BRISTOL BAY SUBSISTENCE REGIONAL ADVISORY COUNCIL

Meeting Materials

November 1-2, 2017
Dillingham

What's Inside

On the cover...

A lone coastal grey wolf in Katmai National Park

NPS photo by D. Kopshever

What's Inside

BRISTOL BAY SUBSISTENCE REGIONAL ADVISORY COUNCIL

Dillingham Middle School Gym
Dillingham

November 1 – 2, 2017
8:30 a.m. – 5:00 p.m. daily

TELECONFERENCE: call the toll free number: 1-866-916-7020, then when prompted enter the passcode: 37311548.

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 fill out a comment form to be recognized by the Council chair. Time limits may be set to provide opportunity for all to testify and keep the meeting on schedule.

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.

1. **Invocation**
2. **Call to Order** (*Chair*)
3. **Roll Call and Establish Quorum** (*Secretary*) 4
4. **Welcome and Introductions** (*Chair*)
5. **Review and Adopt Agenda*** (*Chair*) 1
6. **Review and Approve Previous Meeting Minutes*** (*Chair*) 5
7. **Reports**
   - Council Member's Reports
   - Chair's Report
   - Coordinator's Report
8. **Service Awards**
9. **Public and Tribal Comment on Non-Agenda Items** (available each morning)
10. **Old Business** (*Chair*)
11. **New Business** (*Chair*)
    - a. Wildlife Proposals* (*OSM Wildlife/Anthropology*) 13

Regional Proposals

Crossover Proposals

Statewide Proposals

12. Agency Reports

(Time limit of 15 minutes unless approved in advance)

Native Organizations

a. Bristol Bay Native Association (BBNA)

1. BBNA Partners Program (*Cody Larson*) 184

b. Bristol Bay Native Corporation (BBNC)

USFWS

NPS

1. Brooks Camp Road

2. Pike Ridge Update

b. Lake Clark National Park and Preserve 202

Lake Clark mercury contamination update

ADF&G

OSM

13. Future Meeting Dates*

Confirm Winter 2018 meeting date and location 208

Select Fall 2018 meeting date and location 209

14. Closing Comments

15. Adjourn (*Chair*)

To teleconference into the meeting, call the toll free number: 1-866-916-7020, then when prompted enter the passcode: 37311548.

Reasonable Accommodations

The Federal Subsistence Board is committed to providing access to this meeting for all participants. Please direct all requests for sign language interpreting services, closed captioning, or other accommodation needs to Donald Mike, 907-786-3629, donald_mike@fws.gov, or 800-877-8339 (TTY), by close of business on October 20, 2017.

REGION 4
Bristol Bay Subsistence Regional Advisory Council

Seat	Year Appointed *Term Expires*	Member Name and Community	
1	1993 ***2019***	**Peter M. Abraham** Togiak	
2	2016 ***2019***	**Dennis Andrew, Sr.** New Stuyahok	
3	2003 ***2019***	**Nanci Ann Morris Lyon** King Salmon	**Vice Chair**
4	2007 ***2017***	**Molly B. Chythlook** Dillingham	**Chair**
5	2014 ***2017***	**Senafont Shugak, Jr.** Pedro Bay	
6	2014 ***2017***	**William J. Maines** Dillingham	
7	2003 ***2017***	**Dan O. Dunaway** Dillingham	
8	2012 ***2018***	**Lary J. Hill** Iliamna	
9	2015 ***2018***	**Victor A. Seybert** Pilot Point	
10	2009 ***2018***	**Richard J. Wilson** Naknek	**Secretary**

Bristol Bay Subsistence Regional Advisory Council

Meeting Minutes
February 28-Mar 01, 2017
Dolly's Hall
Naknek, Alaska

Call to Order
Meeting called to order by Madame Chair Molly Chythlook.

Roll Call and Establish Quorum
Roll called conducted by Coordinator Mike as requested by Chair Chythlook. Council members present: Molly Chythlook, Dan Dunaway, Lary Hill, Nanci Morris Lyon, Billy Maines
Online: Senafont Shugak, Jr.
Absent: Richard Wilson, Pete Abraham, Victor Seybert

Invocation led by Mr. Paul Boskoffsky of Naknek.

Welcome and Introductions
Chair Chythlook welcomed guests and staff members.

Government Agency Employees

Donald Mike	OSM
Andy Aderman	FWS Togiak NWR Wildlife Biologist
Susan Alexander	FWS AP/Becharof NWR
Troy Hamon	NPS Katmai Natural Resource Manager
Pat Petrivelli	BIA Anthropologist
Liza Rupp	NPS Lake Clark
Susanna Henry	FWS Togiak NWR
Linda Chislom	NPS Katmai
Mark Sturm	NPS Katmai
Tom Evans	OSM
Bill Smith	FWS AP/Becharof NWR
Tom Cady	FWS AP/Becharof NWR
Rosalie Debenham	BIA Juneau
Sarah Griffith	FWS AP/Becharof NWR
Orville Lind	OSM
Dave Crowley	ADFG
Keemuel Kenrud	FWS Togiak NWR
Stewart Cogswell	OSM

NGOs/Public

Gayla Hoseth	BBNA Subsistence Research Specialist
Paul Boskoffsky	Naknek
Austin King	Bristol Bay
Rylie Lyon	Bristol Bay

Ethan Agli	Bristol Bay
Joe Klutsch	King Salmon
Randy Alvarez	Iguigig
Verner Wilson	BBNA
Pete Caruso	King Salmon (Trapper, Commercial Fisherman)

On Teleconference

Robbin La Vine	OSM
Gayla Hoseth	BBNA
Cody Larson	BBNA
Jill Klein	ADFG
Chris Peterson	ADFG
Helen Aderman	Qayassiq Walrus Commission

Review and Adopt Meeting Agenda

Add Lake Clark National Park SRC membership status and appointments by the Council. Move item "Revision to Draft MOU with State of Alaska" to agency reports under OSM.

Elections of Officers

The Bristol Bay Regional Advisory Council held its annual elections of officers:
Chair, Molly Chythlook
Vice Chair, Nanci Morris Lyon
Secretary, Richard Wilson

Review and Approve Minutes

The Council noted on Page 8; "William Maynes" name is incorrectly spelled. Correct name is "Maines". Mr. Richard Wilson is incorrectly referred as Mr. Richard "Nelson". Correct to reflect as "Mr. Richard Wilson".

Ms. Morris Lyon move to approve, and second called by Mr. Dunaway, the meeting minutes of October 26-27, 2016 with the noted corrections. Minutes adopted as amended.

RAC Reports

Mr. Billy Maines provided an update on the Nushagak Caribou hunt.

Ms. Morris Lyon reported on the local fall/winter hunts. The local residents have been reporting on unusual yard bird sightings in the King Salmon/Naknek area.

Mr. Lary Hill reported that decent harvest of moose and noted that the moose seem to be migrating outside the National Park in the Iliamna Lake area. Travel conditions for hunting access to the resources continue to be of concern. Rare birds are also being observed in the area and noticeably, herring gulls are not present in large numbers as past and rare sighting on a pair of Golden eagles in the Iliamna area.

Mr. Dunaway reported on a good berry harvest, moose and caribou season and also a decent king run on the Nushagak River. He also acknowledged the retiring State and Federal staff that has

worked in Dillingham. Other concern brought forward is the moose poaching incidents in the area and the public should help in discouraging poaching to maintain a healthy population.

Ms. Chythlook stated Council members reports are important serving as eyes and ears of the program. Local residents are successful in caribou hunts and lack of ptarmigan abundance in the area. She was requested to work with the ADFG on a project on shorebirds in Alaska. This project is to identify shorebirds in the Yup'ik language.

RAC Chair Report

The Office of Subsistence Management and the Council participated in the Bristol Bay Native Corporation leadership forum in Anchorage on a subsistence panel. Mr. Carl Johnson, Mr. Donald Mike, and Mr. Dan O'Hara presented to the leadership forum on the Federal Subsistence Management Program; and the State Advisory Committee members discussed how the public can get involved in the regulatory process and other subsistence related subsistence resource management issues.

Public and Tribal Comment on Non-Agenda Items

Opportunity for comments is available at the start of the public meetings.

Bristol Bay HS students Mr. Austin King, Mr. Ethan Agli, and Ms. Riley Lyon, asked the Council on how students can get involved in subsistence management. Council responded stating they can participate in Council public meetings and bring forward concerns on subsistence resource issues and offer observations as a subsistence user and take advantage of State and Federal field offices for resource information.

Mr. Randy Alvarez provided testimony and comments on caribou, moose, and marine mammals related issues.

NEW BUSINESS

Call for Wildlife Proposals

Mr. Tom Evans presented the call for proposals. Mr. Evans informed the Council the typical call for proposals for wildlife begins in January and closes in March. But, due to a new administration in Washington, the federal register for notice has not been published. The Council can discuss on record wildlife proposals, which then can be submitted when the call for proposals is published.

Council Discussion on Wildlife Proposals

Submit an Alaska Board of Game (BOG) proposal, Mr. R. Wilson as the proponent, that portion of 9C, north of the North bank of the Naknek River and South of the Alagnak River drainage, open for caribou Aug 1 – Mar 31. Season will be closed by emergency action to protect the North Peninsula Caribou Herd. This will provide additional subsistence opportunity. Similar proposal to be submitted for Federal lands for that portion of Unit 9C. Federal Special action will be issued if BOG proposal in 2017 is adopted for Federal public lands. Federal proposals will not be in effect until 2018.

The Council supported a Federal Special Action to be submitted for Mulchatna Caribou contingent on the Alaska Board of Game action for that portion of Unit 9C for the North Bank of the Naknek River and South of the Alagnak River.

Ms. Gayla Hoseth, BBNA presented to the Council several potential proposals coming from the BBNA/public. These included a hunt definition map in Unit 17 to realign subunit boundary, allow for fair chase and positioning for hunting, allow shooting from a drifting skiff, and a community harvest quota for the Nushagak Caribou in Unit 17 which is still being considered. In addition, Ms. Hoseth mentioned a proposal on C&T Use Determination to include Units 9C/E residents for hunting on the Nushagak Peninsula caribou. The C&T proposal was supported by the Council. OSM will provide assistance upon request.

Wildlife Closure Review Process
Mr. Tom Evans briefed the Council. The OSM reviews wildlife closures every three years to determine if the justification for closure is consistent with the FSB closure policy. The Council can determine, after the analysis is presented, to maintain status quo, or to modify or rescind the wildlife closure.

WCR15-05 – Federal public lands in Unit 9C are closed during the December season for hunting of moose except for Federally qualified subsistence users hunting under Federal regulations. The closure was last reviewed in 2012. Current moose population status and trends are unknown. Unit 9C has a low moose density. Poor weather and lack of snow made it difficult for a population estimate. Recent counts are at 37 bulls per 100 cows which is close to the State's management objective (40 bulls per 100 cows) for this low density population. The annual moose harvest from 9C from the years 2000 to 2007 averaged about 35 animals. It has since declined to an annual average of 21 moose harvested from 2008 to 2015. Local harvest has also declined during the same time period from 19 to 14 moose on average. OSM recommendation is to maintain status quo.

The Council action is to maintain status quo to keep hunting closed. Current efforts to assess population status are underway to count moose during low snow years. The Council agreed with the status quo to allow continued use by subsistence users while allowing the development of the survey method during low snow years.

WCR15-07 – Federal public lands in Unit 17A/C, consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills west of the Tvativak Bay are closed to the taking of caribou except by residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, and Clark's Point. Closure was last reviewed in 2012. The population has fluctuated from about 146 animals in 1988 to over 1,200 by 1998 and then declined to below 600 in 2006 due in part to decreased calf recruitment and adult female survival. Changes in range quality and quantity, predation by wolves and brown bears and weather events are all potential factors that likely have contributed to the decline. In 2015 the population increased over 1,300 caribou and bull, cow and cow/calf ratios were high with 65 bulls per 100 cows and 46 calves per 100 cows. The OSM recommendation is to modify or rescind the closure. The herd currently exceeds the State's upper population level management objective and is increasing. There is concern that the herd may exceed its habitat capacity.

Mr. Dunaway moved to rescind WCR15-07 and 2nd was called by Ms. Morris Lyon. The motion carried 4-2. The NPCH has exceeded the population objective and can be opened to other Federally qualified subsistence users than residents of the communities listed in the Federal subsistence regulations for that area of 17A/C. This action does not prohibit action taken by the inseason manager for closure when needs arise for conservation purposes. Caribou harvest will be allowed through the permit/registration process. The ADF&G can also open the hunt to the herd within the subunit. Special action is an option as a management tool to restrict hunts.

Rescinding WCR15-07 requires initiating a proposal for season and harvest limits. Mr. Dunaway moved in support of the proposal.

Mr. Aderman, presented a Mulchatna Caribou proposal for the Council to consider. The proposed language for submission;

> – 2 caribou. 9ABC, 17ABC. 2 caribou by state registration permit, 9C in that portion within the Alagnak, and North of the Naknek River.

The Council will submit a Mulchatna Caribou Proposal. – 2nd by Ms. Morris Lyon. Motion carries.

2016 Annual Report

The Council at its fall 2016 public meeting developed its 2016 Annual Report to the Federal Subsistence Board. The Council discussed and submitted the following topics to the Board.

1. Meshik River Salmon – Residents of Port Heiden, over the past several years, were not able to meet their subsistence needs due to commercial activities in the area. The Council considered various FRMP projects and identified the Meshik River as important to the region and supported a monitoring program for the Meshik River.

2. Outreach – Public meetings are held in Dillingham and King Salmon/Naknek each year. These two communities are able to accommodate public meetings whereas, communities outside these hub communities lack facilities to host a public meeting. Outreach efforts should include communities to participate in public meetings via social media, and automatic email notices for those who wish to participate in public meetings of the Council. The Council requests the Board, through OSM, to ensure all possible venues of outreach are used to notify the public.

The Council adopted its 2016 Annual Report to the Board for submission.

U.S. Fish and Wildlife Service Alaska Native Relations Policy

Mr. Orville Lind, OSM Native Liaison, presented to the Council the draft Alaska Native Relations Policy. The policy, which was signed January of 2016 applies across the Nation and is specific to our relationship with Federally Recognized Tribes. Subsistence is a provision in the Alaska National Interest Lands Conservation Act, in the Marine Mammal Protection Act, in the Migratory Bird Treaty Act, and in the Endangered Species Act. Three of the Acts are specific to Alaska Native peoples, and therefore there is a need to describe responsibilities to USFWS employees under them.

The Service is directed by law to work with Native entities in addition to working with Tribal Governments. There became a need to describe the relationships with Alaska Native Organizations and to Alaska Native Claims Settlement Act Corporations.

The Council is encouraged to comment on the draft policy.

The Council formed a workgroup to develop comments on behalf of the Council. The Council appointed a work group of Billy Maines, Lary Hill, and Dan Dunaway to review the draft policy and provide comments for the Council.

The Council requested to place this as an agenda topic for the fall 2017 meeting.

Agency Reports

BBNA

Ms. Hoseth presented to the Council on recent Emperor goose/handicraft regulations, and informed the Council the Emperor goose subsistence hunting is now authorized and will close when 1,000 birds are harvested. The Mulchatna Caribou Traditional Ecological Knowledge (TEK) project has started. Partners include ADFG Division of Subsistence, Lake Clark NP, and BBNA.

Mr. V. Wilson briefed the Council on the Pacific walrus designation being proposed as endangered. The walrus is being considered as an ESA listed species in Bristol Bay. The proposed designation is not supported by local residents who use the walrus as a subsistence resource, and because it may restrict their lifestyle to continue to harvest walrus as a traditional food and is part of the local economy. The listing designation is targeted for 2018 by ESA.

Togiak NWR

Nushagak Peninsula Caribou Herd

Mr. Aderman presented the State hunt harvest data with 6 caribou reported as harvested from a total of 12 State permits. 1230 caribou, which is a minimum estimate, were counted during the Oct 2016 survey. Upper end of the count was 1,375 animals and the lower end of the estimate was about 1,225 animals. March is the prime opportunity (best month) for harvesting caribou. The bull:cow and calf:cow ratios were estimated at 51 bulls/100 cows and 40 calves/100 cows.

Moose update: 18 cows and 9 bulls were taken in Unit 17A and recent composition moose data was 61 bulls/100.

Ms. Henry presented to the Council a summary of Predator Control on NWR system lands in Alaska. A briefing document was provided to the Council. Refuge managers will authorize predator control only if a) alternatives to predator control have been evaluated, b) proposed action has been evaluated in compliance with NEPA, c) the refuge has completed (required by law) a formal refuge compatibility determination, and d) potential effects predator control has on subsistence uses and needs have been evaluated.

Alaska Peninsula NWR
Mr. Tom Cady provided staff updates in the refuge, and Ms. Sara Griffith presented a video on the refuge's Becharof Youth Ambassador Project. The Council expressed appreciation of the hard work and the importance of outreach projects like this one.

National Park Service
Ms. Linda Chislom and Superintendent of Katmai National Park presented to the Council the status of Pike Ridge boundary and currently a scoping process on Pike Ridge to address access lands adjacent to Park is underway. Also, the staff provided the status of the unplanned road project at Brooks Camp, and the section of the road has been closed since 2015. NPS is in the process of meeting with local tribes to develop mitigation plans. The damage assessment is completed for the road. The Council requested to have the issue as an agenda item topic for the fall 2017 public meeting.

Lake Clark NP, Ms. Liza Rupp presented the status of the SRC membership. Mr. Thomas Hedlund of Iliamna is up for reappointment from the Bristol Bay RAC. Ms. Morris Lyon moved to appoint Mr. Hedlund to Lake Clark SRC for another term. A second was called by Mr. Dunaway. Mr. Hedlund was appointed.

Ms. Rupp briefed the Council on mercury contamination in Resident lake fish at Lake Clark and the Council requested for a formal briefing at its fall meeting.

ADFG
Mr. Dave Crowley, King Salmon wildlife biologist, provided a biological report for moose in Unit 9.

- Moose 9B/C 47 bulls/100; cows 26 calves/100 cows
- 27% of total count are yearling bulls
- About 24 collars in spring of 2017 will be placed on moose. The project will look at calf and cow survival, assess movements into and out of Katmai National Park. Nonlocal and nonresidents, 3% harvest rate. 55% local harvest success
- Approximately 24 calves/100 cows in Unit 9E, decline has been observed which may be caused by predation
- The estimated population size is about 3,600 and increasing. Continue the Tier II hunt with 200 permits to be issued. Harvest rate is about 80 animals.

OSM
Mr. Stewart Cogswell, acting Deputy ARD, presented the OSM report.

Future meeting dates.
Fall meeting confirmed scheduled for November 1-2, 2017 in Dillingham.
2017 February 27-28, for the next scheduled winter meeting.

Closing comments
Katmai Land owned by BBNC, fall meeting agenda item. The Council requested a representative from BBNC to present the plans for the lodge owned by BBNC.

Meeting adjourned.

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

_____
Donald Mike, DFO
USFWS Office of Subsistence Management

_____
Molly Chythlook, Chair
Bristol Bay Subsistence Regional Advisory Council

These minutes will be formally considered by the Bristol Bay Subsistence Regional Advisory Council at its next meeting, and any corrections or notations will be incorporated in the minutes of that meeting."

For a more detailed report of this meeting, copies of the transcript and meeting handouts are available upon request. Call Donald Mike at 1-800-478-1456 or 786-3629, email donald_mike@fws.gov

Presentation Procedure for Proposals

1. **Introduction and presentation of 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 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 analysis
9. **Restate final motion for the record, vote**

WP18–21 Executive Summary	
General Description	Proposal WP18–21 requests that the harvest limit for the Mulchatna Caribou Herd be changed to 2 caribou with no additional restrictions in portions of Units 9, 17 and 19. It also requests consolidation of several hunt areas. *Submitted by: Bristol Bay Subsistence Regional Advisory Council.*
Proposed Regulation	See analysis
OSM Preliminary Conclusion	**Support** Proposal WP18-21 **with modification** to create a new hunt area in the portion of Unit 9C that drains into the Naknek River from the north to accommodate the existing Federal lands closure in the Naknek River drainage, and change the may-be-announced season in this hunt area to an Aug. 1 – Mar. 15 season with a harvest limit of two caribou, contingent upon the BOG making the same change at its February 2018 meeting, consistent with the proponent's request; delegate authority to the Alaska Peninsula/Becharof National Wildlife Refuge (Refuge) manager to open and close the season and set the harvest limits, including sex restrictions, if a new hunt area is designated; retain language in the Unit 19A and 19B regulation specifying that residents of Lime Village are authorized to hunt under an existing community hunt only. See analysis for modified regulation.
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	

WP18–21 Executive Summary	
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	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	

WP18–21 Executive Summary	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-21

ISSUES

Proposal WP18-21, submitted by the Bristol Bay Subsistence Regional Advisory Council (Council), requests that the harvest limit for the Mulchatna Caribou Herd (MCH) be changed to 2 caribou with no additional restrictions in portions of Units 9, 17 and 19. It also requests consolidation of several hunt areas.

DISCUSSION

The range of the Mulchatna caribou herd includes all or parts of Units 9, 17, 18 and 19 (**Map 1**). Currently, the Federal subsistence harvest limit in Units 9A, 9B, portions of 9C, portions of 17A, 17B, portions of 17C, 19A and 19B is 2 caribou with the restriction that no more than one caribou may be a bull and no more than one caribou may be taken Aug. 1 – Jan. 31. The proponent requests removal of these harvest restrictions, which would result in a simplified harvest limit of 2 caribou, and would be consistent with the harvest limits and restrictions in Unit 18. The Council notes that the bull:cow ratio has increased steadily over the past decade and that the Alaska Board of Game recently made a similar change in State regulation. They believe that, while it would likely increase bull and overall caribou harvest slightly, the requested change would result in greater opportunity to harvest caribou and would reduce regulatory complexity by aligning Federal and State regulations.

The Council also requests that the season in the portion of Unit 9C that drains into the Naknek River from the north (currently part of Unit 9C remainder) be changed from a may-be-announced season with a harvest limit of one bull, to an Aug. 1 – Mar. 15 season with a harvest limit of 2 caribou, consistent with the proposed changes in the rest of the MCH range. This request mirrors a proposal submitted to the Alaska Board of Game (BOG) for consideration at its February 2018 meeting, and is intended to maintain parallel State and Federal regulations. The request is contingent upon the BOG's approval of the State proposal. The Council feels the request is justified because the current regulatory structure is not consistent with contemporary distribution and movement patterns of the MCH and the Northern Alaska Peninsula Caribou Herd (NAPCH). The Council believes that it makes sense to open a regular season in this hunt area, closing the season only if the NAPCH moves to the north side of the river.

The requested change in Unit 9C would result in identical seasons and harvest limits in the portion of Unit 9C that drains into the Naknek River from the north and the portion of Unit 9C in the Alagnak River drainage (**Map 2**). Consequently, the Council requests that the former hunt area, which is currently part of Unit 9C remainder, be combined with the Alagnak hunt area. Similarly, they request that the hunt areas in Units 19A and 19B be consolidated into a single hunt area since seasons, harvest limits and proposed harvest restrictions are the same for the existing hunt areas in these units.

Existing Federal Regulation

Unit 9—Caribou

Unit 9A—2 caribou by State registration permit; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31	*Aug. 1 – Mar. 15*
Unit 9B—2 caribou by State registration permit; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31	*Aug. 1 – Mar. 31*
Unit 9C, that portion within the Alagnak River drainage—2 caribou by State registration permit; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31	*Aug. 1 – Mar. 15*
Unit 9C, remainder—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik	*May be announced*

Unit 17—Caribou

Unit 17A, all drainages west of Right Hand Point—2 caribou by State registration permit; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31	*Aug. 1 – Mar. 31*
Units 17A remainder and 17C remainder—selected drainages; a harvest limit of up to 2 caribou by State registration permit will be determined at the time the season is announced	*Season may be announced between Aug. 1 – Mar. 31*
Unit 17B and that portion of Unit 17C east of the Wood River and Wood River Lakes—2 caribou by State registration permit; no more than 1 caribou may be a bull, and no more than 1 caribou from Aug. 1-Jan 31	*Aug. 1 – Mar. 31*

Unit 19—Caribou

Unit 19A, north of Kuskokwim River—2 caribou by State registration permit, no more than 1 caribou may be a bull; no more than 1 caribou may be taken from Aug. 1-Jan. 31	*Aug. 1 – Mar. 15*
Unit 19A, south of the Kuskokwim River and Unit 19B (excluding rural Alaska residents of Lime Village)—2 caribou by State registration permit; no more than 1 caribou may be a bull; no more than 1 caribou may be taken Aug. 1-Jan. 31	*Aug. 1 – Mar. 15*

Proposed Federal Regulation

Unit 9—Caribou

Unit 9A—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31~~	*Aug. 1 – Mar. 15*
Unit 9B—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31~~	*Aug. 1 – Mar. 31*
*Unit 9C, that portion ~~within the Alagnak River drainage~~ **north of the Naknek River**—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31~~*	*Aug. 1 – Mar. 15*
Unit 9C, remainder—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik	*May be announced*

Unit 17—Caribou

Unit 17A, all drainages west of Right Hand Point—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1-Jan. 31~~	*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~~; no more than 1 caribou may be a bull, and no more than 1 caribou from Aug. 1-Jan 31~~	*Aug. 1 – Mar. 31*
Units 17A remainder and 17C remainder—selected drainages; a harvest limit of up to 2 caribou by State registration permit will be determined at the time the season is announced	*Season may be announced between Aug. 1 – Mar. 31*

Unit 19—Caribou

~~Unit 19A, north of Kuskokwim River—2 caribou by State registration permit, no more than 1 caribou may be a bull; no more than 1 caribou may be taken from Aug. 1-Jan. 31~~	*Aug. 1 – Mar. 15*
*Unit**s** 19A~~, south of the Kuskokwim River~~ and ~~Unit~~ 19B ~~(excluding rural Alaska residents of Lime Village)~~—2 caribou by State registration permit~~; no more than 1 caribou may be a bull; no more than 1 caribou may be taken Aug. 1-Jan. 31~~*	*Aug. 1 – Mar. 15*

Existing State Regulation

Unit 9—Caribou

Residents: Units 9A and 9C, that portion within the Alagnak River drainage —two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC503*	*Aug. 1 – Mar. 15*
Residents: Unit 9B— two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC503*	*Aug. 1 – Mar. 31*
Residents: Unit 9C, that portion north of the north bank of the Naknek River and south of the Alagnak River drainage— one caribou by permit available online at http://hunt.alaska.gov and in person in King Salmon if a winter season is announced	*RC504*	*May be announced*
Residents: Unit 9C south of the north bank of the Naknek River—one caribou by permit	*TC505*	*Aug. 10 – Sep. 20* *Nov. 15 – Feb. 28*

Unit 17—Caribou

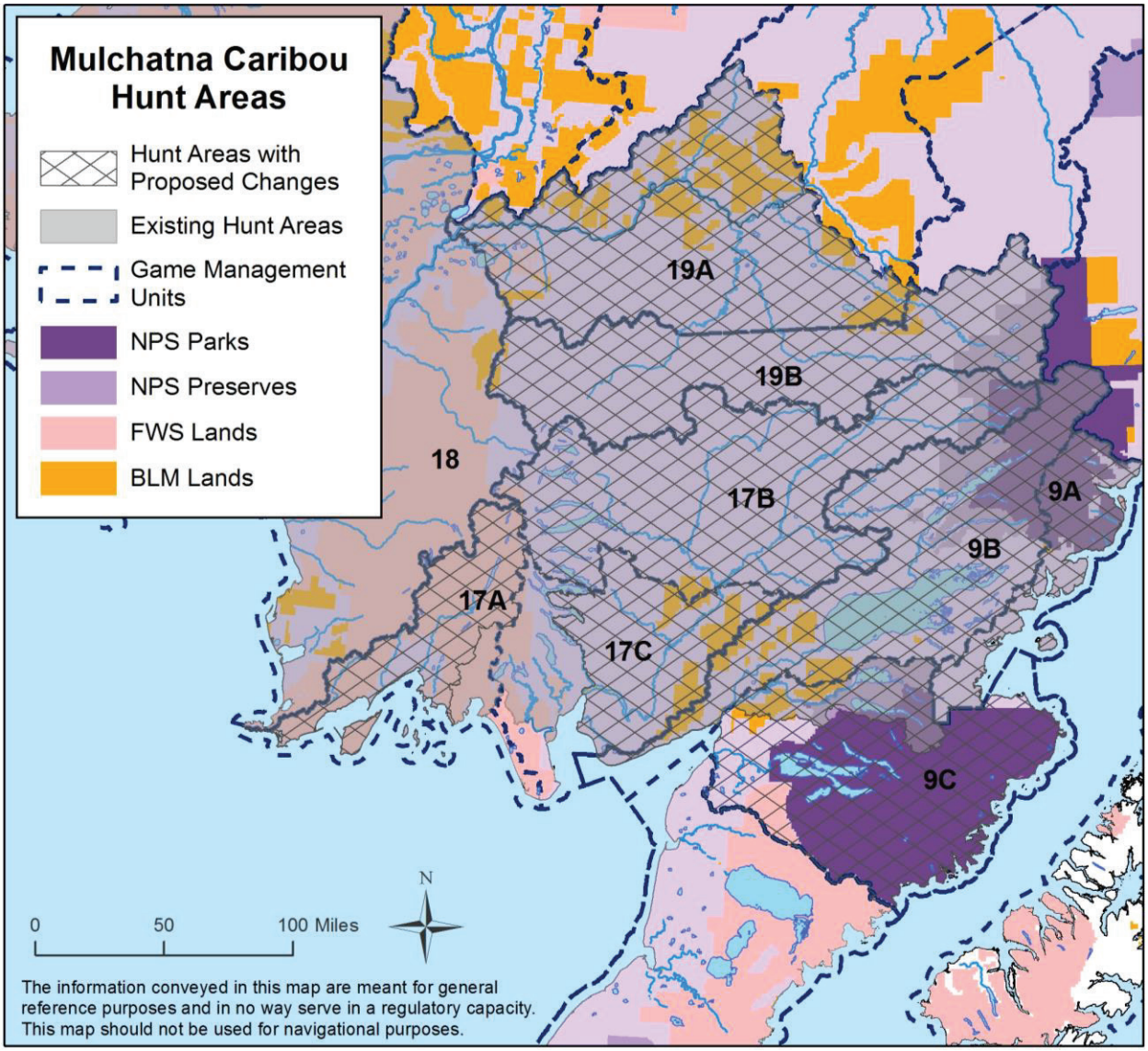
Residents: Units 17A remainder, 17B and 17C east of the east banks of the Wood River, Lake Aleknagik, Agulowak River, Lake Nerka and the Agulukpak River— two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC503*	*Aug. 1 – Mar. 31*

Unit 19—Caribou

Residents: Units 19A and 19B— two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC503*	*Aug. 1 – Mar. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 25% of the area addressed in this proposal, which includes all or portions of Units 9A 9B, 9C, 17A, 17B, 17C, 19A and 19B. This area consists of approximately 21% National Park Service (NPS) managed lands, 8% Bureau of Land Management (BLM) managed lands and 6% U.S. Fish and Wildlife Service (USFWS) managed lands (**Map 1**).



Map 1. Existing hunt areas and hunt areas with proposed changes within the MCH range.

Customary and Traditional Use Determinations

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

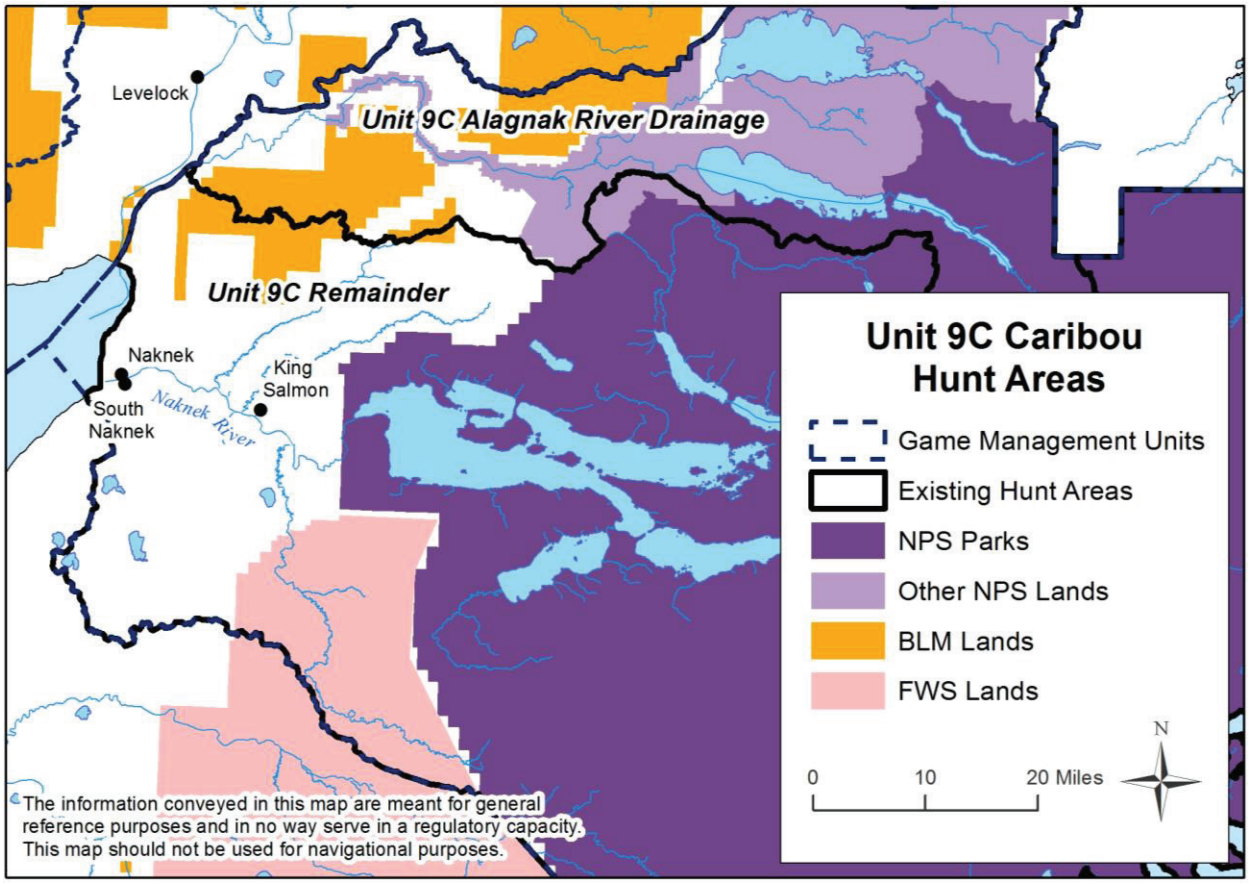
Residents of Units 9B, 17, Lime Village, and Stony River have a customary and traditional use determination for caribou in Unit 17A remainder.

Residents of Unit 19A and 19B, Unit 18 within the Kuskokwim River drainage upstream from, and including, the Johnson River, and residents of St. Marys, 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 and had generous harvest limits and few restrictions. The subsequent population decline 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 BOG implemented more restrictive regulations for both resident and non-resident hunters. For resident hunters, it established an Aug. 1 – Mar. 15 season throughout the range of the herd. Previously, resident seasons ended on March 31 or April 15. They 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 (Woolington 2009).



Map 2. Existing Unit 9C caribou hunt areas.

The BOG further restricted harvest from the MCH in 2007. At that time, they reduced the resident harvest limit to 2 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 as well (Woolington 2009).

The Federal Subsistence Board (Board) considered Proposal WP07-23 in 2007, which requested the 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, the Board adopted this proposal with modification to include Units 18, 19A and 19B (OSM 2017). However, this proposal was submitted prior to the BOG's 2007 regulatory changes and the Federal Subsistence Board's modification did not accommodate the 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 non-resident caribou season throughout the range of the MCH (Woolington 2011).

The Board considered three proposals in 2010, all of which proposed further restriction on harvest of the MCH. Proposal WP10-51 requested that the Federal caribou seasons 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 Subsistence Regional Advisory 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 3 caribou to 2 caribou. It was adopted by the Board with a 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 (OSM 2017). 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 (Woolington 2013).

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 adjusted 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 (OSM 2017).

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 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 (OSM 2017).

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 (ADF&G 2017a).

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 valid for the remainder of the 2013 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 (OSM 2017).

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 17 A 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 (OSM 2017).

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, the caribou season in Units 9B and 17 was 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 (ADF&G 2017a).

In March 2016, members of the Western Interior Alaska, Yukon Kuskokwim Delta and Bristol Bay Subsistence Regional Advisory Councils met during the All Council Meeting for an informal discussion focused on Proposal 134, which was considered by the BOG later in same month. The BOG adopted this proposal, which resulted in liberalization of the harvest restrictions for caribou harvested within the range of the MCH. Specifically, the harvest limit remained at 2 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 through 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 (ADF&G 2017a).

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 approved this request with modification to move in-season management language from regulation to a delegation of authority letter. However, this proposal was submitted prior to the BOG's 2016 regulatory changes and the Federal Subsistence Board's modification did not accommodate the recent changes to State regulation. Consequently, Federal regulations were aligned with the State's RY2016 regulations rather than the RY2017 regulations (OSM 2017). The proposal considered in this analysis will fully align State and Federal caribou regulations within the range of the MCH if it is approved.

Biological Background

Mulchatna Caribou Herd

Currently, the MCH range covers ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B. However, this population 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 and its range was mostly limited to the area east of the Mulchatna River between the Bonanza Hills and Iliamna Lake. By the mid-1990s, the herd had grown to its peak size of approximately 200,000 caribou and had begun wintering in southern Unit 18 and southwestern Unit 19B. Subsequently, the herd began a period of decline that persisted until recently (Woolington 2013).

In 2013, population estimate for the MCH was 18,308 caribou, the lowest estimate in over 30 years and well below the lower bound of the State's population objective of 30,000 – 80,000 caribou (**Table 1)**. Since then, the population appears to have grown. Surveys indicate that the population has varied between 26,000 and 31,000 caribou for the past three years. The most recent estimate, in 2016, was 27,242 caribou (Barten 2016).

The MCH has experienced a steady increase in the bull:cow ratio since 2010, when there were only 17 bulls:100 cows (**Table 1)**. In 2016, the ratio was 39 bulls:100 cows, which is the highest estimate since 2000 and is in excess of the State's management objective of 35 bulls:100 cows. The proportion of bulls classified as large in 2016 was 28%, which is among the highest estimates on record and is well above the long-term average of 19% (Barten 2016). Calf:cow ratios have been variable, which is typical of caribou herds occupying interior and southwest Alaska. In 2016, the calf:cow ratio was 22 calves:100 cows, a decrease relative to 2014 and 2015, but within the range of variability observed in recent years (Barten 2016).

Northern Alaska Peninsula Caribou Herd

Like the MCH, the NAPCH has varied considerably in size in the last century, ranging from approximately 20,000 during population highs to approximately 2,000 during population lows. The most recent population estimate for the NAPCH, obtained in 2015, was fewer than 3,000 caribou (Crowley 2016). This is well below the State's population objective of 12,000 – 15,000 caribou.

Generally speaking, the NAPCH occupies Units 9C and 9E. However, distribution and movement patterns have varied over time, likely due to impacts of population size on habitat quality. Historically, both the calving grounds and wintering grounds of the NAPCH have been south of the Naknek River. However, in 1986, following a period of high population density and winter range depletion, the herd began wintering in the northern part of their range, between the Naknek an Alagnak Rivers. More recently, this northern range has become less important, with only one radiocollared caribou crossing the Naknek River since 2000 (Peterson 2013).

Table 1. Mulchatna Caribou Herd composition counts and population estimates, 1975 – 2016 (Barten 2016).

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	22,809[c]
2013	27	19	39	36	25	3,222	18,308[c]
2014	35	30	44	31	25	4,793	26,275[c]
2015	35	29	35	43	22	5,414	30,736[c]
2016	39	22	43	29	28	5,195	27,242[c]

[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 base on July photo census.

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

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 the Alaska Department of Fish and Game (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

Reported harvest of the MCH has decreased significantly since the early 2000s, when the herd was very large (**Figure 1**). Total reported caribou harvest declined from 3,949 caribou in 2000 to 306 caribou in 2016. Harvest among all user groups declined during this period, but the decline was especially pronounced among non-local residents and nonresidents. Reduction of the State harvest limit in 2006 and elimination of the non-resident season in 2009 were influential in this decline (ADF&G 2017b).

Local users, defined here as those with a customary and traditional use determination, have reported less harvest in recent years as well. Since 2000, local users have reported harvesting an average of 432 caribou annually, with harvest exceeding 300 caribou in every year through 2012. Since 2013, reported harvest among local users has averaged 166 caribou annually and has remained below 300 caribou every year (ADF&G 2017b). Underreporting is a known problem in this area (Woolington 2011) and it is likely that reported harvest underestimates total harvest by local users.

Until the mid-2000s, most of the harvest occurred during the fall, but an increasing proportion of harvest now occurs during spring (**Table 2**). Considering all users, an average of 65% of the harvest for 2000 –

2006 occurred in August and September. For 2007 – 2016, only 25% of the harvest has occurred during these months. Harvest during February and March averaged 18% of the total harvest 2000 – 2006 but increased to 45% for 2007 – 2016. This trend appears to be driven largely by the shift in user base from predominantly non-locals to predominately locals, subsequent to regulatory changes. Harvest among local users tends to be more evenly distributed through the season, with some interannual variability (ADF&G 2017b). These patterns likely reflect movement and distribution of the MCH, as well as local environmental factors such as weather and snow and ice conditions that affect subsistence users' ability to successfully access and harvest caribou.

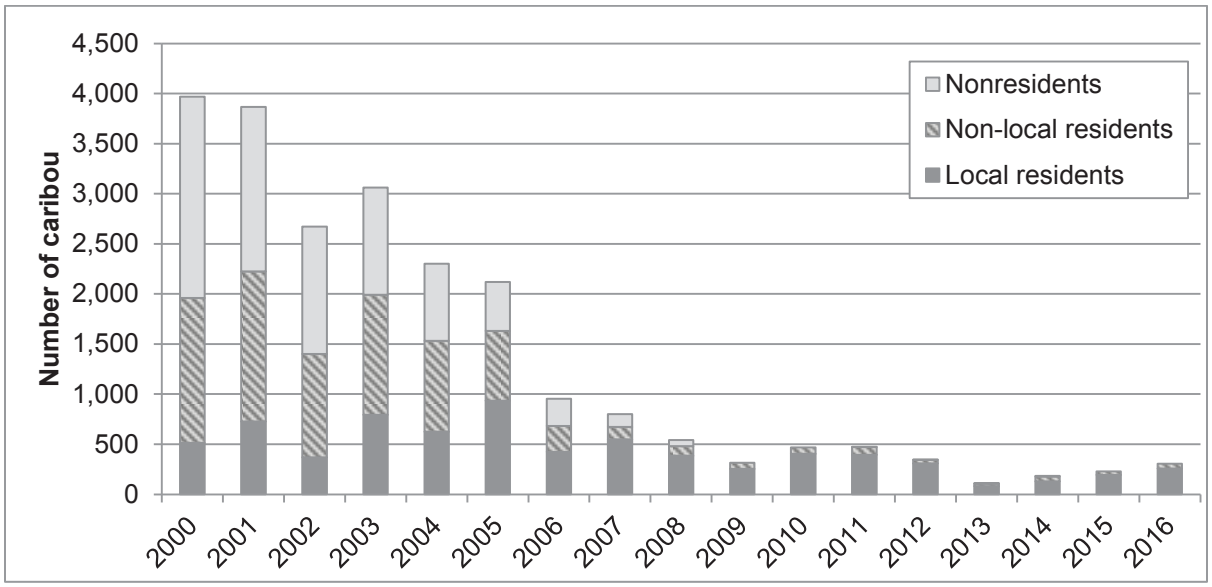


Figure 1. Total reported harvest from the Mulchatna Caribou Herd for regulatory years 2000 – 2016, by user group (ADF&G 2017b).

Effects of the Proposal

If this proposal is adopted, the restrictions that limit MCH harvest to a single bull per season and a single caribou between August 1 and March 15 will be eliminated in all or portions of Units 9A, 9B, 9C, 17A, 17B, 17C, 19A and 19B. As a result, the harvest limit will be 2 caribou, with no further restrictions, throughout the range of the herd. Some variation in season length among hunt areas will remain, but within each hunt area, season, harvest limits, and restriction will be consistent in both State and Federal regulations.

Removal of the harvest restriction is expected to have little effect on MCH harvest. The changes requested in this proposal were implemented in State regulation for regulatory year 2016. While the State's changes could be expected to result in a slight increase in harvest due to fewer restrictions, the requested changes in Federal regulation are unlikely to have any additional effect. With the exception of the southern portion of Unit 9C, where Federal public lands are closed except to Federally qualified subsistence users, any person hunting under Federal regulation may also hunt under State regulation. Consequently, maintaining the harvest restrictions in Federal regulation is not expected to have any functional effect.

Removal of the harvest restrictions will provide more opportunity to Federally qualified subsistence users, who will be able to harvest any two caribou in a single outing, thus maximizing harvest when travel conditions and animal movements are favorable, while minimizing travel expenses. However, since this practice is already allowed under State regulation, the practical effect is expected to be negligible.

The proposed changes in Unit 9C will result in a shift in regulatory emphasis. Currently, the portion of Unit 9C that drains into the Naknek River from the north is part of Unit 9C remainder, where seasons, harvest limits and permitting requirements reflect the management needs of the NAPCH. The proposed changes will consolidate this area with the hunt area in the Alagnak River drainage and will result in seasons, harvest limits and permitting requirements that reflect the management needs of the MCH. This is unlikely to have any effect on caribou populations, given the current distributions and movement patterns of the MCH and the NAPCH. However, it will require a shift in the monitoring strategies required for effective in-season management. Instead of monitoring the MCH and opening the season if it moves south into the hunt area, the NAPCH will need to be monitored and the season closed if it moves north into the hunt area. Finally, the proposed changes in hunt areas will result in regulatory inconsistencies within the newly consolidated hunt area. Notably, a Federal lands closure exists in Naknek River drainage but not in the Alagnak drainage.

Consolidation of the Unit 19A and 19B hunt areas will be inconsequential since the season, harvest limits and restrictions are the same in both hunt areas. Creation of a single hunt area will simply serve to reduce regulatory complexity.

Table 2. Total reported harvest from the Mulchatna Caribou Herd for regulatory years 2000 – 2016, by month (ADF&G 2017b).

