alakanuk*	Commercial/Sport
5	2020 ***2023***	**Jacqueline K. Cleveland** *Quinhagak*	Subsistence
6	2020 ***2023***	**James C. Landlord** *Mountain Village*	Subsistence
7	2020 ***2023***	**Alissa Nadine Rogers** *Bethel*	Subsistence
8	2020 ***2023***	**Phillip K. Peter, Sr.** *Akiachak*	Subsistence
9	2020 ***2023***	**Wassilly B. Alexie** *Russian Mission*	Subsistence
10	2001 ***2021***	**Raymond J. Oney** **Chair** *Alakanuk*	Subsistence
11	2020 ***2021***	**Myron P. Naneng, Sr.** *Bethel*	Subsistence
12	2003 ***2021***	**Robert E. Aloysius** *Kalskag*	Subsistence
13	2018 ***2021***	**Richard B. Slats** **Secretary** *Chevak*	Subsistence

YUKON-KUSKOKWIM DELTA SUBSISTENCE REGIONAL ADVISORY COUNCIL

Meeting Minutes

Via Teleconference Due to Covid-19
March 3-4, 2021

Invocation

Richard Slats provided an invocation prior to the meeting.

Call to Order, Roll Call and Quorum Establishment

The meeting was called to order on Wednesday, March 3, 2021 at 9:00 a.m. Council members Raymond Oney, John Andrew, Richard Slats, and Thomas Alstrom were on teleconference. Excused absence for Council member Robert Aloysius. A quorum was established with 4 out of 5 seated Council members participating by phone. (At the time of the meeting the Council had eight vacant seats due to pending Secretarial appointments).

Attendees:

Via teleconference

- *Office of Subsistence Management, Anchorage*: Eva Patton, Pippa Kenner, Cory Graham, Tom Kron, Orville Lind
- *Federal Subsistence Board member*: Rhonda Pitka, Beaver
- *Orutsararmiut Native Council, Bethel*: Janessa Esquible, Danielle Lowry, Katie Russel
- *Kuskokwim River Intertribal Fish Commission*: Mary Peltola, Terese Schomogyi, *Bethel;* Kevin Whitworth, *McGrath*
- *Association of Village Council Presidents, Bethel*: Jennifer Hooper, Paige Jones
- *Native Community of Akiak:* Mike Williams, Moses Owens, Ivan Ivan, Robert Williams, James Nicholai
- *Organized Village of Kwethluk*: Evan Olick
- *Kwethluk Incorporated*: Chariton Epchook, Anthony Olick
- *Native Village of Alakanuk:* Gabriel Buster
- *Calista Corporation*: Mary Martinez
- *U.S. Fish and Wildlife Service, Yukon Delta National Wildlife Refuge, Bethel*: Boyd Blihovde, Ray Born, Chris Tulik, Aaron Moses, Gary DeCossas, Matt Donald

- *U.S. Fish and Wildlife Service, Togiak National Wildlife Refuge, Dillingham*: Kenton Moos, Andy Aderman
- *U.S. Fish and Wildlife Service*: Holly Carroll, *Anchorage*, Gerald Maschmann, Vince Mathews, *Fairbanks,* Frank Harris, *Kenai Field Office*, Hans Klausner, *Kodiak*
- *Bureau of Land Management, Anchorage*: Bonnie Million, Bruce Seppi
- *Bureau of Indian Affairs, Anchorage*: Glenn Chen
- *National Park Service, Anchorage* : Kim Jochum, Victoria Florey
- *Alaska Department of Fish and Game, Division of Wildlife Conservation Bethel:* Patrick Jones, *Palmer*; Mark Burch, *Anchorage*; Todd Rinaldi, *Commercial Fisheries Division*; Ben Gray, Nicholas Smith, *Anchorage*; Jeff Estensen, Deena Jalen, Sabrina Garcia, *Fairbanks, Sportfish Division,* John Chythlook, *Subsistence Division,* Alida Trainor, David Runfola, Chris McDevitt, *Fairbanks*
- *Yukon River Drainage Fisheries Association*: Serena Fitka, Catherine Moncrieff
- *North Pacific Fisheries Management Council*: Dr. Diana Stram, Anchorage
- *US Geological Survey Alaska Science Center:* Dr. Vanessa von Biela
- *Bering Sea Elders Group*: Melissa Johnson
- Jack Reakoff, *Wiseman*
- Bill Alstrom, *St. Mary's*
- Stanly Pete, *Nunam Iqua*
- Alissa Nadine Rogers, *Bethel*
- James Landlord, *Mountain Village*
- Carl Maxie, Sr., *Napaskiak*
- Phillip Peter, Sr. *Akiachak*

Review and Adopt Agenda

Motion by Mr. Andrew, seconded by Mr. Alstrom, to adopt the agenda as read with the following additions/changes: move NPS Individual Customary and Traditional Determination Permit Update to old business, and schedule all wildlife reports prior to discussion of Call for Wildlife Proposals. Add US Geological Survey report on Yukon Chinook Heat Stress and add North Pacific Fisheries Management Council report on Bering Sea Bycatch. The motion passed unanimously.

Review and Approve Previous Meeting Minutes

Motion by Mr. Alstrom, seconded by Mr. Andrew, to approve the October 6-7, 2020 meeting minutes. There were no edits. The motion passed unanimously.

Election of Officers

Due to the extensive vacancies, the Council decided to elect interim officers for this meeting and hold elections again at the fall meeting in anticipation of having full Council membership appointed at a later date.

Raymond Oney was elected Chair by unanimous vote.

Thomas Alstrom was elected as Vice Chair by unanimous vote.

Richard Slats was elected as Secretary by unanimous vote.

Council Member and Chair Reports

Richard Slats of Chevak reported that his community had been in lock down for a long time due to COVID-19. He had been having to conduct all meetings and business by teleconference for the many Councils, Committees and work he is involved in. Food security remains an issue of great concern for Chevak and even greater importance now with reduced cargo delivery of store bought foods to be able to get subsistence foods from the region. Climate change is causing more intense coastal storms and the lack of solid sea ice prevents the community from safely getting out to hunt for seals. Permafrost thaw is causing subsidence of the tundra and traditional berry picking areas are now becoming lowland marsh and filling in with water. Later freeze-up of lakes and rivers and later snow cover is a challenge for safely accessing subsistence resources by snow machine. They are fortunate this winter to finally get snow pack like they used to and the snow is welcomed. The snow helps greatly to travel by snow machine to the areas where they ice fish and hunt. The two rivers to the south of Chevak are very important for subsistence whitefish and pike. The snow also helps the ptarmigan and they are finally seeing ptarmigan in the area again.

Elders in Chevak have reported that the fish runs are late and low. Even Blackfish have not been at their usual abundance and the community pulled their Blackfish traps early this year. He feels the traditional knowledge of Elders is invaluable for understanding the environment and should be sought out at the outset because they know from generations of experience. Richard felt all too often researchers consult with the community as an afterthought and it should be at the forefront to help guide the research and address community concerns. He stressed that the fish are also running deeper in the water where the temperature are cooler and this may necessitate expanding the allowed depth of fishing gear.

Raymond Oney of Alakanuk reported that the community has been in lockdown due to COVID-19 and it has been very difficult on the children not to be able to have in-person schooling. And the whole community is missing the winter potlaches, drum and dance, and dogsled races they normally would have this time of year. Ray noted that it has been eerily quiet this winter without the traditional singing, drumming, or dancing and no radio announcements for community

gatherings. Freight deliveries to the community have been infrequent and delayed. This makes it very difficult to get basic supplies needed and causes great hardship for those that rely on food assistance.

Ray reported that the ice on the Yukon River froze up late October / early November but then a big storm blew in and opened up the river all the way to Grayling. People were even out boating and some were able to go out onto the ocean and get a few seals at that time. Ray stressed that there has been storm after storm blowing in from the north wind this winter. He wonders what the spring will bring and hopes the salmon will return. He too like others has under ice nets for whitefish but the catch has been low so far and hopes that at least the Sheefish will pick up soon. The snow pack has been good this winter and he is hopeful there will be a good breakup this spring.

Thomas Alstrom of Alakanuk reported that he is concerned about the whitefish population. Usually his family goes to the Alakanuk Slough to catch whitefish under the ice with 3.5 inch mesh nets. They target the smaller Bering Cisco and also Broad Whitefish. But this year all the months the ice was thick enough to fish since freeze-up in late November through March they have been catching far fewer fish. Over the years they would typically catch at least 10 fish in that same area every time they checked their nets but this year were catching one or none. On the other hand Thomas did catch a bunch of Sheefish in the fall when he set his net upriver of one of the coastal creeks called BeeGees. He caught nearly 25 Sheefish in one night and was still catching them as he was cleaning the net. He highlighted that his family lived off the Sheefish over the winter and they ended up being a replacement for the Cisco and other smaller whitefish they normally would have caught.

Thomas reported that soon he would be going out to set his Blackfish traps this spring. Moose are abundant around Alakanuk and he is starting to see more hare tracks. The good snow this year has helped the hares and they seem to be recovering from the wet fall and winter storms with freezing rain the past few years.

John Andrew of Kwethluk reported that his community is struggling with the low salmon returns. Families are not getting enough to feed themselves and running out of fish before the end of the winter. John noted they hardly get any Chinook Salmon and the Chum and Sockeye Salmon were low this year too. The Chum Salmon returns were so low, families with dog mushing teams were really struggling to feed their dogs. He highlighted that the Chinook he did catch this past year were all small Jacks. They tried fishing for more whitefish but the Humpback Whitefish in the lakes were also small and he hardly caught any Bering Cisco in the set net by his fish camp this year. The under ice fishing this winter did not produce much whitefish either. John also reported that he had to pull his Blackfish traps early because the water levels were too low.

People are running out of food – even their berries: salmon berries, blueberries and wild cranberries that they freeze for winter are running low now. John says he tries to help out by sharing the whitefish he does catch and helps take the youth out hunting for moose. They have been fortunate to catch moose and they share that with the whole community. John reported that there is little commercial trapping anymore because there is not much money in the furs, but people do still trap for beaver to have some meat on the table. They are starting to see more ptarmigan around again but still little sign of hare tracks.

The Council discussed that Bob Aloysius has been in Anchorage for health care and will be retiring from the Council at the end of his current term. They want to send a certificate of appreciation in recognition for his many years of service on the Council.

Public Comment

Alissa Nadine Rogers of Bethel reported that the snow was deep and powdery this winter. It has been dangerous crossing creeks and sloughs, difficult to tell the thickness of ice, and water was high with a lot of overflow on the upper river. She has not been able to get out ice fishing this year much herself but heard reports of lower whitefish numbers and some whitefish with apparent disease and rotting smell. They did put out more Blackfish traps this year and are looking for new areas to set traps since water levels are dropping in their usual areas due to beaver activity. River eddies are changing due to erosion and it is hard to find good fishing spots on the Kuskokwim. Alissa noted Lush fish were harder to catch this year and they are smaller in size but pike were big and plentiful. She heard reports of some diseases of whitefish and saw pictures of black discoloration on the whitefish.

Alissa reported that the fall was very wet for moose hunting and then the snow was very deep to travel to the Yukon for the winter hunt, but they did get one moose. Some communities need help to proxy hunt for moose or caribou for elders. Hares seem to be scarce, they saw little sign of tracks but more Arctic hare, which are hard to catch. Alissa reported that the ptarmigan seem to be doing better and they saw several big flocks moving through her hunting area. Overall she has been doing a lot of sharing of dry fish and trading subsistence foods this year, due to COVID-19 it has been hard for many to get out for their usual hunting and fishing this year.

Carl Maxie of Napaskiak reported that he is very concerned about the salmon and everyone needs to work together for conservation all along the river. He is also seeing more ptarmigan and would be in support of increasing the harvest limit if that population is doing better now. He also sees a need to support Elder hunts for moose and caribou so that elders have good subsistence foods to eat.

James Landlord of Mountain Village reported that the freeze up was late on the Yukon River this year. But once the ice gets to be 3 or 4 inches thick, people go right out in front of Mountain Village and set their nets. There were so many nets that he traveled upriver about five miles to find some room and caught Lush, Sheefish, and some really big pike the size of King Salmon. They also set Blackfish traps under the ice in nearby lakes and got some pretty big Blackfish. Many people did not get much salmon last year, even Chum Salmon numbers were low. James reported some had run out of moose meat this winter and were planning to go out hunting again while the season was still open. The deep snow drifts this winter has made it a challenge to travel far for hunting. James reported that he is seeing fewer snowshoe hares and little sign of their tracks but did see Arctic hares. He is pleased to be seeing more ptarmigan and people have reported seeing a couple big flocks along the road to St. Mary's.

Mike Williams of Akiak reported that he is very concerned about the very low Chinook and Chum Salmon returns on both the Yukon and the Kuskokwim Rivers this past year. He is also very concerned about climate change impacts to salmon, especially the fish die-offs from heat stress that they witnessed last year. Mike noted that the Akiak Native Community had submitted special action requests for the past 5 years requesting Federal fisheries management on the Kuskokwim. He highlighted that this year the Kuskokwim River Inter-Tribal Fish Commission has been working with the Yukon Delta Refuge Manager and would like to see Federal management again to work together on Chinook Salmon conservation and provide a Federal subsistence priority so that people have food to eat and the salmon will return for future generations.

Ivan Ivan, Vice Chief, Akiak Native Community, thanked the Council for their reports and he feels it provides a good picture of fish and wildlife throughout the region from the Yukon River to the Coast to the Kuskokwim River. Ivan expressed concern for the fish and with the decline of Chinook Salmon all the other species are becoming even more important. The ancestors always fished for Chinook Salmon and then Chum and Sockeye Salmon and then Silver Salmon. The springtime is always the hardest season, especially for the Elders when they are in need of fresh food. The fish are so important including the whitefish and pike and the Lush fish. He is concerned about not getting enough Lush fish these days. With climate change affecting freeze up and causing thin ice, they are not able to set their fish traps until around Thanksgiving time or later in December now. The fish are also essential for feeding their dog teams.

Ivan reported that the wolves have been coming closer into the community and they are concerned about their children's safety walking home at night now. The wolves are causing the moose to seek shelter near the community too.

Old Business

Kim Jochum, *National Park Service* (NPS) Subsistence Program presented a brief update on the Federal Subsistence Board action on the NPS Individual Customary and Traditional Determination Permitting process and efforts to expedite the timing of that process.

New Business

Call for Federal Wildlife Proposals

Pippa Kenner, *Office of Subsistence Management* (OSM), read the Call for Federal Wildlife Proposals. All wildlife reports were provided prior to deliberation on wildlife proposals. The Council made recommendations to submit two Federal Subsistence Wildlife Proposals as follows:

1. Increase the subsistence moose harvest quota for Unit 18 Kuskokwim hunt area Zone 1 if low river water levels prevent access to the Zone 2 moose hunt area.
2. Increase the harvest of Unit 18 remainder moose from 2 to 3 moose.

The Council also made a recommendation to submit the following Emergency Wildlife Special Action request: Increase the harvest of Unit 18 remainder moose from 2 to 3 moose.

Motion by Mr. Alstrom, seconded by Mr. Andrew, to submit a proposal for Unit 18 remainder lower Yukon moose: Increase the harvest limit of moose from 2 to 3 in Unit 18 remainder August 1 – April 30: 3 moose only one of which may be antlered. Antlered bulls may not be harvested from October 1 through November 30. Motion passed unanimously.
Justification: This request to increase the harvest limit by one additional moose in Unit 18 remainder is needed to continue subsistence uses and increased opportunity for sharing of moose throughout the Yukon-Kuskokwim Delta region. Increasing the harvest will help to ensure long-term sustainability of the Lower River area moose population, which is currently too high to be supported by the local environment. If this moose population is not reduced, it is at risk of crashing due to over browsing of available forage.

Additional harvest opportunity of one extra moose in Unit 18 remainder will support the Lower Yukon River communities' ability to provide not only for their own families and community, but also increase sharing opportunities with subsistence communities in other areas of the Yukon-Kuskokwim Delta that do not have as abundant moose population and are in need of subsistence food support. It is especially important now because low salmon returns on the Yukon and Kuskokwim Rivers and recent closures to the harvest of Mulchatna caribou are greatly affecting the region. Expanded harvest opportunity of the super-abundant moose in the lower Yukon River will help support sharing with those in need throughout the Yukon-Kuskokwim Delta region.

The Council also discussed submitting this same proposal as an Emergency Special Action request so that the harvest limit for the current moose season could expanded to 3 moose. Motion by Mr. Oney, seconded by Mr. Alstrom, to submit a proposal the same as the above Special Action Request. Motion passed unanimously.

Motion by Mr. Oney, seconded by Mr. Andrew, to submit a proposal for Unit 18 Moose Kuskokwim Hunt Area Zone 1 and 2: If the river water levels are too low to access the Zone 2 hunt area, then: Increase the moose harvest quota in Zone 1 of the Unit 18 moose Kuskokwim Hunt Area. Motion passed unanimously.

Justification: The Council voted to submit this proposal on behalf of Kwethluk resident Cheriton Epchook. After much Council discussion with Mr. Epchook and other area residents, it became clear that in recent years the water levels in the river tributaries used to access the Zone 2 moose hunt area have often been too low to successfully reach the hunting grounds. Increasingly low snow pack winters and hot dry summers have exacerbated this challenge for local area communities to use prop boats to travel up the tributary rivers and to the foothills of the Kilbuck Mountains where the Zone 2 moose hunt area is established. When the low water conditions occur, it is imperative to provide for other subsistence opportunity. This could be achieved by expanding the moose hunt quota in Zone 1, which parallels the main stem of the Kuskokwim River and is more easily accessible by boat even at low water.

Council Charter Review

The Council discussed the challenges of the late Secretarial appointments causing many vacancies on the Council and discussed a fix by amending the charter to include language such as: "Any member of this Advisory Council may serve after the expiration of the member's term until a successor is appointed". Motion by Mr. Andrew, seconded by Mr. Alstrom, to support renewal of its charter with modification to add the clause for a carryover term: *any member of the advisory Council may continue to serve after the expiration of the member's term until re-appointment or a successor is appointed.* Motion passed unanimously.

The Council discussed the critical importance of balanced membership from across the entire Yukon-Kuskokwim Delta Region in order to have knowledgeable representation from across the 41 subsistence communities in the Council region on the Yukon and Kuskokwim Rivers, Delta and the Coast and in between. Motion by Mr. Oney, seconded by Mr. Alstrom, to add a clause to the Council Charter to ensure: *appointments are made with consideration to reflect balanced representation on the Council from across the Yukon-Kuskokwim Delta region.* Motion passed unanimously.

Finalize FY2020 Annual Report

Motion by Mr. Andrew, seconded by Mr. Slats, to approve and finalize the Council's fiscal year 2020 Annual Report with additional detail discussed on the record at this meeting on each of the following subjects:

- Need to protect the resources for people that live in the villages who depend on them for their survival;
- Declare when there are concerns about food security or other emergencies, that they are going on as an official state of emergency and put them on the forefront of management;
- Include traditional ecological knowledge along with science studies;
- Continue monitoring Mulchatna caribou herd and other inventory and monitoring studies;
- Climate change effects on subsistence resources, subsistence activities and safe travel and possible mitigation measures;
- Effects of the pandemic on food security;
- Hardship on Council and community to participate by teleconference only – poor reception, repeated dropped calls, etc.;
- Explore the possibility of conducting meetings on Zoom; and computer resources to do that.

The motion passed unanimously.

Fisheries Resource Monitoring Program

Fisheries Biologist Corey Graham and Anthropologist Pippa Kenner with the Office of Subsistence Management provided the Council with an update on grant funding opportunity for subsistence fisheries research through the Office of Subsistence Management, Fisheries Resource Monitoring Program (FRMP). The Council also heard from principal investigators about their proposal plans and discussed submitting a letters of support.

Motion by Mr. Oney, seconded by Mr. Alstrom, to write a letter of support for three ADF&G Subsistence Division FRMP projects on the Kuskokwim and lower Yukon River. Motion passed unanimously.

Agency/Tribal/Organization Reports

- Dr. Diana Stram presented a report from North Pacific Fisheries Management Council (NPFMC). The Council voted to submit a letter recommending reducing the Bering Sea trawl fisheries bycatch of Chinook and Chum salmon. Motion by Mr. Oney, seconded by Mr. Alstrom, to submit a letter to NPFMC expressing concerns about extremely low Chinook and Chum Salmon returns and need for conservation action including further reducing Bering Sea Bycatch. The Council also voted to resubmit their 2020 letter to the NPFMC.
- Native Community of Akiak report presented by Mike Williams.

- Orutsararmiut Native Council report and Partners Program updates presented by Janessa Esquible.
- Association of Village Council Presidents report presented by Jennifer Hooper and Paige Jones.
- Kuskokwim River Inter-Tribal Fish Commission report presented by Mary Peltola.
- Yukon Delta National Wildlife Refuge report presented by Boyd Blihovde.
- Togiak National Wildlife Refuge report presented by Kenton Moos and Andy Aderman.
- Alaska Department of Fish and Game, Division of Wildlife Conservation reports presented by Patrick Jones, Brian Reiley, Todd Rinaldi, and Rick Merizon.
- Yukon River Drainage Fisheries Association report presented by Serena Fitka and Catherine Moncrieff.
- US Geological Survey, Alaska Science Center report on heat stress in Yukon River Chinook presented by Dr. Vanessa von Biela.
- 2020 Yukon River Salmon Season Preseason discussion presented by Holly Carroll, U.S. Fish and Wildlife Service, and Deena Jalen and Jeff Estensen, Alaska Department of Fish and Game.
- 2020 Kuskokwim River Salmon Preseason discussion presented by Boyd Blihovde, U.S. Fish and Wildlife Service, Mary Peltola, Kuskokwim River Inter-Tribal Fish Commission, and Nicholas Smith, Alaska Department of Fish and Game.
- Alaska Department of Fish and Game, Division of Subsistence, report presented by Alida Trainor, David Runfola, and Chris McDevitt.
- Office of Subsistence Management Report presented by Orville Lind.

Motion by Mr. Alstrom, seconded by Mr. Slats, to adjourn the meeting at 5:22 p.m. on March 4. The motion passed unanimously.

Future Meeting Dates:

The Council confirmed its fall 2021 meeting to be held October 6-7, in Bethel if COVID-19 travel restrictions are lifted.
The Council selected its winter 2022 meeting to be held March 1-2 in Bethel unless lifting of COVID-19 travel restrictions allow for meeting in a non-hub rural community.

_____

Eva Patton, Designated Federal Officer
USFWS Office of Subsistence Management

_____

Raymond Oney, Chair
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

These minutes will be formally considered by the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council at its fall 2021 meeting, and any corrections or notations will be incorporated in the minutes at that meeting.

A more detailed report of this meeting, copies of the transcript, and meeting handouts are available upon request. Contact Eva Patton, Council Coordinator, toll free at 1-800-478-1456 or 907-786-3358 or, email at *eva_patton@fws.gov*

Federal Subsistence Board

1011 East Tudor Road, MS 121
Anchorage, Alaska 99503 - 6199

FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

FOREST SERVICE

OSM 21054.EP

AUG 26 2021

Raymond Oney, Chair
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
c/o Office of Subsistence Management
1011 E. Tudor Road, M/S 121
Anchorage, AK 99503-6199

Dear Chairman Oney:

The Federal Subsistence Board (Board) met on January 26-29, 2021 via teleconference to consider proposed changes to Federal subsistence management regulations for the harvest of fish and shellfish on Federal Public lands and waters in Alaska, fisheries closure reviews, and a nonrural determination proposal. This letter is to provide a report on the actions taken by the Board on proposals and closure reviews affecting Federally qualified subsistence users.

Section 805(c) of the Alaska National Interest Lands Conservation Act (ANILCA) provides that the Board will accept the recommendations of a Subsistence Regional Advisory Council (Council) regarding take unless, (1) the recommendation is not supported by substantial evidence, (2) the recommendation violates recognized principles of fish and wildlife management, or (3) adopting the recommendation would be detrimental to the satisfaction of subsistence needs. When a Council's recommendation is not adopted, the Board is required by Secretarial regulations to set forth the factual basis and reasons for the decision.

Out of 14 fisheries proposals submitted, one proposal (FP21-04) was withdrawn by the proponent. The Board agreed with the recommendations of the Regional Advisory Councils, in whole or with modifications, on 9 proposals. The Board deferred its decision on Proposal FP21-10 until the next fisheries cycle to allow conflicting user groups to meet and attempt to reach a compromise. The Board reviewed 12 fisheries closure reviews and accepted the recommendations of the Regional Advisory Councils on 10 of 12 fisheries closure reviews. The Board voted to maintain status quo on 2 of them (FCR21-01 and FCR21-22) and to eliminate one of the closures (FCR21-06). The Board deferred 7 of 12 fisheries closure reviews (FCR21-08, -09, -11, -13, -16, -18, and -19) until next fisheries cycle to allow the Council to meet with communities and discuss the closures. The Board deliberated one rural determination proposal RP19-01 and agreed with the Southcentral Alaska Subsistence Regional Advisory Council recommendation with modification.

Details of these actions and the Boards' deliberations are contained in the meeting transcriptions. Copies of the transcripts may be obtained by calling toll free number 1-800-478-1456 and are available online at the Federal Subsistence Management Program website, https://www.doi.gov/subsistence.

The Board uses a consensus agenda on those proposals and closure reviews where there is agreement among the affected Regional Advisory Council(s), a majority of the Interagency Staff Committee, and the Alaska Department of Fish and Game concerning a proposed regulatory action. These fisheries proposals and closure reviews were deemed non-controversial and did not require a separate discussion. The consensus

agenda contained two fisheries proposals affecting the Yukon-Kuskokwim Delta Region, which the Board deferred to the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council (Council) recommendations as follows:

The Board adopted fisheries proposal **FP21-01** to eliminate Federal regulations that describe precisely when and where the salmon subsistence fishery will close around commercial openings on the Kuskokwim River.

The Board adopted fisheries proposal **FP21-03** to clarify that drift gill nets are legal gear in Kuskokwim River tributaries.

The remaining fisheries proposal affecting the Yukon-Kuskokwim Delta Region appeared on the non-consensus agenda. However, the Board took action consistent with the Council's recommendations. and rejected fisheries proposal **FP21-02** to modify spacing requirements for set gillnets in Kuskokwim River tributaries from 150 feet to 75 feet.

The two fisheries closure reviews affecting the Yukon-Kuskokwim Delta Region appeared on the non-consensus agenda as well. However, because the Board did not take action consistent with the affected Councils (Western Interior Alaska, Eastern Interior Alaska, Seward Peninsula, and North Slope Subsistence Regional Advisory Councils) recommendations, the Board's actions on **FCR21-04**: Closure to Federally qualified subsistence users in the Yukon drainage, Jim River – all fish and **FCR21-07**: Closure to Federally qualified subsistence users in the Yukon drainage, Nome Creek – Arctic Grayling are included in the enclosed 805(c) report.

The Federal Subsistence Board appreciates the Yukon Kuskokwim Delta Council's active involvement in and diligence with the regulatory process. The ten Regional Advisory Councils continue to be the foundation of the Federal Subsistence Management Program, and the stewardship shown by the Regional Advisory Council chairs and their representatives at the Board meeting was noteworthy.

If you have any questions regarding the summary of the Board's actions, please contact Eva Patton, Council Coordinator, at 907-786-3358 or *eva_patton@fws.gov*.

Sincerely,

Anthony Christianson
Chair

Enclosure

cc: Federal Subsistence Board
Bristol Bay Subsistence Regional Advisory Council members
Sue Detwiler, Assistant Regional Director, Office of Subsistence Management
Amee Howard, Deputy Assistant Regional Director and Acting Fisheries Division Supervisor
Office of Subsistence Management
Robbin La Vine, Policy Coordinator, Office of Subsistence Management
George Pappas, State Subsistence Liaison, Office of Subsistence Management
Katerina Wessels, Council Coordination Division Supervisor
Office of Subsistence Management
Eva Patton, Subsistence Council Coordinator, Office of Subsistence Management
Interagency Staff Committee
Administrative Record

FEDERAL SUBSISTENCE BOARD 805(c) REPORT
January 26-29, 2021
Anchorage, Alaska

Section 805(c) of the Alaska National Interest Lands Conservation Act provides that the "Secretary … shall consider the report and recommendations of the regional advisory councils concerning the taking of fish and wildlife on the public lands within their respective regions for subsistence uses." The Secretary has delegated authority to issue regulations for the take of fish and wildlife to the Federal Subsistence Board (Board). Pursuant to this language in Section 805(c), the Board defers to the Council's recommendations. However, Section 805(c) also provides that the Board "may choose not to follow any recommendations which [it] determines is not supported by substantial evidence, violates recognized principles of fish and wildlife conservation, or would be detrimental to the satisfaction of subsistence needs." The purpose of this report is to detail how the Board's action differed from the Council's recommendations based on these criteria.

YUKON NORTHERN AREA FISHERIES CLOSURE REVIEWS

Fisheries Closure Review FCR21-04 – Jim River: All Fish

DESCRIPTION: Closure to the harvest of all fish in the Jim River drainage by Federally qualified subsistence users.

COUNCIL RECOMMENDATIONS:

Western Interior Alaska Subsistence Regional Advisory Council (WIRAC) – **Support** eliminating the Jim River subsistence closure and modifying regulations to allow rod and reel only, and an Arctic Grayling harvest and possession limit of 10 per day.

Seward Peninsula Subsistence Regional Advisory Council – In concurrence with the WIRAC, **support** eliminating the Jim River subsistence closure and modifying regulations to allow rod and reel only, and an Arctic Grayling harvest and possession limit of 10 per day.

Eastern Interior Subsistence Regional Advisory Council – **Defer** to WIRAC

North Slope Subsistence Regional Advisory Council – **Defer** to WIRAC

Yukon Kuskokwim Delta Subsistence Regional Advisory Council – **Defer** to WIRAC

BOARD ACTION: **Support maintaining closure (status quo)**

JUSTIFICATION: During the January 26-29, 2021 Federal Subsistence Board meeting, the Solicitor's office expressed concern that any actions taken by the Board beyond simply eliminating or maintaining the closure would not allow appropriate notice and opportunity for public comment. Further, the Solicitor's Office recommended that changes to the harvest limits and allowable gear types that were recommended by this Council be addressed in the short term by a special action request and in the long term by a proposal that would be submitted during the next regulatory cycle. Based on this advice from the Solicitor's office, the Board voted to maintain the closure in the Jim River drainage with the expectation that a special action request could be submitted by this Council.

The WIRAC can submit a temporary special action requesting that the Board rescind the closure to the harvest of all fish in the Jim Creek drainage by Federally qualified subsistence users and modify regulations to allow rod and reel only, and an Arctic Grayling harvest and possession limit of 10 per day.

Fisheries Closure Review FCR21-07 –Nome Creek: Arctic Grayling

DESCRIPTION: Closure to the harvest of Arctic Grayling in Nome Creek of the Yukon River drainage by Federally qualified subsistence users.

COUNCIL RECOMMENDATIONS:

Eastern Interior Alaska Subsistence Regional Advisory Council (EIRAC) – **Modify the closure** by closing the Nome Creek drainage to the harvest of Grayling by all uses and users.

Western Interior Alaska Subsistence Regional Advisory Council – **Defer** to EIRAC

Seward Peninsula Subsistence Regional Advisory Council – **Defer** to EIRAC

Yukon Kuskokwim Delta Subsistence Regional Advisory Council – **Defer** to EIRAC

North Slope Subsistence Regional Advisory Council – **Defer** to EIRAC

BOARD ACTION: **Support maintaining closure (status quo).**

JUSTIFICATION: During the January 26-29, 2021 Federal Subsistence Board meeting, the Solicitor's office expressed concern that any actions taken by the Board beyond simply eliminating or maintaining the closure would not allow appropriate notice and opportunity for public comment. Further, the Solicitor's Office recommended that changes to the harvest limits

and allowable gear types recommended by the EIRAC be addressed in the short term by a special action request and in the long term by a proposal submitted during the next regulatory cycle. Based on this advice from the Solicitor's office, the Board voted to maintain the closure in the Nome Creek drainage with the expectation that a special action request could be submitted by the EIRAC. The current sport catch and release fishery does not represent a conservation concern and such concern is not supported by substantial evidence.

The EIRAC can submit a temporary special action requesting that the Board rescind the closure to the harvest of all fish in the Nome drainage by Federally qualified subsistence users, and modify regulations as stipulated above to conserve Arctic grayling. This would provide an opportunity for subsistence harvest and a subsistence priority not currently in regulation.

Federal Subsistence Board

1011 East Tudor Road, MS 121
Anchorage, Alaska 99503 - 6199

FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

FOREST SERVICE

OSM 21028.KW

AUGUST 04 2021

Raymond Oney, Chair
Yukon-Kuskokwim Delta
Subsistence Regional Advisory Council
c/o Office of Subsistence Management
1011 East Tudor Road, MS 121
Anchorage, Alaska 99503-6199

Dear Chairman Oney:

This letter responds to the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council's (Council) fiscal year 2020 Annual Report. The Secretaries of the Interior and Agriculture have delegated to the Federal Subsistence Board (Board) the responsibility to respond to these reports. The Board appreciates your effort in developing the Annual Report. Annual Reports allow the Board to become aware of the issues outside of the regulatory process that affect subsistence users in your region. We value this opportunity to review the issues concerning your region.

1. <u>Request for the Board's support for rural subsistence priority</u>

The Council requests that the Board recognize and support the critical importance of rural subsistence priority. Our communities depend on subsistence resources for survival and it is the very fabric of our family and community. It is central to our culture and way of life. Subsistence foods and taking care of others, such as providing for our elders and sharing subsistence foods through the potlach, are central also to our traditional and cultural values. As provided for in ANILCA, subsistence priority should be recognized and supported over other uses. This is more critical now than ever with declining fish and wildlife populations and stress to the resource caused by climate change.

The Council has submitted several letters over the years requesting reduction in Bering Sea salmon bycatch and limitation of sport fishing on our tributary rivers – every fish counts to make

escapement and provide for subsistence. The Council seeks the support of the Board to help ensure the burden of Chinook Salmon conservation is shared by all and protect subsistence priority over industrial trawl fisheries and sport fishing.

Response:

The Board shares your concern for the decrease in Chinook Salmon populations statewide. We recognize that as stocks decline, fishing opportunities for Federally qualified subsistence users become more limited. The Federal Subsistence Management Program has a number of tools to support a rural subsistence priority within the scope of the Board's authority such as special actions, closures to non-Federally qualified users, the ANILCA section 804 prioritization among Federally qualified subsistence users, and delegation of Board authority to the in-season manager. Your Council has been proactive in utilizing these tools and informing Board processes and actions. However, these actions can only be implemented in Federal public waters and limited marine waters within or adjacent to Federal lands.

Although it is beyond the scope of the Board's authority, we are supportive of the steps your Council has taken over the years, such as writing letters to express your concerns to the North Pacific Fisheries Management Council. Your efforts and advocacy helped inform the North Pacific Fisheries Management Council's 2016 decision (Amendment 110) to reduce the Chinook salmon bycatch hard cap (prohibited species catch) from 60,000 to 45,000 fish in the Bering Sea Pollock fishery and the performance standard is lowered from 47,591 to 33,318. This reduction is dependent on Chinook salmon abundance using the 3-System Index for western Alaska based on the post-season in-river Chinook salmon run size for the Kuskokwim, Unalakleet, and Upper Yukon aggregate stock grouping. This action was implemented in 2016. One of the primary intentions of this policy is to minimize Chinook bycatch at low levels of salmon abundance. In addition to these bycatch reduction measures, we recognize there are likely other factors that impact the rebound of salmon stocks statewide. The Board continues to urge the Council to remain vigilant in voicing concerns to the North Pacific Fisheries Management Council and active in their regulatory process.

2. <u>Recent food security issues and need for the Board's awareness and support</u>

Chairman Oney 3

Recent events have created real and urgent food security emergencies for subsistence communities across the Yukon-Kuskokwim Delta. Not only has the COVID-19 pandemic caused transportation lockdowns and resulted in food supply challenges for rural communities, but additionally the recent loss of regional airlines has greatly limited freight flights to bring food and supplies to these off-the-road-system communities. With bare shelves, we are more than ever dependent on access to fresh, healthy subsistence foods to sustain our families.

Salmon declines over the past several years and the 2020 total fisheries disaster on the Yukon and Kuskokwim rivers have left communities throughout the region with no dry or frozen fish for the winter. The year 2020 was one of the worst on record for subsistence communities – with very few fish in the river many people did not even catch one salmon to eat. The subsistence fishers took the brunt of the restrictions for conservation. The Council believes that everyone including all agencies need to be at the table to work towards conservation – from the Bering Sea feeding grounds to the headwaters' spawning grounds. The Council requests the Board recognize this as an emergency and find ways to provide food support and ensure access to subsistence resources that our communities need to survive and thrive.

Response:

In 2020, the Interagency Staff Committee began developing a draft white paper *Food Security as a Threat to Public Safety* and a draft *Framework to Evaluate Special Action Requests Related to Public Safety/Food Security*. Once these drafts are finalized, they will be presented to the Board for further discussion and direction. If the framework is approved by the Board, it could serve as a mechanism available to allow access to subsistence food resources during emergencies in the future.

The Federal Subsistence Management Program can support adaptation to changing conditions by using the various tools available that enable the Program to be responsive to subsistence users' needs as conditions change. For example, the Special Action process enables the Board to respond quickly to out-of-cycle needs for regulatory actions. The Board has also used its ability to delegate authority to local land managers to enable them to respond quickly to unforeseen circumstances such as unpredictable seasons and fluctuations in resource availability.

More persistent changes to the availability and seasonality of resources due to climate change can be addressed through the regulatory process. When species become less abundant due to climate change, closures to non-Federally qualified users, or ANILCA section 804 prioritization among Federally qualified subsistence users, may become necessary. Other species may become

more abundant with shifts in environmental conditions, or new species may expand into the region. In this case, the Federal Subsistence Management Program can assist communities in delineating seasons, harvest limits, and methods and means for these newly available resources.

3. Consideration for traditional ecological knowledge (TEK) when making subsistence resource management decisions

Traditional ecological knowledge has been used by our elders and ancestors for generations. We have lived on this land from season to season, know what the weather brings, and study our surroundings to understand the cycle of life and the natural environment that sustains us. We grew up learning to observe, to listen to the stories of elders, and to have an in-depth relationship with and understanding of the environment of the place where our ancestors lived for generations. For example, when there is a lot of snow, there will be good fish because of the cold waters coming down stream; the length of the grass will tell you if it is going to be a cold winter; and abundant mosquitos is an indication of how the season to come will be. We are experts in our own land and waters and our traditional knowledge should be considered along with western science in management decisions affecting subsistence resources that we depend upon.

The Council requests that the Board, Federal Subsistence Management Program, and Federal managers of subsistence resources listen to local experts and knowledge holders and make decisions based on our traditional science gained from generations of observations as well as western scientific data. The Council also stresses that the engagement with subsistence communities and traditional knowledge bearers should come at the outset of research and management projects in the region – not as an afterthought as it often has been. We encourage the Federal subsistence program to continue to fund traditional knowledge studies, such as through the Fisheries Resource Monitoring Program in-season fisheries programs in partnership with local Tribes, formal documentation of traditional knowledge so that it can be used now and preserved for future generations, and encourage increased traditional knowledge documentation and incorporation of TEK into management.

Response:

Thank you for sharing these examples of the interconnections in the environment, as recognized and passed down in Traditional Ecological Knowledge (TEK). The Board acknowledges the critical importance of TEK in informing the Federal Subsistence Management Program. We rely

on this knowledge and consider it alongside western scientific knowledge. Similar to western science, TEK is obtained through repeated interactions with the natural world over time. The Board understands that TEK may provide a spatial and temporal scale of knowledge that is otherwise unavailable to resource managers. Holders of TEK experience local landscapes and environmental phenomena throughout the seasons, and often over the span of many years and passed down through generations.

The Board strives to obtain TEK from many sources to inform our management decisions. Analyses for wildlife and fishery proposals, customary and traditional use determination proposals, and rural determination proposals strive to incorporate available TEK to help us better understand subsistence resources and the people that depend on them. We direct OSM staff to include all relevant TEK in all aspects of these analyses. That said, our analysts are typically do not conduct primary research and thus must rely on published literature and public testimony. This is one of the many reasons that we rely on you, our Regional Advisory Councils, to help inform the program of local conditions and available knowledge on the subject matter through preparation of an annual report containing information related to current and future subsistence uses of fish and wildlife populations, an evaluation of current and future subsistence needs for these populations, a strategy for their management, and recommendations related to policies, standards, guidelines and regulations to implement the strategy.

Transcripts from public meetings, Regional Advisory Council meetings, and Federal Subsistence Board meetings are mined for TEK that can inform the Federal Subsistence Management Program. We also rely on written public comments and conversations with local stakeholders and land managers. The Board also considers our government-to-government consultations with Tribes and Alaska Native Claims Settlement Act (ANCSA) Corporations as imperative to our program. We are committed to improving avenues of communication between these entities and our Board, and ask that as members of the Council you encourage individuals and both public and private entities in your communities to engage with our program and make their voices and knowledge heard.

As the Council noted, meaningful collaboration on research funded by the Fisheries Research Monitoring Program can only occur when communities are consulted with prior to decision-making about research design and goals. Early engagement must substantively shape research on Stock, Status, and Trends, Harvest Monitoring, and Traditional Ecological Knowledge. The Technical Review Committee, which evaluates proposals for the Fisheries Research Monitoring Program, considers projects to be fundable and of high quality only when they have

demonstrated that consultation and partnerships with communities has begun in earnest prior to proposals being submitted.

4. <u>Youth Science and Culture Camps</u>

The Council supports the Federal Subsistence Management Program and Federal land managers holding Youth Science and Culture Camps in collaboration with local area Tribes. These programs help instill an interest and learning about science, traditional knowledge and cultural values. We hope the Board sees the great benefit of these programs and continues to provide funding and support for the important role science and culture camps play in the conservation of subsistence resources for future generations.

Response:

The Board acknowledges your Council's support for continued offering and funding of Youth and Culture Camps and primary involvement with local Tribes. The Board will continue to support these types of efforts to reach the youth of Alaska and is very grateful for your support of these established programs. There is no question that providing the opportunity for the next generation to learn many subjects and skills in a hands-on type of Youth Science or Culture Camp will help build knowledge and future interest in resource conservation in Alaska, especially the subsistence resources in the area the students were raised. The Board looks forward to a future where the former attendees of these efforts are the scientists, managers, regulators, and even Board members in the Federal Subsistence Management Program. Thank you for supporting the ongoing educational efforts funded by this program.

5. <u>Mulchatna caribou herd and other inventory and monitoring studies</u>

The Mulchatna Caribou Herd is very important to subsistence communities of the Yukon-Kuskokwim Delta. The Council is very concerned about its decline and what may be causing this recent dramatic reduction in the size of the herd. The Council encourages the Federal Subsistence Management Program and agency biologists and managers to continue conducting population surveys and ongoing monitoring of the herd's health. We also encourage the Federal Subsistence Management Program to listen to the local observations and expert knowledge of subsistence hunters who know this caribou herd well, have been concerned about its conservation at the outset, and alerted the Board to its decline before the latest population surveys were conducted.

Response:

The Mulchatna Caribou Herd (MCH) population has fluctuated over the years, as is the case with most caribou herds. The MCH reached a population peak of about 200,000 in the late 1990's. Currently, the herd is estimated at about 13,500 which is well below the State population objective of 30,000-80,000 set by the Alaska Board of Game. Due to the low population level, Federal and State managers began taking emergency actions starting in the 2019-2020 hunting season. Initially, harvest limits were decreased and an early closure was later implemented. With the population estimated to be the same as 2019 and continued concern by agencies and the public, Federal and State managers only allowed a limited fall bull harvest during the 2020-2021 season. The remainder of the season was closed.

The reason for the recent population decline is not known; however, biologists continue to gather information in order to make informed decisions. A few possible contributing factors may include brucellosis, predation, human harvest, and habitat.

In January 2021, Alaska Department of Fish and Game (ADF&G) researchers received positive test results for brucellosis from a relatively high percentage of caribou sampled during collaring operations. Even though the MCH season was closed, public service announcements and outreach efforts were immediately done for public safety concerns. ADF&G will continue to monitor the herd for brucellosis, and the public is asked to report observations of caribou exhibiting signs of infection. USFWS Refuges have worked with ADF&G to distribute informational bulletins regarding brucellosis. In addition, a team of ADF&G and USFWS outreach specialists have been working collaboratively in the development, production, and distribution of additional informational materials for the MCH. These efforts have been done jointly to maintain consistent messaging and the pooling of expertise allows for effective and efficient outreach efforts. A *Caribou Tracks* publication specific to the MCH has been produced and will be made available to the public very soon. Public Service Announcements and other printed outreach materials are also being developed and will be distributed soon. We are enclosing two information fact sheets on brucellosis prepared by the Alaska Native Tribal Health Consortium Center for Climate and Health for the Council information.

Federal agencies are continuing to assist the ADF&G with monitoring efforts and with the design and implementation of future research. The ADF&G calf survival/mortality study was initiated the spring 2021 and continues through the summer. ADF&G will be providing a summary of those results in July 2021. A population estimate was done at the end of June and the report is being finalized and should also be available July 2021. The herd composition study generally occurs later in the fall. USFWS biologists have assisted with these monitoring efforts. Federal and State biologists are currently working together to design and implement a range wide habitat assessment study. Current information such as calf weights and adult caribou condition does not

correlate to habitat being a contributing issue with depressed herd populations. Biologists do believe habitat monitoring would be useful with the current situation and provide for better future management decision-making.

The ADF&G and Federal managers and biologists have been meeting regularly as a management team in order to strategize monitoring, research and management options. The managers are also looking at how to best involve the public. As in the past, we will be making every attempt to solicit input from the Councils, ADF&G Fish and Game Advisory Committees, natural resource departments of regional native corporations, Tribal Councils, and individual comments from local area residents. Every effort will be made to solicit public input. Based on the information available right now, it is unlikely that the MCH can sustain any harvest if the goal is to grow the herd. Given the current population estimates and other contributing factors, there has been consensus that conservation measures are needed to grow the herd's population and without immediate actions, we will more than likely see a further decline in the population.

The in-season managers welcome your comments.

FWS Contacts:

- Kenton Moos, Federal in-season Manager and Refuge Manager for Togiak NWR, 907-842-8404
- Boyd Blihovde, Refuge Manager for Yukon Delta NWR, 907-543-1002

6. <u>Climate change effects on subsistence resources, activities, and safe access and possible mitigation measures</u>

The Council addressed this issue at great length in our FY-2019 Annual Report (enclosed). We bring it up again to continue to explore possible mitigation measures to support subsistence in a changing environment. There will be some Federal subsistence proposals coming before the Board to help provide flexibility with timing, seasons, areas, and tools that can be used to help subsistence hunters and fishers. These proposal requests may be regarding changing of hunt area boundaries when low water conditions on rivers make them no longer accessible by boat; or extending seasons into fall or alternate winter season if weather conditions are too hot; or asking for to-be-announced seasons when the snow and ice are safe for snow machine travel. Additionally, the Council notes that recent years of hot dry summers and low snow pack and warm river temperatures is causing heat stress to fish. The salmon may be swimming deeper in the cooler waters and there may soon be a time to increase the allowed net mesh depth to support subsistence fishers successfully catching salmon when they are swimming at greater depths.

Chairman Oney 9

Response:

The Board shares the Council's concern over the impacts of climate change on the fish, wildlife, and habitats essential for the continuation of the subsistence way of life. The Board encourages the Council to continue to submit proposals to change regulations to address climate induced impacts. The regulatory process can be used to ensure that shifts in the timing and distribution of subsistence resources and activities is supported rather than constrained by regulations.

Furthermore, the Board appreciates the Council's comments and testimonies on recent seasonal changes and their effects on fish, wildlife, and the subsistence way of life. Council members are a source of TEK and local observations of climate change. Therefore, the Council should continue to document its observations of changes through annual reports and testimony at Council and Board meetings. Documenting local observations are part of most Harvest Monitoring and TEK reports submitted through the Fisheries Resource Monitoring Program and are often included in research and resource management reports by State and Federal agencies.

7. <u>Hardship on the Council and community to participate by teleconference only</u>

Participation in the Council meetings by teleconference only has been very difficult. The Council recognizes the safety precautions needed to protect rural communities due to COVID-19, but it has come at great hardship and loss of effectiveness for the Council. Teleconference lines are full of static and background noise and calls repeatedly get dropped. It is very difficult to hear and challenging to fully engage in the meeting under these conditions. The Council would like to stress the importance of meetings in person, where the Council can engage with each other, the community, and Office of Subsistence Management staff, agencies, and Tribal representatives. We lose a lot of meaning, context, and connection as a result of being apart during teleconference meetings. There is no way to share visual information or data to all participating by teleconference. The Council strongly encourages the Federal Subsistence Management Program to resume in-person meetings as soon as safely possible. Until such time we request the program explore all options to increase the effectiveness of better teleconferencing services with improved reception, elimination of background noise, and computer support to Council members. The Council requests that computer-based videoconferencing options (such as Zoom) are provided so the Council members can see each other and all the speakers and their presentations.

Response:

Chairman Oney 10

Some of the winter 2020 Councils' meeting as well as all of the fall 2020 and winter 2021 meetings were held via teleconference and/or video conference due to the various pandemic restrictions and guidelines from the U.S. Fish and Wildlife Service, State of Alaska, and local and Tribal governments. The Board and OSM is committed to the safety and health of the Council members, employees and citizens of communities across rural Alaska, and is deeply concerned about the threat posed by the transmission of the infectious disease, COVID-19.

At the same time, the Board fully understands and supports the value of in-person meetings and is committed to resuming them as soon as it is possible to conduct them safely and adhere to all applicable guidelines. The Board remains hopeful that the in-person meetings will be allowed in the near future.

The Board would also like to inform the Council that OSM was able to secure the services of the Verizon MyMeeting platform that provides operator assistance and includes the ability to eliminate noise by muting and unmuting participants. This service was utilized for several public hearings in the spring of 2021 and worked well, with good sound quality for all participants including those calling from rural communities. We are hopeful this new teleconference service will be helpful for future Council meetings.

Additionally, OSM can provide a videoconferencing option via Microsoft Teams platform, which is approved for use by the Federal government (currently Zoom platform is not approved). At the same time, it is important to note that participants might experience difficulties accessing and maintaining a clear reception to the meeting via the Microsoft Teams platform or any other video-meeting platform in rural communities with limited internet capabilities. We recognize many Council members may not have access to computers or the internet to participate in these ways. Prior to the fall 2021 meeting cycle, the Council Coordinator for your region will reach out to all Council members and assess if it is practicable to use video conferencing.

In closing, I want to thank you and your Council for your continued involvement and diligence in matters regarding the Federal Subsistence Management Program. I speak for the entire Board in expressing our appreciation for your efforts and am confident that Federally qualified subsistence users of the Yukon-Kuskokwim Delta Region are well represented through your work.

Sincerely,

Chairman Oney 11

Anthony Christianson
Chair

Enclosure

cc: Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
Federal Subsistence Board
Sue Detwiler, Assistant Regional Director, Office of Subsistence Management
Amee Howard, Deputy Assistant Regional Director, Office of Subsistence Management
Robbin La Vine, Subsistence Policy Coordinator, Office of Subsistence Management
Katerina Wessels, Council Coordination Division Supervisor
Office of Subsistence Management
Lisa Grediagin, Wildlife Division Supervisor, Office of Subsistence Management
George Pappas, State Subsistence Liaison and Acting Fisheries Division Supervisor
Office of Subsistence Management
Jonathan Vickers, Anthropology Division Supervisor, Office of Subsistence Management
Eva Patton, Council Coordinator, Office of Subsistence Management
Interagency Staff Committee
Benjamin Mulligan, Deputy Commissioner, Alaska Department of Fish and Game
Mark Burch, Special Project Coordinator, Alaska Department of Fish and Game
Administrative Record

Brucellosis: Understanding an Important Arctic Infectious Disease

Center for Climate and Health

Michael Brubaker MS, James Berner MD, Jay Butler MD, Michael Bradley DVM

CCH Bulletin No. 5, November 30, 2010

This bulletin describes brucellosis, an infectious disease caused by bacteria found in some land and sea mammals, including Arctic species that are important subsistence foods. We discuss the history of brucellosis in Alaska, explain climate change connections, and describe some of the implications for consumers of these wild foods.

Background

Brucellosis is considered one of the most important Arctic infectious diseases and frequently affects wildlife including land and marine mammals that are important subsistence resources for Arctic people. Brucellosis is a "zoonotic disease", meaning that people can become infected by coming in contact with the same bacteria that causes the disease in animals. Ten species of *Brucella* are recognized in animals and some of these *Brucella* species include different biovars (i.e., different strain types).

Three *Brucella* species are known to cause disease in humans, *Brucella abortus* (mainly infecting cattle and bison), *Brucella melitensis* (mainly infecting sheep and goats), and *Brucella suis* (mainly infecting pigs, caribou and reindeer). *Brucella* suis "biovar 4" is the strain found in caribou and reindeer. Less frequently it can be found in dogs, moose, sheep, muskoxen and predator species. These are "spill over" hosts, meaning that the infection is usually not sustainable in the absence of a bacterial reservoir in the caribou or reindeer.

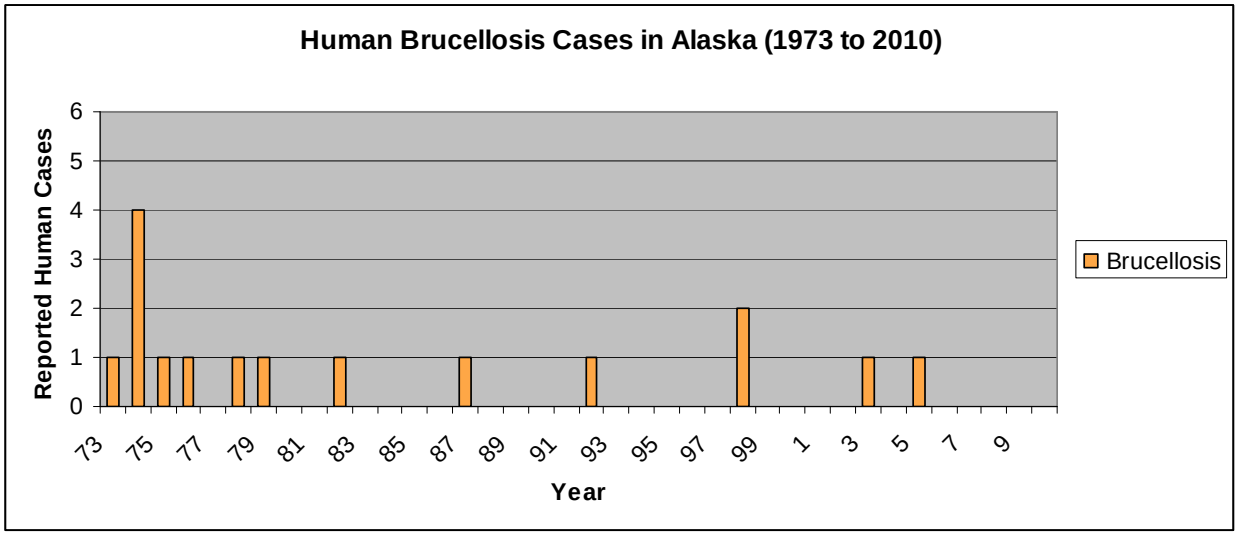
In Alaska, caribou are hunted mostly in spring, fall and winter. In the spring and fall, meat is air dried on racks and saved for later consumption. This is an efficient and economical way for preserving wild meat, as well as a traditional practice. Part of a freshly killed caribou is sometimes eaten raw, including the bone marrow and some internal organs. This can expose people to the *Brucella* bacteria. Another route of exposure is through a cut in the hand during butchering.

It is not known how frequently the infection occurs in people; although brucellosis has only rarely been reported to public health. Since 1973, there have been 17 reported cases in Alaska (DHSS). But the fact that brucellosis is difficult to diagnose may mean the disease is under reported, and that the rates are actual higher.

The *Brucella* – Caribou Connection

Brucellosis is a very old disease, and yet it has only recently been associated with wildlife in the Arctic. Up until the 1950s, reported human cases in Alaska were largely attributed to drinking

unpasteurized milk, as was common on small farms[1]. Cattle and pigs sometimes are infected with *Brucella abortus or Brucella suis* biovar 1, but in the 1950s, the disease had not yet been associated with Alaska wildlife. This changed in August of 1959 when an otherwise healthy, nineteen year old Alaska Native woman from Barrow fell ill (Edwards, S. 1959). She was admitted to the Barrow Native Hospital with flu-like symptoms, including fever, diarrhea, vomiting, and stomach pain. The following week, she was transferred to the Alaska Native Hospital in Anchorage under the care of Dr. Stan Edwards. After months of tests she was diagnosed with an uncommon type of brucellosis; not the variety found in farm animals, but rather *B. suis,* biovar 4 which had, never before been identified in Alaska. The woman was treated successfully with antibiotics, but the source of her *Brucella suis* remained a mystery.



Source: State of Alaska Department of Health and Social Services

Dr. Edwards had a strong suspicion that the young woman had received some unique exposure to *Brucella suis*. Prior to her illness, she had never been more then 120 miles from Barrow. Fresh dairy products were unheard of in Barrow, and people routinely consumed dry or canned milk. There was however, an interesting recent event in the patient's history. In August of 1958, three months prior to her illness, she had participated in a seal hunting trip. During the trip, a caribou was taken and the woman and two others from the party ate the bone marrow raw.

Dr. Edwards and Dr. Robert Phillips of the U.S. Public Health Service's Arctic Health Research Center traveled to Barrow to investigate. They were able to collect blood samples from 480 people. Of those tested, only one person was positive for anti-*Brucella* antibodies, an eighteen year old boy from Wainwright who was also a member of the seal hunting party and had eaten the raw caribou bone marrow. The third person who had eaten bone marrow was a 50 year old man. He also had been ill three months after the hunt, and had been treated with antibiotics. His tests came back negative for *Brucella*.

[1] Forty-nine cases were reported between 1939 and 1953 (Huntley et al. 1963).

Edwards and Phillips provided initial epidemiological evidence for an Alaska reservoir of *Brucella suis* in caribou. Human cases had also been described in other parts of the Arctic, including Canada in 1953 and in 1955, where caribou was also considered a possible source (Matas 1953, Corrigan 1955), and in Siberia, (Pinigin and Petukhova, 1962). More evidence of the caribou – human *Brucella suis* relationship was soon to follow.

In 1960 the 1st and 2nd Scout Battalions, of the Alaska National Guard, were mustering for their annual encampment. There were 795 members from 55 villages throughout southwest, western, northern and the interior of Alaska. It was an opportunity to assess exposure to *Brucella suis* statewide. Blood samples were collected from all guardsmen as well as from the general population of residents in the communities of Anatuvik Pass, Barrow, and Wainwright. Additionally, bone marrow for culture and blood samples was collected from 145 caribou around Anaktuvuk Pass (Huntley et al., 1963). Up to 10% of the Guardsmen tested positive for anti-*Brucella* antibodies, indicating past exposure. In Anatuvik Pass 14 people were positive, suggesting an exposure of 10 to 20% of the population.

In 1961, two more cases of brucellosis were identified, one from Anatuvuk Pass and a second from Kivalina (Huntley et al., 1963). People in both villages rely heavily on caribou in their diet. The strains isolated in these patients resembled the strains isolated in caribou, suggesting that the *Brucella* among caribou may also cause illness in humans. By 1966, the relationship had been firmly established. The strain of bacteria isolated in caribou and in people were the same (Brody et al. 1966), it was *Brucella suis* biovar 4 (Meyer, 1964).

Between 1961 and 1965 samples were collected from 763 residents in seven Arctic villages that rely heavily on caribou for food. These included Anaktuvuk Pass, Arctic Village, Fort Yukon, Kiana, Kivalina, Noatak and Shungnak. Chevak was selected as a control (unexposed) community since caribou was not commonly used there for subsistence (Brody et al. 1966). Blood samples were acquired from between 20% and 95% of the population and represented all age groups with the exception of children under five years of age.

No one tested positive in the control community Chevak, but in the others between 5% and 21% tested positive for anti-*Brucella* antibodies, showing that they had been exposed but were not necessarily experiencing illness. During the same period however, eight active infections were identified among men and women: one case in Anaktuvuk Pass, two in Kiana, two in Kivalina, one in Kotzebue, one in Wainwright, and one in Barrow. All suffered from similar flu-like symptoms and recovered after receiving antibiotics. All cases were in people who commonly ate caribou, both cooked and raw. So even though many residents had *Brucella* antibodies in their blood, it was uncommon for people to develop the disease.

During almost the same period, analysis of caribou from across Alaska identified an epidemic of brucellosis in both the Nelchina (Southcentral Alaska) and Arctic caribou herds (Neiland et al., 1967). Speculation was made about a potential caribou-dog-human connection, similar to other dog-human zoonotic disease pathways in rural Alaska; such as rabies (fox-dog-human) and echinococcus (vole-dog-human).

Brucellosis serology in 7 villages above the Arctic Circle (Brody, 1966)

Village	Number Tested	% Positive Male	% Positive Female	% Positive Total
Anaktunuk Pass	98	7	10	8
Arctic Village	45	24	13	18
Fort Yukon	174	20	21	21
Kiana	174	4	8	6
Kivalina	64	3	11	6
Noatak	131	4	7	5
Shungnak	77	14	14	14
TOTAL	763	9	13	11

A later blood survey by the State of Alaska Department of Fish and Game, suggested that the disease was present in all caribou herds in Alaska, but with a high prevalence in the Northwest, and a low prevalence in southern part of the state (Zarnke, 2001). Similarly, in Canada, caribou continued to be identified as carriers of *Brucella suis* biovar 4. Arctic people were considered at particular risk for infection because of the raw caribou meat in their diet. As advised in a 1989 report on brucellosis among Canadian Inuit, "physicians should consider brucellosis in these individuals who present with persistent fever or hepatosplenomegaly (an enlarged liver or spleen)" (Chan et al., 1989).

The *Brucella* – Marine Mammal Connection

In 1994 a new *Brucella* species was described; the first case of brucellosis in a sea mammal, a captive dolphin in California (Ewalt et al. 1994). The fact that the animal had an aborted pregnancy (a common outcome of brucellosis in animals including caribou) suggests that this new *Brucella* species was not only present but was also causing disease. Two different marine mammal *Brucella* species *Brucella pinnipedialis,* infecting preferentially seals, and *Brucella ceti,* infecting preferentially whales and porpoises, have since been isolated in a variety of marine mammals.

Marine mammals strains were different than any of the terrestrial strains of the bacteria. A survey from the North Atlantic found that 38% of surveyed hooded seals were sero (blood) positive for *Brucella* (Tryland et al, 2005). Brucellosis was also found to have high prevalence in 49% of tested common seals and 33% of harbor porpoises on the Scottish coast (Foster et al., 2002). Anti-*Brucella* antibodies have also been detected in 10% of ringed seals tested in the Barents Sea (Tryland et al., 1999). In Alaska, a 2006 study in the Gulf of Alaska, Prince William Sound, Kodiak Island and the Southeast, described 46% sero-positivity in Harbor seals (11% for pups and 54% for non pups), the highest of any species tested in Alaska (Zarnke et al., 2006).

Climate change may be increasing the opportunity for *Brucella* and other infectious agents to spread throughout the Arctic. Whereas some Alaska sea mammals were once geographically isolated, the opening of ice-free routes across the Arctic Ocean are increasing opportunities for interaction and the spread of infectious disease. The social behavior of seals, sea lions and other pinniped species, especially during haulout periods, provides added opportunity for

transmission of infectious disease (Zarnke et al. 2006). Transfer may occur through prey species, from mother to calf (or pup), or through a parasite such as lung worms that were reported to have infected a Pacific harbor seal (Garner et al., 1997).

But can marine *Brucella* also affect people? The occupational acquired infection of a laboratory worker suggested that the marine *Brucella* may also be contagious to humans. The lab worker had headache, sinusitis and fatigue, and had bacteria in his blood (Brew et al. 1999). Marine *Brucella* species have also infected people in a community setting. Two incidents of community-acquired human infections from marine *Brucella* were reported in Peru, both resulting in neurobrucellosis, a rare, severe form of systemic nervous system infection. Neither of the patients reported consuming or having contact with sea mammals, despite the fact that the strain of *Brucella* they acquired, *B. pinnipedialis* is associated with seals. This raises questions about the possible routes of human exposure to marine *Brucella* (Sohn et al, 2003).

Because each *Brucella* species has distinctive characteristics of infection, the complexity of the interaction between the bacteria, the animals and humans has increased (Godfroid et al., 2005). At least two newly identified species, *B. ceti* infecting cetaceans like whales, dolphins and porpoises) and *Brucella pinnipedialis* (infecting different seal species) are now present in the Arctic (Godfroid J, 2002) and new *Brucella* strains or species may emerge as existing *Brucella* adapt to a changing environment. Marine *Brucella* species may utilize non-mammal species such as fish or round worms as intermediate hosts. Marine ecosystems may add complexity to the marine *Brucella* life – cycle, and may pose additional possible sources of human exposure. It is not known whether antibodies developed to *Brucella* from caribou will protect against infection from marine forms of *Brucella*, or to what extent standard tests for infections in humans exposed to terrestrial forms of *Brucella*, will also detect antibodies to marine *Brucella*.

Conclusion

In Alaska, little is know about the prevalence of brucellosis in humans. Although rarely reported, it may be diagnosed and treated more frequently than is apparent. Surveillance and reporting systems to improve understanding about this disease are needed, both in wildlife and for the people who depend on these animals as a staple in their diet.

Caribou as well as reindeer are the reservoir of *Brucella suis* biovar 4 brucellosis infection in people. This can be a severe disease and requires prompt diagnosis and treatment. There is also a possible reservoir of *Brucella ceti* and *Brucella pinnipedialis* in Arctic marine mammals. However, to date no human infection with marine *Brucella* has been described in the Arctic. On the basis of the blood tests available, a determination of the origin of the *Brucella* infection, marine versus terrestrial, is not possible.

The extent of exposure and infection by marine *Brucella* in humans is currently unknown. Worldwide, only three naturally acquired human cases have been described, for which the route of transmission is not known.

Alaska Natives depend upon traditional foods to provide a healthy, affordable, sustainable, and culturally meaningful diet. Sea and land mammals used for food are often eaten raw (such as bone marrow), dried, or raw after freezing. These practices are known to carry more risk for food-borne illnesses than eating food that has been cooked, which effectively kills most bacteria and parasites. The risks are highest for people who are susceptible to infection, such as pregnant mothers, the elderly, or people that are immune suppressed due to illness or cancer therapy. But how great is the risk, what benefits would be lost, and do the risks justify changing behaviors and traditions that have been passed down for generations?

More information is needed to answer these questions, and to help us understand the risks and benefits associated with different methods of food preparation. With better information, consumers of traditional foods can make choices based on sound science and their own personal and cultural priorities. In the meantime, some basic precautions such as wearing protective gloves during butchering can help consumers protect themselves from brucellosis while continuing to use and enjoy these important subsistence resources.

The bulletin entitled ***Brucellosis – Answers to Frequently Asked Questions,*** provides information for subsistence food consumers and some basic guidelines on how to prevent exposure to *Brucella*. The fact sheet is available at the ANTHC Center for Climate and Health website. Google us with: “Center for Climate and Health.”

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Brucellosis: Answers to Frequently Asked Questions
Center for Climate and Health

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This bulletin describes brucellosis, an infectious disease caused by bacteria found in some land and sea mammals, including species that are important food resources. As climate change is providing new opportunities for the spread of infectious disease, ANTHC developed this bulletin to provide prevention guidelines and answer some commonly asked questions. The risk of infection from brucellosis is thought to be low, but it can be a serious illness. This information can help Alaska Natives reduce risk while continuing to enjoy a healthy, subsistence diet.

What is Brucellosis?

Brucellosis (pronounced: brew-cell-o-sis) is a disease caused by a bacteria called *Brucella*, that infects some animals and can also infects people. In Alaska, the most common source of *brucellosis* in people is from exposure to infected caribou and reindeer. *Brucella* can also infect other land mammals including wolves, bears, musk ox, and moose among others. It has also recently been identified in sea mammals including seals and whales.

Where does it occur?

Brucellosis is most commonly associated with the four Arctic caribou herds: the Western Arctic, the Teshekpuk, the Central Arctic, and the Porcupine. These herds occupy parts of Norton Sound, the Northwest Arctic Borough, the North Slope Borough, the Interior, and across the border into Canada's Northwest Territory. Brucellosis is also reported in other caribou and reindeer herds in Alaska.

Bearded Seal Courtesy E. Regehr, U.S. Fish and Wildlife.

Caribou (Courtesy APIA Photo Archives).

How frequently does it occur in animals?

