NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Meeting Materials

November 15-17, 2017
Utqiagvik

What's Inside

On the cover...

The Teshekpuk Caribou Herd is an important subsistence resource to the residents of Ataqasuk, Barrow, Nuiqsut, and Wainwright.

Photo by Bob Wick, BLM

What's Inside

NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Inupiat Heritage Center
Utqiagvik

November 15-17, 9:00 am ~ 5:30 pm

TELECONFERENCE: call the toll free number: 1-866-864-5314, then when prompted enter the passcode: 3091862.

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 Reports
   - Chair's Report
8. **Call for Regional Advisory Council Applications and Nominations for 2018**
9. **Public and Tribal Comment on Non-Agenda Items** (available each morning)
10. **Old Business** (*Chair*)
    - Special Action Updates
      - WSA17-02 23
      - WSA17-03 24

11. New Business (*Chair*)

a. Wildlife Proposals* (OSM Wildlife/Anthropology)

Agency reports with updates relevant to the wildlife proposals will be provided prior to proposal review

Regional Proposals

Crossover Proposals

Statewide Proposals

Discussion on other regions proposals with no C&T Determinations

12. Agency Reports

(Time limit of 15 minutes unless approved in advance)

Tribal Governments

Native Organizations

National Park Service

Gates of the Arctic National Park and Preserve

US Fish and Wildlife Service

Arctic National Wildlife Refuge

Barrow Field Office

Bureau of Land Management

National Petroleum Reserve–Alaska

Alaska Department of Fish and Game

Caribou updates

Chandler Lake FRMP Research Project Update

Arctic Landscape Conservation Cooperative 555

Office of Subsistence Management

13. Future Meeting Dates*

Confirm Winter 2018 meeting date and location 559

Select Fall 2018 meeting date and location 560

14. Closing Comments

15. Adjourn (*Chair***)**

To teleconference into the meeting, call the toll free number: 1-866-864-5314, then when prompted enter the passcode: 3091862.

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 Eva Patton, 907-786-3358, eva_patton@fws.gov, or 800-877-8339 (TTY), by close of business on November 7, 2017.

REGION 10
North Slope Subsistence Regional Advisory Council

Seat	Year Appointed *Term Expires*	Member Name and Community	
1	1998 ***2017***	**Gordon R. Brower** Barrow	**Chair**
2	2011 ***2019***	**Robert V. Shears** Barrow	
3	2016 ***2019***	**Wanda T. Kippi** Atqasuk	**Secretary**
4	2015 ***2019***	**Steve A. Oomituk** Point Hope	
5	***2017***	***VACANT***	
6	***2017***	***VACANT***	
7	***2017***	***VACANT***	
8	2016 ***2018***	**Ester S. Hugo** Anaktuvuk Pass	
9	2006 ***2018***	**Lee Kayotuk** Kaktovik	**Vice Chair**
10	2002 ***2018***	**Rosemary Ahtuangaruak** Barrow	

NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Inupiat Heritage Center
Utqiagvik, Alaska

March 15-16, 2017

MEETING MINUTES

Council Members Present:

Gordon Brower
Lee Kayotuk
Wanda Kippi
Ester Hugo
Steve Oomituk (via teleconference)
Rosemary Ahtuangaruak – (via teleconference)

Meeting Attendees:
Eva Patton, Council Coordinator, Office of Subsistence Management
Stewart Cogswell, Acting Deputy Regional Director, Office of Subsistence Management
Tom Evans, Wildlife Biologist, Office of Subsistence Management
Joshua Ream, Anthropologist, Office of Subsistence Management
Ernest Nageak, Native Liaison, Barrow Field Office, USFWS
Marcy Okada, Subsistence Coordinator, Gates of the Arctic National Park.
Hollis Twitchell, Assistant Manager, Arctic National Wildlife Refuge
Vince Mathews, Subsistence Coordinator for Arctic, Kanuti and Yukon Flats
Ryan Klimstra, Wildlife Biologist, Alaska Department of Fish and Game, Fairbanks
Darren Bruning, Area Management Biologist, Alaska Department of Fish and Game, Fairbanks
Brendon Scanlon, Fisheries Research Biologist, Alaska Department of Fish and Game, Fairbanks
Pat Petrivelli, Anthropologist, Interagency Staff Committee, Bureau of Indian Affairs
Brian Person, Biologist, North Slope Borough Division of Wildlife Management
Roy M. Nageak, BLM NPR-A, Barrow Office
Doreen Lampe, Director, Inupiat Community of the Arctic Slope (ICAS)
Clarissa Elbertai, Inupiat Community of the Arctic Slope (ICAS)
Aubie Greg, Inupiat Community of the Arctic Slope (ICAS)

Via teleconference:
Chester Galloway, Wildlife and Parks Director, Native Village of Point Hope
Lupita Henry, Native Village of Point Lay
Fred Tukroot, Point Lay
Carolina Behe, Inuit Circumpolar Council

Kumi Rattenbury, Wildlife Biologist, Gates of the Arctic National Park
Hillary Robinson, Chief of Resources, Western Arctic Parklands
Lincoln Parrett, Area Research Manager, Alaska Department of Fish and Game, Fairbanks
Beth Lenart, Wildlife Biologist, Alaska Department of Fish and Game, Fairbanks
Jill Klein, Special Assistant to the Commissioner, Alaska Department of Fish and Game
Pippa Kenner, Anthropologist, Office of Subsistence Management
Lisa Maas, Wildlife Biologist, Office of Subsistence Management
Robbin LaVine, Anthropologist, Office of Subsistence Management
Clarence Summers, National Park Service, Interagency Staff Committee
Dan Sharp, Bureau of Land Management, Interagency Staff Committee

Welcome and introductions:
Invocation provided by Roy Nageak, Sr.

Roll Call: New Council members Wanda Kippi of Atqasuk and Ester Hugo of Anaktuvuk Pass were welcomed to their first meeting. Council members Rosemary Ahtuangaruak and Steve Oomituk were unable to travel to attend the meeting in person but participated via teleconference. Robert Shears unable to attend due to conflict with new job schedule. Sam Kunaknana moved outside of the region and is no longer eligible to serve on the North Slope Subsistence Regional Advisory Council. Quorum was established for the majority of the meeting for all action items. With the Council membership currently at seven members, the presence of only five members was required to establish a quorum.

The Council nominated Gordon Brower to serve as Acting Chair for this meeting until the election of officers was completed. With a quorum present, the motion carried.

Review and Adopt Agenda: The Council reviewed the agenda and added Tribal Consultation and Alaska Native Relations policy updates and voted to rearrange some agenda items to accommodate timing for guest speakers for agency reports. Wildlife Special Action XXX- to the agenda for review and recommendation to the Board and increased the time limit for the ADF&G caribou report to have a full review and discussion on the status of the caribou herds. A muskox update was also added to the agenda. The Council also voted to address all action items on the agenda first while they had quorum.

Review and Approve Previous Meeting Minutes: The Council reviewed and approved the October 31 and November 1, 2016 meeting minutes. A correction was made to the spelling for public participant Lewis Brower.

Election of Officers: The Council elected the following officer positions by unanimous consent:
Gordon Brower – Chair
Lee Kayotuk – Vice Chair
Secretary – Wanda Kippi

Appointment to the Gates of the Arctic Subsistence Resource Commission: Marcy Okada, Subsistence Coordinator provided the Council with background on the Park Service Subsistence Resource Commission (SRC). There are a total of nine seats: three appointed by the Governor of the State of Alaska, three appointed by the Secretary of the Interior, and three RAC appointments (one from each of the three RAC regions surrounding the park). The is a vacancy for a sitting North Slope RAC member from a resident zone community to Gates of the Arctic National Park with knowledge of subsistence uses in the park to serve on the SRC. The Council made a motion to nominate Esther Hugo of Anaktuvuk Pass to serve as the North Slope Subsistence Regional Advisory Council representative to the Gates of the Arctic National Park SRC. Motion passed unanimously.

Council member reports:

Gordon Brower – Utqiagvik: Gordon expressed concern about Council membership needing representation from all communities across the North Slope region and balance so as not to have "overrepresentation" from Barrow. He noted that Harry Brower, Jr. recent resignation from the Council when he was elected Mayor of the North Slope Borough left another vacant seat on the Council. Gordon noted that people are very busy and wear many hats and new Council member recruitment has been difficult in villages where the Council has not had an opportunity to meet. He stressed the very important work of the Council for subsistence and communities in the region and he said he takes his role and that of the Council very seriously and makes a commitment to make the meetings a priority even with his busy work schedule.

Gordon reported that fishing was very difficult because even though the fish were running good the temperatures were too warm to freeze the fish and eggs right away to properly preserve them. He noted that most people he heard from in Barrow had indicated that the fall temperatures were too warm to freeze broad whitefish outside as they usually do when they harvest the fall spawning run and they had problems with their fish spoiling. This was the first time he was not able to get fish himself and had to look to the neighboring community of Nuiqsut to order some sacks of fish and fly it back for his own consumption.

Gordon relayed other fisheries concerns reported to him from other local fishermen about declining whitefish catches in Tusikruak Lake, which is a big lake about 18 miles southeast of Barrow. He noted this lake is heavily used for subsistence and has the best tasting whitefish but productivity has been much reduced in recent years and he is interested in a study to learn why. Gordon noted that the caribou were pretty good and that many people got caribou even though they had to go looking for them. The caribou in the fall right before the rut were in good condition.

Gordon reported that he hears from people for over the past four years that connex boxes placed for a science project by USGS in the migration of the caribou migration are still causing the problems and the caribou are not migrating through their usual path. He noted that he had an opportunity to view the area by helicopter and could see the connex box and numerous tents set up in an area of migration pathways visible from the air. Gordon described the area as the main

caribou trail that would come up between Aluktuk and Chipp and Ikpikpuk and go out towards Ishuluminik but now they are not following that path anymore, they have moved to the west.

Gordon relayed that in his work he talks with many villages and they are worried about subsistence. The North Slope Borough has been working on comprehensive planning and has been documenting each villages hunting and subsistence areas termed "are of influence" that warrant more protections in the case of development and help inform projects of important subsistence use area and develop policies to protect subsistence. Gordon expressed that the Federal land managers and OSM should follow similar initiatives to document and protect important subsistence areas and manage to allow continued subsistence opportunities in these areas. Gordon referenced Squirrel River in Unit 23 as an example of an area where they have been hearing subsistence concerns for years and would benefit from some comprehensive planning. He stressed that it is important for communities to pass on traditional subsistence knowledge not passing on an argument and stress that comes with ongoing user conflict issues. Gordon noted that he takes these subsistence concerns very seriously and are issues of food security for these communities.

Gordon discussed his work with the North Slope Borough Planning Department and facilitating mitigation planning when permitting projects in the region that may impact subsistence. He encouraged people to contact the NSB Planning Department to discuss options for mitigation planning.

Rosemary Ahtuangaruak – Nuiqsut: Rosemary shared about the loss of her mom and how grateful she was for friends and family from every village in the region that shared traditional foods with them and her mom was able to get all the Inupiaq food varieties she requested that helped to feel better. Rosemary stressed that this sharing network is a very important part of their culture and the traditional foods is especially important when families are in need. She noted having discussions about particular foods and then cousins would come knocking to share that. Rosemary stressed that all these varieties of subsistence foods and the traditions of sharing are very important to sustain for future generations.

Rosemary shared her involvement in the FRMP process through the Working Group formed by the Council to address priority information needs and community engagement in research. She stressed that it is important for communities to be engage effectively in the research and monitoring process around their subsistence areas. She noted that the Tribes in the region will be here for generations to come and research projects come through each with their own ways but that it is important for communities to own these projects. Rosemary expressed concern that they have to defend against their traditional knowledge being cut down to bite sized pieces and in some cases taken out of context and reports written without their knowledge or used to allow development projects go forward.

Rosemary stressed that it is important for communities to be involved in the process to make informed decisions on whether projects should occur of not or if they should take place at a different time of year to avoid interfering with subsistence activities. She noted she works very hard to stay informed and advocated for the community so that subsistence activities are not impacted. Rosemary stressed communicating effectively and making sure that even projects that

are desired for the information do not end up competing with subsistence activities in the area because there is already a lot of traffic.

Wanda Kippi – Atqasuk: Wanda reported that hunting this year was a little slow due to many bear in the usual hunting areas around Atqasuk that scared the caribou and reindeer away. This caused people to have to travel much farther to hunt this year. Wanda reported that the Anakluk and Pikutuak whitefish they usually catch were a little low in numbers this summer. She noted that there were a lot of dog salmon (Chum Salmon) this year and wondered what the change was that caused so many dog salmon to come all the way up the river to the lakes where they fish for whitefish. She relayed that when they put their nets out to catch Anakluk and Piktutuak that they ended up catching more dog salmon. She noted the dog salmon tastes different than the whitefish they traditionally catch to eat and prefer. Wanda reported that it was a late freeze-up this year and that freeze-up is happening later and later each year. Gordon concurred with her that the later timing of freeze up has caused more and more of a hardship for fishing in the fall in mid-September to mid-October.

Wanda noted that she had enquired with the community but did not have any specific reports or proposals from the Tribe or City Council of Atqasuk at this time.

Lee Kayotuk – Kaktovik: Lee shared that it was a "rough" winter in the sense that it was very windy weather with storms with up to 80 mile an hour winds. This made it very difficult for people to be able to travel, camp, or hunt for nearly two months this winter. Lee noted that there were some caribou or reindeer 26 miles to the east of Kaktovik but people had to hunt mostly around the village because of the windy weather conditions. He hoped people would be able to get out to hunt and get some meat for the community soon. Right now they don't have much snow and the polar bears have not showed up yet.

Steve Oomituk – Point Hope: Steve shared that it had been a good year for subsistence. There were a lot of caribou this year – a lot better than last year. The caribou remained close to the community, just beyond the snow fence, and they can still be heard all over the area nearby. Steve relayed that he felt the closure to non-resident hunters in Unit 23 had helped the caribou to migrate towards Point Hope and they came close to the community for the first time in quite a while. It was a good year for caribou harvest and many of the young hunters caught their first caribou. Steve relayed that they saw a lot of calves this year and was hopeful the caribou population would come back up.
Steve noted that the ice conditions were good this year – very thick. It was a cold winter with an east wind and a lot of snow. Point Hope hunters saw a lot of wolves this year but not as many wolverines.

Esther Hugo – Anaktuvuk Pass: Esther relayed that she was very happy to be at the Council meeting. She shared that there was not a much activity going on in her community right now. Her son-in law got a caribou recently but they had to travel very far north to look for them since the caribou are not close by but the winter temperatures were cold minus 30 degrees. They have had issue with caribou – they did come in the fall time finally this year but the caribou came through so fast and many were not able to catch what they needed to make it through the winter. Esther relayed they only got one caribou and she tried to make it last but couldn't and ended up

having to buy some reindeer meet shipped in from outside and it was so expensive. People are hurting in Anaktuvuk Pass especially the elders and families without hunters. People eat caribou and there is really no substitute and like chicken or steaks or hotdogs bought at the store are so expensive it is not affordable especially since there are many who are unemployed. These things do not last like being able to hunt caribou.
Ester noted that there was not much trapping this year but there were a lot of wolves close to the community and even on the airstrip and that they were very skinny and looking hungry.

Public and Tribal Comment on Non-agenda items:

Roy Nageak - Barrow expressed concern about trapping close to the community in areas where children might be playing or people out walking their dogs. He relayed an incident near Barrow where a dog got caught in a Conibear trap. He urged people to be cautious and keep trapping activities outside of the vicinity of the community.

Roy shared that through traditional knowledge they were taught how to look at animals and know which way they go, how to utilize them and how not to hunt them to extinction in part by moving to other areas. He relayed that they used to move camp when the fish became low in one place and when to not hunt the caribou during the migration. They also learned the best time of year for hunting like when the caribou go down to the shoreline to get away from the mosquitos is the best time to hunt for making fresh dry meat. They hang the raw meat for 2, 3 or 4 weeks to make drymeat to eat over the wintertime. And then in the fall time when the caribou start to go inland they would go hunting in August to harvest caribou when the fur is good for making clothing. They don't use the hides for clothes as much anymore but they do use the sinew and the fall time is when the caribou are at their fattest to use for (Inupiaq word). He usually sees the caribou run away from the mosquitos and go to Prudhoe Bay, Oliktok, Milne Point, and the big herd now head towards the upper Teshekpuk area. Now however the herd is getting disturbed and harassed around the haul road just at the time they need to go back and get fat for the winter. Roy stressed that when the caribou get harassed they will go someplace else.

Roy relayed that when talking about rules and regulations it was important to remember the elder's teachings from the Inupiaq perspective to not argue about animals. The elders taught that when you start to try to control an animal, say that it is yours, or argue about it that they will go away. He encouraged people to keep that in mind and find a better way to manage and to avoid conflict. Roy also relayed that sometimes Federal or State managers think if there is no feedback from the community that it means it is all right but rather it is the elders not wanting to fight over the animals if they are to be regulated.

Roy relayed that traditional knowledge and Inupiaq values have controlled their way of life for thousands of years. This includes traditional knowledge of the animals and conservation to not deplete the animals. People also learned the caribou migration and knowledge of where the herds have been in previous years and are able to forecast where they will go. He felt the closure in Unit 23 helped the caribou to migrate freely.

Roy expressed concern about the rising sea level in the region inundating freshwater lakes that are closer to shore close to Wemuska and Kausriluk Lakes. He wonders what the impact is to fish in the region. This lake is used by the anaaklik (whitefish – big or broad) where they stay for a while when they start to spawn. Other inland lakes lost approximately half their water volume this summer such as Sumarok or Kuralik Lake which is one of the biggest lakes next to Barrow and where they used to go for fresh water ice. This was a good year for Kalugrauk (chum salmon). Roy relayed that he has seen more salmon than before but worries about what the interaction with whitefish. Overall he is worried about changing weather patterns and influx of sea water into the lakes will have on their subsistence fish.

Roy stressed the need for State and Federal agencies to work together on management since fish and caribou know no boundaries. He felt the financial challenges at the State level right now would make it difficult to manage across the State and creates a need for the Federal entities to engaged more especially in areas where there is conflict over resources. To manage a species like caribou requires the State and Federal management to work hand in hand and work with local people and their traditional knowledge. Roy stressed management for the overall wellbeing of the caribou herd but he felt if permits were warranted for subsistence hunters all planes involved with hunting in the region should also be tracked with GPS.

Lupita Henry – Point Lay. Lupita spoke on her own behalf as a hunter. She had heard concerns from the community of Point Lay about the registration permit that was coming to the region. People did not think it was fair to the village and community to have to get a permit for hunting caribou. She personally felt she should not have to go out and get a piece of paper to get her own food that is free to catch when she wants. Lupita relayed the story that when September 11th happened and planes were not able to fly the local store was not able to be restocked and the village had no food except for their traditional foods that they hunted. She stressed the importance of having access to their Native foods and to be able to hunt for themselves. Lupita expressed concern for increasing oil and gas development in the region and felt that if caribou was declining big game hunting should be the first to be closed because the subsistence hunters rely on caribou for their food.

Fred Tukroot – Point Lay. Fred introduced himself as an elder born and raised in Point Lay. He relayed that he has watched the fish and wildlife since he was born and while they did not send you to school in those days he grew up learning about the traditional laws of hunting. Fred stressed that people should be proud of their traditional education and that they are doing a good job of what they do as Native people.

Tribal Comments:

Inupiat Community of the Arctic Slope (ICAS) – Doreen Lampe, Executive Director ICAS, a Federally recognized regional tribal government encompassing all eight villages on the Arctic Slope. Doreen addressed the permitting of natural resources and expressed that she hoped that route was not taken since it would pose a burden and hassle for subsistence hunters. Permitting requirements was one of the last things that subsistence hunters and fishers would want to take on. Doreen stressed that there should be consultation directly with the people that would be impacted by the regulations. She relayed that people were really tired of going to meetings and

have felt like it is one-way flow of information with the proposed regulation being stated and the people who are most affected not taken into consideration until there is a citation for a hunter going over the bag limit.

Doreen reported that ICAS held a strategic plan meeting with all of its villages for the past three years at the ICAS annual meeting. The main concerns raised by villages were the air traffic scaring caribou away from their summer camps. She concurred with comments made by Roy Nageak Sr. that the recommendation of installing GPS tracking systems for managers to track and mange air guiding outfitters would be a good step to help address these concerns. Doreen relayed she had heard many hunters expressing great frustration to the point of radical statements wanting to shoot planes down because the caribou had been deflected away from their summer camps and they were not able to harvest any. She relayed that she brought these concerns to the BLM Subsistence Advisory Committee, noting that there were many organizations that they work with to address subsistence issue on their behalf. ICAS is working on developing a hunter-gatherer commission to help maintain access to traditional hunting and fishing grounds. She relayed that it is difficult for individual hunters or village to address the issues of air traffic interference with their traditional hunting activities but that all together they could help tackle these issues that are affecting all villages across the North Slope region.

Council members concurred that air traffic deflecting caribou was an ongoing concern for their communities. Several Council members relayed observations of aircraft flying low over caribou and some challenges with industry and researchers in the region not heading community feedback on areas and times to avoid disturbing subsistence hunters or deflecting the caribou herds.

Doreen relayed that there are so many local, regional, State and Federal organizations and that they do not communicate effectively with one another. She noted having to attend so man y different meetings and all entities reporting separately of their work. She hope the ICAS Hunter-Gatherer organization could help bridge all of these organizations and information to advocated for the subsistence hunter but getting funding to for a startup has been difficult. Doreen stressed the importance and autonomy of the Tribes in the region and that the tribes themselves have been left out of critical negotiations that were conducted by organizations such as the Nanuq commission. She stressed that above all else the people, Tribes, and traditional way of life and access to healthy habitat matter most. Doreen relayed that there are many organizations trying to manage for a subsistence way of life and conservation but that if oil is found in any North Slope region then it would get re-zoned for development in a heartbeat. She stressed that conservation districts should remain conservation areas and protect subsistence.

Wildlife Closure Review: Tom Evans, Wildlife Biologist for the Office of Subsistence Management provided the Council with an update on the Federal Subsistence Board Closure Policy. Section 804 and 815 of ANILCA allow the Federal Subsistence Board to restrict or close the taking of fish and wildlife by subsistence or non-subsistence users on Federal public lands when necessary for the conservation of healthy fish and wildlife populations or to continue subsistence uses. Closure reviews are conducted every three years to evaluate the status of the wildlife population and any new information that may allow the closure to be rescinded.

Councils are asked to consider the information and share their knowledge and make a recommendation to the Board.

The current closure under review for the North Slope region addresses musk ox on federal lands in 26C. Hunting is closed to the hunting of muskox in this area except by rural residents from the Village of Kaktovik. Permits issued to Kaktovik will not exceed three percent of the muskox counted in Unit 26C during the pre-calving census. The population has remained very low since 2003 and the State has not had an open season for muskox since 1992. Hollis Twitchell of Arctic Wildlife Refuge shared observations from recent aerial surveys that there was a small group of muskox observed on the Kongakut River in the summer of 2015 but that this group usually resides in Canada. Hollis further relayed that the muskox population on the Refuge had shifted east and west to Canada and along the Dalton Highway but very few had remained within the Refuge.

Currently muskox numbers have been so low that it is in single digits and OSM's prelimary recommendation is to maintain the closure. Council member Lee Kayotuk of Kaktovik expressed support for the closure in the hopes that the population would rebound so that a hunt could be opened again in the future. The Council unanimously supported a motion to maintain the status quo and keep the closure for muskox in Unit 26C.

Call for Call for Federal Wildlife Proposals Development of Wildlife Proposals:

Thomas Evans, OSM Wildlife Biologist, provided the Council with an overview of the Federal Subsistence Wildlife Regulatory Process which occurs every two years alternating with Federal Subsistence Fisheries Proposals. The actual call for proposals was delayed this year due to a hold placed on federal register notices by the New Presidential Administration but Councils are requested to develop proposals on the record at the meeting that can then be submitted later. All proposals submitted through the public process will also come before the Council at the fall 2017 meeting. The Council discussed proposals they would like to submit for consideration by the Federal Subsistence Board at the spring 2018 meeting.

Hollis Twitchell, Arctic National Wildlife Refuge, provided the Council with background and updates on wildlife populations within the Refuge. ADF&G wildlife biologists Beth Lenart and Ryan Klimstra provided the Council with a comprehensive overview and update on the Porcupine, Central Arctic, Teshekpuk, and Western Arctic Caribou Herds for the Council's consideration prior to drafting wildlife proposals. ADF&G staff provided updates on recent Board of Game regulation changes that reduced harvest limits on the Central Artic Herd in order to address the unexpected decline of that herd. OSM staff provided background for reference on proposals planned to be submitted by the Northwest Arctic RAC and the Western Arctic Caribou Herd Working Group.

The Council discussed the closure to non-federally qualified subsistence users to the hunting of caribou on Federal lands in Unit 23 and felt that had been helpful to subsistence communities in that region based on all the feedback they had heard. However, the Council expressed concern that the Unit 23 closure might shift more pressure to Unit 26 and there were already ongoing concerns about the effects of hunting pressure on caribou along the Dalton Highway. Council

members discussed their traditional knowledge that they were taught to not take the lead caribou – if the first caribou at the head of the heard are allowed to pass, the rest will follow. The Council stressed that fly-in hunters can get ahead of the heard and the highway access allows access to the herd as they migrate through and causes them to deflect their path.

The Council discussed at length the status of the caribou herds and concern for further conservation action needed to support the rebuilding of these herds while rural communities were having a difficult time meeting their subsistence needs. The Council noted it had already taken action in the last regulatory cycle to reduce subsistence caribou harvest on the Western Arctic and Teshekpuk Herd for local conservation efforts to help the herd rebound but that further conservation measures were needed yet while still providing for subsistence priority on Federal lands in the region.

*The Council made a motion to close Federal public lands in Unit 26 to caribou hunting by non-Federally qualified users – with the caveat until such time the harvestable surplus meets and is adequate to open it again and to address user conflicts to provide for a reasonable traditional subsistence experience. The motion passed unanimously.

After discussion with agency staff about the good health and abundant population size of the Porcupine Caribou Herd which largely occurs within Unit 26C the Council amended the motion to only close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users to address the caribou herds decline in those units and maintain opportunity for all users to hunt caribou in Unit 26C.

*The Council also made a motion to submit a Temporary Special Action Request to close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users beginning July 1, 2017. The motion passed unanimously. The Council felt the Special Action to enact the closure in the year prior to the next regulatory cycle takes affect was necessary to help enact further conservation measures right way and support the rural communities dependent on caribou to meet their subsistence needs. The Council provided the following justification in support of both proposals:

Populations of the Western Arctic (WACH), Teshekpuk (TCH), and the Central Arctic (CACH) herds are in decline. These three populations have experienced declines of approximately 50% over the last decade. Low calf survival and recruitment and high cow mortality are contributing factors to the population decline. In addition, current State regulations allow for hunting bulls through the rut on a portion of State lands in Unit 26B, which are already experiencing a population declines in the CACH. Current harvest rates, if allowed to continue, would likely increase the ongoing population declines or lengthen the recovery period.

The North Slope Subsistence Regional Advisory Council (Council) submitted a proposal to the Federal Subsistence Board for the 2016 wildlife regulatory cycle to reduce subsistence harvest on the WACH and TCH herd which reduced seasons and bag limits for subsistence hunters on Federal lands throughout the range of these two herds. The Council worked with communities and other groups across the North Slope region to gain support for enacting these caribou conservation measures which are in effect on Federal lands in Unit 26 today. Due to continued

decline of the WACH and TCH herd and the recent dramatic decline of the CACH herd the Council now sees the need further reduce harvest from these herds and reduce user conflict to ensure that the herd is sustained and a subsistence priority is in place on Federal lands. This request will provide for better harvest opportunities for local people (Federally qualified subsistence users), and will reduce user conflicts. Caribou are not only important traditional, cultural and nutritional resource but traditional foods but also are important for the food security and health of the local subsistence users. Communities in the North Slope region are highly dependent on caribou and Anaktuvuk Pass in particular relies on caribou as the primary subsistence resource to meet their nutritional needs. Long-term hunting activity by non-local users has jeopardized the continuation of local subsistence use of caribou through both direct and indirect effects. Changes in the caribou migration patterns, disruption of the lead animals, increased competition at preferred hunting sites, aircraft noise, and having to travel further to harvest caribou are some of the examples of user conflicts cited by local subsistence users. Further changes to harvest regulations are required to provide basic subsistence needs to local users and help reverse or slow the declines in the WACH, TCH, and CACH populations.

This proposal follows up on the actions already taken by local subsistence hunters to reduce subsistence harvest to prevent further decline of these caribou herds and requests the next step to close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users in order to further support the caribou recovery and provide for a subsistence priority. The Council requests this regulation remain in effect until such time that the caribou population rebounds enough to support the continuation of subsistence uses and other user groups without overlapping user conflict on federal lands in Unit 26A and 26B.

Council Discussion on Anaktuvuk Pass Controlled Use Area: The Council discussed at length the concerns facing Anaktuvuk Pass and how to best help support the community ensuring that caribou are not deflected away from their usual migratory path that brings them through the pass close to the village where local subsistence can access them. The Council stressed that the preponderance of evidence that Anaktuvuk Pass is highly dependent on caribou as their primary food source and is essential to their food security. The Council reviewed their previous efforts to assist the community of Anaktuvuk Pass with drafting a proposal to the Alaska State Board of Game to increase the boundary and protections within the Anaktuvuk Pass Controlled Use Area. ADF&G biologists Darren Bruning and Ryan Klimstra provided information for the Council on the Board of Game Agenda Change Request process as an option to submit proposals for possible consideration outside of the regular three year cycle since the Arctic region proposal cycle had just recently passed.

The Council discussed plans to work further with the community of Anaktuvuk Pass to assist them with a proposal to address the controlled use area. The Council also expressed appreciation for further information offered by ADF&G to better understand the State Tier II management process. *The Council made a motion to formalize their plans to begin gathering more information and work with the community of Anaktuvuk Pass to craft a proposal to the State Board of Game that would best assist them in addressing their caribou concerns. Motion passed unanimously.

Formation of North Slope RAC Wildlife Working Group: The Council discussed their interest in forming a Council wildlife working group that could meet by teleconference outside of the regularly scheduled bi-annual RAC meetings to discuss wildlife proposals across the region and receive supporting information and updates that may help the Council prepare in advance of the fall and winter meetings. In particular the Council was interested to have dialog with other RAC regions in the range of the Western Arctic Caribou Herd so that they could better understand each other region and discuss conservation measures across the range of the herd. *The Council made a motion to form a wildlife working group. Motion passed unanimously. Gordon Brower, Steve Oomituk, and Lee Kayotuk all expressed interest to participate.

Wildlife Special Action 17-02: Wildlife Special Action 17-02 submitted by the Northwest Arctic Regional Advisory Council requests a moose hunting closure on Federal public lands in unit 23 to non-Federally-qualified subsistence users for the 2017/2018regulatory year. Due to a decline in the moose population within unit 23 the proponent requests this closure to ensure the continued viability of the region's moose population and also to ensure the continued subsistence use of this important wildlife resource to Federally-qualified subsistence users. Joshua Ream, Anthropologist for the Office of Subsistence Management, provided an overview and presentation on the analysis which covered the regulatory history, moose biology, and subsistence hunting activity in the area.
Council member Steve Oomituk of Point Hope stated that because Point Hope is in Unit 23 and affected by management in this area he felt this proposal should be supported to provide for subsistence opportunity if the moose population was declining. The Council made a motion to support WSA 17-02. With a quorum present, the motion carried.

Revision to Memorandum of Understanding with the State of Alaska: Stewart Cogswell, Office of Subsistence Management, provided an overview of the current draft Memorandum of Understanding (MOU) between the Federal Subsistence Board and the State of Alaska. It establishes guidelines to coordinate management of subsistence uses of fish and wildlife resources on Federal public lands in Alaska. This document builds upon the July 18, 2012 draft MOU which incorporated recommended changes from the Regional Advisory Councils, Subsistence Resource Commissions, and Advisory Committees. The intent of this MOU is to provide a foundation to build on with the State to coordinate the management of fish and wildlife resources for subsistence uses on Federal public lands in Alaska.

The Councils provided in put on the Draft MOU during the fall 2016 meeting cycle and those comments as well as comments from the Alaska Department of Fish and Game and State Advisory Committees are currently being incorporated. The revision will be presented to the Board for approval once the new comments are integrated and new revision reflecting the Council feedback and language agreements form the State and Federal participants.
Council Chair, Gordon Brower, noted that the Council had carefully reviewed the Draft MOU and had suggested edits to the document that were important to subsistence. He stressed the importance of the Council seeing a copy of the revised document prior to its finalization to ensure their concerns were addressed.

Agency Reports:

US Fish and Wildlife Service Barrow Field Office. Ernest Nageak, Native Affairs Specialist, relayed that he never pictured himself working for the Federal Government let alone US Fish and Wildlife Service. He relayed that the elders were our own biologists and scientists and taught the way of life out on the ice and tundra. He stressed that they are always concerned to only catch what they eat, always look out for the animals. Early days of closures on the hunting of ducks and banning fall whaling and other effects of regulations at the time had pushed people away from the government and made people hesitant to share their ways of life. Ernest shared that he became interested in working with the US Fish and Wildlife Service as a way to help share the Inupiaq knowledge, unwritten rules and way of life and help build better understanding between both the Service and the community. He sees the Service building relationships with communities in the North Slope region and throughout Alaska. Ernest commends the Service for listening and working together to come up with the best solution to address management issues and this has helped to improve relationships in the region. He stressed the importance of outreach in rural communities and noted that all USFWS staff are required to take Native Relations training to get a cultural orientation when working in Alaska Native communities.

Ernest provided the Council with background on his work at the Barrow field office which involves a lot of engagement with the local schools and summer programs for youth. They hold 2 open house information session that invites the entire community to meet with USFWS staff to ask questions from law enforcement, marine mammals, migratory birds and host a science fair for the kids. In April they partner with the North Slope Borough and other groups to host a spring gathering to welcome the birds and wildlife and teach about ecology and the circle of life. They have hired summer student interns to work on ecology projects with Eider Journey. Students learn how to conduct nest surveys and monitor the Steller's eider and Spectacled Eider nest success throughout June and July. They partnered with Department of Agriculture on yearly fox control in efforts to reduce predation on Eider but put that aside due to community concerns about the effects of killing foxes.

Gates of the Arctic National Park and Preserve. Marcy Okada, Subsistence Coordinator, provided handouts to the Council and referenced updates in their meeting book. She reported on a research study conducted by the Park Service and ADF&G looking at data from GPS collared caribou from the Western Arctic Caribou and Teshekpuk Herd that were delayed an average of 30 days by the Red Dog Mine Road. Caribou from both herds were collared and encounter the road during their autumn migration. Delayed caribou eventually sped up after crossing the road but results from the study indicate that a road can alter movement behavior.
A radio collar study was also conducted on bears in the Ambler mining district. Data was collected to assess bear movement, denning characteristics, diet and health of the animals prior to development in the area.

Marcy Okada and park sheep biologist Kumi Rattenbury provided updates on the Dall sheep within the park. Dall sheep were surveyed July of 2016 in the Anaktuvuk and Itkillik areas of the northeastern parts of Gates of the Arctic. Survey results indicate that total number of sheep and adult sheep remain low but relatively stable in the Itkillik area but were remarkably lower around

the Anaktuvuk Pass area compared to 2015 survey results. A big decline was observed in these areas on 2013 and 2014. The park is considering some ecological studies on sheep and their habitat in the northeastern part of the park and will be working with the local community on this. Marcy and Hilary Robinson from Western Arctic Parklands responded to questions from the Council about the sheep closure in Unit 23 and clarified that the area of 26A east of the Etivluk River remains open to sheep hunting under State and Federal Regulation. The Federal Subsistence Board adopted new regulations for delegation of authority to the Park Superintendent of Western Arctic National Park Lands to have the flexibility to open a hunt if the sheep population rebounded in the Delong Mountains but recent survey results indicate the population has not rebounded enough to support that yet.

Marcy reported on the Parks activities related to the Ambler Mining District Industrial Access project that is proposed through a right of way in the park. The National Park Service will be scheduling village consultation meetings for the environmental and economic analysis. A copy of the Federal Register notice to extend the completion of EEA until December 2019.

Alaska Department of Fish and Game. Ryan Klimstra**,** Wildlife Biologist, provided the Council with an overview of the current status of the Western Arctic and Teshekpuk caribou herds and answered questions for the Council. The most up to date census information from the summer 2016 surveys were provided to the Council at the fall 2016 meeting so Ryan provided a recap for the new Council members. The Western Arctic herd is right around 200,000 caribou which is right on the line of conservative and preservative management in the plan that was developed by the Western Arctic Herd Working Group. Ryan stressed that unlike Unit 23 or 26B along the Dalton Highway that the caribou harvest in Unit 26A by non-locals was only approximately half of one percent of the total harvest taken form Unit 26A.

Current information from the last photo census indicate that the decline has slowed and the herd is not declining at quite the high percentage rates compared to previous years. In response to Council member questions Ryan noted that while there are migratory corridors where caribou like to go they don't always follow the same path. This year radio collar information did not show any big shifts other than a lot of caribou did make it over to Anaktuvuk Pass this year. Ryan relayed that there was not a complete photo census for the Teshekpuk Herd in 2016 due to weather conditions. The weather was cool over the summer and the caribou did not bunch up along the coast edge for long enough this year. However, the previous photo census indicated the Teshekpuk herd had stabilized somewhat. The historic high for the herd was around 70,000 and now it had leveled out somewhere around 40,000.

Council member Wanda Kippi of Atqasuk enquired about how they can tell from aerial surveys if the herd is all caribou or if there is reindeer mixed in since she sees a lot of reindeer when she is hunting around Atqasuk. Ryan noted that the surveys are done when the caribou aggregate in large groups along the coast to seek insect relief so it would be hard to distinguish a reindeer but that they do take a lot of blood samples for genetics such as at Onion Portage and the genes would show up there.

Ryan provided the Council with Board of Game updates for new regulations that were just passed for the region that affect Unit 26A. Important highlights include new state regulations

requiring a registration permit for hunting caribou on State lands in Unit 21, 23, and 26 which goes into effect July 1st, 2017. It is a new system for everyone so ADF&G is working on a large multi-year outreach and education effort and working to establish local vendors in communities to make the permits more easily accessible.

Darren Bruning, Regional Supervisor for the ADF&G Division of Wildlife Conservation, Region 3 introduced himself as relatively new to the region and wanted to meet to Council in person to help maintain the connection between the Department and the region. Darren provided the Council with an overview of the work they do including conducting surveys for the Western Arctic, Teshekpuk, and Central Artic herds. Importantly they are in the process of upgrading the technology for conducting caribou photo census which will greatly improve the count caribou from the air. A big focus of their work now is trying to understand the recent decline in the Central Artic herd and working to enact conservation measures particularly along the Dalton Highway while continuing to provide subsistence opportunity for the local communities that live in the region. The Porcupine Caribou herd numbers have been stable and an updated photo census is being planned. An overview of planned moose surveys in the region and updates on bear, wolverine, Dall sheep, and muskox was also provided.
Council members had many questions regarding data for each of the caribou herds and discussed management strategies with both ADF&G and Federal staff at the meeting.

ADF&G Fisheries Resource Monitoring Program Projects. Brendan Scanlon, ADF&G Fisheries Research Biologist had prepared a power point and video on four fisheries projects and research proposals in the North Slope Region. However due to meeting time constraints provided he provided information as a handout and focused on one project that they started this past summer conducting aerial surveys on five North slope river drainages to estimate how many fish are overwintering there. The project addresses an information priority need regarding Dolly Varden Char in the Hula Hula River but expanded to all five drainages since residents of Kaktovik who fish in marine waters catch fish from each of these rivers. It is estimated that North Slope fishers – Kaktovik and Nuiqsut in particularly harvest between 10 – 20,000 pounds of Dolly Varden Char each year which are mostly mixed stock coming from several rivers in Alaska and a few in Canada. Unlike salmon Char spawn and overwinter in springs and upwelling areas and make multiple trips out to sea where they feed. The objectives were to conduct a single aerial index count right before freeze up on all five of these rivers Ivishak, Kongakut, Hulahula, Canning and Anaktuvuk Rivers. An index area was identified where we could reliably survey the same area year after year. Brendan provided photos of the aerial surveys to show what the fish look like for counting on good weather days and noted that they use index counts conducted with mark recapture to calibrate what they are seeing. They found about 1,700 spawners in the Canning, 3,100 in the Hulahula, 2,500 in the Ivishak.

Brendan shared images from aerial video that he took of the Sagavanirktok River that had an iron seep that was pumping out turbid water and they got a very poor count below that on the Ivishak River. They followed the outflow with the helicopter and did not see any sign of fish below. They managed to get water samples and brought it to a lab at UAF for water chemistry analysis. The effluent form the plume contained high amount of iron – almost 10 times the amount normally found in water in the region. A hydrologist looked at the video image and suggested it

may be an old spring of water that opened up creating this plume. They hope to keep track of this area and see what develops.

Arctic National Wildlife Refuge. Hollis Twitchell, Assistant Manager for Arctic National Wildlife presented the Council with an update on the status of the moose population in Unit 26C and a map of moose sited from aerial surveys conducted in the area. Of 42 moose counted, 37 of those moose were in the Kongakut River Drainage. There was an increase in total number from the survey last year but similar distribution with the congregation in the Kongakut drainage.

In response to a request form Council member Lee Kayotuk at the North Slope RAC meeting last fall to have an opportunity to harvest one or two moose for the community of Kaktovik if the numbers increased enough to even allow a very limited hunt, the refuge explored the options. The Refuge consulted with the Refuge biologist, State biologists and with the Tribal council and even though the number was below the management target of 50 moose to allow a hunt, it was felt that the high concentration of moose on the river drainage could safely sustain a very limited hunt of two moose if it was bull moose only. The Refuge consulted with the Kaktovik Tribal Council for their recommendations for a hunt and the decision was to go ahead and proceed and so through the delegated authority that was passed to the Refuge manager for doing special actions regarding moose in unit 26B and C. The Refuge manager prepared a special action request, advanced it to the OSM and that hunt opportunity will be open this February 15 until April 15th 2017. Two moose permits have been issue through a drawing permit administered by the Native Village of Kaktovik.

Hollis referred the Council to the meeting book document that provided Refuge updates on other subsistence resources and community activities.

Draft US Fish and Wildlife Service Alaska Native Relations Policy. Hollis Twitchell, Assistant Manager for Arctic National Wildlife presented the Council with an update on the status of the US Fish and Wildlife Service Alaska Native Relations Policy.

Hollis provided two documents; one titled Native American Policy and the other a policy specific to US Fish and Wildlife Service in relating with Native America and Alaska Native people. The first was conducted in a cooperative effort over the last two years by a large team of people that he was a part of including 16 Tribal representatives from across the Country as well as 13 USFWS representatives. Hollis addressed the Alaska Native Relations policy in more detail since numerous Federal acts have special provisions for Alaska Natives such as ANILCA, Marine Mammal Protection Act, Migratory Bird Treaty Act and also the Endangered Species Act. This policy helps to outline the USFWS responsibilities under these laws and also how USFWS is directed by law to work with Tribes and Regional Alaska Native entities and organizations such as Migratory Bird Co-management Council, Alaska Eskimo Whaling Commission and many more. There are numerous parts of the Alaska policy that mirror the National Policy and other guidance developed by feedback from Tribal and ANCSA Corporation representatives in Alaska that are unique to Alaska.

Hollis noted that there are 9,120,000 acres of Native Corporate land and over 1,900 Native Allotments within the Boundaries of Alaska National Wildlife Refuges. He relayed the USFWS

has a very important duty and responsibility for communication and outreach to Villages and Tribes and Native Corporations. Crystal Leonetti, USFWS Native Affairs for Alaska has been reaching out to Tribes for feedback and this is also being presented at all Regional Advisory Council meetings. The public comment period will start when the policy is able to be posted to the Federal Register; however Hollis encouraged feedback at any time prior to the official public comment period and provided contact information to send comments to Crystal Leonetti.

Doreen Lampe of ICAS thanked Hollis for the presentation and invited Hollis and Crystal to call in for their next upcoming ICAS Council meeting. Doreen expressed that she thought the updated policy would provide much need improvement but expressed concern about citations under the Endangered Species Act when take is accidental and reported where local people are acting in good faith effort. She referenced an incident where one of the protected eider species was shot incidentally because it was flying amidst a mixed flock and the hunter self-reported this incident and received a citation. Doreen felt a flow chart of the steps for the process would be helpful to see how the USFWS follows through on their communications with hunters regarding endangered species. She also was interested to see the process of listing and delisting and if the population was no longer threatened and the numbers were up then it should be available as a subsistence resource again. Hollis referenced the recent emperor goose example and a listed species recovering and being open to subsistence harvest again.

Roy Nageak addressed the concern of accountability and follow through on the policy. Hollis relayed that the Tribal caucus had wanted to build in accountability to the process and had planned for review every three to five years to see how it is working.

Bureau of Land Management NPR-A. Roy Nageak, BLM NPR-A, Barrow Office, provided the Council with several reports on BLM NPR-A activities and presented a brief review. He highlight that oil is being found around Nuiqsut. ConocoPhillips is busy making a road to GMT-1 and at the same time planning for next year's GMT-2. Caelus had found a major strike right in front of Ikpikpuk on the west side of Lonely. Roy also reported that on the State lands 20 miles south of Nuiqsut, Repsol also had a major find. There is a planning process underway for NPR-A, BLM managed land for some lease sales and planning for more development.
Roy directed the Council to a report on the NPR-A Working Group which was delegated by former Department of the Interior Secretary to address subsistence issues with the development that is happening in NPR-A. He noted that there were plans for some mitigation funds that will be made available to address subsistence impacts.

Office of Subsistence Management. Stewart Cogswell, Acting Deputy Assistant Regional Director, OSM provided the Council handout and brief overview of the Nonrural Determination Policy. Following input from Regional Advisory Councils, public tribes and ANSCA corporations the Federal Subsistence Board formally adopted its Nonrural Determination Policy at the January, 2017 regulatory meeting in Anchorage. The policy now provides guidance for submission of proposals to change communities to rural or nonrural status, a decision making process and a timeline. The next call for proposals to change rural status of an area or community will be announced with the call for Federal fisheries proposals in January of 2018.
Stewart presented the Council with a status update on the Fisheries Resource Monitoring Program. The call for research proposals was open for 90 days and closed in February. Nine

project proposals were received from the Northern Region out of 54 total proposals across the State. Proposals are being evaluated through a competitive review and rating process. The Councils will hear more about proposals suggested for funding in the region at the fall 2017 meeting.

Review and Approve FY2016 Annual Report: The Council reviewed and discussed their draft FY2016 Annual Report to the Federal Subsistence Board. Council member Steve Oomituk was not able to be present for a vote and quorum was no longer present. However, Steve did relayed his support for the information reflected in the Annual Report and felt the concerns he had expressed about increased shipping traffic in the Chukchi Sea were adequately reflected. Council members present supported the report as written and requested the addition of their concerns for meeting in other villages in the region outside of Barrow.

Future Meeting Dates:
The Council reconfirmed August, 24 and 25, 2017 in Wainwright for the next fall meeting. The Council stressed the importance of meeting in Wainwright to during the upcoming wildlife cycle to address caribou proposals critical to the community and facilitate meaningful engagement in the Federal Subsistence Management process.

The Council selected February 13 and 14, 2018 for the next winter meeting.

The Council shared closing comments prior to adjourning.

I certify to the best of my knowledge the forgoing minutes are accurate and complete.

_____
Eva Patton, Designated Federal Officer
USFWS Office of Subsistence Management

_____
Gordon Brower, Chair
North Slope Subsistence Regional Advisory Council

These minutes will be formally considered by the North Slope Subsistence Regional Advisory Council at its Fall 2017 public meeting. Any corrections or notations will be incorporated at that meeting.

U.S. Fish and Wildlife Service
Bureau of Land Management
National Park Service
Bureau of Indian Affairs

Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
April 24, 2017

Contact: Chris McKee
(907) 786-3572 or (800) 478-1456
paul_mckee@fws.gov

Federal Subsistence Board rejects request to close Federal public lands in Unit 23 to moose hunting by non-Federally qualified users

The Federal Subsistence Board (Board) rejected Temporary Special Action Request WSA17-02, which requested that Federal public lands in Unit 23 be closed to moose hunting by non-Federally qualified users during the July 1, 2017–June 30, 2018 regulatory year.

Although the overall moose population is currently declining throughout Unit 23, harvest by Federally qualified subsistence users has remained stable over the last ten years, indicating that local users are still able to successfully harvest moose despite declines in the overall population. In addition, non-Federally qualified users make up a minority of moose harvest in the unit when reported harvest is combined with community household surveys. Therefore, closing Federal public lands in Unit 23 to non-Federally qualified users will likely not have the desired impact to the overall moose population in the unit and may be an unnecessary restriction on non-Federally qualified users.

In addition, non-Federally qualified users would still be permitted to harvest moose on State lands and below the mean high water line on many waterways within Federal lands. Many of these lands are located adjacent to Native Corporation lands, which could cause more non-Federally qualified users to harvest moose near these areas. If all non-Federally qualified users harvest moose on State lands, this could lead to overcrowding and increased user conflicts, and would not lessen overall moose harvest in Unit 23. Therefore, this closure may not have the intended effect of reducing user conflict issues within the area.

The Board will assess the effects of recent State actions that eliminated the non-resident season and the antlerless resident season prior to considering a unit-wide closure to moose harvest by non-Federally qualified users on Federal public lands.

Additional information on the Federal Subsistence Management Program may be found on the web at www.doi.gov/subsistence or by visiting www.facebook.com/subsistencealaska.

Missing out on the latest Federal subsistence issues? If you'd like to receive emails and notifications on the Federal Subsistence Management Program you may subscribe for regular updates by emailing fws-fsb-subsistence-request@lists.fws.gov.

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This document has been cleared for public release #10904242017.

U.S. Fish and Wildlife Service
Bureau of Land Management
National Park Service
Bureau of Indian Affairs

Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
June 22, 2017

Contact: Caron McKee
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caron_mckee@fws.gov

Federal Subsistence Board approves partial closure of Federal public lands to caribou hunting in Unit 23

The Federal Subsistence Board (Board) has approved Temporary Special Action Request WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users for the July 1, 2017 – June 30, 2018 regulatory year. The Board supports a more targeted closure at this time and would prefer to leave the question of a closure of all Federal public lands in Unit 23 to be addressed through the 2018-2020 regulatory cycle. The Board believes that the request, as modified, is a reasonable compromise for all users.

Closure of some Federal public lands for the continuation of subsistence uses is warranted. Continued complaints about conflicts surrounding the Noatak, Eli, Agashashok and Squirrel River drainages and the apparent benefit of the 2016-2017 Federal closure to Noatak residents, as evidenced by letters and public testimony, support the closure of Federal public lands in these areas. Additionally, the short-term effects of aircraft on caribou behavior can negatively affect hunting success and harvest. However, closure of all Federal public lands in Unit 23 represents an unnecessary restriction on non-Federally qualified users.

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U.S. Fish and Wildlife Service
Bureau of Land Management
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Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
June 22, 2017

Contact: Caron McKee
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Federal Subsistence Board rejects request to close Federal public lands in Unit 26A and Unit 26B to caribou hunting by non-Federally qualified users

The Federal Subsistence Board (Board) rejected Temporary Special Action Request WSA17-04, which requested that Federal public lands in Unit 26A and Unit 26B be closed to caribou hunting by non-Federally qualified users during the July 1, 2017 – June 30, 2018 regulatory year.

The Board concluded that recently enacted conservation actions by the Alaska Board of Game and Board for the Western Arctic, Teshekpuk, and Central Arctic Caribou Herds need to be given time to determine if they are effective in reducing the caribou harvest, and in slowing down or reversing the population declines in these caribou herds before additional closures are enacted. Closure of Federal public lands to non-Federally qualified users would not likely have as much of an effect as recent Alaska Board of Game actions that protect cows and reduce the overall caribou harvest. Much of the non-Federally qualified user harvest occurs on State lands, and a closure runs the risk of concentrating hunters onto State lands, which are adjacent to some villages, thereby increasing impacts to these communities.

The number of caribou harvested by non-Federally qualified users is not biologically significant for the Western Arctic and Teshekpuk Caribou Herds in Unit 26A and the potentially significant impact of non-Federally qualified user harvest from the Central Arctic Caribou Herd in Unit 26B has now been addressed by newly enacted State regulations for the 2017-2018 regulatory year. The Board recommends that these changes take effect in lieu of enacting additional regulations at this time.

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This document has been cleared for public release #11706222017.

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**

WP18–32 Executive Summary	
General Description	Proposal WP18-32 requests changes to the caribou season dates on Federal public lands in Units 21D, 22, 23, 24, 25A (West), 26A, and 26B. *Submitted by: Western Interior Alaska Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 21D—Caribou** *Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced* — *Winter season to be announced* *Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.* *Bulls may be harvested* — *July 1-Oct. ~~14~~ **10*** *Feb. 1-June 30* *Cows may be harvested* — *~~Sep. 1-Mar. 31~~**Oct. 1 – Feb. 1*** **Unit 22—Caribou** *Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken* — *~~Oct. 1-Apr. 30~~* *~~May 1-Sep. 30, a season may be announced~~* ***Bulls may be harvested*** — ***July 1 – Oct. 10*** ***Feb. 1 – June 30*** ***Cows may be harvested*** — ***Oct. 1 – Feb. 1*** *Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5* — *~~July 1-June 30~~*

WP18–32 Executive Summary		
	caribou per day. Calves may not be taken	
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 22A, remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1-Apr. 30*~~ ~~*May 1-Sep. 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 23—Caribou	
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
	Bulls may be harvested	*July 1-Oct.* ~~*14*~~ ***10*** *Feb. 1-June 30*
	Cows may be harvested. ~~*However, cows accompanied by calves may not be taken July*~~	~~*July 15-Apr. 30*~~ ***Oct. 1 – Feb. 1***

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	~~*15 Oct. 14*~~	
	Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct. ~~14~~ **10*** *Feb. 1-June 30*
	Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 31 Oct. 14~~	*July 31-Mar. 31* ***Oct. 1 – Feb. 1***
	Unit 24—Caribou	
	Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
	Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
	Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct. ~~14~~**10*** *Feb. 1-June 30*
	Cows may be harvested	~~*July 15 Apr. 30*~~ ***Oct. 1 – Feb. 1***
	Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested.	*July 1-Oct. ~~14~~**10*** *Feb. 1-June 30*

WP18–32 Executive Summary		
	Cows may be harvested	~~*Sep. 1-Mar. 31*~~ ***Oct. 1 – Feb. 1***
	Unit 25A—Caribou	
	Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the ***Teedriijik (****Chandalar****)*** *River upstream to Guilbeau Pass and north of the south bank of the mainstem of the* ***Teedriijik (Chandalar)*** *River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork* ***Ch'idriinjik(****Chandalar****)*** *River—10 caribou. However, only bulls may be taken May 16-June 30*	~~*July 1-June 30*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*
	Unit 26—Caribou	
	Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct.* ~~*14.*~~***10*** ~~*Dec. 6*~~ ***Feb. 1****-June 30*
	Cows may be harvested; ~~*however, cows accompanied by calves may not be taken July 16-Oct. 15*~~	~~*July 16-Mar. 15*~~ ***Oct. 1 – Feb. 1***

WP18–32 Executive Summary		
	Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct. ~~15~~* ***10*** *~~Dec. 6~~* ***Feb. 1****-June 30*
	Up to 3 cows per day may be harvested; ~~however, cows accompanied by calves may not be taken July 16-Oct. 15~~	*~~July 16-Mar. 15~~* ***Oct. 1 – Feb. 1***
	Unit 26B, that portion south of 69°30' N. lat. and west of the Dalton Highway—5 caribou per day as follows:	
	Bulls may be harvested	*July 1-Oct. ~~14.~~****10*** *~~Dec. 10~~* ***Feb. 1****-June 30*
	Cows may be harvested	*~~July 1-Apr. 30~~* ***Oct. 1 – Feb. 1***
	Unit 26B remainder—5 caribou per day as follows: *Bulls may be harvested.*	*~~July 1-June 30~~* ***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested.	*~~July 1-May 15~~* ***Oct. 1 – Feb. 1***
	You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass	
OSM Preliminary Conclusion	**Oppose**	
Southeast Alaska Subsistence Regional Advisory Council Recommendation		

WP18–32 Executive Summary	
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 Advisory Council Recommendation	

WP18–32 Executive Summary	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-32

ISSUES

Proposal WP18-32, submitted by the Western Interior Alaska Subsistence Regional Advisory Council, requests changes to the caribou season dates on Federal public lands in Units 21D, 22, 23, 24, 25A (West), 26A, and 26B.

DISCUSSION

The proponent requests changes to Federal caribou regulations to protect cows from the Western Arctic Caribou Herd (WACH), Teshekpuk Caribou Herd (TCH), and the Central Arctic Caribou Herd (CACH) during the fall and spring migration. The proponent states that reducing the exposure of cows to hunting during migration will avoid migration deflections because cows lead migration. The proponent also requests changes to the bull seasons to prohibit bull harvest when they are not palatable during the rut. To align seasons between the State and Federal regulations, the proponent intends to submit an agenda change request to the Alaska Board of Game (BOG).

Existing Federal Regulation

Unit 21D—Caribou

Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced	*Winter season to be announced*
Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested	*Sep. 1-Mar. 31*

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30* *May 1-Sep. 30, a season may be announced*
Units 22A—that portion north of the Golsovia River drainage, 22B	*July 1-June 30*

remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day. Calves may not be taken	
Unit 22A, remainder—5 caribou per day. Calves may not be taken.	*July 1-June 30, season may be announced*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30* *May 1-Sep. 30, season may be announced*
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced*

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30*
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 24—Caribou

Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna	*Aug. 10-Mar. 31*

River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	
Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30*
Cows may be harvested	*July 15-Apr. 30*
Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested	*Sep. 1-Mar. 31*

Unit 25A—Caribou

Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the Chandalar River upstream to Guilbeau Pass and north of the south bank of the mainstem of the Chandalar River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork Chandalar River—10 caribou. However, only bulls may be taken May 16-June 30	*July 1-June 30*
Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14* *Dec. 6-June 30*

Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15*
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 15* *Dec. 6-June 30*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15*
Unit 26B, that portion south of 69°30′ N. lat. and west of the Dalton Highway—5 caribou per day as follows:	
Bulls may be harvested	*July 1-Oct. 14* *Dec. 10-June 30*
Cows may be harvested	*July 1-Apr. 30*
Unit 26B remainder—5 caribou per day as follows: *Bulls may be harvested.*	*July 1-June 30*
Cows may be harvested	*July 1-May 15*
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass	

Proposed Federal Regulations

Unit 21D—Caribou

Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced	*Winter season to be announced*
Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested	*~~Sep. 1-Mar. 31~~* ***Oct. 1 – Feb. 1***

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1-Apr. 30*~~ ~~*May 1-Sep. 30, a season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day. Calves may not be taken	~~*July 1-June 30*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 22A, remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1-Apr. 30*~~ ~~*May 1-Sep. 30, season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~

Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 15-Oct. 14~~	*~~July 15-Apr. 30~~* ***Oct. 1 – Feb. 1***
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 31-Oct. 14~~	*July 31-Mar. 31* ***Oct. 1 – Feb. 1***

Unit 24—Caribou

Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken.	

Bulls may be harvested	*July 1-Oct. ~~14.~~* ***10*** *Feb. 1-June 30*
Cows may be harvested	~~*July 15-Apr. 30*~~ ***Oct. 1 – Feb. 1***
Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested.	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested	~~*Sep. 1-Mar. 31*~~ ***Oct. 1 – Feb. 1***

Unit 25A—Caribou

Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the ***Teedriijik (****Chandalar****)*** *River upstream to Guilbeau Pass and north of the south bank of the mainstem of the* ***Teedriijik (Chandalar)*** *River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork* ***Ch'idriinjik(****Chandalar****)*** *River—10 caribou. However, only bulls may be taken May 16-June 30*	~~*July 1-June 30*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14.~~****10*** ~~*Dec. 6*~~ ***Feb. 1****-June 30*

Cows may be harvested; ~~however, cows accompanied by calves may not be taken July 16-Oct. 15~~	*~~July 16-Mar. 15~~* ***Oct. 1 – Feb. 1***
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~15~~* ***10*** *~~Dec. 6~~* ***Feb. 1****-June 30*
Up to 3 cows per day may be harvested; ~~however, cows accompanied by calves may not be taken July 16-Oct. 15~~	*~~July 16-Mar. 15~~* ***Oct. 1 – Feb. 1***
Unit 26B, that portion south of 69°30′ N. lat. and west of the Dalton Highway—5 caribou per day as follows:	
Bulls may be harvested	*July 1-Oct. ~~14.~~****10*** *~~Dec. 10~~* ***Feb. 1****-June 30*
Cows may be harvested	*~~July 1-Apr. 30~~* ***Oct. 1 – Feb. 1***
Unit 26B remainder—5 caribou per day as follows: *Bulls may be harvested.*	*~~July 1-June 30~~* ***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested.	*~~July 1-May 15~~* ***Oct. 1 – Feb. 1***
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass	

Existing State Regulations

Unit 21D—Caribou

21A	*Residents and Nonresidents: 1 bull*	*HT*	*Aug. 10 – June 30*
21B, north of the Yukon River and downstream from Ukawutni Creek	*Residents and Nonresidents*		*No open season*

21B remainder	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*
21C, Dulbi River drainage and Melozitna River drainages downstream from Big Creek	*Residents and Nonresidents*		*No open season*
21C remainder	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*
21D, north of the Yukon River and east of the Koyukuk River	*Residents: 2 caribou may be taken during the winter season*	*HT*	*may be announced*
21D remainder	*Residents: 5 caribou per day however, calves may not be taken*		
	Bulls	*HT*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*HT*	*Sept. 1 – Mar. 31*
	Nonresidents: 1 bull however calves may not be taken	*HT*	*Aug. 1 – Sept. 30*
21E	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*

Unit 22—Caribou

22A, that portion north of the Golsovia River drainage	*Residents— 5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		

	Up to 5 bulls per day; however, calves may not be taken;	*RC800*	*no closed season*
			July 1-Mar. 31
	Up to 5 cows per day; however, calves may not be taken	*RC800*	
			Aug. 1-Sept. 30
	Nonresidents—1 bull; however, calves may not be taken	*HT*	
22A remainder	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*may be announced*
Unit 22B, that portion west of Golovnin Bay, and west of a line along the west bank of the Fish and Niukluk rivers to the mouth of the Libby river, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken;	*RC800*	*Oct. 1-Apr. 30*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*Oct. 1-Mar. 31*
	Up to 5 caribou per day; however, calves may not be taken; during the period May 1-Sept. 30, a season may be	*RC800*	*may be announced*

	announced by emergency order; however, cow caribou may not be taken April 1-Aug. 31		*may be announced*
	Nonresidents: 1 bull; however, calves may not be taken; during the period Aug. 1-Sept. 30, a season may be announced by emergency order	*HT*	
22B Remainder	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*no closed season*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July. 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22C	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Up to 5 cows per day: however calves may not be taken; cows may not	*RC800*	*may be announced*

	be taken Apr. 1-Aug. 31.		
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*may be announced*
22D, that portion in the Pilgrim River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*Oct. 1-Apr. 30*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*Oct. 1-Mar. 31*
	Up to 5 caribou per day; however, calves may not be taken; during the period May 1-Sept. 30, a season may be announced by emergency order; however, cow caribou may not be taken April 1-Aug. 31	*RC800*	*may be announced*
	Nonresidents: 1 bull; however, calves may not be taken; during the period Aug. 1-Sept. 30, a season may be announced by emergency order	*HT*	*may be announced*
22D, that portion in the Kuzitrin River drainage (excluding the Pilgrim River drainage) and the Agiapuk river	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day;	*RC800*	*no closed season*

drainage, including tributaries	*however, calves may not be taken*		
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22E, that portion east of and including the Sanaguich River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*no closed season*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22E Remainder	*Residents—5 caribou per day, by registration permit only; up to 20 caribou total; as follows:*	*RC800*	*may be announced*
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Up to 5 cows per day: however calves may not be taken; cows may not be taken Apr. 1-Aug. 31.	*RC800*	*may be announced*

	Nonresidents—1 bull; however, calves may not be taken;	*HT*	*may be announced*

Unit 23—Caribou

23, north of and including the Singoalik River drainage	*Residents—5 caribou per day; however, calves may not be taken.*		
	Bulls	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
	Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1 – Sept. 30*
23 remainder	*Residents—5 caribou per day; however, calves may not be taken.*		
	Bulls	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
	Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*

Unit 24—Caribou

24A, south of the south bank of the Kanuti River	*Resident Hunters: 1 caribou*	*HT*	*Aug. 10 – Mar. 31*
	Nonresident Hunters: 1 caribou	*HT*	*Aug. 10 – Sept. 30*

24A, remainder	*Resident Hunters: 2 caribou*	*HT*	*July 1 – Apr. 30*
	Nonresident Hunters: 2 bulls	*HT*	*Aug 1 – Sept. 30*
24B, south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River	*Resident Hunters: 1 caribou*	*HT*	*Aug. 10 – Mar. 31*
	Nonresident Hunters: 1 caribou	*HT*	*Aug. 10 – Sept. 30*
24B remainder	*Resident Hunters: 5 caribou per day however, calves may not be taken.*		
	Bulls	*HT*	*July 1 – Oct.14* *Feb1 – June 30*
	Cows	*HT*	*July 15 – Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1 – Sept. 30*
24C, 24D	*Resident Hunters: 5 caribou per day however, calves may not be taken.*		

	Bulls	*HT*	*July 1- Oct. 14* *Feb 1 – June 30*
	Cows	*HT*	*Sept. 1- Mar. 31*
	Nonresident Hunters: 1 bull however calves may not be taken	*HT*	*Aug. 1 – Sept. 30*

Unit 25A—Caribou

25A, 25B, 25D remainder	*Resident Hunters: 10 caribou*	*HT*	*July 1-Apr. 30*
	Nonresident Hunters: 2 bulls	*HT*	*Aug. 1 – Sept. 30*

Unit 26—Caribou

Unit 26A the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Resident Hunters: 5 caribou per day, however, calves may not be taken:*		
	Bulls	*RC907*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*RC907*	*July 15 – Apr. 30*
	Nonresident hunters: 1 bull; however, calves may not be taken	*HT*	*July 15– Sept.30*
Unit 26A remainder	*Resident Hunters: 5 bulls per day; however, calves may not be taken*	*RC907*	*July 1 – July 15* *Mar. 16-June 30*

	5 caribou per day three of which may be cows: calves may not be taken, and cows with calves may not be taken	*RC907*	*July 16 – Oct. 15*
	3 cows per day however, calves may not be taken	*RC907*	*Oct. 16 – Dec. 31*
	5 caribou per day three of which may be cows; calves may not be taken	*RC907*	*Jan. 1 – Mar. 15*
	Nonresident Hunters: 1 bull however, calves may not be taken	*HT*	*July 15 – Sept. 30*

Unit 26B—Caribou

Unit 26(B), Northwest portion north of the 69° 30' N. lat. and west of the east bank of the Kuparuk River to a point at 70° 10' N. lat., 149° 04' W. long., and west approximately 22 miles to 70°10' N. lat and 149°56' W. long, then following the east bank of the Kalubik River to the Arctic Ocean	*Resident Hunters: 5 caribou per day*		
	Bulls	*HT*	*No closed season*
	Cows	*HT*	*July 1- May 15*
	Nonresident Hunters: 1-bull	*HT*	*Aug. 1-Sept 15*
26B remainder	*Resident Hunters: 2 bulls*	*HT*	*Aug. 1-Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1-Sept. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 56% of Unit 21D and consist of 53% U.S. Fish and Wildlife Service (USFWS) managed lands and 47% Bureau of Land Management (BLM) managed lands (see **Unit 21 Map**).

Federal public lands comprise approximately 43% of Unit 22 and consist of 65% BLM managed lands, 29% National Park Service (NPS) managed lands, and 7% USFWS managed lands (see **Unit 22 Map**).

Federal public lands comprise approximately 71% of Unit 23 and consist of 56% NPS managed lands, 31% BLM managed lands, and 13% USFWS managed lands (see **Unit 23 Map**).

Federal public lands comprise approximately 64% of Unit 24 and consist of 34% USFWS managed lands, 34% NPS managed lands, and 33% BLM managed lands (see **Unit 24 Map**).

Federal public lands comprise approximately 76% of Unit 25A and consist of 97% USFWS managed lands and 3% BLM managed lands (see **Unit 25 Map**)

Federal public lands comprise approximately 73% of Unit 26A and consist of 66.9% BLM managed lands, 6.6% National Park Service (NPS) managed lands, and 0.1% USFWS managed lands. Federal public lands comprise approximately 29% of Unit 26B and consist of 22.8% USFWS managed lands, 3.6% BLM managed lands, and 2.7% NPS managed lands (see **Unit 26 Map**).

Customary and Traditional Use Determinations

Residents that have a customary and traditional use determination for caribou in Units 21, 22, 23, 24, 25A, 26A and 26B are presented in **Table 1**.

Table 1. Unit specific customary and traditional use determinations

UNIT	CUSTOMARY AND TRADITIONAL DETERMINATION
21D	Residents of Units 21B, 21C, 21D, and Huslia
22A	Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (except residents of St. Lawrence Island), 23, 24, Kotlik, Emmonak, Hooper Bay, Scammon Bay, Chevak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Marys, Nunam Iqua, and Alakanuk
22 Remainder	Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (excluding residents of St. Lawrence Island), 23, and 24
23	Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but no other residents of the Dalton Highway Corridor Management Area and 26A
24	Residents of Unit 24, Galena, Kobuk, Koyukuk, Stevens Village, and Tanana
25A	Residents of Units 24A and 25
26A and 26C	Residents of Unit 26 (except the Prudhoe Bay–Deadhorse Industrial Complex), Anaktuvuk Pass, and Point Hope
26B	Residents of Unit 26, Anaktuvuk Pass, Point Hope, and Unit 24 within the Dalton Highway Corridor Management Corridor Area (DHCMA)

Regulatory History

See **Appendix A** for a summary of the regulatory history.

Current Events

Several proposals concerning Federal caribou harvest regulations in Unit 23 and Unit 26 were submitted for the 2018-2020 wildlife regulatory cycle.

At the Northwest Arctic Subsistence Regional Advisory Council meeting in March 2017, the Council voted to submit a proposal to decrease the caribou harvest limit in Unit 23 from 5 to 3 caribou/day (WP18-45).

The North Slope Subsistence Regional Advisory Council submitted a proposal requesting that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU) (WP18-57).

Two proposals, the first submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group) (WP18-46), and the second by Enoch Mitchell of Noatak (WP18-47), request that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. Proposal WP18-47 specifically requests that the closure extend from 2018/19-2020/21 only.

Two proposals, the first submitted by the WACH Working Group (WP18-48) and the second by Louis Cusack (WP18-49), request that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements.

Biological Background

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**) and there can be considerable mixing of herds during the fall and winter (Hemming 1971). During the early 2000s, the number of caribou from the WACH, TCH, CACH, and Porcupine Caribou Herd (PCH) peaked at over 700,000 animals, which may be the highest number since the 1970s (OSM 2017b). Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, Lenart 2011, Parrett 2011). After declining slowly during the 1990s and early 2000s, the PCH has been increasing and by 2016 was at 197,000, which is the highest population yet recorded for this herd (OSM 2017b). In some years, harvest on Federal public lands within the Arctic National Wildlife Refuge (Arctic NWR) in Unit 26B is primarily from the PCH (Arthur 2017 pers. comm.).

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011) and this may result in proportional constrictions and expansions of migratory pathways that shift caribou near or away from communities. Other factors may influence migratory patterns such as human disturbance, industrial development, habitat suitability, and climactic conditions. The influence of NFQU hunting activities, especially the use of aircraft and motorized vehicles as well as the harvest of lead caribou adjacent to what are considered important migratory corridors, has been an ongoing and contentious topic in the northwestern Arctic, since at least the 1980s (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009, Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015). In the Northwest Arctic, the Unit 23 Working Group was established to assist with some of these concerns among various user groups. These user conflicts were, in part, the impetus for the closure of Federal public lands to NFQU in Unit 23 for the 2016/2017 regulatory year. Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, Gunn (2001) suggests climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) as the primary factor, exacerbated by predation and density-dependent reduction in forage availability resulting in poorer body condition. During the 1970s, there was little overlap between these four herds, but the degree of mixing seemed to have increased as the herds grew in the early 2000s (Lenart 2011, Dau 2011, Parrett 2011).

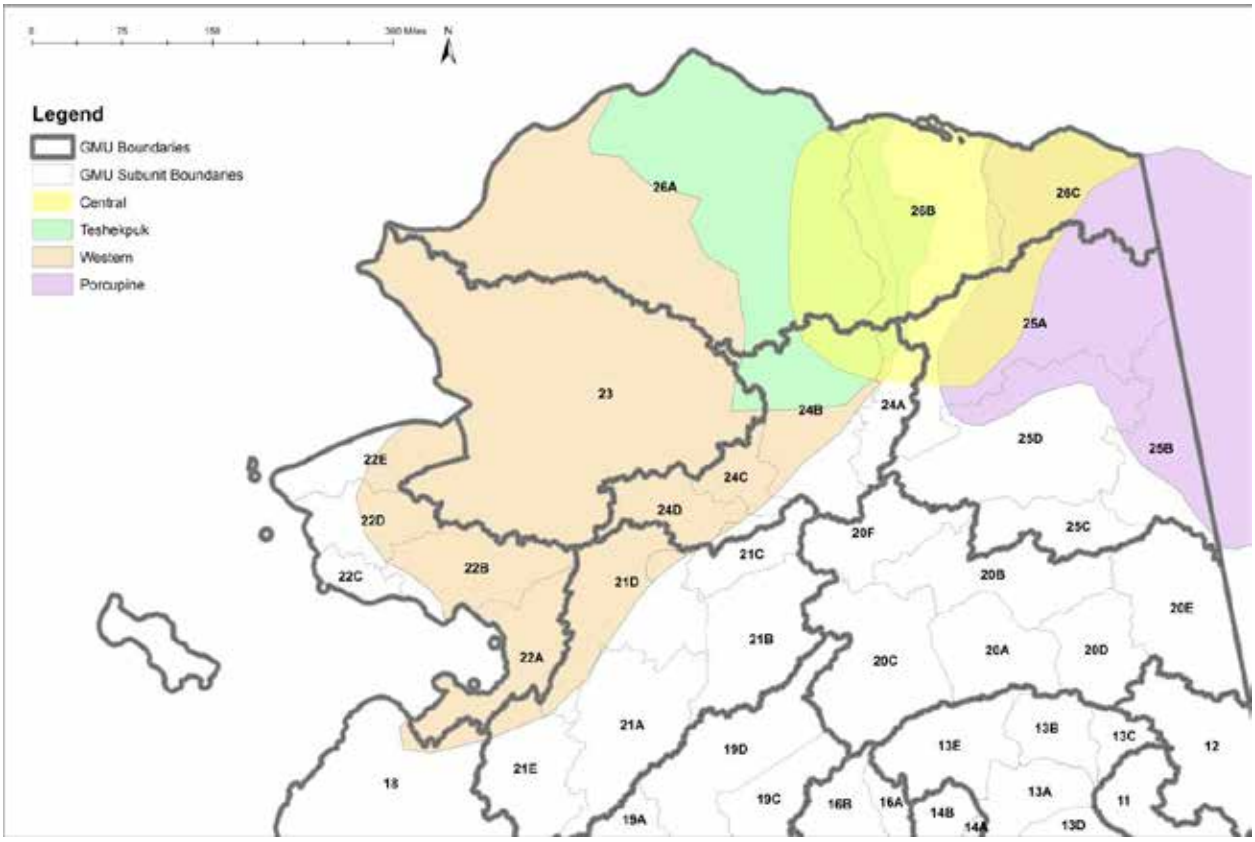
Caribou calving generally occurs during late May and early June. Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition. Joly (2000) found that calves orphaned later in life have greater chances of surviving. Data from Russell et al. (1991)

suggests 50% and 75% of the calves orphaned in September and November, respectively, survived the winter (Joly 2000). Indeed, there is little evidence that calves orphaned after weaning experience strongly reduced overwintering survival rates than non-orphaned calves (Rughetti and Festa-Bianchet 2014, Joly 2000, Holand et al. 2012), although Holand et al. (2012) found orphaned calves to have greater losses of winter body mass than non-orphaned calves.

The WACH, TCH, and CACH migrate between seasonal summer and winter ranges and calving areas. Over many years, traditional migration routes have developed in response to spatial and temporal variability of environmental conditions encountered (Duquette 1988). Migration routes that were successful in previous years are likely learned by young caribou following older, more experienced animals (Pullainen 1974). Maintaining connectivity between the seasonal areas is important because restoring disturbed migration routes can be challenging (Wilcove and Wikelski 2008, Singh and Milner-Gulland 2011). Long-term climate changes may affect seasonal ranges and migratory patterns through changes in forage abundance, habitat quality, and weather (Joly et al. 2011). In addition, increased development along migration routes could increase energy costs, impede movements, or deflect caribou to less optimal areas. Understanding the importance of spatial and temporal variation of the seasonal habitat use and the migration routes are important considerations for management of caribou herds.

Central Arctic Caribou Herd

The CACH range includes the area from the eastern portion of the Arctic coastal plain of the North Slope to the Canadian border, the north side of the Brooks Range from the Itkillik River to the Canadian border, the south side of the Brooks Range from the North Fork of the Koyukuk River to the East Fork of the Teedriijik (Chandalar) River, and as far south as the Teedriijik (Chandalar) River valley (Lenart 2015). The traditional calving grounds of the CACH are between the Colville and Kuparuk rivers on the west side of the Sagavanirktok River and between the Sagavanirktok and Canning rivers on the east side. In response to oil and gas development and infrastructure in the 1990s caribou that calved in the western Unit 26B shifted their calving grounds to the southwest (Arthur and Del Vecchio 2009). The CACH summer range extends east from Fish Creek, just west of the Colville River, along the coast and inland about 30 miles to the Canadian border. Typically the CACH summer range extends from the Colville River to just east of the Katakturuk River and from the coast inland to the foothills of the Brooks Range. The winter range of the CACH occurs in the northern and southern foothills of the Brooks Range. In most years the CACH begin migrating toward the foothills of the Brooks Range in August and by September most of the caribou are in the foothills around Toolik Lake, Galbraith Lake, Accomplishment Creek, Ivishak River and the upper Sagavanirktok River. Depending on the year, the rut, which typically occurs in mid-October, can occur on the north or south side of the Brooks Range (Lenart 2015). The range of the CACH often overlaps with the PCH on the summer and winter ranges to the east and with the WACH and TCH herds on the summer and winter ranges to the west (**Map 1**) (Lenart 2015).



Map 1. Herd overlap and ranges of the Western Arctic, Teshekpuk, Central Arctic and Porcupine Caribou herds (Caribou Trails 2014).

The seasonal movements and migratory patterns of CACH have been studied using radio telemetry for the past 30 years (Cameron et al. 1979, Whiten and Cameron 1983, Cameron et al. 1986, Carruthers et al. 1987, Cameron et al. 1995, Cameron et al. 2005). Migratory patterns of the CACH are oriented principally north-south, from the summer range and calving areas on the tundra-dominated Arctic coastal plain to the winter range in the foothills and mountains of the Brooks Range (Cameron et al. 1979, Carruthers et al. 1987, Fancy et al. 1989, Cameron et al. 2002, Nicholson et al. 2016). Spring migration to the calving areas, which is led by pregnant females, occurs during April and May (Duquette and Klein 1987). After calving, males and non-pregnant females form large groups in mid-June (Cameron and Whitten 1979). Similar to the TCH, CACH often moves to windy areas along the Beaufort Sea coast or to areas with persistent patches of snow to avoid harassment by flies and mosquitoes during the middle of the summer (White et al. 1979). During August, when the insect activity lessens, the caribou begin a slow and irregular movement toward the foothills of the Brooks Range. The fall migration to the wintering areas starts in September and continues through November (Cameron et al. 1986, Lenart 2015).

From 2003-2007, movements of 54 caribou from the CACH were monitored (Nicholson et al. 2016). The annual summer and winter home ranges of the CACH, using a 90% fixed kernel utilization distribution, were similar between summer (mean = 27,929 km^2) and winter (mean = 26,585 km^2). Overlap between consecutive summer ranges was 62.4% and between consecutive winter ranges was 42.8% (Nicholson et al.

2016). The CACH typically cross the Dalton Highway from the northwest to the southeast during the fall migration, which is away from Anaktuvuk Pass (Nicholson et al. 2016). The CACH used multiple migration routes, or a network of corridors versus a single migration route. Although caribou migratory patterns varied each year, some areas were consistently used each year. The migration paths that consistently had high caribou concentrations during spring and fall migrations each year were along the Dalton Highway between Galbraith Lake and the Ribdon River (Nicholson et al. 2016, Jack Reakoff 2017 pers. comm.).

The State manages the CACH to provide for subsistence and other hunting opportunities on a sustained yield basis. State management objectives for the CACH are as follows (Lenart 2015):

- Maintain a population of at least 28,000-32,000 caribou
- Maintain accessibility of seasonal ranges for CACH caribou
- Maintain a harvest of at least 1,400 caribou if the population is ≥ 28,000 caribou
- Maintain a ratio of at least 40 bulls:100 cows
- Reduce conflicts between consumptive and nonconsumptive uses of caribou along the Dalton Highway

When the CACH was recognized as a distinct herd in 1975, the population was estimated to be 5,000 caribou (Cameron and Whitten 1979). The population increased to approximately 23,000 in 1992 (Valkenburg 1993), decreased to 18,000 in 1995, and then increased rapidly from 27,000 in 2000 to 70,034 in 2010 (Lenart 2015). Low cow mortality, high parturition rates, and high calf survival and recruitment contributed to the population increase of approximately 12% per year from 1998-2008 (Lenart 2015). In 2013, the population dropped to approximately 50,000 and by 2016 the population decreased to 22,360 caribou, which is below State management objectives (Lenart 2011, 2013, 2017a, b). The recent decline from 2010 to 2016 represented a decline of approximately 17% per year. The late spring of 2013, which killed many adult and yearling females, likely contributed to the population decline from 2010 to 2013. Two major factors influencing the population decline from 2013 to 2016 were the high mortality of adult females and emigration (Lenart 2017b). From 2013-2016 54% of the collared females (n = 54 in 2013) died and 19% switched from the CACH to other caribou herds (Lenart 2017b). Previous research indicates that predation has not played a major role in calf mortality and it is not thought to be a major factor in the decline (Lenart 2017b). Disease is also not implicated as a major factor for the decline of the CACH (Lenart 2017b). The State attributes the decline between 2013 and 2016 censuses to a large proportion of older females that died of old age, the late spring of 2013, and herd switching (Lenart 2017a).

Composition surveys are usually conducted during the fall near the peak of the rut to take advantage of the mixing of the bulls, cows, and calves. Composition counts were conducted in 2009-2012, 2014, and 2016 (Lenart 2015, 2017a). Composition surveys were not done in 2013 because the CACH was mixed with the PCH (**Table 2**) (Lenart 2015). The calf:cow ratio did not decline until after 2012 (**Table 2**). From 2009-2012 calf:cow ratios averaged 49 calves:100 cows (**Table 2**) (Lenart 2015). The calf:cow ratio was 48 calves: 100 cows when the population dropped to 22,360 caribou in 2016 (Lenart 2017a). Calf:cow ratios for calves ≤ 4 years old, were above 70 calves:100 cows during the period when the herd was growing between 2000 and 2010 (Lenart 2017a). From 2010-2016, when the herd was declining, the calf:cow ratio

for older calves dropped below the 70 calves:100 cows. Although the bull:cow ratio had declined to 39 bulls:100 cows in 2016, it was still close to the State recommended objective of 40 (Lenart 2015, 2017b) between 2000 and 2010 (Lenart 2017a).

Table 2. CACH sex and age composition information collected during fall composition surveys, 2009-2014 (Lenart 2015)[a].

Date	Bulls:100 cows	Calves:100 cows	Percent Calves (n)	Percent Cows (n)	Percent Bulls (n)	Sample Size	Groups
13-14 Oct. 2009	50	33	18 (1,193)	55 (3,641)	27 (1,814)	6,648	19
23 Oct. 2010	50	46	23 (889)	51 (1,930)	26 (968)	3,787	12
13 Oct. 2011	69	56	25 (1303)	44 (2,306)	31 (1,590)	5,199	22
14 Oct. 2012	56	61	23 (1,132)	55 (1,845)	22 (1,039)	4,016	15
13-14 Oct. 2014[b]	41	42	23 (462)	55 (1,097)	22 (445)	2,004	18
2016	39	48					

[a] 2016 data is incomplete (Lenart 2017b)

[b] Data may not be comparable with previous years due to small sample size.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska (NPR–A). Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (Person et al. 2007, Wilson et al. 2012). From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik (Barrow) to the Colville River Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas as well (Yokel et al. 2009). River corridors are also used more during periods of insect harassment. Fall and winter movements are more variable, although most of the TCH winters on the coastal plain around Atqasuk, south of Teshekpuk Lake. However, the TCH has wintered as far south as the Seward Peninsula, as far east as the Arctic NWR, and in the foothills and mountains of the Brooks Range (Carroll 2007). In 2008/2009, the TCH used many of these widely disparate areas in a single year (Parrett 2011, 2015a). From 2007-2011, the TCH wintered in four relatively distinct areas: the coastal plain between Atqasuk and Wainwright; the coastal plain west of Nuiqsut; the central Brooks Range; and the shared winter ranges with the WACH in the Noatak, Kobuk, and Selawik drainages. During the winters of 2012-2013 and 2013-2014, the TCH wintered primarily near Atqasuk and Wainwright and east of Anaktuvuk Pass (Parrett 2015a).

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, to ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2011). Specific State management objectives for the TCH are as follows (Parrett 2011):

Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.

- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

Since 1984, the minimum population of the TCH has been estimated from aerial photocensuses and radio-telemetry data. Population estimates are determined by methods described by Rivest et al. (1998), which account for caribou in groups that do not have a collared animal and for missing collars. Based on these methods the TCH population increased from an estimated 18,292 caribou (minimum estimate 11,822) in 1982 to 68,932 caribou (minimum estimate 64,106) in 2008. The minimum estimates are derived from the visual estimate in 1982 and from the aerial photocensus minimum after 1982. From 2008 to 2014, the population declined by almost half to 39,000 caribou (**Figure 1**) (Parrett 2015a). Interpretation of population estimates is difficult due to movements and range overlap among caribou herds, which results in both temporary and permanent immigration and emigration (Person et al. 2007). For example, the minimum count in 2013 contained an unknown number of CACH caribou (Parrett 2015a). Following the 2013 census, Alaska Department of Fish and Game (ADF&G) made the decision to manage the TCH based on the minimum count because the bulk of the animals that were estimated rather than counted were with the WACH at the time of the photocensus (Parrett 2015b, pers. comm.). In 2015, the minimum count was 35,181 with a population estimate of 41,542 (SE = 3,486) (Parrett 2017a, pers. comm.).

In 2013 and 2016 the number of bulls:100 cows was39 bulls:100 cows and 28 bulls:100 cows in 2016, respectively (**Figure 2**) (Parrett 2011, 2013, 2015a, Parrett 2017a, pers. comm.). Comparison of bull:cow and calf:cow ratios from 1991-2000 and later years is not possible due to changes in methodology. From 2009-2013 the calf:cow ratio increased from 18 calves:100 cows to 48 calves: 100 cows in 2016 (Parrett 2013, 2015a, Parrett 2017a, pers. comm.). In addition, the number of short–yearlings:adults, which is a measure of recruitment, declined from an average of 20 short–yearlings:100 adults between 1999 and 2008 to an average of 14 short–yearlings:100 adults from 2009-2014 (**Figure 3**) (Parrett 2013) and increased in 2016 to 29 short-yearlings:100 adults (Parrett 2017a, pers. comm.).

The annual mortality of adult radio collared females from the TCH has remained close to the long term (1991-2012) average of 14.5% (range 8–25%) (Parrett 2011, 2015a, Caribou Trails 2014). As the TCH

has declined, calf weights declined, indicating that poor nutrition may be having a significant effect on this herd (Carroll 2015, pers. comm., Parrett 2015b, pers. comm.). In 2016 increased calf weights, high adult female survival (92%), high yearling recruitment (29 yearlings:100 adults), and high calf production (81%), and a high calf:cow ratio (48 calves:100 cows) suggest that the population may be stable or declining at a slower rate (Parrett 2017a, pers. comm.) In contrast, the body condition of individuals from the WACH, which also declined dramatically, has remained relatively good, indicating that caribou are still finding enough food within their range (Caribou Trails 2014, Dau 2014). A recent study found that calf production was low, calf survival on calving grounds was high, 40% of the concentrated wintering range was on NPS land, and that starvation was a significant mortality factor on non-NPS lands (Parrett 2017a, pers. comm.). The late spring in 2013 likely contributed to the decline in winter survival in 2014.

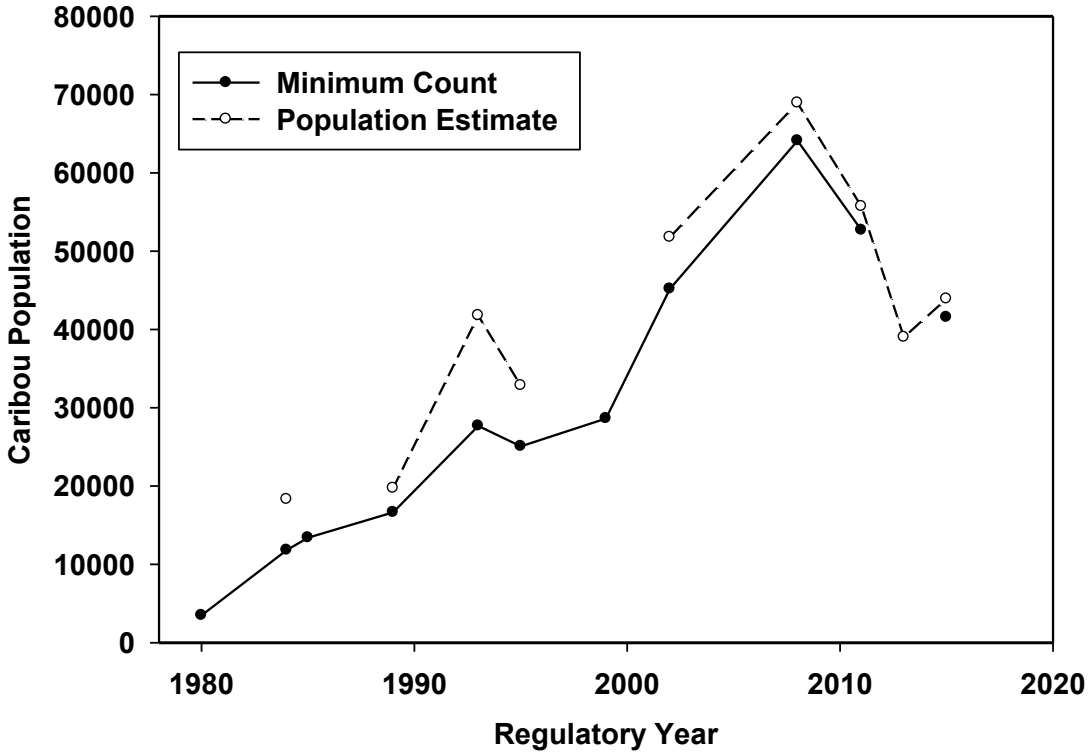


Figure 1. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2014. Population estimates from 1984-2013 are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, Parrett 2015a).

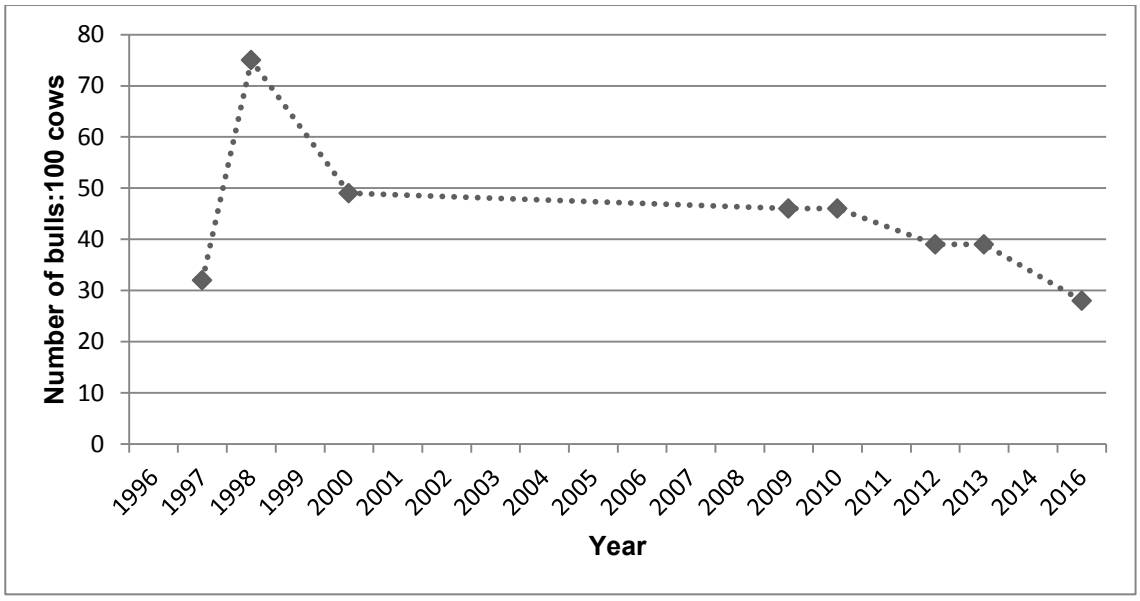


Figure 2. Bull:cow ratios of the Teshekpuk Caribou Herd (Parrett 2013).

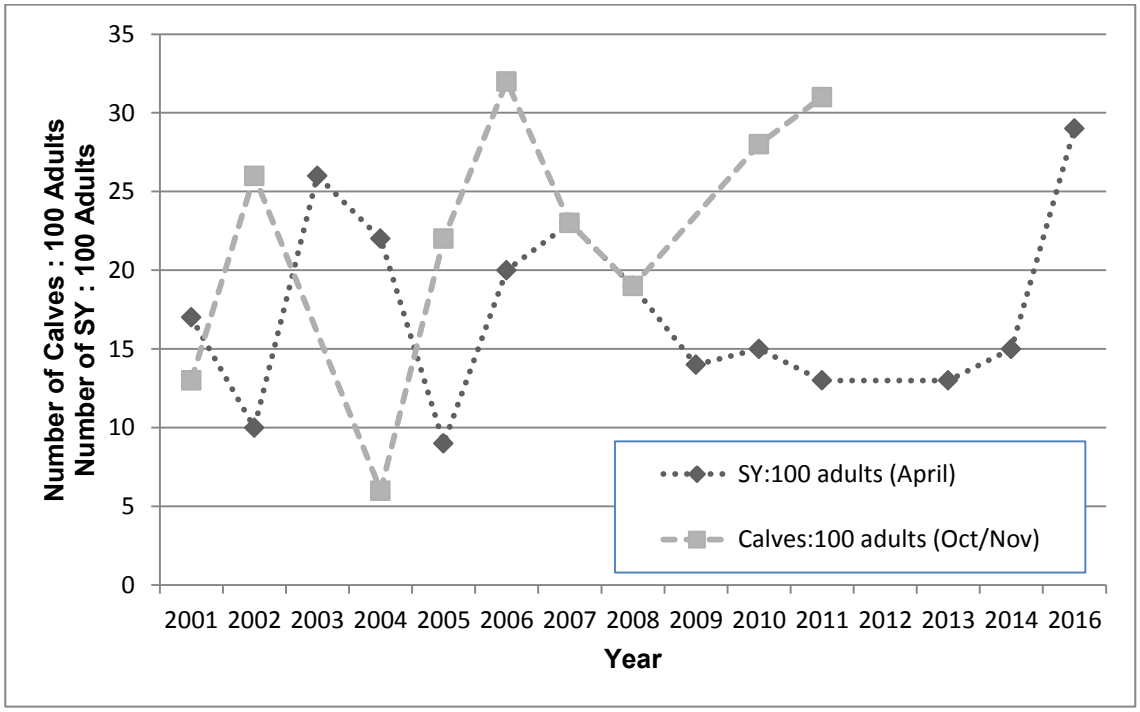


Figure 3. Calf:adult and short -yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015a). Short-yearlings are 10-11 months old caribou.

Western Arctic Caribou Herd

The WACH, the largest herd in Alaska, has a home range of approximately 157,000 mi^2 in northwestern Alaska (**Map 2**). In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills area (Dau 2011, WACH Working Group 2011). Spring migration for the WACH usually begins around April 1 (Joly 2017). Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements and were assumed to be calving). After calving, cows and calves move west toward the Lisburne Hills where they mix with the remaining bulls and non-maternal cows. During the summer the herd moves rapidly to the Brooks Range.

In the fall the herd moves south toward their wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26 based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). Approximately 99% of the WACH migrate through the Noatak National Preserve and the Gates of the Arctic National Park (Joly 2017). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (**Figure 4**) (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (Joly and Cameron 2017). Changes in migration paths are likely influenced by multiple factors including food availability, snow depth, rugged terrain, and dense vegetation (Fullman et al. 2017, Nicholson et al. 2016). If caribou travelled the same migration routes every year, their food resources would likely be depleted (NWARAC 2016). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a). The caribou migrated early in 2016 and the mean distance travelled was 1932 miles which is about average. More of the herd crossed the eastern portion of the Noatak River compared to 2015 when a greater proportion crossed the western Noatak River near the coast (Joly 2017). The start of the cow fall migration can vary by a month and by October 1 many of the cows will have passed through the northern portion of Unit 23 while the bulk of the WACH will still be migrating through the southern half of Unit 23. On average, collared cows cross the Selawik River during fall migration around Oct. 15 and are still migrating on Oct. 1 (Joly 2017), the proposed opening cow season for Unit 22. In Units 26A and 26B most of the cow caribou will have migrated through.

In part, due to the collapse of the WACH in the 1970s, the WACH Working Group was formed. In 2003 it developed a WACH Cooperative Management Plan, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, scientific and traditional ecological knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 3**). Potential management actions and harvest recommendations for each management level can be found

in Appendix 2 of the Western Arctic Caribou herd Cooperative Management Plan (WACH Working Group 2011).

The State manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are listed in the 2011 Western Arctic Caribou Cooperative Management Plan (WACH Working Group 2011, Dau 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s bottoming out at about 75,000 animals in 1976. Aerial photocensuses have been used since 1986 to estimate population size. The WACH declined at an average annual rate of 7.1% from approximately 490,000 animals in 2003 to 235,000 in 2013 (Dau 2011, 2013, 2014, 2015a; Caribou Trails 2014) (**Figure 4**).

Between 1982 and 2011, the WACH was within the liberal management level prescribed by the WACH Working Group (**Table 3**). In 2013, the WACH population estimate fell below the threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photocensus of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 5, Table 3**)(Parrett 2016a). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). The data from the 2017 photo census is currently being analyzed by ADF&G (Parrett 2017b, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Table 4**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratio has trended downward (Dau 2015a). The average annual

number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013). Increased survival and recruitment is important to slow or reverse the current decline. In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size. Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Table 4, Figure 6**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 6**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 6**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015c).

Similarly, the ratio of short-yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 6**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-June 2016) was 84% (Parrett 2016b). While 2016 measures suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a).

Increased cow mortality is likely affecting the trajectory of the herd (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased, from an average of 15% between 1987 and 2003, to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2009, 2013) reported that rain–on–snow events, deep snow and winter thaws may have contributed to the relatively high estimated mortality rates of 23% during 2008-2009, 27% during 2009-2010 and 33% in 2011-2012. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012. The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate

substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) suggests that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

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

Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Gunn 2001, Joly et al. 2007, Dau 2013, 2014, 2015a). Changing climatic conditions can affect snow depth, icing, forage quality and growth, frequency, location, and intensity of wildfires, insect abundance, and predation which can affect migration and have long-term population level effects (Joly et al. 2011). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the WACH because animals in the WACH, unlike the TCH, have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The body condition of adult females in 2015 were characterized as "fat" (mean = 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015c). However, the body condition of the WACH in spring may be a better indicator of the effects of winter range condition versus the fall when the body condition of the WACH is routinely assessed and when caribou are in prime condition, and weights may be more reflective of summer range conditions (Joly 2015, pers. comm.). Fall condition is also the best indicator of whether or not caribou are likely to become pregnant (Parrett 2017a, pers. comm.).

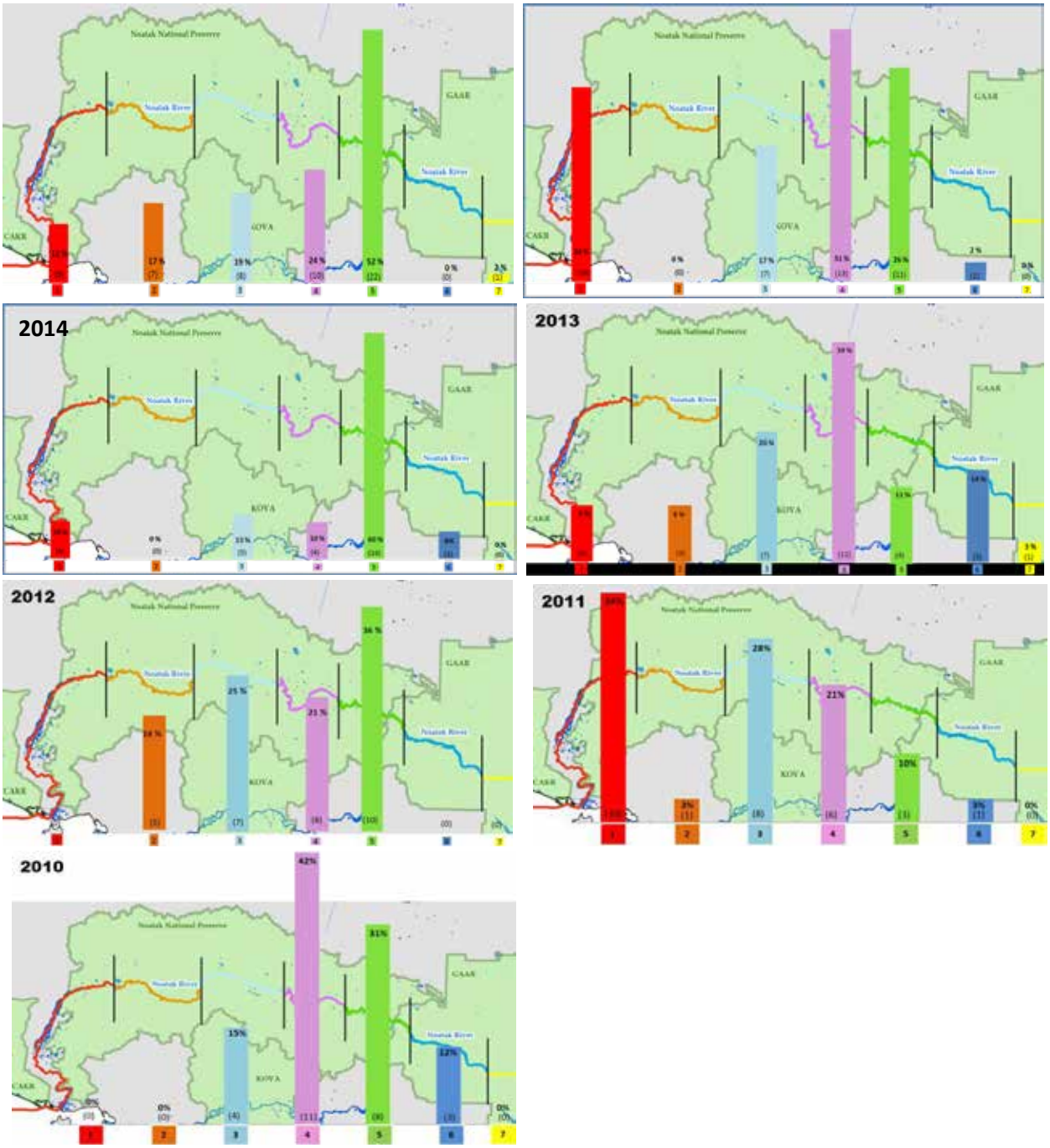
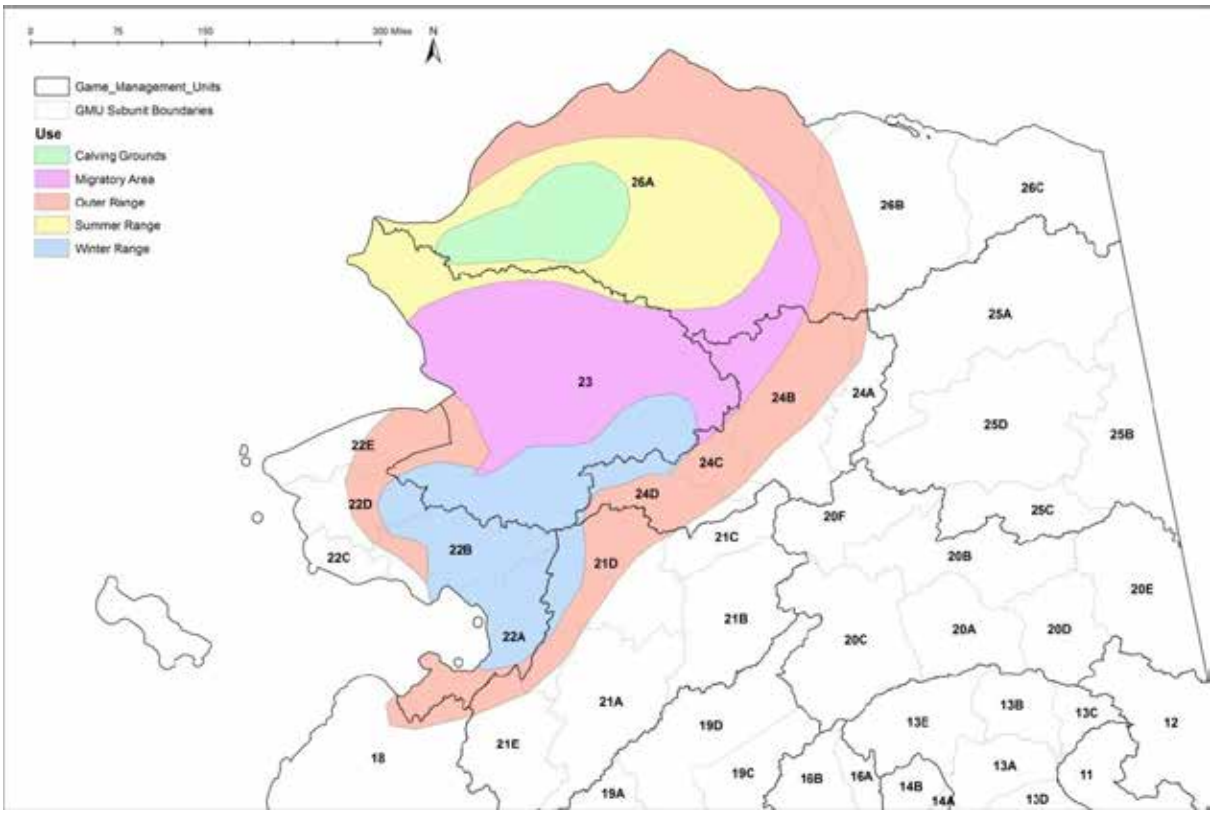


Figure 4. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments, which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WACH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).



Map 2. Calving grounds, wintering range, summering range, migratory areas, and home range extent of the Western Arctic Caribou Herd (WACH Working Group 2011)

Table 3. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conserva-tive	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

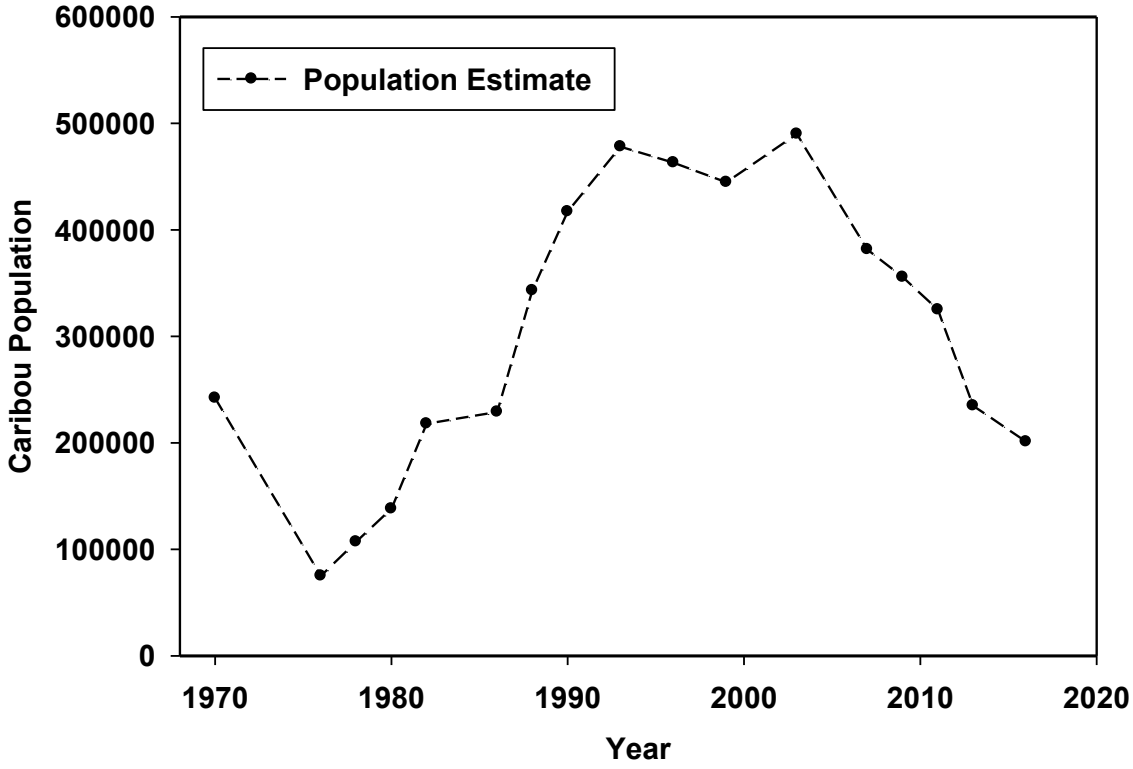


Figure 5. Maximum population estimates of the Western Arctic Caribou Herd from 1970-2016. Population estimates from 1986-2016 are based on aerial photographs of groups of caribou that contained radio–collared animals (Dau 2011, 2013, 2014, 2015a, Parrett 2017a, pers. comm.).

Table 4. Western Arctic Caribou Herd fall composition 1976 – 2014 (Dau 2011, 2013, 2014, 2015a, 2016b).

Regulatory Year	Total bulls: 100 cows[a]	Calves: 100 cows	Calves: 100 adults	Bulls	Cows	Calves	Total
1976/1977	63	52	32	273	431	222	926
1980/1981	53	53	34	715	1,354	711	2,780
1982/1983	58	59	37	1,896	3,285	1,923	7,104
1992/1993	64	52	32	1,600	2,498	1,299	5,397
1995/1996	58	52	33	1,176	2,029	1,057	4,262
1996/1997	51	49	33	2,621	5,119	2,525	10,265
1997/1998	49	43	29	2,588	5,229	2,255	10,072
1998/1999	54	45	29	2,298	4,231	1,909	8,438
1999/2000	49	47	31	2,059	4,191	1,960	8,210
2001/2002	38	37	27	1,117	2,943	1,095	5,155
2004/2005	48	35	24	2,916	6,087	2,154	11,157
2006/2007	42	40	28	1,900	4,501	1,811	8,212
2008/2009	45	48	33	2,981	6,618	3,156	12,755
2010/2011	49	35	23	2,419	4,973	1,735	9,127
2012/2013	42	38	27	2,119	5,082	1,919	9,120
2014/2015	39	[b]	[b]	[b]	[b]	[b]	[b]
2015/2016	41[c]	54	[b]	[b]	[b]	[b]	[b]

[a] 40 bulls:100 cows is the minimum level recommended in the WACH Cooperative Management Plan (WACH Working Group 2011)
[b] Data not available
[c] Estimated from power point presentation presented at the WACH Working Group Meeting December 13, 2016 (Parrett 2016a)

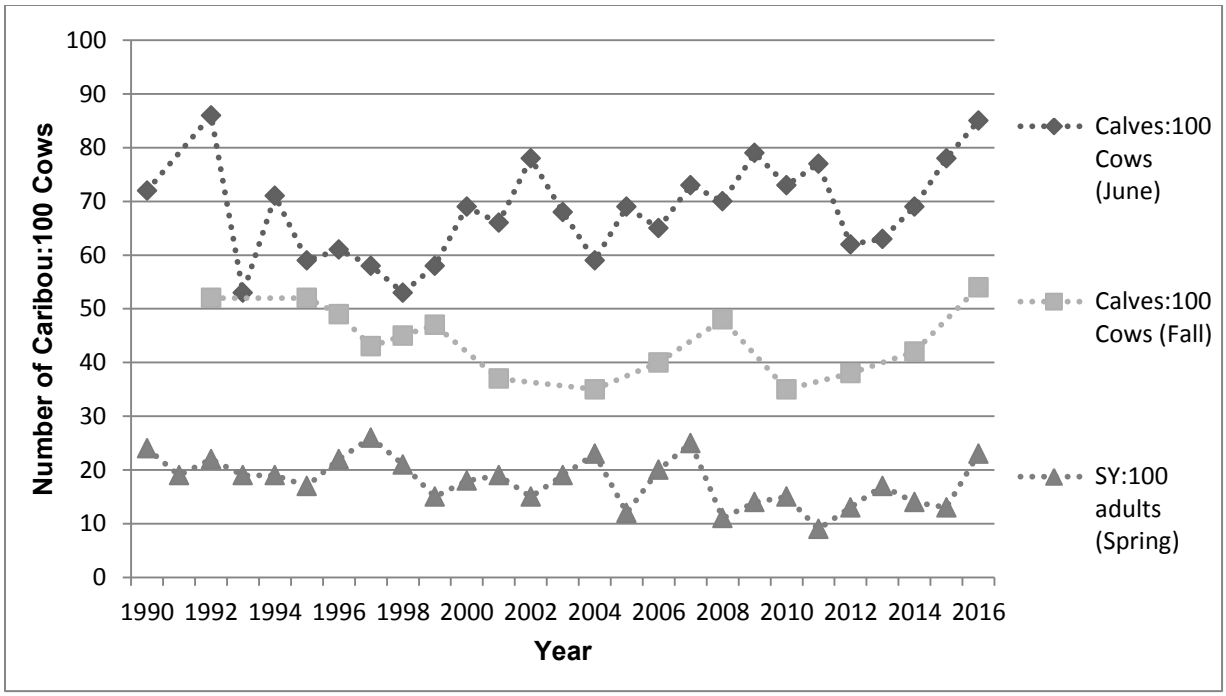


Figure 6. Calf:cow and short-yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short -yearlings are 10-11 months old caribou.

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003). The importance of high use areas for the TCH at Teshekpuk Lake during the summer has been well documented (Person et al. 2007, Carroll 2007, Parrett 2011, Wilson et al. 2012, Smith et al. 2015). Presumably the importance of areas to the north, south, and east of Teshekpuk Lake during calving is due to the high concentration of sedge-grass meadows (Wilson et al. 2012) and extremely low predator densities (Parrett 2017, pers. comm.). In 2013 BLM closed 3.1 million acres around Teshekpuk Lake in the NPR–A to oil and gas development in recognition of the importance of these areas for caribou, waterfowl and shorebirds (BLM 1998, 2008, 2013; Cameron et al. 2005, Arthur and Del Vecchio 2009).

Harvest History

Reliance on caribou from a particular herd varies by community. Weather, distance of caribou from the community, terrain, and high fuel costs are some of the factors that can affect the availability and accessibility of caribou (Parrett 2015a). Local residents in Units 21D, 23, 24, 25A, 26A and 26B are defined as those having customary and traditional use in these units (**Table 1**). Generally, in State harvest monitoring efforts, local residents are those that reside within the range of the WACH, TCH, or CACH. Point Hope, which is located in Unit 23, and Anaktuvuk Pass, which is located in Unit 24B near the border with Unit 26A, have a customary and traditional use determination for caribou in Units 26A and 26B.

Documentation of harvest for Alaska residents has varied depending on whether they live north or south of the Yukon River. Prior to 2017/2018, Alaska residents who lived north of the Yukon River were not required to obtain harvest tickets although they were required to register with ADF&G or an authorized vendor. Compliance with registration requirement was low and not enforced (Braem 2017a, pers. comm.). Harvest by Alaska residents who live south of the Yukon River and nonresidents was monitored using harvest reports (Lenart 2015, Dau 2015a).

Understanding the overlap between caribou hunting by local users and nonlocal users is complicated by the lack of annual information on the exact location, harvest numbers, and caribou herd used by local hunters. Recently enacted State regulations requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 seek to improve harvest monitoring and allow for more detailed analysis of harvest trends and distribution.

Central Arctic Caribou Herd

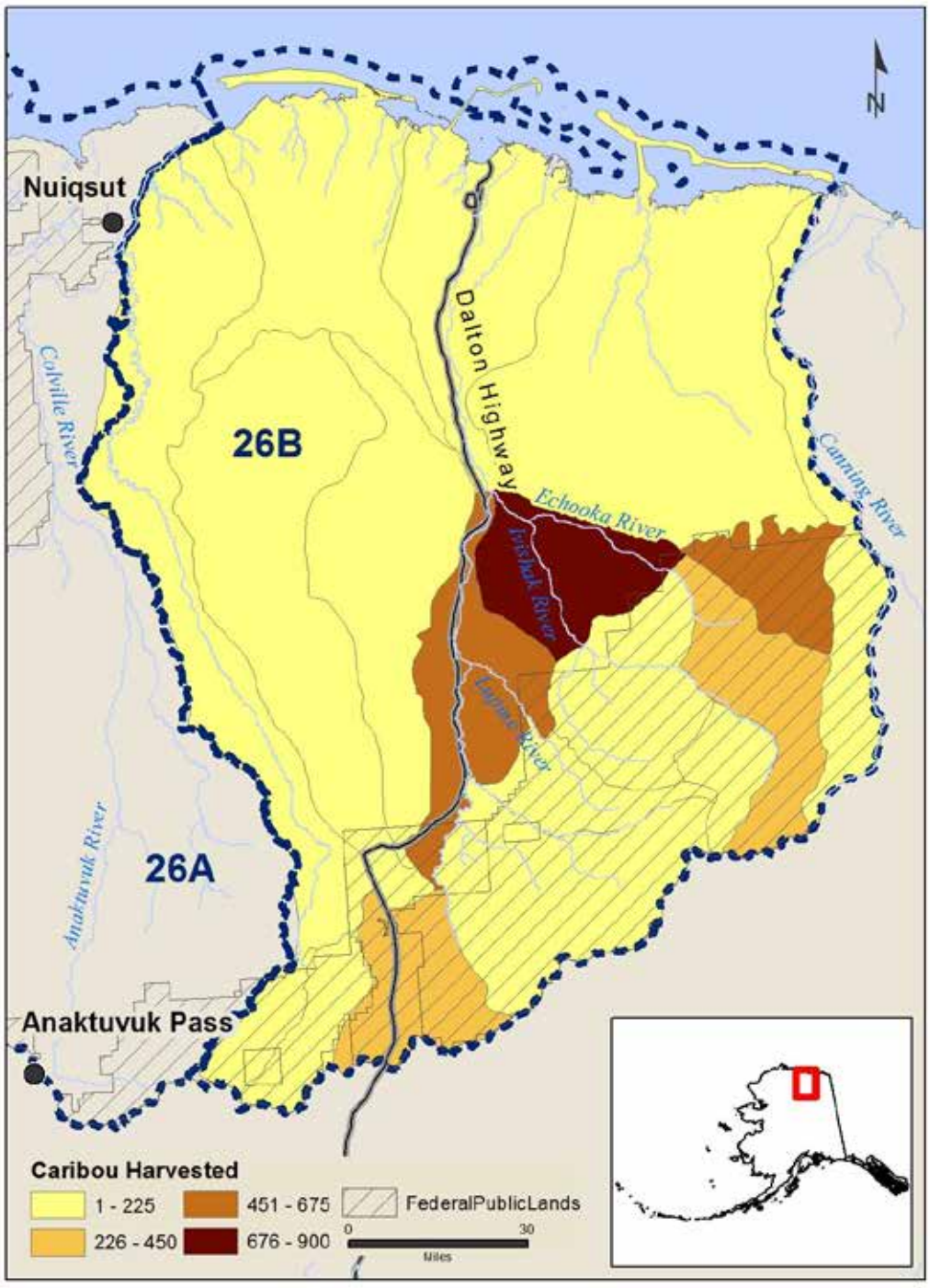
Although most of the harvest from the CACH comes from Unit 26B, some occurs in Units 24A, 24B, 25A, 26A, and 26C. Less than 10% of the harvest in Unit 25A (range 250-400) is estimated to come from the CACH (Caikoski 2015). Harvests in summer and early fall that occur in Units 24A, 24B, 25A, and 26C are primarily from other herds such as the PCH, TCH, or WACH. Additional harvest from the CACH may occur when the CACH is located near Kaktovik (Unit 26C) in the summer, near Wiseman and Coldfoot (Unit 24A) in the fall and winter, and near Arctic Village (Unit 25A) in the fall and winter.. During the fall and winter some caribou from the TCH and WACH occasionally mix with the CACH. For the purposes of documenting the annual harvest from the CACH, Lenart (2017a) used an estimate of 100 caribou (Lenart 2017b) based on community harvest surveys by local residents outside of Unit 26B (**Table 5**). Harvest information presented for the CACH will refer to Unit 26B unless noted otherwise.