	Caribou Harvest (Number of caribou)												
Year	**Total**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
2000	3,968	11	1,042	2,128	234	14	16	89	139	236	55	1	3
2001	3,866	7	876	1,840	117	50	81	98	173	439	183	2	
2002	2,671	6	615	1,503	121	17	41	99	58	151	55	4	1
2003	3,060	10	599	1,380	113	16	136	180	157	386	78	3	2
2004	2,301	6	439	1,075	59	25	82	83	52	248	227	4	1
2005	2,119	4	313	698	45	90	53	117	134	517	143	4	1
2006	953		120	356	12	39	53	57	101	209	4	2	
2007	799		20	208	12	12	49	56	231	207	4		
2008	540		15	120	15	29	23	43	141	152		2	
2009	315		22	35	24	61	15	30	34	91	1	2	
2010	468		14	33	7	17	67	35	92	201	1	1	
2011	474		11	47	9	23	11	88	85	199	1		
2012	347		11	22	5	6	38	24	62	177		2	
2013	109		16	30	9	18	13	9	8	6			
2014	183		35	58	18	7	32	4	19	10			
2015	235		36	50	12	23	39	23	40	10	1	1	
2016	307		27	35	15	6	25	26	59	114			

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-21 **with modification** to create a new hunt area in the portion of Unit 9C that drains into the Naknek River from the north to accommodate the existing Federal lands closure in the Naknek River drainage, and change the may-be-announced season in this hunt area to an Aug. 1 – Mar. 15 season with a harvest limit of two caribou, contingent upon the BOG making the same change at its February 2018 meeting, consistent with the proponent's request; delegate authority to the Alaska Peninsula/Becharof National Wildlife Refuge (Refuge) manager to open and close the season and set the harvest limits, including sex restrictions, if a new hunt area is designated (**Appendix 1**); retain language in the Unit 19A and 19B regulation specifying that residents of Lime Village are authorized to hunt under an existing community hunt only.

The modified regulation should read:

Unit 9—Caribou	
Unit 9A—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1 Jan. 31~~	*Aug. 1 – Mar. 15*
Unit 9B—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1 Jan. 31~~	*Aug. 1 – Mar. 31*
Unit 9C, that portion within the Alagnak River drainage—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1 Jan. 31~~	*Aug. 1 – Mar. 15*
Unit 9C, that portion draining into the Naknek River from the north—2 caribou by State registration permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik	***Aug. 1 – Mar. 15***
Unit 9C, remainder—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik	*May be announced*
Unit 17—Caribou	
Unit 17A, all drainages west of Right Hand Point—2 caribou by State registration permit~~; no more than 1 caribou may be a bull, and no more than 1 caribou may be taken Aug. 1 Jan. 31~~	*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~~; no more than 1 caribou may be a bull, and no more than 1 caribou from Aug. 1 Jan 31~~	*Aug. 1 – Mar. 31*

Units 17A remainder and 17C remainder—selected drainages; a harvest limit of up to 2 caribou by State registration permit will be determined at the time the season is announced	*Season may be announced between Aug. 1 – Mar. 31*

Unit 19—Caribou

~~*Unit 19A, north of Kuskokwim River—2 caribou by State registration permit, no more than 1 caribou may be a bull; no more than 1 caribou may be taken from Aug. 1-Jan. 31*~~	~~*Aug. 1—Mar. 15*~~
*Unit**s** 19A~~, south of the Kuskokwim River~~ and ~~Unit~~ 19B (excluding rural Alaska residents of Lime Village)—2 caribou by State registration permit~~; no more than 1 caribou may be a bull; no more than 1 caribou may be taken Aug. 1-Jan. 31~~*	*Aug. 1 – Mar. 15*

Justification

Given that the request to eliminate harvest restrictions throughout the range of the MCH has already been implemented in State regulation, and that Federally qualified subsistence users may hunt on both State and Federal lands under State regulation in nearly every hunt area, adoption of these changes is expected to have a negligible effect on harvest of the MCH or on subsistence opportunity. However, alignment of State and Federal regulation will result in reduced regulatory complexity and confusion among subsistence users, something that appears to be valued by Federally qualified subsistence users in this area. Consequently, the elimination of harvest restrictions is recommended.

Establishing a season and harvest limits in the portion of Unit 9C that drains into the Naknek River from the north, which shifts the primary regulatory emphasis from the NAPCH to the MCH, is likely not problematic, given current distribution and movement patterns of caribou in this region. However, it is worth noting that the most conservative approach for the NAPCH, which is currently very small, is to retain the may-be-announced season. In any case, in the interest of unified management strategies, and consistent with the proponent's request, establishing a season and harvest limits is recommended only if the BOG makes the same change when they deliberate proposals for central and southwest Alaska at their February 2018 meeting. The BOG's decision will be made before the Federal Subsistence Board meets in April 2018.

Due to the existence of a Federal lands closure in the portion of Unit 9C that drains into the Naknek River from the north, it is important to establish it as a unique hunt area, rather than consolidating it with the hunt area in the Alagnak River drainage. Although this closure reflects the management needs of the NAPCH and adoption of this proposal will shift the regulatory emphasis to the MCH, rescinding the closure is beyond the scope of the original request. Furthermore, this analysis does not address whether such an action is warranted. In addition to the issue of the closure, it is prudent to maintain independent hunt areas so that in-season management decisions can be made in a geographically precise manner. This will be especially relevant in cases when the NAPCH cross to the north side of the Naknek River, which might

necessitate closing the season in the Naknek River drainage but not in the Alagnak River drainage. Delegation of authority to the Refuge manager for in season management decisions within the new hunt area is necessary to ensure flexibility to respond to caribou movements.

Consolidation of the Unit 19A and 19B hunt areas will not affect the season, harvest limits, or restrictions for caribou and will reduce regulatory complexity by simplifying Federal regulation and aligning it with State regulation. However, it is important to retain language excluding residents of Lime Village from these regulations, as they are authorized to hunt only in a separate community harvest.

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APPENDIX 1

Anchorage Field Office Manager
Bureau of Land Management
4700 BLM Road
Anchorage, AK 99507

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Manager of the Bureau of Land Management (BLM) Anchorage Field Office 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 the portion of Unit 9C draining into the Naknek River from the north 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 Office of Subsistence Management (OSM), the Alaska Department of Fish and Game (ADF&G), the U.S. Fish and Wildlife Service (USFWS), the National Park Service (NPS) and the Chair of the Bristol Bay Subsistence Regional Advisory Council (Council) to the extent possible. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair and applicable Council members to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

DELEGATION OF AUTHORITY

1. Delegation: The BLM Anchorage Field Office 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. Authority: 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 the season and set the harvest limit, including sex restrictions, for the caribou season on Federal public lands in the portion of Unit 9C that drains into the Naknek River from the north.

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 population.

All other proposed changes to codified regulations, such as customary and traditional use determinations, adjustments to methods and means of take, or closures to only non-Federally qualified users shall be directed to the Federal Subsistence Board.

The Federal public lands subject to this delegated authority are those within the portion of Unit 9C that drains the Naknek River from the north.

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 review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 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 Federal Subsistence 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 the OSM no later than sixty days after development of the document.

You will consult with OSM and coordinate with local ADF&G managers, USFWS and NPS managers and the Chair of the Bristol Bay Subsistence Regional Advisory Council regarding

special actions under consideration. 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 Subsistence Regional Advisory 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 Federal Subsistence 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 Federal Subsistence 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. Support Services: Administrative support for regulatory actions will be provided by the Office of Subsistence Management, U.S. Fish & Wildlife Service, Department of the Interior.

Sincerely,

Anthony Christianson
Chair, Federal Subsistence Board

cc: Assistant Regional Director, Office of Subsistence Management
Deputy Assistant Regional Director, Office of Subsistence Management
Subsistence Council Coordinator, Office of Subsistence Management
Chair, Bristol Bay Subsistence Regional Advisory Council
Commissioner, Alaska Department of Fish and Game
Federal Subsistence Liaison Team Leader, Alaska Department of Fish and Game
Federal Subsistence Board
Interagency Staff Committee
Administrative Record

WP18–22 Executive Summary	
General Description	Proposal WP18–22 requests that the Federal public lands closure for caribou on the Nushagak Peninsula be rescinded. *Submitted by: Bristol Bay Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 17— Caribou** *Units17A and 17C – that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay – up to 5 caribou by Federal registration permit.* ~~*Federal public lands are closed to the taking of caribou except by residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clark's Point, and Ekuk hunting under these regulations.*~~ *Aug. 1 – Mar. 31*
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	

WP18–22 Executive Summary	
Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
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
WP18-22

ISSUES

Proposal WP18-22, submitted by the Bristol Bay Subsistence Regional Advisory Council (Council), requests that the Federal public lands closure for caribou on the Nushagak Peninsula be rescinded.

DISCUSSION

The Council recognizes that the Nushagak Peninsula Caribou Herd (NPCH) has experienced growth in the past decade and has been above optimal population size for several years. Although there is some concern from Council members that the seven communities involved in the original reintroduction of this herd will lose their priority access, the Council believes that reducing the herd to a sustainable level is ultimately the best way to ensure long-term subsistence use of this resource. The Council also believes that carefully managing harvest quotas through continued use of Federal and State registration permits provides a safeguard against overharvest.

Existing Federal Regulation

Unit 17— Caribou

Units17A and 17C – that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay – up to 5 caribou by Federal registration permit. Federal public lands are closed to the taking of caribou except by residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clark's Point, and Ekuk hunting under these regulations.	*Aug. 1 – Mar. 31*

Proposed Federal Regulation

Unit 17— Caribou

Units17A and 17C – that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay – up to 5 caribou by Federal registration permit. ~~Federal public lands are closed to the taking of caribou except by residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clark's Point, and Ekuk hunting under these regulations.~~	*Aug. 1 – Mar. 31*

Existing State Regulation

Unit 17— Caribou

Residents: Unit 17A, all drainages that terminate east of Right Hand Point— two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC501*	*may be announced*
Residents: Unit 17C remainder— two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC501*	*may be announced*

Extent of Federal Public Lands

Federal public lands comprise approximately 85% of the Nushagak Peninsula, and consist of 85% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Units 9B, 17, Lime Village, and Stony River have a customary and traditional use determination for caribou in Unit 17 remainder. However, Federal public lands on the Nushagak Peninsula are currently closed to the harvest of caribou except by the residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clark's Point, and Ekuk.

Regulatory History

Caribou were reintroduced to the Nushagak Peninsula in 1988, with the intention of providing a subsistence resource to area residents (USFWS et. al. 1994). In 1994, the Federal Subsistence Board (Board) adopted Proposal P94-42, which established a Jan. 1 – Mar. 31 harvest season for the NPCH in portions of Units 17A and 17C, and instituted a closure to all users except residents of Togiak, Dillingham, Manokotak, Twin Hills, Aleknagik, Clark's Point, and Ekuk (FSB 1994). The newly established season began on January 1, 1995 with a harvest limit of 1 caribou. The Board's approval of Temporary Special Action S95-06 extended the season from Jan. 1 – Mar. 31 to Dec. 1 – Mar. 31 for the 1995/1996 regulatory year. In 1996, the Board adopted Proposal P96-34, which changed the caribou season from Jan. 1 – Mar. 31 to Dec. 1 – Mar. 31 and also established an Aug. 1 – Aug. 30 fall season (FSB 1996). In 1997, the Board adopted Proposal P97-47, which increased the harvest limit from 1 caribou to 2 caribou on the Nushagak Peninsula, as there was a harvestable surplus of caribou and the previous year's harvest had been well below the management objective (FSB 1997). In 1998, the Board approved Special Action S97-10, which extended

the fall season from Aug. 1 – Aug. 30 to Aug. 1 – Sep. 30. This extension became regulation when the Board adopted Proposal P99-39 in 1999 (FSB 1999).

In 2001, the Board adopted Proposal WP01-18, authorizing the use of a designated hunter permit (FSB 2001). In 2002, the Board approved Temporary Special Action WSA02-13, which reduced the harvest limit from 2 caribou to 1 caribou for the NPCH hunt, and gave the Togiak NWR manager authority to close the season when harvest objectives were met. This action was intended to prevent overharvest of the declining NPCH. In 2003, Board action on WP03-22 changed the harvest limit from *2 caribou* to *up to 2 caribou* and delegated authority to the Togiak NWR manager to set harvest objectives and limits, determine the number of permits to be issued, and to close the season. The new regulation also required that hunters report their harvest within 24 hours after returning from the field (FSB 2003). These changes provided management flexibility and reduced the need for special actions and follow-up proposals.

Emergency Special Action WSA15-02, submitted by the Village of Manokotak in April 2015, requested that the season be extended to May 31, due to poor winter travel conditions and subsequent low caribou harvest. The Board rejected this request because immobilization drugs used during a recent capture and collaring project could have posed a human health risk prior to May 10, and because any season extension beyond May 10 would have overlapped with the calving season (OSM 2016a).

The Nushagak Peninsula Caribou Planning Committee submitted four special action requests for the 2015/16 regulatory year. Temporary Special Action WSA15-14 requested increasing the harvest limit to 3 caribou through March 31, 2016. Temporary Special Action WSA15-15 requested opening Federal public lands to caribou harvest by all residents of Alaska through March 31, 2016. Emergency Special Action WSA15-16 requested extending the winter season from Dec. 1 – Mar. 31 to Dec. 1 – Apr. 15. Temporary Special Action WSA15-17 requested that subsistence harvest of Nushagak caribou be exempted from the prohibition on same-day airborne harvest Jan. 1 – Apr. 15. These requests sought to increase harvest and slow population growth of the NPCH. All four requests were approved by the Board, with a modification of WSA15-16 that retained the 3 caribou limit through April 15, 2015 (OSM 2016a).

In early 2016, the Alaska Department of Fish and Game (ADF&G) announced a State season by Emergency Order (EO 04-03-16), targeting caribou migrating off the Nushagak Peninsula in portions of Units 17A and 17C. This season opened on March 4, 2016. Approval of WSA15-15 provided an opportunity for ADF&G to expand the hunt to include Federal public lands on the Nushagak Peninsula, which occurred on March 17. The State season was open through March 31, 2016, had a limit of 2 caribou of either sex, and required the use of a State registration permit (RC501).

After the Federal and State seasons closed in spring 2016, the Manokotak Village Council submitted Emergency Special Action Request WSA15-18, requesting that the Federal caribou season on the Nushagak Peninsula be extended through the end of May, or until females begin calving. The request was approved with the modification to 1) reopen the season through May 10, a date that provided reasonable assurance that the season would not overlap with calving, and 2) raise the harvest limit to 3 caribou, consistent with recent action on WSA15-14 and WSA15-16. As a result, the season was reopened May 3 – May 10, 2016.

Several proposals related to Nushagak caribou were submitted for consideration for 2016 – 2018 regulatory years. Proposal WP16-25/26, submitted by the Togiak Fish and Game Advisory Committee and the Nushagak Fish and Game Advisory Committee, requested increasing the harvest limit from 2 caribou to 3 caribou and modifying the existing split season to a single Aug. 1 – Mar. 31 season. Proposal WP16-31/32, also submitted by the Togiak Fish and Game Advisory Committee and the Nushagak Fish and Game Advisory Committee, requested that same day airborne harvest of Nushagak Peninsula caribou be allowed during the winter season, Jan. 1 – Mar. 31. The Board adopted WP16-25 with modification, raising the harvest limit to *up to 5 caribou* and creating a single season, as proposed. It also adopted WP16-31. The Board took no action on WP16-26 and WP16-32, based on action taken on WP16-25 and WP16-31 (FSB 2016).

In spring 2016, Temporary Special Action Request WSA16-02 was submitted by the Togiak NWR and ADF&G for consideration by the Board. They requested that the closure be lifted for the 2016/17 regulatory year, as long as the population did not fall below 900 animals, the upper population objective. Members of the public and tribal representatives acknowledged the need for population reduction but offered limited support due to concerns about maintaining subsistence priority, particularly during the winter season, concerns about the limitations imposed by current customary and traditional use determinations, and concerns that the 900 caribou threshold for opening Federal public lands might persist beyond regulatory year 2016/17 and become a permanent management parameter. The Board acknowledged these concerns and encouraged revision of the Nushagak Peninsula Caribou Management Plan to accommodate a wider range of situations, but approved WSA16-02 with modification to delegate authority to the manager of Togiak NWR to reinstate the closure if the population falls below 900 animals, given the biological necessity for population reduction.

In fall 2016, ADF&G announced a State season in portions of Units 17A and 17C by Emergency Order (EO 04-50-16). The season was limited to Alaska residents, required a registration permit (RC501), and had a harvest limit of 2 caribou. Although the season was open Aug. 1, 2016 – Mar. 31, 2017 on State lands, harvest of caribou within the Federal hunt area on the Nushagak Peninsula was allowed only through September 30, 2016. This effectively limited opportunity for winter harvest within the core range of the herd to Federally qualified subsistence users.

Review of the 1994 closure was most recently addressed in Closure Review WCR15-07, which the Council took up at its February 2017 meeting. The Council voted to rescind the closure, due to concerns about long-term sustainability of the herd (BBSRAC 2017) and consistent with the Board's Closure Policy (Appendix 1), which specifies that closures "should be removed as soon as practicable when conditions that originally justified the closure have changed to such an extent that the closure is no longer necessary."

Biological Background

Within the first 10 years following reintroduction, the NPCH grew from 146 animals in 1988 to over 1,200 caribou by 1998. Subsequently, calf recruitment and adult female survival decreased and the population fell below 600 caribou by 2006. By 2015, the population had increased to over 1,300 caribou (Aderman 2017, pers. comm.) (**Table 1**).

Table 1. Sex and age composition and minimum counts of NPCH, southwest Alaska, 1988-2016 (Aderman 2015, Aderman 2017, pers. comm.).

Year	Bulls:100 Cows	Calves:100 Cows	Population Size (Minimum Count)
1988	11.7	10.0	146
1989	---	---	268
1990	---	---	383
1991	---	---	561
1992	59.8	71.6	734
1993	---	---	1,007
1994	71.3	64.6	1,106
1995	---	---	1,214
1996	---	---	1,255
1997	63.7	62.0	1,273
1998	57.4	62.6	1,281
1999	48.1	52.5	1,159
2000	51.5	38.1	1,037
2001	45.9	34.8	937
2002	42.9	36.1	810
2003	47.3	44.1	780
2004	42.5	33.8	665
2005	38.2	32.4	600
2006	31.3	35.6	550
2007	49.2	40.0	560
2008	43.8	59.6	575
2009	37.1	34.8	600
2010	42.1	45.2	801
2011	28.9	38.6	805
2012	52.0	50.2	902
2013	32.2	40.3	926
2014	43.8	52.5	1,018
2015	65.1	46.3	1,313
2016	50.8	39.8	1,230
2017	---	---	786

The causes of the decline between 1999 and 2009 are not clearly understood and are almost certainly multi-factored (Aderman and Lowe 2012). The most likely explanation for the decline is that the exceptionally high growth through 1998 produced large annual cohorts of females that survived until a relative old age, at which time they declined in productivity. This high proportion of unproductive females, combined with high harvest years in 2001 and 2002, changed the population trajectory from an increasing trend to a decreasing trend, which persisted until the replacement of old, unproductive females with younger, more productive females. Changing nutritional conditions (both short-term, such as those associated with drought or winter icing, as well as longer-term changes, such as lower overall carrying capacity due to continuous grazing on the Nushagak Peninsula since 1988) underlaid and exacerbated this

decline. Predation on the population has not been shown to be a significant factor. A study of wolf predation from 2007–2011 found that wolf predation was not a primary driver of Nushagak Peninsula caribou population dynamics (Walsh and Woolington 2008). Brown bears are common on the Nushagak Peninsula and likely have learned to exploit the caribou population, but their impact on the NPCH is not known (Aderman and Lowe 2012).

Between 2007 and 2015, the population increased due to improved fall calf recruitment and adult female survival (Aderman 2015). The most recent survey occurred in June 2017, when the population was estimated to be 968 caribou, with a minimum count of 786 (**Table 1**). This is a 36% decrease from the 2016 minimum count of 1,230 caribou, and is due to the increased harvest of caribou during the 2016-2017 season (Aderman 2017, pers. comm.). Both the population estimate and the minimum count remain near the upper end of the Nushagak Peninsula Caribou Management Plan's population objective, which is to maintain a population of 400–900 caribou and an optimum of 750 caribou (Aderman 2015). The most recent composition surveys were conducted in October 2016. These surveys estimated 51 bulls:100 cows and 40 calves:100 cows (**Table 1**) (Aderman 2017, pers. comm.). Current efforts to reduce population size are aimed at preventing another population decline like the one experienced in the late 1990s and early 2000s (Aderman 2015).

Cultural Knowledge and Traditional Practices

Comprehensive subsistence surveys conducted by ADF&G, Division of Subsistence, document the importance of caribou for the residents of Bristol Bay (Coley-Kenner et al. 2003; Evans et al. 2013; Fall et al. 1986; Holen et al. 2012; Holen et al. 2005; Kreig et al. 2009; Schinchnes and Chythlook 1988; Seitz 1996). For most communities, caribou contribute a significant portion of the total community harvest of wild resources; reports document a range from no harvest in Aleknagik in 2008 (an uncommon occurrence) to a high of 23% of the community harvest in Levelock for 2005 (Holen et al. 2012; Kreig et al. 2009). In all communities over each study year (1974 – 2010), results demonstrate that while a small number of households actually harvested caribou, most households used caribou meat. This was particularly true in Kokhanok where caribou contributed only 3% to the total community harvest in 2005 but was used by 80% of the households (Kreig et al. 2009). In 2008, Aleknagik hunters did not report any harvest of caribou but approximately 13% of the households used caribou shared with them by households outside the community (Holen et al. 2012). Such a use pattern is common in rural Alaska, indicating the importance of the resource and that sharing is significant and extensive throughout the area.

An example of typical caribou harvest and use patterns can be seen in a Manokotak study from 1988. In 1986, Manokotak was surveyed for the 1985 harvest year (Schinchnes and Chythlook 1988), with 54 of 59 households (91%) surveyed for the study. Eighty-nine percent of respondents reported using caribou while 31% reported actually harvesting caribou. The average harvest was 112 pounds of caribou per household or 22 pounds of caribou per person. The majority of the caribou hunting took place after freeze-up via snowmachine or airplane. Upon a successful hunt, the meat was divided among participants, and again distributed upon return. During the study year, caribou was broadly shared within the community of Manokotak with 65 % of households reporting the receipt of caribou from others.

Annual harvest and use of caribou fluctuates in the Bristol Bay Region from year to year and study to study

for a variety of reasons (migration patterns, access, the availability of alternative resources), but comparison studies over time demonstrate a continued reliance on this important resource.

Harvest History

In 2011, the Nushagak Peninsula Caribou Management Plan's harvest strategy was reviewed and updated to make it more responsive to a dynamic caribou population. The updated strategy establishes an annual harvest goal based on population size and trend, and allows harvest when the population exceeds 200 caribou and is stable or increasing. It calls for a liberal harvest when the population is 800 caribou or greater, and recommends harvesting all animals over a minimum count of 750 caribou (Aderman 2015).

Hunting effort is influenced by travel conditions, availability of and opportunity to harvest other resources, including Mulchatna caribou and moose, as well as economic factors (Aderman and Lowe 2012). Typically, annual harvest of the NPCH has increased as the population has grown and harvest limits have increased (**Table 2**). Historically, most of the reported harvest has occurred in February and March (**Table 2**), due to improved hunter access to the herd via snowmachine (Aderman and Lowe 2012). In some recent years, total reported harvest has been lower than expected, given the NPCH size. In particular, winter harvest has been low due to poor travel conditions resulting from low snowfall and warm temperatures.

Despite the liberalization of harvest regulations in early 2016, spring harvest remained well below harvest levels typical during times of caribou abundance. In March and April, only 22 caribou were harvested under State and Federal regulations (**Table 2**), probably due to the persistence of warm temperatures and low snowfall. Of the 123 State permits issued for the spring hunt, 6 were issued to residents of Soldotna, while the remainder were issued to residents of the seven communities who currently qualify for the Federal subsistence hunt. All caribou harvested under State and Federal regulation were harvested by residents of these seven communities (Aderman 2017, pers. comm.; ADF&G 2017).

Harvest increased dramatically in 2017, likely due to favorable travel conditions, combined with liberal harvest restrictions (**Table 2**). A total of 371 caribou were reported harvested under both Federal and State regulation in 2017, with most caribou being harvest in February and March, consistent with historical patterns. Despite a long State season (Aug. 1 – Sep. 30 on the Nushagak Peninsula proper and Aug. 1 – Mar. 31 in the larger RC501 hunt area), harvest under State regulation remained modest. Only of 23 caribou were harvested under State regulation and 22 of those were harvested by local residents who are also eligible to hunt under Federal regulation (Aderman 2017, pers. comm.; ADF&G 2017).

Other Alternatives Considered

The Federal public lands closure on the Nushagak Peninsula was temporarily rescinded in regulatory years 2015/16 and 2016/17 by special action. The 2016 rescission, a consequence of the Board's action on temporary special action WSA16-02, included a provision that the closure would be reinstated if the population estimate fell below 900 caribou, the upper limit of the population objective established in the Nushagak Peninsula Caribou Management Plan.

Table 2. Reported harvest of the NPCH, by month, for regulatory years 1994/1995 – 2016/2017 (Aderman 2015; OSM 2015; Aderman 2017, pers. comm.; ADF&G 2017).

	Month									
Year	**Aug.**	**Sep.**	**Oct.**	**Dec.**	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**Unknown**	**Total**
1994/1995	NS[a]	NS	NS	NS	3	1	25	NS	6	35
1995/1996	NS	NS	NS	3	0	5	43	NS	1	52
1996/1997	5	NS	NS	0	0	2	13	NS	0	20
1997/1998	5	NS	NS	0	2	25	35	NS	0	67
1998/1999	0	2	NS	0	0	0	50	NS	3	55
1999/2000	0	0	NS	0	2	7	54	NS	0	63
2000/2001	0	6	NS	0	0	22	98	NS	0	126
2001/2002	0	3	NS	0	0	9	115	NS	0	127
2002/2003	3	0	NS	0	0	0	0	NS	0	3
2003/2004	2	3	NS	0	0	0	29	NS	0	34
2004/2005	1	0	NS	0	0	0	8	NS	0	9
2005/2006	1	1	NS	0	0	0	9	NS	0	11
2006/2007	NS	NS	NS	NS	NS	0	NS	NS	0	0
2007/2008	NS	NS	NS	NS	NS	0	0	NS	0	0
2008/2009	NS	NS	NS	NS	NS	5	2	NS	1	8
2009/2010	NS	NS	NS	NS	NS	3	14	NS	1	18
2010/2011	NS	NS	NS	NS	NS	18	27	NS	0	45
2011/2012	0	2	NS	NS	NS	20	64	NS	0	86
2012/2013	6	3	NS	0	5	6	89	NS	0	109
2013/2014	3	1	NS	0	0	0	98	NS	0	102
2014/2015	8	7	NS	0	0	1	0	NS	0	16
2015/2016[b]	28	14	NS	0	0	0	15	7	0	64
2016/2017[c]	28	15	1	2	38	111	176	0	0	371

[a] NS = No season

[b] Includes 11 caribou harvested under State regulation

[c] Includes 23 caribou harvested under State regulation

Including a similar provision in WP18-22 was considered. This option would provide assurances that the NPCH would not be harvested by non-Federally qualified users when the population was not at or within the population objective. However, when public input was gathered for WSA16-02, this approach was met with caution. The following is a summary of the public meeting and tribal and ANSCA consultations held for WSA16-02 (OSM 2016b):

> The third major topic of discussion during these sessions was concern that the 900 caribou threshold for opening Federal public lands might persist beyond regulatory year 2016/17 and become a permanent management parameter. Attendees voiced a preference for a tiered approach, established with input from the Tribes, that would first open the hunt to all Federally qualified subsistence users when the population reached a predetermined population threshold. If the population continued to grow and reached a second, higher

threshold, it could then be opened to users statewide. To this end, there was discussion among tribal representatives and agency personnel about revising the Nushagak Caribou Management Plan to accommodate a range of situations, including the current situation.

Using population thresholds to inform the Federal public lands closure may prove to be an effective management tool for this population. However, this alternative warrants input from the Council, tribes, the Nushagak Peninsula Caribou Planning committee, and the public prior to implementation.

A second alternative is to open Federal public lands to Federally qualified subsistence users prior to opening them to all users, in an incremental approach. However, there is expected to be little additional harvest from Federally qualified users who are not currently eligible to harvest Nushagak Peninsula Caribou, given lack of proximity of these communities to the herd, and lack of participation in the hunt in the past two years when the closure was temporarily lifted. Given that the intent is to reduce the population to a sustainable level, this alternative isn't preferred.

Effects of the Proposal

If this proposal is adopted, Federal public lands on the Nushagak Peninsula will be open to all users, including Federal qualified subsistence users who do not reside in one of the seven communities currently allowed to harvest caribou on the Nushagak Peninsula. Alaska residents hunting under State regulation would also be able to participate in hunts on Federal public lands on the peninsula. However, non-Federally qualified users would not be able to participate in the same-day airborne hunting available to Federally qualified subsistence users. While nonresidents would not be excluded under Federal regulation, there is not currently a non-resident season under State regulation, so non-resident harvest is effectively excluded.

Opening this area to additional users will likely increase harvest of the NPCH somewhat, particularly by Alaska residents who are not currently eligible to hunt under Federal regulation. Additional harvest may be influential in reducing the size of the herd. Adoption of this proposal is not expected to affect Federally qualified subsistence users' ability to harvest caribou, given the current caribou abundance.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-22.

Justification

The NPCH has been well above the optimal population size for several years, jeopardizing habitat quality and, ultimately, the long-term viability of the population. Rescinding the closure offers the best potential to increase harvest and reduce the population size, and is consistent with the Board's Closure Policy. Annual monitoring of population size, combined with effective harvest reporting through the use of registration permits, provide managers with better than average information to manage the herd and are a safeguards against overharvest.

While rescinding the closure would require that those currently eligible to harvest Nushagak Peninsula caribou give up exclusive access to the resource, this action is not expected to impact Federally qualified subsistence users' ability to successfully harvest caribou at this time, given the size of the herd. In addition, Federally qualified subsistence users would retain several advantages over those hunting under State regulation, including a long season, more liberal harvest limits, and an exception to the prohibition on same day airborne hunting. Despite the lack of a Federal lands closure in the past two regulatory years, harvest patterns suggest that local hunters who are currently eligible to hunt under Federal regulation remain the primary users of the NPCH.

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WP18–23 Executive Summary	
General Description	Proposal WP18-23 requests that residents of Units 9C and 9E be added to the customary and traditional use determination for caribou in Unit 17 remainder, specifically that portion of Units 17A and 17C consisting of the Nushagak Peninsula. *Submitted by: Gayla Hoseth of Dillingham*.
Proposed Regulation	Customary and Traditional Use Determination – Caribou ***Units17A and 17C – that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay –*** *Residents of Units 9B,**9C, 9E,** 17**,** Lime Village, and Stony River**.***
OSM Preliminary Conclusion	Support Proposal WP18-23 **with modification** to add residents of Units 9C and 9E to the customary and traditional use determination for caribou in Unit 17, remainder. The modified regulation would read: **Customary and Traditional Use Determination—Caribou** *Unit 17, remainder – Residents of Units 9B, **9C, 9E,** 17, Lime Village, and Stony River.*
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	

WP18–23 Executive Summary	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
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
WP18-23

ISSUE

Proposal WP18-23, submitted by Gayla Hoseth of Dillingham, requests that residents of Units 9C and 9E be added to the customary and traditional use determination for caribou in Unit 17 remainder, specifically that portion of Units 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River, and Tuklung Hills, west to Tvativak Bay. The geographic boundaries described by this proposal encompass the primary range of the Nushagak Peninsula Caribou Herd (NPCH).

DISCUSSION

The NPCH has experienced significant growth in the past decade and has been above optimal population size for several years. The proponent states that residents of Units 9C and 9E have demonstrated patterns of use relevant to the NPCH during Bristol Bay Subsistence Regional Advisory Council (Council) meetings and that adding them to the customary and traditional use determination for caribou on the Nushagak Peninsula will provide increased opportunity for Federally qualified subsistence users to harvest caribou in times of abundance.

During the fall 2015 Council meeting in Dillingham, while addressing WP16-31/32 on allowing same-day airborne hunting of the NPCH, Council members discussed other means of increasing harvest of the herd and controlling the booming population (BBSRAC 2015). Specifically, members expressed interest in expanding the customary and traditional use determination for caribou in Unit 17 in order to liberalize harvest opportunities for a larger pool of Federally qualified subsistence users rather than opening the hunt to all users. Discussions during the fall 2015 meeting centered around inclusion of both Unit 9 residents and "east bay villages".

It should be noted that population numbers can never be a reason to grant or deny a customary and traditional use determination. Customary and traditional use determinations recognize use and are not used as a means to regulate a resource.

Existing Federal Regulation

Customary and Traditional Use Determination— Caribou

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, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, and Tuntutuliak.

Unit 17A, that portion north of Togiak Lake that includes Izavieknik

River drainages - Residents of Units 9B, 17, Akiak, Akiachak, Lime Village, Stony River, and Tuluksak.

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, Kwethluk, Lime Village, and Stony River.

Unit 17B, that portion of Togiak National Wildlife Refuge within Unit 17B - Residents of Units 9B, 17, Akiachak, Akiak, Bethel, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, Tuluksak, and Tuntutuliak.

Unit 17, remainder – Residents of Units 9B, 17, Lime Village, and Stony River.

Proposed Federal Regulation

Customary and Traditional Use Determination— Caribou

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, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, and Tuntutuliak.

Unit 17A, that portion north of Togiak Lake that includes Izavieknik River drainages - Residents of Units 9B, 17, Akiak, Akiachak, Lime Village, Stony River, and Tuluksak.

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, Kwethluk, Lime Village, and Stony River.

Unit 17B, that portion of Togiak National Wildlife Refuge within Unit 17B - Residents of Units 9B, 17, Akiachak, Akiak, Bethel, Eek, Goodnews Bay, Lime Village, Napakiak, Platinum, Quinhagak, Stony River, Tuluksak, and Tuntutuliak.

Units17A and 17C – that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay – *Residents of Units 9B,* ***9C, 9E,*** *17, Lime Village, and Stony River.*

Unit 17, remainder – Residents of Units 9B, 17, Lime Village, and Stony River.

Extent of Federal Public Lands

Federal public lands comprise approximately 28% of Unit 17, and consists of 21% U.S. Fish and Wildlife Service (USFWS) managed lands, 4% Bureau of Land Management (BLM) managed lands, and 3% National Park Service (NPS) managed lands.

The Nushagak Peninsula, or that portion of 17A and 17C consisting of the Nushagak Peninsula south of the Igushik River, Tuklung River and Tuklung Hills, west to Tvativak Bay, is comprised of approximately 85% Federal public lands, all of which are part of the Togiak National Wildlife Refuge and managed by USFWS.

Regulatory History

The Federal Subsistence Board (Board) has addressed customary and traditional use determinations for Bristol Bay since the inception of the Federal Subsistence Management Program in 1990. The Board adopted the State's customary and traditional use determinations in 1990. At that time, the State had established that residents of Units 9B, 17, Lime Village, and Stony River had a customary and traditional use of caribou for Unit 17, and that residents of Kwethluk had a customary and traditional use of caribou for portions of Subunits 17A and 17B. The State also established a customary and traditional use determination for residents in Unit 9C of caribou in Units 9A, 9B, 9C, and 9E, and established a customary and traditional use determination for residents of Unit 9E for caribou in Unit 9E.

In 1998, Proposal P98-53 requested that residents of Akiak and Akiachak be added to the existing customary and traditional use determination for caribou in Unit 17A and 17B. The Board deferred action on this proposal pending the completion of a formal community study by the Alaska Department of Fish and Game (ADF&G). This study was carried out in 1999 and the Board took action on the request in 2000 with Proposal P00-34. The Board adopted this proposal with modifications recommended by the Council to open the northwest corner of Subunit 17A, including the drainages of the Izavieknik River of Togiak Lake, for subsistence harvest of caribou to residents of Akiak, Akiachak, and Tuluksak. The portion of the Togiak National Wildlife Refuge within Subunit 17B was also opened to subsistence caribou harvest to residents of Akiak, Akiachak, and Tuluksak with this action.

In 1999, Proposal P99-38, submitted by Joshua Cleveland of Quinhagak, requested that rural residents of Eek and Quinhagak be added to the existing customary and traditional use determination for caribou in Unit 17A. The Board adopted the proposal with modifications made by the Council which identified a more geographically specific area in Subunits 17A and 17B. This action provided a customary and traditional

use determination for caribou by residents of Napakiak, Tuntutuliak, Eek, Quinhagak, Goodnews Bay, and Platinum for the area west of the Togiak River drainage and the western portion of Unit 17B. The Board rejected the Yukon Kuskokwim Regional Advisory Councils' request to have residents of Bethel included to the customary and traditional use determination for caribou in the westernmost portion of Unit 17B.

The Nushagak Peninsula Caribou Herd

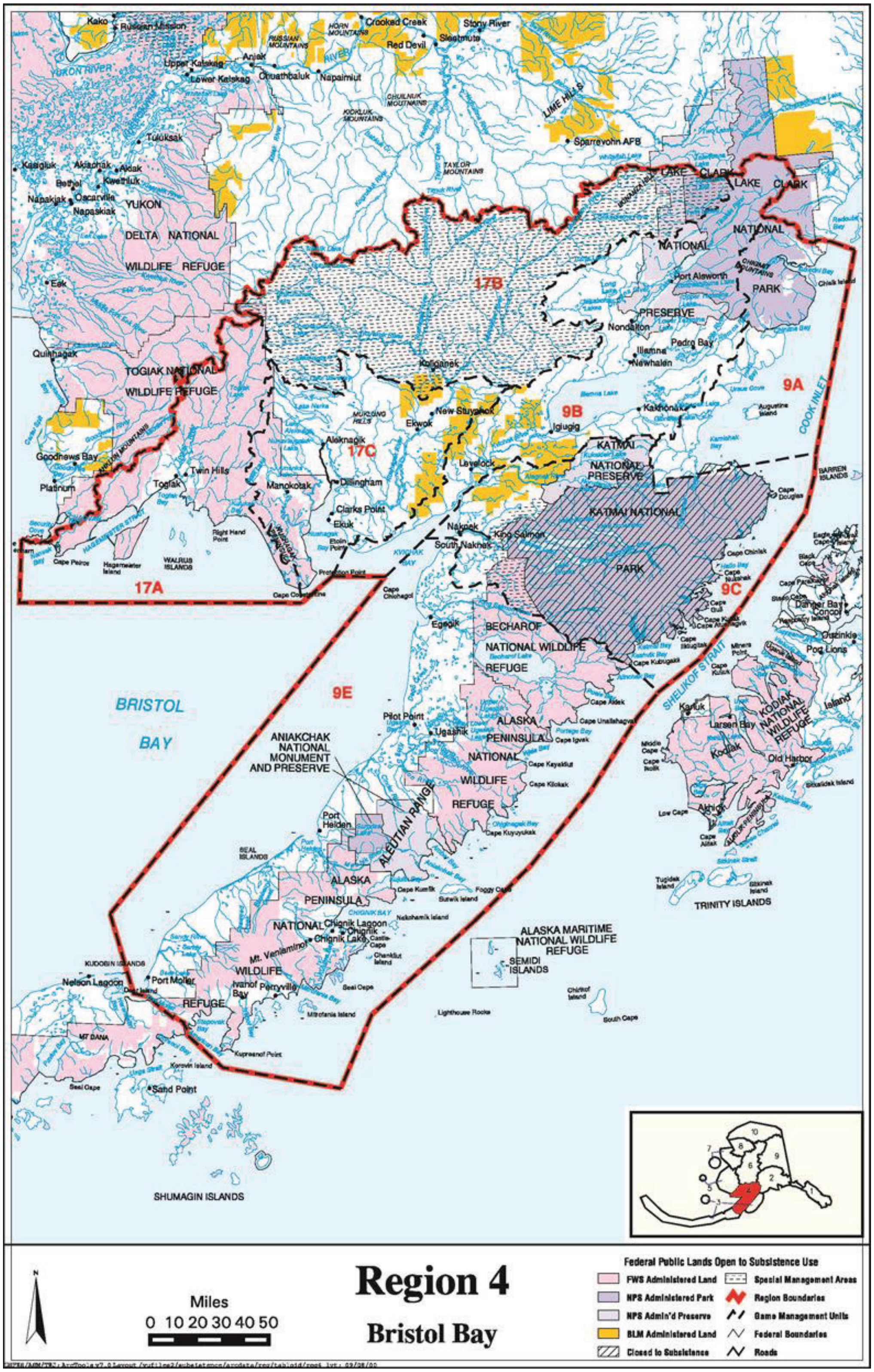
Caribou were reintroduced to the Nushagak Peninsula in 1988, with the intention of providing a subsistence resource to area residents (USFWS et. al. 1994). In 1994, adoption of Proposal P94-42 established a Jan. 1 – Mar. 31 harvest season for the NPCH in portions of Units 17A and 17C, and instituted a closure to all users except residents of Togiak, Dillingham, Manokotak, Twin Hills, Aleknagik, Clark's Point, and Ekuk; the seven community villages who supported the reintroduction of the herd and participate in the Nushagak Peninsula Caribou Planning Committee. The newly established season began on January 1, 1995 with a harvest limit of 1 caribou.

Since the first season in 1995 the NPCH has grown to a recent population count beyond the carrying capacity of the herds range. A number of special actions have been submitted to the Board in recent years attempting to extend seasons (WSA15-02, WSA15-16, WSA15-18), increase harvest limits (WSA15-14), liberalize methods (WSA15-17), and to lift the closure to the harvest of Nushagak Peninsula caribou except by the residents of Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clarks Point, and Ekuk (WSA15-15, WSA16-02). During its February 2017 meeting the Council addressed the 1994 closure in Closure Review WCR15-07. The Council voted to rescind the closure, due to concerns about long-term sustainability of the herd (BBRAC 2017) and to ensure consistency with the Board's Closure Policy which specifies that closures "should be removed as soon as practicable when conditions that originally justified the closure have changed to such an extent that the closure is no longer necessary."

For the current wildlife cycle, the Council submitted Proposal WP18-22, which requests that the Federal public lands closure for caribou on the Nushagak Peninsula be rescinded. Should WP18-22 be adopted by the Board, all users would be allowed to harvest caribou on the Nushagak Peninsula under the applicable Federal and State regulations.

Community Characteristics

Units 9C and 9E make up that portion of the Alaska Peninsula extending from the northern borders of the Katmai National Park and Preserve south to include Kupreanof Peninsula on the Pacific Ocean side of the Peninsula and Port Moller on the Bering Sea side (**Map 1**). The communities within Unit 9C are King Salmon, Naknek, and South Naknek, and the communities within Unit 9E are Egegik, Pilot Point, Ugashik, Port Heiden, Chignik, Chignik Lake, Chignik Lagoon, Perryville, and Ivanof Bay (it should be noted as of 2017 Ivanof Bay no longer has year round residents). Based on most recent assessments from the Alaska Department of Commerce, Community, and Economic Development (ADCCED), the population for the 12 communities considered in this analysis totals approximately 1,650 persons. The largest community is Naknek (544) which is joined by road to King Salmon (374). These two communities combine as a regional hub for services and commerce, and swell into the thousands during the summer commercial and



Map 1. Unit map for Region 4.

sport fishing seasons. The smallest community is Ivanof Bay, whose residents have now relocated to other parts of the State and do not reside there year round.

The contemporary communities of the northern Alaska Peninsula are a mix of Indigenous Tribal members and non-Native residents. Families with extended local histories are comprised of Alutiiq, Central Yup'ik, Aleut, decedants of Russian traders, and other non-Native settlers to the region. In addition, a number of Inupiat people settled in the region to work in canneries and participate in local reindeer herding opportunities during the early 1900s (Morseth 2003). Many settlements of the northern Alaska Peninsula were established after the 1912 eruption of Mount Katmai or received a significant number of displaced villagers from the settlements buried in ash (Partnow 2001). The local economy for the area is based on a tradition of commercial fishing and those businesses that support processing and distribution. Other past industries of importance to the region were the fur trade, fur farms, and reindeer herding. Feldman documents the testimony of a former King Salmon resident that recalls herding activities in the area as recently as the 1940s (Feldman 2001).

Updates of the baseline subsistence harvests for all resources in the northern Alaska Peninsula region are uneven. The most recent comprehensive subsistence survey was conducted for the 2007 study year by ADF&G in King Salmon, Naknek, and South Naknek (Holen, Krieg, and Lemons 2011). Chignik Lake, Chignik Lagoon, Chignik, and Perryville were last surveyed in 2003 (Fall 2006), and the remaining communities were last surveyed in 1984 and 1985 (Morris 1987). Harvests fluctuate over time for a variety of reasons, however all communities demonstrated a strong reliance on subsistence foods, even in the hub communities of King Salmon, Naknek, and South Naknek where recent surveys documented per capita harvests of 313 lb, 264 lb, and 267 lb respectively (Holen, Krieg, and Lemons 2011). Earlier studies in the region document the highest per capita harvests as 814 lb in Ugashik (Morris 1987) and 518 lb in Perryville (Fall 2006). In all surveyed communities over all study years, the use of subsistence foods in each household was high, from 96% to 100%.

Eight Factors for Determining Customary and Traditional Use

A community or area's customary and traditional use is generally exemplified through the eight factors: (1) a long-term, consistent pattern of use, excluding interruptions beyond the control of the community or area; (2) a pattern of use recurring in specific seasons for many years; (3) a pattern of use consisting of methods and means of harvest which are characterized by efficiency and economy of effort and cost, conditioned by local characteristics; (4) the consistent harvest and use of fish or wildlife as related to past methods and means of taking: near, or reasonably accessible from the community or area; (5) a means of handling, preparing, preserving, and storing fish or wildlife which has been traditionally used by past generations, including consideration of alteration of past practices due to recent technological advances, where appropriate; (6) a pattern of use which includes the handing down of knowledge of fishing and hunting skills, values, and lore from generation to generation; (7) a pattern of use in which the harvest is shared or distributed within a definable community of persons; and (8) a pattern of use which relates to reliance upon a wide diversity of fish and wildlife resources of the area and which provides substantial cultural, economic, social, and nutritional elements to the community or area.