In surveillance performed since 1971 by the Alaska Department of Fish and Game, more then 1000 North Slope caribou have been sampled, and antibodies against brucella have been found in 5% of the animals tested (Personal communication, Kimberlee Beckmen, ADF&G 2010). Efforts are underway by ADF&G and others to describe this disease in caribou and other wildlife. Tests in marine mammals showed that in parts of Alaska, 46% of harbor seals had been

exposed to brucella. However, to date no Alaskan cases of human brucellosis associated with marine mammals have been identified so the potential risk to hunters and consumers is unknown.

What are the signs of brucellosis in caribou?
Brucellosis usually affects caribou reproductive organs and the legs. Infected animals may have swollen joints causing limping or lameness, especially in the front legs. However, this is not the only disease or condition that can cause these symptoms in caribou. In fact, an infected animal may appear healthy. It is for this reason that people handling caribou should be aware of the disease so that they can take precautions.

Photo of swollen caribou fore leg. Courtesy of the Government of Northwest Territories, Canada.

Would I notice anything different when butchering?
In caribou, you may find a swollen joint, testicle or womb, but typically you will not find anything unusual. As for marine mammal brucellosis, infected seal usually appear healthy whereas in whales and other cetaceans, lesions in reproductive organs, in the brain, skin and joints have been reported.

How often does brucellosis occur in people?
Brucellosis has rarely been diagnosed in people. Since 1973, there have been only 17 reported cases in Alaska (DHSS). The fact that brucellosis is difficult to diagnose may mean the disease is under reported, and rates may actually be higher.

How does brucellosis affect people?
In people, the effects of brucellosis can range from having no symptoms at all, to a very serious and sometimes chronic infection of the brain, heart or other internal organs. Untreated it can result in death. When there are symptoms, they can include fever, sweats, headaches, back pains, and physical weakness. Long-lasting, chronic symptoms include fevers that come and go, joint pain, and fatigue. Brucellosis in people can be diagnosed in a laboratory by testing samples of blood or bone marrow.

What should you do if you think you have been exposed?
People that experience symptoms and are concerned about infection should tell their health care provider that they may have been exposed to *Brucella*.

What is the treatment?
Treatment for a confirmed case of brucellosis involves antibiotics. Depending on the timing of treatment and severity of illness, recovery may take a few weeks to several months. Brucellosis can be cured with treatment.

How common is it in people?
It is difficult to say as there are few records in Alaska and it is possible that some cases go without ever being diagnosed. A 1981 State of Alaska Epidemiology Bulletin reported that since 1958, brucellosis averaged about one case per year (ranging between 0 and 5), with 24 cases in all (Ribar, J., 1981).

How are people exposed to *Brucella*?
It is usually while butchering, when cuts in a person's hand come in contact with the fluids from the womb, swollen joints and possibly the blood. It can also be contracted if infected fluids are splashed into the eyes, nose or mouth, or through eating uncooked or improperly cooked bone marrow.

If a caribou looks like it has brucellosis, can I still eat it?
Remember, it may not be possible to tell if an animal is infected. If it appears infected, you can still eat the healthy looking meat and marrow of the animal as long as it is properly cooked. Freezing, drying, pickling or smoking *will not* kill most bacteria, including *Brucella* either in caribou or in other animals.

Can the disease be passed from person to person?
The spread of brucellosis from person to person is extremely rare. However, infected mothers can transmit brucellosis to their infants. This is why cooking meat and marrow is especially important for nursing mothers.

How can I protect myself while butchering?
If part of the animal appears diseased, avoid cutting into it. If you have an open cut on your hand, ask someone else to do the butchering and preparation; or wear a pair of rubber gloves. Avoid wiping your eyes or mouth with anything that has come in contact with blood or fluids. Wearing glasses or sunglasses can help to avoid this kind of exposure.

What about clean up?
The bacteria can remain viable for months so thorough cleaning of tools after butchering or preparation is strongly recommended. In the field, hand sanitizers are a good alternative if water is not readily available. At home, take care to clean the area where butchering has occurred. Water mixed with bleach, (one part bleach to ten parts water) works well to clean counters and other surfaces.



Wearing gloves helps to prevent exposure to brucella during butchering. Photos M. Brubaker, 2010

Does this mean I should only eat cooked meat?
Much of the sea and land mammal that is consumed by Alaska Natives is dried, or eaten raw after freezing. This is an economical and efficient way to prepare meat, and also has cultural and nutritional value. But consumers need to be aware that these practices may carry more risk for brucellosis and other foodborne diseases than cooked meat. Deciding how to eat (cooked, uncooked or otherwise) is a personal decision that should be made based on good information about the specific food resource.

Are some people more vulnerable to infection?
Although brucella is difficult to detect in people, the risk for infection is thought to be low. However, special precautions are recommended for people who are more vulnerable to infectious disease, such as infants, pregnant mothers, the elderly, or people that are immune suppressed due to illness or cancer therapy. With these populations, cooking meat and marrow can help to prevent a serious infection.

What is the connection to climate change?
Brucellosis is one of the diseases commonly discussed in relation to climate change in the Arctic. Warming temperature is changing the range of many animals and other wildlife, and improving conditions for the spread of some types of disease. Little is known about climate change influence on brucellosis rates in animals or people, but efforts are on-going to improve understanding of the disease and to monitor for new diseases or changes in disease patterns.

Where can I get more information?
For more information about brucellosis in wildlife, contact the State of Alaska Department of Fish and Game, or visit their Wildlife Disease Website. For more information about brucellosis in people, you can contact the Alaska Native Tribal Health Consortium, Center for Climate and Health, or the State of Alaska Section of Epidemiology. If you are concerned about your own health or that of your family, contact your health care provider or regional health corporation.

Conclusion - Alaska Natives depend upon traditional foods to provide a healthy, affordable, sustainable, and culturally meaningful diet. Wild land and sea mammals are generally more nutritious then the meat that is available at the store. More research is needed into the risks and benefits associated with different methods of preparing wild foods, as well as ways for reducing risk, and broader surveillance for brucellosis is needed. With good information, consumers can make choices based on sound science and their own personal and cultural priorities. Brucellosis is not a new problem in Alaska, nor is it thought to be a common one. But brucellosis can be serious, especially in people who are vulnerable to infections. By taking a few precautions everyone can enjoy the benefits of these important subsistence foods and prevent illness.

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ANNUAL REPORT REPLY PROCESS REVISION

During the Federal Subsistence Board's (Board) August 2021 work session, the Board reviewed and discussed the annual report reply process and agreed to add this topic to the Regional Advisory Councils (Councils) Fall meeting agendas to get Council input on proposed revisions.

ANILCA, Section 805 gives authority to the Councils to prepare an annual report containing information related to current and future subsistence uses of fish and wildlife populations, an evaluation of current and future subsistence needs for these populations, a strategy for their management, and recommendations related to policies, standards, guidelines, and regulations to implement the strategy. These reports are invaluable as they provide the Board with a broad, holistic picture of local resource conditions, and the needs and challenges facing communities across rural Alaska. With this knowledge, the Board can make more informed decisions.

Historically, the Federal Subsistence Management Program has strived to provide responses to every topic listed in annual reports, developed by a diverse group of Federal staff. While all topics can be important to the Board in understanding local conditions, it is unclear if the responses on all matters warrant the use of often very limited staff capacity. Furthermore, the same or similar topics are often repeated in subsequent years with no resolution, and many topics are on issues over which the Board has no regulatory authority.

Importantly, ANILCA does not require replies to annual reports from the Councils and currently the Code of Federal Regulations state that the Board "consider the reports and recommendations of the Regional Councils." Instead of replying to every topic in an annual report, the Board believes it would be more beneficial to use other communication methods when Councils request a response from the Board, or from others who may have better technical understanding of each issue. Often this is already accomplished by Councils writing letters to these entities, including to the Board. This proposed revision will allow for more substantive and timely responses from the Board on topics most critical to the Councils. We propose that Councils consider letter writing as the most appropriate means for requesting a response to topics of concern, and that the annual report process be streamlined as a mechanism for informing the Board of local conditions and needs. Under this scenario, Councils could ask their Coordinators to write a letter to the Board if there are annual report topics to which they are specifically requesting a response. Any other topics, such as those outside the regulatory authority of the Board, can be addressed to the appropriate Federal agency staff at Council meetings, or Councils can write letters requesting a response directly from them, thus streamlining the response process and encouraging direct agency communications with the Councils.

The suggested revision is not intended to diminish the ability of the Councils to report to the Board on topics of concern, and Councils will still receive responses when requested from the Board. At this time, the Board is seeking input from the Councils on this proposed change to the annual report process. Council feedback on this issue is critical as the Board moves forward to make the reply process more efficient and responsive. The Board will consider Council input on this revision at its winter work session at the end of January 2022.

Presentation Procedure for Proposals and Closure Reviews

1. **Introduction and Presentation of Draft Staff Analysis**
2. **Report on Board Consultations:**
    a. Tribes
    b. ANCSA Corporations
3. **Agency Comments:**
    a. ADF&G
    b. Federal
    c. Tribal
4. **Advisory Group Comments**:
    a. Other Regional Advisory Council(s)
    b. Fish and Game Advisory Committees
    c. Subsistence Resource Commissions
5. **Summary of Written Public Comments**
6. **Public Testimony**
7. **Regional Council Recommendation (motion to adopt)**
8. **Discussion/Justification**
    - Is the recommendation consistent with established fish or wildlife management principles?
    - Is the recommendation supported by substantial evidence such as biological and traditional ecological knowledge?
    - Will the recommendation be beneficial or detrimental to subsistence needs and uses?
    - If a closure is involved, is closure necessary for conservation of healthy fish or wildlife populations, or is closure necessary to ensure continued subsistence uses?
    - Discuss what other relevant factors are mentioned in OSM Draft Staff Analysis
9. **Restate final motion for the record**
10. **Council's Vote**

WP22–41 Executive Summary	
General Description	Wildlife Proposal, WP22-41, requests that the Federal in-season manager be delegated authority to open and close seasons, announce harvest limits, and set sex restrictions for caribou in all or portions of Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B via delegation of authority letter (**Appendix 1**). *Submitted by: Togiak National Wildlife Refuge (NWR) and Yukon Delta NWR*
Proposed Regulation	**Unit 9−Caribou** *Unit 9A—**up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 15.* ***Season may be announced*** *Unit 9B— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 31.* ***Season may be announced*** *Unit 9C, that portion within the Alagnak River drainage— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 15.* ***Season may be announced*** *Unit 9C, that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek— **up to** 2 caribou by State registration permit.* — *Aug. 1 – Mar. 15.* ***Season may be announced*** **Unit 17−Caribou** *Unit 17A-all drainages west of Right Hand Point— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 31.* ***Season may be announced*** *Units 17B and 17C-that portion of 17C east of the Wood River and Wood River Lakes— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 31.* ***Season may be announced*** **Unit 18−Caribou** *Unit 18-that portion to the east and south of the Kuskokwim River— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 15.* ***Season may be announced*** *Unit 18, remainder— **up to** 2 caribou by State registration permit* — *Aug. 1 – Mar. 15.*

WP22–41 Executive Summary		
		Season may be announced
	Unit 19−Caribou	
	*Units 19A and 19B (excluding rural Alaska residents of Lime Village)— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.* ***Season may be announced***
OSM Preliminary Conclusion	**Support**	
Bristol Bay Subsistence Regional Advisory Council Recommendation		
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation		
Western Interior Alaska Subsistence Regional Advisory Council Recommendation		
Seward Peninsula Subsistence Regional Advisory Council Recommendation		
Interagency Staff Committee Comments		
ADF&G Comments		
Written Public Comments	None	

DRAFT STAFF ANALYSIS
WP22-41

ISSUES

Wildlife Proposal, WP22-41, submitted by Togiak National Wildlife Refuge (NWR) and Yukon Delta NWR, requests that the Federal in-season manager be delegated authority to open and close seasons, announce harvest limits, and set sex restrictions for caribou in all or portions of Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B via delegation of authority letter (**Appendix 1**).

DISCUSSION

The proponents state that the summer 2019 and 2020 population estimate for the Mulchatna Caribou Herd (MCH) was 13,500 caribou, which represents a 50% decline from the previous five years and is well below the State's minimum population objective of 30,000 caribou. The proponents note that 2019/20 Federal and State seasons were shortened due to conservation concerns. The 2020/21 season was also shortened, providing for a bulls-only harvest in August and September, while the rest of the season remained closed. The proponents state that this request will help conserve and recover the MCH and provide the flexibility needed to make harvest management decisions in a timely manner. The proponents recognize that this request will reduce harvest opportunity in the short run, but that conserving the MCH now will increase harvest opportunity in the future. The proponents also state that harvest of other resources such as moose may increase in response to this proposal.

Existing Federal Regulation

Unit 9−Caribou

Unit 9A—2 caribou by State registration permit	*Aug. 1 – Mar. 15.*
Unit 9B—2 caribou by State registration permit	*Aug. 1 – Mar. 31.*
Unit 9C, that portion within the Alagnak River drainage—2 caribou by State registration permit	*Aug. 1 – Mar. 15.*
Unit 9C, that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek—2 caribou by State registration permit.	*Aug. 1 – Mar. 15.*

Unit 17−Caribou

Unit 17A-all drainages west of Right Hand Point—2 caribou by State registration permit	*Aug. 1 – Mar. 31.*
Units 17B and 17C-that portion of 17C east of the Wood River and Wood River Lakes—2 caribou by State registration permit	*Aug. 1 – Mar. 31.*

Unit 18−Caribou

Unit 18-that portion to the east and south of the Kuskokwim River—2 caribou by State registration permit	*Aug. 1 – Mar. 15.*
Unit 18, remainder—2 caribou by State registration permit	*Aug. 1 – Mar. 15.*

Unit 19−Caribou

Units 19A and 19B (excluding rural Alaska residents of Lime Village)—2 caribou by State registration permit	*Aug. 1 – Mar. 15.*

Proposed Federal Regulation

Unit 9−Caribou

*Unit 9A—**up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.* ***Season may be announced***
*Unit 9B— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 31.* ***Season may be announced***
*Unit 9C, that portion within the Alagnak River drainage— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.* ***Season may be announced***
*Unit 9C, that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek— **up to** 2 caribou by State registration permit.*	*Aug. 1 – Mar. 15.* ***Season may be announced***

Unit 17−Caribou

*Unit 17A-all drainages west of Right Hand Point— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 31.* ***Season may be announced***
*Units 17B and 17C-that portion of 17C east of the Wood River and Wood River Lakes— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 31.* ***Season may be announced***

Unit 18−Caribou

*Unit 18-that portion to the east and south of the Kuskokwim River— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.* ***Season may be announced***
*Unit 18, remainder— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.*

	Season may be announced
Unit 19−Caribou	
*Units 19A and 19B (excluding rural Alaska residents of Lime Village)— **up to** 2 caribou by State registration permit*	*Aug. 1 – Mar. 15.* ***Season may be announced***

Existing State Regulation

Note: No seasons are open to nonresidents within the range of the MCH.

Unit 9—Caribou		
Residents: Units 9A and 9C, that portion within the Alagnak River drainage —one caribou by permit	*RC503*	*Season not announced*
Residents: Unit 9B— two caribou by permit	*RC503*	*Season not announced*
Residents: Unit 9C, that portion north of the north bank of the Naknek River and south of the Alagnak River drainage— two caribou by permit	*RC503*	*Season not announced*
Unit 17—Caribou		
Residents: Units 17A remainder, 17B and 17C east of the east banks of the Wood River, Lake Aleknagik, Agulowak River, Lake Nerka and the Agulukpak River— one caribou by permit	*RC503*	*Season not announced*
Unit 18—Caribou		
Residents: One caribou by permit	*RC503*	*Season not announced*
Unit 19—Caribou		
Residents: Units 19A and 19B— one caribou by permit	*RC503*	*Season not announced*

Extent of Federal Public Lands

Collectively, Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B are comprised of 48% Federal public lands and consist of 32% U.S. Fish and Wildlife Service (USFWS) managed lands, 11% National Park Service (NPS) managed lands, and 5% Bureau of Land Management (BLM) managed lands (**Figure 1**). Land status by Unit is as follows.

Unit 9A is comprised of 40% Federal public lands and consists of 39% NPS managed lands and less than 1% each USFWS and BLM managed lands.

Unit 9B is comprised of 34% Federal public lands and consists of 26% NPS managed lands and 8% BLM managed lands

Unit 9C is comprised of 86% Federal public lands and consists of 78% NPS managed lands, 4% BLM managed lands and 4% USFWS managed lands.

Unit 17A is comprised of 87% Federal public lands and consists of 87% USFWS managed lands and less than 1% BLM managed lands.

Unit 17B is comprised of 8% Federal public lands and consists of 6% NPS managed lands, 1% BLM managed lands, and 1% USFWS managed lands.

Unit 17C is comprised of 25% Federal public lands and consists of 15% USFWS managed lands and 10% BLM managed lands.

Unit 18 is comprised of 67% Federal public lands and consists of 64% USFWS managed lands and 3% BLM managed lands.

Unit 19A is comprised of 23% Federal public lands and consists of 21% BLM managed lands and 2% USFWS managed lands.

Unit 19B is comprised of 13% Federal public lands and consists of 11% NPS managed lands, 2% BLM managed lands and less than 1% USFWS managed lands.

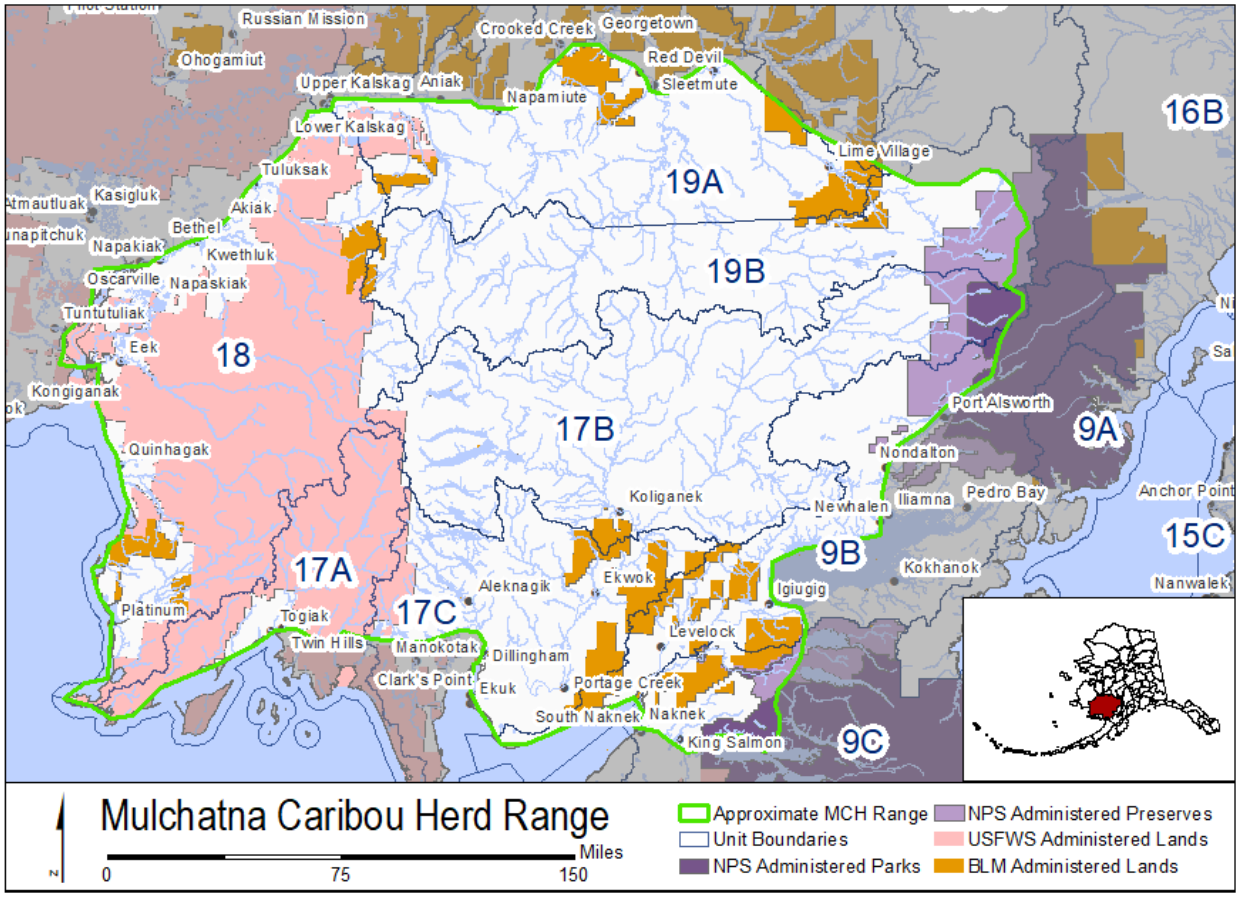

Figure 1. The Mulchatna Caribou Herd range covers ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B.

Customary and Traditional Use Determinations

Residents of Units 9B, 9C and 17 have a customary and traditional use determination for caribou in Units 9A and Unit 9B.

Residents of Units 9B, 9C, 17, and Egegik have a customary and traditional use determination for caribou in Unit 9C.

Residents of Units 9B, 17, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, and Tuntutuliak have a customary and traditional use determination for caribou in Unit 17A, that portion west of the Izavieknik River, Upper Togiak Lake, Togiak Lake, and the main course of the Togiak River.

Residents of Units 9B, 17, Akiak, Akiachak, Lime Village, Stony River, and Tuluksak have a customary and traditional use determination for caribou in Unit 17A, that portion north of Togiak Lake that includes Izavieknik River drainages.

Residents of Units 9B, 17, Kwethluk, Lime Village, and Stony River have a customary and traditional use determination for caribou in Units 17A and 17B, those portions north and west of a line beginning from

the Unit 18 boundary at the northwestern end of Nenevok Lake, to the southern point of upper Togiak Lake, and northeast to the northern point of Nuyakuk Lake, northeast to the point where the Unit 17 boundary intersects the Shotgun Hills.

Residents of Units 9B, 17, Akiachak, Akiak, Bethel, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, Tuluksak, and Tuntutuliak have a customary and traditional use determination for caribou in Unit 17B, that portion of Togiak National Wildlife Refuge within Unit 17B.

Residents of Units 9B, 9C, 9E, 17, Lime Village, and Stony River have a customary and traditional use determination for caribou in Unit 17 remainder.

Residents of Unit 18, Lower Kalskag, Manokotak, Stebbins, St. Michael, Togiak, Twin Hills, and Upper Kalskag have a customary and traditional use determination for caribou in Unit 18.

Residents of Unit 19A and 19B, Unit 18 within the Kuskokwim River drainage upstream from, and including, the Johnson River, and residents of St. Mary's, Marshall, Pilot Station, and Russian Mission have a customary and traditional use determination for caribou in Units 19A and 19B.

Regulatory History

As a result of the dramatic population increase the MCH experienced during the 1990s, harvest regulations were liberalized throughout the range of the herd. By 1997, both State and Federal seasons in portions of Units 9, 17, and 19 extended from fall through spring, with liberal harvest limits and few restrictions. The subsequent population decline, beginning in 2004, resulted in the implementation of more restrictive regulations. Following is a summary of State and Federal regulatory changes since 2006.

At its spring 2006 meeting, the Alaska Board of Game (BOG) implemented more restrictive regulations for both resident and non-resident hunters. For resident hunters, they established an Aug. 1 – Mar. 15 season throughout the range of the herd. Previously, resident seasons ended on March 31 or April 15. The BOG also reduced the harvest limit throughout much of the range to three caribou, with only one caribou allowed Aug. 1 – Sep. 30. Nonresident seasons, which previously extended fall through spring, were reduced to Aug. 1 – Sep. 30.

The BOG further restricted harvest from the MCH in 2007. At that time, they reduced the resident harvest limit to two caribou with the restriction that no more than one bull could be taken and not more than one caribou could be taken Aug. 1 – Jan. 31. In addition, same day airborne harvest was eliminated for Units 9B, 17B, and 17C. The non-resident seasons were reduced to Sep. 1 – 15 at this time.

The Federal Subsistence Board (Board) considered Proposal WP07-23 in 2007, which requested Federal regulations for caribou in Units 9B and 17 be modified to reflect the recent changes in State regulation. Following the recommendation of several Subsistence Regional Advisory Councils (Councils), the Board adopted this proposal with modification to also include Units 18, 19A and 19B. However, this proposal was submitted prior to the BOG's 2007 regulatory changes and the Board's modification did not

accommodate the more recent changes in State regulation. Consequently, Federal regulations were aligned with the State's 2006 regulations rather than the 2007 regulations.

Following continued decline of the MCH, the BOG adopted Proposal 57 in 2009, which eliminated the nonresident caribou season throughout the range of the MCH.

The Board considered three proposals in 2010, all of which proposed further restrictions to harvest of the MCH. Proposal WP10-51 requested that Federal caribou seasons in Units 9A, 9B, 17B, a portion of 17C, 18, 19A, and 19B be changed to Aug. 1–Mar. 31. The Board adopted this proposal with modification to end the seasons on March 15, as recommended by several Councils. Proposal WP10-53 requested that the harvest limit for caribou be set at two caribou throughout the range of the MCH, with the restriction that no more than one bull may be taken and no more than one caribou may be taken Aug. 1 – Jan. 31. The Board adopted this proposal. Proposal WP10-60 requested that the harvest limit for caribou in Unit 18 be reduced from three caribou to two caribou. This proposal was adopted by the Board with modification to include the restriction that no more than one bull may be taken and no more than one caribou may be taken Aug. 1 – Jan. 31, consistent with action taken on WP10-53. The result of the Board's actions in 2010 was that State and Federal regulations for caribou within the range of the MCH were largely aligned.

The BOG initiated intensive management for predator reduction within the range of the MCH in 2011. At their spring 2011 meeting, they established a predation management area in Units 9B, 17B, and 17C. At their spring 2012 meeting, they added Units 19A and 19C to the predation management area.

In 2012, the Board considered Proposal WP12-42, which requested that, in Unit 18, the harvest limit be reduced from two caribou to one caribou and the season be reduced from Aug. 1 – Mar. 15 to Aug. 1 – Sep. 3 and Dec. 20 – last day of February. The Board adopted the proposal with modification, which resulted in the establishment of two separate hunt areas in Unit 18. For the portion of Unit 18 east and south of the Kuskokwim River, the season was reduced as proposed, while the harvest limit remained at two caribou, with the restriction that not more than one caribou may be taken Aug. 1 – Sep. 30 or Dec. 20 – Jan. 31. For the remainder of Unit 18, there were no changes to regulations.

Shortly after the Board's decision on WP12-42, it received two Special Action Requests to make similar changes for the remainder of the 2011/12 regulatory year. WSA11-10 requested that the caribou season in Unit 18 be shortened by 2 weeks, to end on February 29, rather than March 15. WSA11-11 requested that Federal public lands in the portion of Unit 18 south and east of the Kuskokwim River be closed to the harvest of caribou by all users beginning March 1. The Board rejected both requests on the grounds that it would be detrimental to subsistence users and that there was insufficient evidence that the situation required immediate action.

In February 2013, the BOG adopted Proposal 45A, which required use of a registration permit (RC503) in Units 9A, 9B, portions of 9C, 17, 18, 19A, and 19B. Previously, MCH harvest was allowed with just a harvest ticket. These changes were aimed at improving harvest management and assessment of the MCH's response to the ongoing intensive management program.

The Board considered two Special Action Requests in 2013. The first, Temporary Special Action WSA13-02, requested alignment of Federal permit requirements and season dates with the recently modified State regulations. As a result of the Board's approval of this request, Federally qualified subsistence users hunting under Federal regulations were required to obtain a State registration permit in Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B. The Board's action also shortened the to-be-announced season in Units 17A remainder and 17C remainder from Aug. 1–Mar. 31 to Aug. 1–Mar. 15. These changes were in effect for the remainder of the 2013/14 regulatory year. The second request, Temporary Special Action WSA13-03, requested the closure of Federal public lands in Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B to the harvest of caribou, except by Federally qualified subsistence users. The Board rejected WSA13-03 on the grounds that the MCH population was within State management objectives, and composition metrics were showing improvement.

In 2014, the Board adopted Proposal WP14-22 with modification, which resulted in the requirement of a State registration permit for Federally qualified subsistence users hunting under Federal regulations in Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B. It also resulted in a shortening of the to-be-announced season in Units 17A remainder and 17C remainder, from Aug. 1 – Mar. 31 to Aug. 1 – Mar. 15. Finally, it delegated authority to the Togiak National Wildlife Refuge Manager to take specific in-season management actions in portions of Units 17A and 17C. This included the authority to open and close seasons, establish harvest limits and restrictions, and identify hunt areas. These changes were meant to align Federal and State regulations across the range of the MCH, while providing improved harvest reporting.

In February 2015, the BOG adopted Proposal 47 with an amendment to accommodate the request made in Proposal 48. As a result of this action, caribou seasons in Units 9B and 17 were changed from Aug. 1 – Mar. 15 to Aug. 1 – Mar 31. This change was made to accommodate hunters who reported that travel conditions often prohibited caribou hunting after the last day of March.

In March 2016, BOG adopted Proposal 134, which resulted in liberalization of the harvest restrictions for caribou harvested within the range of the MCH. Specifically, the harvest limit remained at two caribou, but the restrictions that no more than one bull may be taken and no more than one caribou may be taken from Aug. 1 – Jan. 31 were eliminated. By 2016, the bull:cow ratio had reached the management threshold and conservation of bulls had become less critical compared to 2007, when the restrictions were implemented. Fewer restrictions also resulted in a less complicated regulatory structure and were not expected to result in unsustainable levels of harvest.

The same spring, the Board considered Proposal WP16-29/30, which requested that caribou seasons in Unit 9B and portions of Unit 17 be extended from Aug. 1 – Mar. 15 to Aug. 1 – Mar. 31. This proposal was intended to provide additional subsistence opportunity and to align Federal and State regulations for caribou hunting within the range of the MCH. The Board adopted this proposal with modification to move in-season management language from unit-specific regulations to a delegation of authority letter. However, this proposal was submitted prior to the BOG's 2016 regulatory changes and the Board's modification did not accommodate the recent changes to State regulation. Consequently, Federal regulations were aligned with the State's 2016/17 regulations rather than the 2017/18 regulations.

In February 2018, the BOG adopted Proposal 127. As a result, the portion of Unit 9C north of the Naknek River and south of the Alagnak River drainage became part of the MCH RC503 permit area, rather than part of the Northern Alaska Peninsula Caribou Herd (NAPCH) TC505 permit area. The BOG's action also established an Aug. 1 – Mar. 31 resident season in the hunt area north of the Naknek River. This action brought State harvest regulations into line with the current distribution of the MCH and NAPCH caribou herds.

In April 2018, the Board considered Proposal WP18-21, which responded to the 2016 and 2018 changes made in State regulation. Specifically, WP18-21 requested that the harvest limit for the MCH be changed to two caribou with no additional restrictions in portions of Units 9, 17 and 19, and that the caribou season in Unit 9C north of the Naknek River be changed from a may-be-announced season to an Aug. 1 – Mar. 15 season with a harvest limit of two caribou. The Board adopted WP18-21 with modification to create a new hunt area, removing the portion of Unit 9C that drains into the Naknek River from the north and Graveyard Creek and Coffee Creek from Unit 9C remainder. This action brought Federal harvest regulations into line with the current distribution of the MCH and NAPCH caribou herds and also aligned the harvest limit throughout the range of the MCH. However, the Board's action did not address the Federal public lands closure within the new hunt area. Originally implemented for the conservation of the NAPCH, this closure is now the only Federal public lands closure within the range of the MCH.

The Board also considered Proposal WP18-31 in April 2018, which requested that the MCH season in Unit 18 be shortened from Aug. 1 – Mar. 15 to Aug. 1 – Feb. 28, due to an observed scarcity of caribou. The Board rejected this proposal on the grounds that it would have a negligible effect on harvest or on the conservation status of the population, given that the State season would continue to be open until March 15. The Board noted that the regulatory complexity this change would introduce was unnecessary in the absence of a conservation benefit.

In August 2019, the Alaska Department of Fish and Game (ADF&G) issued emergency order 04-16-19, which decreased the harvest limit of the RC503 caribou registration permit hunt from two caribou to one caribou for the 2019/20 regulatory year. The RC503 permit targets the MCH in Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B (range of the MCH). ADF&G issued this emergency order to conserve the MCH due to recent survey data indicating the MCH population is 13,500 caribou, which is well below the minimum State objective of 30,000 caribou.

In November 2019, the Board approved Special Action Request WSA19-07 with modification to decrease the harvest limit for Mulchatna caribou from two to one caribou across the range of the MCH for the 2019/20 regulatory year. The modification included closing Units 18, 19A and 19B to caribou hunting except by Federally qualified subsistence users, with a harvest limit of one bull caribou and delegating authority to the Togiak NWR Manager to open and close seasons throughout the range of the herd and to set sex restrictions in Units 9A, 9B, 9C, 17A, 17B and 17C for the 2019/20 regulatory year. The Board approved the request due to serious conservation concerns for the MCH and support from the affected Regional Advisory Councils and local users.

The Togiak NWR Manager exercised his delegated authority to close caribou hunting on Federal public lands across the range of the MCH on December 31, 2019 for the remainder of the season. As of December 16, 2019, 79 caribou had been reported harvested, with an additional seven caribou known to be harvested but not reported. Agency staff determined no harvestable surplus existed that would allow for herd growth and closed the season to promote herd recovery.

In January 2020, ADF&G issued emergency order 04-02-20, which closed the RC503 caribou registration permit hunt on January 31, 2020. ADF&G issued this emergency order because of MCH population declines. Both ADF&G and USFWS staff conducted extensive outreach efforts to notify communities of the caribou hunting closure (BBRAC 2020, WIRAC 2020).

In April 2020, the Board considered Wildlife Closure Review WCR20-04/06, which reviewed caribou hunting closures in Units 9C and 9E. The Board voted to modify the closure, rescinding the closure in the portion of Unit 9C that drains into the Naknek River from the north, and Graveyard Creek and Coffee Creek (Unit 9C Naknek), while maintaining the closures in the other hunt areas in concurrence with the Bristol Bay Council's recommendation. The closure in Unit 9C Naknek to caribou hunting except by residents of Unit 9C and Egegik had been the only closure in regulation within the range of the MCH. The closure was a vestige of the Board's action on Proposal WP18-21, which shifted the regulatory emphasis within Unit 9C Naknek from the NAPCH to the MCH, to reflect current distribution patterns of these two herds. However, during its deliberation of Proposal WP18-21, the Board did not address the Federal public lands closure, which had been originally implemented for the conservation of the NAPCH.

In July 2020, the Board approved Special Action Request WSA20-04 with modification to delegate authority to the Togiak NWR manager to open/close seasons, announce harvest limits, and set sex restrictions across the range of the MCH for the 2020-2022 regulatory cycle (similar to this proposal). The Board approved the request because of conservation concerns for the MCH due to substantial population declines, because delegating authority to an in-season manager provided the management flexibility needed to respond quickly to changing conditions, and because of support from the affected Regional Advisory Councils and local users.

In July 2020, ADF&G issued emergency order 04-04-20, announcing a bulls-only hunt across the range of the MCH (RC503) in Units 9A, 9B, 9C, 17A, 17B, 17C, 18, 19A, and 19B from Aug. 1-Sept. 20, 2020. The rest of the 2020/21 season remained closed. Later that month, the Togiak NWR Manager exercised his delegated authority to announce an identical Federal hunt for 2020/21. The Togiak NWR manager and ADF&G determined that a limited bulls-only hunt would provide some harvest opportunity without compromising herd recovery, but that additional harvest, especially of cows, needed to be avoided to allow for herd growth.

Current Events

The BOG received several proposals concerning the MCH during the Central and Southwest Region call for proposals in 2020. They will consider proposed changes in Units 9 and 17 in January of 2022 (re-scheduled meeting from January 2021 due to the COVID-19 pandemic). Proposed changes for Unit 18

and 19 will be addressed at Western Arctic/Western Region and Interior and Eastern Arctic Region meetings, respectively.

Proposal 19, submitted by Togiak NWR requests establishing new population and harvest objectives for the MCH, following completion of a habitat assessment to determine carrying capacity. Proposal 20, submitted by ADF&G, requests establishing a Tier II subsistence hunting season and harvest limit for the MCH due to low population estimates and harvestable surpluses. Proposal 20 would also close the season during rut to mitigate disruptions to breeding and standardize the season across the range of the MCH to reduce hunter confusion and encourage reporting. Proposal 21, submitted by ADF&G, requests establishing a second predation control area for MCH on Federal lands in Units 17 and 18 to reduce wolf predation and promote herd recovery.

Biological Background

The MCH has experienced dramatic changes in population size and distribution in the past 40 years. In the early 1980s, the population was estimated to include approximately 20,000 caribou. Its winter range included the north and west side of Iliamna Lake north of the Kvichak River. By the mid-1990s, the herd had grown to its peak size of approximately 200,000 caribou and absorbed the smaller Kilbuck caribou herd. The MCH increasingly begun wintering in southern Unit 18 and southwestern Unit 19B. Population growth during this time was attributed to mild winters, movement into previously unexploited range, and relatively low predation and harvest rates.

Currently, the MCH range covers ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B (**Figure 1**). The herd does not move seasonally as a single distinct group. Rather, caribou move from calving areas east of the Tikchik Mountains to either the eastern or western portion of their range for the rut and wintering. In the 2000s, movements of radio-collared caribou indicated that individual caribou had little fidelity to specific calving or wintering areas. Since 2008, however, radio-collared cows that winter in the eastern portion of their range calve in the Tundra Lake or Bonanza Hills areas (western Units 19A, 19B, 17B) while those that winter in the western portion of their range calve in the Kemuk Mountain/Koliganek area (southern Unit 17B, northern Unit 17C) (Barten 2015). ADF&G is hoping to radio-collar additional caribou and conduct more surveys to determine if the MCH is still one herd or if it has separated into two distinct herds (BBRAC 2020). Additionally, the potential for caribou in Katmai National Preserve to be a non-migratory population that is not part of the MCH was voiced during Tribal consultation for WSA19-07 and the Bristol Bay Council's winter 2020 meeting. The NPS expressed their intention to study these caribou in the near future (BBRAC 2020).

Photocensuses conducted during summer post-calving aggregations are used to estimate abundance (Barten 2015). These estimates show that in 2013, the MCH was estimated to be 18,016 caribou, the lowest estimate in over 30 years, and well below the State's population objective of 30,000 – 80,000 caribou (**Table 1)**. Estimates over the next three years indicated that the population had grown, nearing the lower bound of this population objective from 2014-2016. However, the most recent estimates, obtained in July 2019 and 2020, shows that the population is less than half of the State's minimum population objective, at 13,448 caribou (ADF&G 2019c, 2020). The western segment of the MCH has declined appreciably since 2012, while the eastern segment's population increased between 2012 and 2015 and then declined back to 2012 levels in 2019 (**Figure 2**; ADF&G 2019e, Rinaldi 2020, pers.

comm.). Therefore, the population increases from 2014-2016 were due to increases in the eastern segment's population, while the 2019 decline are due to declines in both segments.

ADF&G and Togiak NWR plan to reevaluate the population objective range to determine if any adjustments are warranted (BBRAC 2020). In March 2020, ADF&G conducted two flights over the western segment of the herd and one flight over the eastern segment to monitor its status. ADF&G reported observing <2,500 caribou in the western segment, which was less than expected (YKDRAC 2020).

Estimates of composition are made during October aerial surveys. Given that the eastern and western population segments of the MCH have different seasonal ranges and are therefore subject to differing nutrition, predation, and other factors, composition ratios are summarized both collectively and individually by population segment. This allows for comparison between the eastern and western segments. As a whole, the MCH experienced a steady increase in bull:cow ratios between 2010 and 2016 (**Table 1**). In 2016, the ratio was 39 bulls:100 cows, which is the highest estimate since the late 1990s. The most recent estimate, in 2018, showed the bull:cow ratio was 32 bulls:100 cows, which is below the State's minimum bull:cow objective of 35 bulls:100 cows. Bull:cow ratios for the western segment have typically been higher than those for the eastern segment, though the difference has diminished in recent years (**Figure 3**). In 2017, this relationship was reversed. At that time, the eastern population segment had 33 bulls:100 cows while the western population segment had 31 bulls:100 cows (Barten 2017).

Calf:cow ratios have been variable for the MCH, ranging from 16 calves:100 cows in 2007 to 30 calves:100 cows in 2011 and 2014 (**Table 1**). In 2018, the most recent estimate, there were 34 calves:100 cows, which is above the State' minimum objective of 30 calves:100 cows and an improvement from 2017 (ADF&G 2019d). The calf:cow ratio has varied significantly between population segments. Between 2007 and 2013, the western population segment had consistently higher calf:cow ratios than the eastern segment. However, that relationship has been reversed since 2014 (**Figure 4**). In 2017, the eastern segment had 28 calves:100 cows while the western segment had 18 calves:100 cows (Barten 2017). Current calf:cow ratios are within the range of variability typical of herds occupying interior and southwest Alaska.

Habitat was not thought to be limiting the MCH based on nutritional indicators, including high pregnancy rates and calf weights (Barten 2015, ADF&G 2019d). However, now ADF&G and Togiak NWR are considering decreased range quality as a potential cause for the decline and are working together to design and implement a habitat assessment study (BBRAC 2020, WIRAC 2020, Moos 2021). Predation may be contributing to the population decline. ADF&G initiated a wolf predation control program near MCH calving grounds in southwestern Unit 17 in 2012 and expanded the control area in 2017 to include almost all of Unit 17B and portions of Units 9B and 19B (ADF&G 2019d, YKDRAC 2020). However, while wolf densities on the calving grounds are low, brown bear predation of calves on the calving grounds may be contributing to the population decline (WIRAC 2020). Heavy harvest pressure, icing events, deep snows and changing movement patterns may also have contributed to the population decline (YKDRAC 2020). In January 2021, ADF&G announced increased prevalence of *Brucella*, the bacteria responsible for brucellosis disease, in Mulchatna caribou (ADF&G 2021a).

Table 1. Mulchatna Caribou Herd composition counts and population estimates, 1975 – 2020 (Barten 2017, ADF&G 2019c, 2019d, 2020, Reiley 2021, pers. Comm. and Rinaldi 2020, pers. Comm.).

Year	Bulls: 100 cows	Calves: 100 cows	% of Total bulls			Composition sample size	Population Estimate
			Small bulls	Medium bulls	Large bulls		
1975	55	35	-	-	-	1,846	14,000
1978	50	65	-	-	-	758	7,500
1980	31	57	-	-	-	2,250	-
1981	53	45	-	-	-	1,235	20,600
1986	56	37	-	-	-	2,172	-
1987	68	60	-	-	-	1,858	52,500
1988	66	54	-	-	-	536	-
1993	42	44	-	-	-	5,907	150,000[a]
1996	42	34	49	29	22	1,727	200,000[a]
1998	41	34	28	43	29	3,086	-
1999	30	14	60	26	14	4,731	175,000[b]
2000	38	24	47	33	20	3,894	-
2001	25	20	32	50	18	5,728	-
2002	26	28	57	30	13	5,734	147,000[b]
2003	17	26	36	45	19	7,821	-
2004	21	20	64	29	7	4,608	85,000[b]
2005	14	18	55	33	12	5,211	-
2006	15	26	57	34	9	2,971	45,000[b]
2007	23	16	53	36	11	3,943	-
2008	19	23	47	36	17	3,728	30,000[b]
2009	19	31	40	44	16	4,595	-
2010	17	20	30	44	26	4,592	-
2011	22	19	32	41	27	5,282	-
2012	23	30	38	38	24	4,853	22,930[c]
2013	27	19	39	36	25	3,222	18,016[c]
2014	35	30	44	31	25	4,793	27,225[c]
2015	35	29	35	43	22	5,414	28,662[c]
2016	39	22	43	29	28	5,195	28,775[c]
2017	32	23	44	28	28	5,160	-
2018	32	34	-	-	-	-	-
2019	42	25	62	20	18	3,496	13,448[c]
2020	34	36	59	20	20	5,357	13,500

[a]Estimate derived from photo-counts, corrected estimates, subjective estimate of number of caribou in areas not surveyed, and interpolation between years when aerial photo surveys were not conducted.

[b]Estimate of minimum population size based on July photo census.

[c]Estimate based on Rivest et al. (1998) caribou abundance estimator.

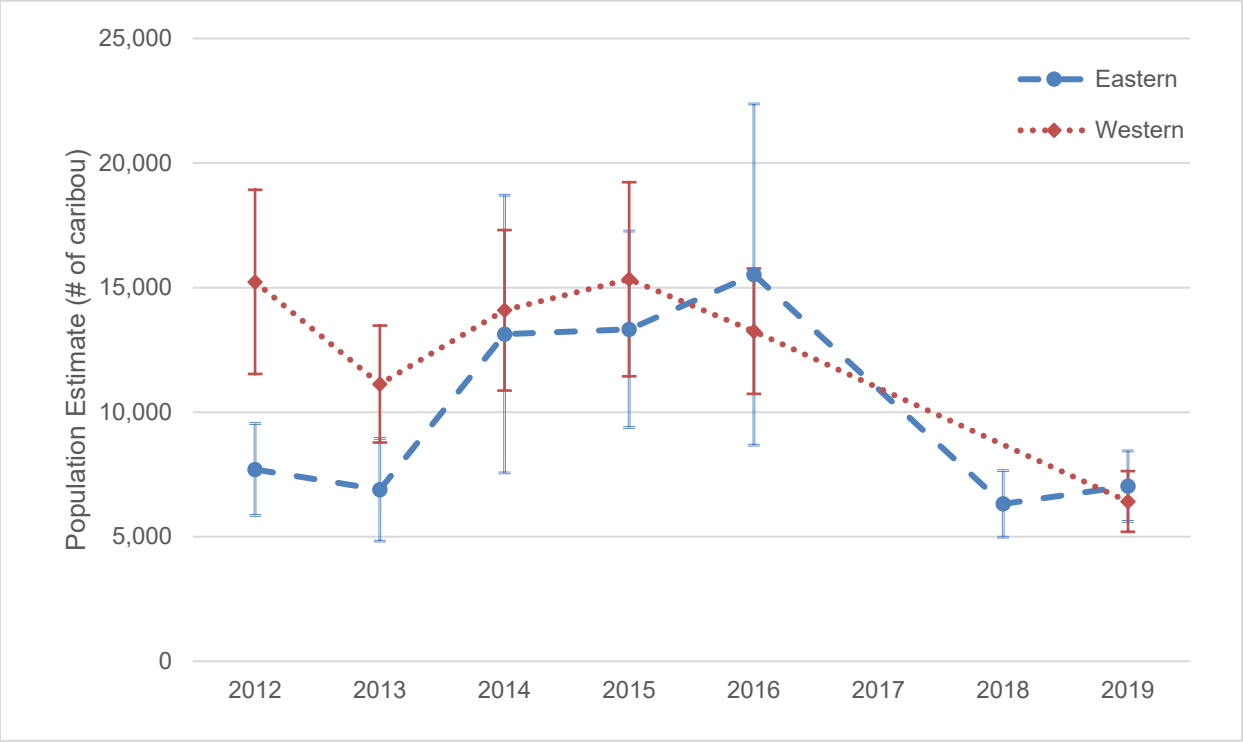

Figure 2. Population estimates of the eastern and western segments of the Mulchatna caribou herd with 95% confidence intervals (Rinaldi 2020, pers. comm.).

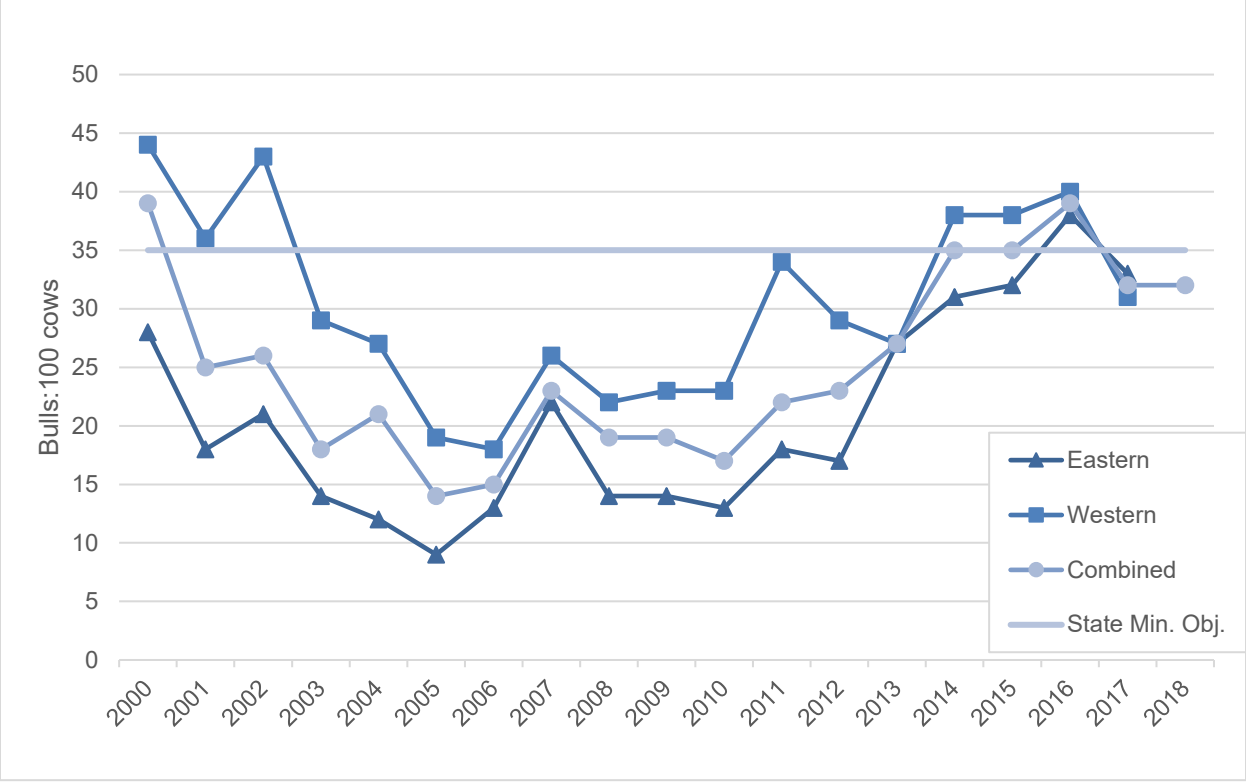

Figure 3. Mulchatna Caribou Herd fall bull:cow ratios, 2000 – 2018. The solid line represents the State's minimum management objective of 35 bulls:100 cows (Barten 2017, ADF&G 2019d).

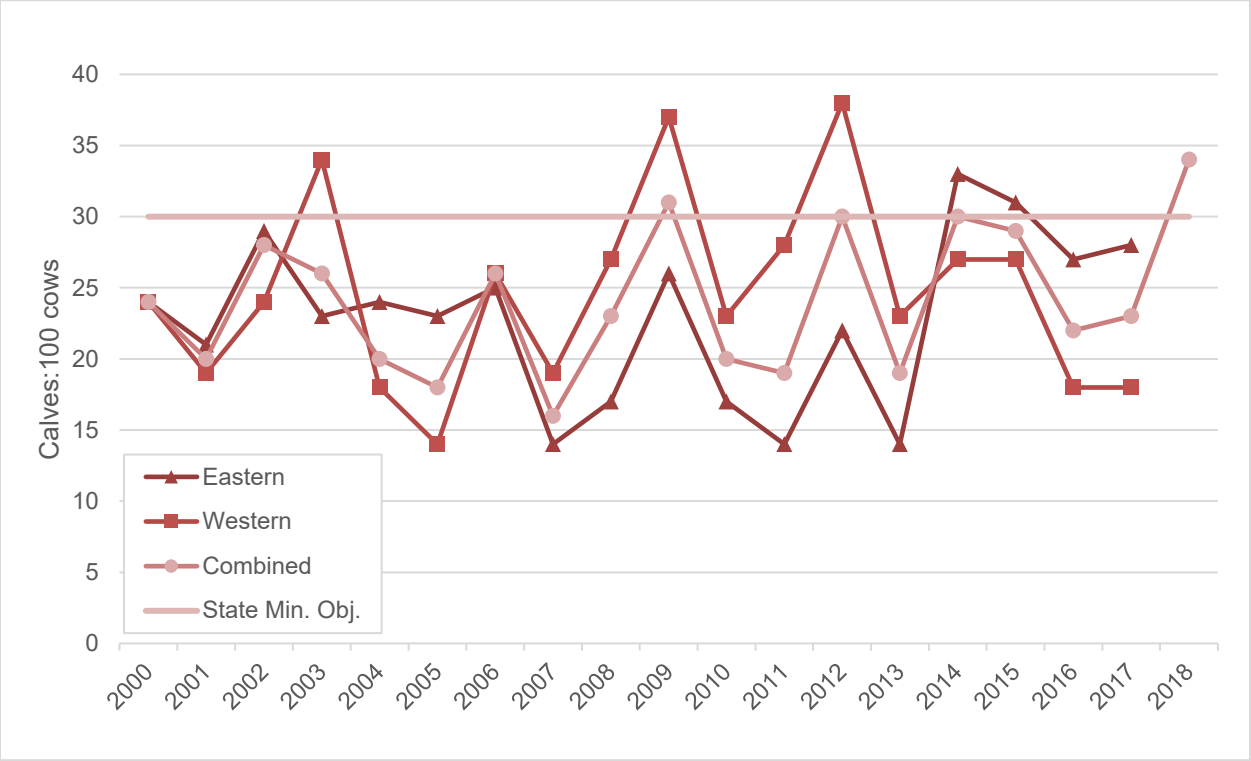

Figure 4. Mulchatna Caribou Herd fall calf:cow ratios, 2000 – 2018. The solid line represents the State's minimum management objective of 30 calves:100 cows (Barten 2017, ADF&G 2019d).

Cultural Knowledge and Traditional Practices

At least five Alaska Native groups, Alutiiq, Central-Yup'ik, and the Athapaskan subgroups known as the Deg Xinag, Kolchan/Upper Kuskokwim, and Dena'ina, have historically inhabited and hunted in sections of Units 9, 17, and 19. Relationships between these groups varied from intermarriage, trading, and feuding (Snow 1981). All of these groups have a history of hunting caribou in this area and some participated in herding upon the introduction of reindeer in the 1890s (Willis 2006).

Historically, people in Western and Southwestern Alaska hunted caribou in the spring and fall with the occasional summer harvest. Historical accounts suggest that caribou was an important subsistence resource for food and the creation of winter clothing. Caribou were traditionally caught through the use of snares, surrounds, guide fences, bow and arrow, stalking, spears, and the Dena'ina utilized dogs (Clark 1981; Hosley 1981; Snow 1981; Townsend 1981; VanStone 1981). Vanstone mentioned that Central-Yup'ik groups used caribou hides in the creation of winter clothing and Hosley (1981) noted that the Kolchan made a paste out of caribou brains to tan hides for clothing purposes.

Russian fur traders travelled up the Alaskan coast and came into contact with the Alutiiq Koniag after 1760. It was not long after this initial contact that trading posts were established in the area that currently consists of Unit 9 (Clark 1981). As the Russians moved further north along the Alaska coast the fur trade expanded into what is now Units 17 and 19 (Snow 1981; Vanstone 1981). The arrival of the

Russians was followed by the creation of missions, boarding schools, canneries, and the arrival of both Russian and European trappers and prospectors (Hosley 1981; Snow 1981; Townsend 1981).

The most recent comprehensive subsistence surveys conducted by ADF&G have been used to provide examples for each unit in this proposal. ADF&G conducted a survey on the community of Naknek in Unit 9 during 2007, Manokotak in Unit 17 during 2008, and Nikolai in Unit 19 during 2011 (Holen et al. 2011; Holen et al. 2012; Ikuta et al. 2014). Within these communities, large mammal harvest is high and ranged between 12.1% on the low end and 52% on the high end (Holen et al. 2011; Ikuta et al. 2014). The per capita caribou harvest from Naknek, Manokotak, and Nikolai ranged from a low of 2 lbs/person in Nikolai to 21 lbs/person in Naknek (Holen et al. 2011; Ikuta et al. 2014). Even in those communities that reported no harvest for their study year, caribou was widely used, shared, and received. For example, in Manokotak for the 2008 study year, about 50% of the community households used caribou, 44% reported receiving caribou, and about 7% of the households reported sharing caribou with others (Holen et al. 2012).

Harvest History

Reported harvest of the MCH has decreased significantly since the early 2000s, when the herd was very large (**Figure 5**). Total reported harvest declined from 3,949 caribou in 2000 to 238 caribou in 2018. Harvest among all user groups declined during this period, but the decline was especially pronounced among nonlocal residents and nonresidents. Reduction of the State harvest limit in 2006 and elimination of the nonresident season in 2009 were influential in this decline (ADF&G 2017, 2019a).

Currently, harvest is dominated by local users, defined here as those with a customary and traditional use determination for caribou anywhere within the MCH range. Since 2009, the year the nonresident season was eliminated, 84% of reported harvest, or 263 caribou annually, can be attributed to local residents. The remainder, 49 caribou annually, were taken by nonlocal residents of Alaska (ADF&G 2017, 2019a). However, reported harvest may underestimate actual harvest. Though the magnitude of unreported harvest is unknown (Barten 2015, ADF&G 2019d), household survey data obtained by the ADF&G Subsistence Division provides some insights (**Table 2**). These surveys represent only a sampling of communities and years, so they cannot be used to quantify total annual harvest. In addition, they estimate an annual range of harvest for each community and are intended to demonstrate community harvest patterns and resource use, rather than precise numbers. However, they indicate that communities within the MCH range harvest more caribou than harvest reports suggest (**Table 2**, **Figure 5**). ADF&G suspects actual harvest is substantially higher than reported harvest in some years (ADF&G 2019d).

Acknowledging that reported harvest is not an accurate assessment of total harvest, it may provide insights into temporal and geographic harvest patterns. Among local users for the 2009 – 2018 time period, 81% of reported harvest occurred between December and March. March was the busiest month for harvest, accounting for 40% of the reported harvest by local users since 2009. These patterns are broadly similar to longer term averages (ADF&G 2017, 2019a).

Harvest is not evenly distributed across the range of the MCH. More caribou are harvested from the western segment of the population than from the eastern (BBRAC 2020). Since 2009, among local users,

54% of reported harvest has occurred in Unit 18, and 17% has occurred in Unit 17C. Less than 10% of reported harvest by local users is attributable to any other single unit. Converse trends exist for non-local users. Harvest in Unit 17B accounts for 53% (26 caribou annually), while Unit 18 accounts for 20% (10 caribou annually) of the reported harvest among this user group since 2009. Fewer than five caribou, on average, are reported harvested each year by nonlocal users in any other single unit.

During the 2019/20 season, 2,112 RC503 permits were issued, 1,776 permits were returned, and 446 permit holders hunted. From the returned permits, 127 caribou (84 bulls, 42 cows, 1 unknown) were reported harvested (ADF&G 2021b). Information and observations from law enforcement personnel indicated that actual harvest well exceeded reported harvest (Moos 2020, pers. comm.).

During the 2020/21 season, 28 were harvested. There were 20 harvested by local residents and 8 by nonlocal residents (Reiley 2021, pers. Comm.).

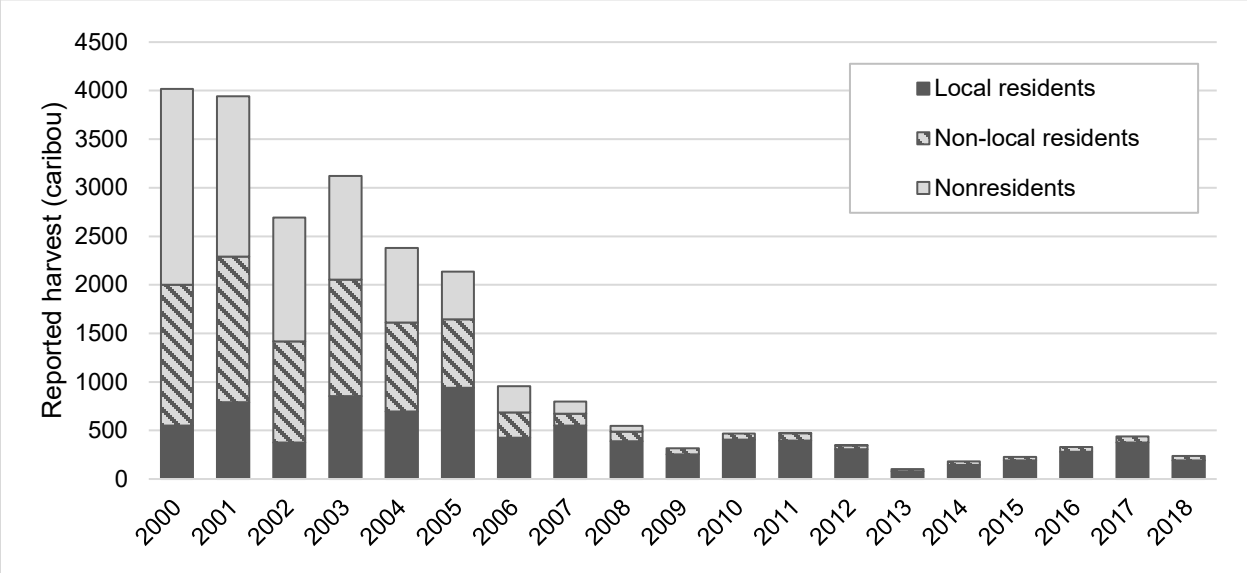

Figure 5. Reported harvest from the Mulchatna Caribou Herd by all users, 2000 – 2018. Nonresident seasons were eliminated in 2009 (ADF&G 2017, 2019a).

Table 2. Use of caribou by communities across the range of the Mulchatna Caribou Herd, 2000 – 2013, based on household surveys (ADF&G 2019b).

Unit	Community	Year	Households using caribou	Households harvesting caribou	Harvest	
					Number of caribou	95% CI
9B	Igiugig	2001	100%	91%	23	0%
		2005	100%	58%	24	22%
	Iliamna	2001	76%	43%	40	34%
		2004	77%	8%	3	62%
	Kokhanok	2001	94%	25%	20	84%
		2005	80%	26%	21	32%
	Levelock	2001	100%	53%	28	37%
		2005	100%	64%	27	33%

Unit	Community	Year	Households using caribou	Households harvesting caribou	Harvest	
					Number of caribou	95% CI
	Newhalen	2001	94%	65%	71	14%
		2004	88%	44%	49	9%
	Nondalton	2001	94%	27%	23	30%
		2004	53%	13%	18	9%
	Pedro Bay	2001	21%	0%	0	0%
		2004	28%	6%	1	0%
	Port Alsworth	2001	90%	10%	4	82%
		2004	86%	9%	6	21%
9C	King Salmon	2007	33%	12%	16	11%
	Naknek	2007	49%	21%	74	12%
	South Naknek	2007	62%	5%	2	6%
17A	Togiak	2001			106	27%
	Twin Hills	2001			8	31%
17B	Koliganek	2001	91%	57%	93	41%
		2005	89%	61%	91	28%
17C	Aleknagik	2001	89%	47%	48	23%
		2008	13%	0%	0	0%
	Clarks Point	2001	86%	57%	28	0%
		2008	36%	9%	2	216%
	Dillingham	2001	14%	6%	344	30%
		2010	36%	5%	63	52%
	Ekwok	2001	97%	31%	28	23%
	Manokotak	2001	88%	42%	68	17%
		2008	49%	8%	20	5%
	New Stuyahok	2001	98%	66%	260	13%
		2005	92%	59%	178	20%
	Portage Creek	2001	71%	29%	10	0%
18	Akiak	2010	78%	37%	55	21%
	Bethel	2011	55%	16%	446	20%
		2012	55%	13%	374	27%
	Eek	2013	61%	27%	47	28%
	Kwethluk	2010	87%	39%	111	21%
	Marshall	2010	7%	2%	6	136%
	Mountain Village	2010	6%	0%	0	
	Napakiak	2011	75%	32%	45	27%
	Napaskiak	2011	86%	41%	60	24%
	Oscarville	2010	92%	50%	10	28%
	Pilot Station	2013	6%	1%	3	102%
	Quinhagak	2013	65%	29%	125	21%
	Russian Mission	2011	11%	4%	5	96%
	Scammon Bay	2013	20%	4%	10	64%

Unit	Community	Year	Households using caribou	Households harvesting caribou	Harvest	
					Number of caribou	95% CI
	Tuluksak	2010	68%	22%	29	26%
	Tuntutuliak	2013	19%	8%	12	54%
19A	Red Devil	2005	0%	0%	0	0%
		2009	36%	18%	1	244%
	Sleetmute	2003	24%	10%	8	41%
		2004	18%	0%	0	0%
		2005	16%	0%	0	0%
		2009	3%	3%	2	75%
	Stony River	2003	53%	29%	14	22%
		2004	60%	20%	6	439%
		2005	33%	0%	0	0%
		2009	42%	8%	2	423%
	Upper Kalskag	2003	53%	35%	42	49%
		2004	30%	6%	4	24%
		2005	26%	15%	16	98%
		2009	15%	2%	1	605%

Effects of the Proposal

If this request is approved, the Federal in-season manager would be delegated authority to open and close seasons, announce harvest limits and set sex restrictions across the range of the MCH. While this change may decrease harvest opportunity for Federally qualified subsistence users in the short-term, it may also help conserve the MCH to ensure future harvest opportunities.

Given the recent, substantial decline in the MCH population, conservation measures are warranted. Low calf:cow ratios in the western segment of the MCH population in 2016 and 2017, where most of the harvest occurs, further contribute to conservation concerns (**Figure 4**). Furthermore, bull:cow ratios, which have been depressed since 2001, are hovering around the State's minimum objective of 35 bulls:100 cows (**Table 1**).

However, the effects of harvest on the population decline are unclear. In 2017 and 2018, reported harvest (440 and 238 caribou, respectively) only accounted for 3.3% and 1.8% of the estimated MCH population (13,500 caribou), respectively, which are very conservative harvest rates. Additionally, the magnitude of unreported harvest is unknown, with unknown effects on the MCH population. Therefore, the conservation benefits of adopting WP22-41 are uncertain.

Delegating authority to an in-season manager provides management flexibility, which is critical in responding to changing herd conditions in a timely manner. For example, an in-season manager could maximize harvest opportunity in the event of herd recovery, close all hunts in the event of further population declines to aid herd recovery, or (as was the case in 2020) balance harvest opportunity with herd recovery.

OSM PRELIMINARY CONCLUSION

Support Wildlife Proposal WP22-41

Justification

Conservation concerns exist for the MCH due to a substantial decline in abundance coupled with poor composition metrics. While the impact of harvest on the MCH is unclear, measures to conserve the herd and aid recovery are warranted. Delegating authority to an in-season manager provides the flexibility needed to make timely decisions and respond to changing conditions (e.g. MCH population decline or recovery).

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Appendix 1

Refuge Manager
Togiak National Wildlife Refuge
P.O. Box 270 MS 569
Dillingham, Alaska 99576

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the manager of the Togiak National Wildlife Refuge to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within Units 9A, 9B, 9C (that portion within the Alagnak River drainage), 9C (that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek), 17A (all drainages west of Right Hand Point), 17A remainder, 17B, 17C (that portion of 17C east of the Wood River and Wood River Lakes), 17C remainder, 18 (that portion to the east and south of the Kuskokwim River), 18 remainder, 19A and 19B (excluding rural Alaska residents of Lime Village) for the management of caribou on these lands.

It is the intent of the Board that actions related to management of caribou by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), the Bureau of Land Management (BLM) Anchorage Field Office manager, the Nushagak Peninsula Caribou Planning Committee, the Yukon Delta National Wildlife Refuge manager, the Superintendent of Katmai National Park and Preserve, the Superintendent of Lake Clark National Park and Preserve, and the Chair of affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

DELEGATION OF AUTHORITY

1. <u>Delegation:</u> The Togiak National Wildlife Refuge manager is hereby delegated authority to issue emergency or temporary special actions affecting caribou on Federal lands as outlined under the **Scope of Delegation**. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

2. <u>Authority:</u> This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and

50 CFR 100.10(d)(6), which state: "The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board."

3. Scope of Delegation: The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To open and close seasons, announce harvest limits and set sex restrictions for caribou on Federal public lands in Units 9A, 9B, 9C (that portion within the Alagnak River drainage), 9C (that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek), 17A (all drainages west of Right Hand Point), 17B and 17C (that portion of 17C east of the Wood River and Wood River Lakes), 18 (that portion to the east and south of the Kuskokwim River), 18 remainder, 19A and 19B (excluding rural Alaska residents of Lime Village).

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve caribou populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Units 9A, 9B, 9C (that portion within the Alagnak River drainage), 9C (that portion draining into the Naknek River from the north, and Graveyard Creek and Coffee Creek), 17A (all drainages west of Right Hand Point), 17A remainder, 17B, 17C (that portion of 17C east of the Wood River and Wood River Lakes), 17C remainder, 18 (that portion to the east and south of the Kuskokwim River), 18 remainder, 19A and 19B (excluding rural Alaska residents of Lime Village).