Harvest by local hunters from Nuiqsut occurs in the summer and fall, from July through September, and during the spring, from March through April (Braem et al. 2011, Brown et al. 2016). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs during the summer and fall and is from both the TCH and CACH (Lenart 2015). Nuiqsut hunters, who usually hunt west of the community, represent most of the local harvest from the CACH. Based on the distribution of caribou and the timing and location, Braem et al. (2011) estimated that 13% of the total harvest between 2002 and 2007 by Nuiqsut residents, was in Unit 26B, just west across the border with Unit 26A where the community is located. Braem et al. (2011) estimated that Nuiqsut hunters averaged approximately 61 caribou from the CACH annually from 2002 and 2007. The average total annual caribou harvest by Nuiqsut hunters, which includes TCH and CACH, from 2000-2007 was 469 caribou. In 2014, 774 caribou were estimated to have been harvested by Nuiqsut residents (Braem 2015). Nuiqsut residents harvested approximately 317 caribou (41%) from the CACH in 2014 (Braem 2017b). In 2014, Nuiqsut residents harvested caribou in all months except May. The most productive months were June (114), July (189), and August (215). Harvest declined sharply after August, only 73 caribou were harvested in September. The fewest caribou were taken in April (2) and November (4). There were 43 caribou harvested for which the date of harvest was not known. Of the caribou harvested in 2014, 72% were bulls. An estimated 166 cows were harvested in 2014 with 45% being harvested in January and February (Brown et al. 2016).

The average annual CACH harvest by nonlocal hunters from 2013/14 to 2015/16 in Unit 26B was approximately 937 caribou. (**Table 5**) (Lenart 2017a, WinfoNet 2017). Bow hunters took approximately 21% of the total harvest during this time. The average number of bulls harvested annually from the CACH from 2012-2015 was 699 and the average number of cows harvested was 234 (**Table 5**). A majority of the reported caribou harvest from the CACH occurs in August and September (Lenart 2015).

The proportion of resident and nonlocal harvest has fluctuated with CACH population trends (WinfoNet 2017) (**Figure 7, Table 6**). In general resident harvest has decreased with the recent population decline and the nonresident harvest has increased slightly (**Figure 7, Table 6).** Nonlocal residents accounted for 89% of the total caribou harvest from 2013-2015, which is approximately 827 caribou annually (Lenart 2017a). The location and total caribou harvest by NFQU hunters from the CACH during the population decline from 2011-2016 is shown in **Map 3**. It should be noted that the displayed spatial data is reflective of reported harvest records with locational data at fine scales; records lacking spatial specificity are not represented. Assuming unreported data is proportional to available data, **Maps 3, 5, and 6** represent general spatial harvest patterns. Between 2011 and 2016, a total of 5,049 caribou were harvested by NFQU in Unit 26B. Among those, 3,433 (68%) were from nonlocal Alaska residents and 1,616 (32%) and from nonresidents (WinfoNet 2017). The annual cow harvest by NFQU in Unit 26B increased from 47 in 2006-2009 to 234 in 2010-2016 (**Figure 8**). This increase coincided with the change in the harvest limits from two to five caribou and harvest season for cows from Oct.1-Apr. 30 to July 1-Apr. 30 in the 2010 State regulations.

Although a harvest rate of 5% of the population has been used as a guideline by ADF&G since 1991 to determine the allowable harvest, the reported harvest has been well below the harvestable surplus, averaging less than 2% since 2000/01 (Lenart 2015). However, with the recent population decline, Lenart (2017a) recommended a harvest level of 3% of the population. ADF&G adopted new caribou regulations for Unit 26B for 2017/2018 with the intended goal of reducing the annual harvest from an average of 937 caribou from 2013-2015 to 680 (3% of 22,360) and reducing the cow harvest from approximately 200 to 75 (Lenart 2017a).



Map 3. Reported caribou harvest in Unit 26B from the CACH by NFQU during the population decline 2011-2016 (WinfoNet 2017).

Table 5. Reported harvest from the Central Arctic Caribou Herd by sex and method of take in Alaska, 2006-2015 (Lenart 2013, 2015, 2017a; ADF&G 2017b).

Regulatory Year[a]	Male	Female	Unit 26A Residents[a]	Total Harvest (# harvested by bow)[b]	Total Hunters
2006/07	795	32	100	927 (301)	1,331
2007/08	596	65	100	761 (183)	1.380
2008/09	658	47	100	805 (180)	1,362
2009/10	750	45	100	895 (224)	1,317
2010/11	976	234	100	1,310 (296)	1,622
2011/12	808	344	100	1,252 (330)	1,401
2012/13	727	276	100	1,103 (285)	1,430
2013/14	721	134	100	955 (190)	1,423
2014/15	717	195	100	1,012 (198)	na[c]
2015/16	522	222	100	844 (92)	na[c]
Mean	699	234	100	1,033 (219)	–

[a] Estimated yearly average from Unit 26A residents from community harvest surveys, Kaktovik and Nuiqsut

[b] Total includes bow harvest and harvest from Unit 26A residents

[c] Not available

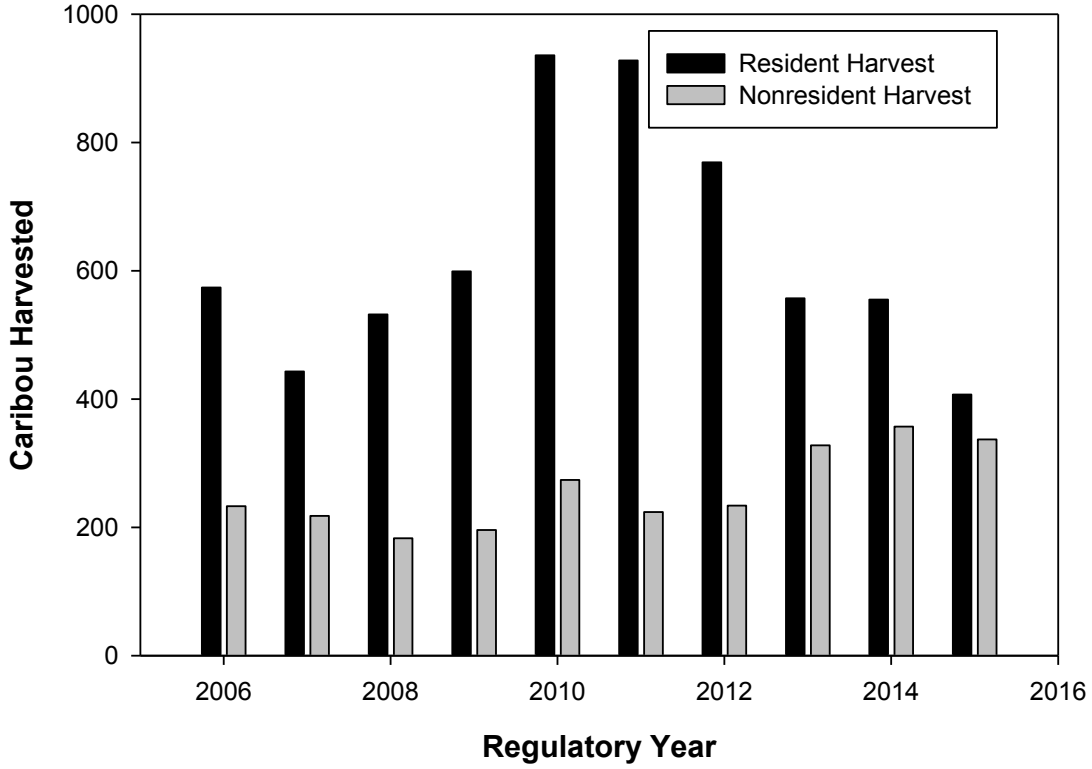


Figure 7. Reported CACH harvest by residency, 2006-2015 (Lenart 2017a).

Table 6. Characteristics of the Central Arctic Caribou Herd average annual harvest in Unit 26B by residency, 2013-2015. The proportion of the total Unit 26B caribou harvest by residency for 2006-2015 is included for comparison (Lenart 2017a).

Residency	Total CACH Harvest	Female CACH Harvest	Proportion of the Harvest (%) 2013-2015	Proportion of the Harvest (%) 2006-2015	Hunters	Success Rate (%)
Unit 26A Residents	100	20	11%	10%	na	na
Other Alaskan Residents	490	158	53%	64%	910	38%
Nonresident	340	24	36%	26%	430	62%
Total	930	202	-	-	-	-

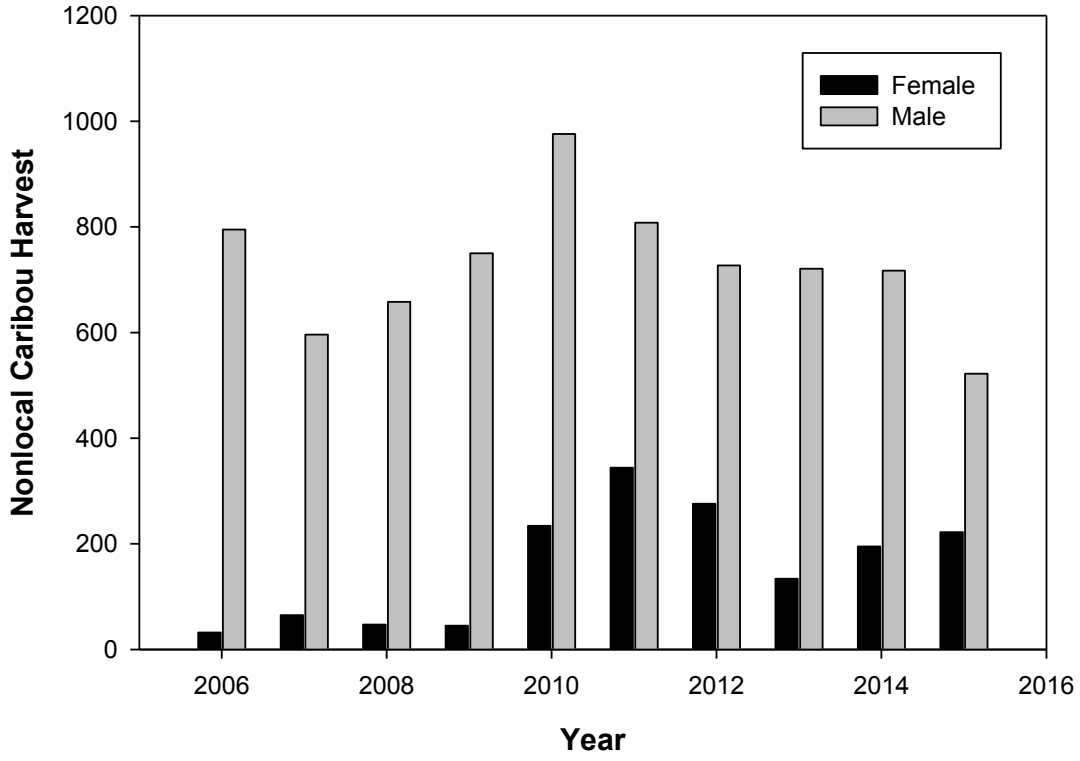
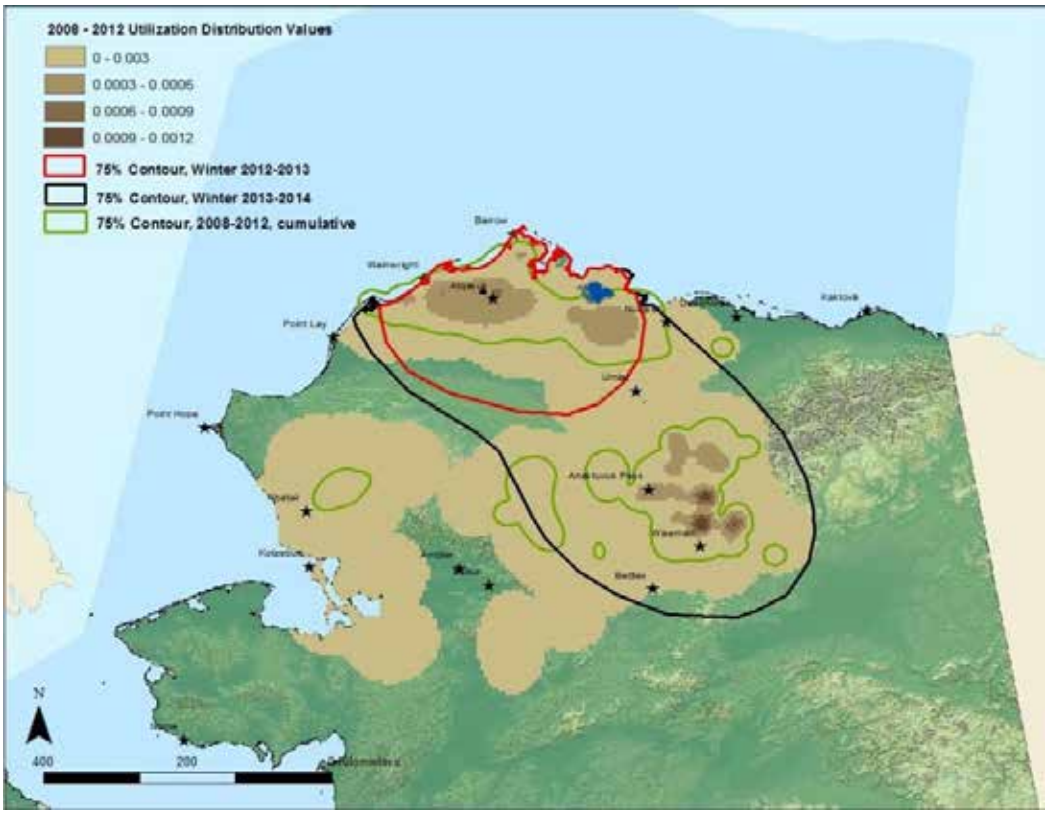


Figure 8. Central Arctic caribou herd harvest by sex by nonlocals in Unit 26B, 2006-2016 (Lenart 2017a)

Teshekpuk Caribou Herd

The TCH annual harvest is 4,000-5,000 (Parrett 2015a). Most of the harvest is by local Federally qualified subsistence users (FQSU). Less than 1% of the TCH harvest is by nonlocal residents in Alaska and nonresidents (Parrett 2011, Parrett 2015a). Residents of Atqasuk, Utqiagvik, Nuiqsut, and Wainwright harvest caribou primarily from the TCH while residents from Anaktuvuk Pass, Point Lay, and Point Hope harvest caribou primarily from the WACH (**Table 7**) (Dau 2011, Parrett 2011). For example the TCH winter range did not overlap Anaktuvuk Pass in 2012/2013 but did in 2013/2014 (**Map 4**). Residents of Nuiqsut, which is on the northeast corner of Unit 26A, harvest approximately 77% and 86% of their caribou from the TCH between 2002 and 2007 and 2010 and 2010, respectively (Parrett 2013). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the TCH and CACH (Lenart 2015). Although some harvest from the TCH occurs outside of Unit 26A in Units 23, 24, and 26B, it is unlikely that the overall harvest is significant when the TCH is mixed with other caribou herds (Parrett 2013, 2015a).



Map 4. Cumulative Teshekpuk caribou herd winter range, Alaska, 2008-2012, with utilization distribution values depicted in shades of brown, 75% kernel contour from the 2008-2012 in green. The 75% contours from the two individual winters from 2012-2014 are depicted by the red and black outlines (Parrett 2015a).

Range overlap between the three caribou herds, frequent changes in the wintering distribution of the TCH and WACH, and annual variation in the community harvest survey effort and location make it difficult to determine the proportion of the TCH, WACH and CACH in the harvest. Knowledge of caribou distribution at the time of the reported harvest is often used to estimate the proportion of the harvest from each herd.

The use of harvest tickets, required by nonlocal hunters, provides time and location of the harvest and, together with knowledge of the caribou distribution and allows for a more accurate assessment of the proportion of caribou harvested from each herd by nonlocals. For harvests by FQSU, analysis of the proportional harvest from different herds has been difficult due to poor or non-existent reporting, variation in the timing and effort of community harvest surveys, changes in the distribution and timing of TCH migration, and overlapping distribution with adjacent herds. However, previous efforts from 2002-2007 determined that Utqiagvik residents harvest primarily from the TCH (Parrett 2013, Braem 2017b). If used throughout the range, harvest tickets would allow for better tracking of the FQSU harvest with respect to the overlapping caribou herds. Community harvest surveys continue to be the preferred method to estimate

harvest by FQSU, since previous attempts to conduct registration hunts were not effective (Georgette 1994, Parrett 2015a).

For communities where harvest surveys have not been conducted or the estimates are unreliable, the Division of Wildlife Conservation estimated annual harvests based on the current community population, previous per capoita harvest estimates and yearly caribou availability. A general overview of the relative utilization of caribou herds by community from 2008/09 to 2009/10 is presented in **Table 7** (Parrett 2011, Dau 2011, and Lenart 2011). These years were chosen because there was good separation between the herds during this period. The total estimated annual harvest from the TCH during 2008/09 (3,219 caribou) (Parrett 2011) was similar to 2012/13 and 2013/14 (3387 caribou) (Parrett 2015a) **(Table 7**). Most of the caribou harvest in 2012/2013 and 2013/2014 occurred in August and September (Parrett 2015a). The estimated annual harvest during 2012/13 and 2013/14 using this method was approximately 3,387 (Parrett 2015a).

Table 7. Estimated caribou harvest of the Teshekpuk, Western Arctic and Central Arctic caribou herds during the 2008/2009 regulatory years by FQSU in Unit 26A (Parrett 2011, Dau 2011, Lenart 2011, Sutherland 2005). Note: Due to the mixing of the herds, annual variation in the community harvest surveys and missing data, the percentages for each community do not add up to 100%.

Community	Human population[a]	Per capita caribou harvest[bc]	Approximate total community harvest	Estimated annual TCH harvest (%)[d]	Estimated annual WACH harvest (%)[d]	Estimated annual CACH harvest (%)[d]
Anaktuvuk Pass	298	1.8	524	157 (30)	431 (82)	
Atqasuk	218	0.9	201	197 (98)	6 (2)	
Barrow (Utqiagvik)	4,127	0.5	2,063	2,002 (97)	62 (3)	
Nuiqsut	396	1.1	451	388 (86)	3 (1)	58 (13)
Point Lay	226	1.3	292	58 (20)	210 (72)	
Point Hope	689	0.3	220	0	220 (100)	
Wainwright	547	1.3	695	417 (60)	48 (15)	
Total Harvest				3,219	980	58

[a] Community population size based on 2007 census estimates
[b] Citations associated with per-capita caribou harvest assessment by community can be found in **Table 6** (Parrett 2011).
[c] Sutherland (2005)
[d] Percent of the total community harvest

The harvest estimate for Utqiagvik, from household surveys conducted by ADF&G in 2014/15 was 4,231 caribou (Braem 2015). Based on data collected by the North Slope Borough Wildlife Department and others, the average annual harvest estimate for Utqiagvik from 1992-2003 was 2096 caribou (Braem 2015).

Currently the harvestable surplus for the TCH is estimated to be approximately 2,500 at a 6% harvest rate. A conservative estimated harvest rate for the period between 2012/13 to 2013/14 is approximately 10% of the 2013 (3,917 caribou) population estimate of 39,172 (range 32,000-45,000) (Parrett 2015a). However, due to the mixing of TCH with the WACH and CACH, the lack of annual harvest data for FQSU and the lack of spatial data, it is difficult to determine the actual TCH harvest. The conservative TCH harvest rate of 10% is almost double the harvest rate estimates for the WACH and CACH (Parrett 2015a) and a conservation concern. If the TCH population declines to below 35,000 the harvest rate may be reduced to 4-5%, assuming that the harvest composition remains consistent at approximately 15% bulls and 2% cows (Parrett 2017a, pers. comm.).

Due to the remoteness and inaccessibility of much of the area, most of the TCH harvest is by local hunters (Parrett 2015a). TCH harvest by local hunters in recent years has occurred primarily from July to October (Braem et al. 2011, 2015; Parrett 2011) whereas nonresidents and nonlocal residents typically harvest most of their caribou from the WACH, along the Colville River drainage, in August and September (Parrett 2015a). For example, greater than 95% of the caribou harvested by nonresidents and nonlocal residents in 2012/13 and 2013/14 occurred in August and September (Parrett 2015a). The nonresident and nonlocal resident harvest from the TCH, which averages about 100 caribou a year, or 3% of the total TCH harvest, is split evenly between the nonlocal and nonresidents (Parrett 2013).

Western Arctic Caribou Herd

Annual caribou harvest by local residents is estimated from community harvest surveys, when available. In 2015 the linear model (Sutherland 2005) used to estimate caribou harvests by hunters who live within the range of the WACH was replaced by a new analysis of covariance developed by Adam Craig, a biometrician with ADF&G's Division of Wildlife Conservation Region V (Arctic and Western Alaska). These models incorporate factors such as community size and availability of caribou (Dau 2015a). In 2015, changes to the methods developed by Sutherland (2005) by Craig to analyze the harvest data, resulted in changes to local caribou harvest estimates from past years. While Craig's model accurately reflects long-term trends in annual local harvests, it is too insensitive to detect short-term changes in harvest levels useful to real time management decisions to regulate harvests and does not accurately reflect actual harvest levels or harvest levels by Unit (Dau 2015a). This analysis only considers the updated harvest estimates using the new model (Dau (2015a). The accuracy of harvest reporting by locals may improve with the requirement for registration permits for those that live north of the Yukon River. Caribou harvest by NFQU is based on harvest ticket reports (Dau 2015a).

From 2000–2014, the estimated harvest from the WACH averaged 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (**Figure 9**) (Dau 2015a). The total harvest during 2012/13 and 2013/14 was 13,352 and 12,713 caribou, respectively. These harvest estimates assumed that 95% of all caribou harvested by nonlocal hunters in Unit 26A were from the WACH and the remainder from the TCH. Using the 2011 and 2013 population estimates, the total annual harvest during 2012/13 and 2013/14 was approximately 4-5% of the population (Dau 2015a). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 3**). However, harvest estimates do not include wounding loss or caribou killed but not salvaged, which may be hundreds of

caribou (Dau 2015a). Subsistence hunters throughout the range of the WACH take caribou whenever they are available. Thus the seasonal harvest patterns among communities are dependent upon the seasonal movements of the caribou. Despite year-round seasons prior to 2015, most of the caribou taken by FQSU and NFQU has been between Aug. 25 and Oct. 7 (Dau 2015a). Local residents, defined as living within the range of the WACH, account for approximately 95% of the WACH harvest, with residents of Unit 23 accounting for approximately 58% (**Figure 10**) (Parrett 2017a, pers. comm.). Approximately 37% of the total annual WACH harvest is taken by local residents in Units 22, 24B, 26A, and 26B (**Figure 10**).

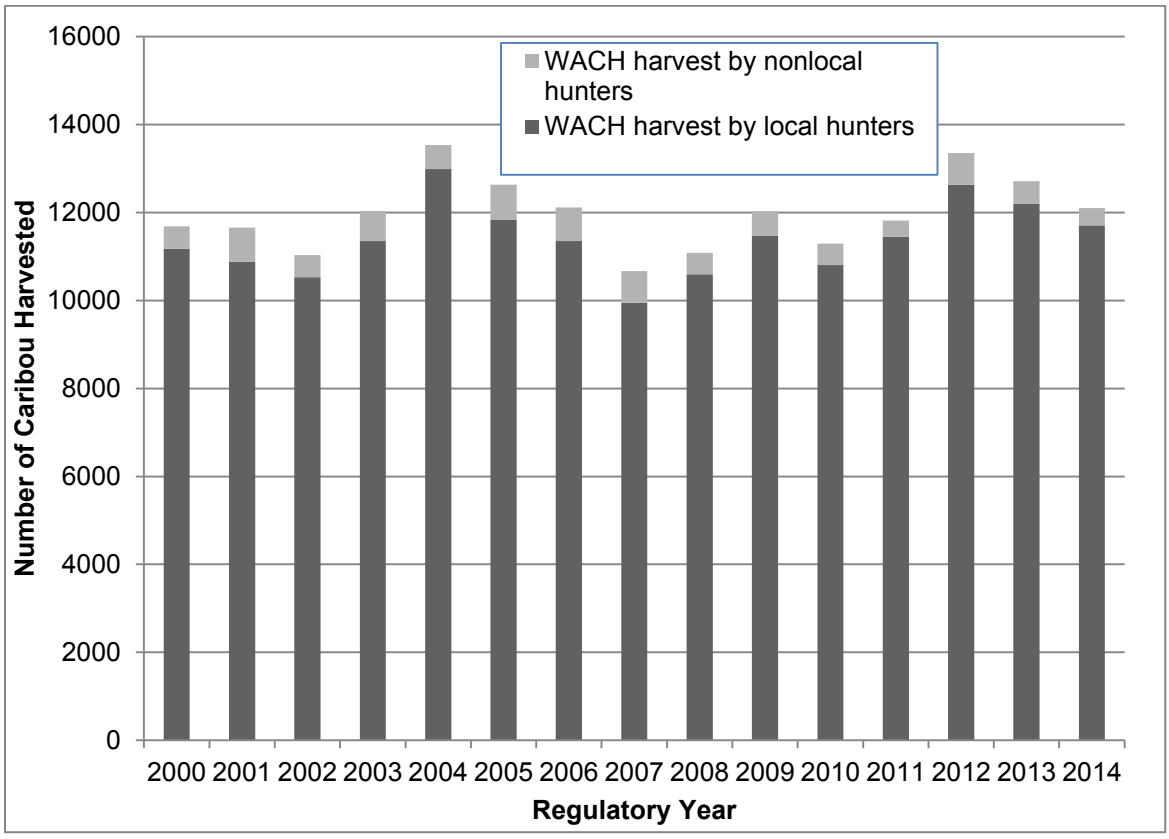


Figure 9. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

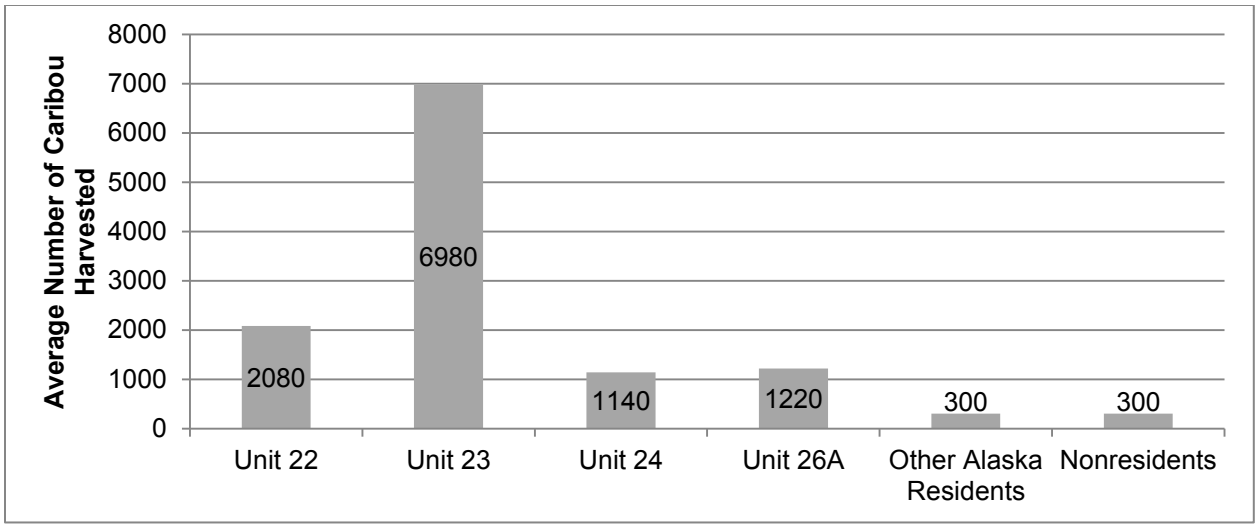


Figure 10. Average WACH annual caribou harvest by unit and residency from 1998-2015 (Parrett 2017a, pers. comm.).

The WACH are on their periphery of their winter range when on the Seward Peninsula (Unit 22). Consequently movements and locations are much less predictable than the core part of the range. Due to the lack of established migratory patterns, local subsistence users need flexibility with respect to the hunting season for bulls and cows so that they can take advantage when the caribou are present. Hunters in the northern areas get access to bulls earlier than in more southern wintering areas of the WACH in Unit 22. Hunters in the more southern locations also consider bulls palatable much later in the fall than hunters up north (Joly 2015).

From 2001-2013, total average annual nonlocal WACH harvest was 598 caribou (range 421-793) (WinfoNet 2017) (**Figure 11**). Over the same time period, nonlocal WACH harvest from Units 26A, 26B, and 24B averaged 102 caribou/year (range 60-144) (**Figure 11**). Nonlocal WACH harvest from Unit 23 and Units 26A, 26B, and 24B combined accounts for 76% and 14% of the total nonlocal WACH harvest on average, respectively.

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 12,** USFWS 2017). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 12,** WinfoNet 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b, ADF&G 2017d).

Based on those hunters that provided harvest ticket reports for Unit 26A, the number of nonresidents compared to Alaska residents outside the WACH range that harvested caribou from the WACH increased from 2011-2015 (**Figure 13**). Approximately 95% of the total Unit 26A caribou harvest was from the

WACH and by residents within the WACH range (Dau 2013). The annual harvest by NFQU is a very small percentage (≈1%) of the total WACH harvest (**Figures 11 and 14)**. Female harvest by NFQU in Unit 26A averaged 10% (range 2-19) from 2006-2016.

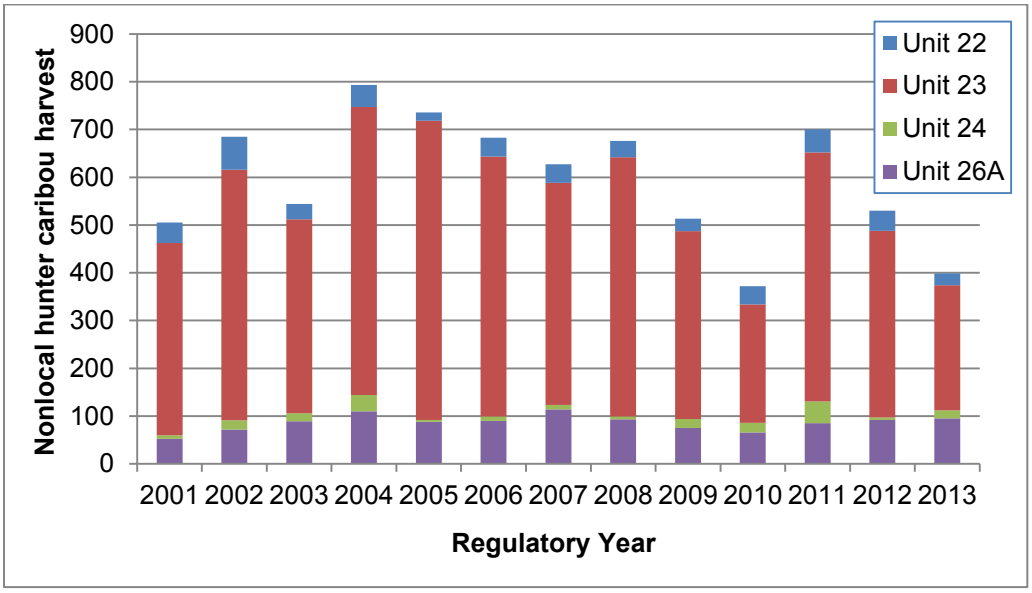


Figure 11. Nonlocal WACH harvest by unit (Dau 2013, 2015a, WinfoNet 2017). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

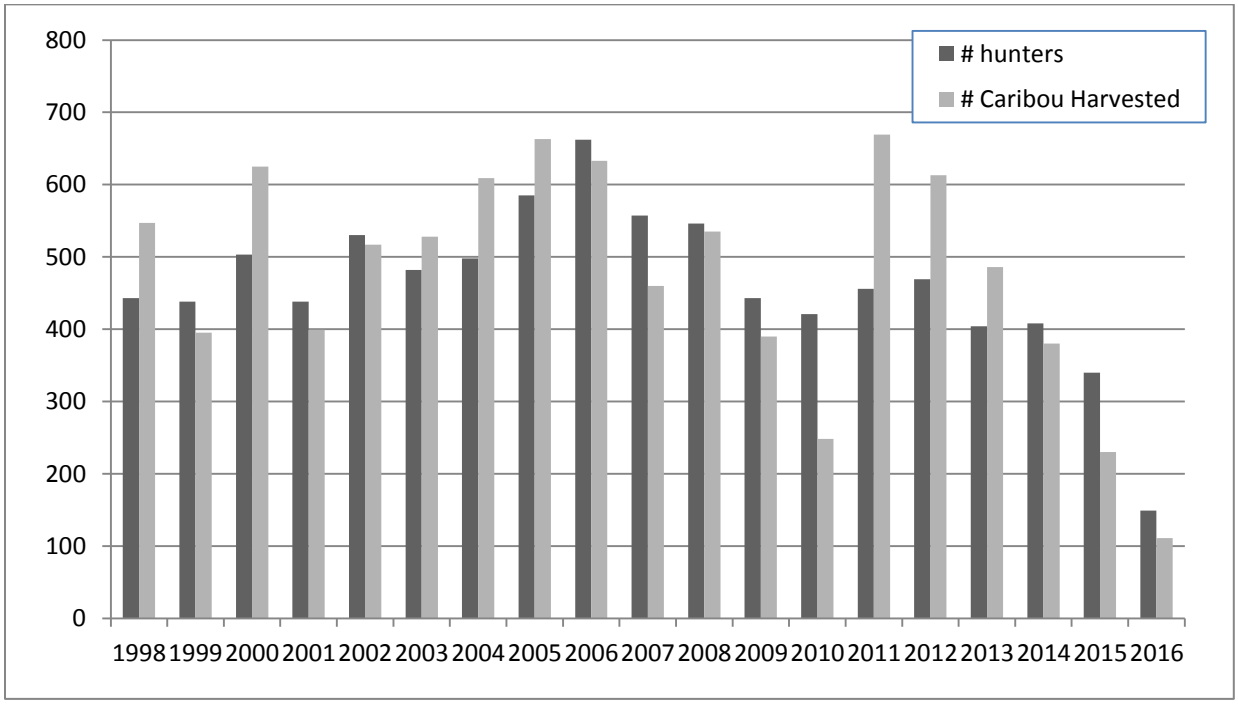


Figure 12. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, USFWS 2016, WinfoNet 2017).

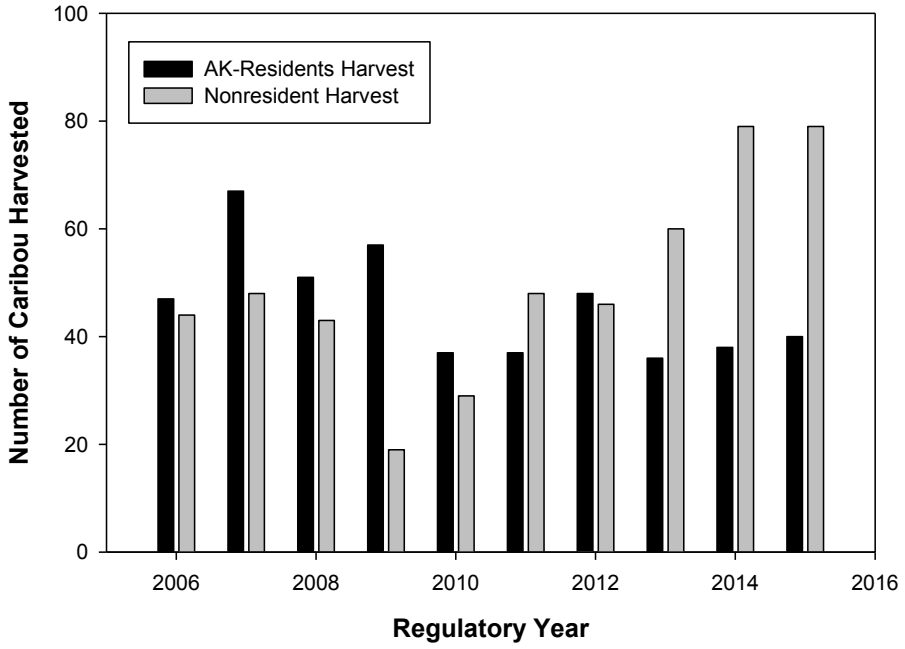


Figure 13. Residency of successful nonlocal caribou hunters from the WACH in Unit 26A, 2006-2015 (Dau 2013, 2015a).

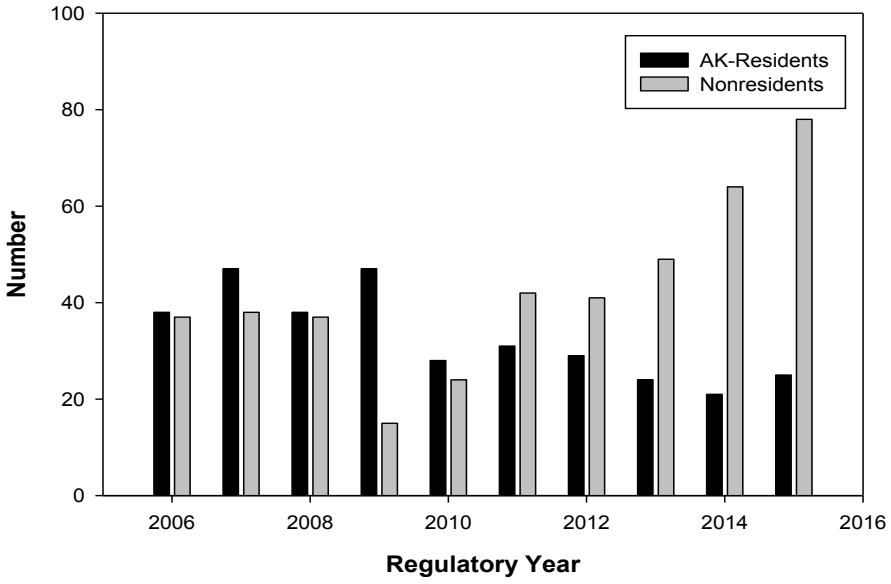
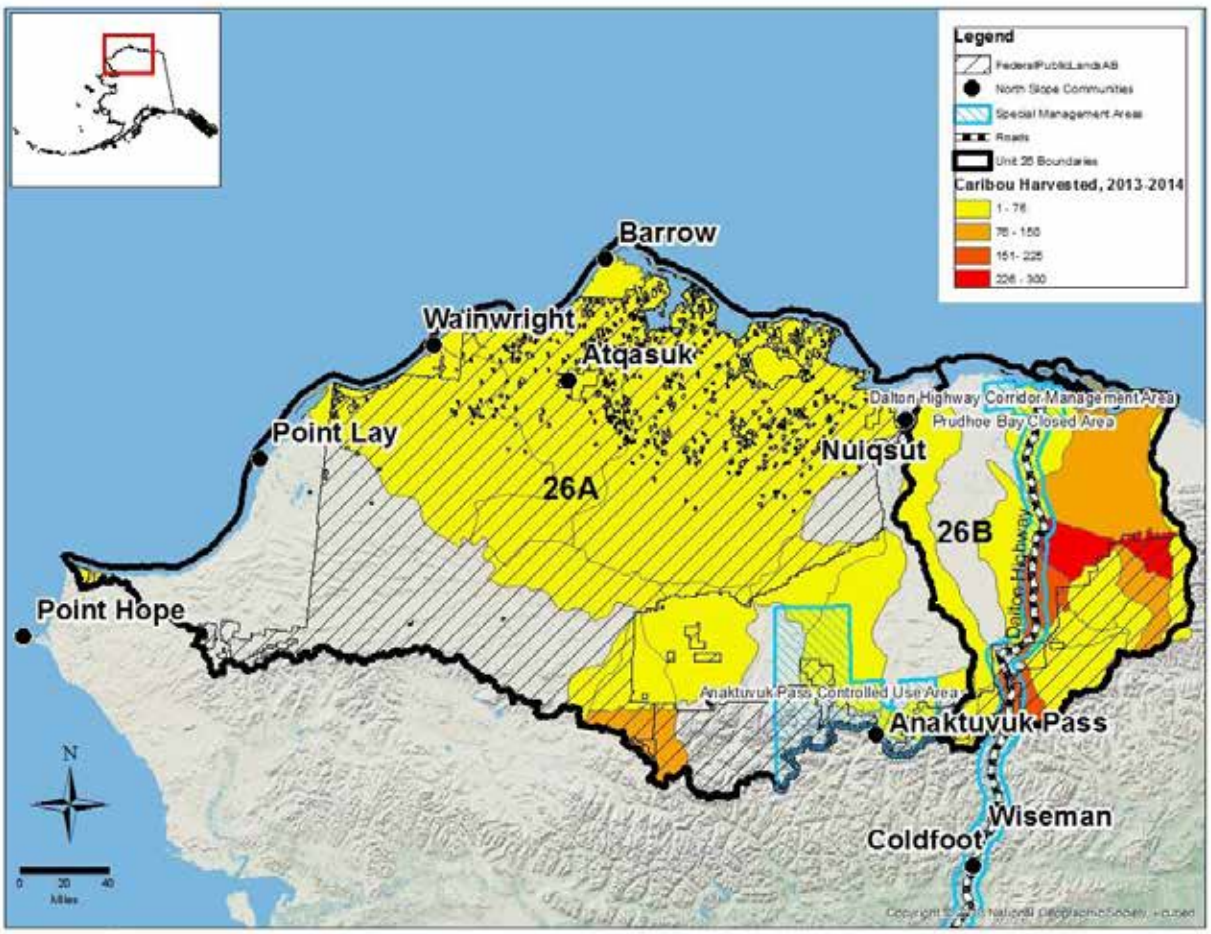


Figure 14. Nonlocal WACH harvest in Unit 26A, 2006-2015 (Dau 2013, ADF&G 2017b).

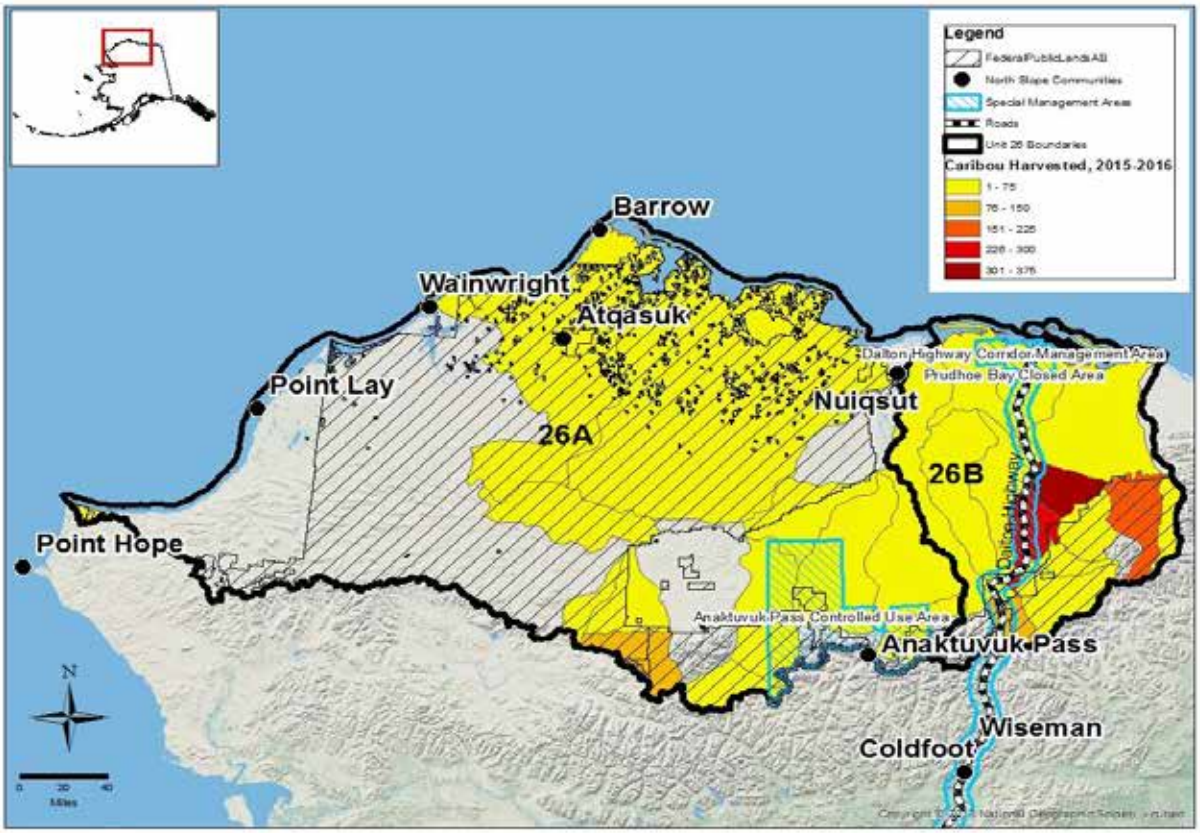
Harvestable surplus for the WACH is calculated as 6% of the population (Braem 2017a, pers. comm.) and when evaluated separately by sex is approximately15% bulls and 2% cows (Dau 2015a). In recent years, as the WACH population has declined, the total harvestable surplus has also declined (Dau 2011, Parrett 2015a). In 2015/16, the combined TCH/WACH harvestable surplus declined from an estimated 13,250 caribou in 2014/15 to an estimated 12,400 caribou. While there is substantial uncertainty in the harvestable surplus estimates, the overall trend is decreasing and it is likely that sustainable harvest will soon be exceeded if the decline continues (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a) states, "Even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH. Harvest from the WACH, which has remained fairly consistent, is one of the factors that prompted the BOG to enact restrictions to WACH and TCH caribou harvest in March 2015.

Using the percentage of harvest reported by community from the WACH in 2008/09 (**Table 7**) and the 2014 community harvest estimates for Utqiagvik, Anaktuvuk Pass, Nuiqsut, and Point Hope (Braem 2015) and the 2014 total nonlocal harvest (117 caribou) (ADFG 2017a), the total WACH caribou harvest for Unit 26A in 2014 was approximately 1,185 caribou. Adding another 120 caribou from Point Lay and Atqasuk (Parrett 2011) would bring the total to approximately 1,305 caribou harvested from the WACH in 2014 in Unit 26A. This year was chosen because it was the most recent community harvest records for the North Slope (Braem 2015).

Comparison of the two year period from 2013-2014 (**Map 5**) with 2015-2016 (**Map 6**) shows an increase in 2015-2016 of the harvest within the vicinity of Anaktuvuk Pass in Unit 26A. These changes in harvest patterns may be due in part to hunters shifting hunting areas and intensity to areas within Unit 26A and 26B in response to changes in the movement of the caribou herds as a result of the closure of Federal public lands to caribou hunting by NFQU in Unit 23 in 2016/2017.



Map 5. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2013-2014 (WinfoNet 2017).



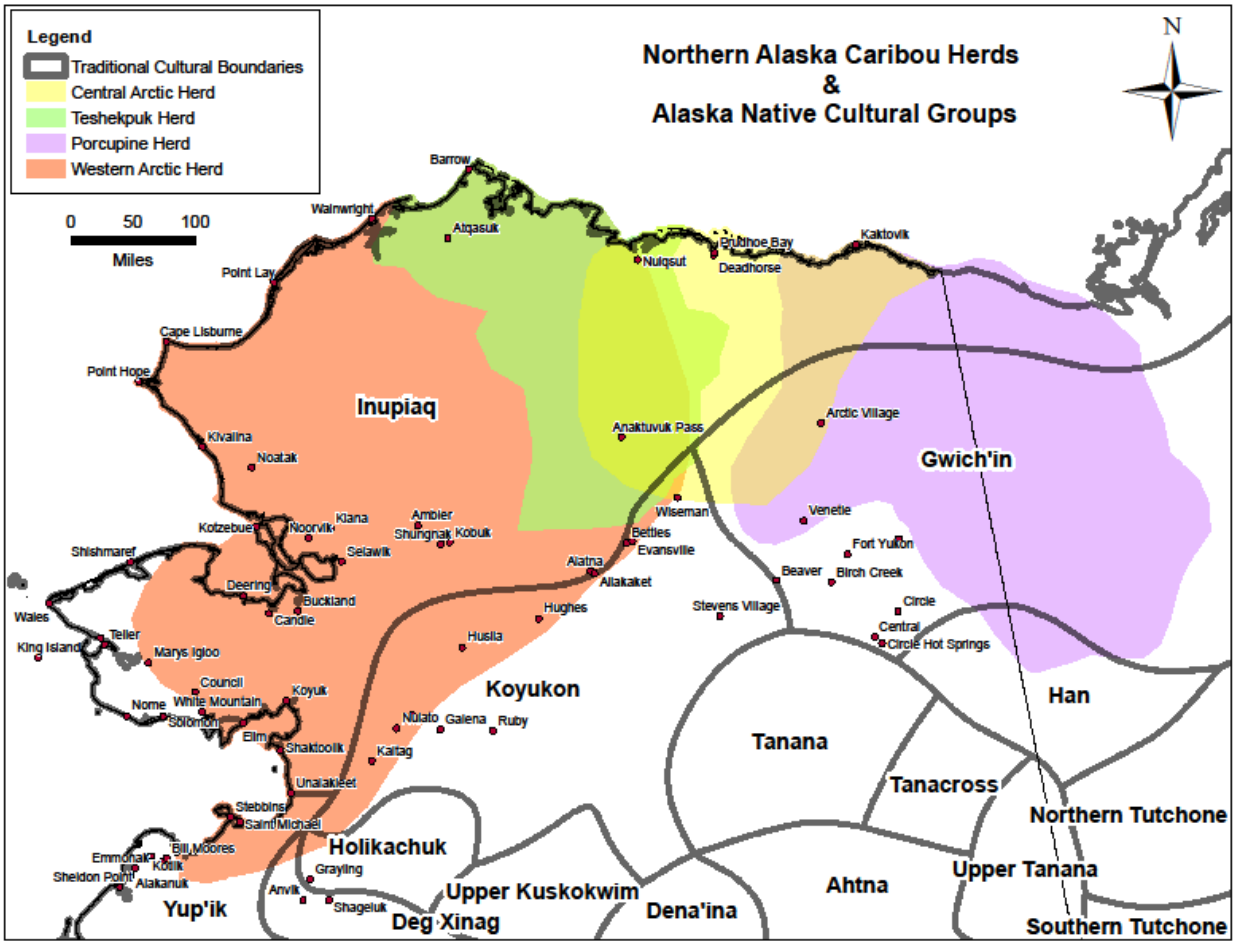
Map 6. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2015-2016 (WinfoNet 2017).

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic and Subarctic communities is important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's Native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo, a lifelong resident of Anaktuvuk Pass, describes the human-caribou relationship as a "way of life" (NWARAC 2017).

The effects of this proposal span the range of several caribou herds and the traditional territories of several cultural groups (**Map 7**). These cultural groups include the Inupiat of the North Slope, Northwest Arctic and the Seward Peninsula, the Koyukon Athabascans of the Western Interior, and the Gwich'in Athabascans of the Eastern interior. The range of the PCH also includes a small portion of traditional Han Athabascan territory within Alaska, while the range of the WACH includes a small portion of Holikachuk

and Deg Xinag Athabascan territory in Alaska. The southernmost extent of the WACH range extends into the northern extent of the Yup'ik cultural group in the vicinity of Stebbins and Saint Michael.



Map 7. Map depicting the overlap of northern Alaska caribou herds and traditional territories of Alaska Native cultural groups.

Caribou have been a significant resource for Inupiat and Athabascan peoples for thousands of years (Burch 1984, Caulfield 1983, Brown et al. 2004). Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continue today to be among the most important land animal consumed in these regions (Burch 1984, 1994, 1998; ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

The WACH population declined rapidly in the Northwest Arctic beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH

began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

The availability of WACH, TCH, CACH, and PCH herds within the traditional territories of the interior Athabascans is more variable and depends on annual migratory patterns. Harvest of caribou in these communities depends on the proximity of the migration to each village (Brown et al 2004). Within Koyukon Athabascan territory, Allakaket, Alatna and Huslia have been documented as the largest communities that harvest caribou, although several hunters from Galena have been documented traveling long distances to harvest this species (Brown et al 2004). Communities from this region are thought to primarily harvest WACH caribou (Brown et al 2004). In terms of the use of caribou (which includes caribou received from other households) within Koyukon territory, a 2002-2003 study documented 0% use among households in Kaltag and Ruby, 96% in Allakaket, and 100% in Alatna (Brown et al 2004).

Within traditional Gwich'in Athabascan territory, particularly those villages located in proximity to the Upper Yukon and Porcupine Rivers, residents primarily harvest from the PCH, although Central Arctic and Fortymile Herd animals are occasionally harvested (Caulfield 1983). Residents of other areas in this region have also been documented as traveling north to obtain caribou meat, including residents of Beaver traveling along the Yukon River to the vicinity of Charley Creek [Kandik River] (Schneider 1976) and residents of Fort Yukon traveling above Circle for caribou (Caulfield 1983). Caribou in this region are usually first seen in mid-August while migrating south from the coastal plain along alpine ridges. Caribou meat is generally stored by freezing or drying and is typically prepared by boiling but may also be baked or fried (Caulfield 1983).

Historically the North Slope Inupiat hunted caribou year-round (Braem 2013). Traditionally, coastal groups tended to store caribou frozen in ice cellars while inland groups more commonly stripped and dried the meat (Braem 2013). Today, caribou is frozen, dried, and eaten fresh (Braem 2013). As a food resource, caribou remain important to meeting the subsistence needs of Inupiaq families on the North Slope. In 1989 the coastal community of Wainwright harvested approximately 83,187 lb. of caribou (178 lb. per capita), representing 24% of the community's harvest in that year (ADF&G 2017c). Comparatively, Wainwright harvested approximately 243,594 lbs. of marine mammals (521 lb. per capita), representing 69% of the community's harvest (Brown et al. 2016). Utqiagvik, the largest community in the region, harvested 4,231 caribou in 2014, representing 103 lb. per capita of edible weight.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012, Caulfield 1983). Caribou drives allowed a large number of caribou to be harvested in a short time (Burch 2012, Spencer 1959, Murdoch 1988). These methods were replaced with firearms in the 19th century.

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou. Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take a majority of their caribou in the winter and spring, while the other communities in Unit 23 take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.). In Gwich'in Athabascan territory, caribou were typically harvested in the fall, winter and spring (Caulfield 1983). Caribou typically only remain available to Arctic Village and Venetie residents through winter and spring (Caulfield 1983).

Currently, caribou hunting by FQSU in Unit 23 is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters often search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvest occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up in Inupiaq regions, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993). In Athabascan regions, hunters often select cows between October and February when they are fatter and better tasting than bulls (Caulfield 1983). At other times, bulls or cows may be taken (Caulfield 1983).

Small groups of caribou that have over-wintered may be taken by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain,

> "Hunters harvest cows during the winter because they are fatter than bulls . . . . Caribou harvested during the winter can be aged completely without removing the skin or viscera . . . . Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it."

In spring, caribou start their northward migration. The Inupiat consider caribou taken at this time to be "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Caribou are especially important for inland communities such as Atqasuk and Anaktuvuk Pass for which marine mammals are not available. While whaling communities tended to be more permanent, inland peoples traditionally tended toward annual and seasonal movements to reflect caribou migrations (Spencer 1984). The abandonment of this more mobile lifestyle has probably had significant consequences for the adaptability of hunters and their ability to meet subsistence needs. The two dominant modes of subsistence were intertwined by trading relationships between inland and coastal communities that sometimes helped to supplement dietary needs (Spencer 1984).

In 2014, the inland community of Anaktuvuk Pass harvested approximately 104,664 lbs. of caribou (330 lbs. per capita), representing 84% of the community harvest in that year (Brown et al. 2016). Among the harvested animals, 51% were bulls, 39% were cows, and 10% were of unknown sex (Brown et al. 2016). Cows were primarily harvested between November and April while bulls were primarily harvested throughout the rest of the year (Braem 2015). In 2011 approximately 85% of the bulls were taken during the months of August and September (Holen et al. 2012). Approximately 89% of Anaktuvuk Pass households reported using caribou in 2014, with 47% of households giving caribou away and 68% of households receiving caribou (ADF&G 2017c); use and sharing of caribou in this community remains high and has led to food security concerns in recent years when caribou migration patterns shifted away from the community.

User conflict concerns have been voiced in the North Slope region over time, especially regarding the effect of non-local hunting activity on caribou migration patterns (NWARAC and NSRAC 2016, WIRAC 2016, NSRAC 2015, 2016, 2017). Despite documented concerns through repeated public testimony, information is lacking on the degree of impact that these hunting activities have on both short and long-term caribou migration patterns. User conflict on the North Slope has centered primarily on the caribou migration patterns in the vicinity of Anaktuvuk Pass. A long-held cultural practice in the region requires that lead adult female caribou be allowed to establish migratory paths unhindered by human activity. Dau (2015a) suggests that once lead caribou establish migration routes, the caribou behind them will follow regardless of hunting or other disturbances such as aircraft. In response to complaints from Anaktuvuk Pass residents about caribou migration being affected by non-subsistence hunter activity, ADF&G attempted to document such effects from 1991-93, but none were found (OSM 1995).

In 1995 the Board adopted a proposal from the City of Anaktuvuk Pass to close Federal public lands in Unit 26A, south of the Colville River, upstream from and including the Anaktuvuk River drainage, to NFQU from August 1st through September 30th. The justification was to allow for caribou migrations to take their normal route into Anaktuvuk Pass. Concerns have frequently been expressed about activities that disturb caribou migrations by guides and transporters north of Anaktuvuk Pass, especially in light of severe food security concerns for that community in recent years (NWARAC and NSRAC 2016, WIRAC 2016). The BOG established the Anaktuvuk Controlled Use Area in in 2005, to reduce the user conflict during the caribou hunting season and to provide more opportunity for Anaktuvuk Pass residents to harvest caribou. The current regulations close the area to the use of aircraft for hunting caribou, including the transportation of caribou hunters, their hunting gear, or parts of caribou from August 15 through October 15; however, this provision does not apply to the transportation of caribou hunters, their hunting gear, or parts of caribou by aircraft between publicly owned airports. Residents of Anaktuvuk Pass stated that the closure of Federal public lands to non-Federally qualified users for caribou hunting in Unit 23 during the 2016-2017 regulatory year was perceived as having improved the situation, allowing for the resumption of historical migration patterns and harvest activities (OSM 2017a, 2017b).

User conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft

and "nonlocal" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Halas (2015; **Map 5**), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017) and that many factors contribute to larger scale shifts in migration. Dau (2015a) noted that despite substantial transporter traffic in the Anisak drainage, which is within the Noatak NP, has not diverted migrating WACH caribou. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Concerns over the impact of sport hunting activities on caribou migration have also been expressed. Aircraft can affect caribou behavior in the short-term (< 8 hours), which can impact hunting success. However, aircraft are unlikely to have long-term impacts on caribou migration through the Noatak NP (Fullman et al. 2017, Halas 2015, Dau 2015a). The WACH have migrated through Unit 23 for thousands of years, although specific migration routes change annually (Figure 4). The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a).

Shifts in caribou migration paths have created difficulty for Noatak, Kivalina, and Kotzebue hunters (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). Some communities such as Unalakleet and Noatak have "not met their subsistence needs in many recent years" (Dau 2015a:14-30). This was also expressed by Northwest

Arctic Council members during meetings in October 2015 and March 2016 (NWARAC 2015, NWARAC and NSRAC 2016).

Northwest Arctic Council members reported ongoing concerns about extensive user conflicts in Unit 23 prior to the closure of Federal public lands (NWARAC 2015). Council members have testified that these conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River was cited as particularly problematic (NWARAC 2015).

Effects of the Proposal

If this proposal is adopted, Federally qualified subsistence users would have less opportunity to harvest cow and bull caribou from the WACH, TCH, and CACH due to shorter harvest seasons on Federal public lands in Units 21, 22, 23, 24, 25A, 26A, and 26B. The peak of the caribou harvest from these populations in Units 23, 24, 25A, 26A and 26B occurs during late summer and fall from mid-August to early October. Starting the cow season on October 1 would eliminate September, which has traditionally been a heavily used month by Federally qualified subsistence users (FQSU). Limiting the bull hunt in Unit 22 from July 1 to Oct. 10 will limit the hunt to primarily those caribou that reside there year-round and would reduce flexibility to hunt caribou when they are present. The North Slope Subsistence Regional Advisory Council (NSRAC) discussed the start date following the rut, when changes were made to the caribou regulations in 2016, and they were adamant that bull caribou are edible by early December versus Feb. 1 as proposed by the proponent.

There are some potential benefits to delaying the start of the cow season until October 1 as the more restrictive cow harvest season would allow calves to stay with cows longer in the fall, thus increasing their survival. Also, delaying the hunting season may give cows from the WACH, TCH, and CACH more time to establish their preferred migration routes prior to disturbance from hunters if this is occurring given the current level of hunting activity. This may benefit local subsistence hunters if the caribou establish routes closer to the communities and traditional hunting corridors. However, it should be noted that many caribou will still be in migration, and thus, the possibility of deflecting the herds still exists.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-32.

Justification

Modifying the cow seasons as suggested by the proponent would likely reduce the overall cow harvest and increase calf survival which may lessen the population decline and aid in recovery. However, the changes

proposed for cow and bull seasons would have little effect in reducing deflections of the caribou herds. This is due to the variability of the timing and location of migration patterns between calving, summer, and winter areas of the WACH, TCH, and CACH, the location of communities and their dependence on these caribou, traditional hunting patterns of local subsistence users, and current Federal and State regulations already in place to protect caribou in each unit. In addition to human disturbance, population expansion and contraction, long-term effects of habitat fragmentation, climate change, habitat loss, and industrial development also affect variation in the migratory patterns and seasonal habitat use by the WACH, TCH, and CACH.

Ending the cow caribou season on Feb. 1, which is approximately 2 months before the start of the spring migration, is an unnecessary conservation measure for the protection of migrating caribou although it may help reduce the overall cow harvest. Shortening the start of the bull season is likely to have little impact as most subsistence hunters will not hunt bull caribou in the rut and those that do, for example in Unit 22, would oppose this change (WACH 2016).

For the proposed changes to the cow and bull caribou seasons to be fully effective, similar changes would need to be made to State regulations by the BOG. Rather than seasonal changes to minimize caribou migration deflections over the range of the three herds in seven Game Management Units as suggested by the proponent a more effective approach may be to have local Federal and State land managers in each unit enact short term seasonal hunting restrictions when needed to allow the lead animals to migrate through undisturbed. In response to the declines in the WACH and TCH populations, the BOG and the Board adopted caribou hunting restrictions regulations in 2015 and 2016 to reduce the cow harvest and overall harvest. Recently enacted conservation actions for the WACH, TCH, and CACH need to be given time, to determine if they are effective in reducing the caribou harvest in slowing down or reversing the population declines in the WACH, TCH, and CACH, before additional changes are made to the caribou regulations and to see what effect, if any, they have on the migratory patterns of caribou. Reasons for the OSM Justification are discussed on a unit-specific basis below.

Unit 26B

The primary caribou herd in Unit 26B is the CACH. NFQU are responsible for a majority (89%) of the caribou harvest in Unit 26B. Under State regulations, Unit 26B is divided up into two hunt areas, one in the northwest corner of Unit 26B and Unit 26B remainder. State caribou regulations for the northwestern corner have liberal seasons and harvest limits to support local subsistence users, primarily from Nuiqsut. In response to the recent decline in the CACH population, the State adopted new caribou hunting regulations which eliminated the cow harvest, reduced the harvest from 5 caribou per day to 2 bull caribou for residents, and 1 bull caribou for nonresidents in Unit 26B remainder for 2017/2018. The combination of variable migratory patterns of the CACH from year to year, hunting pressure that is distributed across the landscape, the relatively small percentage of Federal lands, and high use of State lands by NFQU suggest the restricted cow season would have little effect on reducing disturbance to the fall CACH migration across the DHCMA. The newly enacted State regulations for Unit 26B, which will likely reduce the overall CACH caribou harvest and have the greatest effect on reducing harvest pressure and impact to migrating caribou across the DHCMA, need to be given time to determine if they are effective.

The start for the bull season following the rut was discussed extensively by the NSRAC for the previous caribou regulations enacted in 2015 and 2016. The Dec. 10 start date versus the proposed Feb. 1 start date provides more opportunity for FQSU.

Unit 26A

The availability of caribou to local communities in Units 26A is dependent on the seasonal movements of the TCH and WACH. Utqiagvik, Wainwright, and Atqasuk harvest primarily from the TCH and Point Hope, Point Lay, and Anaktuvuk Pass harvest primarily from the WACH. Most of the caribou migration through Unit 26A occurs prior to Oct. 1, the proposed start date for the cow season, and thus would have the desired effect of allowing the caribou to migrate on Federal public lands undisturbed. However, it would also eliminate the prime caribou hunting season for cows from the WACH and TCH, which occurs during the months of August and September. Federally qualified subsistence users would also have less opportunity to harvest caribou if they were restricted to a bull only harvest during August and September. The potential benefit of a later cow season to allow unrestricted migration of the cows from the WACH and TCH does not outweigh the need for FQSU to harvest caribou when they are available.

The start for the bull season following the rut was discussed extensively by the NSRAC for the previous caribou regulations enacted in 2015 and 2016. The Dec. 6 start date following the rut versus the proposed Feb. 1 start date provides more opportunity for FQSU.

Unit 25A (West)

Although caribou in Unit 25A are harvested from three herds (PCH, Forty Mile Herd, and the CACH), the PCH is the primary herd for subsistence users. Arctic Village is the primary subsistence community in Unit 25A. Overlap with the PCH and CACH on the wintering grounds makes it difficult to determine the percentage of harvest from each herd. Although there is lack of data on the CACH harvest and migration in Unit 25A, it is estimated that <10% of the harvest is from the CACH. The PCH is at an all-time high, so sex-specific season restrictions to protect migration of the small proportion of wintering caribou from the CACH are not warranted.

Unit 24

Residents of Anaktuvuk Pass, who are highly dependent on caribou, have expressed concerns that NFQU have been responsible for deflecting WACH from their normal migration routes, thus causing hardship for local users. The closure of caribou hunting in Unit 23 to NFQU during the 2016-2017 regulatory year was perceived as having improved the situation, allowing for historical migration patterns and harvest activities in Anaktuvuk Pass in 2016. Changing the start date to Oct. 1 for the cow season would have the desired effect of allowing the caribou to migrate on Federal public lands undisturbed. However, to be fully effective similar regulations would have to be adopted by the Alaska Board of Game. However, it would also eliminate the prime caribou hunting season for cows from primarily the WACH, and to a lesser extent the TCH, which occurs during the months of August and September. Federally qualified subsistence users would also have less opportunity to harvest caribou if they were restricted to a bull only harvest during August and September. The potential benefit of a later cow season to allow unrestricted migration of the

cows from the WACH and TCH does not outweigh the need for FQSU to harvest caribou when they are available.

Unit 23

A majority of the harvest from the WACH occurs in Unit 23. The start of the cow migration can vary by a month, which adds to the complexity of trying to establish a cow season to protect the migration of the lead cows. Some of the caribou in the northern portion of the unit will have migrated through the Unit by Oct. 1 while many more will still be migrating through the southern portion of Unit 23. In addition, changing the cow season to Oct.1 - Feb.1 would eliminate the month of September which overlaps with the primary hunting period from the WACH of Aug. 25-Oct. 7 (Dau 2015a). Setting the end date for the caribou season as February is two months prior to the start of the spring migration so will have no effect to the migration but may help reduce the overall cow harvest. It also would reduce the opportunity of FQSU to harvest cows by two months compared to the current Federal regulations. Given the seasonal, yearly, and spatial variability during the WACH spring and fall migration, establishment of Oct. 1 as the start date for the cow season in Unit 23 does not meet the proponent's objectives in Unit 23. Additionally, caribou harvest by NFQU is already somewhat reduced due to the 2015 changes to State regulations (e.g. reduction in nonresident harvest limit) (**Figures 9 and 12**).

Unit 22

On average, cows cross the Selawik River during the fall migration around Oct. 15th, so cow caribou would still be migrating on Oct. 1, the proposed start date for the cow season. Restricting the bull season to July1 - Oct. 10 and Feb. 1 to June 30 would limit the hunt to those caribou that reside year-round. In addition, many of the Federally qualified subsistence users have expressed the need for longer not shorter caribou hunting seasons because of the lack of established migration patterns in this unit and the need to be able to hunt caribou whenever they become available. For example, FQSU in the north typically have access to caribou much earlier than hunters in the southern areas.

Unit 21

The number of cows making it to this unit prior to Oct. 1 is negligible, so the proposed fall date does little to meet the proponent's goal. There is no spring season in Unit 21, so any deflection of lead cow caribou by NFQU is not an issue.

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Appendix A

Regulatory History

Unit 21D

In 1991, the Federal Subsistence Board (Board) adopted Proposal P91-132 with modification to designate new hunt areas in Unit 21D and establish a to-be-announced winter season with a harvest limit of two caribou (FWS 1991).

In 1992, the Board approved Temporary Special Action S92-06 to open a temporary winter season for caribou in Unit 21D north of the Yukon River and east of the Koyukuk River (FWS 1992).

In 2007, the Board adopted Proposal WP07-33, closing Unit 21D north of the Yukon River and east of the Koyukuk River to caribou hunting during the Federal fall season. This was done in order to conserve the declining Galena Mountain Caribou Herd (FWS 2007).

Unit 22

In 1994, the Board adopted Proposal P94-63A with modification to allow snowmachines to be used to take caribou and moose in Unit 22 (OSM 1994a).

In 1996, the Board adopted Proposal P96-049 with modification to provide a customary and traditional use determination for caribou in Unit 22 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Units 22 (except St. Lawrence Island), 23, 24. The Proposal also provided a customary and traditional use determination for caribou in Unit 22A for residents of Kotlik, Emmonak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Mary's, Sheldon Point, and Alakanuk (OSM 1996).

In 1997, the Board adopted Proposal P97-54 with modification to add residents of Hooper Bay, Scammon Bay, and Chevak to the customary and traditional use determination for caribou in Unit 22A (OSM 1997).

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

In 2002, the ADF&G issued two emergency orders addressing caribou/reindeer conflicts. The first, EO 05-03-02, closed the portion of Unit 22D within the Pilgrim River drainage south of the Pilgrim River bridge to caribou hunting between Aug. 31, 2002 and June 30, 2003. The purpose of this action was to prevent the harvest of reindeer, since no caribou were present in the area during this time. The second, EO 05-04-02, opened this same area to the harvest of caribou from Oct. 17, 2002 through Jun. 30, 2003. This emergency order provided harvest opportunity after caribou had moved into the area (Dau 2005).

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

reindeer herds, to provide additional subsistence hunting opportunities, and to align State and Federal regulations (OSM 2003).

In 2005, the Alaska Board of Game (BOG) adopted a proposal creating two new hunt areas for caribou in Units 22B and 22D. This proposal also changed the season for these newly described areas to Oct. 1 – Apr. 15.

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

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

Unit 23

In 1995, the Board adopted Proposal P95-51 to increase the caribou harvest limit from 5 per day to 15 per day to increase opportunity for subsistence hunters to maximize their hunting when the caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a positive customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (FWS 1995b, 1997b).

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

In 2013, an aerial photocensus indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and the Central Arctic Caribou Herd (CACH) populations. In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering bag limits, changing harvest seasons, modifying the hunt area descriptors, and restricting bull and cow harvest and prohibiting calf harvest – were adopted to slow or reverse the population decline.

In 2015, The Board approved Temporary Special Action WSA15-03/04/05/06 with modification to simplify and clarify the regulatory language; maintain the current hunt areas in Units 23; decrease the harvest limit from 15 to 5 caribou per day, shorten the cow and bull seasons and prohibit the harvest of calves and cows with calves in Unit 23 (OSM 2015).

In 2015, the Northwest Arctic Subsistence Regional Advisory Council submitted Temporary Special Action Request WSA16-01 to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (NFQU) for the 2016/17 regulatory year (OSM 2016a). The Council stated that their request was necessary for conservation purposes but were also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted Temporary Special Action Request WSA16-03 to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior Alaska Regional Advisory Councils), public testimony, and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure (FSB 2017, OSM 2017a).

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 22, 23, and 26 a similar proposal was passed for Unit 22 in 2016). ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility (ADF&G 2017a).

Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The Noatak/Kivalina & Kotzebue Fish and Game Advisory Committee (AC) submitted the proposal to allow caribou to migrate through those areas with less disruption and barriers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic Subsistence Regional Advisory Council submitted Temporary Special Action Request WSA17-03 to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2017/18 regulatory year. The Northwest Arctic Subsistence Regional Advisory Council stated that the intent of the proposed closure was to ensure subsistence use in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River and within the Squirrel River drainage for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted.

Unit 24

In 2000, the Board adopted Proposal P00-44 to expand the hunting area north of the Kanuti River for caribou to allow Federally qualified subsistence users additional opportunities to harvest from the WACH (OSM 2000b). The harvest limit was set at 5 caribou per day with the restriction that cows may not be

taken from May 16-June 30 (FWS 2000b). The Board, however, did not change the harvest limit of one caribou in the southern section of Unit 24B and 24A which was enacted to protect the Ray Mountain Caribou Herd, a small population of about 1,000 animals, on their wintering range (Jandt 1998).

In 2015, The Board approved Temporary Special Action WSA15-03/04/05/06 with modification to shorten the cow and bull seasons and to prohibit the harvest of calves in Unit 24 remainder (OSM 2015).

Unit 25A

In 2010 the Board adopted Proposal WP10-94 with modification to increase the caribou hunting season to year-round and restricted the harvest season to bulls only from May 16- June 30. The increase to a year-round harvest season was in response to increasing trend of the CACH. Restricting the harvest to bulls only during May and June was implemented to protect calving females. The hunt occurs in the area where the CACH winter in Unit 25A (OSM 2010).

Unit 26A and 26B

The Board adopted Proposal P94-82 with modification to allow motor-driven boats and snowmachines to be used to take caribou in Unit 26A and to allow swimming caribou to be taken with a firearm in Unit 26A (OSM 1994b).

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase opportunity for subsistence hunters (OSM 1995a). The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to NFQU (OSM 1995b). This closure was enacted to prevent NFQU from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A (OSM 1995b).

In 2005, the BOG established a Controlled Use Area for the Anaktuvuk River drainage that prohibited the use of aircraft for caribou hunting from Aug. 15–Oct. 15. The intent of this proposal was to limit access by nonlocal hunters, reduce user conflicts, and lessen the impact on caribou migration.

In 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to NFQU (OSM 2006b). The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. However, only the lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the WACH, TCH, and CACH populations, which traverse Unit 26A, were healthy and could support both subsistence and non–subsistence uses.

In 2013, an aerial photocensus indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and possibly the CACH (Caribou Trails 2014). In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and non-residents within the range of the WACH and the TCH. These regulation changes, which included lower bag limits,

changes to harvest seasons, modification of hunt areas, restrictions on bull and cow harvest and a prohibition on calf harvest, were adopted to slow or reverse the population decline. These regulatory changes, which were the result of extensive discussion and compromise among a variety of user groups, took effect on July 1, 2015.

In an effort to enact conservation measures the North Slope Subsistence Regional Advisory Council submitted four temporary wildlife special actions (WSA) for Units 23, 24, 26A, and 26B to change caribou harvest regulations on Federal public lands for the 2015/16 regulatory year. The Board approved Temporary Special Actions WSA15-03/04/05/06, which were similar to the changes made to State regulations in an attempt to reverse or slow the decline of the WACH and TCH. To address two primary factors contributing to the decline, low calf survival and high adult cow mortality, WSA15-03/04/05/06 prohibited the harvest of cows with calves, prohibited the harvest of calves, and reduced the harvest limit from 10 to 5 caribou per day, and shortened the cow and bull seasons in Unit 26A. Compared to the new State caribou regulations, it requested 3 additional weeks to the bull harvest season (Dec. 6- Dec. 31). In Unit 26B WSA15-03/04/05/06 reduced the harvest limit from 10 to 5 caribou and shortened the cow and bull seasons (OSM 2015).

Changes to caribou regulations in 2015 by the State Board of Game and the Federal Subsistence Board represented the first time in over 30 years that major changes to the harvest regulations were implemented for the WACH and TCH. These restrictions for the WACH were also supported by management recommendations outlined in the Western Arctic Herd Management Plan (WACH Working Group 2011). The intent of these regulations was to reduce the overall harvest and cow mortality to allow the WACH and TCH populations to recover. In 2015, three proposals were submitted for the 2016-2018 wildlife regulatory cycle concerning caribou regulations in Unit 26A and 26B, two from the North Slope Subsistence Regional Advisory Council (WP16-63 and WP16-64) and one from Jack Reakoff (WP16-37). The Board adopted WP16-37 with modification and took no action on WP16-63/64 based on action taken on WP16-37 (OSM 2016b). Changes to the 2016-2018 Federal regulations in Unit 26A included a reduction from ten to five caribou per day harvest limit, splitting Unit 26A into two hunt areas based on range and migration patterns of the WACH and TCH, selecting the opening date for bulls in the winter season as December 6, a prohibition on the take of calves, and protection of cows with calves from July 16-Oct. 15. Changes to caribou regulations in Unit 26B which include harvest from the CACH were: a reduced harvest limit from ten to five caribou per day; splitting Unit 26B into two hunt areas, one south of 69°30’ N. lat. west of the Dalton Highway and 26B remainder; a restricted cow season from July to April/May; and a reduction in the cow and bull seasons.

In February 2017, in response to the decline in the CACH, the BOG adopted Proposal 105 (RC22) with amendments to reduce overall caribou harvest from 930 to 680 and the cow harvest from 202 to 75 in Unit 26B (Lenart 2017a).

In March 2017, the Norwest Arctic and North Slope Subsistence Regional Advisory Councils submitted Temporary Special Action Requests WSA17-03,and WSA-04, to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure continuation of subsistence uses in the

2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River;within the Squirrel River drainage; and within the northern and southern boundaries of the Eli and Agashasshok River drainages; for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted at that time.

In June 2017, the Board rejected WSA17-04 for a variety of reasons including: 1) the relatively small cow harvest by NFQU in Unit 26A; 2) the need for adequate time to determine if the recently enacted conservation actions for WACH, TCH, and CACH are effective in reducing the caribou harvest and reversing or slowing down the population declines; 3) the closure of Federal public lands in Unit 26A would likely shift hunters to State lands around Anaktuvuk Pass; 4) closure of Federal public lands in Unit 26B, which makes up only about 30% of the unit, is not likely to have as much effect as recent BOG regulations to protect the CACH; and 5) a reduction in hunting pressure along the Dalton Highway Corridor Management Area (DHCMA), which is thought to affect the migration of the CACH, is unlikely to be effective, as most NFQU will use the DHCMA to access adjacent State lands.

WP18–48/49 Executive Summary	
General Description	Proposal WP18-48/49 requests that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements. *Submitted by: Western Arctic Caribou Herd Working Group and Louis Cusack.*
Proposed Regulation	**Unit 22—Caribou** *Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *Oct. 1-Apr. 30. May 1-Sep. 30, a season may be announced.* *Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30.* *Unit 22A, remainder—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30, season may be announced.* *Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *Oct. 1-Apr. 30. May 1-Sep. 30, season may be announced.* *Units 22C, 22D remainder, 22E remainder—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30, season may be announced*

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	Unit 23—Caribou
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken*
	Bulls may be harvested — *July 1-Oct. 14. Feb. 1-June 30.*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14 — *July 15-Apr. 30.*
	Unit 23, remainder—5 caribou per day, as follows ***by State registration permit****: Calves may not be taken.*
	Bulls may be harvested — *July 1-Oct. 14. Feb. 1-June 30.*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14 — *July 31-Mar. 31*
	Unit 26A—Caribou
	Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*
	Bulls may be harvested — *July 1-Oct. 14. Dec. 6-June 30.*
	Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15 — *July 16-Mar. 15.*
	Unit 26A remainder—5 caribou per day as follows ***by State registration permit****: Calves may*

WP18–48/49 Executive Summary	
	not be taken. *Bulls may be harvested* *July 1-Oct. 15. Dec. 6-June 30.* *Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15* *July 16-Mar. 15.* *You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass*
OSM Preliminary Conclusion	**Support** Proposal WP18-48; and **Take No Action** on Proposal WP18-49.
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	

WP18–48/49 Executive Summary	
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
WP18-48/49

ISSUES

Proposal WP18-48, submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group) and Proposal WP18-49, submitted by Louis Cusack, requests that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements.

DISCUSSION

The WACH Working Group recognizes the registration permit hunt as a useful tool to monitor harvest and inform herd management, which is particularly important given the WACH population decline.

Mr. Cusack states that the intent of Proposal WP18-49 is to improve harvest data, herd management, and opportunity for all hunters. The proponent states that registration permits will help managers make sound decisions and determine the best means to curtail the current caribou population declines without taking more drastic measures. The proponent notes that given the current population decline, the impact of hunting on the WACH, and the inaccuracy of present harvest estimation methods for local harvest, more accurate reporting of both total harvest and composition of the harvest are needed. The proponent states that given the mix of Federal and non-Federal lands in these units, caribou hunting would be very cumbersome and confusing to manage under different Federal and State reporting requirements. The proponent references several reports to support the need for more accurate harvest reporting. He also notes that all users should be willing to work together in order to protect important natural resources.

Existing Federal Regulations

Unit 22—Caribou

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

Unit 22A, remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced.*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30.* *May 1-Sep. 30, season may be announced.*
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced*

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30.*
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 26A—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14.* *Dec. 6-June 30.*
Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	

Bulls may be harvested	*July 1-Oct. 15.* *Dec. 6-June 30.*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

Proposed Federal Regulations

Unit 22—Caribou

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

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30.*

Unit 23, remainder—5 caribou per day, as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 26A—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Dec. 6-June 30.*
Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

Unit 26A remainder—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 15.* *Dec. 6-June 30.*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass

Existing State Regulations

Unit 22—Caribou

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

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

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

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Unit 26—Caribou

26A, the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*July 15-Sept. 30*
26A, Remainder	*Residents—Five bulls per day; however, calves may not be taken;*		*RC907*	*July 1-July 15* *Mar. 16-June 30*
	Five caribou per day three of which may be cows; calves may not be taken, and cows with calves may not be taken		*RC907*	*July 16-Oct. 15*
	Three cows per day however, calves may not be taken		*RC907*	*Oct. 16-Dec. 31*
	Five caribou per day three of which may be cows; calves may not be taken		*RC907*	*Jan. 1-Mar. 15*

Nonresidents—One bull however, calves may not be taken	*HT*	*July 15-Sept. 30*

Extent of Federal Public Lands

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

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% NPS managed lands, 22% BLM managed lands, and 9% USFWS managed lands.

Federal public lands comprise approximately 73% of Unit 26A and consist of 66% BLM managed lands and 7% NPS managed lands.

Customary and Traditional Use Determinations

Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (except residents of St. Lawrence Island), 23, 24, Kotlik, Emmonak, Hooper Bay, Scammon Bay, Chevak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Marys, Nunam Iqua, and Alakanuk have a customary and traditional use determination for caribou in Unit 22A.

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

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23.

Residents of Unit 26, Anaktuvuk Pass, and Point Hope have customary and traditional use determination for caribou in Unit 26A.

Regulatory History

In 1984, the Alaska Department of Fish and Game (ADF&G) changed harvest reporting requirements for individuals hunting caribou north of the Yukon River. Instead of a standard harvest ticket and report, individuals were required to register with ADF&G (at specified vendors) and then return a harvest report form that was mailed to them by ADF&G later in the season (Georgette 1994). In 1989, harvest tickets were once again required for individuals living south (but hunting caribou north) of the Yukon River while the hunter registration system was retained for individuals living and hunting caribou north of the Yukon River (Georgette 1994).

In 1990, the Federal caribou hunting seasons in Units 22A, 22B, 23, and 26A were open year round with a 5 caribou/day harvest limit and a restriction on the take of cows May 16-June 30. There was no open caribou season in Units 22C, 22D, and 22E.

In 1994, the Federal Subsistence Board (Board) adopted Proposal P94-63A with modification to allow snowmachines to be used to take caribou and moose in Unit 22. The Board also adopted Proposal P94-82 with modification to allow motor-driven boats and snowmachines to be used to take caribou in Unit 26 and to allow swimming caribou to be taken with a firearm using rimfire cartridges in Unit 26. (Swimming caribou could be taken with a firearm using rimfire cartridges in Unit 23 since 1990).

In 1995, the Board adopted Proposal P95-51 to increase the caribou harvest limit in Unit 23 from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available. The Board also adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase harvest opportunity for subsistence hunters. The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to caribou hunting by non-Federally qualified users from Aug. 1-Sept. 30. This closure was enacted to prevent non-Federally qualified users from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A.

In 1996, the Board adopted Proposal P96-049 with modification to provide a customary and traditional use determination for caribou in Unit 22 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, and Units 22 (except St. Lawrence Island), 23, and 24. The proposal also provided a customary and traditional use determination for caribou in Unit 22A for residents of Kotlik, Emmonak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Mary's, Sheldon Point, and Alakanuk.

In 1997, the Board adopted Proposal P97-54 with modification to add residents of Hooper Bay, Scammon Bay, and Chevak to the customary and traditional use determination for caribou in Unit 22A.

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A.

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

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

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

Also in 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to non-Federally qualified users. The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. After these land transfers, only lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the population was at a point where it could support both subsistence and non–subsistence uses.

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

In 2015, two special actions, WSA15-03/05, requesting changes to caribou regulations in Units 23 and 26A, were submitted by the North Slope Subsistence Regional Advisory Council (North Slope Council). Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be prohibited. Temporary Special Action WSA15-05, requested that the bull caribou harvest limit in Unit 26A be reduced from 10 caribou per day to 5 caribou per day, the cow harvest limit be reduced to 3 per day, the harvest seasons for bulls and cows be reduced, and the take of calves and cows with calves be prohibited. Compared to the new State caribou regulations, it requested 3 additional weeks to the bull harvest season (Dec. 6- Dec. 31).

The Board approved Temporary Special Actions WSA15-03/04/05/06 with modification to simplify and clarify the regulatory language; maintain the current hunt areas in Units 23; decrease the harvest limit from 15 to 5 caribou per day and shorten the cow and bull seasons throughout Unit 23; prohibit the harvest of cows with calves throughout the affected units; and reduce the harvest limit in Unit 26B remainder from 10 to 5 caribou per day and shorten the season. These special actions took effect on July 1, 2015. These State and Federal regulatory changes in 2015 were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council) submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users for the 2016/17 regulatory year. The Council stated that its request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses.

Six proposals (WP16-37, WP16-48, WP16-49/52, WP16-61, and WP16-63) concerning caribou regulations in Units 22, 23, and 26A were submitted to the Board for the 2016-2018 wildlife regulatory cycle. In April 2016, the Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest in Unit 23 on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.) in some areas, to create new hunt areas, and to establish new seasons in Unit 22. The Board took no action on the remaining proposals (WP16-49/52, WP16-61, and WP16-63) because of action taken on WP16-37.

In 2016, the BOG adopted Proposal 140 as amended to make the following changes to Unit 22 caribou regulations: establish a registration permit hunt (RC800), set an annual harvest limit of 20 caribou total, and lengthen cow and bull seasons in several hunt areas. The BOG also adopted a portion of Proposal 85, removing the caribou harvest ticket and report exception for residents living north of the Yukon River in Units 21, 24, 25, 26B, and 26C. The Board deferred Proposal 85 for the remaining units (Units 18, 22, 23, and 26A) to the Arctic/Western Region meeting in Jan. 2017.

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the ranges of the WACH and TCH in Units 23 and 26. ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility. The BOG rejected Proposal 3 (deferred Proposal 85 from 2016) due to action taken on Proposal 2.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively, to non-Federally qualified users for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18 reg-

ulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board voted to approve WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage, to caribou hunting except by Federally qualified subsistence users for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence use. The Board rejected WSA17-04 due to recent changes to State regulations that should reduce caribou harvest.

Current Events

Several proposals concerning Federal caribou harvest regulations in Units 23 and 26A were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 45, 46/47, and 57). At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. Proposal WP18-46 is to close Federal public lands in Unit 23 to caribou hunting by non-Federally qualified users. It also voted to submit this proposal (WP18-48).

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council expressed its intent to submit a similar proposal to the BOG.

At the Northwest Arctic Council meeting in March 2017, the Council voted to submit Proposal WP18-45 to decrease the caribou harvest limit in Unit 23 from 5 to 3 caribou per day.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by non-Federally qualified users in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Enoch Mitchell submitted Proposal WP18-47 to close Federal public lands in Unit 23 to caribou hunting by non-Federally qualified users for the 2018/19- 2020/21 regulatory years. The proposal was co-sponsored by the Native Village of Noatak, the Cape Krusenstern National Monument Subsistence Resource Commission (SRC), the Kobuk Valley National Park SRC, and the Noatak/Kivalina Fish and Game Advisory Committee.

Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels, and

predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

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

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds, but the degree of mixing seems to be increasing. Thus, interpretation of population estimates is difficult due to both temporary and permanent immigration (Person et al. 2007).

The total number of caribou among the various herds wintering on the North Slope peaked at over 700,000 animals in the early 2000s (this includes the Porcupine Caribou Herd in northeast Alaska and Northwest Territories, Canada), which may have been the highest number since the 1970s. This number has declined substantially since the early 2000s. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

Western Arctic Caribou Herd

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 2**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photo census of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH was still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual

decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G is planning to conduct another photocensus in the summer of 2017 and is transitioning from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels (40 bulls:100 cows, **Table 1**) in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the population decline are not known with certainty, fall and winter icing events likely initiated the decline (Dau 2015a). Increased adult cow mortality, and decreased calf recruitment and survival also played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition (calving) level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

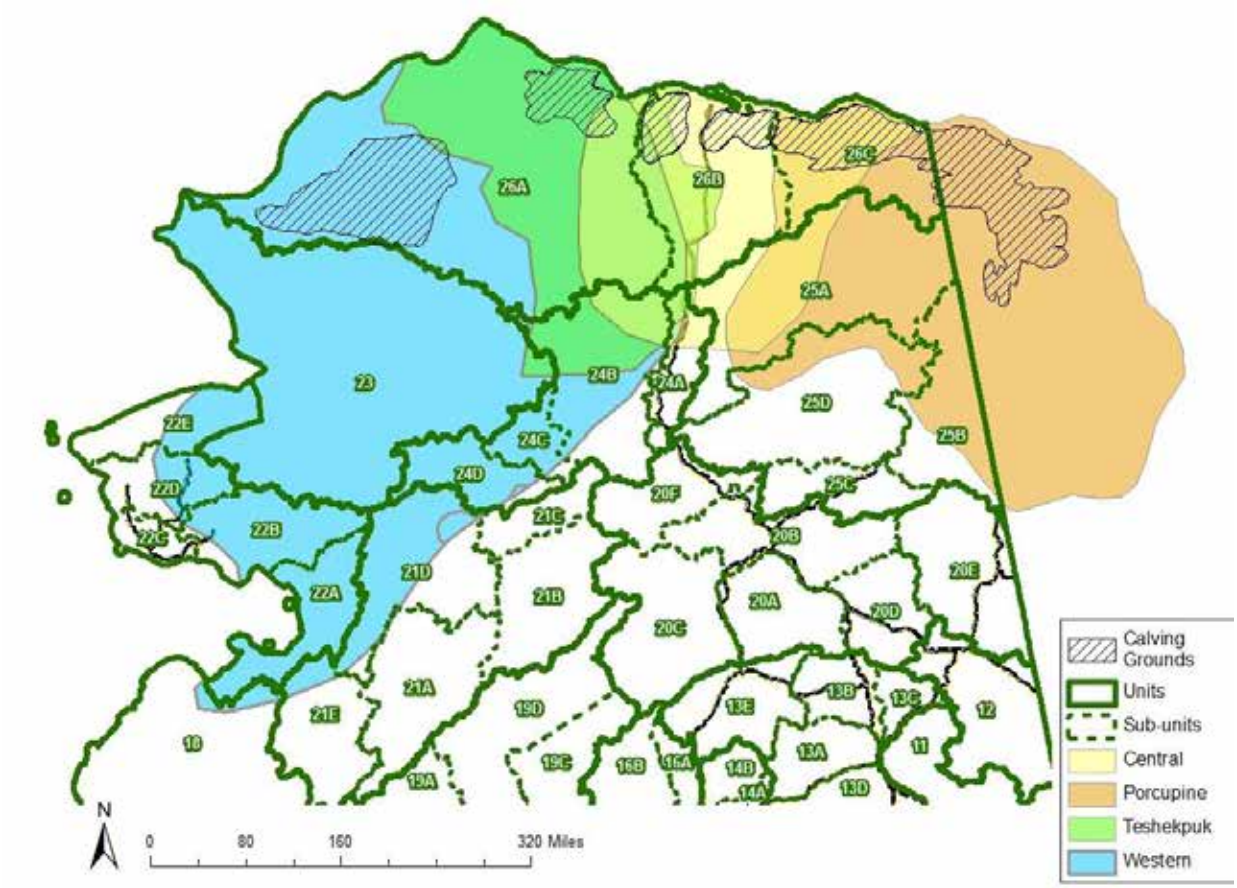
Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, Dau 2013, 2015a, 2016b, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest

improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

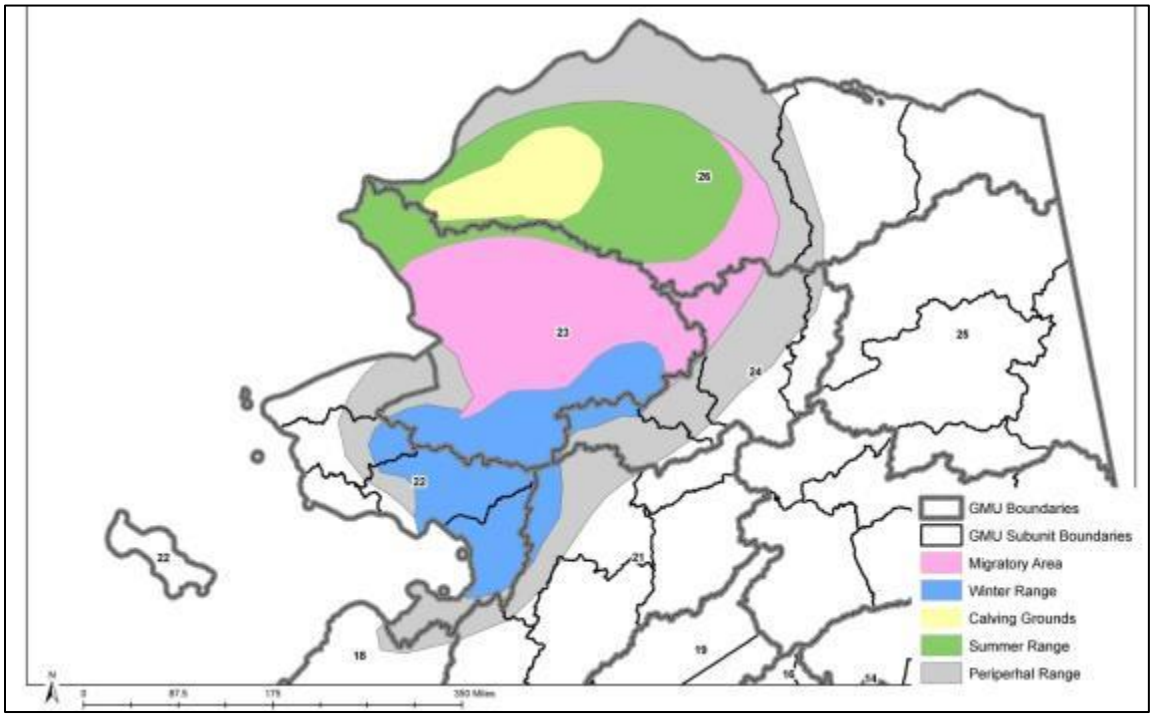
Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

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

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



Map 1. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 2. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

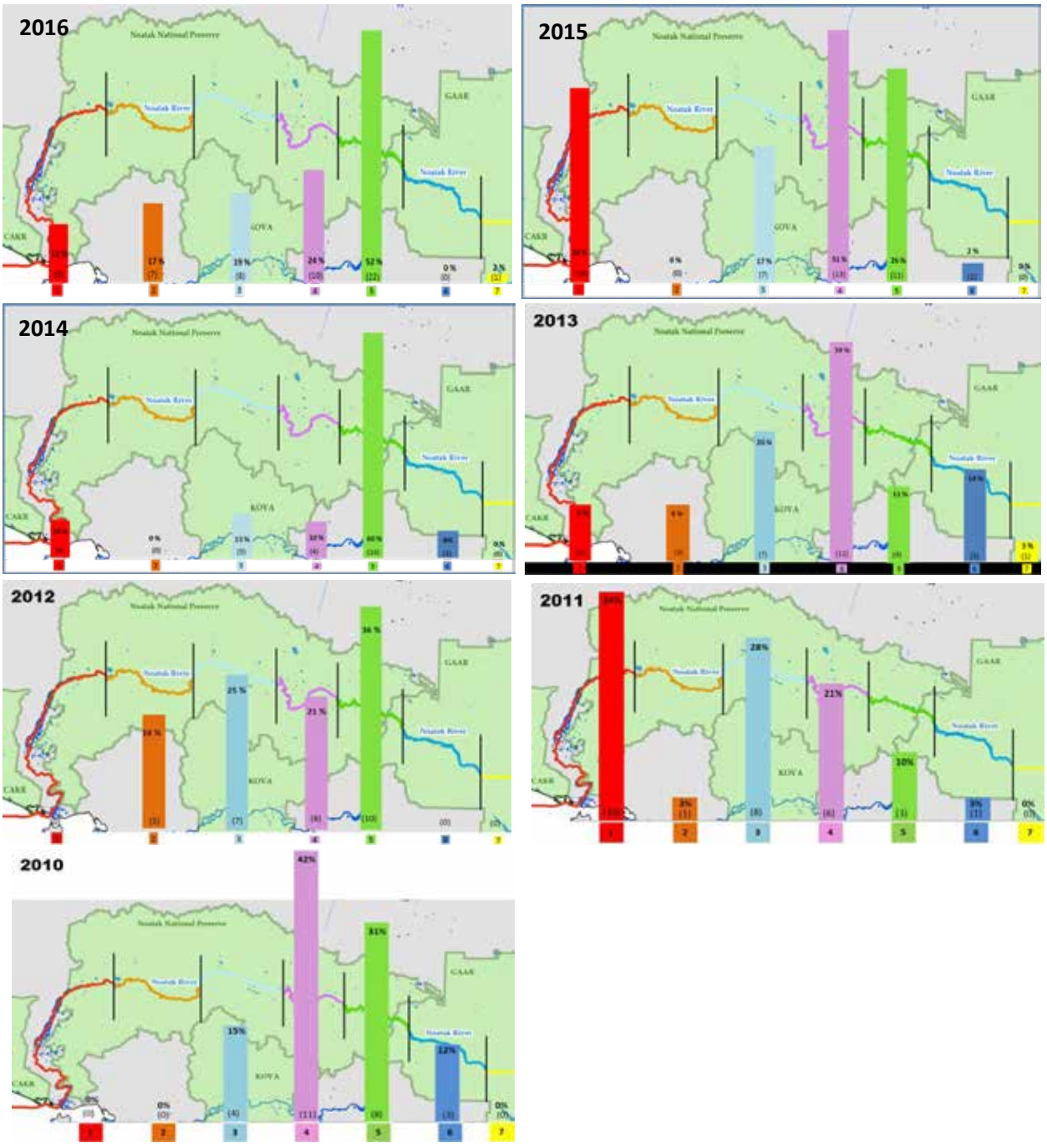


Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WAH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

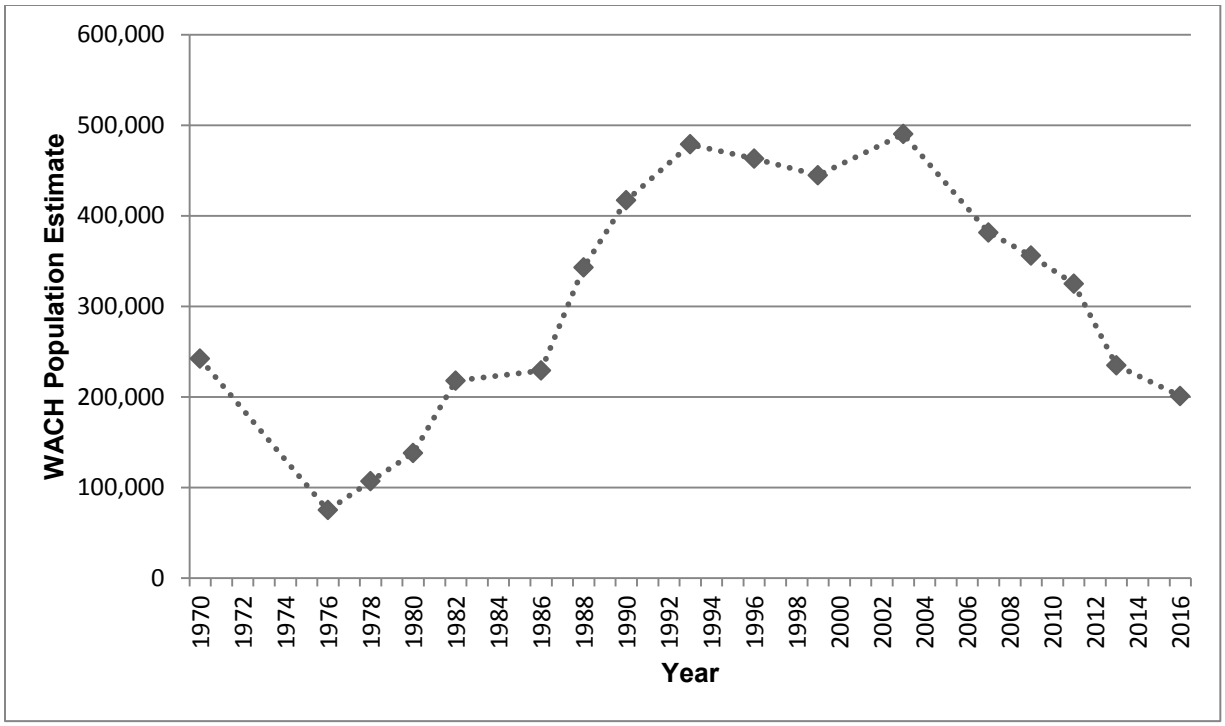


Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a)**.**

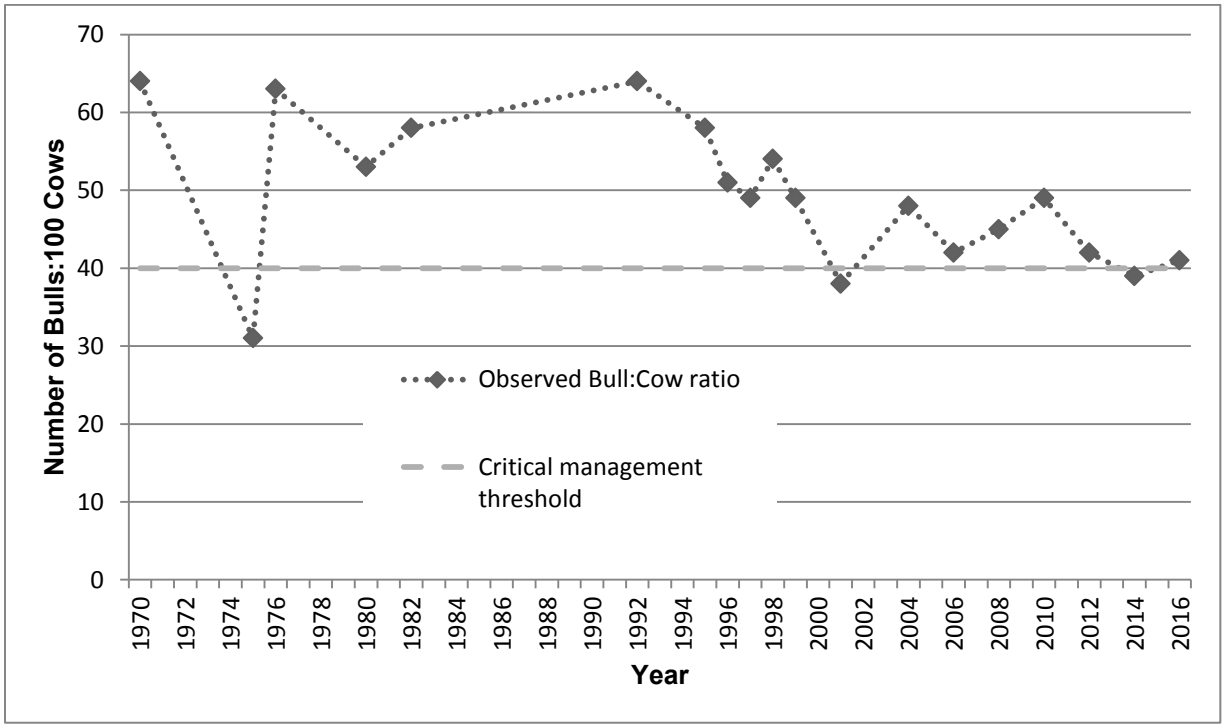


Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

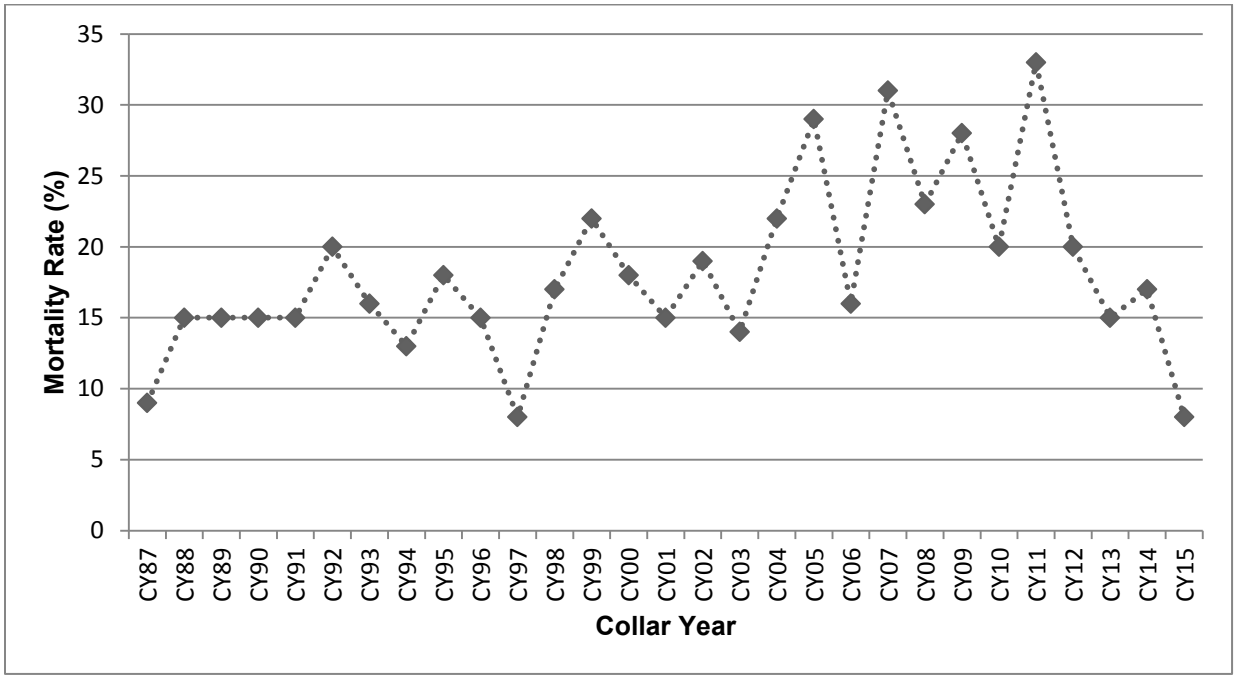


Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year = 1 Oct-30 Sept. 2015 collar year is Oct. 2015-Apr. 2016.

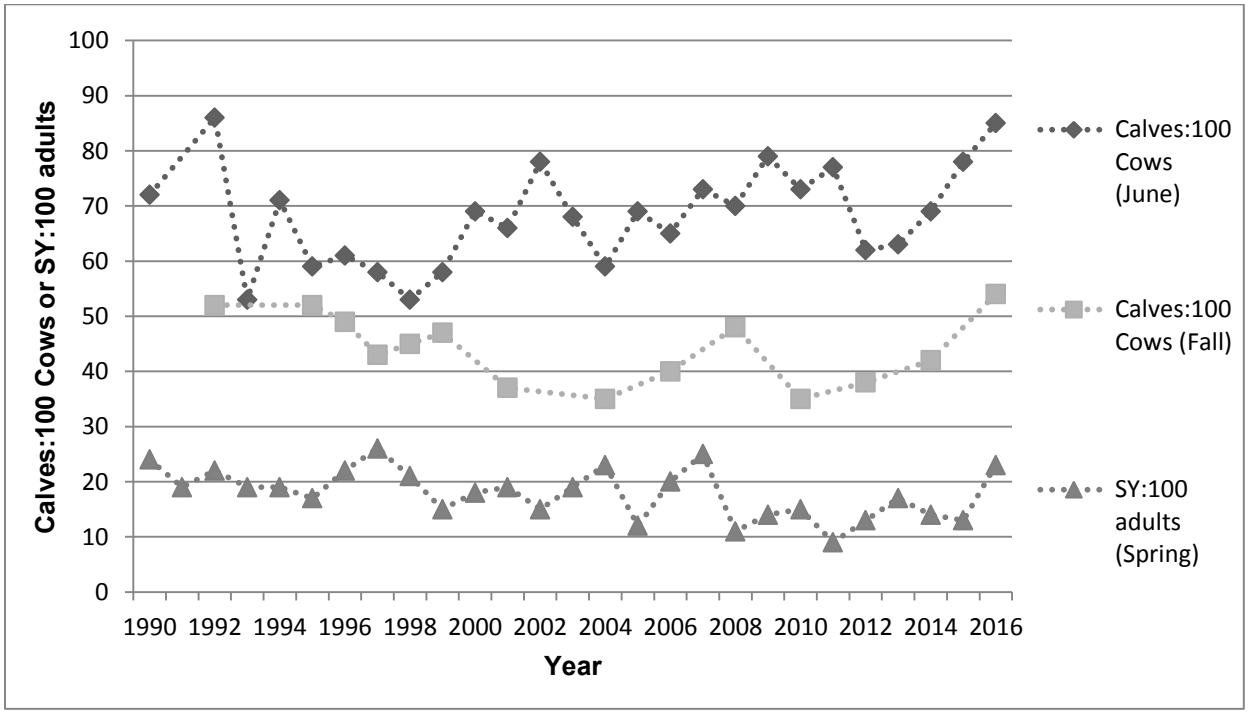


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska. Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (**Map 1**, Person et al. 2007, Wilson et al. 2012).

From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik to the Colville Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas (Yokel et al. 2009). River corridors are also used more during periods of insect harassment (Parrett 2015c).

Fall migration routes are variable due in part to highly variable wintering locations. Some TCH caribou are classified as non-migratory due to a lack of directional, seasonal movements. A substantial portion of the TCH remains on the coastal plain during the winter while other common wintering locations include the central Brooks Range and river drainages in Unit 23 (Parrett 2015c).

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2013). Specific State management objectives for the TCH are as follows (Parrett 2013):

- Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.
- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

The TCH population is estimated from aerial photocensuses and using methods described by Rivest et al. (1998). Between 1984 and 2008, the TCH population increased from an estimated 18,292 caribou to 68,932 caribou. Since 2008, the TCH population declined 40% to an estimated 41,542 caribou in 2015 (**Figure 6**, Parrett 2015c, 2015d).

Between 1991 and 2016, the TCH bull:cow ratio averaged 53 bulls:100 cows, although surveys were not conducted every year (**Figure 7**). However, since 1993, the bull:cow ratio has exhibited a downward

trend. The 2016 bull:cow ratio (28 bulls:100 cows) was the lowest ratio since 1991 and is below management objectives of 30 bulls:100 cows (Parrett 2013, 2015c, ADF&G 2017c).

TCH calf production is measured as the percent of collared cows with calves at the end of June calving surveys. Between 1999 and 2016, calf production averaged 56%. However, from 2006-2014, calf production exhibited a declining trend, bottoming out at 16% in 2014. Production increased substantially in 2016 to 81% (**Figure 8**, Parrett 2015c, ADF&G 2017c).

Between 2009 and 2016, fall calf:cow ratios averaged 33 calves:100 cows and exhibited an increasing trend (**Figure 9**, Parrett 2015c, ADF&G 2017c). Over the same time period, spring SY:adult ratios averaged 16.5 SY:100 adults. This ratio was static between 2009 and 2014 (13-15 SY:100 adults), but increased substantially in 2016 to 29 SY:100 adults (**Figure 9**, Parrett 2015c, ADF&G 2017c).

The mortality rate for the TCH is measured from radio-collared cows by collar year (CY). CY is defined as July 1-June 30. Between CY 2000/01 and CY 2015/16, the TCH mortality rate averaged 16%. However, the highest mortality rates ever recorded for this herd occurred in 2012 (32%) and 2013 (28%), which contributed substantially to the current decline (**Figure 10**, Parrett 2015c, ADF&G 2017c). Mortality decreased substantially in CY 2015/16 to only 8% (ADF&G 2017c).

Mean calf weights from 2011-2014 were among the lightest weights ever recorded in North America (Parrett 2015c). Similarly, the 2014 parturition (calving) rate was only 28%, which is very low for caribou. These metrics suggest poor nutrition may be affecting the TCH (Parrett 2015c, ADF&G 2017c). However, in 2016, both metrics improved (ADF&G 2017c).

From 2011-2013, ADF&G conducted a TCH calf survival study. Survival on the calving grounds and through the summer was high (~80%) while over winter survival and recruitment into the herd was low (~25-40%). The primary causes of calf mortality included predation and starvation. Starvation was especially important spatially as calves that wintered in the Brooks Range had higher survival than calves wintering on the North Slope (ADF&G 2017c).

While recent population estimates (2013-2015) suggest that the TCH population may be stabilizing, demographic metrics (i.e. parturition and mortality rates) indicate that the population was likely still declining during those years. It is possible that the 2013 population estimate was an underestimate (Parrett 2015d). However, improved herd performance in 2016 (i.e. recruitment, calf production, calf weight) suggest that the TCH population may be stabilizing or declining at a slower rate (ADF&G 2017c).

Habitat

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

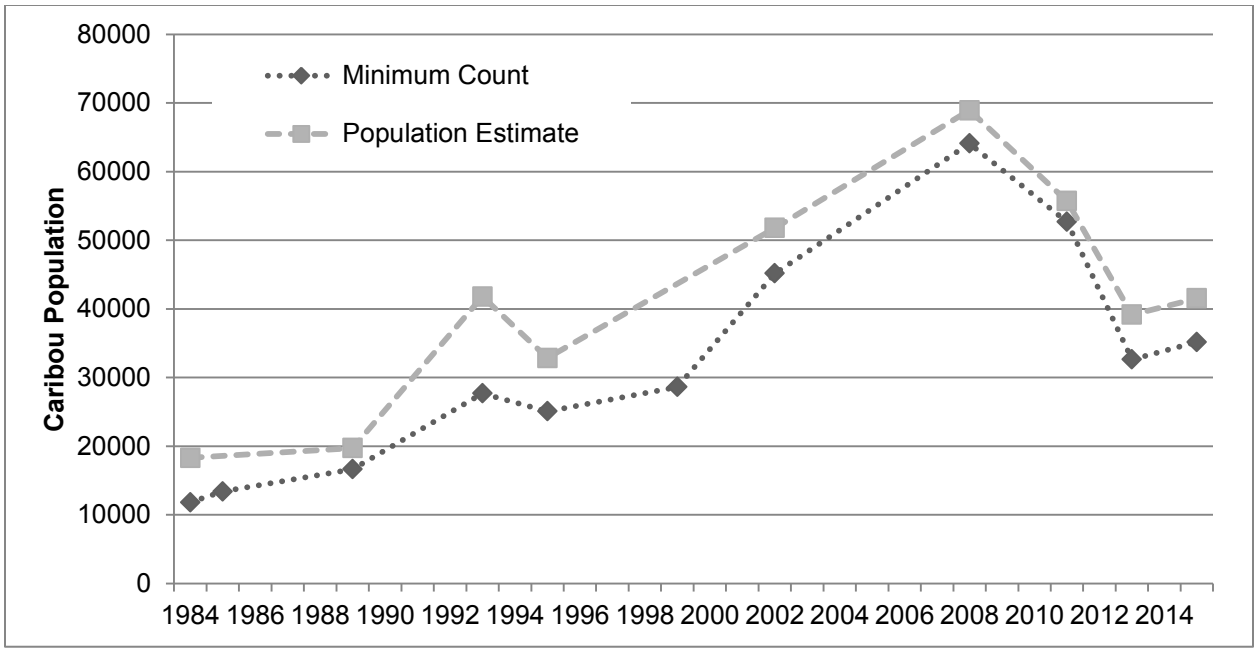


Figure 6. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2015. Population estimates are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, 2015a, 2015d).

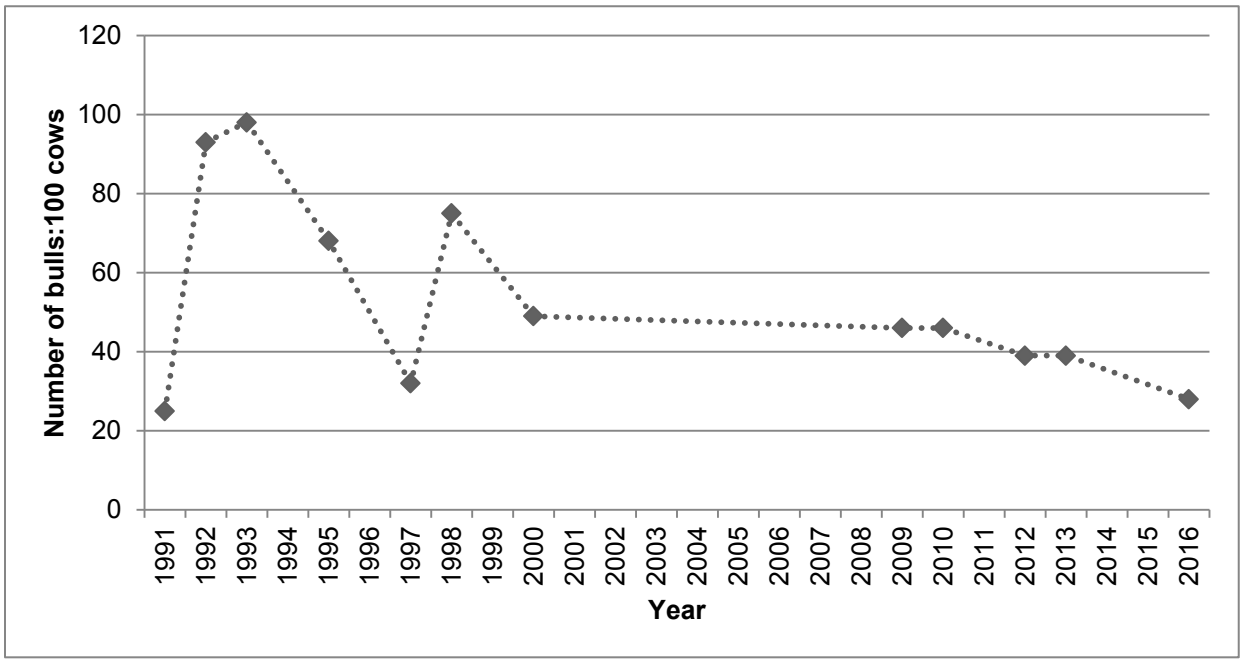


Figure 7. Bull:cow ratios of the Teshekpuk Caribou Herd. From 1991-2000, surveys were conducted in July. From 2009 onward, surveys were conducted in Nov. (Parrett 2013, 2015c, ADF&G 2017c).