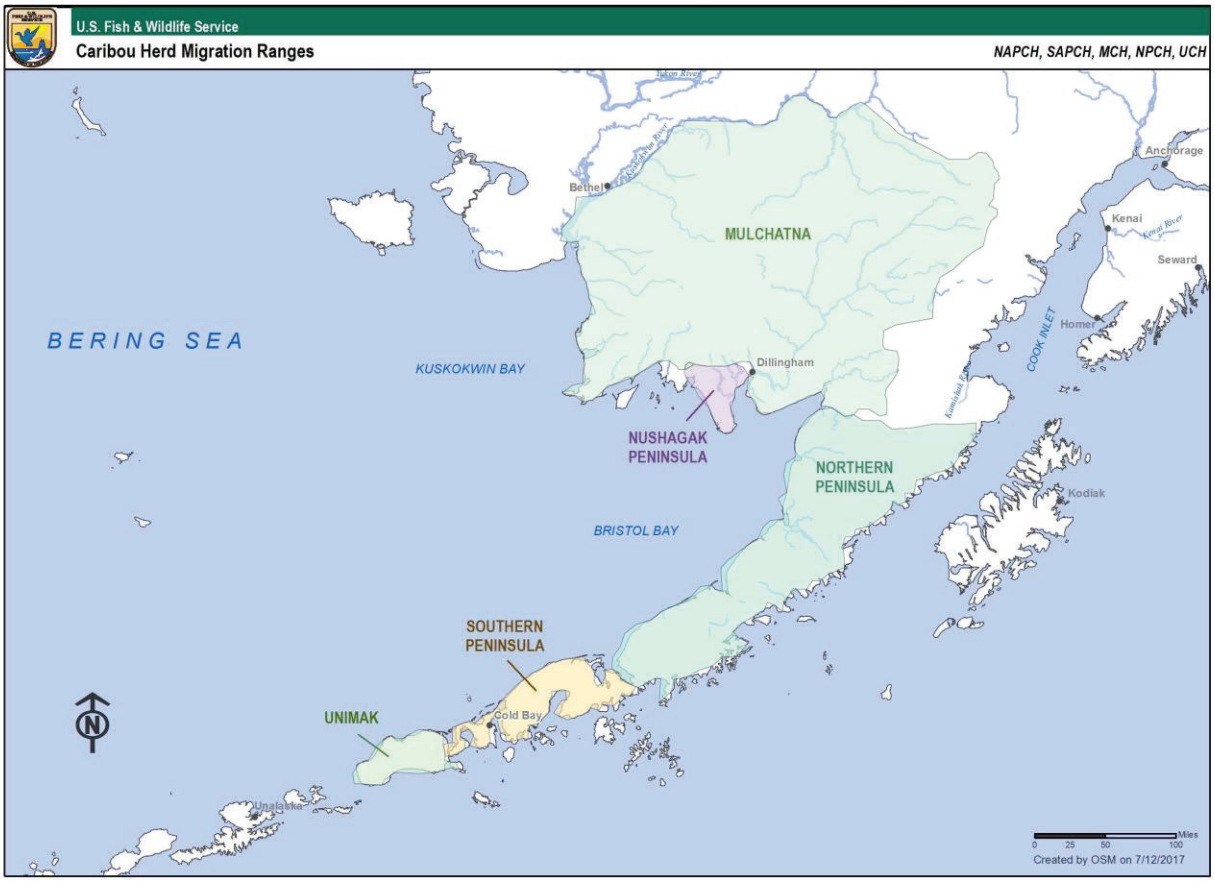
The Board makes customary and traditional use determinations based on a holistic application of these eight factors (50 CFR 100.16(b) and 36 CFR 242.16(b)). In addition, the Board takes into consideration the reports and recommendations of any appropriate Regional Advisory Council regarding customary and traditional use of subsistence resources (50 CFR 100.16(b) and 36 CFR 242.16(b)). The Board makes customary and traditional use determinations for the sole purpose of recognizing the pool of users who generally exhibit the eight factors. The Board does not use such determinations for resource management or for restricting harvest. If a conservation concern exists for a particular population of fish or wildlife, the Board addresses that concern through the imposition of harvest limits, season restrictions or Section 804 subsistence user prioritization rather than through adjustments to customary and traditional use determinations.

Residents in Unit 9C already have a customary and traditional use determination for caribou in Units 9A, 9B, 9C, and 9E, and residents of Unit 9E have a customary and traditional use determination for caribou in Unit 9E. A long term and consistent pattern of use of caribou including methods of harvest, handling, preparing, preserving and storage, and the sharing of knowledge and resources between generations and communities has already been recognized. This analysis will demonstrate use of caribou in Unit 17 by residents of Units 9C and 9E in addition to harvest patterns that demonstrate an interest in traveling outside of their immediate community for caribou hunting.

A long term and consistent pattern of using caribou

Archaeological surveys and historic accounts document the primacy of the ocean in feeding the people of the Alaskan Peninsula but they also describe the importance of caribou, particularly for those communities on the western, Bristol Bay portion of the peninsula (Lantis 1984; Morseth 2003; VanStone 1984a; VanStone 1984b). By the late 1800s, Veniaminov reported a decline in caribou numbers on the peninsula noting that periodic volcanic eruptions were hard on the vegetation upon which caribou depend (Morseth 2003: 65). Reindeer herding, while successful in other parts of the State, was attempted on the peninsula from the early 1900s but never took off as a viable economic or subsistence venture.

Comprehensive subsistence surveys conducted by ADF&G Division of Subsistence document the continued use of caribou by residents in Units 9C and 9E, but note that harvest was higher in the past compared to recent times due to the population decline and changing migration patterns of the MCH and prohibitions against the harvest of the NAPCH for health and recovery needs (Holen, Krieg, and Lemons 2011; Krieg et al 1998). The highest harvest of caribou by the communities of the Northern Alaska Peninsula (Egegik, Chignik, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay) documented by ADF&G occurred in 1984, with an average harvest of about 263 lb per household (Morris 1987). In that study, an average of 91% of the households in all communities of Unit 9E used caribou, 80% reported receiving caribou, and approximately 58% reported sharing their caribou with others. For the 1986 – 1987 study year "caribou made by far the largest contribution to the wild food supply" for the villages of Pilot Point, Ugashik, and Port Heiden (Fall and Morris 1987:107). Household averages for caribou harvest were approximately 821 lb in Pilot Point, 600 lb in Ugashik, and 681 lb in Port Heiden. Use was also high for these three communities with 100% of the households in Port Heiden reporting using caribou, 94% in Pilot Point, and 80% of households reporting use of caribou in Ugashik.



Map 2. Southwest Alaska Caribou Herd Migration Ranges.

Harvest of caribou in Unit 17 by residents of Units 9C and 9E

The caribou herds accessible to residents in the southwest region of Alaska (Units 9 and 17) include the Northern Alaska Peninsula Caribou Herd (NAPCH), the Southern Alaska Peninsula Caribou Herd (SAPCH), the Unimak Caribou Herd (UCH), the Mulchatna Caribou Herd (MCH), and more recently, the NPCH which is a reintroduced population after an absence of at least 100 years (**Map 2**). Archeological evidence and historical accounts demonstrate the presence and importance of caribou to those communities close to the Nushagak Peninsula but by 1900 herds were absent from the immediate area (Aderman 2015). The NPCH was started in 1988 with 146 individual caribou relocated from the Northern Alaska Peninsula Caribou Herd (Aderman 2015). The reintroduction of the herd was conducted by cooperative agreement between USFES, ADF&G, and the villages of Togiak and Manokotak, and Choggiung Limited in Dillingham in order to provide local residents with an opportunity to harvest caribou in close proximity to their homes and villages (USFWS et al. 1994). Village residents from Togiak assisted with the capture and handling of the animals (Paul 2009). As the herd grew a hunt was established on Federal public lands. Per objectives of the Nushagak Peninsula Caribou Management Plan, the hunt was limited to only seven resident communities with a customary and traditional determination for caribou in Unit 17; Togiak, Twin Hills, Manoktotak, Aleknagik, Dillingham, Clarks Point, and Ekuk. The caribou herds present in Unit 17 are the MCH and the NPCH. Both herds remain distinct with ranges that only minimally overlap.

Residents of Units 9C and 9E have harvested caribou in Unit 17 for as long as reports have been kept. Currently, they may only harvest caribou in Unit 17 under State regulations. The MCH can be hunted in 17A by a "may be announced season" or in 17A remainder, 17B, and portions of 17C between Aug. 1 – Mar. 31. The possibility to hunt Nushagak Peninsula caribou occurs in Unit 17C remainder by a "may be announced season" on State lands only. More recently, all State residents, including those in Units 9C and 9E, were able to harvest Nushagak Peninsula caribou on Federal public lands due to Board approval of WSA16-02, which temporarily lifted the closure to all but 7 resident communities with a C&T determination (Togiak, Twin Hills, Manokotak, Aleknagik, Dillingham, Clarks Point, and Ekuk).

ADF&G and USFWS maintain a harvest reporting database (OSM 2017); however, complete records were not kept until the mid-1980s and ADF&G data have not been added to USFWS data since 2010. Regardless, some indication of harvest patterns can be discerned. **Table 1** demonstrates the cumulative harvest of caribou under state regulations in Unit 17 by residents of Units 9C and 9E from 1983 to 2010. It should be noted that state lands make up a far larger portion of Unit 17C than Federal public lands. In addition, harvest surveys conducted by ADF&G demonstrate Unit 9 resident harvest and search areas for caribou that consistently include portions of Unit 17 (Krieg et al 1996; Krieg et al 1998; Holen, Krieg, and Lemons 2011).

Table 1. Permits issued and cumulative harvest of caribou in Unit 17 by residents of Units 9C and 9E, 1983 – 2010.

Resident Community	Subunit of Residence	Permits Issued	Actual Harvest
NAKNEK	9C	22	17
KING SALMON	9C	34	29
CHIGNIK	9E	1	0
UGASHIK	9E	2	1
PILOT POINT	9E	1	1
TOTAL		60	48

Method and means of caribou harvest

While prehistorically and through the early 1900s residents of the Northern Alaska Peninsula typically hunted and harvested resources close to home, by the latter half of the 20th century the use of aircraft was becoming a prevalent form of local transportation for some, expanding the range of harvest opportunities. The importance of this method for caribou hunting specifically was demonstrated in an ADF&G technical paper on the subsistence harvests of residents of the Northern Alaska Peninsula. In the description of use of caribou by residents of the Bristol Bay Borough, the following was noted:

> The regulation change which created the most controversy, and perhaps the biggest change in local hunting patterns, was the elimination of same day airborne hunting in 1977-78. For the previous three years same day airborne hunting had been allowed for caribou from January through March. (Morris 1987: 79)

Fall and Morris also documented aircraft use by residents of Pilot Point, Ugashik, and Port Heiden to access caribou during the 1986 – 1987 study year (Fall and Morris 1987). Early in the season, hunters would access the herd along waterways by skiff, use ATVs when the ground hardened, and then, as the season progressed and the herd migrated further north, hunters would use airplanes. While the transportation described apply specifically to the harvest of the Northern Alaska Peninsula Caribou Herd, it still demonstrates the ability and need of hunters in Unit 9 to travel far in order to harvest important resources.

As state earlier, the caribou present in Unit 17 consists of the MCH and the NPCH. The range and migration patterns of the MCH extend into Unit 9B and occasionally a small portion of Unit 9C where the residents of Units 9B and 9C may harvest them under Federal regulation (Krieg et al 1996:11). The NPCH range is bounded by the Nushagak Peninsula, however, residents of Units 9C and 9E may also claim ties to the herd as it was was established with animals from the NAPCH whose range lies completely within Unit 9. The animals were captured from the NAPCH in the late winter near Becharof Lake in Unit 9E (Paul 2009). Originally 167 animals were captured, but 146 (12 calves, 118 cows, and 16 bulls) were successfully released and introduced to the new range.

A final note, residents of Unit 17 have a customary and traditional use determination for caribou in Units 9C and 9E, demonstrating a regional pattern, easily extended to residents of Unit 9, of caribou harvest that ranges far by necessity as migration patterns change and populations fluctuate.

Effects of the Proposal

If adopted, Proposal WP18-23 would add residents of communities in Units 9C and 9E to the customary and traditional use determination for caribou in Unit 17 remainder. Their use of and connection to caribou in Unit 17 would be recognized by the Board giving residents of Units 9C and 9E the opportunity to hunt Mulchatna and Nushagak Peninsula Caribou under Federal regulations.

If Proposal WP18-23 is not adopted, residents of Units 9C and 9E will be able to continue harvest of caribou in Unit 17 under State regulations.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-23 **with modification** to add residents of Units 9C and 9E to the customary and traditional use determination for caribou in Unit 17, remainder.

The modified regulation would read:

> **Customary and Traditional Use Determination— Caribou**
>
> *Unit 17, remainder – Residents of Units 9B, **9C, 9E,** 17, Lime Village, and Stony River.*

Justification

Residents of Units 9C and 9E have a pattern of customary and traditional use of caribou in their region as well as a documented history of caribou harvest in Unit 17. The Bristol Bay Subsistence Regional Advisory Council has expressed support for the inclusion of Unit 9 residents into the customary and traditional use determination for caribou in Unit 17, specifically as a means to provide access to the Nushagak Peninsula Caribou Herd.

Residents of Units 9C and 9E have a demonstrated pattern of using caribou, and that use extends beyond their specific Units. In the past, use of a resource often required traveling beyond close proximity to home villages. Residents of Units 9C and 9E have a demonstrated pattern of traveling farther, particularly by airplane, to access their local herds and those herds that range into their region. Herds that they have accessed in the past through contemporary times include the NAPCH, the SAPCH, and the Mulchatna Herd.

Residents of Unit 17 have a customary and traditional use determination for caribou in Units 9C and 9E, demonstrating a regional pattern, easily extended to residents of Unit 9, of caribou harvest that ranges far, by necessity, as migration patterns change and fluctuate.

Finally, residents of Unit 9 have a unique connection to the Nushagak Peninsula Caribou Herd specifically because it was reintroduced to the peninsula by transferring individual animals from the NAPCH from the Units 9C and 9E. While the NPCH primarily sticks to the peninsula, individuals occasionally break away and range further than the peninsula specific Federal lands.

This modification reflects that customary and traditional use determinations are not meant to regulate use but instead are meant to recognize subsistence uses in the most inclusive manner possible.

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WP18–24 Executive Summary	
General Description	Proposal WP18-24 requests that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals are not shot from a moving vehicle. *Submitted by: Kenneth Nukwak of Manokotak*.
Proposed Regulation	**§_____.26(n)(17)(iii) Unit 17—Unit-specific regulations** **. . .** ***(D) A snowmachine may be used to position a caribou, wolf, or wolverine for harvest, provided that the animals are not shot from a moving snowmachine.***
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	

WP18–24 Executive Summary	
Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
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	**2 Oppose**

DRAFT STAFF ANALYSIS
WP18-24

ISSUES

Proposal WP18-24, submitted by Kenneth Nukwak of Manokotak, requests that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals are not shot from a moving vehicle.

DISCUSSION

The Alaska National Interest Lands Conservation Act (ANILCA) provides for the appropriate use of snowmobiles, motorboats, and other means of surface transportation for subsistence purposes on Federal lands; however, current agency-specific regulations are prohibitory. The proponent states that the requested regulatory change is needed to prevent hunters from shooting into a herd of animals and to provide better guidelines to hunters for the method of harvest.

Existing Federal Regulation

ANILCA Title VIII §811. Access.

(a) The Secretary shall ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on the public lands.

(b) Notwithstanding any other provision of this Act or other law the Secretary shall permit on the public lands appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation.

50 CFR 100.4 and 36 CFR 242.4 Definitions

Take or taking as used with respect to fish or wildlife, means to pursue, hunt, shoot, trap, net, capture, collect, kill, harm, or attempt to engage in any such conduct.

§____.26 Subsistence taking of wildlife

. . .

(b) Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:

. . .

(4) Taking wildlife from a motorized land or air vehicle when that vehicle is in motion, or from a motor-driven boat when the boat's progress from the motor's power has not ceased;

(5) Using a motorized vehicle to drive, herd, or molest wildlife.

Proposed Federal Regulation

§_____.26(n)(17)(iii) Unit 17—Unit-specific regulations

. . .

(D) A snowmachine may be used to position a caribou, wolf, or wolverine for harvest, provided that the animals are not shot from a moving snowmachine.

Existing State Regulation

Sec. 16.05.940. Definitions.

(34) "take" means taking, pursuing, hunting, fishing, trapping, or in any manner disturbing, capturing, or killing or attempting to take, pursue, hunt, fish, trap, or in any manner capture or kill fish or game.

5 AAC 92.080. Unlawful methods of taking game; exceptions

The following methods of taking game are prohibited:

. . .

(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor's power has ceased, except that a

. . .

(B) motorized land vehicle may be used as follows:

(iii) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 18, 19, 21, 22, 24, 25(C) and 25(D), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;

(5) except as otherwise specified, with the use of a motorized vehicle to harass game or for the purpose of driving, herding, or molesting game.

5 AAC 92.990. Definitions

(a) In addition to the definitions in AS 16.05.940 , in 5 AAC 84 – 5 AAC 92, unless the context requires otherwise,

. . .

(70) "harass" means to repeatedly approach an animal in a manner which results in the animal altering its behavior.

Note: The full text of 5 AAC 92.080(4)(B), above, is in **Appendix A**.

Relevant Regulation

There is a difference between the proposed regulation and agency-specific regulations. Adoption of this proposal may require clarification between new regulation and conflicting agency-specific regulations. Federal subsistence and agency-specific regulations are as follows:

§_____.26(n)(17)(ii) Unit 17—In the following areas, the taking of wildlife for subsistence uses is prohibited or restricted on public lands:

(A) Except for aircraft and boats and in legal hunting camps, you may not use any motorized vehicle for hunting ungulates, bear, wolves, and wolverine, including transportation of hunters and parts of ungulates, bear, wolves, or wolverine in the Upper Mulchatna Controlled Use Area consisting of Unit 17B, from Aug. 1-Nov. 1.

50 CFR 36.12 (Alaska National Wildlife Refuges) Use of snowmobiles, motorboats, dog teams and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses.

(a) Notwithstanding any other provision of subchapter C of title 50 CFR the use of snowmobiles, motorboats, dog teams and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses is permitted within Alaska National Wildlife Refuges except at those times and in those areas restricted or closed by the Refuge Manager.

. . .

(d) Snowmobiles, motorboats, dog teams and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses shall be operated (1) in compliance with applicable State and Federal law, (2) in such a manner as to prevent waste or damage to the refuge, and (3) in such a manner as to prevent the herding, harassment, hazing or driving of wildlife for hunting or other purposes.

36 CFR 13.460 (Alaska National Park System) Use of snowmobiles, motorboats, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses.

(a) Notwithstanding any other provision of this chapter, the use of snowmobiles, motorboats, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses is permitted within park areas except at those times and in those areas restricted or closed by the Superintendent.

…

(d) Motorboats, snowmobiles, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses shall be operated:

(1) In compliance with applicable State and Federal law;

(2) In such a manner as to prevent waste or damage to the park areas; and

(3) In such a manner as to prevent the herding, harassment, hazing or driving of wildlife for hunting or other purposes.

43 CFR 8341.1 (Bureau of Land Management)

(f.) No person shall operate an off-road vehicle on public lands: ... (4) In a manner causing or likely to cause significant, undue damage to or disturbance of ... wildlife

Extent of Federal Public Lands

Federal public lands comprise approximately 28% of Unit 17 and consist of 20.97% U.S. Fish and Wildlife Service (USFWS) managed lands, 3.55% Bureau of Land Management (BLM) managed lands, and 3.28% National Park Service (NPS) managed lands (**Unit 17 Map**).

Regulatory History

In 1995, Proposal 95-52 requested that snowmachines and motor-driven boats be used to take caribou and moose in Unit 25 during established seasons with the knowledge that shooting from a snowmachine in motion was prohibited. There was no existing regulation on the use of motorized vehicles in Unit 25 prior to that time. The Federal Subsistence Board (Board) adopted the proposal on the consent agenda as recommended by both the Eastern Interior and Southcentral Subsistence Regional Advisory Councils who supported the proposal in recognition that methods change over time and because it supports subsistence needs.

In 2000, the Board adopted Proposal 00-53 with modification, allowing the use of snowmachines to position a hunter and select individual caribou for harvest in Units 22 and 23. The Board did this to recognize a longstanding customary and traditional practice in the region (FWS 2000). In Proposal 00-53,

the proponent asked to position a caribou, not a hunter. The Board provided a rationale for the modification:

> Following the Regional Council winter meetings, the Deputy Regional Director of the U.S. Fish and Wildlife Service (FWS), Alaska Region, met with the Assistant Regional Director for Law Enforcement, the Staff Committee member for FWS, the Refuge Supervisor for Northern Refuges, and the Native Liaison and, after lengthy discussion, agreed to recommend substituting "a hunter" for "caribou" in the proposal language. They agreed that this is consistent with conservation principles and existing agency regulations as long as herding does not occur and shooting from a moving snowmachine is prohibited (FWS 2000:13).

In 2012, WP12-53 was submitted by the Yukon Delta National Wildlife Refuge, and requested unit specific regulation prohibiting a hunter in Unit 18 from pursuing with a motorized vehicle an ungulate that is "fleeing". The Board adopted the proposal with modification and prohibited the pursuit with a motorized vehicle of an ungulate that was "at or near a full gallop" in Unit 18, providing greater clarity of allowable methods of harvest (FWS 2012).

At its March 2014 meeting, the Alaska Board of Game adopted Proposal 177, which allowed a hunter to use a snowmachine in Units 22, 23 and 26(A) to position a caribou, wolf, or wolverine for harvest, so long as these animals were shot from a stationary snowmachine (Appendix A). The purpose of the proposal was to change hunting restrictions to allow the use of snowmachines to track and pursue these animals without the prohibition against driving, herding, harassing, or molesting game in Unit 23 while hunting these species.

In 2016, Proposal WP16-48, submitted by the Native Village of Kotzebue, requested that Federally qualified subsistence users be allowed to use snowmachines to position a caribou, wolf, or wolverine for harvest in Unit 23. The Board adopted the proposal with modification to allow this method of harvest only on those lands managed by the BLM. The Board recognized use of snowmachine to position animals as customary and traditional practice. However, positioning animals by snowmachine is prohibited on NPS and USFWS lands under agency-specific regulations. BLM regulatory language does not specifically prohibit the use of snowmachines to position animals for hunting and the harvest method is allowed on State managed lands.

Cultural Knowledge and Traditional Practices

During his study years of 1964 and 1965, VanStone (1967:134) documented winter travel along the Nushagak River as occurring almost exclusively by dog team. During the winter months dog teams were used to harvest caribou, access trap lines, and provide for the transportation of supplies and people throughout the region. At the time of his study, VanStone was only aware of a few Bristol Bay residents that possessed snowmachines. Approximately 10 years later, when the Alaska Department of Fish and Game (ADF&G) first began conducting research on subsistence harvest activities, dog teams were barely mentioned. Instead it was noted that the communities of Nushagak Bay and Unit 17 were using mostly boat, aircraft, and snowmachine to access animals for harvest (Coiley-Kenner et al. 2003; Evans et al. 2013;

Fall et al. 1986; Holen et al. 2012; Holen et al. 2005; Kreig et al. 2009; Schinchnes and Chythlook 1988; Seitz 1996; Wright, Morris and Schroeder 1985).

In the past, prior to the use of snowmachines, people in the region were more nomadic. Residents of Southwest Alaska practiced an annual round of harvest activities that allowed them to effectively position themselves in proximity to important resources that supported their families through extended travel to seasonal subsistence camps. In a 2003 report, elders describe a harvest year that began at fish camp in the early summer, moved up the river to hunting and trapping camps for the fall and winter, traveled through mountain passes and down rivers to bays and estuaries for the spring harvest of migratory waterfowl and eggs, finally returning to fish camp once again in time for the salmon runs of early summer (La Vine and Lisac 2003). A trip such as this required travel by boat, sled, and foot and took the family hundreds of miles and 12 months to complete. This seasonal cycle is consistent with regulation in other parts of the state that allows for the positioning of a hunter in order to select individual animals for harvest. As village life solidified around schools and economic opportunities, technological advances like boats with outboard motors and snowmachines allowed people to travel further over shorter periods of time in order to access the resources they once had to follow over seasons instead of hours.

Similarly, in north western Alaska where caribou harvest is an essential part of the subsistence way of life, Alaska Native people have also transitioned from dog team to snowmachine as a necessary continuance of their subsistence practice (Anderson et al. 1998). Some of the practice described in the following provides greater detail on how hunters might position themselves in order to strategically harvest an animal, but it also describes practices that can be identified as positioning an animal. In winter, there were advantages to using dog teams, and now snowmachines, for hunting caribou. When caribou were not present near a village or hunt camp, hunters needed to be mobile and travel long distances to locate bands of caribou. Sleds and snowmachines are now used together and allow transport of more hunters, gear, meat, and hides.

Anderson et al. (1998:203) described winter caribou hunts with dog teams:

> The usual technique was to drive across open, wind-packed areas and stop on rises to scan the terrain. If trees, brush, or large rocks were within a half mile of caribou, the hunter usually took his [dog] team there, secured it, and stalked the animals on foot. . . . Occasionally, circumstances did not allow tethering the dogs or stalking on foot, so the man drove his team directly at the herd, hoping to come close enough for firing. Some teams ran to within 150 yards of a herd. Just before the animals started to run, the hunter would stop his dogs, anchor the sled, and fire a few shots. As the caribou ran away, he pulled up the sled anchor and gave chase. Caribou can easily outdistance a dog team. However, they tend to run away at an angle and will stop once or twice to look back, so the hunter could guide his team to intersect their path of flight. . . . when the caribou paused, the driver would again stop his team and fire.

Anderson et al. (1998:209) described winter caribou hunts using snowmachines:

> Today, well over 90 percent of all winter caribou hunting . . . is done with snowmachines. Whereas in the past this was largely an individualistic affair, men now prefer to travel in

> pairs or small groups. . . . Under most circumstances, using two or more machines will greatly increase the chances of success in a hunt. In open areas, hunters generally spread out as they travel but keep each other in view, so they can survey the greatest area possible. When game is spotted the drivers come together and decide the best approach. If the terrain, number of caribou, and number of machines warrants it, one group of hunters circles behind the caribou while the other group moves ahead. Usually this maneuver causes the caribou to run directly across the path of the forward hunters. Another way to hunt most effectively is by having two men on each machine, so the driver can concentrate on maneuvering close to the caribou while the other (who usually rides behind on the sled) can shoot as soon as the machine stops.

Discussion from the analysis of WP16-48 is relevant here, even if it describes characteristics or terms for hunting from more northern communities, as it can be a starting point for potential Council discussions and public testimony on similar practices within Unit 17. In the context of caribou hunting, the Iñupiaq word *inillak* means "the *hunter positions himself* close to where the caribou would pass or cross depending on the way the wind is blowing . . . to the Iñupiat, *inillak* is quite different from herding and it is used specifically in caribou hunting. Herding means to gather animals such as reindeer into an enclosed area" (FWS 2000:19). Iñupiaq hunters position both themselves and caribou during a hunt. During the discussions in 2000, Mike Patkotak from the North Slope Subsistence Regional Advisory Council said, "When you are *positioning caribou*, you're out in the open; you're not putting them into an enclosed corral. . . . You're not trapping them into an enclosed area." (FWS 2000:19).

Whether using dog team, snowmachine, or stalking, it is customary for "a hunter to go on one side of the herd and *unu* them towards the hunter waiting on the other side. This is also called *unuraq*, driving the caribou. This gives them a better position to be successful in their harvesting of the caribou that they want" (FWS 2000:22). The Iñupiaq word *unu* means to "cooperatively push or move the caribou. One or more hunters wait on one section of the hunting area and young runners go around behind the herd to make them head in the shooters' direction" (FWS 2000:19). This remains a common practice in Unit 23, and the current preferred method of positioning both hunters and animals in winter is by snowmachine.

In wildlife proposal WP12-53, contemporary practice of snowmachine use in Unit 18 was defined as follows:

> Hunters from some lower Yukon River villages described hunting in the Andreafsky Mountains in the 1980s. It was unclear if the group was hunting caribou of reindeer from the nearby heard at Stebbins. Caribou/reindeer roamed in small groups, difficult to approach my snowmachine. Several hunters attempted to herd a group to locations where shots could be taken, such as up a cul-de-sac or toward a heavy bush line. In this description, the high speed chase was considered "a relatively risky, dare-devil technique" (Wolfe and Pete 1984: 9). Kwethluk hunters in the 1980s hunting with snowmachines reported hunting in upper Kwethluk and Kisaralik River valleys. "The high hills and low mountains scattered throughout the area provided lookouts where hunters car watch for caribou" (Coffing 1991:157)(FWS 2012).

The level of detail described by Anderson et al. (1998) and within the analysis of P00-53 (FWS 2000) was not found within accessible literature or transcripts for Unit 17.

Wolves and Wolverine

Across Alaska, both wolves and wolverine are highly prized for their fur which is used to trim locally made parkas and other items of clothing or handicrafts. While not as prominent an activity as in the past, rural residents still participate in trapping as a source of income in the Bristol Bay region, particularly for wolverine, which continues to fetch a high price for quality fur (Woolington 2013). Snowmachines were the primary form of transportation used by hunters and trappers for taking wolves and furbearers in Unit 17 from 2008 through 2012 (Woolington 2012; Woolington 2013). Most wolves were harvested by firearm between the regulatory years of 1992 and 2010 while wolverines were more frequently taken by trap or snare.

Biological Background

Caribou

Two distinct caribou populations are present in Unit 17. The Nushagak Peninsula Caribou Herd (NPCH) primarily occupies the ~425 mi^2 Nushagak Peninsula, which is the portion of Units 17A and 17C south of the Igushik River, the Tuklung River, and the Tuklung Hills. The Mulchatna Caribou Herd (MCH) ranges across ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18 19A and 19B (Woolington 2013).

Caribou were absent from the Nushagak Peninsula for more than 100 years prior to reintroduction of caribou from the Northern Alaska Peninsula Herd in 1988. Following reintroduction, the NPCH grew from 146 animals to over 1,200 caribou by 1998. Subsequently, calf recruitment and adult female survival decreased and the population fell below 600 caribou by 2006. Since then, improvements in calf recruitment and adult survival have resulted in a population increase (Aderman 2015).

The most recent population survey occurred in June 2017, when a minimum of 786 caribou were observed. This is down 36% from the 2016 count of 1,230 caribou but it is near the upper end of the Nushagak Peninsula Caribou Management Plan's population objective, which is to maintain a population of 400–900 caribou and an optimum of 750 caribou (Aderman 2015). The large decrease in population is due to the increased harvest of caribou during the 2016/17 regulatory year. The most recent composition surveys were conducted in October 2016. These surveys estimated 51 bulls:100 cows and 40 calves:100 cows (Aderman 2017, pers. comm.).

Like the NPCH, the MCH has experienced dramatic changes in population size, as well as in distribution. In the early 1980s, the MCH was estimated to include ~20,000 caribou and its range was mostly limited to the area east of the Mulchatna River between the Bonanza Hills and Iliamna Lake. By the mid-1990s, the herd had grown to its peak size of ~200,000 caribou and had begun wintering in southern Unit 18 and southwestern Unit 19B. Subsequently, the herd began a period of decline that persisted until recently. (Woolington 2013).

Recent population surveys indicate that the MCH was at its smallest in 2013, with 18,308 caribou, and has varied between 26,000 and 31,000 caribou since then. The most recent estimate is 27,242 caribou (Barten 2016), which is approaching the lower bound of the State's population objective of 30,000 – 80,000 caribou.

In 2016, the bull:cow ratio was 39 bulls:100 cows. This is the highest estimate since 2000, which is above the State's management objective of 35 bulls:100 cows. The proportion of bulls classified as large in 2016 was 28%, which is among the highest estimates on record and is well above the long-term average of 19% (Barten 2016). Calf:cow ratios have been variable, as is typical of caribou herds occupying interior and southwest Alaska. In 2016, the overall calf:cow ratio was 22 calves:100 cows, a decrease relative to 2014 and 2015, but within the range of variability observed in recent years (Barten 2016).

Research on winter recreation and hunting has documented evidence of both positive and negative biological effects in ungulates related to snowmachine use in caribou habitat (Harris et al. 2014; Webster 1997). Results of these studies and similar recreational use studies may not be directly relevant to winter caribou hunting in Unit 17 because the majority of Federally qualified subsistence users do not operate snowmachines during subsistence hunts in the same manner as recreational users or sport hunters.

Wolves

Wolves are present throughout Unit 17C. As with other furbearers in Alaska, relative abundance of wolves is estimated using trapper questionnaires, rather than population surveys or other objective measures. These records indicate that the wolf population has rebounded from a population decline that occurred in the late 1980s and early 1990s, and is widely distributed and relatively abundant (Woolington 2012; ADF&G 2013; Barten 2017, pers. comm.).

Wolverines

Wolverines, whose habitat most commonly consists of boreal forest and tundra ecosystems (Copeland and Whitman 2003), occur throughout Unit 17 (Woolington 2013). Though formal assessments of population status have not been undertaken in this area, trapper reports suggest that they are common (ADF&G 2013) and that the wolverine population in this area is relatively stable (Woolington 2013). Within Unit 17, the population objective established by ADF&G is to maintain a population sufficient to sustain an average annual harvest of 50 wolverines.

Harvest History

Caribou

Typically, annual harvest of the NPCH has increased as the population has grown and harvest limits have increased. Prior to the 2016 regulatory year, annual reported harvest ranged from zero when the population was small and harvest was heavily regulated, to over 125 when caribou were abundant and regulations were liberalized. Overall, harvest has averaged 62 caribou annually since 1994, the first year harvest was authorized under Federal regulation. Until 2015, all caribou hunting on the Nushagak

Peninsula was limited to Federally qualified subsistence users, due to the Federal lands closure that has been in place since harvest was authorized (Aderman 2015, Aderman 2017, pers. comm.).

In recent years, total reported harvest has been lower than expected, given the NPCH size. This is likely due to poor winter travel conditions resulting from low snowfall and warm temperatures. In 2016/17, good travel conditions combined with liberal harvest regulations (including temporary rescission of the Federal lands closure, generous harvest limits, and allowance of same day airborne hunting for Federally qualified subsistence users) resulted in a record high harvest of 371 caribou (Aderman 2017, pers. comm.).

Like the NPCH, harvest of the MCH is affected by caribou abundance, environmental conditions, and harvest restrictions. Reported harvest of the MCH has decreased significantly since the early 2000s, when the herd was very large. Total reported caribou harvest declined from 3,949 caribou in 2000 to 307 caribou in 2016. Harvest among all user groups declined during this period, but the decline was especially pronounced among non-local residents and nonresidents, owing to reduction of State harvest limits in 2006 and elimination of the nonresident season in 2009 (ADF&G 2017; Barten 2017, pers. comm.). In 2016, 84% of the reported harvest, across the range of the herd, was taken by Federally qualified subsistence users. However, underreporting is a known problem in this region and it is likely that reported harvest underestimates total harvest by local users. Among Federally qualified subsistence users, 64% of the total reported harvest was taken Jan. – Mar. and 25% of the total reported harvest was taken in Unit 17.

Wolves

According to sealing records kept by ADF&G, wolf harvest averaged 70 wolves annually between 1991 and 2010. Seventy-five percent, or 52 wolves annually, were harvested by firearm during this time period. By contrast, only 16 wolves annually were trapped or snared (Woolington 2012). There is considerable variation in annual harvest rates. For instance, in regulatory year 2002, just 30 wolves were sealed. The following year, 141 wolves were sealed. Local biologists attribute much of this variation to winter travel conditions which provide ease of access by snowmachine rather than availability of wolves. Typically, most wolf harvest occurs between January and April, when travel conditions are more favorable. However, harvest has occurred in August and September too, incidental to caribou and moose hunting (Woolington 2012).

Wolverines

Sealing records indicate that wolverine harvest in Unit 17 averaged 42 wolverines annually between 1992 and 2011. The majority of wolverines are taken with traps and snares. On average, 27%, or 11 wolverines annually, were taken by firearm (Woolington 2013). Wolverine harvest in Unit 17 has remained relatively stable since 1976, despite annual fluctuations. These fluctuations likely reflect trapper effort, which varies with travel conditions. Historically, wolverine harvest was highest in January and February, but March has become an important time for harvesting wolverine as well (Woolington 2013).

Effects of the Proposal

If adopted, Proposal WP18-24 would allow hunters to use a snowmachine to position caribou, wolves, and wolverine for selection and harvest, as long as they are not shot from a moving snowmachine. This proposal would address the need for Federally qualified subsistence users to be able to use the most efficient and effective methods to take wild resources important for their livelihood. The proposed regulation is not expected to result in significant population changes for caribou, wolves, or wolverines as snowmachines are already extensively utilized in Unit 17 to access hunting grounds and trap lines and harvest numbers will continue to be managed by season and limits within regulation. However, adopting this Federal regulatory change would emphasize the difference between ANILCA Section 811 and existing agency-specific regulations on NPS and USFWS lands.

The biological effects of winter hunting with snowmachines on caribou, wolves and wolverine in Unit 17 are largely unknown. If this proposal were adopted any biological effects, positive or negative, that may occur in these species related to traditional winter hunting practices are anticipated to remain mostly unchanged as snowmachine are already extensively utilized in this manner, in order to bring hunters within close proximity to the animals they harvest.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-24.

Justification

The proposed regulatory changes would ensure that Federally qualified subsistence users are provided the opportunity to use snowmachines as an efficient and effective means to harvest caribou, wolves, and wolverines during winter months in Unit 17.

The proposed changes would have little to no effect on current hunting behavior, and any changes in the population status of caribou, wolves, and wolverines are anticipated to continue to be addressed through season and bag limits.

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WRITTEN PUBLIC COMMENTS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 1:55 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Sharon Alden** <fwxsca@yahoo.com>
Date: Fri, Aug 4, 2017 at 1:52 PM
Subject: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24
To: "subsistence@fws.gov" <subsistence@fws.gov>

To: Office of Subsistence Management
Attention: Theo Matuskowitz
From: Sean McGuire
Re: comments on proposal WP 18-51, 18-03, 18-4, 18-5, 18-24

I am opposing proposal WP 18-51 There should be no human food or any human substance to bait any animals. This is so basic. The last thing we want is to habituate bears or any wild animal to human food. This is an ethical as well as a safety issue. The last thing we want to see is the federal baiting regulations aligned with the state of Alaska's. The State baiting regulations are painfully out dated and present a glaring safety issue.

I am opposing proposal WP 18-03 the extended hunting and trapping season in game unit one. Over kill.

I am really opposed to proposal WP 18-04. Why in the world would you want to put more pressure on a wolf population that's already in trouble this appears to be contrary to the basic concept of wildlife management?

I am also opposing proposal WP 18-05 relates to my opposition to WP18-04.

I am also opposing in the strongest possible terms proposal WP 18-24
To heard wildlife with snow machines is one of the most unethical things I can imagine and the backlash would be harsh.

Thank you for your attention
Sean McGuire
159 Kniffen Rd

Fairbanks, Ak.
ph 907-888-0124
email fwxsca@yahoo.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Francis Mauer** <fmauer@mosquitonet.com>
Date: Thu, Aug 3, 2017 at 9:02 PM
Subject: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz
To: subsistence@fws.gov

Comments Regarding Federal Subsistence Proposals: WP 18-03, 18-04, 1805, 18-24, and 18-51

Submitted to the Federal Subsistence Board by Fran Mauer, P.O. Box 80464, Fairbanks, AK 99708. August 3, 2017.

WP 18-03 I am opposed to extending the wolf hunting and trapping seasons in Unit 1. Wolves are highly vulnerable to harvest as it is, further extending of seasons is not justified, and would likely lead to excessive harvest of wolves as occurred on Prince of Wales Island last year which was supposed to be regulated by a quota, but even with quota rules in place the actual harvest exceeded the quota by 2.6 times. This proposal should be denied.

WP 18-04 This proposal would allow 30% of the wolf population on Prince of Wales Island to be harvested when existing harvest is 20%. As noted above, wolves are highly vulnerable to harvest, and last year's harvest exceeded the quota by 2.6 times! The extensive network of roads and trails on Prince of Wales render wolves exceptionally vulnerable. Expanding the harvest to 30% of the population following excessive harvest last year can not be justified given the failed management of this quota system last year. This proposal would lead to excessive harvest of an already depleted population and should be denied to conserve wolves on the Island.

WP 18-24 This proposal will open the door to harassment of wildlife by snow machines and violate a basic premise of hunting: respect for animals and fair chase principles. It would also result in excessive impacts to other animals that are not harvested due to disturbance associated with this "practice." Furthermore, it will exacerbate difficulty in enforcement of harassment rules. Approval of this proposal would give a black eye to subsistence in general, and certainly the Federal Subsistence Board, specifically for condoning such an inappropriate practice on the Federal public lands of

Alaska. Deny this proposal.

WP 18-51 This proposal would lower Federal standards for baiting to the lowest common denominator: State requirements. By allowing the use of human food items such as syrup, old dough nuts and other human refuse will habituate bears to humans and contribute to human – bear conflicts, and expose innocent people to risks from bears that no longer fear humans. Every spring the Alaska Dept of Fish and Game sponsors public service announcements advising folks to keep their garbage and bird feeder refuse secure from bears, clearly stating the danger to humans from habituated bears. There is absolutely no justification to also allow the use of human foods and scent to bait bears. I urge the Board to reject this proposal (18-51).

Thank you for the opportunity to comment.

Fran Mauer

Appendix A

5 AAC 92.080. Unlawful methods of taking game; exceptions

The following methods of taking game are prohibited:

. . .

(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor's power has ceased, except that a

. . .

(B) motorized land vehicle may be used as follows:

i) In Units 22, 23, and 26(A), a snowmachine may be used to position a caribou, wolf, or wolverine, for harvest, and caribou, wolves and wolverines may be shot from a stationary snowmachine.

(ii) notwithstanding any other provision in this section, in the wolf control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;

(iii) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 18, 19, 21, 22, 24, 25(C) and 25(D), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;

(iv) notwithstanding any other provision in this section, in the bear control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual bear for harvest, and bears may be shot from a stationary snowmachine;

(v) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 22 and 25(C), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, an ATV may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary ATV;

(vi) under authority of a permit issued by the department;

(vii) in Unit 18, a snowmachine may be used to position a wolf or wolverine for harvest, and wolves or wolverines may be shot from a stationary snowmachine;

WP18–25/26 Executive Summary	
General Description	Proposals WP18-25 and WP18-26 request the creation of a new moose hunt area in the portion of Unit 17C west of the Weary River, with modified season dates within the new area. Proposal WP18-25 requests that the current Dec. 1 – 31 season be restructured as a may-be-announced season that can be opened for up to 31 days between December 1 and the last day of February. Proposal WP18-26 requests that the current Aug. 20 – Sep. 15 season be shifted 5 days later to Aug. 25 – Sep. 20. It also requests that the current Sep. 1 – 15 season, which allows the harvest of one antlered bull with antler restrictions by harvest ticket, be extended to Sep. 1 – 20. *Submitted by: Kenneth Nukwak.*
Proposed Regulation	**Unit 17— Moose** *Unit 17A—1 bull by State registration permit* — *Aug. 25 – Sep. 20* *Unit 17A—up to 2 moose; 1 antlered bull by State registration permit, 1 antlerless moose by State registration permit* — *Up to a 31 – day season may be announced between Dec. 1 – last day of Feb.* ***Unit 17C, that portion west of the Weary River—1 bull. During the period Aug. 25 – Sep. 20—one bull by State registration permit;*** — ***Aug. 25 – Sep. 20*** ***or*** ***During the period Sep. 1 – 20—one bull with spike-fork or 50-inch antlers or antlers with three or more brow tines on at least one side with a State harvest ticket;*** ***or*** ***Unit 17C, that portion west of the Weary River—one antlered bull by State registration permit*** — ***Up to a 31 – day season may be announced between Dec. 1 – last day of Feb.***

WP18–25/26 Executive Summary		
	*Units 17B and 17C **remainder**—one bull.*	*Aug. 20 – Sep. 15*
	During the period Aug. 20 – Sep. 15—one bull by State registration permit; or During the period Sep. 1 – 15—one bull with spike-fork or 50-inch antlers or antlers with three or more brow tines on at least one side with a State harvest ticket; or During the period Dec. 1 – 31—one antlered bull by State registration permit	*Dec. 1 – 31*
OSM Preliminary Conclusion	**Oppose**	
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		

WP18–25/26 Executive Summary	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
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
WP18-25/26

ISSUES

Proposals WP18-25 and WP18-26, submitted by Kenneth Nukwak of Manokotak, request the creation of a new moose hunt area in the portion of Unit 17C west of the Weary River, with modified season dates within the new area. Proposal WP18-25 requests that the current Dec. 1 – 31 season be restructured as a may-be-announced season that can be opened for up to 31 days between December 1 and the last day of February. Proposal WP18-26 requests that the current Aug. 20 – Sep. 15 season be shifted 5 days later to Aug. 25 – Sep. 20. It also requests that the current Sep. 1 – 15 season, which allows the harvest of one antlered bull with antler restrictions by harvest ticket, be extended to Sep. 1 – 20.

DISCUSSION

Currently, the portion of Unit 17C west of the Weary River is included in the Units 17B and 17C moose hunt area. In general, the proponent would like to the see the fall and winter moose season dates in the area align with those in the adjacent Unit 17A hunt area, which requires the establishment of a new hunt area. For the fall season, he believes that a slightly later season will allow more time during the early rut period to harvest moose near the Manokotak River. For the winter season, he believes that a flexible season, announced by the Togiak National Wildlife Refuge (Refuge) manager when travel conditions are suitable, provides better opportunity to harvest moose.

The request for a five day extension in the Sep. 1 – 15 season, which allows harvest of bulls with specific antler configurations by harvest ticket, is an exception to the proponent's request that seasons in the new hunt area align with Unit 17A seasons, since there is not a comparable season in Unit 17A. In addition, current winter harvest limits and restrictions are more generous in Unit 17A than in Units 17B and 17C, and the proponent does not request liberalization of these regulations in the new hunt area.