4. Effective Period: This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

5. Guidelines for Delegation: You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19,

(2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for

conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

6. <u>Support Services:</u> Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson
Chair

Enclosures

cc: Federal Subsistence Board
Assistant Regional Director, Office of Subsistence Management
Deputy Assistant Regional Director, Office of Subsistence Management
Subsistence Policy Coordinator, Office of Subsistence Management
Wildlife Division Supervisor, Office of Subsistence Management
Subsistence Council Coordinators, Office of Subsistence Management
Chair, Bristol Bay Subsistence Regional Advisory Council
Chair, Western Interior Alaska Subsistence Regional Advisory Council
Chair, Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
Yukon Delta National Wildlife Refuge Manager
Katmai National Preserve Superintendent
Lake Clark National Preserve Superintendent
Bureau of Land Management, Anchorage Field Office Manager
Deputy Commissioner, Alaska Department of Fish and Game
Special Projects Coordinator, Alaska Department of Fish and Game
Interagency Staff Committee
Administrative Record

WP22-42 Executive Summary	
General Description	Wildlife Proposal WP22-42 requests the Federal Subsistence Board increase the harvest limit of moose from 2 to 3 in Unit 18 remainder. *Submitted by: The Yukon Kuskokwim Delta Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 18—Moose** *Unit 18, remainder—~~2~~ **3** moose, only one of which may be antlered. Antlered bulls may not be harvested from Oct. 1 through Nov. 30* *Aug. 1- Apr. 30*
OSM Preliminary Conclusion	**Support**
Yukon Kuskokwim Delta Subsistence Regional Advisory Council	
Western Interior Subsistence Regional Advisory Council	
Seward Peninsula Subsistence Regional Advisory Council	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	None

DRAFT STAFF ANALYSIS
WP22-42

ISSUES

Proposal WP22-42, submitted by the Yukon Kuskokwim Delta Subsistence Regional Advisory Council (Council), requests the Federal Subsistence Board (Board) increase the harvest limit of moose from 2 to 3 in Unit 18 remainder (**Figure 1**).

DISCUSSION

The proponent states this request to increase the harvest limit by one additional moose in Unit 18 remainder is needed to continue subsistence uses and increase opportunity for sharing moose throughout the Yukon-Kuskokwim Delta region. Increasing the harvest limit will help to ensure long-term sustainability of the Lower Yukon River area moose population, which is currently too high to be supported by the local environment. If this moose population is not reduced, it is at risk of crashing due to over browsing of available forage. Additional harvest opportunity of one extra moose in Unit 18 remainder will support the Lower Yukon River communities' ability to provide for their families and community. It will also increase sharing opportunities with subsistence communities in other areas of the Yukon-Kuskokwim Delta that do not have as abundant of a moose population and are in need of subsistence food support. Increased harvest and sharing opportunity is especially needed in these times of low salmon returns on the Yukon and Kuskokwim Rivers and recent closures to the harvest of Mulchatna caribou.

Existing Federal Regulation

Unit 18—Moose

Unit 18, remainder—2 moose, only one of which may be antlered. Antlered bulls may not be harvested from Oct. 1 through Nov. 30	*Aug. 1- Apr. 30*

Proposed Federal Regulation

Unit 18—Moose

*Unit 18, remainder—~~2~~ **3** moose, only one of which may be antlered. Antlered bulls may not be harvested from Oct. 1 through Nov. 30*	*Aug. 1- Apr. 30*

Existing State Regulation

Unit 18 - Moose

Resident		*Two moose only one of which may be an antlered bull, taking calves or cows accompanied by calves is prohibited*	*Aug. 1 – Sept. 30*
		Or	
		Two antlerless moose	
		Or	
	Remainder (includes Lower Yukon hunt area)	*Two moose*	*Oct. 1 – Nov. 30*
			Dec. 1 – Apr. 30
Non resident		*One antlered bull*	*Sept. 1 – Sept 30*
		Or	
		One antlerless moose	*Dec. 1 – Mar. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 66.7% of Unit 18 and consist of 64.0% U.S. Fish and Wildlife Service (USFWS) managed lands and 2.7% Bureau of Land Management (BLM) managed lands.

Customary and Traditional Use Determinations

Residents of Unit 18, Aniak, Chuathbaluk, Kalskag, and Lower Kalskag have a customary and traditional use determination for moose in Unit 18, that portion of the Yukon River drainage upstream of Russian Mission and that portion of the Kuskokwim River drainage upstream of (but excluding) the Tuluksak River drainage.

Residents of Unit 18, St. Michael, Stebbins, Kalskag, and Lower Kalskag have a customary and traditional use determination for moose in Unit 18, that portion north of a line from Cape Romanzof to Kusilvak Mountain to Mountain Village, and all drainages north of the Yukon River downstream from Marshall.

Residents of Unit 18, Lower Kalskag, and Kalskag have a customary and traditional use determination for moose in the Unit 18 remainder area of this customary and traditional use determination.

Regulatory History

In November 2005, the Alaska Board of Game (BOG) adopted Proposal 4 in response to the rapid growth of the lower Yukon moose population. Action taken on the proposal modified the State harvest limit by allowing the harvest of antlered bulls only and established a winter season for antlered bulls and calves. During its November 2007 meeting, the BOG adopted Proposal 6, which lengthened the fall moose season for the lower Yukon and remainder areas of Unit 18 by 21 days and lengthened the winter season in the lower Yukon by 10 days.

At its March 2009 meeting, the BOG adopted Proposal 228, which liberalized the State harvest limit from antlered bulls to any moose for the Dec. 20–Jan. 20 season in the lower Yukon area of Unit 18. The BOG stated that the affected moose population increased to a size that could support the harvest of cows.

At its November 12, 2009 work session, the Board approved Special Action WSA08-13, which requested the harvest limit in the lower Yukon area of Unit 18 be increased to two moose per regulatory year, with one allowed in the fall and one in the winter.

At its November 13−16, 2009 meeting, the BOG adopted new regulations to extend the winter season from Jan. 20 to Feb. 28 and move the boundary between the lower Yukon and the remainder areas south, to a more discernible geographic landmark.

In 2010, the Yukon Delta National Wildlife Refuge (NWR) submitted Proposal WP10-56, which requested that the harvest limit in the lower Yukon area of Unit 18 (that portion north and west of a line from Cape Romanzof to Kusilvak Mountain to Mountain Village, excluding all Yukon River drainages upriver from Mountain Village) be changed to two moose per regulatory year. Hunters were allowed to harvest one antlered bull in the fall season and one moose in the winter season. Hunters that did not harvest a moose in the fall would be allowed to harvest two moose during the winter season. The proposal also requested that the Yukon Delta NWR manager be delegated the authority to restrict the harvest in the winter season to one antlered bull or one moose per regulatory year, after consultation with the Alaska Department of Fish and Game (ADF&G). The proposal was adopted by the Board with modification to extend the winter season to February 28.

Also in 2010, the Yukon Delta NWR submitted Proposal WP10-57, which requested a change in a portion of the regulatory boundary description for Unit 18, north and west of a line from Cape Romanzof to Kusilvak Mountain to Mountain Village, excluding all Yukon River drainages upriver from Mountain Village. This area was referred to as the lower Yukon hunt area. The proposal was adopted by the Board with modification to remove the Cape Romanzof to Kusilvak Mountain section and replace it with a descriptor for the Kashunuk River drainage.

In 2012, the Yukon Delta NWR submitted Proposal WP12-49, requesting the moose season in Unit 18, that portion north and west of the Kashunuk River including the north bank from the mouth of the river upstream to the old village of Chakaktolik, and west of a line from Chakaktolik to Mountain Village excluding all Yukon River drainages upriver from Mountain Village, be revised from the fall and winter dates (Aug. 10 - Sept. 30 and Dec. 20 - Feb. 28) to Aug. 1 through the last day of February. The harvest limit was two moose, only one of which may be antlered. The harvest of an antlered bull would be limited to the dates of Aug. 1 – Sept. 30. The proposal was adopted with modification by the Board at its January 2012 meeting to allow for the harvest of an antlered bull starting on Aug. 1 instead of Sept. 1.

In 2014, the Council submitted Proposal WP14-23, which requested an extension of the moose season in Unit 18, that portion north and west of the Kashunuk River including the north bank from the mouth of the river upstream to the old village of Chakaktolik to Mountain Village and excluding all Yukon River drainages upriver from Mountain Village, from August to the last day of February, to Aug. 1 – Mar. 31. It also requested removal of the bull-only restriction from Aug. 1 –Sept. 30. The proposal was adopted with modification by the Board, which resulted in combining the lower Yukon portion of Unit 18 with Unit 18 remainder, establishing a single Yukon drainage hunt area. The modification also stipulated that antlered bulls may not be harvested Oct. 1 – Nov. 30. The harvest limit in Unit 18 remainder was also increased to two moose.

In 2018, the Board adopted Proposal WP18-29, submitted by the Orutsararmiut Native Council, which requested the moose season in Unit 18 remainder be lengthened from Aug. 1- Mar. 31 to Aug. 1- Apr. 30. The Council concurred with the analysis and agency reports that the moose population seemed to be doing very well in the area and supported providing additional subsistence opportunity through an extended season.

At its January 17−20, 2020 meeting, the BOG adopted Proposal 8 regulations to extend the winter season from Mar. 15 to Apr. 30. The BOG stated that the moose population was continuing to increase and suspected that the Paimiut area had surpassed carrying capacity. Extending the season to Apr. 30 would help manage the growing population (BOG 2020).

In 2021, the Board approved emergency special action WSA21-02, submitted by the Council, requesting the Board increase the harvest limit for moose in Unit 18 remainder from 2 moose to 3 moose for the rest of the 2020/21 hunting season, which ended on April 30, 2021. The Board approved this request as the moose population in the Unit 18 remainder hunt area exceeded management objectives and habitat carrying capacity. While increasing the harvest limit may not have been enough to slow the growth of the population, it increased opportunity for harvest by Federally qualified subsistence users and helped support sharing in an area that has had a decline in salmon and caribou harvest.

Biological Background

Moose began to migrate into the Yukon-Kuskokwim Delta during the mid- to late-1940s and have become an important subsistence resource for locals (Perry 2014). Moose rely on willow and shrub

habitats for browsing and for cover from predators (Tape et al. 2016). The taller vegetation heights estimated in the northern and western portions of the state provide more suitable cover and increased forage availability above the snowpack for moose populations than was present in the past (Tape et al. 2016), yet most of the Yukon-Kuskokwim Delta is lowland treeless tundra and is not suitable as winter moose habitat. Consequently, much of the region supports only low to very low density moose populations. However, productive habitat does exist along river corridors, with approximately 4,500 mi^2 and 3,500 mi^2 of suitable moose habitat occurring along the Yukon and Kuskokwim Rivers, respectively (Perry 2014). The Yukon River moose population currently occupies most of the available riparian habitat, is at moderate to high density, is growing, and has high calf production and yearling recruitment (Perry 2014).

ADF&G management goals for moose in Unit 18 include: allowing populations to increase to levels sustainable by the current habitat; maintaining healthy age and bull:cow structures; monitoring the population size, trend, and composition; maintaining a continual and sustainable bull harvest; improving harvest reporting; and minimizing user group conflicts related to moose (Perry 2014). Specific objectives for the unit are to allow the lower Yukon River moose populations to increase above 2,500 – 3,500 moose, maintaining a minimum of 30 bulls:100 cows, conduct seasonal composition surveys, and conduct winter censuses and recruitment surveys (Perry 2014).

Population and composition surveys are conducted in five survey areas in Unit 18 (**Figure 2**; Perry 2014, OSM 2021). The Lowest Yukon, Andreafsky, and Paimiut survey areas are located within the Unit 18 remainder hunt area. These survey areas were purposely kept small to allow for multiple areas to be surveyed annually.

Between 1988 and 2008, surveys to estimate population size were conducted in the Lowest Yukon survey area of Unit 18 (**Table 1**; OSM 2021). At that time, the survey area encompassed the riparian corridor along the main stem of the Yukon River downstream of Mountain Village (Perry 2014). In February 2017, the survey area was expanded to accommodate the widening distribution of moose. The results of the 2017 survey estimated the population to be 8,226 moose in the expanded survey area, or 4.7 moose/mi^2 (OSM 2021). By comparison, the moose population and density within the original survey area in 2017 was estimated to be 5,719 with 4.8 moose/mi^2, compared to 2.4 moose/mi^2 in 2008 (**Figure 3**; OSM 2021). The most recent survey was done in Feb./March 2021. The results of this survey estimated the current population to be 12,031 moose in the expanded survey area, at 6.89 moose/mi^2. This implies that the Lowest Yukon moose population in Unit 18 has grown at an annual rate of 10% per year from 2017 to 2021 (ADF&G 2021a). This is well above the States management objective of 2,500 – 3,500 moose for this area (Perry 2014).

In the adjacent Andreafsky survey area, which includes the Yukon River from Pilot Station downstream to Mountain Village (Perry 2014), surveys were most recently conducted in 2021. The population was estimated at 6852 moose. The density was estimated in combination with the Paimiut survey area at 3.68 moose/mi^2 (ADF&G 2021b). Like the moose population in the Lowest Yukon survey area, the population in the Andreafsky area has grown substantially since the early 2000s (**Figure 3**), but it remains at lower density compared to the Lowest Yukon population (OSM 2021).

Population estimates were conducted in the Paimiut survey area in February 2013 and was estimated 6,031 moose with a density of 3.84 moose/mi^2, which was an increase from the population estimate of 3,614 moose and density of 2.3 moose/mi^2 calculated in 2006 (**Table 1, Figure 3**; OSM 2021, Perry 2014). In 2021, the moose population within the Paimiut survey area was estimated at 4,786 moose (ADF&G 2021b).

Adequate survey conditions for fall composition surveys are only present every three or four years. Consequently, composition surveys are completed as conditions allow (Perry 2014). The most recent Lowest Yukon survey area composition data was collected in November 2016. The bull:cow and calf:cow ratios were calculated at 25 bulls:100 cows and 81 calves:100 cows, respectively. While the bull:cow ratio is below the management objectives for the unit, the cow:calf ratio is high and indicates a growing population. Bull:cow ratios in the Andreafsky (63 bulls:100 cows in 2020) and Paimiut (57 bulls:100 cows in 2019) areas were more than double of those in the Lowest Yukon area and well above State management objectives (**Table 2**; ADF&G 2020).

Figure 1 Unit 18 remainder hunt area.

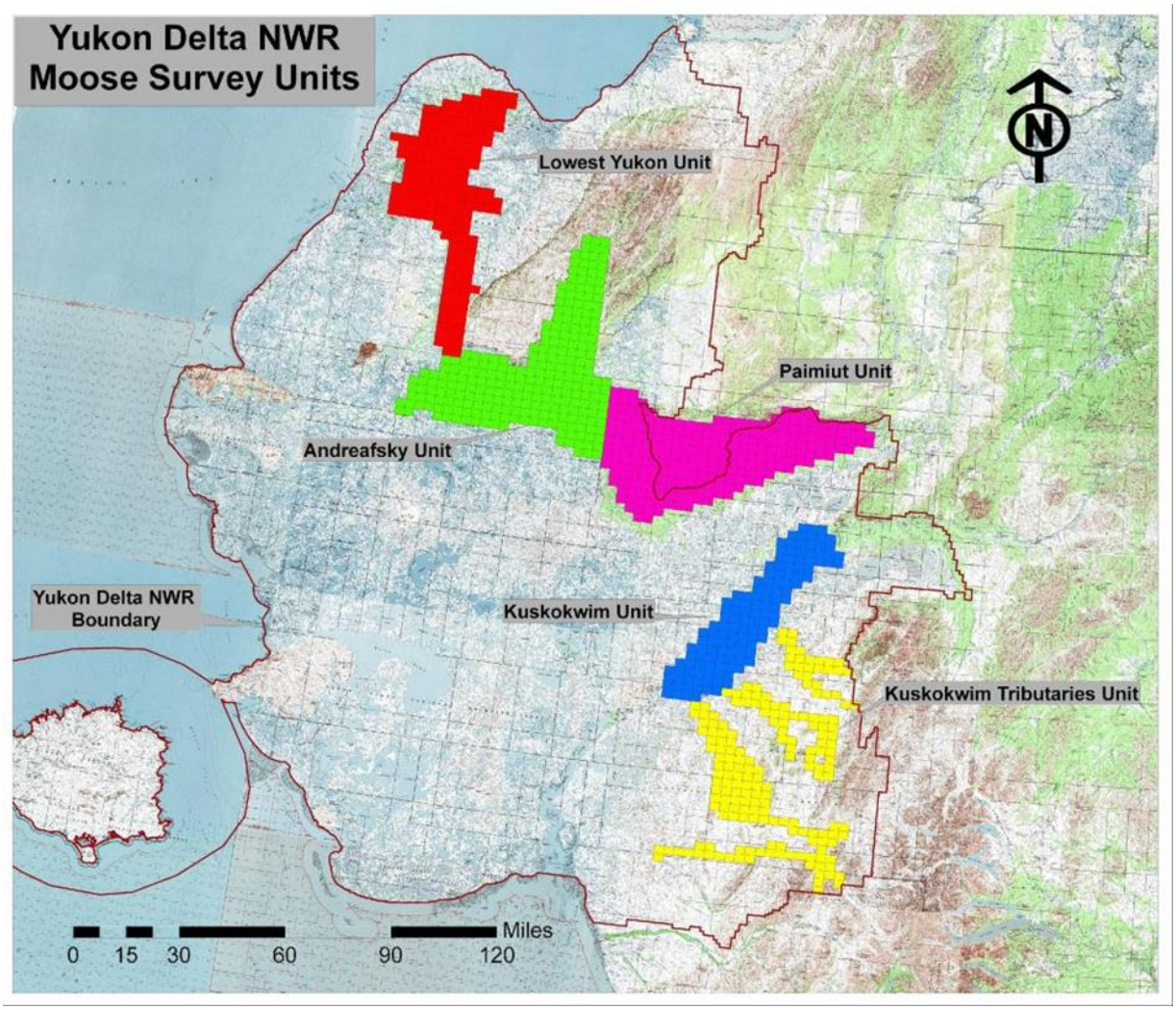

Figure 2. Yukon Delta National Wildlife Refuge Moose Survey Units (Rearden 2015 as cited in OSM 2021).

Table 1. Moose population estimates from spring census surveys in the survey areas located within Unit 18 remainder (OSM 2021, ADF&G 2021a, ADF&G 2021b).

Census Area	Year	Estimate at 95%CI	Density (mi^2)	Census Technique
Lowest Yukon	1988	0	NA	Minimum count
	1992	28	0.02	Minimum count
	1994	65	0.04	Minimum count
	2002	674 ± 21.9%	0.59	Spatial method
	2005	1342 ± 21.0%	1.12	Spatial method
	2008	2,827 ± 11.98%	2.37	Spatial method
	2008	3,319 ± 16.08%	2.78	Spatial method w/ SCF
	2017	5,719± 12%	4.79	Geospatial
	2017*	8,226 ± 11%	4.71	Geospatial
	2021	12,031 ± 33%	6.89	Geospatial
Andreafsky	1995	52 ± 74.0%	0.04	Gassaway method
	1999	524 ± 29.8%	0.23	Spatial method
	2002	418 ± 22.4%	0.26	Spatial method
	2012	2,748 ± 19.8%	1.72	Spatial method
	2012	3,170 ± 24.3%	1.99	Spatial method w/ SCF
	2021	6,852 ± 20.2%	3.68**	Geospatial
Paimiut	1992	994 ± 19.7%	0.64	Gassaway method
	1998	2,024 ± 12.93%	1.3	Gassaway method
	2002	2,382 ± 16.1%	1.52	Spatial method
	2006	3,614 ± 18.1%	2.3	Spatial method
	2013	5,598 ± 17.8%	3.56	Spatial method
	2013	6,031 ± 20.0%	3.84	Spatial method w/ SCF
	2021	4,786 ± 14.5%	3.68**	Geospatial

*Census area was increased in 2017 in the Lowest Yukon area.
** Andreafsky and Paimiut density estimates done as one combined unit.

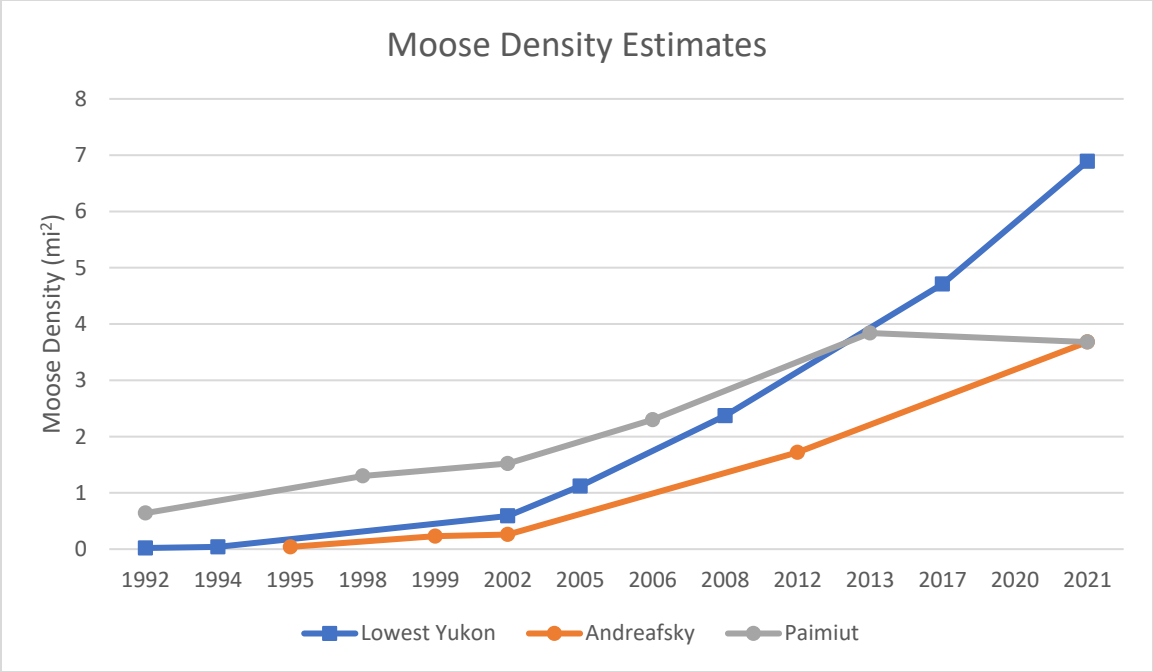

Figure 3 Moose density trend for Lowest Yukon, Andreafsky, and Paimiut survey areas. Note: Andreafsky and Paimiut density estimates were combined in 2021.

Table 2. Composition survey data from the moose survey areas located within Unit 18 remainder (ADF&G 2020).

Area	Year	Bull: 100 Cows	Calf: 100 Cows
Lowest Yukon Survey Area	2010	30	69
	2013	40	48
	2016	25	81
Andreafsky Survey Area	2010	42	61
	2019	57	41
	2020	63	35
Paimut Survey Area	2013	40	48
	2016	58	54
	2019	57	40

Harvest History

ADF&G's harvest records for the general moose hunt in Unit 18 only includes Unit 18 remainder as moose harvest in the other hunt areas of Unit 18 are by registration permit. Over the past 10 years, the largest portion of the harvest has been by Alaska residents. Total reported harvest has increased roughly 26% from 587 moose in 2010 to 795 moose in 2019. While the number of hunters has stayed

relatively the same in the past 10 years, the success rate for those hunters has increased from 52% to 73% (**Figure 4**, ADF&G 2021c).

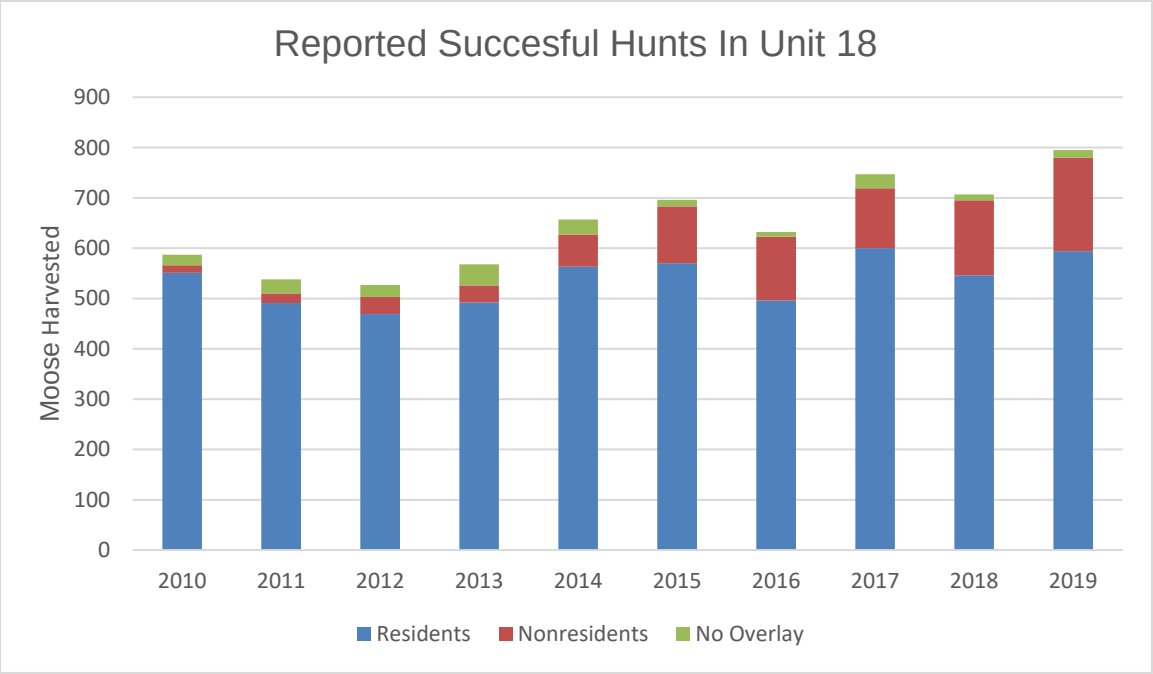

Figure 4. Reported general season moose harvested in Unit 18 (ADF&G 2021c).

Effects of the Proposal

If this proposal is adopted by the Board, the harvest limit for moose in the Unit 18 remainder hunt area will increase from two to three moose for Federally qualified subsistence users. No impacts are expected on non-Federally qualified users or the moose population, which exceeds management population objectives and is believed to exceed habitat carrying capacity. The requested increased harvest limit may slow the continued growth of this moose population, which would be a positive effect. In addition, the expanded harvest limit would increase opportunity for Federally qualified subsistence users and might promote further sharing of moose throughout the Yukon-Kuskokwim region and support subsistence families in need.

OSM PRELIMINARY CONCLUSION

Support Proposal WP22-42.

Justification

The moose population in the Unit 18 remainder hunt area far exceeds management objectives and is believed to exceed the habitat carrying capacity. Increasing the harvest limit from 2 to 3 moose may help limit the growth of this moose population and will provide additional opportunity for Federally qualified subsistence users.

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WP22-43/44 Executive Summary	
General Description	Wildlife Proposal WP22-43 requests delegating authority to the Federal in-season manager to increase the moose harvest quota in Zone 1 of the Kuskokwim hunt area of Unit 18 if the water levels are too low to access Zone 2. *Submitted by: The Yukon-Kuskokwim Delta Subsistence Regional Advisory Council.* Wildlife Proposal WP22-44 requests that the fall moose season in the Kuskokwim hunt area of Unit 18 be extended from Sept. 1 – 30 to Sept. 1 – Oct. 15 and that a may-be-announced season be established from Dec. 1-Jan. 31 with a harvest limit of one antlered bull by Federal registration permit. *Submitted by: Yukon Delta National Wildlife Refuge.*
Proposed Regulation	WP22-43 **Unit 18—Moose** *Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage[1]—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager.* ***If river water levels are too low to access the Zone 2 moose hunt area, then the Refuge Manager may expand the moose harvest quota for Zone 1.*** *Sept. 1 – 30* *Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk,*

	Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag WP22-44 **Unit 18—Moose** *Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line l/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage[1]—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager.* ***Up to one antlered bull by Federal registration permit may be announced.*** *Sept. 1 –* **Oct. 15** ***Season may be announced between Dec. 1-Jan. 31*** *Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag*
OSM Preliminary Conclusion	**Oppose** Proposal WP22-43 and **Support** Proposal WP22-44 **with modification** to clarify the regulatory language and to delegate authority to the Yukon Delta NWR manager to announce the winter season and set harvest quotas via delegation of authority letter only The modified regulation should read:

	Unit 18—Moose *Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage—1 antlered bull by State registration permit* ***during the fall season****;* ***OR*** ***1 antlered bull by Federal registration permit during a winter season.*** *Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag* *Sept. 1 –* **Oct. 15** ***Season may be announced Dec. 1-Jan. 31***
Yukon Kuskokwim Delta Subsistence Regional Advisory Council	
Western Interior Subsistence Regional Advisory Council	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	None

DRAFT STAFF ANALYSIS
WP22-43/44

ISSUES

Wildlife Proposal WP22-43, submitted by the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council (Council) requests delegating authority to the Federal in-season manager to increase the moose harvest quota in Zone 1 of the Kuskokwim hunt area of Unit 18 if the water levels are too low to access Zone 2.

Wildlife Proposal WP22-44, submitted by the Yukon Delta National Wildlife Refuge (NWR), requests that the fall moose season in the Kuskokwim hunt area of Unit 18 be extended from Sept. 1 – 30 to Sept. 1 – Oct. 15 and that a may-be-announced season be established from Dec. 1-Jan. 31 with a harvest limit of one antlered bull by Federal registration permit.

DISCUSSION

WP22-43
The Council voted to submit this proposal after discussion with Kwethluk residents who stated that water levels in the Kuskokwim River tributaries have been too low in recent years to successfully access Zone 2 and hunt moose. Low winter snowpack and hot, dry summers in recent years have increasingly made access to Zone 2 by prop boat more challenging. When access to Zone 2 is prohibited due to low water levels, providing for other subsistence opportunity, such as increasing the quota in the more accessible Zone 1 located along the main stem of the Kuskokwim River, is imperative.

WP22-44
The Refuge states that the average moose harvest since 2017 for the RM615 hunt within Zone 2 has been 78 moose, which is below the quota of 110 moose. Adoption of this proposal will increase harvest within sustainable levels and will not result in population declines because of the limited bulls-only harvest. The proponent further states that extending the fall season in Zone 2, which is predominantly Federal public lands, will allow for additional hunting opportunity for Federally qualified subsistence users, while also allowing the Federal manager to assess how much harvest increases during the requested two week long extension. The proponent states that announcement of a "may be announced" winter season would allow harvest of the remaining fall quota. While not explicit in their proposal, the proponent clarified that use of the Federal registration permit was only intended for the may-be-announced winter season.

Existing Federal Regulation

Unit 18—Moose

Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson	*Sept. 1 – 30*

River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage[1]—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager

Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmanutlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag

[1]Referred to as the Kuskokwim hunt area throughout the analysis.

Proposed Federal Regulation

WP22-43

Unit 18—Moose

Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage[1]—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager. ***If river water levels are too low to access the Zone 2 moose hunt area, then the Refuge Manager may expand the moose harvest quota for Zone 1.***	*Sept. 1 – 30*

Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmanutlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag

[1]Referred to as the Kuskokwim hunt area throughout the analysis.

WP22-44

Unit 18—Moose

Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage[1]—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager. ***Up to one antlered bull by Federal registration permit may be announced during a winter season.***	*Sept. 1 – ~~30~~* **Oct. 15** ***Season may be announced between Dec. 1-Jan. 31***

Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmanutlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag

[1]Referred to as the Kuskokwim hunt area throughout the analysis.

Existing State Regulation

Unit 18—Moose

Zone 1: Unit 18 – all Kuskokwim River drainages north and west of a line beginning at the confluence of Whitefish Lake and Ophir Cree k at the Unit 18 boundary and continuing south west to the confluence of Tuluksak and Fog Rivers, then southerly to the lower Kisaralik River-Kasigluk River cutoff of the Kisaralik River, then south westerly to the lower Kisaralik River-Kasigluk River cutoff of the Kasigluk River, then south westerly to the Akulikutak River where the snowmachine trail crosses the river from the east side of Three Step Mountain, then westerly to the confluence of Kwethluk Rive r and Magic Creek, then southwesterly to the confluence of Eek Rive r and Middle Fork Eek River, then southwesterly to the Unit 18 boundary at 60° 4.983' N, 161° 37.140' W; and all drainages easterly of a line from the mouth of the Ishkowik River to the closest point of Dall Lake , then to the east bank of the Johnson River at its entrance	*1 bull excluding male calves by permit available in person in Bethel and villages within the hunt area Aug. 1-25 and online at http://hunt.alaska.gov Aug. 1-Oct. 7*	*RM615*	*Sept. 1-Sept. 9[1]*

into Nunavakanukakslak Lake at 60° 59.41' N, 162° 22.14' W, continuing upriver along a line ½ mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver along the east bank of Crooked Creek to the outlet at Arhymot Lake , then following the south bank of Arhymot Lake easterly to the Unit 18 boundary.			
Zone 2: Unit 18 – all Kuskokwim River drainages south and east of a line beginning at the confluence of Whitefish Lake and Ophir Creek at the Unit 18 boundary and continuing southwest to the confluence of Tuluksak and Fog Rivers, then southerly to the lower Kisaralik River-Kasigluk River cutoff of the Kasigluk River, then southwesterly to the lower Kisaralik River-Kasigluk River cutoff of the Kasigluk River, then southwesterly to the Akulikutak River where the snowmachine trail crosses the river from the east side of Three Step Mountain, then westerly to the confluence of Kwethluk River and Magic Creek, then southwesterly to the confluence of Eek River and Middle Fork Eek River, then southwesterly to the Unit 18 boundary at 60° 4.983' N, 161° 37.140'.	*1 bull excluding male calves by permit available in person in Bethel and villages within the hunt area Aug. 1-25 and online at http://hunt.alaska.gov Aug. 1-Oct. 7*	*RM615*	*Sept. 1 – Oct. 15*
Nonresidents:	*No open season*		

[1]full season is Sept. 1-Oct. 15, but ADF&G uses discretionary authority to set dates in Zone 1 each year

Extent of Federal Public Lands

Unit 18 is comprised of 67% Federal public lands and consists of 64% U.S. Fish and Wildlife Service (USFWS) managed lands and 3% Bureau of Land Management (BLM) managed lands

The Unit 18 Kuskokwim moose hunt area is comprised of 57% Federal public lands and consists of 56% USFWS managed lands and 1% BLM managed lands (**Figure 1**).

Zone two within the Kuskokwim moose hunt area is comprised of 82% Federal public lands and consists of 79% USFWS managed lands and 3% BLM managed lands (**Figure 1**).

Customary and Traditional Use Determinations

Residents of Unit 18, Upper Kalskag, Aniak, and Chuathbaluk have a customary and traditional use determination for moose in Unit 18, that portion of the Yukon River drainage upstream of Russian

Mission and that portion of the Kuskokwim River drainage upstream of, but not including, the Tuluksak River drainage.

Residents of Unit 18, Lower Kalskag, and Upper Kalskag have a customary and traditional use determination for moose in Unit 18 remainder

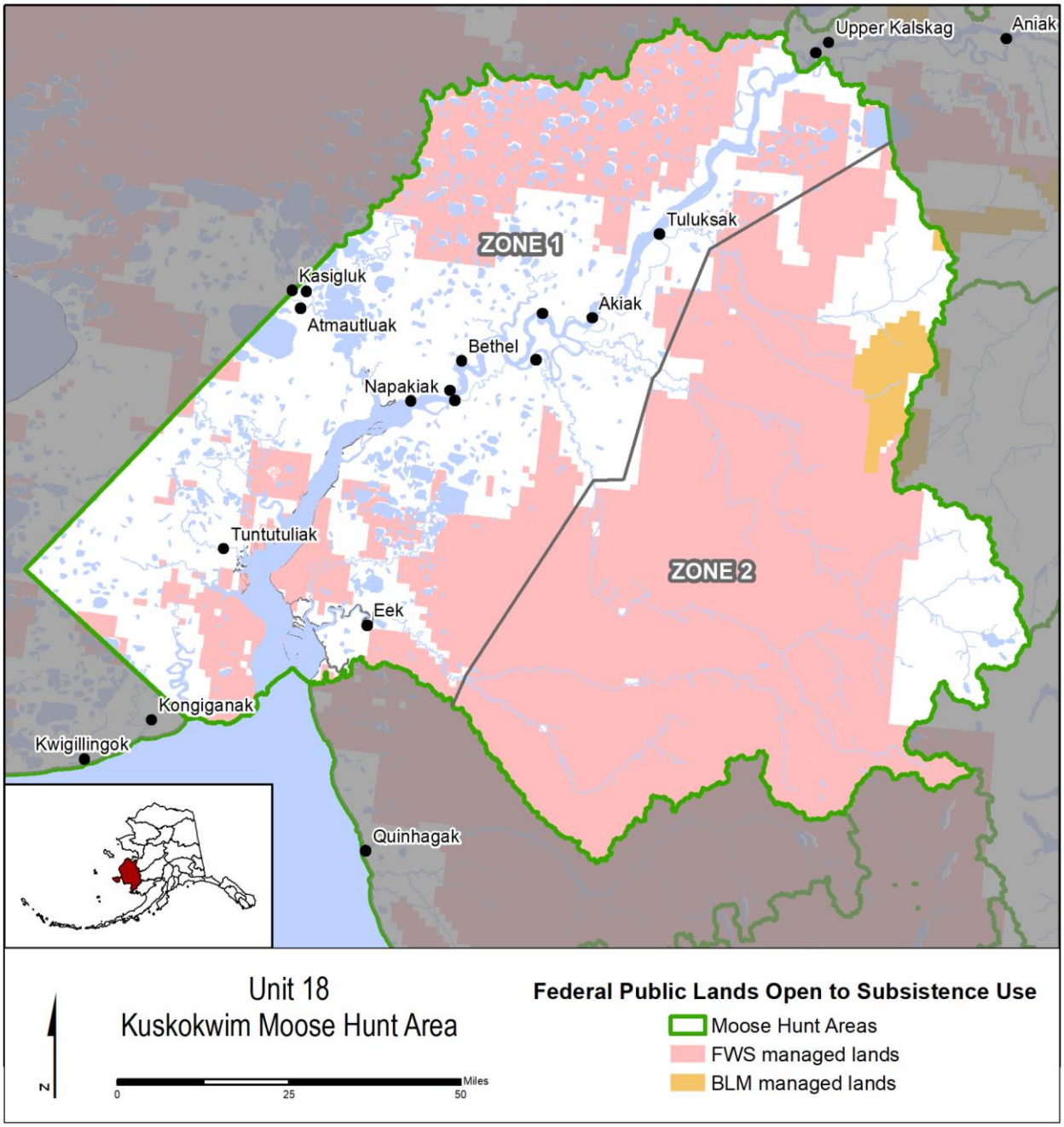

Figure 1. Federal public lands and hunt zones within the Kuskokwim moose hunt area, Unit 18.

Regulatory History

Federal public lands in the Kuskokwim area were closed to non-Federally qualified users in 1991, when the Federal Subsistence Board (Board) acted on Proposal P91-124. Submitted by the Togiak NWR, Proposal P91-124 requested that the moose season in the southern portion of Unit 18, including the Kanektok and Goodnews River drainages, be closed to allow establishment of a harvestable moose population. The Board adopted this proposal with modification to close Federal public lands throughout Unit 18 to moose harvest, except by Federally qualified subsistence users, given low moose densities throughout Unit 18.

Until 2004, Federal and State moose harvest limits for the lower Kuskokwim River area were one bull or one antlered bull, and the fall seasons lasted approximately one month. The State winter season varied widely from a continuous fall/winter season (Sept. 1–Dec. 31) to a 10-day December season and a winter "to be announced" season. The Federal winter season varied from a 10-day season to a "to be announced" season.

Both the Federal and State seasons were closed in the fall of 2004 as part of a coordinated effort to build the Kuskokwim moose population. In 2003, at the request of local residents, the Alaska Board of Game (BOG) established a five-year moratorium on moose hunting under State regulations. The Board adopted Proposal WP04-51 in April 2004 that established a five-year moratorium on Federal public lands. The intent of the moratorium was to promote colonization of underutilized moose habitat. The moratorium was largely instigated by the Lower Kuskokwim Fish and Game Advisory Committee, which worked with the Alaska Department of Fish and Game (ADF&G), USFWS, and area residents to close the moose season for five years or when a population of 1,000 moose was counted in the lower Kuskokwim survey unit. Considerable outreach efforts were made to communicate the impact of the moratorium on the growth potential of the affected moose population to local communities.

In March 2009, the BOG established a registration hunt (RM615), in preparation for ending the moratorium on June 30, 2009. A Sept. 1 – 10 season was established, with a harvest limit of one antlered bull by registration permit. In November 2009, the BOG adopted a proposal that changed the boundary separating the Unit 18 lower Kuskokwim area from the Unit 18 remainder area.

In May 2010, the Board adopted Proposals WP10-58 and WP10-62, with modification to make boundary changes similar to the BOG actions. Adoption of these proposals helped clarify the boundary for moose hunters and law enforcement. At the same meeting, the Board adopted Proposal WP10-54 with modification to reduce the pool of Federally qualified subsistence users eligible to hunt moose on Federal public lands within the lower Kuskokwim hunt area. This was necessary because of the small number of moose available to harvest relative to the large number of subsistence users with a customary and traditional use determination for moose (42 communities including Bethel).

Special action requests were approved to establish Federal moose seasons in the lower Kuskokwim hunt area in 2010 and 2012. In 2010, Emergency Wildlife Special Action WSA10-02 was approved to establish a Sept. 1 – 5 moose season. In 2012, Emergency Wildlife Special Action WSA12-06 was

approved to establish a Sept. 1 – 30 moose season. The harvest quota was set prior to the start of the season and the harvest limit was one antlered bull by State registration permit.

In April 2014, the Board adopted Proposal WP14-27 with modification, establishing a Federal moose season in the Kuskokwim hunt area. The Sept. 1 – 30 season had a harvest limit of one antlered bull by State registration permit. The Yukon Delta NWR manager was delegated the authority to establish an annual quota and close the season once the quota was met.

In August 2018, the Tuluksak Native Community submitted Emergency Special Action Request WSA18-02, requesting that the Board open the moose season early in the Kuskokwim hunt area to accommodate a food shortage emergency. The Board approved this request with modification to open an Aug. 18 – 31 emergency season only to residents of Tuluksak, with a quota of seven antlered bulls by Federal registration permit.

In 2020, the BOG adopted Proposal 7 as amended to change the State season dates for the RM615 moose hunt to Sept. 1-Oct.15 with a harvest limit of one bull, excluding the take of male calves. The first amendment to Proposal 7 was to extend the season from Sept. 1 – Sept. 30 to Sept. 1 – Oct. 15. Consideration was made to accommodate the holiday and teacher in-service days by keeping the season open date the same to allow continued opportunity for youth hunts. The second amendment to Proposal 7 changed the harvest limit from one antlered bull to one bull excluding the take of male calves. This was done to allow for proxy hunt but continue to prohibit the potential harvest of calves or incidental harvest of cows (ADF&G. 2020).

In April 2020, the Board considered Closure Review WCR20-38 and Proposal WP20-35 concerning moose in the Kuskokwim hunt area. The Board voted to maintain status quo on the Federal lands closure reviewed by WCR20-38 because demand for moose by Federally qualified subsistence user exceeds sustainable harvest levels. Proposal WP20-35 requested the addition of a may-be-announced season between Dec. 1 – Jan. 31. The Board rejected this proposal as part of the consensus agenda because of conservation concerns. While the Council had submitted the proposal, they opposed it to allow more time for the moose population to fully recover following the harvest moratorium. Additionally, the Council noted that snowmachine access during a winter season could dramatically increase harvest pressure in the area, including accidental harvest of cows, further hampering recovery of the population.

In July 2020, the Board approved Wildlife Special Action WSA20-05, which requested extending the fall moose season in the Kuskokwim hunt area of Unit 18 from Sept. 1 – 30 to Sept. 1 – Oct. 7 for the 2020/21 regulatory year. Yukon Delta NWR submitted, and the Board approved the proposal to provide more subsistence hunting opportunity since moose harvest quotas were not being met.

ADF&G and the Yukon Delta NWR cooperatively manage the Kuskokwim hunt area in two zones (**Figure 1**). Zone 1 is primarily non-Federal lands, and quotas are set by ADF&G. Local subsistence users can easily access Zone 1 by boat along the Kuskokwim River. Therefore, quotas are quickly met, and seasons are fixed dates calculated by ADF&G to determine what date harvest objectives are

expected to be met before each season. Zone 2 is primarily Federal public lands, and the Yukon Delta NWR sets quotas. Zone 2 is much more difficult to access, and quotas are not usually met.

Current Events

The Yukon Delta NWR submitted Wildlife Special Action WSA21-03, which requests the same extension to the fall moose season as Proposal WP22-44, but does not propose to establish a winter season. The Board will act on this request during their August 2021 work session.

Biological Background

Moose are believed to have begun colonization of the Yukon-Kuskokwim Delta in the 1940s (Perry 2014). By the 1990s, when the Federal public lands closure was initiated, moose densities throughout much of Unit 18 were very low. Though established populations existed in the far eastern portions of Unit 18, moose were only sparsely distributed throughout much of the unit. Harvested moose were likely immigrants from other areas, rather than part of a local breeding population (FSB 1991), and hunting pressure was effective in limiting growth of the moose population along the Kuskokwim River corridor (Perry 2014). The 2004 – 2008 hunting moratorium was effective in establishing a harvestable population, and the most recent indicators suggest that the population along the Kuskokwim River main stem and in its tributaries continues to grow.

Prior to 2020, the most recent population survey of the lower Kuskokwim survey area, which includes the main stem riparian corridor between Kalskag and Kwethluk, occurred in 2015. At that time, the population was estimated to be 1,378 moose, or 1.6 moose/mile^2 in Zone 1 (**Figure 2**). This represents an annual growth rate of 20% between 2011 and 2015. The population estimate for Zone 2 was 508 moose (YKDRAC 2019). At that time, the Kuskokwim moose population remained below the State's population objective of at least 2,000 moose in this area (Perry 2014).

Lack of snow cover in recent years precluded additional population surveys between 2015 and 2020. The survey completed in 2020 shows an increase of the moose populations in both zones. The estimated mid-point population in Zone 1 was 3,220 moose, and the minimum count in Zone 2 was 789 moose, which exceeds State population objectives (**Figure 2**) (Jones 2021, pers. comm., YKDRAC 2019). Browse surveys indicate that the population in Zone 1 is potentially reaching a point that will limit or stop growth, and Zone 2 is about one-half of what it could be (Jones 2021, pers. comm.).

Composition estimates for the main stem were obtained in 2020, when there were 25 bulls:100 cows (ADF&G 2020). Bull:cow ratios, which were quite high during the harvest moratorium, declined when harvest resumed in 2009, but remained consistently above the minimum objective of 30 bulls:100 cows until 2020 (**Table 1**). The recent decline in the bull:cow ratio follows an increase in reported harvest and a liberal hunting season in 2019. Unreported harvest, increased winter mortality, and misclassification of young bulls with small antlers during surveys may also have contributed to the lower ratio in 2020. Bull:cow ratios in the Kuskokwim tributaries (Zone 2) are very high, although surveys have occurred infrequently. In 2015 and 2020, ratios were 83 and 42 bulls:100 cows, respectively (Oster 2020, Jones 2021, pers. comm).

Fall calf:cow ratios of < 20 calves:100 cows, 20-30 calves:100 cows, and > 30-40 calves:100 cows may indicate declining, stable, and growing moose populations, respectively (Stout 2010). Between 2007 and 2020, calf:cow ratios in the main stem survey area (Zone 1) ranged from 45-73 calves:100 cows (**Table 1**; Jones 2018, pers. comm., ADF&G 2020, Oster 2020). In 2015 and 2020, calf:cow ratios in the Kuskokwim tributaries (Zone 2) were 62 and 40 calves:100 cows, respectively (Oster 2020). High calf:cow ratios indicate a growing moose population. Twinning rates, which provide an index of nutrition, are also high, averaging 43% between 2015 and 2019 (YKDRAC 2019, ADF&G 2020).

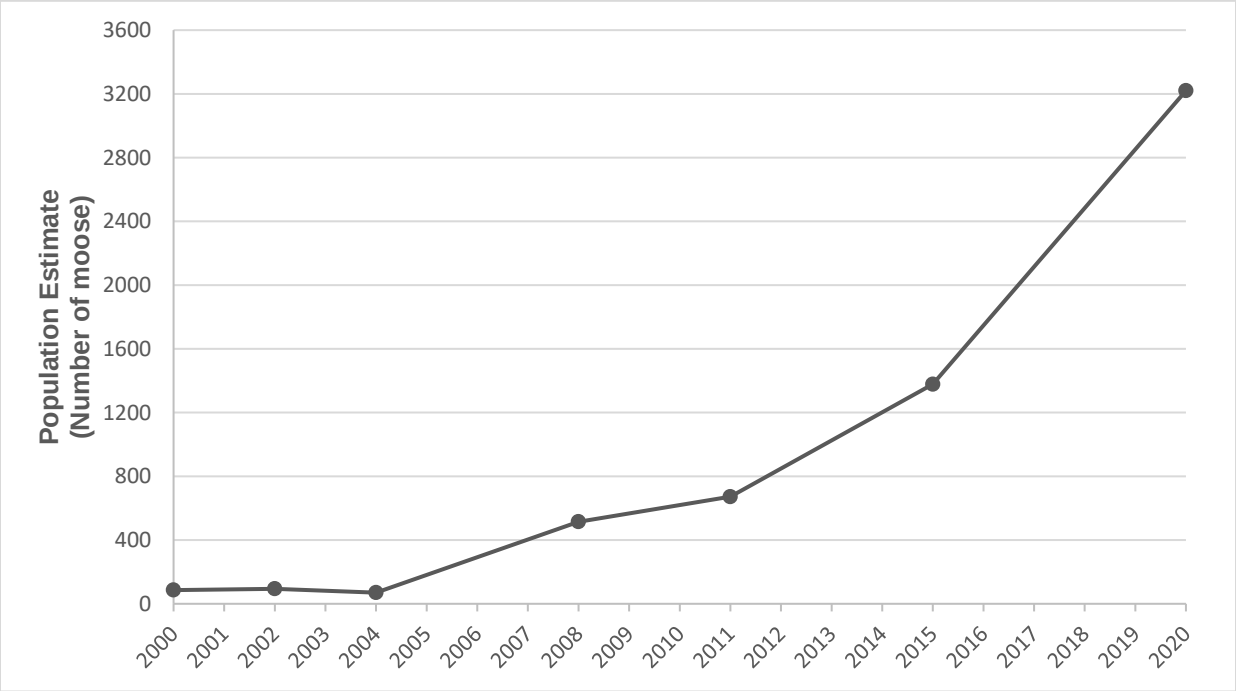

Figure 2. Estimated moose population size along the main stem of the Kuskokwim River, 2000 – 2020 (Perry 2014; Jones 2018, pers. comm.; Jones 2021, pers. comm.)

Table 1. Composition estimates for moose along the main stem of the Kuskokwim River, 2007 – 2020 (YDNWR 2015; Jones 2018, pers. comm.; ADF&G 2020; Oster 2020).

Year	Bulls:100 cows	Calves:100 cows
2007	98	73
2009	52	49
2010	51	49
2011	50	49
2013	41	72
2015	73	53
2016	70	56
2019	43	49
2020	25	45

Harvest History

Following the harvest moratorium, moose harvest on non-Federal lands was allowed under State regulation, beginning in 2009. In 2010, harvest on Federal public lands was opened to a subset of Federally qualified subsistence users, including residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautluak, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag. In this analysis, this user group will be referred to as local users.

Since 2009, reported harvest has averaged 159 moose annually (ADF&G 2019a). Notably, reported harvest has increased, doubling between 2014 and 2017 (**Figure 3**). Local users have taken 95% of the reported moose harvest in the Kuskokwim hunt area since 2009, with 30% of the harvest attributable to residents of Bethel. However, non-local use is increasing, from two harvest reports in 2013 to 16 in 2017 (**Figure 3**). Non-local users that report harvesting moose are primarily Federally qualified subsistence users from coastal communities of Unit 18, but also include a few users from southcentral Alaska (ADF&G 2019a). About 30 moose, including around 20 cows are harvested each year for funerals and potlatches in Zone 1 (YKDRAC 2019; Moses 2020, pers. comm.).

Despite increases in quotas and harvest, demand still outweighs moose availability. Since 2009, an average of approximately 1,450 hunters have obtained permits to harvest moose in the Kuskokwim hunt area each year, but only 10% of permit holders successfully harvested moose (ADF&G 2019a). The disparity between demand and the relatively small quotas has routinely resulted in emergency closure of the State season within days of its opening (**Table 2**). This has resulted in some frustration among locals, who note that short unpredictable seasons make planning difficult. In response to this, ADF&G no longer uses quotas or closes Zone 1 with emergency closures. Fixed dates determined by estimated time needed to reach the set harvest objective is released prior to the start of each season (Jones 2021, pers. comm.). Local residents have also commented on the challenges of hunting in early September in recent years, given warm conditions that make proper meat care difficult. To this end, many subsistence users have advocated for a later moose season (YKDRAC 2017b).

In an effort to better serve users in an area of checkerboard land status, State and Federal managers adjusted the structure of the hunt in 2017, introducing a zone-based hunt (**Figure 1**). An important feature of the zones is that, while they correspond roughly to State and Federal lands, they are delineated by easily identifiable geographical features (e.g. river confluences). Each of the two zones is managed with its own harvest objective. Zone 1, which is comprised primarily of State managed lands, is located along the main stem of the Kuskokwim River. The season and harvest objective for the main stem hunt are managed by ADF&G. Zone 2 is comprised primarily of Federal public lands, including those in the Tuluksak, Kisaralik, Kasigluk and Eek river drainages ("tributaries"). The season and harvest quota in the tributary hunt is managed by the Yukon Delta NWR (Rearden 2018, pers. comm.; YKDRAC 2017a).

There is more demand for moose in Zone 1, along the main stem, compared to Zone 2, in the tributaries. This is evidenced by the rate at which the quota is met within each zone, and the corresponding season length. On average, the main stem hunt has been open fewer than six days annually from 2011 through 2018, and the quota has been met or exceeded most years. Since ADF&G

has changed to the fixed season using the harvest objective method, Zone 1 hunt was open for 11 days in 2020 and will be open 9 days in 2021 (Jones 2021, pers. comm.). For the hunt in the tributaries, the quota has only been met one time, in 2014, despite increasing season lengths (**Tables 2 and 3**). Local managers report that hunting in the tributaries is difficult, requiring specialized boats, longer travel times, and more fuel. Heavy vegetation along the banks contributes to the difficulty. It is believed that the unmet quota is a function of these difficulties, rather than lack of need for moose meat (YKDRAC 2017a, YKDRAC 2017b, Rearden 2018, pers. comm.).

ADF&G is currently managing the Kuskokwim moose population for continued growth and advises maintaining harvests within quotas and for bulls-only. However, ADF&G expects regulations in the Kuskokwim hunt area will be liberalized over the next five years if the moose population approaches carrying capacity as indicated by browse removal surveys (YKDRAC 2019).

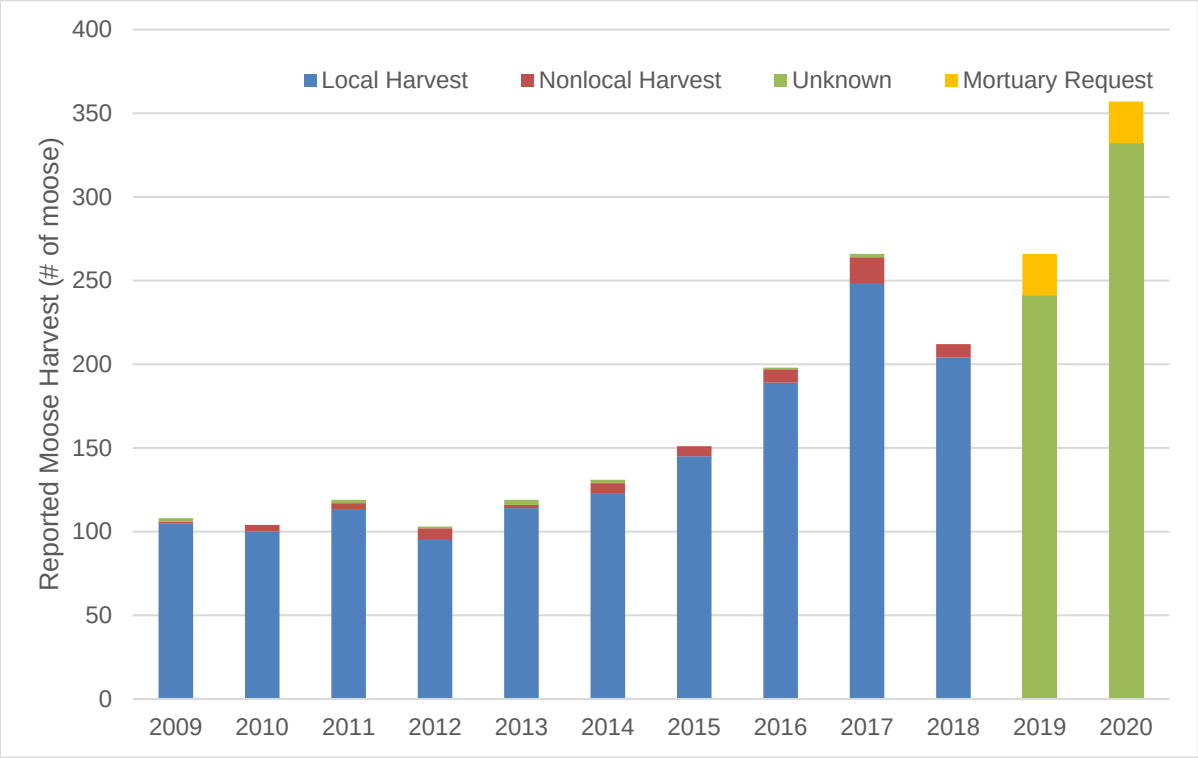

Figure 3. Reported moose harvest by RM615 in the Kuskokwim hunt area, 2009 – 2020 (ADF&G 2019a, Oster 2020, Jones 2021, pers. comm.). Note: 2019 and 2020 data does not distinguish between local and nonlocal harvest.

Table 2. State and Federal moose seasons, 2011 – 2021 (Rearden 2020, pers. comm.; ADF&G 2019b; Jones 2019, pers. comm. Jones 2021, pers. comm.; YKDRAC 2019).

		Scheduled season dates			Actual season dates			Actual season length (number of days)	
Year		State	Federal		State	Federal		State	Federal
2011		Sept. 1 - 10	Sept. 1 - 5		Sep 1 - 6	Sep 1 - 6		6	6
2012		Sept. 1 - 10	Sept. 1 - 10		Sept. 1 - 8	Sept. 1 - 8		8	8
2013		Sept. 1 - 10	Sept. 1 - 10		Sept. 1 - 6	Sept. 1 - 6		6	6
2014		Sept. 1 - 10	Sept. 1 - 10		Sept. 1 - 4	Sept. 1 - 4		4	4
2015		Sept. 1 - 10	Sept. 1 - 8		Sept. 1 - 4	Sept. 1 - 8		4	8
2016		Sept. 1 - 10	Sept. 1 - 15		Sept. 1 - 5	Sept. 1 - 15		5	15
2017[a]		Sept. 1 - 10	Sept. 1 - 25		Sept. 1 - 5	Sept. 1 - 25		5	25
2018[a]		Sept. 1 - 10	Sept. 1 - 30		Sept. 1 - 7	Sept. 1 - 30		7	30
2019[a]		Sept. 1 - 7	Sept. 1 – 30		Sept. 1 - 7	Sept. 1 - 30		7	30
2020 [a]		Sept. 1 - 11	Sept. 1-Oct. 7		Sept. 1 - 11	Sept. 1-Oct. 7		11	37
2021[a]		Sept. 1 - 9	Sept. 1 – 30		Sept. 1 - 9			9	

[a] The State season corresponds to Zone 1 and the Federal season corresponds to Zone 2.

Table 3. State and Federal moose quotas and harvest, 2011 – 2018 (Rearden 2018, pers. comm.; ADF&G 2019b; Jones 2019, pers. comm.; Moses 2020, pers. comm.; ADF&G 2020; Oster 2020).

	Quota (number of moose)			Harvest (number of moose)			
Year	State	Federal	Total	State	Federal	Unknown	Total
2011	81	19	100	93	11	15	119
2012	81	19	100	82	17	4	103
2013	81	19	100	89	21	9	119
2014	81	19	100	93	15	23	131
2015	110	45	155	105	31	15	151
2016	150	90	240	136	44	14	194
2017[a]	170	110	280	186	80	0	266
2018[a]	170	110	280	142	70	0	212
2019[a]	180-200	110	290-310	160	72	-	232
2020[a]	170	110	280	215	90		305

[a] The State quota corresponds to Zone 1 and the Federal quota corresponds to Zone 2.

Other Alternatives Considered

One alternative considered was to create two separate hunt areas corresponding to Zones 1 and 2, similar to State regulations. This could reduce user confusion and regulatory complexity as the zones are managed by different harvest quotas and usually have different seasons. The Council may want to further consider this alternative.

Another alternative considered was to delegate authority to the Yukon Delta NWR manager to decide the number of Federal permits to issue each year during the winter season. This would limit harvest pressure in Zone 2 during the winter when access via snowmachine can be relatively easy and would help ensure sustainable harvest levels and that the harvest quota is not exceeded. This alternative would require modification of the delegation of authority letter (**Appendix 1**).

Effects of the Proposal

If WP22-43 is adopted, the Yukon Delta NWR manager would be delegated authority to expand the moose harvest quota in Zone 1 if the water levels are too low during the fall to access Zone 2. As the Zone 1 harvest is usually met in less than a week, there is high potential for overharvest of moose in Zone 1 if the harvest objective is increased. Additionally, the 2020 bull:cow ratios in Zone 1 were low and below State management objectives, indicating no surplus bulls for harvest. However, if the Federal manager did increase the harvest quota in Zone 1, it would only apply to Federal public lands, which are very limited in Zone 1.

If WP22-44 is adopted, the moose season in the Kuskokwim hunt area of Unit 18 would be extended 15 days, closing October 15 instead of September 30 and a winter season would be announced if the fall harvest quota was not met. This would increase hunting opportunity for Federally qualified subsistence users and could increase total moose harvest in this area. If water levels are too low in the fall to access Zone 2, a winter season could be announced, providing easier access via snowmachine, which would also address the concerns expressed in WP22-43. Alternatively, if the harvest quota is met in the fall, then the Yukon Delta NWR manager would not announce a winter season.

While the Federal season applies to the entire Kuskokwim hunt area, the Federal hunt requires use of a State registration permit, which divides the area into Zones 1 and 2. Harvest quotas in Zone 1 are generally met in less than one week, and seasons are closed. Therefore, the season extension proposed by WP22-44 functionally only applies to Zone 2, where harvest quotas are not being met due to difficulty in accessing the area. Since 2017, the Federal in-season manager has announced Zone 2 harvest quotas of 110 moose; however, an annual average of 78 moose have been reported harvested. Extending the season by two weeks could help meet harvest quotas. In 2020, the Board extended the fall season by one week to October 7 via special action, resulting in an increased harvest of 90 moose (**Table 3**). Extending the season by two weeks could help achieve harvest quotas and provide additional harvest opportunity.

State seasons in Zone 2 are now Sept. 1-Oct. 15. Adoption of this proposal would align State and Federal seasons, reducing regulatory complexity and user confusion. Adoption of this proposal would

require the creation and issuance of an additional Federal registration permit during the winter season, if announced. Timely reporting of successful harvest would be important to maintain harvest objectives.

During the Council's deliberation of Proposal WP20-35 at their Fall 2019 meeting, ADF&G suggested increasing harvest opportunity by extending the fall season into mid-October instead of establishing a winter to-be-announced season, which could result in quotas quickly being exceeded due to easy access by snowmachine. ADF&G stated that extending the season into October would likely achieve harvest quotas at a manageable pace. Concerns expressed during the meeting also included inadvertent cow harvest during a winter season, hampering recovery of the moose population, and difficulty in managing a winter hunt and harvest quota when as many as 50 moose have been reported harvested in a single day during the fall season. The ADF&G area biologist also noted that the population is not so large that it is a biological necessity to meet the quota each year, and that the Kuskokwim drainage can likely support two- to three-times the number of moose currently observed. (YKDRAC 2019).

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP22-43 and **Support** Proposal WP22-44 **with modification** to clarify the regulatory language and to delegate authority to the Yukon Delta NWR manager to announce the winter season via delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

Unit 18—Moose

Unit 18 – that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (N 60°59.41' Latitude; W162°22.14' Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage—1 antlered bull by State registration permit ***during the fall season****;*	*Sept. 1 –* ~~*30*~~ ***Oct. 15*** ***Season may be announced Dec. 1-Jan. 31***

OR

1 antlered bull by Federal registration permit during a winter season.
~~*quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager.*~~

Federal public lands are closed to the taking of moose except by residents

of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmanutlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag

Justification

Conservation concerns exist for Proposal WP22-43. Harvest quotas in Zone 1 are quickly met and low bull:cow ratios in Zone 1 indicate no surplus bulls are available for harvest. The may-be-announced winter season proposed by WP22-44 provides an alternative approach to increasing subsistence harvest opportunity if water levels are too low to access Zone 2 during the fall hunt, while not creating conservation concerns.

Proposal WP22-44 provides additional opportunity for Federally qualified subsistence users. Minimal conservation concerns exist as harvest is managed through quotas, which are not being met. The in-season manager would close the season if quotas are met. The harvest limit of one antlered bull helps ensure that cows will not be taken inadvertently. Delegating additional authority to the in-season manager via a delegation of authority letter provides management flexibility and simplifies unit specific regulations.

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APPENDIX 1

Refuge Manager
Yukon Delta National Wildlife Refuge
P.O. Box 346
Bethel, Alaska 99559

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the manager of the Yukon Delta National Wildlife Refuge to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within Unit 18, that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakankakslak Lake (N 60˚ 59.412 Latitude; W 162˚ 22.142 Longitude), continuing upriver along a line ½ mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet of Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage for the management of moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

DELEGATION OF AUTHORITY

1. <u>Delegation</u>: The manager of the Yukon Delta National Wildlife Refuge is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the Scope of Delegation. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

2. <u>Authority</u>: This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and

50 CFR 100.10(d)(6), which state: "The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board."

3. <u>Scope of Delegation</u>: The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To close the **fall** season, **open and close a season between December 1 and January 31**, and determine annual quotas for moose on Federal public lands ~~in Unit 18, that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakankakslak Lake (N 60o 59.412 Latitude; W 162o 22.142 Longitude), continuing upriver along a line ½ mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet of Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage~~.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve moose populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 18 that portion east of a line running from the mouth of the Ishkowik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakankakslak Lake (N 60o 59.412 Latitude; W 162o 22.142 Longitude), continuing upriver along a line ½ mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet of Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage.

4. <u>Effective Period</u>: This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

5. <u>Guidelines for Delegation</u>: You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of

Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

6. <u>Support Services</u>: Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson
Chair

Enclosures
cc: Federal Subsistence Board
Assistant Regional Director, Office of Subsistence Management
Deputy Assistant Regional Director, Office of Subsistence Management
Subsistence Policy Coordinator, Office of Subsistence Management
Wildlife Division Supervisor, Office of Subsistence Management
Subsistence Council Coordinator, Office of Subsistence Management
Chair, Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
Deputy Commissioner, Alaska Department of Fish and Game
Special Projects Coordinator ~~Assistant to the Commissioner~~, Alaska Department of Fish and Game
Interagency Staff Committee
Administrative Record

WP22-45 Executive Summary	
General Description	Wildlife Proposal WP22-45 requests to create specific harvest regulations for Alaska hare (*Lepus othus*) in Units 18, 22, and 23. *Submitted by: Alaska Department of Fish and Game.*
Proposed Regulation	**Unit 18— Hare** *Hare (Snowshoe ~~and Tundra)~~: No limit* — *July 1 – June 30* ***Alaska Hare: 2 hare per day / 6 per season*** — ***Sept. 1 – April 15*** **Unit 22— Hare** *Hare (Snowshoe ~~and Tundra)~~: No limit* — *Sept. 1 – April 15* ***Alaska Hare: 2 hare per day / 6 per season*** — ***Sept. 1 – April 15*** **Unit 23— Hare** *Hare (Snowshoe ~~and Tundra)~~: No limit* — *July 1 – June 30* ***Alaska Hare: 2 hare per day / 6 per season*** — ***Sept. 1 – April 15***
OSM Preliminary Conclusion	**Support** Proposal WP22-45 **with modification** to shorten the season to Aug. 1 – May 31 and to modify the definition of hare in Federal regulations. The modified regulations should read: **§100.25(a) Definitions:** *Hare or hares collectively refers to all species of hares (commonly called rabbits) in Alaska and includes snowshoe hare and tundra **or Alaska** hare.* **Unit 18— Hare** *Hare (Snowshoe ~~and Tundra)~~: No limit* — *July 1 – June 30* ***Alaska Hare: 2 hare per day / 6 per season*** — ***Aug. 1 – May 31*** **Unit 22— Hare**

	Hare (Snowshoe ~~and Tundra)~~: No limit *Sept. 1 – April 15* ***Alaska Hare: 2 hare per day / 6 per season*** ***Aug. 1 – May 31*** **Unit 23— Hare** *Hare (Snowshoe ~~and Tundra)~~: No limit* *July 1 – June 30* ***Alaska Hare: 2 hare per day / 6 per season*** ***Aug. 1 – May 31***
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council	
Seward Peninsula Subsistence Regional Advisory Council	
Northwest Arctic Subsistence Regional Advisory Council	
North Slope Subsistence Regional Advisory Council	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	None

DRAFT STAFF ANALYSIS
WP22-45

ISSUES

Proposal WP22-45, submitted by Alaska Department of Fish and Game (ADF&G), requests to create specific harvest regulations for Alaska hare (*Lepus othus*) in Units 18, 22, and 23.