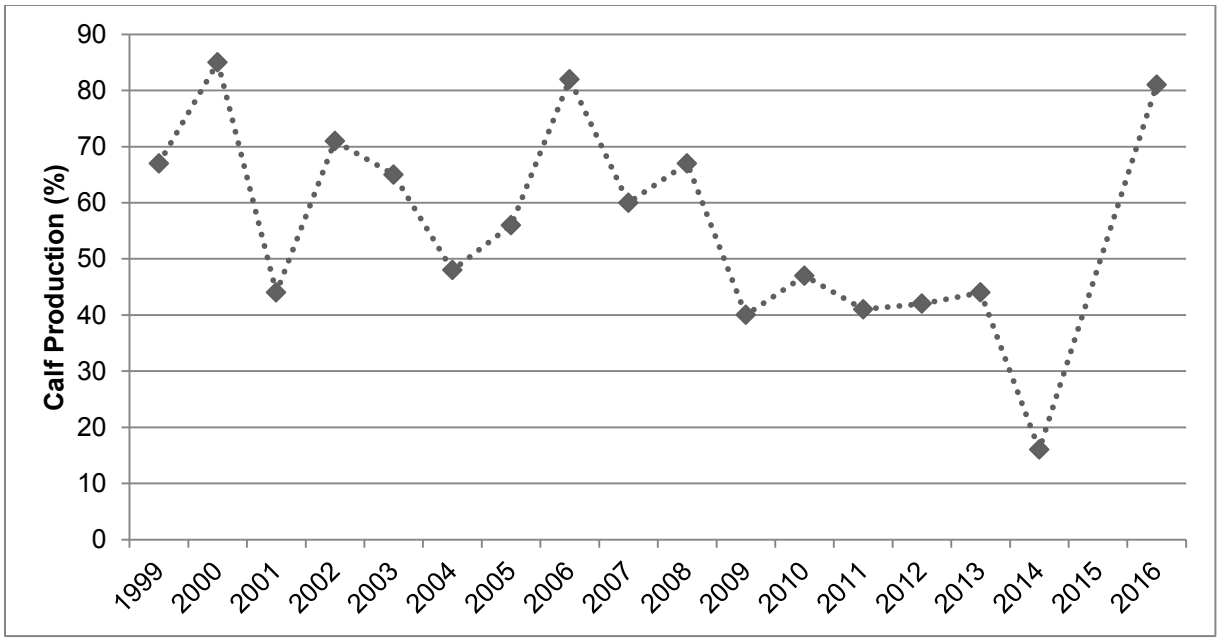


Figure 8. Teshekpuk caribou herd calf production (% of collared cows with calves) (Parrett 2015c, ADF&G 2017c).

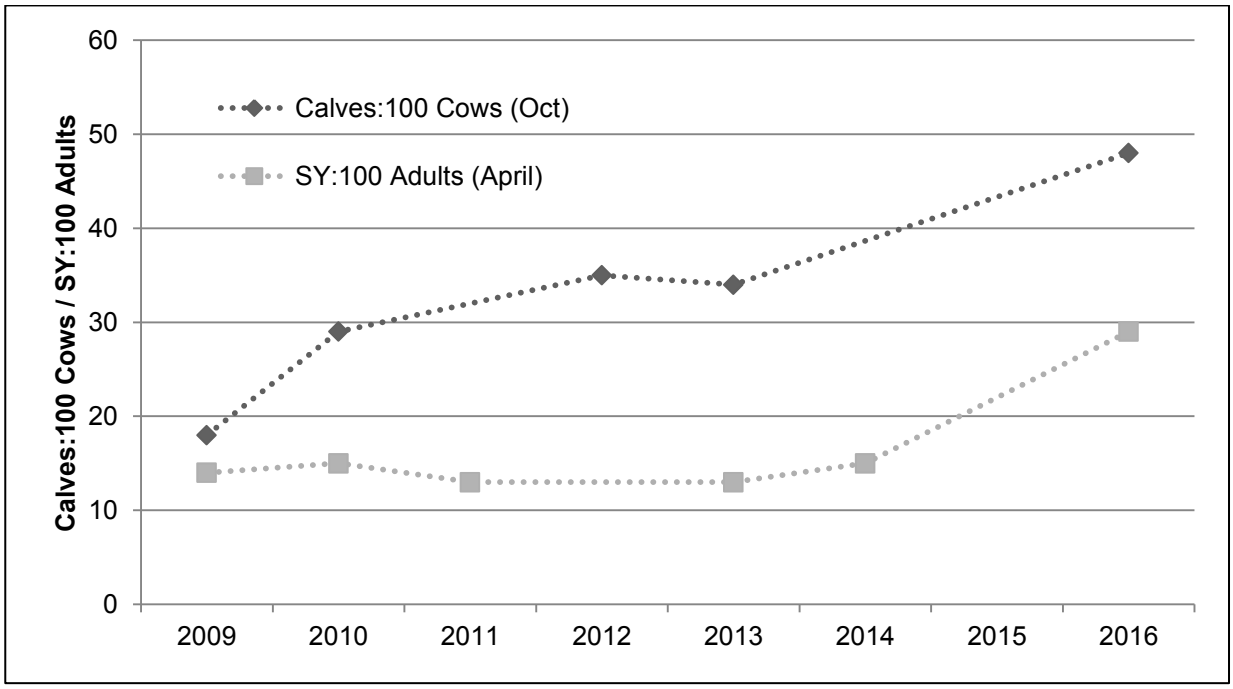


Figure 9. Fall calf:cow and spring short yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015c, ADF&G 2017c). Short yearlings are 10-11 month old caribou.

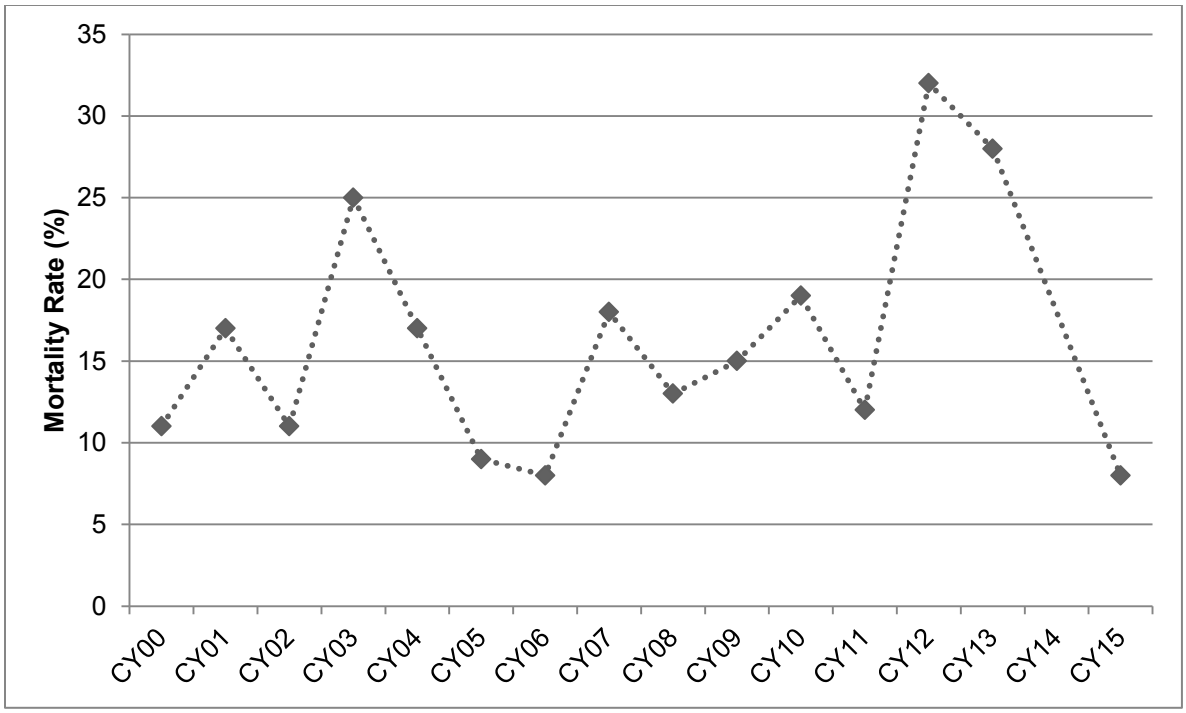


Figure 10. Annual mortality rate of radio-collared cows in the TCH (Parrett 2015c, ADF&G 2017c). Collar year (CY) is defined as July 1-June 30.

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life".

Caribou have been an important resource for the Iñupiat of the Seward Peninsula, Northwest Arctic, and North Slope regions for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in many communities (Burch 1984, 1994, 1998, ADF&G 1992).

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and

retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

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

Caribou were traditionally harvested any month of the year they were available. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Iñupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Some villages such as Anaktuvuk Pass settled specifically in locations where caribou migrate through, and residents of these communities await the annual arrival of caribou (NS RAC 2017). Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

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

Harvest History

Western Arctic Caribou Herd

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011,

Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). Comparatively, the harvestable surplus was 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively.

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation, Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a). Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively.

From 2000–2014, the average annual estimated harvest from the WACH was 11,984 caribou, ranging from 10,666-13,537 caribou per year (Dau 2015a, **Figure 11**). While these harvest estimates are within or below the conservative harvest level specified in the WACH Management Plan (**Table 1**), they approach or exceed the current harvestable surplus. Additionally, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest. Residents of Units 22, 23, and 26A account for approximately 17%, 58%, and 10% of the total WACH harvest, respectively (**Figure 12**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through western Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when zero GPS-collared caribou migrated through eastern Unit 23. Harvest increased substantially the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through eastern Unit 23.

From 2001-2013, total nonlocal WACH harvest averaged 598 caribou per year (**Figure 13**). Most (~76%) nonlocal WACH harvest occurs in Unit 23. In recent years (2012–2014), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a). Commercially licensed transporters and guides assist approximately 60% and 10% of nonlocal hunters in Unit 23, respectively (Unit 23 Working Group 2016).

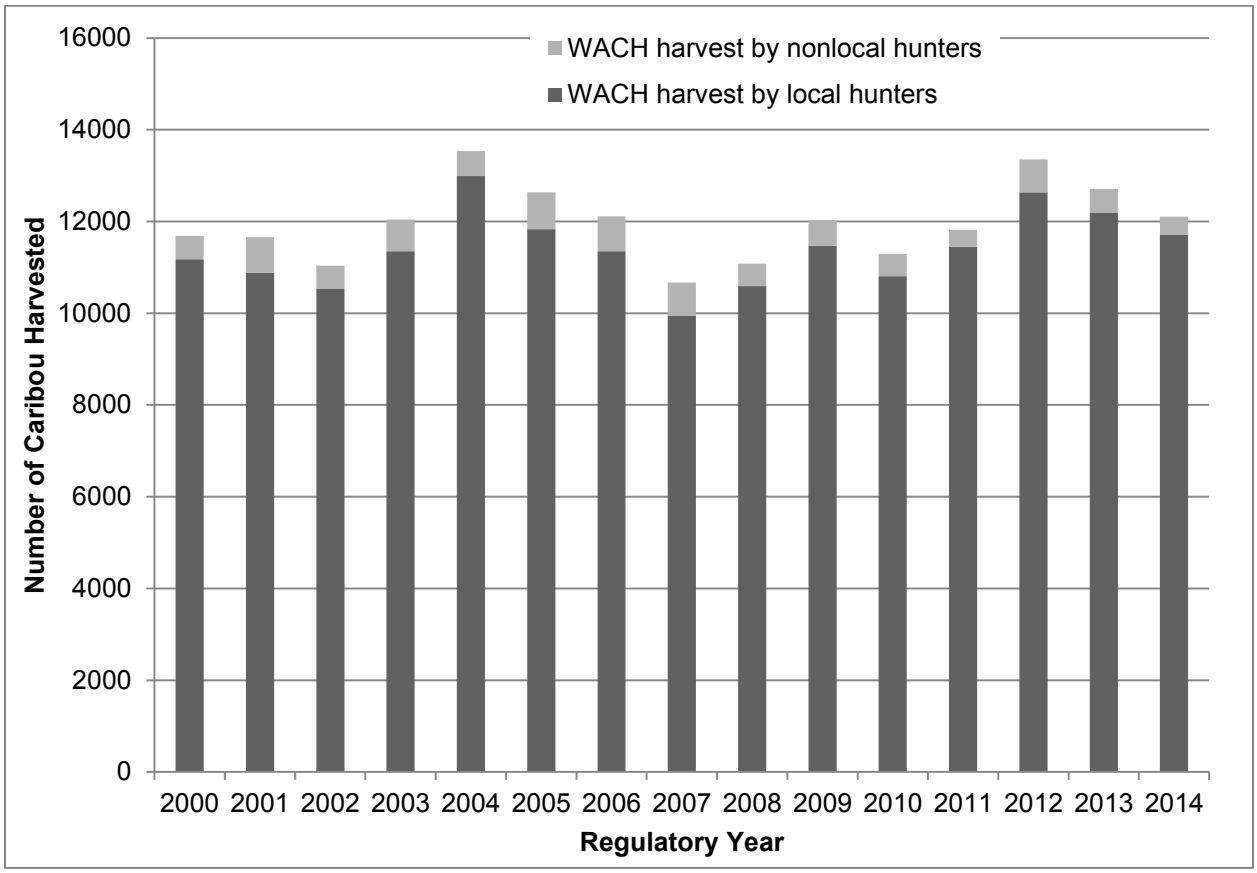


Figure 11. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

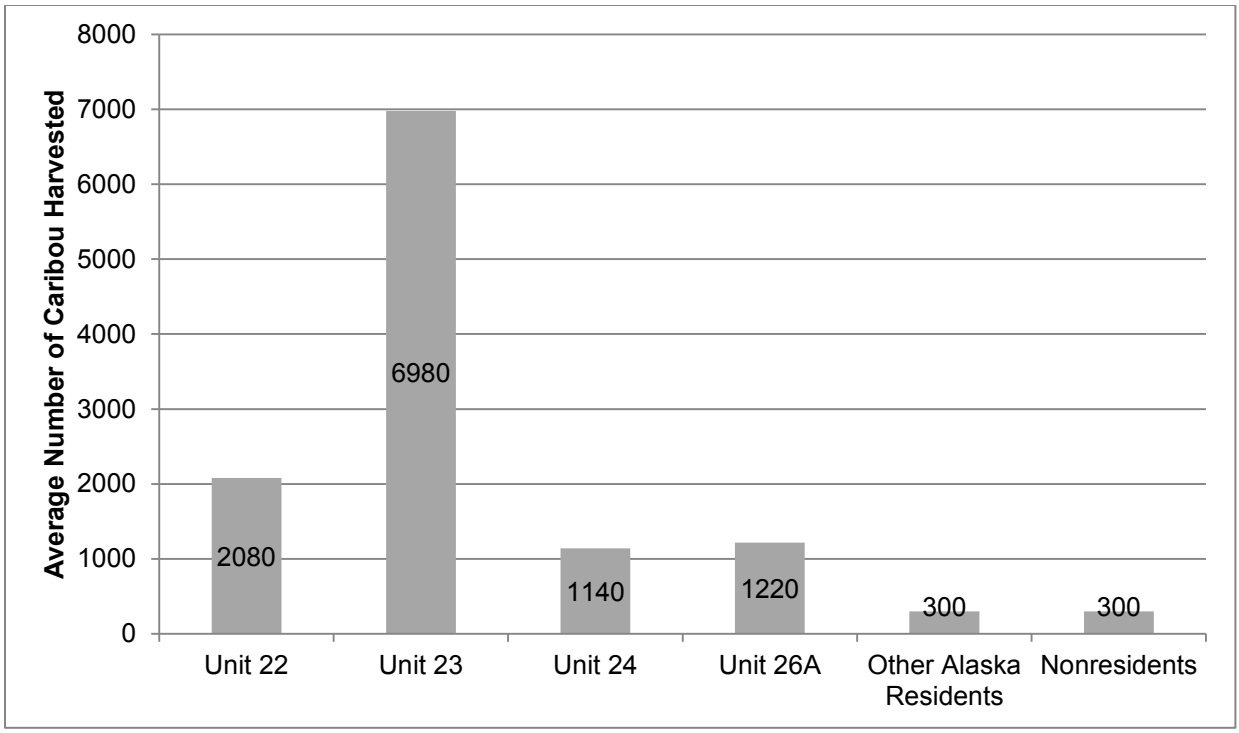


Figure 12. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

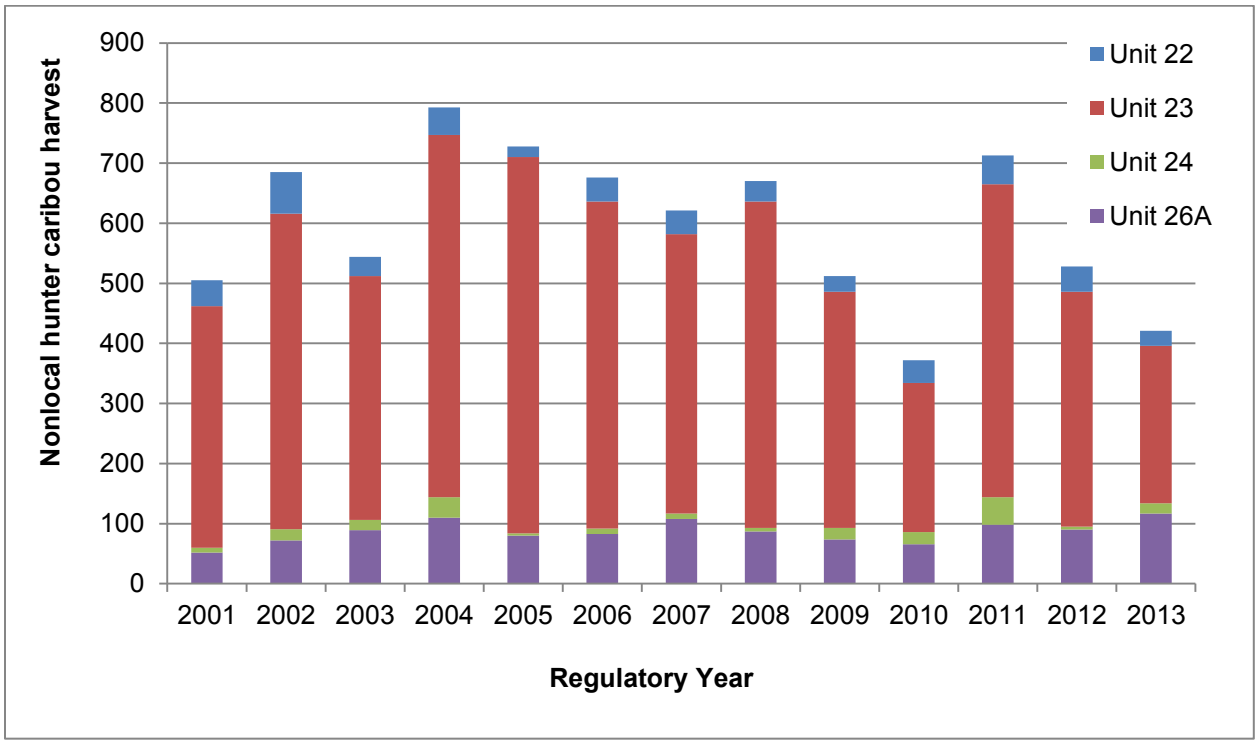


Figure 13. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

Teshekpuk Caribou Herd

The State also manages the TCH on a sustained yield basis. The current TCH harvestable surplus is 2,500 caribou at a 6% harvest rate. However, if the herd declines below 35,000, the recommended harvest rate will decrease to 4-5% (ADF&G 2017c).

Estimating harvest from the TCH is difficult due to lack of harvest data, annual variation in community harvest survey effort and location, widely varying wintering distribution of the TCH, and overlap between herds within village harvest areas (Parrett 2015c). The recent (1984-2016) hunter registration and reporting system was not effective in estimating TCH harvest by local communities as few local hunters registered with ADF&G (Parrett 2015c). Therefore, local harvest from the TCH is estimated from community harvest surveys and extrapolated from long-term averages of per-capita caribou harvest and community population size (Parrett 2015c, ADF&G 2017d). Some community harvest estimates can be apportioned by herd using community harvest survey and satellite collared caribou data (ADF&G 2017d, 2017e).

Nonlocal resident harvest estimates are derived from harvest ticket reports (Parrett 2015c, ADF&G 2017d). Ten percent of the harvest reported from harvest tickets in Unit 26A is apportioned to the TCH while the remaining 90% is attributed to the WACH (ADF&G 2017d, 2017e). Local and nonlocal residents are considered those hunters living within and outside the range of the TCH, respectively.

TCH harvest primarily occurs in Unit 26A. While some harvest of TCH caribou does occur in Units 23, 24, and 26B, it is considered insignificant due to the small percentage of TCH caribou relative to WACH and CACH caribou in those units (Parrett 2015c, ADF&G 2017d). Local residents account for the vast majority of the TCH harvest. While nonlocal harvest in Unit 26A is low (~100 caribou per year), 90% of that harvest is apportioned to the WACH as it mostly occurs in southern Unit 26A (Parrett 2015c, ADF&G 2017e).

From 2002-2014, the estimated TCH harvest averaged 3,022 caribou (ADF&G 2017e). While there is much uncertainty in this estimate, it exceeds the current harvestable surplus and represents a 7% harvest rate. Harvest by local residents averaged 3,013 caribou, comprising 99.7% of the TCH harvest (**Table 2**). Harvest by nonlocal Alaska residents and nonresidents averaged 4.7 caribou and 4.5 caribou, respectively (ADF&G 2017d, 2017e).

The proportion of caribou harvested from a particular herd varies by community and year depending on village location, weather, terrain, caribou migration routes, fuel costs, etc. (**Table 2**). Most of the caribou harvested by Utqiagvik, Atqasuk, and Nuiqsuit residents is apportioned to the TCH while a lesser proportion of the harvest by Wainwright and Anaktuvuk Pass residents is usually apportioned to the TCH as these communities are on the herd's peripheral range. Harvest of TCH caribou by other communities is considered insignificant due to the overwhelming presence of caribou from other herds (ADF&G 2017d, 2017e).

Local residents primarily hunt caribou from July-Oct. by boat or ATV. Nonlocal hunters are concentrated in August and September and primarily use aircraft to access caribou (Parrett 2015c).

Table 2. Percent of caribou harvest by local communities apportioned to the Teshekpuk Caribou Herd and average annual TCH harvest by community (ADF&G 2017e).

Community	% Harvest from the TCH			Average TCH Harvest (# caribou/year)
	2002-2007	2011-2012	2014	
Atquasuk	84%	98%	86%	186.5
Utqiagvik	66%	97%	93%	2015.8
Nuiqsut	77%	77%	45%	359.0
Wainwright		60%		246.1
Anaktuvuk Pass	20%	30%	38%	205.5
Total				3012.9

Effects of the Proposal

If this proposal is adopted, registration permits will be required to hunt caribou in Units 22, 23, and 26A. This would align Federal and State reporting requirements, which would reduce regulatory complexity and user confusion. The difficulty in obtaining, and the inaccuracy of caribou harvest estimates for Units 22, 23, and 26A have presented continual challenges for herd management and conservation (Georgette 1994, Parrett 2015c, ADF&G 2017d). Registration permits would provide better harvest monitoring and herd management, which is particularly important given the current population declines and dwindling harvestable surpluses.

However, for this regulation to be adopted, concurrence would be needed from the State to allow Federally qualified subsistence users to use a State registration permit while hunting under Federal regulations. Requiring registration permits may burden Federally qualified subsistence users who would have to go into a licensed vendor and register. It is currently unclear whether there would be vendors in every village or whether permits could be obtained on-line as 2017 is the first year permits are required under State regulations. However, many rural residents in the region do not have internet access. If there are no vendors in a village, obtaining a registration permit may be a more substantial burden on residents of that village.

No biological impacts are expected from this proposal and there are no conservation concerns. While compliance with a new reporting system will likely take time, more accurate harvest data provided by registration permits could benefit the caribou resource and subsistence use via more informed herd management and hunting regulations.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-48; and **Take No Action** on Proposal WP18-49.

Justification

Requiring registration permits would improve harvest data and herd management, which is particularly important during periods of population declines. Additionally, adoption of this proposal would reduce regulatory complexity and user confusion by aligning Federal and State reporting requirements for caribou in Units 22, 23, and 26A. However, concurrence from the State to allow Federally qualified subsistence users to use a State registration permit while hunting under Federal regulations would be needed.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–57 Executive Summary	
General Description	Proposal WP18-57 requests that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU). *Submitted by: North Slope Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 26—Caribou** *Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage* *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested;* — *July 1– Oct. 14; Dec. 6 -June 30* *Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15* — *July 16–Mar.15* ***Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.*** *Unit 26A remainder* *5 caribou per day as follows;* *Calves may not be taken* *Bulls may be harvested;* — *July 1– Oct. 15; Dec. 6 -June 30*

WP18–57 Executive Summary	
	Up to 3 cows per day may be harvested; however cows accompanied by calves may not be taken July 16 -Oct. 15 — *July 16–Mar.15* ***Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.***
Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:* *Bulls may be harvested* — *July 1 -Oct. 14; Dec. 10–June. 30* *Cows may be harvested* — *July 1–Apr 30* ***Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.***
Unit 26B remainder	*5 caribou per day as follows:* *Bulls may be harvested* — *July 1 -June 30* *Cows may be harvested* — *July 1 -May 15* ***Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.***
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.	

WP18–57 Executive Summary	
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	

WP18–57 Executive Summary	
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
WP18-57

ISSUE

Proposal WP18-57, submitted by the North Slope Subsistence Regional Advisory Council, requests that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU).

DISCUSSION

The proponent is concerned about the continued declines of the Western Arctic Caribou Herd (WACH), Teshekpuk Caribou Herd (TCH), and the Central Arctic Caribou Herd (CACH) and the ability of local subsistence users to meet their subsistence needs. The proponent is opposed to State regulations which allow a hunt for bulls from the CACH in Unit 26B through the rut when the population is in decline. The intent of this request is to ensure local people get the caribou they need, to protect the three caribou herds, and to reduce user conflicts. The proponent emphasizes the important traditional, cultural and nutritional value of caribou to local people and that a closure of Units 26A and 26B to NFQU will help local subsistence users harvest more caribou, increase their food security and reduce user conflicts.

Existing Federal Regulation

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*5 caribou per day as follows;*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 14* *Dec. 6 -June 30*
	Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar. 15*

Unit 26A remainder	*5 caribou per day as follows;*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 15* *Dec. 6 -June 30*
	Up to 3 cows per day may be harvested; however cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar.15*

Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1 -Oct. 14* *Dec. 10–June. 30*
	Cows may be harvested	*July 1–Apr 30*
Unit 26B remainder	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1 -June 30*
	Cows may be harvested	*July 1 -May 15*

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.

Proposed Federal Regulation

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*5 caribou per day as follows:*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 14* *Dec. 6 -June 30*
	Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar.15*
	Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26A remainder	5 caribou per day as follows;	
	Calves may not be taken	
	Bulls may be harvested;	July 1– Oct. 15 Dec. 6 -June 30
	Up to 3 cows per day may be harvested; however cows	July 16–Mar.15

	accompanied by calves may not be taken July 16‑Oct. 15	
	Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1‑Oct. 14* *Dec. 10–June. 30*
	Cows may be harvested	*July 1–Apr 30*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26B remainder	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1‑June 30*
	Cows may be harvested	*July 1‑May 15*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.

Existing State Regulation

Unit 26A—Caribou

Unit 26A the Colville River drainage	*Resident Hunters: Five caribou per day, however, calves may not be taken:*

upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Bulls*	*RC907*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*RC907*	*July 15 – Apr. 30*
	Nonresident hunters: One bull; however, calves may not be taken	*HT*	*July 15– Sept.30*
Unit 26A remainder	*Resident Hunters: Five bulls per day; however, calves may not be taken*	*RC907*	*July 1 – July 15* *Mar. 16-June 30*
	Five caribou per day three of which may be cows: calves may not be taken, and cows with calves may not be taken	*RC907*	*July 16 – Oct. 15*
	Three cows per day however, calves may not be taken	*RC907*	*Oct. 16 – Dec. 31*
	Five caribou per day three of which may be cows; calves may not be taken	*RC907*	*Jan. 1 – Mar. 15*
	Nonresident Hunters: One bull however, calves may not be taken	*HT*	*July 15 – Sept. 30*
Unit 26B—Caribou			
Unit 26(B), Northwest portion north of the 69° 30' N. lat. and west of the east bank of the Kuparuk River to a point at 70° 10' N. lat., 149° 04' W. long., and	*Resident Hunters: 5 caribou per day*		
	Bulls	*HT*	*No closed season*

west approximately 22 miles to 70°10' N. lat and 149°56' W. long, then following the east bank of the Kalubik River to the Arctic Ocean	*Cows*	*HT*	*July 1- May 15*
	Nonresident Hunters: 1-bull	*HT*	*Aug. 1-Sept 15*
26B remainder	*Resident Hunters: 2 bulls*	*HT*	*Aug. 1-Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1-Sept. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 73% of Unit 26A and consist of 66.9% Bureau of Land Management (BLM) managed lands, 6.6% National Park Service (NPS) managed lands, and 0.1% U.S. Fish and Wildlife Service (USFWS) managed lands. Federal public lands comprise approximately 29% of Unit 26B and consist of 22.8% USFWS managed lands, 3.6% BLM managed lands, and 2.7% NPS managed lands (See **Unit 26 Map**).

Customary and Traditional Use Determinations

Residents of Unit 26, Anaktuvuk Pass, and Point Hope have a customary and traditional use determination for caribou in Unit 26A.

Residents of Unit 26, Anaktuvuk Pass, Point Hope, and Unit 24 within the Dalton Highway Corridor Management Corridor (DHCMA) have a customary and traditional use determination for caribou in Unit 26B.

Regulatory History

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase opportunity for subsistence hunters (OSM 1995a). The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to NFQU (OSM 1995b). This closure was enacted to prevent NFQU from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A (OSM 1995b).

In 2005, the Alaska Board of Game (BOG) established a Controlled Use Area for the Anaktuvuk River drainage that prohibited the use of aircraft for caribou hunting from Aug. 15–Oct. 15. The intent of this proposal was to limit access by nonlocal hunters, reduce user conflicts, and lessen the impact on caribou

migration.

In 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to NFQU (OSM 2006). The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. However, only the lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the WACH, TCH, and CACH populations, which traverse Unit 26A, were healthy and could support both subsistence and non–subsistence uses.

In 2013, an aerial photo census indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and possibly the CACH (Caribou Trails 2014). In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and non-residents within the range of the WACH and the TCH. These regulation changes, which included lower bag limits, changes to harvest seasons, modification of hunt areas, restrictions on bull and cow harvest and a prohibition on calf harvest, were adopted to slow or reverse the population decline. These regulatory changes, which were the result of extensive discussion and compromise among a variety of user groups, took effect on July 1, 2015.

In an effort to enact conservation measures, the North Slope Subsistence Regional Advisory Council submitted four temporary wildlife special actions (WSA) for Units 23, 24, 26A, and 26B to change caribou harvest regulations on Federal public lands for the 2015/16 regulatory year. The Board approved Temporary Special Actions WSA15-03/04/05/06, which are similar to the changes made to State regulations in an attempt to reverse or slow the decline of the WACH and TCH. To address two primary factors contributing to the decline, low calf survival and high adult cow mortality, WSA15-03/04/05/06 prohibited the harvest of cows with calves, prohibited the harvest of calves, and reduced the harvest limit to 5 caribou per day, and shortened the cow and bull seasons. Some of the requested hunt areas were not included in the Special Action WSA15-03/04/05/06 because there was not sufficient time for the Councils to review the proposed changes before the start of the regulatory year.

In 2015, three proposals were submitted for the 2016-2018 wildlife regulatory cycle concerning caribou regulations in Unit 26A and 26B, two from the North Slope Subsistence Regional Advisory Council (WP16-63 and WP16-64) and one from Jack Reakoff of Wiseman (WP16-37). The Board adopted WP16-37 with modification and took no action on WP16-63/64 based on action taken on WP16-37 (OSM 2016). Changes to the 2016-2018 Federal regulations in Unit 26A included a reduction from ten to five caribou per day harvest limit, splitting Unit 26A into two hunt areas based on range and migration patterns of the WACH and TCH, selecting the opening date for bulls in the winter season as December 6, a prohibition on the take of calves, and protection of cows with calves from July 16-Oct. 15. Changes to caribou regulations in Unit 26B, where harvest is primarily from the CACH, were: a reduced harvest limit from ten to five caribou per day; splitting Unit 26B into two hunt areas, one south of 69°30’ N. lat. west of the Dalton Highway and 26B remainder; a restricted cow season from July to April/May; and a reduction in the cow and bull seasons. Changes to caribou regulations in 2015 by the BOG and the Federal Subsistence Board represented the first time in over 30 years that harvest restrictions were

implemented for the WACH and TCH. These regulation changes for the WACH were also supported by management recommendations outlined in the Western Arctic Herd Management Plan (WACH Working Group 2011). The intent of these regulations was to reduce the overall harvest and cow mortality to allow the WACH and TCH populations to recover.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council submitted a Temporary Special Action Request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2016/17 regulatory year. The Northwest Arctic Council stated that its request was necessary for conservation purposes and because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved Special Action Request WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request as well as concerns over conservation and continuation of subsistence use (FSB 2016).

In June 2016, the State submitted Temporary Special Action Request WSA16-03 to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior Alaska Subsistence Regional Advisory Councils), public testimony, and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure (FSB 2017, OSM 2017a).

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 (a similar proposal was passed for Unit 22 in 2016). ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility (ADF&G 2017a).

In February 2017, in response to the decline in the CACH, the BOG adopted Proposal 105 (RC22) with amendments to reduce overall caribou harvest from 930 to 680 and the cow harvest from 202 to 75 in Unit 26B (Lenart 2017a).

In March 2017, the Norwest Arctic and North Slope Subsistence Regional Advisory Councils submitted Temporary Special Action Requests WSA17-03,and WSA-04, to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure continuation of subsistence uses in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River;within the Squirrel River drainage; and within the northern and southern boundaries of the Eli and Agashasshok River drainages; for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted at that time.

In June 2017, the Board rejected WSA17-04 for a variety of reasons including: 1) the relatively small cow

harvest by NFQU in Unit 26A; 2) the need for adequate time to determine if the recently enacted conservation actions for WACH, TCH, and CACH are effective in reducing the caribou harvest and reversing or slowing down the population declines; 3) the closure of Federal public lands in Unit 26A would likely shift hunters to State lands around Anaktuvuk Pass; 4) closure of Federal public lands in Unit 26B, which makes up only about 30% of the unit, is not likely to have as much effect as recent BOG regulations to protect the CACH; and 5) a reduction in hunting pressure along the Dalton Highway Corridor Management Area (DHCMA), which is thought to affect the migration of the CACH, is unlikely to be effective, as most NFQU will use the DHCMA to access adjacent State lands.

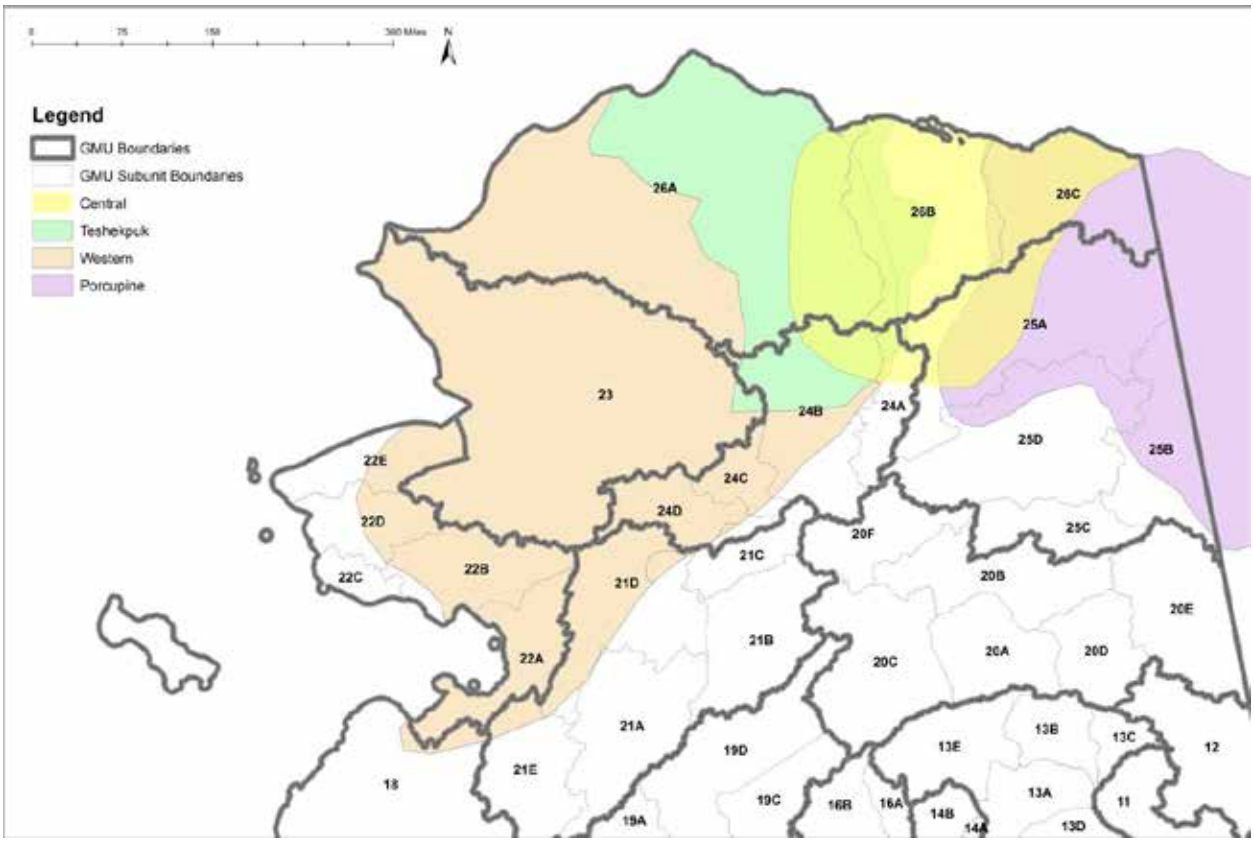
Biological Background

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**) and there can be considerable mixing of herds during the fall and winter (Hemming 1971). During the early 2000s, the number of caribou from the WACH, TCH, CACH, and Porcupine Caribou Herd (PCH) peaked at over 700,000 animals, which may be the highest number since the 1970s (OSM 2017a). After declining slowly during the 1990s and early 2000s, the PCH has been increasing and by 2016 was at 197,000, which is the highest population yet recorded for this herd (OSM 2017b). Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou populations as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, Gunn (2001) suggests climatic oscillations as the primary factor, exacerbated by predation and density-dependent reduction in forage availability, resulting in poorer body condition. During the 1970s, there was little overlap between these four herds, but the degree of mixing seemed to increase as the herds increased in the early 2000s (Lenart 2011, Dau 2011, Parrett 2011).

Caribou calving generally occurs during late May and early June. Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition. Joly (2000) found that calves orphaned later in life have greater chances of surviving. Data from Russell et al. (1991) suggests 50% and 75% of the calves orphaned in September and November, respectively, survived the winter (Joly 2000). Indeed, there is little evidence that calves orphaned after weaning experience strongly reduced overwintering survival rates than non-orphaned calves (Rughetti and Festa-Bianchet 2014, Joly 2000, Holand et al. 2012), although Holand et al. (2012) found orphaned calves to have greater losses of winter body mass than non-orphaned calves.

The WACH, TCH, and CACH migrate between seasonal summer and winter ranges and calving areas. Over many years, traditional migration routes have developed in response to spatial and temporal variability of environmental conditions encountered (Duquette 1988). Migration routes that were successful in previous years are likely learned by young caribou following older, more experienced animals (Pullainen 1974). Maintaining connectivity between the seasonal areas is important because restoring disturbed migration routes can be challenging (Wilcove and Wikelski 2008, Singh and Milner-Gulland 2011). Long-term climate changes may affect seasonal ranges and migratory patterns through changes in forage abundance, quality, and weather. In addition, increased development along migration routes could increase energy costs, impede movements, or deflect caribou to less optimal areas.

Understanding the importance of spatial and temporal variation of the seasonal habitat use and the migration routes are important considerations for management of caribou herds.



Map 1. Herd overlap and ranges of the Western Arctic, Teshekpuk, Central Arctic and Porcupine Caribou herds (Caribou Trails 2014).

Central Arctic Caribou Herd

The CACH range includes the area from the eastern portion of the Arctic coastal plain of the North Slope to the Canadian border, the north side of the Brooks Range from the Itkillik River to the Canadian border, the south side of the Brooks Range from the North Fork of the Koyukuk River to the East Fork of the Chandalar River, and as far south as the Chandalar River valley (Lenart 2015). The traditional calving grounds of the CACH are between the Colville and Kuparuk rivers on the west side of the Sagavanirktok River and between the Sagavanirktok and Canning rivers on the east side. In response to oil and gas development and infrastructure in the 1990s caribou that calved in the western Unit 26B shifted their calving grounds to the southwest (Arthur and Del Vecchio 2009). The CACH summer range extends east from Fish Creek, just west of the Colville River, along the coast and inland about 30 miles to the Canadian border. Typically the CACH summer range extends from the Colville River to just east of the Katakturuk River and from the coast inland to the foothills of the Brooks Range. The winter range of the CACH occurs in the northern and southern foothills of the Brooks Range. In most years the CACH begin migrating toward the foothills of the Brooks Range in August and by September most of the caribou are

in the foothills around Toolik Lake, Galbraith Lake, Accomplishment Creek, Ivishak River and the upper Sagavanirktok River. Depending on the year, the rut, which typically occurs in mid-October, can occur on the north or south side of the Brooks Range (Lenart 2015). The range of the CACH often overlaps with the PCH on the summer and winter ranges to the east and with the WACH and TCH herds on the summer and winter ranges to the west (**Map 1**) (Lenart 2015).

The seasonal movements and migratory patterns of CACH have been studied using radiotelemetry for the past 30 years (Cameron et al. 1979, Whiten and Cameron 1983, Cameron et al. 1986, Carruthers et al. 1987, Cameron et al. 1995, Cameron et al. 2005). Migratory patterns of the CACH are oriented principally north-south, from the summer range and calving areas on the tundra- dominated Arctic coastal plain to the winter range in the foothills and mountains of the Brooks Range (Cameron et al. 1979, Carruthers et al. 1987, Fancy et al. 1989, Cameron et al. 2002, Nicholson et al. 2016). Spring migration to the calving areas, which is led by pregnant females, occurs during April and May (Duquette and Klein 1987). After calving, males and non-pregnant females form large groups in mid-June (Cameron and Whitten 1979). Similar to the TCH, CACH often move to windy areas along the Beaufort Sea coast or to areas with persistent patches of snow to avoid harassment by flies and mosquitoes during the middle of the summer (White et al. 1979). During August, when the insect activity lessens, the caribou begin a slow and irregular movement toward the foothills of the Brooks Range. The fall migration to the wintering areas starts in September and continues through November (Cameron et al. 1986, Lenart 2015).

From 2003-2007, movements of 54 caribou from the CACH were monitored (Nicholson et al. 2016). The annual summer and winter home ranges of the CACH, using a 90% fixed kernel utilization distribution, were similar between summer (mean = 27,929 km^2) and winter (mean = 26,585 km^2). Overlap between consecutive summer ranges was 62.4% and consecutive winter ranges 42.8% (Nicholson et al. 2016). The CACH typically cross the Dalton Highway from the northwest to the southeast during the fall migration, which is away from Anaktuvuk Pass (Nicholson et al. 2016). The CACH used multiple migration routes, or a network of corridors versus a single migration route. Although the caribou migratory patterns varied each year some areas were consistently used each year. The migration paths that consistently had high caribou concentrations during spring and fall migrations each year were along the Dalton Highway between Galbraith Lake and the Ribdon River (Nicholson et al. 2016).

The State manages the CACH to provide for subsistence and other hunting opportunities on a sustained yield basis. State management objectives for the CACH are as follows (Lenart 2015):

- Maintain a population of at least 28,000-32,000 caribou
- Maintain accessibility of seasonal ranges for CACH caribou
- Maintain a harvest of at least 1,400 caribou if the population is ≥ 28,000 caribou
- Maintain a ratio of at least 40 bulls: 100 cows
- Reduce conflicts between consumptive and nonconsumptive uses of caribou along the Dalton Highway

When the CACH was recognized as a distinct herd in 1975, the population was estimated to be 5,000 caribou (Cameron and Whitten 1979). The population increased to approximately 23,000 in 1992 (Valkenburg 1993), decreased to 18,000 in 1995, and then increased rapidly from 27,000 in 2000 to 70,034 in 2010 (Lenart 2015). Low cow mortality, high parturition rates, and high calf survival and recruitment contributed to the population increase of approximately 12% per year from 1998-2008 (Lenart 2015). In 2013, the population dropped to approximately 50,000 and by 2016 the population decreased to 22,360 caribou, which is below State management objectives (Lenart 2011, 2013, 2017a, b). The recent decline from 2010 to 2016 represented a decline of approximately 17% per year. The late spring of 2013, which killed many adult and yearling females, likely contributed to the population decline from 2010 to 2013. Two major factors influencing the population decline from 2013 to 2016 were the high mortality of adult females and emigration (Lenart 2017b). From 2013-2016 54% of the collared females (n = 54 in 2013) died and 19% switched from the CACH to other caribou herds (Lenart 2017b). Previous research indicates that predation has not played a major role in calf mortality and it is not thought to be a major factor in the decline (Lenart 2017b). Disease is also not implicated as a major factor for the decline of the CACH (Lenart 2017b). The State attributes the decline between 2013 and 2016 censuses to a large proportion of older females that died of old age, the late spring of 2013, and the CACH that switched herds (Lenart 2017a).

Composition surveys are usually conducted during the fall near the peak of the rut to take advantage of the mixing of the bulls, cows, and calves. Composition counts were conducted in 2009-2012, 2014, and 2016 (Lenart 2015, 2017a). Composition surveys were not done in 2013 because the CACH was mixed with the PCH (**Table 1**) (Lenart 2015). The calf:cow ratio did not decline until after 2012 (**Table 1**). From 2009-2012 calf:cow ratios averaged 49 calves: 100 cows (**Table 1**) (Lenart 2015). The calf:cow ratio was 48 calves: 100 cows when the population dropped to 22,360 caribou in 2016 (Lenart 2017a). Calf: cow ratios for calves ≤ 4 years old, was above 70 calves: 100 cows during the period when the herd was growing between 2000 and 2010 (Lenart 2017a). From 2010-2016, when the herd was declining, the calf:cow ratio for the older calves dropped below the 70 calves:100 cows. Although the bull:cow ratio had declined to 39 bulls: 100 cows in 2016 it was still close to the State recommended objective of 40 (Lenart 2015, 2017b).

Table 1. Central Arctic caribou sex and age composition information collected during fall composition surveys, 2009-2014 (Lenart 2015)[a].

Date	Bulls:100 cows	Calves:100 cows	Percent Calves (n)	Percent Cows (n)	Percent Bulls (n)	Sample Size	Groups
13-14 Oct. 2009	50	33	18 (1,193)	55 (3,641)	27 (1,814)	6,648	19
23 Oct. 2010	50	46	23 (889)	51 (1,930)	26 (968)	3,787	12
13 Oct. 2011	69	56	25 (1303)	44 (2,306)	31 (1,590)	5,199	22
14 Oct. 2012	56	61	23 (1,132)	55 (1,845)	22 (1,039)	4,016	15
13-14 Oct. 2014[b]	41	42	23 (462)	55 (1,097)	22 (445)	2,004	18
2016	39	48					

[a] 2016 data is incomplete (Lenart 2017b)

[b] Data may not be comparable with previous years due to small sample size.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska (NPR–A). Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (Person et al. 2007, Wilson et al. 2012). From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik to the Colville Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas as well (Yokel et al. 2009). River corridors are also used more during periods of insect harassment. Fall and winter movements are more variable, although most of the TCH winters on the coastal plain around Atqasuk, south of Teshekpuk Lake. However, the TCH has wintered as far south as the Seward Peninsula, as far east as the Arctic NWR, and in the foothills and mountains of the Brooks Range (Carroll 2007). In 2008/2009, the TCH used many of these widely disparate areas in a single year (Parrett 2011, 2015a). From 2007-2011, the TCH wintered in four relatively distinct areas: the coastal plain between Atqasuk and Wainwright; the coastal plain west of Nuiqsut; the central Brooks Range; and the shared winter ranges with the WACH in the Noatak, Kobuk, and Selawik drainages. During the winters of 2012-2013 and 2013-2014, the TCH wintered primarily near Atqasuk and Wainwright and east of Anaktuvuk Pass (Parrett 2015a)

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2011). Specific State management objectives for the TCH are as follows (Parrett 2011):

- Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.
- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

Since 1984, the minimum population of the TCH has been estimated from aerial photo censuses and radio-telemetry data. Population estimates are determined by methods described by Rivest et al. (1998) which account for caribou in groups that do not have a collared animal and for missing collars. Based on these methods the TCH population increased from an estimated 18,292 caribou (minimum estimate 11,822) in 1982 to 68,932 caribou (minimum estimate 64,106) in 2008. From 2008 to 2014 the population declined by almost half to 39,000 caribou (**Figure 1**) (Parrett 2015a). Interpretation of population estimates is difficult due to movements and range overlap among caribou herds which results in both temporary and permanent immigration (Person et al. 2007). For example, following the 2013 census ADF&G made the decision to manage the TCH based on the minimum count because the bulk of the animals that were estimated rather than counted were with the WACH at the time of the photo census (Parrett 2015b, pers. comm.). In 2015, the minimum count was 35,181 with a population estimate of 41,542 (SE = 3,486) (Parrett 2017a, pers. comm.).

In 2013 and 2016 the number of bulls:100 cows was39 bulls:100 cows and 28 bulls:100 cows in 2016, respectively (**Figure 2**) (Parrett 2011, 2013, 2015a, Parrett 2017a, pers. comm.). Comparison of bull:cow and calf:cow ratios from 1991-2000 and later years is not possible due to dramatic changes in methodology. From 2009-2013 the calf:cow ratio increased from 18 calves:100 cows to 48 calves: 100 cows in 2016 (Parrett 2013, 2015a, Parrett 2017a, pers. comm.). In addition, the number of short–yearlings:adults based on spring composition surveys, which is a measure of recruitment, declined from an average of 20 short–yearlings:100 adults between 1999 and 2008 to an average of 14 short–yearlings :100 adults from 2009-2014 (**Figure 3**) (Parrett 2013) and increased in 2016 to 29 short-yearlings: 100 adults (Parrett 2017a, pers. comm.).

The annual mortality of adult radio collared females from the TCH has remained close to the long term (1991-2012) average of 14.5% (range 8–25%) (Parrett 2011, Caribou Trails 2014, Parrett 2015a). As the TCH has declined, calf weights declined indicating that poor nutrition may be having a significant effect on this herd (Carroll 2015, pers. comm., Parrett 2015b, pers. comm.). In 2016 increased calf weights,

high adult female survival (92%), high yearling recruitment (29 yearlings / 100 adults), and high calf production (81%), and a high calf:cow ratio (48 calves:100 cows) suggest that the population may be stable or declining at a slower rate (Parrett 2017a, pers. comm.) In contrast, the body condition of individuals from the WACH, which also declined dramatically, has remained relatively good, indicating that caribou are still finding enough food within their range (Caribou Trails 2014, Dau 2014). A recent study found that calf production was low, calf survival on calving grounds was high, 40% of the concentrated wintering range was on NPS land, and that starvation was a significant mortality factor on non-NPS lands (Parrett 2017a, pers. comm.). The late spring in 2013 likely contributed to the decline in winter survival in 2014.

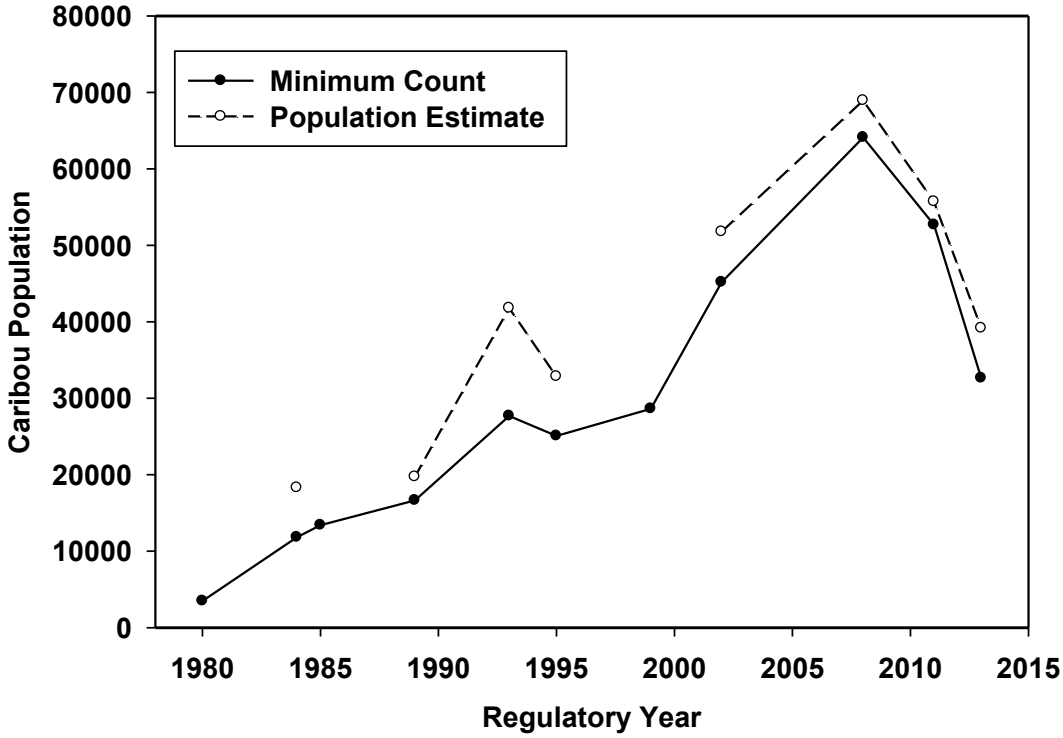


Figure 1. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2014. Population estimates from 1984-2013 are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, Parrett 2015a).

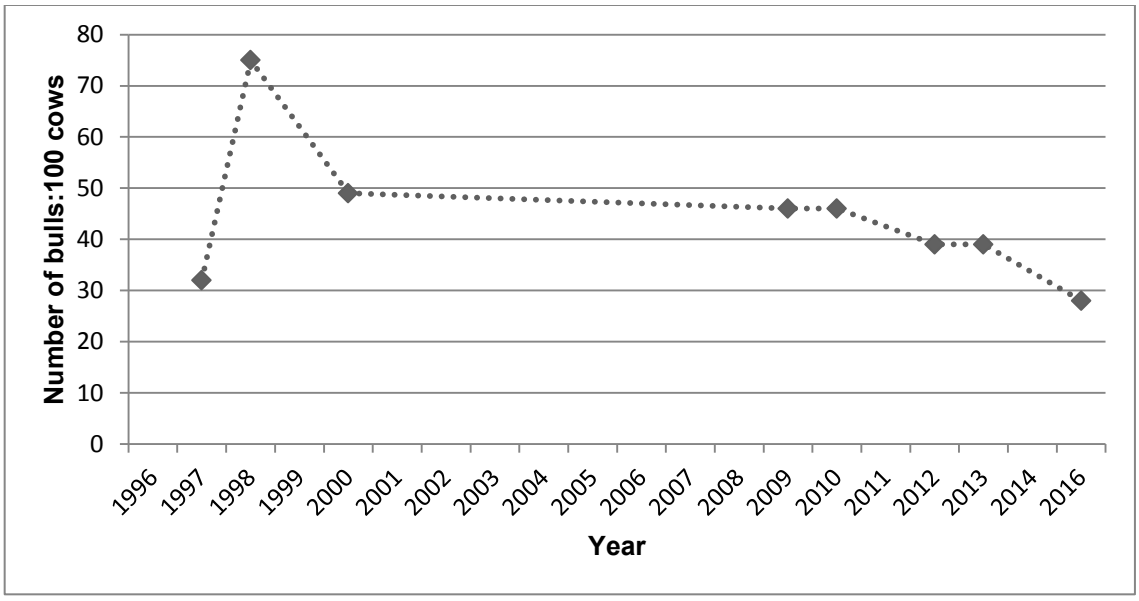


Figure 2. Bull:cow ratios of the Teshekpuk Caribou Herd (Parrett 2013).

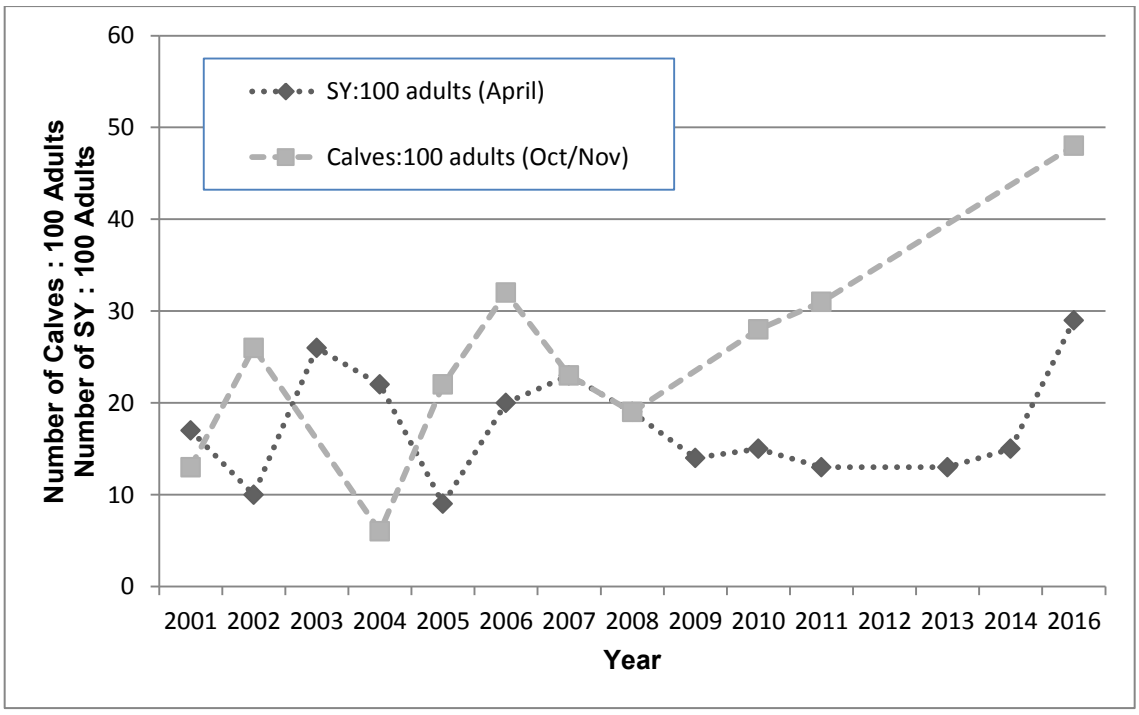
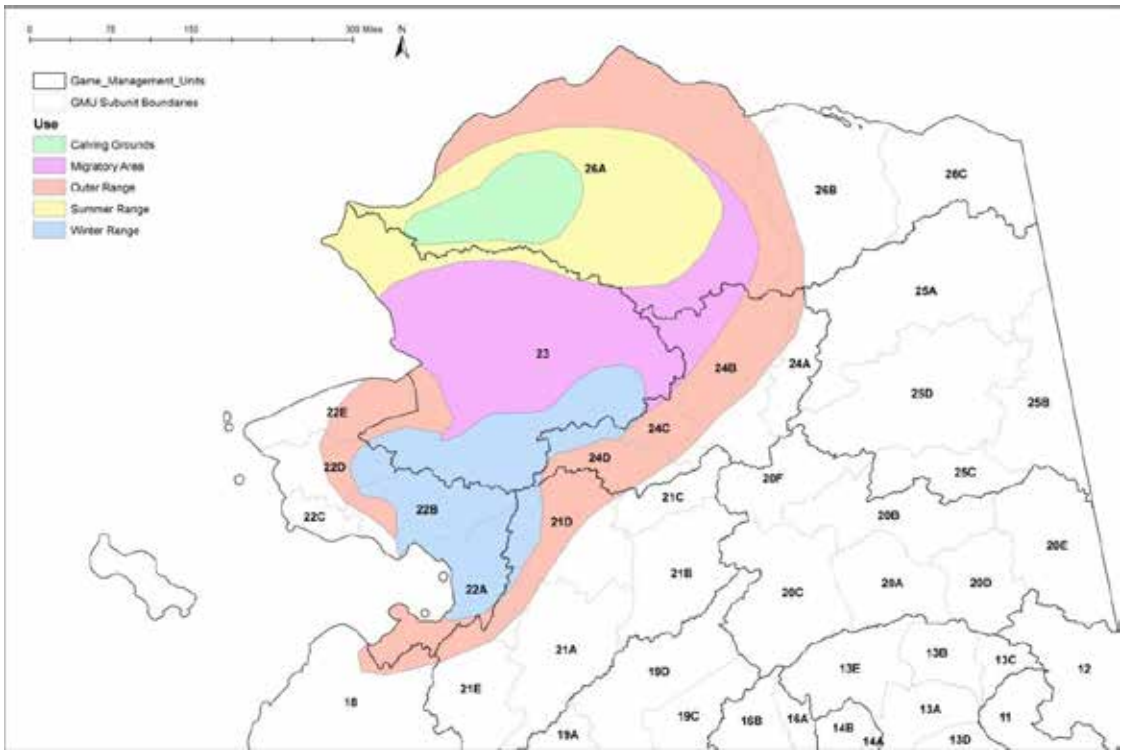


Figure 3. Calf:adult and short yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015a). Short yearlings are 10-11 months old caribou.

Western Arctic Caribou Herd

The WACH, the largest herd in Alaska, has a home range of approximately 157,000 mi^2 in northwestern Alaska (**Map 2**). In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (Dau 2011, WACH Working Group 2011). Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements and were assumed to be calving). After calving, cows and calves move west toward the Lisburne Hills where they mix with the remaining bulls and non-maternal cows. During the summer the herd moves rapidly to the Brooks Range.

In the fall the herd moves south toward their wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). The proportion of caribou using certain migration paths varies each year (Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).



Map 2. Calving grounds, wintering range, summering range, migratory areas, and home range extent of the Western Arctic Caribou Herd (WACH Working Group 2011)

In part, due to the collapse of the WACH in the 1970s, the WACH Working Group was formed. In 2003 it developed a WACH Cooperative Management Plan, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, scientific and traditional ecological knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Revisions to recommended harvest levels under liberal and conservative management (2,850 caribou +/- 100) were made in December 2015 (WACH Working Group 2015, **Table 2**). Potential management actions and harvest recommendations for each management level can be found in Appendix 2 of the Western Arctic Caribou herd Cooperative Management Plan (WACH Working Group 2011).

The State manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are listed in the 2011 Western Arctic Caribou Cooperative Management Plan (WACH Working Group 2011, Dau 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH declined at an average annual rate of 7.1% from approximately 490,000 in 2003 to 235,000 in 2013 (Dau 2011, 2013, 2014, 2015a, Caribou Trails 2014) (**Figure 4**).

Between 1982 and 2011, the WACH was within the liberal management level prescribed by the WACH Working Group (**Table2**). In 2013, the WACH population estimate fell below the threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photo census of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photo census of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the

WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 4, Table 2**)(Parrett 2016a). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline (Parrett 2016a). The data from the 2017 photo census is currently being analyzed by ADF&G (Parrett 2017b, pers. comm.).

Table 2. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Table 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratio has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

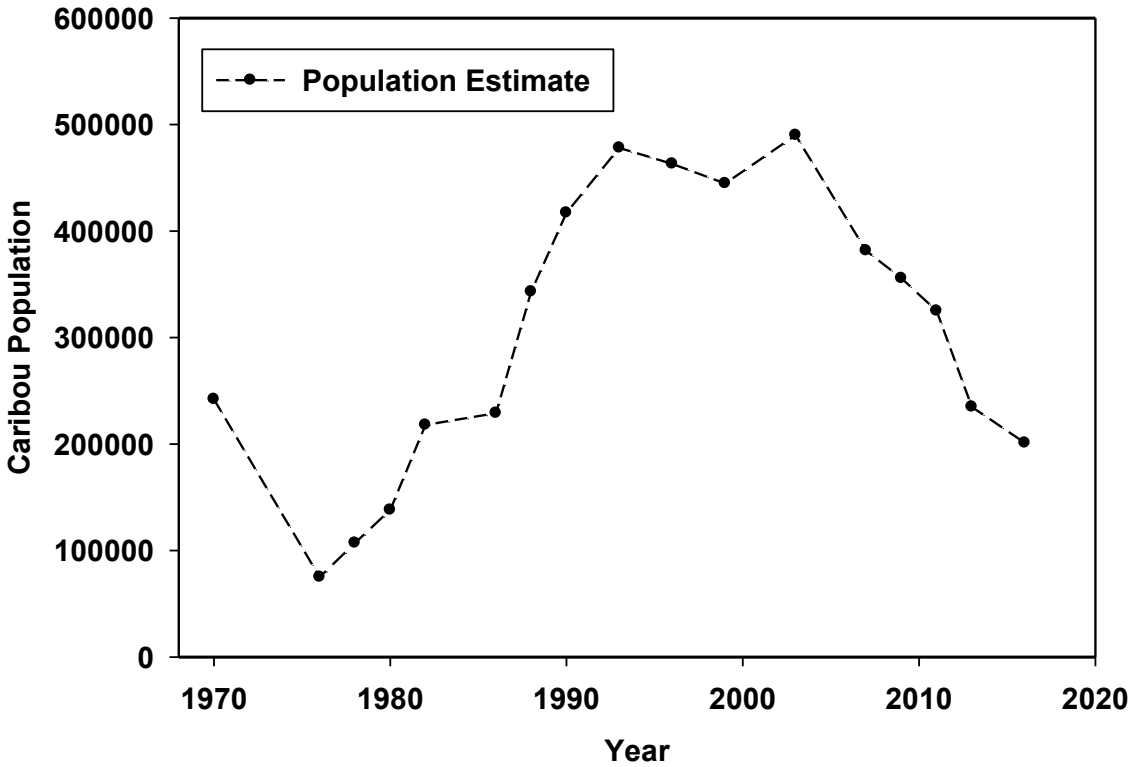


Figure 4. Maximum estimated population estimates of the Western Arctic Caribou Herd from 1970-2016. Population estimates from 1986-2016 are based on aerial photographs of groups of caribou that contained radio–collared animals (Dau 2011, 2013, 2014, 2015a, Parrett 2017a, pers. comm.).

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Table 3, Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015c).

Table 3. Western Arctic Caribou Herd fall composition 1976 – 2014 (Dau 2011, 2013, 2014, 2015a, 2016b).

Regulatory Year	Total bulls: 100 cows[a]	Calves: 100 cows	Calves: 100 adults	Bulls	Cows	Calves	Total
1976/1977	63	52	32	273	431	222	926
1980/1981	53	53	34	715	1,354	711	2,780
1982/1983	58	59	37	1,896	3,285	1,923	7,104
1992/1993	64	52	32	1,600	2,498	1,299	5,397
1995/1996	58	52	33	1,176	2,029	1,057	4,262
1996/1997	51	49	33	2,621	5,119	2,525	10,265
1997/1998	49	43	29	2,588	5,229	2,255	10,072
1998/1999	54	45	29	2,298	4,231	1,909	8,438
1999/2000	49	47	31	2,059	4,191	1,960	8,210
2001/2002	38	37	27	1,117	2,943	1,095	5,155
2004/2005	48	35	24	2,916	6,087	2,154	11,157
2006/2007	42	40	28	1,900	4,501	1,811	8,212
2008/2009	45	48	33	2,981	6,618	3,156	12,755
2010/2011	49	35	23	2,419	4,973	1,735	9,127
2012/2013	42	38	27	2,119	5,082	1,919	9,120
2014/2015	39	[b]	[b]	[b]	[b]	[b]	[b]
2015/2016	41[c]	54	[b]	[b]	[b]	[b]	[b]

[a] 40 bulls:100 cows is the minimum level recommended in the WACH Cooperative Management Plan (WACH Working Group 2011)

[b] Data not available

[c] Estimated from power point presentation presented at the WACH Working Group Meeting December 13, 2016 (Parrett 2016b)

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-June 2016) was 84% (Parrett 2016b). While 2016 measures suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a).

Increased cow mortality is likely affecting the trajectory of the herd (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased, from an average of 15% between 1987 and 2003, to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2009, 2013) reported that rain–on–snow events, deep snow and winter thaws may have contributed to the relatively high estimated mortality rates of 23% during 2008-2009, 27% during 2009-2010 and 33% in 2011-2012. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012. The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

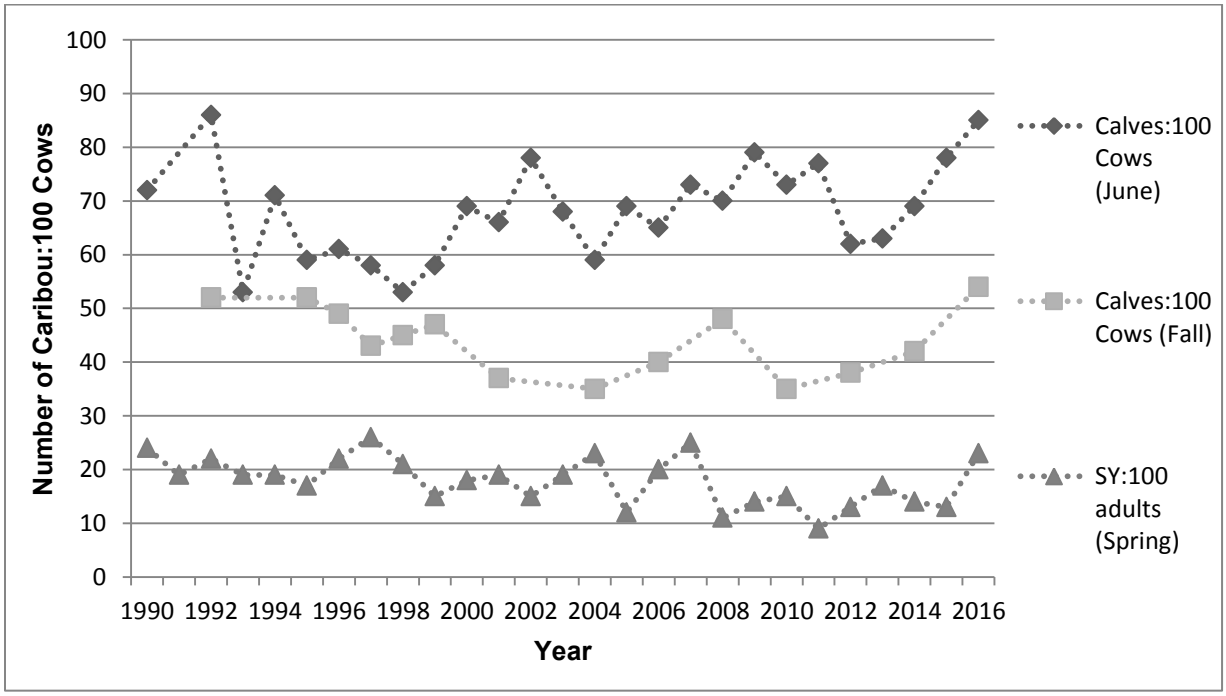


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

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

Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Gunn 2001, Dau 2013, 2014, 2015a). Changing climatic conditions can affect snow depth, icing, forage quality and growth, frequency, location, and intensity of wildfires, insect abundance, and predation which can affect migration and have long-term population level effects (Joly et al. 2011). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the WACH because animals in the WACH, unlike the TCH, have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The body condition of adult females in 2015 were characterized as "fat" (mean = 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015c). However, the body condition of the WACH in spring may be a better indicator of the effects of winter range condition versus the fall when the body condition of the WACH is routinely assessed and when caribou are in prime condition, and weights may be more reflective of summer range conditions (Joly 2015, pers. comm.). Fall condition is also the best indicator of whether or not caribou are likely to become pregnant (Parrett 2017a, pers. comm.).

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter but, during summer they feed on leaves, grasses and sedges (Miller 2003). The importance of high use areas for the TCH at Teshekpuk Lake during the summer has been well documented (Person et al. 2007, Carroll 2007, Parrett 2011, Wilson 2012, Smith et al. 2015). Presumably the importance of areas to the north, south, and east of Teshekpuk Lake during calving is due to the high concentration of sedge-grass meadows (Wilson et al. 2012) and extremely low predator densities (Parrett 2017a, pers. comm.). In 2013 BLM closed 3.1 million acres around Teshekpuk Lake in the NPR–A to oil and gas development in recognition of the importance of these areas for caribou, waterfowl and shorebirds (BLM 1998, 2008, 2013; Cameron et al. 2005, Arthur and Del Vecchio 2009).

Harvest History

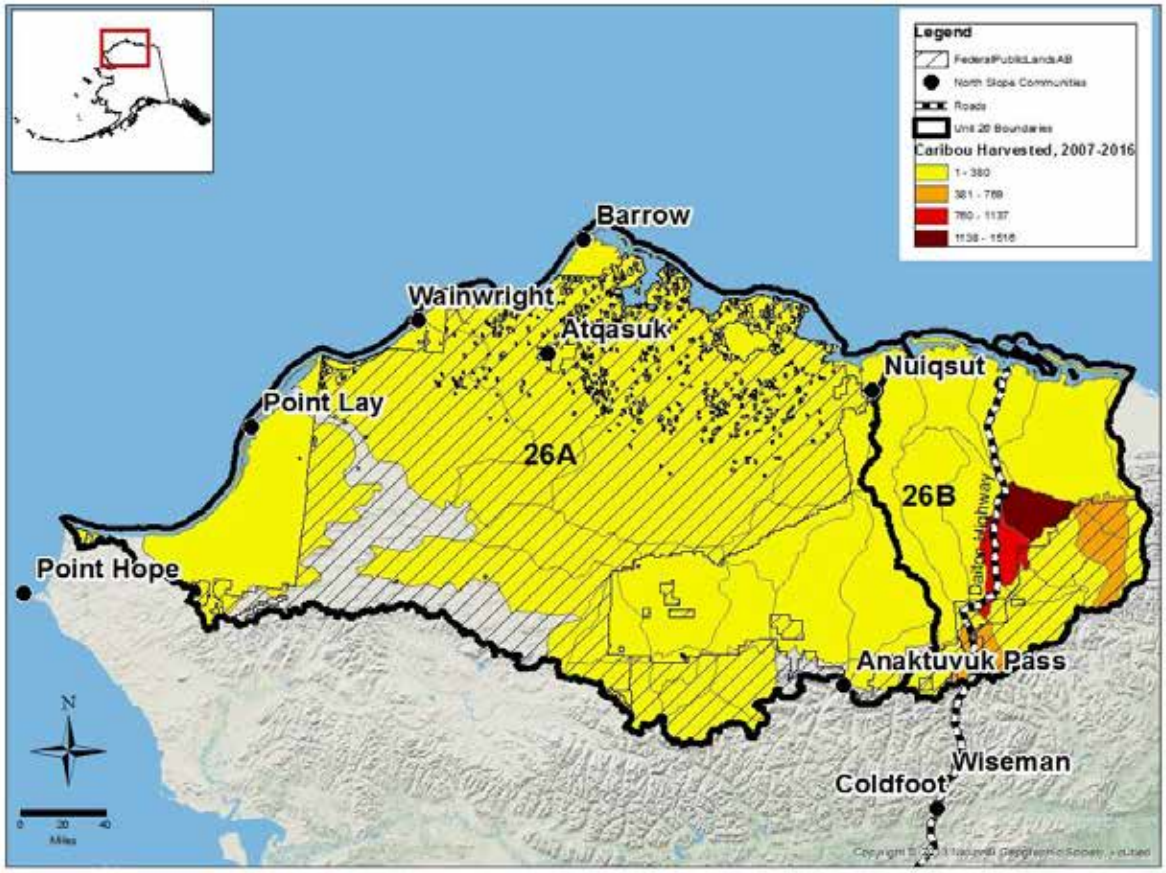
Reliance on caribou from a particular herd varies by community. Weather, distance of caribou from the community, terrain, and high fuel costs are some of the factors that can affect the availability and accessibility of caribou (Parrett 2015a). Local residents for Units 23, 26A and 26B are defined as those having customary and traditional use in these units. Point Hope, which is located in Unit 23, and Anaktuvuk Pass, which is located in Unit 24B near the border with Unit 26A, are included in this analysis because they have a Customary and Traditional Use for caribou in Units 26A and 26B. Documentation of harvest for Alaska residents has varied depending on whether they live north or south of the Yukon River. Prior to 2017/2018, Alaska residents who lived north of the Yukon River were not required to obtain harvest tickets although they were required to register with ADF&G or an authorized vendor. Compliance with registration requirement was low and not enforced (Braem 2017a, pers. comm.). Harvest by Alaska residents who live south of the Yukon River and nonresidents was monitored using harvest reports (Lenart 2015, Dau 2015a).

Understanding the overlap between caribou hunting by local users and nonlocal users is complicated by the lack of annual information on the exact location, harvest numbers, and caribou herd used by local hunters. Recently-enacted State regulations requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 seek to improve harvest monitoring and allow for more detailed analysis of harvest trends and distribution.

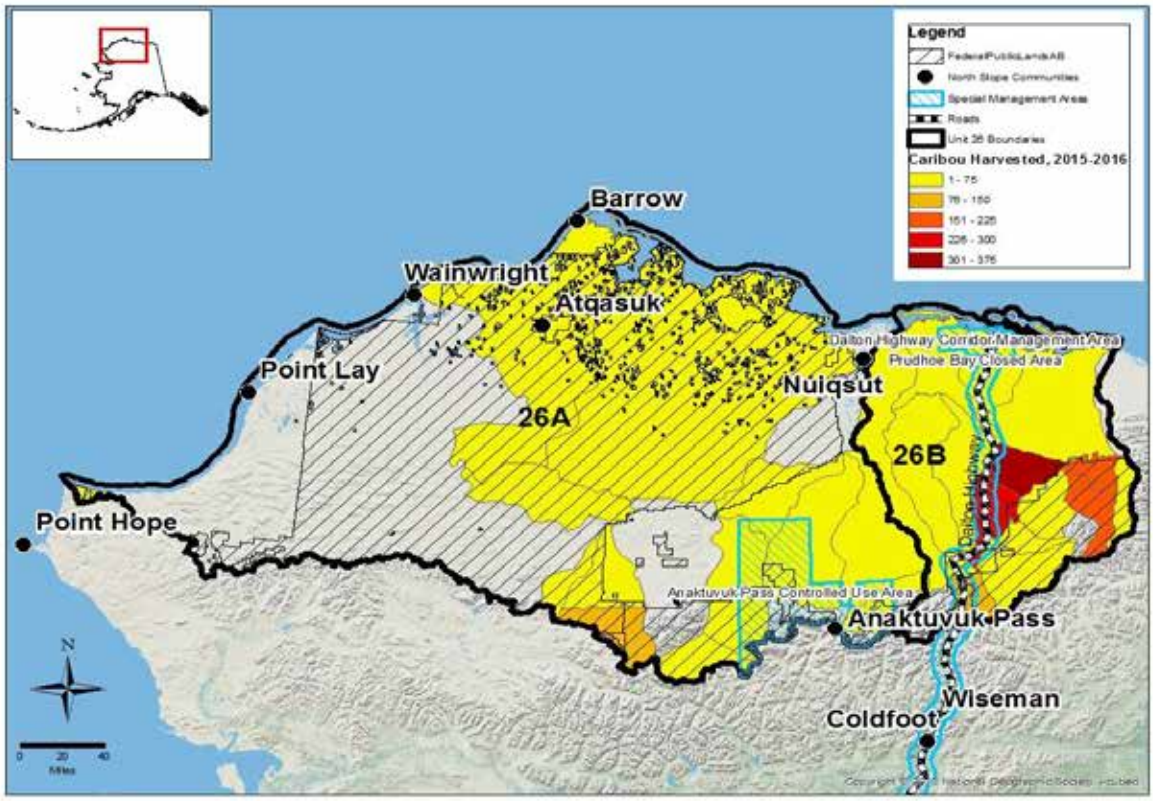
Generalized caribou harvest patterns by NFQU in Units 26A and 26B, which are based on specific areas within the Units (Uniform Coding Unit –UCU) includes nonresidents and nonlocal residents of Alaska from 2007-2016, are shown in **Map 3**. It should be noted that the displayed spatial data is reflective of reported harvest records with locational data at fine scales; records lacking spatial specificity are not represented. Assuming unreported data is proportional to available data, **Maps 3-6 and 8-10** represent general spatial harvest patterns. Between 2007 and 2016, a total of 9,429 caribou were harvested by NFQU in Units 26A and 26B. Among those, 6,405 (66%) were from nonlocal Alaska residents and 3,024 (34.0%) from nonresidents (ADF&G 2017a). All the hunting in the Unit that extends from the Arctic Coast south along the western boundary of Unit 26B occurs in the Toolik Lake area which is very near the Dalton Highway at the southern end of the UCU. Hunter success was greater in the DHCMA north of the area where the Echooka River crosses the road, on State land adjacent to the Ivishak and Echooka Rivers, and in an area farther east in the Arctic NWR which is typically accessed by airboats using the Ivishak and Echooka Rivers (WIRAC 2016:100-101).

Harvest patterns by NFQU from 2015-2016, the period when the more restrictive Federal and State caribou regulations were in place, are shown in **Map 4**. Between 2015 and 2016, a total of 2,392 caribou were harvested by NFQU in Units 26A and 26B. Among those, 1,265 (53%) were from nonlocal Alaska residents and 1,126 (47.0%) from nonresidents (ADF&G 2017a). The core areas used during the 10 year assessment were essentially the same following the new more restrictive caribou regulations. In 2015-2016, NFQU harvested fewer caribou in the northwest corner of the Arctic NWR and harvested more caribou in the State areas adjacent to the Arctic NWR and southern portion of the DHCMA than in 2013-2014. Between 2013 and 2014, a total of 1,976 caribou were harvested by NFQU in Units 26A and 26B. Among those, 1,152 (58%) were from nonlocal Alaska residents and 824 (42%) and from nonresidents

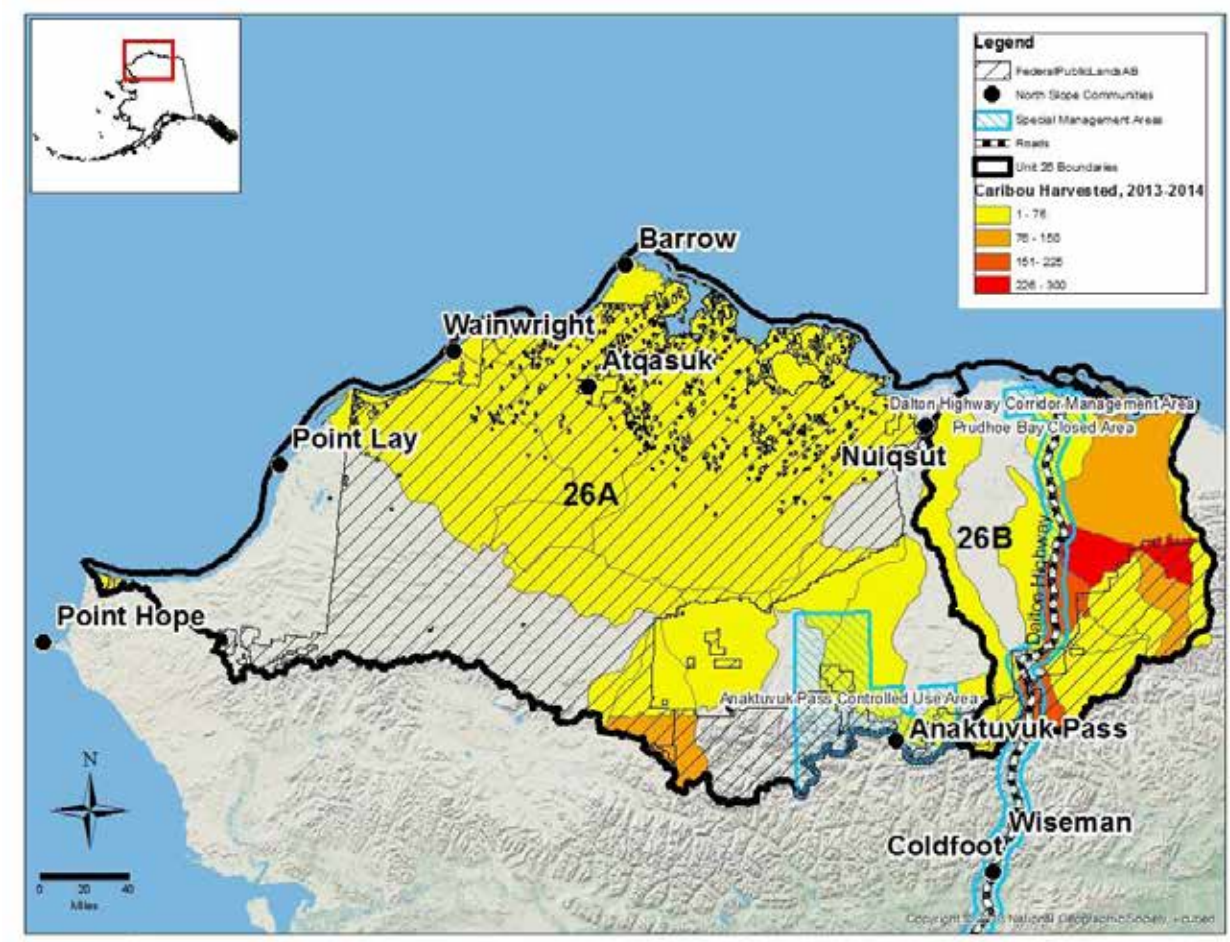
(ADF&G 2017a). Comparison of the two year period from 2013-2014 (**Map 5**) with 2015-2016 (**Map 4**) shows an increase in 2015-2016 of the harvest within the vicinity of Anaktuvuk Pass in Unit 26A. These changes in harvest patterns may be due in part to hunters shifting hunting areas and intensity to areas within Unit 26A and 26B in response to changes in the movement of the caribou herds as a result of the closure of Federal public lands to caribou hunting by NFQU in Unit 23 in 2016/2017.



Map 3. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU, 2007-2016 (WinfoNet 2017).



Map 4. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2015-2016 (WinfoNet 2017).



Map 5. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2013-2014 (WinfoNet 2017).

Central Arctic Caribou Herd

Although most of the harvest from the CACH comes from Unit 26B some occurs in Units 24A, 24B, 25A, 26A, and 26C. Harvests in summer and early fall that occur in Units 24A, 24B, 25A, and 26C are be primarily from other herds such as the PCH, TCH, or WACH. Additional harvest from the CACH may occur when it is near Kaktovik (Unit 26C) in the summer, near Wiseman and Coldfoot (Unit 24A) in the fall and winter, and near Arctic Village (Unit 25A) in the fall and winter (**Figure 6**). During the fall and winter some caribou from the TCH and WACH occasionally mix with the CACH. For the purposes of documenting the annual harvest from the CACH from community harvest surveys by local residents outside of Unit 26B, Lenart (2017a) used an estimate of 100 caribou (Lenart 2017b) (**Table 4**). Harvest information presented for the CACH will refer to Unit 26B unless noted otherwise.

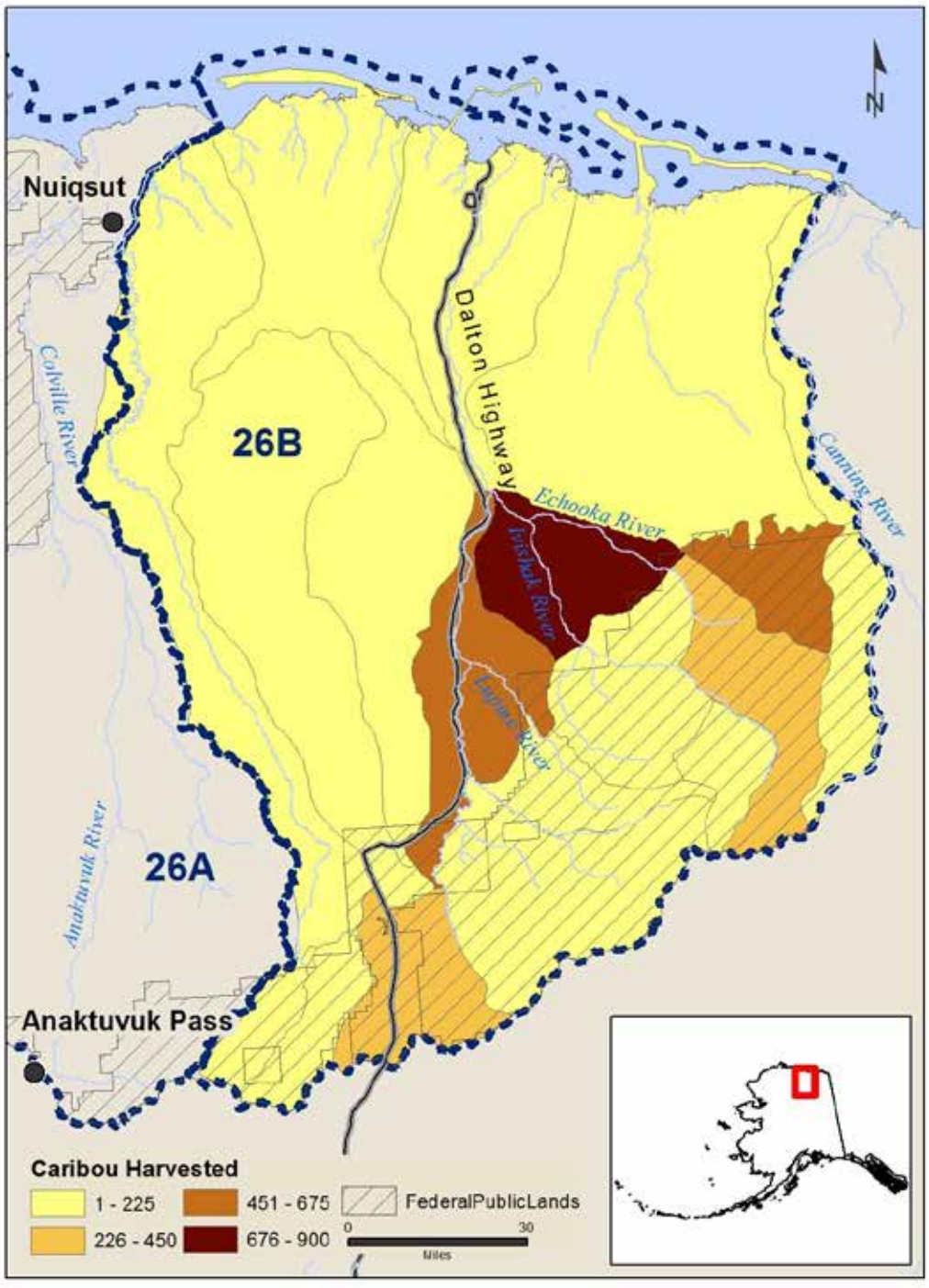
Harvest by local hunters from Nuiqsut occurs in the summer and fall, from July through September, and during the spring, from March through April (Braem et al. 2011, Brown et al. 2016). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the

TCH and CACH (Lenart 2015). Nuiqsut hunters, who usually hunt west of the community, represent most of the local harvest from the CACH. Based on the distribution of caribou and the timing and location, Braem et al. (2011) estimated that 13% of the total harvest between 2002 and 2007 by Nuiqsut residents was in Unit 26B, just west across the border with Unit 26A where the community is located. Braem et al. (2011) estimated that Nuiqsut hunters averaged approximately 61 caribou from the CACH annually from 2002 and 2007. The average total annual caribou harvest by Nuiqsut hunters, which includes TCH and CACH, from 2000-2006 was 474 caribou. In 2014, 774 caribou were estimated to have been harvested by Nuiqsut residents (Braem 2015). Harvest by local hunters as documented by community surveys, Nuiqsut residents harvested approximately 317 caribou (41%) from the CACH in 2014 (Braem 2017b). In 2014, Nuiqsut residents harvested caribou in all months except May. The most productive months were June (114), July (189), and August (215). Harvest declined sharply after August, only 73 caribou were harvested in September. The fewest caribou were taken in April (2) and November (4). There were 43 caribou harvested for which the date of harvest was not known. Of the caribou harvested in 2014, 72% were bulls. An estimated 166 cows were harvested in 2014 with 45% being harvested in January and February (Brown et al. 2016).

The average annual CACH harvest from 2013/14 to 2015/16 in Unit 26B was approximately 937 caribou. (**Table 4**) (Lenart 2017a, WinfoNet 2017). Bow hunters took approximately 21% of the total harvest during this time. The average number of bulls harvested annually from the CACH from 2012-2015 was 699 and the average number of cows harvested was 234 (**Table 4**). A majority of the reported caribou harvest from the CACH occurs in August and September (Lenart 2015).

The proportion of resident and nonresident harvest has fluctuated with CACH population trends (**Figure 6, Table 5**). In general resident harvest has decreased with the recent population decline and the nonresident harvest has increased slightly (**Figure 6, Table 5).** Nonlocal residents accounted for 89% of the total caribou harvest from 2013-2015, which is approximately 827 caribou annually (Lenart 2017a). The location and total caribou harvest by NFQU hunters from the CACH during the population decline from 2011-2016 is shown in **Map 6**. Between 2011 and 2016, a total of 5,049 caribou were harvested by NFQU in Unit 26B. Among those, 3,433 (68%) were from nonlocal Alaska residents and 1,616 (32%) and from nonresidents (WinfoNet 2017). The annual cow harvest by NFQU in Unit 26B increased from 47 in 2006-2009 to 234 in 2010-2016 (**Figure 7**). This increase coincided with the change in the harvest limits from two to five caribou and harvest season for cows from Oct.1-Apr. 30 to July 1-Apr. 30 in the 2010 State regulations.

Although a harvest rate of 5% of the population has been used as a guideline by ADF&G since 1991 to determine the allowable harvest, the reported harvest has been well below the harvestable surplus, averaging less than 2% since 2000/01 (Lenart 2015). However, with the recent population decline, Lenart (2017a) recommended a harvest level of 3% of the population. ADF&G adopted new caribou regulations for Unit 26B in 2017/2018 with the intended goal of reducing the annual harvest from an average of 937 caribou from 2013-2015 to 680 (3% of 22,360) and reduce the cow harvest from approximately 200 to 75 (Lenart 2017a).



Map 6. _Reported caribou harvest in Unit 26B from the CACH by NFQU during the population decline 2011-2016 (WinfoNet 2017).

Table 4. Reported harvest from the Central Arctic Caribou Herd by sex and method of take in Alaska, 2006-2015 (Braem et al. 2011, Braem 2015; Lenart 2013, 2015, 2017a; ADF&G 2017b).

[a] Estimated yearly average from Unit 26A residents from community harvest surveys, Kaktovik and

Regulatory Year[a]	Male	Female	Unit 26A Residents[a]	Total Harvest (# harvested by bow)[b]	Total Hunters
2006/07	795	32	100	927 (301)	1,331
2007/08	596	65	100	761 (183)	1.380
2008/09	658	47	100	805 (180)	1,362
2009/10	750	45	100	895 (224)	1,317
2010/11	976	234	100	1,310 (296)	1,622
2011/12	808	344	100	1,252 (330)	1,401
2012/13	727	276	100	1,103 (285)	1,430
2013/14	721	134	100	955 (190)	1,423
2014/15	717	195	100	1,012 (198)	na[c]
2015/16	522	222	100	844 (92)	na[c]
Mean	699	234	100	1,033 (219)	–

Nuiqsut

[b] Total includes bow harvest and harvest from Unit 26A residents

[c] Not available

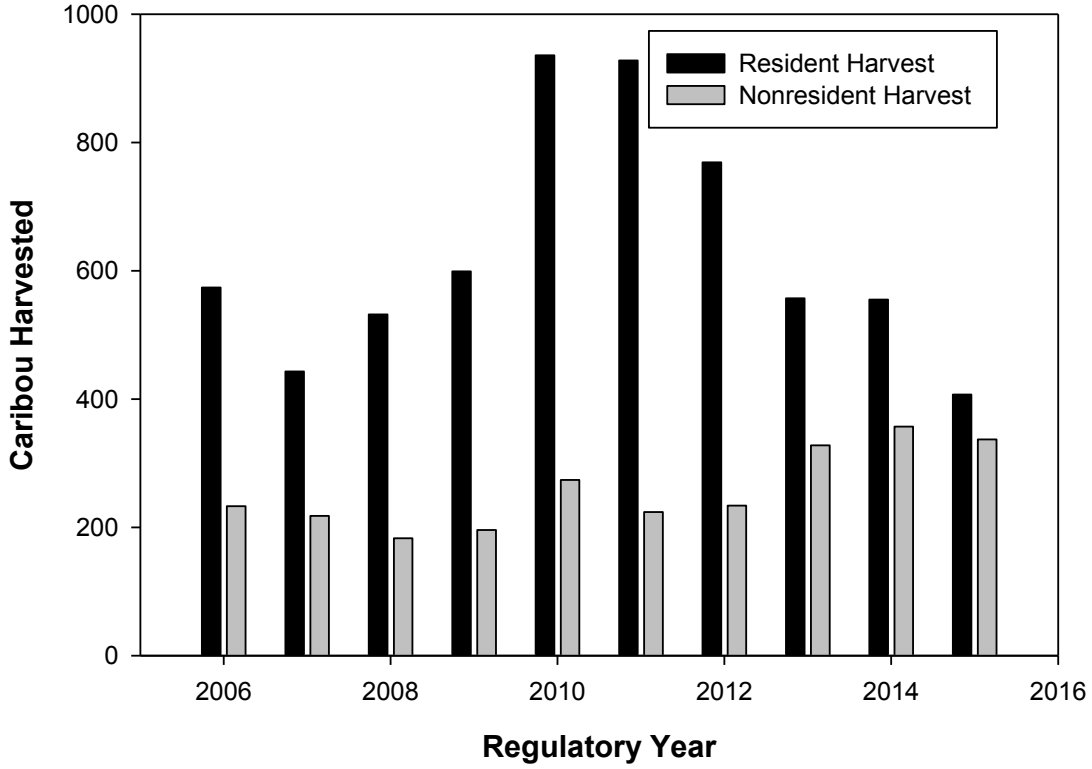


Figure 6. Reported CACH harvest by residency, 2006-2015.

Table 5. Characteristics of the Central Arctic Caribou Herd average annual harvest in Unit 26B by residency, 2013-2015. The proportion of the total Unit 26B caribou harvest by residency for 2006-2015 is included for comparison (Lenart 2017a).

Residency	Total CACH Harvest	Female CACH Harvest	Proportion of the Harvest (%) 2013-2015	Proportion of the Harvest (%) 2006-2015	Hunters	Success Rate (%)
Unit 26A Residents	100	20	11%	10%	na	na
Other Alaskan Residents	490	158	53%	64%	910	38%
Nonresident	340	24	36%	26%	430	62%
Total	930	202	-	-	-	-

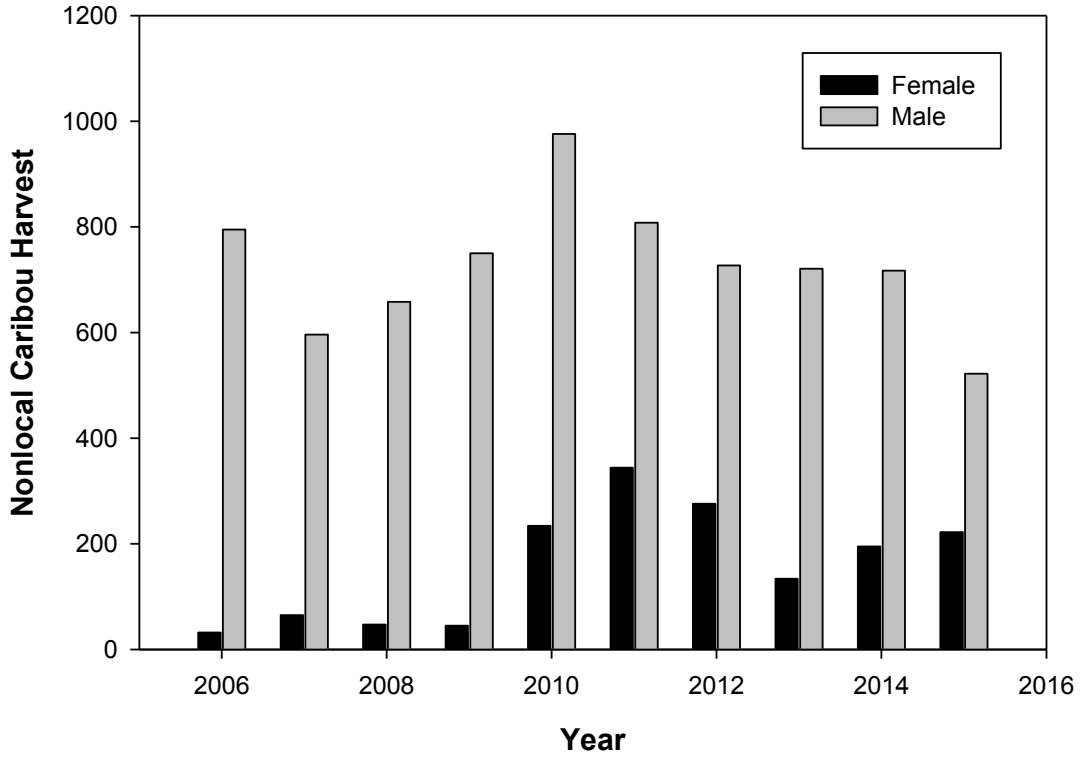
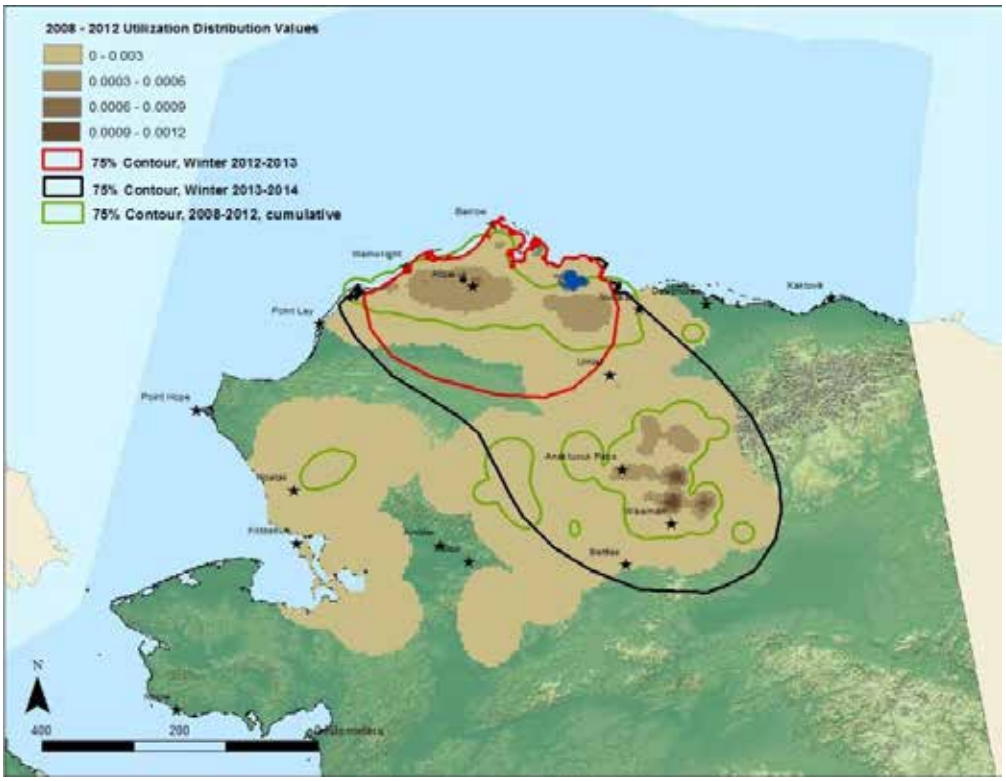


Figure 7. Central Arctic caribou herd harvest by sex by Nonlocals in Unit 26B, 2006-2016

Teshekpuk Caribou Herd

The TCH annual caribou harvest is 4,000-5,000 year (Parrett 2015a). Most of the harvest is by local Federally qualified subsistence users (FQSU). Less than 1% of the TCH harvest is by nonlocal residents in Alaska and nonresidents (Parrett 2011, Parrett 2015a). Residents of Atqasuk, Utqiagvik, Nuiqsut, and Wainwright harvest caribou primarily from the TCH while residents from Anaktuvuk Pass, Point Lay, and Point Hope harvest caribou primarily from the WACH (**Table 6**) (Dau 2011, Parrett 2011). For example the TCH winter range did not overlap Anaktuvuk Pass in 2012/2013 but did in 2013/2014 (**Map 7**). Residents of Nuiqsut, which is on the northeast corner of Unit 26A, harvested approximately 77% and 86% of their caribou from the TCH between 2002 and 2007 and 2010 and 2011, respectively (Parrett 2013). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the TCH and CACH (Lenart 2015). Although some harvest from the TCH occurs outside of Unit 26A in Units 23, 24, and 26B, it is unlikely that the overall harvest is significant when the TCH is mixed with other caribou herds (Parrett 2013, 2015a).



Map 7. Cumulative Teshekpuk caribou herd winter range, Alaska, 2008-2012, with utilization distribution values depicted in shades of brown, 75% kernel contour from the 2008-2012 in green. The 75% contours from the two individual winters from 2012-2014 are depicted by the red and black outlines (Parrett 2015a).

Range overlap between the three caribou herds, frequent changes in the wintering distribution of the TCH and WACH, and annual variation in the community harvest survey effort and location make it difficult to determine the proportion of the TCH, WACH and CACH in the harvest. Knowledge of caribou distribution at the time of the reported harvest is often used to estimate the proportion of the harvest from each herd. Community harvest surveys continue to be the preferred method to estimate harvest by FQSU, since previous attempts to conduct registration hunts were not effective (Georgette 1994, Parrett 2015a).

The use of harvest tickets required by nonlocal hunters provides time and location of the harvest and, together with knowledge of the caribou distribution and allows for a more accurate assessment of the proportion of caribou harvested from each herd. For harvests by FQSU, analysis of the proportional harvest from different herds has been difficult due to poor or non-existent reporting, variation in the timing and effort of community harvest surveys, changes in the distribution and timing of TCH migration, and overlapping distribution with adjacent herds. However, previous efforts from 2002-2007 determined that Utqiagvik residents harvest primarily from the TCH (Parrett 2013, Braem 2017b). If used throughout the range harvest tickets would allow for better tracking of the FQSU harvests with respect to the overlapping caribou herds.

For communities where harvest surveys have not been conducted or the estimates are unreliable, the Division of Wildlife Conservation estimated annual harvests based on the current community population, previous per capita harvest estimates,and yearly caribou availability. A general overview of the relative utilization of caribou herds by community from 2008/09 to 2009/10 is presented in **Table 6** (Parrett 2011, Dau 2011, and Lenart 2011). These years were chosen because there was good separation between the herds during this period. The total estimated annual harvest from the TCH during 2008/09 (3,219 caribou) (Parrett 2011) was similar to 2012/13 and 2013/14 (3387 caribou) (Parrett 2015a) **(Table 6**). Most of the caribou harvest in 2012/2013 and 2013/2014 occurred in August and September (Parrett 2015a). The estimated annual harvest during 2012/13 and 2013/14 using this method was approximately 3,387 (Parrett 2015a).

Table 6. Estimated caribou harvest of the Teshekpuk, Western Arctic and Central Arctic caribou herds during the 2008/2009 regulatory years by FQSU in Unit 26A (Parrett 2011, Dau 2011, Lenart 2011, Sutherland 2005). Note: Due to the mixing of the herds, annual variation in the community harvest surveys and missing data, the percentages for each community do not add up to 100%.

Community	Human population[a]	Per capita caribou harvest[bc]	Approximate total community harvest	Estimated annual TCH harvest (%)[d]	Estimated annual WACH harvest (%)[d]	Estimated annual CACH harvest (%)[d]
Anaktuvuk Pass	298	1.8	524	157 (30)	431 (82)	
Atqasuk	218	0.9	201	197 (98)	6 (2)	
Barrow (Utqiagvik)	4,127	0.5	2,063	2,002 (97)	62 (3)	
Nuiqsut	396	1.1	451	388 (86)	3 (1)	58 (13)
Point Lay	226	1.3	292	58 (20)	210 (40)	
Point Hope	689	0.3	220	0	220 (100)	
Wainwright	547	1.3	695	417 (60)	48 (15)	
Total Harvest				3,219	980	58

[a] Community population size based on 2007 census estimates
[b] Citations associated with per-capita caribou harvest assessment by community can be found in **Table 5** (Parrett 2011).
[c] Sutherland (2005)
[d] Percent of the total community harvest

The harvest estimate for Utqiagvik, from household surveys conducted by ADF&G in 2014/15 was 4,231 caribou (Braem 2015). Based on data collected by the North Slope Borough Wildlife Department the average annual harvest estimate for Utqiagvik from 1992-2003 was 2096 caribou (Braem 2015). Currently the harvestable surplus for the TCH is estimated to be approximately 2,500 at a 6% harvest rate. A conservative estimated harvest rate for the period between 2012/13 to 2013/14 is approximately 10% of the 2013 (3,917 caribou) population estimate of 39,172 (range 32,000-45,000) (Parrett 2015a). However, due to the mixing of TCH with the WACH and CACH, lack of annual harvest data for FQSU and lack of spatial data it is difficult to determine the actual TCH harvest. The conservative TCH harvest rate of

10% is almost double the harvest rate estimates for the WACH and CACH (Parrett 2015a) and a conservation concern. If the TCH population declines to below 35,000 the harvest rate may be reduced to 4-5%, assuming that the harvest composition remains consistent at approximately 15% bulls and 2% cows (Parrett 2017a, pers. comm.).

Due to the remoteness and inaccessibility of much of the area most of the TCH harvest is by local hunters (Parrett 2015a). TCH harvest by local hunters in recent years occurs primarily from July to October (Braem et al. 2011, Parrett 2011, Braem 2015) whereas nonresidents and nonlocal residents typically harvest most of their caribou from the WACH, along the Colville River drainage, in August and September (Parrett 2015a). For example, greater than 95% of the caribou harvested by nonresidents and nonlocal residents in 2012/13 and 2013/14 occurred in August and September (Parrett 2015a). The nonresident and nonlocal resident harvest from the TCH, which averages about 100 caribou a year or 3% of the total TCH harvest, is split evenly between the nonlocal and nonresidents (Parrett 2013).

Western Arctic Caribou Herd

Annual caribou harvest by local residents is estimated from community harvest surveys, when available. In 2015 the linear model (Sutherland 2005) used to estimate caribou harvests by hunters who live within the range of the WACH was replaced by a new analysis of covariance developed by Adam Craig, a biometrician with ADF&G's Division of Wildlife Conservation Region V (Arctic and Western Alaska). These models incorporate factors such as community size and availability of caribou (Dau 2015a). Craig's models replaced models developed by Sutherland (2005) in 2015, resulting in changes to local caribou harvest estimates from past years. While Craig's model accurately reflects long-term trends in annual local harvests, it is too insensitive to detect short-term changes in harvest levels useful to real time management decisions to regulate harvests and does not accurately reflect actual harvest levels or harvest levels by Unit (Dau 2015a). This analysis only considers the updated harvest estimates using the new model from Dau (2015a). The accuracy of harvest reporting by locals may improve with the requirement for harvest tickets for those that live north of the Yukon River. Caribou harvest by NFQU is based on harvest ticket reports (Dau 2015a).

From 2000–2014, the estimated harvest from the WACH averaged 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (**Figure 8**) (Dau 2015a). The total harvest during 2012/13 and 2013/14 was 13,352 and 12,713 caribou, respectively. These harvest estimates assumed that 95% of all caribou harvested by nonlocal hunters in Unit 26A were from the WACH and the remainder from the TCH. Using the 2011 and 2013 population estimates the total annual harvest during 2012/13 and 2013/14 was approximately 4-5% of the population (Dau 2015a). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 2**). However, harvest estimates do not include wounding loss or caribou killed but not salvaged, which may be hundreds of caribou (Dau 2015a). Local residents, as defined as living within the range of the WACH, account for approximately 95% of the WACH harvest, with residents of Unit 23 accounting for the approximately 58% (**Figure 9**) (Parrett 2017a, pers. comm.). Approximately 37% of the annual WACH harvest is taken by the local residents in Unit 26A, 26B, and 24B (**Figure 9**).

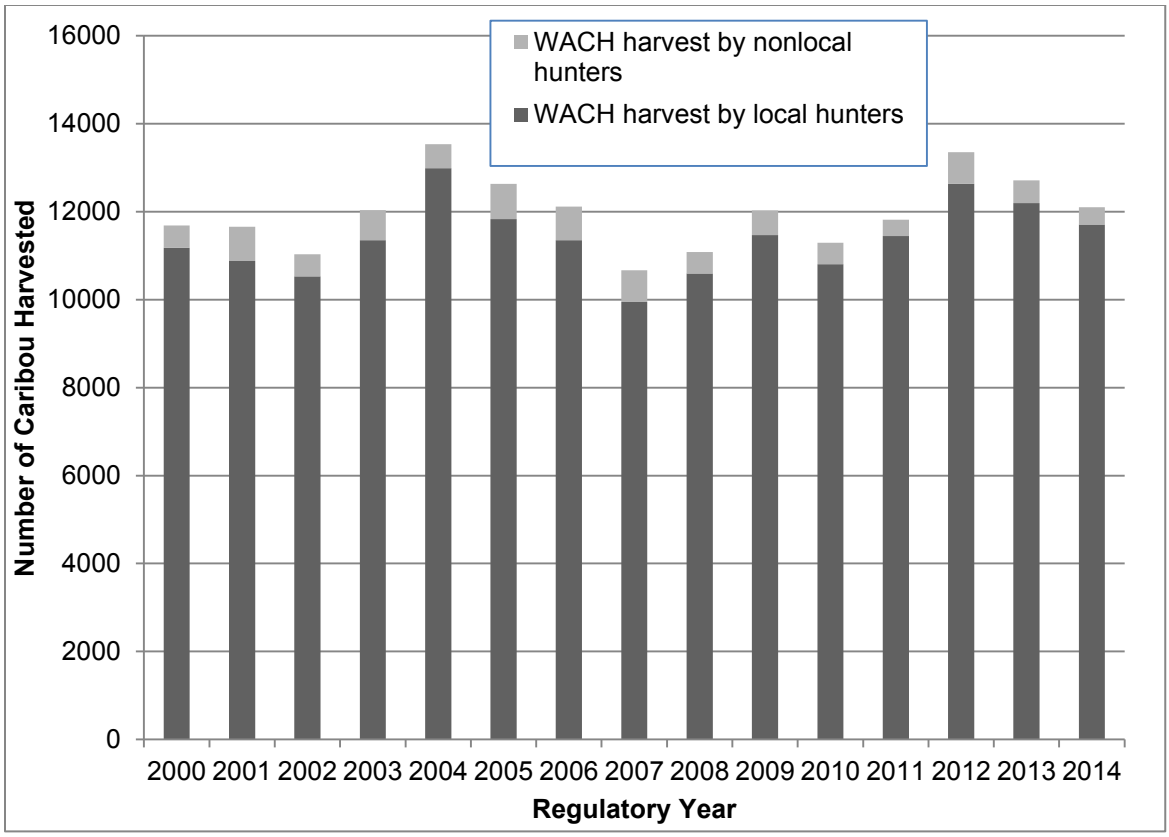


Figure 8. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

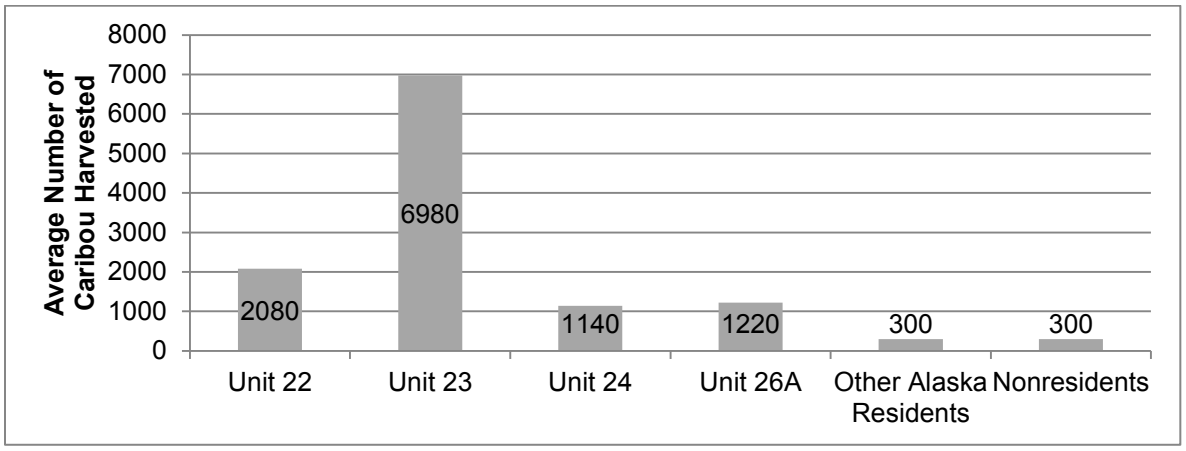


Figure 9. Average WACH annual caribou harvest by unit and residency from 1998-2015 (Parrett 2017a, pers. comm.).

From 2001-2013, total average annual nonlocal WACH harvest was 598 caribou (range 421-793) (**Figure 10**). Over the same time period, nonlocal WACH harvest from Units 26A, 26B, and 24B averaged 102 caribou/year (range 60-144) (**Figure 10**). Nonlocal WACH harvest from Unit 23 and Units 26A, 26B, and 24B combined accounts for 76% and 14% of the total nonlocal WACH harvest on average, respectively.

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 11,** USFWS 2017). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 11,** WinfoNet 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b, ADF&G 2017c).

Based on those hunters that provided harvest ticket reports for Unit 26A, the number of nonresidents compared to Alaska residents outside the WACH range that harvested caribou from the WACH increased from 2011-2015 (**Figure 12**). Approximately 95% of the total Unit 26A caribou harvest was from the WACH and by residents within the WACH range (Dau 2013). The annual harvest by NFQU is a very small percentage (≈1%) of the total WACH harvest (**Figures 10 and 13)**. Female harvest by NFQU in Unit 26A averaged 10% (range 2-19) from 2006-2016.

Harvestable surplus for the WACH is calculated as 6% of the total population (Braem 2017a, pers. comm.) and when evaluated separately by sex is approximately 15% bulls and 2% cows (Dau 2015a). In recent years, as the WACH population has declined, the total harvestable surplus has also declined (Dau 2011, Parrett 2015a). In 2015/16, the combined TCH/WACH harvestable surplus declined from an estimated 13,250 caribou in 2014/15 to an estimated 12,400 caribou. While there is substantial uncertainty in the harvestable surplus estimates, the overall trend is decreasing and it is likely that sustainable harvest will soon be exceeded if the decline continues (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH (14-29). Harvest from the WACH, which has remained fairly consistent, is one of the factors that prompted the BOG to enact restrictions to WACH and TCH caribou harvest in March 2015.