Existing Federal Regulation

Unit 17— Moose

Unit 17A—1 bull by State registration permit	*Aug. 25 – Sep. 20*
Unit 17A—up to 2 moose; one antlered bull by State registration permit, one antlerless moose by State registration permit	*Up to a 31 – day season may be announced between Dec. 1 – last day of Feb.*
Units 17B and 17C—one bull.	*Aug. 20 – Sep. 15*
During the period Aug. 20 – Sep. 15—one bull by State registration	*Dec. 1 – 31*

permit; or During the period Sep. 1 – 15—one bull with spike-fork or 50-inch antlers or antlers with three or more brow tines on at least one side with a State harvest ticket; or During the period Dec. 1 – 31—one antlered bull by State registration permit	

Proposed Federal Regulation

Unit 17— Moose

Unit 17A—1 bull by State registration permit	*Aug. 25 – Sep. 20*
Unit 17A—up to 2 moose; 1 antlered bull by State registration permit, 1 antlerless moose by State registration permit	*Up to a 31 – day season may be announced between Dec. 1 – last day of Feb.*
Unit 17C, that portion west of the Weary River—1 bull. During the period Aug. 25 – Sep. 20—one bull by State registration permit;	***Aug. 25 – Sep. 20***
or	
During the period Sep. 1 – 20—one bull with spike-fork or 50-inch antlers or antlers with three or more brow tines on at least one side with a State harvest ticket;	
or	
Unit 17C, that portion west of the Weary River—one antlered bull by State registration permit	***Up to a 31 – day season may be announced between Dec. 1 – last day of Feb.***
Units 17B and 17C ***remainder****—one bull.*	*Aug. 20 – Sep. 15*
During the period Aug. 20 – Sep. 15—one bull by State registration permit; or During the period Sep. 1 – 15—one bull with spike-fork or 50-inch antlers or antlers with three or more brow tines on at least one side with a State harvest ticket; or During the period Dec. 1 – 31—one antlered bull by State registration permit	*Dec. 1 – 31*

Existing State Regulation

Unit 17— Moose

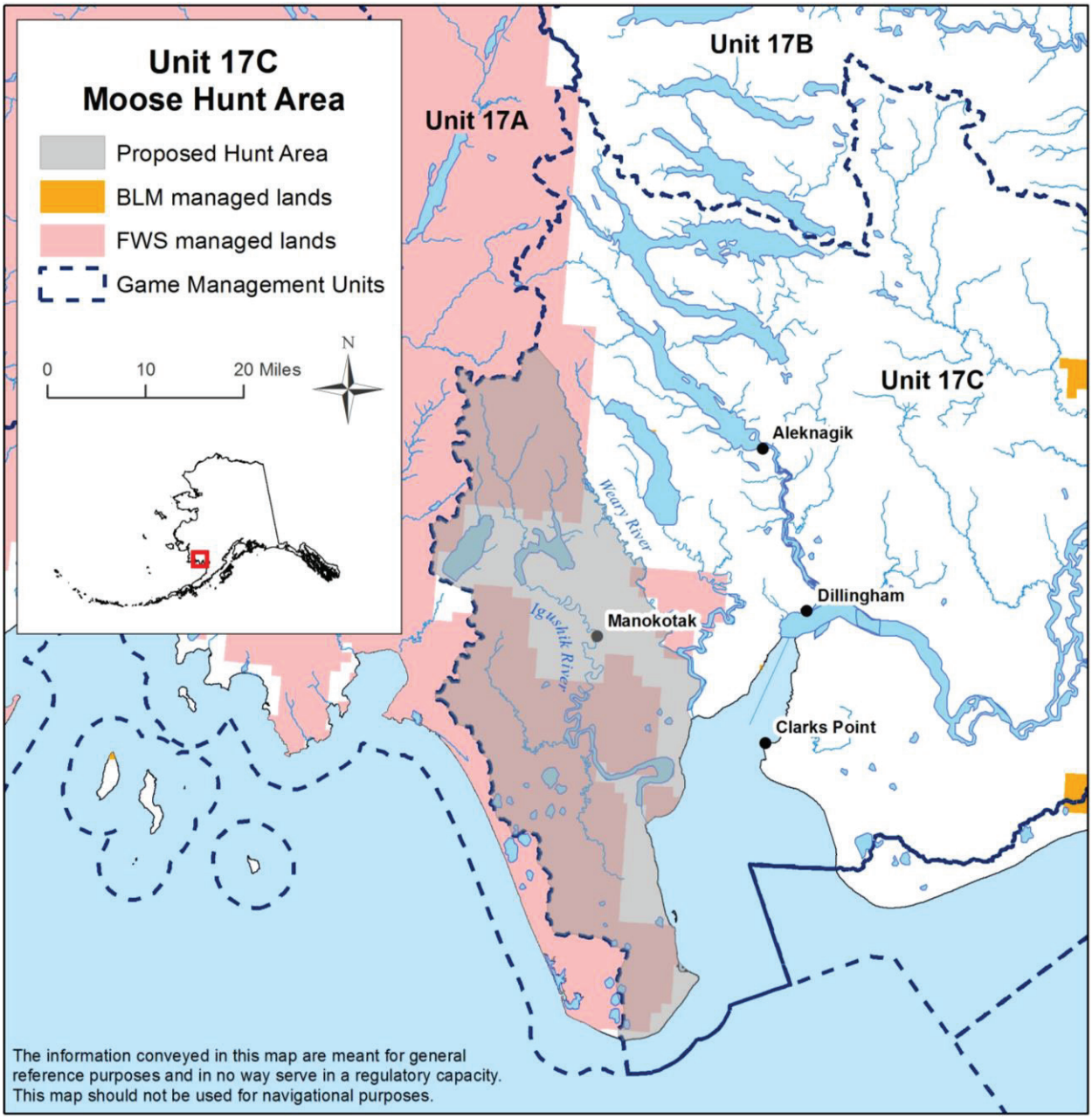
Residents: Unit 17A			
One bull by permit available in person in Dillingham and Togiak beginning Aug. 11. No aircraft use on, or within 2 miles of specific rivers and lakes. See hunt area map at http://hunt.alaska.gov for specifics		*RM573*	*Aug. 25 – Sep. 20*
Two moose by permit available in person in Dillingham and Togiak (Up to a 31 – day season may be announced between Dec. 1 – Feb. 28)	*One antlered bull* *One antlerless bull*	*RM575* *RM576*	*May be announced*
Residents: Unit 17C			
One bull by permit available in person in Dillingham July 14 – Aug. 30 and Nushagak River villages		*RM583*	*Aug. 20 – Sep. 15*
or			
One bull with spike-fork antlers or 50-inch antlers or antlers with three or more brow tines on at least one side		*HT*	*Sep. 1 – Sep. 15*
or			
One antlered bull by permit available in person in Dillingham beginning Oct. 25 and Nushagak River villages		*RM585*	*Dec. 1 – 31*

Extent of Federal Public Lands

Federal public lands comprise approximately 64% of the portion of Unit 17C west of the Weary River and consist of 64% U.S. Fish and Wildlife Service (USFWS) managed lands (**Map 1**).

Customary and Traditional Use Determinations

Residents of Unit 17, Goodnews Bay, Levelock, Nondalton, and Platinum have a customary and traditional use determination for moose in Unit 17B remainder and Unit 17C.



Map 1. Proposed hunt area in Unit 17C west of the Weary River.

Regulatory History

Prior to 2005, both State and Federal regulation had two hunt areas for moose in Unit 17C; the portion that includes the Iowithla drainage and Sunshine Valley and all lands west of Wood River and Aleknagik Lake, and Unit 17C remainder. In Federal and State regulations, both hunt areas had an Aug. 20 – Sep. 15 season limited to one bull by State registration permit. Within that season, in both hunt areas, the harvest of one antlered bull with antler size restrictions was allowed by harvest ticket Sep. 1 – 15. The remainder hunt area also had a Dec. 1 – 31 season, limited to one bull by State registration permit.

In 2005, the Alaska Board of Game (BOG) created a third hunt area that consisted of the western portion of the Iowithla hunt area. This area was described as the portion of Unit 17C west of Killian Creek, Nunavaugaluk Lake, and Snake River. The new hunt area had the same fall seasons as the existing hunt area, but included the addition of a Dec. 1 – Jan. 31 may-be-announced season, limited to one antlered bull by registration permit.

In 2009, through action on Proposal 62, the BOG consolidated the three State hunt areas in Unit 17C into a single hunt area. As a result, all of Unit 17A had an Aug. 20 – Sep. 15 season, limited to one antlered bull by registration permit. During the Sep. 1 – Sep. 15 period, harvest of one bull that met antler size restrictions was allowed by harvest ticket. The BOG's action also established a Dec. 1 – 31 season, limited to one antlered bull by registration permit. The expansion of this winter season to the entire unit represented an expansion of harvest opportunity for resident hunters.

In Federal regulation, there remained only two hunt areas in Unit 17C until 2012. The Federal Subsistence Board's (Board) adoption of Proposal WP12-39 that year resulted in the current Federal regulations for moose in this area. Submitted by the Refuge, WP12-39 requested that the two existing Unit 17C hunt areas be combined with the existing Unit 17B hunt areas into a single hunt area with uniform regulations. As a result of the Board's action, the Dec. 1 – Dec. 31 season that previously existed only in the Units 17B and 17C remainder hunt area was expanded to all of Units 17B and 17C.

In early 2014, the Board considered Emergency Special Action WSA13-09, submitted by the Bristol Bay Native Association. The proponent requested that the Board authorize a two week winter moose season in 2014 on Refuge lands within Unit 17C, citing low moose harvest by residents of Manokotak during the fall and winter seasons. The Board approved this request, resulting in a Jan. 18 – 31 antlered bull season that required the use of the Federal registration permit.

Biological Background

Moose are relative newcomers to the Bristol Bay region and, until recently, occurred in only low densities in Unit 17. Moose populations have grown substantially in the past 30 years however, and have continued to expand their range westward into western Unit 17A and southern Unit 18. They are now common wherever there is suitable habitat (Barten 2014).

Assessment of the Unit 17 moose population occurs through surveys conducted by the Alaska Department of Fish and Game (ADF&G) and the Refuge. Results of ADF&G surveys are available for 1999, 2004, 2008 and 2014 (Barten 2014; Barten 2017, pers. comm.). ADF&G's survey area included Unit 17C north of the Igushik River, an area that narrowly overlaps the proposed new hunt area. In 2014, the moose population in this area was estimated to be 4,053 ± 764 moose when corrected for sightability (**Table 1**), an estimate that spans the upper limit of the State's intensive management objective of 2,800 – 3,500 moose (Barten 2014).

The Refuge has been monitoring the moose population in an area that includes Unit 17A and adjacent lands in western Unit 17C and southern Unit 18, since 1998. In 2006 and 2011, minimum counts were generated for the total survey area as well as for Western Unit 17, the area most relevant to this proposal (**Table 1**;

Aderman 2014). At that time, the population in western Unit 17C appeared to be relatively stable. More recently, the Refuge has begun utilizing the geospatial population estimator (GSPE) technique to estimate population size. This approach results in a statistical estimate of abundance, taking into account spatial correlation among moose on the landscape (Kellie and DeLong 2006). The most recent estimate occurred in March, 2017. While estimates for the western Unit 17C section were not generated in 2017, these surveys indicate that the moose is likely increasing Refuge-wide. In Unit 17A, the area adjacent to the proposed new hunt area, the population is estimated to be 1,990 moose, or 0.26 moose/mi^2, which exceeds the State's management objective of 1,100 – 1,750 moose in Unit 17A (**Table 1**; Aderman 2017, pers. comm.).

Table 1. Unit 17 moose population estimates in various survey areas, 1999 – 2017 (Aderman 2014; Barten 2014; Aderman 2017, pers. comm.)

Survey area	Year	Population estimate ± 95% CI (moose)	Density estimate (per mi^2)	Survey method
Unit 17C North of Igushik R.	1999	2,955 ± 17%	0.54	Gassaway
	2004	3,670 ± 15%	0.67	Gassaway
	2008	3,235 ± 11%	0.59	Gassaway
	2014	4,053 ± 19%	0.74	Gassaway (w/SCF)*
Western Unit 17C	2006	243		Minimum count
	2011	259		Minimum count
Unit 17A	2006	1,023		Minimum count
	2011	1,166		Minimum count
	2017	1,990 ± 26%	0.26	Geospatial
Total Refuge Survey Area	2006	1,330		Minimum count
	2011	1,626		Minimum count
	2017	3,017 ± 25%	0.40	Geospatial

*Sightability Correction Factor

Composition data, which is typically collected in fall and relies on the occurrence of good survey conditions, including snow cover, prior to antler drop, has been difficult to obtain in this region. Consequently, detailed historical information on sex and age composition is not available. However, ADF&G successfully completed composition surveys in Units 17C in November and December 2016. At that time, in the southern portion of Unit 17C, the bull:cow ratio was 22:100 and the cow calf ratio was 16:100.

A study of moose demographics within the Refuge survey area provides estimates of productivity and recruitment for this population. Between 1998 and 2013, radio collared cows produced an average of 128 calves:100 cows. During this time period, twin births accounted for 64% of total births (Aderman 2014). Forty-three percent of calves survived to spring, which resulted in a recruitment rate of 60 calves:100 cows (Aderman 2014).

Although the moose population metrics are favorable Refuge-wide, local biologists caution that conditions Unit 17A differ from those in Unit 17C (Barten 2017, pers. comm.). Moose are relatively newcomers to Unit 17A and are able to utilize previously unexploited habitat, which can result in higher productivity (Schwartz 2007). This is evident in the Unit 17A calving and recruitment estimates. Conversely, moose in Unit 17C are less productive and thus more susceptible to overharvest, relative to the Unit 17A population.

Cultural Knowledge and Traditional Practices

Two Central-Yup'ik groups, the Kiatagmiut, and Aglurmiut, traditionally inhabited and hunted in subunit 17C (Fall et al. 1986; VanStone 1967; VanStone 1984). In historic times, the region supported a limited number of moose and as such the species accounted for a small portion of these groups overall diet (Hensel 1996). Moose were hunted opportunistically and were valued as a source of food as well as for clothing purposes (Holen et al. 2005; VanStone 1984). The occurrence of moose hunting and use among the Kiatagmiut, and Aglurmiut is limited in published literature. However, Hensel (1996) noted that moose were treated with respect and as the population increased the species became more important (Hensel 1996). Holen et al. (2005) stated that moose populations did not increase dramatically until the 1980s and 1990s.

The Russians constructed Fort Alexander in the vicinity of Nushagak Bay in 1820 (Michael 1967). It was the establishment of this fort that enabled the Russians and Europeans to branch out into the interior parts of Southwestern Alaska. Inland movement brought about more contact between the Russians, Europeans, and Central-Yup'ik groups which proved to bring about major changes to the Native way of life (Michael 1967; VanStone 1984). The fur trade was the first major disruptor; it altered the subsistence cycle and placed great emphasis on fur trapping which meant that more time was spent in the pursuit of animals that had little food value. Overtime the Central-Yup'ik groups became increasingly reliant on the trading posts for basic needs (VanStone 1984). The arrival of the Russian explorers and traders was followed by missions, schools, canneries, trappers, and prospectors (VanStone 1984).

The ADF&G recently conducted comprehensive subsistence surveys in the Bristol Bay region (Evans et al. 2009; Fall et al. 2006; Krieg et al. 2009; Holen et al. 2012). Over numerous study years it was noted that large mammals made up approximately 15% to 25% of the total harvest of the communities surveyed (Evans et al. 2013; Holen et al. 2012). Those participating communities in the area had a per capita moose harvest that ranged from 24 lb/person to 188 lb/person (Coiley-Kenner et al. 2003; Evans et al. 2009; Fall et al. 2006; Krieg et al. 2009; Holen et al. 2012).

During each study year, communities within subunit 17C searched or hunted for moose in Units 9B and17. Harvest and search areas specific to subunit 17C described travel locations south along the Nushagak Peninsula, east to the Kvichak River, west of Lake Ualik, and north to the Nerka Lake region within Wood Tikchik State Park (Evans et al. 2009; Fall et al. 2006; Krieg et al. 2009; Holen et al. 2012).

Harvest History

Between 2000 and 2016, the reported moose harvest in Unit 17 averaged 311 moose per year. Of the total reported harvest during that time period, 10% was harvested in Unit 17A, 33% was harvested in Unit 17B, and 57% was harvest in Unit 17C. Within Unit 17C, 79% of the total reported harvest, or 140 moose annually, has been by local residents, defined as those with a customary and traditional use determination (**Figure 1**). Most moose within Unit 17C are harvested by residents of Dillingham, who report taking 97 moose annually, on average. Residents of New Stuyahok and Ekwok report taking 13 and 11 moose each year, respectively. All other communities report taking fewer than ten moose per year. Residents of Manokotak, the only community within the proposed hunt area, report harvesting six moose annually within Unit 17C (ADF&G 2017), although unreported harvest is believed to occur (Aderman 2017, pers. comm.).

Seventy-nine percent of the moose harvested by Federally qualified subsistence users within Unit 17C are taken in August and September (**Table 2**). However, winter harvest is not insignificant. On average, 54 moose are harvested annually within Unit 17C in either December or January by Federally qualified subsistence users (ADF&G 2017).

Among all users who harvest moose in September, as many or more moose are harvested Sep 10 – 15 (the last six days of the season) than in the first ten days of the month. This is due to the onset of rut, a time when bulls become much more vulnerable to harvest Barten 2014).

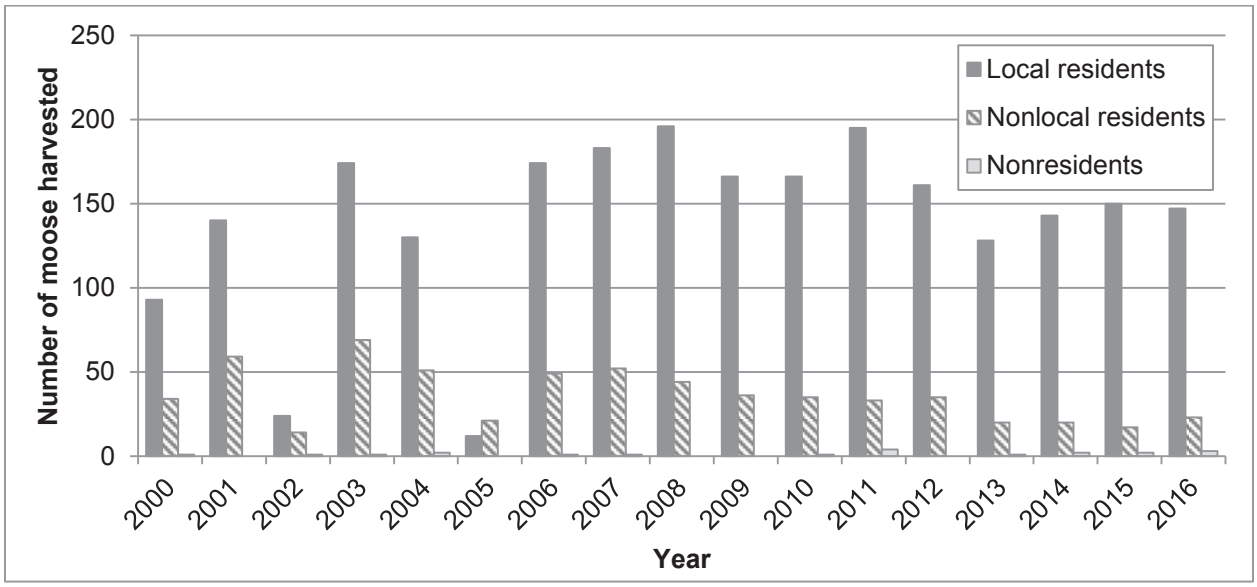


Figure 1. Total annual reported harvest in Unit 17C, 2000 – 2016, by residency (ADF&G 2017).

Effects of the Proposal

If this proposal is adopted, a new hunt area for moose will be created in Unit 17C, west of the Weary River. Within this new hunt area, all seasons will be modified. The fall harvest ticket season, which is currently open Sep. 1 – 15, will be lengthened by 5 days and be open Sep. 1 – 20. The fall permit hunt will be

delayed by 5 days, resulting in an Aug. 25 – Sep. 20 season. The winter permit hunt, which is currently open Dec. 1 – 31, will become a may-be-announced season that can be opened for 31 days between December 1 and the last day of February. Harvest limits and restrictions will remain unchanged.

These changes will increase subsistence opportunity by increasing the number of days antlered bulls may be harvested in fall with a harvest ticket, by shifting the fall registration hunt to coincide with early rut, and by making the winter hunt available when conditions are likely to be favorable. This increase in opportunity is likely to result in increased harvest, which may have a negative effect on the Unit 17C moose population.

Table 2. Annual reported harvest by Federally qualified subsistence users in Unit 17C, 2000 – 2016, by month (ADF&G 2017).

Regulatory Year	Month						
	July	August	September	December	January	March	April
2000	0	47	39	6	1	0	0
2001	0	93	44	3	0	0	0
2002	0		8	16	0	0	0
2003	1	99	60	10	4	0	0
2004	0	58	46	24	2	0	0
2005	0	1	7	4	0	0	0
2006	0	95	51	27	1	0	0
2007	0	85	70	23	5	0	0
2008	0	79	53	51	13	0	0
2009	0	54	70	41	1	0	0
2010	0	60	62	43	1	0	0
2011	0	75	61	52	7	0	0
2012	0	47	72	35	5	1	1
2013	0	56	55	16	1	0	0
2014	0	56	54	25	7	0	1
2015	0	56	58	33	3	0	0
2016	0	39	82	22	4	0	0

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-25/26.

Justification

The changes requested in these two proposals are likely to increase moose harvest within Unit 17C. In particular, changing the two permit hunts increases the potential for additional harvest, even though the requested changes for these hunts do not include lengthening the season. For the fall hunt, delaying the season by 5 days will allow hunters more access to moose as bulls enter the rutting season and become much more vulnerable to harvest. For the winter season, access to moose is likely to increase if the season

occurs when conditions are favorable, rather than at a fixed time. The proximity of this hunt area to Dillingham, whose residents harvest most of the moose taken within Unit 17C, increases the likelihood of additional harvest.

It is not clear that the moose population in Unit 17C can sustain additional harvest without negative consequences. Given that the area west of the Weary River is adjacent to or overlapping both the survey areas in Unit 17C and those in 17A, there is some uncertainty regarding the population status in the specific area. However, considering that the Unit 17C population is, as a whole, much less productive than the Unit 17A population, moose seasons that are appropriate for Unit 17A may not be appropriate for Unit 17C. The most conservative approach, and one that ensures the best long term subsistence opportunity, is to maintain the status quo.

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WP18–31 Executive Summary	
General Description	Proposal WP18–31 requests that the caribou season in Unit 18 be shortened from Aug. 1 – Mar. 15 to Aug. 1 – Feb. 28. *Submitted by: Orutsararmiut Native Council.*
Proposed Regulation	**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*~~ ***Feb. 28*** *Unit 18, remainder—2 caribou by State registration permit* — Aug. 1 – ~~*Mar. 15*~~ ***Feb. 28***
OSM Preliminary Conclusion	**Oppose**
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	

WP18–31 Executive Summary	
Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
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
WP18-31

ISSUES

Wildlife Proposal WP18-31, submitted by the Orutsararmiut Native Council (ONC), requests that the caribou season in Unit 18 be shortened, from Aug. 1 – Mar. 15 to Aug. 1 – Feb. 28.

DISCUSSION

The range of the Mulchatna caribou herd (MCH) includes all or parts of Units 9, 17, 18 and 19. ONC, whose constituents are based in the Unit 18 community of Bethel, relayed a variety of observations and concerns about the MCH within their local hunting areas. They report that local users have observed a scarcity of caribou in their area, compared to the past. They noted that changing environmental conditions make caribou harvest more difficult, and expressed concerns that changing climatic conditions may also be detrimental to caribou populations. Some hunters reported that caribou were skinnier than in the past, and that wolf predation appears to have increased. ONC notes that hunting pressure on caribou is high, which is related to the reduced Chinook harvest in recent years, and has resulted in some hunters exceeding established harvest limits. In sum, they believe that the population will decline if the current season persists, and therefore request that it be shortened by 15 days.

Existing Federal Regulation

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*

Proposed Federal Regulation

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~~* ***Feb. 28***
Unit 18, remainder—2 caribou by State registration permit	*Aug. 1 – ~~Mar. 15~~* ***Feb. 28***

Existing State Regulation

Unit 18—Caribou

Residents: Unit 18—Two caribou by permit available online at http://hunt.alaska.gov and in person in Anchorage, Bethel, Dillingham, Fairbanks, Homer, King Salmon, McGrath, Palmer, Soldotna, and at local license vendors beginning July 12	*RC503*	*Aug. 1 – Mar. 15*

Extent of Federal Public Lands

Federal public land comprise approximately 67% of Unit 18 and consists of 64% U.S. Fish and Wildlife Service (USFWS) managed lands and 3% Bureau of Land Management (BLM) managed lands (See **Unit Map**).

Customary and Traditional Use Determinations

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

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 and had generous harvest limits and restrictions. The subsequent population decline resulted in the implementation of more restrictive regulations. Following is a summary of State and Federal regulatory changes since 2006.

At their 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. They 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 (Woolington 2009).

The BOG further restricted harvest from the MCH in 2007. At that time, they reduced the resident harvest limit to 2 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 as well (Woolington 2009).

The Federal Subsistence Board (Board) considered Proposal WP07-23 in 2007, which requested the 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, the Board

adopted this proposal with modification to include Units 18, 19A and 19B (OSM 2017). However, this proposal was submitted prior to the BOG's 2007 regulatory changes and the Federal Subsistence Board's modification did not accommodate the recent changes in State regulation. Consequently, Federal regulations were aligned with the State's 2006 regulations rather than the 2007 regulations.

Following the continued decline of the MCH, the BOG adopted Proposal 57 in 2009, which eliminated the non-resident caribou season throughout the range of the herd (Woolington 2011).

The Board considered three proposals in 2010, all of which proposed further restriction on harvest of the MCH. Proposal WP10-51 requested that the Federal caribou seasons 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 Subsistence Regional Advisory 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 3 caribou to 2 caribou. This proposal was adopted by the Board with a 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 (OSM 2017). 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 its spring 2011 meeting, it established a predation management area in Units 9B, 17B and 17C. At its spring 2012 meeting, it added Units 19A and 19C to the predation management area (Woolington 2013).

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 Feb. 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 adjusted as proposed while the harvest limit remained at 2 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 (OSM 2017).

Shortly after the Board's decision on WP12-42, it received two Emergency Special Action Requests to make similar changes for the remainder of the 2011 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 (OSM 2017).

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 (ADF&G 2017a).

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 valid for the remainder of the 2013 regulatory year. The second request, Temporary Special Action WSA13-03, sought 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 (OSM 2017).

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 regulation 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 17 A 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 (OSM 2017).

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, the caribou season in Units 9B and 17 was 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 until the last day of March (ADF&G 2017a).

In March 2016, members of the Western Interior Alaska, Yukon Kuskokwim Delta and Bristol Bay Subsistence Regional Advisory Councils met at the All Council Meeting for an informal discussion focused on Proposal 134, which was considered by the BOG later in same month. The BOG adopted this proposal, which resulted in liberalization of the harvest restrictions for caribou harvested within the range of the MCH. Specifically, the harvest limit remained at 2 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 (ADF&G 2017a).

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 approved this request with modification to move in-season management language from regulation 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 RY2016 regulations rather than the RY2017 regulations (OSM 2017).

Biological Background

Currently, the MCH range covers approximately 60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B. However, this population has experienced dramatic changes in population size and distribution in the past 40 years. In the early 1980s, the population was estimated to include ~20,000 caribou and its range was mostly limited to the area east of the Mulchatna River between the Bonanza Hills and Iliamna Lake. By the mid-1990s, the herd had grown to its peak size of ~200,000 caribou and had begun wintering in southern Unit 18 and southwestern Unit 19B. Subsequently, the herd began a period of decline that persisted until recently (Woolington 2013).

In 2013, population estimate for the MCH was 18,308 caribou, the lowest estimate in over 30 years and well below the lower bound of the State's population objective of 30,000 – 80,000 caribou (**Table 1)**. Since then, the population appears to have grown. Surveys indicate that the population has varied between 26,000 and 31,000 caribou for the past three years. The most recent estimate, in 2016, was 27,242 caribou (Barten 2016).

The MCH has experienced a steady increase in the bull:cow ratio since 2010, when there were only 17 bulls:100 cows (**Table 1)**. In 2016, the ratio was 39 bulls:100 cows, which is the highest estimate since 2000 and is in excess of the State's management objective of 35 bulls:100 cows. The proportion of bulls classified as large in 2016 was 28%, which is among the highest estimates on record and is well above the long-term average of 19% (Barten 2016). Calf:cow ratios have been variable, which is typical of caribou herds occupying interior and southwest Alaska. In 2016, the calf:cow ratio was 22 calves:100 cows, a decrease relative to 2014 and 2015, but within the range of variability observed in recent years (Barten 2016).

Customary Practices and Traditional Knowledge

The customary and traditional use determination for caribou in Unit 18 encompasses about 26,000 people living in 45 communities of which about 6,000 live in Bethel (**Table 2**). The population has almost tripled in the 50 years since 1960 (ADCCED 2017). Twenty six are villages with less than 500 people. Over 1,000 people reside in only two: Bethel and Hooper Bay. Culturally, residents of these communities are primarily Yup'ik sharing a common language. The majority of the 45 communities are situated in the lower Yukon and lower Kuskokwim River drainages and nearby coastal villages within Unit 18. Residents contribute to a mixed cash-subsistence economy. The seasonal round of harvesting a wide variety of wild resources for home use is the basis of the subsistence economy. The seasonal round includes hunting trips to harvest caribou and moose, often on one-day or overnight trips to harvest furbearers and gather berries and wood. Otherwise, hunters travel to places where they expect, by experience, to find caribou, or places where they know other hunters have been successful (Coffing 1998).

Caribou are depicted in masks, art, and as totems (Fienup-Riordan 1996). Caribou hides are desired and used in the making of parkas and leggings and were frequently given away in ceremonies. In addition to eating the meat, the tallow is rendered as a dip for food and was used for lamp fuel (Fienup-Riordan 1988).

Table 1. Mulchatna Caribou Herd composition counts and population estimates, 1975 – 2016 (Barten 2016).

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	22,809[c]
2013	27	19	39	36	25	3,222	18,308[c]
2014	35	30	44	31	25	4,793	26,275[c]
2015	35	29	35	43	22	5,414	30,736[c]
2016	39	22	43	29	28	5,195	27,242[c]

[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 base on July photo census.

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

From 1900 to the 1930s, introduced reindeer were herded, an event with its own complicated history. Caribou were shot on sight to prevent them luring reindeer from the herd. However, after 1940, reindeer and caribou herds had mostly integrated with some notable exceptions (e.g. the herd owned by the Stebbins tribal council, cf. Wolfe and Pete 1984).

Table 2. The 2010 population of communities that have a customary and traditional use determination for caribou in Unit 18 (ADCCED 2017).

Community	2010 population	2010 number of households
Seward Peninsula		
Saint Michael	401	96
Stebbins	556	134
Lower Yukon River Drainage		
Alakanuk	677	160
Emmonak	762	185
Kotlik	577	128
Marshall	414	100
Mountain Village	813	184
Nunam Iqua	187	43
Pilot Station	568	121
Pitkas Point	109	31
Russian Mission	312	73
Saint Mary's	507	151
Coastal Area		
Chefornak	418	92
Chevak	938	209
Hooper Bay	1,093	256
Kipnuk	639	153
Kongiganek	439	94
Kwigillingok	321	82
Mekoryuk	191	70
Newtok	354	70
Nightmute	280	59
Scammon Bay	474	96
Toksook Bay	590	125
Tununak	327	84
Continued from previous column.		
Lower Kuskokwim River Drainage		
Akiachak	627	183
Akiak	346	90
Atmauthluak	277	63
Bethel	6,080	1,896
Eek	296	91
Kalskag	210	60
Kasigluk	569	113
Kwethluk	721	192
Lower Kalskag	282	75
Napakiak	354	96
Napaskiak	405	94
Nunapitchuk	496	124
Oscarville	70	15
Tuluksak	373	92
Tuntutuliak	408	96
South Kuskokwim Bay		
Goodnews Bay	243	76
Platinum	61	19
Quinhagak	669	165
Bristol Bay		
Manokotak	442	121
Togiak	817	231
Twin Hills	74	29
TOTAL	**25,767**	**6,717**

Snowmachines were generally considered less reliable than sleds pulled by dogs, but by the early 1970s, with improvements in reliability, the snow machine had largely replaced the dog team (Andersen et al. 2011). Contemporary hunting methods and means have been described by hunters in the region. Hunters from some lower Yukon River villages described hunting in the Andrefsky Mountains in the 1980s. It was unclear if the group was hunting caribou or reindeer from the nearby herd at Stebbins. Caribou/reindeer roamed in small groups, difficult to approach by snowmachine. Several hunters attempted to herd a group to locations where shots could be taken, such as, up a cul-de-sac or toward a heavy brush line. In this description, the high speed chase was considered "a relatively risky, dare-devil technique" (Wolfe and Pete 1984:9). Kwethluk hunters in the 1980s hunting with snowmachines reported hunting in upper Kwethluk and Kisaralik River valleys. "The high hills and low mountains scattered throughout the area . . . provided lookouts where hunters can watch for caribou" (Coffing 1991: 157). "Harvest timing varies year to year

and is largely dependent on caribou distribution and abundance, weather factors such as water levels in tributary streams used to access harvest areas and snow conditions throughout the winter months" (Coffing 1998:81).

Based on community household surveys conducted with selected communities 1980–2013, the harvest and use of caribou in these communities is highly variable from year to year in terms of total caribou harvested and the rate of harvest measured in pounds (lbs) of edible weight of caribou per person, likely reflecting the presence or absence of caribou in the area, among other factors (**Table 3**).

Table 3. The harvest and use of caribou at communities that have a customary and traditional use determination for Unit 18, based on household harvest surveys (ADF&G 2017b and Weekley et al. 2011).

		% of households		Harvest		
Community	Study year	Use caribou	Harvest caribou	Estimated harvest (caribou)	95% CI (%)	Per person (lbs)
Akiachak	1998	95	83	374	11	86
	2010	78	37	55	21	19
Alakanuk	1980		0	0	0	0
	2009	5	0	0	0	0
Bethel	2011	55	16	446	20	9
	2012	55	13	374	27	9
Chevak	2009	2	3	8		1
Eek	2013	61	27	47	28	17
Emmonak	1980		0	0	0	0
	2008	7	0	0	0	0
Kalskag	2003	53	35	42	49	22
	2004	30	6	4	24	3
	2005	26	15	16	98	8
	2009	15	2	1	605	1
Kotlik	1980		7	8		4
	2009	10	2	2		1
Kwethluk	1986		2	3		1
	2010	87	39	111	21	20
Lower Kalskag	2003	35	29	47	67	20
	2004	10	5	7	60	4
	2005	13	0	0	0	0
	2009	22	3	4	59	2
Marshall	2009	16	4	6		3
	2010	7	2	6	136	2
Manokotak	1985	89	32	44	13	22
	1999	88	49	130	10	49
	2001	88	42	68	17	28
	2008	49	8	20	5	8

Table 3 (continued).

Community	Study year	% of households		Harvest		
		Use caribou	Harvest caribou	Estimated harvest (caribou)	95% CI (%)	Per person (lbs)
Mountain Village	1980		0	0	0	0
	2009	8	2	9		2
	2010	6	0	0	0	0
Napakiak	2011	75	32	45	27	20
Napaskiak	2011	86	41	60	24	18
Nunam Iqua	1980		14	7		10
	2009	8	2	9		2
Oscarville	2010	92	50	10	28	22
Pilot Station	2013	6	1	3	102	1
Quinhagak	1982		25	196	124	62
	2013	65	29	125	21	22
Russian Mission	2009	28	0	0	0	0
	2011	11	4	5	96	2
Saint Mary's	2009	0	0	0	0	0
Saint Michael	2003	68	18	48	22	16
Scammon Bay	2009	13	0	0	0	0
	2013	20	4	10	64	2
Stebbins	2002	5	0	0	0	0
	2013	9	3	26	75	6
Togiak	1999	71	47	178	23	37
	2001			106	27	23
	2008	83	30	136	23	26
Tuluksak	2010	68	22	29	26	8
	2013	19	8	12	54	4
Twin Hills	1999	92	75	25	32	54
	2001			8	31	16

Harvest

Reported harvest of the MCH has decreased significantly since the early 2000s, when the herd was near its peak size (**Figure 1**). Total reported caribou harvest declined from 3,949 caribou in 2000 to 306 caribou in 2016. Harvest among all user groups declined during this period, but the decline was especially pronounced among non-local residents and nonresidents. Reduction of the State harvest limit in 2006 and elimination of the non-resident season in 2009 were influential in this decline (ADF&G 2017c).

Local users, defined here as those with a customary and traditional use determination, have reported less harvest in recent years as well. Since 2000, local users have reported harvesting an average of 432 caribou annually, with harvest exceeding 300 caribou in every year through 2012. Since 2013, reported harvest among local users has averaged 166 caribou annually and has remained below 300 caribou every year

(ADF&G 2017c). Underreporting is a known problem in this area (Woolington 2011) and it is likely that reported harvest underestimates total harvest by local users. Reported harvest of the MCH is not evenly distributed across the herd's range, with 49% of local harvest occurring in Unit 18 for the 2000 – 2012 time period.

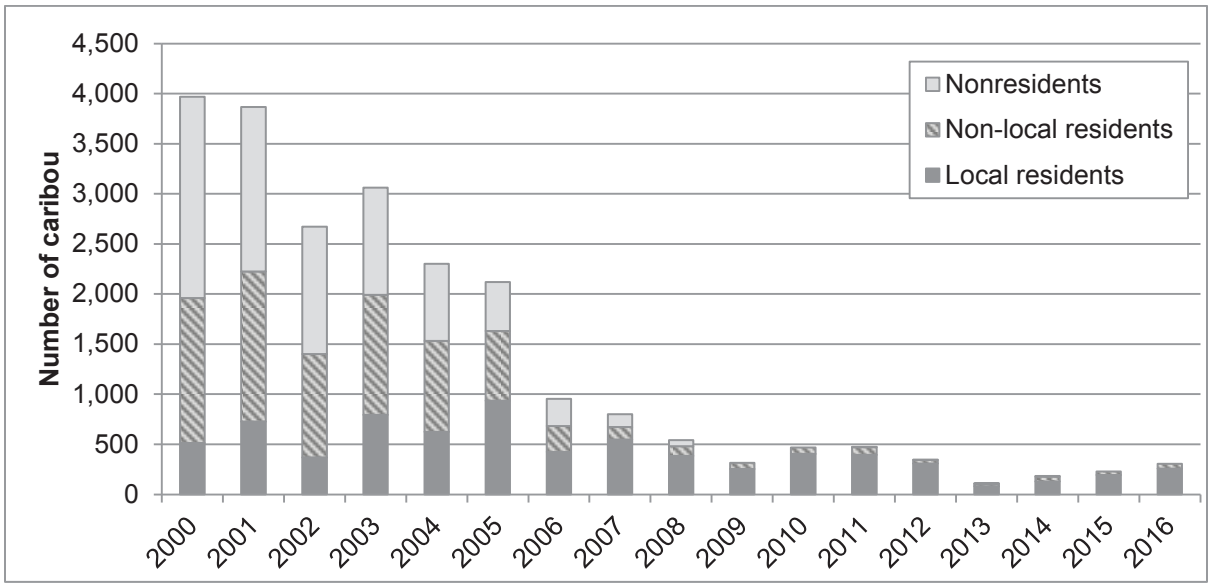

Figure 1. Total reported harvest from the Mulchatna Caribou Herd for regulatory years 2000 – 2016, by user group (ADF&G 2017c).

Until the mid-2000s, most of the harvest occurred during the fall, but an increasing proportion of harvest now occurs during spring (**Table 4**). Considering all users, an average of 65% of the harvest for 2000 – 2006 occurred in August and September. For 2007 – 2016, only 25% of the harvest has occurred during these months. Harvest during February and March averaged 18% of the total harvest 2000 – 2006 but increased to 45% for 2007 – 2016. This trend appears to be driven largely by the shift in user base from predominantly non-locals to predominately locals, subsequent to State regulatory changes. Harvest among local users tends to be more evenly distributed through the season, with some interannual variability (ADF&G 2017c). These patterns likely reflect movement and distribution of the MCH, as well as local environmental factors such as weather and snow and ice conditions that affect subsistence users' ability to successfully access and harvest caribou.

Other Alternatives Considered

There are two caribou hunt areas in Unit 18. Historically, multiple hunt areas were necessary to accommodate distribution and movement patterns of distinct caribou populations. Currently however, the MCH is the only caribou population present in Unit 18. This is reflected in the identical harvest regulations in the two areas. Consequently, consolidating the two Unit 18 caribou hunt areas into a single hunt area will have no effect on seasons, harvest limits, or harvest restrictions for caribou within Unit 18. This change will result in simplified regulations and in hunt area boundaries that are consistent with those described in State regulation, effectively reducing regulatory complexity.

Table 4. Total reported harvest from the Mulchatna Caribou Herd for regulatory years 2000 – 2016, by month (ADF&G 2017c).

	Caribou Harvest (Number of caribou)												
Year	**Total**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
2000	3,968	11	1,042	2,128	234	14	16	89	139	236	55	1	3
2001	3,866	7	876	1,840	117	50	81	98	173	439	183	2	
2002	2,671	6	615	1,503	121	17	41	99	58	151	55	4	1
2003	3,060	10	599	1,380	113	16	136	180	157	386	78	3	2
2004	2,301	6	439	1,075	59	25	82	83	52	248	227	4	1
2005	2,119	4	313	698	45	90	53	117	134	517	143	4	1
2006	953		120	356	12	39	53	57	101	209	4	2	
2007	799		20	208	12	12	49	56	231	207	4		
2008	540		15	120	15	29	23	43	141	152		2	
2009	315		22	35	24	61	15	30	34	91	1	2	
2010	468		14	33	7	17	67	35	92	201	1	1	
2011	474		11	47	9	23	11	88	85	199	1		
2012	347		11	22	5	6	38	24	62	177		2	
2013	109		16	30	9	18	13	9	8	6			
2014	183		35	58	18	7	32	4	19	10			
2015	235		36	50	12	23	39	23	40	10	1	1	
2016	307		27	35	15	6	25	26	59	114			

Effects of the Proposal

If this proposal is adopted, the Federal caribou season throughout Unit 18 will be shortened by 15 days, resulting in an Aug. 1 – Feb. 28 season. Consequently, the Federal season will be 15 days shorter than the State season, which can be viewed as a reduction in subsistence opportunity. However, there is expected to be no realized effect on subsistence harvest or on the MCH, since local users will be able to continue harvest through March 15 under State regulation. Differing State and Federal seasons, both of which require a State registration permit, may result in confusion among those hunting under Federal regulation.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-31

Justification

This proposal is not expected to address the proponent's conservation concerns. Because harvest will remain legal through March 15 under State regulation, and because Federally qualified subsistence users may hunt on both State and Federal lands under State regulation throughout Unit 18, it will have negligible effects on subsistence harvest or on population dynamics of the MCH. The requirement that Federally qualified subsistence users obtain a State registration permit further decreases the likelihood that this change will result in reduced harvest, since the longer State season will be printed on the permit. In

addition, the misalignment of State and Federal seasons may result in confusion among Federal users, which is unnecessary in the absence of a conservation benefit.

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WP18–30 Executive Summary	
General Description	Proposal WP18–30 requests that the season for ptarmigan harvest be shortened from Aug. 10-May 30 to Aug. 10-Mar. 31 and that the harvest limit be reduced from 50 ptarmigan per day and 100 in possession, to 15 ptarmigan per day and 30 in possession in Unit 18. *Submitted by: Orutsararmiut Native Council.*
Proposed Regulation	**Unit 18— Ptarmigan (Rock and Willow)** *Unit 18—~~50~~ **15** per day,~~100~~ **30** in possession* *Aug. 10 – ~~May 30~~ **Mar. 31***
OSM Preliminary Conclusion	**Support** Proposal WP18-30 **with modification** to leave the season unchanged.
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	

WP18–30 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
WP18-30

ISSUES

Proposal WP18-30, submitted by the Orutsararmiut Native Council, requests that the season for ptarmigan harvest be shortened from Aug. 10-May 30 to Aug. 10-Mar. 31 and that the harvest limit be reduced from 50 ptarmigan per day and 100 in possession, to 15 ptarmigan per day and 30 in possession in Unit 18.

DISCUSSION

The proponent requests that the harvest limit be decreased and the season shortened due to declines in willow ptarmigan populations as reported by local users. The proponent states that Federally qualified subsistence users are reporting the need to travel longer distances to harvest ptarmigan and that users are noticing much smaller flocks than those observed in the past. The proponent also states that ptarmigan are an important subsistence resource to the people who reside in the Yukon-Kuskokwim Delta and that ptarmigan were once the first bird to migrate through the area during the late winter season. The early spring/late winter migration would bring flocks of thousands of ptarmigan, which would help to sustain local residents until spring weather arrived. The proponent believes that the high harvest of ptarmigan is due to a decrease in other available resources, such as Chinook Salmon, and that this has contributed to population declines in the area. The proponent contends that decreasing the harvest limit and shortening the harvest season will allow ptarmigan populations to rebound and will reduce hunting pressure during the active breeding season in April.

Existing Federal Regulation

Unit 18—Ptarmigan (Rock and Willow)

Unit 18 —50 per day, 100 in possession	*Aug. 10 – May 30*

Proposed Federal Regulation

Unit 18— Ptarmigan (Rock and Willow)

*Unit 18— ~~50~~ **15** per day, ~~100~~ **30** in possession*	*Aug. 10 – ~~May 30~~* ***Mar. 31***

Existing State Regulation

Unit 18— Ptarmigan

Unit 18	*fifty per day, one hundred in possession*	*Aug. 10 – May 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 66.74% of Unit 18, and consist of 63.97% U.S. Fish and Wildlife Service (USFWS) managed lands and 2.77% Bureau of Land Management (BLM) managed lands (**Figure 1**).

Customary and Traditional Use Determinations

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for ptarmigan in Unit 18. Therefore, all Federally qualified subsistence users may harvest this species in this unit.