DISCUSSION

The proponent states that, the once (as recently as the 1980s) abundant Alaska hare in Units 18, 22, and 23 is now at a very low density and has a patchy distribution throughout the Yukon-Kuskokwim Delta (YKD), Seward Peninsula, and Northwestern Alaska region. In Alaska, the species resides only throughout the extreme western and southwestern portions of the state. Very little is known about the Alaska hare, but the apparent decrease in abundance may have been caused by changes in habitat, predation, human harvest, or other natural cyclical events. Although seemingly more abundant in Units 22 and 23, there are infrequent observations of Alaska hare throughout the YKD and Seward Peninsula. Alaska hares are not highly productive; they have only one, relatively small-sized litter of young per year. The proponent believes that the limited-management approach of the last 50 years no longer sufficiently addresses appropriate conservation of this species. This proposal would reduce hunting opportunity for this species both in terms of season duration and harvest limits. The reduction in harvest may assist Alaska hare populations to increase throughout Units 18, 22, and 23.

The proponent also requested establishing a human use salvage requirement for hare in Units 18, 22 and 23. However, this provision already exists under Federal regulations (see existing Federal regulations section) and is therefore not considered further in this analysis.

Note: The Alaska hare is sometimes called jack rabbits, tundra hare, or arctic hare (e.g. Anderson 1978; Klein 1995; Murray 2003; ADF&G 2019). Federal subsistence regulation uses the term tundra hare, but Alaska hare appears to be the dominate term in contemporary usage, including in State regulation. This analysis uses the terms Alaska hare and tundra hare synonymously. It should also be noted that the Alaska or tundra hare is a distinct species from the snowshoe hare, despite the inclusion of both species in the same Federal regulation.

Existing Federal Regulation

§100.25(j)(2) If you take wildlife for subsistence, you must salvage the following parts for human use:

(iv) The hide or meat of squirrels, hares, marmots, beaver, muskrats, or unclassified wildlife.

Unit 18 —Hare

Hare (Snowshoe and Tundra): No limit	*July 1-June 30*

Unit 22—Hare

Hare (Snowshoe and Tundra): No limit	*Sept. 1 – April 15*

Unit 23—Hare

Hare (Snowshoe and Tundra): No limit	*July 1- June 30*

Proposed Federal Regulation

§100.25(j)(2) If you take wildlife for subsistence, you must salvage the following parts for human use:

(iv) The hide or meat of squirrels, hares, marmots, beaver, muskrats, or unclassified wildlife.

Unit 18— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*July 1 – June 30*
Alaska Hare: 2 hare per day / 6 per season	***Sept. 1 – April 15***

Unit 22— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*Sept. 1 – April 15*
Alaska Hare: 2 hare per day / 6 per season	***Sept. 1 – April 15***

Unit 23— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*July 1 – June 30*
Alaska Hare: 2 hare per day / 6 per season	***Sept. 1 – April 15***

Existing State Regulation

Unit 18, 22, 23— Hare

Snowshoe hare: no limit	*No closed season*
Alaska hare: two per day, six total	*Aug 1 – May 31*

Hunters must salvage the hide or meat of Alaska hares taken 18, 22, and 23

Relevant Federal Regulation

§100.25(a) Definitions:

Hare or hares collectively refers to all species of hares (commonly called rabbits) in Alaska and includes snowshoe hare and tundra hare.

Extent of Federal Public Lands

Unit 18 is comprised of 66.7% Federal public lands and consist of 64.0% U.S. Fish and Wildlife Service (USFWS) managed lands and 2.7% Bureau of Land Management (BLM) managed lands.

Unit 22 is comprised of 43.5% Federal public lands and consist of 28.1% BLM managed lands, 12.4% NPS managed lands, and 3.0% USFWS managed lands.

Unit 23 is comprised of 70.5% Federal public lands and consist of 39.6% NPS managed lands, 21.8% BLM managed lands, and 9.1% USFWS managed lands.

Customary and Traditional Use Determinations

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for hare in Units 18, 22, and 23. Therefore, all rural residents of Alaska may harvest this species in these units.

Regulatory History

Federal subsistence regulations for hare in Units 18 and 23 have not changed since 1990, when the Federal subsistence management program began. At that time, a year-round season with no harvest limit was adopted from State regulation.

Federal subsistence regulations for hare in Unit 22 were established in 1990, when the Federal subsistence management program began. At that time, a year-round season with no harvest limit was adopted from State regulation.

In 1992, Proposal P92-098 was submitted by a member of the public requesting complete closure of muskrat trapping and hare harvest in Unit 23 until the population rebounded. The proposal was rejected by the Board.

In 1995, Proposal P95-46 was submitted by the Seward Peninsula Subsistence Regional Advisory Council to shorten the season for hares in Unit 22 from July 1 – June 30 to Sept. 1 – April 15. The intent of the proposal was to close the season for hares during the mating, breeding and birthing season. The proposal was adopted by the Board.

ADF&G submitted Proposals 15 and 43 for the Alaska Board of Game's (BOG) consideration during the January 2020 meeting in Nome. Both proposals consisted of two parts. The first part of each proposal was for customary and traditional use findings of Alaska hares in Units 18, 22, and 23. The BOG adopted a positive finding for these units. The second part, noting very low densities and patchy distribution of Alaska hares in the units, ADF&G requested the reduction of season and harvest limits in Units 18 and 22. For consistency the BOG adopted an identical management structure in Units 18, 22, and 23 for the Alaska hare. The State adopted a harvest limit of two per day with a total of six per season and an Aug 1 – May 31 season that required hunters to salvage the hide or meat for human usage (BOG 2020).

Current Events Involving the Species

The ADF&G also submitted Wildlife Proposal WP22-39 to create specific harvest regulations for Alaska hare in Units 9 and 17.

Biological Background

Taxonomy of the three species of northern hares remains unresolved, which almost certainly contributes to the confusion around common names. Current taxonomic descriptions rely on geographic distributions, rather than morphologic or molecular distinctions, which remain ambiguous. The arctic hare (*Lepus arcticus*) is widely distributed across tundra habitats of Greenland and northern Canada. The mountain hare (*L. timidus*) occurs in northern Eurasia, from eastern Russia to Scandinavia (Cason 2016). Alaska hares are limited to coastal western and southwestern Alaska, ranging from the Baldwin and Seward Peninsulas in the north, to the Alaska peninsula in the south (Merizon and Carroll 2019).

Alaska hares are among the largest of the *Lepus* genus, weighing approximately 8.5 – 10.5 pounds (Murray 2003). They occupy coastal lowlands, wet meadows, and willow and alder thickets (Merizon and Carroll 2019), and feed on willow buds, leaves, and crowberries (Murray 2003). They are typically solitary, except during breeding season. Alaska hares reproduce a single litter each year, breeding between April and June and giving birth approximately 6.5 weeks later. Litters contain 6.3 young on average, which are fully weaned within 5 – 9 weeks (Murray 2003). Alaska hares can be identified by the black-tipped ears and are significantly larger than the snowshoe hare (ADG&G 2019).

The Alaska hare is among the most poorly understood wildlife species in Alaska. Hunter

questionnaires have been the only source of information about the species and there has been no long-term population monitoring. Beginning in 2017, ADF&G began to evaluate capture techniques to better understand this species. They also embarked on a tour of rural communities throughout the range of the Alaska hare to discuss local observations, historical abundance, and harvest patterns. In 2018, a multi-year study was initiated to evaluate movement and mortality, as well as long-term capture techniques. Anecdotal observations suggest that Alaska hare abundance is well below that observed in the 1950s and 1960s, throughout its range. It is unknown whether the population has been in a long-term decline, or whether it experienced a crash and now exists as a low density but relatively stable population (Merizon and Carroll 2019).

Harvest History

Little is known about the harvest of Alaska hare, which is one of the least accessible small game species. However, it is harvested throughout the communities of western and southwestern Alaska as documented in household harvest surveys (Merizon and Carroll 2019, **Table 1**). Some insights into small game harvest are available in ADF&G's Statewide Small Game Hunter Survey, results for which were compiled for RY2011/12 and RY2013/14.

The most recent results, from RY2013/14, show that half of the hunters responding to the survey reported hunting small game in Units 13, 14 or 20, while only about 6% of respondents reported hunting small game in Unit 18, about 4% in Unit 22 and about 3% in Unit 23. While response rates of those receiving surveys were lower for the Western Rural area, which includes Units 18, 22, and 23 (16%) versus statewide (30%). Most Alaska resident respondents reported hunting within the geographic region where they reside, but only 3% of respondents statewide reported participating in Federal subsistence small game hunts. Respondents reported that they hunt small game opportunistically while engaging in other activities, but also target small game specifically. Statewide, ptarmigan and spruce grouse were targeted most frequently. Within the Western Rural geographical area, respondents reported hunting for Alaska hare for an average of 2.5 days each year (Merizon et al. 2015).

Table 1: Alaska hare harvest by community (Mikow et al. 2020)

Unit 18			Unit 22			Unit 23		
Community	Study Year	Estimated total Harvest	Community	Study Year	Estimated total Harvest	Community	Study Year	Estimated total Harvest
Akiachak	1998	0	Brevig Mission	1989	6	Ambler	2012	0
Akiak	2010	42	Golovin	1989	4	Buckland	2003	16
Alakanuk	1980	669		2012	0	Deering	1994	12
Bethel	2012	173	Shishmaref	1989	112		2013	3
Eek	2013	7		1995	62	Kiana	2006	0
Emmonak	1980	806		2014	16	Kivalina	1964	0
	2008	24	Stebbins	1980	110		1982	0
Kotlik	1980	552		2013	2		1983	0
Kwethluk	2010	52	Wales	1993	1		1992	0
Mountain Village	1980	66				Kobuk	2009	4
	2010	63					2012	0
Napakiak	2011	43				Kotzebue	1986	64
Napaskiak	2011	20					1991	97
Nunam Iqua (Sheldon Point)	1980	92					2014	0
Oscarville	2010	0				Noatak	1994	0
Pilot Station	2013	0				Noorvik	2008	0
							2012	31

Unit 18		
Quinhagak	1982	82
	2013	15
Russian Mission	2011	2
Scammon Bay	2013	165
Tuluksak	2010	20
Tuntutuliak	2013	0

Unit 23		
Selawik	2011	4
Shungnak	2002	0
	2012	0

*Note- Some Community/Study years not included in this table only showed harvest for "Hares, Jackrabbits, Unknown." Actual harvest maybe higher.

Effects of the Proposal

If this proposal is adopted, opportunity to harvest Alaska hares under Federal subsistence regulation would be reduced. Given that the State season has already been reduced for Units 18, 22, and 23, this represents an actual reduction of opportunity for Federally qualified subsistence users. This change would result in reduced harvest of Alaska hare, particularly since it includes both a daily and an annual harvest limit. Though neither harvest nor population size are quantified, harvest reduction has the potential to improve the conservation status of Alaska hare populations in Units 18, 22, and 23, which are reported to be well below historical size. Adoption of this proposal would also result in Federal regulations becoming more restrictive than State regulations.

OSM PRELIMINARY CONCLUSION

Support Proposal WP22-45 **with modification** to shorten the season to Aug. 1 – May 31 and to modify the definition of hare in Federal regulations.

The modified regulations should read:

§100.25(a) Definitions:

*Hare or hares collectively refers to all species of hares (commonly called rabbits) in Alaska and includes snowshoe hare and tundra **or Alaska** hare.*

Unit 18— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*July 1 – June 30*
Alaska Hare: 2 hare per day / 6 per season	***Aug. 1 – May 31***

Unit 22— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*Sept. 1 – April 15*
Alaska Hare: 2 hare per day / 6 per season	***Aug. 1 – May 31***

Unit 23— Hare

Hare (Snowshoe ~~and Tundra)~~: No limit	*July 1 – June 30*
Alaska Hare: 2 hare per day / 6 per season	***Aug. 1 – May 31***

Justification

Anecdotal information indicates that Alaska hares in Units 18, 22, and 23 are scarcer than they have been in the past. Biologically, it is appropriate to restrict harvest in such a situation. Reducing the season from Jul. 1 – Jun. 30 to Aug. 1 – May 31 reduces the season by approximately 16%, yet continues to offer subsistence users the opportunity to harvest Alaska hares during fall, winter, and spring when they are engaging in other subsistence or recreational activities. The proponent requested a season which would be more restrictive than existing State regulations. Additionally, Federal qualified subsistence users would still be able to harvest Alaska hare in August and May under the more liberal State regulations. This modification would align State and Federal seasons, reducing regulatory complexity and user confusion.

Imposing a harvest limit of 2 per day and 6 annually may have a greater effect on reducing overall harvest and promoting population recovery than shortening the season. Collectively, changes in season and harvest limit offer a balance between imposing conservation measures and allowing for the continuation of subsistence uses in the near term. Any positive effect these changes have on the Alaska hare population will benefit subsistence users in the long term.

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WP22–47 Executive Summary	
General Description	Proposal WP22-47 requests that calf harvest be permitted for caribou in Unit 22. *Submitted by: Western Arctic Caribou Herd Working Group*
Proposed Regulation	See page 132
OSM Preliminary Conclusion	**Support**
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP22-47

ISSUES

Proposal WP22-47 submitted by the Western Arctic Caribou Herd (WACH) Working Group requests that calf harvest be permitted for caribou in Unit 22.

DISCUSSION

The proponent states that the intent of this proposal is to allow for the harvest of orphaned calves, and that this regulation change would align Federal and State regulations.

Existing Federal Regulation

Unit 22—Caribou

Unit 22B, that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day by State registration permit. Calves may not be taken	*Oct. 1-Apr. 30.* *May 1-Sep. 30, a season may be announced*
Units 22A, that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E, that portion east of and including the Tin Creek drainage—5 caribou per day by State registration permit. Calves may not be taken	*July 1-June 30*
Unit 22A, remainder—5 caribou per day by State registration permit. Calves may not be taken	*July 1-June 30, season may be announced*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day by State registration permit. Calves may not be taken	*Oct. 1-Apr. 30.* *May 1-Sep. 30, season may be announced*
Units 22C, 22D remainder, 22E remainder—5 caribou per day by State registration permit. Calves may not be taken	*July 1-June 30, season may be announced*

Proposed Federal Regulation

Unit 22—Caribou

Unit 22B, that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day by State registration permit. ~~Calves may not be taken~~	*Oct. 1-Apr. 30.* *May 1-Sep. 30, a season may be announced*
Units 22A, that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E, that portion east of and including the Tin Creek drainage—5 caribou per day by State registration permit. ~~Calves may not be taken~~	*July 1-June 30*
Unit 22A, remainder—5 caribou per day by State registration permit. ~~Calves may not be taken~~	*July 1-June 30, season may be announced*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day by State registration permit. ~~Calves may not be taken~~	*Oct. 1-Apr. 30.* *May 1-Sep. 30, season may be announced*
Units 22C, 22D remainder, 22E remainder—5 caribou per day by State registration permit. ~~Calves may not be taken~~	*July 1-June 30, season may be announced*

Existing State Regulation

Unit 22—Caribou

22A, north of the Golsovia River drainage	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July 1-Mar. 31*
	Nonresidents—one bull		*HT*	*Aug. 1-Sept. 30*

Unit 22—Caribou

22A remainder	*Residents—Twenty caribou total, up to 5 per day. Bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*		*RC800*	*May be announced*
	Nonresidents—one bull		*HT*	*May be announced*
Unit 22B, west of Golovnin Bay, west of the west banks of Fish and Niukluk rivers below the Libby river (excluding the Libby River drainage and Niukluk River drainage above the mouth of the Libby River)	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*Oct. 1-Apr. 30*
		Cows	*RC800*	*Oct. 1-Mar. 31*
	Residents- Twenty caribou total, up to 5 per day. Cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22		*RC800*	*may be announced*
	Nonresidents: one bull		*HT*	*may be announced*
22B remainder	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July 1-Mar. 31*
	Nonresidents—one bull		*HT*	*Aug. 1-Sept. 30*

Unit 22—Caribou

22C	*Residents—Twenty caribou total, up to 5 per day. Bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*		*RC800*	*May be announced*
	Nonresidents—one bull		*HT*	*May be announced*
22D Pilgrim River drainage	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*Oct. 1-Apr. 30*
		Cows	*RC800*	*Oct. 1-Mar. 31*
	Residents- Twenty caribou total, up to 5 per day. Cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22		*RC800*	*may be announced*
	Nonresidents: one bull		*HT*	*may be announced*
22D, in the Kuzitrin River drainage (excluding the Pilgrim River drainage) and the Agiapuk river drainage	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July 1-Mar. 31*
	Nonresidents—one bull		*HT*	*Aug. 1-Sept. 30*

Unit 22—Caribou

22D remainder	*Residents—Twenty caribou total, up to 5 per day. Bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*		*RC800*	*May be announced*
	Nonresidents—one bull		*HT*	*May be announced*
22E, east of and including the Sanaguich River drainage	*Residents—Twenty caribou total, up to 5 per day. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July 1-Mar. 31*
	Nonresidents—one bull		*HT*	*Aug. 1-Sept. 30*
22E remainder	*Residents—Twenty caribou total, up to 5 per day. Bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person in Nome and license vendors within Unit 22 beginning June 22*		*RC800*	*May be announced*
	Nonresidents—one bull		*HT*	*May be announced*

Extent of Federal Public Lands/Waters

Unit 22 is comprised of 43% Federal public lands and consist of 28% Bureau of Land Management (BLM) managed lands, 12% National Park Service (NPS) managed lands and 3% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (except residents of St. Lawrence Island), 23, 24, Kotlik, Emmonak, Hooper Bay, Scammon Bay, Chevak, Marshall, Mountain Village,

Pilot Station, Pitka's Point, Russian Mission, St. Marys, Nunam Iqua, and Alakanuk have a customary and traditional use determination for caribou in Unit 22A.

Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (excluding residents of St. Lawrence Island), 23, and 24 have a customary and traditional use determination for caribou in Unit 22 remainder.

Regulatory History

In 1990, the Federal caribou hunting seasons in Units 22A and 22B were open year-round with a 5 caribou/day harvest limit and a restriction on the take of cows May 16 ─ June 30. There was no open caribou season in Units 22C, 22D and 22E.

In 2000, the Board adopted Proposal WP00-53 with modification allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region.

In 2003, the Board adopted Proposal WP03-40 with modification to establish a harvest season of July 1 ─ June 30 and a 5 caribou per day harvest limit in portions of Units 22D and 22E. This was done because caribou had expanded their range into these subunits and harvest was not expected to impact the caribou or reindeer herds, to provide additional subsistence hunting opportunities and to align State and Federal regulations.

In 2006, the Board adopted Proposal WP06-37 with modification, which designated a new hunt area in Unit 22B with an open season of Oct. 1 ─ Apr. 30 and a closed season from May 1 ─ Sept. 30 unless opened by a Federal land manager. This was done to prevent incidental take of privately-owned reindeer and to reduce user conflicts.

In 2013, an aerial photo census indicated significant declines in the WACH population (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH, including Units 22, 23, and 26A. These regulation changes – which included lowering bag limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas and prohibiting calf harvest – were adopted to slow or reverse the population decline.

In 2016, the Board considered Proposal WP16-37, which requested that Federal caribou regulations mirror the new State regulations across the range of the WACH (Units 21D, 22, 23, 24 and 26A). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.) in some areas, to create new hunt areas and to establish new seasons in Unit 22.

In 2016, the BOG adopted Proposal 140 as amended to make the following changes to Unit 22 caribou regulations: establish a registration permit hunt (RC800), set an annual harvest limit of 20 caribou total and lengthen cow and bull seasons in several hunt areas.

In 2018, the Board adopted WP18-48 to require State registration permits for caribou hunting in Units 22, 23 and 26A to improve harvest reporting and herd management, and to align with State regulations.

In January 2020, the BOG adopted Proposal 24 as amended to remove the restriction on caribou calf harvest in Units 22, 23 and 26A.

In April 2020, the Board adopted Proposal WP20-46 to open a year-round bull season and permit calf harvest for caribou in Unit 23. Creating a year-round season for bulls was intended to allow for harvest of bulls when caribou migration had been delayed, alleviating harvest pressure on cows. The prohibition on calf harvest was lifted in order to permit taking of calves that had been orphaned or injured.

Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels and predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

Caribou calving generally occurs from late May to mid-June (Dau 2013). Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition (Holand et al. 2012). Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 1**, Dau 2011, WACH Working Group 2011, 2019). After calving, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range. In the fall, the majority of the herd generally moves south toward wintering grounds south of the Brooks Range (Joly 2021, pers. comm.). Rut occurs during fall migration (Dau 2011, WACH Working Group 2011).

In recent years, the timing of fall migration has been less predictable. From 2010-2019, the average dates that GPS collared caribou crossed the Noatak River ranged from Sep. 6 – Oct. 13; the Kobuk River ranged from Sep. 24 – Nov. 3; and the Selawik River ranged from Oct. 2 – Nov. 10 (Joly and Cameron 2020). From 2010-2016, caribou migration was trending to occur earlier in the year. However, from 2017-2019, caribou crossed the Noatak River, but then there was substantial delay before caribou crossed the Kobuk and Selawik Rivers. This appears to have been the case for 2020 as well. During the fall 2020 Northwest Arctic Regional Advisory Council meeting in early November, Council members stated that only Noatak had harvested caribou in the fall and that caribou had not yet passed through the Southern portions of Unit 23. While data has yet to be analyzed, the first GPS collared caribou did not cross the Kobuk River until November, which is the latest first crossing since data collection began in 2010 (Joly 2021, pers. comm.). Reasons for changes in migration phenology are unknown.

The proportion of caribou using certain migration paths also varies each year (Joly and Cameron 2020). Changes in migration paths are likely influenced by multiple factors including food availability, snow depth, rugged terrain and dense vegetation (Fullman et al. 2017, Nicholson et al. 2016). If caribou travelled the same migration routes every year, their food resources would likely be depleted (NWARAC 2016).

The WACH Working Group consists of a broad spectrum of stakeholders, including subsistence users, sport hunters, conservationists, hunting guides, reindeer herders and transporters. The Group is also technically supported by the National Park Service (NPS), USFWS, BLM and the Alaska Department of Fish and Game (ADF&G) personnel. The WACH Working Group developed a WACH Cooperative Management Plan in 2003 and revised it in 2011 and 2019 (WACH Working Group 2011, 2019). The WACH Management Plan identifies nine plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, education, human activities and changing climate, as well as associated goals, strategies and management actions. As part of the population management element the WACH Working Group developed a guide to herd management determined by population size, population trend and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011, 2019). Revisions to recommended harvest levels under liberal and conservative management were made in 2015 (WACH Working Group 2015) and 2019 (WACH Working Group 2019, **Table 1**).

The WACH population declined rapidly in the early 1970s, reaching a low estimate of about 75,000 animals in 1976. Aerial photocensuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 1**). Beginning in 2003, the herd declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016). In 2017, the herd increased to an estimated 259,000 caribou (Parrett 2017a). However, part of this increase may have been due to improved photographic technology as ADF&G switched from film to higher resolution digital cameras. The 2019 population estimate was 244,000 caribou (Hansen 2019a). No photocensus was completed in 2020, but ADF&G plans to conduct a census in 2021 (WACH Working Group 2020).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 1, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level where it has remained. In 2020, no photocensus was completed, and the WACH Working Group voted to maintain the herd's status at the conservative declining level (WACH Working Group 2020).

Between 1970 and 2017, the bull:cow ratio exceeded Critical Management levels identified in the 2019 WACH Management Plan (**Figure 2**). However, the average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the 2003-2016 decline are not known with certainty, increased adult cow mortality and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (**Figure 3**, Dau 2013). Prichard (2009) developed a population model specifically for the WACH using various demographic parameters and found adult survival to have the largest impact on population size, followed by calf survival and then parturition rates.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 4,** Dau 2016a). The average June calf:cow ratio increased to 79 calves:100 cows between 2017 and 2020. In June 2018 86 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992). However, in 2020 the June calf:cow ratio dropped to 67 calves:100 cows (WACH Working Group 2020).

Decreased calf survival through summer and fall and recruitment into the herd likely contributed to the recent population decline (Dau 2013, 2015). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2017, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 47 calves:100 cows/year (**Figure 4**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

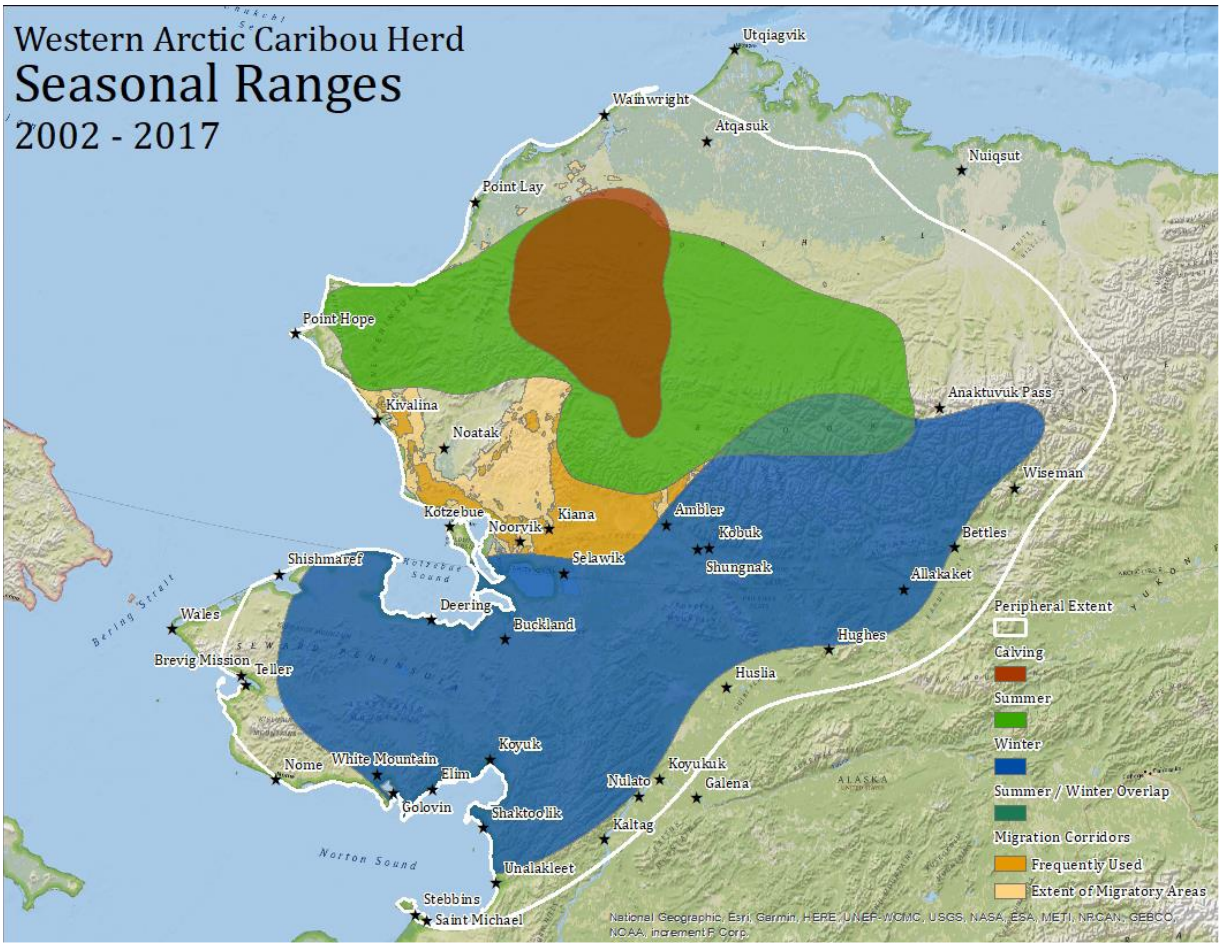
Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2020, SY:adult ratios ranged from 9-26 and averaged 18 SY:100 adults/year (**Figure 4**). SY:100 adult ratios were high from 2016-2018, ranging from 22-23 SY:100 adults (Dau 2016b, NWARAC 2019). The 2020 SY:adult ratio was 17 SY:100 adults (WACH Working Group 2020).

Cow mortality affects the trajectory of the herd (Dau 2011, 2013, Prichard 2009, NWARAC 2019). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004-2014 (**Figure 3,** Dau 2011, 2013, 2014, 2015). Mortality rates declined in 2015 and 2016, but then increased sharply in 2017. However, the increased mortality rate in 2017 may be due to a low and aging sample size as few caribou have been collared in the past two years (Prichard et al. 2012, NWARAC 2019) and/or difficult weather conditions (Gurarie et al. 2020). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. These estimates are also susceptible to collar sample size and how long the collars have been on individuals (Prichard et al. 2012).

Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls spiked during the fall. However, as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015) suggest the harvest rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

Dau (2015) speculates that fall and winter icing events were the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change and disease may also be contributing factors (Dau 2015, 2014, Joly et al. 2011). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) speculated that degradation in range condition is not thought to be a primary factor in the decline of the herd because animals have generally maintained good body condition since the decline began. Body condition is estimated using a subjective scale from 1-5. The fall body condition of adult females in 2015 was characterized as “fat” (mean= 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015b). However, the body condition of the WACH in the spring may be a better indicator of the effects of range condition versus the fall when the body condition of the herd is routinely assessed and when caribou are in prime condition (Joly 2015, pers. comm.).

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Joly and Cameron 2018, Miller 2003).



Map 1. Western Arctic Caribou Herd seasonal range map, 2002-2017 (image from WACH Working Group 2019).

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2019).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Adult Cow Survival <80% Calf Recruitment <15:100	**Stable** Adult Cow Survival 80%-88% Calf Recruitment 15-22:100	**Increasing** Adult Cow Survival >88% Calf Recruitment >22:100	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 30 bulls:100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 30 bulls:100 cows
	Harvest: 14,000+	Harvest: 14,000+	Harvest: 14,000+	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• Encourage voluntary reduction in calf harvest, especially when the population is declining • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 30:100 bull:cow ratio
	Harvest: 10,000-14,000	Harvest: 10,000-14,000	Harvest: 10,000-14,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 30 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to non-qualified users may be necessary
	Harvest: 6,000-10,000	Harvest: 6,000-10,000	Harvest: 6,000-10,000	
Critical	Pop: <130,000	Pop: <115,000	Pop: <100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 30 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to non-qualified users may be necessary
	Harvest: <6,000	Harvest: <6,000	Harvest: <6,000	

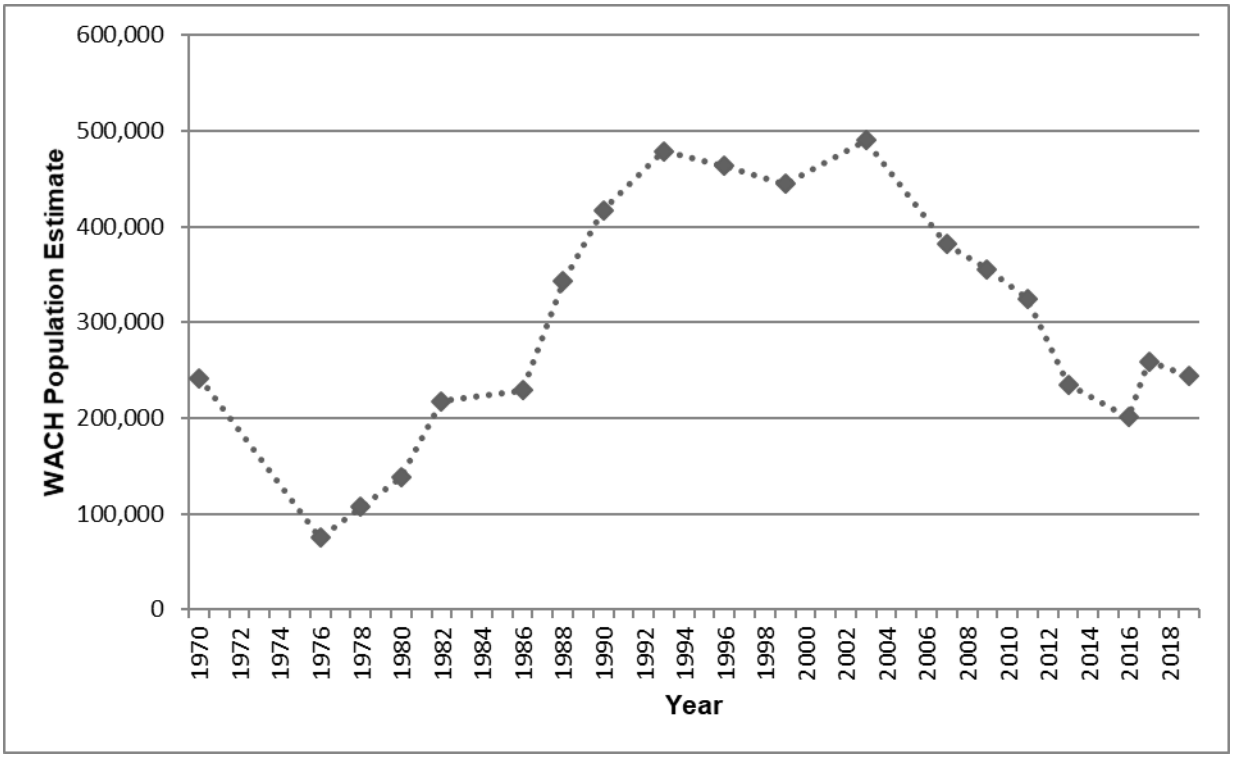


Figure 1. The WACH population estimates from 1970–2019. Population estimates from 1986–2019 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016, 2017a, Hansen 2019a)**.**

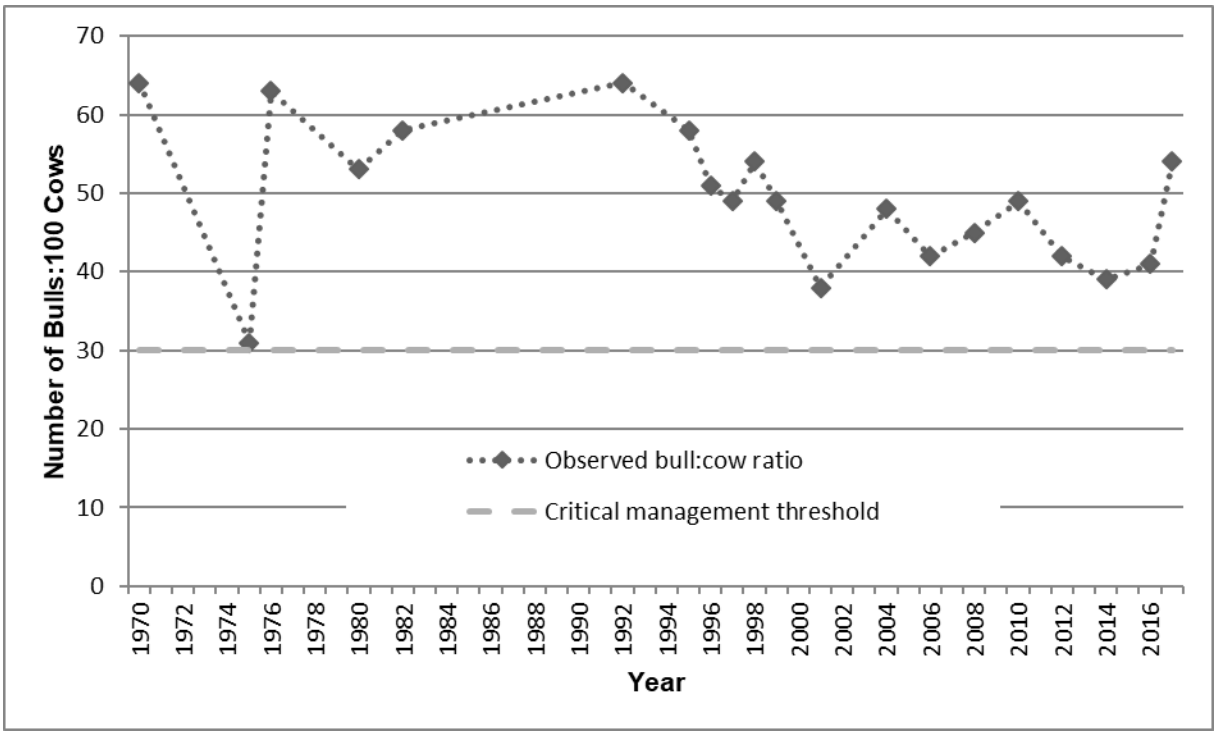


Figure 2. Bull:Cow ratios for the WACH (Dau 2015, ADF&G 2017, Parrett 2017a).

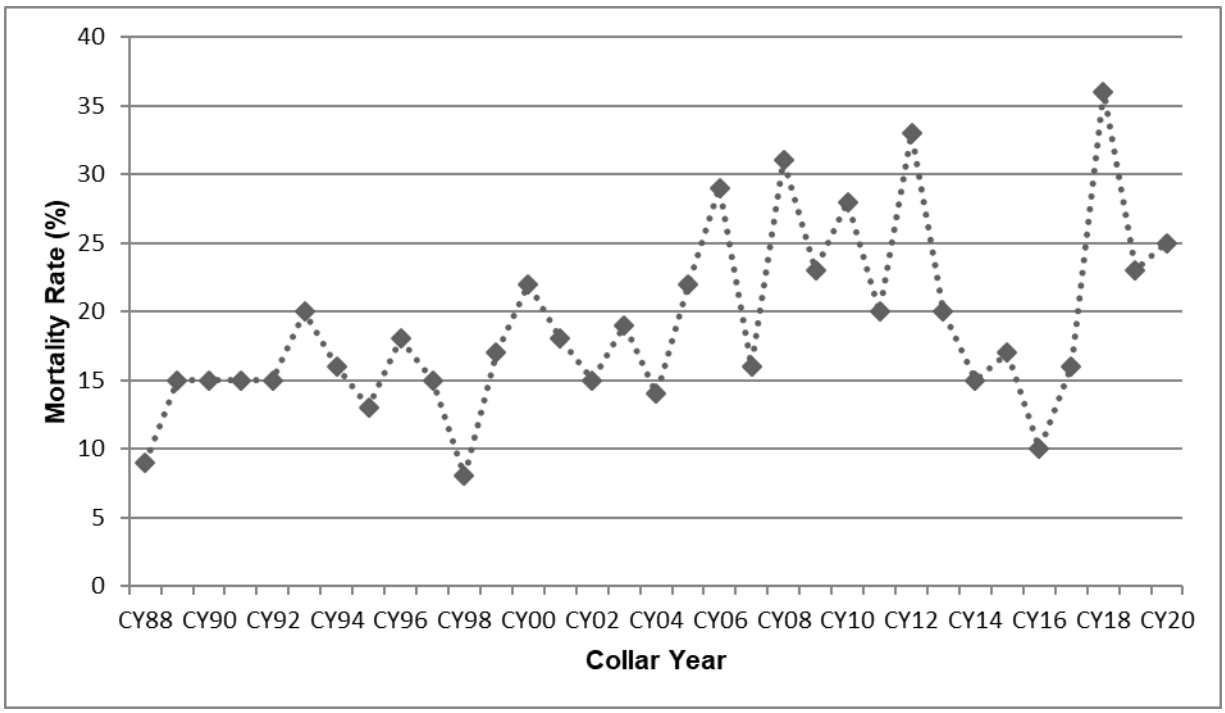


Figure 3. Mortality rate of radio-collared cow caribou in the Western Arctic caribou herd (Dau 2013, 2015, 2016b, NWARAC 2019, WACH Working Group 2020). Collar Year = 1 Oct-30 Sept.

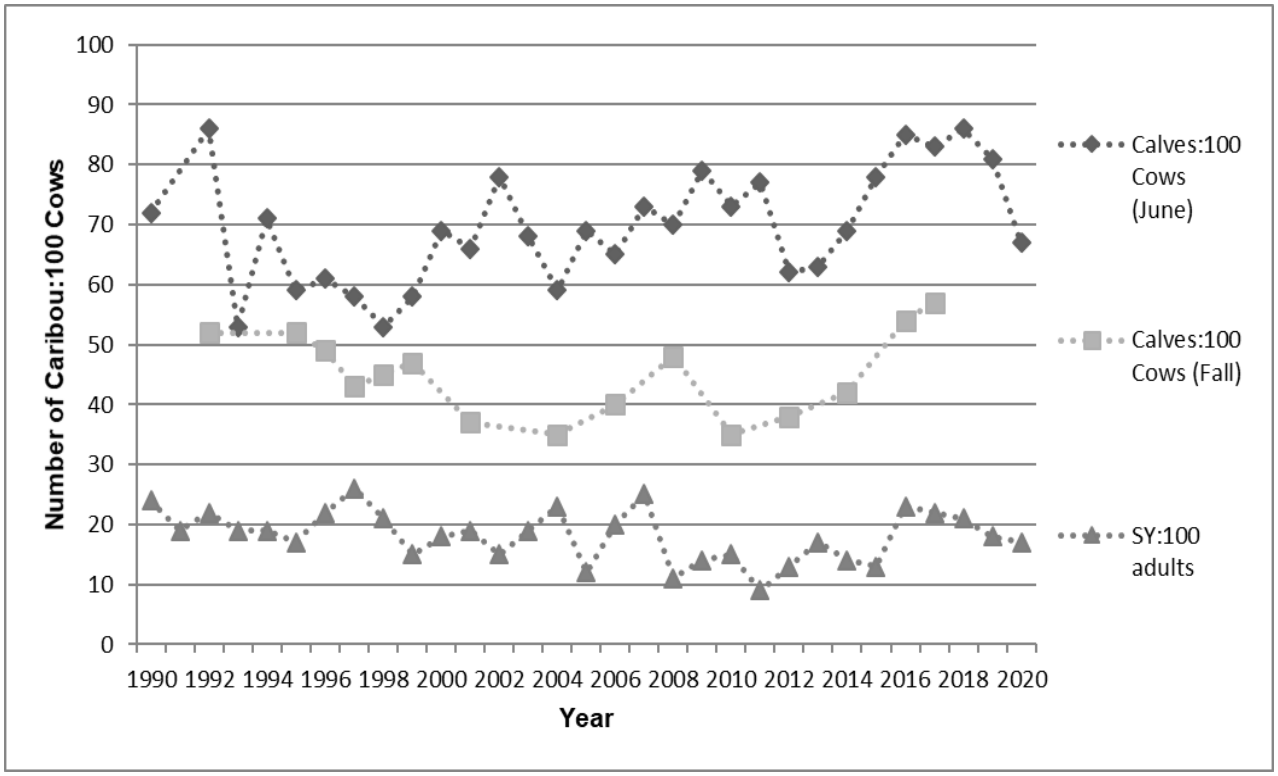


Figure 4. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015, 2016a, ADF&G 2017, Parrett 2017a, NWARAC 2019, WACH Working Group 2020). Short yearlings are 10-11 months old caribou.

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony and celebration."

Caribou have been an important resource for the Iñupiat of the Seward Peninsula for thousands of years. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in many communities (Burch 1984, 1994, 1998, ADF&G 1992).

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012).

The WACH population declined rapidly beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

Caribou were traditionally harvested any month of the year they were available. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Iñupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). Present-day use of caribou calves appears to be limited but does occur opportunistically.

Small groups of caribou that have over-wintered may be taken by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain, "Hunters harvest cows during the winter because they are fatter than bulls. Caribou harvested during the winter can be aged completely without removing the skin or viscera. Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it." In spring, caribou start their northward migration. The caribou that are harvested are "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Harvest History

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population trend is declining is calculated

as 6% of the estimated population (WACH working group 2011, Parrett 2017b, pers. comm.). In 2017, the WACH harvestable surplus was 15,540 caribou (6% of 259,000 caribou). Assuming the herd population remained stable in 2018 and 2019, the harvestable surplus remains 15,540 caribou. This is a substantial increase from the 2016 harvestable surplus of 12,056 caribou when harvest likely exceeded sustainable levels. However, there is substantial uncertainty in harvestable surplus estimates (Parrett 2015a, Dau 2015). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015). Dau (2015:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou and per capita harvests for each community, which are based on mean values from multiple community harvest surveys (Dau 2015). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015). Caribou harvest by nonresidents is based on harvest ticket reports (Dau 2015) and registration permits for nonlocal residents. Hunters considered local by ADF&G are functionally identical to Federally qualified subsistence users (e.g. Residents of St. Lawrence Island are technically Federally qualified subsistence users in Unit 22, but do not frequently harvest Western Arctic caribou).

From 1999–2017, the average estimated total harvest from the WACH was 14,119 caribou/year, ranging from 11,729-16,219 caribou/year (Hansen 2020, pers. comm., **Figure 5**). These harvest levels are within the conservative harvest level specified in the WACH Management Plan (**Table 1**). In 2015 and 2016, total local harvest estimates were 14,360 caribou and 14,971 caribou, respectively (Hansen 2019b, pers. comm.). While these harvest estimates are below the 2017-2019 harvestable surpluses, they exceed the 2016 harvestable surplus. Of note, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015).

Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 22 account for approximately 17% of the total harvest on average (**Figure 6**, ADF&G 2017). Comparison of caribou harvest by community from household survey data with yearly GPS-collared caribou migration routes demonstrates that local community harvests parallel WACH availability rather than population trends.

In 2016, the State began requiring registration permits (RC800) for resident caribou harvest in Unit 22. From 2016-2019, reported RC800 harvest ranged from 147-460 caribou and averaged 377 caribou per year. Bulls and cows comprised 74% and 26% of the reported harvest on average, respectively. Calves comprised an unknown proportion of the harvest as this information is not collected in harvest reports (ADF&G 2021).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015, Fix and Ackerman 2015).

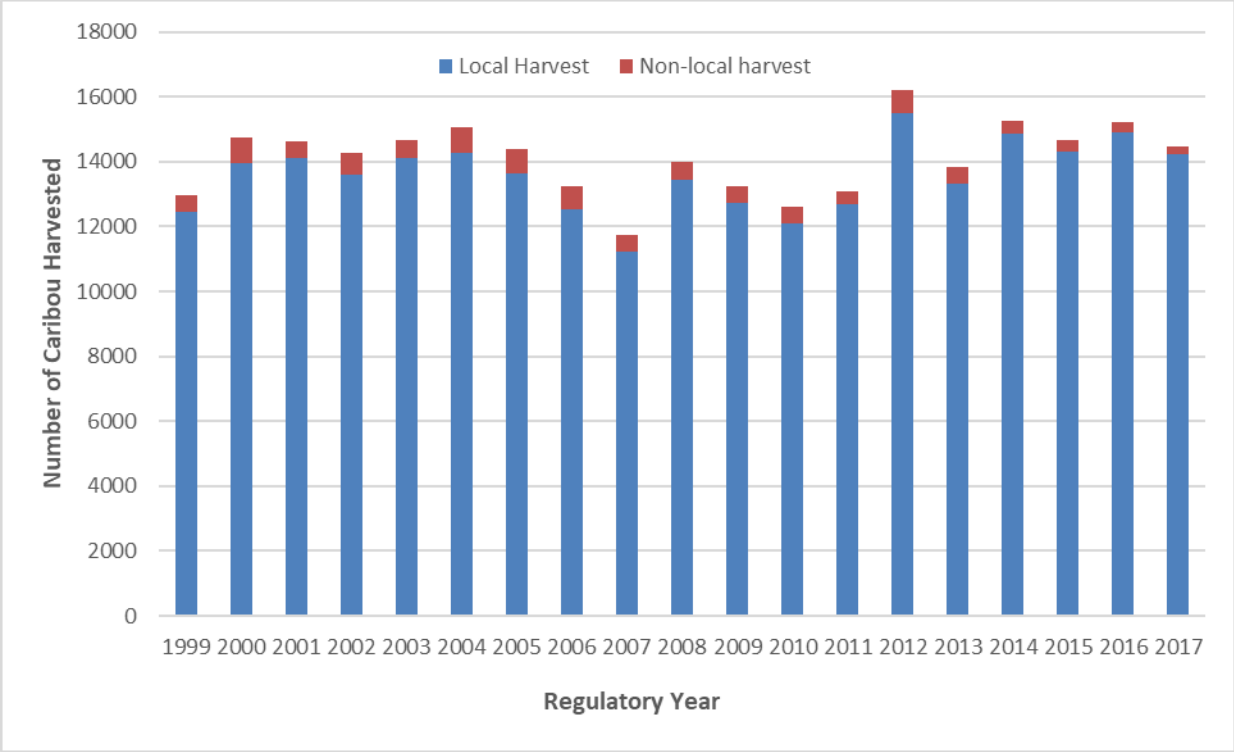


Figure 5. Estimated number of caribou harvested from the WACH by residency (Hansen 2020, pers. comm.). Local harvest is an estimate derived from models; non-local harvest is from harvest reports.

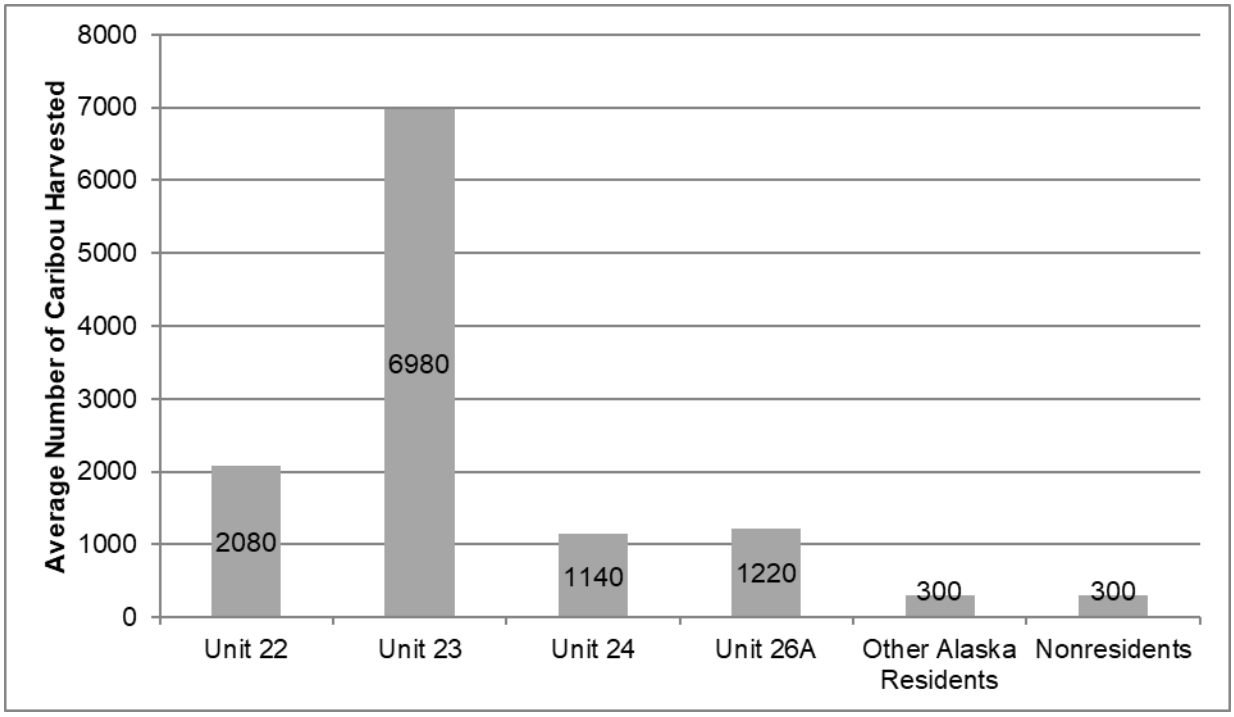


Figure 6. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017).

Effects of the Proposal

If the Board adopts Proposal WP22-47, the harvest of calves would be permitted in Unit 22. This would increase harvest opportunity for Federally qualified subsistence users. Calf harvest presents minimal conservation concerns as most users do not target calves and calves may already be harvested in Unit 22 under State regulations.

Eliminating the prohibition on calf harvest would allow the harvest of orphaned calves that may otherwise succumb to predation. However, it can be difficult to identify orphaned calves as caribou are scattered across the landscape, and calves and cows can be separated by substantial distances. Additionally, orphaned calves may survive, especially if they remain with the herd. Russell et al. (1991) found survival rates of orphaned and non-orphaned calves were 63% and 78%, respectively, indicating orphaned calves still have a good chance of survival, although the sample size for orphaned calves was very small. The timing of abandonment also influences survival. Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014). As caribou typically winter on the Seward Peninsula, caribou harvest in Unit 22 usually occurs later in the year, which could improve the chances of orphaned calves surviving.

Allowing calf harvest may also reduce wanton waste. During deliberation on WP20-46, which requested allowance of calf harvest in Unit 23, a Northwest Arctic Regional Advisory Council member

noted that he has seen dead calves in the field, presumably mistakenly shot and then left since they are illegal to harvest (NWARAC 2019). The ADF&G caribou biologist stated many orphaned calves have ended up around Kotzebue during the hunting season but have been unavailable to harvest. He collared a few of these orphaned calves, all of which died shortly thereafter. He also stated that he receives many reports from hunters about orphaned and wounded calves out in the field that are not legally available for harvest (NWARAC 2019). In regard to the prohibition on the take of cows accompanied by calves, an NPS staff biologist voiced concern that unethical hunters could harvest calves and then harvest its mother, who would no longer be accompanied by a calf (NWARAC 2019). However, hunters can already harvest cows with calves under State regulations, which do not have that restriction.

The Western Arctic and Teshekpuk caribou herds are the only caribou herds in Alaska where calf harvest is prohibited. These restrictions were adopted by the BOG in 2015 and the Board in 2016 as conservation measures when both herds were declining. The WACH management plan also recommends prohibiting calf harvest when the herd is within the conservative management level. However, calves comprise a very small portion of the harvest. In his population model, Prichard (2009) assumed calves comprised only 2% of the total annual WACH harvest, which would not affect the population trajectory of the WACH. As most calves die within their first year and few hunters target calves, calf harvest may be compensatory mortality, although Prichard (2009) assumed all harvest mortality to be additive. While calf recruitment influences herd abundance and population trajectory, Prichard (2009) found adult survival to have the largest impact on WACH population size. Prohibiting cow harvest would have a greater impact on herd conservation than prohibiting calf harvest.

The BOG removed the restriction on calf caribou harvest at its Arctic/Western Region meeting in January 2020. Currently, Federal regulations are more restrictive than State regulations. If the Board adopts this proposal to eliminate the prohibition on calf harvest Federal users would have the same opportunities as State users do.

OSM PRELIMINARY CONCLUSION

Support Proposal WP22-47.

Justification

Adopting Proposal WP22-47 increases harvest opportunity for Federally qualified subsistence users. As most people do not target calves, calf harvest is expected to be very low and should not affect conservation of the herd, especially since calf harvest is already permitted under State regulations. Additionally, allowing calf harvest may reduce wanton waste by allowing mistakenly shot calves to be legally salvaged, and would permit harvest of orphaned calves. Adoption of this proposal would give Federal users the same opportunities as State users.

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WP22–01 Executive Summary	
General Description	Proposal WP22-01 requests clarification of who is and who is not a participant in a community harvest system and how that affects community and individual harvest limits. *Submitted by: the Office of Subsistence Management*
Proposed Regulation	***§_____.25 Subsistence taking of fish, wildlife, and shellfish: general regulations*** *(c) Harvest limits* . . . ***(5) Fish, wildlife, or shellfish taken by a participant in a community harvest system counts toward the community harvest limit or quota for that species as well as individual harvest limits, Federal or State, for each participant in that community harvest system, however, the take does not count toward individual harvest limits, Federal or State, of any non-participant. Fish, wildlife, or shellfish taken by someone who is not a participant in a community harvest system does not count toward any community harvest limit or quota.*** ***(i) For the purposes of this provision, all residents of the community are deemed participants in the community harvest unless the Board-approved framework requires registration as a prerequisite to harvesting or receiving any fish, wildlife, or shellfish pursuant to that community harvest, in which case only those who register are deemed participants in that community harvest.*** ***§_____.26 Subsistence taking of wildlife*** *(e) Possession and transportation of wildlife.* . . . ~~*(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest limit for that species. Except for wildlife taken pursuant to §____.10(d)(5)(iii) or as otherwise provided for by this part, an animal taken as part of a community harvest limit counts toward every community member's*~~

WP22–01 Executive Summary	
	~~*harvest limit for that species taken under Federal or State of Alaska regulations.*~~
OSM Preliminary Conclusion	**Support**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	

WP22–01 Executive Summary	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP22-01

ISSUES

Wildlife Proposal WP22-01, submitted by the Office of Subsistence Management (OSM), requests clarification of who is and who is not a participant in a community harvest system and how that affects community and individual harvest limits.

Discussion

The proponent requests specific language clarifying who is and who is not a participant in a community harvest system and how this relates to individual and community harvest limits. While developing the framework for a community harvest system in summer 2020, Ahtna Intertribal Resource Commission (AITRC) representatives and Federal agency staff realized that current Federal regulations stipulate that any animals harvested under a community harvest limit count toward the harvest limits of every community member whether or not they choose to participate in the community harvest system. This provision is perceived as unfair to community members who are not interested in participating in a community harvest system because their individual harvest limits are met involuntarily by participants in the community harvest system.

This proposal would affect community and individual harvest limits as well as define who is and who is not a participant in a community harvest system for wildlife, fish, and shellfish, statewide. In addition to clarifying who is and who is not a participant in a community harvest system, the intent of this proposal is to allow community members who opt out of a community harvest system to retain their individual harvest limits.

Note: While the proposal as submitted listed the proposed regulations under §100.25(c)(2), the proponent clarified their intention was to create a separate section for these regulations as §100.25(c)(5).

Existing Federal Regulation

> **36 CFR 242.25 and 50 CFR 100.25 Subsistence taking of fish, wildlife, and shellfish: general regulations**
>
> *(c) Harvest limits*
>
> **§_____.26 Subsistence taking of wildlife**
>
> *(e) Possession and transportation of wildlife.*
>
> . . .
>
> *(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts towards the community harvest*

limit for that species. Except for wildlife taken pursuant to §____.10(d)(5)(iii)[1] or as otherwise provided for by this part, an animal taken as part of a community harvest limit counts toward every community member's harvest limit for that species taken under Federal or State of Alaska regulations.

Proposed Federal Regulation

§_____.25 Subsistence taking of fish, wildlife, and shellfish: general regulations

(c) Harvest limits

. . .

(5) Fish, wildlife, or shellfish taken by a participant in a community harvest system counts toward the community harvest limit or quota for that species as well as individual harvest limits, Federal or State, for each participant in that community harvest system, however, the take does not count toward individual harvest limits, Federal or State, of any non-participant. Fish, wildlife, or shellfish taken by someone who is not a participant in a community harvest system does not count toward any community harvest limit or quota.

(i) For the purposes of this provision, all residents of the community are deemed participants in the community harvest unless the Board-approved framework requires registration as a prerequisite to harvesting or receiving any fish, wildlife, or shellfish pursuant to that community harvest, in which case only those who register are deemed participants in that community harvest.

§_____.26 Subsistence taking of wildlife

(e) Possession and transportation of wildlife.

. . .

~~*(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest limit for that species. Except for wildlife taken pursuant to §____.10(d)(5)(iii) or as otherwise provided for by this part, an animal taken as part of a community harvest limit counts toward every community member's harvest limit for that species taken under Federal or State of Alaska regulations.*~~

State of Alaska Regulations

State general regulations describing its community harvest program are in **Appendix 1**.

[1] *§____.10(d)(5)(iii) The fish and wildlife is taken by individuals or community representatives permitted a one-time or annual harvest for special purposes including ceremonies and potlatches;*

Federal Public Lands

Federal public lands comprise approximately 54% of Alaska statewide and consist of 36% U.S. Fish and Wildlife Service managed lands, 28% Bureau of Land Management managed lands, 25% National Park Service managed lands, and 11% U.S. Forest Service managed lands.

Customary and Traditional Use Determination

This is a statewide proposal for wildlife, fish, and shellfish.

Regulatory History

In 1991, after extensive public comment on the Federal Subsistence Management Program's first Temporary Rule, the Federal Subsistence Board (Board) committed to addressing community harvest limits and alternative permitting processes (56 Fed. Reg. 123, 29311 [June 26, 1991]).

In 1992, responding to approximately 40 proposals requesting community harvest systems and numerous public comments requesting alternative permitting systems, the Board supported the concept of adjusting seasons and harvest limits based on customs and traditions of a community (57 Fed. Reg. 103, 22531–2 [May 28, 1992]). The Board said specific conditions for the use of a particular harvest reporting system may be applied on a case-by-case basis and further development and refinement of guidelines for alternative permitting systems would occur as the Federal Subsistence Management Program evolved (57 Fed. Reg. 104, 22948 [May 29, 1992]. These regulations at ____.6 were modified to state that intent more clearly:

> §_____.6 Licenses, permits, harvest tickets, tags, and reports[2]
>
> *(f) The Board may implement harvest reporting systems or permit systems where:*
>
> *(1) The fish and wildlife is taken by an individual who is required to obtain and possess pertinent State harvest permits, tickets, or tags, or Federal permits, harvest tickets, or tags;*
>
> *(2) A qualified subsistence user may designate another qualified subsistence user to take fish and wildlife on his or her behalf;*
>
> *(3) The fish and wildlife is taken by individuals or community representatives permitted a one-time or annual harvest for special purposes including ceremonies and potlatches;*
>
> *(4) The fish and wildlife is taken by representatives of a community permitted to do so in a manner consistent with the community's customary and traditional practices.*

In 1993, the Board adopted Proposal P93-12, which clarified that community harvest limits and individual harvest limits may not be accumulated, community harvest systems will be adopted on a

[2] Subsequently moved to *§___.10(d)(5) Federal Subsistence Board—Power and Duties*.

case-by-case basis and defined under unit-specific regulations, and wildlife taken by a designated hunter for another person, counts toward the individual harvest limit of the person for whom the wildlife is taken. These new regulations specified that for wildlife, after taking your individual harvest limit, you may not continue to harvest in areas outside of your community harvest area (58 Fed. Reg. 103, 31255 [June 1, 1993]). These new regulations were the following:

> §____.25 Subsistence taking of wildlife[3]
>
> *(c) Possession and transportation of wildlife*
>
> *(1) Except as specified in §___.25(c)(3)(ii)* [below] *or (c)(4)* [trapping regulations], *or as otherwise provided, no person may take a species of wildlife in any Unit, or portion of a Unit, if that person's total statewide take of that species has already been obtained under Federal and State regulations in other Units, or portions of other Units.*
>
> *(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest for that species. Except for wildlife taken pursuant to §____.6(f)(3)* [above], *an animal taken by an individual as part of a community harvest limit counts toward that individual's bag limit for that species taken under Federal or State regulations for areas outside of the community harvest area.*
>
> *(3) Individual bag limits (i) bag limits authorized by §____.25 and in State regulations may not be accumulated; (ii) Wildlife taken by a designated hunter for another person pursuant to §____6(f)(2)* [above], *counts toward the individual bag limit of the person for whom the wildlife is taken.*

In 1993, "community harvest systems" were adopted by the Board simply by adding the use of designated hunters to unit-specific regulations for Unit 25 West moose and Unit 26A sheep (58 FR 103, 31252–3 [June 1, 1993]). In this way, designated harvesters and resource quotas became a common method for allocating harvests communally.

In 1996, administrative clarification was made at §____.25(c)(2) to better represent the Board's intent (61 Fed. Reg. 147, 39711 [July 30, 1996]). Before this clarification was made, a member of a community with a community harvest limit who had not taken an individual harvest limit could take an individual harvest limit after the community had met its harvest limit. The effect of the clarification was that members of community in a community harvest system can harvest only as part of the community harvest system:

[3] Subsequently moved to *§____.26 Taking of wildlife*.

§____.25 Subsistence taking of wildlife

(c) Possession and transportation of wildlife

. . .

(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest for that species. Except for wildlife taken pursuant to §____.6(f)(3) [above]*, an animal taken ~~by an individual~~ as part of a community harvest limit counts toward ~~that individual's bag limit~~* ***every community member's harvest limit*** *for that species taken under Federal or State regulations ~~for areas outside of the community harvest area~~.*

Later, the language "or as otherwise provided for by this part" was added to the provision. The effect was to allow an exceptions to the provision if the exception was placed in regulation:

(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts towards the community harvest limit for that species. Except for wildlife taken pursuant to §____.10(d)(5)(iii) ***or as otherwise provided for by this part****, an animal taken as part of a community harvest limit counts toward every community member's harvest limit for that species taken under Federal or State of Alaska regulations.*

In April 2020, the Board adopted deferred Proposal WP18-19 with modification, which added a community harvest system for moose in Unit 11 and caribou and moose in Unit 13 to unit-specific regulations. The modification was to name individual communities within the Ahtna traditional use territory authorized to harvest moose in Units 11 and caribou and moose in Unit 13 as part of a community harvest system, subject to a framework established by the Board under unit-specific regulations (see Existing Federal Regulation section in Proposal WP22-36 analysis).

In July 2020, the Board approved Wildlife Special Action Request WSA20-02 with modification to: (1) name individual communities authorized to participate in the community harvest system on Federal public lands in Units 11, 12, and 13, specifically, the eight Ahtna traditional communities of Cantwell, Chistochina, Chitina, Copper Center, Gakona, Gulkana, Mentasta Lake, and Tazlina; (2) define the geographic boundaries of eligible communities as the most recent Census Designated Places established by the U.S. Census Bureau; (3) extend these actions through the end of the wildlife regulatory cycle (June 30, 2022); (4) specify that harvest reporting will take the form of reports collected from hunters by AITRC and be submitted directly to the land managers and OSM, rather than through Federal registration permits, joint State/Federal registration permits, or State harvest tickets; and (5) set the harvest quota for the species and units authorized in the community harvest system as the sum of individual harvest limits for those opting to participate in the system (OSM 2020).

In January 2021, the Board approved Wildlife Special Action WSA20-07 temporarily adding the following language to unit-specific regulations for moose and caribou in Units 11, 12, and 13:

"Animals taken by those opting to participate in this community harvest system do not count toward the harvest limits of any individuals who do not opt to participate in this community harvest system." At this meeting, the Board also approved a community harvest system framework that describes additional details about implementation of the system (see analysis of Proposal WP22-36 Appendix 1) (OSM 2021).

Currently, the following community harvest systems are codified in Federal regulations: Lime Village for Unit 19 caribou and moose; Nikolai for Unit 19 sheep; the community of Wales for Unit 22 muskoxen; Anaktuvuk Pass for Units 24 and 26 sheep; Unit 25 black bear with a State community harvest permit; Ninilchik for Kasilof River and Kenai River community gillnets for salmon; and Cantwell, Chistochina, Chitina, Copper Center, Gakona, Gulkana, Mentasta Lake, and Tazlina for moose in Unit 11 and caribou and moose in Unit 13.

Current Events Involving the Species

Proposal WP22-36, submitted by AITRC, requests the Board adopt existing temporary regulations for regarding the community harvest system for moose and caribou in Unit 11, 12, and 13.

Cultural Knowledge and Traditional Practices

Community harvest and designated harvester provisions provide recognition of the customary and traditional practices of sharing and redistribution of harvests. A host of research supports a need for these alternative permitting systems in Federal subsistence regulations to harmonize fundamental harvesting characteristics of rural Alaskan communities with the Federal Subsistence Management Program. Family-based production is the foundation of the mixed subsistence-cash economy found in rural Alaskan communities (cf. Wolfe 1981, 1987; Wolfe and Walker 1987; Wolfe et al. 1984). Family-based production is when two or more individual households linked by kinship distribute the responsibility to harvest, process, and store wild resources based on factors such as skills and abilities, availability of able workers, sufficient income to purchase harvesting and processing technology, and other factors. Units of family-based production typically contain at least one "super-household" that produces surpluses of wild foods (Wolfe 1987). On a statewide basis, about 30% of households in a community are super-households that produce about 70% or more of the community's wild food harvest (Sahlins 1972; Andrews 1988; Magdanz, Utermohle, and Wolfe 2002; Sumida 1989; Sumida and Andersen 1990). Conversely, 20% to 30% of households in units of family-based production did not produce enough food to feed members of that household (Sahlins 1972). Inequalities in individual and household production levels are equalized via processes of distribution (sharing and feasting) and exchange (trade and barter).