Using the percentage of harvest reported by community from the WACH in 2008/09 (**Table 6**) and the 2014 community harvest estimates for Utqiagvik, Anaktuvuk Pass, Nuiqsut, and Point Hope (Braem 2015) and the 2014 total nonlocal harvest (117 caribou) (ADFG 2017a), the total WACH caribou harvest for Unit 26A in 2014 was approximately 1,185 caribou. Adding another 120 caribou from Point Lay and Atqasuk (Parrett 2011) would bring the total to approximately 1,305 caribou harvested from the WACH in 2014 in Unit 26A. This year (2014) was chosen because this was the most recent community harvest records for the North Slope communities (Braem 2015).

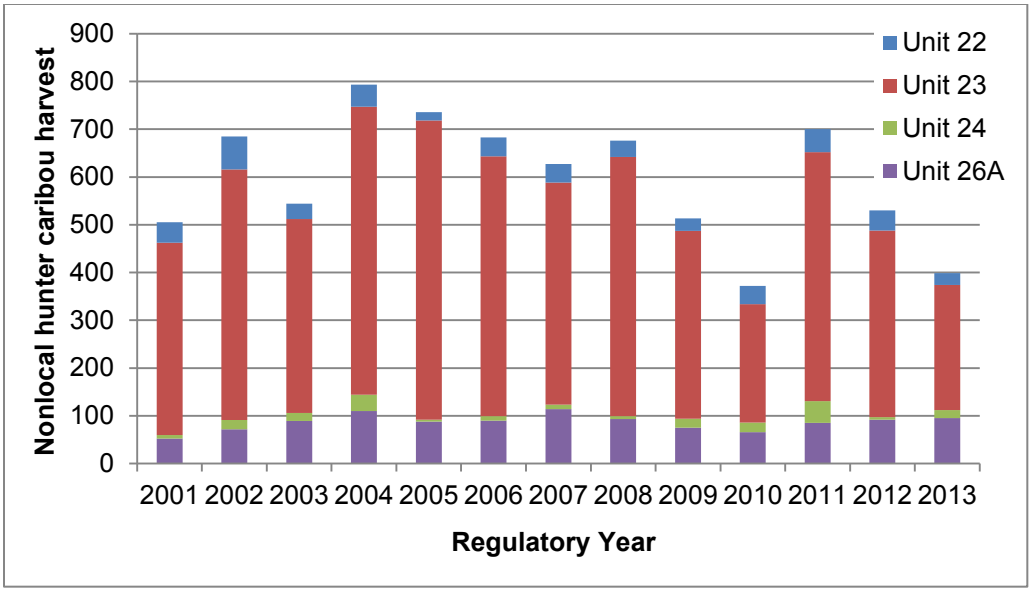
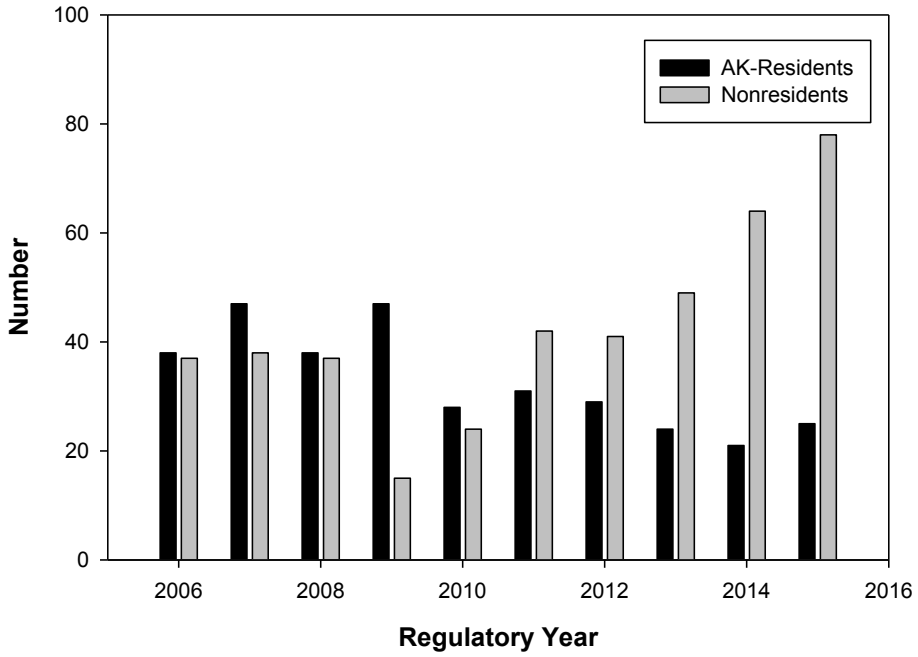


Figure 10. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.



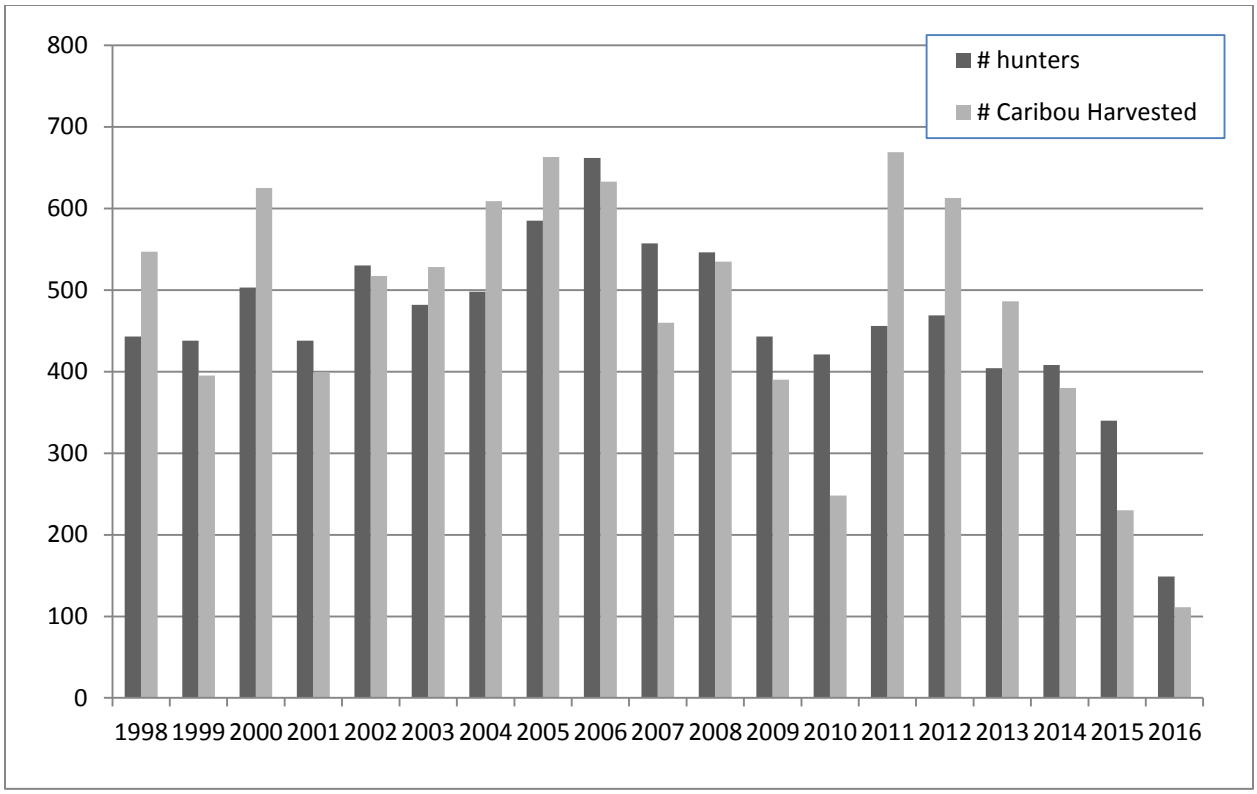


Figure 11. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016, FWS 2016, WinfoNet 2017).

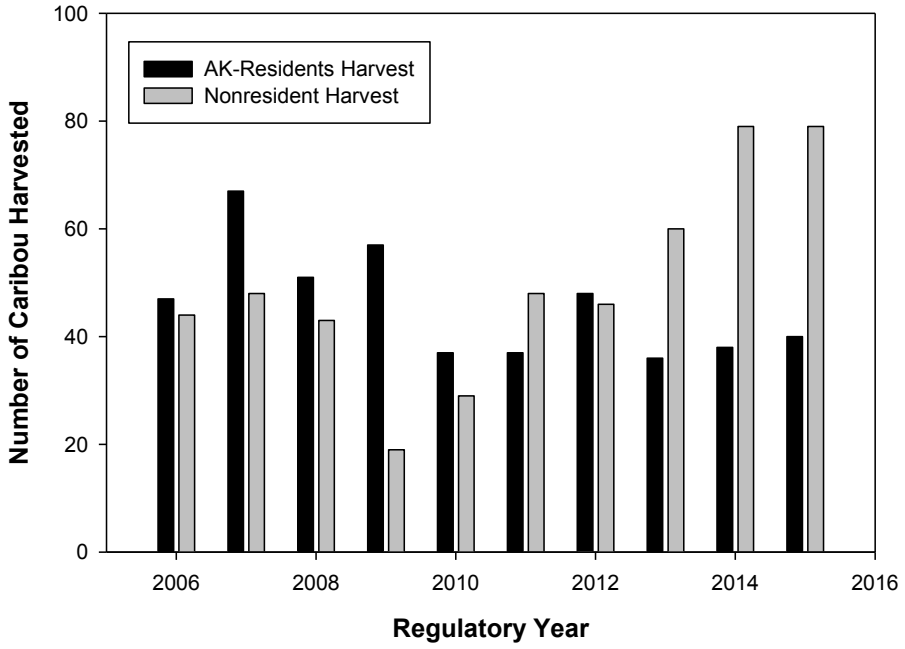


Figure 12. Residency of successful nonlocal caribou hunters from the WACH in Unit 26A, 2006-2015 (Dau 2013, 2015a).

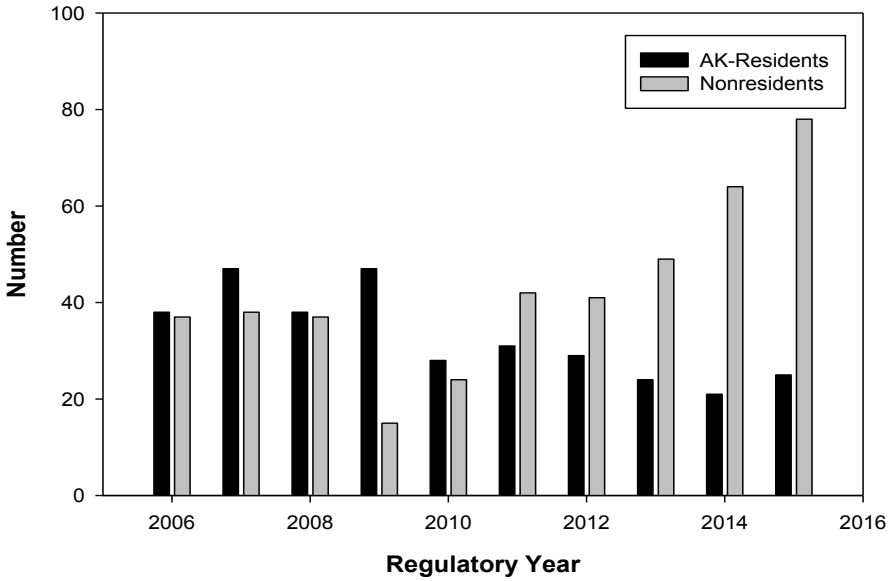


Figure 13. Nonlocal WACH harvest in Unit 26A, 2006-2015 (Dau 2013, ADF&G 2017b).

Cultural Knowledge and Traditional Practices

The archaeological record of the region extends 8,000 to 10,000 years before present and sites are scattered across the Brooks Range and the North Slope (Anderson 1984, Dumond 1984). Prior to 1840, the Inupiat people of the region were loosely organized in six groups or nations of small kin-based settlements (Burch 1980). These groupings largely disappeared by 1900 but communities still use the territories that preceded modern villages (Braem 2013).

Caribou are an important subsistence resource for the Inupiaq people of northern Alaska (Burch 1998, Spencer 1984). This is particularly true for inland communities such as Atqasuk and Anaktuvuk Pass where marine mammals are not available. While whaling communities tended to be more permanent, inland peoples traditionally tended toward annual and seasonal movements to reflect caribou migrations (Spencer 1984). The abandonment of this more mobile lifestyle has probably had significant consequences for the adaptability of hunters and their ability to meet subsistence needs. The two predominant modes of subsistence were intertwined by trading relationships between inland and coastal communities that sometimes helped to supplement dietary needs (Spencer 1984).

Historically the North Slope Inupiat hunted caribou year-round (Braem 2013). This continues today, with heavier harvests in certain months and seasons depending on the community (Braem 2013). A variety of methods were used to harvest caribou historically including spearing swimming animals, driving caribou into natural and manmade barriers, snaring, bow and arrow, and deadfalls (Braem 2013). Caribou drives

allowed a large number of caribou to be harvested in a short time (Burch 2012, Spencer 1959, Murdoch 1988). These methods were replaced with firearms in the 19th century.

Burch (1988) described the importance of caribou for the people of Northwest. Caribou were used for sustenance but also for material to make parkas, underwear, socks, boots, mittens, and gloves (Braem 2013). Burch (1998) documented a unanimous preference for the late summer coats of caribou cow and calf hides, seen as providing both the softness and quality needed for high quality clothing, after the summer shedding and before acquiring a shaggy winter coat. While bulls were targeted for their fat stores and meat, cows and calves were targeted for their hides, considered prime during the early part of August (Burch 1998). The main objective for summer hunting was the acquisition of hides, "It reportedly took two calf skins to make one parka, and every hunter tried to get at least twenty of them" (Burch 1998:163).

Traditionally, coastal groups tended to store caribou frozen in ice cellars while inland groups more commonly stripped and dried the meat (Braem 2013). Today, caribou is frozen, dried, and eaten fresh (Braem 2013). As a food resource, caribou remain important to meeting the subsistence needs of Inupiaq families on the North Slope. In 1989 the coastal community of Wainwright harvested approximately 83,187 lb. of caribou (178 lb. per capita), representing 24% of the community's harvest in that year (ADF&G 2017c). Comparatively, Wainwright harvested approximately 243,594 lbs. of marine mammals (521 lb. per capita), representing 69% of the community's harvest (ADF&G 2017c).

In 2014, the inland community of Anaktuvuk Pass harvested approximately 104,664 lb. of caribou (330 lb. per capita), representing 84% of the community harvest in that year (Brown et al. 2016). Among the harvested animals, 51% were bulls, 39% were cows, and 10% were of unknown sex (Brown et al. 2016). Cows were primarily harvested between November and April while bulls were primarily harvested throughout the rest of the year (Braem 2015). Approximately 89% of Anaktuvuk Pass households reported using caribou in 2014, with 47% of households giving caribou away and 68% of households receiving caribou (ADF&G 2017c); use and sharing of caribou in this community remains high and has led to food security concerns in recent years when caribou migration patterns shifted away from the community.

In addition to Anaktuvuk Pass, ADF&G conducted surveys in Point Hope, Nuiqsut, and Utqiagvik in 2015 for the 2014 harvest year (Brown et al. 2016). Anaktuvuk Pass' per capita harvest was highest (2.4 caribou; 315 lb. edible weight per capita) but the total number of harvested caribou was modest (770 caribou). Point Hope represented the lowest caribou harvest by number of animals (185) and by per capita edible weight (34 lb.). Utqiagvik, the largest community in the region, harvested 4,231 caribou in 2014, representing 103 lb. per capita of edible weight.

Residents from communities along the DHCMA have documented use of caribou from CACH, TCH and WACH. Holen et al. (2012) and Brown et al. (2016) documented that the 2011 caribou hunting areas followed the DHCMA north from Wiseman up to Galbraith and Toolik lakes in Unit 26. In addition there were two small caribou hunting areas near Wiseman and Nolan (**Appendix A**). Some of the respondents interviewed from Wiseman during the community harvest surveys in 2011 noted that hunting pressure on caribou and Dall Sheep from nonlocal hunters had increased substantially making it harder

for local residents to meet their harvest goals (Holen et al. 2012, p 376-378). Residents from Coldfoot also mentioned that overharvesting was depleting the CACH, TCH, and WACH that utilize the area (Holen et al. 2012)

Meeting the nutritional and caloric needs of arctic communities is important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass, describes the human-caribou relationship as a "way of life." The holistic view of subsistence was embodied in the special action request motion for WSA17-04 by the North Slope Council to, among other things, provide for a "reasonable traditional subsistence experience" (NSRAC 2017:248).

User Conflicts

While the percentage of diets comprised by caribou varies from community to community, this resource clearly remains a staple of subsistence in Alaska's arctic. Recent declines in caribou herds and shifts in caribou migration patterns have led to food security concerns, especially for inland communities that lack access to more abundant coastal resources such as marine mammals. Because commercial goods are both limited and expensive in rural Alaska, they often do not represent an adequate replacement to meet the traditional nutritional needs of residents.

Caribou populations naturally fluctuate over decades (Gunn 2001, WACH Working Group 2011) and this may result in proportional constrictions and expansions of migratory pathways that shift caribou near or away from communities. Other factors may influence migratory patterns such as anthropogenic disturbance, industrial development, habitat suitability, and climactic conditions. The influence of NFQU hunting activities, especially the use of aircraft and motorized vehicles as well as the harvest of lead caribou adjacent to what are considered important migratory corridors, has been an ongoing and contentious topic in the northwestern Arctic, since at least the 1980s (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015). In the Northwest Arctic, the Unit 23 Working Group was established to assist with some of these concerns among various user groups. These user conflicts were, in part, the impetus for the closure of Federal public lands to NFQU in Unit 23 for the 2016/2017 regulatory year.

Similar user conflict concerns have been voiced in the North Slope region over time (NWARAC and NSRAC 2016, WIRAC 2016, NSRAC 2015 2016, 2017). In 1995 the Board adopted a proposal from the City of Anaktuvuk Pass to close Federal public lands in Unit 26A, south of the Colville River, upstream from and including the Anaktuvuk River drainage, to NFQU from August 1st through September 30th. The justification was to allow for caribou migrations to take their normal route into Anaktuvuk Pass. While concerns for caribou migration through Anaktuvuk Pass continue to be voiced, many of the recent concerns expressed for Unit 26 have pertained to the DHCMA and NFQU hunter access via this road;

some have also expressed concern for disturbance activities facilitated by guides and transporters north of Anaktuvuk Pass (NWARAC AND NSRAC 2016, WIRAC 2016). NFQU caribou harvest in Unit 26 is highest in the vicinity of the Dalton Highway and along river corridors east of this road (see **Maps 8, 9, 10**). The chair of the Western Interior Alaska Regional Advisory Council, Jack Reakoff, expressed his concerns as follows (WIRAC 2016:100-101):

> I live over there by the pipeline and we had zero caribou in our valley this year, mainly because of the increased harvest of cow caribou into July 1 on the Haul Road (Dalton Highway). That basically lets those hunters kill all those lead cows and stop the migration… they have jet boats, air boats, they put those in the rivers on the North Slope, they pound those caribou… It's the high power boat traffic that can get into the upper drainages that affect those caribou migrations. The other is the aspect of air taxis dumping off hunters in the middle of, in the front of migrations… There's hundreds and hundreds of hunters that go on the Dalton Highway. They're deflecting the Central Arctic Herd off to the east.

The Council chair later explained that state regulations enacted in 2010 that increased harvest limits, caused cows that had not been previously exposed to hunting during the fall migration to be hunted extensively, especially by hunters accessing the Ivishak and Ribdon rivers by boat and by air (Reakoff 2017, pers. comm.). He said that if caribou approached the road, cows were frequently killed by many bow hunters in the area. He also stated that after several seasons, many cows learned to stay north and circumvent the Dalton Highway, thus travelling in a semi-circle fashion to reach the area of Itkillik and Toolik. The BOG closed the caribou season west of the Dalton Highway in 2014 to protect the Teshekpuk herd, and the Council chair indicated that CAH caribou are learning to stay to the west to avoid being hunted in the winter (Reakoff 2017, pers. comm.).

The Council chair also elaborated on his concerns regarding the use of airboats and jetboats (Reakoff 2017, pers. comm.). He said that while boats themselves can scare caribou, it is really about the concentration of hunters that can deter herd migration. He used an example of a voluntary hunter check station operated by ADF&G in the late 1990s at the Yukon River Bridge. According to Reakoff there was an average of 2000 hunters tabulated annually and that this only included those that stopped voluntarily and while the station was open on the weekends (Reakoff 2017, pers. comm.). He believes that the recent BOG implemented season changes will address the problems in Unit 26B.

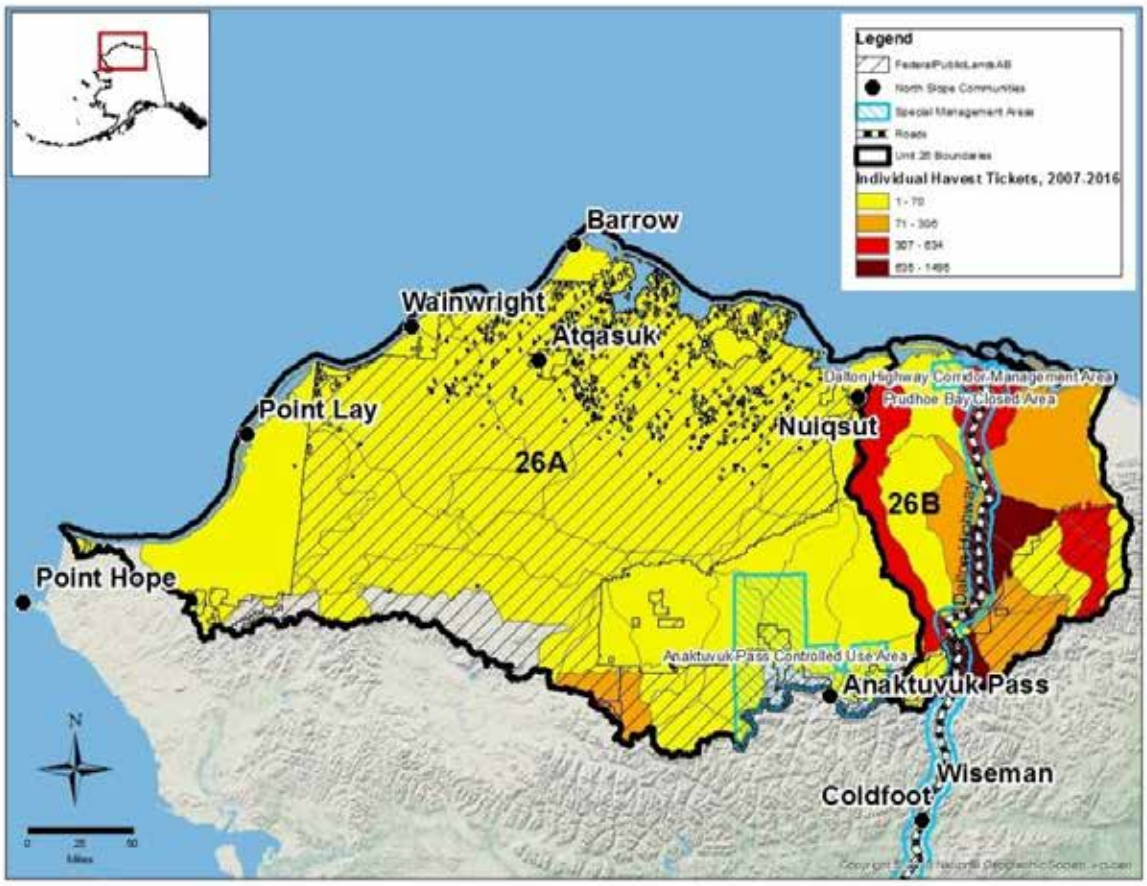
Maps 8, 9, and **10** project relative hunting intensity by minor river drainage over a ten year period (2007-2016) in two recent years (2015 and 2016), and in two prior years (2013 and 2014), respectively. Relative hunting intensity is spatially calculated using unique individual ticket numbers for all hunters indicating that they hunted and either killed (successful) or did not kill (unsuccessful) a caribou. For each time scale hunting intensity is relatively low and dispersed throughout Unit 26A and intensity is substantially greater and more variable in Unit 26B. In Unit 26A, the only area exhibiting slightly greater relative hunting intensity between 2013/2014 and 2015/2016 was in the vicinity of the Nigu River, to the north and west of Gates of the Arctic National Park and Preserve. In 2013/2014 there were 59 individual harvest tickets indicating hunting activity in this drainage; in 2015/2016 there were 71. This slight increase isn't visible in the graduated symbology scales used in **Map 9** and **Map 10**. It is possible that

the slightly higher relative hunting intensity in this area is a result of a 2016 closure to NFQU hunting caribou on Federal public lands in adjacent Unit 23. This was corroborated by a representative of the Arctic Slope Regional Corporation who also attributed the increased hunting activity to increased guide and transporter use of the area (see Current Events).

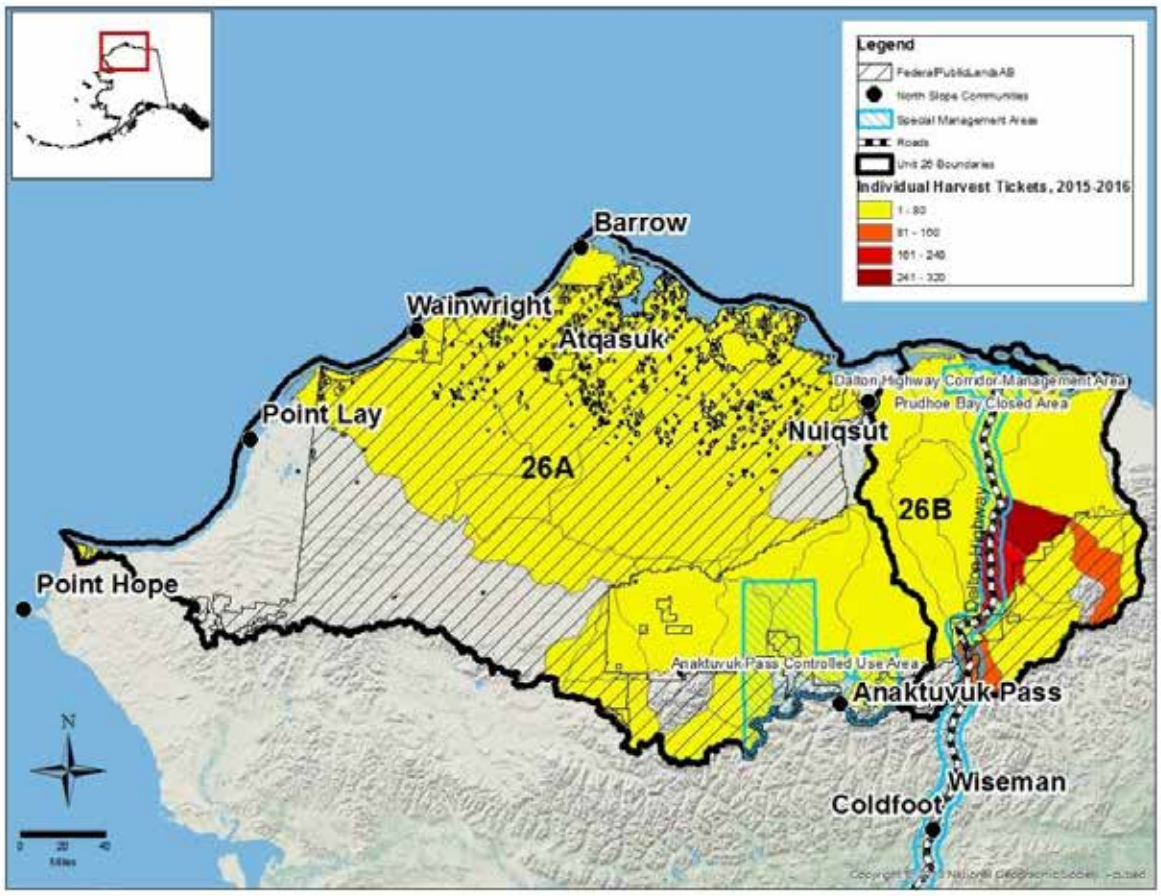
There have been shifts in relative hunting intensity in drainages in Unit 26B over time (**Maps 8, 9, 10**). In recent years, hunting intensity has lessened for many drainages in the subunit except for those that already exhibited relatively little hunting intensity and along and to the east of the Dalton Highway in the central portion of the subunit. These recent reductions in relative harvest intensity may reflect recent regulatory changes. The minor drainage represented along the western boundary of the subunit does not accurately depict harvest as the majority of records here are from the Toolik Lake area in the southeastern most portion of the minor drainage, an area more easily accessible from the Dalton Highway.

Despite relative hunting intensity reductions in many drainages of Unit 26B, the DHCMA remains the most intensely hunted area within the subunit, particularly from the southern border of Unit 26 north to where the Sagavanirktok River diverges from the road. Areas to the east of this region also exhibit higher hunting intensity which may be the result of motorized boat access along river corridors. Boats can be used to access the lower and middle sections of the Ivishak and Echooka Rivers within the Arctic NWR. Rafts can be used in the shallower headwaters of the Ivishak and Echooka Rivers (**Map 6**). Much of the highest hunting intensity along the Dalton Highway occurs on State land, though the southernmost stretch of road within the unit is surrounded by BLM managed land. This BLM managed land surrounds popular NFQU hunting areas in proximity to Toolik Lake and Galbraith Lake. The Western Interior Council chair indicated however that hunting activity has decreased in these areas due to an absence of nearby caribou (Reakoff 2017, pers. comm.). Another popular hunting area in this vicinity is in Atigun Gorge and along the confluence of the Sagavanirktok and Atigun Rivers, both of which fall largely within the Arctic NWR to the east of the BLM managed lands described previously. The Western Interior Council chair suggested that it has been several seasons since large numbers of caribou have been present in "Atigun country" in the fall (Reakoff 2017, pers. comm.).

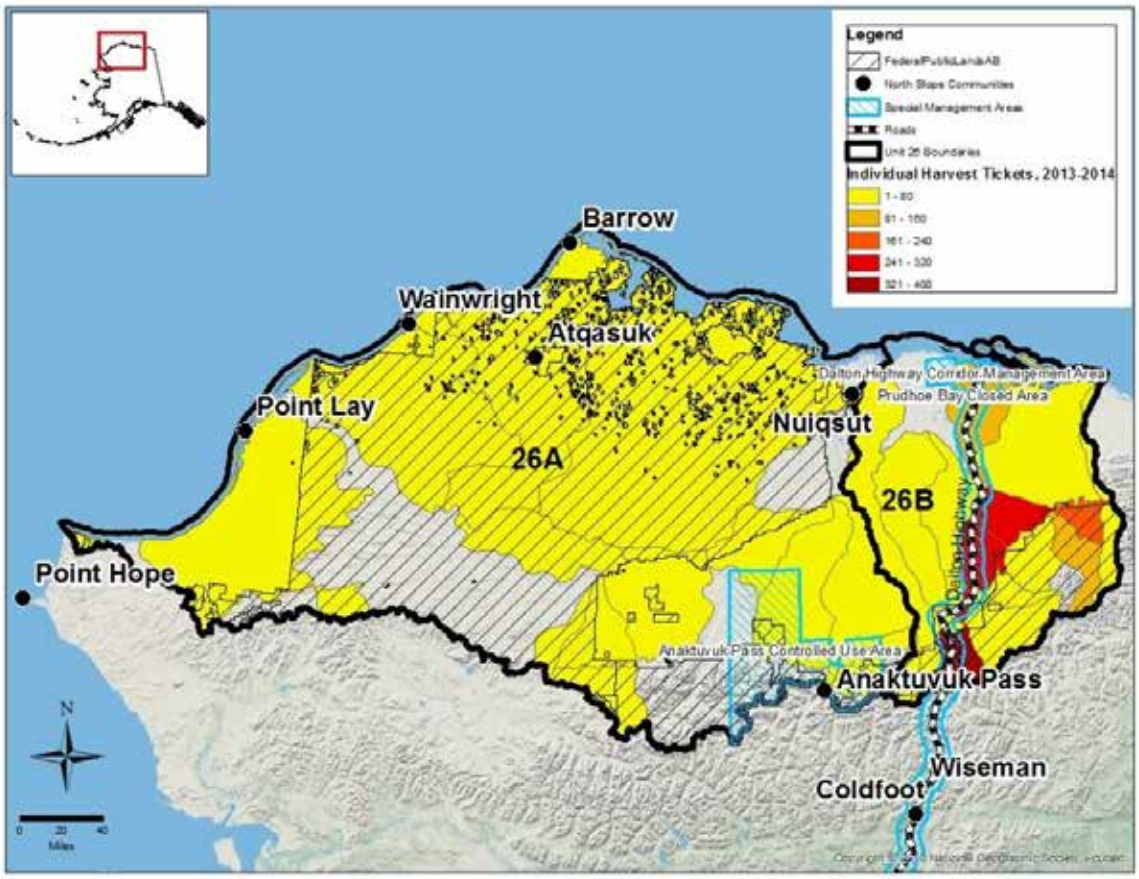
Members of the North Slope Council have expressed concern for an expanded harvest season that allows the taking of cow caribou from the vicinity of the Dalton Highway during their migration (NSRAC 2016), though state regulations for the 2017/2018 regulatory year have eliminated cow caribou harvest in Unit 26B remainder. Given that cow caribou can no longer be legally harvested in 26B remainder, concerns over the use of jetboats and airboats in accessing mountain corridors and the associated killing of lead caribou may be somewhat lessened. Relative hunting intensity and harvest data in subsequent years may elucidate the spatial effects of the cow closure.



Map 8. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2007-2016 (WinfoNet 2017). Includes both successful and non-successful hunters.



Map 9. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2015-2016 (WinfoNet 2017). Includes both successful and non-successful hunters.



Map 10. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2013-2014 (WinfoNet 2017). Includes both successful and non-successful hunters.

The North Slope Council has also expressed concern regarding observations of animals injured as a result of bow hunting (NSRAC 2016). Despite documented concerns through repeated public testimony, information is lacking on the degree of impact that these hunting activities have on both short and long-term caribou migration patterns. A member of the WACH Working Group indicated that she perceived the closure in Unit 23 in 2016 to have facilitated improved migration to the vicinity of Anaktuvuk Pass (NSRAC 2016), though it is unclear how this would have affected the migration of WACH animals. The Northwest Arctic Subsistence Regional Advisory Council stated that closure of Federal public lands in Unit 23 to caribou hunting by NFQU in 2016 helped local people harvest more caribou, increasing their food security and reducing user conflicts (NWARAC 2016, 2017).

Whether the effects of NFQU hunting activity on the North Slope are perceived or realized, the reality is that three of the four caribou herds in the region (WACH, TCH, and CACH) have experienced recent declines. User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). An Anaktuvuk Pass resident expressed her concerns as follows (NSRAC2015:45-46):

> We're talking about lives here. Food for our stomach, food for our health, food that our parents and our grandparents had passed on. Just tears because we did not catch what we needed again and again… It's just the pain and the hurt and I don't have [any] caribou to eat like it used to be.

Other Alternatives Considered

The first alternative considered was to reduce hunter conflicts by closing both the BLM lands occurring on either side of the Dalton Highway in the southern portion of the unit and the portion of the Arctic NWR falling within Unit 26B. Given then intensity of use along the Dalton Highway and within several Arctic NWR drainages, this option may decrease competition and user conflict between NFQU and FQSU. While NFQU harvest may shift northward along the Dalton Highway, this option may provide Federally qualified users with an area of substantially reduced competition.

Given that this alternative would close lands with boundaries that largely include the northern edge of the Brooks Range, including small mountain corridors from the interior to the North Slope, it may reduce barriers to caribou migrating through the mountain passes, river corridors, and across the DHCMA on Federal public lands. While NFQU may still use jetboats and airboats to access the Lupine, Echooka and Ivishak Rivers and Juniper Creek within Arctic NWR, hunting of caribou would be restricted to the gravel bars. Additionally, closure of Federal public lands along the DHCMA may reduce hunting pressure, thus allowing for more unrestricted movement of caribou across the DHCMA.

This alternative could increase competition with other hunters on State lands which are adjacent to the DHCMA especially in southern portions of Unit 26B. The relatively small area under Federal jurisdiction, the relatively short amount of time to determine the effects of recent changes to State and Federal caribou hunting regulations implemented in 2015/2016, and the newly enacted State regulations for the CACH for 2017/2018, which limit NFQU to 1 bull caribou and eliminate cow harvest in Unit 26B remainder, suggest that restrictions on these Federal public lands to caribou hunting by NFQU are not warranted at this time. It is unlikely that closing Federal public lands to NFQU in Unit 26B would reduce the harvest because hunters may shift locations to the adjacent State lands.

Effects

If this proposal is adopted, caribou hunting on Federal public lands in Unit 26A and Unit 26B would be limited to FQSU with a customary and traditional use determination for caribou in Unit 26A and 26B. This would reduce competition between FQSU and NFQU on Federal public lands in Units 26A and 26B and may increase hunting pressure on State or private lands.

While the sustainable harvest of WACH caribou may soon be exceeded, the overharvest of cows is of particular concern (Dau 2015a). As nonresidents may only harvest one bull, their impact on the herd's population trajectory is likely negligible. Total NFQU harvest from Unit 26A accounts for only about 9% of the total WACH in Unit 26A and about 1% of the total estimated harvest from the WACH (117 caribou out of an estimated total harvest of 11,984 caribou on average). The nonresident and nonlocal resident harvest from the TCH is minimal although from the TCH (Parrett 2015a). Parrett (2015a) estimated that approximately 100 caribou, which represents approximately 3% of the total annual TCH harvest, are

harvested annually by nonlocal users. From a biological perspective, eliminating the nonlocal harvest, which accounts for less than 1% in Unit 26A, will not have a meaningful impact on WACH or TCH conservation or population recovery. It may, however, alleviate some FQSU concerns regarding the possible deflection of caribou in critical migratory corridors or in areas of increasing harvest activity.

Closing caribou hunting to NFQU on all Federal public lands in Unit 26B would have the greatest impact to NFQU that hunt in Unit 26B from the CACH population. Nonlocal residents accounted for 89% of the total caribou harvest from the CACH between 2013 and 2015, which is approximately 827 caribou annually. The proportion of nonresidents has been increasing in recent years whereas hunting by nonlocal residents has decreased (Table 5, Figure 6). Most of the CACH harvest in Unit 26B occurs on State lands so closing the relatively small amount of Federal land in Unit 26B to NFQU will shift hunters to State land with a little reduction in the overall harvest (Arthur 2017 pers. comm). New State regulations, which take effect July 1, 2017, eliminate cow harvest, except in the northwest corner of Unit 26B, and reduce the nonresident harvest to one bull. These new regulations should reduce the overall caribou harvest from the CACH to sustainable levels (Lenart 2017b).

It is unclear to what extent hunting pressure in the DHCMA and in the headwaters of various river drainages influences the migratory patterns of the CACH caribou and to a lesser extent caribou from the TCH and WACH. The northwest-southeast direction of the fall CACH migration across the Dalton Highway and the variability of the migration patterns suggest that disturbance within the area of greatest caribou concentration that occurs between Galbraith Lake and Ribdon River is not likely to reduce the availability of caribou to local residents living west of the highway.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-57.

Justification

In total, the TCH, WACH, and CACH caribou populations in northern and western Alaska have declined approximately 50%. The declines have not been uniform among the herds. Low calf survival and recruitment, high adult cow mortality, and human harvest, coupled with deteriorating range conditions, climate change, predation and disease, are all contributing factors to the overall decline of caribou. The State's estimated harvestable surplus for both the TCH and the CACH is declining and is currently fully allocated among users based on the most recent Federal and State harvest rates. The WACH is approaching a similar situation.

Beginning in 2015, State and Federal regulations have been adopted to reduce the cow harvest by FQSU and NFQU, and to slow and/or reverse the overall caribou population declines. Cow harvest by NFQU is relatively small in the WACH and TCH, but has increased in recent years. In response to the recent decline in the CACH population, the BOG adopted new caribou hunting regulations which eliminated the cow harvest, reduced the harvest from 5 caribou per day to 2 bull caribou for residents, and 1 bull caribou for nonresidents in Unit 26B remainder for 2017/2018. Recently enacted conservation actions for the WACH, TCH, and CACH need to be given time to determine if they are effective in reducing the caribou

harvest, and in slowing down or reversing the population declines in these caribou herds before additional closures are enacted.

It is likely that closing the relatively small amount of Federal public lands in Unit 26B would shift the hunters onto State land. Anaktuvuk Pass hunters are the most impacted by NFQU hunting nearby, many of whom hunt on State land north, northeast, and northwest of the community. Closing Federal land further north (in NPR-A) risks further concentrating NFQU onto State lands adjacent to Anaktuvuk Pass, thereby increasing impacts to that community. Additionally, closure of Federal public lands to NFQU in Unit 26B will not have as much of an effect as the recent BOG action to protect cows and reduce the overall caribou harvest since much of the harvest occurs on State lands.

In addition to closing Federal public lands to NFQU, local users, particularly those from communities along the DHCMA (which includes areas in Units 26A and B), would not see much reduction in competition as most NFQU would likely continue to hunt caribou from the CACH or Porcupine Herd on State lands in Unit 26B. Subsequently, the effects of hunting intensity and motorized vehicle use along the highway would likely not alleviate FQSU concerns that these activities alter caribou migration in the area. The closure is unlikely to deter non-local hunters from hunting within and adjacent to the DHCMA, thus the proponent's goal of "reducing non-local take" would not be achieved.

Under ANILCA §815.3 and the Board's Closure Policy, the Board may adopt closures to hunting by non-Federally qualified users if it is necessary for the conservation of healthy wildlife populations or continuation of subsistence uses of wildlife populations by Federally qualified subsistence users. The number of caribou harvested by NFQU is not biologically significant for the WACH and TCH in Unit 26A. However, caribou harvest by NFQU in Unit 26B from the CACH was considered to potentially have more significant consequences for that herd, which have now been addressed with newly enacted State regulations for 2017/2018. The goals of these new State regulations for the CACH are to reduce the overall caribou harvest from 930 to 680 and reduce the cow harvest from 202 to no more than 75. ADF&G harvest and population objectives are very specific, and they expect to meet the newly proposed harvest objectives this year. We recommend that these changes take effect in lieu of enacting additional regulations.

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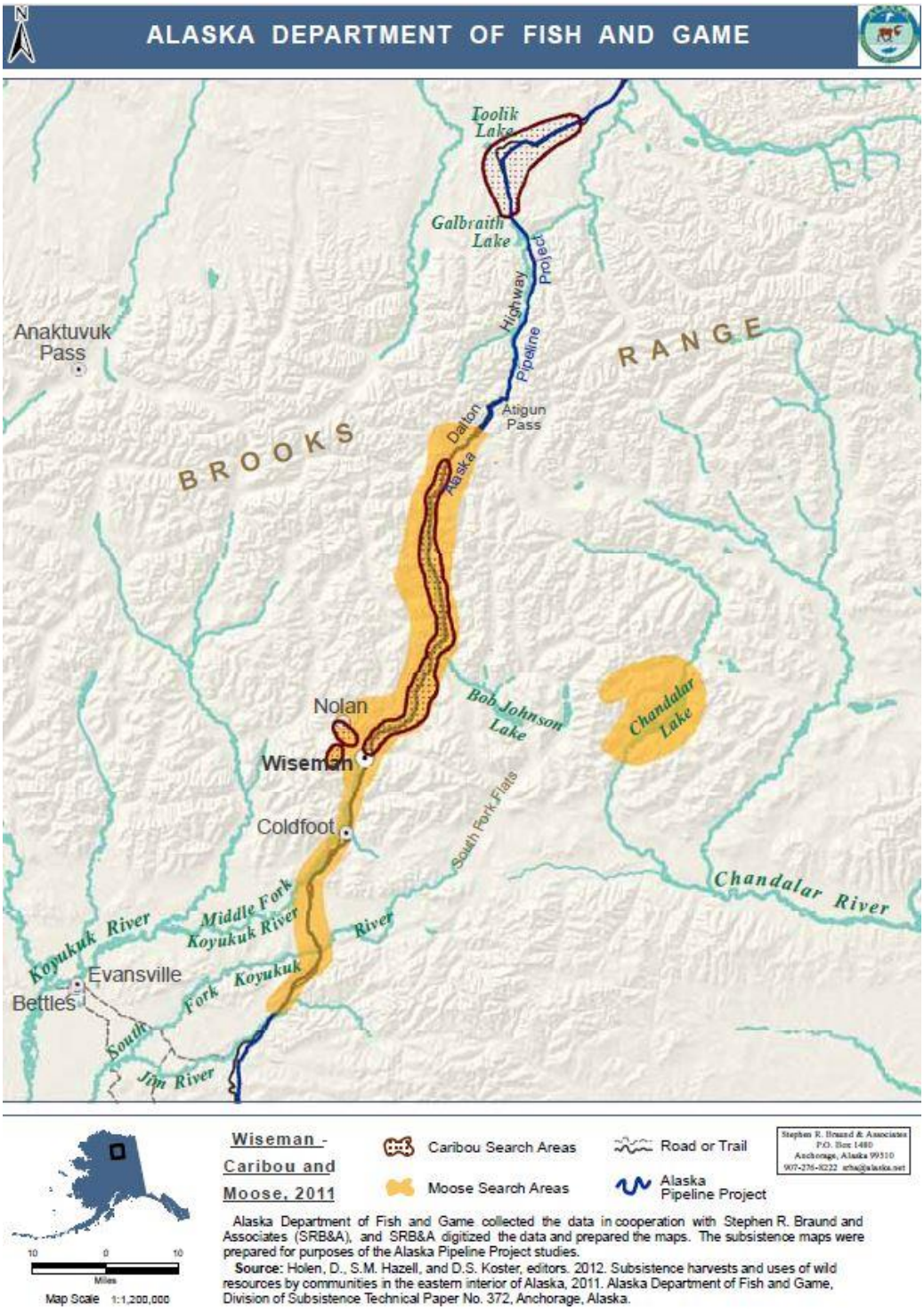
Appendix A



Map 11. Location of two small caribou hunting areas near Wiseman and Nolan

WP18–41/42 Executive Summary	
General Description	Proposal WP18–41 requests that moose seasons be modified throughout Unit 23 to a two month cow season of Nov. 1-Dec. 31, a shortening of the bull season from July 1-Mar. 31 to July 1 – Dec. 31, and alignment of Federal and State hunt areas. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council* Proposal WP18–42 requests that moose seasons be modified throughout Unit 23 to include a winter any moose Federal registration permit hunt with a harvest quota aimed at reducing total cow harvest by 20%, and that the harvest limit be modified from one moose to one bull moose during the rest of the season. *Submitted by: Louis Cusack of Chugiak*
Proposed Regulation	WP18-41 **Unit 23—Moose** *Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose* ***Bulls may be harvested*** — *July 1~~-Mar.~~**Dec. 31*** ***Cows may be harvested*** — ***Nov. 1 – Dec. 31*** *No person may take a calf or a cow accompanied by a calf* ~~*Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf*~~ — ~~*Aug. 1-Mar. 31*~~ *Unit 23, remainder—1 moose* ***Bulls may be harvested*** — *Aug. 1~~-Mar.~~**Dec. 31***

WP18–41/42 Executive Summary	
	Cows may be harvested ***Nov. 1 – Dec. 31*** *No person may take a calf or a cow accompanied by a calf* WP18-42 **Unit 23—Moose** *Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers* ***1 bull may be harvested*** *July 1-Mar. 31* Or ***1 moose may be harvested by Federal registration permit*** ***Nov. 1 – Mar. 31*** *No person may take a calf or a cow accompanied by a calf* *Unit 23—that portion lying within the Noatak River drainage* ***1 bull may be harvested*** *Aug. 1-Mar. 31.* ***Or*** ***1 moose may be harvested by Federal registration permit*** ***Nov. 1 – Mar. 31.*** *No person may take a calf or a cow accompanied by a calf* *Unit 23, remainder* ***1 bull may be harvested*** *Aug. 1-Mar. 31.* ***Or***

WP18–41/42 Executive Summary	
	1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.*** *No person may take a calf or a cow accompanied by a calf*
OSM Preliminary Conclusion	**Support** Proposal WP18-41 **with modification** to change the harvest limit to one antlered bull July 1 (Aug. 1) – Dec. 31 and create a Nov. 1-Dec. 31 antlerless season by Federal registration permit and delegate authority to the Federal land manager to determine quotas and to close the season via a delegation of authority letter; and **Take no action** on Proposal WP18-42.
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	

WP18–41/42 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
WP18-41/42

ISSUES

Proposal WP18-41, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests that moose seasons be modified throughout Unit 23 to a two month cow season of Nov. 1-Dec. 31, a shortening of the bull season from July 1-Mar. 31 to July 1 – Dec. 31, and alignment of Federal and State hunt areas.

Proposal WP18-42, submitted by Louis Cusack of Chugiak, Alaska, requests that moose seasons be modified throughout Unit 23 to include a winter any moose Federal registration permit hunt with a harvest quota aimed at reducing total cow harvest by 20%, and that the harvest limit be modified from one moose to one bull moose during the rest of the season.

DISCUSSION

The Northwest Arctic Subsistence Regional Advisory Council (Council) voted to submit WP18-41 at its March 2017 meeting. The proponent stated that they would like to align the Federal and State moose seasons and hunt areas in Unit 23 in order to address a declining moose population in the unit. The proponent also noted that Alaska Department of Fish and Game (ADF&G) reports have shown a decline in the moose population throughout a majority of Unit 23 and the State has taken steps to reduce harvest by adopting more restrictive regulations for both resident and nonresident hunters. Council members stated that local users typically harvest cow moose during the winter months. Due to the need to conserve cows in the unit, the proponent is requesting that the Jan. 1-Mar. 31 portion of the Unit 23 moose season be eliminated to align with State regulations, but that they would also like to maintain a two month cow moose harvest season from Nov. 1 - Dec. 31 in order to provide for subsistence needs in local communities. The proponent stated that as caribou populations decline in Unit 23, some subsistence users are relying more heavily on moose to meet their needs. It was expressed by the proponent that this two month cow season would provide much needed food resources for subsistence users who were not able to harvest caribou for the year, while also limiting overall cow harvest during the season in order to allow for reproductive growth in the population.

Similarly, Louis Cusack of Chugiak submitted WP18-42 to address a declining moose population so that more aggressive measures do not need to be taken in the future. The proponent stated that ADF&G and National Park Service (NPS) reports have shown a decline in the moose population throughout a majority of Unit 23 and the State has taken steps to reduce harvest by adopting more restrictive regulations for both resident and nonresident hunters. The proponent also stated that all users have a stake in this moose resource and that all users need to work together to improve the health of the moose population in the unit.

Existing Federal Regulation

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose; no person may take a calf or a cow accompanied by a calf	*July 1-Mar. 31*
Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf	*Aug. 1-Mar. 31*
Unit 23, remainder—1 moose; no person may take a calf or a cow accompanied by a calf	*Aug. 1-Mar. 31*

Proposed Federal Regulations

WP18-41

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose	
Bulls may be harvested	*July 1~~-Mar.~~**Dec.** 31*
Cows may be harvested	***Nov. 1 – Dec. 31***
No person may take a calf or a cow accompanied by a calf	
~~Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf~~	*~~Aug. 1-Mar. 31~~*
Unit 23, remainder—1 moose	
Bulls may be harvested	*Aug. 1~~-Mar.~~**Dec.** 31*
Cows may be harvested	***Nov. 1 – Dec. 31***

No person may take a calf or a cow accompanied by a calf

WP18-42

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers

1 bull may be harvested *July 1-Mar. 31*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31***

No person may take a calf or a cow accompanied by a calf

Unit 23—that portion lying within the Noatak River drainage

1 bull may be harvested *Aug. 1-Mar. 31.*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.***

No person may take a calf or a cow accompanied by a calf

Unit 23, remainder

1 bull may be harvested *Aug. 1-Mar. 31.*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.***

No person may take a calf or a cow accompanied by a calf

Existing State Regulation

Unit 23—Moose

Unit 23, north of	*Residents—One antlered bull by permit available*	*July 1-Dec 31*

and including Singoalik River drainage	*in person at license vendors within Unit 23 villages June 1-July 15* *or*	
	Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side	*Sept 1-Sept 20*
	Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit	*Sept 1-Sept 20*
Unit 23, remainder	*Residents—One antlered bull by permit available in person at license vendors within Unit 23 villages June 1-July 15* *or*	*Aug 1-Dec 31*
	Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side	*Sept 1-Sept 20*
	Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit	*Sept 1-Sept 20*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands (**Figure 1**).

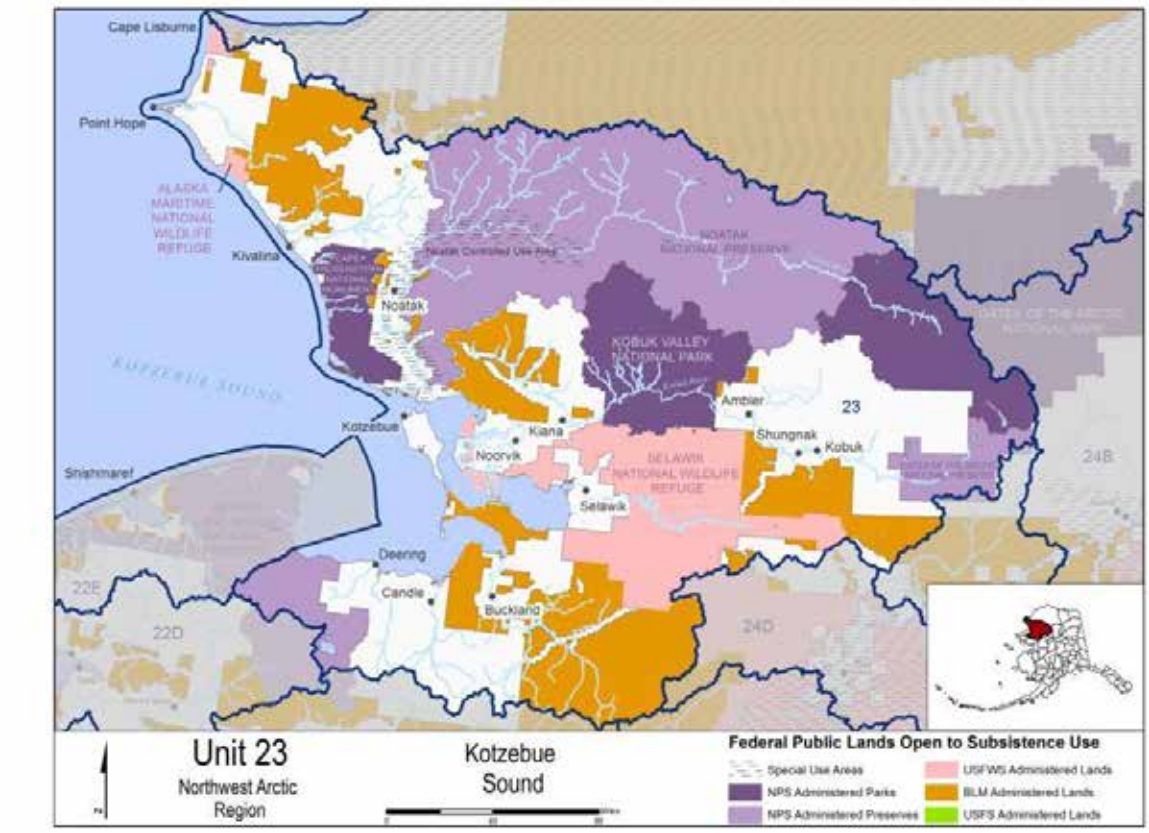


Figure 1. Federal public lands in Unit 23.

Customary and Traditional Use Determinations

Residents of Unit 23 have a customary and traditional use determination for moose in Unit 23.

Regulatory History

In March of 1988, the Native Village of Noatak submitted a proposal to the Alaska Board of Game (BOG) to establish the Noatak Controlled Use Area. This area was originally adopted, in part, "to help reduce harvests on a declining moose population" (ADF&G 1988:47, Alaska Board of Game 1995: 1). The BOG modified the request to include approximately one third of the land area requested by the Native Village of Noatak and unanimously approved the Noatak Controlled Use Area in 1988 (Fall 1990: 87), which was expanded in 1994 to maintain opportunities for hunters using boats without overly restricting aircraft

(Alaska Board of Game 1995: 1). From 1994-2016, the Noatak Controlled Use Area consisted of a 10-mile-wide corridor along the Noatak River from its mouth to Sapun Creek, encompassing more than 160 river miles, which is closed from Aug. 15-Sept. 30 to the use of aircraft for big game hunting (Betchkal 2015). These regulations apply on State, private, and Federal public lands.

State moose regulations became more restrictive in 2003 when BOG approved amended Proposal 15 (effective starting with the 2004/05 regulatory year), making it more difficult for nonlocal residents to hunt moose, creating four registration hunts in the unit with permits (RM880) only available in person at licensed vendors in Unit 23 villages from June 1-July 15. This early availability of permits occurred before most of the seasons opened, requiring nonlocal hunters to make a special trip to a Unit 23 village in order to receive a permit. These permits also allowed better tracking of harvest.

In 2005, Proposal WP05-18, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requested prohibiting the harvest of calves in addition to shortening the season for moose in most of Unit 23 from July 1 (or Aug. 1)-Mar. 31 to Aug. 1-Dec. 31 (a 5 month season), combining the Noatak drainage with the remainder hunt area, and allowing antlerless moose to be harvested only in November and December. The Board chose to table this proposal in response to a Northwest Arctic Regional Advisory Council recommendation to give local villages time to review the proposal and provide their input due to differing viewpoints related to the moose population and local subsistence needs (FSB 2005). In 2006, Proposal WP06-54 was submitted by the Northwest Arctic Subsistence Regional Advisory Council to replace WP05-18, requesting the harvest of moose calves be prohibited and that the two week seasonal closure (Sept. 16-30) in the Noatak River drainage be removed. The Board adopted WP06-54 as a consensus agenda item.

Proposals requesting modifications to aircraft restrictions and/or closures of portions of Unit 23 to the taking of moose except by Federally qualified subsistence users have been submitted multiple times throughout the years. Proposal WP99-049 requested a closure to non-Federally qualified subsistence users in the Noatak and Squirrel River drainages and WP02-40 requested a Controlled Use Area on the Selawik National Wildlife Refuge. The latter of these proposals would only have impacted Federally qualified subsistence users, which was not the initial intent of the proponent. Both WP08-50 and WP08-51 requested that the time period for aircraft restrictions in the Noatak Controlled Use Area be changed to cover more of the fall season. Many of these proposals cited user conflict issues as the justification. Most of these proposals were withdrawn by the proponent, or deferred by the Board, due to the lack of any effect on non-Federally qualified users since the Board only has authority over Federal regulations. In 2007, the State endorsed the creation of a Unit 23 User Conflict Working Group (Working Group) to do an in-depth study documenting and quantifying the extent of observed problems between local subsistence hunters, nonlocal hunters, and commercial enterprises, such as transporters and guides.

In 2010, Proposals WP10-82, WP10-83, and WP10-85, requested modifications to the time period during which aircraft were restricted in the Noatak Controlled Use Area. These proposals were analyzed together with no action taken on WP10-82 and -83. The Board adopted WP10-85 with modification to use current Federal regulatory language and adjust the dates as requested (Aug. 15-Sept. 30) which aligned with recent

actions taken (the passing of Proposal 22 in 2009) by the BOG to change the effective dates of the Noatak Controlled Use Area from Aug. 25-Sept. 15 to Aug. 15-Sept. 30.

At the January 2017 BOG meeting in Bethel, amended Proposal 36 was adopted to change the antlerless moose season in Unit 23 to one antlered bull (ADF&G 2017a) due to conservation concerns. During the discussion of this change, it was stated that nonresident drawing permits have been reduced 25% the last two years and that the number of these permits has declined since the creation of the hunt in 2004. According to the Alaska Draw Supplement document produced by ADF&G (2017b) for the 2016/17 season, 50 permits were available across drawing permit hunts in Unit 23 (DM871, 872, 874, 875, 876, 877, and 885). Amended Proposal 44, which shifted the area of the Noatak Controlled Use Area to extend from the Agashashok River to the Nimiuktuk River, was also adopted at the January 2017 BOG meeting.

At the Northwest Arctic Subsistence Regional Advisory Council public meeting, that took place on March 1-2, 2017 in Kotzebue, ADF&G mentioned that the non-resident hunt has been canceled for the current regulatory year and that permits that were sent out to non-resident users were all rendered void (NWARAC 2017, Saito 2017, pers. comm.). In April of 2017 the Board rejected Temporary Special Action WSA17-02, which requested that Federal public lands in Unit 23 be closed to all non-Federally qualified users for moose harvest during the 2017/18 regulatory year. The Board stated that they wanted to allow time to assess the effects of recent State actions prior to considering a unit-wide closure.

Biological Background

Moose expanded into Unit 23 from the east relatively recently, with the first moose appearing in the unit during the 1920s. Over the next 20-30 years, they expanded their range in Unit 23 to the Chukchi Sea coast (LeResche et al. 1974, Tape et al. 2016, Westing 2012). The Unit 23 moose population grew through the late-1980s (Westing 2012). This rise in population was followed by severe winters and extensive flooding from 1988-1991 which, in conjunction with predation by brown bears and wolves, reduced the population and overall moose density (Westing 2012).

State management goals for moose in Unit 23 include maintaining a unit wide combined population of 8,100-10,000 moose while maintaining a minimum November bull:cow ratio of 40:100, except in the Lower Kobuk which is disproportionally inhabited by maternal cows (Westing 2012). The higher bull:cow ratio goals are due to the low densities and wide distribution of moose throughout Unit 23.

Moose population surveys have been conducted in Unit 23 by ADF&G staff and Federal partners since the early 1990s. Census areas have fluctuated throughout the years due to time and financial restraints as well as evolving survey techniques available to biologists (Saito 2017, pers. comm.). Area biologists have tried different methods to obtain the most accurate population counts with the resources available. The most recent census area modification was the addition of the previously unsurveyed area between the Lower and Upper Kobuk census areas to the Upper Kobuk census area (Saito 2017, pers. comm.). It is planned for the current census areas to be in place for the foreseeable future (**Figure 2**).

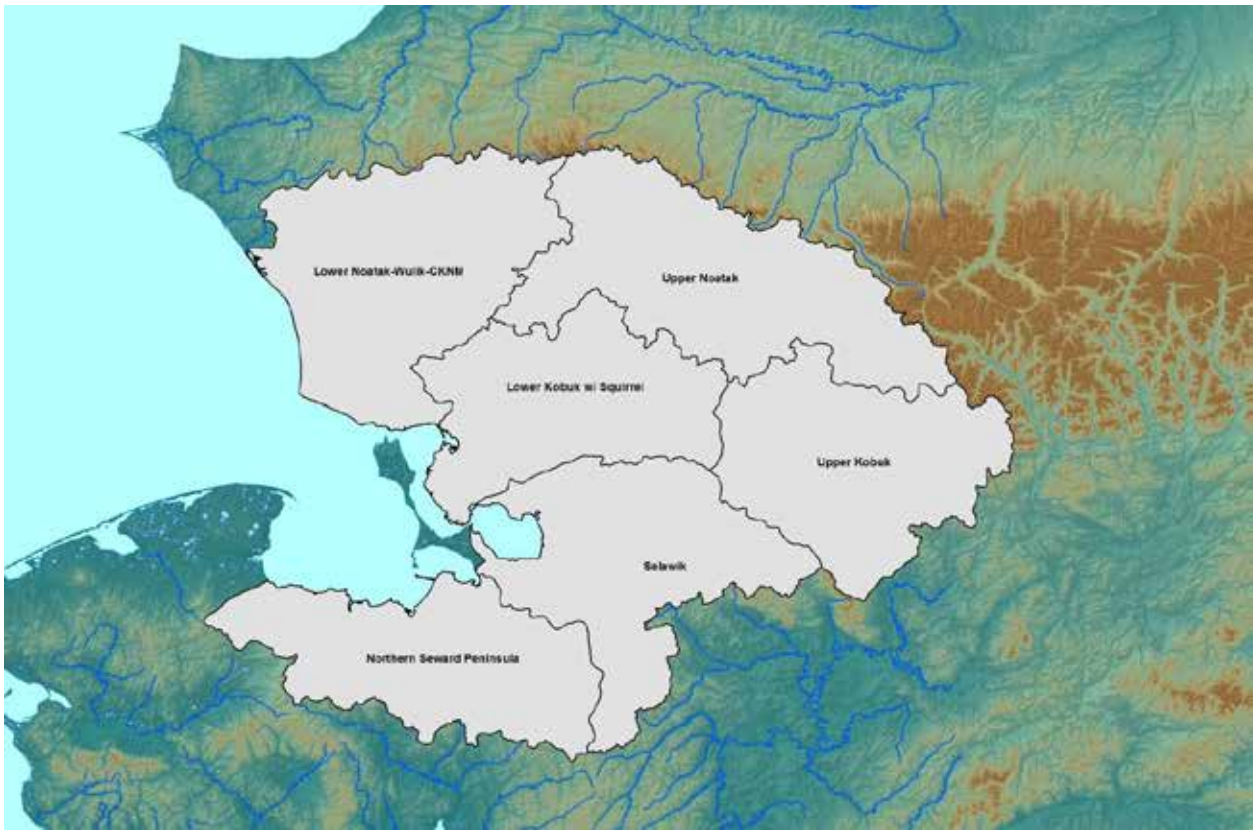


Figure 2. ADF&G moose census areas in 2017 (figure from Saito 2017, pers. comm.).

Between 2000 and 2011, spring geospatial population estimates showed adult moose densities throughout Unit 23 ranged from 0.03-0.59 moose/mi² (Westing 2012). During this time period, moose densities appeared to be stable. Since then, new spring geospatial population censuses have been conducted across each Unit 23 study area (**Table 1**). The most recent data shows adult moose densities throughout Unit 23 range from 0.03-0.44 moose/mi² depending on the census area (**Table 2;** ADF&G 2017a). Population census surveys are conducted in different census areas annually with each census area being surveyed approximately every five years (Alaska Board of Game 2017). The most recent population surveys were conducted for each of the census study areas as follows: Upper Noatak-2010, Lower Kobuk-2012, Lower Noatak-2013, Upper Kobuk-2014, Northern Seward Peninsula-2015, and Selawik-2016 (**Table 2**). While the Noatak drainages, Lower Kobuk, Selawik, and Northern Seward Peninsula populations have declined and are below population objectives, the Upper Kobuk has remained relatively stable (**Table 1**, **Figure 3**; Saito 2016a, pers. comm.).

At the Alaska Board of Game's Arctic and Western Region meeting in January 2017, the State biologist stated the current estimated moose population for Unit 23 was approximately 7,500 moose (ADF&G 2017a). This is below the overall population goal of 8,100-10,000 moose for Unit 23.

The last year that all fall composition surveys were done in all survey areas consistently (Lower Kobuk, Lower Noatak, Selawik, and Seward Peninsula) was 2007. From 2004-2007 the bull:cow ratio averaged

39:100 with average ratios ranging from 26-50 bulls:100 cows in the drainages surveyed and calf:cow ratios averaged 21:100 with average ratios ranging from 12-34 calves:100 cows (Saito 2016a, pers. comm.,

Table 1. Overview of most recent population estimates throughout Unit 23. Harvest rates are set at 6% of the population. The Upper Kobuk census area represents the updated census area that was created in 2014. Extrapolated total incorporates estimated populations in non-surveyed portions of Unit 23 (Saito 2016a, pers. comm.).

Unit 23 Study Area	Population Estimate	Population Objectives	Harvestable Surplus
Noatak River Drainages	1631	2000-2300	98
Lower Kobuk River Drainage	2546	2800-3400	153
Upper Kobuk River Drainage	727	600-800	44
Selawik/Tag River Drainage	940	2000-2500	56
Northern Seward Peninsula	617	700-1000	37
Total	**6461**		**388**
Extrapolated Total	7499.9		450

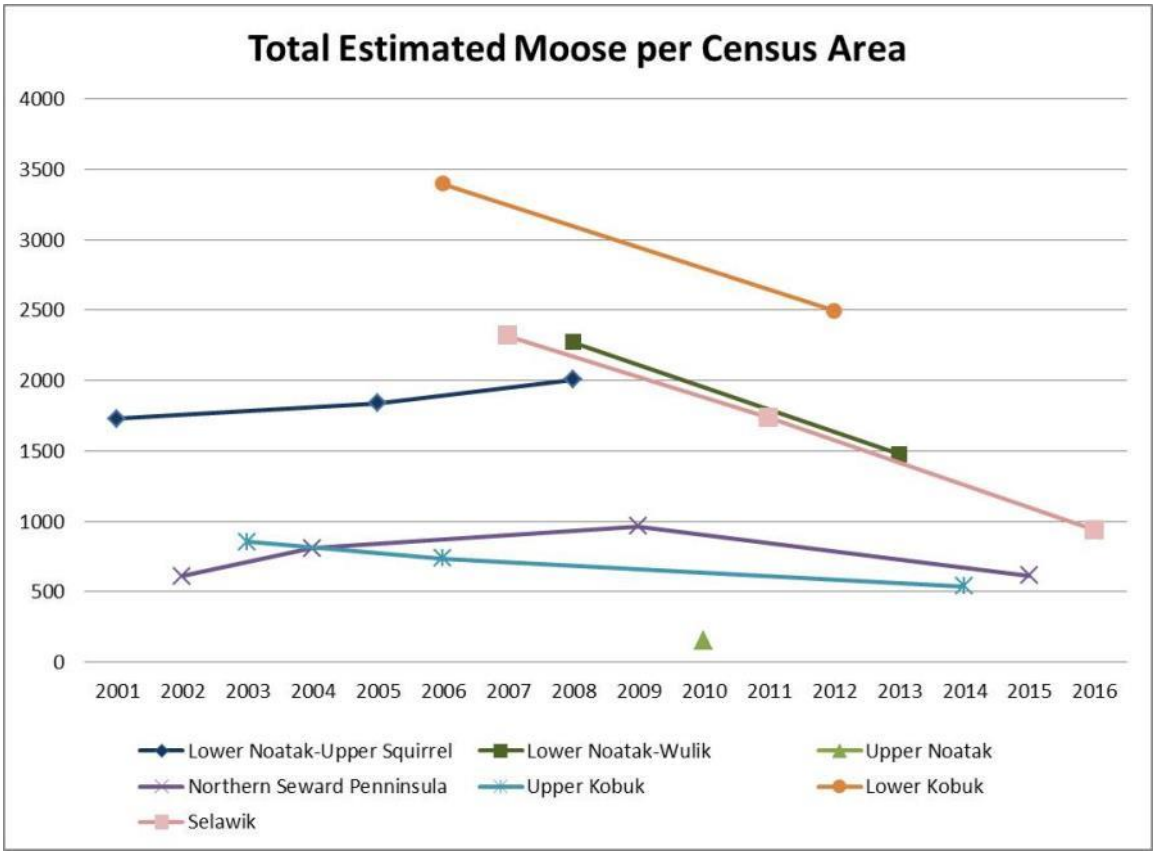


Figure 3. Total moose population estimates from 2001 to 2016 by census area. The old Upper Kobuk census area population estimates are shown here due to improved comparability across years (Saito 2016a, pers. comm.).

Table 2. Moose population data collected during spring population census surveys in Unit 23 since 2001. The Upper Kobuk was surveyed in 2014 using both the older census area and the updated census area (Saito 2016a, pers. comm.).

Census Area	Year	Moose Observed	Total Moose Estimated	Census Area (mi^2)	Area Surveyed (mi^2)	Total Density ($/mi^2$)	Adult Density ($/mi^2$)	Calves :100 adults
Lower Noatak-Upper Squirrel	2001	709	1731	5230.2	832.0	0.33	0.30	10
	2005	575	1838	5349.7	915.5	0.34	0.30	13
	2008	596	2008	5349.7	1510.4	0.38	0.33	13
Lower Noatak-Wulik	2008	685	2273	6404.5	--	0.35	0.31	14
	2013	413	1478	6404.5	1310.2	0.23	0.21	11
Upper Noatak	2010	100	153	4485.6	1972.1	0.03	0.03	12
N. Seward Peninsula	2002	520	612	5888.5	1220.7	0.10	0.10	7
	2004	610	810	5882.9	1934.3	0.14	0.12	12
	2009	293	966	5773.2	1271.2	0.17	0.16	8
	2014	264	--	--	--	--	--	12
	2015	310	617	5767.8	1791.2	0.11	0.09	15
Upper Kobuk	2003	252	856	4001.5	895.4	0.21	0.19	12
	2006	219	737	4001.5	973.7	0.18	0.16	15
	2014	136	538	3990.8	839.2	0.13	0.13	7
	2014	186	727	5056.8	1082.5	0.14	0.13	7
Lower Kobuk	2006	1532	3398	4870.5	1457.6	0.70	0.59	15
	2012	789	2497	4870.5	1457.6	0.51	0.48	8
Lower Kobuk-Squirrel	2012	789	2546	5338.0	1290.8	0.48	0.44	8
Selawik	2007	678	2319	6580.1	1845.2	0.35	0.32	10
	2011	448	1739	6559	1289.1	0.27	0.24	11
	2015	532	--	--	--	--	--	14
	2016	520	940	6559	2273	0.14	0.13	14

Westing 2012). The proportion of moose surveyed each year was estimated at 20-35% of the population (Westing 2012). Since 2007, fall composition surveys have been conducted sporadically in the four survey areas (**Table 3**; Saito 2016a, pers. comm.). According to Stout (2010) population guidelines, a ratio of less than 20 calves:100 cows may indicate the population is in decline while a ratio of 20-40 calves:100 cows may indicate a stable population. Taking this information into account, recent fall composition surveys show the Lower Kobuk population appears to be relatively stable while moose populations in the other survey areas appear to be in decline.

Table 3. Bull:Cow ratios in fall composition surveys conducted after 2007 (Saito 2016b, pers. comm.).

Survey Area	Year	Bulls:100 Cows	Calves:100 Cows
Selawik	2008	54	18
	2010	47	19
	2015	43	20
Lower Kobuk	2011	45	15
	2016	38	24
Lower Noatak	2013	53	4
Seward Peninsula	2014	34	16

The most recent survey completed was in the Selawik census area. The Selawik area spring moose survey was conducted in 2007, 2011, and 2016. In 2011, the moose population was estimated at 1,739 animals (Saito 2016b). This represented a 7% annual decline from the 2007 estimate of 2,319. In 2016, the population was estimated at 940; a 12% annual population decline from the 2011 survey (Saito 2016b). Fall composition surveys from 2008-2015 showed bull:cow ratios between 43-54:100. Calf recruitment remained steady during this time, ranging from 10-14 calves:100 adults for spring surveys, with fall composition ranging from 18-20 calves:100 cows (Saito 2016b).

At the Northwest Arctic Subsistence Regional Advisory Council public meeting in March (2017) NPS presented information on the importance of cow moose to overall population growth. It was stated that cow moose begin producing calves at three years of age and often produce twins every third year (NWARAC 2017). By maintaining cows in a region, a manager is potentially ensuring continued growth of that population.

Moose in Unit 23 are not evenly distributed across the landscape, with some drainages experiencing higher densities of moose than other drainages. During winter months large congregations of moose have been observed near villages, which can make these moose highly susceptible to harvest (Alaska Board of Game 2017). In areas with low moose densities, the harvest of congregations of moose near villages can lead to population crashes and possible population extirpation within the area.

Habitat

Moose moved into Unit 23 around the 1920s (**Figure 4**), as suitable shrub and willow productivity and cover increased concurrently with rising average temperatures in the northern regions of the state (Tape et al. 2016). From 1860 to present day, willow heights have increased from an estimate of approximately 1.10 meters in 1860 to approximately 2 meters in 2009 and shrub habitat has spread in these Arctic habitats (Tape et al. 2016). Moose rely on willow and shrub habitats for browsing and for cover from predators. The taller vegetation heights estimated in the northern and western portions of the state provide more

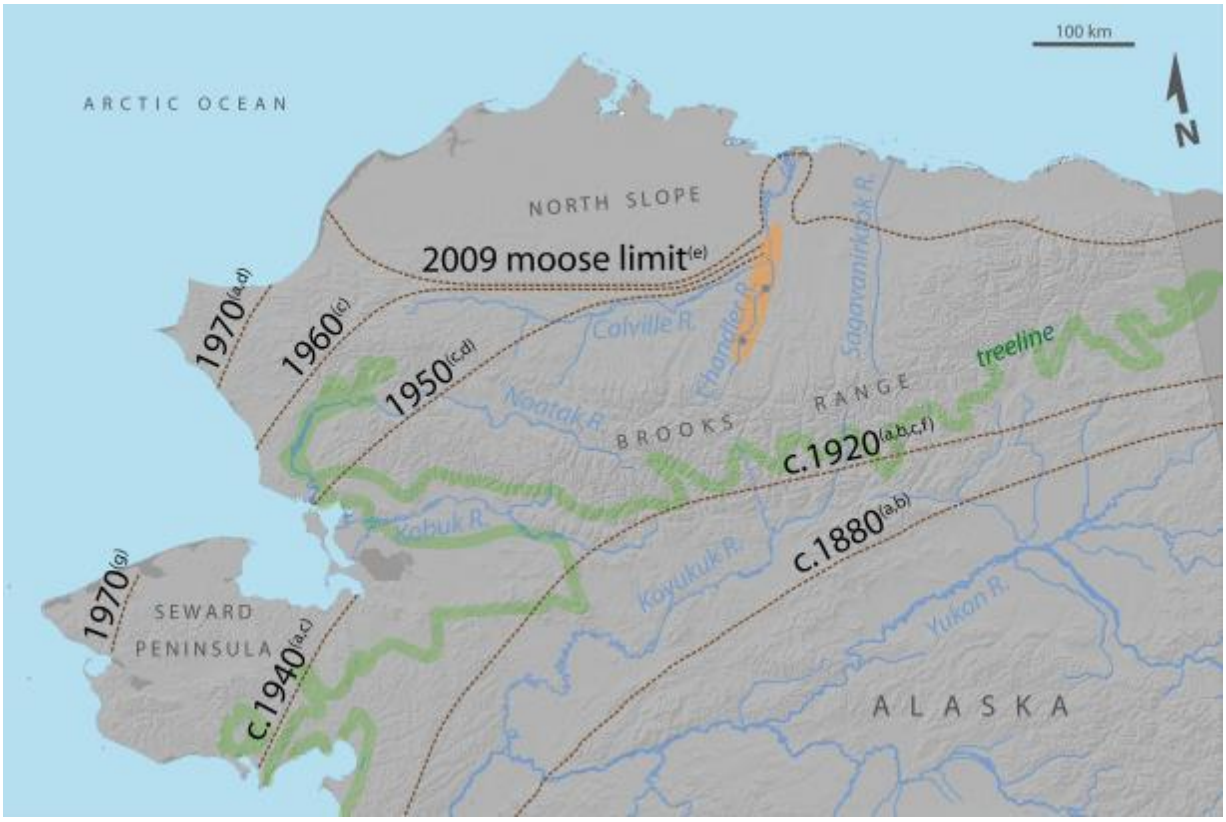


Figure 4. Temporal moose distribution changes in northern Alaska (figure from Tape et al. 2016).

suitable cover and increased available forage above the snowpack for moose populations than was present in the past (Tape et al. 2016). This expansion of moose habitat into northern latitudes has been found in other Arctic areas, such as Siberia (Frost and Epstein 2014). Wildfire (the primary driver of boreal forest succession) frequency is forecast to increase as the Arctic climate warms, causing projected moose habitat to increase by 19-64% in present day Western Arctic Caribou Herd core winter range (**Figure 5**; Joly et al. 2012). As statistical models show, this present day broad scale temporal habitat expansion of shrub habitat will continue to push north and west in Alaska as average temperatures increase across years (Swanson 2015).

With the expansion of shrub/willow habitat, migration of species reliant on this habitat resource can also be expected. Besides moose, snow shoe hare have also broadened their range into these northern regions (Tape et al. 2016). Herbivory can negatively impact habitat that is not yet stable in a newly established

area. In these areas it is necessary to monitor browsing of vegetation to understand overall habitat conditions for a species. During a habitat survey conducted in 2005, willows did not appear to be over-browsed by moose in Unit 23 (Westing 2012). Moose browse surveys were conducted in 30 plots within the Lower Kobuk survey area in Unit 23 from April 12-16, 2017. Although this data has not been analyzed at this time, past surveys showed that preferred browse removal rates are well below 20% (Hughes 2017, pers. comm.).

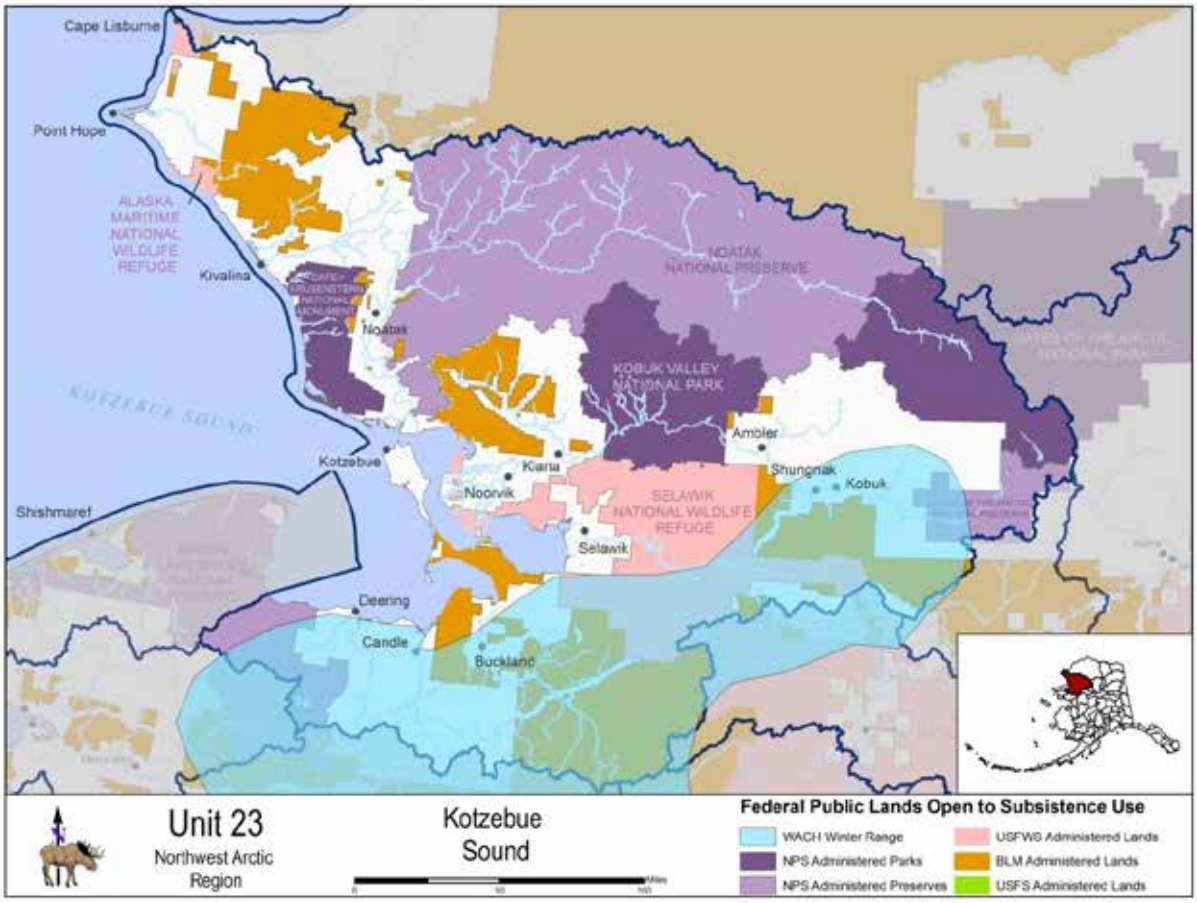


Figure 5. The location of the Western Arctic Caribou Herd winter migratory range in Unit 23 where moose habitat is expected to increase by 19-64% (Joly et al. 2012).

Cultural Knowledge and Traditional Practices

Game Management Unit 23 encompasses the Northwest Arctic Borough which was established in 1986 and is home to 7,523 residents from 11 communities (NAB 2016). Approximately 86% of the residents identify as Alaska Native or part Native, with the majority of these identifying as Inupiat Eskimo (NAB 2016). The borough comprises approximately 39,000 mi^2 on which subsistence activities are a vital part of the lifestyle for local residents (NAB 2016).

Documentation on the earliest archaeological sites to-date suggests the presence of communities in the Northwest Arctic beginning around 7900 B.C., especially inland near present-day Onion Portage

(Anderson 1984: 81). Coastal habitation in this region has been documented beginning 4,500 to 4,200 years before present (Anderson 1984: 84). By 1800, ten relatively autonomous societal territories had formed in what is commonly referred to as the "Kotzebue Region", unified by several preceding centuries of prehistoric Thule culture (Burch 1984: 304). Contact with Russians likely began in the 17th century and was followed by the arrival of Captain James Cook in Northern Alaska in 1778 (Anderson 1984: 93). The first recorded Russian contact in the Kotzebue Sound area was in 1818 by the German Lt. Otto Von Kotzebue, sailing under the Russian flag (NAB 2016).

Historically, the people of the Northwest Arctic lived in small family clusters that were spread widely across the landscape (Burch 1980: 265). It wasn't until the 20th century that most residents of the region became centralized in more permanent winter villages (Georgette and Loon 1993: 3). Kotzebue became the largest community in the region and is currently considered the hub of economic activity in the area. In 1985, Kotzebue was more than eight times larger than the average community in the region by population (2,633 individuals), and four times larger than the second largest community – Selawik (Georgette and Loon 1993: 3). In 2010 the population of Kotzebue was recorded as 3,201 individuals (DCCED 2016). The community is near the mouth of several major river systems. It is surrounded by the marine waters of Kotzebue Sound, and the original village was named "Qikiqtagruk" (Georgette and Loon 1993: 4).

The resources of the Northwest Arctic region are relatively rich and varied despite its high latitude (Burch 1984: 306). A variety of animal species are available and utilized for subsistence including marine mammals, terrestrial mammals, birds, and fish (Burch 1984: 306). Caribou has been a staple in the diet of many Inupiat peoples for centuries (Georgette and Loon 1993: 78). In many parts of the Northwest Arctic however, shifts in herd migration and size often causes variability in the availability of this resource, with the use of caribou and harvest strategies often changing accordingly over time (Georgette and Loon 1993: 78).

Despite the diversity of resources in the region, moose are considered a relatively recent addition, especially in lowland and coastal areas (Georgette and Loon 1993: 83). Archaeological sites in tundra and northern tree-line areas of Alaska have reported few moose remains until the mid-20th century and this is consistent with historical accounts and minor representation in Inupiat culture (Hall 1973, Coady 1980, Tape et al. 2016). Reports of nineteenth century explorers also lacked observations of moose along the Kobuk, Noatak, or Colville Rivers, as well as along the Arctic coast (Coady 1980).

Moose were present in the tributaries of the upper and middle Noatak River in the 1940s and became more common downriver after 1960 (Georgette and Loon 1993: 83). In the upper Kobuk River moose did not appear until the 1920s but soon thereafter populated the entirety of the drainage (Georgette and Loon 1993: 83). Uhl and Uhl (1977) reported that residents of the Cape Krusenstern area lacked historic traditions that included moose. By the 1980s, moose were present in suitable habitat throughout northwest Alaska (Georgette and Loon 1993: 84).

According to Georgette and Loon (1993), residents of Kotzebue continued to consider moose as secondary to caribou in their importance and desirability as a subsistence food; they were taken to add dietary variety. Residents hunted moose in the fall, but moose were also harvested throughout the winter as need

necessitated (Georgette and Loon 1993: 84). The relative size of moose makes them more difficult to butcher and pack than caribou, and hunters often prefer to harvest the species as close as possible to the edge of a river or a lake in proximity to their boat (Georgette and Loon 1993: 84). Moose is generally prepared and preserved by similar means as caribou, most often aged and frozen (Georgette and Loon 1993: 84). The cartilaginous parts of the nose were the only part of the heads used. Because moose hides were not generally smoked or tanned, they were rarely salvaged (Georgette and Loon 1993: 84).

The average per capita harvest of moose in Kotzebue in 1986 was 13 pounds, accounting for only 3% of the average household harvest (Georgette and Loon 1993: 84). Approximately 8% of Kotzebue households harvested moose (compared to 45% harvesting caribou), but 18% indicated that they hunted for moose but were unsuccessful (Georgette and Loon 1993: 84). Despite the small percentage of households harvesting moose, sharing of this resource was widespread with approximately 42% of households using it (Georgette and Loon 1993: 84). The use and harvest of moose by Kotzebue residents was similar in 2012 with approximately 13 pounds of this resource harvested per capita, 9% of households harvesting moose, and 37% of households using moose (ADF&G 2012).

The harvest and use of a resource in regional hubs may be different than that of a rural village since the former tends to be more heterogeneous in "culture, birthplace, education, employment, and length of residency" (Georgette and Loon 1993: 4). In 1992, the rural northwest arctic community of Kivalina harvested approximately 26 pounds of moose per capita, with 23% of the households harvesting the resource and 47% of households using the resource (ADF&G 1992). In 2010, residents of Kivalina harvested approximately 19 pounds of moose per capita with 13% of household harvesting the resource and 16% using the resource (ADF&G 2010).

Changes in harvest and use patterns may be attributable to many factors including the availability of moose and other resources in a given a year. Georgette and Loon (1993) suggested that future declines in caribou availability in the region could result in increased reliance on moose to meet the subsistence harvest demands of Kotzebue residents. Given that the Western Arctic Caribou Herd (WACH) has been declining since 2003 (Dau 2015), moose may already be becoming a more prominently sought after resource for meeting subsistence needs in the region.

Harvest History

Harvest numbers are collected from both State harvest reports and community household surveys. Community household surveys collect a broad range of information and are used as a method to determine, among other things, whether harvest is being reported accurately in State harvest reports. Harvest reports provide data on an annual basis. Community household surveys gather data from local communities pertaining to subsistence harvest on an irregular basis, with many communities only being visited once over a five year time span. In Unit 23, community household surveys show that moose harvest is underreported by local users, but nonlocal user harvest can be assumed accurate based on the requirement of registration permits and drawing permits in some areas. This section will discuss State harvest report data prior to reviewing community household survey data.

Prior to 2005 a greater percentage of the total reported moose harvest in Unit 23 was from non-Federally qualified users. In 2003 approximately 80% of the reported harvest was from non-Federally qualified users (ADF&G 2016). In 2005, after the implementation of registration hunts (RM880) by the BOG, this percentage dropped to approximately 56% (ADF&G 2016). According to the ADF&G (2016) harvest report website, the average annual reported harvest in Unit 23 from 2005-2015 was 153 moose, which is below the harvestable surplus (450) for the unit (**Table 1 and 4**). A majority of moose taken over these years have been bulls. Local residents, defined as those residing within Unit 23, accounted for 50.4% of the total reported harvest from 2005-2015 and 51.5% in 2015 alone (**Figure 6;** ADF&G 2016). Harvest success by local residents remained flat between 2004-2014 (**Figure 7**). In 2015, 165 moose (144 male, 21 female) were reported harvested (≈ 115 taken in September) with 35.1% hunter success by all users and local users making up 58% of all moose hunters throughout the unit (**Figure 7 and 8, Table 4 and 5;** ADF&G 2016, Saito 2016a, pers. comm., WINFONET 2017). In the last few years a majority of the moose harvest in Unit 23 was taken from the Kobuk drainage (**Figure 9;** ADF&G 2017a). In 2015, a majority of nonlocal users used aircraft to access hunting areas (19 nonresidents, 20 nonlocal residents, and 2 local residents), whereas most local residents reported using boats (1 nonresident, 20 nonlocal residents, 51 local residents) or snow machines (1 nonlocal resident, 22 local residents) to access hunting areas (WINFONET 2017). Community household survey data was not included in any of these values and will be discussed later in the analysis.

Table 4. Reported moose harvest in Unit 23 for 2005-2015 (ADF&G 2016).

Year	Species	Local Resident Harvest	Nonlocal Resident Harvest	Total Resident Harvest	Unknown Residency Harvest	Nonresident Harvest	Total Harvest	Male	Female	Unknown Gender
2015	Moose	85	59	144	1	20	165	144	21	0
2014	Moose	74	40	114	0	10	124	109	14	1
2013	Moose	88	53	141	2	21	164	151	12	1
2012	Moose	75	57	132	0	24	156	146	10	0
2011	Moose	72	45	117	1	26	144	133	11	0
2010	Moose	102	63	165	2	22	189	169	17	3
2009	Moose	80	50	130	2	23	155	144	10	1
2008	Moose	62	48	110	1	40	151	143	7	1
2007	Moose	64	29	93	5	25	123	116	7	0
2006	Moose	79	49	128	1	30	159	150	7	2
2005	Moose	65	41	106	1	41	148	137	10	1
Total:		**846**	**534**	**1380**	**16**	**282**	**1678**	**1542**	**126**	**10**

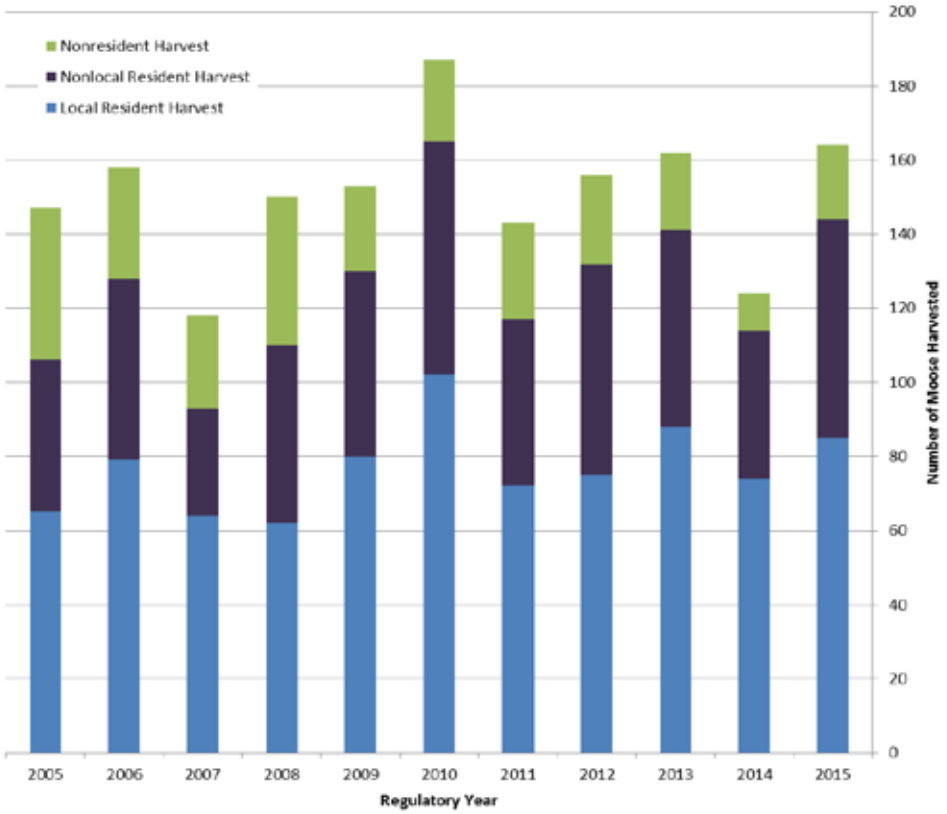


Figure 6. Number of moose harvested in Unit 23 from 2005-2015 according to State harvest reports (ADF&G 2016).

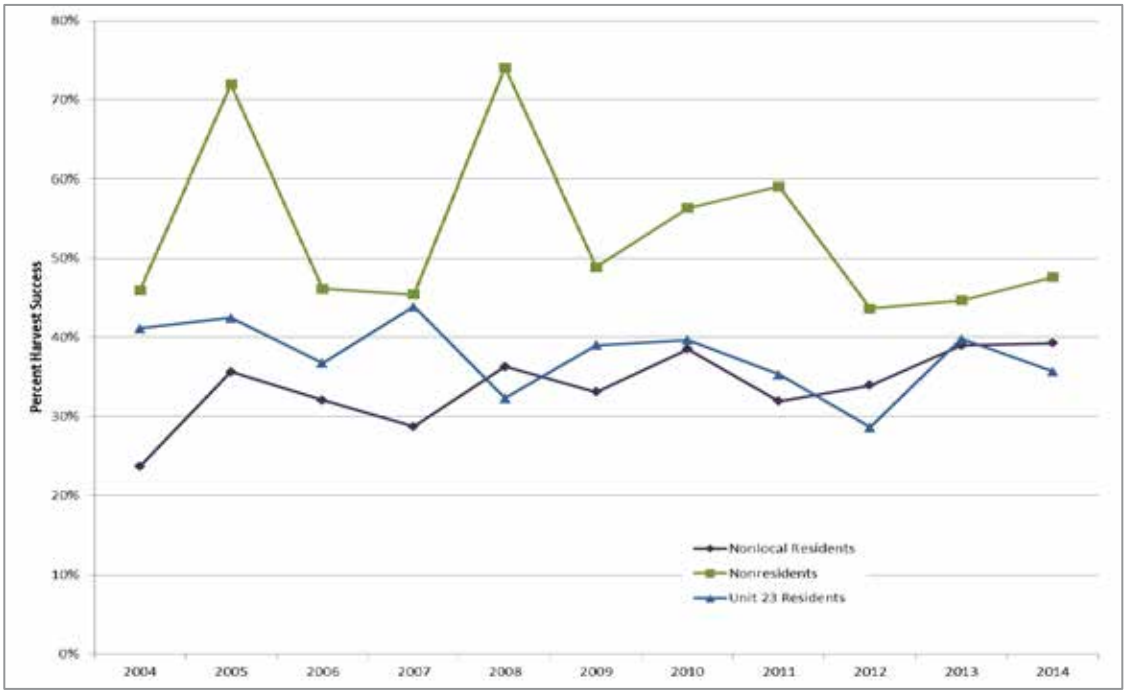


Figure 7. Moose harvest success among users of Unit 23 from 2004-2014 according to State harvest reports (Saito 2016a, pers. comm.).

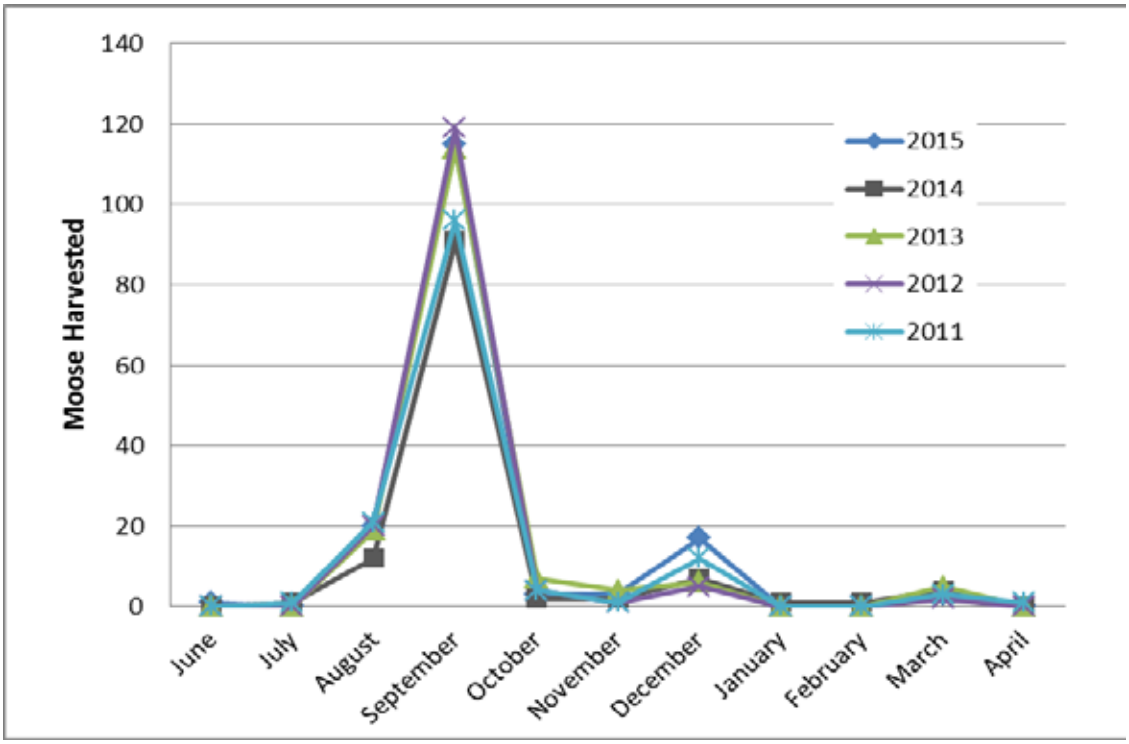


Figure 8. Moose harvest, by month, among users of Unit 23 from 2011-2015 according to State harvest reports (WINFONET 2017).

Table 5. Unsuccessful hunters that took part in moose hunts in Unit 23 according to ADF&G harvest reports compared to overall hunter participation according to State harvest reports (ADF&G 2016).

Year	Unsuccessful Local Resident	Unsuccessful Nonlocal Resident	Unsuccessful Nonresident	Unsuccessful Unspecified	Total Unsuccessful Hunters	Total Successful Hunters	Total Hunters Overall
2015	189	94	24	1	308	165	473
2014	130	76	11	1	218	124	342
2013	133	83	26	1	243	164	407
2012	187	111	31	1	330	156	486
2011	131	96	18	2	247	144	391
2010	154	102	17	0	273	189	462
2009	124	102	24	2	252	155	407
2008	127	87	14	3	231	151	382
2007	83	72	30	3	188	123	311
2006	136	104	34	3	277	159	436
2005	88	74	16	1	179	148	327

ADF&G issues both drawing permits to nonresidents (DM871, 872, 874, 876, 885) and registration permits to residents (RM880) in Unit 23. According to ADF&G harvest statistics, DM885 permits were not available until 2013 and permits available from DM871-877 hunts varied throughout the years (ADF&G 2017c). The total number of nonresident drawing permits given out in Unit 23 has declined since 2010

(**Table 6**). The number of registration hunt permits handed out in Unit 23 has increased since 2011 (**Table 7**). Harvest reporting is required under registration permits, drawing permits, and harvest tickets, although it is more difficult to enforce reporting under the harvest ticket system.

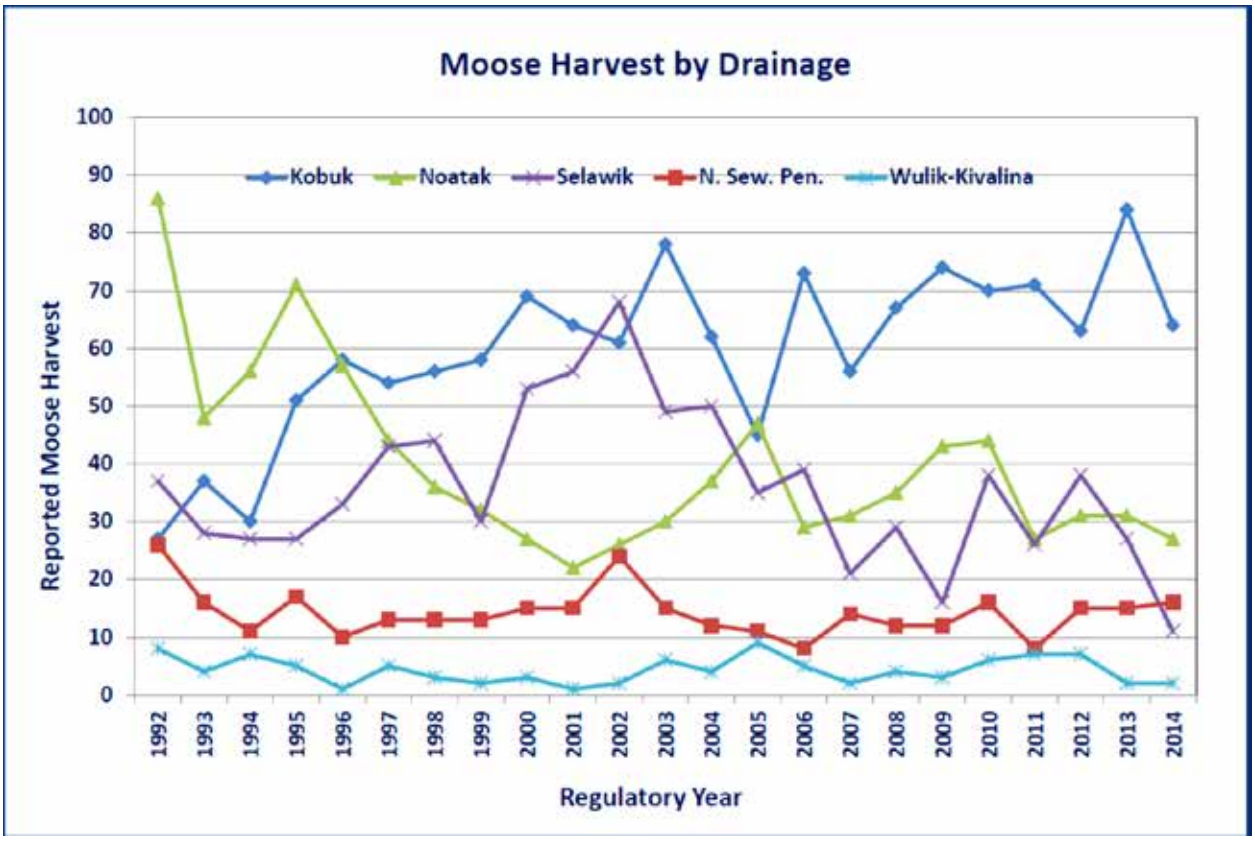


Figure 9. Moose harvest, by drainage, among users of Unit 23 from 1992-2014 according to State harvest reports (figure from ADF&G 2017a).

Table 6. Number of drawing permits available from ADF&G from 2011-2015 (ADF&G 2017c). Number of hunters is the number of individuals who received permits that actually went hunting.

Drawing Permit Hunts in Unit 23		
Year	**Number of Permits**	**Number of Hunters**
2011	68	43
2012	68	49
2013	65	51
2014	68	49
2015	50	37

Table 7. Number of registration permits given out by ADF&G from 2011-2015 (ADF&G 2017c). Number of hunters is the number of individuals who received permits that actually went hunting.

Registration Permit Hunt in Unit 23		
Year	Number of Permits	Number of Hunters
2011	446	261
2012	534	308
2013	522	299
2014	587	318
2015	569	336

Although Federally qualified subsistence users are required to obtain a harvest ticket from the State and report their harvest accordingly, community household surveys show that harvest reporting is generally low in Unit 23 (NWARAC 2016). Annual community harvest data is only intermittently available for any given community and annual study periods often do not match up with State regulatory years. However, in 2011, seven moose were reported as harvested by Selawik locals (ADF&G 2017d) while community household survey data in Selawik showed that approximately 40 moose were harvested by local residents that year (NWARAC 2016, Saito 2016b). Taking this disparity into account, ADF&G estimated that approximately 70 moose are taken from the Selawik drainage annually. This translates to a 7% harvest, which is high for the area (NWARAC 2016). Similar disparities can be seen in other communities over the last five years (**Table 8**). In 2011 and 2012, two and five communities were surveyed, respectively, with the number of moose harvested being greater than 50% and 150% of the entire reported local moose harvest for Unit 23 (**Table 9**; ADF&G 2017d, Saito 2016a, pers. comm.). These discrepancies are not taken into account when total harvest for the unit is reported on the ADF&G harvest report site. Although an average of 153 moose are reported in the ADF&G harvest reports, it is estimated from taking into account community household surveys that approximately 300 moose are harvested annually in Unit 23 (NWARAC 2017). The actual harvest of cow moose, in particular, is similarly expected to be approximately double of what is reported in harvest reports (Alaska Board of Game 2017). This is most likely a conservative estimate of overall harvest due to community surveys not being conducted in every community each year.

Table 8. Recorded moose harvest based on community surveys and harvest reports for those Unit 23 communities (ADF&G 2017d, Saito 2016a, pers. comm.).

Year	Community	Moose Harvested	
		Community Survey	Harvest Reports
2011	Noatak	14	5
	Selawik	40	7
2012	Ambler	14	3
	Kobuk	4	1
	Kotzebue	72	36
	Noorvik	24	9
	Shungnak	5	1
2013	Deering	1	3
2014	Point Hope	0	0

Table 9. Number of moose harvested according to community surveys vs. the number of moose harvested according to harvest reports for all of Unit 23 (ADF&G 2017d, Saito 2016a, pers. comm.).

Year	Overall Moose Harvested by Local Residents	
	Community Surveys (number of communities surveyed)	Harvest Reports For Unit 23
2011	54 (2)	72
2012	119 (5)	75
2013	1 (1)	88
2014	0 (1)	74

Other Alternative(s) Considered

Federal regulations could be modified to align with recent changes to State regulations in Unit 23, which eliminated the antlerless season and changed the harvest limit to one antlered bull. This would simplify regulations and protect cow moose in a declining moose population. Since cow moose are the keystone to population growth, conserving cows is essential to maintaining a healthy moose population. Eliminating cow harvest and shortening the overall moose seasons could aid in increasing the moose population in the unit. This modification would result in an additional reduction of harvest opportunity to Federally qualified subsistence users. Further discussion is warranted with the relevant Councils and the public before this alternative can be considered further.

Another option that could be considered is to modify Federal regulations to include a shorter cow season as requested and to provide Federal land managers with a delegated authority to close the cow hunt if deemed necessary to protect the moose population within specified drainages. This option would require up-to-date moose population data within drainages managed by the in-season manager. Due to census surveys only taking place approximately every five years in each census area, it could be difficult to detect population declines in specified drainages in a timely manner needed to make management decisions of this nature. This alternative would require up-to-date moose population data and interagency cooperation within drainages managed by the in-season manager.

Federal regulations could also be modified to create separate antlered and antlerless seasons rather than simply having bull and cow seasons, shorten the antlerless season, as requested, and include a Federal registration permit to better monitor cow harvest within Unit 23. Since the harvest of antlerless moose is no longer permitted on non-Federal lands, the harvest of cow moose may already be reduced. Shortening the antlerless moose harvest season on Federal lands could additionally reduce cow harvest. Since it is currently expected that much of the cow harvest is unreported, the addition of a registration permit may increase harvest reporting and provide a better understanding of the antlerless moose harvest within Unit 23. However, this alternative may not reduce cow harvest enough to make a substantial impact on the moose population in Unit 23.

Effects of the Proposal

If adopted, proposal WP18-41would shorten the moose season, reduce cow harvest, create a bull season, and reduce regulatory complexity between Federal and State hunt areas. According to community household surveys, local users may be responsible for as much as 73% of the moose harvest in the unit. Although better harvest reporting is needed, reducing overall harvest by local users could have a positive effect on the moose population. Browse surveys show that habitat is not currently a limiting factor for moose in Unit 23 and therefore, limiting harvest may allow for increased moose production.

A majority of the moose harvest by Federally qualified subsistence users takes place in September with another small peak of harvest occurring in December. Shortening the Federal season in Unit 23 by three months would result in reduced opportunity, but closing the season on December 31 would still allow Federally qualified users to harvest moose during their typical peak harvest dates.

Combining Federal hunt areas to align with State hunt areas would simplify harvest regulations and limit user confusion. Currently, the Noatak River drainage and the remainder hunt areas (**Figure 10**) have identical seasons and the Noatak drainage has a 5 month cow season. If the shortened cow season is adopted throughout the unit, combining these areas into a single hunt area would help to simplify regulations and help reduce regulatory complexity for Federally qualified subsistence users.

Overall, many of the effects of adopting proposal WP18-42 are similar to the effects of adopting proposal WP18-41. Proposal WP18-42 would reduce cow moose harvest by limiting current harvest limits during the regular season to one bull moose, and creating a winter registration permit hunt for any moose in Unit 23 that would include a target quota that would reduce the total cow harvest by 20% of current harvest levels.

In Unit 23, 21 cow moose were reported as harvested in 2015. If this proposal were adopted, the winter any moose registration hunt quota would be set at 17 moose. This reduction would most likely not have a significant impact on the moose population in Unit 23, since in previous years (2010-2014), annual cow moose harvest was reported to be between 10-17 cows and yet, the moose population still showed a decline. Requiring Federal registration permits for this season could lead to better harvest reporting among local users, but it could alternatively lead to greater confusion and lead to worse harvest reporting.

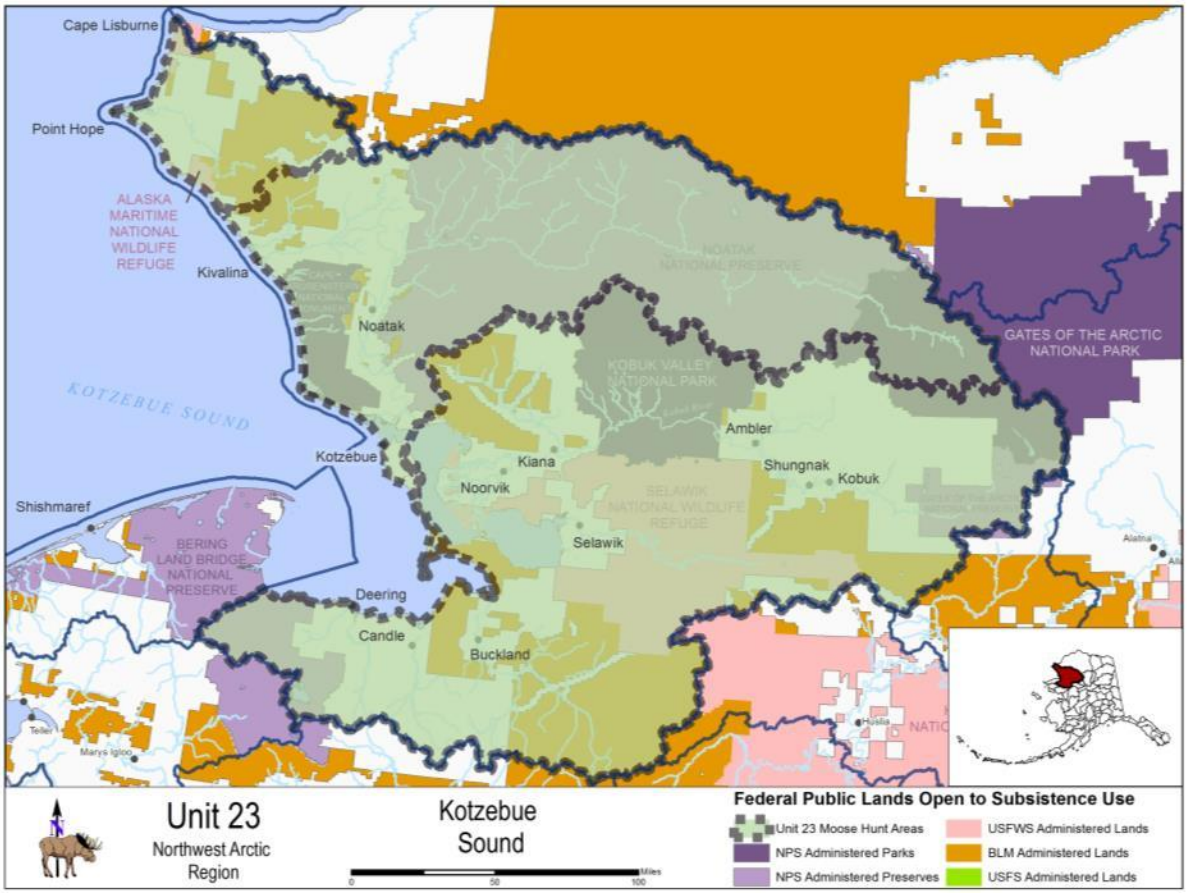


Figure 10. Current Federal moose hunting areas within Unit 23. If this proposal is adopted then the Noatak drainage would be combined with the southernmost remainder hunt area.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-41 **with modification** to change the harvest limit to one antlered bull July 1 (Aug. 1) – Dec. 31 and create a Nov. 1-Dec. 31 antlerless season by Federal registration permit and delegate authority to the Federal land manager to determine quotas and to close the season via a delegation of authority letter only (**Appendix I**); and **take no action** on Proposal WP18-42.

The modified regulation should read:

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers.

1 antlered bull	*July 1~~Mar.~~**Dec.** 31*

Or

1 antlerless moose by Federal registration permit. *No person may take a calf or a cow accompanied by a calf.*	***Nov. 1-Dec. 31***
~~*Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf*~~	~~*Aug. 1-Mar. 31.*~~
Unit 23, remainder	
1 antlered bull	*Aug. 1-~~Mar.~~**Dec.** 31*
Or	
1 antlerless moose by Federal registration permit. *No person may take a calf or a cow accompanied by a calf.*	***Nov. 1-Dec. 31***

Justification

The moose population in Unit 23 is in decline across most of the unit. This trend can be seen in decreased census population estimates and calf:cow ratios below 20:100, both of which indicate a declining population. Areas, such as the Selawik drainage, have been experiencing up to a 12% annual decline between 2011 and 2016. Due to spring population census surveys, in each drainage, only taking place approximately every five years, it is difficult to assess the moose population decline across the unit as a whole. Moose densities vary by drainage and winter populations can be highly concentrated near villages, which can make them susceptible to harvest. If low density populations congregate near villages during the winter months during the moose season, then moose populations can quickly be locally extirpated.

Since cow moose are the keystone to population growth, conserving cows is essential to maintaining a healthy moose population. Obtaining better antlerless moose harvest data via a Federal registration hunt may assist in understanding cow moose harvest levels and related impacts to the moose population in Unit 23 as a whole. Changing to an antlered bull season, rather than a general bull season, will help reduce the risk of inadvertent cow harvest during a time when many bulls have dropped their antlers. Additionally, limiting the antlerless moose harvest to a two month season, setting an antlerless moose quota, and shortening the overall moose seasons could aid in increasing the moose population in the unit.

We recommend that the initial antlerless moose quota be set to reduce annual cow harvest by 20% based on the average of the last ten years of reported cow harvest. Using harvest data from 2006-2015 (**Table 4**), the initial quota would be set at nine antlerless moose. The Federal land manager will have the authority to modify the quota annually and specify drainages within Unit 23 in which the hunt will take place, based on the moose population status.

The State has already taken steps to limit moose harvest in the unit to allow for population growth including elimination of the antlerless season and the withdrawal of nonresident drawing permits for the 2017 fall moose season due to conservation concerns. Since local users may be responsible for as much as 73% of the total harvest in Unit 23 and much of this harvest goes unreported, shortening the overall season in

Federal regulations, changing to an antlered moose hunt, and establishing a limited antlerless moose hunt during a two month season, may provide an additional benefit to the moose population.

A majority of moose harvested by Federally qualified subsistence users takes place in September with another small peak of harvest occurring in December. Closing the season on December 31 would still allow Federally qualified subsistence users to harvest moose during their typical peak harvest dates. Combining Federal hunt areas would simplify harvest regulations and limit user confusion.

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APPENDIX I

Dear ___ Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the _____ Manager 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 Land Conservation Act (ANILCA) Title VIII jurisdiction within Unit 23 as it applies to moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), the Bureau of Land Management (BLM), Gates of the Arctic National Park and Preserve, Western Arctic Parklands, Selawik National Wildlife Refuge, Alaska Maritime National Wildlife Refuge, and the Chairs of the Northwest Arctic and North Slope Subsistence Regional Advisory Councils (Councils) to the extent possible. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chairs, 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 __ Manager is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by 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 states: "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 set annual harvest quotas for antlerless moose and close the antlerless moose season on Federal lands in Unit 23 once the quota has been reached.

- To specify drainages within Unit 23 in which the antlerless moose season will occur.

This delegation may be exercised only when necessary to conserve moose 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 and restriction for take for 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 Unit 23.

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

4. 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 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 Office of Subsistence Management (OSM) no later than sixty days after development of the document.

You will notify OSM and coordinate with local ADF&G managers, Federal land managers, and the Chairs of the Northwest Arctic and North Slope Subsistence Regional Advisory Councils 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 representatives. 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 representatives 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 action 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.

5. <u>Support Services:</u> 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 Coordinators, Office of Subsistence Management
Chair, Northwest Arctic Subsistence Regional Advisory Council
Chair, North Slope 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

WP18–43 Executive Summary	
General Description	Proposal WP18-43 requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year-round. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 23—Brown Bear** *Unit 23—~~1~~ **3** bear**s** by State subsistence registration permit* ~~*Aug. 1 May 31*~~***. July 1 – June 30***
OSM Preliminary Conclusion	**Support** Proposal WP18-43 **with modification** to increase the harvest limit to two bears per year. The modified regulation should read: **Unit 23—Brown Bear** *Unit 23—~~1~~ **2** bear**s** by State subsistence registration permit* ~~*Aug. 1 May 31*~~***. July 1 – June 30***
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	

WP18–43 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	**1 Oppose**

DRAFT STAFF ANALYSIS
WP18-43

ISSUES

Proposal WP18-43, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year-round.