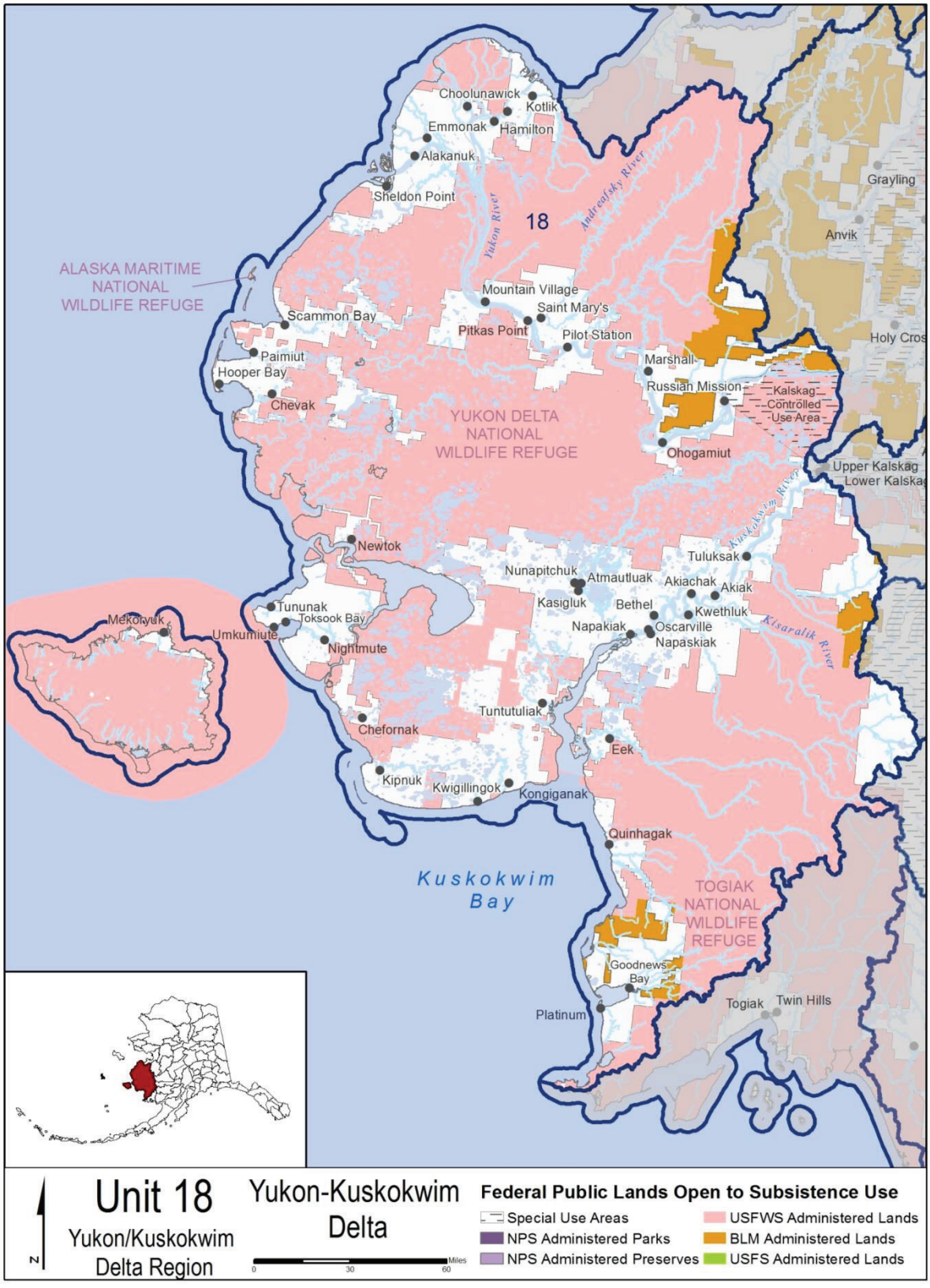

Figure 1. Federal public lands in Unit 18.

Regulatory History

In 1990, the Board adopted subsistence regulations for ptarmigan that aligned with State regulations. Federal regulations set the harvest limit at 20 ptarmigan per day and 40 in possession and a season from Aug. 10–Apr. 30.

WP93-47, submitted by the Paimiut Corporation, requested the ptarmigan season in Unit 18 be extended from Aug. 10–Apr. 30 to Aug. 10–May 30 to allow Federally qualified subsistence users more harvest opportunity in the spring. The Board adopted this proposal.

In 2012, the Yukon Delta National Wildlife Refuge submitted a proposal (WP12-51) to the Board to extend the ptarmigan season and increase the harvest limit in Unit 18. The proponent stated that ptarmigan in Unit 18 are locally migratory and migrate from the interior westward and that the season that was currently in place closed before migrating ptarmigan reached coastal areas, therefore limiting Federally qualified subsistence users from harvesting this resource. It was also stated that daily harvest and possession limits restricted Federally qualified subsistence users' ability to harvest as many ptarmigan as were needed. Due to limited data on the ptarmigan population in Unit 18, proposal WP12-51 was adopted with modification by the Board to maintain the harvest season already in place and to increase the harvest limit to 50 ptarmigan per day and 100 in possession.

A similar proposal was adopted with modification at the November 2011 Alaska Board of Game (BOG) meeting. Proposal 20 requested a harvest limit increase from 20 ptarmigan daily/40 in possession to 50 ptarmigan daily/100 in possession and a season extension from Aug. 10–Apr. 30 to Aug. 10–Jun. 15. The adopted modified proposal included the 50 ptarmigan daily/100 in possession limit, but reduced the season extension to May 15 due to concerns about harvesting during the breeding season.

Biological Background

There are no current population surveys being conducted for willow ptarmigan in Unit 18. Ptarmigan abundance may fluctuate along with snowshoe hare populations, as predators use alternative food sources when hare abundance is low (Hannon et al. 1998). Similarly, specialist predator populations, such as gyrfalcons, show slight delayed population fluctuations relative to the ptarmigan abundance cycle and often accelerate the decline in ptarmigan populations during the low phase of the ptarmigan cycle (Nielson 1999). Ptarmigan experience a complete population cycle over approximately a ten year period, similar to snowshoe hares (Nielson 1999). However, Alaska Department of Fish and Game (ADF&G) staff observations near Bethel and Dillingham show that ptarmigan populations in this area may be much lower than in the past (Carroll and Merizon 2017, Jones 2017, pers. comm.). Part of this decline is thought to be caused by warmer weather in the area and little or no snow in recent years, which would help to camouflage these birds (Carroll and Merizon 2017). This change in climate may have an impact on flock size and movements (Carroll and Merizon 2017).

Willow ptarmigan are locally migratory, overwintering in the interior of Unit 18 and breeding closer to the coast. Males are sometimes observed on breeding grounds beginning in April, where they establish breeding territories (Carroll and Merizon 2017, Weeden 1965). Breeding ptarmigan typically do not fully

arrive to the coastal areas in Unit 18 until around May (Carroll and Merizon 2017, Jones 2017, pers. comm., Weeden 1965).

Willow ptarmigan migration often follows the snow line as it melts from the interior out toward the coastline (Jones 2017, pers. comm.). Ptarmigan typically have white feathers during the winter season and brown coloration in the summer months. This change in color allows the ptarmigan to blend with their surroundings in any season even when congregating in large flocks. By following the snowline, ptarmigan are better able to maintain camouflage through the spring molt. In recent years, snow cover has been minimal in Unit 18 which has led to ptarmigan mismatching their surroundings during winter months and has made these populations more susceptible to predation (Jones 2017, pers. comm.). Behavioral changes have been observed in conjunction with the lack of snow; ptarmigan are more spread out on the landscape, congregate in much smaller flocks, and migrate through areas at a quicker rate (Jones 2017, pers. comm.).

The diet of willow ptarmigan is highly specialized, with up to 94% of their diet consisting of the buds and twigs of willows in the winter months (Weeden 1965, West and Meng 1966). In summer months the average ptarmigan diet becomes more varied as herbaceous vegetation availability increases (Weeden 1965, West and Meng 1966). Availability of food resources is primarily based on the height of plants and the level of snow cover (West and Meng 1966). Ptarmigan often feed during daylight hours and were found to fill their crop during the minimal daylight in winter and digest during hours when it was dark, whereas in the summer they were found to feed at more regular intervals without needing to fill their crops (West and Meng 1966).

Regulations do not differentiate between willow ptarmigan and rock ptarmigan harvest. Rock ptarmigan are the second most abundant ptarmigan species in Alaska and can be found throughout the state (Carroll and Merizon 2017). Declines in rock ptarmigan numbers in interior regions of Alaska led to increased monitoring of populations in interior and southern units (Carroll and Merizon 2017). Similar to willow ptarmigan, male rock ptarmigan begin defending breeding territories in April (Carroll and Merizon 2017). Currently, there are no population estimates for rock ptarmigan in Unit 18, but staff observations suggest that numbers appear to be quite low near Bethel and Dillingham (Carroll and Merizon 2017).

The diet of rock ptarmigan often consists of dwarf birch and willow buds in winter months, but becomes more varied in summer months as they begin to consume new growth vegetation, insects, berries, and seeds (Weeden 1965).

Habitat

The dominant habitat in Unit 18 consists of tundra and wetlands with patches of spruce corridors near major rivers (Carroll and Merizon 2017). Willow ptarmigan are well adapted to live in treeless arctic areas that contain open shrub habitats in summer months and willow/shrub thickets with few scattered trees during the winter season (Weeden 1965). In Alaska, male and female willow ptarmigan are often segregated in separate areas during the winter season (Weeden 1965); a behavior that is also observed in Norwegian willow ptarmigan (Pederson et al. 1983). Breeding territories are located in transitional shrub habitat in or near stands of willows and occur in most subalpine and alpine habitats across the state (Carroll and Merizon 2017).

Rock ptarmigan typically inhabit more exposed slopes and higher elevation ridges with abundant dwarf birch (Carroll and Merizon 2017, Weeden 1965). Male breeding territories occur above tree-line and tend to have a higher proportion of open habitat area with little shrub cover (Weeden 1964, 1965) as compared to willow ptarmigan. Similar to willow ptarmigan, male and female rock ptarmigan often separate into different flocks and/or habitat types in the winter, often wintering just below tree-line (Weeden 1964, 1965). Although rock ptarmigan are not typically as migratory as willow ptarmigan, they have been observed migrating 10-50 miles from breeding sites to over-wintering sites in portions of interior Alaska (Weeden 1965).

Cultural Knowledge and Traditional Practices

Subsistence users residing in Unit 18 distinguish between the two species of ptarmigan found in the unit: willow ptarmigan *aqesgiq* (Yukon delta), *qangqiiq* (coastal and lower Kuskokwim areas), and rock ptarmigan *ellciayuli* (Andrews 1989, Andrews and Peterson 1983, Pete 1986). Residents of inland communities, such as Russian Mission, Kwethluk, Akiachak, and Tuluksak, harvest both species throughout winter (Andrews and Peterson 1983, Coffing 1991, Coffing et al. 1998, Pete 1986). For residents of coastal communities, such as Kwigillingok, Hooper Bay, Nunam Iqua, Scammon Bay, and Alakanuk, willow ptarmigan are scarce near the villages for most of the winter (Stickney 1983, Fienup-Riodan 1986). Then in late winter or spring, willow ptarmigan flock up and large numbers return to coastal areas to forage in newly-exposed tundra. The timing of return is variable depending on snow cover and weather and is expected any time in late winter or spring.

During house to house harvest surveys conducted in ten Unit 18 communities in the 1980s and 1990s, at least 48% of households in each community reported harvesting ptarmigan during a 12-month study period (ADF&G 2011). The range was from a low of 48% in Kwethluk in 1986 to a high of 93% in Kotlik in 1980. Estimated harvests ranged from a high of 5,450 ptarmigan in Akiachak in 1998 to a low of 578 ptarmigan in Nunam Iqua (formally Sheldon's Point) in 1980 (**Table 1**). Snow cover that lasts later in the spring is more conducive for users to travel and more ptarmigan are likely harvested under these conditions (OSM 2012). Ptarmigan are often harvested opportunistically as they are encountered in Unit 18 (OSM 2012), so higher harvest levels may be associated with higher ptarmigan abundance or more suitable travel conditions.

Harvest seasons and methods for ptarmigan in Unit 18 are variable and based on the location of individual villages. For example, coastal areas such as the area between Kwigillingok and Hooper Bay have sparse willow patches and ptarmigan migrate inland in winter to take advantage of more abundant food in large clusters of willow trees. Inland and along rivers, ptarmigan may be abundant during winter months. Coastal areas experience an influx of flocks of ptarmigan in spring as ptarmigan migrate to the coast to forage in newly-exposed tundra (Stickney 1983).

Once seasonally nomadic, by about 1950 most people were living in permanent communities while visiting seasonal camps (Andrews 1989). Shotguns and .22-caliber rifles had become more common and the majority of ptarmigan were now harvested with these methods (Andrews 1989, Stickney 1983). Some people continue to snare ptarmigan (Wolfe and Ellana1983). In the 1980s, based on research mentioned

above, ptarmigan were sometimes preserved in freezers, but many continued to dry ptarmigan for later consumption (Coffing et al. 2001, Stickney 1983).

Before 1930, .22-caliber rifles were not in common use in the Yukon Kuskokwim Delta area (Andrews 1989). Residents herded molting, flightless migratory waterfowl and took them with specially-designed, pronged spears (Andrews 1989). Upland birds, such as ptarmigan, were harvested with snares, bow and arrow, and spears (Andrew 1989). Snares were set by older women and boys and girls (Fienup-Riordan 1989, Oswalt 1990, Pete 1986). For the majority of villages, ptarmigan figured prominently in the spring as food stores were running low and animals such as ptarmigan and hares became available in large numbers (Fienup-Riordan 1986, Stickney 1983). Of the smaller wildlife, ptarmigan were most likely to be dried (Coffing et al. 2001, Pete 1986). Ptarmigan were eaten fresh in soups or dried for later consumption (Stickney 1983). The birds were skinned and the breasts and wings removed and hung outside on horizontal poles where the meat dried. Once dried, the meat was eaten without further preparation and was a favorite food at summer fish camps (Coffing et al. 2001, Fienup Riordan 1986).

Table 1. The use and harvest of ptarmigan based on household surveys, Unit 18 communities (ADF&G 2011).

		Percentage of Households					Ptarmigan Harvest				
Community	Study Year	Using Ptarm (%)	Hunting Ptarm (%)	Harvesting Ptarm (%)	Giving Ptarm (%)	Receiving Ptarm (%)	Reported (Number)	Expanded to House-holds Not Surveyed (Number)	Lower Estimate (Number)	Higher Estimate (Number)	95% Confidence Interval (+/- %)
Akiachak	1998	93	84	84	54	35	3741	5450	4825	6074	11
Alakanuk	1980	-	-	81	-	-	1078	4620	-	-	-
Emmonak	1980	-	-	56	-	-	194	1078	-	-	-
Kotlik	1980	-	-	93	-	-	384	1536	-	-	-
Kw ethluk	1986	-	55	48	35	25	-	3712	-	-	-
Mountain Village	1980	-	-	81	-	-	451	2706	-	-	-
Nunam Iqua	1980	-	-	86	-	-	176	578	-	-	-
Nunapitchuk	1983	-	-	88	-	-	770	3171	1827	4515	42
Quinhagak	1982	-	-	58	-	-	226	1846	568	3124	69
Tununak	1986	97	82	82	30	33	994	1928	1434	2422	25

Harvest History

The number of ptarmigan harvested in Unit 18 each year is variable, but the majority of the harvest takes place in the spring (Wentworth 2007). Harvest estimates, based on household surveys conducted for the purposes of monitoring migratory bird subsistence harvests, between 1986 and 2001, averaged 15,901 (range 8,923 to 30,685) ptarmigan in Unit 18, and 90% of the harvest took place between April 8 and May 20 (**Table 2**; Wentworth 2007).

Table 2. Ptarmigan harvest by survey season in the Yukon-Kuskokwim Delta Region from 1986-2001 (Wentworth 2007).

Year	Spring	Early Summer	Mid-Summer	Late Summer	Fall	Total
1986	6,771	1,579	174	60	339	8,923
1987	12,553	1,016	8	505	1,011	15,093
1988	-	-	-	-	-	-
1989	11,785	617	12	5	952	13,371
1990	11,222	98	11	350	898	12,579
1991	27,748	1,355	428	490	664	30,685
1992	14,929	359	37	85	238	15,648
1993	18,748	639	12	27	130	19,556
1994	8,176	685	4	92	501	9,458
1995	15,416	535	56	57	31	16,095
1996	13,198	1,310	0	150	136	14,794
1997	11,873	607	3	119	419	13,021
1998	14,840	601	27	142	635	16,245
1999	18,938	1,842	0	440	282	21,502
2000	14,335	490	0	6	124	14,955
2001	16,165	212	84	36	97	16,594

Recently (2015 and 2016), hunter effort and harvest was low due to the decline in the population and changes in behavior of willow ptarmigan in Unit 18 (Jones 2017, pers. comm.). From 2002 to 2015, harvest estimates averaged 12,298 (range 4,667-33,882), with 92% of the harvest occurring between April 1 and June 30 (**Table 3**; Naves 2014, 2015a, b, 2016; OSM 2012). The highest reported harvest was in 2013 (33,882), no data was collected in 2014, and reported ptarmigan harvest was low again in 2015 (9,928).

Table 3. Ptarmigan harvest by season in the Yukon-Kuskokwim Delta Region from 2002-2015 (Naves 2012, 2014, 2015a, b, 2016; Wentworth 2007).

Year	Spring	Summer	Fall	Total
2002	18,756	159	108	19,023
2003	-	-	-	-
2004	9,750	46	2,111	11,907
2005	16,162	110	611	16,883
2006	17,780	1,538	1,115	20,433
2007	5,291	104	N/A	5,395
2008	4,355	120	192	4,667
2009	20,033	1,474	1,440	22,947
2010	13,302	248	282	13,832
2011	10,946	843	1,483	13,272
2012	-	-	-	-
2013	32,725	93	1,064	33,882
2014	-	-	-	-
2015	9,201	38	689	9,928

Current harvest estimates for ptarmigan in Unit 18 have limited utility for assessing impacts of management decisions such as season lengths or harvest limits. Harvest estimates from the Alaska Migratory Bird Subsistence Harvest Estimates household survey may have high levels of variation because of (1) annual changes in ptarmigan abundance, (2) hunter access (e.g., snow conditions), (3) annual variation in hunting effort due to the availability of other resources (e.g., salmon, caribou), (4) inadequate sampling coverage (e.g., variable household/village participation, bias toward "high" or active hunting households, political climate influence, unknown under or over reporting), (5) variability of survey methodology over the years, and (6) heterogeneity of harvest patterns within villages (Naves 2009, 2015a, 2016; Wentworth 2007). In addition, the harvest seasons defined in the survey were designed for migratory birds and do not align with the current Federal ptarmigan season in Unit 18 (Aug. 10 – May 30).

The Yukon-Kuskokwim Delta Region is split into seven subregions for the purpose of the Alaska Migratory Bird Subsistence Harvest surveys, of which six are located primarily within Unit 18 (**Figure 2**; Naves 2016, Wentworth 2007). Bethel is considered its own subregion and therefore this village is surveyed whenever the subregion is surveyed unlike specific villages in other subregions (Naves 2015, 2016; Wentworth 2007). Harvest is highly variable across years within each subregion (**Table 4**; Naves 2015a, 2016). In 2013, the most harvest was reported overall since 2004, although only the Y-K Delta South Coast, Y-K Delta North Coast, and Lower Kuskokwim showed harvest values greater than other years during this timeframe (Naves 2015a, b, 2016).

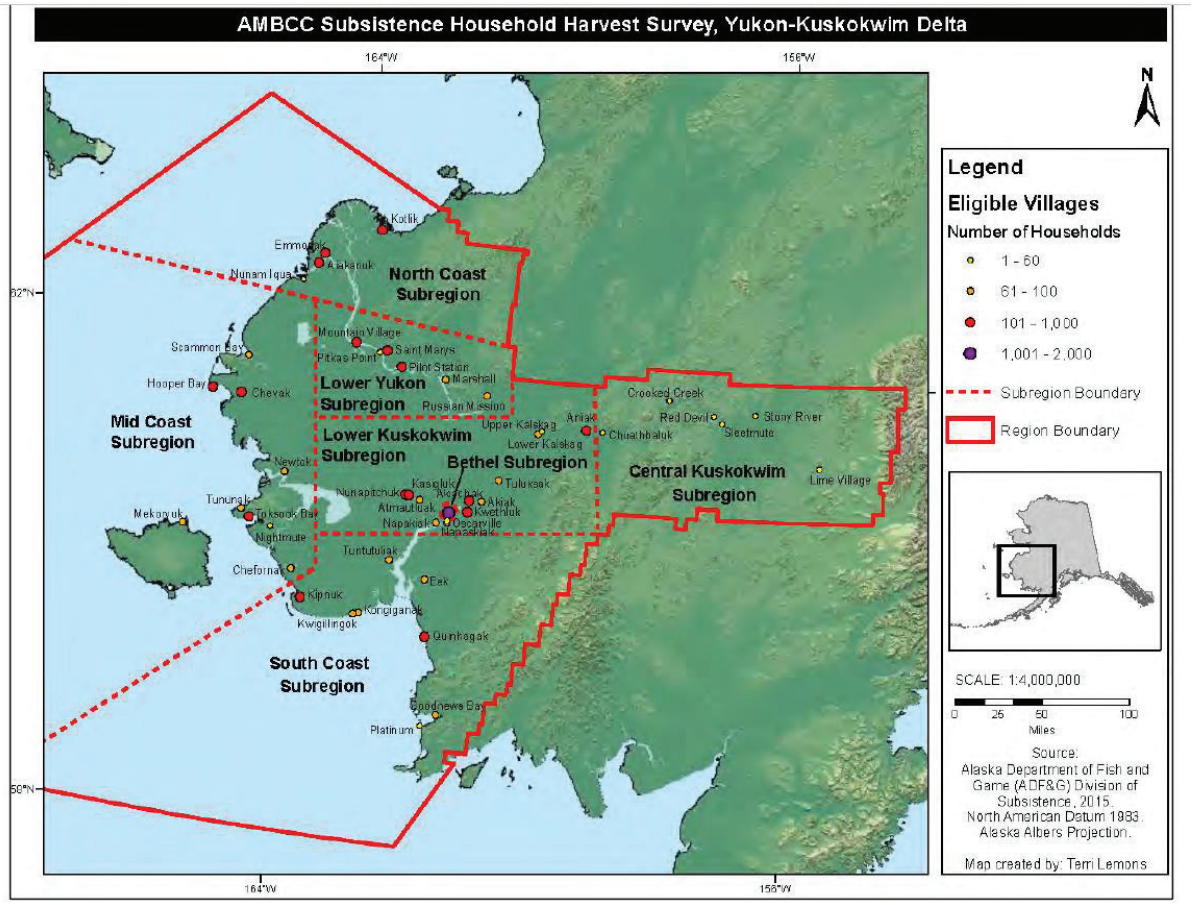

Figure 2. Subregions within the Yukon-Kuskokwim Delta Region for subsistence bird harvest surveys (figure from Naves 2016).

Table 4. Ptarmigan harvest by year in each subregion of the Yukon-Kuskokwim Delta Region located within in Unit 18 according to Alaska Migratory Bird Subsistence Harvest surveys (Naves 2015a, b, 2016)

Subregion	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Y-K Delta South Coast	2,362	2,857	3,149	142	1,463	1,730	3,516	3,146	-	10,218	-	2,637
Y-K Delta Mid Coast	2,402	3,343	9,351	2,218	1,099	12,110	5,697	3,637	-	9,860	-	3,401
Y-K Delta North Coast	164	717	323	0	0	369	727	-	-	1,892	-	761
Lower Yukon	519	129	41	0	0	196	110	-	-	456	-	884
Lower Kuskokwim	5,212	1,656	7,080	2,787	997	6,798	3,556	3,469	-	11,455	-	850
Bethel	0	6,010	489	49*	1,006	1,242	150	198	-	-	-	1,159
Total	**10,659**	**14,712**	**20,433**	**5,196**	**4,565**	**22,445**	**13,756**	**10,450**	**-**	**33,881**	**-**	**9,692**

*denotes that data was not collected for fall harvest; - denotes that no surveys were completed

Sandercock et al. (2011) found that in Norway, harvest levels of willow ptarmigan above 15% could be additive to natural mortality rather than compensatory and that a harvest above 30% of the post breeding population could be "superadditive" (harvest could cause additional natural mortality). It is important to consider these findings when determining harvest limits for willow ptarmigan. Due to the current

population of willow ptarmigan being unknown, limited utility of harvest estimates, and reported harvest not distinguishing between species of ptarmigan, it is difficult to understand how ptarmigan harvest impacts the overall population in Unit 18.

Effects of the Proposal

If adopted, this proposal would reduce harvest opportunity for Federally qualified subsistence users near the coast of Unit 18. Willow ptarmigan often do not arrive to the coast until late April/early May. Closing the season on March 31 would end the season before these populations arrived to the coastal areas and restrict local users from harvesting this resource.

This proposal would also not provide subsistence priority to Federally qualified subsistence users in Unit 18, as it would make the Federal subsistence regulations more restrictive than the State regulations. The proponent stated that subsistence users are responsible for a majority of the harvest and this proposal would limit these users and allow the population to rebound. However, if this proposal were adopted, Federally qualified subsistence users could still harvest ptarmigan under State regulations and therefore there may be no positive impact on the ptarmigan population.

It is unknown what effect current harvest is having on the ptarmigan population in Unit 18. Although the general consensus of biologists in Unit 18 is that the ptarmigan population is declining due to climatic changes, it is uncertain what the cumulative effects caused by additional mortality due to harvest may be. It is possible that more that 15% harvest or harvest greater than 30% may have additive and superadditive impacts to the population, respectively (Sandercock et al. 2011). Without an estimate of ptarmigan populations in Unit 18, it is not possible to know the impacts caused by current harvest levels.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-30 **with modification** to leave the season unchanged.

The modified regulation should read:

Unit 18— Ptarmigan (Rock and Willow)

*Unit 18— ~~50~~ **15** per day, ~~100~~ **30** in possession*	*Aug. 10 – May. 30*

Justification

Local residents indicate that willow ptarmigan numbers are declining in Unit 18. Although it is expected that this decrease is likely caused by climatic changes impacting levels of natural predation over the last few years, human harvest could have an additive or superadditive effect on the already declining population. It may be important to limit harvest until ptarmigan numbers rebound to maintain this resource for local users. A proposal would need to be submitted to the BOG to similarly modify State regulations in order for this regulatory change to have an impact on overall harvest.

Willow ptarmigan do not migrate through coastal areas of Unit 18 until late April/early May. Shortening the season would greatly limit opportunity for users who live in these areas, as ptarmigan would not reach these regions until after the season was closed. Maintaining the current season dates maintains a Federal subsistence priority and provides more opportunity than what is currently available under State regulations.

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WP18–51 Executive Summary	
General Description	Proposal WP18-51 requests that Federal (statewide) bear baiting restrictions be aligned with State regulations, specifically the use of biodegradable materials. *Submitted by: Eastern Interior Alaska Subsistence Regional Advisory Council.*
Proposed Regulation	*§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:* * * * * *(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:* * * * * *(iii) You may use only biodegradable materials for bait;* ***if fish or game is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and* ***big game, the skinned carcasses of furbearers and fur animals, small game (including the meat, except the breast meat of birds), and unclassified game*** ~~*wildlife for bait*~~ ***may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*
OSM Preliminary Conclusion	**Support** Proposal WP18-51 **with modification** to establish a definition for scent lure and clarify the regulatory language. The modified regulation should read: *§__.25(a) Definitions. The following definitions apply to all regulations contained in this part:* ***scent lure (in reference to bear baiting) means any biodegradable material to which biodegradable scent is applied or infused.*** *§__.26(b)(14)(iii) You may use only biodegradable materials for bait;* ***if fish or wildlife is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and wildlife* ~~*for bait*~~***, the skinned carcasses of furbearers, and unclassified wildlife may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

WP18–51 Executive Summary	
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	
Eastern Interior Alaska Subsistence Regional	

WP18–51 Executive Summary	
Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**3 Oppose**

DRAFT STAFF ANALYSIS
WP18-51

ISSUES

Proposal WP18-51, submitted by the Eastern Interior Alaska Subsistence Regional Advisory Council, requests that Federal (statewide) bear baiting restrictions be aligned with State regulations, specifically the use of biodegradable materials.

DISCUSSION

The proponent states that the current Federal bear baiting restrictions are much more restrictive than the State's and do not provide for a Federal subsistence priority. The proponent proposes to align Federal and State bear baiting restrictions in order to reduce regulatory complexity, reduce user confusion, and allow baiting with items (e.g. dogfood, anise, popcorn, baked goods, grease, syrup, etc.) that have traditionally been used as bear bait by Federally qualified subsistence users and are currently allowed under State regulations.

Existing Federal Regulations

§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:

* * * *

(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:

* * * *

(iii) You may use only biodegradable materials for bait; you may use only the head, bones, viscera, or skin of legally harvested fish and wildlife for bait;

Proposed Federal Regulations

§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:

* * * *

(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:

* * * *

(iii) You may use only biodegradable materials for bait; ***if fish or game is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and* ***big game, the skinned carcasses of furbearers and fur animals, small game (including the meat, except the breast meat of birds), and unclassified game*** ~~*wildlife for bait*~~ ***may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

Note: The proposal as submitted omitted the word "fish". However, this was an oversight as the proponent's intention was to align State and Federal regulations.

State Regulations

5 AAC 92.044. Permit for hunting bear with the use of bait or scent lures.
(a) A person may not establish a bear bait station to hunt bear with the use of bait or scent lures without first obtaining a permit from the department under this section.

(b) In addition to any condition that the department may require under 5 AAC 92.052, a permit issued under this section is subject to the following provisions:
* * * *
(8) only biodegradable materials may be used as bait; if fish or big game is used as bait, only the head, bones, viscera, or skin of legally harvested fish and game may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait;

5 AAC 92.085. Unlawful methods of taking big game; exceptions: The following methods and means of taking big game are prohibited in addition to the prohibitions in 5 AAC 92.080:
* * * *
(4) with the use of bait for ungulates and with the use of bait or scent lures for any bear, except that bears may be taken with the use of bait or scent lures as authorized by a permit issued under 5 AAC 92.044;

5 AAC 92.210. Game as animal food or bait. A person may not use game as food for a dog or furbearer, or as bait, except for the following:
(1) the hide, skin, viscera, head, or bones of game legally taken or killed by a motorized vehicle, after salvage as required under 5 AAC 92.220;
(2) parts of legally taken animals that are not required to be salvaged as edible meat, if the parts are moved from the kill site;
(3) the skinned carcass of a bear, furbearer, or fur animal, after salvage as required under 5 AAC 92.220;
(4) small game; however, the breast meat of small game birds may not be used as animal food or bait;
(5) unclassified game;
(6) deleterious exotic wildlife;
(7) game that died of natural causes, if the game is not moved from the location where it was found; for purposes of this paragraph, "natural causes" does not include death caused by a human;
(8) game furnished by the state, as authorized by a permit under 5 AAC 92.040.

Extent of Federal Public Lands

Federal public lands comprise approximately 54% of Alaska and consist of 20% U.S. Fish and Wildlife Service (USFWS) managed lands, 15% Bureau of Land Management (BLM) managed lands, 14% National Park Service (NPS) managed lands, and 6% U.S. Forest Service (USFS) managed lands.

Customary and Traditional Use Determinations

Customary and traditional use determinations for specific areas and species are found in subpart C of 50 CFR part 100, §___.24(a)(1) and 36 CFR 242 §___.24(a)(1).

Regulatory History

In 1990, Federal regulations for bear baiting were adopted from State regulations. These regulations, specifically §__*.26(b)(14)(iii)*, have not been modified since that time.

In 1992, Proposal P92-149 requested that bear baiting be prohibited due to habituation of bears to bait stations and human garbage, which results in bears becoming more dangerous. The Federal Subsistence Board (Board) rejected the proposal as there was no biological reason to restrict subsistence opportunity.

Currently, black bears may be taken at bait stations under Federal regulations in all units, except Units 1C, 4, 8, 9, 10, 14, 18, 22, 23, and 26. In 2014, the Board adopted Proposal WP14-50, allowing brown bears to be taken at bait stations in Unit 25D. In 2016, the Board adopted Proposal WP16-18, allowing brown bears to be taken at bait stations in Units 11 and 12.

In 2001, the Alaska Board of Game (BOG) adopted Proposal 156 to prohibit the use of fish parts as bear bait in Units 7 and 15 (ADF&G 2001). The intent of the proposal was to minimize human-bear interactions and to reduce defense of life or property (DLP) brown bear kills on the Kenai Peninsula (ADF&G 2001).

In 2015, the NPS published Final Rule 36 CFR 13.42(g)(10) prohibiting the take of black and brown bears over bait on National Preserves under State regulations. In 2016, the USFWS published a similar rule prohibiting the take of brown bears over bait on National Wildlife Refuges under State regulations. The USFWS rule was nullified when the President of the United States signed House Joint Resolution 69 into law on April 3, 2017. The Resolution invoked the Congressional Review Act, a law that permits regulations passed during the last six months of a previous administration to be overturned.

In 2016, the BOG adopted Proposal 61 as amended to insert the word “big” before game in 5 AAC 92.044(8) (see State regulations above). This was done to clarify that the skinned carcasses of legally harvested furbearers could be used as bear bait (ADF&G 2016).

In January 2017, the NPS published Final Rule 36 CFR 13.480(b) limiting types of bait that may be used for taking bears under Federal Subsistence Regulations to native fish or wildlife remains from natural mortality

or parts not required to be salvaged from a legal harvest. Based on public comment, the final rule includes a provision that allows to allow the superintendent of Wrangell-St. Elias National Park and Preserve (WRST) to issue a permit to allow use of human-produced foods upon a determination that such use is compatible with park purposes and values and the applicant does not have reasonable access to natural materials that could be used as bait (36 CFR 13.1902(d)). The exception for WRST was based on documented history of bear baiting.

Cultural Knowledge and Traditional Practices

Both black bears and brown bears are traditionally and contemporarily harvested, used, and shared across much of Alaska, though regional variations in harvest patterns, seasonal rounds and methods exist (Blackman 1990; Burch 1984; Clark 1981; Crow & Obley 1981; de Laguna & McClellan; de Laguna 1990; Hosley 1981; Lantis 1984; Slobodin 1981; Snow 1981; Townsend 1981). Historical methods of harvest among Alaska Native cultural groups included spearing (Brown 2012; Crow & Obley 1981; de Laguna & McClellan 1981; de Laguna 1990; Townsend 1981), harvest at winter den sites (Brown 2012; Hosley 1981; de Laguna 1990), snaring (Burch 1984; de Laguna & McClellan 1981; de Laguna 1990), bow and arrows (de Laguna 1990; Townsend 1981), deadfalls (de Laguna & McClellan 1981; de Laguna 1990), and with dogs (de Laguna & McClellan 1981; de Laguna 1990). Today, bears are frequently hunted with rifles while in pursuit of other large land mammals (ADF&G 1992; ADF&G 2008; Brown 2012).

The occurrence of bear baiting as a component of traditional harvest methods is limited within published literature; it is unknown if the practice occurred rarely or if it was merely seldom documented. Among the Upper Kuskokwim (Kolchan) Athabascans, some hunters were known to use ground squirrel nests to attract bears that had recently emerged from their dens in the spring (Brown 2012). A squirrel would be released near the bear and the bear would follow the tracks back to the nest where it would be harvested with lances (Brown 2012).

In Southeast Alaska, Tlingit hunters sometimes used dead falls to harvest bears and these were either set across bear trails or baited to attract bears (ADF&G 1992). The bait ingredients are unknown. Among several Athabascan groups in Alaska's interior, documented methods of harvesting black bears included hunting with bow and arrow or lacing bait with coiled baleen that would expand and rupture the bear's digestive tract (ADF&G 2008). Use of bear baiting stations to attract and harvest black bears has also been documented specifically for hunters from the community of Tok (ADF&G 2008). In a 2001-2002 study of 18 southwest Alaska communities there was no documentation of the use of baiting stations for harvesting bears (Holen et al. 2005).

Contemporary use of bait stations for bear hunting in Alaska has been contentious (Harns 2004). While some people believe that baiting black bears is acceptable, others have suggested that the method violates fair chase ethics (Harns 2004). The method allows hunters to be selective and humane, it helps hunters with limited mobility to participate by reducing trekking distance, and it facilitates clean kills by bow hunters that harvest animals at a closer range (Harns 2004). Additionally, it allows hunters to be more selective, to more easily identify sex, and to verify the presence or absence of cubs with sows (Harns 2004).

Opponents of bear baiting often reference safety concerns and food conditioning (Cunningham 2017, Hilderbrand et al. 2013). The National Park Service has also cited concerns regarding preventing the

defense of life and property killing of bears and maintaining natural processes and behaviors (Hilderbrand et al. 2013). To alleviate some of these concerns, BOG and the Board have implemented several restrictions that stipulate where bear baiting stations are allowed, that require bear baiting stations to be registered with ADF&G, and that require the completion of an ADF&G bear baiting clinic for all hunters age 16 and older.

Other Alternatives Considered

Adoption of this proposal would permit the use of scent lures at bear baiting stations under Federal regulations. According to 50 CFR *§__.25(a) Definitions* and 5 AAC *92.990 Definitions*, bait is defined as "any material excluding scent lures, that is placed to attract an animal by its sense of smell or taste; however, those parts of legally taken animals that are not required to be salvaged and which are left at the kill site are not considered bait." While scent lures are excluded from the bait definition, they are not explicitly defined under Federal or State regulations. If scent lures are not defined, any material and chemical could be used at registered bait stations on Federal public lands, including toxic and non-biodegradable ones.

Effects of the Proposal

If this proposal is adopted, Federally qualified subsistence users would be able to use any biodegradable material as well as scent lures at registered bear baiting stations on lands administered by the USFWS, BLM, and USFS. As bear bait is limited to native fish and wildlife remains on NPS administered lands, this proposal would not affect NPS lands (with some exceptions in WRST). This will provide Federally qualified subsistence users with greater opportunity on most Federal public lands and will align State and Federal baiting restrictions, reducing regulatory complexity and user confusion. Currently, Federal regulations are more restrictive than State regulations. As the requested changes are already permitted under State regulations, no appreciable differences in bear harvests, populations, subsistence uses, or habituation of bears to human foods are expected from this proposal.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-51 **with modification** to establish a definition for scent lure and clarify the regulatory language.

The modified regulation should read:

§__.25(a) Definitions. The following definitions apply to all regulations contained in this part: ***scent lure means any biodegradable material to which biodegradable scent is applied or infused.***

§__.26(b)(14)(iii) You may use only biodegradable materials for bait; ***if fish or wildlife is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and wildlife* ~~*for bait*~~***, the skinned carcasses of furbearers, and unclassified wildlife may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

Justification

Adoption of this proposal will reduce regulatory complexity and provide greater opportunity for Federally qualified subsistence users by expanding and clarifying the use of biodegradable materials and scent lures as bear bait. There are no conservation concerns as these proposed clarifications are already permitted under State regulations.

Defining scent lures in regulation is necessary to ensure that only appropriate and non-harmful materials and scents are used on Federal public lands. The terms "game", "fur animals", and "small game" are not defined under Federal regulations, but are included in the Federal definition of "wildlife." While the term "big game" is defined under Federal regulations, it is also included within the Federal definition of "wildlife."

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WRITTEN PUBLIC COMMENTS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 1:55 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Sharon Alden** <fwxsca@yahoo.com>
Date: Fri, Aug 4, 2017 at 1:52 PM
Subject: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24
To: "subsistence@fws.gov" <subsistence@fws.gov>

To: Office of Subsistence Management
Attention: Theo Matuskowitz
From: Sean McGuire
Re: comments on proposal WP 18-51, 18-03, 18-4, 18-5, 18-24

I am opposing proposal WP 18-51 There should be no human food or any human substance to bait any animals. This is so basic. The last thing we want is to habituate bears or any wild animal to human food. This is an ethical as well as a safety issue. The last thing we want to see is the federal baiting regulations aligned with the state of Alaska's. The State baiting regulations are painfully out dated and present a glaring safety issue.

I am opposing proposal WP 18-03 the extended hunting and trapping season in game unit one. Over kill.

I am really opposed to proposal WP 18-04. Why in the world would you want to put more pressure on a wolf population that's already in trouble this appears to be contrary to the basic concept of wildlife management?

I am also opposing proposal WP 18-05 relates to my opposition to WP18-04.

I am also opposing in the strongest possible terms proposal WP 18-24
To heard wildlife with snow machines is one of the most unethical things I can imagine and the backlash would be harsh.

Thank you for your attention
Sean McGuire
159 Kniffen Rd

Fairbanks, Ak.
ph 907-888-0124
email fwxsca@yahoo.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comment on Proposed WP 18-51

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jim & Suzanne Kowalsky** <jimkowalsky@yahoo.com>
Date: Wed, Aug 2, 2017 at 5:07 PM
Subject: Fwd: Comment on Proposed WP 18-51
To: subsistence@fws.gov

Attention as noted below.

Begin forwarded message:

From: Jim & Suzanne Kowalsky <jimkowalsky@yahoo.com>
Subject: Comment on Proposed WP 18-51
Date: August 1, 2017 at 12:17:30 PM AKDT

August 1, 2017

To: Office of Subsistence Management
p: Theo Matuskowitz
FR: Alaskans FOR Wildlife, Jim Kowalsky, Chair
Re: Comments on Proposal WP 18-51

Alaskans FOR Wildlife is a statewide member organization that advocates for naturally occurring Alaskan wildlife through education and advocacy headquartered in Fairbanks, Alaska PO Box 81957 99708 phone 907-488-2434

We wish to most strongly oppose proposal WP 18-51 which proposes to allow federally qualified subsistence hunters to add the use of human-produced foods and scent to the presently permitted use of biodegradable materials used to bait bears on all public federal lands, e.g.: federal wildlife refuges, national forests, BLM and National Park Service lands now open to rural subsistence.

We understand this proposal emerges from a request from the Eastern Alaska Regional Subsistence Advisory Council, purportedly to align federal with state bear baiting regulations which allow use of such as dog food, popcorn, grease, syrup, etc., to be used by federally qualified subsistence users currently, but only on state lands.

Our objection to WP 15-18 arises from the reality that such liberalization increases the already adverse effect of human food used to attract bears especially as a matter of public safety. Use of human foods will continue to alter bear behavior, increasing the numbers of human food-conditioned bears, attracting them to specific locations where conflicts with humans is certain to occur with increasing frequency. Such encounters would likely increase over time, resulting in serious human injuries and wrenching tragic deaths of the sort that Alaska currently experiences, and also more

killing offending bears.

Further negative impacts already occurring with frequency are bears attracted to humans and their food wastes in specific locations being killed in defense of life and property. Recent examples of bears that likely have become habituated to human foods being killed in defense of life and property have occurred at Prudhoe Bay and in Southeast Alaska with many other examples over time.

We view enactment of WP 15-18 would be highly irresponsible by perpetuating and increasing the already unfortunate practice of use of human produced foods at bait sites on state lands. This proposal amounts to making a serious increased threat to public safety on federal lands and to that already perpetuated on state lands.

Important also, WP15-18 proposes to gradually alter what should also be a natural growth and behavior of wild bears which should be allowed to exist and flourish in its natural wildlands habitat.

The proposal should not be enacted in the best interests of human and bear populations.
Thank you for consideration of our comment.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Francis Mauer** <fmauer@mosquitonet.com>
Date: Thu, Aug 3, 2017 at 9:02 PM
Subject: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz
To: subsistence@fws.gov

Comments Regarding Federal Subsistence Proposals: WP 18-03, 18-04, 1805, 18-24, and 18-51

Submitted to the Federal Subsistence Board by Fran Mauer, P.O. Box 80464, Fairbanks, AK 99708. August 3, 2017.

WP 18-03 I am opposed to extending the wolf hunting and trapping seasons in Unit 1. Wolves are highly vulnerable to harvest as it is, further extending of seasons is not justified, and would likely lead to excessive harvest of wolves as occurred on Prince of Wales Island last year which was supposed to be regulated by a quota, but even with quota rules in place the actual harvest exceeded the quota by 2.6 times. This proposal should be denied.

WP 18-04 This proposal would allow 30% of the wolf population on Prince of Wales Island to be harvested when existing harvest is 20%. As noted above, wolves are highly vulnerable to harvest, and last year's harvest exceeded the quota by 2.6 times! The extensive network of roads and trails on Prince of Wales render wolves exceptionally vulnerable. Expanding the harvest to 30% of the population following excessive harvest last year can not be justified given the failed management of this quota system last year. This proposal would lead to excessive harvest of an already depleted population and should be denied to conserve wolves on the Island.

WP 18-24 This proposal will open the door to harassment of wildlife by snow machines and violate a basic premise of hunting: respect for animals and fair chase principles. It would also result in excessive impacts to other animals that are not harvested due to disturbance associated with this "practice." Furthermore, it will exacerbate difficulty in enforcement of harassment rules. Approval of this proposal would give a black eye to subsistence in general, and certainly the Federal Subsistence Board, specifically for condoning such an inappropriate practice on the Federal public lands of

Alaska. Deny this proposal.

WP 18-51 This proposal would lower Federal standards for baiting to the lowest common denominator: State requirements. By allowing the use of human food items such as syrup, old dough nuts and other human refuse will habituate bears to humans and contribute to human – bear conflicts, and expose innocent people to risks from bears that no longer fear humans. Every spring the Alaska Dept of Fish and Game sponsors public service announcements advising folks to keep their garbage and bird feeder refuse secure from bears, clearly stating the danger to humans from habituated bears. There is absolutely no justification to also allow the use of human foods and scent to bait bears. I urge the Board to reject this proposal (18-51).

Thank you for the opportunity to comment.

Fran Mauer

FISHERIES RESOURCE MONITORING PROGRAM

BACKGROUND

Beginning in 1999, the Federal government assumed expanded management responsibility for subsistence fisheries on Federal public lands in Alaska under the authority of Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA). Expanded subsistence fisheries management introduced substantial new informational needs for the Federal system. Section 812 of ANILCA directs the Departments of the Interior (DOI) and Agriculture (USDA), cooperating with the State of Alaska and other Federal agencies, to undertake research on fish and wildlife and subsistence uses on Federal public lands. To increase the quantity and quality of information available for management of subsistence fisheries, the Fisheries Resource Monitoring Program (Monitoring Program) was established within the Office of Subsistence Management (OSM). The Monitoring Program was envisioned as a collaborative interagency, interdisciplinary approach to enhance existing fisheries research, and effectively communicate information needed for subsistence fisheries management on Federal public lands.

Biennially, OSM announces a funding opportunity for investigation plans addressing subsistence fisheries on Federal public lands. The 2018 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 in **Figure 1**.