Recent studies on disparities in household food production demonstrate that super-households participate heavily in food-sharing. Wolfe et al. (2007) looked at household food production in 67 rural Alaska communities representing Aleut, Athabascan, Inupiat, Tlingit-Haida, and Yup'ik cultural groups. The majority of these communities were comprised of mostly Alaska Native households with at least one Native head of household, although communities in Southeast Alaska were ethnically mixed. The researchers found that there were household variables commonly associated with levels of

food production throughout these communities. Household variables including higher levels of income, participation in commercial fishing, and households with three or more adult males over 15 years of age were associated with higher levels of food production. Households in which there was a single or elder head of household were associated with lower levels of food production. Most remarkably, the study also demonstrated that high-producing households gave the most food to others and giving to other households may be a primary motivation for over-production. Wolfe et al. (2007) further recommended that policy and management regulations account for food production and sharing practices within Alaskan mixed subsistence-cash communities. They wrote:

> The findings about the concentration of subsistence harvests also have social policy implications for the management of hunts and fisheries. Annual and daily bag limits that require that individuals or households harvest at equal levels, as is common for sport fishing and sport hunting, operate from different principles from those operating in subsistence systems. In the subsistence system, individuals and households commonly are not equivalent producers. Instead, a relatively small segment of high-producers harvest most of the fish or game. The average harvests among community households may be in line with bag and harvest limits required for conservation reasons, but the actual production is concentrated in a small number of households. Flexible regulations that allow for this type of concentrated harvest would be most compatible with the actual patterns of subsistence production (Wolfe et al. 2007:29).

Community harvest and designated harvester systems in use in the Federal Subsistence Management Program are intended to provide some flexibility in harvest regulations to make legal the activities of super-households in rural communities. Supporting the distribution of wild foods in villages allows people to continue their subsistence way of life.

Effects of the Proposal

If this proposal is adopted, then Federal regulations will recognize that the Board, when approving the framework for a community harvest system, may allow community members to choose whether they want to participate in the community harvest system or retain their individual harvest limits. The Federal regulations will specify that fish, wildlife, or shellfish harvested under a community harvest system will not count against the individual harvest limits of non-participants. Similarly, fish, wildlife, or shellfish harvested by non-participants will not count against the harvest limit set for the community harvest system. Effects to nonsubsistence uses, wildlife, fish, and shellfish, statewide, are not anticipated.

If this proposal is not adopted, then Federal regulations will continue to stipulate that any harvest within a community harvest system also counts toward the individual harvest limit of every community member regardless of whether they participate in the community harvest system. Additionally, the Board's authority to approve community harvest frameworks, and to allow community members to opt in or opt out of a community harvest, will not be clearly stated. Effects to nonsubsistence uses, wildlife, fish, and shellfish, statewide, are not anticipated.

OSM PRELIMINARY CONCLUSION

Support Proposal WP22-01.

Justification

Subsistence users and others will find these regulations less confusing and easier to use. In this way, the proposed regulatory changes provide more equitable harvest options and opportunities for subsistence users. They also prevent unintentional and unnecessary restrictions from being placed on any community members who choose not to participate in a community harvest system, and clarifies a current oversight in Federal regulation.

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APPENDIX 1

STATE OF ALASKA COMMUNITY HARVEST PROGRAM

5 AAC 92.074. Community subsistence harvest hunt areas

(a) The commissioner or the commissioner's designee may, under this section and 5 AAC 92.052, issue community-based subsistence harvest permits and harvest reports for big game species where the Board of Game (board) has established a community harvest hunt area under (b) of this section and 5 AAC 92.074.

(b) The board will consider proposals to establish community harvest hunt areas during regularly scheduled meetings to consider seasons and bag limits for affected species in a hunt area. Information considered by the board in evaluating the proposed action will include

(1) a geographic description of the hunt area;

(2) the sustainable harvest and current subsistence regulations and findings for the big game population to be harvested;

(3) a custom of community-based harvest and sharing of the wildlife resources harvested in the hunt area by any group; and

(4) other characteristics of harvest practices in the hunt area, including characteristics of the customary and traditional pattern of use found under 5 AAC 99.010(b).

(c) If the board has established a community harvest hunt area for a big game population, residents of the community or members of a group may elect to participate in a community harvest permit hunt in accordance with the following conditions:

(1) a person representing a group of 25 or more residents or members may apply to the department for a community harvest permit by identifying the community harvest hunt area and the species to be hunted, and by requesting that the department distribute community harvest reports to the individuals who subscribe to the community harvest permit; the community or group representative must

(A) provide to the department the names of residents or members subscribing to the community harvest permit and the residents' or members' hunting license numbers, permanent hunting identification card numbers, or customer service identification numbers, or for those residents or members under 18 years of age, the resident or member's birth date;

(B) ensure delivery to the department of validated harvest reports from hunters following the take of individual game animals, records of harvest information for

individual animals taken, and collected biological samples or other information as required by the department for management;

(C) provide the department with harvest information, including federal subsistence harvest information, within a specified period of time when requested, and a final report of all game taken under the community harvest permit within 15 days of the close of the hunting season or as directed in the permit; and

(D) make efforts to ensure that the applicable customary and traditional use pattern described by the board and included by the department as a permit condition, if any, is observed by subscribers including meat sharing; the applicable board finding and conditions will be identified on the permit; this provision does not authorize the community or group administrator to deny subscription to any community resident or group member;

(E) from July 1, 2014 until June 30, 2018, in the community harvest hunt area described in 5 AAC 92.074(d) , permits for the harvest of bull moose that do not meet the antler restrictions for other resident hunts in the area will be limited to one permit for every three households in the community or group. Beginning July 1, 2018, in the community harvest hunt area described in 5 AAC 92.074(d) , permits for the harvest of bull moose that do not meet the antler restrictions for other resident hunts in the area will be distributed to participants using the scoring criteria described in 5 AAC 92.070.

(2) a resident of the community or member of the group who elects to subscribe to a community harvest permit

(A) may not hold a harvest ticket or other state hunt permit for the same species where the bag limit is the same or for fewer animals during the same regulatory year; however, a person may hold harvest tickets or permits for same-species hunts in areas with a larger bag limit following the close of the season for the community harvest permit, except that in Unit 13, prior to July 1, 2018, only one caribou may be retained per household, and on or after July 1, 2018, up to two caribou may be retained per household;

(B) may not subscribe to more than one community harvest permit for a species during a regulatory year;

(C) must have in possession when hunting and taking game a community harvest report issued by the hunt administrator for each animal taken;

(D) must validate a community harvest report immediately upon taking an animal; and

(E) must report harvest and surrender validated harvest reports within five days, or sooner as directed by the department, of taking an animal and transporting it to the place of final processing for preparation for human use and provide information and biological samples required under terms of the permit;

(F) must, if the community harvest hunt area is under a Tier II permit requirement for the species to be hunted, have received a Tier II permit for that area, species, and regulatory year.

(G) participants in the community harvest hunt area described in 5 AAC 92.074(d)must commit to participation for two consecutive years. This does not apply to participants that applied in 2016 for the 2018 regulatory year.

(3) in addition to the requirements of (1) of this subsection, the community or group representative must submit a complete written report, on a form provided by the department, for the community or group participating in the community harvest hunt area described in 5 AAC 92.074(d), that describes efforts by the community or group to observe the customary and traditional use pattern described by board findings for the game populations hunted under the conditions of this community harvest permit; in completing the report, the representative must make efforts to collect a complete report from each household that is a member of the community or group that describes efforts by the household to observe the customary and traditional use pattern using the eight elements described in this paragraph; a copy of all household reports collected by the community or group representative shall be submitted to the department as a part of the representative's written report; complete reports must include information about efforts to observe the customary and traditional use pattern of the game population, as follows:

(A) Element 1: participation in a long-term, consistent pattern of noncommercial taking, use, and reliance on the game population: the number of years of taking and use of the game population; and involvement of multiple generations in the taking and use of the game population; and use of areas other than the community subsistence hunt area for harvest activities;

(B) Element 2: participation in the pattern of taking or use of the game population that follows a seasonal use pattern of harvest effort in the hunt area: the months and seasons in which noncommercial harvest activities occur in the hunt area;

(C) Element 3: participation in a pattern of taking or use of wild resources in the hunt area that includes methods and means of harvest characterized by efficiency and economy of effort and cost: costs associated with harvests; and methods used to reduce costs and improve efficiency of harvest; and number of species harvested during hunting activities;

(D) Element 4: participation in a pattern of taking or use of wild resources that occurs in the hunt area due to close ties to the area: number of years of taking and use of the game population; and involvement of multiple generations in the taking and use of the game population; and variety of harvesting activities that take place in the hunt area; and evidence of other areas used for harvest activities;

(E) Element 5: use of means of processing and preserving wild resources from the hunt area that have been traditionally used by past generations: complete listing of the parts of the harvested game that are used; and preservation methods of that game; and types of foods and other products produced from that harvest;

(F) Element 6: participation in a pattern of taking or use of wild resources from the hunt area that includes the handing down of knowledge of hunting skills, values, and lore about the hunt area from generation to generation: involvement of multiple generations in the taking and use of the game population; and evidence of instruction and training;

(G) Element 7: participation in a pattern of taking of wild resources from the hunt area in which the harvest is shared throughout the community: amount of harvest of the game population that is shared; and evidence of a communal sharing event; and support of those in need through sharing of the harvest of the game population; and

(H) Element 8: participation in a pattern that includes taking, use, and reliance on a wide variety of wild resources from the hunt area: the variety of resource harvest activities engaged in within the hunt area; and evidence of other areas used for harvest activities.

(d) Seasons for community harvest permits will be the same as those established for other subsistence harvests for that species in the geographic area included in a community harvest hunt area, unless separate community harvest hunt seasons are established. The total bag limit for a community harvest permit will be equal to the sum of the individual participants' bag limits, established for other subsistence harvests for that species in the hunt area or otherwise by the board. Seasons and bag limits may vary within a hunt area according to established

subsistence regulations for different game management units or other geographic delineations in a hunt area.

(e) Establishment of a community harvest hunt area will not constrain nonsubscribing residents of the community or members of the group from participating in subsistence harvest activities for a species in that hunt area using individual harvest tickets or other state permits authorized by regulation, nor will it require any resident of the community or member of the group eligible to hunt under existing subsistence regulations to subscribe to a community harvest permit.

(f) The department may disapprove an application for a community subsistence harvest permit from a community or group that has previously failed to comply with requirements in (c)(1) and (3) of this section. The failure to report by the community or group representative under (c)(1) and (3) of this section may result in denial of a community subsistence harvest permit during the following regulatory year. The department must allow a representative the opportunity to request a hearing if the representative fails to submit a complete report as required under (c)(1) and (3) of this section. A community or group aggrieved by a decision under this subsection will be granted a hearing before the commissioner or the commissioner's designee, if the community or group representative makes a request for a hearing in writing to the commissioner within 60 days after the conclusion of the hunt for which the person failed to provide a report. The commissioner may determine that the penalty provided under this subsection will not be applied if the community or group representative provides the information required on the report and if the commissioner determines that

(1) the failure to provide the report was the result of unavoidable circumstance; or

(2) extreme hardship would result to the community or group.

(g) A person may not give or receive a fee for the taking of game or receipt of meat under a community subsistence harvest permit.

(h) Nothing in this section authorizes the department to delegate to a community or group representative determination of the lawful criteria for selecting who may hunt, for establishing any special restrictions for the hunt and for the handling of game, and for establishing the terms and conditions for a meaningful communal sharing of game taken under a community harvest permit.

(i) In this section,

(1) "fee" means a payment, wage, gift, or other remuneration for services provided while engaged in hunting under a community harvest permit; and does not include reimbursement for actual expenses incurred during the hunting activity within the scope of the community harvest permit, or a non-cash exchange of subsistence-harvested resources.

(2) a "community" or "group" is a mutual support network of people who routinely (at least several times each year) provide each other with physical, emotional, and nutritional assistance in a multi-generational and inter/intra familial manner to assure the long-term welfare of individuals, the group, and natural resources they depend on; for purposes of this regulation, a "community" or "group" shares a common interest in, and participation in uses of, an identified area and the wildlife populations in that area, that is consistent with the customary and traditional use pattern of that wildlife population and area as defined by the board.

WP22–02 Executive Summary	
General Description	Proposal WP22-02 requests to remove language from designated hunting regulations prohibiting the use of a designated hunter permit by a member of community operating under a community harvest system. *Submitted by the Office of Subsistence Management.*
Proposed Regulation	See page 167
OSM Preliminary Conclusion	**Support**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	

WP22–02 Executive Summary	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP22-02

ISSUES

Wildlife Proposal WP22-02, submitted by the Office of Subsistence Management (OSM), requests to remove language from designated hunting regulations prohibiting the use of a designated hunter permit by a member of community operating under a community harvest system.

DISCUSSION

While developing the framework for a community harvest system in summer 2020, Ahtna Intertribal Resource Commission (AITRC) representatives realized that residents of communities in a community harvest system cannot designate another person to harvest on their behalf, pursuant to Federal designated hunter regulations. AITRC and Federal agency staff perceived this provision as unfair to community members who choose not to participate in a community harvest system because their options for acquiring their individual harvest limits are curtailed involuntarily.

The proponent clarified that the intent of this proposal is to allow members of a community with a community harvest system to designate a hunter to harvest on their behalf to fulfill either their individual harvest limit or to count toward the community harvest limit depending on whether or not they choose to participate in the community harvest system.

Existing Federal Regulation

36 CFR 242 and 50 CFR 100.25(e) Hunting by designated harvest permit

If you are a Federally qualified subsistence user (recipient), you may designate another Federally qualified subsistence user to take deer, moose, and caribou, and in Units 1-5, goats, on your behalf unless you are a member of a community operating under a community harvest system or unless unit-specific regulations in §____.26 preclude or modify the use of the designated hunter system or allow the harvest of additional species by a designated hunter. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than two harvest limits in his/her possession at any one time except for goats, where designated hunters may have no more than one harvest limit in possession at any one time, and unless otherwise specified in unit-specific regulations in §____.26.

§_____.26(n)(6)(ii) Unit 6 specific regulations

(D) A federally qualified subsistence user (recipient) who is either blind, 65 years of age or older, at least 70 percent disabled, or temporarily disabled may designate another federally qualified subsistence user to take any moose, deer, black bear, and beaver on his or her behalf in Unit 6, and goat in Unit 6D, unless the recipient is a member of a community operating

under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients, but may have no more than one harvest limit in his or her possession at any one time.

§_____.26(n)(9)(iii) Unit 9 specific regulations

(E) For Units 9C and 9E only, a federally qualified subsistence user (recipient) of Units 9C and 9E may designate another federally qualified subsistence user of Units 9C and 9E to take bull caribou on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report and turn over all meat to the recipient. There is no restriction on the number of possession limits the designated hunter may have in his/her possession at any one time.

(F) For Unit 9D, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take caribou on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(10) Unit 10 specific regulations

(iii) In Unit 10—Unimak Island only, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take caribou on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(22)(iii) Unit 22 specific regulations

(E) A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take musk oxen on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must get a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients in the course of a season, but have no more than two harvest limits in his/her possession at any one time, except in Unit 22E where a resident of Wales or Shishmaref acting as a designated hunter may hunt for any number of recipients, but have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(23)(iv) Unit 23 specific regulations

(D) For the Baird and DeLong Mountain sheep hunts—A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for only one recipient in the course of a season and may have both his and the recipients' harvest limits in his/her possession at the same time.

(F) A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take musk oxen on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must get a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients, but have no more than two harvest limits in his/her possession at any one time.

§_____.26(n)(26)(iv) Unit 26 specific regulations

(C) In Kaktovik, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep or musk ox on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than two harvest limits in his/her possession at any one time.

(D) For the DeLong Mountain sheep hunts—A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep on his or her behalf unless the recipient is a member of a community operating under a community harvest system. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for only one recipient in the course of a season and may have both his and the recipient's harvest limits in his/her possession at the same time.

Proposed Federal Regulation

§_____.25(e) Hunting by designated harvest permit

If you are a Federally qualified subsistence user (recipient), you may designate another Federally qualified subsistence user to take deer, moose, and caribou, and in Units 1-5, goats, on your behalf ~~unless you are a member of a community operating under a community harvest system or~~ unless unit-specific regulations in §100.26 preclude or modify the use of the designated hunter system or allow the harvest of additional species by a designated hunter. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no

more than two harvest limits in his/her possession at any one time except for goats, where designated hunters may have no more than one harvest limit in possession at any one time, and unless otherwise specified in unit-specific regulations in §100.26.

§_____.26(n)(6)(ii) Unit 6 specific regulations

(D) A federally qualified subsistence user (recipient) who is either blind, 65 years of age or older, at least 70 percent disabled, or temporarily disabled may designate another federally qualified subsistence user to take any moose, deer, black bear, and beaver on his or her behalf in Unit 6, and goat in Unit 6D, ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients, but may have no more than one harvest limit in his or her possession at any one time.

§_____.26(n)(9)(iii) Unit 9 specific regulations

(E) For Units 9C and 9E only, a federally qualified subsistence user (recipient) of Units 9C and 9E may designate another federally qualified subsistence user of Units 9C and 9E to take bull caribou on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report and turn over all meat to the recipient. There is no restriction on the number of possession limits the designated hunter may have in his/her possession at any one time.

(F) For Unit 9D, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take caribou on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(10) Unit 10 specific regulations

(iii) In Unit 10—Unimak Island only, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take caribou on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(22)(iii) Unit 22 specific regulations

(E) A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take musk oxen on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must get a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients in the course of a season, but have no more than two harvest limits in his/her possession at any one time, except in Unit 22E where a resident of Wales or Shishmaref acting as a designated hunter may hunt for any number of recipients, but have no more than four harvest limits in his/her possession at any one time.

§_____.26(n)(23)(iv) Unit 23 specific regulations

(D) For the Baird and DeLong Mountain sheep hunts—A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for only one recipient in the course of a season and may have both his and the recipients' harvest limits in his/her possession at the same time.

(F) A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take musk oxen on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must get a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients, but have no more than two harvest limits in his/her possession at any one time.

§_____.26(n)(26)(iv) Unit 26 specific regulations

(C) In Kaktovik, a federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep or musk ox on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients but may have no more than two harvest limits in his/her possession at any one time.

(D) For the DeLong Mountain sheep hunts—A federally qualified subsistence user (recipient) may designate another federally qualified subsistence user to take sheep on his or her behalf ~~unless the recipient is a member of a community operating under a community harvest system~~. The designated hunter must obtain a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for only one recipient in the course of a season and may have both his and the recipient's harvest limits in his/her possession at the same time.

Existing State Regulation

The State of Alaska provides for the transfer of harvest limits from one person to another through its proxy hunting program (5 AAC 92.011; see **Appendix 1**). **Table 1** is a side-by-side comparison of the State's proxy system to the Federal designated hunter system.

Table 1. State of Alaska Proxy System compared to Federal Designated Hunter System.

State of Alaska Proxy System	Federal Subsistence Management Program Designated Hunter System
Applies where there is an open State harvest season.	Applies to Federal public lands when there is an open Federal harvest season.
Applies to caribou, deer, and moose.	Applies to caribou, deer, moose, and in Units 1–5, goats, as well as other species identified in unit-specific regulations.
Available to a hunter who is blind, physically or developmentally disabled (requires physician's affidavit), or 65 years of age or older	Available to Federally qualified subsistence users.
Either the recipient or the hunter may apply for the authorization.	Recipient obtains a permit or harvest ticket and designates another Federally qualified subsistence user to harvest on his/her behalf. Designated hunter obtains a Federal designated hunter permit.
No person may be a proxy for more than one recipient at a time.	A person may hunt for any number of recipients, but may have no more than two harvest limits in his/her possession at any one time.
Antler destruction is required.	No antler destruction is required.

Federal Public Lands

Federal public lands comprise approximately 54% of Alaska statewide and consist of 36% U.S. Fish and Wildlife Service managed lands, 28% Bureau of Land Management managed lands, 25% National Park Service managed lands, and 11% U.S. Forest Service managed lands.

Customary and Traditional Use Determination

This is a statewide proposal regarding wildlife.

Regulatory History

In 1991, after extensive public comment on the Federal Subsistence Management Program's first Temporary Rule, the Federal Subsistence Board committed to addressing community harvest limits and alternative permitting processes (56 Fed. Reg. 123, 29411 [June 26, 1991]).

In 1992, responding to approximately 40 proposals requesting community harvest systems and numerous public comments requesting alternative permitting systems, the Board supported the concept of adjusting seasons and harvest limits based on customs and traditions of a community (57 Fed. Reg. 103, 22531–2 [May 28, 1992]). The Board said specific conditions for the use of a particular harvest reporting system may be applied on a case-by-case basis and further development and refinement of guidelines for alternative permitting systems would occur as the Federal Subsistence Management Program evolved (57 Fed. Reg. 104, 22948 [May 29, 1992]. These regulations at ____.6 were modified to state that intent more clearly:

> §_____.6 Licenses, permits, harvest tickets, tags, and reports[1]
>
> *(f) The Board may implement harvest reporting systems or permit systems where:*
>
> *(1) The fish and wildlife is taken by an individual who is required to obtain and possess pertinent State harvest permits, tickets, or tags, or Federal permits, harvest tickets, or tags;*
>
> *(2) A qualified subsistence user may designate another qualified subsistence user to take fish and wildlife on his or her behalf;*
>
> *(3) The fish and wildlife is taken by individuals or community representatives permitted a one-time or annual harvest for special purposes including ceremonies and potlatches;*
>
> *(4) The fish and wildlife is taken by representatives of a community permitted to do so in a manner consistent with the community's customary and traditional practices.*

In 1993, the Board adopted Proposal P93-12, which clarified that community harvest limits and individual harvest limits may not be accumulated, community harvest systems will be adopted on a case-by-case basis and defined under unit-specific regulations, and wildlife taken by a designated hunter for another person, counts toward the individual harvest limit of the person for whom the wildlife is taken. These new regulations specified that for wildlife, after taking your individual harvest limit, you may not continue to harvest in areas outside of your community harvest area (58 Fed. Reg. 103, 31255 [June 1, 1993]). These new regulations were the following:

> §____.25 Subsistence taking of wildlife[2]
>
> *(c) Possession and transportation of wildlife*
>
> *(1) Except as specified in §___.25(c)(3)(ii)* [below] *or (c)(4)* [trapping regulations], *or as otherwise provided, no person may take a species of wildlife in any Unit, or portion of a Unit, if that person's total statewide take of that species has already been obtained under Federal and State regulations in other Units, or portions of other Units.*

[1] Subsequently moved to *§___.10(d) Federal Subsistence Board—Power and Duties*.
[2] Subsequently moved to *§____.26 Taking of wildlife*.

> *(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest for that species. Except for wildlife taken pursuant to §____.6(f)(3)* [above], *an animal taken by an individual as part of a community harvest limit counts toward that individual's bag limit for that species taken under Federal or State regulations for areas outside of the community harvest area.*
>
> *(3) Individual bag limits (i) bag limits authorized by §____.25 and in State regulations may not be accumulated; (ii) Wildlife taken by a designated hunter for another person pursuant to §____6(f)(2)* [above], *counts toward the individual bag limit of the person for whom the wildlife is taken.*

In 1993, community harvest strategies were adopted by the Board simply by adding the use of designated hunters into unit-specific regulations for Unit 25 West moose and Unit 26C sheep (58 Fed. Reg. 103, 31252–3 [June 1, 1993]). In this way, designated harvesters and resource quotas became a common method for allocating harvests communally.

> *Unit 25(D)(West)—. . .1 antlered moose by a Federal registration permit. Alternate permits allowing for designated hunters are available to qualified applicants who reside in Beaver, Birch Creek, or Stevens Village. Moose hunting on public land in this portion of Unit 25(D)(West) is closed at all times except for residents of Beaver, Birch Creek and Stevens Village during seasons identified above. The moose season will be closed when 30 antlered moose have been harvested in the entirety of Unit 25D West* (58 Fed. Reg. 103, 31287 [June 1, 1993]).
>
> *Unit 26(C)—3 sheep per year; the Aug. 10–Sept 20 season is restricted to 1 ram with 7/8 cur1 horn or larger. A State registration permit is required for the Oct. 1–Apr. 30 season, except for residents of the City of Kaktovik. Kaktovik residents may harvest sheep in accordance with a Federal community harvest strategy for Unit 26(C) which provides for the take of up to two bag limits of 3 sheep by designated hunter. Procedures for Federal permit issuance and community reporting will be mutually developed by Kaktovik and Federal representatives prior to the season opening. Open season: Aug. 10–Sept. 30 and Oct. 1–Apr. 30* (58 Fed. Reg. 103, 31289 [June 1, 1993]).

In 1994, the Board rejected four proposals concerning the use of designated hunters to harvest wildlife for others and redirected staff to work with Regional Advisory Councils and develop regulations for the 1995/96 regulatory year that address designated harvesters on a state-wide basis (59 Fed. Reg. 29033, June 3, 1994).

In October 1994, a Designated Hunter Task Force published its report describing four options for alternative permitting systems (OSM 1994).

In 1996, administrative clarification was made at §____.25(c)(2) to better represent the Board's intent (61 Fed. Reg. 147, 39711 [July 30, 1996]). Before this clarification was made, a member of a community with a community harvest limit who had not taken an individual harvest limit could take an individual harvest limit after the community had met its harvest limit. The effect of the clarification was that members of community in a community harvest system can harvest only as part of the community harvest system:

> §____.25 Subsistence taking of wildlife
>
> *(c) Possession and transportation of wildlife*
>
> . . .
>
> *(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts toward the community harvest for that species. Except for wildlife taken pursuant to §____.6(f)(3)* [above], *an animal taken ~~by an individual~~ as part of a community harvest limit counts toward ~~that individual's bag limit~~* ***every community member's harvest limit*** *for that species taken under Federal or State regulations ~~for areas outside of the community harvest area~~.*

Later, the language "or as otherwise provided for by this part" was added to the provision. The effect was to allow an exception to the provision if the exception was placed in regulation:

> *(2) An animal taken under Federal or State regulations by any member of a community with an established community harvest limit for that species counts towards the community harvest limit for that species. Except for wildlife taken pursuant to §____.10(d)(5)(iii)* ***or as otherwise provided for by this part****, an animal taken as part of a community harvest limit counts toward every community member's harvest limit for that species taken under Federal or State of Alaska regulations.*

In 2001, administrative clarifications were added to regulations at §____.25(e) *Hunting by designated harvest permit*. New provisions stipulated that a designated hunter recipient may not be a member of a community operating under a community harvest system, reflecting §____.25(c)(2), above (66 Fed. Reg. 122, 33758 [June 25, 2001]). These new provisions were the following:

> §____.25 Subsistence taking of fish, wildlife, and shellfish: general regulations[3]
>
> *(e) Hunting by designated harvest permit*
>
> *(1) As allowed by §____.26* [Subsistence taking of wildlife], *if you are a Federally-qualified subsistence user, you (beneficiary) may designate another Federally-qualified*

[3] §____.25 was formerly *Subsistence taking of wildlife* that was moved to §____.26 to make room for these *general regulations*.

subsistence user to take wildlife on your behalf ***unless you are a member of a community operating under a community harvest system.***

(2) The designated hunter must obtain a designated hunter permit and must return a completed harvest report.

(3) You may not designate more than one person to take or attempt to take fish on your behalf at one time.

(4) The designated hunter may hunt for any number of recipients but may have no more than two harvest limits in his/her possession at any one time, unless otherwise specified in §____.26.

After 1994, the Board recommenced adopting designated harvester provisions in unit-specific regulations through 2002.

Prior to 2003, the Board adopted designated hunter regulations for 21 unit-specific hunts. In 2003, the Board established the statewide designated hunter system, based on Regional Advisory Council recommendations, providing opportunities for subsistence users to receive deer, caribou, and moose from designated hunters, subject to unit-specific regulations to include other species and special provisions (68 Fed. Reg. 38466 [June 27, 2003]). Where Councils agreed with these general statewide provisions, then unit-specific regulations were rescinded unless they included other species or special provisions.

In April 2020, the Board adopted deferred Proposal WP18-19 with modification to establish a community harvest system moose in Units 11 and caribou and moose in Unit 13 that will be administered by the Ahtna Intertribal Resource Commission (AITRC). The modification was to name individual communities within the Ahtna traditional use territory authorized to harvest caribou and moose in Unit 13 and moose in Unit 11 as part of a community harvest system, subject to a framework established by the Board under unit specific regulations. While developing the framework for the community harvest system over the summer of 2020, AITRC representatives and Federal agency staff realized that current Federal regulations prevent the use of designated hunters by any community member whether or not they choose to participate in the community harvest system (OSM 2020). In January 2021, the Board approved the community harvest system framework that describes additional details about implementation of the system (OSM 2021a).

Harvest History

The Designated Hunter Permit database is maintained at the Office of Subsistence Management. **Table 2** describes the use of the designated hunter system since 2002 when the permit system was implemented. Designated hunters have reported harvesting caribou, deer, moose, sheep, goats, and muskoxen. Most of the reported harvest by designated hunters is for deer (84%, or 4,717, ,), and most of those are taken from Southeast Alaska (Units 1–5). Designated hunter harvests of caribou account for 12% (658 caribou), and moose 4% (212 moose).

Table 2. Use of Federal designated hunter system based on completed harvest reports 2002-2020 cumulative, by species and management unit (OSM 2021b).

Management Unit	Number of Animals Harvested by Designated Hunters 2002-2020
Caribou	
9	4
12	109
13	477
17	8
18	6
20	31
Unknown	23
Total	658
Dall Sheep	
23	3
Deer	
1	57
2	146
3	1,178
4	22
6	0
8	10
2	727
4	1,836
5	11
6	3
8	672
Unknown	55
Total	4,717
Moose	
1	9
3	9
5	34
6	36
11	7
12	1
13	67
15	18
18	3
19	12
21	2
24	5
25	1
26	2
Unknown	6
Total	212

Continued on next page.

Management Unit	Number of Animals Harvested by Designated Hunters 2002-2020
Continued from previous page.	
Management Unit	**Number of Animals Harvested by Designated Hunters 2002-2020**
Mountain Goats	
1	1
4	5
Total	6
Muskoxen	
22	3

Cultural Knowledge and Traditional Practices

See the Cultural Knowledge and Traditional Practices section in the Proposal WP22-01 analysis.

Effects of the Proposal

If this proposal is adopted, then Federal designated hunter regulations will no longer preclude members of communities with a community harvest system from designating another person to take wildlife on their behalf to fulfill either their individual harvest limit or count toward the community harvest limit, pursuant to Federal designated hunter regulations. Effects to nonsubsistence uses or wildlife are not anticipated.

If this proposal is not adopted, then Federal designated hunting regulations will continue to preclude residents of communities in a community harvest system from designating another person to take wildlife on their behalf, even though some residents may choose not to participate in the community harvest system. Effects to nonsubsistence uses or wildlife are not anticipated.

OSM PRELIMINARY CONCLUSION

Support Proposal WP22-02.

Justification

The intent of the proposed regulation change is to allow members of a community with a community harvest system to designate another person to harvest on their behalf to meet either their individual harvest limit or count toward the community harvest limit, pursuant to Federal designated harvester regulations. Therefore, the statements in general and unit-specific regulations addressed by this proposal, WP22-02, will no longer be relevant and should be removed. Additionally, these regulatory changes will provide more equitable harvest options and opportunities for subsistence users.

LITERATURE CITED

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OSM. 2021a. Federal Subsistence Board News Release, February 3, 2021: Federal Subsistence Board approves changes to subsistence fishing regulations. https://www.doi.gov/subsistence/news/general/federal-subsistence-board-approves-changes-subsistence-fishing-0. Retrieved July 14, 2021. Office of Subsistence Management, USFWS, Anchorage, AK.

OSM 2021b. Federal permit system. Electronic database. Office of Subsistence Management, USFWS, Anchorage, AK.

APPENDIX 1

STATE PROXY HUNTING REGULATIONS

5 AAC 92.011. Taking of game by proxy

(a) A resident hunter (the proxy) holding a valid resident hunting license may take specified game for another resident (the beneficiary) who is blind, physically or developmentally disabled, or 65 years of age or older, as authorized by AS 16.05.405and this section.

(b) Both the beneficiary and the proxy must possess copies of a completed proxy authorization form issued by the department. The completed authorization must include

(1) names, addresses, hunting license numbers, and signatures of the proxy and the beneficiary;

(2) number of the required harvest ticket report or permit harvest report;

(3) effective dates of the authorization; and

(4) signature of the issuing agent.

(c) A proxy authorization may not be used to take a species of game for a beneficiary for more than the length of the permit hunt season listed on the proxy authorization or for the maximum length of the species general season listed on the proxy authorization.

(d) A person may not be a proxy

(1) for more than one beneficiary at a time;

(2) more than once per season per species in Unit 13;

(3) for Tier II Caribou in Unit 13, unless the proxy is a Tier II permittee;

(4) for more than one person per regulatory year for moose in Units 20(A) and 20(B).

(e) Repealed 7/26/97.

(f) A proxy who takes game for a beneficiary shall, as soon as practicable, but not later than 30 days after taking game, personally deliver all parts of the game removed from the field to the beneficiary.

(g) Except for reporting requirements required by (h) of this section, a proxy who hunts or kills game for a beneficiary is subject to all the conditions and requirements that would apply to the beneficiary if the beneficiary personally hunted or killed the game.

(h) Reporting requirements for proxy and beneficiary are as follows:

(1) if the proxy takes the bag limit for the beneficiary, the proxy shall provide the beneficiary with all the information necessary for the beneficiary to complete and return the harvest ticket report or permit harvest report, as required by regulation, to the department within the time periods specified for such reports; the beneficiary is responsible for the timely return of the harvest ticket and permit harvest reports;

(2) if the proxy is unsuccessful or does not take the bag limit for the beneficiary, the proxy shall provide the beneficiary with any information necessary for the beneficiary to complete and return the harvest ticket report or permit harvest report, as required by regulation, to the department within the time periods specified for such reports; the beneficiary is responsible for the timely return of the harvest ticket and permit harvest reports;

(3) the department may require the proxy to complete a proxy hunter report issued with the authorization form and mail it to the department within 15 days after the effective period of the authorization.

(i) A person may not give or receive remuneration in order to obtain, grant, or influence the granting of a proxy authorization.

(j) A proxy participating in a proxy hunt must remove at least one antler from the skull plate or cut the skull plate in half, on an antlered animal, for both the proxy's animal and the beneficiary's animal before leaving the kill site, unless the department has established a requirement that complete antlers and skull plates must be submitted to the department.

(k) Proxy hunting under this section is only allowed for

(1) caribou;

(2) deer;

(3) moose in Tier II hunts, any-bull hunts, and antlerless moose hunts; and

(4) emperor geese.

(l) Notwithstanding (k) of this section, proxy hunting is prohibited in the following hunts where the board has determined that the use of the proxy would allow circumvention of harvest restrictions specified by the board, or where the board has otherwise directed:

(1) Unit 20(E) moose registration hunts and Units 20(B), 20(D), 20(E), 20(F), and 25(C) Fortymile and White Mountains caribou registration hunts;

(2) Units 21(B), 21(C), 21(D), and 24 moose hunts if either the proxy or the beneficiary holds a drawing permit for Units 21(B), 21(C), 21(D), or 24 moose hunts;

(3) Units 9(A) and 9(B), unit 9(C), that portion within the Alagnak River drainage, and units 17(B), 17(C), 18, 19(A), and 19(B) caribou hunts from August 1 through October 31;

(4) Unit 5(A) deer hunts from October 15 through October 31;

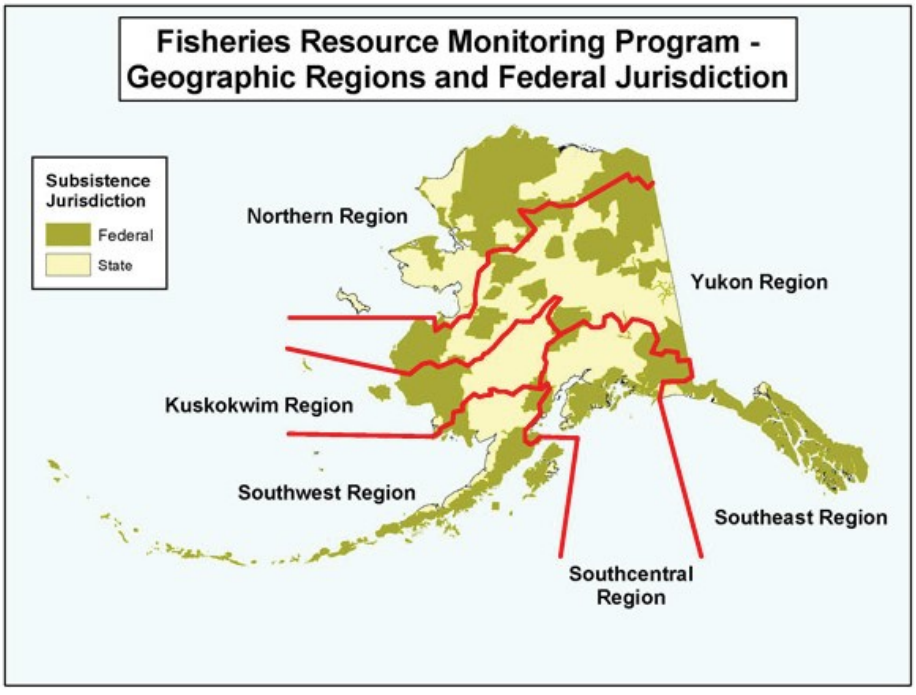
(5) Unit 20(D), within the Delta Junction Management Area, the moose drawing hunt for qualified disabled veterans.

FISHERIES RESOURCE MONITORING PROGRAM

BACKGROUND

Section 812 of the Alaska National Interest Lands Conservation Act (ANILCA) directs the Departments of the Interior and Agriculture, cooperating with other Federal agencies, the State of Alaska, and Alaska Native and other rural organizations, to research fish and wildlife subsistence uses on Federal public lands and to seek data from, consult with, and make use of the knowledge of local residents engaged in subsistence. When the Federal government assumed responsibility for management of subsistence fisheries on Federal public lands and waters in Alaska in 1999, the Secretaries of the Interior and Agriculture made a commitment to increase the quantity and quality of information available to manage subsistence fisheries, to increase quality and quantity of meaningful involvement by Alaska Native and other rural organizations, and to increase collaboration among Federal, State, Alaska Native, and rural organizations. The Fisheries Resource Monitoring Program (Monitoring Program) is a collaborative, interagency, interdisciplinary approach to enhance fisheries research and data in Alaska and effectively communicate information needed for subsistence fisheries management on Federal public lands and waters.

Every two years, the Office of Subsistence Management announces a funding opportunity for investigation plans addressing subsistence fisheries on Federal public lands. The 2022 Notice of Funding Opportunity focused on priority information needs developed by the Subsistence Regional Advisory Councils with input from strategic plans and subject matter specialists. The Monitoring Program is administered through regions to align with stock, harvest, and community issues common to a geographic area. The six Monitoring Program regions are shown below.



Strategic plans sponsored by the Monitoring Program have been developed by workgroups of fisheries managers, researchers, Subsistence Regional Advisory Councils, and by other stakeholders for three of the six regions: Southeast, Southcentral (excluding Cook Inlet Area), and Southwest Alaska, and for Yukon and Kuskokwim drainages whitefish (available for viewing at the Monitoring Program webpage at https://www.doi.gov/subsistence/frmp/plans). These plans identify prioritized information needs for each major subsistence fishery. Individual copies of plans are available from the Office of Subsistence Management by calling (907) 786-3888 or toll Free: (800) 478-1456 or by email subsistence@fws.gov. An independent strategic plan was completed for the Kuskokwim Region for salmon in 2006 and can be viewed at the Alaska-Yukon-Kuskokwim Sustainable Salmon Initiative website at https://www.aykssi.org/salmon-research-plans/.

Investigation plans are reviewed and evaluated by Office of Subsistence Management and U.S. Forest Service staff, and then scored by the Technical Review Committee. The Technical Review Committee's function is to provide evaluation, technical oversight, and strategic direction to the Monitoring Program. Each investigation plan is scored on the following five criteria: strategic priority, technical and scientific merit, investigator ability and resources, partnership and capacity building, and cost/benefit.

Project executive summaries are assembled into a draft 2022 Fisheries Resources Monitoring Plan. The draft plan is distributed for public review and comment through Subsistence Regional Advisory Council meetings, beginning in September 2021. The Federal Subsistence Board will review the draft plan and will accept written and oral comments at its January 2022 meeting. The Federal Subsistence Board forwards its comments to the Assistant Regional Director of the Office of Subsistence Management. Final funding approval lies with the Assistant Regional Director of the Office of Subsistence Management. Investigators are subsequently notified in writing of the status of their proposals.

HISTORICAL OVERVIEW

The Monitoring Program was first implemented in 2000 with an initial allocation of $5 million. Since 2000, a total of $127 million has been allocated for the Monitoring Program to fund a total of 494 projects (**Figure 1** and **Figure 2**).

During each two-year funding cycle, the Monitoring Program budget funds ongoing multi-year projects (2, 3, or 4 years) as well as new projects. Budget guidelines are established by geographic region (**Table 1**). The regional guidelines were developed using six criteria that included level of risk to species, level of threat to conservation units, amount of subsistence needs not being met, amount of information available to support subsistence management, importance of a species to subsistence harvest, and level of user concerns regarding subsistence harvest. Budget guidelines provide an initial target for planning; however, they are not final allocations and are adjusted annually as needed (**Figure 3)**.

Figure 1. Monitoring Program Funds Distributed, by Organization Type, Since 2000

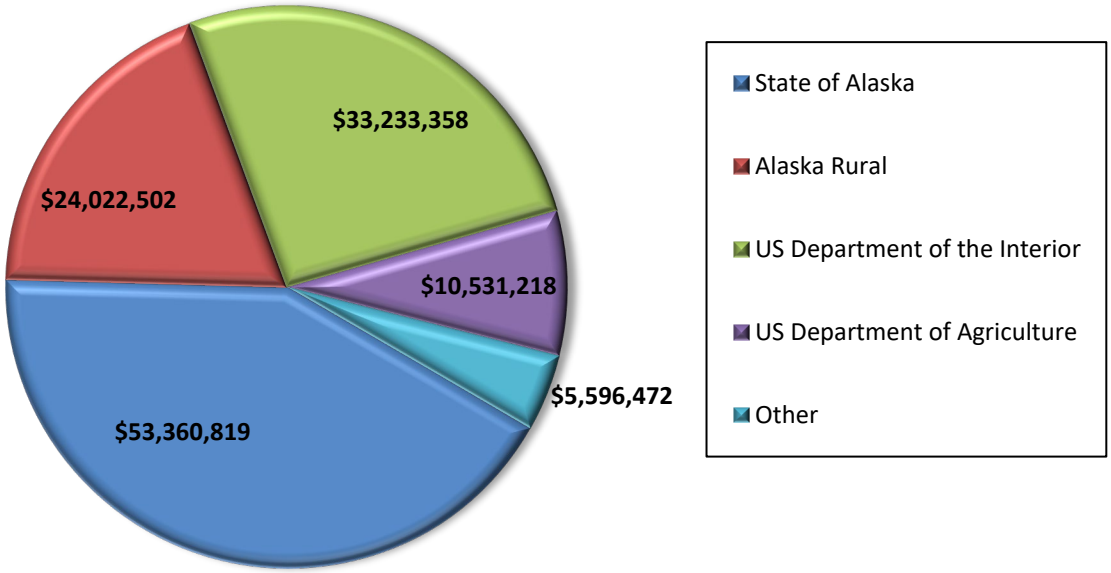


Figure 2. Number of Monitoring Program Projects Funded, by Organization Type, since 2000

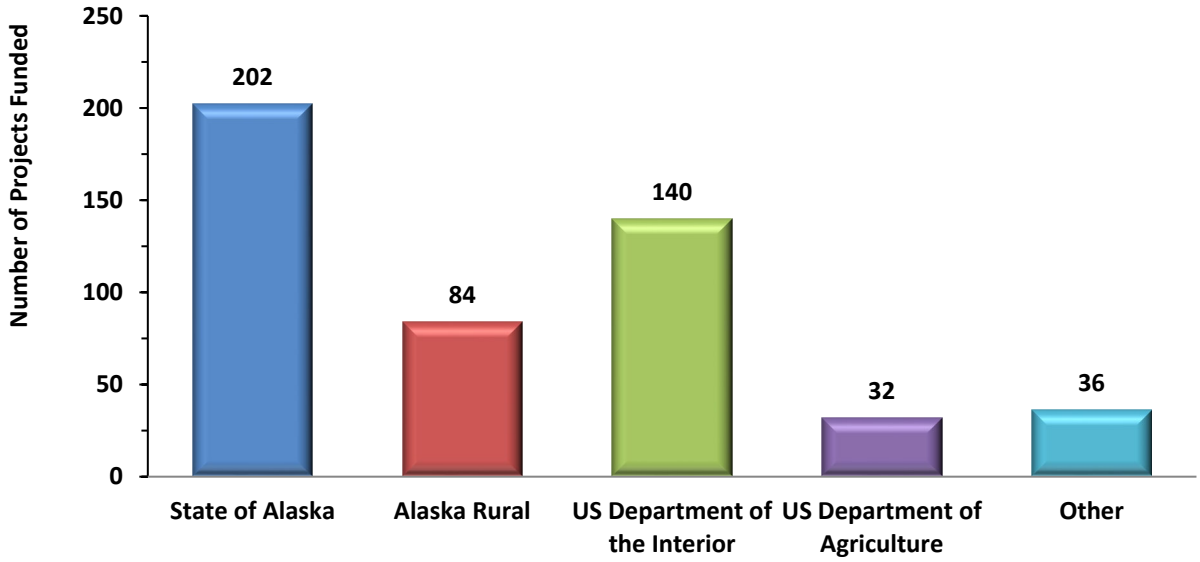
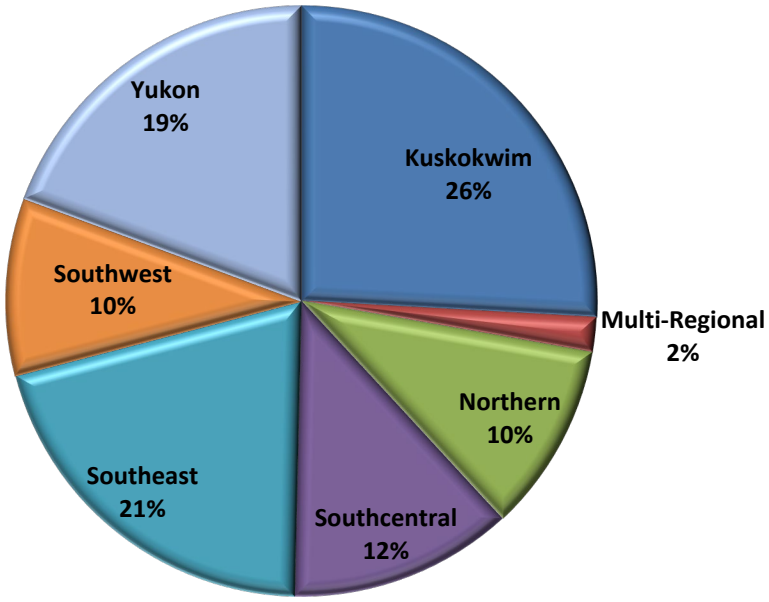


Table 1. Regional allocation guideline for Fisheries Resource Monitoring Program Funds.

Region	U.S. Department of the Interior Funds	U.S. Department of Agriculture Funds
Northern Alaska	17%	0%
Yukon Drainage	29%	0%
Kuskokwim Drainage	29%	0%
Southwest Alaska	15%	0%
Southcentral Alaska	5%	33%
Southeast Alaska	0%	67%
Multi-Regional	5%	0%

Figure 3. Percentage of Monitoring Program Funding Distributed to Each Region since 2000



The following three broad categories of information that are solicited for the Monitoring Program: (1) harvest monitoring, (2) traditional ecological knowledge, and (3) stock status and trends. Projects that combine these approaches are encouraged. Definitions of these three categories of information are listed below.

Harvest monitoring studies provide information on numbers and species of fish harvested, locations of harvests, and gear types used. Methods used to gather information on subsistence harvest patterns may include harvest calendars, mail-in questionnaires, household interviews, subsistence permit reports, and telephone interviews.

Traditional ecological knowledge studies are investigations of local knowledge directed at collecting and analyzing information on a variety of topics such as the sociocultural aspects of subsistence, fish ecology, species identification, local names, life history, taxonomy, seasonal movements, harvests, spawning and rearing areas, population trends, environmental observations, and traditional management systems. Methods used to document traditional ecological knowledge include ethnographic fieldwork, key respondent interviews with local experts, place name mapping, and open-ended surveys.

Stock status and trends studies provide information on abundance and run timing; age, size, and sex composition; migration and geographic distribution; survival of juveniles or adults; stock production; genetic stock identification; and mixed stock analyses. Methods used to gather information on stock status and trends include aerial and ground surveys, test fishing, towers, weirs, sonar, video, genetics, mark-recapture, and telemetry.

PROJECT EVALUATION PROCESS

The Monitoring Program prioritizes high quality projects that address critical subsistence and conservation concerns. Projects are selected for funding through an evaluation and review process that is designed to advance projects that are strategically important for the Federal Subsistence Management Program, technically sound, administratively competent, promoting partnerships and capacity building, and are cost effective. Projects are first evaluated by a panel called the Technical Review Committee. This committee is a standing interagency committee of senior technical experts. The Technical Review Committee reviews, evaluates, and makes recommendations about proposed projects that are consistent with the mission of the Monitoring Program. Fisheries and Anthropology staff from the Office of Subsistence Management provide support for the Technical Review Committee. Recommendations from the Technical Review Committee provide the basis for further comments from Subsistence Regional Advisory Councils, the public, the Interagency Staff Committee, and the Federal Subsistence Board, with final approval of the Monitoring Plan by the Assistant Regional Director of the Office of Subsistence Management.

To be considered for funding under the Monitoring Program, a proposed project must have a nexus to Federal subsistence fishery management. Proposed projects must have a direct association to a Federal subsistence fishery, and the subsistence fishery or fish stocks in question must occur in or pass-through waters within or adjacent to Federal public lands in Alaska (National Wildlife Refuges, National Forests, National Parks and Preserves, National Conservation Areas, National Wild and Scenic River Systems, National Petroleum Reserves, and National Recreation Areas). A complete project package must be submitted on time and must address the following five specific criteria to be considered a high-quality project.

1. ***Strategic Priorities***—Studies should be responsive to information needs identified in the 2022 Priority Information Needs available at the Monitoring Program webpage at https://www.doi.gov/subsistence/frmp/funding. All projects must have a direct linkage to Federal public lands and/or waters to be eligible for funding under the Monitoring Program. To assist in evaluation of submittals for projects previously funded under the Monitoring Program, investigators must summarize project findings in their investigation plans. This summary should clearly and concisely document project performance, key findings, and uses of collected information for Federal subsistence management. Projects should address the following topics to demonstrate links to strategic priorities:

    - Federal jurisdiction—The extent of Federal public waters in or nearby the project area
    - Direct subsistence fisheries management implications
    - Conservation mandate—Threat or risk to conservation of species and populations that support subsistence fisheries
    - Potential impacts on the subsistence priority—Risk that subsistence harvest users' goals will not be met
    - Data gaps—Amount of information available to support subsistence management and how a project answers specific questions related to these gaps
    - Role of the resource—Contribution of a species to a subsistence harvest (number of villages affected, pounds of fish harvested, miles of river) and qualitative significance (cultural value, unique seasonal role)
    - Local concern—Level of user concerns over subsistence harvests (upstream vs. downstream allocation, effects of recreational use, changes in fish abundance and population characteristics)

2. ***Technical-Scientific Merit***—Technical quality of the study design must meet accepted standards for information collection, compilation, analysis, and reporting. To demonstrate technical and scientific merit, applicants should describe how projects will:

    - Advance science
    - Answer immediate subsistence management or conservation concerns
    - Have rigorous sampling and/or research designs
    - Have specific, measurable, realistic, clearly stated, and achievable (attainable within the proposed project period) objectives
    - Incorporate traditional knowledge and methods

    Data collection, compilation, analysis, and reporting procedures should be clearly stated. Analytical procedures should be understandable to the non-scientific community. To assist in evaluation of submittals for continuing projects previously funded under the Monitoring

Program, summarize project findings and justify continuation of the project, placing the proposed work in context with the ongoing work being accomplished.

3. ***Investigator Ability and Resources***—Investigators must show they are capable of successfully completing the proposed project by providing information on the ability (training, education, experience, and letters of support) and resources (technical and administrative) they possess to conduct the work. Investigators that have received funding in the past, via the Monitoring Program or other sources, are evaluated and scored on their past performance, including fulfillment of meeting deliverable and financial accountability deadlines. A record of failure to submit reports or delinquent submittal of reports will be taken into account when rating investigator ability and resources.

4. ***Partnership and Capacity Building***—Investigators must demonstrate that capacity building has already reached the communication or partnership development stage during proposal development and, ideally, include a strategy to develop capacity building to higher levels, recognizing, however, that in some situations higher level involvement may not be desired or feasible by local organizations.

   Investigators are requested to include a strategy for integrating local capacity development in their study plans or research designs. Investigators should inform communities and regional organizations in the area where work is to be conducted about their project plans. They should also consult and communicate with local communities to ensure that local knowledge is utilized and concerns are addressed. Investigators and their organizations should demonstrate their ability to maintain effective local relationships and commitment to capacity building. This includes a plan to facilitate and develop partnerships so that investigators, communities, and regional organizations can pursue and achieve the most meaningful level of involvement. Proposals demonstrating multiple, highly collaborative efforts with rural community members or Alaska Native Organizations are encouraged.

   Successful capacity building requires developing trust and dialogue among investigators, local communities, and regional organizations. Investigators need to be flexible in modifying their work plan in response to local knowledge, issues, and concerns, and must also understand that capacity building is a reciprocal process in which all participants share and gain valuable knowledge. The reciprocal nature of the capacity building component(s) should be clearly demonstrated in proposals. Investigators are encouraged to develop the highest level of community and regional collaboration that is practical including joining as co-investigators.

   Capacity can be built by increasing the technical capabilities of rural communities and Alaska Native organizations. This can be accomplished via several methods, including increased technical experience for individuals and the acquisition of necessary gear and equipment. Increased technical experience would include all areas of project management including logistics, financial accountability, implementation, and administration. Other examples may include internships or providing opportunities within the project for outreach, modeling, sampling design,

or project specific training. Another would be the acquisition of equipment that could be transferred to rural communities and tribal organizations upon the conclusion of the project.

A "meaningful partner" is a partner that is actively engaged in one or more aspects of project design, logistics, implementation and reporting requirements. Someone who simply agrees with the concept or provides a cursory look at the proposal is not a meaningful partner.

5. ***Cost/Benefit*—**This criterion evaluates the reasonableness (what a prudent person would pay) of the funding requested to provide benefits to the Federal Subsistence Management Program. Benefits could be tangible or intangible. Examples of tangible outcomes include data sets that directly inform management decisions or fill knowledge gaps and opportunities for youth or local resident involvement in monitoring, research and/or resource management efforts. Examples of possible intangible goals and objectives include enhanced relationships and communications between managers and communities, partnerships and collaborations on critical resource issues, and potential for increased capacity within both communities and agencies.

   Applicants should be aware that the Government shall perform a "best value analysis" and the selection for award shall be made to the applicant whose proposal is most advantageous to the Government. The Office of Subsistence Management strives to maximize program efficiency by encouraging cost sharing, partnerships, and collaboration.

POLICY AND FUNDING GUIDELINES

Several policies have been developed to aid in implementing funding. These policies include:

- Projects of up to four years in duration may be considered
- Proposals requesting Monitoring Program funding that exceeds $215,000 in any one year are not eligible for funding
- Studies must not duplicate existing projects
- Long term projects will be considered on a case-by-case basis

Activities that are not eligible for funding include:

- Habitat protection, mitigation, restoration, and enhancement
- Hatchery propagation, restoration, enhancement, and supplementation
- Contaminant assessment, evaluation, and monitoring
- Projects where the primary or only objective is outreach and education (for example, science camps, technician training, and intern programs), rather than information collection

The rationale behind these policy and funding guidelines is to ensure that existing responsibilities and efforts by government agencies are not duplicated under the Monitoring Program. Land management or regulatory agencies already have direct responsibility, as well as specific programs, to address these activities. However, the Monitoring Program may fund research to determine how these activities affect Federal subsistence fisheries or fishery resources.

The Monitoring Program may fund assessments of key Federal subsistence fishery stocks in decline or that may decline due to climatological, environmental, habitat displacement, or other drivers; however, applicants must show how this knowledge would contribute to Federal subsistence fisheries management. Similarly, the Monitoring Program may legitimately fund projects that assess whether migratory barriers (e.g., falls, beaver dams) significantly affect spawning success or distribution; however, it would be inappropriate to fund projects to build fish passes, remove beaver dams, or otherwise alter or enhance habitat.

2022 FISHERIES RESOURCE MONITORING PLAN

For 2022, a total of 42 investigation plans were received and all are considered eligible for funding. For 2022, the Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.5 million in funding for new projects. The U.S. Department of Agriculture, through the U.S. Forest Service, will provide an anticipated $750,000 in funding.

FISHERIES RESOURCE MONITORING PROGRAM
KUSKOKWIM REGION OVERVIEW

Since the inception of the Monitoring Program in 2000, a total of 102 projects have been undertaken in the Kuskokwim Region costing $28.1 million (**Figure 1**). Of these, the State of Alaska received funds to conduct 61 projects, Alaska rural organizations conducted 17 projects, the U.S. Department of the Interior conducted 21 projects, and other organizations conducted 3 projects (**Figure 2**). See **Appendix 1** for more information on Kuskokwim Region projects completed since 2000.

Figure 1. Total Monitoring Program Funds Recieved, by Organization Type, in the Kuskokwim Region since 2000

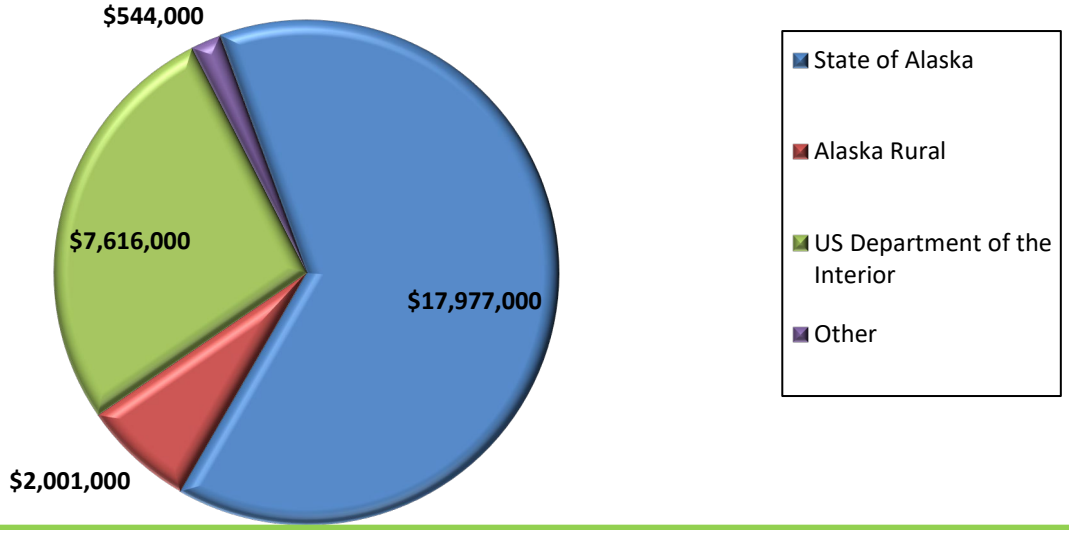
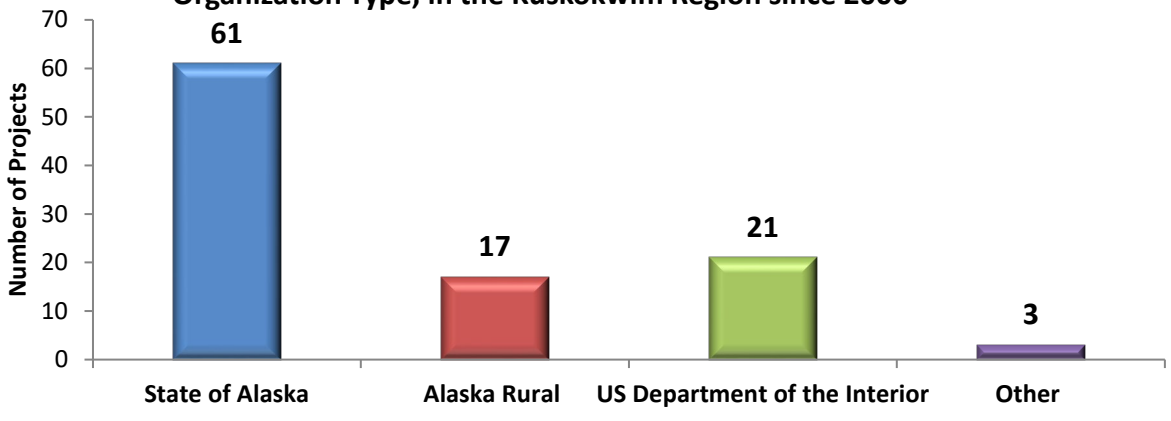


Figure 2. Total Number of Monitoring Program Projects Funded, by Organization Type, in the Kuskokwim Region since 2000



PRIORITY INFORMATION NEEDS

The 2022 Notice of Funding Opportunity for the Kuskokwim Region identified the following 15 priority information needs:

- Impacts of climate change in continued harvest and use of fish; and impacts of climate change on fish, for example fish migration, spawning, and life cycle.
- Knowledge of population, reproduction, and health of spawning habitat for declining Humpback Whitefish populations.
- Documentation of oral histories describing salmon harvest methods in the Kuskokwim River drainage, specifically the period before the development of the modern commercial fishery.
- Reliable quantitative and/or qualitative estimates of salmon run size, escapement, and harvest in the Kuskokwim River drainage including Kuskokwim Bay tributaries.
- Explore new and cost effective methods for conducting in-season salmon run and harvest assessments in the Kuskokwim River drainage, with an emphasis on community-based monitoring.
- Estimates of "quality of escapement" measures to help inform salmon stock assessments, for example potential egg deposition, age, sex, and size composition of spawners, advancing genetic baselines.
- Improved Kuskokwim River drainage-wide and sub-stock specific salmon run size and timing forecasts.
- Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Kuskokwim River drainage.
- Traditional ecological knowledge of fishes.
- Information sharing between stakeholders and agencies concerning salmon conservation in the Kuskokwim River drainage, for example outreach to villages using the media and other methods.
- The meaning and significance of sharing, barter, and/or customary trade of subsistence foods in the context of the social, cultural, and economic life of people in the lower Kuskokwim drainage.
- Effects of environmental stressors, such as heat stress, on salmon mortality during adult upriver migration and/or pre-spawn mortality within spawning tributaries.
- Effects of Ichthyophonus infection on Chinook and Chum Salmon mortality and spawning success.
- Assessment of incidental Chinook Salmon mortality with gillnets, with particular consideration for delayed mortality from entanglement or direct mortality from drop-outs (for example, loss of Chinook Salmon from 6-inch mesh nets).

- Collect baseline information on the resident fish community to better understand potential impacts and to assess impacts of proposed development projects.

AVAILABLE FUNDS

Federal Subsistence Board guidelines direct initial distribution of funds among regions. Regional budget guidelines provide an initial target for planning. For 2022, the U.S. Department of the Interior and U.S. Department of Agriculture, through the U.S. Fish and Wildlife Service and the U.S. Forest Service, will provide an anticipated $2.25 million in funding statewide for new projects.

ROLE OF THE TECHNICAL REVIEW COMMITTEE

The mission of the Monitoring Program is to identify and provide information needed to sustain subsistence fisheries on Federal public lands for rural Alaskans through a multidisciplinary and collaborative program. It is the responsibility of the Technical Review Committee to develop the strongest possible funding plan for each region and across the entire state.

For the 2022 Monitoring Program, eight proposals were submitted for the Kuskokwim Region. The Technical Review Committee evaluated and scored each proposal on Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit (**Table 1**). These scores remain confidential. An executive summary for each proposal submitted to the 2022 Monitoring Program for the Kuskokwim Region is in **Appendix 2**.

Table 1. Projects submitted for the Kuskokwim Alaska Region, 2022 Monitoring Program, including total funds requested and average annual funding requests.

Project Number	Title	Total Project Request	Average Annual Request
22-300	Takotna River Weir Salmon Run Timing and Abundance	$176,256	$44,064
22-301	Kuskokwim River Broad Whitefish subsistence harvest and spawning abundance	$800,084	$200,021
22-304	George River Salmon Weir	$733,900	$183,475
22-350	Bethel Subsistence Harvest Surveys	$372,134	$93,034
22-351	Kuskokwim Management Area Postseason Subsistence Salmon Harvest Survey	$859,011	$214,753
22-352	Local and Traditional Knowledge of Salmon Harvest and Use for Subsistence in the Lower Kuskokwim River Drainage	$366,440	$183,220
22-353	Natural Indicators of Salmon in the Upper Kuskokwim River	$180,055	$90,028
22-354	Community-Based Harvest Monitoring Network for Kuskokwim River Chinook Salmon	$254,795	$63,699
Total		**$3,742,675**	**$1,072,294**

TECHNICAL REVIEW COMMITTEE JUSTIFICATIONS FOR PROPOSAL SCORES

Project Number: 22-300
Project Title: Takotna River Weir Salmon Run Timing and Abundance

Technical Review Committee justification: The investigation plan requests four years of funding to operate a community based weir project on the Takotna River to index Chinook and Chum salmon escapement to the headwaters of the Kuskokwim River drainage. The Federal nexus is clear and this project addresses multiple 2022 Priority Information Needs for the Kuskokwim Region. The Takotna River weir provides the only long-term weir data for a headwater tributary of the Kuskokwim River and is one of the few long-term ground-based projects that monitor less abundant/less productive tributaries in the drainage. Escapement data are used as inputs in the Chinook Salmon run reconstruction model and can be used to evaluate the effects of the early season closure on headwater stocks. While the methods for collecting biological data are technically sound, some of the objectives were vague and the data analysis section lacked the detail required to evaluate the proposed analytical procedures. In recent years, this project has been operated entirely by local residents which has demonstrated that a weir can be successfully run by a small community and operated to meet scientific standards. Overall, project costs are low relative to other weirs in the region and in-kind contributions provided by the Kuskokwim River Inter-Tribal Fish Commission exceed the funds requested from the Monitoring Program. Letters of support were received from the Alaska Department of Fish and Game, Bering Sea Fishermen's Association, Tanana Chiefs Conference, Takotna Tribal Council, and Yukon Delta National Wildlife Refuge.

Project Number: 22-301
Project Title: Kuskokwim River Broad Whitefish Subsistence Harvest and Spawning Abundance

Technical Review Committee Justification: The proposed project requests four years of funding to estimate population size, harvest rates and population demographics of Broad Whitefish in the Kuskokwim River using mark-recapture/mark-recovery techniques. The Federal nexus is clear and this project addresses a 2022 Priority Information Need for the Kuskokwim Region. Broad Whitefish are an important subsistence resource in the Kuskokwim River but local users have expressed concern that they may be over-exploited. If funded, this project could provide some of the most complete information regarding Broad Whitefish in the Kuskokwim River to date, which could be used to establish population baselines and develop management strategies. The Native Village of Napaimute and the Orutsararmiut Native Council play meaningful roles in the project and are essential for achieving study objectives. Capacity will be built with Orutsararmiut Native Council biologists who will learn the intricacies of mark recapture projects and electrofishing techniques. Study costs are high. However, contributing funds will be provided by the Kenai Fish and Wildlife Field Office to offset project costs. In addition, the level of requested funding is justifiable when considering the large geographic scale of the study and the potential diversity of results that will add substantially to the knowledge of Broad Whitefish harvest rates, abundance, and population demographics in the Kuskokwim River. Letters of support were received from the Native Village of Napaimute, Orutsararmiut Native Council, and Yukon Delta National Wildlife Refuge.

Project Number: 22-304
Project Title: George River Salmon Weir

Technical Review Committee Justification: The investigation plan requests four years of funding to continue weir operations on the George River to index Chinook, Chum, and Coho salmon escapement to the middle portion of the Kuskokwim River drainage and conduct a high school internship program to build local capacity. The Federal nexus is clear and this project addresses a 2022 Priority Information Need for the Kuskokwim Region. Currently, the George River weir provides the only ground-based index of salmon escapement in the middle portion of the Kuskokwim River. Escapement data from this project are used as inputs in the reconstruction model, which estimates total annual abundance and escapement of Kuskokwim River Chinook Salmon. In addition, age-sex-length data are used to reconstruct brood year returns and monitor population production for Chinook and Coho salmon. The Native Village of Napaimute will conduct an internship program that provides high school students with experiences aimed at teaching watershed concepts, physical habitat assessment, biological sampling, and data analysis. Project costs are comparable to other weirs in the region and are reasonable for the proposed work. Letters of support were received from the Kuskokwim River Salmon Management Working Group, Orutsararmiut Native Council, and Yukon Delta National Wildlife Refuge.