DISCUSSION

The proponent notes an overabundance of brown bears in Unit 23 and states that the proposed regulation changes would reduce human-bear conflicts, particularly the destruction of cabins and taking of meat from boats. The proponent also claims that disturbance of caribou migration by brown bears may also be reduced.

Existing Federal Regulation

Unit 23—Brown Bear

Unit 23—1 bear by State subsistence registration permit	*Aug. 1-May 31.*

Proposed Federal Regulation

Unit 23—Brown Bear

*Unit 23—~~1~~ **3** bear**s** by State subsistence registration permit*	*~~Aug. 1-May 31~~.* ***July 1 – June 30***

Existing State Regulation

Unit 23—Brown Bear

Residents: Two bears every regulatory year		*Aug. 1 – May 31*
Nonresidents: One bear every regulatory year by permit	*DB761-767*	*Aug. 1 – Oct. 31*
OR		
Nonresidents: One bear every regulatory year by permit	*DB771-777*	*Apr. 15-May 31*
OR		
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning July 31	*RB761-767*	*Aug. 1-Oct. 31*
OR		

Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Apr. 14	*RB771-777*	*Apr. 15-May 31*

In addition to other regulations, subsistence regulations apply to the following "Residents Only" hunt

Residents: Two bears every regulatory year by permit available in Kotzebue and Unit 23 license vendors beginning July 1	*RB700*	*Aug. 1-May 31*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Units 21 and 23 have a customary and traditional use determination for brown bear in Unit 23.

Regulatory History

State brown bear hunting regulations were established for Unit 23 in 1961. From 1961 until the early 1990s, State regulations were geared toward trophy hunting (Westing 2013). Since the 1980s, brown bear hunting regulations across northern Alaska have become more liberal, including longer seasons, higher harvest limits, and the waiving of resident tag fees (Miller et al. 2011).

Federal brown bear hunting regulations for Unit 23 were adopted from State regulations in 1990. The season was Sept. 1-Oct. 10 and Apr. 15-May 25 with a harvest limit of one bear every four years. Residents of Units 21 and 23 were considered Federally qualified subsistence users for brown bear in Unit 23.

In 1992, seven proposals (P92-074, 075, 076, 078, 079, 086, 167) were submitted to change brown bear regulations in Unit 23. Proposals P92-74, and 78 sought to liberalize the brown bear harvest limit. Proposals P92-76, 79, and 86 sought to liberalize both the harvest limit and season. Proposals P92-075 and 167 requested eliminating the sealing requirement, prohibiting transfer of hides outside of Unit 23 unless to one's residence in Unit 21, requiring the salvage of all edible meat and the submittal of a harvest report and both ears to a Federally authorized representative within 30 days of harvest. These proposals were submitted because the current regulations conflicted with traditional practices, including restrictive seasons and harvest limits, failure to salvage edible meat, and sealing requirements. The Federal Subsistence Board (Board) considered these proposals concurrently and adopted them with modification to create the Northwest Alaska Brown Bear Management Area (NWABBMA), which included Unit 23 except for the Baldwin Peninsula north of the Arctic Circle (Kotzebue). The sealing requirement was removed

and the use of aircraft in any manner for brown bear subsistence hunting was prohibited. The season in the new hunt area was expanded to Sept. 1 – May 31 and the harvest limit became one bear by State registration permit. The harvest limit and season in Unit 23 remainder was unchanged.

In 1992, the Alaska Board of Game (BOG) also modified Unit 23 brown bear regulations in recognition of traditional harvest of bears by Inupiat hunters for meat, hides, and fat (Westing 2013). The BOG also established the NWABBMA and subsistence registration hunt (RB700) in line with recent changes under Federal regulations.

In 2005, the Board adopted proposal WP05-17 with modification to combine the Unit 23 brown bear hunt areas and to expand the season to Aug. 1 – May 31. This was done to provide more opportunity to Federally qualified subsistence users, to reduce regulatory complexity by aligning State and Federal regulations, and because there were no conservation concerns.

In 2007, Proposal WP07-50 proposed eliminating the permit requirement to hunt brown bear in Unit 23 because it was a burden on Federally qualified subsistence users and often permits were not available in villages. The proposal was withdrawn by the proponent before it went to the Board in order to allow more time to discuss the issue with the Councils and various agencies.

In 2008, the Board adopted Proposal WP08-52 to allow the sale of handicrafts made from nonedible parts of brown bears (i.e. fur, claws) taken in Unit 23 so that subsistence users could more fully utilize the brown bear resource.

In 2012, the Board adopted Proposal WP12-01 to require sealing of brown bear hides or claws prior to selling handicrafts incorporating these parts. This was done in order to ensure that marketed handicrafts are made from legally harvested bears.

In 2014, Proposal WP14-40 proposed eliminating the permit requirement to hunt brown bear in Unit 23 to reduce confusion about hunting regulations and to allow for more opportunistic harvests. The Board adopted WP14-40 with modification to insert the word "subsistence" into regulations (1 bear by State *subsistence* registration permit) in order to clarify that permits were required under both State and Federal subsistence hunting regulations versus State sport hunting regulations, which require sealing of hides and skulls. Eliminating the permit requirement was not adopted as it was an essential mechanism to monitor harvest and to inform brown bear management in the unit. Additionally, Federally qualified subsistence users would then be required to seal harvested bears. (However, sealing is required under the subsistence registration permit if the bear is removed from the unit or parts are sold as handicrafts).

In 2016, the BOG adopted Proposal 57 to allow the sale of brown bear hides and/or skulls by Alaska residents in units where the harvest limit is two or more bears annually. The proposal was submitted by the Nushagak Advisory Committee with the stated intent of encouraging brown bear harvest to 1) reduce predation on moose and caribou and 2) to reduce bear hazards around communities.

In 2017, the BOG adopted Proposal 40 to increase the resident brown bear harvest limit in Unit 23 to 2 bears per regulatory year. The BOG supported Proposal 40 because it provides more harvest opportunity, there were no conservation concerns, and because it was supported by five local Fish and Game Advisory Committees (ACs). Chairman Spraker also stated a second bear has not often been harvested in other units with a two bear harvest limit and that bear harvests in other units with long seasons have been sustainable (ADF&G 2017a). Proposals 37, 38, and 39 requested lengthening the nonresident brown bear season in Unit 23. The BOG adopted Proposal 37 to extend the nonresident season from Sept. 1-Oct. 31 to Aug. 1-Oct. 31 and took no action on Proposals 38 and 39. The BOG supported Proposal 37 in order to provide nonresidents more opportunity, to alleviate user conflicts during September by spreading nonresident hunting out over a longer season, and because all the local ACs supported it.

The Noatak Controlled Use Area (Noatak CUA) prohibits the use of aircraft in any manner for big game hunting from Aug. 15-Sept. 30 within a 10 mile corridor (5 miles either side) along the Noatak River. The Noatak CUA under State regulations extends from the mouth of the Agashashok River upstream to the mouth of the Nimiuktuk River. The Noatak CUA under Federal regulations extends from the mouth of the Noatak River upstream to the mouth of Sapun Creek. The purpose of this CUA is to reduce conflicts between local and nonlocal hunters and to improve subsistence harvests and caribou migration.

Current Events

Proposal WP18-44 requests that up to two raw/untanned brown bear hides (with claws attached) and/or skulls from brown bears harvested on Federal public lands in Unit 23 could be sold per regulatory year. The decision on WP18-44 could have ramifications on this proposal (i.e. permit requirements).

Biological Background

State management objectives for brown bear in Unit 23 are as follows (Westing 2013):

- Maintain a population that sustains a 3-year mean annual reported harvest of at least 50% males.
- Conduct a brown bear population estimate for some portion on Unit 23 in cooperation with Department of Interior (DOI) staff at least once every reporting period.
- Continue community-based assessments to collect brown bear harvest information from residents of Unit 23.
- Seal bear skins and skulls, determine sex, and extract a tooth for aging.
- Monitor harvest data (age, sex, and skull size) for changes related to selective pressure.
- Improve communication between the public and the Alaska Department of Fish and Game (ADF&G) to improve harvest reporting and prevent defense of life and property situations from occurring.

Biological information and trends for brown bear in most of Unit 23 is lacking. As brown bears in Interior Alaska are wide ranging and occur at low densities, population estimates are difficult and expensive to

obtain (Miller et al. 1997, 2011, Mowat et al. 2013, Schmidt et al. 2017). Brown bear densities are classified as adult bears (3+ years-old) and bears of all ages (bears), which includes sows with cubs.

In the early 1990s, surveys were conducted in the Western Brooks Range to obtain baseline data on bear abundance. Brown bear density was estimated as 29.5 bears of all ages/1,000 km^2 (Miller et al. 1997). Brown bear density within Gates of the Arctic National Park & Preserve (GAAR) is currently considered relatively low (Joly 2017, pers. comm.).

Aerial bear surveys were conducted in the lower Noatak Drainage in 1987, 2008, and 2016. While data seems to suggest that the brown bear population is increasing in this area, these surveys are not directly comparable due to differing methodologies and scales (NPS 2017). In 1987, a brown bear census was conducted in the lower Noatak River drainage to provide a benchmark of bear abundance before the Red Dog Mine was constructed (Westing 2013). Density was estimated at 1 adult bear/26 mi^2 (Westing 2013) and 17.9 bears/1000 km^2 (Miller et al. 1997). However, the study area was relatively small (2,000 km^2) and may not be representative of all of Unit 23. Preliminary results from the 2008 survey using the 1987 sightability correction factor (SCF) indicated a brown bear density of 3.4 bears/26 mi^2 (ADF&G 2017b, Saito 2017, pers. comm.). However, this estimate is likely not accurate due to violations of sampling protocols (e.g. sampling adjacent areas on different days) and use of a SCF from another study using different sampling methods (Robison 2017, pers. comm.).

The 2016 brown bear density estimate for the lower Noatak Drainage was 67.5 bears/1000 km^2. NPS conducted an aerial bear survey of the upper Noatak Drainage in May 2017. The preliminary density estimate is 30.6 bears/1000 km^2 (Robison 2017, pers. comm.).

While the population status of brown bears across all of Unit 23 is uncertain, the current population estimate is 3500 bears, which is extrapolated from 2008 density estimates within the Lower Noatak survey area (ADF&G 2017b). As this was derived from a small study area, it is not a correct unit-wide estimate.

Bear density estimates in Unit 22 on the Seward Peninsula may be more representative of southern Unit 23 (e.g. Buckland/Deering area) than estimates from northern Unit 23. Surveys conducted from 2013-2015 in western Unit 22 yielded brown bear density estimates of 21 adult bears/1000 km^2 and 35.6 bears of all ages/1000 km^2 (Schmidt et al. 2017).

Local residents have described substantial population increases in the Unit 23 brown bear population since the 1940s and observations by ADF&G staff suggest a stable or increasing population (Westing 2013, ADF&G 2017b). Several factors may contribute to this trend (Westing 2013). Growing populations of moose, caribou and musk ox in the early 2000s have provided a stable prey base for brown bears and shifted subsistence harvest increasingly toward large ungulates. Possible declines in commercial salmon fishing may have allowed more salmon to reach inland areas, increasing food for bears. Regulations protecting sows with cubs curtailed the traditional practice of "denning" or killing all den occupants, which occurred when bears were relied upon more to meet subsistence needs. Finally, selection of large male bears by

sport hunters may allow survival of cubs that otherwise could have been killed by large boars (Westing 2013).

Bear density is related to food availability. Salmon availability may be the primary determinant of high and low bear densities across Alaska (Miller et al. 1997, Mowat et al. 2013). The short growing season and absence of salmon make the western Brooks Range poor brown bear habitat; although salmon runs may be seasonally important sources of food in other portions on Unit 23 (Miller et al. 1997). Social factors can also influence bear distribution. For example, a sow with cubs may avoid areas with large male bears that could kill her offspring (Mowat et al. 2013).

In northern Alaska, brown bear populations are often managed conservatively for several reasons: Large home ranges are required to meet resource needs, resulting in low density populations (McLoughlin et al. 2002); Female brown bears do not successfully reproduce until they are > 5 years old and have low reproductive rates, small litters, and long intervals between litters (Reynolds 1987, USFWS 1982, Miller et al. 2011); Sows exhibit high fidelity to home ranges with little emigration or immigration (Reynolds 1993); and monitoring methods are imprecise and expensive (Miller et al. 2011).

In 1991, radio-collared brown bears in the vicinity of Red Dog Mine emerged from their dens between April 10 and May 15 (Ayres 1991). Between 2014 and 2016, the few deaths of radio-collared brown bears within GAAR tracked thus far have been human-related (Joly 2017, pers. comm.). Brown bear habitat in northwestern Alaska is predicted to improve due to climate change causing increases in shrub and forest cover as well as wildfires, which create edge habitats that are often preferred by bears (Nielson et al. 2010, Joly et al. 2012, Rupp et al. 2000, Swanson 2015).

Cultural Knowledge and Traditional Practices

Brown bears have long been a highly respected and utilized subsistence resource in northwest Alaska and the species has a prominent physical and symbolic role in the lives of local people (Loon and Georgette 1989). These animals provide a source of meat, raw materials, and medicine within the Inupiaq culture of the region (Loon and Georgette 1989). Brown bears have also been prized as trophy sport hunting animals in the region, largely by non-Native residents of the regional hubs of Nome and Kotzebue (Loon and Georgette 1989). Loon and Georgette (1989) provide a thorough ethnographic account of traditional brown bear harvest and use in the region and is the source of cultural information included in this section, unless otherwise noted.

The hunting of brown bears in Inupiaq culture traditionally required strict adherence to prescribed practices designed to show respect to the animal, and a hunter's success was considered dependent on adherence to these protocols. The Inupiat people believed that bears have excellent hearing and that hunters should not discuss their intentions to kill these animals. Bragging, threatening a bear, acting with too much confidence, or even suggesting a craving for bear meat was considered taboo, potentially leading to harming of the hunter or his family. In modern times, some residents of the region continue to adhere to these protocols and will often refer to "that animal" rather than mentioning it by name. While no longer adhered to,

the Inupiaq also believed that it was taboo for women and girls to eat bear meat (Loon and Georgette 1989, Anderson et al. 1977). Dogs were also not fed bear meat as it was said to make them vicious.

The use of brown bears for food in the region is variable among communities, depending on geographic location. Inland communities eat brown bears more frequently while coastal communities rarely eat this species unless it is harvested in interior areas where bears feed on fish and berries (Loon and Georgette 1989, Burch 1985, Burch 2006). Coastal bears are often considered unpalatable due to their tendency to consume marine mammal carcasses along the beaches. Loon and Georgette (1989) found that some coastal communities avoid bears in the fall because this is when bears have the greatest access to sea mammal carcasses. Noatak hunters also avoid bears in the upper Noatak River drainage because the bear diet in this area consists of squirrels, a prey species causing unpalatable flavor in brown bear meat. Kotzebue displays a mixture of brown bear harvest patterns, likely due to a variety of geographical and cultural backgrounds of residents residing in this regional hub.

Loon and Georgette (1989) found that the consumption of brown bears differs between Unit 23 (Northwest Arctic) and Unit 22 (Seward Peninsula). While communities in Unit 23 often consume brown bears, consumption of bears is uncommon in Unit 22 (Sobelman 1985, Thomas 1982, Loon and Georgette 1989).

For the communities that consume brown bears, Georgette and Loon (1989) found that hunters rarely, if ever, take a bear in defense of life and property. While nuisance animals may be killed, it is more likely for residents of these communities to use the meat and not report the animal as killed in defense of life and property. Some communities considered bears a nuisance; reindeer hunters also commonly held this view. In the 1980s, brown bear was not a substantial component of the diet in any northwest Alaska community as compared to moose or caribou, but it likely plays a vital seasonal role in the subsistence diet when other large land mammals are not available.

Among the edible parts of a brown bear, the fat is the most prized product (Loon and Georgette 1989). Local hunters time their hunting to correspond with when bears have the most fat and the meat is of highest quality (Loon and Georgette 1989; Burch 2006). Brown bears are predominantly hunted in northwest Alaska during the spring and fall (Loon and Georgette 1989; Burch 2006). Spring hunting takes place earlier inland where warmer conditions arrive sooner. When bears emerge from their dens in the spring, they are still relatively fat and gradually become lean; thus subsistence brown bear harvests occur between spring emergence from hibernation until snow machine travel is no longer possible (Loon and Georgette 1989).

Many residents prefer to hunt smaller bears because the meat is tender (Loon and Georgette 1989). Brown bear meat is preserved dried, half-dried, frozen and aged. The fat is also aged then cooked before being eaten. It is also common for dried fish and meat to be dipped in bear fat similar to the way that seal oil is used. Bear livers are not consumed. Bear fat is also considered a valuable source of medicine in the region for curing illnesses and sores. It has been used to treat colds, itchy throats, and coughs by ingesting or applying to the chest. Cooked bear meat with fat is said to increase appetite among the ill. It is also used to treat persistent sores and boils.

Usually the hide is in good condition at the same time the bear is the fattest (Loon and Georgette 1989). Some residents of the region harvest brown bears in the fall once their diet has transitioned to berries, roots, fish, and caribou. Later in the fall, bears regain much of their body fat before hibernation, and therefore, harvest at this time is also preferred. In the spring, hunters utilize tracks to locate bears, and in the fall, they concentrate efforts along salmon spawning streams and in areas with prolific berries.

In modern times, brown bears are rarely hunted in the winter or summer because they are considered lean and their hides are of lesser quality (Loon and Georgette 1989). In the summer, bears are also considered more dangerous. Traditionally the Inupiaq people hunted brown bears in their dens in the winter. These bears were less likely to fight, and before firearms were available, killing a hibernating bear with a spear was likely easier and safer as compared to outside of the den in other seasons. This was also a good source of winter meat when other resources were depleted or unavailable. Some hunters would stake bear dens in the late fall and return to the den later in the year to harvest the bear. In Noatak some hunters routinely pursue bears at night along rivers and streams in the fall; a technique that is considered quite dangerous.

Brown bear hunting is a very specialized activity (Loon and Georgette 1989). Before the arrival of fire-arms, bears were largely hunted with spears and arrows. Traditionally, bears harvested by the Inupiat were almost exclusively harvested by a small number of men from each community and the harvest was dis-tributed to other local households. Men continue to be the primary bear hunters in the region. Often, bears are harvested opportunistically while in pursuit of other subsistence resources or while traveling for other purposes. Hunting areas are generally accessed by boat in the fall and by snow machine in spring. Traditionally however, travel was often accomplished by dog team. Hides are sometimes discarded in the field if packing it out presents logistical challenges.

It is a cultural tradition in the region for a hunter to remove the hyoid bone from beneath a bear's tongue immediately after it is killed (Loon and Georgette 1989). In some places this bone is placed between willow branches, on a tussock, or simply discarded in the field. This practice was meant to ensure that the spirit of the bear has left the area and that there would be no retaliation on the hunter. Traditionally, the head of a brown bear was never brought back to the village and was either buried or placed on a tree or shrub (Burch 2006). When meat is served, family members could not discuss or make comments about the meal. The hunters believed that these practices prevented bad luck, safeguarded their camps, and reduced the potential for future conflict with bears. Removing the hyoid bone and leaving the head in the field remains a common practice.

Beyond nutritional value, brown bears also provide the raw materials for production. Bear hides, bones, teeth, and claws were traditionally used to make spearheads, fishhooks, rope, snowshoe bindings, dog harnesses, scraping tools, doors, mattresses, ruffs, and mukluks (Loon and Georgette 1989). More re-cently, bear hides have been used primarily for mattresses, rugs, ruffs, mukluks and masks while claws are sometimes used for necklaces. Rope made of bear hide is said to be tougher and last longer than that of caribou or bearded seal. Narrow bones of the bear foreleg were used for spearheads and snares while knee joints were made into scraping tools. The hides were traditionally used to make dog harnesses and were preferred since dogs did not chew them as they did for other species. Travelers often carried bear hides to use as mattresses and as doors for sod houses; today they are carried as winter survival gear.

Sharing of brown bear meat, fats, and raw materials is common in northwest Alaska. Loon and Georgette (1989) stated that all of the hunters interviewed in their study shared their brown bear harvests with other households. The hunter typically only keeps a small amount of the bear meat and fat for his family and the rest is given to elders, widows, sick people, and other residents of the community. The hides were traditionally retained by the member of the hunting party that made the most decisive moves in killing the bear (Burch 2006).

Harvest History

There are two resident and four nonresident brown bear hunts in Unit 23 under State regulations. Residents can hunt under the general season, which requires sealing or under the State's subsistence hunt, which requires a registration permit and has similar requirements as the Federal hunt (i.e. salvage of edible meat, no use of aircraft, no sealing required). Spring and fall drawing and registration permits are available to nonresidents. To date, nonresident hunts have been undersubscribed (ADF&G 2017a).

Brown bear harvest from Unit 23 has increased steadily since 1992, although the number of bears taken for food by local residents is low (Westing 2013, Braem et al. 2015). The liberalization of brown bear hunting regulations in Unit 23 in order to reduce bear densities, human-bear conflicts, and bear predation on moose as well as to provide for traditional hunting practices and increase opportunity for other hunters has contributed to increased harvests (Westing 2013). Harvest data is from harvest reports and community household surveys and also includes bears taken in defense of life or property (DLP). However, many DLP kills are not reported because Unit 23 residents consider the reporting requirement as onerous or fear they have broken the law (Westing 2013). Local and nonlocal residents are considered Alaska residents living within and outside of Unit 23, respectively.

Between 1990 and 2016, reported Unit 23 brown bear harvest averaged 50 bears/year, ranging from 30-78 bears/year (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Over the same time period, Unit 23 residents, nonlocal residents, and nonresidents averaged 28%, 44%, and 27% of the reported Unit 23 brown bear harvest, respectively (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Prior to 1981, nonresidents accounted for most of the reported brown bear harvest in Unit 23; however, since 1992, nonlocal residents have reported the higher harvests (Westing 2013).

Most brown bears in Unit 23 are harvested under the general hunt by both local and nonlocal residents (**Figure 2**). Between 2002 and 2016, 68% of the harvest occurred under the general hunt and averaged 37 bears/year. Over the same time period, harvest under the subsistence registration permit accounted for only 3.5% of the harvest and averaged 1.8 bears/year (**Figure 2**, Westing 2013, Saito 2017, pers. comm.). Between 2011 and 2016, DLP kills averaged 1 bear/year and ranged from 0-3 bears/year (Saito 2017, pers. comm.).

Many bears taken by local residents are not reported (Ayers 1991, Westing 2013). According to household surveys between 1998 and 2012, brown bear harvest by Unit 23 communities (excluding Kotzebue) was approximately 17 bears/year and annual per capita harvest averaged 0.004 bears/person (Westing 2013).

Westing (2013) combined the average annual Kotzebue brown bear harvest (8 bears/year) with the village per capita harvest estimates to determine that an estimated 20-30 brown bears are taken annually by local hunters. This is substantially more than the reported harvest by local residents, which averaged 14 bears/year between 1990 and 2016 (28% of 50 bears/year).

Between 1992 and 2011, the percent of males in the Unit 23 brown bear harvest exceeded the State management goal of a 3-year mean annual reported harvest of >50% boars (**Figure 3**). Harvest data do not indicate that overharvesting is occurring in Unit 23 based on data from the Lower Noatak River drainage (Westing 2013, ADF&G 2017a). However, due to the large number of unreported bear harvests and lack of population data across most of Unit 23, the impact of hunting on the Unit 23 brown bear population is unknown.

Additionally, overharvesting may already be occurring within accessible areas of GAAR such as floatable fishing rivers, which attract both people and bears. As bear density and productivity is low within GAAR, low levels of harvest may impact the population (Joly 2017, pers. comm.).

Bears are traditionally harvested in the spring and fall (FSB 1992). Most Unit 23 brown bear harvest occurs in September, often opportunistically when hunting moose or caribou. The second highest harvest month is April (Westing 2013). Airplanes are the most common transport method used to hunt brown bears in Unit 23, followed distantly by snowmachines and boats (Westing 2013). Federally qualified subsistence users usually access brown bear hunting locations by boat and snowmachines (Loon and Georgette 1989). Many local residents view brown bears as a nuisance or threat to subsistence activities (i.e. picking berries, drying fish) and conflicts with bears seem to be increasing (Westing 2013, ADF&G 2017a).

Most brown bears are harvested from the Noatak River drainage followed by the Kobuk River drainage. Few brown bears are harvested from the Selawik River, Wulik/Kivalina Rivers, and Northern Seward Peninsula drainages (Westing 2013). Westing (2013) suggests that heavily hunted portions of Unit 23 may be acting as "population sinks" where bears, especially boars, are continually replaced by bears from lightly hunted areas such the upper Noatak drainage and Brooks Range.

Between regulatory years 1992/93 and 2011/12, the annual mean skull size for male and female brown bears sealed in Unit 23 remained stable and averaged 21.63" and 19.5" across all years, respectively. Over the same time period, annual mean age for male and female brown bears averaged 7.5 years (range: 5.6-9.6 years) and 7.3 years (range: 3.4-10.2 years), respectively (Westing 2013).

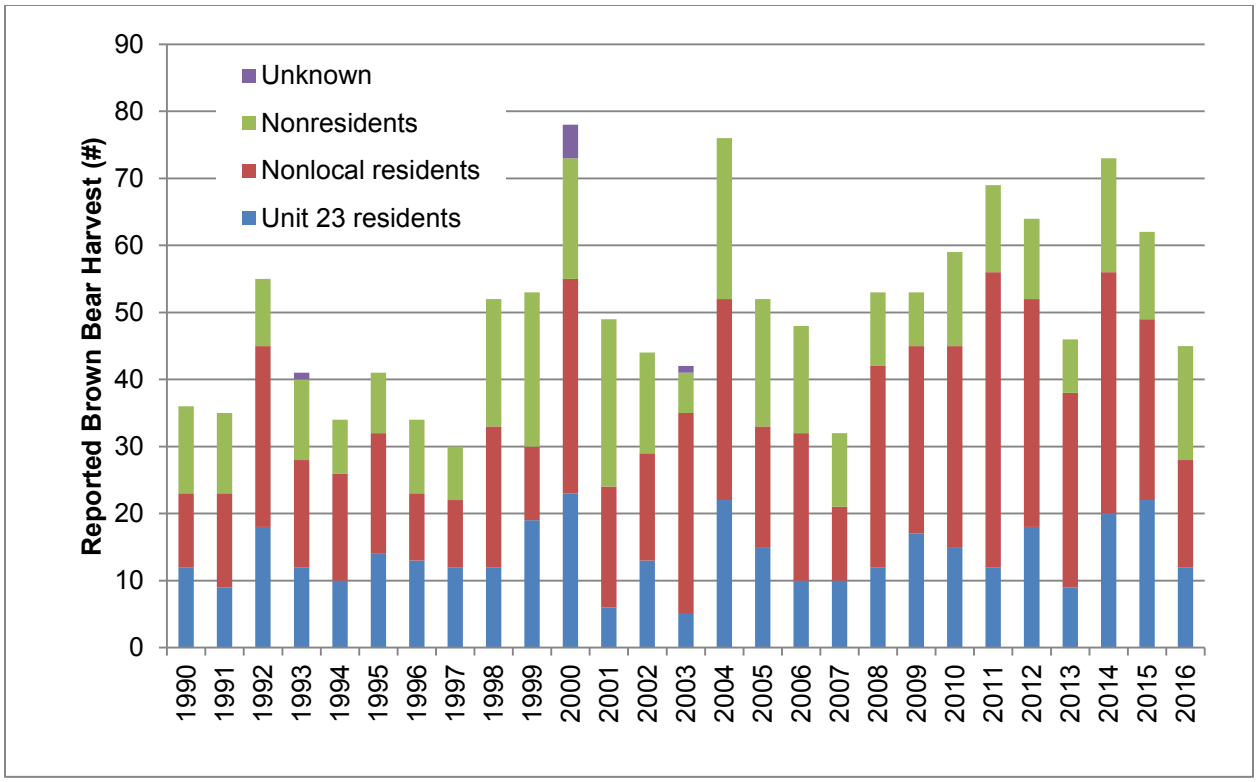

Figure 1. Reported Unit 23 brown bear harvest by residency (Westing 2013, Ayres 1991, Saito 2017, pers. comm.).

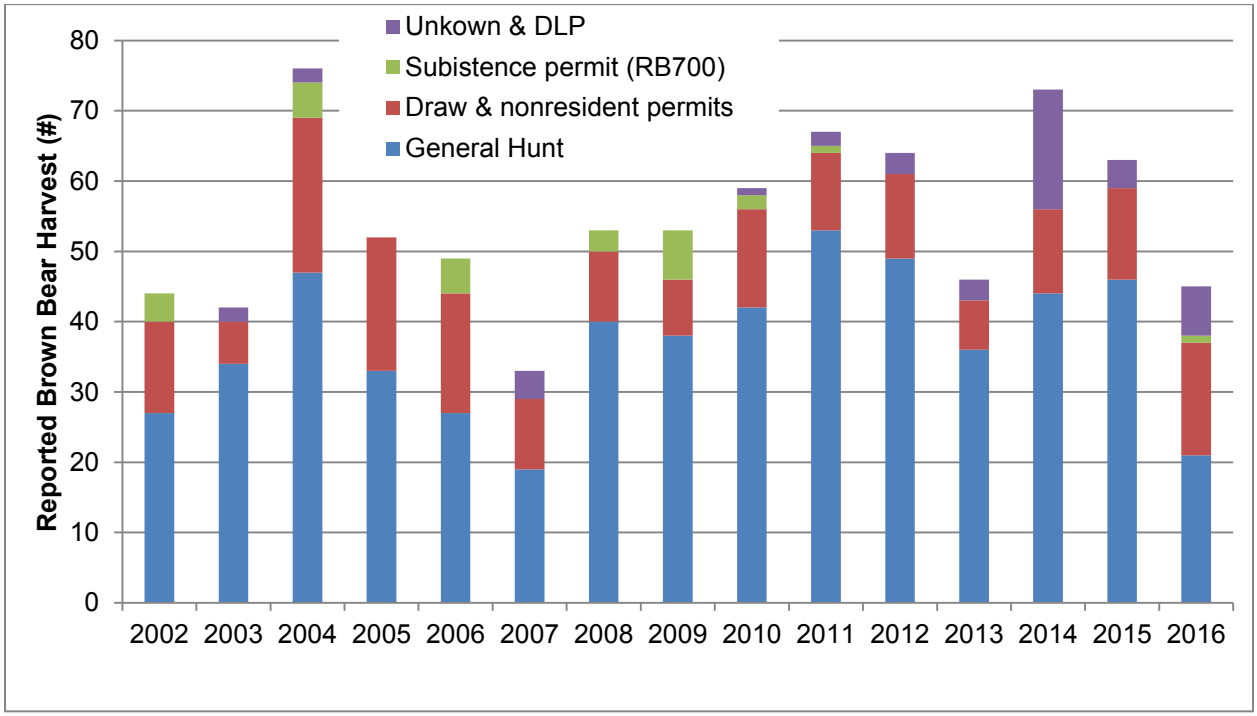

Figure 2. Reported Unit 23 brown bear harvest by hunt type (Westing 2013, Saito 2017, pers. comm.).

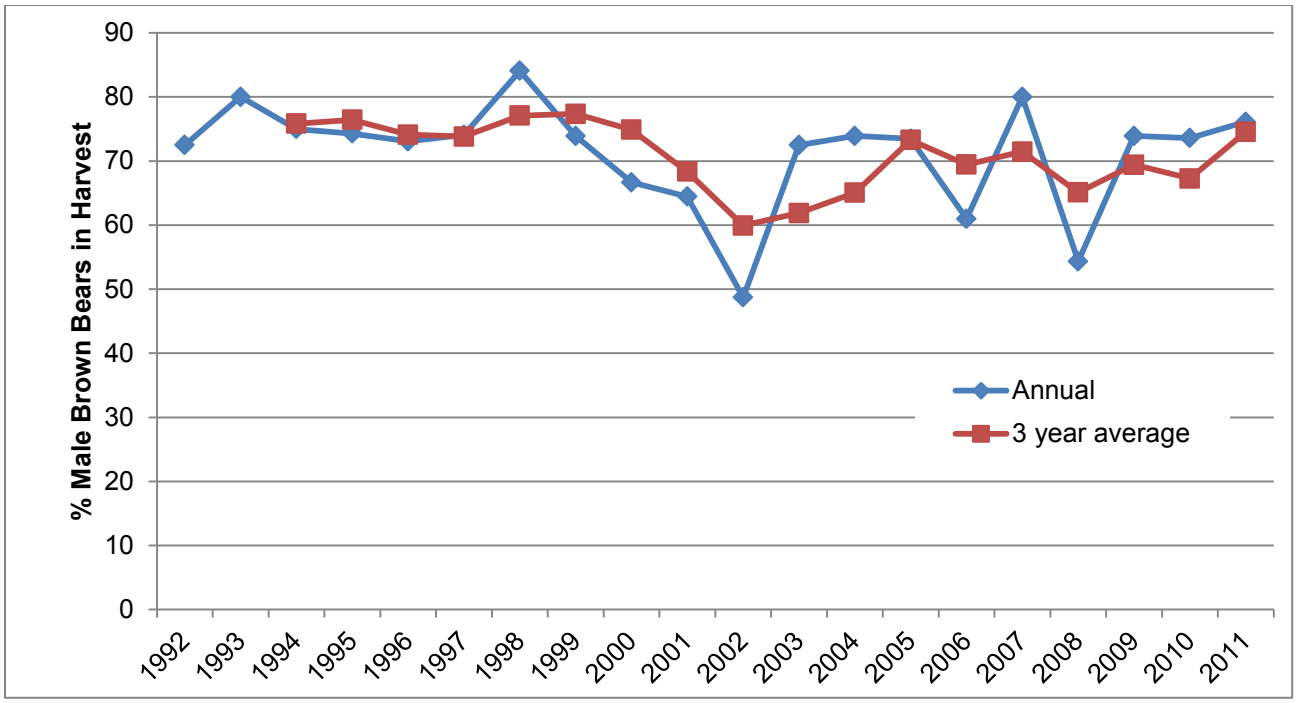

Figure 3. Percent of male brown bears in Unit 23 harvest.

Other Alternatives Considered

One alternative considered was to increase the harvest limit to two bears per year instead of three. As there are many uncertainties about brown bear populations and harvest in Unit 23 and because brown bear populations are slow to recover from overharvest, a more conservative approach may be warranted. A two bear harvest limit would be consistent with State regulations, reducing regulatory complexity and user confusion. A year round season would provide for a subsistence priority and increased opportunity for Federally qualified subsistence users.

Effects of the Proposal

If this proposal is adopted, the Unit 23 brown bear harvest limit would increase to three bears and the season would be year round, which would provide more opportunity for Federally qualified subsistence users. However, for this regulation to be adopted, concurrence would be needed from the State to allow Federally qualified subsistence users to use a State registration permit with season dates and harvest limits that differ from existing State regulations. Additionally, action taken on WP18-44 may influence the outcome of this proposal.

It is difficult to determine if adoption of this proposal would increase actual harvest or harvest reporting. As bears are traditionally harvested in fall and spring and most of the reported harvest has occurred in September and April, few bears are expected to be harvested during the extended season in June and July. As subsistence use of brown bears has been low, all edible meat must be salvaged, and two bears can already be harvested per year under State regulations, increasing the harvest limit to three bears/year is not

expected to result in a substantial increase in harvest. Additionally, the harvest of a second bear in other units with a two bear harvest limit has been low (ADF&G 2017a). However, as regional sheep, moose, and caribou populations are currently declining, brown bears may become a more important subsistence resource.

There may be conservation concerns for this proposal. While biological data on brown bears in Unit 23 is sparse, the best available information suggests that the brown bear population is stable or increasing (Westing 2013, ADF&G 2017b, NPS 2017). Recent liberalization of State brown bear regulations (increase resident harvest limit, extend nonresident season) were widely supported by local ACs, ADF&G, and the BOG, indicating no conservation concerns. While brown bear densities in GAAR are low and overharvesting may already be occurring in this area (Joly 2017, pers. comm.), GAAR comprises a minority of the Federal public lands in Unit 23. Additionally, most of the Unit 23 reported harvest occurs within the lower, not the upper, Noatak river drainage (Westing 2013). Therefore, the density estimates from the Lower Noatak survey area should be considered more appropriate for this proposal analysis. However, there are still many uncertainties regarding brown bear populations and harvest in Unit 23 and brown bear population are slow to recover from overharvest. A three bear harvest limit would be the highest in the state and may be unsustainable.

Additionally, this proposal would only apply to Federally qualified subsistence users who comprise a minority of reported Unit 23 brown bear harvest and an unknown proportion of total harvest. Adoption of this proposal would provide a subsistence priority for Federally qualified subsistence users. Currently, Federal regulations are more restrictive than State regulations.

A year round season and higher harvest limit may also increase reporting of DLP kills as legality concerns as well as the burden of submitting the hide and skull to the State would be eliminated (provided Federally qualified subsistence users are able to use the State registration permit). Indeed, property damage caused by bears was one reason this proposal was submitted. Adoption of this proposal would also allow the take and eating of nuisance bears (i.e. habituated to disturbing fish camps or cabins) during the summer that would not be legal under DLP.

However, as harvest is often biased toward large male bears, increasing the harvest limit could potentially increase human-bear conflicts as older bears learn to avoid people and kill younger bears, which are responsible for most of the human-bear conflicts (Joly 2017, pers.comm.).

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-43 **with modification** to increase the harvest limit to two bears per year.

The modified regulation should read:

Unit 23—Brown Bear

*Unit 23—~~1~~ **2** bear**s** by State subsistence registration permit*	~~*Aug. 1 May 31*~~. ***July 1 – June 30***

Justification

A year round season will increase opportunity for Federally qualified subsistence users. As most bears are traditionally taken in the spring and fall, only a slight increase in harvest is expected from extending the season through the summer.

Increasing the harvest limit will also provide more opportunity for Federally qualified subsistence users. Federally qualified subsistence users comprise a minority of the reported harvest in Unit 23 and all Alaska residents can already harvest two bears under State regulations. There are many uncertainties regarding brown bear populations and harvest in Unit 23, warranting a more conservative harvest limit increase than was proposed.

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WRITTEN PUBLIC COMMENTS

12
July 8, 2017

Federal Subsistence Board
Office of Subsistence Management
1011 East Tudor Road, MS 121
Anchorage, Alaska 99503
EMAILED TO: subsistence@FWS.gov

RE: Comments on subsistence proposalsWP18-43 and WP18-44 and some general recommendations on approaches toward similar proposals

Sirs:

We write out of concern with the above-mentioned proposals to urge that they not be adopted.

Neither proposal provides any justification that includes mention of a "customary and traditional" use that would support their adoption. The Board should not adopt proposals that do not have a credible justification in customary and traditional use of the resource much less one that has no justification whatsoever of such a use.

Although we are aware that Loon and Georgette (1989) document customary and traditional use of brown bear meat in non-coastal areas of Unit 23, Proposal 43 (to increase the federal subsistence bag limit to 3 bears/year) is undercut by the acknowledgement in Proposal 44 (to allow sale of bear hides) that "...traditionally the Iñupiat do not care to obtain coastal brown bear meat and fat because they feed on carrion". Proposal 44 also states that "traditionally, Iñupiat peoples of the region did not make handicrafts from bears skulls and hides as this was taboo". Given these acknowledgements and the absence of description of how bears are/were used in a customary and traditional way, there is no basis provided that would support these proposals. Given the lack of direct justification based on customary and traditional uses, we believe these proposals have a basis in the desire of the proponents to reduce the bear population to some unspecified lower level because they find bears to be inconvenient in the various ways identified in the proposals. Inconvenience is not a customary and traditional use. What is customary and traditional is the ways the Native Americans of northwestern Alaska found to cope with co-existing with bears.

The justification for Proposal 43 has the following justifications which are addressed below:

1. The proponents assert that there is an "over-abundance" of brown bears in Unit 23". No basis for this assertion is provided except for mentions of ways bears are inconvenient. The closest density estimates are in GMU 22 (Schmidt et al. 2017; Miller et al. 1997) and another one in Red Dog Mine area in Unit 23 (Ballard et al. 1993 and also reported in Miller et al. 1997). These estimates are both in the range considered typical for interior Alaska (Miller et. al. 1997). Another estimate by NPS for the Lower Noatak was recently conducted 2017 and is in process of being prepared; this estimate is reportedly higher than the others. Ecologically brown bears are an archetypical "K-selected" species characterized by low reproductive rates and population stability at carrying capacity of their environments or lower. We further note that harvests have been increasing in GMU 23 since the State initiated its "intensive management" program in 1995 (see figure at end of this letter). The 3 year running average harvest in 1997 was 29 bears

1

compared to 59 bears in 2015 (see figure below). This is a doubling of harvest over a 20 year period and if there is any demographic consequence from this it is unlikely to be an "overpopulation of bears".

2. "Reduce conflicts with brown bears". We have little doubt that such conflicts occur. However, the proponents of this proposal provide no information documenting levels of these conflicts or trends. Neither is information provided indicating an increase in bag limit would reduce such conflicts. Human-bear conflicts are best addressed by techniques that eliminate or reduce the ability of bears to obtain anthropogenic foods. If these steps are not taken, such conflicts will persist regardless of the level to which bears are reduced. We note that in North American, no group has a longer history of co-existence with bears (all 3 species) than native Alaskans and that some of this expertise could and should be used to reduce conflicts without reducing bear abundance. These techniques included elevated food caches which are proven effective and have been adopted by non-native peoples around the world to reduce conflicts with bears. Solar-powered electric fences are a modern innovation that could be usefully adopted as well to prevent bears from accessing cabins or food storage areas without resorting to killing bears.

3. "Reduce the effects of brown bears on disrupting caribou migratory patterns". The authors provide no support for the assertion that bears "disrupt" such patterns or that a change in bag limit would address such disruptions if they do exist. Bears will congregate where food is available and if this is, for example, in areas where caribou traditionally cross rivers or other natural corridors, bears will continue to seek out caribou in these areas of food availability. Trying to eliminate "disruptions" if they occur in such areas is a classic case of a population "sink" for bears. Bears will continue to show up in such attractive areas and be killed thereby depopulating bears from the much larger "source" population.

4. "Reduce destruction of cabins and taking of meat from boats by brown bears". We address this in point #2 above. Although these activities by bears are doubtless nuisances to some local residents, it is hard to see how they would be reduced without greatly reducing bear numbers to the point of near elimination.

Proposal 44 proposes to allow the sale of up to 2 raw/untanned brown bear hides (with claws attached and/or skulls) per regulatory year for qualified CT users. Such sales were initially allowed by state regulations last year and everyone in the state can already do this including all residents of Unit 23. Justifications offered are:

1. "Promote alignment with state with state regulations." We note that no "alignment" is needed as under state regulations such sales are already permitted for bears taken in Unit 23 under the state's general hunting regulations with a bag limit of 2/year. Adoption of this proposal would, in fact, misalign with state regulations with regard to where take can occur that would allow such sales. Most significantly, extension of subsistence regulations designed to reduce numbers of bears in federal conservation areas like National Parks, National Preserves, and National Wildlife Refuges will likely conflict with federal obligations to manage such areas for "natural diversity" consistent with NPS regulations adopted last year and published in the Federal Register. There should be a compelling reason based on well-established CT uses by qualified subsistence users before undercutting federal mandates to manage these areas in the national interest rather in the parochial interests of local residents. We further observe that a federal

subsistence bag limit of 3 bears/year would "misalign" these regulations from the state bag limit and create confusion about whether the federal bag limit was additive to the state bag limit.

2. "Promote the increased utilization of harvested brown bears". No "utilization" of brown bears is mentioned in this proposal which is internally inconsistent as it specifically acknowledges that brown bears are **not** traditionally used by Iñupiat people for either food or the making of handicraft items from brown bear parts. What this proposal would actually do is allow the commercialization by sale of hides from brown bears taken in National Parks, National Preserves, and National Wildlife Refuges (created by ANILCA in 1980) where only qualified CT users are allowed to hunt. This proposal provides no valid justification based on need or customary and traditional use that would justify such commercialization of wildlife on these National Interest Conservation units.

3. "Provide opportunity for profit". The sale of untanned bear hides with claws attached and skulls is already allowed, since last year, under state regulations. Since this was just adopted last year there can be no recent customary and traditional use based on such sales and it would very likely be exceedingly dangerous to bear populations to institutionalize commercialization of bear parts especially on federal conservation areas like National Parks, Preserves, and Refuges. The commercialization of bears taken on federal national interest conservation lands conflicts with the objectives for management of these lands by federal land managers as described above in point #1 for Proposal 43. We believe that the subsistence provisions that are part of ANILCA are designed to assure continuation of customary and traditional uses by subsistence users and that the opportunity to "profit" by sale of wildlife parts is inconsistent with the intent of ANILCA.

4. "Reduce the overpopulation of bears in Unit 23." This assertion is addressed above in point # 1 for Proposal 43.

5. "Reduce conflicts with brown bears in communities and camps". This assertion is addressed above in point # 2 for Proposal 43.

5. "Reduce danger resulting from human and bear interactions." This point is addressed above in point #2 for Proposal 43. We further note that the State has regulations allowing the take of bears in Defense of Life and Property situations so this justification is redundant.

As a general comment, we believe that the most likely reason for these proposals and others like them is to reduce the abundance of bears and other predators in the hope that this will result in making it easier for hunters to harvest caribou and moose in Unit 23. Although the western Arctic caribou is declining, there exist no evidence that this is a result of natural predation which has occurred for millennia and is cyclic. We believe the federal subsistence board should not adopt proposals designed to reduce predators on National Conservation Units and certainly not without sound justifications based on solid science. We suspect that such "uses" predicated on the assumed need for reducing predators are outside the intended scope of the subsistence provisions of ANILCA, conflict with other federal mandates to manage wildlife on National Interest Conservation Units for natural diversity in the national interest, have little likelihood of accomplishing the desired objectives absent extreme reductions in predator abundance, and have no justification based on the ways aboriginal Americans utilized wildlife populations during historical or prehistorical periods.

Thanks you for your consideration of these comments.

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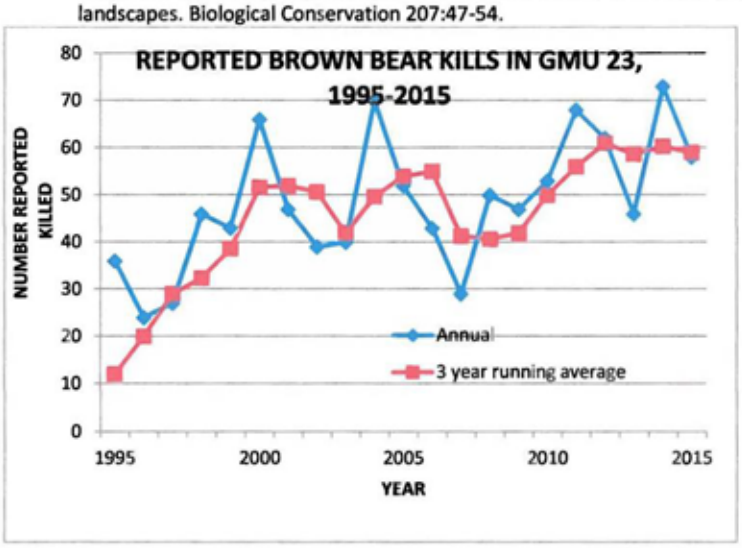

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WP18–44 Executive Summary	
General Description	Proposal WP18-44 requests regulations allowing the sale of up to two raw/untanned brown bear hides (with claws attached) and/or skulls per regulatory year, from brown bears legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council*
Proposed Regulation	***(j) Utilization of fish, wildlife, or shellfish*** *(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.* ***(i) You may sell, through customary trade, the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must by sealed by an ADF&G representative prior to its sale.***
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	

WP18–44 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	**1 Oppose**

DRAFT STAFF ANALYSIS
WP18-44

ISSUES

Proposal WP18-44, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests regulations allowing the sale of up to two raw/untanned brown bear hides (with claws attached) and/or skulls per regulatory year, from brown bears legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23.

DISCUSSION

The Northwest Arctic Regional Advisory Council (Northwest Arctic Council) voted to submit this proposal to align State and Federal regulations in Unit 23 by adding a provision in Federal regulations allowing the sale of up to two skulls and raw/untanned hides of brown bears legally harvested on Federal public lands by Federally qualified subsistence users, per regulatory year. The Council also voted to submit a companion proposal (WP18-43) to increase the Federal harvest limit for brown bears from one bear to three bears per regulatory year and extend the season to year round. The proponent clarified that they only seek to allow the sale of two brown bear skulls and raw/untanned hides (with claws attached) per regulatory year.

The Northwest Arctic Council offered several justifications for this request including 1) alignment with State regulations, 2) increased utilization of harvested bears, 3) opportunity for profit, 4) overpopulation of brown bears in Unit 23, 4) increased conflicts with bears in communities and at camps, and 5) increased danger due to increased bear activity. Some members of the Council also indicated that traditionally, Inupiat peoples of the region did not make handicrafts from bear skulls and hides as this was taboo, therefore the regulation change would most appropriately apply to raw/unaltered hides and skulls.

At the January 2017 meeting the Alaska Board of Game (BOG) modified State brown bear hunting regulations in Unit 23 from one bear per year to two bears per year. According to 5 AAC 92.200(b):

> a person may not purchase, sell, advertise, or otherwise offer for sale any part of a brown bear, except an article of handicraft made from the fur of a brown bear, and except for skulls and hides with claws attached of brown bears harvested in areas where the harvest limit is two bears per regulatory year.

Because of the State increase in the brown bear harvest limit to two bears per regulatory year in Unit 23, the sale of brown bear skulls and hides (with claws attached) will be legal under general State regulations in Unit 23 as of July 1, 2017 per 5 AAC 092.200(b). However, brown bears harvested under a State subsistence registration permit in Unit 23(as currently required under Federal regulations) that are either removed from the subsistence area or presented for commercial tanning must be sealed by a designated sealing officer and the skin of the head and front claws must be removed and kept by the Alaska Department of Fish and Game (ADF&G). Federal regulations currently allow the harvest of 1 brown bear annually in

Unit 23 by State registration permit, therefore requiring that the front claws be removed and kept by ADF&G upon sealing.

Existing Federal Regulation

(j) Utilization of fish, wildlife, or shellfish

(13) You may sell the tanned and raw/untanned hide or capes from a legally harvested deer, elk, goat, sheep, caribou, muskox, and moose.

Unit 23—Brown Bear

Unit 23—1 bear by State subsistence registration permit	*Aug 1-May 31*

Proposed Federal Regulation

(j) Utilization of fish, wildlife, or shellfish

(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.

(*i*)***You may sell, through customary trade, the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must by sealed by an ADF&G representative prior to its sale.***

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

Existing State Regulation

Use of Game

Game taken under a hunting license MAY NOT be used for the following purposes:

Buying or selling of any part of a brown/grizzly bear, EXCEPT:

-brown bears taken in areas with a two brown bear bag limit per regulatory year, raw and untanned brown bear hides (with claws attached) and skulls may be sold, after sealing.

Unit 23—Brown Bear

Residents: Two bears every regulatory year		*Aug. 1 – May 31*
Nonresidents: One bear every regulatory year by permit OR	*DB761-767*	*Aug. 1 – Oct. 31*
Nonresidents: One bear every regulatory year by permit OR	*DB771-777*	*Apr. 15-May 31*
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Aug. 31.	*RB761-767*	*Aug. 1-Oct. 31*
OR		
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Apr. 14.	*RB771-777*	*Apr. 15-May 31*

In addition to other regulations, subsistence regulations apply to the following "Residents Only" hunt

Residents: Two bears every regulatory year by permit available in Kotzebue and Unit 23 license vendors beginning July 1	*RB700*	*Aug. 1-May 31*

Extent of Federal Public Lands

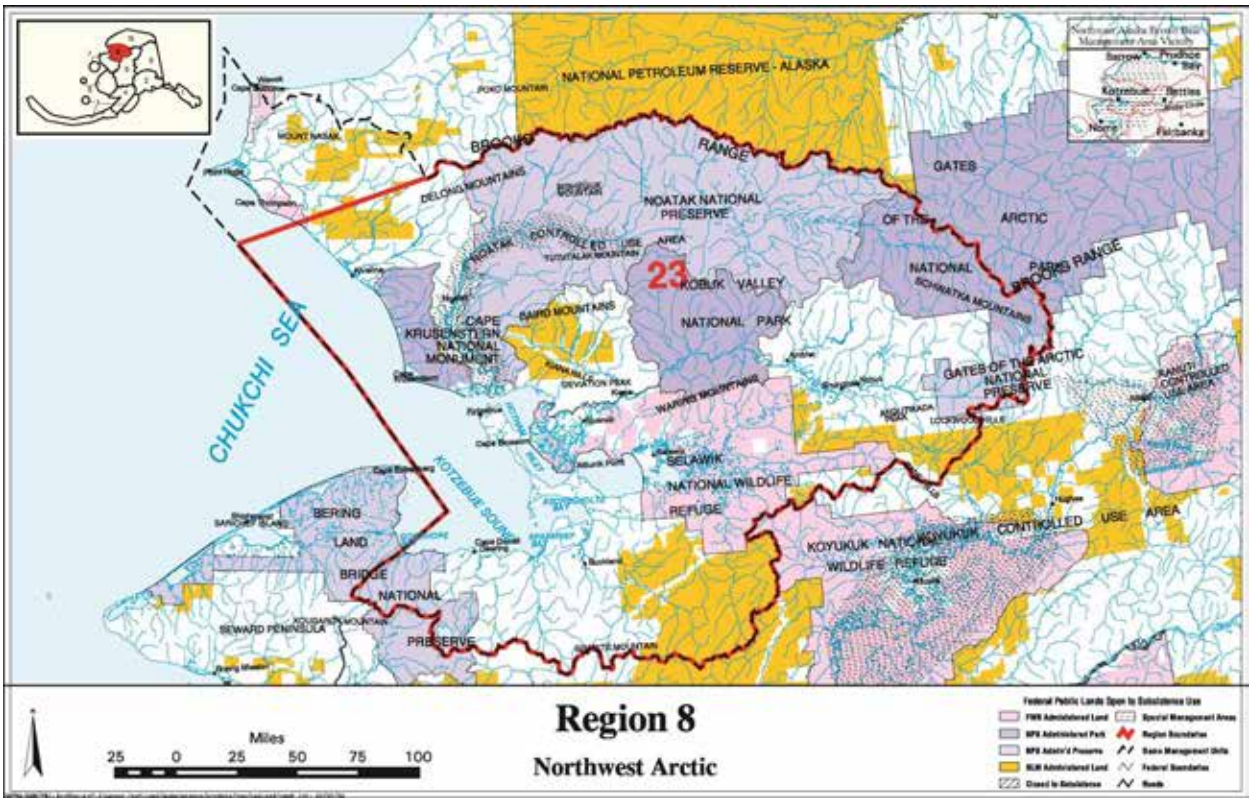
Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands (see **Unit 23 Map**).

Customary and Traditional Use Determinations

Residents of Units 21 and 23 have a customary and traditional use determination for brown bear in Unit 23.

Regulatory History

State brown bear hunting regulations were established for Unit 23 in 1961. From 1961 until the early 1990s, State regulations were geared toward trophy hunting (Westing 2013). Since the 1980s, brown bear hunting regulations across northern Alaska have become more liberal, including longer seasons, higher harvest limits, and waived resident tag fees (Miller et al. 2011).



Unit 23 Map

Federal brown bear hunting regulations for Unit 23 were adopted from State regulations in 1990. The season was Sept. 1-Oct. 10 and Apr. 15-May 25 with a harvest limit of one bear every four years. Residents of Units 21 and 23 were established as Federally qualified subsistence users for brown bear in Unit 23.

In 1992, seven proposals (P92-074, P92-075, P92-076, P92-078, P92-079, P92-086, and P92-167) were submitted to change Federal subsistence brown bear regulations in Unit 23. Proposals P92-74, and P78 sought to increase the brown bear harvest limit. Proposals P92-76, P79, and P86 sought to liberalize both the harvest limit and season. Proposals P92-075 and P167 requested eliminating the sealing requirement, requiring all edible meat to be salvaged, prohibiting transfer of hides outside of Unit 23 unless to one's residence in Unit 21, and submittal of a harvest report and both ears to a Federally authorized representative within 30 days of the taking. These proposals were submitted because then current regulations, which included restrictive seasons and harvest limits, failure to salvage edible meat, and sealing requirements conflicted with traditional practices. The Federal Subsistence Board (Board) considered these proposals concurrently and adopted them with modification to remove the sealing requirement, and to prohibit the use of aircraft in any manner for brown bear subsistence hunting. The season in the new hunt area was expanded to Sept. 1 – May 31 with a harvest limit of one bear per regulatory year by State registration permit. The harvest limit and season in Unit 23 remainder was unchanged.

In 1992, BOG also modified Unit 23 brown bear regulations in recognition of traditional patterns of harvest of bears by Inupiat hunters for meat, hides, and fat (Westing 2013). BOG established the Northwest Alaska Brown Bear Management Area (NWABBMA) and a subsistence registration hunt (RB700).

In 2005, the Board adopted Proposal WP05-17 with modification to combine the Unit 23 brown bear hunt areas and to expand the season from Sept 1 – May 31 to Aug 1 – May 31. This was done to provide more opportunity to Federally qualified subsistence users, to reduce regulatory complexity by aligning State and Federal regulations, and because there were no conservation concerns.

In 2007, Proposal WP07-50 proposed eliminating the permit requirement to hunt brown bear in Unit 23 because it was a burden on Federally qualified subsistence users and permits were often not available in villages. The proposal was withdrawn by the proponent before it went to the Board in order to allow more time to discuss the issue with the Councils and various agencies.

In 2008, the Board adopted Proposal WP08-52 to allow the sale of handicrafts made from the fur of a brown bear taken in Unit 23 so that subsistence users could more fully utilize the brown bear resource.

In 2012, the Board adopted Proposal WP12-01 to require sealing of brown bear hides or claws prior to selling handicrafts incorporating these parts. This was done in order to ensure that marketed handicrafts were made from legally harvested bears. The proposal was submitted by the Brown Bear Claw Handicraft Working Group.

In 2014, Proposal WP14-40 proposed eliminating the permit requirement to hunt brown bear in Unit 23 to reduce confusion about hunting regulations and to allow for more opportunistic harvests. The Board adopted WP14-40 with modification to insert the word "subsistence" into regulations (1 bear by State *subsistence* registration permit) in order to clarify that permits were required under both State and Federal regulations, which require sealing of hides and skulls. Eliminating the permit requirement was not recommended as it was an essential mechanism to monitor harvest and to inform brown bear management in the unit. Also, Federally qualified subsistence users would then be required to seal harvested bears. (However, sealing is required under the subsistence registration permit if the bear is removed from the unit or parts are sold as handicrafts).

In 2016, the BOG adopted Proposal 57 to allow the sale of brown bear hides and/or skulls by Alaska residents in units where the harvest limit is two or more bears annually. The proposal was submitted by the Nushagak Advisory Committee with the stated intent of encouraging brown bear harvest to 1) reduce predation on moose and caribou and 2) to reduce bear hazards around communities.

In 2017, the BOG adopted Proposal 40 to increase the resident brown bear harvest limit in Unit 23 to 2 bears per regulatory year. The BOG supported Proposal 40 because it provided more harvest opportunity, because there were no conservation concerns, and because it was supported by five local Fish and Game Advisory Committees (ACs). Chairman Spraker also stated that a low number of second bears have been taken in other units with 2 bear harvest limits and that bear harvests in other units with long seasons and higher harvest numbers have been sustainable (ADF&G 2017a). Proposals 37, 38, and 39 requested

lengthening the nonresident brown bear season in Unit 23. The BOG adopted Proposal 37, extending the nonresident season from Sept. 1-Oct. 31 to Aug. 1-Oct. 31 and took no action on Proposals 38 and 39. The BOG supported Proposal 37 in order to alleviate user conflicts during September, by spreading nonresident hunting out over a longer season, and because all the local ACs supported it.

In November of 2017 the BOG will hear Poposal 49, which requests that a permit be required before brown bear skulls and hides with claws attached can be sold. This proposal was submitted by ADF&G because there is currently no method to track the sale of bears harvested in areas where the harvest limit is two brown bears per year (ADF&G 2017a). The proponent states that this proposal will allow ADF&G to track and quantify the interest in selling brown bear skulls and hides with claws attached (ADF&G 2017a). The proponent also states that there are concerns about the potential to commercialize the harvest of brown bears and that there is internet in knowing the magnitude of this use (ADF&G 2017a).

Handicrafts and customary trade regulations

The sale of animal products under Federal law is permitted as handicrafts or through customary trade. If harvesting bears under the state's general hunting regulations for residents where there is a two brown bear per regulatory year harvest limit, the tanned and untanned hides (with claws attached) and skulls may be sold, after sealing. While the proponent has expressed in public testimony that raw/untanned brown bear hides that are prepared for sale typically require much more time and skill in ensuring that there are no rips or tears during processing as compared to those prepared for personal use (NWA RAC 2017), this does not appear to meet the definition of a handicraft as defined in 50 CFR §100.4:

> *Handicraft* means a finished product made by a rural Alaskan resident from the nonedible byproducts of fish or wildlife and is composed wholly or in some significant respect of natural materials. The shape and appearance of the natural material must be substantially changed by the skillful use of hands, such as sewing, weaving, drilling, lacing, beading, carving, etching, scrimshawing, painting, or other means, and incorporated into a work of art, regalia, clothing, or other creative expression, and can be either traditional or contemporary in design. The handicraft must have substantially greater monetary and aesthetic value than the unaltered natural material alone.

Raw/untanned hides (with claws attached) and skulls are unlikely to align with the definition of a handicraft but these items may be sold more appropriately under customary trade. Federal subsistence regulations define customary trade in 50 CFR §100.4 as:

"Exchange for cash of fish and wildlife resources regulated in this part, not otherwise prohibited by Federal law or regulation, to support personal and family needs; and does not include trade which constitutes a significant commercial enterprise."

Customary trade is also addressed in 50 CFR §7(b):

"You may not exchange in customary trade or sell fish or wildlife or their parts, taken pursuant to the regulations in this part, unless provided for in this part."

State regulations define customary trade as "limited, non-commercial exchange, for minimal amounts of cash, as restricted by the appropriate board, of fish or game resource" (AS 16.05.940). Both State and Federal subsistence regulations provide for customary trade of fish, however neither currently provide for customary trade of large land mammals (5 AAC 92.200; 50 CFR §100.7); though this does not preclude the Board from doing so. According to 50 CFR §100.10(4)(x) regarding the Board's authorities, this part indicated that the Board may "Determine what types and forms of trade of fish and wildlife taken for subsistence uses constitute allowable customary trade."

If defined as customary trade, the sale of raw/untanned hides and skulls of brown bears under Federal regulations would still require adherence to the meat salvage regulations, including, 50 CFR §100.25 j(1-3):

> (1) You may not use wildlife as food for a dog or furbearer, or as bait, except as allowed for in §100.26, §100.27, or §100.28, or except for the following:
>
> (2) If you take wildlife for subsistence, you must salvage the following parts for `human use:
>
> > (i) The hide of a wolf, wolverine, coyote, fox, lynx, marten, mink, weasel, or otter;
> >
> > (ii) The hide and edible meat of a brown bear, except that the hide of brown bears taken in Units 5, 9B, 17, 18, portions of 19A and 19B, 21D, 22, 23, 24, and 26A need not be salvaged;
> >
> > (iii) The hide and edible meat of a black bear;
> >
> > (iv) The hide or meat of squirrels, hares, marmots, beaver, muskrats, or unclassified wildlife.
>
> (3) You must salvage the edible meat of ungulates, bear, grouse, and ptarmigan.

Federal subsistence fisheries regulations regarding customary trade are defined by region and fishery. Examples of limitations placed on customary trade as written in 50 CFR §100.27 include restrictions on who can participate in customary trade of subsistence resources (only rural residents [50 CFR §100.27(11)], only those residents with a customary and traditional use determination [50 CFR §100.27(11)(iii)]), annual limitations on cash value ($400-$500 with record-keeping requirements [50 CFR §100.27(12)(i/ii)]), and a percentage of a household's annual harvest [50 CFR §100.27(12)(ii)]. Given that this proposal requests the sale of up to two raw/unaltered brown bear hides (with claws attached) and skulls per regulatory year, it is unlikely that this would be defined as a significant commercial enterprise and would thus meet the definition of customary trade.

The issue of claw retention was examined extensively by the Brown Bear Claw Handicraft Working Group that was formed by the Board in 2009 to discuss a range of issues relating to brown bear claws including their use in handicrafts, the feasibility of tracking, and potential changes to regulations. The group was

composed of representatives from nine of the ten Councils, staff from ADF&G, and staff of Federal agencies. Of particular concern to this group was preventing the illegal harvest and sale of brown bear parts that can garner significant monetary value in worldwide markets, and which may incentivize illegal harvest of brown bear populations elsewhere in North America where concervation concerns are prevalent (OSM 2010).

Unpublished meeting minutes from the Working Group indicate that the USFWS Office of Law Enforcement was concerned about further developing a market for brown bear products. Rory Stark, a law enforcement officer, noted that brown bear claws, paws, and gall bladders are the primary illegal items sought for these markets and that all other parts of the bear are often wasted (OSM 2010). He explained that documentation through sealing and tagging is necessary to ensure that handicraft materials are made from legally harvested bears and that this certification could result in a more valuable handicraft. According to Stark, law enforcement across the United States was engaged in 146 cases of illegal sale of black and brown bear parts between 2000 and 2010.

In 2012, the working group submitted a proposal to the Board (WP12-01) requesting that prior to selling a handicraft incorporating a brown bear claw(s), the hide or claw(s) not attached to a hide, must be sealed by an authorized ADF&G representative and that a copy of the ADF&G sealing certificate must accompany the handicraft when sold. WP12-01 was adopted with modification to add language that old claws may be sealed if an affidavit is signed to verify that the brown bear was harvested by a Federally qualified subsistence user on Federal public lands. Germane to this proposal are sealing requirements that help to track the sale of wildlife parts, to increase product value by validating that the animal was legally harvested, and to provide documentation to allow individuals traveling to another country to obtain a Commission on the International Trade of Endangered Species (CITES) permit for the item to be legally transported across international borders.

During BOG deliberations on proposal 57 (sale of brown bear hides and/or skulls) in March of 2017, some concerns were expressed by BOG members regarding tracking bear products, worldwide black markets, and the potential for hunters to falsify records regarding the unit of harvest (ADF&G 2016). Lieutenant Paul Fussey of the Alaska Wildlife Troopers testified that law enforcement tracks internet activity for hides and that these individuals attempt to verify permit and sealing records when bear products are encountered. At the time of the testimony, all bear hides sold by Alaska residents were appropriately harvested under a predator control permit. Very few brown bear hides had been encountered. A representative of ADF&G's Division of Subsistence also testified that the ability of subsistence users to sell hides and/or skulls of bears harvested for subsistence could aid users in engaging in a mixed cash-subsistence economy by providing additional means of purchasing gasoline and other products (ADF&G 2016). Current Events

Proposal WP18-43 requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year round. The decision on WP18-43 could have ramifications on this proposal (i.e. harvest limits and determining the number of brown bear hides and skull to be sold).

Biological Background

State management objectives for brown bear in Unit 23 are as follows (Westing 2013):

- Maintain a population that sustains a 3-year mean annual reported harvest of at least 50% males.
- Conduct a brown bear population estimate for some portion on Unit 23 in cooperation with Department of Interior (DOI) staff at least once every reporting period.
- Continue community-based assessments to collect brown bear harvest information from residents of Unit 23.
- Seal bear skins and skulls, determine sex, and extract a tooth for aging.
- Monitor harvest data (age, sex, and skull size) for changes related to selective pressure.
- Improve communication between the public and the Alaska Department of Fish and Game (ADF&G) to improve harvest reporting and prevent defense of life and property situations from occurring.

Biological information and trends for brown bear in most of Unit 23 is lacking. As brown bears in Interior Alaska are wide ranging and occur at low densities, population estimates are difficult and expensive to obtain (Miller et al. 1997, 2011, Mowat et al. 2013, Schmidt et al. 2017). Brown bear densities are classified as adult bears (3+ years-old) and bears of all ages (bears), which includes sows with cubs.

In the early 1990s, surveys were conducted in the Western Brooks Range to obtain baseline data on bear abundance. Brown bear density was estimated as 29.5 bears of all ages/1,000 km^2 (Miller et al. 1997). Brown bear density within Gates of the Arctic National Park & Preserve (GAAR) is currently considered relatively low (Joly 2017, pers. comm.).

Aerial bear surveys were conducted in the lower Noatak Drainage in 1987, 2008, and 2016. While data seems to suggest that the brown bear population is increasing in this area, these surveys are not directly comparable due to differing methodologies and scales (NPS 2017). In 1987, a brown bear census was conducted in the lower Noatak River drainage to provide a benchmark of bear abundance before the Red Dog Mine was constructed (Westing 2013). Density was estimated at 1 adult bear/26 mi^2 (Westing 2013) and 17.9 bears/1000 km^2 (Miller et al. 1997). However, the study area was relatively small (2,000 km^2) and may not be representative of all of Unit 23. Preliminary results from the 2008 survey using the 1987 sightability correction factor (SCF) indicated a brown bear density of 3.4 bears/26 mi^2 (ADF&G 2017c, Saito 2017, pers. comm.). However, this estimate is likely not accurate due to violations of sampling protocols (e.g. sampling adjacent areas on different days) and use of a SCF from another study using different sampling methods (Robison 2017, pers. comm.).

The 2016 brown bear density estimate for the lower Noatak Drainage was 67.5 bears/1000 km^2. NPS conducted an aerial bear survey of the upper Noatak Drainage in May 2017. The preliminary density estimate is 30.6 bears/1000 km^2 (Robison 2017, pers. comm.).

While the population status of brown bears across all of Unit 23 is uncertain, the current population estimate is 3500 bears, which is extrapolated from 2008 density estimates within the Lower Noatak survey area (ADF&G 2017c). As this was derived from a small study area, it is not a correct unit-wide estimate.

Bear density estimates in Unit 22 on the Seward Peninsula may be more representative of southern Unit 23 (e.g. Buckland/Deering area) than estimates from northern Unit 23. Surveys conducted from 2013-2015 in western Unit 22 yielded brown bear density estimates of 21 adult bears/1000 km^2 and 35.6 bears of all ages/1000 km^2 (Schmidt et al. 2017).

Local residents have described substantial population increases in the Unit 23 brown bear population since the 1940s and observations by ADF&G staff suggest a stable or increasing population (Westing 2013, ADF&G 2017c). Several factors may contribute to this trend (Westing 2013). Growing populations of moose, caribou and musk ox in the early 2000s have provided a stable prey base for brown bears and shifted subsistence harvest increasingly toward large ungulates. Possible declines in commercial salmon fishing may have allowed more salmon to reach inland areas, increasing food for bears. Regulations protecting sows with cubs curtailed the traditional practice of "denning" or killing all den occupants, which occurred when bears were relied upon more to meet subsistence needs. Finally, selection of large male bears by sport hunters may allow survival of cubs that otherwise could have been killed by large boars (Westing 2013).

Bear density is related to food availability. Salmon availability may be the primary determinant of high and low bear densities across Alaska (Miller et al. 1997, Mowat et al. 2013). The short growing season and absence of salmon make the western Brooks Range poor brown bear habitat; although salmon runs may be seasonally important sources of food in other portions on Unit 23 (Miller et al. 1997). Social factors can also influence bear distribution. For example, a sow with cubs may avoid areas with large male bears that could kill her offspring (Mowat et al. 2013).

In northern Alaska, brown bear populations are often managed conservatively for several reasons: Large home ranges are required to meet resource needs, resulting in low density populations (McLoughlin et al. 2002); Female brown bears do not successfully reproduce until they are > 5 years old and have low reproductive rates, small litters, and long intervals between litters (Reynolds 1987, USFWS 1982, Miller et al. 2011); Sows exhibit high fidelity to home ranges with little emigration or immigration (Reynolds 1993); and monitoring methods are imprecise and expensive (Miller et al. 2011).

In 1991, radio-collared brown bears in the vicinity of Red Dog Mine emerged from their dens between April 10 and May 15 (Ayres 1991). Between 2014 and 2016, the few deaths of radio-collared brown bears within GAAR tracked thus far have been human-related (Joly 2017, pers. comm.). Brown bear habitat in northwestern Alaska is predicted to improve due to climate change causing increases in shrub and forest cover as well as wildfires, which create edge habitats that are often preferred by bears (Nielson et al. 2010, Joly et al. 2012, Rupp et al. 2000, Swanson 2015).

Cultural Knowledge and Traditional Practices

Brown bears have long been a highly respected and utilized subsistence resource in northwest Alaska and the species has a prominent physical and symbolic role in the lives of local people (Loon and Georgette 1989). These animals provide a source of meat, raw materials, and medicine within the Inupiaq culture of the region (Loon and Georgette 1989). Brown bears have also been prized as trophy sport hunting animals in the region, largely by non-Native residents of the regional hubs of Nome and Kotzebue (Loon and Georgette 1989). Loon and Georgette (1989) provide a thorough ethnographic account of traditional brown bear harvest and use in the region and is the source of cultural information included in this section, unless otherwise noted.

The hunting of brown bears in Inupiaq culture traditionally required strict adherence to prescribed practices designed to show respect to the animal and a hunter's success was considered dependent on adherence to these protocols. The Inupiat people believed that bears have excellent hearing and that hunters should not discuss their intentions to kill these animals. Bragging, threatening a bear, acting with too much confidence, or even suggesting a craving for bear meat was considered taboo, potentially leading to harming of the hunter or his family. In modern times some residents of the region continue to adhere to these protocols and will often refer to "that animal" rather than mentioning it by name. While no longer adhered to, the Inupiaq also believed that it was taboo for women and girls to eat bear meat (Loon and Georgette 1989, Anderson et al. 1977). Dogs were also not fed bear meat as it was said to make them vicious.

The use of brown bears for food in the region is variable among communities, depending on geographic location. Inland communities eat brown bears more frequently while coastal communities rarely eat this species unless it is harvested in interior areas where bears feed on fish and berries (Loon and Georgette 1989, Burch 1985, Burch 2006). Coastal bears are often considered unpalatable due to their tendency to consume marine mammal carcasses along the beaches. Loon and Georgette (1989) found that some coastal communities avoid bears in the fall because this is when bears have the greatest access to sea mammal carcasses. Noatak hunters also avoid bears in the upper Noatak River drainage because the bear diet in this area consists of squirrels, a prey species causing unpalatable flavor in brown bear meat. Kotzebue displays a mixture of brown bear harvest patterns, likely due to a variety of geographical and cultural backgrounds of residents residing in this regional hub.

Loon and Georgette (1989) found that the consumption of brown bears differs between Unit 23 (Northwest Arctic) and Unit 22 (Seward Peninsula). While communities in Unit 23 often consume brown bears, consumption of bears is uncommon in Unit 22. Among the communities for which the researchers had information in Unit 22, only White Mountain and Golovin reported regular use of bear meat. Many communities in this Unit reported use of brown bear in the past, particularly before moose arrived in the area. There was limited evidence of brown bear use for food in the regional hub of Nome and while one respondent said that hunters would sometimes bring home small quantities of bear meat, he also indicated that this was not a common resource consumed in the community. Other studies have documented limited harvest of brown bears for food in Shishmaref (Sobelman 1985) and Shaktoolik (Thomas 1982); Wales and Teller are suspected to have similar patterns (Loon and Georgette 1989). Respondents in Unalakleet

indicated that they could not imagine using a brown bear for food (Loon and Georgette 1989). Another Unalakleet respondent stated that bears were more palatable before walrus carcasses began washing up on the shores in such large numbers.

For the communities that consume brown bears, Georgette and Loon (1989) found that hunters rarely, if ever, take a bear in defense of life and property. While nuisance animals may be killed, it is more likely for residents of these communities to use the meat and not report the animal as killed in defense of life and property. Some communities considered bears a nuisance; reindeer hunters also commonly held this view. In the 1980s brown bear was not a substantial component of the diet in any northwest Alaska community as compared to moose or caribou, but it likely plays a vital seasonal role in the subsistence diet when other large land mammals are not available.

Among the edible parts of a brown bear, the fat is the most prized product (Loon and Georgette 1989). Local hunters time their hunting to correspond with when bears have the most fat and the meat is of highest quality (Loon and Georgette 1989; Burch 2006). Brown bears are predominantly hunted in northwest Alaska during the spring and fall (Loon and Georgette 1989; Burch 2006). Spring hunting takes place earlier inland where warmer conditions arrive sooner. When bears emerge from their dens in the spring, they are still fat and gradually become lean; thus subsistence brown bear harvests occur between spring emergence from hibernation until snow machine travel is no longer possible.

Many residents prefer to hunt smaller bears because the meat is tender (Loon and Georgette 1989). Brown bear meat is preserved dried, half-dried, frozen and aged. The fat is also aged then cooked before being eaten. It is also common for dried fish and meat to be dipped in bear fat similar to the way that seal oil is used. Bear livers are not consumed. Bear fat is also considered a valuable source of medicine in the region for curing illnesses and sores. It has been used to treat colds, itchy throats, and coughs by ingesting or applying to the chest. Cooked bear meat with fat is said to increase appetite among the ill. It is also used to treat persistent sores and boils.

Usually the hide is in good condition at the same time the bear is the fattest (Loon and Georgette 1989). Some residents of the region harvest brown bears in the fall once their diet has transitioned to berries, roots, fish, and caribou. Later in the fall bears regain much of their body fat before hibernation and therefore harvest at this time is also preferred. In the spring hunters utilize tracks to locate bears and in the fall they concentrate efforts along salmon spawning streams and in areas with prolific berries.

In modern times brown bears are rarely hunted in the winter or summer because they are considered lean and their hides are of lesser quality (Loon and Georgette 1989). In the summer, bears are also considered more dangerous. Traditionally the Inupiaq people hunted brown bears in their dens in the winter. These bears were less likely to fight and before firearms were available, killing a hibernating bear with a spear was likely easier and safer as compared to outside of the den in other seasons. This was also a good source of winter meat when other resources were depleted or unavailable. Some hunters would stake bear dens in the late fall and return to the den later in the year to harvest the bear. In Noatak some hunters routinely pursue bears at night along rivers and streams in the fall, a technique that is considered quite dangerous.

Brown bear hunting is a very specialized activity (Loon and Georgette 1989). Before the arrival of firearms bears were largely hunted with spears and arrows. Traditionally, bears harvested by the Inupiat were almost exclusively harvested by a small number of men from each community and the harvest was distributed to other local households. Men continue to be the primary bear hunters in the region. Often, bears are harvested opportunistically while in pursuit of other subsistence resources or while traveling for other purposes. Hunting areas are generally accessed by boat in the fall and by snow machine in spring. Traditionally however, travel was often accomplished by dog team. Hides are sometimes discarded in the field if packing it out presents logistical challenges.

It is a cultural tradition in the region for a hunter to remove the hyoid bone from beneath a bear's tongue immediately after it is killed (Loon and Georgette 1989). In some places this bone is placed between willow branches, on a tussock, or simply discarded in the field. This practice was meant to ensure that the spirit of the bear has left the area and that there would be no retaliation on the hunter. Traditionally, the head of a brown bear was never brought back to the village and was either buried or placed on a tree or shrub (Burch 2006). When meat is served, family members could not discuss or make comments about the meal. The hunters believed that these practices prevented bad luck, safeguarded their camps, and reduced the potential for future conflict with bears. Removing the hyoid bone and leaving the head in the field remains a common practice.

Beyond nutritional value, brown bears also provide the raw materials for production. Bear hides, bones, teeth, and claws were traditionally used to make spearheads, fishhooks, rope, snowshoe bindings, dog harnesses, scraping tools, doors, mattresses, ruffs, and mukluks (Loon and Georgette 1989). More recently bear hides have been used primarily for mattresses, rugs, ruffs, mukluks and masks while claws are sometimes used for necklaces. Rope made of bear hide is said to be tougher and last longer than that of caribou or bearded seal. Narrow bones of the bear foreleg were used for spearheads and snares while knee joints were made into scraping tools. The hides were traditionally used to make dog harnesses and were preferred since dogs did not chew them as they did for other species. Travelers often carried bear hides to use as mattresses and as doors for sod houses; today they are carried as winter survival gear.

Sharing of brown bear meat, fats, and raw materials is common in northwest Alaska. Loon and Georgette (1989) stated that all of the hunters interviewed in their study shared their brown bear harvests with other households. The hunter typically only keeps a small amount of the bear meat and fat for his family and the rest is given to elders, widows, sick people, and other residents of the community. The hides were traditionally retained by the member of the hunting party that made the most decisive moves in killing the bear (Burch 2006).

Customary trade

Customary trade is a long-standing practice among Alaska Native cultures and closely resembles bartering practices with the introduction of monetary exchange (Ikuta and Slayton 2012, Magdanz et al. 2007). Within all rural communities in Alaska there are customary and traditional patterns of distributing and exchanging subsistence goods (Wolfe et al. 2000). In the literature, the term trade often refers to many different kinds of reciprocal exchanges including sharing, barter, purchasing, and sales (Magdanz et al.

2007, Ikuta and Slayton 2012). These forms of distribution may be understood as a continuum of subsistence activities rather than discreet or fundamentally separate activities (Ikuta and Slayton 2012).

Trading relationships are common and have been documented among the Inupiaq (Huntington 1966, Burch 1970, Burch 1988, Magdanz et al. 2007, Braem et al. 2013). Burch (1988) identified nine categories of property transfer (including subsistence foods) among the Inupiaq, ranging from a free gift with no expectation of reciprocity to exchange for cash, though traditionally this was for other subsistence foods, other products, or raw materials (Krieg et al. 2007). By the 18th century, Russian goods and Siberian reindeer skins were traded along the northwest coast of Alaska for furs, maritime products, jade and wood (Burch 1988, Ikuta and Slayton 2012).

Cash was introduced relatively recently to trading networks of exchange and has become another commodity that facilitates local, noncommercial distribution of subsistence goods (Wheeler 1998, Ikuta and Slayton 2012). The influx of cash into trading networks may also represent the replacement of a portion of bartering networks that facilitate local, noncommercial distribution of subsistence products in rural Alaska (Ikuta and Slayton 2012). Cash in a mixed cash-subsistence economy has been adopted to enhance the importance of wild foods and is used among many resources; there is not a conflict between cash and subsistence products (Wheeler 1998:268). Similar to other resources, the value of cash is relative, varies by availability, and is often controlled by the season (Wheeler 1998). Wheeler (1998) notes that strategies to use cash are similar to the use of other resources "when it is available, use it to the maximum extent possible, and when it is not available, make do with other resources."

In 2010, data on customary trade for one Inupiaq community in the Northwest Arctic Borough (NAB), Selawik, was documented by ADF&G. Selawik is the second largest among 12 communities in the NAB and had a population of approximately 829 individuals as of 2010 (Braem et al. 2013). During the study year (2010-2011), approximately 32% of households engaged in customary trade (Braem 2013). The average estimated amount per trade was $109 and the total reported trades for the community was $3,675 (Braem et al. 2013). Households primarily traded berries and whitefish and lesser amount of caribou and other fish species (Braem et al. 2013). Most customary trades (82%) occurred among Selawik residents with fewer trades occurring between Selawik and Noatak, Kivalina, Noorvik, and Kotzebue (Braem et al 2013).

While the Board has not yet authorized the use of brown bears in customary trade, the species may play a role in local subsistence distribution and sharing networks given its availability and relationships to cultural practice (see Cultural Knowledge and Traditional Practices section above).

Harvest History

There are two resident and four nonresident brown bear hunts in Unit 23 under State regulations. Residents can hunt under the general season, which requires sealing or under the State's subsistence hunt, which requires a registration permit and has similar requirements as the Federal hunt (i.e. salvage of edible meat, no use of aircraft, no sealing required). Spring and fall drawing and registration permits are available to nonresidents. To date, nonresident hunts have been undersubscribed (ADF&G 2017b).

Brown bear harvest from Unit 23 has increased steadily since 1992, although the number of bears taken for food by local residents is low (Westing 2013, Braem et al. 2015). The liberalization of brown bear hunting regulations in Unit 23 in order to reduce bear densities, human-bear conflicts, and bear predation on moose as well as to provide for traditional hunting practices and increase opportunity for other hunters has contributed to increased harvests (Westing 2013). Harvest data is from harvest reports and community household surveys and also includes bears taken in defense of life or property (DLP). However, many DLP kills are not reported because Unit 23 residents consider the reporting requirement as onerous or fear they have broken the law (Westing 2013). Local and nonlocal residents are considered Alaska residents living within and outside of Unit 23, respectively.

Between 1990 and 2016, reported Unit 23 brown bear harvest averaged 50 bears/year, ranging from 30-78 bears/year (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Over the same time period, Unit 23 residents, nonlocal residents, and nonresidents averaged 28%, 44%, and 27% of the reported Unit 23 brown bear harvest, respectively (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Prior to 1981, nonresidents accounted for most of the reported brown bear harvest in Unit 23; however, since 1992, nonlocal residents have reported the higher harvests (Westing 2013).

Most brown bears in Unit 23 are harvested under the general hunt by both local and nonlocal residents (**Figure 2**). Between 2002 and 2016, 68% of the harvest occurred under the general hunt and averaged 37 bears/year. Over the same time period, harvest under the subsistence registration permit accounted for only 3.5% of the harvest and averaged 1.8 bears/year (**Figure 2**, Westing 2013, Saito 2017, pers. comm.). Between 2011 and 2016, DLP kills averaged 1 bear/year and ranged from 0-3 bears/year (Saito 2017, pers. comm.).

Many bears taken by local residents are not reported (Ayers 1991, Westing 2013). According to household surveys between 1998 and 2012, brown bear harvest by Unit 23 communities (excluding Kotzebue) was approximately 17 bears/year and annual per capita harvest averaged 0.004 bears/person (Westing 2013). Westing (2013) combined the average annual Kotzebue brown bear harvest (8 bears/year) with the village per capita harvest estimates to determine that an estimated 20-30 brown bears are taken annually by local hunters. This is substantially more than the reported harvest by local residents, which averaged 14 bears/year between 1990 and 2016 (28% of 50 bears/year).

Between 1992 and 2011, the percent of males in the Unit 23 brown bear harvest exceeded the State management goal of a 3-year mean annual reported harvest of >50% boars (**Figure 3**). Harvest data do not indicate that overharvesting is occurring in Unit 23 based on data from the Lower Noatak River drainage (Westing 2013, ADF&G 2017b). However, due to the large number of unreported bear harvests and lack of population data across most of Unit 23, the impact of hunting on the Unit 23 brown bear population is unknown.

Additionally, overharvesting may already be occurring within accessible areas of GAAR such as floatable fishing rivers, which attract both people and bears. As bear density and productivity is low within GAAR, low levels of harvest may impact the population (Joly 2017, pers. comm.).

Bears are traditionally harvested in the spring and fall (FSB 1992). Most Unit 23 brown bear harvest occurs in September, often opportunistically when hunting moose or caribou. The second highest harvest month is April (Westing 2013). Airplanes are the most common transport method used to hunt brown bears in Unit 23, followed distantly by snowmachines and boats (Westing 2013). Federally qualified subsistence users usually access brown bear hunting locations by boat and snowmachines (Loon and Georgette 1989). Many local residents view brown bears as a nuisance or threat to subsistence activities (i.e. picking berries, drying fish) and conflicts with bears seem to be increasing (Westing 2013, ADF&G 2017b).

Most brown bears are harvested from the Noatak River drainage followed by the Kobuk River drainage. Few brown bears are harvested from the Selawik River, Wulik/Kivalina Rivers, and Northern Seward Peninsula drainages (Westing 2013). Westing (2013) suggests that heavily hunted portions of Unit 23 may be acting as "population sinks" where bears, especially boars, are continually replaced by bears from lightly hunted areas such the upper Noatak drainage and Brooks Range.

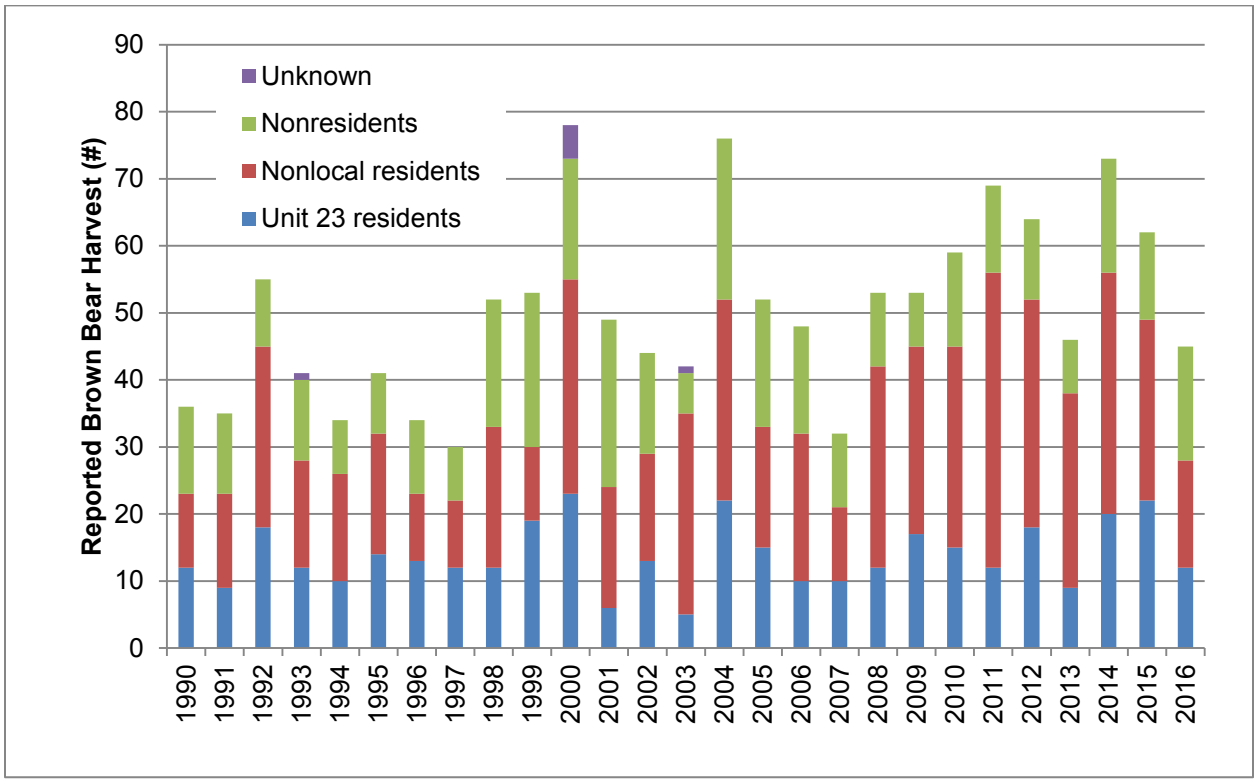


Figure 1. Reported Unit 23 brown bear harvest by residency (Westing 2013, Ayres 1991, Saito 2017, pers. comm.).

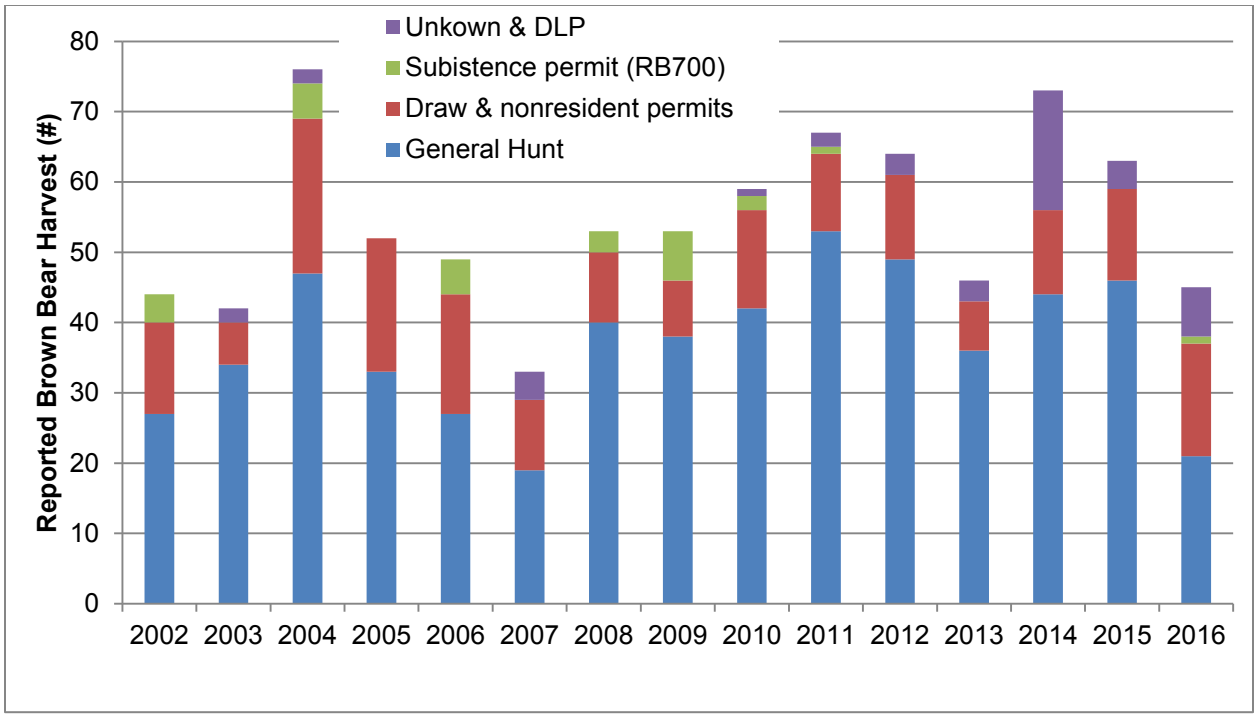


Figure 2. Reported Unit 23 brown bear harvest by hunt type (Westing 2013, Saito 2017, pers. comm.).

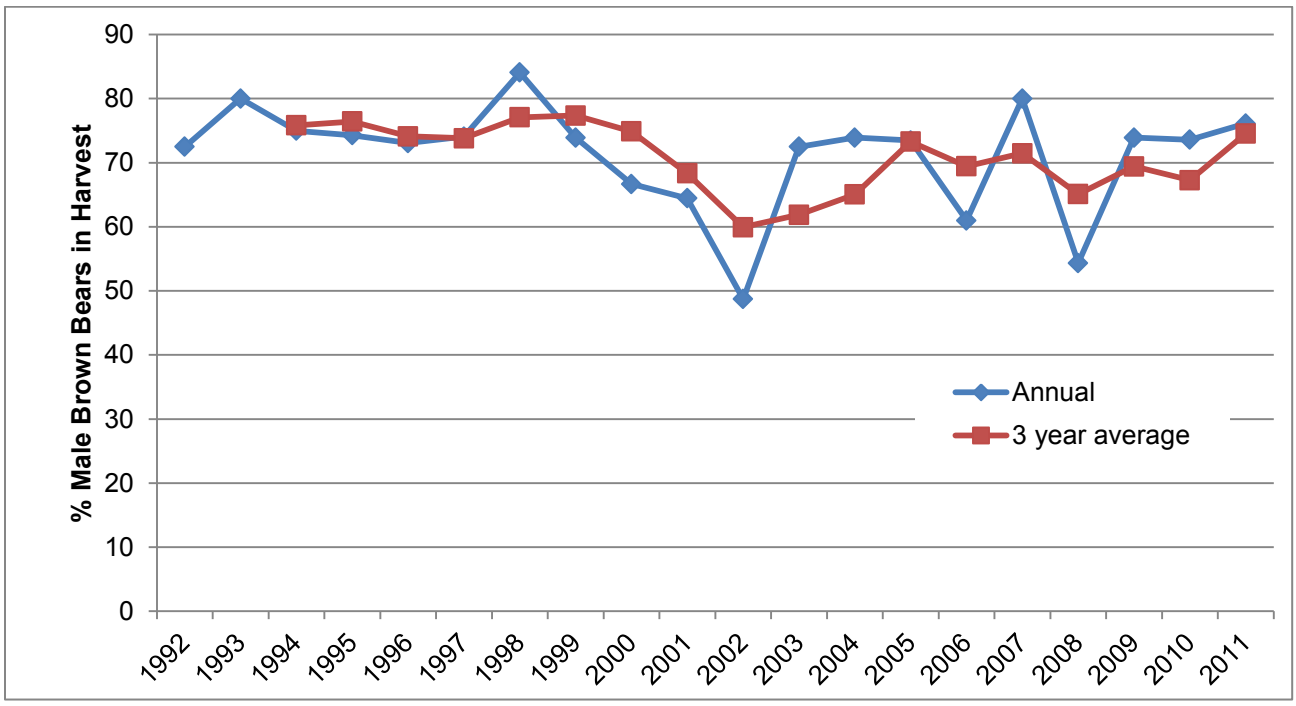


Figure 3. Percent of male brown bears in Unit 23 harvest.

Other Alternatives Considered

One alternatived considered would be to adopt this proposal with modification to create a general season for brown bears in Unit 23 and authorize the customary trade of brown bear hides and skulls in Unit 23.

The modified regulation would read:

> *(j) Utilization of fish, wildlife, or shellfish*
>
> *(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.*
>
> *(i) You may sell* ***through customary trade,*** *the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up to two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must be sealed by an ADF&G representative prior to its sale.*
>
> Unit 23 – Brown Bear
>
Unit 23 – 1 bear by State subsistence registration permit	*Aug. 1 – May 31*
OR	
1 bear by Federal registration permit	*Aug. 1 – May 31*

This alternative would provide Federally qualified subsistence users with additional opportunities to utilize, through customary trade, parts of legally harvested brown bears without significant modification of those parts under Federal regulations. Under this scenario, creating a general season for brown bears in Unit 23 would be necessary to provide a hunt that is uncoupled from the State's subsistence registration permit, given that State regulations for this hunt require that the front claws be removed and retained by the State at the time of sealing. While the proponent does not explicitly request the creation of a Federal general hunt, they do request the ability to retain and sell the front claws as is currently allowed under the State's general hunt. However, it should be made clear that according to 50 CFR 100.25(j)(2)(ii), the edible meat of any bear harvested under this general hunt would still need to be salvaged for human use.

This alternative may also increase harvest reporting as a result of sealing requirements associated with the sale of brown bear hides and skulls. However, if a Federally qualified subsistence user did not wish to sell the skull and hide of a harvested brown bear as provided for in this proposal, there would be no way to track

harvest of bears in Unit 23. Requiring the use of a Federal registration permit would alleviate this concern and allows for better management of the species.

Effects of the Proposal

If this proposal is adopted, the unaltered/untanned hides (with claws attached) and skulls of up to two brown bears annually could be sold under customary trade, provided that the brown bears are legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23. This would provide Federally qualified subsistence users with an increased ability to legally utilize brown bear parts that are sometimes discarded in the field.

It is difficult to determine if adoption of this proposal would increase actual harvest or harvest reporting. As subsistence use of brown bears has been low, and all edible meat must be salvaged under Federal regulations, allowing the sale of up to two unaltered hides and skulls per year is not expected to result in a substantial increase in harvest. Additionally, Federally qualified subsistence users can already sell the unaltered hides and/or skulls of brown bears legally harvested in Unit 23 under State regulations. Furthermore, current Federal regulations require Federally qualified subsistence users to acquire a State subsistence registration permit to hunt brown bears in Unit 23. This permit allows hides and skulls of up to two bears annually to remain unsealed, unless "removed from subsistence area or presented for commercial tanning." If sealing is required under the State subsistence permit, the skin of the head and front claws are removed and kept by ADF&G. However, this proposal request seeks the retention of hides with claws attached. If this proposal is adopted, there may be an increase in reporting of harvested brown bears due to the sealing requirements.

The sale of raw/unaltered brown bear hides under customary trade would need to support personal and family needs and not constitute a significant commercial enterprise as per the definition of customary trade set forth in 50 CFR §100.4. Because Federal hunting regulations link brown bear harvest in Unit 23 to the State's subsistence registration permit for this species, and because the State now provides a resident harvest limit of two bears per regulatory year, unaltered brown bear hides and skulls may already be sold without sealing, provided that they are not removed from the subsistence area or presented for commercial tanning. If hides and skulls of bears legally harvested under State subsistence registration regulations are removed from the subsistence area or presented for commercial tanning, the skin of the head and front claws are removed and kept by ADF&G. Conversely, residents hunting under general State regulations may sell two tanned or untanned hides (with claws attached) and skulls, after sealing. The proponent of this proposal wishes to sell the raw / untanned hides (with claws attached) and skulls of brown bears under Federal subsistence regulations, which would require both the removal of the link to the State's subsistence registration hunt in order to be able to retain and sell the front claws of brown bears after sealing, and the adoption of specific regulatory language authorizing the customary trade of brown bear hides and skulls in Unit 23.

There may be conservation concerns for this proposal. While biological data on brown bears in Unit 23 is sparse, the best available information suggests that the brown bear population is stable or increasing (Westing 2013, ADF&G 2017c, NPS 2017). Recent liberalization of State brown bear regulations

(increase resident harvest limit, extend nonresident season) were widely supported by local ACs, ADF&G, and the BOG, indicating no conservation concerns. While brown bear densities in GAAR are low and overharvesting may already be occurring in this area (Joly 2017, pers. comm.), GAAR comprises a minority of the Federal public lands in Unit 23. Additionally, most of the Unit 23 reported harvest occurs within the lower, not the upper, Noatak river drainage (Westing 2013). Therefore, the density estimates from the Lower Noatak survey area should be considered more appropriate for this proposal analysis. However, there are still many uncertainties regarding brown bear populations and harvest in Unit 23 and brown bear population are slow to recover from overharvest.

Additionally, this proposal would only apply to Federally qualified subsistence users who comprise a minority of reported Unit 23 brown bear harvest and an unknown proportion of total harvest. Adoption of this proposal would allow for increased utilization of harvested brown bears and provide an economic opportunity to Federally qualified subsistence users. It would also recognize a general pattern of customary trade of wildlife in Unit 23 and provide increased opportunity to engage in this practice within the mixed cash-subsistence economy of the region.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-44.

Justification

Adoption of this proposal is unlikely to significantly increase subsistence opportunities for area residents. Federally qualified subsistence users can already sell the unaltered hides and/or skulls of brown bears legally harvested in Unit 23 under the State's general hunting regulations. This includes brown bears harvested on Federal public lands (excluding NPS managed parks and monuments). Few residents of Unit 23 hunt brown bears under Federal or State subsistence regulations due to meat salvage and sealing requirements; these requirements would remain in place if this proposal was adopted.

There are law enforcement and conservation concerns regarding the sale of brown bear products. Global markets drive high prices for brown bear parts and are known to encourage poaching. Increasing market availability and/or prices of brown bear products may intensify illegal harvest from those populations. Tracking the illegal harvest and sale of brown bear products is difficult. Furthermore, customary trade of animal products may not rise to the level of a "significant commercial enterprise", but defining and enforcing the parameters of this is challenging. Given the unaltered nature of the products requested in this proposal, these products also do not meet the requirements of a "handicraft" which may already be sold under Federal subsistence regulations.

While there is evidence of a general pattern of customary trade of wildlife in Unit 23, there is no documented pattern as it relates specifically to brown bears, especially the hides and skulls of this species. The most recently documented harvest data for brown bears suggests that harvest by local residents for food is low. Additionally, the proponent lists several justifications for their request but none of these indicate that adoption of this proposal would facilitate patterns of customary trade. A member of the Northwest Arctic Council indicated that people of the region traditionally discarded the skull of brown bears in the field, and

that they do not generally utilize the hide of brown bears, but rather they more frequently utilize the meat and fat of the species.

Lastly, population data for brown bears in Unit 23 is sparse and variable. In GAAR, brown bear populations are considered low and overharvest may already be occurring. Brown bear populations are slow to recover from overharvest and commercial incentivization may increase the risk of overharvest from potentially vulnerable populations.

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WRITTEN PUBLIC COMMENTS

12
July 13, 2017

Federal Subsistence Board
Office of Subsistence Management
1011 East Tudor Road, MS 121
Anchorage, Alaska 99503
EMAILED TO: subsistence@FWS.gov

RE: Comments on subsistence proposalsWP18-43 and WP18-44 and some general recommendations on approaches toward similar proposals

Sirs:

We write out of concern with the above-mentioned proposals to urge that they not be adopted.

Neither proposal provides any justification that includes mention of a "customary and traditional" use that would support their adoption. The Board should not adopt proposals that do not have a credible justification in customary and traditional use of the resource much less one that has no justification whatsoever of such a use.

Although we are aware that Loon and Georgette (1989) document customary and traditional use of brown bear meat in non-coastal areas of Unit 23, Proposal 43 (to increase the federal subsistence bag limit to 3 bears/year) is undercut by the acknowledgement in Proposal 44 (to allow sale of bear hides) that "...traditionally the Iñupiat do not care to obtain coastal brown bear meat and fat because they feed on carrion". Proposal 44 also states that "traditionally, Iñupiat peoples of the region did not make handicrafts from bears skulls and hides as this was taboo". Given these acknowledgements and the absence of description of how bears are/were used in a customary and traditional way, there is no basis provided that would support these proposals. Given the lack of direct justification based on customary and traditional uses, we believe these proposals have a basis in the desire of the proponents to reduce the bear population to some unspecified lower level because they find bears to be inconvenient in the various ways identified in the proposals. Inconvenience is not a customary and traditional use. What is customary and traditional is the ways the Native Americans of northwestern Alaska found to cope with co-existing with bears.

The justification for Proposal 43 has the following justifications which are addressed below:

1. The proponents assert that there is an "over-abundance" of brown bears in Unit 23". No basis for this assertion is provided except for mentions of ways bears are inconvenient. The closest density estimates are in GMU 22 (Schmidt et al. 2017; Miller et al. 1997) and another one in Red Dog Mine area in Unit 23 (Ballard et al. 1993 and also reported in Miller et al. 1997). These estimates are both in the range considered typical for interior Alaska (Miller et. al. 1997). Another estimate by NPS for the Lower Noatak was recently conducted 2017 and is in process of being prepared; this estimate is reportedly higher than the others. Ecologically brown bears are an archetypical "K-selected" species characterized by low reproductive rates and population stability at carrying capacity of their environments or lower. We further note that harvests have been increasing in GMU 23 since the State initiated its "intensive management" program in 1995 (see figure at end of this letter). The 3 year running average harvest in 1997 was 29 bears

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compared to 59 bears in 2015 (see figure below). This is a doubling of harvest over a 20 year period and if there is any demographic consequence from this it is unlikely to be an "overpopulation of bears".

2. "Reduce conflicts with brown bears". We have little doubt that such conflicts occur. However, the proponents of this proposal provide no information documenting levels of these conflicts or trends. Neither is information provided indicating an increase in bag limit would reduce such conflicts. Human-bear conflicts are best addressed by techniques that eliminate or reduce the ability of bears to obtain anthropogenic foods. If these steps are not taken, such conflicts will persist regardless of the level to which bears are reduced. We note that in North American, no group has a longer history of co-existence with bears (all 3 species) than native Alaskans and that some of this expertise could and should be used to reduce conflicts without reducing bear abundance. These techniques included elevated food caches which are proven effective and have been adopted by non-native peoples around the world to reduce conflicts with bears. Solar-powered electric fences are a modern innovation that could be usefully adopted as well to prevent bears from accessing cabins or food storage areas without resorting to killing bears.

3. "Reduce the effects of brown bears on disrupting caribou migratory patterns". The authors provide no support for the assertion that bears "disrupt" such patterns or that a change in bag limit would address such disruptions if they do exist. Bears will congregate where food is available and if this is, for example, in areas where caribou traditionally cross rivers or other natural corridors, bears will continue to seek out caribou in these areas of food availability. Trying to eliminate "disruptions" if they occur in such areas is a classic case of a population "sink" for bears. Bears will continue to show up in such attractive areas and be killed thereby depopulating bears from the much larger "source" population.

4. "Reduce destruction of cabins and taking of meat from boats by brown bears". We address this in point #2 above. Although these activities by bears are doubtless nuisances to some local residents, it is hard to see how they would be reduced without greatly reducing bear numbers to the point of near elimination.

Proposal 44 proposes to allow the sale of up to 2 raw/untanned brown bear hides (with claws attached and/or skulls) per regulatory year for qualified CT users. Such sales were initially allowed by state regulations last year and everyone in the state can already do this including all residents of Unit 23. Justifications offered are:

1. "Promote alignment with state with state regulations." We note that no "alignment" is needed as under state regulations such sales are already permitted for bears taken in Unit 23 under the state's general hunting regulations with a bag limit of 2/year. Adoption of this proposal would, in fact, misalign with state regulations with regard to where take can occur that would allow such sales. Most significantly, extension of subsistence regulations designed to reduce numbers of bears in federal conservation areas like National Parks, National Preserves, and National Wildlife Refuges will likely conflict with federal obligations to manage such areas for "natural diversity" consistent with NPS regulations adopted last year and published in the Federal Register. There should be a compelling reason based on well-established CT uses by qualified subsistence users before undercutting federal mandates to manage these areas in the national interest rather in the parochial interests of local residents. We further observe that a federal

subsistence bag limit of 3 bears/year would "misalign" these regulations from the state bag limit and create confusion about whether the federal bag limit was additive to the state bag limit.

2. "Promote the increased utilization of harvested brown bears". No "utilization" of brown bears is mentioned in this proposal which is internally inconsistent as it specifically acknowledges that brown bears are **not** traditionally used by Iñupiat people for either food or the making of handicraft items from brown bear parts. What this proposal would actually do is allow the commercialization by sale of hides from brown bears taken in National Parks, National Preserves, and National Wildlife Refuges (created by ANILCA in 1980) where only qualified CT users are allowed to hunt. This proposal provides no valid justification based on need or customary and traditional use that would justify such commercialization of wildlife on these National Interest Conservation units.

3. "Provide opportunity for profit". The sale of untanned bear hides with claws attached and skulls is already allowed, since last year, under state regulations. Since this was just adopted last year there can be no recent customary and traditional use based on such sales and it would very likely be exceedingly dangerous to bear populations to institutionalize commercialization of bear parts especially on federal conservation areas like National Parks, Preserves, and Refuges. The commercialization of bears taken on federal national interest conservation lands conflicts with the objectives for management of these lands by federal land managers as described above in point #1 for Proposal 43. We believe that the subsistence provisions that are part of ANILCA are designed to assure continuation of customary and traditional uses by subsistence users and that the opportunity to "profit" by sale of wildlife parts is inconsistent with the intent of ANILCA.

4. "Reduce the overpopulation of bears in Unit 23." This assertion is addressed above in point # 1 for Proposal 43.

5. "Reduce conflicts with brown bears in communities and camps". This assertion is addressed above in point # 2 for Proposal 43.

5. "Reduce danger resulting from human and bear interactions." This point is addressed above in point #2 for Proposal 43. We further note that the State has regulations allowing the take of bears in Defense of Life and Property situations so this justification is redundant.

As a general comment, we believe that the most likely reason for these proposals and others like them is to reduce the abundance of bears and other predators in the hope that this will result in making it easier for hunters to harvest caribou and moose in Unit 23. Although the western Arctic caribou is declining, there exist no evidence that this is a result of natural predation which has occurred for millennia and is cyclic. We believe the federal subsistence board should not adopt proposals designed to reduce predators on National Conservation Units and certainly not without sound justifications based on solid science. We suspect that such "uses" predicated on the assumed need for reducing predators are outside the intended scope of the subsistence provisions of ANILCA, conflict with other federal mandates to manage wildlife on National Interest Conservation Units for natural diversity in the national interest, have little likelihood of accomplishing the desired objectives absent extreme reductions in predator abundance, and have no justification based on the ways aboriginal Americans utilized wildlife populations during historical or prehistorical periods.

Thanks you for your consideration of these comments.

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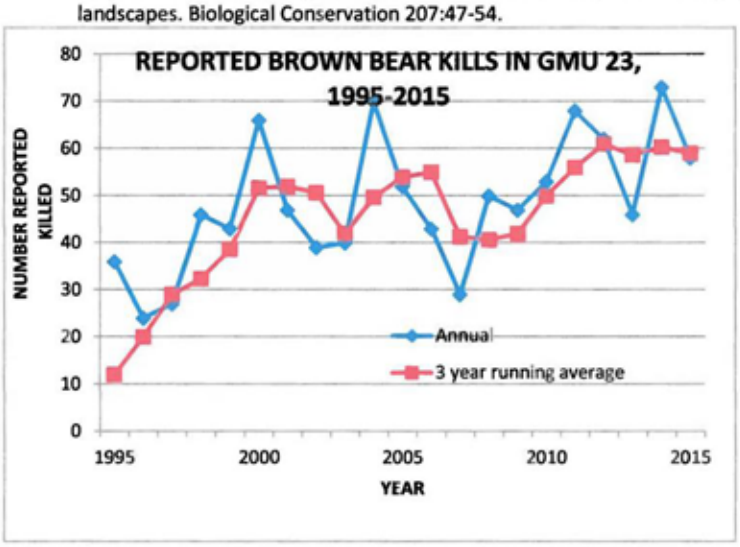

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WP18–45 Executive Summary			
General Description	Proposal WP18-45 requests that the caribou harvest limit in Unit 23 be reduced from 5 caribou per day to 3 caribou per day. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council.*		
Proposed Regulation	**Unit 23—Caribou**		
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	***3*** ~~*5*~~*-caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Unit 23, remainder	***3*** ~~*5*~~*-caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
OSM Preliminary Conclusion	**Oppose**		
Southeast Alaska Subsistence Regional Advisory Council Recommendation			
Southcentral Alaska Subsistence Regional Advisory Council Recommendation			

WP18–45 Executive Summary	
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 Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	

WP18–45 Executive Summary	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-45

ISSUES

Proposal WP18-45, submitted by the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council), requests that the caribou harvest limit in Unit 23 be reduced from 5 caribou per day to 3 caribou per day.

DISCUSSION

The proponent states that the proposed change is needed to conserve the Western Arctic caribou herd (WACH) population, which is currently declining and is a vital subsistence resource. The proponent notes that the requested change will still meet the needs of Federally qualified subsistence users.

Existing Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows: Calves may not be taken. Bulls may be harvested*	*July 1–Oct. 14 Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows: Calves may not be taken. Bulls may be harvested*	*July 1–Oct. 31 Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Proposed Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	***3*** ~~*5*~~ *caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	***3*** ~~*5*~~ *caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Existing State Regulations

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23 (**Map 1**).

Regulatory History

In 1990, the caribou hunting season in Unit 23 was open year round with a 5 caribou per day harvest limit and a restriction on the take of cows May 16-June 30.

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-51 to increase the caribou harvest limit from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (**Map 1**, FWS 1995b, 1997).

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

In 2013, an aerial photo census indicated significant declines in the Teshekpuk Caribou herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering bag limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline. The regulatory changes took effect on July 1, 2015.

In 2015, four special actions, WSA15-03/04/05/06, requesting changes to caribou regulations in Units 23, 24, and 26, were submitted by the North Slope Council and approved with modification by the Board, effective July 1, 2015. Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be

prohibited. The Board did not establish a new hunt area, applying the restrictions to all of Unit 23 and also prohibited the take of cows with calves. These State and Federal regulatory changes were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

Five proposals (WP16-37, WP16-48, WP16-49/52, and WP16-61) concerning caribou regulations in Unit 23 were submitted to the Board for the 2016-2018 wildlife regulatory cycle. The Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.), and to create a new hunt area in the northwest corner of Unit 23. The Board took no action on the remaining proposals (WP16-49/52, and WP16-61) because of action taken on WP16-37.

In 2015, the Northwest Arctic Council submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (NFQU) for the 2016/17 regulatory year. The Council stated that their request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 (a similar proposal was passed for Unit 22 in 2016). The Alaska Department of Fish and Game (ADF&G) submitted the proposal in order to better monitor harvest and improve management flexibility. Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively, to non-Federally qualified users for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18

regulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board voted to approve WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage, to caribou hunting except by Federally qualified subsistence users for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence use. The Board rejected WSA17-04 due to recent changes to State regulations that should reduce caribou harvest.

Controlled Use Areas

In 1988, the Traditional Council of Noatak submitted a proposal to the BOG to create the Noatak Controlled Use Area (CUA) in order to restrict the use of aircraft in any manner for big game hunting Aug. 15 - Sept. 20 due to user conflicts (Fall 1990:86). The proposed CUA extended five miles on either side of the Noatak River, from the mouth of the Eli River upstream to the mouth of the Nimiuktuk River, including the north side of Kivivik Creek (ADF&G 1988:47). The BOG adopted the proposal with modification to close a much smaller area extending from the Kugururok River to Sapun Creek from Aug. 20-Sept. 20.

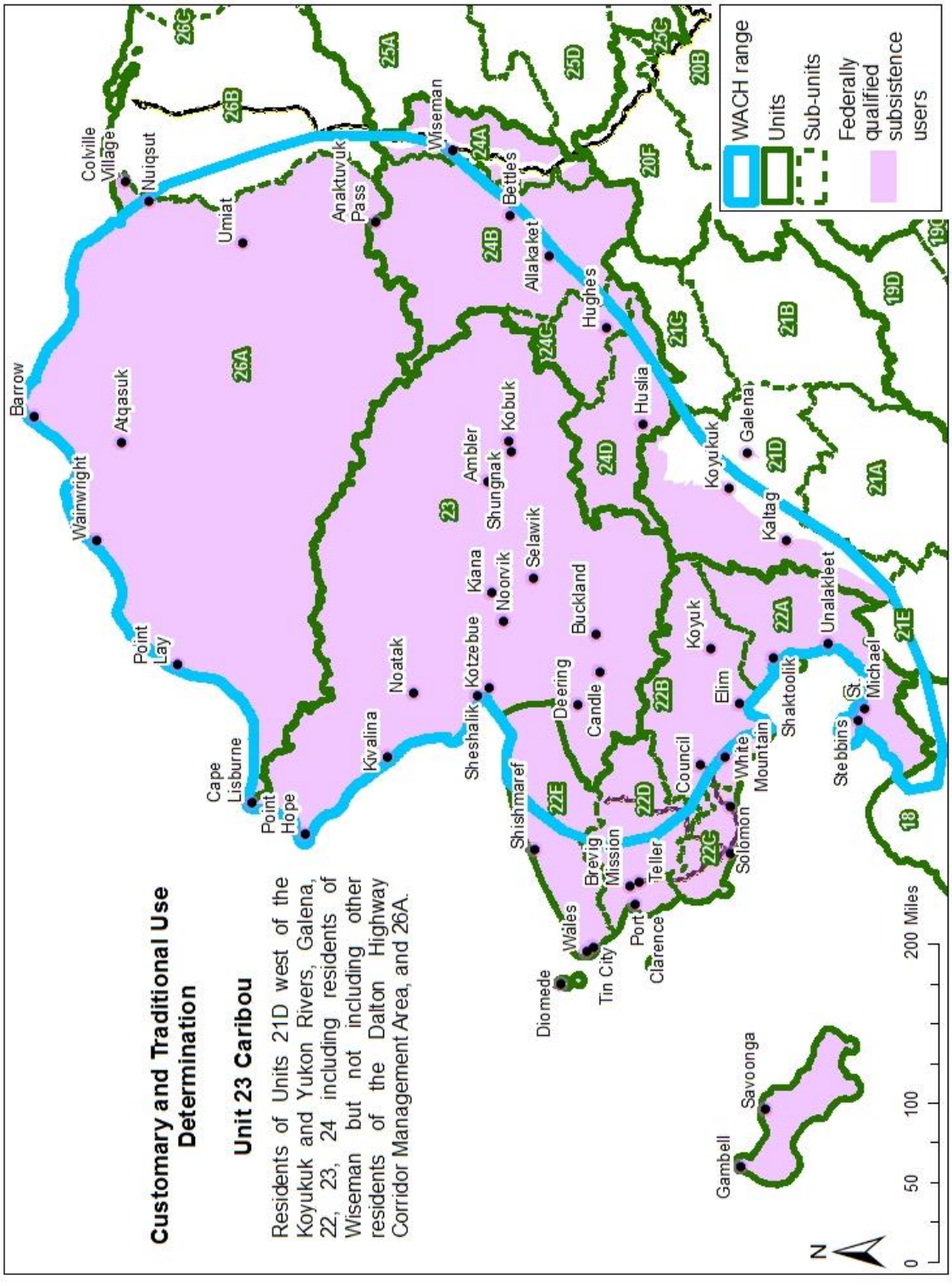
The CUA was expanded in 1994 and modified in 2017 (Betchkal 2015, Halas 2015, ADF&G 2017a). From 1994-2016, the Noatak CUA consisted of a 10-mile wide corridor (5 miles either side) along the Noatak River from its mouth to Sapun Creek with approximately 80 miles of the CUA within Noatak National Preserve (NP) (**Map 2**, Betchkal 2015). The closure dates from 1994-2009 were Aug. 25-Sept. 15. In 2009 (effective 2010), the BOG adopted Proposal 22 to expand the closure dates to Aug. 15-Sept. 30 in response to the timing of caribou migration becoming less predictable (ADF&G 2009). During the 2016/17 BOG regulatory cycle, the Noatak/Kivalina & Kotzebue AC proposed (Proposal 44) extending the upriver boundary of the Noatak CUA to the Cutler River, citing increased user conflicts as their rationale (ADF&G 2017b). In January 2017, the BOG approved amended Proposal 44 to shift the boundaries of the Noatak CUA to start at the mouth of the Agashashok River and end at the mouth of the Nimiuktuk River with approximately 105 miles within Noatak NP (**Map 2**, ADF&G 2017a).