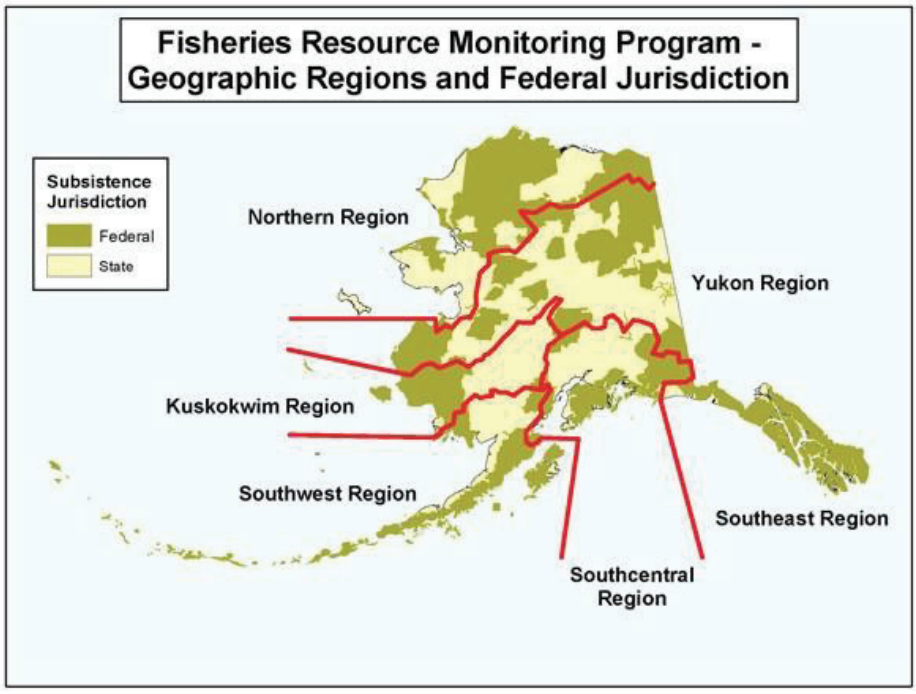

Figure 1. Geographic Regions for the Fisheries Resource Monitoring Program.

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. These plans identify prioritized information needs for each major subsistence fishery and are available for viewing on the Federal Subsistence Management Program website (https://www.doi.gov/subsistence/frmp/funding). Individual copies of plans are available by placing a request to OSM. Independent strategic plans were completed for the Yukon and Kuskokwim regions for salmon in 2005. For the Northern Region and the Cook Inlet Area, assessments of priority information needs were developed from regional working groups and experts on the Subsistence Regional Advisory Councils, the Technical Review Committee (a committee comprised of representatives from each of the five Federal agencies involved with subsistence management, and relevant experts from the Alaska Department of Fish and Game), and Federal and State managers, with technical assistance from OSM staff. Finally, a strategic plan specifically for research on whitefish species in the Yukon and Kuskokwim River drainages was completed in spring 2011 as a result of efforts supported through Monitoring Program project 08-206 (Yukon and Kuskokwim Coregonid Strategic Plan).

Investigation plans are reviewed and evaluated by OSM and Forest Service staff, and then 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 these five criteria: strategic priority; technical and scientific merit; investigator ability and resources; partnership and capacity building; and cost benefit.

Project abstracts and associated Technical Review Committee proposal scores are assembled into a draft 2018 Fisheries Resources Monitoring Plan. The draft plan is distributed for public review and comment through Subsistence Regional Advisory Council meetings, beginning in August 2017. The Federal Subsistence Board will review the draft plan and will accept written and oral comments at its January 2018 meeting. The Federal Subsistence Board takes into consideration recommendations and comments from the process, and forwards their comments to the Assistant Regional Director of OSM. Final funding approval lies with the Assistant Regional Director of OSM. Investigators will subsequently be 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 2001, a total of $117.2 million has been allocated for the Monitoring Program to fund a total of 452 projects (**Figure 2; Figure 3**).

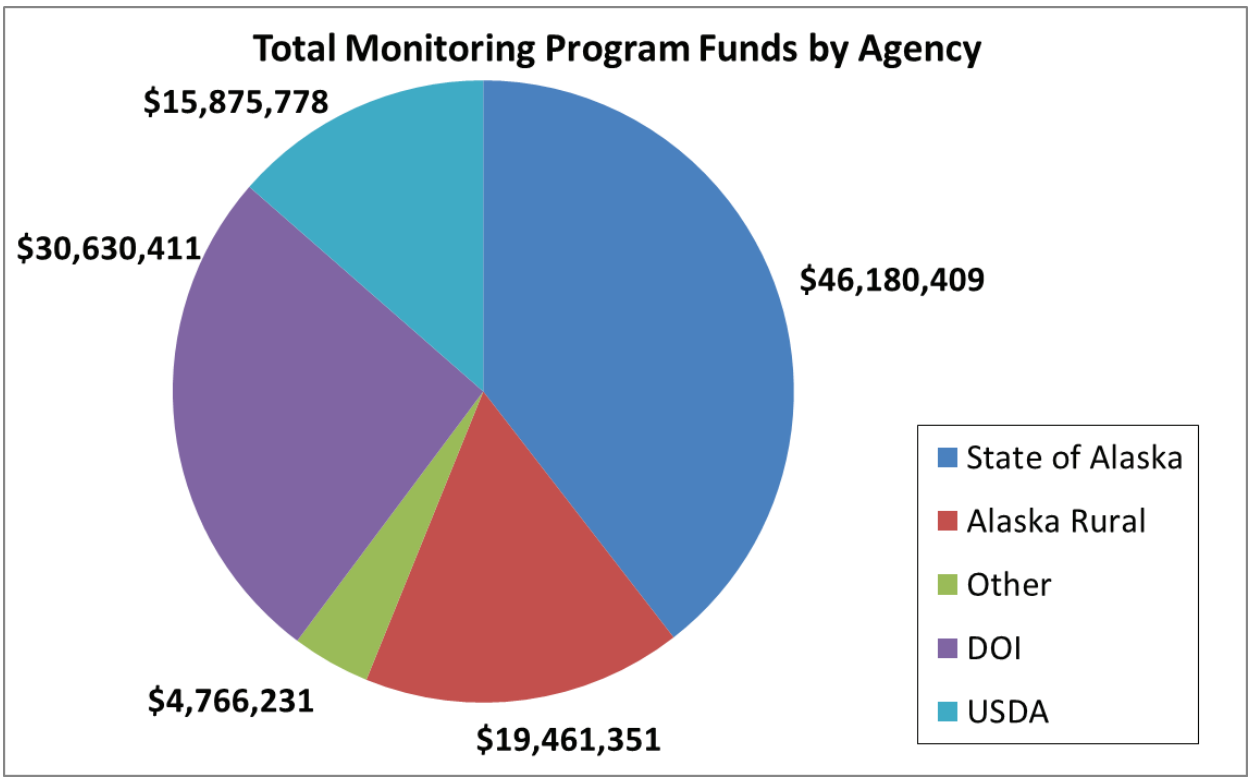

Figure 2. Total Project funds through the Monitoring Program from 2000 through 2016 listed by the organization of the Principal Investigator for projects funded. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

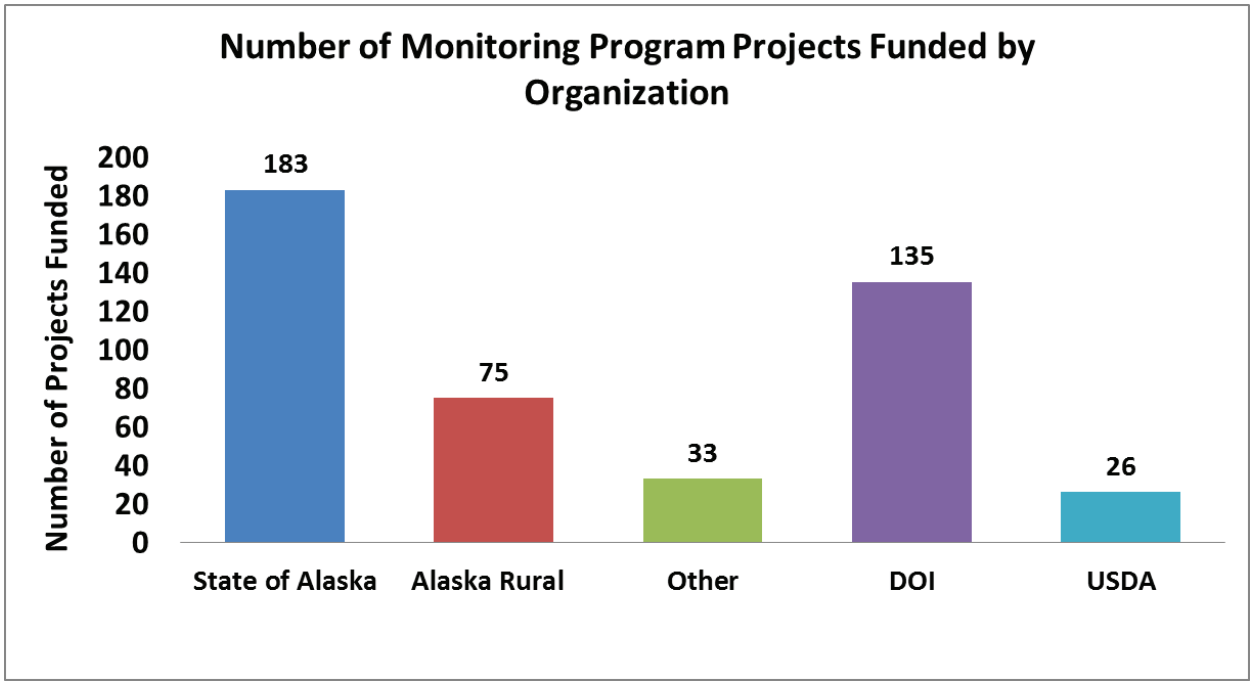

Figure 3. The total number of projects funded through the Monitoring Program from 2000 through 2016 listed by the organization of Principal Investigator. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

During each biennial 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**) and data type. 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 with subsistence harvest. Budget guidelines provide an initial target for planning; however they are not final allocations and will be adjusted annually as needed (**Figure 4; Figure 5**).

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

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

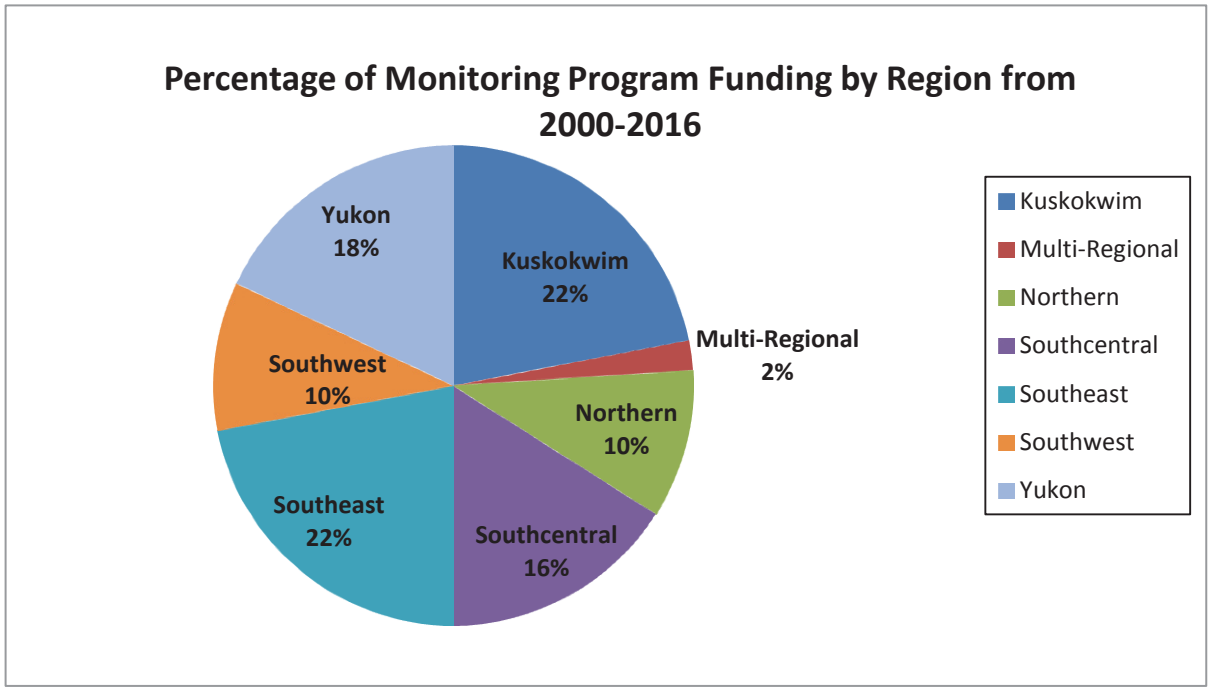

Figure 4. Total Project Funding by Geographic Region from 2000 through 2016.

Two primary types of research projects are solicited for the Monitoring Program including Harvest Monitoring/Traditional Ecological Knowledge (HMTEK) and Stock, Status and Trends (SST), although projects that combine these approaches are also encouraged. Project funding by type is shown in **Figure 5.**

Definitions of the two project types are listed below:

Harvest Monitoring and Traditional Ecological Knowledge (HMTEK) -These projects address assessment of subsistence fisheries including quantification of harvest and effort, and description and assessment of fishing and use patterns.

Stock Status and Trends Studies (SST) - These projects address abundance, composition, timing, behavior, or status of fish populations that sustain subsistence fisheries with linkage to Federal public lands.

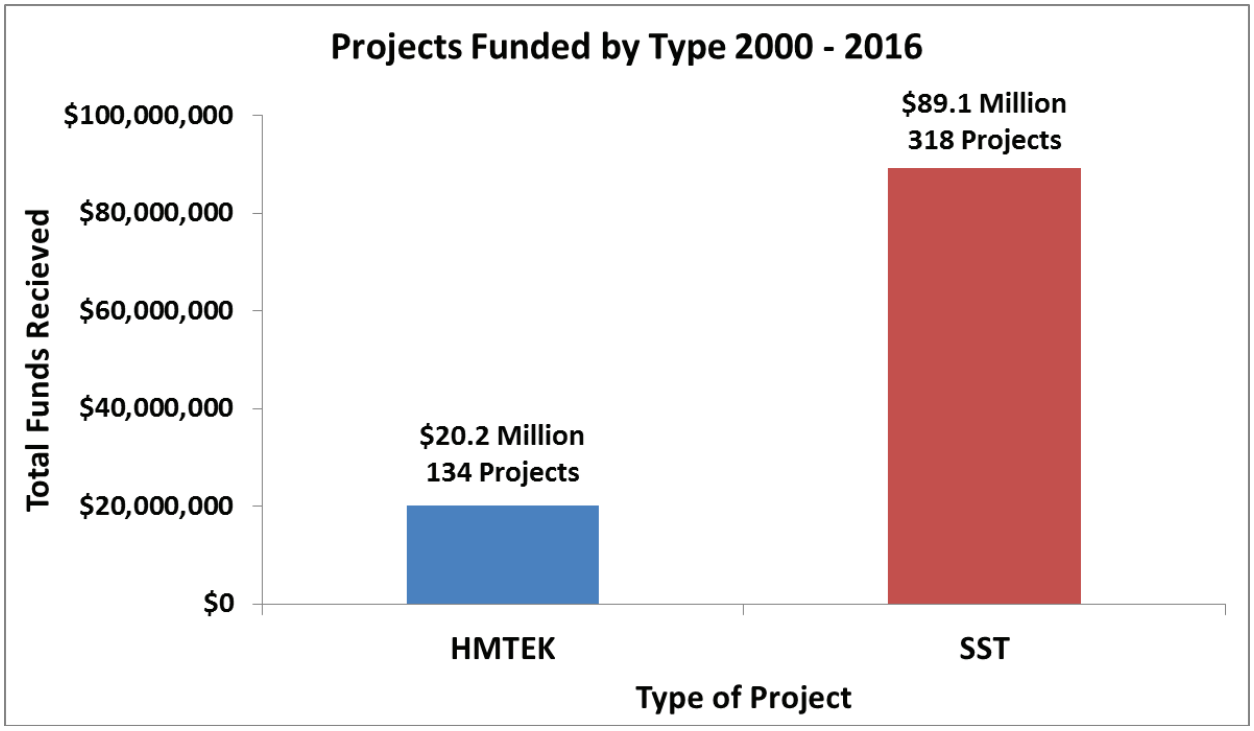

Figure 5. Total Project funding by type from 2000 through 2016. HMTEK = Harvest Monitoring/ Traditional Ecological Knowledge and SST = Stock, Status and Trends.

PROJECT EVALUATION PROCESS

In the current climate of increasing conservation concerns and subsistence needs, it is imperative that the Monitoring Program prioritizes high quality projects that address critical subsistence questions. 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 Program, technically sound, administratively competent, promote partnerships and capacity building, and are cost effective. Projects are evaluated by a panel called the TRC. This committee is a standing interagency committee of senior technical experts that is foundational to the credibility and scientific integrity of the evaluation process for projects funded by the Monitoring Program. The TRC reviews, evaluates, and make recommendations about proposed projects, consistent with the mission of the Monitoring Program. Fisheries and Anthropology staff from

the OSM provide support for the TRC. Recommendations from the TRC provide the basis for further comments from Subsistence Regional Advisory Councils, the public, the Interagency Staff Committee (ISC), and the Federal Subsistence Board, with final approval of the Monitoring Plan by the Assistant Regional Director of OSM.

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. Complete project packages need to be submitted on time and must address five specific criteria (see below) to be considered a high quality project. Five criteria are used to evaluate project proposals:

1. ***Strategic Priorities*** – Studies should be responsive to information needs identified in the *2018 Priority Information Needs* 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,**
    - **Conservation mandate**,
    - **Potential impacts on the subsistence priority,**
    - **Role of the resource, and**
    - **Local concern.**

2. ***Technical-Scientific Merit*** – Technical quality of the study design must meet accepted standards for information collection, compilation, analysis, and reporting. Studies must have clear objectives, appropriate sampling design, correct analytical procedures, and specified progress, annual, and final reports.

3. ***Investigator Ability and Resources*** – Investigators must show they are capable of successfully completing the proposed study by providing information on the ability (training, education, and experience) and resources (technical and administrative) they possess to conduct the work. Applicants that have received funding in the past will be evaluated and ranked on their past performance, including fulfillment of meeting deliverable 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*** – Collaborative partnerships and capacity building are priorities of the Monitoring Program. ANILCA Title VIII mandates that rural residents be afforded a meaningful role in the management of subsistence fisheries, and the Monitoring

Program offers opportunities for partnerships and participation of local residents in monitoring and research. Investigators must not only inform communities and regional organizations in the area where work is to be conducted about their project plans, but must also consult and communicate with local communities to ensure that local knowledge is utilized and concerns are addressed. Letters of support from local communities or organizations that will collaborate on the proposed project add to the strength of a proposal. Investigators and their organizations must 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.

Investigators are encouraged to develop the highest level of community and regional collaboration that is practical. 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. 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) must be clearly demonstrated in proposals.

5. Cost Benefit

Cost/Price Factors – An applicant's cost/price proposal will be evaluated for reasonableness. For a price to be reasonable, it must represent a price to the government that a prudent person would pay when consideration is given to prices in the market. Normally, price reasonableness is established through adequate price competition, but may also be determined through cost and price analysis techniques.

Selection for Award – Applicant 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, taking into consideration the technical factors listed above and the total proposed price across all agreement periods.

POLICY AND FUNDING GUIDELINES

Several policies have been developed to aid in implementing funding. These policies include:

1. Projects of up to four years duration may be considered in any year's monitoring plan.
2. Studies must not duplicate existing projects.
3. A majority of Monitoring Program funding will be dedicated to non-Federal agencies.

4. Long term projects will be considered on a case by case basis.
5. Capacity building is considered a critical component of all projects, and all investigators are expected to incorporate capacity building and partnerships within their projects.
6. Activities that are not eligible for funding include:
   a) habitat protection, mitigation, restoration, and enhancement;
   b) hatchery propagation, restoration, enhancement, and supplementation;
   c) contaminant assessment, evaluation, and monitoring; and
   d) 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.

2018 FISHERIES RESOURCE MONITORING PLAN

For 2018, a total of 53 investigation plans were received and 53 are considered eligible for funding. Of the projects that are considered for funding, 40 are SST projects and 13 are HMTEK projects.

For 2018, the Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.0 to $1.5 million in funding for new projects and up to $1.6 million for ongoing projects that were initially funded in 2016. The U.S. Department of Agriculture, through the U.S. Forest Service, has historically provided $1.8 million annually. The amount of U.S. Department of Agriculture funding available for 2018 projects is uncertain.

FISHERIES RESOURCE MONITORING PROGRAM SOUTHWEST ALASKA REGION OVERVIEW

Since the inception of the Monitoring Program in 2000, a total of 55 projects have been undertaken in the Southwest Alaska Region for $11.1 million (**Figure 1**). Of these, the State of Alaska was the lead agency for 27 projects, the Department of the Interior for 25 projects, an Alaska Native organization for one project, and Idaho State University took the lead for two projects (**Figure 2**). Of the 55 projects funded to date in the Southwest Region, 38 were Stock, Status, and Trends (SST) projects, and 17 were Harvest Monitoring and/or Traditional Ecological Knowledge (HM/TEK) projects. For more information on Southwest Alaska Region projects completed from 2000 to 2016, see **Appendix A**.

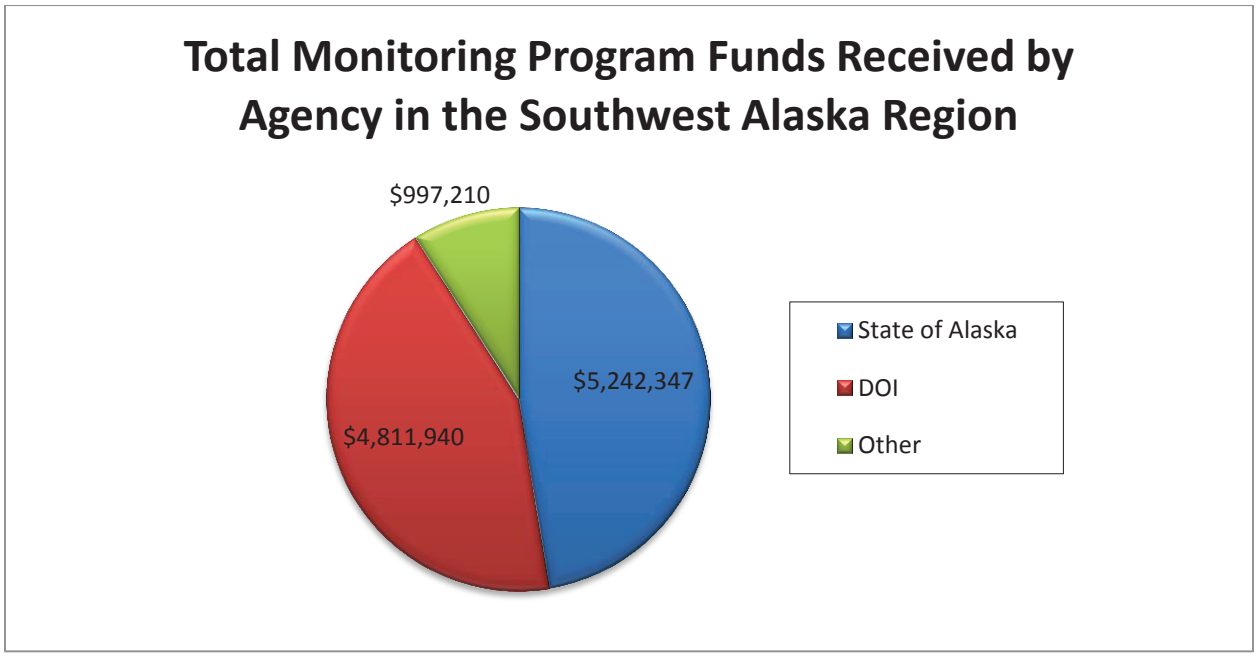

Figure 1. Monitoring Program funds received by agencies for projects in the Southwest Region. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of Interior.

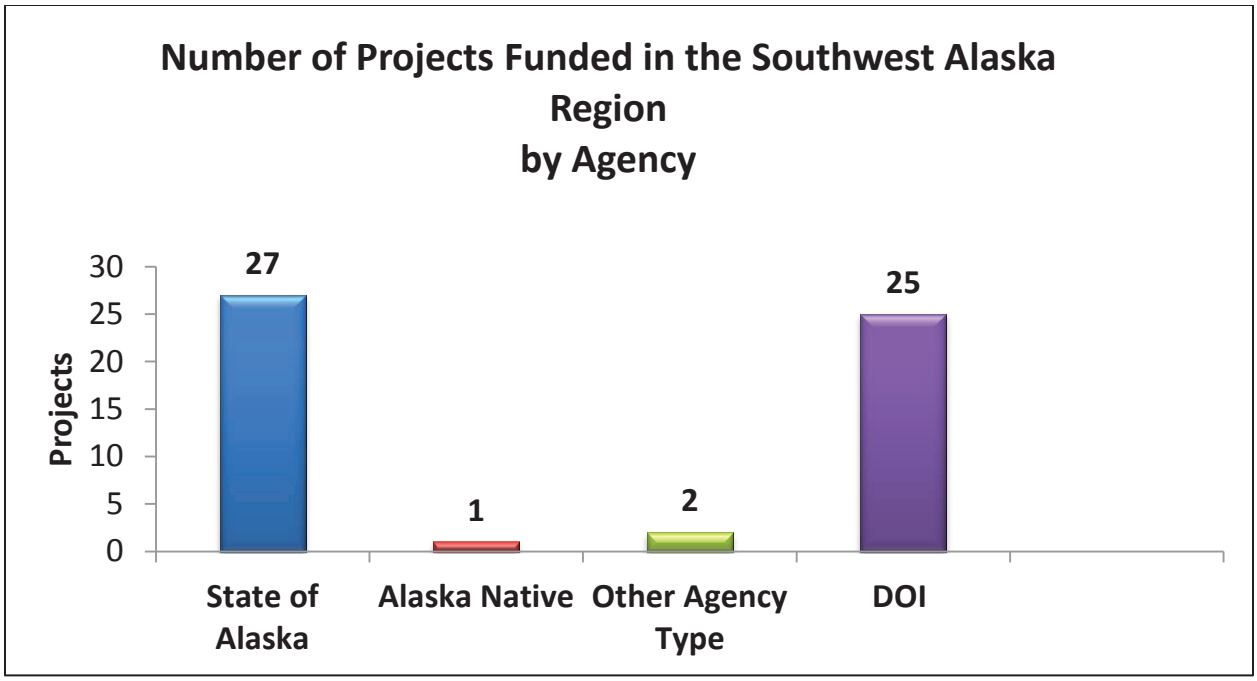

Figure 2. Total number of Monitoring Program projects funded, by Lead Agency, in the Southwest Region from 2000 to 2016. DOI = Department of Interior.

2018 DRAFT SOUTHWEST ALASKA REGION FISHERIES RESOURCE MONITORING PLAN

Priority Information Needs

For the Southwest Alaska Region, the 2018 Notice of Funding Opportunity focused on the following priority information needs:

- Reliable estimates of salmon in the southwest region to determine health and abundance and address region-wide declines in populations and/or loss of funding for existing research.
- Obtain subsistence harvest survey data for salmon and non-salmon fish by residents of southwest communities, particularly those with outdated information and/or not currently surveyed by the Alaska Department of Fish and Game Division of Subsistence. Emphasis was given to address harvest trends in Unalaska Bay, Togiak and Southwest Kodiak Villages.
- Comparative ecological evaluation of lake rearing habitats of subsistence Sockeye Salmon stocks in southwest Kodiak Island, Alaska including Olga Lakes and Akalura Lake watersheds; assessment of 1) the decline of salmon stocks and associated subsistence harvest opportunities and (2) the potential effects of climate change on salmon production in these lake systems.
- Abundance and assessment of critical subsistence salmon stocks in priority areas such as the Buskin River.
- Abundance and assessment of critical subsistence salmon stocks in priority areas such as McLees Lake.
- Investigate crab populations in Women's Bay.
- Reliable estimates of Sockeye Salmon escapements in the Lake Clark watershed.
- Reliable estimates of salmon escapement and evaluation of "quality of escapement" measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat quality and utilization) for determining the reproductive potential of spawning stocks in Big Creek, Naknek River, Alagnak River, Nushagak River Chignik River, Meshik River and Togiak River.
- Harvest survey of Dolly Varden in the Togiak River drainage.

Available Funds

Federal Subsistence Board guidelines direct initial distribution of funds among regions and data types. Regional budget guidelines provide an initial target for planning. For 2018, the Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.0 to $1.5 million in funding for new projects and up to $1.6 million for ongoing projects that were initially funded in 2016. The U.S. Department of Agriculture (USDA), through the U.S. Forest Service, has historically provided up to $1.8 million annually. The amount of USDA funding available for 2018 projects is uncertain.

Technical Review Committee Proposal Ranking

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 2018 Monitoring Program, five project proposals were submitted for the Southwest Region. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit. The final score determined the ranking of each proposal within the region (**Table 1**). Projects that are ranked higher comprise a strong Monitoring Plan for the region by addressing strategically important information needs based on sound science and promote cooperative partnerships and capacity building. All five projects are currently being considered for funding in the 2018 Fisheries Resource Monitoring Program. For more information on the projects, please see the Abstracts in **Appendix B**.

Table 1. Monitoring Program Technical Review Committee ranking for projects in the Southwest Alaska Region. Projects are listed by ranking and include the total and average funds requested.

TRC Score	Project Number	Title	Total Project Request	Average Annual Request
1 (tied)*	18-400	Buskin River Sockeye Salmon Stock Assessment and Monitoring (4 years)	$529,976	$132,494
1 (tied)*	18-451	Subsistence harvest trends of salmon and nonsalmon fish in 4 southern Kodiak Island communities (3 years)	$242,319	$80,773
3	18-450	Unalaska Fish Harvest Practices (4 years)	$296,701	$74,175
4	18-402	Estimation of Sockeye Salmon escapement into McLees Lake (4 years)	$207,192	$51,798
5	18-401	Southwest Kodiak Ecological Assessment (4 years)	$402,681	$100,670
		Total	**$1,678,869**	**$439,910**

* Proposals with identical scores during the rating process may be further assessed by comparing the average annual cost. Proposals with a lower average annual cost may be ranked above a similar rated proposal that has a higher annual average cost.

2018 TRC PROJECT RANKING AND JUSTIFICATION

TRC Score: (1 tied)
Project Number: 18-400
Project Title: Buskin River Sockeye Salmon Stock Assessment and Monitoring

TRC Justification: This project addresses one of the Priority Information Needs listed in the 2018 Notice of Funding Opportunity for the Southwest Alaska Region and is a continuation of work funded through the Fisheries Resource Monitoring Program since 2000 (projects 00-032, 04-414, 07-402, 10-403 and 14-401). The project would continue to provide estimates of Sockeye Salmon spawning escapement into the Buskin river system through operation of two weirs for four years, and obtain information on residency and traditional fishing sites from subsistence fishery participants. The Sockeye Salmon run to Buskin River supports what is usually the largest subsistence fishery in terms of both harvest and permits issued in the Kodiak Management Area. The ADF&G Kodiak office has a proven record of successfully conducting and completing these past projects. The project is well designed with objectives that are clearly written, quantifiable, and achievable. Data collected at this weir since 2000 has been used by the State to assess and modify spawning escapement goals and improve run forecasts. This has allowed State and Federal managers to better manage subsistence harvests and avoid unnecessary restrictions.

Past investigators have made strong efforts to improve capacity building, with impressive results from the high school student intern program. At present, this project has resulted in 18 of 24 former interns returning to work for the ADF&G.

While the requested funding for the proposed work appears reasonable to accomplish project objectives, this project, given its long history and being located near the ADF&G Kodiak office and on a road system, should be more efficient and cost effective as time goes by. The budget does not show the 150-hour contribution from the Kodiak Area Native Association.

TRC Score: (1 tied)
Project Number: 16-451
Project Title: Subsistence harvest trends of salmon and nonsalmon fish in 4 southern Kodiak Island communities

TRC Justification: The project directly addresses one priority information need for reliable harvest and use estimates of salmon and nonsalmon fish, but only minimally addresses the information need for comparative ecological evaluation of Sockeye Salmon rearing habitats in the Olga and Akalura lakes watersheds. The research methods are standard for the Division of Subsistence, the budget is reasonable for the work proposed, and the timeline is realistic giving ample opportunity for investigators to address each stage of research, data analysis, community review, and reporting requirements. However, the project is broad in scope and does not effectively address both priority information needs as one research effort. The investigation plan did not convincingly explain how two very different information objectives would come together as a cohesive end product.

TRC Score: (3)
Project Number: 18-450
Project Title: Unalaska Fish Harvest Practices

TRC Justification: This project directly addresses the 2018 priority information need for reliable harvest and use estimates of salmon and nonsalmon fish in Unalaska. The research methods are standard for the Division of Subsistence, the budget is reasonable for the work proposed, and the timeline is realistic giving ample opportunity for investigators to address each stage of research, data analysis, community review, and reporting requirements. The study plan is well designed with only minor concerns, easily addressed by the researchers before implementation of the first field season. Specifically, the investigation plan should describe a sampling effort that directly addresses that portion of the Unalaska population that is seasonal and not permanent residents of Alaska.

The investigator capacity for the work proposed is strong, demonstrating past successful experience leading similar studies for the Monitoring Program and conducting research in the community proposed. There are no rural or Alaska Native organizations listed as co-investigators for this project, however, a cooperative agreement will be signed with the Qawalangin Tribe to identify and hire local research assistants. There are six letters of support from local organizations and agencies.

TRC Score: (4)
Project Number: 18-402
Project Title: Estimation of Sockeye Salmon escapement into McLees Lake

TRC Justification: This project addresses one of the Priority Information Needs listed in the 2018 Notice of Funding Opportunity for the Southwest Alaska Region and is a continuation of work funded through the Fisheries Resource Monitoring Program from 2001 to 2011 (projects 01-059, 04-403, 07-405 and 10-406), and funded by the AKSSF from 2012 through 2017. This project is of high strategic importance for the Aleutian Islands Management Area, is technically sound, is a continuation of work successfully conducted since 2001, and has both a reasonable schedule and budget for the proposed work. The ADF&G, through its principal investigators, has a proven, 16-year record of successfully conducting, administering, and completing other Fisheries Resource Monitoring Program-funded salmon weir projects.

TRC Score: (5)
Project Number: 18-401
Project Title: Southwest Kodiak Ecological Assessment

TRC Justification: This project directly addresses one of the Priority Information Needs identified in the 2018 Notice of Funding Availability for the Southwest Alaska Region, "*Comparative ecological evaluation of lake rearing habitats of subsistence sockeye salmon stocks in southwest Kodiak Island, Alaska, including Olga Lakes and Akalura Lake watersheds; assessment of (1) the decline in salmon*

stocks and associated subsistence harvest opportunities, and (2) the potential effects of climate change on salmon production in these lake systems". The proposed project is technically sound and the objectives are clear, measureable and, achievable. However, the investigation plan does not tie together what the real issue is that is being addressed, e.g. nutrient deficiency vs. ocean conditions, and does not address how the results of the project would help in the management of the salmon stocks. Sample sizes for each lake system are listed and a confidence interval has been identified for estimates of weight and length of Sockeye Salmon. All investigators appear to have the knowledge and resources available to accomplish their designated tasks and the project objectives.

The proposed cost of the project is reasonable and justified averaging $100,670 annually for a total request of $402,681. None of the investigators is an Alaskan Native or tribal organization. The investigators missed an opportunity to involve local residents in this project.

APPENDIX A

Table A.1. Fisheries Resource Monitoring Program projects funded in the Southwest Region from 2000 to 2016.

Project Number	Project Title	Investigators (Lead listed first)
	Bristol Bay Salmon	
00-010	Togiak River Salmon Weir	USFWS
00-031	Alagnak River Sockeye Salmon Escapement	ADF&G, NPS, BBNA
00-033	Alagnak River Angler Effort Index	ADF&G, NPS, BBNA
00-042	Lake Clark Sockeye Salmon Assessment	USGS
01-047	Togiak River Subsistence Harvest Monitoring	BBNA, ADF&G, USFWS
01-075	Nondalton Sockeye Salmon and Freshwater Fish TEK	NPS, NTC, USGS
01-095	Lake Clark Sockeye Salmon Escapement	USGS, NTC
01-109	Traditional Ecological Knowledge of Alaska Peninsula/Becharolf NWR	ADF&G, BBNA
01-173	Alagnak River Harvest Salmon Assessment of Recreational Fishery	ADF&G
01-204	Ugashik Lakes Coho Salmon Escapement Estimation	USFWS
03-046	Fisheries Biotechnician Training Program	NPS
04-411	Lake Clark Sockeye Salmon Run Timing	USFWS, BBNA
04-454	Bristol Bay Sharing, Bartering, and Trade of Subsistence Resources	ADF&G, BBNA
05-402	Lake Clark Sockeye Salmon Escapement	NPS, USGS
08-402	Togiak River Chinook Salmon Radio Telemetry	USFWS, BBNA
08-405	Lake Clark Sockeye Salmon Assessment	NPS, USS&E, BBNA
10-402	Togiak River Chinook Salmon Adult Assessment	USFWS, BBNA, ADF&G,
16-451[b]	Bristol Bay Subsistence Salmon Networks	ADF&G, BBNA, OSU
16-453[b]	Togiak River Chinook Salmon Sub. Harvest Assessment	ADF&G, BBNA
	Chignik Salmon	
02-098	Kametalook River Coho Salmon Escapement & Carrying Capacity	USFWS, BBNA
02-099	Clark River Estimation of Sockeye and Coho Salmon Escapement	USFWS, BBNA
03-043	Perryville Coho Salmon Escapement	USFWS
05-405	Perryville-Chignik Coho and Sockeye Salmon Aerial Surveys	USFWS
07-404	Perryville-Clark River Coho and Sockeye Salmon Aerial Surveys	USFWS
	Bristol Bay-Chignik Freshwater Species	
00-011	Togiak River Dolly Varden Genetic Baseline Development	USFWS
00-012	Bristol Bay Traditional Knowledge of Fish	ADF&G
02-034	Kvichak River Resident Species Subsistence Fisheries Assessment	ADF&G, BBNA
04-401	Ungalikthlik and Negukthlik Rivers Rainbow Trout Assessment	USFWS

Table A.1 continued

Project Number	Project Title	Investigators (Lead listed first)
	Bristol Bay-Chignik Freshwater Species	
04-415	Tazimina Rainbow Trout Assessment	ADF&G
05-403	Lake Clark Whitefish Assessment	ADF&G
07-408	Togiak River Rainbow Smelt Assessment	USFWS, BBNA
07-452	Kvichak Watershed Subsistence Fishing Ethnography	ADF&G, BBNA, NPS
12-452	Whitefish trends in Lake Clark and Iliamna Lake	ADF&G, BBNA, NPS, NTC
	Kodiak-Aleutians	
00-032	Buskin River Sockeye Salmon Stock Assessment	ADF&G
01-059	McLees Lake Sockeye Salmon Escapement	USFWS
01-206	Mortenson Creek Sockeye and Coho Salmon Escapement	USFWS
02-032	Lower Alaska Peninsula/Aleutians Subsistence Fish Harvest Assessment	ADF&G, APIA, ISU
03-047	Afognak Lake Sockeye Smolt Enumeration Feasibility	ADF&G
04-402	Mortenson Creek Sockeye and Coho Escapement	USFWS
04-403	McLees Lake Sockeye Salmon Escapement	USFWS
04-412	Afognak Lake Sockeye Salmon Stock Assessment	ADF&G
04-414	Buskin River Sockeye Salmon Stock Assessment	ADF&G
04-457	Kodiak Subsistence Fisheries Harvest and TEK	ADF&G, KANA
07-401	Afognak Lake Sockeye Salmon Smolt Assessment	ADF&G
07-402	Buskin River Sockeye Salmon Weir	ADF&G
07-405	McLees Lake Sockeye Salmon Weir	USFWS, ADF&G, QT
10-401	Afognak Lake Sockeye Salmon Smolt and Adult Assessment	ADF&G
10-403	Buskin River Sockeye Salmon Adult Assessment	ADF&G
10-404	Buskin River Sockeye Salmon Smolt Assessment Feasibility	ADF&G
10-406	McLees Lake Sockeye Salmon Weir	USFWS, ADF&G, QT
12-450	Aleutian Islands Salmon and other Subsistence Harvests	ISU
12-453	Kodiak Salmon Fishery Changing Patterns	ADF&G
14-401[b]	Buskin River Sockeye Salmon Stock Assessment	ADF&G
14-402	Afognak Lake Sockeye Salmon Stock Assessment	ADF&G
16-452[b]	Western Gulf of Alaska Salmon and Other Harvests	ISU

[a] = Final Report in Preparation.
[b] = On-going project during 2017.
Abbreviations used for investigators are: **ADF&G** = Alaska Department of Fish and Game, **APIA** = Aleutian-Pribilof Islands Association, **BBNA** = Bristol Bay Native Association, **ISU** = Idaho State University, **KANA** = Kodiak Area Native Association, **NTC** = Nondalton Tribal Council, **NPS** = National Park Service, **OSU** = Oregon State University, **QT** = Qawalangin Tribe, **USFWS** = U.S. Fish and Wildlife Service, **USGS** = U.S. Geological Survey, **USS&E** = US Science and Education, and **UW** = University of Washington.

APPENDIX B

The following Abstracts were written by the Principle Investigators and submitted to the Office of Subsistence Management as part of the proposal package. The statements and information contained in the Abstracts were not altered and may not reflect the opinions of the Office of Subsistence Management and/or the Technical Review Committee.

Project Number: 18-400

Title: Buskin River Sockeye Salmon Stock Assessment and Monitoring
Geographic Region: Kodiak Island, Kodiak/Aleutians Region

Data Type: Stock Status and Trends
Principal Investigator: Mark Witteveen, Alaska Department of Fish and Game.

Project Cost:	**2018:** $179,813	**2019:** $131,858	**2020:** $134,959	**2021:** $83,346

Total Cost: $529,976

Issue: This proposal seeks funding to operate fish enumeration weirs on the Buskin River in Kodiak, Alaska. The Buskin River supports a federal subsistence fishery occurring within the Alaska Maritime National Wildlife Refuge which annually harvests relatively large numbers of sockeye salmon during June and July. Salmon from the Buskin River drainage have been identified by the Federal Subsistence Board as a resource important for customary and traditional use by the residents of Kodiak. Annual operation of a salmon escapement weir at the Buskin Lake outlet and a key tributary stream will ensure that maximum harvest opportunities for federal subsistence users are sustained.

Objectives:

1. Census the sockeye salmon escapement into Buskin Lake approximately from June 1 to August 1, and Louise/Catherine lakes tributary approximately from June 1 through August 31.
2. Estimate the age composition of the sockeye salmon run (combined subsistence harvest in the Chiniak Bay section and escapement) to Buskin Lake such that the estimates are within 7.5 percentage points of the true value 95% of the time and to Louise/Catherine Lakes such that the estimates are within 15 percentage points of the true value 90% of the time.
3. Summarize residency of Buskin drainage federal subsistence users, document traditional areas of subsistence harvest and duration of harvest in those areas.
4. Update and refine the Buskin River brood table to evaluate the sockeye salmon BEG.
5. Provide education and career development opportunity for Alaska Natives and federally qualified subsistence users.

Methods: Sockeye salmon escapement will be enumerated annually through weirs at the outlet of Buskin Lake and the Louise/Catherine lakes tributary at least from June 1 through August 31. Fishery management actions taken inseason affecting subsistence, sport, and commercial fisheries will be based on comparison of cumulative weir counts to historical time of entry in order to project run strength and total escapement. Additionally, sockeye salmon will be sampled at both weirs and from the federal subsistence harvest for age, sex and length (ASL), providing estimates of return by age for the Buskin and

Louise/Catherine lakes components. Analyses of the return and age data collected since 1993 have allowed development of a brood table with estimates of total return having a relative precision of about 10%. Continued collection of age data at this level of sampling will allow for continuation of the brood table and future re-evaluation of the BEG.

Partnerships/Capacity Building: The Kodiak Area Native Association (KANA) will provide an Alaska Native intern to work with the weir crew for 150 hours per season. ADF&G will also continue a high school student internship program established in 2003 to provide education and career development opportunity for federally qualified subsistence users. Both the KANA and high school interns will learn a variety of field data collection methods, learn principles of fisheries management, and be exposed to the fundamentals of the scientific process. These positions provide great experience and serve as a stepping stone to a career in the biological sciences. Further, the Sun'aq Tribe of Kodiak is seeking funding for a Tribal Youth Intern program. If funded, a Tribal Youth Natural Resources Intern will spend two weeks per summer working with the Buskin River Weir crew, learning about natural resources management and research. The ADF&G and Kodiak National Wildlife Refuge office of the U.S. Fish and Wildlife Service (USFWS) have established a cooperative agreement to utilize the Buskin River weir as an educational tool for the service's 'Summer Science and Salmon Camp' program, which provides a science-based venue for local youths to learn the importance of salmon for subsistence and other uses comprising an integral part of the Kodiak lifestyle.

Project Number: 18-451
Title: Subsistence harvest trends of salmon and nonsalmon fish in 4 southern Kodiak Island communities

Geographic Region: Southwest

Data Type: Harvest Monitoring/Traditional Ecological Knowledge
Principal Investigator: Lauren Still, ADF&G Division of Subsistence
Co-Investigator: Amy Wiita, ADF&G Division of Subsistence

Project Cost:	**2018:** $0	**2019:** $101,230	**2020:** $101,395	**2021:** $39,694

Total Cost: $242,319

Issue: Residents of Larsen Bay, Old Harbor, Akhiok, and Karluk reside within or adjacent to the Kodiak National Wildlife Refuge and rely on fish and game resources throughout the refuge as well as offshore in marine waters for their nutritional and cultural needs. Current salmon harvest assessments through subsistence fishing permits do not accurately report salmon harvests due to low response rates and undeliverable permit addresses. Comprehensive harvest assessments in these communities have not been conducted in over 10 years, or 25 years for the community of Karluk. This project would document use and harvesting activities of wild resources, including locations for the 2018 study year and compare results to previous studies. Sockeye salmon returns to Olga and Akalura lakes have been on a downward trend and concerns for the productivity of these salmon stocks for subsistence have been aired during Kodiak RAC meetings. While some limnological and habitat assessments have been made, the freshwater portions of these systems are not completely understood. This project will document local and

traditional knowledge (LTK) of local residents in Akhiok and Larsen Bay about these lakes, in particular their observations of salmon during various lifecycle stages and at different locations, during different times of the year, as well as observations about the occurrence of other species of fish, vegetation changes, algal blooms, or unusual ice/hard winter events.