Project Number: 22-350
Project Title: Bethel Subsistence Harvest Surveys

Technical Review Committee Justification: This four-year project will rely on subsistence salmon fishers in the Bethel area to gain reliable monitoring data on two components of the lower Kuskokwim subsistence fishery: (1) inseason subsistence harvest estimates for salmon and (2) Chinook age-sex-length sampling. Funding would continue work going back to the 1990s; similar research has been funded by the Monitoring Program since 2001. The proposal addresses two Priority Information Needs in the Kuskokwim Region identified in the 2022 Notice of Funding Opportunity. Federal nexus is provided by the Yukon Delta National Wildlife Refuge. Sizes of recent Chinook Salmon runs have been some of the lowest on record, resulting in fishery managers implementing harvest restrictions. Drainage residents are highly dependent on local salmon runs. This project has received Monitoring Program funding since 2001 and has been successfully re-conceived to address comments from the Technical Review Committee and better address information needs in the Kuskokwim Region. The project now includes the objective of calculating catch per unit effort by gear type. The project makes near real-time harvest estimates for the Bethel area are available to fishery managers, contributing to better in-season management of the Chinook Salmon run. The project provides a strong and meaningful partnership between the Alaska Department of Fish and Game and the Orutsararmiut Native Council, which administers much of the project.

Project Number: 22-351
Project Title: Kuskokwim Management Area Postseason Subsistence Salmon Harvest Survey

Technical Review Committee Justification: The primary goal of the project is to estimate the harvest of salmon, by species, for subsistence purposes at 27 communities within the Kuskokwim Management Area, including a meaningful 20-year partnership with Orutsararmiut Native Council. The Federal nexus and high strategic priority are clear. The investigation plan is well-written, no substantial performance issues exist with this continuation project, investigators have adequate training to conduct the research,

project costs are reasonable for the work proposed, Division of Subsistence is contributing significant in-kind support.

Project Number: 22-352
Project Title: Local and Traditional Knowledge of Salmon Harvest and Use for Subsistence in the Lower Kuskokwim River Drainage

Technical Review Committee Justification: The project addresses two Priority Information Needs identified in the 2022 Notice of Funding Opportunity. The study area, the lower Kuskokwim River drainage, is within the Yukon Delta National Wildlife Refuge. The Federal nexus is clear. Technical and Scientific Merit is lacking, objectives are not clearly stated, and the description of mapping methodology is missing, making the project hard to evaluate. Five local assistants will be hired. Five letters of support were provided.

Project Number: 22-353
Project Title: Natural Indicators of Salmon in the Upper Kuskokwim River

Technical Review Committee Justification: The project addresses a Priority Information Need identified in the 2022 Notice of Funding Opportunity. Residents of study communities McGrath, Takotna, and Nikolai hold knowledge of fishes not documented in existing literature; however, investigators should provide better justification of the strategic importance of documenting this knowledge. Descriptions of mapping and interviewing methodology are lacking, making the project hard to evaluate. Local hire of research assistants is planned. Five letters of support were provided.

Project Number: 22-354
Project Title: Community-Based Harvest Monitoring Network for Kuskokwim River Chinook Salmon

Technical Review Committee Justification: This project integrates community-based harvest information (surveys and age-sex-length data collection) in the lower Kuskokwim River villages with similar data collected by ONC in the Bethel area (proposal 22-350) and aerial boat surveys to create near real-time harvest data for inseason management of the Kuskokwim River Chinook Salmon subsistence fishery. Because of the pressure on this system, managers need to ensure that inseason data is available for rapid decision-making. The project directly addresses three priority information needs for the Kuskokwim River. Overall, the methods for this project have been well-developed and tested. A previous version of this proposal was submitted in 2020. At that time, the Technical Review Committee raised concerns that the project's technical and scientific merit depended on Orutsararmiut Native Council's surveys also being funded, as well as to the high cost of the project. In comparison to the previous proposal, this proposed project has been developed into a partnership between the lead organization, Kuskokwim River Inter-Tribal Fish Commission, Bechtol Research, and Yukon Delta National Wildlife Refuge. The budget has also been reduced. However, it appears that the project's technical and scientific merit is still in large part based on Orutsararmiut Native Council's project (22-350) also being funded. The project's activities will support local capacity building through training harvest monitors in lower Kuskokwim villages; two-way information transfer will also be facilitated by monitors, who will act as intermediaries between fishers and managers. Letters of support were provided by Bering Sea Fishermen's Association, Orutsararmiut Native Council, and the Yukon Delta National Wildlife Refuge. Letters of support were not provided by the candidate villages to be included.

APPENDIX 1
PROJECTS FUNDED IN THE KUSKOKWIM REGION SINCE 2000

Project Number	Project Title	Investigators
	Salmon Projects	
00-007	Tatlawiksuk River Salmon Weir	ADF&G, KNA
00-008	Bethel Inseason Subsistence Harvest Data	ONC
00-009	Bethel Postseason Harvest Monitoring	ADF&G, ONC
00-019	Kwethluk River Salmon Weir	USFWS, OVK
00-027	Goodnews River Salmon Weir	ADF&G
00-028	Kanektok River Salmon Weir	ADF&G, USFWS
00-029	Documentation/Communication on Floating Weirs	AVCP
00-030	Kuskokwim Salmon Project Site Surveys	ADF&G, USFWS
01-019	Planning Meetings in AVCP Region	AVCP, KNA
01-023	Upper Kuskokwim River Inseason Data	ADF&G, MNVC
01-024	Bethel Postseason Fishery Household Surveys	ADF&G, ONC
01-053	Tuluksak River Salmon Weir	USFWS, TNC
01-070	Kuskokwim River Chinook Salmon Genetic Diversity	ADF&G, USFWS
01-086	Kuskokwim River Escapement Project Technician	ONC
01-088	Natural Resource Internship Program	KNA
01-116	Kuskokwim River Salmon Work Group support	ADF&G
01-117	Kuskokwim Salmon Age-Sex-Length Assessment	ADF&G
01-118	Kanektok River Salmon Weir	ADF&G, BSFA
01-132	Bethel Inseason Subsistence Salmon Harvest Data	ONC, ADF&G
01-141	Holitna River Chinook, Chum and Coho Telemetry	ADF&G
01-147	Aniak River Sport Fisheries Survey	ADF&G, KNA
01-225	Middle Kuskokwim River Inseason Salmon Harvest	KNA, ADF&G, USFWS
01-226	Subsistence Fisheries Research Capacity Building	ADF&G
02-036	Aniak Postseason Subsistence Fishery Surveys	ADF&G, KNA
02-046	Kuskokwim River Chinook Salmon Inriver Abundance	ADF&G
03-030	Kuskokwim River Salmon Mark-Recapture	ADF&G, KNA
03-041	Kuskokwim Coho Salmon Genetics	ADF&G, USFWS
03-931	Kuskokwim Science Plan	BSFA
04-301	Kwethluk River Salmon Weir	USFWS, OVK
04-302	Tuluksak River Salmon Weir	USFWS, TNC
04-305	Kanektok River Salmon Weir	ADF&G, BSFA
04-310	Tatlawiksuk River Salmon Weir	ADF&G, KNA
04-311	Kuskokwim Coho Salmon Genetic Mixed Stock Assessment	USFWS
04-312	Goodnews River Coho Salmon Weir	ADF&G
04-351	Kuskokwim Bay Traditional Ecological Knowledge and Oral History	USFWS

Project Number	Project Title	Investigators
04-353	Bethel Inseason Subsistence Salmon Data Collection	ADF&G, ONC
04-359	Kuskokwim Postseason Salmon Subsistence Harvest Surveys	ADF&G, KNA, ONC
05-302	Kuskokwim River Chinook Salmon Inriver Abundance	ADF&G
05-304	George and Takotna River Salmon Weirs	ADF&G
05-305	Kuskokwim Chinook Salmon Genetic Stock Identification	ADF&G
05-306	Kuskokwim River Inseason Subsistence Harvest Data Collection	ADF&G, ONC
05-307	Lower Kuskokwim Subsistence Fisheries Catch Monitoring	ONC
05-353	Nunivak Island Subsistence Cod Fisheries	NPT
05-356	Kuskokwim Area Postseason Subsistence Salmon Harvest Survey	ADF&G
06-306	Lower Kuskokwim Salmon Inseason Subsistence Catch Monitoring	ADF&G
06-307	Kuskokwim River Salmon Management Working Group	ADF&G
07-302	Kuskokwim River Chum Salmon Run Reconstruction	ADF&G, BC
07-303	Kuskokwim River Salmon Age-Sex-Length Assessment	ADF&G
07-304	Tatlawiksuk River Salmon Weir	ADF&G, KNA
07-305	Kanektok-Goodnews River Salmon and Dolly Varden Weirs	ADF&G
07-306	Kwethluk River Salmon Weir	USFWS, OVK
07-307	Tuluksak River Salmon Weir	USFWS, TNC
08-302	Lower Kuskokwim Subsistence Chinook Salmon Age-Sex-Length	ADF&G
08-303	George River Salmon Weir	ADF&G
08-304	Takotna River Salmon Weir	ADF&G
08-351	Tuluksak River Subsistence Chinook Salmon Age-Sex-Length	USFWS
08-352	Bethel and Aniak Postseason Subsistence Salmon Harvest Surveys	ADF&G
10-300	Kanektok and Goodnews River Salmon Assessment	ADF&G
10-303	Kuskokwim River Salmon Age Sex Length Assessment	ADF&G
10-304	Tatlawiksuk River Salmon Assessment	ADF&G
10-306	Kwethluk River Salmon Assessment	USFWS
10-307	Tuluksak River Salmon Assessment	USFWS
10-352	Kuskokwim Salmon Postseason Harvest Monitoring	ADF&G
10-353	Kuskokwim Salmon Working Group Support	ADF&G
10-354	Kuskokwim Salmon Inseason Harvest Monitoring	ADF&G
12-302	Lower Kuskokwim River Subsistence Chinook Salmon Harvest ASL	ADF&G, ONC
12-303	George River Salmon Weir	ADF&G, KNA
12-304	Takotna River Salmon Weir	ADF&G, TCA
12-309	Kwethluk River Salmon Weir	USFWS
14-302	Tatlawiksuk River Salmon Weir	ADF&G
14-303	George River Salmon Weir	ADF&G

Project Number	Project Title	Investigators
14-306	Tuluksak River Salmon Weir	USFWS
14-308	Kwethluk River Salmon Weir	USFWS
14-351	Kuskokwim Delta Chinook Salmon Non-local Harvesters	USFS
14-352	Kuskokwim Area Salmon Post-season Subsistence Harvest Surveys	ADF&G
14-353	Kuskokwim River Salmon Inseason Subsistence Survey	ADF&G
14-354	Kuskokwim River Support for Cooperative Management	ADF&G
16-301	Lower Kuskokwim River Subsistence Chinook Salmon Harvest ASL	ADF&G, ONC
16-302	Salmon River of the Pitka Fork Weir	ADF&G, MTNT
16-351	Middle Kuskokwim River In season Subsistence Salmon Harvest Monitoring and estimation	ADF&G, NVN
18-304	George River Salmon Weir	ADF&G
18-350	Bethel Subsistence Harvest Surveys	ONC, ADF&G
18-351	Kuskokwim Area Salmon Post Season Subsistence Harvest Surveys	ADF&G, ONC
20-301	Salmon River of the Pitka Fork Chinook Salmon Escapement Monitoring	ADF&G, ONC
20-302	Salmon River of the Pitka Fork Chinook Salmon Escapement Monitoring	ADF&G, MTNT
20-303	Middle Kuskokwim River Chinook and Chum Salmon In-Season Assessment	NVN
20-308	Kwethluk River Salmon Run Timing and Abundance	USFWS, OVK, KRITFC, BSFA
	Resident Species	
01-052	Whitefish Lake Humpback & Broad Whitefish	USFWS, KNA
01-112	Aniak River Subsistence Fisheries Study	ADF&G, KNA
01-235	Upper Kuskokwim Community Use Profiles	ADF&G
04-304	Whitefish Lake Whitefish Telemetry	USFWS
05-301	Whitefish PIT Tags	USFWS
06-303	Kuskokwim River Whitefish Migratory Behavior	USFWS, KNA
06-305	Kuskokwim River Inconnu Spawning Distribution	ADF&G
06-351	Lower Kuskokwim Non-salmon Harvest and TEK	ADF&G, AVCP
08-300	Aniak River Rainbow Trout Seasonal Distribution	ADF&G
10-305	Kuskokwim River Sheefish Spawning, Distribution and Timing	ADF&G
12-312	Status of sheefish in Highpower Creek and Upper Kuskokwim River	ADF&G
12-313	Location, Migration Timing, and Description of Kuskokwim River Bering Cisco Spawning Origins	KNA, USFWS
12-352	Whitefish Trends on the Upper Kuskokwim, Alaska	ADF&G
14-301	Kuskokwim River Broad Whitefish Spawning above McGrath	USFWS
14-307	Upper Kuskokwim River Sheefish Enumeration	USFWS
14-356	Lower Kuskokwim Villages Whitefish	CEC

Project Number	Project Title	Investigators
16-303	Enumeration and spawning area characterization of Sheefish in the Upper Kuskokwim River	ADF&G

Abbreviations: AC = Alaskan Connections, ADF&G = Alaska Department of Fish and Game, AVCP = Association of Village Council Presidents, AV = Arctic Village, BF = Bill Fliris, BUE = Bue Consulting, BLM = Bureau of Land Management, BSFA = Bering Sea Fisherman's Association, CATG = Council of Athabascan Tribal Governments, CEC = Calista Education and Culture, COK = City of Kaltag, DFO = Department of Fisheries and Oceans, EMV = Emmonak Village Council, KAL = City of Kaltag, NPS = National Park Service, LTC = Louden Tribal Council, NVE = Native Village of Eagle, NVHB = Native Village of Hooper Bay, NVV = Native Village of Venetie, RN = Research North, RW = Robert Wolfe and Associations, SVNRC = Stevens Village, SZ=Stan Zuray, TCC = Tanana Chiefs Conference, TTC = Tanana Tribal Council, UAF = University of Alaska Fairbanks, USFWS = U.S. Fish and Wildlife Service, USGS = U.S. Geological Survey, UW = University of Washington, and YRDFA = Yukon River Drainage Fisheries Association.

APPENDIX 2
EXECUTIVE SUMMARIES

The following executive summaries were written by principal investigators and were submitted to the Office of Subsistence Management as part of proposal packages. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. Executive summaries may have been altered for length.

Project Number:	22-300			
Title:	Takotna River Salmon Run Timing and Abundance			
Geographic Region:	Kuskokwim			
Data Types:	Stock Status and Trends			
Principal Investigator:	Kevin Whitworth, Kuskokwim River Inter-Tribal Fish Commission			
Co-investigator:	William Bechtol, Bechtol Research			
Project Cost:	**2022:** $42,515	**2023:** $43,527	**2024:** $44,570	**2025:** $45,644
Total Cost:	$176,256			

Overview: This project focuses on strategic priority information needs identified for the Kuskokwim Region in the 2022 Fisheries Resource Monitoring Program by providing reliable escapement estimates for Chinook salmon *Oncorhynchus tshawytscha* and chum salmon *O. keta* in the Takotna River. Management of Kuskokwim Area salmon fisheries is complex because of variability in run size, timing, and harvest of mixed stocks, overlapping runs of multiple species, allocation issues, and the immense size of the Kuskokwim River drainage. Chinook salmon of the Kuskokwim River watershed spawn in over 25 distinct areas, with each spawning subpopulation likely adapted to local, sub-watershed, conditions through traits such as juvenile behavior and residence time, and adult spawning duration and timing. These adaptations result in different productive capacities (i.e., average number of adult recruits expected per spawner), different carrying capacities (i.e., maximum number of spawners or juveniles a freshwater habitat can support), and different responses or tolerances to fishing pressure and environmental change. This variability in productivity and adaptation is critical to supporting resilience to environmental change

and to dampening variability in fishery harvests. This diversity, or portfolio, of subpopulations with different characteristics allows some stock components to flourish when other components have responded negatively to environmental conditions or harvest pressures.

Specific issues important to Federal management in support of subsistence fisheries include:

- Maintaining salmon diversity/biocomplexity is critically important for Federal subsistence management.
- It is important to maintain the full complement of salmon diversity, including those stocks which are currently less productive or small in size that migrate through Federal waters and help support subsistence needs.
- Weir-based stock assessments typically focus on more abundant or more productive Chinook populations. This focus can introduce bias in the spawner/recruit analysis in an anti-precautionary direction, providing a more optimistic perception of watershed productivity than is warranted
- The Takotna River weir is the only project in the watershed that monitors the dynamics of small populations of salmon species, and therefore functions as a sentinel with a long-term time series for dozens of discrete smaller, less productive populations in the Kuskokwim region.
- Based on these considerations, this project has disproportional benefits and addresses diversity mandates within the Yukon Delta National Wildlife Refuge.

In conjunction with salmon escapement data, there is a need to assess and evaluate the impacts of climate change on the Kuskokwim River ecosystem. Assessment of climate change impacts depends on long-term environmental data to provide a meaningful timeframe for comparison.

Objectives: The overarching project goal is to continue a long-term, ground-based project that will adequately index escapement to the headwaters of the Kuskokwim River, continuing the only long-term data set evaluating Chinook and chum salmon escapement to a headwater tributary, while also continuing the time series of environmental data to provide researchers and managers with indices useful to understanding local impacts of climate change. Given the aspects of local hire and simplified logistics due to having the weir located adjacent to a community, this project is intended to serve as a relatively low-cost assessment platform compared to similar projects. Specific project objectives include:

1. Enumerate the daily passage and characterize the run timing of Chinook salmon through a resistance board weir from July 1 to August 10.
2. Enumerate the daily passage and characterize the run timing of chum salmon, and resident fish species through a resistance board weir from July 1 to August 10.
3. Estimate the weekly age, sex, and length composition of Chinook salmon such that the simultaneous 95% confidence intervals have a maximum width of 0.20.
4. Collect information on seasonal passage of other fish species.
5. Collect environmental data.
6. Serve as a platform to develop local talent in a community-based stock assessment project, conduct community outreach, and engage local Alaska Native and rural communities in fisheries partnership projects.
7. Serve as a platform for future research projects such as tagging studies, collection of genetics data, heat stress monitoring, and monitoring of environmental data.

Methods: A resistance board weir will be installed several hundred meters above the Takotna River Bridge near the community of Takotna. The target operational period of July 1 to August 10

encompasses the bulk of Chinook and chum salmon returns and provides insights into seasonal passage of other fish species. A live trap allows fish to freely pass during counting, or to be retained for collection of age, sex, and length data (ASL) or genetic samples. Daily weir operation will involve a 2-member locally hired weir crew with oversight by a local crew leader or local assistant crew leader. Counts of passing fish will be made at a frequency of four to eight shifts per day between 0700 and 2400 hours. Counting effort will increase during times of high fish passage to reduce stress to fish held in the live box. Counts by species will be transferred to a logbook, with total daily and cumulative counts and other weir operation information, then transferred to a Google Drive account at the end of each day. The weir will be cleaned daily, or as needed, and inspected for holes with potential missed passage documented; carcasses will be identified and counted by species and sex. Chinook salmon escapement will be sampled daily for ASL in proportion to the observed passage abundance, but with an overall target sample size of 190 fish. To do this, weir crew members will use a short-handled dipnet to remove fish from the live trap and place them into a partially submerged fish "cradle." Sex (determined visually by external examination) and length (mid-eye to tail fork; nearest mm) will be recorded on standardized numbered data sheets that correspond to numbers on gummed scale cards, and fish scales will be removed from the preferred area above the lateral line, cleaned, and placed on the gummed cards.

Partnerships and Capacity Building: The Takotna River hosts the only weir in the Kuskokwim watershed entirely installed and operated by local technicians and supervised by a professional local fisheries biologist. Partnerships are crucial to effective weir installation and operation. The Takotna Tribal Council, Nikolai Edzeno Village Council, and the community of Takotna have partnered with previous Takotna River escapement projects and will be consulted regarding weir operation and potential crew hires. The Alaska Department of Fish & Game (ADF&G) has entered into cooperative agreements with the Kuskokwim River Inter-Tribal Fish Commission (KRITFC) to operate the weir. Furthermore, this weir project will continue the efforts to operate the weir as a community assessment project, which builds local capacity by involving local residents in weir operation and involving both residents and Alaska Native/Village councils in data collection that affects fishery management. Local hires from the communities of Takotna and Nikolai comprised all the staff operating the Takotna River weir during the 2017 and 2020 field seasons, and this trend will continue in this project. Administrative support will be provided by the Takotna Village Council, Bering Sea Fishermen's Association (BSFA), and KRITFC.

Project Number:	22-301			
Title:	Kuskokwim River Broad Whitefish Subsistence Harvest and Spawning Abundance			
Geographic Region:	Kuskokwim			
Data Types:	Stock Status and Trends and Harvest Monitoring			
Principal Investigator:	Frank Harris, U.S. Fish and Wildlife Service, Kenai Fish and Wildlife Conservation Office			
Co-investigator:	Gary Decossas, U.S. Fish and Wildlife Service, Yukon Delta National Wildlife Refuge Dan Gillikin, Native Village of Napaimute Danielle Lowrey, Orutsararmiut Native Council			
Project Cost:	**2022:** $174,380	**2023:** $205,590	**2024:** $208,826	**2025:** $211,288
Total Cost:	$800,084			

Statement of Need/Issue Addressed: This project specifically addresses the following Kuskokwim River Region Priority Information Needs (PINs) identified by the Notice of Funding Opportunity for the 2022 Fisheries Resource Monitoring Program (FRMP): (1) Collect baseline information on the resident fish community to better understand potential impacts and to assess impacts of proposed development projects; (2) Impacts of climate change in continued harvest and use of fish; and impacts of climate change on fish, for example fish migration, spawning, and life cycle.

Objectives:

1. Estimate subsistence harvest rates in the Kuskokwim River for the Broad Whitefish population segment that spawns near McGrath, Alaska.
2. Estimate population demographics including abundance, emigration rates, age, sex, length, and weight for the Broad Whitefish population that spawns near McGrath, Alaska.
    a. Precision of abundance estimates rely heavily on recovery of marked Broad Whitefish from subsistence harvest and spawning season mark-recapture events.
    b. Estimate the proportional age and sex composition of mature Broad Whitefish spawning above McGrath, Alaska such that estimates are within 5% of the actual true population proportions 95% of the time.
    c. Estimate the mean length and weight of mature Broad Whitefish spawning above McGrath, Alaska such that estimates are within 10% of the actual population means 95% of the time.
3. Describe times and areas of Broad Whitefish harvest throughout the Kuskokwim River drainage through tag recovery of marked Broad Whitefish caught by subsistence fishers.

General Study: This study will employ a mark-recapture/mark-recovery modeling framework to estimate population size, harvest rates and population demographics of Broad Whitefish. The project will be implemented for four years, including harvest recovery and live resights after the fourth spawning season. Since Broad Whitefish are suspected of being skip spawners (spawn every other year), sampling for four years ensures that the whole spawning population is available for capture, not just one spawning sub- population. Harvest occurs throughout the Kuskokwim River drainage year around, therefore recovery of marked fish caught by subsistence users can occur at any time. Mark-recapture of fish will occur in a relatively short period of time during the fall spawning migration near McGrath, Alaska–approximately August 20 to October 10. Inferences from this study will pertain solely to the spawning population of Broad Whitefish near McGrath. Ultimately if successful, a basin wide estimate of harvest/exploitation and abundance of mature spawning Broad Whitefish could be achieved.

Project Number:	22-304			
Title:	George River Salmon Weir			
Geographic Region:	Kuskokwim			
Data Types:	Stock Status and Trends			
Principal Investigator:	Bobette Dickerson, Alaska Department of Fish and Game			
Co-investigator:	Sean Larson, Alaska Department of Fish and Game			
	Dan Gillikin Native Village of Napaimute			
Project Cost:	**2022:** $214,882	**2023:** $182,695	**2024:** $186,624	**2025:** $149,699
Total Cost:	$733,900			

Issue: We propose to continue operations of a weir on the George River to index Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), and coho (*O. kisutch*) salmon escapement to the middle portion of the Kuskokwim River drainage, as well as conduct a high school internship program as part of our long-term efforts to build local capacity. Our proposal is in response to the priority information needs identified in the 2022 FRMP request for proposals to obtain reliable quantitative and/or qualitative estimates of salmon run size, escapement, and harvest in the Kuskokwim River drainage, including Kuskokwim Bay tributaries. This proposal would continue a 25-year dataset used to evaluate the size and composition of Chinook, chum, and coho salmon escapements to the middle Kuskokwim River. Annual monitoring is needed to evaluate if escapements are within the bounds of the established Chinook salmon escapement goal on the George River. In addition, escapement at the George River weir is used to inform a model that estimates total annual abundance and escapement for Kuskokwim River Chinook salmon. The success of the George River weir has made it an integral component of the broader salmon escapement monitoring program on the Kuskokwim River. Apart from its utility to the management of the Kuskokwim River subsistence fishery, the George River weir has been important in fostering community awareness, understanding, and direct involvement in fisheries assessment. Since 2005, the George River weir has been the site of high school mentorship and college internship programs sponsoring hundreds of high school age students and multiple college interns from throughout the Kuskokwim Region. The internship program has proven to be highly successful. In recent years, many of the fisheries technicians and crew leaders working on Kuskokwim River weir projects are past graduates of the high school and college internship programs. Several are currently pursuing degrees in fisheries science.

Objectives:

Our overall project goals are to index escapement of Chinook, chum, and coho salmon to the middle portion of the Kuskokwim River drainage and provide capacity building and education opportunities for local stakeholders. Specific objectives of this project are to:

1. Estimate the daily and total annual Chinook, chum, and coho salmon escapements from 15 June to 20 September.
2. Collect age, sex, and length (ASL) data from Chinook, chum, and coho salmon using weir traps, such that the number of samples collected will allow for future estimates of age composition with 95% confidence intervals no wider than ±10% (a=0.05, d=0.10).
3. Operate a high school internship program for 10 students for 8 days to foster local interest in natural resource management and field biology and expose high school students to employment and post-secondary education possibilities.

Methods: We will conduct daily visual counts of salmon escapement to the George River from 15 June to 20 September and collect ASL samples from 230 Chinook salmon, 400 chum salmon, and 400 coho salmon throughout the run, in proportion to run abundance. All data will be uploaded to a publicly accessible database and made available weekly at inseason meetings to inform fisheries management decisions. Final results will be published in the ADF&G Fishery Data Series. An 8-day internship will be provided for up to 10 students.

Partnerships/Capacity Building: Staff from ADF&G and NVN will conduct this project in partnership. Of particular interest is the internship program which provides students from communities in the area with the opportunity to interact with biologists, ADF&G staff, and professional educators acting as mentors. Throughout this project, ADF&G and NVN will work together to disseminate project results and related fisheries management issues to middle river communities during quarterly stakeholder newsletters and community meetings in the middle river.

Project Number:	22-350			
Title:	Bethel Subsistence Harvest Surveys			
Geographic Region:	Kuskokwim			
Data Types:	Harvest Monitoring			
Principal Investigator:	Danielle Lowrey, Orutsararmiut Native Council			
Co-investigator:	Janessa Esquible, Orutsararmiut Native Council			
	Sean Larson, Alaska Department of Fish and Game			
Project Cost:	**2022:** $91,388	**2023:** $91,973	**2024:** $93,320	**2025:** $95,453
Total Cost:	$372,134			

Issue: The proposed project will collect detailed quantitative and qualitative subsistence harvest and age-sex-length (ASL) information in the Bethel area to quantify subsistence harvest effort and catch composition during the Chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*O. keta)*, and sockeye salmon (*O. nerka)* runs. Data collected in this project addresses the 2022 priority information needs by 1) providing reliable quantitative and qualitative estimates of salmon harvests by conducting inseason harvest surveys in the Bethel area from late-May through mid-July and producing inseason harvest estimates, and 2) sharing information between stakeholders and agencies concerning salmon conservation via various outreach methods. This project will also collect Chinook salmon ASL data to measure the quality of escapement in which the state and Federal agencies can utilize for management of the subsistence fishery.

The overarching goal of this project is to provide state and Federal managers and stakeholders with relevant subsistence harvest effort, catch, and composition information collected from a representative subset of families who harvest salmon for subsistence purposes in the Bethel area. Continuous contact with subsistence fishing work groups during the fishing season provides a meaningful opportunity for subsistence users to share their perspectives on the annual salmon runs, harvest needs, and personal impacts of management decisions. This time also allows ONC staff to provide a communication channel between subsistence users and fishery management agencies, by sharing information about management decisions, conservation efforts, and other relevant information. Inseason subsistence harvest data that's collected will be utilized to inform inseason harvest models and decisions while also serving as a time-series that provide insight into trends in gear usage, fishing effort, and subsistence fleet timing. These long-term datasets can ultimately improve our understanding of Chinook salmon subsistence harvest patterns and the resulting impact on escapement and run dynamics. All goals and outcomes will be achieved through a collaborative

effort between Orutsararmiut Native Council (ONC) and Alaska Department of Fish & Game (ADF&G) to collect, process, and analyze all data.

Objectives:

1. Determine Bethel area subsistence users' relative change in salmon harvest goals for Chinook, chum, and sockeye salmon compared to the prior year, and monitor weekly progress towards achieving annual salmon harvest goals.

2. Document subsistence fishing activity in the Bethel area, including when families begin subsistence fishing, weekly participation, catch per unit effort by gear type, catch composition to provide reliable quantitative estimates of salmon harvests and utilize this data collected to produce inseason harvest estimates in collaboration with Kuskokwim River Intertribal Fish Commission (KRITFC).

3. Estimate the annual ASL composition of Chinook salmon harvested in the Bethel area subsistence fishery.

4. Improve information sharing between stakeholders and agencies concerning salmon conservation in the Kuskokwim River drainage.

Methods: Subsistence harvest information and comments made upon salmon conservation and/or management from fishers will be collected through weekly visits to surrounding Bethel fish camps and opportunistic encounters at the Bethel Boat Harbor in the months of June and July by trained ONC Fisheries Technicians. ONC Fisheries Technicians will also provide information updates from fisheries managers and an informational flyer to the fishers they survey to ensure there is two-way information sharing. The harvest data collected will be utilized to produce inseason harvest estimates in collaboration with KRITFC. Harvest data collected each week by ONC technicians in addition to any comments from fishers regarding conservation or management will be composed into weekly reports and presented at weekly Kuskokwim River Salmon Management Working Group (Working Group) meetings to promote information sharing between stakeholder and agencies. ASL information will be obtained through concerted recruitment efforts of fishers in the Bethel area that will voluntarily sample their Chinook salmon harvest, and be compensated for their efforts. ADF&G and ONC will host preseason ASL training and train interested samplers in properly collecting samples.

Partnerships/Capacity Building: This project demonstrates capacity building and new leadership taken on by ONC, a tribal government organization. ADF&G and ONC have been partnering for over 20 years to conduct inseason harvest surveys, but it was not until 2018 that ONC became the principal investigator on this project. ONC has built the capacity to have the necessary equipment and staff to lead this project with support from ADF&G as the critical co-PI. ONC has increased capacity through developing professional staff to run the project, developing and educating local youth to move into leadership roles in fisheries management, and training local students with hands-on biological experience at the high school and university levels. ADF&G has the capacity and will continue to archive physical ASL data collected through this project and make the data publicly available via the Arctic Yukon Kuskokwim Database Management System.

In addition to the capacity that ONC has built, ONC and ADF&G collaborate with the KRITFC, Bering Sea Fishermen's Association (BSFA), and the Yukon Delta National Wildlife Refuge (YDNWR) to collect subsistence harvest data to produce inseason harvest estimates. In the 2021 season, ONC and KRITFC are expanding their collective capacity and leadership by having their biologists learn and utilize a new model with the program R, designed by a KRITFC contractor, to produce the inseason harvest estimates that were

previously produced by staff at YDNWR. These harvest estimate models directly contribute to inseason fisheries management and are critically important as credible, near real-time indexes of fish harvests. This demonstrates strong tribal leadership in fisheries management and encourages ongoing capacity building.

This project has been well received by local residents in the past and is viewed as an important project supporting management by providing fundamental insights into issues such as the achievement of subsistence needs and the timing of subsistence activities. ONC has long standing ties with fish camp families in conducting the inseason subsistence harvest surveys. The survey instrument utilized in this project ensures protection of privacy, dignity, and confidentiality by all respondents and will continue to do so in the future. This project values and acknowledges local contributions in which all results are conveyed back to participants of the project on a weekly basis. Furthermore, local participation in ASL sampling provides an opportunity for education and outreach on salmon biology and management issues. These interactions are two-way; project participants receive timely fishery updates from agency staff and agency staff receive weekly reports on fishing activities and perspectives on the social effects of management decisions.

Project Number:	22-351			
Title:	Kuskokwim Management Area Postseason Subsistence Salmon Harvest Survey			
Geographic Region:	Kuskokwim			
Data Types:	Harvest Monitoring			
Principal Investigator:	Chris McDevitt, Alaska Department of Fish and Game, Division of Subsistence			
Co-investigator:	David Koster, Alaska Department of Fish and Game, Division of Subsistence Danielle Lowrey, Orutsararmiut Native Council			
Project Cost:	**2022:** $214,571	**2023:** $214,656	**2024:** $214,833	**2025:** $214,951
Total Cost:	$859,011			

Issue Addressed: We propose to continue operation of the Kuskokwim Management Area (KMA) Postseason Subsistence Salmon Harvest Survey. This proposal is in response to the priority information needs identified in the 2021 Fisheries Resource Monitoring Program (FRMP) request for proposals to obtain reliable quantitative estimates of subsistence salmon harvests in the Kuskokwim River drainage and Kuskokwim Bay tributaries. The proposed work would continue a 29-year dataset of subsistence salmon harvests in the Kuskokwim Area.

Objectives:

1. Administer harvest surveys to document the number of Chinook, chum, sockeye, coho, and pink salmon harvested for subsistence uses by residents of Bethel.
2. Administer harvest surveys to document the number of Chinook, chum, sockeye, coho, and pink salmon harvested for subsistence uses by residents of at least 27 remaining KMA communities.
3. Analyze harvest data to produce community estimates of salmon harvest by species.

Methods: Household harvest data will be collected using a survey instrument. The survey instrument is designed to elicit a variety of data from participating households. The primary goal of the instrument is to record subsistence salmon harvest data. In addition, the survey instrument also asks for basic household information, such as the total number of people living in the household. Moreover, the survey asks about gear types used; harvest locations; lost fish (due to spoilage or otherwise); fish shared, received, or both;

fish harvested for dogs; nonsalmon fish harvests; and whether or not a household was able to meet their subsistence salmon needs for the season.

The Division of Subsistence will utilize a consistent harvest estimation methodology for all communities except Bethel. The survey design in each community will be either census (100% survey) or stratified sampling design, depending on community size.

Subsistence harvest of Bethel residents will be estimated by employing a simple random sample harvest survey method. We will use the Bethel city planner's office/fire department occupant dwellings map/list. Before the survey, surveyors will update the map/list by driving through the community to confirm or update its accuracy. Based on the updated map, 30–50% of occupant dwellings will be randomly selected for survey. Rigorous protocols will be implemented to ensure that selected households are contacted if possible. Surveyors will attempt visits to households a minimum of three different times on different dates and different times of day. Households that are not successfully contacted will be set aside and new households will be randomly selected to replace them.

Partnerships and Capacity Building: ADF&G and ONC will partner to complete the Bethel portion of the project. This relationship represents close collaboration as principal investigators and has been in place since 1999. This mutually productive partnership has created a level of dialogue, feedback, and synergy that benefits each organization and the public. Formal and informal discussions between project staff and associated communities have helped to create a level of public awareness about salmon management and subsistence harvests. The interaction has also built significantly on the level of trust between the public and ADF&G. Through operation of this project and sharing of the resulting information at management and research forums, ONC and the community of Bethel have gained a feeling of ownership and meaningful involvement in terms of their participation in management decision making processes as they relate to the subsistence salmon fishery. Continuation of this project will strengthen the capacity of the Orutsararmiut Native Council to carry out subsistence fisheries harvest assessment projects in the region. Subsistence fishing households throughout the Kuskokwim River drainage will have an opportunity to talk to staff that come to their house and share personal observations about the subsistence salmon fishery. Households will have an opportunity to identify qualitative aspects the subsistence salmon fishing season such as if a household was able to meet their harvest goals for the season.

Project Number:	22-352			
Title:	Local and Traditional Knowledge of Subsistence Salmon Harvest and Use in the Lower Kuskokwim River			
Geographic Region:	Kuskokwim			
Data Types:	Traditional Ecological Knowledge			
Principal Investigator:	David Runfola, Alaska Department of Fish and Game, Division of Subsistence			
Co-investigator:	Gayle Neufeld, Alaska Department of Fish and Game, Division of Subsistence			
Project Cost:	**2022:** $132,792	**2023:** $107,114	**2024:** $126,535	**2025:** $0
Total Cost:	$366,440			

Issue: The Alaska Department of Fish and Game (ADF&G) Division of Subsistence is proposing to conduct key respondent interviews and participant observations that explore subsistence fishers' traditional ecological knowledge of Pacific salmon *Oncorhynchus spp*. (hereinafter salmon) in the lower Kuskokwim River communities of Napakiak, Nunapitchuk, Kasigluk, Tuntutuliak, and Eek. The study will focus on fisher knowledge of salmon patterns of movement through customary and traditional fishing areas and the ways in which fishers use this knowledge to effectively harvest salmon in a section of the lower Kuskokwim River within the Yukon Delta National Wildlife Refuge. Each region of the Kuskokwim River area can be characterized by locally specific fishing patterns, environmental conditions, challenges, and adaptations. This project is designed to investigate lower river patterns, especially as they relate to management and regulatory issues. This study has the goal of collaborating with key respondents in communities of the lower Kuskokwim River to document information regarding their historical and contemporary salmon fishing and processing methods, and how fishers have adapted those methods to changes occurring within the fishery.

A severe decline of Chinook salmon *O. tshawytscha* abundance in the Kuskokwim River has resulted in unprecedented fishing restrictions. These have had profound effects on subsistence salmon fishing communities in the Kuskokwim Area. Many fishers have described in public meetings, that their households have faced challenges in effectively harvesting and processing enough salmon for use throughout the year. The proposed study has several applications. First, documenting fishers' experiences of these changes and the effects on their households' ability to obtain the salmon they need each year will broaden managers' understanding of the lower Kuskokwim River salmon fishery. The study will provide fishers with the opportunity to systematically describe their novel experiences under an extremely conservative management regime and document how they have adapted fishing and processing techniques. The ethnographic methods of this study will allow subsistence salmon fishing households to share this TEK with management agencies in a way that informs or directs management decisions that better accommodate fishers' needs and experiences. The final reporting for this project will include a summary of recommendations to OSM and USFWS and ADF&G fisheries management staff regarding the continued monitoring of issues and community concerns related to the lower Kuskokwim River subsistence salmon fishery. Finally, a textured description of specific fishing patterns in the lower Kuskokwim River region along with a detailed accounting of local concerns and adaptations will strengthen the communities' engaged participation in research and management processes.

Objectives:

1. Document historical and contemporary salmon fishing methods practiced by subsistence fishers, including how fishers apply their knowledge of fish movements and river morphology to effectively harvest salmon.
2. Document fishers' adaptations to increased restrictions to the subsistence salmon fishing schedule during times of Chinook salmon conservation.
3. Document socioeconomic and cultural impacts to study communities because of restricted subsistence fishing during times of Chinook salmon conservation.

Methods: Researchers will consult with communities prior to and during all phases of the project. Research staff will request guidance from community tribal councils on development of ethnographic

data collection methods and selection of knowledgeable key respondents. Community consultations will also include coordinating with tribal councils and other community members to inform them of study progress and results, and to facilitate communication between communities and fishery management agency staff.

During project fieldwork, key respondent interviews and participant observations will document local and traditional knowledge related to the customary and traditional harvests and uses by residents of the five study communities. Research staff will record interviews digitally, document participant observation activities in detailed written notes, and document geographic locations of salmon harvest areas and other places of significance to salmon fishers and their households. Ethnographic interviews will be analyzed using qualitative data analysis software. Ethnographic fieldwork will produce detailed maps in digital and paper formats. Data from maps produced in the field will be analyzed using ArcGIS software.

The Principal Investigators will write a final technical report of two years of ethnographic data collection and analysis that will be published in the ADF&G Division of Subsistence technical paper series, submitted to OSM on or before June 30, 2024. Copies will be sent to the tribal governments and key respondents. Technical report authors will also write a summary report pamphlet and mail a copy to all post office boxholders in each study community in June 2024.

Partnerships/Capacity Building: Following recommendations of tribal councils, project staff will identify a corps of key respondents in each community. Key respondents will aid in the development of participant-observation objectives. Participant-observation field operations can only be planned and executed with significant guidance from participating key respondents. As such, these key respondents will be active contributors to achievement of study objectives. The purpose of such partnerships will be to engage community members in development of research that is relevant to fishers and their communities. Ethnographic interview and participant-observation key respondents will be compensated for their expertise and contribution to the study.

Project Number:	22-353			
Title:	Natural Indicators of Salmon in the Upper Kuskokwim River			
Geographic Region:	Kuskokwim			
Data Types:	Traditional Ecological Knowledge			
Principal Investigator:	Chris McDevitt, Alaska Department of Fish and Game, Division of Subsistence			
Co-investigator:	Ann Fienup-Riordan, Independent Contractor			
Project Cost:	**2022:** $71,190	**2023:** $55,126	**2024:** $53,739	**2025:** $0
Total Cost:	$180,055			

Issue Addressed: This project seeks to understand the historical abundance, distribution, and health of salmon populations in subsistence fishing communities in the upper Kuskokwim River drainage through the documentation and incorporation of local and traditional ecological knowledge (TEK). Principal Investigators will focus ethnographic research on documenting the use of natural indicators of salmon run characteristics to explore patterns in Chinook, chum, sockeye, and coho salmon runs. For the purposes of this project, natural indicators are defined as empirical observations that correlate with specific ecological phenomena. As such, this proposal addresses one of the research needs described in the Priority Information Needs document for the Kuskokwim River region of the Federal Subsistence Fisheries 2022 Fisheries

Resource Monitoring Program: Traditional Ecological Knowledge of Fishes. Although the upper portion of the Kuskokwim River drainage is situated upriver and outside of the Yukon Delta National Wildlife Refuge (YDNWR) boundary, the salmon harvested for subsistence by upper river communities pass through waters within or adjacent to federal public lands in the lower and middle river. Management decisions made in the lower and middle sections of the river necessarily affect what happens in the upper river; as a result, appropriate and sustainable management by federal and state agencies must attend to the knowledge and experiences of all subsistence fishers.

Objectives:

1. Document local and traditional ecological knowledge of Chinook, chum, sockeye, and coho natural indicators in three upper Kuskokwim River communities: McGrath, Takona, and Nikolai.
2. Map locally significant salmon habitats (migratory routes, spawning, juvenile rearing, etc.), fishing locations, historical and contemporary fish camps, and other areas of ecological importance used in observing the landscape for natural indicators.
3. Promote capacity building among local communities, management agencies, tribal organizations, and nonprofit governmental organizations.

Methods: For each community, researchers will attempt to conduct three to five group gathering discussions over the course of four to six days. Each gathering will include at least four to six respondents who represent a cross-section of the community, including age, gender, and experiential differences. The group gathering protocol will be designed to elucidate natural indicators and other techniques utilized in locally assessing the run itself as well as harvesting or processing salmon during the run. Based on previous participant observation and TEK-based research, these natural indicators may include such variables as the seasonal prevalence of nonsalmon fish species, the timing of waterfowl migration, the emergence of specific species of plants and insects, and the date of river freeze-up in the fall or break-up in the spring.

Researchers will also use visual aids such as maps and pictures of fish species and historical photographs to enhance discussion (e.g., Brown et al. 2005). Researchers will make audio recordings of group gatherings and interviews and take photographs when appropriate and if consent is received from respondents. We will also ask respondents to mark fishing areas or other observations regarding salmon natural indicators on USGS 1:250,000 maps. These maps are critical visual representations of local knowledge possessed within a community or across a region; more than simply mapped representations of utilized areas or significant habitats, these maps represent the on-the-ground connections between individuals and the land that characterize subsistence economies.

Partnerships & Capacity Building: Researchers will work closely with local communities throughout the development, data collection, and analysis stages of this study. Community representatives will be directly involved with the development of an interview guide which will be used to facilitate group gathering discussions. Community representatives will also help determine the specific topics of discussion for group gatherings and will take lead responsibilities in identifying potential key respondents who could participate in the research. In addition, community representatives will help identify local community members who would act as local research assistants (LRAs) alongside Division researchers for the purpose of aiding with the research. Upon completion of data analysis and preliminary report writing, Division research staff will return to each participating upper Kuskokwim River community to present preliminary findings and allow for community comments before submission of the final report. At that time, we will also present the Tribal

Council and key respondents with the GIS-based maps we have generated and describe the results of our research.

Division researchers' direct collaboration with community representatives and local residents will help to establish and/or build upon effective working relationships that are based on trust and mutual understanding. Invaluable information regarding TEK associated with salmon natural indicators will be documented, and this information will be made available to study communities and managers. Documentation of this information will further help to inform management decisions so that management actions reflect and accommodate the realities of salmon fishing in this unique and largely understudied portion of the Kuskokwim River drainage**.**

Project Number:	22-354			
Title:	Community-Based Harvest Monitoring Network for Kuskokwim River Chinook Salmon			
Geographic Region:	Kuskokwim			
Data Types:	Harvest Monitoring			
Principal Investigator:	Kevin Whitworth, Kuskokwim River Inter-Tribal Fish Commission			
Co-investigator:	Dr. Joseph Spaeder, Kuskokwim River Inter-Tribal Fish Commission LaMont Albertson, Kuskokwim River Inter-Tribal Fish Commission Dr. William Bechtol, Bechtol Research Spencer Rearden, U.S. Fish and Wildlife Service Aaron Moses, U.S. Fish and Wildlife Service			
Project Cost:	**2022:** $61,965	**2023:** $63,094	**2024:** $64,263	**2025:** $65,473
Total Cost:	$254,795			

Issue: The subsistence Chinook salmon fishery in the Kuskokwim River drainage is the largest in Alaska, historically producing over 50% of Alaska's annual Chinook salmon subsistence harvests. Historically, approximately 90% or more of all Chinook salmon subsistence harvests from the Kuskokwim River drainage occurred within waters of the Yukon Delta National Wildlife Refuge. Communities in the watershed have a very high long-term traditional subsistence dependence on Chinook salmon. Prior to the prolonged Chinook decline beginning the early 2000's, communities in the Kuskokwim River drainage had an average annual subsistence harvest of 88,500 Chinook salmon for the period 1990-2009. In response to this severe and prolonged decline of Chinook salmon, *a primary subsistence species*, the Federal Subsistence Management Program has limited subsistence harvests for Chinook salmon over the past seven years to Federally qualified users under the provisions of the Alaska National Interest Lands Conservation Act (ANILCA) Section 804. Due to the poor run in 2020, it is anticipated that the fishery will again be restricted to Federally qualified users in 2021 and be placed under the management authority of the Federal designated inseason manager.

Subsistence harvest assessments have historically been based on postseason household surveys, with no availability of reliable inseason harvests prior to 2016. Robust harvest estimates for each opening is critically important given the severe lack of high quality inseason data on run abundance and run timing to guide decision-making by federal managers. Through the delivery of near real-time harvest data from lower river subsistence communities, this project addresses a critical information need and directly

supports federal management of Chinook salmon subsistence fisheries in federal waters of the Kuskokwim River by providing catch and effort data necessary for inseason estimation of subsistence harvests.

In his project addresses the following priority information needs for the Kuskokwim region as identified by the Yukon-Kuskokwim Delta Regional Advisory Council and the Western Interior Regional Advisory Council:

- *Reliable quantitative and/or qualitative estimates of salmon run size, escapement, and harvest in the Kuskokwim River drainage including Kuskokwim Bay tributaries.*
- *New methods for conducting inseason salmon run assessments in the Kuskokwim River drainage, for example community-based harvest monitoring, sonar, and village test fisheries.*
- *Information sharing between stakeholders and agencies concerning salmon conservation in the Kuskokwim river drainage, for example outreach to villages using the media and other methods.*

Additional support for the need for this project is specified in the letter of support, dated March 10, 2021, from the designated Federal inseason manager, YDNWR Refuge Manager, Boyd Blihovde.

Objectives: The overall project goals are to: (1) continue to develop and implement a framework for a community-based harvest monitoring network to inform inseason management with data on abundances, and species compositions and ratios in subsistence harvests; (2) collect age, sex, and length (ASL) data from Chinook salmon harvested in the lower portion of the Kuskokwim River; and (3) contribute to capacity building and data transparency into the future (Figure 4). It is intended that the monitoring network protocols developed over the past four years be continued and refined as needed to continue project success. Project objectives are to:

1. Identify participant villages willing to support community-based monitors in interview sampling.
2. Train village monitors to respectfully conduct harvest interviews.
3. Collect subsistence harvest data from subsistence fishing opportunities during early June to the end of the lower river Chinook salmon run in July, including catch by species and fishing effort.
4. Electronically transfer data within 12 hours of the end of a fishing opportunity for compilation to inform managers regarding run strength and composition.
5. Collect biological data (ASL) from Chinook salmon harvested in subsistence fisheries.
6. Through community monitors, relay information on subsistence fishing opportunities to local community members, and relay local concerns to inseason managers
7. Work with other agency and NGO staff to compile, review, and report on inseason and post-season harvest summaries as collected from this and related projects including aerial surveys.

Methods: This project follows a pilot study in 2017–2020 during which the methods, data collection, and capacity building components were fully implemented and field tested. We propose to hire seven

harvest monitors from 4 lower river communities where we have been implementing the project since 2017: Akiak, Kwethluk, Akiachak, Napaskiak, and Tuntutuliak.

The core data collection involves opportunistic interviews conducted by community monitors of subsistence harvesters after returning from fishing. Interviews are confidential in adherence to the Principles for Conducting Research in the Arctic and follow a set of standardized survey questions with answers recorded on waterproof paper. Interview data include aspects such as: date and time trip started and ended, general fishing area, gear used, time with net in the water, catch by species, and comments for managers. Data are uploaded via smart phone app to a data coordinator for quality control before being transferred to a USFWS biometrician who compares interview data, along with data from ONC interviewers in the Bethel area, to aerial survey observations of fishing nets in order to appropriately expand interview catch and effort. Interviewers will also opportunistically sample Chinook salmon for age, sex, and length (ASL) data.

Partnerships/Capacity Building: This project is strongly linked to rural villages on the Kuskokwim River. During its initial pilot project phase over the past four years, this project has made significant direct contributions to capacity building through hiring, training, and mentoring of young village residents working in fisheries monitoring. Through this project, we will build on these early contributions in a number of ways. Prior to the Chinook salmon return, local residents will be hired as community-based monitors to conduct harvest interviews and collect biological data. After individual monitors are identified, hiring protocols are implemented and monitors brought to Bethel for training involving USFWS, ADF&G, KRITFC, BSFA, and ONC. This includes training and practice with the survey instrument, data transfer by cell phone app, and collection and transfer of ASL data. Monitors will be guided in how to serve as information conduits to relay information on upcoming subsistence opportunities, and to relay concerns of village members to managers. Through this process, we aim to inspire and help equip these young people to further explore careers in fisheries research and monitoring.

FISHERIES RESOURCE MONITORING PROGRAM
YUKON REGION OVERVIEW

Since the inception of the Monitoring Program in 2000, a total of 126 projects have been undertaken in the Yukon Region costing $25 million (**Figure 1**). Of these, the State of Alaska received funds to conduct 30 projects, Alaska rural organizations conducted 21 projects, the Department of the Interior conducted 53 projects, and other organizations conducted 22 projects (**Figure 2**). See **Appendix 1** for more information on Yukon Region projects completed since 2000.

Figure 1. Monitoring Program Funds Distributed, by Organization Type, in the Yukon Region since 2000

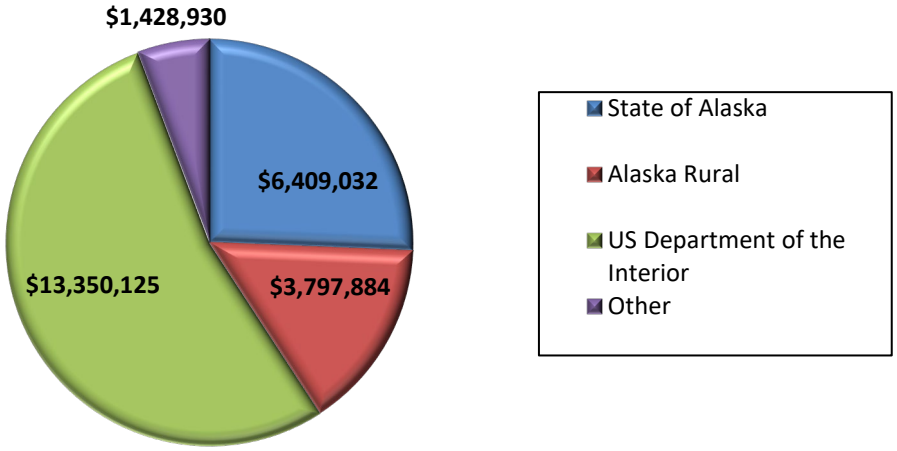
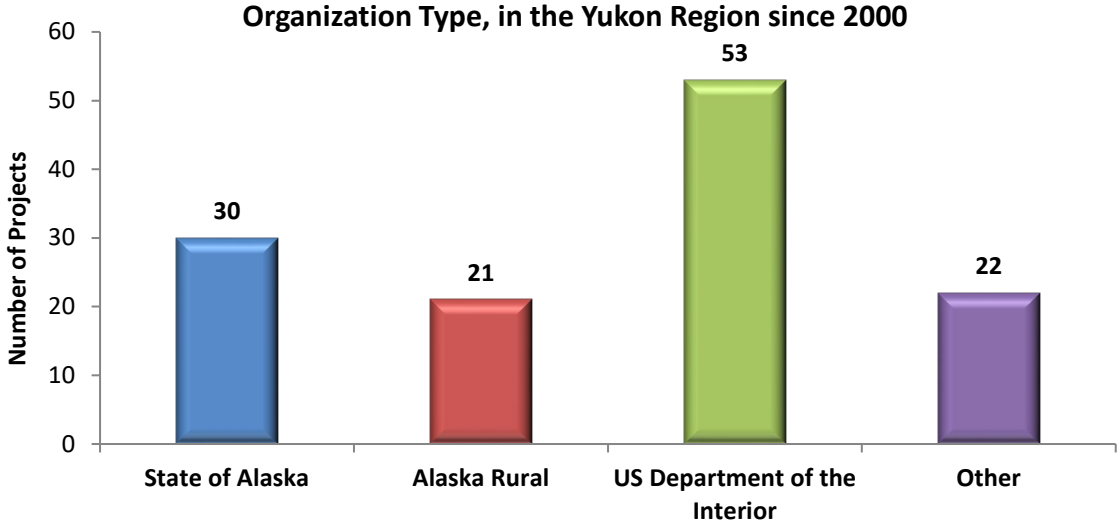


Figure 2. Number of Monitoring Program Projects Funded, by Organization Type, in the Yukon Region since 2000



PRIORITY INFORMATION NEEDS

The 2022 Notice of Funding Opportunity for the Yukon Region identified the following 13 priority information needs:

- Impacts of climate change in continued harvest and use of fish; and impacts of climate change on fish, for example, impacts to fish migration, spawning, and life cycle.
- Effects of environmental stressors, such as heat stress, on salmon mortality during adult upriver migration and/or pre-spawn mortality within spawning tributaries.
- Effects of Ichthyophonus infection on Chinook Salmon mortality and spawning success.
- Knowledge of population, reproduction, and health of spawning habitat for Bering Cisco and Humpback Whitefish.
- Reliable estimates of Chinook, Summer Chum, Fall Chum, and Coho Salmon escapements and/or harvests, particularly sub-stocks in District 5 that are large contributors to the total run, for example in the Chandalar and Sheenjek Rivers.
- Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Yukon River drainage.
- Estimates of "quality of escapement" measures for Chinook Salmon, for example, potential egg deposition, age, sex, and size composition of spawners, percentage of females, percentage of jacks, and spawning habitat utilization, with an emphasis on Canadian-origin stocks.
- Reliable in-season estimates of salmon harvests in the lower, middle, and upper Yukon River subsistence fisheries.
- Reliable estimates of age-sex-length and genetic composition of salmon harvested in the subsistence fishery, with emphasis on Chinook and Fall Chum Salmon.
- In-season estimates of genetic stock composition of Chinook, Summer Chum, and Fall Chum Salmon runs and harvests.
- Reliable methods of forecasting Chinook, Summer Chum, Fall Chum, and Coho Salmon run abundance.
- Assessment of incidental mortality with gillnets, dip nets, and seines, with particular consideration for delayed mortality from entanglement from drop-outs and live release of Chinook Salmon (for example, loss of Chinook Salmon from 6-inch mesh nets during Chum Salmon fisheries and the live release of Chinook Salmon from dip nets and seines).
- Traditional ecological knowledge of fishes.

AVAILABLE FUNDS

Federal Subsistence Board guidelines direct initial distribution of funds among regions. Regional budget guidelines provide an initial target for planning. For 2022, the U.S. Department of the Interior and U.S. Department of Agriculture, through the U.S. Fish and Wildlife Service and the U.S. Forest Service, will provide an anticipated $2.25 million in funding statewide for new projects.

ROLE OF THE TECHNICAL REVIEW COMMITTEE

The mission of the Monitoring Program is to identify and provide information needed to sustain subsistence fisheries on Federal public lands for rural Alaskans through a multidisciplinary and collaborative program. It is the responsibility of the Technical Review Committee to develop the strongest possible Monitoring Plan for each region and across the entire state.

For the 2022 Monitoring Program, seven proposals were submitted for the Yukon Region. The Technical Review Committee evaluated and scored each proposal on Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit (**Table 1**). These scores remain confidential. An executive summary for each proposal submitted to the 2022 Monitoring Program for the Yukon Region is in **Appendix 2**.

Table 1. Projects submitted for the Yukon Region, 2022 Monitoring Program, including total funds requested and average annual funding requests.

Project Number	Title	Total Project Request	Average Annual Request
22-201	East Fork Andreafsky River Weir Chinook and Summer Chum Salmon Abundance and Run Timing Assessment	$701,347	$175,336
22-202	Gisasa River Weir Chinook and Summer Chum Salmon Abundance and Run Timing Assessment	$342,652	$171,826
22-203	Outmigrating Chinook Salmon and Prey Species Assessment in the Lower Yukon River	$304,642	$152,321
22-204	Western Alaska Coho Salmon Genetic Baseline Development	$116,782	$58,491
22-251	Presence and Use of Salmon in the Pastolik and Pastoliak Rivers	$204,603	$102,301
22-252	Humpback Whitefish and other Nonsalmon Fishes Traditional Ecological Knowledge and Biological Sampling in the Upper Koyukuk Region	$231,952	$115,976
22-253	Yukon River Nonsalmon Subsistence Survey	$219,342	$54,835
Total		**$2,121,320**	**$796,986**

TECHNICAL REVIEW COMMITTEE JUSTIFICATION FOR PROPOSAL SCORES

Project Number: 22-201
Project Title: East Fork Andreafsky River Weir Chinook and Summer Chum Salmon Abundance and Run Timing

Technical Review Committee Justification: The investigation plan outlines the continuation of a successfully implemented project that uses weir and video technology to collect fish passage counts and estimate annual escapement for Chinook and summer Chum salmon in the East Fork Andreafsky River. The Federal nexus is clear and this project addresses a 2022 Priority Information Need for the Yukon Region. Escapement estimates from this project are used in run reconstructions and forecasts, and to inform in-season management decisions and post-season evaluations. While this project provides important data and is technically sound, the investigation plan did not outline any meaningful consultations with local communities or provide examples of long-term capacity building. However, a letter of support was received from St. Mary's Native Corporation. Letters of support were also received from the Alaska Department of Fish and Game (Division of Commercial Fisheries), University of Alaska Fairbanks (Institute of Arctic Biology), and Yukon Delta National Wildlife Refuge. Four years of funding are requested to complete the proposed work and matching funds will be provided to offset project costs. Project costs are comparable to other weirs in the region and are reasonable for the proposed work.

Project Number: 22-202
Project Title: Gisasa River Weir Chinook and Summer Chum Salmon Abundance and Run Timing Assessment

Technical Review Committee Justification: The Gisasa River weir is an established monitoring project that has operated since 1994 and has been funded by the Monitoring Program since 2003. The Federal nexus is clear and this project addresses multiple 2022 Priority Information Needs for the Yukon Region. The methods used in this project have consistently achieved results and the investigators have the experience needed to conduct this research. Data collected by this project are used to inform in-season management decisions and produce annual escapement estimates, assess in-season management actions, and develop run reconstructions for the Yukon River basin. The previous relationship between the Fairbanks Fish and Wildlife Conservation Office and the Tanana Chiefs Conference will be expanded in order for the Tanana Chiefs Conference to build the capacity needed to serve as the principal investigator after the 2023 season. Matching funds will be provided to offset project costs and the funds requested to complete this project are comparable to other weirs in the region and are reasonable for the proposed work. This project received letters of support from the Koyukuk/Nowitna/Innoko National Wildlife Refuges, Tanana Chiefs Conference, and University of Alaska Fairbanks.

Project Number: 22-203
Project Title: Outmigrating Chinook Salmon and Prey Species Assessment in the Lower Yukon River

Technical Review Committee Justification: The investigation plan requests two years of funding to evaluate the composition, spatial variation, and temporal variation in fish and invertebrate prey for juvenile Chinook Salmon, and assess the quality of prey resources in relation to juvenile Chinook Salmon condition in the Yukon Delta. The investigation plan does not clearly articulate its relevance to Federal subsistence management but this project does address a 2022 Priority Information Need for the Yukon

Region. This study may shed light on juvenile Chinook Salmon survival by identifying factors contributing to variation in individual size and energetic status just prior to transitioning to the marine phase of their life history. Study objectives are clear and measurable but it is difficult to determine if they are achievable due to methods and procedures that are not described in sufficient detail. This project would continue a multi-year history of research and engagement with the residents of the lower Yukon River. Local capacity will be built by presenting information about juvenile fish to science classes in Emmonak and Alakanuk. The investigation plan mentions that the Yukon Delta Fisheries Development Association intends on hosting an Alaska Native Science and Engineering Program intern. However, a letter of recommendation was not received from the Alaska Native Science and Engineering Program and salary/scholarship information was not included in the Budget Table. While this project leverages substantial contributions from the Yukon Delta Fisheries Development Association for field sample collections, more detail is needed for DNA analyses that make up a large proportion of the requested funds. No letters of support were received for this project.

Project Number: 22-204
Project Title: Western Alaska Coho Salmon Genetic Baseline Development

Technical Review Committee Justification: The primary goal of this proposal is to develop a high-resolution genetic baseline for Yukon River and Coastal Western Alaska Coho Salmon populations. Currently, during years where Chinook and Chum salmon abundance are low, subsistence harvests are beginning to increase on other species such as Coho Salmon. This proposed work is timely to help inform in-season managers to give them an additional information to assess forecasted run strength. This proposed work, would provide the needed genetic baseline to someday begin the development of a juvenile-based run assessment to forecast adult returns of Coho Salmon in the Yukon River. Alaska Department of Fish and Game have already collected the necessary tissue samples needed across 18 Federal public lands and waters, which includes 43 spawning sites. Once completed, this newly developed genetic baseline will enhance mixed-stock assessments across Western Alaska for various fisheries stakeholders.

Project Number: 22-251
Project Title: Presence and Use of Salmon in the Pastolik and Pastoliak Rivers

Technical Review Committee Justification: Investigators responded to two Priority Information Needs identified in the 2022 Notice of Funding Opportunity. The project is within the Yukon Delta National Wildlife Refuge. The Federal nexus is clear. Objectives are clearly stated and the investigation plan is well-written. Investigators appear qualified to do the work, and the budget is reasonable for the work being proposed. Results from this research will contribute to two long-term data sets. Investigators say they will work with three local Tribal governments in Kotlik through a cooperative agreement to provide logistical help; however, funding was not provided in the budget for these tasks. Local hires to assist with field work are planned. Four letters supporting this project were provided.

Project Number: 22-252
Project Title: Humpback Whitefish and Other Nonsalmon Fishes Traditional Ecological Knowledge and Biological Sampling in the Upper Koyukuk Region

Technical Review Committee Justification: Investigators responded to three Priority Information Needs identified in the 2022 Notice of Funding Opportunity and in other ways make a good case for the need for this research. The project area is most closely associated with the Kanuti National Wildlife Refuge. The Federal nexus is clear. Investigators intend a strong partnership with Tanana Chiefs Conference. The investigation plan is well-written including extensive background information and inventory of previous research conducted on this topic in this area. Investigators describe a well thought out, collaborative and interdisciplinary study plan. Two letters of support were provided.

Project Number: 22-253
Project Title: Yukon River Nonsalmon Fish Harvest Survey

Technical Review Committee Justification: This project is attempting to addresses two priority information needs identified in the 2022 Notice of Funding Opportunity. Research funded by the Monitoring Program to identify information needed for whitefish includes collection of high-quality annual harvest estimates as well as traditional ecology knowledge. In contrast, the focus of this project is harvest monitoring, which is not an identified priority information need in either document. Project objectives and plans to achieve those objectives need more work. Study communities have not been chosen. Some budgeted costs appear to duplicate those in another Monitoring Program project implemented by this organization. Five letters of support were provided.