In 1990, the Noatak CUA was adopted under Federal regulations. In 1995, the Board adopted Proposal P95-50 to expand the time period and area of the CUA to Aug. 25-Sept. 15 and the mouth of the Noatak River upstream to the mouth of Sapun Creek, respectively, which aligned with current State regulations. In 2008, Proposals WP08-50 and 51 requested modifications to the Noatak CUA dates. These proposals were submitted in response to caribou migration occurring later in the season, to improve caribou harvest for subsistence users, and to decrease conflicts between local and nonlocal hunters. The Board deferred these proposals to the next regulatory cycle. In 2010, Proposals WP10-82, 83, and 85 requested similar date changes. The Board adopted WP10-85 to expand the time period during which aircraft are restricted in the Noatak CUA to Aug. 15-Sept. 30, which aligned with the current State regulations.

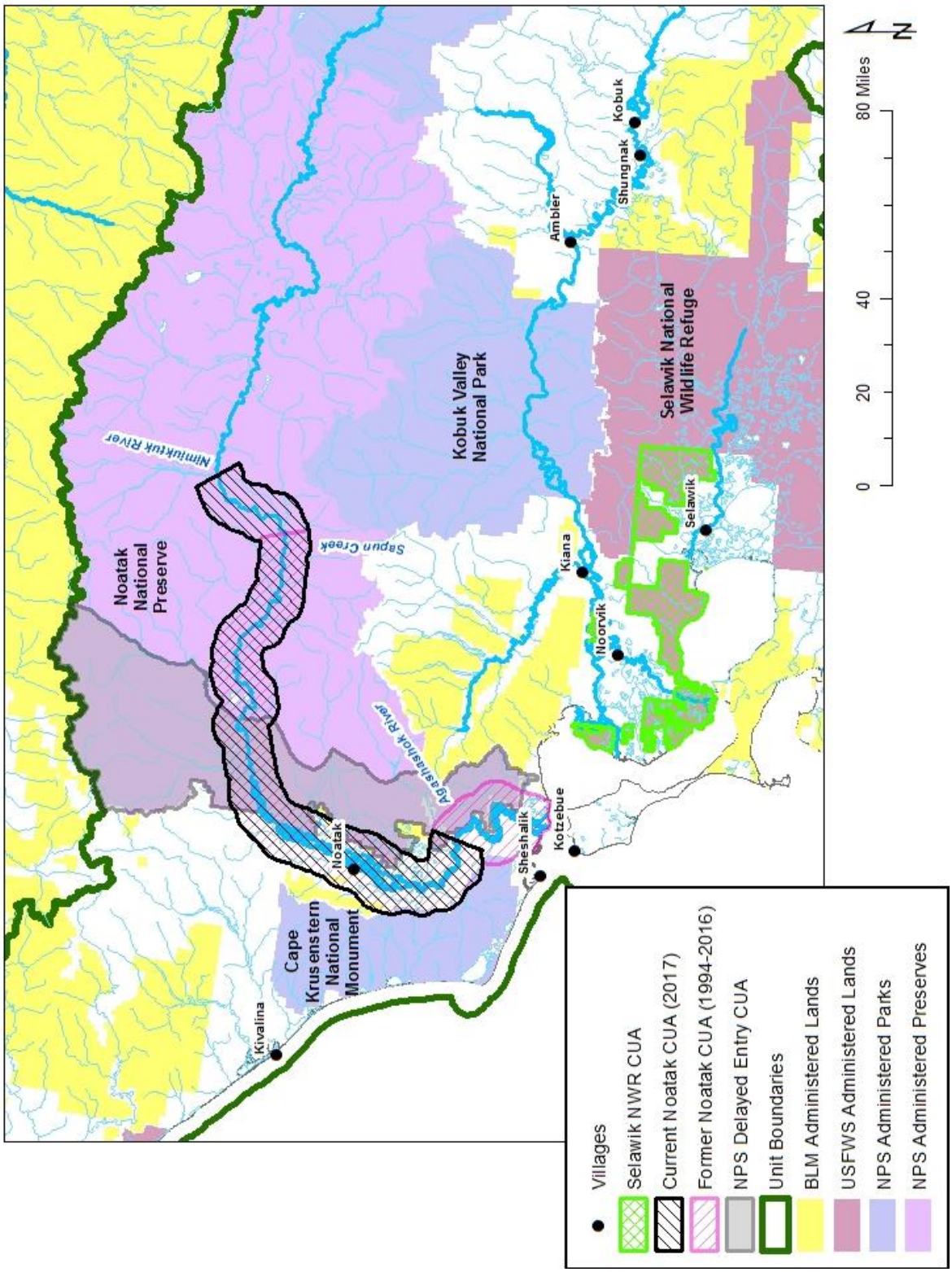
In 2011, Selawik National Wildlife Refuge (NWR) designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive

conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik (**Map 2**). The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

In 2012, the NPS established a Special Commercial Use Area or "delayed entry zone" in the western portion of the Noatak NP (Halas 2015, Fix and Ackerman Fix 2015). Within this zone, transporters can only transport nonlocal caribou hunters after September 15 unless otherwise specified by the Western Arctic Parklands (WEAR) superintendent in consultation with commercial operators, other agencies and local villages (Halas 2015). The purpose of this zone is to allow a sufficient number of caribou to cross the Noatak River and establish migration routes, to limit interactions between local and nonlocal hunters, and to allow local hunters the first opportunity to harvest caribou in that area (**Map 2**, FWS 2014, Halas 2015). To date, the Superintendent has not used his/her authority to alter the closure dates in response to changes in caribou herd migration or to meet the needs of local hunters (Halas 2015).



Map 1. Customary and Traditional (C&T) Use Determination for caribou in Unit 23. C&T Determinations indicate which Alaska rural residents are Federally qualified subsistence users. The WACH range indicates which residents are considered local in State management reports.



Map 2. Controlled Use Areas (CUAs) in Unit 23.

Current Events

Several other proposals concerning Federal caribou harvest regulations in Unit 23 and the WACH were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 46/47, 48/49, and 57). The outcome of these related proposals could impact the effects of this proposal (i.e. closures).

At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. Proposal WP18-46 is to close Federal public lands in Unit 23 to caribou hunting by NFQUs. Proposal WP18-48 is to require registration permits for caribou hunting in Units 22, 23, and 26A, which are also required under State regulations. Louis Cusack also submitted Proposal WP18-49 to require registration permits in these units.

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council intends to submit a similar proposal to the BOG.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by NFQUs in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Enoch Mitchell also submitted Proposal WP18-47 to close Federal public lands in Unit 23 to caribou hunting by NFQUs for the 2018/19- 2020/21 regulatory years. The Native Village of Noatak, Cape Krusenstern National Monument Subsistence Resource Commission (SRC), Kobuk Valley National Park SRC, and the Noatak/Kivalina Fish and Game Advisory Committee co-sponsored the proposal.

Biological Background

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

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

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 3**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds,

but the degree of mixing seems to be increasing. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 4**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26 based on back-calculations from calving dates using a 230 day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.

- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G is planning to conduct another photocensus in the summer of 2017 and is also transitioning from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality, and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

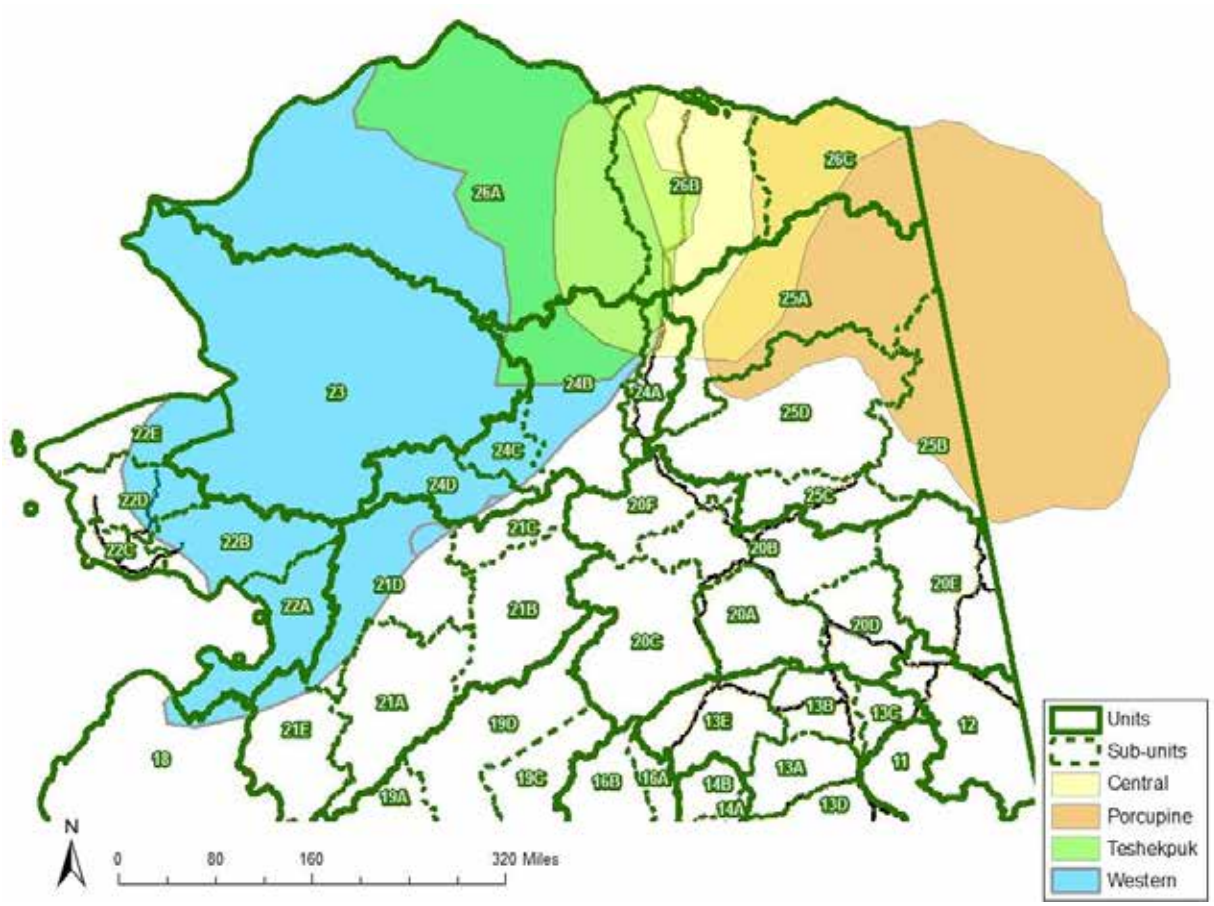
Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality

exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

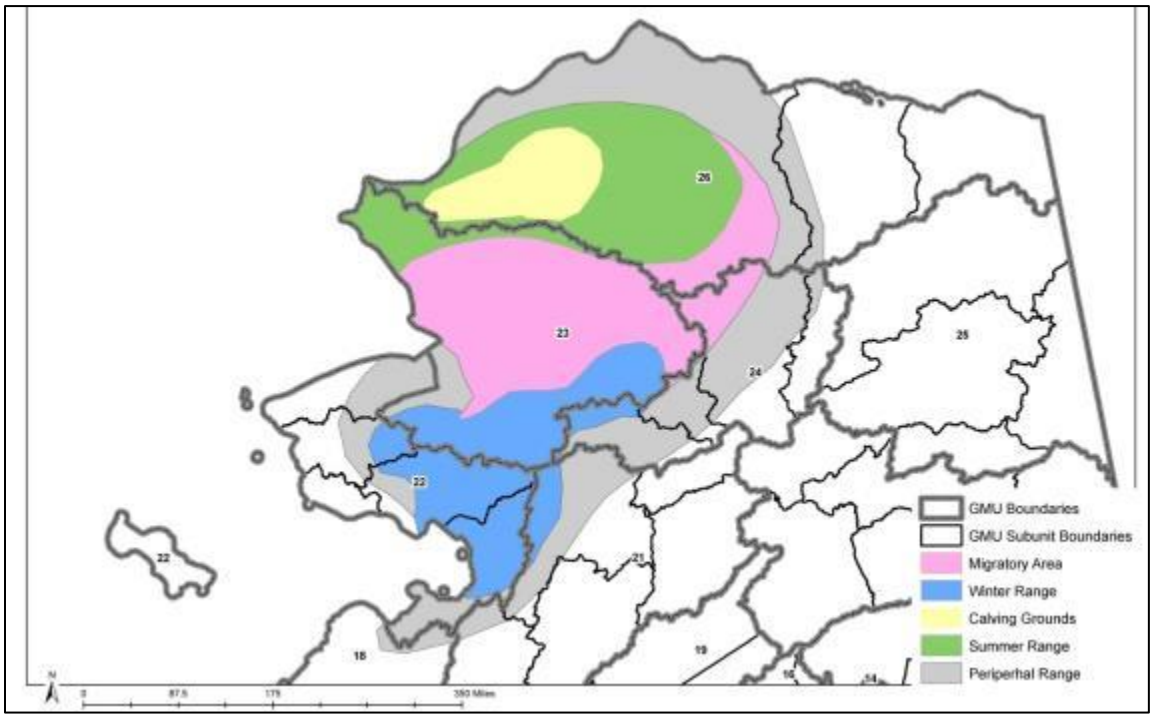
Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014).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

Habitat

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



Map 3. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 4. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

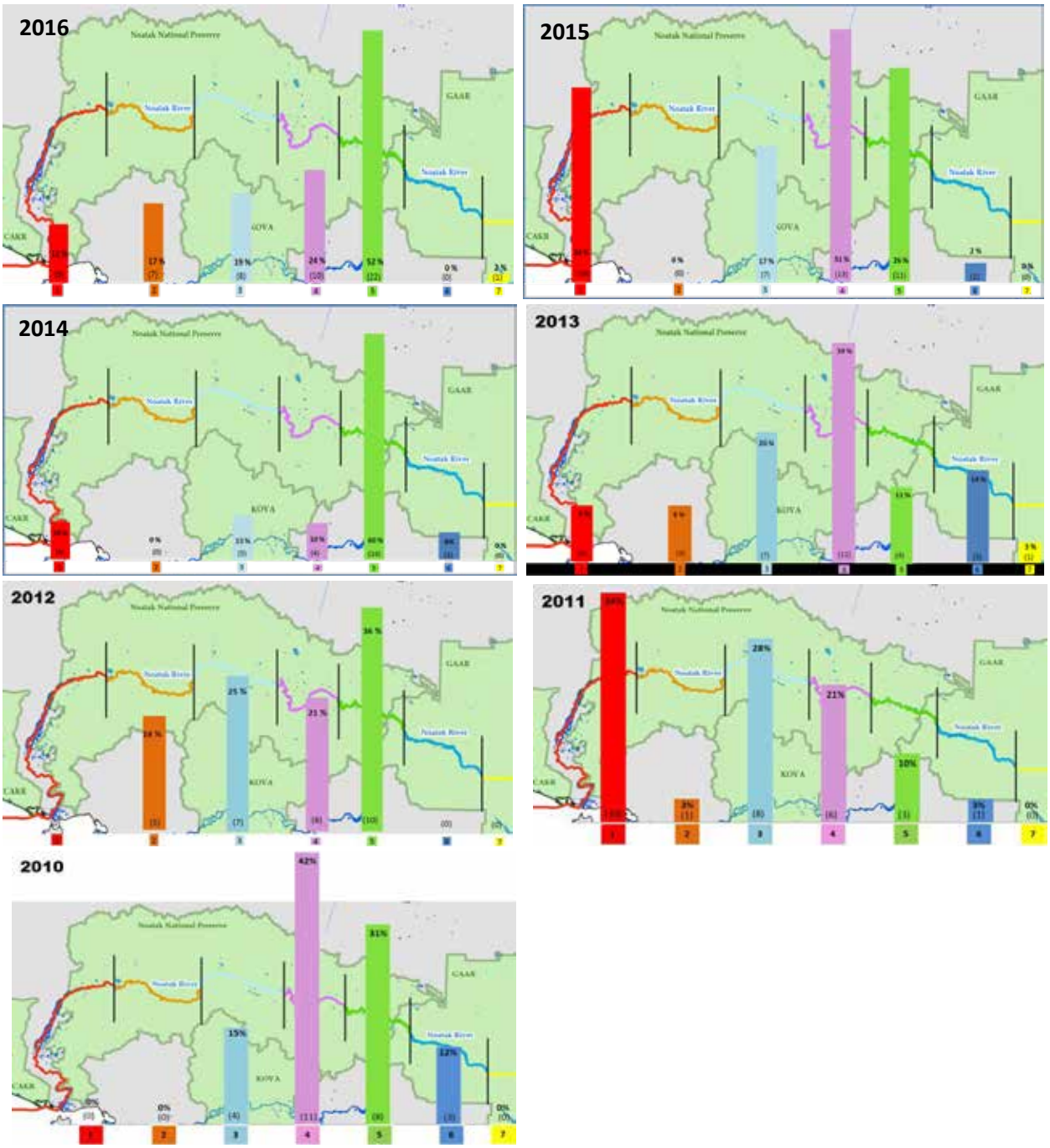


Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WAH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

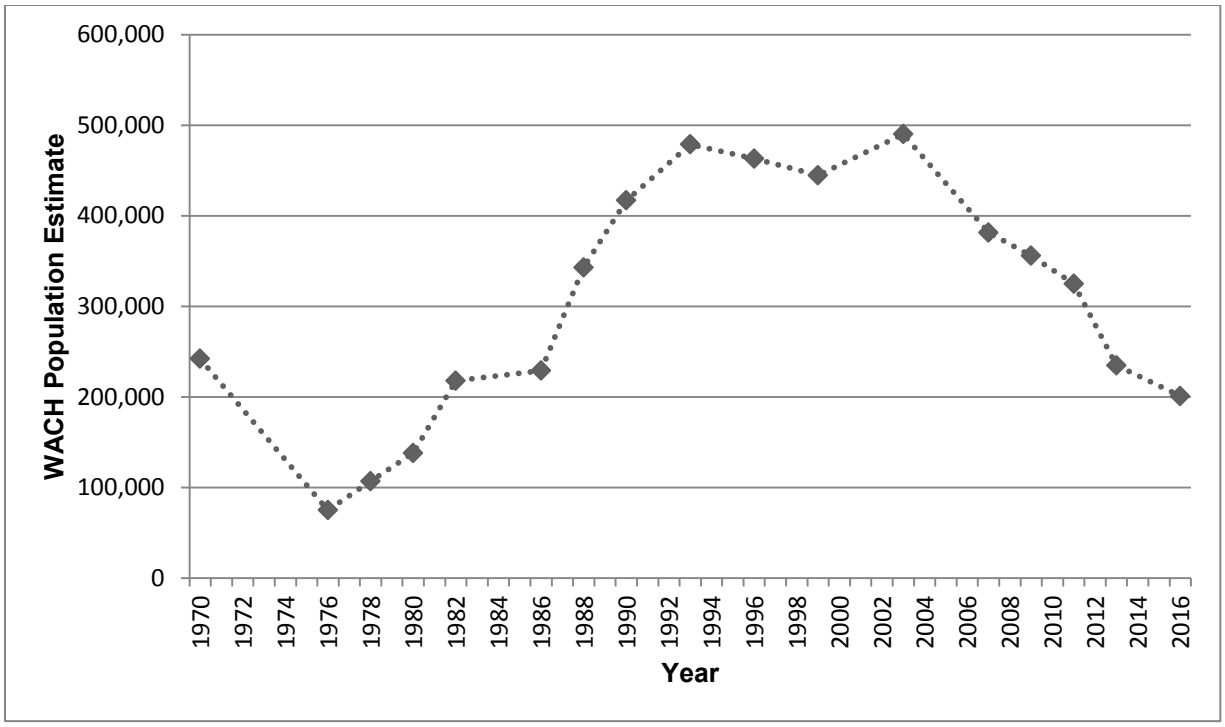


Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a)**.**

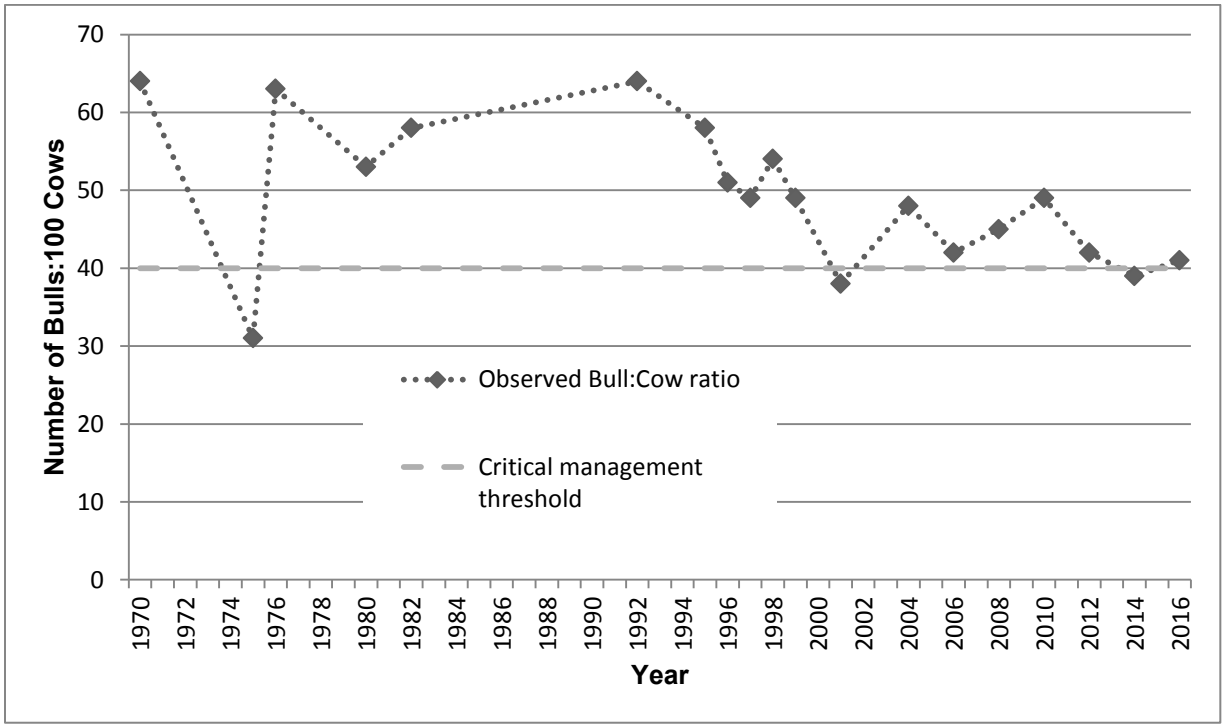


Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

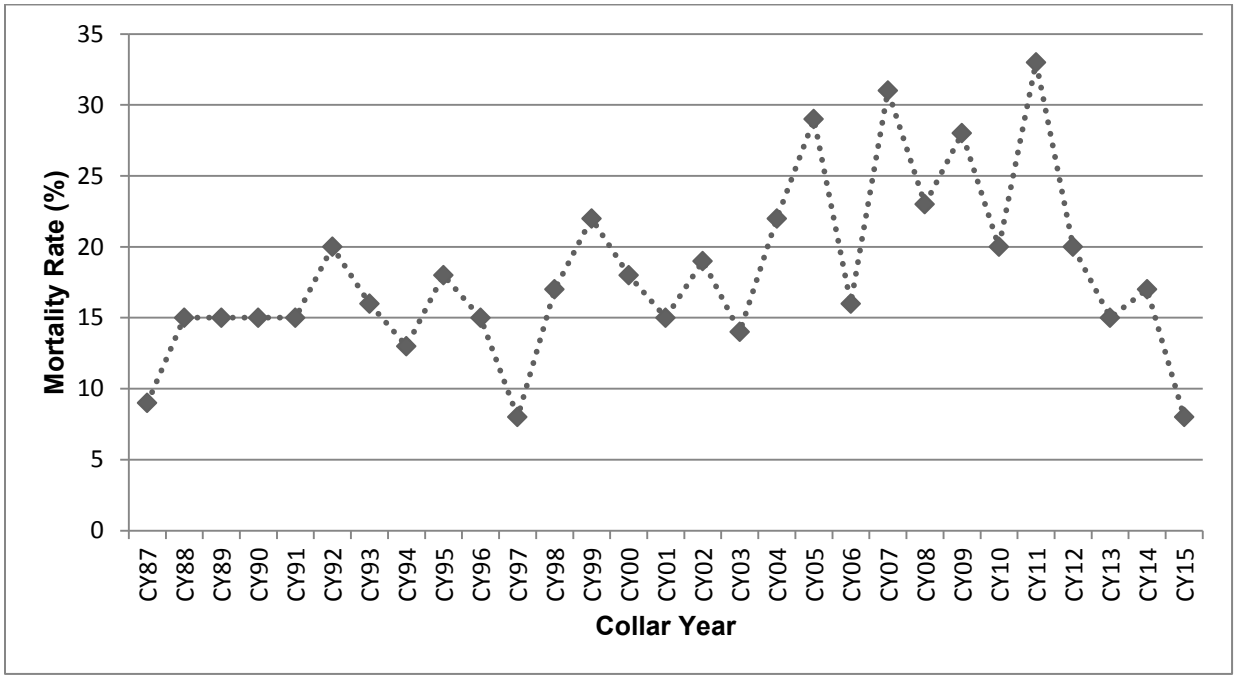


Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year = 1 Oct-30 Sept. 2015 collar year is Oct. 2015-Apr. 2016.

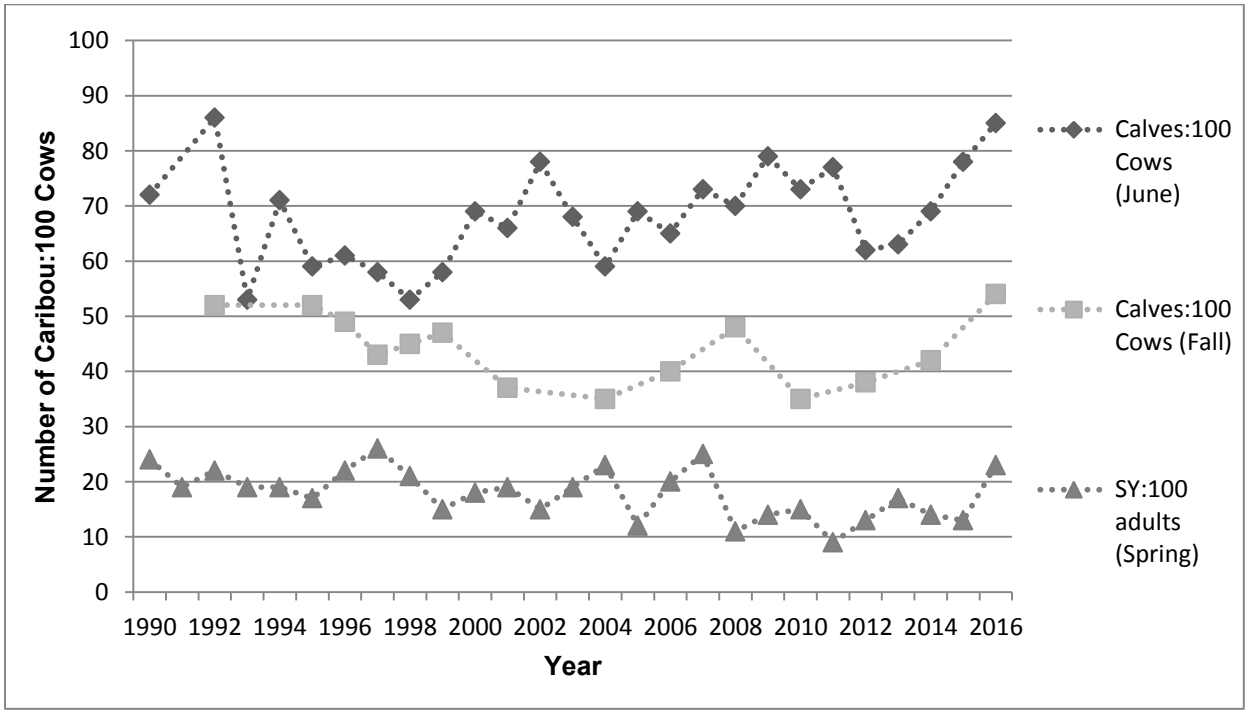


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life."

Caribou have been a primary resource for the Inupiat of the Northwest Arctic Region for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in this region (Burch 1984, 1994, 1998, ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

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

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take caribou in the winter and spring, while the other communities in Unit 23 take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.).

Currently, caribou hunting by Federally qualified subsistence users in the Northwest Arctic Region is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

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

Today, the human population in Unit 23 is comprised primarily of 11 regional Inupiaq groups (Burch 1998). Kotzebue is the regional hub of transportation and commerce and is the home to the majority of non-Natives in the region. The population of Unit 23 was approximately 7,500 in 2010, according to the U.S. Census (ADOLWD 2016). Caribou dominate the subsistence harvest of the region. In household harvest surveys conducted between 1964 and 2012, caribou were often the most harvested species, more than any other wild resource, in lbs. of edible weight (**Appendix 1**, ADF&G 2016a). Based on these surveys, in a typical study year, the harvest of caribou was between 100 and 200 lbs. per person in northwest Alaska (**Appendix 1**, ADF&G 2016a).

User Conflicts

User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). Such conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft and "non-local" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Northwest Arctic Council members have testified that user conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and

trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River has been cited as particularly problematic (NWARAC 2015).

Halas (2015), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

Repeated observations of airplanes affecting individual or group caribou behavior have been documented, and cumulative observations of this over time could lead an observer to conclusions about herd deflection (Halas 2015). Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017, BHA Alaska 2017) and that many factors contribute to larger scale shifts in migration. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Concerns were expressed by residents of Ambler, Shungnak, Noatak and Kobuk, as well as by members of the Northwest Arctic Council, that many nonlocal hunter practices clash with local hunting traditions such as shooting caribou for trophies or sport instead of food and wasting meat by letting it spoil in the field (Braem et al. 2015, NWARAC 2015, Halas 2015). Additional conflicts between user groups include competition for and overcrowding of campsites, litter, human waste, lack of law enforcement, degradation of the landscape from four-wheelers, and displacement from traditional hunting sites (Braem et al. 2015, Fix and Ackerman 2015, NWARAC 2015).

In 2008, the Unit 23 Working Group was established to address fall hunting related issues and to develop solutions to cooperatively solve hunting conflicts and to preserve traditional Inupiaq values, while also allowing for reasonable opportunities for non-local hunters (ADF&G 2016b). It is made up of 20 members, including representatives of regional and tribal governments and organizations, land and wildlife

management agencies, the Big Game Commercial Services Boards, the Alaska Professional Hunters Association (including representatives from hunting guide and transport industries), Fish and Game Advisory Committees, the Northwest Arctic Council, the BOG, and the Federal Subsistence Board (ADF&G 2016b). In 2010, the group proposed a mandatory orientation session for all pilots transporting big game in Unit 23. ADF&G implemented this, developed and distributed outreach materials, and established conflict planning processes (**Map 2**, Dau 2015a). The orientation suggests maintaining a minimum altitude of 2000 feet in the vicinity of camps (Betchkal 2015). Flight restrictions were also implemented by both State and Federal agencies (see Regulatory History).

Shifts in caribou migration paths, regardless of the reason for these shifts, have created difficulty for Noatak, Kivalina, and Kotzebue hunters, among others (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). In addition, many have had to switch from taking bulls to cows because of temporal shifts in access.

Harvest History

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011, Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). This is down from a harvestable surplus of 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively. These regulatory restrictions addressed recommendations in the WACH working group's management plan under conservative management (i.e. prohibiting the take of calves, shortening seasons, decreasing harvest limits) (**Table 1**).

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model

accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a).

Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively. Federally qualified subsistence users and NFQU are close, but not identical, to local and nonlocal hunters, respectively. Residents of Galena, Wiseman, and several communities on the western Seward Peninsula are Federally qualified subsistence users, but are not within the range of the WACH by definition (**Map 1**).

From 2000–2014, the average estimated total harvest from the WACH was 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (Dau 2015a, **Figure 6**). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 1**). However, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 23 account for approximately 58% of the total harvest on average (**Figure 7**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through eastern Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through western Unit 23. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through western Unit 23.

On average, 76% of WACH caribou harvested by nonlocals are taken in Unit 23. From 2001-2013, total and Unit 23 nonlocal WACH harvest averaged 598 caribou/year and 456 caribou/year, respectively (**Figure 8**). In recent regulatory years (2012/13–2013/14), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 9,** ADF&G 2016c, FWS 2016). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 9,** WINFONET 2017).

The major and minor river drainages in which people hunt and harvest caribou are included in harvest reporting data (WINFONET 2017). This data can be used to compare caribou harvest and hunting intensity (measured as the number of hunters) by NFQU across Unit 23 at both coarse (major river

drainage) and fine (minor river drainages) scales. On a coarse scale, cumulative caribou harvest by NFQU from 2005-2014 was highest in the Noatak River drainage. On a fine scale, caribou harvest over the same time period was highest in the Squirrel River drainage and on the Baldwin Peninsula. Hunting intensity paralleled harvest on both coarse and fine scales. While the total number of nonlocal hunters and harvest decreased in 2016 due to the Federal lands closure, the Noatak and Squirrel River Drainages still experienced the highest relative hunting intensity at the coarse and fine scales, respectively (WINFONET 2017).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a).

Commercially licensed transporters and guides assist approximately 60% and 10% of nonlocal hunters in Unit 23, respectively (Unit 23 Working Group 2016). In the Noatak NP, nonlocal transporter clients primarily consist of nonresidents and Alaska residents from urban areas such as Anchorage, Fairbanks, and communities on the Kenai Peninsula (Fix and Ackerman 2015, ADF&G 2016c).

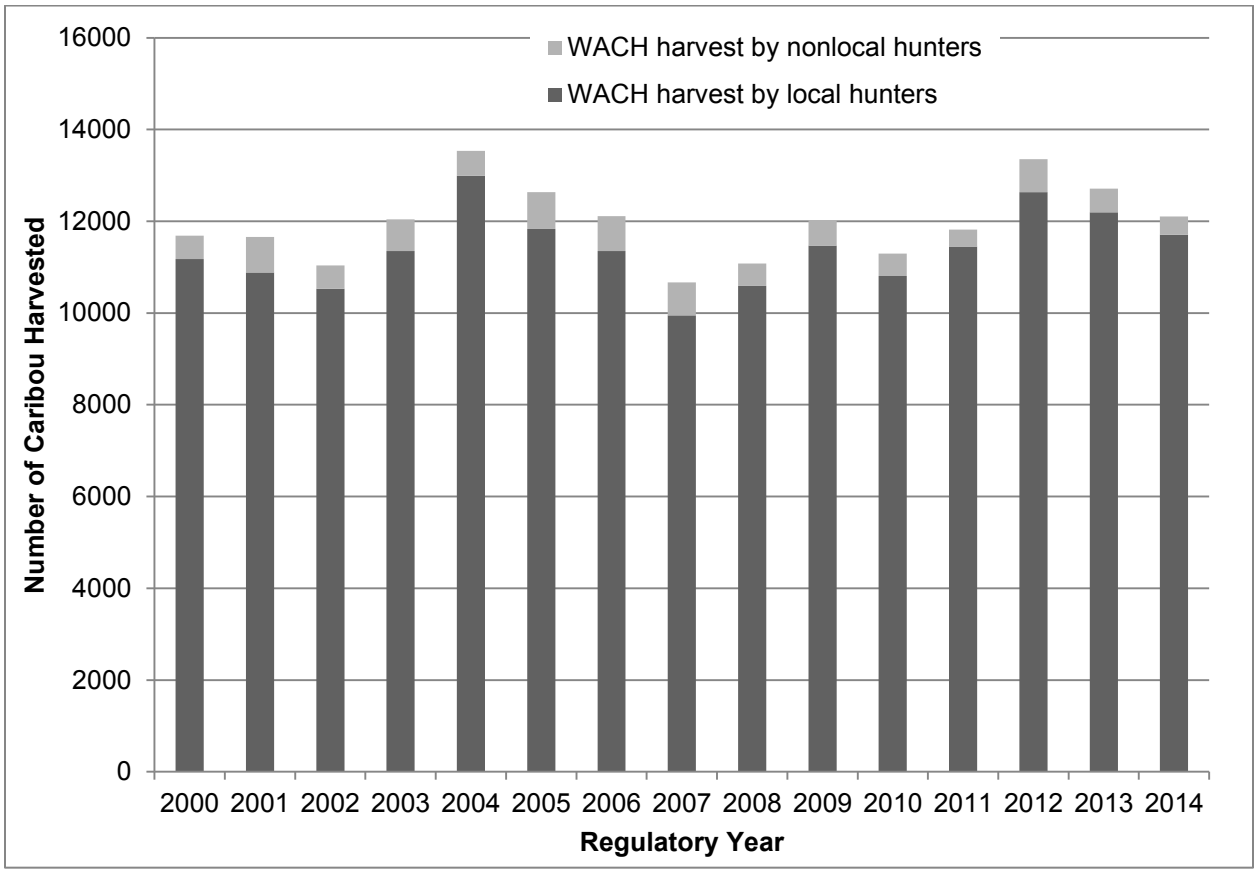


Figure 6. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

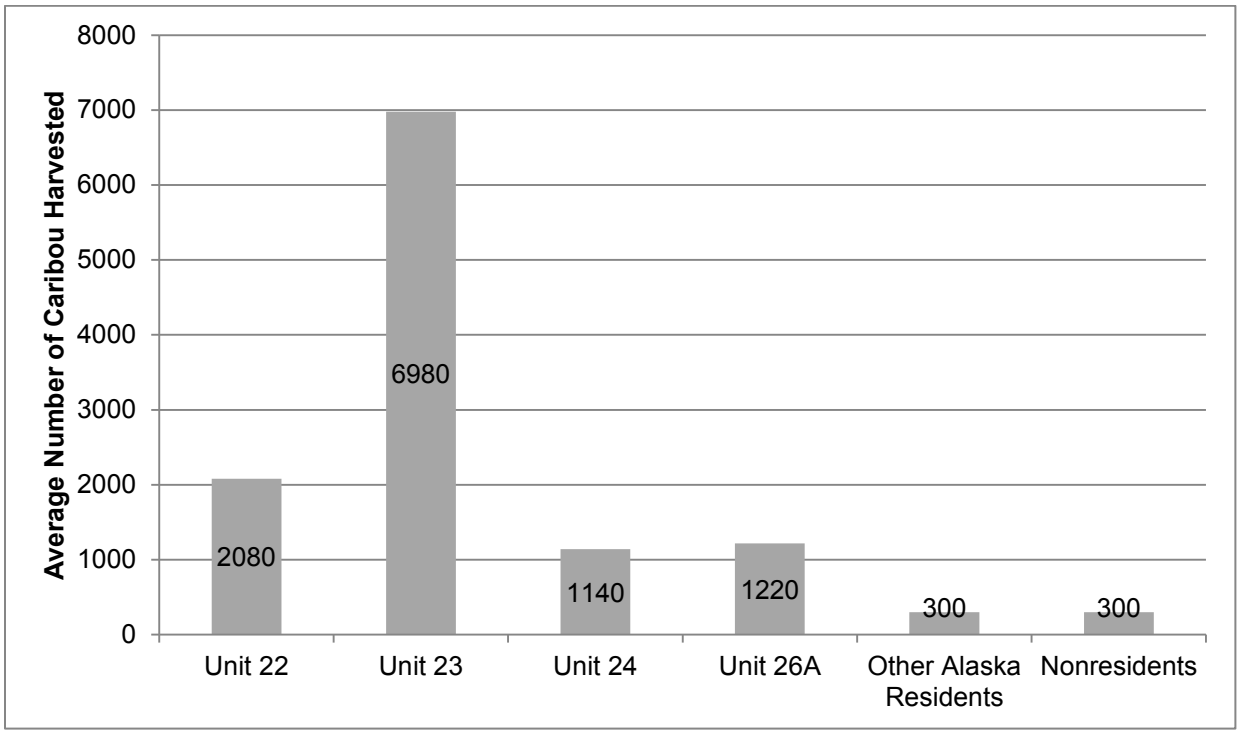


Figure 7. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

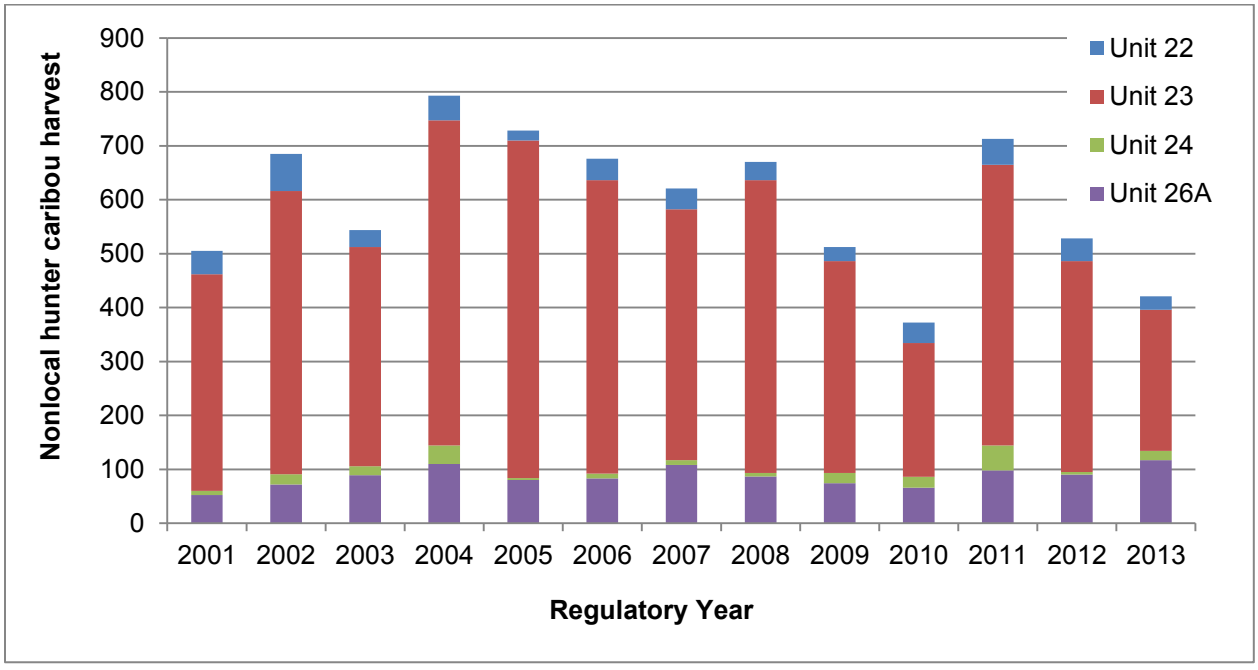


Figure 8. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

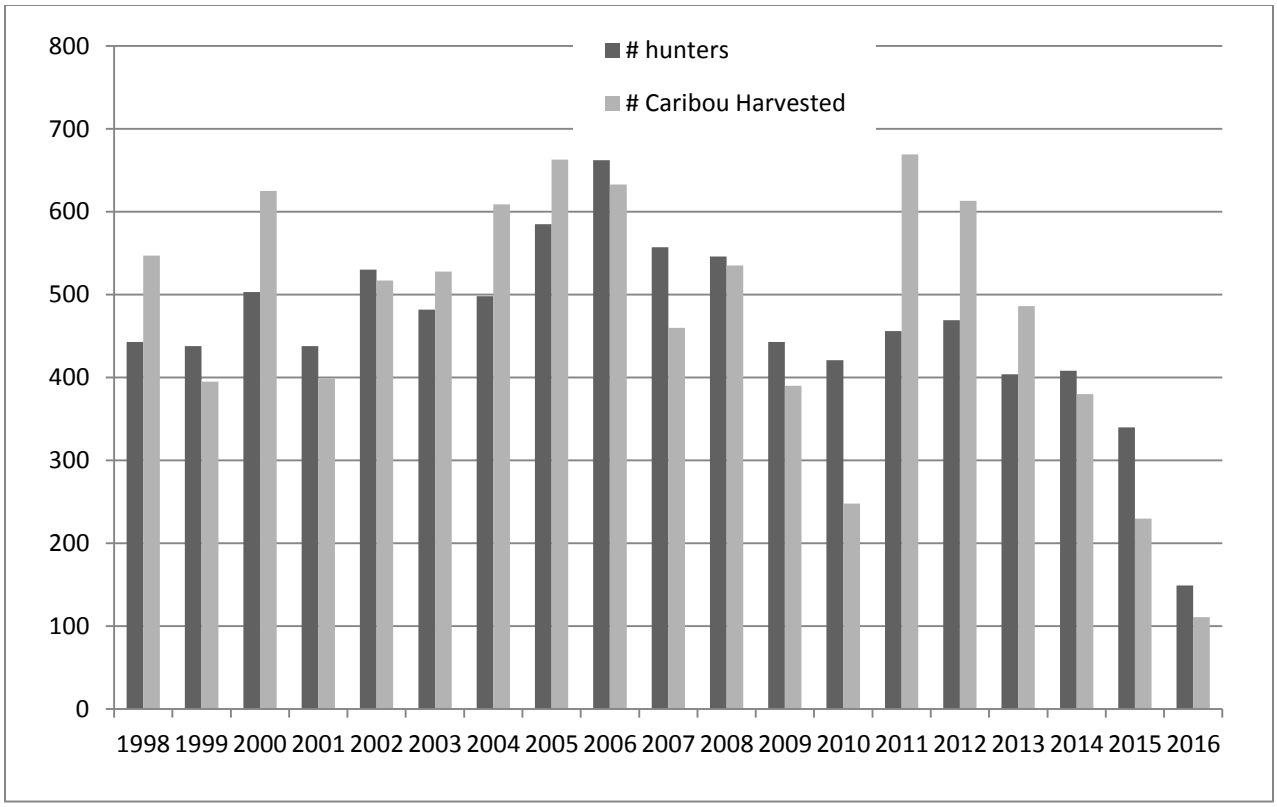


Figure 9. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, FWS 2016, WINFONET 2017).

Other Alternatives Considered

One alternative considered was to defer this proposal in order to allow for additional time to evaluate the effectiveness of the 2016 regulatory changes and to obtain additional information (e.g. population estimates) on the WACH. However, unless the State reduces the caribou harvest limit in Unit 23, this proposal would have no conservation effect and would restrict subsistence use in National Parks and areas open only to Federally qualified subsistence users.

Effects

If this proposal is adopted, the caribou harvest limit in Unit 23 would be reduced from 5 to 3 caribou per day, which reduces opportunity for Federally qualified subsistence users. This would also cause Federal regulations to be more restrictive than State regulations, contrary to the subsistence priority mandated by Title VIII of the Alaska National Interest Lands Conservation Act. State and Federal regulations would be further misaligned, which increases regulatory complexity and could add to user confusion.

While the WACH population is declining, reducing the Federal daily harvest limit is not expected to impact population recovery or reduce overall WACH harvest as all residents would still be able to harvest 5 caribou per day in Unit 23 under State regulations. Harvest in national parks and monuments may be reduced (i.e. Kobuk Valley and portions of Gates of the Arctic National Parks), but is not expected to

impact WACH conservation as these areas are not targeted by Federally qualified subsistence users for caribou hunting. In 2016, the harvest limit for caribou in Unit 23 was reduced from 15 to 5 caribou per day. Time is needed to evaluate the effectiveness of recent regulatory restrictions before enacting further restrictions. The outcomes of Proposals WP18-32, 46/47, and 48/49 may influence the effects of this proposal, if adopted.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-45.

Justification

Adoption of this proposal reduces opportunity for Federally qualified subsistence users, could negatively affect continuation of subsistence uses, and eliminates the subsistence priority. Additionally, impact to conservation of the WACH would be minimal. More time is needed to evaluate the regulatory changes which took effect in 2016 before further reducing the harvest limit under Federal regulations.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–46/47 Executive Summary	
General Description	Proposal WP18-46 requests that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. *Submitted by: Western Arctic Caribou Herd Working Group.* Proposal WP18-47 requests that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users from 2018/19 to 2020/21 only. *Submitted by: Enoch Mitchell of Noatak.*
Proposed Regulation	WP16-46 **Unit 23—Caribou** *Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage* *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* *July 1–Oct. 14* *Feb. 1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.* *July 15–Apr. 30* ***Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.*** *Unit 23, remainder* *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* *July 1–Oct. 31* *Feb.1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.* *July 31–March 31*

WP18–46/47 Executive Summary

		Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	
	WP18-47		
	Unit 23—Caribou		
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* *Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.*	 *July 1–Oct. 14* *Feb. 1–June 30* *July 15–Apr. 30*
		Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	
	Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* *Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.*	 *July 1–Oct. 31* *Feb.1–June 30* *July 31–March 31*
		Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	

WP18–46/47 Executive Summary	
OSM Preliminary Conclusion	**Support** Proposal WP18-46 **with modification** to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users and **Take No Action** on Proposal WP18-47. The modified regulation should read: **Unit 23—Caribou** *Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage* — *5 caribou per day as follows:* *Calves may not be taken* — *Bulls may be harvested* — *July 1–Oct. 14* / *Feb. 1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.* — *July 15–Apr. 30* *Unit 23, remainder* — *5 caribou per day as follows:* *Calves may not be taken* — *July 1–Oct. 31* / *Feb.1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.* — *July 31–March 31* ***Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to***

WP18–46/47 Executive Summary	
	the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.
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	

WP18–46/47 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
WP18-46/47

ISSUES

Proposal WP18-46, submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group), and Proposal WP18-47, submitted by Enoch Mitchell of Noatak, request that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. Proposal WP18-47 specifically requests that the closure extend from 2018/19 to 2020/21 only.

DISCUSSION

The proponent for WP18-46 is concerned about the decline of the WACH population. Working group members noted that the 2016/17 Federal public lands closure to caribou hunting by non-Federally qualified users (NFQU) in Unit 23 helped local hunters meet their subsistence needs by reducing user conflicts and hunting activity from nonlocal hunters. Members also commented that caribou migrated closer to villages (i.e. Noatak) and spoke to the cultural and nutritional importance of caribou to Unit 23 residents.

The proponent for WP18-47 states that the proposed closure will promote conservation of the WACH and food security for Federally qualified subsistence users (FQSU) and that it is consistent with Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) and the WACH Working Group's management plan as the WACH population is on the brink of preservative management. The proponent emphasizes that caribou are a vital subsistence resource to FQSU in Unit 23 and that store-bought food and fuel prices in the unit are very high. The proponent also states that the proposed change will minimize user conflicts by improving the ability of FQSU to harvest caribou and meet their subsistence needs. He notes that FQSU have reported changes in caribou migration patterns whereby caribou are traveling further from villages, which burdens local communities by increasing the time and fuel costs of caribou hunting. He also states that FQSU have reported that noise from aircraft used by transporters and guides can disrupt caribou migration and that this issue has been a longstanding source of user conflict. Noatak residents reported positive effects from the 2016/17 closure, including improved hunter success and reduced user conflicts. The Native Village of Noatak, the Cape Krusenstern National Monument Subsistence Resource Commission, the Kobuk Valley National Park Subsistence Resource Commission, and the Noatak/Kivalina Fish and Game Advisory Committee are co-sponsors of this proposal and submitted letters of support.

The applicable statutory guidance is found in the Alaska National Interest Lands Conservation Act (ANLICA) Title VIII §815.3, which states that:

> *Nothing in this title shall be construed as . . . authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on the public lands (other than national parks and park monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in §816, to continue subsistence uses of such populations, or pursuant to other applicable law;*

Existing Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Proposed Federal Regulations

WP18-46

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	

Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	

WP18-47

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	

Existing State Regulations

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23 (**Map 1**).

Regulatory History

In 1990, the caribou hunting season in Unit 23 was open year round with a 5 caribou per day harvest limit and a restriction on the take of cows May 16-June 30.

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-51 to increase the caribou harvest limit from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers,

Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (**Map 1**, FWS 1995b, 1997).

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

In 2013, an aerial photocensus indicated significant declines in the Teshekpuk Caribou herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering harvest limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline. The regulatory changes took effect on July 1, 2015.

In 2015, four temporary special actions, WSA15-03/04/05/06, requesting changes to caribou regulations in Units 23, 24, and 26, were submitted by the North Slope Subsistence Regional Advisory Council (North Slope Council) and approved with modification by the Board, effective July 1, 2015. Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be prohibited. The Board did not establish a new hunt area, applying the restrictions to all of Unit 23 and also prohibited the take of cows with calves. These State and Federal regulatory changes were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

Five proposals (WP16-37, WP16-48, WP16-49/52, and WP16-61) concerning caribou regulations in Unit 23 were submitted to the Board for the 2016-2018 wildlife regulatory cycle. The Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.), and to create a new hunt area in the northwest corner of Unit 23. The Board took no action on the remaining proposals (WP16-49/52, and WP16-61) because of action taken on WP16-37.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council) submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2016/17 regulatory year. The Council stated that their request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body

condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In November 2016, the Northwest Arctic Council voted to submit a special action request (WSA17-02) to close Federal public lands in Unit 23 to moose hunting by NFQU. The Council submitted the request due to a declining moose population in Unit 23 and because more local people are depending on moose to meet their subsistence needs in light of the current WACH population decline. In April 2017, the Board rejected WSA17-02 because moose harvest by FQSU has remained stable over the past decade, indicating these users' needs are still being met; NFQU harvest accounted for the minority of Unit 23 moose harvest, so eliminating them would have limited impact on the moose population; NFQU hunting activity could become concentrated on State lands, increasing user conflicts; and recent changes to State regulations (i.e. elimination of antlerless and nonresident hunts) already addressed the issue and time is needed to evaluate their effectiveness.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 23 and 26A (a similar proposal was passed for Unit 22 in 2016). The Alaska Department of Fish and Game (ADF&G) submitted the proposal in order to better monitor harvest and improve management flexibility. Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The Noatak/Kivalina & Kotzebue Fish and Game Advisory Committee (AC) submitted the proposal to allow caribou to migrate through those areas with less disruption and barriers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board approved WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by FQSU for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence uses. The Board rejected WSA17-04 stating that recent changes to State regulations aimed at reducing caribou harvest should be given time to determine if they are effective before additional restrictions are enacted.

Controlled Use Areas

In 1988, the Traditional Council of Noatak submitted a proposal to the BOG to create the Noatak Controlled Use Area (CUA) in order to restrict the use of aircraft in any manner for big game hunting Aug. 15 - Sept. 20 due to user conflicts (Fall 1990:86). The proposed CUA extended five miles on either side of the

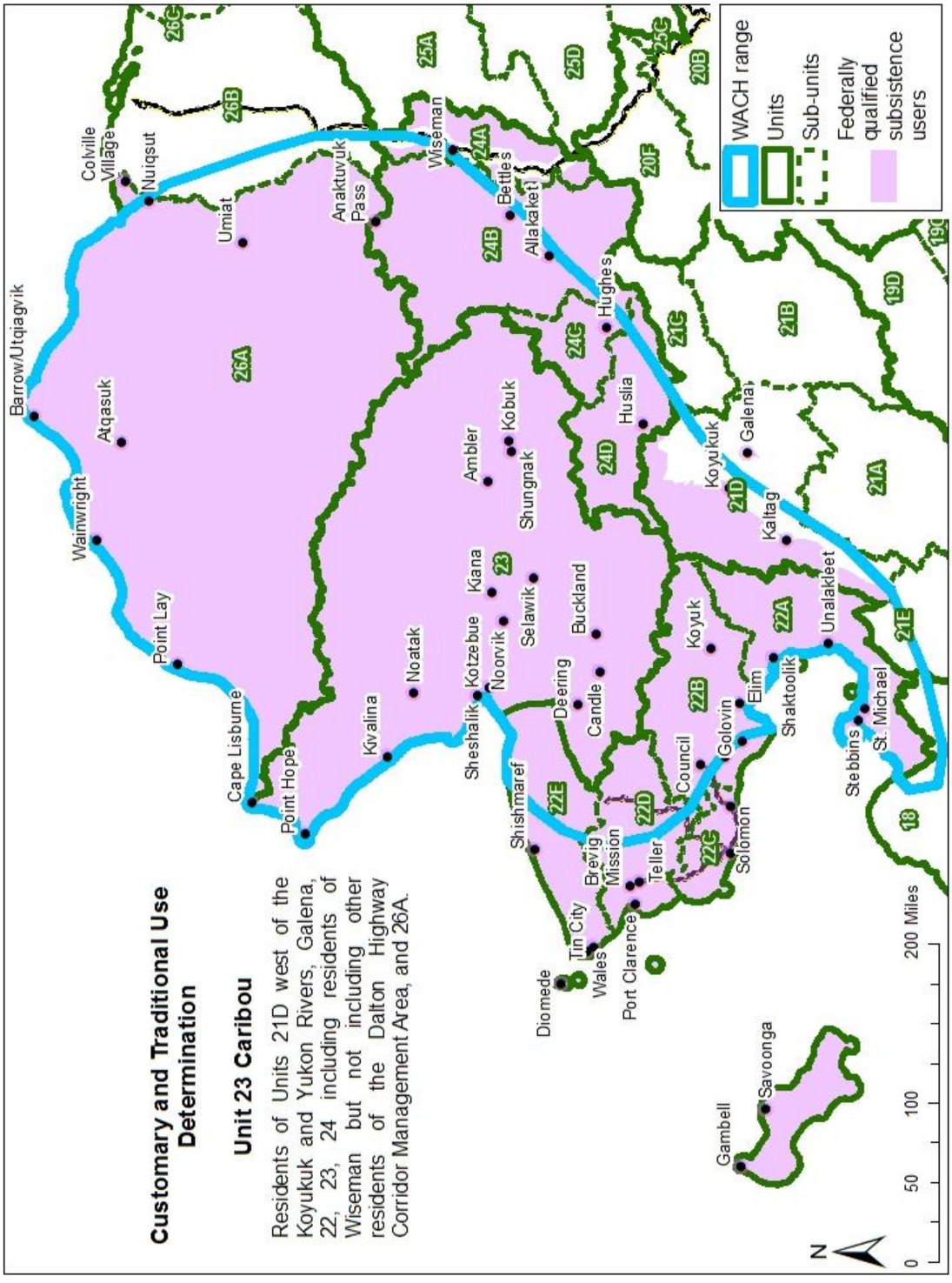
Noatak River, from the mouth of the Eli River upstream to the mouth of the Nimiuktuk River, including the north side of Kivivik Creek (ADF&G 1988:47). The BOG adopted the proposal with modification to close a much smaller area extending from the Kugururok River to Sapun Creek from Aug. 20-Sept. 20.

The CUA was expanded in 1994 and modified in 2017 (Betchkal 2015, Halas 2015, ADF&G 2017a). From 1994-2016, the Noatak CUA consisted of a 10-mile wide corridor (5 miles either side) along the Noatak River from its mouth to Sapun Creek with approximately 80 miles of the CUA within Noatak National Preserve (NP) (**Map 2**, Betchkal 2015). The closure dates from 1994-2009 were Aug. 25-Sept. 15. In 2009 (effective 2010), the BOG adopted Proposal 22 to expand the closure dates to Aug. 15-Sept. 30 in response to the timing of caribou migration becoming less predictable (ADF&G 2009). During the 2016/17 BOG regulatory cycle, the Noatak/Kivalina & Kotzebue AC proposed (Proposal 44) extending the upriver boundary of the Noatak CUA to the Cutler River, citing increased user conflicts as their rationale (ADF&G 2017b). In January 2017, the BOG approved amended Proposal 44 to shift the boundaries of the Noatak CUA to start at the mouth of the Agashashok River and end at the mouth of the Nimiuktuk River with approximately 105 miles within Noatak NP (**Map 2**, ADF&G 2017a).

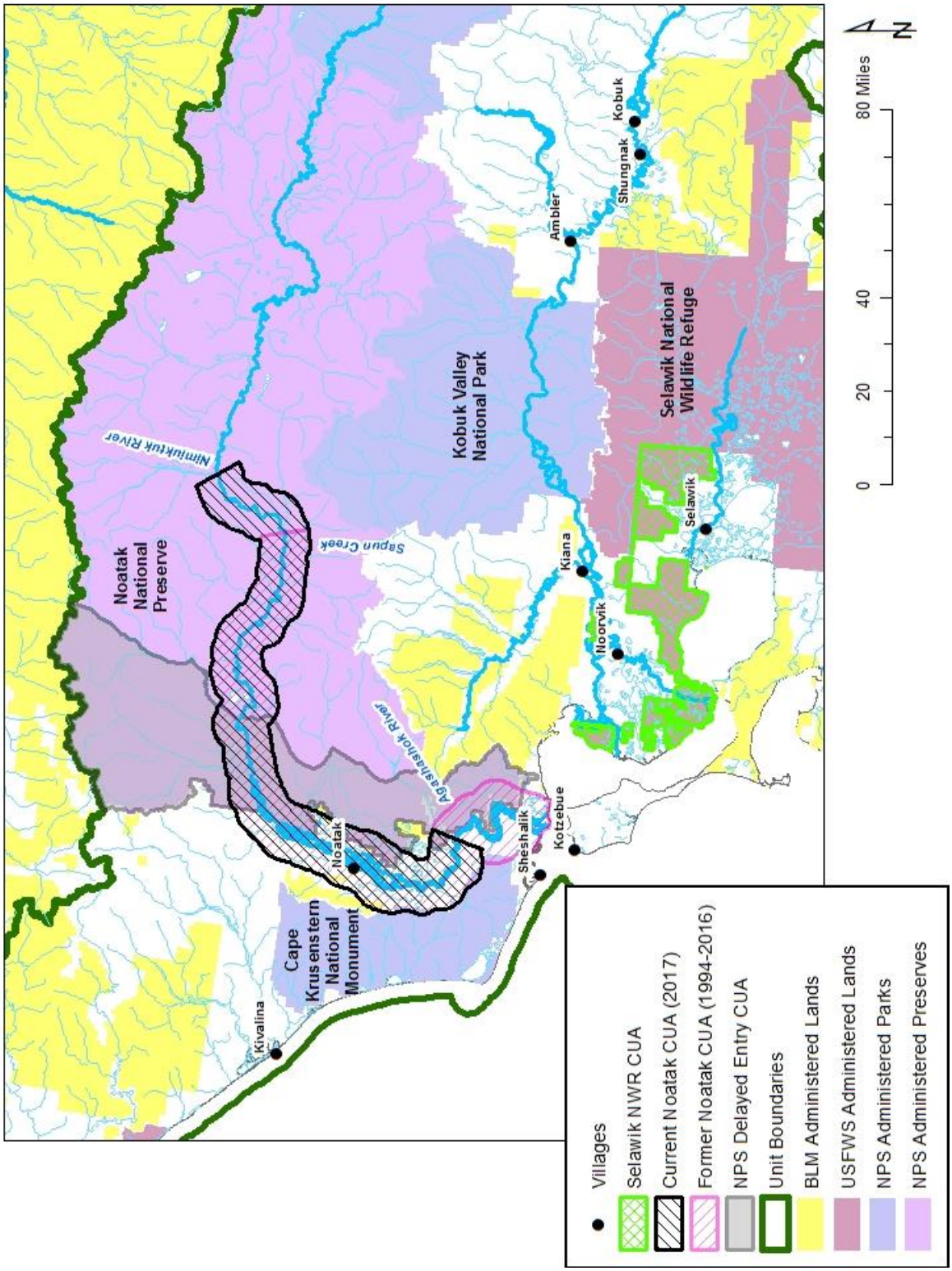
In 1990, the Noatak CUA was adopted under Federal regulations. In 1995, the Board adopted Proposal P95-50 to expand the time period and area of the CUA to Aug. 25-Sept. 15 and the mouth of the Noatak River upstream to the mouth of Sapun Creek, respectively, which aligned with current State regulations. In 2008, Proposals WP08-50 and 51 requested modifications to the Noatak CUA dates. These proposals were submitted in response to caribou migration occurring later in the season, to improve caribou harvest for subsistence users, and to decrease conflicts between local and nonlocal hunters. The Board deferred these proposals to the next regulatory cycle. In 2010, Proposals WP10-82, 83, and 85 requested similar date changes. The Board adopted WP10-85 to expand the time period during which aircraft are restricted in the Noatak CUA to Aug. 15-Sept. 30, which aligned with the current State regulations.

In 2011, Selawik National Wildlife Refuge (NWR) designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik (**Map 2**). The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

In 2012, the NPS established a Special Commercial Use Area or "delayed entry zone" in the western portion of the Noatak NP (Halas 2015, Fix and Ackerman 2015). Within this zone, transporters can only transport nonlocal caribou hunters after September 15 unless otherwise specified by the Western Arctic Parklands superintendent in consultation with commercial operators, other agencies and local villages (Halas 2015). The purpose of this zone is to allow a sufficient number of caribou to cross the Noatak River and establish migration routes, to limit interactions between local and nonlocal hunters, and to allow local hunters the first opportunity to harvest caribou in that area (**Map 2**, FWS 2014, Halas 2015). To date, the Superintendent has not used his/her authority to alter the closure dates in response to changes in caribou herd migration or to meet the needs of local hunters (Halas 2015).



Map 1. Customary and Traditional (C&T) Use Determination for caribou in Unit 23. C&T Determinations indicate which Alaska rural residents are Federally qualified subsistence users. The WACH range indicates which residents are considered local in State management reports.



Map 2. Federal and State Hunting Management Areas in Unit 23.

Current Events

In January 2017, the Board directed the Office of Subsistence Management (OSM) to form an interagency group to discuss possible solutions to user conflict issues in Unit 23 such as targeted closures (FSB 2017). This group, consisting of representatives from OSM, BLM, NPS, USFWS, and ADF&G, met for the first time in April 2017 to discuss user conflicts in Unit 23 and develop suggestions to mitigate them. The group suggested closing Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by FQSU.

Several other proposals concerning Federal caribou harvest regulations in Unit 23 and the WACH were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 45, 48/49, and 57). At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. The group also voted to submit this proposal (WP18-46) as well as Proposal WP18-48 to require registration permits for caribou hunting in Units 22, 23, and 26A in order to align with State permitting requirements and better monitor harvest. Louis Cusack also submitted Proposal WP18-49 to require registration permits in these units.

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align Federal caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council expressed its intentions to submit a similar proposal to the BOG so that State and Federal seasons could be aligned.

At the Northwest Arctic Council meeting in March 2017, the Council voted to submit Proposal WP18-45 to decrease the harvest limit for caribou in Unit 23 from 5/day to 3/day. The Council also considered submitting a proposal to close Federal public lands to caribou hunting to NFQU (same as the WACH working group proposal), but the motion failed due to concerns about making the closure permanent and for family and tribal members currently living in urban areas who would be restricted by the closure.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by NFQU in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Biological Background

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

reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

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

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 3**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds, but the degree of mixing seems to be increasing. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 4**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230 day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). Changes in migration paths are likely influenced by multiple factors including food availability, snow depth, rugged terrain, and dense vegetation (Fullman et al. 2017, Nicholson et al. 2016). If caribou travelled the same migration routes every year, their food resources would likely be depleted (NWARAC 2016). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels

under liberal and conservative management (+/- 100 to 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photocensuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photocensus of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016 (calves born in these years), which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G plans to conduct another photocensus in the summer of 2017 and also transition from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels (40 bulls:100 cows) in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001

bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the population decline are not known with certainty, fall and winter icing events likely initiated the decline (Dau 2015a). Increased adult cow mortality, and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled

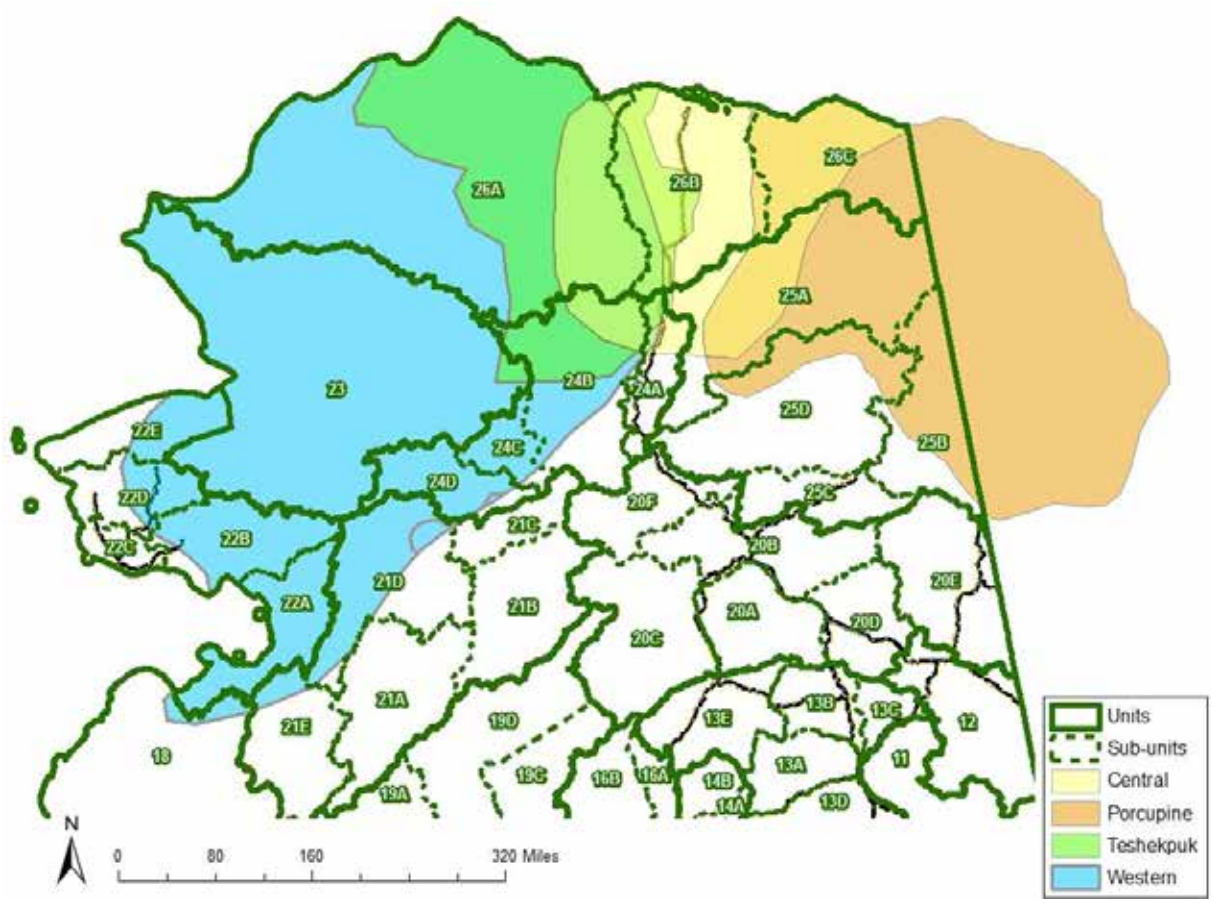
wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

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

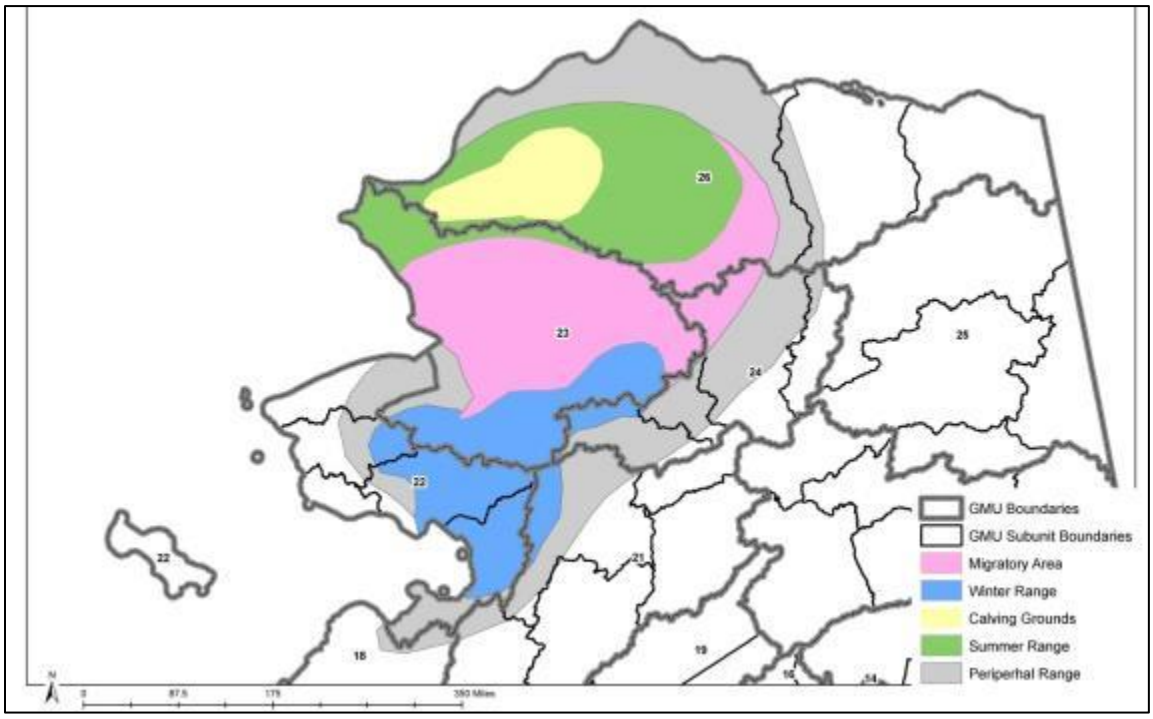
Although icing events likely precipitated the population decline, increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014). Joly et al. (2007) documented a decline in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

Habitat

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



Map 3. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 4. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

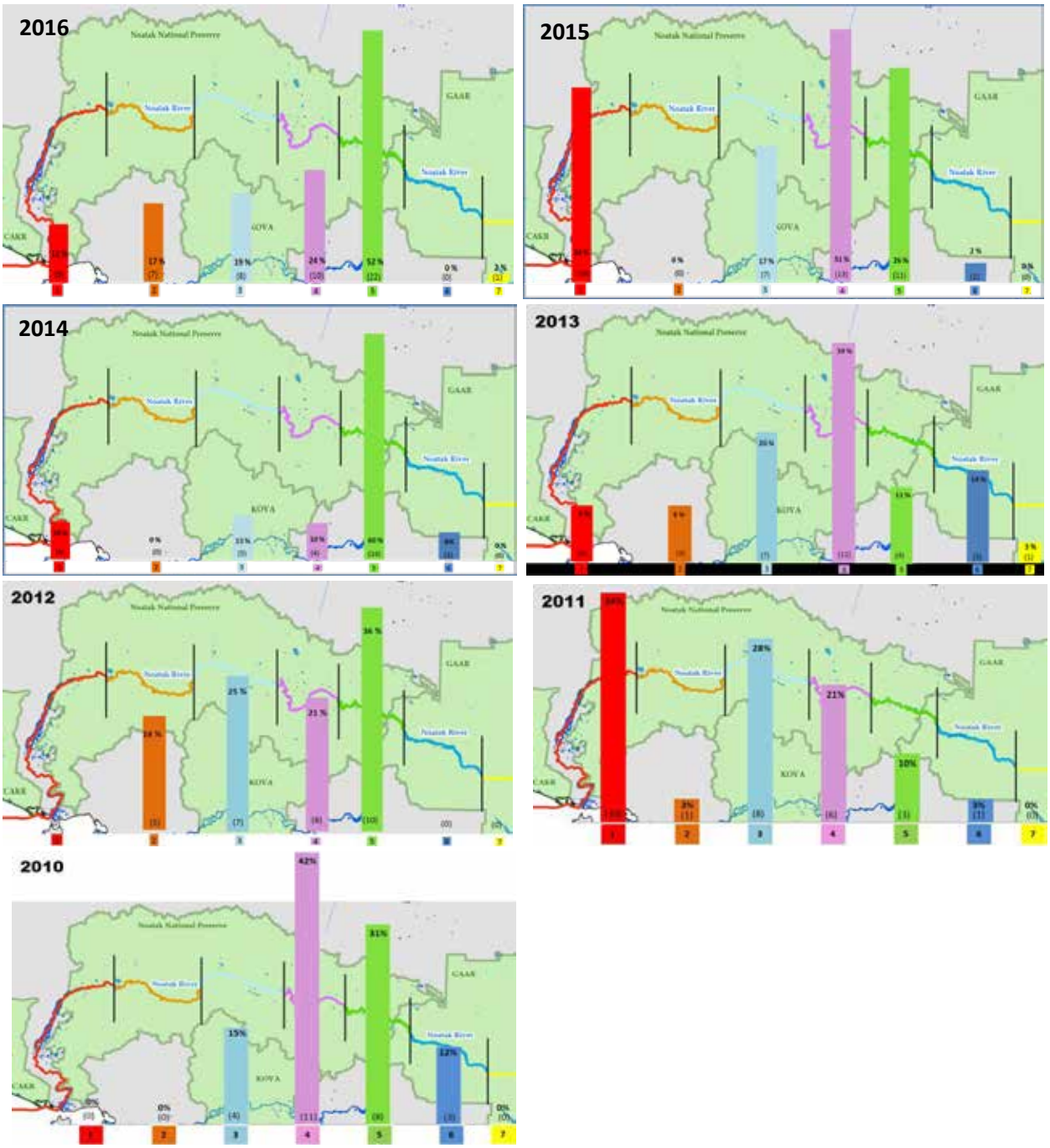


Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WACH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

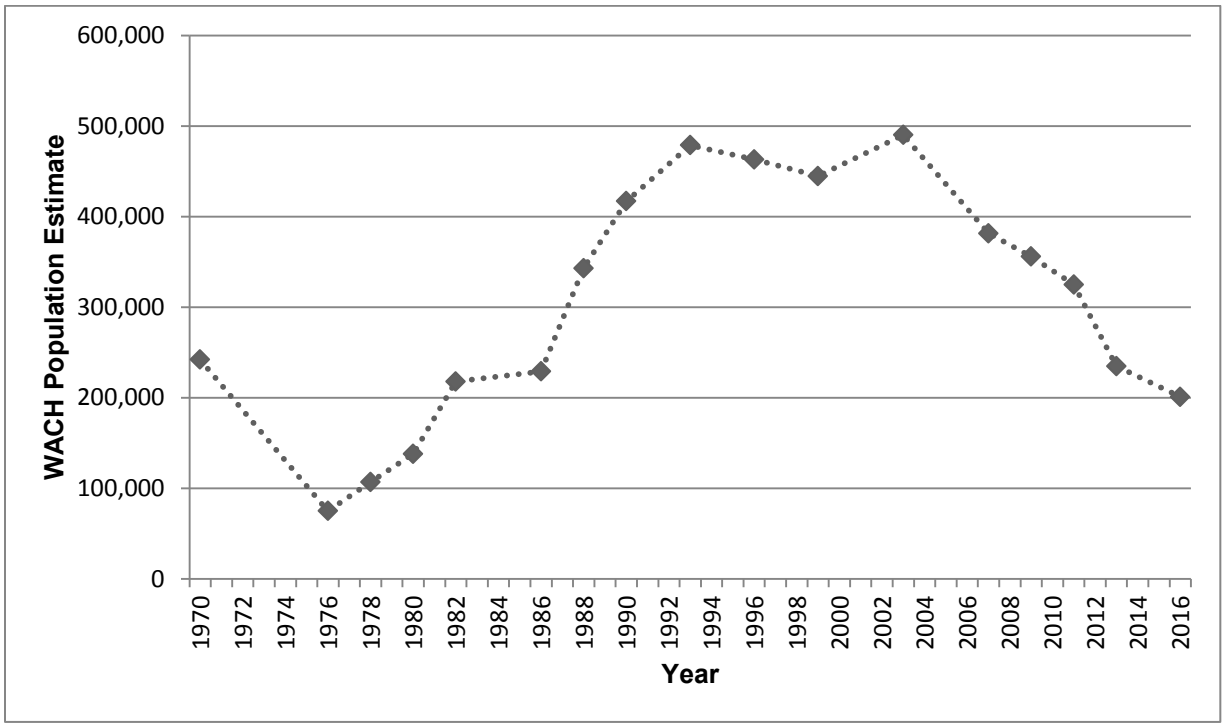


Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a).

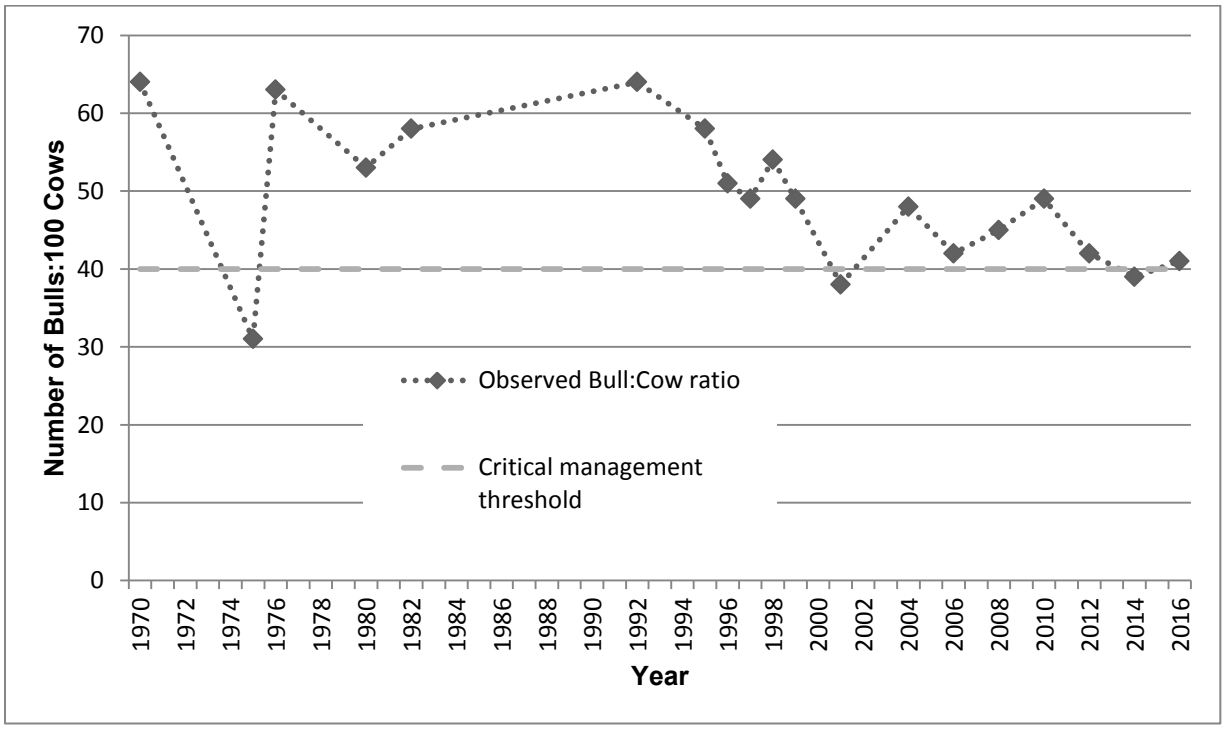


Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

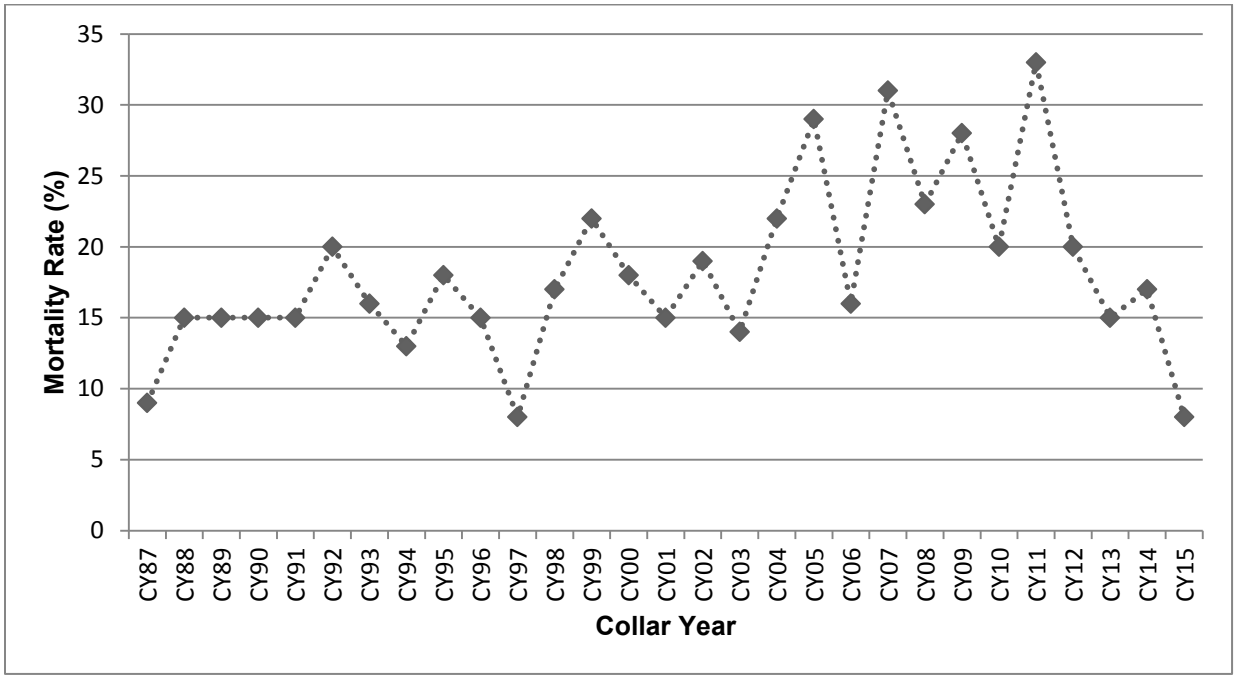


Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year (CY)= Oct. 1-Sept. 30. CY15 is Oct. 2015-Apr. 2016.

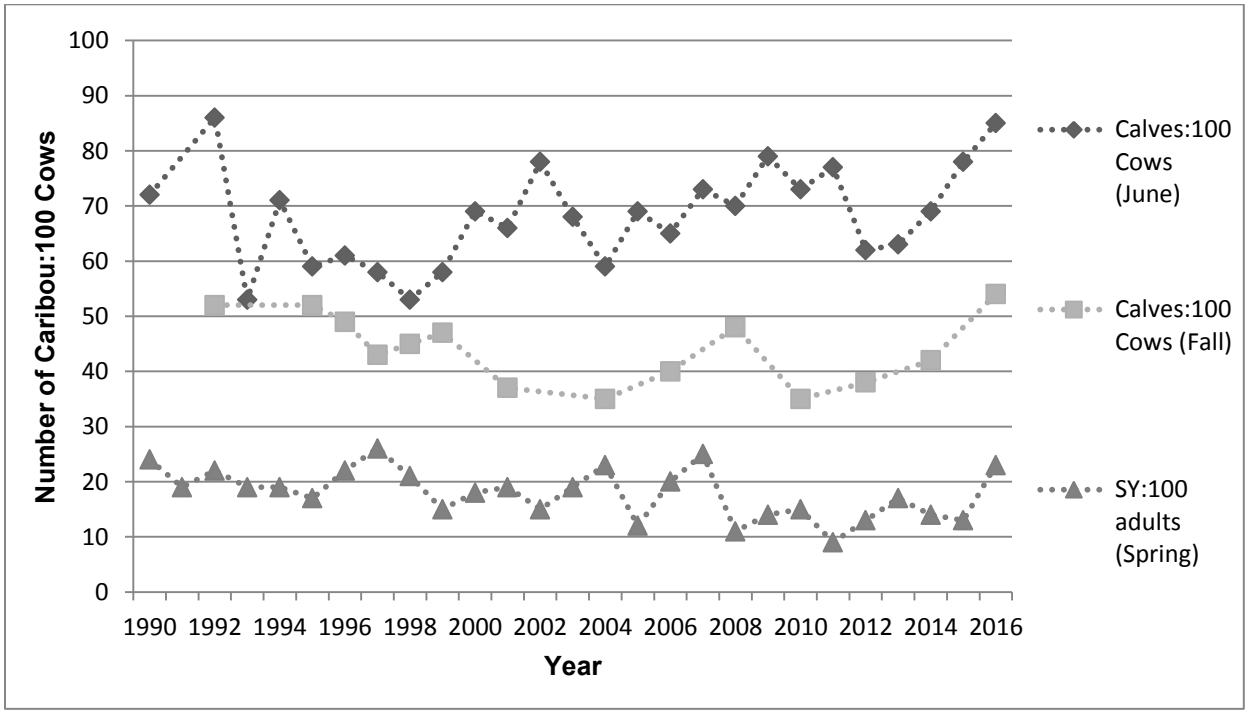


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the basis on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life."

Caribou have been a primary resource for the Inupiat of the Northwest Arctic Region for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992, Anderson 1988). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in this region (Burch 1984, 1994, 1998, ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

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

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take caribou in the winter and spring, while the other communities in the unit take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.).

Currently, caribou hunting by FQSU in Unit 23 is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

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

Today, the human population in Unit 23 is comprised primarily of 11 regional Inupiaq groups (Burch 1998). Kotzebue is the regional hub of transportation and commerce and is home to the majority of non-Natives in the region. The population of Unit 23 was approximately 7,500 in 2010, according to the U.S. Census (ADOLWD 2016). Caribou dominate the subsistence harvest of the region. In household harvest surveys conducted between 1964 and 2012, caribou were often the most harvested species, more than any other wild resource, in pounds of edible weight (**Appendix 1**, ADF&G 2016a). Based on these surveys, in a typical study year, the harvest of caribou was, on average, between 100 and 200 lbs. per person in northwest Alaska (**Appendix 1**, ADF&G 2016a).

User Conflicts

Throughout most of this analysis, local and nonlocal hunters are defined as those residing within and outside the range of the WACH, respectively. However, some authors cited in this section use the terms "local" and "nonlocal" without defining them. When definitions were provided they were included in this section. Otherwise, the terms are used in quotations.

User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). Such conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft and "non-local" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and

camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Halas (2015; **Map 5**), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

In 1988 a proposal was submitted to the BOG to create the Noatak CUA (see regulatory history). Included within the proposal was the following justification from the Traditional Council of Noatak (Fall 1990:86, ADF&G 1988:47):

> In the Noatak valley, aircraft supported hunters are directly competing with, and displacing subsistence hunters from traditional hunting sites along the Noatak River. The village most affected is Noatak, although families from Kotzebue are also affected. These families are having a great deal of difficulty obtaining their fall meat supply due to heavy aircraft traffic, rude aircraft operators, and displacement from traditional camping and hunting sites.
>
> Aircraft operators have the opportunity to use many other areas than the main Noatak valley, in the vicinity of traditional hunting areas. Good management practices indicate that the two groups of users should be separated.
>
> Experienced hunters from the village of Noatak point out that heavy aircraft traffic in the Noatak valley causes disruption of the fall caribou migration. The caribou are particularly sensitive near river crossings, which is stressful for the animals. Experience and good judgment is required to avoid disruption of the caribou migration. The village hunters' experience with aircraft supported hunters has been poor. The aircraft supported hunter; lack of experience and commercial interests has led to abuse of the resource. Noatak hunters point out that the normal migration routes of caribou through the Noatak valley in the fall have changed over the last several years of heavy aircraft use. Village hunters have noticed increased levels of waste of caribou and moose by aircraft supported hunters.

In response to the proposal, the State Division of Subsistence interviewed 21 caribou hunting households in Noatak, 22 private pilots from Kotzebue, 10 Kotzebue-based air taxi services, two hunting guides, and the Federal Aviation Administration in Kotzebue (Fall 1990:86). This study found that fall caribou hunting in the proposed area was a traditional and meaningful activity for Noatak residents, that the major source of air

traffic in 1987 was from commercial air taxi operators, and that respondents tended to agree that air traffic significantly increased in the 1980s (Fall 1990, Georgette and Loon 1988).

BOG members indicated that they were not convinced that aircraft were disrupting subsistence caribou hunting but acknowledged an increase in outfitter operations along the Noatak River (Fall 1990:87). Fall (1990:87) suggests that because the BOG failed to support two similar proposals from Noatak previously, and because the current proposal had the support of both the Kotzebue Fish and Game Advisory Committee and the Arctic Fish and Game Regional Council (now Committee), there was pressure on the BOG to be responsive to the issue. The BOG unanimously adopted the proposal with modification to include approximately one third of the proposed land area (Fall 1990:87). The adopted boundaries of the CUA extended from Kugururok River to Sapun Creek and reflected the areas of greatest caribou hunting intensity and treeless habitats where caribou are most susceptible to noise (Wolfe 1988). Since 1988, the BOG has modified the dates and extent of the Noatak CUA several times in response to local concerns and user conflicts (see regulatory history, **Map 2**).

The BOG actions in 1988 and 1994 did not fully alleviate user conflicts along the Noatak River as local users continued to report similar observations in subsequent decades. In a 2014 survey of 19 Noatak hunters, 78% and 92% of respondents perceived "nonlocals" and planes to impact caribou migration, respectively. Similarly, 63% and 81% of respondents reported that "nonlocal" hunters and planes reduced hunting success, respectively (Halas 2015). Noatak respondents did differentiate between commercial transporter operators and "nonlocal" hunters, attributing a decrease in harvest success primarily to aircraft associated with commercial transporters (Halas 2015). Negative encounters between local and nonlocal hunters identified by respondents primarily focused on river crossings of migrating caribou (**Map 5**, Halas 2015).

A survey of 372 hunters identified as transporter clients in Noatak NP hunting between 2010 and 2013 indicated perceptions of conflict among this group differed from those expressed by "local" hunters (Fix and Ackerman 2015). Less than half of the transporter clients surveyed reported receiving information about issues of concern to "local" hunters. They did indicate that wilderness characteristics were important to them and that the quality of their experience was sensitive to encounters with others. Among encounter types in which the frequency exceeded hunter expectations were propeller planes (30% of respondents), other nonlocal hunters (27%), and hunting camps visible while hunting (25%, Fix and Ackerman 2015). Sixty percent of the groups who encountered caribou reported observing low flying aircraft near caribou.

Concerns regarding the lack of recent caribou population data (due to the failure of the 2015 photocensus), ongoing user conflicts and potential herd deflection by aircraft were discussed at length during the Northwest Arctic Council meeting in October 2015. While some Council members reported caribou harvest success for the year, many also reported ongoing concerns for herd deflection near the Squirrel and Agashashok Rivers in Unit 23, as well as concern for residents of Anaktuvuk Pass in Unit 24 who have been reporting an absence of animals from both the WACH and the TCH.

Repeated observations of airplanes affecting individual or group caribou behavior have been documented, and cumulative observations of this over time could lead an observer to conclusions about herd deflection (Halas 2015). Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017, BHA Alaska 2017) and that many factors contribute to larger scale shifts in migration. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Several studies have documented negative caribou responses and avoidance behavior toward aircraft, motorized equipment, and development (e.g., Valkenburg and Davis 1985, Wolfe et al. 2000, Vistnes and Nelleman 2008, Calef et al. 1976, Maier et al. 1998). Calef et al. (1976) observed panic reactions and strong escape responses in a high percentage of caribou, particularly when aircraft flew at altitudes of less than 60 meters (197 feet). Calef et al. (1976) also found that caribou response to small fixed-wing and helicopter overflights was strongest during early calving (late May to early June), post-calving (early June to late June), and winter.

Valkenburg and Davis (1983) specifically studied the reaction of the WACH to aircraft and compared this with their observations of the Delta Caribou Herd (DCH). They observed that WACH caribou ran from 82% of aircraft passes (compared to 35% of passes for DCH animals), and that escaping WACH caribou were more likely to continue running after the aircraft had passed as compared to DCH animals. They speculated that the higher intensity of WACH response to aircraft was due to insufficient exposure to non-detrimental aircraft activity (those not resulting in immediate hunting activities), the perception of aircraft as a threat, and the association of snowmachine noise with pursuit and a lack of differentiation with the noise of aircraft (Valkenburg and Davis 1983). These authors hypothesized that a greater number of benign or nonthreatening overflights may be necessary to habituate WACH animals and that same-day airborne hunting had exacerbated the situation (Valkenburg and Davis 1983). In comparison, DCH caribou occurred in areas where much of the aircraft and ground vehicle activity was nonthreatening (Valkenburg and Davis 1983). However, as these data are over 30 years old and same-day airborne is no longer permitted, WACH caribou may have become more habituated to aircraft traffic (i.e. Fullman et al. 2017). While empirical documentation is sparse, local observations (e.g. by residents, biologists, law enforcement officers) of caribou responses to aircraft have been variable. Variability in caribou responses is likely due to multiple factors such as past experiences of individual caribou, season, weather, type of plane and altitude, etc.

Incomplete camp location information has prevented a quantitative assessment of caribou deflection or displacement associated with commercial operators and their hunting clients (Dau 2015a). However, substantial transporter traffic in the Anisak drainage, which is within the Noatak NP, has not diverted migrating WACH caribou (Dau 2015a). A long-held cultural practice in the region requires that lead adult

female caribou be allowed to establish migratory paths unhindered by human activity. Dau (2015a) suggests that once lead caribou establish migration routes, the caribou behind them will follow regardless of hunting or other disturbances such as aircraft. In response to complaints from Anaktuvuk Pass residents about caribou migration being affected by non-subsistence hunter activity, ADF&G attempted to document such effects from 1991-93, but none were found (OSM 1995).

Avoidance behavior of caribou to human activity and development has also been documented to have other behavioral and physiological impacts. Some studies have shown that energy costs associated with repeated disturbance (including overflights) may decrease caribou reproduction rates (Luick et al. 1996, Bradshaw et al. 1997, Maier et al. 1998) and calf survival rates (Harrington and Veitch 1991). Studies have also reported reduction in the use of areas within 5 km from infrastructure and human activity (including aircraft) by 50–95% for weeks, months, or years (Vistnes and Nelleman 2008, Flydal et al. 2002).

Since the early 1980s, perceptions surrounding guides and transporters placing large numbers of nonlocal hunters (living outside of the range of the WACH) in fall caribou migration corridors and deflecting the herds from traditional hunting areas has been an issue of concern for local hunters (living within the range of the WACH) (Braem et al. 2015, Dau 2015a:34, Unit 23 Working Group 2016). In addition, the timing of hunting has caused conflicts between user groups because 85–95% of all caribou taken by nonlocal hunters are harvested between August 25 and October 7, the same period as intense subsistence hunting (Dau 2015a:31). While hunt timing often aligns among these user groups, methods of access do not. Most local hunters harvest caribou with snowmachines, boats, and 4-wheelers, and few use aircraft. In contrast, 76% of nonlocal hunters accessed hunt areas by plane in regulatory years 2012 and 2013 (Dau 2015a:31). This mode of access can provide nonlocal users with a greater range of access and speed in reaching ideal hunting locations, and also place them in front of a migrating herd.

Local hunters have stated that aircraft noise affects hunting success and migrating caribou. During the 2014 hunting season, average propeller aircraft noise events along the Noatak River ranged from 3.7 events per day at Kugururok River to 7.8 events per day at Sapun Creek. It is unknown whether the difference in propeller aircraft noise events is due to management areas (i.e. the NPS delayed entry zone and ADF&G controlled use area) or the recent easterly trend of primary caribou migration routes (Betchkal 2015). However, the recent propeller aircraft noise levels appear comparable to aircraft noise levels documented in Noatak NP in 1987 (Georgette and Loon 1988) and 1995-1996 (NPS) (Fix and Ackerman 2015). However, comparisons should be interpreted with caution due to different methodologies (i.e. human observations vs. continuous acoustic recordings and the establishment of the 'delayed entry zone' in 2012 (Fix and Ackerman 2015).

In 2008, the Unit 23 Working Group was established to address fall hunting related issues and to develop solutions to cooperatively solve hunting conflicts and to preserve traditional Inupiaq values, while also allowing for reasonable opportunities for non-local hunters (ADF&G 2016b). It is made up of 20 members, including representatives of regional and tribal governments and organizations, land and wildlife management agencies, the Big Game Commercial Services Boards, the Alaska Professional Hunters Association (including representatives from hunting guide and transport industries), Fish and Game

Advisory Committees, the Northwest Arctic Council, the BOG, and the Federal Subsistence Board (ADF&G 2016b). In 2010, the group proposed a mandatory orientation session for all pilots transporting big game in Unit 23. ADF&G implemented this, developed and distributed outreach materials, and established conflict planning processes (**Map 2**, Dau 2015a). The orientation suggests maintaining a minimum altitude of 2000 feet in the vicinity of camps (Betchkal 2015). Flight restrictions were also implemented by both State and Federal agencies (see Regulatory History).

The NPS Special Commercial Use Area in Noatak NP may have limited effect on the number and distribution of transported hunters because fewer caribou have been migrating through the affected area since 2011 and transporters generally already dropped clients east of the delayed entry zone (Dau 2015a). Additionally, the rule applies only to transporters with caribou hunting clients and not to those transporting other hunters, fishers, and recreational users. The rule also does not apply to personal aircraft that are commonly used for transportation by NFQU to and from the region. Furthermore, the timing of the delayed entry zone has not shifted in response to annual fluctuation in caribou migration, which has been less predictable in recent years.

Another area of intense user conflict was identified in the eastern portion of Unit 23 along a 25-mile long Kobuk River corridor located upstream of Kobuk, Ambler, and Shungnak, from the Mauneluk River to the Selby River (Braem et al. 2015). Much of this area is managed by the State and is relatively accessible for nonlocal hunters (**Map 6**; Braem et al. 2015). In 2001 and 2002, proposals were submitted to the BOG to create a controlled use corridor in this area, but they were not adopted (Braem et al. 2015). This area may be of particular importance in considering potential shifts in the distribution and density of nonlocal caribou hunters due to the 2016/17 closure of Federal public lands to caribou hunting by NFQU.

Shifts in caribou migration paths have created difficulty for Noatak, Kivalina, and Kotzebue hunters (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). Some communities such as Unalakleet and Noatak have "not met their subsistence needs in many recent years" (Dau 2015a:14-30). This was also expressed by Northwest Arctic Council members during meetings in October 2015 and March 2016 (NWARAC 2015, NWARAC and NSRAC 2016).

Northwest Arctic Council members reported ongoing concerns about extensive user conflicts in Unit 23 prior to the closure of Federal public lands (NWARAC 2015). Council members have testified that these conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River was cited as particularly problematic (NWARAC 2015).

Concerning nonlocal hunting and herd diversion near the Squirrel River, one Northwest Arctic Council member described the situation as follows (NWARAC 2015:217):

> We're getting more and more sport hunters. There's 80 percent of sport hunters—pretty much close to 80 percent of all sport hunters goes into Noatak and Squirrel Rivers. That Squirrel River is like a corridor connected to Aggie [Agashashok River] and there's Kiana and the caribou come right through there. Come through the flats, then through the Noatak River. That's when we get in close to the village. We don't have to buy two, three drums of gas, which is worth 10 gallons, 15 gallons gas. That really helps us.
>
> That's what we've been doing for decades, years, centuries. This problem is not natural. Natural probably we can do nothing about, like the weather, climate change, but this problem is manmade. It's on our land. We're hurting. Our subsistence is in jeopardy. Well, I want to depend on these caribou very much. Very much. Too high a density of non-local hunters. That's the problem. That's not natural problem. That's manmade that can be fixed and that's what we're trying to fix. It seems to go right through from ear to ear. What I say here is going to go right out the door again? No. We want something done. We ask that down from the Aggie River and the Eli River to protect our subsistence, to protect our traditional culture.

Another Council member indicated that the Squirrel River area experiences high user conflict and requested that the BLM take additional action to address the issue. The Squirrel River Management Plan Scoping Report issued in September of 2011 includes public commentary specifically in reference to "the impacts of transporters, transported hunters, and commercially-guided hunters on subsistence and general hunting." (BLM 2011:18). Meetings held in urban areas (Anchorage and Fairbanks) elicited mixed responses to this question while meetings held in rural areas elicited primarily negative views of "nonlocal" hunter influence on caribou. Commentary between subsistence users and commercial operators were largely conflicting, whereby the former group tended to prefer greater regulatory restrictions on the latter group (BLM 2011). The efforts to develop the management plan were stopped when institutional boundaries shifted staff assignments from Fairbanks to Anchorage in 2013 (NWARAC 2017). Due to a multitude of ecological, sociological, and regulatory changes since plan development was initiated, BLM will likely reinitiate the planning process from the beginning (NWARAC 2017).

While commercial aircraft may contribute to the perceived modifications in herd movement, private planes are also thought to exacerbate the problem. According to Chairman Shiedt of the Northwest Arctic Council (NWARAC 2015:210):

> I think the majority of the problem now is happening these smaller planes, private-owned planes, are coming to Buckland and Noatak and Kiana and we're all blaming the transporters and outfitters. I'm not favoring them, but the other year too when I was at Kelly they were there from Interior. There were four planes when I was there. So maybe that's the problem we're having here.

Concerns were expressed by residents of Ambler, Shungnak, Noatak and Kobuk, as well as by members of the Northwest Arctic Council, that many nonlocal hunter practices clash with local hunting traditions such as shooting caribou for trophies or sport instead of food and wasting meat by letting it spoil in the field (Braem et al. 2015, NWARAC 2015, Halas 2015).

Concerns by residents of communities within Unit 23 were also recorded in the recent documentary "Counting on Caribou: Inupiaq Way of Life in Northwest Alaska" (Betcher 2016). Respondents from several communities expressed concern regarding food security as it pertains to caribou herd diversion and changes in migration routes. Several indicated that both small and large scale changes to migration routes are linked to "nonlocal" hunting activities, particularly low-flying aircraft. According to Lucy Nordlum of Kotzebue (Betcher 2016):

> We have many influences that play into us not getting certain subsistence foods. Hunters from outside to get their trophy caribou or whatever, that has impacted our area of hunting a lot. I would say in the past ten years we don't have the big migrations that we used to have. They are chased further back into the backcountry. That makes it hard for those of us that don't have airplanes or can't afford the gas. The costs are a lot for fuel now and that influences a lot of people getting out there and doing their hunting. A lot of the people go up to Onion Portage from Kotzebue to get their caribou. That's 500 miles or so away. It is hard with the caribou because that is about the only staple I really have besides fish.

Some of these concerns were somewhat substantiated by a mailed survey of 372 "nonlocal" hunters that were transporter clients on the Noatak National Preserve (Fix and Ackerman 2015). Eighteen percent of respondents reported that someone in their group shot at the first caribou they saw and less than half reported receiving information regarding "traditional local subsistence use," "subsistence areas to avoid," and "local traditional hunting." Most nonresidents reported that hunting for trophies was more important than hunting for meat while most Alaska residents reported hunting for meat as more important than hunting for trophies. Additionally, 58% of respondents reported they were not sure if they salvaged all edible meat. Similar to local hunters, nonlocal hunters reported encounters with other nonlocal hunters and airplanes as the two biggest factors detracting from their trip (Fix and Ackerman 2015).

Noatak hunters suggested allowing 1,000 caribou to pass before shooting, closing the Agashashok River corridor to nonlocal hunters, and appropriately spacing nonlocal camps (Halas 2015). Many of these suggestions cannot be enacted through the Board given the limits of its authority. However, more can be done by other Federal agencies and the State (i.e. establish a CUA along the Agashashok River, flexible caribou season opening date in response to annual migration timing) to address user conflicts and local concerns.

The Northwest Arctic Council considered submitting WSA16-01 as a first step in protecting the WACH. The Council indicated that they would revisit the success of the closure after one year and, if new population numbers continue to indicate declines, a request for closures on State lands would be a potential next step.

At the Northwest Arctic Council meeting in October 2016, many Council members and attendees expressed their perceptions of improved hunting conditions and success, although some expressed concern about the ability of urban-dwelling family members to hunt in the area (NWARAC 2016). One member of the Council shared his observations of the perceived effects of the closure (NWARAC 2016:70):

> But to hear a lot of these villages start to be success [sic] and that the time of peace has arrived and hopefully has stayed. You know, I've seen so many people, local people, who harvested caribou are so much at ease, comfort, to be able to fill their freezers, especially in Noatak, Kivalina. Kiana's now starting to harvest a bunch of them, Noorvik, you know, people from Kotzebue. It's the time of peace.

At the Board meeting in January 2017, several members of the Northwest Arctic Council expressed their gratitude for the closure and observations pertaining to it (FSB 2017). They perceived the closure as effective, indicating that people were happy – it saved them money on gas, it put food on the table, and it eased the user conflicts. The Council Chair explained that there would likely be a new closure request for the following regulatory year and asked the Board to support the Council's efforts, adding that "if we don't do something today or tomorrow, this herd will be gone." Another Council member expressed his concerns for food security in the region, noting "Our Dall Sheep dropped off the radar … Now our moose is on the decline, our caribou is on the decline, once those are gone, I don't know what else we're going to have." (FSB 2017:293).

At the Northwest Arctic Council meeting in March 2017, Council members continued to express contentment with the closure, increased hunting success for some communities, and decreased user conflict (NWARAC 2017). Two Council members expressed concern for communities in the Kobuk River area that seemingly experienced decreased harvest success due to caribou migration routes during the 2016/17 season. Another Council member expressed his concern that law enforcement was believed to only patrol Federal public lands and enforce the caribou closure during the fall migration but not during the winter.

There was also discussion on targeted closures or only closing portions of Unit 23 to caribou hunting by NFQU. One Council member stated that the closure was instituted to deal with conflicts in one drainage: "90 percent of the conflicts are on the Noatak River" (NWARAC 2017:105). Although not supported by the entire Northwest Arctic Council, the Council chair suggested only closing portions of Noatak NP, stating (NWARAC 2017:123):

> That way our relatives that live in Anchorage could go hunt toward Kiana or towards Selawik in the State and Federal lands. That way they won't be against the regulation that's out there. What I'm trying to say is only do that Noatak. That way we won't have any problems because the main problem is Noatak and Kivalina, is where the conflict is at.

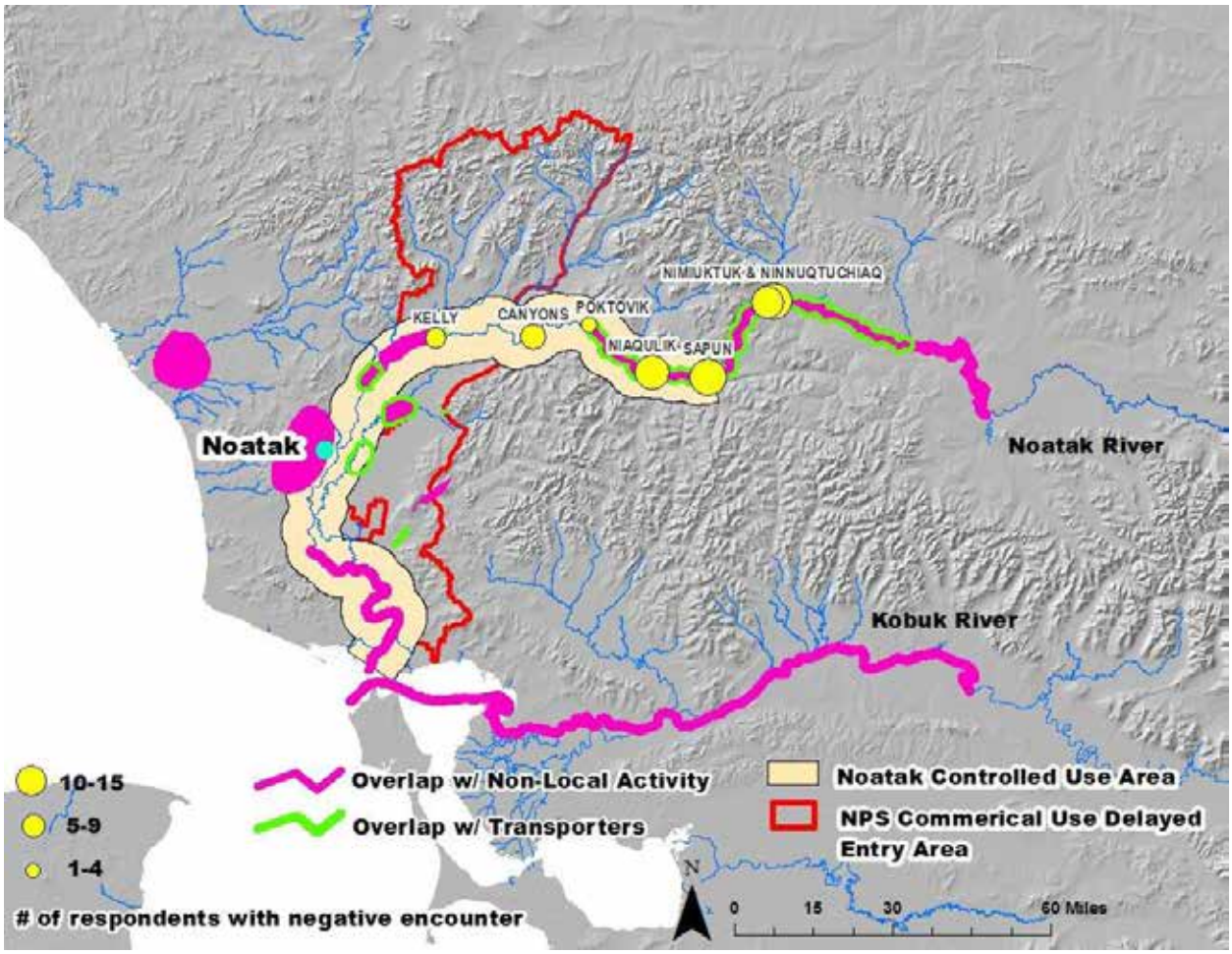
There is a long history of documented discussion on several important transmontane river corridors that are said to be crucial to supporting caribou migration along the western corridors of Unit 23. These drainages include the Noatak River, the Agashashok River, the Eli River, and the Squirrel River (NWARAC 2017). At the winter 2017 Northwest Arctic Council meeting, a motion was made to specifically close the passages through Agashashok, Eli, and Squirrel River drainages to NFQU since the current closure did not fully

close these drainages because of the checkerboard land status in these areas (**Map 6,** NWARAC 2017). The motion was later retracted because Federal public lands in these areas would be closed anyway under a unit-wide closure, and because the Board does not have authority to close hunting on State lands (NWARAC 2017). After retracting the motion, a Council member urged the Council to work with the BLM, NANA Regional Corporation, and the State to find a way to close these corridors to NFQU to ensure the successful migration of caribou (NWARAC 2017).

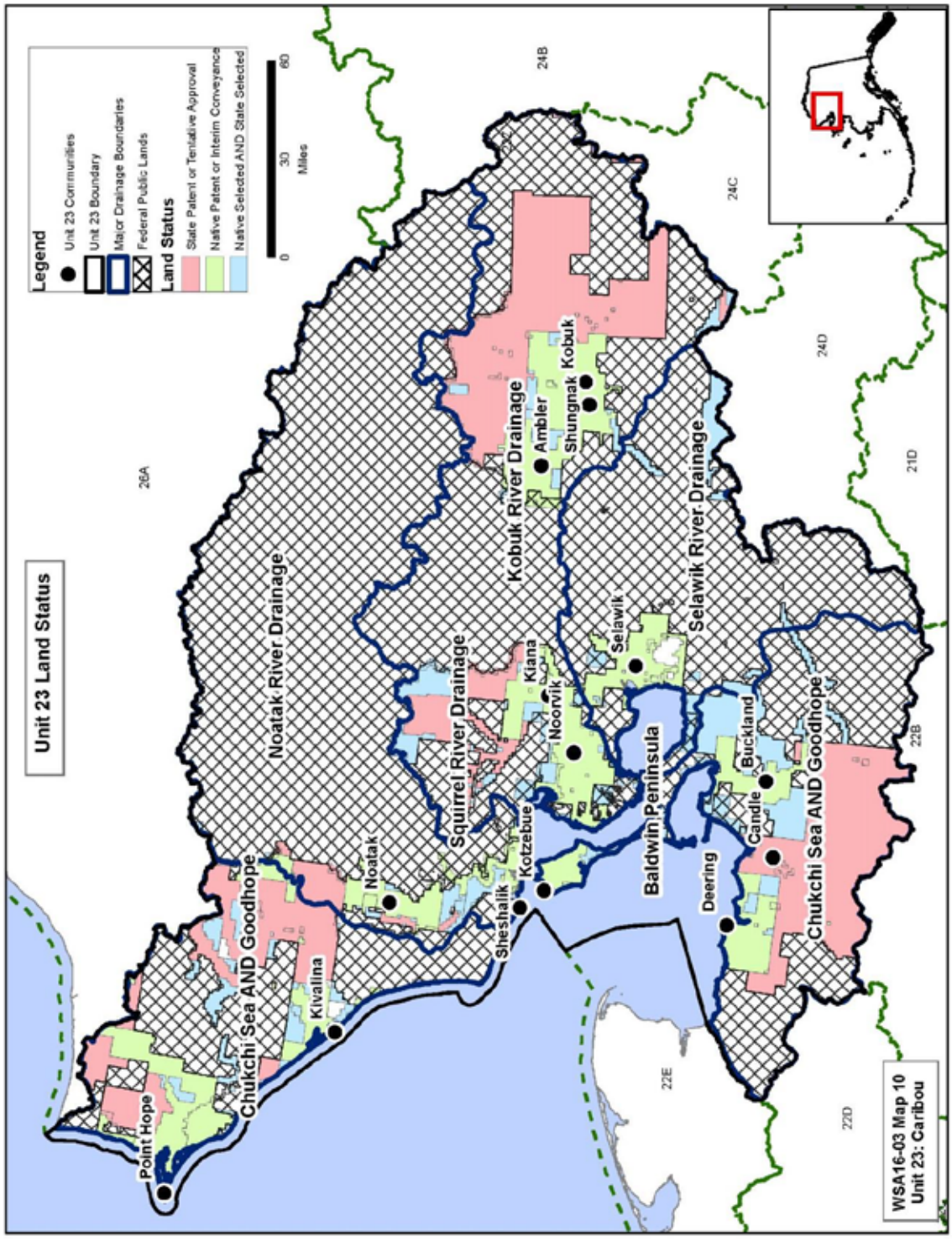
In response to WSA16-01, the Backcountry Hunters of Alaska created a video about nonlocal caribou hunting in Unit 23. In the video, Larry Bartlett (Chair of the Alaska Chapter) states that 90% of the caribou he has harvested in Unit 23 have been on gravel bars below the mean high water mark. The Federal lands closure does not apply to these areas, which are considered State lands. Bartlett observes several propeller planes fly near caribou and states that he is convinced airplanes do not disturb caribou. He also demonstrated the extreme amount of time and effort necessary to preserve harvested meat in a remote area for several days in warm weather (BHA Alaska 2017). Because some hunters may not have the skills necessary to preserve meat for extended periods in remote areas, this may have led to local resident observations of meat spoilage among some NFQU. The observations, hunting practices, and experiences contained within the video are those of a single user and do not represent all NFQU.

In response to WSA17-03, members of the public offered several observations, comments and concerns regarding the proposed closure at the public meetings held in Nome, Kotzebue, and Barrow (OSM 2017). Many Unit 23 residents testified in support of the closure while many people residing outside of the unit testified in opposition. Many comments in support of the request emphasized how vital caribou is for people's survival in the Northwest Arctic and how people cannot afford the extreme cost of store bought meat and fuel. Comments in opposition emphasized a lack of biological reason for closing to NFQU and that special actions are not the appropriate process for closures.