Objectives:

1) Estimate the harvest of wild resources, including salmon and nonsalmon fish, during the study year (2018) by residents of Akhiok, Karluk, Old Harbor, and Larsen Bay.
2) Record the spatial extent of search and harvest areas for salmon and nonsalmon fish by residents of Akhiok, Karluk, Old Harbor, and Larsen Bay.
3) Document patterns associated with subsistence salmon and nonsalmon harvests, historically and in the recent past.
4) Collect local, traditional knowledge (LTK) of habitat important to salmon lifecycles held by residents of Akhiok and Larsen Bay, with a specific focus on Olga and Akalura lakes.

Methods: Systematic comprehensive household surveys will document the harvest and use of wild resources by residents of the study communities. Researchers will attempt to administer the surveys to all households in the communities. Semi-structured key respondent interviews will be used with approximately 5 knowledgeable individuals in the communities of Larsen Bay and Akhiok to document LTK of salmon populations, other fish populations, vegetation, and environmental changes observed in Olga and Akalura lakes.

Partnerships/Capacity Building: Information collected through this project can be used by local and regional councils to advocate for subsistence practices before the Alaska state Board of Fisheries or Board of Game, or the Federal Subsistence Board. Researchers will consult with communities during all phases of the project and will hire and train local research assistants for survey administration and key respondent interviewing.

Project Number: 18-450
Title: Unalaska Fish Harvest Practices
Geographic Region: Southwest Alaska
Data Type: Harvest Monitoring/Traditional Ecological Knowledge
Principal Investigator: Brian Davis, ADF&G Division of Subsistence
Co-Investigator: Amy Wiita, ADF&G Division of Subsistence

Project Cost:	**2018:** $61,266	**2019:** $177,456	**2020:** $39,842	**2021:** $18,137

Total Cost: $296,701

Issue: Residents of Unalaska reside within or adjacent to the Alaska Maritime Wildlife Refuge and rely on locally available resources for their nutritional and cultural needs. Comprehensive harvest assessment surveys with a representative sample of Unalaska households have not been conducted in over 22 years, and harvest reporting on annual subsistence salmon permits is inconsistent. This project would document

wild resource harvest quantities and locations for the 2019 study year and compare results to previous studies. In 2016, the Alaska Board of Fisheries heard Unalaska residents testify they have been unable to meet their subsistence salmon needs, and the board approved the Unalaska-sponsored proposal to exclude commercial fishing boats from Unalaska Bay as a means to protect local access to salmon, nonsalmon fish, and other marine resources. Results of the study will provide up-to-date community harvest data for all wild food species, and determine the extent to which four years without commercial trawl fishing in Unalaska Bay has impacted the local fisheries.

Objectives

1) Estimate the harvest quantities and harvest locations of wild resources, including salmon and nonsalmon fish, during the study year (2019) by residents of Unalaska.

2) Document local knowledge and patterns of subsistence salmon and nonsalmon harvests historically and in the recent past.

3) Participate in subsistence salmon fishing with Unalaska residents, record local traditional knowledge of the fishery and record observations on salmon run timing, social and cultural practices, and possible changes associated with the recent exclusion of commercial trawl fishers from Unalaska Bay.

Methods: Systematic comprehensive household surveys will document the harvest and use of wild resources by residents of the study community. Researchers will administer surveys with a statistically significant sample number of households. Participant observation and semi-structured key respondent interviews will be used with approximately 12 knowledgeable individuals in Unalaska.

Partnerships/Capacity Building: Study results can be used by the local and regional council to advocate for subsistence practices before the Alaska state Boards of Fisheries or Game or the Federal Subsistence Board. Researchers will consult with communities during all phases of the project and will hire and train local research assistants for survey administration and key respondent interviewing.

Project Number: 18-402
Title: Estimation of sockeye salmon escapement into McLees Lake, Unalaska Island.
Geographic Region: Southwest Alaska
Data Type: Stock status and Trends
Principal Investigator: Colton Lipka, Alaska Department of Fish and Game
Co-Investigator: Lisa Fox, Alaska Department of Fish and Game

Project Cost:	**2018:** $79,589	**2019:** $52,491	**2020:** $52,491	**2021:** $22,621

Total Cost: $207,192

Issue: This project will continue operation of the McLees Lake weir to collect timely escapement information in order to optimize subsistence fishing opportunity and maintain the sustainability of the sockeye salmon resource at McLees Lake. Improving the accuracy of escapement estimates into McLees Lake will directly improve the ability of biologists to make informed management decisions, thereby

improving management of the subsistence fishery. If escapements continue to decline, further restrictions of the subsistence fishery may be needed to protect the population of sockeye salmon

Objectives:

1. Enumerate the daily passage of sockeye salmon through the weir;
2. Describe the run-timing, or proportional daily passage, of sockeye salmon through the weir;
3. Estimate the weekly sex and age composition of sockeye salmon such that simultaneous 90% confidence intervals have a maximum width of 0.20;
4. Estimate the mean length of sockeye salmon by sex and age; and
5. Estimate the capacity for rearing juvenile sockeye salmon

Methods: ADF&G will operate this project consistent with the methods used by the USFWS from 2001-2011 and outlined in Hildreth 2010. A rigid picket weir will be constructed at the outlet of McLees Lake, approximately 100m upstream from Reese Bay. The weir will be operated from approximately June 1 to August 1 during each year of the project. A trap and holding area will be installed on the upstream side of the weir to facilitate sampling fish and passing adult salmon through the weir. The weir and sampling trap will be inspected daily and maintained as needed to insure integrity. Fish will be passed and counted intermittently as needed depending on the magnitude of the migration. All fish passing upstream will be identified to species and enumerated. Daily escapement counts will be relayed to ADF&G office in Cold Bay via satellite phone, allowing project data to be used in making in-season management decisions for the Reese Bay subsistence fishery. Daily sockeye salmon escapement estimates will be available for in-season management. Results will be published in ADF&G Fisheries Management Report Series, and the information will be available to the public. Data will be archived per ADF&G standards. Project findings will be reported to the Office of Subsistence Management Fisheries Monitoring Program annually.

Partnerships/Capacity Building: This project will continue the development of partnerships between the U.S. Fish and Wildlife Service, the Qawalangin Tribe of Unalaska, and ADF&G. Capacity building will occur with the Qawalangin Tribe by their direct participation in the hiring of the field technicians and ongoing consultation to develop educational opportunity. For this proposal period ADF&G will hire the two field technicians with recommendation and consultation from the Qawalangin Tribe to provide emphasis on a local applicant pool. The objective is to have a timely, formal interview process, educating and giving valuable experience to the applicants for futures in the fisheries professions. Throughout the summer ADF&G will consult with a Qawalangin liaison to arrange an educational excursion to the weir site for interested youth from Unalaska to provide an educational experience in basic fisheries science field work.

Project Number: 18-401
Title: Southwest Kodiak Ecological Assessment
Geographic Region: Southwest Alaska
Data Type: Stock status and Trends
Principal Investigator: Heather Finkle, Alaska Department of Fish and Game
Co-Investigators: Nathan Weber, Kodiak Regional Aquaculture Assoc., Bill Pyle, USFWS

Project Cost:	**2018:** $68,260	**2019:** $118,257	**2020:** $120,909	**2021:** $95,255

Total Cost: $402,681

Issue: Over the last 15 years, sockeye salmon returns to Akalura and South Olga lakes have declined, negatively impacting Alitak and Olga Bay subsistence fishery opportunities supported by those stocks. This ecological assessment will identify linkages between climate, juvenile sockeye salmon health, and lake rearing conditions for Akalura and Upper Olga lakes and compare them to nearby systems (Red and Horse Marine lakes) that have had relatively stable sockeye salmon production. This holistic project will provide biologists to new information to better manage for optimum sustained yield, improving subsistence harvest opportunities. This project will also help identify how past management actions have affected sockeye salmon production vital to Akhiok residents and the Alitak and Olga Bay subsistence fisheries, providing management biologists a frame of reference to better assess past practices and future actions.

Goals and Objectives:

1. Estimate the age composition, average size, and isotopic signature of juvenile sockeye salmon from Akalura, Horse Marine, Red and the South Olga lakes annually from 2018 through 2021.
2. Evaluate the effects of the water chemistry, nutrient status, and plankton (phytoplankton and zooplankton) production of each lake on the smolt production and future adult returns from 2018 through 2021.
3. Re-evaluate Akalura, Upper Olga, Red, and Horse Marine lake bathymetry and water quality data using an Ecomapper AUV, once in each lake over the course of the study.
4. Build the smolt age composition and condition dataset for comparison to available historical fisheries and limnological data in relation to climate change and anthropogenic (i.e. oil spill, management, etc) effects upon completion of objective 1.
5. Assess available historical fisheries and limnological data in relation to climate change effects, upon completion of objectives 1–4.

Methods: Juvenile sockeye salmon and limnological sampling from Akalura, Horse Marine, Red, and Upper Olga lakes will occur once a month from May through September in each field season of the project (2018-2020). Age, weight, length and stable isotope data will be collected from smolt. Nutrient, physical, and bathymetric data will be collected and analyzed from each lake. Adjacent to limnological sampling stations, temperature arrays will be launched each April and retrieved each October of the project.

Partnerships/Capacity Building: The collaboration among ADF&G, USFWS, and KRAA will directly foster partnerships and capacity building. The dissemination of project results and deliverables by each investigator will enable and establish dialogues with the Alitak subsistence users, which include rural Akhiok residents. In turn, Alitak subsistence users will have access to current robust information for understanding the changes to the local subsistence fishery and have created partnerships and the capacity for interacting with the agencies that manage subsistence fisheries.

FISHERIES RESOURCE MONITORING PROGRAM MULTI-REGIONAL OVERVIEW

Since the inception of the Monitoring Program in 2000, 16 projects have been undertaken in the Multi-regional category for a total of $2.5 million (**Figure 1**). Of these, the State of Alaska was principal investigator on 11 projects, the Department of Interior conducted 3 projects, and other organizations conducted 2 projects (**Figure 2**). 12 projects were Stock, Status, and Trends (SST), and 4 projects were Harvest Monitoring and Traditional Ecological Knowledge (HMTEK). For more information on Multi-Regional projects completed from 2000 to 2016, please see **Appendix A.**

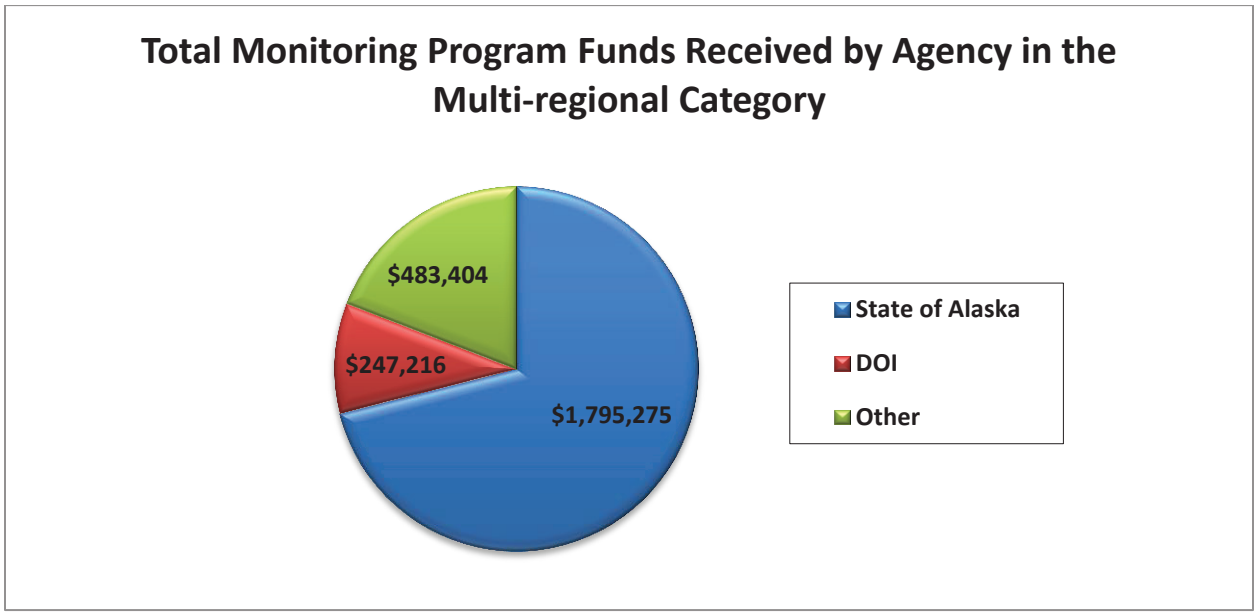

Figure 1. Monitoring Program funds received by agencies for projects in the Multi-regional category. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of Interior.

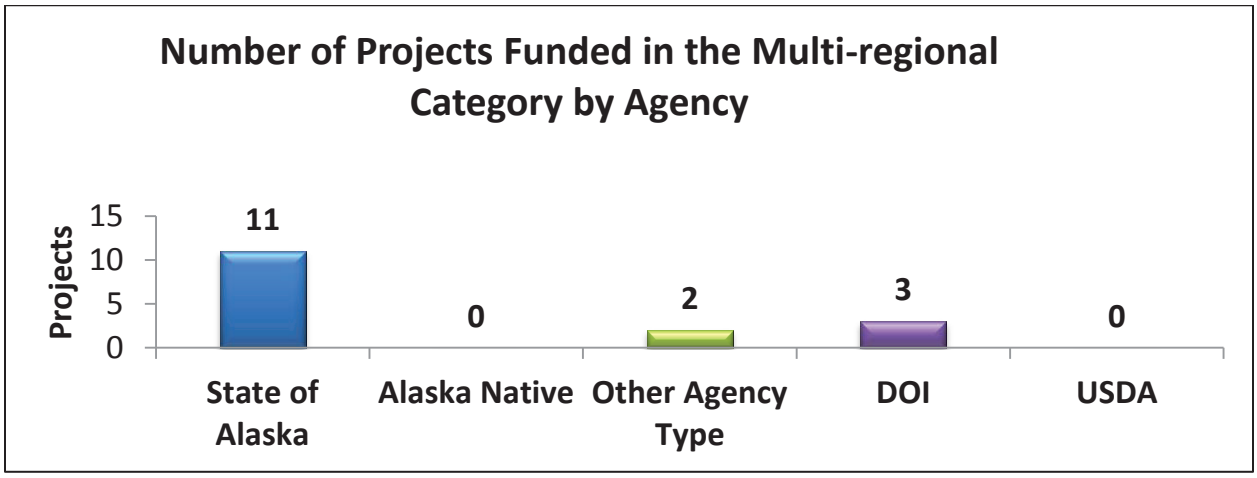

Figure 2. Total number of Monitoring Program projects funded, by agency, in the Multi-regional category from 2000 to 2016. DOI = Department of Interior and USDA = Department of Agriculture.

2018 DRAFT MULTI-REGIONAL FISHERIES RESOURCE MONITORING PLAN

OVERVIEW

Priority Information Needs

The Multi-regional category is for projects that are applicable in more than one region. No priority information needs for the Multi-regional category were identified for the 2018 Notice of Funding Opportunity. However, proponents submit proposals which have research components in more than one Monitoring Program region.

Available Funds

Federal Subsistence Board guidelines direct initial distribution of funds among regions and data types. Regional budget guidelines provide an initial target for planning. For 2018, the Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.0 to $1.5 million in funding for new projects and up to $1.6 million for ongoing projects that were initially funded in 2016. The U.S. Department of Agriculture (USDA), through the U.S. Forest Service, has historically provided up to $1.8 million annually. The amount of USDA funding available for 2018 projects is uncertain.

Technical Review Committee Proposal Ranking

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, 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 2018 Monitoring Program, two proposals were submitted in the Multi-regional category. The Technical Review Committee evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit. The final score determined the ranking of each proposal within the region (**Table 1**). Projects that rank higher comprise a strong Monitoring Plan for the region by addressing strategically important information needs based on sound science and promote cooperative partnerships and capacity building. For more information on projects submitted to the 2018 Fisheries Resource Monitoring Program please see the abstracts in **Appendix B**.

Table 1. 2018 Monitoring Program Technical Review Committee ranking for projects in Multi-regional. Projects are listed by ranking and include the total funds requested and the average annual requested.

TRC Score	Project Number	Title	Total Project Request	Average Annual Request
1	18-751	Togiak River Harvest Assessment of Dolly Varden	$120,236	$40,079
2	18-750	Kuskokwim, Southcentral and Southeast Wild Food Sharing Events	$34,686	$11,562
		Total	**$154,922**	**$51,641**

2018 TRC PROJECT RANKING AND JUSTIFICATION

TRC Score: (1)
Project Number: 18-751
Project Title: Subsistence Harvest Assessment and Stock Composition of Dolly Varden and Nonsalmon fish stocks in the Togiak National Wildlife Refuge

TRC Justification: This 3-year interdisciplinary project will collect subsistence harvest data of nonsalmon fish in the communities of Togiak and Twin Hills, and collect Traditional Knowledge and estimate the stock composition of subsistence caught Dolly Varden from the Togiak and Kanektok Rivers in the Togiak National Wildlife Refuge. This project directly addresses priority information needs from the 2018 Notice of Funding Opportunity and builds upon current 2016 Monitoring Program projects. Advantages include infrastructure, logistics, data and cost sharing with the foundational projects, good interagency partnership and capacity building opportunities, and a reasonable budget. Investigator ability is strong and there is general community support for the work with local hire and participation opportunities.

This is an interdisciplinary project and the implications for knowledge sharing and integration of datasets and results are intriguing. Greater intentionality in developing the interview protocol, the Yup'ik taxonomy used in species identification for each sampling event, and more staff time allotted for collaborative report writing and review are recommended.

TRC Score: (2)
Project Number: 18-750
Project Title: A descriptive investigation of rural community-wide wild food sharing events at upper Copper River, lower Kuskokwim River, and Southeast areas of Alaska

TRC Justification: This three-year, multi-region ethnographic study proposes to use semi-directed interviews and participant observation to document community-wide wild food sharing events in three regions of rural Alaska – the upper Copper River, the lower Kuskokwim River, and Southeast Alaska (community of Wrangell). The project has a clear connection with the Federal Subsistence Management Program in that fish harvested from federal waters play an important role in the subsistence economy and way of life in each of these regions. Each member of the research team would be responsible for the work a specific region, and each has previous fieldwork experience in that region. The team members also each have prior experience with projects documenting the harvest and use of subsistence resources in rural Alaskan communities. The project employs well recognized ethnographic methods – key informant interviews and participant observation; however, time in the field is limited – no more than 16 days per person over the length of the project. Partnerships and capacity building appear to be limited to consulting with local organizations on the selection of study communities or a local research assistant along with hiring local assistants to help with organizing the interviews. The end result of the project will be a technical report along with educational materials describing the food sharing events, with an intended audience of both the villages and Federal fishery management staff. From the standpoint of federal

management, the goal of the educational materials is to help managers incorporate the local cultural values represented by the food sharing events in their decision making. Because the research team is comprised of federal employees, funding is requested only for travel expenses, honoraria, local research assistants, interview transcription/translation, and supplies. Project costs seem generally reasonable in relation to the work being proposed, although a few discrepancies between planned work and anticipated expenses in a given year should be clarified.

APPENDIX A

Table A.1. Fisheries Resource Monitoring Program projects funded in the Multi-regional category from 2000 to 2016.

Project Number	Project Title	Investigators
00-016	Information Access of AYK Fish Data	ADF&G
00-017	Statewide Subsistence Harvest Strategy	ADF&G, AIT
01-010	Regulatory History of Alaska Salmon Regulations	ADF&G, EA
01-106	Validity and Reliability of Fisheries Harvest	ADF&G, AITC, NPS
01-107	Implementation of Statewide Fisheries Harvest Strategy	ADF&G, AITC
01-154	Project Information and Access System	ADF&G
02-043	Alaska Subsistence Fisheries Database GIS Integration	ADF&G
02-069	Shared Fishery Database	ADF&G
04-701	Develop Shared Fishery Database	ADF&G
04-751	Subsistence Harvest Database Update and Report	ADF&G
05-702	Whitefish Genetic Species Markers	USFWS
06-701	Dolly Varden Stock Composition	USFWS
08-701	Stream Temperature Monitoring	ARRI
12-700	Genetic Baseline for Inconnu from the Yukon and Kuskokwim Rivers	USFWS
14-701	Stream Temperature Monitoring	ARRI
16-752	Subsistence Harvest and Use Patterns of Nonsalmon by Yukon-Kuskokwim Delta Coastal Communities	ADF&G

Abbreviations used: ADF&G=Alaska Department of Fish and Game, AITC=Alaska Inter-Tribal Council, ARRI=Aquatic Restoration and Research Institute, EA=Elizabeth Andrews, NPS=National Park Service, USFWS=U.S. Fish and Wildlife Service.

APPENDIX B

The following abstracts were written by the Principle Investigators and submitted to the Office of Subsistence Management as part of the proposal package. The statements and information contained in the abstracts were not altered and they may not reflect the opinions of the Office of Subsistence Management or the Technical Review Committee. The abstracts listed are for projects that are currently being considered for Funding the 2018 Fisheries Resource Monitoring Program.

Project Number: 18-751

Title: Subsistence Harvest Assessment and Stock Composition of Dolly Varden and Nonsalmon fish stocks in the Togiak National Wildlife Refuge
Geographic Region: Multi-Regional: Kuskokwim River and Yukon River Drainages
Data Type: Harvest Monitoring and Traditional Ecological Knowledge
Principal Investigator: Bronwyn Jones, Division of Subsistence, Alaska Department of Fish and Game
Co-Investigators: Cody Larson, Department of Natural Resources, Bristol Bay Native Association;
Penelope Crane, Conservation Genetics Laboratory, U. S. Fish and Wildlife Service
Amanda Cochran, Togiak National Wildlife Refuge, U. S. Fish and Wildlife Service

Project Cost:	**2018**: $23,176	**2019**: $49,054	**2020**: $48,006

Total Cost: $120,236

Addressed: This project addresses two priority information needs of the 2018 FRMP, 1) obtaining harvest estimates and use of salmon and nonsalmon fish in Togiak and 2) Dolly Varden char harvest and use by residents of Togiak and Twin Hills. Though residents of communities within the TNWR use a wide variety of resources, salmon and nonsalmon fish, including Dolly Varden char, provide the most reliable annual source of subsistence foods. Dolly Varden in TNWR rivers home to natal streams to spawn, but can migrate to nonnatal rivers for overwintering, therefore subsistence harvests are likely mixed. This project will estimate subsistence harvests for salmon, Dolly Varden, and other nonsalmon fish in Togiak and Twin Hills, conduct participant observation in-season and gather Traditional Ecological Knowledge in Togiak, Twin Hills, and Quinhagak to better understand how subsistence stakeholders use, share, and report nonsalmon fish harvests. Dolly Varden will be sampled from subsistence fisheries in the Togiak and Kanektok rivers. Genetic data will be used to estimate the proportions of major stocks of Dolly Varden contributing to subsistence catches and using these rivers for overwintering habitat and how Yup'ik terms for char harvested correspond to different life history strategies and species of char to improve harvest estimates for char.

Objectives:

1. Collect fin clips for genetic analysis from Dolly Varden harvested in the subsistence fishery in the Togiak and Kanektok rivers and estimate the stock composition of fishery samples (CGL, TNWR).
2. Conduct participant observation in fall in winter in Togiak, Twin Hills, and Quinhagak to document how residents harvest, use and report Dolly Varden and nonsalmon fish harvests (BBNA, ADFG).

3. Conduct interviews with local subsistence users to document their historical and contemporary knowledge of nonsalmon fish abundance and use in the Togiak River watershed (BBNA, ADFG).
4. Conduct post-season harvest surveys to obtain amount and locations of household harvests to estimate the subsistence harvests of salmon and nonsalmon fish in Togiak and Twin Hills (ADFG).

Methods: (Objective 1) Fin clips (N=800 total) will be collected from fish harvested in fall and winter fisheries in the Togiak and Kanektok rivers. Length and Yup'ik name ("annerluaq", "yugyaq") will be recorded for sampled fish. Stock composition estimates will be made using genetic methods to determine proportions of major stocks contributing to subsistence catches and overwintering aggregates within these rivers and if Yup'ik describing fish correspond to different species or gene pools. (Objectives 2,3) Participant observation and Key Respondent Interviews will be conducted in Togiak, Twin Hills, and Quinhagak. Data will be summarized to evaluate the harvest and use of Dolly Varden (uses, sharing, competition, trends) and patterns between communities. (Objective 4) Household surveys of fish harvests will be conducted in Togiak and Twin Hills.

Partnerships/Capacity Building: Refuge information technicians (RITs) and local research assistants (LRAs) from Togiak and Quinhagak will participate in data collection, analysis, and reporting. Principal investigators will visit with communities at the beginning of the project and at the end to disseminate final results. Principal investigators will provide technical training for the RITs and LRAs; RITS will participate in genetic analysis of Dolly Varden at the CGL. TNWR will provide logistic support.

Project Number: 18-750
Title: A Descriptive Investigation of Rural Community-wide Wild Food Sharing Events at Upper Copper River, Lower Kuskokwim River, and Southeast areas of Alaska.
Geographic Region: Multi-Regional: Kuskokwim, Southcentral and Southeast
Data Type: Traditional Ecological Knowledge
Principal Investigator: Pippa Kenner; Office of Subsistence Management, U.S. Fish and Wildlife Service
Co-Investigators: Robbin La Vine; Office of Subsistence Management, U.S. Fish and Wildlife Service, Dr. Joshua Ream; Office of Subsistence Management, U.S. Fish and Wildlife Service

Project Cost:	**2018**: $9,618	**2019**: $17,090	**2020**: $7,918

Total Cost: $34,686

Issue: This study will demonstrate a primary aspect of subsistence needs and harvest goals regarding fish taken in Federal subsistence fisheries. Subsistence needs and harvest goals are regularly discussed by Federal fisheries management staff. Details of people's motivations for harvesting are little understood. Meeting nutritional needs is one aspect informing subsistence needs and harvest goals. Another aspect is common occurrences of community-wide wild foods sharing events in rural Alaska that are the focus of this study. Detailed contemporary descriptions of what this looks like are rare.

This descriptive ethnographic study is structured to give Federal fishery management staff tools that will provide a bridge between cultures of Federal fishery management staff and local residents of three study areas. Findings will be organized in educational materials describing these events. Residents of regions in the study will respond positively when managers incorporate local cultural values represented by these sharing events in their management decision-making processes.

Objectives:

1. Detailed decriptions of one or more contemporary community-wide wild food sharing events at upper Copper River, lower Kuskokwim River, and Southeast Alaska areas of Alaska. The study will answer questions of who participates, what happens, where and when they occur, and what role wild-caught fish plays in supporting these events.
2. Education packages for each of three regions in the study describing the findings of the study, including tools to incorporate Alaska Native cultural values demonstrated by these events into Federal fisheries management decision-making.
3. Bridges between cultures of Federal fishery management staff, villages, and the public.

Methods: Semi-directed interviews with communities in each region of the study and participant observation of community-wide sharing events.

Partnerships/Capacity Building: The study follows a collaborative research methodology. Participants in the study will be asked to help determine the best appropriate approaches to the research within the study design. Researchers will assist study participants to document their activities so that findings will be meaningful to them and appropriate for representing community events to outsiders. Each researcher will hire a local research assistant to help with the study. Every interview respondent will receive an honorarium payment. Findings will be organized in educational materials for villages and Federal fishery management staff describing community sharing events. The study is designed to give Federal fishery management staff important information and tools that will provide a bridge between cultures of Federal fishery management staff and local residents. Residents of regions in the study will respond positively when managers incorporate local cultural values represented by these sharing events in their management decision-making processes.

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.

Federal Subsistence Board

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FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
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FOREST SERVICE

OSM 17048.DM

AUG 1 4 2017

Molly Chythlook, Chair
Bristol Bay Subsistence
Regional Advisory Council
c/o Office of Subsistence Management
1101 East Tudor Road, MS 121
Anchorage, Alaska 99503

Dear Chairwoman Chythlook:

This letter responds to the Bristol Bay Subsistence Regional Advisory Council's (Council) fiscal year 2016 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. Meshik River Salmon

Residents of Port Heiden depend on the Meshik River, one of several salmon tributaries on the Alaska Peninsula, for their subsistence Sockeye and Chinook Salmon needs. Over the past several years, residents of Port Heiden were not able to meet all their subsistence needs due to commercial activities and low run returns.

The Council considered various Fisheries Resource Monitoring Program priority information needs for the Bristol Bay region at its fall meeting and supported funding for the Meshik River priority information needs. It is important to develop a monitoring program for the Meshik River for managers to have the data available for reference when making management decisions on subsistence and commercial activities and to manage for a sustainable fishery.

Response:

This issue is being addressed through the Office of Subsistence Management's (OSM) Fisheries Resource Management Program. OSM fisheries and anthropology staff worked closely with the

Bristol Bay Subsistence Regional Advisory Council in 2016 to develop the priority information needs for the Southwest Alaska region. The following priority information need, developed by the Council, was included in the 2018 Notice of Funding Opportunity (Call for Proposals):

> Reliable estimates of salmon escapement and evaluation of "quality of escapement" measures (for example, potential egg deposition, sex and size composition of spawners, spawning habitat quality and utilization) for determining the reproductive potential of spawning stocks in Big Creek, Naknek River, Alagnak River, Nushagak River, Chignik River, **Meshik River** and Togiak River. (emphasis added)

Despite being listed in the priority information needs, no proposals were received which addressed the salmon stocks of the Meshik River. This priority information need can be included in the next Notice of Funding Opportunity for projects starting in 2020.

2. Outreach

Public meetings of the Council are held in Dillingham and King Salmon/Naknek each fall and winter cycles, respectively. These two communities are able to accommodate the Council meetings due to availability of hotels, lodges, and restaurants.

Whereas, communities outside these two communities are limited to host a public meeting with limited accommodations and limited meeting venues.

The Council recognizes the need to engage other subsistence communities during public meetings and recognizes the need to improve outreach efforts to the surrounding communities of upcoming scheduled public meetings, and to encourage the communities to participate on important subsistence resource related issues. Public meetings of the Council typically begin at ***8:30 am*** *and end at* ***5:00 pm****, during normal working hours. Community members involved in natural resource issues usually work day jobs and cannot attend the public forum to bring forth their concerns.*

Accommodating the public wishing to participate in subsistence resource-related management issues is challenging when meetings are held during the day. Outreach efforts to include communities to participate in public meetings should include social media, and incorporate automatic email notices, for those that wish to be notified via email, that public meetings are being scheduled. Direct email to Tribal and city offices should also be included to notify the public and encourage them to attend in person or via teleconference.

The Council therefore requests that the Board, through the Office of Subsistence Management, ensure that all possible venues of outreach are being considered, and to also consider possibly holding meetings outside of the normal business day.

Chairwoman Chythlook 3

Response:

Ahead of each Regional Advisory Council meeting cycle, public hearing, or other opportunity for involvement (such as calls for proposals), OSM sends news releases to the Federal Subsistence Management Program email listserve, posts the information to the Federal Subsistence Management Program Facebook page,[1] advertises in local newspapers, and updates the website. OSM also frequently runs ads on radio and television. For example, OSM ran a radio ad campaign on 25 public radio stations throughout Alaska to announce the winter 2017 Council meetings. As of April, 2017, the email listserve has 1,200 members, comprised of individuals, organizations, and various media outlets. Anyone is welcome to join the listserve at any time, and information on how to do so is included on every outreach item OSM produces. Information on the Facebook page and website is also included on every outreach item. OSM is always available to assist in providing information as needed, and the Councils with additional outreach requests can contact OSM's Subsistence Outreach Coordinator. Individual Councils determine the dates and times they meet. The Board encourages Councils to consider the needs of their local public in determining suitable meeting times. The chair has the prerogative to set a later meeting time, if needed, and should coordinate with the Council Coordinator on that issue when the meeting agenda is being developed.

In closing, I want to thank you and your Council for their 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 our confidence that the subsistence users of the Bristol Bay Region are well represented through your work.

Sincerely,

Anthony Christianson
Chair

cc: Federal Subsistence Board
Bristol Bay Subsistence Regional Advisory Council
Eugene R. Peltola, Jr., Assistant Regional Director, Office of Subsistence Management
Thomas Doolittle, Deputy Assistant Regional Director, Office of Subsistence Management
Carl Johnson, Council Coordination Supervisor, Office of Subsistence Management
Donald Mike, Subsistence Council Coordinator, Office of Subsistence Management
Jill Klein, Special Assistant to the Commissioner, Alaska Department of Fish and Game
Interagency Staff Committee
Administrative Record

[1] https://www.facebook.com/subsistencealaska

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Aleknagik
Chignik Bay
Chignik Lagoon
Chignik Lake
Clarks Point
Curyung
Egegik
Ekuk
Ekwok
Igiugig
Iliamna
Ivanof Bay
Kanatak
King Salmon
Kokhanok
Koliganek
Levelock
Manokotak
Naknek
New Stuyahok
Newhalen
Nondalton
Pedro Bay
Perryville
Pilot Point
Port Heiden
Portage Creek
South Naknek
Togiak
Twin Hills
Ugashik

Bristol Bay Subsistence Regional Advisory Council
U.S. Fish and Wildlife Service
1011 East Tudor Road MS 121
Anchorage, AK 99503

September 6, 2017

BBNA Partner's Program and FRMP Projects update

Alaska Peninsula

This Spring, BBNA's Subsistence Fisheries Scientist, Cody Larson, traveled with Division of Subsistence and Oregon State University co-principal investigators and staff to the communities of Chignik Lake, Chignik Lagoon, Chignik Bay, Perryville, Port Heiden, and Egegik to gather subsistence salmon harvest and sharing information. The *FRMP 16-45 Bristol Bay Subsistence Salmon Networks Project*, addresses information needs voiced by the Bristol Bay Regional Advisory Council. Household surveys were used to collect data, which will help describe the sharing of salmon harvested for subsistence uses within each community, throughout regions of the state, and outside Alaska. In addition, data on large land mammal harvests was collected to cooperate with the National Park Service and was discussed during the January Aniakchak National Monument Subsistence Resource Commission meeting.

Community members in the six partner communities completed 182 household surveys. The project employed 18 local research assistants among the communities and conducted 22 key respondent interviews with community members. The project is on-going and data review meetings are intended for spring of 2018.

This investigation was partially funded by OSM through the Fisheries Resource Monitoring Program and was a partnership between BBNA, the Alaska Dept. of Fish and Game – Division of Subsistence, and Oregon State University.

Togiak River

The second project funded through the Fisheries Resource Monitoring Program is underway in the communities of Togiak and Twin hills. The *FRMP 16-453 Subsistence Harvest Assessment and Biological Sampling of Chinook Salmon in the Togiak River Drainage*, uses Traditional Ecological Knowledge, subsistence user observations, and biological sampling to assess the health of the Togiak River Chinook Salmon stock. Household surveys were developed in January and February, and administered during late March and early April in these two communities. In Togiak 95 household surveyed were conducted, and in Twin Hills 20 household surveys were completed.
Four Local Research Assistants were hired in Togiak and one in Twin Hills. The Local Research Assistants were trained in harvest data collection, mapping software, and introduced to social science research methods. Additionally, each assistant was advised of education pathways they can use to continue in this and related fields of study or work.

Additional funding was sought to document Dolly Varden harvest and other non-salmon species in the communities of Togiak and Twin Hills through the Fisheries Resource Monitoring Program. If funded, the proposal will seek to identify Dolly Varden harvested in the subsistence fishery by their river of origin using biological sampling in a collaborative proposal with USFWS, ADF&G Division of Subsistence, and BBNA. This proposal was drafted to address a Priority Information Need set by the Bristol Bay RAC in Fall of 2016.

BBNA Partner's Program

Fisheries Intern Program

This summer the Partner's Program hired an Intern Coordinator, who has been a great addition to the BBNA team. Hannah Hendrickson has a background in education and has been facilitating the Partner's intern experience. She has also been involved in the community culture camps by teaching fisheries activities during break-out sessions. There was a great group of four summer interns this year, who have been working with ADF&G in the commercial fisheries division, and getting hands on otolith takes, salmon scale sampling, and a look at fisheries management in the Dillingham Fish and Game

Offices. They were also working with our long standing partners, Univ. of Washington Fisheries Research Institute, on Lake Aleknagik. There they work with undergraduate and graduate students on sockeye salmon lifecycle research, and detecting genetic diversity in brown bear through hair sampling. Additionally this year, Janessa Esquible, Partner with Orutsararmiut Native Council in Bethel, coordinated an ANSEP intern exchange for a portion of the summer. This was a great experience for the interns, and hope to see more Partner's collaboration in the future.

NOAA Preserve America Intiative

This June a Partner intern also joined with an Anna Santos, and an anthropologist team with the NOAA Fisheries Voices group. This was an excellent opportunity to look into research methods employed by this team as they filmed and recorded oral histories of Alaska Native Women in Fisheries. These recorded interviews were in Dillingham, Togiak, Naknek and King Salmon. The narratives will be archived, and offer a glimpse into these women's unique perspectives on fishing, gender, and climate change.

Naknek River

The Partner's Program also pursued, and was awarded, funding to assess the Naknek River Communities Salmon Harvest and Use study. This project was funded through the Alaska Sustainable Salmon Fund, and cooperatively investigated with Bronwyn Jones, ADF&G - Division of Subsistence. The project began this summer through community visits, and observations of harvests, processing, sharing, and community involvement. This project also reviews the subsistence salmon permitting process, and recent changes to dates of salmon harvest during the fall redfish fishery. Additional interviews are scheduled for late September, and households will be surveyed with the aid of local researcher assistants this winter. This project will conclude with community review meetings in 2019.

Meshik River

In recent years, resident's of Port Heiden have expressed concern with meeting their subsistence needs for Sockeye and Chinook Salmon. BBNA's Subsistence Fisheries

Scientist, Cody Larson, spoke with the National Park Service and U.S. Fish and Wildife Service in King Salmon, along with ADF&G managers from the Kodiak office in discussing an escapement monitoring feasibility project on the Meshik River. These discussions failed to produce a project proposal, but this dialogue will continue.

Subsistence set net recovery and reuse

The BBNA Natural Resources Department has developed a program to a involve range of subsistence activities. Residents of coastal, river and lake communities throughout Bristol Bay depend heavily on subsistence salmon gillnet harvests. The Bristol Bay Subsistence Salmon Gill Net Recovery, Reuse and Recycling program is a community-based program to incentivize the recovery and reuse of gill net gear. The recovered gill nets will be salvaged or recycled at net-hanging workshops held in 10 communities throughout the region. Local instructors will be hired to emphasize local fishery conditions and hanging techniques, while communicating ecological observations during skill development.

United States Department of the Interior

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INFORMATION BULLETIN - August 2017

Cooperative Salmon Escapement Monitoring Projects. Contact: Pat Walsh
ADF&G has monitored Chinook, chum and sockeye salmon escapement on the Middle Fork Goodnews River since 1980. Togiak Refuge has worked with ADF&G since 1992 to assist in staffing the weir until the present year, during which reduced Refuge 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 for the past two years (2016-2017) due to lack of funding.

Mulchatna Caribou Contact: Andy Aderman
Togiak Refuge assisted ADF&G with telemetry monitoring flights, radiocollar deployment, satellite data acquisition, data entry and database management. No photocensus was conducted during 2017 due to short windows of warm, calm, and "buggy" weather needed to get the caribou into larger groups for photographing (Neil Barten, ADF&G, personal communication).

Nushagak Peninsula Caribou Contact: Andy Aderman
Reported harvest for the 2016-2017 hunt was 373 caribou (189 bulls, 184 cows), of which 350 were taken under the federal FC1702 permit and 23 under the state RC501 permit. A photocensus conducted on June 29, 2017 found a minimum of 786 caribou, a 36% decrease from the 1,230 caribou observed in 2016. The large decrease in population was due to the increased harvest. The Nushagak Peninsula Caribou Planning Committee met July 25 and reviewed the previous hunt and current herd status. For the 2017-2018 hunt, Refuge Manager Henry set the harvest objective at 300 caribou and an initial harvest limit of 3 caribou per hunter. The area immediately north of the federal hunt was opened August 1-March 31 with a bag limit of 2 caribou by state RC501 permit. As of August 16, 2017, a total of 5 caribou bulls have been reported harvested (3 by Federal permit and 2 by State permit).

Moose Contact: Andy Aderman
Togiak Refuge has been engaged in developing a moose survey method that does not rely on complete snow cover, and preliminary results suggest that 1) the method is succeeding, and 2) that the Togiak Refuge moose population has continued the growth we have documented over the past 20 years. The results that follow should be considered tentative, pending a statistical peer review currently underway by ADF&G.

A Refuge-wide survey conducted in October 2016 with no snow cover estimated 2,590 (±504 at 80% confidence) moose. Sightability trials involving radio-collared moose indicated 72.7% detection which equates to a sightability correction factor (SCF) of 1.375. Applying the correction increases the estimate to 3,561 moose. A similar effort in March 2017 with complete snow cover estimated 3,071 (±503 at 80% CI) moose. Sightability improved to 83.3% (or a SCF of 1.2) resulting in a Refuge-wide estimate of 3,685 moose. An October 2017 Refuge-wide moose surveyed is planned.

In May 2017, 24 of 37 (64.9%) radio-collared adult cows produced 43 calves suggesting a production rate of 116.2 calves per 100 adult cows which is similar to the previous 5 years. The twinning rate was 79.2% which was higher than the long term average. Thus, reproductive performance remains relatively high, and is consistent with the preliminary results of significant population growth.

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. We will use existing population estimates for brown bears, and through the use of radio telemetry, we will estimate the number and composition of wolf packs on the Refuge. We will model wolf and bear predation on moose based on the quantity of wolves and bears and diet composition of both species determined through analysis of carbon and nitrogen isotopes occurring in bear and wolf hair. Hair is being collected from wolves when captured during radio collaring operations, and has been collected from brown bears using break-away hair snares. So far, we have captured and radioed 27 wolves from seven packs. During summers 2014-2016, we deployed over 400 snares, and collected over 200 brown bear hair samples. Laboratory analyses have been completed for bear and most wolf samples to date, and data are being reviewed to determine where sampling gaps exist.

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 (2010-2017). Overall, walrus numbers have declined, with the greatest declines at Cape Peirce and Cape Newenham. Peak counts in the most current year when every day was counted (2015) were 722 at Cape Peirce, 682 on Hagemeister Island, and 437 at Cape Newenham. Walrus using haul-outs in Bristol Bay are typically recorded from late spring to late

fall but have been observed at Cape Newenham every month except one since cameras were deployed in fall of 2014.

Seabirds Contact: Kara Hilwig
The abundance and reproductive success of black-legged kittiwakes, common murres, and pelagic cormorants has been monitored annually at Cape Peirce from 1990-2014, and intermittently at Cape Newenham from 1990-2009. Seabird studies were resumed at Cape Peirce in 2016 and continued in 2017. In 2015 and 2016, large seabird mortality events were observed along North America's west coast. Population counts and reproductive success of kittiwakes, murres, and cormorants at Cape Peirce in 2016 and 2017 were among the lowest recorded since the initiation of the monitoring.

Water Temperature Monitoring Contact: Doug Holt
Stream temperature was monitored at 18 river sites on Togiak Refuge between 2001 and 2017. Temperature was recorded hourly and the data were successfully recovered from the field ~75% of the time. Maximum daily mean temperature readings varied from ~11.5 - >20° C across sites, with the Kukaktlim Lake outlet site being the warmest and the Weary River the coldest. There was evidence for a trend of cooler water temperatures from 2001-2012. Since 2013 the trend has been one of increasing temperatures.

Temperature was monitored at 2 lakes with temperature loggers equally spaced from surface to lake bottom and temperature recorded every hour. Both lakes exhibited similar patterns of turnover and surface freezing in winter beginning near the end of November and thawing near the end of April each year. Data from each lake showed evidence of multiple freeze/thaw events during the winter of 2015-2016.

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. Each gage is instrumented with pressure sensors that measure water level every 15 minutes. On-grounds discharge measurements are made 3 to 6 times a year. In 2014, satellite transmitters were added to the stream gages that allow remote monitoring of the equipment.

Education and Outreach Contact: Amanda Cochran
Togiak Refuge has an active education and outreach program including the Migratory Bird Calendar; National Wildlife Refuge Week; career fairs; production of Bristol Bay Field Notes (a new episode airs each week on KDLG); and numerous teacher requested classroom presentations in 12 villages in the Southwest Region, Lower Kuskokwim, Dillingham City school districts and the Dillingham 7th Day Adventist School. Field trips with area students for the 2016-2017 school year included bird walks, animal tracks and ID, archery, salmon life cycles, aquatic resources and bear safety. The refuge website is also an education tool and is available at http://togiak.fws.gov.

Togiak Refuge has a very active Facebook page which disseminates information on a daily basis to a rapidly growing global audience.

In 2017 the refuge also hosted a Student Conservation Association (SCA) Career Discovery Intern, Antonio Hornstein, who engaged local elementary age youth around the Dillingham community. The refuge partnered with Alaska 4H, Alaska State Parks, UW Fisheries Research Institute, and the Dillingham Library to host more than 15 summer programs for ages 3-17. The programs promoted conservation of the area's natural resources and traditional/subsistence way of life.

Also, the refuge partners with others to conduct three environmental education camps described below:

Cape Peirce Marine Science and Yup'ik Culture Camp Contact: Terry Fuller
In July 2017 an enthusiastic group of seven area junior high students representing three villages traveled to Cape Peirce for this camp. Students experienced outstanding and stunningly sunny weather and were able to observe seabirds, marine mammals, learn how field work is conducted, as well as learning about food webs and ecological relationships. Students and agency staff 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. RIT John Mark of Quinhagak was on hand to speak with students about traditional uses, biologist Doug Holt discussed walrus biology, and Artist-in-Residence Shawna Pickenpaugh of Wyoming led students through a number of art activities. Traditional councils and school districts from throughout western Bristol Bay are cooperators with this camp.

Southwest Alaska Science Academy (Salmon Camp) Contact: Terry Fuller
This past June and July (2017), Togiak Refuge helped with the 16th 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. This year Togiak Staff were able to share with camp students about the following: identifying the different species of Pacific salmon at various stages in their development, the salmon life cycle, jobs associated with the fishing industry, salmon in art (fish taxidermy) and archery.

Summer Outdoor Skills and River Ecology Float Camp Contact: Terry Fuller
The 2017 Float Camp took place on the Ongivinuk River. At this camp, nine high school students (three from Anchorage, two from Quinhagak, one from Manokotak and three from Dillingham) 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 Ongivinuk. 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 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. Traditional councils and school districts in western Bristol Bay are cooperators with this camp.