APPENDIX 1
PROJECTS FUNDED IN THE YUKON REGION SINCE 2000

Project Number	Project Title	Investigators
	Salmon Projects	
00-003	Effects of *Ichthyophonus* on Chinook Salmon	UW
00-005	Tanana Upper Kantishna River Fish Wheel	NPS
00-018	Pilot Station Sonar Upgrade	ADF&G
00-022	Hooper Bay Test Fishing	ADF&G, NVHB
00-024	Pilot Station Sonar Technician Support	AVCP
00-025	Henshaw Creek Salmon Weir	USFWS
00-026	Circle and Eagle Salmon and Other Fish TEK	NVE
01-014	Yukon River Salmon Management Teleconferences	YRDFA
01-015	Yukon River Salmon TEK	YRDFA
01-018	Pilot Station Sonar Technician Support	AVCP
01-026	East Fork Andreafski River Salmon Weir	BSFA
01-029	Nulato River Salmon Weir	BSFA
01-032	Rampart Rapids Tagging Study	USFWS
01-038	Kateel River Salmon Weir	USFWS
01-048	Innoko River Drainage Weir Survey	USFWS
01-050	Kaltag Chinook Salmon Age-Sex-Length Sampling	COK

Project Number	Project Title	Investigators
01-058	East Fork Andreafsky Weir Panel Replacement	USFWS
01-122	Lower Yukon River Salmon Drift Test Fishing	ADF&G, EMV
01-141	Holitna River Chinook, Chum and Coho Telemetry	ADF&G
01-177	Rampart Rapids Extension	USFWS
01-197	Rampart Rapids Summer CPUE Video	SZ
01-199	Tanana Fisheries Conservation Outreach	TTC
01-200	Effects of Ichthyophonus on Chinook Salmon	USGS
01-211	Upper Yukon, Porcupine, & Black River Salmon TEK	CATG
02-009	Pilot Station Sonar Technician Support	AVCP
02-011	Rampart Rapids Fall Chum Handling/mortality	USFWS
02-097	Kuskokwim & Yukon Rivers Sex-ratios of Juvenile & Adult Chinook	USFWS
02-121	Yukon River Chinook Salmon Genetics	USFWS, ADF&G, DFO
02-122	Yukon River Chinook & Chum Salmon In-season Subsistence	USFWS
03-009	Tozitna River Salmon Weir	BLM
03-013	Gisasa River Salmon Weir	USFWS
03-015	Phenotypic Characterization of Chinook Salmon Subsistence Harvests	YRDFA, USFWS
03-034	East Fork Andreafsky River Salmon Weir	USFWS
03-038	Yukon River Sub-district 5-A Test Fishwheel	BF
04-206	Tozitna River Salmon Weir	BLM
04-208	East Fork Andreafsky River Salmon Weir	USFWS
04-209	Gisasa River Salmon Weir	USFWS
04-211	Henshaw Creek Salmon Weir	USFWS
04-217	Rampart Rapids Fall Chum Salmon Abundance	USFWS
04-228	Yukon River Chum Salmon Genetic Stock Identification	USFWS
04-229	Lower Yukon River Salmon Drift Test Fishing	ADF&G
04-231	Yukon River Chinook Salmon Telemetry	ADF&G
04-234	Kaltag Chinook Salmon Age-Sex-Length Sampling	COK
04-251	Fort Yukon Traditional Ecological Knowledge Camp	TCC,CATG, ADF&G
04-255	Yukon River Salmon Fishery Traditional Ecological Knowledge	NPS
04-256	Tanana Conservation Outreach	TTC, USFWS
04-263	Yukon River Salmon Management Teleconferences	YRDFA
04-265	Yukon River TEK of Customary Trade of Subsistence Fish	YRDFA
04-268	Hooper Bay Subsistence Monitoring	ADF&G, HBTC
05-203	Yukon River Coho Salmon Genetics	USFWS
05-208	Anvik River Salmon Sonar Enumeration	ADF&G
05-210	Tanana River Fall Chum Salmon Abundance	ADF&G
05-211	Henshaw Creek Salmon Weir	TCC, USFWS
05-254	Yukon River Salmon Inseason Subsistence Harvest Monitoring	USFWS
06-205	Yukon River Chum Salmon Mixed Stock Analysis	USFWS
07-202	East Fork Andreafsky River Salmon Weir	USFWS

Project Number	Project Title	Investigators
07-204	Lower Yukon River Salmon Drift Test Fishing	ADF&G
07-207	Gisasa River Salmon Weir	USFWS
07-208	Tozitna River Salmon Weir	BLM
07-209	Yukon River Salmon Management Teleconferences	YRDFA
07-210	Validation of DNA Gender Test Chinook Salmon	USFWS
07-211	Kaltag Chinook Salmon Age-Sex-Length Sampling	COK
07-253	Yukon River Salmon Harvest Patterns	RWA, AC
08-200	Kaltag Chinook Salmon Age-Sex-Length Sampling	COK
08-201	Henshaw Creek Salmon Weir	TCC
08-202	Anvik River Chum Salmon Sonar Enumeration	ADF&G
08-253	Yukon River Teleconferences and Inseason Management	YRDFA
10-200	Yukon River Chinook Salmon Run Reconstruction	BUE
10-205	Yukon River Chum Salmon Mixed-stock Analysis	USFWS
10-206	Nulato River Salmon Assessment	TCC
10-207	Gisasa River Chinook and Summer Chum Salmon Assessment	USFWS
12-202	Henshaw Creek Abundance and run timing of adult salmon	TCC
12-204	Anvik River Sonar Project	ADF&G
12-205	Kaltag Chinook Salmon Sampling Project	KAL
12-251	In-season Salmon Teleconferences and Interviews	YRDFA
14-201	Gisasa R Salmon Video	USFWS
14-202	E Fork Andreafsky Salmon	USFWS
14-203	Gisasa R Salmon	USFWS
14-206	Yukon R Coho Salmon	USFWS
14-207	Yukon R Chum Salmon	USFWS
14-208	Koyukuk R Chum Salmon	USFWS
14-209	Henshaw Crk Salmon	TCC
16-204	Henshaw Creek Abundance and run timing of adult salmon.	TCC
16-251	Seasonal habitats, migratory timing and spawning populations of mainstem Yukon River Burbot	ADF&G
16-255	Yukon River In-Season Community Surveyor Program	YRDFA, USFWS
16-256	In Season Salmon Management Teleconferences	YRDFA
18-201	East Fork Andreafsky River Chinook and summer Chum Salmon abundance and run timing, Yukon Deltan National Wildlife Refuge	USFWS
18-202	Gisasa River Chinook and summer Chum Salmon abundance and run timing assessment, Koyukuk National Wildlife Refuge, Alaska	USFWS
18-250	Documentation of salmon spawning and rearing in the Upper Tanana River Drainage	ADF&G
18-251	Traditional knowledge of anadromous fish in the Yukon Flats with a focus on the Draanjik Basin	TCC
18-252	Subsistence salmon networks in Yukon River communities	ADF&G
20-200	Yukon River Coho Salmon Radio Telemetry	ADF&G, USFWS
20-201	Application of mixed-stock analysis for Yukon River chum salmon	USFWS

Project Number	Project Title	Investigators
20-204	Abundance and Run Timing of Adult Salmon in Henshaw Creek, Kanuti National Wildlife Refuge, Alaska	TCC
20-251	In-season Yukon River Subsistence Salmon Survey Program	YRDFA, USFWS
20-252	Customary Trade in the Lower and Middle Yukon River	ADF&G
20-256	Yukon River In-Season Salmon Management Teleconferences	YRDFA
	Nonsalmon Fish Projects	
00-004	Humpback Whitefish/Beaver Interactions	USFWS, CATG
00-006	Traditional Ecological Knowledge Beaver/Whitefish Interactions	ADF&G, CATG
00-021	Dall River Northern Pike	ADF&G, SV
00-023	Upper Tanana River Humpback Whitefish	USFWS
01-003	Old John Lake TEK of Subsistence Harvests and Fish	ADF&G, AV, USFWS
01-011	Arctic Village Freshwater Fish Subsistence Survey	ADF&G, AV, USFWS
01-100	Koyukuk Non-salmon Fish TEK and Subsistence Uses	ADF&G, TCC
01-140	Yukon Flats Northern Pike	ADF&G, SV
01-238	GASH Working Group	USFWS
02-006	Arctic Village Freshwater Fish Subsistence	ADF&G, NVV
02-037	Lower Yukon River Non-salmon Harvest Monitoring	ADF&G, TCC
02-084	Old John Lake Oral History and TEK of Subsistence	USFWS, AV, ADF&G
04-253	Upper Tanana Subsistence Fisheries Traditional Ecological Knowledge	USFWS,UAF, ADF&G
04-269	Kanuti NWR Whitefish TEK and Radio Telemetry	USFWS, RN
06-252	Yukon Flats Non-salmon Traditional Ecological Knowledge	ADF&G, BLM, USFWS, CATG
06-253	Middle Yukon River Non-salmon TEK and Harvest	ADF&G, LTC
07-206	Innoko River Inconnu Radio Telemetry	USFWS, ADF&G
08-206	Yukon and Kuskokwim Coregonid Strategic Plan	USFWS, ADF&G
08-250	Use of Subsistence Fish to Feed Sled Dogs	RN, AC
10-209	Yukon Delta Bering Cisco Mixed-stock Analysis	USFWS
10-250	Yukon Climate Change Impacts on Subsistence Fisheries	RN
12-200	Alatna River Inconnu Population Structure	USFWS
12-207	Yukon Bering Cisco Spawning Origins Telemetry	USFWS
14-252	Lower Yukon Whitefish	ADF&G
14-253	Upper Yukon Customary Trade	YRDFA
16-203	Bering Cisco Spawning Abundance in the Upper Yukon Flats, 2016-2017	ADF&G, USFWS
16-205	Burbot Population Assessments in lakes of the Upper Tanana and Upper Yukon River Drainages	NPS
20-202	Evaluating dart and telemetry tags in an effort to track run timing and migration patterns of Yukon River Arctic lamprey	USFWS, UAF, ADF&G

Abbreviations: AC = Alaskan Connections, ADF&G = Alaska Department of Fish and Game, AVCP = Association of Village Council Presidents, AV = Arctic Village, BF = Bill Fliris, BUE = Bue Consulting, BLM = Bureau of Land Management, BSFA = Bering Sea Fisherman's Association, CATG = Council of Athabascan Tribal Governments, COK = City of Kaltag, DFO = Department of Fisheries and Oceans, EMV = Emmonak Village Council, KAL = City of Kaltag, NPS = National Park Service, LTC = Louden Tribal Council, NVE = Native Village of Eagle, NVHB = Native Village of Hooper Bay, NVV = Native Village of Venetie, RN = Research North, RW = Robert Wolfe and Associations, SVNRC = Stevens Village, SZ=Stan Zuray, TCC = Tanana Chiefs Conference, TTC = Tanana Tribal Council,

UAF = University of Alaska Fairbanks, USFWS = U.S. Fish and Wildlife Service, USGS = U.S. Geological Survey, UW = University of Washington, and YRDFA = Yukon River Drainage Fisheries Association.

APPENDIX 2
EXECUTIVE SUMMARIES

The following executive summaries were written by principal investigators and were submitted to the Office of Subsistence Management as part of proposal packages. They may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. Executive summaries may have been altered for length.

Project Number:	22-201			
Title:	East Fork Andreafsky River Chinook and summer Chum Salmon abundance and run timing, Yukon Delta National Wildlife Refuge, Alaska			
Geographic Region:	Yukon			
Data Types:	Stock Status and Trends			
Principal Investigator:	Jeff Melegari, U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Conservation Office			
Co-investigator:	None			
Project Cost:	**2022:** $162,978	**2023:** $182,274	**2024:** $174,915	**2025:** $181,180
Total Cost:	$701,347			

Issue: The Alaska National Interest Lands Conservation Act (ANILCA) specifies that salmon populations in federal conservation units are to be managed to conserve natural diversity, fulfill international treaty obligations, and maintain a priority for subsistence harvest opportunities. Run sizes and production rates in Yukon Chinook and Chum salmon populations have been lower than expected in a number of years over the recent two decades.

The primary function of the East Fork Andreafsky River weir project is to collect fish passage counts and estimate annual escapement for Chinook and summer Chum salmon in this tributary. Estimates of age, sex, size composition of these escapements are also provided by the project. The Andreafsky River is the lowest major salmon producing tributary in the Yukon river drainage and contributes a major proportion of lower Yukon River Chinook and summer Chum salmon stocks. Salmon escapement data from East Fork Andreafsky River provide a valuable early indicator of run strength and timing to fishery managers. In addition, these escapement estimates are the only measure of salmon abundance below the Pilot Station sonar and fill a critical gap in data needed for estimating total Chinook and summer Chum salmon run sizes for the Yukon River. The estimates are necessary to evaluate Chinook and summer Chum salmon escapement goals established by the Alaska Department of Fish and Game (ADF&G) and are an essential component of drainagewide run reconstructions and forecasts.

The Andreafsky River is the first major tributary encountered by salmon migrating up the Yukon River. Salmon fisheries below that point encounter essentially all the Yukon River salmon stocks as they migrate through the area. All communities in the lower Yukon area depend on reliable, large salmon harvests for

sustenance in this remote area, where the costs of imported fuel and groceries are exorbitant and supplies of fresh, healthful foods are limited. Recent Chinook and summer Chum salmon harvests in this area have been lower than historic averages; Chinook Salmon subsistence harvests have been among the lowest on record. The Pilot Station sonar project, situated about 30 rkm upriver from the Andreafsky River confluence, and which provides estimates of total salmon run sizes of all species at that point in the river, does not include the Andreafsky River salmon stocks. Andreafsky River Chinook and summer Chum salmon stocks are not represented in mixed-stock samples collected at the sonar project site for genetic analysis of the Chinook and Chum salmon runs. This underscores the importance of the East Fork Andreafsky weir project in assessing the status of salmon runs which are not represented in other run size and stock group estimates.

A recent review of long-term project data indicated that East Fork Andreafsky Chinook and summer Chum salmon escapements have remained stable over the lifetime of the project, as has run timing for both species. This stability indicates resilience in the East Fork Andreafsky River salmon populations to both environmental change and fishing. The long-term data record will be valuable for future assessments in the face of more severe climate change effects, major ocean ecosystem shifts, and freshwater warming. Recent heat stress studies show that East Fork Andreafsky River weir project is taking on a new dimension of importance in conservation in the era of accelerating anthropogenic climate change.

Objectives

1. Estimate daily and seasonal escapement and run timing of adult Chinook and summer Chum salmon (target species) between the third week of June and the end of July.
2. Estimate the age, sex, and length (ASL) composition of the adult Chinook and summer Chum salmon escapements, for which the 95% confidence intervals of age-sex proportions are no larger than ± 0.1.
3. Identify and count other fish species passing through the weir daily (recognizing that for most species, these will be partial counts).
4. Record species, ASL information, and spawning condition for all Chinook and summer Chum salmon carcasses, and species, sex, and spawning condition for Sockeye and Coho salmon carcasses, found during daily checks on the upstream side of the weir and along both banks.
5. Measure and record water level and temperature at the fish passage chute every 4 hours, and record air temperature and other weather data at least twice daily.

Methods: The project will use same weir design and structure used in previous years. New floating weir panels were constructed and installed in 2019. The main fish passage chute is located at the deepest part of the channel and leads into a sampling trap and then a video chute, which is fitted with a glass view window and underwater video camera. The weir and video system will be operated 24 hours a day starting June 16 and continuing until the end of July. Statistical methods will be used to estimate probable passage of Chinook and summer Chum salmon after the last day of weir operation. Data and scale samples will be collected from Chinook and summer Chum salmon escapements to characterize their age, sex, and length (ASL) composition. The sample size goal for each species (Chinook and summer Chum salmon) is 220–240 fish for the season. Sampling will be suspended if water temperatures exceed specific thresholds for physiological stress in salmon. The crew will collect ASL samples and check carcasses of heat-stressed salmon near the weir for spawning condition, and log water depth and

temperature and air temperature using automated data loggers and backup manual measurements. Daily fish counts and other data will be reported to the FFWCO for distribution to managers, biologists, and stakeholders in the morning following each 24-hour day. ADF&G will analyze scales for age determination. Annual performance reports will be submitted, and project results will be published each year in the USFWS Alaska Fishery Data Series.

Partnerships/Capacity Building

Yupiit of Andreafskii (a Tribal organization in St. Mary's), Nerklikmute Corporation (a local Alaska Native organization in St. Mary's), and the City of St. Mary's have an ongoing association with the project, through hiring local crew members, leasing land for the project camp site to the USFWS, and providing services in St. Mary's. FFWCO will also continue as in recent years to contract with St. Mary's Native Corporation/SMNC Properties LLC for logistical support and services using local crews. These Tribal and local organizations have built working relationships with FFWCO staff over many years. Furthermore, residents of St. Mary's devote substantial time, expertise, and traditional knowledge, to federal, state, and international fish and wildlife regulatory processes. They hold seats on state and federal Advisory Councils, the Yukon River Panel, and the board of directors of the Yukon River Drainage Fisheries Association. In these capacities they discuss and make decisions about various research and stock assessment projects, including the East Fork Andreafsky River weir, and engage in ongoing conversations about their observations and traditional knowledge of salmon runs with agency staff.

Project Number:	22-202			
Title:	Gisasa River Chinook and summer Chum Salmon abundance and run timing assessment, Koyukuk National Wildlife Refuge, Alaska			
Geographic Region:	Yukon			
Data Types:	Stock Status and Trends			
Principal Investigator:	Jeremy Carlson, U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Field Office			
Co-investigator:	Jeff Melegari, U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Field Office; Robert Eric Rowe, Tanana Chiefs Conference			
Project Cost:	**2022:** $168,695	**2023:** $174,957	**2024:** $0	**2025:** $0
Total Cost:	$343,652			

Issue: Through Section 302 of the Alaska National Interest Lands Conservation Act, the USFWS has a responsibility to ensure that salmon populations within federal conservation units are conserved in their natural diversity, that international treaty agreements are met, and subsistence opportunities are maintained. The Gisasa River provides important spawning and rearing habitat for Chinook and summer Chum salmon that contribute to complex Yukon River mixed stock subsistence and commercial fisheries. The Gisasa River weir is currently one of only two projects within the Koyukuk River drainage that provide in-season run information. The data is utilized postseason to produce an annual estimate of escapement and assess the success of management actions in-season. These data will also help evaluate long-term trends in species abundance and age, sex, and length composition.

Objectives:

1. Use video weir technology to enumerate daily passage of all fish species and forward this data on to managers and users daily.
2. Estimate seasonal escapement of adult Chinook Salmon and summer Chum Salmon using Sethi and Bradley (2016) model, as needed, and characterize their run timing.
3. Estimate the age, sex, and length (ASL) composition of the adult Chinook and summer Chum salmon escapements, for which the 95% confidence intervals of age-sex proportions are no larger than ± 0.1.
4. Work with Tanana Chiefs Conference (TCC), as the Tribal Organization for the region, to transition operation of the project from USFWS staff to TCC.

Methods: A resistance board weir will be installed and operated on the Gisasa River from mid-June through early to mid-August during each year. A trap equipped with a video counting chute will allow all fish passing through the weir to be identified to species and counted. Count data will be provided to managers and other interested parties daily. Age (scales), sex, and length data will be collected from Chinook, and Chum salmon. Scales will be sent to Alaska Department of Fish and Game for aging. Personnel from TCC will participate in all aspects of the project to build the capacity to assume the role of principle investigator

Partnerships/Capacity Building: Project staff have worked with staff from Tanana Chiefs Conference's (TCC) Henshaw River Weir, the other Koyukuk River monitoring project, to share knowledge, methods, and labor for weir setup. This cooperation with TCC will be expanded upon by working closely with TCC during both years of this project to familiarize them with all aspects of the project and help them build the capacity to take over as the principle investigator after the 2023 season. The FFWCO has strived for local involvement and capacity building with the project and is committed to continually promoting capacity building by describing project opportunities at RAC, YRDFA, and Refuge coordination meetings. The FFWCO has also worked with Koyukuk National Wildlife Refuge to provide field work experience for Alaska Native Science & Engineering Program students and local hires from the Refuge.

Project Number:	22-203			
Title:	Combining molecular and traditional methods to assess prey availability, prey quality, and diets in relation to size and condition of outmigrating Chinook smolts in the lower Yukon River			
Geographic Region:	Yukon			
Data Types:	Stock Status and Trends			
Principal Investigator:	Courtney Weiss, Yukon Delta Fisheries Development Association			
Co-investigator:	Daniel Bogan, Alaska Center for Conservation Science, University of Alaska Anchorage; Rebecca Shaftel, Alaska Center for Conservation Science, University of Alaska Anchorage; Katharine Miller, National Marine Fisheries Service; Ragnar Alstrom, Yukon Delta Fisheries Development Association			
Project Cost:	**2022:** $165,838	**2023:** $138,804	**2024:** $0	**2025:** $0
Total Cost:	$304,642			

Issue: The proposed research addresses *Yukon Region 2022 Priority Information Need: Distribution, abundance, condition, and survival of juvenile and out-migrating salmon in the Yukon River drainage.*

This research will evaluate the composition, spatial variation, and temporal variation in fish and invertebrate prey for juvenile Chinook salmon in distributary habitats, and assess the quality of prey resources in relation to juvenile Chinook salmon growth and condition. Juvenile salmon migration timing has evolved in response to seasonal patterns in prey availability. To optimize growth, juvenile salmon must be capable of rapidly capitalizing on short-lived episodes ('resource pulses') of high prey availability in order to amass energy stores prior to the stressful parr-smolt transformation. Several studies indicate that juvenile growth in freshwater may influence survival during marine entry and early marine life stages, and that the quality and quantity of prey resources available during outmigration and early marine residence are crucial factors for juvenile salmon growth and survival.

The Yukon River is experiencing rapid climatic changes that are evidenced in warmer water temperatures, decreased ice periods, and reduced ice thickness. Since 2015, water temperatures in the lower Yukon River have consistently exceeded the long-term average. Less predictable inter-annual variability in environmental conditions can lead to temporal mismatches between juvenile salmon and pulsed prey resources in certain years. Such mismatches could lead to high mortality if pulses are missed during critical times for feeding.

Recent advances in the use of DNA-based diet determination provide an additional tool for accurate diet analysis. DNA-based methods can identify prey regardless of the degree of digestion. When standard morphological content analysis and DNA-based methods are combined, they can provide greater resolution of diet and trophic interactions than when either method is used in isolation. This research proposes to evaluate how seasonal patterns in resource availability interact with inter-annual environmental variation to influence the growth and energetic status of outmigrating Chinook salmon. We propose to conduct two years of prey field sampling and DNA-analysis of stomach samples. Prey field data will be compared with existing data from a pilot study of prey dynamics in 2016. Combining all three years of data will increase our understanding of mechanisms by which seasonal patterns in prey availability affect Chinook salmon growth and by extension survival rates.

Objectives:

1) Characterize changes in diet composition of juvenile Chinook salmon in the Yukon Delta over the duration of the outmigration season using an integrative approach.

2) Characterize changes in the composition and quality (lipid content) of prey available to, and changes in prey selection by, juvenile Chinook salmon across the outmigration season and across years

3) Relate inter-annual environmental variation to among-year differences in lipid availability (prey) and among-year differences in size and condition of juvenile Chinook salmon

Methods: Chinook salmon and weekly prey field samples will be collected using other funding. Diet analysis of individual Chinook will be assessed by xcising the stomachs from frozen samples and weighing and identifying stomach contents under a microscope to the lowest taxonomic level feasible. Each taxa or prey group will be measured and enumerated, and the percent prey weight composition will be summarized. DNA samples will be extracted from the stomach contents and processed in a commercial laboratory. Drift samples will be processed by trained taxonomists at UAA's Alaska Center for Conservation Science aquatic ecology lab. Published length-weight regressions will be used to estimate biomass for all major prey taxa. Flow volume (measured during field sampling; described previously) will be multiplied by surface area to estimate water volume sampled; this estimate will be combined with biomass estimates to produce estimates of drift prey densities by taxa. Non-parametric analysis (i.e.,

PERMANOVA, MDS) will be used to investigate the relationship between biotic (e.g., Chinook body size) and abiotic (i.e., water temperature, season, year) factors and community composition of the diets. Seasonal variations in diet quality in relation to juvenile Chinook condition will be assessed by evaluating consumed energy in relation to required maintenance metabolism given Chinook size and water temperature. The result will provide information on how well diets are fulfilling Chinook energetic needs for varying sizes of salmon, and throughout the migration period.

Partnerships/Capacity Building: Project management is done by the in-region CDQ group YDFDA. This proposal continues to build on a multi-year history of research and engagement with the residents of the Lower Yukon, specifically in the communities of Emmonak, Alakanuk, and Kotlik. YDFDA has been an important lead in this research, enabling local fishermen and technicians (mostly high school students) throughout the Yukon Delta to have an active role in juvenile Chinook salmon research. Local knowledge and expertise have been invaluable in helping identify appropriate sampling locations, navigating complex waterways, and developing sampling protocols for the Yukon River environment. In exchange, local fishermen and technicians have gained first-hand knowledge of scientific research principals and processes. The project PI lives in the community during the summer and is often approached by community members to talk about the research and its importance to salmon ecology. The unique relationship between scientists and fishermen has made this research successful and is providing a valuable multi-year dataset on understudied aspects of juvenile salmon ecology in the Yukon River.

Project Number:	22-204			
Title:	Western Alaska Coho Salmon Genetic Baseline Development			
Geographic Region:	Yukon			
Data Types:	Stock Status and Trends			
Principal Investigator:	Elizabeth Lee, Alaska Department of Fish and Game, Commercial Fisheries Division, Gene Conservation Laboratory			
Co-investigator:	Tyler Dann, Alaska Department of Fish & Game, Commercial Fisheries Division, Gene Conservation Laboratory			
Project Cost:	**2022:** $0	**2023:** $52,348	**2024:** $64,434	**2025:** $0
Total Cost:	$116,782			

Issue Addressed: Chinook salmon (*Oncorhynchus tshawytscha*) and chum salmon (*O. keta*) runs are major subsistence fishery resources for Yukon River communities (ADF&G 2013; JTC 2020). However, low productivity and poor return years have been observed for both species in recent years, resulting in economic hardships and food security issues for fishing communities throughout the region. With variable Chinook and chum salmon returns, the importance of other fishery resources is growing on the Yukon River, including coho salmon (*O. kisutch*). Coho salmon have been relatively understudied on the Yukon River compared to Chinook and chum salmon, and limited information exists on the distribution and abundance of coho salmon throughout the drainage. Nevertheless, fisheries biologists and managers are required to use the best available information to assess coho salmon abundance when managing the subsistence coho salmon fisheries on the Yukon River.

Currently, ADF&G and NOAA collaborate to conduct annual offshore trawl surveys in the Bering Sea to assess abundances of juvenile salmon species. Prior studies have demonstrated a clear relationship between juvenile abundance and future adult returns of Yukon River Chinook salmon, enabling juvenile-based forecasts of adult run sizes (Howard et al. 2020). Furthermore, an in-progress study is developing a similar forecast tool for Yukon River chum salmon. Due to a mixture of salmon stocks in the Bering Sea, genetic mixed-stock analysis (MSA) is a central component of these models and facilitates apportionment of Yukon River salmon from other Alaskan salmon stocks. These forecasts are the best available and

directly inform conservation and management of major fishery resources in the Yukon River. Coho salmon conservation and management could similarly benefit from juvenile-based forecasts of adult run sizes, since coho salmon samples and abundance data is collected during the annual Bering Sea trawl surveys. However, a genetic baseline for coho salmon that can be used for Bering Sea MSA is necessary before developing a juvenile-based forecast model for coho salmon in the Yukon River.

The proposed project addresses the following Office of Subsistence Management Priority Information Need for Federal Subsistence Fisheries in the Yukon Region: ***Baseline information about geographic distribution, migration patterns, run timing, genetic structure, and tributary escapements of Yukon River coho Salmon.*** Ultimately, the product of the proposed project will eventually contribute to a second Priority Information Need for Federal Subsistence Fisheries in the Yukon Region: ***Reliable methods of forecasting Coho salmon run abundance.***

The primary goal of this proposed project is to develop a high-resolution genetic baseline for Yukon River and Coastal Western Alaska coho salmon populations. The genetic baseline can be used to describe the genetic structure of coho salmon 1) within the Yukon River and 2) between the Yukon River and other Coastal Western Alaska populations (i.e., Norton Sound, Kuskokwim River, and Bristol Bay). Moreover, the baseline can then be used for MSA in subsistence fisheries management applications. MSA can provide federal, state, and local subsistence fisheries managers and biologists with stock composition estimates of mixed-stock catch or harvest samples, which can be utilized in interdisciplinary efforts to 1) understand population dynamics and run structures, 2) estimate escapement, harvest, and stock-specific abundances, and 3) forecast future runs of coho salmon. Project objectives include:

> ***Objective 1:*** Genotype 43 Western Alaska coho salmon collections for 372 genetic markers using amplicon sequencing and a bioinformatic pipeline.
> ***Objective 2:*** Construct a genetic baseline and analyze the baseline for population structure.
> ***Objective 3:*** Evaluate the MSA potential of the baseline for management applications and identify missing baseline populations through engagement with subsistence fisheries stakeholders.

Methods: DNA from 3,990 coho salmon tissue samples collected from 43 spawning locations across Western Alaska (Yukon River, Norton Sound, Kuskokwim River, and Bristol Bay) will be genotyped at 372 genetic markers using novel, yet well-vetted, Genotyping-in-Thousands by Sequencing methods (GT-seq; Campbell et al. 2015), a cost-effective method for screening hundreds of genetic markers for baseline development. The GT-seq marker panel of 372 loci was developed for coastwide coho salmon collaboration by WDFW and designed to include the genetic markers used by DFO. Libraries of pooled samples will be prepared and sequenced following the GT-seq methods described in Campbell et al. (2015) with modifications as described in Barclay et al. (2019). We will examine population genetic structure among populations. We will test reporting groups by sampling individuals from the baseline without replacement to generate test mixtures and use the R package *rubias* to estimate the stock composition of test mixtures. With these methods, we will evaluate the capability of the baseline to accurately and precisely estimate Yukon River stock compositions within mixture samples. The results of these baseline tests will be shared with Yukon River Western Alaska fisheries managers and scientists and local community organizations. Discussions with these groups will us help identify missing baseline populations and recommend future avenues of improvement for a more comprehensive Western Alaska coho salmon baseline needed for Yukon River subsistence fisheries management applications.

Partnerships/Capacity Building: Our long-term vision is that the initial genetic baseline developed through our proposed project will be expanded into a more comprehensive Western Alaska baseline through partnerships and collaboration with local communities. This initial project represents the first step towards building a valuable partnership with Yukon River and Western Alaska rural communities and Alaska Native organizations to more meaningfully participate in management of subsistence fisheries.

The baseline proposed here would be a product of previous opportunistic sampling in Western Alaska. Therefore, it is an initial Western Alaska coho salmon baseline that will benefit from additional, targeted baseline sample collecting. The quantitative measures obtained through genetic structure analysis will allow us to form hypotheses about missing populations within the baseline. However, ground-truthing with local knowledge will be essential for identifying additional baseline collection sites across the vast and remote Western Alaska landscape. Partnership building with Yukon River and Western Alaska community organizations will be facilitated by ADF&G local area staff, Research Coordinators, Fisheries Managers, and Fisheries Scientists throughout the project. Formal meetings will be planned with these groups each Spring of the project duration to disseminate baseline progress, gather feedback from local community organizations, and discuss baseline improvement options with these stakeholders. Ultimately, development of a comprehensive Western Alaska coho salmon baseline will provide the foundation for more sustainable harvesting of an increasingly important fishery resource on the Yukon River.

References:

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Campbell et al. 2015. Genotyping-in-Thousands by sequencing (GT-seq): A cost effective SNP genotyping method based on custom amplicon sequencing. Molecular Ecology Resources.
Howard et al. 2020. Northeastern Bering Sea juvenile Chinook salmon survey, 2017 and Yukon River adult run forecasts, 2018–2020. Alaska Department of Fish and Game, Fishery Data Series No. 19-04.
JTC. 2020. Yukon River salmon 2019 season summary and 2020 season outlook. Alaska Department of Fish and Game, RIR 3A20-01.

Project Number:	22-251			
Title:	The Presence and Use of Salmon in the Pastolik and Pastoliak Rivers			
Geographic Region:	Yukon			
Data Types:	Stock Status and Trends, Harvest Monitoring, and Traditional Ecological Knowledge			
Principal Investigator:	Alida Trainor, Division of Subsistence, Alaska Department of Fish and Game			
Co-investigator:	Nate Cathcart, Division of Sport Fish, Alaska Department of Fish and Game			
Project Cost:	**2022:** $272,804	**2023:** $102,301	**2024:** $0	**2025:** $0
Total Cost:	$375,105			

Issue: Sustainable management of salmon fisheries requires accurate data about stock status and harvest. For two coastal rivers located in the Yukon Delta National Wildlife Refuge, this information does not exist or is very limited, outdated, or unsubstantiated. The Pastolik and Pastoliak rivers, near the north mouth of the Yukon River, have been traditionally used by residents of Kotlik and the surrounding area for subsistence salmon and nonsalmon fishing long before Alaska became a state (Wolfe 1981; Yukon Delta National Wildlife Refuge 1988; Runfola et al. 2018). Despite long-term use of these rivers, fisheries managers have no data on subsistence salmon harvests for them and maintain unresolved questions about presence or absence, abundance, and health of the salmon species in these rivers. This study seeks to address the data gaps that exist about the presence and use of salmon in the Pastolik and Pastoliak rivers.

Objectives:

1) Document local and traditional knowledge held by Kotlik residents about:
    a. the presence and ecology of salmon in the Pastolik and Pastoliak rivers;
    b. the historical and contemporary uses of these river systems for subsistence salmon fishing.
2) Document subsistence salmon harvests and the locations of harvest in the Pastolik and Pastoliak rivers during the 2022 fishing season to understand patterns of harvest specific to these rivers and distinct from the total harvest within the Y1 District of the Yukon River.

3) Substantiate presence and enhance knowledge of salmon stocks in the Pastolik and Pastoliak rivers through biological sampling methods. Specifically,
    a. identify what species of salmon are present in what life stages, with a focus on identifying adult spawning salmon and distributions throughout both rivers of adult spawning and juvenile rearing.
    b. document run timing.
    c. determine if stocks identify genetically with Yukon River or other major stocks through genetic sampling.
    d. submit detailed nominations to the AWC for waterbodies supporting anadromous species, including seasonal efforts that document the fish assemblages present, including life stages of certain species. Share results publicly through the ADF&G AFFI online mapper.

Methods: ADF&G researchers will work with the Kotlik Traditional Council to identify two local research assistants (LRAs) to help with ethnographic interviews and household surveys. Semi-structured interviews will be conducted with long-time residents who have a history of fishing on the Pastolik and Pastoliak rivers. Researchers will administer a short salmon harvest survey to households who fished for subsistence salmon in the Pastolik and Pastoliak rivers in 2021. The survey will document what species were harvested, the amounts, timing of harvest, gear types used, and location of harvest. These data will be the first attempt to quantify subsistence salmon harvest information specific to these rivers. During interviews and surveys, a map of the Pastolik and Pastoliak rivers and nearby surrounding areas will be used as a visual reference. Fishing sites, observations of salmon and salmon habitat, and other relevant information related to the topics of interest will be noted on the maps. Map data will later be digitized and formatted using ESRI ArcMap GIS software.

For biological data collection, ADF&G staff will also utilize the expertise of a LRA and local boat driver. Staff and LRAs will travel the Pastolik and Pastoliak rivers by boat and helicopter, conducting biological sampling throughout each drainage. Primary fish capture methods proposed to be used throughout the duration of field work include actively sampling with electrofishing in upper segments of the rivers and more passive sampling using gillnets in downstream reaches of each river. In each river, two 100′ gillnets with 5.5″ (for chum and pink salmon) and 7″ (Chinook and chum) stretched mesh will be fished perpendicular to streambanks and set overnight and checked each day throughout the duration of the project. Researchers will also seek to rent fishing nets from local fishers to increase the mesh selectivity. Fishers in this area tend to use 6″ or 7.5″ stretched mesh to catch salmon. Opportunistic sampling methods include minnow trapping, aerial observations, and angling. Minnow traps will be set opportunistically by boat or raft-electrofishing crews in habitats able to support juvenile salmon. Trapped juveniles will be visually identified, measured to fork length (mm), and will provide verification of rearing habitat. Aerial surveys will be performed opportunistically during helicopter travel to, from, and at raft-electrofishing sites with any observations georeferenced on a handheld GPS. If salmon are observed to be abundant, angling will be used as an alternative method of capture to reduce salmon mortality during sampling. Direct and indirect genetic sampling will be performed and then analyzed by the ADF&G genetics laboratory and Jonah Ventures Lab in Boulder, CO. Captured fishes from any method will be identified, measured to fork length, photographed when necessary (such as to document identity for verification of species), and recorded. Sex will be recorded for adult salmon. Any remarkable or informative notes (e.g., sex, spawning condition, disease) for other species will be noted. In addition, in each river, researchers will collect three water samples from six locations in each river (N=36) for environmental DNA (eDNA) analysis, which will provide evidence of potential presence or absence of various salmon species to be detected. All captured adult salmon will be tissue sampled via clipping the axillary process and saved for genetic analysis, which will help determine if they are a unique stock from

other Yukon River salmon. For observations of anadromous fishes, staff will generate nominations to the AWC.

Partnerships/Capacity Building: Throughout the development of this proposal, the lead investigator was in communication with local residents of Kotlik who have expressed interest for more informed and comprehensive salmon management of the Pastolik and Pastoliak rivers. This communication helped shape project design and decide the sampling methods for household harvest surveys and traditional knowledge interviews. Through consultation with the Kotlik Traditional Council, investigators and community leaders have agreed to include local research assistants (LRAs) in all aspects of data collection. One of the main goals of this project is to facilitate information sharing between local residents and fisheries management agencies. Local residents will have the opportunity to share their knowledge of salmon in the Pastolik and Pastoliak rivers with researchers, and in return project staff will share what they learn through biological sampling with the community. This two-way information exchange will help build a relationship between the community and managers to strengthen additional partnerships in the future.

Additionally, project staff will work with the tribal council in Kotlik to hire LRAs, to select key respondents, and facilitate community meetings. The LRAs will be trained in anthropological and biological sampling methods. This training will increase the capacity for local involvement in future research opportunities. This increases coordination between agencies, tribal entities, and community members; working together in data collection increases communication and leads to better understanding of local issues and local understanding of science and management issues.

Project Number:	22-252			
Title:	Combining Traditional Ecological Knowledge & Biological Sampling to Enhance Understanding of Humpback Whitefish and other Non-salmon Fishes in the Upper Koyukuk Region			
Geographic Region:	Yukon			
Data Types:	Harvest Monitoring, Traditional Ecological Knowledge, and Stock Status and Trends			
Principal Investigator:	Brooke McDavid, Division of Subsistence, Alaska Department of Fish and Game			
Co-investigator:	Brian McKenna, Tanana Chiefs Conference; Randy J. Brown, U.S. Fish and Wildlife Service, Fairbanks Fish & Wildlife Conservation Office			
Project Cost:	**2022:** $126,629	**2023:** $105,323	**2024:** $0	**2025:** $0
Total Cost:	$231,952			

Issue: Whitefishes and other nonsalmon fishes are an integral component of the overall subsistence harvest profile in Yukon River communities, including Allakaket and Alatna. However, despite their prolific subsistence use and commercial exploitation, there is limited information about their stock statuses, life histories, and annual subsistence harvests (Brown et al 2012). This lack of information makes managing nonsalmon fisheries extremely difficult for both federal and state managers. Using mixed qualitative and quantitative methods, the proposed research will update the documentation of TEK of nonsalmon fishes in the upper Koukuk River area with a focus on local fishers' observations of landscape and waterway change linked to climate effects. It will also update harvest estimates of nonsalmon species for the communities of Allakaket and Alatna in order to allow the investigation of shifting harvest patterns. The biological component of this study will address existing data gaps in humpback whitefish populations in the upper Koyukuk River drainage. Specifically, the demographic composition of humpback whitefish will be

described for spawning populations in the Alatna and South Fork Koyukuk rivers. This study will describe age, sex, and length structures, assess fish condition through weight at length relationships, and assess the reproductive health of spawning populations by analyzing the gonadosomatic index, or the relationship of ovary weight to total weight. This work will have multiple applications. Updated harvest data will assess changes in the harvest, provide managers information about important nonsalmon fish habitats (mapped data), and develop their understanding of role of nonsalmon fishes within a total context of subsistence, especially in light of declining salmon runs. Critical assessments of local experiences of and adaptations to climate, landscape-based, and economic change in the fisheries are critical inputs to management and policy.

Objectives:

1. Update documented TEK of critical nonsalmon fish populations held by Alatna and Allakaket residents with particular attention to humpback whitefish, including:
    a. Observational knowledge about landscape and waterway change linked to climate change effects in the upper Koyukuk River region;
    b. Observed changes to nonsalmon fish populations, their habitats, or both over time;
    c. Adaptations in subsistence harvest practices over time due to environmental or resource change and associated regulatory, economic, or social change.
2. Estimate nonsalmon fish harvests, timing, and locations and compare with results from previous studies.
3. Describe the demographic composition (age, sex, length, weight, and gonadosomatic index) of humpback whitefish spawning populations in the Alatna and South Fork Koyukuk rivers.

Methods: This research will utilize an interdisciplinary approach to study humpback whitefish and other nonsalmon fishes in the upper Koyukuk River drainage. ADF&G staff from the Division of Subsistence will lead the ethnographic and harvest research components of this project and staff from Tanana Chiefs Conference will lead the biological components of the project. Local research assistants (LRAs) will be hired to aid both aspects of the data collection.

Division of Subsistence staff will administer a short household harvest survey to better understand harvest levels, the timing of harvest, the gear types used, and locations of harvest. A census of all households in both communities will be attempted. Ethnographic research will consist of semi-structured interviews and mapping of nonsalmon habitats. Researchers will develop an interview protocol prior to fieldwork in consultation with tribal councils and fisheries managers. Topics are expected to include traditional harvest practices; nonsalmon fish life histories and habitat; effects of climate change on nonsalmon fish, especially humpback whitefish, and their habitats; and any concerns related to fisheries management and the proposed Ambler Road development. The semi-structured protocol will help guide conversations, but it is expected that respondents will discuss additional topics related to subsistence fishing and resource management. Maps will be also be used during interviews to record information about current and historical fishing sites, nonsalmon fish habitat, and observations of environmental change.

For the biological component of the project, project investigators (PIs) will sample humpback whitefish in two locations either through acquired samples from subsistence caught fish or through direct sampling. In the Alatna River, PIs will sample whitefish harvested by subsistence fishers. In the South Fork Koyukuk River, PIs will apply for an aquatic resource permit through ADF&G to allow for the lawful collection of fish and will utilize a small mesh beach seine. All identified humpback whitefish will be measured for length, weighed, and sexed. Additionally, ovaries will be weighed, and otoliths will be collected. Fork length (FL) will be measured to the nearest 1 mm using a 100 cm soft tape measuring ruler. Wet weight will be measured to nearest 1 g using a digital hanging scale with a capacity of 50 g to 50 kg. After recording length and weight measurements, all fish will be cut open so the reproductive organs can be visually

assessed for sex identification. Otoliths (2) from each fish will be removed, stored individually, and systematically tied to the recorded data for each individual fish so that ages can be associated with fork length, wet weight, ovary weights, and sex identification records. All sampled fish will be donated to the communities of Allakaket and Alatna.

Partnerships/Capacity Building: This interdisciplinary project relies heavily on the partnership with the tribal councils, communities, and residents of Allakaket and Alatna. Through the development of this proposal, representatives from both the Allakaket and Alatna tribal councils have contributed to the development of the research design. If this project is funded, project staff will work with the councils to identify and hire LRAs to assist with data collection. These LRAs will be trained in anthropological and biological sampling methods. This training will increase the capacity for local involvement in future research opportunities. Additionally, this project brings together researchers from the State of Alaska, USFWS, and the Tanana Chiefs Conference. This partnership and collaboration will inevitably draw on diverse perspectives and experience that will allow researchers to analyze results critically and develop strong recommendations for future research and improved management of whitefish species.

Project Number:	22-253			
Title:	Yukon River Nonsalmon Subsistence Survey			
Geographic Region:	Yukon			
Data Types:	Harvest Monitoring and Traditional Ecological Knowledge			
Principal Investigator:	Catherine Moncrieff, Yukon River Drainage Fisheries Association			
Co-investigator:	None			
Project Cost:	**2022:** $46,230	**2023:** $57,704	**2024:** $57,704	**2025:** $57,704
Total Cost:	$219,343			

Issue Addressed: The Yukon River Drainage Fisheries Association (YRDFA) is proposing to address two of the 2022 Priority Information Needs identified by the Yukon Region Federal Subsistence Regional Advisory Councils. The first issue addressed is to gather Traditional Ecological Knowledge (TEK) of freshwater species in the Yukon River, and the second issue is to gather knowledge on the population, reproduction, and health of spawning habitat for Bering Cisco and Humpback Whitefish. This project is significant because there has been an increase of expressed concern from residents of the Yukon River at 2020 Federal Subsistence Regional Advisory Council (RAC) meetings about the population and health of nonsalmon species.

Gathering knowledge about the population and health of freshwater species, also referred to as nonsalmon species of fish in the Yukon River through TEK methodology has direct association to the federal subsistence freshwater species fisheries that take place along the Yukon River. Nonsalmon species of fish are prioritized in 2022 by the Yukon River RACs, with a specific focus on Humpback Whitefish (*Coregoninae clupeaformis*) and Bering Cisco (*C. laurettae*). This project is relevant to the Federal Subsistence Management and Section 812 of the Alaska National Interest Lands Claims Act (ANILCA) which directs the Department of the Interior (DOI) to cooperate with other federal agencies, the State of Alaska, and Alaska Native and rural organizations to research and monitor subsistence uses of fish and wildlife on federal public lands and to seek data from, consult with, and make use of the knowledge of local residents engaged in subsistence activities. The creation of a nonsalmon subsistence survey that will work specifically with the federal fisheries management team will add another tool in the federal fishery manager's toolbox.

This project will address harvest pressure on nonsalmon species through the collection of information about local fisher observations, traditional harvest practices and timing of nonsalmon species.

This program will be an adaptive communication program which maximizes fishers' voices in subsistence fisheries and enables the federal manager to send important conservation messages directly into the fishers' households in five key villages. With this proposal, the surveyor program is responding to the most recent feedback from the fishers, and expanding to hire more surveyors, survey new fishers and include new information to pre-season, in-season, and post-season meetings to strengthen both the capacity building and communication aspects of the program.

The extent and depth of subsistence use of nonsalmon species in the Yukon River can be seen in the most recent Annual Management Report from 2017 showing the harvest of 67,464 whitefish (*Coregonus spp. and Prosopium cylindraceum*), 22,877 northern pike (*Esox lucius*), and 13,038 sheefish (*Stenodus leucichthys)* (Estensen et al. 2018). Other species are also harvested but are only reported by total because of small amounts of harvest or because they occur outside of the salmon season. The following were their totals for 2017: 2,843 burbot (*Lota lota*), 6,661 tomcod (*Eleginus gracilis*), 1,501 Arctic grayling (*Thymallus arcticus*), 179 longnose suckers (*Catostomus catostomus*), 109,888 Alaska blackfish (*Dallia pectoralis*), 19,357 Arctic lamprey (*Lethenteron camtschaticum)*, and 16,492 Pacific herring (*Clupea pallasii*). ADF&G reports that estimates of nonsalmon harvest in Yukon River drainage is poorly understood at a species level and a comprehensive assessment of nonsalmon harvest and use, by species, has been identified as a research priority (Estensen 2018:37-38; Brown RJ et al. 2012). They note that information about nonsalmon harvests are collected through the ADF&G annual postseason subsistence survey but does not include species distinctions.

Objectives:

1. Develop a protocol for nonsalmon subsistence survey program that will collect fisher information about Yukon River nonsalmon harvests and observations.
    a. Review protocol with Yukon River fishery managers and researchers to include methods for community selection, time in the field, data collection, approvals and informed consent.
2. Implement nonsalmon subsistence survey program
    a. Conduct community outreach, travel to communities, hold meetings, hire and train surveyors, collect nonsalmon fisher harvest data and observations from five Yukon River communities in the spring and late summer/ fall nonsalmon fishing periods, and evaluate annually.
3. Build capacity of YRDFA, local surveyors, fishers and Yukon River Federal Subsistence Regional Advisory Councils to participate in nonsalmon subsistence fisheries management and regulatory decision-making.

Methods: Methods for this project include communication, outreach, survey instrument, data analysis, and annual evaluations. YRDFA will develop a Traditional Ecological Knowledge (TEK) survey protocol for community surveyors to conduct weekly interviews with active fishers about their nonsalmon harvests in five Yukon River communities and will focus on identification and differentiation of Bering Cisco and Humpback Whitefish. Additionally, the survey will gather information about whether fishing was for daily use or for preservation for later use. This knowledge will be utilized to build on existing knowledge and provide contemporary updates that are shared with federal fisheries managers for the Yukon River for their use in subsistence fisheries decision-making.

YRDFA will hire local surveyors from five of the 10 salmon surveyed villages who will interview known nonsalmon fishers in their communities about qualitative harvest data and observations. This protocol will be adapted from and modeled after the successful In-season Subsistence Salmon Survey Program. The

interview methodology will follow the National Academy of Science's *Principles for Conduct of Research in the Arctic* and will include informed consent for participants, to be conducted prior to the first interview. Privacy and confidentiality will be protected in the reporting. In addition to collecting information from fishers, surveyors will disseminate relevant information to fishers. For the data analysis, at the end of the season the PI will review all the survey forms and the compiled MS Excel spreadsheet and produce summary narrative reports.

Partnerships/Capacity Building: This project will build the capability and expertise of the locally hired surveyors to enhance their communication and reporting skills. Partnerships will be maintained with the federal fishery managers and also with the village Tribal Councils and individuals working as a part of the project. YRDFA will be working in partnership with all these entities but no formal partnership agreements are made as a result of this. Contracts with the Tribal Councils and/or the individuals hired will be working agreements that guide the quality of the program to ensure we meet our goals and objectives of the program.

ANNUAL REPORTS

Background

ANILCA established the Annual Reports as the way to bring regional subsistence uses and needs to the Secretaries' attention. The Secretaries delegated this responsibility to the Board. Section 805(c) deference includes matters brought forward in the Annual Report.

The Annual Report provides the Councils an opportunity to address the directors of each of the four Department of Interior agencies and the Department of Agriculture Forest Service in their capacity as members of the Federal Subsistence Board. The Board is required to discuss and reply to each issue in every Annual Report and to take action when within the Board's authority. In many cases, if the issue is outside of the Board's authority, the Board will provide information to the Council on how to contact personnel at the correct agency. As agency directors, the Board members have authority to implement most of the actions which would effect the changes recommended by the Councils, even those not covered in Section 805(c). The Councils are strongly encouraged to take advantage of this opportunity.

Report Content

Both Title VIII Section 805 and 50 CFR §100.11 (Subpart B of the regulations) describe what may be contained in an Annual Report from the councils to the Board. This description includes issues that are not generally addressed by the normal regulatory process:

- an identification of current and anticipated subsistence uses of fish and wildlife populations within the region;
- an evaluation of current and anticipated subsistence needs for fish and wildlife populations from the public lands within the region;
- a recommended strategy for the management of fish and wildlife populations within the region to accommodate such subsistence uses and needs related to the public lands; and
- recommendations concerning policies, standards, guidelines, and regulations to implement the strategy.

Please avoid filler or fluff language that does not specifically raise an issue of concern or information to the Board.

Report Clarity

In order for the Board to adequately respond to each Council's annual report, it is important for the annual report itself to state issues clearly.

- If addressing an existing Board policy, Councils should please state whether there is something unclear about the policy, if there is uncertainty about the reason for the policy, or if the Council needs information on how the policy is applied.
- Council members should discuss in detail at Council meetings the issues for the annual report and assist the Council Coordinator in understanding and stating the issues clearly.

- Council Coordinators and OSM staff should assist the Council members during the meeting in ensuring that the issue is stated clearly.

Thus, if the Councils can be clear about their issues of concern and ensure that the Council Coordinator is relaying them sufficiently, then the Board and OSM staff will endeavor to provide as concise and responsive of a reply as is possible.

Report Format

While no particular format is necessary for the Annual Reports, the report must clearly state the following for each item the Council wants the Board to address:

1. Numbering of the issues,
2. A description of each issue,
3. Whether the Council seeks Board action on the matter and, if so, what action the Council recommends, and
4. As much evidence or explanation as necessary to support the Council's request or statements relating to the item of interest.

KUSKOKWIM RIVER
INTER-TRIBAL FISH COMMISSION

2021 Post-Season Summary
Current as of August 13, 2021

In-Season Management + Subsistence Fishing Opportunities
During the Chinook salmon fishing season – beginning in early May through the end of July – KRITFC In-Season Managers and Elder Advisors meet regularly with U.S. Fish and Wildlife staff to assess the salmon runs and decide whether or not to open the river to subsistence fishing. Their decisions are guided by Traditional Knowledge and local observations and data from Bethel Test Fish, Bethel sonar, and community harvest data.

The KRITFC 2021 In-Season Managers are:
- James Nicori (Kwethluk) – Upper Middle River
- Jacki Cleveland (Quinhagak) – Lower River
- Megan Leary (Napaimute) – Upper River
- Avery Hoffman (Bethel) – Lower Middle River
- Robert Lekander (Bethel) – Elder Advisor
- James Charles (Tuntutuliak) – Elder Advisor

These In-Season Managers, KRITFC staff, and fisheries management staff from the Yukon Delta National Wildlife Refuge – namely Boyd Blihovde, Aaron Moses, Spencer Reardon, and Christopher Tulik – met throughout the king, chum, and sockeye salmon season to determine federal subsistence fishing opportunities. Quyana, Tsen'ahn, Thank you to James, Jacki, Megan, and Avery for your tireless work providing Traditional Knowledge, river-wide insights, and management recommendations this season; to Robert and James for sharing your wisdom and guidance; and to the Yukon Delta NWR staff for your partnership and collaborative leadership.

KRITFC and U.S. Fish and Wildlife provided for 11 subsistence fishing opportunities (drift and set gillnet) this season after the USFWS in-season manager closed the main stem Kuskokwim to gillnet fishing for all salmon starting June 1. These opportunities were:
- June 2 (set gillnet)
- June 5 (set gillnet)
- June 9 (set gillnet)
- June 12 (drift and set gillnet)
- June 15 (drift and set gillnet)
- June 19 (drift and set gillnet)
- July 2 (drift and set gillnet)
- July 9 (drift and set gillnet)
- July 10-11 (set gillnet)
- July 16 (drift and set gillnet)
- July 17-18 (set gillnet)

The estimated salmon harvests in the main stem lower Kuskokwim River (from Tuntutuliak to Akiak, excluding fish harvested from non-Chinook salmon spawning tributaries) during these opportunities were:
- Chinook salmon: 21,560 fish
- Sockeye salmon: 22,910 fish

- Chum salmon: 4,060 fish

These numbers come from harvest estimates produced by KRITFC and ONC with Bethel area harvest information provided by ONC; community-based harvest information provided by KRITFC harvest monitors (see more information about the CBHM Program below); and aerial surveys provided by USFWS at Yukon Delta NWR. Complete harvest estimates from each opportunity can be found on our website: kuskosalmon.org/2021-fishing-info.

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CBHM Program
The Community-Based Harvest Monitoring (CBHM) program was created by Bering Sea Fisherman's Association (BSFA) in collaboration with KRITFC in 2017 to monitor subsistence fish harvests in lower river villages and increase community involvement in fisheries management and monitoring. In 2021, KRITFC coordinated the program and jointly funded it with Yukon Delta NWR.

Most of the 2021 harvest monitors were veterans of the program. Each harvest monitor surveys fishers in their village community after federal subsistence fishing opportunities. This season began with training on May 26. Harvest monitoring occurred during 10 of the 11 opportunities.

The 2021 CBHM program harvest monitors – and the communities in which they live and surveyed – are:
- James Heakin (Eek) – new harvest monitor
- Brianna Dock (Tuntutuliak)
- Isaiah Pavila (Tuntutuliak)
- Emmitt Nicori (Napakiak)
- Wesley Nicholai (Napaskiak)
- Dezmin Johnson (Napaskiak) – new harvest monitor
- Colleen Andrew (Kwethluk)
- William Egoak (Kwethluk)
- Alfred Epchook (Kwethluk)

Altogether, these 9 harvest monitors collected 540 total interviews from subsistence fishers. Data from each of these interviews informed KRITFC and USFWS managers about fishing trip locations, soak times, mesh and net sizes, and numbers of salmon and non-salmon species harvested.

A big quyana to each of these harvest monitors for working with their communities to collect invaluable salmon harvest information after long days of fishing for their own families.

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Takotna River Weir Project
The Takotna River provides the longest data set (18 years including 2021) of spawner returns at the Kuskokwim headwaters. Located about 2 miles upstream of the village of Takotna, it employs local weir technicians and is run in partnership with the Takotna Village Council and Alaska Department of Fish & Game.

The 2021 Takotna River weir crew faced high water conditions during the installation period of the weir. However, they were able to have the weir installed and fish-tight by July 4. Weir removal will occur in mid-August, and escapement estimates will be finalized at the end of the season (after the time of this writing).

Members of the 2021 weir crew are:

- Robert Perkins – crew leader
- Manuel Martinez – assistant crew leader
- Joe Martinez – weir technician
- Richard Watcher – weir technician
- Shawn Gover – weir technician
- Mike Dopler – weir technician

Tsen'ahn, Quyana, Thank you to each of these weir technicians for your dedication and perseverance through the season.

Note: High water conditions and COVID-19 precautions prevented installation and operation of the **Kwethluk River weir**, typically run in partnership between the Organized Village of Kwethluk, KRITFC, and USFWS. No data was collected from this weir in 2021, nor in 2020.

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In-Season Community Involvement

KRITFC strives to stay connected to and in communication with fishers throughout the river during the fishing season by:

- Holding weekly Monday river-wide teleconferences with the Yukon Delta NWR. Fishers from Tuntutuliak to McGrath joined these calls to ask about management decisions, find out the next federal subsistence fishing opportunities, and share Traditional Knowledge and fishing updates from their communities.
- Participating in ADF&G's Kuskokwim River Salmon Management Working Group meetings each Wednesday. KRITFC's delegates to the Working Group this season are Avery Hoffman and James Nicori, but other KRITFC Fish Commissioners, Executive Council members, In-Season Managers, and staff regularly joined these meetings as voting and public members.
- Joining the Yukon Delta NWR and ADF&G staff on KYUK's Fish Talk, held weekly on Thursdays. Fishers from the Kuskokwim and Yukon Rivers called in to voice concerns, ask federal, state, and Tribal managers about fishing opportunities, and share fishing updates from their communities.

KRITFC wants to hear from and speak with fishing communities throughout the Kuskokwim River drainage, whether in-season or out-of-season. If you would like us to speak with your Tribal or village council, please contact us at info@kritfc.org or (907) 545-6206.

Yukon River Drainage Fisheries Association
Protecting and promoting all healthy wild fisheries and cultures along the Yukon River drainage

PO Box 2898, Palmer, AK 99645 ♦ Ph. (907) 272-3141 Fax (907) 272-3142 ♦ www.yukonsalmon.org

Report to Yukon Kuskokwim Delta Regional Advisory Council
Winter 2021

Report prepared by Serena Fitka and Catherine Moncrieff

Yukon River Drainage Fisheries Association Annual Board meeting:
April 27 & 28, 2021 in Fairbanks, Alaska

Due to COVID-19, our Annual meeting was held in person for the YRDFA Delegation and virtually for those who wished to attend. Both Board of Directors and Alternates were in attendance, which captured the majority of the Yukon River communities. 20 representatives were in attendance in-person and 6 attended virtually over the course of the 2 days of meetings.

The delegation gave community reports, elections took place, Bylaws were updated and 5 of the 6 resolutions were passed. The Annual meeting began with a River Blessing with Stanley Pete from Nunam Iqua, Esther McCarty from Ruby, Dorothy Shockley from Manley Hot Springs, and Paul Williams from Beaver. With the low returns of our salmon, YRDFA felt it was necessary to start incorporating our traditional values when coming together to talk about our salmon. As the YRDFA Delegation reconveined a moment of silence for the passing of Andrew Firmin from Ft. Yukon and reflection of his leadership on the Board for the past 10 years. We had the honor to have his parents in attendance along with his partner, Kara'lisa Trembley and presented the family with Andrew's award of service and dedication as a long standing YRDFA Board member.

The meeting continued with community reports from the Delegation, which reported high water throughout the summer and poor fishing conditions. After lunch, 3 guest speakers were online to give a presentation. Jill Klein with the Bering Sea Fishermen's Association gave an update on the Yukon River Comprehensive Salmon Plan. John Linderman, Co-Chair of the Yukon River Panel and Regional Supervisor for the AYK Region gave a PowerPoint presentation about the Yukon River Panel. Our final presentation was given by Emily Groves with Foraker on Fund Development.

RESOLUTIONS:

FAILED - Resolution: 2021-01: Introduced by Native Peoples' Action - Rochelle Adams- Protecting the Yukon River: Opposing Oil & Gas Development in the Yukon Flats

PASSED - Resolution: 2021-02: Support the Bering Sea Pollock Fishery Conservation of Yukon River Chinook and chum salmon

PASSED - Resolution: 2021-03: Escapement Goals for One Full Life Cycle

PASSED - Resolution: 2021-04: Transboundary Mining in the Yukon River Watershed Joining the SE transboundary coalition

PASSED - Resolution 2021-05: Concern about Hatchery Production

PASSED - Resolution 2021-06: Concern about Oil & Gas Development in the Yukon Flats

2021 Elections

Fishing District	Term	Member	Community
Coastal, Seat 1	3 years	Lester Wilde	Hooper Bay
Y-1, Seat 1	3 years	Stanley Pete	Nunam Iqua
Y-2, Seat 1	3 years	Bill Alstrom	St. Mary's
Y-2, Seat 2	2 years	Mike Peters	Marshall
Y-3, Seat 1	3 years	Alfred Demientieff, Jr	Holy Cross
Y-4, Seat 1	3 years	Fred Huntington, Sr.	Galena
Y-5, Seat 1	3 years	Charlie Wright	Rampart
Y-5, Seat 2	2 years	Stan Zuray	Tanana
Y-6, Seat 1	3 years	Tim McManus	Nenana
Koyukuk River	2 years	Pollock Simon, Sr.	Allakaket
Flats, Seat 1	2 years	Jan Woodruff	Eagle
Alternates:			
Y-1 Seat 1	3 years	Paul Andrews	Emmonak
Y-2 Seat 1	3 years	VACANT	
Y-2 Seat 2	2 years	VACANT	
Y-6, Seat 1	3 years	VACANT	
Yukon Flats	2 years	Rochelle Adams	Beaver

YRDFA Board of Directors and Alternates at Annual Meeting, Fairbanks, April 28, 2021.

Yukon River Salmon Summer Pre-season Preparation Meeting:
The Yukon River Summer Pre-season meeting was held in Fairbanks on April 29, 2021 with the YRDFA Delegation in attendance and other participants joined in via Zoom. Limited in-person capacity was due to COVID-19. Prior to the Pre-season meeting, YRDFA hosted a series of Yukon RIver fishing district meetings. These meetings were developed to provide the fishers in their districts with the additional opportunity to provide discussion and formulate feedback to fishery managers during the Pre-season meeting. All meeting minutes were presented to the fishery managers for their review. Reports of the fishing district meeting were conducted during the Pre-season meeting.

2021 Fishery Disaster Request:
A group of Yukon River organizations have been meeting to discuss the 2021 fishery disaster request. The Yukon Delta Fisheries Development Association, Tanana Chiefs Conference, Alaska Village Council Presidents, and YRDFA will be submitting a joint letter similar to last year's request to the Governor. We will be asking for support from all entities; such as, the RACs, ACs, AFN, etc. to provide support during these hard times the Yukon River communities are facing. The group has also discussed the importance of reaching out to our State and US delegation to encourage the Governor to make a quick request to the Department of Commerce for the 2021 season. We understand the Department's requirement to provide adequate reporting when requesting a fishery disaster; however, the fact that all communities were unable to harvest any Chinook, summer or fall chum salmon for subsistence states clearly shows we are in a disastrous situation.

In-Season Salmon Management Teleconferences:
The In-Season Salmon Management Teleconferences began on Jun 1, 2021 . In preparation for the teleconferences, posters were sent to all communities along the Yukon River including Canadian First Nations. A meeting was held with the fishery management team to discuss any concerns or issues associated with the upcoming season. The last two years the number of participants and length of the calls have increased. We reflected the approximate cost

association for each call if all participants stayed on for the duration of the call. The teleconference rate is $0.09 per participant per minute.

Date	Number of Participants	Length of call in mins.	Approximate Cost
06/01/21	46	81	$335.34
06/08/21	71	130	$830.70
06/15/21	94	140	$1184.40
06/22/21	83	140	$1045.80
06/29/21	138	149	$1850.58
07/06/21	101	199	$1808.91
07/13/21	110	172	$1702.80
07/20/21	77	128	$887.04
07/27/21	71	120	$766.80
08/03/21	65	82	$479.70
08/10/21	67	102	$615.06
08/17/21	Info not available		
08/24/21	During time of		
08/31/21	reporting		

Due to fishing closures throughout the Yukon River drainage we anticipated a high call volume. We appreciated all the questions, comments, and observations during the in-season teleconference. We heard the people's concerns about traditional loss and the struggles of food security that will likely occur over the course of the winter season. The other concerns we heard, which we will also make a priority, are bycatch in the Bering Sea, Area M, and climate change.

In-Season Subsistence Salmon Survey Program: Through the Inseason Subsistence Salmon Survey Program, YRDFA hires a local person in 10 communities along the Yukon River stretching from Alakanuk to Eagle to survey fishers during the Chinook salmon season in their community. The observations fishers share with YRDFA surveyors are summarized, by community to protect anonymity, and then shared with Yukon River Inseason Managers and the Yukon River community through the In-season Salmon Management Teleconferences. This important communication tool helps managers know what fishers are seeing and how they are doing in their communities. This year, we were able to hire 10 surveyors and hold a mixed in-person and virtual training event in April. Although it was a difficult season with little salmon

fishing, our surveyors did their best to survey and represent the fishers in their community. As we write this report, we are just wrapping up this season with the upper river communities. By your fall meeting time we will have a summary report and evaluation of the season. This project is funded by the FRMP through March of 2024.

Traditional Ecological Knowledge of anadromous fish in the Yukon Flats with an emphasis on Draanjik drainage: This project, funded by the FRMP, was extended until March of 2022 due to the pandemic. Instead of in-person community review meetings, we developed and sent a Community Review document to each participant and tribal council in the study for their feedback and followed up with phone calls. The TCC staff is currently working on the biological fieldwork this summer. They are conducting an aerial survey of the Kevinjik Creek in the Teedraanjik drainage to identify and locate a Coho salmon spawning area (Nèhdlįį Ni'inlii) that has not yet been added to the Anadromous Waters Catalog. This location has been identified by traditional knowledge and with positive eDNA analysis. Additional fieldwork was planned for the spring and summer of 2021 to document rearing juvenile and spawning adult Chinook and chum salmon. If possible we will provide more updates at your fall meeting.

OTHER PROJECTS:

***They Told Us There'd Come a Time*, Conserving Fish, Preserving Tradition on the Yukon River, A catalog of Elders Warnings:** This project, funded by the North Pacific Research Board, has YRDFA partnering with the Tanana Chiefs Conference young adult Emerging Leaders to research documented Local and Traditional Knowledge of salmon and search for advice or warnings from the Elders. The goal of the project in year one is to review Local and Traditional Knowledge archives for warnings from Elders about salmon shortages or threats. Early in the new year we had a virtual training workshop to learn how to access the archives. In June, the PI attended the Denakkanaanga gathering in Fairbanks to provide an update on the project. Additionally, the Emerging Leaders and the PI have met twice in Fairbanks at the UAF Rasmuson Library to spend time looking through the archives. We plan to continue working on the archives this year and next year we will do some analysis and begin interviewing contemporary Elders with questions that arise from our work in year one.

Integrating Local and Traditional Ecological Knowledge into Anadromous Waters Cataloging and Fish Inventories of select drainages of the Tanana and Yukon rivers 2021-2023: This funded, project by the Alaska Sustainable Salmon Fund (AKSSF), is a partnership between YRDFA and the Alaska Department of Fish and Game. Together, we are working with the communities of Tanana, Nenana, and Manley Hot Springs to identify important areas with anadromous fish and other fish for investigations to nominate areas for the anadromous waters catalog and the fish inventory. This summer we traveled to all three study communities and held LTK interviews and mapping activities with knowledgeable fishers and hunters. We were able to conduct a total of 20 interviews; five in Manley Hot Springs, five in Tanana, and ten in Nenana. These knowledgeable subsistence providers shared important information about fish locations. Next summer ADF&G staff will attempt to document fish presence, rearing and spawning in these locations through river boat and helicopter surveys and include them in the fish inventories and anadromous waters catalog.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Togiak National Wildlife Refuge
P.O. Box 270
Dillingham, Alaska 99576
Phone 907-842-1063
Fax 907-842-5402

INFORMATION BULLETIN - August 2021

Cooperative Salmon Escapement Monitoring Projects. Contact: Pat Walsh
The Alaska Department of Fish and Game (ADF&G) has monitored Chinook, chum and sockeye salmon escapement on the Middle Fork Goodnews River since 1980. Togiak National Wildlife Refuge (Togiak Refugehas worked with ADF&G since 1992 to assist in staffing the weir until 2017, after which reduced funding prevented providing staff assistance.

On the Kanektok River, ADF&G, Native Village of Kwinhagak, Coastal Villages and Togiak Refuge have worked cooperatively to monitor salmon and Dolly Varden runs since 2001. However, this project has been cancelled since 2016 due to lack of funding.

The Togiak Refuge fisheries biologist retired in 2017 and the position has not been refilled. However, the current Togiak Refuge manager has identified re-filling this position as a high priority, as well as re-engaging in cooperative salmon monitoring projects.

Mulchatna Caribou Contact: Andy Aderman
Togiak Refuge assisted ADF&G with telemetry and law enforcement flights, satellite data acquisition, data entry and database management. A July 2021 post-calving survey estimated the Mulchatna herd at 12,850 caribou, slightly down from 13,500 estimated in 2019 and 2020, and well below the population objective of 30,000-80,000 caribou.

Togiak Refuge Manager Moos, under authority delegated by the Federal Subsistence Board, closed caribou hunting and closed Federal public lands in the RC503 hunt area for caribou hunting.

Nushagak Peninsula Caribou Contact: Andy Aderman
A photocensus of the Nushagak Peninsula Herd on July 7, 2021 found a minimum of 258 caribou in 3 groups which resulted in a total population estimate of 287 +/- 47 (258-334) caribou at the 95% confidence interval. A similar effort in 2020 found a minimum of 209 caribou in 2 groups resulting in an estimate of 226 +/- 47 (209-273) caribou.

The Nushagak Peninsula Caribou Planning Committee met via teleconference July 28, 2021 and reviewed results of previous hunts, population and lichen monitoring and the harvest strategy. Agency biologists agreed a limited harvest of caribou would not impact the growth of the herd. A majority of the Committee favored having a hunt with a total of 8 permits, with 4 permits going to Manokotak and 2 permits going to each Aleknagik and Dillingham. Refuge Manager Moos' decision was to open the Federal caribou hunt on the Nushagak Peninsula from August 1-March 15 with a harvest objective of 8 caribou. No caribou have been reported harvested in the 2021-2022 Federal permit hunt.

Moose Contact: Andy Aderman
No calving flights were conducted in 2020 due to Covid-19 restrictions. In October 2020, only 4 calves (2 singles and 1 set of twins) were observed with 25 collared cows suggesting a fall recruitment rate of 16 calves per 100 cows. In late April 2021, the same 4 calves observed in October were still alive. This was the lowest fall and spring calf recruitment rate since monitoring began in 1998.