While the Board's endorsement of the WACH Management Plan is not legally binding, the Plan provides guidelines and recommendations for herd management that were developed and supported by a wide variety of stakeholders. Two of the WACH Management Plan's recommendations under preservative management are possible closure of some Federal public lands to NFQU and restricting harvest to Alaska residents only. However, the WACH population is currently on the line between conservative and preservative management (**Table 1**). Additionally, the Plan suggests closure of some Federal public lands, not all of them. However, the WACH Working Group voted to submit WP18-46, which seems to contradict its own plan. Currently, nonresidents may harvest caribou under State regulations. As the Board does not have authority to restrict only NFQU residing outside Alaska, any restrictions to only nonresident caribou hunting must be enacted by the BOG.



Map 5. Areas of overlap use between 19 Noatak interview respondents and "nonlocal users." Green lines and polygons delineate overlap areas with observed transporters. Notes: Pink lines and polygons are "nonlocal" users observed in the area that overlapped with local hunters. Yellow circles represent the number of respondents who had a negative encounter with ""nonlocals" in specified locations. Respondents could identify more than one location. Respondents were asked to report encounters over the last five years (Halas 2015).



Map 6. Land status within Unit 23 as per data obtained from the Bureau of Land Management on July 27, 2016.

Harvest History

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011, Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). This is down from a harvestable surplus 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively. These regulatory restrictions addressed recommendations in the WACH working group's management plan under conservative management (i.e. prohibiting the take of calves, shortening seasons, decreasing harvest limits) (**Table 1**). The recommendation most germane to this analysis is under preservative management and is to restrict harvest "to residents only, according to state and federal law. Closure of some federal lands to nonqualified users may be necessary," which is under preservative and critical management levels (WACH Working Group 2011: 46-47).

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a).

Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively. FQSU and NFQU are close, but not identical, to local and nonlocal hunters, respectively. Residents of Galena, Wiseman, and several communities on the western Seward Peninsula are FQSU, but are not considered local hunters by ADF&G as they are outside the range of the WACH by definition (**Map 1**).

From 2000–2014, the average estimated total harvest from the WACH was 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (Dau 2015a, **Figure 6**). These harvest levels are within or below the

conservative harvest level specified in the WACH Management Plan (**Table 1**). However, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 23 account for approximately 58% on average (**Figure 7**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through eastern Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through western Unit 23. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through western Unit 23.

On average, 76% of WACH caribou harvested by nonlocals are taken in Unit 23. From 2001-2013, total and Unit 23 nonlocal WACH harvest averaged 598 caribou/year and 456 caribou/year, respectively (**Figure 8**). In recent regulatory years (2012/13–2013/14), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 9,** ADF&G 2016c, FWS 2016). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 9,** WINFONET 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b , ADF&G 2017d).

The major river drainages in which NFQU people hunt and harvest caribou are included in most (~90%) harvest reports (WINFONET 2017). This data can be used to compare caribou harvest and hunting intensity (measured as the number of hunters) by NFQU across Unit 23 at coarse (major river drainage) scales. At the coarse scale, cumulative caribou harvest and hunting intensity by NFQU from 2005-2014 was highest in the Noatak River drainage (**Maps 7, 8**). While the total number of nonlocal hunters and harvest decreased in 2016 due to the Federal lands closure, the Noatak River Drainage still experienced the highest relative hunting intensity (WINFONET 2017, **Map 9**).

From 1999-2013, 72% of nonlocal hunters on average accessed hunting locations for the WACH by plane (~435 hunters/year). Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally

available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a).

In 2015, approximately 60% of nonlocal hunters in Unit 23 used a transporter service, 10% used a guide, and 30% used no commercial services (Unit 23 Working Group 2016). In the Noatak NP, nonlocal transporter clients primarily consist of nonresidents and Alaska residents from urban areas such as Anchorage, Fairbanks, and communities on the Kenai Peninsula (Fix and Ackerman 2015, ADF&G 2016c).

The number of transported hunters within Selawik NWR has decreased since 2000 (**Figure 10,** FWS 2017). Since 1993 the highest harvests of caribou by transported hunters occurred from 1997-2000 when an average of 118 caribou were taken each year. In the past 10 years (2007-2016), the number of caribou harvested by transported hunters has decreased to an average of 12 caribou per year (**Figure 11,** FWS 2017). According to the Refuge Manager, the decline in caribou harvest is "mainly the result of caribou no longer being reliably available on the Refuge in September due to delayed migration" (Georgette 2016, pers. comm.).

Conversely, the number of transported hunters in the Noatak NP increased from about 70 in 2004 to over 400 in 2014 (**Figure 12**, Ackerman 2015, Fix and Ackerman 2015). In 2015, approximately 319 hunters were transported into Noatak NP (Braem 2017, pers. comm.). From 2004-2014, transported hunters comprised 68% of all air arrivals in Noatak NP on average. If private planes are included, hunters comprise 78% of the Preserve's annual visitors on average. Additionally, hunters generally access the Preserve over a 70 day period (Aug 1-Oct. 10), compressing peak visitation to a few months (Ackerman 2015). In a survey of 372 sport hunters in the Noatak NP from 2010-2013, 62% of groups harvested caribou with the average harvest being 1.8 caribou per group member (Fix and Ackerman 2015).

In 2016, five guides and four transporters were permitted to operate on BLM lands in Unit 23 (Seppi 2017, pers. comm.) One guide transported moose and brown bear clients only. Two of the transporters did not operate in Unit 23 during 2016, and the remaining permit holders did not report any 2016 operations, likely because they did not operate on BLM lands in 2016 (Seppi 2017, pers. comm.). In 2015, eight guides and four transporters received permits. For the Squirrel River area, six guides and five transporters were permitted. Only five post-use reports were received and harvest totals included a single caribou (Seppi 2016, pers. comm.). In 2014, guides and outfitters brought in 22 clients and none harvested caribou; transporters brought in five clients who harvested 13 caribou (NWARAC 2015:207).

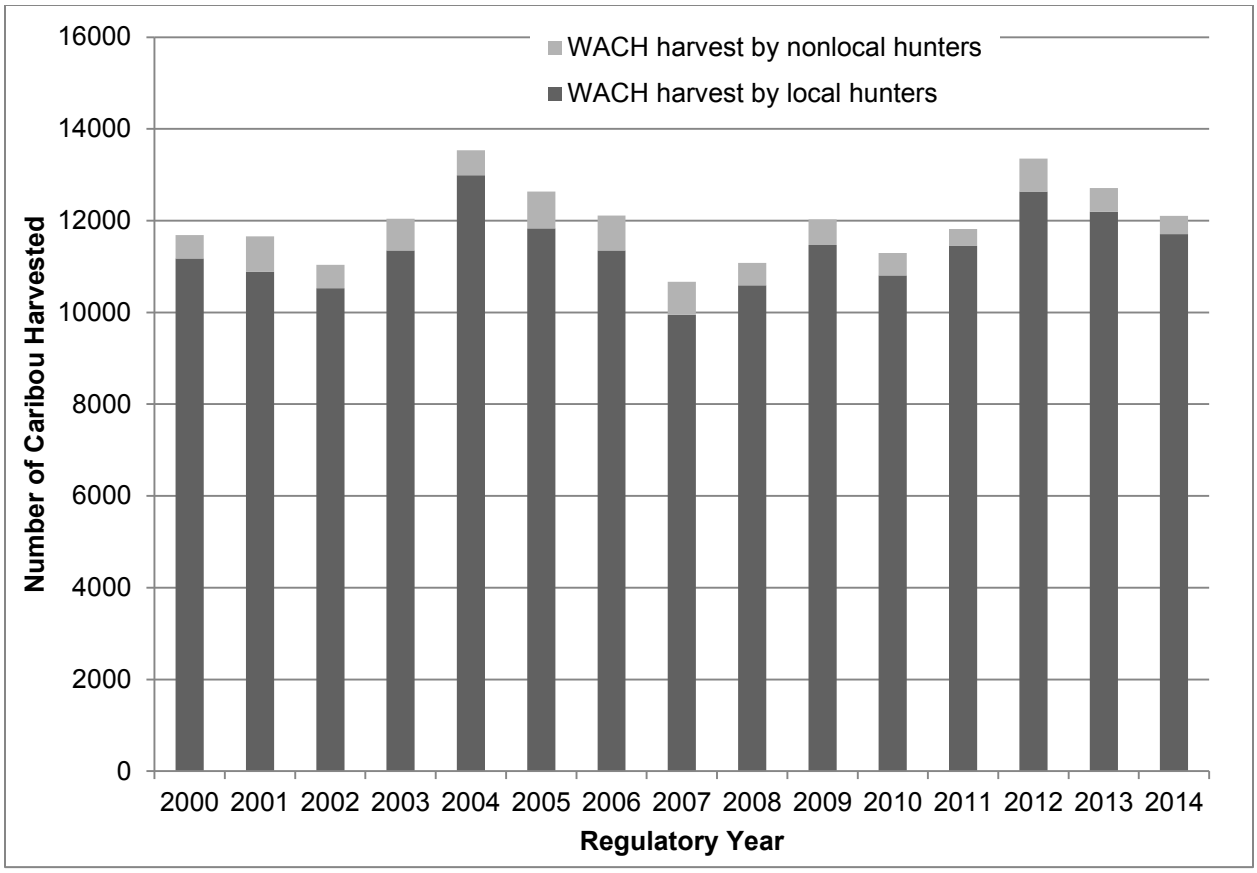


Figure 6. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

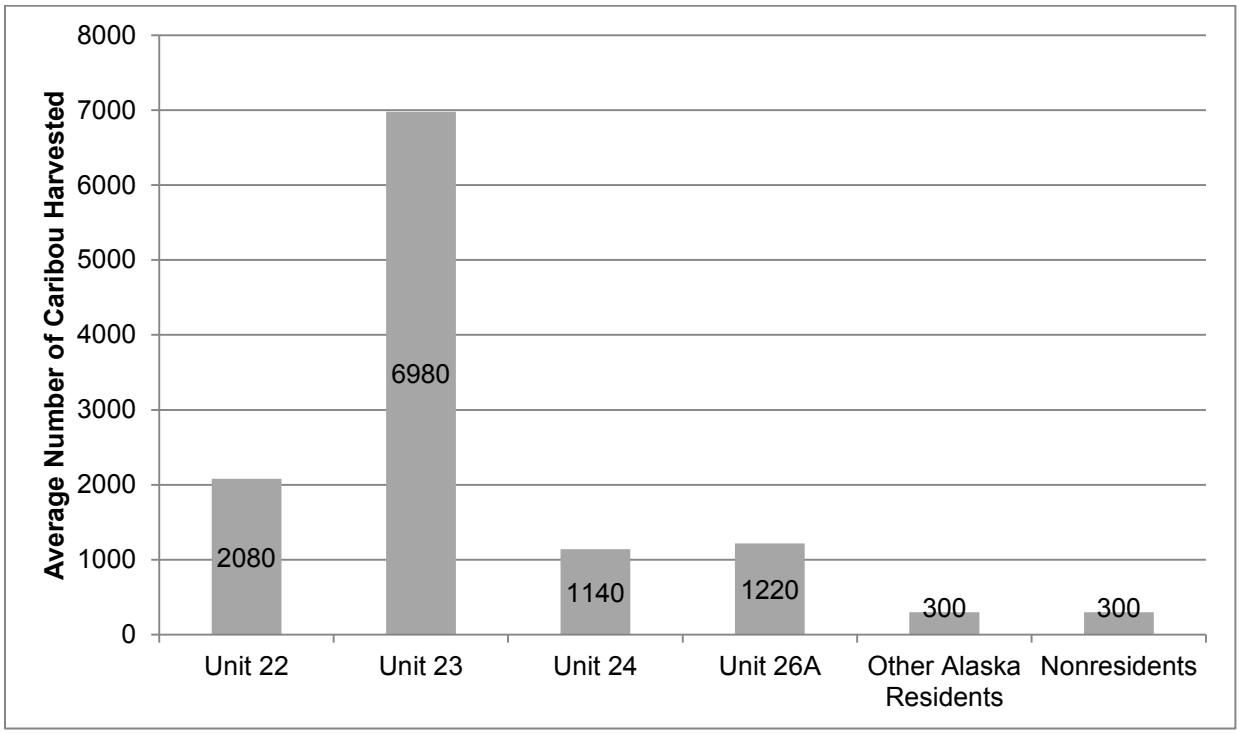


Figure 7. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

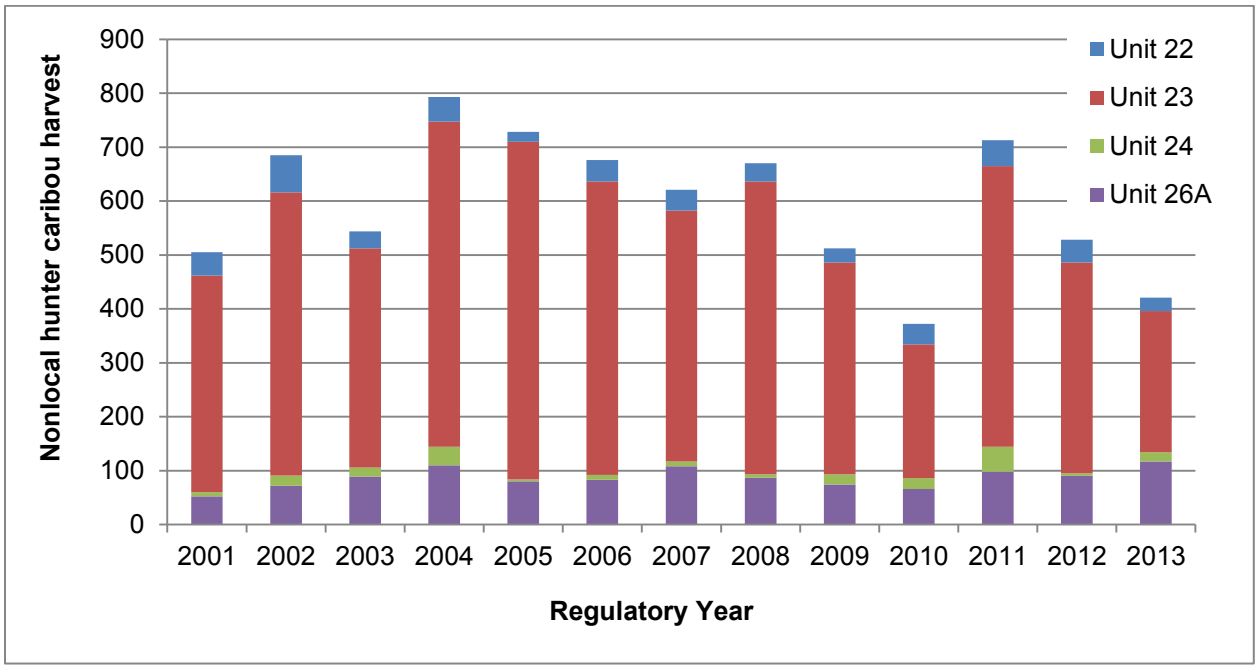


Figure 8. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

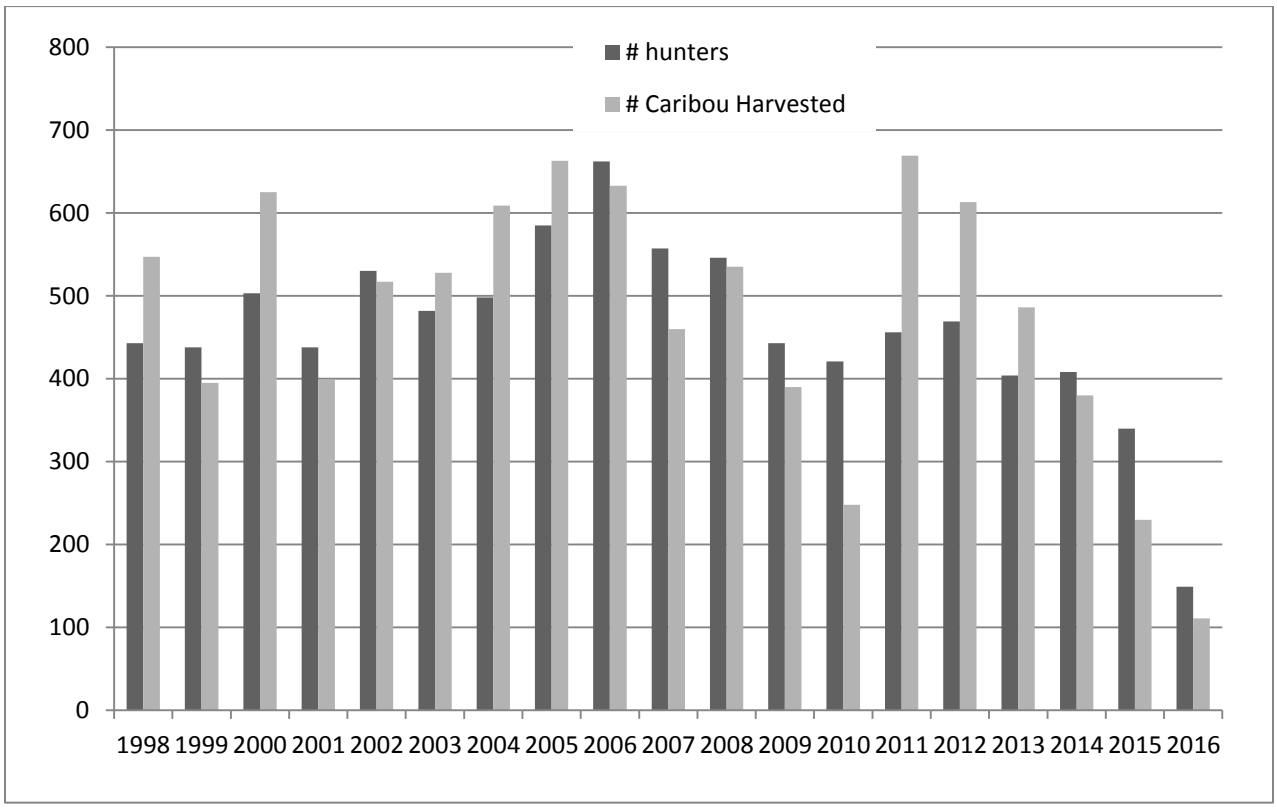


Figure 9. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, FWS 2016, WINFONET 2017).

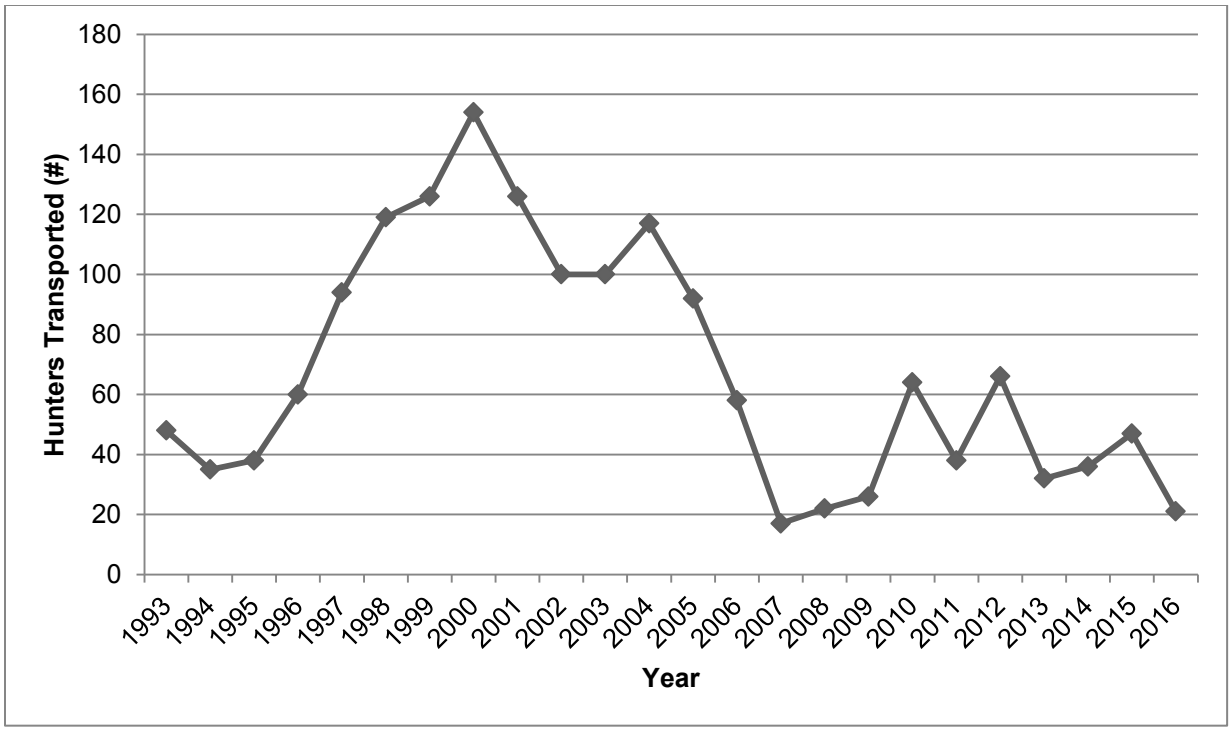


Figure 10. Number of hunters transported by aircraft transporters on Selawik National Wildlife Refuge (FWS 2017)

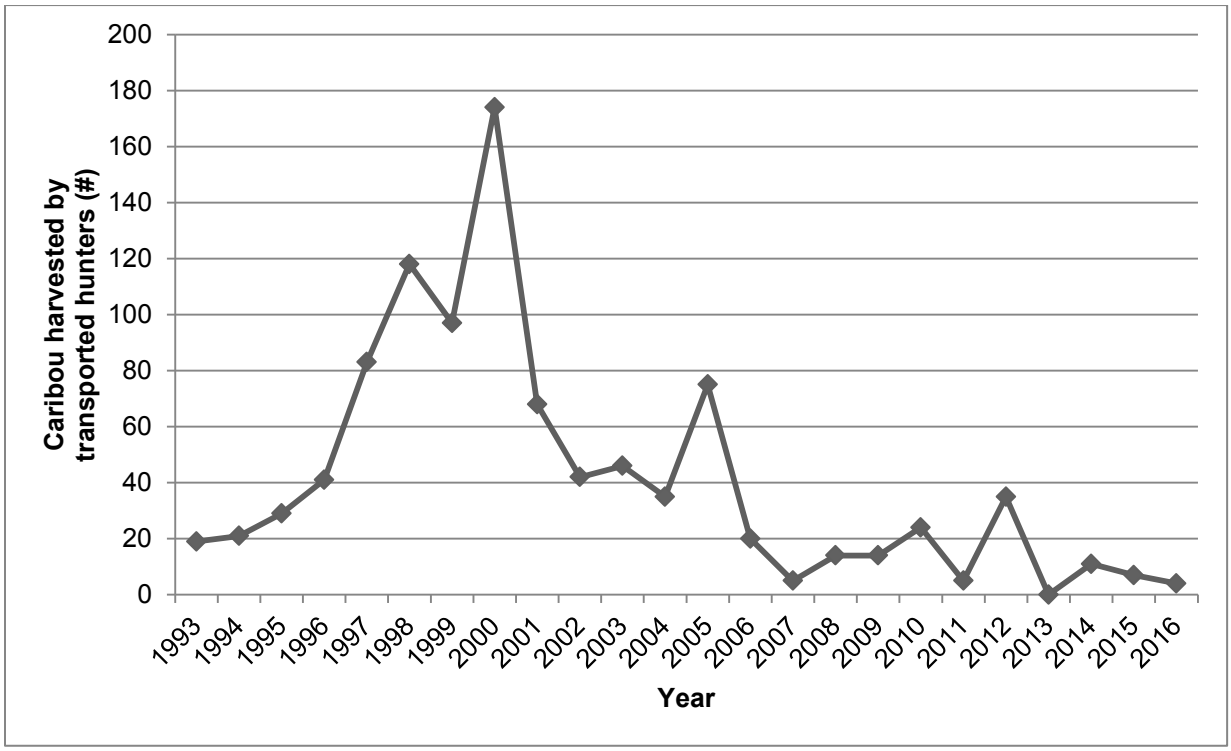


Figure 11. Number of caribou harvested by hunters transported by aircraft transporters on the Selawik National Wildlife Refuge (FWS 2017).

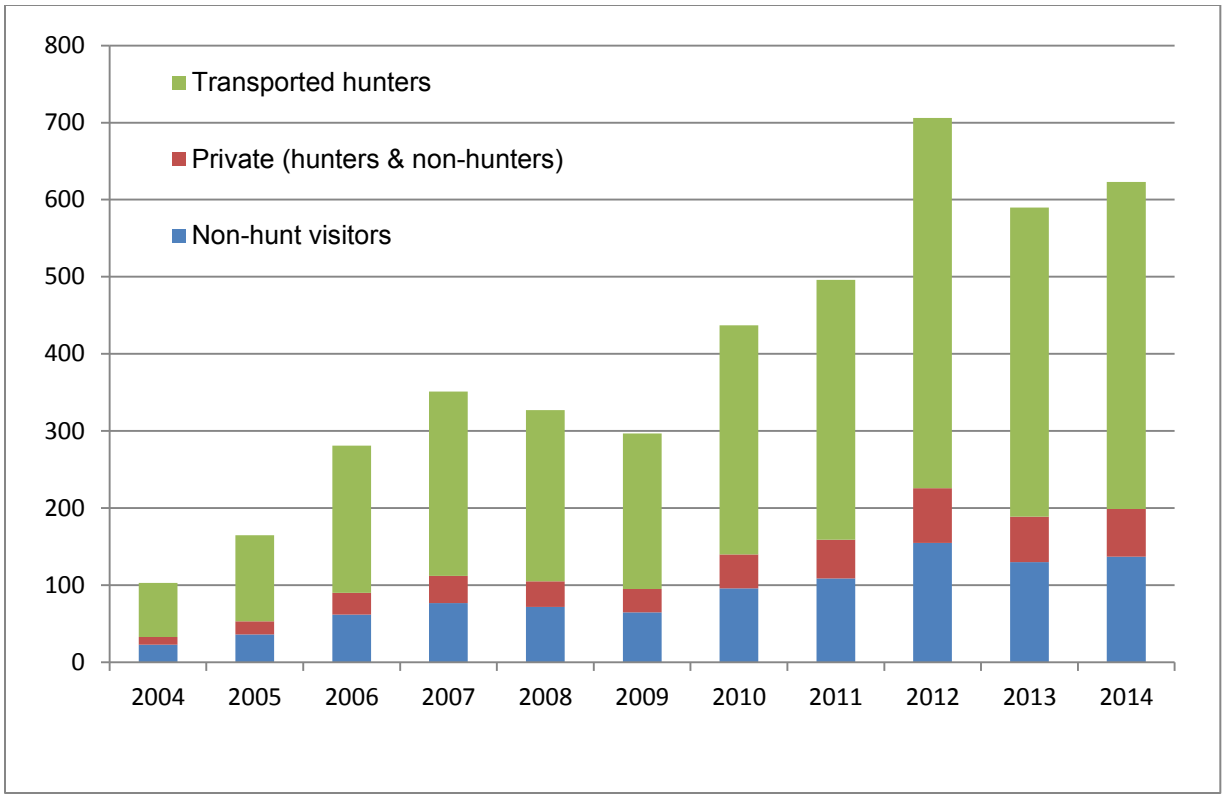
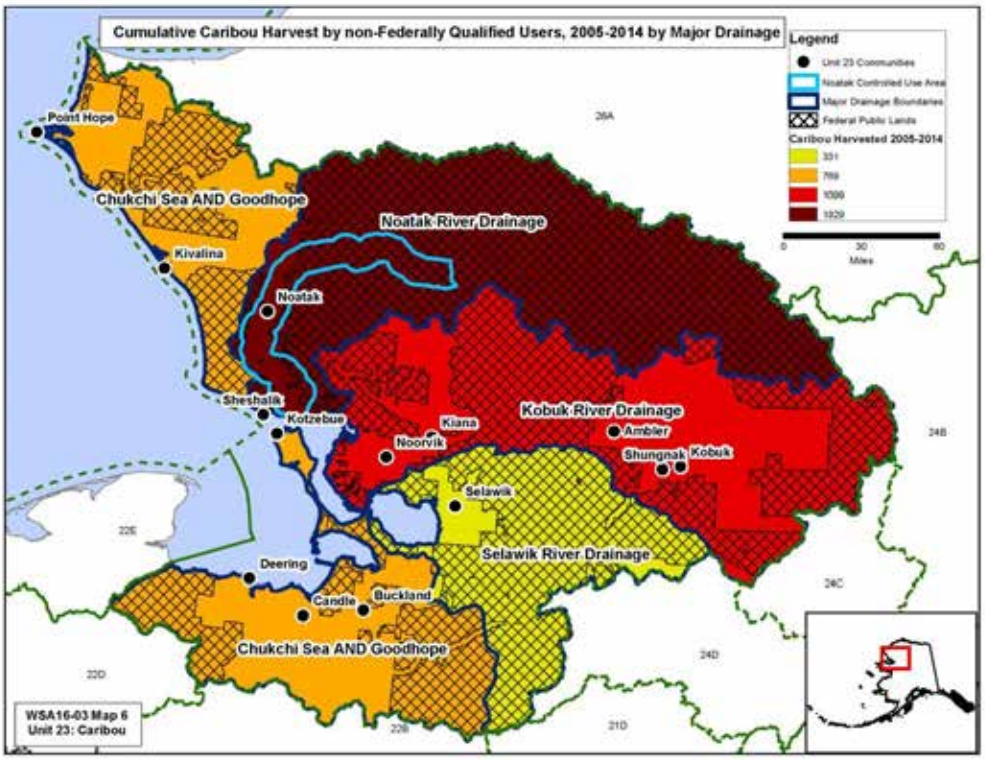


Figure 12. Noatak National Preserve recreation visitors arriving by air (Ackerman 2015). The number of visitors accessing Noatak NP by private planes is extrapolated.



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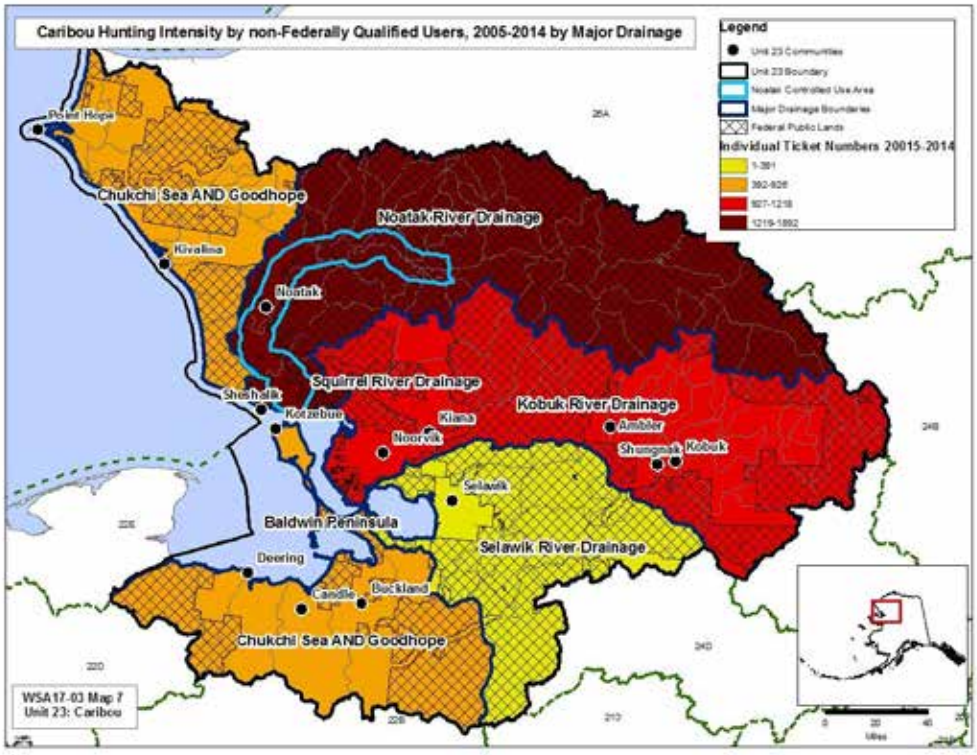
Map 7. Cumulative caribou harvest by non-Federally qualified users in Unit 23 by major (n=4,128) river drainage from 2005-2014 (WINFONET 2017).



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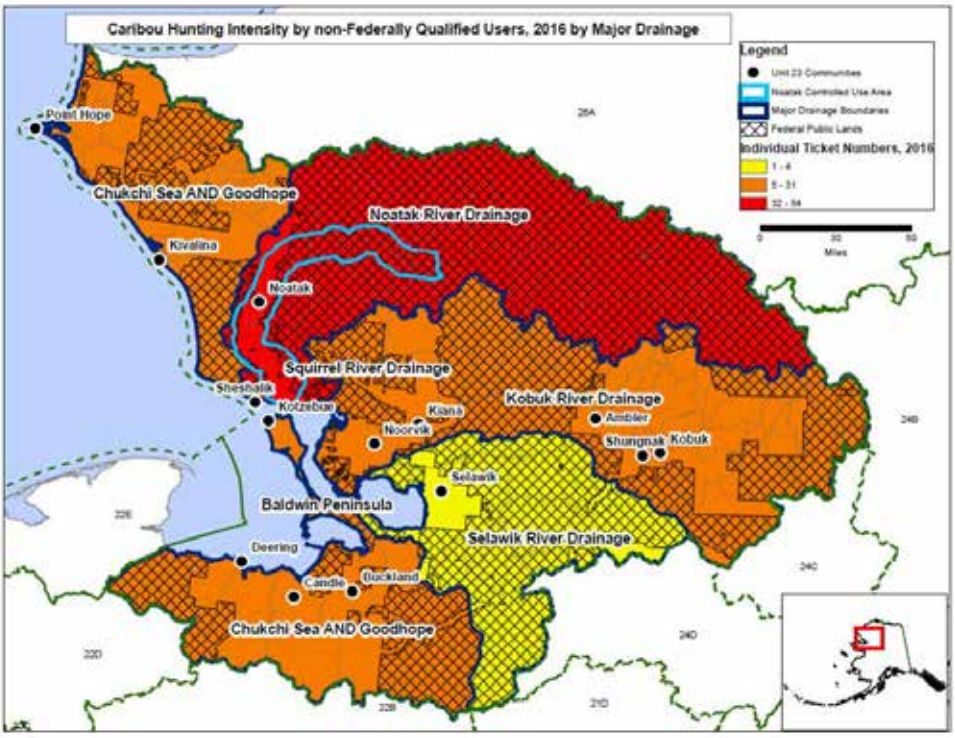
Map 8. Cumulative caribou hunting intensity (number of hunters) of non-Federally qualified users by major (n=4,427) river drainage from 2005-2014 (WINFONET 2017).



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Map 9. 2016 cumulative caribou hunting intensity (number of hunters) of non-Federally qualified users by major (n=117)) river drainage (WINFONET 2017).

Other Alternatives Considered

User conflicts and related concerns over possible effects of NFQU hunting activity on caribou migration in Unit 23 occur more frequently in some areas than in others. The Noatak River corridor upstream from Noatak to the confluence of the Cutler River has repeatedly been identified as a high user conflict zone (**Map 5**, ADF&G 2017b, Halas 2015, Fix and Ackerman 2015, NWARAC 2015, 2016, 2017, FSB 2017). Other areas within Unit 23 such as the Squirrel River drainage, along the Upper Kobuk River, and other areas within Noatak NP such as the Eli and Agashashok (Aggie) Rivers have also been identified as areas experiencing user conflicts (Fix and Ackerman 2015, NWARAC 2015, 2017). Conversely, user conflicts are rarely identified on Selawik NWR, Gates of the Arctic National Preserve, Bering Land Bridge National Preserve, and BLM lands outside of the Squirrel River Drainage. Due to this discrepancy in user conflict, a partial Federal public lands closure may be more appropriate and more effective than a unit-wide Federal lands closure. The areas discussed below are the same ones recommended for closure by the Unit 23 Interagency Group.

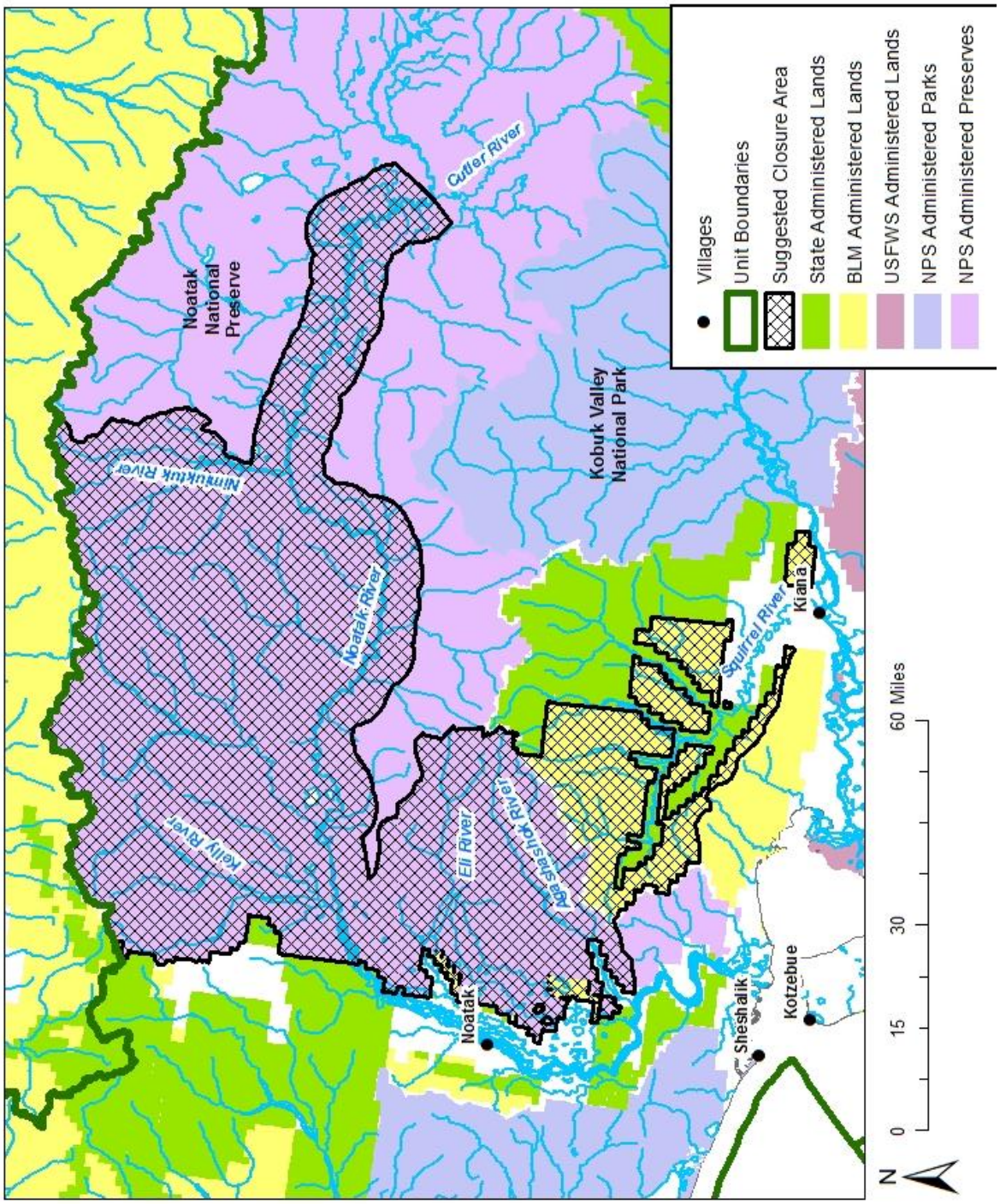
One alternative considered is to close Federal public lands within a 10-mile corridor along the Noatak River from the western boundary of Noatak NP upstream to its confluence with the Cutler River (**Map 10**). A ten mile corridor (5 miles either side) was selected since that is the width of the Noatak CUA. The Cutler River was selected because that is the extent of overlap between local and nonlocal hunters identified by Halas (2015, **Map 5**) as well as the upstream boundary of the Noatak CUA extension proposed by the Noatak/Kivalina and Kotzebue AC's in Proposal 44 (ADF&G 2017b). Additionally, the possibility of

only closing Federal public lands along the Noatak River downstream from its confluence with Sapun Creek was suggested by the Northwest Arctic Council Chair in order to provide urban-dwelling relatives greater hunting opportunity and because the main user conflict issues surround Noatak and Kivalina (NWARAC 2017:123-124). Furthermore, the Northwest Arctic Council stated in its 2016 annual report that the 2016 Federal lands closure to caribou hunting by NFQU reduced user conflicts and improved caribou harvest by FQSU in the vicinity of Noatak. Public testimony at the WSA17-03 public hearings also indicated that the majority of user conflicts occur in the Noatak area.

Closing Federal public lands along the Aggie and Eli rivers was also considered (**Map 10**). The retracted motion at the winter 2017 Northwest Arctic Council meeting which specifically requested closing the mountain passages in these areas to facilitate caribou migration and reduce user conflicts, highlights the importance of this area to local hunters.

Closing Federal public lands north of the Noatak River between (and including) the Kelly and Nimiuktuk River drainages was also considered as most user conflicts occur near Noatak (**Map 10**). These drainages provide migratory corridors that funnel caribou to the Noatak River where they are intercepted by local hunters. A concern commonly repeated by local hunters, particularly from Noatak (i.e. Halas 2015) is the effect of airplanes and nonlocal hunters on caribou migration. The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a). Perhaps a more appropriate response in this area would be to establish another CUA or delayed entry zone where NFQU would not be able to hunt until migration routes are clearly established. As caribou migration has become less predictable in recent years, often occurring later in the season (Dau 2015a), the dates for the new CUA would need to be flexible. However, temporal closures are beyond the scope of this request and may be more effectively implemented by NPS. Therefore, complete closure of this area may be warranted. However, closing the western portion of Noatak NP may have the unintended consequence of concentrating nonlocal caribou hunters in the eastern portion of the preserve.

Closing Federal public lands within the Squirrel River drainage was also considered. As there are no Federal public lands along the lower Squirrel River near Kiana, only the middle and upper reaches of the Squirrel River were considered. Along these sections, the vast majority of lands immediately along the Squirrel River (~0.5-1 mile either side) are State lands (**Map 6**). Therefore, it is uncertain whether closure of Federal lands in this area would discourage nonlocal hunters or just concentrate them in the narrow State-owned corridor, adding to user conflicts. The Northwest Arctic Council discussed making a motion to close only the Squirrel River area at its fall 2015 meeting, indicating the severity of the user conflicts in this area (NWARAC 2015). Closure of Federal public lands in the Squirrel River drainage would demonstrate the Board's responsiveness to FQSU concerns and may provoke action by other agencies (i.e. State).



Map 10. Suggested targeted closure of Federal public lands to caribou hunting by NFQU.

Effects of the Proposal

If WP18-46 or WP18-47 is adopted, caribou hunting on Federal public lands in Unit 23 would be closed to NFQU under Federal regulations indefinitely or for two regulatory years, respectively. Regulatory year 2018/19 would be the third consecutive year of a closure. In 2016/17, all Federal lands were closed by WSA16-01 while in 2017/18, only lands along the Noatak, Agashakok, Eli, and Squirrel Rivers were closed via WSA17-03.

In 2015, the State shortened bull and cow seasons for residents, prohibited the take of calves, and reduced the nonresident harvest limit. These recent regulation restrictions were enacted to reduce the impact of both resident and nonresident hunters on the WACH. In 2015, both the number of NFQU and number of caribou harvest by these users decreased appreciably, suggesting the regulatory changes were effective (**Figure 9**). However, the 2016/17 Federal closure to NFQU confounded further evaluation of these changes. Considering the substantial reduction in NFQU density and harvest in 2016/17, adoption of these proposals is expected to result in similar numbers of NFQU and harvest that are well below long-term averages (**Figure 9**). Preliminary data from harvest reports in 2016 indicate that the 2016/17 closure may have reduced nonlocal caribou harvest by 50% or more (Parrett 2016b, WINFONET 2017). While the overall number of nonlocal hunters and caribou harvest decreased in 2016/17, the relative distribution remained similar with the highest use in the Noatak (**Maps 7-9**).

While the sustainable harvest of WACH caribou may soon be (or has already been) exceeded, the overharvest of cows is of particular concern (Dau 2015a). As nonresidents may only harvest one bull, their impact on the herd's population trajectory is negligible. Total nonlocal harvest from Unit 23 accounts for only about 4% of the total WACH estimated harvest (456 caribou out of an estimated total harvest of 11,984 caribou on average) or 0.2% of the 2016 population estimate (200,928 caribou). From a biological perspective, reducing harvest by <4% (nonlocal harvest will still occur on State lands within Unit 23) will not have a meaningful impact on WACH conservation or population recovery. Indeed, wounding loss may account for more caribou mortalities than nonlocal harvest.

Concerns over the impact of sport hunting activities on caribou migration have also been expressed. Aircraft can affect caribou behavior in the short-term (< 8 hours), which can impact hunting success. However, aircraft are unlikely to have long-term impacts on caribou migration through the Noatak NP (Fullman et al. 2017, Halas 2015, Dau 2015a). The WACH have migrated through Unit 23 for thousands of years, although specific migration routes change annually (**Figure 1**). The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a). Adoption of these proposals would reduce airplane traffic within Noatak NP and may allow lead caribou to establish migration routes unmolested, precluding any potential migratory diversions.

Adoption of these proposals may also concentrate nonlocal hunters onto State lands, which only comprise 19% of Unit 23 (**Map 6**). Consequently, user conflicts may increase on State lands, particularly along the

Squirrel and upper Kobuk Rivers. However, there were no reports of concentrated nonlocal hunting activity on State lands affecting local harvest during the 2016/17 closure (ADF&G 2017d). Additionally, NFQU would need to distinguish between State and Federal lands. Due to the checkerboard pattern of land ownership in some areas of Unit 23 (i.e. Squirrel River area, **Map 6**), distinguishing land status is difficult and may increase law enforcement concerns. NFQU may also be displaced onto Federal public lands in adjacent units (i.e. Unit 26A), which could impact hunting and harvest in those units. During the 2016/17 Federal lands closure in Unit 23, nonlocal caribou harvest in Unit 26A increased 40%, although the average number of nonlocal hunters in Unit 23 is five times greater than in Unit 26A (ADF&G 2017d). However, NANA shareholders residing in urban areas would still be able to hunt on NANA lands under State regulations.

While the number of people and planes on Federal public lands would likely decrease substantially, user conflicts would not be fully eliminated since other users (i.e. moose hunters, photographers, recreational boaters, private planes) would still be able to fly over and access Federal public lands. Additionally, NFQU would still be able to access and harvest caribou on gravel bars below the mean high water mark within Federal public lands as these areas are considered State land. Reports from law enforcement and nonlocal hunters indicate caribou are commonly harvested on such gravel bars, which may suggest limited impacts of the closure as river crossings are where conflicts most often occur (**Map 5**, Stevenson 2017, pers. comm., BHA Alaska 2017). Attempts to mitigate user conflicts in Unit 23 have already been implemented by the NPS (delayed entry zone in Noatak NP), ADF&G (Noatak CUA), and Selawik NWR (closure of certain areas to commercial use). However, more can be done by individual agencies to further address user conflict (e.g. establishing new CUAs in high conflict areas, modifying the dates and extent of the NPS delayed entry zone, further restricting the number and activities of permitted transporters and guides, additional education and outreach, etc.).

Adopting these proposals may result in increased subsistence opportunity for FQSU. Reducing competition with and potential disturbance from nonlocal hunters may increase their hunting success and efficiency. Local residents recognized positive effects from the 2016/17 closure to caribou hunting by NFQU in Unit 23. The Noatak Native Village Council as well as students at the Noatak school submitted letters to the Board expressing their appreciation of the closure, citing higher harvest success. Public testimony from local residents in support of the closure was received during public meetings for WSA16-03 and WSA17-03 as well as the Board's deliberation on WSA16-03 (FSB 2017). Reports from regional law enforcement indicated that during the fall 2016 hunting season, nonlocal hunter density decreased along the Noatak River, but increased along the Wulik and Kivalina Rivers, suggesting nonlocal hunters shifted their activities in response to the Federal closure (Stevenson 2017, pers. comm., ADF&G 2017d). The favorable reports from Noatak residents likely reflected this shift in nonlocal hunter activity. However, it is possible that increases in nonlocal hunter activity in the vicinity of Kivalina could increase user conflicts in that area.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-46 **with modification** to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users and **Take No Action** on Proposal WP18-47.

The modified regulation should read:

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows: Calves may not be taken Bulls may be harvested*	*July 1–Oct. 14 Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows: Calves may not be taken*	*July 1–Oct. 31 Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	

Justification

Closure of all Federal public lands in Unit 23 to NFQU is not warranted at this time. The Unit 23 Interagency Group recommended this targeted closure at its April 2017 meeting. Additionally, the WACH working group's management plan recommends closure of some, not all, Federal public lands if the WACH population drops below 200,000. Currently, the WACH population is on that management threshold. While user conflicts have been well documented in some portions of Unit 23 (i.e. along the Noatak and Squirrel Rivers), they have not been documented in other areas of Unit 23 (i.e. Bering Land Bridge National Preserve). Furthermore, while the 2016/17 closure seemed to have reduced nonlocal hunting activity and user conflicts in some areas, it increased the number of nonlocal hunters in other areas, which may lead to increased user conflicts in those areas.

Two criteria for a closure under ANILCA §815.3 and the Board's closure policy are conservation of healthy wildlife populations and continuation of subsistence uses of wildlife populations. Closure of Federal public lands for conservation of the WACH is not warranted. The number of caribou harvested by NFQU is not biologically meaningful. Additionally, caribou harvest by NFQU is already somewhat reduced due to the 2015 changes to State regulations (e.g. reduction in nonresident harvest limit, **Figure 9**). While NFQU activities may affect caribou behavior in the short-term, they likely do not affect long-term migration patterns through Noatak NP.

Closure of some Federal public lands for the continuation of subsistence uses, however, is warranted. Continued complaints about conflicts surrounding the Noatak and Squirrel River drainage and the apparent benefit of the 2016/17 Federal closure to Noatak residents evidenced by letters and public testimony support the closure of Federal public lands along the Noatak, Eli, Agashashok and Squirrel Rivers. Additionally, the short-term effects of aircraft on caribou behavior can negatively affect hunting success and harvest.

While NFQU will still be able to hunt caribou on gravel bars below the mean high water mark and on State lands in the Squirrel River drainage, these issues are beyond the Board's authority. Federal and State land managers could also be more proactive in enacting management strategies that respond to changing caribou migration and nonlocal use patterns over time.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–56 Executive Summary	
General Description	Proposal WP18-56 requests that the Arctic Village Sheep Management Area in Unit 25A be open to the harvest of sheep by non-Federally qualified users. *Submitted by: Richard Bishop of Fairbanks, Alaska.*
Proposed Regulation	**Unit 25A—Arctic Village Sheep Management Area** *2 rams by Federal registration permit only.* *Aug. 10–Apr. 30* ~~*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*~~
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	

WP18–56 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	**51 Support**

DRAFT STAFF ANALYSIS
WP18-56

ISSUES

Proposal WP18-56, submitted by Richard Bishop of Fairbanks, Alaska, requests that the Arctic Village Sheep Management Area (AVSMA) in Unit 25A be open to the harvest of sheep by non-Federally qualified users.

DISCUSSION

The proponent states that the restriction of sheep hunting to only residents of a few communities (Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie) is not necessary to accommodate local subsistence uses, and that residents of these communities do not hunt sheep in the AVSMA. The proponent also states that sheep hunting opportunity on Federal public lands in the AVSMA should be open to the public under State hunting regulations because there is no biological or subsistence related reasons to preclude sheep hunting opportunities by the public in the AVSMA.

Federal closures to the harvest of sheep in the AVSMA by non-Federally qualified users have been in effect since 1991. The closure was expanded in 1995 to include Cane Creek and Red Sheep Creek drainages but was rescinded in these drainages for the 2006 to 2011 regulatory years between Aug. 10 and Sept. 30 each year. The last time the Federal Subsistence Board (Board) received a proposal to rescind the closure in the entire AVSMA was 2006 (WP06-57).

Existing Federal Regulation

Unit 25A — Sheep

Unit 25A —Arctic Village Sheep Management Area	
2 rams by Federal registration permit only.	*Aug. 10–Apr. 30*

Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.

Proposed Federal Regulation

Unit 25A — Sheep

Unit 25A—Arctic Village Sheep Management Area	
2 rams by Federal registration permit only.	*Aug. 10–Apr. 30*

~~*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*~~

Existing State Regulations

Unit 25 Sheep

Unit 25A, east of the Middle Fork Chandalar River	*Residents, One ram with full-curl horn or larger*	*HT*	*Aug. 10–Sept. 20*
	Or		
	Three sheep by permit available online at http://hunt.alaska.gov or in person in Fairbanks and Kaktovik beginning Sept. 14. The use of aircraft for access to hunt sheep and to transport harvested sheep is prohibited in this hunt except into and out of the Arctic Village and Kaktovik airports. No motorized access from the Dalton Highway.	*RS595*	*Oct. 1–Apr. 30*
	Nonresidents, One ram with full-curl horn or larger every four regulatory years.	*HT*	*Aug. 10–Sept. 20*

5 AAC 92.003 Hunter education and orientation requirements.

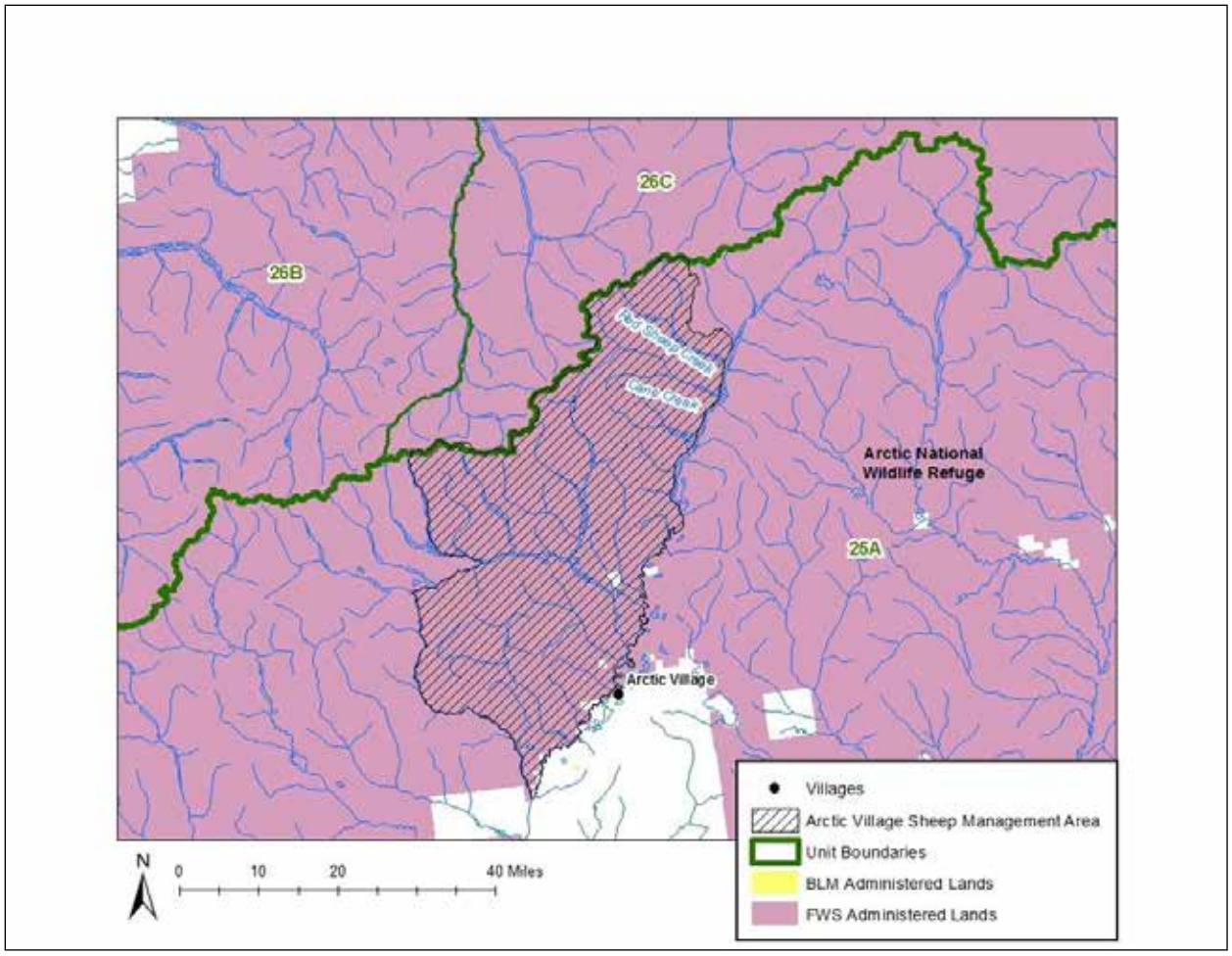
(i) Before a person hunts within the Red Sheep Creek/Cane Creek portion of the Arctic Village Sheep Management Area of Unit 25A, that person must possess proof of completion of a department-approved hunter ethics and orientation course, including land status and trespass information.

Extent of Federal Public Lands

Federal public lands comprise approximately 99% of the Arctic Village Sheep Management Area in Unit 25A and consist of U.S. Fish and Wildlife Service managed lands. These Federal public lands are within the Arctic National Wildlife Refuge (**Map 1**).

Customary and Traditional Use Determination

Rural residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie have a customary and traditional use determination for sheep in Unit 25A.



Map 1. The Arctic Village Sheep Management Area in Unit 25A.

Regulatory History

Knowledge of regulatory history necessary to analyze Proposal WP18-56 is extensive. It is described in **Appendix A**.

Biological Background

Sheep populations across the eastern Brooks Range of Alaska have appeared relatively stable at low densities since the late 1990s (Caikoski 2014). However, geographic barriers such as large valleys and rivers naturally limit sheep movements and distribution, resulting in discrete subpopulations (Arthur 2013, Caikoski 2014). Therefore, repeated, fine-scale surveys are necessary to understand sheep population status and trends in a specific area such as the AVSMA.

State management goals and objectives for sheep in Unit 25A (Caikoski 2014) include:

Protect, maintain, and enhance the sheep population and its habitat in concert with other components of the ecosystem.

- Provide for continued general sheep harvest and subsistence use of sheep.
- Provide an opportunity to hunt sheep under aesthetically pleasing conditions.
- Maximize hunter opportunity using a full-curl harvest strategy.
- Maintain an average harvest of rams ≥ 8 years old.

Arctic National Wildlife Refuge conducts periodic aerial sheep surveys of the AVSMA and surrounding areas. Due to differences in survey areas, comparisons across years are difficult. Sheep densities within the AVSMA have generally been low compared to other areas in the Brooks Range, which is likely due to poor habitat quality (Payer 2006 in OSM 2014a). Within the AVSMA, sheep densities north of Cane Creek have been much higher than sheep densities south of Cane Creek (Mauer 1990 in OSM 2014a, Wald 2012). This is probably related to shale formations that are more common north (versus south) of Cane Creek, which support more vegetation and therefore more sheep (Smith 1979 in OSM 2014a). The presence of mineral licks south of Cane Creek also influences sheep densities as most sheep observed by Mauer (1996) and Payer (2006) were clustered around such licks (OSM 2014a).

In 1991, AVSMA sheep densities north and south of Cane Creek averaged 2.25 sheep/mi^2 and 0.2 sheep/mi^2, respectively (Mauer 1996 in OSM 2014a). In 2006, AVSMA sheep density north of Cane Creek averaged 1.7 sheep/mi^2 (Wald 2012). The observed decline in density is thought to be weather related (OSM 2014).

The AVSMA sheep population likely declined between 2012 and 2015 due to several years of poor lamb production and severe winters (particularly the winters of 2012-13 and 2013-14). In 2012, surveys within and near the AVSMA indicated an average sheep density of 0.79 sheep/mi^2 and 27 lambs:100 ewes (Arthur 2017, pers. comm.). Density north and south of Cane Creek ranged from 1.5–1.8 sheep/mi^2 and 0.25–0.7 sheep/mi^2, respectively (Wald 2012). In 2015, estimated sheep density for the same areas averaged 0.67 sheep/mi^2 and the lamb:ewe ratio was 34 lambs:100 ewes. The 2015 survey also indicated a decline in rams of all age classes (Arthur 2017, pers. comm.).

In 2016, a larger area was surveyed, including the Hulahula River drainage in Unit 26C, which contains higher sheep densities than the AVSMA. While the 2016 overall sheep density averaged 0.86 sheep/mi^2, density within the AVSMA was likely 0.70-0.75 sheep/mi^2 (Arthur 2017, pers. comm.). The ram:ewe ratio for the entire survey area averaged 28 rams:100 ewes. Due to improved lamb production in 2015 and 2016 (>30 lambs:ewe), the AVSMA sheep population has likely not declined below 2015 levels and may be increasing. However, it will be at least 3–5 years before an increase in mature (8+ year old) rams are observed in the AVSMA sheep population (Arthur 2017, pers. comm.).

Cultural Knowledge and Traditional Practices

The AVSMA was traditionally occupied by *Netsi Gwich'in* who occupied the northern reaches of the East Fork Chandalar, Koness, and Sheenjek Rivers. By the 1930s most Netsi Gwich'in were living in three semi-permanent settlements of Arctic Village, Christian Village, and Venetie, and traditional land use remained largely intact (McKennan 1965). In the past, Netsi Gwich'in relied upon sheep as a food source primarily in late summer or whenever caribou were scarce (Hadleigh-West 1963). Hadleigh-West (1963) identified four very specific sheep hunting areas used by Arctic Village residents along the Junjik River, East Fork Chandalar River, Cane Creek, and Red Sheep Creek.

The customary and traditional use determination for sheep in Unit 25A, including the AVSMA, consists of five communities with a total population of roughly 1,200 people according to the 2010 U.S. Census (**Table 1**).

Table 1. The population of communities in the customary and traditional use determination for sheep in Unit 25A, 1960-2010.

Community	U.S. Census					
	1960	1970	1980	1990	2000	2010
Arctic Village	110	85	111	96	152	152
Chalkyitsik	57	130	100	90	83	69
Fort Yukon	701	448	619	580	595	583
Kaktovik		123	165	224	293	239
Venetie	107	112	132	182	202	166
Total	975	898	1,127	1,172	1,325	1,209

Source: ADCCED 2017.

Of the five communities with recognized customary and traditional uses of sheep in Unit 25A, the residents of Arctic Village have the strongest ties to and are the primary users of the Red Sheep and Cane Creek drainages (OSM 1993; see also Dinero 2003, Gustafson 2004, and Reed et al. 2008). Sheep hunting is a "longstanding" tradition for Arctic Village residents, most of whom are Gwich'in Athabascan (Caulfield 1983:68; Dinero 2003; EISRAC 2006:110–137, 2007, 2011; Gustafson 2004), and the Red Sheep and Cane Creek areas have been a longstanding focus of this activity. Sheep are a prestigious subsistence resource and providing sheep meat to the community is highly respected (cf. Caulfield 1983 and Dinero 2003 for discussion). Sheep are also known as an important "hunger food," that is, a food source that is critical when caribou are unavailable (Caulfield 1983, Dinero 2011, pers. comm.; Gilbert 2011, pers. comm.). Local people report increasing uncertainty of caribou migrations in recent years, declining quality of caribou meat, and increasing difficulty and travel distance to obtain moose in recent years: in light of this, local residents claim that sheep are an increasingly important resource (Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). As noted by one prominent elder, "When we have no caribou, that's the time we have to go up [to get sheep]" (Gilbert 2011, pers. comm.).

The public record supports the fact that Arctic Village residents have a long history of using the Cane Creek and Red Sheep Creek drainages, and that it continues be a culturally significant area to them. Extensive

discussion included in previous proposal analyses (OSM 1993, 1995a, and 2014a) pointed to regular use of these drainages by residents of Arctic Village. Gustafson (2004), in a study of traditional ecological knowledge, discusses the importance and continued use of the Red Sheep Creek area for sheep hunting. Testimony by Arctic Village residents in 2006, 2007, and 2011 at the Eastern Interior Alaska Regional Advisory Council (Eastern Interior Council) meeting about hunting in the Red Sheep and Cane Creek drainages demonstrates continued hunting in these areas. Discussions with Refuge Information Technicians from Arctic Village, other Arctic National Wildlife Refuge staff, researchers working in the area, and subsistence hunters from Arctic village also confirm continued sheep hunting in the Red Sheep and Cane Creek drainages (Bryant 2011, pers. comm.; Dinero 2011 pers. comm.; Mathews 2011, pers. comm.; John 2011, pers. comm.).

The trip from Arctic Village to Red Sheep Creek is over 100 miles and residents use great effort both physically and economically to hunt sheep in these drainages (Bryant 2011, pers. comm.; John 2011, pers. comm.; Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). The residents of Arctic Village have repeatedly expressed concerns about non-Federally qualified users hunting sheep in Red Sheep Creek and Cane Creek drainages and have provided testimony and public comment at numerous Council and Board meetings to attest to the importance of Red Sheep Creek, to describe their use of the area, and to explain that the presence of non-Federally qualified users has affected their access and reduced their harvest opportunities (EIRAC 2006, 2007, 2011; FSB 1991d:291-311, 1995, 2006a, 2007:292–306, and 2012; (OSM 1993, 1995a, 1996, 2006b, 2007a, and 2014a; Swaney 2011, pers. comm.; Gilbert 2011, pers. comm.; John 2011, pers. comm.).

Among the Gwich'in, there is a story about how Red Sheep Creek was named which illustrates the link between subsistence and religious practices and beliefs. It also underscores the importance of this area to the residents of Arctic Village. The story relates Red Sheep Creek to the Episcopalian Church, an influential factor in establishing Arctic Village, and sheds some light on why Arctic Village residents consider Red Sheep Creek a revered place (Dinero 2007; Dinero 2011, pers. comm.). The story begins with people who were hungry. One day at the church someone spotted caribou moving in the brush. Upon closer inspection people realized they were looking at unusual sheep with red markings, or what many say were crosses on their coats. The next day, the people followed the red sheep far into the mountains where they were finally able to harvest them. The hides of the sheep were kept and passed down because of their distinctive markings (Dinero 2011, pers. comm.). The story of the red sheep links a prestigious subsistence resource (sheep) to traditional and modern beliefs and practices, and demonstrates the complementary nature of subsistence to place, tradition, culture, and modern beliefs.

Traditionally Arctic Village residents have harvested sheep in early fall (late August or early September) or in early winter (November) (Caulfield 1983, FSB 2007:292–306). "Sheep taste best in the fall," as documented in earlier research (OSM 1995a:353, Proposal 54). Residents generally travel to hunt sheep by boat, then by foot from hunting camps in the fall or by snowmachine in late fall, but not in winter given the dangerous terrain and winter weather (OSM 1993, Proposal 58).

Arctic Village residents have commented that allowing non-Federally qualified users to harvest sheep in Red Sheep Creek and Cane Creek during the time when Arctic Village residents customarily and

traditionally harvested sheep (with the exception of November) affects Arctic Village residents' ability to access an important sheep hunting area. Since 1993, Arctic Village residents have noted to the Board that plane traffic and use by non-Federally qualified users have interfered with their ability to successfully hunt sheep in the Red Sheep and Cane Creek drainages. Residents reported that plane fly-overs "spooked" sheep and that, "older rams can climb to higher elevations, making them more difficult to hunt" (OSM 1993:4, Proposal 58; see also OSM 1995a, Proposal 54 for additional discussion). Gideon James from Arctic Village explained that Red Sheep and Cane Creek are both very narrow valleys, and consequently flights through the area disturb the sheep (FSB 2012:201). These disturbances have continued to be described by Arctic Refuge staff (Matthews 2011, pers. comm.), and local residents (Swaney 2011, pers. comm., John 2011 pers. comm., Gilbert 2011, pers. comm.). Frid (2003) found that fixed-wing aircraft disrupted resting or caused fleeing behavior in Dall sheep in the Yukon Territory during overflights. This disruption was of a longer duration during direct flight approaches. Results of this study could help provide managers with guidelines for determining spatial and temporal restrictions to aircraft in areas frequented by this species.

Harvest History

Federal closures to the take of sheep in the AVSMA by non-Federally qualified users have been in effect since 1991. In 1995, the AVSMA was expanded to include the area north of Cane Creek and the Red Sheep Creek drainage. The closure to the take of sheep in the area north of Cane Creek and the Red Sheep Creek drainage, Aug. 10–Sept. 30, by non-Federally qualified users was rescinded for the 2006 through 2011 regulatory years

Data on the reported use of the AVSMA by Federally qualified subsistence users is sparse, and just how many sheep are harvested by Federally qualified subsistence users in the AVSMA is unknown. It is likely that many Gwitch'in hunters have not reported their harvest efforts (see Van Lanen et al. 2012 and Anderson and Alexander 1992 for a discussion).

Since 1995, Federally qualified subsistence users have been required to get a Federal registration permit to hunt for sheep in the AVSMA. Permit reports kept by the U.S. Fish and Wildlife Service show that residents of Arctic Village have requested 25 Federal permits to hunt sheep in the AVSMA, 7 hunters reported attempting to harvest sheep, and a total of 5 sheep harvests were reported (**Table 1**). Residents of Fort Yukon have requested 5 permits to hunt sheep in the AVSMA, 4 hunters reported attempting to harvest sheep, and a total of 2 sheep harvests were reported. The majority of permits were issued after 2005. The location of the harvest for the majority of sheep taken was not reported. One hunter reported taking a sheep in the area north of Cane Creek and the Red Sheep Creek drainage.

The Alaska Department of Fish and Game maintains a harvest reporting database where hunters using State harvest tickets or State permits report their hunting efforts (ADF&G 2017b). Complete records were not kept until the mid-1980s, and it is likely that many Gwitch'in hunters have not reported their harvest efforts or have reported their harvest efforts on Federal permits (see above).

Table 1. The harvest of sheep reported on Federal permits in Unit 25A by communities in the customary and traditional use determination, 1995-2015 cumulative.

FEDERAL PERMITS ONLY - Unit 25A Sheep Harvest						
Community	Arctic Village Sheep Management Area Permit FS2502			Unit 25A remainder Permit FS2503		
	Issued	Hunted	Taken	Issued	Hunted	Taken
Arctic Village	25	7	5	16	3	3
Fort Yukon	5	4	2	2	0	0
Kaktovik	0	0	0	6	4	4
Total	30	11	7	24	7	7

Source: OSM 2017a.

From 1983 to 2015 regulatory years, hunters with State harvest tickets or State permits reported harvesting 1,690 sheep (about 50 sheep annually) from within the entire Unit 25A area (see **Table 2**, ADF&G 2017b and OSM 2017a). The harvest of 7 sheep by Federally qualified subsistence users were all reported before 1995, which is when Federal permits became available. Using the State's harvest reporting database, after 1995 all sheep harvests were reported by non-Federally qualified users using State harvest tickers or State permits.

From 1983 to 1990 regulatory years, approximately 61 sheep harvests (about 8 sheep annually) were reported in an area approximating the AVSMA using uniform coding units, including the area north of Cane Creek and the Red Sheep Creek drainage, before most of the area was closed to the harvest of sheep by non-Federally qualified users in 1991 (OSM 2017a, 4 of the 61 sheep harvests were reported by Federally qualified subsistence users).

From 1983 to 1994 regulatory years, approximately 27 sheep harvests (about 2 sheep annually) were reported in the area north of Cane Creek and in the Red Sheep Creek drainage, before it closed to the harvest of sheep by non-Federally qualified users in 1995 (OSM 2017a, no sheep harvests was reported by Federally qualified subsistence users).

From 2006 to 2010 regulatory years, approximately 22 sheep harvests (about 4 sheep annually) were reported in the area north of Cane Creek and in the Red Sheep Creek drainage while it was open to the harvest of sheep by non-Federally qualified users (OSM 2017a, harvest site information is not readily available after the 2010 regulatory year). One sheep harvest was reported in 2005 by a non-Federally qualified user, when the area was closed.

Effects of Proposal

If adopted, Proposal WP18-56 would open the AVSMA to the harvest of up to 3 sheep annually by a non-Federally qualified user who is a resident of Alaska or 1 ram every four years by a nonresident of Alaska.

Table 2. Number of sheep harvested in Unit 25A, 1983-2016, by user group, based on ADF&G harvest reporting system.

STATE PERMITS ONLY - Unit 25A Sheep Harvest								
Year	Federally qualified subsistence users		Non-Federally qualified uses				Total	
			Residents of Alaska		Nonresidents of Alaska			
	Issued	Harvested	Issued	Harvested	Issued	Harvested	Issued	Harvested
2016			61	20	36	24	97	44
2015			62	16	41	24	103	40
2014			77	24	40	20	117	44
2013			91	36	48	31	139	67
2012			90	36	41	26	131	62
2011			93	42	61	44	154	86
2010			158	47	51	30	212	77
2009			145	45	59	39	204	84
2008			149	38	56	36	205	74
2007			126	36	53	40	179	76
2006			110	36	46	33	156	69
2005			108	28	52	38	160	66
2004			84	9	47	37	131	46
2003			101	20	51	33	153	53
2002			89	14	45	25	134	39
2001			95	15	50	36	145	51
2000			72	12	35	19	107	31
1999			70	16	33	25	103	41
1998			51	12	21	15	72	27
1997			57	15	20	15	77	30
1996			57	13	19	13	76	26
1995			62	14	20	9	82	23
1994			31	2	15	8	46	10
1993			70	17	18	10	88	27
1992			96	15	33	24	130	40
1991			92	19	46	36	140	56
1990			125	28	44	40	172	71
1989			117	23	52	39	169	62
1988			88	23	46	38	135	62
1987			82	22	34	29	116	51
1986			90	22	31	27	122	49
1985			77	22	29	23	106	45
1984			56	14	19	16	75	30
1983			65	13	25	17	90	30
Total	13[a]	7[a]	2,997	764	1,317	919	4,327	1,690

[a] Four or fewer reports were received in any given year. Only the total is provided to protect confidentiality of Federally qualified subsistence users reporting their effort and harvest.
Source: ADF&G 2017b and OSM 2017a.

Adopting this proposal and opening the AVSMA to non-Federally qualified users may adversely affect subsistence users' access and ability to harvest sheep in the AVSMA and thereby fail to provide a meaningful preference for Federally qualified subsistence users.

If adopted, this proposal could negatively impact the sheep population in the AVSMA especially south of Cane Creek where sheep density estimates are low.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-56.

Justification

Federal public lands in the Arctic Village Sheep Management Area should remain closed to the harvest of sheep except by Federally qualified subsistence users. Sheep densities within the AVSMA have generally been low compared to other areas in the Brooks Range, which is likely due to poor habitat quality (Payer 2006 in OSM 2014). In 1991, when the closure was adopted by the Board, portions of the area did not appear to be able to support more sheep than were present, and the Board said that the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164). Sheep populations in the AVSMA situated south of Cane Creek continue to exist at low densities (Arthur 2017, pers. comm.) and should remain closed to nonsubsistence uses in order to protect healthy populations of sheep, as mandated in ANILCA Section 815(3).

Since 1995 the Board has continued to hear substantial testimony and ethnographic evidence demonstrating the importance of Cane Creek and Red Sheep Creek drainages to Federally qualified subsistence users, especially Netsi Gwich'in who occupied the area historically and continue to occupy the area today. In 2012, the Board reiterated that the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7), and again in 2014 (OSM 2014a:350). There have been no indications that the phenomenon has changed. This area should remain closed to nonsubsistence uses in order to protect subsistence uses, as mandated in ANILCA Section 815(3).

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WRITTEN PUBLIC COMMENTS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 3:46 PM
To: Gene Peltola <gene_peltola@fws.gov>, Thomas Doolittle <thomas_doolittle@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jeff Alling** <jeffa@alcanbuilders.com>
Date: Tue, Aug 1, 2017 at 3:29 PM
Subject: WP-18-56
To: "Subsistence@fws.gov" <Subsistence@fws.gov>

My name is Jeff Alling and I am a founding member of RHAK (Resident Hunters of Alaska) and I oppose the continued closure of Dall Sheep hunting in the AVDSMA area on the grounds that it is apparent that the local hunters do not use or do not report the use of this resource. Also I oppose the closure because there is no biological concern about hunting of Full Curl Rams.

This area has been closed to the taking of Dall Sheep by non-local hunters since 1991 for supposed "Social" concerns. This reason is nonsense as any contact I have had with locals from that area has been very positive.

Please reopen this area in an effort to revive this cherished freedom that has been taken from us by our Federal Government since 91.

Thank you.

Jeff Alling

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Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: AOC comments on proposal WP18-56

2 messages

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:44 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: **Alaska Outdoor Council** <alaskaoutdoorcouncil@gmail.com>
Date: Fri, Aug 4, 2017 at 1:49 PM
Subject: Re: AOC comments on proposal WP18-56
To: subsistence@fws.gov
Cc: AOC Board <aocboard@alaskaoutdoorcouncil.com>, Richard Bishop <dmbishop@ptialaska.net>

August 4, 2017

Federal Subsistence Board
Office of Subsistence Management
Attn: Theo Matuskowitz
1011 E. Tudor Road, MS-121
Anchorage, Alaska 99503-6199
Sent electronically to subsistence@fws.gov

RE: Proposal WP18-56

Chairman Christianson and Members of the Board:

The continued closure of hunting by non-qualified subsistence users in the Arctic Village Sheep Management Area (AVSMA) is a clear violation of ANILCA, therefore, the Alaska Outdoor Council (AOC) asks the Board to approve Proposal WP18-56 to discontinue the closure, providing hunting opportunities per the Refuge purpose, being once more in harmony with the Refuge's Comprehensive Conservation Plan (CCP)

Most egregious is continued disregard for and violation of ANILCA, to which the previous Administration clearly allowed the Federal Subsistence Board (FSB) to willfully violate federal law. Secretary of the Interior, Ryan Zinke is likely to take a different view of the matter and personal representing the DOI on the FSB will be more inclined to vote consistent with federal law and intent of ANILCA Section 816. "Unless necessary for the conservation of healthy populations of fish and wildlife and to continue subsistence uses", hunting on the Refuge by non-federally-qualified subsistence users is supposed to be the rule and not the exception per ANILCA Title 815(3).

Conservation concern, meeting subsistence uses, administration, and public safety are the only criteria for closing hunting to non-federally-qualified subsistence users per ANILCA Sec. 816(b). And indeed, because there is a healthy population in the area in question, and there is no substantial evidence showing need to keep the area closed to provide a meaningful preference for actual and bona fide subsistence uses, the FSB should, our members believe, be making a diligent effort to abide by ANILCA rather than continue its flagrant violation of it, and in so doing pass this proposal.

In addition, worse than just ignoring ANILCA, the FSB, by keeping this area closed for the reasons it has given, has also brought the FSB even more out of compliance with Congressional intent because it has ignored and trumped ANILCA's legitimate reasons for closure, and having done so has instead implemented the current closure for reasons absolutely disallowed in ANILCA, which gives no other reason for closure aside from those stated at the top of the

previous paragraph. Certainly social or cultural or emotional reasons for closure of hunting in the face of no conservation concern or absence of subsistence uses are clearly illegal, yet the FSB has continued to unlawfully create and implement its own rules, depending instead on contrived excuses as to close what is otherwise a legitimate and heralded activity according to ANILCA and the Refuge's CCP.

Reported harvests of Dall sheep over the last 25 years suggest inconsequential use of Dall sheep and inconsequential subsistence harvests. And by all accounts, a healthy population of Dall sheep is resident in the area. If there is no actual demand for full curl rams to meet legitimate subsistence use, then non-federally qualified hunters, by all the federal laws and management plans, can participate in the hunt. Exclusion of these hunters continues to have no biological benefit to either sheep or humans.

Conflicts in the field between residents of Arctic Village, Chalkitsik, Fort Yukon, Kaktovik, Venetie and any non-federally qualified subsistence users in the AVSMA has never been likely do to the extremely low number of sheep hunters, nor is it a factor for the FSB to take into consideration when deliberating on proposals to ban non-local resident regulated hunting opportunities. Nothing in Section 816 of ANILCA comes close to even alluding to that being a criteria for closure to non-federally qualified subsistence users.

According to ANWR's official website, the Refuge is characterized as "amazing public land owned by all US citizens," and that people commonly come to the Refuge to "camp, hike, float rivers, hunt, or fish," all officially allowable uses on federal public land. Hunting on Refuges is a customary and traditional activity for Americans, and therefore should be reopened in the area proposed. It is the right of all Americans to recreate on federal public land.

Closures due to perceived cultural or social reasons are not supported by either ANILCA as already noted, but the continued closure also comes into violation of the Refuge's Comprehensive Conservation Plan(CCP). In fact, paraphrased below, the latter document says:

- The Refuge has local, state, and national constituent users who must be considered in developing and implementing visitor use programs and policies. These visitor constituencies' use is best addressed through a fair and open public planning process. (Objective 5.4)

(AOC: Rights of use of the resource by non-federally-qualified subsistence users given the current conditions as stated above are EQUAL to that of federally-qualified subsistence users. There is no current legitimate reason to preclude use of any resource by anyone per this CCP.)

- Uses will not be prohibited unless a public process determines the use is detrimental to the area's resource values. (Objective 5.1)

(AOC: Note that "cultural" or "social" uses are not legitimate criteria on which to order any closure to hunting. The current closure is NOT based on resource values in violation of this CCP.)

• Public access to Refuge lands for recreation is allowed to "provide the public with opportunities for wildlife-dependent recreation." (Objective 5.4)

Because hunting is an allowed and publicized use on the Refuge, it appears Refuge intent is that hunting is clearly considered "wildlife-dependent recreation," and thus should not be precluded in the face of no conservation concern or jeopardy to the area's resource values or abrogation of any subsistence use. ANILCA Article 815 supports this very clearly as well.

In conclusion, the Alaska Outdoor Council believes there is no legal reason, and there are no supporting data, to keep the Arctic Village Sheep Management Area closed to open hunting any longer. In truth, ANILCA and the Refuge guiding documents both EXPECT uses to not be limited EXCEPT when a documented conservation concern to meet subsistence use clearly requires it. These conditions have not been shown to exist, and to be in harmony with the Refuge's purposes, the Refuge Comprehensive Conservation Plan, and ANILCA, Proposal WP18-56 to open hunting should be passed. There never has been a legitimate reason for closure and there remains NO legitimate reason to continue the closure.

Appended to this letter is the State of Alaska's Federal Subsistence Liaison Team's talking points to this issue when the Federal Subsistence Board last considered opening the AVSMA to open hunting in 2014. These points are apropos and still relevant.

Sincerely,

Rod Arno
Executive Director
Alaska Outdoor Council

On Fri, Aug 4, 2017 at 2:43 PM, Alaska Outdoor Council <alaskaoutdoorcouncil@gmail.com> wrote:

Alaska Outdoor Council comments in support of proposal WP18-56.
Please also include the 2014 comments from the State of Alaska liaison to the FSB from 2014 on proposal WP14-51 with AOC's comments.

--
Alaska Outdoor Council
310 K Street, Suite 200
Anchorage, Alaska 99501
Phone: 907-841-6849

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Alaska Outdoor Council
310 K Street, Suite 200
Anchorage, Alaska 99501
Phone: 907-841-6849

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:44 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: **Alaska Outdoor Council** <alaskaoutdoorcouncil@gmail.com>
Date: Fri, Aug 4, 2017 at 1:43 PM
Subject: AOC comments on proposal WP18-56
To: subsistence@fws.gov
Cc: AOC Board <aocboard@alaskaoutdoorcouncil.com>, Richard Bishop <dmbishop@ptialaska.net>

Alaska Outdoor Council comments in support of proposal WP18-56.
Please also include the 2014 comments from the State of Alaska liaison to the FSB from 2014 on proposal WP14-51 with AOC's comments.

--
Alaska Outdoor Council
310 K Street, Suite 200

Anchorage, Alaska 99501
Phone: 907-841-6849

2 attachments

AOC comments on WP-18-56.pages.zip
269K

Liaison Team talking points RFR Red Sheep Creek WP14 51 FSB Jan 2014.doc
78K

ADF&G FEDERAL SUBSISTENCE LIAISON TEAM

TALKING POINTS:
REQUEST FOR RECONSIDERATION: RED SHEEP CREEK / WP14-51
JAN 2014 - J.YUHAS

THE STATE URGED THE REOPENING OF RED SHEEP / CANE CREEK DRAINAGES WITHIN AVSMA TO SHEEP HUNTING FOR OTHER USERS:

- **Two years ago this area was closed to non-federally qualified users unnecessarily.**
- **It was closed aside from any conservation concerns, noting an abundance of sheep in this area and an extremely low use of this resource by local people.**
- **Federal Public Land is held in trust for all people.**
- **The Board must act within the authority provided it under ANILCA.**
- **Any new precedent must be defensible. The precedent set by the FSB in April by maintaining this closure is not.**

CLOSED UNNECESSARILY

- **The Board is aware there is no justification under either the Boards Closure Policy or ANILCA 8.15 to close this area for conservation.**
- **The issues brought forth in requesting a closure for this area are rightfully addressed in other venues.**
- **The State of Alaska took swift action two years ago to assist federal land managers in addressing the complaints heard at the time of closure.**

CLOSURE IS OUTSIDE THE BOARDS AUTHORITY UNDER ANILCA AND THEREFORE INDEFENSIBLE

- **Federal Public Land, is just that – Public Land.**
- **ANILCA 8.15 speaks to closures to hunting for the conservation of the resource of continuance of subsistence uses only.**
- **NO REFERENCE to trespass or littering – an issue federal land managers and enforcement rightfully govern, which the State has taken measures to assist them with these efforts – providing tools through our actions two years ago.**
- **NO REFERNCE to the new idea of "cultural preservation" being circulated by federal staff based on testimony at this board meeting two years ago that one local resident did not see it as his culture to hunt when an outsider was present in the valley.**
    - **"Cultural preservation" itself is a debatable concept within the scientific community.**
    - **Closing an area on this basis would set a new precedent for utilization all around the state.**

- This concept is clearly outside the intent of ANILCA 8.15s authority for closure

- Nearly every parcel of Federal Public Land Park, Preserve, Refuge, and Forest with any indigenous population adjacent to that land will have areas which are reported to be "special to those people."
  - Measures exist to truly address the specialness of lands to a people – just not in the Federal Subsistence Program arena.
- These arguments cannot defensibly be used as a new precedent to close lands to hunting to one group of people by this Board – most notably because the Board does not have the authority to do so for these reasons.
- While the Board does not have the legal means to close this area to hunting by one group of people, the federal system does possess other means to address these issues.
  - Federal land managers can enforce already illegal behavior with the new tools the State has provided it.
  - Federal land managers can pursue a land swap to provide Venetie the purportedly most special lands thereby excluding others.
- THIS PARTICULAR CLOSURE SIMPLY DOES NOT FIT IN THIS ARENA.
- The Board fully recognized the lack of any conservation concern during its deliberations both to close and to deny the reopening of this area citing instead: identification with the wishes of the local people, a deference to the spirituality of those who wish the closure to remain, and simply that "it would keep some people out."

<u>CLOSURE DOES NOT ACHIEVE DESIRED EFFECT</u>

- The only people this action closes this area to are non-federally qualified sheep hunters for the purposes of hunting.
  - That's a Maximum of 7 people per year – which has already been recognized as a di minimis impact to the sheep population.
  - Not closed to their landing near or walking through the area or any other uses by those people.
  - Not closed to *anyone* else.
- As the Fairbanks AC pointed out: Federal staff has testified at public meetings that many other parties use this area.
  - Those users included hikers, rafters, sheep hunters traveling through the area to other open areas.
  - Those users could trespass, vandalize, or scare sheep in that area – likely more so than an individual attempting to minimize their presence in order to successfully hunt sheep.
  - This does not preserve the area for the local users who simply want to keep others out.
- Two years ago this board and the RACs heard testimony referring to egregious trespass, vandalism, and general disrespect for the lands near this area.

- Those reports were never successfully attributed to one group of people, and conflicting opinions persist at to who may have committed these acts.
- We've established that closure for these reasons already lies outside the framework of this program, but even so – if anybody intends to dole out a punishment they must first successfully determine the offender.
- The changes made by the State since your last meeting give federal managers and enforcement the tools to begin to do that.

ONLY WAY TO REMAIN WITHIN THE BOUNDS OF ANILCA FOR THE BOARDS AUTHORITY IS TO REOPEN THE AREA

- These Federal Public Lands are held in Trust for the people.
- Any reasons for the Board acting to keep this area closed to one group of users must be legally defensible / it is each Board Members responsibility to know their vote, especially to set a new precedent, is defensible.
- Established no conservation concern – therefore no justification under ANILCA 8.15 – even to preserve "subsistence uses."
  - While "culture as a use" may be an interesting intellectual argument for some federal staff, it is the individual Board Members who must understand the legal parameters of attempting to embark on any new interpretations of the law that governs their actions.
- Attempting to point out that the State does not have a class already developed is a contrived argument / a stalling tactic.
  - The State responded expediently to local concerns two years ago – and took special actions to address these concerns.
  - The Department created a mechanism to address issues the federal land managers and enforcement had not & the Board of Game approved an Agenda Change Request for and approved this plan in very short order to respond to these concerns.
  - The State has been clear that any class will be developed with the local people rather than forced upon them.
  - There is currently no incentive for local cooperation to develop this class if the area remains closed.
  - No agency would expend staff resources or funding under these conditions /when no outcome or cooperation is expected.
- Some federal staff advocated rejecting this proposal denouncing any "new information" related to the discussion.
  - In reinstating this closure two years ago the Board noted that while it was encouraged by recent State response to the issue, that the Board of Game had not yet met at the time of this Boards meeting, and that action was not guaranteed.
  - That action did take place – two weeks after the FSB met to close the area.
  - While the information is two years old, and the State has waited two years for corrective action, that information is precisely what was

stated on the record as being necessary to keep this area open by this Board at the time of the closure.

- The entertainment of interesting intellectual arguments by staff or others has its place. That place is best reserved to academia rather than through a direct negative impact to the users of the resource.

The State urged the Board to take action in their April meeting to lift this closure and return to process, recognizing that land managers now possess greater tools to assist them in their charge to maintain order, as well as other appropriate means to address the issues outside the jurisdiction of this body, and ensuring the use of this land to all those for whom it is held in trust.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:50 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Pete Buist** <grizzlybear@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 4:13 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please APPROVE proposal WP 18-56.

Obviously no sheep hunting by the listed communities actually occurs. Historically the only consistent use of the area (before the closure) was by guides and some non-local AK resident hunters. There is no cogent reason, either biological or subsistence-related, for the closure to remain in force.

Leaving this area closed continues to send a message to the rest of the world: "The federal subsistence program in Alaska is a joke and not actually intended to help local rural residents." Silly, politically correct closures make a mockery of an important system.

Thank you for the opportunity to comment.

Pete Buist
Fairbanks, AK

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: sheep hunt

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:58 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Kodiak Adventures Lodge** <kodiakadventureslodge@gmail.com>
Date: Sun, Jul 30, 2017 at 8:05 PM
Subject: sheep hunt
To: subsistence@fws.gov

Hello ,
I am writing in support of opening sheep hunting in federal public land within the Artic National wildlife refuge. There is a proposal # **WP-18-56**
This needs to be addressed in a biological manner not favoring one group of people over another. All would benefit from opening this up. Please consider my request.

Larry Carroll

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:15 AM
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: **Walter Chuck** <the4chucks@aol.com>
Date: Fri, Aug 4, 2017 at 10:14 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Federal Subsistence Board,

I am writing you to express my strong support for Proposal WP18-56 which would reopen an area in the Eastern Brooks Range within the ANWR for the take off full curl Dall Sheep Rams in accordance with all hunting regulations and fees. This area contains a healthy and the resumption of allowing the hunting of Dall Sheep will increase access and utilization for other recreation opportunities as well on our public lands.The Alaska National Interest Lands Conservation Act allows hunting for non-locals if there is no conservation concern, the Dall Sheep population is healthy and exists in numbers that would sustain the harvest of adult males. Subsistence opportunities would continue to be available and users needs would continue to be met. Once again please pass Proposal WP18-56.

Thank you for your time,

Walter Chuck
166 NE 71st St
Newport, OR 97365
541-574-9078

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56 Proposal

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:00 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Clemens M. Clooten** <CClooten@fairbanks.us>
Date: Mon, Jul 31, 2017 at 7:28 AM
Subject: WP-18-56 Proposal
To: "subsistence@fws.gov" <subsistence@fws.gov>

Attn: Theo Matuskowitz

I request that Proposal WP-18-56 be adopted to allow Alaskans the opportunity to harvest sheep in this area because there is no harvest of sheep by the local people and it would bring money into this area.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for your time and consideration

Clem Clooten

1163 Linda Lou Lane

Fairbanks, Alaska 99712

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd:
1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:02 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **John Davis** <jcdavis@gci.net>
Date: Sun, Jul 30, 2017 at 9:12 PM
Subject:
To: subsistence@fws.gov

Proposal WP-18-56.

a) there is no biological concern about hunting of full curl rams in general and,

b) that the local hunters don't apparently use or report use of sheep.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

I urge adoption of this proposal in the strongest terms. Very important to get this ridiculous regulation changed ASAP!

John C Davis

48590 KSRM Court

Kenai, AK 99611

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:57 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **J Doll** <akjuliedoll@gmail.com>
Date: Sun, Jul 30, 2017 at 2:56 PM
Subject: WP-18-56
To: subsistence@fws.gov

I believe the area around Arctic Village should be reopened to general sheep hunting. There appears to be no issue requiring management or necessary hunting restrictions of the sheep.
Allowing resident and non-resident hunting would provide a financial benefit to the local area with aircraft servicing and general store use.
Our public lands should be open to use by all whenever possible.

--
Julie Doll, 30-year resident hunter
5625 Old Valdez Trail
Salcha, AK 99714

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:57 AM
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: **David A. Doudna** <david@northernsledworks.com>
Date: Fri, Aug 4, 2017 at 8:51 AM
Subject: WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

1. The area has a healthy sheep population
2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals"
3. The Refuge is federal public land where ANYONE can recreate
4. The Refuge encourages hunting as wildlife-oriented recreation
5. Hunting can only be closed if there is a conservation concern or subsistence uses are not met
6. There is no present conservation concern
7. Subsistence opportunities for sheep and other resources continue to be available

Thank you,

David Doudna
P.O. Box 61171
Fairbanks, AK 99706

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wp-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:57 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mark Freshwaters** <mfreshwaters@gmail.com>
Date: Sun, Jul 30, 2017 at 2:29 PM
Subject: Wp-18-56
To: subsistence@fws.gov

As a hunter and resident of Alaska since 1971, I support the opening of sheep hunting for non-local hunters. I see no conflict what so ever in the doing of this to make use of the states resource for all hunters and not just a select few.
When I lived in Fairbanks I would have never said to a village person looking for a town job, " now you back to your village and live a subsistence life and leave town town jobs to us city residents".
These things need to work both ways and not create a divide in people.
Please take this into consideration.
Sincerely,
Mark Freshwaters
PO box 866
Skagway, Alaska 99840

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 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 Gallagher** <jimmy.g@acsalaska.net>
Date: Tue, Aug 1, 2017 at 4:15 AM
Subject: WP-18-56
To: subsistence@fws.gov

Please approve Proposal WP-18-56.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in

Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you,

Born and raised Alaskan 1955

Jim E. Gallagher

Cell 907-242-5557

Jimmy.g@acsalaska.net

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal (WP-18-56)

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 12:28 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **H. E. Budd Goodyear, MSM, MLA** <bg@mtaonline.net>
Date: Tue, Aug 1, 2017 at 12:06 PM
Subject: Proposal (WP-18-56)
To:

Attn: Theo Matuskowitz
I urge the Subsistence Board to approve Proposal WP-18-56 to open sheep hunting to public in Game Management Unit 25 for 4 reasons:

1) Approval is recommend by the US Fish and Wildlife Service,
2) there is minimal hunting pressure on that area;
3) there is a lack of statistics to support keeping the area off limits to public hunting; and
4) purely political decisions seem to often go awry and become unfair.

Thank you for the opportunity to comment.

Budd Goodyear
Mat-Su Area

Attachment: WP-18-56

2018-2020_wildlife_proposal_book_final_0629_reduced_0.pdf
154K

2018–2020 Wildlife Proposals

Eastern Interior

WP18-56

Regulations.gov - Comment Page 1 of 1

regulations.gov

Submitted Electronically via eRulemaking Portal

The is a Comment on the **Fish and Wildlife Service** (FWS) Proposed Rule: **Subsistence Management: Public Lands in Alaska; 2018-19 and 2019-20 Subsistence Taking of Wildlife**

For related information, **Open Docket Folder**

Comment Now!

Due Jun 16 2017, at 11:59 PM ET

ID: FWS-R7-SM-2016-0049-0013

Tracking Number: 1k1-8wyk-zrzz

Comment

Game Management Unit 25, Arctic Village Sheep Management Area: Remove the restriction on public hunting of Dall sheep in this area. The retriction of sheep hunting to residents of a few communities is unnecessary to accommodate local subsistence uses, and the Area is unused for sheep hunting by residents of the communities listed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. There is no biological or subsistence related reason to preclude sheep hunting opportunities from the public in this Area.

Document Information

Date Posted:
Jun 14, 2017

RIN:
1018-BB38

Show More Details

Submitter Information

Submitter Name:
Richard Bishop

City:
Fairbanks

Country:
United States

State or Province:
AK

ZIP/Postal Code:
99709

https://www.regulations.gov/document?D=FWS-R7-SM-2016-0049-0013 6/14/2017

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:58 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: **K.M. Gordon** <kgordon@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 3:55 PM
Subject: Comments on Proposal WP18-56
To: subsistence@fws.gov

Chairman Christianson and Members of the Board:

The FSB is out of compliance with ANILCA (and other guiding documents) in a serious way and needs to cease ignoring them. Past actions of the FSB have put the FSB on the wrong side of Congressional intent as well as the very laws that direct its work. That was to be expected from the Obama Administration, but it is unlikely these actions will pass muster under Secretary Zinke. Therefore to right the wrongs of the past and to become "legal," the following will be fixed through support of Proposal WP18-56:

The FSB is failing to comply with Congressional intent both to federally-qualified subsistence users and those not so qualified

The FSB is failing to comply with the stipulations of ANILCA Title 815

The FSB is failing to comply the directives of the ANWR Refuge Comprehensive Conservation Plan

The FSB is failing to comply with the purposes of the Refuge per ANILCA

The FSB is failing to comply with Refuge intent

The above failures are a direct result from willfully deviating from clearly afforded

directives to the FSB which instead makes up their own rules rather than follow correct criteria. Precluding hunting from one class of user is illegal, yet the FSB continues to do so for "emotional" reasons rather than the ones they are given to follow. Lack of overlapping seasons precludes user conflict in the field. A healthy population of sheep that is not being used is being wasted. Hunting should be allowed at the full curl ram designation.

Thank you for fixing the current violations and please bring the FSB back into compliance with federal dictates, and allow hunting at the "safe" full curl ram level. This regime will not hurt the population at all per the current science. It could make more sheep for everyone.

Sincerely,

Karen Gordon

Fairbanks

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:20 AM
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: **Chris Gossen** <cgossen1@gmail.com>
Date: Fri, Aug 4, 2017 at 8:19 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please vote for Proposal WP-18-56 and reopen the area to sheep hunting per ANILCA.

--
Chris Gossen
Energy and Emission Solutions Inc.
907-388-3533

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wp18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Walter Hanni** <walthanni@yahoo.com>
Date: Mon, Jul 31, 2017 at 6:44 PM
Subject: Wp 18-56
To: subsistence@fws.gov
Cc: Alaska Outdoor Council <membership@alaskaoutdoorcouncil.com>

It has been my experience having hunted the brooks range for sheep for many years that it's one of the most wonderful outdoor experiences I have ever had. In all the years of hunting I harvested far less sheep than I could have legally taken. It's a difficult hunt and sheep seem to live far away from convenient access. Opening more hunting land spreads hunters out giving everyone a more quality hunt. The game should be managed under state hunting regulations providing local hunters opportunity and others when the game population is healthy and can handle it. Thank you for this consideration. Sincerely Walt Hanni resident of Alaska since 1971

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 9:42 AM
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: **Paul HARRELL** <harrellp1@msn.com>
Date: Fri, Aug 4, 2017 at 9:41 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Thank you!

Paul Harrell
North Pole, Alaska

Encourage one another to good works!

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Wayne Heimer** <weheimer@alaskan.net>
Date: Thu, Aug 3, 2017 at 9:16 PM
Subject: Comments on Proposal WP18-56
To: subsistence@fws.gov

Please accept my comments on WP18-56, dealing with the Arctic Village Dall Sheep Management Area.

They are copied here and in the attached file.

Most sincerely,

Wayne E. Heimer
1098 Chena Pump Road
Fairbanks, Alaska 99709

2 attachments

ATT00001
26K

Arctic Village Dall Sheep Management Area.docx
125K

Arctic Village Dall Sheep Management Area:

Comments to Federal Subsistence Board on Proposal WP18-56, a proposal to open general hunting for Dall sheep in the presently existing Arctic Village Dall Sheep Management Area.

*The Arctic Village Dall Sheep Management Area has not always existed.

*It was created because residents of Arctic Village alleged a need for exclusive use to meet traditional Dall sheep subsistence needs. Three other villages were included among federally-recognized users in prior actions of the Federal Subsistence Board.

*These three villages have reported virtually no use of Dall sheep from the Area.

*Based on reporting over the last 25 years, subsistence use of Dall sheep by Arctic Village residents has averaged fewer three sheep per year.

*There can be no biological concern about Dall sheep population health in the Area as a result of human harvest.

*If there is no biological concern for population health, and documented subsistence use is virtually absent, there is no practical rationale for the continued existence of exclusive use of Dall sheep by communities, which have reported no significant use of the Dall sheep set aside for them.

*Hence, the Arctic Village Dall Sheep Management Area should be eliminated, and regular use of Dall sheep (for full curl ram harvesting) should be reestablished as per the regular State of Alaska Dall sheep open season from August 10 through September 20.

*Given that harvest of full curl rams actually removes the only "surplus" Dall sheep from a population, general full curl hunting is likely to affect subsistence opportunities only by subtracting an insignificant number of mature rams from the population.

*Mature rams taken in winter are not considered the best subsistence fare. Other sheep are preferred as food by most users during winter.

*The subsistence season (seven months long with a bag limit of three sheep) is the highest-risk harvest management scheme, which even vaguely resembles controlled harvest.

*This season opens long after the general ram hunting season has closed, weather has changed (with the falling of snow), encompasses the Dall sheep rut, and allows only federally recognized subsistence users to participate.

*If subsistence harvests remain as low as reported, there is no reason this seven-month season could not be sustained. Nevertheless, it remains a high-risk harvest strategy.

*The Arctic Village Dall Sheep Management Area is obsolete under ANILCA, as well as inconsistent with the USFWS Comprehensive Management Plan for ANWR.

*The Arctic Village Dall Sheep Management Area may be profitably considered an experiment in Dall sheep subsistence use, which proved impractical. Exclusion of non-local hunters is not biologically necessary, and most likely in conflict with ANILCA intent. Restrictions in the AREA proved to be unnecessary, and provided no irreplaceable benefit to the subsistence users for whom they were designed.

*The costs of this experiment to the state can only be estimated. However if the sustainable harvest of five full curl rams from the AREA per year at a mean economic value of $20,000 per ram over 25 years is tallied, the loss to the State's economy could have been as high as 2.5 million dollars.

*It is time to let the Arctic Village Dall Sheep Management Area lapse into the history of ideas that didn't "pan out" as expected.

Please accept proposal WP18-56 to essentially abolish the Arctic Village Dall Sheep Management Area.

Wayne E. Heimer
ADF&G Dall Sheep Biologist 1971-1997 (ret.)
1098 Chena Pump Road
Fairbanks, AK 99709

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 11:55 AM
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: **Wayne Heimer** <weheimer@alaskan.net>
Date: Fri, Aug 4, 2017 at 11:53 AM
Subject: Re: Comments on Proposal WP18-56
To: subsistence@fws.gov
Cc: Kevin J Kehoe <Kevin.Kehoe@kantishnainc.com>, Karen Gordon <kgordon@mosquitonet.com>, "Dale, Bruce W (DFG)" <bruce.dale@alaska.gov>, "Darren L (DFG) Bruning" <darren.bruning@alaska.gov>

Attention Federal Subsistence Board: I seem to have made a bag limit mistake regarding Proposal WP18-56 in my comments (weheimer@alaskan.net) submitted yesterday. Please not Mr. Arno's correction. Sorry about that. The bag limit argument does not materially affect my position on Proposal WP18-56. Thank you.

W. Heimer
1098 Chena Pump Road
Fairbanks, AK 99709

Thanks, Rod. I'll cc the FSB on my mistake see above. KG and I went "round" on this difference Wednesday. Being lazy, I deferred to her greater present effort on the issue, and went with the state bag limit. "Good on" the FSB for being more conservative than the state originally was.

HISTORY: The "three-sheep" bag limit was "transplanted" to Red Sheep Creek from the North Side of the Brooks Range (Kaktovik) as well as to other areas of historic Dall sheep subsistence use as the state formally provided for sheep subsistence uses in places beyond Kaktovik. The three-sheep bag limit originated back during the first official recognition of Dall sheep subsistence hunting (out of Kaktovik on the Hula Hula River) by the state of Alaska in the mid 1980s. The "three sheep" bag limit and

seven month season were originally established as an "uber-liberal" effort to encourage documentation of Dall sheep subsistence uses by Kaktovik residents. The rationale was to make sure the season and bag limit were sufficiently liberal to provide expansively for sheep subsistence use in the hope that reporting would be accurate and voluntary. Conservation was not a consideration at that time. The prime directive was to document subsistence use by local residents.

The reporting experiment didn't work very well in Kaktovik or anywhere else, but the season length and bag limit established the precedent for the seven-month season and three-sheep bag limit. At the time, I argued against that idea because philosophically, I don't think its a good idea for managers to permit harvests that have the possibility of being beyond biological sustainability, particularly where population monitoring is ineffective or neglected. Specific to the Hula Hula River, I buttressed my argument on the casual statement by the Mayor of Kaktovik to Sverre Pederson (Subsistence Division-with whom I shared an office during my ANILCA days) that, "*There used to be a lot of sheep out there*[in the rolling country between the Hula Hula River and Okpilik River as seen from Katak Ridge-where there were virtually no sheep at time Sverre reported to me in the early 1990s]...*we shoot 'em all, I guess.*"

So much for history. Thank you for the correction in bag limit. I presume the Federal Subsistence Board will be appraised of this error on my part via this additional comment.

It's always good to be corrected. I've always said I'd rather be correct than consistent.

W. Heimer

On Aug 4, 2017, at 10:28 AM, Rod Arno <rodarno@gmail.com> wrote:

It should be noted that the current (July 1, 2016 - June 30, 2018) harvest of Dall sheep in the AVSMA (GMU 25A) under federal regulations is:

2 rams by Federal registration permit (FS2502) only. Aug 10 - April 30

It's only the Alaska Board of Game that allows a 3 sheep (ewes included) harvest in the AVSMA. (AOC recently submitted a proposal to put a stop to that in all of GMU25 but the proposal failed 6-1)

Please correct me if I'm wrong,
rod

Sent from Rod Arno's iPad.

On Aug 3, 2017, at 11:19 PM, Wayne Heimer <weheimer@alaskan.net> wrote:

*The subsistence season (seven months long with a bag limit of three sheep) is the highest-risk harvest management scheme, which even vaguely resembles controlled harvest.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **George Houston** <ghouston@hevanet.com>
Date: Fri, Aug 4, 2017 at 7:09 AM
Subject: Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.
To: subsistence@fws.gov

Please pass Proposal WP 18-56 and open the area to sheep hunting per ANILCA.

1. Subject area has a healthy dall sheep population

2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals" (see #5 and #6)

3. The Refuge is federal public land where ANYONE can enjoy recreational opportunities.

4. There is no present conservation concerns.

5. The Refuge encourages hunting as wildlife-oriented recreation.

6. Hunting can only be closed if there is a conservation concern or subsistence uses are not met.

7. Subsistence opportunities for sheep and other resources continue to be available.

8. The Federal Subsistence Board has apparently illegally kept this area closed from outsiders for emotional reasons rather than legal ones.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:53 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>

---------- Forwarded message ----------
From: <lljacobs4@aol.com>
Date: Fri, Aug 4, 2017 at 10:31 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Chair Christianson and members of the Board

I am writing to show support for the proposal before the Board that would reopen the area in the Eastern Brooks Range within the Artic National Wildlife Refuge for hunting of full curl rams to the public. Please pass Proposal WR18-56 and open the area to sheep hunting per ANILCA.

Thank You for your consideration
Larry Jacobs
President - OR-FNAWS
Board member - WSF

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:54 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **James P. Jacobson** <huntfish@ak.net>
Date: Fri, Aug 4, 2017 at 7:52 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

8-4-17 Dear Board Members:
Please follow the actual guidelines of federal law & PASS WP18-56.
Thank you,
J.P.Jacobson, U.S.Citizen & Alaska resident

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Approve Proposal WP-18-56.

AK Subsistence, FW7 <subsistence@fws.gov> Wed, Aug 2, 2017 at 11:32 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Kaiser, John J.** <John.Kaiser@awwu.biz>
Date: Wed, Aug 2, 2017 at 11:09 AM
Subject: Approve Proposal WP-18-56.
To: "subsistence@fws.gov" <subsistence@fws.gov>

I thought Federal is supposed to look out for every one of the United States of America! Please Open this area so my children who were born in Alaska, thus are Residents and Alaskan Natives, have the opportunity to harvest a Dall sheep in this area.

It is wrong to only allow a small group exclusive rights to something that belongs to all Alaskans.

John Kaiser

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal 18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **kkennedy2175** <kkennedy2175@gmail.com>
Date: Sun, Jul 30, 2017 at 11:04 PM
Subject: Proposal 18-56
To: subsistence@fws.gov

I encourage you to approve the proposal to open the artic refuge to sheet hunting for all Alaskans. This is a discimitory. If the tables were turned it would be called racist.
Opening will help the local economy with non government resources, and create non government jobs. All Alaska will benefit.

Kal Kennedy, Alaska citizen since 1990.

Sent via the Samsung GALAXY S®5, an AT&T 4G LTE smartphone

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Wp18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:05 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **AK Subsistence, FW7** <subsistence@fws.gov>
Date: Mon, Jul 31, 2017 at 8:05 AM
Subject: Re: Wp18-56
To: Mike Kramer <mike@mikekramerlaw.com>

The Office of Subsistence Management is in receipt of your comments. Thank you.

On Sun, Jul 30, 2017 at 5:10 PM, Mike Kramer <mike@mikekramerlaw.com> wrote:

> Please open the red sheep creek area for general hunting. No one from Arctic Village hunts sheep in this large area and there is no biological or social reason to keep it closed.
> Sheep hunting statewide is becoming increasingly more difficult and many federal lands are closed to general hunting, forcing Brooks Range sheep hunters onto small parcels of state land or crowded into other accessible areas of anwr.
> Red Sheep creek is a long ways from Arctic village and the few non local hunters that will utilize this area will have no negative impact on Arctic Village residents.
>
> Sent from my iPhone, please forgive typos

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Doug Vincent-Lang** <dvincentlang@yahoo.com>
Date: Sun, Jul 30, 2017 at 10:28 PM
Subject: WP-18-56
To: subsistence@fws.gov

Please accept these comments regarding Proposal WP-18-56.

Nearly a million acres (900,000 acres) of previously open-to-hunting Arctic Village Dall Sheep Management Area (AVDSMA) within the Arctic National Wildlife Refuge in the Eastern Brooks Range has been closed by the federal government to non-local hunters since 1991 due to "social" concerns. There are no biological concerns about hunting of full curl rams and little reported use of sheep by local users. As such there is no conservation or social reason to keep this area closed.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for the opportunity to comment.

Doug Vincent-Lang

Anchorage, AK

dvincentlang@yahoo.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 2:49 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: **Jeff Lappe** <jalappe@hotmail.com>
Date: Fri, Aug 4, 2017 at 2:44 PM
Subject: WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Jeff Lappe

Sent from Outlook

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd:

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:22 AM
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: **Gordon Lyons** <mspaindoc@msn.com>
Date: Fri, Aug 4, 2017 at 10:20 AM
Subject:
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.
Thank you for your consideration. Any and all response/information/feedback would be greatly appreciated.
Sincerely,
Gordon Lyons

A. Gordon Lyons M.D.
Fellowship Trained/ABMS Board-Certified
Interventional Pain Medicine and
Anesthesiology

St. Dominic's Pain Management Center
Dominican Plaza
970 Lakeland Drive Suite 45
Jackson, MS 39216
Office 601.200.4690
Office Fax 601.200.4698

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd:

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: **CRAIG NAKAMOTO** <nakamoto01@sbcglobal.net>
Date: Fri, Aug 4, 2017 at 2:54 AM
Subject:
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Sincerely,

Craig Nakamoto,
President, Iowa FNAWS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP-18-56 Arctic National Wildlife Refuge, Arctic Village Dall Sheep Management Area - Alaska

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Phil & Linda Nuechterlein** <knik07@gmail.com>
Date: Mon, Jul 31, 2017 at 10:27 PM
Subject: Proposal WP-18-56 Arctic National Wildlife Refuge, Arctic Village Dall Sheep Management Area - Alaska
To: subsistence@fws.gov

Greetings,

I would like to take the opportunity to voice my opinion on proposal WP-18-56.

It is my understanding that the Arctic Village Dall Sheep Management Area (AVDSMA) within the Arctic National Wildlife Refuge in the Eastern Brooks Range has been closed by the federal government to non-local hunters since 1991 due to "social" concerns. This should be changed for the following reasons:

1) **Local hunters apparently do not use or report the use of sheep.** Therefore, it appears that non-local hunters would not be competing with local hunters for this resource.

2) **There are apparently no biological reasons** to prohibit the general public from hunting mature full curl rams on this land.

3) **This is public land that should be available to all citizens** (and not restricted based on race, color, gender, creed, age, or zip code)

In conclusion, there is apparently no reason to keep this hunt closed to the general public. I respectfully request that you allow the public to hunt these lands under

State of Alaska hunting regulations.

Phil Nuechterlein

Eagle River, Alaska

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Hunt Area

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:49 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Pat O'Neill** <pat.gcr@outlook.com>
Date: Fri, Aug 4, 2017 at 6:49 AM
Subject: Hunt Area
To: "subsistence@fws.gov" <subsistence@fws.gov>

Dear Board Members,

Please consider passing proposal WP18-56 and open the area to Sheep Hunting per ANILCA.

Thank You for your consideration.

Pat

Pat O'Neill
President
Granite City Roofing, Inc.
PO Box 1482
St. Cloud, MN 56302
320-253-4441

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-1856

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Donald Quarberg** <dmqlaf@yahoo.com>
Date: Mon, Jul 31, 2017 at 8:58 PM
Subject: WP-1856
To: subsistence@fws.gov

Open the 900,000 acres of Dall Sheep habitat within the Arctic Village Dall Sheep Management Area to sheep hunting by the general public. There is no biological reason to have this area closed, especially when the locals report no hunting of Dall Sheep. Eliminate this totally unnecessary closure!

Thank You, Don Quarberg

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:02 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Chuck** <jrsmom@ptialaska.net>
Date: Sun, Jul 30, 2017 at 7:48 PM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

I strongly encourage you to approve proposal WP-18-56. There's no reason to prevent non local Alaska residents from hunting dall sheep in accordance with Alaska hunting regulations in the area described.

Thank you for your consideration.

Charles Rodgers

43725 Ross Drive

Soldotna, AK 99669

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:55 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>

---------- Forwarded message ----------
From: **Mike Schlegel** <mws1941@gmail.com>
Date: Fri, Aug 4, 2017 at 10:32 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

August 4, 2017

To Whom It May Concern:

It is my understanding the Alaska Federal Subsistence Board has prohibited recreational hunting in the Eastern Brooks Range within the Arctic National Wildlife Refuge. It is also my understanding there are no biological issues/concerns regarding the Dall's sheep population in this portion of the Brooks range that suggest recreational hunting of full curl rams should not be allowed. The Alaska National Interest Lands Conservation Act mandates hunting opportunity for "non-locals" are provided where there are no conservation and/or subsistence issues. The Eastern Brooks Range fully meets these criteria. In addition, hunting is an approved and accepted recreational activity on federal refuges.

I encourage the Alaska Federal Subsistence Board to approve proposal WP18-56; subsistence hunting and recreational hunting can coexist when properly planned; hunting is conservation!

Thank you for the opportunity to comment;

Mike Schlegel

Retired Wildlife Biologist, Idaho Dept Fish and Game

506 S State Street

Grangeville, ID 83530

208-630-3001

mws1941@gmail.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Passing WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 2:54 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: **Schruf, Robert C (DOT)** <bob.schruf@alaska.gov>
Date: Fri, Aug 4, 2017 at 2:53 PM
Subject: Passing WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Greetings,

If the locals do not harvest the Dall sheep in the eastern Brooks Range, then allow the non-local residents to maintain a healthy Dall sheep population, by harvesting the sheep.

"ACCESS FOR ALL"

Bob Schruf 907-378-3803

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Please re open Arctic Village Sheep Management Area

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 3:57 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Rebecca Schwanke** <becky99588@yahoo.com>
Date: Thu, Aug 3, 2017 at 3:31 PM
Subject: Please re open Arctic Village Sheep Management Area
To: "subsistence@fws.gov" <subsistence@fws.gov>
Cc: Skip Bourgeois <gbourgeoisiii@hotmail.com>, "Kevin J. Kehoe" <kevinkehoe@alaskan.com>

I am writing to support the approval of Proposal WP-18-56.

Closed for some time now, the Arctic Village Dall Sheep Management Area should be re-opened to sheep hunting under a general season full-curl regulation. Even low density sheep populations can sustain the limited harvest pressure than a full-curl regulation brings.

Not allowing general sheep hunting in this area equates to a significant lost opportunity for a number of sheep hunters. Fly in hunting would offer a much needed financial boost to nearby communities.

There would be no conflict that I am aware of with local subsistence hunting in this area, and there is no biological reason to keep this area closed.

Please re-open the area to general state sheep hunting.

As a federal subsistence sheep hunter and a lifelong Alaskan, I thank-you for your consideration,

Rebecca Schwanke
PO Box 612
Glennallen, AK 99588

AK Subsistence, FW7 <subsistence@fws.gov>

Sheep hunting
1 message

Randy Smith <racsmith2157@gmail.com> Fri, Aug 4, 2017 at 4:46 PM
To: subsistence@fws.gov

Please pass proposal WP18-56 and open the area to sheep hunting per ANILCA.

Thank You!

AK Subsistence, FW7 <subsistence@fws.gov>

Comments on proposal number WP-18-56
1 message

Steven Speer <stevenespeer@gmail.com> Fri, Aug 4, 2017 at 7:03 PM
To: subsistence@fws.gov

I would like to voice my support for re-opening Dall sheep hunting per proposal number WP-18-56 in the Arctic Village Dall Sheep Management Area within ANWR. It does not appear from any available data to be a closure that is based on biological sustainability of the resident sheep populations. As these sheep are not typically utilized by local villagers, the benefit to the villages will be through the money sportsmen will spend in the area. Increasing opportunity to hunters by restoring public hunting access can only help balance pressure on herds across the state and help maximize the benefit of this resource for the entire public without undue negative impact on local residents.

I also think it is important that any argument against restoring public hunting that roughly corresponds to "I don't have any interest in hunting these animals but I don't want you to either because I just don't want you here" is not an argument that the stewards of these resources should be willing to entertain. It is bad public policy that will only inflame and perpetuate racist attitudes in our society rather than create a common agenda of long term conservation for the benefit of all user groups.

Thank you,

Steven Speer
Aloha, Oregon

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:07 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Henry Springer** <oksun@gci.net>
Date: Mon, Jul 31, 2017 at 8:05 AM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

To: Federal Subsistence Board, Anchorage, Alaska.

Ref. Proposal WP-18-56 hunting dall sheep within the Arctic National Wildlife Refuge in the Eastern Brooks Range.

I have lived in Alaska for 57 years and have hunted big game all over Alaska, both as a sport hunter and subsistence user. I have hunted Dall sheep in the Eastern Brooks range and am familiar with the conditions.

Hunting Dall sheep in the effected area should be allowed for non-local hunters. There is no dall-sheep conservation concern to the taking of mature rams. Subsistence users mostly prefer younger animals, The use of this resource by locals for subsistence purposes is not excessive and would allow for the taking of mature rams by others.