River Ranger Program Contact: Amanda McCutcheon Cochran
The Refuge River Ranger Program was conceived during the public use management planning process and was first implemented in 1991. The program serves many purposes. River Rangers are the main contact source for sport fishermen and local residents. Information distributed to the public includes Service policies, regulations, resource management practices, State sport fish regulations, bear safety, wilderness ethics, Leave-No-Trace camping and information about private lands to prevent trespass. Rangers document public use occurring on the river along with the location and timing of activities, conflicts between users, and sport fish catch/harvest per unit effort. Rangers also assist Refuge staff with biological studies. In addition, Rangers patrol campsites for litter, monitor compliance of sport fishing guides and offer assistance as needed. In recent years, continuing into 2017 the RITS and River Rangers have also recruited local volunteers to assist them in river patrols. This helps build capacity and partnership within the villages. River Ranger volunteers donated nearly 100 hours of their time over the 2017 summer.

Staff Update
Fisheries Biologist Mark Lisac retired in January 2017 after 34 years of service at Togiak Refuge. His position remains unfilled due to lack of funding. Refuge Information Technician Pete Abraham retired December 31, 2016 and was replaced by RIT Keemuel Kenrud. Pilot/Law Enforcement Officer Jeff Hicks transferred to Kodiak National Wildlife Refuge in mid-December. We hired Federal Wildlife Officer Derek Thompson, who is expected to report to duty in mid-August. In mid-December, Administrative Officer Debbie Reiswig transferred to the National Park Service and currently serves as Supervisory Permits Coordinator for the Talkeetna Ranger District at Denali National Park. Debbie's position remains vacant because of a lack of funding.

United States Department of the Interior

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Agency Report to:

Bristol Bay Federal Subsistence Regional Advisory Council

Public Meeting, Dillingham, Alaska November 2017

Mammal Projects

Project**: Moose Composition and Trend Surveys Summary (GMUs 9C & 9E) 2015–2016**

Poor weather and survey conditions (e.g., inadequate snow cover, high winds) frequently limit moose composition and trend-area surveys in GMU 9 and many areas are infrequently surveyed. During the 2016-2017 winter survey season, conditions were poor throughout GMU 9 with little or no snow present for surveys. No snow was present during the fall moose composition survey period (Nov 01 – Dec 10). Consequently, no moose composition or trend-area surveys could be conducted. The Refuges plans to conduct moose trend-area abundance surveys during the 2017-2018 winter survey season when survey conditions are present.

Project: **Moose Reproduction and Survival Study**

The Refuge continues to study moose reproduction and survival on the Northern Alaska Peninsula. The primary objective of this study is to estimate annual twinning rates and calf survival. Twenty two cow moose with radio-collars are tracked regularly throughout the year. These radio-collared cows are easily identifiable by the large numbered tag attached to the collar. Because the proportion of cows giving birth to twins versus cows birthing single calves is influenced by nutrition, this study uses twinning rates of radio-collared moose as an indirect measure of the moose population's nutritional condition and overall health. Relatively high twinning rates in the study area suggest that habitat is not a primary factor limiting moose abundance.

Chronically low calf survival appears to be the principal factor limiting moose population growth on the Alaska Peninsula. Although the actual causes of calf mortalities cannot be identified without intensive and expensive calf monitoring projects, the timing of calf mortalities suggests that predation is probably the primary factor limiting calf survival within the study area. Predation by bears was documented as the cause of several adult and calf mortalities during 2014, 2015, and 2017. In addition, GPS location data show that radio-collared cows often move out into open tundra habitats to give birth which may be a predator avoidance strategy. Information gained from this study is valuable but there is still much we do not know. Because reproduction and survival often vary among years due to a variety of factors, it is important to monitor these demographics over multiple years to provide an adequate representation of population trends.

The Refuge Mammal Biologist, Dom Watts, accepted a position at Kenai National Wildlife Refuge in December 2016. That position remains vacant.

For more information on the Refuges' mammal programs contact: Dan Pepin, USFWS, Alaska Peninsula/Becharof NWR, PO Box 277, King Salmon, AK 99613. Phone: 907-246-1233; e-mail: Dan_Pepin@fws.gov

Avian Projects

Project: Alaska Landbird and Breeding Bird Monitoring Surveys

The Refuge continued landbird monitoring with participation in the Alaska Landbird Monitoring Survey (ALMS),an Off-road Breeding Bird Survey (ORBBS), and a Breeding Bird Survey (BBS) route. These surveys document breeding birds and their habitats. Data from ALMS is utilized by the Refuge in addition to being sent to the USGS's Alaska Science Center for storage and further analysis at the state level. ORBBS and BBS are a continent-wide program administered jointly the USGS – Patuxent Wildlife Research Center and Environment Canada's Canadian Wildlife Service. Participation in these surveys aligns with the Refuge's mission to assess the presence, relative abundance, distribution, and trends in populations of wildlife and plants.

In 2017 we conducted 47 total ALMS point counts at two established survey sites, previously surveyed in 2011,2013, and 2015. Thirteen ORBBS point counts at one site on refuge and 50 BBS point counts along the entirety of the Alaska Peninsula Highway. The total number of landbirds and the total number of species detected remains within 15% of historical averages. Further analysis and monitoring is required to determine the long-term population trends at the local and state level.

Project: Tree Swallow Nest Box Monitoring Project

In recent years, the Refuge expanded the existing nest box monitoring efforts in participation with The Alaska Swallow Monitoring Network, part of the Alaska Songbird Institute. Initial efforts to monitor tree swallows began in 2007. This year a total of 61 nest boxes were monitored. The project focuses on nest box occupancy, nesting phenology, nesting success rates, and recapture data collected from banding efforts.

In 2017, 51 of the 61 monitored nest boxes were occupied (84%). The overall nest success rate was 96%, up from 82% in 2016. In 2017, 273 birds (includes both adults and chicks) were banded and 50 birds were recaptured with bands from previous years.

The Alaska Peninsula represents the southwestern edge of the tree swallow breeding range, global declines in aerial insectivore populations have prompted increased study of these species, especially at range edges where declines are likely to be more pronounced. In addition to scientific data collection, a large portion of the 2017 efforts focused on education and community outreach.

For more information on avian projects contact: Melissa Cady, USFWS, Alaska Peninsula/Becharof NWR, PO Box 277, King Salmon, AK 99613. Phone: 907-246-3339; e-mail: Melissa_Cady@fws.gov

Aquatic Projects

Project: Monitoring Lake Temperature at Varying Depths.

The primary purpose of this project is to acquire a long-term data series on the

temperature of selected lakes. Lake temperature was recorded every hour at various depths between the lake surface and 100m. Monitoring sites were visited once or twice per year to extract data and to service monitoring equipment. With enough time, this data will be used to document long term temperature regimes in selected lakes and may help support management decisions regarding research in relation to climate change. Monitoring stations were deployed in upper Ugashik Lake, Mother Goose Lake, Needle Lake, and Becharof Lake in the fall of 2011. Unfortunately, the Becharof Lake monitoring station could not be relocated. The remaining lakes show some individual differences but follow a similar short-term pattern of increasing temperatures from 2012 – 2016.

For more information on aquatic projects contact: Kevin Payne, USFWS, Alaska Peninsula/Becharof NWR, PO Box 277, King Salmon, AK 99613. Phone: 907-246-3339; e-mail: Kevin_Payne@fws.gov

Visitor Services Programs

Project: Alaska Peninsula Educational Outreach in Village Schools

Working closely to follow state curriculum guidelines, Refuge staff developed a curriculum for grades K-12 to learn about owls.

Students were introduced to owls, their biology, and what makes these birds so amazing – calls, flight and more. After the talk, students then participated in a variety of hands-on activities. This year, students learned how to use bird identification guides to discover what species of owls make their homes here in Alaska. They also participated in dissecting an owl pellet to learn what owls eat and played games mimicking how owls hunt.

By the end of the program, students of all ages had a much deeper grasp on the biology of owls and their habitats.

Project: Science-based Exploration with Bristol Bay Youth

This summer the Refuge Visitor Services program brought on two volunteer interns to assist in providing quality environmental education opportunities for youth in Bristol Bay. For the second year in a row, the Refuge partnered with the local Bristol Bay Parks and Rec Department to provide quality science based programs for summer camp participants. Topics this summer included: Skull identification, Population Dynamics, Anatomy of a Salmon, and Tree Swallow Biology. By the end of the 4-week period during the month of June, 91 youth participated in the programming, many of whom were repeat attendees from week to week. This partnership not only supported the local community, but also benefitted the two youth volunteer interns who gained experience in creating and implementing quality environmental education opportunities.

For more information on the visitor services program contact: Sarah Griffith, USFWS, Alaska Peninsula/Becharof NWR, PO Box 277, King Salmon, AK 99613. Phone: 907-246-1201; e-mail: Sarah_Griffith@fws.gov

Katmai National Park and Preserve
Aniakchak National Monument and Preserve
Alagnak Wild River

National Park Service
U.S. Department of the Interior

Resource Management 2017

Researcher Joy Erlenbach and National Park Service Ranger Kelsey Griffin observe bears in the sedge meadows at Hallo Bay. Foraging observations help scientists gain an understanding of how important different food resources are for coastal brown bears. It is one component of the multi-part Changing Tides research project. To learn more, see page 3.

Each summer, National Park staff working in Katmai National Park and Preserve, Aniakchak National Monument and Preserve, and the Alagnak Wild River, spend time in the field to study, inventory, and monitor cultural and natural resources. Summer is the time to do it: rivers are flowing, wildlife is active and study sites are accessible. With more than 4.73 million acres between the three park units, this is a busy time of year.

Resource Management falls under three main groups: cultural resources, natural resources, and inventory & monitoring. The cultural resource program involves archeology and anthropology and focuses on the history of human occupation in the region. The natural resource program studies biological and physical resources, such as wildlife, fish, plants, wilderness, and backcountry resources. The third group, inventory and monitoring, is part of a National Park Service effort to understand the status of the park's natural resources. The Southwest Alaska Network (SWAN) Inventory and Monitoring Program cooperates with the park to conduct various surveys to understand how park resources may change over time.

Throughout this field season, look for project and research updates on our website (**www.nps.gov/katm**), Facebook page, and through the explore.org Katmai bear cams. We hope that you enjoy reading about the many projects occurring in these remarkable parklands. See you in the field!

Research Permits

In addition to work conducted by NPS staff, external researchers come to the parklands to conduct a wide array of studies. Projects include investigations of the ongoing volcanism in the area, climate, wildlife ecology, and contaminant accumulation. The diversity of work helps to answer local management questions as well as those of greater interest to science. The parks are a vibrant, living laboratory.

A brown bear observed at Hallo Bay, Katmai National Park.

Geophysical Survey (GPR)

Archeological technician Chloe Stevens and Tommy Urban navigate the 250 MHz GPR through a large cultural depression west of Brooks Falls.

2017 marks the third and final year of collaborative ground-penetrating radar (GPR) work between the Katmai Cultural Resource Program archeologists and CESU researcher Dr. Tommy Urban of Cornell University. The differential frequencies detected by the GPR instruments provide archeologists a view into deeply-buried house depressions that are otherwise invisible at ground-level without disturbing intact soils.

The 2015 and 2016 seasons focused on identifying cultural resources within the developed areas of Brooks Camp, and investigating several previously unsurveyed anomalies visible on 2011 LiDAR imagery within the Brooks River Archeological District and National Historic Landmark (XMK-0204). The District includes at least one thousand cultural depressions of houses and caches that represent over four thousand years of human habitation along the ancient terraces of Brooks River. The 2016 fieldwork indicated the "new" depressions west of Brooks Falls and south of the camp road are indeed of a cultural origin.

A workplan for 2017 includes wrapping up testing at several sites in Brooks Camp and conducting a baseline survey on the Katmai Coast, specifically the historic village of Douglas-Kaguyak. Prior to the 1912 Novarupta eruption, Douglas Village was the end of a long-established portage route between the Pacific Coast and Bristol Bay.

In the late nineteenth-century, the Kaguyak settlement was inhabited by Sugpiat/Alutiiq people associated with the Savonoski villages to the east, and Katmai village to the southwest. The survey intends to locate and examine obscured footprints of any former historic or pre-contact structures in the vicinity. The American Period (1867-1912) buildings at Douglas included several "barabara"-style homes, a Russian Orthodox Church, and an Alaska Commercial Company store.

Archeological technicians prepare a survey grid while Urban directs a magnetometer across a probable cultural depression.

Savonoski Drainage Archeological Survey

View of Kaguyak Crater during a pre-season aerial survey.

2017 marks year two of a three-year survey of the Savonoski and Ninagiak River drainages. In 2016, Katmai Cultural Resource personnel interviewed several Bristol Bay community members whose family histories are linked with the historic Savonoski and Naknek villages. This June, a crew of NPS archeologists headed by Sam Coffman of UAF-Museum of the North will survey the drainage east of the Rainbow River confluence, looking for evidence of short-term camps and village sites that likely supported the historically-documented travel between the Katmai coast and the lower Savonoski drainage.

Tribal and Corporation Consultation
The Cultural Resource Program continues to work with Alaska Regional Office to facilitate Government-to-Government and Section 106 Compliance National Historic Preservation Act (NHPA) tribal consultation. In 2016, Katmai park staff met with members of several federally-recognized tribes, village corporations, regional corporations, and the Council of Katmai Descendants to discuss current park projects and issues.

Park staff are also engaged in a new partnership with Bristol Bay Native Corporation, which recently acquired the Katmailand, Inc. concession that operates lodges at Brooks Camp, Grosvenor Lake, and Kulik Lake.

Nutritional and Landscape Ecology of Brown Bears on the Katmai Coast:

This summer will be the third and final summer of the Changing Tides study. This multi-faceted project investigates the link between terrestrial and nearshore environments. A large component of the study is looking at the importance of intertidal resources for brown bear health. Data collection includes GPS-collared bear locations, hair and blood samples, and observational work.

So far, we've been impressed by the diversity of strategies we've seen exhibited by bears on the coast, both in terms of diet and habitat use. During the pre-salmon season (May-mid July) some bears use intertidal areas frequently—as much as 19% of their locations—while other bears use them during as few as 0.4% of their locations. However, many bears (8/14) use intertidal areas over 10% of the time. We know from our observational work that some bears use intertidal areas for clamming, fishing for flounder, or foraging on barnacles or whale carcasses, and sometimes for predating on seals and sea otters. Evidence of this is seen in the bears' hair and blood samples, which show eleveated signatures consistent with marine resource use during a time when salmon are not available. Some bears use sedge meadow habitat at high rates (up to 30% of the time), with 8 of 14 bears using it more than 10% of the time. As with intertidal use, though, some bears use sedge meadows infrequently—as few as 1% of their locations. In spite of the differences in behavior, all bears during the pre-salmon season gained weight—between 5 and 63 kg—most of them consuming primarily vegetation.

Next, we're taking a closer look at the availability of different resources in relation to how bears choose them, which will help us more accurately rank different habitat types in terms of the bears' preferences. We'll also use the body condition information we have from the collared bears to determine

Researcher Joy Erlenbach collects vegetation samples to be used in dietary estimation of coastal bears.

which resources give the bears the most "bang for their buck" in terms of body-mass or body-fat gains. We're excited to incorporate the information from the bears' activity sensors into understanding their specific behaviors in different habitats (especially those we can't easily observe), as well as to understand their daily activity patterns and energy expenditure. So far, morning activity for most bears (11/12) peaks around 9 am and are maintained at high levels throughout the day, although we did have one bear with more nocturnal tendencies reaching maximum activity levels around 5 am and 10 pm. We will continue to collect and analyze data this year and look forward to sharing more information with you throughout the season. Keep an eye out for future updates, and always let us know if you have questions.

A Genomic Perspective on Katmai's Brown Bears

NPS Ranger and researcher Michael Saxton processes samples for analyses. Genetic analysis will allow us to create a pedigree of Brooks Camp bears, and see how they connect with bears throughout the Park and Preserve.

Katmai is home to one of the most widely viewed populations of brown bears on the planet. But where do the bears go when we cannot see them? In 2016, park biologists initiated a study to use genomics to shed light on gene flow throughout the Park and Preserve. This information will help to illuminate movement patterns of bears and understand how bears are connected across the park. By collecting samples from along the coast and at various locations in the interior of the park, biologists will be able to analyze gene flow and determine if bears are crossing the mountain range that traverses the park between the coast to interior regions. Sampling will continue in 2017, with coastal samples collected as a part of the Changing Tides project, while interior samples will be collected via hair snares at multiple locations and biopsy darts at Brooks Camp and in King Salmon. The use of biopsy darts at Brooks Camp will allow researchers to visually identify bears as they are sampled. With this information, they will be able to construct a pedigree of the local population and evaluate the level of inbreeding in the Brooks bears. The information gained from this study will provide valuable insight into the genetic health of the population and help inform management decisions impacting these amazing animals.

Invasive Plant Management

Invasive and exotic plants are considered the second greatest threat to biodiversity after habitat loss. They display rapid growth, spread with little or no human assistance, and are expensive to remove and difficult to control once established. In Katmai, we are working to prevent the establishment and expansion of exotic and invasive plants.

In 2016, field work for the Exotic Plant Management Team (EPMT) was carried out from June through September. In August, a six person Student Conservation Association crew assisted with control work at Brooks Camp. Fieldwork included invasive plant surveys carried out in high visitor use locations and controlling populations that were discovered. Priority locations included Brooks Camp, the Valley of Ten Thousand Smokes (Valley) road, Fure's Cabin, Grosvenor Lodge, Battle River, Nonvianuk Lake, and various backcountry sites within Katmai.

Brooks Camp, the Valley road, and Fure's cabin were visited monthly for surveys and control work, while most other areas were only surveyed once during this season. Chemical treatment was carried out at Brooks Camp, Fure's Cabin, Nonvianuk Lake, and Battle River targeting common dandelions. Manual removal was utilized on all other invasive plants found.

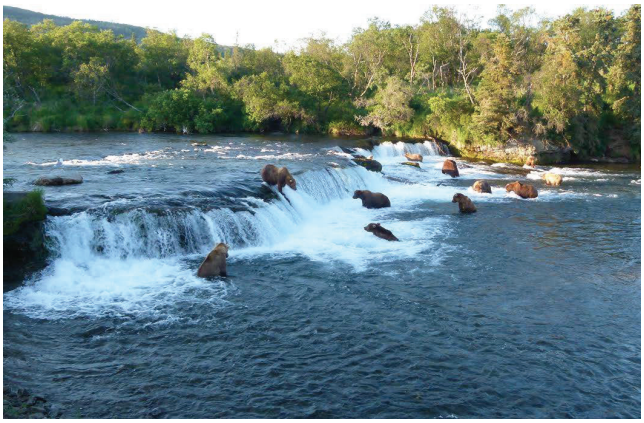
Water samples to test eDNA for presence of Elodea were collected from 12 lakes that were thought to be at the highest risk for becoming infested with Elodea from float plane visitation. These samples were processed and returned to the Central Alaska Network in Fairbanks for testing.

SCA intern Christine Devries performs exotic plant management field work in Katmai.

In 2017, the EPMT will plan to revisit the same sites as in 2016 and continue chemical and manual treatment for invasive plant species. The EMPT plans to survey and map new backcountry areas as well as assist the USFWS with control work on lands adjacent to the park. This summer the park will continue surveys for Elodea at various freshwater sites.

For further information on invasives in Katmai National Park and Preserve, or to report a suspicious terrestrial or aquatic species, please contact the Exotic Plant Management Team at **907-246-2156**. Identification materials for both native and non-native species are available upon request to help visitors identify species in the field.

Monitoring Bear Numbers on Brooks River



Bears concentrate at Brooks Falls for ample fishing opportunities.

Are the number of bears using places such as Brooks River in Katmai National Park in Alaska changing? Because of the high concentration of bears observed at Brooks River, this location offers a unique and effective opportunity to view and count bears without using costly techniques such as collaring.

Each July and September for the past 20 years, a park biologist has monitored the number of bears feeding at Brooks River during salmon runs and has identified individual bears through physical and behavioral characteristics. Bears have been assigned three-digit identification numbers in an effort to track individual bears using the river from season to season and year to year. New or unidentifiable bears are given new numbers each year.

With this information, Katmai can monitor the number of bears using the river each season and how that number has changed through time. Research has begun to calculate survival rates of bears using Brooks River and factors that might affect the number of bears returning each year. A better understanding of how the bear population fluctuates can provide insight into the overall health of the surrounding ecosystem. This study will also provide information on how bear populations regulate themselves and how they may be affected by environmental changes.

Soundscape

Sound equipment installation at Dumpling Point in late July, 2016.

The sounds around us can have a powerful impact on our emotions and enhance our experiences. At Katmai National Park and Preserve, natural sounds such as the call of American Robins or Greater Yellowlegs can signify the beginning of Spring. The purring sound of nursing bear cubs can delight visitors at Brooks Camp, whereas the sound of an animal sniffing around outside a tent at Hallo Bay can make for a fitful night's sleep for the campers. Natural sounds are an important component of the natural world and the park service strives to protect these resources.

In 2015, Katmai National Park, in cooperation with the NPS Natural Sounds and Night Skies Division, began a three-year soundscape inventory throughout the park's wilderness. Each year, sound recording equipment is installed at several backcountry locations where it records continuously for a month. During 2015 three sites were deployed, and in 2016 six sites were deployed. The timing of noise events and their energy (loudness) are of particular interest in this study. Noise impacts the wilderness character of the park by affecting both the naturalness of the ecosystem and the solitude that can be experienced by visitors.

In 2015, equipment was installed at Swikshak Lagoon, Pfaff Mine and in the Valley of Ten Thousand Smokes. In 2016, sound equipment was installed at Cape Douglas, Hallo Bay, and Katmai Bay on the coast, as well as at American Creek, Jo Jo Lake and on Naknek Lake in the park's interior. In 2017 the park anticipates deploying six more stations, located at Contact Creek, Ikagluik Creek, West Kukaklek Lake, Crosswinds Lake, Kamishak River, and Amalik Bay. If time allows, a station may be deployed at Lake Camp.

For more information on natural sounds research in the National Park Service go to: **http://www.nature.nps.gov/sound/index.cfm**

Late Cretaceous dinosaurs and their environments - Aniakchak National Monument

Drs. Tony Fiorillo and Yoshi Kobayashi documenting dinosaur footprints in Aniakchak National Monument.

In 2001, the first recorded dinosaur fossil for any National Park Service unit in the Alaska Region was discovered in a rock unit known as the Chignik Formation. This discovery was made during a general paleontological survey of Aniakchak National Monument (ANIA). While there are now numerous records of dinosaurs from Cretaceous rocks around the state of Alaska, the record of dinosaurs from the Mesozoic rocks of the southwestern part of the state remains very limited.

Now that so much more is known about dinosaurs and their environments from comparably-aged rocks elsewhere in Alaska, it was time to return to where the Alaska Region NPS dinosaur started. In 2016, an expedition to ANIA has revealed over 30 new track sites, dramatically increasing the dinosaur record from the Alaska Penninsula. The footprint assemblage from this part of the Chignik Formation is dominated by the footprints of the duck-billed dinosaurs, or hadrosaurs. The hadrosaur tracks range in size from those made by likely full-grown adults to juveniles. Rare tracks attributable to armored dinosaurs, or ankylosaurs, as well as fossil fishes, are also known from the new localities. These discoveries now make ANIA the NPS unit with the second most abundant dinosaur record in the Alaska Region. Future work in this park will continue building on what we think we know about the charismatic megafauna of the deep past.

Other Natural Resources Programs for 2017

• National Oceanic and Atmospheric Administration (NOAA) standing stock survey
We will continue long-term marine debris monitoring to document type and density of debris wash-up. Coastal sites include Swikshak Bay, Hallo Bay, Dakavak Bay and Aniakchak National Monument.

• Coastal Observation and Seabird Survey Team (COASST) surveys
In a partnership with the University of Washington we will continue to monitor Swikshak and Hallo Bays to document seabird mortality (count and identify beached birds). This will provide us with baseline data so that we may better understand the effects of environmental stressors such as changing climate, severe winters, and oil spills on seabird species.

• Seabird Colony and Marine Mammal Haul-out Mapping
We will complete a seabird colony and marine mammal haul-out inventory that was started last season. Updated information on colony and haul-out locations will help us to better understand population sizes and species use along the Katmai Coast.

• Stream and Meadow Surveys
Aerial bear surveys are flown over coastal meadows (June) and select salmon streams (July and August) at regular intervals to document bear use at these important seasonal foraging areas.

• Backcountry Impacts Monitoring
Rangers will collect field data including photos and GPS locations to document human impacts (evidence of camping, etc.) in the backcountry.

• Spatial Data Collection
Park GIS specialists will opportunistically collect GPS locations to geo-reference aerial photos and to update the Alaska Region database of buildings and installations.

• Statewide Digital Mapping Initiative
A contractor for the State of Alaska will collect coordinates from a few locations in Katmai as a control for digital maps produced from aerial photography.

• Using Hydrogen and Oxygen Isotopes in Volcanic Glasses for Paleoclimate Reconstruction
A researcher will study isotopes exposed in the vents of extinct fumaroles in the Valley of Ten Thousand Smokes to determine the value for reconstructing climates of the past.

Harbor seal haul-outs and seabird colonies will be surveyed along Katmai's coast this summer.

USFWS/K Payne

Glaucous-winged gulls are a common sight along the Katmai Coast.

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The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

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Program Updates

Lake Clark National Park and Preserve

Southwest Area Inventory and Monitoring Network

SUBSISTENCE DIVISION, LIZA RUPP (907) 644-3648

Lake Clark National Park Subsistence Resource Commission

- The Lake Clark Subsistence Resource Commission will meet in Port Alsworth on October 4th. The Commission held its winter meeting on February 15th in Pedro Bay.

NATURAL RESOURCES DIVISION, BUCK MANGIPANE (907) 781-2136

Interior Brown Bear Ecology Project

- Beginning in the fall of 2014, Lake Clark National Park (LACL) initiated a research project to determine brown bear home ranges, movement patterns, diet composition, and temporal and spatial characteristics of denning. This was the final year of the project with the remaining active collars set to release September 2017. Graduate student Lindsey Stutzman successfully completed her Masters of Science degree as part of this project in March 2017. There are currently 5 peer-reviewed articles submitted for publication that used data from this project.

Coastal Brown Bear Survey

- On June 18 and July 10, 2017, the park conducted brown bear trend counts to assess population status and bear distribution. During the June 18 flight, 124 groups of brown bears were observed totaling 254 bears. The July 10 survey observed 330 brown bears in 174 groups. The total number observed in June was the highest recorded in 14 years of conducting June surveys. The July survey results were the highest ever recorded during a trend count in LACL.

Moose Population Survey

- Park staff will conduct moose surveys in both the southern and central portion of the park to determine population size and composition. The survey is scheduled to begin as soon as adequate snow conditions are found in either region.

Dall's Sheep Survey

- Between June 25 and July 8, 2017, LACL staff attempted to conduct an aerial Dall's sheep survey of all sheep habitat within the park and preserve. Weather conditions limited flights to 3 days within that period, so efforts were focused on completing a survey of the central region of the park. We observed 90 groups of sheep totaling 285 sheep. Observed sheep were classified as 148 ewe-like, 68 lambs, and 69 rams. Data will be analyzed this fall to generate a population estimate for the central region.

Newhalen River Counting Tower

- Park staff estimated a total of 434,118 sockeye salmon past the Newhalen River counting towers this summer. This return was 9% higher than the average escapement since 2000 (399,000 fish) and comprised 14% of the total Kvichak River sockeye salmon escapement of 3.2 million fish. This project has been ongoing since 2000 and provides real-time information to subsistence fishers as well as reliable estimates of salmon escapement to the Lake Clark system.

Telaquana River Weir

- In collaboration with the Alaska Department of Fish and Game, park staff estimated a total of 138,418 sockeye salmon past the Telaquana River weir this year. This was the highest escapement to this system since monitoring began in 2010; 50% higher than the previous high of 90,725 sockeye and almost three times higher than the previous six-year average (36,374 sockeye). This project continues to provide a reliable estimate of salmon escapement to one of the few lake-rearing sockeye salmon populations in the Kuskokwim River drainage.

Chulitna River Fish and Water Inventory

- The objectives of this four year project are to quantify, surface water hydrology, water quality, physical habitat, and fish communities at multiple sites within the drainage. During the 2017 field season, surface water hydrology and water quality were collected by the U.S. Geological Survey at a stream gage located approximately 5 miles upstream of the river mouth. In addition, physical habitat and fish community data were collected by contractors and NPS staff from 16 locations throughout the watershed. This was the 3nd year of the project and will continue in 2018.

Least Cisco Spawning Distribution and Abundance

- This will be the second year of this project assessing the abundance and run timing of least cisco migrating into the Chulitna River drainage to spawn. While not considered an important subsistence or sport fish, least cisco, along with juvenile sockeye salmon, provide an important ecological role as they make up the base of the forage fish component in the Lake Clark system. A sonar unit on the Chulitna River will quantify the number of least cisco (and other fish species) migrating upstream to spawn. Radio telemetry and radio tagged fish will provide information on migratory patterns and spawning distribution throughout the system.

CULTURAL RESOURCES DIVISION, LIZA RUPP (907) 644-3648

Mitigate Damage to Kijik National Historic Landmark

- This project in partnership with the Nondalton Tribal Council (NTC) and the Kijik Corporation will be completed in the fall of 2017. The project includes conducting research at Historic Kijik that includes two components: 1) locating and protecting high risk archeological sites from flood damage due to beaver dams and other natural causes and 2) Dena'ina cultural preservation. In June 2017, the park and the NTC, with support from local elders, held another culture camp at Kijik for area youth. The archeologists, under contract with the NTC, taught archeological techniques to the camp. A final report for this project will be completed this fall.

Telaquana Trail Cultural Landscape Report

- The Telaquana Trail Landscape is an ethnographic and historic landscape associated with the Inland Dena'ina of Southcentral Alaska, as well as the Euro-American settlers that began to settle in the region after 1900 AD. During 2017, the contractor along with the park staff has continued to compile and review existing materials and traveled out to the Telequana Trail for further work this past June.

Document Expressive Culture of Area Dena'ina

- This multi-year collaborative project includes documenting Dena'ina expressive culture including stories, myth, dance, music and drama. Working with Dena'ina elders and community members, the project will record, describe, and evaluate present conditions of Lake Clark/Cook Inlet Dena'ina expressive culture. Park staff and researchers continue to compile related information, develop protocol for addressing sensitive-related materials.

Traditional Use Study for the Chulitna River-Sixmile Lake area

- The final field work for this project has been completed. This included follow-up interviews, visits to communities to share field work results, and work with tribes to obtain feedback for protocol development on protection and mapping of identified sensitive areas, including burials. A final draft report will be submitted for review by September of 2017.

Traditional Subsistence Practices and Transference of Knowledge to the Younger Generation

- This is a newly funded collaborative project between Lake Clark National Park and Denali National Park. In addition to the exchange of information between the two resident zone communities in each park, this project will: document historical and contemporary knowledge relating to subsistence practices; document changes to subsistence practice associated with technological and environmental factors including climate change, document key traditional practices beliefs, values and Athabascan language relation to place and practices and map travel routes and key subsistence use areas. This project is in the beginning planning stages.

SOUTHWEST ALASKA INVENTORY AND MONITORING NETWORK,
AMY MILLER (907) 644-3683

Bald Eagle Surveys

- Bald eagle surveys (nest occupancy and productivity) were conducted across LACL, along coastal areas of KEFJ, and around the Naknek Lake basin in KATM in 2017. Bald eagle populations in LACL appear stable, based on 23 years of survey data, and increasing spring minimum temperatures appear to affect chick productivity (expected number of chicks per active nest). A SWAN project that began in 2016 with the US Geological Survey and South Dakota State University is using Delphi surveys and Structured Decision Making to refine bald eagle monitoring objectives, management questions, and methods in multiple parks (LACL, KATM, KEFJ, WRST). This project will continue into 2018 and will include at least one work session with cooperators and biologists from the parks.

Moose Surveys – Protocol Development

- SWAN is developing a moose survey protocol that will mimic the protocol used by the state of Alaska, but allow for sampling in the spring when snow cover is more reliable. This modification should allow the parks to estimate total moose abundance, but without accompanying composition data (bull:cow and cow:calf ratios).

Vegetation Monitoring

- New vegetation monitoring sites were established in black spruce woodlands in the northern interior and southwest corner of LACL, and in white spruce woodlands near Naknek Lake and Lake Brooks in KATM. The areas visited in LACL included a section of the burn (2015) south of Telaquana Lake, which will provide information regarding post-fire recovery. A second area is centered on a small lake southeast of the headwaters of the Chulitna River. This year also marked the first five-year revisit of several alpine monitoring sites in LACL, and of mid-elevation tundra sites in KATM. A five-year project to inventory lichens in KATM, LACL, and KEFJ was completed by Dr. Bruce McCune (Oregon State University) this summer, and a study on growth responses in white spruce continues into 2018 with Dr. Rosemary Sherriff (Humboldt State University).

Coastal Marine Invertebrate Study

- Two coastal projects examining subtidal and intertidal habitats and marine invertebrates along the LACL coast completed their final year. One project, funded by the Bureau of Ocean Energy Management (BOEM), aims to identify sensitive habitat and develop monitoring protocols for invertebrate density and distribution. The second project, a collaboration among the NPS, USGS, and Alaska Sea Life Center, is focused on bivalve (e.g., mussels, clams) health and caloric content, as food for bears.

Visitor Use Data Updates

- Regional and national concessions staff are exploring a new system to manage Commercial Use Authorization (CUA) operator visitor use data. The intent is to upgrade the current region-wide program to enable commercial operators to enter their own data directly into a CUA database. SWAN will continue to work with AKRO and the parks to ensure that required data are captured, data entry forms are easy to understand, and data are output in an understandable format for use and analysis. Over the last ten years, the number of visitor use days reported by businesses operating in LACL has increased from approximately 4,000 days to over 15,000 days. Most of this increase has been on the Cook Inlet (coastal) side of the park. In 2016, Crescent Lake, Silver Salmon Creek, and Chinitna Bay were the most highly visited places in the park, together accounting for over 75% of visitation. In KATM, the number of visitor use days has fluctuated between 25,000 and 30,000 per year. Brooks Camp remains the most highly visited area of the park, followed by Hallo Bay and Moraine Creek.

Elodea Surveys

- *Elodea* is the first submerged aquatic invasive plant to become established in Alaska. It was originally found in Eyak Lake near Cordova in 1982. Since then, it has been documented in 20 other waterbodies in the state, including Lake Hood, the world's busiest floatplane base. At present, no known infestations exist within NPS park boundaries. However, few parks have conducted surveys to look for *Elodea* in high-risk

locations. Last summer, water samples were collected from 8 lakes in LACL and tested for *Elodea* DNA. Additional rake surveys were conducted at 5 lakes, targeting areas with high floatplane traffic. As part of these surveys, lake bathymetry and vegetation density were mapped using a Lowrance depthfinder and Biobase software. No *Elodea* was found during the 2016 surveys. This summer, the rake surveys and depthfinder mapping have continued, with the help of two Student Conservation Association interns.

Water Temperature Monitoring

- The Southwest Alaska Inventory and Monitoring Network has monitored water temperature year-round in Lake Clark since 2006, and in Kijik Lake since 2010. This monitoring relies on the use of programmable data loggers attached at various depths to moored vertical lines called "temperature arrays." Data from the arrays allow tracking of freeze-up and break-up dates, lake stratification, and large-scale wind events, all of which influence lake productivity. Data loggers were downloaded in June of 2017. In July, a new array was built for deployment on Telaquana Lake. Weather permitting, deployment will occur in September.

Water Quality Monitoring

- Routine water quality monitoring includes measuring pH, turbidity, conductivity, and dissolved oxygen, in addition to water temperature. These parameters were measured at 30 sites on Lake Clark during July, and at single sites in 15 smaller lakes. They have also been measured hourly at the outlet of Lake Clark since April.

Winter 2018 Regional Advisory Council Meeting Calendar

February-March 2018

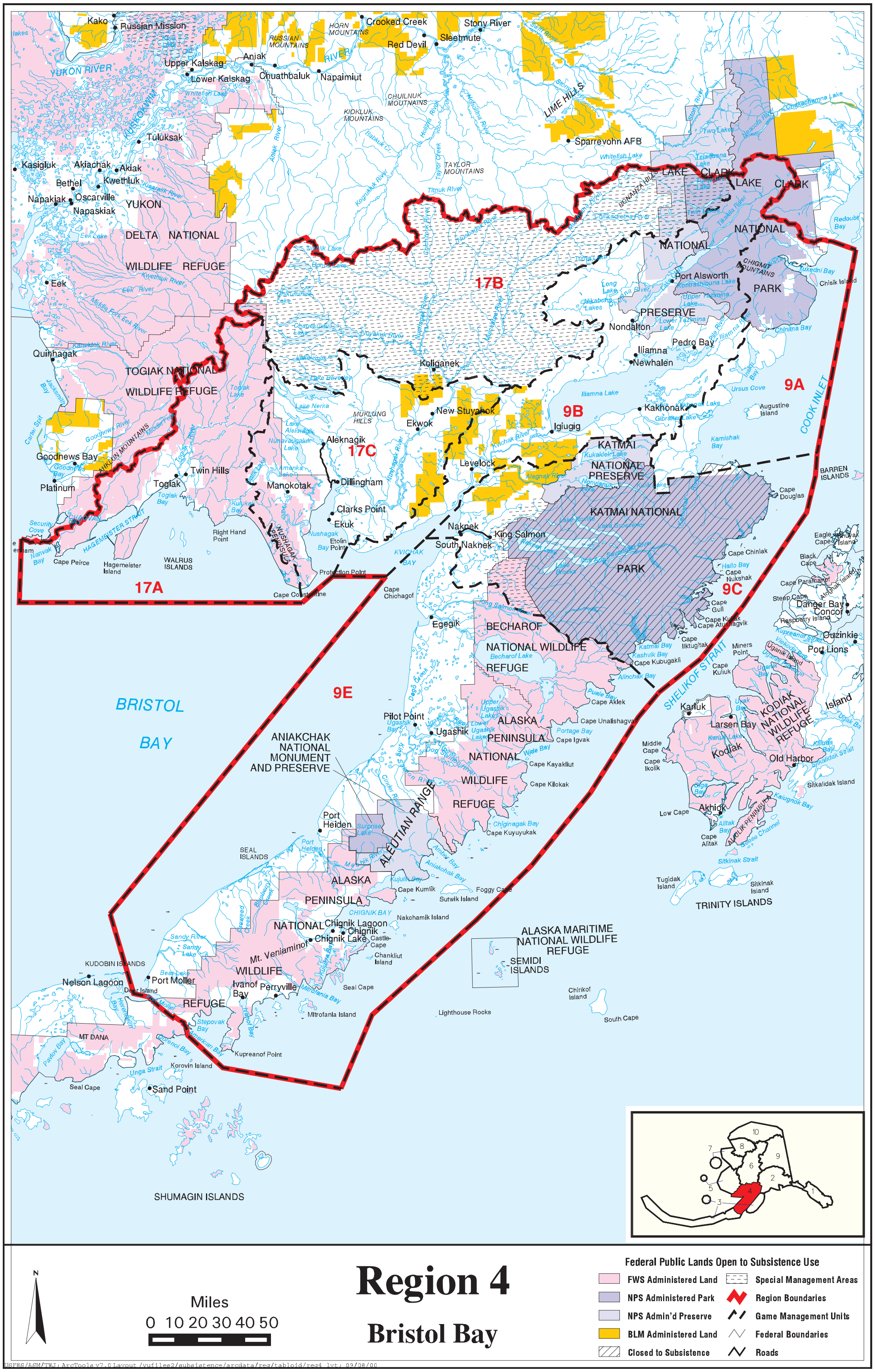
Meeting dates and locations are subject to change.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Feb. 4	*Feb. 5* *Window Opens*	*Feb. 6*	*Feb. 7* **EI — Fairbanks** **SE — Wrangell**	*Feb. 8*	*Feb. 9*	*Feb. 10*
Feb. 11	*Feb. 12*	*Feb. 13* **NS — Utqiaġvik**	*Feb. 14*	*Feb. 15*	*Feb. 16*	*Feb. 17*
Feb. 18	*Feb. 19* ***PRESIDENT'S DAY*** ***HOLIDAY***	*Feb. 20* **WI — Anchorage**	*Feb. 21* **KA — Kodiak**	*Feb. 22*	*Feb. 23*	*Feb. 24*
Feb. 25	*Feb. 26*	*Feb. 27* **BB — Naknek (1st opt.)**	*Feb. 28* **NWA — Kotzebue**	*Mar. 1*	*Mar. 2*	*Mar. 3*
Mar. 4	*Mar. 5* **SP — Nome**	*Mar. 6* **SC — Anchorage**	*Mar. 7*	*Mar. 8*	*Mar. 9*	*Mar. 10*
Mar. 11	*Mar. 12*	*Mar. 13* **BB — Naknek (2nd opt.)**	*Mar. 14* **YKD — Bethel**	*Mar. 15*	*Mar. 16* *Window Closes*	*Mar. 17*

Fall 2018 Regional Advisory Council Meeting Calendar

Meeting dates and locations are subject to change.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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*	*Sept. 1*
Sept. 2	*Sept. 3* ***LABOR DAY HOLIDAY***	*Sept. 4*	*Sept. 5*	*Sept. 6*	*Sept. 7*	*Sept. 8*
Sept. 9	*Sept. 10*	*Sept. 11*	*Sept. 12*	*Sept. 13*	*Sept. 14*	*Sept. 15*
Sept. 16	*Sept. 17*	*Sept. 18*	*Sept. 19*	*Sept. 20*	*Sept. 21*	*Sept. 22*
Sept. 23	*Sept. 24*	*Sept. 25*	*Sept. 26*	*Sept. 27*	*Sept. 28*	*Sept. 29*
Sept. 30	*Oct. 1*	*Oct. 2*	*Oct. 3*	*Oct. 4*	*Oct. 5*	*Oct. 6*
Oct. 7	*Oct. 8* ***COLUMBUS DAY HOLIDAY***	*Oct. 9* **SE — TBD**	*Oct. 10*	*Oct. 11*	*Oct. 12*	*Oct. 13*
Oct. 14	*Oct. 15*	*Oct. 16*	*Oct. 17*	*Oct. 18* **AFN — Anchorage**	*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	*Nov. 5*	*Nov. 6*	*Nov. 7*	*Nov. 8*	*Nov. 9*	*Nov. 10*



Region 4
Bristol Bay
Miles
0 10 20 30 40 50
N
Federal Public Lands Open to Subsistence Use
FWS Administered Land
NPS Administered Park
NPS Admin'd Preserve
BLM Administered Land
Closed to Subsistence
Special Management Areas
Region Boundaries
Game Management Units
Federal Boundaries
Roads
17A
17B
17C
9A
9B
9C
9E
BRISTOL
BAY
COOK INLET
SHELIKOF STRAIT
YUKON DELTA NATIONAL WILDLIFE REFUGE
TOGIAK NATIONAL WILDLIFE REFUGE
LAKE CLARK NATIONAL PARK
LAKE CLARK NATIONAL PRESERVE
KATMAI NATIONAL PRESERVE
KATMAI NATIONAL PARK
BECHAROF NATIONAL WILDLIFE REFUGE
ALASKA PENINSULA NATIONAL WILDLIFE REFUGE
ANIAKCHAK NATIONAL MONUMENT AND PRESERVE
KODIAK NATIONAL WILDLIFE REFUGE
ALASKA MARITIME NATIONAL WILDLIFE REFUGE
ALEUTIAN RANGE
SEMIDI ISLANDS
TRINITY ISLANDS
SHUMAGIN ISLANDS
Kako
Russian Mission
Crooked Creek
Stony River
Red Devil
Sleetmute
Upper Kalskag
Lower Kalskag
Aniak
Chuathbaluk
Napaimiut
Sparrevohn AFB
Tuluksak
Kasigluk
Akiachak
Akiak
Bethel
Kwethluk
Napakiak
Oscarville
Napaskiak
Eek
Quinhagak
Goodnews Bay
Platinum
Twin Hills
Togiak
Manokotak
Aleknagik
Dillingham
Clarks Point
Ekuk
Koliganek
Ekwok
New Stuyahok
Levelock
Igiugig
Kakhonak
Iliamna
Newhalen
Pedro Bay
Nondalton
Port Alsworth
Naknek
King Salmon
South Naknek
Egegik
Pilot Point
Ugashik
Port Heiden
Chignik Lagoon
Chignik
Chignik Lake
Mt. Veniaminof
Ivanof Bay
Perryville
Port Moller
Nelson Lagoon
Sand Point
Karluk
Larsen Bay
Kodiak
Old Harbor
Akhiok
Ouzinkie
Port Lions
Danger Bay
Concor

Department of the Interior
U. S. Fish and Wildlife Service

Bristol Bay Subsistence Regional Advisory Council

CHARTER

1. **Committee's Official Designation.** The Council's official designation is the Bristol Bay 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 (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.** The Council has authority to perform the following duties:

    a. Recommend the initiation of, review, and evaluate 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 decisionmaking 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. Appoint three members to the Lake Clark National Park and three members to the Aniakchak National Monument Subsistence Resource Commissions, in accordance with Section 808 of the Alaska National Interest Lands Conservation Act (ANILCA).

f. Make recommendations on determinations of customary and traditional use of subsistence resources.

g. Make recommendations on determinations of rural status.

h. Provide recommendations on the establishment and membership of Federal local advisory committees.

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 $135,000, including all direct and indirect expenses and 1.0 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 7, U.S. Fish and Wildlife Service. The DFO is a full-time Federal employee appointed in accordance with Agency procedures. The DFO will:

   - Approve or call all of the Council and subcommittee meetings,
   - Prepare and approve all meeting agendas,
   - Attend all Council and subcommittee meetings,
   - Adjourn any meeting when the DFO determines adjournment to be in the public interest, and
   - 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 it 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:

Ten 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 Federal Subsistence Board in their nomination recommendations to the Secretary will strive to ensure that seven of the members (70 percent) represent subsistence interests within the Region and three 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. A vacancy on the Council will be filled in the same manner in which the original appointment was made. Members serve at the discretion of the Secretary.

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 specific party matter in which the member has a direct financial interest in a lease, license, permit, contract, claim, agreement, or related litigation with the Department.

14. **Subcommittees.** Subject to the DFO's 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. The Council Chair, with the approval of the DFO, will appoint subcommittee members. 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 of the Council, shall be handled in accordance with General Records Schedule 6.2, and other approved Agency records disposition schedule. These records shall be available for public inspection and copying, subject to the Freedom of Information Act, 5 U.S.C. 552.

Secretary of the Interior

NOV 2 0 2015
Date Signed

DEC 0 3 2015
Date Filed

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