During the 2020-2021 moose hunts in Unit 17A (RM 571, RM 573, RM 575, RM 576, and DM 570), hunters reported harvesting 163 moose (105 bulls, 57 cows, and 1 unknown). In the southern Unit 18 moose hunts, (RM 617, RM 620, and RM621), hunters reported harvesting 25 moose (24 bulls and 1 cow).

Ten female moose (9 calves and 1 young adult) were captured and collared in mid-April in the Kanektok and Goodnews River drainages.

In 2021, 19 of 23 collared cows produced a minimum of 34 calves (5 singles, 13 sets of twins, and 1 set of triplets) suggesting a production rate of 147.8 calves per 100 cows.

The relationships of wolf and brown bear predation with moose population density and growth at Togiak National Wildlife Refuge and BLM Goodnews Block, Alaska Contact: Pat Walsh
In summer 2014, Togiak Refuge, the USFWS Genetics Lab, ADF&G, and BLM initiated a study to understand the effects of wolf and brown bear predation in regulating the populations of moose. The study relies on radio telemetry and stable isotope analysis. Our approach is to relate the predation impact by wolves and bears on moose at varying levels of moose population density. This requires having population estimates of both bears and wolves. We estimate the brown bear population totals approximately 855 bears (95% confidence limits: 664 – 1,154). Using radio telemetry, we estimate the wolf population varies widely but averages 90-100 wolves consisting of approximately 12 packs averaging 7 wolves plus approximately 10% of wolves unaffiliated with packs. Using these demographic data, we will model wolf and bear predation on moose based on the diet composition of both species determined through analysis of carbon and nitrogen isotopes occurring in wolf and bear tissues. Lab analyses are complete and modelling is currently underway.

Walrus Contact: Doug Holt
The Togiak Refuge has annually monitored the number and timing of Pacific walruses at haul-outs since 1985, using ground counts (1985-2008), aerial surveys (2003-2011) and time lapse photography (2010-2019). Overall, walrus numbers observed at haul-outs on Togiak Refuge have declined, with the greatest declines at Cape Peirce and Cape Newenham. Peak counts in the most current year when every day was counted (2016) were 401 at Cape Peirce, 897 on Hagemeister Island, and 454 at Cape Newenham. Walrus using haul-outs in Bristol Bay are typically recorded from late spring to late fall but were observed at Cape Newenham every month since cameras were deployed in fall of 2014 until February 2017. Data were recovered at all sites during summer 2019 and are currently being examined. In an effort to reduce potential spread of COVID-19 in the community travel to field sites was strictly limited and sites were not visited during 2020. The most recent report was completed in August 2019 and is available to the public at https://ecos.fws.gov/ServCat/DownloadFile/168185. Monitoring stations on Cape Peirce were visited in July 2021. Refuge staff plans to visit all remaining sites in August 2021.

Seabirds Contact: Jannelle Trowbridge
The abundance and reproductive success of black-legged kittiwakes, common murres, and pelagic cormorants was monitored annually at Cape Peirce from 1990-2014 and 2016-2019. Monitoring was postponed in 2020 and continued in 2021. In the past 30 years, the long-term average number of birds counted on study plots was 1,052 kittiwakes (range = 238-1,906), 2,506 murres (range = 53-4,563), and 86

cormorants (range = 14-123). Thirty years of seabird monitoring at Cape Peirce has revealed high variation in nesting adult counts and reproductive success. Given the variation in the last 30 years, an unusual window of poor reproductive success has sustained since 2016 for all three species. Population monitoring will continue in June 2022 at Cape Peirce.

Invasive Aquatic Plant Surveys Contact: Kara Hilwig
Elodea spp. is a highly invasive and difficult to control aquatic plant implicated in the degradation and loss of fish habitat across the world. It was confirmed present in Alaska in 2009 and is now found in several waterbodies across the State. Refuge and Park staff are cooperating to complete the fourth *Elodea* survey within the Togiak Refuge, Wood-Tikchik State Park and the surrounding area. Twenty-five annual monitoring sites have been established in high use areas such as lodge docks, boat ramps, and popular float plane destinations. Thus far, no *Elodea* has been detected. Funding proposals are currently being submitted to continue this work in 2022.

Water Temperature Monitoring Contact: Doug Holt
Stream temperature monitoring has been conducted at 21 locations on 14 rivers in Togiak Refuge since August 2001. Continuous hourly water temperatures were recorded at each site. Over 2.4 million temperature records were collected, quality-graded, and digitally stored in a relational database through October 2019. The warmest month each year was July. The maximum recorded mean daily summer temperatures varied by location, with median values of 9.8–22.9°C across sites. The warmest temperatures were observed in the Kukaktlim Lake outlet and the coolest temperatures were observed in the Weary River. The most recent stream temperature monitoring report was completed in September 2018 and is available to the public at https://ecos.fws.gov/ServCat/DownloadFiles/169087. A report detailing measurements recorded through summer 2019 is currently under review and a link to that report will be provided when the report is finalized and posted. Refuge staff plans to visit every stream temperature site in August 2021.

We used moored all-season temperature arrays to record hourly temperatures throughout the water column in 2 lakes on or near the Togiak Refuge 2011-2020. The lakes differed significantly in surface area, water volume, and elevation with Ongivinuk Lake being smaller and at higher elevation than Snake Lake. We observed variation in lake ice phenology and fewer days of ice cover on Snake Lake than on Ongivinuk Lake each winter when data were available for both lakes. We observed that both lakes were dimictic, exhibiting turnover events in spring and fall. We observed water temperatures in excess of standards for fish rearing and migration habitats during summer down to 12.5 m in Snake Lake and down to 5 m in Ongivinuk Lake. The most recent lake water temperature monitoring report was completed in March 2019 and is available to the public at https://ecos.fws.gov/ServCat/DownloadFile/169088. In an effort to reduce spread of COVID-19 sites were not visited during 2020. The Snake Lake site was visited in July 2021and instruments were found in working order. The measurements were downloaded but have not been added to the overall data set. A visit to Ongivinuk Lake by Refuge staff is planned for August 2021.

Quantifying River Discharge Contact: Pat Walsh
Togiak Refuge and the USFWS Water Resources Branch have worked cooperatively since 1999 to acquire baseline hydrologic data of the flow regime (magnitude, duration, timing, frequency, and rate of change) and water quality. A network of stream discharge gages collected stream flow data from 1999-2005 at 20 locations. A subset of five of these stations continued to collect data through fall 2009, after which three of the five stations were removed. We will monitor discharge in the Togiak and Kulukak Rivers indefinitely, although due to Covid-19 travel restrictions, no field work occurred in 2020.

Recovery of overgrazed lichen on Hagemeister Island Contact: Pat Walsh
Reindeer were removed from Hagemeister Island in 1993 following overgrazing that resulted in starvation in about 1/3 of the herd and damage to reindeer habitat. Since then, Togiak Refuge biologists have monitored the recovery of lichen communities and have found that average lichen biomass increased from 450 lb/acre in 2003 to 709 lb/acre in 2015. We calculated time to recovery with three competing growth curves which estimate grazeable biomass may be reached in 34-41 years and full recovery in 71 – approximately 400 years. Lichen communities were composed of various mixtures of at least 78 lichen species, but were dominated by important reindeer forage species. While reindeer overgrazing diminished forage quantity, it did not eradicate preferred forage. Results from this study were published in 2021 in the journal *Rangifer*.

Education and Outreach Contact: Terry Fuller
Togiak Refuge has an active education and outreach program, conducting an average of 60+ classroom visits throughout 12 Bristol Bay villages annually, during a normal school year. That total was cut short for the end of the 2019-2020 calendar year due to covid-19. Classroom visits include lessons about the Migratory Bird Calendar, National Wildlife Refuge Week, careers in natural resource conservation, and numerous teacher requested classroom presentations. The Refuge works with several school districts and private schools including the Southwest Region, Lower Kuskokwim, Dillingham City school districts and the Dillingham 7th Day Adventist School. Some topics often include bird walks, wilderness survival skills, archery, salmon life cycles, aquatic resources, and bear safety. At this time, outreach is still being impacted by covid-19; we are hopeful for a return to full outreach efforts in the near future. The refuge website is also an education tool and is available at http://togiak.fws.gov.

Togiak Refuge, in partnership with ADF&G and the Southwest Region School District, also conducts hunter safety courses throughout western Bristol Bay Villages. Classes have impacted more than 100 students in Manokotak, Dillingham, Twin Hills, Togiak, Aleknagik and Quinhagak. The refuge plans to continue these courses, as requested, in 2021 and is in the planning stages to add a National Archery in School Program to its offerings in the future, pending a return to normal outreach efforts.

The Refuge education program also produces Bristol Bay Field Notes, an award-winning weekly radio program on KDLG 670 AM that covers an array of outdoor-related topics (past episodes can be found on KDLG's website. Togiak Refuge has an active and heavily followed Facebook page which disseminates information on a daily basis to a rapidly growing global audience. These outreach efforts have not been affected by covid-19 and are available for public consumption at their regular rate of production.

The Refuge normally hosts an Open House event, in celebration of National Public Lands Day and National Hunting and Fishing Day. It was not held in 2020. This event is usually attended by 100-200 people and includes a wide range of displays, hands on activities, food and beverages.

Togiak Refuge staff continues to work with the Alaska Migratory Bird Co-Management Council and the ADF&G to conduct household subsistence waterfowl surveys. Refuge staff and volunteers conducted surveys in a number of southwest Alaska communities, Aleknagik, Dillingham, Togiak, Clark's Point, Newhalen, Nondalton, Chignik Lake and Chignik Lagoon. Surveys were put on hold for this year, due to covid-19.

Also, the Refuge partners with others to conduct three environmental education camps. As with other Service sponsored education camps, those camps were cancelled for 2020 and have not happened yet in 2021, due to covid-19 related concerns. The descriptions that follow are from the 2019 camps.

Cape Peirce Marine Science and Yup'ik Culture Camp Contact: Terry Fuller
In July 2019 an enthusiastic group of seven area junior high students representing three villages (Dillingham, Togiak and Platinum) traveled to Cape Peirce for this camp. Students were able to observe seabirds, marine mammals, and learn how field work is conducted, as well as learning about the food webs and ecological relationships found at the Cape Peirce area. Students also learned about traditional Yup'ik uses of animals and plants and about Native survival skills. This camp is designed to help students gain a better understanding of the biological diversity of a marine ecosystem. It also strengthens their sense of stewardship for local natural resources. Other topics at this camp included tide pools, wilderness survival skills, archery, bear safety, Leave No Trace camping practices and careers with USFWS. Refuge Interpreter Jon Dyasuk spoke with students about traditional resource uses. A special offering for this year's camp was the chance for the students to try their hand drawing with Colorado pastel artist Penny Creasy. Traditional councils and school districts from throughout western Bristol Bay are cooperators with this camp.

Southwest Alaska Science Academy (Salmon Camp) Contact: Terry Fuller
In July 2019, Togiak Refuge helped with the 19th year of a summer camp aimed at teaching middle and high school students about fisheries science and the importance of salmon to our ecosystem. Students were selected from the Bristol Bay region. During the camp students worked in the field alongside fisheries professionals. Cooperators with the Refuge on this project included the Bristol Bay Economic Development Corporation, Bristol Bay Science and Research Institute, University of Alaska, University of Washington School of Fisheries, the Dillingham City and Southwest Region school districts, and ADF&G.

Summer Outdoor Skills and River Ecology Float Camp Contact: Terry Fuller
The 2019 Float Camp took place on the Togiak River early August. At this camp, four high school students learned about river ecosystems and how to enjoy them safely and responsibly while taking part in a float trip conducted on a refuge river. Students observed and learned about the many fish, wildlife and plant species found on the Togiak and its tributaries. Rafting skills, water safety, different angling practices (Catch and Release), Leave No Trace camping practices and bear safety were topics during the trip. Students also participated in other outdoor activities such as wilderness survival skills. This camp helps students grasp the biological diversity of riparian ecosystems and the importance of salmon as a nutrient source, while developing a deeper sense of stewardship for local natural resources. Montana Artist Mara Menahan was along as an "Artist-in-Residence" and all of the students had an opportunity to work with Mara on natural history illustration while in the field. Traditional councils and school districts in western Bristol Bay are cooperators with this camp.

Division of Refuge Law Enforcement Contact: Derek Thompson
Federal Wildlife Officers work to protect wildlife and habitat and make refuges safe places for visitors and staff. Senior Federal Wildlife Officer (SFWO) Derek Thompson is stationed in Dillingham, AK. He is the Officer responsible for patrolling Togiak Refuge and managing its law enforcement program.

2021 has been a busy year with visitation rates normalizing. Mulchatna and Nushagak Peninsula caribou are a local and regional priority. SFWO Thompson was the incident commander for the USFWS winter Mulchatna Caribou Patrols based in Dillingham and Bethel. USFWS Division of Refuge Law Enforcement teamed up with ADF&G, AWT, BLM, and FWS OLE to enforce the Mulchatna caribou closed season. SFWO Thompson also assisted with the Chinook Salmon Conservation operation on the Kuskokwim River, this operation is also a regional priority. SFWO Thompson anticipates a busy hunting season and reminds all to check the regulations before going afield.

SFWO Thompson encourages anyone with questions regarding USFWS law enforcement to contact him; and reminds all who enjoy and rely upon the resources in the Bristol Bay Region the USFWS Division of Refuge Law Enforcement is here to help protect those resources for future generations.

Staff Update
New hires to announce:

Jackie Cleveland, Refuge Information Technician. Quinahagak.

We still have a couple vacancies and hope to fill them in the near future.

Preliminary 2021 Yukon River Chinook and Summer Chum Salmon Fisheries Review

Fall Regional Advisory Council Meeting Packet

All data current as of August 9, 2021

Presented by the U.S. Fish and Wildlife Service Yukon Team
Fairbanks Wildlife Conservation Office
101 12th Avenue, Rm 110
Fairbanks, AK 99701
Fax (907) 456-0454

Holly Carroll, Yukon River Subsistence Fishery Manager

I joined Service as the Federal manager in November, 2020, and look forward to connecting directly with Yukon Tribes, fishermen, and all stakeholders. Please contact me at:
Phone: (907) 351-3029
Email: holly_carroll@fws.gov

Gerald Maschmann, Yukon River Subsistence Fishery Asst. Manager

I've been working on the Yukon River since 2003 assisting the Federal Manager in fulfilling our mandate to protect Yukon River fisheries for future generations of subsistence users.
Phone: (907) 456-0406
Gerald_Maschmann@fws.gov

Keith Herron Ivy, Yukon River Subsistence Fishery Asst. Manager

I joined Service as a Biologist and assistant manager focused on increasing tribal consultation and youth outreach in March 2021. I look forward to working with Yukon Tribes, fisherman and stakeholders. Please contact me at:
Phone: (907) 312-3397
Keith_Ivy@fws.gov

This summary is compiled in cooperation with the Alaska Department of Fish and Game (ADF&G)

The Yukon River summer management season is nearly complete as of this writing (August 10, 2021) and the tail end of the Chinook Salmon run is passing the border into Canada. Much of the information in this report is preliminary. Fall season management is currently in full swing and a complete review could not be included as of this writing. The preliminary 2021 Yukon River fall Chum and Coho salmon fisheries review will be presented at the winter Regional Advisory Council meetings.

Tribal Consultation and Public Outreach

The U.S. Fish and Wildlife Service (Service) has a core mission to consult with Federal Tribes and the Yukon team has been working to expand and improve government-to-government consultation. In May, the subsistence fishery manager, Holly Carroll, sent the Preseason Salmon Outlook flier to 55 Yukon drainage Tribes introducing herself as the new manager, seeking feedback, guidance, or any discussion they want to have regarding the fisheries management strategy for 2021. The team's Keith Herron Ivy followed up with phone calls to each Tribe to make sure they are getting the necessary information about fishery management and to connect with them on any concerns they may have. We appreciated the direct communication our management team had with Tribal members in an effort to have meaningful participation in decision-making. We recognize the importance of coordination, consultation and follow-up between the Service's subsistence management team and the Federally recognized Tribes living along the Yukon River and we look forward to creating and maintaining effective working relationships.

We also engaged in public outreach by sending the Outlook flier presenting the finalized pre-season management strategy to all Yukon River households on May 13 and released as a cooperative ADF&G and Service advisory announcement #1: http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1262168922.pdf

The outlook and management strategy were discussed in depth at the following meetings: Yukon River Panel, Yukon River Intertribal Fish Commission (YRITFC) preseason meeting; and Yukon River Drainage Fishermen's Association (YRDFA) Board meeting and Public preseason fishermen's meeting. Inseason assessment data and management actions were discussed weekly on the Tuesday YRDFA teleconferences which were widely attended this season, and often allowed for up to two and a half hours of discussion each week.

Throughout the season our staff was responsive to daily requests from community members by phone or over email on many topics around salmon management in dozens of communities. This gave us input into our decision-making and enabled us to share relevant in-season salmon management information.

2021 Yukon River Chinook and Summer Chum Salmon Season Outlook

The Chinook Salmon run was forecasted to be similar to or smaller than 2020, with a drainage-wide outlook of between 102,000 to 189,000 fish. The outlook sent to households and discussed at preseason meetings indicated the need for front end closures up through the midpoint of the run, and that these actions would be taken based on the forecast and that more closures might be needed or that fishing might occur after the midpoint, depending on inseason abundance of salmon. The summer Chum Salmon run was forecasted to be near 1.2 million fish and provide

for escapement, normal subsistence harvests as well as additional commercial, personal use, and sport fishing opportunities.

Management Approach and Summer Season Review

The State of Alaska has the management authority on the Yukon River. Service's Federal management team analyzes assessment data and works closely and cooperatively with ADFG's management team to produce a management strategy preseason, and to make daily inseason decisions. The Federal inseason manager is delegated authority from the Federal Subsistence Board to issue emergency special actions when necessary to ensure the conservation of a healthy fish population, to continue subsistence uses of fish, or for public safety reasons. Management actions are decided upon by consensus and advisory announcements are crafted by both teams together. Because of this approach, there has not been a need for the federal manager to take special actions for more than a decade. And hopefully, this cooperative management has made fishery management actions clearer to all users and areas of the river.

As per the pre-season management strategy, subsistence salmon fishing was closed in the lower Yukon on June 2 (just as early Chinook Salmon arrived). Because of the poor outlook, tributaries and the Coastal district were also closed to salmon fishing at the start of the season. Overall, Pilot Station Sonar passage estimates indicated the drainage-wide Chinook Salmon run was near the lower end of the preseason outlook and summer Chum Salmon abundance was unexpectedly very poor at all lower river assessment with no typically large pulses seen. It was clear early in the season that the summer Chum were coming in well below the outlook and there was no harvestable surplus available for subsistence fishing for summer Chum Salmon. Unfortunately, with the poor abundance of Chinook Salmon and the critically low abundance of summer Chum Salmon, subsistence salmon fishing remained closed to salmon fishing throughout the drainage for the entire summer management season. When run sizes are so poor, there is no harvestable surplus; all salmon must escape to their spawning grounds in order to have viable returns 4, 5, and 6 years in the future. See Figures 1 and 2 for the end of season passage estimates of Chinook and summer Chum salmon compared to all previous years at the Pilot Station Sonar project. Both runs were some of the lowest on record.

The guiding principles outlined in the Alaska National Interest Lands Conservation Act (ANILCA) Title VIII acknowledge the importance of sound management principles; the importance of conservation of healthy populations of fish; and "the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives…is essential to Native physical, economic, traditional, and cultural existence…" When run sizes are so small that any harvest may have a negative impact on spawning success, we have the responsibility to manage for the conservation of healthy populations of fish. There is a need to balance the sacrifices the fishermen will experience in the current season, with the importance of the protecting the salmon returns for the fishermen and subsistence communities that will also rely on these returns 4, 5, and 6 years from now.

The drainage-wide Chinook and summer Chum salmon runs were some of the smallest on record, and with no projected harvestable surplus above what was needed to escape to the spawning grounds. The Federal manager, Holly Carroll, followed stipulations outlined in her delegation of authority by the Federal Subsistence Board as well as her obligations under

ANILCA Title VIII, Section 816 (b), which states that subsistence fishing may be closed "to assure the continued viability of such populations". Managers allowed as much opportunity to harvest non-salmon species as possible. Subsistence fishing targeting non-salmon species was open throughout the drainage using 4-inch or smaller mesh gillnet (limited to 60 feet in length) and other legal gear for non salmon during both summer and fall seasons. After transitioning to the fall season, opportunities to harvest other salmon such as Pink and Sockeye salmon were provided with dip nets and hook and line in districts that have those species, however, all Chinook and chum salmon were required to be released alive immediately. Because subsistence fishing was closed, all other consumptive uses such as commercial, personal use and sport fishing were also closed for Chinook, summer chum and fall chum throughout the drainage.

Subsistence harvest estimates will not be available until after household surveys are completed and results finalized, typically in December. But it is likely that Yukon households will have experienced record-low harvests for Chinook, summer chum, and fall chum salmon. This represents the loss of over 190,000 salmon (based on historical harvest averages) to Yukon River families. Closures on these populations were not taken lightly, and we recognize the severe hardship to subsistence fishermen in the loss of meals and traditional practices that these closures represent.

Preliminary Escapement Overview

The drainage-wide stock abundance as indicated by Pilot Station Sonar and genetic sampling indicated a very weak run of Chinook, and despite fishing closures, Chinook Salmon counts were below average at all projects where escapement is monitored. The East Fork Andreafsky River goal was not met, and goals are not projected to be met at the Chena and Salcha rivers in the Tanana River drainage. The Henshaw Creek escapement (in the Koyukuk River drainage) was well below average. Systems with aerial-based escapement goals will be monitored, weather permitting.

Passage estimates at the Eagle Sonar as of August 9, represented approximately 90% of Canadian-origin Chinook run at the project based on late run timing (Figure 3). The estimate of 26,972 Chinook salmon may end up being one of the lowest on record and indicates the 42,500-55,000 Interim Management Escapement Goal will not be met.

The 2021 summer Chum Salmon run was the lowest on record. Estimated passage past the Pilot Station Sonar was approximately 153,500 summer Chum salmon, well below the lower end of the drainage-wide escapement goal of 500,000-1.2 million. Escapement goals at the East Fork Andreafsky and Anvik rivers were not met and summer Chum salmon escapements at the Henshaw Creek, Chena River, and Salcha River were well below average.

Preliminary Fall Season Assessment and Management as of August 9

The fall season management is underway at time of writing. The fall Chum Salmon projection, based on the relationship between summer Chum Salmon and fall Chum Salmon run sizes, was for a run size less than 300,000 fish, which is critically low. According to the State of Alaska regulatory fall Chum Salmon Management Plan, the projection does not meet the threshold of 300,000 fish needed to allow subsistence fishing. Therefore, fall season began with full closures on subsistence salmon fishing for fall Chum Salmon, which is unprecedented.

The fall Chum Salmon abundance at LYTF and Mt. Village Test Fishery (MVTF), have been well below average so far this season. The Pilot Station Sonar passage for fall Chum Salmon through August 9 was 68,496, which is well below the historical cumulative median of 306,984. The midpoint of the run for fall Chum Salmon is August 10, while a typical late year midpoint is August 15. The current projected run size is unlikely to meet the drainagewide escapement goal of 300,000-600,000 fall Chum Salmon, tributary escapement goals and Canadian treaty objectives.

Future Expectations

Given that subsistence salmon fishing was closed throughout the river, escapement was much lower than expected based on inseason estimates at Pilot Station Sonar. This is the third year in a row where the expected number of fish escaping into Canada is much lower than expected. We do not know the reasons for this yet, but law enforcement patrolled all areas of the river this season, engaging with fishermen and indicated good compliance with the fishing closures, therefore it is unlikely that large illegal harvests occurred. En route mortality of Chinook may be occurring due to environmental factors such as the observed warm water temperatures in tributaries and the mainstem Yukon River and/or the effects of the parasite *Ichthyophonus*. Service and ADF&G collected samples opportunistically this season (only on salmon naturally killed in a test fishery or caught in legal 4-inch gear) to test for prevalence and severity of *Ichthyophonus* and results of these studies and suggestions for future mortality research will be discussed at winter meetings.

Juvenile salmon research in the Bering Sea has led to an effective model for forecasting adult returns of Chinook to the Yukon River three years ahead. This model has been quite accurate and is indicating the 2022 run may be similar or smaller than the run size in 2021. Run sizes as small as we saw this year are likely to need heavy fishing restrictions to full closures in order to get enough Chinook salmon to the spawning grounds to preserve them for future generations. Fishermen should start preparing now for the eventuality that there may be little to no Chinook salmon fishing next year. Unfortunately, we do not have Bering Sea juvenile-based forecasts for Chum Salmon, although researchers are working on refining forecasting models for chum.

Managers would like to ask the Regional Council members, Tribal Governments, and other stakeholder groups for their help in preparing their communities for another poor salmon season. Post-season reviews and pre-season meetings at the Regional Advisory Councils, Tribal consultations, and with other stakeholder groups will enable us to continue to share information and communicate in a timeline manner to maximize input for future in-season decision-making. For example, fishermen on the YRDFA teleconferences reported using 4-inch gillnets to catch non-salmon species, however, many fishermen reported not having this gear. We encourage fishermen to make plans to harvest other species in years when Chinook or Chum Salmon abundance is poor, and to invest in gear types such as 4-inch, which can even be used in the winter, through the ice. If the Chinook Salmon run is poor, but Chum Salmon abundance is strong, managers may be able to allow dip net opportunity that allows the harvest of Chum Salmon, with the live release of Chinook Salmon, so investing in selective gear types such as dip nets may also be recommended.

The managers would like to acknowledge the very serious hardship this season has caused Yukon River families. We would also like to thank Yukon River fishermen for their compliance during this difficult year and commend those Tribes and communities that took steps to provide fishing gear, freezers, and came up with creative solutions to compensate for loss of salmon meals. We also thank the Bristol Bay fishermen and processors and organizations that helped to distribute non-Yukon salmon to families in many villages. Yukon fishermen have shown incredible resiliency in adapting to the changing environment and changing salmon run sizes.

Figure 1. Cumulative passage of Chinook salmon at the Pilot Station Sonar from 1995 through 2021. Passage for 2021 is preliminary, and ongoing as of August 9, 2021.

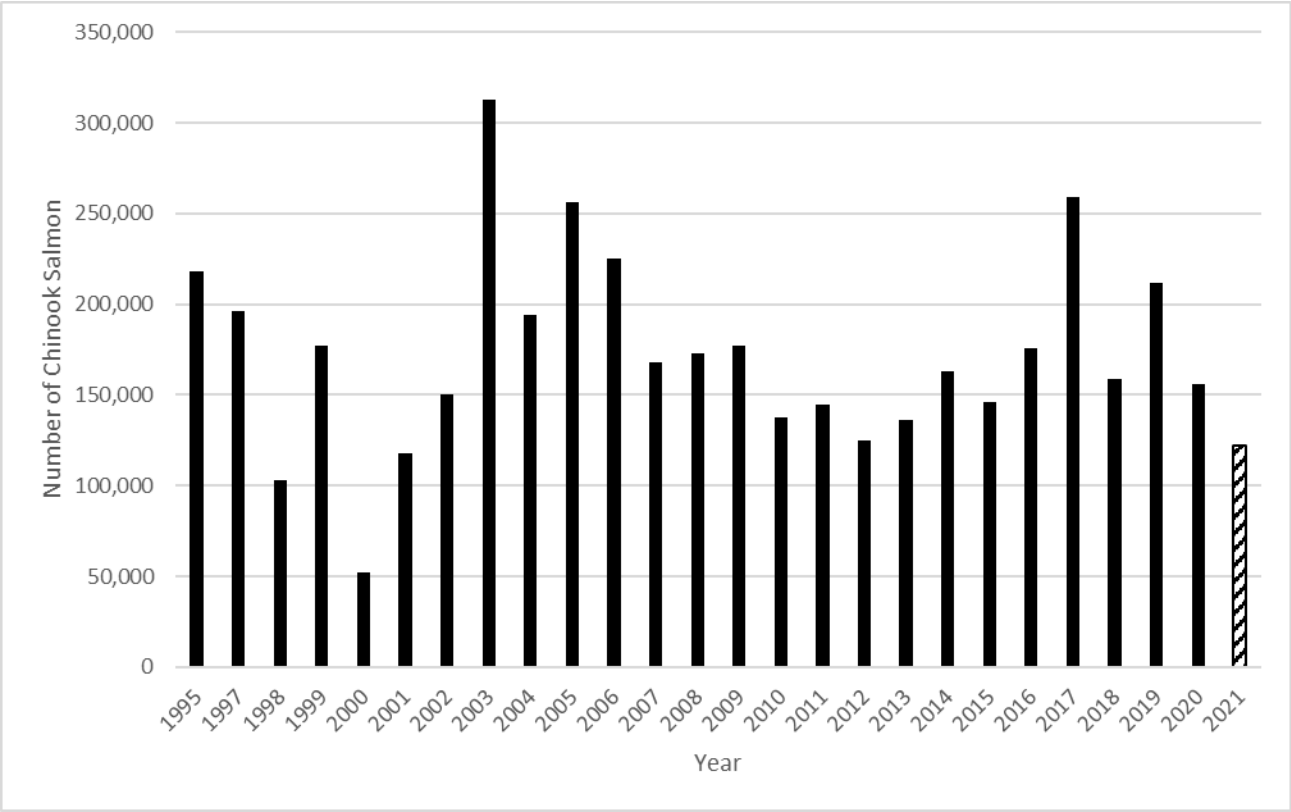


Figure 2. Cumulative passage of summer Chum at the Pilot Station Sonar project from 1995 through 2021. The dashed lines indicate the drainage-wide escapement goal range of 500,000 to 1.2 million, which was established in 2016. Passage for 2021 is preliminary but is considered complete through July 18, after which all chum are considered fall Chum Salmon.

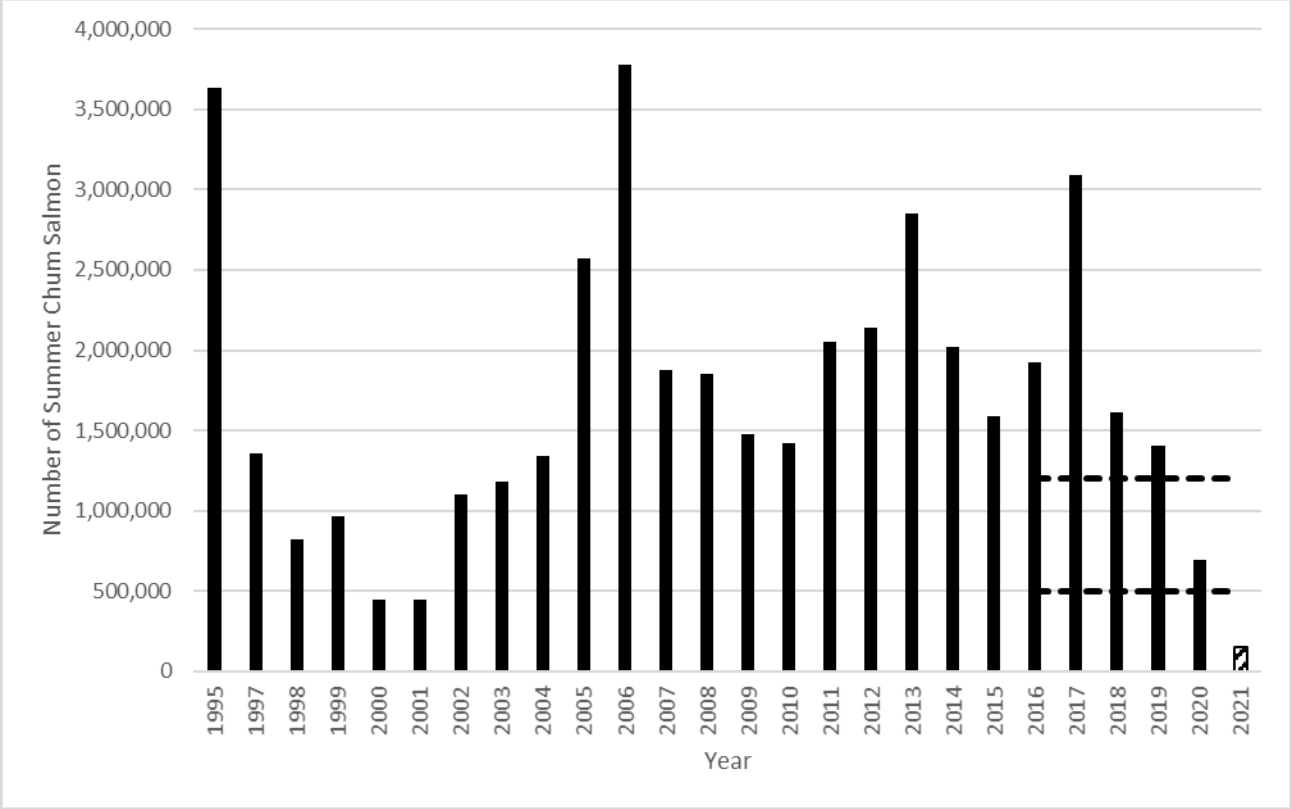
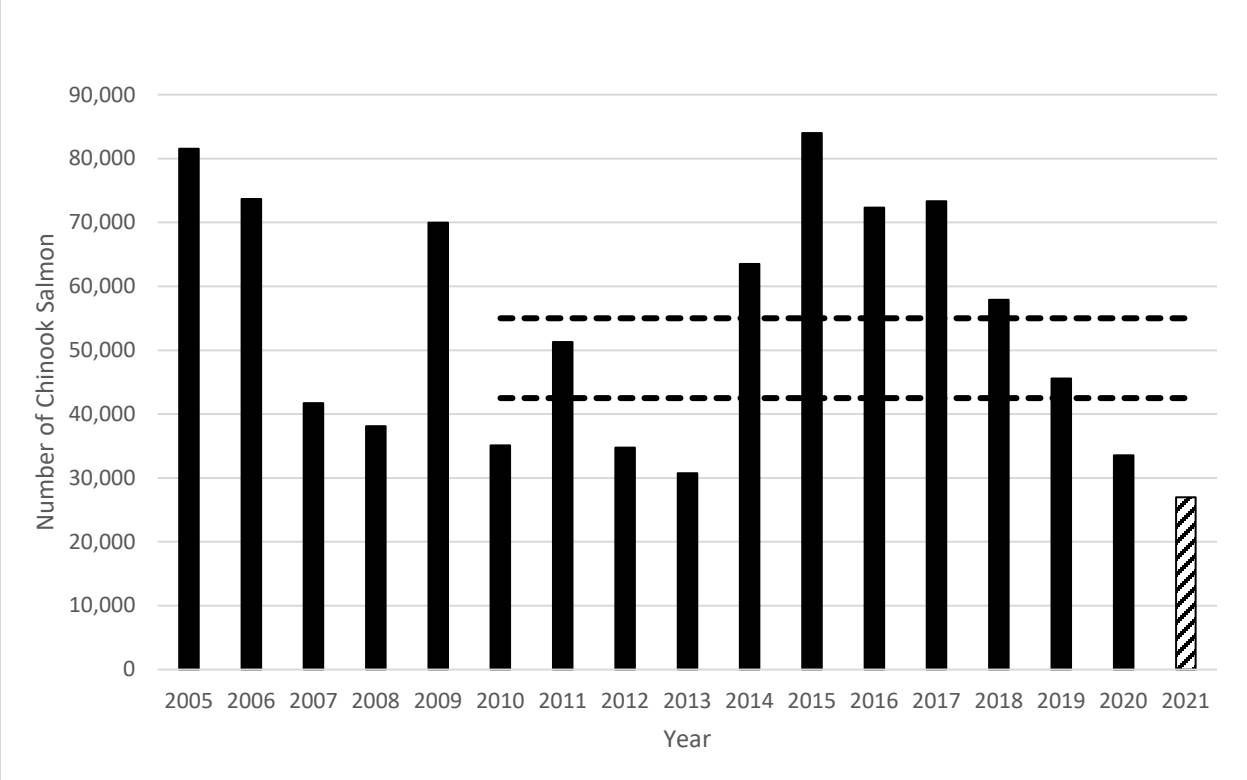


Figure 3. Cumulative passage estimates of Canadian-origin Chinook salmon at Eagle Sonar from 2005 through 2021. Passage for 2021 is preliminary, and ongoing as of August 9, 2021. The dashed lines are the Interim Management Escapement Goal range of 42,500-55,000, established in 2010.



Building Partnerships and Capacity for Federal Subsistence Fisheries Management and Research in the North

Partners for Fisheries Monitoring Program (PFMP)

Introduction

The Partners for Fisheries Monitoring Program was established in 2002 to increase the opportunity for Alaska Native and rural organizations to participate in Federal subsistence management. The program provides funding for fishery biologist, social scientist, or educator positions within the organization, with the intent of building and sustaining the organization's fisheries management expertise. In addition, the program supports a variety of opportunities for local, rural students to connect with subsistence management through science camps and paid internships.

The program has provided funding to mentor more than 100 college and 450 high school students, some of whom have gone on to become professionals in the field of natural resource conservation. To date with 13.3 million dollars spent, the program has supported nine Alaska Native organizations in building capacity. Organizations are funded for up to four years through a competitive grant process.

How to Get Involved

The next funding opportunity will open in 2023; it is never too early to reach out and to begin planning the components of a proposed PFMP program. The Office of Subsistence Management (OSM) is happy to answer questions and provide advice regarding its various funding programs.

OSM also partners with the Alaska Native Science and Engineering Program (ANSEP) to provide internship opportunities that expose students to careers in natural resource management. If your existing Alaska based fisheries program could benefit from a student internship, or if your program has exciting fisheries-related opportunities to challenge and educate Alaska's rural youth, please be sure to let us know!

For more information, please visit our site at https://www.doi.gov/subsistence/partners. You can also contact the program's coordinator, Karen Hyer at karen_hyer@fws.gov or 907-786-3689.

Partner Contacts

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2021 Partners Program Participant Summaries

Bristol Bay Native Association (BBNA)

The Bristol Bay Native Association (BBNA) researches and highlights the role of fish used in satisfying a way of life, through collaborative investigations with our member tribes, universities, and state and federal managers. These partnerships inform our citizens of any changes to the public's relationships with fish and emphasize the value in the co-production of traditional knowledge and contemporary sciences research.

The BBNA Partners program funding is used in supporting the conversation between our residents, communities, and the managers tasked with decision-making on essential food resources. The program reinforces public input to the region's Fish and Game Advisory Committees, NPS Subsistence Resource Commissions, and the Federal Regional Advisory Council, while relaying information gathered from the social science investigations. Recent focus has been on subsistence fishery funding from section 12005 of the Cares Act, and the Chignik Fisheries disaster relief efforts.

Over the past year, the program informed and collaborated on multiple investigations and recent publications, some of which are available online and focus on; The Naknek River Subsistence Salmon Harvest, Subsistence Salmon Sharing Networks on the Alaska Peninsula, Voices of Alaska Native Women Fishers, Sharing Food and Community Resilience, and a Subsistence Harvest Assessment and Stock Composition of Dolly Varden and Nonsalmon Fish Stocks in the Togiak National Wildlife Refuge.

BBNA's program has coordinated dozens of internships with partners like Lake Clark National Park, Togiak National Wildlife Refuge, Alaska Dept. of Fish and Game, and the University of Washington. The leaders involved in these summer experiences have guided many students into careers in natural resource management. Some of those students have now become the mentors to the next cohort of future leaders. While the 2020 summer internships were successfully held virtually, we are looking forward to getting the hands-on field experiences in 2021!

Yakutat Tlingit Tribe (YTT)

Yakutat Tlingit Tribe (YTT) is a federally recognized tribe with 820 enrolled Tribal Members located on the northern coast of the Gulf of Alaska. Developing conservation concerns about local salmon stocks have highlighted the need for building capacity for fisheries monitoring and management in the YTT Environmental Department. Through the Partners Program, YTT hired a full time Fisheries Biologist in 2020 to participate in subsistence management and instill placed-based knowledge on the Situk River. YTT's Fisheries Biologist partners with the Yakutat District River Ranger to serve as the primary contacts to the public on the Situk River (April-September).

The team's primary job is to contact Situk users to promote stewardship and cultural awareness. Being on the river during peak fishing seasons, they can communicate conservation messages to anglers streamside on topics like catch and release, don't tread on redds, salmon ecology, angler etiquette, current regulations, alternative fishing sites, and habitat degradation. The biologist provides river users with

context about history and cultural importance of salmon with the Situk being the primary source for subsistence in Yakutat. In the past, brown bears associating anglers with fish has been a safety concern for both people and bears on the Situk. However, in coordination with the USFS Wildlife Biologist and Fish and Game, the River Rangers have aggressively worked to curb the behaviors amongst fisherman that lead to this problem. The consistent presence of the partners alone will prompt stewardship and good behavior amongst the varied Situk River users.

The Partners Program has enhanced YTT's capacity by broadening the scope of resources and tools available to the Tribe such as allowing access to valuable datalike river use, stream restoration trainings, and research methods like eDNA. This partnership forges a strong foundation that strengthens and supports the YTT Environmental Department's capacity to identify and respond to conservation concerns that impact tribal interests. YTT looks forward to expanding the department and welcoming an intern under the Partners Program.

Tanana Chiefs Conference (TCC)

The Tanana Chiefs Conference (TCC) serves as a non-profit organization for the Interior region of Alaska. The TCC region covers an area of 235,000 square miles and overlaps three separate National Wildlife Refuges (NWR): Kanuti, Koyukuk-Innoko-Nowitna, and the Yukon Flats. Since its creation, the TCC has become the provider of several programs in the Interior of Alaska. Through contracts with the Bureau of Indian Affairs, TCC is responsible for the management and delivery of services such as housing, land management, tribal government assistance, education and employment services, and natural resources management.

Within TCC's organizational structure, the Wildlife and Parks (W&P) Program is responsible for serving the subsistence needs of its tribes and tribal members. The Partners Program allows the TCC W&P Program the ability to maintain a fulltime fisheries biologist on staff and has allowed TCC to develop the capacity to address the subsistence needs of TCC tribes and tribal members by conducting a variety of fisheries research programs and also by participating in federal and state fisheries management meetings.

Through the Partners Program, TCC has successfully operated the Henshaw Creek Weir salmon monitoring project in the upper Koyukuk River. TCC strives to recruit and hire local technicians and youth to assist with the project each year. The Henshaw project also hosts an annual summer science and culture camp that is jointly operated by TCC and the Kanuti NWR. Elders and youth are brought together at the camp where the Elders teach students traditional skills (like setting nets, cutting and drying fish, and Athabascan language). TCC and Kanuti staff provide lessons in western science such as weir sampling, salmon biology and ecology and fisheries management.

Outside of the Henshaw Creek Weir project, TCC has been able to lead other fisheries investigations such as updating the Yukon River Chinook and chum salmon genetic baselines, mapping salmon spawning habitat and updating the Anadromous Waters Catalog and exploring the capabilities of small unmanned aerial systems to assist with salmon research and management. Additionally, each year they host one or two Alaska Native Science and Engineering Program (ANSEP) summer bridge students and provide them with the opportunity to gain hands on knowledge and experience in fisheries management within the Yukon River drainage.

Native Village of Eyak (NVE)

The Native Village of Eyak's Department of the Environment and Natural Resources (NVE-DENR) Fisheries Program focuses on population monitoring, filling data gaps, using traditional ecological knowledge to improve data collection, and working with partners to ensure a future with healthy robust fish populations while supporting sustainable fisheries. PFMP funds are used to support a permanent fish biologist responsible for leading the fisheries program and seasonal fisheries interns who gain valuable hands-on experience.

The current PFMP is also supporting the development of a youth science and subsistence camp and outreach with other organizations and researchers throughout the region. Current research led by NVE's Partners Program biologist includes Chinook salmon inriver abundance, Copper River (2003-2021); Chinook salmon distribution and stock specific run timing, Copper River (2019-2021); Klutina River salmon enumeration sonar pilot study (2021-2024).

Furthermore, NVE is continually sharing its resources and expertise to accomplish more work through partnerships with other researchers. Current partners on side-studies include Alaska Department of Fish and Game Division of Sport Fish and Commercial Fisheries, Prince William Sound Science Center, and Ahtna Intertribal Resource Commission.

Native Village of Napaimute (NVN)

The Native Village of Napaimute (NVN) is a federally recognized tribe and has about 100 members; the village is only seasonally occupied currently. The Napaimute Partners in Fisheries Monitoring Program main goals are to; improve effectiveness of local outreach related to fisheries management, provide opportunities in natural resource education and experience for local youth, build local capacity through strategic program and workforce development, and develop a sustainable natural resource program.

Outreach related to fisheries management is achieved by participating in management discussions with various advisory groups i.e., Kuskokwim River Inter Tribal Fish Commission, Kuskokwim Salmon Management Working Group, and agencies (ADF&G, USFWS). We routinely post in-season management actions on social media and around the Villages to keep fishers informed on the latest regulations.

Our youth outreach involves two projects; the Math Science Expedition (MSE) and the George River Internship (GRI). The MSE is tailored more to be leadership development experience with some exposure to fisheries ecology and data collection. The MSE typically accommodates 25-30 students on a two week-long rafting trip down the Salmon and Aniak Rivers.

The GRI is an advanced paid Internship opportunity on the George River where Interns learn about river ecology, hydrology, sampling techniques for fish and benthic macro- invertebrates, leadership skills and career opportunities in the area of natural resource management.

The PFMP has allowed us to build the capacity to peruse funding for and help support fisheries monitoring programs (Aniak Test Fishery & Salmon River Weir) funded through the USFWS Fisheries Resource Monitoring Program, along with several environmental monitoring and fisheries assistance projects. Projects are mostly staffed by local residents and Alaska Native Science and Engineering Students (ANSEP).

Orutsararmiut Native Council (ONC)

Orutsararmiut Native Council (ONC) is the Federally recognized Tribal Government for the Native Village of Bethel, Alaska and has greatly expanded its Partners Program since 2008. ONC Partners Program strives to support ongoing fisheries in season and postseason monitoring programs; serve as a mentor for rural, Alaska Native student interns in coordination with other state, federal, and tribal entities; communicate results of the fisheries monitoring program projects to various audiences to enhance federal subsistence management awareness in rural communities; continue youth internship programs; and pursue external funds and partnerships to expand the current Partners Program. In the past, with the support of the Partners Program, ONC was able to conduct annual Science & Culture Camps, as well as science, technology, engineering, and math (STEM) middle school career exploration programs in Bethel with the help of Alaska Native Science & Engineering Program (ANSEP) and several other partner agencies.

Our Partners Program also became involved with the Aniak & Salmon River Math & Science Expedition by fisheries educational outreach with youth from the middle Kuskokwim. ONC's involvement with youth camp programs throughout the years was able to reach many students ranging from 6th to 12th grade. Despite the difficulties and cancellations that came with the COVID-19 pandemic, ONC's Partners Program work has continued in a safe manner with new procedures and creative methods to engage youth. We would like to sincerely thank the Office of Subsistence Management and other partnering entities, for without their support, our program would not have had the ability to support the youth of the Yukon-Kuskokwim Delta. The support of our partners has allowed ONC to have great success in expanding its involvement on scientific and educational outreach projects and programs.

Qawalangin Tribe of Unalaska (QTU)

The Qawalangin Tribe of Unalaska is a federally recognized sovereign nation. The Unangan people have continuously occupied their homelands along the Aleutian and Pribilof Islands for thousands of years, relying on a close relationship with the sea and lands.

As a new participant in the Partners program, the Tribe is looking forward to continuing work to ensure healthy subsistence species and food sovereignty for generations to come.

A key project in our first year as a Partners program participant was collaborating with ADFG to operate a weir at McLees Lake, monitoring this sockeye run that is an important subsistence resource for the community. In our first year, we restored structures at the site that had fallen into disrepair during a 2-year gap in funding for the weir. Our staff gained experience in weir setup and operations and scale sampling. We are looking forward to building our staff capacity and increasing our presence at the weir in coming seasons and working to ensure continuity of this important salmon monitoring site.

In addition to continuing work at the McLees weir in partnership with ADFG, in the coming years we are looking forward to establishing a strong outreach and education program to build awareness and support of subsistence resource management, so important to our coastal community.

Winter 2022 Regional Advisory Council Meeting Calendar

Last updated 3/19/2021

Due to travel budget limitations placed by Department of the Interior on the U.S. Fish and Wildlife Service and the Office of Subsistence Management, the dates and locations of these meetings will be subject to change.

Sunday	Monday	Tuesday	Wednesday-	Thursday	Friday	Saturday
Feb. 6	*Feb. 7 Window Opens*	*Feb. 8*	*Feb. 9*	*Feb. 10*	*Feb. 11*	*Feb. 12*
		BB - Naknek		**SC - Anchorage**		
Feb. 13	*Feb. 14*	*Feb. 15*	*Feb. 16*	*Feb. 17*	*Feb. 18*	*Feb. 19*
	NWA - Kotzebue		**WI - Galena**			
Feb. 20	*Feb. 21* ***PRESIDENTS DAY HOLIDAY***	*Feb. 22*	*Feb. 23*	*Feb. 24*	*Feb. 25*	*Feb. 26*
		KA - Kodiak				
Feb. 27	*Feb. 28*	*Mar. 1*	*Mar. 2*	*Mar. 3*	*Mar. 4*	*Mar. 5*
		YKD - Bethel		**SP - Nome**		
Mar. 6	*Mar. 7*	*Mar. 8*	*Mar. 9*	*Mar. 10*	*Mar. 11*	*Mar. 12*
		EI - Fort Yukon				
		NS - TBD				
Mar. 13	*Mar. 14*	*Mar. 15*	*Mar. 16*	*Mar. 17*	*Mar. 18*	*Mar. 19*
Mar. 20	*Mar. 21*	*Mar. 22*	*Mar. 23*	*Mar. 24*	*Mar. 25* *Window Closes*	*Mar. 26*
		SEA - Sitka				

Fall 2022 Regional Advisory Council Meeting Calendar

Last updated 8/5/2021

Due to travel budget limitations placed by Department of the Interior on the U.S. Fish and Wildlife Service and the Office of Subsistence Management, the dates and locations of these meetings will be subject to change.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aug. 7	*Aug. 8 Window Opens*	*Aug. 9*	*Aug. 10*	*Aug.11*	*Aug. 12*	*Aug.13*
Aug. 14	*Aug. 15*	*Aug. 16*	*Aug. 17*	*Aug. 18*	*Aug. 19*	*Aug. 20*
Aug. 21	*Aug. 22*	*Aug. 23*	*Aug. 24*	*Aug. 25*	*Aug. 26*	*Aug. 27*
Aug. 28	*Aug. 29*	*Aug. 30*	*Aug. 31*	*Sep. 1*	*Sep. 2*	*Sep. 3*
Sep. 4	*Sep. 5* **Labor Day Holiday**	*Sep. 6*	*Sep. 7*	*Sep. 8*	*Sep. 9*	*Sep. 10*
Sep. 11	*Sep. 12*	*Sep. 13*	*Sep. 14*	*Sep. 15*	*Sep. 16*	*Sep. 17*
Sep. 18	*Sep. 19*	*Sep. 20*	*Sep. 21*	*Sep. 22*	*Sep. 23*	*Sep. 24*
Sep. 25	*Sep. 26*	*Sep. 27*	*Sep. 28*	*Sep. 29*	*Sep. 30*	*Oct. 1*
Oct. 2	*Oct. 3*	*Oct. 4*	*Oct. 5*	*Oct. 6*	*Oct. 7*	*Oct. 8*
Oct. 9	*Oct. 10* **Columbus Day Holiday**	*Oct. 11*	*Oct. 12*	*Oct. 13*	*Oct. 14*	*Oct. 15*
Oct. 16	*Oct. 17*	*Oct. 18*	*Oct. 19*	*Oct. 20*	*Oct. 21*	*Oct. 22*
Oct. 23	*Oct. 24*	*Oct. 25*	*Oct. 26*	*Oct. 27*	*Oct. 28*	*Oct. 29*
Oct. 30	*Oct. 31*	*Nov. 1*	*Nov. 2*	*Nov. 3*	*Nov. 4 Window Closes*	*Nov. 5*

Subsistence Regional Advisory Council Correspondence Policy

The Federal Subsistence Board (Board) recognizes the value of the Regional Advisory Councils' role in the Federal Subsistence Management Program. The Board realizes that the Councils must interact with fish and wildlife resource agencies, organizations, and the public as part of their official duties, and that this interaction may include correspondence. Since the beginning of the Federal Subsistence Program, Regional Advisory Councils have prepared correspondence to entities other than the Board. Informally, Councils were asked to provide drafts of correspondence to the Office of Subsistence Management (OSM) for review prior to mailing. Recently, the Board was asked to clarify its position regarding Council correspondence. This policy is intended to formalize guidance from the Board to the Regional Advisory Councils in preparing correspondence.

The Board is mindful of its obligation to provide the Regional Advisory Councils with clear operating guidelines and policies, and has approved the correspondence policy set out below. The intent of the Regional Advisory Council correspondence policy is to ensure that Councils are able to correspond appropriately with other entities. In addition, the correspondence policy will assist Councils in directing their concerns to others most effectively and forestall any breach of department policy.

The Alaska National Interest Lands Conservation Act, Title VIII required the creation of Alaska's Subsistence Regional Advisory Councils to serve as advisors to the Secretary of the Interior and the Secretary of Agriculture and to provide meaningful local participation in the management of fish and wildlife resources on Federal public lands. Within the framework of Title VIII and the Federal Advisory Committee Act, Congress assigned specific powers and duties to the Regional Advisory Councils. These are also reflected in the Councils' charters. *(Reference: ANILCA Title VIII §805, §808, and §810; Implementing regulations for Title VIII, 50 CFR 100 _.11 and 36 CFR 242 _.11; Implementing regulations for FACA, 41 CFR Part 102-3.70 and 3.75)*

The Secretaries of Interior and Agriculture created the Federal Subsistence Board and delegated to it the responsibility for managing fish and wildlife resources on Federal public lands. The Board was also given the duty of establishing rules and procedures for the operation of the Regional Advisory Councils. The Office of Subsistence Management was established within the Federal Subsistence Management Program's lead agency, the U.S. Fish and Wildlife Service, to administer the Program. *(Reference: 36 CFR Part 242 and 50 CFR Part 100 Subparts C and D)*

Policy

1. The subject matter of Council correspondence shall be limited to matters over which the Council has authority under §805(a)(3), §808, §810 of Title VIII, Subpart B §___.11(c) of regulation, and as described in the Council charters.

2. Councils may, and are encouraged to, correspond directly with the Board. The Councils are advisors to the Board.

3. Councils are urged to also make use of the annual report process to bring matters to the Board’s attention.

4. As a general rule, Councils discuss and agree upon proposed correspondence during a public meeting. Occasionally, a Council chair may be requested to write a letter when it is not feasible to wait until a public Council meeting. In such cases, the content of the letter shall be limited to the known position of the Council as discussed in previous Council meetings.

5. Except as noted in Items 6, 7, and 8 of this policy, Councils will transmit all correspondence to the Assistant Regional Director (ARD) of OSM for review prior to mailing. This includes, but is not limited to, letters of support, resolutions, letters offering comment or recommendations, and any other correspondence to any government agency or any tribal or private organization or individual.
    a. Recognizing that such correspondence is the result of an official Council action and may be urgent, the ARD will respond in a timely manner.
    b. Modifications identified as necessary by the ARD will be discussed with the Council chair. Councils will make the modifications before sending out the correspondence.

6. Councils may submit written comments requested by Federal land management agencies under ANILCA §810 or requested by regional Subsistence Resource Commissions (SRC) under §808 directly to the requesting agency. Section 808 correspondence includes comments and information solicited by the SRCs and notification of appointment by the Council to an SRC.

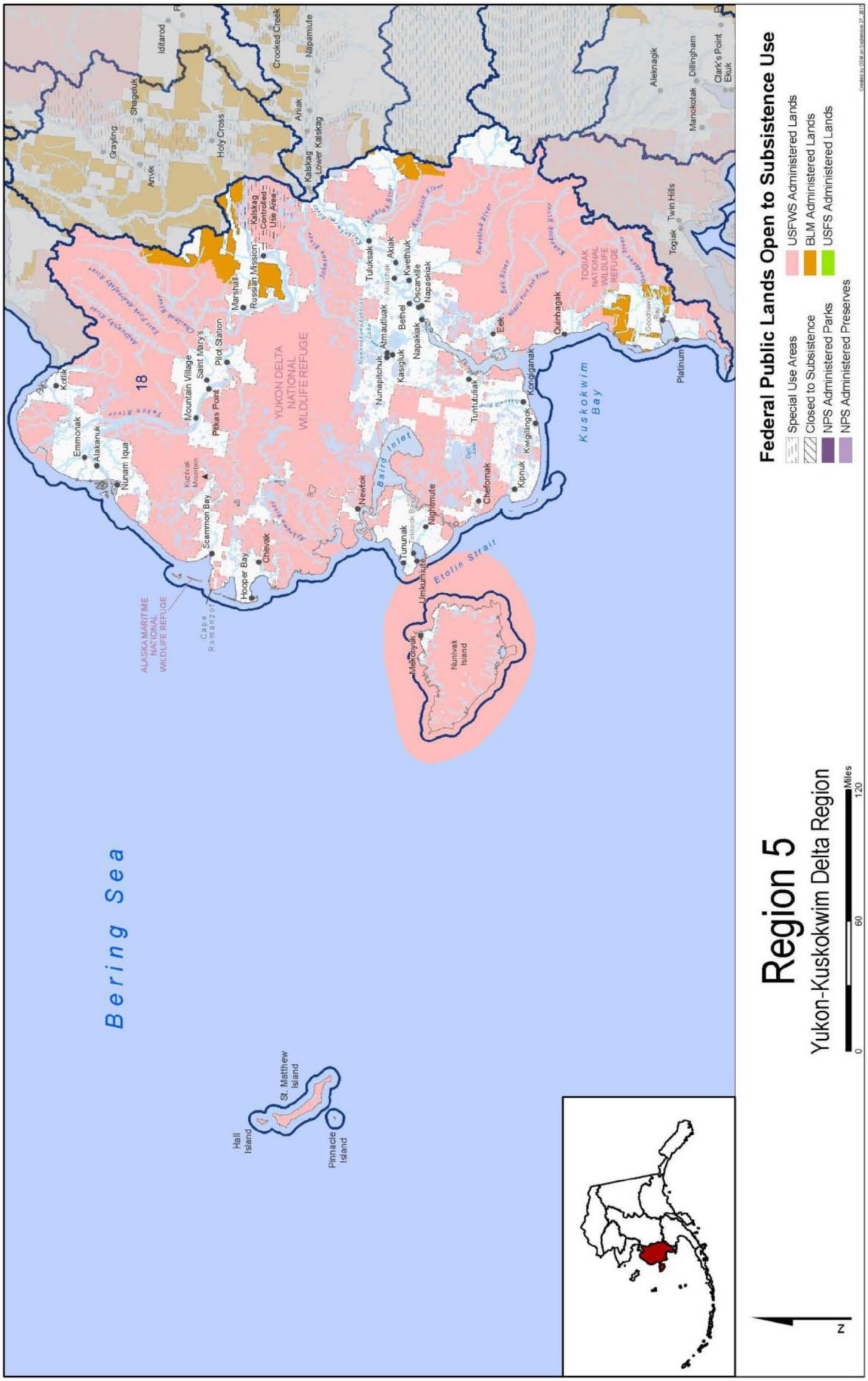
7. Councils may submit proposed regulatory changes or written comments regarding proposed regulatory changes affecting subsistence uses within their regions to the Alaska Board of Fisheries or the Alaska Board of Game directly. A copy of any comments or proposals will be forwarded to the ARD when the original is submitted.

8. Administrative correspondence such as letters of appreciation, requests for agency reports at Council meetings, and cover letters for meeting agendas will go through the Council's regional coordinator to the appropriate OSM division chief for review.

9. Councils will submit copies of all correspondence generated by and received by them to OSM to be filed in the administrative record system.

10. Except as noted in Items 6, 7, and 8, Councils or individual Council members acting on behalf of or as representative of the Council may not, through correspondence or any other means of communication, attempt to persuade any elected or appointed political officials, any government agency, or any tribal or private organization or individual to take a particular action on an issue. This does not prohibit Council members from acting in their capacity as private citizens or through other organizations with which they are affiliated.

Approved by the Federal Subsistence Board on June 15, 2004.


Region 5
Yukon-Kuskokwim Delta Region
Federal Public Lands Open to Subsistence Use
Special Use Areas
Closed to Subsistence
NPS Administered Parks
NPS Administered Preserves
USFWS Administered Lands
BLM Administered Lands
USFS Administered Lands
Miles
0
60
120
Bering Sea
Kuskokwim Bay
Etolin Strait
Baird Inlet
YUKON DELTA NATIONAL WILDLIFE REFUGE
TOGIAK NATIONAL WILDLIFE REFUGE
ALASKA MARITIME NATIONAL WILDLIFE REFUGE
Nunivak Island
St. Matthew Island
Hall Island
Pinnacle Island
Kalskag Controlled Use Area
18
N

Department of the Interior
U. S. Fish and Wildlife Service

Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

Charter

1. **Committee's Official Designation.** The Council's official designation is the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council (Council).

2. **Authority.** The Council is renewed by virtue of the authority set out in the Alaska National Interest Lands Conservation Act (ANILCA) (16 U.S.C. 3115 (1988)), and under the authority of the Secretary of the Interior, in furtherance of 16 U.S.C. 410hh-2. The Council is regulated by the Federal Advisory Committee Act (FACA), as amended, (5 U.S.C. Appendix 2).

3. **Objectives and Scope of Activities.** The objective of the Council is to provide a forum for the residents of the Region with personal knowledge of local conditions and resource requirements to have a meaningful role in the subsistence management of fish and wildlife on Federal lands and waters in the Region.

4. **Description of Duties.** Council duties and responsibilities, where applicable, are as follows:

    a. Recommend the initiation, review, and evaluation of proposals for regulations, policies, management plans, and other matters relating to subsistence uses of fish and wildlife on public lands within the Region.

    b. Provide a forum for the expression of opinions and recommendations by persons interested in any matter related to the subsistence uses of fish and wildlife on public lands within the Region.

    c. Encourage local and regional participation in the decision-making process affecting the taking of fish and wildlife on the public lands within the Region for subsistence uses.

    d. Prepare an annual report to the Secretary containing the following:

        (1) An identification of current and anticipated subsistence uses of fish and wildlife populations within the Region.

        (2) An evaluation of current and anticipated subsistence needs for fish and wildlife populations within the Region.

        (3) A recommended strategy for the management of fish and wildlife populations within the Region to accommodate such subsistence uses and needs.

(4) Recommendations concerning policies, standards, guidelines, and regulations to implement the strategy.

e. Make recommendations on determinations of customary and traditional use of subsistence resources.

f. Make recommendations on determinations of rural status.

g. Provide recommendations on the establishment and membership of Federal local advisory committees.

h. Provide recommendations for implementation of Secretary's Order 3347: Conservation Stewardship and Outdoor Recreation, and Secretary's Order 3356: Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories. Recommendations shall include, but are not limited to:

(1) Assessing and quantifying implementation of the Secretary's Orders, and recommendations to enhance and expand their implementation as identified;

(2) Policies and programs that:

(a) increase outdoor recreation opportunities for all Americans, with a focus on engaging youth, veterans, minorities, and other communities that traditionally have low participation in outdoor recreation;

(b) expand access for hunting and fishing on Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service lands in a manner that respects the rights and privacy of the owners of non-public lands;

(c) increase energy, transmission, infrastructure, or other relevant projects while avoiding or minimizing potential negative impacts on wildlife; and

(d) create greater collaboration with States, Tribes, and/or Territories.

i. Provide recommendations for implementation of the regulatory reform initiatives and policies specified in section 2 of Executive Order 13777: Reducing Regulation and Controlling Regulatory Costs; Executive Order 12866: Regulatory Planning and Review, as amended; and section 6 of Executive Order 13563: Improving Regulation and Regulatory Review. Recommendations shall include, but are not limited to:

Identifying regulations for repeal, replacement, or modification considering, at a minimum, those regulations that:

(1) eliminate jobs, or inhibit job creation;

(2) are outdated, unnecessary, or ineffective;

(3) impose costs that exceed benefits;

(4) create a serious inconsistency or otherwise interfere with regulatory reform initiative and policies;

(5) rely, in part or in whole, on data or methods that are not publicly available or insufficiently transparent to meet the standard for reproducibility; or

(6) derive from or implement Executive Orders or other Presidential and Secretarial directives that have been subsequently rescinded or substantially modified.

All current and future Executive Orders, Secretary's Orders, and Secretarial Memos should be included for discussion and recommendations as they are released. At the conclusion of each meeting or shortly thereafter, provide a detailed recommendation meeting report, including meeting minutes, to the Designated Federal Officer (DFO).

5. **Agency or Official to Whom the Council Reports.** The Council reports to the Federal Subsistence Board Chair, who is appointed by the Secretary of the Interior with the concurrence of the Secretary of Agriculture.

6. **Support.** The U.S. Fish and Wildlife Service will provide administrative support for the activities of the Council through the Office of Subsistence Management.

7. **Estimated Annual Operating Costs and Staff Years.** The annual operating costs associated with supporting the Council's functions are estimated to be $196,000, including all direct and indirect expenses and 1.15 Federal staff years.

8. **Designated Federal Officer.** The DFO is the Subsistence Council Coordinator for the Region or such other Federal employee as may be designated by the Assistant Regional Director – Subsistence, Region 11, U.S. Fish and Wildlife Service. The DFO is a full-time Federal employee appointed in accordance with Agency procedures. The DFO will:

(a) Approve or call all Council and subcommittee meetings;

(b) Prepare and approve all meeting agendas;

(c) Attend all committee and subcommittee meetings;

(d) Adjourn any meeting when the DFO determines adjournment to be in the public interest; and

(e) Chair meetings when directed to do so by the official to whom the advisory committee reports.

9. **Estimated Number and Frequency of Meetings**. The Council will meet 1-2 times per year, and at such times as designated by the Federal Subsistence Board Chair or the DFO.

10. **Duration**. Continuing.

11. **Termination.** The Council will be inactive 2 years from the date the Charter is filed, unless, prior to that date, the charter is renewed in accordance with the provisions of section 14 of the FACA. The Council will not meet or take any action without a valid current charter.

12. **Membership and Designation.** The Council's membership is composed of representative members as follows:

Thirteen members who are knowledgeable and experienced in matters relating to subsistence uses of fish and wildlife and who are residents of the Region represented by the Council.

To ensure that each Council represents a diversity of interests, the Board in their nomination recommendations to the Secretary will strive to ensure that nine of the members (70 percent) represent subsistence interests within the Region and four of the members (30 percent) represent commercial and sport interests within the Region. The portion of membership representing commercial and sport interests must include, where possible, at least one representative from the sport community and one representative from the commercial community.

The Secretary of the Interior will appoint members based on the recommendations from the Federal Subsistence Board and with the concurrence of the Secretary of Agriculture. Members will be appointed for 3-year terms. Members serve at the discretion of the Secretary.

Alternate members may be appointed to the Council to fill vacancies if they occur out of cycle. An alternate member must be approved and appointed by the Secretary before attending the meeting as a representative. The term for an appointed alternate member will be the same as the term of the member whose vacancy is being filled.

Council members will elect a Chair, Vice-Chair, and Secretary for a 1-year term.

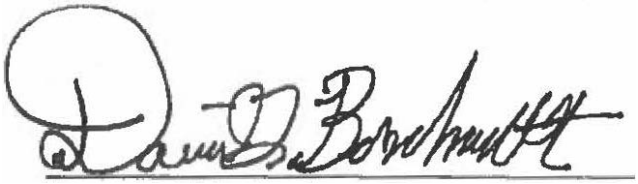
Members of the Council will serve without compensation. However, while away from their homes or regular places of business, Council and subcommittee members engaged in Council, or subcommittee business, approved by the DFO, may be allowed travel

expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in Government service under section 5703 of title 5 of the United States Code.

13. **Ethics Responsibilities of Members.** No Council or subcommittee member will participate in any Council or subcommittee deliberations or votes relating to a specific party matter before the Department or its bureaus and offices including a lease, license, permit, contract, grant, claim, agreement, or litigation in which the member or the entity the member represents has a direct financial interest.

14. **Subcommittees.** Subject to the DFOs approval, subcommittees may be formed for the purpose of compiling information and conducting research. However, such subcommittees must act only under the direction of the DFO and must report their recommendations to the full Council for consideration. Subcommittees must not provide advice or work products directly to the Agency. Subcommittees will meet as necessary to accomplish their assignments, subject to the approval of the DFO and the availability of resources.

15. **Recordkeeping.** Records of the Council, and formally and informally established subcommittees or other subgroups of the Council, must be handled in accordance with General Records Schedule 6.2, and other approved Agency records disposition schedule. These records must be available for public inspection and copying, subject to the Freedom of Information Act (5 U.S.C. 552).



Secretary of the Interior

DEC 1 2 2019

Date Signed

DEC 1 3 2019

Date Filed

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