This is not a cheap area to hunt in, but hunting for mature dall rams is a unique thing for most non-local hunters and often a hunt of a life-time. It would also lessen the hunting pressure on some over-hunted dall sheep areas in the State and would aid the Alaska economy. These reasons seem sufficient to override some political concerns. I appreciate your serious consideration. Sincerely, Heinrich Springer

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 3:56 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gary Stevens** <garyatsls@cs.com>
Date: Thu, Aug 3, 2017 at 3:48 PM
Subject: WP-18-56
To: subsistence@fws.gov
Cc: Representative.Cathy.Tilton@akleg.gov, Senator.Shelley.Hughes@akleg.gov

Dear Members of the Federal Subsistence Board,

I urge you to adopt Proposal WP-18-56 to reopen sheep hunting in the Arctic Village Dall Sheep Management Area to "non-local hunters" . With basically no harvest of sheep, it appears to me that the local hunters are under utilizing this resource. Allowing non-local participation will help to spread out the existing pool of sheep hunters across the state as well as support the local economies within ANWR. Please consider allowing more opportunities for "non-local" participation in all areas currently restricted to "locals" only. Continuing to create these large areas limiting participation to "locals" is only creating larger and more divisive "social" issues. If there is no scientific/biological reason for the restriction, please don't impose restrictions.

Thank you for your consideration,
Gary Stevens
garyatsls@cs.com.
907-229-4710

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:49 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Todd Stowater** <Todd@thoringtonlaw.com>
Date: Fri, Aug 4, 2017 at 6:51 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

To Whom it may concern:

lease pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

It is my understanding that there is approximately 900,000 acres in ANWR that has been restricted to subsistence hunting only in violation of ANILCA for hunting of Dall's sheep by hunters other than subsistence hunters. There is an adequate population of full curl Dall's sheep that is currently not being hunted by anyone and should be open to hunters per Federal law. The primary restriction on hunting these Dall's sheep has been emotionally driven rather conservation or legal reasons. Subsistence opportunity will be still be available for those who wish to exercise that desire.

I have personally hunted Dall's sheep in Alaska and I would hope that opening this area to non-subsistence hunting would encourage others to do the same and have an opportunity to experience the wonderful State of Alaska.

Please give Proposal WP18-56 your prompt attention and pass the same.

Thank you,

Todd Stowater

McMahon, Stowater, Lynch & Laddusaw

120 N. Thorington St.

Algona, IA 50511

P (515)295-3532

F (515)295-3302

Todd@ThoringtonLaw.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: DO pass Proposal WP 18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:29 AM
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: **Rich Thompson** <rich@kathykellydesign.com>
Date: Fri, Aug 4, 2017 at 8:28 AM
Subject: DO pass Proposal WP 18-56
To: subsistence@fws.gov

As there are no biological implications and subsistence opportunities are not a concern, please pass this proposal so that the ARTIC NATIONAL WILDLIFE REFUGE can be open to all citizens, particularly for sheep hunting opportunities.

Sincerely

R.S. Thompson

Newberg, OR

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wild Sheep Foundation Comments to WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:45 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: **K.M. Gordon** <kgordon@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 3:28 PM
Subject: Wild Sheep Foundation Comments to WP18-56
To: subsistence@fws.gov

Attached are the comments from the Wild Sheep Foundation in support of Proposal WP18-56. Thank you for the opportunity to comment.

Gray Thornton

President and CEO

Wild Sheep Foundation

WSF Comments Final 2017 AK WP18-56.pdf
145K

WILD SHEEP™ Foundation

August 4, 2017

Federal Subsistence Board
Office of Subsistence Management
Attn: Theo Matuskowitz
1011 E. Tudor Road, MS-121
Anchorage, Alaska 99503-6199

Chairman Christianson and Members of the Board:

The Wild Sheep Foundation appreciates the opportunity to comment on Proposal WP18-56, and we ask the Federal Subsistence Board to approve this proposal to allow sheep hunting by non-federally-qualified subsistence users in the Arctic Village Dall Sheep Management Area within the Arctic National Wildlife Refuge (ANWR).

Above all, the Wild Sheep Foundation's focus is on conservation. As the premier international sheep-focused conservation organization representing nearly 7,000 members, and an affiliated membership of another 5,000 worldwide, the Wild Sheep Foundation strives to enhance wild sheep populations, promote scientific wildlife management, educate the public and youth on sustainable use and the conservation benefits of hunting while promoting the interests of the hunter. Conservation and hunting go hand-in-hand because it is hunters who actually pay for wildlife management through agreements between states and the US Fish and Wildlife Service.

According to ANWR's official website, the Refuge is characterized as "amazing public land owned by all US citizens," and that people commonly come to the Refuge to "camp, hike, float rivers, hunt, or fish." These activities are all officially allowable uses on Refuge land. Hunting on refuges is a customary and traditional activity for Americans, and should be reopened in the area proposed in Proposal WP18-56. It is the right of all Americans to recreate, including hunting, on federal public land.

According to ANILCA's Appendix, Section 303, one of the purposes for the ANWR was the conservation of Dall sheep. The Wild Sheep Foundation, in harmony with this objective, is also supremely focused on wild sheep conservation, and indeed raises and directs more than $4 Million annually to support professional scientific management and advancement of knowledge on biology, behavior, environmental resistance, health, and other needs of wild sheep and their habitats.

412 Pronghorn Trail, Bozeman, MT 59718 • 406.404.8750 • info@WildSheepFoundation.org • www.WildSheepFoundation.org

Hunting on the Refuge by non-federally-qualified subsistence users is supposed to be the rule and not the exception per ANILCA Title 815(4) which states that there can be no "authorizing a restriction on the taking of fish and wildlife for non-subsistence uses on the public lands ...unless necessary for the conservation of healthy populations of fish and wildlife."

Conservation concern and meeting subsistence uses are the only criteria for closing hunting to non-federally-qualified subsistence users per ANILCA, and indeed, because there is no conservation concern in the area in question, and there is no substantial evidence showing need to keep the area closed to non-subsistence users to provide a meaningful preference for actual subsistence uses, ANILCA says there should be no restriction. Because ANILCA gives no other social or cultural reason for closure of hunting, continuing the closure remains a violation of ANILCA.

Reported harvests of Dall sheep over the last 25 years suggest inconsequential use of Dall sheep and inconsequential subsistence harvest. Also, exclusion of other hunters has had no biological benefit to populations – either sheep or human.

The current regulations for non-locals is from August 10 to September 20 (41 days) while the locals' harvest season is October 1 to April 30 (182 days), a factor of almost 4.5 times as many days in the field. Because there is no overlap in seasons, there can be no conflict in the field between these two hunter groups. Additionally, while non-locals can only take one full curl ram, locals can harvest any three sheep, so not only are the locals' seasons much longer, their bag limits provide much more opportunity than that of non-locals.

The Refuge and its resources belong to all Americans. Closures due to perceived cultural or social reasons are not supported by either ANILCA or the Refuge's Comprehensive Conservation Plan. In fact, paraphrased, the latter document says:

- The Refuge has local, state, and national constituent users who must be considered in developing and implementing visitor use programs and policies. These visitor constituencies' use is best addressed through a fair and open public planning process. (Objective 5.4)

- Uses will not be prohibited unless a public process determines the use is detrimental to the area's resource values. (Objective 5.1) (Emphasis mine. Note that "cultural" or "social" uses are not legitimate criteria on which to order any closure to hunting.)

- Public access to Refuge lands for recreation is allowed to "provide the public with opportunities for wildlife-dependent recreation." (Objective 5.4)

Because hunting is an allowed use on the Refuge, it appears Refuge intent is that hunting is clearly considered "wildlife-dependent recreation," and thus should not be precluded in the face of no conservation concern or jeopardy to the area's resource values, and ANILCA Article 815 supports this.

In conclusion, the Wild Sheep Foundation believes there is no legal reason, and there are no supporting data, to keep the Arctic Village Dall Sheep Management Area closed to non-subsistence hunting any longer. In truth, ANILCA and the Refuge both EXPECT uses to not be limited EXCEPT when a documented conservation concern clearly requires it. These conditions have not been shown to exist, and to be in harmony with the Refuge's purposes, Comprehensive Conservation Plan, and ANILCA, open hunting should be allowed by the passage of Proposal WP18-56.

Sincerely,

Gray N. Thornton,
President & CEO

C: Karen Gordon, WSF Director, Fairbanks
Kevin Kehoe, AK WSF President, Anchorage

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:47 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mike Tinker** <miketinkerak@gmail.com>
Date: Fri, Aug 4, 2017 at 7:38 AM
Subject: WP18-56
To: subsistence@fws.gov

Please pass this proposal to reopen the eastern Brooks Range to Dall sheep hunting.

Sent from my iPad

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Support for re-establishing sheep hunting in ANWR Brooks Range 900,000 acres

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:00 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mead Treadwell** <mead@ventureadastra.com>
Date: Sun, Jul 30, 2017 at 11:37 PM
Subject: Support for re-establishing sheep hunting in ANWR Brooks Range 900,000 acres
To: subsistence@fws.gov
Cc: Bill Iverson <president@alaskaoutdoorconcil.org>

As a member of the Alaska Outdoor Council and an Alaskan who supports hunting I write in support of opening the Arctic Village area of ANWR that has been closed to sheep hunting since the first Bush Administration.

I support this in the belief it will help the economies of the communities in the area and not negatively impact subsistence. I believe state management will protect the resource and the needs of the people.

A proposal (WP-18-56) before the Federal Subsistence Board (which regulates hunting in the Refuge) states that:

a) there is no biological concern about hunting of full curl rams in general and,

b) that the local hunters don't apparently use or report use of sheep.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you.

Mead Treadwell
Mobile: (907) 223-8128
meadwell@alaska.net
mead@ventureadastra.com
Sent from my iPhone

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:50 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gerald Walters** <grldwalters2@aol.com>
Date: Fri, Aug 4, 2017 at 6:24 AM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

Subsistence Board,

I am asking that you open up, to the general public, the 900,000 acre area, in the Eastern Brooks Range within the Arctic National Wildlife Refuge, that has been previously closed to public hunting. This area is currently closed to hunting, except for local village residents. There is a healthy Dall sheep population there, and the locals, prefer caribou to Dall sheep, so rarely hunt sheep. I am encouraging the Federal Subsistence Board to reopen this area, to hunting of full curl rams, so that the general public, that supports these lands with their tax dollars, will have an opportunity to visit and invest in your state.

Additional supporting facts that I ask you to consider:

1. The area has a healthy sheep population.
2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals" (see #5 and #6).
3. The Refuge is federal public land where ANYONE can recreate.
4. The Refuge encourages hunting as wildlife-oriented recreation.
5. Hunting can only be closed if there is a conservation concern or subsistence uses are not met.
6. There is no present conservation concern.
7. Subsistence opportunities for sheep and other resources continue to be available.
8. The Federal Subsistence Board has illegally kept this area closed from outsiders for emotional reasons rather than legal ones.

Sincerely,

Jerry Walters

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56.
1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **mark wayson** <markonwayson@yahoo.com>
Date: Mon, Jul 31, 2017 at 5:55 AM
Subject: WP-18-56.
To: subsistence@fws.gov

Sheep hunting as well as hunting other game animals should be open to all in the area in question.

Mark Wayson

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 2:08 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gary Wilken** <garywilken@me.com>
Date: Mon, Jul 31 , 2017 at 1:58 PM
Subject: WP-18-56
To: subsistence@fws.gov
Cc: Alaska Outdoor Council <membership@alaskaoutdoorcouncil.com>

Greetings US Fish & Game,

Please use this communication in support of reopening hunting of Dall sheep on federal public lands to all sheep hunters once again in the Arctic Village Dall Sheep Management Area.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for the opportunity to express my opinion.

Gary Wilken
2829 Chief William Drive #6
Fairbanks AK 99709

378-0707 m

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: AVDSMA

AK Subsistence, FW7 <subsistence@fws.gov> Wed, Aug 2, 2017 at 10:24 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Birch Yuknis** <byuknis@aol.com>
Date: Wed, Aug 2, 2017 at 10:23 AM
Subject: AVDSMA
To: subsistence@fws.gov

Hello and thank you for reading my email,

I am a lifelong Alaska resident. I was able to hunt in this area while in high school but it was closed shortly to nonlocals after I graduated college. I have made several trips to the Brooks Range sheep hunting and have long waited for this area to be "reopened" to everyone. I agree with the proposal WP 18-56 that is before the Federal Subsistence Board.

All of the data points to no biological reason to have this area closed to non-local hunters. This is a Federal Wildlife Refuge that should be open to all residents of the United States, not just a select group of locals. Based on this alone this area should be "opened" up to everyone.

Thank you for your time,

Birch Yuknis
5035 N Flying Circus Circle
Wasilla, Alaska 99654

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56
6 messages

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 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 Gallagher** <jimmy.g@acsalaska.net>
Date: Tue, Aug 1, 2017 at 4:15 AM
Subject: WP-18-56
To: subsistence@fws.gov

Please approve Proposal WP-18-56.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in

Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you,

Born and raised Alaskan 1955

Jim E. Gallagher

Cell 907-242-5557

Jimmy.g@acsalaska.net

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 3:46 PM
To: Gene Peltola <gene_peltola@fws.gov>, Thomas Doolittle <thomas_doolittle@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jeff Alling** <jeffa@alcanbuilders.com>
Date: Tue, Aug 1, 2017 at 3:29 PM
Subject: WP-18-56
To: "Subsistence@fws.gov" <Subsistence@fws.gov>

My name is Jeff Alling and I am a founding member of RHAK (Resident Hunters of Alaska) and I oppose the continued closure of Dall Sheep hunting in the AVDSMA area on the grounds that it is apparent that the local hunters do not use or do not report the use of this resource. Also I oppose the closure because there is no biological concern about hunting of Full Curl Rams.

This area has been closed to the taking of Dall Sheep by non-local hunters since

1991 for supposed "Social" concerns. This reason is nonsense as any contact I have had with locals from that area has been very positive.

Please reopen this area in an effort to revive this cherished freedom that has been taken from us by our Federal Government since 91.

Thank you.

Jeff Alling

Alcan Builders Inc.

3009 International Rd. Fairbanks, AK 99701

PH: 907-456-1383

FX: 907-452-4378

mailto:jeffa@alcanbuilders.com

Check us out at www.Alcanbuilders.com

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 9:31 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **andrew r. zajac** <zajac@mtaonline.net>
Date: Thu, Aug 3, 2017 at 9:29 AM
Subject: WP-18-56
To: subsistence@fws.gov

Dear Board Members,

I urge you to lift the ban on the hunting of Dall sheep in the Arctic Village Dall Sheep Management Area. If there is no biological concern nor hunting pressure on full curl rams, then the opportunity to hunt should be available to the general public, thus relieving hunting pressure in other areas around the state. Thank you.

Sincerely,
Andy Zajac
Eagle River, AK

Mckinney, Kayla
<kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 9:31 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **andrew r. zajac** <zajac@mtaonline.net>
Date: Thu, Aug 3, 2017 at 9:29 AM
Subject: WP-18-56
To: subsistence@fws.gov

Dear Board Members,

I urge you to lift the ban on the hunting of Dall sheep in the Arctic Village Dall Sheep Management Area. If there is no biological concern nor hunting pressure on full curl rams, then the opportunity to hunt should be available to the general public, thus relieving hunting pressure in other areas around the state. Thank you.

Sincerely,
Andy Zajac
Eagle River, AK

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:24 AM
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: **Randy Zarnke** <itrap2@gci.net>
Date: Fri, Aug 4, 2017 at 8:23 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Joe Zupancic** <yetisquad@hotmail.com>
Date: Fri, Aug 4, 2017 at 7:35 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA. I may never get to set foot in it but knowing it is there and open to hunting is exciting to think about.

Joe Zupancic
970-471-0053

APPENDIX A
REGULATORY HISTORY

At the beginning of the Federal Subsistence Management Program in Alaska in 1990, existing State regulations were adopted into Temporary Subsistence Management Regulations (55 Fed. Reg. 126. 27117 [June 29, 1990]). The customary and traditional use determination for sheep in Unit 25A was for residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie (ADF&G 1987). The Board has not received a proposal to modify the determination.

In 1991, Proposals 09, 10, and 11 were submitted by the Arctic Village Council; Proposal 21 by Brooks Range Arctic Hunts; Proposal 75 by the Yukon Flats Fish and Game Advisory Committee; and Proposal 100A by the Arctic National Wildlife Refuge. At its meeting in March 1991, the Board acted on Proposals 100A and 75.

The Chair stated,

> As far as the Board's concerned, our first compliance is—or obligation—is compliance with the Federal [regulations], that will be its guiding principle that will be used by the Board. It considers this responsibility for various recommendations and proposals. The policy is that the State will reassume full responsibility to manage fish and game subsistence use on Federal lands, and that will be a principle that will guide the coming decisions of the Board. In keeping with that, we will want to minimize actions that will duplicate or complicate the State's resumption of the program. However, there are certain things that are happening that will cause us to make some decisions that may do that to some extent, but those will be well-discussed, well-considered, and well-calculated before we have to do that. So those are some of the general guidance policies that the Board will function under (FSB 1991a:5–6).

Proposal 100A requested that the Board modify the harvest limit from one mature ram to 2 rams and extend the hunting season in a portion of Unit 25A. The northern boundary of the area was the mainstem of Cane Creek. The area did not include areas north of Cane Creek, including Red Sheep Creek. Regional Advisory Councils did not meet until fall 1993, and there was no Council recommendation for the Board to consider. The Board adopted the Interagency Staff Committee recommendation and adopted the proposal with modification. The modification was to close the area to the harvest of sheep except by Federally qualified subsistence users. The justification was that portions of the area did not appear to be able to support more sheep than were currently present, the population of sheep in the Red Sheep Creek drainage was of much higher densities and could continue to support the then existing seasons and harvest limits, the Red Sheep Creek drainage received quite a bit more effort than other areas of Unit 25A, and the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164; 56 Fed. Reg. 123. 29344 [June 26, 1991]).

Proposal 75 requested that the Board close to the harvest of sheep except by Federally qualified subsistence users the drainages of Junjik River, East Fork Chandalar River, Red Sheep Creek, Cane Creek,

Water Creek, Spring Creek, Ottertail Creek, and Crow Next Creek. The Board adopted the Interagency Staff Committee recommendation and rejected the proposal because of its earlier action taken on Proposal 100A, described above (FSB 1991b:164–168).

It was not until its meeting three months later in June 1991 that the Board acted on Proposals 09, 10, and 11. In Proposal 09, Arctic Village Council had anticipated the Board's action on Proposal 100A and requested the Board to include Cane Creek and Red Sheep Creek drainages in the area (AVSMA) closed to the harvest of sheep except by Federally qualified subsistence users. The proponent said that the area set aside did not include all of the areas that must be included to accommodate customary and traditional uses of sheep by residents of Arctic Village (OSM 1991). The Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said Arctic Village residents used Cane Creek and Red Sheep Creek only for a short time when air taxi service was available. These two areas could support both subsistence and sport harvest (FSB 1991c:78–80.).

Proposals 10 and 11 requested that the Board eliminate harvest limits in the AVSMA (Proposal 10) or increase the harvest limit to 3 sheep (Proposal 11). The Board adopted the Interagency Staff Committee recommendations and rejected both proposals. The Board said the sheep population in the AVSMA was extremely low and the proposed regulations would jeopardize the continuation of healthy populations of sheep (FSB 1991c:80–82). The Board adopted the Interagency Staff Committee recommendation and also rejected Proposal 21, which requested the Board to open the AVSMA to the harvest of sheep by non-Federally qualified users. The Interagency Staff Committee said that the sheep population was extremely low, and subsistence users must be afforded a priority (OSM 1991).

In 1992, Wildlife Request for Reconsideration (WRFR) 92-23 was submitted by the Arctic Village Council requesting that the Board reconsider its decision on Proposal 9, which if adopted would have added Cane Creek and Red Sheep Creek drainages to the AVSMA. The Board did not act on the request until 1993 when it received Proposal 58 from the Arctic Village Council requesting that the Board add Cane Creek and Red Sheep Creek drainages to the AVSMA and implement a community harvest limit. At its meeting in April 1993, the Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said that Cane Creek and Red Sheep Creek drainages supported adequate sheep to support harvest by non-Federally qualified users and that not enough data was available on harvest levels to support community harvest or reporting systems (FSB 1993:140–512).

In 1995, Proposal 54 was submitted by the Arctic Village Council requesting that the Board add Cane Creek and Red Sheep Creek drainages to the AVSMA. The Eastern Interior Council took no action on the proposal (EIASRAC 1995:88–97, OSM 1995a:359). The North Slope Subsistence Advisory Council (North Slope Council) recommended that the Board adopt the proposal (NSSRAC 1995:206, OSM 1995a:359). The Board adopted the proposal with modification. The modification was that the Board would revisit the proposal in another year. The Board said that although there was no biological reason for closing Cane Creek and Red Sheep Creek drainages to the harvest of sheep except by Federally qualified subsistence users, it had heard substantial testimony regarding the fact that due to the customary and traditional hunting practices of the residents of Arctic Village, not adopting the proposal would deny a

subsistence opportunity to the residents of Arctic Village (FSB 1995:611–634, 686–693; 60 Fed. Reg. 115. 31545 [June 15, 2005]).

In 1995, WRFR 95-06 was submitted by ADF&G requesting that the Board reconsider its decision on Proposal 54. The Board rejected the request in July 1995 (OSM 1995b).). The Board determined that the request was not based on information not previously considered by the Board, demonstrated that the existing information used by the Board was incorrect, or demonstrated that the Board's interpretation of information, applicable law, or regulation was in error or contrary to existing law. One of these factors would need to be present for the Board to reconsider its decision, as described in regulation (50 CFR 100.20).

In 1996, Proposal 55 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified subsistence users. The Eastern Interior Council recommended opposing the proposal. The Eastern Interior Council said it had heard no compelling evidence to overturn recent Board action to include these drainages. Opposition to the proposal came before the Council from an Arctic Village resident's testimony, a letter from the Arctic Village Council, and from the Council's representative from Arctic Village. The Council affirmed its support for the existing AVSMA. The North Slope Council recommended deferring action for one year until more information concerning Kaktovik residents' use of the AVSMA was available, however, the Council expressed desire to "defer to wishes of their neighbors to the south" (OSM 1996:12). The Board rejected the proposal referring to its action on Proposal 54 the previous year in 1995, described above, and that there had still been no dialogue between the State and Arctic Village (FSB 1996:20).

This Regulatory History contains more information on each regulatory proposal below than above. This is because official records of Council and Board justifications were kept after 1995. Justification for Board actions that were provided in letters to the Councils, as mandated in ANILCA Section 805(c), were reviewed and compared to transcripts and provide an accurate description of the Board's justifications.

In 2006, Proposal WP06-57 was submitted by ADF&G. It requested that the Board open the AVSMA to the harvest of sheep by non-Federally qualified subsistence users. The Eastern Interior Council recommended opposing the proposal and said that it needed sheep population surveys before considering reopening the closure to non-Federally qualified hunters. The Eastern Interior Council said that people of Arctic Village were totally dependent on the land for food for their nutritional and cultural needs. The Council said managers cannot only depend on harvest tickets for harvest information. It continued that there was a problem with transporters throughout the region. Transporters brought people up to this area, and they did not clean up after themselves. The Eastern Interior Council heard testimony from Arctic Village residents during the meeting that sheep have been harvested but not reported by subsistence users in this area. The Council indicated there was a need for a meeting with the people of Arctic Village and a need for more work on this issue before the area was opened to non-Federally qualified users. The Council said there was no biological reason given to support this proposal, and here was an opportunity for the people in the area to work with nonsubsistence users before submitting a proposal (OSM 2006b:452–453). The North Slope Council recommended deferring the proposal to get more information on sheep population and more harvest information. The Council said it would feel very uncomfortable making a

decision that might be detrimental when there was a lack of information (OSM 2006a:452–453). The Board rejected the proposal. The Board said it had listened to public testimony on this proposal and was unable to pass a motion to allow non-Federally qualified users to hunt sheep in the drainages of Red Sheep Creek and Cane Creek or to defer action on the proposal with respect to the remainder of the AVSMA. The Board did not see a need for action at this time because of the commitment of the Arctic National Wildlife Refuge to conduct sheep surveys in the area the following summer (FSB 2006:261–283, OSM 2006a:6).

In 2006, Wildlife Special Action Request (WSA) 06-03 was submitted by the USFWS. It requested that the Board open the Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified subsistence users from Aug. 10 through Sept. 20, 2006. The Board approved the request. It said it reviewed new information on sheep abundance in the AVSMA from a survey conducted by USFWS in June 2006 and presented in an assessment report. During the course of its consideration, the Board said it received an excerpt from the transcript of the May 2006 meeting of the the Board relative to consideration of this issue concerning Proposal WP06-57, a draft staff analysis prepared by OSM, ADF&G, and written and telephonic public testimony (OSM 2017b).

In 2007, Proposal WP07-56 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. The Eastern Interior Council recommended the Board defer action on the proposal for one year to allow formation of a working group of representatives from affected villages, hunting interests, and agencies to decide what an acceptable sheep harvest or number of sheep hunters would be in this area, and then draft a proposal to the Board of Game for its March 2008 meeting. The Council said the proposal would have contained the number of non-Federally qualified hunters to be allowed to hunt in the Cane Creek and Red Sheep Creek area. The Council said the working group timeline would have given the Federal Subsistence Board time to monitor the progress of the working group, the Board of Game proposal(s), and the actions of the Board of Game before the Federal Subsistence Board met later in the spring of 2008. The Council said it had received testimony from Arctic Village sheep hunters, local elders, and Arctic Village Tribal Council leaders who all had requested the closure of the Red Sheep and Cane Creek area remain in effect. Testimony included the cultural importance of the area because of burial sites, allotments, and being a traditional area where they hunt sheep, and that they would not be able to compete with other hunters if the area was opened to other hunters. The Council said testimony also included the high cost of accessing the area and the difficulty reaching the area other than by aircraft. Council members discussed the relationship of caribou migrations and the need to hunt for sheep as well as the desired time to harvest sheep. When the caribou and moose are plentiful, local hunters do not hunt for sheep but when caribou and moose are not plentiful, they depend on sheep. The Council shared that the last time a similar proposal to open the area to other hunters was submitted, the Council had unanimously opposed it and were overridden by the Board. The Council sympathized with Arctic Village concerns and believed that closure of Cane Creek and Red Sheep Creek area would be lifted by the Board based on its action with the recent special action to open the area (WSA06-03, which the Board approved). Several Council members worked with village leaders to see what options were available to limit the number of other hunters allowed to hunt in the area, hence the recommendation to defer to a working group (OSM 2007a). The North Slope Council recommended the Board oppose the proposal. The Council said that there was no evidence that passage of this proposal would not impact villages. The Council said that for each village,

the resource needs should be assessed to ensure subsistence users' needs were being met. The sheep population was so small, it would not support harvest by commercial and sport hunters (OSM 2007a).

The Board adopted the proposal. The Board said that Section 815(3) of ANILCA only allows restrictions on the taking of fish and wildlife for nonsubsistence uses on Federal public lands if necessary for the conservation of healthy populations of fish and wildlife, to continue subsistence uses of such populations, or pursuant to other applicable law. Maintaining the Federal closure to nonsubsistence hunting of sheep in the Red Sheep Creek and Cane Creek drainages within the AVSMA was no longer necessary for the conservation of a healthy sheep population. Allowing sheep hunting by non-Federally qualified users in these drainages would not adversely affect the sheep population because these hunters would be limited to taking one full-curl ram in the fall season. Removal of some full-curl rams from the population was not expected to reduce the reproductive success of the sheep population. Maintaining the closure to nonsubsistence hunting of sheep in these drainages was also not necessary to provide for continued subsistence use of sheep. The sheep population could support harvest by both subsistence and nonsubsistence hunters. The existing closure was also not justified for reasons of public safety, administration, or pursuant other applicable law (OSM 2007b).

In 2012, Proposal WP12-76 was submitted by the Eastern Interior Council. It requested that the Board close Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. The Eastern Interior Council recommended the Board support the proposal. The Council said the proposal enhanced the ability of the residents of Arctic Village to pursue subsistence opportunities and might reduce incidents of trespass and resource damage. The Council said it appreciated the information provided during public testimony and recognized the powerful connection between residents of Arctic Village and the subject area as one that is deeply culturally rooted. The Council said it was compelled by extensive and detailed public testimony and that subsistence users were concerned that non-Federally qualified users were interfering with subsistence users, particularly the people of Arctic Village. The North Slope Council recommended the Board support the proposal. The Council said that the amount of travel time by rural residents was a concern due to distance required to travel and the cost of fuel. The Board adopted the proposal (OSM 2012a:355). The Board said there was no conservation concern and the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7).

In 2014, Proposal WP14-51 was submitted by the State of Alaska. It requested the Board to open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. It also requested that hunters be required to complete a course on hunter ethics and an orientation course, including land status and trespass information. The Eastern Interior Council recommended the Board oppose the proposal. The Council said it had heard extensive testimony from tribal and community members form Arctic Village and Venetie expressing the importance of sheep in this area to their culture and community. The Council said that the public testimony also noted that air traffic disturbance and hunter activity was pushing sheep further away and higher. The Council said that the cultural importance of the sheep and the area to Arctic Village and other residents for this hunt area was their overriding concern. The North Slope Council recommended the Board oppose the proposal. The Council said deflection or disturbance of sheep by sport hunters and aircraft flights made it difficult for

Arctic Village residents to reach sheep for subsistence hunting. The Council said these sheep were a very important subsistence food that was shared in the community, and even if local harvest numbers were not high, effort to reach the animals was considerable and the sharing of the meat and organs was widespread and important. The Council said these sheep and this location had special cultural and medicinal value due to the history and relationship of the community as well the mineral licks that the sheep frequented in this area which made their meat contain unique qualities (OSM 2014a:350).

The Board rejected Proposal WP14-51. The Board rejected this proposal based on the OSM analysis and conclusion, the recommendations of the North Slope and Eastern Interior Councils, and overwhelming public comment over the years and the testimony presented to the Board in the 2012 review of a similar proposal. The Board referenced extensive public testimony of local community concerns and cultural importance of this area and the long established administrative record on this issue. The Board recognized the cultural importance of the Cane Creek and Red Sheep Creek areas for subsistence harvest of sheep for the residents of Arctic Village and Venetie. The Board said the importance of this area was also known by the number and location of Native allotments, cultural sites and ethnographic studies documenting the long history of use in this area (OSM 2014b:3).

Furthermore, the Board said it had heard testimony and reports that subsistence users attempts to harvest sheep in this area may have been interfered with by aircraft and non-Federally qualified hunters' activity. The Board concurred with this testimony that the activities in this area by non-Federally qualified users had resulted in the displacement of sheep, pushing them out of range and preventing Federally qualified subsistence hunters from being able to harvest sheep. The Board supported keeping the closure in place to help insure the continued subsistence use of sheep for residents of Artic Village, Venetie, and the several other villages with customary and traditional use determinations for sheep in this area: Chalkyitsik, Fort Yukon, and Kaktovik. The Board said that this closure was based on ANILCA Section 815(3), which allows for a restriction on the taking of fish and wildlife for non-subsistence uses on public lands when necessary to continue Federal subsistence uses (OSM 2014b:3).

In 2014, WRFR14-01 was submitted by the State of Alaska requesting that the Board reconsider its actions on Proposal WP14-51, described above. In September 2015, the Board denied the request (OSM 2017b). The Board determined that none of the claims in the request met the criteria to warrant further reconsideration as set forth in 50 CFR Part 100.20.

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 fur-bearers 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**.

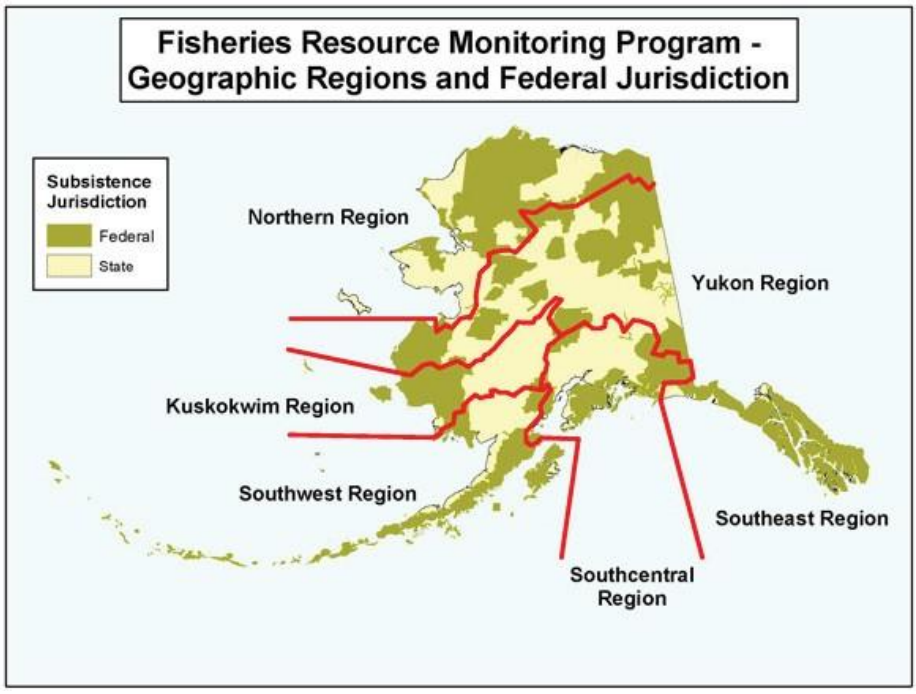

Figure 1. Geographic Regions for the Fisheries Resource Monitoring Program.

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**).

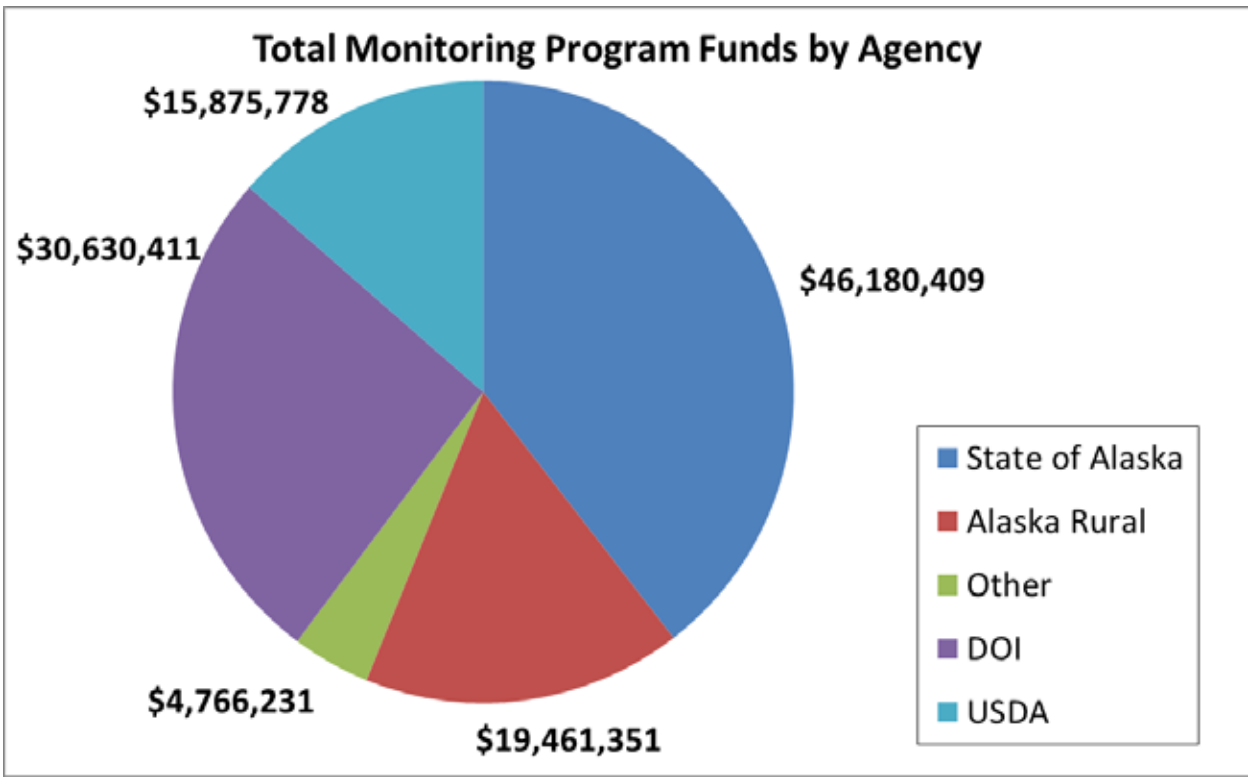

Figure 2. Total Project funds through the Monitoring Program from 2000 through 2016 listed by the organization of the Principal Investigator for projects funded. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

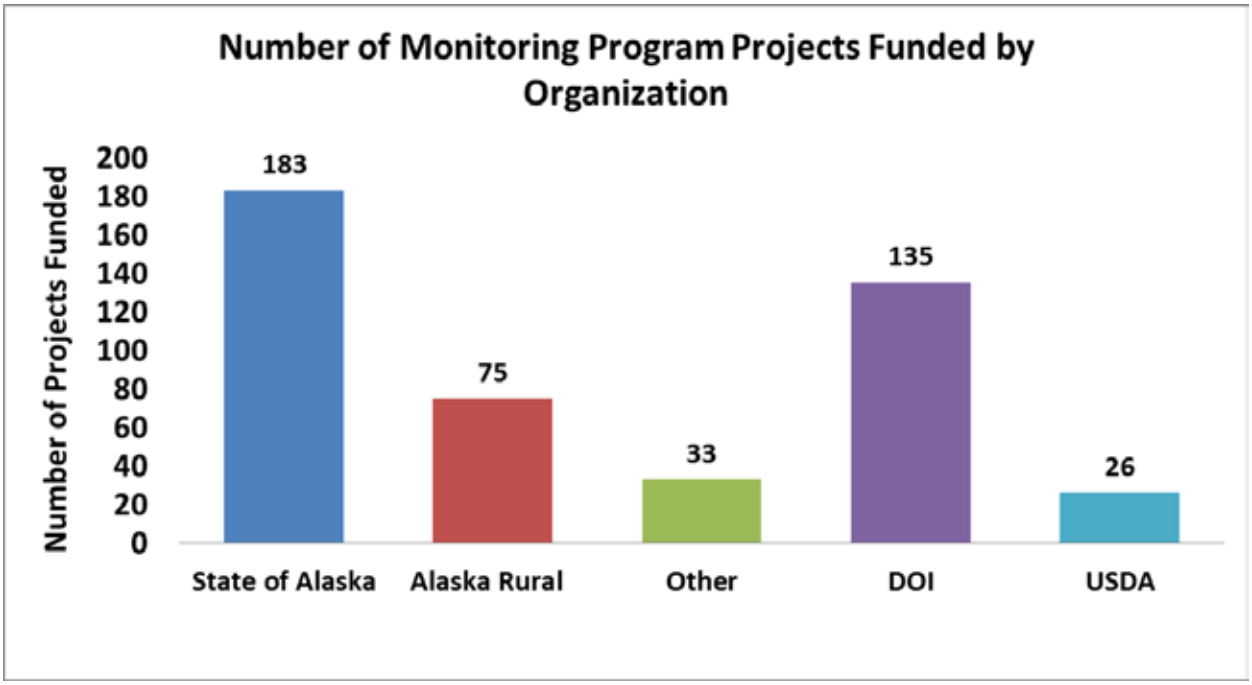

Figure 3. The total number of projects funded through the Monitoring Program from 2000 through 2016 listed by the organization of Principal Investigator. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

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%

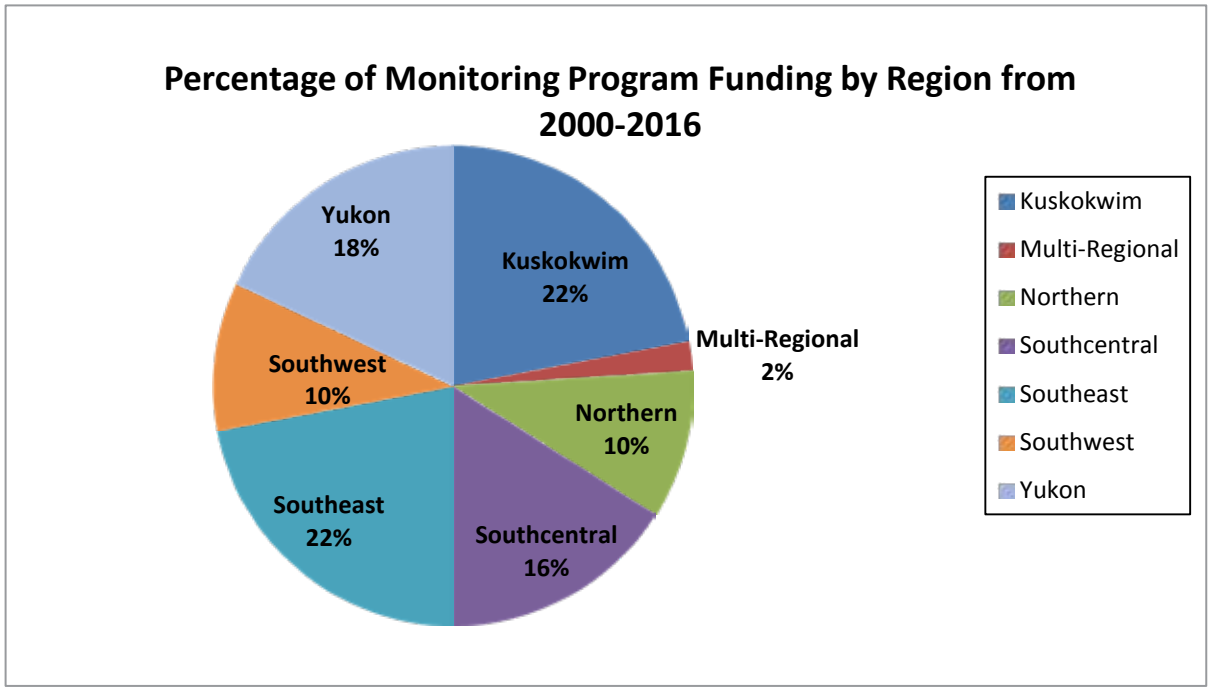

Figure 4. Total Project Funding by Geographic Region from 2000 through 2016.

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.

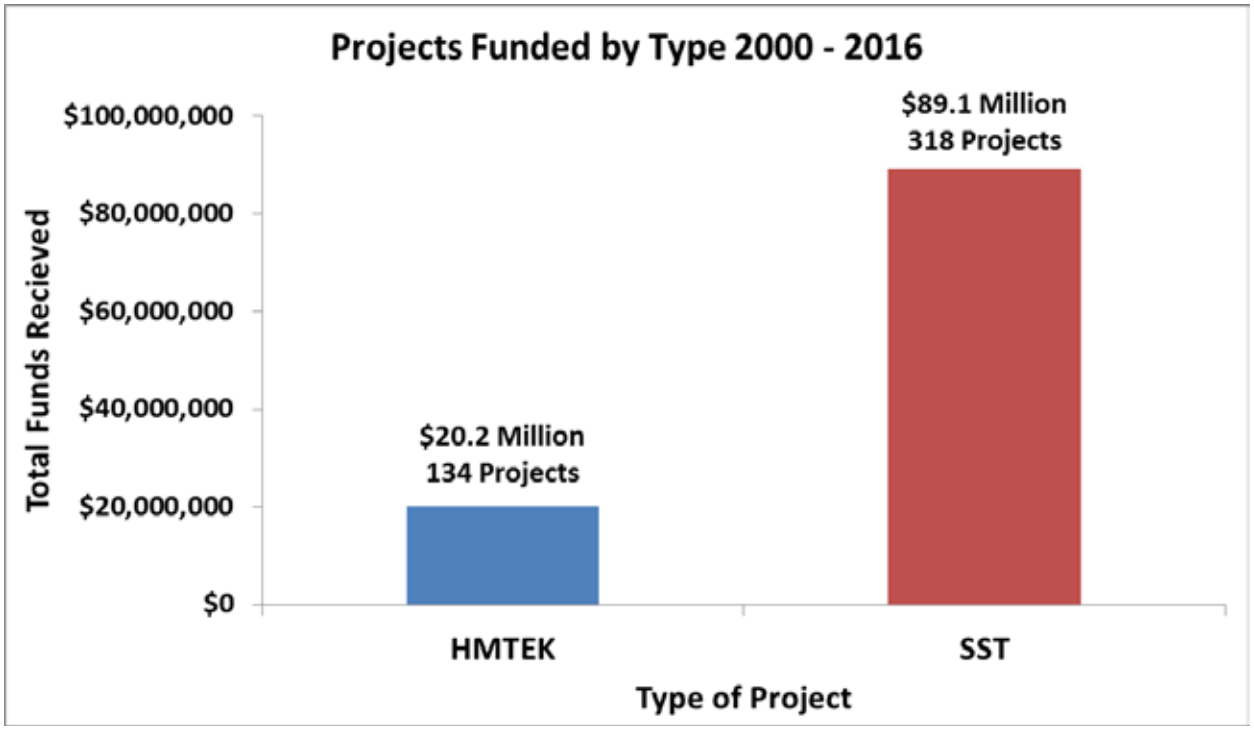

Figure 5. Total Project funding by type from 2000 through 2016. HMTEK = Harvest Monitoring/ Traditional Ecological Knowledge and SST = Stock, Status and Trends.

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 NORTHERN REGION OVERVIEW

Since the inception of the Monitoring Program in 2000, 49 projects have been undertaken in the Northern Alaska Region for a total of $11.8 million (**Figure 1**). Of these, the State of Alaska was the lead agency for 26 projects, the Department of the Interior for 15 projects, and Alaska Rural Organizations for 5 projects, and other organizations took the lead on 3 projects (**Figure 2**). Thirty-three were Stock, Status, and Trends (SST) projects, and 16 were Harvest Monitoring and/or Traditional Ecological Knowledge (HM/TEK) projects. A list of all Northern Region Monitoring Program projects from 2000 to 2016 is provided in **Appendix A**.

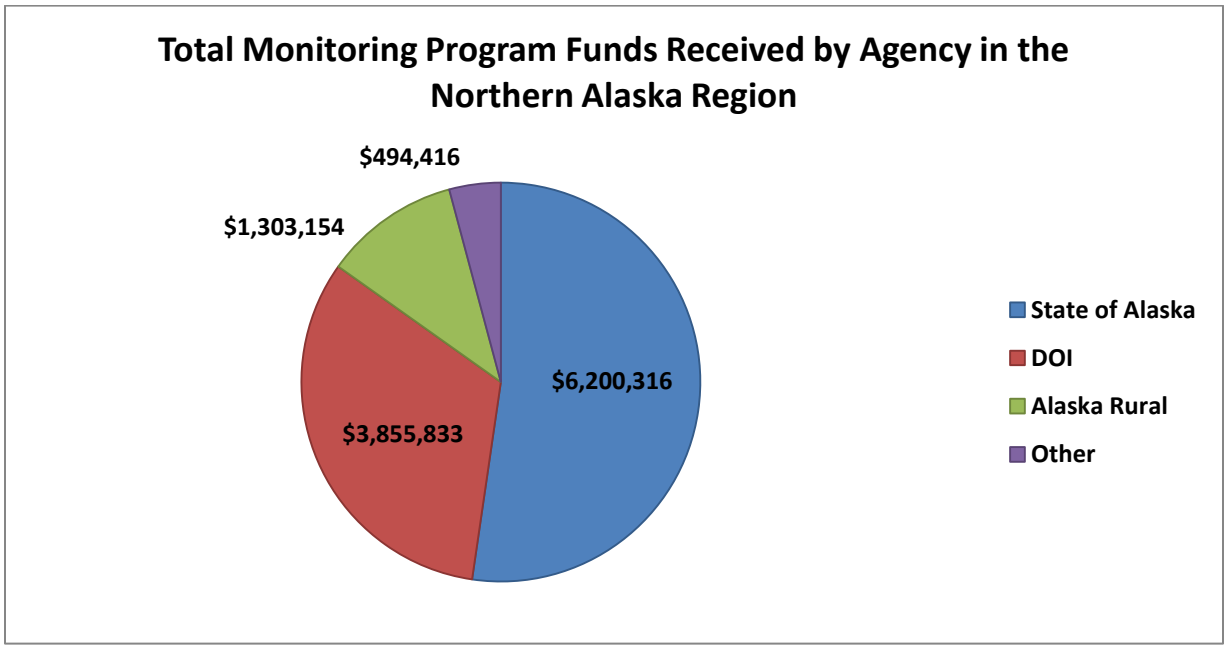

Figure 1. Monitoring Program funds received by Agency for projects in the Northern Alaska Region. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of the Interior.

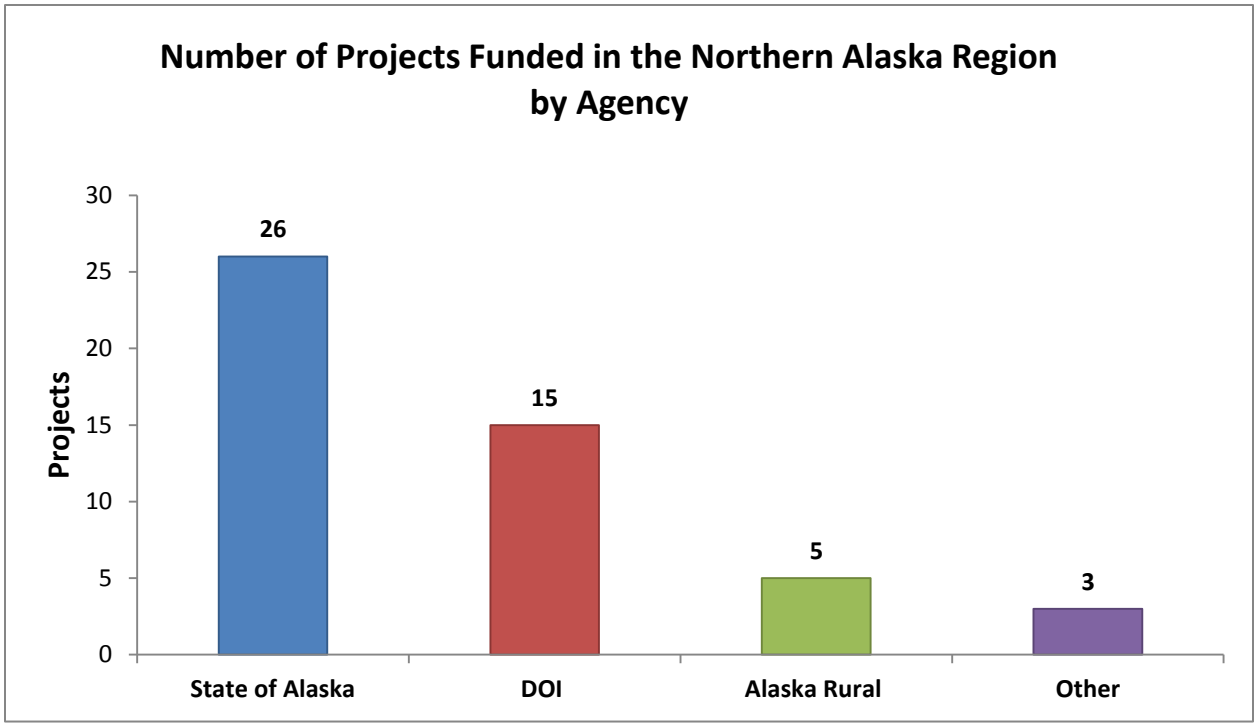

Figure 2. Total number of Monitoring Program projects funded, by agency, in the Northern Alaska Region from 2000 to 2016. DOI = Department of the Interior.

2018 DRAFT NORTHERN ALASKA REGION FISHERIES RESOURCE MONITORING PLAN

OVERVIEW

Priority Information needs

The 2018 Notice of Funding Opportunity for the Northern Alaska Region identified eleven priority information needs:

- Fish species inventory/survey in the Bering Land Bridge National Preserve, utilizing local and traditional knowledge from the communities of Shishmaref, Deering and Wales. Include application to Federal subsistence management.

- Unalakleet River Chinook Salmon escapement assessment.

- Salmon migration patterns in Norton Sound (between the Bering Sea and terminal rivers and streams).

- Understanding differences in cultural knowledge, beliefs, and perceptions of subsistence resources between fishery managers and subsistence users in Northwestern Alaska such as rural residents' beliefs, attitudes, and knowledge about beavers and perceptions of changes to fish habitat related to beavers.

- Traditional/local knowledge of subsistence fish. Include application to Federal subsistence management, such as identifying critical habitat, refining range maps, and shedding light on ecological relationships.
    - Dolly Varden in the communities of Noatak, Kivalina and the Kobuk River.

- Identify genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska.

- Dispersal, distribution, abundance and life history of Dolly Varden.

- Baseline harvest assessment and traditional/local knowledge of broad whitefish subsistence fisheries in tributaries of Smith Bay. Including application to Federal subsistence management, such as identifying critical habitat, refining range maps and understanding ecological relationships.

- Collect baseline information on Humpback, Broad and Least Cisco whitefish as it relates to spawning areas especially Selawik Lake.

- Baseline information including abundance, distribution, movement, fish health of Arctic Grayling in the Lower Colville River and its tributaries in context of climate change.

- Document Broad Whitefish health in Northern Alaska; of special interest is the comparison of the Colville and Ikpikpuk River populations in the context of climate change.

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 U.S. 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 up to $1.8 million annually. The amount of the U.S. Department of Agriculture funding available for 2018 projects is uncertain.

Technical Review Committee Proposal Score

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 TRC to develop the strongest possible Monitoring Plan for each region and across the entire state.

For the 2018 Monitoring Program, seven project proposals were submitted for the Northern Alaska Region. The TRC 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 scoring of each proposal within the region (**Table 1,** 1= first place, 2 = second place, etc.). Projects that are placed 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. The projects listed are currently being considered for funding in the 2018 Monitoring Program. Projects which were not eligible due to the nature of the activity are not included. For more information on projects submitted to the 2018 Monitoring Program please see the abstracts in **Appendix B**.

Table 1. Technical Review Committee (TRC) score for projects in the Northern Alaska Region. Projects are listed by TRC score and include the total funds requested and the average annual request for each project submitted to the 2018 Monitoring Program within the Northern Alaska Region (1 = first place, 2 = second place, etc.). The projects listed are currently being considered for funding in the 2018 Monitoring Program. Projects which were not eligible due to the nature of the activity are not included.

TRC Score	Project Number	Title	Total Project Request	Average Annual Request
1	18-103	Unalakleet River Weir	$662,645	$155,661
2 (tied)*	18-100	Lower Colville River Arctic Grayling-Nuiqst Subsistence Fishery	$246,503	$82,168
2 (tied)*	18-101	Kobuk River Dolly Varden Genetics	$55,800	$27,900
2 (tied)*	18-151	Priority Knowledge Dolly Varden South Chukchi Sea	$644,228	$214,743
3	18-150	Bering Land Bridge National Preserve TEK & Scientific Surveys	$421,282	$105,321
4	18-102	Dolly Varden Life History-North Slope AK	$313,579	$156,790
5	18-104	Broad Whitefish Health in Northern Alaska	$137,950	$45,983
		Total	**$2,481,987**	**$788,566**

* 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 TECHNICAL REVIEW COMMITTEE JUSTIFICATION FOR PROJECT SCORE

TRC Score: 1
Project Number: 18-103
Project Title: Unalakleet River Chinook Salmon Escapement Assessment-Continuation

Project Justification: This proposal is for continuation funding to monitoring Chinook Salmon escapement using a resistance board-floating weir in the Unalakleet River. This weir has been funded since 2010: (2010-2013, project 10-102) and (2014-2017, project 14-101). Estimates from the weir provide Chinook Salmon inseason daily passage estimates and run timing. This information aids Federal and State fishery managers in making timely management decisions. Additionally, the long-term goal of the weir is to use the data to create a run-reconstruction using escapement, age, sex, and length. This information will be used to set escapement goals for the river. For future implementation, it is recommended that the investigator consider the use of a video recorder to help possibly reduce the costs of the project.

Two of the three investigators have been involved with the Unalakleet River Weir since its inception providing a wealth of knowledge about Unalakleet River. While the principle investigator is new to the project, her agency (ADF&G) has been involved with the project since its inception in 2010. The project represents a working partnership between State and Federal agencies and a local community based organizations. Efforts have been made to increase capacity by incorporating both a ANSEP Bridge students and a local fisheries technicians from the village of Unalakleet, with the goal of training young professionals in fisheries resource management.

The cost of the proposal is in line with previous years funding and is typical of large weirs (320 ft. weir, largest in Alaska). The cost of the weir is reduced by the investigators ability to leverage funds from other contributors (Alaska Department of Fish and Game, Bureau of Land Management, Norton Sound Economic Development Corporation, and the Native Village of Unalakleet), creating a total in-kind match of $220,055 for the four years.

TRC Score: **(**2 tied)
Project Number: 18-100
Project Title: Seasonal Habitats and Migrations of Arctic Grayling of the Lower Colville River Relative to the Nuiqsut Subsistence Fishery Area

Project Justification: This projects purpose is to describe the annual distribution of Arctic grayling in the lower Colville River. This research will provide insight to fisheries managers to better understand the movement patterns of Arctic Grayling that were previously unknown for the Colville River. This project contains a linkage to Federal public lands/waters for subsistence use located in the National Petroleum Reserve. This project involves the investigation of one fish species that is harvested by Federally qualified subsistence users and it directly addresses a priority information need: *gather baseline*

information including abundance, distribution, movement, and health of Arctic grayling in the lower Colville River and its tributaries in the context of climate change.

The proposer intends to investigate the distribution, movement patterns, and seasonal use of Arctic Grayling, however the proposal does not clearly address the second component of the priority information need addressed in terms of relating the seasonal movements of Arctic grayling in the Colville River in terms of climate change. In addition, the proposal lacked details concerning how the investigator determined the number of radio tags to be deployed.

This project did receive support from the North Slope Regional Advisory Committee; however there still remains concern about the research timing possibly interfering with the local subsistence activities when caribou are migrating through the area. If funded, the investigator needs to continue to consult with local residents. The investigator has the ability and experience to successfully carry out a this project and has included a way to build / increase local involvement and capacity building through gathering local knowledge, hiring of locals, and by partnering with the ANSEP to hire a University student.

TRC Score: **(**2 tied)
Project Number: 18-101
Project Title: Genetic Diversity of Dolly Varden Populations in Kobuk River

Project Justification: This project aims to build upon a previously funded Monitoring Program project identifying important stocks of Dolly Varden that are harvested in an important mixed stock fishery. Dolly Varden are an important subsistence resource in the Kobuk River drainage and this project directly addresses two of the 2018 Priority Information Needs identified for the Monitoring Program by the Council: *Genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska,* and the second, *dispersal, distribution, abundance, and life history of Dolly Varden.*

This stock, status and trends project proposal justifies its request to continue gathering genetic baseline information from a previously funded Monitoring Program project (16-103), which hopes to assist fishery managers in identifying the portion of Dolly Varden harvested in the Wulik River winter subsistence fishery. The funding to collect an adequate sample size is justified by the need to obtain more baseline information to complete the genetic analysis. The investigators plan to collect and analyze genetic samples from the Kobuk River Dolly Varden population, however the methods used to capture the Dolly Varden remain the same as the previously funded project that did not capture enough fish to provide adequate sample size for the genetic analysis. If the methods of capture are to remain the same, it is unclear if the total samples needed to achieve the genetic resolution can be achieved. This project proposes to build / increase capacity by hiring an ANSEP University student to aid in the sampling and genetic analysis of the project.

TRC Score: **(**2 tied)
Project Number: 18-151

Project Title: Addressing Priority Knowledge Needs for Subsistence Stocks of Dolly Varden (aqalukpik) Along the Southern Chukchi Sea Coastline.

Project Justification: This is an ambitious project that seeks to better understand many biological aspects of Dolly Varden in the southern Chukchi Sea using a multifaceted research approach. Dolly Varden is an important subsistence resource to communities in the region, though substantial information on the life history characteristics, genetics, and critical habitat remains unknown. This proposal intends to rectify the data gap by collecting data on these variables through the use of TEK and laboratory genetic analysis. The study will use biological and ethnographic techniques to examine genetic diversity critical habitat, range, ecological relationships, nutritional value, diet, dispersal, distribution, abundance, and life history of this species. Laboratory and field methods will be deployed to collect and analyze associated data.

This project has a Federal nexus in the public lands/waters managed by the National Park Service (Noatak National Preserve, Cape Krusenstern National Monument, Kobuk Valley National Park), Bureau of Land Management (Kobuk-Seward Management Area), and the U.S. Fish and Wildlife Service (Selawik National Wildlife Refuge). It involves a subsistence resource, Dolly Varden, that is harvested by Federally qualified subsistence users. It directly addresses three priority information needs including 1) *genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska* 2) *TEK of fish harvested in subsistence fisheries, for example identifying critical habitat, refining range maps and shedding light on ecological relationships and* 3) *dispersal, distribution, abundance and life history of Dolly Varden.*

Two local hires from the communities of Kotzebue and Kivalina will be utilized for project management and fieldwork. Local hires will assist with the collection of traditional ecological knowledge in project communities and an ANSEP student will build collaborative and outreach capacity. These individuals will assist with logistics, project management, ethnographic data collection and dissemination. The proposed partnerships with representatives of the Native Village of Kotzebue and the Native Village of Kivalina appear meaningful, especially in undertaking the traditional ecological knowledge and sampling aspects of the project.

Dissemination through five peer-reviewed journal publications, reports, community presentations and half-day workshops with partner agencies seems overly ambitious for the project period and budget. The principal investigators and key personnel appear to have the capacity to undertake this research, though ethnographic methods and travel budgets should have been further developed. A well-published anthropologist will be contracted for the ethnographic component of this research which may help to alleviate initial concern regarding these items. The principal investigator has letters of support for this project from the Bureau of Land Management, the National Park Service, the Native Village of Kotzebue and the Selawik National Wildlife Refuge.

TRC Score: 3
Project Number: 18-150
Project Title: Bering Land Bridge National Preserve: Combining Traditional Ecological Knowledge and Scientific Surveys for a Contemporary Baseline

Project Justification: This project seeks to document the presence and distribution of important subsistence fish species that utilize federal public lands/waters in Bering Land Bridge National Preserve. Information on stock status, species distribution, and population age structure are lacking for this area with many of the major rivers and lakes having been surveyed sporadically or not at all. This project contains a linkage to federal public lands/waters for subsistence use as it focuses on the fisheries of Bering Land Bridge NP. It involves several species of fish harvested by Federally qualified subsistence users and it directly addresses a priority information need: *an inventory and survey of fish species in Bering Land Bridge National Preserve, utilizing traditional ecological knowledge from the communities of Shishmaref, Deering, and Wales*.

The proposer intends to document traditional ecological knowledge to identify species and habitats within the Preserve. The project would then use biological methods to survey for these species. While the research objectives certainly address priority information needs that would support effective management for several subsistence resources, the proposal lacks a clear plan for the collection of TEK data.
This project proposes to build / increase capacity by hiring and training local people in data collection, data entry techniques, and report writing. Sampling capacity building will occur for fish sampling and water quality sampling. The proposal does not involve partnerships with other agencies or organizations currently, but mentions potential future partnerships. The principal investigator provided letters of support from Bering Land Bridge National Preserve, the North Slope Economic Development Corporation, the Native Village of Shishmaref, the Wales IRA Council, and the Deering IRA Council.

TRC Score: 4
Project Number: 18-102
Project Title: Life History and Movement of an Important Subsistence Species, the Dolly Varden Char

Project Justification: This project proposes to continue research that was previously funded with the Monitoring Program in 2014 (14-103) to assess summer distributions and ecology of Dolly Varden fully addressing a priority information needs that were identified by the Council. Information of Dolly Varden life history in the Beaufort Sea still remains limited. Results from this project will identify age compositions, growth rate, fresh water and marine residency timing, and summer distribution of Dolly Varden sampled in the Ivishak river near Kaktovik. Assuming the same success rate of satellite tags transferring data from the previously funded project 14-103 of 70%, it is unknown if only tagging 15 fish that is proposed in this project would be enough and will provide detailed information to adequately describe the life history of Dolly Varden in such a short time frame (<45 days over one summer). The investigator did not make the connection as to how this newly acquired information would benefit fisheries managers in terms of management implications. The investigator also noted a consultation with the UFSWS Conservation Gene Lab, however did not identify which lab would proceed to work with the genetic lab samples or budget. Without identifying the lab, the budget justification is unclear and it is unclear if there would be enough funds to carry out this genetic work when the budget for this proposal is

near the cap for FRMP funding. The investigators have the experience needed to successfully conduct this ongoing project. The principle investigator has been experienced with a previously funded Monitoring Program and has provided timely and complete deliverables. This project presents an excellent opportunity to partner with the University of Alaska Fairbanks, United States Fish & Wildlife Service – Fairbanks Field Office, and the Canadian Department of Fisheries and Oceans.

TRC Score: 5
Project Number: 18-104
Project Title: Broad whitefish health of northern Alaska

Project Justification: The *Saprolegnia parasitica* occurrence has been a concern for both the local subsistence users, the Council and was identified as a 2016 Priority Information Need; however, not the 2018 Priority Information Need. The results of this project would describe the environmental factors of water temperature and water level that occur during the presence of the freshwater mold *Saprolegnia parasitica* on broad whitefish in the Colville River and Ikpikpuk River. By obtaining environmental data and specimens (mold and fish) from local, subsistence fishermen, this work will describe the presence of this mold but will not establish causation. The investigator wishes to investigate if water level has an effect on mold presence however makes no mention of how the water level will be assessed on these two rivers. The investigator mentions use of traditional ecological knowledge but the proposal lacks details describing how this information will be incorporated into the project methods and results. The results for this project would provide the foundation for further research but the methodologies would not establish causation and the management implications are unclear. The last objective is to analyze total metals, diesel range organics, residual range/heavy oil organics, and Nitrate/Nitrite. The Monitoring Program typically does not fund projects that include a) habitat protection, mitigation, restoration, and enhancement; b) hatchery propagation, restoration, enhancement, and supplementation; and c) contaminant assessment, evaluation, and monitoring. The rationale behind this approach is to ensure that existing responsibilities and effort by government agencies are not duplicated under the Monitoring Program; however, the Monitoring Program may fund research to determine how these activities affect subsistence fisheries or fishery resources. If this be the case, the principle investigator must show how this knowledge would contribute to Federal subsistence fisheries management. The project proposal lacks this connection to show how gaining knowledge of changing health of Broad Whitefish in the Colville and Ikpikpuk Rivers can aid fisheries managers in terms of a changing climate. It is recommended that the investigator further refines the traditional and ecological knowledge component of this proposal. The sampling frequency did not seem to adequately meet objective C in the proposal due to the rivers always changing dynamic with flowing water. It was unclear why 30 data loggers were deemed appropriate to answer the objectives. Sampling design needs refinement to better address the objectives. Alaska Department of Fish and Game have not identified *Saprolegnia parasitica* to be a concern for the abundance of fish populations in the Arctic. While the project is responsive to community concerns, the methodologies need to be further refined.

APPENDIX A

Table A.1. Monitoring Program projects funded in the Northern Region from 2000 to 2016.

Project Number	Project Title	Investigators (Lead listed first)
	North Slope	
00-002	Eastern NS Dolly Varden Spawning and Over-wintering Assessment	ADF&G, USFWS
01-113	Eastern NS Dolly Varden Genetic Stock ID Stock Assessment	ADF&G, USFWS
01-101	Eastern NS (Kaktovik) Subsistence Fish Harvest Assessment	AD&FG, KIC
02-050	NS (Anaktuvuk Pass) Subsistence Fish Harvest Assessment	ADF&G, NSB, AKP
03-012	SST of Arctic Cisco and Dolly Varden in Kaktovik Lagoons	USFWS
04-103	North Slope Dolly Varden Sonar Feasibility	USFWS
06-108	North Slope Dolly Varden Aerial Monitoring	ADF&G
07-105	North Slope Dolly Varden Genetic Baseline Completion	USFWS
07-107	Hulahula River Dolly Varden Sonar Enumeration	USFWS
12-155	Climate Change and Traditional Ecological Knowledge of Subsistence Whitefish and Cisco on the North Slope of Alaska	SWCA
14-103	Beaufort Sea Dolly Varden Dispersal Patterns	UAF
16-101	Arctic Dolly Varden Telemetry	USFWS
16-106	Aerial Monitoring of Dolly Varden Overwintering Abundance	ADF&G, USFWS
16-107	Chandler Lake Trout Abundance Estimation	ADF&G
16-152	Meade River Changes in Subsistence Fisheries	ADF&G
	Northwest Arctic	
00-001	Northwestern Dolly Varden and Arctic Char Stock Identification	ADF&G, USFWS
00-020	Hotham Inlet Kotzebue Winter Subsistence Sheefish Harvest	ADF&G
01-136	Northwestern Alaska Dolly Varden Genetic Diversity	ADF&G, USFWS
01-137	Northwestern Alaska Dolly Varden Spawning Stock Assessment	ADF&G
02-023	Qaluich Nigingnaqtuat: Fish That We Eat	AJ
02-040	Kotzebue Sound Whitefish Traditional Knowledge	ADF&G, MQ
03-016	Selawik River Harvest ID, Spring and Fall Subsistence Fisheries	USFWS
04-101	Selawik River Inconnu Spawning Abundance	USFWS
04-102	Selawik Refuge Whitefish Migration and Habitat Use	USFWS
04-109	Wulik River Dolly Varden Wintering Stocks	USFWS, ADF&G
04-157	Exploring Approaches to Sustainable Fisheries Harvest Assessment	ADF&G, MQ
07-151	Northwest Alaska Subsistence Fish Harvest Patterns and Trends	ADF&G, MQ

Continued on next page

Table A. 1. continued

Project Number	Project Title	Investigators (Lead listed first)
	Northwest Arctic (continued)	
08-103	Kobuk River Sheefish Spawning and Run Timing	ADF&G, USFWS
10-100	Selawik Drainage Sheefish Winter Movement Patterns	UAF, USGS, USFWS, NVK
10-104	Hotham Inlet Kotzebue Winter Subsistence Sheefish Harvest	USFWS
10-152	Climate Change and Subsistence Fisheries in Northwest Alaska	UAF
12-100	Selawik River Sheefish Spawning Abundance and Age Structure	USFWS
12-103	Kobuk River Sheefish Spawning Frequency, Location, and Run Timing	ADF&G, USFWS
12-104	Noatak River Dolly Varden Evaluation of Overwintering Populations	ADF&G, NPS
12-153	NW AK Key Subsistence Fisheries Harvest Monitoring Program	ADF&G, MQ
14-104	Selawik R Inconnu Spawning Population Abundance	USFWS
16-103	Kobuk River Dolly Varden Genetics	ADF&G, USFWS
16-104	Selawik Sheefish Age Structure and Spawning Population	USFWS
16-105	Kobuk River Sheefish Abundance	ADF&G
	Seward Peninsula	
01-224	Nome Sub-district Subsistence Salmon Survey	ADF&G, KI
02-020	Pikmiktalik River Salmon Site Surveys and Enumeration	USFWS, NPS, STB, KI
04-105	Pikmiktalik River Chum and Coho Salmon Enumeration	KI
04-151	Customary Trade of Fish in the Seward Peninsula Area	ADF&G, KI
05-101	Unalakleet River Coho Salmon Distribution and Abundance	ADF&G, NVU
06-101	Pikmiktalik River Chum and Coho Salmon Enumeration	KI
10-102	Unalakleet River Chinook Salmon Abundance Estimate	ADF&G, BLM, NSEDC
10-151	Local Ecological Knowledge of Non-Salmon Fish in the Bering Strait	KI
12-154	North Slope Salmon Fishery HM/TEK	ADF&G
14-101	Unalakleet River Chinook Salmon Abundance Estimate	ADF&G, BLM, NSEDC

Abbreviations used for investigators are: **ADF&G** = Alaska Department of Fish and Game, **AJ** = Anore Jones, **AKP** = City of Anaktuvuk Pass, **KI** = Kawarek Inc., **KIC** = Kaktovik Inupiat Corp., **MQ** = Maniilaq, **NSEDC** = Norton Sound Economic Development Corporation, **NVU** = Native Village of Unalakleet, **NSB** = North Slope Borough, **STB** = Stebbins IRA, **SWCA** = SWCA Environmental Consultants, **UAF** = University Alaska Fairbanks, **USFWS** = U.S. Fish and Wildlife Service, and **USGS** = U.S. Geological Survey.

APPENDIX B

The following Abstracts were written by the Principal 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 TRC.

Project Number: 18-103
Title: Unalakleet River Chinook salmon escapement assessment-continuation
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends
Principal Investigator: Jenefer Bell, Alaska Department of Fish and Game

Project Cost:	**2018:** $144,288	**2019:** $156,895	**2020:** $161,047	**2021:** 160,415

Total Cost: $622,645

The Unalakleet River supports the largest Chinook salmon subsistence fishery in Norton Sound and over the last 10 years decreasing run size has led to increasing subsistence fishery restrictions. The recent 5-year (2011–2015) average subsistence harvest of Chinook salmon in Subdistrict 6 was 657 fish, 78% below the long-term (1994–2006) average subsistence harvest estimate of 2,913 fish.

Prior to 2010, management of Unalakleet River Chinook salmon was dependent on an enumeration tower on the North River, a tributary of the Unalakleet River, and radiotelemetry studies. Inconsistent operation of the counting tower due to funding and high water events called into question the efficacy of the project to guide management decisions. In recognition of significant data gaps and the need to make informed fishery management decisions, the United States Fish and Wildlife Service Office of Subsistence Management (USFWS OSM) funded a four-year resistance board-floating weir project on the Unalakleet River beginning in 2010, to address 3 objectives:

1. Estimate daily and total Unalakleet River Chinook salmon escapement from mid-June to August 15 each year.
2. Describe the timing of Unalakleet River Chinook salmon run.
3. Estimate age, sex, and length (ASL) composition of the Unalakleet River Chinook salmon escapement to achieve 90% and 95% confidence intervals of age and sex composition, respectively.

A resistance board weir will be placed in the Unalakleet River in mid-June and operated until August 15 to enumerate the Chinook salmon run. Counting periods will occur during three 8-hour shifts, 24 hours a day and flood lamps will be used during low-light conditions. Counting schedules will be adjusted for changes in diurnal migratory patterns or operational constraints such as suboptimal viewing conditions caused by high water levels. Salmon migrating upstream will be identified by species and recorded on multiple tally counters for a minimum of an hour or until fish passage diminishes. Individual counts of salmon passage throughout the night and day will be added together for a total daily passage by species.

Active sampling will be used to collect ASL samples from Chinook salmon. To ensure adequate temporal distribution ASL samples will be collected following a daily collection schedule in proportion to the previous 5-year average cumulative weir escapement by date. Sampling distributions and schedules will be adjusted inseason to address differences between expected and observed run abundance and timing. As a continuing project, The Unalakleet River weir escapement estimates and ASL data are being used to manage Chinook salmon subsistence and sport fisheries in Norton Sound Subdistrict 6, develop outlooks of run abundance for subsequent years, evaluate brood year productivity, and examine effects of harvest practices on the spawning escapement. Further, concurrent operation of the weir and the enumeration tower on the North River, has led to 5 years of accurate drainage wide escapement, which will be used to build run reconstructions and develop recruit-per-spawner analyses such that a scientifically defensible escapement goal can be established.

Project Number: 18-100
Title: Seasonal habitats and migrations of Arctic grayling of the lower Colville River relative to the Nuiqsut Subsistence fishery area
Geographic Region: Northern Alaska Region
Data Type: Stock Status and Trends (SST)
Principal Investigator: Andrew D. Gryska**,** Alaska Department of Fish and Game, Division of Sport Fish.

	2018 (4/1/18-3/31/19)	**2019** (4/1/18-3/31/19)	**2020** (4/1/18-3/31/19)
Project Cost:	$179,083	$59,120	$8,300

Total Cost: $246,503

Issue Addressed: Arctic grayling *Thymallus arcticus* are an important component of subsistence fisheries of the Colville River drainage (Fall and Utermohle 1993; Holen et al. 2012). Unfortunately, very little is known about this stock, and although the river and drainage are large, the available winter habitat may be limited. During winter, river discharge reaches annual lows and some streambeds go dry while others freeze to the bottom. To avoid these areas, Arctic grayling migrate to winter habitats some of which may become isolated refugia from which fish cannot migrate and are vulnerable to declines in water quality and quantity. Identification of overwintering habitats and timing of migrations to and from all seasonal habitats is needed to avoid or greatly reduce impacts associated with development, alterations of the hydrologic regime (e.g. droughts) due to climate change and narrowly directed fisheries at vulnerable times and places. This project directly addresses the FRMP priority information need for baseline information including abundance, distribution, movement, and health of Arctic Grayling in the Lower Colville River and its tributaries in the context of climate change.

Objective: The objective of this project is to use radiotelemetry to describe the seasonal movements and locations of mature Arctic grayling that inhabit the lower Colville River drainage between the Killik River and the village of Nuiqsut from August 2018 through December 2019.

Methods: Radio tags will be distributed throughout the study area systematically, and will be surgically implanted in 150 mature fish. The systematic distribution of the tags throughout the drainage will serve to maximize identification of seasonal habitats and migratory behavior for the majority of the population

from August 2018 through December 2019. Nearly all sample reaches are extremely remote. The lower 160 km (100 miles) of the Colville River near Nuiqsut will be accessed via small powerboats, while a small helicopter will be used to access small rivers and streams near Umiat. All Arctic grayling will be captured by hook and line or beach seines. Locations of radio tagged Arctic grayling will be determined using periodic flights during a 16-month period in a fixed wing aircraft. Seasonal locations and migratory periods will be described and depicted on detailed maps using ArcMap software.

Partnerships and Capacity Building: Local knowledge and involvement of residents of Nuiqsut and of the RAC is essential for the project's success. A local hire and/or contracted services of a local powerboat operator will be solicited. An ANSEP intern to hire a university student as an intern to work with this project. The BLM has offered logistical support in Umiat for this project. In addition, biologists at the North Slope Borough Department of Wildlife Management in Barrow will be invited to accompany the investigators during the experiment to become familiar with Colville River Arctic grayling ecology, radiotelemetry, and gain experience in conducting tracking surveys. Fishers from Nuiqsut will be approached to participate in fish collection and tagging whenever possible.

Project Number: 18-101
Title: Genetic diversity of Dolly Varden populations in Kobuk River
Geographic Region: Northern Alaska Region
Data Type: Stock Status and Trends (SST)
Principal Investigator: James Savereide, Alaska Department of Fish and Game, Division of Sport Fish and Penelope Crane, U. S. Fish and Wildlife Service, Conservation Genetics Laboratory

	2018 (4/1/18-3/31/19)	**2019** (4/1/18-3/31/19)
Project Cost:	$34,400	$21,400

Total Cost: $55,800

Issues Addressed: The Dolly Varden charr *Salvelinus malma* population that overwinters in the Wulik River is the most important subsistence fish resource for the residents of Kivalina, Alaska and one of the largest and most important overwintering sites for Dolly Varden in northwestern Alaska. Fish natal to the Noatak, Kivalina, Wulik, Kobuk, Buckland, Omikviorok, Rabbit, and Pilgrim rivers in Alaska, as well as the Anadyr and Amguema rivers in Russia have all used the Wulik River as an overwintering site. This project directly addresses two priority information needs in the Northern Alaska Region: 1) genetic diversity of Dolly Varden stocks harvested for subsistence use; and, 2) dispersal, distribution, abundance, and life history of Dolly Varden. We will improve the method developed by the co-investigator and the Conservation Genetics Laboratory (CGL) that identifies the origin of Dolly Varden harvested in the Wulik River subsistence fishery and our understanding of Dolly Varden life history in northwestern Alaska. Adding three of the four known Dolly Varden spawning stocks in the Kobuk River, the Hunt, Salmon, and Tutuksuk River stocks, to the established baseline will advance the mixed-stock analysis of this important subsistence fishery and allow managers to assess the impacts of harvest on Dolly Varden stocks represented in this overwintering aggregation.

Objectives: The objective of this project will be to:

1. Collect and genetically analyze juvenile Dolly Varden fin clips taken from three known spawning streams in the Kobuk River drainage, to add to the Northwest Alaska genetic baseline for mixed-stock subsistence harvest analysis.

Methods: Two crews with two biologists will sample each river in July 2018 and if water conditions or catch rates impede our ability to collect necessary sample sizes, we will continue sampling in July, 2019. The Salmon, Tutuksuk, and Hunt rivers will be sampled for a minimum of three days using minnow traps baited with cured salmon roe. Fin clips will be sent to the U. S. Fish and Wildlife (USFWS) Conservation Genetics Laboratory (CGL) in Anchorage for analysis and archival.

Partnerships and Capacity Development: An ANSEP internship, up to four weeks in duration in August 2018–2019, will be available in the CGL. The principal investigator will work closely with local communities to learn about the rivers to be sampled and gain any insight from their knowledge of fish in those areas. Knowledge gained from local fishermen before and during study 16-103 will be applied while sampling in 2018–2019.

Project Number: 18-151
Title: Addressing priority knowledge needs for subsistence stocks of Dolly Varden (Aqalukpik) along the southern Chukchi Sea coastline
Geographic Region(s): Northern Region
Data Type: Stock status and trends (SST), and traditional ecological knowledge (TEK)
Principal Investigators: Dr. Trevor Haynes, Wildlife Conservation Society, Arctic Beringia Program
Co-Investigator: Mr. Alex Whiting, Native Village of Kotzebue

Project Cost:	**2018:** $214,850	**2019:** $214,909	**2020:** $214,469

Total Cost: $644,228

Issue: Our project will address three Priority Information Needs identified by the 2018 Fisheries Resource Monitoring Program through information gathered in Regional Advisory Committee Meetings. Those needs are: characterizing the genetic diversity of Dolly Varden harvested for subsistence in Northwest Alaska, synthesizing TEK on these fish harvested in subsistence fisheries, and gathering information on dispersal, distribution, abundance and life history of Dolly Varden.

Objectives:

1. Document TEK of Dolly Varden life histories across Northwestern Alaska through interviews or focus groups in Alaska Native Villages;
2. Conduct a field campaign that incorporates TEK knowledge into the study design, and collect Dolly Varden otoliths, genetic samples, tissue and diet samples for analysis;
3. Conduct laboratory analysis of samples from 200 individual Dolly Varden collected through field research and subsistence harvest;

4. Create a comprehensive picture of the life history strategies of Dolly Varden by coordinating our sampling, lab analysis, and TEK surveys;
5. Relate life history patterns to subsistence harvest and stock management needs.

Methods: Our project design reflects the co-production of knowledge through integration of input from experts about both scientific and the Traditional Knowledge (Objective 1) of Dolly Varden. These experts will design a sampling strategy for the four primary study areas (Kivalina, Noatak, and Kobuk rivers, and coastal lagoons neighboring these rivers). Tissue from samples taken at these locations (Objective 2) will be analyzed in laboratories for genetic, body condition, age, microchemistry, and diet data (Objective 3). The data requirements will be tuned to inform both the key questions forwarded by the RAC as impetus for this project, and to inform other relevant questions that arise during the assessment of TEK of Dolly Varden in the study area. Finally, through the sharing of information among all project partners (Objective 4), outreach materials and management recommendations will be produced (Objective 5).

Partnerships/Capacity Building: We partner with local fishermen/managers in each community to answer questions about Dolly Varden, building on their capacity to help manage their own subsistence needs. As Co-PI, Alex Whiting will coordinate all activities involving the Native Village of Kotzebue, a fundamental partner in collecting harvest samples and linking the project partners with members of the community. Similarly, we work with Kyle Sage from the Native Village of Kivalina, a prominent subsistence fisherman who WCS is currently funding through a National Science Foundation grant. He is instrumental in conducting TEK interviews, collecting harvest samples, and again performing community outreach. We maintain strong relationships with tribal governments and regional organizations that are interested in this work, and defer to their decisions about research conducted in their communities, including the Northwest Arctic Borough and Maniilaq, Inc.

Project Number: 18-150
Title: Bering Land Bridge National Preserve: Combining Traditional Ecological Knowledge and Scientific Surveys for a Contemporary Baseline
Geographic Region: Bering Land Bridge National Preserve, National Park Service
Data Type: Traditional Ecological Knowledge, Stock Status and Trends, and Harvest Monitoring
Principal Investigator: Dr. Carol Ann Woody, National Park Service, Subsistence Fisheries Division
Co-Investigator(s): Sarah Apsens M.S., Alaska SeaGrant Program Fellow.

Project Cost:	**2018:** $91,369	**2019:** $147,880	**2020:** $118,370	**2021:** $63,703

Total Cost: $421,322

Issue: Fish are a traditional and culturally important food source for Seward Peninsula residents and comprise a significant portion of subsistence harvests. For example, during 2009-2010 Shishmaref residents harvested an estimated 93,971 lbs. of non-salmon fish from waters in or near the Bering Land Bridge National Preserve (Raymond-Yakoubian 2013). Despite the importance of fish to area cultures and food security, basic information on subsistence fish including precise ID, essential habitat locations and

characteristics (e.g., spawning, rearing & feeding), basic population characteristics (anadromous? freshwater? age and size at first reproduction?) are lacking for fishes of the Bering Land Bridge National Preserve. The Federal Office of Subsistence Management listed the following priority information need, identified by the Seward Peninsula Subsistence Regional Advisory Council during the Nome Nov. 2016 meeting: "*An inventory and survey of fish species in the Bering Land Bridge National Preserve, utilizing traditional ecological knowledge from the communities of Shishmaref, Deering and Wales.* "

Objectives: Our overarching goal is to build on existing cultural knowledge by enhancing it with scientific surveys to create the first comprehensive freshwater fisheries baseline inventory for the Bering Land Bridge National Preserve. Working collaboratively with subsistence fishing experts from Deering, Shishmaref, and Wales during 2018-2020 we will:

1. Map (GIS) important subsistence fishing areas in & near the Preserve (2018-2019),
2. Map (GIS) known or documented essential fish habitats (spawning, rearing, feeding) TEK in and near the Preserve (2018-2020),
3. ID species and sample (age, length, sex, condition) subsistence harvests (2018-2019)
4. Compile and share important ecological knowledge on subsistence species (2018-2020)
5. Design & implement targeted systematic scientific fisheries survey focused on key subsistence tributary systems (2019).
6. Conduct a probabilistic scientific survey of tributaries and lakes in and near the Preserve to provide a better understanding of less accessible fish assemblages(2020)
7. Document essential fish habitat characteristics including: depth, flow, substrate, pH, O_2, conductivity, temperature.
8. Collaborate with villages to establish a long-term temperature and water quality monitoring program in important subsistence waters.

Methods: Tribal Councils in Deering, Shishmaref and Wales will identify and establish contact with recognized fishing experts in each village that are willing to work with us on this project. Semi-directed group and mapping interviews with fishing experts (Miraglia 1998) will be conducted with experienced anthropologists to share and gather fish ecology information (e.g. precise species ID, essential habitat locations, run time info. Etc.). The first trip will be planned to coincide with opportunities to sample key subsistence harvests. We will work to identify and train intern(s) in each village to: sample subsistence harvests, sample basic water quality, record results. This internship will be ongoing through the project. Remote temperature monitoring equipment will be installed in tributaries near each village to facilitate data extraction. Remote thermal monitoring sites will be selected based on ability to access sites to download data in the future.

Systematic fisheries surveys will be conducted in tributary systems identified by village fishing experts as important subsistence fishing habitats; fish and aquatic habitat sampling will follow USEPA (2013).

Probabilistic fisheries surveys will be based on GRTS see: https://science.nature.nps.gov/im/datamgmt/statistics/r/advanced/grts.cfm) to provide resource managers an overall fish assemblage and habitat baseline for tributaries and lakes in the Preserve. Standard electrofishing and trapping methods will be

used (USEPA 2013). Standard EPA protocols will be used to measure water quality and habitat parameters; this work will be helicopter supported.

Project Number: 18-102
Title: Life history and movement of an important subsistence species, the Dolly Varden char
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends
Principal Investigator: Andrew C Seitz, University of Alaska Fairbanks
Co-Investigator: Randy Brown, U.S. Fish and Wildlife Service

Project Cost:	**2018:** $214,963	**2019:** $98,616

Total Cost: $313,579

Issue: To understand potential impacts of climate change and human activities on Dolly Varden, as well as to design potential management strategies in response to these stressors, it is imperative to have a sound understanding of their biology and ecology. Findings from recent research on Dolly Varden demonstrate variability in behavior between years and are challenging many long-standing assumptions, indicating the need to examine several basic aspects of the biology, ecology and behavior of Dolly Varden. Without this information, it is impossible to design well-informed management approaches that maximize fishing opportunity while minimizing the risk of overexploitation of this species, should the need arise in the future.

Objectives:

1. By capturing Dolly Varden near Kaktovik and attaching Pop-up Satellite Archival Tags to them, we will continue to collect information about the oceanic phase of Dolly Varden that summer in the Beaufort Sea, including:
    a. Movement and distribution
    b. Depth and temperature occupancy
2. Using genetic molecular techniques, we will describe the origin of Dolly Varden harvested in the Kaktovik subsistence fishery, including those from the Ivishak River.
3. Using sagittal otoliths collected from Dolly Varden in the Ivishak River, we will describe and reexamine life history information, including:
    a. Age and age-at-length
    b. Age at first seaward migration
    c. Frequency of seaward migration

Methods: Ultimately, the long term goal of our research is to understand the variability in biology, ecology and behavior of Dolly Varden that spawn in rivers of the North Slope to provide a landscape-wide understanding of this species on the North Slope. To accomplish this in a financially feasible manner, we propose an incremental approach in which we conduct a series of modest

research projects whose results can be combined in the future to achieve our long term goal. This OSM proposal represents the first modest research project, and we propose to:

1. Continue to examine the migration and behavior of Dolly Varden in the ocean to provide information that can be used to understand potential impacts of human activities, as well as provide information about the potential implications of changing ocean conditions on this species;
2. Describe the stock origin of Dolly Varden captured in a mixed-stock subsistence fishery near Kaktovik, which ultimately can be used to understand and potentially predict the variability in several aspects of catches; and 3. Collect basic life history information about Dolly Varden from the Ivishak River, which can be used to understand several aspects of the biology and ecology of this species in that drainage, particularly its population dynamics.

Partnerships/Capacity Building: The proposed project seeks to increase the collective knowledge about Dolly Varden on the North Slope of Alaska. While doing this, we will develop partnerships with residents of Kaktovik, AK to aid in the collection of tissue samples. Additionally, we will conduct public outreach through presentations and informal conversations to foster mutual exchange of knowledge about this species. With an increase in collective knowledge, residents, scientists and managers will be empowered to make more informed decisions regarding management of Dolly Varden, should an active management program need to be implemented in the future.

Project Number: 18-104
Title: Baseline Information on Broad Whitefish (*Coregonus nasus*) Health in Northern Alaska
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends/TEK
Principal Investigator: Todd Sformo, PhD, North Slope Borough-Department of Wildlife Management

Project Cost:	**2018:** $54,100	**2019:** $41,925	**2020:** $41,925

Total Cost: $137,950

Broad whitefish (*Coregonus nasus*) is an invaluable subsistence resource on the North Slope of Alaska in general and on the Colville and Ikpikpuk River drainages in particular. Generations of Native subsistence fishing have taken place and continue to be activity pursued in this area for this species of fish. It is not only important nutritionally but it also functions as a driving force in the perpetuation of Inupiaq culture. I propose to establish baseline parameters of health of this fish by enlisting the assistance of subsistence fishermen through monitoring their catch and subsampling specimens. Monitoring and subsampling will produce 1) a field health assessment index based on a modified method of Goede (Goede and Barton 1990; Adams et al. 1993) that utilizes both organismic and hematological indices and 2) a enlist a professional fish pathologist, when necessary, to conduct histopathology on a subset of fish. The field health assessment index is a quantitative assessment that produces a fish health condition profile by population and will create a baseline health assessment that can be utilized statistically (Adams et al.

1993). In addition, baseline environmental parameters will be establishment by monitoring temperature salinity at individual subsistence nets and analyzing water quality once a month (especially May – January) and at key locations of potential broad whitefish spawning. Since a known emerging disease on broad whitefish in this area recently began in 2013, I will also use collected water samples to confirm presence of the freshwater mold *Saprolegnia* sp. over time. The specific project activities will examine broad whitefish from subsistence-caught specimens within the Colville and Ikpikpuk River drainages to establish baseline information on healthy vs. diseased fish and establish baseline environmental conditions where these fish are caught, including temperature, salinity, and water quality analyses. Anticipated outputs and outcomes will be establishing a Health Assessment Index (HAI) and publishing the results regarding the health and disease of broad whitefish from this area that will also include baseline environmental details.

Goals: Establish baseline information on broad whitefish health and environmental conditions through a comparison of subsistence-caught specimens, temperature recordings, and water quality within the Colville and Ikpikpuk river drainages.

Objectives:

1. Record catch (species, mass, fork length, other TEK) from subsistence-caught specimens
2. Create Goede organismic and hematological indices through gross measurement and necropsies
3. Deploy data loggers to subsistence fishermen to attach to nets to record water temperature and salinity and water level
4. Deploy loggers in waters where potential broad whitefish spawn independent of subsistence fishing

Collect and create a regular water sampling regime for not only water quality parameters but also for the seasonal occurrence and distribution of *Saprolegnia* sp.

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

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

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

FOREST SERVICE

OSM 17054.EP

AUG 1 4 2017

Gordon Brower, Chair
North Slope Subsistence
Regional Advisory Council
c/o Office of Subsistence Management
1101 East Tudor Road, MS 121
Anchorage, Alaska 99503-6119

Dear Chairman Brower:

This letter responds to the North Slope 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. Food Security, Preventing Deflection of Caribou and User Conflicts.

The Council addressed pressing concerns in its previous annual report to the Board regarding food security for communities in the North Slope Region, user conflicts, and potential impacts from the deflection of caribou from traditional hunting areas by sport hunters. The Council appreciates the Board's reply but feels perhaps the gravity of the issue was underestimated. The Council would like to further address this issue with regards to the decline of the Western Arctic and Teshekpuk Caribou Herds. Subsistence is not only a food security issue but also the core of the social fabric of communities in the region. Food security is truly a matter of people going hungry. Council members heard that children in Anaktuvuk Pass came to school hungry because they had no access to caribou. Communities have been extremely stressed throughout the region where the caribou herd did not come through; struggling to feed their families, provide for their elders, and teach the younger generation the awareness and skills to hunt in a positive way. Sharing among communities has become strained as well. This fall the caribou finally came through Anaktuvuk Pass and were harvested there for the first time in a long while. When the caribou come, the traditional loving lifestyle of the culture starts to come back and people feel happy. The subsistence way of life, eating traditional foods, and providing for family

and community promotes goodwill and a sense of well-being. The social fabric of communities comes alive again. The Council feels the issue of food security and subsistence priority in areas where there are user conflicts needs to be taken more seriously. The Council has heard from residents of Unit 23 that the closure to non-Federally qualified users made a positive change to their hunting experience in their traditional hunting areas and is looking into similar options to help support the people of Anaktuvuk Pass to meet their subsistence needs. The Council recognizes the challenge of managing hunting activities to avoid deflection of the herd, but feels that it is a central issue in supporting a meaningful subsistence opportunity and priority. Because caribou are managed across State and Federal lands, it will be challenging to find a unified way forward. The Council feels research that illuminates how disturbance by hunters may deflect the caribou herds and why the migration has shifted away from Anaktuvuk Pass would be of great assistance for informed management for the resource. The Council would like to see further efforts for this type of research to be conducted by the Federal land management agencies and is hopeful for collaboration with State biologists as well.

Given that caribou is the primary subsistence food that feeds the people of Anaktuvuk Pass, it is imperative to ensure the subsistence priority is met. The Council seeks avenues through the Federal Subsistence Management Program to ensure that Federal subsistence priority for caribou is met, which includes ensuring that activities on non-Federal public lands do not deflect caribou from their migratory path through Anaktuvuk Pass. This is a very real matter of food security and the Council seeks the assistance of the Federal Subsistence Management Program to generate solutions to alleviate the situation. The Council will appreciate the support of Federal Subsistence Management Program staff in exploring possible pathways through both the Federal and State processes in the upcoming regulatory cycle.

Response:

The Board is pleased to hear that recent shifts in caribou migration patterns have improved access to this resource for some communities and we are dedicated to supporting efforts that help rural residents meet their subsistence needs. Previous testimony, particularly from residents of Noatak and Anaktuvuk Pass, have attested that shifts in caribou numbers and migration present severe food security concerns for rural residents. We recognize these concerns in light of ongoing declines in the Western Arctic, Teshekpuk, and Central Arctic caribou herds. Caribou migration patterns may shift in response to a number of variables, particularly when populations are substantially reduced. The Board is carefully monitoring the state of caribou populations on the North Slope and efforts by both the Federal Subsistence Management Program and the Alaska Board of Game to address conservation and subsistence issues pertaining to these herds. Because of jurisdictional boundaries across the range of these herds, we recognize the importance of working with Federal land management agencies and the State of Alaska, whenever possible, to address long-term management strategies. For this reason, the Board directed the Office of Subsistence Management to establish an interagency group to discuss these issues, particularly for the Western Arctic Caribou Herd.

The first meeting of the interagency working group took place in April of 2017. The meeting provided a forum for State and Federal agency personnel to come to the table to discuss their observations and concerns, and to offer suggestions for moving forward on these issues. The Board acknowledges that both herd declines and user conflicts are central to this issue and that both must be addressed in our efforts to effectively manage caribou populations. We recognize a long-history of concerns about user conflict and herd deflection in the vicinity of the Noatak, Squirrel, Agashashok, and Eli Rivers in Unit 23, as well as along the Dalton Highway corridor in Unit 26B. We furthermore recognize that subsistence activities provide more to rural residents than food alone. Title VIII of ANILCA affirms the sociocultural aspect of subsistence activities by stating explicitly states that subsistence opportunity "...is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence."

The Board will continue to encourage our member agencies, the State of Alaska, academic institutions, and private organizations to undertake collaborative caribou research in the Arctic that would enhance our understanding of populations, migration patterns, and disturbance behavior. A recent study in the journal *Movement Ecology* titled "Effects of environmental features and sport hunting on caribou migration in northwestern Alaska" suggested that caribou migration through the Noatak River drainage is unlikely to be inhibited by sport hunting activity. However, the study was of limited scope and did not address variables such as the hunting of lead caribou, flying at low altitudes in proximity of the herd, and migration patterns through smaller drainages and mountain corridors. We hope that this research will be expanded in the future to begin addressing some of these outstanding questions.

Disturbance of caribou during migration is an issue the Board has heard about from Federally qualified subsistence users for many years. The Board supports recent efforts by the Councils to submit proposals to both the Board and the Alaska Board of Game. Restricting or limiting the use of aircraft, closing certain areas to caribou hunting, and restricting the take of cows during critical caribou migration periods are just a few issues that have been addressed in recent years. We are committed to remaining diligent and responsive in our management actions that affect the well-being of Federally qualified subsistence users and the animal populations they depend on.

2. Increased shipping traffic in the Chukchi Sea and potential impacts to subsistence.

Council member Steve Oomituk of Point Hope relayed concerns about the opening of the Northwest Passage and the potential impacts to subsistence from increased shipping traffic by coastal communities. The Council realizes the marine waters are beyond the jurisdiction of the Federal Subsistence Board, but seeks awareness about the interaction of all subsistence activities and the relationship between marine subsistence foods and those managed on Federal lands and waters. The Council also seeks the assistance of the Federal Subsistence Board in relaying these issues of concern to the relevant Federal agencies.

For coastal communities, the ocean is their garden. Subsistence foods of all kinds are provided to us with the ocean currents. When caribou are in low numbers or do not come through, then the ocean provides; the fish, the seal, walrus, whales, and the polar bear. Point Hope is located in an area where the currents come through and has provided for the community for thousands of years. It is the oldest continuously inhabited village in North America. The ocean is vital to us. It is our food supply and our identity as a people. It is a short migration time when the leads are open in the summer and all the animals migrate north to their feeding and calving grounds. The animals and our subsistence way of life are tied to both the land and the ocean. Point Hope and other communities have been experiencing increasing ship traffic and are very concerned about impacts to the ocean environment, the marine animals, and our subsistence way of life. The Council would like assistance relaying these concerns to the appropriate agencies and support in seeking avenues for protections from shipping pollutants being dumped at sea or near coastal communities and the emergency response systems in place to respond in the event of an accident or major spill.

Response:

The Federal Subsistence Board recognizes the importance of the Chukchi Sea to Federal subsistence harvesters and the possible impact that increased ship traffic could have on subsistence resources. The Chukchi Sea is a productive ocean ecosystem that provides habitat for a multitude of important fish and wildlife species. A surge in shipping traffic may increase the possibility of a vessel incident that could be harmful to those resources. As stated by the Council, the Federal Subsistence Board has limited jurisdiction or authority over Federal undertakings that occur outside of the Federal Subsistence Management Program. However, if there is a specific concern from the Council, the Board will consider the concern and if appropriate support the Council in conveying that concern to the appropriate Federal or State management agency. The Aleutian Bering Sea Landscape Conservation Cooperative has done some excellent modeling and assessment of marine traffic and the possible implications to the Aleutian Islands. This information may be of interest to the Council to evaluate and consider relative to future studies for the Chukchi Sea.[1]

3. Council membership and engagement with communities in the North Slope region.

The Council has been struggling to recruit new members to fill several vacant seats as well as to ensure that the Council has a membership representing each of the eight communities in the North Slope Region. Currently the Council is missing representation from the North Slope communities of Wainwright and Point Lay and was only recently able to fill vacant seats for members from Nuiqsut, Atkasuk and Anaktuvuk Pass. Application to serve on the Council from these communities was a direct result of having the opportunity to hold a meeting in Nuiqsut and Anaktuvuk Pass and the connections that were generated as a result.

Those two meetings were the first and only time that the North Slope Council has met in the region outside of Barrow. These meetings were very well attended, including youth, elders,

[1] Information can be found online at https://absilcc.org/SitePages/Home.aspx.

tribal members, and subsistence hunters who were all able to participate fully in ways that are not possible via teleconference. This was the first opportunity for these communities to learn about the Federal Subsistence Management Program and the Council directly. This was also the first opportunity for the Council to meet and interact directly with communities other than Barrow in order to learn more about their subsistence way of life and work to address their concerns.

The Council feels it is imperative to hold Council meetings in communities outside of Barrow in order to build understanding and relationships throughout the region and not only serve Barrow as the hub community. The Council greatly appreciates that the Office of Subsistence Management supported holding the meeting in Nuiqsut in fall of 2014 and Anaktuvuk Pass in fall of 2015. The Council was greatly encouraged by the high level of local participation at these meetings. Council and community members alike expressed just how much they learned from each other and the opportunity to participate directly in the subsistence management process.

Regional Advisory Council members are appointed to represent the whole region, not just the communities where they live or where meetings occur. The Council understands that budget restrictions play a role in meeting outside of a hub community but would like to stress that the Council and the Federal Subsistence Management Program is more effective in meeting its responsibilities to rural residents when they meet in rural communities throughout the region. The fact that the Council had never had an opportunity to meet outside of Barrow in its entire history until 2014 played a big role in the difficulty of engaging and recruiting new membership. If communities never meet with the Council or have a chance to learn firsthand what the Federal Subsistence Management Program does, then there is no incentive to participate. The Council would like consideration of this history to be evaluated along with cost in determining approval for meetings outside of Barrow.

The Council requests to meet in Wainwright for its fall 2017 meeting in order to make a connection directly with this community to encourage application to serve on the Council and more importantly, to address the community's subsistence concerns in light of the current decline of the Western Arctic Caribou Herd. The fall 2017 meeting in Wainwright would be timely given that the Council will be addressing wildlife proposals concerning caribou management and the community would have an opportunity to provide input directly on subsistence issues that are central to their way of life, social fabric, and food security.

Response:

The Board shares the Council's concern regarding decreased number of applications, and this is a problem not unique to the North Slope Region. Over the last decade, applications from all of the Councils above the Yukon River have been in decline. There have been some increases here and there in some regions, and that has been as a result of very aggressive, targeted outreach by the Council Coordinators for those regions. In recent years, your Council Coordinator has been very successful with her outreach efforts to get new applicants from several villages. While having meetings in new locations certainly may help, her efforts cannot be discounted.

Chairman Brower 6

The Board is pleased that the Council found its meetings in Nuiqsut and Anaktuvuk Pass to be productive. Everyone can agree that meetings in rural communities have considerable potential to benefit both the public and the Council. In recent years, it has been the practice of the Office of Subsistence Management to authorize meetings in non-hub communities approximately every two years, so long as the Council could provide a justification for meeting in that particular location and the costs were not too prohibitive. Several Councils have enjoyed the opportunity to meet outside of their hub communities, and the benefits of those meetings have been shown. However, in the face of anticipated steepening budget cuts, it may likely be the case that meetings in non-hub communities will be authorized under increasingly rare circumstances.

It is also worth noting that there is another factor which determines the Council's membership. Even when the Federal Subsistence Board receives applications from some of the target communities the Council mentioned, and recommends those individuals for appointment to the Secretary of the Interior, it is the Secretary who has final appointment authority. In some instances, applicants deemed highly-qualified by the Board for service on the North Slope Subsistence Regional Advisory Council were rejected by the Secretary, and for reasons unknown. And unfortunately, excellent outreach efforts and meetings in rural communities cannot ultimately control the membership on the Council.

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 North Slope Region are well represented through your work.

Sincerely,

Anthony Christianson
Chair

cc: Federal Subsistence Board
North Slope 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
Eva Patton, Subsistence Council Coordinator, Office of Subsistence Management
Jill Klein, Special Assistant to the Commissioner, Alaska Department of Fish & Game
Interagency Staff Committee
Administrative Record

Arctic Landscape Conservation Cooperative

Fall 2017 Newsletter

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LCC Future Scenarios

As you know, the President's 2018 budget request for the Department of the Interior (DOI) proposed reductions to the 2018 budget for the U.S. Fish and Wildlife Service (USFWS), relying primarily on eliminating funding for staff and science support for the Science Applications program, which includes the 22 Landscape Conservation Cooperatives (LCCs). On the other hand, the U.S. House of Representatives drafted an Interior Appropriations bill that provides continued funding for "cooperative landscape conservation" and "science support" at approximately FY2017 levels. The new Assistant Director for Science Applications, Dr. Benjamin Tuggle, is committed to ensuring that if the LCCs are funded, that they meet the needs of the Department of the Interior and USFWS under the current administration. Thus, we are working to develop operational scenarios that vary from closure to a variety of reduced, re-programed or non-DOI lead partnerships. Regardless of the outcome, the USFWS remains committed to working collaboratively with all partners. We welcome your thoughts and ideas on what is important to your work and agency and how we might work together to maintain momentum.

We see a great opportunity to assist in landscape analyses that help federal agencies, the State of Alaska, and North Slope governments, communities and industries with responsible resource development and evaluating the impacts and benefits of a warming Arctic on both natural resources and infrastructure.

Evaluating the Effects of Climate and Development on Arctic Ecosystems

The North Slope of Alaska is one of the areas receiving increased attention by the Department of Interior for expanded resource development. Specifically, areas inside the northeastern section of the National Petroleum Reserve –Alaska (NPRA) are projected to contain large deposits of economically recoverable resources. This area is also critical calving and insect-relief habitat for the Teshekpuk caribou herd as well as important molting grounds for Pacific Blank Brant and other geese. The Arctic LCC is well situated to contribute unique analyses and visualizations that may help inform oil and gas development scenarios around and inside the Teshekpuk Lake Special Area that protects critical habitat as well as infrastructure investment. These data include high-resolution landform, lake and landcover mapping, downscaled-climate information, susceptibility to changes in thermokarst, and nesting shorebird phenology.

Based on initial manager input and a survey of available data, we propose to synthesize information from the North Slope Science Initiative's Development Scenarios and NPRA 2013 Integrated Activity Plan coupled with new LCC and other science products to investigate cumulative impacts of climate change and development. Paul Leonard, Arctic LCC Science Coordinator, will lead the spatial analyses. We are in the process of reaching out to technical experts to bring together data and hope to schedule a working group session in late August or early September. Please contact us if you would like to be engaged or have ideas to share.

Data Management

USFWS leadership has made data curation, archiving, and management a top priority for LCCs and the region leading into the end of the fiscal year. The Arctic LCC is working to finish documenting and uploading information from over 60 projects sponsored since its inception in 2010, including properly cataloged metadata. The Arctic LCC data manager, Josh Bradley, is leading a national effort to develop tools and software for data management and sharing, and has been working closely with all LCCs to ensure methods and protocols become standardized.

All projects and product data funded by the 22 LCCs will be included in the new LCC Network Science Catalog. The Science catalog will be hosted on ScienceBase, a cataloging and collaborative data management platform managed by the U.S. Geological Survey. Where appropriate, data products will also be listed on data.gov in compliance with federal requirements. Information in the Science Catalog will be available for download and query on lccnetwork.org.

New Products from LCC Funded Research

Millions of shorebirds migrate thousands of miles to spend the summer in the Arctic. There they feed in some of the most productive and pristine coastal wetlands and estuaries on Earth. With so much food available, they choose the Arctic for nesting and raising their young, a process repeated every year. The Arctic LCC partnership is interested in understanding how climate change might affect shorebird populations, and has supported research into how the timing of insects they eat may be changing as spring arrives earlier.

Towards filling this information need, we received two final reports from Rebecca Shaftel (UAA) and Dan Rinella (FWS) on their collaborative project with the Shorebird Demographic Network. In *Climate Effects on Arctic Food Resources: Predictive Models for Surface-Available Invertebrate Biomass*, the researchers describe the diversity and mean annual modeled biomass of invertebrates that shorebirds consume across 9 sites from Nome, Alaska (USA) to East Bay, Nunavut (Canada). Warmer temperatures had a positive effect on this food resource availability, with earlier spring warming resulting in earlier insect abundance. Increased wind had a negative effect on invertebrate availability. In a follow-up report, *Climate Effects on Arctic Food Resources: Retrospective Analysis of Rate of Advancement of Invertebrate Phenology*, they used the same models to look back ~60 years to understand how invertebrate food sources for shorebirds have changed across 6 of the shorebird monitoring sites. Changes in hind-casted invertebrate abundance were greatest at the northernmost camps and were on the order of 1 to 3 days earlier per decade.

Upcoming Steering Committee and Partners Meeting

Steering Committee meetings can resume after September 1st! We will be sending out a poll to find a good date to meet in late September with partners interested in joining in the conversation about the future of the LCCs and hopefully how the partnership will proceed in the future. In the meantime, feel free to contact us directly with ideas or updates.

Arctic Landscape Conservation Cooperative

Informing Responsible Resource Development

Reducing Risk - Permafrost Mapping

Permafrost is found across the Arctic. Thawing permafrost under warmer conditions will cause subsidence, surface water redistribution, changes to groundwater and vegetation and habitat use changes. Knowing the depth and ice content of permafrost is critical for both understanding how Arctic ecosystems will be affected by climate change and also how infrastructure will be damaged. Arctic LCC-supported research produced a detailed map of permafrost characteristics to inform regional planning as well as climate and development impact assessments. More

As permafrost thaws, the ground under a home in Shishmaref, Alaska collapses from erosion.

Forecasting Changes to Wildlife, Habitat, and Infrastructure

Construction of ice roads in crucial for Alaskan North Slope operators to gain access for exploration in an economic and environmentally sound manner.
Photo: DOE

Smart investments depend on understanding what's ahead. The Arctic LCC initiated the Terrestrial Environmental Observation Network (TEON) to meet the need for a sustainable environmental observing network for northern Alaska. TEON is designed to follow water from the northernmost mountains to the sea. By monitoring snowmelt, streamflow and temperatures and using these data forecast changes in river flow and permafrost stability, we support management of fish and wildlife and inform infrastructure management and design in northern Alaska. More

Allowing Exploration, Avoiding Den Disturbance

The Arctic LCC partnership, including the Alaska Department of Fish and Game and industry, developed a desktop application that helps biologists map polar bear denning habitat on the Arctic coast. The app quickly identifies areas likely to have polar bear dens to help guide winter exploration and development activities. More

ArcticLCC.org

Arctic Landscape Conservation Cooperative

Yukon North Slope Management Plan

Where do plans come from?

Natural resource managers and native communities have expressed a need for effectively synthesizing traditional knowledge and western science data. Often wildlife management plans are based on remotely sensed data and data collected by wildlife biologists. These data may not reflect the variables that are important to the local users, including the scale of information, names describing places or habitats, or how seasonality affects the wildlife available for harvest.

Inuvialuit Settlement Region

Local knowedge to drive regional management

The Inuvialuit residing on the North Slope of the Yukon Territory have long used their lands and waters for hunting, trapping, and fishing. Their Wildlife Advisory Council, a co-management body, comprised of federal, territorial, and Inuvialuit representatives, is working closely with researchers from the Round River Organization to develop a management plan that reflects how the Inuvialuit use Arctic resources and their understanding of seasonal habitat use by fish and wildlife. This process for integrating Traditional and Western science in the Inuvialuit Settlement Area will provide an important example for how other scienctists and managers can work with native communities to fulfill the need for wildlife and management plans in other places.

'Participants emphasized that caribou winter habitat selection focuses on areas where the wind will blow snow off of vegetation, making foraging easier, and that they will be found on different aspects based on wind direction.'

Interviews, workshops and reporting back

Researchers reviewed existing local knowledge publications and recorded information from local workshops and interviews to develop detailed maps and descriptions habitat for caribou, moose, grizzly and polar bears, Dolly Varden Char, Broad Whitefish, geese, muskox and Dall's sheep. Changes in distribution patterns and impacts from climate change have also been observed, especially for caribou. These changes include different migration routes and timing of migration. A report describing the knowledge gathered was submitted to the communities for review and use in the next phase of developing the management plan. The Inuvialuit Traditional Knowledge of Wildlife Habitat on the Yukon North Slope final report can be viewed at ArcticLCC.org.

A management plan for the people, by the people

Documenting local knowledge of wildlife habitat and distribution promises to be useful and effective in managing wildlife by local users. This baseline wildlife assessment will inform multiple products including habitat models and connectivity mapping based on traditional knowledge and Western science data.

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*	*Feb. 8*	*Feb. 9*	*Feb. 10*
Feb. 11	*Feb. 12*	*Feb. 13*	*Feb. 14*	*Feb. 15*	*Feb. 16*	*Feb. 17*
Feb. 18	*Feb. 19* ***PRESIDENT'S DAY*** ***HOLIDAY***	*Feb. 20*	*Feb. 21*	*Feb. 22*	*Feb. 23*	*Feb. 24*
Feb. 25	*Feb. 26*	*Feb. 27*	*Feb. 28*	*Mar. 1*	*Mar. 2*	*Mar. 3*
Mar. 4	*Mar. 5*	*Mar. 6*	*Mar. 7*	*Mar. 8*	*Mar. 9*	*Mar. 10*
Mar. 11	*Mar. 12*	*Mar. 13*	*Mar. 14*	*Mar. 15*	*Mar. 16* *Window Closes*	*Mar. 17*

EI — Fairbanks

SE — Wrangell

NS — Utqiaġvik

KA — Kodiak

WI — Anchorage

BB — Naknek (1st opt.)

NWA — Kotzebue

SC — Anchorage

SP — Nome

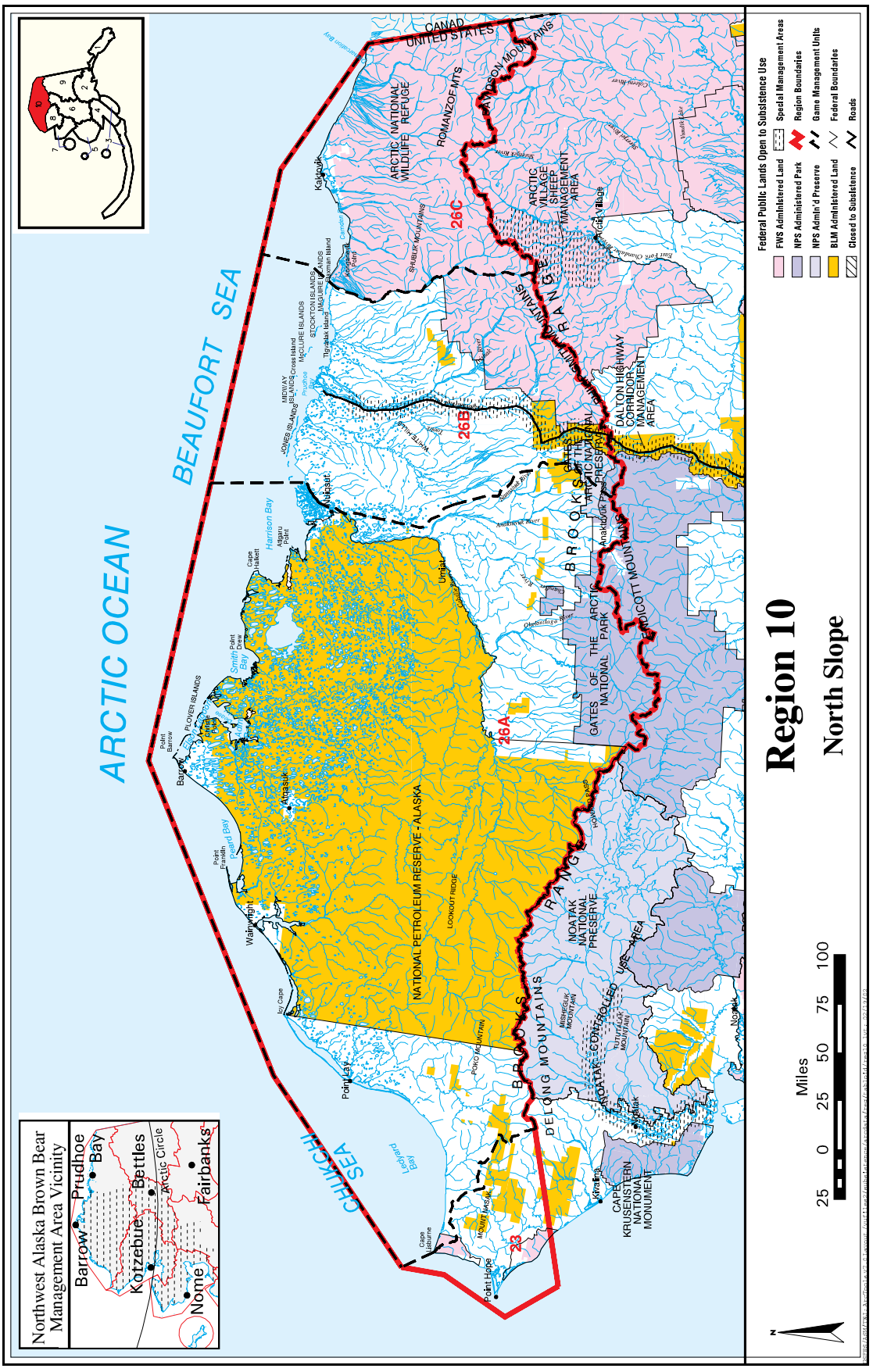
YKD — Bethel

BB — Naknek (2nd opt.)

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 10
North Slope
ARCTIC OCEAN
BEAUFORT SEA
CHUKCHI SEA
CANADA
UNITED STATES
Barrow
Atqasuk
Wainwright
Point Lay
Point Hope
Kivalina
Kotzebue
Nome
Prudhoe Bay
Bettles
Arctic Circle
Fairbanks
Northwest Alaska Brown Bear Management Area Vicinity
ARCTIC NATIONAL WILDLIFE REFUGE
ROMANZOF MTS
BROOKS RANGE
DELONG MOUNTAINS
NATIONAL PETROLEUM RESERVE - ALASKA
NOATAK NATIONAL PRESERVE
GATES OF THE ARCTIC NATIONAL PARK
ARCTIC NATIONAL WILD AND SCENIC RIVERS
ARCTIC VILLAGE SHEEP MANAGEMENT AREA
DALTON HIGHWAY CORRIDOR MANAGEMENT AREA
CAPE KRUSENSTERN NATIONAL MONUMENT
26A
26B
26C
23
Miles
25 0 25 50 75 100
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

Department of the Interior
U. S. Fish and Wildlife Service

North Slope Subsistence Regional Advisory Council

Charter

1. **Committee's Official Designation.** The Council's official designation is the North Slope Subsistence Regional Advisory (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 one member to the Gates of the Arctic National Park Subsistence Resource Commission 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 $120,000, including all direct and indirect expenses and 0.9 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 advisory committee's and subcommittees' meetings,
- Prepare and approve all meeting agendas,
- Attend all committee 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 or other subgroups 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.

Sally Jewell

Secretary of the Interior

NOV 2 0 2015

Date Signed

DEC 0 3 2015

Date Filed

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